

JPSS-2 ATMS SRF Public Release Announcement

1. Introduction

The Instrument Science Team at NASA Goddard Space Flight Center (GSFC) for the Joint Polar Satellite System (JPSS) Advanced Technology Microwave Sounder (ATMS) is pleased to announce the public release of the spectral response function (SRF) data for the JPSS-2 ATMS (also known as the NOAA-21 ATMS).

The data may be obtained from the NOAA STAR JPSS ATMS website (<https://www.star.nesdis.noaa.gov/jpss/ATMS.php>) as a single zip file, containing one folder for each of the channel groupings. Previously, the SRF data from S-NPP and JPSS-1 (NOAA-20) ATMS were released to the public science users via the NOAA STAR JPSS ATMS website. This JPSS-2 ATMS publicly released SRF data will help science community users understand the performance characteristics of the instrument such that they can better use the ATMS on-orbit data for numerical weather prediction activities. After launch, and successful commissioning, JPSS-2 was renamed to NOAA-21.

a. Calibration Data Book

SRF data, similar to this release, also appears in the *RE-21657 JPSS2 ATMS S/N 304 Calibration Data Book* appendix. There are no significant differences between the two data sets. It is recommended that users refer to the SRF data in this document in the case of any discrepancies.

2. Revision History

Revision dates are in MM/DD/YYYY date format.

a. 11/01/2020

Initial release

b. 06/30/2023

This release considers the frequency change from air to vacuum, although the impact is small. Additionally, in this release the SRF amplitudes are normalized to the peak of the SRF. The peak of the SRF is 0dB, and all other values will be less than that.

c. 07/07/2023

Various corrections to data in 06/30/2023 release; update ReadMe file.

3. Data Contents and Format

For each of the four channel groupings in the 22 channels of ATMS, the data consists of the processed data from raw data measured by the instrument contractor (Northrop Grumman Corporation, Azusa CA). The four channels groupings are channels 1 and 2 (direct-detect), 3-15 which consists of 3-9 (single sideband) and 10-15 (double sideband), 16 (single sideband), 17-22 (double sideband). Note that Channel 6 has two passbands in the lower sideband, with respect to the Local Oscillator (LO) frequency. There are four passbands for Channels 12-15.

All data are stored in .csv file format.

Notes:

- a. Data is presented in two columns; one for frequency in Hz and the other for amplitude in dB.
 - All frequencies are in the radio frequency spectrum (they have been converted from intermediate frequencies, as applicable).
 - SRF amplitudes are normalized to the peak of the SRF. The peak of the SRF is 0dB, and all other values will be less than that.
 - A public release marking is also present
- b. Two sets of data are provided based on whether ATMS is using the primary (PRI, also known as A-side) or redundant (RED, also known as B-side) local oscillator (LO) configuration. ATMS will be in primary LO configuration at launch.
 - CH1 and CH2 are direct-detect and therefore do not have an LO. However, for channels 1 and 2 both a PRI and RED file are provided for consistency with other channels; the data is equivalent between the PRI and RED files for channels 1 and 2.
- c. Data shown is for the nominal voltage and +20C measurements

Comments and question should be sent to the NASA JPSS ATMS Instrument Scientist, Dr. Edward Kim, at edward.j.kim@nasa.gov.