

Distribution note

March 30 2011

1 Introduction

This distribution note describes the content of the data files located associated with the MTG specifications regarding the minimum and maximum signal levels to be detected by the Infrared Sounder (IRS) instrument. The datafiles represent radiance at top of the atmosphere calculated by a line-by-line model using different atmospheric conditions. The radiation code uses spectroscopic input derived from HITRAN 96 Rothman et al. (1998) using LBLRTM V5.4 Clough et al. (1992) and the CKD 2.4 continuum model Clough et al. (1989), as derived originally by the EUMETSAT MET division in November 2004.

2 Compression

The datafiles are contained in a tar file, IrsSpectra.tar, and were created on a linux workstation with the standard tar command `tar -cvf`. After the untar command `tar -xvf IrsSpectra.tar` two files are produced containing the spectra data, together with this readme file. Each of the spectra data files are compressed with the standard gzip command on the Linux workstation.

3 Description

The spectra data files contain results for simulations with a user defined thermodynamical profile at a zenith angle of 0 degrees.

- Spectrum HotCase Nadir.dat,
- Spectrum ColdCase Nadir.dat

Figures of these line-by-line results are shown in Figure 1 and Figure 2.

4 Data Format

All the ascii data files are prepared using fortran90 program and is written with format '(3e20.10)'. The first column represents the wavenumber (units: cm^{-1}), the second column the radiance (Units: $\text{mWm}^{-2}\text{sr}^{-1} (\text{cm}^{-1})^{-1}$) and the third column the radiance expressed as equivalent brightness temperature with units [K]. The latter is calculated from the radiances using the Planck-function.

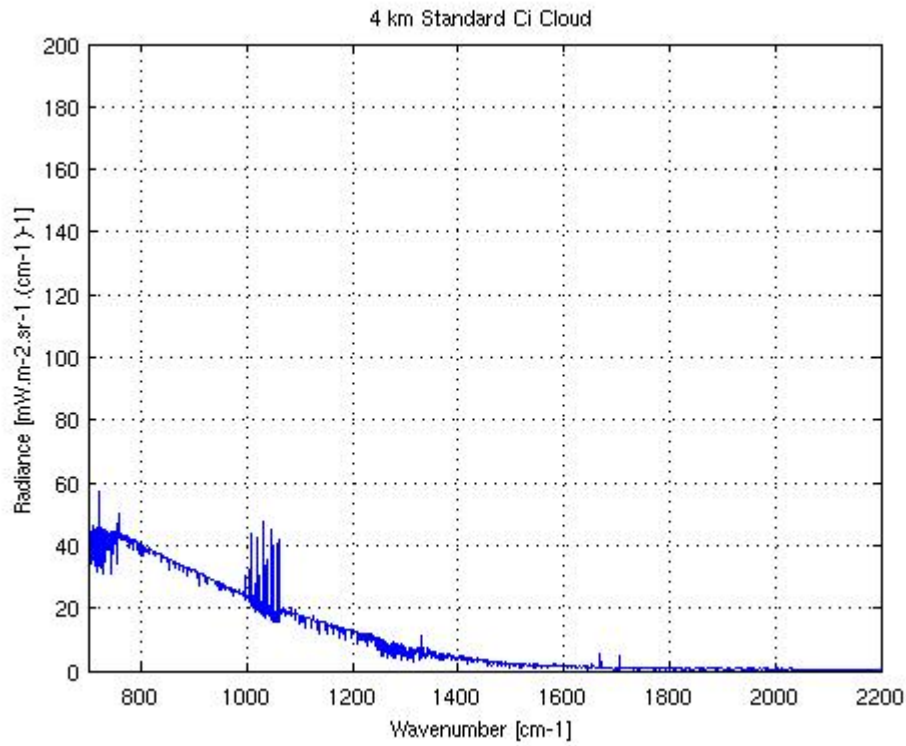


Figure 1 Spectrum calculated by the line-by-line model for the "cold" user defined profile

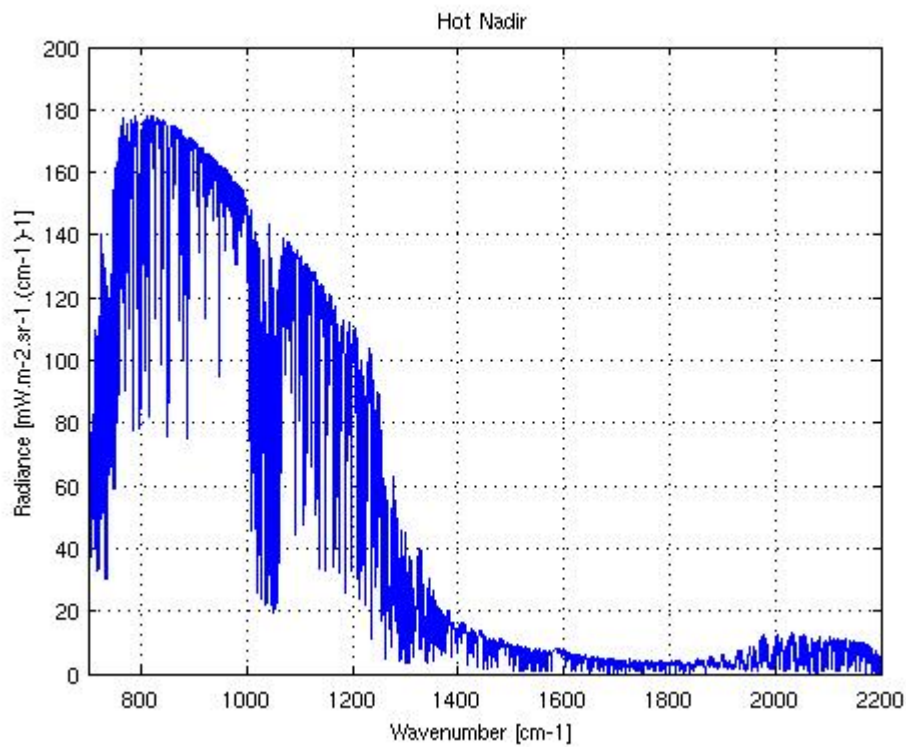


Figure 2 Spectrum calculated by the line-by-line model for the "hot" user defined profile