

# Stark broadening of hydrogen Lyman and Balmer in the conditions of stellar envelopes<sup>\*</sup>

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**Abstract.** — Tables of Stark broadened hydrogen lines of the Lyman and Balmer series are presented under the conditions of stellar envelopes. The formalism is based on the Model Microfield Method (MMM) for both the electronic and ionic contributions to the line shape.

**Key words:** atomic data — atomic processes — lines profiles

The computation of the shapes of hydrogen lines has been extensively studied both theoretically and experimentally. After the pioneering tables of Underhill & Wadell (1959), theoretical efforts have been concentrated on the treatment of the electronic broadening (Griem et al. 1959; Griem 1974). In this context, the tables of Vidal et al. (VCS 1973) are presently the most accurate.

In all these theoretical approaches it is assumed that the ionic charges of the plasma are fixed in space during the radiative process. But it has been proved experimentally (Wiese et al. 1972), that this static assumption may be invalid in the line cores. Several experiments have illustrated this effect (see for example, Fleurier et al. 1980). Many theoretical works have been devoted to this point and the reader may refer for example to the most recent work of Oza et al. (1988) and references therein.

As a consequence, the line shape may vary for different masses of perturbing ions. This point justifies the publication of new tables including ion dynamics effects. The present work is focused on the Balmer and Lyman lines. For each electronic density and temperature condition and for each series, the number of lines reported in the tables is obtained by simple considerations on the lowering of the photoionization limit (Inglis & Teller 1939). The corresponding profiles have been recently parametrized (Clausset et al. 1994). This fitting procedure allows one to obtain with a good accuracy (to within 20%) the line shapes and may be indicated for extensive and fast line shape calculations.

Although in the presented astrophysical conditions the dominant ionic species are protons, we report also the line shapes for  $\text{He}^+$  and  $\text{Ar}^+$  perturbers (atomic mass  $m_i$ ) which can be useful for laboratory plasmas where hydrogen can be introduced in traces in helium or argon discharges. The effect of the mass of the perturbing ions in the line shape can be described in terms of the reduced mass, i.e.  $m_i/(m_i + 1)$ , which varies from 0.5 for protons up to unity for  $\text{Ar}^+$  ions).

The density (in  $\text{cm}^{-3}$ ) and temperature (in K) range covered by the tables corresponds to those of the radiative envelopes of A and F stars, i.e.,

$$\begin{aligned} 10^{14} &\leq N_e \leq 10^{16} \\ 10^4 &\leq T \leq 4 \cdot 10^5 \end{aligned} \quad (1)$$

The plasma is supposed to be at local thermodynamical equilibrium.

The present computation is based on the principles of the Model Microfield Method (or MMM, Frisch & Brissaud 1971), which models the temporal statistics of the interaction between the perturbing electrons and ions. This method gives correctly the line cores and wings (Stehlé 1991) and is in reasonable agreement with the experimental results. It has been also recently used in hydrogen opacity calculations for the description of all the resolved lines (Lyman, Balmer, Paschen and others) in a recent publication (Stehlé & Jacquemot 1993), which reports also theoretical results concerning the emissivity of the Balmer series. A very good agreement is found between theory and experiments (Behringer 1971 and Wiese et al. 1972).

The principles of the MMM method have been already presented (Frisch & Brissaud 1971; Seidel 1977). We shall give here only indications on the numerical procedure.

<sup>\*</sup>Tables 1.1-1.13, 2.3-2.12 are only available in electronic form: see the Editorial in A&AS 1994, Vol. 103, No. 1. Tables 2.1 and 2.2, concerning the  $\text{H}\alpha$  and  $\text{H}\beta$  lines are also reported in this paper

The electronic contribution to the shape is calculated in a first step using MMM. This leads to the following expression of the Fourier transform of time evolution operator  $U_e(\omega)$  of hydrogen perturbed by electrons as

$$U_e(\omega) = \frac{1}{\pi} [\hbar^{-1} L_0 - \omega I - i\gamma(\omega)]^{-1} \quad (2)$$

where  $L_0$  is the unperturbed Liouville operator (for the isolated hydrogen atom),  $I$  is the identity operator and  $\gamma(\omega)$  is a frequency-dependent relaxation rate. In the line center,  $\gamma(\omega)$  is given by the well known impact theory. Its expression can also be obtained in terms of collisional scattering matrices. The spherical symmetry allows one to compute  $\gamma(\omega)$  and  $U_e(\omega)$  in the reduced tensorial forms, i.e.  $\gamma^k(\omega)$  (Omont 1977).

In the wings the electronic contribution to the intensity can be written as

$$I_e(\omega) = \frac{1}{\pi} \frac{\bar{\gamma}(\omega)}{\Delta\omega^2} \quad (3)$$

where the mean relaxation operator  $\bar{\gamma}(\omega)$  is given by

$$\bar{\gamma}(\omega) = \sum_{if, i'f'} \mathbf{d}_{if} \gamma_{if, i'f'}(\omega) \mathbf{d}_{i'f'}^* / \sum (\mathbf{d}_{if} \mathbf{d}_{if}^*) \quad (4)$$

where  $\mathbf{d}_{ij}$  are the matrix elements of the dipolar electronic operator between the group of initial ( $i, i' \dots$ ) and final ( $f, f' \dots$ ) radiating states.

To obtain the total MMM line intensity we must calculate the ionic contribution (in terms of ionic microfield  $E_i$ ).

The time dependent evolution operator of hydrogen perturbed by electrons and ions satisfies

$$i\hbar \frac{dU(t, o)}{dt} = [L_0 - \mathbf{dE}_i(t) - i\hbar\gamma_e(\omega)] U(t, o) \quad (5)$$

For a fixed field  $E_i$  the Laplace transform of  $U$  is given by

$$U(z) = [L_0 - \hbar z I - \mathbf{dE}_i - i\hbar\gamma_e(\omega)]^{-1} \quad (6)$$

The electric field  $E_i$  is chosen along the  $z$  quantization axis. Thus the eigenstates are the well known parabolic states and  $\gamma_e(\omega)$  must be projected on this basis.

The line shape expression is obtained in terms of these evolution operators. In some cases one can replace in the preceding expression  $\gamma(\omega)$  by the isotropic operator  $\bar{\gamma}(\omega)$  defined previously. The relevant matrices are then diagonal in the parabolic representation. This approximation denoted ii) is used for the intermediate lines of each series, whereas the detailed description presented before is called i) and used for the most intense first lines. For the last lines of the series we neglect the contribution of the lower state to the broadening (approximation iii). This means that the electric microfield does not modify the electronic

structure of the lowest level of the transition. This is of course always exact for the Lyman lines, and simplifies the numerical computation for the other series.

In practice, approximation i) has been used for the 1 to 2, 3, 4, 5 and 2 to 3, 4, 5 transitions, ii) for the 1 to 6 and up as also for the 2 to 6, 7, 8 transitions and iii) for the other Balmer lines. We use the field distribution

functions given by Hooper (1968, 1969) for the electronic broadening (high frequency component) and for the ionic broadening (low frequency component).

As the electrons and the ions are treated in a semi-classical picture, both give the same static limit in the line wings, leading to the well known  $|\Delta\nu|^{-5/2}$  variation of the intensity. The question of this static limit for the electrons is still an open problem. Comparison with quantum mechanical results on  $\text{Ly}\alpha$  line indicates for the near line wing ( $< 10 \text{ \AA}$ ) this limit gives correct results (Stehlé 1991). Nevertheless it is well known that at higher detunings quantum effects are important leading to a strong depression from one wing compared to the other (Feautrier & Tran-Minh 1971). This depression may be roughly taken into account by multiplying the intensity of the corresponding wing by the Boltzman factor

$$\exp(-|\hbar\Delta\omega|/kT) \quad (7)$$

for  $\Delta\omega < 0$  in the absorption case, and for  $\Delta\omega > 0$  in the emission case.

This qualitative correction allows to avoid an excessively large intensity in the far wing and to fulfil the principles of detailed balance (Stehlé & Jacquemot 1993). For precise results, a quantum treatment is necessary for electrons as also the inclusion of short range interactions for electrons and ions. A correct calculation of the continua ( $\text{H}^-$  et bound-free) is also necessary.

In the table we adopt the presentation of VCS tables. The detuning is given in terms of  $\alpha$  units, where

$$\alpha = \lambda_0/F_0 \text{ and } \Delta\alpha = \Delta\lambda/F_0 \quad (8)$$

In this expression,  $\Delta\lambda$  is the detuning,  $\lambda_0$  the wavelength of the line center, both in Angstroms and  $F_0$  is the normal Holtsmark field strength value in ues units ( $F_0 = 1.25 \cdot 10^{-9} N_e^{2/3}$  where  $N_e$  is the electronic density in  $\text{cm}^{-3}$ ). The corresponding conversion factor is reported at the top of each table.

The asymptotic behavior for large detunings ( in frequency units  $\nu$ ) is given by

$$I(\nu) = K_\nu |\Delta\nu|^{-5/2} \quad (9)$$

or in wavelength ( $\alpha$  units) by

$$I(\alpha) = K_\alpha \left[ \frac{\lambda}{\lambda_0} \right]^{1/2} |\Delta\alpha|^{-5/2} = I(\nu) \frac{d\nu}{d\alpha} \quad (10)$$

where  $\lambda$  is the wavelength considered.

This  $K_\alpha$  parameter is reported at the beginning of each table. One insists again on the fact that this variation is obtained for the dipolar interaction potential and is thus only indicative at large detunings.

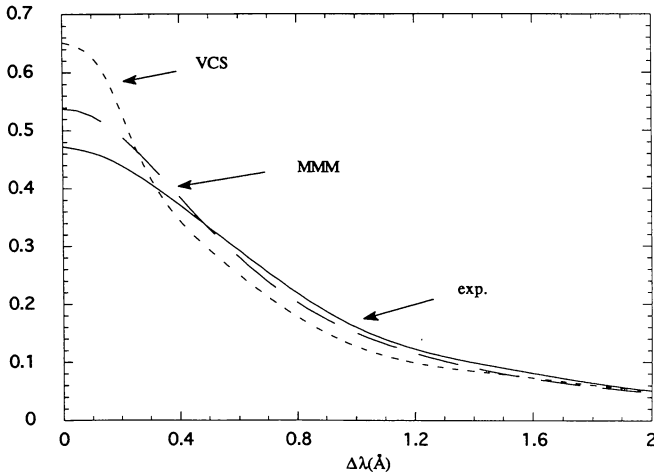
For each table, the first column gives  $\Delta\alpha$  (red wing). The other gives the intensity after convolution with the Doppler profile. The pure Stark profile before convolution is given in brackets.

All the line shapes are normalized to unity

$$\int_0^{+\infty} d\alpha I(\alpha) = 1 \quad (11)$$

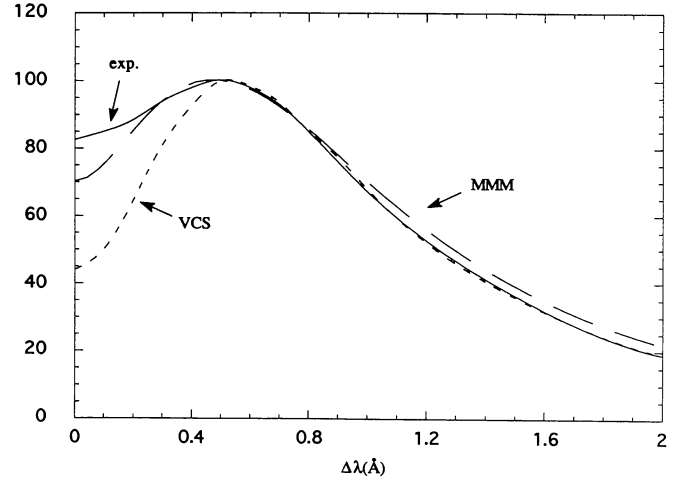
All the other broadening mechanisms are neglected, like spontaneous emission or broadening by neutrals.

The numerical uncertainty is less than 1%. This is due to matrices inversions and to field integration. In particular unphysical small fluctuations can appear in the line centers, due to different meshes in the field integration for each detuning. Hence the mesh in the field is carefully chosen and depends on the detuning. This is necessary to recover the static limit in the far wings. The convolution with the Doppler profile is performed only when the ratio of the Stark to the Doppler widths is smaller than 10.

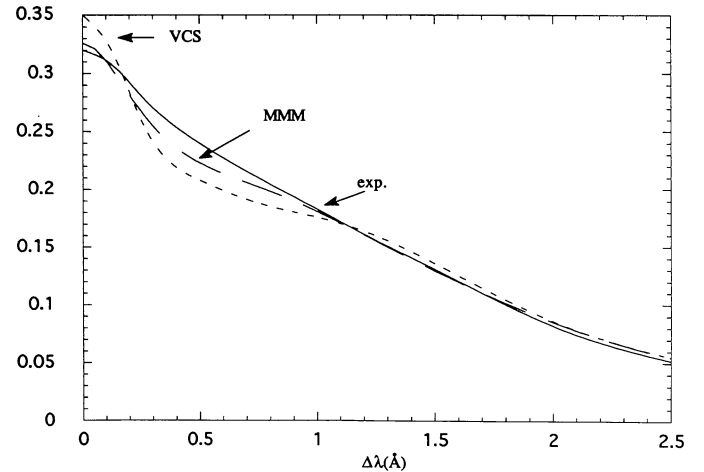


**Fig. 1.** Area normalized intensity of  $H\alpha$  line versus detuning in Å. Perturbing ions are  $He^+$ , the electronic density  $N_e$  is equal to  $3.8 \cdot 10^{15} \text{ cm}^{-3}$  the electronic temperature  $T_e$  to 18000 K and the ionic ones  $T_i$  to 10200 K. The experimental results (Ehrich and Kelleher 1980) are in full line. The VCS (static ions) and MMM (dynamic ions) are reported. All these profiles include Doppler and experimental (resolution of 0.03 Å) broadenings

At the top of each table are reported the electronic density (in  $\text{cm}^{-3}$ ), the temperature (in K), the type of perturbing ions and the correlation parameter which is the ratio of the mean interelectronic distance to the electronic Debye length. The levels involved in the radiative transition are given, with the corresponding approximate wavelength in Å, which is obtained in the non relativistic atomic theory, using for the Rydberg constant the



**Fig. 2.** Same as Fig. 1 for  $H\beta$  at  $N_e=1.49 \cdot 10^{15} \text{ cm}^{-3}$ ,  $T_e=17000 \text{ K}$ ,  $T_i=4500 \text{ K}$ . For this line the profiles are normalized to have the same peak height



**Fig. 3.** Same as Fig. 1 for  $H\gamma$  at  $N_e=1.1 \cdot 10^{15} \text{ cm}^{-3}$ ,  $T_e=16500 \text{ K}$ ,  $T_i=4000 \text{ K}$

value  $R = 109677.583 \text{ cm}^{-1}$  (corrected for the finite mass of H). The line shapes are symmetrical in frequency (but not in wavelength) units around the line center. Hence, all the physical mechanisms leading to asymmetries are neglected, as for example, quadrupolar interactions (Demura et al. 1991), fine structure effects and quadratic field interactions.

For each series we stop to lines, for which the upper level satisfies the Inglis Teller criterion.

Variations with the perturber mass are checked only for the lowest of the series where these effects are visible. For higher lines, these effects are not significant and protons are assumed as perturbers. After convolution with the Doppler profile, these mass effects are small. They are a signature of ion dynamics effects. The magnitude of these effects (already discussed by Oza et al. 1988) is here indicative and should be more accurately given by

Monte Carlo simulations (Stamm et al. 1984), which are presently restricted to line centers of the lowest lines of the Lyman and Balmer series.

The ion dynamics effects explain the differences occurring in certain cases (mostly Balmer lines) with VCS results. This point is illustrated in Figs. 1, 2 and 3, where are reported the shapes of the  $H_\alpha$ ,  $H_\beta$  and  $H_\gamma$  lines for electronic densities and temperatures corresponding to the experiments of Ehrich & Kelleher (1980). The experimental electronic density is determined from the half-width of the  $H_\beta$  profile using VCS tables. Figure 2 shows the profile of this line for  $N_e$  equal to  $1.49 \cdot 10^{15} \text{ cm}^{-3}$ . The MMM profile is closer to the experimental results than the VCS ones. The MMM width is slightly larger indicating some uncertainty in the determination of the electronic density from the value of the width (the experimental uncertainty is of about 10%, Ehrich & Kelleher 1980).

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**Table 2.1.** Intensity of the Stark broadened  $H\alpha$  line, for different perturbing ions ( $H^+$ ,  $He^+$  and  $Ar^+$ ). The detuning is given in  $\alpha$  units. The asymptotic parameter  $K_\alpha$  may be used for large detunings, following expression (10). The conversion factor from  $\text{\AA}$  to  $\alpha$  units is reported for each electronic density  $N_e$  (in  $\text{cm}^{-3}$ ) and temperature  $T$  (in K). The ratio of the mean interelectronic distance to the electronic Debye length is also given for indication. The decimal logarithms of  $N_e$ , and  $T$  are the following:  $\log(N_e) = 14.5, \log(T) = 4, 4.3, \log(N_e) = 15, \log(T) = 4, 4.3, 4.6, \log(N_e) = 15.5, \log(T) = 4, 4.3, 4.6, \log(N_e) = 16, \log(T) = 4.3, 4.6, 4.9, \log(N_e) = 16.5, \log(T) = 4.3, 4.6, 4.9$

N UPPER = 2      N LOWER = 3      WAVELENGTH = 6564.70  
KALPHA = 2.564E-03

ELECTRON DENSITY IN  $\text{CM}^{*-3}$  = 3.162E+14      DLAMBDA/DALPHA = 5.808E+00

TEMPERATURE IN K = 1.000E+04  
RO/DEBYE (ELECTRONS) = 2.344E-01

PROTONS			HELIUM+		ARGON+	
DALPHA	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY
0.000E-01	8.446E+00	( 1.900E+01)	8.371E+00	( 1.870E+01)	8.349E+00	( 1.867E+01)
1.000E-03	8.443E+00	( 1.891E+01)	8.369E+00	( 1.858E+01)	8.347E+00	( 1.859E+01)
1.585E-03	8.440E+00	( 1.880E+01)	8.365E+00	( 1.847E+01)	8.343E+00	( 1.848E+01)
2.512E-03	8.430E+00	( 1.858E+01)	8.356E+00	( 1.826E+01)	8.334E+00	( 1.822E+01)
3.981E-03	8.408E+00	( 1.800E+01)	8.334E+00	( 1.765E+01)	8.312E+00	( 1.763E+01)
6.310E-03	8.351E+00	( 1.672E+01)	8.278E+00	( 1.640E+01)	8.257E+00	( 1.633E+01)
1.000E-02	8.209E+00	( 1.424E+01)	8.140E+00	( 1.398E+01)	8.119E+00	( 1.389E+01)
1.585E-02	7.866E+00	( 1.044E+01)	7.804E+00	( 1.031E+01)	7.785E+00	( 1.024E+01)
2.512E-02	7.073E+00	( 6.300E+00)	7.027E+00	( 6.325E+00)	7.013E+00	( 6.312E+00)
3.981E-02	5.454E+00	( 3.150E+00)	5.438E+00	( 3.235E+00)	5.433E+00	( 3.259E+00)
6.310E-02	2.981E+00	( 1.351E+00)	3.000E+00	( 1.408E+00)	3.006E+00	( 1.428E+00)
1.000E-01	9.167E-01	( 5.090E-01)	9.403E-01	( 5.278E-01)	9.484E-01	( 5.347E-01)
1.585E-01	2.187E-01	( 1.740E-01)	2.244E-01	( 1.776E-01)	2.265E-01	( 1.788E-01)
2.512E-01	6.181E-02	( 5.679E-02)	5.712E-02	( 5.712E-02)	5.723E-02	( 5.723E-02)
3.981E-01	1.895E-02	( 1.835E-02)	1.834E-02	( 1.834E-02)	1.833E-02	( 1.833E-02)
6.310E-01	5.894E-03	( 5.817E-03)	5.817E-03	( 5.817E-03)	5.817E-03	( 5.817E-03)
1.000E+00	1.923E-03	( 1.915E-03)	1.915E-03	( 1.915E-03)	1.915E-03	( 1.915E-03)
1.585E+00	6.365E-04	( 6.353E-04)	6.353E-04	( 6.353E-04)	6.353E-04	( 6.353E-04)
2.512E+00	2.112E-04	( 2.112E-04)	2.112E-04	( 2.112E-04)	2.112E-04	( 2.112E-04)
3.981E+00	7.009E-05	( 7.009E-05)	7.009E-05	( 7.009E-05)	7.009E-05	( 7.009E-05)
6.310E+00	2.319E-05	( 2.319E-05)	2.319E-05	( 2.319E-05)	2.319E-05	( 2.319E-05)
1.000E+01	7.635E-06	( 7.635E-06)	7.635E-06	( 7.635E-06)	7.635E-06	( 7.635E-06)
1.585E+01	2.500E-06	( 2.500E-06)	2.500E-06	( 2.500E-06)	2.500E-06	( 2.500E-06)
2.512E+01	8.136E-07	( 8.136E-07)	8.136E-07	( 8.136E-07)	8.136E-07	( 8.136E-07)
3.981E+01	2.609E-07	( 2.609E-07)	2.609E-07	( 2.609E-07)	2.609E-07	( 2.609E-07)

ELECTRON DENSITY IN  $\text{CM}^{*-3}$  = 3.162E+14      DLAMBDA/DALPHA = 5.808E+00

TEMPERATURE IN K = 1.995E+04  
RO/DEBYE (ELECTRONS) = 1.660E-01

PROTONS			HELIUM+		ARGON+	
DALPHA	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY
0.000E-01	6.639E+00	( 1.948E+01)	6.580E+00	( 1.876E+01)	6.560E+00	( 1.858E+01)
6.310E-04	6.639E+00	( 1.942E+01)	6.580E+00	( 1.866E+01)	6.559E+00	( 1.854E+01)
1.000E-03	6.638E+00	( 1.938E+01)	6.579E+00	( 1.863E+01)	6.559E+00	( 1.845E+01)
1.585E-03	6.636E+00	( 1.926E+01)	6.578E+00	( 1.853E+01)	6.557E+00	( 1.835E+01)
2.512E-03	6.632E+00	( 1.902E+01)	6.574E+00	( 1.831E+01)	6.553E+00	( 1.813E+01)
3.981E-03	6.622E+00	( 1.841E+01)	6.564E+00	( 1.773E+01)	6.543E+00	( 1.756E+01)
6.310E-03	6.596E+00	( 1.706E+01)	6.539E+00	( 1.648E+01)	6.518E+00	( 1.631E+01)
1.000E-02	6.533E+00	( 1.447E+01)	6.476E+00	( 1.409E+01)	6.457E+00	( 1.395E+01)
1.585E-02	6.375E+00	( 1.052E+01)	6.323E+00	( 1.042E+01)	6.304E+00	( 1.035E+01)
2.512E-02	5.997E+00	( 6.267E+00)	5.953E+00	( 6.373E+00)	5.938E+00	( 6.389E+00)
3.981E-02	5.152E+00	( 3.085E+00)	5.126E+00	( 3.228E+00)	5.116E+00	( 3.273E+00)
6.310E-02	3.551E+00	( 1.303E+00)	3.554E+00	( 1.382E+00)	3.554E+00	( 1.411E+00)
1.000E-01	1.500E+00	( 4.862E-01)	1.523E+00	( 5.112E-01)	1.531E+00	( 5.205E-01)
1.585E-01	3.084E-01	( 1.660E-01)	3.181E-01	( 1.710E-01)	3.222E-01	( 1.730E-01)
2.512E-01	6.551E-02	( 5.431E-02)	5.497E-02	( 5.497E-02)	5.518E-02	( 5.518E-02)
3.981E-01	1.875E-02	( 1.754E-02)	1.757E-02	( 1.757E-02)	1.757E-02	( 1.757E-02)
6.310E-01	5.661E-03	( 5.509E-03)	5.509E-03	( 5.509E-03)	5.509E-03	( 5.509E-03)
1.000E+00	1.816E-03	( 1.799E-03)	1.799E-03	( 1.799E-03)	1.799E-03	( 1.799E-03)
1.585E+00	5.959E-04	( 5.936E-04)	5.936E-04	( 5.936E-04)	5.936E-04	( 5.936E-04)
2.512E+00	1.967E-04	( 1.967E-04)	1.967E-04	( 1.967E-04)	1.967E-04	( 1.967E-04)
3.981E+00	6.530E-05	( 6.530E-05)	6.530E-05	( 6.530E-05)	6.530E-05	( 6.530E-05)
6.310E+00	2.167E-05	( 2.167E-05)	2.167E-05	( 2.167E-05)	2.167E-05	( 2.167E-05)
1.000E+01	7.179E-06	( 7.179E-06)	7.179E-06	( 7.179E-06)	7.179E-06	( 7.179E-06)
1.585E+01	2.372E-06	( 2.372E-06)	2.372E-06	( 2.372E-06)	2.372E-06	( 2.372E-06)
2.512E+01	7.803E-07	( 7.803E-07)	7.803E-07	( 7.803E-07)	7.803E-07	( 7.803E-07)
3.981E+01	2.555E-07	( 2.555E-07)	2.555E-07	( 2.555E-07)	2.555E-07	( 2.555E-07)

Table 2.1. continued

ELECTRON DENSITY IN CM\*\*(-3) = 1.000E+15 DLAMBDA/DALPHA = 1.251E+01

TEMPERATURE IN K = 1.000E+04  
RO/DEBYE (ELECTRONS) = 2.840E-01

PROTONS			HELIUM+		ARGON+	
DALPHA	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY
0.000E-01	1.272E+01	( 1.859E+01)	1.266E+01	( 1.874E+01)	1.265E+01	( 1.887E+01)
3.981E-04	1.272E+01	( 1.855E+01)	1.266E+01	( 1.865E+01)	1.265E+01	( 1.883E+01)
6.310E-04	1.271E+01	( 1.850E+01)	1.265E+01	( 1.865E+01)	1.265E+01	( 1.878E+01)
1.000E-03	1.271E+01	( 1.845E+01)	1.265E+01	( 1.861E+01)	1.264E+01	( 1.874E+01)
1.585E-03	1.269E+01	( 1.836E+01)	1.263E+01	( 1.851E+01)	1.262E+01	( 1.863E+01)
2.512E-03	1.265E+01	( 1.811E+01)	1.259E+01	( 1.823E+01)	1.258E+01	( 1.835E+01)
3.981E-03	1.255E+01	( 1.756E+01)	1.249E+01	( 1.760E+01)	1.248E+01	( 1.768E+01)
6.310E-03	1.230E+01	( 1.631E+01)	1.224E+01	( 1.626E+01)	1.223E+01	( 1.627E+01)
1.000E-02	1.170E+01	( 1.391E+01)	1.163E+01	( 1.375E+01)	1.162E+01	( 1.369E+01)
1.585E-02	1.034E+01	( 1.027E+01)	1.029E+01	( 1.009E+01)	1.027E+01	( 1.001E+01)
2.512E-02	7.770E+00	( 6.297E+00)	7.726E+00	( 6.234E+00)	7.705E+00	( 6.192E+00)
3.981E-02	4.302E+00	( 3.229E+00)	4.301E+00	( 3.259E+00)	4.293E+00	( 3.264E+00)
6.310E-02	1.709E+00	( 1.417E+00)	1.739E+00	( 1.455E+00)	1.749E+00	( 1.468E+00)
1.000E-01	5.915E-01	( 5.399E-01)	6.062E-01	( 5.532E-01)	6.116E-01	( 5.580E-01)
1.585E-01	1.924E-01	( 1.845E-01)	1.949E-01	( 1.867E-01)	1.958E-01	( 1.875E-01)
2.512E-01	6.120E-02	( 6.016E-02)	6.032E-02	( 6.032E-02)	6.037E-02	( 6.037E-02)
3.981E-01	1.967E-02	( 1.954E-02)	1.952E-02	( 1.952E-02)	1.951E-02	( 1.951E-02)
6.310E-01	6.279E-03	( 6.262E-03)	6.262E-03	( 6.262E-03)	6.262E-03	( 6.262E-03)
1.000E+00	2.075E-03	( 2.073E-03)	2.073E-03	( 2.073E-03)	2.073E-03	( 2.073E-03)
1.585E+00	6.893E-04	( 6.890E-04)	6.890E-04	( 6.890E-04)	6.890E-04	( 6.890E-04)
2.512E+00	2.286E-04	( 2.286E-04)	2.286E-04	( 2.286E-04)	2.286E-04	( 2.286E-04)
3.981E+00	7.548E-05	( 7.548E-05)	7.548E-05	( 7.548E-05)	7.548E-05	( 7.548E-05)
6.310E+00	2.477E-05	( 2.477E-05)	2.477E-05	( 2.477E-05)	2.477E-05	( 2.477E-05)
1.000E+01	8.075E-06	( 8.075E-06)	8.075E-06	( 8.075E-06)	8.075E-06	( 8.075E-06)
1.585E+01	2.603E-06	( 2.603E-06)	2.603E-06	( 2.603E-06)	2.603E-06	( 2.603E-06)
2.512E+01	8.301E-07	( 8.301E-07)	8.301E-07	( 8.301E-07)	8.301E-07	( 8.301E-07)
3.981E+01	2.660E-07	( 2.660E-07)	2.660E-07	( 2.660E-07)	2.660E-07	( 2.660E-07)

ELECTRON DENSITY IN CM\*\*(-3) = 1.000E+15 DLAMBDA/DALPHA = 1.251E+01

TEMPERATURE IN K = 1.995E+04  
RO/DEBYE (ELECTRONS) = 2.011E-01

PROTONS			HELIUM+		ARGON+	
DALPHA	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY
0.000E-01	1.077E+01	( 1.839E+01)	1.066E+01	( 1.827E+01)	1.062E+01	( 1.832E+01)
1.000E-03	1.077E+01	( 1.835E+01)	1.065E+01	( 1.819E+01)	1.062E+01	( 1.827E+01)
1.585E-03	1.076E+01	( 1.825E+01)	1.064E+01	( 1.809E+01)	1.061E+01	( 1.813E+01)
2.512E-03	1.074E+01	( 1.800E+01)	1.062E+01	( 1.784E+01)	1.059E+01	( 1.786E+01)
3.981E-03	1.068E+01	( 1.747E+01)	1.057E+01	( 1.728E+01)	1.054E+01	( 1.728E+01)
6.310E-03	1.055E+01	( 1.627E+01)	1.044E+01	( 1.605E+01)	1.041E+01	( 1.601E+01)
1.000E-02	1.022E+01	( 1.395E+01)	1.012E+01	( 1.371E+01)	1.009E+01	( 1.362E+01)
1.585E-02	9.446E+00	( 1.036E+01)	9.360E+00	( 1.019E+01)	9.333E+00	( 1.011E+01)
2.512E-02	7.803E+00	( 6.373E+00)	7.750E+00	( 6.357E+00)	7.732E+00	( 6.328E+00)
3.981E-02	5.022E+00	( 3.251E+00)	5.024E+00	( 3.321E+00)	5.021E+00	( 3.339E+00)
6.310E-02	2.113E+00	( 1.407E+00)	2.153E+00	( 1.463E+00)	2.165E+00	( 1.482E+00)
1.000E-01	6.479E-01	( 5.276E-01)	6.703E-01	( 5.459E-01)	6.784E-01	( 5.526E-01)
1.585E-01	1.947E-01	( 1.783E-01)	1.991E-01	( 1.818E-01)	2.005E-01	( 1.829E-01)
2.512E-01	5.982E-02	( 5.777E-02)	5.807E-02	( 5.807E-02)	5.814E-02	( 5.814E-02)
3.981E-01	1.885E-02	( 1.860E-02)	1.858E-02	( 1.858E-02)	1.857E-02	( 1.857E-02)
6.310E-01	5.927E-03	( 5.894E-03)	5.894E-03	( 5.894E-03)	5.894E-03	( 5.894E-03)
1.000E+00	1.943E-03	( 1.939E-03)	1.939E-03	( 1.939E-03)	1.939E-03	( 1.939E-03)
1.585E+00	6.432E-04	( 6.426E-04)	6.426E-04	( 6.426E-04)	6.426E-04	( 6.426E-04)
2.512E+00	2.134E-04	( 2.134E-04)	2.134E-04	( 2.134E-04)	2.134E-04	( 2.134E-04)
3.981E+00	7.078E-05	( 7.078E-05)	7.078E-05	( 7.078E-05)	7.078E-05	( 7.078E-05)
6.310E+00	2.341E-05	( 2.341E-05)	2.341E-05	( 2.341E-05)	2.341E-05	( 2.341E-05)
1.000E+01	7.713E-06	( 7.713E-06)	7.713E-06	( 7.713E-06)	7.713E-06	( 7.713E-06)
1.585E+01	2.529E-06	( 2.529E-06)	2.529E-06	( 2.529E-06)	2.529E-06	( 2.529E-06)
2.512E+01	8.256E-07	( 8.256E-07)	8.256E-07	( 8.256E-07)	8.256E-07	( 8.256E-07)
3.981E+01	2.660E-07	( 2.660E-07)	2.660E-07	( 2.660E-07)	2.660E-07	( 2.660E-07)

Table 2.1. continued

ELECTRON DENSITY IN CM\*\*(-3) = 1.000E+15 DLAMBDA/DALPHA = 1.251E+01

TEMPERATURE IN K = 3.981E+04  
RO/DEBYE (ELECTRONS) = 1.424E-01

PROTONS			HELIUM+		ARGON+	
DALPHA	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY
0.000E-01	8.878E+00	( 1.884E+01)	8.760E+00	( 1.831E+01)	8.720E+00	( 1.821E+01)
1.000E-03	8.876E+00	( 1.879E+01)	8.757E+00	( 1.824E+01)	8.717E+00	( 1.813E+01)
1.585E-03	8.871E+00	( 1.868E+01)	8.753E+00	( 1.813E+01)	8.713E+00	( 1.803E+01)
2.512E-03	8.860E+00	( 1.842E+01)	8.742E+00	( 1.788E+01)	8.703E+00	( 1.777E+01)
3.981E-03	8.833E+00	( 1.785E+01)	8.716E+00	( 1.733E+01)	8.677E+00	( 1.721E+01)
6.310E-03	8.766E+00	( 1.662E+01)	8.651E+00	( 1.612E+01)	8.613E+00	( 1.599E+01)
1.000E-02	8.599E+00	( 1.419E+01)	8.490E+00	( 1.383E+01)	8.453E+00	( 1.370E+01)
1.585E-02	8.196E+00	( 1.047E+01)	8.099E+00	( 1.032E+01)	8.067E+00	( 1.024E+01)
2.512E-02	7.276E+00	( 6.360E+00)	7.207E+00	( 6.421E+00)	7.184E+00	( 6.418E+00)
3.981E-02	5.447E+00	( 3.189E+00)	5.430E+00	( 3.316E+00)	5.422E+00	( 3.355E+00)
6.310E-02	2.812E+00	( 1.356E+00)	2.848E+00	( 1.433E+00)	2.859E+00	( 1.461E+00)
1.000E-01	8.286E-01	( 5.024E-01)	8.617E-01	( 5.269E-01)	8.735E-01	( 5.360E-01)
1.585E-01	2.058E-01	( 1.697E-01)	2.132E-01	( 1.747E-01)	2.158E-01	( 1.764E-01)
2.512E-01	5.925E-02	( 5.513E-02)	5.574E-02	( 5.574E-02)	5.591E-02	( 5.591E-02)
3.981E-01	1.824E-02	( 1.774E-02)	1.776E-02	( 1.776E-02)	1.775E-02	( 1.775E-02)
6.310E-01	5.633E-03	( 5.569E-03)	5.569E-03	( 5.569E-03)	5.569E-03	( 5.569E-03)
1.000E+00	1.826E-03	( 1.819E-03)	1.819E-03	( 1.819E-03)	1.819E-03	( 1.819E-03)
1.585E+00	6.008E-04	( 5.998E-04)	5.998E-04	( 5.998E-04)	5.998E-04	( 5.998E-04)
2.512E+00	1.987E-04	( 1.987E-04)	1.987E-04	( 1.987E-04)	1.987E-04	( 1.987E-04)
3.981E+00	6.596E-05	( 6.596E-05)	6.596E-05	( 6.596E-05)	6.596E-05	( 6.596E-05)
6.310E+00	2.190E-05	( 2.190E-05)	2.190E-05	( 2.190E-05)	2.190E-05	( 2.190E-05)
1.000E+01	7.261E-06	( 7.261E-06)	7.261E-06	( 7.261E-06)	7.261E-06	( 7.261E-06)
1.585E+01	2.403E-06	( 2.403E-06)	2.403E-06	( 2.403E-06)	2.403E-06	( 2.403E-06)
2.512E+01	7.929E-07	( 7.929E-07)	7.929E-07	( 7.929E-07)	7.929E-07	( 7.929E-07)
3.981E+01	2.610E-07	( 2.610E-07)	2.610E-07	( 2.610E-07)	2.610E-07	( 2.610E-07)

ELECTRON DENSITY IN CM\*\*(-3) = 3.162E+15 DLAMBDA/DALPHA = 2.696E+01

TEMPERATURE IN K = 1.000E+04  
RO/DEBYE (ELECTRONS) = 3.441E-01

PROTONS			HELIUM+		ARGON+	
DALPHA	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY
0.000E-01	1.614E+01	( 1.863E+01)	1.630E+01	( 1.906E+01)	1.640E+01	( 1.929E+01)
6.310E-04	1.612E+01	( 1.853E+01)	1.628E+01	( 1.897E+01)	1.638E+01	( 1.923E+01)
1.000E-03	1.611E+01	( 1.849E+01)	1.626E+01	( 1.892E+01)	1.636E+01	( 1.918E+01)
1.585E-03	1.606E+01	( 1.839E+01)	1.621E+01	( 1.878E+01)	1.631E+01	( 1.903E+01)
2.512E-03	1.594E+01	( 1.815E+01)	1.609E+01	( 1.850E+01)	1.618E+01	( 1.870E+01)
3.981E-03	1.565E+01	( 1.753E+01)	1.578E+01	( 1.780E+01)	1.586E+01	( 1.795E+01)
6.310E-03	1.497E+01	( 1.621E+01)	1.505E+01	( 1.631E+01)	1.511E+01	( 1.637E+01)
1.000E-02	1.344E+01	( 1.372E+01)	1.345E+01	( 1.361E+01)	1.346E+01	( 1.357E+01)
1.585E-02	1.059E+01	( 1.007E+01)	1.049E+01	( 9.870E+00)	1.045E+01	( 9.778E+00)
2.512E-02	6.729E+00	( 6.203E+00)	6.624E+00	( 6.092E+00)	6.573E+00	( 6.037E+00)
3.981E-02	3.443E+00	( 3.240E+00)	3.429E+00	( 3.236E+00)	3.419E+00	( 3.231E+00)
6.310E-02	1.505E+00	( 1.455E+00)	1.527E+00	( 1.478E+00)	1.534E+00	( 1.486E+00)
1.000E-01	5.732E-01	( 5.630E-01)	5.825E-01	( 5.721E-01)	5.859E-01	( 5.754E-01)
1.585E-01	1.957E-01	( 1.941E-01)	1.972E-01	( 1.954E-01)	1.976E-01	( 1.959E-01)
2.512E-01	6.411E-02	( 6.388E-02)	6.394E-02	( 6.394E-02)	6.396E-02	( 6.396E-02)
3.981E-01	2.098E-02	( 2.095E-02)	2.095E-02	( 2.095E-02)	2.095E-02	( 2.095E-02)
6.310E-01	6.757E-03	( 6.753E-03)	6.753E-03	( 6.753E-03)	6.753E-03	( 6.753E-03)
1.000E+00	2.246E-03	( 2.246E-03)	2.246E-03	( 2.246E-03)	2.246E-03	( 2.246E-03)
1.585E+00	7.444E-04	( 7.443E-04)	7.443E-04	( 7.443E-04)	7.443E-04	( 7.443E-04)
2.512E+00	2.452E-04	( 2.452E-04)	2.452E-04	( 2.452E-04)	2.452E-04	( 2.452E-04)
3.981E+00	8.018E-05	( 8.018E-05)	8.018E-05	( 8.018E-05)	8.018E-05	( 8.018E-05)
6.310E+00	2.603E-05	( 2.603E-05)	2.603E-05	( 2.603E-05)	2.603E-05	( 2.603E-05)
1.000E+01	8.276E-06	( 8.276E-06)	8.276E-06	( 8.276E-06)	8.276E-06	( 8.276E-06)
1.585E+01	2.647E-06	( 2.647E-06)	2.647E-06	( 2.647E-06)	2.647E-06	( 2.647E-06)
2.512E+01	8.517E-07	( 8.517E-07)	8.517E-07	( 8.517E-07)	8.517E-07	( 8.517E-07)
3.981E+01	2.766E-07	( 2.766E-07)	2.766E-07	( 2.766E-07)	2.766E-07	( 2.766E-07)

Table 2.1. continued

ELECTRON DENSITY IN CM\*\*(-3) = 3.162E+15 DLAMBDA/DALPHA = 2.696E+01

TEMPERATURE IN K = 1.995E+04  
R0/DEBYE (ELECTRONS) = 2.436E-01

PROTONS			HELIUM+		ARGON+	
DALPHA	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY
0.000E-01	1.454E+01	( 1.810E+01)	1.455E+01	( 1.838E+01)	1.458E+01	( 1.858E+01)
6.310E-04	1.453E+01	( 1.809E+01)	1.454E+01	( 1.833E+01)	1.458E+01	( 1.855E+01)
1.000E-03	1.452E+01	( 1.804E+01)	1.453E+01	( 1.829E+01)	1.456E+01	( 1.850E+01)
1.585E-03	1.449E+01	( 1.791E+01)	1.449E+01	( 1.818E+01)	1.453E+01	( 1.836E+01)
2.512E-03	1.442E+01	( 1.768E+01)	1.442E+01	( 1.790E+01)	1.445E+01	( 1.808E+01)
3.981E-03	1.423E+01	( 1.714E+01)	1.423E+01	( 1.729E+01)	1.426E+01	( 1.740E+01)
6.310E-03	1.379E+01	( 1.593E+01)	1.377E+01	( 1.593E+01)	1.379E+01	( 1.598E+01)
1.000E-02	1.276E+01	( 1.362E+01)	1.271E+01	( 1.347E+01)	1.272E+01	( 1.342E+01)
1.585E-02	1.063E+01	( 1.014E+01)	1.055E+01	( 9.943E+00)	1.052E+01	( 9.849E+00)
2.512E-02	7.227E+00	( 6.327E+00)	7.148E+00	( 6.232E+00)	7.108E+00	( 6.178E+00)
3.981E-02	3.746E+00	( 3.316E+00)	3.742E+00	( 3.333E+00)	3.732E+00	( 3.332E+00)
6.310E-02	1.585E+00	( 1.477E+00)	1.618E+00	( 1.512E+00)	1.628E+00	( 1.524E+00)
1.000E-01	5.827E-01	( 5.610E-01)	5.964E-01	( 5.741E-01)	6.014E-01	( 5.788E-01)
1.585E-01	1.932E-01	( 1.898E-01)	1.955E-01	( 1.919E-01)	1.962E-01	( 1.926E-01)
2.512E-01	6.182E-02	( 6.137E-02)	6.156E-02	( 6.156E-02)	6.160E-02	( 6.160E-02)
3.981E-01	1.992E-02	( 1.986E-02)	1.984E-02	( 1.984E-02)	1.982E-02	( 1.982E-02)
6.310E-01	6.364E-03	( 6.357E-03)	6.357E-03	( 6.357E-03)	6.357E-03	( 6.357E-03)
1.000E+00	2.102E-03	( 2.101E-03)	2.101E-03	( 2.101E-03)	2.101E-03	( 2.101E-03)
1.585E+00	6.974E-04	( 6.973E-04)	6.973E-04	( 6.973E-04)	6.973E-04	( 6.973E-04)
2.512E+00	2.310E-04	( 2.310E-04)	2.310E-04	( 2.310E-04)	2.310E-04	( 2.310E-04)
3.981E+00	7.626E-05	( 7.626E-05)	7.626E-05	( 7.626E-05)	7.626E-05	( 7.626E-05)
6.310E+00	2.504E-05	( 2.504E-05)	2.504E-05	( 2.504E-05)	2.504E-05	( 2.504E-05)
1.000E+01	8.184E-06	( 8.184E-06)	8.184E-06	( 8.184E-06)	8.184E-06	( 8.184E-06)
1.585E+01	2.647E-06	( 2.647E-06)	2.647E-06	( 2.647E-06)	2.647E-06	( 2.647E-06)
2.512E+01	8.517E-07	( 8.517E-07)	8.517E-07	( 8.517E-07)	8.517E-07	( 8.517E-07)
3.981E+01	2.766E-07	( 2.766E-07)	2.766E-07	( 2.766E-07)	2.766E-07	( 2.766E-07)

ELECTRON DENSITY IN CM\*\*(-3) = 3.162E+15 DLAMBDA/DALPHA = 2.696E+01

TEMPERATURE IN K = 3.981E+04  
R0/DEBYE (ELECTRONS) = 1.725E-01

PROTONS			HELIUM+		ARGON+	
DALPHA	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY
0.000E-01	1.291E+01	( 1.801E+01)	1.279E+01	( 1.804E+01)	1.277E+01	( 1.814E+01)
6.310E-04	1.291E+01	( 1.797E+01)	1.279E+01	( 1.796E+01)	1.276E+01	( 1.810E+01)
1.000E-03	1.290E+01	( 1.791E+01)	1.278E+01	( 1.791E+01)	1.276E+01	( 1.804E+01)
1.585E-03	1.288E+01	( 1.782E+01)	1.276E+01	( 1.782E+01)	1.274E+01	( 1.791E+01)
2.512E-03	1.284E+01	( 1.759E+01)	1.272E+01	( 1.757E+01)	1.269E+01	( 1.765E+01)
3.981E-03	1.273E+01	( 1.707E+01)	1.261E+01	( 1.701E+01)	1.258E+01	( 1.705E+01)
6.310E-03	1.246E+01	( 1.591E+01)	1.234E+01	( 1.576E+01)	1.231E+01	( 1.575E+01)
1.000E-02	1.181E+01	( 1.368E+01)	1.170E+01	( 1.345E+01)	1.167E+01	( 1.338E+01)
1.585E-02	1.037E+01	( 1.025E+01)	1.028E+01	( 1.005E+01)	1.025E+01	( 9.957E+00)
2.512E-02	7.699E+00	( 6.414E+00)	7.640E+00	( 6.359E+00)	7.613E+00	( 6.316E+00)
3.981E-02	4.233E+00	( 3.339E+00)	4.247E+00	( 3.393E+00)	4.243E+00	( 3.405E+00)
6.310E-02	1.709E+00	( 1.462E+00)	1.757E+00	( 1.515E+00)	1.772E+00	( 1.534E+00)
1.000E-01	5.916E-01	( 5.457E-01)	6.115E-01	( 5.637E-01)	6.188E-01	( 5.703E-01)
1.585E-01	1.896E-01	( 1.828E-01)	1.932E-01	( 1.860E-01)	1.944E-01	( 1.871E-01)
2.512E-01	5.962E-02	( 5.874E-02)	5.900E-02	( 5.900E-02)	5.909E-02	( 5.909E-02)
3.981E-01	1.896E-02	( 1.885E-02)	1.883E-02	( 1.883E-02)	1.882E-02	( 1.882E-02)
6.310E-01	5.985E-03	( 5.970E-03)	5.970E-03	( 5.970E-03)	5.970E-03	( 5.970E-03)
1.000E+00	1.964E-03	( 1.963E-03)	1.963E-03	( 1.963E-03)	1.963E-03	( 1.963E-03)
1.585E+00	6.503E-04	( 6.501E-04)	6.501E-04	( 6.501E-04)	6.501E-04	( 6.501E-04)
2.512E+00	2.158E-04	( 2.158E-04)	2.158E-04	( 2.158E-04)	2.158E-04	( 2.158E-04)
3.981E+00	7.159E-05	( 7.159E-05)	7.159E-05	( 7.159E-05)	7.159E-05	( 7.159E-05)
6.310E+00	2.371E-05	( 2.371E-05)	2.371E-05	( 2.371E-05)	2.371E-05	( 2.371E-05)
1.000E+01	7.828E-06	( 7.828E-06)	7.828E-06	( 7.828E-06)	7.828E-06	( 7.828E-06)
1.585E+01	2.578E-06	( 2.578E-06)	2.578E-06	( 2.578E-06)	2.578E-06	( 2.578E-06)
2.512E+01	8.479E-07	( 8.479E-07)	8.479E-07	( 8.479E-07)	8.479E-07	( 8.479E-07)
3.981E+01	2.766E-07	( 2.766E-07)	2.766E-07	( 2.766E-07)	2.766E-07	( 2.766E-07)



Table 2.1. continued

ELECTRON DENSITY IN CM\*\*(-3) = 1.000E+16 DLAMBDA/DALPHA = 5.808E+01

TEMPERATURE IN K = 1.995E+04  
RO/DEBYE (ELECTRONS) = 2.951E-01

PROTONS			HELIUM+		ARGON+	
DALPHA	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY
0.000E-01	1.691E+01	( 1.819E+01)	1.724E+01	( 1.870E+01)	1.741E+01	( 1.901E+01)
6.310E-04	1.690E+01	( 1.814E+01)	1.722E+01	( 1.865E+01)	1.739E+01	( 1.894E+01)
1.000E-03	1.687E+01	( 1.811E+01)	1.719E+01	( 1.862E+01)	1.736E+01	( 1.888E+01)
1.585E-03	1.681E+01	( 1.799E+01)	1.712E+01	( 1.849E+01)	1.728E+01	( 1.874E+01)
2.512E-03	1.664E+01	( 1.774E+01)	1.694E+01	( 1.817E+01)	1.709E+01	( 1.839E+01)
3.981E-03	1.625E+01	( 1.714E+01)	1.650E+01	( 1.747E+01)	1.663E+01	( 1.764E+01)
6.310E-03	1.534E+01	( 1.584E+01)	1.549E+01	( 1.598E+01)	1.557E+01	( 1.606E+01)
1.000E-02	1.343E+01	( 1.342E+01)	1.342E+01	( 1.333E+01)	1.342E+01	( 1.329E+01)
1.585E-02	1.020E+01	( 9.912E+00)	1.004E+01	( 9.703E+00)	9.975E+00	( 9.608E+00)
2.512E-02	6.417E+00	( 6.206E+00)	6.285E+00	( 6.074E+00)	6.224E+00	( 6.012E+00)
3.981E-02	3.397E+00	( 3.318E+00)	3.378E+00	( 3.304E+00)	3.366E+00	( 3.294E+00)
6.310E-02	1.538E+00	( 1.518E+00)	1.559E+00	( 1.539E+00)	1.566E+00	( 1.546E+00)
1.000E-01	5.922E-01	( 5.877E-01)	6.013E-01	( 5.967E-01)	6.047E-01	( 6.000E-01)
1.585E-01	2.014E-01	( 2.006E-01)	2.028E-01	( 2.020E-01)	2.033E-01	( 2.025E-01)
2.512E-01	6.556E-02	( 6.546E-02)	6.551E-02	( 6.551E-02)	6.555E-02	( 6.555E-02)
3.981E-01	2.137E-02	( 2.136E-02)	2.135E-02	( 2.135E-02)	2.135E-02	( 2.135E-02)
6.310E-01	6.868E-03	( 6.866E-03)	6.866E-03	( 6.866E-03)	6.866E-03	( 6.866E-03)
1.000E+00	2.278E-03	( 2.278E-03)	2.278E-03	( 2.278E-03)	2.278E-03	( 2.278E-03)
1.585E+00	7.535E-04	( 7.535E-04)	7.535E-04	( 7.535E-04)	7.535E-04	( 7.535E-04)
2.512E+00	2.481E-04	( 2.481E-04)	2.481E-04	( 2.481E-04)	2.481E-04	( 2.481E-04)
3.981E+00	8.120E-05	( 8.120E-05)	8.120E-05	( 8.120E-05)	8.120E-05	( 8.120E-05)
6.310E+00	2.637E-05	( 2.637E-05)	2.637E-05	( 2.637E-05)	2.637E-05	( 2.637E-05)
1.000E+01	8.463E-06	( 8.463E-06)	8.463E-06	( 8.463E-06)	8.463E-06	( 8.463E-06)
1.585E+01	2.738E-06	( 2.738E-06)	2.738E-06	( 2.738E-06)	2.738E-06	( 2.738E-06)
2.512E+01	8.965E-07	( 8.965E-07)	8.965E-07	( 8.965E-07)	8.965E-07	( 8.965E-07)
3.981E+01	2.982E-07	( 2.982E-07)	2.982E-07	( 2.982E-07)	2.982E-07	( 2.982E-07)

ELECTRON DENSITY IN CM\*\*(-3) = 1.000E+16 DLAMBDA/DALPHA = 5.808E+01

TEMPERATURE IN K = 3.981E+04  
RO/DEBYE (ELECTRONS) = 2.089E-01

PROTONS			HELIUM+		ARGON+	
DALPHA	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY
0.000E-01	1.578E+01	( 1.781E+01)	1.593E+01	( 1.820E+01)	1.603E+01	( 1.840E+01)
1.000E-03	1.575E+01	( 1.771E+01)	1.590E+01	( 1.810E+01)	1.600E+01	( 1.832E+01)
1.585E-03	1.570E+01	( 1.759E+01)	1.585E+01	( 1.797E+01)	1.595E+01	( 1.819E+01)
2.512E-03	1.559E+01	( 1.736E+01)	1.572E+01	( 1.768E+01)	1.582E+01	( 1.789E+01)
3.981E-03	1.530E+01	( 1.680E+01)	1.542E+01	( 1.705E+01)	1.550E+01	( 1.720E+01)
6.310E-03	1.463E+01	( 1.562E+01)	1.470E+01	( 1.569E+01)	1.475E+01	( 1.575E+01)
1.000E-02	1.315E+01	( 1.336E+01)	1.313E+01	( 1.323E+01)	1.313E+01	( 1.319E+01)
1.585E-02	1.040E+01	( 9.999E+00)	1.028E+01	( 9.782E+00)	1.022E+01	( 9.684E+00)
2.512E-02	6.738E+00	( 6.330E+00)	6.620E+00	( 6.208E+00)	6.562E+00	( 6.146E+00)
3.981E-02	3.555E+00	( 3.389E+00)	3.548E+00	( 3.393E+00)	3.538E+00	( 3.387E+00)
6.310E-02	1.576E+00	( 1.532E+00)	1.607E+00	( 1.564E+00)	1.618E+00	( 1.576E+00)
1.000E-01	5.903E-01	( 5.808E-01)	6.032E-01	( 5.934E-01)	6.079E-01	( 5.980E-01)
1.585E-01	1.962E-01	( 1.947E-01)	1.984E-01	( 1.968E-01)	1.991E-01	( 1.975E-01)
2.512E-01	6.279E-02	( 6.259E-02)	6.274E-02	( 6.274E-02)	6.278E-02	( 6.278E-02)
3.981E-01	2.020E-02	( 2.018E-02)	2.015E-02	( 2.015E-02)	2.015E-02	( 2.015E-02)
6.310E-01	6.442E-03	( 6.439E-03)	6.439E-03	( 6.439E-03)	6.439E-03	( 6.439E-03)
1.000E+00	2.130E-03	( 2.130E-03)	2.130E-03	( 2.130E-03)	2.130E-03	( 2.130E-03)
1.585E+00	7.062E-04	( 7.062E-04)	7.062E-04	( 7.062E-04)	7.062E-04	( 7.062E-04)
2.512E+00	2.340E-04	( 2.340E-04)	2.340E-04	( 2.340E-04)	2.340E-04	( 2.340E-04)
3.981E+00	7.734E-05	( 7.734E-05)	7.734E-05	( 7.734E-05)	7.734E-05	( 7.734E-05)
6.310E+00	2.549E-05	( 2.549E-05)	2.549E-05	( 2.549E-05)	2.549E-05	( 2.549E-05)
1.000E+01	8.381E-06	( 8.381E-06)	8.381E-06	( 8.381E-06)	8.381E-06	( 8.381E-06)
1.585E+01	2.739E-06	( 2.739E-06)	2.739E-06	( 2.739E-06)	2.739E-06	( 2.739E-06)
2.512E+01	8.965E-07	( 8.965E-07)	8.965E-07	( 8.965E-07)	8.965E-07	( 8.965E-07)
3.981E+01	2.982E-07	( 2.982E-07)	2.982E-07	( 2.982E-07)	2.982E-07	( 2.982E-07)

Table 2.1. continued

ELECTRON DENSITY IN CM\*\*(-3) = 1.000E+16 DLAMBDA/DALPHA = 5.808E+01

TEMPERATURE IN K = 7.943E+04  
R0/DEBYE (ELECTRONS) = 1.479E-01

PROTONS			HELIUM+		ARGON+	
DALPHA	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY
0.000E-01	1.460E+01	( 1.767E+01)	1.454E+01	( 1.782E+01)	1.456E+01	( 1.800E+01)
1.000E-03	1.458E+01	( 1.760E+01)	1.452E+01	( 1.778E+01)	1.454E+01	( 1.793E+01)
1.585E-03	1.455E+01	( 1.752E+01)	1.449E+01	( 1.765E+01)	1.451E+01	( 1.783E+01)
2.512E-03	1.447E+01	( 1.729E+01)	1.441E+01	( 1.740E+01)	1.443E+01	( 1.753E+01)
3.981E-03	1.428E+01	( 1.675E+01)	1.421E+01	( 1.679E+01)	1.423E+01	( 1.690E+01)
6.310E-03	1.381E+01	( 1.560E+01)	1.373E+01	( 1.553E+01)	1.374E+01	( 1.555E+01)
1.000E-02	1.274E+01	( 1.343E+01)	1.264E+01	( 1.322E+01)	1.263E+01	( 1.315E+01)
1.585E-02	1.056E+01	( 1.012E+01)	1.044E+01	( 9.898E+00)	1.040E+01	( 9.795E+00)
2.512E-02	7.171E+00	( 6.427E+00)	7.084E+00	( 6.337E+00)	7.038E+00	( 6.283E+00)
3.981E-02	3.769E+00	( 3.414E+00)	3.784E+00	( 3.453E+00)	3.780E+00	( 3.458E+00)
6.310E-02	1.608E+00	( 1.513E+00)	1.657E+00	( 1.563E+00)	1.673E+00	( 1.581E+00)
1.000E-01	5.821E-01	( 5.627E-01)	6.006E-01	( 5.804E-01)	6.075E-01	( 5.869E-01)
1.585E-01	1.899E-01	( 1.869E-01)	1.931E-01	( 1.900E-01)	1.942E-01	( 1.911E-01)
2.512E-01	6.009E-02	( 5.971E-02)	5.995E-02	( 5.995E-02)	6.005E-02	( 6.005E-02)
3.981E-01	1.915E-02	( 1.911E-02)	1.908E-02	( 1.908E-02)	1.906E-02	( 1.906E-02)
6.310E-01	6.054E-03	( 6.048E-03)	6.048E-03	( 6.048E-03)	6.048E-03	( 6.048E-03)
1.000E+00	1.988E-03	( 1.988E-03)	1.988E-03	( 1.988E-03)	1.988E-03	( 1.988E-03)
1.585E+00	6.583E-04	( 6.582E-04)	6.582E-04	( 6.582E-04)	6.582E-04	( 6.582E-04)
2.512E+00	2.186E-04	( 2.186E-04)	2.186E-04	( 2.186E-04)	2.186E-04	( 2.186E-04)
3.981E+00	7.268E-05	( 7.268E-05)	7.268E-05	( 7.268E-05)	7.268E-05	( 7.268E-05)
6.310E+00	2.415E-05	( 2.415E-05)	2.415E-05	( 2.415E-05)	2.415E-05	( 2.415E-05)
1.000E+01	8.024E-06	( 8.024E-06)	8.024E-06	( 8.024E-06)	8.024E-06	( 8.024E-06)
1.585E+01	2.669E-06	( 2.669E-06)	2.669E-06	( 2.669E-06)	2.669E-06	( 2.669E-06)
2.512E+01	8.965E-07	( 8.965E-07)	8.965E-07	( 8.965E-07)	8.965E-07	( 8.965E-07)
3.981E+01	2.982E-07	( 2.982E-07)	2.982E-07	( 2.982E-07)	2.982E-07	( 2.982E-07)

ELECTRON DENSITY IN CM\*\*(-3) = 3.162E+16 DLAMBDA/DALPHA = 1.251E+02

TEMPERATURE IN K = 1.995E+04  
R0/DEBYE (ELECTRONS) = 3.576E-01

PROTONS			HELIUM+		ARGON+	
DALPHA	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY
0.000E-01	1.803E+01	( 1.840E+01)	1.857E+01	( 1.899E+01)	1.883E+01	( 1.926E+01)
6.310E-04	1.800E+01	( 1.834E+01)	1.854E+01	( 1.894E+01)	1.879E+01	( 1.923E+01)
1.000E-03	1.796E+01	( 1.828E+01)	1.849E+01	( 1.887E+01)	1.874E+01	( 1.916E+01)
1.585E-03	1.786E+01	( 1.816E+01)	1.837E+01	( 1.873E+01)	1.862E+01	( 1.900E+01)
2.512E-03	1.762E+01	( 1.789E+01)	1.809E+01	( 1.841E+01)	1.831E+01	( 1.866E+01)
3.981E-03	1.704E+01	( 1.724E+01)	1.742E+01	( 1.765E+01)	1.760E+01	( 1.783E+01)
6.310E-03	1.576E+01	( 1.584E+01)	1.597E+01	( 1.603E+01)	1.606E+01	( 1.612E+01)
1.000E-02	1.333E+01	( 1.329E+01)	1.329E+01	( 1.322E+01)	1.326E+01	( 1.319E+01)
1.585E-02	9.800E+00	( 9.708E+00)	9.611E+00	( 9.507E+00)	9.507E+00	( 9.419E+00)
2.512E-02	6.114E+00	( 6.072E+00)	5.976E+00	( 5.935E+00)	5.922E+00	( 5.876E+00)
3.981E-02	3.307E+00	( 3.293E+00)	3.281E+00	( 3.268E+00)	3.269E+00	( 3.255E+00)
6.310E-02	1.545E+00	( 1.541E+00)	1.557E+00	( 1.553E+00)	1.562E+00	( 1.558E+00)
1.000E-01	6.104E-01	( 6.095E-01)	6.165E-01	( 6.156E-01)	6.188E-01	( 6.178E-01)
1.585E-01	2.116E-01	( 2.115E-01)	2.125E-01	( 2.123E-01)	2.128E-01	( 2.126E-01)
2.512E-01	7.000E-02	( 6.998E-02)	7.002E-02	( 7.002E-02)	7.002E-02	( 7.002E-02)
3.981E-01	2.308E-02	( 2.308E-02)	2.308E-02	( 2.308E-02)	2.308E-02	( 2.308E-02)
6.310E-01	7.419E-03	( 7.418E-03)	7.418E-03	( 7.418E-03)	7.418E-03	( 7.418E-03)
1.000E+00	2.446E-03	( 2.445E-03)	2.445E-03	( 2.445E-03)	2.445E-03	( 2.445E-03)
1.585E+00	8.060E-04	( 8.060E-04)	8.060E-04	( 8.060E-04)	8.060E-04	( 8.060E-04)
2.512E+00	2.630E-04	( 2.630E-04)	2.630E-04	( 2.630E-04)	2.630E-04	( 2.630E-04)
3.981E+00	8.422E-05	( 8.422E-05)	8.422E-05	( 8.422E-05)	8.422E-05	( 8.422E-05)
6.310E+00	2.716E-05	( 2.716E-05)	2.716E-05	( 2.716E-05)	2.716E-05	( 2.716E-05)
1.000E+01	8.851E-06	( 8.851E-06)	8.851E-06	( 8.851E-06)	8.851E-06	( 8.851E-06)
1.585E+01	2.926E-06	( 2.926E-06)	2.926E-06	( 2.926E-06)	2.926E-06	( 2.926E-06)
2.512E+01	9.861E-07	( 9.861E-07)	9.861E-07	( 9.861E-07)	9.861E-07	( 9.861E-07)
3.981E+01	3.401E-07	( 3.401E-07)	3.401E-07	( 3.401E-07)	3.401E-07	( 3.401E-07)

Table 2.1. continued

ELECTRON DENSITY IN CM\*\*(-3) = 3.162E+16 DLAMBDA/DALPHA = 1.251E+02

TEMPERATURE IN K = 3.981E+04  
R0/DEBYE (ELECTRONS) = 2.531E-01

PROTONS			HELIUM+		ARGON+	
DALPHA	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY
0.000E-01	1.727E+01	( 1.790E+01)	1.774E+01	( 1.846E+01)	1.797E+01	( 1.876E+01)
6.310E-04	1.724E+01	( 1.785E+01)	1.771E+01	( 1.843E+01)	1.795E+01	( 1.873E+01)
1.000E-03	1.721E+01	( 1.779E+01)	1.767E+01	( 1.837E+01)	1.790E+01	( 1.866E+01)
1.585E-03	1.713E+01	( 1.767E+01)	1.758E+01	( 1.823E+01)	1.780E+01	( 1.851E+01)
2.512E-03	1.693E+01	( 1.744E+01)	1.734E+01	( 1.793E+01)	1.755E+01	( 1.818E+01)
3.981E-03	1.645E+01	( 1.684E+01)	1.679E+01	( 1.722E+01)	1.696E+01	( 1.740E+01)
6.310E-03	1.536E+01	( 1.554E+01)	1.555E+01	( 1.572E+01)	1.565E+01	( 1.580E+01)
1.000E-02	1.321E+01	( 1.316E+01)	1.318E+01	( 1.308E+01)	1.317E+01	( 1.305E+01)
1.585E-02	9.890E+00	( 9.752E+00)	9.700E+00	( 9.537E+00)	9.617E+00	( 9.443E+00)
2.512E-02	6.270E+00	( 6.186E+00)	6.123E+00	( 6.039E+00)	6.058E+00	( 5.973E+00)
3.981E-02	3.411E+00	( 3.381E+00)	3.385E+00	( 3.357E+00)	3.372E+00	( 3.344E+00)
6.310E-02	1.583E+00	( 1.575E+00)	1.602E+00	( 1.594E+00)	1.608E+00	( 1.600E+00)
1.000E-01	6.129E-01	( 6.109E-01)	6.218E-01	( 6.197E-01)	6.250E-01	( 6.230E-01)
1.585E-01	2.073E-01	( 2.069E-01)	2.086E-01	( 2.083E-01)	2.091E-01	( 2.087E-01)
2.512E-01	6.707E-02	( 6.703E-02)	6.709E-02	( 6.709E-02)	6.710E-02	( 6.710E-02)
3.981E-01	2.177E-02	( 2.177E-02)	2.176E-02	( 2.176E-02)	2.175E-02	( 2.175E-02)
6.310E-01	6.982E-03	( 6.981E-03)	6.981E-03	( 6.981E-03)	6.981E-03	( 6.981E-03)
1.000E+00	2.313E-03	( 2.313E-03)	2.313E-03	( 2.313E-03)	2.313E-03	( 2.313E-03)
1.585E+00	7.648E-04	( 7.648E-04)	7.648E-04	( 7.648E-04)	7.648E-04	( 7.648E-04)
2.512E+00	2.522E-04	( 2.522E-04)	2.522E-04	( 2.522E-04)	2.522E-04	( 2.522E-04)
3.981E+00	8.296E-05	( 8.296E-05)	8.296E-05	( 8.296E-05)	8.296E-05	( 8.296E-05)
6.310E+00	2.716E-05	( 2.716E-05)	2.716E-05	( 2.716E-05)	2.716E-05	( 2.716E-05)
1.000E+01	8.851E-06	( 8.851E-06)	8.851E-06	( 8.851E-06)	8.851E-06	( 8.851E-06)
1.585E+01	2.927E-06	( 2.927E-06)	2.927E-06	( 2.927E-06)	2.927E-06	( 2.927E-06)
2.512E+01	9.862E-07	( 9.862E-07)	9.862E-07	( 9.862E-07)	9.862E-07	( 9.862E-07)
3.981E+01	3.401E-07	( 3.401E-07)	3.401E-07	( 3.401E-07)	3.401E-07	( 3.401E-07)

ELECTRON DENSITY IN CM\*\*(-3) = 3.162E+16 DLAMBDA/DALPHA = 1.251E+02

TEMPERATURE IN K = 7.943E+04  
R0/DEBYE (ELECTRONS) = 1.792E-01

PROTONS			HELIUM+		ARGON+	
DALPHA	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY
0.000E-01	1.651E+01	( 1.755E+01)	1.683E+01	( 1.804E+01)	1.701E+01	( 1.831E+01)
6.310E-04	1.649E+01	( 1.754E+01)	1.681E+01	( 1.802E+01)	1.699E+01	( 1.827E+01)
1.000E-03	1.647E+01	( 1.746E+01)	1.678E+01	( 1.795E+01)	1.696E+01	( 1.823E+01)
1.585E-03	1.640E+01	( 1.739E+01)	1.670E+01	( 1.783E+01)	1.688E+01	( 1.810E+01)
2.512E-03	1.624E+01	( 1.713E+01)	1.653E+01	( 1.756E+01)	1.669E+01	( 1.778E+01)
3.981E-03	1.586E+01	( 1.657E+01)	1.609E+01	( 1.687E+01)	1.623E+01	( 1.705E+01)
6.310E-03	1.497E+01	( 1.536E+01)	1.510E+01	( 1.548E+01)	1.519E+01	( 1.555E+01)
1.000E-02	1.313E+01	( 1.312E+01)	1.310E+01	( 1.301E+01)	1.309E+01	( 1.297E+01)
1.585E-02	1.007E+01	( 9.843E+00)	9.888E+00	( 9.617E+00)	9.810E+00	( 9.516E+00)
2.512E-02	6.472E+00	( 6.308E+00)	6.330E+00	( 6.165E+00)	6.263E+00	( 6.097E+00)
3.981E-02	3.513E+00	( 3.449E+00)	3.500E+00	( 3.440E+00)	3.488E+00	( 3.430E+00)
6.310E-02	1.602E+00	( 1.583E+00)	1.631E+00	( 1.614E+00)	1.641E+00	( 1.623E+00)
1.000E-01	6.044E-01	( 6.002E-01)	6.170E-01	( 6.127E-01)	6.217E-01	( 6.173E-01)
1.585E-01	2.004E-01	( 1.998E-01)	2.025E-01	( 2.018E-01)	2.032E-01	( 2.025E-01)
2.512E-01	6.391E-02	( 6.382E-02)	6.397E-02	( 6.397E-02)	6.401E-02	( 6.401E-02)
3.981E-01	2.052E-02	( 2.051E-02)	2.048E-02	( 2.048E-02)	2.047E-02	( 2.047E-02)
6.310E-01	6.539E-03	( 6.538E-03)	6.538E-03	( 6.538E-03)	6.538E-03	( 6.538E-03)
1.000E+00	2.162E-03	( 2.162E-03)	2.162E-03	( 2.162E-03)	2.162E-03	( 2.162E-03)
1.585E+00	7.172E-04	( 7.171E-04)	7.171E-04	( 7.171E-04)	7.171E-04	( 7.171E-04)
2.512E+00	2.382E-04	( 2.382E-04)	2.382E-04	( 2.382E-04)	2.382E-04	( 2.382E-04)
3.981E+00	7.911E-05	( 7.911E-05)	7.911E-05	( 7.911E-05)	7.911E-05	( 7.911E-05)
6.310E+00	2.628E-05	( 2.628E-05)	2.628E-05	( 2.628E-05)	2.628E-05	( 2.628E-05)
1.000E+01	8.759E-06	( 8.759E-06)	8.759E-06	( 8.759E-06)	8.759E-06	( 8.759E-06)
1.585E+01	2.927E-06	( 2.927E-06)	2.927E-06	( 2.927E-06)	2.927E-06	( 2.927E-06)
2.512E+01	9.862E-07	( 9.862E-07)	9.862E-07	( 9.862E-07)	9.862E-07	( 9.862E-07)
3.981E+01	3.401E-07	( 3.401E-07)	3.401E-07	( 3.401E-07)	3.401E-07	( 3.401E-07)

Table 2.2. H $\beta$  line, same as in Table 2.1

N UPPER = 2    N LOWER = 4    WAVELENGTH = 4862.74  
 KALPHA = 7.062E-03

ELECTRON DENSITY IN CM\*\*(-3) = 3.162E+14    DLAMBDA/DALPHA = 5.808E+00

TEMPERATURE IN K = 1.000E+04  
 RO/DEBYE (ELECTRONS) = 2.344E-01

PROTONS			HELIUM+		ARGON+	
DALPHA	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY
0.000E-01	4.970E+00	( 4.931E+00)	4.838E+00	( 4.552E+00)	4.788E+00	( 4.395E+00)
1.585E-03	4.969E+00	( 4.935E+00)	4.838E+00	( 4.559E+00)	4.787E+00	( 4.403E+00)
2.512E-03	4.968E+00	( 4.945E+00)	4.836E+00	( 4.576E+00)	4.786E+00	( 4.423E+00)
3.981E-03	4.964E+00	( 4.969E+00)	4.834E+00	( 4.615E+00)	4.784E+00	( 4.469E+00)
6.310E-03	4.954E+00	( 5.018E+00)	4.827E+00	( 4.699E+00)	4.778E+00	( 4.569E+00)
1.000E-02	4.929E+00	( 5.110E+00)	4.809E+00	( 4.858E+00)	4.764E+00	( 4.758E+00)
1.585E-02	4.866E+00	( 5.227E+00)	4.763E+00	( 5.083E+00)	4.724E+00	( 5.032E+00)
2.512E-02	4.702E+00	( 5.210E+00)	4.635E+00	( 5.198E+00)	4.610E+00	( 5.201E+00)
3.981E-02	4.279E+00	( 4.658E+00)	4.272E+00	( 4.734E+00)	4.271E+00	( 4.769E+00)
6.310E-02	3.302E+00	( 3.244E+00)	3.345E+00	( 3.314E+00)	3.362E+00	( 3.340E+00)
1.000E-01	1.791E+00	( 1.592E+00)	1.823E+00	( 1.620E+00)	1.835E+00	( 1.630E+00)
1.585E-01	6.486E-01	( 5.869E-01)	6.554E-01	( 5.921E-01)	6.577E-01	( 5.938E-01)
2.512E-01	1.993E-01	( 1.904E-01)	1.999E-01	( 1.909E-01)	1.999E-01	( 1.909E-01)
3.981E-01	6.176E-02	( 6.070E-02)	6.168E-02	( 6.061E-02)	6.164E-02	( 6.057E-02)
6.310E-01	1.896E-02	( 1.882E-02)	1.896E-02	( 1.882E-02)	1.896E-02	( 1.882E-02)
1.000E+00	6.196E-03	( 6.181E-03)	6.196E-03	( 6.181E-03)	6.196E-03	( 6.181E-03)
1.585E+00	2.039E-03	( 2.037E-03)	2.039E-03	( 2.037E-03)	2.039E-03	( 2.037E-03)
2.512E+00	6.715E-04	( 6.712E-04)	6.715E-04	( 6.712E-04)	6.715E-04	( 6.712E-04)
3.981E+00	2.191E-04	( 2.191E-04)	2.191E-04	( 2.191E-04)	2.191E-04	( 2.191E-04)
6.310E+00	7.096E-05	( 7.096E-05)	7.096E-05	( 7.096E-05)	7.096E-05	( 7.096E-05)
1.000E+01	2.248E-05	( 2.248E-05)	2.248E-05	( 2.248E-05)	2.248E-05	( 2.248E-05)
1.585E+01	7.130E-06	( 7.130E-06)	7.130E-06	( 7.130E-06)	7.130E-06	( 7.130E-06)
2.512E+01	2.267E-06	( 2.267E-06)	2.267E-06	( 2.267E-06)	2.267E-06	( 2.267E-06)
3.981E+01	7.228E-07	( 7.228E-07)	7.228E-07	( 7.228E-07)	7.228E-07	( 7.228E-07)
6.310E+01	2.316E-07	( 2.316E-07)	2.316E-07	( 2.316E-07)	2.316E-07	( 2.316E-07)
1.000E+02	7.472E-08	( 7.472E-08)	7.472E-08	( 7.472E-08)	7.472E-08	( 7.472E-08)
1.585E+02	2.435E-08	( 2.435E-08)	2.435E-08	( 2.435E-08)	2.435E-08	( 2.435E-08)
2.512E+02	8.052E-09	( 8.052E-09)	8.052E-09	( 8.052E-09)	8.052E-09	( 8.052E-09)
3.981E+02	2.713E-09	( 2.713E-09)	2.713E-09	( 2.713E-09)	2.713E-09	( 2.713E-09)

ELECTRON DENSITY IN CM\*\*(-3) = 3.162E+14    DLAMBDA/DALPHA = 5.808E+00

TEMPERATURE IN K = 1.995E+04  
 RO/DEBYE (ELECTRONS) = 1.660E-01

PROTONS			HELIUM+		ARGON+	
DALPHA	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY
0.000E-01	4.772E+00	( 5.095E+00)	4.669E+00	( 4.672E+00)	4.630E+00	( 4.492E+00)
1.585E-03	4.771E+00	( 5.101E+00)	4.668E+00	( 4.680E+00)	4.629E+00	( 4.505E+00)
2.512E-03	4.769E+00	( 5.107E+00)	4.666E+00	( 4.695E+00)	4.628E+00	( 4.525E+00)
3.981E-03	4.765E+00	( 5.128E+00)	4.662E+00	( 4.733E+00)	4.624E+00	( 4.570E+00)
6.310E-03	4.754E+00	( 5.174E+00)	4.653E+00	( 4.812E+00)	4.615E+00	( 4.666E+00)
1.000E-02	4.728E+00	( 5.255E+00)	4.630E+00	( 4.963E+00)	4.594E+00	( 4.848E+00)
1.585E-02	4.662E+00	( 5.344E+00)	4.573E+00	( 5.165E+00)	4.539E+00	( 5.099E+00)
2.512E-02	4.500E+00	( 5.283E+00)	4.429E+00	( 5.244E+00)	4.404E+00	( 5.237E+00)
3.981E-02	4.114E+00	( 4.681E+00)	4.081E+00	( 4.749E+00)	4.070E+00	( 4.780E+00)
6.310E-02	3.283E+00	( 3.234E+00)	3.302E+00	( 3.317E+00)	3.309E+00	( 3.349E+00)
1.000E-01	1.924E+00	( 1.572E+00)	1.962E+00	( 1.612E+00)	1.976E+00	( 1.627E+00)
1.585E-01	7.041E-01	( 5.712E-01)	7.174E-01	( 5.799E-01)	7.220E-01	( 5.828E-01)
2.512E-01	2.014E-01	( 1.827E-01)	2.026E-01	( 1.835E-01)	2.029E-01	( 1.837E-01)
3.981E-01	5.965E-02	( 5.752E-02)	5.958E-02	( 5.744E-02)	5.954E-02	( 5.740E-02)
6.310E-01	1.793E-02	( 1.765E-02)	1.792E-02	( 1.765E-02)	1.792E-02	( 1.765E-02)
1.000E+00	5.808E-03	( 5.780E-03)	5.808E-03	( 5.780E-03)	5.808E-03	( 5.780E-03)
1.585E+00	1.915E-03	( 1.911E-03)	1.915E-03	( 1.911E-03)	1.915E-03	( 1.911E-03)

Table 2.2. continued

2.512E+00	6.318E-04	( 6.313E-04)	6.318E-04	( 6.313E-04)	6.318E-04	( 6.313E-04)
3.981E+00	2.080E-04	( 2.079E-04)	2.080E-04	( 2.079E-04)	2.080E-04	( 2.079E-04)
6.310E+00	6.815E-05	( 6.814E-05)	6.815E-05	( 6.814E-05)	6.815E-05	( 6.814E-05)
1.000E+01	2.219E-05	( 2.219E-05)	2.219E-05	( 2.219E-05)	2.219E-05	( 2.219E-05)
1.585E+01	7.130E-06	( 7.130E-06)	7.130E-06	( 7.130E-06)	7.130E-06	( 7.130E-06)
2.512E+01	2.267E-06	( 2.267E-06)	2.267E-06	( 2.267E-06)	2.267E-06	( 2.267E-06)
3.981E+01	7.228E-07	( 7.228E-07)	7.228E-07	( 7.228E-07)	7.228E-07	( 7.228E-07)
6.310E+01	2.316E-07	( 2.316E-07)	2.316E-07	( 2.316E-07)	2.316E-07	( 2.316E-07)
1.000E+02	7.472E-08	( 7.472E-08)	7.472E-08	( 7.472E-08)	7.472E-08	( 7.472E-08)
1.585E+02	2.435E-08	( 2.435E-08)	2.435E-08	( 2.435E-08)	2.435E-08	( 2.435E-08)
2.512E+02	8.052E-09	( 8.052E-09)	8.052E-09	( 8.052E-09)	8.052E-09	( 8.052E-09)
3.981E+02	2.713E-09	( 2.713E-09)	2.713E-09	( 2.713E-09)	2.713E-09	( 2.713E-09)

ELECTRON DENSITY IN CM\*\*(-3) = 1.000E+15 DLAMBDA/DALPHA = 1.251E+01  
KALPHA = 7.062E-03

TEMPERATURE IN K = 1.000E+04  
RO/DEBYE (ELECTRONS) = 2.840E-01

PROTONS			HELIUM+		ARGON+	
DALPHA	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY
0.000E-01	4.753E+00	( 4.529E+00)	4.539E+00	( 4.201E+00)	4.454E+00	( 4.064E+00)
1.585E-03	4.755E+00	( 4.535E+00)	4.542E+00	( 4.211E+00)	4.457E+00	( 4.079E+00)
2.512E-03	4.758E+00	( 4.546E+00)	4.546E+00	( 4.229E+00)	4.462E+00	( 4.099E+00)
3.981E-03	4.764E+00	( 4.578E+00)	4.557E+00	( 4.274E+00)	4.475E+00	( 4.151E+00)
6.310E-03	4.780E+00	( 4.647E+00)	4.584E+00	( 4.375E+00)	4.506E+00	( 4.265E+00)
1.000E-02	4.813E+00	( 4.783E+00)	4.643E+00	( 4.574E+00)	4.576E+00	( 4.492E+00)
1.585E-02	4.868E+00	( 4.977E+00)	4.752E+00	( 4.872E+00)	4.708E+00	( 4.834E+00)
2.512E-02	4.877E+00	( 5.075E+00)	4.850E+00	( 5.088E+00)	4.842E+00	( 5.099E+00)
3.981E-02	4.514E+00	( 4.636E+00)	4.566E+00	( 4.712E+00)	4.589E+00	( 4.744E+00)
6.310E-02	3.313E+00	( 3.283E+00)	3.367E+00	( 3.336E+00)	3.387E+00	( 3.355E+00)
1.000E-01	1.684E+00	( 1.641E+00)	1.703E+00	( 1.658E+00)	1.710E+00	( 1.664E+00)
1.585E-01	6.288E-01	( 6.166E-01)	6.320E-01	( 6.195E-01)	6.330E-01	( 6.205E-01)
2.512E-01	2.052E-01	( 2.033E-01)	2.052E-01	( 2.034E-01)	2.052E-01	( 2.033E-01)
3.981E-01	6.564E-02	( 6.540E-02)	6.560E-02	( 6.537E-02)	6.557E-02	( 6.534E-02)
6.310E-01	2.033E-02	( 2.030E-02)	2.033E-02	( 2.030E-02)	2.033E-02	( 2.030E-02)
1.000E+00	6.648E-03	( 6.645E-03)	6.648E-03	( 6.645E-03)	6.648E-03	( 6.645E-03)
1.585E+00	2.172E-03	( 2.172E-03)	2.172E-03	( 2.172E-03)	2.172E-03	( 2.172E-03)
2.512E+00	7.080E-04	( 7.080E-04)	7.080E-04	( 7.080E-04)	7.080E-04	( 7.080E-04)
3.981E+00	2.249E-04	( 2.249E-04)	2.249E-04	( 2.249E-04)	2.249E-04	( 2.249E-04)
6.310E+00	7.126E-05	( 7.126E-05)	7.126E-05	( 7.126E-05)	7.126E-05	( 7.126E-05)
1.000E+01	2.263E-05	( 2.263E-05)	2.263E-05	( 2.263E-05)	2.263E-05	( 2.263E-05)
1.585E+01	7.206E-06	( 7.206E-06)	7.206E-06	( 7.206E-06)	7.206E-06	( 7.206E-06)
2.512E+01	2.304E-06	( 2.304E-06)	2.304E-06	( 2.304E-06)	2.304E-06	( 2.304E-06)
3.981E+01	7.415E-07	( 7.415E-07)	7.415E-07	( 7.415E-07)	7.415E-07	( 7.415E-07)
6.310E+01	2.408E-07	( 2.408E-07)	2.408E-07	( 2.408E-07)	2.408E-07	( 2.408E-07)
1.000E+02	7.919E-08	( 7.919E-08)	7.919E-08	( 7.919E-08)	7.919E-08	( 7.919E-08)
1.585E+02	2.650E-08	( 2.650E-08)	2.650E-08	( 2.650E-08)	2.650E-08	( 2.650E-08)
2.512E+02	9.061E-09	( 9.061E-09)	9.061E-09	( 9.061E-09)	9.061E-09	( 9.061E-09)
3.981E+02	3.177E-09	( 3.177E-09)	3.177E-09	( 3.177E-09)	3.177E-09	( 3.177E-09)

ELECTRON DENSITY IN CM\*\*(-3) = 1.000E+15 DLAMBDA/DALPHA = 1.251E+01

TEMPERATURE IN K = 1.995E+04  
RO/DEBYE (ELECTRONS) = 2.011E-01

PROTONS			HELIUM+		ARGON+	
DALPHA	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY
0.000E-01	4.854E+00	( 4.592E+00)	4.659E+00	( 4.222E+00)	4.582E+00	( 4.067E+00)
1.585E-03	4.854E+00	( 4.596E+00)	4.660E+00	( 4.230E+00)	4.583E+00	( 4.080E+00)
2.512E-03	4.854E+00	( 4.608E+00)	4.661E+00	( 4.249E+00)	4.585E+00	( 4.102E+00)
3.981E-03	4.855E+00	( 4.639E+00)	4.665E+00	( 4.296E+00)	4.590E+00	( 4.155E+00)
6.310E-03	4.857E+00	( 4.708E+00)	4.674E+00	( 4.398E+00)	4.602E+00	( 4.272E+00)
1.000E-02	4.860E+00	( 4.837E+00)	4.693E+00	( 4.595E+00)	4.628E+00	( 4.498E+00)
1.585E-02	4.856E+00	( 5.022E+00)	4.726E+00	( 4.888E+00)	4.676E+00	( 4.839E+00)
2.512E-02	4.790E+00	( 5.107E+00)	4.730E+00	( 5.102E+00)	4.709E+00	( 5.107E+00)
3.981E-02	4.434E+00	( 4.663E+00)	4.461E+00	( 4.738E+00)	4.474E+00	( 4.771E+00)
6.310E-02	3.342E+00	( 3.306E+00)	3.401E+00	( 3.371E+00)	3.424E+00	( 3.395E+00)
1.000E-01	1.729E+00	( 1.641E+00)	1.758E+00	( 1.667E+00)	1.768E+00	( 1.676E+00)



Table 2.2. continued

1.585E-01	6.306E-01	( 6.047E-01)	6.362E-01	( 6.098E-01)	6.381E-01	( 6.114E-01)
2.512E-01	1.989E-01	( 1.951E-01)	1.994E-01	( 1.955E-01)	1.994E-01	( 1.956E-01)
3.981E-01	6.231E-02	( 6.185E-02)	6.222E-02	( 6.176E-02)	6.219E-02	( 6.173E-02)
6.310E-01	1.913E-02	( 1.907E-02)	1.913E-02	( 1.907E-02)	1.913E-02	( 1.907E-02)
1.000E+00	6.258E-03	( 6.252E-03)	6.258E-03	( 6.252E-03)	6.258E-03	( 6.252E-03)
1.585E+00	2.057E-03	( 2.056E-03)	2.057E-03	( 2.056E-03)	2.057E-03	( 2.056E-03)
2.512E+00	6.766E-04	( 6.765E-04)	6.766E-04	( 6.765E-04)	6.766E-04	( 6.765E-04)
3.981E+00	2.206E-04	( 2.206E-04)	2.206E-04	( 2.206E-04)	2.206E-04	( 2.206E-04)
6.310E+00	7.126E-05	( 7.126E-05)	7.126E-05	( 7.126E-05)	7.126E-05	( 7.126E-05)
1.000E+01	2.263E-05	( 2.263E-05)	2.263E-05	( 2.263E-05)	2.263E-05	( 2.263E-05)
1.585E+01	7.206E-06	( 7.206E-06)	7.206E-06	( 7.206E-06)	7.206E-06	( 7.206E-06)
2.512E+01	2.304E-06	( 2.304E-06)	2.304E-06	( 2.304E-06)	2.304E-06	( 2.304E-06)
3.981E+01	7.415E-07	( 7.415E-07)	7.415E-07	( 7.415E-07)	7.415E-07	( 7.415E-07)
6.310E+01	2.408E-07	( 2.408E-07)	2.408E-07	( 2.408E-07)	2.408E-07	( 2.408E-07)
1.000E+02	7.919E-08	( 7.919E-08)	7.919E-08	( 7.919E-08)	7.919E-08	( 7.919E-08)
1.585E+02	2.650E-08	( 2.650E-08)	2.650E-08	( 2.650E-08)	2.650E-08	( 2.650E-08)
2.512E+02	9.061E-09	( 9.061E-09)	9.061E-09	( 9.061E-09)	9.061E-09	( 9.061E-09)
3.981E+02	3.177E-09	( 3.177E-09)	3.177E-09	( 3.177E-09)	3.177E-09	( 3.177E-09)

ELECTRON DENSITY IN CM\*\*(-3) = 1.000E+15 DLAMBDA/DALPHA = 1.251E+01

TEMPERATURE IN K = 3.981E+04  
RO/DEBYE (ELECTRONS) = 1.424E-01

PROTONS			HELIUM+		ARGON+	
DALPHA	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY
0.000E-01	4.950E+00	( 4.785E+00)	4.783E+00	( 4.364E+00)	4.718E+00	( 4.195E+00)
1.585E-03	4.949E+00	( 4.785E+00)	4.782E+00	( 4.377E+00)	4.718E+00	( 4.207E+00)
2.512E-03	4.948E+00	( 4.801E+00)	4.782E+00	( 4.397E+00)	4.718E+00	( 4.231E+00)
3.981E-03	4.945E+00	( 4.830E+00)	4.780E+00	( 4.444E+00)	4.717E+00	( 4.285E+00)
6.310E-03	4.937E+00	( 4.894E+00)	4.776E+00	( 4.544E+00)	4.714E+00	( 4.402E+00)
1.000E-02	4.917E+00	( 5.014E+00)	4.765E+00	( 4.733E+00)	4.707E+00	( 4.623E+00)
1.585E-02	4.865E+00	( 5.170E+00)	4.735E+00	( 5.003E+00)	4.685E+00	( 4.942E+00)
2.512E-02	4.722E+00	( 5.201E+00)	4.637E+00	( 5.171E+00)	4.606E+00	( 5.167E+00)
3.981E-02	4.322E+00	( 4.689E+00)	4.311E+00	( 4.755E+00)	4.309E+00	( 4.786E+00)
6.310E-02	3.334E+00	( 3.289E+00)	3.384E+00	( 3.365E+00)	3.403E+00	( 3.394E+00)
1.000E-01	1.788E+00	( 1.614E+00)	1.829E+00	( 1.653E+00)	1.843E+00	( 1.666E+00)
1.585E-01	6.400E-01	( 5.862E-01)	6.503E-01	( 5.947E-01)	6.539E-01	( 5.976E-01)
2.512E-01	1.941E-01	( 1.865E-01)	1.950E-01	( 1.873E-01)	1.953E-01	( 1.874E-01)
3.981E-01	5.934E-02	( 5.844E-02)	5.925E-02	( 5.835E-02)	5.921E-02	( 5.831E-02)
6.310E-01	1.799E-02	( 1.787E-02)	1.799E-02	( 1.787E-02)	1.799E-02	( 1.787E-02)
1.000E+00	5.856E-03	( 5.844E-03)	5.856E-03	( 5.844E-03)	5.856E-03	( 5.844E-03)
1.585E+00	1.932E-03	( 1.930E-03)	1.932E-03	( 1.930E-03)	1.932E-03	( 1.930E-03)
2.512E+00	6.372E-04	( 6.370E-04)	6.372E-04	( 6.370E-04)	6.372E-04	( 6.370E-04)
3.981E+00	2.098E-04	( 2.098E-04)	2.098E-04	( 2.098E-04)	2.098E-04	( 2.098E-04)
6.310E+00	6.876E-05	( 6.875E-05)	6.876E-05	( 6.875E-05)	6.876E-05	( 6.875E-05)
1.000E+01	2.241E-05	( 2.241E-05)	2.241E-05	( 2.241E-05)	2.241E-05	( 2.241E-05)
1.585E+01	7.206E-06	( 7.206E-06)	7.206E-06	( 7.206E-06)	7.206E-06	( 7.206E-06)
2.512E+01	2.304E-06	( 2.304E-06)	2.304E-06	( 2.304E-06)	2.304E-06	( 2.304E-06)
3.981E+01	7.415E-07	( 7.415E-07)	7.415E-07	( 7.415E-07)	7.415E-07	( 7.415E-07)
6.310E+01	2.408E-07	( 2.408E-07)	2.408E-07	( 2.408E-07)	2.408E-07	( 2.408E-07)
1.000E+02	7.919E-08	( 7.919E-08)	7.919E-08	( 7.919E-08)	7.919E-08	( 7.919E-08)
1.585E+02	2.650E-08	( 2.650E-08)	2.650E-08	( 2.650E-08)	2.650E-08	( 2.650E-08)
2.512E+02	9.061E-09	( 9.061E-09)	9.061E-09	( 9.061E-09)	9.061E-09	( 9.061E-09)
3.981E+02	3.177E-09	( 3.177E-09)	3.177E-09	( 3.177E-09)	3.177E-09	( 3.177E-09)

ELECTRON DENSITY IN CM\*\*(-3) = 3.162E+15 DLAMBDA/DALPHA = 2.696E+01  
KALPHA = 7.062E-03TEMPERATURE IN K = 1.000E+04  
RO/DEBYE (ELECTRONS) = 3.441E-01

PROTONS			HELIUM+		ARGON+	
DALPHA	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY
0.000E-01	4.225E+00	( 4.225E+00)	3.953E+00	( 3.953E+00)	3.844E+00	( 3.844E+00)
1.585E-03	4.232E+00	( 4.232E+00)	3.964E+00	( 3.964E+00)	3.856E+00	( 3.856E+00)
2.512E-03	4.248E+00	( 4.248E+00)	3.984E+00	( 3.984E+00)	3.879E+00	( 3.879E+00)
3.981E-03	4.283E+00	( 4.283E+00)	4.032E+00	( 4.032E+00)	3.931E+00	( 3.931E+00)
6.310E-03	4.364E+00	( 4.364E+00)	4.140E+00	( 4.140E+00)	4.052E+00	( 4.052E+00)

Table 2.2. continued

1.000E-02	4.527E+00	( 4.527E+00)	4.359E+00	( 4.359E+00)	4.294E+00	( 4.294E+00)
1.585E-02	4.778E+00	( 4.778E+00)	4.702E+00	( 4.702E+00)	4.675E+00	( 4.675E+00)
2.512E-02	4.963E+00	( 4.963E+00)	4.988E+00	( 4.988E+00)	5.002E+00	( 5.002E+00)
3.981E-02	4.602E+00	( 4.602E+00)	4.670E+00	( 4.670E+00)	4.698E+00	( 4.698E+00)
6.310E-02	3.295E+00	( 3.295E+00)	3.334E+00	( 3.334E+00)	3.348E+00	( 3.348E+00)
1.000E-01	1.675E+00	( 1.675E+00)	1.686E+00	( 1.686E+00)	1.690E+00	( 1.690E+00)
1.585E-01	6.451E-01	( 6.451E-01)	6.467E-01	( 6.467E-01)	6.471E-01	( 6.471E-01)
2.512E-01	2.168E-01	( 2.168E-01)	2.168E-01	( 2.168E-01)	2.168E-01	( 2.168E-01)
3.981E-01	7.041E-02	( 7.041E-02)	7.037E-02	( 7.037E-02)	7.034E-02	( 7.034E-02)
6.310E-01	2.170E-02	( 2.170E-02)	2.170E-02	( 2.170E-02)	2.170E-02	( 2.170E-02)
1.000E+00	7.042E-03	( 7.042E-03)	7.042E-03	( 7.042E-03)	7.042E-03	( 7.042E-03)
1.585E+00	2.273E-03	( 2.273E-03)	2.273E-03	( 2.273E-03)	2.273E-03	( 2.273E-03)
2.512E+00	7.138E-04	( 7.138E-04)	7.138E-04	( 7.138E-04)	7.138E-04	( 7.138E-04)
3.981E+00	2.262E-04	( 2.262E-04)	2.262E-04	( 2.262E-04)	2.262E-04	( 2.262E-04)
6.310E+00	7.191E-05	( 7.191E-05)	7.191E-05	( 7.191E-05)	7.191E-05	( 7.191E-05)
1.000E+01	2.295E-05	( 2.295E-05)	2.295E-05	( 2.295E-05)	2.295E-05	( 2.295E-05)
1.585E+01	7.367E-06	( 7.367E-06)	7.367E-06	( 7.367E-06)	7.367E-06	( 7.367E-06)
2.512E+01	2.384E-06	( 2.384E-06)	2.384E-06	( 2.384E-06)	2.384E-06	( 2.384E-06)
3.981E+01	7.803E-07	( 7.803E-07)	7.803E-07	( 7.803E-07)	7.803E-07	( 7.803E-07)
6.310E+01	2.595E-07	( 2.595E-07)	2.595E-07	( 2.595E-07)	2.595E-07	( 2.595E-07)
1.000E+02	8.804E-08	( 8.804E-08)	8.804E-08	( 8.804E-08)	8.804E-08	( 8.804E-08)
1.585E+02	3.061E-08	( 3.061E-08)	3.061E-08	( 3.061E-08)	3.061E-08	( 3.061E-08)
2.512E+02	1.092E-08	( 1.092E-08)	1.092E-08	( 1.092E-08)	1.092E-08	( 1.092E-08)
3.981E+02	3.999E-09	( 3.999E-09)	3.999E-09	( 3.999E-09)	3.999E-09	( 3.999E-09)

ELECTRON DENSITY IN CM\*\*(-3) = 3.162E+15 DLAMBDA/DALPHA = 2.696E+01

TEMPERATURE IN K = 1.995E+04  
RO/DEBYE (ELECTRONS) = 2.436E-01

PROTONS			HELIUM+		ARGON+	
DALPHA	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY
0.000E-01	4.365E+00	( 4.193E+00)	3.885E+00	( 3.885E+00)	3.758E+00	( 3.758E+00)
1.585E-03	4.370E+00	( 4.201E+00)	3.896E+00	( 3.896E+00)	3.772E+00	( 3.772E+00)
2.512E-03	4.377E+00	( 4.218E+00)	3.917E+00	( 3.917E+00)	3.796E+00	( 3.796E+00)
3.981E-03	4.395E+00	( 4.254E+00)	3.967E+00	( 3.967E+00)	3.851E+00	( 3.851E+00)
6.310E-03	4.438E+00	( 4.337E+00)	4.079E+00	( 4.079E+00)	3.976E+00	( 3.976E+00)
1.000E-02	4.532E+00	( 4.501E+00)	4.304E+00	( 4.304E+00)	4.226E+00	( 4.226E+00)
1.585E-02	4.699E+00	( 4.755E+00)	4.656E+00	( 4.656E+00)	4.620E+00	( 4.620E+00)
2.512E-02	4.849E+00	( 4.950E+00)	4.964E+00	( 4.964E+00)	4.974E+00	( 4.974E+00)
3.981E-02	4.558E+00	( 4.621E+00)	4.694E+00	( 4.694E+00)	4.725E+00	( 4.725E+00)
6.310E-02	3.360E+00	( 3.340E+00)	3.390E+00	( 3.390E+00)	3.408E+00	( 3.408E+00)
1.000E-01	1.712E+00	( 1.695E+00)	1.712E+00	( 1.712E+00)	1.718E+00	( 1.718E+00)
1.585E-01	6.437E-01	( 6.387E-01)	6.416E-01	( 6.416E-01)	6.425E-01	( 6.425E-01)
2.512E-01	2.100E-01	( 2.092E-01)	2.093E-01	( 2.093E-01)	2.093E-01	( 2.093E-01)
3.981E-01	6.689E-02	( 6.679E-02)	6.674E-02	( 6.674E-02)	6.672E-02	( 6.672E-02)
6.310E-01	2.058E-02	( 2.057E-02)	2.057E-02	( 2.057E-02)	2.057E-02	( 2.057E-02)
1.000E+00	6.717E-03	( 6.716E-03)	6.716E-03	( 6.716E-03)	6.716E-03	( 6.716E-03)
1.585E+00	2.191E-03	( 2.190E-03)	2.190E-03	( 2.190E-03)	2.190E-03	( 2.190E-03)
2.512E+00	7.132E-04	( 7.132E-04)	7.132E-04	( 7.132E-04)	7.132E-04	( 7.132E-04)
3.981E+00	2.262E-04	( 2.262E-04)	2.262E-04	( 2.262E-04)	2.262E-04	( 2.262E-04)
6.310E+00	7.192E-05	( 7.191E-05)	7.191E-05	( 7.191E-05)	7.191E-05	( 7.191E-05)
1.000E+01	2.295E-05	( 2.295E-05)	2.295E-05	( 2.295E-05)	2.295E-05	( 2.295E-05)
1.585E+01	7.367E-06	( 7.367E-06)	7.367E-06	( 7.367E-06)	7.367E-06	( 7.367E-06)
2.512E+01	2.384E-06	( 2.384E-06)	2.384E-06	( 2.384E-06)	2.384E-06	( 2.384E-06)
3.981E+01	7.803E-07	( 7.803E-07)	7.803E-07	( 7.803E-07)	7.803E-07	( 7.803E-07)
6.310E+01	2.595E-07	( 2.595E-07)	2.595E-07	( 2.595E-07)	2.595E-07	( 2.595E-07)
1.000E+02	8.804E-08	( 8.804E-08)	8.804E-08	( 8.804E-08)	8.804E-08	( 8.804E-08)
1.585E+02	3.061E-08	( 3.061E-08)	3.061E-08	( 3.061E-08)	3.061E-08	( 3.061E-08)
2.512E+02	1.092E-08	( 1.092E-08)	1.092E-08	( 1.092E-08)	1.092E-08	( 1.092E-08)
3.981E+02	3.999E-09	( 3.999E-09)	3.999E-09	( 3.999E-09)	3.999E-09	( 3.999E-09)

Table 2.2. continued

ELECTRON DENSITY IN CM\*\*(-3) = 3.162E+15 DLAMBDA/DALPHA = 2.696E+01

TEMPERATURE IN K = 3.981E+04  
RO/DEBYE (ELECTRONS) = 1.725E-01

PROTONS			HELIUM+		ARGON+	
DALPHA	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY
0.000E-01	4.544E+00	( 4.284E+00)	4.296E+00	( 3.929E+00)	4.198E+00	( 3.786E+00)
1.585E-03	4.547E+00	( 4.293E+00)	4.300E+00	( 3.943E+00)	4.202E+00	( 3.801E+00)
2.512E-03	4.551E+00	( 4.308E+00)	4.307E+00	( 3.965E+00)	4.210E+00	( 3.825E+00)
3.981E-03	4.561E+00	( 4.346E+00)	4.322E+00	( 4.017E+00)	4.227E+00	( 3.884E+00)
6.310E-03	4.586E+00	( 4.429E+00)	4.360E+00	( 4.133E+00)	4.270E+00	( 4.014E+00)
1.000E-02	4.642E+00	( 4.594E+00)	4.445E+00	( 4.362E+00)	4.367E+00	( 4.271E+00)
1.585E-02	4.743E+00	( 4.838E+00)	4.607E+00	( 4.713E+00)	4.556E+00	( 4.667E+00)
2.512E-02	4.827E+00	( 5.010E+00)	4.789E+00	( 5.009E+00)	4.779E+00	( 5.015E+00)
3.981E-02	4.538E+00	( 4.655E+00)	4.590E+00	( 4.727E+00)	4.613E+00	( 4.758E+00)
6.310E-02	3.376E+00	( 3.354E+00)	3.435E+00	( 3.414E+00)	3.457E+00	( 3.436E+00)
1.000E-01	1.725E+00	( 1.688E+00)	1.751E+00	( 1.713E+00)	1.760E+00	( 1.721E+00)
1.585E-01	6.342E-01	( 6.232E-01)	6.394E-01	( 6.282E-01)	6.412E-01	( 6.299E-01)
2.512E-01	2.015E-01	( 1.999E-01)	2.020E-01	( 2.003E-01)	2.020E-01	( 2.004E-01)
3.981E-01	6.318E-02	( 6.298E-02)	6.308E-02	( 6.288E-02)	6.304E-02	( 6.284E-02)
6.310E-01	1.934E-02	( 1.932E-02)	1.934E-02	( 1.932E-02)	1.934E-02	( 1.932E-02)
1.000E+00	6.324E-03	( 6.321E-03)	6.324E-03	( 6.321E-03)	6.324E-03	( 6.321E-03)
1.585E+00	2.077E-03	( 2.077E-03)	2.077E-03	( 2.077E-03)	2.077E-03	( 2.077E-03)
2.512E+00	6.828E-04	( 6.827E-04)	6.828E-04	( 6.827E-04)	6.828E-04	( 6.827E-04)
3.981E+00	2.227E-04	( 2.227E-04)	2.227E-04	( 2.227E-04)	2.227E-04	( 2.227E-04)
6.310E+00	7.192E-05	( 7.192E-05)	7.192E-05	( 7.192E-05)	7.192E-05	( 7.192E-05)
1.000E+01	2.295E-05	( 2.295E-05)	2.295E-05	( 2.295E-05)	2.295E-05	( 2.295E-05)
1.585E+01	7.368E-06	( 7.368E-06)	7.368E-06	( 7.368E-06)	7.368E-06	( 7.368E-06)
2.512E+01	2.384E-06	( 2.384E-06)	2.384E-06	( 2.384E-06)	2.384E-06	( 2.384E-06)
3.981E+01	7.803E-07	( 7.803E-07)	7.803E-07	( 7.803E-07)	7.803E-07	( 7.803E-07)
6.310E+01	2.595E-07	( 2.595E-07)	2.595E-07	( 2.595E-07)	2.595E-07	( 2.595E-07)
1.000E+02	8.804E-08	( 8.804E-08)	8.804E-08	( 8.804E-08)	8.804E-08	( 8.804E-08)
1.585E+02	3.061E-08	( 3.061E-08)	3.061E-08	( 3.061E-08)	3.061E-08	( 3.061E-08)
2.512E+02	1.092E-08	( 1.092E-08)	1.092E-08	( 1.092E-08)	1.092E-08	( 1.092E-08)
3.981E+02	3.999E-09	( 3.999E-09)	3.999E-09	( 3.999E-09)	3.999E-09	( 3.999E-09)

ELECTRON DENSITY IN CM\*\*(-3) = 1.000E+16 DLAMBDA/DALPHA = 5.808E+01

TEMPERATURE IN K = 1.995E+04  
RO/DEBYE (ELECTRONS) = 2.951E-01

PROTONS			HELIUM+		ARGON+	
DALPHA	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY
0.000E-01	3.904E+00	( 3.904E+00)	3.656E+00	( 3.656E+00)	3.557E+00	( 3.557E+00)
1.585E-03	3.914E+00	( 3.914E+00)	3.668E+00	( 3.668E+00)	3.570E+00	( 3.570E+00)
2.512E-03	3.929E+00	( 3.929E+00)	3.688E+00	( 3.688E+00)	3.592E+00	( 3.592E+00)
3.981E-03	3.968E+00	( 3.968E+00)	3.737E+00	( 3.737E+00)	3.646E+00	( 3.646E+00)
6.310E-03	4.057E+00	( 4.057E+00)	3.851E+00	( 3.851E+00)	3.770E+00	( 3.770E+00)
1.000E-02	4.241E+00	( 4.241E+00)	4.084E+00	( 4.084E+00)	4.024E+00	( 4.024E+00)
1.585E-02	4.538E+00	( 4.538E+00)	4.465E+00	( 4.465E+00)	4.438E+00	( 4.438E+00)
2.512E-02	4.806E+00	( 4.806E+00)	4.828E+00	( 4.828E+00)	4.839E+00	( 4.839E+00)
3.981E-02	4.562E+00	( 4.562E+00)	4.626E+00	( 4.626E+00)	4.651E+00	( 4.651E+00)
6.310E-02	3.349E+00	( 3.349E+00)	3.386E+00	( 3.386E+00)	3.399E+00	( 3.399E+00)
1.000E-01	1.738E+00	( 1.738E+00)	1.749E+00	( 1.749E+00)	1.752E+00	( 1.752E+00)
1.585E-01	6.724E-01	( 6.724E-01)	6.740E-01	( 6.740E-01)	6.746E-01	( 6.746E-01)
2.512E-01	2.242E-01	( 2.242E-01)	2.242E-01	( 2.242E-01)	2.241E-01	( 2.241E-01)
3.981E-01	7.202E-02	( 7.202E-02)	7.197E-02	( 7.197E-02)	7.194E-02	( 7.194E-02)
6.310E-01	2.301E-02	( 2.301E-02)	2.300E-02	( 2.300E-02)	2.300E-02	( 2.300E-02)
1.000E+00	7.339E-03	( 7.339E-03)	7.334E-03	( 7.334E-03)	7.336E-03	( 7.336E-03)
1.585E+00	2.293E-03	( 2.293E-03)	2.293E-03	( 2.293E-03)	2.293E-03	( 2.293E-03)
2.512E+00	7.196E-04	( 7.196E-04)	7.196E-04	( 7.196E-04)	7.196E-04	( 7.196E-04)
3.981E+00	2.290E-04	( 2.290E-04)	2.290E-04	( 2.290E-04)	2.290E-04	( 2.290E-04)
6.310E+00	7.331E-05	( 7.331E-05)	7.331E-05	( 7.331E-05)	7.331E-05	( 7.331E-05)
1.000E+01	2.364E-05	( 2.364E-05)	2.364E-05	( 2.364E-05)	2.364E-05	( 2.364E-05)
1.585E+01	7.703E-06	( 7.703E-06)	7.703E-06	( 7.703E-06)	7.703E-06	( 7.703E-06)
2.512E+01	2.547E-06	( 2.547E-06)	2.547E-06	( 2.547E-06)	2.547E-06	( 2.547E-06)
3.981E+01	8.579E-07	( 8.579E-07)	8.579E-07	( 8.579E-07)	8.579E-07	( 8.579E-07)
6.310E+01	2.957E-07	( 2.957E-07)	2.957E-07	( 2.957E-07)	2.957E-07	( 2.957E-07)
1.000E+02	1.046E-07	( 1.046E-07)	1.046E-07	( 1.046E-07)	1.046E-07	( 1.046E-07)
1.585E+02	3.798E-08	( 3.798E-08)	3.798E-08	( 3.798E-08)	3.798E-08	( 3.798E-08)
2.512E+02	1.412E-08	( 1.412E-08)	1.412E-08	( 1.412E-08)	1.412E-08	( 1.412E-08)
3.981E+02	5.357E-09	( 5.357E-09)	5.357E-09	( 5.357E-09)	5.357E-09	( 5.357E-09)

Table 2.2. continued

ELECTRON DENSITY IN CM\*\*(-3) = 1.000E+16 DLAMBDA/DALPHA = 5.808E+01

TEMPERATURE IN K = 3.981E+04  
R0/DEBYE (ELECTRONS) = 2.089E-01

PROTONS			HELIUM+		ARGON+	
DALPHA	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY
0.000E-01	3.901E+00	( 3.901E+00)	3.612E+00	( 3.612E+00)	3.495E+00	( 3.495E+00)
1.585E-03	3.912E+00	( 3.912E+00)	3.625E+00	( 3.625E+00)	3.510E+00	( 3.510E+00)
2.512E-03	3.929E+00	( 3.929E+00)	3.647E+00	( 3.647E+00)	3.535E+00	( 3.535E+00)
3.981E-03	3.969E+00	( 3.969E+00)	3.700E+00	( 3.700E+00)	3.592E+00	( 3.592E+00)
6.310E-03	4.063E+00	( 4.063E+00)	3.821E+00	( 3.821E+00)	3.725E+00	( 3.725E+00)
1.000E-02	4.253E+00	( 4.253E+00)	4.066E+00	( 4.066E+00)	3.993E+00	( 3.993E+00)
1.585E-02	4.559E+00	( 4.559E+00)	4.464E+00	( 4.464E+00)	4.430E+00	( 4.430E+00)
2.512E-02	4.836E+00	( 4.836E+00)	4.849E+00	( 4.849E+00)	4.858E+00	( 4.858E+00)
3.981E-02	4.603E+00	( 4.603E+00)	4.672E+00	( 4.672E+00)	4.701E+00	( 4.701E+00)
6.310E-02	3.388E+00	( 3.388E+00)	3.433E+00	( 3.433E+00)	3.450E+00	( 3.450E+00)
1.000E-01	1.745E+00	( 1.745E+00)	1.761E+00	( 1.761E+00)	1.766E+00	( 1.766E+00)
1.585E-01	6.598E-01	( 6.598E-01)	6.626E-01	( 6.626E-01)	6.635E-01	( 6.635E-01)
2.512E-01	2.150E-01	( 2.150E-01)	2.151E-01	( 2.151E-01)	2.151E-01	( 2.151E-01)
3.981E-01	6.812E-02	( 6.812E-02)	6.807E-02	( 6.807E-02)	6.804E-02	( 6.804E-02)
6.310E-01	2.174E-02	( 2.174E-02)	2.171E-02	( 2.171E-02)	2.170E-02	( 2.170E-02)
1.000E+00	6.988E-03	( 6.988E-03)	6.981E-03	( 6.981E-03)	6.979E-03	( 6.979E-03)
1.585E+00	2.213E-03	( 2.213E-03)	2.213E-03	( 2.213E-03)	2.213E-03	( 2.213E-03)
2.512E+00	7.209E-04	( 7.209E-04)	7.209E-04	( 7.209E-04)	7.209E-04	( 7.209E-04)
3.981E+00	2.290E-04	( 2.290E-04)	2.290E-04	( 2.290E-04)	2.290E-04	( 2.290E-04)
6.310E+00	7.331E-05	( 7.331E-05)	7.331E-05	( 7.331E-05)	7.331E-05	( 7.331E-05)
1.000E+01	2.364E-05	( 2.364E-05)	2.364E-05	( 2.364E-05)	2.364E-05	( 2.364E-05)
1.585E+01	7.704E-06	( 7.704E-06)	7.704E-06	( 7.704E-06)	7.704E-06	( 7.704E-06)
2.512E+01	2.547E-06	( 2.547E-06)	2.547E-06	( 2.547E-06)	2.547E-06	( 2.547E-06)
3.981E+01	8.579E-07	( 8.579E-07)	8.579E-07	( 8.579E-07)	8.579E-07	( 8.579E-07)
6.310E+01	2.957E-07	( 2.957E-07)	2.957E-07	( 2.957E-07)	2.957E-07	( 2.957E-07)
1.000E+02	1.046E-07	( 1.046E-07)	1.046E-07	( 1.046E-07)	1.046E-07	( 1.046E-07)
1.585E+02	3.798E-08	( 3.798E-08)	3.798E-08	( 3.798E-08)	3.798E-08	( 3.798E-08)
2.512E+02	1.412E-08	( 1.412E-08)	1.412E-08	( 1.412E-08)	1.412E-08	( 1.412E-08)
3.981E+02	5.357E-09	( 5.357E-09)	5.357E-09	( 5.357E-09)	5.357E-09	( 5.357E-09)

ELECTRON DENSITY IN CM\*\*(-3) = 1.000E+16 DLAMBDA/DALPHA = 5.808E+01

TEMPERATURE IN K = 7.943E+04  
R0/DEBYE (ELECTRONS) = 1.479E-01

PROTONS			HELIUM+		ARGON+	
DALPHA	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY
0.000E-01	4.012E+00	( 4.012E+00)	3.676E+00	( 3.676E+00)	3.541E+00	( 3.541E+00)
1.585E-03	4.022E+00	( 4.022E+00)	3.690E+00	( 3.690E+00)	3.557E+00	( 3.557E+00)
2.512E-03	4.041E+00	( 4.041E+00)	3.714E+00	( 3.714E+00)	3.583E+00	( 3.583E+00)
3.981E-03	4.084E+00	( 4.084E+00)	3.771E+00	( 3.771E+00)	3.646E+00	( 3.646E+00)
6.310E-03	4.182E+00	( 4.182E+00)	3.900E+00	( 3.900E+00)	3.787E+00	( 3.787E+00)
1.000E-02	4.376E+00	( 4.376E+00)	4.156E+00	( 4.156E+00)	4.069E+00	( 4.069E+00)
1.585E-02	4.675E+00	( 4.675E+00)	4.556E+00	( 4.556E+00)	4.512E+00	( 4.512E+00)
2.512E-02	4.924E+00	( 4.924E+00)	4.925E+00	( 4.925E+00)	4.930E+00	( 4.930E+00)
3.981E-02	4.644E+00	( 4.644E+00)	4.713E+00	( 4.713E+00)	4.742E+00	( 4.742E+00)
6.310E-02	3.393E+00	( 3.393E+00)	3.448E+00	( 3.448E+00)	3.469E+00	( 3.469E+00)
1.000E-01	1.730E+00	( 1.730E+00)	1.754E+00	( 1.754E+00)	1.762E+00	( 1.762E+00)
1.585E-01	6.409E-01	( 6.409E-01)	6.459E-01	( 6.459E-01)	6.475E-01	( 6.475E-01)
2.512E-01	2.047E-01	( 2.047E-01)	2.050E-01	( 2.050E-01)	2.051E-01	( 2.051E-01)
3.981E-01	6.408E-02	( 6.408E-02)	6.398E-02	( 6.398E-02)	6.080E-02	( 6.080E-02)
6.310E-01	2.038E-02	( 2.038E-02)	1.957E-02	( 1.957E-02)	1.957E-02	( 1.957E-02)
1.000E+00	6.573E-03	( 6.573E-03)	6.396E-03	( 6.396E-03)	6.396E-03	( 6.396E-03)
1.585E+00	2.101E-03	( 2.101E-03)	2.101E-03	( 2.101E-03)	2.101E-03	( 2.101E-03)
2.512E+00	6.913E-04	( 6.913E-04)	6.913E-04	( 6.913E-04)	6.913E-04	( 6.913E-04)
3.981E+00	2.261E-04	( 2.261E-04)	2.261E-04	( 2.261E-04)	2.261E-04	( 2.261E-04)
6.310E+00	7.331E-05	( 7.331E-05)	7.331E-05	( 7.331E-05)	7.331E-05	( 7.331E-05)
1.000E+01	2.364E-05	( 2.364E-05)	2.364E-05	( 2.364E-05)	2.364E-05	( 2.364E-05)
1.585E+01	7.704E-06	( 7.704E-06)	7.704E-06	( 7.704E-06)	7.704E-06	( 7.704E-06)
2.512E+01	2.547E-06	( 2.547E-06)	2.547E-06	( 2.547E-06)	2.547E-06	( 2.547E-06)
3.981E+01	8.579E-07	( 8.579E-07)	8.579E-07	( 8.579E-07)	8.579E-07	( 8.579E-07)
6.310E+01	2.957E-07	( 2.957E-07)	2.957E-07	( 2.957E-07)	2.957E-07	( 2.957E-07)
1.000E+02	1.046E-07	( 1.046E-07)	1.046E-07	( 1.046E-07)	1.046E-07	( 1.046E-07)
1.585E+02	3.798E-08	( 3.798E-08)	3.798E-08	( 3.798E-08)	3.798E-08	( 3.798E-08)
2.512E+02	1.412E-08	( 1.412E-08)	1.412E-08	( 1.412E-08)	1.412E-08	( 1.412E-08)
3.981E+02	5.357E-09	( 5.357E-09)	5.357E-09	( 5.357E-09)	5.357E-09	( 5.357E-09)

Table 2.2. continued

ELECTRON DENSITY IN CM\*\*(-3) = 3.162E+16 DLAMBDA/DALPHA = 1.251E+02

TEMPERATURE IN K = 1.995E+04

RO/DEBYE (ELECTRONS) = 3.576E-01

PROTONS			HELIUM+		ARGON+	
DALPHA	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY
0.000E-01	3.716E+00	( 3.716E+00)	3.524E+00	( 3.524E+00)	3.450E+00	( 3.450E+00)
1.585E-03	3.725E+00	( 3.725E+00)	3.536E+00	( 3.536E+00)	3.462E+00	( 3.462E+00)
2.512E-03	3.741E+00	( 3.741E+00)	3.555E+00	( 3.555E+00)	3.482E+00	( 3.482E+00)
3.981E-03	3.778E+00	( 3.778E+00)	3.601E+00	( 3.601E+00)	3.532E+00	( 3.532E+00)
6.310E-03	3.866E+00	( 3.866E+00)	3.708E+00	( 3.708E+00)	3.646E+00	( 3.646E+00)
1.000E-02	4.052E+00	( 4.052E+00)	3.932E+00	( 3.932E+00)	3.887E+00	( 3.887E+00)
1.585E-02	4.364E+00	( 4.364E+00)	4.311E+00	( 4.311E+00)	4.292E+00	( 4.292E+00)
2.512E-02	4.671E+00	( 4.671E+00)	4.694E+00	( 4.694E+00)	4.704E+00	( 4.704E+00)
3.981E-02	4.486E+00	( 4.486E+00)	4.538E+00	( 4.538E+00)	4.558E+00	( 4.558E+00)
6.310E-02	3.340E+00	( 3.340E+00)	3.367E+00	( 3.367E+00)	3.377E+00	( 3.377E+00)
1.000E-01	1.774E+00	( 1.774E+00)	1.780E+00	( 1.780E+00)	1.782E+00	( 1.782E+00)
1.585E-01	7.050E-01	( 7.050E-01)	7.058E-01	( 7.058E-01)	7.061E-01	( 7.061E-01)
2.512E-01	2.390E-01	( 2.390E-01)	2.390E-01	( 2.390E-01)	2.390E-01	( 2.390E-01)
3.981E-01	7.692E-02	( 7.692E-02)	7.690E-02	( 7.690E-02)	7.688E-02	( 7.688E-02)
6.310E-01	2.438E-02	( 2.438E-02)	2.437E-02	( 2.437E-02)	2.437E-02	( 2.437E-02)
1.000E+00	7.672E-03	( 7.672E-03)	7.669E-03	( 7.669E-03)	7.668E-03	( 7.668E-03)
1.585E+00	2.315E-03	( 2.315E-03)	2.316E-03	( 2.316E-03)	2.316E-03	( 2.316E-03)
2.512E+00	7.317E-04	( 7.317E-04)	7.317E-04	( 7.317E-04)	7.317E-04	( 7.317E-04)
3.981E+00	2.350E-04	( 2.350E-04)	2.350E-04	( 2.350E-04)	2.350E-04	( 2.350E-04)
6.310E+00	7.622E-05	( 7.622E-05)	7.622E-05	( 7.622E-05)	7.622E-05	( 7.622E-05)
1.000E+01	2.506E-05	( 2.506E-05)	2.506E-05	( 2.506E-05)	2.506E-05	( 2.506E-05)
1.585E+01	8.382E-06	( 8.382E-06)	8.382E-06	( 8.382E-06)	8.382E-06	( 8.382E-06)
2.512E+01	2.866E-06	( 2.866E-06)	2.866E-06	( 2.866E-06)	2.866E-06	( 2.866E-06)
3.981E+01	1.005E-06	( 1.005E-06)	1.005E-06	( 1.005E-06)	1.005E-06	( 1.005E-06)
6.310E+01	3.617E-07	( 3.617E-07)	3.617E-07	( 3.617E-07)	3.617E-07	( 3.617E-07)
1.000E+02	1.335E-07	( 1.335E-07)	1.335E-07	( 1.335E-07)	1.335E-07	( 1.335E-07)
1.585E+02	5.033E-08	( 5.033E-08)	5.033E-08	( 5.033E-08)	5.033E-08	( 5.033E-08)
2.512E+02	1.929E-08	( 1.929E-08)	1.929E-08	( 1.929E-08)	1.929E-08	( 1.929E-08)
3.981E+02	7.488E-09	( 7.488E-09)	7.488E-09	( 7.488E-09)	7.488E-09	( 7.488E-09)

ELECTRON DENSITY IN CM\*\*(-3) = 3.162E+16 DLAMBDA/DALPHA = 1.251E+02

TEMPERATURE IN K = 3.981E+04

RO/DEBYE (ELECTRONS) = 2.531E-01

PROTONS			HELIUM+		ARGON+	
DALPHA	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY
0.000E-01	3.633E+00	( 3.633E+00)	3.407E+00	( 3.407E+00)	3.318E+00	( 3.318E+00)
1.585E-03	3.642E+00	( 3.642E+00)	3.418E+00	( 3.418E+00)	3.331E+00	( 3.331E+00)
2.512E-03	3.659E+00	( 3.659E+00)	3.439E+00	( 3.439E+00)	3.353E+00	( 3.353E+00)
3.981E-03	3.700E+00	( 3.700E+00)	3.489E+00	( 3.489E+00)	3.407E+00	( 3.407E+00)
6.310E-03	3.794E+00	( 3.794E+00)	3.605E+00	( 3.605E+00)	3.531E+00	( 3.531E+00)
1.000E-02	3.990E+00	( 3.990E+00)	3.845E+00	( 3.845E+00)	3.790E+00	( 3.790E+00)
1.585E-02	4.322E+00	( 4.322E+00)	4.252E+00	( 4.252E+00)	4.227E+00	( 4.227E+00)
2.512E-02	4.660E+00	( 4.660E+00)	4.678E+00	( 4.678E+00)	4.687E+00	( 4.687E+00)
3.981E-02	4.517E+00	( 4.517E+00)	4.576E+00	( 4.576E+00)	4.599E+00	( 4.599E+00)
6.310E-02	3.391E+00	( 3.391E+00)	3.426E+00	( 3.426E+00)	3.438E+00	( 3.438E+00)
1.000E-01	1.795E+00	( 1.795E+00)	1.805E+00	( 1.805E+00)	1.808E+00	( 1.808E+00)
1.585E-01	6.986E-01	( 6.986E-01)	7.001E-01	( 7.001E-01)	7.007E-01	( 7.007E-01)
2.512E-01	2.313E-01	( 2.313E-01)	2.313E-01	( 2.313E-01)	2.313E-01	( 2.313E-01)
3.981E-01	7.360E-02	( 7.360E-02)	7.353E-02	( 7.353E-02)	7.351E-02	( 7.351E-02)
6.310E-01	2.335E-02	( 2.335E-02)	2.335E-02	( 2.335E-02)	2.334E-02	( 2.334E-02)
1.000E+00	7.431E-03	( 7.431E-03)	7.430E-03	( 7.430E-03)	7.428E-03	( 7.428E-03)
1.585E+00	2.323E-03	( 2.323E-03)	2.323E-03	( 2.323E-03)	2.323E-03	( 2.323E-03)
2.512E+00	7.318E-04	( 7.318E-04)	7.318E-04	( 7.318E-04)	7.318E-04	( 7.318E-04)
3.981E+00	2.350E-04	( 2.350E-04)	2.350E-04	( 2.350E-04)	2.350E-04	( 2.350E-04)
6.310E+00	7.623E-05	( 7.623E-05)	7.623E-05	( 7.623E-05)	7.623E-05	( 7.623E-05)
1.000E+01	2.506E-05	( 2.506E-05)	2.506E-05	( 2.506E-05)	2.506E-05	( 2.506E-05)
1.585E+01	8.382E-06	( 8.382E-06)	8.382E-06	( 8.382E-06)	8.382E-06	( 8.382E-06)
2.512E+01	2.866E-06	( 2.866E-06)	2.866E-06	( 2.866E-06)	2.866E-06	( 2.866E-06)
3.981E+01	1.005E-06	( 1.005E-06)	1.005E-06	( 1.005E-06)	1.005E-06	( 1.005E-06)
6.310E+01	3.617E-07	( 3.617E-07)	3.617E-07	( 3.617E-07)	3.617E-07	( 3.617E-07)
1.000E+02	1.335E-07	( 1.335E-07)	1.335E-07	( 1.335E-07)	1.335E-07	( 1.335E-07)
1.585E+02	5.033E-08	( 5.033E-08)	5.033E-08	( 5.033E-08)	5.033E-08	( 5.033E-08)
2.512E+02	1.929E-08	( 1.929E-08)	1.929E-08	( 1.929E-08)	1.929E-08	( 1.929E-08)
3.981E+02	7.488E-09	( 7.488E-09)	7.488E-09	( 7.488E-09)	7.488E-09	( 7.488E-09)



Table 2.2. continued

ELECTRON DENSITY IN CM\*\*(-3) = 3.162E+16 DLAMBDA/DALPHA = 1.251E+02

TEMPERATURE IN K = 7.943E+04  
R0/DEBYE (ELECTRONS) = 1.792E-01

PROTONS			HELIUM+		ARGON+	
DALPHA	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY	CONVOLVED	STARK ONLY
0.000E-01	3.650E+00	( 3.650E+00)	3.383E+00	( 3.383E+00)	3.277E+00	( 3.277E+00)
1.585E-03	3.661E+00	( 3.661E+00)	3.396E+00	( 3.396E+00)	3.292E+00	( 3.292E+00)
2.512E-03	3.679E+00	( 3.679E+00)	3.419E+00	( 3.419E+00)	3.316E+00	( 3.316E+00)
3.981E-03	3.723E+00	( 3.723E+00)	3.474E+00	( 3.474E+00)	3.376E+00	( 3.376E+00)
6.310E-03	3.825E+00	( 3.825E+00)	3.600E+00	( 3.600E+00)	3.512E+00	( 3.512E+00)
1.000E-02	4.035E+00	( 4.035E+00)	3.860E+00	( 3.860E+00)	3.792E+00	( 3.792E+00)
1.585E-02	4.381E+00	( 4.381E+00)	4.291E+00	( 4.291E+00)	4.258E+00	( 4.258E+00)
2.512E-02	4.724E+00	( 4.724E+00)	4.736E+00	( 4.736E+00)	4.743E+00	( 4.743E+00)
3.981E-02	4.572E+00	( 4.572E+00)	4.636E+00	( 4.636E+00)	4.663E+00	( 4.663E+00)
6.310E-02	3.421E+00	( 3.421E+00)	3.464E+00	( 3.464E+00)	3.480E+00	( 3.480E+00)
1.000E-01	1.792E+00	( 1.792E+00)	1.807E+00	( 1.807E+00)	1.812E+00	( 1.812E+00)
1.585E-01	6.813E-01	( 6.813E-01)	6.842E-01	( 6.842E-01)	6.851E-01	( 6.851E-01)
2.512E-01	2.208E-01	( 2.208E-01)	2.209E-01	( 2.209E-01)	2.209E-01	( 2.209E-01)
3.981E-01	6.947E-02	( 6.947E-02)	6.559E-02	( 6.559E-02)	6.559E-02	( 6.559E-02)
6.310E-01	2.207E-02	( 2.207E-02)	2.112E-02	( 2.112E-02)	2.112E-02	( 2.112E-02)
1.000E+00	7.084E-03	( 7.084E-03)	6.881E-03	( 6.881E-03)	6.881E-03	( 6.881E-03)
1.585E+00	2.246E-03	( 2.246E-03)	2.246E-03	( 2.246E-03)	2.246E-03	( 2.246E-03)
2.512E+00	7.321E-04	( 7.321E-04)	7.321E-04	( 7.321E-04)	7.321E-04	( 7.321E-04)
3.981E+00	2.350E-04	( 2.350E-04)	2.350E-04	( 2.350E-04)	2.350E-04	( 2.350E-04)
6.310E+00	7.623E-05	( 7.623E-05)	7.623E-05	( 7.623E-05)	7.623E-05	( 7.623E-05)
1.000E+01	2.506E-05	( 2.506E-05)	2.506E-05	( 2.506E-05)	2.506E-05	( 2.506E-05)
1.585E+01	8.382E-06	( 8.382E-06)	8.382E-06	( 8.382E-06)	8.382E-06	( 8.382E-06)
2.512E+01	2.866E-06	( 2.866E-06)	2.866E-06	( 2.866E-06)	2.866E-06	( 2.866E-06)
3.981E+01	1.005E-06	( 1.005E-06)	1.005E-06	( 1.005E-06)	1.005E-06	( 1.005E-06)
6.310E+01	3.617E-07	( 3.617E-07)	3.617E-07	( 3.617E-07)	3.617E-07	( 3.617E-07)
1.000E+02	1.335E-07	( 1.335E-07)	1.335E-07	( 1.335E-07)	1.335E-07	( 1.335E-07)
1.585E+02	5.033E-08	( 5.033E-08)	5.033E-08	( 5.033E-08)	5.033E-08	( 5.033E-08)
2.512E+02	1.929E-08	( 1.929E-08)	1.929E-08	( 1.929E-08)	1.929E-08	( 1.929E-08)
3.981E+02	7.488E-09	( 7.488E-09)	7.488E-09	( 7.488E-09)	7.488E-09	( 7.488E-09)

