Hazy IV

a brief introduction to Cloudy 90

Output, Lines, and Routines

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```
**********************************96Jun 5***********************************
*                                                                            *
* title "New" Paris meeting Planetary nebula                                 *
* c recompute "standard" PN model of the Pequignot Meudon Conferance         *
* sphere                                                                     *
* black body, T=150,000K radius = 10                                         *
* hden = 3.4771213                                                           *
* radius = 17                                                                *
* abund -1 C-3.523 N-4. O-3.222 ne-3.824 na=-10 mg-4.523 al=-10              *
* continue si-4.523 s-4.824 ar-10 ca=-10 fe-10 ni=-10                        *
* plot continuum range .1                                                    *
* c parispn.in                                                               *
* c Sun IPC                                                                  *
*                                                                            *
******************************************************************************
```


CLOUDY is an evolving code. Updates are made on a roughly quarterly basis, while major revisions occur roughly every three years. You should confirm that you have the most recent version of the code by checking the web site http://www.pa.uky.edu/~gary/cloudy or asking to be placed on the CLOUDY mailing list.

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CLOUDY 90

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1. OUTPUT

1.1. Overview

This section defines the output produced by CLOUDY. Each section begins with a sample of the output described, and then goes on to describe the meaning of the printout in greater detail. The output actually shown is from the Meudon (Pequignot 1986) and Lexington (Ferland et al 1995) meetings Planetary Nebula test case.

1.2. Header Information

Several lines of output echo the input commands and outline some properties of the initial continuum.

1.2.1. Initial Information

```
                                     Cloudy 90.00

     *************************************96Apr01*************************************
     *                                                                                *
     * title "New" Paris meeting Planetary nebula                                     *
     * c recompute "standard" PN model of the Pequignot Meudon Conferance             *
     * init file='c84.ini'                                                            *
     * elements read                                                                  *
     * sphere                                                                         *
     * black body, T=150,000K radius = 10                                             *
     * hden = 3.4771213                                                               *
     * radius = 17                                                                    *
     * abund -1 C-3.523 N-4. O-3.222 ne-3.824 na=-10 mg-4.523 al=-10                  *
     * continue si-4.523 s-4.824 ar-10 ca=-10 fe-10 ni=-10                            *
     * plot continuum range .1                                                        *
     * punch overview last 70                                                         *
     * c parispn.in                                                                   *
     * c Sun                                                                          *
     *                                                                                *
     **********************************************************************************


                                         Chemical Composition
 H :1.00E+00  He:1.00E-01  Li:2.04E-09  Be:2.60E-11  B :7.60E-10  C :3.00E-04  N :1.00E-04  O :6.00E-04  F :3.02E-08
 Ne:1.50E-04  Na:1.00E-10  Mg:3.00E-05  Al:1.00E-10  Si:3.00E-05  P :3.73E-07  S :1.50E-05  Cl:1.88E-07  Ar:1.00E-10
 K :1.35E-07  Ca:1.00E-10  Sc:1.22E-09  Ti:8.60E-08  V :1.05E-08  Cr:4.84E-07  Mn:3.42E-07  Fe:1.00E-10  Co:2.24E-09
                                        Ni:1.00E-10  Cu:1.87E-08  Zn:4.52E-08
```

This begins with the version number of CLOUDY. Major revisions, which have noticeable effects on the emission-line spectrum or which reflect significant improvements in the physics, are denoted by integer increases in the version number, while minor changes increment the revision number by 0.01. In a static version of the code, small changes (usually minor bug fixes) are denoted by letters (i.e., .02a). The following line gives the date this version was created.

All of the input command lines, with the exception of those starting with a #, %, or *, are echoed before the calculation begins, and are saved to be reprinted after the calculation is completed.

The input information is followed by the chemical composition of the gas. The numbers are the number densities of the elements, relative to a hydrogen abundance of unity. Only the active elements are included (those turned off with the **`elements off`** command are not printed).

1.2.2. Properties of the Continuum

```
 1568Cell Peak3.83E+00   Lo 1.00E-05=0.9108cm   Hi-Con:7.63E+01 Ryd   E(hi):7.35E+06Ryd     E(hi):     100.01 MeV
  L(nu>1ryd):  37.5396   Average nu:2.935E+00   L( X-ray):  31.4007   L(BalC):  36.1444     Q(Balmer C):  46.9767
  Q(1.0-1.8):  47.1613   Q(1.8-4.0):  47.4535   Q(4.0-20):  47.0522   Q(20--):  40.7275     Ion pht flx:4.312E+12
  L(gam ray):   0.0000   Q(gam ray):   0.0000   L(Infred):  34.4845   Alf(ox):   0.0000     Total lumin:  37.5571
  log L/Lsun:   3.9743   Abs bol mg:  -5.1858   Abs V mag:   2.4170   Bol cor:  -7.6028     nuFnu(Bbet):  34.5868
  U(1.0----):4.794E-02   U(4.0----):9.977E-03   T(En-Den):3.354E+01   T(Comp):1.436E+05     nuJnu(912A):2.908E+01
  Occ(FarIR):2.354E-10   Occ(H n=6):8.468E-14   Occ(1Ryd):1.342E-15   Occ(4R):3.707E-17     Occ (Nu-hi):0.000E+00
  Tbr(FarIR):3.757E-10   Tbr(H n=6):3.703E-10   Tbr(1Ryd):2.120E-10   Tbr(4R):2.351E-11     Tbr (Nu-hi):0.000E+00
```

This section gives a synopsis of the incident continuum, evaluated at the illuminated face of the cloud. The first line gives the number of numerical frequency cells in the continuum, followed by the energy (in Ryd) of the hydrogen-ionizing continuum[1] with the largest flux density per unit energy interval (f_ν). Next are the energies of the low and high energy limit of the continuum, both in Ryd and cm or MeV. The last two numbers are the energies of the high energy limit of the present version of the code, in Ryd and keV.

The second line gives the log of the energy (erg s^{-1} cm^{-2} or erg s^{-1}, depending on whether a flux or luminosity was specified) in the hydrogen ionizing continuum (1 Ryd ≤ hν < 100 MeV), and the average energy of the hydrogen ionizing continuum, in Ryd, weighted by photon number;

$$\langle h\nu \rangle = \frac{\int_{1\ Ryd}^{\infty} 4\pi\ J_\nu\ d\nu}{\int_{1\ Ryd}^{\infty} 4\pi\ J_\nu / h\nu\ d\nu} \quad . \tag{400}$$

The log of the energy in the X-ray continuum (20.6 Ryd ≤ hν ≤ 7676 Ryd), the log of the energy (erg s^{-1} cm^{-2} or erg s^{-1}), and the number of photons (cm^{-2} s^{-1} or s^{-1}) in the Balmer continuum (0.25 Ryd to 1.0 Ryd) is then printed.

The third line gives the log of the number of photons (cm^{-2} s^{-1} or s^{-1}) in four frequency bins (1.0 Ryd ≤ hν < 1.807 Ryd, 1.807 Ryd ≤ hν < 4.0 Ryd, 4.0 Ryd ≤ hν < 20.6 Ryd, and 20.6 Ryd ≤ hν < 7676 Ryd). The last number "Ion pht flx" is the flux of hydrogen ionizing photons;

$$\Phi(H) = \frac{Q(H)}{4\pi\ r^2} \quad \mathrm{cm}^{-2}\ \mathrm{s}^{-1} \quad . \tag{401}$$

In this equation Q(H) is the total number of hydrogen-ionizing photons emitted by the central object (s^{-1}), and r is the separation between the center of the central object and the illuminated face of the cloud. Unlike the majority of the quantities printed in the header, Φ(H) (per unit area) is always printed, never Q(H) (into 4 π sr).

The fourth line of the header gives some information about the low and high energy portions of the incident continuum. The first number is the log of the luminosity in the gamma-ray (100 keV ~ to ~ 100 MeV) continuum. The second number on the line is the log of the number of photons over this energy range. The third number is the log of the luminosity in the continuum between 0.25 Ryd and the lowest energy considered, presently an energy of 1.001×10^{-5} Ryd. All of these entries are either per unit area, or radiated into 4π sr, depending on how the continuum was specified.

The next entry, "Alf(ox)", is the spectral index α_{ox}, defined as in Zamorani et al. (1981), except for the difference in sign convention. This is the spectral index which would describe the continuum between 2 keV (147 Ryd) and 2500Å (0.3645 Ryd) if the continuum could be described as a single power-law, that is,

[1] The printed number was incorrect in versions 80through 88.01, but had no other effects on computed results.

$$\frac{f_n(2\text{ keV})}{f_n(2500\text{ Å})} = \left(\frac{n_{2\text{ keV}}}{n_{2500\text{ Å}}} \right)^a = 403.3^a \quad . \tag{402}$$

The definition of α_{ox} used here is slightly different from that of Zamorani et al. since implicit negative signs are *never* used by CLOUDY. Typical AGN have $\alpha_{ox} \sim -1.4$. If no X-rays are present then $\alpha_{ox} = 0$.

The last number on the line is the log of the total energy in the continuum between 1.001×10^{-5} Ryd and 100 MeV. It is given as either erg cm^{-2} s^{-1} or erg s^{-1}, depending on how the continuum was defined. If the continuum is specified per unit area, then this number is 4π times the integrated intensity of the incident continuum. If it is specified as the total luminosity radiated into 4π sr, then the quantity is the luminosity.

The next line is optional, depending on whether the continuum is specified as the total luminosity or photon number radiated into 4π sr, or as an incident surface flux. If the continuum is specified in absolute terms, i.e., the luminosity or photon number radiated into 4π sr, then this optional line is generated. The first quantity is the log of the total luminosity in the continuum, in solar units. The absolute bolometric magnitude, absolute V magnitude, and the bolometric correction, are then given, followed by the log of the continuum specific luminosity (νF_ν) at Hβ (the units of νF_ν (Hβ) are erg s^{-1}).

The next line begins with two ionization parameters. The first is the dimensionless ratio of ionizing photon to hydrogen densities, defined as

$$U \equiv \frac{\Phi(H)}{n_H c} \tag{403}$$

where n_H is the total hydrogen density. The second number is defined in a similar way, but the numerator is the number of photons with energies greater than 4 Ryd (i.e., helium-ionizing). The third number is the equivalent black body temperature corresponding to the energy density u at the illuminated face of the cloud, from the incident continuum and Stefan's radiation density constant a; $T_u \equiv \left(L / 4p\, r^2 ac \right)^{1/4}$, and the next quantity is the Compton temperature of the incident radiation field[2]. The last number on the line is $4\pi\ \nu J_\nu$(912 Å), the flux at 912Å (erg cm^{-2} s^{-1}). In this equation J_ν is the mean intensity of the incident continuum as defined by Mihalas (1978).

The next two lines give some of the incident continuum photon occupation numbers $\eta(\nu)$, defined as

[2]For a blackbody radiation field $T_{Compton}$ is roughly 4% lower than the blackbody color temperature T_{color} when the energy density temperature T_u is « T_{color}. Only when $T_u \equiv T_{color}$ does induced Compton heating cause $T_{Compton} \equiv T_{color}$. If $T_u > T_{color}$ then $T_{Compton} > T_{color}$ because of induced Compton heating. All of the relevant physics is included in the Compton temperature printed here.

$$h(n) \equiv J_n(n)\left(\frac{2hn^3}{c^2}\right)^{-1} \quad , \tag{404}$$

and the incident continuum brightness temperature $T_b(\nu)$, (K), defined as

$$T_b(n) \equiv J_n(n)\left(\frac{2kn^2}{c^2}\right)^{-1} \quad , \tag{405}$$

for five energies. These energies correspond to the lowest frequency considered (presently an energy of 1.001×10^{-5} Ryd); the ionization potential of the n=6 level of hydrogen (1/36 Ryd); an energy of one Rydberg; four Rydbergs, and the high energy limit of the incident continuum (this depends on the continuum shape; the energy is given by the fifth number on the first line of the continuum output).

1.3. Zone Results

```
####  1  Te:1.877E+04 Hden:3.000E+03 Ne:3.612E+03 R:1.001E+17 R-R0:1.251E+14 dR:2.502E+14 NTR:  2 Htot:7.223E-17 T912: 9.990E+07##
 Hydrogen    2.117E-04 9.998E-01 H+o/Hden: 1.000E+00 7.161E-12 H-     H2 4.586E-19 4.263E-13 H2+  HeH+ 1.980E-14 H col den 7.505E+17
 H 2SP 3-6   2.034E-11 1.923E-17 5.607E-18 8.113E-18 1.204E-17 1.715E-17 Texc(La); 3.800E+03 T(contn): 3.348E+01 T(diffs): 4.329E+00
 Helium      6.480E-07 6.538E-03 9.935E-01 He I 2S3  1.113E-08 Comp H, C 6.680E-23 8.732E-24 Fill Fact 1.000E+00 Gam 1/tot 9.651E-01
 He singlet  6.368E-07 1.483E-13 4.152E-21 6.702E-21 1.141E-20 1.767E-20 He triplt 1.113E-08 2.297E-18 1.920E-20 5.899E-20 1.365E-20
 HeII        6.538E-03 8.905E-12 2.598E-18 3.851E-18 6.052E-18 9.068E-18 1.843E-17 2.477E-17 3.015E-17 PRAD/GAS; 1.384E-02
 Pressure    NgasTgas; 1.298E+08 P(total): 1.817E-08 P( gas ): 1.792E-08 P(Radtn): 2.480E-10 Rad accel 5.561E-06 Force Mul 1.720E+03
 Lithium     1.458E-05 2.598E-02 5.548E-01 4.192E-01 Beryllium 3.617E-06 8.883E-03 9.512E-01 3.987E-02 1.817E-05
 Boron       3.651E-08 2.990E-04 4.829E-02 9.513E-01 6.680E-05 0.000E+00
 Carbon      8.791E-10 9.441E-06 3.465E-03 7.871E-02 9.178E-01 0.000E+00 0.000E+00 H2O+/Otot 0.000E+00 OH+/Ototl 0.000E+00
 Nitrogen    3.321E-10 5.934E-06 5.302E-03 1.590E-01 4.493E-01 3.864E-01 0.000E+00 0.000E+00 O2/Ototl: 0.000E+00 O2+/Otot: 0.000E+00
 Oxygen      1.292E-10 2.793E-06 3.943E-03 1.959E-01 6.207E-01 1.732E-01 6.220E-03 0.000E+00 0.000E+00 Hex(tot): 0.000E+00 A:-12.580
 Fluorine    0.000E+00 1.161E-06 3.523E-03 1.387E-01 7.343E-01 1.233E-01 1.532E-04 0.000E+00 0.000E+00 0.000E+00
 Neon        0.000E+00 1.880E-06 4.552E-03 1.833E-01 7.138E-01 9.818E-02 1.582E-04 0.000E+00 0.000E+00 0.000E+00 0.000E+00
 Sodium      0.000E+00 9.429E-06 6.092E-03 2.091E-01 5.649E-01 2.170E-01 2.914E-03 1.103E-06 0.000E+00 0.000E+00 0.000E+00 0.000E+00
 Magnesium 0 3.071E-08 1.107E-05 1.429E-02 2.867E-01 4.640E-01 2.331E-01 1.892E-03 0.000E+00 0.000E+00 0.000E+00 0.000E+00 0.000E+00
 Aluminium 0 4.196E-07 1.751E-04 2.929E-03 4.417E-01 4.339E-01 1.202E-01 1.063E-03 0.000E+00 0.000E+00 0.000E+00 0.000E+00 0.000E+00
 Silicon   0 3.897E-08 7.822E-05 5.003E-03 4.523E-02 8.506E-01 9.869E-02 4.456E-04 0.000E+00 0.000E+00 0.000E+00 0.000E+00 0.000E+00
 Phosphors 0 2.860E-09 1.391E-05 2.403E-03 5.739E-02 2.383E-01 7.003E-01 1.570E-03 0.000E+00 0.000E+00 0.000E+00 0.000E+00 0.000E+00
 Sulphur   0 1.579E-10 2.734E-06 8.478E-04 2.012E-02 1.396E-01 4.764E-01 3.630E-01 5.985E-06 0.000E+00 0.000E+00 0.000E+00 0.000E+00
 Chlorine  0 1.150E-10 2.004E-06 4.807E-04 1.203E-02 8.264E-02 5.192E-01 3.535E-01 3.216E-02 0.000E+00 0.000E+00 0.000E+00 0.000E+00
 Argon     0 0.000E+00 8.222E-08 1.560E-04 3.905E-03 2.841E-02 3.441E-01 5.810E-01 4.203E-02 4.291E-04 0.000E+00 0.000E+00 0.000E+00
 Potassium 0 0.000E+00 7.488E-08 2.094E-04 5.439E-03 4.070E-02 3.727E-01 4.913E-01 8.887E-02 7.459E-04 0.000E+00 0.000E+00 0.000E+00
 Calcium   0 0.000E+00 7.726E-08 2.146E-04 8.651E-03 3.813E-02 3.786E-01 4.789E-01 9.362E-02 1.864E-03 0.000E+00 0.000E+00 0.000E+00
 Scandium  0 4.538E-10 2.288E-07 1.997E-04 2.205E-02 1.020E-01 4.865E-01 3.674E-01 2.163E-02 1.787E-04 0.000E+00 0.000E+00 0.000E+00
 Titanium  0 0.000E+00 2.834E-08 3.943E-05 6.968E-03 1.732E-01 5.239E-01 2.769E-01 1.888E-02 9.026E-05 0.000E+00 0.000E+00 0.000E+00
 Vanadium  0 0.000E+00 1.782E-09 4.294E-06 9.849E-04 3.606E-02 7.237E-01 2.292E-01 1.004E-02 4.626E-05 0.000E+00 0.000E+00 0.000E+00
 Chromium  0 0.000E+00 2.975E-10 7.639E-07 2.002E-04 9.541E-03 2.923E-01 6.817E-01 1.620E-02 4.507E-05 0.000E+00 0.000E+00 0.000E+00
 Manganes  0 0.000E+00 2.018E-10 3.969E-07 1.074E-04 5.537E-03 2.073E-01 6.636E-01 1.233E-01 1.921E-04 0.000E+00 0.000E+00 0.000E+00
 Iron      0 0.000E+00 4.846E-10 1.340E-07 4.709E-05 2.649E-03 1.167E-01 6.324E-01 2.416E-01 6.693E-03 0.000E+00 0.000E+00 0.000E+00
 Cobalt    0 0.000E+00 0.000E+00 1.246E-08 4.157E-06 3.247E-04 4.726E-02 5.588E-01 3.825E-01 1.111E-02 7.686E-06 0.000E+00 0.000E+00
 Nickel    0 0.000E+00 0.000E+00 1.191E-08 3.872E-06 2.691E-04 5.398E-02 5.317E-01 3.988E-01 1.528E-02 1.410E-05 0.000E+00 0.000E+00
 Copper    0 0.000E+00 0.000E+00 9.451E-09 2.963E-06 2.062E-04 3.519E-02 5.963E-01 3.541E-01 1.420E-02 1.296E-05 0.000E+00 0.000E+00
 Zinc      0 0.000E+00 0.000E+00 1.369E-08 3.726E-06 2.355E-04 3.976E-02 5.138E-01 4.362E-01 9.973E-03 1.011E-05 0.000E+00 0.000E+00
```

The results of calculations for the first and last zones are always printed. Results for intermediate zones can be printed if desired (see the **`print every`** command). The following is a line-by-line description of the output produced for each printed zone.

1.3.1. Line 1

The line begins with a series of # characters, to make it easy to locate with an editor. The zone number is the first number, followed by the electron temperature of the zone ("Te"). A lower case u will appear before the "Te" if the temperature solution is possibly thermally unstable (i.e., the derivative of the net cooling with respect to temperature is negative. See the section in Part III on thermal stability problems). The total hydrogen ("Hden") and electron ("Ne") densities (cm^{-3}) follow. The next number ("R") is the distance to the center of the zone, from the center of the central object. The depth, the distance between the illuminated face of the cloud and the center of the zone, ("R-R0", or $r-r_o$), and the thickness of the zone ("dR", or δr), (all are in cm), follow. The inner edge of the zone is $(r-r_o) - \delta r/2$ from the illuminated face of the cloud. The line ends with a number indicating how many

ionization iterations were needed for this zone to converge (NTR), followed by the total heating[3] ("Htot"; photoelectric and otherwise, erg cm^{-3} s^{-1}), and the optical depth between the *illuminated* face of the cloud and the *outer* edge of the zone at the Lyman limit (T912; the number is the *total absorption* optical depth at 912Å, and *not* the hydrogen Lyman limit optical depth).

1.3.2. [Optional] wind parameters

A line describing the velocity and acceleration of the zone is printed if the **`wind`** option is used. The numbers are the wind velocity at the outer edge of the current zone (km s^{-1}), inward gravitational acceleration (cm s^{-2}), total outward radiative acceleration, and the fraction of this acceleration caused by the incident continuum, line driving, and the gradient of the radiation pressure.

1.3.3. [Optional] radiation pressure

If the ratio of line radiation to gas pressure, P(radiation)/P(gas), is greater than 5%, then a line describing the source of the radiation pressure is generated. The line begins with the label **`P(Lines)`** and continues with the fraction of the total radiation pressure produced that an emission line, the spectroscopic designation of the line, followed by its wavelength in Ångstroms. Up to twenty lines can be printed, although in most cases only Lyα and a few others dominate.

1.3.4. Line 1 - Hydrogen I

The line begins with the abundance of neutral and ionized hydrogen relative to all atomic-ionic hydrogen (i.e., the ratios $H^o/(H^o+H^+)$ and $H^+/(H^o+H^+)$ where H^o is the population in all bound levels of hydrogen. If **`print departure coefficients`** has been specified then departure coefficients are also printed on the following line. Neutral hydrogen H^o is defined to be the total population of atomic hydrogen in all explicitly computed bound levels. Next comes H+o/Hden, the ratio of the density of hydrogen in atomic or ionic form (this is indicated by the label "H+o") to the total hydrogen density in all forms (including molecular).

The following five numbers are abundances of the negative hydrogen ion and several molecules (H^-, H_2, H_2^+, and HeH^+) relative to the total hydrogen abundance. The total hydrogen density is usually referred to by the label ***hden***, and is the sum $H^o + H^+ + H^- + 2H_2 + 2H_2^+ + 3H_3^+$. Note that, with this definition of the hydrogen density a fully molecular gas will have $n(H_2)/n(H)=0.5$. These molecular abundances are also expressed as departure coefficients if this option is set with the **`print departure coefficients`** command. The last number on the line is the total hydrogen column density (cm^{-2}).

1.3.5. Line 2 - Hydrogen II

The first two numbers are the populations of the H^o 2s and 2p levels relative to the ionized hydrogen density. The next four numbers are populations of levels 3 to 6, again relative to the ionized hydrogen density. All of these populations usually

[3] CLOUDY defines heating as the energy input by the freed photoelectron, or hν - IP, where IP is the ionization potential of the atom or ion, and hν is the energy of the photon. See Osterbrock (1988) for more details.

are relative to the ionized hydrogen density, but can also be printed as LTE departure coefficients if the **`print departure coefficients`** command is given. The excitation temperature T_{exc} of Lyα, defined as

$$\frac{n(2p)/g(2p)}{n(1s)/g(1s)} = \exp(-hn/kT_{exc}) \qquad (406)$$

is given. This is followed by the temperature corresponding to the energy density of the attenuated incident continuum ("T(contn)"), and the diffuse continua ("T(diffs)"). This includes all trapped lines and diffuse continuous emission.

1.3.6. Line 3 - Helium

The first three numbers are the total populations of the three ionization stages of helium, relative to the total helium abundance. The population of atomic helium is the sum of the total population in the triplets and singlets, including the population of all explicitly computed levels of each. These populations can also be expressed as departure coefficients if this option is set with the **`print departure coefficients`** command. The population of He^o 2^3S, relative to the total helium abundance, follows. The Compton heating and cooling rates (both erg cm^{-3} s^{-1}) are next, followed by the gas filling factor. The last number is the fraction of the total hydrogen ionizations which are caused by photoionization from the ground state.

1.3.7. Line 4 - Atomic Helium

The first group are the level populations of the populations of the n=1 to 6 levels of the He^o singlets. Level two is actually resolved into 2s and 2p, but the total population of 2 is printed. The next group consists of populations of the 2s, 2p, and n=3s,p,d levels of the He^o triplets. Both sets of populations are relative to the total helium abundance. Departure coefficients are also printed if requested.

1.3.8. Line 5 - Ionized Helium

The populations of the 2s, 2p, and n=3 to 6 levels are indicated. There are relative to He^{++} ; departure coefficients are also printed if requested. The ratio of radiation pressure to gas pressure follows.

1.3.9. Optional Grains

If grains are present, then lines giving some properties of the grain populations are printed. Each line gives the results of calculations for a specific type of grain. Normally, a type of graphite and silicate are included when grains are present. There will be one line of output for each grain species. Each line begins with the name of the grain, and an asterisk appears if the species is quantum heated. The remainder of the lines gives the equilibrium temperature of the grain, the potential in volts, the charge, the drift velocity, followed by the gas heating (erg cm^{-3} s^{-1}) due to grain photoionization, and the dimensionless fraction of the total gas heating due to grain photoionization. For quantum heated grains the temperature is the average weighted by T^4.

1.3.10. Pressure

Some information concerning the pressure is printed. The gas equation of state includes thermal gas pressure, the radiation pressure due to trapped line emission, and the radiation pressure due to absorption of the incident continuum. The first number is the gas pressure $n_{gas}\ T_{gas}$ (with units cm^{-3} K), followed by the total pressure (dynes cm^{-2}), and followed by the gas pressure ($n_{gas}\ kT_{gas}$) in dynes cm^{-2}. The radiation pressure follows. The second to last number is the radiative acceleration (cm s^{-2}) at the inner edge of this zone. The radiative acceleration is computed with all continuous scattering and absorption opacities included. The last number is a force multiplier, defined as in Tarter and McKee (1973), and is the ratio of total opacity to electron scattering opacity.

1.3.11. Molecules

A line giving relative abundances of some molecules is printed if there is a significant molecular fraction. All molecular abundances are relative to either the total carbon or total oxygen abundance (this is indicated in the label for each). In order, the molecules are CH, CH^+, CO, CO^+, H_2O, and OH.

1.3.12. Li, Be, B

Abundances of each stage of ionization relative to the total gas phase abundance of the element are printed across two lines.

1.3.13. Carbon

The abundances of the seven stages of ionization of carbon relative to the total carbon abundance begin the line. The relative abundance of H_2O^+ and OH^+ (relative to the total oxygen abundance) follows.

1.3.14. Nitrogen

The relative populations of the eight ionization stages of nitrogen are printed first. The relative abundance of O_2 and O_2^+ (relative to the total oxygen abundance) follows.

1.3.15. Oxygen

The oxygen ionization stages are followed by the extra heat added at this zone (erg $cm^{-3}\ s^{-1}$); due to cosmic rays, turbulence, etc, and the log of the effective hydrogen recombination coefficient ($cm^3\ s^{-1}$).

1.3.16. Fluorine, Neon

The fluorine and neon relative ionization balances are printed across the line.

1.3.17. Remaining Elements

There are too many ionization stages to print across the line. Although all stages with non-trivial abundances are computed, only the highest twelve stages of ionization are printed. The first number is an integer indicating how many stages are "off the page to the left". If the number is 2, then the first printed stage of ionization is twice ionized, i.e., Fe^{+2}.

1.4. Calculation Stopped Because ...

```
 Calculation stopped because lowest Te reached.    Iteration  1 of  1
 The geometry is spherical.
!Non-collisional excitation of [OIII] 4363 reached  2.08% of the total.
!AGE: Cloud age was not set.  I cannot check whether the time-steady assumption is ok.
 Derivative of net cooling negative and so possibly thermally unstable in   4 zones.
 Photoionization of He 2TriS reached  17.1% of the total rate out, 10.6% of that was Lya.
 Grains were not present but might survive in this environment (energy density temperature was 3.35E+01K)
 The ratio of radiation to gas pressure reached  1.65E+01.  Caused by Lyman alpha.
 Line radiation pressure capped by thermalization length.
```

A series of messages appear after the printout of the last zone.

The first will say why the calculation stopped. In a valid calculation the model will stop because one of the specified stopping criteria specified was met. If no other criteria are specified, then the calculation usually stops when the default lowest temperature of 4000 K is reached. If the code stops because of an unintended reason (i.e., internal errors, or the default limit to the number of zones) then a warning is printed saying that the calculation may have halted prematurely.

Only one stopping criterion message will be printed. The possible messages, and their interpretations, are:

1.4.1. ... because of radiation pressure

The default density law is for a constant density. If constant pressure is specified instead (with the **`constant pressure`** command), then CLOUDY will try to keep the total pressure, particle and radiation, constant. The radiation pressure is small at the boundaries of the cloud, so the cloud will be unstable if the ratio of radiation to total pressure exceeds 0.5. The calculation stops, and this message is generated, if this occurs after the first iteration.

1.4.2. ... because lowest EDEN reached.

The calculation can be forced to stop when the electron density (**eden**) falls below a certain value, as set by the **`stop eden`** command. This can be used to stop the calculation at an ionization front. The default lowest electron density is negative, so this stopping criterion applies only when the command is entered.

1.4.3. ... because low electron fraction.

The calculation can be forced to stop when the ratio of electron to hydrogen densities falls below a certain value, as set by the **`stop efrac`** command. This can be used to stop the calculation at an ionization front when the hydrogen density there is not known (for instance, in a constant pressure model). The default lowest electron density is negative, so this stopping criterion applies only when the command is entered.

1.4.4. ... because wind veloc too small

The code can perform a wind calculation which includes the outward force due to radiation pressure and the inward force of gravity. The solution is only valid well above the sonic point. This message is printed if the gas is decelerated to below the sonic point.

1.4.5. ... because code returned BUSTED

The calculation stopped because something bad happened. The results are suspect. I would appreciate learning about this - please send the input script and version number.

1.4.6. ... because DRAD small - set DRMIN

The Strömgren radius of the H^+ zone is estimated at the start of the calculation, and the smallest allowed zone thickness is then set as a very small fraction of this. The calculation will stop if the zone thickness falls below this smallest thickness. This can occur because of any of several logical errors within CLOUDY (adaptive logic is used to continuously adjust the zone thickness), although it can rarely occur for physical reasons as well. The smallest thickness can be reset to any number with the **`set drmin`** command, but it should not be necessary to do this. I would appreciate learning about this - please send the input script and version number.

1.4.7. ... because DR small rel to thick.

The depth into the cloud is stored as the double precision variable ***depth*** and the zone thickness is stored as the double precision variable ***drad***. If the zone size becomes too small relative to the depth (***drad*** / ***depth*** < 10^{-14}) then the depth variable will underflow such that ***depth*** + ***drad*** = ***depth***. The calculation will stop in this case and give the above reason if this problem prevents the density from being properly evaluated. This is a fundamental numerical problem with no clear solution.

1.4.8. ... because carbon fully molecular.

For mixtures where oxygen is more abundant than carbon the atomic carbon abundance can become vanishingly small when carbon monoxide forms. The matrix inversion routine may have trouble determining the carbon balance under these conditions. As a precaution the current version of the code will stop if the ratio of carbon monoxide to total gas phase carbon exceeds 0.80, the value of the code variable ***colimt***. This limit can be reset with the **`set colimt`** command.

1.4.9. ... because negative mole abundan.

The matrix inversion routine can predict negative abundances of some of the heavy element molecules when the gas becomes predominantly molecular. CLOUDY is not now designed to handle this situation, but should be well protected against this happening. I would appreciate learning about this occurring- please send the input script and version number.

1.4.10. ... because optical depth reached.

The default value of the largest allowed continuous optical depth is unphysically large, and can be reset with the **`stop optical depth`** command. The command specifies both the optical depth, and the energy at which it is to be evaluated. All absorption opacity sources included in the calculation contribute to the computed optical depths. If the calculation stops because the largest continuum optical depth is reached, then this line is printed. This line is also printed if the **`stop effective column density`** command is used to stop the calculation, since this command is actually a form of the **`stop optical depth`** command.

1.4.11. ... because outer radius reached.

The default outer radius is unphysically large, but can be changed with the **`radius`** or **`stop thickness`** commands. If the calculation stops because the outer radius set by one of these commands is reached, then this line is printed.

1.4.12. ... because column dens reached.

The default values of the largest allowed neutral, ionized, and total hydrogen column densities are unphysically large. They can be reset with the commands **`stop column density`**, **`stop neutral column density`**, or **`stop ionized column density`**. This message will be printed if one of these criteria stops the calculation.

1.4.13. ... because lowest Te reached.

The default value of the lowest temperature allowed is 4000 K. This is reasonable when only optical emission lines are of interest. The limit can be changed with the **`stop temperature`** command. This message is printed if the calculation stops because the lowest temperature is reached.

1.4.14. ... because highest Te reached.

The default value of the highest temperature allowed is 10^{10} K. The limit can be changed with the **`stop temperature exceeds`** command. This message is printed if the calculation stops because the highest allowed temperature is exceeded.

1.4.15. ... because NZONE reached.

The default condition is for up to 600 zones to be computed. This can be reset with the **`stop zone`** command. This message is printed if the calculation stops because the limiting number of zones is reached. A warning will be printed at the end of the calculation if it stops because it hits the default limit to the number of zones allowed, presently 600, since this was probably not intended.

The default limit to the number of zones can be increased, while retaining the check that the default limit is not hit, by using the **`set nend`** command.

1.4.16. ... because line ratio reached.

It is possible to set a limit to the largest value of an emission-line intensity ratio with the **`stop line`** command. This message is printed if the calculation stops because the largest value of the ratio is reached.

1.4.17. ... because internal error - DRAD.

An internal logical error caused this message to be printed. Send the command lines, and the version number of CLOUDY to me. My internet address is gary@cloud9.pa.uky.edu.

1.4.18. ... because initial conditions out of bounds.

The temperature of the first zone was not within the temperature bounds of the code. This is probably due to the incident continuum not being set properly.

1.4.19. ... because reason not specified.

This is another internal error I would appreciate learning about.

1.5. Geometry

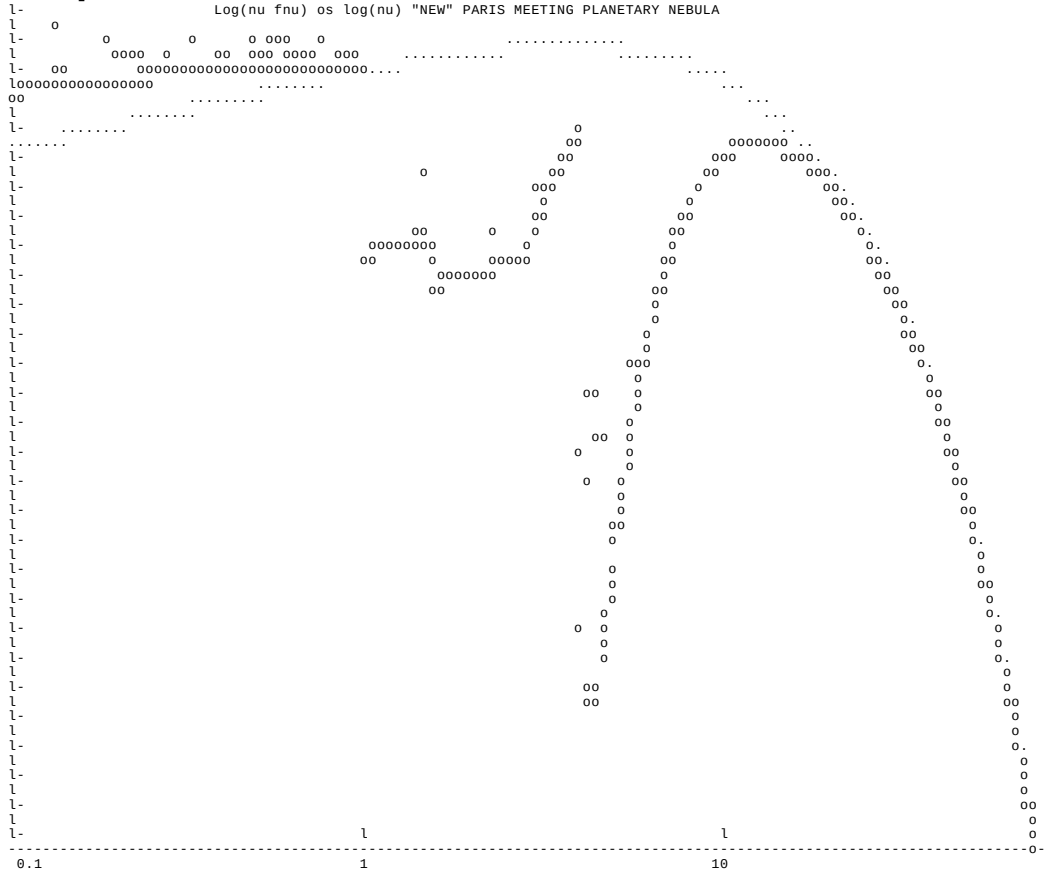
After saying why the calculation stopped, CLOUDY will say whether the geometry is plane parallel ($\Delta r / r_o < 0.1$), a thick shell ($\Delta r / r_o < 3$), or spherical ($\Delta r / r_o \geq 3$), where r_o is the inner radius and Δr is the thickness of the cloud.

1.6. Warnings, Cautions, Surprises, and Notes

The next, optional, messages fall into four categories: warnings, which begin with W-; cautions, which begin with C-; surprising results, which begin with an explanation mark (!), and notes.

CLOUDY checks that its range of validity was not exceeded in the calculation. Warnings are issued to indicate that the program has not treated an important process correctly. For instance, warnings occur if the temperature was high enough for the electrons to be relativistic, if the global heating - cooling balance is off by more than 20%, or if the code stopped for an unintended reason. I would like to hear about warnings, my e-mail address is gary@cloud9.pa.uky.edu. Cautions are less severe, and indicate that CLOUDY is on thin ice. Examples are when the optical depths in excited states of hydrogen change during the last iteration. Surprises begin with "!" and indicate that, while the physical process has been treated correctly, the result is surprising. An example is when induced Compton heating is more that 5 percent of the total Compton heating. Notes indicate interesting features about the model, such as maser effects in lines or continua, or if the fine structure lines are optically thick. The messages are usually self explanatory.

1.7. Optional Plot



If any of the optional plots are requested with the **`plot xxx`** command then they will appear next. The quantities plotted are described in the section of HAZY where the plot command is defined.

1.8. Final Printout

1.8.1. Emission-Line Spectrum

```
                    ***********************************> Cloudy 88.15  <*********************************
                    * title "New" Paris meeting Planetary nebula                                          *
                    * c recompute "standard" PN model of the Pequignot Meudon Conferance                  *
                    * init file='c84.ini'                                                                *
                    * sphere                                                                             *
                    * black body, T=150,000K radius = 10                                                 *
                    * hden = 3.4771213                                                                   *
                    * radius = 17                                                                        *
                    * abund -1 C-3.523 N-4. O-3.222 ne-3.824 na=-10 mg-4.523 al=-10                      *
                    * plot continuum range .1                                                            *
                    * punch overview last 70                                                             *
                    * c parispn.in                                                                       *
                    * c Sun                                                                              *
                    *********************************> Log(U): -1.32 <*********************************

                 Emission Line Spectrum.   Constant  Density Model.  Closed geometry.  Iteration 1 of 1.
                              Luminosity (erg/s) emitted by shell with full coverage.

 TOTL 4861 35.415   1.0000      C  2 1335 34.465   0.1123      O  5 1211 34.576   0.1451      TOTL  933 33.357   0.0088
 TOTL 1216 36.845  26.9423      Coll 1335 33.621   0.0161      TOTL 1035 34.049   0.0431      S  6  944 32.919   0.0032
 Inci    0 37.557 138.8320      REC  1335 34.398   0.0962      O  6 1032 33.866   0.0283      Coll  944 32.774   0.0023
 TotH    0 37.222  64.1962      C  2 4267 32.622   0.0016      Coll 1032 33.827   0.0258      S  6  933 33.161   0.0056
 BFH1    0 37.079  46.2204      C  3  977 34.486   0.1178      O  6 1037 33.584   0.0148      Coll  933 33.037   0.0042
 BFHe    0 36.589  14.9274      Coll  977 33.955   0.0347      Coll 1037 33.541   0.0134      Cl 2 8579 32.803   0.0024
 TotM    0 35.899   3.0484      C3 R  977 34.243   0.0673      Ne 2  128 33.963   0.0354      TOTL 5525 33.611   0.0157
 HFFc    0 35.671   1.8060      P386  977 33.558   0.0139      Coll  128 33.963   0.0354      TOTL 3350 32.764   0.0022
 H FF    0 35.671   1.8060      TOTL 1909 35.633   1.6523      Ne 3  160 35.843   2.6796      Cl 3 5538 33.327   0.0082
```

The final printout begins by reprinting the input commands. The box surrounding it gives both the version number of CLOUDY (at the top) and the log of the ionization parameter (the ratio of ionizing photon to hydrogen densities) at the bottom.

The line following the box summarizes some properties of the model and output. The first part of the line indicates whether the energy in the emission lines is given as the luminosity radiated by a spherical shell covering Ω sr (erg s^{-1}; Ω /4π is the covering factor) or the intensity produced by a unit area of gas (erg s^{-1} cm^{-2}). Which of the two choices is printed is determined by whether the luminosity of the continuum was specified as the luminosity radiated by the central object into 4π sr or the intensity (4π J) of the incident continuum (erg cm^{-2} s^{-1}) at the illuminated face of the cloud. If the model is spherical and the incident continuum specified per unit area, then the emergent emission-line spectrum will be per unit area in units of the inner radius r_o (that is, the total line luminosity radiated by a shell covering 4π sr will be the listed intensity 4πj times 4π r_o^2). The second part of this line indicates the density structure of the model (i.e., wind, constant density, constant pressure, constant gas pressure, power-law density distribution, etc). The next section tells whether the geometry was open or closed. The last part indicates which iteration this is.

The computed emission-line spectrum follows. Emission lines are divided into two groups. The first includes the effects of grain scattering and absorption, and is indicated by the header Emergent Line Intensities. This first group is only printed if grains are present and the geometry is open (i.e., **`sphere`** not set). The intensities are the *total* intensities observed from the illuminated face, including both absorption and scattering by grains. The second group of lines is always printed, is usually the intrinsic intensity of the lines, and does not include the reddening effects of internal grains due to the photon's passage out of the nebula. This second group usually gives the total intrinsic intensity of the lines. Although reddening effects of internal (or external) dust are not taken into account, photon destruction by background opacity sources during the transfer process is. This predicted spectrum should be compared with the reddening-corrected observed spectrum.

The spectrum is sorted into four large groups of columns, with each large group sub-divided into four smaller sub-columns. The first sub-column is either the spectroscopic designation of the ion producing the line or an indication of how the line is formed. The second sub-column is the line wavelength, with a 0 to indicate a continuum. The third sub-column is the log of the power in the line, in the units given in the header (4π sr or cm^{-2}). The last sub-column is the intensity of the line relative to the reference line, usually Hβ , unless this is reset with the **`normalize`** command.

The following sections give overviews of the general treatment of line formation. The section beginning on page 626 of this document gives more details about the predictions, and should be consulted for precise definitions.

Heating and cooling. The total energy in the incident continuum is Inci 0. photoelectric heating, due to photoionization of hydrogen, is given by TotH. BFHx is heating due to photoionization of excited state hydrogen. The entries BFHe and TotM are the heating due to helium and metal photoionization

Hydrogen lines. The first two entries, TOTL 4861 and TOTL 1216, are the total intensities of Hβ and Lyα, as predicted by the multi-level H atom. These intensities

are the results of calculations which include all collisional, radiative, and optical depth effects. Ca B 4861 is the Case B intensity of Hβ, computed from the actual model ionization and temperature structure, but assuming that Hβ emits with its case B emissivity. The entry Q(H) 4861 is the intensity of Hβ predicted from the total number of ionizing photons, Q(H), assuming that each hydrogen-ionizing photon produces one hydrogen atom recombination (see, for example, Osterbrock 1989). Q(H) 1216 indicates the Lyα intensity produced if each hydrogen ionizing photon results in one Lyα photon in the high density limit (i.e., no two-photon emission).

The lines starting with TOTL are the total intensities of the indicated lines, predicted by the model atom, including all physical processes. CION 0 is the net cooling due to collisional ionization of hydrogen, and 2 NU 0 is the total two photon emission. The lines beginning Strk and e sc are the contributions to the lines from Stark broadening and electron scattering.

Molecular cooling. H2 l 2 is the intensity of the H_2 lines near 2μm, and H2 d is the cooling due to collisional dissociation of H_2. H-FB and H-FF are the free-bound and free-free continua of the H^- ion. H2+ and HEH+ are the cooling due to formation of H_2^+ and HeH^+.

Helium lines Ionized and singlet helium are each treated as ten-level atoms. Triplet helium is currently treated as a five-level atom. Both simple case B predictions, and the results of the model atoms, are given. The section in Part II of this document describes the various model atoms and their limits in greater detail. For low densities, Case B is probably more accurate for HeII emission than the results of the present 10-level atom, because of the assumption of complete l-mixing. At high densities the predictions of the multi-level atom are certainly better. The entries marked TOTL are more accurate at high densities ($n \gg 10^8$ cm^{-3} or when collisional or transfer effects are important.

Heavy elements. A few notes on deciphering the heavy element lines follow. In cases where the notation is unclear a careful examination of subroutine ***lines*** (which enters the line fluxes into the arrays) or ***coolr*** (which actually calculates the line intensities) should clarify the meaning. In general, the line wavelengths are given in Å, although the infrared fine structure lines are an exception. Often these IR lines have their wavelength given in microns (for instance, [O III] λ 88 μm), but sometimes it is given in microns or tenths of microns (this is because the wavelengths are integers). Notes on specific iso-electronic sequences follow.

Li-sequence. Examples include C IV λ1549, O VI λ1034, Mg II λ2798, etc. A three level atom, with full treatment of optical depths and collisional excitation, is used. The "TOTL" intensity is the sum of both lines in the doublet, and is followed by the individual intensities of each member.

Be-sequence. Examples include C III] λ1909, O V] λ1215, Si III] 1895, etc. A four level atom, solving for populations of the individual ^3P_j states, is used. The first printed intensity is the total intensity of the multiplet (both j=0,1 decays), and this is followed by the intensities of individual lines. The intensity of the permitted ^1P_o - ^1S transition is also calculated. Optical depth and collisional effects on both the permitted and intercombination lines are included.

B-sequence. Examples include C II and O IV. The ground term is treated as a two level atom, with optical depth and collisional effects included. The ^4P -^2P_o lines are also predicted with a two level atom. The intensity printed is the total intensity of the multiplet.

^3P- ground term. Examples include [O III] and [O I]. The infrared fine structure lines are computed with full treatment of collisional and optical depth effects. A comment is printed at the end of the model if these lines mase or become optically thick. The populations of ^1D and ^1S are computed with a three-level atom. The intensity of the ^1D - ^3P transition is only that of the individual line (i.e. 5007), not the doublet.

$^4S^o$ - ground term. Examples include [O II] and [S II]. They are treated as a five level atom. Intensities of all individual lines, as well as co-added multiplets, are given.

A list of emission lines with negative intensities may follow the main block of lines. These are lines which heat rather than cool the gas (heating is negative cooling). This is not a problem, but occurs if the line de-excitation rate exceeds the line excitation rate. The most common reason for this to occur is if the line is radiatively excited but collisionally de-excited.

1.8.2. Page two

```
Cooling:  O  3 5007:0.245  O  3 4959:0.082
Heating:  BFH1    0:0.720  BFHe    0:0.233

IONIZE PARMET:  U(1-) -1.3193  U(4-): -2.0010  U(sp): -2.51  Q(ion):   43.458  L(ion):  33.712 Q(low): 49.69    P(low)   37.341
ENERGY BUDGET:  Heat:  37.222  Coolg:  37.222  Error:  0.2%  Rec Lin:  37.064  WorkF:   37.437 F-F  H 21.885    RadBetaMax:1.65E+01
Column density  H12:9.024E+20  H II:8.704E+20  HI:3.204E+19  H-:    1.445E+12  H2:   9.379E+11 H2+:2.190E+11    He H+:4.187E+12
                 CH:0.000E+00   CH+:0.000E+00  OH:0.000E+00 OH+:    0.000E+00  O2:   0.000E+00  C2:0.000E+00       CO:0.000E+00
                CO+:0.000E+00   H2O:0.000E+00H2O+:0.000E+00 O2+:    0.000E+00 C2+:   0.000E+00 H3+:0.000E+00     H3O+:0.000E+00
               CH2+:0.000E+00   CH2:0.000E+00 CH3:0.000E+00MoH2O    0.000E+00
    Col(Heff):      6.286E+20  snd travl time  2.34E+11 sec  NeN+dl: 2.98E+24  Te-low:3.81E+03 Te-hi1.88E+04
He/Ha:9.82E-02  =   0.98*true  Lthin:1.00E+30  iter/zn:2.016  Hlu/zn:6.56E+00
  <a>:0.00E+00  erdeFe0.0E+00  Tcompt8.11E+07  Tthr6.76E+09  <Tden>: 1.33E+04  <dens>:7.11E-21 <Mol>:6.47E-01
Mean Jeans      l(cm)7.67E+19  M(sun)8.46E+05  smallest:     len(cm):4.10E+19  M(sun):1.29E+05 Alf(ox-tran):     0.0000
```

Cooling: This line indicates the fraction of the total cooling (defined here as in Osterbrock 1989; that is, the energy of the freed photoelectron) carried by the indicated emission lines. The designation of the line is given as in the emission-line spectrum, and this is followed by the ratio of the energy in the line to the total cooling. This is an important indication of the fundamental power-losses governing conditions in the model. The labels used are the same as those in the line array.

Heating: This line indicates the fraction of the total heating produced by various processes. The labels used are the same as those in the line array.

IONIZE PARMET The line begins with the log of the H "U(1-)" and He^+ "U(4-)" ionization parameters defined in the header. The third number "U(sp)" is the log of a spherical ionization parameter often used in spherical geometries, such as H II regions or planetary nebulae. It is defined as

$$U_{sph} = \frac{Q(H)}{4p\, R_s^2 n_H c} \qquad (407)$$

where R_S is the Strömgren radius, defined as the point where the hydrogen neutral fraction falls to $H^o / H_{tot} = 0.5$. If no ionization front is present, then U_{sph} is evaluated at the outer edge of the computed structure. The next two numbers are the log of the number of hydrogen ionizing photons ($h\nu \geq 1$ Ryd) exiting the nebula

"Q(ion)", and the log of the energy in this ionizing continuum "L(ion)". The last two numbers are the equivalent quantities, for non-ionizing ($h\nu < 1$ Ryd) radiation. These are either per unit area or by a shell covering 4π sr. These have been corrected for the r^{-2} dilution if per unit area, and so are directly comparable with the numbers given at the start of the calculation.

ENERGY BUDGET This line gives an indication of the energy budget of the nebula. The first number "Heat" is the log of the total heating (in ergs s^{-1}, but again either into 4π sr or cm^{-2}). The second number "Coolg" is the log of the total cooling, in the same units. Cooling, as defined in Osterbrock (1989), is the total energy in collisionally excited lines and part of the recombination energy, but *does not* include recombination lines. The percentage error in the heating–cooling match "Error" follows. The next number "Rec Lin" is the log of the total luminosity in recombination lines. The number indicated by "WorkF" is an indication of the work function (that is, the log of the energy needed to remove bound electrons from the atom or ion) of the cloud. The work function and the total cooling do not add up to the total energy absorbed from the incident continuum because some recombination lines of helium and heavy elements contribute to both. The next number "F-F H" is the log of the amount of energy deposited by free-free heating, and the last number "RadBetaMax" is the largest value of the ratio of radiation to gas pressures which occurred in the calculation.

Column density This line lists the column densities (cm^{-2}) of some ions and molecules. The first number "H12" is the total hydrogen column density (both H^o and H^+). The following two numbers are the column densities in H^+ and H^o only. The last four numbers are column densities in four ion - molecules (H-, H_2, H_2^+, and HeH^+).

The next series of three lines give column densities in various molecules.

Col (Heff) The effective column density "Col(Heff)", as defined in the section on the **`stop effective column density`** command, is printed. This is followed by "snd travl time", the sound travel time across the nebula in seconds. Constant pressure is only valid if the cloud is static for times considerably longer than this. The third number "NeN+dl" is the emission measure, the integral over radius of the product $n_e\, n_p\, f(r)\, dr$, where f(r) is the filling factor. The last two numbers are the lowest "Te-low" and highest "Te-hi" electron temperatures found in the computed structure.

He/Ha This line gives some quantities deduced from the predicted emission-line spectrum. The first (He / Ha) number is the apparent helium abundance He / H, measured from the emission-line intensities using techniques similar to those described in Osterbrock (1989);

$$\left(\frac{\mathrm{He}}{\mathrm{H}}\right)_{apparent} = \frac{0.739 \times I(5876) + 0.078 \times I(4686)}{I(Hb)} \quad . \qquad (408)$$

The intensity of both Hβ and HeI λ5876 are the total predicted intensities, and includes contributions from collisional excitation and radiative transfer effects. The intensity of HeII λ4686 is taken from Case B results, which are better than those of the model atom at low densities. The second number (i.e., 1.07*true), is the ratio of

this deduced abundance to the true abundance. This provides a simple way to check whether ionization correction factors, or other effects, would upset the measurement of the helium abundance of the model nebula. This is followed by the longest wavelength in centimeters "Lthin" at which the nebula is optically thin. Generally the largest FIR opacity source is brems, and the number will be 10^{30} if the nebula is optically thin across the IR. The last two quantities are related to the average number of iterations needed to converge each zone.

<a> The mean radiative acceleration (cm s^{-2}) is printed if the geometry is a wind model and zero otherwise. This is followed by some time scales. The first "erdeFe" is the time scale, in seconds, to photoerode Fe (Boyd and Ferland 1987; this number is 0s if the γ-ray flux is zero). The next two are the Compton equilibrium timescale "Tcompt", and the thermal cooling timescale "Tthr". Both are in seconds. The density (gm cm^{-3}) weighted mean temperature "<Tden>", radius weighted mean density "<dens>" (gm cm^{-3}), and mean molecular weight "<Mol>"follow.

Mean Jeans This line gives the mean Jeans length "l(cm)" (cm) and Jeans mass "M(sun)" (in solar units), followed by the smallest Jeans length "smallest len(cm)" and the smallest Jeans mass "M(sun)" which occurred in the calculation. The last quantity "Alf(ox-tran)" is the spectral index α_{ox}, defined as in the header, but for the transmitted continuum (attenuated incident continuum plus emitted continuum produced by the cloud).

H and He atoms This line gives the number of levels of the model hydrogen atom, the "topoff" level, above which the remainder of the recombination coefficient is added, the type of topping off used for this calculation, and the number of levels used for the helium singlets and ion.

1.8.3. Averaged Quantities block

```
                                Averaged Quantities
            Te       Te(Ne)    Te(NeNp)   Te(NeHe+) Te(NeHe2+)  Te(NeO+)   Te(NeO2+)     NH       Ne(O2+)     Ne(Np)
Radius:  1.334E+04  1.358E+04  1.363E+04  1.109E+04  1.542E+04  1.115E+04  1.139E+04  3.000E+03  3.339E+03  3.429E+03
Volume:  1.179E+04  1.207E+04  1.214E+04  1.100E+04  1.446E+04  1.115E+04  1.117E+04  3.000E+03  3.305E+03  3.294E+03

Peimbert T(OIIIr)1.15E+04 T(Bac)1.21E+04 T(Hth)1.14E+04 t2(Hstrc) 2.72E-02 T(O3-BAC)1.15E+04 t2(O3-BC) 1.81E-03 t2(O3str) 7.36E-03
```

This begins with several temperature and density averages, over either radius or volume. The volume averages are only printed if the **sphere** command is entered. The quantity which is printed is indicated at the top of each column. The averaged quantity is the first part of the label, and the weighting used is indicated by the quantity in parenthesis. For instance, Te(NeO2+) is the electron temperature averaged with respect to the product of the electron and O^{2+} densities.

Peimbert This series of quantities deal with temperature fluctuations (t^2, Peimbert 1967) . The code attempts to analyze the predicted emission line and continuum spectrum using the same steps that Manuel outlined in this paper. The code does not attempt to correct the predicted emission line intensities for collisional suppression or reddening, so this line is only printed if the density is below the density set with the **set tsqden** command - the default is 10^7 cm^{-3}. This code does not attempt to deredden the spectrum: a caution is printed if grains are present.

The nature of temperature fluctuations is, in my option, the biggest open question in nebular astrophysics. Theory (CLOUDY too) predicts that they should be very small, because of the steep dependence of the cooling function on the temperature,

while some observations indicate a very large value of t^2 (see Liu et al. 1995, and Kingdon and Ferland 1995 for a discussion). If something is missing from our current understanding of the energy source of photoionized nebulae then the entire nebular abundance scale (for both the Milky Way and the extragalactic nebulae) is in error by as much as 0.5 dex.

Two fundamentally different t^2s enter here - the "structural" t^2 and the observational t^2. The structural value comes from the computed ionization and thermal structure of the nebula, while the observational value comes from an analysis of the predicted emission line spectrum following the methods outlined in Peimbert's 1967 paper.

The structural t^2 for the H^+ ion is defined as

$$t^2\left(H^+\right)=\left\langle\left[\frac{T(r)-\langle T\rangle}{\langle T\rangle}\right]^2\right\rangle=\frac{\int\left[T(r)-\langle T\rangle\right]^2 n_e n_{H^+} f(r)\,dV}{\langle T\rangle^2\int n_e n_{H^+} f(r)\,dV} \tag{409}$$

where <T> is the density-volume weighted mean temperature

$$\langle T\rangle=\frac{\int T(r) n_e n_{H^+} f(r)\,dV}{\int n_e n_{H^+} f(r)\,dV}. \tag{410}$$

This quantity is given in the averaged quantities block as the column "Te(NeNp)".

The observational t^2 - related quantities are the following: "T(OIIIr)" is the electron temperature indicated by the predicted [OIII] 5007/4363 ratio in the low density limit. This number is meaningless for densities near or above the critical density of these lines. "T(Bac)" is the hydrogen temperature resulting from the predicted Balmer jump and Hβ. "T(Hth)" is the same but for optically thin Balmer continuum and case B Hβ emission. "t2(Hstrc)" is the structural HII t^2. The entries "T(O3-BAC)" and t2(O3-BC)" are the mean temperature and t^2 resulting from the standard analysis of the [OIII] and HI spectra (Peimbert 1967). Finally "t2(O3str)" is the structural t^2 over the O^{2+} zone. Only the structural t^2s are meaningful for high densities. This section was developed in association with Jim Kingdon, and Kingdon and Ferland (1995) provide more details.

```
  Average grain Properties:
           Gra-Ori     Sil-Ori
  <Tdust>:   1.540E+02   1.218E+02
  <Vel D>:   3.635E+04   2.891E+04
  <Pot D>:   1.337E+00   1.419E+00
```

Grains The next lines give some information concerning grains if these were included in the calculation. These lines give the mean temperature, drift velocity, and potential, for all of the grain populations included in the calculation. An asterisk will appear to the right of the name of any species with quantum heating included. In this case the mean temperature is weighted by T^4.

```
Contin Optical Depths: COMP: 6.80E-04    H-: 5.59E-05 R(1300): 2.14E-04 H2+ 1.50E-06  HeTri:6.09E-04
  Pfa:3.40E-04   Pa:3.40E-04   Ba:3.65E-04   Hb:3.60E-04  La:1.29E-01   1r:4.995E+07  1.8:1.19E+07  4.:1.738E+06
 Line Optical Depths: 10830: 1.23E+02  3889: 5.24E+00  5876: 3.29E-06  7065: 1.82E-06 2.06m 2.54E-03
```

Contin Optical Depths The first two lines give the continuum optical depths at various energies. These are the total optical depths, including the correction for stimulated emission, and will be negative if maser action occurs. These include grain opacity if grains are present. The labels, and their interpretation, are as follows.

COMP is Thomson scattering. H- is the negative hydrogen ion at maximum cross section. R(1300) is Rayleigh scattering at 1300Å, H_2^+ is the molecular hydrogen ion. HeTri is the helium triplet at threshold. The next line gives total continuous optical depths at the energies of various hydrogen and helium ionization edges and lines. These are the Pfund α, Paschen α, Balmer α and β, Lyα , and the ionization edges of hydrogen, atomic helium, and the helium ion.

Heavy element line optical depths are printed also if the **`print line optical depths`** command is entered.

```
Old hydro optical depths:    1 9.99E+07    2 1.00E-20    3 1.00E-20    4 1.00E-20    5 1.00E-20    6 1.00E-20    7 1.00E-20
            Old H Lines:  2-1 9.96E+19  3-2 3.34E-02  4-3 3.33E-04  5-4 1.66E-05  6-5 2.56E-06  7-6 2.56E-07  8-7 2.56E-08
New hydro optical depths:    1 4.99E+07    2 1.46E-05    3 2.82E-05    4 6.80E-06    5 1.25E-12    6 3.05E-12    7 6.49E-12
            New H Lines:  2-1 2.02E+06  3-2 9.37E-03  4-3 1.98E-09  5-4 6.50E-10  6-5-5.01E-09  7-6-2.94E-08  8-7-1.81E-07
Old He Is optical depths:    1 2.38E+07    2 1.00E-20    3 1.00E-20    4 1.00E-20    5 1.00E-20    6 1.00E-20    7 1.00E-20
        Old He Is Lines:  2-1 9.96E+19  3-2 1.00E-20  4-3 1.00E-20  5-4 1.00E-20  6-5 1.00E-20  7-6 1.00E-20  8-7 1.00E-20
New He Is optical depths:    1 1.19E+07    2 1.46E-05    3 2.83E-05    4 6.06E-06    5 1.41E-12    6 3.33E-12    7 6.93E-12
        New He Is Lines:  2-1 6.15E+04  3-2 1.12E-03  4-3 3.50E-11  5-4-2.59E-11  6-5-1.25E-10  7-6 5.98E-09  8-7 2.36E-08
Old He II optical depths:    1 3.41E+06    2 9.75E+07    3 1.00E-20    4 1.00E-20    5 1.00E-20    6 1.00E-20    7 1.00E-20
        Old He II Lines:  2-1 9.96E+19  3-2 1.00E-20  4-3 1.00E-20  5-4 1.00E-20  6-5 1.00E-20  7-6 1.00E-20  8-7 1.00E-20
New HE II optical depths:    1 1.70E+06    2 4.88E+07    3 1.89E-04    4 1.39E-05    5 2.16E-05    6 2.75E-05    7 2.72E-05
        New He II Lines:  2-1 1.13E+06  3-2 9.14E-05  4-3 1.36E-11  5-4-4.73E-11  6-5-2.17E-10  7-6 5.52E-09  8-7 2.11E-08
```

Hydrogen and helium optical depths in continua and n → n-1α transitions follow. The first two lines are the optical depths assumed at the start of the present iteration, and the second pair of lines gives the newly computed total optical depths. Negative optical depths indicate maser action. For each of the pairs of lines, the first line is the optical depth at thresholds of the first seven levels of hydrogen. The second line gives the optical depths in the first seven of the n → n-1α transitions of hydrogen or helium.

```
Hydrogen   -1.117 -0.035                          Log10 Mean Ionisation (over volume)
Helium     -1.454 -0.163 -0.556
Lithium    -3.801 -0.106 -0.722 -1.560
Beryllium  -4.065 -0.553 -0.145 -2.498 -6.439
Boron      -5.005 -0.770 -0.511 -0.282 -5.328
Carbon     -3.439 -0.851 -0.303 -0.640 -0.878
Nitrogen   -1.448 -0.791 -0.376 -0.524 -1.173 -1.803
Oxygen     -1.150 -0.933 -0.229 -0.843 -1.143 -2.179 -3.971
Fluorine   -2.080 -1.428 -0.144 -0.878 -1.006 -2.337 -5.596
Neon       -2.102 -1.352 -0.145 -0.835 -1.090 -2.477 -5.608
Sodium     -3.859 -0.950 -0.199 -0.764 -1.130 -2.087 -4.300 -9.189
Magnesium  -3.156 -0.657 -0.249 -0.793 -1.332 -2.126 -4.527
Aluminium  -4.336 -0.630 -0.902 -0.229 -1.329 -2.437 -4.810
Silicon    -5.022 -0.547 -0.570 -0.643 -0.669 -2.293 -5.049
Phosphorus -3.631 -0.799 -0.540 -0.395 -1.014 -1.273 -4.347
Sulphur    -3.730 -0.780 -0.409 -0.566 -1.004 -1.224 -1.863 -7.093
Chlorine   -1.561 -0.913 -0.405 -0.539 -1.114 -1.129 -1.810 -3.208
Argon      -1.634 -1.371 -0.277 -0.627 -1.304 -1.080 -1.442 -2.981 -5.248
Potassium  -2.619 -1.216 -0.288 -0.591 -1.240 -1.108 -1.567 -2.700 -5.032
Calcium    -4.301 -1.854 -0.369 -0.391 -1.304 -1.130 -1.594 -2.686 -4.639
Scandium   -4.229 -1.170 -0.716 -0.228 -1.132 -1.219 -1.851 -3.414 -5.726
Titanium   -4.559 -1.198 -0.989 -0.443 -0.413 -1.119 -1.972 -3.488 -6.045
Vanadium   -3.087 -1.296 -1.056 -0.472 -0.467 -0.771 -1.919 -3.687 -6.308
Chromium   -4.914 -1.336 -1.086 -0.468 -0.503 -0.807 -1.215 -3.315 -6.205
Manganese  -3.265 -1.348 -1.075 -0.399 -0.618 -0.819 -1.127 -2.384 -5.517
Iron       -3.810 -0.849 -0.910 -0.346 -1.281 -0.907 -1.010 -1.998 -3.917
Cobalt     -3.991 -1.413 -1.136 -0.486 -0.622 -0.832 -0.815 -1.653 -3.609 -7.150
Nickel     -3.628 -0.848 -1.355 -0.307 -1.581 -0.884 -0.852 -1.635 -3.469 -6.835
Copper     -4.106 -1.406 -1.014 -0.269 -1.588 -0.980 -0.762 -1.664 -3.492 -6.886
Zinc       -4.254 -1.360 -0.980 -0.281 -1.560 -0.930 -0.810 -1.558 -3.630 -7.001
            1      2      3      4      5      6      7      8      9     10     11     12     13     14     15     16     17

Hydrogen   -1.450 -0.016                          Log10 Mean Ionisation (over radius)
Helium     -1.797 -0.352 -0.268
Lithium    -4.049 -0.262 -0.431 -1.086
Beryllium  -4.379 -0.801 -0.079 -2.094 -5.796
Boron      -5.337 -1.073 -0.644 -0.162 -4.914
Carbon     -3.754 -1.162 -0.467 -0.581 -0.485
Nitrogen   -1.797 -1.101 -0.514 -0.429 -0.770 -1.248
Oxygen     -1.495 -1.233 -0.362 -0.588 -0.715 -1.621 -3.317
Fluorine   -2.435 -1.754 -0.311 -0.652 -0.601 -1.782 -4.937
Neon       -2.457 -1.663 -0.308 -0.595 -0.666 -1.909 -4.941
Sodium     -4.193 -1.236 -0.361 -0.540 -0.726 -1.534 -3.649 -8.348
Magnesium  -3.468 -0.945 -0.363 -0.529 -0.892 -1.549 -3.862
Aluminium  -4.652 -0.926 -1.072 -0.176 -0.935 -1.866 -4.142
Silicon    -5.342 -0.835 -0.710 -0.647 -0.380 -1.800 -4.425
Phosphorus -3.932 -1.106 -0.713 -0.413 -0.747 -0.789 -3.753
Sulphur    -4.040 -1.090 -0.587 -0.567 -0.758 -0.788 -1.293 -6.378
Chlorine   -1.908 -1.216 -0.588 -0.559 -0.864 -0.705 -1.257 -2.561
Argon      -1.986 -1.694 -0.479 -0.634 -1.071 -0.702 -0.929 -2.364 -4.560
Potassium  -2.960 -1.548 -0.469 -0.627 -0.992 -0.714 -1.038 -2.070 -4.337
Calcium    -4.623 -2.157 -0.583 -0.443 -1.054 -0.728 -1.060 -2.053 -3.943
Scandium   -4.564 -1.502 -0.959 -0.300 -0.860 -0.782 -1.283 -2.758 -5.012
Titanium   -4.901 -1.542 -1.268 -0.583 -0.366 -0.730 -1.418 -2.834 -5.325
Vanadium   -3.427 -1.643 -1.349 -0.650 -0.519 -0.436 -1.415 -3.062 -5.594
Chromium   -5.259 -1.684 -1.383 -0.660 -0.590 -0.540 -0.766 -2.734 -5.520
Manganese  -3.608 -1.696 -1.366 -0.591 -0.701 -0.574 -0.702 -1.814 -4.853
Iron       -4.143 -1.179 -1.174 -0.500 -1.207 -0.676 -0.617 -1.455 -3.271
Cobalt     -4.339 -1.762 -1.440 -0.705 -0.782 -0.711 -0.497 -1.159 -2.992 -6.406
Nickel     -3.966 -1.182 -1.590 -0.493 -1.586 -0.724 -0.525 -1.140 -2.852 -6.109
Copper     -4.452 -1.754 -1.299 -0.467 -1.602 -0.839 -0.451 -1.181 -2.880 -6.154
Zinc       -4.602 -1.706 -1.258 -0.479 -1.573 -0.784 -0.499 -1.077 -3.021 -6.265
```

Mean Ionization. The two large blocks of output give the mean ionization, averaged over volume, and over radius. The numbers printed are the log of the mean ionization fraction in the various stages.

Continuum. If the **`print continuum`** command is included then the following tables, all related to the transmitted continuum, will the printed.

X-Ray Continuum. The next line gives the photon fluxes (cm^{-2} s^{-1}) in various X-ray bands, if the continuum extends to X-ray energies. The units of the energy bands are keV. The numbers are the numbers of photons exiting the cloud, integrated over the energy bands. This is the net continuum, that is, the incident continuum, less attenuation, with diffuse re-emission from the cloud added on. This is only printed if the **`print continuum`** command is entered.

Normalized Continuum. This block is a set of ordered pairs giving the emergent Balmer continuum, relative to the continuum which entered the cloud. The first number of each pair is the frequency in Rydbergs. The second is the ratio of the emergent continuum to the incident continuum (i.e., that which went into the cloud). In the absence of optical depth or diffuse emission effects, this block will be equal to 1.000 throughout. This is only printed if the **`print continuum`** command is entered.

Emergent Continuum. This block gives ordered pairs of energy (in Rydbergs) and the emergent continuum. It is expressed as photon fluxes (phot Ryd^{-1} cm^{-2}) corrected for r^{-2} dilution , so as to be directly comparable with the continuum which went into the cloud. This is only printed if the **`print continuum`** command is entered.

2. OBSERVED QUANTITIES

2.1. Overview

This section describes how to convert the quantities actually used or predicted by CLOUDY into commonly observed ones.

2.2. Incident and Diffuse Continua

The emission line printout gives the intensity of the incident continuum (λF_λ or νF_ν) at 4860 and 1215 Å. These appear with the label **Inci** followed by the wavelength. The entire incident continuum can be obtained with the output of the **punch continuum** command.

The diffuse continuum, that emitted by the cloud, is not normally included in the line output. The **print diffuse continuum** command will add the total emitted continuum to the emission line list. These are in units λF_λ or νF_ν at the indicated wavelengths and have the label **nFnu**. The inward total emission and the reflected incident continua will be printed if this command appears together with the **print line inward** command. Two contributors to the inward emission are predicted. That labeled **InwT** is the total inwardly emitted continuum, and includes both diffuse emission and the back scattered incident continuum. The component labeled **InwC** is the back scattered incident continuum alone.

2.3. Line Equivalent Widths

The equivalent width of an emission or absorption line is defined as the number of Ångstroms of the continuum that is equivalent to the energy in the line. It can be defined as

$$W_l = \int \frac{F_l^c - F_l^l}{F_l^c} d\,l \approx -\,l\,\frac{F_{line}}{l\,F_l^c} \qquad (411)$$

where the fluxes are in the interpolated continuum (F_l^c) and the integrated line (F_{line}). By this convention the equivalent width of an emission line is negative.

The code predicts the integrated fluxes of all lines. It also predicts the product λF_l^c for the incident continuum at a few wavelengths. These are given the label **Inci** and the wavelength where it is evaluated follows. The entry **Inci 4860** is the intensity of the incident continuum at a wavelength near Hβ. The units of this incident continuum are either erg cm^{-2} s^{-1} or erg s^{-1} depending on whether the incident continuum was specified as a flux or luminosity. The fluxes of lines and these continuum points can be read from the output, or obtained by software calling the ***cdLine*** routine. The continuum flux at any wavelength can be obtained with the **punch continuum** command. If the line intensity is given by F_{line} and the continuum intensity λF_l^c, then the equivalent width of a line relative to the continuum where λF_l^c is specified will be given by the last term in equation 411.

A covering factor will complicate this slightly. (Covering factors are defined in the section ***Definitions*** in Part I of this document.) If luminosities are predicted then partial coverage of the source is taken into account with the **`covering factor`** command, and the luminosities are correct for this coverage. The ratio of line to continuum given in equation 411 will represent what is observed. If fluxes are specified instead then the line flux is given per unit area of cloud, no matter what covering factor is specified. In this second case the ratio in equation 411 must be scaled by the covering factor.

2.4. Emission Line Asymmetries

The inward fraction of the total emission of each line is always predicted by the code, but not normally printed out. Many lines are significantly inwardly beamed, and this can lead to emission line asymmetries if the envelope is expanding. The inward part of the lines will be printed if the **`print line inward`** command is entered. The effects of this line beaming is very geometry dependent.

2.5. Line to Continuum Contrast

The code has several **punch** commands that will produce ancillary files containing the predicted line and continuum spectra. There is an ambiguity in how strong the lines should appear to be relative to the continuum. This is described in Part I of this document where the **`punch continuum`** and **`set PunchLWidth`** commands are introduced.

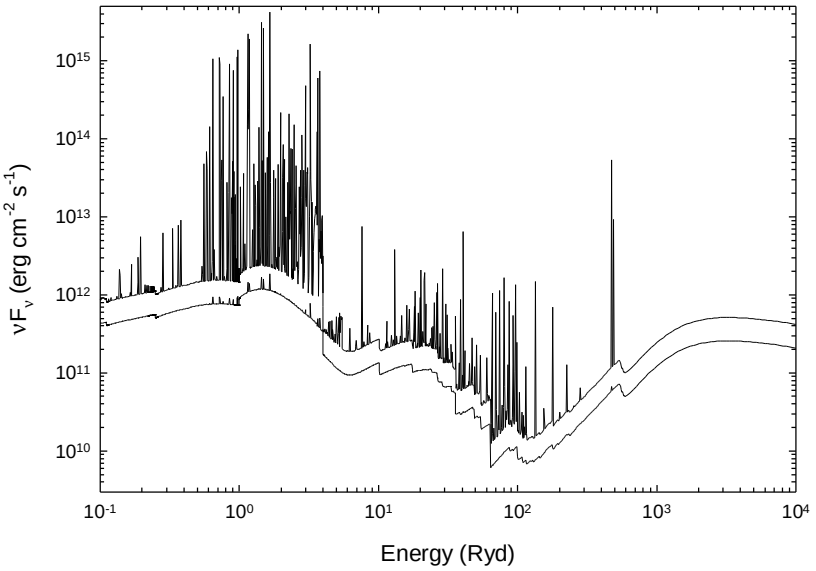


Figure 1 This is the continuum predicted by the input file reflector.in. The lower curve has been divided by two and shows the total spectrum produced by setting the line width to the speed of light. The upper curve shows the same thing, but with the line width set to 100 km/sec. reflector

Figure 1 shows the continuum predicted with the **`reflector.in`** test case. The lower curve shows the total continuum that would be predicted if the ***PunchLWidth*** variable is set equal to the speed of light[4]. Here lines are added to the continuum such that the difference between νF_ν at the line peak and νF_ν for the underlying diffuse continuum is equal to the line flux. As a result the resulting line to continuum contrast is very small. The upper curve shows

[4] This was the default for version 90.00 through version 90.03. In C90.04 the default was changed to 1000 km/s. Before version 90 the line to continuum contrast depended on the cell width at the particular energy.

the same model but with the line contrast enhanced by entering the command **set PunchLWidth 100 km/sec**. The entire spectrum is shifted by a factor of two to make the two appear separated. The default line width is 1000 km s^{-1}.

The only effect of the **set PunchLWidth** command is to change the contrast in the punch output. The computed results and line intensities in other output are not affected. If the width is set to the speed of light then the intensities in the punch output will be correct but the line to continuum contrast too small. If the width is set to a small value the contrast is increased but the total intensity in the punch output will be greater than the actual emission. (Energy *will not* appear to have been conserved in this punch output).

2.6. Surface Brightness

CLOUDY will normally predict the intensity radiated into 4π sr by a unit area of cloud, erg cm^{-2} s^{-1}. Observations of resolved sources often measure the surface brightness, with units erg $arcsec^{-2}$ s^{-1}. Be careful! – some workers may report surface brightness with units erg $arcsec^{-2}$ s^{-1} sr^{-1}. Remove the sr^{-1} before continuing by multiplying by 4π.

To obtain the surface brightness we must divide the intensity predicted by CLOUDY by the number of square seconds of arc in 4π sr. One radian is $180/\pi$ = 57.29578 deg, so 1 sr is $(180/\pi)^2 = 3282.806$ deg^2, and there are 5.3464×10^{11} square arc seconds in 4π sr. The surface brightness (per square second of arc) is the intensity (per square centimeter) multiplied by the inverse of this, 1.8704×10^{-12} cm^2 $arcsec^{-2}$.

2.7. Flux to luminosity

The luminosity is the flux of a line multiplied by the total area of the shell. For full coverage this is $4\pi r^2$ where r is the radius of the shell. If the shell only partially covers the continuum source then this should be multiplied by the covering factor.

2.8. Relative hydrogen line intensities

Very accurate ratios of Balmer or Paschen lines of hydrogen can be used to determine reddening. Ferguson and Ferland (1997) describe CLOUDY's hydrogen atom. It gives good results for levels below 10 in the code's default state, which uses a 15 level atom. The number of levels can be increased to $\leq$50 using the **hydrogen levels** command, and this gives better results at the expense of more compute time. The larger atom should give results accurate to better than 5% for lines arising from below principal quantum number 10, and 10% accuracy for lines with upper levels between 10 and 15. The accuracy decreases for upper levels higher than 15 although the total recombination efficiency of the atom is computed to high precision.

For pure recombination lines you can easily do better than CLOUDY. The code is limited by the size of the model hydrogen atom that can be computed on the fly. The definitive calculation for hydrogen recombination is that of Hummer and Storey (1987), who used a 1000 level atom with all l-states explicitly considered (that works out to something like a million levels!). Storey and Hummer (1995) placed a

program on the web that will interpolate on their tables of case B hydrogen emission, for any temperature and density they computed. The best way to obtain a very high quality hydrogen recombination spectrum is to get the mean H^+ temperature and the electron density (perhaps those predicted by CLOUDY) and then use their interpolating code to provide the hydrogen spectrum for these conditions.

The Hummer and Storey (1987) calculation is for case B conditions, which assume that many processes are unimportant (see Ferguson and Ferland 1997). Neglected processes include collisional excitation from the ground or first excited states, induced processes where the incident continuum causes the atom to fluoresce, and line transfer in all non-Lyman lines. These assumptions are an excellent approximation for conventional nebulae, such as planetary nebular or HII regions. They are questionable for gas denser than 10^6 cm^{-3} or when X-Rays are present. When any of these processes are important the hydrogen spectrum is far more model dependent and CLOUDY's results may be more realistic than the case B results.

2.9. Line Intensities in a dusty open geometry

Two sets of line intensities are printed if a dusty open geometry is computed. The second block of lines is the conventional set of intrinsic emission line intensities. When grains are present these intensities would need to be corrected for line of sight reddening to be compared with observations.

The first block of emission line intensities would be that emitted from the illuminated face of a molecular cloud. The geometry is appropriate for the Orion Nebula, a blister HII region on the surface of Orion Molecular Cloud 1 (OMC1). An idealized geometry is shown in Figure 2 . The code computes the fraction of the line emission that is directed towards the illuminated face. The remainder is emitted towards the neutral gas, which is assumed to have an infinite optical depth due to grains. The local albedo of the gas-grain mixture is computed, and the fraction reflected is passed back towards the illuminated face. The resulting intensities are roughly half what would be expected were the cloud emitting from both sides. Something like 10% of the line striking the molecular cloud will be reflected back to the observer.

So, for the illustrated blister the first block of lines gives what would be seen by an observer a large distance off to the left.

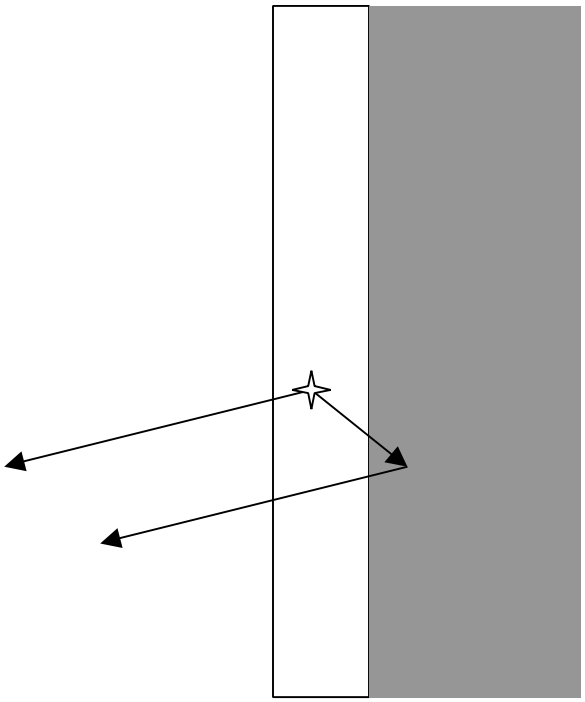


Figure 2 This shows that geometry assumed when computing the first block of lines in an open dusty geometry. The light area at left is the HII region, which is assumed to be a layer on the surface of an infinitely optically thick molecular cloud, the dark area on the right. Light can be emitted towards, and freely escape from, the illuminated face of the cloud. A fraction of the light emitted towards the molecular cloud is reflected back towards the illuminated face.

2.10. Continuum pumping contribution to line intensities

Continuum pumping or fluorescence is included for all lines. The contribution is not usually printed, but will be if the **`print line pump`** command is entered. Whether this contribution actually adds to the observed line emission depends on the geometry. Continuum pumping increases the line emission if no related absorption occurs. This will be the case if the continuum source is either not observed or not covered by absorbing gas. If absorbing gas covers an observed continuum source then the situation is like the P Cygni problem, and pumping does not increase the total intensity of the line at all. The printed line intensity includes this contribution unless the **`no induced processes`** command is entered.

3. THE EMISSION LINES

3.1. Overview

The following two sections give a complete list of all emission lines predicted by CLOUDY. Before version 90 of the code all lines were listed in sub-section 3.3, immediately following this section. The code is being modified to bring all lines into a common set of line transfer vectors. Lines which have been moved to this formalism are now listed in sub-section 3.4, beginning on page 634.

This is a complete list of the predicted quantities. Some continua, and various indications of contributors to lines and continua, are mixed in what follows. The previous section of the document describes how to convert these into some observed quantities. Not all are printed by default – the **`print`** commands described in Part I and also in section 3.4.3 starting on page 635 tell how to get more or fewer predictions.

3.2. Line wavelengths

The line wavelength is stored within the code as an integer. Most are given in Ångstroms.

Many wavelengths are too small or large to be expressed in Ångstroms. Many FIR lines would overflow the output format if their wavelengths were expressed in Ångstroms. Line wavelengths greater than 10^6 Å (100 microns) are expressed in microns. The [C II] λ157 micron line would be C 2 157. Wavelengths between 10^4 Å (1 micron) and 10^6 Å are expressed in tenths of microns. The [O III] 88 micron line would be O 3 883. Wavelengths between 10 Å and 10,000 Å are expressed in Ångstroms. Wavelengths less than 10 Å are given in tenths of Ångstroms.

In the optical wavelengths are usually given in air. Continua are usually indicated by a wavelength of zero. Emission lines are broken into four large groups in the following sections. Level 2 lines are described on page 635 (section 3.4.2) below. These lines use Opacity Project wavelengths, which are generally good to about 10%.

3.3. Miscellaneous Line Entries

These are a series of entries which contain most of the optical forbidden lines, some continua, and identify various contributors to the main lines.

For this set of lines, the first column gives the four character label printed in the final array listing and the second column gives the wavelength of the line, using the conventions described above. The label in the first column is the one used to access the line using the ***cdLine*** routine described elsewhere.

The third column character indicates whether the entry is a heat source (indicated by h), a coolant (c), a recombination line (r), or an intensity entered for information only (i). The last column gives a brief description of the meaning of the line prediction. More information about individual lines can usually be had by examining the comments associated with the actual calculation of the line strength

(in subroutine ***coolr***) or in subroutine ***lines***, where the line intensity is entered into the storage array.

Label	λ		Description
TOTL	4861	i	these lines added to outlin in metdif - following must be false
TOTL	1216	i	total Ly-a from multi-level atom
Inci	0	i	total luminosity in incident continuum
TotH	0	i	total heating, all forms, information since individuals added later
BFH1	0	h	hydrogen photoionization heating, ground state only
BFHx	0	h	normally zero, positive if excited states are net heating
Line	0	h	heating due to induced lines absorption of continuum
He1i	0	c	net cooling due to collisional ionization of Heo
3He1	0	h	this is the heating due to 3-body recombination
He2i	0	c	net cooling due to collisional ionization of He+
3He2	0	h	this is the heating due to 3-body recombination
BFHe	0	h	total helium photoionization heating, all stages
TotM	0	h	total heavy element photoionization heating, all stages
HFFc	0	c	net free-free cooling, nearly cancels with cooling in lte
HFFh	0	h	net free-free heating, nearly cancels with cooling in lte
H FF	0	i	H brems (free-free) cooling
FF H	0	i	total free-free heating
ComH	0	h	Compton heating
H- H	0	h	H- heating
H-Hc	0	c	induced H- cooling
GrGH	0	h	gas heating by grain photoionization
GrGC	0	c	gas cooling by grain collisions
extH	0	h	"extra" heat added to this zone, from HEXTRA command
extC	0	c	"extra" cooling added to this zone, from CEXTRA command
pair	0	h	heating due to pair production
Ca B	4861	i	H beta recombination, assuming case B
Ca B	1216	i	case b intensity of Ly-alpha, no two photon
Q(H)	4861	i	H-beta computed from Q(H) and specified covering factor
Q(H)	1216	i	Ly-alpha from Q(H), high-dens lim, specified covering factor
TOTL	1216	i	these lines added to outlin in metdif - following must be false
Inwd	1216	i	inward part of Lya
TOTL	0	r	these lines added to outlin in metdif - following must be false
Inwd	0	i	
Clin	912	c	total collisional cooling due to all hydrogen lines
Hlin	912	h	total collisional heating due to all hydrogen lines
2 NU	0	r	2-photon two photon emission from multi-level atom
LA X	1216	i	la contribution from suprathermal secondaries from ground
H-CT	6563	i	H-alpha produce by H- mutual neutralization
Ind2	1216	i	"Ly alpha" produced by induced two photon
Pump	4861	r	H-beta produced by continuum pumping in optically thin ld limit
CION	0	c	collision ionization cooling of hydrogen
3bHt	0	h	this is the heating due to 3-body recombination
Strk	1216	i	Stark broadening contribution to line
Strk	6563	i	Stark broadening contribution to line
Strk	4861	i	Stark broadening contribution to line
Strk	18751	i	Stark broadening contribution to line
Strk	40512	i	Stark broadening contribution to line
Dest	1216	i	portion of line lost due to absorp by background opacity
Dest	6563	i	portion of line lost due to absorp by background opacity
Dest	40516	i	portion of line lost due to absorp by background opacity
Dest	4861	i	portion of line lost due to absorp by background opacity
Dest	18751	i	portion of line lost due to absorp by background opacity
Fe 2	1216	i	Ly-alpha destroyed by overlap with FeII
e sc	1216	i	electron scattering escape contribution to line
e sc	6563	i	electron scattering escape contribution to line
e sc	4861	i	electron scattering escape contribution to line
e sc	18751	i	electron scattering escape contribution to line
e sc	40512	i	electron scattering escape contribution to line
e-e+	511	i	511keV annihilation line
nFnu	0	i	total continuum produced by cloud at selected energy points

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InwT     0 i     reflected diffuse continuum
InwC     0 i     reflected incident continuum (only incident)
Inci  4860 i   incident continuum nu*f_nu at H-beta, at illuminated face of cloud
Inci  1215 i   incident continuum nu*f_nu near Ly-alpha, at illuminated face of cloud
Ba C     0 i   integrated Balmer continuum emission

PA C     0 i   Paschen continuum emission
GraT     0 i   total grain heating by all sources, lines, collisions, incident continuum
GraI     0 i   grain heating by incident continuum
GraL  1216 i   grain heating due to destruction of Ly alpha
GraC     0 i   grain heating due to collisions with gas

GraD     0 i   grain heating due to diffuse fields, may also have grain emission
FF X     0 i   part of H brems, in x-ray beyond 0.5KeV
ComC     0 c   total Compton cooling
Expn     0 c   expansion cooling, only non-zero for wind
eeff     0 c   electron - electron brems

H FB     0 i   H recombination cooling
HFBc     0 c   net free-bound cooling and heating
HFBh     0 h
Hind     0 c   cooling due to induced rec of hydrogen
3He2     0 c   cooling due to induced rec of fully ionized helium

Cycn     0 c   cyclotron cooling
Cool  1216 i   collisionally excited La cooling
Heat  1216 i   collisionally de-excited La heating
Crst   960 i   cooling due to n>2 Lyman lines
Hrst   960 i   heating due to n>2 Lyman lines

Crst  4861 i   cooling due to n>3 Balmer lines
Hrst  4861 i   heating due to n>3 Balmer lines
Crst     0 i   cooling due to higher Paschen lines
Hrst     0 i   heating due to higher Paschen lines
H2 l     2 c   H2 rotation lines from Lepp and Shull ApJ 270, 578.

H2dC     0 c   H2 dissociation by H atoms (not e)
H2dH     0 h   heating by H2 dissociation by Lyman continuum
H-FB     0 c   neg H ion free-bound emission
H2+      0 c   H+ + H => H2+ + photon continuum cooling
HEH+     0 i   HeH+ formation cooling

COdh     0 h   carbon monoxide co photodissociation
CO C     0 c   cooling due to coll of vib rot levels
HeFF     0 c   He brems emission
HeFB     0 c   He recombination cooling
MeFB     0 c   heavy element recombination cooling

MeFF     0 c   metal brems emission
ToFF     0 i   total brems emission
He3I     0 c   He I triplet net collisional ionization cooling
He3b     0 h   He I triplet net 3-body heating
HeIC   584 c   He I 584, collisional excitation cooling

HeIH   584 h   He I 584, collisional de-excitation heating
He I   504 i   He I rec to ground escaping cloud
esc    584 i   these lines added to outlin in metdif - following must be false
esc    626 i   these lines added to outlin in metdif - following must be false
Ca B  4471 i   He I 4471 recombination only, fit to Brocklehurst '72

TOTL  5876 i   these lines added to outlin in metdif - following must be false
Inwd  5876 i   inward part of 5876
Ca B  5876 r   He I 5876 REC, simple fit to Brocklehurst
Ca B  6678 i   He I 6678 REC, simple fit to Brocklehurst
TOTL 10830 i   these lines added to outlin in metdif - following must be false

reco 10830 i   He I 10830 produced by radiative recombination
coll 10830 i   collisionally excited 10830 estimated from Clegg 1987 (not model atom)
Inwd 10830 i   inward escaping HeI 10830
TOTL  3889 i   these lines added to outlin in metdif - following must be false
TOTL  7065 i   these lines added to outlin in metdif - following must be false

CcHE     0 c   total collisional He I triplet line cooling, from n-level atom
ChHE     0 h   total collisional de-exec He I heating, from n-level atom
Ca B     2 i   case B He I 2.06 micron
TOTL     2 i   He I 2.06 micron from model atom, all physics in
Ca B  5016 i   Case B He I 5016

HeII   228 i   He II Lyman continuum
He2C   911 i   He II Balmer continuum escaping from cloud
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TOTL   304 i   these lines added to outlin in metdif - following must be false
TOTL  1640 i   these lines added to outlin in metdif - following must be false
Inwd  1640 i   inward part of HeII 1640

TOTL  1217 i   these lines added to outlin in metdif - following must be false
Inwd  1217 i   He II 1216 inward fraction
TOTL  1085 i   these lines added to outlin in metdif - following must be false
Inwd  1085 i   He II 1085 inward fraction
TOTL  4686 i   these lines added to outlin in metdif - following must be false

Inwd  4686 i   inward beamed part of 4686
TOTL  3205 i   these lines added to outlin in metdif - following must be false
Inwd  3205 i   HeII 3205 inward fraction
Ca B  1640 i   He II 1640, case B at low densities
Ca B  4686 i   He II 4686, case B

Mion     0 c   cooling due to collisional ionization of heavy elements
Li3r    19 i   these lines added to outlin in metdif - following must be false
Be4r    19 i   these lines added to outlin in metdif - following must be false
Bo5r    19 i   these lines added to outlin in metdif - following must be false
REC   1656 i   C 1 1656 recomb; n.b. coll deexcitation not in

C Ic  9850 c   C 1 9850, coll excit
C Ir  9850 i   was a big mistake
TOTL  9850 i   total intensity, all processes, C I 9850
C  1  8727 c   C 1 8727; equivalent to 4363
C  1  4621 c   1S - 3P

Phot  2326 i   photoproduction, Helfand and Trefftz
REC   1335 i   C 2 1335 recombination,
C II  3134 c   C 2 intercombination line with same upper state as 1335
C3 R   977 i   dielectronic recombination contribution to C 3 977
P386   977 r   C 3 977 pumped by continuum near 386A

TOTL  1909 i   C 3  1909 collision, both lines together
C  3  1907 i   C 3 1908 j-2 to ground
C3 R  1909 i   C 3 1909 recombination from Storey
Phot  1909 i   C 3 1909 following relax following inner shell photoionization
Rec   1175 i   dielectronic recombination contribution to C 3 1175

TOTL  1549 i   total intensity of C 4 1549, all processes
Inwd  1549 i   inward part of C 4
DEST  1549 i   part of line destroyed by photoionization of Balmer continuum
C4 r  1549 i   recombination C 4 1549 from CV
C 6r    34 i   these lines added to outlin in metdif - following must be false

N  1  5200 i   N 1 5200, both 5198, 5200, collisions and recombination
Coll  5200 c   N 1 5200, both 5198, 5200, collisions and recombination
REC   5200 i   recombination contributon to [NI] 5200
N  1  3466 c   [N 1] 3466, 3 - 1 transition, whole multiplet
N  1 10400 c   [N 1] 10400 3 - 2 transition, whole multiplet

N  2  6584 c   N 2 6584 alone
N  2  6548 c   N 2 6548 alone
REC   6584 i   N 2 6584 alone, recombination contribution
N  2  5755 i   N 2 5755  total, collisions plus charge transfer
Coll  5755 c   N 2 5755  collisional contribution

C T   5755 c   N 2 5755  charge transfer contribution
Rec   1085 i   dielectronic recombination contribution to N 2 1085
N2cn     1 i   continuum pumped N 2 6584
N2cn  5755 i   continuum pumped N 2 5755
N3cn  4640 i   continuum pumped "Bowen" N 3, optically thin excited line

N3cn  4634 i   continuum pumped "Bowen" N 3, optically thin excited line
N3cn  4642 i   continuum pumped "Bowen" N 3, optically thin excited line
extr   990 i   total N 3 990, both electron excitation and continuum pumping
rec    990 i   part of N 3 990 due to recombination
N 3p   990 r   N 3 989.8, continuum pumped

TOTL  1486 i   N 4] 1486, total intensity of both lines
N  4  1485 i   the N 4] slow transition by itself
rec    765 i   N 4 765 recombination,
TOTL  1240 i   N 5 1240, total emission, collisions plus pumping
Inwd  1240 i   inward part of N 5

N 7r    25 i   these lines added to outlin in metdif - following must be false
Fl7r    19 i   these lines added to outlin in metdif - following must be false
O  1  6300 c   total Oxygen I  6300, including line optical depth
O  1  6363 c   total Oxygen I  6363, including line optical depth
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O  1  5577 c   auroral OI

TOIc     0 c   total collisional cooling due to 6-level OI atom
TOIh     0 h   total collisional heating due to 6-level OI atom
6lev  8446 i   be moved to call PutLine
6lev  1304 i   OI 1304 from six level atom
6lev  1039 i   OI 1039 from six level atom

6lev  4368 i   OI 4368 from six level atom
6lev    13 i   OI 1.3 micron from six level atom
6lev    11 i   OI 1.1 micron from six level atom
6lev    29 i   OI 2.9 micron from six level atom
6lev    46 i   OI 4.6 micron from six level atom

TOTL  3727 c   O II 3727, all lines of multiplet together
TOTL  7325 c   O II 7325, all lines of multiplet together
IONZ  3727 i   line produced by photoionization of Oo; already in TOTL
IONZ  7325 i   line produced by photoionization of Oo; already in TOTL
O II  3729 i   five level atom calculations; D5/2 - S3/2

O II  3726 i   D3/2 - S3/2 transition
O II  2471 c   both 2P 1/2 and 3/2 to ground
O II  7323 i   P1/2-D5/2 and P3/2-D5/2 together
O II  7332 i   P1/2-D3/2 and P3/2-D3/2 together
TOTL  1665 i   total intensity of OIII] 1665, all processes

Phot  1665 i   contribution to OIII 1665 due to inner shell (2s^2) ionization
Augr  1665 i   contribution to OIII 1665 due to K-shell ionization
O  3  5007 c   fac = c5007/(1.+1./2.887)
O  3  4959 c   O III  4959 alone, collisions, tot OIII is this times 4
LOST  5007 i   O III 5007 lost through excit photo

TOTL  4363 i   O III 4363, sum of rec, coll, ct excitation
Coll  4363 c   O III 4363,collisions from five level atom
Rec   4363 i   O III 4363 recombination, coef from Burgess and Seaton
O  3  2321 c   collisional excitation of 2321, 5-level atom
C EX  4363 i   charge exchange, Dalgarno+Sternberg ApJ Let 257, L87.

C EX  5592 i   charge exchange rate, D+S
rec    835 i   O III 834A, dielectronic recombination only
InSh  1401 i   inner shell photoionization, relaxation
rec    789 i   O IV 789A, dielectronic recombination only
rec    630 i   O V 630A, dielectronic recombination only

TOTL  1218 i   O V 1218], total intensity of both lines
O  5  1211 i   the slow transition by itself
O  5  5112 i   BS O V 5112, recombination
TOTL  1035 i   O VI 1035, total of pumping and collisional excitation
Inwd  1035 i   inward part of OVI line

O 8r    19 i   recombination from fully stripped ion
Ne 3  3869 c   Ne III  3869, of 3968+3869 doublet
Ne 3  3968 c   Ne III  3968, of 3968+3869 doublet
Ne 3  3343 c   NeIII auroral line
Ne 3  1815 c   NeIII auroral line

Ne 4  2424 c   Ne IV 2424, collisional excitation
Ne 4  4720 c   Ne IV N=3 lines, three level atom approx
Ne 4  1602 c   Ne IV N=3 lines, three level atom approx
Ne 5  3426 c   Ne V 3426 of 3426, 3346 doublet
Ne 5  3346 c   Ne V 3346 of 3426, 3346 doublet

Ne 5  2976 c   auroral line
Ne 5  1575 c   collisionally excited
Ne 5  1141 c   both components of 5S-3P 1146.1, 1137.0 doublet
TOTL   895 i   Ne VII 895, collisionally excited, both lines
Ne 7   890 i   Ne VII 890, single line

TOTL   774 i   Ne VIII 774, collisionally excited
Inwd   774 i   inward part of NeVIII 774 line
NeLr    12 i   these lines added to outlin in metdif - following must be false
Na 5  1365 c   [NaV] 1365, sum of 1365.1+1365.8; cs only guess
Na 5  2067 c   [NaV] 2067, sum of 2066.9+2068.4; cs only guess

Na 5  4017 c   [NaV] 4017, sum of 4010.9+4016.7+4022.7; cs only guess
Na 6  2569 c   [Na VI] 2568.9
Na 6  1357 c   [Na VI] 1356.6
Na 6  2972 c   [Na VI] 2971.9
Na 6  2872 c   [Na VI] 2872.7
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NaLr    10 i   these lines added to outlin in metdif - following must be false
TOTL  2798 i   Mg II 2798
Inwd  2798 i   inward part of Mg II 2798
Mg 6  1806 c   MG VI
TOTL   615 i   Mg 10 614.9 bothof doublet, li seq 2s 2p

MgLr     7 i   these lines added to outlin in metdif - following must be false
totl  2665 i   total emission in Al II] 2669.7, 2660 doublet
Al 2  2660 i   emission in Al II] 2669 alone
TOTL  1860 i   Al III
Inwd  1860 i   inward part of AlIII line

Al 6  2428 c   [Al VI] 2428.4
Al 6  2601 c   [Al VI] 2601.0
Al 6  1170 c   [Al VI] 1169.86
Al 6  2125 c   [Al VI] 2124.95
TOTL   556 i   Al 11, Li seq 2s2p

AlLr     6 i   these lines added to outlin in metdif - following must be false
diel  1260 i   SI II 1260, rough guess of dielec contribution
diel  1909 i   dielectronic recombination SiII 1909
rec   1207 i   Si III 1207, dielectronic recombination only
TOTL  1888 i   Si III] 1892+1883, total intensity of both lines

Si 3  1883 i   Si III] 1883 by itself
PHOT  1895 i   photoproduction by inner shell removal
TOTL  1397 i   Si IV 1397, collisionally excited
Inwd  1397 i   inward part of SiIV 1397
Si 7  2148 c   SI VII, 2148, O III like, collisionally excited

Si 7  2148 c
Si 8  1446 c   SI VIII 1446, OIII like, collisionally excited
Si 9  1985 c   SI IX 1985, 2150, collisionally excited
Si 9   949 c   collisionally excited
Si 9  1815 c   collisionally excited

Si 9   691 c   both components of 5S-3P doublet
Si10   606 c   SI 10 606A, actually group of 4 intercombination lines.
Si11   583 c   SI XI 582.9, collisionally excited
TOTL   506 i
SiLr     6 i   these lines added to outlin in metdif - following must be false

P15r    19 i   these lines added to outlin in metdif - following must be false
S 1R  1807 i   this is to check whether photoexcit of S II is ever important
S  2  6720 c   S II 6731 + 6716 together
S  2  4074 c   S II 4070 +4078 together
S  2 10330 c   S II N=3 lines, all four lines together

S II  6731 i   individual line from five level atom
S II  6716 i   individual line from five level atom
S II  4070 i   individual line from five level atom
S II  4078 i   individual line from five level atom
S II 10323 i   individual line from five level atom

S II 10289 i   individual line from five level atom
S II 10373 i   individual line from five level atom
S II 10339 i   individual line from five level atom
S  3  9532 c   [S III] 9532 alone
S  3  9069 c   [S III] 9069 alone

S  3  6312 c   [S III] 6312, transauroral temperature sensitive
S  3  3722 c   [S III] 3722, same upper level as 6312
TOTL  1198 i   S V 1198] both lines together
S  5  1188 i   Be seq, weaker of the two transitions
TOTL   933 i   total S VI 933+944

S  9  1715 c   S IX 1715, 1987, collisionally excited
S 10  1213 c   S X 1213, 1197, collisionally excited
S 11  1826 c   S XI 1615, 1826, collisionally excited
S 12   520 c   group of four intercombination lines
S 13   488 c   S XIII 488.4, 1909 like, collisionally excited

TOTL   427 i   S 14 506 li seq 2s2p
S LR     5 i   these lines added to outlin in metdif - following must be false
S LR     5 i
Cl 2  8579 c   Chlorine II 8581, 9127 doublet
Cl 2  9127 c   Chlorine II 8581, 9127 doublet

Cl 2  9127 c
Cl 2  6164 c   Chlorine II 6164 auroral line
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Cl 2  3676 c   Chlorine II 3679 auroral line
TOTL  5525 c   Cl III 5519, 5539 doublet, both together
TOTL  3350 c   Cl III 3354, 3344 doublet, both together

TOTL  8494 c   Cl III 8504, 8436, 8552, 8483 multiplet, all together
Cl 3  5538 i   Cl III 5538
Cl 3  5518 i   Cl III 5518
Cl 3  3354 i   Cl III 3354
Cl 3  3344 i   Cl III 3344

Cl 3  8504 i   Cl III 8504
Cl 3  8436 i   Cl III 8436
Cl 3  8552 i   Cl III 8552
Cl 3  8483 i   Cl III 8483
Cl 4  8047 c   ClIV 8047

Cl 4  7532 c   ClIV 7532
Cl 4  3119 c   ClIV 3119
Cl 4  5324 c   ClIV 5324
Cl 4  5324 c
ClRr     4 i   Cl 17 ly a recombination 3.7A from fully stripped ion

Ar 3  7135 c   Argon III 7135
Ar 3  7751 c   Argon III 7751
Ar 3  5192 c   Argon III 5192
Ar 3  3109 c   Argon III 3109
Ar 3  3005 c   Argon III 3005

TOTL  4725 i   Argon IV 4711 + 4740 together, 4740=90%
TOTL  2860 i   [AvIV] 2868, 2854 together
TOTL  7250 i   [AvIV] auroral lines, 7237, 7331, 7171, 7263
Ar 4  4740 c   [Ar IV] 4740
Ar 4  4711 c   [Ar IV] 4711

Ar 4  2868 c   [Ar IV] 2868
Ar 4  2854 c   [Ar IV] 2854
Ar 4  7263 c   [Ar IV] 7263
Ar 4  7171 c   [Ar IV] 7171
Ar 4  7331 c   [Ar IV] 7331

Ar 4  7237 c   [Ar IV] 7237
Ar 5  7005 c   Argon V, 3P lines, 7005, collisionally excited
Ar 5  6435 c   Argon V, 3P lines, 6435, collisionally excited
Ar 5  6435 c
Ar14  4413 c   Ar XIV 4413, predicted lambda, not observed(??)

Ar15   409 c   collisionally excited
ArRr     4 i   these lines added to outlin in metdif - following must be false
K19r     4 i   these lines added to outlin in metdif - following must be false
Ca 2  3933 c   coll excit calcium k+h
Ca 2  8579 c   infrared triplet

Ca 2  7306 c   forbidden lines, 7291+7324 together
Phot  3933 i   fraction H Ly-alpha destruction of excited levels
Phot  7306 i   fraction H Ly-alpha destruction of excited levels
Ca2K  3934 i   individual lines from five level atom
Ca2H  3969 i   individual lines from five level atom

Ca2X  8498 i   individual lines from five level atom
Ca2Y  8542 i   individual lines from five level atom
Ca2Z  8662 i   individual lines from five level atom
CaF1  7291 i   individual lines from five level atom
CaF2  7324 i   individual lines from five level atom

Rec   3933 i   reccombination contribution to CaII emission
Ca 5  6087 c   Ca V optical and uv lines, collisional excitation, 3-level atom
Ca 5  5311 c   Ca V optical and uv lines, collisional excitation, 3-level atom
Ca 5  2414 c   Ca V optical and uv lines, collisional excitation, 3-level atom
Ca 5  3997 c   Ca V optical and uv lines, collisional excitation, 3-level atom

Ca 7  5620 c   Ca VII optical and uv lines, collisional excitation, 3-level atom
Ca 7  4941 c   Ca VII optical and uv lines, collisional excitation, 3-level atom
Ca 7  2112 c   Ca VII optical and uv lines, collisional excitation, 3-level atom
Ca 7  3688 c   Ca VII optical and uv lines, collisional excitation, 3-level atom
CaLr     3 i   these lines added to outlin in metdif - following must be false

ScLr     3 i   these lines added to outlin in metdif - following must be false
Sc 2    21 c   Sc II 2.08 (1-3)
Sc 2    41 c   Sc II 4.1 mic (1-2)
Sc 2    42 c   Sc II 4.22 (2-3)
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Sc 3  3933 c   Sc III 3936

Sc 6  5054 c   Sc VI 5054 (1-2)
Sc 6  3592 c   Sc VI 3595 (2-3)
Sc 6  2100 c   Sc VI 2100 (1-3)
TiLr     3 i   these lines added to outlin in metdif - following must be false
Ti 3    12 c   Ti III 1.21 micron, (actually multiplet) 2-1 transition from model atom

Ti 3  9594 c   Ti III 9594, 3-1 transition, (actually multiplet) from model atom
Ti 3    45 c   Ti III 4.57 micron, 3-2 transition, (actually multiplet) from model atom
V Lr     3 i   these lines added to outlin in metdif - following must be false
V  3  8823 c   V III 8823
V  3  8507 c   V III 8507

V  3  8507 c
V  4  7735 c   V IV 7741 1-3
V  4  9489 c   V IV 9496 2-1
V  4    42 c   V IV 4.19 mic 3-2
CrLr     3 i   these lines added to outlin in metdif - following must be false

Cr 3  5828 c   [CrIII] multiplet blend at 5828A
Cr 4  7267 c   [CrIV] 2 - 1 multiplet blend at 7272
Cr 4  6801 c   [CrIV] 3 - 1 multiplet blend at 6806
Cr 5  7979 c   [CrV] 2 - 1 multiplet blend at 7985
Cr 5  6577 c   [CrV] 3 - 1 multiplet blend at 6582

Cr 5    37 c   [CrV] 3 - 2 multiplet blend at 3.75 microns
MnLr     3 i   these lines added to outlin in metdif - following must be false
Fe 2  6200 i   Fe 2 the 3-2 transition of Netzer's atom
Fe 2  4300 i   Fe 2 forbidden 2-1 transition from Netzer's atom
Fe 2  2400 i   Fe 2 UV3, 3-1 transition from Netzer's atom

Fe2c     0 c   total of all UV+optical Fe 2 cooling
Fe2h     0 h
Fe 2  1100 i   1 to 6 transition of Fred's Fe 2 atom
Fe 2  1500 i   2 to 6 transition of Fred's Fe 2 atom
Fe 2 11500 i   3 to 4 transition of Fred's Fe 2 atom

Fe 2  2500 i   3 to 5 transition of Fred's Fe 2 atom
Fe 2  2300 i   4 to 6 transition of Fred's Fe 2 atom
Fe 2  8900 i   5 to 6 transition of Fred's Fe 2 atom
Fe 2     0 c   all cooling due to 16 level atom
Fe 2   166 i   Fe 2 1.664 microns 8-13

Fe 2   160 i   Fe 2 1.599 microns 7-12
Fe 2   153 i   Fe 2 1.534 microns 6-11
Fe 2   164 i   Fe 2 1.644 microns 6-10
Fe 2   128 i   Fe 2 1.279 microns 12-4
Fe 2   130 i   Fe 2 1.295 microns 11-3

Fe 2   133 i   Fe 2 1.328 microns 11-4
Fe 2   126 i   Fe 2 1.257 microns 10-1
Fe 2   132 i   Fe 2 1.321 microns 10-2
Fe 2   259 i   Fe 2 25.988 microns 2-1
Fe 2   353 i   Fe 2 35.348 microns 3-2

Fe 2   178 i   Fe 2 17.936 microns 7-6, label is 178 to be unique
Fe 2   245 i   Fe 2 24.518 microns 8-7
Fe 2   358 i   Fe 2 35.776 microns 9-8
Fe 2   181 i   Fe 2 1.810 microns 10-7
Fe 2   168 i   Fe 2 1.677 microns 11-7

Fe 2   180 i   Fe 2 1.800 microns 11-8
Fe 2   171 i   Fe 2 1.712 microns 12-8
Fe 2   179 i   Fe 2 1.798 microns 12-9
Fe 2   229 i   Fe 2 22.902 microns 11-10
Fe 2   347 i   Fe 2 34.660 microns 12-11

Fe 2  8619 i   Fe 2 8619A 14-06
Fe 2  8894 i   Fe 2 8894A 15-07
Fe 2  9229 i   Fe 2 9229A 15-08
Fe 2  9270 i   Fe 2 9270A 16-09
Fe2b     2 i     emission from lage FeII atom, integrated over band

Fe 3     0 c   sum of 3p and 3g states together
Fe 3  5270 c   Fe 3 5270, predictions from garstang et al 78
Fe 3  4658 c   Fe 3 5270, predictions from garstang et al 78
Fe 4     0 c   total cooling due to 12-level Fe 4 atom
Fe 4  3096 i   Fe 4 3096.A, 4-1 and 5-1 transitions together
```

```
Fe 4  2836 i   Fe 4 2835.7A, 6-1 transition, 4P5/2 - 6S5/2
Fe 4  2829 i   Fe 4 2829.4A, 7-1 transition, 4P3/2 - 6S5/2
Fe 4  2567 i   Fe 4 2567.6+ 2567.4. 11-1 and 12-1 transitions
Fe 4   277 i   Fe 4 2.774 microns 12-7 transition
Fe 4   271 i   Fe 4 2.714 microns 12-6 transition

Fe 4   272 i   Fe 4 2.716 microns 11-6 transition
Fe 4   281 i   Fe 4 2.806 microns 10-7 transition
Fe 4   287 i   Fe 4 2.865 microns 10-8 transition
Fe 4   284 i   Fe 4 2.836 microns 9-6 transition
Fe 5  3892 c   Fe 5  3892+3839

Fe 6     0 c   all of 2G lines together first
Fe 6  5177 c   Fe 6 5177, approximate correct
Fe 7  6087 c   [Fe 7] 6087
Fe 7  5722 c   [Fe 7] 5722
Fe 7   242 c   Fe 9 242 j=1 slower decay

Fe11  2649 c   Fe 11 2649 collisional excitation
Fe11  1467 c   Fe 11 1467 collisional excitation
Fe12  1242 c   Fe 12, 1242, 1349 together, collisional excitation
Fe12  2170 c   Fe 12, 2170, 2406 together, collisional excitation
Fe12  2568 c   Fe12 2904, 2567, 3567, 3073 together, collisional excitation

Fe14  5303 i   Fe 14 optically thin in line 344
Coll  5303 c   contribution from collisional excitation
Pump  5303 r   continuum fluorescense
 347  5303 c66 error! put this in
Fe19   592 c   Fe 19 from loulergue et al '85

Fe19  7082 c   Fe 19 from loulergue et al '85
Fe19  1118 c   Fe 19 from loulergue et al '85
Fe19  1328 c   Fe 19 from loulergue et al '85
Fe22   846 c   Fe 22 845.6A
Fe23   263 c   Fe 23 1909-like 262.6

FeKa     2 i   total intensity of K-alpha line
FeLr     2 i   recombination from fully stripped ion
TotH     2 i   total hot iron Ka; Auger "hot" iron, plus recom
AugC     2 i   Auger production of "cold" iron, less than or 17 times ionized
CoLr     1 i   these lines added to outlin in metdif - following must be false

NiLr     1 i   these lines added to outlin in metdif - following must be false
CuLr     1 i   these lines added to outlin in metdif - following must be false
ZnLr     1 i   these lines added to outlin in metdif - following must be false
Stoy     0 i   optional sum of certain emission lines, set with "print sum"
BaC   3646 i   residual flux at head of Balmer continuum, nuFnu

cdif  3646 i   residual flux in Balmer continuum, nuFnu
cout  3646 i   residual flux in Balmer continuum, nuFnu
cref  3646 i   residual flux in Balmer continuum, nuFnu
thin  3646 i   residual flux in Balmer continuum, nuFnu
```

3.4. Emission line identifications

This section lists three groups of lines. The groups are discussed in the order they occur. The line list was automatically generated by the code with the **`punch line data`** command. All quantities were evaluated to 10^4 K. The description of the command in Part I of this document explains how to evaluate the quantities at other temperatures.

3.4.1. Optically thin recombination lines

The first group consists of all recombination lines of C, N., and O, with coefficients taken from Nussbaumer and Storey (1984) and Pequignot, Petitjean, and Boisson (1991). For this set, the spectroscopic designation is followed by the wavelength and the log of the recombination coefficient evaluated at 10^4 K.

These are all predictions for optically thin pure recombination. These should be accurate for classical nebulae, such as planetary nebulae and HII regions. They will not be accurate for dense environments where optical depths and collisional effects come into play. There are several instances where more than one line of an ion will have the same wavelength due to the integer Ångstrom format used for wavelengths. The worst case is O V 4953, where three lines of the same multiplet have the same wavelength.

3.4.2. Transferred heavy element lines

The following group lists all the lines now included in the line transfer arrays, except for lines of H and He. These lines fall into two groups, referred to as level 1 and level 2 lines.

Level 1 lines have quantal collision strengths, experimental energies, and are treated including destruction by background opacity sources.

Level 2 lines have only g-bar collision strengths and so their intensities are far less accurate than level 1 lines. Radiative data for level 2 lines are taken from the Opacity Project, and CLOUDY uses the line energies given there. As a result these lines have wavelengths that are uncertain by typically 10%.

Line labels These lines are all treated in a fairly automatic way, on a common basis. The ion is the first column of the table. This is in a uniform format, beginning with the two character element symbol and followed by an integer indicating the level of ionization. "C 2" is C^+ or CII. This is followed by the integer wavelength label used to identify the line in the printout. The third column, with the label "WL", is the correct wavelength of the line, with units of either microns ("m") or Angstroms ("A"). The remaining columns give the statistical weights of the lower and upper levels, the product of the statistical weight and the oscillator strength, and then the Einstein A.

The last column is the electron collision strength, generally evaluated at 10^4 K. Exceptions are lines whose collision strengths are only evaluated for temperatures far from 10^4 K, for instance , a Fe XXV transition. Usually these collision strengths are for only the indicated transition, although in some cases (the Be sequence) the value is for the entire multiplet. This is discussed further in the section on the evaluation of the cooling function in HAZY II.

3.4.3. Output produced for the transferred lines

Because the lines have a common format within their storage vectors, the output has a common format too. Generally only the total intensity of the transition, the result of the solution of a multi-level atom with all processes included, is done. The approach used to compute the level populations is described in Part II of Hazy, and includes continuum pumping, destruction by background opacities, and trapping.

The total intensity of the transition is printed in a form like "C 2 1335", with the spectroscopic identification given by the first part, as found in the first column of the table, and the wavelength as indicated by the integer in the second column of the table.

In a few cases (for instance, the C 4 λλ1548, 1551 doublet), a total intensity is also derived. In these cases the label "Totl" will appear together with an average wavelength (1549 in this case). These lines are all explicitly shown in section 3.3 on page 626 above.

It is possible to break out various contributors to the lines with options on the **`print line`** command, described in Part I of this document and in the following. These contributors are printed following the total intensity.

`print line heating` An emission line will heat rather than cool the gas if it is radiatively excited but collisionally de-excited. The print out will include an entry beginning with the label "Heat" if this printout is turned on.

`print line collisions` The collisional contribution to the lines will be printed, with the label "Coll".

`print line pump` The contribution to the total line, produced by continuum pumping, is printed with the label "Pump". What is observed? Whether or not this is a net emission process contributing to the observed line intensity depends on the geometry, whether or not continuum source is in the beam. At some velocities within the line profile this can be a net emission process, due to absorption at other velocities. If the continuum source is in the beam and gas covers it, this is not a *net* emission process, since photons are conserved.

`print line inward` The inwardly directed part of the total emission is printed with the label "Inwd". This can be greater than half of the line intensity if the line is optically thick.

`print line optical depths` At the end of the calculation the optical depths for all optically thick lines will be printed. This is not done by default since it is quite long.

3.4.4. The lines

```
90.04
Emission line data.

      Recombination lines of C, N, O
   Ion  WL(A)   Coef     Ion   WL(A)  Coef
   C  1 10695 -13.392    C  1  9088 -13.996
   C  1  9658 -14.478    C  1  1657 -13.114
   C  1  6828 -15.331    C  2  9903 -12.790
   C  2  4267 -12.553    C  2  7231 -14.184
   C  2  6580 -13.395    C  2  2837 -13.218
   C  2  1761 -13.000    C  2  1335 -11.311
   C  3  8197 -12.396    C  3  8665 -13.052
   C  3  2726 -12.943    C  3  4069 -12.310
   C  3  7613 -13.373    C  3  3888 -13.264
   C  3  1923 -11.970    C  3  4649 -12.275
   C  3  4187 -12.755    C  3  2163 -12.743
   C  4  7726 -12.005    C  4  4659 -11.894
   C  4  2529 -11.735    C  4  1549 -11.188
   N  1 10117 -13.650    N  1 10525 -13.974
   N  1  9829 -14.393    N  1  8692 -13.349
   N  1  8212 -13.753    N  1  7452 -14.554
   N  1  1200 -13.090    N  2  4530 -13.690
   N  2  4026 -13.959    N  2  4176 -13.873
   N  2  1494 -14.015    N  2  2232 -13.950
   N  2  4678 -14.417    N  2  4041 -13.056
   N  2  4552 -14.154    N  2  4239 -13.187
   N  2  4435 -13.381    N  2  5005 -12.703
   N  2  5679 -12.935    N  2  1742 -12.283
   N  2  1345 -12.863    N  3  8237 -12.413
   N  3  4379 -12.190    N  3  1885 -12.017
   N  3  4641 -14.135    N  3  4110 -12.908
   N  4  7703 -12.171    N  4  7582 -12.620
   N  4  4606 -11.975    N  4  4707 -12.681
   N  4  2646 -11.920    N  4  1700 -12.412
   N  4  1036 -11.687    N  4  3481 -12.007
   N  5  7618 -11.800    N  5  4945 -11.697
   N  5  2981 -11.593    N  5  1620 -11.447
   O  1  8447 -13.856    O  1  7773 -12.997
   O  1  9264 -13.353    O  1  3947 -14.539
   O  1  1357 -12.946    O  2  4342 -13.378
   O  2  4607 -13.542    O  2  4489 -14.764
   O  2  4094 -13.075    O  2  4278 -13.239
   O  2  4051 -14.105    O  2  4294 -13.403
   O  2  4339 -14.156    O  2  4075 -12.723
   O  2  4111 -13.028    O  2  3867 -13.438
   O  2  4152 -13.369    O  2  4913 -13.690
   O  2  4651 -12.444    O  2  4341 -12.751
   O  2  3736 -13.817    O  3  4435 -12.855
   O  3  3265 -12.009    O  3  3762 -12.222
   O  3  5592 -14.052    O  4  7713 -12.175
   O  4  7677 -12.627    O  4  4632 -11.994
   O  4  4344 -12.571    O  4  2450 -11.846
   O  4  1068 -12.028    O  4  3409 -14.187
   O  4  3066 -12.800    O  5  7611 -12.007
   O  5  7592 -12.406    O  5  2993 -12.230
   O  5  4930 -11.843    O  5  1845 -12.383
```

O	5	2942	-11.639	O	5	1644	-11.694	N	4	2235	-12.628	N	4	2190	-12.391
O	5	1708	-12.308	O	6	5291	-11.550	N	4	2160	-12.695	N	4	2080	-12.933
O	6	2082	-12.033	O	6	3434	-11.449	N	4	1719	-11.490	N	4	1325	-11.959
O	6	2070	-11.354	O	6	1125	-11.219	N	4	1280	-13.013	N	4	1272	-12.745
C	1	1140	-12.776	C	2	8797	-13.272	N	4	1260	-12.543	N	4	1256	-12.450
C	2	5113	-13.989	C	2	4961	-13.909	N	4	1240	-12.552	N	4	1234	-12.643
C	2	4619	-13.568	C	2	4142	-13.891	N	4	1231	-12.724	N	4	1230	-12.846
C	2	3166	-14.652	C	2	1168	-13.036	N	4	1228	-12.528	N	4	1226	-12.927
C	2	1093	-12.457	C	2	1037	-12.108	N	4	1224	-12.523	N	4	1222	-13.101
C	2	971	-14.430	C	2	953	-13.973	N	4	1221	-12.952	N	4	1174	-12.569
C	2	946	-12.191	C	2	800	-11.370	N	4	1102	-12.979	N	4	993	-12.374
C	3	14383	-14.865	C	3	13986	-14.925	N	4	955	-12.158	N	4	953	-12.496
C	3	13717	-14.395	C	3	13580	-14.559	N	4	923	-11.504	N	4	765	-11.278
C	3	9700	-14.311	C	3	8341	-12.846	N	4	757	-12.683	N	4	716	-12.134
C	3	8315	-14.772	C	3	8226	-14.841	N	4	705	-12.730	N	4	678	-12.164
C	3	8197	-14.274	C	3	8189	-14.572	N	4	323	-12.172	N	4	298	-12.264
C	3	7598	-14.212	C	3	6740	-13.573	N	4	284	-11.615	N	4	240	-11.926
C	3	5826	-14.104	C	3	5305	-14.870	N	4	234	-12.540	N	4	225	-11.631
C	3	5263	-14.329	C	3	5133	-14.576	N	4	222	-12.237	N	4	218	-12.067
C	3	4718	-14.243	C	3	4662	-14.096	N	4	209	-12.823	N	4	178	-12.159
C	3	4593	-13.741	C	3	4543	-14.312	O	1	27640	-18.479	O	1	18023	-18.383
C	3	4429	-13.923	C	3	4395	-14.289	O	1	11299	-18.213	O	1	7950	-12.641
C	3	4371	-14.108	C	3	4330	-13.437	O	1	6319	-13.998	O	2	25393	-14.527
C	3	4326	-14.227	C	3	4301	-14.177	O	2	11946	-14.228	O	2	9377	-14.358
C	3	4159	-13.811	C	3	3927	-13.828	O	2	8883	-14.403	O	2	8772	-13.943
C	3	3603	-14.165	C	3	3415	-14.340	O	2	4593	-14.028	O	2	4350	-14.058
C	3	3385	-13.407	C	3	2512	-12.410	O	2	4188	-13.802	O	2	3800	-13.966
C	3	2440	-12.889	C	3	2297	-11.405	O	2	3078	-14.161	O	2	3018	-14.237
C	3	2296	-12.649	C	3	2200	-12.496	O	2	3009	-14.276	O	2	386	-12.472
C	3	2114	-12.598	C	3	2017	-12.305	O	2	386	-12.651	O	3	4587	-14.567
C	3	1923	-12.714	C	3	1828	-11.537	O	3	3882	-13.316	O	3	3763	-13.830
C	3	1797	-12.699	C	3	1778	-13.121	O	3	3327	-13.720	O	3	3192	-13.961
C	3	1702	-12.873	C	3	1634	-12.812	O	3	3176	-13.255	O	3	3042	-13.725
C	3	1620	-13.133	C	3	1577	-11.544	O	3	2092	-12.752	O	3	1947	-12.548
C	3	1549	-12.715	C	3	1516	-13.122	O	3	1924	-12.867	O	3	835	-11.221
C	3	1491	-12.607	C	3	1480	-13.081	O	3	703	-11.653	O	3	600	-12.244
C	3	1478	-12.611	C	3	1382	-13.214	O	3	542	-12.174	O	3	374	-12.029
C	3	1296	-12.799	C	3	1247	-12.169	O	3	321	-12.100	O	3	301	-11.483
C	3	1176	-11.516	C	3	977	-11.261	O	3	299	-11.901	O	4	9225	-14.889
C	3	574	-12.579	C	3	538	-12.614	O	4	8724	-13.875	O	4	6100	-14.014
C	3	512	-12.593	C	3	494	-12.321	O	4	4541	-14.301	O	4	4492	-14.278
C	3	493	-12.461	C	3	484	-12.491	O	4	4034	-13.185	O	4	3799	-13.885
C	3	476	-12.340	C	3	460	-11.459	O	4	3794	-13.999	O	4	3721	-13.065
C	3	451	-12.639	C	3	433	-12.699	O	4	3554	-14.378	O	4	3549	-14.952
C	3	412	-11.524	C	3	398	-11.721	O	4	3491	-13.806	O	4	3351	-14.078
C	3	372	-12.431	N	1	10595	-14.047	O	4	3038	-12.125	O	4	3028	-13.437
N	1	9048	-13.837	N	1	8180	-14.326	O	4	3024	-15.008	O	4	3003	-14.366
N	1	1000	-13.522	N	1	994	-13.298	O	4	2907	-12.935	O	4	2773	-12.908
N	1	981	-12.568	N	2	5495	-13.612	O	4	2638	-12.651	O	4	2620	-12.433
N	2	4724	-14.066	N	2	1085	-11.877	O	4	2511	-12.311	O	4	2486	-12.526
N	2	916	-12.383	N	2	646	-12.150	O	4	2364	-12.826	O	4	1936	-12.987
N	3	6938	-12.973	N	3	5335	-13.300	O	4	1786	-12.749	O	4	1516	-13.913
N	3	4508	-13.815	N	3	4478	-13.734	O	4	1355	-13.533	O	4	1342	-11.884
N	3	4200	-13.539	N	3	4002	-13.883	O	4	1296	-12.850	O	4	1289	-11.987
N	3	3429	-14.086	N	3	2198	-12.956	O	4	1213	-12.553	O	4	1102	-14.254
N	3	2188	-12.117	N	3	2064	-11.719	O	4	1080	-13.746	O	4	1060	-13.311
N	3	1857	-12.761	N	3	1498	-12.331	O	4	1046	-13.006	O	4	1007	-14.190
N	3	991	-10.847	N	3	980	-12.876	O	4	923	-12.167	O	4	844	-11.780
N	3	783	-11.931	N	3	764	-11.495	O	4	789	-10.546	O	4	780	-11.147
N	3	686	-11.800	N	3	472	-12.238	O	4	746	-12.423	O	4	713	-12.271
N	3	419	-11.715	N	3	411	-12.279	O	4	704	-12.271	O	4	637	-12.291
N	3	391	-12.184	N	3	387	-11.677	O	4	617	-11.828	O	4	609	-11.635
N	3	374	-11.879	N	3	349	-11.129	O	4	554	-11.253	O	4	487	-12.470
N	3	340	-11.500	N	3	323	-12.221	O	4	443	-13.048	O	4	380	-12.229
N	3	312	-12.363	N	4	9203	-12.739	O	4	342	-13.343	O	4	307	-12.575
N	4	7851	-13.841	N	4	7760	-15.027	O	4	304	-13.095	O	4	290	-12.679
N	4	7742	-15.059	N	4	7741	-14.854	O	4	289	-12.127	O	4	286	-12.369
N	4	5209	-13.865	N	4	4804	-14.329	O	4	280	-12.651	O	4	276	-12.402
N	4	4757	-14.491	N	4	4745	-14.259	O	4	274	-12.493	O	4	267	-12.279
N	4	4708	-14.430	N	4	4706	-13.953	O	4	266	-11.250	O	4	261	-11.594
N	4	4680	-14.240	N	4	4676	-13.763	O	4	259	-12.298	O	4	253	-12.362
N	4	4640	-14.013	N	4	4513	-13.998	O	4	250	-12.392	O	4	239	-12.185
N	4	4290	-14.315	N	4	4124	-14.484	O	4	224	-11.653	O	4	216	-12.413
N	4	4074	-14.280	N	4	3459	-14.074	O	4	213	-12.052	O	4	211	-12.114
N	4	3201	-14.062	N	4	3078	-13.444	O	4	207	-12.003	O	4	203	-12.390
N	4	3004	-13.815	N	4	2664	-12.836	O	4	201	-11.012	O	4	196	-11.454
N	4	2630	-12.835	N	4	2603	-12.594	O	4	188	-12.617	O	4	184	-13.369
N	4	2575	-12.336	N	4	2551	-12.108	O	4	183	-12.271	O	4	171	-12.488
N	4	2457	-12.852	N	4	2431	-13.235	O	4	159	-11.503	O	5	6488	-12.505
N	4	2419	-12.759	N	4	2318	-12.944	O	5	5876	-14.729	O	5	5023	-14.830

O	5	5007	-14.881	O	5	4982	-14.602	O	1	145	145m	3	1	5.56E-09	1.75E-05	0.0283
O	5	4981	-14.902	O	5	4961	-14.380	O	1	631	63m	5	3	1.60E-08	8.91E-05	0.1060
O	5	4961	-14.843	O	5	4959	-14.892	O	2	834	834A	4	12	1.06E+00	8.51E+08	2.345
O	5	4953	-14.415	O	5	4953	-14.210	O	3	1661	1661A	3	5	4.38E-07	2.12E+02	0.4540
O	5	4953	-14.687	O	5	4945	-14.984	O	3	1666	1666A	5	5	1.09E-06	5.24E+02	0.7560
O	5	4924	-14.658	O	5	4498	-14.813	O	3	835	835A	9	15	9.63E-01	6.15E+08	5.000
O	5	4494	-14.918	O	5	4463	-14.355	O	3	304	304A	9	9	4.23E+00	3.35E+10	0.0000
O	5	3237	-13.683	O	5	3164	-13.884	O	3	883	88m	1	3	9.12E-09	2.60E-05	0.5590
O	5	3130	-14.039	O	5	3084	-13.650	O	3	518	51m	3	5	1.95E-08	9.69E-05	1.335
O	5	3078	-13.648	O	5	3031	-13.392	O	4	1402	1402A	6	12	4.15E-06	1.18E+03	1.473
O	5	3024	-13.160	O	5	3017	-13.594	O	4	789	789A	6	10	6.60E-01	7.07E+08	6.983
O	5	3005	-13.330	O	5	3004	-12.853	O	4	258	25m	2	4	2.09E-08	5.19E-04	2.387
O	5	2975	-12.913	O	5	2784	-13.174	O	5	630	630A	1	3	5.15E-01	2.89E+09	2.509
O	5	2696	-13.185	O	5	1661	-12.874	O	5	1218	1218A	1	3	1.51E-06	2.28E+03	0.7184
O	5	1629	-12.952	O	5	1524	-13.151	O	6	1032	1032A	2	4	2.66E-01	4.17E+08	3.472
O	5	1371	-11.953	O	5	1086	-12.425	O	6	1037	1037A	2	2	1.32E-01	4.10E+08	1.736
O	5	1072	-13.159	O	5	1068	-12.671	O	6	150	150A	2	6	5.31E-01	2.62E+10	0.1310
O	5	1055	-13.054	O	5	1041	-13.189	F	4	440	44m	1	3	1.83E-08	2.10E-04	0.5536
O	5	1037	-12.909	O	5	1033	-13.101	F	4	258	25m	3	5	3.91E-08	7.82E-04	1.349
O	5	1032	-13.172	O	5	1020	-12.956	Ne	2	128	12m	4	2	4.21E-08	8.55E-03	0.2831
O	5	944	-13.091	O	5	775	-12.571	Ne	3	360	36m	3	1	2.23E-08	1.15E-03	0.2440
O	5	760	-11.904	O	5	681	-12.507	Ne	3	156	15m	5	3	6.49E-08	5.96E-03	0.7740
O	5	630	-11.737	O	5	202	-12.555	Ne	5	143	14m	3	5	6.65E-08	4.33E-03	5.832
O	5	193	-12.116	O	5	168	-12.216	Ne	5	243	24m	1	3	3.12E-08	1.17E-03	1.408
O	5	141	-12.236					Ne	6	76	7.65m	2	4	6.67E-08	1.90E-02	3.201
								Ne	7	895	895A	1	3	6.92E-06	1.92E+04	0.1685
								Ne	8	770	770A	2	4	2.06E-01	5.79E+08	2.199
								Ne	8	780	780A	2	2	1.01E-01	5.53E+08	1.099
								Ne	8	88	88.0A	2	6	6.02E-01	8.62E+10	0.0870
								Na	1	5895	5895A	2	6	1.94E+00	6.21E+07	11.126
								Na	3	73	7.32m	4	2	7.37E-08	4.59E-02	0.3500
								Na	4	90	9.04m	5	3	1.07E-07	2.91E-02	0.8020
								Na	4	212	21m	3	1	3.61E-08	5.31E-03	0.2730
								Na	6	144	14m	1	3	5.72E-08	6.14E-03	0.7697
								Na	6	86	8.61m	3	5	1.17E-07	2.11E-02	2.133
								Na	7	46	4.68m	2	4	1.16E-07	8.80E-02	1.500
								Mg	1	4561	4561A	1	9	2.05E-06	7.28E+01	0.0294
								Mg	1	2853	2853A	1	3	1.73E+00	4.73E+08	2.074
								Mg	1	2026	2026A	1	3	1.22E-01	6.61E+07	0.1054
								Mg	2	2796	2796A	2	4	1.26E+00	2.68E+08	11.303
								Mg	2	2804	2804A	2	2	6.28E-01	2.66E+08	5.652
								Mg	4	44	4.49m	4	2	1.20E-07	1.99E-01	0.3560
								Mg	5	135	13m	3	1	5.95E-08	2.17E-02	0.2763
								Mg	5	56	5.61m	5	3	1.80E-07	1.27E-01	0.8515
								Mg	5	1325	1325A	9	1	7.34E-09	2.79E+01	0.1530
								Mg	5	2417	2417A	5	1	5.78E-09	6.59E+00	0.1820
								Mg	5	2855	2855A	9	5	1.60E-08	2.48E+00	1.187
								Mg	7	55	5.50m	3	5	1.84E-07	8.09E-02	1.079
								Mg	7	90	9.03m	1	3	8.95E-08	2.44E-02	0.3368
								Mg	7	1190	1190A	9	1	9.72E-09	4.58E+01	0.1849
								Mg	7	2261	2261A	5	1	5.07E-09	6.61E+00	0.4354
								Mg	7	2569	2569A	9	5	2.14E-08	4.53E+00	0.8564
								Mg	8	30	3.03m	2	4	1.78E-07	3.24E-01	1.0000
								Mg	9	705	705A	1	3	1.93E-05	8.80E+04	0.2616
								Mg	10	610	610A	2	4	1.68E-01	7.55E+08	1.502
								Mg	10	625	625A	2	2	8.20E-02	7.00E+08	0.7511
								Mg	10	58	58.0A	2	6	6.52E-01	2.16E+11	0.0618
								Al	1	3957	3957A	6	2	7.32E-01	1.56E+08	1.828
								Al	1	3090	3090A	6	10	9.66E-01	6.75E+07	1.608
								Al	2	2670	2670A	1	3	1.07E-05	3.35E+03	3.560
								Al	3	1855	1855A	2	4	1.15E+00	5.57E+08	10.673
								Al	3	1863	1863A	2	2	5.72E-01	5.50E+08	5.328
								Al	5	29	2.91m	4	2	1.86E-07	7.34E-01	0.5240
								Al	6	36	3.66m	5	3	2.76E-07	4.58E-01	4.767
								Al	6	91	9.12m	3	5	4.42E-07	7.10E-02	1.041
								Al	8	58	5.85m	1	3	1.38E-07	8.96E-02	0.2740
								Al	8	36	3.69m	3	5	2.74E-07	2.68E-01	0.6104
								Al	9	20	2.04m	2	4	2.63E-07	1.05E+00	1.0000
								Al	10	639	639A	1	3	3.17E-05	1.77E+05	0.2110
								Al	11	550	550A	2	4	1.55E-01	8.52E+08	1.263
								Al	11	568	568A	2	2	7.50E-02	7.75E+08	0.6314
								Al	11	48	48.0A	2	6	6.70E-01	3.19E+11	0.0530
								Si	1	2518	2518A	9	9	2.12E+00	2.48E+08	2.552
								Si	1	2215	2215A	9	15	4.68E-01	4.24E+07	0.4623
								Si	2	2335	2335A	6	12	3.00E-05	3.24E+03	5.500
								Si	2	1808	1808A	6	10	1.53E-02	3.10E+06	13.010
								Si	2	1527	1527A	6	2	7.86E-01	1.12E+09	3.610
								Si	2	1305	1305A	6	2	5.21E-01	1.02E+09	2.890
								Si	2	1260	1260A	6	10	7.08E+00	2.96E+09	12.250
								Si	2	348	34m	2	4	1.58E-08	2.17E-04	5.770

Level 1 transferred lines

Ion	label	WL	gl	gu	gf	A	CS
C 1	1656	1656A	9	9	1.33E+00	3.59E+08	7.300
C 1	9830	9830A	9	5	2.36E-11	3.25E-04	1.149
C 1	8727	8727A	5	1	6.05E-09	5.29E-01	0.2764
C 1	609	609m	1	3	1.33E-09	7.96E-08	0.1480
C 1	369	369m	3	5	2.75E-09	2.68E-07	1.010
C 2	2326	2326A	6	12	5.56E-07	5.71E+01	2.510
C 2	1335	1335A	6	10	7.50E-01	2.81E+08	5.818
C 2	157	157m	2	4	3.33E-09	2.23E-06	2.154
C 3	1910	1910A	1	3	1.70E-07	1.04E+02	1.063
C 3	977	977A	1	3	7.67E-01	1.79E+09	3.908
C 3	386	386A	1	3	2.32E-01	3.46E+09	0.0000
C 3	310	310A	1	3	2.84E-02	6.56E+08	0.0000
C 3	291	291A	1	3	4.50E-02	1.18E+09	0.0000
C 3	280	280A	1	3	1.60E-02	4.54E+08	0.0000
C 3	274	274A	1	3	1.10E-02	3.26E+08	0.0000
C 3	270	270A	1	3	7.70E-03	2.34E+08	0.0000
C 3	1176	1176A	9	9	2.48E+00	1.33E+09	18.450
C 4	1551	1551A	2	2	1.90E-01	2.64E+08	2.972
C 4	1548	1548A	2	4	3.80E-01	2.64E+08	5.943
C 4	312	312A	2	6	4.06E-01	4.62E+09	0.2097
N 1	1200	1200A	4	12	1.30E+00	5.02E+08	4.100
N 2	2140	2140A	9	5	6.52E-07	1.90E+02	1.150
N 2	1085	1085A	9	15	9.81E-01	3.70E+08	5.500
N 2	671	671A	9	9	6.90E-01	1.13E+09	0.0000
N 2	121	121m	3	5	8.22E-09	7.40E-06	1.130
N 2	205	205m	1	3	3.93E-09	2.07E-06	0.4290
N 3	1750	1750A	6	12	1.59E-06	2.88E+02	2.090
N 3	990	990A	6	10	7.32E-01	4.97E+08	7.120
N 3	373	373A	2	4	8.82E-01	1.05E+10	0.0000
N 3	374	374A	4	6	1.59E+00	1.26E+10	0.0000
N 3	315	315A	6	10	1.17E+00	7.85E+09	0.0000
N 3	324	324A	6	6	3.13E-01	3.32E+09	0.0000
N 3	333	333A	6	2	3.69E-02	1.11E+09	0.0000
N 3	570	57m	2	4	9.35E-09	4.76E-05	1.446
N 4	1488	1488A	1	3	5.76E-07	5.80E+02	1.192
N 4	765	765A	1	3	6.16E-01	2.34E+09	3.239
N 5	1243	1243A	2	2	1.56E-01	3.37E+08	2.271
N 5	1239	1239A	2	4	3.14E-01	3.41E+08	4.542
N 5	209	209A	2	6	4.77E-01	1.21E+10	0.1645
O 1	6300	6300A	5	5	1.68E-10	5.65E-03	0.1470
O 1	6363	6363A	3	5	5.53E-11	1.82E-03	0.0882
O 1	5577	5577A	5	1	5.88E-09	1.26E+00	0.1050
O 1	1025	1025A	9	15	1.69E-01	7.13E+07	0.0193
O 1	1039	1039A	9	3	8.13E-02	1.67E+08	0.2700
O 1	1304	1304A	9	3	4.50E-01	5.89E+08	0.1632
O 1	4368	4368A	3	9	2.37E-02	9.20E+05	0.0000
O 1	8446	8446A	3	9	3.27E+00	3.40E+07	0.0000
O 1	11	1.13m	9	15	8.93E+00	3.11E+07	0.0000
O 1	13	1.32m	9	3	1.69E+00	2.17E+07	0.0000
O 1	29	2.90m	3	9	4.51E+00	3.99E+06	0.0000
O 1	46	4.60m	15	9	2.63E+00	9.37E+05	0.0000

Si 3	1207	1207A	1	3	1.68E+00	2.57E+09	5.741
Si 3	1892	1892A	1	3	2.69E-05	1.67E+04	5.563
Si 4	1394	1394A	2	4	1.05E+00	9.00E+08	10.672
Si 4	1403	1403A	2	2	5.20E-01	8.81E+08	5.328
Si 6	19	1.96m	4	2	2.74E-07	2.37E+00	0.3000
Si 7	24	2.48m	5	3	4.01E-07	1.45E+00	0.4613
Si 7	64	6.49m	3	1	1.22E-07	1.93E-01	0.1820
Si 9	25	2.58m	3	5	3.79E-07	7.57E-01	2.498
Si 9	39	3.93m	1	3	1.89E-07	2.72E-01	0.9016
Si10	14	1.43m	2	4	3.77E-07	3.07E+00	1.188
Si12	499	499A	2	4	1.44E-01	9.61E+08	1.080
Si12	521	521A	2	2	6.90E-02	8.49E+08	0.5398
Si12	41	41.0A	2	6	6.86E-01	4.55E+11	0.0459
P 7	13	1.37m	4	2	3.92E-07	6.92E+00	0.2700
P 8	48	4.85m	3	1	1.66E-07	4.70E-01	0.3000
P 8	17	1.74m	5	3	5.79E-07	4.28E+00	0.9700
P 10	27	2.71m	1	3	2.96E-07	8.99E-01	0.3300
P 10	18	1.87m	3	5	5.36E-07	2.05E+00	1.082
S 2	1256	1256A	4	12	1.24E-01	4.37E+07	6.811
S 3	1194	1194A	9	15	2.26E-01	7.01E+07	8.330
S 3	187	18m	3	5	5.41E-08	2.07E-03	5.412
S 3	334	33m	1	3	2.40E-08	4.76E-04	2.331
S 3	1720	1720A	9	5	4.61E-05	2.08E+04	3.132
S 4	1406	1406A	6	12	2.35E-04	6.73E+04	5.520
S 4	105	10m	2	4	5.13E-08	7.74E-03	8.500
S 5	1198	1198A	1	3	1.06E-04	1.64E+05	1.580
S 5	786	786A	1	3	1.42E+00	5.10E+09	8.300
S 6	933	933A	2	4	8.90E-01	1.70E+09	7.937
S 6	944	944A	2	2	4.40E-01	1.64E+09	3.963
S 8	9913	9913A	4	2	5.42E-07	1.84E+01	0.1920
S 9	12	1.25m	5	3	8.04E-07	1.14E+01	2.850
S 9	37	3.76m	3	1	2.13E-07	1.01E+00	0.5000
S 11	19	1.92m	1	3	4.16E-07	2.51E+00	0.1279
S 11	13	1.39m	3	5	7.18E-07	4.94E+00	0.2920
S 12	7611	7611A	2	4	7.09E-07	2.04E+01	0.1350
S 14	418	418A	2	4	1.28E-01	1.22E+09	0.8179
S 14	446	446A	2	2	5.98E-02	1.00E+09	0.4090
S 14	30	30.0A	2	6	7.12E-01	8.54E+11	0.0355
Cl 2	144	14m	5	3	7.01E-08	7.57E-03	2.170
Cl 2	333	33m	3	1	2.45E-08	1.46E-03	0.9300
Cl 4	204	20m	1	3	3.97E-08	2.13E-03	1.828
Cl 4	117	11m	3	5	8.60E-08	8.32E-03	6.230
Cl 9	7334	7334A	4	2	7.34E-07	4.55E+01	0.2800
Cl10	30	3.05m	3	1	2.61E-07	1.87E+00	0.1050
Cl10	9332	9332A	5	3	1.11E-06	2.83E+01	0.2504
Ar 2	69	6.98m	4	2	7.71E-08	5.26E-02	3.100
Ar 3	90	9.00m	5	3	1.12E-07	3.08E-02	3.100
Ar 3	218	21m	3	1	3.69E-08	5.17E-03	1.238
Ar 5	131	13m	1	3	6.14E-08	7.95E-03	2.802
Ar 5	80	8.00m	3	5	1.27E-07	2.71E-02	7.422
Ar 6	45	4.53m	2	4	1.19E-07	9.70E-02	6.330
Ar10	5533	5533A	4	2	9.74E-07	1.06E+02	0.5730
Ar11	26	2.62m	1	3	9.25E-07	3.00E+00	0.1089
Ar11	6917	6917A	3	5	2.38E-06	6.63E+01	0.3249
Ar16	354	354A	2	4	1.16E-01	1.54E+09	0.5875
Ar16	389	389A	2	2	5.26E-02	1.16E+09	0.2667
Ar16	25	25.5A	2	6	7.36E-01	1.26E+12	0.0307
K 1	7745	7745A	2	6	2.04E+00	3.85E+07	11.460
K 3	46	4.62m	4	2	1.17E-07	1.83E-01	2.200
K 4	59	5.98m	5	3	1.67E-07	1.04E-01	4.300
K 4	153	15m	3	1	5.36E-08	1.51E-02	1.130
K 6	88	8.82m	1	3	9.14E-08	2.61E-02	1.071
K 6	55	5.57m	3	5	1.80E-07	7.74E-02	4.632
K 7	31	3.19m	2	4	1.69E-07	2.77E-01	4.500
K 11	4250	4250A	4	2	1.27E-06	2.34E+02	0.1150
Ca 1	4228	4228A	1	3	1.94E+00	2.41E+08	5.414
Ca 2	3934	3934A	2	4	1.30E+00	1.40E+08	11.647
Ca 2	3969	3969A	2	2	6.44E-01	1.36E+08	5.824
Ca 2	8498	8498A	4	4	3.56E-02	8.22E+05	0.0000
Ca 2	8542	8542A	6	4	3.27E-01	7.47E+06	0.0000
Ca 2	8662	8662A	4	2	1.78E-01	7.91E+06	0.0000
Ca 2	7291	7291A	2	6	4.76E-08	9.95E-01	0.0000
Ca 2	7324	7324A	2	4	3.23E-08	1.00E+00	0.0000
Ca 4	32	3.21m	4	2	1.68E-07	5.45E-01	1.0000
Ca 5	114	11m	3	1	7.01E-08	3.55E-02	0.6700
Ca 5	41	4.15m	5	3	2.41E-07	3.10E-01	2.298
Ca 7	40	4.09m	3	5	2.45E-07	1.96E-01	3.703
Ca 7	61	6.15m	1	3	1.31E-07	7.67E-02	1.155
Ca 8	23	2.32m	2	4	2.33E-07	7.20E-01	6.750
Ca12	3329	3329A	4	2	1.62E-06	4.87E+02	0.1000
Ca18	302	302A	2	4	1.08E-01	1.96E+09	0.5108
Ca18	345	345A	2	2	4.72E-02	1.32E+09	0.2242
Ca18	19	19.0A	2	6	7.46E-01	2.37E+12	0.0228
Sc 5	23	2.31m	4	2	2.34E-07	1.46E+00	6.000
Sc13	2638	2638A	4	2	2.04E-06	9.78E+02	0.1820
Ti 6	17	1.72m	4	2	3.14E-07	3.56E+00	3.480
Ti14	2118	2118A	4	2	2.54E-06	1.89E+03	0.2300
V 7	13	1.30m	4	2	4.13E-07	8.11E+00	2.390
V 15	1721	1721A	4	2	3.13E-06	3.52E+03	0.1000
Cr 8	10	1.01m	4	2	5.33E-07	1.74E+01	1.760
Cr16	1411	1411A	4	2	3.81E-06	6.39E+03	0.1100
Mn 9	7968	7968A	4	2	6.76E-07	3.55E+01	2.480
Mn17	1170	1170A	4	2	4.59E-06	1.12E+04	0.1200
Fe 1	3884	3884A	25	25	5.65E-01	9.99E+06	1.368
Fe 1	3729	3729A	25	35	1.18E+00	1.62E+07	2.671
Fe 1	3457	3457A	25	15	6.00E-01	2.23E+07	1.199
Fe 1	3021	3021A	25	25	3.50E+00	1.02E+08	5.620
Fe 1	2966	2966A	25	35	1.20E+00	2.60E+07	1.871
Fe 2	2360	2360A	1	1	5.00E-01	5.99E+08	0.0000
Fe 2	6200	6200A	1	1	3.98E-04	1.06E+05	0.0000
Fe 2	1080	1080A	1	1	7.00E-03	3.86E+07	0.0000
Fe 2	1500	1500A	1	1	3.37E-03	9.99E+06	0.0000
Fe 2	11	1.15m	1	1	5.90E-04	3.08E+04	0.0000
Fe 2	2500	2500A	1	1	2.00E-01	2.13E+08	0.0000
Fe 2	2300	2300A	1	1	1.58E-02	1.99E+07	0.0000
Fe 2	8900	8900A	1	1	4.70E-01	3.96E+07	0.0000
Fe 2	1787	1787A	6	22	9.30E+00	8.84E+08	10.000
Fe 3	1122	1122A	25	15	1.99E+00	6.97E+08	25.000
Fe 7	95	9.51m	5	7	2.84E-07	2.98E-02	1.490
Fe 7	78	7.81m	7	9	3.49E-07	4.24E-02	1.568
Fe 9	245	245A	1	3	2.40E-04	8.89E+06	0.1230
Fe10	352	352A	6	2	1.69E-01	4.55E+09	0.0500
Fe10	6375	6375A	4	2	6.69E-07	5.49E+01	1.0000
Fe11	7892	7892A	5	3	1.22E-06	4.37E+01	1.0000
Fe11	61	6.10m	3	1	1.25E-07	2.63E-01	0.0360
Fe11	353	353A	9	9	5.53E-01	3.29E+09	0.0000
Fe13	10	1.07m	1	3	7.28E-07	1.40E+01	1.0000
Fe13	10	1.08m	3	5	8.62E-07	9.86E+00	1.0000
Fe14	347	347A	6	10	4.09E-01	2.27E+09	0.0000
Fe18	974	974A	4	2	5.50E-06	1.93E+04	0.1430
Fe21	2299	2299A	3	5	3.43E-06	8.66E+02	0.0424
Fe21	1354	1354A	1	3	5.10E-06	6.18E+03	0.0151
Fe24	192	192A	2	4	9.64E-02	4.36E+09	0.3185
Fe24	255	255A	2	2	3.62E-02	1.86E+09	0.1198
Fe24	11	11.0A	2	6	7.84E-01	7.71E+12	0.0136
Co11	5168	5168A	4	2	1.04E-06	1.30E+02	1.360
Ni12	4230	4230A	4	2	1.27E-06	2.37E+02	1.680

end level 1, start level 2

Ion	label	WL	gl	gu	gf	A	CS
Li 1	6743	6743A	2	6	1.49E+00	3.64E+07	9.997
Li 1	3245	3245A	2	6	9.58E-03	1.01E+06	0.0136
Li 1	2751	2751A	2	6	8.60E-03	1.26E+06	0.0087
Li 1	2571	2571A	2	6	5.14E-03	8.64E+05	0.0045
Li 1	2483	2483A	2	6	3.16E-03	5.69E+05	0.0026
Li 1	2433	2433A	2	6	2.04E-03	3.83E+05	0.0016
Li 1	2402	2402A	2	6	1.39E-03	2.68E+05	0.0011
Li 1	2381	2381A	2	6	9.87E-04	1.93E+05	0.0007
Li 1	2367	2367A	2	6	7.24E-04	1.44E+05	0.0005
Li 2	210	210A	1	3	7.46E-07	3.76E+04	0.0000
Li 2	202	202A	1	3	3.29E-07	1.79E+04	0.0000
Li 2	200	200A	1	3	4.59E-01	2.54E+10	0.0639
Li 2	179	179A	1	3	1.11E-01	7.70E+09	0.0800
Li 2	172	172A	1	3	4.38E-02	3.27E+09	0.0425
Li 2	169	169A	1	3	2.17E-02	1.68E+09	0.0207
Li 2	168	168A	1	3	1.24E-02	9.75E+08	0.0117
Li 2	167	167A	1	3	7.70E-03	6.12E+08	0.0072
Li 2	166	166A	1	3	5.12E-03	4.10E+08	0.0048
Li 2	166	166A	1	3	3.58E-03	2.88E+08	0.0033
Li 2	166	166A	1	3	2.60E-03	2.10E+08	0.0024
Li 3	135	135A	2	2	3.64E-09	6.66E+02	0.0000
Li 3	135	135A	2	6	8.32E-01	5.07E+10	0.3853
Li 3	113	113A	2	6	1.58E-01	1.35E+10	0.1008
Li 3	108	108A	2	6	5.80E-02	5.52E+09	0.0381
Li 3	105	105A	2	6	2.79E-02	2.79E+09	0.0188
Li 3	104	104A	2	6	1.56E-02	1.60E+09	0.0104
Li 3	103	103A	2	6	9.63E-03	1.00E+09	0.0065
Li 3	102	102A	2	6	6.37E-03	6.69E+08	0.0043

Li	3	102	102A	2	6	4.43E-03	4.68E+08	0.0030	B	3	412	412A	2	6	9.94E-02	6.49E+08	0.0663
Li	3	102	102A	2	6	3.21E-03	3.41E+08	0.0022	B	3	376	376A	2	6	4.50E-02	3.52E+08	0.0274
Be	1	2331	2331A	1	3	1.40E+00	5.72E+08	1.074	B	3	360	360A	2	6	2.44E-02	2.09E+08	0.0142
Be	1	1667	1667A	1	3	1.56E-02	1.25E+07	0.0055	B	3	350	350A	2	6	1.48E-02	1.34E+08	0.0084
Be	1	1402	1402A	1	3	4.39E-04	4.96E+05	0.0001	B	3	345	345A	2	6	9.64E-03	9.00E+07	0.0054
Be	1	1383	1383A	1	3	3.76E-04	4.36E+05	0.0001	B	3	341	341A	2	6	6.65E-03	6.35E+07	0.0037
Be	1	1434	1434A	1	3	3.55E-04	3.83E+05	0.0001	B	3	338	338A	2	6	4.79E-03	4.65E+07	0.0026
Be	1	1372	1372A	1	3	2.96E-04	3.49E+05	0.0001	B	4	62	62.4A	1	3	5.08E-07	2.90E+05	0.0000
Be	1	1364	1364A	1	3	2.29E-04	2.73E+05	0.0001	B	4	61	61.1A	1	3	7.08E-06	4.22E+06	0.0000
Be	1	1359	1359A	1	3	1.77E-04	2.13E+05	0.0000	B	4	60	60.5A	1	3	6.10E-01	3.71E+11	0.1203
Be	1	1499	1499A	1	3	8.40E-07	8.30E+02	0.0000	B	4	52	52.8A	1	3	1.35E-01	1.08E+11	0.0285
Be	2	3137	3137A	2	6	9.99E-01	1.13E+08	28.485	B	4	50	50.6A	1	3	5.20E-02	4.52E+10	0.0147
Be	2	1038	1038A	2	6	1.65E-01	1.70E+08	0.3226	B	4	49	49.6A	1	3	2.55E-02	2.31E+10	0.0071
Be	2	843	843A	2	6	6.23E-02	9.73E+07	0.0864	B	4	49	49.1A	1	3	1.44E-02	1.33E+10	0.0039
Be	2	777	777A	2	6	2.97E-02	5.47E+07	0.0378	B	4	48	48.8A	1	3	8.94E-03	8.36E+09	0.0024
Be	2	745	745A	2	6	1.64E-02	3.28E+07	0.0200	B	4	48	48.6A	1	3	5.94E-03	5.60E+09	0.0016
Be	2	727	727A	2	6	1.01E-02	2.12E+07	0.0120	B	4	48	48.4A	1	3	4.15E-03	3.94E+09	0.0011
Be	2	716	716A	2	6	6.64E-03	1.44E+07	0.0078	B	4	48	48.3A	1	3	3.01E-03	2.87E+09	0.0008
Be	2	708	708A	2	6	4.60E-03	1.02E+07	0.0053	B	5	48	48.6A	2	2	3.64E-09	5.14E+03	0.0000
Be	2	703	703A	2	6	3.32E-03	7.46E+06	0.0038	B	5	48	48.6A	2	6	8.32E-01	3.91E+11	0.1381
Be	3	104	104A	1	3	5.85E-07	1.19E+05	0.0000	B	5	41	41.0A	2	6	1.58E-01	1.04E+11	0.0362
Be	3	101	101A	1	3	1.86E-06	4.00E+05	0.0000	B	5	38	38.9A	2	6	5.80E-02	4.26E+10	0.0137
Be	3	100	100A	1	3	5.53E-01	1.21E+11	0.1817	B	5	37	38.0A	2	6	2.79E-02	2.15E+10	0.0068
Be	3	88	88.6A	1	3	1.27E-01	3.59E+10	0.0451	B	5	37	37.5A	2	6	1.56E-02	1.23E+10	0.0037
Be	3	85	85.0A	1	3	4.92E-02	1.51E+10	0.0234	B	5	37	37.2A	2	6	9.63E-03	7.72E+09	0.0023
Be	3	83	83.5A	1	3	2.42E-02	7.72E+09	0.0113	B	5	37	37.0A	2	6	6.37E-03	5.16E+09	0.0015
Be	3	82	82.7A	1	3	1.37E-02	4.46E+09	0.0063	B	5	36	36.9A	2	6	4.43E-03	3.61E+09	0.0011
Be	3	82	82.2A	1	3	8.55E-03	2.82E+09	0.0039	B	5	36	36.8A	2	6	3.21E-03	2.63E+09	0.0008
Be	3	81	81.9A	1	3	5.68E-03	1.88E+09	0.0026	C	1	943	943A	9	3	1.37E+00	3.42E+09	0.1601
Be	3	81	81.6A	1	3	3.97E-03	1.32E+09	0.0018	C	1	1247	1247A	9	15	9.88E-01	2.82E+08	0.1893
Be	3	81	81.5A	1	3	2.88E-03	9.64E+08	0.0013	C	1	841	841A	9	3	8.43E-01	2.65E+09	0.0707
Be	4	75	75.9A	2	2	3.65E-09	2.11E+03	0.0000	C	1	1561	1561A	9	15	6.43E-01	1.17E+08	0.2139
Be	4	75	76.0A	2	6	8.32E-01	1.60E+11	0.2161	C	1	1314	1314A	9	9	5.54E-01	2.38E+08	0.1288
Be	4	64	64.1A	2	6	1.58E-01	4.27E+10	0.0566	C	1	1165	1165A	9	15	4.38E-01	1.43E+08	0.0728
Be	4	60	60.8A	2	6	5.80E-02	1.75E+10	0.0214	C	1	1233	1233A	9	9	3.56E-01	1.73E+08	0.0666
Be	4	59	59.4A	2	6	2.79E-02	8.80E+09	0.0106	C	1	1132	1132A	9	15	2.25E-01	7.81E+07	0.0352
Be	4	58	58.6A	2	6	1.56E-02	5.05E+09	0.0058	C	1	1250	1250A	9	9	1.95E-01	9.24E+07	0.0376
Be	4	58	58.2A	2	6	9.63E-03	3.16E+09	0.0037	C	1	798	798A	9	3	1.56E-01	5.44E+08	0.0117
Be	4	57	57.9A	2	6	6.37E-03	2.11E+09	0.0024	C	1	1112	1112A	9	15	1.45E-01	5.21E+07	0.0218
Be	4	57	57.7A	2	6	4.43E-03	1.48E+09	0.0017	C	1	1114	1114A	9	15	1.30E-01	4.65E+07	0.0197
Be	4	57	57.6A	2	6	3.21E-03	1.08E+09	0.0012	C	1	1162	1162A	9	9	1.19E-01	6.53E+07	0.0197
B	1	1367	1367A	6	6	3.54E+00	2.10E+09	0.8936	C	1	1166	1166A	9	9	9.72E-02	5.29E+07	0.0162
B	1	1850	1850A	6	10	1.04E+00	2.03E+08	0.4567	C	1	1104	1104A	9	15	8.12E-02	2.96E+07	0.0120
B	1	2548	2548A	6	2	4.75E-01	2.44E+08	0.4076	C	1	1109	1109A	9	15	8.02E-02	2.90E+07	0.0120
B	1	1690	1690A	6	10	4.33E-01	1.01E+08	0.1572	C	1	1130	1130A	9	9	5.57E-02	3.23E+07	0.0087
B	1	1155	1155A	6	6	3.48E-01	2.90E+08	0.0568	C	1	1097	1097A	9	15	5.42E-02	2.00E+07	0.0079
B	1	1622	1622A	6	10	2.15E-01	5.45E+07	0.0716	C	1	1132	1132A	9	9	5.13E-02	2.97E+07	0.0080
B	1	2087	2087A	6	10	2.11E-01	3.23E+07	0.1286	C	1	1106	1106A	9	15	4.61E-02	1.67E+07	0.0069
B	1	1587	1587A	6	10	1.22E-01	3.23E+07	0.0388	C	1	1093	1093A	9	15	3.80E-02	1.41E+07	0.0055
B	1	1548	1548A	6	2	1.00E-01	1.39E+08	0.0327	C	1	776	776A	9	3	3.49E-02	1.29E+08	0.0025
B	1	1845	1845A	6	2	9.25E-02	9.06E+07	0.0404	C	1	1110	1110A	9	15	3.19E-02	1.15E+07	0.0048
B	1	1556	1556A	6	2	8.94E-02	1.23E+08	0.0273	C	1	1113	1113A	9	9	3.08E-02	1.84E+07	0.0047
B	1	1567	1567A	6	10	7.55E-02	2.05E+07	0.0234	C	1	1114	1114A	9	9	3.02E-02	1.80E+07	0.0046
B	1	1542	1542A	6	2	6.06E-02	8.49E+07	0.0182	C	1	1090	1090A	9	15	2.76E-02	1.03E+07	0.0040
B	1	1568	1568A	6	2	5.92E-02	8.03E+07	0.0184	C	1	1104	1104A	9	9	1.92E-02	1.17E+07	0.0028
B	1	1554	1554A	6	10	5.01E-02	1.38E+07	0.0153	C	1	1103	1103A	9	9	1.88E-02	1.14E+07	0.0028
B	1	1685	1685A	6	2	4.91E-02	5.76E+07	0.0177	C	1	1097	1097A	9	9	1.29E-02	7.93E+06	0.0019
B	1	1587	1587A	6	2	4.34E-02	5.74E+07	0.0138	C	1	765	765A	9	3	1.25E-02	4.74E+07	0.0009
B	1	1620	1620A	6	2	4.00E-02	5.08E+07	0.0133	C	1	1097	1097A	9	9	1.24E-02	7.63E+06	0.0018
B	1	1545	1545A	6	10	3.49E-02	9.74E+06	0.0105	C	1	1093	1093A	9	9	9.12E-03	5.65E+06	0.0013
B	1	1539	1539A	6	10	2.53E-02	7.12E+06	0.0075	C	1	1093	1093A	9	9	8.56E-03	5.31E+06	0.0012
B	1	1059	1059A	6	6	2.06E-02	2.04E+07	0.0028	C	1	1090	1090A	9	9	6.67E-03	4.16E+06	0.0010
B	1	1021	1021A	6	6	2.96E-03	3.15E+06	0.0004	C	1	1090	1090A	9	9	6.18E-03	3.85E+06	0.0009
B	1	1002	1002A	6	6	7.28E-04	8.05E+05	0.0001	C	1	759	759A	9	3	5.88E-03	2.27E+07	0.0004
B	1	992	992A	6	6	2.48E-04	2.80E+05	0.0000	C	1	755	755A	9	3	3.26E-03	1.27E+07	0.0002
B	1	986	986A	6	6	1.05E-04	1.20E+05	0.0000	C	1	752	752A	9	3	2.01E-03	7.89E+06	0.0001
B	1	981	981A	6	6	5.15E-05	5.94E+04	0.0000	C	1	750	750A	9	3	1.34E-03	5.28E+06	0.0001
B	1	978	978A	6	6	2.83E-05	3.28E+04	0.0000	C	2	892	892A	6	6	3.06E+00	4.27E+09	4.439
B	2	1340	1340A	1	3	1.03E+00	1.27E+09	13.719	C	2	688	688A	6	10	2.01E+00	2.83E+09	3.590
B	2	695	695A	1	3	9.91E-02	4.55E+08	0.1790	C	2	1020	1020A	6	2	7.47E-01	2.39E+09	1.745
B	2	588	588A	1	3	5.12E-02	3.29E+08	0.0773	C	2	596	596A	6	10	7.04E-01	1.32E+09	1.078
B	2	551	551A	1	3	2.40E-02	1.75E+08	0.0338	C	2	561	561A	6	10	3.42E-01	7.22E+08	0.4914
B	2	518	518A	1	3	4.22E-03	3.49E+07	0.0056	C	2	530	530A	6	10	2.17E-01	5.14E+08	0.2934
B	2	512	512A	1	3	3.58E-03	3.03E+07	0.0047	C	2	544	544A	6	10	2.09E-01	4.70E+08	0.2906
B	2	508	508A	1	3	2.77E-03	2.38E+07	0.0036	C	2	535	535A	6	10	1.79E-01	4.17E+08	0.2442
B	2	526	526A	1	3	2.50E-03	2.00E+07	0.0034	C	2	550	550A	6	6	1.09E-01	4.00E+08	0.1532
B	2	506	506A	1	3	2.13E-03	1.85E+07	0.0027	C	2	858	858A	6	2	7.81E-02	3.54E+08	2.805
B	2	536	536A	1	3	2.02E-03	1.56E+07	0.0028	C	2	467	467A	6	6	5.32E-02	2.71E+08	0.0629
B	3	2068	2068A	2	6	7.29E-01	1.89E+08	21.718	C	2	637	637A	6	2	3.67E-02	3.01E+08	0.0604
B	3	519	519A	2	6	3.06E-01	1.26E+09	0.3009	C	2	424	424A	6	6	3.24E-02	2.00E+08	0.0346

C	2	439	439A	6	6	2.31E-02	1.33E+08	0.0256	N	2	435	435A	9	15	5.06E-02	1.19E+08	0.0555
C	2	524	524A	6	10	2.04E-02	4.94E+07	0.0272	N	2	426	426A	9	15	4.61E-02	1.13E+08	0.0495
C	2	521	521A	6	10	2.00E-02	4.90E+07	0.0266	N	2	466	466A	9	9	3.28E-02	1.12E+08	0.0387
C	2	578	578A	6	2	1.40E-02	1.39E+08	0.0208	N	2	451	451A	9	3	2.30E-02	2.51E+08	0.0262
C	2	419	419A	6	6	1.35E-02	8.53E+07	0.0142	N	2	388	388A	9	3	1.79E-02	2.64E+08	0.0174
C	2	415	415A	6	6	7.74E-03	4.99E+07	0.0081	N	2	428	428A	9	9	1.77E-02	7.15E+07	0.0191
C	2	553	553A	6	2	6.72E-03	7.32E+07	0.0095	N	2	430	430A	9	9	1.65E-02	6.61E+07	0.0179
C	2	412	412A	6	6	5.13E-03	3.35E+07	0.0053	N	2	426	426A	9	9	1.55E-02	6.31E+07	0.0166
C	2	410	410A	6	6	3.63E-03	2.40E+07	0.0037	N	2	448	448A	9	9	1.42E-02	5.23E+07	0.0161
C	2	540	540A	6	2	3.62E-03	4.14E+07	0.0050	N	2	367	367A	9	3	9.19E-03	1.51E+08	0.0084
C	2	427	427A	6	6	2.39E-03	1.46E+07	0.0026	N	2	439	439A	9	9	6.04E-03	2.32E+07	0.0067
C	2	532	532A	6	2	2.07E-03	2.44E+07	0.0028	N	2	427	427A	9	9	5.87E-03	2.38E+07	0.0063
C	2	527	527A	6	2	1.19E-03	1.43E+07	0.0016	N	2	357	357A	9	3	5.15E-03	8.93E+07	0.0046
C	2	523	523A	6	2	6.40E-04	7.79E+06	0.0009	N	2	430	430A	9	9	4.59E-03	1.83E+07	0.0050
C	2	528	528A	6	10	3.46E-04	8.27E+05	0.0005	N	2	352	352A	9	3	3.15E-03	5.63E+07	0.0028
C	3	271	271A	1	3	7.70E-03	2.33E+08	0.0052	N	2	349	349A	9	3	2.06E-03	3.75E+07	0.0018
C	3	268	268A	1	3	5.40E-03	1.66E+08	0.0036	N	2	347	347A	9	3	1.42E-03	2.62E+07	0.0012
C	3	266	266A	1	3	3.76E-03	1.17E+08	0.0025	N	2	345	345A	9	3	1.02E-03	1.89E+07	0.0009
C	3	288	288A	1	3	3.25E-03	8.68E+07	0.0023	N	2	434	434A	9	9	5.60E-04	2.20E+06	0.0006
C	4	245	245A	2	6	1.22E-01	2.25E+09	0.0791	N	3	678	678A	6	6	2.44E+00	5.90E+09	5.367
C	4	223	223A	2	6	5.41E-02	1.21E+09	0.0319	N	3	752	752A	6	2	5.00E-01	2.95E+09	3.677
C	4	212	212A	2	6	2.90E-02	7.12E+08	0.0163	N	3	293	293A	6	10	2.89E-01	2.24E+09	0.2102
C	4	206	206A	2	6	1.74E-02	4.52E+08	0.0095	N	3	453	453A	6	2	1.89E-01	3.07E+09	0.2163
C	4	203	203A	2	6	1.13E-02	3.04E+08	0.0061	N	3	283	283A	6	10	1.62E-01	1.35E+09	0.1135
C	4	200	200A	2	6	7.80E-03	2.15E+08	0.0041	N	3	264	264A	6	6	1.18E-01	1.87E+09	0.0771
C	4	199	199A	2	6	5.60E-03	1.57E+08	0.0030	N	3	277	277A	6	10	9.93E-02	8.62E+08	0.0681
C	5	40	41.0A	1	3	4.54E-07	6.01E+05	0.0000	N	3	312	312A	6	10	9.57E-02	6.55E+08	0.0742
C	5	40	40.7A	1	3	2.11E-05	2.83E+07	0.0000	N	3	273	273A	6	10	6.59E-02	5.88E+08	0.0445
C	5	40	40.4A	1	3	6.47E-01	8.83E+11	0.0112	N	3	267	267A	6	6	5.10E-02	7.93E+08	0.0337
C	5	35	35.0A	1	3	1.41E-01	2.55E+11	0.0165	N	3	248	248A	6	6	4.92E-02	8.83E+08	0.0302
C	5	33	33.5A	1	3	5.35E-02	1.06E+11	0.0100	N	3	271	271A	6	10	4.68E-02	4.25E+08	0.0313
C	5	32	32.8A	1	3	2.61E-02	5.39E+10	0.0048	N	3	305	305A	6	2	4.08E-02	1.46E+09	0.0309
C	5	32	32.5A	1	3	1.48E-02	3.12E+10	0.0027	N	3	269	269A	6	10	3.57E-02	3.28E+08	0.0238
C	5	32	32.3A	1	3	9.16E-03	1.96E+10	0.0016	N	3	300	300A	6	2	3.26E-02	1.20E+09	0.0243
C	5	32	32.1A	1	3	6.08E-03	1.31E+10	0.0011	N	3	238	238A	6	6	1.55E-02	3.03E+08	0.0091
C	5	32	32.0A	1	3	4.24E-03	9.19E+09	0.0008	N	3	234	234A	6	6	1.24E-02	2.51E+08	0.0071
C	5	31	32.0A	1	3	3.08E-03	6.70E+09	0.0005	N	3	286	286A	6	2	1.14E-02	4.62E+08	0.0081
C	6	33	33.7A	2	2	3.65E-09	1.07E+04	0.0201	N	3	231	231A	6	6	8.14E-03	1.69E+08	0.0046
C	6	33	33.8A	2	6	8.32E-01	8.11E+11	0.0595	N	3	279	279A	6	2	6.91E-03	2.95E+08	0.0048
C	6	28	28.5A	2	6	1.58E-01	2.16E+11	0.0251	N	3	229	229A	6	6	5.29E-03	1.12E+08	0.0030
C	6	27	27.0A	2	6	5.80E-02	8.83E+10	0.0095	N	3	274	274A	6	2	4.85E-03	2.14E+08	0.0033
C	6	26	26.4A	2	6	2.79E-02	4.46E+10	0.0047	N	3	272	272A	6	2	3.79E-03	1.71E+08	0.0025
C	6	26	26.1A	2	6	1.56E-02	2.56E+10	0.0026	N	3	228	228A	6	6	3.30E-03	7.04E+07	0.0019
C	6	25	25.9A	2	6	9.63E-03	1.60E+10	0.0016	N	3	270	270A	6	2	3.25E-03	1.49E+08	0.0022
C	6	25	25.7A	2	6	6.37E-03	1.07E+10	0.0011	N	3	242	242A	6	6	7.34E-04	1.38E+07	0.0004
C	6	25	25.6A	2	6	4.43E-03	7.49E+09	0.0007	N	4	247	247A	1	3	3.26E-01	1.18E+10	0.1990
C	6	25	25.6A	2	6	3.21E-03	5.45E+09	0.0005	N	4	197	197A	1	3	1.05E-01	5.98E+09	0.0508
N	1	942	942A	4	12	2.81E-01	1.76E+08	0.0299	N	4	182	182A	1	3	4.16E-02	2.79E+09	0.0185
N	1	896	896A	4	12	1.35E-01	9.34E+07	0.0129	N	4	175	175A	1	3	2.32E-02	1.68E+09	0.0099
N	1	952	952A	4	12	1.27E-01	7.79E+07	0.0138	N	4	170	170A	1	3	1.31E-02	1.00E+09	0.0055
N	1	1131	1131A	4	12	9.26E-02	4.02E+07	0.0157	N	4	168	168A	1	3	1.29E-02	1.02E+09	0.0053
N	1	876	876A	4	12	7.27E-02	5.26E+07	0.0067	N	4	192	192A	1	3	5.98E-03	3.57E+08	0.0028
N	1	899	899A	4	12	5.40E-02	3.71E+07	0.0052	N	4	167	167A	1	3	5.32E-03	4.23E+08	0.0022
N	1	866	866A	4	12	4.31E-02	3.19E+07	0.0038	N	4	211	211A	1	3	4.52E-03	2.24E+08	0.0023
N	1	860	860A	4	12	2.75E-02	2.07E+07	0.0024	N	4	166	166A	1	3	4.08E-03	3.28E+08	0.0017
N	1	878	878A	4	12	2.66E-02	1.92E+07	0.0024	N	4	165	165A	1	3	3.95E-03	3.22E+08	0.0016
N	1	856	856A	4	12	1.86E-02	1.41E+07	0.0016	N	4	172	172A	1	3	7.81E-05	5.84E+06	0.0000
N	1	867	867A	4	12	1.51E-02	1.12E+07	0.0014	N	5	162	162A	2	6	1.37E-01	5.74E+09	0.0849
N	1	853	853A	4	12	1.31E-02	9.99E+06	0.0011	N	5	147	147A	2	6	5.99E-02	3.05E+09	0.0337
N	1	851	851A	4	12	9.58E-03	7.34E+06	0.0008	N	5	140	140A	2	6	3.18E-02	1.79E+09	0.0170
N	1	860	860A	4	12	9.36E-03	7.02E+06	0.0008	N	5	136	136A	2	6	1.91E-02	1.14E+09	0.0099
N	1	856	856A	4	12	6.21E-03	4.70E+06	0.0005	N	5	134	134A	2	6	1.24E-02	7.65E+08	0.0063
N	1	853	853A	4	12	4.33E-03	3.30E+06	0.0004	N	5	132	132A	2	6	8.50E-03	5.38E+08	0.0043
N	1	852	852A	4	12	3.14E-03	2.40E+06	0.0003	N	5	131	131A	2	6	6.10E-03	3.92E+08	0.0031
N	2	532	532A	9	15	2.70E+00	4.24E+09	3.661	N	6	29	29.5A	1	3	4.35E-07	1.11E+06	0.0000
N	2	634	634A	9	3	2.05E+00	1.13E+10	12.672	N	6	29	29.1A	1	3	5.30E-05	1.39E+08	0.0000
N	2	907	907A	9	9	1.46E+00	1.32E+09	10.608	N	6	28	28.9A	1	3	6.74E-01	1.80E+12	0.0632
N	2	475	475A	9	15	1.07E+00	2.11E+09	1.287	N	6	24	24.9A	1	3	1.44E-01	5.14E+11	0.0143
N	2	528	528A	9	9	9.29E-01	2.47E+09	1.250	N	6	23	23.8A	1	3	5.45E-02	2.14E+11	0.0072
N	2	452	452A	9	15	5.63E-01	1.22E+09	0.6439	N	6	23	23.3A	1	3	2.65E-02	1.08E+11	0.0034
N	2	441	441A	9	15	4.15E-01	9.45E+08	0.4625	N	6	23	23.1A	1	3	1.50E-02	6.27E+10	0.0019
N	2	474	474A	9	9	3.92E-01	1.29E+09	0.4706	N	6	22	22.9A	1	3	9.28E-03	3.93E+10	0.0012
N	2	437	437A	9	15	3.43E-01	7.96E+08	0.3784	N	6	22	22.8A	1	3	6.16E-03	2.63E+10	0.0008
N	2	452	452A	9	9	2.00E-01	7.24E+08	0.2286	N	6	22	22.8A	1	3	4.30E-03	1.85E+10	0.0005
N	2	441	441A	9	9	1.22E-01	4.64E+08	0.1359	N	6	22	22.7A	1	3	3.12E-03	1.35E+10	0.0004
N	2	432	432A	9	9	1.12E-01	4.44E+08	0.1219	N	7	24	24.8A	2	2	3.65E-09	1.98E+04	0.0000
N	2	435	435A	9	9	9.61E-02	3.76E+08	0.1054	N	7	24	24.8A	2	6	8.32E-01	1.50E+12	0.0438
N	2	508	508A	9	9	9.42E-02	2.70E+08	0.1216	N	7	20	20.9A	2	6	1.58E-01	4.01E+11	0.0184
N	2	431	431A	9	15	7.69E-02	1.84E+08	0.0835	N	7	19	19.9A	2	6	5.80E-02	1.64E+11	0.0070
N	2	428	428A	9	15	6.06E-02	1.47E+08	0.0654	N	7	19	19.4A	2	6	2.79E-02	8.26E+10	0.0034

N	7	19	19.1A	2	6	1.56E-02	4.73E+10	0.0019	O	3	204	204A	9	3	7.73E-03	4.11E+08	0.0039
N	7	18	19.0A	2	6	9.63E-03	2.97E+10	0.0012	O	3	232	232A	9	9	4.53E-03	6.21E+07	0.0026
N	7	18	18.9A	2	6	6.37E-03	1.98E+10	0.0008	O	3	202	202A	9	3	4.51E-03	2.45E+08	0.0022
N	7	18	18.8A	2	6	4.43E-03	1.39E+10	0.0005	O	3	234	234A	9	15	3.35E-03	2.70E+07	0.0019
N	7	18	18.8A	2	6	3.21E-03	1.01E+10	0.0004	O	3	200	200A	9	3	3.03E-03	1.67E+08	0.0015
O	1	867	867A	9	9	7.15E-01	7.04E+08	0.0640	O	3	199	199A	9	3	2.15E-03	1.20E+08	0.0011
O	1	787	787A	9	9	5.61E-01	6.70E+08	0.0451	O	3	231	231A	9	9	7.65E-05	1.06E+06	0.0000
O	1	976	976A	9	15	4.88E-01	2.27E+08	0.0560	O	4	239	239A	6	10	3.02E+00	3.52E+10	0.8644
O	1	767	767A	9	9	1.72E-01	2.16E+08	0.0119	O	4	549	549A	6	6	2.03E+00	7.48E+09	5.501
O	1	969	969A	9	15	1.39E-01	6.58E+07	0.0157	O	4	207	207A	6	10	7.56E-01	1.17E+10	0.3849
O	1	754	754A	9	9	7.18E-02	9.35E+07	0.0048	O	4	196	196A	6	10	6.87E-01	1.19E+10	0.3307
O	1	946	946A	9	15	5.64E-02	2.80E+07	0.0061	O	4	214	214A	6	6	4.50E-01	1.08E+10	0.2372
O	1	747	747A	9	9	4.01E-02	5.32E+07	0.0026	O	4	609	609A	6	2	4.07E-01	3.66E+09	1.687
O	1	934	934A	9	15	3.25E-02	1.65E+07	0.0034	O	4	181	181A	6	10	2.94E-01	5.93E+09	0.1306
O	1	973	973A	9	3	2.95E-02	6.92E+07	0.0034	O	4	171	171A	6	10	2.16E-01	4.90E+09	0.0905
O	1	807	807A	9	9	2.67E-02	3.04E+07	0.0021	O	4	280	280A	6	2	1.88E-01	7.97E+09	0.1305
O	1	742	742A	9	9	2.56E-02	3.44E+07	0.0017	O	4	174	174A	6	10	1.72E-01	3.76E+09	0.0734
O	1	927	927A	9	15	2.05E-02	1.06E+07	0.0021	O	4	203	203A	6	2	1.31E-01	1.06E+10	0.0652
O	1	739	739A	9	9	1.78E-02	2.41E+07	0.0011	O	4	174	174A	6	6	1.24E-01	4.54E+09	0.0528
O	1	948	948A	9	3	1.41E-02	3.48E+07	0.0015	O	4	182	182A	6	10	1.05E-01	2.10E+09	0.0469
O	1	922	922A	9	15	1.38E-02	7.20E+06	0.0014	O	4	181	181A	6	6	9.37E-02	3.15E+09	0.0416
O	1	737	737A	9	9	1.31E-02	1.78E+07	0.0008	O	4	170	170A	6	10	7.02E-02	1.61E+09	0.0293
O	1	736	736A	9	9	1.02E-02	1.39E+07	0.0006	O	4	159	159A	6	6	6.36E-02	2.77E+09	0.0248
O	1	919	919A	9	15	9.70E-03	5.10E+06	0.0010	O	4	168	168A	6	10	5.46E-02	1.29E+09	0.0224
O	1	935	935A	9	3	7.82E-03	1.99E+07	0.0008	O	4	152	152A	6	6	5.24E-02	2.51E+09	0.0194
O	1	917	917A	9	15	7.08E-03	3.74E+06	0.0007	O	4	180	180A	6	2	4.14E-02	4.25E+09	0.0182
O	1	918	918A	9	15	5.52E-03	2.91E+06	0.0006	O	4	186	186A	6	2	3.27E-02	3.15E+09	0.0149
O	1	928	928A	9	3	4.80E-03	1.24E+07	0.0005	O	4	166	166A	6	10	3.03E-02	7.28E+08	0.0123
O	1	917	917A	9	15	4.26E-03	2.25E+06	0.0004	O	4	165	165A	6	10	2.91E-02	7.09E+08	0.0117
O	1	923	923A	9	3	3.16E-03	8.24E+06	0.0003	O	4	150	150A	6	6	2.35E-02	1.16E+09	0.0086
O	1	920	920A	9	3	2.19E-03	5.75E+06	0.0002	O	4	153	153A	6	6	1.97E-02	9.29E+08	0.0074
O	1	917	917A	9	3	1.58E-03	4.17E+06	0.0002	O	4	169	169A	6	2	1.75E-02	2.02E+09	0.0073
O	2	425	425A	4	12	1.50E+00	4.61E+09	1.605	O	4	168	168A	6	6	1.51E-02	5.93E+08	0.0062
O	2	388	388A	4	12	6.63E-01	2.44E+09	0.6453	O	4	148	148A	6	6	1.39E-02	7.04E+08	0.0050
O	2	530	530A	4	12	5.30E-01	1.05E+09	0.7168	O	4	206	206A	6	2	1.35E-02	1.06E+09	0.0068
O	2	373	373A	4	12	3.52E-01	1.40E+09	0.3290	O	4	166	166A	6	10	1.26E-02	3.03E+08	0.0051
O	2	361	361A	4	12	2.55E-01	1.08E+09	0.2305	O	4	146	146A	6	6	9.27E-03	4.78E+08	0.0033
O	2	366	366A	4	12	2.27E-01	9.42E+08	0.2077	O	4	145	145A	6	6	6.57E-03	3.44E+08	0.0023
O	2	360	360A	4	12	1.02E-01	4.36E+08	0.0919	O	4	168	168A	6	2	6.21E-03	7.26E+08	0.0026
O	2	414	414A	4	12	5.93E-02	1.92E+08	0.0618	O	4	168	168A	6	10	3.38E-03	7.97E+07	0.0014
O	2	358	358A	4	12	4.03E-02	1.74E+08	0.0361	O	4	167	167A	6	2	2.26E-03	2.70E+08	0.0009
O	2	356	356A	4	12	3.87E-02	1.69E+08	0.0345	O	4	165	165A	6	2	1.43E-03	1.74E+08	0.0006
O	2	355	355A	4	12	3.06E-02	1.35E+08	0.0272	O	4	171	171A	6	2	6.27E-04	7.08E+07	0.0003
O	2	384	384A	4	12	1.53E-02	5.75E+07	0.0147	O	4	176	176A	6	2	4.75E-04	5.09E+07	0.0002
O	2	371	371A	4	12	5.68E-03	2.29E+07	0.0053	O	4	150	150A	6	6	7.65E-05	3.75E+06	0.0000
O	2	358	358A	4	12	5.62E-03	2.43E+07	0.0050	O	4	158	158A	6	6	2.55E-06	1.13E+05	0.0000
O	2	361	361A	4	12	5.05E-03	2.15E+07	0.0046	O	5	172	172A	1	3	3.94E-01	2.94E+10	0.1660
O	2	356	356A	4	12	2.61E-03	1.14E+07	0.0023	O	5	135	135A	1	3	7.76E-02	9.35E+09	0.0256
O	2	364	364A	4	12	1.55E-03	6.47E+06	0.0014	O	5	139	139A	1	3	5.79E-02	6.65E+09	0.0196
O	3	305	305A	9	15	4.24E+00	2.02E+10	2.396	O	5	124	124A	1	3	4.99E-02	7.11E+09	0.0151
O	3	500	500A	9	3	1.69E+00	1.50E+10	3.560	O	5	119	119A	1	3	2.95E-02	4.60E+09	0.0085
O	3	698	698A	9	9	1.24E+00	1.89E+09	6.278	O	5	116	116A	1	3	1.39E-02	2.28E+09	0.0039
O	3	268	268A	9	15	1.06E+00	6.56E+09	0.7019	O	5	114	114A	1	3	1.02E-02	1.73E+09	0.0028
O	3	263	263A	9	15	9.34E-01	5.97E+09	0.6084	O	5	113	113A	1	3	7.31E-03	1.26E+09	0.0020
O	3	373	373A	9	9	7.49E-01	3.98E+09	0.7001	O	5	118	118A	1	3	5.68E-03	9.04E+08	0.0016
O	3	265	265A	9	9	6.61E-01	6.97E+09	0.4326	O	5	112	112A	1	3	5.33E-03	9.35E+08	0.0015
O	3	248	248A	9	15	5.98E-01	4.30E+09	0.3666	O	5	121	121A	1	3	1.96E-04	2.95E+07	0.0001
O	3	241	241A	9	15	3.35E-01	2.56E+09	0.1989	O	5	150	150A	1	3	1.51E-05	1.48E+06	0.0000
O	3	248	248A	9	9	2.11E-01	2.53E+09	0.1293	O	6	116	116A	2	6	1.48E-01	1.22E+10	0.0774
O	3	236	236A	9	15	2.06E-01	1.63E+09	0.1201	O	6	104	104A	2	6	6.39E-02	6.44E+09	0.0303
O	3	234	234A	9	15	1.40E-01	1.14E+09	0.0807	O	6	99	99.9A	2	6	3.38E-02	3.77E+09	0.0152
O	3	276	276A	9	3	1.24E-01	3.60E+09	0.0849	O	6	96	97.0A	2	6	2.02E-02	2.39E+09	0.0088
O	3	241	241A	9	9	1.18E-01	1.50E+09	0.0701	O	6	95	95.2A	2	6	1.31E-02	1.61E+09	0.0056
O	3	280	280A	9	9	9.96E-02	9.39E+08	0.0691	O	6	94	94.1A	2	6	8.97E-03	1.13E+09	0.0038
O	3	263	263A	9	9	9.77E-02	1.05E+09	0.0635	O	6	93	93.2A	2	6	6.43E-03	8.22E+08	0.0027
O	3	232	232A	9	15	9.76E-02	8.04E+08	0.0558	O	7	22	22.1A	1	3	4.17E-07	1.90E+06	0.0182
O	3	236	236A	9	9	7.22E-02	9.54E+08	0.0421	O	7	21	21.8A	1	3	1.18E-04	5.52E+08	0.0124
O	3	231	231A	9	15	7.17E-02	5.97E+08	0.0407	O	7	21	21.6A	1	3	6.95E-01	3.30E+12	0.0076
O	3	255	255A	9	9	6.19E-02	7.03E+08	0.0390	O	7	18	18.7A	1	3	1.46E-01	9.32E+11	0.0080
O	3	232	232A	9	9	5.16E-02	7.08E+08	0.0295	O	7	17	17.8A	1	3	5.51E-02	3.87E+11	0.0055
O	3	234	234A	9	9	4.62E-02	6.24E+08	0.0266	O	7	17	17.4A	1	3	2.68E-02	1.96E+11	0.0026
O	3	230	230A	9	3	4.29E-02	1.80E+09	0.0243	O	7	17	17.2A	1	3	1.51E-02	1.13E+11	0.0015
O	3	231	231A	9	9	2.67E-02	3.71E+08	0.0152	O	7	17	17.1A	1	3	9.36E-03	7.11E+10	0.0009
O	3	206	206A	9	3	2.63E-02	1.37E+09	0.0133	O	7	17	17.0A	1	3	6.21E-03	4.76E+10	0.0006
O	3	244	244A	9	9	2.61E-02	3.23E+08	0.0157	O	7	16	17.0A	1	3	4.33E-03	3.34E+10	0.0004
O	3	215	215A	9	3	1.88E-02	9.02E+08	0.0099	O	7	16	17.0A	1	3	3.14E-03	2.43E+10	0.0003
O	3	238	238A	9	9	1.51E-02	1.96E+08	0.0089	O	8	18	19.0A	2	2	3.64E-09	3.37E+04	0.0108
O	3	233	233A	9	9	1.34E-02	1.82E+08	0.0077	O	8	18	19.0A	2	6	8.32E-01	2.56E+12	0.0000
O	3	235	235A	9	9	1.08E-02	1.44E+08	0.0063	O	8	16	16.0A	2	6	1.58E-01	6.84E+11	0.0000
O	3	208	208A	9	3	8.59E-03	4.40E+08	0.0044	O	8	15	15.2A	2	6	5.80E-02	2.79E+11	0.0053

O	8	14	14.8A	2	6	2.79E-02	1.41E+11	0.0026	F	3	208	208A	4	12	2.58E-01	3.31E+09	0.1317
O	8	14	14.6A	2	6	1.56E-02	8.08E+10	0.0015	F	3	204	204A	4	12	1.60E-01	2.12E+09	0.0804
O	8	14	14.5A	2	6	9.63E-03	5.06E+10	0.0009	F	3	202	202A	4	12	1.06E-01	1.43E+09	0.0527
O	8	14	14.5A	2	6	6.37E-03	3.38E+10	0.0006	F	3	201	201A	4	12	7.45E-02	1.02E+09	0.0368
O	8	14	14.4A	2	6	4.43E-03	2.37E+10	0.0004	F	3	239	239A	4	12	5.76E-02	5.60E+08	0.0339
O	8	14	14.4A	2	6	3.21E-03	1.72E+10	0.0003	F	3	200	200A	4	12	5.45E-02	7.53E+08	0.0268
F	1	946	946A	6	6	5.73E-01	7.11E+08	0.0615	F	3	219	219A	4	12	3.51E-02	4.05E+08	0.0189
F	1	800	800A	6	10	2.92E-01	3.04E+08	0.0221	F	3	211	211A	4	12	1.45E-02	1.81E+08	0.0075
F	1	675	675A	6	2	1.18E-01	8.61E+08	0.0063	F	3	206	206A	4	12	7.94E-03	1.03E+08	0.0040
F	1	780	780A	6	10	1.17E-01	1.28E+08	0.0084	F	3	204	204A	4	12	4.93E-03	6.58E+07	0.0025
F	1	791	791A	6	6	1.14E-01	2.02E+08	0.0084	F	3	202	202A	4	12	3.35E-03	4.55E+07	0.0017
F	1	749	749A	6	10	5.79E-02	6.88E+07	0.0038	F	3	201	201A	4	12	2.46E-03	3.38E+07	0.0012
F	1	753	753A	6	6	4.14E-02	8.11E+07	0.0028	F	4	201	201A	9	15	5.30E+00	5.83E+10	2.611
F	1	735	735A	6	10	3.16E-02	3.90E+07	0.0020	F	4	199	199A	9	9	1.79E+00	3.32E+10	0.8764
F	1	779	779A	6	6	2.54E-02	4.65E+07	0.0018	F	4	169	169A	9	15	1.48E+00	2.28E+10	0.6137
F	1	737	737A	6	6	1.97E-02	4.03E+07	0.0013	F	4	415	415A	9	3	1.44E+00	1.86E+10	5.790
F	1	671	671A	6	2	1.89E-02	1.40E+08	0.0010	F	4	569	569A	9	9	1.10E+00	2.52E+09	6.089
F	1	728	728A	6	10	1.89E-02	2.38E+07	0.0012	F	4	679	679A	9	15	8.96E-01	8.63E+08	5.940
F	1	748	748A	6	6	1.37E-02	2.72E+07	0.0009	F	4	182	182A	9	15	8.38E-01	1.12E+10	0.3733
F	1	723	723A	6	10	1.21E-02	1.54E+07	0.0007	F	4	240	240A	9	9	7.21E-01	9.27E+09	0.4260
F	1	729	729A	6	6	1.09E-02	2.28E+07	0.0007	F	4	158	158A	9	15	6.84E-01	1.21E+10	0.2646
F	1	721	721A	6	10	8.17E-03	1.05E+07	0.0005	F	4	169	169A	9	9	5.03E-01	1.29E+10	0.2084
F	1	735	735A	6	6	7.67E-03	1.58E+07	0.0005	F	4	153	153A	9	15	4.09E-01	7.74E+09	0.1527
F	1	724	724A	6	6	6.71E-03	1.42E+07	0.0004	F	4	178	178A	9	9	3.76E-01	8.71E+09	0.1644
F	1	719	719A	6	10	5.78E-03	7.45E+06	0.0004	F	4	151	151A	9	15	3.56E-01	6.89E+09	0.1314
F	1	727	727A	6	6	4.63E-03	9.71E+06	0.0003	F	4	158	158A	9	9	2.37E-01	6.98E+09	0.0916
F	1	721	721A	6	6	4.41E-03	9.42E+06	0.0003	F	4	150	150A	9	9	2.20E-01	7.17E+09	0.0808
F	1	717	717A	6	10	4.23E-03	5.48E+06	0.0003	F	4	188	188A	9	3	1.92E-01	1.21E+10	0.0883
F	1	719	719A	6	6	3.06E-03	6.57E+06	0.0002	F	4	150	150A	9	15	1.87E-01	3.69E+09	0.0684
F	1	723	723A	6	6	2.99E-03	6.35E+06	0.0002	F	4	180	180A	9	9	1.57E-01	3.57E+09	0.0692
F	1	718	718A	6	6	2.21E-03	4.76E+06	0.0001	F	4	153	153A	9	9	1.38E-01	4.35E+09	0.0515
F	1	721	721A	6	6	2.03E-03	4.34E+06	0.0001	F	4	148	148A	9	15	1.10E-01	2.22E+09	0.0397
F	1	719	719A	6	6	1.44E-03	3.10E+06	0.0001	F	4	146	146A	9	15	8.82E-02	1.82E+09	0.0315
F	1	649	649A	6	2	1.11E-03	8.79E+06	0.0001	F	4	146	146A	9	15	6.45E-02	1.34E+09	0.0229
F	1	638	638A	6	2	5.20E-04	4.25E+06	0.0000	F	4	153	153A	9	3	5.63E-02	5.33E+09	0.0210
F	1	633	633A	6	2	2.27E-04	1.89E+06	0.0000	F	4	162	162A	9	9	5.14E-02	1.44E+09	0.0204
F	1	629	629A	6	2	1.06E-04	8.92E+05	0.0000	F	4	150	150A	9	9	4.62E-02	1.52E+09	0.0169
F	1	627	627A	6	2	5.43E-05	4.60E+05	0.0000	F	4	147	147A	9	3	4.54E-02	4.65E+09	0.0163
F	1	626	626A	6	2	3.00E-05	2.55E+05	0.0000	F	4	148	148A	9	9	4.45E-02	1.50E+09	0.0161
F	1	625	625A	6	2	1.77E-05	1.51E+05	0.0000	F	4	149	149A	9	15	4.37E-02	8.73E+08	0.0159
F	2	602	602A	9	9	1.60E+00	3.27E+09	9.383	F	4	148	148A	9	9	3.80E-02	1.28E+09	0.0137
F	2	430	430A	9	15	8.78E-01	2.11E+09	0.9513	F	4	151	151A	9	9	3.73E-02	1.21E+09	0.0137
F	2	469	469A	9	15	6.32E-01	1.28E+09	0.7499	F	4	146	146A	9	9	3.11E-02	1.07E+09	0.0111
F	2	374	374A	9	9	6.20E-01	3.27E+09	0.5816	F	4	155	155A	9	9	2.67E-02	8.21E+08	0.0101
F	2	543	543A	9	3	5.03E-01	3.79E+09	0.6973	F	4	146	146A	9	9	2.26E-02	7.85E+08	0.0080
F	2	376	376A	9	15	4.62E-01	1.45E+09	0.4351	F	4	142	142A	9	3	2.16E-02	2.37E+09	0.0075
F	2	393	393A	9	15	3.45E-01	9.90E+08	0.3406	F	4	149	149A	9	9	1.98E-02	6.61E+08	0.0072
F	2	432	432A	9	9	3.19E-01	1.26E+09	0.3478	F	4	136	136A	9	3	1.16E-02	1.38E+09	0.0039
F	2	353	353A	9	9	2.58E-01	1.53E+09	0.2273	F	4	148	148A	9	15	1.00E-02	2.02E+08	0.0036
F	2	370	370A	9	15	2.35E-01	7.60E+08	0.2178	F	4	163	163A	9	15	8.29E-03	1.38E+08	0.0033
F	2	375	375A	9	3	2.08E-01	3.29E+09	0.1952	F	4	134	134A	9	3	7.64E-03	9.46E+08	0.0025
F	2	348	348A	9	9	2.01E-01	1.23E+09	0.1747	F	4	161	161A	9	9	7.22E-03	2.06E+08	0.0028
F	2	335	335A	9	9	1.46E-01	9.62E+08	0.1219	F	4	132	132A	9	3	4.90E-03	6.22E+08	0.0016
F	2	329	329A	9	9	1.05E-01	7.17E+08	0.0861	F	4	131	131A	9	3	3.31E-03	4.27E+08	0.0011
F	2	346	346A	9	9	9.66E-02	5.96E+08	0.0835	F	4	130	130A	9	3	2.33E-03	3.04E+08	0.0007
F	2	421	421A	9	3	9.53E-02	1.19E+09	0.1011	F	4	146	146A	9	9	1.30E-03	4.50E+07	0.0005
F	2	327	327A	9	9	9.41E-02	6.50E+08	0.0767	F	4	139	139A	9	3	2.04E-04	2.34E+07	0.0001
F	2	366	366A	9	15	7.85E-02	2.60E+08	0.0719	F	4	147	147A	9	9	5.81E-05	1.98E+06	0.0000
F	2	378	378A	9	15	7.81E-02	2.42E+08	0.0741	F	4	152	152A	9	9	1.41E-05	4.51E+05	0.0000
F	2	326	326A	9	9	6.59E-02	4.60E+08	0.0534	F	5	166	166A	6	10	3.26E+00	7.84E+10	1.324
F	2	371	371A	9	15	5.82E-02	1.88E+08	0.0540	F	5	462	462A	6	6	1.74E+00	9.04E+09	7.803
F	2	363	363A	9	15	4.79E-02	1.61E+08	0.0435	F	5	148	148A	6	10	8.75E-01	2.65E+10	0.3159
F	2	390	390A	9	3	3.41E-02	4.98E+08	0.0334	F	5	134	134A	6	10	7.69E-01	2.82E+10	0.2520
F	2	361	361A	9	15	3.17E-02	1.08E+08	0.0287	F	5	654	654A	6	10	5.99E-01	9.31E+08	3.825
F	2	323	323A	9	9	2.99E-02	2.12E+08	0.0241	F	5	152	152A	6	6	5.48E-01	2.60E+10	0.2041
F	2	322	322A	9	9	2.36E-02	1.69E+08	0.0189	F	5	502	502A	6	2	3.47E-01	4.58E+09	1.693
F	2	360	360A	9	15	2.21E-02	7.56E+07	0.0199	F	5	124	124A	6	10	3.14E-01	1.36E+10	0.0945
F	2	321	321A	9	9	1.80E-02	1.29E+08	0.0144	F	5	120	120A	6	10	2.53E-01	1.17E+10	0.0738
F	2	370	370A	9	3	1.18E-02	1.91E+08	0.0109	F	5	191	191A	6	2	1.79E-01	1.63E+10	0.0837
F	2	377	377A	9	3	1.06E-02	1.66E+08	0.0100	F	5	120	120A	6	6	1.48E-01	1.13E+10	0.0434
F	2	366	366A	9	3	6.76E-03	1.12E+08	0.0062	F	5	118	118A	6	10	1.43E-01	6.74E+09	0.0412
F	2	363	363A	9	3	4.39E-03	7.39E+07	0.0040	F	5	132	132A	6	6	1.36E-01	8.57E+09	0.0439
F	2	361	361A	9	3	3.03E-03	5.15E+07	0.0027	F	5	145	145A	6	2	1.26E-01	1.98E+10	0.0446
F	2	325	325A	9	9	1.98E-03	1.39E+07	0.0016	F	5	116	116A	6	10	9.03E-02	4.47E+09	0.0254
F	3	253	253A	4	12	2.73E+00	2.36E+10	1.708	F	5	140	140A	6	2	7.19E-02	1.21E+10	0.0246
F	3	660	660A	4	12	9.97E-01	1.27E+09	6.420	F	5	114	114A	6	10	6.83E-02	3.49E+09	0.0189
F	3	224	224A	4	12	7.72E-01	8.50E+09	0.4263	F	5	133	133A	6	10	6.17E-02	2.32E+09	0.0200
F	3	228	228A	4	12	6.33E-01	6.74E+09	0.3556	F	5	111	111A	6	6	5.96E-02	5.31E+09	0.0161
F	3	312	312A	4	12	5.46E-01	3.11E+09	0.4233	F	5	131	131A	6	2	4.38E-02	8.44E+09	0.0140
F	3	213	213A	4	12	4.54E-01	5.53E+09	0.2381	F	5	107	107A	6	6	4.38E-02	4.24E+09	0.0114

F	5	119	119A	6	2	3.99E-02	9.30E+09	0.0116	Ne 1	554	554A	1	3	1.35E-03	9.76E+06	0.0000
F	5	113	113A	6	10	3.83E-02	2.00E+09	0.0105	Ne 1	552	552A	1	3	1.32E-03	9.60E+06	0.0000
F	5	108	108A	6	6	3.38E-02	3.17E+09	0.0089	Ne 1	552	552A	1	3	9.71E-04	7.08E+06	0.0000
F	5	113	113A	6	10	3.05E-02	1.58E+09	0.0084	Ne 1	553	553A	1	3	9.37E-04	6.81E+06	0.0000
F	5	112	112A	6	10	3.02E-02	1.60E+09	0.0082	Ne 1	552	552A	1	3	6.75E-04	4.92E+06	0.0000
F	5	112	112A	6	6	2.71E-02	2.38E+09	0.0074	Ne 2	444	444A	6	6	7.05E-01	3.97E+09	0.7898
F	5	114	114A	6	10	2.58E-02	1.31E+09	0.0072	Ne 2	356	356A	6	10	6.63E-01	3.47E+09	0.5907
F	5	104	104A	6	6	2.38E-02	2.41E+09	0.0060	Ne 2	461	461A	6	2	5.14E-01	8.06E+09	2.297
F	5	123	123A	6	10	2.16E-02	9.45E+08	0.0065	Ne 2	404	404A	6	10	3.93E-01	1.61E+09	0.3988
F	5	125	125A	6	6	1.54E-02	1.09E+09	0.0047	Ne 2	327	327A	6	6	2.53E-01	2.62E+09	0.2063
F	5	103	103A	6	6	1.12E-02	1.17E+09	0.0028	Ne 2	331	331A	6	10	2.53E-01	1.54E+09	0.2086
F	5	102	102A	6	6	6.84E-03	7.30E+08	0.0017	Ne 2	327	327A	6	10	2.36E-01	1.47E+09	0.1921
F	5	126	126A	6	2	5.36E-03	1.12E+09	0.0016	Ne 2	355	355A	6	6	2.35E-01	2.06E+09	0.2088
F	5	116	116A	6	2	5.22E-03	1.28E+09	0.0015	Ne 2	320	320A	6	10	1.72E-01	1.12E+09	0.1370
F	5	117	117A	6	6	4.02E-03	3.24E+08	0.0011	Ne 2	327	327A	6	2	1.43E-01	4.46E+09	0.1164
F	5	114	114A	6	2	3.13E-03	7.93E+08	0.0009	Ne 2	315	315A	6	10	9.35E-02	6.28E+08	0.0732
F	5	113	113A	6	2	2.45E-03	6.36E+08	0.0007	Ne 2	353	353A	6	6	9.03E-02	8.04E+08	0.0796
F	5	112	112A	6	2	2.25E-03	5.93E+08	0.0006	Ne 2	305	305A	6	2	7.56E-02	2.70E+09	0.0573
F	5	101	101A	6	6	1.42E-03	1.54E+08	0.0003	Ne 2	330	330A	6	6	6.67E-02	6.77E+08	0.0549
F	5	102	102A	6	6	1.34E-03	1.41E+08	0.0003	Ne 2	320	320A	6	6	6.58E-02	7.13E+08	0.0524
F	5	118	118A	6	10	8.43E-04	3.99E+07	0.0002	Ne 2	359	359A	6	2	5.91E-02	1.52E+09	0.0531
F	5	114	114A	6	2	5.05E-04	1.29E+08	0.0001	Ne 2	311	311A	6	10	5.67E-02	3.89E+08	0.0439
F	5	120	120A	6	2	3.42E-04	7.90E+07	0.0001	Ne 2	296	296A	6	2	4.60E-02	1.74E+09	0.0338
F	6	529	529A	1	3	4.48E-01	3.55E+09	2.306	Ne 2	309	309A	6	10	3.65E-02	2.54E+08	0.0281
F	6	127	127A	1	3	4.45E-01	6.11E+10	0.1375	Ne 2	314	314A	6	6	3.43E-02	3.84E+08	0.0268
F	6	99	99.5A	1	3	1.11E-01	2.50E+10	0.0267	Ne 2	324	324A	6	10	3.00E-02	1.90E+08	0.0242
F	6	91	91.2A	1	3	4.57E-02	1.22E+10	0.0101	Ne 2	329	329A	6	6	2.85E-02	2.91E+08	0.0234
F	6	105	105A	1	3	4.00E-02	8.06E+09	0.0102	Ne 2	308	308A	6	10	2.43E-02	1.70E+08	0.0186
F	6	86	86.8A	1	3	2.43E-02	7.17E+09	0.0051	Ne 2	311	311A	6	6	2.02E-02	2.31E+08	0.0156
F	6	84	84.6A	1	3	1.72E-02	5.34E+09	0.0035	Ne 2	291	291A	6	2	1.96E-02	7.69E+08	0.0142
F	6	88	88.1A	1	3	1.19E-02	3.41E+09	0.0025	Ne 2	319	319A	6	6	1.80E-02	1.96E+08	0.0143
F	6	83	83.3A	1	3	1.12E-02	3.59E+09	0.0023	Ne 2	307	307A	6	10	1.64E-02	1.16E+08	0.0125
F	6	90	90.1A	1	3	9.68E-03	2.65E+09	0.0021	Ne 2	288	288A	6	2	1.32E-02	5.28E+08	0.0094
F	6	82	82.3A	1	3	8.59E-03	2.82E+09	0.0017	Ne 2	309	309A	6	6	1.26E-02	1.46E+08	0.0097
F	6	81	81.9A	1	3	5.61E-03	1.86E+09	0.0011	Ne 2	314	314A	6	6	9.90E-03	1.11E+08	0.0077
F	6	81	81.6A	1	3	2.98E-03	9.94E+08	0.0006	Ne 2	287	287A	6	2	9.10E-03	3.68E+08	0.0065
F	6	113	113A	1	3	2.19E-03	3.81E+08	0.0006	Ne 2	308	308A	6	6	7.95E-03	9.30E+07	0.0061
F	6	82	82.8A	1	3	2.58E-05	8.37E+06	0.0000	Ne 2	285	285A	6	2	6.49E-03	2.65E+08	0.0046
F	7	113	113A	2	6	5.70E-01	4.94E+10	0.2055	Ne 2	311	311A	6	6	6.05E-03	6.93E+07	0.0047
F	7	892	892A	2	6	3.43E-01	4.78E+08	5.521	Ne 2	307	307A	6	6	4.87E-03	5.73E+07	0.0037
F	7	86	86.9A	2	6	1.56E-01	2.30E+10	0.0675	Ne 2	285	285A	6	2	4.78E-03	1.96E+08	0.0034
F	7	78	78.5A	2	6	6.67E-02	1.20E+10	0.0261	Ne 2	309	309A	6	6	3.95E-03	4.58E+07	0.0030
F	7	74	74.6A	2	6	3.52E-02	7.03E+09	0.0131	Ne 2	308	308A	6	6	2.69E-03	3.15E+07	0.0021
F	7	72	72.4A	2	6	2.10E-02	4.45E+09	0.0076	Ne 2	295	295A	6	2	1.90E-03	7.25E+07	0.0014
F	7	71	71.1A	2	6	1.36E-02	2.99E+09	0.0048	Ne 3	486	486A	9	9	1.58E+00	4.94E+09	7.463
F	7	70	70.2A	2	6	9.31E-03	2.10E+09	0.0033	Ne 3	250	250A	9	15	1.58E+00	1.12E+10	0.9773
F	7	69	69.6A	2	6	6.67E-03	1.53E+09	0.0023	Ne 3	227	227A	9	9	1.34E+00	1.92E+10	0.7491
F	8	17	17.2A	1	3	4.02E-07	3.04E+06	0.0000	Ne 3	218	218A	9	15	7.90E-01	7.37E+09	0.4235
F	8	16	16.9A	1	3	2.37E-04	1.83E+09	0.0000	Ne 3	223	223A	9	15	7.38E-01	6.58E+09	0.4049
F	8	16	16.8A	1	3	7.10E-01	5.57E+12	0.0389	Ne 3	228	228A	9	15	7.22E-01	6.13E+09	0.4062
F	8	14	14.5A	1	3	1.48E-01	1.57E+12	0.0085	Ne 3	281	281A	9	15	6.66E-01	3.74E+09	0.4640
F	8	13	13.8A	1	3	5.56E-02	6.48E+11	0.0043	Ne 3	311	311A	9	3	4.95E-01	1.14E+10	0.3824
F	8	13	13.5A	1	3	2.70E-02	3.29E+11	0.0020	Ne 3	204	204A	9	9	4.66E-01	8.26E+09	0.2336
F	8	13	13.4A	1	3	1.52E-02	1.89E+11	0.0011	Ne 3	227	227A	9	3	4.44E-01	1.91E+10	0.2479
F	8	13	13.3A	1	3	9.42E-03	1.19E+11	0.0007	Ne 3	212	212A	9	15	4.09E-01	4.03E+09	0.2133
F	8	13	13.2A	1	3	6.25E-03	7.96E+10	0.0005	Ne 3	265	265A	9	9	3.70E-01	3.89E+09	0.2426
F	8	13	13.2A	1	3	4.36E-03	5.59E+10	0.0003	Ne 3	218	218A	9	9	3.61E-01	5.63E+09	0.1932
F	8	13	13.1A	1	3	3.16E-03	4.07E+10	0.0002	Ne 3	205	205A	9	15	2.85E-01	3.01E+09	0.1433
F	9	15	15.0A	2	2	3.65E-09	5.40E+04	0.0000	Ne 3	217	217A	9	15	2.67E-01	2.52E+09	0.1423
F	9	15	15.0A	2	6	8.32E-01	4.11E+12	0.0425	Ne 3	196	196A	9	9	2.29E-01	4.39E+09	0.1102
F	9	12	12.7A	2	6	1.58E-01	1.10E+12	0.0112	Ne 3	195	195A	9	9	2.25E-01	4.36E+09	0.1077
F	9	12	12.0A	2	6	5.80E-02	4.47E+11	0.0042	Ne 3	203	203A	9	15	1.97E-01	2.11E+09	0.0985
F	9	11	11.7A	2	6	2.79E-02	2.25E+11	0.0021	Ne 3	204	204A	9	3	1.87E-01	9.94E+09	0.0937
F	9	11	11.6A	2	6	1.56E-02	1.29E+11	0.0012	Ne 3	190	190A	9	9	1.47E-01	2.99E+09	0.0687
F	9	11	11.5A	2	6	9.63E-03	8.11E+10	0.0007	Ne 3	207	207A	9	15	1.47E-01	1.52E+09	0.0747
F	9	11	11.4A	2	6	6.37E-03	5.41E+10	0.0005	Ne 3	188	188A	9	9	1.30E-01	2.72E+09	0.0598
F	9	11	11.4A	2	6	4.43E-03	3.79E+10	0.0003	Ne 3	208	208A	9	9	1.06E-01	1.81E+09	0.0541
F	9	11	11.4A	2	6	3.21E-03	2.76E+10	0.0002	Ne 3	238	238A	9	3	1.02E-01	4.00E+09	0.0598
Ne	1	688	688A	1	3	1.70E-01	7.97E+08	0.0094	Ne 3	202	202A	9	15	9.03E-02	9.84E+08	0.0447
Ne	1	596	596A	1	3	3.48E-02	2.17E+08	0.0014	Ne 3	186	186A	9	9	6.97E-02	1.48E+09	0.0318
Ne	1	588	588A	1	3	2.31E-02	1.48E+08	0.0009	Ne 3	187	187A	9	9	6.80E-02	1.43E+09	0.0313
Ne	1	573	573A	1	3	1.27E-02	8.58E+07	0.0005	Ne 3	200	200A	9	15	6.27E-02	6.92E+08	0.0308
Ne	1	570	570A	1	3	1.25E-02	8.54E+07	0.0005	Ne 3	201	201A	9	15	5.71E-02	6.28E+08	0.0281
Ne	1	562	562A	1	3	7.02E-03	4.93E+07	0.0003	Ne 3	185	185A	9	9	4.84E-02	1.04E+09	0.0219
Ne	1	563	563A	1	3	6.07E-03	4.24E+07	0.0002	Ne 3	218	218A	9	3	4.24E-02	1.97E+09	0.0228
Ne	1	558	558A	1	3	4.24E-03	3.03E+07	0.0002	Ne 3	184	184A	9	9	4.10E-02	8.92E+08	0.0185
Ne	1	559	559A	1	3	3.37E-03	2.40E+07	0.0001	Ne 3	199	199A	9	15	3.89E-02	4.34E+08	0.0190
Ne	1	555	555A	1	3	2.74E-03	1.97E+07	0.0001	Ne 3	210	210A	9	3	2.07E-02	1.04E+09	0.0107
Ne	1	556	556A	1	3	2.06E-03	1.48E+07	0.0001	Ne 3	192	192A	9	9	1.75E-02	3.49E+08	0.0083
Ne	1	554	554A	1	3	1.86E-03	1.35E+07	0.0001	Ne 3	205	205A	9	3	1.15E-02	6.03E+08	0.0058

Ne 3	203	203A	9	3	7.84E-03	4.22E+08	0.0039	Ne 6	114	114A	6	6	6.21E-01	5.26E+10	0.1725
Ne 3	201	201A	9	3	5.14E-03	2.81E+08	0.0025	Ne 6	561	561A	6	10	5.41E-01	1.14E+09	1.836
Ne 3	200	200A	9	3	3.61E-03	2.00E+08	0.0018	Ne 6	90	90.2A	6	10	3.35E-01	2.74E+10	0.0730
Ne 3	186	186A	9	9	2.47E-03	5.29E+07	0.0011	Ne 6	431	431A	6	2	3.04E-01	5.43E+09	1.272
Ne 4	171	171A	4	12	3.73E+00	7.05E+10	1.562	Ne 6	89	89.7A	6	10	2.74E-01	2.27E+10	0.0594
Ne 4	148	148A	4	12	1.16E+00	2.92E+10	0.4194	Ne 6	109	109A	6	2	1.75E-01	4.86E+10	0.0464
Ne 4	546	546A	4	12	9.29E-01	1.73E+09	4.931	Ne 6	138	138A	6	2	1.70E-01	2.94E+10	0.0574
Ne 4	207	207A	4	12	5.34E-01	6.92E+09	0.2713	Ne 6	101	101A	6	6	1.67E-01	1.81E+10	0.0410
Ne 4	139	139A	4	12	4.66E-01	1.32E+10	0.1586	Ne 6	86	86.3A	6	10	1.56E-01	1.40E+10	0.0325
Ne 4	159	159A	4	12	4.42E-01	9.71E+09	0.1714	Ne 6	82	82.4A	6	10	1.54E-01	1.51E+10	0.0306
Ne 4	135	135A	4	12	3.21E-01	9.69E+09	0.1059	Ne 6	89	89.9A	6	6	1.30E-01	1.79E+10	0.0282
Ne 4	133	133A	4	12	2.67E-01	8.34E+09	0.0865	Ne 6	101	101A	6	10	1.18E-01	7.63E+09	0.0290
Ne 4	157	157A	4	12	1.83E-01	4.12E+09	0.0700	Ne 6	84	84.2A	6	10	9.50E-02	8.95E+09	0.0193
Ne 4	131	131A	4	12	1.13E-01	3.62E+09	0.0362	Ne 6	102	102A	6	2	8.26E-02	2.61E+10	0.0205
Ne 4	139	139A	4	12	9.52E-02	2.71E+09	0.0323	Ne 6	82	82.1A	6	6	7.84E-02	1.29E+10	0.0155
Ne 4	130	130A	4	12	7.99E-02	2.60E+09	0.0254	Ne 6	90	90.9A	6	6	6.29E-02	8.46E+09	0.0138
Ne 4	133	133A	4	12	6.69E-02	2.09E+09	0.0217	Ne 6	82	82.8A	6	10	5.16E-02	5.02E+09	0.0103
Ne 4	130	130A	4	12	5.82E-02	1.91E+09	0.0184	Ne 6	82	82.6A	6	6	4.35E-02	7.08E+09	0.0087
Ne 4	134	134A	4	12	3.65E-02	1.13E+09	0.0119	Ne 6	79	79.2A	6	6	4.19E-02	7.43E+09	0.0080
Ne 4	143	143A	4	12	3.47E-02	9.36E+08	0.0121	Ne 6	75	75.9A	6	6	3.91E-02	7.55E+09	0.0072
Ne 4	137	137A	4	12	9.79E-03	2.88E+08	0.0033	Ne 6	82	82.3A	6	2	3.82E-02	1.88E+10	0.0076
Ne 4	132	132A	4	12	5.00E-03	1.58E+08	0.0016	Ne 6	83	83.1A	6	10	3.68E-02	3.56E+09	0.0074
Ne 4	134	134A	4	12	4.80E-03	1.47E+08	0.0016	Ne 6	81	81.9A	6	10	3.58E-02	3.56E+09	0.0071
Ne 4	131	131A	4	12	3.87E-03	1.25E+08	0.0012	Ne 6	89	89.0A	6	10	3.33E-02	2.80E+09	0.0072
Ne 4	130	130A	4	12	2.76E-03	9.03E+07	0.0009	Ne 6	89	89.3A	6	2	2.77E-02	1.16E+10	0.0060
Ne 5	143	143A	9	15	6.06E+00	1.31E+11	2.113	Ne 6	81	81.3A	6	10	2.71E-02	2.74E+09	0.0053
Ne 5	142	142A	9	9	2.04E+00	7.43E+10	0.7078	Ne 6	77	77.1A	6	6	2.34E-02	4.37E+09	0.0044
Ne 5	119	119A	9	15	1.60E+00	5.02E+10	0.4621	Ne 6	87	87.1A	6	6	2.21E-02	3.24E+09	0.0046
Ne 5	355	355A	9	3	1.26E+00	2.21E+10	1.563	Ne 6	88	88.4A	6	2	1.99E-02	8.49E+09	0.0043
Ne 5	481	481A	9	9	9.88E-01	3.16E+09	3.491	Ne 6	87	87.4A	6	10	1.36E-02	1.19E+09	0.0029
Ne 5	132	132A	9	15	9.48E-01	2.40E+10	0.3053	Ne 6	75	75.2A	6	6	1.24E-02	2.44E+09	0.0022
Ne 5	573	573A	9	15	8.28E-01	1.12E+09	4.648	Ne 6	87	87.1A	6	2	1.13E-02	4.97E+09	0.0024
Ne 5	167	167A	9	9	6.87E-01	1.81E+10	0.2813	Ne 6	99	99.8A	6	2	1.05E-02	3.52E+09	0.0025
Ne 5	110	110A	9	15	6.38E-01	2.32E+10	0.1709	Ne 6	91	91.6A	6	2	8.22E-03	3.27E+09	0.0018
Ne 5	131	131A	9	9	4.65E-01	2.00E+10	0.1481	Ne 6	74	74.6A	6	6	7.08E-03	1.41E+09	0.0013
Ne 5	118	118A	9	9	4.29E-01	2.25E+10	0.1237	Ne 6	87	87.9A	6	10	6.40E-03	5.53E+08	0.0014
Ne 5	106	106A	9	15	3.36E-01	1.32E+10	0.0866	Ne 6	86	86.4A	6	2	5.75E-03	2.57E+09	0.0012
Ne 5	108	108A	9	15	2.93E-01	1.11E+10	0.0770	Ne 6	74	74.7A	6	6	5.49E-03	1.09E+09	0.0010
Ne 5	112	112A	9	15	2.74E-01	9.69E+09	0.0744	Ne 6	84	84.6A	6	2	4.75E-03	2.21E+09	0.0010
Ne 5	136	136A	9	3	2.40E-01	2.86E+10	0.0796	Ne 6	83	83.1A	6	2	4.18E-03	2.02E+09	0.0008
Ne 5	110	110A	9	9	2.18E-01	1.32E+10	0.0584	Ne 6	76	76.6A	6	6	2.65E-03	5.02E+08	0.0005
Ne 5	104	104A	9	15	2.08E-01	8.53E+09	0.0524	Ne 6	75	76.0A	6	6	1.77E-03	3.41E+08	0.0003
Ne 5	111	111A	9	9	1.67E-01	9.98E+09	0.0451	Ne 6	82	82.1A	6	10	1.65E-03	1.63E+08	0.0003
Ne 5	124	124A	9	9	1.66E-01	7.88E+09	0.0503	Ne 6	94	94.9A	6	10	6.17E-04	4.57E+07	0.0001
Ne 5	102	102A	9	15	1.36E-01	5.73E+09	0.0338	Ne 6	81	81.8A	6	2	4.09E-04	2.04E+08	0.0001
Ne 5	119	119A	9	9	1.23E-01	6.39E+09	0.0356	Ne 6	82	82.1A	6	2	4.03E-04	1.99E+08	0.0001
Ne 5	106	106A	9	9	1.14E-01	7.45E+09	0.0294	Ne 6	81	81.4A	6	2	2.75E-04	1.38E+08	0.0001
Ne 5	108	108A	9	9	9.67E-02	6.14E+09	0.0253	Ne 6	81	81.7A	6	10	2.37E-04	2.37E+07	0.0000
Ne 5	101	101A	9	15	9.44E-02	4.06E+09	0.0232	Ne 6	78	78.2A	6	6	1.39E-04	2.53E+07	0.0000
Ne 5	101	101A	9	15	7.11E-02	3.10E+09	0.0174	Ne 6	96	96.2A	6	6	1.14E-04	1.37E+07	0.0000
Ne 5	104	104A	9	9	7.09E-02	4.84E+09	0.0179	Ne 7	97	97.8A	1	3	4.85E-01	1.13E+11	0.1147
Ne 5	113	113A	9	9	6.77E-02	3.88E+09	0.0186	Ne 7	462	462A	1	3	3.92E-01	4.08E+09	1.617
Ne 5	110	110A	9	3	6.28E-02	1.14E+10	0.0169	Ne 7	75	76.0A	1	3	1.26E-01	4.86E+10	0.0231
Ne 5	109	109A	9	3	5.92E-02	1.09E+10	0.0158	Ne 7	69	69.1A	1	3	5.14E-02	2.39E+10	0.0086
Ne 5	112	112A	9	9	5.38E-02	3.13E+09	0.0147	Ne 7	82	82.3A	1	3	3.63E-02	1.19E+10	0.0072
Ne 5	120	120A	9	15	5.22E-02	1.60E+09	0.0153	Ne 7	66	66.0A	1	3	2.92E-02	1.49E+10	0.0046
Ne 5	107	107A	9	9	5.12E-02	3.28E+09	0.0133	Ne 7	64	64.3A	1	3	1.85E-02	9.94E+09	0.0029
Ne 5	102	102A	9	9	4.64E-02	3.26E+09	0.0115	Ne 7	63	63.2A	1	3	1.62E-02	9.01E+09	0.0025
Ne 5	101	101A	9	9	3.22E-02	2.31E+09	0.0079	Ne 7	69	70.0A	1	3	1.16E-02	5.27E+09	0.0020
Ne 5	100	100A	9	3	3.00E-02	6.56E+09	0.0073	Ne 7	62	62.5A	1	3	7.22E-03	4.11E+09	0.0011
Ne 5	93	93.5A	9	3	2.85E-02	7.25E+09	0.0064	Ne 7	88	88.0A	1	3	5.87E-03	1.68E+09	0.0012
Ne 5	101	101A	9	9	2.39E-02	1.73E+09	0.0058	Ne 7	61	62.0A	1	3	5.59E-03	3.23E+09	0.0008
Ne 5	97	97.1A	9	3	1.52E-02	3.59E+09	0.0036	Ne 7	68	68.2A	1	3	5.03E-03	2.40E+09	0.0008
Ne 5	104	104A	9	9	1.19E-02	8.03E+08	0.0030	Ne 7	63	63.8A	1	3	3.91E-05	2.14E+07	0.0000
Ne 5	94	95.0A	9	3	8.17E-03	2.01E+09	0.0019	Ne 7	63	63.1A	1	3	1.99E-05	1.11E+07	0.0000
Ne 5	103	103A	9	9	7.29E-03	5.08E+08	0.0018	Ne 8	67	67.5A	2	6	1.62E-01	3.95E+10	0.0581
Ne 5	92	92.6A	9	3	6.77E-03	1.76E+09	0.0015	Ne 8	60	60.9A	2	6	6.89E-02	2.06E+10	0.0223
Ne 5	102	102A	9	9	4.90E-03	3.49E+08	0.0012	Ne 8	57	57.9A	2	6	3.62E-02	1.20E+10	0.0111
Ne 5	105	105A	9	3	4.60E-03	9.24E+08	0.0012	Ne 8	56	56.2A	2	6	2.16E-02	7.61E+09	0.0064
Ne 5	92	92.2A	9	3	4.02E-03	1.05E+09	0.0009	Ne 8	55	55.1A	2	6	1.40E-02	5.12E+09	0.0041
Ne 5	101	101A	9	9	3.58E-03	2.59E+08	0.0009	Ne 8	54	54.4A	2	6	9.56E-03	3.59E+09	0.0028
Ne 5	106	106A	9	15	3.29E-03	1.29E+08	0.0008	Ne 8	53	53.9A	2	6	6.85E-03	2.62E+09	0.0020
Ne 5	92	92.8A	9	3	2.50E-03	6.46E+08	0.0006	Ne 9	13	13.7A	1	3	3.92E-07	4.64E+06	0.0000
Ne 5	93	93.7A	9	3	8.00E-04	2.03E+08	0.0002	Ne 9	13	13.6A	1	3	4.42E-04	5.35E+09	0.0312
Ne 5	103	103A	9	15	6.99E-04	2.92E+07	0.0002	Ne 9	13	13.5A	1	3	7.23E-01	8.85E+12	0.0045
Ne 6	122	122A	6	10	3.42E+00	1.51E+11	1.020	Ne 9	11	11.6A	1	3	1.49E-01	2.47E+12	0.0069
Ne 6	400	400A	6	6	1.52E+00	1.06E+10	0.0115	Ne 9	11	11.0A	1	3	5.60E-02	1.03E+12	0.0034
Ne 6	999	999A	6	6	1.00E-06	1.11E+03	0.4744	Ne 9	10	10.8A	1	3	2.71E-02	5.19E+11	0.0016
Ne 6	111	111A	6	10	1.01E+00	5.42E+10	0.2727	Ne 9	10	10.7A	1	3	1.53E-02	2.99E+11	0.0009
Ne 6	98	98.4A	6	10	7.32E-01	5.04E+10	0.1743	Ne 9	10	10.6A	1	3	9.46E-03	1.88E+11	0.0006

Ne 9	10	10.5A	1	3	6.27E-03	1.25E+11	0.0004	Na 3	170	170A	6	2	5.13E-04	5.90E+07	0.0002
Ne 9	10	10.5A	1	3	4.37E-03	8.80E+10	0.0003	Na 4	167	167A	9	15	2.07E+00	3.26E+10	0.8484
Ne 9	10	10.5A	1	3	3.17E-03	6.42E+10	0.0002	Na 4	155	155A	9	9	2.02E+00	6.19E+10	0.7651
Ne10	12	12.1A	2	2	3.64E-09	8.23E+04	0.0066	Na 4	409	409A	9	9	1.51E+00	6.68E+09	5.980
Ne10	12	12.2A	2	6	8.32E-01	6.26E+12	0.0155	Na 4	156	156A	9	15	1.51E+00	2.74E+10	0.5759
Ne10	10	10.3A	2	6	1.58E-01	1.67E+12	0.0090	Na 4	146	146A	9	15	1.28E+00	2.66E+10	0.4555
Ne10	97	9.73A	2	6	5.80E-02	6.81E+11	0.0034	Na 4	150	150A	9	15	1.12E+00	2.21E+10	0.4097
Ne10	95	9.50A	2	6	2.79E-02	3.44E+11	0.0017	Na 4	132	132A	9	15	1.06E+00	2.68E+10	0.3414
Ne10	93	9.38A	2	6	1.56E-02	1.97E+11	0.0009	Na 4	155	155A	9	3	7.20E-01	6.65E+10	0.2722
Ne10	93	9.31A	2	6	9.63E-03	1.24E+11	0.0006	Na 4	136	136A	9	9	6.96E-01	2.76E+10	0.2313
Ne10	92	9.26A	2	6	6.37E-03	8.26E+10	0.0004	Na 4	189	189A	9	15	6.67E-01	8.26E+09	0.3092
Ne10	92	9.23A	2	6	4.43E-03	5.78E+10	0.0003	Na 4	137	137A	9	15	6.55E-01	1.55E+10	0.2182
Ne10	92	9.21A	2	6	3.21E-03	4.21E+10	0.0002	Na 4	204	204A	9	3	4.77E-01	2.54E+10	0.2389
Na 1	3383	3383A	2	6	2.64E-02	2.56E+06	0.0408	Na 4	150	150A	9	9	4.28E-01	1.40E+10	0.1569
Na 1	2918	2918A	2	6	3.90E-03	5.09E+05	0.0044	Na 4	180	180A	9	9	3.77E-01	8.54E+09	0.1666
Na 1	2739	2739A	2	6	1.18E-03	1.75E+05	0.0012	Na 4	134	134A	9	15	3.05E-01	7.55E+09	0.0993
Na 1	2650	2650A	2	6	5.01E-04	7.93E+04	0.0005	Na 4	132	132A	9	9	2.89E-01	1.22E+10	0.0931
Na 1	2598	2598A	2	6	2.60E-04	4.28E+04	0.0002	Na 4	131	131A	9	9	2.84E-01	1.23E+10	0.0904
Na 1	2565	2565A	2	6	1.53E-04	2.58E+04	0.0001	Na 4	136	136A	9	3	2.62E-01	3.12E+10	0.0870
Na 1	2543	2543A	2	6	9.79E-05	1.68E+04	0.0001	Na 4	138	138A	9	15	2.57E-01	5.99E+09	0.0863
Na 2	293	293A	1	3	2.38E-01	6.15E+09	0.2801	Na 4	129	129A	9	9	2.43E-01	1.07E+10	0.0764
Na 2	357	357A	1	3	2.27E-01	3.94E+09	0.1053	Na 4	129	129A	9	15	1.78E-01	4.71E+09	0.0560
Na 2	275	275A	1	3	1.09E-01	3.19E+09	0.1689	Na 4	125	125A	9	9	1.77E-01	8.28E+09	0.0541
Na 2	268	268A	1	3	5.71E-02	1.76E+09	0.0379	Na 4	131	131A	9	15	1.23E-01	3.16E+09	0.0393
Na 2	264	264A	1	3	3.34E-02	1.06E+09	0.0218	Na 4	129	129A	9	3	1.16E-01	1.54E+10	0.0365
Na 2	262	262A	1	3	2.11E-02	6.82E+08	0.0137	Na 4	131	131A	9	3	1.07E-01	1.37E+10	0.0343
Na 2	260	260A	1	3	1.42E-02	4.64E+08	0.0091	Na 4	123	123A	9	9	1.07E-01	5.17E+09	0.0322
Na 2	259	259A	1	3	9.98E-03	3.28E+08	0.0064	Na 4	129	129A	9	15	1.03E-01	2.74E+09	0.0323
Na 2	259	259A	1	3	7.29E-03	2.41E+08	0.0047	Na 4	139	139A	9	9	8.30E-02	3.14E+09	0.0282
Na 2	268	268A	1	3	1.35E-04	4.17E+06	0.0001	Na 4	125	125A	9	9	7.72E-02	3.63E+09	0.0235
Na 2	275	275A	1	3	1.22E-04	3.57E+06	0.0001	Na 4	144	144A	9	15	7.45E-02	1.58E+09	0.0263
Na 2	264	264A	1	3	1.04E-04	3.30E+06	0.0001	Na 4	122	122A	9	9	6.97E-02	3.44E+09	0.0207
Na 2	262	262A	1	3	7.60E-05	2.46E+06	0.0000	Na 4	155	155A	9	3	5.76E-02	5.33E+09	0.0218
Na 2	260	260A	1	3	5.55E-05	1.81E+06	0.0000	Na 4	128	128A	9	15	5.58E-02	1.50E+09	0.0174
Na 2	259	259A	1	3	4.12E-05	1.36E+06	0.0000	Na 4	130	130A	9	15	5.52E-02	1.45E+09	0.0175
Na 2	259	259A	1	3	3.13E-05	1.04E+06	0.0000	Na 4	122	122A	9	9	5.33E-02	2.65E+09	0.0158
Na 2	292	292A	1	3	8.36E-06	2.17E+05	0.0000	Na 4	121	121A	9	9	4.66E-02	2.33E+09	0.0137
Na 3	215	215A	6	10	1.38E+00	1.99E+10	0.7294	Na 4	141	141A	9	3	4.50E-02	4.98E+09	0.0155
Na 3	266	266A	6	6	7.30E-01	1.14E+10	0.4812	Na 4	132	132A	9	3	2.62E-02	3.30E+09	0.0085
Na 3	194	194A	6	10	6.38E-01	1.12E+10	0.3040	Na 4	121	121A	9	9	2.61E-02	1.32E+09	0.0077
Na 3	379	379A	6	2	5.32E-01	1.23E+10	1.951	Na 4	133	133A	9	15	2.28E-02	5.73E+08	0.0074
Na 3	203	203A	6	6	5.29E-01	1.43E+10	0.2632	Na 4	135	135A	9	3	2.00E-02	2.41E+09	0.0066
Na 3	249	249A	6	10	4.22E-01	4.51E+09	0.2600	Na 4	121	121A	9	9	1.21E-02	6.11E+08	0.0036
Na 3	202	202A	6	10	4.06E-01	6.61E+09	0.2014	Na 4	132	132A	9	15	9.08E-03	2.31E+08	0.0029
Na 3	214	214A	6	6	3.98E-01	9.60E+09	0.2097	Na 4	128	128A	9	9	8.29E-03	3.71E+08	0.0026
Na 3	186	186A	6	10	3.13E-01	6.01E+09	0.1427	Na 4	129	129A	9	3	4.16E-03	5.50E+08	0.0013
Na 3	202	202A	6	2	3.12E-01	2.53E+10	0.1550	Na 4	123	123A	9	9	3.08E-03	1.49E+08	0.0009
Na 3	194	194A	6	6	2.36E-01	6.93E+09	0.1124	Na 4	130	130A	9	3	2.35E-03	3.05E+08	0.0007
Na 3	184	184A	6	6	2.24E-01	7.34E+09	0.1009	Na 4	128	128A	9	3	2.16E-03	2.89E+08	0.0007
Na 3	182	182A	6	10	2.07E-01	4.16E+09	0.0922	Na 5	124	124A	4	12	4.48E+00	1.60E+11	1.356
Na 3	189	189A	6	10	1.86E-01	3.47E+09	0.0860	Na 5	106	106A	4	12	1.31E+00	6.47E+10	0.3364
Na 3	184	184A	6	2	1.47E-01	1.44E+10	0.0662	Na 5	465	465A	4	12	8.64E-01	2.21E+09	3.902
Na 3	184	184A	6	10	1.42E-01	2.80E+09	0.0639	Na 5	99	99.2A	4	12	6.23E-01	3.52E+10	0.1496
Na 3	207	207A	6	6	1.25E-01	3.22E+09	0.0636	Na 5	117	117A	4	12	5.90E-01	2.37E+10	0.1682
Na 3	179	179A	6	10	1.14E-01	2.35E+09	0.0501	Na 5	148	148A	4	12	5.18E-01	1.31E+10	0.1866
Na 3	182	182A	6	6	8.36E-02	2.80E+09	0.0372	Na 5	95	95.9A	4	12	3.24E-01	1.96E+10	0.0752
Na 3	229	229A	6	2	7.52E-02	4.77E+09	0.0424	Na 5	97	97.4A	4	12	2.32E-01	1.36E+10	0.0546
Na 3	186	186A	6	6	7.33E-02	2.35E+09	0.0334	Na 5	94	94.0A	4	12	1.69E-01	1.06E+10	0.0384
Na 3	176	176A	6	6	7.13E-02	2.54E+09	0.0308	Na 5	92	92.9A	4	12	1.17E-01	7.54E+09	0.0263
Na 3	178	178A	6	10	6.92E-02	1.45E+09	0.0301	Na 5	111	111A	4	12	1.09E-01	4.86E+09	0.0295
Na 3	176	176A	6	2	6.78E-02	7.25E+09	0.0292	Na 5	95	95.1A	4	12	1.08E-01	6.64E+09	0.0248
Na 3	195	195A	6	10	6.10E-02	1.06E+09	0.0293	Na 5	92	92.1A	4	12	8.19E-02	5.37E+09	0.0182
Na 3	191	191A	6	6	5.00E-02	1.51E+09	0.0235	Na 5	91	91.5A	4	12	6.01E-02	3.99E+09	0.0133
Na 3	172	172A	6	2	4.06E-02	4.54E+09	0.0171	Na 5	97	97.1A	4	12	4.90E-02	2.89E+09	0.0115
Na 3	179	179A	6	6	3.96E-02	1.36E+09	0.0174	Na 5	101	101A	4	12	3.48E-02	1.86E+09	0.0086
Na 3	177	177A	6	10	3.92E-02	8.32E+08	0.0170	Na 5	104	104A	4	12	9.43E-03	4.76E+08	0.0024
Na 3	176	176A	6	10	3.22E-02	6.89E+08	0.0139	Na 5	101	101A	4	12	7.76E-03	4.21E+08	0.0019
Na 3	170	170A	6	2	2.72E-02	3.12E+09	0.0113	Na 5	93	93.3A	4	12	3.09E-03	1.97E+08	0.0007
Na 3	181	181A	6	10	2.63E-02	5.33E+08	0.0117	Na 5	92	92.4A	4	12	2.38E-03	1.55E+08	0.0005
Na 3	184	184A	6	6	2.32E-02	7.54E+08	0.0105	Na 5	91	91.7A	4	12	1.65E-03	1.09E+08	0.0004
Na 3	178	178A	6	6	2.15E-02	7.52E+08	0.0094	Na 5	94	94.7A	4	12	1.12E-04	6.94E+06	0.0000
Na 3	169	169A	6	2	1.54E-02	1.79E+09	0.0064	Na 6	107	107A	9	15	6.62E+00	2.54E+11	1.726
Na 3	181	181A	6	6	1.41E-02	4.76E+08	0.0063	Na 6	107	107A	9	9	2.22E+00	1.43E+11	0.5764
Na 3	168	168A	6	2	1.12E-02	1.32E+09	0.0046	Na 6	88	88.3A	9	15	1.78E+00	1.01E+11	0.3799
Na 3	179	179A	6	6	8.71E-03	3.01E+08	0.0038	Na 6	311	311A	9	3	1.12E+00	2.57E+10	3.364
Na 3	177	177A	6	6	8.27E-03	2.93E+08	0.0036	Na 6	100	100A	9	15	1.07E+00	4.67E+10	0.2613
Na 3	167	167A	6	2	8.26E-03	9.81E+08	0.0034	Na 6	417	417A	9	9	8.95E-01	3.81E+09	3.613
Na 3	177	177A	6	6	5.77E-03	2.03E+08	0.0025	Na 6	496	496A	9	15	7.64E-01	1.38E+09	3.679
Na 3	176	176A	6	6	3.96E-03	1.41E+08	0.0017	Na 6	124	124A	9	9	6.58E-01	3.17E+10	0.1980
Na 3	182	182A	6	2	1.35E-03	1.35E+08	0.0006	Na 6	81	81.4A	9	15	5.85E-01	3.92E+10	0.1150

Na 6	99	99.9A	9	9	5.74E-01	4.26E+10	0.1388	Na 7	72	72.4A	6	6	2.29E-02	4.86E+09	0.0040
Na 6	88	88.3A	9	9	4.07E-01	3.87E+10	0.0868	Na 7	64	64.3A	6	2	1.88E-02	1.52E+10	0.0029
Na 6	78	78.3A	9	15	3.55E-01	2.57E+10	0.0671	Na 7	58	58.3A	6	6	1.81E-02	5.92E+09	0.0025
Na 6	81	81.8A	9	15	3.34E-01	2.22E+10	0.0660	Na 7	66	66.5A	6	10	1.79E-02	2.70E+09	0.0029
Na 6	81	81.4A	9	9	3.25E-01	3.63E+10	0.0639	Na 7	69	69.5A	6	6	1.66E-02	3.82E+09	0.0028
Na 6	103	103A	9	3	2.75E-01	5.69E+10	0.0690	Na 7	75	75.3A	6	10	1.52E-02	1.79E+09	0.0028
Na 6	76	76.5A	9	15	2.42E-01	1.84E+10	0.0447	Na 7	63	63.3A	6	2	1.43E-02	1.19E+10	0.0022
Na 6	88	88.1A	9	9	1.89E-01	1.81E+10	0.0402	Na 7	57	57.7A	6	6	1.19E-02	3.97E+09	0.0017
Na 6	75	75.5A	9	15	1.75E-01	1.37E+10	0.0318	Na 7	63	64.0A	6	2	1.07E-02	8.72E+09	0.0016
Na 6	75	75.3A	9	15	1.56E-01	1.22E+10	0.0283	Na 7	66	66.1A	6	2	9.00E-03	6.87E+09	0.0014
Na 6	86	86.8A	9	9	1.55E-01	1.52E+10	0.0325	Na 7	57	57.3A	6	6	8.29E-03	2.81E+09	0.0011
Na 6	91	91.5A	9	9	1.27E-01	1.12E+10	0.0281	Na 7	59	59.3A	6	6	7.38E-03	2.33E+09	0.0011
Na 6	78	78.3A	9	9	1.21E-01	1.46E+10	0.0229	Na 7	76	76.2A	6	6	7.10E-03	1.36E+09	0.0013
Na 6	74	74.7A	9	15	1.01E-01	8.05E+09	0.0182	Na 7	77	77.1A	6	2	7.02E-03	3.93E+09	0.0013
Na 6	87	87.3A	9	15	8.60E-02	5.02E+09	0.0181	Na 7	69	69.6A	6	2	6.51E-03	4.48E+09	0.0011
Na 6	74	74.2A	9	15	8.24E-02	6.66E+09	0.0147	Na 7	67	68.0A	6	10	5.45E-03	7.86E+08	0.0009
Na 6	76	76.5A	9	9	7.88E-02	9.97E+09	0.0145	Na 7	62	63.0A	6	10	3.58E-03	6.02E+08	0.0005
Na 6	86	86.4A	9	3	7.84E-02	2.33E+10	0.0164	Na 7	63	63.0A	6	2	3.32E-03	2.79E+09	0.0005
Na 6	81	81.3A	9	9	7.52E-02	8.43E+09	0.0148	Na 7	60	60.3A	6	6	2.11E-03	6.44E+08	0.0003
Na 6	80	80.8A	9	15	7.31E-02	4.98E+09	0.0143	Na 7	61	61.5A	6	6	1.70E-03	4.99E+08	0.0003
Na 6	92	92.8A	9	9	6.76E-02	5.82E+09	0.0152	Na 7	62	62.3A	6	2	1.40E-03	1.20E+09	0.0002
Na 6	75	75.2A	9	9	6.70E-02	8.79E+09	0.0121	Na 7	61	61.7A	6	2	9.86E-04	8.63E+08	0.0001
Na 6	75	75.4A	9	9	6.11E-02	7.96E+09	0.0111	Na 7	62	63.0A	6	10	4.48E-04	7.54E+07	0.0001
Na 6	81	81.4A	9	3	5.85E-02	1.96E+10	0.0115	Na 7	70	70.9A	6	2	4.99E-05	3.31E+07	0.0000
Na 6	92	92.9A	9	15	5.73E-02	2.95E+09	0.0129	Na 7	58	58.8A	6	6	3.54E-05	1.14E+07	0.0000
Na 6	74	74.7A	9	9	3.51E-02	4.66E+09	0.0063	Na 8	77	77.5A	1	3	5.16E-01	1.91E+11	0.0965
Na 6	75	75.6A	9	3	3.31E-02	1.29E+10	0.0060	Na 8	409	409A	1	3	3.49E-01	4.62E+09	1.385
Na 6	74	74.2A	9	9	2.78E-02	3.74E+09	0.0050	Na 8	59	59.9A	1	3	1.36E-01	8.42E+10	0.0196
Na 6	79	79.2A	9	9	2.30E-02	2.72E+09	0.0044	Na 8	54	54.6A	1	3	5.89E-02	4.40E+10	0.0077
Na 6	76	76.8A	9	15	2.30E-02	1.73E+09	0.0043	Na 8	66	66.3A	1	3	3.49E-02	1.77E+10	0.0056
Na 6	71	71.5A	9	3	2.24E-02	9.75E+09	0.0039	Na 8	51	51.9A	1	3	3.15E-02	2.60E+10	0.0039
Na 6	83	83.1A	9	9	1.82E-02	1.95E+09	0.0037	Na 8	50	50.5A	1	3	1.73E-02	1.51E+10	0.0021
Na 6	83	83.5A	9	3	1.64E-02	5.23E+09	0.0033	Na 8	49	49.6A	1	3	1.10E-02	9.92E+09	0.0013
Na 6	75	76.0A	9	9	1.60E-02	2.05E+09	0.0029	Na 8	70	70.5A	1	3	9.77E-03	4.37E+09	0.0017
Na 6	74	74.9A	9	9	1.57E-02	2.07E+09	0.0028	Na 8	54	54.3A	1	3	8.62E-03	6.50E+09	0.0011
Na 6	72	72.5A	9	3	1.50E-02	6.34E+09	0.0026	Na 8	49	49.1A	1	3	8.24E-03	7.61E+09	0.0010
Na 6	70	70.9A	9	3	1.35E-02	5.98E+09	0.0023	Na 8	48	48.7A	1	3	6.17E-03	5.79E+09	0.0007
Na 6	77	77.1A	9	9	1.30E-02	1.62E+09	0.0024	Na 8	50	50.7A	1	3	3.51E-03	3.03E+09	0.0004
Na 6	73	73.6A	9	3	1.19E-02	4.89E+09	0.0021	Na 8	50	50.2A	1	3	3.26E-03	2.88E+09	0.0004
Na 6	74	74.8A	9	15	9.43E-03	7.50E+08	0.0017	Na 8	55	55.6A	1	3	2.59E-03	1.86E+09	0.0003
Na 6	69	69.8A	9	3	7.31E-03	3.33E+09	0.0012	Na 9	70	70.8A	2	6	6.28E-01	1.39E+11	0.1624
Na 6	74	74.3A	9	9	5.76E-03	7.72E+08	0.0010	Na 9	697	697A	2	6	2.71E-01	6.19E+08	3.495
Na 6	69	69.2A	9	3	4.77E-03	2.22E+09	0.0008	Na 9	54	54.0A	2	6	1.67E-01	6.37E+10	0.0502
Na 6	74	74.5A	9	15	3.70E-03	2.96E+08	0.0007	Na 9	48	48.7A	2	6	7.06E-02	3.31E+10	0.0191
Na 6	74	74.4A	9	9	3.45E-03	4.62E+08	0.0006	Na 9	46	46.2A	2	6	3.71E-02	1.93E+10	0.0095
Na 6	68	68.7A	9	3	2.98E-03	1.40E+09	0.0005	Na 9	44	44.8A	2	6	2.20E-02	1.22E+10	0.0055
Na 6	75	75.7A	9	9	2.46E-04	3.18E+07	0.0000	Na 9	43	44.0A	2	6	1.42E-02	8.16E+09	0.0035
Na 6	77	77.6A	9	9	1.03E-05	1.27E+06	0.0000	Na 9	43	43.4A	2	6	9.75E-03	5.75E+09	0.0024
Na 6	80	80.2A	9	15	7.65E-06	5.29E+05	0.0000	Na 9	43	43.0A	2	6	6.98E-03	4.19E+09	0.0017
Na 6	76	76.1A	9	15	5.68E-06	4.36E+05	0.0000	Na10	11	11.2A	1	3	3.82E-07	6.79E+06	0.0000
Na 7	94	94.6A	6	10	3.54E+00	2.64E+11	0.8099	Na10	11	11.1A	1	3	7.76E-04	1.40E+10	0.0000
Na 7	352	352A	6	6	1.35E+00	1.21E+10	4.599	Na10	11	11.0A	1	3	7.33E-01	1.34E+13	0.0266
Na 7	86	86.9A	6	10	1.13E+00	9.98E+10	0.2372	Na10	94	9.45A	1	3	1.50E-01	3.73E+12	0.0056
Na 7	75	75.1A	6	10	7.32E-01	8.65E+10	0.1326	Na10	90	9.00A	1	3	5.62E-02	1.54E+12	0.0028
Na 7	89	89.2A	6	6	6.76E-01	9.46E+10	0.1456	Na10	88	8.81A	1	3	2.72E-02	7.79E+11	0.0013
Na 7	492	492A	6	10	4.92E-01	1.35E+09	2.351	Na10	86	8.70A	1	3	1.53E-02	4.49E+11	0.0007
Na 7	68	68.7A	6	10	2.79E-01	3.95E+10	0.0462	Na10	86	8.64A	1	3	9.49E-03	2.83E+11	0.0005
Na 7	69	69.1A	6	10	2.75E-01	3.84E+10	0.0458	Na10	86	8.60A	1	3	6.29E-03	1.89E+11	0.0003
Na 7	379	379A	6	2	2.71E-01	6.29E+09	0.9933	Na10	85	8.58A	1	3	4.39E-03	1.33E+11	0.0002
Na 7	85	85.6A	6	2	2.10E-01	9.56E+10	0.0434	Na10	85	8.56A	1	3	3.18E-03	9.65E+10	0.0002
Na 7	69	69.6A	6	6	1.92E-01	4.41E+10	0.0322	Na11	10	10.0A	2	2	3.62E-09	1.20E+05	0.0000
Na 7	79	80.0A	6	6	1.91E-01	3.32E+10	0.0369	Na11	10	10.0A	2	6	8.32E-01	9.16E+12	0.0281
Na 7	105	105A	6	2	1.62E-01	4.86E+10	0.0414	Na11	84	8.48A	2	6	1.58E-01	2.44E+12	0.0075
Na 7	65	65.6A	6	10	1.51E-01	2.34E+10	0.0239	Na11	80	8.04A	2	6	5.80E-02	9.97E+11	0.0028
Na 7	63	63.4A	6	10	1.18E-01	1.96E+10	0.0180	Na11	78	7.85A	2	6	2.79E-02	5.03E+11	0.0014
Na 7	80	80.1A	6	10	1.12E-01	1.16E+10	0.0216	Na11	77	7.75A	2	6	1.56E-02	2.89E+11	0.0008
Na 7	63	63.6A	6	6	1.04E-01	2.86E+10	0.0159	Na11	76	7.69A	2	6	9.63E-03	1.81E+11	0.0005
Na 7	70	70.9A	6	10	8.96E-02	1.19E+10	0.0153	Na11	76	7.65A	2	6	6.37E-03	1.21E+11	0.0003
Na 7	63	63.9A	6	10	8.47E-02	1.38E+10	0.0130	Na11	76	7.63A	2	6	4.43E-03	8.46E+10	0.0002
Na 7	64	64.3A	6	10	7.72E-02	1.25E+10	0.0119	Na11	76	7.61A	2	6	3.21E-03	6.16E+10	0.0002
Na 7	79	79.7A	6	2	7.63E-02	4.01E+10	0.0147	Mg 1	1817	1817A	1	3	2.85E-02	1.92E+07	0.0120
Na 7	62	62.8A	6	10	5.30E-02	8.95E+09	0.0080	Mg 1	1739	1739A	1	3	1.03E-02	7.57E+06	0.0040
Na 7	59	59.2A	6	6	5.05E-02	1.60E+10	0.0072	Mg 1	1699	1699A	1	3	4.88E-03	3.76E+06	0.0018
Na 7	70	70.1A	6	10	4.63E-02	6.28E+09	0.0078	Mg 1	1675	1675A	1	3	2.72E-03	2.15E+06	0.0010
Na 7	60	60.8A	6	6	4.31E-02	1.30E+10	0.0063	Mg 1	1660	1660A	1	3	1.68E-03	1.35E+06	0.0006
Na 7	68	68.7A	6	2	4.09E-02	2.89E+10	0.0068	Mg 1	1650	1650A	1	3	1.12E-03	9.14E+05	0.0004
Na 7	62	62.1A	6	10	3.77E-02	6.51E+09	0.0056	Mg 1	1643	1643A	1	3	7.81E-04	6.43E+05	0.0003
Na 7	64	64.2A	6	6	3.38E-02	9.11E+09	0.0052	Mg 2	1040	1040A	2	6	2.77E-03	2.85E+06	0.0078
Na 7	61	61.7A	6	10	2.71E-02	4.76E+09	0.0040	Mg 2	959	959A	2	6	1.97E-03	2.38E+06	0.0050
Na 7	69	69.1A	6	2	2.56E-02	1.79E+10	0.0043	Mg 2	919	919A	2	6	1.31E-03	1.72E+06	0.0032

Mg 2	1257	1257A	2	6	1.10E-03	7.73E+05	0.0038	Mg 5	95	95.9A	9	15	6.77E-01	3.27E+10	0.1570
Mg 2	896	896A	2	6	8.88E-04	1.23E+06	0.0021	Mg 5	136	136A	9	15	6.57E-01	1.56E+10	0.2185
Mg 2	881	881A	2	6	6.23E-04	8.92E+05	0.0015	Mg 5	97	97.5A	9	15	4.97E-01	2.32E+10	0.1172
Mg 2	871	871A	2	6	4.52E-04	6.62E+05	0.0010	Mg 5	145	145A	9	3	4.58E-01	4.81E+10	0.1621
Mg 3	183	183A	1	3	4.82E-01	3.18E+10	0.3540	Mg 5	111	111A	9	9	4.56E-01	2.73E+10	0.1229
Mg 3	225	225A	1	3	2.45E-01	1.07E+10	0.0713	Mg 5	131	131A	9	9	3.72E-01	1.59E+10	0.1189
Mg 3	168	168A	1	3	2.12E-01	1.66E+10	0.2001	Mg 5	98	98.4A	9	9	3.59E-01	2.75E+10	0.0854
Mg 3	162	162A	1	3	1.09E-01	9.19E+09	0.0432	Mg 5	98	98.8A	9	15	3.51E-01	1.60E+10	0.0839
Mg 3	159	159A	1	3	6.32E-02	5.54E+09	0.0245	Mg 5	92	92.7A	9	9	3.47E-01	2.99E+10	0.0777
Mg 3	157	157A	1	3	3.98E-02	3.57E+09	0.0153	Mg 5	92	92.6A	9	15	3.19E-01	1.66E+10	0.0714
Mg 3	179	179A	1	3	3.56E-02	2.46E+09	0.0164	Mg 5	94	94.4A	9	15	3.03E-01	1.51E+10	0.0692
Mg 3	156	156A	1	3	2.66E-02	2.42E+09	0.0101	Mg 5	98	98.4A	9	3	2.93E-01	6.73E+10	0.0697
Mg 3	155	155A	1	3	1.87E-02	1.72E+09	0.0071	Mg 5	90	90.3A	9	15	2.31E-01	1.26E+10	0.0504
Mg 3	154	154A	1	3	1.36E-02	1.26E+09	0.0051	Mg 5	96	96.1A	9	9	2.19E-01	1.76E+10	0.0509
Mg 3	167	167A	1	3	1.32E-02	1.05E+09	0.0054	Mg 5	89	89.7A	9	9	1.84E-01	1.69E+10	0.0399
Mg 3	161	161A	1	3	6.44E-03	5.48E+08	0.0025	Mg 5	100	100A	9	3	1.59E-01	3.52E+10	0.0385
Mg 3	158	158A	1	3	3.64E-03	3.21E+08	0.0014	Mg 5	92	92.6A	9	3	1.39E-01	3.61E+10	0.0311
Mg 3	157	157A	1	3	2.26E-03	2.03E+08	0.0009	Mg 5	86	86.1A	9	9	1.26E-01	1.26E+10	0.0262
Mg 3	156	156A	1	3	1.51E-03	1.38E+08	0.0006	Mg 5	91	91.5A	9	15	1.19E-01	6.32E+09	0.0263
Mg 3	155	155A	1	3	1.05E-03	9.67E+07	0.0004	Mg 5	88	88.1A	9	9	1.15E-01	1.10E+10	0.0245
Mg 4	147	147A	6	10	1.97E+00	6.07E+10	0.7057	Mg 5	90	90.4A	9	9	1.13E-01	1.03E+10	0.0247
Mg 4	130	130A	6	10	9.89E-01	3.89E+10	0.3128	Mg 5	90	90.2A	9	15	1.10E-01	6.02E+09	0.0240
Mg 4	140	140A	6	6	9.88E-01	5.55E+10	0.3381	Mg 5	109	109A	9	3	9.71E-02	1.79E+10	0.0258
Mg 4	140	140A	6	10	8.54E-01	2.89E+10	0.2914	Mg 5	92	92.8A	9	15	8.04E-02	4.15E+09	0.0180
Mg 4	180	180A	6	6	7.26E-01	2.49E+10	0.3196	Mg 5	87	87.1A	9	9	7.74E-02	7.57E+09	0.0163
Mg 4	123	123A	6	10	5.43E-01	2.37E+10	0.1630	Mg 5	86	86.4A	9	9	6.64E-02	6.60E+09	0.0139
Mg 4	322	322A	6	2	5.20E-01	1.67E+10	1.620	Mg 5	87	87.6A	9	9	5.59E-02	5.40E+09	0.0118
Mg 4	146	146A	6	6	5.08E-01	2.62E+10	0.1816	Mg 5	90	90.7A	9	15	4.96E-02	2.68E+09	0.0109
Mg 4	140	140A	6	2	4.74E-01	7.99E+10	0.1621	Mg 5	100	100A	9	9	4.87E-02	3.54E+09	0.0119
Mg 4	171	171A	6	10	4.29E-01	9.75E+09	0.1794	Mg 5	99	99.6A	9	3	4.16E-02	9.32E+09	0.0100
Mg 4	130	130A	6	6	3.05E-01	2.00E+10	0.0965	Mg 5	90	90.9A	9	15	3.53E-02	1.90E+09	0.0078
Mg 4	118	118A	6	10	2.80E-01	1.33E+10	0.0805	Mg 5	94	94.9A	9	15	3.49E-02	1.72E+09	0.0080
Mg 4	132	132A	6	10	2.70E-01	1.02E+10	0.0872	Mg 5	85	85.9A	9	9	2.00E-02	2.01E+09	0.0041
Mg 4	124	124A	6	6	2.43E-01	1.73E+10	0.0737	Mg 5	87	87.3A	9	9	1.95E-02	1.90E+09	0.0041
Mg 4	123	123A	6	6	2.39E-01	1.74E+10	0.0717	Mg 5	88	88.6A	9	9	1.62E-02	1.53E+09	0.0035
Mg 4	120	120A	6	10	2.29E-01	1.05E+10	0.0669	Mg 5	91	91.5A	9	9	1.56E-02	1.38E+09	0.0035
Mg 4	124	124A	6	10	1.44E-01	6.16E+09	0.0436	Mg 5	85	86.0A	9	9	1.51E-02	1.51E+09	0.0031
Mg 4	118	118A	6	6	1.43E-01	1.13E+10	0.0411	Mg 5	95	95.6A	9	3	1.44E-02	3.50E+09	0.0033
Mg 4	138	138A	6	6	1.37E-01	7.95E+09	0.0461	Mg 5	91	91.8A	9	15	1.43E-02	7.55E+08	0.0032
Mg 4	118	118A	6	10	1.34E-01	6.33E+09	0.0386	Mg 5	86	86.6A	9	9	1.27E-02	1.26E+09	0.0027
Mg 4	124	124A	6	2	1.32E-01	2.83E+10	0.0400	Mg 5	93	93.3A	9	3	1.11E-02	2.83E+09	0.0025
Mg 4	117	117A	6	10	1.21E-01	5.86E+09	0.0344	Mg 5	92	92.4A	9	9	9.43E-03	8.19E+08	0.0021
Mg 4	118	118A	6	2	9.42E-02	2.23E+10	0.0271	Mg 5	91	91.9A	9	3	5.29E-03	1.39E+09	0.0012
Mg 4	120	120A	6	6	7.95E-02	6.09E+09	0.0232	Mg 5	91	91.0A	9	3	4.24E-03	1.14E+09	0.0009
Mg 4	159	159A	6	2	7.92E-02	1.03E+10	0.0309	Mg 5	90	90.4A	9	3	3.29E-03	8.95E+08	0.0007
Mg 4	116	116A	6	10	7.59E-02	3.73E+09	0.0215	Mg 5	92	92.4A	9	15	1.13E-04	5.89E+06	0.0000
Mg 4	118	118A	6	6	7.07E-02	5.57E+09	0.0204	Mg 6	95	95.1A	4	12	5.06E+00	3.11E+11	1.164
Mg 4	125	125A	6	2	6.74E-02	1.42E+10	0.0205	Mg 6	79	79.8A	4	12	8.87E-01	7.75E+10	0.1708
Mg 4	127	127A	6	6	5.56E-02	3.83E+09	0.0172	Mg 6	406	406A	4	12	8.03E-01	2.70E+09	0.0045
Mg 4	116	116A	6	10	4.66E-02	2.31E+09	0.0131	Mg 6	74	74.2A	4	12	7.11E-01	7.17E+10	0.1273
Mg 4	115	115A	6	2	4.45E-02	1.11E+10	0.0125	Mg 6	90	90.7A	4	12	6.75E-01	4.56E+10	0.1480
Mg 4	117	117A	6	6	4.20E-02	3.39E+09	0.0120	Mg 6	79	79.7A	4	12	5.38E-01	4.71E+10	0.1034
Mg 4	113	113A	6	2	3.39E-02	8.72E+09	0.0094	Mg 6	111	111A	4	12	5.02E-01	2.26E+10	0.1353
Mg 4	121	121A	6	10	2.93E-02	1.32E+09	0.0087	Mg 6	71	71.6A	4	12	3.09E-01	3.35E+10	0.0533
Mg 4	122	122A	6	6	2.66E-02	1.98E+09	0.0079	Mg 6	75	75.3A	4	12	2.15E-01	2.11E+10	0.0391
Mg 4	112	112A	6	2	2.36E-02	6.19E+09	0.0064	Mg 6	70	70.1A	4	12	1.88E-01	2.13E+10	0.0317
Mg 4	116	116A	6	6	2.36E-02	1.93E+09	0.0067	Mg 6	69	69.1A	4	12	1.30E-01	1.51E+10	0.0217
Mg 4	112	112A	6	2	1.75E-02	4.65E+09	0.0048	Mg 6	75	75.8A	4	12	1.05E-01	1.02E+10	0.0192
Mg 4	119	119A	6	6	1.63E-02	1.27E+09	0.0047	Mg 6	68	68.5A	4	12	9.78E-02	1.16E+10	0.0161
Mg 4	132	132A	6	10	1.54E-02	5.87E+08	0.0049	Mg 6	83	83.7A	4	12	8.98E-02	7.12E+09	0.0181
Mg 4	111	111A	6	2	1.25E-02	3.35E+09	0.0034	Mg 6	69	69.1A	4	12	7.56E-02	8.81E+09	0.0126
Mg 4	115	115A	6	2	1.09E-02	2.70E+09	0.0031	Mg 6	68	68.0A	4	12	5.80E-02	6.96E+09	0.0095
Mg 4	116	116A	6	6	1.08E-02	8.92E+08	0.0030	Mg 6	74	74.2A	4	12	3.72E-02	3.76E+09	0.0067
Mg 4	117	117A	6	10	9.97E-03	4.84E+08	0.0028	Mg 6	81	81.8A	4	12	3.43E-02	2.85E+09	0.0068
Mg 4	118	118A	6	6	9.33E-03	7.44E+08	0.0027	Mg 6	72	72.3A	4	12	1.38E-02	1.47E+09	0.0024
Mg 4	117	117A	6	6	6.65E-03	5.40E+08	0.0019	Mg 6	70	70.5A	4	12	7.69E-03	8.59E+08	0.0013
Mg 4	118	118A	6	10	5.32E-03	2.52E+08	0.0015	Mg 6	68	68.2A	4	12	5.87E-03	7.02E+08	0.0010
Mg 4	116	116A	6	6	4.89E-03	4.02E+08	0.0014	Mg 6	69	69.4A	4	12	5.28E-03	6.09E+08	0.0009
Mg 4	118	118A	6	10	4.76E-04	2.26E+07	0.0001	Mg 6	68	68.5A	4	12	4.79E-03	5.68E+08	0.0008
Mg 4	111	111A	6	2	1.22E-04	3.25E+07	0.0000	Mg 6	68	68.4A	4	12	4.07E-03	4.84E+08	0.0007
Mg 5	114	114A	9	9	2.58E+00	1.47E+11	0.7131	Mg 6	68	68.7A	4	12	6.92E-04	8.15E+07	0.0001
Mg 5	121	121A	9	15	2.33E+00	7.00E+10	0.6874	Mg 7	84	84.1A	9	15	6.99E+00	4.40E+11	1.419
Mg 5	114	114A	9	15	2.19E+00	7.39E+10	0.6094	Mg 7	83	83.7A	9	9	2.33E+00	2.46E+11	0.4711
Mg 5	110	110A	9	15	1.72E+00	6.23E+10	0.4619	Mg 7	68	68.2A	9	15	1.57E+00	1.50E+11	0.2580
Mg 5	353	353A	9	9	1.42E+00	8.44E+09	4.482	Mg 7	79	79.5A	9	15	1.19E+00	8.37E+10	0.2283
Mg 5	104	104A	9	15	1.40E+00	5.75E+10	0.3526	Mg 7	276	276A	9	3	1.01E+00	2.93E+10	0.0004
Mg 5	104	104A	9	15	1.40E+00	5.75E+10	0.3526	Mg 7	368	368A	9	9	8.18E-01	4.47E+09	1.582
Mg 5	113	113A	9	3	8.73E-01	1.50E+11	0.2406	Mg 7	437	437A	9	15	7.07E-01	1.64E+09	2.580
Mg 5	99	99.3A	9	9	8.31E-01	6.25E+10	0.1995	Mg 7	78	78.8A	9	9	6.68E-01	7.98E+10	0.1270
Mg 5	100	100A	9	15	7.02E-01	3.11E+10	0.1702	Mg 7	62	62.8A	9	15	6.65E-01	7.50E+10	0.1006

Mg 7	95	95.5A	9	9	6.34E-01	5.15E+10	0.1464	Mg 8	54	54.7A	6	2	4.32E-02	4.82E+10	0.0057
Mg 7	68	68.2A	9	9	5.32E-01	8.49E+10	0.0874	Mg 8	48	48.2A	6	6	4.11E-02	1.97E+10	0.0048
Mg 7	63	63.7A	9	15	4.38E-01	4.81E+10	0.0671	Mg 8	48	48.8A	6	10	3.73E-02	1.05E+10	0.0044
Mg 7	69	70.0A	9	15	3.83E-01	3.48E+10	0.0646	Mg 8	57	57.3A	6	10	3.38E-02	6.86E+09	0.0047
Mg 7	60	60.2A	9	15	3.56E-01	4.36E+10	0.0516	Mg 8	54	54.6A	6	10	3.26E-02	7.29E+09	0.0043
Mg 7	81	81.5A	9	3	3.02E-01	1.01E+11	0.0594	Mg 8	46	47.0A	6	6	3.15E-02	1.59E+10	0.0036
Mg 7	71	71.1A	9	9	2.85E-01	4.18E+10	0.0488	Mg 8	48	48.4A	6	10	3.07E-02	8.75E+09	0.0036
Mg 7	58	58.8A	9	15	2.22E-01	2.86E+10	0.0314	Mg 8	48	48.4A	6	10	3.02E-02	8.58E+09	0.0035
Mg 7	63	63.6A	9	9	2.19E-01	4.02E+10	0.0335	Mg 8	56	56.8A	6	6	2.94E-02	1.01E+10	0.0040
Mg 7	62	62.8A	9	9	1.77E-01	3.33E+10	0.0268	Mg 8	54	54.9A	6	2	2.74E-02	3.03E+10	0.0036
Mg 7	58	58.6A	9	15	1.71E-01	2.22E+10	0.0241	Mg 8	50	50.3A	6	2	2.42E-02	3.20E+10	0.0029
Mg 7	69	69.5A	9	9	1.38E-01	2.12E+10	0.0231	Mg 8	45	45.3A	6	6	2.04E-02	1.10E+10	0.0022
Mg 7	60	60.2A	9	9	1.22E-01	2.49E+10	0.0177	Mg 8	46	46.2A	6	6	1.83E-02	9.53E+09	0.0020
Mg 7	57	57.9A	9	15	1.11E-01	1.47E+10	0.0155	Mg 8	59	59.1A	6	6	1.82E-02	5.80E+09	0.0026
Mg 7	56	56.9A	9	15	1.10E-01	1.51E+10	0.0151	Mg 8	60	60.8A	6	2	1.81E-02	1.63E+10	0.0027
Mg 7	57	57.3A	9	15	9.41E-02	1.27E+10	0.0130	Mg 8	61	61.9A	6	6	1.75E-02	5.07E+09	0.0026
Mg 7	58	58.5A	9	9	9.12E-02	1.98E+10	0.0128	Mg 8	47	47.7A	6	6	1.72E-02	8.40E+09	0.0020
Mg 7	69	69.3A	9	3	9.05E-02	4.19E+10	0.0151	Mg 8	51	51.4A	6	2	1.61E-02	2.03E+10	0.0020
Mg 7	63	63.9A	9	3	8.71E-02	4.74E+10	0.0134	Mg 8	47	47.3A	6	6	1.55E-02	7.70E+09	0.0018
Mg 7	73	73.8A	9	15	7.92E-02	6.46E+09	0.0141	Mg 8	51	52.0A	6	2	1.48E-02	1.83E+10	0.0018
Mg 7	58	58.8A	9	9	7.76E-02	1.66E+10	0.0110	Mg 8	45	45.7A	6	6	1.20E-02	6.39E+09	0.0013
Mg 7	62	62.8A	9	9	7.63E-02	1.43E+10	0.0115	Mg 8	56	56.5A	6	2	9.06E-03	9.46E+09	0.0012
Mg 7	57	57.9A	9	9	4.11E-02	9.09E+09	0.0057	Mg 8	48	48.8A	6	6	7.37E-03	3.45E+09	0.0009
Mg 7	60	60.4A	9	15	3.85E-02	4.70E+09	0.0056	Mg 8	54	54.2A	6	10	6.49E-03	1.47E+09	0.0008
Mg 7	58	58.1A	9	9	3.70E-02	8.12E+09	0.0052	Mg 8	61	61.3A	6	10	4.66E-03	8.27E+08	0.0007
Mg 7	58	58.0A	9	15	3.63E-02	4.80E+09	0.0051	Mg 8	49	49.5A	6	2	2.29E-03	3.12E+09	0.0003
Mg 7	58	58.7A	9	3	3.40E-02	2.19E+10	0.0048	Mg 8	48	48.9A	6	10	1.76E-03	4.92E+08	0.0002
Mg 7	57	57.3A	9	9	3.09E-02	6.98E+09	0.0043	Mg 8	49	49.6A	6	6	1.55E-03	7.01E+08	0.0002
Mg 7	56	56.9A	9	9	3.06E-02	7.01E+09	0.0042	Mg 8	48	48.9A	6	2	1.53E-03	2.14E+09	0.0002
Mg 7	58	58.1A	9	15	2.98E-02	3.93E+09	0.0042	Mg 8	45	45.4A	6	6	1.33E-03	7.19E+08	0.0001
Mg 7	56	56.9A	9	15	2.89E-02	3.97E+09	0.0040	Mg 8	50	50.0A	6	10	1.06E-03	2.82E+08	0.0001
Mg 7	60	60.8A	9	9	2.51E-02	5.03E+09	0.0037	Mg 8	48	48.4A	6	2	1.05E-03	1.49E+09	0.0001
Mg 7	56	56.7A	9	3	2.49E-02	1.72E+10	0.0034	Mg 8	58	58.0A	6	2	8.55E-04	8.47E+08	0.0001
Mg 7	56	56.3A	9	3	2.48E-02	1.74E+10	0.0034	Mg 8	45	45.5A	6	6	3.51E-04	1.88E+08	0.0000
Mg 7	56	57.0A	9	9	1.91E-02	4.36E+09	0.0026	Mg 8	50	50.7A	6	10	3.46E-04	8.99E+07	0.0000
Mg 7	60	60.0A	9	9	1.83E-02	3.77E+09	0.0026	Mg 8	50	50.4A	6	2	7.22E-06	9.48E+06	0.0000
Mg 7	54	55.0A	9	3	1.07E-02	7.87E+09	0.0014	Mg 9	62	63.0A	1	3	5.41E-01	3.03E+11	0.0820
Mg 7	70	70.3A	9	9	1.07E-02	1.60E+09	0.0018	Mg 9	368	368A	1	3	3.14E-01	5.14E+09	0.9657
Mg 7	59	59.7A	9	3	1.06E-02	6.62E+09	0.0015	Mg 9	48	48.5A	1	3	1.43E-01	1.35E+11	0.0167
Mg 7	59	59.1A	9	9	9.97E-03	2.12E+09	0.0014	Mg 9	43	44.0A	1	3	4.86E-02	5.59E+10	0.0051
Mg 7	61	61.8A	9	15	9.85E-03	1.15E+09	0.0015	Mg 9	54	54.6A	1	3	3.41E-02	2.55E+10	0.0045
Mg 7	57	57.4A	9	9	8.10E-03	1.82E+09	0.0011	Mg 9	41	41.9A	1	3	3.31E-02	4.19E+10	0.0033
Mg 7	54	54.1A	9	3	6.66E-03	5.06E+09	0.0009	Mg 9	44	44.5A	1	3	2.28E-02	2.56E+10	0.0024
Mg 7	63	63.9A	9	9	5.75E-03	1.04E+09	0.0009	Mg 9	57	57.8A	1	3	1.35E-02	8.98E+09	0.0019
Mg 7	65	65.5A	9	15	5.74E-03	5.96E+08	0.0009	Mg 9	40	40.7A	1	3	1.29E-02	1.73E+10	0.0013
Mg 7	53	53.5A	9	3	4.63E-03	3.59E+09	0.0006	Mg 9	40	40.0A	1	3	1.22E-02	1.69E+10	0.0012
Mg 7	58	58.1A	9	9	3.31E-03	7.28E+08	0.0005	Mg 9	40	40.9A	1	3	1.07E-02	1.42E+10	0.0011
Mg 7	53	53.2A	9	3	3.07E-03	2.42E+09	0.0004	Mg 9	39	39.6A	1	3	8.81E-03	1.25E+10	0.0008
Mg 7	57	57.5A	9	9	2.09E-03	4.68E+08	0.0003	Mg 9	39	39.2A	1	3	7.13E-03	1.03E+10	0.0007
Mg 7	59	59.9A	9	15	2.07E-03	2.57E+08	0.0003	Mg 9	45	45.4A	1	3	7.61E-04	8.23E+08	0.0001
Mg 7	73	73.3A	9	9	9.29E-04	1.28E+08	0.0002	Mg 9	39	39.4A	1	3	1.41E-04	2.02E+08	0.0000
Mg 7	59	59.7A	9	9	4.47E-04	9.30E+07	0.0001	Mg 9	41	41.3A	1	3	7.79E-05	1.02E+08	0.0000
Mg 7	58	58.8A	9	9	3.01E-04	6.45E+07	0.0000	Mg10	44	44.2A	2	6	1.70E-01	9.69E+10	0.0433
Mg 7	54	54.6A	9	3	1.59E-04	1.19E+08	0.0000	Mg10	39	39.8A	2	6	7.19E-02	5.05E+10	0.0164
Mg 7	66	66.8A	9	3	1.49E-04	7.43E+07	0.0000	Mg10	37	37.7A	2	6	3.77E-02	2.94E+10	0.0082
Mg 7	62	62.9A	9	15	4.16E-06	4.68E+05	0.0000	Mg10	36	36.6A	2	6	2.24E-02	1.86E+10	0.0047
Mg 7	58	58.7A	9	15	1.43E-08	1.84E+03	0.0000	Mg10	35	35.9A	2	6	1.45E-02	1.25E+10	0.0030
Mg 8	75	75.2A	6	10	3.63E+00	4.29E+11	0.6579	Mg10	35	35.5A	2	6	9.90E-03	8.75E+09	0.0020
Mg 8	69	69.7A	6	10	1.23E+00	1.69E+11	0.2066	Mg10	35	35.1A	2	6	7.09E-03	6.39E+09	0.0014
Mg 8	315	315A	6	6	1.22E+00	1.36E+10	0.0076	Mg11	93	9.31A	1	3	3.75E-07	9.62E+06	0.0292
Mg 8	59	59.3A	6	10	7.46E-01	1.42E+11	0.1064	Mg11	92	9.23A	1	3	1.29E-03	3.37E+10	0.0105
Mg 8	71	71.4A	6	6	7.21E-01	1.57E+11	0.1240	Mg11	91	9.19A	1	3	7.41E-01	1.95E+13	0.0025
Mg 8	438	438A	6	10	4.50E-01	1.56E+09	0.0027	Mg11	78	7.87A	1	3	1.51E-01	5.42E+12	0.0031
Mg 8	55	55.1A	6	10	3.09E-01	6.80E+10	0.0409	Mg11	74	7.49A	1	3	5.64E-02	2.24E+12	0.0017
Mg 8	54	54.0A	6	10	2.80E-01	6.40E+10	0.0364	Mg11	73	7.33A	1	3	2.73E-02	1.13E+12	0.0011
Mg 8	337	337A	6	2	2.44E-01	7.13E+09	0.7962	Mg11	72	7.24A	1	3	1.53E-02	6.49E+11	0.0006
Mg 8	68	68.7A	6	2	2.39E-01	1.69E+11	0.0396	Mg11	71	7.19A	1	3	9.50E-03	4.09E+11	0.0004
Mg 8	64	64.8A	6	6	2.11E-01	5.59E+10	0.0329	Mg11	71	7.16A	1	3	6.30E-03	2.73E+11	0.0003
Mg 8	55	55.4A	6	6	1.95E-01	7.07E+10	0.0260	Mg11	71	7.14A	1	3	4.39E-03	1.91E+11	0.0002
Mg 8	82	82.9A	6	2	1.56E-01	7.58E+10	0.0312	Mg11	71	7.12A	1	3	3.18E-03	1.39E+11	0.0001
Mg 8	50	50.4A	6	10	1.43E-01	3.76E+10	0.0173	Mg12	84	8.42A	2	2	3.64E-09	1.71E+05	0.0046
Mg 8	51	51.6A	6	10	1.23E-01	3.08E+10	0.0153	Mg12	84	8.44A	2	6	8.32E-01	1.30E+13	0.0098
Mg 8	64	64.8A	6	10	1.12E-01	1.78E+10	0.0175	Mg12	71	7.12A	2	6	1.58E-01	3.46E+12	0.0063
Mg 8	51	51.6A	6	10	9.63E-02	2.42E+10	0.0119	Mg12	67	6.75A	2	6	5.80E-02	1.42E+12	0.0024
Mg 8	50	50.5A	6	6	9.44E-02	4.11E+10	0.0115	Mg12	66	6.60A	2	6	2.79E-02	7.12E+11	0.0012
Mg 8	50	50.2A	6	10	8.26E-02	2.19E+10	0.0100	Mg12	65	6.51A	2	6	1.56E-02	4.09E+11	0.0006
Mg 8	57	57.9A	6	10	7.49E-02	1.49E+10	0.0104	Mg12	64	6.46A	2	6	9.63E-03	2.57E+11	0.0004
Mg 8	64	64.3A	6	2	5.93E-02	4.78E+10	0.0092	Mg12	64	6.43A	2	6	6.37E-03	1.71E+11	0.0003
Mg 8	49	49.3A	6	10	5.51E-02	1.51E+10	0.0065	Mg12	64	6.41A	2	6	4.43E-03	1.20E+11	0.0002
Mg 8	51	51.6A	6	6	5.28E-02	2.21E+10	0.0065	Mg12	64	6.40A	2	6	3.21E-03	8.71E+10	0.0001

Al	1	1775	1775A	6	6	4.75E+00	1.67E+09	2.066	Al	5	86	86.1A	6	6	1.07E-01	1.61E+10	0.0222
Al	1	2398	2398A	6	10	7.59E-01	8.80E+07	0.5737	Al	5	83	83.0A	6	10	8.51E-02	8.24E+09	0.0171
Al	1	1429	1429A	6	6	7.10E-01	3.86E+08	0.1813	Al	5	83	83.7A	6	10	8.49E-02	8.09E+09	0.0171
Al	1	2290	2290A	6	10	5.80E-01	7.37E+07	0.3984	Al	5	118	118A	6	2	8.00E-02	1.91E+10	0.0230
Al	1	2230	2230A	6	10	3.78E-01	5.07E+07	0.2456	Al	5	83	83.3A	6	10	7.98E-02	7.67E+09	0.0161
Al	1	2611	2611A	6	10	3.53E-01	3.45E+07	0.3189	Al	5	83	83.3A	6	6	7.12E-02	1.14E+10	0.0143
Al	1	2194	2194A	6	10	2.48E-01	3.44E+07	0.1557	Al	5	95	96.0A	6	10	6.73E-02	4.87E+09	0.0156
Al	1	2170	2170A	6	10	1.69E-01	2.39E+07	0.1037	Al	5	84	84.6A	6	6	5.71E-02	8.87E+09	0.0117
Al	1	2154	2154A	6	10	1.19E-01	1.71E+07	0.0719	Al	5	84	84.7A	6	2	4.21E-02	1.96E+10	0.0086
Al	1	2685	2685A	6	2	8.68E-02	4.01E+07	0.0831	Al	5	83	83.0A	6	6	3.95E-02	6.37E+09	0.0079
Al	1	1296	1296A	6	6	8.62E-02	5.70E+07	0.0179	Al	5	87	87.3A	6	6	3.78E-02	5.51E+09	0.0080
Al	1	2400	2400A	6	2	2.88E-02	1.67E+07	0.0218	Al	5	83	83.3A	6	2	3.75E-02	1.80E+10	0.0075
Al	1	1246	1246A	6	6	2.67E-02	1.91E+07	0.0051	Al	5	91	91.9A	6	2	3.57E-02	1.41E+10	0.0079
Al	1	2284	2284A	6	2	1.38E-02	8.82E+06	0.0094	Al	5	83	83.3A	6	6	3.33E-02	5.33E+09	0.0067
Al	1	1221	1221A	6	6	1.18E-02	8.79E+06	0.0022	Al	5	81	81.9A	6	2	2.97E-02	1.48E+10	0.0059
Al	1	2225	2225A	6	2	7.73E-03	5.21E+06	0.0050	Al	5	87	87.9A	6	10	2.90E-02	2.50E+09	0.0062
Al	1	1207	1207A	6	6	6.32E-03	4.82E+06	0.0011	Al	5	84	84.4A	6	2	2.64E-02	1.24E+10	0.0054
Al	1	2189	2189A	6	2	4.76E-03	3.31E+06	0.0030	Al	5	83	83.7A	6	6	2.27E-02	3.60E+09	0.0046
Al	1	1199	1199A	6	6	3.79E-03	2.93E+06	0.0007	Al	5	82	82.6A	6	6	2.05E-02	3.34E+09	0.0041
Al	1	2167	2167A	6	2	3.15E-03	2.24E+06	0.0019	Al	5	80	81.0A	6	2	1.75E-02	8.90E+09	0.0034
Al	1	1193	1193A	6	6	2.47E-03	1.93E+06	0.0004	Al	5	84	84.4A	6	10	1.75E-02	1.64E+09	0.0036
Al	1	2151	2151A	6	2	2.19E-03	1.58E+06	0.0013	Al	5	82	82.6A	6	10	1.73E-02	1.69E+09	0.0034
Al	1	1189	1189A	6	6	1.70E-03	1.34E+06	0.0003	Al	5	80	80.4A	6	2	1.39E-02	7.17E+09	0.0027
Al	2	1670	1670A	1	3	1.81E+00	1.44E+09	3.228	Al	5	79	80.0A	6	2	1.04E-02	5.43E+09	0.0020
Al	2	929	929A	1	3	3.02E-03	7.78E+06	0.0075	Al	5	84	84.1A	6	6	7.35E-03	1.15E+09	0.0015
Al	2	713	713A	1	3	1.10E-03	4.81E+06	0.0020	Al	5	85	85.3A	6	6	6.87E-03	1.05E+09	0.0014
Al	2	739	739A	1	3	1.09E-03	4.43E+06	0.0021	Al	5	86	86.1A	6	10	6.06E-03	5.46E+08	0.0013
Al	2	697	697A	1	3	1.05E-03	4.79E+06	0.0019	Al	5	81	81.2A	6	2	3.80E-03	1.92E+09	0.0007
Al	2	688	688A	1	3	9.98E-04	4.68E+06	0.0018	Al	5	82	82.8A	6	6	3.60E-03	5.84E+08	0.0007
Al	2	682	682A	1	3	9.48E-04	4.53E+06	0.0017	Al	5	85	85.6A	6	10	2.17E-05	1.98E+06	0.0000
Al	2	677	677A	1	3	8.58E-04	4.16E+06	0.0015	Al	5	83	83.2A	6	10	8.28E-07	7.98E+04	0.0000
Al	2	792	792A	1	3	5.67E-04	2.01E+06	0.0012	Al	6	87	87.7A	9	9	3.04E+00	2.93E+11	0.6439
Al	3	703	703A	2	6	2.75E-02	6.18E+07	0.0502	Al	6	88	88.2A	9	15	2.80E+00	1.60E+11	0.5969
Al	3	566	566A	2	6	1.59E-02	5.52E+07	0.0230	Al	6	92	92.7A	9	15	2.45E+00	1.27E+11	0.5488
Al	3	516	516A	2	6	8.80E-03	3.67E+07	0.0116	Al	6	85	85.6A	9	15	2.24E+00	1.36E+11	0.4628
Al	3	491	491A	2	6	5.29E-03	2.43E+07	0.0066	Al	6	310	310A	9	9	1.34E+00	1.03E+10	4.018
Al	3	477	477A	2	6	3.41E-03	1.66E+07	0.0041	Al	6	72	72.8A	9	15	1.31E+00	1.10E+11	0.2299
Al	3	468	468A	2	6	2.33E-03	1.18E+07	0.0028	Al	6	72	72.8A	9	15	1.31E+00	1.10E+11	0.2299
Al	3	462	462A	2	6	1.66E-03	8.63E+06	0.0019	Al	6	87	87.4A	9	3	1.03E+00	3.00E+11	0.2174
Al	4	128	128A	1	3	7.88E-01	1.07E+11	0.4035	Al	6	78	78.7A	9	15	1.02E+00	7.32E+10	0.1938
Al	4	115	115A	1	3	3.26E-01	5.44E+10	0.2104	Al	6	78	78.4A	9	15	8.16E-01	5.91E+10	0.1543
Al	4	157	157A	1	3	2.50E-01	2.25E+10	0.0504	Al	6	74	74.6A	9	9	7.48E-01	9.97E+10	0.1345
Al	4	110	110A	1	3	1.64E-01	3.00E+10	0.0438	Al	6	103	103A	9	15	6.48E-01	2.68E+10	0.1626
Al	4	107	107A	1	3	9.39E-02	1.80E+10	0.0245	Al	6	74	74.8A	9	15	5.51E-01	4.38E+10	0.0994
Al	4	106	106A	1	3	5.87E-02	1.16E+10	0.0151	Al	6	77	77.9A	9	9	4.88E-01	5.96E+10	0.0917
Al	4	122	122A	1	3	4.05E-02	5.97E+09	0.0127	Al	6	85	85.9A	9	9	4.60E-01	4.62E+10	0.0954
Al	4	105	105A	1	3	3.92E-02	7.85E+09	0.0100	Al	6	109	109A	9	3	4.44E-01	8.29E+10	0.1173
Al	4	104	104A	1	3	2.74E-02	5.56E+09	0.0069	Al	6	100	100A	9	9	3.67E-01	2.71E+10	0.0890
Al	4	104	104A	1	3	1.99E-02	4.07E+09	0.0050	Al	6	68	68.5A	9	15	3.66E-01	3.47E+10	0.0604
Al	4	113	113A	1	3	1.51E-02	2.61E+09	0.0042	Al	6	78	78.0A	9	15	3.31E-01	2.42E+10	0.0623
Al	4	109	109A	1	3	7.40E-03	1.37E+09	0.0020	Al	6	69	69.9A	9	15	3.26E-01	2.97E+10	0.0549
Al	4	107	107A	1	3	4.20E-03	8.12E+08	0.0011	Al	6	69	69.9A	9	9	2.69E-01	4.08E+10	0.0453
Al	4	105	105A	1	3	2.62E-03	5.19E+08	0.0007	Al	6	73	73.0A	9	9	2.56E-01	3.56E+10	0.0451
Al	4	105	105A	1	3	1.75E-03	3.52E+08	0.0004	Al	6	70	70.4A	9	15	2.39E-01	2.15E+10	0.0405
Al	4	104	104A	1	3	1.23E-03	2.50E+08	0.0003	Al	6	68	68.9A	9	15	2.03E-01	1.90E+10	0.0337
Al	5	108	108A	6	10	2.35E+00	1.34E+11	0.6155	Al	6	74	74.6A	9	3	1.94E-01	7.76E+10	0.0349
Al	5	104	104A	6	6	1.49E+00	1.53E+11	0.3759	Al	6	67	67.4A	9	9	1.81E-01	2.95E+10	0.0294
Al	5	104	104A	6	10	1.42E+00	8.76E+10	0.3575	Al	6	78	78.3A	9	3	1.74E-01	6.32E+10	0.0329
Al	5	94	94.0A	6	10	1.14E+00	8.60E+10	0.2591	Al	6	74	74.5A	9	3	1.68E-01	6.74E+10	0.0302
Al	5	130	130A	6	6	7.15E-01	4.66E+10	0.2267	Al	6	67	67.4A	9	15	1.68E-01	1.64E+10	0.0273
Al	5	104	104A	6	2	6.10E-01	1.87E+11	0.1540	Al	6	69	69.7A	9	3	1.56E-01	7.13E+10	0.0262
Al	5	88	88.7A	6	10	6.02E-01	5.10E+10	0.1291	Al	6	69	69.7A	9	9	1.52E-01	2.32E+10	0.0255
Al	5	86	86.4A	6	10	5.92E-01	5.29E+10	0.1235	Al	6	68	68.0A	9	15	1.45E-01	1.39E+10	0.0238
Al	5	108	108A	6	6	5.28E-01	5.03E+10	0.1381	Al	6	68	68.3A	9	15	1.38E-01	1.32E+10	0.0227
Al	5	281	281A	6	2	4.99E-01	2.11E+10	1.352	Al	6	66	66.1A	9	9	1.35E-01	2.29E+10	0.0215
Al	5	125	125A	6	10	4.29E-01	1.82E+10	0.1305	Al	6	65	65.1A	9	9	1.25E-01	2.19E+10	0.0196
Al	5	99	99.4A	6	10	3.74E-01	2.53E+10	0.0899	Al	6	76	76.5A	9	9	1.19E-01	1.51E+10	0.0219
Al	5	94	94.1A	6	6	3.52E-01	4.42E+10	0.0800	Al	6	82	82.1A	9	3	1.08E-01	3.56E+10	0.0214
Al	5	90	90.9A	6	6	3.39E-01	4.56E+10	0.0745	Al	6	68	68.7A	9	9	1.04E-01	1.63E+10	0.0172
Al	5	90	90.9A	6	10	3.10E-01	2.50E+10	0.0681	Al	6	68	68.3A	9	9	9.95E-02	1.58E+10	0.0164
Al	5	86	86.2A	6	6	2.42E-01	3.62E+10	0.0504	Al	6	65	65.3A	9	9	9.61E-02	1.67E+10	0.0151
Al	5	88	88.7A	6	6	2.35E-01	3.32E+10	0.0504	Al	6	66	67.0A	9	15	6.95E-02	6.89E+09	0.0112
Al	5	90	90.8A	6	2	2.03E-01	8.20E+10	0.0446	Al	6	67	67.4A	9	3	6.55E-02	3.21E+10	0.0106
Al	5	87	87.2A	6	10	1.92E-01	1.68E+10	0.0404	Al	6	67	67.5A	9	15	5.41E-02	5.28E+09	0.0088
Al	5	84	84.6A	6	10	1.64E-01	1.53E+10	0.0335	Al	6	66	66.0A	9	9	4.51E-02	7.66E+09	0.0072
Al	5	85	85.8A	6	6	1.57E-01	2.37E+10	0.0325	Al	6	71	71.3A	9	15	4.12E-02	3.60E+09	0.0071
Al	5	85	85.8A	6	10	1.56E-01	1.41E+10	0.0323	Al	6	64	64.7A	9	9	3.80E-02	6.73E+09	0.0059
Al	5	99	99.6A	6	6	1.38E-01	1.55E+10	0.0332	Al	6	64	64.7A	9	9	3.51E-02	6.21E+09	0.0055
Al	5	85	85.9A	6	2	1.34E-01	6.06E+10	0.0278	Al	6	64	64.3A	9	9	3.51E-02	6.29E+09	0.0054
Al	5	91	91.0A	6	6	1.28E-01	1.72E+10	0.0282	Al	6	73	73.0A	9	15	2.46E-02	2.05E+09	0.0043

Al 6	67	67.9A	9	3	2.36E-02	1.14E+10	0.0039	Al 8	45	45.0A	9	9	2.06E-02	7.54E+09	0.0022
Al 6	71	71.2A	9	3	1.63E-02	7.15E+09	0.0028	Al 8	48	48.3A	9	15	2.06E-02	3.92E+09	0.0024
Al 6	65	65.2A	9	9	1.59E-02	2.77E+09	0.0025	Al 8	45	45.0A	9	3	1.97E-02	2.16E+10	0.0021
Al 6	67	67.6A	9	3	1.36E-02	6.61E+09	0.0022	Al 8	45	45.4A	9	15	1.74E-02	3.76E+09	0.0019
Al 6	72	72.5A	9	9	1.10E-02	1.55E+09	0.0019	Al 8	48	48.1A	9	9	1.67E-02	5.35E+09	0.0019
Al 6	68	68.2A	9	15	1.04E-02	9.95E+08	0.0017	Al 8	48	48.5A	9	9	1.65E-02	5.19E+09	0.0019
Al 6	69	69.4A	9	3	6.35E-03	2.93E+09	0.0011	Al 8	43	43.9A	9	3	1.13E-02	1.31E+10	0.0012
Al 6	68	68.3A	9	3	4.35E-03	2.07E+09	0.0007	Al 8	59	59.7A	9	9	1.07E-02	2.22E+09	0.0015
Al 6	67	67.1A	9	3	3.17E-03	1.56E+09	0.0005	Al 8	49	49.7A	9	9	1.04E-02	3.13E+09	0.0012
Al 6	66	66.7A	9	9	3.06E-03	5.09E+08	0.0005	Al 8	49	49.4A	9	3	1.00E-02	9.10E+09	0.0012
Al 6	69	69.5A	9	9	1.29E-03	1.98E+08	0.0002	Al 8	48	48.4A	9	15	9.56E-03	1.81E+09	0.0011
Al 7	75	75.0A	4	12	5.78E+00	5.71E+11	1.045	Al 8	50	50.2A	9	15	7.88E-03	1.39E+09	0.0010
Al 7	62	62.1A	4	12	1.60E+00	2.30E+11	0.2394	Al 8	43	43.2A	9	3	6.79E-03	8.10E+09	0.0007
Al 7	354	354A	4	12	7.56E-01	3.34E+09	2.591	Al 8	48	48.3A	9	9	5.63E-03	1.79E+09	0.0007
Al 7	72	72.7A	4	12	6.26E-01	6.59E+10	0.1097	Al 8	46	46.7A	9	9	5.41E-03	1.84E+09	0.0006
Al 7	57	57.6A	4	12	6.07E-01	1.02E+11	0.0842	Al 8	54	54.9A	9	3	5.31E-03	3.92E+09	0.0007
Al 7	86	86.5A	4	12	4.94E-01	3.67E+10	0.1032	Al 8	42	42.4A	9	3	4.78E-03	5.91E+09	0.0005
Al 7	55	55.4A	4	12	3.31E-01	5.98E+10	0.0442	Al 8	47	47.4A	9	15	4.35E-03	8.62E+08	0.0005
Al 7	54	54.2A	4	12	2.27E-01	4.29E+10	0.0296	Al 8	46	46.5A	9	15	4.15E-03	8.53E+08	0.0005
Al 7	58	58.9A	4	12	2.14E-01	3.43E+10	0.0303	Al 8	47	47.3A	9	9	2.98E-03	9.87E+08	0.0003
Al 7	60	60.8A	4	12	1.64E-01	2.46E+10	0.0240	Al 8	45	45.4A	9	9	2.64E-03	9.48E+08	0.0003
Al 7	64	64.8A	4	12	1.31E-01	1.73E+10	0.0205	Al 8	52	52.1A	9	9	2.56E-03	6.99E+08	0.0003
Al 7	53	53.5A	4	12	1.25E-01	2.43E+10	0.0161	Al 8	45	45.1A	9	9	1.84E-03	6.71E+08	0.0002
Al 7	52	52.9A	4	12	8.92E-02	1.77E+10	0.0114	Al 8	53	53.9A	9	15	8.40E-04	1.28E+08	0.0001
Al 7	58	58.7A	4	12	6.95E-02	1.12E+10	0.0098	Al 8	44	44.5A	9	3	5.79E-04	6.49E+08	0.0001
Al 7	52	52.6A	4	12	6.45E-02	1.30E+10	0.0082	Al 8	42	42.7A	9	3	5.58E-04	6.79E+08	0.0001
Al 7	54	54.5A	4	12	4.92E-02	9.20E+09	0.0065	Al 8	45	46.0A	9	9	3.91E-04	1.37E+08	0.0000
Al 7	54	54.6A	4	12	3.58E-02	6.68E+09	0.0047	Al 9	61	61.2A	6	10	3.70E+00	6.60E+11	0.5448
Al 7	56	56.0A	4	12	1.34E-02	2.37E+09	0.0018	Al 9	57	57.2A	6	10	1.33E+00	2.71E+11	0.1830
Al 7	54	54.2A	4	12	1.19E-02	2.25E+09	0.0016	Al 9	285	285A	6	6	1.11E+00	1.51E+10	3.054
Al 7	53	53.7A	4	12	8.10E-03	1.56E+09	0.0010	Al 9	47	47.9A	6	10	8.26E-01	2.40E+11	0.0952
Al 7	53	53.1A	4	12	6.41E-03	1.26E+09	0.0008	Al 9	58	58.4A	6	6	7.57E-01	2.47E+11	0.1064
Al 7	65	66.0A	4	12	3.39E-03	4.33E+08	0.0005	Al 9	395	395A	6	10	4.14E-01	1.77E+09	1.582
Al 7	64	64.1A	4	12	2.52E-03	3.41E+08	0.0004	Al 9	44	44.9A	6	10	3.48E-01	1.15E+11	0.0375
Al 7	52	52.7A	4	12	2.26E-03	4.53E+08	0.0003	Al 9	43	43.6A	6	10	2.97E-01	1.04E+11	0.0311
Al 7	53	53.1A	4	12	5.36E-04	1.06E+08	0.0001	Al 9	56	56.4A	6	2	2.63E-01	2.75E+11	0.0357
Al 7	55	55.9A	4	12	1.96E-04	3.49E+07	0.0000	Al 9	53	53.5A	6	6	2.28E-01	8.86E+10	0.0293
Al 7	53	53.3A	4	12	1.51E-04	2.95E+07	0.0000	Al 9	304	304A	6	2	2.23E-01	8.00E+09	0.6559
Al 8	67	67.5A	9	15	7.30E+00	7.12E+11	1.187	Al 9	45	45.1A	6	6	2.07E-01	1.13E+11	0.0225
Al 8	67	67.3A	9	9	2.43E+00	3.98E+11	0.3940	Al 9	41	41.0A	6	10	1.53E-01	6.07E+10	0.0151
Al 8	54	54.3A	9	15	1.65E+00	2.49E+11	0.2155	Al 9	66	66.8A	6	2	1.50E-01	1.12E+11	0.0242
Al 8	64	64.3A	9	15	1.30E+00	1.40E+11	0.2013	Al 9	41	41.6A	6	10	1.39E-01	5.36E+10	0.0139
Al 8	249	249A	9	3	9.17E-01	3.27E+10	2.203	Al 9	53	53.5A	6	10	1.12E-01	2.61E+10	0.0144
Al 8	329	329A	9	9	7.52E-01	5.12E+09	2.394	Al 9	40	40.5A	6	10	8.52E-02	3.47E+10	0.0083
Al 8	63	63.8A	9	9	7.47E-01	1.36E+11	0.1147	Al 9	39	39.1A	6	10	8.05E-02	3.50E+10	0.0076
Al 8	391	391A	9	15	6.57E-01	1.91E+09	2.488	Al 9	41	41.2A	6	6	7.62E-02	5.00E+10	0.0075
Al 8	75	75.8A	9	9	6.13E-01	7.90E+10	0.1121	Al 9	42	42.4A	6	10	7.29E-02	2.71E+10	0.0074
Al 8	49	49.9A	9	15	6.05E-01	1.08E+11	0.0725	Al 9	42	42.3A	6	6	6.19E-02	3.84E+10	0.0063
Al 8	54	54.3A	9	9	5.53E-01	1.39E+11	0.0722	Al 9	44	44.7A	6	2	5.81E-02	9.68E+10	0.0062
Al 8	47	47.8A	9	15	3.51E-01	6.84E+10	0.0403	Al 9	39	39.8A	6	10	5.76E-02	2.43E+10	0.0055
Al 8	57	57.4A	9	15	3.40E-01	4.60E+10	0.0469	Al 9	53	53.1A	6	2	5.13E-02	6.07E+10	0.0066
Al 8	51	51.1A	9	15	3.39E-01	5.78E+10	0.0416	Al 9	39	39.2A	6	6	4.33E-02	3.13E+10	0.0041
Al 8	65	65.8A	9	3	3.23E-01	1.66E+11	0.0512	Al 9	39	39.3A	6	10	3.75E-02	1.62E+10	0.0035
Al 8	57	57.2A	9	9	2.72E-01	6.17E+10	0.0374	Al 9	38	38.2A	6	6	3.03E-02	2.31E+10	0.0028
Al 8	49	49.9A	9	9	2.32E-01	6.92E+10	0.0278	Al 9	51	51.3A	6	6	2.85E-02	1.20E+10	0.0035
Al 8	46	46.6A	9	15	2.14E-01	4.39E+10	0.0239	Al 9	47	47.4A	6	6	2.76E-02	1.37E+10	0.0031
Al 8	46	46.9A	9	15	2.12E-01	4.29E+10	0.0239	Al 9	38	39.0A	6	10	2.75E-02	1.21E+10	0.0026
Al 8	50	51.0A	9	9	2.04E-01	5.82E+10	0.0250	Al 9	38	38.7A	6	6	2.68E-02	1.98E+10	0.0025
Al 8	51	51.6A	9	15	1.44E-01	2.41E+10	0.0179	Al 9	42	42.3A	6	2	2.64E-02	4.92E+10	0.0027
Al 8	57	57.8A	9	9	1.27E-01	2.82E+10	0.0177	Al 9	37	37.1A	6	6	2.45E-02	1.98E+10	0.0022
Al 8	47	47.8A	9	9	1.18E-01	3.84E+10	0.0135	Al 9	40	40.9A	6	2	2.43E-02	4.84E+10	0.0024
Al 8	45	45.8A	9	15	1.18E-01	2.50E+10	0.0130	Al 9	49	49.1A	6	2	2.19E-02	3.02E+10	0.0026
Al 8	49	49.8A	9	15	1.08E-01	1.93E+10	0.0129	Al 9	40	40.8A	6	6	2.11E-02	1.41E+10	0.0021
Al 8	56	56.9A	9	3	1.01E-01	6.94E+10	0.0138	Al 9	44	44.1A	6	2	1.97E-02	3.37E+10	0.0021
Al 8	60	60.2A	9	15	1.01E-01	1.24E+10	0.0146	Al 9	39	39.9A	6	10	1.73E-02	7.23E+09	0.0017
Al 8	51	51.4A	9	3	9.43E-02	7.95E+10	0.0116	Al 9	39	39.1A	6	2	1.71E-02	3.72E+10	0.0016
Al 8	46	46.8A	9	9	8.53E-02	2.89E+10	0.0096	Al 9	37	37.5A	6	6	1.70E-02	1.34E+10	0.0015
Al 8	46	46.3A	9	15	8.03E-02	1.67E+10	0.0089	Al 9	49	49.1A	6	6	1.65E-02	7.59E+09	0.0019
Al 8	50	50.6A	9	9	7.78E-02	2.25E+10	0.0095	Al 9	48	48.2A	6	10	1.26E-02	3.62E+09	0.0015
Al 8	46	46.6A	9	9	7.27E-02	2.48E+10	0.0081	Al 9	39	39.4A	6	6	1.21E-02	8.66E+09	0.0011
Al 8	45	45.3A	9	15	6.71E-02	1.45E+10	0.0073	Al 9	47	47.8A	6	10	1.21E-02	3.54E+09	0.0014
Al 8	46	46.2A	9	9	6.70E-02	2.32E+10	0.0074	Al 9	36	36.8A	6	6	9.46E-03	7.77E+09	0.0008
Al 8	45	45.0A	9	15	6.17E-02	1.35E+10	0.0067	Al 9	39	39.5A	6	10	9.31E-03	3.98E+09	0.0009
Al 8	46	46.9A	9	9	5.03E-02	1.70E+10	0.0057	Al 9	45	45.7A	6	10	8.46E-03	2.71E+09	0.0009
Al 8	45	45.8A	9	9	3.95E-02	1.39E+10	0.0043	Al 9	50	50.9A	6	10	7.59E-03	1.96E+09	0.0009
Al 8	46	46.1A	9	3	3.69E-02	3.86E+10	0.0041	Al 9	47	47.2A	6	2	7.46E-03	1.12E+10	0.0008
Al 8	47	47.0A	9	3	3.43E-02	3.45E+10	0.0039	Al 9	41	41.7A	6	10	6.25E-03	2.40E+09	0.0006
Al 8	45	45.3A	9	9	2.82E-02	1.02E+10	0.0031	Al 9	39	39.4A	6	2	6.13E-03	1.32E+10	0.0006
Al 8	42	42.7A	9	3	2.37E-02	2.89E+10	0.0024	Al 9	40	40.6A	6	2	4.41E-03	8.91E+09	0.0004
Al 8	56	56.0A	9	9	2.23E-02	5.26E+09	0.0030	Al 9	40	40.2A	6	6	4.19E-03	2.88E+09	0.0004

Al 9	37	37.1A	6	6	3.78E-03	3.05E+09	0.0003	Si 1	1567	1567A	9	9	5.67E-02	1.71E+07	0.0176
Al 9	39	39.9A	6	2	2.42E-03	5.07E+09	0.0002	Si 1	987	987A	9	3	4.30E-02	9.81E+07	0.0050
Al 9	37	37.1A	6	6	2.06E-03	1.66E+09	0.0002	Si 1	971	971A	9	3	1.90E-02	4.48E+07	0.0022
Al 9	39	39.0A	6	2	2.03E-03	4.44E+09	0.0002	Si 1	962	962A	9	3	1.01E-02	2.43E+07	0.0011
Al 9	48	48.4A	6	2	1.55E-03	2.21E+09	0.0002	Si 1	956	956A	9	3	6.09E-03	1.48E+07	0.0007
Al 9	41	41.8A	6	2	8.38E-04	1.60E+09	0.0001	Si 1	952	952A	9	3	3.97E-03	9.72E+06	0.0004
Al 9	37	37.4A	6	6	8.12E-04	6.45E+08	0.0001	Si 1	1555	1555A	9	9	3.78E-03	1.16E+06	0.0012
Al 9	39	39.4A	6	2	1.23E-04	2.65E+08	0.0000	Si 1	950	950A	9	3	2.74E-03	6.75E+06	0.0003
Al 9	40	40.7A	6	10	1.01E-04	4.06E+07	0.0000	Si 1	1547	1547A	9	9	2.85E-05	8.82E+03	0.0000
Al 9	44	44.3A	6	10	6.47E-05	2.20E+07	0.0000	Si 2	1179	1179A	6	6	5.32E+00	4.25E+09	1.688
Al 9	40	40.3A	6	10	3.43E-05	1.41E+07	0.0000	Si 2	993	993A	6	10	1.02E+00	6.89E+08	3.198
Al 9	39	39.0A	6	10	3.07E-06	1.35E+06	0.0000	Si 2	893	893A	6	10	2.59E-01	2.16E+08	0.6135
Al10	52	52.2A	1	3	5.63E-01	4.60E+11	0.0706	Si 2	847	847A	6	10	9.99E-02	9.27E+07	0.2234
Al10	334	334A	1	3	2.86E-01	5.68E+09	0.9242	Si 2	1024	1024A	6	2	9.04E-02	2.88E+08	0.2488
Al10	40	40.0A	1	3	1.48E-01	2.05E+11	0.0142	Si 2	822	822A	6	10	4.89E-02	4.82E+07	0.1058
Al10	36	36.3A	1	3	5.68E-02	9.60E+10	0.0049	Si 2	903	903A	6	2	3.41E-02	1.39E+08	0.0817
Al10	34	34.6A	1	3	3.40E-02	6.33E+10	0.0028	Si 2	807	807A	6	10	2.76E-02	2.83E+07	0.0585
Al10	45	45.7A	1	3	3.37E-02	3.58E+10	0.0037	Si 2	796	796A	6	10	1.71E-02	1.80E+07	0.0358
Al10	33	33.6A	1	3	1.80E-02	3.55E+10	0.0014	Si 2	851	851A	6	2	1.67E-02	7.67E+07	0.0375
Al10	48	48.3A	1	3	1.70E-02	1.62E+10	0.0020	Si 2	765	765A	6	6	1.62E-02	3.07E+07	0.0324
Al10	36	37.0A	1	3	1.68E-02	2.73E+10	0.0015	Si 2	789	789A	6	10	1.14E-02	1.22E+07	0.0236
Al10	32	33.0A	1	3	1.28E-02	2.62E+10	0.0010	Si 2	824	824A	6	2	9.53E-03	4.67E+07	0.0207
Al10	32	32.6A	1	3	7.90E-03	1.66E+10	0.0006	Si 2	808	808A	6	2	6.01E-03	3.07E+07	0.0128
Al10	33	33.9A	1	3	5.73E-03	1.11E+10	0.0005	Si 2	797	797A	6	2	4.05E-03	2.12E+07	0.0085
Al10	32	32.3A	1	3	5.70E-03	1.21E+10	0.0004	Si 2	790	790A	6	2	2.87E-03	1.53E+07	0.0059
Al10	32	32.5A	1	3	2.12E-03	4.47E+09	0.0002	Si 2	601	601A	6	6	1.17E-03	3.60E+06	0.0018
Al10	32	32.6A	1	3	1.68E-03	3.51E+09	0.0001	Si 2	582	582A	6	6	1.17E-03	3.84E+06	0.0017
Al10	34	34.2A	1	3	2.89E-04	5.49E+08	0.0000	Si 2	642	642A	6	6	9.23E-04	2.48E+06	0.0015
Al10	37	37.7A	1	3	2.19E-04	3.43E+08	0.0000	Si 2	571	571A	6	6	8.86E-04	3.02E+06	0.0013
Al11	36	36.8A	2	6	1.74E-01	1.43E+11	0.0379	Si 2	564	564A	6	6	6.63E-04	2.31E+06	0.0010
Al11	33	33.1A	2	6	7.30E-02	7.40E+10	0.0144	Si 2	559	559A	6	6	5.01E-04	1.78E+06	0.0007
Al11	31	31.4A	2	6	3.82E-02	4.30E+10	0.0071	Si 2	556	556A	6	6	3.85E-04	1.38E+06	0.0005
Al11	30	30.5A	2	6	2.27E-02	2.72E+10	0.0041	Si 2	609	609A	6	6	3.46E-04	1.03E+06	0.0005
Al11	29	29.9A	2	6	1.46E-02	1.82E+10	0.0026	Si 3	564	564A	1	3	1.56E-02	1.09E+08	0.0225
Al11	29	29.5A	2	6	1.00E-02	1.28E+10	0.0017	Si 3	464	464A	1	3	1.41E-02	1.45E+08	0.0166
Al11	29	29.2A	2	6	7.18E-03	9.34E+09	0.0013	Si 3	435	435A	1	3	4.85E-03	5.68E+07	0.0053
Al12	78	7.87A	1	3	3.71E-07	1.33E+07	0.0000	Si 3	406	406A	1	3	2.87E-03	3.85E+07	0.0029
Al12	78	7.81A	1	3	2.06E-03	7.52E+10	0.0001	Si 3	396	396A	1	3	2.17E-03	3.06E+07	0.0022
Al12	77	7.78A	1	3	7.48E-01	2.75E+13	0.0191	Si 3	422	422A	1	3	1.81E-03	2.25E+07	0.0074
Al12	66	6.65A	1	3	1.52E-01	7.64E+12	0.0040	Si 3	390	390A	1	3	1.58E-03	2.30E+07	0.0015
Al12	63	6.33A	1	3	5.66E-02	3.14E+12	0.0020	Si 3	386	386A	1	3	1.17E-03	1.75E+07	0.0011
Al12	61	6.19A	1	3	2.74E-02	1.59E+12	0.0009	Si 3	423	423A	1	3	4.18E-04	5.17E+06	0.0004
Al12	61	6.12A	1	3	1.54E-02	9.14E+11	0.0005	Si 4	461	461A	2	6	7.02E-02	3.66E+08	0.0819
Al12	60	6.07A	1	3	9.51E-03	5.74E+11	0.0003	Si 4	364	364A	2	6	3.20E-02	2.68E+08	0.0292
Al12	60	6.05A	1	3	6.30E-03	3.83E+11	0.0002	Si 4	329	329A	2	6	1.66E-02	1.70E+08	0.0136
Al12	60	6.03A	1	3	4.39E-03	2.68E+11	0.0001	Si 4	312	312A	2	6	9.70E-03	1.10E+08	0.0075
Al12	60	6.01A	1	3	3.19E-03	1.96E+11	0.0001	Si 4	302	302A	2	6	6.17E-03	7.48E+07	0.0046
Al13	71	7.18A	2	2	3.63E-09	2.35E+05	0.0000	Si 4	296	296A	2	6	4.17E-03	5.27E+07	0.0031
Al13	71	7.19A	2	6	8.32E-01	1.79E+13	0.0206	Si 4	292	292A	2	6	2.96E-03	3.85E+07	0.0021
Al13	60	6.07A	2	6	1.58E-01	4.77E+12	0.0053	Si 5	95	95.6A	1	3	1.09E+00	2.65E+11	0.4157
Al13	57	5.75A	2	6	5.80E-02	1.95E+12	0.0020	Si 5	84	84.6A	1	3	4.28E-01	1.33E+11	0.2024
Al13	56	5.62A	2	6	2.79E-02	9.82E+11	0.0010	Si 5	116	116A	1	3	2.50E-01	4.11E+10	0.0372
Al13	55	5.55A	2	6	1.56E-02	5.63E+11	0.0006	Si 5	80	80.4A	1	3	2.13E-01	7.33E+10	0.0413
Al13	55	5.51A	2	6	9.63E-03	3.53E+11	0.0003	Si 5	78	78.3A	1	3	1.23E-01	4.46E+10	0.0232
Al13	54	5.48A	2	6	6.37E-03	2.36E+11	0.0002	Si 5	77	77.0A	1	3	7.79E-02	2.92E+10	0.0145
Al13	54	5.46A	2	6	4.43E-03	1.65E+11	0.0002	Si 5	76	76.3A	1	3	5.33E-02	2.04E+10	0.0098
Al13	54	5.45A	2	6	3.21E-03	1.20E+11	0.0001	Si 5	89	89.9A	1	3	4.21E-02	1.16E+10	0.0097
Si 1	1261	1261A	9	3	2.59E+00	3.62E+09	0.5523	Si 5	75	75.8A	1	3	3.86E-02	1.50E+10	0.0071
Si 1	1853	1853A	9	15	2.43E+00	3.15E+08	1.155	Si 5	75	75.4A	1	3	2.94E-02	1.15E+10	0.0053
Si 1	1693	1693A	9	15	1.40E+00	2.17E+08	0.5104	Si 5	82	82.6A	1	3	1.59E-02	5.18E+09	0.0032
Si 1	1625	1625A	9	15	7.66E-01	1.29E+08	0.2563	Si 5	79	79.4A	1	3	7.87E-03	2.77E+09	0.0015
Si 1	1091	1091A	9	3	7.28E-01	1.36E+09	0.1053	Si 5	77	77.7A	1	3	4.52E-03	1.66E+09	0.0008
Si 1	1999	1999A	9	9	4.80E-01	8.89E+07	0.2675	Si 5	76	76.7A	1	3	2.85E-03	1.08E+09	0.0005
Si 1	1590	1590A	9	15	4.53E-01	7.96E+07	0.1448	Si 5	76	76.0A	1	3	1.93E-03	7.42E+08	0.0004
Si 1	1667	1667A	9	9	3.11E-01	8.29E+07	0.1098	Si 5	75	75.6A	1	3	1.37E-03	5.33E+08	0.0002
Si 1	1570	1570A	9	15	2.86E-01	5.16E+07	0.0889	Si 6	83	83.3A	6	10	2.53E+00	2.43E+11	0.5090
Si 1	1615	1615A	9	9	2.64E-01	7.50E+07	0.0872	Si 6	80	80.6A	6	10	2.05E+00	2.11E+11	0.3987
Si 1	1834	1834A	9	9	2.63E-01	5.79E+07	0.1134	Si 6	80	80.7A	6	6	1.98E+00	3.38E+11	0.3856
Si 1	1557	1557A	9	15	1.91E-01	3.50E+07	0.0584	Si 6	71	71.4A	6	10	1.32E+00	1.73E+11	0.2272
Si 1	1585	1585A	9	9	1.65E-01	4.86E+07	0.0524	Si 6	80	80.9A	6	2	7.19E-01	3.67E+11	0.1403
Si 1	1019	1019A	9	3	1.40E-01	3.00E+08	0.0176	Si 6	99	99.3A	6	6	7.01E-01	7.90E+10	0.1684
Si 1	1548	1548A	9	15	1.34E-01	2.48E+07	0.0405	Si 6	66	66.9A	6	10	6.90E-01	1.03E+11	0.1112
Si 1	1767	1767A	9	9	1.09E-01	2.58E+07	0.0435	Si 6	69	69.4A	6	6	5.65E-01	1.30E+11	0.0945
Si 1	1555	1555A	9	9	1.07E-01	3.28E+07	0.0326	Si 6	83	83.3A	6	6	4.96E-01	7.94E+10	0.0998
Si 1	1681	1681A	9	9	1.03E-01	2.70E+07	0.0370	Si 6	77	77.5A	6	10	4.86E-01	5.39E+10	0.0909
Si 1	1567	1567A	9	9	1.01E-01	3.05E+07	0.0313	Si 6	69	69.4A	6	10	4.85E-01	6.72E+10	0.0811
Si 1	1542	1542A	9	15	9.72E-02	1.82E+07	0.0291	Si 6	249	249A	6	2	4.75E-01	2.55E+10	1.033
Si 1	1547	1547A	9	9	7.96E-02	2.46E+07	0.0240	Si 6	95	96.0A	6	10	4.25E-01	3.08E+10	0.0986
Si 1	1619	1619A	9	9	6.62E-02	1.87E+07	0.0220	Si 6	71	71.4A	6	6	3.94E-01	8.58E+10	0.0679
Si 1	1586	1586A	9	9	6.48E-02	1.91E+07	0.0206	Si 6	64	64.8A	6	10	3.93E-01	6.24E+10	0.0614

Si 6	68	68.7A	6	10	3.77E-01	5.32E+10	0.0625	Si 7	56	56.2A	9	9	9.34E-02	2.19E+10	0.0126
Si 6	69	69.4A	6	2	2.60E-01	1.80E+11	0.0435	Si 7	52	52.6A	9	3	7.96E-02	6.40E+10	0.0101
Si 6	68	68.7A	6	6	2.41E-01	5.67E+10	0.0399	Si 7	60	60.0A	9	9	7.47E-02	1.54E+10	0.0108
Si 6	67	67.0A	6	6	1.86E-01	4.60E+10	0.0300	Si 7	50	50.8A	9	9	6.61E-02	1.90E+10	0.0081
Si 6	63	63.1A	6	10	1.86E-01	3.11E+10	0.0283	Si 7	52	52.2A	9	3	6.13E-02	5.01E+10	0.0077
Si 6	64	64.8A	6	6	1.79E-01	4.73E+10	0.0280	Si 7	51	51.6A	9	9	5.79E-02	1.61E+10	0.0072
Si 6	63	63.6A	6	10	1.73E-01	2.85E+10	0.0265	Si 7	50	50.3A	9	9	4.99E-02	1.46E+10	0.0060
Si 6	75	75.3A	6	6	1.42E-01	2.78E+10	0.0258	Si 7	56	56.8A	9	9	3.73E-02	8.56E+09	0.0051
Si 6	65	65.2A	6	6	1.38E-01	3.61E+10	0.0217	Si 7	50	50.6A	9	9	3.53E-02	1.02E+10	0.0043
Si 6	62	62.8A	6	10	1.23E-01	2.08E+10	0.0186	Si 7	50	50.0A	9	9	3.52E-02	1.04E+10	0.0042
Si 6	63	63.1A	6	6	1.13E-01	3.15E+10	0.0172	Si 7	59	59.1A	9	15	3.17E-02	4.03E+09	0.0045
Si 6	65	65.2A	6	2	9.63E-02	7.56E+10	0.0151	Si 7	51	51.8A	9	15	3.08E-02	5.10E+09	0.0038
Si 6	67	67.5A	6	2	8.69E-02	6.36E+10	0.0141	Si 7	55	55.2A	9	3	2.99E-02	2.18E+10	0.0040
Si 6	91	91.3A	6	2	7.96E-02	3.19E+10	0.0176	Si 7	51	51.8A	9	15	2.65E-02	4.38E+09	0.0033
Si 6	65	65.2A	6	10	7.91E-02	1.24E+10	0.0124	Si 7	55	55.6A	9	3	2.44E-02	1.76E+10	0.0033
Si 6	62	62.9A	6	6	7.40E-02	2.08E+10	0.0112	Si 7	57	57.8A	9	3	1.88E-02	1.25E+10	0.0026
Si 6	73	73.0A	6	10	6.98E-02	8.73E+09	0.0123	Si 7	52	52.3A	9	3	1.52E-02	1.23E+10	0.0019
Si 6	63	63.6A	6	6	6.02E-02	1.65E+10	0.0092	Si 7	52	52.1A	9	15	1.37E-02	2.24E+09	0.0017
Si 6	63	63.1A	6	2	5.66E-02	4.74E+10	0.0086	Si 7	50	50.9A	9	9	1.15E-02	3.29E+09	0.0014
Si 6	62	62.3A	6	10	5.51E-02	9.45E+09	0.0083	Si 7	52	52.9A	9	3	1.10E-02	8.74E+09	0.0014
Si 6	68	68.5A	6	6	5.17E-02	1.22E+10	0.0085	Si 7	53	53.7A	9	3	1.09E-02	8.39E+09	0.0014
Si 6	67	67.1A	6	10	4.51E-02	6.69E+09	0.0073	Si 7	52	52.7A	9	15	8.46E-03	1.36E+09	0.0011
Si 6	63	63.0A	6	10	4.34E-02	7.29E+09	0.0066	Si 7	54	54.7A	9	15	7.38E-03	1.10E+09	0.0010
Si 6	61	62.0A	6	10	4.05E-02	7.03E+09	0.0060	Si 7	53	53.2A	9	15	4.78E-03	7.52E+08	0.0006
Si 6	63	63.9A	6	10	3.45E-02	5.64E+09	0.0053	Si 7	50	50.1A	9	9	4.27E-03	1.26E+09	0.0005
Si 6	61	61.9A	6	2	3.30E-02	2.87E+10	0.0049	Si 7	50	50.1A	9	9	4.27E-03	1.26E+09	0.0005
Si 6	62	62.3A	6	10	3.27E-02	5.61E+09	0.0049	Si 7	55	55.6A	9	15	4.19E-04	6.02E+07	0.0001
Si 6	62	62.3A	6	6	2.57E-02	7.35E+09	0.0039	Si 7	51	51.9A	9	3	2.54E-04	2.09E+08	0.0000
Si 6	70	70.3A	6	2	2.48E-02	1.67E+10	0.0042	Si 7	52	52.2A	9	9	5.19E-05	1.41E+07	0.0000
Si 6	65	65.7A	6	6	2.30E-02	5.92E+09	0.0036	Si 8	60	60.9A	4	12	6.14E+00	9.21E+11	0.6229
Si 6	61	61.2A	6	2	2.15E-02	1.92E+10	0.0032	Si 8	49	49.9A	4	12	1.26E+00	2.81E+11	0.1512
Si 6	60	60.7A	6	2	1.52E-02	1.38E+10	0.0022	Si 8	319	319A	4	12	7.07E-01	3.86E+09	0.0031
Si 6	62	62.6A	6	6	1.27E-02	3.61E+09	0.0019	Si 8	59	59.2A	4	12	6.97E-01	1.10E+11	0.0994
Si 6	62	62.7A	6	6	1.23E-02	3.48E+09	0.0019	Si 8	46	46.1A	4	12	6.22E-01	1.62E+11	0.0690
Si 6	64	64.1A	6	6	1.18E-02	3.19E+09	0.0018	Si 8	50	50.5A	4	12	4.97E-01	1.08E+11	0.0604
Si 6	60	60.3A	6	2	9.37E-03	8.59E+09	0.0014	Si 8	69	69.4A	4	12	4.80E-01	5.53E+10	0.0803
Si 6	66	66.6A	6	10	8.41E-03	1.26E+09	0.0014	Si 8	44	44.3A	4	12	3.16E-01	8.94E+10	0.0336
Si 6	63	63.2A	6	6	7.12E-03	1.98E+09	0.0011	Si 8	47	47.6A	4	12	2.74E-01	6.72E+10	0.0314
Si 6	62	62.1A	6	6	6.06E-03	1.74E+09	0.0009	Si 8	43	43.3A	4	12	2.05E-01	6.08E+10	0.0213
Si 6	61	62.0A	6	6	5.98E-03	1.73E+09	0.0009	Si 8	42	42.7A	4	12	1.21E-01	3.69E+10	0.0124
Si 6	62	62.7A	6	2	3.57E-03	3.02E+09	0.0005	Si 8	51	51.8A	4	12	1.15E-01	2.38E+10	0.0143
Si 6	64	64.4A	6	2	1.98E-03	1.59E+09	0.0003	Si 8	43	43.8A	4	12	1.07E-01	3.10E+10	0.0113
Si 6	60	60.4A	6	2	1.89E-03	1.73E+09	0.0003	Si 8	42	42.2A	4	12	8.78E-02	2.74E+10	0.0089
Si 6	61	61.8A	6	2	6.15E-06	5.38E+06	0.0000	Si 8	42	42.1A	4	12	7.49E-02	2.35E+10	0.0076
Si 7	69	69.7A	9	9	3.41E+00	5.20E+11	0.5730	Si 8	53	53.1A	4	12	6.45E-02	1.27E+10	0.0082
Si 7	70	70.1A	9	15	3.29E+00	2.98E+11	0.5560	Si 8	41	41.9A	4	12	6.17E-02	1.95E+10	0.0062
Si 7	68	68.2A	9	15	2.73E+00	2.61E+11	0.4488	Si 8	42	42.9A	4	12	4.40E-02	1.33E+10	0.0045
Si 7	73	73.2A	9	15	2.47E+00	2.05E+11	0.4359	Si 8	46	46.9A	4	12	3.16E-02	7.97E+09	0.0036
Si 7	277	277A	9	9	1.26E+00	1.21E+10	2.784	Si 8	44	44.3A	4	12	2.73E-02	7.72E+09	0.0029
Si 7	69	69.5A	9	3	1.15E+00	5.30E+11	0.1925	Si 8	43	43.6A	4	12	1.83E-02	5.36E+09	0.0019
Si 7	60	61.0A	9	15	1.05E+00	1.26E+11	0.1541	Si 8	46	46.7A	4	12	1.65E-02	4.21E+09	0.0019
Si 7	63	63.4A	9	15	9.66E-01	1.07E+11	0.1476	Si 8	44	44.8A	4	12	1.52E-02	4.22E+09	0.0016
Si 7	56	56.7A	9	15	8.26E-01	1.14E+11	0.1126	Si 8	43	43.6A	4	12	1.35E-02	3.94E+09	0.0014
Si 7	58	58.6A	9	9	7.40E-01	1.60E+11	0.1043	Si 8	42	42.0A	4	12	5.20E-03	1.64E+09	0.0005
Si 7	57	57.4A	9	15	6.59E-01	8.88E+10	0.0911	Si 8	42	42.8A	4	12	5.15E-03	1.56E+09	0.0005
Si 7	58	58.7A	9	15	6.45E-01	8.33E+10	0.0911	Si 8	42	42.3A	4	12	3.83E-03	1.19E+09	0.0004
Si 7	81	81.4A	9	15	6.36E-01	4.27E+10	0.1250	Si 8	54	54.2A	4	12	2.71E-03	5.14E+08	0.0004
Si 7	54	54.5A	9	15	5.49E-01	8.21E+10	0.0720	Si 8	43	43.4A	4	12	1.73E-04	5.11E+07	0.0000
Si 7	62	62.9A	9	9	5.37E-01	1.01E+11	0.0813	Si 9	55	55.4A	9	15	7.54E+00	1.09E+12	0.3795
Si 7	68	68.5A	9	9	4.56E-01	7.20E+10	0.0753	Si 9	55	55.3A	9	9	2.50E+00	6.06E+11	0.1423
Si 7	85	85.0A	9	3	4.30E-01	1.32E+11	0.0883	Si 9	44	44.3A	9	15	1.67E+00	3.78E+11	0.1777
Si 7	52	52.2A	9	15	3.76E-01	6.13E+10	0.0472	Si 9	53	53.1A	9	15	1.40E+00	2.21E+11	0.1788
Si 7	58	58.5A	9	3	3.71E-01	2.41E+11	0.0522	Si 9	227	227A	9	3	8.40E-01	3.62E+10	2.321
Si 7	79	79.0A	9	9	3.60E-01	4.27E+10	0.0687	Si 9	52	52.7A	9	9	8.17E-01	2.18E+11	0.1035
Si 7	53	53.4A	9	15	3.22E-01	5.02E+10	0.0413	Si 9	298	298A	9	9	6.97E-01	5.79E+09	2.267
Si 7	52	52.6A	9	15	2.85E-01	4.58E+10	0.0361	Si 9	40	40.6A	9	15	6.48E-01	1.75E+11	0.0631
Si 7	57	57.5A	9	9	2.34E-01	5.24E+10	0.0324	Si 9	354	354A	9	15	6.13E-01	2.17E+09	3.832
Si 7	61	61.4A	9	15	2.31E-01	2.73E+10	0.0341	Si 9	61	61.7A	9	9	5.95E-01	1.16E+11	0.0884
Si 7	54	54.6A	9	9	2.29E-01	5.69E+10	0.0301	Si 9	44	44.3A	9	9	5.58E-01	2.11E+11	0.0593
Si 7	56	56.1A	9	15	2.28E-01	3.22E+10	0.0308	Si 9	38	38.8A	9	15	3.68E-01	1.09E+11	0.0343
Si 7	53	53.5A	9	15	2.15E-01	3.34E+10	0.0277	Si 9	41	41.9A	9	15	3.47E-01	8.78E+10	0.0349
Si 7	52	52.6A	9	9	2.04E-01	5.46E+10	0.0258	Si 9	54	54.2A	9	3	3.40E-01	2.57E+11	0.0444
Si 7	51	52.0A	9	9	1.95E-01	5.35E+10	0.0244	Si 9	47	47.9A	9	15	3.40E-01	6.59E+10	0.0391
Si 7	63	63.9A	9	3	1.89E-01	1.03E+11	0.0291	Si 9	38	38.4A	9	15	3.08E-01	9.28E+10	0.0284
Si 7	58	58.9A	9	9	1.77E-01	3.78E+10	0.0251	Si 9	47	47.7A	9	9	2.51E-01	8.18E+10	0.0288
Si 7	54	54.5A	9	3	1.42E-01	1.06E+11	0.0186	Si 9	40	40.6A	9	9	2.24E-01	1.01E+11	0.0218
Si 7	54	54.5A	9	9	1.33E-01	3.32E+10	0.0174	Si 9	41	41.9A	9	9	2.12E-01	8.96E+10	0.0213
Si 7	53	53.6A	9	9	1.16E-01	3.00E+10	0.0149	Si 9	38	38.4A	9	9	2.02E-01	1.02E+11	0.0186
Si 7	63	63.1A	9	3	1.12E-01	6.26E+10	0.0170	Si 9	37	37.8A	9	15	1.90E-01	5.91E+10	0.0172
Si 7	51	51.5A	9	9	1.01E-01	2.82E+10	0.0125	Si 9	42	42.1A	9	15	1.31E-01	3.29E+10	0.0132

Si 9	37	37.2A	9	15	1.25E-01	4.01E+10	0.0112	Si10	32	32.5A	6	6	4.01E-02	4.22E+10	0.0031
Si 9	49	50.0A	9	15	1.24E-01	2.21E+10	0.0149	Si10	43	43.3A	6	6	3.90E-02	2.31E+10	0.0041
Si 9	38	38.8A	9	9	1.18E-01	5.81E+10	0.0110	Si10	32	32.3A	6	6	3.59E-02	3.82E+10	0.0028
Si 9	47	47.5A	9	3	1.09E-01	1.07E+11	0.0125	Si10	31	31.6A	6	6	3.02E-02	3.36E+10	0.0023
Si 9	48	48.2A	9	9	1.07E-01	3.42E+10	0.0124	Si10	33	34.0A	6	2	2.78E-02	8.04E+10	0.0023
Si 9	42	42.2A	9	3	9.86E-02	1.23E+11	0.0100	Si10	40	40.2A	6	6	2.72E-02	1.88E+10	0.0026
Si 9	36	36.8A	9	15	8.84E-02	2.90E+10	0.0078	Si10	32	32.1A	6	10	2.58E-02	1.67E+10	0.0020
Si 9	36	36.8A	9	15	8.74E-02	2.87E+10	0.0077	Si10	40	40.5A	6	2	2.33E-02	4.73E+10	0.0023
Si 9	45	45.7A	9	9	6.66E-02	2.37E+10	0.0073	Si10	35	35.3A	6	2	2.15E-02	5.74E+10	0.0018
Si 9	43	43.3A	9	15	6.45E-02	1.53E+10	0.0067	Si10	34	34.3A	6	6	1.87E-02	1.76E+10	0.0015
Si 9	37	37.8A	9	9	6.31E-02	3.27E+10	0.0057	Si10	36	36.4A	6	2	1.82E-02	4.59E+10	0.0016
Si 9	36	36.5A	9	15	6.17E-02	2.06E+10	0.0054	Si10	30	30.9A	6	6	1.79E-02	2.08E+10	0.0013
Si 9	40	40.8A	9	15	6.10E-02	1.63E+10	0.0060	Si10	41	41.5A	6	6	1.55E-02	9.98E+09	0.0015
Si 9	36	36.7A	9	9	5.49E-02	3.01E+10	0.0048	Si10	32	32.4A	6	2	1.51E-02	4.79E+10	0.0012
Si 9	41	41.8A	9	9	5.45E-02	2.31E+10	0.0055	Si10	30	30.7A	6	6	1.41E-02	1.66E+10	0.0010
Si 9	41	41.1A	9	9	5.34E-02	2.34E+10	0.0053	Si10	32	32.3A	6	10	1.14E-02	7.27E+09	0.0009
Si 9	38	38.2A	9	3	4.89E-02	7.43E+10	0.0045	Si10	31	31.1A	6	6	1.09E-02	1.25E+10	0.0008
Si 9	37	37.2A	9	9	4.16E-02	2.23E+10	0.0037	Si10	42	42.9A	6	10	1.07E-02	3.87E+09	0.0011
Si 9	36	36.8A	9	9	2.84E-02	1.55E+10	0.0025	Si10	33	33.1A	6	6	1.04E-02	1.05E+10	0.0008
Si 9	38	38.5A	9	3	2.83E-02	4.24E+10	0.0026	Si10	33	33.5A	6	10	1.04E-02	6.17E+09	0.0008
Si 9	49	49.6A	9	9	2.16E-02	6.50E+09	0.0026	Si10	30	30.5A	6	6	9.41E-03	1.13E+10	0.0007
Si 9	36	36.7A	9	15	2.02E-02	6.68E+09	0.0018	Si10	31	31.1A	6	6	7.86E-03	9.06E+09	0.0006
Si 9	36	36.5A	9	9	2.00E-02	1.11E+10	0.0018	Si10	33	33.8A	6	10	7.26E-03	4.24E+09	0.0006
Si 9	36	36.7A	9	3	1.88E-02	3.10E+10	0.0017	Si10	32	32.4A	6	10	6.82E-03	4.35E+09	0.0005
Si 9	40	41.0A	9	9	1.59E-02	7.02E+09	0.0016	Si10	39	40.0A	6	2	6.68E-03	1.39E+10	0.0006
Si 9	35	35.4A	9	3	1.54E-02	2.74E+10	0.0013	Si10	33	33.2A	6	10	6.15E-03	3.73E+09	0.0005
Si 9	39	39.1A	9	9	1.48E-02	7.17E+09	0.0014	Si10	32	32.6A	6	2	5.67E-03	1.78E+10	0.0004
Si 9	39	39.1A	9	9	1.46E-02	7.08E+09	0.0014	Si10	38	38.8A	6	10	5.16E-03	2.29E+09	0.0005
Si 9	45	45.9A	9	3	1.23E-02	1.30E+10	0.0014	Si10	32	32.3A	6	2	4.87E-03	1.56E+10	0.0004
Si 9	35	35.9A	9	3	1.15E-02	1.99E+10	0.0010	Si10	33	33.5A	6	2	3.89E-03	1.16E+10	0.0003
Si 9	41	41.7A	9	3	9.32E-03	1.19E+10	0.0009	Si10	33	33.1A	6	2	3.87E-03	1.18E+10	0.0003
Si 9	35	35.3A	9	3	7.74E-03	1.38E+10	0.0007	Si10	34	34.5A	6	2	2.84E-03	7.97E+09	0.0002
Si 9	35	35.2A	9	3	6.20E-03	1.11E+10	0.0005	Si10	32	32.8A	6	2	2.46E-03	7.61E+09	0.0002
Si 9	34	34.9A	9	3	6.03E-03	1.10E+10	0.0005	Si10	30	30.6A	6	6	2.46E-03	2.92E+09	0.0002
Si 9	36	36.6A	9	9	5.72E-03	3.17E+09	0.0005	Si10	40	41.0A	6	2	2.39E-03	4.75E+09	0.0002
Si 9	41	41.2A	9	15	5.48E-03	1.43E+09	0.0005	Si10	33	33.8A	6	6	1.37E-03	1.34E+09	0.0001
Si 9	38	38.4A	9	15	5.44E-03	1.64E+09	0.0005	Si10	32	32.4A	6	2	9.98E-04	3.16E+09	0.0001
Si 9	37	37.3A	9	9	5.30E-03	2.82E+09	0.0005	Si10	34	34.9A	6	10	5.65E-04	3.10E+08	0.0000
Si 9	39	39.2A	9	15	4.88E-03	1.42E+09	0.0005	Si10	33	33.8A	6	10	5.35E-04	3.12E+08	0.0000
Si 9	37	38.0A	9	9	4.30E-03	2.21E+09	0.0004	Si10	36	36.9A	6	10	3.55E-04	1.74E+08	0.0000
Si 9	34	34.6A	9	3	4.09E-03	7.59E+09	0.0003	Si10	32	32.1A	6	2	3.35E-04	1.08E+09	0.0000
Si 9	45	45.3A	9	15	3.92E-03	8.51E+08	0.0004	Si10	31	31.3A	6	6	7.12E-05	8.07E+07	0.0000
Si 9	38	38.3A	9	9	3.79E-03	1.91E+09	0.0003	Si10	32	32.1A	6	10	2.40E-05	1.55E+07	0.0000
Si 9	36	36.9A	9	9	3.74E-03	2.04E+09	0.0003	Si11	43	44.0A	1	3	5.81E-01	6.69E+11	0.0613
Si 9	36	36.6A	9	9	3.11E-03	1.72E+09	0.0003	Si11	306	306A	1	3	2.62E-01	6.20E+09	0.9688
Si 9	39	39.9A	9	15	2.70E-03	7.53E+08	0.0003	Si11	33	33.6A	1	3	1.53E-01	3.01E+11	0.0123
Si 9	38	38.7A	9	9	2.08E-03	1.03E+09	0.0002	Si11	30	30.4A	1	3	6.07E-02	1.46E+11	0.0044
Si 9	37	37.1A	9	3	1.52E-03	2.46E+09	0.0001	Si11	38	38.9A	1	3	3.34E-02	4.91E+10	0.0031
Si 9	36	36.6A	9	15	1.39E-04	4.61E+07	0.0000	Si11	28	29.0A	1	3	3.21E-02	8.50E+10	0.0022
Si 9	39	39.9A	9	9	8.26E-05	3.85E+07	0.0000	Si11	40	40.9A	1	3	2.02E-02	2.68E+10	0.0020
Si 9	38	38.1A	9	15	8.10E-05	2.48E+07	0.0000	Si11	28	28.1A	1	3	1.93E-02	5.42E+10	0.0013
Si 9	43	43.8A	9	9	5.72E-05	2.21E+07	0.0000	Si11	31	31.3A	1	3	1.46E-02	3.32E+10	0.0011
Si 9	37	37.7A	9	15	5.21E-05	1.63E+07	0.0000	Si11	27	27.6A	1	3	1.33E-02	3.87E+10	0.0009
Si10	50	50.8A	6	10	3.75E+00	9.71E+11	0.3915	Si11	27	27.3A	1	3	7.37E-03	2.20E+10	0.0005
Si10	47	47.8A	6	10	1.41E+00	4.12E+11	0.1618	Si11	27	27.1A	1	3	6.23E-03	1.89E+10	0.0004
Si10	260	260A	6	6	1.02E+00	1.67E+10	2.561	Si11	28	28.6A	1	3	3.99E-03	1.08E+10	0.0003
Si10	48	48.7A	6	6	7.87E-01	3.69E+11	0.0922	Si11	27	27.4A	1	3	3.87E-03	1.15E+10	0.0003
Si10	39	39.6A	6	10	7.65E-01	3.25E+11	0.0727	Si11	28	28.8A	1	3	3.61E-03	9.65E+09	0.0002
Si10	359	359A	6	10	3.84E-01	1.98E+09	1.334	Si11	31	31.8A	1	3	4.13E-05	9.08E+07	0.0000
Si10	37	37.3A	6	10	3.66E-01	1.75E+11	0.0328	Si11	27	27.5A	1	3	1.15E-07	3.38E+05	0.0000
Si10	35	36.0A	6	10	3.02E-01	1.56E+11	0.0261	Si12	31	31.1A	2	6	1.76E-01	2.02E+11	0.0330
Si10	47	47.2A	6	2	2.83E-01	4.24E+11	0.0321	Si12	27	28.0A	2	6	7.39E-02	1.05E+11	0.0124
Si10	44	45.0A	6	6	2.42E-01	1.33E+11	0.0261	Si12	26	26.5A	2	6	3.86E-02	6.09E+10	0.0062
Si10	37	37.5A	6	6	2.16E-01	1.71E+11	0.0195	Si12	25	25.7A	2	6	2.29E-02	3.84E+10	0.0036
Si10	277	277A	6	2	2.05E-01	8.86E+09	0.5489	Si12	25	25.2A	2	6	1.48E-02	2.58E+10	0.0023
Si10	34	34.0A	6	10	1.58E-01	9.10E+10	0.0129	Si12	24	24.9A	2	6	1.01E-02	1.81E+10	0.0015
Si10	55	55.1A	6	2	1.46E-01	1.60E+11	0.0193	Si12	24	24.7A	2	6	7.25E-03	1.32E+10	0.0011
Si10	34	34.3A	6	10	1.44E-01	8.17E+10	0.0118	Si13	67	6.74A	1	3	3.64E-07	1.78E+07	0.0386
Si10	44	45.0A	6	10	1.13E-01	3.73E+10	0.0122	Si13	66	6.69A	1	3	3.16E-03	1.57E+11	0.0125
Si10	32	32.5A	6	10	9.61E-02	6.08E+10	0.0075	Si13	66	6.67A	1	3	7.55E-01	3.77E+13	0.0025
Si10	33	33.3A	6	10	8.87E-02	5.32E+10	0.0071	Si13	56	5.70A	1	3	1.52E-01	1.04E+13	0.0020
Si10	34	34.0A	6	6	8.25E-02	7.92E+10	0.0067	Si13	54	5.42A	1	3	5.67E-02	4.29E+12	0.0012
Si10	35	35.4A	6	10	6.85E-02	3.64E+10	0.0058	Si13	53	5.30A	1	3	2.74E-02	2.17E+12	0.0008
Si10	35	35.4A	6	6	6.80E-02	6.04E+10	0.0058	Si13	52	5.24A	1	3	1.54E-02	1.25E+12	0.0004
Si10	37	37.2A	6	2	6.55E-02	1.58E+11	0.0058	Si13	51	5.20A	1	3	9.52E-03	7.83E+11	0.0003
Si10	32	32.8A	6	10	5.53E-02	3.44E+10	0.0043	Si13	51	5.18A	1	3	6.31E-03	5.23E+11	0.0002
Si10	44	44.6A	6	2	4.66E-02	7.81E+10	0.0050	Si13	51	5.16A	1	3	4.40E-03	3.67E+11	0.0001
Si10	40	40.4A	6	10	4.48E-02	1.83E+10	0.0043	Si13	51	5.15A	1	3	3.19E-03	2.67E+11	0.0001
Si10	40	40.7A	6	10	4.27E-02	1.72E+10	0.0042	Si14	61	6.19A	2	2	3.62E-09	3.16E+05	0.0033
Si10	32	32.4A	6	10	4.04E-02	2.57E+10	0.0031	Si14	62	6.20A	2	6	8.32E-01	2.41E+13	0.0061

Si14	52	5.23A	2	6	1.58E-01	6.42E+12	0.0046	S	3	372	372A	9	15	8.39E-04	2.69E+06	0.0008
Si14	49	4.96A	2	6	5.80E-02	2.62E+12	0.0017	S	3	368	368A	9	9	7.45E-04	4.06E+06	0.0007
Si14	48	4.85A	2	6	2.79E-02	1.32E+12	0.0009	S	3	377	377A	9	9	7.08E-04	3.68E+06	0.0007
Si14	47	4.78A	2	6	1.56E-02	7.59E+11	0.0005	S	3	296	296A	9	3	6.53E-04	1.65E+07	0.0005
Si14	47	4.75A	2	6	9.63E-03	4.74E+11	0.0003	S	3	372	372A	9	9	4.40E-04	2.35E+06	0.0004
Si14	47	4.73A	2	6	6.37E-03	3.17E+11	0.0002	S	3	318	318A	9	3	4.25E-04	9.30E+06	0.0003
Si14	47	4.71A	2	6	4.43E-03	2.22E+11	0.0001	S	3	369	369A	9	15	3.87E-04	1.26E+06	0.0004
Si14	46	4.70A	2	6	3.21E-03	1.62E+11	0.0001	S	3	418	418A	9	3	1.64E-04	2.08E+06	0.0002
S 1	1356	1356A	9	15	1.36E+00	3.29E+08	0.3372	S	3	299	299A	9	3	8.73E-06	2.16E+05	0.0000
S 1	1226	1226A	9	9	1.06E+00	5.22E+08	0.1962	S	3	369	369A	9	9	3.50E-06	1.90E+04	0.0000
S 1	1662	1662A	9	3	8.27E-01	6.66E+08	0.2898	S	3	406	406A	9	15	1.51E-06	4.06E+03	0.0000
S 1	1392	1392A	9	15	3.90E-01	8.95E+07	0.0941	S	4	655	655A	6	10	7.10E+00	1.10E+10	45.343
S 1	1015	1015A	9	9	2.68E-01	1.93E+08	0.0333	S	4	737	737A	6	6	4.57E+00	9.35E+09	13.618
S 1	1264	1264A	9	15	2.52E-01	7.00E+07	0.0497	S	4	798	798A	6	2	6.31E-01	3.30E+09	4.935
S 1	1112	1112A	9	9	1.82E-01	1.09E+08	0.0299	S	4	549	549A	6	2	5.24E-01	5.80E+09	0.7346
S 1	1024	1024A	9	9	1.74E-01	1.23E+08	0.0241	S	4	1086	1086A	6	10	2.86E-01	1.62E+08	5.237
S 1	1012	1012A	9	9	1.55E-01	1.12E+08	0.0192	S	4	330	330A	6	10	1.17E-01	7.16E+08	0.0961
S 1	1055	1055A	9	9	1.37E-01	9.11E+07	0.0185	S	4	370	370A	6	2	9.57E-02	2.33E+09	0.0885
S 1	1335	1335A	9	3	1.34E-01	1.67E+08	0.0297	S	4	341	341A	6	6	8.36E-02	7.98E+08	0.0711
S 1	1250	1250A	9	3	4.32E-02	6.14E+07	0.0083	S	4	295	295A	6	10	5.34E-02	4.08E+08	0.0391
S 1	1223	1223A	9	15	3.87E-02	1.15E+07	0.0071	S	4	321	321A	6	2	5.32E-02	1.71E+09	0.0426
S 1	1006	1006A	9	9	2.68E-02	1.96E+07	0.0033	S	4	273	273A	6	6	4.92E-02	7.29E+08	0.0333
S 1	1001	1001A	9	9	2.54E-02	1.88E+07	0.0031	S	4	306	306A	6	10	3.26E-02	2.32E+08	0.0248
S 1	998	998A	9	9	1.94E-02	1.44E+07	0.0023	S	4	301	301A	6	2	2.04E-02	7.48E+08	0.0153
S 1	1214	1214A	9	3	1.87E-02	2.82E+07	0.0034	S	4	293	293A	6	6	1.75E-02	2.26E+08	0.0127
S 1	1170	1170A	9	15	1.86E-02	6.04E+06	0.0031	S	4	238	238A	6	6	1.35E-02	2.64E+08	0.0079
S 1	1174	1174A	9	15	1.69E-02	5.45E+06	0.0029	S	4	291	291A	6	2	1.24E-02	4.88E+08	0.0089
S 1	1180	1180A	9	15	1.19E-02	3.80E+06	0.0020	S	4	255	255A	6	6	1.13E-02	1.93E+08	0.0071
S 1	1195	1195A	9	3	9.50E-03	1.48E+07	0.0017	S	4	332	332A	6	10	9.00E-03	5.44E+07	0.0074
S 1	1031	1031A	9	9	7.63E-03	5.31E+06	0.0010	S	4	232	232A	6	6	7.90E-03	1.63E+08	0.0045
S 1	1184	1184A	9	3	5.39E-03	8.55E+06	0.0009	S	4	225	225A	6	6	7.72E-03	1.69E+08	0.0043
S 1	1418	1418A	9	9	4.47E-03	1.65E+06	0.0012	S	4	248	248A	6	6	7.56E-03	1.36E+08	0.0046
S 1	1188	1188A	9	15	3.90E-03	1.23E+06	0.0007	S	4	242	242A	6	6	7.33E-03	1.38E+08	0.0044
S 1	1177	1177A	9	3	3.32E-03	5.33E+06	0.0006	S	4	283	283A	6	2	5.90E-03	2.45E+08	0.0041
S 1	1172	1172A	9	3	2.17E-03	3.51E+06	0.0004	S	4	228	228A	6	6	5.16E-03	1.10E+08	0.0029
S 1	1201	1201A	9	15	8.28E-04	2.55E+05	0.0001	S	4	279	279A	6	10	3.89E-03	3.32E+07	0.0027
S 2	750	750A	4	12	9.72E+00	9.60E+09	71.300	S	4	276	276A	6	10	2.99E-03	2.61E+07	0.0020
S 2	632	632A	4	12	2.11E+00	2.93E+09	3.441	S	4	284	284A	6	10	2.94E-03	2.42E+07	0.0021
S 2	888	888A	4	12	1.53E+00	1.08E+09	3.602	S	4	278	278A	6	2	2.76E-03	1.18E+08	0.0074
S 2	587	587A	4	12	6.70E-01	1.08E+09	1.010	S	4	280	280A	6	6	2.09E-03	2.96E+07	0.0056
S 2	566	566A	4	12	2.91E-01	5.05E+08	0.4214	S	4	291	291A	6	10	1.80E-03	1.41E+07	0.0013
S 2	654	654A	4	12	2.24E-01	2.90E+08	0.3789	S	4	225	225A	6	6	1.54E-03	3.37E+07	0.0009
S 2	554	554A	4	12	1.51E-01	2.73E+08	0.2138	S	4	278	278A	6	2	1.50E-03	6.44E+07	0.0010
S 2	546	546A	4	12	8.80E-02	1.64E+08	0.1228	S	4	289	289A	6	2	1.29E-03	5.14E+07	0.0009
S 2	595	595A	4	12	6.21E-02	9.75E+07	0.0948	S	4	282	282A	6	10	1.03E-03	8.64E+06	0.0007
S 2	541	541A	4	12	5.57E-02	1.05E+08	0.0770	S	4	230	230A	6	6	4.10E-04	8.59E+06	0.0009
S 2	538	538A	4	12	3.75E-02	7.19E+07	0.0515	S	4	392	392A	6	10	3.08E-04	1.33E+06	0.0003
S 2	569	569A	4	12	2.97E-02	5.09E+07	0.0433	S	4	323	323A	6	2	1.92E-04	6.12E+06	0.0002
S 2	555	555A	4	12	1.67E-02	3.00E+07	0.0237	S	4	297	297A	6	10	8.98E-05	6.77E+05	0.0003
S 2	547	547A	4	12	1.03E-02	1.91E+07	0.0144	S	4	311	311A	6	6	9.48E-08	1.08E+03	0.0000
S 2	542	542A	4	12	6.81E-03	1.29E+07	0.0094	S	5	285	285A	1	3	9.84E-02	2.68E+09	0.0696
S 2	538	538A	4	12	4.74E-03	9.07E+06	0.0065	S	5	222	222A	1	3	3.09E-02	1.38E+09	0.0169
S 3	667	667A	9	15	1.50E+01	1.50E+10	97.581	S	5	202	202A	1	3	2.01E-02	1.09E+09	0.0100
S 3	691	691A	9	9	7.13E+00	1.11E+10	12.784	S	5	192	192A	1	3	1.12E-02	6.73E+08	0.0053
S 3	704	704A	9	3	3.26E+00	1.46E+10	22.414	S	5	235	235A	1	3	7.89E-03	3.17E+08	0.0046
S 3	671	671A	9	9	6.24E-01	1.03E+09	4.087	S	5	186	186A	1	3	6.83E-03	4.35E+08	0.0031
S 3	482	482A	9	15	5.23E-01	1.00E+09	0.6389	S	5	182	182A	1	3	4.47E-03	2.98E+08	0.0020
S 3	1007	1007A	9	9	3.84E-01	2.80E+08	3.809	S	5	180	180A	1	3	3.44E-03	2.36E+08	0.0015
S 3	474	474A	9	9	2.44E-01	8.04E+08	0.2929	S	5	261	261A	1	3	2.19E-03	7.10E+07	0.0055
S 3	480	480A	9	9	1.61E-01	5.18E+08	0.1958	S	5	195	195A	1	3	3.99E-04	2.32E+07	0.0002
S 3	420	420A	9	9	1.00E-01	4.19E+08	0.1058	S	5	185	185A	1	3	3.25E-04	2.10E+07	0.0001
S 3	424	424A	9	15	6.63E-02	1.64E+08	0.0708	S	6	250	250A	2	6	1.63E-01	2.88E+09	0.1008
S 3	397	397A	9	9	3.06E-02	1.44E+08	0.0305	S	6	192	192A	2	6	6.24E-02	1.87E+09	0.0295
S 3	384	384A	9	9	2.73E-02	1.37E+08	0.0263	S	6	172	172A	2	6	3.07E-02	1.15E+09	0.0129
S 3	397	397A	9	9	2.28E-02	1.07E+08	0.0228	S	6	162	162A	2	6	1.75E-02	7.36E+08	0.0069
S 3	423	423A	9	9	1.85E-02	7.65E+07	0.0197	S	6	156	156A	2	6	1.10E-02	4.97E+08	0.0042
S 3	377	377A	9	9	1.71E-02	8.91E+07	0.0161	S	6	153	153A	2	6	7.38E-03	3.49E+08	0.0028
S 3	398	398A	9	15	1.50E-02	4.20E+07	0.0150	S	6	150	150A	2	6	5.21E-03	2.55E+08	0.0019
S 3	372	372A	9	9	1.10E-02	5.88E+07	0.0102	S	7	59	59.8A	1	3	1.61E+00	1.00E+12	0.3841
S 3	368	368A	9	9	8.00E-03	4.36E+07	0.0074	S	7	51	51.7A	1	3	6.10E-01	5.08E+11	0.1759
S 3	385	385A	9	15	4.84E-03	1.45E+07	0.0047	S	7	71	71.5A	1	3	2.45E-01	1.07E+11	0.0224
S 3	347	347A	9	3	3.80E-03	7.01E+07	0.0033	S	7	48	48.6A	1	3	2.20E-01	2.07E+11	0.0257
S 3	323	323A	9	3	1.94E-03	4.13E+07	0.0016	S	7	47	47.1A	1	3	1.34E-01	1.35E+11	0.0152
S 3	375	375A	9	15	1.94E-03	6.11E+06	0.0018	S	7	49	49.8A	1	3	1.31E-01	1.17E+11	0.0157
S 3	385	385A	9	9	1.92E-03	9.58E+06	0.0019	S	7	46	46.2A	1	3	8.36E-02	8.71E+10	0.0093
S 3	377	377A	9	15	1.64E-03	5.11E+06	0.0016	S	7	49	49.8A	1	3	6.44E-02	5.79E+10	0.0077
S 3	310	310A	9	3	1.55E-03	3.58E+07	0.0012	S	7	45	45.6A	1	3	5.54E-02	5.91E+10	0.0061
S 3	401	401A	9	9	1.53E-03	7.04E+06	0.0015	S	7	54	54.5A	1	3	4.44E-02	3.32E+10	0.0062
S 3	299	299A	9	3	1.21E-03	3.01E+07	0.0009	S	7	45	45.3A	1	3	3.86E-02	4.19E+10	0.0042
S 3	303	303A	9	3	8.80E-04	2.12E+07	0.0007	S	7	45	45.0A	1	3	2.79E-02	3.06E+10	0.0030

S	7	47	47.7A	1	3	7.50E-03	7.34E+09	0.0009	S	9	37	37.2A	9	15	6.80E-01	2.19E+11	0.0607
S	7	46	46.6A	1	3	4.43E-03	4.54E+09	0.0005	S	9	35	35.5A	9	15	6.49E-01	2.29E+11	0.0553
S	7	45	45.9A	1	3	2.82E-03	2.98E+09	0.0003	S	9	43	43.5A	9	9	6.31E-01	2.47E+11	0.0660
S	7	45	45.4A	1	3	1.91E-03	2.06E+09	0.0002	S	9	54	54.1A	9	15	6.18E-01	9.39E+10	0.0804
S	7	45	45.1A	1	3	1.36E-03	1.48E+09	0.0001	S	9	46	46.7A	9	9	4.40E-01	1.50E+11	0.0494
S	8	52	52.9A	6	10	3.30E+00	7.87E+11	0.4196	S	9	39	39.6A	9	15	4.30E-01	1.22E+11	0.0409
S	8	52	52.9A	6	6	2.80E+00	1.11E+12	0.3563	S	9	55	56.0A	9	3	4.10E-01	2.91E+11	0.0552
S	8	54	54.3A	6	10	2.56E+00	5.78E+11	0.3345	S	9	35	35.7A	9	15	3.57E-01	1.25E+11	0.0306
S	8	45	45.5A	6	10	1.08E+00	3.49E+11	0.1179	S	9	52	52.8A	9	9	3.49E-01	9.28E+10	0.0443
S	8	53	53.1A	6	2	8.75E-01	1.03E+12	0.1118	S	9	38	38.9A	9	3	3.01E-01	4.42E+11	0.0281
S	8	51	51.3A	6	10	6.96E-01	1.76E+11	0.0859	S	9	43	43.7A	9	3	2.90E-01	3.37E+11	0.0305
S	8	63	63.2A	6	6	6.75E-01	1.88E+11	0.1028	S	9	36	36.1A	9	9	2.72E-01	1.55E+11	0.0235
S	8	42	42.3A	6	10	6.71E-01	2.50E+11	0.0682	S	9	40	40.6A	9	15	2.71E-01	7.33E+10	0.0264
S	8	44	44.5A	6	6	6.59E-01	3.70E+11	0.0704	S	9	38	38.4A	9	9	2.47E-01	1.24E+11	0.0228
S	8	44	44.5A	6	10	5.93E-01	2.00E+11	0.0634	S	9	36	36.1A	9	15	2.47E-01	8.42E+10	0.0214
S	8	46	46.8A	6	10	5.63E-01	1.72E+11	0.0633	S	9	35	35.3A	9	9	1.98E-01	1.18E+11	0.0168
S	8	203	203A	6	2	4.29E-01	3.47E+10	0.8379	S	9	34	34.7A	9	9	1.91E-01	1.18E+11	0.0159
S	8	61	61.6A	6	10	4.16E-01	7.31E+10	0.0617	S	9	34	34.2A	9	15	1.91E-01	7.28E+10	0.0157
S	8	54	54.4A	6	6	3.95E-01	1.48E+11	0.0517	S	9	36	36.1A	9	3	1.74E-01	2.97E+11	0.0151
S	8	46	46.7A	6	6	3.92E-01	2.00E+11	0.0440	S	9	34	34.7A	9	15	1.71E-01	6.32E+10	0.0142
S	8	40	40.8A	6	10	3.60E-01	1.44E+11	0.0353	S	9	34	34.9A	9	15	1.50E-01	5.49E+10	0.0125
S	8	46	46.5A	6	10	3.26E-01	1.01E+11	0.0364	S	9	40	40.2A	9	9	1.49E-01	6.85E+10	0.0144
S	8	45	45.5A	6	6	3.11E-01	1.67E+11	0.0340	S	9	39	39.8A	9	9	1.29E-01	6.03E+10	0.0123
S	8	39	39.9A	6	10	3.09E-01	1.29E+11	0.0296	S	9	39	39.3A	9	3	1.25E-01	1.80E+11	0.0118
S	8	41	41.4A	6	6	2.30E-01	1.49E+11	0.0229	S	9	36	36.1A	9	9	1.23E-01	6.98E+10	0.0107
S	8	44	44.5A	6	2	2.05E-01	3.45E+11	0.0219	S	9	35	35.5A	9	9	1.22E-01	7.15E+10	0.0104
S	8	42	42.3A	6	6	2.03E-01	1.26E+11	0.0206	S	9	34	34.3A	9	15	1.11E-01	4.19E+10	0.0091
S	8	43	43.6A	6	10	2.00E-01	7.03E+10	0.0209	S	9	33	33.9A	9	9	1.08E-01	6.97E+10	0.0088
S	8	47	47.7A	6	6	1.89E-01	9.25E+10	0.0216	S	9	33	33.4A	9	9	1.03E-01	6.84E+10	0.0083
S	8	39	39.9A	6	6	1.87E-01	1.30E+11	0.0179	S	9	41	41.2A	9	9	8.76E-02	3.82E+10	0.0087
S	8	46	46.0A	6	2	1.82E-01	2.86E+11	0.0201	S	9	34	34.7A	9	3	8.44E-02	1.56E+11	0.0070
S	8	41	41.4A	6	10	1.67E-01	6.49E+10	0.0166	S	9	35	35.5A	9	3	8.28E-02	1.46E+11	0.0071
S	8	39	39.4A	6	10	1.46E-01	6.27E+10	0.0138	S	9	33	34.0A	9	15	7.89E-02	3.04E+10	0.0064
S	8	40	40.8A	6	6	1.36E-01	9.07E+10	0.0133	S	9	35	35.5A	9	15	7.86E-02	2.77E+10	0.0067
S	8	43	43.3A	6	10	1.33E-01	4.73E+10	0.0138	S	9	33	33.9A	9	15	7.77E-02	3.00E+10	0.0063
S	8	39	39.1A	6	10	1.17E-01	5.12E+10	0.0110	S	9	33	33.8A	9	15	6.90E-02	2.69E+10	0.0056
S	8	41	41.4A	6	2	1.10E-01	2.14E+11	0.0109	S	9	34	34.2A	9	9	6.05E-02	3.84E+10	0.0050
S	8	38	38.8A	6	10	9.79E-02	4.34E+10	0.0091	S	9	33	33.9A	9	3	5.03E-02	9.74E+10	0.0041
S	8	59	59.2A	6	2	7.80E-02	7.42E+10	0.0111	S	9	41	41.8A	9	3	4.91E-02	6.23E+10	0.0049
S	8	40	40.4A	6	10	7.80E-02	3.19E+10	0.0076	S	9	32	32.8A	9	9	4.45E-02	3.06E+10	0.0035
S	8	43	43.2A	6	6	7.29E-02	4.34E+10	0.0076	S	9	39	39.6A	9	9	3.67E-02	1.73E+10	0.0035
S	8	39	40.0A	6	2	5.88E-02	1.23E+11	0.0056	S	9	33	33.1A	9	9	3.52E-02	2.39E+10	0.0028
S	8	38	39.0A	6	10	5.79E-02	2.54E+10	0.0054	S	9	37	37.8A	9	3	2.86E-02	4.44E+10	0.0026
S	8	39	39.1A	6	6	5.61E-02	4.09E+10	0.0053	S	9	33	33.1A	9	9	2.85E-02	1.93E+10	0.0023
S	8	39	39.1A	6	6	5.23E-02	3.80E+10	0.0049	S	9	36	36.7A	9	15	2.39E-02	7.88E+09	0.0021
S	8	39	39.4A	6	6	4.74E-02	3.39E+10	0.0045	S	9	35	35.0A	9	15	2.17E-02	7.87E+09	0.0018
S	8	39	39.1A	6	10	4.01E-02	1.75E+10	0.0038	S	9	32	32.9A	9	9	2.06E-02	1.41E+10	0.0016
S	8	39	39.1A	6	2	3.59E-02	7.82E+10	0.0034	S	9	33	33.9A	9	15	1.89E-02	7.33E+09	0.0015
S	8	40	40.4A	6	10	3.50E-02	1.43E+10	0.0034	S	9	35	36.0A	9	9	1.48E-02	8.48E+09	0.0013
S	8	45	45.2A	6	2	3.36E-02	5.49E+10	0.0036	S	9	41	41.4A	9	15	1.34E-02	3.47E+09	0.0013
S	8	38	38.6A	6	2	3.20E-02	7.16E+10	0.0030	S	9	33	33.5A	9	9	1.30E-02	8.59E+09	0.0010
S	8	38	38.5A	6	2	2.97E-02	6.68E+10	0.0027	S	9	32	32.9A	9	9	8.27E-03	5.66E+09	0.0007
S	8	38	38.8A	6	6	2.92E-02	2.16E+10	0.0027	S	9	33	33.6A	9	9	7.09E-03	4.66E+09	0.0006
S	8	43	43.4A	6	6	1.81E-02	1.07E+10	0.0019	S	9	33	33.4A	9	9	5.78E-03	3.84E+09	0.0005
S	8	41	41.3A	6	6	1.69E-02	1.10E+10	0.0017	S	9	33	33.9A	9	9	5.40E-03	3.49E+09	0.0004
S	8	40	40.2A	6	6	1.65E-02	1.13E+10	0.0016	S	9	34	34.5A	9	9	4.73E-03	2.95E+09	0.0004
S	8	38	38.2A	6	2	1.33E-02	3.03E+10	0.0012	S	9	35	35.1A	9	3	4.39E-03	7.94E+09	0.0004
S	8	38	38.0A	6	2	1.22E-02	2.82E+10	0.0011	S	9	34	34.1A	9	15	4.35E-03	1.66E+09	0.0004
S	8	39	39.2A	6	6	1.11E-02	8.04E+09	0.0010	S	9	36	36.0A	9	3	4.10E-03	7.02E+09	0.0004
S	8	39	39.6A	6	6	9.83E-03	6.97E+09	0.0009	S	9	34	34.1A	9	3	3.36E-03	6.43E+09	0.0003
S	8	38	38.9A	6	6	7.85E-03	5.77E+09	0.0007	S	9	34	34.5A	9	3	3.02E-03	5.65E+09	0.0002
S	8	39	40.0A	6	6	5.80E-03	4.03E+09	0.0006	S	9	33	33.8A	9	3	1.31E-03	2.55E+09	0.0001
S	8	39	40.0A	6	10	5.68E-03	2.37E+09	0.0005	S	9	34	34.7A	9	15	5.35E-04	1.97E+08	0.0000
S	8	39	39.4A	6	10	3.27E-03	1.41E+09	0.0003	S	9	33	33.0A	9	9	2.83E-04	1.92E+08	0.0000
S	8	38	38.4A	6	2	2.03E-03	4.59E+09	0.0002	S	10	42	42.5A	4	12	6.63E+00	2.04E+12	0.2732
S	8	43	43.3A	6	2	1.95E-03	3.47E+09	0.0002	S	10	34	34.3A	4	12	1.51E+00	7.13E+11	0.1243
S	8	39	39.4A	6	2	1.19E-03	2.56E+09	0.0001	S	10	41	41.6A	4	12	8.38E-01	2.69E+11	0.0837
S	8	41	41.1A	6	2	1.85E-04	3.65E+08	0.0000	S	10	265	265A	4	12	6.25E-01	4.91E+09	1.177
S	8	42	42.3A	6	10	8.70E-05	3.25E+07	0.0000	S	10	31	31.6A	4	12	6.05E-01	3.38E+11	0.0458
S	9	47	47.5A	9	15	4.03E+00	7.93E+11	0.4605	S	10	47	47.6A	4	12	4.58E-01	1.12E+11	0.0524
S	9	47	47.3A	9	9	3.94E+00	1.30E+12	0.4481	S	10	36	36.5A	4	12	4.04E-01	1.69E+11	0.0354
S	9	46	46.5A	9	15	3.63E+00	7.47E+11	0.4055	S	10	32	33.0A	4	12	3.35E-01	1.71E+11	0.0265
S	9	49	49.2A	9	15	2.40E+00	4.40E+11	0.2841	S	10	30	30.2A	4	12	2.47E-01	1.50E+11	0.0179
S	9	47	47.1A	9	3	1.33E+00	1.33E+12	0.1507	S	10	30	30.2A	4	12	2.40E-01	1.46E+11	0.0174
S	9	40	40.3A	9	15	1.14E+00	3.13E+11	0.1102	S	10	29	29.5A	4	12	2.26E-01	1.44E+11	0.0160
S	9	228	228A	9	9	1.12E+00	1.59E+10	2.527	S	10	29	29.0A	4	12	1.14E-01	7.52E+10	0.0079
S	9	43	43.9A	9	15	1.03E+00	2.38E+11	0.1085	S	10	29	29.4A	4	12	8.65E-02	5.57E+10	0.0061
S	9	38	39.0A	9	9	7.97E-01	3.89E+11	0.0746	S	10	28	28.7A	4	12	7.99E-02	5.38E+10	0.0055
S	9	38	38.4A	9	15	7.60E-01	2.30E+11	0.0700	S	10	28	29.0A	4	12	7.62E-02	5.05E+10	0.0053
S	9	39	39.1A	9	15	6.80E-01	1.98E+11	0.0638	S	10	37	37.9A	4	12	6.25E-02	2.42E+10	0.0057

S 10	31	31.7A	4	12	5.91E-02	3.27E+10	0.0045	S 11	26	26.1A	9	9	4.44E-03	4.85E+09	0.0003
S 10	28	28.5A	4	12	5.76E-02	3.94E+10	0.0039	S 11	24	24.3A	9	3	3.92E-03	1.47E+10	0.0002
S 10	35	35.5A	4	12	3.88E-02	1.72E+10	0.0033	S 11	32	32.3A	9	9	3.68E-03	2.62E+09	0.0003
S 10	32	32.0A	4	12	3.25E-02	1.76E+10	0.0025	S 11	27	27.8A	9	9	3.62E-03	3.48E+09	0.0002
S 10	29	29.6A	4	12	1.79E-02	1.13E+10	0.0013	S 11	26	26.0A	9	9	3.16E-03	3.46E+09	0.0002
S 10	30	30.5A	4	12	1.58E-02	9.47E+09	0.0012	S 11	26	26.8A	9	3	3.00E-03	9.27E+09	0.0002
S 10	38	38.6A	4	12	1.57E-02	5.87E+09	0.0015	S 11	24	24.6A	9	3	2.98E-03	1.10E+10	0.0002
S 10	30	30.5A	4	12	2.70E-03	1.62E+09	0.0002	S 11	24	24.5A	9	3	2.90E-03	1.07E+10	0.0002
S 10	28	28.8A	4	12	2.62E-03	1.76E+09	0.0002	S 11	25	25.8A	9	15	2.24E-03	1.50E+09	0.0001
S 10	28	28.6A	4	12	1.93E-03	1.32E+09	0.0001	S 11	28	28.1A	9	15	1.49E-03	8.42E+08	0.0001
S 10	29	29.1A	4	12	1.09E-03	7.15E+08	0.0001	S 11	28	28.0A	9	9	7.07E-04	6.68E+08	0.0000
S 10	34	34.1A	4	12	9.28E-04	4.43E+08	0.0001	S 11	28	28.5A	9	9	5.85E-04	5.34E+08	0.0000
S 10	30	31.0A	4	12	7.47E-04	4.33E+08	0.0001	S 11	25	25.9A	9	9	5.24E-04	5.81E+08	0.0000
S 10	30	30.8A	4	12	4.93E-04	2.89E+08	0.0000	S 11	26	26.9A	9	15	4.62E-04	2.84E+08	0.0000
S 11	39	39.4A	9	15	7.89E+00	2.26E+12	0.7461	S 11	29	29.3A	9	15	3.98E-04	2.06E+08	0.0000
S 11	39	39.3A	9	9	2.61E+00	1.25E+12	0.2462	S 11	25	25.2A	9	3	1.41E-04	4.92E+08	0.0000
S 11	31	31.2A	9	15	1.76E+00	8.06E+11	0.1316	S 11	26	26.1A	9	15	2.89E-05	1.89E+07	0.0000
S 11	37	38.0A	9	15	1.60E+00	4.93E+11	0.1459	S 12	36	36.6A	6	10	3.84E+00	1.91E+12	0.3374
S 11	37	37.7A	9	9	9.42E-01	4.90E+11	0.0853	S 12	34	34.8A	6	10	1.55E+00	8.55E+11	0.1293
S 11	192	192A	9	3	7.20E-01	4.31E+10	1.333	S 12	222	222A	6	6	8.70E-01	1.96E+10	1.860
S 11	28	28.5A	9	15	6.09E-01	3.32E+11	0.0417	S 12	35	35.4A	6	6	8.35E-01	7.41E+11	0.0709
S 11	251	251A	9	9	6.06E-01	7.10E+09	1.467	S 12	28	28.3A	6	10	7.49E-01	6.22E+11	0.0509
S 11	31	31.2A	9	9	5.79E-01	4.42E+11	0.0433	S 12	26	27.0A	6	10	3.94E-01	3.61E+11	0.0255
S 11	43	43.1A	9	9	5.71E-01	2.27E+11	0.0592	S 12	305	305A	6	10	3.34E-01	2.39E+09	0.9829
S 11	297	297A	9	15	5.39E-01	2.70E+09	1.548	S 12	34	34.4A	6	2	3.16E-01	8.90E+11	0.0261
S 11	29	29.8A	9	15	4.83E-01	2.43E+11	0.0345	S 12	33	33.0A	6	6	2.63E-01	2.68E+11	0.0209
S 11	38	38.7A	9	3	3.70E-01	5.50E+11	0.0344	S 12	25	25.7A	6	10	2.51E-01	2.54E+11	0.0155
S 11	34	34.8A	9	15	3.59E-01	1.32E+11	0.0300	S 12	27	27.1A	6	6	2.28E-01	3.45E+11	0.0148
S 11	29	29.7A	9	9	2.76E-01	2.32E+11	0.0197	S 12	235	235A	6	2	1.76E-01	1.05E+10	0.3998
S 11	34	34.7A	9	9	2.24E-01	1.38E+11	0.0186	S 12	24	24.5A	6	10	1.45E-01	1.62E+11	0.0085
S 11	28	28.5A	9	9	2.10E-01	1.91E+11	0.0144	S 12	39	39.3A	6	2	1.38E-01	2.98E+11	0.0130
S 11	27	27.1A	9	15	2.02E-01	1.22E+11	0.0131	S 12	24	24.5A	6	10	1.30E-01	1.44E+11	0.0076
S 11	27	27.2A	9	15	1.99E-01	1.20E+11	0.0130	S 12	25	25.8A	6	10	1.24E-01	1.24E+11	0.0077
S 11	36	36.1A	9	15	1.71E-01	5.84E+10	0.0148	S 12	33	33.0A	6	10	1.14E-01	6.97E+10	0.0090
S 11	27	27.6A	9	15	1.60E-01	9.32E+10	0.0106	S 12	24	24.5A	6	6	9.24E-02	1.71E+11	0.0054
S 11	26	26.4A	9	15	1.43E-01	9.12E+10	0.0091	S 12	23	23.8A	6	10	8.70E-02	1.03E+11	0.0050
S 11	34	34.9A	9	9	1.25E-01	7.59E+10	0.0105	S 12	25	25.8A	6	6	7.65E-02	1.28E+11	0.0047
S 11	34	34.6A	9	3	1.23E-01	2.28E+11	0.0102	S 12	26	26.9A	6	2	7.38E-02	3.40E+11	0.0048
S 11	27	27.6A	9	9	1.20E-01	1.17E+11	0.0079	S 12	23	23.4A	6	10	6.42E-02	7.85E+10	0.0036
S 11	27	27.1A	9	9	1.11E-01	1.12E+11	0.0072	S 12	23	23.4A	6	6	6.15E-02	1.25E+11	0.0034
S 11	29	29.9A	9	3	1.01E-01	2.51E+11	0.0072	S 12	31	32.0A	6	6	5.80E-02	6.31E+10	0.0044
S 11	25	26.0A	9	15	9.77E-02	6.45E+10	0.0061	S 12	24	24.6A	6	10	5.27E-02	5.79E+10	0.0031
S 11	25	25.9A	9	15	9.77E-02	6.49E+10	0.0061	S 12	30	30.1A	6	10	4.41E-02	3.25E+10	0.0032
S 11	31	32.0A	9	9	8.43E-02	6.11E+10	0.0065	S 12	30	30.3A	6	10	4.39E-02	3.19E+10	0.0032
S 11	27	27.2A	9	9	7.90E-02	7.94E+10	0.0051	S 12	23	23.5A	6	10	4.24E-02	5.13E+10	0.0024
S 11	25	25.6A	9	15	7.13E-02	4.82E+10	0.0044	S 12	32	32.8A	6	2	4.11E-02	1.27E+11	0.0032
S 11	25	25.9A	9	9	6.10E-02	6.76E+10	0.0038	S 12	23	23.3A	6	10	4.06E-02	4.97E+10	0.0023
S 11	25	25.5A	9	15	5.49E-02	3.77E+10	0.0033	S 12	23	23.3A	6	10	3.91E-02	4.79E+10	0.0022
S 11	31	31.1A	9	15	4.74E-02	2.18E+10	0.0035	S 12	23	23.1A	6	10	3.55E-02	4.45E+10	0.0020
S 11	26	26.4A	9	9	4.73E-02	5.03E+10	0.0030	S 12	24	24.5A	6	2	3.28E-02	1.83E+11	0.0019
S 11	35	35.9A	9	9	4.45E-02	2.56E+10	0.0038	S 12	22	22.7A	6	6	3.08E-02	6.63E+10	0.0017
S 11	28	28.7A	9	9	4.40E-02	3.95E+10	0.0030	S 12	29	29.9A	6	6	2.71E-02	3.37E+10	0.0019
S 11	27	27.2A	9	3	4.05E-02	1.22E+11	0.0026	S 12	25	26.0A	6	2	2.56E-02	1.27E+11	0.0016
S 11	27	27.6A	9	3	3.86E-02	1.13E+11	0.0025	S 12	22	22.9A	6	10	2.53E-02	3.23E+10	0.0014
S 11	27	27.1A	9	15	3.73E-02	2.25E+10	0.0024	S 12	28	28.9A	6	2	2.38E-02	9.48E+10	0.0017
S 11	28	28.6A	9	15	3.39E-02	1.85E+10	0.0023	S 12	22	22.3A	6	6	2.20E-02	4.90E+10	0.0012
S 11	25	26.0A	9	9	3.26E-02	3.59E+10	0.0020	S 12	23	23.5A	6	6	2.14E-02	4.31E+10	0.0012
S 11	31	31.8A	9	15	2.97E-02	1.30E+10	0.0023	S 12	22	22.4A	6	6	1.87E-02	4.13E+10	0.0010
S 11	25	25.2A	9	3	2.94E-02	1.03E+11	0.0018	S 12	29	29.0A	6	10	1.84E-02	1.46E+10	0.0013
S 11	33	33.6A	9	3	2.72E-02	5.36E+10	0.0022	S 12	31	31.7A	6	10	1.65E-02	1.09E+10	0.0013
S 11	25	25.6A	9	9	2.23E-02	2.51E+10	0.0014	S 12	30	30.8A	6	6	1.45E-02	1.69E+10	0.0011
S 11	25	25.9A	9	3	2.18E-02	7.22E+10	0.0014	S 12	23	23.5A	6	2	1.40E-02	8.47E+10	0.0008
S 11	25	25.5A	9	9	1.68E-02	1.92E+10	0.0010	S 12	22	22.1A	6	6	1.38E-02	3.15E+10	0.0007
S 11	30	30.3A	9	15	1.60E-02	7.77E+09	0.0012	S 12	23	23.3A	6	2	1.35E-02	8.26E+10	0.0008
S 11	30	30.4A	9	9	1.53E-02	1.23E+10	0.0011	S 12	24	24.8A	6	6	1.31E-02	2.38E+10	0.0008
S 11	25	25.9A	9	15	1.53E-02	1.02E+10	0.0009	S 12	25	25.7A	6	2	9.87E-03	4.98E+10	0.0006
S 11	30	30.9A	9	9	1.23E-02	9.52E+09	0.0009	S 12	21	21.9A	6	6	9.42E-03	2.19E+10	0.0005
S 11	25	25.8A	9	9	1.21E-02	1.35E+10	0.0007	S 12	23	23.6A	6	10	9.01E-03	1.08E+10	0.0005
S 11	26	26.3A	9	15	1.21E-02	7.78E+09	0.0008	S 12	24	24.3A	6	6	8.45E-03	1.59E+10	0.0005
S 11	26	26.5A	9	9	1.05E-02	1.11E+10	0.0007	S 12	29	29.8A	6	2	6.48E-03	2.44E+10	0.0005
S 11	30	30.8A	9	3	1.04E-02	2.44E+10	0.0008	S 12	24	24.8A	6	10	4.57E-03	4.95E+09	0.0003
S 11	33	33.2A	9	15	1.04E-02	4.20E+09	0.0008	S 12	23	23.8A	6	2	3.85E-03	2.26E+10	0.0002
S 11	24	24.8A	9	3	9.50E-03	3.43E+10	0.0006	S 12	24	24.3A	6	2	3.47E-03	1.96E+10	0.0002
S 11	25	25.7A	9	3	6.14E-03	2.06E+10	0.0004	S 12	30	30.5A	6	2	3.29E-03	1.18E+10	0.0002
S 11	26	26.3A	9	15	5.92E-03	3.79E+09	0.0004	S 12	24	24.4A	6	10	2.93E-03	3.29E+09	0.0002
S 11	25	25.8A	9	15	5.66E-03	3.78E+09	0.0003	S 12	24	24.4A	6	10	2.50E-03	2.81E+09	0.0001
S 11	25	25.7A	9	9	5.34E-03	5.98E+09	0.0003	S 12	24	24.6A	6	2	2.07E-03	1.14E+10	0.0001
S 11	25	25.5A	9	9	5.19E-03	5.92E+09	0.0003	S 12	22	22.9A	6	6	1.60E-03	3.40E+09	0.0001
S 11	25	25.7A	9	9	4.91E-03	5.51E+09	0.0003	S 12	22	22.7A	6	6	1.27E-03	2.74E+09	0.0001
S 11	27	27.3A	9	9	4.48E-03	4.47E+09	0.0003	S 12	23	23.1A	6	2	1.17E-03	7.32E+09	0.0001

S 12	22	22.9A	6	2	8.62E-04	5.49E+09	0.0000	Ar 2	633	633A	6	10	5.67E-01	9.41E+08	0.9264
S 12	25	25.1A	6	6	8.01E-04	1.41E+09	0.0000	Ar 2	616	616A	6	10	5.67E-01	9.94E+08	3.406
S 12	26	26.7A	6	10	7.16E-04	6.71E+08	0.0000	Ar 2	567	567A	6	2	4.34E-01	4.50E+09	0.6300
S 12	23	23.3A	6	10	6.80E-04	8.36E+08	0.0000	Ar 2	464	464A	6	6	3.93E-01	2.03E+09	0.4611
S 12	22	22.4A	6	6	2.73E-04	6.06E+08	0.0000	Ar 2	527	527A	6	6	3.01E-01	1.20E+09	0.4047
S 12	23	24.0A	6	2	2.29E-04	1.33E+09	0.0000	Ar 2	451	451A	6	10	2.73E-01	8.95E+08	0.3108
S 12	23	23.4A	6	2	1.38E-04	8.42E+08	0.0000	Ar 2	447	447A	6	2	2.30E-01	3.83E+09	0.2599
S 12	25	25.5A	6	10	4.95E-05	5.10E+07	0.0000	Ar 2	486	486A	6	6	2.15E-01	1.01E+09	0.2654
S 13	32	32.4A	1	3	6.10E-01	1.29E+12	0.0474	Ar 2	448	448A	6	10	2.02E-01	6.70E+08	0.2286
S 13	262	262A	1	3	2.25E-01	7.25E+09	0.5048	Ar 2	450	450A	6	6	1.61E-01	8.81E+08	0.1832
S 13	24	24.7A	1	3	1.60E-01	5.83E+11	0.0095	Ar 2	448	448A	6	6	1.61E-01	8.91E+08	0.1822
S 13	22	22.3A	1	3	6.49E-02	2.90E+11	0.0035	Ar 2	436	436A	6	2	1.60E-01	2.80E+09	0.1762
S 13	21	21.2A	1	3	3.59E-02	1.77E+11	0.0018	Ar 2	457	457A	6	10	1.32E-01	4.20E+08	0.1527
S 13	29	29.1A	1	3	3.30E-02	8.65E+10	0.0023	Ar 2	446	446A	6	6	1.12E-01	6.25E+08	0.1262
S 13	30	30.5A	1	3	2.58E-02	6.18E+10	0.0019	Ar 2	899	899A	6	2	1.11E-01	4.58E+08	0.9799
S 13	20	20.6A	1	3	2.06E-02	1.08E+11	0.0010	Ar 2	446	446A	6	10	1.08E-01	3.61E+08	0.1217
S 13	20	20.2A	1	3	1.51E-02	8.21E+10	0.0007	Ar 2	430	430A	6	2	9.69E-02	1.75E+09	0.1050
S 13	23	23.2A	1	3	1.26E-02	5.21E+10	0.0007	Ar 2	457	457A	6	10	9.07E-02	2.89E+08	0.1047
S 13	19	20.0A	1	3	8.98E-03	5.01E+10	0.0004	Ar 2	453	453A	6	10	6.91E-02	2.24E+08	0.0792
S 13	19	19.8A	1	3	6.72E-03	3.81E+10	0.0003	Ar 2	453	453A	6	6	6.71E-02	3.62E+08	0.0769
S 13	21	21.3A	1	3	3.99E-03	1.95E+10	0.0002	Ar 2	426	426A	6	2	6.25E-02	1.15E+09	0.0670
S 13	20	20.3A	1	3	8.25E-04	4.46E+09	0.0000	Ar 2	452	452A	6	2	6.01E-02	9.81E+08	0.0686
S 13	21	21.2A	1	3	2.23E-04	1.11E+09	0.0000	Ar 2	494	494A	6	10	5.92E-02	1.61E+08	0.0743
S 13	20	20.2A	1	3	1.43E-04	7.78E+08	0.0000	Ar 2	468	468A	6	6	5.41E-02	2.74E+08	0.0642
S 13	23	23.5A	1	3	1.49E-05	5.98E+07	0.0000	Ar 2	423	423A	6	2	4.27E-02	7.95E+08	0.0455
S 14	23	23.1A	2	6	1.80E-01	3.74E+11	0.0100	Ar 2	457	457A	6	6	3.66E-02	1.94E+08	0.0423
S 14	20	20.8A	2	6	7.54E-02	1.94E+11	0.0098	Ar 2	459	459A	6	6	3.54E-02	1.86E+08	0.0411
S 14	19	19.7A	2	6	3.93E-02	1.13E+11	0.0049	Ar 2	421	421A	6	2	3.04E-02	5.71E+08	0.0322
S 14	19	19.1A	2	6	2.33E-02	7.11E+10	0.0028	Ar 2	485	485A	6	10	2.01E-02	5.69E+07	0.0247
S 14	18	18.7A	2	6	1.50E-02	4.76E+10	0.0017	Ar 2	486	486A	6	6	1.84E-02	8.65E+07	0.0227
S 14	18	18.5A	2	6	1.03E-02	3.35E+10	0.0012	Ar 2	449	449A	6	6	1.12E-02	6.15E+07	0.0127
S 14	18	18.3A	2	6	7.36E-03	2.44E+10	0.0008	Ar 2	447	447A	6	6	8.69E-03	4.83E+07	0.0098
S 15	51	5.10A	1	3	3.56E-07	3.04E+07	0.0174	Ar 2	641	641A	6	6	2.88E-03	7.78E+06	0.0180
S 15	50	5.07A	1	3	6.72E-03	5.82E+11	0.0077	Ar 2	453	453A	6	6	2.21E-03	1.19E+07	0.0025
S 15	50	5.06A	1	3	7.65E-01	6.64E+13	0.0016	Ar 2	514	514A	6	10	1.13E-04	2.85E+05	0.0006
S 15	43	4.31A	1	3	1.53E-01	1.83E+13	0.0014	Ar 3	458	458A	9	15	1.67E+01	3.54E+10	74.153
S 15	41	4.10A	1	3	5.69E-02	7.53E+12	0.0013	Ar 3	464	464A	9	9	8.41E+00	2.89E+10	9.881
S 15	40	4.01A	1	3	2.75E-02	3.80E+12	0.0006	Ar 3	451	451A	9	9	3.32E+00	1.21E+10	14.512
S 15	39	3.96A	1	3	1.54E-02	2.18E+12	0.0003	Ar 3	472	472A	9	3	2.40E+00	2.39E+10	10.999
S 15	39	3.94A	1	3	9.54E-03	1.37E+12	0.0002	Ar 3	488	488A	9	15	1.76E+00	3.27E+09	2.182
S 15	39	3.92A	1	3	6.32E-03	9.14E+11	0.0001	Ar 3	388	388A	9	15	1.52E+00	4.48E+09	1.480
S 15	39	3.90A	1	3	4.40E-03	6.43E+11	0.0001	Ar 3	527	527A	9	3	1.15E+00	9.19E+09	1.545
S 15	39	3.90A	1	3	3.19E-03	4.66E+11	0.0001	Ar 3	360	360A	9	9	6.80E-01	3.87E+09	0.6131
S 16	46	4.69A	2	2	3.56E-09	5.39E+05	0.0000	Ar 3	345	345A	9	15	6.62E-01	2.46E+09	0.5711
S 16	47	4.75A	2	6	8.32E-01	4.10E+13	0.0038	Ar 3	365	365A	9	15	5.47E-01	1.82E+09	0.4991
S 16	40	4.01A	2	6	1.58E-01	1.09E+13	0.0035	Ar 3	894	894A	9	9	3.40E-01	3.15E+08	2.987
S 16	37	3.80A	2	6	5.80E-02	4.47E+12	0.0013	Ar 3	517	517A	9	15	2.92E-01	4.85E+08	1.467
S 16	37	3.71A	2	6	2.79E-02	2.25E+12	0.0007	Ar 3	387	387A	9	3	2.19E-01	3.25E+09	0.2125
S 16	36	3.66A	2	6	1.56E-02	1.29E+12	0.0004	Ar 3	360	360A	9	15	1.96E-01	6.72E+08	0.1763
S 16	36	3.64A	2	6	9.63E-03	8.08E+11	0.0002	Ar 3	360	360A	9	3	1.17E-01	2.00E+09	0.1055
S 16	36	3.62A	2	6	6.37E-03	5.40E+11	0.0002	Ar 3	325	325A	9	9	1.10E-01	7.67E+08	0.0892
S 16	36	3.61A	2	6	4.43E-03	3.78E+11	0.0001	Ar 3	348	348A	9	9	1.07E-01	6.54E+08	0.0930
S 16	35	3.60A	2	6	3.21E-03	2.75E+11	0.0001	Ar 3	332	332A	9	15	9.87E-02	3.98E+08	0.0816
Ar 1	1095	1095A	1	3	3.39E-01	6.28E+08	0.0495	Ar 3	327	327A	9	15	8.67E-02	3.60E+08	0.0706
Ar 1	922	922A	1	3	1.23E-01	3.21E+08	0.0125	Ar 3	312	312A	9	15	7.70E-02	3.50E+08	0.0598
Ar 1	918	918A	1	3	1.10E-01	2.90E+08	0.0121	Ar 3	325	325A	9	15	7.66E-02	3.22E+08	0.0620
Ar 1	875	875A	1	3	5.93E-02	1.72E+08	0.0054	Ar 3	348	348A	9	3	6.50E-02	1.19E+09	0.0565
Ar 1	876	876A	1	3	4.84E-02	1.40E+08	0.0044	Ar 3	343	343A	9	9	6.08E-02	3.83E+08	0.0520
Ar 1	856	856A	1	3	3.31E-02	1.00E+08	0.0029	Ar 3	322	322A	9	15	5.38E-02	2.30E+08	0.0431
Ar 1	857	857A	1	3	2.38E-02	7.20E+07	0.0021	Ar 3	349	349A	9	15	5.18E-02	1.88E+08	0.0452
Ar 1	846	846A	1	3	1.99E-02	6.17E+07	0.0017	Ar 3	310	310A	9	9	4.44E-02	3.41E+08	0.0342
Ar 1	847	847A	1	3	1.35E-02	4.18E+07	0.0011	Ar 3	331	331A	9	3	4.06E-02	8.21E+08	0.0335
Ar 1	840	840A	1	3	1.28E-02	4.02E+07	0.0011	Ar 3	310	310A	9	15	3.60E-02	1.66E+08	0.0277
Ar 1	837	837A	1	3	8.72E-03	2.77E+07	0.0007	Ar 3	310	310A	9	15	3.55E-02	1.64E+08	0.0274
Ar 1	841	841A	1	3	8.38E-03	2.63E+07	0.0007	Ar 3	517	517A	9	9	3.33E-02	9.22E+07	0.1673
Ar 1	834	834A	1	3	6.18E-03	1.97E+07	0.0005	Ar 3	625	625A	9	15	2.45E-02	2.79E+07	0.1492
Ar 1	837	837A	1	3	5.56E-03	1.76E+07	0.0005	Ar 3	313	313A	9	9	2.15E-02	1.62E+08	0.0167
Ar 1	832	832A	1	3	4.54E-03	1.46E+07	0.0004	Ar 3	317	317A	9	15	2.05E-02	9.07E+07	0.0161
Ar 1	834	834A	1	3	3.88E-03	1.24E+07	0.0003	Ar 3	311	311A	9	9	2.02E-02	1.54E+08	0.0156
Ar 1	832	832A	1	3	2.82E-03	9.04E+06	0.0002	Ar 3	322	322A	9	3	1.79E-02	3.83E+08	0.0143
Ar 2	548	548A	6	10	3.48E+00	7.71E+09	18.554	Ar 3	297	297A	9	9	1.72E-02	1.44E+08	0.0127
Ar 2	497	497A	6	10	2.40E+00	6.47E+09	3.031	Ar 3	326	326A	9	3	1.66E-02	3.47E+08	0.0135
Ar 2	541	541A	6	6	1.96E+00	7.42E+09	10.319	Ar 3	297	297A	9	9	1.57E-02	1.32E+08	0.0116
Ar 2	677	677A	6	6	1.39E+00	3.37E+09	2.439	Ar 3	302	302A	9	9	1.37E-02	1.11E+08	0.0103
Ar 2	473	473A	6	10	1.24E+00	3.68E+09	1.487	Ar 3	316	316A	9	3	1.32E-02	2.92E+08	0.0104
Ar 2	506	506A	6	6	9.77E-01	4.24E+09	1.256	Ar 3	313	313A	9	3	9.66E-03	2.19E+08	0.0075
Ar 2	519	519A	6	2	8.16E-01	1.01E+10	4.115	Ar 3	310	310A	9	3	9.65E-03	2.22E+08	0.0074
Ar 2	463	463A	6	10	7.27E-01	2.26E+09	0.8517	Ar 3	293	293A	9	9	5.44E-03	4.67E+07	0.0040
Ar 2	473	473A	6	6	7.07E-01	3.51E+09	0.8464	Ar 3	291	291A	9	9	3.19E-03	2.78E+07	0.0023
Ar 2	470	470A	6	2	5.80E-01	8.76E+09	0.6897	Ar 3	311	311A	9	15	2.37E-03	1.09E+07	0.0018

Ar 3	296	296A	9	9	1.74E-03	1.47E+07	0.0013	Ar 5	212	212A	9	15	4.30E-04	4.24E+06	0.0002
Ar 3	313	313A	9	15	7.93E-04	3.59E+06	0.0006	Ar 5	153	153A	9	3	4.12E-04	3.91E+07	0.0002
Ar 3	298	298A	9	9	6.30E-04	5.23E+06	0.0005	Ar 5	206	206A	9	3	3.38E-04	1.76E+07	0.0007
Ar 3	310	310A	9	3	5.36E-04	1.24E+07	0.0004	Ar 5	176	176A	9	9	3.31E-04	7.86E+06	0.0001
Ar 3	318	318A	9	15	3.19E-05	1.40E+05	0.0000	Ar 5	178	178A	9	15	1.35E-04	1.89E+06	0.0001
Ar 4	444	444A	4	12	1.27E+01	3.57E+10	54.713	Ar 5	180	180A	9	9	1.30E-04	2.95E+06	0.0002
Ar 4	392	392A	4	12	4.97E-01	1.80E+09	0.4884	Ar 5	203	203A	9	9	1.14E-04	2.04E+06	0.0002
Ar 4	859	859A	4	12	3.05E-01	2.30E+08	2.570	Ar 6	457	457A	6	10	5.65E+00	1.80E+10	25.063
Ar 4	278	278A	4	12	1.57E-01	1.13E+09	0.1081	Ar 6	544	544A	6	6	3.93E+00	1.47E+10	20.798
Ar 4	247	247A	4	12	6.73E-02	6.11E+08	0.0410	Ar 6	587	587A	6	2	5.25E-01	5.07E+09	3.003
Ar 4	233	233A	4	12	3.23E-02	3.29E+08	0.0186	Ar 6	292	292A	6	2	4.96E-01	1.93E+10	0.3593
Ar 4	260	260A	4	12	2.83E-02	2.32E+08	0.0182	Ar 6	776	776A	6	10	3.90E-01	4.31E+08	2.964
Ar 4	291	291A	4	12	2.27E-02	1.48E+08	0.0164	Ar 6	221	221A	6	10	2.68E-01	3.66E+09	0.1455
Ar 4	252	252A	4	12	2.08E-02	1.82E+08	0.0129	Ar 6	180	180A	6	10	2.41E-01	4.91E+09	0.1066
Ar 4	236	236A	4	12	2.06E-02	2.05E+08	0.0120	Ar 6	193	193A	6	10	2.27E-01	4.04E+09	0.1075
Ar 4	226	226A	4	12	1.99E-02	2.16E+08	0.0111	Ar 6	202	202A	6	6	1.59E-01	4.33E+09	0.0787
Ar 4	227	227A	4	12	1.38E-02	1.48E+08	0.0077	Ar 6	154	154A	6	10	1.25E-01	3.49E+09	0.0470
Ar 4	221	221A	4	12	1.20E-02	1.36E+08	0.0065	Ar 6	198	198A	6	10	1.13E-01	1.91E+09	0.2160
Ar 4	222	222A	4	12	1.17E-02	1.31E+08	0.0064	Ar 6	196	196A	6	2	8.82E-02	7.58E+09	0.0425
Ar 4	218	218A	4	12	7.36E-03	8.54E+07	0.0040	Ar 6	154	154A	6	10	7.12E-02	1.98E+09	0.0268
Ar 4	219	219A	4	12	6.76E-03	7.80E+07	0.0036	Ar 6	162	162A	6	10	6.28E-02	1.58E+09	0.0249
Ar 4	228	228A	4	12	4.77E-03	5.06E+07	0.0027	Ar 6	198	198A	6	6	6.18E-02	1.75E+09	0.1178
Ar 4	217	217A	4	12	1.86E-03	2.19E+07	0.0010	Ar 6	189	189A	6	2	6.01E-02	5.57E+09	0.0279
Ar 4	216	216A	4	12	1.11E-03	1.31E+07	0.0006	Ar 6	178	178A	6	6	5.82E-02	2.04E+09	0.0254
Ar 4	220	220A	4	12	8.36E-04	9.56E+06	0.0005	Ar 6	154	154A	6	6	5.45E-02	2.54E+09	0.0205
Ar 4	238	238A	4	12	3.59E-04	3.52E+06	0.0002	Ar 6	140	140A	6	6	5.02E-02	2.83E+09	0.0171
Ar 5	441	441A	9	15	1.27E+01	2.89E+10	54.360	Ar 6	149	149A	6	10	3.74E-02	1.11E+09	0.0136
Ar 5	455	455A	9	9	5.24E+00	1.87E+10	23.152	Ar 6	144	144A	6	10	3.18E-02	1.01E+09	0.0112
Ar 5	513	513A	9	3	2.79E+00	2.36E+10	13.898	Ar 6	162	162A	6	10	3.04E-02	7.64E+08	0.0121
Ar 5	337	337A	9	9	1.28E+00	8.33E+09	1.076	Ar 6	159	159A	6	6	3.03E-02	1.32E+09	0.0118
Ar 5	713	713A	9	9	5.45E-01	7.93E+08	3.799	Ar 6	170	170A	6	2	2.97E-02	3.42E+09	0.0123
Ar 5	847	847A	9	15	3.78E-01	2.34E+08	3.142	Ar 6	133	133A	6	6	2.41E-02	1.51E+09	0.0078
Ar 5	231	231A	9	9	2.64E-01	3.65E+09	0.1504	Ar 6	153	153A	6	2	2.05E-02	2.90E+09	0.0077
Ar 5	210	210A	9	15	1.99E-01	2.00E+09	0.1027	Ar 6	179	179A	6	10	1.90E-02	3.95E+08	0.0327
Ar 5	194	194A	9	15	1.84E-01	2.17E+09	0.0875	Ar 6	146	146A	6	10	1.77E-02	5.50E+08	0.0063
Ar 5	225	225A	9	15	1.69E-01	1.47E+09	0.0938	Ar 6	158	158A	6	2	1.68E-02	2.23E+09	0.0065
Ar 5	222	222A	9	9	1.30E-01	1.94E+09	0.0712	Ar 6	142	142A	6	6	1.65E-02	9.00E+08	0.0057
Ar 5	252	252A	9	15	1.27E-01	8.89E+08	0.0789	Ar 6	129	129A	6	6	1.58E-02	1.05E+09	0.0050
Ar 5	202	202A	9	9	1.23E-01	2.22E+09	0.0611	Ar 6	152	152A	6	2	1.39E-02	2.00E+09	0.0052
Ar 5	181	181A	9	15	1.04E-01	1.40E+09	0.0462	Ar 6	176	176A	6	2	1.33E-02	1.42E+09	0.0057
Ar 5	190	190A	9	9	6.88E-02	1.41E+09	0.0320	Ar 6	147	147A	6	10	1.22E-02	3.76E+08	0.0044
Ar 5	181	181A	9	9	5.58E-02	1.26E+09	0.0247	Ar 6	130	130A	6	6	1.14E-02	7.49E+08	0.0036
Ar 5	190	190A	9	15	5.45E-02	6.70E+08	0.0254	Ar 6	148	148A	6	2	7.76E-03	1.18E+09	0.0028
Ar 5	231	231A	9	3	4.84E-02	2.00E+09	0.0276	Ar 6	126	126A	6	6	7.69E-03	5.37E+08	0.0024
Ar 5	210	210A	9	9	4.84E-02	8.13E+08	0.0249	Ar 6	123	123A	6	6	6.66E-03	4.83E+08	0.0020
Ar 5	193	193A	9	9	4.07E-02	8.09E+08	0.0192	Ar 6	124	124A	6	6	5.87E-03	4.21E+08	0.0018
Ar 5	180	180A	9	15	3.79E-02	5.19E+08	0.0167	Ar 6	145	145A	6	2	5.42E-03	8.51E+08	0.0019
Ar 5	249	249A	9	9	3.29E-02	3.92E+08	0.0202	Ar 6	200	200A	6	2	4.53E-03	3.77E+08	0.0087
Ar 5	184	184A	9	15	3.15E-02	4.10E+08	0.0142	Ar 6	185	185A	6	10	1.88E-03	3.63E+07	0.0034
Ar 5	182	182A	9	3	2.92E-02	1.94E+09	0.0130	Ar 6	152	152A	6	10	1.57E-03	4.51E+07	0.0006
Ar 5	176	176A	9	15	2.40E-02	3.43E+08	0.0103	Ar 6	163	163A	6	6	1.33E-03	5.52E+07	0.0021
Ar 5	183	183A	9	9	2.24E-02	4.95E+08	0.0100	Ar 6	210	210A	6	10	1.09E-03	1.64E+07	0.0022
Ar 5	174	174A	9	15	2.12E-02	3.09E+08	0.0090	Ar 6	144	144A	6	10	7.48E-04	2.38E+07	0.0003
Ar 5	178	178A	9	9	2.01E-02	4.66E+08	0.0088	Ar 6	222	222A	6	6	6.89E-04	1.54E+07	0.0015
Ar 5	179	179A	9	9	1.60E-02	3.67E+08	0.0070	Ar 6	164	164A	6	10	4.78E-04	1.18E+07	0.0002
Ar 5	167	167A	9	3	1.31E-02	1.04E+09	0.0053	Ar 6	127	127A	6	6	3.69E-04	2.53E+07	0.0001
Ar 5	208	208A	9	9	1.20E-02	2.04E+08	0.0061	Ar 6	165	165A	6	2	3.03E-04	3.67E+07	0.0005
Ar 5	195	195A	9	9	1.15E-02	2.23E+08	0.0055	Ar 6	138	138A	6	6	2.51E-04	1.46E+07	0.0001
Ar 5	205	205A	9	15	1.02E-02	1.07E+08	0.0202	Ar 6	137	137A	6	6	1.46E-04	8.63E+06	0.0000
Ar 5	176	176A	9	9	9.29E-03	2.22E+08	0.0040	Ar 6	176	176A	6	10	1.33E-04	2.86E+06	0.0001
Ar 5	176	176A	9	9	8.56E-03	2.03E+08	0.0037	Ar 6	150	150A	6	2	1.29E-04	1.91E+07	0.0000
Ar 5	184	184A	9	9	8.49E-03	1.84E+08	0.0038	Ar 6	128	128A	6	6	1.21E-04	8.16E+06	0.0000
Ar 5	157	157A	9	3	7.06E-03	6.35E+08	0.0027	Ar 7	587	587A	1	3	1.24E+00	8.00E+09	7.083
Ar 5	188	188A	9	9	6.80E-03	1.41E+08	0.0031	Ar 7	177	177A	1	3	1.79E-01	1.27E+10	0.0774
Ar 5	185	185A	9	15	6.75E-03	8.69E+07	0.0031	Ar 7	135	135A	1	3	6.52E-02	7.86E+09	0.0215
Ar 5	174	174A	9	9	5.72E-03	1.39E+08	0.0024	Ar 7	121	121A	1	3	3.16E-02	4.74E+09	0.0093
Ar 5	159	159A	9	3	5.71E-03	5.00E+08	0.0022	Ar 7	114	114A	1	3	1.70E-02	2.87E+09	0.0047
Ar 5	189	189A	9	3	5.21E-03	3.24E+08	0.0024	Ar 7	110	110A	1	3	1.21E-02	2.19E+09	0.0033
Ar 5	154	154A	9	3	5.11E-03	4.73E+08	0.0019	Ar 7	194	194A	1	3	6.25E-03	3.67E+08	0.0117
Ar 5	227	227A	9	15	4.95E-03	4.24E+07	0.0109	Ar 7	106	106A	1	3	5.38E-03	1.05E+09	0.0014
Ar 5	175	175A	9	9	4.61E-03	1.11E+08	0.0020	Ar 7	108	108A	1	3	4.34E-03	8.23E+08	0.0011
Ar 5	152	152A	9	3	3.64E-03	3.50E+08	0.0013	Ar 7	108	108A	1	3	2.98E-03	5.60E+08	0.0008
Ar 5	174	174A	9	15	3.24E-03	4.72E+07	0.0014	Ar 7	116	116A	1	3	7.26E-04	1.18E+08	0.0002
Ar 5	185	185A	9	3	2.67E-03	1.72E+08	0.0048	Ar 7	151	151A	1	3	5.20E-04	5.05E+07	0.0002
Ar 5	205	205A	9	9	2.45E-03	4.28E+07	0.0049	Ar 7	128	128A	1	3	4.22E-04	5.71E+07	0.0001
Ar 5	174	174A	9	9	2.31E-03	5.63E+07	0.0039	Ar 7	111	111A	1	3	3.32E-06	5.98E+05	0.0000
Ar 5	150	150A	9	3	2.29E-03	2.26E+08	0.0008	Ar 8	714	714A	2	6	1.13E+00	2.46E+09	7.888
Ar 5	195	195A	9	15	1.85E-03	2.16E+07	0.0035	Ar 8	160	160A	2	6	2.47E-01	1.07E+10	0.0965
Ar 5	177	177A	9	15	1.46E-03	2.06E+07	0.0006	Ar 8	120	120A	2	6	8.69E-02	6.60E+09	0.0255
Ar 5	193	193A	9	15	5.62E-04	6.70E+06	0.0010	Ar 8	107	107A	2	6	4.16E-02	4.01E+09	0.0108

Ar 8	100	100A	2	6	2.35E-02	2.57E+09	0.0057	Ar10	27	27.9A	6	10	6.16E-03	5.27E+09	0.0004
Ar 8	96	97.0A	2	6	1.46E-02	1.73E+09	0.0034	Ar10	27	27.2A	6	6	5.44E-03	8.17E+09	0.0004
Ar 8	94	94.6A	2	6	9.80E-03	1.22E+09	0.0022	Ar10	27	27.3A	6	2	3.94E-03	1.76E+10	0.0003
Ar 8	92	93.0A	2	6	6.90E-03	8.87E+08	0.0016	Ar10	26	26.9A	6	6	3.81E-03	5.85E+09	0.0002
Ar 9	41	41.3A	1	3	2.02E+00	2.63E+12	0.3328	Ar10	26	26.7A	6	6	3.65E-03	5.69E+09	0.0002
Ar 9	34	35.0A	1	3	5.25E-01	9.53E+11	0.1025	Ar10	28	28.2A	6	10	2.21E-03	1.86E+09	0.0001
Ar 9	35	35.8A	1	3	3.33E-01	5.77E+11	0.0286	Ar10	28	28.5A	6	2	1.17E-03	4.79E+09	0.0001
Ar 9	32	32.7A	1	3	2.78E-01	5.78E+11	0.0218	Ar10	26	26.6A	6	6	1.02E-03	1.60E+09	0.0001
Ar 9	48	48.6A	1	3	2.39E-01	2.25E+11	0.0148	Ar10	26	27.0A	6	10	6.84E-04	6.26E+08	0.0000
Ar 9	31	31.6A	1	3	1.53E-01	3.42E+11	0.0116	Ar10	26	26.2A	6	2	1.70E-04	8.27E+08	0.0000
Ar 9	30	30.9A	1	3	9.40E-02	2.19E+11	0.0070	Ar10	28	28.6A	6	2	4.46E-05	1.82E+08	0.0000
Ar 9	30	30.5A	1	3	6.23E-02	1.49E+11	0.0046	Ar10	26	26.6A	6	2	1.31E-05	6.17E+07	0.0000
Ar 9	36	36.8A	1	3	5.14E-02	8.45E+10	0.0048	Ar11	34	34.5A	9	15	4.49E+00	1.68E+12	0.3712
Ar 9	30	30.2A	1	3	4.39E-02	1.07E+11	0.0032	Ar11	33	33.8A	9	15	4.40E+00	1.71E+12	0.3567
Ar 9	30	30.0A	1	3	3.28E-02	8.08E+10	0.0024	Ar11	34	34.3A	9	9	4.29E+00	2.70E+12	0.3533
Ar 9	33	33.4A	1	3	1.50E-02	2.99E+10	0.0012	Ar11	35	35.5A	9	15	2.29E+00	8.08E+11	0.1951
Ar 9	31	31.9A	1	3	7.82E-03	1.71E+10	0.0006	Ar11	34	34.2A	9	3	1.45E+00	2.76E+12	0.1190
Ar 9	31	31.1A	1	3	4.65E-03	1.07E+10	0.0003	Ar11	28	28.6A	9	15	1.16E+00	6.29E+11	0.0796
Ar 9	30	30.7A	1	3	3.06E-03	7.24E+09	0.0002	Ar11	32	32.2A	9	15	1.13E+00	4.85E+11	0.0872
Ar 9	30	30.3A	1	3	2.17E-03	5.24E+09	0.0002	Ar11	194	194A	9	9	1.01E+00	1.97E+10	1.890
Ar 9	30	30.1A	1	3	1.67E-03	4.10E+09	0.0001	Ar11	27	27.9A	9	9	8.69E-01	8.28E+11	0.0581
Ar10	37	37.5A	6	10	4.34E+00	2.06E+12	0.3909	Ar11	27	27.5A	9	15	8.62E-01	5.07E+11	0.0568
Ar10	37	37.5A	6	6	3.40E+00	2.68E+12	0.3063	Ar11	27	27.9A	9	15	8.14E-01	4.64E+11	0.0545
Ar10	38	38.4A	6	10	2.43E+00	1.10E+12	0.2242	Ar11	31	32.0A	9	9	7.19E-01	5.21E+11	0.0551
Ar10	31	31.6A	6	10	1.23E+00	8.21E+11	0.0933	Ar11	26	26.3A	9	15	6.72E-01	4.31E+11	0.0424
Ar10	37	37.7A	6	2	9.81E-01	2.30E+12	0.0888	Ar11	38	38.6A	9	15	6.00E-01	1.79E+11	0.0556
Ar10	36	36.7A	6	10	9.00E-01	4.46E+11	0.0792	Ar11	29	29.5A	9	15	5.76E-01	2.94E+11	0.0408
Ar10	33	33.9A	6	10	7.05E-01	4.08E+11	0.0574	Ar11	25	25.7A	9	9	5.67E-01	6.37E+11	0.0349
Ar10	31	31.1A	6	6	6.63E-01	7.64E+11	0.0494	Ar11	33	33.9A	9	9	4.40E-01	2.83E+11	0.0358
Ar10	43	43.9A	6	6	6.53E-01	3.76E+11	0.0689	Ar11	25	25.8A	9	15	4.12E-01	2.76E+11	0.0254
Ar10	29	29.3A	6	10	6.36E-01	4.95E+11	0.0446	Ar11	39	39.7A	9	3	3.94E-01	5.56E+11	0.0376
Ar10	31	31.1A	6	10	6.27E-01	4.34E+11	0.0467	Ar11	27	27.9A	9	3	3.73E-01	1.07E+12	0.0249
Ar10	33	33.9A	6	6	5.15E-01	4.98E+11	0.0419	Ar11	37	37.8A	9	9	3.40E-01	1.76E+11	0.0308
Ar10	28	28.1A	6	10	4.89E-01	4.12E+11	0.0330	Ar11	32	32.1A	9	3	3.17E-01	6.85E+11	0.0244
Ar10	42	43.0A	6	10	4.06E-01	1.47E+11	0.0419	Ar11	25	25.2A	9	15	3.11E-01	2.18E+11	0.0188
Ar10	171	171A	6	2	3.88E-01	4.40E+10	0.6394	Ar11	25	25.7A	9	15	2.86E-01	1.93E+11	0.0176
Ar10	38	38.5A	6	6	3.18E-01	2.39E+11	0.0294	Ar11	25	25.3A	9	15	2.67E-01	1.85E+11	0.0162
Ar10	31	31.6A	6	6	3.14E-01	3.48E+11	0.0238	Ar11	24	24.6A	9	15	2.66E-01	1.96E+11	0.0157
Ar10	27	27.6A	6	10	2.86E-01	2.50E+11	0.0189	Ar11	27	27.5A	9	9	2.50E-01	2.44E+11	0.0165
Ar10	28	28.8A	6	6	2.55E-01	3.43E+11	0.0176	Ar11	24	24.6A	9	9	1.96E-01	2.40E+11	0.0116
Ar10	31	31.1A	6	2	2.36E-01	8.15E+11	0.0176	Ar11	25	25.7A	9	3	1.73E-01	5.84E+11	0.0106
Ar10	30	30.4A	6	10	2.19E-01	1.58E+11	0.0159	Ar11	24	24.3A	9	15	1.69E-01	1.27E+11	0.0098
Ar10	32	32.4A	6	10	2.12E-01	1.35E+11	0.0164	Ar11	23	24.0A	9	15	1.67E-01	1.29E+11	0.0096
Ar10	29	29.3A	6	6	2.06E-01	2.67E+11	0.0145	Ar11	24	24.0A	9	9	1.52E-01	1.95E+11	0.0088
Ar10	28	28.8A	6	10	2.05E-01	1.65E+11	0.0141	Ar11	24	24.2A	9	15	1.46E-01	1.11E+11	0.0085
Ar10	33	33.5A	6	2	1.98E-01	5.90E+11	0.0159	Ar11	30	30.5A	9	9	1.43E-01	1.14E+11	0.0105
Ar10	27	27.5A	6	10	1.85E-01	1.63E+11	0.0122	Ar11	29	29.6A	9	9	1.30E-01	1.10E+11	0.0092
Ar10	31	31.8A	6	6	1.73E-01	1.90E+11	0.0132	Ar11	25	25.4A	9	9	1.07E-01	1.23E+11	0.0065
Ar10	31	31.9A	6	10	1.54E-01	1.01E+11	0.0118	Ar11	29	29.3A	9	3	9.47E-02	2.45E+11	0.0067
Ar10	28	28.1A	6	6	1.33E-01	1.87E+11	0.0090	Ar11	25	25.2A	9	15	9.34E-02	6.52E+10	0.0056
Ar10	27	27.1A	6	10	1.22E-01	1.11E+11	0.0079	Ar11	24	24.0A	9	15	9.33E-02	7.18E+10	0.0054
Ar10	27	27.6A	6	6	1.21E-01	1.76E+11	0.0080	Ar11	25	25.7A	9	3	8.70E-02	2.92E+11	0.0054
Ar10	27	27.7A	6	6	1.19E-01	1.73E+11	0.0079	Ar11	23	23.7A	9	9	8.55E-02	1.13E+11	0.0048
Ar10	28	28.8A	6	2	1.13E-01	4.55E+11	0.0078	Ar11	24	24.6A	9	3	8.18E-02	3.00E+11	0.0048
Ar10	26	26.8A	6	10	9.67E-02	8.96E+10	0.0062	Ar11	23	23.7A	9	9	7.87E-02	1.04E+11	0.0045
Ar10	27	27.0A	6	6	8.72E-02	1.33E+11	0.0056	Ar11	28	28.9A	9	15	7.60E-02	4.06E+10	0.0053
Ar10	27	27.6A	6	10	7.92E-02	6.91E+10	0.0052	Ar11	29	29.8A	9	9	6.97E-02	5.82E+10	0.0050
Ar10	41	41.6A	6	2	7.61E-02	1.47E+11	0.0076	Ar11	24	24.3A	9	9	6.01E-02	7.54E+10	0.0035
Ar10	27	27.5A	6	6	7.26E-02	1.07E+11	0.0048	Ar11	24	24.6A	9	15	5.87E-02	4.30E+10	0.0035
Ar10	32	32.9A	6	6	6.97E-02	7.14E+10	0.0055	Ar11	24	24.0A	9	3	5.79E-02	2.23E+11	0.0033
Ar10	27	27.0A	6	10	6.61E-02	6.03E+10	0.0043	Ar11	23	24.0A	9	9	5.70E-02	7.35E+10	0.0033
Ar10	27	27.7A	6	2	6.34E-02	2.76E+11	0.0042	Ar11	23	23.9A	9	15	5.69E-02	4.41E+10	0.0033
Ar10	27	27.7A	6	6	5.58E-02	8.11E+10	0.0037	Ar11	23	23.8A	9	15	5.65E-02	4.45E+10	0.0032
Ar10	29	29.3A	6	10	5.53E-02	4.31E+10	0.0039	Ar11	28	28.4A	9	9	5.61E-02	5.15E+10	0.0038
Ar10	27	27.4A	6	2	4.74E-02	2.10E+11	0.0031	Ar11	25	25.2A	9	15	4.79E-02	3.37E+10	0.0029
Ar10	27	27.1A	6	10	4.69E-02	4.26E+10	0.0030	Ar11	25	25.7A	9	9	4.51E-02	5.08E+10	0.0028
Ar10	29	29.8A	6	6	4.48E-02	5.61E+10	0.0032	Ar11	23	23.4A	9	9	4.18E-02	5.65E+10	0.0023
Ar10	26	26.8A	6	6	3.30E-02	5.09E+10	0.0021	Ar11	25	25.7A	9	9	4.10E-02	4.59E+10	0.0025
Ar10	27	27.0A	6	2	3.22E-02	1.47E+11	0.0021	Ar11	29	29.6A	9	3	3.90E-02	9.87E+10	0.0028
Ar10	27	27.1A	6	6	3.01E-02	4.56E+10	0.0020	Ar11	23	23.7A	9	9	3.31E-02	4.36E+10	0.0019
Ar10	28	28.4A	6	6	2.38E-02	3.28E+10	0.0016	Ar11	23	23.2A	9	9	3.24E-02	4.45E+10	0.0018
Ar10	26	26.6A	6	2	2.30E-02	1.08E+11	0.0015	Ar11	26	26.7A	9	3	2.99E-02	9.30E+10	0.0019
Ar10	26	26.6A	6	10	2.04E-02	1.92E+10	0.0013	Ar11	23	23.4A	9	9	2.04E-02	2.77E+10	0.0011
Ar10	26	26.4A	6	2	1.62E-02	7.76E+10	0.0010	Ar11	26	26.1A	9	15	2.01E-02	1.31E+10	0.0013
Ar10	31	31.8A	6	2	1.49E-02	4.91E+10	0.0011	Ar11	23	23.9A	9	3	1.60E-02	6.22E+10	0.0009
Ar10	26	26.2A	6	2	1.45E-02	7.02E+10	0.0009	Ar11	25	25.4A	9	9	1.58E-02	1.82E+10	0.0010
Ar10	27	27.2A	6	10	1.24E-02	1.12E+10	0.0008	Ar11	24	24.8A	9	15	1.43E-02	1.03E+10	0.0009
Ar10	31	31.5A	6	2	9.61E-03	3.24E+10	0.0007	Ar11	24	24.1A	9	15	1.32E-02	1.01E+10	0.0008
Ar10	26	26.2A	6	2	6.54E-03	3.18E+10	0.0004	Ar11	24	24.7A	9	3	9.02E-03	3.28E+10	0.0005
Ar10	26	26.7A	6	10	6.51E-03	6.08E+09	0.0004	Ar11	24	24.7A	9	15	7.35E-03	5.34E+09	0.0004

Ar11	24	24.5A	9	9	6.37E-03	7.87E+09	0.0004	Ar13	19	19.5A	9	9	6.21E-02	1.21E+11	0.0029
Ar11	23	23.4A	9	9	5.89E-03	7.96E+09	0.0003	Ar13	27	27.2A	9	9	6.17E-02	6.19E+10	0.0040
Ar11	23	23.8A	9	3	4.75E-03	1.86E+10	0.0003	Ar13	21	21.2A	9	9	5.89E-02	9.70E+10	0.0030
Ar11	24	24.3A	9	3	4.19E-03	1.58E+10	0.0002	Ar13	18	18.8A	9	15	5.66E-02	7.16E+10	0.0025
Ar11	25	25.4A	9	3	3.60E-03	1.24E+10	0.0002	Ar13	19	19.2A	9	9	5.60E-02	1.12E+11	0.0026
Ar11	30	30.6A	9	15	3.34E-03	1.58E+09	0.0002	Ar13	23	23.9A	9	15	5.33E-02	4.15E+10	0.0031
Ar11	24	24.1A	9	9	2.55E-03	3.24E+09	0.0001	Ar13	23	23.4A	9	15	4.98E-02	4.05E+10	0.0028
Ar11	24	24.3A	9	15	1.14E-03	8.62E+08	0.0001	Ar13	19	19.0A	9	9	4.75E-02	9.74E+10	0.0022
Ar11	24	24.0A	9	3	6.54E-04	2.52E+09	0.0000	Ar13	20	20.8A	9	3	4.55E-02	2.34E+11	0.0023
Ar11	24	24.3A	9	9	4.02E-04	5.06E+08	0.0000	Ar13	19	19.1A	9	9	4.08E-02	8.26E+10	0.0019
Ar11	27	27.1A	9	9	3.68E-04	3.72E+08	0.0000	Ar13	25	25.7A	9	3	3.86E-02	1.30E+11	0.0024
Ar11	24	24.7A	9	9	3.10E-04	3.76E+08	0.0000	Ar13	20	20.2A	9	3	3.67E-02	2.00E+11	0.0018
Ar11	23	23.8A	9	9	9.76E-05	1.27E+08	0.0000	Ar13	24	24.4A	9	15	3.30E-02	2.45E+10	0.0019
Ar12	31	31.4A	4	12	6.95E+00	3.92E+12	0.5230	Ar13	20	20.1A	9	9	2.99E-02	5.47E+10	0.0014
Ar12	25	25.1A	4	12	1.53E+00	1.35E+12	0.0919	Ar13	19	19.2A	9	15	2.71E-02	3.26E+10	0.0012
Ar12	30	30.8A	4	12	9.73E-01	5.69E+11	0.0720	Ar13	18	18.9A	9	9	2.61E-02	5.41E+10	0.0012
Ar12	22	23.0A	4	12	5.68E-01	5.99E+11	0.0312	Ar13	19	19.3A	9	3	2.21E-02	1.32E+11	0.0010
Ar12	228	228A	4	12	5.58E-01	5.97E+09	1.224	Ar13	23	23.8A	9	9	2.13E-02	2.78E+10	0.0012
Ar12	34	34.7A	4	12	4.40E-01	2.03E+11	0.0366	Ar13	19	19.2A	9	9	2.01E-02	4.02E+10	0.0009
Ar12	27	27.6A	4	12	4.02E-01	2.94E+11	0.0266	Ar13	18	19.0A	9	3	1.95E-02	1.20E+11	0.0009
Ar12	24	24.2A	4	12	3.59E-01	3.40E+11	0.0209	Ar13	18	18.8A	9	9	1.88E-02	3.96E+10	0.0008
Ar12	21	22.0A	4	12	3.10E-01	3.57E+11	0.0163	Ar13	20	20.9A	9	9	1.76E-02	2.98E+10	0.0009
Ar12	21	21.4A	4	12	1.80E-01	2.19E+11	0.0092	Ar13	23	23.5A	9	9	1.73E-02	2.33E+10	0.0010
Ar12	22	22.1A	4	12	1.56E-01	1.77E+11	0.0083	Ar13	25	25.4A	9	15	1.60E-02	1.10E+10	0.0010
Ar12	21	21.9A	4	12	1.20E-01	1.38E+11	0.0063	Ar13	18	18.8A	9	3	1.46E-02	9.23E+10	0.0007
Ar12	21	21.1A	4	12	1.17E-01	1.47E+11	0.0059	Ar13	19	19.6A	9	9	1.38E-02	2.67E+10	0.0006
Ar12	21	21.2A	4	12	8.17E-02	1.01E+11	0.0041	Ar13	18	18.2A	9	3	1.29E-02	8.69E+10	0.0006
Ar12	20	20.8A	4	12	8.06E-02	1.03E+11	0.0040	Ar13	19	19.9A	9	15	1.09E-02	1.22E+10	0.0005
Ar12	28	28.5A	4	12	7.31E-02	5.01E+10	0.0050	Ar13	19	19.2A	9	9	1.08E-02	2.18E+10	0.0005
Ar12	22	22.1A	4	12	6.04E-02	6.87E+10	0.0032	Ar13	19	19.6A	9	15	1.08E-02	1.25E+10	0.0005
Ar12	20	20.6A	4	12	5.72E-02	7.46E+10	0.0028	Ar13	23	23.7A	9	3	1.03E-02	4.07E+10	0.0006
Ar12	25	25.8A	4	12	5.54E-02	4.63E+10	0.0034	Ar13	20	20.4A	9	3	9.23E-03	4.96E+10	0.0004
Ar12	22	22.9A	4	12	4.87E-02	5.14E+10	0.0027	Ar13	18	18.4A	9	3	8.46E-03	5.54E+10	0.0004
Ar12	24	24.3A	4	12	4.42E-02	4.16E+10	0.0026	Ar13	24	24.8A	9	9	6.22E-03	7.50E+09	0.0004
Ar12	23	23.3A	4	12	2.88E-02	2.96E+10	0.0016	Ar13	21	21.1A	9	15	5.92E-03	5.92E+09	0.0003
Ar12	28	28.9A	4	12	2.77E-02	1.85E+10	0.0019	Ar13	18	18.1A	9	3	5.71E-03	3.89E+10	0.0002
Ar12	22	22.9A	4	12	1.31E-02	1.39E+10	0.0007	Ar13	19	19.5A	9	3	4.92E-03	2.86E+10	0.0002
Ar12	21	21.5A	4	12	5.29E-03	6.37E+09	0.0003	Ar13	19	19.5A	9	9	4.85E-03	9.45E+09	0.0002
Ar12	26	26.0A	4	12	4.83E-03	3.97E+09	0.0003	Ar13	18	18.2A	9	3	4.47E-03	3.00E+10	0.0002
Ar12	21	21.1A	4	12	3.94E-03	4.91E+09	0.0002	Ar13	21	21.4A	9	15	3.40E-03	3.29E+09	0.0002
Ar12	22	22.6A	4	12	3.19E-03	3.47E+09	0.0002	Ar13	21	21.1A	9	9	3.22E-03	5.38E+09	0.0002
Ar12	20	20.9A	4	12	3.07E-03	3.93E+09	0.0002	Ar13	19	19.5A	9	9	2.79E-03	5.42E+09	0.0001
Ar12	20	20.7A	4	12	3.03E-03	3.93E+09	0.0002	Ar13	19	19.5A	9	15	1.95E-03	2.28E+09	0.0001
Ar12	20	21.0A	4	12	2.70E-03	3.41E+09	0.0001	Ar13	18	18.8A	9	9	1.80E-03	3.79E+09	0.0001
Ar12	20	20.7A	4	12	1.72E-03	2.24E+09	0.0001	Ar13	19	19.6A	9	9	1.64E-03	3.17E+09	0.0001
Ar12	21	21.0A	4	12	9.11E-04	1.14E+09	0.0000	Ar13	18	18.9A	9	9	1.09E-03	2.25E+09	0.0000
Ar12	20	20.9A	4	12	4.70E-04	5.99E+08	0.0000	Ar13	19	19.1A	9	9	9.92E-04	2.02E+09	0.0000
Ar13	29	29.4A	9	15	8.15E+00	4.18E+12	0.5753	Ar13	21	21.4A	9	9	7.20E-04	1.17E+09	0.0000
Ar13	29	29.4A	9	9	2.68E+00	2.30E+12	0.1888	Ar13	21	21.9A	9	15	7.19E-04	6.67E+08	0.0000
Ar13	28	28.6A	9	15	1.73E+00	9.42E+11	0.1185	Ar13	19	19.4A	9	15	4.35E-04	5.14E+08	0.0000
Ar13	23	23.1A	9	15	1.67E+00	1.40E+12	0.0923	Ar13	19	20.0A	9	15	3.52E-04	3.92E+08	0.0000
Ar13	28	28.4A	9	9	1.03E+00	9.46E+11	0.0701	Ar13	19	19.2A	9	15	3.42E-04	4.13E+08	0.0000
Ar13	20	21.0A	9	15	7.36E-01	7.43E+11	0.0370	Ar13	20	20.5A	9	15	2.28E-04	2.41E+08	0.0000
Ar13	167	167A	9	3	6.30E-01	5.00E+10	1.013	Ar13	18	18.1A	9	3	1.65E-04	1.12E+09	0.0000
Ar13	23	23.1A	9	9	5.54E-01	7.72E+11	0.0306	Ar13	19	19.4A	9	9	1.54E-04	3.04E+08	0.0000
Ar13	31	31.9A	9	9	5.46E-01	3.97E+11	0.0418	Ar13	18	18.5A	9	3	7.14E-05	4.61E+08	0.0000
Ar13	217	217A	9	9	5.36E-01	8.43E+09	1.119	Ar13	20	20.1A	9	15	6.25E-05	6.90E+07	0.0000
Ar13	22	22.2A	9	15	5.22E-01	4.71E+11	0.0278	Ar13	18	18.9A	9	15	2.38E-05	2.97E+07	0.0000
Ar13	256	256A	9	15	4.80E-01	3.24E+09	1.187	Ar14	27	27.7A	6	10	3.90E+00	3.40E+12	0.2586
Ar13	29	29.0A	9	3	3.87E-01	1.02E+12	0.0269	Ar14	26	26.5A	6	10	1.66E+00	1.58E+12	0.1053
Ar13	26	26.5A	9	15	3.71E-01	2.35E+11	0.0236	Ar14	26	26.9A	6	6	8.70E-01	1.34E+12	0.0560
Ar13	20	20.0A	9	15	3.28E-01	3.64E+11	0.0157	Ar14	193	193A	6	6	7.62E-01	2.26E+10	1.419
Ar13	22	22.2A	9	9	3.01E-01	4.54E+11	0.0160	Ar14	21	21.3A	6	10	7.52E-01	1.10E+12	0.0384
Ar13	20	20.2A	9	15	2.24E-01	2.44E+11	0.0108	Ar14	20	20.4A	6	10	4.14E-01	6.62E+11	0.0202
Ar13	20	21.0A	9	9	2.18E-01	3.67E+11	0.0110	Ar14	26	26.2A	6	2	3.41E-01	1.65E+12	0.0214
Ar13	26	26.4A	9	9	2.17E-01	2.31E+11	0.0137	Ar14	264	264A	6	10	2.96E-01	2.81E+09	0.7555
Ar13	27	27.3A	9	15	2.05E-01	1.22E+11	0.0134	Ar14	25	25.3A	6	6	2.80E-01	4.86E+11	0.0170
Ar13	19	19.5A	9	15	1.94E-01	2.28E+11	0.0090	Ar14	19	19.3A	6	10	2.77E-01	4.98E+11	0.0128
Ar13	26	26.6A	9	9	1.35E-01	1.42E+11	0.0086	Ar14	20	20.5A	6	6	2.36E-01	6.24E+11	0.0116
Ar13	26	26.4A	9	3	1.32E-01	4.22E+11	0.0083	Ar14	18	18.5A	6	10	1.60E-01	3.12E+11	0.0071
Ar13	19	19.1A	9	15	1.26E-01	1.53E+11	0.0058	Ar14	205	205A	6	2	1.55E-01	1.23E+10	0.3058
Ar13	19	19.3A	9	15	1.14E-01	1.37E+11	0.0053	Ar14	18	18.3A	6	10	1.46E-01	2.90E+11	0.0064
Ar13	20	20.2A	9	9	1.09E-01	1.99E+11	0.0053	Ar14	29	29.4A	6	2	1.33E-01	5.12E+11	0.0094
Ar13	20	20.0A	9	9	1.09E-01	2.02E+11	0.0052	Ar14	25	25.3A	6	10	1.15E-01	1.20E+11	0.0070
Ar13	22	22.3A	9	3	1.06E-01	4.74E+11	0.0057	Ar14	18	18.5A	6	6	9.93E-02	3.22E+11	0.0044
Ar13	20	20.8A	9	15	1.04E-01	1.07E+11	0.0052	Ar14	19	19.6A	6	10	9.49E-02	1.64E+11	0.0045
Ar13	20	20.8A	9	9	8.94E-02	1.53E+11	0.0045	Ar14	17	17.6A	6	10	8.79E-02	1.89E+11	0.0037
Ar13	23	23.6A	9	9	8.83E-02	1.17E+11	0.0050	Ar14	19	19.6A	6	6	8.23E-02	2.37E+11	0.0039
Ar13	18	18.9A	9	15	7.92E-02	9.85E+10	0.0036	Ar14	20	20.4A	6	2	7.92E-02	6.37E+11	0.0039
Ar13	19	19.0A	9	15	6.55E-02	8.05E+10	0.0030	Ar14	24	24.6A	6	6	7.43E-02	1.37E+11	0.0044

Ar14	17	17.8A	6	10	7.13E-02	1.50E+11	0.0030	Ar16	14	14.4A	2	6	1.52E-02	8.12E+10	0.0014
Ar14	17	17.8A	6	10	5.76E-02	1.21E+11	0.0025	Ar16	14	14.2A	2	6	1.04E-02	5.70E+10	0.0009
Ar14	17	17.6A	6	6	5.70E-02	2.04E+11	0.0024	Ar16	14	14.1A	2	6	7.44E-03	4.15E+10	0.0007
Ar14	17	17.1A	6	10	5.55E-02	1.26E+11	0.0023	Ar17	39	3.99A	1	3	3.49E-07	4.87E+07	0.0000
Ar14	17	17.5A	6	10	5.21E-02	1.14E+11	0.0022	Ar17	39	3.97A	1	3	1.28E-02	1.81E+12	0.0002
Ar14	23	23.3A	6	10	4.65E-02	5.72E+10	0.0026	Ar17	39	3.95A	1	3	7.72E-01	1.10E+14	0.0092
Ar14	23	23.4A	6	10	4.26E-02	5.18E+10	0.0024	Ar17	33	3.38A	1	3	1.54E-01	3.00E+13	0.0021
Ar14	25	25.1A	6	2	3.78E-02	1.99E+11	0.0023	Ar17	32	3.21A	1	3	5.71E-02	1.23E+13	0.0010
Ar14	17	17.3A	6	10	3.73E-02	8.35E+10	0.0015	Ar17	31	3.14A	1	3	2.75E-02	6.20E+12	0.0005
Ar14	19	19.6A	6	2	3.15E-02	2.73E+11	0.0015	Ar17	30	3.10A	1	3	1.55E-02	3.59E+12	0.0003
Ar14	17	17.8A	6	6	2.98E-02	1.04E+11	0.0013	Ar17	30	3.08A	1	3	9.56E-03	2.24E+12	0.0002
Ar14	18	18.8A	6	10	2.96E-02	5.56E+10	0.0013	Ar17	30	3.07A	1	3	6.33E-03	1.49E+12	0.0001
Ar14	17	17.1A	6	6	2.94E-02	1.11E+11	0.0012	Ar17	30	3.06A	1	3	4.41E-03	1.05E+12	0.0001
Ar14	18	18.5A	6	2	2.90E-02	2.83E+11	0.0013	Ar17	30	3.05A	1	3	3.20E-03	7.65E+11	0.0001
Ar14	23	23.2A	6	6	2.71E-02	5.62E+10	0.0015	Ar18	37	3.75A	2	2	3.64E-09	8.64E+05	0.0000
Ar14	21	21.7A	6	2	2.39E-02	1.69E+11	0.0012	Ar18	37	3.75A	2	6	8.32E-01	6.58E+13	0.0096
Ar14	17	17.1A	6	10	2.38E-02	5.42E+10	0.0010	Ar18	31	3.17A	2	6	1.58E-01	1.75E+13	0.0028
Ar14	24	24.4A	6	10	2.16E-02	2.41E+10	0.0013	Ar18	30	3.00A	2	6	5.80E-02	7.16E+12	0.0011
Ar14	16	16.8A	6	6	2.13E-02	8.36E+10	0.0009	Ar18	29	2.93A	2	6	2.79E-02	3.61E+12	0.0005
Ar14	17	17.0A	6	6	1.57E-02	6.04E+10	0.0006	Ar18	28	2.89A	2	6	1.56E-02	2.08E+12	0.0003
Ar14	17	17.6A	6	2	1.56E-02	1.68E+11	0.0007	Ar18	28	2.87A	2	6	9.63E-03	1.30E+12	0.0002
Ar14	23	23.8A	6	6	1.40E-02	2.75E+10	0.0008	Ar18	28	2.86A	2	6	6.37E-03	8.66E+11	0.0001
Ar14	17	17.1A	6	2	1.27E-02	1.45E+11	0.0005	Ar18	28	2.85A	2	6	4.43E-03	6.06E+11	0.0001
Ar14	16	16.6A	6	6	1.26E-02	5.06E+10	0.0005	Ar18	28	2.84A	2	6	3.21E-03	4.42E+11	0.0001
Ar14	22	22.5A	6	10	1.26E-02	1.65E+10	0.0007	Ca 1	2223	2223A	1	3	1.96E-02	8.81E+06	0.0127
Ar14	16	16.5A	6	6	1.05E-02	4.27E+10	0.0004	Ca 1	2816	2816A	1	3	1.94E-02	5.44E+06	0.0205
Ar14	16	16.5A	6	6	1.05E-02	4.30E+10	0.0004	Ca 1	2264	2264A	1	3	1.83E-02	7.93E+06	0.0123
Ar14	17	17.9A	6	2	9.98E-03	1.04E+11	0.0004	Ca 1	2196	2196A	1	3	1.49E-02	6.86E+06	0.0094
Ar14	17	17.3A	6	10	9.52E-03	2.13E+10	0.0004	Ca 1	2333	2333A	1	3	1.05E-02	4.29E+06	0.0075
Ar14	18	18.7A	6	6	9.41E-03	3.01E+10	0.0004	Ca 1	2177	2177A	1	3	9.61E-03	4.51E+06	0.0059
Ar14	18	18.4A	6	2	8.72E-03	8.59E+10	0.0004	Ca 1	2163	2163A	1	3	6.01E-03	2.85E+06	0.0037
Ar14	18	18.9A	6	6	7.93E-03	2.46E+10	0.0004	Ca 1	2470	2470A	1	3	1.50E-03	5.46E+05	0.0012
Ar14	18	18.7A	6	10	7.28E-03	1.39E+10	0.0003	Ca 2	1360	1360A	2	6	4.34E-03	2.61E+06	0.0164
Ar14	17	17.1A	6	6	7.02E-03	2.67E+10	0.0003	Ca 2	1243	1243A	2	6	3.25E-03	2.34E+06	0.0111
Ar14	23	23.1A	6	2	6.18E-03	3.87E+10	0.0003	Ca 2	1185	1185A	2	6	2.22E-03	1.76E+06	0.0072
Ar14	18	18.2A	6	10	5.15E-03	1.04E+10	0.0002	Ca 2	1668	1668A	2	6	1.72E-03	6.86E+05	0.0082
Ar14	23	23.6A	6	2	4.06E-03	2.44E+10	0.0002	Ca 2	1151	1151A	2	6	1.54E-03	1.29E+06	0.0048
Ar14	17	17.8A	6	2	3.93E-03	4.13E+10	0.0002	Ca 2	1129	1129A	2	6	1.10E-03	9.59E+05	0.0034
Ar14	17	17.3A	6	6	2.95E-03	1.09E+10	0.0001	Ca 2	1114	1114A	2	6	8.08E-04	7.23E+05	0.0024
Ar14	18	18.7A	6	2	2.81E-03	2.69E+10	0.0001	Ca 3	351	351A	1	3	3.91E+00	7.05E+10	13.268
Ar14	19	19.4A	6	2	2.79E-03	2.47E+10	0.0001	Ca 3	298	298A	1	3	1.16E+00	2.90E+10	0.8583
Ar14	17	17.1A	6	10	2.17E-03	4.94E+09	0.0001	Ca 3	407	407A	1	3	6.94E-01	9.30E+09	0.7102
Ar14	17	17.5A	6	2	1.97E-03	2.14E+10	0.0001	Ca 3	277	277A	1	3	4.13E-01	1.19E+10	0.2837
Ar14	19	19.4A	6	10	1.46E-03	2.59E+09	0.0001	Ca 3	267	267A	1	3	1.85E-01	5.75E+09	0.1223
Ar14	17	17.3A	6	2	1.33E-03	1.49E+10	0.0001	Ca 3	308	308A	1	3	1.34E-01	3.13E+09	0.1026
Ar14	16	16.5A	6	6	1.32E-03	5.36E+09	0.0001	Ca 3	261	261A	1	3	9.78E-02	3.17E+09	0.0632
Ar14	16	16.6A	6	6	1.01E-03	4.07E+09	0.0000	Ca 3	258	258A	1	3	5.80E-02	1.93E+09	0.0369
Ar14	20	20.2A	6	10	9.51E-04	1.55E+09	0.0000	Ca 3	281	281A	1	3	4.94E-02	1.39E+09	0.0343
Ar14	18	19.0A	6	10	7.91E-04	1.47E+09	0.0000	Ca 3	255	255A	1	3	3.73E-02	1.27E+09	0.0235
Ar14	17	17.1A	6	2	4.46E-04	5.07E+09	0.0000	Ca 3	254	254A	1	3	2.54E-02	8.74E+08	0.0159
Ar14	17	17.6A	6	10	2.52E-04	5.44E+08	0.0000	Ca 3	268	268A	1	3	2.41E-02	7.41E+08	0.0160
Ar14	18	18.4A	6	10	1.09E-04	2.14E+08	0.0000	Ca 3	262	262A	1	3	1.37E-02	4.42E+08	0.0089
Ar14	17	17.4A	6	6	1.01E-04	3.70E+08	0.0000	Ca 3	258	258A	1	3	8.61E-03	2.86E+08	0.0055
Ar14	18	18.4A	6	2	3.94E-05	3.87E+08	0.0000	Ca 3	256	256A	1	3	5.78E-03	1.96E+08	0.0037
Ar14	17	17.7A	6	10	3.43E-05	7.27E+07	0.0000	Ca 3	254	254A	1	3	4.08E-03	1.40E+08	0.0026
Ar14	17	17.2A	6	10	6.31E-06	1.42E+07	0.0000	Ca 4	303	303A	6	10	9.95E+00	7.19E+10	7.501
Ar14	19	19.2A	6	6	5.47E-07	1.65E+06	0.0000	Ca 4	310	310A	6	10	5.22E+00	3.61E+10	15.632
Ar15	24	24.9A	1	3	6.32E-01	2.27E+12	0.0377	Ca 4	307	307A	6	6	4.74E+00	5.56E+10	14.078
Ar15	229	229A	1	3	1.97E-01	8.30E+09	0.4356	Ca 4	323	323A	6	6	3.96E+00	4.21E+10	12.361
Ar15	18	18.9A	1	3	1.65E-01	1.03E+12	0.0075	Ca 4	319	319A	6	2	2.89E+00	9.47E+10	8.899
Ar15	17	17.1A	1	3	6.75E-02	5.16E+11	0.0028	Ca 4	243	243A	6	10	4.13E-01	4.65E+09	0.2475
Ar15	22	22.6A	1	3	3.27E-02	1.42E+11	0.0018	Ca 4	237	237A	6	6	3.55E-01	6.99E+09	0.2075
Ar15	23	23.6A	1	3	3.04E-02	1.22E+11	0.0017	Ca 4	234	234A	6	10	2.78E-01	3.36E+09	0.1607
Ar15	16	16.2A	1	3	3.02E-02	2.56E+11	0.0012	Ca 4	651	651A	6	2	1.78E-01	1.40E+09	1.131
Ar15	15	15.7A	1	3	2.14E-02	1.92E+11	0.0008	Ca 4	342	342A	6	10	1.39E-01	7.89E+08	0.4602
Ar15	15	15.4A	1	3	1.29E-02	1.20E+11	0.0005	Ca 4	228	228A	6	10	9.22E-02	1.18E+09	0.0517
Ar15	17	17.9A	1	3	1.16E-02	8.06E+10	0.0005	Ca 4	244	244A	6	6	8.78E-02	1.64E+09	0.0528
Ar15	16	16.3A	1	3	9.63E-03	8.07E+10	0.0004	Ca 4	212	212A	6	6	7.45E-02	1.83E+09	0.0389
Ar15	15	15.2A	1	3	9.42E-03	9.02E+10	0.0003	Ca 4	410	410A	6	10	4.30E-02	1.70E+08	0.1707
Ar15	15	15.1A	1	3	6.85E-03	6.67E+10	0.0002	Ca 4	236	236A	6	2	4.29E-02	2.57E+09	0.0249
Ar15	15	15.5A	1	3	3.12E-03	2.88E+10	0.0001	Ca 4	205	205A	6	10	4.27E-02	6.74E+08	0.0215
Ar15	15	15.1A	1	3	1.14E-03	1.11E+10	0.0000	Ca 4	202	202A	6	6	3.65E-02	9.92E+08	0.0181
Ar15	16	16.4A	1	3	8.74E-04	7.23E+09	0.0000	Ca 4	215	215A	6	10	3.54E-02	5.09E+08	0.0187
Ar15	15	15.1A	1	3	2.79E-04	2.71E+09	0.0000	Ca 4	223	223A	6	10	3.22E-02	4.31E+08	0.0177
Ar15	18	18.1A	1	3	1.00E-04	6.76E+08	0.0000	Ca 4	195	195A	6	10	2.33E-02	4.07E+08	0.0111
Ar15	15	15.6A	1	3	2.43E-05	2.22E+08	0.0000	Ca 4	215	215A	6	2	2.05E-02	1.47E+09	0.0109
Ar16	17	17.9A	2	6	1.83E-01	6.39E+11	0.0210	Ca 4	194	194A	6	2	1.58E-02	1.39E+09	0.0075
Ar16	16	16.0A	2	6	7.64E-02	3.31E+11	0.0079	Ca 4	192	192A	6	6	1.43E-02	4.27E+08	0.0068
Ar16	15	15.2A	2	6	3.98E-02	1.92E+11	0.0039	Ca 4	234	234A	6	6	1.37E-02	2.77E+08	0.0079
Ar16	14	14.7A	2	6	2.36E-02	1.21E+11	0.0022	Ca 4	215	215A	6	6	1.34E-02	3.21E+08	0.0071

Ca 4	196	196A	6	6	1.33E-02	3.85E+08	0.0064	Ca 5	153	153A	9	3	1.36E-02	1.28E+09	0.0051
Ca 4	189	189A	6	10	1.27E-02	2.35E+08	0.0059	Ca 5	159	159A	9	3	1.32E-02	1.15E+09	0.0051
Ca 4	196	196A	6	6	1.09E-02	3.14E+08	0.0052	Ca 5	156	156A	9	3	1.32E-02	1.21E+09	0.0050
Ca 4	190	190A	6	6	1.06E-02	3.25E+08	0.0049	Ca 5	200	200A	9	9	1.29E-02	2.38E+08	0.0063
Ca 4	286	286A	6	2	9.92E-03	4.03E+08	0.0070	Ca 5	146	146A	9	9	1.15E-02	3.96E+08	0.0041
Ca 4	189	189A	6	6	7.03E-03	2.19E+08	0.0033	Ca 5	193	193A	9	15	1.09E-02	1.29E+08	0.0052
Ca 4	427	427A	6	6	5.56E-03	3.38E+07	0.0060	Ca 5	201	201A	9	15	9.63E-03	1.06E+08	0.0047
Ca 4	199	199A	6	10	5.53E-03	9.31E+07	0.0027	Ca 5	174	174A	9	9	9.29E-03	2.26E+08	0.0156
Ca 4	186	186A	6	2	5.34E-03	5.13E+08	0.0024	Ca 5	176	176A	9	3	8.69E-03	6.20E+08	0.0037
Ca 4	208	208A	6	10	3.83E-03	5.88E+07	0.0020	Ca 5	148	148A	9	9	7.59E-03	2.56E+08	0.0027
Ca 4	203	203A	6	6	1.89E-03	5.07E+07	0.0009	Ca 5	152	152A	9	3	6.48E-03	6.21E+08	0.0024
Ca 4	198	198A	6	6	1.59E-03	4.50E+07	0.0008	Ca 5	154	154A	9	3	6.10E-03	5.70E+08	0.0023
Ca 4	197	197A	6	10	1.51E-03	2.58E+07	0.0007	Ca 5	194	194A	9	9	5.17E-03	1.02E+08	0.0025
Ca 4	187	187A	6	2	1.11E-03	1.06E+08	0.0005	Ca 5	157	157A	9	9	4.77E-03	1.42E+08	0.0018
Ca 4	184	184A	6	2	1.03E-03	1.01E+08	0.0005	Ca 5	150	150A	9	9	4.73E-03	1.56E+08	0.0017
Ca 4	203	203A	6	10	9.87E-04	1.59E+07	0.0005	Ca 5	200	200A	9	3	4.12E-03	2.28E+08	0.0020
Ca 4	197	197A	6	2	7.97E-04	6.85E+07	0.0004	Ca 5	159	159A	9	9	3.31E-03	9.59E+07	0.0013
Ca 4	189	189A	6	10	7.63E-04	1.42E+07	0.0004	Ca 5	440	440A	9	15	1.77E-03	4.06E+06	0.0076
Ca 4	208	208A	6	2	6.71E-04	5.14E+07	0.0003	Ca 5	166	166A	9	9	1.06E-03	2.82E+07	0.0004
Ca 4	208	208A	6	6	5.86E-04	1.50E+07	0.0003	Ca 5	161	161A	9	15	3.86E-04	6.61E+06	0.0002
Ca 4	184	184A	6	2	5.24E-04	5.11E+07	0.0002	Ca 5	146	146A	9	9	3.55E-04	1.22E+07	0.0001
Ca 4	190	190A	6	10	5.03E-04	9.22E+06	0.0002	Ca 5	210	210A	9	15	2.82E-04	2.82E+06	0.0001
Ca 4	190	190A	6	6	4.16E-04	1.27E+07	0.0002	Ca 5	157	157A	9	15	1.43E-04	2.56E+06	0.0001
Ca 4	190	190A	6	2	3.81E-04	3.49E+07	0.0002	Ca 5	152	152A	9	9	5.17E-05	1.65E+06	0.0001
Ca 4	197	197A	6	6	3.79E-04	1.08E+07	0.0002	Ca 5	166	166A	9	15	4.77E-05	7.67E+05	0.0000
Ca 4	193	193A	6	10	3.76E-04	6.70E+06	0.0002	Ca 5	166	166A	9	15	4.77E-05	7.67E+05	0.0000
Ca 4	195	195A	6	2	2.01E-04	1.75E+07	0.0001	Ca 5	152	152A	9	15	3.26E-05	6.22E+05	0.0000
Ca 4	196	196A	6	10	1.42E-04	2.45E+06	0.0001	Ca 5	157	157A	9	15	2.80E-05	5.01E+05	0.0000
Ca 4	183	183A	6	2	8.33E-05	8.28E+06	0.0000	Ca 6	330	330A	4	12	1.01E+01	5.14E+10	32.216
Ca 4	189	189A	6	6	2.92E-05	9.06E+05	0.0000	Ca 6	227	227A	4	12	8.06E-01	8.67E+09	0.4503
Ca 4	191	191A	6	6	2.73E-05	8.32E+05	0.0000	Ca 6	652	652A	4	12	3.71E-01	4.85E+08	2.359
Ca 4	202	202A	6	10	5.73E-06	9.35E+04	0.0000	Ca 6	175	175A	4	12	3.29E-01	5.95E+09	0.1408
Ca 4	197	197A	6	10	2.54E-06	4.35E+04	0.0000	Ca 6	145	145A	4	12	2.53E-01	6.64E+09	0.0896
Ca 4	191	191A	6	10	1.15E-06	2.10E+04	0.0000	Ca 6	158	158A	4	12	2.29E-01	5.06E+09	0.0886
Ca 4	188	188A	6	10	5.90E-07	1.10E+04	0.0000	Ca 6	135	135A	4	12	1.98E-01	6.03E+09	0.0650
Ca 4	193	193A	6	10	2.42E-07	4.30E+03	0.0000	Ca 6	161	161A	4	12	1.71E-01	3.64E+09	0.0674
Ca 4	193	193A	6	6	2.00E-07	5.94E+03	0.0000	Ca 6	130	130A	4	12	1.04E-01	3.41E+09	0.0329
Ca 5	314	314A	9	15	1.76E+01	7.91E+10	53.417	Ca 6	124	124A	4	12	5.97E-02	2.15E+09	0.0180
Ca 5	325	325A	9	9	1.01E+01	7.07E+10	31.725	Ca 6	139	139A	4	12	5.16E-02	1.47E+09	0.0175
Ca 5	332	332A	9	3	2.61E+00	5.26E+10	8.368	Ca 6	128	128A	4	12	4.83E-02	1.63E+09	0.0150
Ca 5	263	263A	9	15	8.13E-01	5.20E+09	0.5290	Ca 6	122	122A	4	12	4.21E-02	1.57E+09	0.0125
Ca 5	276	276A	9	3	6.11E-01	1.78E+10	0.4173	Ca 6	146	146A	4	12	3.76E-02	9.76E+08	0.0134
Ca 5	660	660A	9	9	4.81E-01	8.16E+08	3.100	Ca 6	127	127A	4	12	3.05E-02	1.03E+09	0.0095
Ca 5	251	251A	9	9	4.75E-01	5.56E+09	0.2947	Ca 6	120	120A	4	12	3.05E-02	1.16E+09	0.0089
Ca 5	188	188A	9	15	1.72E-01	2.16E+09	0.0792	Ca 6	139	139A	4	12	2.58E-02	7.40E+08	0.0345
Ca 5	196	196A	9	3	1.56E-01	8.97E+09	0.0751	Ca 6	133	133A	4	12	2.17E-02	6.78E+08	0.0070
Ca 5	368	368A	9	9	1.32E-01	7.20E+08	0.4703	Ca 6	165	165A	4	12	1.95E-02	3.95E+08	0.0310
Ca 5	182	182A	9	9	1.14E-01	2.54E+09	0.0508	Ca 6	144	144A	4	12	1.87E-02	5.00E+08	0.0259
Ca 5	366	366A	9	15	9.24E-02	3.06E+08	0.3272	Ca 6	130	130A	4	12	1.66E-02	5.38E+08	0.0053
Ca 5	177	177A	9	15	8.53E-02	1.20E+09	0.0370	Ca 6	134	134A	4	12	1.46E-02	4.50E+08	0.0188
Ca 5	162	162A	9	9	7.62E-02	2.14E+09	0.0302	Ca 6	126	126A	4	12	1.44E-02	5.02E+08	0.0044
Ca 5	160	160A	9	15	7.47E-02	1.29E+09	0.0292	Ca 6	150	150A	4	12	1.39E-02	3.42E+08	0.0051
Ca 5	167	167A	9	15	6.46E-02	1.03E+09	0.0264	Ca 6	126	126A	4	12	1.38E-02	4.77E+08	0.0042
Ca 5	177	177A	9	9	6.43E-02	1.52E+09	0.0278	Ca 6	123	123A	4	12	1.36E-02	4.97E+08	0.0041
Ca 5	172	172A	9	15	5.31E-02	7.96E+08	0.0223	Ca 6	129	129A	4	12	9.14E-03	3.04E+08	0.0113
Ca 5	171	171A	9	9	5.24E-02	1.32E+09	0.0220	Ca 6	121	121A	4	12	8.37E-03	3.15E+08	0.0025
Ca 5	179	179A	9	15	4.68E-02	6.43E+08	0.0206	Ca 6	150	150A	4	12	1.01E-03	2.47E+07	0.0015
Ca 5	174	174A	9	3	4.66E-02	3.39E+09	0.0199	Ca 6	127	127A	4	12	5.70E-04	1.96E+07	0.0007
Ca 5	171	171A	9	3	4.43E-02	3.36E+09	0.0185	Ca 6	122	122A	4	12	3.23E-04	1.20E+07	0.0001
Ca 5	157	157A	9	15	3.86E-02	6.88E+08	0.0149	Ca 6	125	125A	4	12	3.06E-05	1.09E+06	0.0000
Ca 5	156	156A	9	15	3.51E-02	6.34E+08	0.0134	Ca 6	123	123A	4	12	6.45E-06	2.35E+05	0.0000
Ca 5	167	167A	9	15	3.39E-02	5.35E+08	0.0139	Ca 7	338	338A	9	15	1.03E+01	4.01E+10	33.618
Ca 5	161	161A	9	9	3.27E-02	9.34E+08	0.0128	Ca 7	348	348A	9	9	4.17E+00	2.55E+10	14.023
Ca 5	166	166A	9	15	3.14E-02	5.01E+08	0.0128	Ca 7	405	405A	9	3	2.44E+00	3.29E+10	9.581
Ca 5	164	164A	9	3	3.00E-02	2.45E+09	0.0121	Ca 7	203	203A	9	9	1.30E+00	2.32E+10	0.6497
Ca 5	155	155A	9	15	2.72E-02	4.98E+08	0.0103	Ca 7	129	129A	9	15	6.53E-01	1.74E+10	0.2048
Ca 5	154	154A	9	9	2.60E-02	8.10E+08	0.0098	Ca 7	553	553A	9	9	5.83E-01	1.41E+09	3.138
Ca 5	167	167A	9	9	2.55E-02	6.75E+08	0.0104	Ca 7	158	158A	9	15	5.51E-01	9.77E+09	0.2127
Ca 5	152	152A	9	15	2.41E-02	4.59E+08	0.0090	Ca 7	651	651A	9	15	4.34E-01	4.54E+08	2.758
Ca 5	158	158A	9	3	2.25E-02	1.98E+09	0.0087	Ca 7	145	145A	9	15	4.05E-01	8.51E+09	0.1433
Ca 5	165	165A	9	15	1.94E-02	3.14E+08	0.0309	Ca 7	159	159A	9	15	3.37E-01	5.90E+09	0.5159
Ca 5	154	154A	9	15	1.90E-02	3.55E+08	0.0071	Ca 7	139	139A	9	9	2.74E-01	1.04E+10	0.0929
Ca 5	150	150A	9	9	1.81E-02	5.91E+08	0.0066	Ca 7	114	114A	9	15	2.43E-01	8.27E+09	0.0673
Ca 5	159	159A	9	15	1.78E-02	3.11E+08	0.0069	Ca 7	144	144A	9	9	2.14E-01	7.63E+09	0.0751
Ca 5	153	153A	9	9	1.76E-02	5.53E+08	0.0066	Ca 7	127	127A	9	9	1.86E-01	8.45E+09	0.0577
Ca 5	148	148A	9	9	1.67E-02	5.59E+08	0.0061	Ca 7	110	110A	9	15	1.79E-01	6.52E+09	0.0479
Ca 5	152	152A	9	15	1.56E-02	2.97E+08	0.0058	Ca 7	116	116A	9	15	1.78E-01	5.87E+09	0.0501
Ca 5	154	154A	9	15	1.54E-02	2.87E+08	0.0058	Ca 7	156	156A	9	9	1.68E-01	5.09E+09	0.0640
Ca 5	160	160A	9	3	1.50E-02	1.30E+09	0.0059	Ca 7	103	103A	9	15	1.32E-01	5.49E+09	0.0330
Ca 5	155	155A	9	9	1.38E-02	4.22E+08	0.0052	Ca 7	107	107A	9	15	1.19E-01	4.62E+09	0.0308

Ca 7	149	149A	9	3	1.04E-01	1.03E+10	0.0379	Ca 8	102	102A	6	10	2.93E-02	1.87E+09	0.0072
Ca 7	113	113A	9	9	1.02E-01	5.82E+09	0.0282	Ca 8	94	94.9A	6	10	2.69E-02	1.99E+09	0.0062
Ca 7	103	103A	9	9	9.38E-02	6.51E+09	0.0235	Ca 8	89	89.9A	6	10	2.67E-02	2.20E+09	0.0058
Ca 7	121	121A	9	9	9.27E-02	4.68E+09	0.0272	Ca 8	104	104A	6	10	2.61E-02	1.59E+09	0.0066
Ca 7	104	104A	9	15	8.63E-02	3.49E+09	0.0219	Ca 8	94	94.6A	6	6	2.29E-02	2.84E+09	0.0052
Ca 7	113	113A	9	9	7.92E-02	4.60E+09	0.0217	Ca 8	98	99.0A	6	2	2.25E-02	7.66E+09	0.0054
Ca 7	103	103A	9	15	6.86E-02	2.85E+09	0.0172	Ca 8	82	82.9A	6	6	2.12E-02	3.43E+09	0.0042
Ca 7	157	157A	9	9	6.50E-02	1.94E+09	0.0985	Ca 8	94	94.5A	6	10	1.80E-02	1.34E+09	0.0041
Ca 7	137	137A	9	9	6.45E-02	2.53E+09	0.0216	Ca 8	80	80.9A	6	6	1.44E-02	2.44E+09	0.0028
Ca 7	115	115A	9	9	5.85E-02	3.22E+09	0.0165	Ca 8	86	86.5A	6	6	1.40E-02	2.08E+09	0.0029
Ca 7	110	110A	9	9	5.79E-02	3.52E+09	0.0155	Ca 8	94	94.8A	6	2	1.36E-02	5.04E+09	0.0031
Ca 7	126	126A	9	15	5.06E-02	1.40E+09	0.0616	Ca 8	90	90.6A	6	2	1.30E-02	5.28E+09	0.0028
Ca 7	115	115A	9	3	4.94E-02	8.28E+09	0.0138	Ca 8	95	95.9A	6	6	1.16E-02	1.40E+09	0.0027
Ca 7	148	148A	9	15	4.94E-02	9.93E+08	0.0705	Ca 8	79	79.8A	6	6	1.00E-02	1.75E+09	0.0019
Ca 7	129	129A	9	9	4.53E-02	1.99E+09	0.0143	Ca 8	154	154A	6	10	8.35E-03	2.32E+08	0.0124
Ca 7	107	107A	9	9	3.78E-02	2.45E+09	0.0098	Ca 8	90	90.5A	6	2	7.84E-03	3.20E+09	0.0017
Ca 7	108	108A	9	9	3.37E-02	2.12E+09	0.0089	Ca 8	130	130A	6	2	7.55E-03	1.47E+09	0.0095
Ca 7	146	146A	9	15	3.31E-02	6.87E+08	0.0465	Ca 8	111	111A	6	10	6.61E-03	3.56E+08	0.0018
Ca 7	126	126A	9	3	2.97E-02	4.11E+09	0.0091	Ca 8	145	145A	6	10	6.49E-03	2.04E+08	0.0091
Ca 7	104	104A	9	9	2.78E-02	1.87E+09	0.0071	Ca 8	81	81.1A	6	6	6.46E-03	1.09E+09	0.0013
Ca 7	138	138A	9	9	2.70E-02	1.04E+09	0.0359	Ca 8	92	92.1A	6	2	5.10E-03	2.00E+09	0.0011
Ca 7	159	159A	9	9	2.32E-02	6.76E+08	0.0355	Ca 8	90	91.0A	6	10	4.53E-03	3.65E+08	0.0010
Ca 7	139	139A	9	15	2.29E-02	5.25E+08	0.0078	Ca 8	97	97.8A	6	10	4.35E-03	3.03E+08	0.0010
Ca 7	105	105A	9	9	2.17E-02	1.43E+09	0.0056	Ca 8	89	89.7A	6	10	4.19E-03	3.47E+08	0.0009
Ca 7	102	102A	9	3	1.90E-02	4.05E+09	0.0047	Ca 8	95	95.6A	6	2	3.56E-03	1.30E+09	0.0008
Ca 7	134	134A	9	9	1.87E-02	7.72E+08	0.0240	Ca 8	156	156A	6	6	3.54E-03	1.61E+08	0.0053
Ca 7	103	103A	9	3	1.76E-02	3.62E+09	0.0044	Ca 8	164	164A	6	10	3.08E-03	7.57E+07	0.0049
Ca 7	104	104A	9	9	1.52E-02	1.04E+09	0.0038	Ca 8	84	84.7A	6	6	2.90E-03	4.49E+08	0.0006
Ca 7	118	118A	9	15	1.48E-02	4.66E+08	0.0043	Ca 8	110	110A	6	6	1.79E-03	1.64E+08	0.0005
Ca 7	98	98.4A	9	3	1.34E-02	3.08E+09	0.0032	Ca 8	81	81.8A	6	6	1.70E-03	2.83E+08	0.0003
Ca 7	93	93.3A	9	3	1.28E-02	3.27E+09	0.0029	Ca 8	94	94.2A	6	2	9.67E-04	3.63E+08	0.0002
Ca 7	117	117A	9	15	1.22E-02	3.92E+08	0.0035	Ca 8	95	95.2A	6	10	8.86E-04	6.52E+07	0.0002
Ca 7	116	116A	9	9	8.05E-03	4.37E+08	0.0023	Ca 8	104	104A	6	2	8.07E-04	2.45E+08	0.0002
Ca 7	132	132A	9	15	7.89E-03	1.99E+08	0.0101	Ca 8	81	82.0A	6	6	6.54E-04	1.08E+08	0.0001
Ca 7	95	95.3A	9	3	7.32E-03	1.79E+09	0.0017	Ca 8	96	96.4A	6	6	4.36E-04	5.21E+07	0.0001
Ca 7	92	92.0A	9	3	3.96E-03	1.04E+09	0.0009	Ca 8	139	139A	6	10	3.63E-04	1.24E+07	0.0005
Ca 7	123	123A	9	9	3.75E-03	1.81E+08	0.0045	Ca 8	174	174A	6	6	3.53E-04	1.30E+07	0.0006
Ca 7	107	107A	9	15	2.84E-03	1.09E+08	0.0007	Ca 8	156	156A	6	2	3.02E-04	4.14E+07	0.0005
Ca 7	123	123A	9	15	2.62E-03	7.69E+07	0.0031	Ca 8	85	85.7A	6	6	2.68E-04	4.05E+07	0.0001
Ca 7	104	104A	9	9	2.51E-03	1.71E+08	0.0006	Ca 8	119	119A	6	2	2.62E-04	6.14E+07	0.0001
Ca 7	109	109A	9	15	2.40E-03	8.88E+07	0.0006	Ca 8	128	128A	6	6	1.11E-04	7.47E+06	0.0001
Ca 7	143	143A	9	3	1.82E-03	1.97E+08	0.0025	Ca 8	90	90.3A	6	6	7.37E-05	1.00E+07	0.0000
Ca 7	134	134A	9	15	1.76E-03	4.32E+07	0.0023	Ca 8	112	112A	6	10	6.04E-05	3.21E+06	0.0000
Ca 7	174	174A	9	15	1.60E-03	2.33E+07	0.0027	Ca 8	88	88.1A	6	6	1.39E-05	1.99E+06	0.0000
Ca 7	126	126A	9	9	9.37E-04	4.37E+07	0.0003	Ca 9	470	470A	1	3	1.08E+00	1.08E+10	4.929
Ca 7	109	109A	9	9	9.16E-04	5.69E+07	0.0002	Ca 9	121	121A	1	3	2.56E-01	3.86E+10	0.0754
Ca 7	103	103A	9	9	8.28E-04	5.74E+07	0.0002	Ca 9	92	92.0A	1	3	6.38E-02	1.67E+10	0.0142
Ca 7	126	126A	9	15	7.49E-04	2.09E+07	0.0002	Ca 9	81	81.5A	1	3	3.81E-02	1.27E+10	0.0075
Ca 7	93	93.4A	9	3	4.35E-04	1.11E+08	0.0001	Ca 9	90	90.7A	1	3	2.45E-02	6.62E+09	0.0054
Ca 7	117	117A	9	9	2.78E-04	1.49E+07	0.0001	Ca 9	76	76.5A	1	3	2.39E-02	9.07E+09	0.0044
Ca 7	109	109A	9	15	2.33E-04	8.62E+06	0.0001	Ca 9	73	73.7A	1	3	1.43E-02	5.86E+09	0.0025
Ca 7	125	125A	9	15	1.40E-04	3.97E+06	0.0000	Ca 9	70	70.7A	1	3	7.09E-03	3.15E+09	0.0012
Ca 7	159	159A	9	3	2.84E-05	2.50E+06	0.0000	Ca 9	72	72.0A	1	3	5.48E-03	2.35E+09	0.0010
Ca 7	131	131A	9	9	3.16E-06	1.36E+05	0.0000	Ca 9	71	71.8A	1	3	3.97E-03	1.71E+09	0.0007
Ca 7	119	119A	9	3	3.03E-06	4.73E+05	0.0000	Ca 9	80	80.7A	1	3	2.13E-03	7.27E+08	0.0004
Ca 8	356	356A	6	10	4.58E+00	2.40E+10	15.785	Ca 9	154	154A	1	3	2.02E-03	1.88E+08	0.0030
Ca 8	434	434A	6	6	3.43E+00	2.02E+10	14.420	Ca 9	79	79.4A	1	3	8.51E-04	3.00E+08	0.0002
Ca 8	144	144A	6	10	6.82E-01	2.19E+10	0.2392	Ca 9	75	75.8A	1	3	2.53E-04	9.79E+07	0.0000
Ca 8	130	130A	6	10	5.79E-01	2.27E+10	0.1835	Ca 9	105	105A	1	3	2.03E-04	4.02E+07	0.0001
Ca 8	183	183A	6	2	4.62E-01	4.59E+10	0.2070	Ca 9	72	72.4A	1	3	6.44E-05	2.73E+07	0.0000
Ca 8	466	466A	6	2	4.55E-01	6.96E+09	2.060	Ca10	576	576A	2	6	9.96E-01	3.34E+09	5.580
Ca 8	606	606A	6	10	4.18E-01	7.58E+08	2.469	Ca10	111	111A	2	6	3.18E-01	2.82E+10	0.0863
Ca 8	134	134A	6	6	3.35E-01	2.07E+10	0.1091	Ca10	83	83.4A	2	6	1.06E-01	1.69E+10	0.0214
Ca 8	113	113A	6	10	2.59E-01	1.34E+10	0.0713	Ca10	73	73.7A	2	6	5.00E-02	1.02E+10	0.0089
Ca 8	100	100A	6	10	1.92E-01	1.26E+10	0.0468	Ca10	68	69.0A	2	6	2.80E-02	6.55E+09	0.0047
Ca 8	121	121A	6	10	1.25E-01	5.67E+09	0.0368	Ca10	66	66.3A	2	6	1.74E-02	4.41E+09	0.0028
Ca 8	101	101A	6	6	1.19E-01	1.28E+10	0.0293	Ca10	64	64.5A	2	6	1.16E-02	3.09E+09	0.0018
Ca 8	123	123A	6	2	1.14E-01	2.48E+10	0.0342	Ca10	63	63.4A	2	6	8.15E-03	2.25E+09	0.0012
Ca 8	102	102A	6	10	1.14E-01	7.17E+09	0.0284	Ca11	30	30.4A	1	3	2.34E+00	5.62E+12	0.2836
Ca 8	121	121A	6	6	9.97E-02	7.56E+09	0.0293	Ca11	25	25.4A	1	3	6.51E-01	2.25E+12	0.0921
Ca 8	90	90.8A	6	10	8.97E-02	7.26E+09	0.0197	Ca11	27	27.0A	1	3	3.03E-01	9.21E+11	0.0196
Ca 8	127	127A	6	2	8.21E-02	1.68E+10	0.0254	Ca11	23	23.6A	1	3	2.99E-01	1.20E+12	0.0169
Ca 8	91	91.1A	6	6	6.21E-02	8.32E+09	0.0137	Ca11	35	35.2A	1	3	2.32E-01	4.17E+11	0.0104
Ca 8	96	96.7A	6	10	5.55E-02	3.96E+09	0.0130	Ca11	22	22.7A	1	3	1.64E-01	7.09E+11	0.0089
Ca 8	96	96.9A	6	10	5.43E-02	3.85E+09	0.0127	Ca11	22	22.2A	1	3	1.29E-01	5.82E+11	0.0069
Ca 8	93	93.4A	6	10	3.92E-02	3.00E+09	0.0088	Ca11	22	22.1A	1	3	6.61E-02	3.00E+11	0.0035
Ca 8	91	91.3A	6	10	3.33E-02	2.66E+09	0.0073	Ca11	21	21.9A	1	3	5.66E-02	2.63E+11	0.0030
Ca 8	106	106A	6	2	3.30E-02	9.70E+09	0.0085	Ca11	21	21.7A	1	3	4.06E-02	1.92E+11	0.0021
Ca 8	100	100A	6	2	3.20E-02	1.06E+10	0.0078	Ca11	21	21.5A	1	3	2.95E-02	1.42E+11	0.0015
Ca 8	85	85.5A	6	6	2.97E-02	4.51E+09	0.0061	Ca11	26	26.5A	1	3	2.85E-02	9.02E+10	0.0019

Ca11	24	24.0A	1	3	1.53E-02	5.89E+10	0.0009	Ca12	19	19.8A	6	6	1.43E-04	4.05E+08	0.0000
Ca11	22	22.9A	1	3	8.24E-03	3.48E+10	0.0005	Ca12	22	22.0A	6	2	1.38E-04	9.47E+08	0.0000
Ca11	22	22.3A	1	3	6.34E-03	2.83E+10	0.0003	Ca12	21	21.1A	6	2	7.23E-07	5.43E+06	0.0000
Ca11	21	22.0A	1	3	1.53E-03	7.05E+09	0.0001	Ca13	25	25.7A	9	15	5.00E+00	3.36E+12	0.3082
Ca11	21	21.7A	1	3	1.50E-03	7.06E+09	0.0001	Ca13	26	26.2A	9	15	4.79E+00	3.11E+12	0.3005
Ca11	21	21.6A	1	3	1.14E-03	5.45E+09	0.0001	Ca13	26	26.1A	9	9	4.49E+00	4.89E+12	0.2807
Ca12	28	28.1A	6	10	5.11E+00	4.32E+12	0.3440	Ca13	26	26.9A	9	15	2.17E+00	1.34E+12	0.1397
Ca12	28	28.1A	6	6	3.83E+00	5.40E+12	0.2578	Ca13	26	26.0A	9	3	1.53E+00	5.03E+12	0.0953
Ca12	28	28.7A	6	10	2.30E+00	1.86E+12	0.1582	Ca13	24	24.6A	9	15	1.23E+00	9.02E+11	0.0726
Ca12	23	23.3A	6	10	1.27E+00	1.56E+12	0.0709	Ca13	21	21.4A	9	15	1.14E+00	1.10E+12	0.0585
Ca12	27	27.6A	6	10	1.09E+00	9.58E+11	0.0720	Ca13	169	169A	9	9	9.14E-01	2.36E+10	1.487
Ca12	28	28.2A	6	2	1.05E+00	4.39E+12	0.0711	Ca13	20	20.7A	9	15	9.00E-01	9.36E+11	0.0446
Ca12	25	25.8A	6	10	7.57E-01	7.61E+11	0.0467	Ca13	20	21.0A	9	9	8.75E-01	1.48E+12	0.0439
Ca12	22	22.9A	6	6	7.38E-01	1.56E+12	0.0406	Ca13	20	21.0A	9	15	8.52E-01	8.60E+11	0.0428
Ca12	22	22.9A	6	10	7.17E-01	9.08E+11	0.0394	Ca13	24	24.5A	9	9	7.95E-01	9.82E+11	0.0467
Ca12	32	32.3A	6	6	6.35E-01	6.76E+11	0.0492	Ca13	19	19.6A	9	15	7.70E-01	8.89E+11	0.0362
Ca12	25	25.7A	6	6	5.38E-01	9.03E+11	0.0332	Ca13	28	29.0A	9	15	5.83E-01	3.09E+11	0.0405
Ca12	21	21.5A	6	10	4.09E-01	5.91E+11	0.0210	Ca13	22	22.8A	9	15	5.66E-01	4.82E+11	0.0310
Ca12	31	31.7A	6	10	3.98E-01	2.64E+11	0.0303	Ca13	25	25.8A	9	9	4.70E-01	5.22E+11	0.0291
Ca12	148	148A	6	2	3.54E-01	5.35E+10	0.5047	Ca13	19	19.2A	9	9	3.82E-01	7.66E+11	0.0176
Ca12	23	23.3A	6	6	3.40E-01	6.94E+11	0.0190	Ca13	29	29.7A	9	3	3.79E-01	9.58E+11	0.0270
Ca12	20	20.7A	6	10	3.39E-01	5.25E+11	0.0168	Ca13	20	20.9A	9	3	3.78E-01	1.92E+12	0.0190
Ca12	20	20.6A	6	10	3.26E-01	5.12E+11	0.0161	Ca13	18	18.8A	9	15	3.70E-01	4.67E+11	0.0166
Ca12	24	24.5A	6	10	3.00E-01	3.34E+11	0.0176	Ca13	24	24.6A	9	3	3.44E-01	1.27E+12	0.0202
Ca12	21	21.5A	6	10	2.92E-01	4.23E+11	0.0150	Ca13	28	28.4A	9	9	3.33E-01	3.06E+11	0.0227
Ca12	28	28.7A	6	6	2.73E-01	3.67E+11	0.0188	Ca13	18	19.0A	9	15	3.29E-01	4.07E+11	0.0149
Ca12	21	21.2A	6	6	2.68E-01	6.65E+11	0.0136	Ca13	19	19.2A	9	15	3.07E-01	3.69E+11	0.0141
Ca12	22	23.0A	6	2	2.47E-01	1.56E+12	0.0136	Ca13	19	19.5A	9	9	2.78E-01	5.44E+11	0.0130
Ca12	22	22.5A	6	10	2.43E-01	3.20E+11	0.0131	Ca13	19	19.5A	9	15	2.75E-01	3.21E+11	0.0129
Ca12	21	21.2A	6	10	2.25E-01	3.36E+11	0.0114	Ca13	18	18.4A	9	9	2.59E-01	5.67E+11	0.0114
Ca12	25	25.4A	6	2	2.23E-01	1.15E+12	0.0136	Ca13	20	20.7A	9	9	2.52E-01	4.35E+11	0.0125
Ca12	20	20.1A	6	10	2.17E-01	3.58E+11	0.0105	Ca13	18	18.3A	9	15	2.07E-01	2.75E+11	0.0091
Ca12	21	21.5A	6	6	2.07E-01	4.99E+11	0.0106	Ca13	17	17.9A	9	15	2.01E-01	2.80E+11	0.0086
Ca12	19	19.8A	6	10	1.76E-01	2.99E+11	0.0083	Ca13	23	23.5A	9	9	1.87E-01	2.51E+11	0.0105
Ca12	24	24.2A	6	6	1.33E-01	2.53E+11	0.0077	Ca13	18	18.2A	9	15	1.77E-01	2.38E+11	0.0077
Ca12	20	20.3A	6	6	1.27E-01	3.43E+11	0.0062	Ca13	19	19.2A	9	3	1.69E-01	1.02E+12	0.0078
Ca12	20	20.7A	6	6	1.25E-01	3.23E+11	0.0062	Ca13	18	18.4A	9	15	1.53E-01	2.01E+11	0.0067
Ca12	21	21.2A	6	2	1.14E-01	8.49E+11	0.0058	Ca13	18	18.3A	9	15	1.49E-01	1.97E+11	0.0065
Ca12	20	20.6A	6	6	1.02E-01	2.67E+11	0.0050	Ca13	22	22.9A	9	9	1.17E-01	1.66E+11	0.0064
Ca12	24	24.4A	6	6	9.44E-02	1.77E+11	0.0055	Ca13	17	17.9A	9	9	1.16E-01	2.70E+11	0.0050
Ca12	19	19.6A	6	10	9.20E-02	1.60E+11	0.0043	Ca13	18	19.0A	9	9	1.14E-01	2.35E+11	0.0052
Ca12	20	20.8A	6	6	8.97E-02	2.31E+11	0.0045	Ca13	21	21.6A	9	15	1.13E-01	1.08E+11	0.0058
Ca12	19	19.5A	6	10	8.91E-02	1.57E+11	0.0042	Ca13	17	17.9A	9	9	1.09E-01	2.51E+11	0.0047
Ca12	20	20.3A	6	10	8.67E-02	1.40E+11	0.0042	Ca13	17	17.7A	9	15	1.08E-01	1.53E+11	0.0046
Ca12	19	19.8A	6	6	8.08E-02	2.28E+11	0.0038	Ca13	17	18.0A	9	15	1.07E-01	1.47E+11	0.0046
Ca12	19	19.8A	6	6	8.08E-02	2.29E+11	0.0038	Ca13	18	18.4A	9	3	1.03E-01	6.77E+11	0.0045
Ca12	20	20.1A	6	6	7.92E-02	2.18E+11	0.0038	Ca13	17	17.9A	9	15	9.85E-02	1.36E+11	0.0042
Ca12	30	30.8A	6	2	7.46E-02	2.62E+11	0.0055	Ca13	19	19.5A	9	3	8.70E-02	5.08E+11	0.0041
Ca12	20	20.8A	6	10	7.26E-02	1.12E+11	0.0036	Ca13	17	17.8A	9	15	7.87E-02	1.10E+11	0.0034
Ca12	19	19.8A	6	10	7.23E-02	1.23E+11	0.0034	Ca13	22	22.1A	9	3	7.08E-02	3.23E+11	0.0037
Ca12	19	19.9A	6	10	6.94E-02	1.16E+11	0.0033	Ca13	17	17.7A	9	9	7.07E-02	1.68E+11	0.0030
Ca12	20	20.6A	6	2	6.53E-02	5.12E+11	0.0032	Ca13	22	22.7A	9	3	6.95E-02	3.00E+11	0.0038
Ca12	20	20.3A	6	2	5.55E-02	4.49E+11	0.0027	Ca13	23	23.0A	9	9	6.72E-02	9.39E+10	0.0037
Ca12	23	23.7A	6	10	5.06E-02	5.98E+10	0.0029	Ca13	21	21.3A	9	9	6.25E-02	1.02E+11	0.0032
Ca12	21	21.8A	6	6	4.53E-02	1.06E+11	0.0024	Ca13	18	18.2A	9	9	5.60E-02	1.26E+11	0.0024
Ca12	19	19.5A	6	6	4.39E-02	1.28E+11	0.0021	Ca13	19	19.5A	9	15	5.39E-02	6.33E+10	0.0025
Ca12	19	19.5A	6	10	3.46E-02	6.06E+10	0.0016	Ca13	17	17.5A	9	9	4.91E-02	1.19E+11	0.0021
Ca12	19	19.6A	6	6	2.94E-02	8.51E+10	0.0014	Ca13	17	17.9A	9	3	4.85E-02	3.38E+11	0.0021
Ca12	19	19.8A	6	2	2.74E-02	2.32E+11	0.0013	Ca13	18	18.4A	9	9	4.69E-02	1.03E+11	0.0021
Ca12	19	19.5A	6	6	2.67E-02	7.84E+10	0.0012	Ca13	17	17.9A	9	3	4.58E-02	3.17E+11	0.0020
Ca12	20	20.5A	6	10	2.50E-02	3.97E+10	0.0012	Ca13	19	19.8A	9	15	4.10E-02	4.66E+10	0.0019
Ca12	19	19.5A	6	2	1.98E-02	1.73E+11	0.0009	Ca13	17	17.3A	9	9	3.62E-02	8.93E+10	0.0015
Ca12	23	23.3A	6	2	1.75E-02	1.08E+11	0.0010	Ca13	19	19.9A	9	3	3.60E-02	2.03E+11	0.0017
Ca12	19	19.8A	6	2	1.57E-02	1.33E+11	0.0007	Ca13	17	17.7A	9	9	3.59E-02	8.47E+10	0.0015
Ca12	19	19.9A	6	10	1.57E-02	2.64E+10	0.0007	Ca13	18	18.5A	9	15	3.16E-02	4.10E+10	0.0014
Ca12	19	19.3A	6	2	1.41E-02	1.26E+11	0.0007	Ca13	17	17.7A	9	15	3.10E-02	4.42E+10	0.0013
Ca12	19	19.5A	6	10	1.20E-02	2.11E+10	0.0006	Ca13	17	17.4A	9	9	2.12E-02	5.17E+10	0.0009
Ca12	19	19.2A	6	2	1.02E-02	9.26E+10	0.0005	Ca13	17	18.0A	9	15	1.97E-02	2.70E+10	0.0008
Ca12	20	20.5A	6	10	9.35E-03	1.49E+10	0.0005	Ca13	18	18.3A	9	3	1.78E-02	1.18E+11	0.0008
Ca12	20	20.2A	6	6	6.99E-03	1.90E+10	0.0003	Ca13	19	19.9A	9	9	1.62E-02	3.03E+10	0.0008
Ca12	19	19.6A	6	6	5.45E-03	1.57E+10	0.0003	Ca13	18	18.9A	9	3	9.43E-03	5.88E+10	0.0004
Ca12	20	20.3A	6	10	5.43E-03	8.79E+09	0.0003	Ca13	19	19.2A	9	9	9.34E-03	1.88E+10	0.0004
Ca12	19	19.9A	6	6	4.06E-03	1.14E+10	0.0002	Ca13	18	18.0A	9	3	7.95E-03	5.43E+10	0.0003
Ca12	19	19.5A	6	6	2.89E-03	8.46E+09	0.0001	Ca13	17	17.8A	9	9	6.78E-03	1.59E+10	0.0003
Ca12	24	24.3A	6	2	2.62E-03	1.48E+10	0.0002	Ca13	17	17.5A	9	9	5.10E-03	1.24E+10	0.0002
Ca12	20	20.1A	6	2	1.79E-03	1.48E+10	0.0001	Ca13	17	17.7A	9	15	4.72E-03	6.71E+09	0.0002
Ca12	19	19.6A	6	10	1.28E-03	2.23E+09	0.0001	Ca13	18	18.5A	9	15	4.05E-03	5.25E+09	0.0002
Ca12	19	19.8A	6	10	9.05E-04	1.54E+09	0.0000	Ca13	18	18.5A	9	9	4.02E-03	8.73E+09	0.0002
Ca12	19	19.6A	6	2	6.22E-04	5.42E+09	0.0000	Ca13	18	18.8A	9	9	3.53E-03	7.37E+09	0.0002
Ca12	19	19.2A	6	2	2.18E-04	1.97E+09	0.0000	Ca13	17	17.7A	9	3	2.80E-03	1.99E+10	0.0001

Ca13	23	23.6A	9	15	2.01E-03	1.61E+09	0.0001	Ca15	14	14.9A	9	9	7.66E-02	2.57E+11	0.0027
Ca13	18	18.4A	9	3	1.44E-03	9.50E+09	0.0001	Ca15	14	14.8A	9	15	6.95E-02	1.41E+11	0.0025
Ca13	18	18.5A	9	9	9.14E-04	1.97E+09	0.0000	Ca15	14	15.0A	9	9	6.38E-02	2.11E+11	0.0023
Ca13	18	18.0A	9	15	8.69E-04	1.19E+09	0.0000	Ca15	14	14.4A	9	15	5.81E-02	1.25E+11	0.0020
Ca13	21	21.1A	9	9	8.15E-04	1.35E+09	0.0000	Ca15	18	19.0A	9	15	5.56E-02	6.86E+10	0.0025
Ca13	17	17.8A	9	3	4.88E-04	3.41E+09	0.0000	Ca15	16	16.2A	9	9	5.48E-02	1.54E+11	0.0021
Ca13	19	19.2A	9	15	1.44E-04	1.74E+08	0.0000	Ca15	15	15.6A	9	15	5.30E-02	9.62E+10	0.0020
Ca13	18	18.3A	9	9	1.33E-04	2.95E+08	0.0000	Ca15	16	16.2A	9	3	5.00E-02	4.21E+11	0.0019
Ca13	19	19.2A	9	15	6.94E-05	8.40E+07	0.0000	Ca15	20	20.3A	9	3	4.82E-02	2.61E+11	0.0023
Ca13	18	18.9A	9	15	1.16E-05	1.45E+07	0.0000	Ca15	14	14.8A	9	9	4.65E-02	1.57E+11	0.0016
Ca13	17	17.8A	9	15	3.28E-06	4.62E+06	0.0000	Ca15	15	15.6A	9	3	4.61E-02	4.20E+11	0.0017
Ca14	24	24.1A	4	12	7.16E+00	6.82E+12	0.4143	Ca15	14	14.5A	9	15	4.12E-02	8.75E+10	0.0014
Ca14	19	19.1A	4	12	1.51E+00	2.30E+12	0.0691	Ca15	14	14.7A	9	9	3.87E-02	1.33E+11	0.0014
Ca14	23	23.8A	4	12	1.10E+00	1.08E+12	0.0627	Ca15	15	15.7A	9	15	3.56E-02	6.44E+10	0.0013
Ca14	17	17.5A	4	12	6.23E-01	1.14E+12	0.0260	Ca15	16	16.4A	9	9	3.47E-02	9.61E+10	0.0014
Ca14	199	199A	4	12	5.05E-01	7.04E+09	0.9693	Ca15	19	19.4A	9	15	3.29E-02	3.90E+10	0.0015
Ca14	26	26.4A	4	12	4.27E-01	3.41E+11	0.0270	Ca15	14	14.5A	9	15	3.26E-02	6.93E+10	0.0011
Ca14	21	21.6A	4	12	4.09E-01	4.87E+11	0.0212	Ca15	18	18.6A	9	15	2.82E-02	3.62E+10	0.0013
Ca14	18	18.6A	4	12	3.89E-01	6.27E+11	0.0173	Ca15	14	14.5A	9	9	2.74E-02	9.70E+10	0.0009
Ca14	16	16.7A	4	12	3.02E-01	6.04E+11	0.0121	Ca15	14	14.5A	9	9	2.66E-02	9.35E+10	0.0009
Ca14	16	16.2A	4	12	1.80E-01	3.79E+11	0.0070	Ca15	14	14.8A	9	3	2.39E-02	2.42E+11	0.0008
Ca14	17	17.1A	4	12	1.69E-01	3.22E+11	0.0069	Ca15	20	20.1A	9	15	2.11E-02	2.33E+10	0.0010
Ca14	16	16.9A	4	12	1.55E-01	3.01E+11	0.0063	Ca15	14	14.9A	9	3	2.02E-02	2.03E+11	0.0007
Ca14	15	16.0A	4	12	1.18E-01	2.57E+11	0.0045	Ca15	14	14.4A	9	9	1.93E-02	6.90E+10	0.0007
Ca14	22	22.2A	4	12	8.40E-02	9.47E+10	0.0045	Ca15	15	15.5A	9	9	1.92E-02	5.95E+10	0.0007
Ca14	15	15.8A	4	12	7.89E-02	1.76E+11	0.0030	Ca15	18	18.9A	9	9	1.87E-02	3.87E+10	0.0008
Ca14	19	19.2A	4	12	6.81E-02	1.02E+11	0.0031	Ca15	18	18.7A	9	9	1.76E-02	3.74E+10	0.0008
Ca14	16	16.1A	4	12	6.49E-02	1.38E+11	0.0025	Ca15	14	14.5A	9	9	1.39E-02	4.93E+10	0.0005
Ca14	19	19.6A	4	12	6.33E-02	9.13E+10	0.0030	Ca15	15	15.1A	9	15	1.34E-02	2.60E+10	0.0005
Ca14	15	15.7A	4	12	6.11E-02	1.38E+11	0.0023	Ca15	14	15.0A	9	9	1.11E-02	3.66E+10	0.0004
Ca14	15	15.7A	4	12	5.44E-02	1.22E+11	0.0020	Ca15	14	14.5A	9	3	1.08E-02	1.15E+11	0.0004
Ca14	22	22.5A	4	12	4.08E-02	4.49E+10	0.0022	Ca15	15	15.4A	9	15	1.05E-02	1.97E+10	0.0004
Ca14	15	15.9A	4	12	2.23E-02	4.91E+10	0.0008	Ca15	18	18.8A	9	3	1.03E-02	6.45E+10	0.0005
Ca14	17	17.7A	4	12	1.99E-02	3.54E+10	0.0008	Ca15	14	14.2A	9	3	9.35E-03	1.04E+11	0.0003
Ca14	16	16.2A	4	12	1.54E-02	3.28E+10	0.0006	Ca15	19	19.6A	9	9	8.71E-03	1.68E+10	0.0004
Ca14	17	17.6A	4	12	1.43E-02	2.56E+10	0.0006	Ca15	14	14.2A	9	3	8.28E-03	9.10E+10	0.0003
Ca14	17	17.5A	4	12	1.10E-02	2.00E+10	0.0005	Ca15	14	14.0A	9	3	6.69E-03	7.54E+10	0.0002
Ca14	16	16.8A	4	12	9.81E-03	1.94E+10	0.0004	Ca15	16	16.7A	9	15	5.19E-03	8.30E+09	0.0002
Ca14	20	20.5A	4	12	7.46E-03	9.88E+09	0.0004	Ca15	15	15.2A	9	9	4.84E-03	1.56E+10	0.0002
Ca14	16	16.3A	4	12	6.64E-03	1.39E+10	0.0003	Ca15	13	13.9A	9	3	4.55E-03	5.21E+10	0.0002
Ca14	16	16.2A	4	12	5.79E-03	1.22E+10	0.0002	Ca15	15	15.4A	9	3	4.43E-03	4.17E+10	0.0002
Ca14	16	16.0A	4	12	5.27E-03	1.14E+10	0.0002	Ca15	15	15.4A	9	9	4.39E-03	1.37E+10	0.0002
Ca14	15	15.7A	4	12	4.75E-03	1.07E+10	0.0002	Ca15	14	14.1A	9	3	4.10E-03	4.56E+10	0.0001
Ca14	15	15.8A	4	12	3.30E-03	7.34E+09	0.0001	Ca15	14	14.7A	9	9	3.51E-03	1.20E+10	0.0001
Ca14	16	16.2A	4	12	2.67E-03	5.67E+09	0.0001	Ca15	14	14.4A	9	9	3.49E-03	1.25E+10	0.0001
Ca14	17	17.8A	4	12	2.65E-03	4.67E+09	0.0001	Ca15	14	14.5A	9	9	3.47E-03	1.22E+10	0.0001
Ca14	16	16.1A	4	12	5.76E-04	1.24E+09	0.0000	Ca15	14	14.5A	9	3	3.45E-03	3.65E+10	0.0001
Ca15	22	22.8A	9	15	8.31E+00	7.08E+12	0.4549	Ca15	14	14.9A	9	9	2.93E-03	9.79E+09	0.0001
Ca15	22	22.8A	9	9	2.73E+00	3.89E+12	0.1492	Ca15	16	16.4A	9	15	2.25E-03	3.70E+09	0.0001
Ca15	22	22.3A	9	15	1.86E+00	1.67E+12	0.0992	Ca15	15	15.1A	9	15	1.38E-03	2.70E+09	0.0000
Ca15	17	17.8A	9	15	1.69E+00	2.37E+12	0.0720	Ca15	14	14.8A	9	15	1.09E-03	2.20E+09	0.0000
Ca15	22	22.2A	9	9	1.10E+00	1.66E+12	0.0584	Ca15	16	16.4A	9	9	1.05E-03	2.88E+09	0.0000
Ca15	16	16.2A	9	15	5.72E-01	9.75E+11	0.0221	Ca15	15	15.2A	9	9	9.99E-04	3.22E+09	0.0000
Ca15	147	147A	9	3	5.61E-01	5.70E+10	0.7965	Ca15	17	17.0A	9	15	8.69E-04	1.34E+09	0.0000
Ca15	17	17.8A	9	9	5.54E-01	1.30E+12	0.0236	Ca15	15	15.1A	9	9	6.25E-04	2.04E+09	0.0000
Ca15	17	17.2A	9	15	5.49E-01	8.24E+11	0.0226	Ca15	14	14.7A	9	15	5.74E-04	1.18E+09	0.0000
Ca15	24	24.5A	9	9	5.30E-01	6.52E+11	0.0312	Ca15	15	15.9A	9	3	4.83E-04	4.23E+09	0.0000
Ca15	191	191A	9	9	4.81E-01	9.77E+09	0.8832	Ca15	15	15.4A	9	9	4.42E-04	1.38E+09	0.0000
Ca15	225	225A	9	15	4.33E-01	3.78E+09	0.9407	Ca15	15	15.2A	9	15	4.09E-04	7.90E+08	0.0000
Ca15	22	22.6A	9	3	4.01E-01	1.75E+12	0.0217	Ca15	14	14.4A	9	15	3.48E-04	7.44E+08	0.0000
Ca15	20	20.9A	9	15	3.83E-01	3.92E+11	0.0191	Ca15	16	16.0A	9	15	2.90E-04	5.01E+08	0.0000
Ca15	15	15.4A	9	15	3.31E-01	6.21E+11	0.0122	Ca15	14	14.4A	9	9	2.43E-04	8.67E+08	0.0000
Ca15	17	17.2A	9	9	3.19E-01	8.01E+11	0.0131	Ca15	15	15.5A	9	15	2.36E-04	4.35E+08	0.0000
Ca15	16	16.3A	9	15	2.73E-01	4.58E+11	0.0106	Ca15	16	16.7A	9	9	2.25E-04	6.01E+08	0.0000
Ca15	21	21.4A	9	15	2.38E-01	2.31E+11	0.0122	Ca15	14	14.4A	9	15	1.16E-04	2.47E+08	0.0000
Ca15	20	20.8A	9	9	2.20E-01	3.78E+11	0.0109	Ca16	21	21.6A	6	10	3.94E+00	5.61E+12	0.2042
Ca15	14	15.0A	9	15	1.94E-01	3.85E+11	0.0069	Ca16	20	20.8A	6	10	1.75E+00	2.70E+12	0.0872
Ca15	16	16.2A	9	9	1.90E-01	5.40E+11	0.0073	Ca16	21	21.1A	6	6	8.97E-01	2.24E+12	0.0454
Ca15	15	15.6A	9	15	1.53E-01	2.80E+11	0.0057	Ca16	16	16.6A	6	10	7.51E-01	1.82E+12	0.0298
Ca15	20	20.8A	9	3	1.41E-01	7.27E+11	0.0070	Ca16	171	171A	6	6	6.77E-01	2.55E+10	1.117
Ca15	20	20.9A	9	9	1.39E-01	2.36E+11	0.0070	Ca16	15	16.0A	6	10	4.30E-01	1.12E+12	0.0165
Ca15	14	14.9A	9	15	1.30E-01	2.61E+11	0.0046	Ca16	20	20.6A	6	2	3.61E-01	2.83E+12	0.0178
Ca15	15	15.6A	9	9	1.29E-01	3.92E+11	0.0048	Ca16	20	20.0A	6	6	2.93E-01	8.13E+11	0.0140
Ca15	14	14.7A	9	15	1.17E-01	2.41E+11	0.0041	Ca16	14	15.0A	6	10	2.74E-01	8.13E+11	0.0098
Ca15	15	15.4A	9	9	1.12E-01	3.50E+11	0.0041	Ca16	234	234A	6	10	2.65E-01	3.22E+09	0.5973
Ca15	17	17.3A	9	3	1.10E-01	8.20E+11	0.0045	Ca16	16	16.0A	6	6	2.43E-01	1.05E+12	0.0093
Ca15	16	16.3A	9	9	1.06E-01	2.95E+11	0.0041	Ca16	14	14.5A	6	10	1.69E-01	5.38E+11	0.0059
Ca15	18	18.2A	9	9	8.89E-02	2.00E+11	0.0039	Ca16	14	14.3A	6	10	1.43E-01	4.70E+11	0.0049
Ca15	14	14.5A	9	15	8.06E-02	1.70E+11	0.0028	Ca16	181	181A	6	2	1.38E-01	1.40E+10	0.2407
Ca15	21	21.3A	9	9	7.90E-02	1.29E+11	0.0040	Ca16	22	22.9A	6	2	1.28E-01	8.16E+11	0.0070

Ca16	20	20.0A	6	10	1.15E-01	1.92E+11	0.0055	Ca17	14	14.2A	1	3	1.10E-02	1.21E+11	0.0004
Ca16	14	14.5A	6	6	1.03E-01	5.45E+11	0.0036	Ca17	12	12.0A	1	3	9.73E-03	1.50E+11	0.0003
Ca16	15	15.5A	6	10	9.45E-02	2.64E+11	0.0035	Ca17	12	12.9A	1	3	6.93E-03	9.23E+10	0.0002
Ca16	13	13.8A	6	10	9.38E-02	3.30E+11	0.0031	Ca17	11	11.9A	1	3	6.55E-03	1.03E+11	0.0002
Ca16	19	19.5A	6	6	8.80E-02	2.57E+11	0.0041	Ca17	12	12.3A	1	3	2.37E-03	3.48E+10	0.0001
Ca16	15	15.5A	6	6	8.65E-02	4.03E+11	0.0032	Ca17	11	12.0A	1	3	1.51E-03	2.34E+10	0.0000
Ca16	15	16.0A	6	2	8.31E-02	1.09E+12	0.0032	Ca17	12	13.0A	1	3	3.77E-04	4.96E+09	0.0000
Ca16	13	13.8A	6	10	7.87E-02	2.74E+11	0.0026	Ca17	14	14.4A	1	3	1.98E-04	2.13E+09	0.0000
Ca16	13	13.4A	6	10	5.90E-02	2.20E+11	0.0019	Ca17	12	12.3A	1	3	1.01E-04	1.47E+09	0.0000
Ca16	13	13.8A	6	6	5.41E-02	3.17E+11	0.0018	Ca17	11	12.0A	1	3	3.18E-05	4.92E+08	0.0000
Ca16	13	13.6A	6	10	5.31E-02	1.92E+11	0.0017	Ca18	14	14.2A	2	6	1.86E-01	1.03E+12	0.0173
Ca16	18	18.6A	6	10	4.88E-02	9.45E+10	0.0022	Ca18	12	12.7A	2	6	7.73E-02	5.29E+11	0.0066
Ca16	14	14.0A	6	10	4.33E-02	1.47E+11	0.0015	Ca18	12	12.1A	2	6	4.02E-02	3.07E+11	0.0032
Ca16	18	18.7A	6	10	4.13E-02	7.92E+10	0.0018	Ca18	11	11.7A	2	6	2.38E-02	1.93E+11	0.0018
Ca16	13	13.4A	6	10	3.60E-02	1.34E+11	0.0012	Ca18	11	11.5A	2	6	1.53E-02	1.29E+11	0.0011
Ca16	19	19.9A	6	2	3.56E-02	3.00E+11	0.0017	Ca18	11	11.3A	2	6	1.05E-02	9.11E+10	0.0008
Ca16	14	14.0A	6	6	3.28E-02	1.86E+11	0.0011	Ca18	11	11.2A	2	6	7.50E-03	6.63E+10	0.0006
Ca16	14	14.4A	6	2	3.22E-02	5.14E+11	0.0011	Ca19	32	3.21A	1	3	3.44E-07	7.42E+07	0.0000
Ca16	14	14.9A	6	10	2.95E-02	8.88E+10	0.0011	Ca19	31	3.19A	1	3	2.19E-02	4.78E+12	0.0003
Ca16	13	13.4A	6	6	2.83E-02	1.76E+11	0.0009	Ca19	31	3.18A	1	3	7.78E-01	1.71E+14	0.0073
Ca16	18	18.5A	6	6	2.71E-02	8.84E+10	0.0012	Ca19	27	2.72A	1	3	1.54E-01	4.63E+13	0.0017
Ca16	15	15.4A	6	2	2.70E-02	3.78E+11	0.0010	Ca19	25	2.58A	1	3	5.72E-02	1.91E+13	0.0008
Ca16	19	19.4A	6	10	2.59E-02	4.59E+10	0.0012	Ca19	25	2.53A	1	3	2.76E-02	9.59E+12	0.0004
Ca16	16	16.9A	6	2	2.37E-02	2.78E+11	0.0010	Ca19	25	2.50A	1	3	1.55E-02	5.51E+12	0.0002
Ca16	13	13.3A	6	10	2.35E-02	8.87E+10	0.0007	Ca19	24	2.48A	1	3	9.56E-03	3.46E+12	0.0001
Ca16	13	13.1A	6	6	2.14E-02	1.38E+11	0.0007	Ca19	24	2.47A	1	3	6.33E-03	2.31E+12	0.0001
Ca16	12	13.0A	6	6	2.12E-02	1.40E+11	0.0007	Ca19	24	2.46A	1	3	4.41E-03	1.62E+12	0.0001
Ca16	13	13.3A	6	6	2.07E-02	1.29E+11	0.0007	Ca19	24	2.45A	1	3	3.20E-03	1.19E+12	0.0000
Ca16	13	13.3A	6	10	1.84E-02	6.90E+10	0.0006	Ca20	30	3.02A	2	2	3.62E-09	1.32E+06	0.0000
Ca16	13	13.7A	6	2	1.72E-02	3.03E+11	0.0006	Ca20	30	3.04A	2	6	8.32E-01	1.00E+14	0.0070
Ca16	18	18.9A	6	6	1.36E-02	4.21E+10	0.0006	Ca20	25	2.56A	2	6	1.58E-01	2.68E+13	0.0023
Ca16	13	13.4A	6	2	1.29E-02	2.41E+11	0.0004	Ca20	24	2.43A	2	6	5.80E-02	1.09E+13	0.0009
Ca16	13	14.0A	6	2	1.20E-02	2.04E+11	0.0004	Ca20	23	2.37A	2	6	2.79E-02	5.52E+12	0.0004
Ca16	18	18.0A	6	10	1.10E-02	2.26E+10	0.0005	Ca20	23	2.34A	2	6	1.56E-02	3.17E+12	0.0002
Ca16	12	12.9A	6	6	1.04E-02	6.99E+10	0.0003	Ca20	23	2.33A	2	6	9.63E-03	1.97E+12	0.0001
Ca16	14	14.8A	6	6	8.36E-03	4.27E+10	0.0003	Ca20	23	2.32A	2	6	6.37E-03	1.32E+12	0.0001
Ca16	14	14.4A	6	10	7.75E-03	2.49E+10	0.0003	Ca20	23	2.31A	2	6	4.43E-03	9.23E+11	0.0001
Ca16	14	15.0A	6	6	6.77E-03	3.36E+10	0.0002	Ca20	22	2.30A	2	6	3.21E-03	6.75E+11	0.0000
Ca16	14	14.3A	6	2	6.51E-03	1.06E+11	0.0002	Fe 1	2485	2485A	25	35	1.80E+01	5.56E+08	14.657
Ca16	15	15.1A	6	2	6.39E-03	9.36E+10	0.0002	Fe 1	2527	2527A	25	25	8.00E+00	3.34E+08	6.748
Ca16	18	18.4A	6	2	6.03E-03	5.93E+10	0.0003	Fe 1	2181	2181A	25	15	3.70E+00	3.46E+08	2.294
Ca16	13	13.6A	6	10	5.92E-03	2.13E+10	0.0002	Fe 1	2730	2730A	25	15	3.00E+00	1.79E+08	2.973
Ca16	14	14.8A	6	10	5.71E-03	1.74E+10	0.0002	Fe 1	1850	1850A	25	15	1.03E+00	1.34E+08	0.4526
Ca16	18	18.8A	6	2	4.68E-03	4.43E+10	0.0002	Fe 1	2361	2361A	25	15	1.00E+00	7.98E+07	0.7317
Ca16	13	13.5A	6	6	4.60E-03	2.81E+10	0.0001	Fe 1	2084	2084A	25	15	8.75E-01	8.96E+07	0.4931
Ca16	13	13.7A	6	6	4.12E-03	2.44E+10	0.0001	Fe 1	2298	2298A	25	25	8.00E-01	4.04E+07	0.5537
Ca16	12	13.0A	6	6	3.66E-03	2.42E+10	0.0001	Fe 3	911	911A	25	35	3.11E+00	7.14E+08	7.526
Ca16	13	13.3A	6	2	3.42E-03	6.41E+10	0.0001	Fe 3	859	859A	25	25	1.97E+00	7.11E+08	4.473
Ca16	13	13.5A	6	10	3.19E-03	1.17E+10	0.0001	Fe 3	896	896A	25	15	1.61E+00	8.90E+08	3.829
Ca16	14	14.8A	6	2	2.73E-03	4.18E+10	0.0001	Fe 3	579	579A	25	35	1.52E+00	8.63E+08	2.256
Ca16	13	13.6A	6	2	1.97E-03	3.55E+10	0.0001	Fe 3	762	762A	25	25	1.11E+00	5.09E+08	2.213
Ca16	14	15.0A	6	10	1.93E-03	5.74E+09	0.0001	Fe 3	513	513A	25	35	8.70E-01	6.29E+08	1.135
Ca16	13	13.5A	6	2	1.89E-03	3.46E+10	0.0001	Fe 3	488	488A	25	15	7.78E-01	1.45E+09	0.9626
Ca16	13	13.6A	6	6	1.82E-03	1.09E+10	0.0001	Fe 3	488	488A	25	25	7.30E-01	8.17E+08	0.9039
Ca16	13	13.0A	6	6	1.73E-03	1.13E+10	0.0001	Fe 3	481	481A	25	35	6.34E-01	5.21E+08	0.7732
Ca16	13	13.4A	6	2	1.50E-03	2.78E+10	0.0000	Fe 3	473	473A	25	35	5.97E-01	5.08E+08	0.7151
Ca16	13	13.9A	6	2	1.44E-03	2.50E+10	0.0000	Fe 3	445	445A	25	25	5.60E-01	7.52E+08	0.6298
Ca16	12	12.9A	6	6	1.42E-03	9.50E+09	0.0000	Fe 3	871	871A	25	35	4.34E-01	1.09E+08	1.000
Ca16	15	15.8A	6	10	1.13E-03	3.00E+09	0.0000	Fe 3	445	445A	25	35	4.14E-01	3.97E+08	0.4658
Ca16	14	14.6A	6	2	6.63E-04	1.04E+10	0.0000	Fe 3	405	405A	25	25	4.13E-01	6.69E+08	0.4211
Ca16	13	13.3A	6	10	4.93E-04	1.85E+09	0.0000	Fe 3	440	440A	25	25	3.64E-01	5.01E+08	0.4042
Ca16	15	15.3A	6	10	4.92E-04	1.41E+09	0.0000	Fe 3	768	768A	25	35	3.61E-01	1.17E+08	0.7256
Ca16	13	13.7A	6	10	4.58E-04	1.62E+09	0.0000	Fe 3	483	483A	25	35	3.48E-01	2.84E+08	0.4262
Ca16	13	13.3A	6	2	3.61E-04	6.81E+09	0.0000	Fe 3	466	466A	25	35	3.42E-01	2.99E+08	0.4038
Ca16	13	13.3A	6	10	1.75E-04	6.60E+08	0.0000	Fe 3	530	530A	25	35	3.19E-01	2.16E+08	0.4316
Ca16	14	14.4A	6	10	1.73E-04	5.56E+08	0.0000	Fe 3	473	473A	25	25	2.95E-01	3.51E+08	0.3534
Ca16	15	15.1A	6	6	1.64E-04	7.96E+08	0.0000	Fe 3	481	481A	25	25	2.70E-01	3.11E+08	0.3293
Ca16	13	13.9A	6	10	1.03E-04	3.54E+08	0.0000	Fe 3	488	488A	25	35	2.67E-01	2.13E+08	0.3308
Ca16	13	13.6A	6	10	2.99E-05	1.08E+08	0.0000	Fe 3	635	635A	25	15	2.54E-01	2.80E+08	0.4160
Ca16	13	13.1A	6	6	6.84E-06	4.46E+07	0.0000	Fe 3	418	418A	25	25	2.42E-01	3.69E+08	0.2545
Ca16	13	13.5A	6	10	1.16E-06	4.26E+06	0.0000	Fe 3	445	445A	25	15	2.04E-01	4.56E+08	0.2295
Ca17	19	19.7A	1	3	6.49E-01	3.71E+12	0.0307	Fe 3	445	445A	25	35	1.87E-01	1.80E+08	0.2101
Ca17	204	204A	1	3	1.75E-01	9.33E+09	0.3437	Fe 3	456	456A	25	35	1.83E-01	1.68E+08	0.2108
Ca17	14	14.9A	1	3	1.69E-01	1.68E+12	0.0060	Fe 3	513	513A	25	25	1.62E-01	1.64E+08	0.2117
Ca17	13	13.5A	1	3	6.92E-02	8.49E+11	0.0022	Fe 3	407	407A	25	25	1.62E-01	2.61E+08	0.1656
Ca17	18	18.8A	1	3	3.42E-02	2.15E+11	0.0015	Fe 3	428	428A	25	25	1.58E-01	2.30E+08	0.1703
Ca17	12	12.8A	1	3	3.39E-02	4.61E+11	0.0010	Fe 3	456	456A	25	35	1.46E-01	1.33E+08	0.1685
Ca17	18	18.1A	1	3	3.25E-02	2.20E+11	0.0014	Fe 3	523	523A	25	15	1.44E-01	2.34E+08	0.1918
Ca17	12	12.4A	1	3	2.19E-02	3.16E+11	0.0007	Fe 3	450	450A	25	35	1.40E-01	1.32E+08	0.1591
Ca17	12	12.2A	1	3	1.36E-02	2.04E+11	0.0004	Fe 3	419	419A	25	25	1.17E-01	1.77E+08	0.1234

Fe 3	398	398A	25	25	1.11E-01	1.87E+08	0.1109	Fe 5	175	175A	25	25	2.89E-01	2.50E+09	0.1241
Fe 3	482	482A	25	35	1.11E-01	9.09E+07	0.1357	Fe 5	232	232A	25	15	2.85E-01	2.35E+09	0.1628
Fe 3	393	393A	25	25	7.72E-02	1.33E+08	0.0761	Fe 5	241	241A	25	35	2.79E-01	9.12E+08	0.1659
Fe 3	395	395A	25	25	6.55E-02	1.12E+08	0.0649	Fe 5	175	175A	25	35	2.47E-01	1.52E+09	0.1060
Fe 3	389	389A	25	25	6.14E-02	1.08E+08	0.0599	Fe 5	198	198A	25	25	2.06E-01	1.39E+09	0.1002
Fe 3	852	852A	25	15	5.39E-02	3.30E+07	0.1212	Fe 5	180	180A	25	15	2.01E-01	2.73E+09	0.0888
Fe 3	434	434A	25	25	5.29E-02	7.46E+07	0.0580	Fe 5	207	207A	25	35	1.95E-01	8.62E+08	0.0993
Fe 3	533	533A	25	15	4.86E-02	7.60E+07	0.0661	Fe 5	207	207A	25	25	1.40E-01	8.67E+08	0.0713
Fe 3	393	393A	25	25	4.63E-02	7.97E+07	0.0457	Fe 5	177	177A	25	15	1.36E-01	1.91E+09	0.0591
Fe 3	513	513A	25	15	3.80E-02	6.40E+07	0.0496	Fe 5	231	231A	25	25	1.15E-01	5.71E+08	0.0655
Fe 3	472	472A	25	15	3.36E-02	6.70E+07	0.0402	Fe 5	186	186A	25	25	1.15E-01	8.86E+08	0.0523
Fe 3	450	450A	25	15	3.23E-02	7.09E+07	0.0367	Fe 5	200	200A	25	15	1.11E-01	1.23E+09	0.0545
Fe 3	413	413A	25	25	3.03E-02	4.74E+07	0.0315	Fe 5	365	365A	25	25	1.09E-01	2.17E+08	0.0997
Fe 3	443	443A	25	25	2.83E-02	3.85E+07	0.0316	Fe 5	175	175A	25	15	1.02E-01	1.47E+09	0.0438
Fe 3	473	473A	25	15	2.73E-02	5.42E+07	0.0327	Fe 5	179	179A	25	25	8.45E-02	7.02E+08	0.0370
Fe 3	524	524A	25	25	2.23E-02	2.16E+07	0.0298	Fe 5	186	186A	25	15	6.56E-02	8.36E+08	0.0300
Fe 3	414	414A	25	25	1.89E-02	2.94E+07	0.0197	Fe 5	193	193A	25	35	6.54E-02	3.34E+08	0.0309
Fe 3	492	492A	25	15	1.73E-02	3.17E+07	0.0216	Fe 5	193	193A	25	25	6.23E-02	4.45E+08	0.0295
Fe 3	905	905A	25	25	1.72E-02	5.60E+06	0.0413	Fe 5	200	200A	25	25	5.36E-02	3.57E+08	0.0263
Fe 3	400	400A	25	25	1.64E-02	2.72E+07	0.0165	Fe 5	185	185A	25	35	4.12E-02	2.28E+08	0.0187
Fe 3	399	399A	25	25	1.38E-02	2.31E+07	0.0138	Fe 5	185	185A	25	25	3.60E-02	2.79E+08	0.0163
Fe 3	393	393A	25	25	1.33E-02	2.29E+07	0.0131	Fe 5	199	199A	25	25	3.31E-02	2.22E+08	0.0162
Fe 3	450	450A	25	25	1.32E-02	1.74E+07	0.0150	Fe 5	179	179A	25	15	3.14E-02	4.33E+08	0.0138
Fe 3	460	460A	25	15	1.28E-02	2.69E+07	0.0149	Fe 5	180	180A	25	35	2.62E-02	1.53E+08	0.0116
Fe 3	390	390A	25	25	5.48E-03	9.58E+06	0.0054	Fe 5	186	186A	25	25	2.47E-02	1.89E+08	0.0113
Fe 3	405	405A	25	25	5.29E-03	8.60E+06	0.0054	Fe 5	179	179A	25	25	2.15E-02	1.78E+08	0.0094
Fe 3	452	452A	25	15	4.90E-03	1.06E+07	0.0056	Fe 5	180	180A	25	25	2.09E-02	1.70E+08	0.0092
Fe 3	390	390A	25	25	3.92E-03	6.87E+06	0.0038	Fe 5	177	177A	25	35	1.84E-02	1.11E+08	0.0080
Fe 3	396	396A	25	25	3.69E-03	6.27E+06	0.0037	Fe 5	177	177A	25	25	1.38E-02	1.16E+08	0.0060
Fe 3	405	405A	25	25	3.30E-03	5.35E+06	0.0034	Fe 5	175	175A	25	35	1.32E-02	8.14E+07	0.0057
Fe 3	447	447A	25	15	2.47E-03	5.50E+06	0.0028	Fe 5	175	175A	25	25	9.45E-03	8.15E+07	0.0041
Fe 3	420	420A	25	25	1.36E-03	2.05E+06	0.0014	Fe 5	207	207A	25	35	8.01E-03	3.55E+07	0.0041
Fe 3	481	481A	25	25	1.25E-03	1.44E+06	0.0015	Fe 5	197	197A	25	15	6.83E-04	7.78E+06	0.0003
Fe 3	514	514A	25	35	7.89E-04	5.67E+05	0.0010	Fe 6	174	174A	28	28	1.59E+01	1.24E+11	26.658
Fe 3	405	405A	25	25	1.86E-06	3.02E+03	0.0000	Fe 6	156	156A	28	20	1.47E+01	1.99E+11	34.283
Fe 3	389	389A	25	25	5.49E-07	9.66E+02	0.0000	Fe 6	180	180A	28	36	1.02E+01	5.82E+10	4.493
Fe 3	392	392A	25	25	1.80E-07	3.11E+02	0.0000	Fe 6	185	185A	28	36	9.35E+00	5.05E+10	4.233
Fe 3	417	417A	25	25	5.96E-09	9.10E+00	0.0000	Fe 6	159	159A	28	28	6.37E+00	5.98E+10	2.473
Fe 3	398	398A	25	25	2.01E-10	3.39E-01	0.0000	Fe 6	159	159A	28	36	5.44E+00	3.95E+10	2.118
Fe 4	309	309A	6	18	2.53E+00	9.81E+09	1.942	Fe 6	295	295A	28	28	3.92E+00	1.07E+10	2.871
Fe 4	532	532A	6	18	2.44E+00	3.18E+09	3.314	Fe 6	153	153A	28	20	3.37E+00	4.76E+10	1.262
Fe 4	275	275A	6	18	1.44E+00	7.05E+09	0.9795	Fe 6	148	148A	28	36	3.08E+00	2.60E+10	1.110
Fe 4	259	259A	6	18	8.52E-01	4.68E+09	0.5458	Fe 6	148	148A	28	28	2.94E+00	3.20E+10	1.059
Fe 4	251	251A	6	18	5.40E-01	3.17E+09	0.3342	Fe 6	155	155A	28	36	2.81E+00	2.16E+10	1.064
Fe 4	245	245A	6	18	3.63E-01	2.23E+09	0.2198	Fe 6	292	292A	28	20	2.57E+00	1.00E+10	1.864
Fe 4	326	326A	6	18	2.97E-01	1.03E+09	0.2409	Fe 6	154	154A	28	20	2.48E+00	3.47E+10	0.9332
Fe 4	242	242A	6	18	2.55E-01	1.61E+09	0.1522	Fe 6	185	185A	28	28	2.06E+00	1.43E+10	0.9331
Fe 4	239	239A	6	18	1.86E-01	1.20E+09	0.1099	Fe 6	141	141A	28	36	1.97E+00	1.81E+10	0.6799
Fe 4	281	281A	6	18	1.09E-01	5.11E+08	0.0758	Fe 6	138	138A	28	36	1.90E+00	1.85E+10	0.6379
Fe 4	262	262A	6	18	5.42E-02	2.91E+08	0.0351	Fe 6	148	148A	28	20	1.87E+00	2.84E+10	0.6741
Fe 4	252	252A	6	18	3.13E-02	1.82E+08	0.0195	Fe 6	141	141A	28	28	1.65E+00	1.95E+10	0.5693
Fe 4	246	246A	6	18	1.99E-02	1.21E+08	0.0121	Fe 6	160	160A	28	20	1.61E+00	2.08E+10	0.6310
Fe 4	243	243A	6	18	1.34E-02	8.40E+07	0.0080	Fe 6	144	144A	28	36	1.24E+00	1.10E+10	0.4352
Fe 4	240	240A	6	18	9.54E-03	6.11E+07	0.0056	Fe 6	158	158A	28	20	1.08E+00	1.43E+10	0.4178
Fe 5	236	236A	25	25	4.67E+00	2.23E+10	2.714	Fe 6	176	176A	28	20	1.06E+00	1.13E+10	0.4572
Fe 5	236	236A	25	35	4.50E+00	1.54E+10	2.617	Fe 6	197	197A	28	36	1.06E+00	5.01E+09	2.017
Fe 5	391	391A	25	25	4.27E+00	7.44E+09	4.190	Fe 6	138	138A	28	28	1.03E+00	1.29E+10	0.3458
Fe 5	227	227A	25	35	4.03E+00	1.48E+10	2.256	Fe 6	185	185A	28	20	9.77E-01	9.51E+09	0.4421
Fe 5	205	205A	25	35	2.25E+00	1.01E+10	1.136	Fe 6	279	279A	28	20	8.48E-01	3.63E+09	17.893
Fe 5	199	199A	25	35	2.16E+00	1.04E+10	1.053	Fe 6	135	135A	28	36	7.95E-01	8.00E+09	0.2621
Fe 5	389	389A	25	35	2.01E+00	2.52E+09	1.962	Fe 6	135	135A	28	28	6.96E-01	9.01E+09	0.2295
Fe 5	369	369A	25	15	1.90E+00	6.18E+09	1.757	Fe 6	141	141A	28	20	6.70E-01	1.11E+10	0.2313
Fe 5	205	205A	25	25	1.90E+00	1.20E+10	0.9585	Fe 6	133	133A	28	36	6.50E-01	6.71E+09	0.2116
Fe 5	236	236A	25	15	1.63E+00	1.29E+10	0.9502	Fe 6	296	296A	28	36	5.59E-01	1.18E+09	0.4104
Fe 5	192	192A	25	25	1.44E+00	1.04E+10	0.6783	Fe 6	189	189A	28	28	5.34E-01	3.56E+09	0.2470
Fe 5	192	192A	25	35	1.38E+00	7.10E+09	0.6503	Fe 6	133	133A	28	28	4.93E-01	6.55E+09	0.1604
Fe 5	186	186A	25	35	1.08E+00	5.93E+09	0.4920	Fe 6	178	178A	28	20	4.72E-01	4.92E+09	0.2062
Fe 5	185	185A	25	35	9.84E-01	5.47E+09	0.4456	Fe 6	134	134A	28	36	4.72E-01	4.83E+09	0.1544
Fe 5	185	185A	25	25	9.12E-01	7.10E+09	0.4129	Fe 6	138	138A	28	20	4.12E-01	7.19E+09	0.1385
Fe 5	206	206A	25	15	8.60E-01	8.99E+09	0.4349	Fe 6	155	155A	28	20	3.07E-01	4.22E+09	0.1165
Fe 5	179	179A	25	35	7.70E-01	4.56E+09	0.3374	Fe 6	220	220A	28	36	2.97E-01	1.13E+09	0.6308
Fe 5	206	206A	25	25	5.88E-01	3.69E+09	0.2974	Fe 6	158	158A	28	28	2.73E-01	2.58E+09	0.1056
Fe 5	180	180A	25	25	5.80E-01	4.74E+09	0.2561	Fe 6	155	155A	28	28	2.60E-01	2.56E+09	0.0985
Fe 5	180	180A	25	35	5.16E-01	3.01E+09	0.2279	Fe 6	135	135A	28	20	2.51E-01	4.55E+09	0.0828
Fe 5	192	192A	25	15	4.85E-01	5.81E+09	0.2287	Fe 6	187	187A	28	20	2.45E-01	2.32E+09	0.1125
Fe 5	226	226A	25	25	4.52E-01	2.35E+09	0.2518	Fe 6	143	143A	28	20	2.05E-01	3.30E+09	0.0718
Fe 5	241	241A	25	25	4.24E-01	1.94E+09	0.2524	Fe 6	186	186A	28	28	1.56E-01	1.07E+09	0.2794
Fe 5	177	177A	25	25	4.13E-01	3.49E+09	0.1794	Fe 6	215	215A	28	36	1.56E-01	6.23E+08	0.3233
Fe 5	177	177A	25	35	4.08E-01	2.46E+09	0.1772	Fe 6	133	133A	28	20	1.55E-01	2.88E+09	0.0505
Fe 5	185	185A	25	15	2.92E-01	3.78E+09	0.1323	Fe 6	144	144A	28	28	1.52E-01	1.74E+09	0.0533

Fe 6	201	201A	28	28	1.31E-01	7.68E+08	0.2538	Fe 7	218	218A	21	15	6.09E-02	5.69E+08	0.1278
Fe 6	155	155A	28	28	1.07E-01	1.06E+09	0.0404	Fe 7	182	182A	21	21	6.00E-02	5.75E+08	0.1050
Fe 6	217	217A	28	28	9.42E-02	4.73E+08	0.1973	Fe 7	114	114A	21	15	4.76E-02	1.62E+09	0.0132
Fe 6	158	158A	28	36	9.23E-02	6.78E+08	0.0357	Fe 7	110	110A	21	15	4.65E-02	1.70E+09	0.0124
Fe 6	138	138A	28	28	8.48E-02	1.06E+09	0.0285	Fe 7	123	123A	21	21	3.38E-02	7.08E+08	0.0101
Fe 6	138	138A	28	36	8.10E-02	7.85E+08	0.0272	Fe 7	207	207A	21	15	3.12E-02	3.21E+08	0.0624
Fe 6	185	185A	28	36	6.26E-02	3.38E+08	0.0284	Fe 7	119	119A	21	21	3.04E-02	6.73E+08	0.0088
Fe 6	134	134A	28	28	5.46E-02	7.18E+08	0.0179	Fe 7	107	107A	21	15	2.99E-02	1.16E+09	0.0078
Fe 6	191	191A	28	20	5.22E-02	4.72E+08	0.0963	Fe 7	147	147A	21	15	2.97E-02	6.08E+08	0.0107
Fe 6	138	138A	28	20	3.61E-02	6.32E+08	0.0121	Fe 7	172	172A	21	15	2.94E-02	4.38E+08	0.0488
Fe 6	134	134A	28	20	3.36E-02	6.19E+08	0.0110	Fe 7	109	109A	21	15	2.72E-02	1.01E+09	0.0072
Fe 6	183	183A	28	20	3.24E-02	3.22E+08	0.0570	Fe 7	114	114A	21	21	2.60E-02	6.32E+08	0.0072
Fe 6	147	147A	28	36	3.23E-02	2.75E+08	0.0116	Fe 7	106	106A	21	21	2.37E-02	6.62E+08	0.0061
Fe 6	215	215A	28	20	1.78E-02	1.28E+08	0.0368	Fe 7	109	109A	21	21	2.32E-02	6.13E+08	0.0062
Fe 6	191	191A	28	36	1.57E-02	7.95E+07	0.0289	Fe 7	105	105A	21	15	2.08E-02	8.36E+08	0.0053
Fe 6	205	205A	28	20	1.48E-02	1.17E+08	0.0293	Fe 7	106	106A	21	15	1.81E-02	7.06E+08	0.0047
Fe 6	141	141A	28	36	1.29E-02	1.19E+08	0.0044	Fe 7	143	143A	21	21	1.64E-02	2.55E+08	0.0057
Fe 6	135	135A	28	36	8.25E-03	8.33E+07	0.0027	Fe 7	203	203A	21	27	1.53E-02	9.15E+07	0.0299
Fe 6	137	137A	28	28	6.67E-03	8.36E+07	0.0022	Fe 7	103	103A	21	15	1.52E-02	6.28E+08	0.0038
Fe 6	147	147A	28	20	6.23E-03	9.56E+07	0.0022	Fe 7	104	104A	21	15	1.30E-02	5.26E+08	0.0033
Fe 6	141	141A	28	28	5.77E-03	6.86E+07	0.0020	Fe 7	220	220A	21	21	1.17E-02	7.67E+07	0.0248
Fe 6	230	230A	28	20	5.75E-03	3.60E+07	0.0128	Fe 7	123	123A	21	15	1.11E-02	3.26E+08	0.0033
Fe 6	135	135A	28	28	4.81E-03	6.24E+07	0.0016	Fe 7	114	114A	21	27	9.66E-03	1.82E+08	0.0027
Fe 6	225	225A	28	28	4.61E-03	2.16E+07	0.0100	Fe 7	122	122A	21	21	8.66E-03	1.82E+08	0.0026
Fe 6	134	134A	28	20	2.53E-03	4.68E+07	0.0008	Fe 7	143	143A	21	15	7.88E-03	1.71E+08	0.0027
Fe 6	135	135A	28	20	2.21E-03	4.02E+07	0.0007	Fe 7	115	115A	21	15	7.77E-03	2.58E+08	0.0022
Fe 6	137	137A	28	20	1.91E-03	3.35E+07	0.0006	Fe 7	208	208A	21	21	3.86E-03	2.83E+07	0.0077
Fe 6	147	147A	28	28	1.46E-03	1.60E+07	0.0005	Fe 7	199	199A	21	15	3.69E-03	4.13E+07	0.0071
Fe 6	141	141A	28	20	1.12E-03	1.87E+07	0.0004	Fe 7	104	104A	21	21	2.11E-04	6.10E+06	0.0001
Fe 6	147	147A	28	28	1.04E-03	1.14E+07	0.0004	Fe 8	160	160A	10	10	1.31E+01	3.38E+11	7.393
Fe 6	147	147A	28	20	8.00E-04	1.22E+07	0.0003	Fe 8	176	176A	10	14	7.44E+00	1.13E+11	6.336
Fe 6	143	143A	28	20	7.06E-04	1.14E+07	0.0002	Fe 8	123	123A	10	14	6.01E+00	1.86E+11	1.807
Fe 6	137	137A	28	36	4.50E-04	4.39E+06	0.0002	Fe 8	160	160A	10	6	6.00E+00	2.59E+11	5.803
Fe 6	143	143A	28	36	2.28E-04	2.05E+06	0.0001	Fe 8	103	103A	10	14	2.07E+00	9.28E+10	0.5165
Fe 6	137	137A	28	36	1.52E-04	1.48E+06	0.0001	Fe 8	178	178A	10	6	1.58E+00	5.49E+10	0.6904
Fe 6	147	147A	28	36	9.28E-05	7.88E+05	0.0000	Fe 8	109	109A	10	14	1.19E+00	4.73E+10	0.3155
Fe 6	135	135A	28	36	7.84E-05	7.90E+05	0.0000	Fe 8	94	94.4A	10	14	1.10E+00	5.88E+10	0.2511
Fe 6	141	141A	28	36	7.79E-05	7.19E+05	0.0000	Fe 8	106	106A	10	10	9.87E-01	5.85E+10	0.2535
Fe 6	180	180A	28	28	4.20E-05	3.07E+05	0.0000	Fe 8	89	89.9A	10	14	7.60E-01	4.48E+10	0.1650
Fe 6	134	134A	28	36	3.56E-05	3.65E+05	0.0000	Fe 8	106	106A	10	14	5.83E-01	2.47E+10	0.1497
Fe 6	137	137A	28	20	2.42E-05	4.26E+05	0.0000	Fe 8	86	86.2A	10	10	5.79E-01	5.20E+10	0.1205
Fe 6	137	137A	28	28	1.14E-05	1.43E+05	0.0000	Fe 8	88	88.1A	10	14	5.38E-01	3.30E+10	0.1145
Fe 6	135	135A	28	20	7.46E-06	1.35E+05	0.0000	Fe 8	111	111A	10	6	4.54E-01	4.06E+10	0.1226
Fe 6	141	141A	28	20	5.40E-06	8.97E+04	0.0000	Fe 8	85	85.4A	10	14	3.76E-01	2.46E+10	0.0775
Fe 6	137	137A	28	20	2.05E-06	3.59E+04	0.0000	Fe 8	87	87.1A	10	14	3.55E-01	2.23E+10	0.0747
Fe 6	141	141A	28	28	6.47E-07	7.68E+03	0.0000	Fe 8	87	87.5A	10	6	3.53E-01	5.13E+10	0.0746
Fe 6	135	135A	28	28	4.25E-07	5.51E+03	0.0000	Fe 8	212	212A	10	14	3.34E-01	3.52E+09	0.6834
Fe 6	137	137A	28	36	1.21E-09	1.18E+01	0.0000	Fe 8	87	88.0A	10	10	2.81E-01	2.42E+10	0.0597
Fe 7	152	152A	21	15	1.86E+01	3.56E+11	17.701	Fe 8	86	86.2A	10	14	2.46E-01	1.58E+10	0.0512
Fe 7	163	163A	21	21	1.50E+01	1.78E+11	28.897	Fe 8	86	86.5A	10	14	2.33E-01	1.48E+10	0.0487
Fe 7	148	148A	21	27	1.41E+01	1.59E+11	2.660	Fe 8	89	89.2A	10	14	1.56E-01	9.35E+09	0.0336
Fe 7	148	148A	21	21	9.90E+00	1.42E+11	3.582	Fe 8	218	218A	10	14	1.45E-01	1.44E+09	0.3054
Fe 7	181	181A	21	27	6.13E+00	4.59E+10	10.698	Fe 8	90	90.1A	10	10	1.38E-01	1.13E+10	0.0300
Fe 7	125	125A	21	27	5.76E+00	9.05E+10	1.753	Fe 8	84	84.1A	10	14	1.32E-01	8.89E+09	0.0268
Fe 7	115	115A	21	27	2.95E+00	5.46E+10	0.8264	Fe 8	85	85.2A	10	14	1.25E-01	8.20E+09	0.0257
Fe 7	125	125A	21	21	2.60E+00	5.22E+10	0.7937	Fe 8	85	85.6A	10	6	1.18E-01	1.79E+10	0.0244
Fe 7	227	227A	21	15	2.55E+00	2.18E+10	1.428	Fe 8	86	86.2A	10	6	1.17E-01	1.75E+10	0.0244
Fe 7	124	124A	21	27	2.54E+00	4.06E+10	0.7665	Fe 8	94	94.1A	10	6	1.06E-01	1.33E+10	0.0241
Fe 7	196	196A	21	27	2.29E+00	1.47E+10	4.322	Fe 8	186	186A	10	6	4.71E-02	1.51E+09	0.0844
Fe 7	168	168A	21	15	2.12E+00	3.30E+10	3.441	Fe 8	215	215A	10	6	4.14E-02	9.95E+08	0.0856
Fe 7	110	110A	21	27	1.72E+00	3.49E+10	0.4598	Fe 8	99	99.9A	10	6	4.08E-02	4.54E+09	0.0099
Fe 7	122	122A	21	21	1.59E+00	3.39E+10	0.4708	Fe 8	116	116A	10	6	3.49E-02	2.87E+09	0.0098
Fe 7	226	226A	21	21	1.38E+00	8.56E+09	0.7676	Fe 8	86	86.6A	10	10	2.57E-02	2.29E+09	0.0054
Fe 7	115	115A	21	21	1.13E+00	2.68E+10	0.3171	Fe 8	84	84.1A	10	6	2.07E-02	3.25E+09	0.0042
Fe 7	107	107A	21	27	1.12E+00	2.41E+10	0.2908	Fe 8	107	107A	10	10	1.35E-02	7.86E+08	0.0035
Fe 7	119	119A	21	27	9.29E-01	1.60E+10	0.2702	Fe 8	86	86.5A	10	6	1.31E-02	1.95E+09	0.0027
Fe 7	105	105A	21	27	7.74E-01	1.73E+10	0.1971	Fe 8	89	89.6A	10	6	8.49E-03	1.18E+09	0.0018
Fe 7	110	110A	21	21	6.51E-01	1.69E+10	0.1742	Fe 8	196	196A	10	10	7.48E-03	1.29E+08	0.0141
Fe 7	107	107A	21	21	5.85E-01	1.61E+10	0.1520	Fe 8	84	84.9A	10	6	4.49E-03	6.93E+08	0.0009
Fe 7	103	103A	21	27	5.65E-01	1.30E+10	0.1419	Fe 8	221	221A	10	10	4.04E-03	5.49E+07	0.0086
Fe 7	127	127A	21	15	5.53E-01	1.50E+10	0.1717	Fe 8	84	84.7A	10	10	3.16E-03	2.94E+08	0.0006
Fe 7	105	105A	21	21	2.59E-01	7.43E+09	0.0660	Fe 8	88	88.8A	10	6	9.07E-05	1.28E+07	0.0000
Fe 7	218	218A	21	27	2.24E-01	1.16E+09	0.4701	Fe 8	92	92.6A	10	6	5.16E-05	6.69E+06	0.0000
Fe 7	103	103A	21	21	1.89E-01	5.57E+09	0.0475	Fe 9	169	169A	1	3	3.08E+00	2.38E+11	0.0000
Fe 7	117	117A	21	15	1.60E-01	5.18E+09	0.0455	Fe 9	82	82.9A	1	3	5.45E-01	1.76E+11	0.1091
Fe 7	122	122A	21	15	1.52E-01	4.47E+09	0.0454	Fe 9	103	103A	1	3	3.17E-01	6.64E+10	0.0790
Fe 7	125	125A	21	15	1.39E-01	3.94E+09	0.0423	Fe 9	67	68.0A	1	3	2.40E-01	1.15E+11	0.0393
Fe 7	196	196A	21	21	1.27E-01	1.04E+09	0.2405	Fe 9	72	72.7A	1	3	8.33E-02	3.50E+10	0.0580
Fe 7	115	115A	21	15	1.13E-01	3.78E+09	0.0316	Fe 9	62	62.5A	1	3	7.16E-02	4.08E+10	0.0108
Fe 7	107	107A	21	21	6.95E-02	1.92E+09	0.0180	Fe 9	62	62.2A	1	3	7.10E-02	4.09E+10	0.0106

Fe 9	59	59.1A	1	3	6.43E-02	4.09E+10	0.0091	Fe10	50	50.9A	6	6	3.47E-02	1.49E+10	0.0042
Fe 9	74	74.5A	1	3	6.22E-02	2.49E+10	0.0112	Fe10	52	52.9A	6	2	3.39E-02	4.04E+10	0.0043
Fe 9	58	58.9A	1	3	5.58E-02	3.58E+10	0.0079	Fe10	50	50.1A	6	6	3.30E-02	1.46E+10	0.0040
Fe 9	57	57.5A	1	3	5.38E-02	3.62E+10	0.0074	Fe10	51	51.1A	6	10	2.87E-02	7.33E+09	0.0035
Fe 9	67	67.4A	1	3	4.16E-02	2.03E+10	0.0068	Fe10	51	51.6A	6	10	2.78E-02	6.98E+09	0.0034
Fe 9	73	73.1A	1	3	3.77E-02	1.57E+10	0.0066	Fe10	70	70.0A	6	2	2.76E-02	1.88E+10	0.0185
Fe 9	56	56.4A	1	3	3.66E-02	2.56E+10	0.0050	Fe10	51	51.7A	6	10	2.41E-02	6.01E+09	0.0030
Fe 9	64	64.3A	1	3	3.37E-02	1.81E+10	0.0052	Fe10	54	54.7A	6	6	2.32E-02	8.63E+09	0.0031
Fe 9	55	55.7A	1	3	2.65E-02	1.90E+10	0.0035	Fe10	51	51.1A	6	2	2.14E-02	2.73E+10	0.0026
Fe 9	74	74.3A	1	3	2.37E-02	9.56E+09	0.0169	Fe10	76	76.5A	6	6	1.97E-02	3.74E+09	0.0144
Fe 9	60	60.3A	1	3	1.27E-02	7.76E+09	0.0018	Fe10	56	56.1A	6	2	1.94E-02	2.06E+10	0.0026
Fe 9	58	58.2A	1	3	1.01E-02	6.63E+09	0.0014	Fe10	236	236A	6	6	1.92E-02	3.82E+08	0.0437
Fe 9	61	61.8A	1	3	6.85E-03	3.99E+09	0.0041	Fe10	50	50.1A	6	6	1.86E-02	8.22E+09	0.0022
Fe 9	56	56.9A	1	3	6.56E-03	4.51E+09	0.0009	Fe10	51	51.3A	6	6	1.56E-02	6.59E+09	0.0019
Fe 9	60	60.7A	1	3	5.04E-03	3.05E+09	0.0007	Fe10	49	49.4A	6	2	1.50E-02	2.05E+10	0.0018
Fe 9	55	56.0A	1	3	4.63E-03	3.28E+09	0.0006	Fe10	50	50.1A	6	2	1.45E-02	1.93E+10	0.0017
Fe 9	62	63.0A	1	3	3.45E-03	1.94E+09	0.0005	Fe10	50	50.5A	6	6	1.31E-02	5.72E+09	0.0016
Fe 9	59	59.9A	1	3	1.69E-03	1.05E+09	0.0002	Fe10	49	49.5A	6	2	1.24E-02	1.69E+10	0.0015
Fe 9	79	79.3A	1	3	1.45E-03	5.13E+08	0.0011	Fe10	229	229A	6	10	1.22E-02	1.55E+08	0.0269
Fe 9	61	61.5A	1	3	1.05E-03	6.18E+08	0.0006	Fe10	50	50.5A	6	10	1.02E-02	2.67E+09	0.0012
Fe 9	57	57.2A	1	3	5.99E-04	4.07E+08	0.0001	Fe10	76	76.1A	6	10	9.71E-03	1.12E+09	0.0071
Fe 9	56	56.5A	1	3	5.58E-04	3.88E+08	0.0001	Fe10	52	52.6A	6	6	9.62E-03	3.86E+09	0.0012
Fe 9	65	65.0A	1	3	4.76E-04	2.50E+08	0.0003	Fe10	53	53.8A	6	10	9.08E-03	2.09E+09	0.0012
Fe 9	69	69.2A	1	3	4.09E-04	1.90E+08	0.0003	Fe10	56	57.0A	6	10	9.02E-03	1.85E+09	0.0012
Fe 9	65	65.2A	1	3	2.53E-04	1.32E+08	0.0002	Fe10	50	50.0A	6	10	8.72E-03	2.33E+09	0.0010
Fe 9	69	69.1A	1	3	1.89E-04	8.80E+07	0.0001	Fe10	52	52.7A	6	2	7.37E-03	8.86E+09	0.0009
Fe 9	56	56.2A	1	3	1.38E-04	9.73E+07	0.0001	Fe10	66	66.6A	6	6	7.22E-03	1.81E+09	0.0046
Fe 9	63	63.6A	1	3	5.20E-05	2.86E+07	0.0000	Fe10	52	52.7A	6	10	5.36E-03	1.29E+09	0.0007
Fe 9	66	66.5A	1	3	5.80E-07	2.92E+05	0.0000	Fe10	69	69.4A	6	6	4.94E-03	1.14E+09	0.0033
Fe 9	55	56.0A	1	3	5.87E-10	4.16E+02	0.0000	Fe10	61	62.0A	6	10	4.72E-03	8.19E+08	0.0028
Fe10	171	171A	6	10	8.67E+00	1.96E+11	10.609	Fe10	80	80.4A	6	10	4.62E-03	4.76E+08	0.0036
Fe10	174	174A	6	6	4.56E+00	1.67E+11	5.783	Fe10	68	68.2A	6	10	4.12E-03	5.90E+08	0.0027
Fe10	184	184A	6	2	1.74E+00	1.70E+11	2.186	Fe10	65	65.9A	6	6	4.08E-03	1.05E+09	0.0026
Fe10	77	77.4A	6	10	1.12E+00	1.25E+11	0.2093	Fe10	76	76.4A	6	10	3.86E-03	4.41E+08	0.0028
Fe10	95	95.2A	6	6	9.12E-01	1.12E+11	0.2100	Fe10	78	78.1A	6	10	3.59E-03	3.93E+08	0.0027
Fe10	75	75.9A	6	6	7.94E-01	1.53E+11	0.1454	Fe10	74	74.8A	6	6	3.18E-03	6.31E+08	0.0023
Fe10	75	75.6A	6	10	7.90E-01	9.23E+10	0.1440	Fe10	195	195A	6	10	3.10E-03	5.42E+07	0.0058
Fe10	62	62.2A	6	10	7.17E-01	1.24E+11	0.1073	Fe10	67	67.6A	6	2	2.80E-03	2.04E+09	0.0018
Fe10	93	93.4A	6	10	5.30E-01	4.05E+10	0.1197	Fe10	65	65.4A	6	10	2.64E-03	4.12E+08	0.0017
Fe10	56	56.5A	6	10	3.93E-01	8.21E+10	0.0534	Fe10	50	50.6A	6	2	2.46E-03	3.20E+09	0.0003
Fe10	69	69.8A	6	10	3.90E-01	5.33E+10	0.0656	Fe10	49	49.4A	6	2	2.45E-03	3.35E+09	0.0003
Fe10	61	61.1A	6	6	2.70E-01	8.05E+10	0.0397	Fe10	71	71.3A	6	10	2.36E-03	3.10E+08	0.0016
Fe10	76	76.3A	6	2	2.58E-01	1.48E+11	0.0475	Fe10	74	74.3A	6	6	2.20E-03	4.44E+08	0.0016
Fe10	69	69.7A	6	6	2.58E-01	5.90E+10	0.0433	Fe10	70	70.3A	6	6	2.18E-03	4.90E+08	0.0015
Fe10	60	61.0A	6	10	2.37E-01	4.25E+10	0.0348	Fe10	73	73.6A	6	2	1.92E-03	1.18E+09	0.0014
Fe10	53	53.6A	6	10	2.28E-01	5.29E+10	0.0294	Fe10	58	58.7A	6	6	1.87E-03	6.03E+08	0.0011
Fe10	62	62.1A	6	6	2.00E-01	5.77E+10	0.0299	Fe10	58	58.8A	6	2	1.52E-03	1.47E+09	0.0009
Fe10	54	54.8A	6	10	1.66E-01	3.69E+10	0.0219	Fe10	80	80.0A	6	6	1.36E-03	2.36E+08	0.0010
Fe10	54	54.8A	6	6	1.45E-01	5.38E+10	0.0191	Fe10	52	52.5A	6	2	1.24E-03	1.50E+09	0.0002
Fe10	77	77.0A	6	6	1.41E-01	2.64E+10	0.0262	Fe10	58	58.2A	6	10	1.23E-03	2.42E+08	0.0007
Fe10	66	66.3A	6	6	1.41E-01	3.56E+10	0.0225	Fe10	58	59.0A	6	10	1.16E-03	2.23E+08	0.0002
Fe10	51	52.0A	6	10	1.41E-01	3.48E+10	0.0176	Fe10	67	67.6A	6	10	9.52E-04	1.39E+08	0.0006
Fe10	89	89.8A	6	2	1.38E-01	5.70E+10	0.0300	Fe10	62	62.7A	6	6	8.61E-04	2.43E+08	0.0005
Fe10	66	66.8A	6	6	1.35E-01	3.36E+10	0.0217	Fe10	61	61.2A	6	10	6.18E-04	1.10E+08	0.0004
Fe10	77	77.7A	6	10	1.35E-01	1.49E+10	0.1004	Fe10	63	63.1A	6	10	5.79E-04	9.71E+07	0.0003
Fe10	56	56.4A	6	6	1.18E-01	4.12E+10	0.0160	Fe10	64	64.0A	6	10	5.69E-04	9.26E+07	0.0003
Fe10	55	55.5A	6	6	1.11E-01	4.00E+10	0.0148	Fe10	65	65.1A	6	10	5.09E-04	8.00E+07	0.0003
Fe10	61	61.2A	6	2	1.02E-01	9.09E+10	0.0150	Fe10	51	51.4A	6	10	5.07E-04	1.28E+08	0.0001
Fe10	65	65.5A	6	10	1.02E-01	1.59E+10	0.0161	Fe10	63	63.5A	6	2	4.87E-04	4.03E+08	0.0003
Fe10	50	50.9A	6	10	1.02E-01	2.63E+10	0.0125	Fe10	96	97.0A	6	10	4.61E-04	3.27E+07	0.0004
Fe10	58	58.4A	6	6	1.01E-01	3.29E+10	0.0142	Fe10	83	83.2A	6	6	4.42E-04	7.10E+07	0.0004
Fe10	66	66.8A	6	10	1.01E-01	1.51E+10	0.0163	Fe10	75	75.6A	6	2	3.86E-04	2.25E+08	0.0003
Fe10	55	55.5A	6	10	9.66E-02	2.09E+10	0.0129	Fe10	76	76.1A	6	6	2.91E-04	5.59E+07	0.0002
Fe10	52	52.8A	6	10	8.88E-02	2.12E+10	0.0113	Fe10	66	66.1A	6	2	2.89E-04	2.21E+08	0.0000
Fe10	52	52.8A	6	6	8.44E-02	3.36E+10	0.0107	Fe10	85	85.3A	6	6	2.79E-04	4.26E+07	0.0002
Fe10	59	59.4A	6	10	8.34E-02	1.57E+10	0.0119	Fe10	71	71.0A	6	10	2.52E-04	3.33E+07	0.0002
Fe10	73	73.2A	6	10	8.28E-02	1.03E+10	0.0146	Fe10	72	72.7A	6	10	2.41E-04	3.04E+07	0.0002
Fe10	69	69.1A	6	2	6.83E-02	4.77E+10	0.0114	Fe10	50	50.7A	6	2	2.03E-04	2.64E+08	0.0001
Fe10	54	54.2A	6	10	6.76E-02	1.53E+10	0.0088	Fe10	54	54.5A	6	10	1.69E-04	3.80E+07	0.0000
Fe10	50	50.2A	6	10	6.62E-02	1.76E+10	0.0080	Fe10	87	87.5A	6	10	1.12E-04	9.76E+06	0.0001
Fe10	53	53.6A	6	6	6.42E-02	2.48E+10	0.0083	Fe10	58	58.9A	6	10	8.93E-05	1.72E+07	0.0000
Fe10	70	70.1A	6	10	5.61E-02	7.62E+09	0.0376	Fe10	52	52.2A	6	10	8.72E-05	2.14E+07	0.0000
Fe10	55	55.6A	6	2	5.20E-02	5.62E+10	0.0070	Fe10	65	65.9A	6	10	5.64E-05	8.67E+06	0.0000
Fe10	51	51.9A	6	6	4.89E-02	2.02E+10	0.0061	Fe10	50	50.8A	6	10	4.95E-05	1.28E+07	0.0000
Fe10	51	51.1A	6	6	4.56E-02	1.94E+10	0.0056	Fe10	68	68.6A	6	6	3.16E-05	7.47E+06	0.0000
Fe10	57	57.4A	6	10	3.85E-02	7.78E+09	0.0053	Fe10	51	51.1A	6	10	2.79E-05	7.12E+06	0.0000
Fe10	50	50.1A	6	10	3.82E-02	1.02E+10	0.0046	Fe10	64	64.4A	6	6	2.51E-05	6.73E+06	0.0000
Fe10	54	54.6A	6	2	3.70E-02	4.15E+10	0.0049	Fe10	65	65.2A	6	2	2.23E-05	1.75E+07	0.0000
Fe10	63	63.7A	6	2	3.69E-02	3.03E+10	0.0057	Fe10	79	79.5A	6	10	1.86E-05	1.96E+06	0.0000
Fe10	52	52.6A	6	6	3.52E-02	1.42E+10	0.0045	Fe10	72	72.2A	6	6	1.76E-05	3.75E+06	0.0000

Fe10	50	50.9A	6	6	1.67E-05	7.15E+06	0.0000	Fe11	46	46.6A	9	3	1.16E-02	1.19E+10	0.0013
Fe10	66	66.7A	6	10	1.67E-05	2.51E+06	0.0000	Fe11	49	49.6A	9	15	1.09E-02	1.97E+09	0.0013
Fe10	63	63.2A	6	6	1.44E-05	4.00E+06	0.0000	Fe11	71	71.8A	9	9	9.45E-03	1.36E+09	0.0065
Fe10	86	87.0A	6	2	1.42E-05	6.26E+06	0.0000	Fe11	70	70.4A	9	9	8.88E-03	1.33E+09	0.0060
Fe10	50	50.2A	6	10	1.38E-05	3.65E+06	0.0000	Fe11	55	55.2A	9	9	8.70E-03	2.12E+09	0.0012
Fe10	74	74.1A	6	10	4.03E-06	4.89E+05	0.0000	Fe11	44	45.0A	9	9	8.40E-03	3.08E+09	0.0009
Fe10	83	83.5A	6	10	2.71E-07	2.59E+04	0.0000	Fe11	53	53.3A	9	15	8.39E-03	1.31E+09	0.0011
Fe11	178	178A	9	15	1.01E+01	1.41E+11	11.675	Fe11	70	70.7A	9	15	8.27E-03	7.35E+08	0.0056
Fe11	188	188A	9	9	5.88E+00	1.23E+11	0.0000	Fe11	80	80.7A	9	15	7.71E-03	5.26E+08	0.0060
Fe11	70	70.9A	9	15	1.57E+00	1.39E+11	0.2683	Fe11	45	45.8A	9	3	6.84E-03	7.26E+09	0.0008
Fe11	186	186A	9	3	1.55E+00	9.91E+10	2.778	Fe11	66	66.0A	9	9	6.06E-03	1.03E+09	0.0038
Fe11	70	70.8A	9	9	1.32E+00	1.95E+11	0.2253	Fe11	83	83.9A	9	9	5.43E-03	5.71E+08	0.0044
Fe11	72	72.7A	9	15	1.20E+00	1.01E+11	0.2104	Fe11	66	66.8A	9	15	5.16E-03	5.14E+08	0.0033
Fe11	66	66.3A	9	15	9.57E-01	9.69E+10	0.1528	Fe11	66	66.5A	9	3	5.00E-03	2.52E+09	0.0032
Fe11	86	86.7A	9	15	8.30E-01	4.91E+10	0.1739	Fe11	74	74.8A	9	15	4.97E-03	3.96E+08	0.0036
Fe11	57	57.4A	9	15	7.40E-01	9.99E+10	0.1022	Fe11	45	45.9A	9	15	4.44E-03	9.38E+08	0.0005
Fe11	88	88.8A	9	3	6.14E-01	1.73E+11	0.1316	Fe11	44	44.6A	9	9	4.35E-03	1.62E+09	0.0005
Fe11	84	84.3A	9	9	5.90E-01	6.16E+10	0.1200	Fe11	81	81.5A	9	15	4.07E-03	2.72E+08	0.0032
Fe11	68	68.9A	9	15	5.04E-01	4.72E+10	0.0837	Fe11	76	76.7A	9	15	3.66E-03	2.76E+08	0.0027
Fe11	56	56.0A	9	9	4.75E-01	1.12E+11	0.0640	Fe11	79	79.7A	9	9	3.18E-03	3.71E+08	0.0024
Fe11	51	51.7A	9	15	4.44E-01	7.37E+10	0.0552	Fe11	87	87.7A	9	9	3.17E-03	3.05E+08	0.0027
Fe11	56	56.1A	9	15	4.34E-01	6.14E+10	0.0585	Fe11	46	46.1A	9	9	3.15E-03	1.10E+09	0.0003
Fe11	70	70.6A	9	3	3.87E-01	1.73E+11	0.0658	Fe11	79	79.6A	9	15	2.12E-03	1.49E+08	0.0016
Fe11	66	66.3A	9	9	3.72E-01	6.28E+10	0.0594	Fe11	61	62.0A	9	15	1.91E-03	2.21E+08	0.0011
Fe11	55	55.0A	9	15	2.64E-01	3.88E+10	0.0349	Fe11	78	78.6A	9	15	1.76E-03	1.27E+08	0.0013
Fe11	50	50.6A	9	15	2.33E-01	4.04E+10	0.0284	Fe11	75	75.4A	9	9	1.72E-03	2.24E+08	0.0012
Fe11	206	206A	9	9	2.30E-01	3.99E+09	0.4575	Fe11	77	77.6A	9	15	1.70E-03	1.26E+08	0.0013
Fe11	50	50.6A	9	9	2.14E-01	6.19E+10	0.0260	Fe11	71	71.9A	9	15	1.63E-03	1.40E+08	0.0011
Fe11	51	51.1A	9	9	2.04E-01	5.79E+10	0.0251	Fe11	62	62.4A	9	9	1.57E-03	2.99E+08	0.0009
Fe11	51	51.2A	9	15	2.02E-01	3.43E+10	0.0249	Fe11	47	47.4A	9	15	1.36E-03	2.69E+08	0.0002
Fe11	49	49.8A	9	15	1.95E-01	3.50E+10	0.0233	Fe11	84	84.7A	9	15	1.32E-03	8.18E+07	0.0011
Fe11	61	61.4A	9	3	1.85E-01	1.09E+11	0.0273	Fe11	75	75.9A	9	9	1.26E-03	1.62E+08	0.0009
Fe11	65	65.9A	9	3	1.81E-01	9.26E+10	0.0287	Fe11	49	49.7A	9	3	1.25E-03	1.12E+09	0.0006
Fe11	55	56.0A	9	3	1.81E-01	1.28E+11	0.0244	Fe11	75	75.2A	9	3	1.15E-03	4.52E+08	0.0008
Fe11	60	60.0A	9	15	1.72E-01	2.12E+10	0.0248	Fe11	61	61.9A	9	9	1.11E-03	2.14E+08	0.0002
Fe11	48	48.9A	9	15	1.62E-01	3.01E+10	0.0191	Fe11	79	79.8A	9	3	1.01E-03	3.53E+08	0.0008
Fe11	62	62.1A	9	15	1.55E-01	1.79E+10	0.0232	Fe11	49	49.7A	9	9	9.50E-04	2.85E+08	0.0001
Fe11	58	58.8A	9	9	1.48E-01	3.17E+10	0.0210	Fe11	48	48.1A	9	15	7.77E-04	1.49E+08	0.0001
Fe11	47	47.3A	9	15	1.41E-01	2.80E+10	0.0160	Fe11	82	82.2A	9	15	7.44E-04	4.89E+07	0.0006
Fe11	47	47.1A	9	15	1.30E-01	2.60E+10	0.0147	Fe11	95	95.1A	9	15	7.29E-04	3.58E+07	0.0007
Fe11	63	63.7A	9	9	1.25E-01	2.28E+10	0.0192	Fe11	46	46.0A	9	15	7.00E-04	1.47E+08	0.0001
Fe11	45	46.0A	9	15	1.25E-01	2.63E+10	0.0138	Fe11	47	47.1A	9	15	5.60E-04	1.12E+08	0.0003
Fe11	46	46.2A	9	15	1.21E-01	2.52E+10	0.0134	Fe11	69	69.3A	9	9	5.03E-04	7.75E+07	0.0003
Fe11	50	50.6A	9	3	1.12E-01	9.73E+10	0.0136	Fe11	49	49.1A	9	9	4.35E-04	1.33E+08	0.0002
Fe11	48	48.8A	9	15	9.24E-02	1.72E+10	0.0108	Fe11	51	51.1A	9	9	4.08E-04	1.16E+08	0.0002
Fe11	45	45.9A	9	9	8.70E-02	3.06E+10	0.0096	Fe11	45	45.9A	9	15	4.04E-04	8.53E+07	0.0002
Fe11	47	47.9A	9	15	8.59E-02	1.66E+10	0.0099	Fe11	84	84.8A	9	3	3.80E-04	1.17E+08	0.0003
Fe11	54	54.9A	9	15	8.45E-02	1.25E+10	0.0112	Fe11	47	47.5A	9	15	3.74E-04	7.37E+07	0.0002
Fe11	46	46.3A	9	9	8.35E-02	2.88E+10	0.0093	Fe11	49	49.5A	9	15	3.21E-04	5.84E+07	0.0002
Fe11	47	47.9A	9	9	8.05E-02	2.60E+10	0.0093	Fe11	100	100A	9	9	2.97E-04	2.17E+07	0.0003
Fe11	48	48.5A	9	15	7.30E-02	1.38E+10	0.0085	Fe11	48	48.5A	9	9	2.96E-04	9.35E+07	0.0001
Fe11	54	55.0A	9	9	7.08E-02	1.74E+10	0.0094	Fe11	48	48.4A	9	15	2.88E-04	5.47E+07	0.0001
Fe11	53	53.5A	9	3	6.95E-02	5.40E+10	0.0089	Fe11	44	44.8A	9	9	2.72E-04	1.01E+08	0.0000
Fe11	45	45.5A	9	15	6.75E-02	1.45E+10	0.0074	Fe11	52	52.8A	9	9	2.49E-04	6.62E+07	0.0001
Fe11	49	49.8A	9	9	6.61E-02	1.98E+10	0.0079	Fe11	49	49.7A	9	15	2.29E-04	4.13E+07	0.0001
Fe11	45	45.6A	9	15	6.50E-02	1.39E+10	0.0071	Fe11	48	48.4A	9	9	2.23E-04	7.04E+07	0.0000
Fe11	48	48.0A	9	9	5.28E-02	1.70E+10	0.0061	Fe11	51	51.7A	9	15	2.00E-04	3.33E+07	0.0001
Fe11	45	45.3A	9	9	5.28E-02	1.91E+10	0.0057	Fe11	62	62.9A	9	3	1.86E-04	1.04E+08	0.0001
Fe11	44	44.6A	9	9	5.28E-02	1.96E+10	0.0057	Fe11	90	90.0A	9	15	1.83E-04	1.00E+07	0.0002
Fe11	62	62.3A	9	9	5.08E-02	9.71E+09	0.0076	Fe11	68	68.4A	9	15	1.66E-04	1.58E+07	0.0001
Fe11	48	48.6A	9	9	4.92E-02	1.54E+10	0.0057	Fe11	61	62.0A	9	3	1.43E-04	8.28E+07	0.0000
Fe11	52	52.3A	9	15	4.90E-02	7.96E+09	0.0062	Fe11	67	67.7A	9	9	1.40E-04	2.27E+07	0.0001
Fe11	47	47.8A	9	3	4.65E-02	4.52E+10	0.0053	Fe11	82	82.6A	9	9	1.34E-04	1.46E+07	0.0001
Fe11	46	46.3A	9	15	4.09E-02	8.47E+09	0.0046	Fe11	52	52.4A	9	9	1.09E-04	2.94E+07	0.0001
Fe11	51	51.4A	9	9	3.93E-02	1.10E+10	0.0049	Fe11	64	64.7A	9	15	1.08E-04	1.15E+07	0.0001
Fe11	47	47.1A	9	9	3.93E-02	1.31E+10	0.0045	Fe11	46	46.9A	9	9	9.93E-05	3.35E+07	0.0000
Fe11	69	69.0A	9	9	3.71E-02	5.77E+09	0.0062	Fe11	50	50.4A	9	15	9.67E-05	1.69E+07	0.0000
Fe11	49	49.8A	9	3	3.55E-02	3.18E+10	0.0043	Fe11	45	45.4A	9	9	8.94E-05	3.22E+07	0.0000
Fe11	51	51.1A	9	3	3.48E-02	2.96E+10	0.0043	Fe11	47	47.0A	9	9	8.36E-05	2.80E+07	0.0000
Fe11	45	45.7A	9	15	3.40E-02	7.25E+09	0.0037	Fe11	48	48.1A	9	3	8.32E-05	7.99E+07	0.0000
Fe11	46	46.3A	9	3	3.19E-02	3.31E+10	0.0036	Fe11	244	244A	9	15	6.67E-05	4.95E+05	0.0002
Fe11	45	45.9A	9	3	3.13E-02	3.30E+10	0.0035	Fe11	47	47.5A	9	9	6.23E-05	2.04E+07	0.0000
Fe11	205	205A	9	15	3.12E-02	3.30E+08	0.0615	Fe11	49	50.0A	9	9	5.94E-05	1.76E+07	0.0000
Fe11	45	45.6A	9	9	2.98E-02	1.06E+10	0.0033	Fe11	48	49.0A	9	15	4.87E-05	9.03E+06	0.0000
Fe11	56	56.3A	9	15	2.69E-02	3.78E+09	0.0036	Fe11	50	50.4A	9	15	4.68E-05	8.18E+06	0.0000
Fe11	47	47.9A	9	3	2.41E-02	2.34E+10	0.0028	Fe11	71	71.4A	9	15	2.78E-05	2.42E+06	0.0000
Fe11	48	48.5A	9	3	1.53E-02	1.45E+10	0.0018	Fe11	76	76.9A	9	9	2.68E-05	3.36E+06	0.0000
Fe11	46	46.9A	9	15	1.52E-02	3.08E+09	0.0017	Fe11	46	46.9A	9	15	2.65E-05	5.35E+06	0.0000
Fe11	71	72.0A	9	9	1.51E-02	2.16E+09	0.0104	Fe11	74	74.4A	9	15	2.41E-05	1.94E+06	0.0000
Fe11	49	49.7A	9	15	1.42E-02	2.56E+09	0.0017	Fe11	47	47.8A	9	15	1.80E-05	3.50E+06	0.0000

Fe11	79	79.2A	9	9	1.35E-05	1.60E+06	0.0000	Fe13	39	39.7A	9	15	1.76E-01	4.97E+10	0.0168
Fe11	70	70.3A	9	3	1.97E-06	8.87E+05	0.0000	Fe13	44	44.5A	9	9	1.46E-01	5.45E+10	0.0156
Fe11	47	47.3A	9	3	1.74E-06	1.73E+06	0.0000	Fe13	57	57.4A	9	15	1.44E-01	1.94E+10	0.0199
Fe11	67	67.4A	9	15	1.69E-06	1.65E+05	0.0000	Fe13	37	37.7A	9	15	1.36E-01	4.24E+10	0.0123
Fe11	49	49.6A	9	9	1.52E-06	4.58E+05	0.0000	Fe13	44	44.1A	9	9	1.24E-01	4.73E+10	0.0131
Fe11	63	63.8A	9	15	1.13E-06	1.24E+05	0.0000	Fe13	39	39.6A	9	9	1.03E-01	4.87E+10	0.0098
Fe11	45	45.9A	9	9	8.66E-07	3.05E+05	0.0000	Fe13	54	54.4A	9	3	9.68E-02	7.26E+10	0.0127
Fe11	46	46.9A	9	15	2.51E-07	5.07E+04	0.0000	Fe13	40	40.2A	9	9	8.47E-02	3.89E+10	0.0082
Fe11	54	54.2A	9	15	9.97E-08	1.51E+04	0.0000	Fe13	41	41.7A	9	15	8.39E-02	2.14E+10	0.0084
Fe11	52	52.5A	9	15	7.86E-08	1.27E+04	0.0000	Fe13	37	37.2A	9	15	8.20E-02	2.63E+10	0.0073
Fe12	193	193A	4	12	6.12E+00	9.09E+10	6.743	Fe13	44	44.9A	9	3	8.07E-02	8.89E+10	0.0087
Fe12	66	66.0A	4	12	2.10E+00	2.68E+11	0.3339	Fe13	41	41.7A	9	9	7.17E-02	3.06E+10	0.0072
Fe12	63	63.1A	4	12	8.95E-01	1.25E+11	0.1359	Fe13	37	37.3A	9	15	6.85E-02	2.19E+10	0.0061
Fe12	51	51.3A	4	12	7.84E-01	1.65E+11	0.0968	Fe13	37	37.1A	9	15	6.79E-02	2.20E+10	0.0060
Fe12	79	79.5A	4	12	7.53E-01	6.62E+10	0.1445	Fe13	38	38.7A	9	9	6.34E-02	3.14E+10	0.0059
Fe12	46	46.1A	4	12	4.56E-01	1.19E+11	0.0505	Fe13	56	56.8A	9	9	5.88E-02	1.35E+10	0.0080
Fe12	379	379A	4	12	3.90E-01	1.50E+09	0.0847	Fe13	45	45.7A	9	15	4.44E-02	9.47E+09	0.0049
Fe12	56	56.4A	4	12	3.08E-01	5.38E+10	0.0418	Fe13	37	37.3A	9	9	4.37E-02	2.33E+10	0.0039
Fe12	47	48.0A	4	12	2.43E-01	5.87E+10	0.0280	Fe13	44	44.5A	9	9	4.29E-02	1.61E+10	0.0046
Fe12	41	41.9A	4	12	1.50E-01	4.74E+10	0.0151	Fe13	37	37.2A	9	9	3.92E-02	2.10E+10	0.0035
Fe12	43	43.4A	4	12	1.49E-01	4.39E+10	0.0155	Fe13	55	55.3A	9	9	3.64E-02	8.82E+09	0.0048
Fe12	43	43.9A	4	12	1.30E-01	3.76E+10	0.0137	Fe13	37	37.7A	9	9	3.64E-02	1.89E+10	0.0033
Fe12	54	54.7A	4	12	1.28E-01	2.38E+10	0.0168	Fe13	39	39.9A	9	3	3.54E-02	4.96E+10	0.0034
Fe12	42	42.8A	4	12	1.28E-01	3.88E+10	0.0132	Fe13	41	41.7A	9	3	3.34E-02	4.27E+10	0.0033
Fe12	40	41.0A	4	12	1.03E-01	3.41E+10	0.0101	Fe13	44	44.5A	9	15	3.29E-02	7.38E+09	0.0035
Fe12	40	40.3A	4	12	9.85E-02	3.37E+10	0.0095	Fe13	40	40.9A	9	9	3.18E-02	1.41E+10	0.0031
Fe12	47	47.5A	4	12	8.90E-02	2.19E+10	0.0102	Fe13	39	39.1A	9	9	3.14E-02	1.52E+10	0.0029
Fe12	44	44.2A	4	12	6.02E-02	1.71E+10	0.0064	Fe13	37	37.2A	9	3	2.99E-02	4.79E+10	0.0027
Fe12	60	60.1A	4	12	5.76E-02	8.86E+09	0.0083	Fe13	51	51.9A	9	9	2.59E-02	7.12E+09	0.0032
Fe12	40	40.3A	4	12	4.70E-02	1.61E+10	0.0046	Fe13	80	80.9A	9	9	2.56E-02	2.90E+09	0.0198
Fe12	52	52.3A	4	12	4.53E-02	9.19E+09	0.0057	Fe13	40	40.4A	9	15	2.50E-02	6.81E+09	0.0024
Fe12	82	82.1A	4	12	4.26E-02	3.51E+09	0.0335	Fe13	50	50.1A	9	15	2.48E-02	4.40E+09	0.0030
Fe12	42	42.4A	4	12	2.05E-02	6.34E+09	0.0021	Fe13	37	38.0A	9	9	2.30E-02	1.18E+10	0.0021
Fe12	43	44.0A	4	12	2.03E-02	5.84E+09	0.0021	Fe13	37	37.1A	9	9	2.25E-02	1.21E+10	0.0020
Fe12	79	79.3A	4	12	1.90E-02	1.68E+09	0.0144	Fe13	37	37.2A	9	9	2.23E-02	1.19E+10	0.0020
Fe12	59	59.0A	4	12	1.55E-02	2.47E+09	0.0022	Fe13	37	37.5A	9	15	2.02E-02	6.37E+09	0.0018
Fe12	41	41.3A	4	12	1.27E-02	4.14E+09	0.0013	Fe13	48	48.1A	9	15	1.86E-02	3.57E+09	0.0086
Fe12	40	40.5A	4	12	8.30E-03	2.81E+09	0.0008	Fe13	39	39.5A	9	15	1.48E-02	4.22E+09	0.0014
Fe12	84	84.9A	4	12	7.21E-03	5.56E+08	0.0059	Fe13	52	52.1A	9	15	1.32E-02	2.16E+09	0.0017
Fe12	40	40.4A	4	12	6.48E-03	2.20E+09	0.0006	Fe13	35	35.9A	9	3	1.30E-02	2.24E+10	0.0011
Fe12	45	45.5A	4	12	4.83E-03	1.30E+09	0.0005	Fe13	37	37.7A	9	9	1.29E-02	6.73E+09	0.0012
Fe12	75	75.6A	4	12	4.54E-03	4.42E+08	0.0033	Fe13	42	42.2A	9	9	1.04E-02	4.32E+09	0.0011
Fe12	66	66.7A	4	12	2.85E-03	3.56E+08	0.0018	Fe13	49	49.8A	9	9	9.46E-03	2.83E+09	0.0011
Fe12	46	46.3A	4	12	2.71E-03	7.02E+08	0.0003	Fe13	35	35.2A	9	3	9.16E-03	1.65E+10	0.0008
Fe12	96	96.8A	4	12	1.72E-03	1.02E+08	0.0016	Fe13	43	43.3A	9	9	8.58E-03	3.39E+09	0.0009
Fe12	40	40.8A	4	12	6.28E-04	2.09E+08	0.0001	Fe13	34	35.0A	9	3	8.12E-03	1.48E+10	0.0007
Fe12	88	88.4A	4	12	2.71E-04	1.93E+07	0.0002	Fe13	81	81.8A	9	15	7.75E-03	5.16E+08	0.0061
Fe12	76	76.3A	4	12	2.45E-04	2.34E+07	0.0002	Fe13	45	46.0A	9	9	6.91E-03	2.42E+09	0.0008
Fe12	47	47.7A	4	12	1.49E-04	3.64E+07	0.0001	Fe13	34	34.4A	9	3	6.43E-03	1.21E+10	0.0005
Fe12	49	49.4A	4	12	9.03E-05	2.06E+07	0.0000	Fe13	38	38.7A	9	15	5.72E-03	1.70E+09	0.0005
Fe12	41	41.5A	4	12	4.69E-05	1.51E+07	0.0000	Fe13	38	38.7A	9	15	5.71E-03	1.70E+09	0.0005
Fe12	52	52.7A	4	12	1.88E-05	3.76E+06	0.0000	Fe13	54	54.7A	9	15	5.35E-03	7.94E+08	0.0028
Fe12	48	48.9A	4	12	1.10E-05	2.56E+06	0.0000	Fe13	79	79.5A	9	9	4.97E-03	5.82E+08	0.0038
Fe12	51	51.8A	4	12	9.42E-06	1.95E+06	0.0000	Fe13	37	37.7A	9	15	4.43E-03	1.39E+09	0.0004
Fe12	50	50.1A	4	12	8.87E-06	1.97E+06	0.0000	Fe13	45	45.9A	9	15	4.19E-03	8.84E+08	0.0005
Fe12	73	73.5A	4	12	9.48E-07	9.75E+04	0.0000	Fe13	37	37.3A	9	3	3.99E-03	6.38E+09	0.0004
Fe12	46	46.9A	4	12	8.04E-08	2.03E+04	0.0000	Fe13	37	37.7A	9	3	3.83E-03	6.00E+09	0.0003
Fe13	204	204A	9	15	6.34E+00	6.76E+10	5.343	Fe13	52	52.3A	9	15	3.56E-03	5.80E+08	0.0004
Fe13	62	62.9A	9	15	3.11E+00	3.49E+11	0.4711	Fe13	45	45.9A	9	3	3.19E-03	3.37E+09	0.0004
Fe13	208	208A	9	9	2.57E+00	4.37E+10	1.201	Fe13	41	41.3A	9	15	2.98E-03	7.77E+08	0.0003
Fe13	252	252A	9	3	1.75E+00	6.10E+10	0.0100	Fe13	95	95.9A	9	9	2.56E-03	2.06E+08	0.0024
Fe13	59	59.5A	9	15	1.24E+00	1.56E+11	0.1777	Fe13	39	39.2A	9	3	2.54E-03	3.68E+09	0.0002
Fe13	62	62.2A	9	9	9.50E-01	1.82E+11	0.1424	Fe13	95	95.8A	9	15	2.42E-03	1.17E+08	0.0022
Fe13	74	74.9A	9	9	9.08E-01	1.20E+11	0.1640	Fe13	41	41.2A	9	9	1.94E-03	8.47E+08	0.0002
Fe13	58	59.0A	9	9	6.34E-01	1.35E+11	0.0900	Fe13	89	89.8A	9	15	1.56E-03	8.60E+07	0.0013
Fe13	42	42.8A	9	15	6.04E-01	1.47E+11	0.0621	Fe13	42	42.5A	9	15	1.53E-03	3.76E+08	0.0002
Fe13	48	48.2A	9	15	5.59E-01	1.07E+11	0.0648	Fe13	73	73.5A	9	3	1.44E-03	5.92E+08	0.0010
Fe13	333	333A	9	9	5.32E-01	3.55E+09	0.2341	Fe13	54	54.2A	9	9	1.37E-03	3.45E+08	0.0007
Fe13	47	47.9A	9	15	4.91E-01	9.53E+10	0.0565	Fe13	87	87.9A	9	15	1.36E-03	7.82E+07	0.0011
Fe13	386	386A	9	15	4.33E-01	1.29E+09	0.9147	Fe13	43	43.4A	9	15	1.09E-03	2.57E+08	0.0001
Fe13	47	47.9A	9	9	3.40E-01	1.10E+11	0.0391	Fe13	45	45.8A	9	9	1.01E-03	3.56E+08	0.0001
Fe13	44	44.7A	9	15	3.25E-01	7.25E+10	0.0349	Fe13	51	51.3A	9	3	9.65E-04	8.16E+08	0.0001
Fe13	75	75.3A	9	9	2.77E-01	3.63E+10	0.1996	Fe13	95	95.4A	9	9	9.37E-04	7.63E+07	0.0009
Fe13	54	54.6A	9	15	2.59E-01	3.86E+10	0.0340	Fe13	83	83.7A	9	9	8.09E-04	8.56E+07	0.0006
Fe13	60	60.8A	9	3	2.52E-01	1.51E+11	0.0369	Fe13	39	39.8A	9	15	7.98E-04	2.24E+08	0.0001
Fe13	40	40.2A	9	15	2.34E-01	6.45E+10	0.0226	Fe13	37	37.7A	9	9	7.93E-04	4.14E+08	0.0001
Fe13	54	54.4A	9	9	1.96E-01	4.91E+10	0.0256	Fe13	37	37.6A	9	9	7.63E-04	3.99E+08	0.0001
Fe13	50	50.9A	9	9	1.91E-01	5.47E+10	0.0234	Fe13	75	76.0A	9	15	7.57E-04	5.83E+07	0.0006
Fe13	42	42.8A	9	9	1.83E-01	7.42E+10	0.0188	Fe13	51	51.2A	9	3	7.04E-04	5.98E+08	0.0003
Fe13	38	38.7A	9	15	1.82E-01	5.40E+10	0.0169	Fe13	86	86.5A	9	3	4.94E-04	1.47E+08	0.0004

Fe13	80	80.4A	9	15	4.81E-04	3.31E+07	0.0004	Fe14	31	32.0A	6	6	8.89E-03	9.66E+09	0.0007
Fe13	37	37.7A	9	15	3.96E-04	1.24E+08	0.0000	Fe14	38	38.2A	6	10	8.13E-03	3.73E+09	0.0007
Fe13	40	40.3A	9	9	3.41E-04	1.56E+08	0.0000	Fe14	34	34.4A	6	2	7.33E-03	2.06E+10	0.0006
Fe13	104	104A	9	15	2.96E-04	1.20E+07	0.0003	Fe14	44	44.3A	6	6	6.92E-03	3.92E+09	0.0007
Fe13	38	38.5A	9	15	2.62E-04	7.87E+07	0.0000	Fe14	39	39.7A	6	2	6.89E-03	1.46E+10	0.0007
Fe13	34	34.4A	9	3	2.15E-04	4.04E+08	0.0000	Fe14	34	34.4A	6	6	6.49E-03	6.11E+09	0.0005
Fe13	51	51.6A	9	15	2.14E-04	3.58E+07	0.0001	Fe14	50	50.2A	6	10	5.62E-03	1.49E+09	0.0007
Fe13	38	38.5A	9	9	2.06E-04	1.03E+08	0.0000	Fe14	49	49.5A	6	6	5.58E-03	2.53E+09	0.0007
Fe13	35	35.1A	9	3	1.35E-04	2.44E+08	0.0000	Fe14	44	44.5A	6	6	5.23E-03	2.94E+09	0.0006
Fe13	38	38.6A	9	9	1.09E-04	5.42E+07	0.0000	Fe14	35	35.9A	6	6	5.06E-03	4.37E+09	0.0004
Fe13	46	46.0A	9	15	1.06E-04	2.23E+07	0.0000	Fe14	40	40.8A	6	6	4.57E-03	3.05E+09	0.0004
Fe13	50	50.3A	9	9	7.55E-05	2.21E+07	0.0000	Fe14	34	34.3A	6	10	4.54E-03	2.58E+09	0.0004
Fe13	95	95.8A	9	3	5.51E-05	1.34E+07	0.0001	Fe14	33	33.2A	6	6	4.34E-03	4.38E+09	0.0003
Fe13	76	76.4A	9	15	4.93E-05	3.76E+06	0.0000	Fe14	35	35.5A	6	10	4.03E-03	2.13E+09	0.0003
Fe13	50	50.2A	9	15	3.57E-05	6.30E+06	0.0000	Fe14	34	34.9A	6	10	3.56E-03	1.95E+09	0.0003
Fe13	52	52.7A	9	15	2.06E-05	3.29E+06	0.0000	Fe14	33	33.4A	6	6	3.36E-03	3.34E+09	0.0003
Fe13	38	38.4A	9	9	9.52E-06	4.78E+06	0.0000	Fe14	80	80.6A	6	2	2.72E-03	1.40E+09	0.0021
Fe13	49	49.5A	9	9	9.18E-06	2.78E+06	0.0000	Fe14	35	35.1A	6	2	2.67E-03	7.22E+09	0.0002
Fe13	50	50.4A	9	9	8.86E-06	2.58E+06	0.0000	Fe14	39	39.6A	6	10	2.42E-03	1.03E+09	0.0002
Fe13	52	52.0A	9	15	8.08E-06	1.33E+06	0.0000	Fe14	47	47.9A	6	2	2.06E-03	3.00E+09	0.0002
Fe13	47	47.9A	9	3	1.64E-06	1.59E+06	0.0000	Fe14	35	35.7A	6	6	2.02E-03	1.76E+09	0.0002
Fe13	51	51.1A	9	15	5.15E-07	8.79E+04	0.0000	Fe14	32	32.5A	6	6	1.85E-03	1.95E+09	0.0001
Fe13	52	52.6A	9	9	1.32E-07	3.53E+04	0.0000	Fe14	42	42.7A	6	10	1.85E-03	6.77E+08	0.0002
Fe14	219	219A	6	10	2.86E+00	3.95E+10	0.0034	Fe14	86	86.4A	6	10	1.75E-03	1.56E+08	0.0014
Fe14	273	273A	6	6	2.48E+00	3.69E+10	0.0627	Fe14	37	37.5A	6	10	1.64E-03	7.77E+08	0.0001
Fe14	59	59.6A	6	10	1.69E+00	3.17E+11	0.0721	Fe14	80	80.9A	6	6	1.62E-03	2.75E+08	0.0013
Fe14	55	55.7A	6	10	1.07E+00	2.30E+11	0.1434	Fe14	40	40.2A	6	10	1.47E-03	6.06E+08	0.0001
Fe14	56	56.7A	6	6	5.76E-01	1.99E+11	0.0786	Fe14	34	34.7A	6	10	1.42E-03	7.88E+08	0.0001
Fe14	44	44.9A	6	10	4.73E-01	1.56E+11	0.0511	Fe14	96	96.1A	6	10	1.35E-03	9.75E+07	0.0012
Fe14	70	70.6A	6	2	3.88E-01	2.60E+11	0.0660	Fe14	35	35.8A	6	2	1.33E-03	3.46E+09	0.0001
Fe14	368	368A	6	10	3.86E-01	1.90E+09	0.3567	Fe14	44	44.1A	6	2	1.19E-03	2.04E+09	0.0001
Fe14	291	291A	6	2	3.26E-01	1.28E+10	0.0072	Fe14	36	36.2A	6	2	1.14E-03	2.90E+09	0.0001
Fe14	41	41.5A	6	10	2.54E-01	9.85E+10	0.0253	Fe14	31	31.6A	6	6	9.69E-04	1.08E+09	0.0001
Fe14	40	40.0A	6	10	2.11E-01	8.77E+10	0.0203	Fe14	39	39.7A	6	6	9.35E-04	6.59E+08	0.0001
Fe14	54	54.9A	6	2	2.07E-01	2.29E+11	0.0274	Fe14	32	32.5A	6	6	9.05E-04	9.50E+08	0.0001
Fe14	53	53.1A	6	6	2.05E-01	8.09E+10	0.0262	Fe14	39	39.1A	6	6	8.88E-04	6.45E+08	0.0001
Fe14	41	41.7A	6	6	1.74E-01	1.11E+11	0.0174	Fe14	90	90.5A	6	10	7.90E-04	6.43E+07	0.0007
Fe14	36	36.8A	6	10	1.47E-01	7.26E+10	0.0130	Fe14	101	101A	6	10	7.67E-04	4.99E+07	0.0002
Fe14	37	37.3A	6	10	1.26E-01	6.04E+10	0.0113	Fe14	36	36.8A	6	10	7.54E-04	3.71E+08	0.0001
Fe14	39	39.9A	6	10	8.24E-02	3.46E+10	0.0079	Fe14	96	96.3A	6	2	7.27E-04	2.62E+08	0.0007
Fe14	53	53.0A	6	10	8.00E-02	1.90E+10	0.0102	Fe14	96	96.9A	6	6	5.97E-04	7.07E+07	0.0006
Fe14	47	47.6A	6	2	7.13E-02	1.05E+11	0.0082	Fe14	38	38.9A	6	2	4.47E-04	9.83E+08	0.0000
Fe14	34	34.4A	6	10	6.59E-02	3.71E+10	0.0054	Fe14	34	34.6A	6	10	3.97E-04	2.21E+08	0.0000
Fe14	39	39.9A	6	6	5.43E-02	3.80E+10	0.0052	Fe14	54	54.5A	6	10	3.75E-04	8.43E+07	0.0002
Fe14	35	35.8A	6	10	5.05E-02	2.63E+10	0.0043	Fe14	39	39.2A	6	10	3.02E-04	1.31E+08	0.0000
Fe14	34	34.9A	6	10	4.94E-02	2.71E+10	0.0041	Fe14	38	38.3A	6	10	2.87E-04	1.31E+08	0.0000
Fe14	42	42.2A	6	10	4.77E-02	1.79E+10	0.0048	Fe14	36	36.7A	6	10	2.52E-04	1.25E+08	0.0000
Fe14	41	41.0A	6	2	4.58E-02	9.09E+10	0.0045	Fe14	38	38.1A	6	2	2.43E-04	5.60E+08	0.0000
Fe14	34	34.3A	6	10	4.39E-02	2.49E+10	0.0036	Fe14	45	45.7A	6	10	1.99E-04	6.37E+07	0.0000
Fe14	36	36.7A	6	6	4.27E-02	3.51E+10	0.0038	Fe14	39	39.0A	6	10	1.94E-04	8.49E+07	0.0000
Fe14	34	34.5A	6	6	4.27E-02	4.00E+10	0.0035	Fe14	106	106A	6	6	1.72E-04	1.68E+07	0.0002
Fe14	36	36.8A	6	6	3.32E-02	2.73E+10	0.0029	Fe14	52	52.4A	6	10	1.34E-04	3.25E+07	0.0001
Fe14	41	41.9A	6	2	3.12E-02	5.93E+10	0.0031	Fe14	34	34.8A	6	6	1.33E-04	1.22E+08	0.0000
Fe14	52	52.6A	6	2	2.73E-02	3.28E+10	0.0035	Fe14	36	36.1A	6	10	1.09E-04	5.59E+07	0.0000
Fe14	36	36.7A	6	2	2.72E-02	6.74E+10	0.0024	Fe14	40	40.1A	6	6	8.02E-05	5.54E+07	0.0000
Fe14	39	39.7A	6	10	2.70E-02	1.14E+10	0.0026	Fe14	32	32.2A	6	6	7.35E-05	7.89E+07	0.0000
Fe14	35	35.4A	6	10	2.58E-02	1.37E+10	0.0022	Fe14	36	36.2A	6	2	6.59E-05	1.68E+08	0.0000
Fe14	47	47.2A	6	10	2.30E-02	6.90E+09	0.0026	Fe14	38	38.1A	6	10	5.21E-05	2.40E+07	0.0000
Fe14	46	46.9A	6	10	2.21E-02	6.70E+09	0.0025	Fe14	35	35.0A	6	6	5.18E-05	4.70E+07	0.0000
Fe14	35	35.4A	6	6	2.19E-02	1.94E+10	0.0019	Fe14	35	35.2A	6	10	4.75E-05	2.56E+07	0.0000
Fe14	33	33.1A	6	6	2.17E-02	2.21E+10	0.0017	Fe14	38	38.2A	6	6	4.62E-05	3.51E+07	0.0000
Fe14	44	44.1A	6	10	1.89E-02	6.49E+09	0.0020	Fe14	35	35.1A	6	10	2.36E-05	1.28E+07	0.0000
Fe14	44	44.7A	6	10	1.86E-02	6.21E+09	0.0020	Fe14	34	34.9A	6	10	2.13E-05	1.16E+07	0.0000
Fe14	32	32.2A	6	6	1.79E-02	1.91E+10	0.0014	Fe14	36	36.3A	6	6	9.19E-06	7.74E+06	0.0000
Fe14	35	35.9A	6	10	1.56E-02	8.09E+09	0.0013	Fe14	31	31.8A	6	6	9.08E-06	9.96E+06	0.0000
Fe14	33	33.2A	6	6	1.49E-02	1.50E+10	0.0012	Fe14	32	32.7A	6	6	7.83E-06	8.16E+06	0.0000
Fe14	40	40.7A	6	2	1.38E-02	2.78E+10	0.0013	Fe14	31	31.9A	6	6	6.01E-06	6.55E+06	0.0000
Fe14	35	35.9A	6	10	1.36E-02	7.05E+09	0.0012	Fe14	34	34.9A	6	2	3.38E-06	9.25E+06	0.0000
Fe14	31	31.7A	6	6	1.35E-02	1.50E+10	0.0010	Fe14	54	54.4A	6	6	3.07E-06	1.15E+06	0.0000
Fe14	41	41.0A	6	10	1.33E-02	5.27E+09	0.0013	Fe14	36	36.2A	6	6	2.33E-06	1.98E+06	0.0000
Fe14	42	42.4A	6	6	1.31E-02	8.11E+09	0.0013	Fe14	32	32.4A	6	6	1.54E-06	1.63E+06	0.0000
Fe14	37	37.9A	6	2	1.29E-02	3.00E+10	0.0012	Fe14	35	35.1A	6	10	1.83E-07	9.91E+04	0.0000
Fe14	37	37.3A	6	6	1.22E-02	9.73E+09	0.0011	Fe15	282	282A	1	3	8.29E-01	2.31E+10	1.509
Fe14	35	35.8A	6	10	1.14E-02	5.93E+09	0.0010	Fe15	52	53.0A	1	3	4.08E-01	3.24E+11	0.0011
Fe14	41	41.2A	6	2	1.05E-02	2.07E+10	0.0010	Fe15	38	38.9A	1	3	1.09E-01	1.60E+11	0.0030
Fe14	36	36.2A	6	2	1.05E-02	2.67E+10	0.0009	Fe15	34	34.2A	1	3	5.69E-02	1.08E+11	0.0047
Fe14	35	35.9A	6	10	1.01E-02	5.22E+09	0.0009	Fe15	31	31.9A	1	3	3.24E-02	7.07E+10	0.0025
Fe14	34	34.4A	6	2	9.82E-03	2.76E+10	0.0008	Fe15	30	30.7A	1	3	1.55E-02	3.67E+10	0.0011
Fe14	48	48.9A	6	10	9.64E-03	2.69E+09	0.0011	Fe15	38	38.4A	1	3	1.41E-02	2.13E+10	0.0013
Fe14	35	35.4A	6	2	9.02E-03	2.41E+10	0.0008	Fe15	29	29.8A	1	3	1.34E-02	3.35E+10	0.0010

Fe15	29	29.3A	1	3	8.87E-03	2.30E+10	0.0006	Fe18	95	9.54A	6	10	8.42E-02	6.17E+11	0.0019
Fe15	42	42.6A	1	3	6.05E-03	7.40E+09	0.0006	Fe18	96	9.68A	6	6	7.75E-02	9.19E+11	0.0018
Fe15	47	47.9A	1	3	4.24E-03	4.11E+09	0.0005	Fe18	11	11.7A	6	10	7.63E-02	3.72E+11	0.0021
Fe15	33	33.9A	1	3	3.14E-03	6.08E+09	0.0003	Fe18	15	15.3A	6	2	7.47E-02	1.07E+12	0.0027
Fe15	30	30.5A	1	3	2.71E-03	6.46E+09	0.0002	Fe18	98	9.81A	6	6	7.14E-02	8.25E+11	0.0017
Fe15	30	30.7A	1	3	2.54E-03	5.98E+09	0.0002	Fe18	10	10.7A	6	6	6.62E-02	6.45E+11	0.0017
Fe15	92	92.8A	1	3	1.28E-03	3.31E+08	0.0011	Fe18	94	9.46A	6	10	6.40E-02	4.77E+11	0.0014
Fe15	29	29.3A	1	3	7.48E-04	1.93E+09	0.0001	Fe18	96	9.69A	6	6	6.31E-02	7.47E+11	0.0015
Fe15	35	35.5A	1	3	3.23E-04	5.70E+08	0.0000	Fe18	95	9.53A	6	6	5.52E-02	6.76E+11	0.0013
Fe15	35	35.3A	1	3	6.70E-05	1.20E+08	0.0000	Fe18	99	9.95A	6	2	5.15E-02	1.73E+12	0.0012
Fe15	29	29.6A	1	3	3.83E-05	9.70E+07	0.0000	Fe18	10	10.2A	6	6	4.90E-02	5.18E+11	0.0012
Fe15	31	31.4A	1	3	2.80E-05	6.33E+07	0.0000	Fe18	95	9.53A	6	10	4.84E-02	3.55E+11	0.0011
Fe16	365	365A	2	6	7.28E-01	6.07E+09	1.867	Fe18	96	9.65A	6	6	4.55E-02	5.43E+11	0.0011
Fe16	51	51.1A	2	6	4.71E-01	2.00E+11	0.0013	Fe18	96	9.69A	6	10	4.46E-02	3.17E+11	0.0010
Fe16	37	37.2A	2	6	1.44E-01	1.16E+11	0.0128	Fe18	96	9.66A	6	2	3.30E-02	1.18E+12	0.0008
Fe16	32	32.5A	2	6	6.58E-02	6.93E+10	0.0051	Fe18	96	9.69A	6	2	3.07E-02	1.09E+12	0.0007
Fe16	30	30.3A	2	6	3.63E-02	4.41E+10	0.0026	Fe18	10	10.1A	6	10	2.85E-02	1.87E+11	0.0007
Fe16	28	29.0A	2	6	2.24E-02	2.97E+10	0.0016	Fe18	96	9.67A	6	6	2.80E-02	3.33E+11	0.0006
Fe16	28	28.2A	2	6	1.49E-02	2.09E+10	0.0010	Fe18	11	11.3A	6	10	2.23E-02	1.17E+11	0.0006
Fe16	27	27.6A	2	6	1.04E-02	1.52E+10	0.0007	Fe18	11	11.5A	6	2	2.20E-02	5.57E+11	0.0006
Fe17	15	15.1A	1	3	2.94E+00	2.87E+13	0.0275	Fe18	94	9.46A	6	6	2.08E-02	2.58E+11	0.0005
Fe17	15	15.3A	1	3	6.30E-01	6.01E+12	0.0134	Fe18	95	9.53A	6	2	1.94E-02	7.12E+11	0.0004
Fe17	15	15.4A	1	3	9.70E-03	9.04E+10	0.0539	Fe18	95	9.54A	6	6	1.83E-02	2.24E+11	0.0004
Fe17	12	12.2A	1	3	7.37E-01	1.10E+13	0.0502	Fe18	10	10.1A	6	6	1.79E-02	1.94E+11	0.0004
Fe17	11	11.2A	1	3	3.43E-01	6.05E+12	0.0092	Fe18	95	9.55A	6	10	1.72E-02	1.26E+11	0.0004
Fe17	13	14.0A	1	3	3.27E-01	3.71E+12	0.0002	Fe18	94	9.42A	6	2	1.42E-02	5.34E+11	0.0003
Fe17	16	16.9A	1	3	2.20E-01	1.72E+12	0.0079	Fe18	98	9.85A	6	6	1.09E-02	1.25E+11	0.0003
Fe17	17	17.1A	1	3	1.22E-01	9.33E+11	0.0069	Fe18	10	10.2A	6	2	9.33E-03	2.97E+11	0.0002
Fe17	10	10.7A	1	3	1.57E-01	3.02E+12	0.0040	Fe18	93	9.35A	6	2	8.77E-03	3.35E+11	0.0002
Fe17	10	10.5A	1	3	9.45E-02	1.91E+12	0.0024	Fe18	93	9.39A	6	2	7.34E-03	2.78E+11	0.0002
Fe17	11	11.1A	1	3	9.25E-02	1.65E+12	0.0025	Fe18	95	9.55A	6	10	6.74E-03	4.93E+10	0.0002
Fe17	10	10.3A	1	3	6.22E-02	1.30E+12	0.0015	Fe18	10	10.0A	6	10	5.03E-03	3.35E+10	0.0001
Fe17	10	10.2A	1	3	5.00E-02	1.06E+12	0.0012	Fe18	95	9.56A	6	6	4.01E-03	4.88E+10	0.0001
Fe17	12	12.6A	1	3	3.69E-02	5.14E+11	0.0012	Fe18	97	9.73A	6	10	3.80E-03	2.68E+10	0.0001
Fe17	10	10.2A	1	3	3.42E-02	7.29E+11	0.0008	Fe18	94	9.48A	6	6	2.76E-03	3.41E+10	0.0001
Fe17	10	10.1A	1	3	2.86E-02	6.20E+11	0.0007	Fe18	10	10.4A	6	2	1.63E-03	5.06E+10	0.0000
Fe17	11	11.4A	1	3	1.71E-02	2.93E+11	0.0005	Fe18	95	9.58A	6	2	1.06E-03	3.85E+10	0.0000
Fe17	10	10.2A	1	3	1.22E-02	2.59E+11	0.0003	Fe18	98	9.86A	6	2	8.40E-04	2.88E+10	0.0000
Fe17	10	10.8A	1	3	6.15E-03	1.16E+11	0.0002	Fe18	10	10.5A	6	10	7.56E-04	4.55E+09	0.0000
Fe17	10	10.5A	1	3	4.01E-03	8.03E+10	0.0001	Fe18	94	9.41A	6	2	6.88E-04	2.59E+10	0.0000
Fe17	10	10.3A	1	3	2.84E-03	5.89E+10	0.0001	Fe18	11	11.9A	6	2	3.40E-04	8.01E+09	0.0000
Fe17	10	10.1A	1	3	9.34E-04	2.02E+10	0.0000	Fe18	10	10.4A	6	10	2.93E-04	1.81E+09	0.0000
Fe18	14	14.3A	6	10	6.22E+00	2.03E+13	0.2130	Fe18	12	12.8A	6	2	2.07E-04	4.19E+09	0.0000
Fe18	14	14.3A	6	6	4.53E+00	2.46E+13	0.1550	Fe18	95	9.60A	6	10	7.05E-05	5.10E+08	0.0000
Fe18	14	14.6A	6	10	2.31E+00	7.26E+12	0.0805	Fe18	95	9.50A	6	2	6.84E-05	2.53E+09	0.0000
Fe18	14	14.1A	6	10	1.52E+00	5.10E+12	0.0513	Fe18	10	10.2A	6	10	1.06E-06	6.73E+06	0.0000
Fe18	11	11.5A	6	10	1.35E+00	6.76E+12	0.0373	Fe19	13	13.5A	9	15	6.06E+00	1.49E+13	0.1952
Fe18	14	14.4A	6	2	1.18E+00	1.90E+13	0.0406	Fe19	13	13.7A	9	15	5.49E+00	1.30E+13	0.1797
Fe18	13	13.4A	6	10	9.43E-01	3.49E+12	0.0012	Fe19	13	13.6A	9	9	4.66E+00	1.85E+13	0.1522
Fe18	11	11.4A	6	6	7.75E-01	6.64E+12	0.0211	Fe19	13	13.9A	9	15	1.93E+00	4.42E+12	0.0644
Fe18	11	11.4A	6	10	7.69E-01	3.95E+12	0.0210	Fe19	13	13.6A	9	3	1.68E+00	2.02E+13	0.0547
Fe18	13	13.4A	6	6	6.59E-01	4.08E+12	0.0008	Fe19	13	13.0A	9	15	1.53E+00	4.02E+12	0.0476
Fe18	15	15.9A	6	6	5.94E-01	2.61E+12	0.0226	Fe19	10	10.9A	9	15	1.15E+00	4.30E+12	0.0300
Fe18	10	10.6A	6	10	5.22E-01	3.13E+12	0.0132	Fe19	12	13.0A	9	9	9.79E-01	4.32E+12	0.0304
Fe18	10	10.6A	6	10	5.04E-01	3.00E+12	0.0128	Fe19	10	10.7A	9	15	9.39E-01	3.61E+12	0.0241
Fe18	15	15.7A	6	10	3.83E-01	1.04E+12	0.0144	Fe19	10	10.6A	9	15	9.32E-01	3.70E+12	0.0236
Fe18	11	11.5A	6	6	3.64E-01	3.03E+12	0.0101	Fe19	10	10.7A	9	9	8.61E-01	5.54E+12	0.0221
Fe18	10	10.1A	6	10	3.27E-01	2.15E+12	0.0079	Fe19	122	122A	9	9	7.10E-01	3.53E+10	0.8318
Fe18	12	12.9A	6	10	3.25E-01	1.30E+12	0.0012	Fe19	13	13.5A	9	9	6.96E-01	2.82E+12	0.0225
Fe18	13	13.3A	6	2	2.89E-01	5.46E+12	0.0092	Fe19	12	12.3A	9	15	6.77E-01	1.99E+12	0.0199
Fe18	10	10.4A	6	6	2.79E-01	2.86E+12	0.0069	Fe19	99	9.91A	9	15	5.72E-01	2.59E+12	0.0136
Fe18	105	105A	6	2	2.77E-01	8.22E+10	0.2815	Fe19	14	14.8A	9	15	5.48E-01	1.12E+12	0.0194
Fe18	14	14.6A	6	6	2.71E-01	1.42E+12	0.0095	Fe19	10	10.1A	9	15	5.33E-01	2.30E+12	0.0129
Fe18	11	11.2A	6	10	2.58E-01	1.37E+12	0.0069	Fe19	97	9.77A	9	9	4.19E-01	3.25E+12	0.0098
Fe18	11	11.4A	6	2	2.48E-01	6.36E+12	0.0068	Fe19	12	13.0A	9	3	4.08E-01	5.38E+12	0.0127
Fe18	10	10.6A	6	6	2.47E-01	2.45E+12	0.0063	Fe19	10	10.7A	9	3	3.85E-01	7.45E+12	0.0099
Fe18	10	10.4A	6	10	2.36E-01	1.45E+12	0.0059	Fe19	15	15.0A	9	3	3.53E-01	3.48E+12	0.0127
Fe18	10	10.3A	6	10	1.94E-01	1.23E+12	0.0048	Fe19	97	9.78A	9	15	3.47E-01	1.61E+12	0.0081
Fe18	98	9.81A	6	10	1.76E-01	1.22E+12	0.0041	Fe19	94	9.45A	9	15	3.34E-01	1.66E+12	0.0075
Fe18	96	9.68A	6	10	1.65E-01	1.17E+12	0.0038	Fe19	14	14.5A	9	9	3.30E-01	1.17E+12	0.0114
Fe18	12	12.9A	6	6	1.60E-01	1.07E+12	0.0049	Fe19	10	10.1A	9	9	3.28E-01	2.37E+12	0.0079
Fe18	10	10.6A	6	6	1.40E-01	1.40E+12	0.0035	Fe19	96	9.64A	9	15	3.03E-01	1.45E+12	0.0070
Fe18	96	9.65A	6	10	1.26E-01	9.03E+11	0.0029	Fe19	12	12.6A	9	9	2.95E-01	1.39E+12	0.0089
Fe18	99	9.95A	6	6	1.20E-01	1.35E+12	0.0029	Fe19	91	9.19A	9	15	2.80E-01	1.47E+12	0.0062
Fe18	10	10.1A	6	6	1.12E-01	1.23E+12	0.0027	Fe19	10	10.6A	9	9	2.58E-01	1.70E+12	0.0065
Fe18	10	10.4A	6	2	1.08E-01	3.32E+12	0.0027	Fe19	96	9.70A	9	15	2.37E-01	1.12E+12	0.0055
Fe18	11	11.9A	6	6	1.04E-01	8.22E+11	0.0030	Fe19	92	9.23A	9	15	2.36E-01	1.23E+12	0.0052
Fe18	99	9.95A	6	10	9.48E-02	6.39E+11	0.0023	Fe19	93	9.32A	9	9	1.82E-01	1.55E+12	0.0041
Fe18	97	9.80A	6	10	8.71E-02	6.05E+11	0.0020	Fe19	97	9.77A	9	3	1.74E-01	4.05E+12	0.0041
Fe18	10	10.5A	6	2	8.47E-02	2.54E+12	0.0021	Fe19	92	9.22A	9	9	1.47E-01	1.28E+12	0.0032

Fe19	93	9.33A	9	15	1.44E-01	7.36E+11	0.0032	Fe20	82	8.21A	4	12	7.48E-02	6.17E+11	0.0015
Fe19	90	9.03A	9	15	1.29E-01	7.03E+11	0.0028	Fe20	12	12.3A	4	12	7.21E-02	2.66E+11	0.0021
Fe19	12	12.3A	9	9	1.27E-01	6.20E+11	0.0037	Fe20	10	10.3A	4	12	6.45E-02	3.41E+11	0.0016
Fe19	10	10.1A	9	3	1.21E-01	2.62E+12	0.0029	Fe20	84	8.44A	4	12	6.06E-02	4.73E+11	0.0012
Fe19	10	11.0A	9	15	1.15E-01	4.24E+11	0.0030	Fe20	82	8.27A	4	12	5.51E-02	4.48E+11	0.0011
Fe19	90	9.07A	9	9	1.09E-01	9.82E+11	0.0024	Fe20	81	8.14A	4	12	5.29E-02	4.44E+11	0.0010
Fe19	12	12.2A	9	3	1.05E-01	1.56E+12	0.0031	Fe20	10	10.9A	4	12	4.15E-02	1.94E+11	0.0011
Fe19	96	9.65A	9	9	9.82E-02	7.82E+11	0.0023	Fe20	87	8.77A	4	12	1.93E-02	1.39E+11	0.0004
Fe19	89	8.96A	9	15	9.72E-02	5.38E+11	0.0021	Fe20	11	11.5A	4	12	1.52E-02	6.42E+10	0.0004
Fe19	91	9.20A	9	15	8.65E-02	4.54E+11	0.0019	Fe20	84	8.48A	4	12	1.35E-02	1.04E+11	0.0003
Fe19	10	10.8A	9	9	8.44E-02	5.35E+11	0.0022	Fe20	87	8.74A	4	12	1.12E-02	8.15E+10	0.0002
Fe19	93	9.32A	9	3	8.02E-02	2.05E+12	0.0018	Fe20	88	8.90A	4	12	7.89E-03	5.54E+10	0.0002
Fe19	90	9.07A	9	15	7.64E-02	4.13E+11	0.0017	Fe20	92	9.21A	4	12	6.53E-03	4.28E+10	0.0001
Fe19	89	8.93A	9	15	7.10E-02	3.96E+11	0.0015	Fe20	83	8.32A	4	12	3.40E-03	2.73E+10	0.0001
Fe19	89	8.92A	9	15	7.09E-02	3.96E+11	0.0015	Fe20	82	8.22A	4	12	2.95E-03	2.43E+10	0.0001
Fe19	89	8.92A	9	9	7.02E-02	6.54E+11	0.0015	Fe20	94	9.49A	4	12	2.57E-03	1.59E+10	0.0001
Fe19	88	8.85A	9	9	6.95E-02	6.58E+11	0.0015	Fe20	81	8.15A	4	12	2.06E-03	1.72E+10	0.0000
Fe19	88	8.81A	9	9	6.56E-02	6.26E+11	0.0014	Fe20	94	9.44A	4	12	1.70E-03	1.06E+10	0.0000
Fe19	96	9.70A	9	9	6.53E-02	5.14E+11	0.0015	Fe20	95	9.54A	4	12	1.29E-03	7.88E+09	0.0000
Fe19	11	11.1A	9	3	6.33E-02	1.13E+12	0.0017	Fe20	82	8.25A	4	12	8.83E-04	7.21E+09	0.0000
Fe19	12	12.4A	9	9	6.26E-02	3.01E+11	0.0019	Fe20	82	8.24A	4	12	7.73E-04	6.33E+09	0.0000
Fe19	91	9.20A	9	9	5.84E-02	5.11E+11	0.0013	Fe20	86	8.61A	4	12	7.04E-04	5.28E+09	0.0000
Fe19	92	9.23A	9	3	5.72E-02	1.49E+12	0.0013	Fe20	86	8.64A	4	12	3.20E-04	2.38E+09	0.0000
Fe19	88	8.85A	9	15	5.60E-02	3.18E+11	0.0012	Fe20	82	8.22A	4	12	1.51E-04	1.24E+09	0.0000
Fe19	90	9.07A	9	3	5.04E-02	1.36E+12	0.0011	Fe20	86	8.65A	4	12	3.62E-05	2.69E+08	0.0000
Fe19	88	8.81A	9	9	4.16E-02	3.97E+11	0.0009	Fe21	12	12.4A	9	15	8.63E+00	2.48E+13	0.0619
Fe19	11	11.0A	9	15	3.77E-02	1.38E+11	0.0010	Fe21	12	12.4A	9	9	2.82E+00	1.35E+13	0.0370
Fe19	98	9.86A	9	15	3.63E-02	1.66E+11	0.0009	Fe21	12	12.5A	5	7	9.50E-01	5.82E+12	0.0287
Fe19	97	9.72A	9	9	3.52E-02	2.76E+11	0.0008	Fe21	12	12.2A	9	15	2.14E+00	6.39E+12	0.0625
Fe19	89	8.96A	9	9	3.42E-02	3.16E+11	0.0007	Fe21	95	9.56A	9	15	1.69E+00	8.22E+12	0.0386
Fe19	87	8.74A	9	9	3.35E-02	3.25E+11	0.0007	Fe21	12	12.2A	9	9	1.27E+00	6.38E+12	0.0369
Fe19	89	8.92A	9	3	3.12E-02	8.72E+11	0.0007	Fe21	86	8.64A	9	15	6.38E-01	3.80E+12	0.0132
Fe19	88	8.80A	9	9	2.97E-02	2.84E+11	0.0006	Fe21	93	9.33A	9	15	5.96E-01	3.04E+12	0.0133
Fe19	96	9.68A	9	3	2.75E-02	6.53E+11	0.0006	Fe21	95	9.55A	9	9	5.50E-01	4.47E+12	0.0126
Fe19	90	9.00A	9	15	2.15E-02	1.18E+11	0.0005	Fe21	13	13.1A	9	9	4.97E-01	2.14E+12	0.0156
Fe19	11	11.1A	9	9	1.65E-02	9.93E+10	0.0004	Fe21	12	12.3A	9	3	4.31E-01	6.29E+12	0.0127
Fe19	10	10.0A	9	3	1.37E-02	3.05E+11	0.0003	Fe21	109	109A	9	3	4.21E-01	7.76E+10	0.2941
Fe19	94	9.49A	9	3	1.26E-02	3.11E+11	0.0003	Fe21	11	11.6A	9	15	4.09E-01	1.34E+12	0.0114
Fe19	89	8.93A	9	15	1.24E-02	6.91E+10	0.0003	Fe21	140	140A	9	9	3.68E-01	1.38E+10	0.3545
Fe19	93	9.37A	9	15	1.14E-02	5.77E+10	0.0003	Fe21	93	9.32A	9	9	3.50E-01	2.99E+12	0.0078
Fe19	91	9.10A	9	15	1.00E-02	5.37E+10	0.0002	Fe21	165	165A	9	15	3.34E-01	5.40E+09	0.4282
Fe19	90	9.01A	9	9	5.72E-03	5.22E+10	0.0001	Fe21	11	11.8A	9	15	3.15E-01	9.98E+11	0.0089
Fe19	89	8.98A	9	9	5.21E-03	4.79E+10	0.0001	Fe21	82	8.21A	9	15	3.02E-01	1.99E+12	0.0059
Fe19	98	9.89A	9	9	4.18E-03	3.17E+10	0.0001	Fe21	84	8.43A	9	15	2.39E-01	1.50E+12	0.0048
Fe19	11	11.6A	9	9	3.98E-03	2.20E+10	0.0001	Fe21	89	8.96A	9	15	2.20E-01	1.22E+12	0.0047
Fe19	89	8.94A	9	3	3.71E-03	1.03E+11	0.0001	Fe21	11	11.6A	9	9	2.10E-01	1.16E+12	0.0058
Fe19	90	9.05A	9	3	2.51E-03	6.81E+10	0.0001	Fe21	86	8.64A	9	9	2.08E-01	2.07E+12	0.0043
Fe19	10	10.0A	9	15	2.30E-03	1.02E+10	0.0001	Fe21	79	7.98A	9	15	1.85E-01	1.29E+12	0.0035
Fe19	90	9.02A	9	15	2.04E-03	1.11E+10	0.0000	Fe21	11	11.6A	9	9	1.64E-01	8.97E+11	0.0046
Fe19	88	8.86A	9	3	2.01E-03	5.69E+10	0.0000	Fe21	11	11.6A	9	3	1.56E-01	2.58E+12	0.0043
Fe19	92	9.24A	9	9	1.95E-03	1.69E+10	0.0000	Fe21	89	8.96A	9	9	1.46E-01	1.35E+12	0.0031
Fe19	97	9.76A	9	9	1.59E-03	1.24E+10	0.0000	Fe21	84	8.43A	9	9	1.42E-01	1.48E+12	0.0029
Fe19	90	9.02A	9	9	1.40E-03	1.28E+10	0.0000	Fe21	80	8.01A	9	15	1.24E-01	8.59E+11	0.0024
Fe19	89	8.98A	9	15	8.07E-04	4.45E+09	0.0000	Fe21	11	11.8A	9	9	1.20E-01	6.39E+11	0.0034
Fe19	88	8.82A	9	9	6.92E-04	6.59E+09	0.0000	Fe21	78	7.83A	9	15	1.18E-01	8.56E+11	0.0022
Fe19	91	9.14A	9	9	6.68E-04	5.93E+09	0.0000	Fe21	93	9.36A	9	3	1.15E-01	2.92E+12	0.0026
Fe19	12	12.6A	9	15	5.56E-04	1.56E+09	0.0000	Fe21	77	7.73A	9	15	1.05E-01	7.81E+11	0.0019
Fe19	91	9.18A	9	15	3.12E-04	1.65E+09	0.0000	Fe21	82	8.21A	9	9	1.01E-01	1.11E+12	0.0020
Fe19	92	9.22A	9	3	2.96E-04	7.74E+09	0.0000	Fe21	81	8.12A	9	15	9.20E-02	6.20E+11	0.0018
Fe19	89	8.98A	9	9	2.26E-04	2.08E+09	0.0000	Fe21	97	9.71A	9	9	8.76E-02	6.89E+11	0.0020
Fe19	97	9.77A	9	9	1.10E-04	8.54E+08	0.0000	Fe21	77	7.78A	9	15	7.54E-02	5.54E+11	0.0014
Fe19	89	8.91A	9	9	3.92E-05	3.66E+08	0.0000	Fe21	11	11.4A	9	3	7.18E-02	1.23E+12	0.0020
Fe19	97	9.76A	9	15	3.81E-05	1.78E+08	0.0000	Fe21	80	8.01A	9	9	6.98E-02	8.06E+11	0.0013
Fe19	95	9.56A	9	15	7.13E-06	3.47E+07	0.0000	Fe21	81	8.12A	9	9	6.13E-02	6.89E+11	0.0012
Fe19	99	9.90A	9	15	4.30E-09	1.95E+04	0.0000	Fe21	79	7.98A	9	9	6.06E-02	7.05E+11	0.0012
Fe20	12	12.9A	4	12	7.49E+00	2.49E+13	0.2317	Fe21	10	10.8A	9	15	6.03E-02	2.29E+11	0.0016
Fe20	10	10.1A	4	12	1.53E+00	8.40E+12	0.0368	Fe21	89	8.95A	9	3	5.69E-02	1.58E+12	0.0012
Fe20	12	12.8A	4	12	1.41E+00	4.78E+12	0.0432	Fe21	76	7.66A	9	15	5.48E-02	4.15E+11	0.0010
Fe20	91	9.13A	4	12	5.64E-01	3.76E+12	0.0123	Fe21	84	8.44A	9	3	4.85E-02	1.51E+12	0.0010
Fe20	11	11.9A	4	12	4.50E-01	1.75E+12	0.0129	Fe21	77	7.78A	9	9	4.33E-02	5.30E+11	0.0008
Fe20	98	9.85A	4	12	4.34E-01	2.49E+12	0.0102	Fe21	78	7.83A	9	9	3.81E-02	4.61E+11	0.0007
Fe20	13	13.8A	4	12	3.99E-01	1.16E+12	0.0132	Fe21	11	11.3A	9	15	3.36E-02	1.17E+11	0.0009
Fe20	145	145A	4	12	3.90E-01	1.03E+10	0.4197	Fe21	10	11.0A	9	15	3.25E-02	1.20E+11	0.0009
Fe20	86	8.70A	4	12	2.97E-01	2.18E+12	0.0062	Fe21	77	7.73A	9	9	3.14E-02	3.89E+11	0.0006
Fe20	92	9.29A	4	12	2.47E-01	1.59E+12	0.0055	Fe21	82	8.21A	9	15	2.90E-02	1.91E+11	0.0006
Fe20	84	8.46A	4	12	1.91E-01	1.48E+12	0.0039	Fe21	86	8.70A	9	9	2.55E-02	2.50E+11	0.0005
Fe20	89	8.93A	4	12	1.73E-01	1.21E+12	0.0037	Fe21	80	8.02A	9	3	2.53E-02	8.75E+11	0.0005
Fe20	12	12.2A	4	12	1.11E-01	4.17E+11	0.0032	Fe21	81	8.11A	9	3	2.17E-02	7.34E+11	0.0004
Fe20	83	8.31A	4	12	1.08E-01	8.69E+11	0.0021	Fe21	10	10.6A	9	15	2.06E-02	8.09E+10	0.0005
Fe20	85	8.50A	4	12	9.44E-02	7.26E+11	0.0019	Fe21	77	7.73A	9	9	1.89E-02	2.34E+11	0.0003

Fe21	76	7.66A	9	9	1.80E-02	2.27E+11	0.0003	Fe22	75	7.53A	6	10	8.10E-02	9.53E+11	0.0015
Fe21	77	7.73A	9	15	1.78E-02	1.32E+11	0.0003	Fe22	77	7.79A	6	10	6.78E-02	7.45E+11	0.0013
Fe21	10	10.7A	9	9	1.76E-02	1.14E+11	0.0004	Fe22	75	7.57A	6	10	6.67E-02	7.76E+11	0.0012
Fe21	10	10.8A	9	9	1.70E-02	1.08E+11	0.0004	Fe22	75	7.58A	6	6	5.64E-02	1.09E+12	0.0010
Fe21	82	8.24A	9	9	1.67E-02	1.82E+11	0.0003	Fe22	73	7.35A	6	10	5.59E-02	6.90E+11	0.0010
Fe21	11	11.1A	9	9	1.47E-02	8.83E+10	0.0004	Fe22	10	10.6A	6	10	5.42E-02	3.19E+11	0.0014
Fe21	77	7.79A	9	3	1.44E-02	5.28E+11	0.0003	Fe22	73	7.39A	6	10	4.04E-02	4.93E+11	0.0007
Fe21	86	8.69A	9	15	1.24E-02	7.30E+10	0.0003	Fe22	10	10.7A	6	10	3.84E-02	2.25E+11	0.0010
Fe21	77	7.75A	9	15	1.23E-02	9.11E+10	0.0002	Fe22	77	7.79A	6	6	3.69E-02	6.76E+11	0.0007
Fe21	77	7.73A	9	3	1.20E-02	4.47E+11	0.0002	Fe22	79	7.97A	6	2	3.60E-02	1.89E+12	0.0007
Fe21	79	7.99A	9	9	1.03E-02	1.20E+11	0.0002	Fe22	73	7.35A	6	6	3.55E-02	7.31E+11	0.0006
Fe21	10	10.7A	9	3	1.02E-02	1.96E+11	0.0003	Fe22	11	11.0A	6	10	3.55E-02	1.95E+11	0.0009
Fe21	85	8.59A	9	15	1.02E-02	6.15E+10	0.0002	Fe22	74	7.40A	6	10	3.41E-02	4.15E+11	0.0006
Fe21	76	7.65A	9	3	9.96E-03	3.78E+11	0.0002	Fe22	73	7.30A	6	10	3.37E-02	4.22E+11	0.0006
Fe21	77	7.74A	9	9	9.61E-03	1.19E+11	0.0002	Fe22	11	11.2A	6	2	3.17E-02	8.40E+11	0.0009
Fe21	84	8.48A	9	15	9.22E-03	5.70E+10	0.0002	Fe22	75	7.57A	6	10	2.80E-02	3.26E+11	0.0005
Fe21	91	9.12A	9	15	8.22E-03	4.39E+10	0.0002	Fe22	10	10.6A	6	6	2.71E-02	2.69E+11	0.0007
Fe21	75	7.51A	9	3	7.61E-03	3.00E+11	0.0001	Fe22	86	8.61A	6	2	2.43E-02	1.09E+12	0.0005
Fe21	85	8.58A	9	9	6.69E-03	6.74E+10	0.0001	Fe22	72	7.23A	6	10	2.43E-02	3.10E+11	0.0004
Fe21	89	8.99A	9	9	6.36E-03	5.83E+10	0.0001	Fe22	91	9.20A	6	2	2.31E-02	9.10E+11	0.0005
Fe21	75	7.55A	9	3	6.33E-03	2.47E+11	0.0001	Fe22	83	8.38A	6	10	2.03E-02	1.93E+11	0.0004
Fe21	79	7.94A	9	15	6.05E-03	4.27E+10	0.0001	Fe22	72	7.21A	6	6	1.93E-02	4.13E+11	0.0003
Fe21	78	7.84A	9	9	5.95E-03	7.17E+10	0.0001	Fe22	75	7.57A	6	2	1.76E-02	1.02E+12	0.0003
Fe21	82	8.21A	9	9	5.77E-03	6.34E+10	0.0001	Fe22	74	7.40A	6	6	1.73E-02	3.51E+11	0.0003
Fe21	74	7.49A	9	3	4.98E-03	1.97E+11	0.0001	Fe22	71	7.12A	6	6	1.51E-02	3.31E+11	0.0003
Fe21	77	7.76A	9	9	4.45E-03	5.48E+10	0.0001	Fe22	76	7.62A	6	10	1.48E-02	1.70E+11	0.0003
Fe21	84	8.49A	9	9	4.35E-03	4.47E+10	0.0001	Fe22	78	7.80A	6	2	1.39E-02	7.62E+11	0.0003
Fe21	78	7.85A	9	15	4.25E-03	3.07E+10	0.0001	Fe22	10	10.8A	6	6	1.30E-02	1.24E+11	0.0003
Fe21	78	7.84A	9	9	3.89E-03	4.69E+10	0.0001	Fe22	71	7.19A	6	6	1.07E-02	2.30E+11	0.0002
Fe21	85	8.58A	9	3	3.56E-03	1.08E+11	0.0001	Fe22	73	7.35A	6	2	1.05E-02	6.48E+11	0.0002
Fe21	82	8.25A	9	9	3.49E-03	3.80E+10	0.0001	Fe22	10	10.4A	6	10	9.04E-03	5.57E+10	0.0002
Fe21	78	7.84A	9	3	2.15E-03	7.78E+10	0.0000	Fe22	82	8.23A	6	2	7.98E-03	3.93E+11	0.0002
Fe21	76	7.67A	9	9	2.13E-03	2.68E+10	0.0000	Fe22	70	7.06A	6	6	7.41E-03	1.65E+11	0.0001
Fe21	78	7.80A	9	9	1.99E-03	2.42E+10	0.0000	Fe22	83	8.32A	6	6	7.36E-03	1.18E+11	0.0001
Fe21	91	9.11A	9	9	1.88E-03	1.68E+10	0.0000	Fe22	74	7.40A	6	2	6.65E-03	4.05E+11	0.0001
Fe21	78	7.85A	9	9	1.20E-03	1.44E+10	0.0000	Fe22	10	10.7A	6	2	5.97E-03	1.72E+11	0.0002
Fe21	90	9.02A	9	15	1.20E-03	6.56E+09	0.0000	Fe22	10	10.6A	6	2	5.84E-03	1.74E+11	0.0001
Fe21	92	9.24A	9	15	1.11E-03	5.78E+09	0.0000	Fe22	83	8.33A	6	10	5.80E-03	5.58E+10	0.0001
Fe21	79	7.98A	9	3	1.07E-03	3.74E+10	0.0000	Fe22	84	8.41A	6	6	5.63E-03	8.85E+10	0.0001
Fe21	74	7.49A	9	3	5.84E-04	2.31E+10	0.0000	Fe22	81	8.18A	6	10	5.44E-03	5.42E+10	0.0001
Fe21	81	8.14A	9	9	5.78E-04	6.47E+09	0.0000	Fe22	72	7.26A	6	10	5.39E-03	6.82E+10	0.0001
Fe21	78	7.85A	9	15	4.86E-04	3.51E+09	0.0000	Fe22	76	7.63A	6	6	4.01E-03	7.66E+10	0.0001
Fe21	83	8.39A	9	15	4.65E-04	2.94E+09	0.0000	Fe22	72	7.21A	6	6	3.62E-03	7.74E+10	0.0001
Fe21	86	8.60A	9	9	4.64E-04	4.65E+09	0.0000	Fe22	74	7.44A	6	10	3.48E-03	4.19E+10	0.0001
Fe21	88	8.86A	9	15	3.88E-04	2.20E+09	0.0000	Fe22	75	7.55A	6	2	3.43E-03	2.01E+11	0.0001
Fe21	77	7.77A	9	15	3.85E-04	2.84E+09	0.0000	Fe22	75	7.57A	6	6	3.01E-03	5.84E+10	0.0001
Fe21	90	9.01A	9	9	3.70E-04	3.38E+09	0.0000	Fe22	83	8.32A	6	2	2.55E-03	1.23E+11	0.0001
Fe21	87	8.71A	9	15	3.29E-04	1.93E+09	0.0000	Fe22	77	7.78A	6	2	1.91E-03	1.05E+11	0.0000
Fe21	88	8.81A	9	3	2.87E-04	8.22E+09	0.0000	Fe22	73	7.39A	6	2	1.79E-03	1.09E+11	0.0000
Fe21	78	7.83A	9	15	1.24E-04	8.99E+08	0.0000	Fe22	72	7.27A	6	6	1.58E-03	3.32E+10	0.0000
Fe21	80	8.08A	9	15	9.90E-05	6.74E+08	0.0000	Fe22	87	8.78A	6	10	1.47E-03	1.27E+10	0.0000
Fe21	77	7.75A	9	9	9.39E-05	1.16E+09	0.0000	Fe22	77	7.76A	6	10	1.45E-03	1.61E+10	0.0000
Fe21	78	7.83A	9	9	8.48E-05	1.03E+09	0.0000	Fe22	75	7.57A	6	2	1.43E-03	8.32E+10	0.0000
Fe21	82	8.25A	9	15	7.09E-05	4.63E+08	0.0000	Fe22	70	7.07A	6	6	1.41E-03	3.14E+10	0.0000
Fe21	80	8.00A	9	15	4.04E-05	2.81E+08	0.0000	Fe22	73	7.30A	6	2	1.11E-03	6.95E+10	0.0000
Fe21	78	7.89A	9	15	2.50E-05	1.79E+08	0.0000	Fe22	84	8.49A	6	6	9.63E-04	1.49E+10	0.0000
Fe21	77	7.71A	9	15	2.29E-05	1.71E+08	0.0000	Fe22	72	7.24A	6	2	8.76E-04	5.57E+10	0.0000
Fe21	75	7.60A	9	3	4.27E-06	1.64E+08	0.0000	Fe22	79	7.95A	6	10	5.40E-04	5.70E+09	0.0000
Fe21	78	7.83A	9	15	5.09E-07	3.69E+06	0.0000	Fe22	76	7.67A	6	6	5.08E-04	9.60E+09	0.0000
Fe22	11	12.0A	6	10	4.02E+00	1.88E+13	0.0548	Fe22	72	7.23A	6	10	3.38E-04	4.31E+09	0.0000
Fe22	11	11.6A	6	10	1.94E+00	9.60E+12	0.0539	Fe22	70	7.08A	6	6	2.87E-04	6.37E+09	0.0000
Fe22	11	11.7A	6	6	9.51E-01	7.67E+12	0.0267	Fe22	73	7.34A	6	10	2.03E-04	2.51E+09	0.0000
Fe22	90	9.09A	6	10	7.47E-01	6.03E+12	0.0162	Fe22	85	8.55A	6	10	1.52E-04	1.39E+09	0.0000
Fe22	128	128A	6	6	5.08E-01	3.44E+10	0.3995	Fe22	75	7.56A	6	10	1.29E-04	1.51E+09	0.0000
Fe22	88	8.84A	6	10	4.61E-01	3.93E+12	0.0097	Fe22	82	8.26A	6	2	9.42E-05	4.60E+09	0.0000
Fe22	11	11.5A	6	2	4.01E-01	1.00E+13	0.0111	Fe22	73	7.39A	6	10	8.34E-05	1.02E+09	0.0000
Fe22	11	11.3A	6	6	3.20E-01	2.79E+12	0.0086	Fe22	74	7.48A	6	2	6.46E-05	3.85E+09	0.0000
Fe22	81	8.18A	6	10	2.77E-01	2.76E+12	0.0054	Fe22	72	7.29A	6	6	1.98E-05	4.14E+08	0.0000
Fe22	88	8.87A	6	6	2.55E-01	3.60E+12	0.0054	Fe22	84	8.42A	6	10	1.78E-05	1.67E+08	0.0000
Fe22	173	173A	6	10	2.02E-01	4.46E+09	0.2676	Fe22	76	7.61A	6	10	4.98E-07	5.74E+06	0.0000
Fe22	79	7.97A	6	10	1.84E-01	1.93E+12	0.0035	Fe22	75	7.56A	6	10	6.43E-09	7.50E+04	0.0000
Fe22	77	7.77A	6	10	1.24E-01	1.37E+12	0.0023	Fe23	11	11.2A	1	3	6.84E-01	1.22E+13	0.0005
Fe22	12	12.5A	6	2	1.20E-01	2.58E+12	0.0036	Fe23	84	8.41A	1	3	1.77E-01	5.56E+12	0.0036
Fe22	11	11.1A	6	6	1.18E-01	1.07E+12	0.0031	Fe23	153	153A	1	3	1.32E-01	1.25E+10	0.1355
Fe22	11	11.3A	6	10	1.16E-01	6.08E+11	0.0031	Fe23	75	7.56A	1	3	7.25E-02	2.82E+12	0.0013
Fe22	79	7.98A	6	6	1.08E-01	1.89E+12	0.0021	Fe23	10	10.8A	1	3	4.24E-02	8.14E+11	0.0011
Fe22	134	134A	6	2	1.04E-01	1.91E+10	0.1346	Fe23	71	7.17A	1	3	3.68E-02	1.59E+12	0.0006
Fe22	86	8.62A	6	10	9.88E-02	8.87E+11	0.0020	Fe23	10	10.4A	1	3	3.21E-02	6.54E+11	0.0008
Fe22	86	8.62A	6	6	9.46E-02	1.42E+12	0.0019	Fe23	69	6.95A	1	3	1.97E-02	9.07E+11	0.0003
Fe22	88	8.83A	6	2	9.03E-02	3.86E+12	0.0019	Fe23	68	6.82A	1	3	1.44E-02	6.88E+11	0.0002

Fe23	80	8.10A	1	3	9.94E-03	3.37E+11	0.0002	P 15	43	4.32A	2	6	5.80E-02	3.45E+12	0.0015
Fe23	67	6.73A	1	3	9.55E-03	4.69E+11	0.0002	P 15	42	4.22A	2	6	2.79E-02	1.74E+12	0.0008
Fe23	66	6.67A	1	3	7.12E-03	3.56E+11	0.0001	P 15	41	4.17A	2	6	1.56E-02	9.98E+11	0.0004
Fe23	73	7.33A	1	3	5.13E-03	2.12E+11	0.0001	P 15	41	4.14A	2	6	9.63E-03	6.26E+11	0.0003
Fe23	69	6.97A	1	3	4.47E-03	2.05E+11	0.0001	P 15	41	4.12A	2	6	6.37E-03	4.18E+11	0.0002
Fe23	67	6.77A	1	3	1.58E-03	7.66E+10	0.0000	P 15	41	4.10A	2	6	4.43E-03	2.93E+11	0.0001
Fe23	69	6.99A	1	3	6.05E-04	2.75E+10	0.0000	P 15	40	4.09A	2	6	3.21E-03	2.13E+11	0.0001
Fe23	81	8.18A	1	3	4.33E-04	1.44E+10	0.0000	Cl 1	1348	1348A	6	6	8.50E-01	5.19E+08	0.1919
Fe23	73	7.36A	1	3	6.15E-05	2.52E+09	0.0000	Cl 1	1192	1192A	6	10	4.91E-01	2.30E+08	0.0857
Fe23	67	6.78A	1	3	2.52E-05	1.22E+09	0.0000	Cl 1	1171	1171A	6	2	5.79E-02	1.41E+08	0.0097
Fe24	80	8.09A	2	6	1.91E-01	3.24E+12	0.0078	Cl 1	1100	1100A	6	10	2.96E-01	1.63E+08	0.0436
Fe24	72	7.25A	2	6	7.89E-02	1.67E+12	0.0040	Cl 1	1090	1090A	6	6	1.85E-01	1.73E+08	0.0267
Fe24	68	6.87A	2	6	4.10E-02	9.66E+11	0.0017	Cl 1	1007	1007A	6	2	9.33E-01	3.06E+09	0.1142
Fe24	66	6.65A	2	6	2.42E-02	6.08E+11	0.0011	Cl 1	987	987A	6	2	1.55E-01	5.30E+08	0.0182
Fe24	65	6.52A	2	6	1.56E-02	4.08E+11	0.0006	Cl 2	1071	1071A	9	9	1.80E-01	1.16E+08	1.902
Fe24	64	6.44A	2	6	1.07E-02	2.87E+11	0.0005	Cl 3	1011	1011A	4	12	1.71E-01	9.29E+07	1.703
Fe24	63	6.37A	2	6	7.63E-03	2.09E+11	0.0003	Cl 4	981	981A	9	15	3.96E-01	1.83E+08	3.824
Fe24	18	1.86A	2	6	1.31E+00	4.23E+14	0.0016	Cl 5	890	890A	6	10	3.12E+00	2.62E+09	27.275
Fe25	18	1.87A	1	3	3.33E-07	2.12E+08	0.0782	Cl 5	391	391A	6	2	5.46E-01	1.19E+10	0.5361
Fe25	18	1.86A	1	3	6.87E-02	4.42E+13	0.0988	Cl 6	1013	1013A	1	3	1.76E-04	3.81E+05	0.0018
Fe25	18	1.85A	1	3	7.91E-01	5.14E+14	0.0003	Cl 6	671	671A	1	3	1.28E+00	6.31E+09	8.382
Fe25	15	1.59A	1	3	1.55E-01	1.36E+14	0.0002	Cl 7	804	804A	2	6	1.26E+00	2.16E+09	9.929
Fe25	15	1.51A	1	3	5.74E-02	5.60E+13	0.0002	Cl 7	196	196A	2	6	2.04E-01	5.89E+09	0.0980
Fe25	14	1.47A	1	3	2.76E-02	2.84E+13	0.0002	Cl 8	59	59.2A	1	3	4.40E-02	2.79E+10	0.0033
Fe25	14	1.46A	1	3	1.55E-02	1.62E+13	0.0001	Cl 8	58	58.7A	1	3	1.50E-01	9.69E+10	0.0112
Fe25	14	1.44A	1	3	9.58E-03	1.03E+13	0.0001	Cl 8	50	50.7A	1	3	5.20E-03	4.50E+09	0.0011
Fe25	14	1.44A	1	3	6.34E-03	6.80E+12	0.0001	Cl 8	50	50.1A	1	3	1.60E+00	1.42E+12	0.3194
Fe25	14	1.43A	1	3	4.42E-03	4.81E+12	0.0000	Cl 8	49	49.5A	1	3	1.70E-01	1.54E+11	0.0335
Fe25	14	1.43A	1	3	3.20E-03	3.48E+12	0.0000	Cl 9	182	182A	6	2	5.34E-01	5.37E+10	0.9349
Fe26	17	1.78A	2	2	3.58E-09	3.76E+06	0.0000	Cl17	42	4.21A	2	6	8.32E-01	5.23E+13	0.0113
Fe26	17	1.80A	2	6	8.32E-01	2.85E+14	0.0007	Cl17	35	3.55A	2	6	1.58E-01	1.39E+13	0.0031
Fe26	15	1.52A	2	6	1.58E-01	7.60E+13	0.0013	Cl17	33	3.36A	2	6	5.80E-02	5.69E+12	0.0012
Fe26	14	1.44A	2	6	5.80E-02	3.11E+13	0.0005	Cl17	32	3.29A	2	6	2.79E-02	2.87E+12	0.0006
Fe26	13	1.40A	2	6	2.79E-02	1.58E+13	0.0002	Cl17	32	3.24A	2	6	1.56E-02	1.65E+12	0.0003
Fe26	13	1.39A	2	6	1.56E-02	8.98E+12	0.0001	Cl17	32	3.22A	2	6	9.63E-03	1.03E+12	0.0002
Fe26	13	1.38A	2	6	9.63E-03	5.62E+12	0.0001	Cl17	32	3.20A	2	6	6.37E-03	6.90E+11	0.0001
Fe26	13	1.37A	2	6	6.37E-03	3.77E+12	0.0001	Cl17	31	3.19A	2	6	4.43E-03	4.83E+11	0.0001
Fe26	13	1.37A	2	6	4.43E-03	2.62E+12	0.0000	Cl17	31	3.19A	2	6	3.21E-03	3.51E+11	0.0001
Fe26	13	1.36A	2	6	3.21E-03	1.93E+12	0.0000	K 1	4046	4046A	2	6	1.83E-02	1.24E+06	0.0408
P 1	1779	1779A	4	12	1.23E+00	2.16E+08	0.4976	K 1	3447	3447A	2	6	1.80E-03	1.68E+05	0.0029
P 1	1676	1676A	4	12	1.97E-01	3.90E+07	0.0703	K 1	3218	3218A	2	6	4.29E-04	4.60E+04	0.0006
P 1	1376	1376A	4	12	1.15E-01	3.37E+07	0.0271	K 1	3102	3102A	2	6	1.59E-04	1.84E+04	0.0002
P 1	1380	1380A	4	12	5.55E-01	1.62E+08	0.1315	K 1	3034	3034A	2	6	7.80E-05	9.42E+03	0.0001
P 1	1318	1318A	4	6	2.82E-02	1.80E+07	0.0061	K 1	2992	2992A	2	6	4.38E-05	5.44E+03	0.0001
P 2	1539	1539A	9	15	6.82E-02	1.28E+07	1.049	K 1	2963	2963A	2	6	2.60E-05	3.29E+03	0.0000
P 2	1307	1307A	9	9	1.55E-01	6.72E+07	2.013	K 1	2942	2942A	2	6	1.84E-05	2.36E+03	0.0000
P 2	1154	1154A	9	9	2.12E+00	1.18E+09	6.664	K 1	2927	2927A	2	6	1.34E-05	1.74E+03	0.0000
P 2	967	967A	9	9	5.05E+00	4.00E+09	48.047	K 3	769	769A	6	2	1.32E+00	7.43E+09	9.941
P 2	963	963A	9	15	1.12E+01	5.36E+09	106.179	K 4	745	745A	9	9	6.48E+00	8.64E+09	47.231
P 3	1341	1341A	6	10	1.51E-01	5.60E+07	2.013	K 5	727	727A	4	12	3.84E+00	4.03E+09	27.291
P 3	1001	1001A	6	2	6.68E-01	2.22E+09	6.589	K 6	720	720A	9	15	4.14E+00	3.55E+09	29.121
P 3	918	918A	6	6	3.64E+00	4.80E+09	32.830	K 7	667	667A	6	10	2.64E+00	3.96E+09	17.176
P 4	1467	1467A	1	3	6.05E-05	6.25E+04	0.0009	K 7	228	228A	6	2	5.10E-01	3.25E+10	0.2868
P 4	950	950A	1	3	1.16E+00	2.85E+09	10.843	K 8	519	519A	1	3	1.14E+00	9.40E+09	5.749
P 4	388	388A	1	3	1.00E-01	1.47E+09	0.0973	K 9	629	629A	2	6	1.08E+00	3.03E+09	6.621
P 5	1121	1121A	2	6	1.42E+00	1.26E+09	15.730	K 9	131	131A	2	6	2.80E-01	1.79E+10	0.0896
P 5	328	328A	2	6	1.10E-01	1.13E+09	0.0899	K 10	41	41.5A	1	3	6.00E-02	7.73E+10	0.0032
P 5	255	255A	2	6	4.40E-01	7.49E+09	0.2774	K 10	41	41.1A	1	3	1.20E-01	1.58E+11	0.0063
P 6	91	91.5A	1	3	2.80E-02	7.44E+09	0.0033	K 10	36	36.2A	1	3	6.50E-03	1.10E+10	0.0009
P 6	90	90.6A	1	3	1.80E-01	4.87E+10	0.0209	K 10	35	35.8A	1	3	1.90E+00	3.30E+12	0.2709
P 6	76	76.5A	1	3	4.20E-03	1.59E+09	0.0013	K 10	35	35.3A	1	3	2.20E-01	3.92E+11	0.0310
P 6	75	75.6A	1	3	1.20E+00	4.66E+11	0.3621	K 19	33	3.37A	2	6	8.32E-01	8.16E+13	0.0091
P 6	74	75.0A	1	3	1.70E-01	6.73E+10	0.0508	K 19	28	2.84A	2	6	1.58E-01	2.18E+13	0.0025
P 7	221	221A	6	2	6.00E-01	4.09E+10	1.276	K 19	26	2.69A	2	6	5.80E-02	8.89E+12	0.0009
P 8	247	247A	9	9	1.62E+00	1.96E+10	3.865	K 19	26	2.63A	2	6	2.79E-02	4.48E+12	0.0005
P 9	287	287A	4	12	8.40E-01	5.67E+09	2.325	K 19	25	2.60A	2	6	1.56E-02	2.57E+12	0.0003
P 10	315	315A	9	15	6.93E-01	3.10E+09	2.109	K 19	25	2.58A	2	6	9.63E-03	1.61E+12	0.0002
P 10	206	206A	9	3	8.37E-01	4.36E+10	1.662	K 19	25	2.57A	2	6	6.37E-03	1.08E+12	0.0001
P 11	321	321A	6	10	4.08E-01	2.63E+09	1.267	K 19	25	2.56A	2	6	4.43E-03	7.53E+11	0.0001
P 11	251	251A	6	2	2.04E-01	1.07E+10	0.4951	K 19	25	2.55A	2	6	3.21E-03	5.48E+11	0.0001
P 11	236	236A	6	6	9.60E-01	1.91E+10	2.183	Sc 1	5345	5345A	10	6	1.40E-02	5.45E+05	0.0549
P 11	46	46.1A	6	2	1.32E-01	2.07E+11	0.0146	Sc 1	3018	3018A	10	14	1.50E+00	7.84E+07	1.831
P 11	42	42.7A	6	10	3.84E+00	1.40E+12	0.3939	Sc 1	2978	2978A	10	10	6.80E-01	5.11E+07	0.8074
P 12	536	536A	1	3	1.10E-04	8.50E+05	0.0006	Sc 1	2435	2435A	10	10	2.40E-01	2.70E+07	0.1874
P 12	278	278A	1	3	2.45E-01	7.01E+09	0.6581	Sc 1	2269	2269A	10	6	2.40E-01	5.18E+07	0.1617
P 12	37	37.3A	1	3	6.60E-01	1.05E+12	0.0592	Sc 1	2732	2732A	10	14	2.00E-02	1.28E+06	0.0198
P 13	464	464A	2	6	2.00E-01	1.03E+09	0.9001	Sc 1	2710	2710A	10	10	3.40E-01	3.09E+07	0.3317
P 13	35	35.1A	2	6	6.86E-01	6.19E+11	0.0578	Sc 1	2702	2702A	10	6	1.10E-01	1.67E+07	0.1067
P 15	54	5.40A	2	6	8.32E-01	3.17E+13	0.0160	Sc 1	4023	4023A	10	10	4.03E+00	1.66E+08	8.887
P 15	45	4.56A	2	6	1.58E-01	8.45E+12	0.0040	Sc 1	3911	3911A	10	14	4.46E+00	1.39E+08	9.284

Sc	1	3272	3272A	10	6	3.00E+00	3.11E+08	4.326	Sc	21	21	2.13A	2	6	1.56E-02	3.84E+12	0.0002
Sc	1	6268	6268A	10	10	9.20E-02	1.56E+06	0.4961	Sc	21	21	2.11A	2	6	9.63E-03	2.40E+12	0.0001
Sc	1	4770	4770A	10	14	4.80E-02	1.00E+06	0.1497	Sc	21	21	2.10A	2	6	6.37E-03	1.61E+12	0.0001
Sc	1	2471	2471A	10	6	2.70E-02	4.91E+06	0.0217	Sc	21	20	2.09A	2	6	4.43E-03	1.12E+12	0.0001
Sc	1	2342	2342A	10	6	8.30E-02	1.68E+07	0.0597	Sc	21	20	2.09A	2	6	3.21E-03	8.18E+11	0.0000
Sc	1	2319	2319A	10	10	2.20E-01	2.73E+07	0.1551	Ti	1	5197	5197A	21	21	3.34E-01	3.93E+06	1.238
Sc	2	2555	2555A	15	9	2.35E+00	2.67E+08	18.481	Ti	1	3992	3992A	21	21	2.29E+00	4.56E+07	4.972
Sc	2	3628	3628A	15	21	7.50E+00	1.81E+08	285.297	Ti	1	3744	3744A	21	21	2.33E+00	5.28E+07	4.435
Sc	2	3576	3576A	15	15	6.00E+00	2.09E+08	224.740	Ti	1	3674	3674A	21	15	2.37E-01	7.80E+06	0.4341
Sc	2	3369	3369A	15	9	2.10E+00	1.37E+08	73.778	Ti	1	3647	3647A	21	27	4.33E+00	8.04E+07	7.808
Sc	3	1605	1605A	10	6	1.00E+00	4.32E+08	4.562	Ti	1	2950	2950A	21	21	3.15E+00	1.15E+08	3.668
Sc	3	731	731A	10	14	1.50E+00	1.34E+09	2.858	Ti	1	2607	2607A	21	21	1.87E+00	8.74E+07	1.683
Sc	3	780	780A	10	6	7.80E-02	1.42E+08	0.1595	Ti	2	3365	3365A	28	36	1.01E+01	1.65E+08	354.454
Sc	3	627	627A	10	14	7.30E-01	8.83E+08	1.180	Ti	2	3238	3238A	28	28	6.90E+00	1.57E+08	232.338
Sc	4	371	371A	1	3	1.60E-03	2.58E+07	0.0057	Ti	2	1904	1904A	28	28	2.06E+00	1.35E+08	39.554
Sc	4	289	289A	1	3	3.92E+00	1.04E+11	10.956	Ti	2	1907	1907A	28	20	3.77E+00	3.46E+08	72.515
Sc	4	299	299A	1	3	8.00E-02	1.99E+09	0.0593	Ti	3	1298	1298A	21	15	1.56E+00	4.11E+08	20.109
Sc	4	296	296A	1	3	3.40E-01	8.61E+09	0.2497	Ti	3	1288	1288A	21	21	2.05E+00	3.92E+08	7.288
Sc	5	578	578A	6	2	2.05E-01	2.05E+09	1.153	Ti	4	779	779A	10	6	7.80E-01	1.43E+09	1.593
Sc	5	283	283A	6	10	1.23E+01	1.02E+11	33.664	Ti	4	423	423A	10	14	2.00E+00	5.30E+09	2.133
Sc	5	297	297A	6	2	2.35E+00	8.86E+10	6.741	Ti	4	433	433A	10	6	9.10E-02	5.38E+08	0.0994
Sc	7	566	566A	4	12	3.88E-01	6.73E+08	2.136	Ti	5	323	323A	1	3	1.90E-03	4.04E+07	0.0059
Sc	8	566	566A	9	15	4.14E-01	5.73E+08	2.282	Ti	5	252	252A	1	3	3.63E+00	1.26E+11	8.844
Sc	8	490	490A	9	9	5.40E-01	1.66E+09	2.568	Ti	5	228	228A	1	3	9.70E-02	4.12E+09	0.0546
Sc	9	531	531A	6	10	3.96E-01	9.34E+08	2.046	Ti	5	225	225A	1	3	3.30E-01	1.44E+10	0.1827
Sc	9	422	422A	6	2	4.14E-01	7.72E+09	1.695	Ti	6	513	513A	6	2	2.11E-01	2.67E+09	1.052
Sc	9	393	393A	6	6	3.24E+00	2.33E+10	12.329	Ti	6	250	250A	6	10	1.14E+01	1.21E+11	27.499
Sc	9	322	322A	6	10	4.08E+00	2.62E+10	12.694	Ti	6	264	264A	6	2	2.17E+00	1.03E+11	5.532
Sc	10	422	422A	1	3	1.05E+00	1.31E+10	4.299	Ti	8	508	508A	4	12	3.96E-01	8.51E+08	1.955
Sc	10	101	101A	1	3	2.70E-01	5.77E+10	0.0666	Ti	9	511	511A	9	15	4.23E-01	7.19E+08	2.100
Sc	10	76	76.3A	1	3	9.20E-02	3.51E+10	0.0169	Ti	9	443	443A	9	9	5.40E-01	2.04E+09	2.319
Sc	11	510	510A	2	6	9.92E-01	4.23E+09	4.920	Ti	10	482	482A	6	10	3.90E-01	1.12E+09	1.824
Sc	11	94	95.0A	2	6	3.32E-01	4.09E+10	0.0762	Ti	10	385	385A	6	2	4.20E-01	9.43E+09	1.566
Sc	11	70	70.5A	2	6	1.08E-01	2.42E+10	0.0183	Ti	10	358	358A	6	6	3.06E+00	2.64E+10	10.606
Sc	11	58	58.1A	2	6	2.78E-02	9.16E+09	0.0039	Ti	10	293	293A	6	10	3.84E+00	2.97E+10	10.872
Sc	12	30	30.8A	1	3	9.20E-02	2.15E+11	0.0036	Ti	11	569	569A	1	3	1.30E-03	8.92E+06	0.0072
Sc	12	30	30.5A	1	3	1.37E-01	3.28E+11	0.0053	Ti	11	386	386A	1	3	9.95E-01	1.48E+10	3.716
Sc	12	27	27.3A	1	3	8.00E-03	2.39E+10	0.0009	Ti	11	87	87.7A	1	3	2.94E-01	8.49E+10	0.0623
Sc	12	26	26.9A	1	3	2.50E-01	7.67E+11	0.0268	Ti	11	65	65.4A	1	3	9.90E-02	5.15E+10	0.0156
Sc	12	26	26.5A	1	3	2.50E+00	7.89E+12	0.2644	Ti	12	466	466A	2	6	9.44E-01	4.81E+09	4.273
Sc	13	133	133A	6	2	4.29E-01	8.07E+10	0.5481	Ti	12	82	82.2A	2	6	3.60E-01	5.92E+10	0.0714
Sc	13	26	27.0A	6	2	1.02E-01	4.67E+11	0.0066	Ti	12	60	60.7A	2	6	1.16E-01	3.50E+10	0.0170
Sc	13	24	24.7A	6	2	1.14E+00	6.21E+12	0.0676	Ti	12	53	53.4A	2	6	5.32E-02	2.07E+10	0.0068
Sc	13	24	24.2A	6	10	1.50E+00	1.71E+12	0.0868	Ti	12	49	49.9A	2	6	2.96E-02	1.32E+10	0.0036
Sc	14	150	150A	9	9	1.08E+00	3.52E+10	1.564	Ti	12	47	47.9A	2	6	1.82E-02	8.82E+09	0.0021
Sc	14	26	26.1A	9	3	4.41E-01	1.44E+12	0.0276	Ti	13	26	27.0A	1	3	1.00E-01	3.06E+11	0.0034
Sc	14	25	25.2A	9	9	3.06E-01	3.57E+11	0.0185	Ti	13	26	26.6A	1	3	1.30E-01	4.07E+11	0.0044
Sc	14	23	23.8A	9	1	2.70E+00	3.18E+13	0.1539	Ti	13	23	24.0A	1	3	8.80E-03	3.40E+10	0.0008
Sc	15	176	176A	4	12	5.60E-01	9.99E+09	0.9499	Ti	13	23	23.7A	1	3	3.00E-01	1.19E+12	0.0283
Sc	15	113	113A	4	2	1.08E-03	2.80E+08	0.0012	Ti	13	23	23.4A	1	3	2.50E+00	1.02E+13	0.2326
Sc	16	197	197A	9	15	4.95E-01	5.65E+09	0.9393	Ti	14	124	124A	6	2	4.10E-01	8.84E+10	0.4891
Sc	16	166	166A	9	9	5.31E-01	1.42E+10	0.8505	Ti	14	21	21.9A	6	2	1.14E+00	7.93E+12	0.0598
Sc	16	133	133A	9	3	5.94E-01	7.42E+10	0.7602	Ti	14	21	21.4A	6	10	1.68E+00	2.45E+12	0.0861
Sc	17	204	204A	6	10	2.95E-01	4.70E+09	0.5807	Ti	15	140	140A	9	9	9.90E-01	3.70E+10	1.338
Sc	17	166	166A	6	2	1.68E-01	2.03E+10	0.2681	Ti	15	23	23.1A	9	3	4.23E-01	1.77E+12	0.0234
Sc	17	151	151A	6	6	6.84E-01	3.32E+10	0.9946	Ti	15	20	21.0A	9	1	2.61E+00	3.95E+13	0.1312
Sc	17	19	19.3A	6	10	3.96E+00	7.12E+12	0.1826	Ti	16	164	164A	4	12	5.60E-01	1.15E+10	0.8861
Sc	18	348	348A	1	3	5.10E-04	9.33E+06	0.0017	Ti	16	106	106A	4	2	1.40E-03	4.12E+08	0.0014
Sc	18	180	180A	1	3	1.82E-01	1.24E+10	0.3160	Ti	17	184	184A	9	15	4.59E-01	5.99E+09	0.8139
Sc	18	17	17.5A	1	3	3.20E-01	2.31E+12	0.0134	Ti	17	155	155A	9	9	4.86E-01	1.49E+10	0.7257
Sc	18	17	17.6A	1	3	3.60E-01	2.59E+12	0.0151	Ti	17	125	125A	9	3	5.31E-01	7.51E+10	0.6387
Sc	19	293	293A	2	6	1.49E-01	1.92E+09	0.8430	Ti	18	191	191A	6	10	2.84E-01	5.16E+09	0.5231
Sc	19	16	16.8A	2	6	7.32E-01	2.87E+12	0.0548	Ti	18	17	17.3A	6	10	3.84E+00	8.54E+12	0.1592
Sc	19	12	12.7A	2	6	1.96E-01	1.36E+12	0.0161	Ti	19	328	328A	1	3	6.60E-04	1.36E+07	0.0021
Sc	19	11	11.4A	2	6	8.00E-02	6.87E+11	0.0060	Ti	19	169	169A	1	3	1.75E-01	1.35E+10	0.2851
Sc	19	10	10.8A	2	6	4.22E-02	4.03E+11	0.0030	Ti	19	15	15.9A	1	3	3.30E-01	2.92E+12	0.0125
Sc	19	10	10.4A	2	6	2.48E-02	2.53E+11	0.0016	Ti	19	15	15.8A	1	3	3.60E-01	3.20E+12	0.0136
Sc	19	10	10.2A	2	6	1.54E-02	1.63E+11	0.0010	Ti	20	274	274A	2	6	1.44E-01	2.13E+09	0.7617
Sc	20	28	2.89A	1	3	2.78E-02	7.42E+12	0.0002	Ti	20	15	15.2A	2	6	7.36E-01	3.53E+12	0.0484
Sc	20	28	2.87A	1	3	7.41E-01	2.00E+14	0.0073	Ti	20	11	11.5A	2	6	1.98E-01	1.68E+12	0.0153
Sc	20	24	2.45A	1	3	6.40E-03	2.37E+12	0.0001	Ti	20	10	10.3A	2	6	8.00E-02	8.42E+11	0.0053
Sc	20	24	2.45A	1	3	1.43E-01	5.32E+13	0.0014	Ti	20	97	9.74A	2	6	4.22E-02	4.95E+11	0.0027
Sc	20	23	2.33A	1	3	2.50E-03	1.03E+12	0.0000	Ti	20	94	9.43A	2	6	2.48E-02	3.10E+11	0.0015
Sc	20	23	2.32A	1	3	5.27E-02	2.17E+13	0.0007	Ti	20	92	9.24A	2	6	1.54E-02	2.00E+11	0.0009
Sc	20	22	2.27A	1	3	1.20E-03	5.17E+11	0.0000	Ti	21	26	2.62A	1	3	3.46E-02	1.12E+13	0.0003
Sc	20	22	2.27A	1	3	2.54E-02	1.09E+13	0.0003	Ti	21	26	2.61A	1	3	7.35E-01	2.40E+14	0.0072
Sc	21	27	2.76A	2	6	8.32E-01	1.22E+14	0.0079	Ti	21	22	2.22A	1	3	8.40E-03	3.78E+12	0.0002
Sc	21	23	2.33A	2	6	1.58E-01	3.25E+13	0.0020	Ti	21	22	2.22A	1	3	1.41E-01	6.35E+13	0.0012
Sc	21	22	2.21A	2	6	5.80E-02	1.33E+13	0.0008	Ti	21	21	2.11A	1	3	3.10E-03	1.55E+12	0.0000
Sc	21	21	2.15A	2	6	2.79E-02	6.69E+12	0.0004	Ti	21	21	2.11A	1	3	5.22E-02	2.61E+13	0.0006

Ti21	20	2.06A	1	3	1.60E-03	8.35E+11	0.0000	V 21	85	8.58A	2	6	2.48E-02	3.75E+11	0.0014
Ti21	20	2.06A	1	3	2.52E-02	1.32E+13	0.0003	V 22	23	2.39A	1	3	4.22E-02	1.64E+13	0.0006
Ti22	25	2.51A	2	6	8.32E-01	1.47E+14	0.0060	V 22	23	2.38A	1	3	7.28E-01	2.85E+14	0.0076
Ti22	21	2.12A	2	6	1.58E-01	3.91E+13	0.0019	V 22	20	2.03A	1	3	1.10E-02	5.94E+12	0.0000
Ti22	20	2.01A	2	6	5.80E-02	1.60E+13	0.0007	V 22	20	2.03A	1	3	1.40E-01	7.58E+13	0.0011
Ti22	19	1.96A	2	6	2.79E-02	8.06E+12	0.0003	V 22	19	1.93A	1	3	3.80E-03	2.28E+12	0.0000
Ti22	19	1.94A	2	6	1.56E-02	4.62E+12	0.0002	V 22	19	1.93A	1	3	5.18E-02	3.11E+13	0.0006
Ti22	19	1.92A	2	6	9.63E-03	2.90E+12	0.0001	V 22	18	1.88A	1	3	1.90E-03	1.19E+12	0.0000
Ti22	19	1.91A	2	6	6.37E-03	1.93E+12	0.0001	V 22	18	1.88A	1	3	2.50E-02	1.57E+13	0.0003
Ti22	19	1.91A	2	6	4.43E-03	1.35E+12	0.0001	V 23	22	2.30A	2	6	8.32E-01	1.75E+14	0.0084
Ti22	19	1.90A	2	6	3.21E-03	9.86E+11	0.0000	V 23	19	1.94A	2	6	1.58E-01	4.67E+13	0.0017
V 1	4868	4868A	28	20	6.69E-01	9.41E+06	2.173	V 23	18	1.84A	2	6	5.80E-02	1.91E+13	0.0006
V 1	4590	4590A	28	36	6.16E-01	5.42E+06	1.777	V 23	17	1.80A	2	6	2.79E-02	9.62E+12	0.0003
V 1	3880	3880A	28	28	2.18E+00	3.45E+07	4.465	V 23	17	1.77A	2	6	1.56E-02	5.52E+12	0.0002
V 1	3839	3839A	28	20	2.97E+00	6.72E+07	5.950	V 23	17	1.76A	2	6	9.63E-03	3.46E+12	0.0001
V 1	3186	3186A	28	36	1.51E+01	2.75E+08	20.616	V 23	17	1.75A	2	6	6.37E-03	2.31E+12	0.0001
V 2	2711	2711A	25	35	1.25E+00	3.24E+07	34.842	V 23	17	1.74A	2	6	4.43E-03	1.62E+12	0.0001
V 2	2685	2685A	25	25	2.28E+00	8.44E+07	62.888	V 23	17	1.74A	2	6	3.21E-03	1.18E+12	0.0000
V 2	2140	2140A	25	15	1.93E+00	1.87E+08	41.890	Cr 1	4270	4270A	7	21	1.79E+00	3.12E+07	4.458
V 3	1163	1163A	28	36	5.00E-01	6.84E+07	5.756	Cr 1	3590	3590A	7	21	6.17E+00	1.52E+08	10.776
V 3	1151	1151A	28	28	3.52E+00	6.33E+08	40.066	Cr 1	2366	2366A	7	21	9.80E-02	5.56E+06	0.0720
V 3	1125	1125A	28	20	1.77E+00	4.66E+08	19.682	Cr 1	2095	2095A	7	21	1.58E-02	1.14E+06	0.0090
V 5	252	252A	10	14	4.60E+00	3.45E+10	11.164	Cr 1	1940	1940A	7	21	2.04E-01	1.72E+07	0.0990
V 5	225	225A	10	10	1.80E+01	2.37E+11	39.014	Cr 2	2060	2060A	6	18	1.89E+00	1.65E+08	39.420
V 5	228	228A	10	6	7.80E+00	1.67E+11	17.115	Cr 2	1829	1829A	6	18	1.41E-03	1.56E+05	0.0260
V 6	287	287A	1	3	2.10E-03	5.65E+07	0.0058	Cr 2	1081	1081A	6	18	4.82E-02	1.53E+07	0.5143
V 6	224	224A	1	3	3.30E+00	1.46E+11	7.129	Cr 2	1079	1079A	6	4	4.32E-05	6.18E+04	0.0005
V 6	182	182A	1	3	1.10E-01	7.38E+09	0.0489	Cr 2	1063	1063A	6	18	5.40E-02	1.77E+07	0.1549
V 6	179	179A	1	3	3.10E-01	2.14E+10	0.1358	Cr 3	1033	1033A	25	35	2.59E+00	4.63E+08	7.196
V 7	461	461A	6	2	2.12E-01	3.32E+09	0.9487	Cr 3	1035	1035A	25	25	3.29E+00	8.18E+08	9.168
V 7	225	225A	6	10	1.02E+01	1.34E+11	22.099	Cr 3	924	924A	25	15	2.00E+00	1.04E+09	4.915
V 7	238	238A	6	2	2.01E+00	1.17E+11	4.624	Cr 6	279	279A	10	14	1.00E-01	6.09E+08	0.2695
V 7	240	240A	6	10	1.92E-02	2.22E+08	0.0444	Cr 6	267	267A	10	14	4.10E-01	2.73E+09	1.056
V 9	461	461A	4	12	3.96E-01	1.03E+09	1.770	Cr 6	226	226A	10	14	7.70E+00	7.14E+10	16.796
V 9	244	244A	4	12	7.20E+00	6.69E+10	16.952	Cr 6	201	201A	10	10	1.60E+01	2.63E+11	30.980
V 10	465	465A	9	15	4.23E-01	8.69E+08	1.908	Cr 6	202	202A	10	6	4.40E+00	1.19E+11	8.568
V 10	403	403A	9	9	5.31E-01	2.41E+09	2.075	Cr 6	172	172A	10	6	3.20E-01	1.19E+10	0.1348
V 11	440	440A	6	10	3.84E-01	1.32E+09	1.639	Cr 6	168	168A	10	14	1.10E+00	1.84E+10	0.4533
V 11	354	354A	6	2	4.02E-01	1.07E+10	1.375	Cr 6	161	161A	10	10	7.30E-01	1.86E+10	0.2879
V 11	329	329A	6	6	2.88E+00	2.95E+10	9.154	Cr 6	162	162A	10	14	4.40E-01	7.92E+09	0.1745
V 11	269	269A	6	10	3.48E+00	3.19E+10	9.041	Cr 7	259	259A	1	3	2.80E-03	9.27E+07	0.0070
V 12	522	522A	1	3	1.40E-03	1.14E+07	0.0071	Cr 7	202	202A	1	3	3.09E+00	1.67E+11	6.027
V 12	355	355A	1	3	9.47E-01	1.67E+10	3.249	Cr 7	148	148A	1	3	1.30E-01	1.31E+10	0.0471
V 12	76	76.3A	1	3	3.17E-01	1.21E+11	0.0583	Cr 7	146	146A	1	3	2.90E-01	3.00E+10	0.1034
V 12	56	56.7A	1	3	1.04E-01	7.20E+10	0.0142	Cr 8	418	418A	6	2	2.12E-01	4.03E+09	0.8595
V 13	429	429A	2	6	8.98E-01	5.41E+09	3.734	Cr 8	204	204A	6	10	9.60E+00	1.52E+11	18.924
V 13	71	71.9A	2	6	3.74E-01	8.05E+10	0.0648	Cr 8	218	218A	6	2	1.87E+00	1.31E+11	3.926
V 13	52	52.9A	2	6	1.22E-01	4.85E+10	0.0155	Cr 8	218	218A	6	10	1.80E-02	2.53E+08	0.0378
V 13	46	46.5A	2	6	5.60E-02	2.88E+10	0.0063	Cr10	421	421A	4	12	3.88E-01	1.22E+09	1.582
V 13	43	43.4A	2	6	3.10E-02	1.83E+10	0.0032	Cr10	225	225A	4	12	6.80E+00	7.44E+10	14.745
V 13	41	41.6A	2	6	1.92E-02	1.23E+10	0.0019	Cr11	426	426A	9	15	4.32E-01	1.06E+09	1.783
V 14	23	23.8A	1	3	1.07E-01	4.20E+11	0.0032	Cr11	370	370A	9	9	5.22E-01	2.82E+09	1.869
V 14	23	23.5A	1	3	1.23E-01	4.96E+11	0.0037	Cr12	404	404A	6	10	3.84E-01	1.56E+09	1.504
V 14	21	21.3A	1	3	9.60E-03	4.71E+10	0.0008	Cr12	327	327A	6	2	4.08E-01	1.27E+10	1.289
V 14	21	21.0A	1	3	3.80E-01	1.91E+12	0.0318	Cr12	303	303A	6	6	2.70E+00	3.25E+10	7.913
V 14	20	20.7A	1	3	2.51E+00	1.30E+13	0.2071	Cr12	249	249A	6	10	3.30E+00	3.54E+10	7.921
V 15	116	116A	6	2	3.94E-01	9.68E+10	0.4402	Cr13	482	482A	1	3	1.90E-03	1.82E+07	0.0089
V 15	21	21.1A	6	2	1.02E-01	7.63E+11	0.0052	Cr13	328	328A	1	3	9.02E-01	1.86E+10	2.859
V 15	19	19.5A	6	2	1.14E+00	9.98E+12	0.0533	Cr13	67	67.0A	1	3	3.38E-01	1.67E+11	0.0546
V 15	19	19.1A	6	10	1.74E+00	3.19E+12	0.0795	Cr13	49	49.6A	1	3	1.09E-01	9.86E+10	0.0130
V 16	131	131A	9	9	9.90E-01	4.23E+10	1.251	Cr14	396	396A	2	6	8.58E-01	6.05E+09	3.295
V 16	20	20.5A	9	3	4.14E-01	2.18E+12	0.0204	Cr14	63	63.4A	2	6	3.94E-01	1.09E+11	0.0601
V 16	18	18.8A	9	1	2.61E+00	4.94E+13	0.1174	Cr14	46	46.5A	2	6	1.28E-01	6.58E+10	0.0143
V 17	153	153A	4	12	5.20E-01	1.22E+10	0.7688	Cr14	40	40.8A	2	6	5.84E-02	3.90E+10	0.0057
V 17	100	100A	4	2	1.88E-03	6.27E+08	0.0018	Cr14	38	38.0A	2	6	3.22E-02	2.47E+10	0.0029
V 18	172	172A	9	15	4.41E-01	6.57E+09	0.7321	Cr14	36	36.5A	2	6	2.00E-02	1.67E+10	0.0018
V 18	145	145A	9	9	4.77E-01	1.68E+10	0.6646	Cr15	21	21.2A	1	3	1.10E-01	5.47E+11	0.0030
V 18	118	118A	9	3	5.13E-01	8.18E+10	0.5810	Cr15	20	20.9A	1	3	1.20E-01	6.13E+11	0.0032
V 19	179	179A	6	10	2.70E-01	5.58E+09	0.4662	Cr15	19	19.0A	1	3	1.00E-02	6.15E+10	0.0008
V 19	15	15.7A	6	10	3.90E+00	1.06E+13	0.1461	Cr15	18	18.8A	1	3	4.40E-01	2.77E+12	0.0329
V 20	309	309A	1	3	8.30E-04	1.92E+07	0.0025	Cr15	18	18.5A	1	3	2.49E+00	1.62E+13	0.1834
V 20	159	159A	1	3	1.69E-01	1.48E+10	0.2586	Cr16	109	109A	6	2	3.75E-01	1.05E+11	0.3932
V 20	14	14.4A	1	3	3.10E-01	3.32E+12	0.0107	Cr16	18	18.9A	6	2	9.60E-02	8.99E+11	0.0043
V 20	14	14.4A	1	3	3.80E-01	4.10E+12	0.0131	Cr16	17	17.5A	6	2	1.14E+00	1.24E+13	0.0478
V 20	10	10.9A	1	3	1.60E-01	2.97E+12	0.0042	Cr16	17	17.1A	6	10	1.80E+00	4.09E+12	0.0738
V 21	255	255A	2	6	1.40E-01	2.38E+09	0.6926	Cr17	123	123A	9	9	9.00E-01	4.38E+10	1.066
V 21	13	13.8A	2	6	7.40E-01	4.29E+12	0.0455	Cr17	18	18.4A	9	3	4.14E-01	2.71E+12	0.0183
V 21	10	10.4A	2	6	1.98E-01	2.03E+12	0.0138	Cr18	144	144A	4	12	5.20E-01	1.39E+10	0.7190
V 21	93	9.35A	2	6	8.00E-02	1.02E+12	0.0051	Cr18	94	94.2A	4	2	2.44E-03	9.18E+08	0.0022
V 21	88	8.84A	2	6	4.24E-02	6.03E+11	0.0025	Cr19	162	162A	9	15	4.26E-01	7.22E+09	0.6628

Cr19	135	135A	9	9	4.68E-01	1.89E+10	0.6087	Mn18	115	115A	9	9	8.64E-01	4.76E+10	0.9609
Cr19	111	111A	9	3	4.95E-01	8.88E+10	0.5284	Mn18	16	16.6A	9	3	3.87E-01	3.12E+12	0.0154
Cr20	168	168A	6	10	2.70E-01	6.33E+09	0.4374	Mn19	135	135A	4	12	4.80E-01	1.46E+10	0.6218
Cr21	293	293A	1	3	1.00E-03	2.59E+07	0.0028	Mn19	88	88.7A	4	2	3.24E-03	1.37E+09	0.0028
Cr21	149	149A	1	3	1.64E-01	1.62E+10	0.2360	Mn20	126	126A	9	9	4.59E-01	2.12E+10	0.5580
Cr21	13	13.1A	1	3	2.90E-01	3.74E+12	0.0091	Mn20	105	105A	9	3	4.59E-01	9.23E+10	0.4628
Cr21	13	13.1A	1	3	4.00E-01	5.20E+12	0.0125	Mn21	158	158A	6	10	2.70E-01	7.18E+09	0.4107
Cr22	239	239A	2	6	1.36E-01	2.64E+09	0.6298	Mn22	277	277A	1	3	1.30E-03	3.75E+07	0.0035
Cr22	12	12.6A	2	6	7.46E-01	5.19E+12	0.0406	Mn22	141	141A	1	3	1.59E-01	1.78E+10	0.2153
Cr22	94	9.50A	2	6	2.00E-01	2.47E+12	0.0131	Mn22	11	12.0A	1	3	2.80E-01	4.33E+12	0.0080
Cr22	85	8.52A	2	6	8.00E-02	1.23E+12	0.0043	Mn22	11	12.0A	1	3	4.20E-01	6.52E+12	0.0120
Cr22	80	8.07A	2	6	4.24E-02	7.24E+11	0.0024	Mn23	223	223A	2	6	1.34E-01	2.98E+09	0.5810
Cr22	78	7.82A	2	6	2.48E-02	4.51E+11	0.0013	Mn23	11	11.6A	2	6	7.48E-01	6.20E+12	0.0371
Cr23	21	2.19A	1	3	5.05E-02	2.34E+13	0.0005	Mn23	86	8.69A	2	6	2.00E-01	2.95E+12	0.0111
Cr23	21	2.18A	1	3	7.21E-01	3.37E+14	0.0049	Mn23	77	7.79A	2	6	8.00E-02	1.46E+12	0.0040
Cr23	18	1.86A	1	3	1.30E-02	8.37E+12	0.0001	Mn23	73	7.39A	2	6	4.24E-02	8.63E+11	0.0019
Cr23	18	1.86A	1	3	1.39E-01	8.97E+13	0.0010	Mn23	71	7.16A	2	6	2.50E-02	5.42E+11	0.0013
Cr23	17	1.76A	1	3	4.50E-03	3.22E+12	0.0001	Mn24	20	2.02A	1	3	5.94E-02	3.25E+13	0.0006
Cr23	17	1.76A	1	3	5.14E-02	3.68E+13	0.0005	Mn24	20	2.01A	1	3	7.12E-01	3.93E+14	0.0020
Cr23	17	1.72A	1	3	2.20E-03	1.65E+12	0.0000	Mn24	17	1.71A	1	3	1.50E-02	1.14E+13	0.0000
Cr23	17	1.72A	1	3	2.48E-02	1.86E+13	0.0002	Mn24	17	1.71A	1	3	1.39E-01	1.06E+14	0.0009
Cr24	21	2.11A	2	6	8.32E-01	2.08E+14	0.0038	Mn24	16	1.62A	1	3	5.10E-03	4.31E+12	0.0001
Cr24	17	1.78A	2	6	1.58E-01	5.54E+13	0.0016	Mn24	16	1.62A	1	3	5.10E-02	4.32E+13	0.0005
Cr24	16	1.69A	2	6	5.80E-02	2.26E+13	0.0006	Mn24	15	1.58A	1	3	2.50E-03	2.21E+12	0.0000
Cr24	16	1.65A	2	6	2.79E-02	1.14E+13	0.0003	Mn24	15	1.58A	1	3	2.46E-02	2.18E+13	0.0002
Cr24	16	1.63A	2	6	1.56E-02	6.54E+12	0.0002	Mn25	19	1.94A	2	6	8.32E-01	2.45E+14	0.0062
Cr24	16	1.62A	2	6	9.63E-03	4.10E+12	0.0001	Mn25	16	1.64A	2	6	1.58E-01	6.52E+13	0.0014
Cr24	16	1.61A	2	6	6.37E-03	2.74E+12	0.0001	Mn25	15	1.56A	2	6	5.80E-02	2.66E+13	0.0005
Cr24	16	1.60A	2	6	4.43E-03	1.92E+12	0.0000	Mn25	15	1.52A	2	6	2.79E-02	1.34E+13	0.0003
Cr24	15	1.60A	2	6	3.21E-03	1.40E+12	0.0000	Mn25	15	1.50A	2	6	1.56E-02	7.70E+12	0.0001
Mn 1	4033	4033A	6	18	7.20E-01	1.64E+07	1.596	Mn25	14	1.49A	2	6	9.63E-03	4.83E+12	0.0001
Mn 1	2798	2798A	6	18	7.80E+00	3.69E+08	8.132	Mn25	14	1.48A	2	6	6.37E-03	3.23E+12	0.0001
Mn 1	2216	2216A	6	18	1.00E+00	7.54E+07	0.6415	Mn25	14	1.48A	2	6	4.43E-03	2.26E+12	0.0000
Mn 1	2000	2000A	6	18	8.23E-01	7.62E+07	0.4259	Mn25	14	1.47A	2	6	3.21E-03	1.64E+12	0.0000
Mn 2	2589	2589A	7	21	5.70E+00	2.70E+08	151.312	Co 1	3566	3566A	28	28	7.28E-01	1.36E+07	1.254
Mn 2	1198	1198A	7	21	2.45E+00	5.41E+08	29.079	Co 1	3439	3439A	28	20	5.88E-01	1.66E+07	0.9398
Mn 2	1162	1162A	7	21	1.57E-01	3.69E+07	1.806	Co 2	2061	2061A	21	27	1.25E+00	7.27E+07	26.086
Mn 6	308	308A	21	21	1.58E+00	5.28E+09	1.209	Co 2	2019	2019A	21	21	1.33E+00	1.04E+08	27.161
Mn 7	246	246A	10	6	2.10E-01	3.85E+09	0.4980	Co 2	1949	1949A	21	15	1.42E+00	1.66E+08	27.950
Mn 7	242	242A	10	14	4.00E-01	3.25E+09	0.9324	Co 2	1575	1575A	21	21	2.01E+00	2.57E+08	31.676
Mn 7	203	203A	10	14	7.90E+00	9.10E+10	15.452	Co 2	1470	1470A	21	27	3.11E+00	3.55E+08	45.597
Mn 7	182	182A	10	10	1.50E+01	2.99E+11	26.363	Co 3	942	942A	28	20	2.68E+00	1.01E+09	24.836
Mn 7	184	184A	10	6	6.50E+00	2.13E+11	11.510	Co 3	937	937A	28	28	1.48E+00	4.01E+08	13.636
Mn 7	142	142A	10	6	3.70E-01	2.03E+10	0.1280	Co 8	162	162A	21	21	2.06E+01	2.49E+11	32.065
Mn 7	139	139A	10	14	1.20E+00	2.95E+10	0.4058	Co 9	204	204A	10	14	3.60E-01	4.12E+09	0.7066
Mn 7	133	133A	10	10	8.30E-01	3.10E+10	0.2695	Co 9	171	171A	10	14	7.20E+00	1.17E+11	11.852
Mn 7	134	134A	10	14	4.10E-01	1.08E+10	0.1341	Co 9	155	155A	10	10	1.30E+01	3.59E+11	19.394
Mn 8	185	185A	1	3	2.87E+00	1.86E+11	5.115	Co 9	153	153A	10	6	5.60E+00	2.64E+11	8.250
Mn 8	124	124A	1	3	1.40E-01	2.02E+10	0.0421	Co 9	101	101A	10	6	4.80E-01	5.21E+10	0.1175
Mn 8	122	122A	1	3	2.70E-01	4.02E+10	0.0800	Co 9	99	99.6A	10	14	1.10E+00	5.29E+10	0.2649
Mn 9	382	382A	6	2	2.10E-01	4.78E+09	0.7774	Co10	158	158A	1	3	2.50E+00	2.20E+11	3.814
Mn 9	188	188A	6	10	9.00E+00	1.69E+11	16.303	Co10	90	90.5A	1	3	1.60E-01	4.34E+10	0.0350
Mn 9	200	200A	6	2	1.75E+00	1.44E+11	3.382	Co10	88	89.0A	1	3	2.30E-01	6.46E+10	0.0494
Mn 9	199	199A	6	10	1.98E-02	3.30E+08	0.0381	Co10	72	72.5A	1	3	3.90E-01	1.65E+11	0.0681
Mn11	386	386A	4	12	3.84E-01	1.43E+09	1.437	Co10	71	71.5A	1	3	2.00E-01	8.70E+10	0.0345
Mn12	392	392A	9	15	4.14E-01	1.20E+09	1.570	Co11	325	325A	6	2	2.03E-01	6.39E+09	0.6379
Mn12	340	340A	9	9	5.13E-01	3.27E+09	1.689	Co11	162	162A	6	10	7.68E+00	1.94E+11	11.986
Mn13	374	374A	6	10	3.72E-01	1.77E+09	1.345	Co11	173	173A	6	2	1.56E+00	1.73E+11	2.602
Mn13	304	304A	6	2	4.08E-01	1.47E+10	1.197	Co13	331	331A	4	12	3.84E-01	1.95E+09	1.228
Mn13	281	281A	6	6	2.58E+00	3.61E+10	7.006	Co13	181	181A	4	12	5.20E+00	8.78E+10	9.068
Mn13	231	231A	6	10	3.12E+00	3.87E+10	6.961	Co14	336	336A	9	15	4.05E-01	1.59E+09	1.318
Mn14	448	448A	1	3	2.40E-03	2.66E+07	0.0104	Co14	291	291A	9	9	4.95E-01	4.30E+09	1.394
Mn14	304	304A	1	3	8.63E-01	2.06E+10	2.538	Co15	323	323A	6	10	3.54E-01	2.26E+09	1.105
Mn14	59	59.3A	1	3	3.55E-01	2.24E+11	0.0507	Co15	266	266A	6	2	4.32E-01	2.03E+10	1.108
Mn14	43	43.7A	1	3	1.12E-01	1.30E+11	0.0118	Co15	244	244A	6	6	2.34E+00	4.34E+10	5.518
Mn15	368	368A	2	6	8.22E-01	6.73E+09	2.928	Co15	203	203A	6	10	2.82E+00	4.56E+10	5.507
Mn15	56	56.3A	2	6	4.14E-01	1.45E+11	0.0561	Co16	388	388A	1	3	3.70E-03	5.44E+07	0.0139
Mn15	41	41.2A	2	6	1.34E-01	8.77E+10	0.0133	Co16	265	265A	1	3	7.96E-01	2.51E+10	2.038
Mn15	36	36.1A	2	6	6.08E-02	5.19E+10	0.0053	Co16	47	47.5A	1	3	3.81E-01	3.76E+11	0.0435
Mn15	33	33.6A	2	6	3.34E-02	3.28E+10	0.0027	Co17	321	321A	2	6	7.60E-01	8.20E+09	2.355
Mn15	32	32.2A	2	6	2.06E-02	2.20E+10	0.0016	Co17	45	45.4A	2	6	4.40E-01	2.37E+11	0.0480
Mn16	18	18.9A	1	3	1.20E-01	7.44E+11	0.0029	Co17	33	33.0A	2	6	1.44E-01	1.47E+11	0.0114
Mn16	18	18.7A	1	3	1.10E-01	7.03E+11	0.0026	Co17	28	28.9A	2	6	6.52E-02	8.70E+10	0.0045
Mn16	17	17.1A	1	3	1.10E-02	8.37E+10	0.0007	Co18	12	12.6A	1	3	2.90E-01	4.06E+12	0.0047
Mn16	16	16.9A	1	3	5.30E-01	4.13E+12	0.0356	Co18	10	10.0A	1	3	1.20E-01	2.65E+12	0.0015
Mn16	16	16.6A	1	3	2.48E+00	2.00E+13	0.1641	Co18	15	15.4A	1	3	1.19E-01	1.11E+12	0.0023
Mn17	102	102A	6	2	3.63E-01	1.14E+11	0.3582	Co18	15	15.2A	1	3	1.05E-01	1.01E+12	0.0020
Mn17	16	17.0A	6	2	9.60E-02	1.11E+12	0.0039	Co18	14	14.0A	1	3	1.20E-02	1.35E+11	0.0007
Mn17	15	15.8A	6	2	1.14E+00	1.52E+13	0.0431	Co18	13	13.9A	1	3	7.00E-01	8.09E+12	0.0387
Mn17	15	15.5A	6	10	1.92E+00	5.36E+12	0.0710	Co18	13	13.6A	1	3	2.40E+00	2.87E+13	0.1303

Co18	11	11.5A	1	3	2.50E-02	4.21E+11	0.0007	Ni19	13	13.8A	1	3	1.05E-01	1.23E+12	0.0018
Co18	11	11.3A	1	3	2.20E-02	3.82E+11	0.0006	Ni19	12	12.8A	1	3	8.10E-03	1.10E+11	0.0004
Co18	11	11.2A	1	3	3.40E-03	6.08E+10	0.0002	Ni19	12	12.7A	1	3	7.20E-01	9.99E+12	0.0363
Co18	11	11.1A	1	3	4.20E-01	7.57E+12	0.0260	Ni19	12	12.4A	1	3	2.55E+00	3.67E+13	0.1263
Co18	10	11.0A	1	3	5.10E-01	9.41E+12	0.0312	Ni19	10	10.4A	1	3	2.50E-02	5.11E+11	0.0007
Co19	91	91.7A	6	2	3.38E-01	1.34E+11	0.2969	Ni19	10	10.3A	1	3	2.20E-02	4.63E+11	0.0006
Co19	13	13.1A	6	2	1.14E+00	2.23E+13	0.0356	Ni19	10	10.2A	1	3	3.20E-03	6.90E+10	0.0002
Co20	102	102A	9	9	8.28E-01	5.83E+10	0.8145	Ni19	10	10.1A	1	3	4.30E-01	9.35E+12	0.0242
Co21	118	118A	4	12	4.44E-01	1.75E+10	0.5050	Ni19	99	9.98A	1	3	4.90E-01	1.09E+13	0.0273
Co21	78	78.9A	4	2	5.20E-03	2.79E+09	0.0039	Ni20	86	86.7A	6	2	3.26E-01	1.45E+11	0.2706
Co22	134	134A	9	15	3.87E-01	9.53E+09	0.4989	Ni20	13	13.0A	6	10	4.44E-01	1.75E+12	0.0138
Co22	110	110A	9	9	4.41E-01	2.66E+10	0.4686	Ni20	12	12.7A	6	2	9.60E-02	2.00E+12	0.0029
Co22	94	94.0A	9	3	4.39E-01	1.10E+11	0.3956	Ni20	11	11.9A	6	2	1.14E+00	2.67E+13	0.0326
Co23	140	140A	6	10	2.50E-01	8.50E+09	0.3360	Ni21	96	96.7A	9	9	8.01E-01	6.35E+10	0.7421
Co23	108	108A	6	6	5.28E-01	4.95E+10	0.5513	Ni21	12	12.5A	9	3	3.42E-01	4.84E+12	0.0103
Co23	104	104A	6	2	1.50E-01	4.59E+10	0.1501	Ni22	111	111A	4	12	4.28E-01	1.93E+10	0.4561
Co24	250	250A	1	3	1.80E-03	6.36E+07	0.0043	Ni22	74	74.4A	4	2	6.40E-03	3.86E+09	0.0046
Co24	125	125A	1	3	1.52E-01	2.16E+10	0.1825	Ni23	126	126A	9	15	3.60E-01	1.00E+10	0.4362
Co24	10	10.1A	1	3	2.70E-01	5.87E+12	0.0065	Ni23	103	103A	9	9	4.43E-01	3.06E+10	0.4400
Co25	195	195A	2	6	1.29E-01	3.77E+09	0.4887	Ni23	88	89.0A	9	3	4.17E-01	1.17E+11	0.3554
Co25	98	9.81A	2	6	7.52E-01	8.69E+12	0.0310	Ni24	102	102A	6	6	5.04E-01	5.29E+10	0.4973
Co26	17	1.72A	1	3	7.84E-02	5.89E+13	0.0003	Ni24	97	98.0A	6	2	1.46E-01	5.07E+10	0.1371
Co26	17	1.71A	1	3	6.93E-01	5.26E+14	0.0036	Ni25	238	238A	1	3	2.10E-03	8.19E+07	0.0048
Co26	14	1.46A	1	3	1.80E-02	1.89E+13	0.0005	Ni25	117	117A	1	3	1.49E-01	2.38E+10	0.1685
Co26	14	1.46A	1	3	1.35E-01	1.42E+14	0.0008	Ni25	93	9.39A	1	3	2.60E-01	6.56E+12	0.0058
Co26	13	1.38A	1	3	6.60E-03	7.67E+12	0.0002	Ni25	93	9.34A	1	3	4.50E-01	1.15E+13	0.0101
Co26	13	1.38A	1	3	4.88E-02	5.68E+13	0.0004	Ni26	183	183A	2	6	1.27E-01	4.20E+09	0.4530
Co26	13	1.35A	1	3	3.30E-03	4.02E+12	0.0000	Ni26	90	9.07A	2	6	7.50E-01	1.01E+13	0.0351
Co26	13	1.35A	1	3	2.40E-02	2.92E+13	0.0002	Ni27	15	1.60A	1	3	8.83E-02	7.70E+13	0.0000
Co27	16	1.67A	2	6	8.32E-01	3.33E+14	0.0037	Ni27	15	1.59A	1	3	6.83E-01	6.02E+14	0.0036
Co27	14	1.41A	2	6	1.58E-01	8.87E+13	0.0012	Ni27	13	1.35A	1	3	2.00E-02	2.43E+13	0.0001
Co27	13	1.33A	2	6	5.80E-02	3.62E+13	0.0005	Ni27	13	1.35A	1	3	1.34E-01	1.63E+14	0.0007
Co27	13	1.30A	2	6	2.79E-02	1.83E+13	0.0002	Ni27	12	1.28A	1	3	7.40E-03	9.99E+12	0.0000
Co27	12	1.29A	2	6	1.56E-02	1.05E+13	0.0001	Ni27	12	1.28A	1	3	4.72E-02	6.38E+13	0.0003
Co27	12	1.28A	2	6	9.63E-03	6.57E+12	0.0001	Ni27	12	1.25A	1	3	3.70E-03	5.23E+12	0.0000
Co27	12	1.27A	2	6	6.37E-03	4.39E+12	0.0001	Ni27	12	1.25A	1	3	2.37E-02	3.35E+13	0.0002
Co27	12	1.27A	2	6	4.43E-03	3.07E+12	0.0000	Ni28	15	1.55A	2	6	8.32E-01	3.85E+14	0.0050
Co27	12	1.26A	2	6	3.21E-03	2.24E+12	0.0000	Ni28	13	1.31A	2	6	1.58E-01	1.03E+14	0.0012
Ni 1	3481	3481A	21	21	2.52E-01	6.61E+06	0.4128	Ni28	12	1.24A	2	6	5.80E-02	4.19E+13	0.0004
Ni 1	3311	3311A	21	27	2.10E-01	4.73E+06	0.3105	Ni28	12	1.21A	2	6	2.79E-02	2.11E+13	0.0002
Ni 1	3105	3105A	21	21	1.18E-01	3.89E+06	0.1527	Ni28	11	1.20A	2	6	1.56E-02	1.21E+13	0.0001
Ni 1	3036	3036A	21	15	1.25E-01	6.03E+06	0.1544	Ni28	11	1.19A	2	6	9.63E-03	7.60E+12	0.0001
Ni 2	1751	1751A	10	14	9.06E-01	1.41E+08	4.571	Ni28	11	1.18A	2	6	6.37E-03	5.07E+12	0.0000
Ni 2	1744	1744A	10	10	1.47E+00	3.22E+08	7.379	Ni28	11	1.18A	2	6	4.43E-03	3.55E+12	0.0000
Ni 2	1484	1484A	10	14	2.41E-01	5.21E+07	1.006	Ni28	11	1.17A	2	6	3.21E-03	2.59E+12	0.0000
Ni 2	1472	1472A	10	10	6.20E-01	1.91E+08	2.564	Cu 1	3257	3257A	2	6	1.29E+00	1.35E+08	1.843
Ni 2	1400	1400A	10	10	4.49E-01	1.53E+08	1.753	Cu 1	2180	2180A	2	6	3.89E-01	9.10E+07	0.2410
Ni 2	1375	1375A	10	6	1.30E+00	7.64E+08	4.976	Cu 1	2165	2165A	2	4	1.43E-01	5.08E+07	0.0873
Ni 2	1324	1324A	10	14	1.56E+00	4.24E+08	5.718	Cu 1	2024	2024A	2	6	3.61E-02	9.79E+06	0.0192
Ni11	211	211A	1	3	2.90E-04	1.44E+07	0.0006	Cu 2	1472	1472A	1	3	8.38E-03	8.59E+06	0.0346
Ni11	186	186A	1	3	6.80E-03	4.32E+08	0.0122	Cu 2	1367	1367A	1	3	3.32E-02	3.94E+07	0.1263
Ni11	148	148A	1	3	2.31E+00	2.33E+11	3.290	Cu 2	1358	1358A	1	3	3.80E-01	4.58E+08	1.434
Ni11	78	78.7A	1	3	1.70E-01	6.10E+10	0.0323	Cu29	14	1.45A	2	6	8.32E-01	4.43E+14	0.0071
Ni11	77	77.4A	1	3	2.30E-01	8.54E+10	0.0429	Cu29	12	1.22A	2	6	1.58E-01	1.18E+14	0.0011
Ni11	63	63.6A	1	3	4.50E-01	2.47E+11	0.0690	Cu29	11	1.16A	2	6	5.80E-02	4.82E+13	0.0004
Ni11	62	62.7A	1	3	2.20E-01	1.24E+11	0.0332	Cu29	11	1.13A	2	6	2.79E-02	2.43E+13	0.0002
Ni12	302	302A	6	2	1.99E-01	7.26E+09	0.5804	Cu29	11	1.11A	2	6	1.56E-02	1.39E+13	0.0001
Ni12	152	152A	6	10	7.20E+00	2.07E+11	10.521	Cu29	11	1.11A	2	6	9.63E-03	8.74E+12	0.0001
Ni12	162	162A	6	2	1.50E+00	1.89E+11	2.343	Cu29	11	1.10A	2	6	6.37E-03	5.84E+12	0.0000
Ni14	307	307A	4	12	3.64E-01	2.13E+09	1.082	Cu29	10	1.10A	2	6	4.43E-03	4.09E+12	0.0000
Ni14	170	170A	4	12	4.80E+00	9.20E+10	7.851	Cu29	10	1.09A	2	6	3.21E-03	2.98E+12	0.0000
Ni15	314	314A	9	15	3.96E-01	1.78E+09	1.202	Zn 1	2139	2139A	1	3	1.46E+00	7.09E+08	0.8691
Ni15	271	271A	9	9	5.04E-01	5.05E+09	1.321	Zn 1	1589	1589A	1	3	1.22E-01	1.07E+08	0.0389
Ni16	302	302A	6	10	3.54E-01	2.59E+09	1.032	Zn 1	1457	1457A	1	3	2.90E-02	3.03E+07	0.0077
Ni16	250	250A	6	2	4.38E-01	2.32E+10	1.057	Zn 1	1404	1404A	1	3	1.13E-02	1.27E+07	0.0028
Ni16	229	229A	6	6	2.28E+00	4.82E+10	5.031	Zn 2	2038	2038A	2	6	1.54E+00	4.12E+08	31.756
Ni16	191	191A	6	10	2.70E+00	4.93E+10	4.960	Zn 2	984	984A	2	6	5.93E-03	6.80E+06	0.0156
Ni17	366	366A	1	3	3.50E-03	5.79E+07	0.0124	Zn30	13	1.35A	2	6	8.32E-01	5.07E+14	0.0000
Ni17	249	249A	1	3	7.67E-01	2.75E+10	1.841	Zn30	11	1.14A	2	6	1.58E-01	1.35E+14	0.0010
Ni17	42	42.9A	1	3	3.92E-01	4.75E+11	0.0403	Zn30	10	1.08A	2	6	5.80E-02	5.52E+13	0.0004
Ni17	30	30.9A	1	3	1.19E-01	2.77E+11	0.0088	Zn30	10	1.06A	2	6	2.79E-02	2.79E+13	0.0002
Ni18	300	300A	2	6	7.34E-01	9.01E+09	2.130	Zn30	10	1.04A	2	6	1.56E-02	1.60E+13	0.0001
Ni18	41	41.1A	2	6	4.60E-01	3.03E+11	0.0454	Zn30	10	1.03A	2	6	9.63E-03	1.00E+13	0.0001
Ni18	29	29.8A	2	6	1.48E-01	1.85E+11	0.0106	Zn30	10	1.03A	2	6	6.37E-03	6.69E+12	0.0000
Ni18	26	26.0A	2	6	6.68E-02	1.10E+11	0.0042	Zn30	10	1.03A	2	6	4.43E-03	4.68E+12	0.0000
Ni19	11	11.6A	1	3	3.80E-02	6.28E+11	0.0006	Zn30	10	1.02A	2	6	3.21E-03	3.41E+12	0.0000
Ni19	11	11.5A	1	3	2.90E-01	4.84E+12	0.0043								
Ni19	91	9.15A	1	3	2.00E-02	5.31E+11	0.0002								
Ni19	91	9.14A	1	3	1.20E-01	3.19E+12	0.0014								
Ni19	14	14.0A	1	3	1.16E-01	1.31E+12	0.0021								

3.5. Atomic data sources

Codes like CLOUDY can only exist because of the large body of work done by the atomic and molecular physics community. This work will only continue to be supported if it is cited in the literature whenever it is used. The following is a partial list of citations for the atomic data used within the code.

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4. ROUTINES

4.1. Overview

This section gives a complete list of routines in CLOUDY. Routine names try to follow the verb - noun convention (i.e., the name would be ***GetData*** not ***DataGet***).

4.2. Names of Routines

```
abnset          sets initial abundances after parameters are entered by reading input
abscf           convert gf into absorption coefficient
absmag          parse the absolute magnitude command
abund0          zero out abundance arrays
AccelFe2        compute acceleration due to Katya's FeII atom

addln1          add lines to truncated list, using known line ratios, by Peter Martin
addln2          add lines to list, scaled from know ratios, by Peter Martin
AddOpac         derive total opacity for this position
AddOTSCon       add local destruction of continuum to ots field
AddOTSLin       add local destruction of lines to ots field

alcol           compute aluminum cooling
alumin          ionization balance for aluminum
amatch          find lines within line array, to use to rescale Peter Martin's extra li
arcol           compute argon cooling
argoni          compute ionization balance of argon

atlas           interpolate on atlas model atmospheres, by K Volk
auger           block data with Auger yield data from Kaastra, J.S., and Mewe, R.,
aver            compute average of various quantities over the computed geometry
backgr          parse options for the BACKGROUND command
badprt          print out coolants if energy not conserved

BadStart        announce that things are so bad the calculation cannot even start
bangin          called by routine comment to enter surprise into comment stack
bangot          print out all surprises on arbitrary unit number
beryli          ionization balance for beryllium
beseq           compute level populations and emissivity for Be-sequence ions

BiDiag          solve the bi-diagonal matrix for ionization balance
blacfx          parse parameters off black body command
blckwind        block data that includes all level 2, or wind, lines
bnfun           evaluate photoionization rate for single shell with induced recomb
boltgn          evaluate Boltzmann factors for the continuum, and related variables

boroni          ionization balance for boron
branch          generate density - temperature dependent branching ratios for H atom
broken          set flag saying that the code is broken
calcm           perform ionization balance for calcium
calcol          compute calcium cooling

cap4            convert input line chLab into chCAP all in caps, for command parser
caps            convert input command line to all caps
carbon          compute ionization balance for carbon
carcol          evaluate total cooling due to carbon
caunin          called by comment to enter caution into comment stack

caunot          print out all cautions after calculation, on arbitrary io unit
cdColm          get the column density for a constituent
cdDriv          main routine to call cloudy under all circumstances)
cdEms           obtain the local emissivity for a line, for the last computed zone
cdGetPres       routine to query results and return pressure of last zone

cdGett          get input parameters from Cloudy header, used when analyzing stored out
cdGetTe         routine to query results and return temperature of last zone
cdInit          routine to initialize variables, called at start of calculation
cdIonf          get ionization fractions for a constituent
cdLine          get the predicted line intensity

cdNoex          call this routine to tell code not to actually execute
cdNwcns         get the number of cautions and warnings, to tell if calculation is ok
cdOutp          redirect output to arbitrary Fortran unit number
cdRead          routine to read in command lines when cloudy used as subroutine
cdTalk          tells the code whether to print results or be silent
```

```
ChckFill        perform sanity check confirming that the energy array has been properly
CheckAge        check various timescales after calculation complete to confirm time ste
chkCaHeps       check whether CaII K and H epsilon overlap
ChkRate         called by nextdr to check how rates of destruction of various species c
ChkSumCon       sanity check confirms summed continua reflect contents of individuals

cholup          called by tfirst, calls ConvIoniz and coolr to get converged ion, cooli
chromi          do ionization balance for chromium
cifit           block data for all of D Verner's collision ionization data
clcol           compute chlorine cooling
cloudy          the main routine, this IS Cloudy

clrine          ionization balance for chlorine
cmshft          compute effects of comptonization
cobalt          do ionization balance for cobalt
CoCol           compute cobalt cooling
codriv          main driver for heavy molecular equilibrium routines

coladd          add coolants to the cooling stack, called in evaluation of cooling func
CollidIonize    fill in collisional ionization rates, and resulting cooling
colred          read observed column densities & errors for optimizer
ColStrGBar      generate g-bar collision strengths for level 2 line2
colzro          set cooling and heating stack to zero

comment         analyze model, generating comments on its features
comole          fills in matrix for heavy elements molecular routines
compil          compile werner or kurucz model atmospheres into cloudy format, by K Vol
compos          parse and read in composition as set by abundances command
cone2           generate e2 function needed for continuum transport

conesc          one of the forms of the continuum escape probability
conorm          normalize continuum to proper intensity
conpmp          local continuum pumping rate radiative transfer for all lines
conrec          one of the forms of the continuum escape probability
constn          parse parameters from the 'constant ...' command

ContRate        called by nextdr to find energy of maximum continuum-gas interaction
ConvFe2         generate needed opacity data for Katya's FeII atom
ConvIoniz       called by ionte and cholup, it calls ionize until converged
ConvWind        convert stored level 2 parameters into internal form used by code
coolpr          stores coolants before block printed, when printing cooling agents

coolr           main routine to call others, to evaluate total cooling
coppi           do ionization balance for copper
coronl          parse parameters off coronal equilibrium command
cratio          derive continuum luminosity of this continuum relative to previous
CrCol           compute chromium cooling

crsdst          interpolate on grain cross section, called once per calculation
csphot          returns photoionization cross section from opacity stage using std poin
ctdata          block data with Jim Kingdon's charge transfer data
da              interpolate on three body recombination by Steve Cota
dalpha          block data with Steve Cota's 3-body recombination coefficients

dcharg          compute grain charge
dcolid          compute grain collisional heating cooling
ddrift          compute grain drift velocity
descap          user queries escape probability routines, which return values
dgaunt          drive gaunt factor routines by letting user query values

dgeco           one of the veclib routines that lives on the Exemplar
dgesl           one of the veclib routines that lives on the Exemplar
DielSupres      derive scale factors for suppression of Burgess dielectronic recombinat
diffem          fill in diffus and ThroOut arrays, with diffuse emission for this zone
DimaCool        compute cooling due to level 2 lines

dintg           compute total radiative cooling due to large grains
dmpary          print all coolants for some zone, as from print cooling command
dmpast          dump cooling, calls coolpr with most important coolants
dont            parse the dont command - do not do something
DoPunch         produce punch output during calculation

drecom          compute electron recombination onto grain surface
drfe            Dielectronic recombination rates for Fe from Arnaud & Raymond 1992
driver          parse the drive command - drive calls to various subs
drvary          main driver for optimization runs
DrvHyas         allow user to query hydrogen A's, asks for up, low level, gives A

dtempr          compute grain temperature
```

```
DumpLine        print various information about an emission line vector, used in debugg
dustop          compute grain opacity
e2              second exponential integral
ee1             first exponential integral

ehe12p          two photon emission from helium singlets
ehe22p          two photon emission from helium ion
eina            convert a gf into an Einstein A
EinstA          calculates Einstein A's from the oscillator strengths
EmitFe2         add Katya's FeII emission into the outward beam - called one time per z

eovrlp          derive line continuum overlap radiative transfer by destruction probabi
esa0k2          derive Hummer's K2 escape probability for Doppler core only
esccom          fundamental escape probability radiative transfer routine, for complete
escgrd          escape probability radiative transfer for incomplete redistribution
escinc          fundamental escape probability radiative transfer routine for incomplet

escla           escape prob for hydrogen atom Lya, using Hummer and Kunasz results
escmase         escape probability for negative (masing) optical depths
escpcn          continuum escape probability
escsub          escape probability radiative transfer for subordinate lines
eshe1l          do radiative transfer for helium singlets lines

eshe2l          do radiative transfer for all helium ion lines
esread          parse escape probability command
esum            sum of free electron density over all species, sets variable eden
eva2nu          two photon emission function for hydrogen
exp1            routine from ucl group to compute 1-exp(-x)

expion          VERY simple two level cooling, do de-excitation or transfer
extin           do extinction of incident continuum as set by extinguish command
fabden          called by dlaw command, returns density for any density law
fe2dat          block data storing energy levels for Fred's FeII ground
fe2ir           cooling due to FIR lines of ground term of FeII

Fe2Lev16        compute populations and cooling due to 16 level Fe II ion
Fe2Lines        save accumulated FeII intensities, punch out at end of run
fe2ovr          compute FeII overlap with Lya
Fe2OvrLap       handle overlapping FeII lines
fe2par          evaluate FeII partition function

Fe4Lev12        compute populations and cooling due to 12 level Fe IV ion
fecol           compute iron cooling
FeIIData        block data containing atomic data for Katya Verner's FeII atom
ffun            evaluate total flux for sum of all continuum sources
ffun1           derive flux at a specific energy, for one continuum

fhummr          evaluate Hummer's F(beta) function
fiddle          adjust energy bounds of certain cells so that match ionization edges ex
fill            define the continuum energy grid over a specified range
fillar          read in line images, fill into cloudy arrays
final           create final pages of printout, emission line intensities, etc

FindNeg         search through line arrays to find the most negative inward optical dep
firebl          parse parameters from fireball command
fivel           do five level atom population and cooling
flcsub          parse the fluctuations command
flucol          evaluate total cooling due to fluorine

fluorinei       compute ionization balance for fluorine
FndLineHt       search through line heat arrays to find the strongest heat source
fndneg          search cooling array to find negative values
fndstr          search cooling stack to find strongest values
forlin          derive radiative acceleration due to line absorption of incident contin

fosc            computes hydrogenic oscillator strengths, Johnson L.C., 1972 ApJ 174 22
fread           scan input line for free format number
freeht          evaluate free-free heating due to incident continuum
frstdr          derive thickness of first zone
fudge           enter fudge factors, or some arbitrary number, with fudge command

func            actual function called during evaluation of optimization run
gamfun          evaluate photoionization rate for single species
gamk            evaluate photoionization rate for single shell
gbar0           compute g-bar gaunt factor for neutrals
gbar1           compute g-bar collision strength using Mewe approximations

GetAge          parse parameters off the age command
GetAgn          parse parameters for the AGN continuum shape command
getatl          get one of the Atlas model atmospheres, coded by K. Volk
```

```
GetAtlas        rebin Kurucz stellar models to match energy grid of code
GetDLaw         parse parameters on the dlaw command

GetElem         scans line image, finds element with atom num j
GetFeII         parse the FeII command
GetGF           convert oscillator strength into Einstein A
GetInit         bring an initialization file into input stream before parse
GetLineRec      return rec coef*hnu for C, N, or O recombination lines from Dima's list

GetMaxhLine     find the strongest heating line
getmod          get a single Werner PN atmosphere, by K Volk
GetNorm         parse parameters on the normalize command
GetPrint        parse the print command
GetPunch        parse the punch command

GetQuote        get a name from between quotes, in command line parse
GetSet          scan parameters off SET command
gett2           analyze computed structure to get structural t^2
gett2o3         analyze computed [OIII] spectrum to get t^2
GetTrace        read in options off the trace command line

GetWerner       rebin Werner stellar atmospheres to match cloudy energy grid
gffsub
globsb          parse parameters off the globule command
grain           main routine to converge grain thermal solution
GrainRateDr     called by nextdr to find grain heating rate dr

grngam          compute grain photoionization rates
hatom           parse information from the hydrogen command line
hclf            hydrogen recombination cooling
hcolst          evaluate collision rate for model hydrogen atom
HCTIon          H charge transfer ionization, using Jim Kingdon's ctdata.for

HCTRecom        H charge transfer recombination using Jim Kingdon's block ctdata.for
hdexct          compute Vriens Smeets collisional deexcitation for H
hdread          parse the hden command
he1col          evaluate collisional rates for helium singlets
he1gma          evaluate photoionization rates for helium singlets

he1jbr          returns continuum occupation number for helium singlet lines
he1lev          evaluate level populations for helium singlets
he1rad          evaluate radiative rates for helium singlets
he2col          evaluate collisional rates for model helium ion
he2gma          evaluate photoionization rates for model helium ion

he2jbr          returns continuum occupation number for any helium ion line
he2lev          evaluate level population for model helium ion
he2rad          evaluate radiative rates for model helium ion
he3col          compute collisional rates for helium triplets
he3gma          compute photoionization rates for helium triplets

he3lev          compute level populations for helium triplets
he3rad          compute radiative rates for helium triplets
heatom          parse parameters off the helium command
HeDiff          compute diffuse fields due to helium atom, ion, triplets
helium          solve populations of helium ion, helium singlets, helium triplets

HeTran          derive escape and destruction probabilities for He lines
hfit            photoionization cross section for excited hydrogenic states
highen          do high energy radiation field - gas interaction, Compton scattering, e
histag          trim down highest stage of ionization at start of calculation
hjbar           return continuum occupation number for any hydrogen line

hlevel          solve for level populations of model hydrogen atom
hmiopc          derive total H- H minus opacity
hmirat          compute radiative association rate for H-
hmole           determine populations of hydrogen molecules
hmrate          compile molecular rates using Hollenback and Mckee fits

hrcf            recombination coefficient for hydrogen
htrans          evaluate the radiative transition rates for model hydrogen atom
humla           fit Hummer and Kunasz escape probability for hydrogen atom Lya
hydrgn          main routine to call hlevel and determine model hydrogen atom level bal
HydroCool       compute net heating/cooling due to model hydrogen atom

HydroOTS        evaluate model hydrogen atom ots rates
HydroPesc       evaluate escape and destruction probabilities for hydrogen lines
hypho           generate hydrogenic photoionization cross sections
iiibod          derive three-body recombination coefficients
insane          set flag saying that insanity has occurred
```

```
inte            parse parameters on interpolate command
ionize          main routine to drive ionization solution for all species
ionte           determine ionization and temperature, called by pionte
ionzer          zero out heating and charge transfer save arrays
ipConSafe       generate unique pointer to energy within continuum array

ipLinSafe       generate unique pointer to line energy within energy mesh
ipoint          returns pointer to any energy within energy mesh
ipShells        assign continuum energy pointers to shells for all atoms
iron            ionization balance for iron
KatyaFe2        drive Katya Verner's large FeII level inversion routine

kurucz79        obtain interpolated Kurucz stellar atmosphere
level2          do level population and cooling for two level atom
level3          compute three level atom with radiative transfer
LevelN          compute an arbitrary N level atom
lgConverg       check whether ionization of element nelem has converged

lgEndFun        after each zone, determine whether model is complete
lget            worker routine for Kevin Volk quantum heating routines for grains
lgMatch         determine whether match to a keyword occurs on command line
ligbar          obtain collision strength for any Li-sequence line
LimitSh         sets upper limit to subshell integrations

linadd          enter lines into the line storage array, called once per zone
lindst          add local line intensity to line luminosity stack
LineData        block data with atomic data for all level 1 lines
lines           main routine to put emission line intensities into line stack
LineSet1        put energetics, H, and He lines into line intensity stack

LineSet2        place lines of elements lithium through neon into lines storage stack
LineSet3        place lines of elements sodium through argon into lines storage stack
LineSet4        place lines of elements sodium through argon into lines storage stack
lint            do linear interpolation, used for grain opacity
lithi           compute ionization balance for lithium

locate          locate value within array
magnes          ionization balance for magnesium
MakeCharTran    fill in the HCharExcIon and Rec arrays with Kingdon's fitted CT with H
MakeCS          compute collision strength by g-bar approximations
MakeDeriv       derive numerical derivative of heating minus cooling

MakeHydro       make data for hydrogen and helium, 1 per coreload
MakeOpacity     generate ionic subshell opacities by calling phfit
MakeRecomb      generate recombination coefficients for any species
MakeRT          drive static or wind metal line radiative transfer
MakeRTFe2       called by MakeRT, gets Katya's FeII atom escape probs

MakeStatRT      do line radiative transfer for static geometry
MakeWindRT      do line radiative transfer for wind geometry
mangi           derive ionization balance for manganese
maprng          parse map command to produce map of heating and cooling
martin          block data with grain data from P.G. Martin

matin1          matrix inversion routine used throughout the code
mean            derive mean ionization fractions over computed structure
metdif          add diffuse fields to local reflected and outward radiation fields
metprt          print he, heavy element optical depths, call prtmet
mgcol           compute magnesium cooling

mihals          generate continuum from Mihalas stellar atmosphere
MnCol           compute manganese cooling
molav           average old and new molecular equilibrium balance from comole
molcol          generate and print molecular column densities
nacol           compute sodium cooling

necol           evaluate total cooling due to neon
negcon          sanity check for negative continuum intensities
neon            ionization balance for neon
nextdr          use adaptive logic to find next zone thickness
nickel          ionization balance for nickel

NiCol           compute nickel cooling
nitcol          evaluate total cooling due to nitrogen
nitrog          ionization balance for nitrogen
nockon          computes suprathermal excitation and ionization efficiencies
NoNumb          general error handler for no numbers on input line

notein          enter a note about calculation into comment array
```

```
noteot          print stack of notes about current calculation
nphot           one of Kevin Kolk's quantum heating routines for grains
nsset           generate low and high boundaries for ionization distribution of each el
nxtchr          get the next character on command line, used by fread

obsred          parse observed line intensites for optimization routines
ofit            compute cross sections for all shells of atomic oxygen
oilevl          get OI level population with Ly-beta pumping
opac0           compute initial set of opacities for all species
opacin          add opacity due to single species to main opacity array

opacpl          generate array of cross sections using a simple power law fit
opacrm          generate array of cross sections using table of Reilman and Manson poin
opacz           zero out opacity save arrays, save old opacity in OldOpacSave array
opfun           helper routine used to get continuum pumping of lines
opinb           add opacity of individual species, including stimulated emission

optred          parse the optimize command line
otsbg           print ots arrays
outer           determine outer shell for some species
outsum          sum outward continuum beams
oxycol          evaluate total cooling due to oxygen

oxygen          derive ionization balance for oxygen
p8446           drive the solution of OI level populations, Ly-beta pumping
pcnrng          set range for map to parse range option on map command
pcontn          print information about continuum if requested with PRINT CONTINUUM com
pfeii           create punch output describing pumping of FeII by Lya

pgaunt          called by punch gaunts command to output gaunt factors
phfit           derive photoionization cross sectoins for first 30 elements
PhosCol         compute phosphorus cooling
phosi           derive ionization balance for phosphorus
PhotoIonize     fill array PhotoRate with photoionization rates for heavy elements

pintr           integrates L for any continuum between two limits, used for normalizati
pionte          drive pressure, ionization, and thermal balance
plankf          evaluate Planck function for any cell at current electron temperature
pldata          punches selected line data for all lines transferred in code
plinin          perform the 'punch lines intensity' output

pllabels        punch all labels and wavelengths for emission line array
plot            master routine to generate some sort of plot
pltcon          generate plot of continuum array
pltmap          generate plot of heating and cooling map
pltopc          generate plot of local gas opacity

pltr            core plotting routine for generating line printer plots
plwcon          parse the power law continuum command
pmeani          print mean ionization fractions for all elements
pmprng          parse range from plot command
pnegopc         punch negative opacities on io unit, iff 'set negopc' command was given

PointFe2        set pointers to FeII lines in Katya's FeII atom
pop3            solve three level atom without radiative transfer
popac           punch total opacity in any of several species, punch opacity command
popexc          do level population for simple two level atom, no radiative transfer
potasi          compute ionization equilibrium for Potassium

PotCol          compute potassium cooling
pow1            evaluate luminosity of continuum
pread           parse the plot command
presur          evaluate the current pressure, and change needed to get it to PresInit
prhead          print program's header, including luminosities and ionization parameter

PrintElem       print chemical composition at start of calculation
prme            print heavy element line optical depths at end of calculation
prstep          print out individual zone results
PrtAllTau       master routine controlling printout of optical depths at end of calcula
PrtFeII         called by prstep to print Katya's atom

PrtGamma        special version of gamma function to print strong contributors
prtmet          print all line optical depths at end of iteration
PrtMolDif       print changes that occurred in the mole abundance in comole
ptot            determine the gas and line radiation pressures for current conditions
ptrcer          show continuum pointers in real time following drive pointers command

PunCool         punch coolants
PunGamma        punch photoionization rates for all subshells, with punch gamma command
PunHeat         punch contributors to local heating, with punch heat command
```

punlin	parse punch lines command, or actually do the punch output
PunResult	execute the punch results command
punt	produce map of heating-cooling space for specified zone
PutCS	enter a collision strength into an individual line vector
PutExtra	enter and 'extra' intensity source for some line
PutHetCol	save heating, cooling, and temperature in stack for numerical derivativ
PutLine	enter local line intensity into the intensity stack for eventual printo
PutOpacity	enter total photo cross section for all subshells into opacity array
qg32	32 point Gaussian quadrature, originally given to Gary F by Jim Lattime
qheat1	one of Kevin Volk's quantum heating routines for grains
qintr	integrates Q for any continuum between two limits, used for normalizati
radacl	compute radiative acceleration due to incident continuum and lines
radi	parse the radius command
radinc	do work associated with geometry increments of this zone
RadMean	derive mean ionization fractions over ravius for some element
radrec	block data with D Verner's recombination coefficients
rangr	parse the range option on the luminosity command
rayleh	compute Rayleigh scattering cross section for Lya
rcont	read in continuum from PUNCH TRANSMITTED CONTINUUM with table read
rdelem	parse options on element command
rdfile	read grain parameters from a file. It is called when the grain number
rdinit	initial readar array for storing line images at start of calculation
rdsum	parse print line sum commandto enter set of lines into sum
readar	read input commands from array where images are stored
readck	check for sanity after commands all read in
readr	main command line parser, decode command, then call other routines to r
reageo	write the comment about type of geometry at end of calculation
RebinAtlas	rebin the atlas continuum grid onto the cloudy grid
RebinWer	rebin Werner atmospheres onto Cloudy grid
receff	generate escape probability function for continua,
reclines	block data with D Verner's recombination lines
renor	convert between cloudy energy grid and werner one, by K Volk
reset	reset many variables at the start of a new iteration
result	punch results from punch results command
rgrai	parse parameters on grain command
rmetal	parse parameters on metal command
scalar	block data setting up intial values
scandi	do ionization balance for scandium
ScCol	compute scandium cooling
SetCon	derive intensity of incident continuum
setflx	parse intensity command parameters
setinp	sets input lines to feed into cloudy in optimization runs
SetLine	set up internal line parameters for all transferred lines
SetPoint	set up pointers for lines and continua
setqhe	parse qheat command line to set grain quantum heating, by K Volk
sexp	save exponential function
ShowMe	produce request to send information to GJF after a crash
SigmaSet	generate hydrogenic photoionization cross sections for prin n
silcol	compute silicon cooling
silicn	determine ionization balance of Silicon
smeets	generate hydrogenic collisional ionization rate coefficients
sodium	ionization balance for sodium
spect	order the emission line list according to increasing wavelength
sphset	parse parameters on sphere command
spline	spline interpolation routine
splint	spline interpolation
star1	K Volk routine to interpolate over the model gap between 50,000 and 80,
startr	set and save values of many variables at start of iteration
stopr	parse the stop command
strbst	generate abundance set from Fred Hamann's starburst evolution grid
strk	compute stark broadening escape probabilities using Puetter formalism
sulcol	compute sulphur cooling
sulphr	compute ionization balance for sulphur
SumBandFe2	sum up Katya's FeII emission over certain bands
sumcon	sums L and Q for net incident continuum
SumContinuum	sum flux, otscon, otslin, outcon, outlin, to form SummeDif, SummedCon S
SumCool	evaluate total cooling from all entries into cooling stack

```
SumHeat         evaluate all heating agents to determine total heating for this zone
tababun         interpolate on table of points to do 'element table' command,
tabden          interpolate on table of points to do 'dlaw table' command,
table           parse the table read command
tauchn          increment optical depths for all heavy element lines, zone by zone

tauff           compute optical depth where cloud is thin to free-free and plasma freq
TauInc          increment optical depths once per zone
TauIncFe2       called after every zone to increment Katya's FeII line optical depths
tauout          set initial outward optical depths at start of first iteration
tav             computes average of old and new optical depths for new scale at end of

TavFe2          reset optical depths for Katya's FeII atom after each iteration
tefail          handle temperature failure
TestCode        set flag saying that test code is in place
TexcLine        derive excitation temperature of line from contents of line array
tfidle          update some temperature dependent variables

tfirst          drive search for initial temperature, for illuminated face
theavy          time dependent heavy element ionization balance
TiCol           compute titanium cooling
timer           time dependent models
titani          determine ionization balance for titanium

TooManCon       say that too many continua have been entered
totlin          sum total intensity of cooling, recombination, or intensity lines
TrimCard        trim off any part of line image after end of line characters
TrimStages      raise or lower most extreme stages of ionization considered
twopht          hydrogen two photon emission, including induced emission

ufunct          one of K. Volk's quantum heating routines for grains
update          update optical depth scale
vanai           do ionization balance for vanadium
VanCol          compute vanadium cooling
velset          set thermal velocities for all particles in gas

version         block data keeping track of version numbers
vfun            approximate form of Voit function
VolMean         do volume mean of ionization fractions over volumn of any element
warnin          enter warnings at the end of the calculations into large stack
warnot          write all warnings entered into comment stack

wcnint          initialize stack or warnings, cautions, notes
werne           read in and interpolate on Werner grid of PN atmospheres, by K Volk
wgadd           add the current model with arbitrary weight to stack of models
wginit          initialize weighted results option in Cloudy as a subroutine mode
wgline          read line predictions when code used as subroutine with co-added weight

widla           determine width of Lya for getting radiation pressure
widlin          determine width of any line with known optical depths
WidthLine       get width of lines
xinvrs          do inverse function for Cota's three-body recombination
xmap            mapping function for Cota's 3-body recombination

zero            actively zero out or initialize variables needed for model calculation
zero1           zero out some variables at start of calculation
zero2           zero out some variables at start of calculation
ZeroFe2         zero out storage for Katya's FeII atom
Zerologic       set initial values for logical variables

zinci           ionization balance for zinc
zmean           zero mean of ionization fractions array
zondun          last routine called after all zone calculations, before lgEndFun
zonsrt          set variables that change with each zone, like radius, depth
```

4.3. Glossary of Routines

```
glossary enties for following keywords:
block data
continuum
pointer
hydrogen
helium single
helium triplet
helium ion
```

```
grain
radiative transfer
parse



block data
auger           block data with Auger yield data from Kaastra, J.S., and Mewe, R.,
blckwind        block data that includes all level 2, or wind, lines
cifit           block data for all of D Verner's collision ionization data
ctdata          block data with Jim Kingdon's charge transfer data
dalpha          block data with Steve Cota's 3-body recombination coefficients
fe2dat          block data storing energy levels for Fred's FeII ground
FeIIData        block data containing atomic data for Katya Verner's FeII atom
LineData        block data with atomic data for all level 1 lines
martin          block data with grain data from P.G. Martin
radrec          block data with D Verner's recombination coefficients
reclines        block data with D Verner's recombination lines
scalar          block data setting up intial values
version         block data keeping track of version numbers



continuum routines
AddOTSCon       add local destruction of continuum to ots field
boltgn          evaluate Boltzmann factors for the continuum, and related variables
cone2           generate e2 function needed for continuum transport
conesc          one of the forms of the continuum escape probability
conorm          normalize continuum to proper intensity
conpmp          local continuum pumping rate radiative transfer for all lines
conrec          one of the forms of the continuum escape probability
ContRate        called by nextdr to find energy of maximum continuum-gas interaction
cratio          derive continuum luminosity of this continuum relative to previous
eovrlp          derive line continuum overlap radiative transfer by destruction probabi
escpcn          continuum escape probability
extin           do extinction of incident continuum as set by extinguish command
ffun            evaluate total flux for sum of all continuum sources
ffun1           derive flux at a specific energy, for one continuum
fill            define the continuum energy grid over a specified range
freeht          evaluate free-free heating due to incident continuum
GetAgn          parse parameters for the AGN continuum shape command
he1jbr          returns continuum occupation number for helium singlet lines
he2jbr          returns continuum occupation number for any helium ion line
hjbar           return continuum occupation number for any hydrogen line
ipConSafe       generate unique pointer to energy within continuum array
ipShells        assign continuum energy pointers to shells for all atoms
mihals          generate continuum from Mihalas stellar atmosphere
negcon          sanity check for negative continuum intensities
opfun           helper routine used to get continuum pumping of lines
outsum          sum outward continuum beams
pcontn          print information about continuum if requested with PRINT CONTINUUM com
pintr           integrates L for any continuum between two limits, used for normalizati
pltcon          generate plot of continuum array
plwcon          parse the power law continuum command
pow1            evaluate luminosity of continuum
ptrcer          show continuum pointers in real time following drive pointers command
qintr           integrates Q for any continuum between two limits, used for normalizati
radacl          compute radiative acceleration due to incident continuum and lines
rcont           read in continuum from PUNCH TRANSMITTED CONTINUUM with table read
RebinAtlas      rebin the atlas continuum grid onto the cloudy grid
SetCon          derive intensity of incident continuum
sumcon          sums L and Q for net incident continuum
SumContinuum    sum flux, otscon, otslin, outcon, outlin, to form SummeDif, SummedCon S



pointer
ipConSafe       generate unique pointer to energy within continuum array
ipLinSafe       generate unique pointer to line energy within energy mesh
ipoint          returns pointer to any energy within energy mesh
ipShells        assign continuum energy pointers to shells for all atoms
PointFe2        set pointers to FeII lines in Katya's FeII atom
ptrcer          show continuum pointers in real time following drive pointers command
SetPoint        set up pointers for lines and continua



hydrogen
DrvHyas         allow user to query hydrogen A's, asks for up, low level, gives A
escla           escape prob for hydrogen atom Lya, using Hummer and Kunasz results
```

```
eva2nu          two photon emission function for hydrogen
fosc            computes hydrogenic oscillator strengths, Johnson L.C., 1972 ApJ 174 22
hatom           parse information from the hydrogen command line
hclf            hydrogen recombination cooling
hcolst          evaluate collision rate for model hydrogen atom
hfit            photoionization cross section for excited hydrogenic states
hjbar           return continuum occupation number for any hydrogen line
hlevel          solve for level populations of model hydrogen atom
hmole           determine populations of hydrogen molecules
hrcf            recombination coefficient for hydrogen
htrans          evaluate the radiative transition rates for model hydrogen atom
humla           fit Hummer and Kunasz escape probability for hydrogen atom Lya
hydrgn          main routine to call hlevel and determine model hydrogen atom level bal
HydroCool       compute net heating/cooling due to model hydrogen atom
HydroOTS        evaluate model hydrogen atom ots rates
HydroPesc       evaluate escape and destruction probabilities for hydrogen lines
hypho           generate hydrogenic photoionization cross sections
MakeHydro       make data for hydrogen and helium, 1 per coreload
SigmaSet        generate hydrogenic photoionization cross sections for prin n
smeets          generate hydrogenic collisional ionization rate coefficients
twopht          hydrogen two photon emission, including induced emission


helium singlet routines
ehe12p          two photon emission from helium singlets
eshe1l          do radiative transfer for helium singlets lines
he1col          evaluate collisional rates for helium singlets
he1gma          evaluate photoionization rates for helium singlets
he1jbr          returns continuum occupation number for helium singlet lines
he1lev          evaluate level populations for helium singlets
he1rad          evaluate radiative rates for helium singlets
helium          solve populations of helium ion, helium singlets, helium triplets


helium triplet
he3col          compute collisional rates for helium triplets
he3gma          compute photoionization rates for helium triplets
he3lev          compute level populations for helium triplets
he3rad          compute radiative rates for helium triplets
helium          solve populations of helium ion, helium singlets, helium triplets


helium ion
ehe22p          two photon emission from helium ion
eshe2l          do radiative transfer for all helium ion lines
he2col          evaluate collisional rates for model helium ion
he2gma          evaluate photoionization rates for model helium ion
he2jbr          returns continuum occupation number for any helium ion line
he2lev          evaluate level population for model helium ion
he2rad          evaluate radiative rates for model helium ion
helium          solve populations of helium ion, helium singlets, helium triplets


grain routines
crsdst          interpolate on grain cross section, called once per calculation
dcharg          compute grain charge
dcolid          compute grain collisional heating cooling
ddrift          compute grain drift velocity
dintg           compute total radiative cooling due to large grains
drecom          compute electron recombination onto grain surface
dtempr          compute grain temperature
dustop          compute grain opacity
grain           main routine to converge grain thermal solution
GrainRateDr     called by nextdr to find grain heating rate dr
grngam          compute grain photoionization rates
lget            worker routine for Kevin Volk quantum heating routines for grains
lint            do linear interpolation, used for grain opacity
martin          block data with grain data from P.G. Martin
nphot           one of Kevin Kolk's quantum heating routines for grains
qheat1          one of Kevin Volk's quantum heating routines for grains
rdfile          read grain parameters from a file.  It is called when the grain number
rgrai           parse parameters on grain command
setqhe          parse qheat command line to set grain quantum heating, by K Volk
ufunct          one of K. Volk's quantum heating routines for grains
```

```
radiative transfer
conpmp          local continuum pumping rate radiative transfer for all lines
eovrlp          derive line continuum overlap radiative transfer by destruction probabi
esccom          fundamental escape probability radiative transfer routine, for complete
escgrd          escape probability radiative transfer for incomplete redistribution
escinc          fundamental escape probability radiative transfer routine for incomplet
escsub          escape probability radiative transfer for subordinate lines
eshe1l          do radiative transfer for helium singlets lines
eshe2l          do radiative transfer for all helium ion lines
level3          compute three level atom with radiative transfer
MakeRT          drive static or wind metal line radiative transfer
MakeStatRT      do line radiative transfer for static geometry
MakeWindRT      do line radiative transfer for wind geometry
pop3            solve three level atom without radiative transfer
popexc          do level population for simple two level atom, no radiative transfer


parse
absmag          parse the absolute magnitude command
backgr          parse options for the BACKGROUND command
blacfx          parse parameters off black body command
cap4            convert input line chLab into chCAP all in caps, for command parser
compos          parse and read in composition as set by abundances command
constn          parse parameters from the 'constant ...' command
coronl          parse parameters off coronal equilibrium command
dont            parse the dont command - do not do something
driver          parse the drive command - drive calls to various subs
esread          parse escape probability command
firebl          parse parameters from fireball command
flcsub          parse the fluctuations command
GetAge          parse parameters off the age command
GetAgn          parse parameters for the AGN continuum shape command
GetDLaw         parse parameters on the dlaw command
GetFeII         parse the FeII command
GetInit         bring an initialization file into input stream before parse
GetNorm         parse parameters on the normalize command
GetPrint        parse the print command
GetPunch        parse the punch command
GetQuote        get a name from between quotes, in command line parse
globsb          parse parameters off the globule command
hatom           parse information from the hydrogen command line
hdread          parse the hden command
heatom          parse parameters off the helium command
inte            parse parameters on interpolate command
maprng          parse map command to produce map of heating and cooling
obsred          parse observed line intensites for optimization routines
optred          parse the optimize command line
pcnrng          set range for map to parse range option on map command
plwcon          parse the power law continuum command
pmprng          parse range from plot command
pread           parse the plot command
punlin          parse punch lines command, or actually do the punch output
radi            parse the radius command
rangr           parse the range option on the luminosity command
rdelem          parse options on element command
rdsum           parse print line sum commandto enter set of lines into sum
readr           main command line parser, decode command, then call other routines to r
rgrai           parse parameters on grain command
rmetal          parse parameters on metal command
setflx          parse intensity command parameters
setqhe          parse qheat command line to set grain quantum heating, by K Volk
sphset          parse parameters on sphere command
stopr           parse the stop command
table           parse the table read command
```

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