JET PROPULSION LABORATORY   INTEROFFICE MEMORANDUM

ADF-479
(UPDATED VERSION OF ADF-346)

DATE: 1 December 2000

TO: AIRS Design File

FROM: Mark Hofstadter (Jet Propulsion Laboratory, California Institute of Technology)

SUBJECT: Revised AIRS Vis/NIR Spectral Response (Update to ADF-346)

KEYWORDS: Visible channels, ground-test, spectral response

SUMMARY: The spectral response of the AIRS Vis/NIR assembly has not been measured at the system level. This document describes estimates based on an analysis of the various Vis/NIR components (scan mirror, two fold mirrors, EMI window, filters, detector window, and detectors themselves). The first documented spectral response estimate was made in July of 1999 (ADF-369). At that time there were no data on the three mirrors in the optical path, so estimates provided by LMIRIS were used for those components. In the late summer of 1999, LMIRIS provided JPL with FAX'ed plots of measured mirror reflectivities at Vis/NIR wavelengths. Those plots have been digitized and the results inserted into the instrument model. This memo presents the new spectral response function. All component properties are now based on laboratory measurements, although extrapolation and assumptions are still present because some of the data is of poor quality or of limited extent in frequency. Errors on the order of 25% are possible.

INTRODUCTION

Due to budgetary and timeline constraints, it was decided to forego testing of the spectral response of the Vis/NIR system. Instead, results from limited testing of sub-assemblies is used to predict the assembled system's response. As a start to this process, LMIRIS provided JPL with an Excel spreadsheet (dated 17 July 1997) containing their "Vis/NIR Sensor Model". I have modified that spreadsheet to take into account the latest information available on component performance. It is attached to the end of this document. It is difficult to estimate the absolute accuracy of this model because none of the input data was provided with error estimates. The model is certainly more accurate in the wavelength range of 0.5 to 0.9 microns than it is elsewhere. (The primary reason for this is that information on many of the components is questionable or unavailable outside this range.) In that range, the relative response (the "shape" of the response curves) might be good to ~5%, while outside it errors can be ~25%. The absolute value of the model's spectral response is uncertain to ~25% at all wavelengths.

The above error estimates are based on the following considerations. First, the smoothness of the measured curves suggests random thermal-type noise is a negligible factor (typically well under 1%). Inspection of the curves, however, does reveal some suspicious features. The largest obvious one is a discrete "step" of about 2% at a wavelength of 0.86 microns in some of the mirror reflectivities. If we assume this is representative of the "shape error" on each measured curve, the combined error from the seven optical elements of the Vis/NIR system is ~5%. At the extreme measured wavelengths, however, there is an additional error term to consider. Each Vis/NIR detector is an array of pixels. While pixel to pixel variations exist, the response we were provided represents an average value. This variability

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has been estimated to be as high as 25% at the shortest and longest wavelengths, while it might only be ~2% in the mid-wavelength region. Thus, at the longest and shortest wavelengths, we estimate our seven-component model to have an uncertainty of ~25% relative to other parts of the curve. In addition to relative errors, there is also uncertainty in the absolute calibration of each measured curve. Measurements of the Fold and Stepped-Fold mirrors (described below) suggest this uncertainty is ~5%. Bruce Hancock, however, who measured the detector response at JPL (also described below), suggests that an absolute uncertainty of 10% is more reasonable. Allowing a 10% error on each of the 7 optical components suggests a system-level absolute accuracy of ~25%.

VIS/NIR COMPONENTS

There are seven optical components which have the strongest influence on the system's spectral response: the scan mirror, two fold-mirrors, an EMI window, interference filters, glass detector windows, and the detectors themselves. Each of these is discussed below, while the detailed numbers can be seen in the attached spreadsheet. There are also lenses in the optical path, but no information has been provided on their properties, and conversations with the AIRS Project Scientist and LMIRIS personnel suggest they can be treated as spectrally neutral given the accuracy to which the other components are known.

Scan mirror

The scan mirror spectral response is based on a FAX (number 10804) sent by Gary Tarnowski of LMIRIS, dated 3 September 1999. That FAX contains plots of measured reflectivity at two polarizations, which have been digitized using the DataThief and XY_Digitizer software packages on a Macintosh computer. The two polarizations are generally within 1% of each other, and are averaged together for use in our model. (Digitization accuracy is thought to be 0.5 to 1.0%, based on multiple digitizations of the same curves, using different software.) These measurements do not extend to wavelengths below 0.4 microns, so measurements of the MODIS scan mirror are used between 0.32 and 0.4 microns, with the MODIS data offset by –0.0116 in reflectivity to match the AIRS value at 0.4 microns. (Since the Vis/NIR system has sensitivity below 0.4 microns, and the MODIS mirror is quite similar to the AIRS mirror, use of their curve is reasonable.) The spectral resolution of the MODIS data is degraded from 0.001 to 0.005 microns for consistency with the AIRS model. The resulting AIRS curve is shown in Fig. 1, along with the MODIS data (provided by Thomas Pagano of JPL and also averaged over the two polarizations). An alternate data set on the AIRS scan mirror exists as a copy of a FAX dated 8/26/98 from Denton Vacuum Inc. to Jack Hlavaty. That data is of lower resolution than what Gary sent, but the two curves are broadly consistent. The two data sets are not identical, however, and appear to be from tests run on consecutive days. Gary's data show a discrete "step" in mirror response at ~0.86 micron, which might be related to the gold reference standard used in the tests. (This discontinuity also appears in fold mirror data.) I've elected to use Gary's data because it 1) is of higher resolution, 2) is the newer test, and 3) was provided by Gary as the nominal set to use. In an attempt to assess the reality of the sharp feature at 0.86 micron, I contacted several people at LMIRIS (Ken Overoye, Will Shaw, and Joe McLaughlin). The consensus seems to be that the jump is not real, but some sort of depression in that area is likely. It is interesting that there were no MODIS measurements provided near this wavelength (Fig. 1). The AIRS Project Scientist suggested we not spend time trying to resolve this since it is a ~2% effect, and many other sources of error are of this magnitude or larger. In the future we may wish to revisit this issue because some Vis/NIR retrieval algorithms make use of water vapor absorption near 0.95 microns, and leaving the 0.86 micron feature in our assumed response will underestimate our sensitivity to that absorption. In the attached spreadsheet, the scan mirror response is in the column titled Mirror Reflectance Rscan.

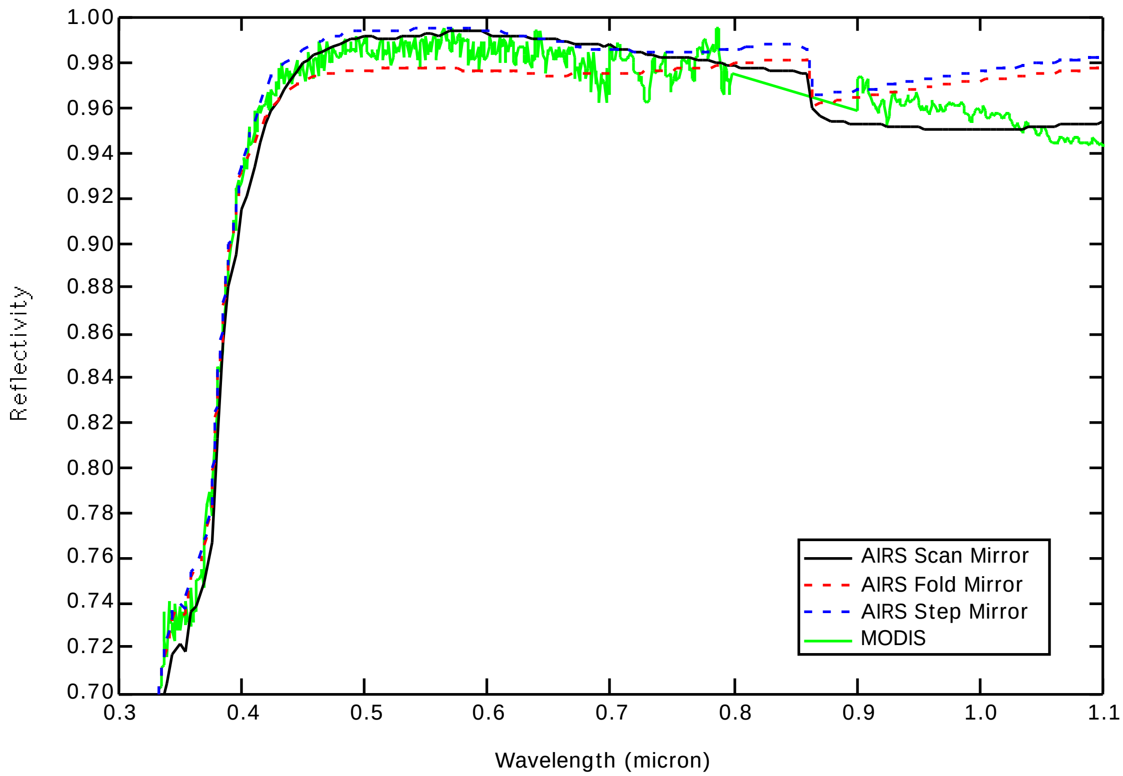

Figure 1: Mirror reflectances. The solid black curve is the AIRS scan mirror, and the green, noisy curve is the MODIS scan mirror. The lower dashed curve (red) is the fold mirror, and the upper dashed curve (blue) is the stepped-fold mirror. See text for a discussion of how these curves were derived.

Fold and Stepped-Fold Mirrors

There are two additional mirrors in the Vis/NIR optical path, a fold mirror and a stepped-fold mirror. For clarity, I'll refer to them as “Fold” and “Step”, respectively. As with the scan mirror, their responses are based on a FAX’ed plot from Gary Tarnowski (#10791, dated 8/25/99). That FAX contains several data sets, among them two are labeled as the Fold Mirror, and one as the Step. Unfortunately, the two Fold data sets are different, and one of them is identical to the data labeled as the Step Mirror. To resolve this, I assume that the Fold and Step mirrors are represented by the two independent data sets. Furthermore, which mirror is which doesn't really matter since their ultimate affect on the system response is the product of the two. Therefore, I assume the single data set labeled "Step" in Gary's cover page is really the Step mirror, and the first data set labeled "Fold" is actually a repeat of the Step data. The second data set labeled "Fold", which is different than the previous two sets, is taken to be the Fold.

No error bars are given with any of the curves, but the peak-to-peak fluctuations (observed mainly in the short-wavelength data) are well under 1%. Differences between the S and P polarization curves are ≤ 2.5% for the Fold Mirror, and ≤ 4% for the Step, with the largest differences at the extreme short and long wavelengths (differences are typically < 1% in the 0.5 to 0.85 micron range). There is a discrete shift in level of the spectra at about 0.859 micron. This shift always appears in the Fold and Step curves, never appears in the S-polarization measurement of the gold reference target, and appears in one of the two P-polarization measurements of the gold reference. See the scan mirror description for further discussion of this feature, but for now I assume it is real. The Fold and Step Mirror measurements were each provided as three separate plots: one for wavelengths from 0.4 to

0.7 microns (using an aluminum reference target), and two plots for 0.7 to 1.1 microns (using a gold reference), one for each polarization. For a given polarization, the curves do not agree at 0.7 microns. There is a clear offset between them, presumably tied to errors in the absolute calibration of each curve. For the Fold Mirror, the offset is 1.39% at the P-polarization, and 3.89% at S-polarization, with the shorter wavelength data set having higher reflectivity than the longer wavelength data. For the Step Mirror, offsets are 1.06% and 1.59%, respectively, this time with the short wavelength data having the lower reflectivity. In the Vis/NIR system model, the short and long wavelength curves are joined smoothly at 0.7 microns by applying additive offsets to each that cause them to meet at their average value. (For example, the Fold Mirror P-polarization long-wave measurements are adjusted upward by 0.695%, and the short-wave measurements are adjusted downward by the same amount.) After joining the curves, the Step Mirror's P-polarization reflectivity peaked at 100.265%, obviously non-physical. That curve was then arbitrarily adjusted downward by 0.3%. For each mirror, the two resulting continuous curves from 0.4 to 1.1 microns (one for each polarization) are averaged together. As with the scan mirror, data from the MODIS mirror for wavelengths between 0.325 and 0.4 microns are then added to the AIRS curves to form the final Fold and Step Mirror models, which are also shown in Fig. 1. To match the Fold mirror, an offset of +0.4549% is added to the MODIS data, and an offset of +0.6804% is used to match the Step. In the attached spreadsheet, the Fold and Step Mirror responses are in the columns titled Mirror Reflectance Rfold and Rstep.

EMI Window

On February 23, 1999, Kirk Seaman FAX'ed me what appears to be a test report on the EMI spectral response. It contains a plot of percent transmission from 0.4 to 1.0 microns, and tabular values over the same range on a grid spacing of 0.01 microns. The tabulated values were used in the model, with an exponential fit to the data used to extrapolate to wavelengths shorter than 0.4 microns (extrapolated values below zero are interpreted as zero), and a linear fit to the data between 0.65 and 1.0 microns is used to extrapolate from 1.0 to 1.1 microns. See the column labeled EMI Window in the attached spreadsheet, and Fig. 2.

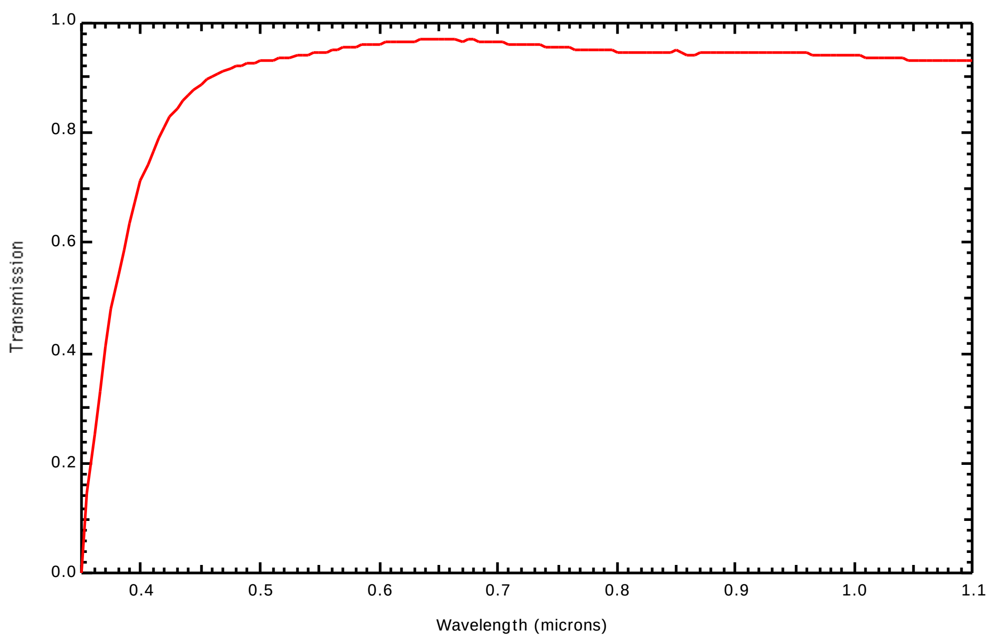

Figure 2: Measured transmission properties of the AIRS EMI window from 0.4 to 1.0 microns, with extrapolations to either side. The shortwave extrapolation is from an exponential fit to all measurements. The longwave extrapolation is from a linear fit to measurements between 0.65 and 1.0 microns.

Detector/Window Response
The response of the Vis/NIR detector arrays were tested at JPL by Bruce Hancock, prior to their delivery to LMIRIS. He has provided spectral response curves (in V cm**2 per micro-Joule) at 0.01 micron resolution, for wavelengths from 0.4 to 1.0 microns. He reports some sort of averaged value for the entire detector array, and believes the absolute accuracy of this measurement is ~10%. He was unable to provide me with information on pixel to pixel variations within each array, but felt that they might be as small as 1 or 2% midrange, but 10 or 25% at the long and shortwave limits. The manufacturer's product brochure suggests variations are typically less than 15%.

The detectors were still quite responsive at the limits of the measurements, so it is necessary to extrapolate to lower and higher wavelengths. This was done using a normalized response curve for H Series Reticon detectors, published in the EG&G Reticon 1989 Image Sensing Products catalog (which was provided to me by LMIRIS). The catalog has two response curves, one for detectors with a glass window and one without. The curves differ shortward of 0.4 microns, but are indistinguishable elsewhere. I digitized the "with window" curve, and compared it to the normalized measured curves. When the curve from the brochure is offset downward by ~8%, it is an approximate fit to the measured curves (where they overlap). This offset curve from the brochure was then used for measurements from 1.0 to 1.1 microns, and from .317 to 0.4 microns. The same extrapolation was used for all four detector arrays. (The response is zero at .317 microns, and 1% of the peak value at 1.1 microns. No data was available at wavelengths longer than 1.1 microns.)

The combined detector/window response curve just described is used in the Vis/NIR spectral response model, and is shown in Fig. 3. Note that a normalized curve (peak response set to 1.0) is used for this component. This was done for two reasons: I was not sure how to translate the measured units to an absolute scale, and the AIRS FRD spectral requirements are given in terms of percentage relative to peak, making absolute knowledge unnecessary. In the attached spreadsheet, the detector/window curves are convolved with the filter responses (described next) and appear in the columns labeled "Normalized Detector (with Window) * Filter Transmittance".

Filters
The dominant factor controlling the spectral response of each of the four Vis/NIR channels is the interference filter used (with the exception of the longwave side of Channel 4, which is controlled by the detector response). The response of each filter was measured by the manufacturer. Unfortunately, only a FAX'ed copy of plots of transmission versus wavelength were made available to JPL (as opposed to data tables), limiting our knowledge of these values. Two plots were provided for each channel, one with a linear scale for measurements in the bandpass region, and a logarithmic plot which highlights values far from the passband. The linear-scaled plots were digitized, and used in the model. For regions outside the main passband of each filter, the average value from the log plots was used. The final curves are shown in Fig. 4.

Note that filter response curves were measured at temperatures of -25 C and +45 C. Only Channel 1 showed a temperature dependence (at the resolution of the FAX'ed curves). Since the operating temperature of the AIRS detectors is expected to be near +30 C, the +45 C response curve is used in the model. (The warmer curve has a response generally 2 to 4% lower than the cold curve.)

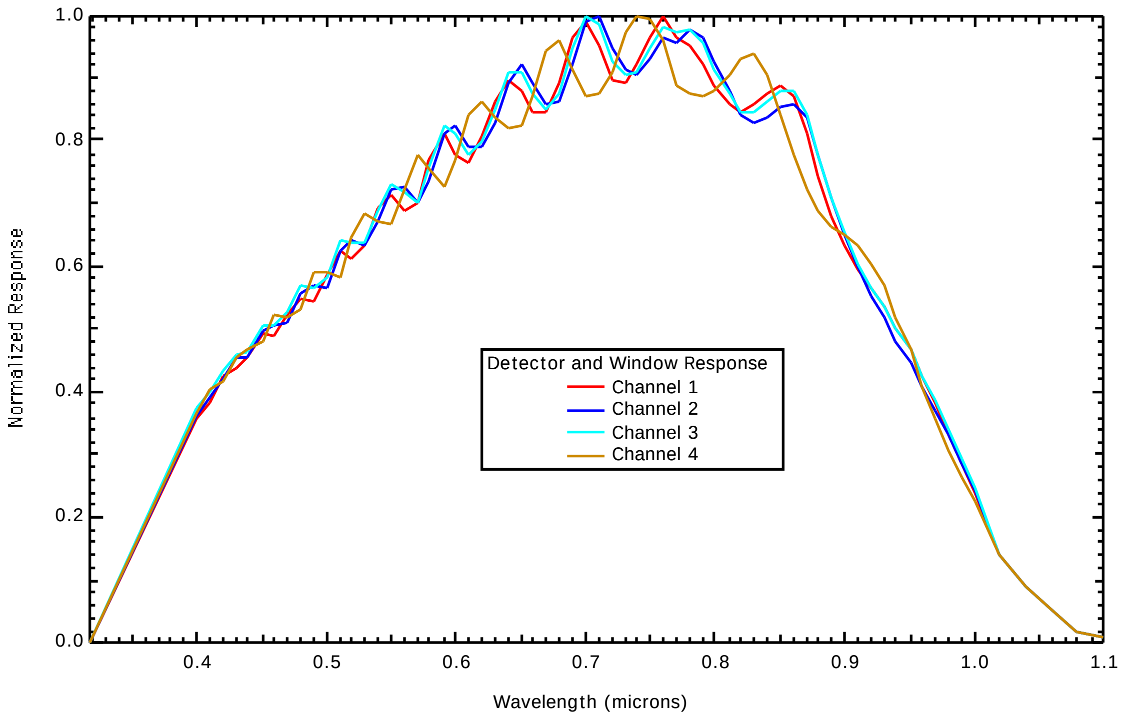

Figure 3: Measured detector plus window responses, extrapolated on either side as described in the text. The red curve is detector serial number 32, used in Channel 1. Blue, turquoise, and brown curves are Channels 2 through 4, respectively, corresponding to detector serial numbers 33, 35, and 38. Oscillations in each curve are due to interference effects from coatings placed on each detector. The longwave response is expected to degrade with time due to radiation damage (see the AIRS ATBD, Level 1b, Part 2).

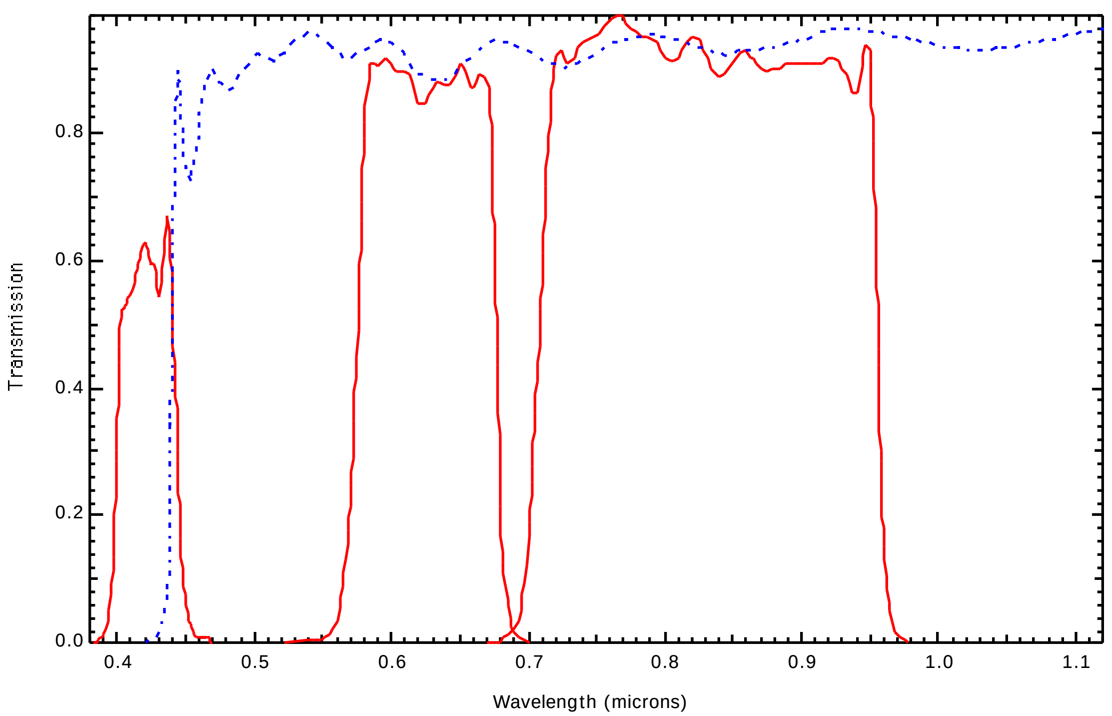

Figure 4: Measured filter transmission coefficients. The solid curves are Channels 1 through 3 (right to left, respectively). The dashed curve is Channel 4.

In the attached spreadsheet, the filter response for each channel is reported already convolved with the detector and window response, as described previously. Columns are labeled by channel number (1 to 4). Note that Channel 1 is labeled C1p, the ‘p’ signifying that the *plus* 45 C temperature curve was used.

RESULTS

Having described each of the components of the Vis/NIR model, the final estimate of spectral response is just the product of the individual response functions. This is shown in Fig. 5, and is given numerically in the attached spreadsheet (see columns titled “System Response” and “Normalized System Response”). The older response model (ADF-346) is quite similar, the largest differences being < 7% near a wavelength of 0.8 micron.

The spreadsheet carries additional calculations designed for comparison to the AIRS Functional Requirements Document (FRD). The 1/10 and 1/2 power points can be determined from the System Response curves. They are listed at the bottom right of the spreadsheet, along with the 0.4 micron response of Channel 4, which is specifically mentioned in the FRD. The sun’s output is modeled both as a perfect blackbody at 6000 K (as called for in the FRD), and using a more sophisticated model described in ADF-484. The top-of-atmosphere solar flux in each wavelength band is calculated (the column labeled Solar Irradiance at Earth Shield). This column, multiplied by the System Response, yields the columns labeled “In-Band TOA Irradiance”, used for calculating the in-band and out-of-band system response values as described in the FRD. These results are also shown in the lower right corner of the spreadsheet.

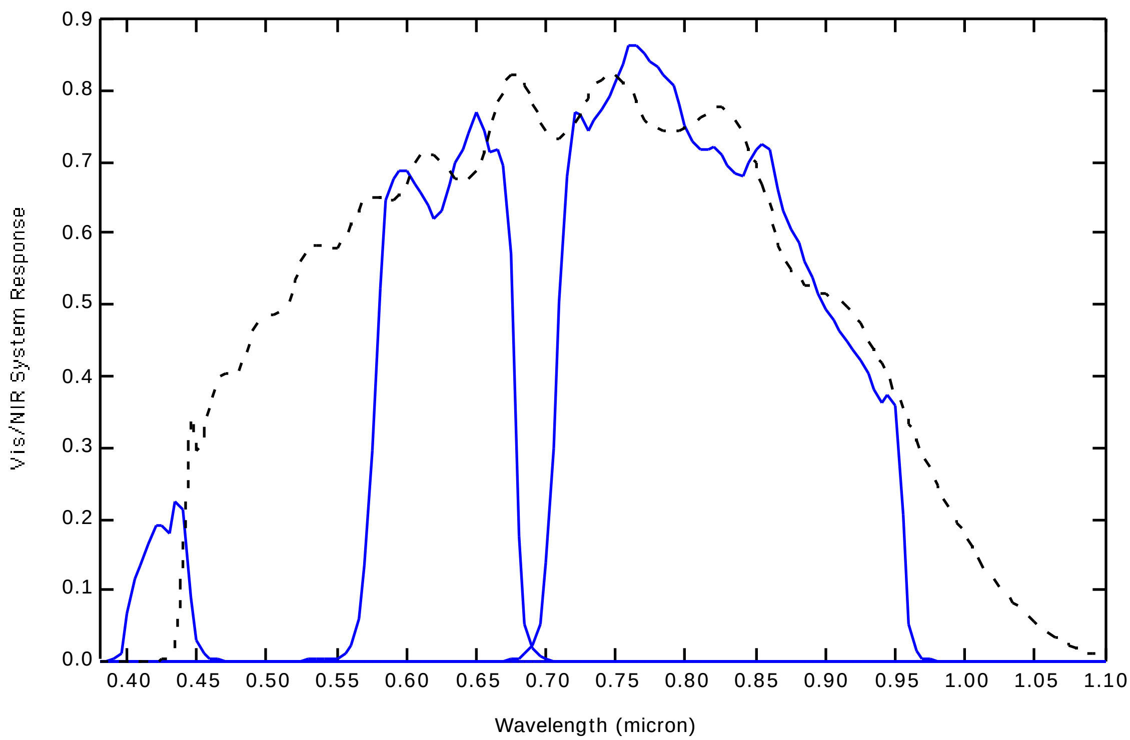

Figure 5: The relative response of the Vis/NIR system, calculated from a component-by-component analysis, as described in the text. The solid curves are, from left to right, Channels 1, 2, and 3. The dashed curve is Channel 4.

Vis/NIR Model From Will Shaw of LMIRIS (17Jul97 Version), Modified by Mark Hofstadter of JPL
Items marked (MDH) have been checked, (MDH!) have been changed from original values. Revision date: 29-Dec-00

Constants:

k	Conversion from degrees to radians (MDH)	0.01745	rad/deg
q	Electron charge (MDH)	1.602E-19	Coulomb
h	Planck's constant (MDH!)	6.626E-34	J-sec
cc	Speed of light (MDH)	2.998E+10	cm/sec
kk	Boltzmann's constant (MDH)	1.381E-23	J-K
Ds	Diameter of sun (MDH)	1.392E+06	Km
Ss	Distance to sun (MDH!)	1.496E+08	Km

Derived constants (MDH):

c1	2πhc^2	3.742E+04	W-µm^4/cm^2	
c1q	2E12*c	5.996E+22	µm^3/(cm^2 sec.sr)	c3/pi
c2	1E4*(hc/k)	1.438E+04	µm-K	
Os	Sun solid angle from earth	6.79994E-05	sr	
c2/T	c2/T	2.3974	µm	

Inputs:

Ts	Temperature of sun (MDH)	6000	K		
Ae	Earth albedo (MDH)	0.40			
Top	Operating temperature (MDH!)	30	C	=	303 K

When printed, this spreadsheet consists of 6 pages, which should be assembled in the following order:

1	4
2	5
3	6

Start wavelength (µm) 0.000
Increment (µm) 0.005

Step	Wavelength (µm)	Mirror Reflectance (MDH!) Rsm	Rm2	Rm3	EMI Window Trans (MDH!)	Norm. Detctr (w/ window) * Filter Transmittance C1p(MDH!)	Ch2 (MDH!)	Ch3 (MDH!)	Ch4 (MDH!)	Emissivity Of Sun	Solar Radiance (W/(cm^2 sr)	Solar Irradiance at Earth Shield (W/cm^2)
0	0.004	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	2.96E-247	2.01E-251
1	0.005	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	1.11E-195	7.55E-200
2	0.010	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	4.55E-93	3.09E-97
3	0.015	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	3.04E-59	2.07E-63
4	0.020	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	1.63E-42	1.11E-46
5	0.025	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	1.38E-32	9.35E-37
6	0.030	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	4.83E-26	3.28E-30
7	0.035	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	2.03E-21	1.38E-25
8	0.040	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	5.44E-18	3.70E-22
9	0.045	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	2.35E-15	1.60E-19
10	0.050	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	2.86E-13	1.95E-17
11	0.055	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	1.39E-11	9.45E-16
12	0.060	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	3.40E-10	2.31E-14
13	0.065	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	4.92E-09	3.35E-13
14	0.070	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	4.74E-08	3.22E-12
15	0.075	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	3.29E-07	2.24E-11
16	0.080	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	1.76E-06	1.19E-10
17	0.085	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	7.56E-06	5.14E-10
18	0.090	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	2.72E-05	1.85E-09
19	0.095	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	8.44E-05	5.74E-09
20	0.100	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	2.31E-04	1.57E-08
21	0.105	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	5.66E-04	3.85E-08
22	0.110	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	1.27E-03	8.62E-08
23	0.115	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	2.62E-03	1.78E-07
24	0.120	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	5.04E-03	3.43E-07
25	0.125	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	9.14E-03	6.22E-07
26	0.130	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	1.57E-02	1.07E-06
27	0.135	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	2.58E-02	1.75E-06
28	0.140	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	4.05E-02	2.75E-06
29	0.145	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	6.13E-02	4.17E-06
30	0.150	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	8.98E-02	6.11E-06
31	0.155	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	1.28E-01	8.68E-06
32	0.160	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	1.77E-01	1.20E-05
33	0.165	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	2.38E-01	1.62E-05
34	0.170	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	3.15E-01	2.14E-05
35	0.175	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	4.08E-01	2.77E-05
36	0.180	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	5.18E-01	3.52E-05
37	0.185	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	6.47E-01	4.40E-05
38	0.190	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	7.97E-01	5.42E-05
39	0.195	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	9.67E-01	6.58E-05
40	0.200	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	1.16E+00	7.88E-05
41	0.205	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	1.37E+00	9.33E-05
42	0.210	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	1.61E+00	1.09E-04
43	0.215	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	1.86E+00	1.27E-04
44	0.220	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	2.14E+00	1.45E-04
45	0.225	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	2.44E+00	1.66E-04
46	0.230	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	2.75E+00	1.87E-04
47	0.235	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	3.08E+00	2.10E-04
48	0.240	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	3.43E+00	2.33E-04
49	0.245	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	3.80E+00	2.58E-04
50	0.250	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	4.17E+00	2.84E-04
51	0.255	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	4.56E+00	3.10E-04
52	0.260	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	4.96E+00	3.37E-04
53	0.265	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	5.37E+00	3.65E-04
54	0.270	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	5.78E+00	3.93E-04
55	0.275	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	6.20E+00	4.21E-04
56	0.280	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	6.62E+00	4.50E-04
57	0.285	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	7.04E+00	4.79E-04
58	0.290	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	7.46E+00	5.07E-04
59	0.295	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	7.88E+00	5.36E-04
60	0.300	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	8.30E+00	5.64E-04
61	0.305	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	8.71E+00	5.92E-04
62	0.310	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	9.11E+00	6.20E-04
63	0.315	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	9.51E+00	6.47E-04
64	0.320	0.0000	0.0000	0.0000	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	9.90E+00	6.73E-04
65	0.325	0.5005	0.5166	0.5189	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	1.03E+01	6.99E-04
66	0.330	0.6538	0.6700	0.6722	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	1.07E+01	7.25E-04
67	0.335	0.6913	0.7075	0.7097	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	1.10E+01	7.49E-04
68	0.340	0.7049	0.7210	0.7233	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	1.14E+01	7.73E-04
69	0.345	0.7172	0.7333	0.7356	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	1.17E+01	7.96E-04
70	0.350	0.7214	0.7376	0.7398	0.0000	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	1.20E+01	8.18E-04
71	0.355	0.7186	0.7348	0.7370	0.1459	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	1.23E+01	8.39E-04
72	0.360	0.7359	0.7520	0.7543	0.2522	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	1.26E+01	8.60E-04
73	0.365	0.7386	0.7547	0.7570	0.3337	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	1.29E+01	8.79E-04
74	0.370	0.7494	0.7655	0.7678	0.4152	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	1.32E+01	8.98E-04
75	0.375	0.7672	0.7833	0.7856	0.4778	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	1.35E+01	9.15E-04
76	0.380	0.8132	0.8293	0.8316	0.5403	2.80E-06	1.20E-05	1.30E-05	1.20E-05	1.00	1.37E+01	9.32E-04
77	0.385	0.8550	0.8711	0.8734	0.5883	7.17E-04	1.20E-05	1.30E-05	1.20E-05	1.00	1.39E+01	9.48E-04
78	0.390	0.8806	0.8967	0.8990	0.6363	4.22E-03	1.20E-05	1.30E-05	1.20E-05	1.00	1.42E+01	9.62E-04
79	0.395	0.8940	0.9102	0.9124	0.6738	2.43E-02	1.20E-05	1.30E-05	1.20E-05	1.00	1.44E+01	9.76E-04
80	0.400	0.9154	0.9316	0.9338	0.7113	0.1188501	1.20E-05	1.30E-05	1.20E-05	1.00	1.45E+01	9.89E-04
81	0.405	0.9208	0.9369	0.9430	0.7392	0.1936196	1.20E-05	1.30E-05	1.20E-05	1.00	1.47E+01	1.00E-03
82	0.410	0.9334	0.9446	0.9545	0.7670	0.2082388	1.20E-05	1.30E-05	1.20E-05	1.00	1.49E+01	1.01E-03
83	0.415	0.9451	0.9516	0.9627	0.7882	0.237167	1.20E-05	1.30E-05	1.20E-05	1.00	1.50E+01	1.02E-03
84	0.420	0.9527	0.9562	0.9690	0.8094	0.2649756	1.20E-05	1.30E-05	1.53E-03	1.00	1.52E+01	1.03E-03
85	0.425	0.9593	0.9608	0.9742	0.8265	0.2560664	1.20E-05	1.30E-05	3.37E-03	1.00	1.53E+01	1.04E-03
86	0.430	0.9641	0.9641	0.9779	0.8435	0.2371864	1.20E-05	1.30E-05	7.28E-03	1.00	1.54E+01	1.05E-03
87	0.435	0.9685	0.9659	0.9805	0.8558	0.2872232	1.20E-05	1.30E-05	2.49E-02	1.00	1.55E+01	1.05E-03
88	0.440	0.9725	0.9679	0.9821	0.8681	0.2624747	1.20E-05	1.30E-05	0.1953605	1.00	1.56E+01	1.06E-03
89	0.445	0.9766	0.9705	0.9847	0.8776	0.1115806	1.20E-05	1.30E-05	0.4177955	1.00	1.57E+01	1.07E-03
90	0.450	0.9796	0.9725	0.9865	0.8872	3.57E-02	1.20E-05	1.30E-05	0.3553364	1.00	1.57E+01	1.07E-03
91	0.455	0.9817	0.9734	0.9879	0.8947	1.22E-02	1.20E-05	1.30E-05	0.3689481	1.00	1.58E+01	1.07E-03
92	0.460	0.9836	0.9741	0.9890	0.9022	4.66E-03	1.20E-05	1.30E-05	0.4256939	1.00	1.59E+01	1.08E-03
93	0.465	0.9850	0.9747	0.9901	0.9073	3.69E-03	1.20E-05	1.30E-05	0.4586414	1.00	1.59E+01	1.08E-03
94	0.470	0.9863	0.9753	0.9911	0.9124	2.80E-05	1.20E-05	1.30E-05	0.4643891	1.00	1.59E+01	1.08E-03
95	0.475	0.9875	0.9758	0.9918	0.9163	2.80E-05	1.20E-05	1.30E-05	0.4576224	1.00	1.59E+01	1.08E-03
96	0.480	0.9886	0.9759	0.9923	0.9202	2.80E-05	1.20E-05	1.30E-05	0.4577417	1.00	1.59E+01	1.08E-03

Vis/NIR Model From Will Shaw of LMIRIS (17Jul97 Version), Modified by Mark Hofstadter of JPL
Items marked (MDH) have been checked, (MDH!) have been changed from original values. Revision date: 29-Dec-00

Start wavelength (µm)	0.000											
97	0.485	0.9894	0.9761	0.9930	0.9228	2.80E-05	1.20E-05	1.30E-05	0.4865306	1.00	1.59E+01	1.08E-03
98	0.490	0.9903	0.9763	0.9941	0.9255	2.80E-05	1.20E-05	1.30E-05	0.519446	1.00	1.59E+01	1.08E-03
99	0.495	0.9914	0.9766	0.9945	0.9276	2.80E-05	1.20E-05	1.30E-05	0.5325887	1.00	1.59E+01	1.08E-03
100	0.500	0.9922	0.9768	0.9945	0.9297	2.80E-05	1.20E-05	1.30E-05	0.5386585	1.00	1.59E+01	1.08E-03
101	0.505	0.9920	0.9771	0.9945	0.9315	2.80E-05	1.20E-05	1.30E-05	0.5428571	1.00	1.59E+01	1.08E-03
102	0.510	0.9912	0.9773	0.9945	0.9332	2.80E-05	1.20E-05	1.30E-05	0.5457006	1.00	1.58E+01	1.08E-03
103	0.515	0.9913	0.9774	0.9945	0.9346	2.80E-05	1.20E-05	1.30E-05	0.5599238	1.00	1.58E+01	1.07E-03
104	0.520	0.9914	0.9774	0.9945	0.9359	2.80E-05	1.20E-05	1.30E-05	0.5912164	1.00	1.57E+01	1.07E-03
105	0.525	0.9915	0.9775	0.9946	0.9378	2.80E-05	1.22E-03	1.30E-05	0.6173041	1.00	1.57E+01	1.07E-03
106	0.530	0.9918	0.9775	0.9947	0.9396	2.80E-05	1.97E-03	1.30E-05	0.639922	1.00	1.56E+01	1.06E-03
107	0.535	0.9922	0.9776	0.9949	0.9411	2.80E-05	2.72E-03	1.30E-05	0.642082	1.00	1.56E+01	1.06E-03
108	0.540	0.9925	0.9776	0.9951	0.9426	2.80E-05	3.47E-03	1.30E-05	0.6391276	1.00	1.55E+01	1.05E-03
109	0.545	0.9928	0.9778	0.9953	0.9442	2.80E-05	3.81E-03	1.30E-05	0.6342578	1.00	1.54E+01	1.05E-03
110	0.550	0.9930	0.9779	0.9955	0.9459	2.80E-05	4.54E-03	1.30E-05	0.633115	1.00	1.53E+01	1.04E-03
111	0.555	0.9930	0.9780	0.9956	0.9474	2.80E-05	9.87E-03	1.30E-05	0.6491283	1.00	1.53E+01	1.04E-03
112	0.560	0.9928	0.9782	0.9958	0.9490	2.80E-05	2.48E-02	1.30E-05	0.6677325	1.00	1.52E+01	1.03E-03
113	0.565	0.9933	0.9781	0.9959	0.9509	2.80E-05	6.33E-02	1.30E-05	0.6873444	1.00	1.51E+01	1.02E-03
114	0.570	0.9938	0.9778	0.9958	0.9527	2.80E-05	0.1467115	1.30E-05	0.7036197	1.00	1.50E+01	1.02E-03
115	0.575	0.9943	0.9776	0.9955	0.9545	2.80E-05	0.3206104	1.30E-05	0.7046957	1.00	1.49E+01	1.01E-03
116	0.580	0.9948	0.9773	0.9953	0.9562	2.80E-05	0.5654224	1.30E-05	0.7032946	1.00	1.48E+01	1.01E-03
117	0.585	0.9949	0.9770	0.9950	0.9578	2.80E-05	0.698772	1.30E-05	0.7010231	1.00	1.47E+01	9.98E-04
118	0.590	0.9945	0.9767	0.9948	0.9594	2.80E-05	0.7282907	1.30E-05	0.6987517	1.00	1.46E+01	9.91E-04
119	0.595	0.9939	0.9765	0.9945	0.9607	2.80E-05	0.7434212	1.30E-05	0.7054967	1.00	1.45E+01	9.83E-04
120	0.600	0.9932	0.9767	0.9942	0.9620	2.80E-05	0.7416697	1.30E-05	0.722309	1.00	1.44E+01	9.76E-04
121	0.605	0.9928	0.9768	0.9939	0.9633	2.80E-05	0.7195837	1.30E-05	0.7463094	1.00	1.42E+01	9.68E-04
122	0.610	0.9926	0.9768	0.9936	0.9646	2.80E-05	0.7066265	1.30E-05	0.7652713	1.00	1.41E+01	9.61E-04
123	0.615	0.9925	0.9766	0.9933	0.9655	2.80E-05	0.6887285	1.30E-05	0.766369	1.00	1.40E+01	9.53E-04
124	0.620	0.9923	0.9764	0.9929	0.9663	2.80E-05	0.6678277	1.30E-05	0.7623456	1.00	1.39E+01	9.45E-04
125	0.625	0.9920	0.9762	0.9926	0.9668	2.80E-05	0.6816854	1.30E-05	0.7506403	1.00	1.38E+01	9.37E-04
126	0.630	0.9918	0.9757	0.9923	0.9672	2.80E-05	0.7185531	1.30E-05	0.7389349	1.00	1.37E+01	9.29E-04
127	0.635	0.9915	0.9752	0.9920	0.9676	2.80E-05	0.7545794	1.30E-05	0.7287962	1.00	1.35E+01	9.20E-04
128	0.640	0.9912	0.9749	0.9915	0.9680	2.80E-05	0.7761665	1.30E-05	0.7282807	1.00	1.34E+01	9.12E-04
129	0.645	0.9909	0.9746	0.9908	0.9680	2.80E-05	0.7999424	1.30E-05	0.7277651	1.00	1.33E+01	9.04E-04
130	0.650	0.9907	0.9743	0.9902	0.9679	2.80E-05	0.832278	1.30E-05	0.748083	1.00	1.32E+01	8.95E-04
131	0.655	0.9904	0.9743	0.9896	0.9685	2.80E-05	0.806282	1.30E-05	0.771657	1.00	1.30E+01	8.87E-04
132	0.660	0.9900	0.9745	0.9891	0.9691	2.80E-05	0.7737393	1.30E-05	0.8081282	1.00	1.29E+01	8.79E-04
133	0.665	0.9894	0.9746	0.9885	0.9681	2.80E-05	0.7759534	1.30E-05	0.8445995	1.00	1.28E+01	8.70E-04
134	0.670	0.9888	0.9747	0.9880	0.9671	2.80E-05	0.7530936	1.30E-05	0.875388	1.00	1.27E+01	8.62E-04
135	0.675	0.9885	0.9749	0.9874	0.9673	2.80E-05	0.6194074	3.08E-03	0.8915641	1.00	1.25E+01	8.53E-04
136	0.680	0.9884	0.9750	0.9868	0.9675	2.80E-05	0.192189	3.70E-03	0.8928726	1.00	1.24E+01	8.45E-04
137	0.685	0.9883	0.9752	0.9866	0.9661	2.80E-05	5.81E-02	1.08E-02	0.8780749	1.00	1.23E+01	8.36E-04
138	0.690	0.9882	0.9753	0.9866	0.9648	2.80E-05	1.98E-02	2.32E-02	0.8560207	1.00	1.22E+01	8.28E-04
139	0.695	0.9881	0.9754	0.9866	0.9642	2.80E-05	6.45E-03	5.69E-02	0.8302282	1.00	1.20E+01	8.19E-04
140	0.700	0.9884	0.9756	0.9866	0.9637	2.80E-05	1.92E-03	0.1500412	0.8069455	1.00	1.19E+01	8.11E-04
141	0.705	0.9861	0.9756	0.9864	0.9628	2.80E-05	2.60E-05	0.3275876	0.8020687	1.00	1.18E+01	8.02E-04
142	0.710	0.9858	0.9757	0.9861	0.9618	2.80E-05	2.60E-05	0.5530196	0.8032018	1.00	1.17E+01	7.94E-04
143	0.715	0.9856	0.9757	0.9857	0.9616	2.80E-05	2.60E-05	0.7479594	0.8171062	1.00	1.16E+01	7.86E-04
144	0.720	0.9850	0.9757	0.9854	0.9614	2.80E-05	2.60E-05	0.8460375	0.8310106	1.00	1.14E+01	7.77E-04
145	0.725	0.9843	0.9758	0.9853	0.9606	2.80E-05	2.60E-05	0.8428054	0.8454876	1.00	1.13E+01	7.69E-04
146	0.730	0.9836	0.9761	0.9853	0.9597	2.80E-05	2.60E-05	0.8196768	0.8689362	1.00	1.12E+01	7.61E-04
147	0.735	0.9834	0.9763	0.9853	0.9585	2.80E-05	2.60E-05	0.8373339	0.8923846	1.00	1.11E+01	7.52E-04
148	0.740	0.9834	0.9766	0.9853	0.9572	2.80E-05	2.60E-05	0.8562421	0.9020418	1.00	1.09E+01	7.44E-04
149	0.745	0.9834	0.9768	0.9853	0.9561	2.80E-05	2.60E-05	0.877494	0.9098183	1.00	1.08E+01	7.36E-04
150	0.750	0.9834	0.9771	0.9853	0.9550	2.80E-05	2.60E-05	0.8987255	0.9109155	1.00	1.07E+01	7.28E-04
151	0.755	0.9833	0.9773	0.9853	0.9539	2.80E-05	2.60E-05	0.9278159	0.9001381	1.00	1.06E+01	7.20E-04
152	0.760	0.9829	0.9776	0.9853	0.9527	2.80E-05	2.60E-05	0.9563335	0.8893607	1.00	1.05E+01	7.12E-04
153	0.765	0.9825	0.9778	0.9853	0.9511	2.80E-05	2.60E-05	0.9611726	0.8708163	1.00	1.03E+01	7.04E-04
154	0.770	0.9820	0.9781	0.9853	0.9496	2.80E-05	2.60E-05	0.9485709	0.8431543	1.00	1.02E+01	6.96E-04
155	0.775	0.9814	0.9783	0.9853	0.9499	2.80E-05	2.60E-05	0.9377791	0.8327644	1.00	1.01E+01	6.88E-04
156	0.780	0.9809	0.9785	0.9853	0.9502	2.80E-05	2.60E-05	0.9289914	0.8312724	1.00	1.00E+01	6.80E-04
157	0.785	0.9804	0.9788	0.9855	0.9496	2.80E-05	2.60E-05	0.9152243	0.8297803	1.00	9.89E+00	6.73E-04
158	0.790	0.9798	0.9790	0.9857	0.9491	2.80E-05	2.60E-05	0.8998865	0.8303772	1.00	9.78E+00	6.65E-04
159	0.795	0.9793	0.9792	0.9859	0.9483	2.80E-05	2.60E-05	0.8715157	0.8316338	1.00	9.67E+00	6.57E-04
160	0.800	0.9789	0.9795	0.9863	0.9474	2.80E-05	2.60E-05	0.8400863	0.836645	1.00	9.56E+00	6.50E-04
161	0.805	0.9786	0.9797	0.9867	0.9471	2.80E-05	2.60E-05	0.8135494	0.8443752	1.00	9.45E+00	6.42E-04
162	0.810	0.9783	0.9800	0.9871	0.9467	2.80E-05	2.60E-05	0.8023571	0.8521053	1.00	9.34E+00	6.35E-04
163	0.815	0.9780	0.9803	0.9875	0.9471	2.80E-05	2.60E-05	0.8025053	0.8593967	1.00	9.23E+00	6.28E-04
164	0.820	0.9777	0.9807	0.9879	0.9475	2.80E-05	2.60E-05	0.8028804	0.8664818	1.00	9.12E+00	6.20E-04
165	0.825	0.9775	0.9808	0.9884	0.9464	2.80E-05	2.60E-05	0.795219	0.8669188	1.00	9.02E+00	6.13E-04
166	0.830	0.9772	0.9810	0.9887	0.9452	2.80E-05	2.60E-05	0.7762691	0.8612191	1.00	8.91E+00	6.06E-04
167	0.835	0.9769	0.9811	0.9886	0.9448	2.80E-05	2.60E-05	0.7651765	0.849567	1.00	8.81E+00	5.99E-04
168	0.840	0.9766	0.9813	0.9885	0.9443	2.80E-05	2.60E-05	0.7632169	0.8263606	1.00	8.71E+00	5.92E-04
169	0.845	0.9763	0.9814	0.9882	0.9474	2.80E-05	2.60E-05	0.777504	0.8027285	1.00	8.60E+00	5.85E-04
170	0.850	0.9760	0.9816	0.9879	0.9505	2.80E-05	2.60E-05	0.7973569	0.7768612	1.00	8.50E+00	5.78E-04
171	0.855	0.9757	0.9817	0.9873	0.9464	2.80E-05	2.60E-05	0.8105603	0.7501557	1.00	8.40E+00	5.71E-04
172	0.860	0.9754	0.9817	0.9867	0.9423	2.80E-05	2.60E-05	0.8083479	0.7219601	1.00	8.31E+00	5.65E-04
173	0.865	0.9604	0.9616	0.9655	0.9427	2.80E-05	2.60E-05	0.7854749	0.6954381	1.00	8.21E+00	5.58E-04
174	0.870	0.9557	0.9618	0.9658	0.9432	2.80E-05	2.60E-05	0.7552349	0.6765403	1.00	8.11E+00	5.52E-04
175	0.875	0.9551	0.9620	0.9661	0.9436	2.80E-05	2.60E-05	0.7228118	0.6576424	1.00	8.02E+00	5.45E-04
176	0.880	0.9546	0.9627	0.9665	0.9441	2.80E-05	2.60E-05	0.6989941	0.6431917	1.00	7.92E+00	5.39E-04
177	0.885	0.9543	0.9634	0.9670	0.9439	2.80E-05	2.60E-05	0.6688111	0.631032	1.00	7.83E+00	5.32E-04
178	0.890	0.9539	0.9640	0.9674	0.9436	2.80E-05	2.60E-05	0.6410361	0.6240528	1.00	7.74E+00	5.26E-04
179	0.895	0.9535	0.9645	0.9677	0.9440	2.80E-05	2.60E-05	0.6144049	0.6180603	1.00	7.64E+00	5.20E-04
180	0.900	0.9533	0.9649	0.9681	0.9443	2.80E-05	2.60E-05	0.5888986	0.6120679	1.00	7.55E+00	5.14E-04
181	0.905	0.9531	0.9653	0.9684	0.9441	2.80E-05	2.60E-05	0.567954	0.6059181	1.00	7.47E+00	5.08E-04
182	0.910	0.9528	0.9658	0.9687	0.9439	2.80E-05	2.60E-05	0.5472868	0.5997583	1.00	7.38E+00	5.02E-04
183	0.915	0.9526	0.9662	0.9691	0.9438	2.80E-05	2.60E-05	0.531095	0.5910497	1.00	7.29E+00	4.96E-04
184	0.920	0.9524	0.9666	0.9695	0.9436	2.80E-05	2.60E-05	0.517335	0.5788214	1.00	7.20E+00	4.90E-04
185	0.925	0.9522	0.9671	0.9699	0.9436	2.80E-05	2.60E-05	0.5013231	0.5616605	1.00	7.12E+00	4.84E-04
186	0.930	0.9520	0.9675	0.9704	0.9436	2.80E-05	2.60E-05	0.4789721	0.5412112	1.00	7.03E+00	4.78E-04
187	0.935	0.9517	0.9679	0.9709	0.9436	2.80E-05	2.60E-05	0.4518087	0.520762	1.00	6.95E+00	4.73E-04
188	0.940	0.9515	0.9684	0.9714	0.9436	2.80E-05	2.60E-05	0.4311237	0.4964456	1.00	6.87E+00	4.67E-04
189	0.945	0.9513	0.9688	0.9718	0.9435	2.80E-05	2.60E-05	0.4409182	0.4706253	1.00	6.79E+00	4.62E-04
190	0.950	0.9511	0.9691	0.9722	0.9434	2.80E-05	2.60E-05	0.4236443	0.4446198	1.00	6.71E+00	4.56E-04
191	0.955	0.9509	0.9694	0.9727	0.9432	2.80E-05	2.60E-05	0.2425927	0.4177706	1.00	6.63E+00	4.51E-04
192	0.960	0.9507	0.9697	0.9731	0.9430	2.80E-05	2.60E-05	6.43E-02	0.3909215	1.00	6.55E+00	4.45E-04
193	0.965	0.9507	0.9701	0.9735	0.9428	2.80E-05	2.60E-05	1.56E-02	0.3640723	1.00	6.47E+00	4.40E-04
194	0.970	0.9506	0.9704	0.9740	0.9425	2.80E-05	2.60E-05	4.79E-03	0.3394304	1.00	6.40E+00	4.35E-04
195	0.975	0.9506	0.9707	0.9744	0.9425	2.80E-05	2.60E-05	2.50E-03	0.3165226	1.00	6.32E+00	4.30E-04
196	0.980	0.9505	0.9710	0.9748	0.9424	2.80E-05	2.60E-05	2.60E-05	0.2936148	1.00	6.25E+00	4.25E-04
197	0.985	0.9505	0.9713	0.9752	0.9421	2.80E-05	2.60E-05	2.60E-05	0.2707071	1.00	6.17E+00	4.20E-04
198	0.990	0.9504	0.9716	0.9756	0.9418	2.80E-05	2.60E-05	2.60E-05	0.2485623	1.00	6.10E+00	4.15E-04
199	0.995	0.9504	0.9720	0.9760	0.9415	2.80E-05	2.60E-05	2.60E-05	0.2291227	1.00	6.03E+00	4.10E-04
200	1.000	0.9505	0.9723	0.9764	0.9412	2.80E-05	2.60E-05	2.60E-05	0.209683	1.00	5.96E+00	4.05E-04

Vis/NIR Model From Will Shaw of LMIRIS (17Jul97 Version), Modified by Mark Hofstadter of JPL

Items marked (MDH) have been checked, (MDH!) have been changed from original values. Revision date: 29-Dec-00

Start wavelength (µm) 0.000

201	1.005	0.9505	0.9727	0.9768	0.9386	2.80E-05	2.60E-05	2.60E-05	0.1898783	1.00	5.89E+00	4.00E-04
202	1.010	0.9505	0.9729	0.9772	0.9360	2.80E-05	2.60E-05	2.60E-05	0.1698302	1.00	5.82E+00	3.96E-04
203	1.015	0.9505	0.9732	0.9776	0.9356	2.80E-05	2.60E-05	2.60E-05	0.150791	1.00	5.75E+00	3.91E-04
204	1.020	0.9505	0.9735	0.9779	0.9352	2.80E-05	2.60E-05	2.60E-05	0.1357876	1.00	5.68E+00	3.87E-04
205	1.025	0.9505	0.9738	0.9783	0.9348	2.80E-05	2.60E-05	2.60E-05	0.1207842	1.00	5.62E+00	3.82E-04
206	1.030	0.9504	0.9741	0.9786	0.9344	2.80E-05	2.60E-05	2.60E-05	0.106532	1.00	5.55E+00	3.78E-04
207	1.035	0.9506	0.9744	0.9789	0.9340	2.80E-05	2.60E-05	2.60E-05	9.53E-02	1.00	5.49E+00	3.73E-04
208	1.040	0.9509	0.9747	0.9793	0.9336	2.80E-05	2.60E-05	2.60E-05	8.40E-02	1.00	5.42E+00	3.69E-04
209	1.045	0.9512	0.9750	0.9796	0.9332	2.80E-05	2.60E-05	2.60E-05	7.44E-02	1.00	5.36E+00	3.64E-04
210	1.050	0.9515	0.9753	0.9800	0.9328	2.80E-05	2.60E-05	2.60E-05	6.52E-02	1.00	5.30E+00	3.60E-04
211	1.055	0.9518	0.9756	0.9803	0.9324	2.80E-05	2.60E-05	2.60E-05	5.63E-02	1.00	5.24E+00	3.56E-04
212	1.060	0.9521	0.9759	0.9807	0.9320	2.80E-05	2.60E-05	2.60E-05	4.85E-02	1.00	5.18E+00	3.52E-04
213	1.065	0.9524	0.9762	0.9810	0.9316	2.80E-05	2.60E-05	2.60E-05	4.07E-02	1.00	5.12E+00	3.48E-04
214	1.070	0.9525	0.9764	0.9813	0.9312	2.80E-05	2.60E-05	2.60E-05	3.29E-02	1.00	5.06E+00	3.44E-04
215	1.075	0.9526	0.9767	0.9816	0.9308	2.80E-05	2.60E-05	2.60E-05	2.74E-02	1.00	5.00E+00	3.40E-04
216	1.080	0.9527	0.9770	0.9820	0.9304	2.80E-05	2.60E-05	2.60E-05	2.20E-02	1.00	4.94E+00	3.36E-04
217	1.085	0.9529	0.9773	0.9823	0.9300	2.80E-05	2.60E-05	2.60E-05	1.65E-02	1.00	4.88E+00	3.32E-04
218	1.090	0.9532	0.9775	0.9827	0.9296	2.80E-05	2.60E-05	2.60E-05	1.42E-02	1.00	4.83E+00	3.28E-04
219	1.095	0.9534	0.9778	0.9830	0.9292	2.80E-05	2.60E-05	2.60E-05	1.19E-02	1.00	4.77E+00	3.24E-04
220	1.100	0.9537	0.9780	0.9834	0.9288	2.80E-05	2.60E-05	2.60E-05	6.34E-03	1.00	4.72E+00	3.21E-04
						2.87E-01	8.32E-01	9.61E-01	9.11E-01		SUM =	1.25E-01
						Maximum of above Filter*Detector Functions						

															These columns use an approximate solar model. Look to the right for more precise results.									THESE COLUMNS USE SOLAR IRRADIANCE IN W / CM**2, NOT PER METER-SQUARED!			
Atmospheric Transmission	Solar Irradiance at Earth (W/cm^2)	Earth Radiance (W/(cm^2 sr))	Earth Radiance in Each Filter Band (W/(cm^2 sr µm))				System Response (MDH!) Rsc*Rfo*Rst*Tw(EMI)*Tnl1/2/3/4(Det+Filt)				Normalized System Response (MDH!)				In-Band TOA Irradiance (MDH!) System Response * TOA Solar Irradiance				Normalized In-Band TOA Irradiance (MDH!) System Response * TOA Solar Irradiance / MAX				Solar Spectral Irradiance (Kurucz model, smoothed)	Normalized Kurucz In-Band TOA Irrad. (MDH!) Sys. Resp. * Kurucz Solar Irrad. / MAX			
			Band 1	Band 2	Band 3	Band 4	Channel 1	Channel 2	Channel 3	Channel 4	Channel 1	Channel 2	Channel 3	Channel 4	Channel 1	Channel 2	Channel 3	Channel 4	Channel 1	Channel 2	Channel 3	Channel 4	W / (m**2 nm)	Channel 1	Channel 2	Channel 3	Channel 4
1.00	2.01E-251	2.56E-252	7.18E-258	3.08E-257	3.33E-257	3.08E-257	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	45371.7	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	7.55E-200	9.62E-201	2.69E-206	1.15E-205	1.25E-205	1.15E-205	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	28889.8	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	3.09E-97	3.94E-98	1.10E-103	4.72E-103	5.12E-103	4.72E-103	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7037.35	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	2.07E-63	2.63E-64	7.37E-70	3.16E-69	3.42E-69	3.16E-69	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3045.44	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	1.11E-46	1.41E-47	3.94E-53	1.69E-52	1.83E-52	1.69E-52	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1666.79	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	9.35E-37	1.19E-37	3.33E-43	1.43E-42	1.55E-42	1.43E-42	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1037.13	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	3.28E-30	4.18E-31	1.17E-36	5.01E-36	5.43E-36	5.01E-36	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	699.661	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	1.38E-25	1.75E-26	4.91E-32	2.11E-31	2.28E-31	2.11E-31	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	498.926	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	3.70E-22	4.71E-23	1.32E-28	5.65E-28	6.12E-28	5.65E-28	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	370.421	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	1.60E-19	2.04E-20	5.71E-26	2.45E-25	2.65E-25	2.45E-25	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	283.538	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	1.95E-17	2.48E-18	6.94E-24	2.97E-23	3.22E-23	2.97E-23	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	222.262	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	9.45E-16	1.20E-16	3.37E-22	1.44E-21	1.56E-21	1.44E-21	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	177.568	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	2.31E-14	2.94E-15	8.24E-21	3.53E-20	3.83E-20	3.53E-20	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	144.065	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	3.35E-13	4.26E-14	1.19E-19	5.12E-19	5.54E-19	5.12E-19	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	118.372	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	3.22E-12	4.10E-13	1.15E-18	4.92E-18	5.33E-18	4.92E-18	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	98.2884	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	2.24E-11	2.85E-12	7.98E-18	3.42E-17	3.70E-17	3.42E-17	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	82.3294	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	1.19E-10	1.52E-11	4.26E-17	1.83E-16	1.98E-16	1.83E-16	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	69.4676	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	5.14E-10	6.55E-11	1.83E-16	7.86E-16	8.51E-16	7.86E-16	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	58.9734	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	1.85E-09	2.36E-10	6.60E-16	2.83E-15	3.07E-15	2.83E-15	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	50.3176	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	5.74E-09	7.31E-10	2.05E-15	8.77E-15	9.50E-15	8.77E-15	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	43.1094	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	1.57E-08	2.00E-09	5.59E-15	2.40E-14	2.60E-14	2.40E-14	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	37.0552	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	3.85E-08	4.90E-09	1.37E-14	5.88E-14	6.37E-14	5.88E-14	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	31.9312	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	8.62E-08	1.10E-08	3.07E-14	1.32E-13	1.43E-13	1.32E-13	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	27.5646	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	1.78E-07	2.27E-08	6.34E-14	2.72E-13	2.95E-13	2.72E-13	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	23.8201	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	3.43E-07	4.37E-08	1.22E-13	5.24E-13	5.67E-13	5.24E-13	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	20.591	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	6.22E-07	7.91E-08	2.22E-13	9.50E-13	1.03E-12	9.50E-13	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	17.7921	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	1.07E-06	1.36E-07	3.81E-13	1.63E-12	1.77E-12	1.63E-12	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	15.3545	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	1.75E-06	2.23E-07	6.24E-13	2.68E-12	2.90E-12	2.68E-12	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	13.2225	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	2.75E-06	3.51E-07	9.82E-13	4.21E-12	4.56E-12	4.21E-12	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	11.3505	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	4.17E-06	5.31E-07	1.49E-12	6.37E-12	6.90E-12	6.37E-12	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.70084	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	6.11E-06	7.78E-07	2.18E-12	9.33E-12	1.01E-11	9.33E-12	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.24222	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	8.68E-06	1.11E-06	3.09E-12	1.33E-11	1.44E-11	1.33E-11	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.94858	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	1.20E-05	1.53E-06	4.28E-12	1.83E-11	1.99E-11	1.83E-11	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.79803	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	1.62E-05	2.06E-06	5.78E-12	2.48E-11	2.68E-11	2.48E-11	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.77206	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	2.14E-05	2.73E-06	7.63E-12	3.27E-11	3.54E-11	3.27E-11	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.85499	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	2.77E-05	3.53E-06	9.88E-12	4.23E-11	4.59E-11	4.23E-11	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.03344	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	3.52E-05	4.48E-06	1.26E-11	5.38E-11	5.83E-11	5.38E-11	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.29595	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	4.40E-05	5.60E-06	1.57E-11	6.73E-11	7.29E-11	6.73E-11	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.63268	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	5.42E-05	6.90E-06	1.93E-11	8.28E-11	8.97E-11	8.28E-11	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.03514	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	6.58E-05	8.37E-06	2.34E-11	1.00E-10	1.09E-10	1.00E-10	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.495942	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	7.88E-05	1.00E-05	2.81E-11	1.20E-10	1.30E-10	1.20E-10	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.76018	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	9.33E-05	1.19E-05	3.33E-11	1.43E-10	1.54E-10	1.43E-10	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.50963	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	1.09E-04	1.39E-05	3.89E-11	1.67E-10	1.81E-10	1.67E-10	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.36094	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	1.27E-04	1.61E-05	4.51E-11	1.93E-10	2.10E-10	1.93E-10	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.20764	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	1.45E-04	1.85E-05	5.19E-11	2.22E-10	2.41E-10	2.22E-10	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.97334	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	1.66E-04	2.11E-05	5.90E-11	2.53E-10	2.74E-10	2.53E-10	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.5739	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	1.87E-04	2.38E-05	6.67E-11	2.86E-10	3.10E-10	2.86E-10	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.02297	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	2.10E-04	2.67E-05	7.48E-11	3.20E-10	3.47E-10	3.20E-10	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.96229	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	2.33E-04	2.97E-05	8.32E-11	3.57E-10	3.86E-10	3.57E-10	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.53267	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	2.58E-04	3.29E-05	9.20E-11	3.94E-10	4.27E-10	3.94E-10	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.53648	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	2.84E-04	3.61E-05	1.01E-10	4.34E-10	4.70E-10	4.34E-10	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.03342	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	3.10E-04	3.95E-05	1.11E-10	4.74E-10	5.14E-10	4.74E-10	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.73525	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	3.37E-04	4.30E-05	1.20E-10	5.15E-10	5.58E-10	5.15E-10	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.0368	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	3.65E-04	4.65E-05	1.30E-10	5.58E-10	6.04E-10	5.58E-10	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.320664	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	3.93E-04	5.00E-05	1.40E-10	6.01E-10	6.51E-10	6.01E-10	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.314294	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	4.21E-04	5.37E-05	1.50E-10	6.44E-10	6.98E-10	6.44E-10	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.203761	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	4.50E-04	5.73E-05	1.60E-10	6.88E-10	7.45E-10	6.88E-10	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.166462	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	4.79E-04	6.09E-05	1.71E-10	7.31E-10	7.92E-10	7.31E-10	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.273187	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	5.07E-04	6.46E-05	1.81E-10	7.75E-10	8.40E-10	7.75E-10	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.581836	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	5.36E-04	6.82E-05	1.91E-10	8.19E-10	8.87E-10	8.19E-10	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.563646	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	5.64E-04	7.18E-05	2.01E-10	8.62E-10	9.34E-10	8.62E-10	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.615353	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	5.92E-04	7.54E-05	2.11E-10	9.05E-10	9.80E-10	9.05E-10	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.720755	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	6.20E-04	7.89E-05	2.21E-10	9.47E-10	1.03E-09	9.47E-10	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.742363	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	6.47E-04	8.24E-05	2.31E-10	9.88E-10	1.07E-09	9.88E-10	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.755287	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	6.73E-04	8.57E-05	2.40E-10	1.03E-09	1.11E-09	1.03E-09	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.768044	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	6.99E-04	8.90E-05	2.49E-10	1.07E-09	1.16E-09	1.07E-09	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.874693	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	7.25E-04	9.23E-05	2.58E-10	1.11E-09	1.20E-09	1.11E-09	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.990935	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	7.49E-04	9.54E-05	2.67E-10	1.14E-09	1.24E-09	1.14E-09	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.882912	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	7.73E-04	9.84E-05	2.76E-10	1.18E-09	1.28E-09	1.18E-09	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.876328	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	7.96E-04	1.01E-04	2.84E-10	1.22E-09	1.32E-09	1.22E-09	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.973191	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	8.18E-04	1.04E-04	2.92E-10	1.25E-09	1.35E-09	1.25E-09	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.09246	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00	8.39E-04	1.07E-04	2.99E-10	1.28E-09	1.39E-09	1.28E-09	1.59E-07	6.812E-07	7.38E-07	6.812E-07	7.05E-07	8.848E-07	8.529E-07	8.272E-07	1.33E-10	5.72E-10	6.19E-10	5.72E-10	5.61E-07	8.29E-07	1.01E-06	8.17E-07	1.05264	3.71E-10	4.66E-10	4.49E-10	4.35E-10
1.00	8.60E-04	1.09E-04	3.06E-10	1.31E-09	1.42E-09	1.31E-09	2.948E-07	1.263E-06	1.368E-06	1.263E-06	1.307E-06	1.641E-06	1.582E-06	1.534E-06	2.53E-10	1.09E-09	1.18E-09	1.09E-09	1.07E-06	1.58E-06	1.92E-06	1.55E-06	0.953804	6.23E-10	7.82E-10	7.54E-10	7.32E-10
1.00	8.79E-04	1.12E-04	3.13E-10	1.34E-09	1.46E-09	1.34E-09	3.943E-07	1.69E-06	1.831E-06	1.69E-06	1.749E-06	2.195E-06	2.116E-06	2.052E-06	3.47E-10	1.49E-09	1.61E-09	1.49E-09	1.46E-06	2.15E-06	2.62E-06	2.12E-06	1.19075	1.04E-09	1.31E-09	1.26E-09	1.22E-09
1.00	8.98E-04	1.14E-04	3.20E-10	1.37E-09	1.49E-09	1.37E-09	5.121E-07	2.195E-06	2.378E-06	2.195E-06	2.271E-06	2.85E-06	2.748E-06	2.665E-06	4.60E-10	1.97E-09	2.13E-09	1.97E-09	1.93E-06	2.86E-06	3.48E-06	2.81E-06	1.18371	1.34E-09	1.69E-09	1.63E-09	1.58E-09
1.00	9.15E-04	1.17E-04	3.26E-10	1.40E-09	1.51E-09	1.40E-09	6.315E-07	2.706E-06	2.932E-06	2.706E-06	2.801E-06	3.515E-06	3.388E-06	3.286E-06	5.78E-10	2.48E-09	2.68E-09	2.48E-09	2.43E-06	3.59E-06	4.37E-06	3.54E-06	1.02713	1.44E-09	1.81E-09	1.74E-09	1.69E-09
1.00	9.32E-04	1.19E-04	3.32E-10	1.42E-09	1.54E-09	1.42E-09	8.485E-07	3.637E-06	3.94E-06	3.637E-06	3.764E-06	4.723E-06	4.553E-06	4.416E-06	7.91E-10	3.39E-09	3.67E-09	3.39E-09	3.32E-06	4.92E-06	5.98E-06	4.84E-06	1.19692	2.25E-09	2.83E-09	2.72E-09	2.64E-09
1.00	9.48E-04	1.21E-04	8.65E-08	1.45E-09	1.57E-09	1.45E-09	0.0002744	4.592E-06	4.975E-06	4.592E-06	0.0012171	5.964E-06	5.749E-06	5.576E-06	2.60E-07	4.35E-09	4.71E-09	4.35E-09	1.09E-03	6.31E-06	7.68E-06	6.21E-06	0.837412	5.10E-07	2.50E-09	2.41E-09	2.33E-09
1.00	9.62E-04	1.23E-04	5.18E-07	1.47E-09	1.59E-09	1.47E-09	0.0019075	5.42E-06	5.872E-06	5.42E-06	0.0084607	7.04E-06	6.786E-06	6.581E-06	1.84E-06	5.22E-09	5.65E-09	5.22E-09	7.72E-03	7.57E-06	9.21E-06	7.45E-06	1.19785	5.07E-06	4.22E-09	4.06E-09	3.94E-09
1.00	9.76E-04	1.24E-04	3.02E-06	1.49E-09	1.62E-09	1.49E-09	0.0121467	6.003E-06	6.504E-06	6.003E-06	0.0538766	7.797E-06	7.516E-06	7.29E-06	1.19E-05	5.86E-09	6.35E-09	5.86E-09	4.99E-02	8.50E-06	1.03E-05	8.37E-06	0.898931	2.42E-05	3.50E-09	3.38E-09	3.28E-09
1.00	9.89E-04	1.26E-04	1.50E-05	1.51E-09	1.64E-09	1.51E-09	0.0673243	6.798E-06	7.364E-06	6.798E-06	0.2986171	8.829E-06	8.51E-06	8.254E-06	6.66E-05	6.72E-09	7.28E-09	6.72E-09	2.80E-01	9.75E-06	1.19E-05	9.60E-06	1.68058	2.51E-04	7.42E-09	7.15E-09	6.94E-09
1.00	1.00E-03	1.27E-04	2.47E-05	1.53E-09	1.66E-09	1.53E-09	0.1164286	7.216E-06	7.817E-06	7.216E-06	0.5164197	9.372E-06	9.034E-06	8.762E-06	1.17E-04	7.22E-09	7.83E-09	7.22E-09	4.90E-01	1.05E-05	1.27E-05	1.03E-05	1.65815	4.28E-04	7.77E-09	7.49E-09	7.26E-09
1.00	1.01E-03	1.29E-04	2.68E-05	1.55E-09	1.68E-09	1.55E-09	0.1344033	7.745E-06	8.391E-06	7.745E-06	0.5961465	1.006E-05	9.697E-06	9.405E-06	1.36E-04	7.84E-09	8.49E-09	7.84E-09	5.72E-01	1.14E-05	1.38E-05	1.12E-05	1.76653	5.27E-04	8.89E-09	8.56E-09	8.31E-09
1.00	1.02E-03	1.30E-04	3.09E-05	1.56E-09	1.69E-09	1.56E-09	0.1618349	8.188E-06	8.871E-06	8.188E-06	0.7178198	1.064E-05	1.025E-05	9.943E-06	1.65E-04	8.37E-09	9.07E-09	8.37E-09	6.96E-01	1.21E-05	1.48E-05	1.20E-05	1.78996	6.42E-04	9.52E-09	9.18E-09	8.90E-09
1.00	1.03E-03	1.31E-04	3.48E-05	1.58E-09	1.71E-09	2.01E-07	0.1893276	8.574E-06	9.289E-06	0.0010943	0.8397636	1.114E-05	1.073E-05	0.0013288	1.95E-04	8.85E-09	9.58E-09	1.13E-06	8.21E-01	1.28E-05	1.56E-05	1.61E-03	1.72109	7.23E-04	9.58E-09	9.24E-09	1.14E-06
1.00	1.04E-03	1.32E-04	3.39E-05	1.59E-09	1.72E-09	4.46E-07	0.1900196	8.905E-06	9.647E-06	0.0025004	0.8428332	1.157E-05	1.115E-05	0.0030362	1.98E-04	9.26E-09	1.00E-08	2.60E-06	8.31E-01	1.34E-05	1.63E-05	3.72E-03	1.59798	6.73E-04	9.24E-09	8.91E-09	2.43E-06
1.00	1.05E-03	1.33E-04	3.17E-05	1.60E-09	1.73E-09	9.72E-07	0.1818499	9.2E-06	9.967E-06	0.0055852	0.8065963	1.195E-05	1.152E-05	0.0067819	1.91E-04	9.64E-09	1.04E-08	5.85E-06	8.01E-01	1.40E-05	1.70E-05	8.36E-03	1.39474	5.62E-04	8.33E-09	8.03E-09	4.73E-06
1.00	1.05E-03	1.34E-04	3.86E-05	1.61E-09	1.75E-09	3.35E-06	0.2254534	9.419E-06	1.02E-05	0.0195476	1	1.223E-05	1.179E-05	0.0237359	2.38E-04	9.94E-09	1.08E-08	2.06E-05	1.00E+00	1.44E-05	1.75E-05	2.95E-02	1.70367	8.52E-04	1.04E-08	1.00E-08	2.02E-05
1.00	1.06E-03	1.35E-04	3.55E-05	1.62E-09	1.76E-09	2.64E-05	0.210645	9.63E-06	1.043E-05	0.1567836	0.9343172	1.251E-05	1.206E-05	0.1903762	2.24E-04	1.02E-08	1.11E-08	1.66E-04	9.40E-01	1.48E-05	1.80E-05	2.38E-01	1.74081	8.13E-04	1.09E-08	1.05E-08	1.66E-04
1.00	1.07E-03	1.36E-04	1.51E-05	1.63E-09	1.77E-09	5.67E-05	0.0913959	9.829E-06	1.065E-05	0.342217	0.4053868	1.277E-05	1.231E-05	0.4155408	9.75E-05	1.05E-08	1.14E-08	3.65E-04	4.10E-01	1.52E-05	1.85E-05	5.21E-01	1.88273	3.82E-04	1.20E-08	1.16E-08	3.91E-04
1.00	1.07E-03	1.36E-04	4.87E-06	1.64E-09	1.77E-09	4.85E-05	0.0297818	1E-05	1.084E-05	0.296257	0.1320972	1.299E-05	1.253E-05	0.3597334	3.19E-05	1.07E-08	1.16E-08	3.17E-04	1.34E-01	1.55E-05	1.89E-05	4.53E-01	2.06745	1.37E-04	1.34E-08	1.29E-08	3.72E-04
1.00	1.07E-03	1.37E-04	1.66E-06	1.64E-09	1.78E-09	5.05E-05	0.0102676	1.014E-05	1.098E-05	0.3116229	0.0455421	1.316E-05	1.269E-05	0.3783915	1.10E-05	1.09E-08	1.18E-08	3.35E-04	4.64E-02	1.58E-05	1.92E-05	4.78E-01	2.02531	4.61E-05	1.33E-08	1.28E-08	3.83E-04
1.00	1.08E-03	1.37E-04	6.40E-07	1.65E-09	1.78E-09	5.84E-05	0.0039863	1.026E-05	1.111E-05	0.3639151	0.017681	1.332E-05	1.284E-05	0.441888	4.30E-06	1.11E-08	1.20E-08	3.92E-04	1.81E-02	1.60E-05	1.95E-05	5.60E-01	2.05035	1.81E-05	1.37E-08	1.32E-08	4.53E-04
1.00	1.08E-03	1.38E-04	5.08E-07	1.65E-09	1.79E-09	6.31E-05	0.0031826	1.035E-05	1.121E-05	0.3955742	0.0141166	1.344E-05	1.296E-05	0.4803304	3.44E-06	1.12E-08	1.21E-08	4.27E-04	1.45E-02	1.62E-05	1.97E-05	6.10E-01	2.03964	1.44E-05	1.37E-08	1.32E-08	4.90E-04
1.00	1.08E-03	1.38E-04	3.86E-09	1.65E-09	1.79E-09	6.40E-05	2.436E-05	1.044E-05	1.131E-05	0.4039973	0.000108	1.356E-05	1.307E-05	0.4905582	2.64E-08	1.13E-08	1.22E-08	4.37E-04	1.11E-04	1.64E-05	1.99E-05	6.24E-01	2.07926	1.12E-07	1.41E-08	1.36E-08	5.10E-04
1.00	1.08E-03	1.38E-04	3.86E-09	1.66E-09	1.79E-09	6.31E-05	2.452E-05	1.051E-05	1.138E-05	0.4007335	0.0001088	1.365E-05	1.316E-05	0.4865951	2.66E-08	1.14E-08	1.23E-08	4.34E-04	1.12E-04	1.65E-05	2.01E-05	6.20E-01	2.08562	1.13E-07	1.42E-08	1.37E-08	5.07E-04
1.00	1.08E-03	1.38E-04	3.86E-09	1.66E-09	1.79E-09	6.32E-05	2.467E-05	1.057E-05	1.145E-05	0.4032332	0.0001094	1.373E-05	1.323E-05	0.4896304	2.67E-08	1.15E-08	1.24E-08	4.37E-04	1.12E-04	1.66E-05	2.02E-05	6.24E-01	2.10049	1.15E-07	1.44E-08	1.39E-08	5.14E-04

1.00	1.08E-03	1.38E-04	3.86E-09	1.66E-09	1.79E-09	6.72E-05	2.478E-05	1.062E-05	1.151E-05	0.4306102	0.0001099	1.379E-05	1.33E-05	0.5228733	2.69E-08	1.15E-08	1.25E-08	4.67E-04	1.13E-04	1.67E-05	2.03E-05	6.67E-01	1.93148	1.06E-07	1.33E-08	1.28E-08	5.05E-04
1.00	1.08E-03	1.38E-04	3.86E-09	1.66E-09	1.79E-09	7.17E-05	2.491E-05	1.067E-05	1.156E-05	0.4620798	0.0001105	1.386E-05	1.336E-05	0.5610855	2.70E-08	1.16E-08	1.25E-08	5.01E-04	1.13E-04	1.68E-05	2.04E-05	7.15E-01	1.96584	1.09E-07	1.36E-08	1.31E-08	5.52E-04
1.00	1.08E-03	1.38E-04	3.86E-09	1.65E-09	1.79E-09	7.34E-05	2.501E-05	1.072E-05	1.161E-05	0.4756929	0.0001109	1.392E-05	1.342E-05	0.5776153	2.71E-08	1.16E-08	1.26E-08	5.15E-04	1.14E-04	1.68E-05	2.05E-05	7.35E-01	2.02226	1.12E-07	1.41E-08	1.36E-08	5.84E-04
1.00	1.08E-03	1.38E-04	3.85E-09	1.65E-09	1.79E-09	7.41E-05	2.509E-05	1.075E-05	1.165E-05	0.4827031	0.0001113	1.397E-05	1.346E-05	0.5861276	2.71E-08	1.16E-08	1.26E-08	5.22E-04	1.14E-04	1.69E-05	2.05E-05	7.45E-01	1.89801	1.06E-07	1.33E-08	1.28E-08	5.56E-04
1.00	1.08E-03	1.37E-04	3.85E-09	1.65E-09	1.79E-09	7.46E-05	2.514E-05	1.077E-05	1.167E-05	0.4873963	0.0001115	1.399E-05	1.349E-05	0.5918264	2.71E-08	1.16E-08	1.26E-08	5.26E-04	1.14E-04	1.69E-05	2.05E-05	7.51E-01	1.96475	1.10E-07	1.37E-08	1.33E-08	5.81E-04
1.00	1.08E-03	1.37E-04	3.84E-09	1.64E-09	1.78E-09	7.48E-05	2.517E-05	1.079E-05	1.169E-05	0.4906243	0.0001117	1.401E-05	1.351E-05	0.5957459	2.71E-08	1.16E-08	1.26E-08	5.28E-04	1.14E-04	1.68E-05	2.05E-05	7.54E-01	1.96824	1.10E-07	1.38E-08	1.33E-08	5.86E-04
1.00	1.07E-03	1.37E-04	3.83E-09	1.64E-09	1.78E-09	7.65E-05	2.522E-05	1.081E-05	1.171E-05	0.5042577	0.0001118	1.404E-05	1.353E-05	0.6123004	2.71E-08	1.16E-08	1.26E-08	5.41E-04	1.14E-04	1.68E-05	2.05E-05	7.73E-01	1.79116	1.00E-07	1.26E-08	1.21E-08	5.48E-04
1.00	1.07E-03	1.36E-04	3.82E-09	1.64E-09	1.77E-09	8.06E-05	2.526E-05	1.082E-05	1.173E-05	0.5332895	0.000112	1.406E-05	1.355E-05	0.6475526	2.70E-08	1.16E-08	1.26E-08	5.71E-04	1.14E-04	1.68E-05	2.04E-05	8.15E-01	1.82212	1.02E-07	1.28E-08	1.23E-08	5.90E-04
1.00	1.07E-03	1.36E-04	3.80E-09	1.65E-07	1.77E-09	8.38E-05	2.531E-05	0.0010984	1.175E-05	0.5580157	0.0001123	0.0014266	1.358E-05	0.6775767	2.70E-08	1.17E-06	1.25E-08	5.95E-04	1.13E-04	1.70E-03	2.04E-05	8.50E-01	1.82316	1.02E-07	1.30E-06	1.24E-08	6.18E-04
1.00	1.06E-03	1.35E-04	3.79E-09	2.66E-07	1.76E-09	8.66E-05	2.537E-05	0.0017832	1.178E-05	0.5798921	0.0001125	0.002316	1.361E-05	0.7041404	2.70E-08	1.89E-06	1.25E-08	6.16E-04	1.13E-04	2.75E-03	2.04E-05	8.80E-01	1.95298	1.10E-07	2.26E-06	1.33E-08	6.88E-04
1.00	1.06E-03	1.35E-04	3.77E-09	3.66E-07	1.75E-09	8.65E-05	2.543E-05	0.0024706	1.181E-05	0.5831258	0.0001128	0.0032089	1.364E-05	0.7080669	2.69E-08	2.61E-06	1.25E-08	6.17E-04	1.13E-04	3.79E-03	2.03E-05	8.81E-01	1.86118	1.05E-07	2.99E-06	1.27E-08	6.59E-04
1.00	1.05E-03	1.34E-04	3.75E-09	4.66E-07	1.74E-09	8.57E-05	2.548E-05	0.003161	1.183E-05	0.581683	0.000113	0.0041055	1.367E-05	0.7063151	2.68E-08	3.33E-06	1.25E-08	6.13E-04	1.13E-04	4.83E-03	2.03E-05	8.75E-01	1.88447	1.07E-07	3.87E-06	1.29E-08	6.66E-04
1.00	1.05E-03	1.33E-04	3.74E-09	5.08E-07	1.73E-09	8.46E-05	2.554E-05	0.003472	1.186E-05	0.5785893	0.0001133	0.0045095	1.371E-05	0.7025584	2.68E-08	3.64E-06	1.24E-08	6.06E-04	1.13E-04	5.28E-03	2.02E-05	8.66E-01	1.906	1.08E-07	4.30E-06	1.31E-08	6.70E-04
1.00	1.04E-03	1.33E-04	3.72E-09	6.03E-07	1.73E-09	8.41E-05	2.56E-05	0.0041518	1.189E-05	0.5788834	0.0001136	0.0053924	1.374E-05	0.7029156	2.67E-08	4.33E-06	1.24E-08	6.04E-04	1.12E-04	6.28E-03	2.02E-05	8.62E-01	1.87032	1.06E-07	5.04E-06	1.28E-08	6.57E-04
1.00	1.04E-03	1.32E-04	3.70E-09	1.30E-06	1.72E-09	8.57E-05	2.565E-05	0.0090449	1.191E-05	0.5946553	0.0001138	0.0117476	1.376E-05	0.7220667	2.66E-08	9.38E-06	1.23E-08	6.17E-04	1.12E-04	1.36E-02	2.01E-05	8.81E-01	1.87403	1.07E-07	1.10E-05	1.29E-08	6.77E-04
1.00	1.03E-03	1.31E-04	3.68E-09	3.25E-06	1.71E-09	8.77E-05	2.57E-05	0.0227555	1.193E-05	0.6128456	0.000114	0.0295551	1.379E-05	0.7441546	2.65E-08	2.35E-05	1.23E-08	6.32E-04	1.11E-04	3.40E-02	2.00E-05	9.02E-01	1.84553	1.05E-07	2.73E-05	1.27E-08	6.87E-04
1.00	1.02E-03	1.30E-04	3.65E-09	8.26E-06	1.70E-09	8.97E-05	2.576E-05	0.0582188	1.196E-05	0.6323778	0.0001143	0.0756151	1.382E-05	0.7678718	2.64E-08	5.97E-05	1.23E-08	6.48E-04	1.11E-04	8.65E-02	2.00E-05	9.26E-01	1.85173	1.06E-07	7.00E-05	1.28E-08	7.11E-04
1.00	1.02E-03	1.30E-04	3.63E-09	1.90E-05	1.69E-09	9.12E-05	2.582E-05	0.1352633	1.199E-05	0.6487146	0.0001145	0.175681	1.385E-05	0.7877089	2.63E-08	1.38E-04	1.22E-08	6.61E-04	1.11E-04	2.00E-01	1.99E-05	9.44E-01	1.85242	1.06E-07	1.63E-04	1.28E-08	7.30E-04
1.00	1.01E-03	1.29E-04	3.61E-09	4.13E-05	1.67E-09	9.08E-05	2.586E-05	0.2961209	1.201E-05	0.6508682	0.0001147	0.3846043	1.388E-05	0.7903239	2.62E-08	3.00E-04	1.21E-08	6.59E-04	1.10E-04	4.35E-01	1.98E-05	9.41E-01	1.87997	1.08E-07	3.62E-04	1.30E-08	7.43E-04
1.00	1.01E-03	1.28E-04	3.58E-09	7.24E-05	1.66E-09	9.00E-05	2.591E-05	0.5231654	1.203E-05	0.6507337	0.0001149	0.6794916	1.39E-05	0.7901606	2.60E-08	5.26E-04	1.21E-08	6.54E-04	1.09E-04	7.63E-01	1.97E-05	9.34E-01	1.84996	1.06E-07	6.29E-04	1.29E-08	7.31E-04
1.00	9.98E-04	1.27E-04	3.56E-09	8.88E-05	1.65E-09	8.91E-05	2.594E-05	0.6473435	1.204E-05	0.6494289	0.0001151	0.8407751	1.392E-05	0.7885762	2.59E-08	6.46E-04	1.20E-08	6.48E-04	1.09E-04	9.37E-01	1.96E-05	9.26E-01	1.84545	1.06E-07	7.76E-04	1.28E-08	7.28E-04
1.00	9.91E-04	1.26E-04	3.53E-09	9.19E-05	1.64E-09	8.82E-05	2.596E-05	0.6751799	1.205E-05	0.6477951	0.0001151	0.8769293	1.393E-05	0.7865923	2.57E-08	6.69E-04	1.19E-08	6.42E-04	1.08E-04	9.70E-01	1.95E-05	9.17E-01	1.77364	1.02E-07	7.78E-04	1.24E-08	6.98E-04
1.00	9.83E-04	1.25E-04	3.51E-09	9.31E-05	1.63E-09	8.83E-05	2.597E-05	0.6893967	1.206E-05	0.6542282	0.0001152	0.8953942	1.393E-05	0.7944038	2.55E-08	6.78E-04	1.19E-08	6.43E-04	1.07E-04	9.83E-01	1.93E-05	9.19E-01	1.81486	1.05E-07	8.13E-04	1.26E-08	7.21E-04
1.00	9.76E-04	1.24E-04	3.48E-09	9.22E-05	1.62E-09	8.98E-05	2.598E-05	0.6881049	1.206E-05	0.6701425	0.0001152	0.8937164	1.394E-05	0.8137279	2.54E-08	6.72E-04	1.18E-08	6.54E-04	1.07E-04	9.74E-01	1.92E-05	9.34E-01	1.7753	1.02E-07	7.93E-04	1.24E-08	7.22E-04
1.00	9.68E-04	1.23E-04	3.45E-09	8.87E-05	1.60E-09	9.20E-05	2.6E-05	0.668173	1.207E-05	0.6929893	0.0001153	0.8678287	1.395E-05	0.8414699	2.52E-08	6.47E-04	1.17E-08	6.71E-04	1.06E-04	9.38E-01	1.90E-05	9.58E-01	1.78491	1.03E-07	7.74E-04	1.25E-08	7.51E-04
1.00	9.61E-04	1.22E-04	3.42E-09	8.64E-05	1.59E-09	9.36E-05	2.602E-05	0.6567203	1.208E-05	0.7112233	0.0001154	0.8529539	1.396E-05	0.8636108	2.50E-08	6.31E-04	1.16E-08	6.83E-04	1.05E-04	9.15E-01	1.89E-05	9.76E-01	1.73696	1.00E-07	7.41E-04	1.21E-08	7.50E-04
1.00	9.53E-04	1.21E-04	3.40E-09	8.35E-05	1.58E-09	9.30E-05	2.603E-05	0.6401764	1.208E-05	0.7123437	0.0001154	0.8314665	1.396E-05	0.8649712	2.48E-08	6.10E-04	1.15E-08	6.79E-04	1.04E-04	8.85E-01	1.88E-05	9.69E-01	1.65754	9.57E-08	6.89E-04	1.16E-08	7.17E-04
1.00	9.45E-04	1.20E-04	3.37E-09	8.03E-05	1.56E-09	9.17E-05	2.603E-05	0.6208364	1.209E-05	0.7087036	0.0001155	0.8063475	1.397E-05	0.8605512	2.46E-08	5.87E-04	1.14E-08	6.70E-04	1.03E-04	8.51E-01	1.86E-05	9.56E-01	1.70254	9.83E-08	6.86E-04	1.19E-08	7.33E-04
1.00	9.37E-04	1.19E-04	3.34E-09	8.13E-05	1.55E-09	8.95E-05	2.602E-05	0.6335014	1.208E-05	0.6975823	0.0001154	0.8227969	1.396E-05	0.847047	2.44E-08	5.93E-04	1.13E-08	6.53E-04	1.02E-04	8.61E-01	1.84E-05	9.33E-01	1.65082	9.53E-08	6.79E-04	1.15E-08	6.99E-04
1.00	9.29E-04	1.18E-04	3.31E-09	8.50E-05	1.54E-09	8.74E-05	2.601E-05	0.6673728	1.207E-05	0.6863029	0.0001153	0.8667893	1.395E-05	0.8333509	2.41E-08	6.20E-04	1.12E-08	6.37E-04	1.02E-04	8.99E-01	1.83E-05	9.10E-01	1.66154	9.58E-08	7.20E-04	1.16E-08	6.92E-04
1.00	9.20E-04	1.17E-04	3.28E-09	8.84E-05	1.52E-09	8.54E-05	2.599E-05	0.7003383	1.207E-05	0.6764085	0.0001153	0.9096053	1.394E-05	0.8213365	2.39E-08	6.45E-04	1.11E-08	6.23E-04	1.01E-04	9.35E-01	1.81E-05	8.89E-01	1.64143	9.46E-08	7.47E-04	1.14E-08	6.74E-04
1.00	9.12E-04	1.16E-04	3.25E-09	9.01E-05	1.51E-09	8.46E-05	2.597E-05	0.7198165	1.206E-05	0.6754072	0.0001152	0.9349036	1.393E-05	0.8201207	2.37E-08	6.57E-04	1.10E-08	6.16E-04	9.96E-05	9.52E-01	1.79E-05	8.80E-01	1.62497	9.36E-08	7.60E-04	1.13E-08	6.66E-04
1.00	9.04E-04	1.15E-04	3.22E-09	9.21E-05	1.50E-09	8.38E-05	2.593E-05	0.7409451	1.204E-05	0.674091	0.000115	0.9623456	1.392E-05	0.8185224	2.34E-08	6.70E-04	1.09E-08	6.09E-04	9.86E-05	9.71E-01	1.77E-05	8.70E-01	1.60459	9.23E-08	7.72E-04	1.12E-08	6.57E-04
1.00	8.95E-04	1.14E-04	3.19E-09	9.49E-05	1.48E-09	8.53E-05	2.59E-05	0.7699365	1.203E-05	0.6920481	0.0001149	1	1.39E-05	0.8403271	2.32E-08	6.89E-04	1.08E-08	6.20E-04	9.75E-05	1.00E+00	1.75E-05	8.85E-01	1.58649	9.11E-08	7.93E-04	1.10E-08	6.67E-04
1.00	8.87E-04	1.13E-04	3.16E-09	9.11E-05	1.47E-09	8.72E-05	2.589E-05	0.7456646	1.202E-05	0.7136427	0.0001149	0.9684754	1.389E-05	0.8665486	2.30E-08	6.61E-04	1.07E-08	6.33E-04	9.66E-05	9.59E-01	1.74E-05	9.04E-01	1.49088	8.56E-08	7.22E-04	1.04E-08	6.46E-04
1.00	8.79E-04	1.12E-04	3.13E-09	8.66E-05	1.45E-09	9.04E-05	2.589E-05	0.7154853	1.202E-05	0.7472851	0.0001148	0.9292782	1.389E-05	0.9073992	2.27E-08	6.29E-04	1.06E-08	6.57E-04	9.56E-05	9.12E-01	1.72E-05	9.38E-01	1.56349	8.98E-08	7.26E-04	1.09E-08	7.09E-04
1.00	8.70E-04	1.11E-04	3.10E-09	8.60E-05	1.44E-09	9.36E-05	2.584E-05	0.7160698	1.2E-05	0.7794182	0.0001146	0.9300374	1.386E-05	0.9464172	2.25E-08	6.23E-04	1.04E-08	6.78E-04	9.45E-05	9.04E-01	1.70E-05	9.69E-01	1.55048	8.88E-08	7.21E-04	1.07E-08	7.34E-04
1.00	8.62E-04	1.10E-04	3.07E-09	8.26E-05	1.43E-09	9.60E-05	2.579E-05	0.6935451	1.197E-05	0.8061695	0.0001144	0.9007822	1.384E-05	0.9789002	2.22E-08	5.98E-04	1.03E-08	6.95E-04	9.34E-05	8.67E-01	1.68E-05	9.92E-01	1.5371	8.79E-08	6.92E-04	1.06E-08	7.52E-04
1.00	8.53E-04	1.09E-04	3.04E-09	6.73E-05	3.34E-07	9.69E-05	2.577E-05	0.5701267	0.0028306	0.8206304	0.0001143	0.7404854	0.0032713	0.9964595	2.20E-08	4.86E-04	2.42E-06	7.00E-04	9.25E-05	7.06E-01	3.93E-03	1.00E+00	1.521	8.69E-08	5.63E-04	2.49E-06	7.58E-04
1.00	8.45E-04	1.08E-04	3.01E-09	2.07E-05	3.98E-07	9.60E-05	2.576E-05	0.176841	0.0034042	0.8215687	0.0001143	0.2296826	0.0039341	0.9975989	2.18E-08	1.49E-04	2.88E-06	6.94E-04	9.15E-05	2.17E-01	4.68E-03	9.91E-01	1.50408	8.59E-08	1.73E-04	2.96E-06	7.50E-04
1.00	8.36E-04	1.06E-04	2.98E-09	6.19E-06	1.15E-06	9.35E-05	2.572E-05	0.0533737	0.0099133	0.8066294	0.0001141	0.0693222	0.0114564	0.9794587	2.15E-08	4.46E-05	8.29E-06	6.75E-04	9.04E-05	6.47E-02	1.35E-02	9.63E-01	1.47995	8.44E-08	5.13E-05	8.48E-06	7.25E-04
1.00	8.28E-04	1.05E-04	2.95E-09	2.09E-06	2.45E-06	9.02E-05	2.569E-05	0.0181938	0.0213215	0.7852778	0.0001139	0.0236303	0.0246405	0.9535323	2.13E-08	1.51E-05	1.76E-05	6.50E-04	8.94E-05	2.18E-02	2.87E-02	9.28E-01	1.47562	8.41E-08	1.74E-05	1.82E-05	7.04E-04
1.00	8.19E-04	1.04E-04	2.92E-09	6.73E-07	5.94E-06	8.66E-05	2.567E-05	0.0059166	0.0522159	0.7612363	0.0001139	0.0076846	0.0603441	0.9243396	2.10E-08	4.85E-06	4.28E-05	6.24E-04	8.84E-05	7.03E-03	6.97E-02	8.91E-01	1.45364	8.28E-08	5.59E-06	4.39E-05	6.72E-04
1.00	8.11E-04	1.03E-04	2.89E-09	1.98E-07	1.55E-05	8.33E-05	2.567E-05	0.001761	0.1375607	0.7398236	0.0001139	0.0022872	0.1589742	0.898339	2.08E-08	1.43E-06	1.12E-04	6.00E-04	8.75E-05	2.07E-03	1.82E-01	8.57E-01	1.42425	8.11E-08	1.63E-06	1.13E-04	6.40E-04
1.00	8.02E-04	1.02E-04	2.86E-09	2.66E-09	3.35E-05	8.19E-05	2.558E-05	2.375E-05	0.2992796	0.7327592	0.0001135	3.085E-05	0.3458672	0.889761	2.05E-08	1.91E-08	2.40E-04	5.88E-04	8.63E-05	2.76E-05	3.91E-01	8.40E-01	1.41407	8.02E-08	2.18E-08	2.45E-04	6.29E-04
1.00	7.94E-04	1.01E-04	2.83E-09	2.63E-09	5.59E-05	8.12E-05	2.554E-05	2.372E-05	0.5044713	0.7326905	0.0001133	3.08E-05	0.5830001	0.8896776	2.03E-08	1.88E-08	4.01E-04	5.82E-04	8.53E-05	2.73E-05	6.52E-01	8.31E-01	1.40038	7.93E-08	2.16E-08	4.08E-04	6.23E-04
1.00	7.86E-04	1.00E-04	2.80E-09	2.60E-09	7.48E-05	8.17E-05	2.552E-05	2.37E-05	0.6817779	0.7448064	0.0001132	3.078E-05	0.7879073	0.9043895	2.00E-08	1.86E-08	5.36E-04	5.85E-04	8.43E-05	2.70E-05	8.72E-01	8.36E-01	1.3706	7.76E-08	2.11E-08	5.40E-04	6.20E-04
1.00	7.77E-04	9.90E-05	2.77E-09	2.57E-09	8.37E-05	8.22E-05	2.549E-05	2.367E-05	0.770343	0.7566606	0.0001131	3.075E-05	0.8902589	0.9187835	1.98E-08	1.84E-08	5.99E-04	5.88E-04	8.33E-05	2.67E-05	9.75E-01	8.40E-01	1.3417	7.59E-08	2.06E-08	5.97E-04	6.16E-04
1.00	7.69E-04	9.79E-05	2.74E-09	2.55E-09	8.25E-05	8.28E-05	2.545E-05	2.364E-05	0.7661762	0.7686145	0.0001129	3.07E-05	0.8854434	0.9332987	1.96E-08	1.82E-08	5.89E-04	5.91E-04	8.23E-05	2.64E-05	9.60E-01	8.44E-01	1.35225	7.63E-08	2.08E-08	5.99E-04	6.31E-04
1.00	7.61E-04	9.68E-05	2.71E-09	2.52E-09	7.94E-05	8.41E-05	2.542E-05	2.361E-05	0.7441727	0.7888945	0.0001128	3.066E-05	0.8600147	0.9579239	1.93E-08	1.80E-08	5.66E-04	6.00E-04	8.13E-05	2.60E-05	9.22E-01	8.57E-01	1.32034	7.44E-08	2.02E-08	5.68E-04	6.32E-04
1.00	7.52E-04	9.58E-05	2.68E-09	2.49E-09	8.02E-05	8.55E-05	2.539E-05	2.357E-05	0.7592136	0.8091282	0.0001126	3.062E-05	0.877397	0.9824929	1.91E-08	1.77E-08	5.71E-04	6.09E-04	8.03E-05	2.57E-05	9.30E-01	8.69E-01	1.32028	7.43E-08	2.02E-08	5.79E-04	6.49E-04
1.00	7.44E-04	9.47E-05	2.65E-09	2.46E-09	8.11E-05	8.55E-05	2.536E-05	2.355E-05	0.7755197	0.8170016	0.0001125	3.059E-05	0.8962414	0.9920532	1.89E-08	1.75E-08	5.77E-04	6.08E-04	7.93E-05	2.54E-05	9.40E-01	8.68E-01	1.2792	7.19E-08	1.96E-08	5.73E-04	6.35E-04
1.00	7.36E-04	9.37E-05	2.62E-09	2.44E-09	8.22E-05	8.53E-05	2.534E-05	2.353E-05	0.7940487	0.8232992	0.0001124	3.056E-05	0.9176548	0.9997001	1.86E-08	1.73E-08	5.84E-04	6.06E-04	7.84E-05	2.51E-05	9.52E-01	8.65E-01	1.28853	7.24E-08	1.97E-08	5.91E-04	6.44E-04
1.00	7.28E-04	9.27E-05	2.59E-09	2.41E-09	8.33E-05	8.44E-05	2.531E-05	2.351E-05	0.8125253	0.8235461	0.0001123	3.053E-05	0.9390075	1	1.84E-08	1.71E-08	5.91E-04	5.99E-04	7.75E-05	2.48E-05	9.63E-01	8.56E-01	1.27261	7.14E-08	1.94E-08	5.97E-04	6.36E-04
1.00	7.20E-04	9.16E-05	2.57E-09	2.38E-09	8.50E-05	8.25E-05	2.529E-05	2.348E-05	0.8379129	0.812917	0.0001122	3.05E-05	0.968347	0.9870934	1.82E-08	1.69E-08	6.03E-04	5.85E-04	7.65E-05	2.45E-05	9.82E-01	8.36E-01	1.2644	7.09E-08	1.93E-08	6.12E-04	6.24E-04
1.00	7.12E-04	9.06E-05	2.54E-09	2.36E-09	8.67E-05	8.06E-05	2.525E-05	2.345E-05	0.8624895	0.8020886	0.000112	3.046E-05	0.9967494	0.973945	1.80E-08	1.67E-08	6.14E-04	5.71E-04	7.56E-05	2.42E-05	1.00E+00	8.15E-01	1.24364	6.96E-08	1.89E-08	6.20E-04	6.06E-04
1.00	7.04E-04	8.96E-05	2.51E-09	2.33E-09	8.61E-05	7.80E-05	2.521E-05	2.341E-05	0.8653022	0.7839584	0.0001118	3.04E-05	1	0.9519301	1.77E-08	1.65E-08	6.09E-04	5.52E-04	7.46E-05	2.39E-05	9.92E-01	7.88E-01	1.22887	6.87E-08	1.87E-08	6.14E-04	5.85E-04
1.00	6.96E-04	8.86E-05	2.48E-09	2.30E-09	8.40E-05	7.47E-05	2.516E-05	2.336E-05	0.852329	0.757608	0.0001116	3.034E-05	0.9850073	0.9199339	1.75E-08	1.63E-08	5.93E-04	5.27E-04	7.36E-05	2.36E-05	9.66E-01	7.53E-01	1.21903	6.80E-08	1.85E-08	6.00E-04	5.61E-04
1.00	6.88E-04	8.76E-05	2.45E-09	2.28E-09	8.22E-05	7.30E-05	2.516E-05	2.336E-05	0.8426529	0.7482906	0.0001116	3.034E-05	0.9738249	0.9086202	1.73E-08	1.61E-08	5.80E-04	5.15E-04	7.28E-05	2.33E-05	9.44E-01	7.35E-01	1.20379	6.72E-08	1.83E-08	5.86E-04	5.47E-04
1.00	6.80E-04	8.66E-05	2.43E-09	2.25E-09	8.05E-05	7.20E-05	2.516E-05	2.336E-05	0.834776	0.7469674	0.0001116	3.034E-05	0.9647219	0.9070134	1.71E-08	1.59E-08	5.68E-04	5.08E-04	7.20E-05	2.31E-05	9.25E-01	7.26E-01	1.1993	6.69E-08	1.82E-08	5.78E-04	5.44E-04
1.00	6.73E-04	8.56E-05	2.40E-09	2.23E-09	7.84E-05	7.11E-05	2.514E-05	2.335E-05	0.821863	0.7451351	0.0001115	3.032E-05	0.9497988	0.9047886	1.69E-08	1.57E-08	5.53E-04	5.01E-04	7.11E-05	2.28E-05	9.00E-01	7.16E-01	1.18039	6.58E-08	1.79E-08	5.61E-04	5.34E-04
1.00	6.65E-04	8.47E-05	2.37E-09	2.20E-09	7.62E-05	7.03E-05	2.513E-05	2.333E-05	0.8075477	0.7451708	0.0001115	3.03E-05	0.933255	0.9048319	1.67E-08	1.55E-08	5.37E-04	4.95E-04	7.02E-05	2.25E-05	8.75E-01	7.08E-01	1.16643	6.50E-08	1.77E-08	5.44E-04	5.28E-04
1.00	6.57E-04	8.37E-05	2.34E-09	2.18E-09	7.29E-05	6.96E-05	2.51E-05	2.331E-05	0.7813548	0.7455988	0.0001113	3.028E-05	0.9029848	0.9053516	1.65E-08	1.53E-08	5.14E-04	4.90E-04	6.94E-05	2.22E-05	8.37E-01	7.00E-01	1.13834	6.34E-08	1.72E-08	5.14E-04	5.15E-04
1.00	6.50E-04	8.27E-05	2.32E-09	2.15E-09	6.95E-05	6.92E-05	2.509E-05	2.33E-05	0.7526945	0.7496112	0.0001113	3.026E-05	0.8698631	0.9102237	1.63E-08	1.51E-08	4.89E-04	4.87E-04	6.85E-05	2.20E-05	7.97E-01	6.96E-01	1.14167	6.35E-08	1.73E-08	4.97E-04	5.20E-04
1.00	6.42E-04	8.18E-05	2.29E-09	2.13E-09	6.65E-05	6.91E-05	2.509E-05	2.329E-05	0.7288775	0.7564951	0.0001113	3.025E-05	0.8423386	0.9185825	1.61E-08	1.50E-08	4.68E-04	4.86E-04	6.77E-05	2.17E-05	7.63E-01	6.94E-01	1.12238	6.24E-08	1.70E-08	4.73E-04	5.15E-04
1.00	6.35E-04	8.08E-05	2.26E-09	2.10E-09	6.49E-05	6.89E-05	2.509E-05	2.329E-05	0.7188731	0.7634451	0.0001113	3.026E-05	0.8307769	0.9270217	1.59E-08	1.48E-08	4.56E-04	4.85E-04	6.70E-05	2.15E-05	7.44E-01	6.92E-01	1.10708	6.16E-08	1.67E-08	4.60E-04	5.13E-04
1.00	6.28E-04	7.99E-05	2.24E-09	2.08E-09	6.41E-05	6.87E-05	2.511E-05	2.332E-05	0.7196381	0.7706548	0.0001114	3.028E-05	0.8316609	0.9357762	1.58E-08	1.46E-08	4.52E-04	4.84E-04	6.63E-05	2.12E-05	7.36E-01	6.91E-01	1.10382	6.15E-08	1.67E-08	4.59E-04	5.16E-04
1.00	6.20E-04	7.90E-05	2.21E-09	2.05E-09	6.34E-05	6.84E-05	2.513E-05	2.334E-05	0.7206118	0.7776962	0.0001115	3.031E-05	0.8327863	0.9443262	1.56E-08	1.45E-08	4.47E-04	4.82E-04	6.55E-05	2.10E-05	7.28E-01	6.89E-01	1.06326	5.93E-08	1.61E-08	4.43E-04	5.02E-04
1.00	6.13E-04	7.81E-05	2.19E-09	2.03E-09	6.21E-05	6.77E-05	2.511E-05	2.332E-05	0.7131008	0.7773966	0.0001114	3.028E-05	0.8241061	0.9439624	1.54E-08	1.43E-08	4.37E-04	4.77E-04	6.47E-05	2.07E-05	7.12E-01	6.81E-01	1.07244	5.97E-08	1.62E-08	4.42E-04	5.06E-04
1.00	6.06E-04	7.72E-05	2.16E-09	2.01E-09	5.99E-05	6.65E-05	2.508E-05	2.329E-05	0.6953982	0.7714981	0.0001113	3.025E-05	0.8036477	0.9368002	1.52E-08	1.41E-08	4.21E-04	4.68E-04	6.39E-05	2.05E-05	6.86E-01	6.68E-01	1.05942	5.89E-08	1.60E-08	4.26E-04	4.96E-04
1.00	5.99E-04	7.63E-05	2.14E-09	1.98E-09	5.84E-05	6.48E-05	2.507E-05	2.328E-05	0.6849899	0.7605367	0.0001112	3.023E-05	0.7916192	0.9234901	1.50E-08	1.39E-08	4.10E-04	4.56E-04	6.31E-05	2.02E-05	6.68E-01	6.51E-01	1.03863	5.77E-08	1.57E-08	4.11E-04	4.80E-04
1.00	5.92E-04	7.54E-05	2.11E-09	1.96E-09	5.75E-05	6.23E-05	2.505E-05	2.326E-05	0.6827282	0.7392127	0.0001111	3.021E-05	0.7890054	0.8975973	1.48E-08	1.38E-08	4.04E-04	4.38E-04	6.23E-05	2.00E-05	6.58E-01	6.25E-01	1.0337	5.74E-08	1.56E-08	4.08E-04	4.64E-04
1.00	5.85E-04	7.45E-05	2.09E-09	1.94E-09	5.79E-05	5.98E-05	2.512E-05	2.332E-05	0.6974574	0.720085	0.0001114	3.029E-05	0.8060275	0.8743711	1.47E-08	1.36E-08	4.08E-04	4.21E-04	6.18E-05	1.98E-05	6.65E-01	6.02E-01	1.01453	5.65E-08	1.54E-08	4.09E-04	4.44E-04
1.00	5.78E-04	7.36E-05	2.06E-09	1.91E-09	5.87E-05	5.72E-05	2.519E-05	2.339E-05	0.717257	0.6988203	0.0001117	3.038E-05	0.8289093	0.8485503	1.46E-08	1.35E-08	4.15E-04	4.04E-04	6.12E-05	1.96E-05	6.76E-01	5.77E-01	0.986113	5.51E-08	1.50E-08	4.09E-04	4.18E-04
1.00	5.71E-04	7.28E-05	2.04E-09	1.89E-09	5.90E-05	5.46E-05	2.506E-05	2.327E-05	0.7254614	0.6713985	0.0001112	3.022E-05	0.8383907	0.8152531	1.43E-08	1.33E-08	4.15E-04	3.84E-04	6.02E-05	1.93E-05	6.75E-01	5.48E-01	0.931238	5.18E-08	1.41E-08	3.90E-04	3.80E-04
1.00	5.65E-04	7.19E-05	2.01E-09	1.87E-09	5.81E-05	5.19E-05	2.493E-05	2.315E-05	0.7196491	0.6427405	0.0001106	3.006E-05	0.8316737	0.7804548	1.41E-08	1.31E-08	4.06E-04	3.63E-04	5.92E-05	1.90E-05	6.62E-01	5.18E-01	0.981289	5.42E-08	1.48E-08	4.08E-04	3.83E-04
1.00	5.58E-04	7.11E-05	1.99E-09	1.85E-09	5.58E-05	4.94E-05	2.354E-05	2.185E-05	0.6602446	0.5845626	0.0001044	2.839E-05	0.7630219	0.7098116	1.31E-08	1.22E-08	3.68E-04	3.26E-04	5.52E-05	1.77E-05	6.00E-01	4.66E-01	0.92855	4.85E-08	1.32E-08	3.54E-04	3.30E-04
1.00	5.52E-04	7.02E-05	1.97E-09	1.83E-09	5.30E-05	4.75E-05	2.344E-05	2.177E-05	0.6323289	0.566441	0.000104	2.827E-05	0.7307607	0.6878072	1.29E-08	1.20E-08	3.49E-04	3.12E-04	5.44E-05	1.74E-05	5.68E-01	4.46E-01	0.953124	4.96E-08	1.35E-08	3.48E-04	3.28E-04
1.00	5.45E-04	6.94E-05	1.94E-09	1.80E-09	5.02E-05	4.56E-05	2.345E-05	2.178E-05	0.6054495	0.5508616	0.000104	2.829E-05	0.6996971	0.6688898	1.28E-08	1.19E-08	3.30E-04	3.00E-04	5.38E-05	1.72E-05	5.38E-01	4.29E-01	0.950754	4.95E-08	1.34E-08	3.33E-04	3.18E-04
1.00	5.39E-04	6.86E-05	1.92E-09	1.78E-09	4.79E-05	4.41E-05	2.348E-05	2.18E-05	0.5861805	0.5393843	0.0001041	2.832E-05	0.6774286	0.6549533	1.26E-08	1.17E-08	3.16E-04	2.91E-04	5.32E-05	1.70E-05	5.14E-01	4.15E-01	0.936868	4.88E-08	1.33E-08	3.17E-04	3.07E-04
1.00	5.32E-04	6.78E-05	1.90E-09	1.76E-09	4.53E-05	4.28E-05	2.349E-05	2.182E-05	0.5611903	0.5294904	0.0001042	2.834E-05	0.6485483	0.6429395	1.25E-08	1.16E-08	2.99E-04	2.82E-04	5.26E-05	1.68E-05	4.87E-01	4.03E-01	0.922813	4.81E-08	1.31E-08	2.99E-04	2.97E-04
1.00	5.26E-04	6.70E-05	1.88E-09	1.74E-09	4.29E-05	4.18E-05	2.35E-05	2.183E-05	0.5381127	0.5238562	0.0001043	2.835E-05	0.6218783	0.6360982	1.24E-08	1.15E-08	2.83E-04	2.76E-04	5.20E-05	1.67E-05	4.61E-01	3.94E-01	0.931762	4.86E-08	1.32E-08	2.90E-04	2.96E-04
1.00	5.20E-04	6.62E-05	1.85E-09	1.72E-09	4.07E-05	4.09E-05	2.352E-05	2.184E-05	0.5161587	0.5192295	0.0001043	2.837E-05	0.5965068	0.6304802	1.22E-08	1.14E-08	2.68E-04	2.70E-04	5.14E-05	1.65E-05	4.37E-01	3.86E-01	0.913938	4.77E-08	1.30E-08	2.73E-04	2.88E-04
1.00	5.14E-04	6.54E-05	1.83E-09	1.70E-09	3.85E-05	4.00E-05	2.354E-05	2.186E-05	0.4951739	0.5146557	0.0001044	2.839E-05	0.5722554	0.6249264	1.21E-08	1.12E-08	2.54E-04	2.64E-04	5.09E-05	1.63E-05	4.14E-01	3.78E-01	0.888485	4.64E-08	1.26E-08	2.54E-04	2.78E-04
1.00	5.08E-04	6.46E-05	1.81E-09	1.68E-09	3.67E-05	3.92E-05	2.355E-05	2.187E-05	0.4777403	0.5096742	0.0001045	2.841E-05	0.552108	0.6188776	1.20E-08	1.11E-08	2.43E-04	2.59E-04	5.03E-05	1.61E-05	3.95E-01	3.70E-01	0.900337	4.70E-08	1.28E-08	2.49E-04	2.79E-04
1.00	5.02E-04	6.39E-05	1.79E-09	1.66E-09	3.50E-05	3.83E-05	2.356E-05	2.188E-05	0.4605267	0.50468	0.0001045	2.842E-05	0.5322148	0.6128133	1.18E-08	1.10E-08	2.31E-04	2.53E-04	4.97E-05	1.59E-05	3.76E-01	3.62E-01	0.871091	4.55E-08	1.24E-08	2.32E-04	2.67E-04
1.00	4.96E-04	6.31E-05	1.77E-09	1.64E-09	3.35E-05	3.73E-05	2.357E-05	2.189E-05	0.4470832	0.497554	0.0001045	2.843E-05	0.5166787	0.6041604	1.17E-08	1.09E-08	2.22E-04	2.47E-04	4.91E-05	1.57E-05	3.61E-01	3.52E-01	0.880188	4.60E-08	1.25E-08	2.27E-04	2.66E-04
1.00	4.90E-04	6.24E-05	1.75E-09	1.62E-09	3.23E-05	3.61E-05	2.358E-05	2.19E-05	0.4356956	0.487479	0.0001046	2.844E-05	0.5035184	0.5919268	1.16E-08	1.07E-08	2.13E-04	2.39E-04	4.86E-05	1.56E-05	3.48E-01	3.41E-01	0.856122	4.48E-08	1.22E-08	2.16E-04	2.53E-04
1.00	4.84E-04	6.16E-05	1.73E-09	1.60E-09	3.09E-05	3.46E-05	2.36E-05	2.191E-05	0.4224874	0.4733364	0.0001047	2.846E-05	0.4882541	0.574754	1.14E-08	1.06E-08	2.05E-04	2.29E-04	4.80E-05	1.54E-05	3.33E-01	3.27E-01	0.831217	4.35E-08	1.18E-08	2.03E-04	2.39E-04
1.00	4.78E-04	6.09E-05	1.71E-09	1.58E-09	2.92E-05	3.30E-05	2.361E-05	2.193E-05	0.403938	0.4564269	0.0001047	2.848E-05	0.4668172	0.5542214	1.13E-08	1.05E-08	1.93E-04	2.18E-04	4.75E-05	1.52E-05	3.15E-01	3.12E-01	0.846867	4.43E-08	1.21E-08	1.98E-04	2.35E-04
1.00	4.73E-04	6.02E-05	1.69E-09	1.56E-09	2.72E-05	3.13E-05	2.363E-05	2.194E-05	0.3813105	0.4395047	0.0001048	2.85E-05	0.4406674	0.5336734	1.12E-08	1.04E-08	1.80E-04	2.08E-04	4.70E-05	1.50E-05	2.94E-01	2.97E-01	0.838102	4.39E-08	1.19E-08	1.85E-04	2.24E-04
1.00	4.67E-04	5.95E-05	1.67E-09	1.55E-09	2.56E-05	2.95E-05	2.365E-05	2.196E-05	0.3641143	0.4192833	0.0001049	2.852E-05	0.4207944	0.5091194	1.10E-08	1.03E-08	1.70E-04	1.96E-04	4.64E-05	1.49E-05	2.77E-01	2.80E-01	0.81344	4.27E-08	1.16E-08	1.71E-04	2.07E-04
1.00	4.62E-04	5.88E-05	1.65E-09	1.53E-09	2.59E-05	2.77E-05	2.366E-05	2.197E-05	0.3725789	0.3976816	0.0001049	2.854E-05	0.4305766	0.4828893	1.09E-08	1.01E-08	1.72E-04	1.84E-04	4.59E-05	1.47E-05	2.80E-01	2.62E-01	0.812663	4.26E-08	1.16E-08	1.75E-04	1.96E-04
1.00	4.56E-04	5.81E-05	1.63E-09	1.51E-09	2.46E-05	2.58E-05	2.367E-05	2.198E-05	0.3581413	0.3758737	0.000105	2.855E-05	0.4138916	0.4564088	1.08E-08	1.00E-08	1.63E-04	1.71E-04	4.54E-05	1.45E-05	2.66E-01	2.45E-01	0.812958	4.27E-08	1.16E-08	1.68E-04	1.86E-04
1.00	4.51E-04	5.74E-05	1.61E-09	1.49E-09	1.39E-05	2.40E-05	2.368E-05	2.199E-05	0.205157	0.3533024	0.000105	2.856E-05	0.2370929	0.4290013	1.07E-08	9.91E-09	9.25E-05	1.59E-04	4.49E-05	1.44E-05	1.51E-01	2.27E-01	0.786278	4.13E-08	1.12E-08	9.32E-05	1.69E-04
1.00	4.45E-04	5.67E-05	1.59E-09	1.47E-09	3.65E-06	2.22E-05	2.369E-05	2.2E-05	0.0544394	0.3307383	0.0001051	2.857E-05	0.0629138	0.4016026	1.06E-08	9.80E-09	2.43E-05	1.47E-04	4.44E-05	1.42E-05	3.95E-02	2.10E-01	0.79292	4.17E-08	1.13E-08	2.49E-05	1.59E-04
1.00	4.40E-04	5.60E-05	1.57E-09	1.46E-09	8.73E-07	2.04E-05	2.37E-05	2.201E-05	0.0131825	0.308157	0.0001051	2.858E-05	0.0152346	0.374183	1.04E-08	9.69E-09	5.80E-06	1.36E-04	4.39E-05	1.41E-05	9.45E-03	1.94E-01	0.779022	4.09E-08	1.11E-08	5.93E-06	1.46E-04
1.00	4.35E-04	5.54E-05	1.55E-09	1.44E-09	2.65E-07	1.88E-05	2.371E-05	2.202E-05	0.0040529	0.287425	0.0001052	2.86E-05	0.0046838	0.349009	1.03E-08	9.58E-09	1.76E-06	1.25E-04	4.34E-05	1.39E-05	2.87E-03	1.79E-01	0.777196	4.09E-08	1.11E-08	1.82E-06	1.36E-04
1.00	4.30E-04	5.47E-05	1.53E-09	1.42E-09	1.37E-07	1.73E-05	2.373E-05	2.203E-05	0.0021173	0.2682062	0.0001052	2.861E-05	0.0024469	0.3256724	1.02E-08	9.47E-09	9.10E-07	1.15E-04	4.29E-05	1.37E-05	1.48E-03	1.65E-01	0.765314	4.03E-08	1.09E-08	9.36E-07	1.25E-04
1.00	4.25E-04	5.41E-05	1.51E-09	1.41E-09	1.41E-09	1.59E-05	2.374E-05	2.205E-05	2.205E-05	0.2489561	0.0001053	2.863E-05	2.548E-05	0.3022978	1.01E-08	9.37E-09	9.37E-09	1.06E-04	4.24E-05	1.36E-05	1.53E-05	1.51E-01	0.761908	4.01E-08	1.09E-08	9.71E-09	1.15E-04
1.00	4.20E-04	5.35E-05	1.50E-09	1.39E-09	1.39E-09	1.45E-05	2.375E-05	2.205E-05	2.205E-05	0.229609	0.0001053	2.864E-05	2.549E-05	0.2788053	9.97E-09	9.26E-09	9.26E-09	9.64E-05	4.19E-05	1.34E-05	1.51E-05	1.38E-01	0.755217	3.98E-08	1.08E-08	9.62E-09	1.05E-04
1.00	4.15E-04	5.28E-05	1.48E-09	1.37E-09	1.37E-09	1.31E-05	2.376E-05	2.206E-05	2.206E-05	0.2108966	0.0001054	2.865E-05	2.549E-05	0.2560835	9.86E-09	9.15E-09	9.15E-09	8.75E-05	4.14E-05	1.33E-05	1.49E-05	1.25E-01	0.744488	3.92E-08	1.07E-08	9.49E-09	9.53E-05
1.00	4.10E-04	5.22E-05	1.46E-09	1.36E-09	1.36E-09	1.20E-05	2.377E-05	2.207E-05	2.207E-05	0.1944779	0.0001054	2.866E-05	2.55E-05	0.236147	9.74E-09	9.05E-09	9.05E-09	7.97E-05	4.10E-05	1.31E-05	1.47E-05	1.14E-01	0.7426	3.91E-08	1.06E-08	9.47E-09	8.77E-05
1.00	4.05E-04	5.16E-05	1.44E-09	1.34E-09	1.34E-09	1.08E-05	2.378E-05	2.208E-05	2.208E-05	0.1780859	0.0001055	2.868E-05	2.552E-05	0.2162428	9.64E-09	8.95E-09	8.95E-09	7.22E-05	4.05E-05	1.30E-05	1.46E-05	1.03E-01	0.735718	3.88E-08	1.06E-08	9.39E-09	7.95E-05

1.00	4.00E-04	5.10E-05	1.43E-09	1.33E-09	1.33E-09	9.68E-06	2.373E-05	2.204E-05	2.204E-05	0.1609385	0.0001053	2.862E-05	2.547E-05	0.1954214	9.50E-09	8.82E-09	8.82E-09	6.44E-05	4.00E-05	1.28E-05	1.44E-05	9.20E-02	0.70966	3.74E-08	1.02E-08	9.04E-09	6.93E-05
1.00	3.96E-04	5.04E-05	1.41E-09	1.31E-09	1.31E-09	8.56E-06	2.368E-05	2.199E-05	2.199E-05	0.1436465	0.000105	2.856E-05	2.541E-05	0.1744244	9.37E-09	8.70E-09	8.70E-09	5.68E-05	3.94E-05	1.26E-05	1.42E-05	8.12E-02	0.72074	3.79E-08	1.03E-08	9.16E-09	6.29E-05
1.00	3.91E-04	4.98E-05	1.39E-09	1.29E-09	1.29E-09	7.51E-06	2.369E-05	2.2E-05	2.2E-05	0.1275766	0.0001051	2.857E-05	2.542E-05	0.1549113	9.26E-09	8.60E-09	8.60E-09	4.99E-05	3.90E-05	1.25E-05	1.40E-05	7.13E-02	0.708818	3.72E-08	1.01E-08	9.01E-09	5.49E-05
1.00	3.87E-04	4.92E-05	1.38E-09	1.28E-09	1.28E-09	6.68E-06	2.369E-05	2.2E-05	2.2E-05	0.1149079	0.0001051	2.858E-05	2.543E-05	0.1395281	9.16E-09	8.50E-09	8.50E-09	4.44E-05	3.85E-05	1.23E-05	1.39E-05	6.34E-02	0.697966	3.67E-08	9.97E-09	8.87E-09	4.87E-05
1.00	3.82E-04	4.86E-05	1.36E-09	1.26E-09	1.26E-09	5.87E-06	2.37E-05	2.201E-05	2.201E-05	0.1022335	0.0001051	2.858E-05	2.543E-05	0.1241381	9.05E-09	8.41E-09	8.41E-09	3.91E-05	3.81E-05	1.22E-05	1.37E-05	5.58E-02	0.699557	3.68E-08	1.00E-08	8.90E-09	4.34E-05
1.00	3.78E-04	4.81E-05	1.35E-09	1.25E-09	1.25E-09	5.12E-06	2.37E-05	2.201E-05	2.201E-05	0.0901895	0.0001051	2.859E-05	2.544E-05	0.1095136	8.95E-09	8.31E-09	8.31E-09	3.40E-05	3.76E-05	1.21E-05	1.35E-05	4.86E-02	0.690872	3.63E-08	9.88E-09	8.79E-09	3.78E-05
1.00	3.73E-04	4.75E-05	1.33E-09	1.24E-09	1.24E-09	4.53E-06	2.372E-05	2.202E-05	2.202E-05	0.0807026	0.0001052	2.86E-05	2.545E-05	0.097994	8.85E-09	8.22E-09	8.22E-09	3.01E-05	3.72E-05	1.19E-05	1.34E-05	4.30E-02	0.677193	3.56E-08	9.68E-09	8.62E-09	3.32E-05
1.00	3.69E-04	4.70E-05	1.31E-09	1.22E-09	1.22E-09	3.95E-06	2.373E-05	2.203E-05	2.203E-05	0.0712144	0.0001052	2.862E-05	2.546E-05	0.0864729	8.75E-09	8.13E-09	8.13E-09	2.63E-05	3.68E-05	1.18E-05	1.32E-05	3.75E-02	0.675406	3.55E-08	9.66E-09	8.60E-09	2.92E-05
1.00	3.64E-04	4.64E-05	1.30E-09	1.21E-09	1.21E-09	3.45E-06	2.374E-05	2.204E-05	2.204E-05	0.0630977	0.0001053	2.863E-05	2.548E-05	0.0766171	8.65E-09	8.03E-09	8.03E-09	2.30E-05	3.64E-05	1.17E-05	1.31E-05	3.28E-02	0.663458	3.49E-08	9.50E-09	8.45E-09	2.54E-05
1.00	3.60E-04	4.59E-05	1.28E-09	1.19E-09	1.19E-09	2.99E-06	2.375E-05	2.206E-05	2.206E-05	0.055318	0.0001054	2.865E-05	2.549E-05	0.0671704	8.56E-09	7.95E-09	7.95E-09	1.99E-05	3.60E-05	1.15E-05	1.29E-05	2.85E-02	0.662875	3.49E-08	9.49E-09	8.45E-09	2.23E-05
1.00	3.56E-04	4.53E-05	1.27E-09	1.18E-09	1.18E-09	2.55E-06	2.377E-05	2.207E-05	2.207E-05	0.0477703	0.0001054	2.866E-05	2.55E-05	0.0580056	8.46E-09	7.86E-09	7.86E-09	1.70E-05	3.56E-05	1.14E-05	1.28E-05	2.43E-02	0.656196	3.46E-08	9.40E-09	8.37E-09	1.90E-05
1.00	3.52E-04	4.48E-05	1.25E-09	1.16E-09	1.16E-09	2.17E-06	2.378E-05	2.208E-05	2.208E-05	0.0411771	0.0001055	2.868E-05	2.552E-05	0.0499998	8.37E-09	7.77E-09	7.77E-09	1.45E-05	3.52E-05	1.13E-05	1.27E-05	2.07E-02	0.6418	3.38E-08	9.20E-09	8.19E-09	1.60E-05
1.00	3.48E-04	4.43E-05	1.24E-09	1.15E-09	1.15E-09	1.80E-06	2.379E-05	2.209E-05	2.209E-05	0.0345744	0.0001055	2.869E-05	2.553E-05	0.0419824	8.27E-09	7.68E-09	7.68E-09	1.20E-05	3.48E-05	1.11E-05	1.25E-05	1.72E-02	0.638792	3.37E-08	9.16E-09	8.15E-09	1.34E-05
1.00	3.44E-04	4.38E-05	1.23E-09	1.14E-09	1.14E-09	1.44E-06	2.38E-05	2.21E-05	2.21E-05	0.0279607	0.0001055	2.87E-05	2.554E-05	0.0339516	8.18E-09	7.60E-09	7.60E-09	9.61E-06	3.44E-05	1.10E-05	1.24E-05	1.37E-02	0.623391	3.29E-08	8.95E-09	7.96E-09	1.06E-05
1.00	3.40E-04	4.33E-05	1.21E-09	1.12E-09	1.12E-09	1.19E-06	2.38E-05	2.21E-05	2.21E-05	0.0233247	0.0001056	2.871E-05	2.554E-05	0.0283223	8.09E-09	7.51E-09	7.51E-09	7.93E-06	3.40E-05	1.09E-05	1.22E-05	1.13E-02	0.620347	3.27E-08	8.90E-09	7.92E-09	8.78E-06
1.00	3.36E-04	4.28E-05	1.20E-09	1.11E-09	1.11E-09	9.40E-07	2.381E-05	2.211E-05	2.211E-05	0.0186875	0.0001056	2.872E-05	2.555E-05	0.0226914	8.00E-09	7.43E-09	7.43E-09	6.28E-06	3.36E-05	1.08E-05	1.21E-05	8.96E-03	0.611701	3.23E-08	8.78E-09	7.82E-09	6.94E-06
1.00	3.32E-04	4.23E-05	1.18E-09	1.10E-09	1.10E-09	6.98E-07	2.382E-05	2.212E-05	2.212E-05	0.0140475	0.0001057	2.873E-05	2.556E-05	0.0170573	7.91E-09	7.34E-09	7.34E-09	4.66E-06	3.33E-05	1.07E-05	1.20E-05	6.66E-03	0.602062	3.18E-08	8.65E-09	7.70E-09	5.13E-06
1.00	3.28E-04	4.18E-05	1.17E-09	1.09E-09	1.09E-09	5.93E-07	2.383E-05	2.213E-05	2.213E-05	0.0120787	0.0001057	2.874E-05	2.557E-05	0.0146667	7.82E-09	7.26E-09	7.26E-09	3.96E-06	3.29E-05	1.05E-05	1.18E-05	5.66E-03	0.602623	3.19E-08	8.66E-09	7.71E-09	4.42E-06
1.00	3.24E-04	4.13E-05	1.16E-09	1.07E-09	1.07E-09	4.90E-07	2.384E-05	2.214E-05	2.214E-05	0.0101083	0.0001058	2.875E-05	2.559E-05	0.0122741	7.73E-09	7.18E-09	7.18E-09	3.28E-06	3.25E-05	1.04E-05	1.17E-05	4.68E-03	0.575966	3.05E-08	8.28E-09	7.37E-09	3.53E-06
1.00	3.21E-04	4.08E-05	1.14E-09	1.06E-09	1.06E-09	2.59E-07	2.385E-05	2.215E-05	2.215E-05	0.0053989	0.0001058	2.877E-05	2.56E-05	0.0065556	7.65E-09	7.10E-09	7.10E-09	1.73E-06	3.22E-05	1.03E-05	1.16E-05	2.47E-03	0.580913	3.07E-08	8.36E-09	7.44E-09	1.90E-06
			2.99E-04	1.83E-03	2.99E-03	7.55E-03																					
						Area:	0.0081669	0.071388	0.1645817	0.3429002	0.0362243	0.0927193	0.1902015	0.4163704	(response*micron)												
						Area Error (%):	25	5	8	9	25	5	8	9	(%)												
						Max Values:	0.2254534	0.7699365	0.8653022	0.8235461					0.0002378	0.0006895	0.0006139	0.0007002									
																							In-Band Flux (W / m**2)	6.11E+01	1.55E+02	2.10E+02	5.75E+02

In-Band Sig (0.1 Points)	1.66E-03	1.31E-02	2.07E-02	5.31E-02
Out Sig (0.1 Points)	3.49E-05	1.77E-04	1.08E-04	2.11E-04
Out/In (<0.01?)	2.106E-02	1.347E-02	5.194E-03	3.963E-03

1/10 Power Points	0.400	0.570	0.700	0.440
	0.450	0.680	0.955	1.030

1/2 Power Points	0.405	0.580	0.710	0.485
	0.440	0.675	0.920	0.940

Note that at 0.4 microns, the Ch. 4 transmission is 8E-4 % of peak (spec is 25%!)