FINAL TECHNICAL REPORT

NASA AMES GRANT NGR 37-008-003

JANUARY 1972 TO AUGUST 1974

(NASA-CR-139659) ENERGY TRANSFER IN VOLUME-REFLECTING HEAT SHIELDS Final Technical Report, Jan. 1972 - Aug. 1974 (Tulsa Univ.) 75 p HC $6.75 CSCL 20M

N74-32372

Unclas

G3/33 46881

ENERGY TRANSFER IN VOLUME-REFLECTING HEAT SHIELDS

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Volume reflecting materials constitute a class of dielectrics which are capable of a high level of internal scattering such that a significant fraction of an incident flux emerges from the incident flux surface. As such the primary modes of energy transfer in these materials are conductive and radiative transfer. The research performed under this grant has focussed on the calculation of radiative transfer in highly scattering materials, both by exact and approximate means, and the interaction of radiative transfer in such materials with the conduction mechanism, in both steady and transient modes.

An approximate analysis of radiative transfer in highly scattering materials was developed based on the Kubelka-Munk differential equations--a set of two differential equations representing the spatial rate of change of radiative half-fluxes within the scattering media. These approximate solutions of the Kubelka-Munk equations together with analytic solutions for the steady state temperature distribution for two types of boundary conditions are given in reference 1. These solutions show the influence of back surface reflectance, scattering power, incident radiative flux parameter and boundary conductive flux parameter on overall reflectance and temperature distributions. This radiation field analysis, adapted to spherical geometry, was applied in reference 2 to the evaluation of the thermal performance of teflon and fritted quartz as heat protection materials for entry into the atmosphere of Jupiter.

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*The NASA Technical Officer for this grant is Dr. Phillip R. Nachtsheim, NASA Ames Research Center, Moffett Field, California 94035.

Two exact analytic solutions for transient temperature distributions in non-emitting, plane parallel, diffuse reflectors were developed based on the approximate radiation field model presented in reference 1. The first of the initial-boundary value problems considered (reference 3) deals with transient development of the steady state solutions for the temperature in highly scattering media presented in reference 1. The solution proceeds from an initially uniform temperature distribution with an instantaneous change in temperature at one boundary and a zero conductive flux at the other boundary. The theory is applied to the transient heating of a 1 cm. quartz slab in reference 3. Results obtained are similar to those presented in reference 2 for the more complex case of cylindrical geometry. However, the solution is much simpler for the plane parallel geometry. Reference 3 also presents an evaluation of the adequacy of the Kubelka-Munk reflectance solution for zero absorption when applied to the determination of the reflectance of highly scattering and weakly absorbing media. The importance of using accurate overall reflectance values in the solution is demonstrated. The influence of rear surface reflectance, scattering power, and absorption coefficient-scattering coefficient ratio on overall media reflectance is also briefly discussed based on the Kubelka-Munk theory in reference 3.

The second analytic solution referred to above treats the more involved unsteady temperature development arising from specified constant radiative and conductive fluxes at one boundary and vanishing temperature gradient at the other boundary (reference 5). It was shown that the solutions increase or decrease in time monotonically for a given incident radiative flux depending on the value of the boundary conductive heat flux. A relation was also obtained defining a singular condition for which a steady state exists. This relation obtained by study of the analytic solution may also be obtained by means of a steady state energy balance on the diffuse reflector. Sample results showing unsteady temperature development for cases of asymptotically increasing and decreasing temperature and for the critical case are also presented in reference 4. Some of the details of the analyses not presented in references 3 and 4 are given in reference 5.

While approximate solutions such as those discussed above are useful in making rapid estimates in preliminary design and in guiding qualitative thought, more precise representations of radiative transfer and temperature fields may be required for design purposes. Toward this end a method of coupling solutions of the equation of radiative transfer and energy equation was developed (reference 6). This complex technique, utilizing the method of idempotents to generate a quasi-steady radiation field, determines an instantaneous temperature field by solving the thermal energy equation (including radiative flux divergence term) using an explicit finite difference scheme. The resulting temperature field then couples with the radiative transfer solution through radiative emission. The method was applied to the analysis of the transient development of the coupled, steady state temperature and radiation field distributions between two opaque, partially reflecting boundaries. The intervening media were allowed participation in the energy exchange through the mechanisms of radiative absorption, emission and isotropic scattering and through the mechanism of thermal conduction. Reference 6 shows that this method accurately reproduces transient, non-scattering results in the literature as special cases. The method was also used to generate steady state results for comparison with existing isotropic scattering solutions in the literature. Reference 7, an extension and refinement of the work of reference 6, presents previously unavailable transient solutions for the plane-parallel radiation field problem in which isotropic scattering is present. These parametric studies of the influence of the effects of optical thickness, albedo, boundary emissivity and conduction-radiation parameter on the temperature and energy flux distributions in semi-transparent media may be regarded as exact, within the limitations of the spatial and directional discretization inherent in the explicit finite difference representation of the energy equation and the Gaussian Quadrature representation of the transfer equation scattering integral. The very complex computer program developed to obtain these solutions was given the acronym CURCES for the Combined Unsteady Radiative and Conductive Energy System. A listing of the program is given in an appendix of reference 6.

While the CURCES program provided the milestone in unsteady coupled radiati[illegible] and conductive energy transfer published in reference 7, it was cumbersome to use and lacked flexibility for adaptation to more complex problems. For instance, the idempotent method used in CURCES is mathematically incompatible with spatially varying radiative property distributions. As a result further solutions of the radiative transfer equation were obtained through the develop ment of a series of programs using an iterative technique and therefore bearing the acronym ITERAD for Iteration of Radiation. A discussion of the basic solution method and its convergence is given in reference 8. A comparison of the reflectance of a specific diffuse reflector as computed by the CURCES and ITERAD programs is given in Table 1.

TABLE 1

Number of Ordinates	Reflectance*	
	CURCES	ITERAD
2	.8678	.8672
4	.8649	.8646
6	.8637	.8633
8	.8632	.8627
10	—	.8625
12	—	.8623
14	—	.8622

*Albedo = .9995, Optical Thickness 3.177, Rear Surface Reflectance = 0.8

It is clear that the two sets of results agree very well and demonstrate the improvement in accuracy and diminishing returns associated with increasing quadrature order. These results may also be compared with the value .875 obtained from the Kubelka-Munk equation (5) of reference 1. Further evidence of the consistency of the CURCES and ITERAD programs is shown in figure 2 of reference 8. There individual radiation field intensity distributions inside a highly scattering medium calculated by the two methods are shown to be in very good agreement. Reference 8 also shows good agreement of ITERAD reflectance calculations with values from the literature over a wide range of radiation parameters.

Through adaptation of the ITERAD program a study of the influence of anisotropy on the reflectance and internal radiation field of a highly scattering material was made. Some results of this study for the phase function: $P(\theta) = \omega[1 + x\cos\theta]$ are given in reference 8. Here ω is the scattering albedo, θ is the angle between incoming and outgoing beams and x is an anisotropy parameter such that one obtains

net backward scattering for	$-1.0 \leq x < 0$
isotropic scattering for	$x = 0$
net forward scattering for	$0 < x \leq 1.0$

The results demonstrate that net forward scattering allows the penetration of radiation to greater depths than isotropic scattering and causes greater internal energy conversion to thermal energy through media and rear surface absorption. The reverse effect is obtained for net backward scattering. As might be expected backward scattering increases overall reflectance while forward scattering decreases reflectance. Reference 8 shows the influence of anisotropy of scattering on the radiative flux and radiative flux divergence distributions as well as on the intensity field.

An extensive effort was put forward in this program to evaluate two flux theories with respect to the transfer equation. It is demonstrated in reference 8 that the Schuster-Schwarzschild two-flux equations may be obtained by integration of the equation of radiative transfer over two hemispheres for which the radiation field is given by

$$I(\tau,\mu) = \begin{cases} I^{+}(\tau), & \mu > 0 \\ I^{-}(\tau), & \mu < 0 \end{cases}$$

It is shown that the Kubelka-Munk equations are identical to the Schuster-Schwarzschild equations when a simple set of relations exist between the scattering and absorption coefficients of the two theories. It is pointed out in reference 8 that the relations between the coefficients of the two theories depend on the nature of the intensity field. A case in the literature is cited for which a different set of relations is obtained.

Computations are presented in reference 8 which compare transfer equation solutions with reflectance, radiative flux, and flux divergence obtained from Kubelka-Munk analyses. It is demonstrated that the Kubelka-Munk two-flux analysis is capable of reasonable approximation of transfer equation results. The approximate radiative flux and radiative flux divergence relations of reference 1 are shown to be accurate only for albedo very near unity. The influence of the relation between the transfer equation parameters and the Kubelka-Munk coefficients on the radiative calculation comparison is also examined.

The iteration procedure for solving the transfer equation was applied to the determination of the radiation field and related parameters for a scattering medium with non-unity refractive index. A detailed study (reference 9) showed that certain calculations in the literature had significant errors because of the poor approximation of the scattering integral with the standard Gaussian quadrature. There it was shown using an approximate model and verified using transfer equation solutions that direct application of Gaussian quadrature to the evaluation of the scattering integral can result in large errors in certain cases. This occurs because of the presence of a discontinuity at the critical angle for total internal reflection. Application of the model also showed that the error for a given quadrature order is not necessarily a monotonic function of the index of refraction and that it is possible under certain conditions to increase rather than decrease error by increasing quadrature order. Reference 9 also shows the significant error reduction possible by tailoring the quadrature approximation of the scattering integral to the critical angle for total internal reflection. The model of reference 9 is also briefly applied to demonstrate that no error exists in the scattering integral as a result of the discontinuity at $\mu = 0$ in the unity refractive index radiation field.

A study of several alternatives for application of Gaussian quadratures to avoid the discontinuity error pointed out in reference 9 is reported in reference 10. There, by extrapolation of an increasingly accurate sequence of transfer equation reflectance values, precise values are obtained which are employed to evaluate the adequacy for discontinuity error avoidance of several Gaussian quadrature combinations involving sixteen total directions. It was found that the combination of fifth order quadrature in each of the forward and rearward critical cones and sixth order quadrature outside yields the most accurate reflectance solutions for sixteen total directions (on the average). As a result the transfer equation iteration program was revised to incorporate this combination. A number of solutions have been obtained with the revised program for refractive indices of 1.2 and 1.4. Reflectance values for layers of finite optical thickness and refractive indices of 1.2 and 1.4 are tabulated in reference 10 along with a comparison of unity refractive index reflectances from several sources. This collection is the first comparison of several sources of unity refractive index reflectances, and the first tabulation of non-unity refractive index reflectances for the conditions considered, which is known to the principal investigator.

A final version of the transfer equation iteration program was developed which incorporated all the features in prior iteration programs as discussed above as well as certain other useful features. These features include a capability of treating composite plane layers with several differing values of absorption and scattering coefficient and a capability of treating radiation problems with non-gray incident flux distributions and property distributions. This program called the Band Model Program is discussed in the accompanying appendix. A listing of the program and several test cases demonstrating the band model capability and the spatial property variation capability are included there.

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APPENDIX

FINAL BAND MODEL PROGRAM DESCRIPTION

By Daniel W. Drago

Over the past few years at the University of Tulsa, a program has been designed and developed to approximate the solution of the transfer equation as it applies to a scattering, absorbing, emitting, plane-parallel, semi-infinite slab subject to a diffuse, incident, radiative flux.* The slab is bounded on the rear by a specularly reflecting surface which is modeled using either uniform or Fresnel reflectance. The temperature distribution in the slab may be an arbitrarily specified function or constant. This program does not analyze changes in the temperature field over time but could easily be modified to do so.

The incident radiative flux and subsequent solutions of the internal radiation field may be divided into several band widths to allow for wave length differentials in the absorption scattering characteristics of the slab and for band-dependent values of the incident flux. The slab may also be modeled with several different layers of materials to study the reflective behavior of a composite slab. This program uses Gaussian quadrature for the approximation of the scattering integrals and the overall reflectance of the slab. The program computes the beam intensities at equally spaced stations, or nodes, throughout the slab. The output contains the iterated beam intensities for all stations within the slab as well as the net radiative flux and net radiative flux divergence for all nodes. The program is able to handle

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*A discussion of the theory, program equations, convergence and results are given in Radiative Transfer in Highly Scattering Materials - Numerical Solution and Evaluation of Approximate Analytic Solutions" by Kenneth C. Weston, et al.

non-unity index of refraction cases and either isotropic or non-isotropic scattering.

The best way to describe this program's capabilities and limitations is to present its necessary input and resultant output. Three special cases have been run and are discussed below as representative of the various output formats. Immediately below is a description of all input data including their programmed range of values (the order of presentation corresponds to the instructions found on the first page of the program listing):

NDS - One of the most crucial decisions when setting up the data is the number of nodes to use for the slab. In an earlier paper (see footnote on page 1), the minimum number of nodes was found to be dependent on the optical thickness of the slab, its albedo, and the quadrature used:

$$NDS \geq 1 + \tau_o \left(\frac{1 - a_i\, \omega/2}{|\mu_i|}\right) \text{ for all } i. \tag{A1}$$

As an example, with unity index of refraction (this program uses 16th quadrature when the index is one), $\omega = .9995$, and $\tau_o = 5$, a minimum of 49 nodes would be necessary to obtain a smooth convergent solution. It has been our experience, however, that accuracy of the solution increases as the number of nodes is increased. It is suggested to use 2 to 3 times the minimum number from (A1) to insure high accuracy. Range: 11 → 751 in increments of 10.

THICK - The depth of the slab is arbitrary as long as the necessary optical thickness is maintained. Constant values of the scattering and absorption coefficients may be used for a variety of different optical depths with the only necessary adjustment to the data being in the thickness of the slab. For a multi-layer analysis, the slab is divided into five layers, each having a depth of 1/5 of THICK. Range: greater than zero.

TOL - The program iterates back and forth through the slab solving for new values of the intensity field until the sum of the squares of the differences between the old and new values (PARAM) is less than the set tolerance (TOL). For no changes in the fifth significant digit in the field a tolerance of 10^{-10} is necessary. Range: greater than zero.

TEST - The program will abort if it reaches TEST iterations before obtaining a solution. Through some careless input of data a non-convergent situation may be encountered which would lead to an infinite loop. TEST terminates computations in this event. This variable may also be set to a very small number to determine initially if the input data is in need of adjustment before making a long, expensive run. Range: greater than zero.

PRINT - For the standard case the output contains information only from the last iteration. One of the bands may be designated as a special band which informs the computer to print the information for the first, second, every PRINT, and the final iteration. For example, if PRINT = 10 and the computed PARAM became less than TOL on the 53rd iteration, the program would print out all data on the following iterations: 1, 2, 10, 20, 30, 40, 50, and 53. Range: Greater than zero.

NONDM - Dimensionless data may be requested and will only appear for the final iteration. Beam intensities are divided by the incident beam intensity. Radiative flux is divided by the incident flux. Flux divergence is divided by the absorption coefficient-incident flux product. In the case of different values for the absorption coefficient through the slab, the dimensionless values for the flux divergence will be based on the coefficient for the 5th, or bottom, layer. Range: 0 or 1.

BNDS - This variable tells the computer which bands to run and which one is a special band. If only a single standard band is being run, this card would contain a "1" in the first column. If the first, second, and fourth bands were to be run with the second band as special, the data would be "1201". This data must be left justified on the card. Range: 0, 1, or 2 for each of 10 bands.

TEMPD - This sets the temperature distribution through the slab. Four options are available: 1) The temperature at the front wall is used through the slab with the back wall temp independently set; 2) The back wall temp is used throughout with the front wall independently set; 3) The temperature falls or rises linearly from the front to the rear surface temp; and 4) The temperature for each node is individually read in. The first three options require reading in only the front and rear surface temperature while the fourth requires temperatures for all nodes. Range: Integers one through four.

ISOT - The scattering function is set by this variable. (See paper listed in page 1 footnote) Maximum forward scattering is achieved by a value of +1 while max backwards is -1. Isotropic scattering occurs when this variable is 0. "K" on the same card determines whether this variable is read in for each layer of the slab or whether the first value is repeated for all 5 layers. Range: -1 to +1.

N - The index of refraction outside the front boundary is assumed to be 1. The slab itself may take on a different index which may be band-dependent. Range: Greater or equal to 1.0.

RB - This data may be used for either uniform or Fresnel back surface reflection. The value of K determines which back surface condition is used and whether one value is used for the slab or ten band-dependent values are read in. If the Fresnel relationship is used, the real component (NI) and the imaginary component (KI) of the substrate refractive index must both be read in. The program also checks to see if the Fresnel components are within the range prescribed for the approximation the program utilizes in this case, and will flag the output if the data is out of range. Range: For RB, 0 → 1; for NI and KI, positive.

QO - The band-dependent incident flux may be set for any value greater than zero.

LAMBDA - This is the upper wave length limit in centimeters of a particular band. The program finds the lower limit to the band from the data on the previous band (for the first band it assumes a lower limit of zero). The width of the band determines the amount of energy introduced into the slab by emission in that particular band. Range: $0 \rightarrow 10^{70}$.

ABSCO - The absorption coefficient may be any non-negative value.

SCATCO The scattering coefficient may also be any non-negative value. As described in the program listing, a set of the last few cards must be read in for each band up to the largest band number referred to in BNDS. For example, if BNDS contains "101201" information must be read in for all of the first six bands.

The program listing contains further explanation on the format of the input data cards and their order. Unless otherwise stated one card must be used for each card number referred to in the listing. 8A and B must be separate cards from 8. The data on the first six cards may be punched in any format but should be left justified.

The final form of the program is presented below. This has been run on a XEROX SIGMA 5 with FORTRAN IV. Necessary adjustments must be made to the input/output statements before the program may be used on another system. Comment cards have been inserted strategically in the program to assist the alert and courageous user attempting to understand the logic behind the statements.

Three test cases are also presented below as an aid to understanding the various output formats. The first case involves two bands with different indices of refraction. In this particular case the data for two cases was identical except for the index of refraction and as such were combined into one slab with the individual band output studied. Looking at the output, the data common to all bands is printed out first along with the number of the different bands to be run. The temperature for each node is printed next as a double check for the programmer. The scattering characteristic ISOT is printed for each layer followed by the units for the beam intensities, flux, and flux divergence.

The next page of the output starts with the data peculiar to Band 1. The absorption (K) and scattering (S) coefficients are printed by layer. The Gaussian directions and weights for the eight forward directed beams are printed out since they are a function of the index of refraction (because the program incorporates discontinuity error avoidance). With non-unity index of refraction three quadrature formulae are used to avoid discontinuity errors (as discussed in Appendix B of the Semi-Annual Status report for the period January to June 1974).

The wave length interval is computed as described above. The input data is read in centimeters and internally converted to microns.

F(0 - LT) describes the black body fraction of the emission at each node for this band. Since this fraction is dependent on temperature and band width, all the nodes are printed. In the case of zero temperature, garbage may appear in this output although this in no way affects the accuracy of the calculation of the intensity field.

CRT is the cosine of the critical angle for total internal reflection at the front boundary while CRTDG is CRT converted to degrees.

RFLI is the reflectance on the inside surface for each of the eight Gaussian directions as printed out above. RFLO is the reflectance on the outside of the slab as computed for each direction corresponding to a single 16th order quadrature application. The reason for the difference between the quadrature formulae directions for RFLO and RFLI will be discussed below.

Information on the final iteration is printed next. Since this is a standard case, only every 10th node is printed. From 1 to 101 are listed the intensities of the forward directed beams and from 101 to 1, those for the backward directed beams. II corresponds to the beam intensity in the first Gaussian direction. PARAM is printed to double check that the solution did converge to the desired accuracy.

The dimensionless data is also printed for only every 10th node. This calculation is followed by a reflectance field calculation, with the following explanation: The Gaussian quadrature combination printed at the beginning of this band output was calculated so as to avoid a large error associated with the critical angle of total internal reflection. The reflectance field calculation (only used with non-unity index of refraction) uses the 16 internal directions corresponding to the 16 external directions in 16th order quadrature. The program iterates across these new directions within the already established intensity distribution. This is done to calculate, by using RFLO, the value of the reflected beams on the outside of the slab in those directions corresponding to 16th order quadrature so that the intensities may be readily integrated into a very accurate estimate of the overall slab reflectance. Immediately following this print out is the dimensionless value of the intensity field on the outside of the slab in the eight backward directions. From this the band-dependent slab reflectance is calculated and printed. This reflectance value is saved from each band to form an overall reflectance for the slab.

On the next pages of the output the data for the second band, which follows the format described above for the first band,is given. Note that the Gaussian directions and weights are not the same for the two bands.

The second special case was run to test the composite data from a multi-band slab analysis. The incident flux for each band was chosen such that the composite data corresponds to a single black band case with 459.646 watts/cm^2 incident flux. A comparison was made with a previously run single black band case and the two were found to match well within allowable errors. Also in this test case the second band was run as a special band to demonstrate the output format for a special band. The output starts with the special band information. Note here that the black body fractions are non-zero due to the non-zero temperature distribution. The printout for the special case is similar to the standard except it contains the calculated reflectances across the front boundary from the outside in (RO) and the inside out (RI). Also printed is the starting routine where the Kubelka-Munk approximation is used to provide a first value for the intensity at each node from which to iterate the intensity field. The printout contains the information on all nodes for the first, second, every 7th, and final iteration, although most of these pages were left out here for brevity in the presentation.

On the following pages are the output for the first, second and third bands. Notice that the condensed information from the second, or special, band is repeated in its appropriate place in the output. After the third band the overall reflectance is printed out followed by the summed net radiative flux and net radiative flux divergence from all three bands.

In the third test case a slab is divided into two layers as described on the printout. This single band case is run as a special band so that the intensity distribution may be closely studied node by node near the interface between the layers. The dimensionless value for the final iteration is presented in its entirety since this particular case generates a most interesting intensity field.

As a rule much more detailed information is printed out on a special band than on a standard band but the computer time is proportionately longer since the printer is working longer.

The program has been diligently checked out and has shown no visible errors within the limits of the cases studied.

FINAL BAND MODEL PROGRAM

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      COMMON F,IPOS,INEG,IPOSP,INEGP,SAVE                                 BD0001
      REAL A(8),AA,A1,A2,BB,B1,B2,BET,C1,C2,C3,CRT,CRTDG,DQR(751),DQRDY,  BD001
     1DQRSAV(751),DY,DIV,DMLQR,DMLDQR,F(10,751),F1,IPOS(8,751),IPOSN,      BD002
     2INEG(8,751),IPOSP(8,751),INEGP(8,751),KI(10),KF(10,5),KKM,LAMBDA(    BD003
     310),ISOT(5),MU(8),MUP(8),MUO,MUU,N(10),OARFL,OARFL1,OARFL2,PARAM,    BD004
     4PHASE(8,8),PHASCO,PHASKO,Q(751),QT,QRR,QTP,QRP,QO(10),QOO,QRSAV(75   BD005
     51),RB(10),RBB,RIN,RFLI(8),RFLO(8),RJ,RI,R(10),RO,S,S1,SF(10,5),SIG   BD006
      REAL SAVE(308,11),SUM,SINMU,SINMUO,SKM,T(751),TBW,TFW,TK,TERM,       BD007
     1THICK,TOL,V,VALUE,Y    ,A3,A4,C4,FRFLB(10),FRFLI(10,8),FRFLO(8),     BD008
     2DML(8),KFF,SFF,NN,RF(8),MU1(8),AU1(8)                                BD0081
C
      INTEGER ABORT,BND(11),BNDS(10),I,IJ,II,IK,IL,IN,III,IJI,J,JL,JK,     BD009
     1JM,JP,JS,JT,JZ,JR,JQ,JJJ,K,KK,KJ,[redacted]KFRES,L,LL,LJ,LLL,LMT(6),MM,  BD010
     2[redacted]          NDS,NONDM,PRINT,PRTVAR,PLACE(8),TEMPD,TEST,JA     BD011
C
C
C     DATA INPUT, BY CARD
C
C  1.  NDS - NUMBER OF NODES
C
C  2.  THICK - THICKNESS IN CM
C
C  3.  TOL - PARAM TOLERANCE
C
C  4.  TEST - MAXIMUM NUMBER OF ITERATIONS
C
C  5.  PRINT - FOR SPECIAL BAND, PRINTS FIRST, SECOND, EVERY (PRINT),
C              AND LAST ITERATION
C
C  6.  NONDM - 0=NO, 1=YES
C
C  7.  BNDS - TO SET UP BANDS, 10I1, 0=DON'T WORK, 1=STANDARD, 2=SPECIAL
C
C  8.  TEMPD - TEMPERATURE DISTRIBUTION, 1=FW THROUGHOUT, BW;
C              2=FW, BW THROUGHOUT; 3=FW LINEAR BW; 4=READ IN DISTRIBUTION.
C              IF 1-3,
C   8A.  TEMPERATURE FRONT WALL
C   8B.  TEMPERATURE BACK WALL
C              IF 4,
C   8A - 8?   FRONT WALL TO BACK, BY NODE, 10F8.3
C
C  9.  K,ISOT(I1,5F10.7) = ANISOTROPY BY DEPTH. K=0, FIRST VALUE REPEATED,
C                          K=1, ALL 5 VALUES ON CARD.
C
C 10.  K,N(I1,10F7.3) - INDEX OF REFRACTION OF MEDIUM BY BAND.   K AS ABOVE.
C
C 11.  K,RB(I1,10F7.3) - RB, OR NI IF USING FRESNEL RELATIONSHIPS, BOTH BY BAND.
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      C            K = 0, NO REPEATED.  K = 1, NO READ IN FOR ALL 10 VALUES
      C            K = 2, NI AND KI REPEATED, ALTHOUGH KI ON SECOND CARD (10F7.3).
      C            K = 3, NI READ IN, KI REPEATED.  K = 4, NI REPEATED, KI READ IN.
      C            K = 5, NI AND KI READ IN.
      C
      C  NOTE:  CARDS 12, 13, AND 13A (IF REQUIRED) MUST BE REPEATED FOR EACH BAND(J).
      C
      C 12.  K,Q0(J),LAMBDA(J)(I1,F15.7,E10.5) = INCIDENT RADIATIVE FLUX AND UPPER
      C                          LIMIT OF BAND.
      C
      C 13.  KF(J)(5F10.6) = ABSCO,SCATCO.  USING THE K FROM CARD 12,
      C            K=0, ONE VALUE FOR EACH ON THIS CARD; K=1, ONE VALUE FOR ABSCO,
      C            5 VALUES FOR SCATCO ON NEXT CARD(5F10.6); K=2, 5 VALUES FOR ABSCO,
      C            ONE VALUE FOR SCATCO ON SECOND CARD;  K=3, 5 VALUES FOR EACH.
      C
      C
      C 14.  LAST CARD = MUST HAVE '4' IN FIRST COLUMN OF FIRST CARD, FOLLOWED BY
      C            BLANK CARD.
      C
      C
            DATA MU(1),MU(2),MU(3),MU(4)/.09501250984,.28160355078,.4580167776  BD012
           16,.61787624440/                                                     BD013
            DATA MU(5),MU(6),MU(7),MU(8)/.75540440836,.86563120239,.9445750230  BD014
           17,.98940093499/                                                     BD015
            DATA A(1),A(2),A(3),A(4)/.18945061046,.18260341504,.16915651940,    BD016
           1.14959598882/                                                       BD017
            DATA A(5),A(6),A(7),A(8)/.12462897126,.09515851168,.06225352394,    BD018
           1.02715245941/                                                       BD019
            S = 5.6699E-12                                                      BD020
            DO 415I = 1,8                                                       BD0201
            MU1(I) = MU(I)                                                      BD0202
        415 AU1(I) = A(I)                                                       BD0203
            OARFL1 = 0.                                                         BD030
            OARFL2 = 0.                                                         BD031
            ABORT = 0                                                           BD032
            INPUT NDS,THICK,TOL,TEST,PRINT,NONDM                                BD033
            OUTPUT NDS,TOL,TEST,PRINT,NONDM                                     BD034
            PRINT 901,THICK                                                     BD0341
        901 FORMAT(1X,'THICK =',F8.5,' CM')                                     BD0342
            DO 400I = 1,NDS                                                     BD035
            QRSAV(I) = 0.                                                       BD036
        400 DQRSAV(I) = 0.                                                      BD037
      C
      C  SET UP BANDS.
      C
            READ 1,BNDS                                                         BD038
        1   FORMAT(10I1)                                                        BD039
            IJ = 1                                                              BD040
            BND(1) = 0                                                          BD041
            DO 2I = 2,11                                                        BD042
            NI(I - 1) = 0.                                                      BD0421
```

```
              BND(I) = 0                                                  BD043
              IF(BNDS(I - 1) - 1)2,3,4                                    BD044
          4   BND(1) = I - 1                                              BD045
          3   BND(IJ + 1) = I - 1                                         BD046
              IJ = IJ + 1                                                 BD047
          2   CØNTINUE                                                    BD048
              II = 2                                                      BD049
              IF(BND(1))7,7,6                                             BD050
          6   II = 1                                                      BD051
              IF(IJ - 2)5,5,7                                             BD052
          5   IJ = 1                                                      BD053
              BND(2) = 0                                                  BD054
          7   PRINT 8,BNDS,(BND(I),I = 1,IJ)                              BD055
          8   FØRMAT(' BNDS = ',10I1/'    SPECIAL ==',I2,'  STANDARD ==',10I3/)   BD056
      C
      C  SET UP TEMPERATURE DISTRIBUTIØN
      C
              INPUT TEMPD                                                 BD057
              ØUTPUT TEMPD                                                BD058
              IF(TEMPD - 3)9,9,10                                         BD059
          9   INPUT TFW,TBW                                               BD060
              T(1) = TFW                                                  BD061
              T(NDS) = TBW                                                BD062
              IF(TEMPD - 2)11,12,13                                       BD063
         11   TK = TFW                                                    BD064
              GØ TØ 14                                                    BD065
         12   TK = TBW                                                    BD066
         14   DØ 15I = 2,NDS-1                                            BD067
         15   T(I) = TK                                                   BD068
              GØ TØ 16                                                    BD069
         13   TK = (TFW - TBW)/(NDS - 1.)                                 BD070
              DØ 17I = 2,NDS - 1                                          BD071
         17   T(I) = T(I - 1) - TK                                        BD072
              GØ TØ 16                                                    BD073
         10   READ 18,(T(I),I = 1,NDS)                                    BD074
         18   FØRMAT((10F8.3))                                            BD075
         16   PRINT 19,(T(I),I = 1,NDS)                                   BD076
          19 FØRMAT(' TEMP = ',10F9.3/1X,'(KELVIN)'/(8X,10F9.3/))         BD077
      C
      C  SET UP ANISØTRØPY DISTRIBUTIØN
      C
              READ 20,K,ISØT                                              BD078
         20   FØRMAT(I1,5F10.7)                                           BD079
              IF(K)21,21,22                                               BD080
         21   DØ 23I = 2,5                                                BD081
         23   ISØT(I) = ISØT(1)                                           BD082
         22   PRINT 24,ISØT                                               BD083
         24   FØRMAT(' ISØT = ',5F11.7/)                                  BD084
      C
      C  SET UP INDEX ØF REFRACTIØN
      C
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```
       READ 26,K,N                                                    BD085
   26  FØRMAT(I1,10F7.3)                                              BD086
       IF(K)27,27,28                                                  BD087
   27  DØ 29I = 2,10                                                  BD088
   29  N(I) = N(1)                                                    BD089
C
C  SET UP RB
C
   28  READ 32,K,RB                                                   BD090
   32  FØRMAT(I1,10F7.3)                                              BD091
       KFRES = K                                                      BD0919
       IF(K - 1)33,34,36                                              BD0920
   36  READ 37,KI                                                     BD0921
   37  FØRMAT(10F7.3)                                                 BD0922
       IF(K - 5)30,42,42                                              BD0922
   30  IF(K - 3)38,39,38                                              BD0923
   38  DØ 40I = 2,10                                                  BD0924
   40  RB(I) = RB(1)                                                  BD0925
       IF(K - 4)39,42,39                                              BD0926
   39  DØ 41I = 2,10                                                  BD0927
   41  KI(I) = KI(1)                                                  BD0928
   42  PRINT 43                                                       BD0929
   43  FØRMAT(1X//' FRESNEL"S CRITERIA'//' BAND   VALUE'/)            BD0930
       DØ 44I = 1,10                                                  BD0931
       IF(N(I))44,44,63                                               BD0932
   63  IF(RB(I))44,44,64                                              BD0933
   64  VALUE = (RB(I)*RB(I) + KI(I)*KI(I))**.5/N(I)                   BD0934
       IF(VALUE - 3.3)72,72,73                                        BD0935
   72  PRINT 74,I,VALUE                                               BD0936
   74  FØRMAT(2X,I2,3X,F7.2,'  NØTE:  ØUT ØF RANGE ØF FRESNEL APPRØXIMATI BD0937
      1ØN')                                                           BD0937
       GØ TØ 44                                                       BD0938
   73  PRINT 79,I,VALUE                                               BD0939
   79  FØRMAT(2X,I2,3X,F7.2)                                          BD0940
   44  CØNTINUE                                                       BD0941
       GØ TØ 34                                                       BD0952
   33  DØ 35I = 2,10                                                  BD0953
   35  RB(I) = RB(1)                                                  BD0954
C
C  SET UP BAND DATA
C
   34  J = 1                                                          BD0955
   62  READ 45,K,QØ(J),LAMBDA(J),(KF(J,I),I = 1,5)                    BD096
   45  FØRMAT(I1,F15.7,E10.5/5F10.6)                                  BD097
       IF(K - 4)60,61,61                                              BD098
   60  IF(K - 1)46,47,47                                              BD099
   46  SF(J,1) = KF(J,2)                                              BD100
       DØ 49I = 2,5                                                   BD101
       SF(J,I) = SF(J,1)                                              BD102
   49  KF(J,I) = KF(J,1)                                              BD103
       GØ TØ 50                                                       BD10
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      48  FØRMAT(5F10.6)                                                  BD106
          IF(K - 2)51,52,50                                               BD107
      51  DØ 53I = 2,5                                                    BD108
      53  KF(J,I) = KF(J,1)                                               BD109
          GØ TØ 50                                                        BD110
      52  DØ 54I = 2,5                                                    BD111
      54  SF(J,I) = SF(J,1)                                               BD112
      50  J = J + 1                                                       BD113
          IF(J - 11)62,61,61                                              BD114
C
C   SET UP BØUNDARIES FØR NØDE SECTIØNS
C
      61  KK = NDS/5                                                      BD115
          LMT(2) = KK                                                     BD116
          LMT(1) = 0                                                      BD117
          LMT(3) = LMT(2) + KK                                            BD118
          LMT(4) = LMT(3) + KK + 1                                        BD119
          LMT(5) = LMT(4) + KK                                            BD120
          LMT(6) = LMT(5) + KK                                            BD121
C
C   SET UP BLACK BØDY FRACTIØNS ACCØRDING TØ BAND WIDTH AND TEMPERATURE
C
          IJI = BND(IJ)                                                   BD122
          III = BND(2) - 1                                                BD123
          IF(III - 1)610,611,611                                          BD124
      610 III = 1                                                         BD125
      611 DØ 102MM = IJI,III,-1                                           BD126
          F1 = LAMBDA(MM)                                                 BD127
          DØ 102LL = 1,NDS                                                BD131
          IF(T(LL))102,102,25                                             BD1311
      25  V = 1.43879/F1/T(LL)                                            BD132
          IF(V - 2.)103,104,104                                           BD133
      103 F(MM,LL) = 1. - 15./(3.141593)**4*V**3*(1./3. - V/8. + V*V/60. - V  BD134
         1**4/5040. + V**6/272160. - V**8/13305600.)                      BD135
          GØ TØ 201                                                       BD136
      104 SUM = 0.                                                        BD137
          DØ 105LLL = 1,5                                                 BD138
      105 SUM = SUM + EXP(-LLL*V)/LLL**4*(((LLL*V + 3.)*LLL*V + 6.)*LLL*V +   BD139
         16.)                                                             BD140
          F(MM,LL) = SUM*15./(3.141593)**4                                BD141
      201 IF(MM - IJI)100,102,102                                         BD142
      100 F(MM + 1,LL) = F(MM + 1,LL) - F(MM,LL)                          BD143
      102 CONTINUE                                                        BD144
          DY = THICK/(NDS - 1.)                                           BD145
          PRINT 902                                                       BD1451
      902 FØRMAT(1X//' INTENSITIES IN WATTS/CM**2/STERADIAN'//' FLUXES IN WA  BD1452
         1TTS/CM**2'//' FLUX DIVERGENCE IN WATTS/CM**3')                  BD1453
C
C   MAIN DØ-LØØP FØR RUNNING THRØUGH EACH BAND
C
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C
C  SET UP VARIABLES PECULIAR TO EACH BAND
C
      KK = BND(IK)                                                      BD1461
      NN = N(KK)*N(KK)                                                  BD1462
      DO 680I = 1,8                                                     BD1463
      MU(I) = MU1(I)                                                    BD1464
  680 A(I) = AU1(I)                                                     BD1465
      RBB = RB(KK)                                                      BD1470
      IF(NN - 1)850,850,860                                             BD1471
  860 RMUC = (1. - 1./NN)**.5                                           BD1472
      TERM1 = (1. - RMUC)*.5                                            BD1473
      TERM2 = (1. + RMUC)*.5                                            BD1474
      CALL BRKDWN(RMUC,TERM1,TERM2,A,MU)                                BD1475
  850 IF(KFRES - 1)113,113,114                                          BD1484
  114 I = KK                                                            BD1491
      FRFLB(I) = 0.                                                     BD1492
      IF(N(I))83,83,84                                                  BD1493
  84  IF(RB(I))83,83,101                                                BD1494
  101 DO 219J = 1,8                                                     BD1495
      A1 = (RB(I)*MU(J) - N(I))**2                                      BD1496
      A2 = (RB(I)*MU(J) + N(I))**2                                      BD1497
      A3 = (RB(I) - N(I)*MU(J))**2                                      BD1498
      A4 = (RB(I) + N(I)*MU(J))**2                                      BD1499
      B1 = KI(I)*KI(I)                                                  BD1500
      B2 = B1*MU(J)*MU(J)                                               BD1501
      FRFLI(I,J) = .5*((A1 + B2)/(A2 + B2) + (A3 + B1)/(A4 + B1))       BD1502
  219 FRFLB(I) = FRFLB(I) + A(J)*MU(J)*FRFLI(I,J)                       BD1503
      FRFLB(I) = FRFLB(I)/.50151552                                     BD1504
   83 RBB = FRFLB(KK)                                                   BD1505
  113 QOO = QO(KK)                                                      BD1506
      IPOSN = QOO/3.141593                                              BD151
      IF(IK - 1)66,66,67                                                BD152
C
C  PRINT HEADING AND INFORMATION
C
  66  PRINT 68,KK                                                       BD153
  68  FORMAT('1  SPECIAL BAND -- BAND',I2//)                            BD154
      GO TO 69                                                          BD155
  67  PRINT 70,KK                                                       BD156
  70  FORMAT('1  BAND',I2//)                                            BD157
  500 FORMAT(1X///' ITERATION ',I3//)                                   BD158
  69  PRINT 71,N(KK),RBB,QOO,(KF(KK,J),J = 1,5),(SF(KK,J),J = 1,5)      BD159
      PRINT 853,(MU(J),A(J),J = 1,8)                                    BD1591
  853 FORMAT(' GAUSSIAN INTEGRAL'/4X,4HMU'S,7X,'WEIGHTS'/8(1X,F10.8,2X,  BD1592
     1F10.8/))                                                          BD1593
  71  FORMAT(' INDEX =',F8.3/' RB =',F6.3/' QO =',F16.7,' WATTS/CM**2'/  BD160
     1' K =',5F11.6,' CM**-1'/' S =',5F11.6,' CM**-1'//)                BD161
      IF(KK - 1)904,904,905                                             BD1611
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      GO TO 906                                                         BD1613
  904 A1 = 0.                                                           BD1614
  906 A2 = LAMBDA(KK)                                                   BD1615
      A3 = A1*10000.                                                    BD1616
      A4 = A2*10000.                                                    BD1617
      PRINT 903,A1,A2,A3,A4                                             BD1618
  903 FORMAT(1X//' WAVELENGTH INTERVAL:  ',E10.5,' - ',E10.5,' CM'/23X, BD1619
     1E10.5,' - ',E10.5,' MICRONS'/)                                    BD162
      PRINT 701,(F(KK,J),J = 1,NDS)                                     BD1621
  701 FORMAT(1X,' F(O - LT):'/(1X,10E11.5/))                            BD1622
      IF(IK - 1)75,75,76                                                BD1623
   76 IF(KK - BND(1))75,78,75                                           BD163
C
C  IF ALREADY RUN AS SPECIAL BAND, PRINT SAVED NUMBERS
C
   78 PRINT 82                                                          BD165
      PRINT 80                                                          BD1651
   80 FORMAT(' NODE',6X,'I1',9X,'I2',9X,'I3',9X,'I4',9X,'I5',9X,'I6',9X, BD166
     1'I7',9X,'I8',9X,'QR',8X,'DQRDY'/)                                 BD167
      PRINT 81,((SAVE(I,J),J = 1,11),I = 1,L)                           BD168
   81 FORMAT((1X,F4.0,2X,9(E10.5,1X),E11.5))                            BD169
      PRINT 82                                                          BD170
   82 FORMAT(1X//)                                                      BD171
      PRINT 81,((SAVE(I,J),J = 1,11),I = L+1,L + L)                     BD172
      OUTPUT R(KK)                                                      BD1721
      IF(NONDM)65,65,85                                                 BD173
   85 PRINT 86                                                          BD174
   86 FORMAT(1X///' DIMENSIONLESS'//)                                   BD175
      PRINT 80                                                          BD176
      PRINT 81,((SAVE(I,J),J = 1,11),I = L+L+1,L+L+L)                   BD177
      PRINT 82                                                          BD178
      PRINT 81,((SAVE(I,J),J = 1,11),I = L+L+L+1,L+L+L+L)               BD179
      GO TO 65                                                          BD180
C
C  CALCULATE RFLECTANCE FOR INSIDE GAUSSIAN ANGLES
C
   75 RIN = 1./N(KK)                                                    BD181
      CRT = ARSIN(RIN)                                                  BD182
      CRTDG = CRT*180./3.141593                                         BD183
      OUTPUT CRT,CRTDG                                                  BD1831
      DIV = COS(CRT)                                                    BD184
      DO 110I = 1,8                                                     BD185
      IF(MU(I) - DIV)111,111,112                                        BD186
  112 SINMU = (1. - MU(I)*MU(I))**.5                                    BD187
      SINMUO = SINMU*N(KK)                                              BD188
      MUO = (1. - SINMUO*SINMUO)**.5                                    BD189
      A1 = SINMUO*MU(I) + MUO*SINMU                                     BD190
      A2 = SINMUO*MU(I) - MUO*SINMU                                     BD191
      B1 = MUO*MU(I) - SINMU*SINMUO                                     BD192
      B2 = MUO*MU(I) + SINMU*SINMUO                                     BD193
      RELI(I) = .5*(A2*A2/A1/A1)*(1. + B1*B1/B2/B2)                     BD194
```

```
      GO TO 110                                                         BD195
  111 RFLI(I) = 1.                                                      BD196
  110 CONTINUE                                                          BD197
      PRINT 55,RFLI                                                     BD1971
   55 FORMAT(' RFLI = ',8F10.7/)                                        BD1972
C
C  CALCULATE OUTSIDE GAUSSIAN ANGLES AND CORRESPONDING REFLECTANCES
C
      DO 115I = 1,8                                                     BD198
      SINMU0 = (1. - MU1(I)*MU1(I))**.5                                 BD199
      SINMU = SINMU0/N(KK)                                              BD200
      MUP(I) = (1. - SINMU*SINMU)**.5                                   BD201
      A2 = SINMU0*MUP(I) - MU1(I)*SINMU                                 BD202
      A1 = SINMU0*MUP(I) + MU1(I)*SINMU                                 BD203
      B1 = MU1(I)*MUP(I) - SINMU*SINMU0                                 BD204
      B2 = MU1(I)*MUP(I) + SINMU*SINMU0                                 BD205
  115 RFLO(I) = .5*(A2*A2/A1/A1)*(1. + B1*B1/B2/B2)                     BD206
      PRINT 56,RFLO                                                     BD2060
   56 FORMAT(' RFLO = ',8F10.7/)                                        BD2060
C
C  KUBELKA MUNK STARTING ROUTINE
C
      IF(KFRES - 1)106,106,108                                          BD2062
  108 DO 121JM = 1,8                                                    BD2063
      A1 = (RB(KK)*MUP(JM) - N(KK))**2                                  BD2064
      A2 = (RB(KK)*MUP(JM) + N(KK))**2                                  BD2065
      A3 = (RB(KK) - N(KK)*MUP(JM))**2                                  BD2065
      A4 = (RB(KK) + N(KK)*MUP(JM))**2                                  BD2065
      B1 = KI(KK)*KI(KK)                                                BD2066
      B2 = B1*MUP(JM)*MUP(JM)                                           BD2067
  121 FRFLO(JM) = .5*((A1 + B2)/(A2 + B2) + (A3 + B1)/(A4 + B1))        BD2068
  106 S1 = 0.                                                           BD207
      DO 120I = 1,8                                                     BD208
  120 S1 = S1 + A(I)*MU(I)*RFLI(I)                                      BD209
      RI = S1/.50151552                                                 BD210
      RO = 1. + NN*(RI - 1.)                                            BD211
  133 Y = -DY                                                           BD212
      IF(IK - 1)130,130,131                                             BD213
  131 IF(ABORT)125,125,130                                              BD214
C
C  PRINT OUT STARTING ROUTINE IF SPECIAL CASE OR ON ABORT STATUS
C
  130 OUTPUT RO,RI                                                      BD215
      PRINT 132                                                         BD216
  132 FORMAT(1X//3X,'KUBELKA MUNK STARTING ROUTINE'//2X,'NODE',5X,'QT', BD217
     110X,'QR',9X,'DQRDY'/)                                             BD218
  125 DO 122I = 1,5                                                     BD219
      III = LMT(I) + 1                                                  BD220
      JJJ = LMT(I + 1)                                                  BD221
      SKM = SF(KK,I)*.75                                                BD222
      KKM = KF(KK,I)*2                                                  BD223
```

```
      BET = SIG/(KKM + 2.*SKM)                                        BD225
      A1 = QOO*EXP(-SIG*THICK)*(1. - RO)*(BET*(1. + RBB) - 1. + RBB)  BD226
      A2 = 2.*((BET*BET*(1. + RI)*(1. + RBB) + (1. - RI)*(1. - RBB))* BD227
     1SINH(SIG*THICK) + 2.*BET*(1. - RI*RBB)*COSH(SIG*THICK))         BD228
      B1 = QOO*EXP(SIG*THICK)*(1. - RO)*(BET*(1. + RBB) + 1. - RBB)   BD229
      AA = A1/A2                                                      BD230
      BB = B1/A2                                                      BD231
      DO 122J = III,JJJ                                               BD232
      Y = Y + DY                                                      BD233
      QT = AA*(1. - BET)*EXP(SIG*Y) + BB*(1. + BET)*EXP(-SIG*Y)       BD234
      QRR = AA*(1. + BET)*EXP(SIG*Y) + BB*(1. - BET)*EXP(-SIG*Y)      BD235
      DQRDY = -KKM*(QT + QRR)                                         BD236
      QTP = QT/3.141593                                               BD237
      QRP = QRR/3.141593                                              BD238
      DO 123JL = 1,8                                                  BD239
      IPOS(JL,J) = QTP                                                BD240
  123 INEG(JL,J) = QRP                                                BD241
      IF(IK - 1)124,124,126                                           BD242
  126 IF(ABORT)122,122,124                                            BD243
  124 RJ = J                                                          BD244
      PRINT 127,RJ,QT,QRR,DQRDY                                       BD2441
  127 FORMAT(1X,F5.0,1X,2(E10.5,2X),E11.5)                            BD245
  122 CONTINUE                                                        BD246
      DO 200JK = 1,TEST                                               BD247
      PARAM = 0.                                                      BD248
C
C  FRONT SURFACE CALCULATIONS
C
      DO 150I = 1,8                                                   BD249
      IPOS(I,1) = INEG(I,1)                                           BD250
      IF(MU(I) - DIV)150,150,151                                      BD251
  151 IPOS(I,1) = RFLI(I)*INEG(I,1) + (1. - RFLI(I))*IPOSN*NN         BD252
  150 CONTINUE                                                        BD253
C
C  MARCH TO BACK WALL
C
      DO 162I = 1,5                                                   BD254
      DO 161IL = 1,8                                                  BD255
      DO 161IN = 1,8                                                  BD256
  161 PHASE(IL,IN) = 1. + ISOT(I)*MU(IL)*MU(IN)                       BD257
      III = LMT(I) + 1                                                BD258
      JJJ = LMT(I + 1)                                                BD259
      IF(III - 1)163,163,164                                          BD260
  163 III = 2                                                         BD261
  164 SFF = SF(KK,I)                                                  BD262
      KFF = KF(KK,I)                                                  BD263
      BET = SFF + KFF                                                 BD264
      C2 = DY*SFF/2.                                                  BD2641
      C4 = DY*S*KFF/3.141593*NN                                       BD2642
```

```
          DO 162JL = 1,8                                                  BD266
          MUU = MU(JL)                                                    BD267
          SUM = 0.                                                        BD268
          C1 = 1. - BET*DY/MUU                                            BD269
          DO 165LJ = 1,8                                                  BD272
          PHASCO = PHASE(LJ,JL)                                           BD273
          PHASKO = 2. - PHASCO                                            BD274
      165 SUM = SUM + A(LJ)*(PHASCO*IPOS(LJ,J - 1) + PHASKO*INEG(LJ,J - 1))  BD275
          TERM = IPOS(JL,J)                                               BD276
          IPOS(JL,J) = C1*IPOS(JL,J - 1) + (C2*SUM + C3)/MUU              BD277
      162 PARAM = PARAM + (TERM/IPOSN - IPOS(JL,J)/IPOSN)**2              BD278
C
C  BACK BOUNDARY CONDITIONS
C
          IF(KFRES - 1)128,128,129                                        BD2781
      129 C1 = S*NN*T(NDS)**4/3.141593*F(KK,J)                            BD2782
          DO 116I = 1,8                                                   BD2783
      116 INEG(I,NDS) = FRFLI(KK,I)*IPOS(I,NDS) + (1. - RBB)*C1           BD2784
          GO TO 117                                                       BD2785
      128 C1 = (1. - RBB)*S*NN*T(NDS)**4/3.141593*F(KK,J)                 BD279
          DO 170I = 1,8                                                   BD280
      170 INEG(I,NDS) = RBB*IPOS(I,NDS) + C1                              BD281
C
C  MARCH TO FRONT WALL
C
      117 DO 180I = 5,1,-1                                                BD282
          DO 181IL = 1,8                                                  BD283
          DO 181IN = 1,8                                                  BD284
      181 PHASE(IL,IN) = 1. - ISOT(I)*MU(IL)*MU(IN)                       BD285
          III = LMT(I + 1)                                                BD286
          JJJ = LMT(I) + 1                                                BD287
          IF(III - NDS)182,183,183                                        BD288
      183 III = NDS - 1                                                   BD289
      182 SFF = SF(KK,I)                                                  BD290
          KFF = KF(KK,I)                                                  BD291
          BET = SFF + KFF                                                 BD292
          C2 = DY*SFF/2.                                                  BD2921
          C4 = DY*S*KFF/3.141593*NN                                       BD2922
          DO 180J = III,JJJ,-1                                            BD293
          C3 = C4*T(J + 1)**4*F(KK,J)                                     BD2931
          DO 180JL = 1,8                                                  BD294
          MUU = MU(JL)                                                    BD295
          SUM = 0.                                                        BD296
          C1 = 1. - BET*DY/MUU                                            BD297
          DO 184LJ = 1,8                                                  BD300
          PHASCO = PHASE(LJ,JL)                                           BD301
          PHASKO = 2. - PHASCO                                            BD302
      184 SUM = SUM + A(LJ)*(PHASCO*IPOS(LJ,J + 1) + PHASKO*INEG(LJ,J + 1))  BD303
          TERM = INEG(JL,J)                                               BD304
          INEG(JL,J) = C1*INEG(JL,J + 1) + (C2*SUM + C3)/MUU              BD305
```

```
      C
      C  TEST RØUTINE--CHECK FØR CØMPLETIØN ØR DIVERGENCE--PRINT IF REACHED
      C  CONVERGENCE ØR ØN ABØRT STATUS
      C
            IF(JK - 6)191,191,650                                              BD3061
        650 IF(PARAM - 10.)191,190,190                                         BD307
        191 IF(PARAM - TØL)193,192,192                                         BD308
        192 IF(IK - 1)194,194,195                                              BD309
        195 IF(ABØRT)200,200,196                                               BD310
        190 IF(ABØRT)710,710,196                                               BD311
        710 ABØRT = 1                                                          BD312
            PRINT 211,JK                                                       BD313
        211 FØRMAT(1X///5X,'***PRØGRAM HAS DIVERGED AFTER',I3,' ITERATIØNS--IN BD314
           1ITIATE ABØRT***'////)                                              BD315
            GØ TØ 133                                                          BD316
        193 IF(IK - 1)196,196,198                                              BD317
        198 PRTVAR = 10                                                        BD318
            GØ TØ 199                                                          BD319
        194 IF(JK - 2)196,196,202                                              BD320
        202 IF(JK/PRINT - (JK + PRINT - 1)/PRINT)200,196,200                   BD321
        196 PRTVAR = 1                                                         BD322
      C
      C  PRINT IPØS
      C
        199 PRINT 500,JK                                                       BD323
            PRINT 80                                                           BD325
            DØ 910JR = 1,NDS                                                   BD326
            Q(JR) = 0.                                                         BD327
            DQR(JR) = 0.                                                       BD328
            DØ 208JQ = 2,6                                                     BD329
            JA = JQ                                                            BD3291
            IF(JR - LMT(JQ))209,209,208                                        BD330
        208 CØNTINUE                                                           BD331
        209 KFF = KF(KK,JA - 1)                                                BD332
            DØ 210JQ = 1,8                                                     BD334
            Q(JR) = Q(JR) + A(JQ)*MU(JQ)*(IPØS(JQ,JR) - INEG(JQ,JR))           BD335
        210 DQR(JR) = DQR(JR) + A(JQ)*(IPØS(JQ,JR) + INEG(JQ,JR))              BD336
            Q(JR) = Q(JR)*2.*3.141593                                          BD337
        910 DQR(JR) = -2.*3.141593*KFF*DQR(JR) + 4.*KFF*S*T(JR)**4*NN*F(KK,JR) BD338
            DØ 207JR = 1,NDS,PRTVAR                                            BD3381
            RJ = JR                                                            BD339
            PRINT 281,RJ,(IPØS(JS,JR),JS = 1,8),Q(JR),DQR(JR)                  BD340
        281 FØRMAT(1X,F4.0,2X,9(E10.5,1X),E11.5)                               BD341
            IF(IK - 1)2200,2200,207                                            BD342
       2200 IF(PARAM - TØL)2201,207,207                                        BD3421
       2201 IF((JR - 1)/10 - (JR + 8)/10)207,2220,207                          BD343
       2220 JT = JR/10 + 1                                                     BD344
            SAVE(JT,1) = JR                                                    BD345
            L = JT                                                             BD346
```

```
          SAVE(JT,10) = Q(JR)                                        BD349
          SAVE(JT,11) = DQR(JR)                                      BD350
      207 CONTINUE                                                   BD351
          PRINT 82                                                   BD352
    C
    C  PRINT INEG
    C
          DO 215JR = NDS, 1,-PRTVAR                                  BD353
          RJ = JR                                                    BD354
      215 PRINT 281,RJ,(INEG(JS,JR),JS = 1,8)                        BD355
          OUTPUT PARAM                                               BD3551
          IF(JK - 1)200,200,629                                      BD3552
      629 IF(IK - 1)216,216,217                                      BD356
      216 IF(PARAM - TOL)107,217,217                                 BD3561
      107 DO 218JR = NDS,1,-10                                       BD357
          JT = (NDS - JR + 1)/10 + 1 + L                             BD358
          SAVE(JT,1) = JR                                            BD359
          SAVE(JT,10) = 0.                                           BD360
          SAVE(JT,11) = 0.                                           BD361
          DO 218JZ = 2,9                                             BD362
      218 SAVE(JT,JZ) = INEG(JZ - 1,JR)                              BD363
    C
    C  CHECK FOR NEED OF NONDIMENSIONALIZING--SKIP SECTION IF ON ABORT STATUS
    C
      217 IF(PARAM - 10.)220,224,224                                 BD364
      224 IF(JK - 6)220,220,2000                                     BD3641
      220 IF(ABORT)221,221,200                                       BD365
      221 IF(NONDM)222,222,223                                       BD366
      223 IF(PARAM - TOL)399,200,200                                 BD3661
    C
    C  DIMENSIONLESS RESULTS--SAVE CALCULATIONS IF ON SPECIAL BAND
    C
      399 C1 = 1./IPOSN                                              BD367
          C2 = 1./QOO                                                BD368
          C3 = 1./KF(KK,5)/QOO                                       BD369
          PRINT 86                                                   BD370
          PRINT 80                                                   BD3701
          DO 225JR = 1,NDS,PRTVAR                                    BD371
          DMLQR = Q(JR)*C2                                           BD372
          DMLDQR = DQR(JR)*C3                                        BD373
          DO 226JP = 1,8                                             BD374
      226 DML(JP) = IPOS(JP,JR)*C1                                   BD375
          IF(IK - 1)227,227,228                                      BD376
      227 IF(PARAM - TOL)109,228,228                                   3761
      109 IF((JR - 1)/10 - (JR + 8)/10)228,229,228                     377
      229 JP = JR/10 + 1 + L + L                                     BD378
          SAVE(JP,1) = JR                                            BD379
          SAVE(JP,10) = DMLQR                                        BD380
          SAVE(JP,11) = DMLDQR                                       BD381
```

```
      228 RJ = JR                                                      BD384
      225 PRINT 281,RJ,DML,DMLQR,DMLDQR                                BD385
          PRINT 82                                                     BD386
          DO 254JR = NDS,1,-PRTVAR                                     BD387
          RJ = JR                                                      BD388
          DO 251JP = 1,8                                               BD389
      251 DML(JP) = INEG(JP,JR)*C1                                     BD390
          IF(IK - 1)252,252,254                                        BD391
      252 IF(PARAM - TOL)57,254,254                                    BD3911
      57  IF((JR - 1)/10 - (JR + 8)/10)254,253,254                     BD392
      253 JP = (NDS - JR + 1)/10 + 1 + L + L + L                       BD393
          SAVE(JP,1) = JR                                              BD394
          SAVE(JP,10) = 0.                                             BD395
          SAVE(JP,11) = 0.                                             BD396
          DO 255JT = 2,9                                               BD397
      255 SAVE(JP,JT) = DML(JT - 1)                                    BD398
      254 PRINT 281,RJ,DML                                             BD399
      222 IF(PARAM - TOL)260,200,200                                   BD400
      200 CONTINUE                                                     BD401
C
C  IF PROGRAM PROGRESSES TO THIS POINT, IT TOOK TOO MANY ITERATIONS--ABORT
C
          IF(ABORT)270,270,2000                                        BD402
      270 ABORT = 1                                                    BD403
          PRINT 271,KK                                                 BD404
      271 FORMAT(1X///'  ***BAND',I3,' WENT BEYOND MAXIMUM ITERATIONS--INITI  BD405
         1ATE ABORT***'///)                                            BD406
          GO TO 133                                                    BD407
C
C  STARTING ROUTINE FOR INEGP, OR REFLECTANCE CALCULATIONS
C
      260 IF(NN - 1)732,732,733                                        BD4071
      732 DO 734JP = 1,8                                               BD4072
      734 INEGP(JP,1) = INEG(JP,1)                                     BD4073
          GO TO 360                                                    BD4074
      733 PRINT 351                                                    BD4075
          DO 285JP = 1,NDS                                             BD408
          J = 0                                                        BD409
          A1 = 0.                                                      BD410
          DO 280KJ = 8,1,-1                                            BD411
          IF(MU(KJ) - DIV)283,283,282                                  BD412
      282 J = J + 1                                                    BD413
      280 A1 = A1 + INEG(KJ,JP)                                        BD414
      283 IF(J)2810,2810,284                                           BD415
      284 A1 = A1/J                                                    BD416
          GO TO 58                                                     BD417
     2810 A1 = INEG(8,JP)                                              BD4171
      58  DO 285KJ = 1,8                                               BD4172
      285 INEGP(KJ,JP) = A1                                            BD418
          DO 300 JP = 1,TEST
```

```
      PARAM = 0.                                                        BD420
C
C  FRONT WALL CALCULATIONS
C
      DO 301I = 1,8                                                     BD421
  301 IPOSP(I,1) = RFLO(I)*INEGP(I,1) + (1. - RFLO(I))*IPOSN*NN         BD422
C
C  MARCH TO BACK WALL
C
      DO 310I = 1,5                                                     BD423
      DO 303IL = 1,8                                                    BD424
      DO 303IN = 1,8                                                    BD425
  303 PHASE(IL,IN) = 1. + ISOT(I)*MUP(IL)*MU(IN)                        BD426
      III = LMT(I) + 1                                                  BD427
      JJJ = LMT(I + 1)                                                  BD428
      IF(III - 1)304,304,305                                            BD429
  304 III = 2                                                           BD430
  305 SFF = SF(KK,I)                                                    BD431
      KFF = KF(KK,I)                                                    BD432
      BET = SFF + KFF                                                   BD433
      C2 = DY*SFF/2.                                                    BD4331
      C4 = DY*S*KFF/3.141593*NN                                         BD4332
      DO 310J = III,JJJ                                                 BD434
      C3 = C4*T(J - 1)**4*F(KK,J)                                       BD4341
      DO 310JL = 1,8                                                    BD435
      MUU = MUP(JL)                                                     BD436
      SUM = 0.                                                          BD437
      C1 = 1. - BET*DY/MUU                                              BD438
      DO 311LJ = 1,8                                                    BD441
      PHASCO = PHASE(JL,LJ)                                             BD442
      PHASKO = 2. - PHASCO                                              BD443
  311 SUM = SUM + A  (LJ)*(PHASCO*IPOS(LJ,J-1) + PHASKO*INEG(LJ,J-1))   BD444
      TERM = IPOSP(JL,J)                                                BD445
      IPOSP(JL,J) = C1*IPOSP(JL,J - 1) + (C2*SUM + C3)/MUU              BD446
  310 PARAM = PARAM + (TERM/IPOSN - IPOSP(JL,J)/IPOSN)**2               BD447
C
C  BACK BOUNDARY CONDITIONS
C
      IF(KFRES - 1)118,118,119                                          BD4471
  119 C1 = S*NN*T(NDS)**4/3.141593*F(KK,J)                              BD4472
      DO 31I = 1,8                                                      BD4473
   31 INEGP(I,NDS) = FRFLO(I)*IPOSP(I,NDS) + (1. - RBB)*C1              BD4474
      GO TO 800                                                         BD4475
  118 C1 = (1. - RBB)*S*NN*T(NDS)**4/3.141593*F(KK,J)                   BD448
      DO 312I = 1,8                                                     BD449
  312 INEGP(I,NDS) = RBB*IPOSP(I,NDS) + C1                              BD450
C
C  MARCH TO FRONT WALL
C
  800 DO 315I = 5,1,-1                                                  BD451
```

```
  316 PHASE(IL,IN) = 1. - ISOT(I)*MUP(IL)*MU(IN)                       BD454
      III = LMT(I + 1)                                                  BD455
      JJJ = LMT(I) + 1                                                  BD456
      IF(III - NDS)317,318,318                                          BD457
  318 III = NDS - 1                                                     BD458
  317 SFF = SF(KK,I)                                                    BD459
      KFF = KF(KK,I)                                                    BD460
      BET = SFF + KFF                                                   BD461
      C2 = DY*SFF/2.                                                    BD4611
      C4 = DY*S*KFF/3.141593*NN                                         BD4612
      DO 315J = III,JJJ,-1                                              BD462
      C3 = C4*T(J + 1)**4*F(KK,J)                                       BD4621
      DO 315JL = 1,8                                                    BD463
      MUU = MUP(JL)                                                     BD464
      SUM = 0.                                                          BD465
      C1 = 1. - BET*DY/MUU                                              BD466
      DO 320LJ = 1,8                                                    BD469
      PHASCO = PHASE(JL,LJ)                                             BD470
      PHASKO = 2. - PHASCO                                              BD471
  320 SUM = SUM + A  (LJ)*(PHASCO*IPOS(LJ,J+1) + PHASKO*INEG(LJ,J+1))   BD472
      TERM = INEGP(JL,J)                                                BD473
      INEGP(JL,J) = C1*INEGP(JL,J + 1) + (C2*SUM + C3)/MUU              BD474
  315 PARAM = PARAM + (TERM/IPOSN - INEGP(JL,J)/IPOSN)**2               BD475
C
C  CHECK FOR DIVERGENCE, SOLUTION, OR ABORT STATUS--STANDARD PROCEDURE AS ABOVE
C
      IF(JP - 1)323,323,324                                             BD476
  324 IF(PARAM - 10)323,325,325                                         BD477
  323 IF(PARAM - TOL)794,327,327                                        BD478
  325 IF(ABORT)330,330,2000                                             BD479
  327 IF(ABORT)340,340,321                                              BD4791
  330 ABORT = 1                                                         BD480
      PRINT 331,JP                                                      BD481
  331 FORMAT(1X///'  ***REFLECTANCE CALCULATION DIVERGED--INITIATE ABORT BD482
     1 AFTER',I3,' ITERATIONS***'///)                                   BD483
      GO TO 260                                                         BD484
  340 IF(IK - 1)321,321,300                                             BD485
  794 IF(IK - 1)321,321,326                                             BD4851
  326 PRTVAR = 10                                                       BD486
      GO TO 350                                                         BD487
  321 PRTVAR = 1                                                        BD488
C
C  PRINT REFLECTANCE FIELD
C
  350 PRINT 500,JP                                                      BD489
  351 FORMAT(1X///' REFLECTANCE FIELD'//)                               BD490
      PRINT 352                                                         BD491
  352 FORMAT(' NODE',6X,'I1',9X,'I2',9X,'I3',9X,'I4',9X,'I5',9X,'I6',9X, BD492
     1'I7',9X,'I8'//)                                                   BD493
      DO 353I = 1,NDS,PRTVAR                                            BD49
```

```
  353 PRINT 281,RI,(IPOSP(IX,I),IX = 1,8)                                   BD496
      PRINT 82                                                              BD4961
      DO 354I = NDS,1,-PRTVAR                                               BD4962
      RI = I                                                                BD4963
  354 PRINT 281,RI,(INEGP(IX,I),IX = 1,8)                                   BD4964
      OUTPUT PARAM                                                          BD4965
      IF(PARAM - TOL)360,300,300                                            BD497
  300 CONTINUE                                                              BD498
      IF(ABORT)370,370,2000                                                 BD499
  370 ABORT = 1                                                             BD500
      PRINT 371                                                             BD501
  371 FORMAT(1X///'  ***REFLECTANCE ITERATIONS EXCEEDED MAXIMUM--INITIAT    BD503
     1E ABORT***'///)                                                       BD504
      GO TO 260                                                             BD505
C
C  CALCULATE REFLECTANCE FOR BAND AND PRINT
C
  360 R(KK) = 0                                                             BD506
      DO 361I = 1,8                                                         BD507
      RF(I) = RFLO(I) + INEGP(I,1)/NN*(1. - RFLO(I))/IPOSN                  BD508
  361 R(KK) = R(KK) + AU1(I)*MU1(I)*RF(I)                                   BD509
      PRINT 921,RF                                                          BD5091
  921 FORMAT(1X//' REFLECTANCE FIELD:'//7X,8(F10.8,1X)/)                    BD5092
      R(KK) = R(KK)/.50151552                                               BD5093
      OUTPUT R(KK)                                                          BD510
C
C  SAVE QR AND DQRDY FROM THIS BAND FOR OVERALL RESULTS
C
      DO 362I = 1,NDS                                                       BD511
      QRSAV(I) = QRSAV(I) + Q(I)                                            BD512
  362 DQRSAV(I) = DQRSAV(I) + DQR(I)                                        BD513
      OARFL1 = OARFL1 + IPOSN*R(KK)                                         BD514
      OARFL2 = OARFL2 + IPOSN                                               BD515
   65 CONTINUE                                                              BD516
C
C
C  CALCULATE OVERALL REFLECTANCE AND PRINT, ALONG WITH OVERALL QR AND DQRDY
C
      OARFL = OARFL1/OARFL2                                                 BD517
      PRINT 410,OARFL,(QRSAV(I),I = 1,NDS)                                  BD518
  410 FORMAT('1 OVER ALL REFLECTANCE =',F8.7///'  OVERALL FLUXES, STARTI    BD519
     1NG AT FRONT WALL:'//(1X,10E12.5/))                                    BD520
      PRINT 411,(DQRSAV(I),I = 1,NDS)                                       BD521
  411 FORMAT(1X///'  OVERALL DIVERGENCE:'//(1X,10E12.5/))                   BD522
C
 2000 END                                                                   BD523
```

```
      SUBROUTINE BRKDOWN(RMUC,TERM1,TERM2,A,MU)
      REAL A(8),MU(8),MU2(8),AU2(8),MU3(8),AU3(8)
      DATA MU2(1),MU2(2)/.53846931,.906179846/                          BD0191
      DATA AU2(1),AU2(2),AU2(3)/.568888889,.47862807,.236926885/        BD0192
      DATA MU3(1),MU3(2),MU3(3)/.238619186,.661209386,.932469514/       BD0193
      DATA AU3(1),AU3(2),AU3(3)/.467913935,.360761573,.171324492/       BD0194
      DO 861I = 1,3                                                     BD1475
      MU(I) = RMUC*MU3(I)                                               BD1476
      A(I) = RMUC*AU3(I)                                                BD1477
      IF(I - 2)862,862,861                                              BD1478
  862 MU(I + 3) = TERM2 - TERM1*MU2(-I + 3)                             BD1479
      MU(-I + 9) = TERM2 + TERM1*MU2(-I + 3)                            BD1480
      A(I + 3) = TERM1*AU2(-I + 4)                                      BD1481
      A(-I + 9) = A(I + 3)                                              BD1482
  861 CONTINUE                                                          BD1483
      MU(6) = TERM2                                                     BD1483
      A(6) = TERM1*AU2(1)                                               BD1483
      RETURN
      END
```

TEST CASE 1

$\omega = 1.0$

$\tau_0 = 1.0$

$0°K$

$R_8 = .03$

$X = 0$ [ISOTROPIC SCATTERING]

INDEX = 1.4 FOR 1^{st} BAND
1.2 FOR 2^{nd} BAND

```
NDS = 101
TOL = 9.999999E-11
TEST = 1000
PRINT = 25
NONDM = 1
THICK = 1.00000 CM
BNDS = 1100000000
  SPECIAL -- 0  STANDARD --  1  2
TEMPD = 1
TEMP =      .000     .000     .000     .000     .000     .000     .000     .000     .000     .000
(KELVIN)
            .000     .000     .000     .000     .000     .000     .000     .000     .000     .000

            .000     .000     .000     .000     .000     .000     .000     .000     .000     .000

            .000     .000     .000     .000     .000     .000     .000     .000     .000     .000

            .000     .000     .000     .000     .000     .000     .000     .000     .000     .000

            .000     .000     .000     .000     .000     .000     .000     .000     .000     .000

            .000     .000     .000     .000     .000     .000     .000     .000     .000     .000

            .000     .000     .000     .000     .000     .000     .000     .000     .000     .000

            .000     .000     .000     .000     .000     .000     .000     .000     .000     .000

            .000     .000     .000     .000     .000     .000     .000     .000     .000     .000

            .000
ISOT =    .0000000   .0000000   .0000000   .0000000   .0000000


INTENSITIES IN WATTS/CM**2/STERADIAN

FLUXES IN WATTS/CM**2

FLUX DIVERGENCE IN WATTS/CM**3
```

BAND 1

INDEX = 1.400
RB = .030
Q0 = 100.0000000 WATTS/CM**2
K = .000000 .000000 .000000 .000000 .000000 CM**-1
S = 1.000000 1.000000 1.000000 1.000000 1.000000 CM**-1

GAUSSIAN INTEGRAL

MU'S	WEIGHTS
.16699862	.32747149
.46275014	.25248051
.65259266	.11990213
.71393394	.03555630
.76911736	.07182908
.84992695	.08537477
.93073654	.07182908
.98591995	.03555630

WAVELENGTH INTERVAL: .00000E 00 - .99999E 05 CM
.00000E 00 - .99999E 09 MICRONS

F(0 - LT):
.76529E-80 .41180E-82 .10295E-83 .51476E-84 .00000E 00 .00000E 00 .00000E 00 .00000E 00 .00000E 00 .00000E
.00000E 00 .00000E 00 .00000E 00 .00000E 00 .00000E 00 .00000E 00 .00000E 00 .00000E 00 .00000E 00 .0000[redacted]
.00000E 00 .00000E 00 .00000E 00 .00000E 00 .00000E 00 .00000E 00 .00000E 00 .00000E 00 .51476E-84 .65889E-
.32680E-79 .26313E-77 .62500E-01 .00000E 00-.65446E-77 .00000E 00 .80964E-77 .22204E-15 .13092E-79 .50375[redacted]-
.00000E 00 .00000E 00 .43959E-72 .86736E-18 .22041E-38 .46137E 08 .35112E 51 .13605E 46 .25759E 51 .18808[redacted]-
.22859E 09 .40116E-17 .27636E-75 .27537E 48 .44060E 49 .94040E-37 .42409E-25-.21828E-09 .25760E 51 .18877E-
.27538E 48 .23510E-37-.96207E 12 .78603E-21 .27638E-75 .44061E 49 .13346E 46 .60818E 08 .18809E-36 .6112[redacted]-
.35112E 51 .43656E-10 .11755E-37 .36734E-39 .12148E-26 .00000E 00 .25593E-54 .48172E-37 .10408E-16 .29387E-
.33144E 13 .35903E-73 .36734E-39 .18808E-36-.21690E-06-.24501E-05 .19966E 46 .43369E-17 .44065E 49 .1410[redacted]-
.60818E 08 .25760E 51 .27541E 48 .94039E-37 .20881E-52 .25759E 51 .55039E-19 .13306E 46-.56548E-10-.9244[redacted]-
.32715E- 9

CRIDG = 45.5847

RFLI = 1.0000000 1.0000000 1.0000000 .3219466 .0909002 .0394923 .0292094 .0278213

RFLB = .5718994 .2050691 .0863307 .0465407 .0332410 .0290592 .0279618 .0277839

ITERATION 19

DQRDY = 0.

NODE	I1	I2	I3	I4	I5	I6	I7	I8	QR
1.	.23624E 02	.18984E 02	.16367E 02	.47356E 02	.58092E 02	.60491E 02	.60965E 02	.61020E 02	.71419E 02
11.	.24261E 02	.20172E 02	.17607E 02	.44420E 02	.54038E 02	.56534E 02	.57286E 02	.57533E 02	.71445E 02
21.	.24142E 02	.20930E 02	.18528E 02	.41740E 02	.50359E 02	.52908E 02	.53883E 02	.54288E 02	.71466E 02
31.	.23537E 02	.21311E 02	.19150E 02	.39258E 02	.46988E 02	.49556E 02	.50708E 02	.51243E 02	.71482E 02
41.	.22608E 02	.21361E 02	.19497E 02	.36931E 02	.43870E 02	.46433E 02	.47725E 02	.48368E 02	.71495E 02
51.	.21455E 02	.21124E 02	.19592E 02	.34725E 02	.40962E 02	.43501E 02	.44903E 02	.45635E 02	.71507E 02
61.	.20136E 02	.20637E 02	.19457E 02	.32610E 02	.38225E 02	.40728E 02	.42216E 02	.43020E 02	.71519E 02
71.	.18681E 02	.19929E 02	.19111E 02	.30562E 02	.35627E 02	.38084E 02	.39639E 02	.40503E 02	.71532E 02
81.	.17099E 02	.19022E 02	.18568E 02	.28556E 02	.33136E 02	.35543E 02	.37149E 02	.38062E 02	.71547E 02
91.	.15380E 02	.17925E 02	.17834E 02	.26568E 02	.30720E 02	.33077E 02	.34722E 02	.35676E 02	.71568E 02
101.	.13489E 02	.16634E 02	.16908E 02	.24567E 02	.28346E 02	.30653E 02	.32331E 02	.33320E 02	.71597E 02

101.	.40467E 00	.49901E 00	.50723E 00	.73702E 00	.85037E 00	.91960E 00	.96992E 00	.99961E 00
91.	.54139E 01	.26000E 01	.20362E 01	.21123E 01	.21185E 01	.20655E 01	.20158E 01	.19866E 01
81.	.90795E 01	.47011E 01	.36473E 01	.35833E 01	.34891E 01	.33184E 01	.31700E 01	.30819E 01
71.	.11922E 02	.67598E 01	.52977E 01	.51089E 01	.49230E 01	.46419E 01	.43992E 01	.42538E 01
61.	.14252E 02	.87547E 01	.69602E 01	.66621E 01	.63938E 01	.60114E 01	.56802E 01	.54804E 01
51.	.16252E 02	.10676E 02	.86163E 01	.82238E 01	.78827E 01	.74087E 01	.69957E 01	.67449E 01
41.	.18028E 02	.12517E 02	.10253E 02	.97797E 01	.93751E 01	.88194E 01	.83320E 01	.80340E 01
31.	.19638E 02	.14276E 02	.11858E 02	.11318E 02	.10859E 02	.10231E 02	.96768E 01	.93358E 01
21.	.21109E 02	.15947E 02	.13421E 02	.12826E 02	.12321E 02	.11632E 02	.11018E 02	.10639E 02
11.	.22443E 02	.17521E 02	.14930E 02	.14291E 02	.13749E 02	.13008E 02	.12343E 02	.11930E 02
1.	.23624E 02	.18984E 02	.16367E 02	.15696E 02	.15126E 02	.14343E 02	.13636E 02	.13193E 02

PARAM = 8.441262E-12

DIMENSIONLESS

NODE	I1	I2	I3	I4	I5	I6	I7	I8	QR
1.	.74218E 00	.59641E 00	.51417E 00	.14877E 01	.18250E 01	.19004E 01	.19153E 01	.19170E 01	.71419E 00
11.	.76217E 00	.63371E 00	.55316E 00	.13955E 01	.16977E 01	.17761E 01	.17997E 01	.18075E 01	.71445E 00
21.	.758[illegible]5E 00	.65755E 00	.58209E 00	.13113E 01	.15821E 01	.16622E 01	.16928E 01	.17055E 01	.71466E 00

31.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
41.	.71026E 00	.67107E 00	.61251E 00	.11602E 01	.13782E 01	.14587E 01	.14993E 01	.15195E 01	.71495E 00	[illegible]
51.	.67403E 00	.66362E 00	.61549E 00	.10909E 01	.12869E 01	.13666E 01	.14107E 01	.14337E 01	.71507E 00	[illegible]
61.	.63259E 00	.64832E 00	.61126E 00	.10245E 01	.12009E 01	.12795E 01	.13263E 01	.13515E 01	.71519E 00	[illegible]
71.	.58687E 00	.62609E 00	.60039E 00	.96014E 00	.11193E 01	.11964E 01	.12453E 01	.12724E 01	.71532E 00	[illegible]
81.	.53718E 00	.59758E 00	.58333E 00	.89713E 00	.10410E 01	.11166E 01	.11671E 01	.11958E 01	.71547E 00	[illegible]
91.	.48318E 00	.56312E 00	.56028E 00	.83466E 00	.96510E 00	.10391E 01	.10908E 01	.11208E 01	.71568E 00	[illegible]
101.	.42377E 00	.52256E 00	.53117E 00	.77181E 00	.89050E 00	.96300E 00	.10157E 01	.10468E 01	.71597E 00	[illegible]

101.	.12713E-01	.15677E-01	.15935E-01	.23154E-01	.26715E-01	.28890E-01	.30471E-01	.31404E-01
91.	.17008E 00	.81681E-01	.63970E-01	.66359E-01	.66556E-01	.64891E-01	.63328E-01	.62411E-01
81.	.28524E 00	.14769E 00	.11458E 00	.11257E 00	.10961E 00	.10425E 00	.99588E-01	.96819E-01
71.	.37455E 00	.21236E 00	.16643E 00	.16050E 00	.15466E 00	.14583E 00	.13820E 00	.13364E 00
61.	.44774E 00	.27504E 00	.21866E 00	.20930E 00	.20087E 00	.18885E 00	.17845E 00	.17217E 00
51.	.51058E 00	.33538E 00	.27069E 00	.25836E 00	.24764E 00	.23275E 00	.21978E 00	.21190E 00
41.	.56637E 00	.39324E 00	.32209E 00	.30724E 00	.29453E 00	.27707E 00	.26176E 00	.25240E 00
31.	.61695E 00	.44849E 00	.37253E 00	.35555E 00	.34113E 00	.32142E 00	.30401E 00	.29329E 00
21.	.66315E 00	.50098E 00	.42164E 00	.40294E 00	.38708E 00	.36542E 00	.34615E 00	.33422E 00
11.	.70506E 00	.55044E 00	.46903E 00	.44896E 00	.43194E 00	.40865E 00	.38778E 00	.37478E 00
1.	.74218E 00	.59641E 00	.51417E 00	.49311E 00	.47518E 00	.45060E 00	.42839E 00	.41448E 00

REFLECTANCE FIELD

ITERATION 4

NODE	I1	I2	I3	I4	I5	I6	I7	I8
1.	.35743E 02	.52783E 02	.58305E 02	.60162E 02	.60781E 02	.60971E 02	.61016E 02	.61020E 02
11.	.34315E 02	.49200E 02	.54242E 02	.56141E 02	.56937E 02	.57304E 02	.57482E 02	.57562E 02
21.	.32944E 02	.45952E 02	.50553E 02	.52466E 02	.53399E 02	.53910E 02	.54198E 02	.54341E 02
31.	.31601E 02	.42972E 02	.47172E 02	.49079E 02	.50116E 02	.50743E 02	.51121E 02	.51317E 02
41.	.30262E 02	.40208E 02	.44045E 02	.45930E 02	.47046E 02	.47766E 02	.48219E 02	.48459E 02
51.	.28914E 02	.37619E 02	.41128E 02	.42980E 02	.44155E 02	.44949E 02	.45463E 02	.45739E 02
61.	.27545E 02	.35170E 02	.38382E 02	.40194E 02	.41412E 02	.42265E 02	.42830E 02	.43136E 02
71.	.26143E 02	.32829E 02	.35776E 02	.37544E 02	.38791E 02	.39691E 02	.40297E 02	.40629E 02
81.	.24698E 02	.30567E 02	.33277E 02	.34999E 02	.36266E 02	.37204E 02	.37843E 02	.38197E 02
91.	.23196E 02	.28356E 02	.30854E 02	.32531E 02	.33811E 02	.34779E 02	.35447E 02	.35818E 02
101.	.21617E 02	.26161E 02	.28473E 02	.30108E 02	.31397E 02	.32389E 02	.33082E 02	.33468E 02

101.	.64[illegible]50E 00	.76483E 00	.85419E 00	.90324E 00	.94191E 00	.97168E 00	.99245E 00	.10040E 01
91.	.20554E 01	.21286E 01	.21166E 01	.20806E 01	.20438E 01	.20140E 01	.19935E 01	.19824E 01
81.	.35552E 01	.35704E 01	.34817E 01	.33641E 01	.32534E 01	.31647E 01	.31030E 01	.30689E 01
71.	.51066E 01	.50696E 01	.49105E 01	.47166E 01	.45358E 01	.43905E 01	.42888E 01	.42323E 01
61.	.66824E 01	.65992E 01	.63766E 01	.61129E 01	.58670E 01	.56683E 01	.55285E 01	.54507E 01
51.	.82639E 01	.81403E 01	.78614E 01	.75346E 01	.72290E 01	.69809E 01	.68055E 01	.67075E 01
41.	.98369E 01	.96783E 01	.93502E 01	.89673E 01	.86078E 01	.83144E 01	.81061E 01	.79894E 01
31.	.11389E 02	.11201E 02	.10831E 02	.10399E 02	.99910E 01	.96567E 01	.94185E 01	.92846E 01
21.	.12910E 02	.12697E 02	.12290E 02	.11816E 02	.11366E 02	.10996E 02	.10731E 02	.10581E 02
11.	.14385E 02	.14151E 02	.13716E 02	.13206E 02	.12721E 02	.12319E 02	.12030E 02	.11867E 02
1.	.15798E 02	.15549E 02	.15091E 02	.14553E 02	.14039E 02	.13610E 02	.13301E 02	.13126E 02

PARAM = .000000

REFLECTANCE FIELD:

.68030000 .40318537 .30733222 .26895428 .25078058 .24087214 .23519987 .23233533

R(KK) = .289466

```
BAND 2

INDEX =    1.200
RB =   .030
Q0 =        100.0000000 WATTS/CM**2
( =      .000000     .000000     .000000     .000000     .000000 CM**-1
S =    1.000000    1.000000    1.000000    1.000000    1.000000 CM**-1

GAUSSIAN INTEGRAL
   MU'S          WEIGHTS
4.13190150    .25864875
6.36549670    .19941813
0.51544112    .09470302
0.57374948    .05298041
0.65597504    .10702837
1.77638483    .12721205
3.89679462    .10702837
8.97902018    .05298041


WAVELENGTH INTERVAL:   .99999E 05 - .99999E 70 CM
                       .99999E 09 - .99999E 74 MICRONS

 F(0 - LT):
 .80289E-77-.23138E-06 .79437E-80 .00000E 00 .00000E 00 .41454E-75 .00000E 00 .00000E 00 .00000E 00 .00000E

 .00000E 00 .00000E 00 .00000E 00 .00000E 00 .00000E 00 .00000E 00 .00000E 00 .00000E 00 .00000E 00 .00000

 .00000E 00 .00000E 00 .00000E 00 .00000E 00 .00000E 00 .00000E 00 .00000E 00 .00000E 00 .10295E-83 .13126

 .33603E-79 .86360E-77 .72370E 76 .00000E 00-.67470E-79 .00000E 00 .20916E-77 .44409E-15 .13046E-79-.44645

 .00000E 00 .00000E 00-.44645E-07 .19259E-33 .10486E 08 .55955E 43 .16521E 46 .13331E 46 .25760E 51 .94750

 .18011E 46 .70530E-36 .13884E-26 .47742E-37 .47742E-37-.96207E 12 .11102E-13 .56424E-36 .47742E-37 .25759E

 .73468E-39 .27538E 48-.77151E-65 .58676E 49 .17888E-65 .22769E-17 .55022E-19 .13532E 46 .65828E-36 .35265

 .25771E 51 .10408E-16 .58677E 49 .35900E-73 .13389E 46 .80297E-80-.00000E 00 .94040E-37 .22041E-38 .44064

 .57778E-33 .35900E-73 .10842E-18 .13346E 46-.83266E-26 .13676E 46 .19966E 46 .60838E-17 .94039E-37 .18879

 .25759E 51 .47091E-36 .18563E-17 .41361E-55 .47742E-37 .47740E-37 .27536E 48 .24686E-48-.24536E-05 .30211
```

[illegible]

:RTDG = 56•4427

:FLI = 1•0000000 1•0000000 1•0000000 •2648743 •0530140 •0153192 •0090397 •0082868

:FL0 = •5008626 •1350915 •0429077 •0179697 •0108486 •0088369 •0083438 •0082671

ITERATI0N 17

DQRDY=O.

N0DE	I1	I2	I3	I4	I5	I6	I7	I8	QR
1•	•23387E 02	•19831E 02	•17563E 02	•38142E 02	•44243E 02	•45356E 02	•45543E 02	•45562E 02	•65906E 02
11•	•23913E 02	•20935E 02	•18779E 02	•35926E 02	•41417E 02	•42808E 02	•43301E 02	•43498E 02	•65928E 02
21•	•23559E 02	•21511E 02	•19587E 02	•33894E 02	•38841E 02	•40440E 02	•41182E 02	•41530E 02	•65943E 02
31•	•22723E 02	•21649E 02	•20032E 02	•31991E 02	•36456E 02	•38209E 02	•39158E 02	•39634E 02	•65955E 02
41•	•21610E 02	•21429E 02	•20159E 02	•30178E 02	•34220E 02	•36087E 02	•37206E 02	•37792E 02	•65964E 02
51•	•20324E 02	•20916E 02	•20010E 02	•28428E 02	•32099E 02	•34050E 02	•35310E 02	•35991E 02	•65972E 02
61•	•18921E 02	•20165E 02	•19621E 02	•26719E 02	•30067E 02	•32078E 02	•33456E 02	•34219E 02	•65980E 02
71•	•17422E 02	•19214E 02	•19022E 02	•25032E 02	•28100E 02	•30154E 02	•31632E 02	•32467E 02	•65989E 02
81•	•15829E 02	•18090E 02	•18232E 02	•23348E 02	•26177E 02	•28262E 02	•29825E 02	•30724E 02	•66001E 02
91•	•14118E 02	•16801E 02	•17263E 02	•21645E 02	•24270E 02	•26381E 02	•28018E 02	•28974E 02	•66019E 02
101•	•12228E 02	•15334E 02	•16105E 02	•19890E 02	•22347E 02	•24483E 02	•26189E 02	•27198E 02	•66048E 02

101•	•36685E 00	•46001E 00	•48316E 00	•59669E 00	•67041E 00	•73450E 00	•78567E 00	•81595E 00
91•	•60117E 01	•29224E 01	•22849E 01	•22106E 01	•20847E 01	•19337E 01	•18261E 01	•17699E 01
81•	•96851E 01	•52832E 01	•41298E 01	•38940E 01	•35889E 01	•32360E 01	•29734E 01	•28305E 01
71•	•12339E 02	•75111E 01	•59691E 01	•55985E 01	•51372E 01	•46005E 01	•41914E 01	•39647E 01
61•	•14456E 02	•96046E 01	•77790E 01	•72981E 01	•67035E 01	•60027E 01	•54579E 01	•51517E 01
51•	•16277E 02	•11573E 02	•95479E 01	•89782E 01	•82716E 01	•74265E 01	•67576E 01	•63770E 01
41•	•17923E 02	•13429E 02	•11270E 02	•10630E 02	•98306E 01	•88599E 01	•80789E 01	•76294E 01
31•	•19449E 02	•15182E 02	•12939E 02	•12246E 02	•11371E 02	•10293E 02	•94118E 01	•88992E 01
21•	•20875E 02	•16836E 02	•14552E 02	•13818E 02	•12884E 02	•11716E 02	•10746E 02	•10177E 02
11•	•22197E 02	•18390E 02	•16098E 02	•15338E 02	•14359E 02	•13116E 02	•12071E 02	•11451E 02
1•	•23387E 02	•19831E 02	•17563E 02	•16787E 02	•15778E 02	•14479E 02	•13371E 02	•12707E 02

PARAM = 1•710344E-11

DIMENSI0NLESS

N0DE	I1	I2	I3	I4	I5	I6	I7	I8	QR
1•	•73473E 00	•62300E 00	•55174E 00	•11983E 01	•13899E 01	•14249E 01	•14308E 01	•14314E 01	•65906E 00
11•	•75124E 00	•65770E 00	•58995E 00	•11287E 01	•13012E 01	•13449E 01	•13603E 01	•13665E 01	•65928E 00
21•	[illegible]	•67580E 00	•61533E 00	•10648E 01	•12202E 01	•12704E 01	•12938E 01	•13047E 01	•65943E 00

31.	.71388E 00	.68013E 00	.62932E 00	.10050E 01	.11453E 01	.12004E 01	.12302E 01	.12451E 01	.65955E 00	.0
41.	.67888E 00	.67320E 00	.63332E 00	.94808E 00	.10750E 01	.11337E 01	.11688E 01	.11873E 01	.65964E 00	[illegible]
51.	.63850E 00	.65710E 00	.62864E 00	.89310E 00	.10084E 01	.10697E 01	.11093E 01	.11307E 01	.65972E 00	.0
61.	.59441E 00	.63349E 00	.61642E 00	.83940E 00	.94459E 00	.10078E 01	.10511E 01	.10750E 01	.65980E 00	.0
71.	.54733E 00	.60362E 00	.59758E 00	.78639E 00	.88280E 00	.94733E 00	.99375E 00	.10200E 01	.65989E 00	[illegible]
81.	.49729E 00	.56830E 00	.57278E 00	.73348E 00	.82236E 00	.88789E 00	.93698E 00	.96521E 00	.66001E 00	[illegible]
91.	.44353E 00	.52782E 00	.54232E 00	.67998E 00	.76247E 00	.82880E 00	.88023E 00	.91025E 00	.66019E 00	.0
01.	.38417E 00	.48172E 00	.50596E 00	.62485E 00	.70205E 00	.76916E 00	.82276E 00	.85446E 00	.66048E 00	[illegible]

01.	.11525E-01	.14451E-01	.15179E-01	.18746E-01	.21062E-01	.23075E-01	.24683E-01	.25634E-01
91.	.18886E 00	.91811E-01	.71781E-01	.69448E-01	.65492E-01	.60750E-01	.57370E-01	.55603E-01
81.	.30427E 00	.16598E 00	.12974E 00	.12233E 00	.11275E 00	.10166E 00	.93411E-01	.88923E-01
71.	.38765E 00	.23597E 00	.18753E 00	.17588E 00	.16139E 00	.14453E 00	.13168E 00	.12455E 00
61.	.45415E 00	.30174E 00	.24439E 00	.22928E 00	.21060E 00	.18858E 00	.17146E 00	.16184E 00
51.	.51137E 00	.36359E 00	.29996E 00	.28206E 00	.25986E 00	.23331E 00	.21230E 00	.20034E 00
41.	.56308E 00	.42189E 00	.35404E 00	.33395E 00	.30884E 00	.27834E 00	.25381E 00	.23968E 00
31.	.61102E 00	.47695E 00	.40650E 00	.38471E 00	.35724E 00	.32337E 00	.29568E 00	.27958E 00
21.	.65582E 00	.52892E 00	.45715E 00	.43412E 00	.40477E 00	.36806E 00	.33761E 00	.31971E 00
11.	.69735E 00	.57773E 00	.50573E 00	.48185E 00	.45109E 00	.41207E 00	.37922E 00	.35973E 00
1.	.73473E 00	.62300E 00	.55174E 00	.52739E 00	.49569E 00	.45488E 00	.42006E 00	.39919E 00

EFLECTANCE FIELD

TERATION 4

ODE	I1	I2	I3	I4	I5	I6	I7	I8
1.	.31385E 02	.41866E 02	.44539E 02	.45277E 02	.45490E 02	.45549E 02	.45561E 02	.45562E 02
11.	.30230E 02	.39166E 02	.41734E 02	.42672E 02	.43104E 02	.43334E 02	.43462E 02	.43524E 02
21.	.29088E 02	.36717E 02	.39170E 02	.40259E 02	.40866E 02	.41238E 02	.41464E 02	.41580E 02
31.	.27931E 02	.34456E 02	.36792E 02	.37993E 02	.38742E 02	.39234E 02	.39542E 02	.39704E 02
41.	.26744E 02	.32338E 02	.34558E 02	.35842E 02	.36707E 02	.37298E 02	.37678E 02	.37879E 02
51.	.25517E 02	.30326E 02	.32436E 02	.33782E 02	.34741E 02	.35416E 02	.35857E 02	.36093E 02
61.	.24246E 02	.28394E 02	.30402E 02	.31792E 02	.32828E 02	.33575E 02	.34069E 02	.34335E 02
71.	.22925E 02	.26518E 02	.28432E 02	.29854E 02	.30953E 02	.31761E 02	.32302E 02	.32595E 02
81.	.21546E 02	.24674E 02	.26504E 02	.27950E 02	.29102E 02	.29963E 02	.30545E 02	.30862E 02
91.	.20098E 02	.22836E 02	.24594E 02	.26059E 02	.27257E 02	.28165E 02	.28784E 02	.29122E 02
01.	.18554E 02	.20970E 02	.22668E 02	.24151E 02	.25391E 02	.26343E 02	.26996E 02	.27355E 02

01.	.55662E 00	.62909E 00	.68004E 00	.72454E 00	.76174E 00	.79030E 00	.80989E 00	.82067E 00
91.	.22181E 01	.21711E 01	.20619E 01	.19564E 01	.18745E 01	.18172E 01	.17807E 01	.17616E 01
81.	.39430E 01	.37910E 01	.35362E 01	.32899E 01	.30930E 01	.29509E 01	.28583E 01	.28091E 01
71.	.56826E 01	.54408E 01	.50578E 01	.46833E 01	.43789E 01	.41560E 01	.40091E 01	.39305E 01
61.	.74113E 01	.70944E 01	.66008E 01	.61119E 01	.57088E 01	.54102E 01	.52119E 01	.51051E 01
51.	.91154E 01	.87366E 01	.81488E 01	.75593E 01	.70669E 01	.66986E 01	.64521E 01	.63188E 01
41.	.10786E 02	.10357E 02	.96906E 01	.90137E 01	.84415E 01	.80095E 01	.77184E 01	.75604E 01
31.	.12417E 02	.11948E 02	.11217E 02	.10465E 02	.98225E 01	.93329E 01	.90011E 01	.88202E 01
21.	.14001E 02	.13502E 02	.12718E 02	.11904E 02	.11200E 02	.10659E 02	.10290E 02	.10089E 02
11.	.15529E 02	.15007E 02	.14183E 02	.13317E 02	.12562E 02	.11976E 02	.11575E 02	.11354E 02
1.	.16984E 02	.16448E 02	.15596E 02	.14691E 02	.13893E 02	.13269E 02	.12840E 02	.12603E 02

ARAM = .000000

EFLECTANCE FIELD:

.68580747 .44546020 .36856717 .33271611 .31065112 .29577386 .28612715 .28095168

(KK) = .344042

TEST RUN 2

$\tau_0 = 3.177$

$R_B = .8$

540°K

$x = 0$ [ISOTROPIC SCATTERING]

$\omega = .9995$

INDEX = 1.0

SLAB DIVIDED INTO 3 BANDS:

0 – 6.6611 MICRONS
6.6611 – 20 MICRONS
20 – ∞ MICRONS

TOTAL RESULTS ARE COMPARABLE TO A SINGLE SLAB SUBJECT TO AN INCIDENT RADIATIVE FLUX OF 459.646 WATTS/CM^2

```
NDS = 101
TOL = 9.999999E-11
TEST = 61
PRINT = 7
NONDM = 1
THICK = 1.00000 CM
BNDS = 1210000000
  SPECIAL -- 2  STANDARD --  1  2  3
TEMPD = 1
TEMP =   540.000  540.000  540.000  540.000  540.000  540.000  540.000  540.000  540.000  540.000
(KELVIN)
```

540.000	540.000	540.000	540.000	540.000	540.000	540.000	540.000	540.000	540.000
540.000	540.000	540.000	540.000	540.000	540.000	540.000	540.000	540.000	540.000
540.000	540.000	540.000	540.000	540.000	540.000	540.000	540.000	540.000	540.000
540.000	540.000	540.000	540.000	540.000	540.000	540.000	540.000	540.000	540.000
540.000	540.000	540.000	540.000	540.000	540.000	540.000	540.000	540.000	540.000
540.000	540.000	540.000	540.000	540.000	540.000	540.000	540.000	540.000	540.000
540.000	540.000	540.000	540.000	540.000	540.000	540.000	540.000	540.000	540.000
540.000	540.000	540.000	540.000	540.000	540.000	540.000	540.000	540.000	540.000
540.000									

ISBT = .0000000 .0000000 .0000000 .0000000 .0000000

INTENSITIES IN WATTS/CM**2/STERADIAN

FLUXES IN WATTS/CM**2

FLUX DIVERGENCE IN WATTS/CM**3

```
  SPECIAL BAND -- BAND 2


INDEX =    1.000
RB =   .800
QO =       241.6569977 WATTS/CM**2
K =      .001588     .001588     .001588     .001588     .001588 CM**-1
S =    3.175400   3.175400   3.175400   3.175400   3.175400 CM**-1




WAVELENGTH INTERVAL:    .66611E-03 - .20000E-02 CM
                        .66611E 01 - .20000E 02 MICRONS

 F(O - LT):
 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .5257[illegible]E

 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E

 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E

 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .5257[illegible]E

 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E

 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .5257[illegible]E

 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E

 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E

 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .5257[illegible]E

 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E

 .52574E 00
CRT = 1.57080
CRTDG = 89.9999
RFLI =     .0000000   .0000000   .0000000   .0000000   .0000000   .0000000   .0000000   .0000000

RFLO =     .0000000   .0000000   .0000000   .0000000   .0000000   .0000000   .0000000   .0000000

RO = .000000
RI = 8.547389E-13


  KUBELKA MUNK STARTING ROUTINE
```

46.	.59268E 02	.57778E 02	.56312E 02	.55049E 02	.54109E 02	.53475E 02	.53087E 02	.52889E 02
45.	.59519E 02	.58031E 02	.56569E 02	.55305E 02	.54358E 02	.53715E 02	.53320E 02	.53118E 02
44.	.59770E 02	.58284E 02	.56826E 02	.55560E 02	.54606E 02	.53956E 02	.53554E 02	.53348E 02
43.	.60022E 02	.58536E 02	.57083E 02	.55815E 02	.54855E 02	.54197E 02	.53788E 02	.53578E 02
42.	.60273E 02	.58789E 02	.57339E 02	.56070E 02	.55104E 02	.54438E 02	.54023E 02	.53809E 02
41.	.60525E 02	.59041E 02	.57594E 02	.56325E 02	.55353E 02	.54680E 02	.54258E 02	.54041E 02
40.	.60777E 02	.59293E 02	.57850E 02	.56580E 02	.55602E 02	.54922E 02	.54494E 02	.54273E 02
39.	.61028E 02	.59546E 02	.58105E 02	.56834E 02	.55851E 02	.55165E 02	.54731E 02	.54506E 02
38.	.61281E 02	.59798E 02	.58360E 02	.57089E 02	.56101E 02	.55408E 02	.54968E 02	.54740E 02
37.	.61533E 02	.60050E 02	.58615E 02	.57343E 02	.56350E 02	.55651E 02	.55206E 02	.54974E 02
36.	.61785E 02	.60303E 02	.58870E 02	.57597E 02	.56600E 02	.55894E 02	.55444E 02	.55209E 02
35.	.62038E 02	.60555E 02	.59124E 02	.57851E 02	.56850E 02	.56138E 02	.55683E 02	.55444E 02
34.	.62291E 02	.60808E 02	.59379E 02	.58105E 02	.57100E 02	.56383E 02	.55922E 02	.55680E 02
33.	.62544E 02	.61061E 02	.59633E 02	.58360E 02	.57350E 02	.56627E 02	.56162E 02	.55917E 02
32.	.62797E 02	.61313E 02	.59888E 02	.58614E 02	.57600E 02	.56872E 02	.56402E 02	.56154E 02
31.	.63051E 02	.61566E 02	.60142E 02	.58868E 02	.57851E 02	.57117E 02	.56642E 02	.56392E 02
30.	.63305E 02	.61820E 02	.60397E 02	.59122E 02	.58101E 02	.57363E 02	.56883E 02	.56630E 02
29.	.63559E 02	.62073E 02	.60651E 02	.59376E 02	.58352E 02	.57609E 02	.57125E 02	.56869E 02
28.	.63814E 02	.62327E 02	.60906E 02	.59630E 02	.58603E 02	.57855E 02	.57367E 02	.57108E 02
27.	.64069E 02	.62581E 02	.61160E 02	.59885E 02	.58855E 02	.58102E 02	.57610E 02	.57348E 02
26.	.64325E 02	.62835E 02	.61415E 02	.60139E 02	.59106E 02	.58349E 02	.57852E 02	.57588E 02
25.	.64581E 02	.63089E 02	.61670E 02	.60394E 02	.59358E 02	.58597E 02	.58096E 02	.57829E 02
24.	.64838E 02	.63344E 02	.61925E 02	.60648E 02	.59610E 02	.58844E 02	.58340E 02	.58071E 02
23.	.65095E 02	.63599E 02	.62181E 02	.60903E 02	.59862E 02	.59093E 02	.58584E 02	.58312E 02
22.	.65352E 02	.63855E 02	.62436E 02	.61159E 02	.60114E 02	.59341E 02	.58829E 02	.58555E 02
21.	.65611E 02	.64111E 02	.62692E 02	.61414E 02	.60367E 02	.59590E 02	.59074E 02	.58798E 02
20.	.65870E 02	.64368E 02	.62948E 02	.61669E 02	.60620E 02	.59839E 02	.59320E 02	.59042E 02
19.	.66129E 02	.64625E 02	.63205E 02	.61925E 02	.60874E 02	.60089E 02	.59567E 02	.59286E 02
18.	.66390E 02	.64882E 02	.63462E 02	.62182E 02	.61127E 02	.60339E 02	.59814E 02	.59531E 02
17.	.66651E 02	.65141E 02	.63719E 02	.62438E 02	.61382E 02	.60590E 02	.60061E 02	.59776E 02
16.	.66914E 02	.65400E 02	.63977E 02	.62695E 02	.61636E 02	.60841E 02	.60309E 02	.60022E 02
15.	.67177E 02	.65659E 02	.64235E 02	.62953E 02	.61891E 02	.61093E 02	.60558E 02	.60269E 02
14.	.67442E 02	.65920E 02	.64494E 02	.63210E 02	.62147E 02	.61346E 02	.60807E 02	.60516E 02
13.	.67708E 02	.66181E 02	.64754E 02	.63469E 02	.62403E 02	.61598E 02	.61057E 02	.60764E 02
12.	.67975E 02	.66444E 02	.65014E 02	.63728E 02	.62660E 02	.61852E 02	.61308E 02	.61012E 02
11.	.68244E 02	.66707E 02	.65275E 02	.63988E 02	.62917E 02	.62106E 02	.61559E 02	.61262E 02
10.	.68516E 02	.66972E 02	.65538E 02	.64248E 02	.63175E 02	.62361E 02	.61811E 02	.61512E 02
9.	.68789E 02	.67239E 02	.65801E 02	.64510E 02	.63434E 02	.62617E 02	.62064E 02	.61763E 02
8.	.69066E 02	.67507E 02	.66066E 02	.64772E 02	.63694E 02	.62874E 02	.62318E 02	.62015E 02
7.	.69346E 02	.67777E 02	.66332E 02	.65036E 02	.63955E 02	.63132E 02	.62573E 02	.62269E 02
6.	.69631E 02	.68050E 02	.66600E 02	.65302E 02	.64218E 02	.63391E 02	.62830E 02	.62523E 02
5.	.69921E 02	.68327E 02	.66870E 02	.65569E 02	.64482E 02	.63652E 02	.63088E 02	.62779E 02
4.	.70219E 02	.68607E 02	.67144E 02	.65838E 02	.64748E 02	.63915E 02	.63347E 02	.63037E 02
3.	.70527E 02	.68893E 02	.67421E 02	.66111E 02	.65017E 02	.64180E 02	.63609E 02	.63297E 02
2.	.70848E 02	.69186E 02	.67703E 02	.66387E 02	.65289E 02	.64448E 02	.63874E 02	.63560E 02
1.	.71188E 02	.69488E 02	.67992E 02	.66669E 02	.65566E 02	.64721E 02	.64143E 02	.63827E 02

PARAM = .000000
R(KK) = .862550

BAND 1

INDEX = 1.000
RB = .800
QØ = 185.2250061 WATTS/CM**2
K = .001588 .001588 .001588 .001588 .001588 CM**-1
S = 3.175400 3.175400 3.175400 3.175400 3.175400 CM**-1

WAVELENGTH INTERVAL: .00000E 00 - .66611E-03 CM
.00000E 00 - .66611E 01 MICRØNS

F(Ø - LT):
.40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .402[illegible]E

.40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .402[illegible]E

.40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E

.40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .402[illegible]E

.40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E

.40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .402[illegible]E

.40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .402[illegible]E

.40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E

.40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .402[illegible]E

.40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E 00 .40298E

.40298E 00
CRT = 1.57080
CRTDG = 89.9999
RFLI = .0000000 .0000000 .0000000 .0000000 .0000000 .0000000 .0000000 .0000000

RFLØ = .0000000 .0000000 .0000000 .0000000 .0000000 .0000000 .0000000 .0000000

ITERATIØN 27

I1	I2	I3	I4	I5	I6	I7	I8	QR	DQRD[redacted]
58959E 02	.58959E 02	.58959E 02	.58959E 02	.58959E 02	.58959E 02	.58959E 02	.58959E 02	.25539E 02	-.11048E 0
.53645E 02	.55472E 02	.56445E 02	.56963E 02	.57266E 02	.57450E 02	.57560E 02	.57615E 02	.25355E 02	-.10555E 0
.51487E 02	.52910E 02	.54103E 02	.54890E 02	.55401E 02	.55730E 02	.55931E 02	.56036E 02	.25235E 02	-.10146[redacted] 0
.49496E 02	.50739E 02	.51935E 02	.52845E 02	.53487E 02	.53920E 02	.54194E 02	.54337E 02	.25127E 02	-.97525E 0
.47546E 02	.48720E 02	.49876E 02	.50837E 02	.51558E 02	.52065E 02	.52393E 02	.52567E 02	.25025E 02	-.93648E 0
.45615E 02	.46761E 02	.47881E 02	.48859E 02	.49627E 02	.50185E 02	.50553E 02	.50751E 02	.24930E 02	-.89800[redacted] 0
.43690E 02	.44825E 02	.45922E 02	.46903E 02	.47698E 02	.48291E 02	.48689E 02	.48905E 02	.24840E 02	-.85954[redacted] 0
.41756E 02	.42892E 02	.43977E 02	.44957E 02	.45769E 02	.46385E 02	.46805E 02	.47035E 02	.24757E 02	-.82082E 0
.39791E 02	.40942E 02	.42026E 02	.43007E 02	.43830E 02	.44464E 02	.44901E 02	.45141E 02	.24683E 02	-.78129[redacted] 0
.37742E 02	.38935E 02	.40036E 02	.41026E 02	.41861E 02	.42511E 02	.42962E 02	.43212E 02	.24626E 02	-.73949[redacted] 0
35283E 02	.36692E 02	.37876E 02	.38909E 02	.39774E 02	.40448E 02	.40917E 02	.41178E 02	.24682E 02	-.68273E 0

.28227E 02	.29353E 02	.30301E 02	.31127E 02	.31819E 02	.32358E 02	.32734E 02	.32942E 02
36290E 02	.33969E 02	.33152E 02	.33051E 02	.33208E 02	.33426E 02	.33615E 02	.33730E 02
38579E 02	.36964E 02	.35731E 02	.35142E 02	.34928E 02	.34891E 02	.34919E 02	.34951E 02
.40586E 02	.39279E 02	.38025E 02	.37207E 02	.36755E 02	.36532E 02	.36434E 02	.36397E 02
42535E 02	.41343E 02	.40147E 02	.39227E 02	.38628E 02	.38272E 02	.38076E 02	.37985E 02
.44464E 02	.43313E 02	.42170E 02	.41211E 02	.40521E 02	.40071E 02	.39803E 02	.39669E 02
.46390E 02	.45253E 02	.44144E 02	.43171E 02	.42426E 02	.41910E 02	.41587E 02	.41420E 02
.48326E 02	.47188E 02	.46097E 02	.45120E 02	.44340E 02	.43778E 02	.43414E 02	.43222E 02
.50288E 02	.49139E 02	.48051E 02	.47071E 02	.46269E 02	.45673E 02	.45278E 02	.45066E 02
.52307E 02	.51129E 02	.50031E 02	.49044E 02	.48224E 02	.47602E 02	.47183E 02	.46955E 02
.54563E 02	.53260E 02	.52114E 02	.51100E 02	.50254E 02	.49606E 02	.49163E 02	.48921E 02

= 9.795187E-11

PARAM

IONLESS

DIMENSIONLESS

I1	I2	I3	I4	I5	I6	I7	I8	QR	DQRD
.10000E 01	.10000E 01	.10000E 01	.10000E 01	.10000E 01	.10000E 01	.10000E 01	.10000E 01	.13788E 00	-.37562E 0
.90986E 00	.94086E 00	.95735E 00	.96615E 00	.97129E 00	.97441E 00	.97627E 00	.97721E 00	.13689E 00	-.35885[redacted] 0
.87327E 00	.89740E 00	.91764E 00	.93099E 00	.93965E 00	.94523E 00	.94865E 00	.95042E 00	.13624E 00	-.34496[redacted] 0
83949E 00	.86059E 00	.88086E 00	.89631E 00	.90718E 00	.91454E 00	.91918E 00	.92161E 00	.13565E 00	-.33156E 0
.80643E 00	.82633E 00	.84594E 00	.86224E 00	.87447E 00	.88307E 00	.88863E 00	.89159E 00	.13511E 00	-.31838E 0
77368E 00	.79311E 00	.81211E 00	.82870E 00	.84172E 00	.85119E 00	.85743E 00	.86079E 00	.13459E 00	-.30530[redacted] 0
74102E 00	.76028E 00	.77888E 00	.79552E 00	.80901E 00	.81906E 00	.82581E 00	.82948E 00	.13411E 00	-.29223E 0
.70822E 00	.72749E 00	.74589E 00	.76251E 00	.77628E 00	.78674E 00	.79386E 00	.79776E 00	.13366E 00	-.27906E 0
.67489E 00	.69441E 00	.71280E 00	.72944E 00	.74340E 00	.75415E 00	.76156E 00	.76564E 00	.13326E 00	-.26562[redacted] 0
64014E 00	.66038E 00	.67905E 00	.69584E 00	.71001E 00	.72102E 00	.72867E 00	.73291E 00	.13295E 00	-.25141[redacted] 0
.59844E 00	.62232E 00	.64241E 00	.65993E 00	.67461E 00	.68603E 00	.69399E 00	.69842E 00	.13325E 00	-.23211E 0

101.	.47875E 00	.49786E 00	.51393E 00	.52794E 00	.53968E 00	.54882E 00	.55519E 00	.55873E 00
91.	.61552E 00	.57615E 00	.56229E 00	.56058E 00	.56324E 00	.56695E 00	.57014E 00	.57210E 00
81.	.65433E 00	.62694E 00	.60602E 00	.59604E 00	.59241E 00	.59179E 00	.59227E 00	.59280E 00
71.	.68838E 00	.66621E 00	.64495E 00	.63106E 00	.62341E 00	.61962E 00	.61795E 00	.61733E 00
61.	.72144E 00	.70121E 00	.68092E 00	.66533E 00	.65517E 00	.64912E 00	.64581E 00	.64426E 00
51.	.75415E 00	.73464E 00	.71525E 00	.69897E 00	.68728E 00	.67964E 00	.67509E 00	.67282E 00
41.	.78682E 00	.76753E 00	.74872E 00	.73222E 00	.71958E 00	.71083E 00	.70535E 00	.70252E 00
31.	.81966E 00	.80036E 00	.78184E 00	.76527E 00	.75205E 00	.74252E 00	.73634E 00	.73309E 00
21.	.85294E 00	.83344E 00	.81499E 00	.79838E 00	.78477E 00	.77466E 00	.76796E 00	.76437E 00
11.	.88718E 00	.86720E 00	.84858E 00	.83184E 00	.81792E 00	.80738E 00	.80026E 00	.79640E 00
1.	.92545E 00	.90335E 00	.88389E 00	.86670E 00	.85236E 00	.84137E 00	.83386E 00	.82975E 00

R(KK) = .862537

BAND 2

```
INDEX =    1.000
RB =   .800
Q0 =       241.6569977 WATTS/CM**2
K =      .001588      .001588      .001588      .001588      .001588 CM**-1
S =    3.175400    3.175400    3.175400    3.175400    3.175400 CM**-1



WAVELENGTH INTERVAL:   .66611E-03 - .20000E-02 CM
                       .66611E 01 - .20000E 02 MICRONS

 F(0 - LT):
 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E

 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .5257[illegible]E

 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E

 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .5257[illegible]E

 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E

 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E

 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .5257[illegible]E

 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E

 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .5257[illegible]E

 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E 00 .52574E

 .52574E 00
```

I1	I2	I3	I4	I5	I6	I7	I8	QR	DQRDX
.76922E 02	.76922E 02	.76922E 02	.76922E 02	.76922E 02	.76922E 02	.76922E 02	.76922E 02	.33316E 02	-.14414E
.69989E 02	.72373E 02	.73642E 02	.74318E 02	.74713E 02	.74954E 02	.75097E 02	.75169E 02	.33077E 02	-.13771E
.67175E 02	.69030E 02	.70587E 02	.71614E 02	.72280E 02	.72709E 02	.72972E 02	.73108E 02	.32921E 02	-.13238[illegible]
.64576E 02	.66199E 02	.67759E 02	.68946E 02	.69783E 02	.70348E 02	.70706E 02	.70893E 02	.32780E 02	-.12724[illegible]
.62033E 02	.63564E 02	.65072E 02	.66326E 02	.67267E 02	.67928E 02	.68356E 02	.68584E 02	.32648E 02	-.12218E
.59514E 02	.61009E 02	.62470E 02	.63746E 02	.64748E 02	.65476E 02	.65956E 02	.66215E 02	.32524E 02	-.1171[illegible]

NODE 101

54479E 02	.55962E 02	.57377E 02	.58655E 02	.59714E 02	.60519E 02	.61067E 02	.61367E 02	.32299E 02	-.10709
51916E 02	.53417E 02	.54832E 02	.56111E 02	.57185E 02	.58012E 02	.58582E 02	.58896E 02	.32203E 02	-.10194
49243E 02	.50799E 02	.52236E 02	.53527E 02	.54617E 02	.55464E 02	.56052E 02	.56378E 02	.32129E 02	-.96482E
46035E 02	.47872E 02	.49417E 02	.50765E 02	.51894E 02	.52772E 02	.53384E 02	.53725E 02	.32203E 02	-.89077E

NODE 101

.36828E 02	.38297E 02	.39534E 02	.40612E 02	.41515E 02	.42218E 02	.42708E 02	.42980E 02	.00000E 00	.00000
.47348E 02	.44320E 02	.43254E 02	.43122E 02	.43327E 02	.43612E 02	.43858E 02	.44008E 02	.00000E 00	.00000
.50334E 02	.48227E 02	.46618E 02	.45850E 02	.45571E 02	.45523E 02	.45560E 02	.45601E 02	.00000E 00	.00000E
.52953E 02	.51248E 02	.49612E 02	.48544E 02	.47955E 02	.47664E 02	.47535E 02	.47487E 02	.00000E 00	.00000
.55496E 02	.53940E 02	.52379E 02	.51180E 02	.50398E 02	.49933E 02	.49678E 02	.49559E 02	.00000E 00	.00000
.58012E 02	.56511E 02	.55020E 02	.53768E 02	.52868E 02	.52281E 02	.51931E 02	.51756E 02	.00000E 00	.00000E
.60525E 02	.59041E 02	.57594E 02	.56325E 02	.55353E 02	.54680E 02	.54258E 02	.54041E 02	.00000E 00	.00000E
.63051E 02	.61566E 02	.60142E 02	.58868E 02	.57851E 02	.57117E 02	.56642E 02	.56392E 02	.00000E 00	.00000
.65611E 02	.64111E 02	.62692E 02	.61414E 02	.60367E 02	.59590E 02	.59074E 02	.58798E 02	.00000E 00	.00000E
.68244E 02	.66707E 02	.65275E 02	.63988E 02	.62917E 02	.62106E 02	.61559E 02	.61262E 02	.00000E 00	.00000E
.71188E 02	.69488E 02	.67992E 02	.66669E 02	.65566E 02	.64720E 02	.64143E 02	.63827E 02	.00000E 00	.00000

IONLESS

DIMENSIONLESS

NODE 101

I1	I2	I3	I4	I5	I6	I7	I8	QR	DQRD
.10000E 01	.10000E 01	.10000E 01	.10000E 01	.10000E 01	.10000E 01	.10000E 01	.10000E 01	.13787E 00	-.37562E
.90987E 00	.94087E 00	.95736E 00	.96615E 00	.97129E 00	.97442E 00	.97627E 00	.97721E 00	.13687E 00	-.35886
.87329E 00	.89741E 00	.91765E 00	.93100E 00	.93966E 00	.94523E 00	.94866E 00	.95042E 00	.13623E 00	-.34496
.83951E 00	.86060E 00	.88088E 00	.89632E 00	.90719E 00	.91455E 00	.91919E 00	.92162E 00	.13565E 00	-.33157E
.80644E 00	.82635E 00	.84596E 00	.86226E 00	.87448E 00	.88308E 00	.88864E 00	.89160E 00	.13510E 00	-.31839
.77370E 00	.79313E 00	.81213E 00	.82872E 00	.84174E 00	.85120E 00	.85745E 00	.86081E 00	.13459E 00	-.30531
.74104E 00	.76029E 00	.77890E 00	.79554E 00	.80903E 00	.81908E 00	.82583E 00	.82949E 00	.13411E 00	-.29223E
.70824E 00	.72751E 00	.74591E 00	.76253E 00	.77630E 00	.78676E 00	.79388E 00	.79778E 00	.13366E 00	-.27907E
.67491E 00	.69443E 00	.71282E 00	.72946E 00	.74342E 00	.75417E 00	.76158E 00	.76566E 00	.13326E 00	-.26563
.64017E 00	.66040E 00	.67907E 00	.69586E 00	.71003E 00	.72104E 00	.72869E 00	.73293E 00	.13295E 00	-.25142E
.59846E 00	.62234E 00	.64243E 00	.65995E 00	.67463E 00	.68605E 00	.69401E 00	.69844E 00	.13326E 00	-.23212E

NODE 101

47877E 00	.49788E 00	.51394E 00	.52796E 00	.53970E 00	.54884E 00	.55521E 00	.55875E 00	.00000E 00	.00000
61554E 00	.57617E 00	.56231E 00	.56060E 00	.56326E 00	.56696E 00	.57016E 00	.57211E 00	.00000E 00	.00000
65435E 00	.62696E 00	.60604E 00	.59606E 00	.59243E 00	.59181E 00	.59228E 00	.59282E 00	.00000E 00	.00000E
68840E 00	.66623E 00	.64497E 00	.63108E 00	.62343E 00	.61964E 00	.61797E 00	.61734E 00	.00000E 00	.00000E
72146E 00	.70123E 00	.68094E 00	.66535E 00	.65519E 00	.64915E 00	.64583E 00	.64428E 00	.00000E 00	.00000
75417E 00	.73465E 00	.71527E 00	.69899E 00	.68730E 00	.67966E 00	.67511E 00	.67284E 00	.00000E 00	.00000
78683E 00	.76755E 00	.74874E 00	.73224E 00	.71960E 00	.71085E 00	.70537E 00	.70254E 00	.00000E 00	.00000E
81968E 00	.80038E 00	.78186E 00	.76529E 00	.75207E 00	.74254E 00	.73636E 00	.73310E 00	.00000E 00	.00000
85295E 00	.83346E 00	.81501E 00	.79839E 00	.78479E 00	.77468E 00	.76798E 00	.76439E 00	.00000E 00	.00000
88719E 00	.86721E 00	.84859E 00	.83185E 00	.81794E 00	.80739E 00	.80028E 00	.79642E 00	.00000E 00	.00000E

```
.92978E 00 .90333E 00 .88331E 00 .86671E 00 .85237E 00 .84138E 00 .83387E 00 .82976E 00 .00000E 00

  BAND 3


INDEX =    1.000
RB =   .800
QØ =        32.7640076 WATTS/CM**2
K =      .001588     .001588     .001588     .001588     .001588 CM**-1
S =    3.175400    3.175400    3.175400    3.175400    3.175400 CM**-1



WAVELENGTH INTERVAL:  .20000E-02 - .10000E 70 CM
                      .20000E 02 - .10000E 74 MICRØNS

 F(Ø - LT):
 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E

 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E

 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E

 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E

 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E

 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E

 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E

 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E

 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E

 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E-01 .71283E

 .71283E-01
CRT = 1.57080
CRTDG = 89.9999
RFLI =    .0000000  .0000000  .0000000  .0000000  .0000000  .0000000  .0000000  .0000000

RFLØ =    .0000000  .0000000  .0000000  .0000000  .0000000  .0000000  .0000000  .0000000



ITERATIØN  28
```

I1	I2	I3	I4	I5	I6	I7	I8	QR	DQRD
10429E 02	.10429E 02	.10429E 02	.10429E 02	.10429E 02	.10429E 02	.10429E 02	.10429E 02	.45166E 01	-.19543E 0
94892E 01	.98125E 01	.99844E 01	.10076E 02	.10130E 02	.10162E 02	.10182E 02	.10191E 02	.44842E 01	-.18671E 0
.91077E 01	.93593E 01	.95703E 01	.97096E 01	.97998E 01	.98580E 01	.98937E 01	.99121E 01	.44630E 01	-.17948[redacted] 0
.87555E 01	.89754E 01	.91869E 01	.93479E 01	.94613E 01	.95380E 01	.95864E 01	.96118E 01	.44440E 01	-.17252E 0
.84107E 01	.86183E 01	.88227E 01	.89927E 01	.91202E 01	.92099E 01	.92679E 01	.92987E 01	.44262E 01	-.16566E 0
.80692E 01	.82718E 01	.84699E 01	.86430E 01	.87788E 01	.88774E 01	.89426E 01	.89776E 01	.44094E 01	-.15885[redacted] 0
.77286E 01	.79294E 01	.81234E 01	.82969E 01	.84376E 01	.85424E 01	.86128E 01	.86511E 01	.43937E 01	-.15205[redacted] 0
.73866E 01	.75875E 01	.77794E 01	.79528E 01	.80963E 01	.82054E 01	.82797E 01	.83203E 01	.43791E 01	-.14520E 0
.70390E 01	.72425E 01	.74343E 01	.76078E 01	.77534E 01	.78656E 01	.79428E 01	.79854E 01	.43661E 01	-.13821[redacted] 0
66766E 01	.68876E 01	.70824E 01	.72575E 01	.74052E 01	.75201E 01	.75998E 01	.76441E 01	.43561E 01	-.13082[redacted] 0
62416E 01	.64907E 01	.67002E 01	.68830E 01	.70360E 01	.71552E 01	.72382E 01	.72843E 01	.43662E 01	-.12078E 0

49933E 01	.51926E 01	.53602E 01	.55064E 01	.56288E 01	.57241E 01	.57905E 01	.58275E 01
64198E 01	.60091E 01	.58646E 01	.58468E 01	.58745E 01	.59131E 01	.59465E 01	.59669E 01
68246E 01	.65389E 01	.63207E 01	.62166E 01	.61788E 01	.61723E 01	.61772E 01	.61828E 01
71797E 01	.69485E 01	.67267E 01	.65819E 01	.65020E 01	.64626E 01	.64451E 01	.64386E 01
.75244E 01	.73135E 01	.71019E 01	.69392E 01	.68333E 01	.67703E 01	.67357E 01	.67196E 01
78655E 01	.76620E 01	.74598E 01	.72901E 01	.71682E 01	.70886E 01	.70411E 01	.70174E 01
.82062E 01	.80050E 01	.78089E 01	.76368E 01	.75050E 01	.74138E 01	.73566E 01	.73272E 01
.85487E 01	.83474E 01	.81543E 01	.79815E 01	.78437E 01	.77442E 01	.76798E 01	.76459E 01
88957E 01	.86924E 01	.85000E 01	.83267E 01	.81848E 01	.80795E 01	.80096E 01	.79721E 01
.92527E 01	.90443E 01	.88502E 01	.86757E 01	.85305E 01	.84206E 01	.83464E 01	.83061E 01
.96517E 01	.94213E 01	.92185E 01	.90392E 01	.88896E 01	.87750E 01	.86967E 01	.86539E 01

= 6.465228E-11

PARAM

IONLESS

DIMENSIONLESS

I1	I2	I3	I4	I5	I6	I7	I8	QR	DQRD
.10000E 01	.10000E 01	.10000E 01	.10000E 01	.10000E 01	.10000E 01	.10000E 01	.10000E 01	.13785E 00	-.37562E 0
.90988E 00	.94087E 00	.95736E 00	.96615E 00	.97129E 00	.97442E 00	.97627E 00	.97721E 00	.13686E 00	-.35886[redacted] 0
87330E 00	.89742E 00	.91766E 00	.93101E 00	.93966E 00	.94524E 00	.94866E 00	.95043E 00	.13622E 00	-.34497[redacted] 0
.83952E 00	.86061E 00	.88089E 00	.89633E 00	.90720E 00	.91455E 00	.91920E 00	.92163E 00	.13564E 00	-.33157E 0
.80646E 00	.82637E 00	.84597E 00	.86227E 00	.87449E 00	.88309E 00	.88866E 00	.89161E 00	.13509E 00	-.31840[redacted] 0
77372E 00	.79314E 00	.81214E 00	.82873E 00	.84175E 00	.85121E 00	.85746E 00	.86082E 00	.13458E 00	-.30531[redacted] 0
74106E 00	.76032E 00	.77892E 00	.79556E 00	.80904E 00	.81909E 00	.82584E 00	.82951E 00	.13410E 00	-.29224E 0
70826E 00	.72754E 00	.74593E 00	.76255E 00	.77632E 00	.78678E 00	.79390E 00	.79780E 00	.13365E 00	-.27908E 0
67494E 00	.69445E 00	.71285E 00	.72948E 00	.74344E 00	.75419E 00	.76160E 00	.76568E 00	.13326E 00	-.26564[redacted] 0
.64019E 00	.66042E 00	.67910E 00	.69588E 00	.71005E 00	.72107E 00	.72871E 00	.73295E 00	.13295E 00	-.25143[redacted] 0
59848E 00	.62237E 00	.64245E 00	.65998E 00	.67465E 00	.68608E 00	.69403E 00	.69846E 00	.13326E 00	-.23213E 0

101.	.47879E 00	.49789E 00	.51396E 00	.52798E 00	.53972E 00	.54886E 00	.55523E 00	.55877E 00
91.	.61556E 00	.57619E 00	.56233E 00	.56062E 00	.56328E 00	.56698E 00	.57018E 00	.57213E 00
81.	.65438E 00	.62699E 00	.60607E 00	.59608E 00	.59245E 00	.59184E 00	.59231E 00	.59284E 00
71.	.68843E 00	.66626E 00	.64499E 00	.63110E 00	.62345E 00	.61967E 00	.61799E 00	.61737E 00
61.	.72148E 00	.70125E 00	.68097E 00	.66537E 00	.65521E 00	.64917E 00	.64586E 00	.64431E 00
51.	.75419E 00	.73468E 00	.71529E 00	.69902E 00	.68732E 00	.67969E 00	.67514E 00	.67287E 00
41.	.78685E 00	.76757E 00	.74876E 00	.73226E 00	.71962E 00	.71087E 00	.70539E 00	.70257E 00
31.	.81969E 00	.80039E 00	.78188E 00	.76531E 00	.75210E 00	.74256E 00	.73639E 00	.73313E 00
21.	.85297E 00	.83347E 00	.81503E 00	.79841E 00	.78480E 00	.77470E 00	.76800E 00	.76441E 00
11.	.88720E 00	.86722E 00	.84861E 00	.83187E 00	.81795E 00	.80741E 00	.80030E 00	.79643E 00
1.	.92546E 00	.90336E 00	.88392E 00	.86672E 00	.85238E 00	.84140E 00	.83389E 00	.82978E 00

R(KK) = .862564

OVER ALL REFLECTANCE [illegible]

ØVERALL FLUXES, STARTING AT FRØNT WALL:

.63371E 02	.63298E 02	.63237E 02	.63184E 02	.63137E 02	.63094E 02	.63055E 02	.63018E 02	.62982E 02
.62916E 02	.62884E 02	.62852E 02	.62822E 02	.62792E 02	.62762E 02	.62733E 02	.62704E 02	.62675E 02
.62619E 02	.62591E 02	.62563E 02	.62536E 02	.62509E 02	.62482E 02	.62456E 02	.62429E 02	.62403E 02
.62351E 02	.62325E 02	.62299E 02	.62274E 02	.62249E 02	.62223E 02	.62198E 02	.62174E 02	.62149E 02
.62100E 02	.62076E 02	.62052E 02	.62028E 02	.62004E 02	.61980E 02	.61957E 02	.61933E 02	.61910E 02
.61864E 02	.61841E 02	.61818E 02	.61795E 02	.61773E 02	.61751E 02	.61729E 02	.61707E 02	.61685E 02
.61641E 02	.61620E 02	.61599E 02	.61578E 02	.61557E 02	.61536E 02	.61516E 02	.61495E 02	.61475E 02
.61435E 02	.61416E 02	.61396E 02	.61377E 02	.61359E 02	.61340E 02	.61322E 02	.61304E 02	.61286E 02
.61251E 02	.61235E 02	.61219E 02	.61203E 02	.61187E 02	.61173E 02	.61159E 02	.61145E 02	.61133E 02
.61111E 02	.61102E 02	.61095E 02	.61090E 02	.61089E 02	.61092E 02	.61100E 02	.61117E 02	.61144E 02
.61251E 02								

ØVERALL DIVERGENCE:

-.27417E 01	-.27260E 01	-.27117E 01	-.26985E 01	-.26860E 01	-.26742E 01	-.26627E 01	-.26516E 01	-.26406E 01
-.26193E 01	-.26089E 01	-.25985E 01	-.25883E 01	-.25781E 01	-.25679E 01	-.25578E 01	-.25478E 01	-.25378E 01
-.25179E 01	-.25080E 01	-.24982E 01	-.24883E 01	-.24785E 01	-.24688E 01	-.24590E 01	-.24493E 01	-.24395E 01
-.24202E 01	-.24105E 01	-.24008E 01	-.23912E 01	-.23816E 01	-.23719E 01	-.23623E 01	-.23527E 01	-.23431E 01
-.23240E 01	-.23144E 01	-.23048E 01	-.22953E 01	-.22857E 01	-.22762E 01	-.22666E 01	-.22571E 01	-.22475E 01
-.22285E 01	-.22189E 01	-.22094E 01	-.21999E 01	-.21903E 01	-.21808E 01	-.21712E 01	-.21617E 01	-.21522E 01
-.21330E 01	-.21235E 01	-.21139E 01	-.21043E 01	-.20947E 01	-.20851E 01	-.20755E 01	-.20659E 01	-.20563E 01
-.20370E 01	-.20273E 01	-.20176E 01	-.20078E 01	-.19981E 01	-.19883E 01	-.19785E 01	-.19686E 01	-.19587E 01
-.19389E 01	-.19288E 01	-.19188E 01	-.19086E 01	-.18984E 01	-.18882E 01	-.18778E 01	-.18673E 01	-.18567E 01
-.18351E 01	-.18240E 01	-.18127E 01	-.18010E 01	-.17889E 01	-.17762E 01	-.17628E 01	-.17483E 01	-.17325E 01

Test Case 3

$\tau_0 = 3.177$

$0°K$

$X = 0$ [ISOTROPIC SCATTERING]

$R_B = .8$

INDEX = 1.0

SLAB HAS TWO LAYERS – $\omega = .95$ for FIRST 3/5 th's

$\omega = .9995$ for REAR 3/5 th's

```
NDS = 201
TOL = 9.999999E-11
TEST = 1000
PRINT = 25
NONDM = 1
THICK = 1.00000 CM
BNDS = 2000000000
  SPECIAL -- 1  STANDARD --
TEMPD = 1
TEMP =      .000     .000     .000     .000     .000     .000     .000     .000     .000     .000
(KELVIN)
```

.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
.000									

ISØT = .0000000 .0000000 .0000000 .0000000 .0000000

INTENSITIES IN WATTS/CM**2/STERADIAN

FLUXES IN WATTS/CM**2

FLUX DIVERGENCE IN WATTS/CM**3

SPECIAL BAND -- BAND 1

```
INDEX =    1.000
RB =   .800
Q0 =      100.0000000 WATTS/CM**2
K =     .158850     .158850     .001588     .001588     .001588 CM**-1
S =    3.018150    3.018150    3.175412    3.175412    3.175412 CM**-1
```

GAUSSIAN INTEGRAL

MU'S	WEIGHTS
.09501249	.18945062
.28160357	.18260342
.45801675	.16915649
.61787623	.14959598
.75540441	.12462896
.86563122	.09515852
.94457501	.06225352
.98940092	.02715246

```
WAVELENGTH INTERVAL;  .00000E 00 - .99999E 70 CM
                      .00000E 00 - .99999E 74 MICRONS
```

F(0 - LT):

```
.76529E-80 .41180E-82 .10295E-83 .51476E-84 .00000E 00 .00000E 00 .52964E-77 .21620E-81 .00000E 00 .51476E
.00000E 00 .00000E 00 .00000E 00 .00000E 00 .00000E 00 .00000E 00 .00000E 00 .00000E 00 .00000E 00 .000[redacted]E
.15674E 32 .25098E 00 .00000E 00 .00000E 00 .00000E 00 .00000E 00 .00000E 00 .00000E 00 .51476E-84 .658[redacted]E
.32680E-79 .26313E-77 .62500E-01 .00000E 00-.65446E-77 .00000E 00 .80964E-77 .22204E-15 .13092E-79 .50375E
.00000E 00 .00000E 00 .43959E-72 .86736E-18 .22041E-38 .46137E 08 .35112E 51 .13605E 46 .25759E 51 .188[redacted]E
.22859E 09 .40116E-17 .27636E-75 .27537E 48 .44060E 49 .94040E-37 .42409E-25-.21828E-09 .25760E 51 .18877E
.27538E 48 .23510E-37-.96207E 12 .78603E-21 .27638E-75 .44061E 49 .13346E 46 .60818E 08 .18809E-36 .611[redacted]E
.35112E 51 .43656E-10 .11755E-37 .36734E-39 .12148E-26 .00000E 00 .25593E-54 .48172E-37 .10408E-16 .293[redacted]E
.33144E 13 .35903E-73 .36734E-39 .18808E-36-.21690E-06-.24501E-05 .19966E 46 .43369E-17 .44065E 49 .14106
.60818E 08 .25760E 51 .27541E 48 .94039E-37 .20881E-52 .25759E 51 .55039E-19 .13306E 46-.56548E-10-.924[redacted]E
.32715E 49 .00000E 00 [illegible]
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-.15085E-27-.22067E-12-.11082E-06-.31925E-49-.30467E-28 .34656E-43-.14291E-24 .47495E-72-.94780E-44 .139[illegible]E
 .18011E 46 .84850E-75-.72370E 76 .74917E-71 .46835E-72 .28995E-73 .12325E-69-.37419E-49 .19651E-18 .94040E
 .22149E 13 .94758E-37 .57108E-64 .18808E-36 .22149E 13 .94714E-37 .27544E 48 .47093E-36 .16108E-55 .000[illegible]E
 .43491E-17 .55968E 43 .14185E 46 .70552E-18-.42764E-49 .97782E 43 .56711E-36 .00000E 00-.40023E-03 .25369E
 .38523E-33 .13336E-16-.28563E-61 .58781E-38 .55098E-39 .14156E 43 .47020E-37 .42950E 10 .11715E 50 .276[illegible]E
 .14326E 46 .10658E-13 .11154E 13 .11154E 13 .47612E-64 .88162E-38 .77040E-33 .23511E-37 .87992E-18 .470[illegible]E
 .11715E 50-.42764E-49 .26158E-17 .43521E-13 .78815E 00 .25759E 51 .20087E 60-.42764E-49 .11715E 50 .25534E
 .94040E-37 .36683E 48 .79663E-12 .18808E-36 .17632E-37 .17632E-37 .60215E-38 .14106E-36 .94040E-37 .551[illegible]E
 .36684E 48 .11715E 50 .55101E-39 .47020E-36 .36734E-39 .11715E 50 .14671E 46 .38528E-33 .27550E 48 .94039E
 .53076E-54
CRT = 1.57080
CRTDG = 89.9999
RFLI =    .0000000  .0000000  .0000000  .0000000  .0000000  .0000000  .0000000  .0000000

RFLO =    .0000000  .0000000  .0000000  .0000000  .0000000  .0000000  .0000000  .0000000

RO = .000000
RI = 8.547389E-13
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KUBELKA MUNK STARTING ROUTINE

NODE	QT	QR	DQRDY
1.	.10000E 03	.61329E 02	-.51254E 02
2.	.99405E 02	.60990E 02	-.50957E 02
3.	.98814E 02	.60653E 02	-.50663E 02
4.	.98227E 02	.60319E 02	-.50370E 02
5.	.97644E 02	.59986E 02	-.50079E 02
6.	.97065E 02	.59657E 02	-.49790E 02
7.	.96489E 02	.59329E 02	-.49503E 02
8.	.95917E 02	.59004E 02	-.49218E 02
9.	.95349E 02	.58681E 02	-.48935E 02
10.	.94784E 02	.58360E 02	-.48654E 02
11.	.94223E 02	.58042E 02	-.48375E 02
12.	.93666E 02	.57726E 02	-.48097E 02
13.	.93112E 02	.57412E 02	-.47821E 02
14.	.92562E 02	.57100E 02	-.47548E 02
15.	.92015E 02	.56791E 02	-.47276E 02
16.	.91472E 02	.56483E 02	-.47005E 02
17.	.90933E 02	.56178E 02	-.46737E 02

71.	.72036E 02	[illegible] 02	-.41470E 00
72.	.71874E 02	.58378E 02	-.41368E 00
73.	.71712E 02	.58218E 02	-.41266E 00
74.	.71550E 02	.58058E 02	-.41164E 00
75.	.71388E 02	.57899E 02	-.41062E 00
76.	.71227E 02	.57739E 02	-.40960E 00
77.	.71065E 02	.57579E 02	-.40857E 00
78.	.70903E 02	.57420E 02	-.40755E 00
79.	.70742E 02	.57260E 02	-.40653E 00
80.	.70580E 02	.57100E 02	-.40551E 00
81.	.70418E 02	.56941E 02	-.40449E 00
82.	.70257E 02	.56781E 02	-.40347E 00
83.	.70095E 02	.56622E 02	-.40245E 00
84.	.69934E 02	.56462E 02	-.40143E 00
85.	.69772E 02	.56303E 02	-.40041E 00
86.	.69611E 02	.56143E 02	-.39939E 00
87.	.69449E 02	.55984E 02	-.39837E 00
88.	.69288E 02	.55824E 02	-.39736E 00
89.	.69126E 02	.55665E 02	-.39634E 00
90.	.68965E 02	.55505E 02	-.39532E 00
91.	.68804E 02	.55346E 02	-.39430E 00
92.	.68642E 02	.55187E 02	-.39328E 00
93.	.68481E 02	.55027E 02	-.39226E 00
94.	.68320E 02	.54868E 02	-.39124E 00
95.	.68158E 02	.54709E 02	-.39023E 00
96.	.67997E 02	.54549E 02	-.38921E 00
97.	.67836E 02	.54390E 02	-.38819E 00
98.	.67675E 02	.54231E 02	-.38717E 00
99.	.67514E 02	.54072E 02	-.38615E 00
00.	.67353E 02	.53912E 02	-.38514E 00
01.	.67191E 02	.53753E 02	-.38412E 00

ERATION 1

DE	I1	I2	I3	I4	I5	I6	I7	I8	QR	DQ
1.	.31831E 02	.31831E 02	.31831E 02	.31831E 02	.31831E 02	.31831E 02	.31831E 02	.31831E 02	.32484E 02	-.5[illegible]
2.	.30587E 02	.31411E 02	.31573E 02	.31640E 02	.31675E 02	.31694E 02	.31706E 02	.31712E 02	.32073E 02	-.53[illegible]
3.	.29509E 02	.31001E 02	.31315E 02	.31447E 02	.31516E 02	.31556E 02	.31579E 02	.31590E 02	.31667E 02	-.5[illegible]8
4.	.28571E 02	.30600E 02	.31058E 02	.31253E 02	.31356E 02	.31415E 02	.31449E 02	.31466E 02	.31265E 02	-.5[illegible]
5.	.27752E 02	.30210E 02	.30802E 02	.31058E 02	.31194E 02	.31273E 02	.31319E 02	.31341E 02	.30867E 02	-.51[illegible]
6.	.27035E 02	.29829E 02	.30547E 02	.30863E 02	.31032E 02	.31130E 02	.31186E 02	.31215E 02	.30472E 02	-.5[illegible]4
7.	.26403E 02	.29458E 02	.30294E 02	.30667E 02	.30868E 02	.30985E 02	.31053E 02	.31087E 02	.30080E 02	-.5[illegible]0
8.	.25844E 02	.29097E 02	.30043E 02	.30471E 02	.30704E 02	.30840E 02	.30919E 02	.30958E 02	.29692E 02	-.506
9.	.25348E 02	.28746E 02	.29795E 02	.30276E 02	.30539E 02	.30694E 02	.30783E 02	.30828E 02	.29305E 02	-.503
0.	.24904E 02	.28405E 02	.29548E 02	.30081E 02	.30374E 02	.30547E 02	.30647E 02	.30698E 02	.28921E 02	-.4[illegible]
1.	.24506E 02	.28073E 02	.29305E 02	.29887E 02	.30209E 02	.30400E 02	.30511E 02	.30566E 02	.28539E 02	-.4[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.30372E 02	[illegible]	[illegible]	[illegible]

166.	[illegible]	[illegible]	[illegible]	[illegible]	.20434E 02	.20604E 02	.20747E 02	.20835E 02	.99286E 01
167.	.19732E 02	.20064E 02	.20173E 02	.20266E 02	.20415E 02	.20584E 02	.20727E 02	.20814E 02	.99923E 01
168.	.19695E 02	.20033E 02	.20150E 02	.20246E 02	.20396E 02	.20564E 02	.20706E 02	.20793E 02	.10056E 02
169.	.19658E 02	.20001E 02	.20127E 02	.20226E 02	.20377E 02	.20544E 02	.20685E 02	.20772E 02	.10119E 02
170.	.19620E 02	.19969E 02	.20103E 02	.20206E 02	.20357E 02	.20524E 02	.20664E 02	.20750E 02	.10182E 02
171.	.19583E 02	.19937E 02	.20078E 02	.20185E 02	.20337E 02	.20503E 02	.20643E 02	.20729E 02	.10244E 02
172.	.19545E 02	.19904E 02	.20053E 02	.20164E 02	.20316E 02	.20482E 02	.20621E 02	.20707E 02	.10306E 02
173.	.19507E 02	.19871E 02	.20028E 02	.20142E 02	.20295E 02	.20461E 02	.20599E 02	.20684E 02	.10368E 02
174.	.19469E 02	.19838E 02	.20002E 02	.20120E 02	.20274E 02	.20439E 02	.20577E 02	.20662E 02	.10430E 02
175.	.19430E 02	.19804E 02	.19975E 02	.20097E 02	.20252E 02	.20417E 02	.20555E 02	.20639E 02	.10492E 02
176.	.19392E 02	.19770E 02	.19948E 02	.20074E 02	.20230E 02	.20395E 02	.20532E 02	.20616E 02	.10553E 02
177.	.19353E 02	.19736E 02	.19921E 02	.20051E 02	.20207E 02	.20372E 02	.20509E 02	.20592E 02	.10615E 02
178.	.19314E 02	.19701E 02	.19893E 02	.20027E 02	.20185E 02	.20349E 02	.20485E 02	.20569E 02	.10676E 02
179.	.19275E 02	.19666E 02	.19865E 02	.20002E 02	.20161E 02	.20326E 02	.20462E 02	.20545E 02	.10737E 02
180.	.19236E 02	.19631E 02	.19836E 02	.19978E 02	.20138E 02	.20302E 02	.20438E 02	.20521E 02	.10799E 02
181.	.19197E 02	.19595E 02	.19807E 02	.19953E 02	.20114E 02	.20278E 02	.20414E 02	.20496E 02	.10860E 02
182.	.19157E 02	.19559E 02	.19778E 02	.19927E 02	.20090E 02	.20254E 02	.20389E 02	.20472E 02	.10922E 02
183.	.19117E 02	.19523E 02	.19748E 02	.19901E 02	.20065E 02	.20230E 02	.20365E 02	.20447E 02	.10984E 02
184.	.19077E 02	.19487E 02	.19718E 02	.19875E 02	.20040E 02	.20205E 02	.20340E 02	.20421E 02	.11046E 02
185.	.19037E 02	.19450E 02	.19687E 02	.19848E 02	.20015E 02	.20180E 02	.20314E 02	.20396E 02	.11108E 02
186.	.18997E 02	.19413E 02	.19657E 02	.19821E 02	.19989E 02	.20154E 02	.20289E 02	.20370E 02	.11171E 02
187.	.18957E 02	.19376E 02	.19625E 02	.19794E 02	.19963E 02	.20129E 02	.20263E 02	.20344E 02	.11234E 02
188.	.18916E 02	.19339E 02	.19594E 02	.19766E 02	.19937E 02	.20103E 02	.20237E 02	.20318E 02	.11297E 02
189.	.18876E 02	.19301E 02	.19562E 02	.19738E 02	.19910E 02	.20076E 02	.20211E 02	.20292E 02	.11362E 02
190.	.18835E 02	.19263E 02	.19529E 02	.19709E 02	.19883E 02	.20050E 02	.20184E 02	.20265E 02	.11427E 02
191.	.18794E 02	.19225E 02	.19497E 02	.19681E 02	.19856E 02	.20023E 02	.20157E 02	.20238E 02	.11493E 02
192.	.18753E 02	.19187E 02	.19464E 02	.19651E 02	.19829E 02	.19996E 02	.20130E 02	.20211E 02	.11560E 02
193.	.18712E 02	.19149E 02	.19431E 02	.19622E 02	.19801E 02	.19969E 02	.20103E 02	.20184E 02	.11628E 02
194.	.18670E 02	.19110E 02	.19397E 02	.19592E 02	.19773E 02	.19941E 02	.20075E 02	.20156E 02	.11698E 02
195.	.18629E 02	.19071E 02	.19363E 02	.19562E 02	.19744E 02	.19913E 02	.20047E 02	.20128E 02	.11769E 02
196.	.18587E 02	.19032E 02	.19329E 02	.19532E 02	.19715E 02	.19885E 02	.20019E 02	.20100E 02	.11843E 02
197.	.18545E 02	.18993E 02	.19295E 02	.19501E 02	.19687E 02	.19857E 02	.19991E 02	.20072E 02	.11918E 02
198.	.18503E 02	.18954E 02	.19260E 02	.19470E 02	.19657E 02	.19828E 02	.19963E 02	.20043E 02	.11996E 02
199.	.18461E 02	.18914E 02	.19225E 02	.19439E 02	.19628E 02	.19799E 02	.19934E 02	.20014E 02	.12077E 02
200.	.18419E 02	.18874E 02	.19190E 02	.19407E 02	.19598E 02	.19770E 02	.19905E 02	.19985E 02	.12161E 02
201.	.18377E 02	.18834E 02	.19154E 02	.19375E 02	.19568E 02	.19740E 02	.19875E 02	.19956E 02	.12249E 02

201.	.14702E 02	.15068E 02	.15324E 02	.15500E 02	.15654E 02	.15792E 02	.15900E 02	.15965E 02
200.	.15125E 02	.15190E 02	.15390E 02	.15545E 02	.15687E 02	.15819E 02	.15923E 02	.15985E 02
99.	.15491E 02	.15309E 02	.15456E 02	.15590E 02	.15722E 02	.15846E 02	.15946E 02	.16007E 02
98.	.15808E 02	.15427E 02	.15523E 02	.15636E 02	.15757E 02	.15875E 02	.15970E 02	.16029E 02
97.	.16085E 02	.15542E 02	.15591E 02	.15683E 02	.15792E 02	.15904E 02	.15996E 02	.16052E 02
96.	.16326E 02	.15654E 02	.15658E 02	.15731E 02	.15829E 02	.15933E 02	.16021E 02	.16076E 02
95.	.16538E 02	.15763E 02	.15725E 02	.15779E 02	.15866E 02	.15964E 02	.16048E 02	.16100E 02
94.	.16725E 02	.15870E 02	.15792E 02	.15827E 02	.15904E 02	.15995E 02	.16075E 02	.16125E 02
93.	.16890E 02	.15974E 02	.15859E 02	.15875E 02	.15942E 02	.16027E 02	.16102E 02	.16150E 02
92.	.17037E 02	.16075E 02	.15925E 02	.15924E 02	.15980E 02	.16059E 02	.16130E 02	.16176E 02
91.	.17169E 02	.16174E 02	.15991E 02	.15973E 02	.16019E 02	.16091E 02	.16159E 02	.16203E 02
90.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

35.	.20120E 02	.19516E 02	.19345E 02	.19259E 02	.19181E 02	.19115E 02	.19067E 02	.19040E 02
4.	.20210E 02	.19580E 02	.19391E 02	.19295E 02	.19212E 02	.19143E 02	.19093E 02	.19066E 02
3.	.20300E 02	.19646E 02	.19438E 02	.19332E 02	.19244E 02	.19172E 02	.19121E 02	.19093E 02
2.	.20393E 02	.19714E 02	.19487E 02	.19371E 02	.19278E 02	.19203E 02	.19150E 02	.19121E 02
1.	.20487E 02	.19784E 02	.19538E 02	.19412E 02	.19314E 02	.19235E 02	.19181E 02	.19150E 02
30.	.20582E 02	.19856E 02	.19591E 02	.19454E 02	.19350E 02	.19269E 02	.19212E 02	.19181E 02
9.	.20680E 02	.19930E 02	.19645E 02	.19498E 02	.19388E 02	.19304E 02	.19245E 02	.19213E 02
28.	.20779E 02	.20005E 02	.19702E 02	.19544E 02	.19428E 02	.19340E 02	.19279E 02	.19246E 02
27.	.20879E 02	.20083E 02	.19760E 02	.19591E 02	.19469E 02	.19377E 02	.19314E 02	.19280E 02
26.	.20981E 02	.20162E 02	.19820E 02	.19640E 02	.19511E 02	.19416E 02	.19351E 02	.19316E 02
25.	.21086E 02	.20244E 02	.19882E 02	.19690E 02	.19555E 02	.19456E 02	.19389E 02	.19352E 02
24.	.21191E 02	.20327E 02	.19945E 02	.19742E 02	.19601E 02	.19497E 02	.19428E 02	.19390E 02
23.	.21299E 02	.20412E 02	.20011E 02	.19796E 02	.19648E 02	.19540E 02	.19468E 02	.19430E 02
2.	.21409E 02	.20499E 02	.20078E 02	.19852E 02	.19696E 02	.19585E 02	.19510E 02	.19470E 02
21.	.21520E 02	.20588E 02	.20148E 02	.19909E 02	.19746E 02	.19630E 02	.19553E 02	.19512E 02
20.	.21634E 02	.20679E 02	.20219E 02	.19968E 02	.19798E 02	.19677E 02	.19598E 02	.19555E 02
9.	.21750E 02	.20772E 02	.20292E 02	.20028E 02	.19851E 02	.19726E 02	.19644E 02	.19600E 02
8.	.21868E 02	.20867E 02	.20367E 02	.20091E 02	.19906E 02	.19776E 02	.19691E 02	.19645E 02
7.	.21988E 02	.20964E 02	.20444E 02	.20155E 02	.19962E 02	.19828E 02	.19740E 02	.19693E 02
6.	.22111E 02	.21063E 02	.20523E 02	.20221E 02	.20020E 02	.19881E 02	.19790E 02	.19741E 02
5.	.22236E 02	.21164E 02	.20604E 02	.20289E 02	.20080E 02	.19935E 02	.19841E 02	.19791E 02
4.	.22364E 02	.21268E 02	.20687E 02	.20359E 02	.20141E 02	.19992E 02	.19895E 02	.19843E 02
3.	.22495E 02	.21374E 02	.20773E 02	.20430E 02	.20205E 02	.20050E 02	.19949E 02	.19896E 02
2.	.22629E 02	.21483E 02	.20860E 02	.20504E 02	.20270E 02	.20109E 02	.20006E 02	.19951E 02
1.	.22767E 02	.21594E 02	.20950E 02	.20580E 02	.20337E 02	.20171E 02	.20064E 02	.20007E 02
0.	.22908E 02	.21707E 02	.21042E 02	.20658E 02	.20405E 02	.20234E 02	.20123E 02	.20065E 02
9.	.23053E 02	.21824E 02	.21137E 02	.20738E 02	.20476E 02	.20299E 02	.20185E 02	.20124E 02
8.	.23203E 02	.21944E 02	.21235E 02	.20820E 02	.20549E 02	.20366E 02	.20248E 02	.20186E 02
7.	.23357E 02	.22067E 02	.21335E 02	.20905E 02	.20625E 02	.20435E 02	.20313E 02	.20249E 02
6.	.23517E 02	.22194E 02	.21438E 02	.20993E 02	.20702E 02	.20506E 02	.20380E 02	.20314E 02
5.	.23683E 02	.22324E 02	.21545E 02	.21083E 02	.20782E 02	.20579E 02	.20450E 02	.20381E 02
4.	.23856E 02	.22459E 02	.21655E 02	.21177E 02	.20865E 02	.20655E 02	.20522E 02	.20451E 02
3.	.24036E 02	.22599E 02	.21768E 02	.21273E 02	.20950E 02	.20734E 02	.20596E 02	.20523E 02
2.	.24224E 02	.22743E 02	.21886E 02	.21373E 02	.21039E 02	.20815E 02	.20673E 02	.20597E 02
1.	.24422E 02	.22894E 02	.22008E 02	.21477E 02	.21131E 02	.20899E 02	.20752E 02	.20675E 02

RAM = 37.1288

TERATION 2

DE	I1	I2	I3	I4	I5	I6	I7	I8	QR	DQ.
1.	.31831E 02	.31831E 02	.31831E 02	.31831E 02	.31831E 02	.31831E 02	.31831E 02	.31831E 02	.30115E 02	-.5[redacted]6
2.	.30801E 02	.31484E 02	.31617E 02	.31673E 02	.31701E 02	.31718E 02	.31727E 02	.31732E 02	.29796E 02	-.5[redacted]2
3.	.29906E 02	.31143E 02	.31403E 02	.31513E 02	.31570E 02	.31603E 02	.31622E 02	.31631E 02	.29480E 02	-.537
4.	.29124E 02	.30809E 02	.31189E 02	.31351E 02	.31437E 02	.31486E 02	.31514E 02	.31528E 02	.29166E 02	-.5[redacted]3.
5.	.28439E 02	.30483E 02	.30975E 02	.31188E 02	.31302E 02	.31367E 02	.31405E 02	.31424E 02	.28855E 02	-.5[redacted]9
6.	.27837E 02	.30165E 02	.30763E 02	.31025E 02	.31166E 02	.31248E 02	.31295E 02	.31318E 02	.28545E 02	-.526

ITERATION 41

NODE	I1	I2	I3	I4	I5	I6	I7	I8	QR	
1.	.31831E 02	.31831E 02	.31831E 02	.31831E 02	.31831E 02	.31831E 02	.31831E 02	.31831E 02	.29769E 02	5
2.	.30869E 02	.31506E 02	.31631E 02	.31683E 02	.31710E 02	.31725E 02	.31734E 02	.31739E 02	.29485E 02	.5
3.	.30033E 02	.31188E 02	.31432E 02	.31534E 02	.31587E 02	.31618E 02	.31636E 02	.31644E 02	.29204E 02	5
4.	.29304E 02	.30877E 02	.31232E 02	.31383E 02	.31463E 02	.31509E 02	.31535E 02	.31548E 02	.28926E 02	5
5.	.28666E 02	.30573E 02	.31033E 02	.31231E 02	.31337E 02	.31398E 02	.31434E 02	.31451E 02	.28650E 02	.5
6.	.28106E 02	.30277E 02	.30834E 02	.31079E 02	.31211E 02	.31287E 02	.31331E 02	.31353E 02	.28377E 02	5
7.	.27612E 02	.29988E 02	.30637E 02	.30927E 02	.31083E 02	.31174E 02	.31227E 02	.31253E 02	.28106E 02	5
8.	.27175E 02	.29706E 02	.30442E 02	.30774E 02	.30955E 02	.31061E 02	.31122E 02	.31153E 02	.27838E 02	.5
9.	.26785E 02	.29432E 02	.30247E 02	.30622E 02	.30827E 02	.30947E 02	.31016E 02	.31051E 02	.27571E 02	.5
10.	.26437E 02	.29165E 02	.30055E 02	.30470E 02	.30698E 02	.30832E 02	.30910E 02	.30949E 02	.27306E 02	5
11.	.26123E 02	.28905E 02	.29865E 02	.30318E 02	.30569E 02	.30717E 02	.30803E 02	.30847E 02	.27043E 02	5
12.	.25840E 02	.28653E 02	.29676E 02	.30166E 02	.30440E 02	.30602E 02	.30696E 02	.30744E 02	.26781E 02	.5
13.	.25582E 02	.28407E 02	.29490E 02	.30016E 02	.30310E 02	.30486E 02	.30589E 02	.30640E 02	.26521E 02	5
14.	.25347E 02	.28168E 02	.29305E 02	.29865E 02	.30181E 02	.30370E 02	.30481E 02	.30536E 02	.26263E 02	5
15.	.25130E 02	.27936E 02	.29123E 02	.29716E 02	.30052E 02	.30254E 02	.30373E 02	.30432E 02	.26006E 02	.5
16.	.24930E 02	.27710E 02	.28943E 02	.29567E 02	.29924E 02	.30138E 02	.30264E 02	.30328E 02	.25750E 02	5
17.	.24744E 02	.27491E 02	.28765E 02	.29419E 02	.29795E 02	.30022E 02	.30156E 02	.30223E 02	.25496E 02	4
18.	.24570E 02	.27277E 02	.28590E 02	.29272E 02	.29667E 02	.29906E 02	.30047E 02	.30119E 02	.25243E 02	.4
19.	.24407E 02	.27069E 02	.28416E 02	.29126E 02	.29540E 02	.29790E 02	.29939E 02	.30014E 02	.24991E 02	.4
20.	.24253E 02	.26867E 02	.28245E 02	.28981E 02	.29412E 02	.29675E 02	.29830E 02	.29909E 02	.24741E 02	4
21.	.24107E 02	.26670E 02	.28077E 02	.28837E 02	.29285E 02	.29559E 02	.29722E 02	.29804E 02	.24492E 02	4
22.	.23968E 02	.26479E 02	.27910E 02	.28694E 02	.29159E 02	.29444E 02	.29613E 02	.29699E 02	.24244E 02	.4
23.	.23835E 02	.26292E 02	.27746E 02	.28552E 02	.29033E 02	.29329E 02	.29505E 02	.29595E 02	.23997E 02	4
24.	.23708E 02	.26111E 02	.27584E 02	.28412E 02	.28908E 02	.29214E 02	.29397E 02	.29490E 02	.23751E 02	4
25.	.23586E 02	.25934E 02	.27424E 02	.28272E 02	.28783E 02	.29099E 02	.29289E 02	.29385E 02	.23506E 02	.4
26.	.23468E 02	.25762E 02	.27266E 02	.28133E 02	.28659E 02	.28985E 02	.29181E 02	.29281E 02	.23262E 02	4
27.	.23353E 02	.25594E 02	.27111E 02	.27996E 02	.28535E 02	.28871E 02	.29074E 02	.29177E 02	.23020E 02	4
28.	.23243E 02	.25430E 02	.26958E 02	.27859E 02	.28412E 02	.28758E 02	.28966E 02	.29072E 02	.22778E 02	.4
29.	.23135E 02	.25270E 02	.26806E 02	.27724E 02	.28290E 02	.28645E 02	.28859E 02	.28969E 02	.22537E 02	.4
30.	.23031E 02	.25115E 02	.26657E 02	.27590E 02	.28169E 02	.28532E 02	.28752E 02	.28865E 02	.22298E 02	4
31.	.22929E 02	.24963E 02	.26510E 02	.27457E 02	.28048E 02	.28420E 02	.28646E 02	.28761E 02	.22059E 02	4
32.	.22829E 02	.24814E 02	.26366E 02	.27325E 02	.27928E 02	.28309E 02	.28540E 02	.28658E 02	.21821E 02	.4
33.	.22732E 02	.24670E 02	.26223E 02	.27195E 02	.27808E 02	.28197E 02	.28434E 02	.28555E 02	.21585E 02	4
34.	.22637E 02	.24528E 02	.26082E 02	.27065E 02	.27689E 02	.28087E 02	.28328E 02	.28453E 02	.21349E 02	4
35.	.22544E 02	.24390E 02	.25943E 02	.26937E 02	.27571E 02	.27976E 02	.28223E 02	.28350E 02	.21114E 02	.4
36.	.22452E 02	.24255E 02	.25806E 02	.26810E 02	.27454E 02	.27867E 02	.28119E 02	.28248E 02	.20880E 02	4
37.	.22363E 02	.24123E 02	.25671E 02	.26684E 02	.27338E 02	.27757E 02	.28014E 02	.28147E 02	.20646E 02	4
38.	.22275E 02	.23994E 02	.25538E 02	.26560E 02	.27222E 02	.27649E 02	.27910E 02	.28045E 02	.20414E 02	.4
39.	.22189E 02	.23868E 02	.25407E 02	.26436E 02	.27107E 02	.27541E 02	.27807E 02	.27944E 02	.20182E 02	.4
40.	.22104E 02	.23745E 02	.25278E 02	.26314E 02	.26993E 02	.27433E 02	.27704E 02	.27844E 02	.19952E 02	4
41.	.22021E 02	.23624E 02	.25151E 02	.26193E 02	.26880E 02	.27326E 02	.27601E 02	.27744E 02	.19722E 02	4
42.	.21939E 02	.23506E 02	.25025E 02	.26073E 02	.26767E 02	.27220E 02	.27499E 02	.27644E 02	.19493E 02	.4
43.	.21858E 02	.23390E 02	.24901E 02	.25954E 02	.26656E 02	.27114E 02	.27398E 02	.27545E 02	.19264E 02	4
44.	.21779E 02	.23277E 02	.24779E 02	.25837E 02	.26545E 02	.27009E 02	.27296E 02	.27446E 02	.19037E 02	4
45.	.21701E 02	.23166E 02	.24659E 02	.25721E 02	.26435E 02	.26904E 02	.27196E 02	.27347E 02	.18810E 02	.4

•24919E 02 •23695E 02 •22900E 02 •22334E 02 •21913E 02 •21609E 02 •21409E 02 •21302E 02
•25078E 02 •23818E 02 •23003E 02 •22424E 02 •21996E 02 •21687E 02 •21484E 02 •21375E 02
= 5•356071E-11

PARAM

I8NLESS

Nodes 1-39

I1	I2	I3	I4	I5	I6	I7	I8	QR	DQRDY E [redacted]
•10000E 01	•10000E 01	•10000E 01	•10000E 01	•10000E 01	•10000E 01	•10000E 01	•10000E 01	•29769E 00	-•34505[redacted]
•96978E 00	•98980E 00	•99373E 00	•99535E 00	•99620E 00	•99668E 00	•99696E 00	•99710E 00	•29485E 00	-•34229E
•94352E 00	•97981E 00	•98745E 00	•99066E 00	•99234E 00	•99331E 00	•99386E 00	•99414E 00	•29204E 00	-•33971E
•92062E 00	•97004E 00	•98118E 00	•98592E 00	•98843E 00	•98988E 00	•99071E 00	•99112E 00	•28926E 00	-•33728[redacted]
•90058E 00	•96049E 00	•97492E 00	•98116E 00	•98449E 00	•98641E 00	•98752E 00	•98807E 00	•28650E 00	-•33499E
•88299E 00	•95118E 00	•96869E 00	•97639E 00	•98051E 00	•98290E 00	•98428E 00	•98497E 00	•28377E 00	-•33281E
•86747E 00	•94209E 00	•96250E 00	•97160E 00	•97651E 00	•97936E 00	•98102E 00	•98185E 00	•28106E 00	-•33073[redacted]
•85372E 00	•93324E 00	•95635E 00	•96681E 00	•97248E 00	•97580E 00	•97773E 00	•97869E 00	•27838E 00	-•32875[redacted]
•84148E 00	•92463E 00	•95025E 00	•96202E 00	•96845E 00	•97222E 00	•97441E 00	•97551E 00	•27571E 00	-•32684E
•83053E 00	•91624E 00	•94421E 00	•95723E 00	•96440E 00	•96862E 00	•97107E 00	•97230E 00	•27306E 00	-•32501E
•82069E 00	•90809E 00	•93822E 00	•95246E 00	•96035E 00	•96500E 00	•96772E 00	•96908E 00	•27043E 00	-•32324[redacted]
•81179E 00	•90015E 00	•93230E 00	•94771E 00	•95629E 00	•96138E 00	•96435E 00	•96584E 00	•26781E 00	-•32152E
•80369E 00	•89244E 00	•92644E 00	•94297E 00	•95223E 00	•95774E 00	•96097E 00	•96259E 00	•26521E 00	-•31986E
•79629E 00	•88493E 00	•92065E 00	•93825E 00	•94818E 00	•95410E 00	•95758E 00	•95933E 00	•26263E 00	-•31825[redacted]
•78949E 00	•87764E 00	•91492E 00	•93355E 00	•94413E 00	•95046E 00	•95418E 00	•95606E 00	•26006E 00	-•31668E
•78320E 00	•87054E 00	•90927E 00	•92888E 00	•94008E 00	•94682E 00	•95078E 00	•95278E 00	•25750E 00	-•31515E
•77736E 00	•86364E 00	•90368E 00	•92423E 00	•93605E 00	•94317E 00	•94737E 00	•94950E 00	•25496E 00	-•31365[redacted]
•77189E 00	•85693E 00	•89817E 00	•91962E 00	•93202E 00	•93953E 00	•94396E 00	•94621E 00	•25243E 00	-•31219[redacted]
•76676E 00	•85041E 00	•89272E 00	•91503E 00	•92801E 00	•93589E 00	•94055E 00	•94292E 00	•24991E 00	-•31076E
•76193E 00	•84405E 00	•88735E 00	•91048E 00	•92401E 00	•93225E 00	•93715E 00	•93962E 00	•24741E 00	-•30936E
•75734E 00	•83787E 00	•88205E 00	•90595E 00	•92003E 00	•92862E 00	•93374E 00	•93633E 00	•24492E 00	-•30799[redacted]
•75298E 00	•83186E 00	•87682E 00	•90146E 00	•91606E 00	•92500E 00	•93033E 00	•93304E 00	•24244E 00	-•30664E
•74881E 00	•82600E 00	•87166E 00	•89700E 00	•91210E 00	•92139E 00	•92693E 00	•92974E 00	•23997E 00	-•30532E
•74481E 00	•82030E 00	•86657E 00	•89258E 00	•90817E 00	•91778E 00	•92353E 00	•92646E 00	•23751E 00	-•30402[redacted]
•74096E 00	•81474E 00	•86155E 00	•88819E 00	•90425E 00	•91418E 00	•92014E 00	•92317E 00	•23506E 00	-•30274E
•73726E 00	•80933E 00	•85660E 00	•88383E 00	•90035E 00	•91060E 00	•91675E 00	•91989E 00	•23262E 00	-•30149E
•73367E 00	•80405E 00	•85171E 00	•87951E 00	•89646E 00	•90702E 00	•91337E 00	•91661E 00	•23020E 00	-•30026[redacted]
•73019E 00	•79891E 00	•84690E 00	•87523E 00	•89260E 00	•90346E 00	•91000E 00	•91334E 00	•22778E 00	-•29904[redacted]
•72682E 00	•79389E 00	•84215E 00	•87098E 00	•88876E 00	•89991E 00	•90664E 00	•91007E 00	•22537E 00	-•29785E
•72353E 00	•78900E 00	•83747E 00	•86677E 00	•88494E 00	•89637E 00	•90328E 00	•90682E 00	•22298E 00	-•29667[redacted]
•72033E 00	•78423E 00	•83285E 00	•86259E 00	•88115E 00	•89285E 00	•89994E 00	•90357E 00	•22059E 00	-•29552[redacted]
•71720E 00	•77957E 00	•82830E 00	•85845E 00	•87737E 00	•88934E 00	•89660E 00	•90032E 00	•21821E 00	-•29438E
•71415E 00	•77502E 00	•82381E 00	•85435E 00	•87362E 00	•88584E 00	•89328E 00	•89709E 00	•21585E 00	-•29326E
•71116E 00	•77058E 00	•81939E 00	•85029E 00	•86989E 00	•88237E 00	•88996E 00	•89386E 00	•21349E 00	-•29216[redacted]
•70823E 00	•76624E 00	•81503E 00	•84626E 00	•86618E 00	•87890E 00	•88666E 00	•89065E 00	•21114E 00	-•29107E
•70536E 00	•76200E 00	•81073E 00	•84227E 00	•86250E 00	•87545E 00	•88337E 00	•88745E 00	•20880E 00	-•29000E
•70255E 00	•75785E 00	•80649E 00	•83832E 00	•85884E 00	•87202E 00	•88009E 00	•88425E 00	•20646E 00	-•28895[redacted]
•69979E 00	•75380E 00	•80231E 00	•83440E 00	•85521E 00	•86861E 00	•87683E 00	•88107E 00	•20414E 00	-•28791[redacted]
•69708E 00	[illegible] 00	•79819E 00	•83050E 00	[illegible] 00	[illegible] 00	•87358E 00	•87790E 00	[illegible] 00	-•28689E

NODE 40

.69180E 00	.74217E 00	.79013E 00	.82288E 00	.84445E 00	.85848E 00	.86712E 00	.87159E 00	.19722E 00	-.28489
.68922E 00	.73846E 00	.78619E 00	.81911E 00	.84092E 00	.85513E 00	.86391E 00	.86846E 00	.19493E 00	-.28392
.68669E 00	.73483E 00	.78230E 00	.81538E 00	.83741E 00	.85181E 00	.86072E 00	.86534E 00	.19264E 00	-.28296E
.68421E 00	.73128E 00	.77847E 00	.81169E 00	.83393E 00	.84851E 00	.85754E 00	.86223E 00	.19037E 00	-.28202E
.68176E 00	.72779E 00	.77469E 00	.80804E 00	.83047E 00	.84522E 00	.85438E 00	.85914E 00	.18810E 00	-.28109
.67935E 00	.72439E 00	.77097E 00	.80442E 00	.82704E 00	.84196E 00	.85124E 00	.85606E 00	.18584E 00	-.28017E
.67699E 00	.72105E 00	.76730E 00	.80084E 00	.82364E 00	.83872E 00	.84811E 00	.85299E 00	.18359E 00	-.27927E
.67466E 00	.71777E 00	.76368E 00	.79730E 00	.82026E 00	.83549E 00	.84499E 00	.84994E 00	.18134E 00	-.27838
.67237E 00	.71457E 00	.76012E 00	.79379E 00	.81691E 00	.83229E 00	.84190E 00	.84691E 00	.17910E 00	-.27751
.67011E 00	.71143E 00	.75661E 00	.79033E 00	.81359E 00	.82911E 00	.83882E 00	.84389E 00	.17687E 00	-.27666E
.66789E 00	.70835E 00	.75315E 00	.78689E 00	.81029E 00	.82594E 00	.83576E 00	.84088E 00	.17465E 00	-.27581
.66571E 00	.70533E 00	.74974E 00	.78350E 00	.80702E 00	.82280E 00	.83272E 00	.83790E 00	.17243E 00	-.27498
.66357E 00	.70237E 00	.74638E 00	.78014E 00	.80378E 00	.81969E 00	.82969E 00	.83493E 00	.17022E 00	-.27417E
.66146E 00	.69947E 00	.74307E 00	.77682E 00	.80057E 00	.81659E 00	.82669E 00	.83197E 00	.16801E 00	-.27337E
.65938E 00	.69662E 00	.73981E 00	.77353E 00	.79738E 00	.81351E 00	.82370E 00	.82903E 00	.16581E 00	-.27258
.65734E 00	.69384E 00	.73659E 00	.77028E 00	.79422E 00	.81046E 00	.82073E 00	.82611E 00	.16362E 00	-.27181E
.65534E 00	.69110E 00	.73343E 00	.76707E 00	.79109E 00	.80743E 00	.81778E 00	.82321E 00	.16144E 00	-.27105E
.65337E 00	.68842E 00	.73031E 00	.76390E 00	.78799E 00	.80442E 00	.81485E 00	.82033E 00	.15926E 00	-.27031
.65143E 00	.68579E 00	.72724E 00	.76076E 00	.78491E 00	.80144E 00	.81194E 00	.81746E 00	.15708E 00	-.26958
.64953E 00	.68321E 00	.72422E 00	.75765E 00	.78186E 00	.79848E 00	.80905E 00	.81461E 00	.15491E 00	-.26887E
.64766E 00	.68068E 00	.72124E 00	.75459E 00	.77885E 00	.79554E 00	.80618E 00	.81178E 00	.15275E 00	-.26817
.64583E 00	.67820E 00	.71830E 00	.75155E 00	.77586E 00	.79262E 00	.80333E 00	.80897E 00	.15059E 00	-.26749
.64403E 00	.67576E 00	.71542E 00	.74856E 00	.77290E 00	.78973E 00	.80050E 00	.80618E 00	.14844E 00	-.26682E
.64227E 00	.67338E 00	.71258E 00	.74560E 00	.76997E 00	.78686E 00	.79769E 00	.80340E 00	.14629E 00	-.26616E
.64054E 00	.67104E 00	.70978E 00	.74268E 00	.76706E 00	.78402E 00	.79490E 00	.80065E 00	.14415E 00	-.26553
.63885E 00	.66875E 00	.70703E 00	.73979E 00	.76419E 00	.78120E 00	.79213E 00	.79792E 00	.14201E 00	-.26491E
.63720E 00	.66650E 00	.70432E 00	.73694E 00	.76134E 00	.77841E 00	.78939E 00	.79521E 00	.13988E 00	-.26430E
.63558E 00	.66430E 00	.70165E 00	.73413E 00	.75853E 00	.77564E 00	.78667E 00	.79251E 00	.13775E 00	-.26372
.63400E 00	.66215E 00	.69903E 00	.73135E 00	.75575E 00	.77289E 00	.78397E 00	.78984E 00	.13563E 00	-.26315
.63246E 00	.66004E 00	.69646E 00	.72861E 00	.75299E 00	.77017E 00	.78129E 00	.78719E 00	.13351E 00	-.26260E
.63095E 00	.65798E 00	.69393E 00	.72591E 00	.75027E 00	.76748E 00	.77863E 00	.78456E 00	.13139E 00	-.26207
.62949E 00	.65596E 00	.69144E 00	.72324E 00	.74757E 00	.76482E 00	.77600E 00	.78196E 00	.12928E 00	-.26156
.62807E 00	.65399E 00	.68900E 00	.72061E 00	.74491E 00	.76218E 00	.77340E 00	.77937E 00	.12717E 00	-.26107E
.62670E 00	.65206E 00	.68660E 00	.71802E 00	.74228E 00	.75956E 00	.77081E 00	.77681E 00	.12507E 00	-.26061E
.62537E 00	.65018E 00	.68424E 00	.71547E 00	.73968E 00	.75698E 00	.76826E 00	.77427E 00	.12296E 00	-.26017
.62409E 00	.64835E 00	.68194E 00	.71296E 00	.73712E 00	.75442E 00	.76572E 00	.77176E 00	.12086E 00	-.25976E
.62286E 00	.64657E 00	.67967E 00	.71048E 00	.73459E 00	.75190E 00	.76322E 00	.76927E 00	.11877E 00	-.25939E
.62169E 00	.64483E 00	.67746E 00	.70805E 00	.73209E 00	.74940E 00	.76074E 00	.76680E 00	.11667E 00	-.25904
.62057E 00	.64315E 00	.67529E 00	.70566E 00	.72963E 00	.74693E 00	.75829E 00	.76437E 00	.11457E 00	-.25873
.61952E 00	.64152E 00	.67318E 00	.70331E 00	.72720E 00	.74450E 00	.75587E 00	.76196E 00	.11248E 00	-.25847E
.62389E 00	.64176E 00	.67222E 00	.70182E 00	.72549E 00	.74268E 00	.75401E 00	.76009E 00	.11143E 00	-.25852
.62758E 00	.64199E 00	.67131E 00	.70039E 00	.72381E 00	.74091E 00	.75220E 00	.75826E 00	.11142E 00	-.25827
.63055E 00	.64218E 00	.67041E 00	.69897E 00	.72216E 00	.73915E 00	.75040E 00	.75644E 00	.11141E 00	-.25798E
.63290E 00	.64232E 00	.66952E 00	.69757E 00	.72053E 00	.73742E 00	.74862E 00	.75465E 00	.11140E 00	-.25766E
.63473E 00	.64240E 00	.66863E 00	.69619E 00	.71892E 00	.73570E 00	.74686E 00	.75287E 00	.11139E 00	-.25733
.63611E 00	.64244E 00	.66774E 00	.69482E 00	.71732E 00	.73400E 00	.74511E 00	.75110E 00	.11138E 00	-.25697
.63712E 00	.64242E 00	.66685E 00	.69347E 00	.71574E 00	.73231E 00	.74338E 00	.74935E 00	.11137E 00	-.25660E
.63779E 00	.64235E 00	.66596E 00	.69212E 00	.71417E 00	.73064E 00	.74166E 00	.74762E 00	.11135E 00	-.25621
.63820E 00	.64223E 00	.66506E 00	.69079E 00	.71262E 00	.72898E 00	.73995E 00	.74589E 00	.11134E 00	-.25581
.63826E 00	[illegible]	[illegible]	[illegible]	.71107E 00	.72733E 00	[illegible]	[illegible]	.11133E 00	-.25539E

NODE 90

63812E 00	.64157E 00	.66236E 00	.68683E 00	.70801E 00	.72407E 00	.73490E 00	.74078E 00	.11129E 00	-.25454E 0
63777E 00	.64125E 00	.66144E 00	.68552E 00	.70650E 00	.72245E 00	.73324E 00	.73910E 00	.11127E 00	-.25409E 0
63729E 00	.64090E 00	.66052E 00	.68422E 00	.70499E 00	.72085E 00	.73158E 00	.73743E 00	.11125E 00	-.25365E 0
63671E 00	.64050E 00	.65959E 00	.68292E 00	.70350E 00	.71925E 00	.72994E 00	.73576E 00	.11124E 00	-.25319E 0
63603E 00	.64005E 00	.65866E 00	.68163E 00	.70201E 00	.71766E 00	.72830E 00	.73411E 00	.11122E 00	-.25273E 0
63528E 00	.63957E 00	.65772E 00	.68034E 00	.70052E 00	.71608E 00	.72667E 00	.73246E 00	.11120E 00	-.25227E 0
63446E 00	.63905E 00	.65677E 00	.67906E 00	.69905E 00	.71450E 00	.72505E 00	.73082E 00	.11118E 00	-.25180E 0
63357E 00	.63849E 00	.65581E 00	.67777E 00	.69758E 00	.71294E 00	.72344E 00	.72919E 00	.11116E 00	-.25133E 0
63264E 00	.63790E 00	.65485E 00	.67649E 00	.69611E 00	.71138E 00	.72183E 00	.72756E 00	.11115E 00	-.25085E 0
63167E 00	.63728E 00	.65387E 00	.67522E 00	.69466E 00	.70983E 00	.72024E 00	.72594E 00	.11113E 00	-.25037E 0
63065E 00	.63662E 00	.65289E 00	.67394E 00	.69320E 00	.70828E 00	.71864E 00	.72433E 00	.11111E 00	-.24989E 0
62961E 00	.63593E 00	.65191E 00	.67267E 00	.69176E 00	.70674E 00	.71706E 00	.72273E 00	.11109E 00	-.24940E 0
62853E 00	.63521E 00	.65091E 00	.67139E 00	.69031E 00	.70521E 00	.71548E 00	.72113E 00	.11107E 00	-.24891E 0
62744E 00	.63446E 00	.64990E 00	.67012E 00	.68888E 00	.70368E 00	.71391E 00	.71954E 00	.11105E 00	-.24842E 0
62631E 00	.63369E 00	.64889E 00	.66885E 00	.68744E 00	.70216E 00	.71234E 00	.71795E 00	.11103E 00	-.24793E 0
62518E 00	.63289E 00	.64787E 00	.66758E 00	.68601E 00	.70064E 00	.71078E 00	.71637E 00	.11101E 00	-.24743E 0
62402E 00	.63206E 00	.64685E 00	.66632E 00	.68459E 00	.69913E 00	.70922E 00	.71479E 00	.11100E 00	-.24693E 0
62285E 00	.63121E 00	.64581E 00	.66505E 00	.68317E 00	.69762E 00	.70767E 00	.71322E 00	.11098E 00	-.24643E 0
62167E 00	.63034E 00	.64477E 00	.66378E 00	.68175E 00	.69612E 00	.70612E 00	.71166E 00	.11096E 00	-.24593E 0
62047E 00	.62945E 00	.64372E 00	.66251E 00	.68034E 00	.69462E 00	.70458E 00	.71010E 00	.11094E 00	-.24543E 0
61927E 00	.62854E 00	.64266E 00	.66125E 00	.67892E 00	.69313E 00	.70305E 00	.70854E 00	.11092E 00	-.24492E 0
61805E 00	.62760E 00	.64160E 00	.65998E 00	.67752E 00	.69164E 00	.70152E 00	.70699E 00	.11090E 00	-.24442E 0
61683E 00	.62665E 00	.64053E 00	.65871E 00	.67611E 00	.69015E 00	.69999E 00	.70545E 00	.11088E 00	-.24391E 0
61560E 00	.62568E 00	.63945E 00	.65745E 00	.67471E 00	.68867E 00	.69847E 00	.70391E 00	.11086E 00	-.24340E 0
61436E 00	.62469E 00	.63837E 00	.65618E 00	.67331E 00	.68719E 00	.69695E 00	.70237E 00	.11084E 00	-.24289E 0
61312E 00	.62369E 00	.63728E 00	.65491E 00	.67191E 00	.68572E 00	.69543E 00	.70084E 00	.11082E 00	-.24238E 0
61187E 00	.62267E 00	.63618E 00	.65365E 00	.67052E 00	.68425E 00	.69392E 00	.69931E 00	.11080E 00	-.24187E 0
61062E 00	.62164E 00	.63507E 00	.65238E 00	.66913E 00	.68278E 00	.69242E 00	.69778E 00	.11079E 00	-.24135E 0
60936E 00	.62059E 00	.63396E 00	.65111E 00	.66774E 00	.68132E 00	.69091E 00	.69626E 00	.11077E 00	-.24084E 0
60809E 00	.61953E 00	.63285E 00	.64984E 00	.66635E 00	.67986E 00	.68942E 00	.69475E 00	.11075E 00	-.24032E 0
60682E 00	.61846E 00	.63173E 00	.64858E 00	.66497E 00	.67841E 00	.68792E 00	.69323E 00	.11073E 00	-.23981E 0
60555E 00	.61737E 00	.63060E 00	.64731E 00	.66359E 00	.67695E 00	.68643E 00	.69172E 00	.11071E 00	-.23929E 0
60428E 00	.61628E 00	.62946E 00	.64604E 00	.66220E 00	.67550E 00	.68494E 00	.69022E 00	.11069E 00	-.23877E 0
60300E 00	.61517E 00	.62832E 00	.64477E 00	.66083E 00	.67405E 00	.68345E 00	.68871E 00	.11067E 00	-.23825E 0
60171E 00	.61405E 00	.62718E 00	.64349E 00	.65945E 00	.67261E 00	.68197E 00	.68721E 00	.11065E 00	-.23773E 0
60043E 00	.61292E 00	.62603E 00	.64222E 00	.65807E 00	.67116E 00	.68049E 00	.68572E 00	.11063E 00	-.23721E 0
59914E 00	.61178E 00	.62487E 00	.64095E 00	.65670E 00	.66972E 00	.67902E 00	.68422E 00	.11061E 00	-.23668E 0
59785E 00	.61063E 00	.62371E 00	.63967E 00	.65532E 00	.66829E 00	.67754E 00	.68273E 00	.11060E 00	-.23616E 0
59655E 00	.60947E 00	.62255E 00	.63840E 00	.65395E 00	.66685E 00	.67607E 00	.68124E 00	.11058E 00	-.23563E 0
59525E 00	.60830E 00	.62138E 00	.63712E 00	.65258E 00	.66542E 00	.67460E 00	.67976E 00	.11056E 00	-.23511E 0
59395E 00	.60713E 00	.62020E 00	.63585E 00	.65121E 00	.66399E 00	.67314E 00	.67828E 00	.11054E 00	-.23458E 0
59265E 00	.60594E 00	.61902E 00	.63457E 00	.64984E 00	.66256E 00	.67167E 00	.67680E 00	.11052E 00	-.23405E 0
59134E 00	.60475E 00	.61783E 00	.63329E 00	.64848E 00	.66113E 00	.67021E 00	.67532E 00	.11050E 00	-.23352E 0
59004E 00	.60356E 00	.61664E 00	.63201E 00	.64711E 00	.65971E 00	.66875E 00	.67385E 00	.11048E 00	-.23300E 0
58873E 00	.60235E 00	.61545E 00	.63073E 00	.64574E 00	.65829E 00	.66730E 00	.67238E 00	.11047E 00	-.23246E 0
58741E 00	.60114E 00	.61425E 00	.62945E 00	.64438E 00	.65686E 00	.66584E 00	.67091E 00	.11045E 00	-.23193E 0
58610E 00	.59992E 00	.61304E 00	.62816E 00	.64302E 00	.65545E 00	.66439E 00	.66944E 00	.11043E 00	-.23140E 0
58478E 00	.59869E 00	.61183E 00	.62688E 00	.64165E 00	.65403E 00	.66294E 00	.66797E 00	.11041E 00	-.23087E 0
58346E 00	.59746E 00	.61062E 00	.62559E 00	.64029E 00	.65261E 00	.66150E 00	.66651E 00	.11039E 00	-.23033E 0
58213E 00	.59623E 00	.609[illegible]0E 00	.62431E 00	.63893E 00	.65120E 00	.66005E 00	.66505E 00	.11037E 00	-.22980E 0

57948E 00	.59374E 00	.60696E 00	.62173E 00	.63621E 00	.64837E 00	.65716E 00	.66213E 00	.11034E 00	-.2287[illegible]
57815E 00	.59248E 00	.60573E 00	.62044E 00	.63484E 00	.64696E 00	.65572E 00	.66068E 00	.11032E 00	-.22819
.57682E 00	.59122E 00	.60449E 00	.61914E 00	.63348E 00	.64555E 00	.65428E 00	.65923E 00	.11030E 00	-.22765E
.57548E 00	.58996E 00	.60326E 00	.61785E 00	.63212E 00	.64414E 00	.65285E 00	.65777E 00	.11028E 00	-.22711E
.57415E 00	.58869E 00	.60202E 00	.61656E 00	.63076E 00	.64274E 00	.65141E 00	.65632E 00	.11027E 00	-.22657
.57281E 00	.58742E 00	.60077E 00	.61526E 00	.62940E 00	.64133E 00	.64998E 00	.65488E 00	.11025E 00	-.22602E
.57146E 00	.58614E 00	.59952E 00	.61396E 00	.62805E 00	.63992E 00	.64854E 00	.65343E 00	.11023E 00	-.22548E
.57012E 00	.58486E 00	.59827E 00	.61266E 00	.62669E 00	.63852E 00	.64711E 00	.65198E 00	.11021E 00	-.22494
.56877E 00	.58357E 00	.59701E 00	.61136E 00	.62533E 00	.63712E 00	.64568E 00	.65054E 00	.11020E 00	-.22439
.56742E 00	.58228E 00	.59575E 00	.61006E 00	.62397E 00	.63571E 00	.64425E 00	.64910E 00	.11018E 00	-.22384E
.56607E 00	.58099E 00	.59449E 00	.60875E 00	.62261E 00	.63431E 00	.64282E 00	.64765E 00	.11016E 00	-.22329
.56471E 00	.57969E 00	.59322E 00	.60745E 00	.62125E 00	.63291E 00	.64139E 00	.64621E 00	.11014E 00	-.22275
.56335E 00	.57838E 00	.59195E 00	.60614E 00	.61989E 00	.63151E 00	.63997E 00	.64477E 00	.11013E 00	-.22220E
.56199E 00	.57708E 00	.59068E 00	.60483E 00	.61853E 00	.63011E 00	.63854E 00	.64334E 00	.11011E 00	-.22164
.56063E 00	.57576E 00	.58940E 00	.60352E 00	.61717E 00	.62871E 00	.63712E 00	.64190E 00	.11009E 00	-.22109
.55926E 00	.57445E 00	.58812E 00	.60220E 00	.61580E 00	.62731E 00	.63569E 00	.64046E 00	.11008E 00	-.22054
.55789E 00	.57313E 00	.58683E 00	.60089E 00	.61444E 00	.62591E 00	.63427E 00	.63903E 00	.11006E 00	-.21998E
.55651E 00	.57180E 00	.58554E 00	.59957E 00	.61308E 00	.62451E 00	.63284E 00	.63759E 00	.11004E 00	-.21942
.55514E 00	.57048E 00	.58425E 00	.59825E 00	.61172E 00	.62311E 00	.63142E 00	.63616E 00	.11003E 00	-.21886
.55376E 00	.56915E 00	.58295E 00	.59693E 00	.61035E 00	.62171E 00	.63000E 00	.63472E 00	.11001E 00	-.21830E
.55237E 00	.56781E 00	.58165E 00	.59561E 00	.60899E 00	.62031E 00	.62858E 00	.63329E 00	.10999E 00	-.21774
.55099E 00	.56647E 00	.58035E 00	.59428E 00	.60762E 00	.61891E 00	.62716E 00	.63186E 00	.10998E 00	-.21717
.54960E 00	.56513E 00	.57904E 00	.59296E 00	.60626E 00	.61751E 00	.62573E 00	.63042E 00	.10996E 00	-.21661E
.54820E 00	.56378E 00	.57773E 00	.59163E 00	.60489E 00	.61611E 00	.62431E 00	.62899E 00	.10995E 00	-.21604
.54680E 00	.56243E 00	.57642E 00	.59029E 00	.60352E 00	.61471E 00	.62289E 00	.62756E 00	.10993E 00	-.21547
.54540E 00	.56107E 00	.57510E 00	.58896E 00	.60215E 00	.61331E 00	.62147E 00	.62613E 00	.10992E 00	-.21490E
.54399E 00	.55971E 00	.57377E 00	.58762E 00	.60078E 00	.61191E 00	.62005E 00	.62470E 00	.10990E 00	-.21432E
.54258E 00	.55835E 00	.57245E 00	.58628E 00	.59941E 00	.61051E 00	.61863E 00	.62326E 00	.10988E 00	-.21375
.54116E 00	.55698E 00	.57112E 00	.58494E 00	.59803E 00	.60911E 00	.61721E 00	.62183E 00	.10987E 00	-.21317
.53973E 00	.55561E 00	.56978E 00	.58360E 00	.59666E 00	.60770E 00	.61578E 00	.62040E 00	.10985E 00	-.21258E
.53831E 00	.55423E 00	.56844E 00	.58225E 00	.59528E 00	.60630E 00	.61436E 00	.61897E 00	.10984E 00	-.21200
.53687E 00	.55285E 00	.56710E 00	.58090E 00	.59390E 00	.60489E 00	.61294E 00	.61753E 00	.10982E 00	-.21141
.53543E 00	.55146E 00	.56575E 00	.57954E 00	.59252E 00	.60349E 00	.61151E 00	.61610E 00	.10981E 00	-.21082E
.53398E 00	.55007E 00	.56440E 00	.57819E 00	.59114E 00	.60208E 00	.61009E 00	.61467E 00	.10980E 00	-.21022E
.53253E 00	.54867E 00	.56304E 00	.57683E 00	.58975E 00	.60067E 00	.60866E 00	.61323E 00	.10978E 00	-.20962
.53107E 00	.54726E 00	.56168E 00	.57546E 00	.58837E 00	.59926E 00	.60723E 00	.61179E 00	.10977E 00	-.20902E
.52960E 00	.54585E 00	.56031E 00	.57409E 00	.58698E 00	.59784E 00	.60581E 00	.61036E 00	.10976E 00	-.20841E
.52812E 00	.54444E 00	.55894E 00	.57272E 00	.58558E 00	.59643E 00	.60437E 00	.60892E 00	.10974E 00	-.20779
.52663E 00	.54302E 00	.55756E 00	.57135E 00	.58419E 00	.59501E 00	.60294E 00	.60748E 00	.10973E 00	-.20717
.52513E 00	.54159E 00	.55618E 00	.56997E 00	.58279E 00	.59359E 00	.60151E 00	.60603E 00	.10972E 00	-.20654E
.52362E 00	.54015E 00	.55479E 00	.56858E 00	.58138E 00	.59217E 00	.60007E 00	.60459E 00	.10970E 00	-.20591
.52210E 00	.53870E 00	.55339E 00	.56719E 00	.57998E 00	.59074E 00	.59863E 00	.60314E 00	.10969E 00	-.20527
.52057E 00	.53725E 00	.55199E 00	.56580E 00	.57857E 00	.58931E 00	.59719E 00	.60169E 00	.10968E 00	-.20462E
.51902E 00	.53578E 00	.55058E 00	.56439E 00	.57715E 00	.58788E 00	.59575E 00	.60024E 00	.10967E 00	-.20396
.51745E 00	.53431E 00	.54916E 00	.56299E 00	.57573E 00	.58645E 00	.59430E 00	.59879E 00	.10966E 00	-.20329
.51586E 00	.53282E 00	.54773E 00	.56157E 00	.57431E 00	.58501E 00	.59285E 00	.59733E 00	.10965E 00	-.20261E
.51426E 00	.53132E 00	.54629E 00	.56015E 00	.57288E 00	.58356E 00	.59139E 00	.59587E 00	.10965E 00	-.20191E
51263E 00	.52981E 00	.54484E 00	.55872E 00	.57144E 00	.58211E 00	.58993E 00	.59440E 00	.10964E 00	-.20120
51098E 00	.52828E 00	.54338E 00	.55728E 00	.56999E 00	.58065E 00	.58846E 00	.59293E 00	.10963E 00	-.20046
50929E 00	[illegible]	.54190E 00	.55583E 00	[illegible]	.57919E 00	[illegible]	[illegible]	[illegible]	-.19971E

NODE 193

50582E 00	.52359E 00	.53891E 00	.55290E 00	.56560E 00	.57624E 00	.58402E 00	.58847E 00	.10962E 00	-.19813 0
50403E 00	.52198E 00	.53739E 00	.55141E 00	.56412E 00	.57475E 00	.58252E 00	.58697E 00	.10962E 00	-.19730 0
50218E 00	.52035E 00	.53585E 00	.54991E 00	.56262E 00	.57325E 00	.58102E 00	.58546E 00	.10962E 00	-.19642E 0
50028E 00	.51868E 00	.53429E 00	.54839E 00	.56111E 00	.57173E 00	.57950E 00	.58394E 00	.10963E 00	-.19551E 0
49832E 00	.51698E 00	.53270E 00	.54685E 00	.55959E 00	.57021E 00	.57797E 00	.58241E 00	.10964E 00	-.19455 0
49628E 00	.51524E 00	.53109E 00	.54529E 00	.55804E 00	.56866E 00	.57643E 00	.58086E 00	.10965E 00	-.19353 0
49415E 00	.51345E 00	.52944E 00	.54370E 00	.55648E 00	.56710E 00	.57486E 00	.57930E 00	.10966E 00	-.19244E 0
49193E 00	.51161E 00	.52775E 00	.54208E 00	.55488E 00	.56552E 00	.57328E 00	.57772E 00	.10968E 00	-.19128 0

NODE 201

39355E 00	.40929E 00	.42220E 00	.43367E 00	.44391E 00	.45241E 00	.45863E 00	.46218E 00
40766E 00	.41316E 00	.42414E 00	.43481E 00	.44462E 00	.45288E 00	.45895E 00	.46243E 00
41990E 00	.41698E 00	.42610E 00	.43599E 00	.44539E 00	.45340E 00	.45932E 00	.46273E 00
43054E 00	.42074E 00	.42810E 00	.43721E 00	.44619E 00	.45395E 00	.45973E 00	.46306E 00
43984E 00	.42443E 00	.43011E 00	.43847E 00	.44703E 00	.45454E 00	.46017E 00	.46343E 00
44798E 00	.42804E 00	.43214E 00	.43976E 00	.44790E 00	.45516E 00	.46065E 00	.46383E 00
45514E 00	.43158E 00	.43417E 00	.44107E 00	.44880E 00	.45582E 00	.46116E 00	.46427E 00
46147E 00	.43505E 00	.43621E 00	.44240E 00	.44973E 00	.45650E 00	.46169E 00	.46473E 00
46709E 00	.43843E 00	.43825E 00	.44376E 00	.45069E 00	.45721E 00	.46225E 00	.46522E 00
47210E 00	.44174E 00	.44029E 00	.44513E 00	.45166E 00	.45794E 00	.46284E 00	.46573E 00
47660E 00	.44497E 00	.44233E 00	.44652E 00	.45266E 00	.45869E 00	.46345E 00	.46626E 00
48067E 00	.44813E 00	.44436E 00	.44791E 00	.45367E 00	.45947E 00	.46408E 00	.46682E 00
48436E 00	.45121E 00	.44639E 00	.44932E 00	.45470E 00	.46026E 00	.46473E 00	.46740E 00
48773E 00	.45422E 00	.44840E 00	.45074E 00	.45575E 00	.46108E 00	.46540E 00	.46799E 00
49083E 00	.45715E 00	.45041E 00	.45217E 00	.45681E 00	.46190E 00	.46608E 00	.46861E 00
49369E 00	.46002E 00	.45241E 00	.45360E 00	.45789E 00	.46275E 00	.46679E 00	.46924E 00
49636E 00	.46282E 00	.45439E 00	.45504E 00	.45898E 00	.46361E 00	.46751E 00	.46989E 00
49886E 00	.46555E 00	.45636E 00	.45649E 00	.46008E 00	.46449E 00	.46825E 00	.47055E 00
50121E 00	.46822E 00	.45833E 00	.45794E 00	.46119E 00	.46537E 00	.46900E 00	.47123E 00
50343E 00	.47084E 00	.46027E 00	.45940E 00	.46231E 00	.46628E 00	.46976E 00	.47193E 00
50555E 00	.47339E 00	.46221E 00	.46085E 00	.46344E 00	.46719E 00	.47054E 00	.47264E 00
50758E 00	.47589E 00	.46413E 00	.46231E 00	.46458E 00	.46812E 00	.47133E 00	.47336E 00
50952E 00	.47833E 00	.46604E 00	.46378E 00	.46573E 00	.46905E 00	.47214E 00	.47410E 00
51140E 00	.48072E 00	.46794E 00	.46524E 00	.46689E 00	.47000E 00	.47296E 00	.47484E 00
51322E 00	.48307E 00	.46983E 00	.46671E 00	.46805E 00	.47096E 00	.47379E 00	.47561E 00
51499E 00	.48537E 00	.47170E 00	.46818E 00	.46922E 00	.47193E 00	.47463E 00	.47638E 00
51671E 00	.48762E 00	.47356E 00	.46964E 00	.47040E 00	.47291E 00	.47548E 00	.47716E 00
51839E 00	.48983E 00	.47540E 00	.47111E 00	.47159E 00	.47390E 00	.47634E 00	.47796E 00
52004E 00	.49199E 00	.47724E 00	.47258E 00	.47278E 00	.47490E 00	.47721E 00	.47877E 00
52166E 00	.49412E 00	.47906E 00	.47405E 00	.47398E 00	.47590E 00	.47810E 00	.47959E 00
52325E 00	.49621E 00	.48086E 00	.47552E 00	.47518E 00	.47692E 00	.47899E 00	.48042E 00
52482E 00	.49827E 00	.48266E 00	.47699E 00	.47639E 00	.47794E 00	.47989E 00	.48125E 00
52637E 00	.50029E 00	.48444E 00	.47846E 00	.47760E 00	.47897E 00	.48080E 00	.48210E 00
52791E 00	.50228E 00	.48622E 00	.47992E 00	.47882E 00	.48001E 00	.48172E 00	.48296E 00
52942E 00	.50423E 00	.48798E 00	.48139E 00	.48004E 00	.48105E 00	.48265E 00	.48383E 00
53092E 00	.50616E 00	.48973E 00	.48286E 00	.48127E 00	.48211E 00	.48359E 00	.48470E 00
53241E 00	.50806E 00	.49146E 00	.48432E 00	.48250E 00	.48317E 00	.48454E 00	.48559E 00
53389E 00	.50993E 00	.49319E 00	.48579E 00	.48374E 00	.48423E 00	.48549E 00	.48648E 00
53536E 00	.51178E 00	.49491E 00	.48725E 00	.48498E 00	[illegible]8530E 00	.48645E 00	.48738E 00

NODE 163

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
161.	.53826E 00	.51540E 00	.49831E 00	.49017E 00	.48747E 00	.48747E 00	.48840E 00	.48921E 00
160.	.53970E 00	.51717E 00	.49999E 00	.49163E 00	.48872E 00	.48856E 00	.48938E 00	.49014E 00
159.	.54114E 00	.51893E 00	.50167E 00	.49308E 00	.48997E 00	.48965E 00	.49037E 00	.49107E 00
158.	.54256E 00	.52066E 00	.50333E 00	.49454E 00	.49122E 00	.49075E 00	.49137E 00	.49201E 00
157.	.54399E 00	.52238E 00	.50499E 00	.49599E 00	.49248E 00	.49186E 00	.49237E 00	.49296E 00
156.	.54540E 00	.52407E 00	.50663E 00	.49744E 00	.49374E 00	.49297E 00	.49338E 00	.49392E 00
155.	.54681E 00	.52575E 00	.50827E 00	.49889E 00	.49501E 00	.49409E 00	.49440E 00	.49488E 00
154.	.54821E 00	.52741E 00	.50990E 00	.50034E 00	.49627E 00	.49521E 00	.49542E 00	.49585E 00
153.	.54961E 00	.52906E 00	.51152E 00	.50179E 00	.49754E 00	.49634E 00	.49645E 00	.49682E 00
152.	.55101E 00	.53069E 00	.51313E 00	.50323E 00	.49881E 00	.49747E 00	.49749E 00	.49780E 00
151.	.55240E 00	.53230E 00	.51473E 00	.50467E 00	.50008E 00	.49860E 00	.49853E 00	.49879E 00
150.	.55379E 00	.53391E 00	.51632E 00	.50611E 00	.50136E 00	.49974E 00	.49957E 00	.49979E 00
149.	.55517E 00	.53549E 00	.51791E 00	.50755E 00	.50263E 00	.50089E 00	.50062E 00	.50078E 00
148.	.55655E 00	.53707E 00	.51949E 00	.50899E 00	.50391E 00	.50203E 00	.50168E 00	.50179E 00
147.	.55792E 00	.53863E 00	.52106E 00	.51042E 00	.50519E 00	.50319E 00	.50274E 00	.50280E 00
146.	.55929E 00	.54018E 00	.52262E 00	.51185E 00	.50647E 00	.50434E 00	.50380E 00	.50382E 00
145.	.56066E 00	.54172E 00	.52417E 00	.51328E 00	.50776E 00	.50550E 00	.50487E 00	.50484E 00
144.	.56203E 00	.54325E 00	.52572E 00	.51471E 00	.50904E 00	.50666E 00	.50595E 00	.50587E 00
143.	.56339E 00	.54477E 00	.52726E 00	.51614E 00	.51033E 00	.50783E 00	.50703E 00	.50690E 00
142.	.56475E 00	.54628E 00	.52880E 00	.51756E 00	.51161E 00	.50900E 00	.50811E 00	.50794E 00
141.	.56611E 00	.54778E 00	.53033E 00	.51898E 00	.51290E 00	.51017E 00	.50920E 00	.50898E 00
140.	.56746E 00	.54927E 00	.53185E 00	.52040E 00	.51419E 00	.51134E 00	.51030E 00	.51003E 00
139.	.56881E 00	.55075E 00	.53336E 00	.52182E 00	.51548E 00	.51252E 00	.51139E 00	.51108E 00
138.	.57016E 00	.55222E 00	.53487E 00	.52323E 00	.51677E 00	.51370E 00	.51249E 00	.51213E 00
137.	.57151E 00	.55369E 00	.53637E 00	.52465E 00	.51806E 00	.51488E 00	.51360E 00	.51319E 00
136.	.57285E 00	.55515E 00	.53787E 00	.52606E 00	.51935E 00	.51607E 00	.51471E 00	.51426E 00
135.	.57419E 00	.55660E 00	.53936E 00	.52747E 00	.52065E 00	.51726E 00	.51582E 00	.51533E 00
134.	.57553E 00	.55804E 00	.54085E 00	.52887E 00	.52194E 00	.51845E 00	.51694E 00	.51640E 00
133.	.57687E 00	.55948E 00	.54233E 00	.53028E 00	.52324E 00	.51964E 00	.51805E 00	.51748E 00
132.	.57820E 00	.56091E 00	.54380E 00	.53168E 00	.52453E 00	.52084E 00	.51918E 00	.51856E 00
131.	.57953E 00	.56233E 00	.54527E 00	.53308E 00	.52583E 00	.52204E 00	.52030E 00	.51964E 00
130.	.58086E 00	.56375E 00	.54673E 00	.53448E 00	.52712E 00	.52324E 00	.52143E 00	.52073E 00
129.	.58218E 00	.56516E 00	.54819E 00	.53587E 00	.52842E 00	.52444E 00	.52256E 00	.52182E 00
128.	.58351E 00	.56657E 00	.54964E 00	.53727E 00	.52972E 00	.52564E 00	.52370E 00	.52292E 00
127.	.58483E 00	.56797E 00	.55109E 00	.53866E 00	.53101E 00	.52685E 00	.52484E 00	.52402E 00
126.	.58615E 00	.56936E 00	.55253E 00	.54005E 00	.53231E 00	.52806E 00	.52598E 00	.52512E 00
125.	.58746E 00	.57076E 00	.55397E 00	.54144E 00	.53361E 00	.52927E 00	.52712E 00	.52623E 00
124.	.58878E 00	.57214E 00	.55541E 00	.54282E 00	.53490E 00	.53048E 00	.52827E 00	.52734E 00
123.	.59009E 00	.57352E 00	.55684E 00	.54420E 00	.53620E 00	.53169E 00	.52942E 00	.52845E 00
122.	.59140E 00	.57490E 00	.55826E 00	.54558E 00	.53750E 00	.53291E 00	.53057E 00	.52956E 00
121.	.59271E 00	.57627E 00	.55968E 00	.54696E 00	.53880E 00	.53413E 00	.53172E 00	.53068E 00
120.	.59401E 00	.57764E 00	.56110E 00	.54834E 00	.54009E 00	.53534E 00	.53288E 00	.53180E 00
119.	.59531E 00	.57900E 00	.56251E 00	.54971E 00	.54139E 00	.53656E 00	.53404E 00	.53293E 00
118.	.59661E 00	.58036E 00	.56391E 00	.55108E 00	.54269E 00	.53778E 00	.53520E 00	.53405E 00
117.	.59791E 00	.58171E 00	.56532E 00	.55245E 00	.54398E 00	.53900E 00	.53636E 00	.53518E 00
116.	.59920E 00	.58306E 00	.56671E 00	.55382E 00	.54528E 00	.54023E 00	.53753E 00	.53631E 00
115.	.60049E 00	.58441E 00	.56811E 00	.55519E 00	.54658E 00	.54145E 00	.53869E 00	.53744E 00
114.	.60178E 00	.58575E 00	.56950E 00	.55655E 00	.54787E 00	.54267E 00	.53986E 00	.53858E 00
113.	.60307E 00	.58709E 00	.57089E 00	.55791E 00	.54917E 00	.54390E 00	.54103E 00	.53972E 00
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
110.	.60691E 00	.59108E 00	.57502E 00	.56197E 00	.55305E 00	.54758E 00	.54455E 00	.54314E 00
109.	.60818E 00	.59240E 00	.57639E 00	.56332E 00	.55434E 00	.54881E 00	.54573E 00	.54429E 00
108.	.60945E 00	.59372E 00	.57775E 00	.56467E 00	.55563E 00	.55004E 00	.54691E 00	.54544E 00
107.	.61071E 00	.59503E 00	.57912E 00	.56602E 00	.55692E 00	.55127E 00	.54809E 00	.54658E 00
106.	.61198E 00	.59634E 00	.58047E 00	.56736E 00	.55821E 00	.55249E 00	.54926E 00	.54773E 00
105.	.61323E 00	.59765E 00	.58183E 00	.56870E 00	.55950E 00	.55372E 00	.55045E 00	.54889E 00
104.	.61449E 00	.59895E 00	.58318E 00	.57004E 00	.56079E 00	.55495E 00	.55163E 00	.55004E 00
103.	.61574E 00	.60025E 00	.58452E 00	.57137E 00	.56207E 00	.55618E 00	.55281E 00	.55119E 00
102.	.61698E 00	.60154E 00	.58586E 00	.57270E 00	.56336E 00	.55741E 00	.55399E 00	.55235E 00
101.	.61822E 00	.60283E 00	.58720E 00	.57403E 00	.56464E 00	.55864E 00	.55518E 00	.55351E 00
100.	.61946E 00	.60411E 00	.58853E 00	.57536E 00	.56592E 00	.55987E 00	.55636E 00	.55466E 00
99.	.62069E 00	.60539E 00	.58986E 00	.57668E 00	.56720E 00	.56110E 00	.55755E 00	.55582E 00
98.	.62191E 00	.60667E 00	.59118E 00	.57800E 00	.56848E 00	.56232E 00	.55873E 00	.55698E 00
97.	.62313E 00	.60794E 00	.59250E 00	.57932E 00	.56976E 00	.56355E 00	.55991E 00	.55814E 00
96.	.62433E 00	.60920E 00	.59381E 00	.58063E 00	.57103E 00	.56477E 00	.56110E 00	.55930E 00
95.	.62554E 00	.61046E 00	.59512E 00	.58194E 00	.57230E 00	.56600E 00	.56228E 00	.56046E 00
94.	.62673E 00	.61171E 00	.59642E 00	.58324E 00	.57357E 00	.56722E 00	.56346E 00	.56161E 00
93.	.62791E 00	.61296E 00	.59772E 00	.58454E 00	.57484E 00	.56844E 00	.56465E 00	.56277E 00
92.	.62908E 00	.61420E 00	.59901E 00	.58583E 00	.57610E 00	.56966E 00	.56583E 00	.56393E 00
91.	.63024E 00	.61543E 00	.60029E 00	.58712E 00	.57736E 00	.57088E 00	.56701E 00	.56509E 00
90.	.63139E 00	.61665E 00	.60157E 00	.58841E 00	.57861E 00	.57210E 00	.56819E 00	.56624E 00
89.	.63252E 00	.61786E 00	.60283E 00	.58969E 00	.57987E 00	.57331E 00	.56936E 00	.56740E 00
88.	.63364E 00	.61906E 00	.60410E 00	.59096E 00	.58111E 00	.57452E 00	.57054E 00	.56855E 00
87.	.63473E 00	.62026E 00	.60535E 00	.59223E 00	.58236E 00	.57572E 00	.57171E 00	.56970E 00
86.	.63581E 00	.62144E 00	.60659E 00	.59348E 00	.58359E 00	.57692E 00	.57288E 00	.57085E 00
85.	.63686E 00	.62260E 00	.60782E 00	.59473E 00	.58482E 00	.57812E 00	.57404E 00	.57199E 00
84.	.63789E 00	.62375E 00	.60904E 00	.59597E 00	.58605E 00	.57931E 00	.57520E 00	.57313E 00
83.	.63888E 00	.62489E 00	.61025E 00	.59720E 00	.58726E 00	.58049E 00	.57635E 00	.57427E 00
82.	.63984E 00	.62600E 00	.61144E 00	.59842E 00	.58847E 00	.58167E 00	.57750E 00	.57539E 00
81.	.64076E 00	.62709E 00	.61261E 00	.59963E 00	.58966E 00	.58284E 00	.57864E 00	.57652E 00
80.	.63628E 00	.62635E 00	.61266E 00	.60000E 00	.59017E 00	.58341E 00	.57923E 00	.57712E 00
79.	.63250E 00	.62563E 00	.61270E 00	.60035E 00	.59067E 00	.58396E 00	.57981E 00	.57770E 00
78.	.62946E 00	.62499E 00	.61275E 00	.60071E 00	.59116E 00	.58452E 00	.58039E 00	.57829E 00
77.	.62705E 00	.62443E 00	.61283E 00	.60107E 00	.59166E 00	.58508E 00	.58097E 00	.57888E 00
76.	.62517E 00	.62395E 00	.61293E 00	.60145E 00	.59217E 00	.58564E 00	.58156E 00	.57947E 00
75.	.62376E 00	.62354E 00	.61307E 00	.60184E 00	.59269E 00	.58621E 00	.58215E 00	.58007E 00
74.	.62275E 00	.62321E 00	.61323E 00	.60225E 00	.59321E 00	.58679E 00	.58275E 00	.58068E 00
73.	.62208E 00	.62296E 00	.61342E 00	.60268E 00	.59375E 00	.58738E 00	.58335E 00	.58129E 00
72.	.62171E 00	.62278E 00	.61364E 00	.60312E 00	.59430E 00	.58797E 00	.58397E 00	.58191E 00
71.	.62159E 00	.62268E 00	.61390E 00	.60358E 00	.59486E 00	.58858E 00	.58459E 00	.58253E 00
70.	.62170E 00	.62266E 00	.61418E 00	.60406E 00	.59543E 00	.58919E 00	.58522E 00	.58317E 00
69.	.62199E 00	.62270E 00	.61450E 00	.60455E 00	.59602E 00	.58982E 00	.58586E 00	.58382E 00
68.	.62246E 00	.62282E 00	.61486E 00	.60507E 00	.59663E 00	.59046E 00	.58652E 00	.58447E 00
67.	.62307E 00	.62300E 00	.61525E 00	.60561E 00	.59725E 00	.59112E 00	.58718E 00	.58514E 00
66.	.62381E 00	.62326E 00	.61568E 00	.60618E 00	.59788E 00	.59179E 00	.58786E 00	.58582E 00
65.	.62467E 00	.62358E 00	.61614E 00	.60676E 00	.59854E 00	.59247E 00	.58855E 00	.58651E 00
64.	.62564E 00	.62396E 00	.61663E 00	.60737E 00	.59921E 00	.59316E 00	.58926E 00	.58722E 00
63.	.62669E 00	.62441E 00	.61716E 00	.60800E 00	.59990E 00	.59387E 00	.58997E 00	.58794E 00
62.	.62783E 00	.62493E 00	.61773E 00	.60866E 00	.60060E 00	.59460E 00	.59070E 00	.58867E 00
61.	.6290[illegible]E 00	.62550E 00	.61833E 00	.[illegible]0934E 00	.60133E 00	.[illegible]953[illegible]E 00	.591[illegible]5E 00	.58[illegible]E 00

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
59.	.63166E 00	.62682E 00	.61964E 00	.61077E 00	.60283E 00	.59688E 00	.59299E 00	.59094E 00
58.	.63307E 00	.62757E 00	.62035E 00	.61152E 00	.60362E 00	.59767E 00	.59378E 00	.59173E 00
57.	.63452E 00	.62837E 00	.62109E 00	.61230E 00	.60442E 00	.59848E 00	.59459E 00	.59254E 00
56.	.63608E 00	.62922E 00	.62187E 00	.61310E 00	.60524E 00	.59930E 00	.59541E 00	.59335E 00
55.	.63759E 00	.63013E 00	.62268E 00	.61393E 00	.60608E 00	.60015E 00	.59625E 00	.59419E 00
54.	.63919E 00	.63109E 00	.62353E 00	.61478E 00	.60695E 00	.60101E 00	.59710E 00	.59504E 00
53.	.64084E 00	.63211E 00	.62442E 00	.61566E 00	.60783E 00	.60189E 00	.59798E 00	.59591E 00
52.	.64253E 00	.63317E 00	.62534E 00	.61657E 00	.60874E 00	.60279E 00	.59887E 00	.59679E 00
51.	.64426E 00	.63428E 00	.62629E 00	.61750E 00	.60967E 00	.60371E 00	.59978E 00	.59769E 00
50.	.64603E 00	.63544E 00	.62728E 00	.61846E 00	.61062E 00	.60465E 00	.60070E 00	.59861E 00
49.	.64784E 00	.63665E 00	.62830E 00	.61945E 00	.61159E 00	.60561E 00	.60164E 00	.59954E 00
48.	.64968E 00	.63790E 00	.62936E 00	.62046E 00	.61258E 00	.60658E 00	.60261E 00	.60049E 00
47.	.65157E 00	.63920E 00	.63046E 00	.62150E 00	.61360E 00	.60758E 00	.60359E 00	.60146E 00
46.	.65349E 00	.64055E 00	.63159E 00	.62257E 00	.61464E 00	.60860E 00	.60459E 00	.60245E 00
45.	.65545E 00	.64194E 00	.63275E 00	.62367E 00	.61570E 00	.60964E 00	.60561E 00	.60346E 00
44.	.65744E 00	.64337E 00	.63395E 00	.62479E 00	.61679E 00	.61069E 00	.60664E 00	.60448E 00
43.	.65947E 00	.64485E 00	.63519E 00	.62594E 00	.61790E 00	.61178E 00	.60770E 00	.60553E 00
42.	.66153E 00	.64637E 00	.63646E 00	.62712E 00	.61903E 00	.61288E 00	.60878E 00	.60659E 00
41.	.66363E 00	.64793E 00	.63776E 00	.62833E 00	.62019E 00	.61400E 00	.60988E 00	.60768E 00
40.	.66577E 00	.64954E 00	.63910E 00	.62956E 00	.62137E 00	.61514E 00	.61100E 00	.60878E 00
39.	.66794E 00	.65119E 00	.64048E 00	.63083E 00	.62258E 00	.61631E 00	.61214E 00	.60990E 00
38.	.67015E 00	.65288E 00	.64189E 00	.63212E 00	.62381E 00	.61750E 00	.61330E 00	.61105E 00
37.	.67239E 00	.65461E 00	.64333E 00	.63344E 00	.62506E 00	.61871E 00	.61448E 00	.61221E 00
36.	.67467E 00	.65638E 00	.64482E 00	.63479E 00	.62635E 00	.61995E 00	.61568E 00	.61339E 00
35.	.67699E 00	.65819E 00	.64633E 00	.63618E 00	.62765E 00	.62121E 00	.61691E 00	.61460E 00
34.	.67934E 00	.66005E 00	.64788E 00	.63759E 00	.62899E 00	.62249E 00	.61815E 00	.61583E 00
33.	.68174E 00	.66194E 00	.64947E 00	.63903E 00	.63035E 00	.62379E 00	.61942E 00	.61708E 00
32.	.68417E 00	.66388E 00	.65109E 00	.64050E 00	.63173E 00	.62512E 00	.62071E 00	.61835E 00
31.	.68663E 00	.66586E 00	.65275E 00	.64200E 00	.63314E 00	.62648E 00	.62203E 00	.61964E 00
30.	.68914E 00	.66787E 00	.65445E 00	.64353E 00	.63458E 00	.62786E 00	.62337E 00	.62096E 00
29.	.69169E 00	.66993E 00	.65618E 00	.64510E 00	.63605E 00	.62926E 00	.62473E 00	.62230E 00
28.	.69428E 00	.67203E 00	.65795E 00	.64669E 00	.63755E 00	.63069E 00	.62611E 00	.62366E 00
27.	.69690E 00	.67417E 00	.65975E 00	.64832E 00	.63907E 00	.63214E 00	.62752E 00	.62504E 00
26.	.69958E 00	.67636E 00	.66159E 00	.64998E 00	.64062E 00	.63362E 00	.62896E 00	.62645E 00
25.	.70229E 00	.67858E 00	.66347E 00	.65167E 00	.64220E 00	.63513E 00	.63042E 00	.62789E 00
24.	.70505E 00	.68085E 00	.66539E 00	.65340E 00	.64381E 00	.63667E 00	.63191E 00	.62935E 00
23.	.70785E 00	.68316E 00	.66735E 00	.65515E 00	.64545E 00	.63823E 00	.63342E 00	.63083E 00
22.	.71070E 00	.68551E 00	.66934E 00	.65695E 00	.64712E 00	.63982E 00	.63496E 00	.63234E 00
21.	.71360E 00	.68791E 00	.67138E 00	.65877E 00	.64882E 00	.64144E 00	.63652E 00	.63388E 00
20.	.71655E 00	.69036E 00	.67345E 00	.66064E 00	.65055E 00	.64308E 00	.63811E 00	.63544E 00
19.	.71955E 00	.69285E 00	.67557E 00	.66254E 00	.65232E 00	.64476E 00	.63973E 00	.63703E 00
18.	.72260E 00	.69538E 00	.67773E 00	.66447E 00	.65412E 00	.64647E 00	.64138E 00	.63865E 00
17.	.72572E 00	.69797E 00	.67993E 00	.66644E 00	.65595E 00	.64821E 00	.64306E 00	.64029E 00
16.	.72889E 00	.70060E 00	.68218E 00	.66846E 00	.65781E 00	.64998E 00	.64477E 00	.64197E 00
15.	.73212E 00	.70329E 00	.68447E 00	.67051E 00	.65971E 00	.65178E 00	.64651E 00	.64368E 00
14.	.73542E 00	.70603E 00	.68680E 00	.67260E 00	.66165E 00	.65362E 00	.64828E 00	.64541E 00
13.	.73880E 00	.70882E 00	.68919E 00	.67473E 00	.66363E 00	.65549E 00	.65009E 00	.64718E 00
12.	.74225E 00	.71168E 00	.69163E 00	.67691E 00	.66564E 00	.65739E 00	.65192E 00	.64898E 00
11.	.74578E 00	.71460E 00	.69411E 00	.67913E 00	.66770E 00	.65934E 00	.65380E 00	.65082E 00
10.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8.	.75695E 00	.72375E 00	.70192E 00	.68609E 00	.67412E 00	.66541E 00	.65965E 00	.65655E 00
7.	.76089E 00	.72695E 00	.70464E 00	.68852E 00	.67636E 00	.66753E 00	.66168E 00	.65854E 00
6.	.76496E 00	.73024E 00	.70744E 00	.69101E 00	.67865E 00	.66968E 00	.66376E 00	.66057E 00
5.	.76917E 00	.73362E 00	.71031E 00	.69356E 00	.68100E 00	.67190E 00	.66588E 00	.66265E 00
4.	.77355E 00	.73710E 00	.71326E 00	.69617E 00	.68340E 00	.67416E 00	.66806E 00	.66478E 00
3.	.77810E 00	.74069E 00	.71629E 00	.69886E 00	.68587E 00	.67648E 00	.67029E 00	.66697E 00
2.	.78286E 00	.74441E 00	.71942E 00	.70163E 00	.68841E 00	.67887E 00	.67258E 00	.66921E 00
1.	.78785E 00	.74826E 00	.72266E 00	.70448E 00	.69102E 00	.68133E 00	.67494E 00	.67151E 00

REFLECTANCE FIELD:

.78784698 .74825877 .72265708 .70448422 .69101828 .68132591 .67493832 .67150986

R(KK) = .703209