

Readme Information for the NPP ATMS Spectral Response Function (SRF) Dataset for public release

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Acknowledgements

The ATMS NPP/PFM Spectral Response Function (**SRF**) data listed in this report were provided through a group effort of the NGES ATMS team, Mike Landrum, Kent Anderson and others, Giovanni De Amici (NGAS) and Lynn Chidester (SDL), and ATMS science team members. Specifically, the PFM filter **digitized** SRF data were produced by Giovanni De Amici with assistance from Lynn Chidester. We also thank Shiva Ubhayakar, Otto Bruegman, Tammy Faulkner, Jim Gleason, and Jim Butler for helping us to acquire the originally measured **digital** data from NGES. The updated and lab measured LO frequencies for each sensor band were provided by Kent Anderson.

1. Introduction (1/3)

Throughout this readme, the reader is assumed to have basic familiarity with ATMS and microwave radiometer design.

The NPP/ATMS/PFM Spectral Response Functions (SRFs) provide 3-dB bandwidth, center frequency, and exact bandpass shape at the three baseplate temperatures (nominally +20C, +50C and -10C) and at low/nominal/high LO bias levels (i.e., VL, VN, & VH). For K and Ka bands, there is no local oscillator (LO). For V, W and G bands, the tests were performed for both primary and secondary oscillator (LO) settings.

Hardcopy plots of these SRFs are available in the NGES Calibration Data Book for the ATMS PFM, RE-14029B. ‘PFM’ and ‘NPP’ refer to the ATMS launched Oct 28, 2011. These plots in the Cal Data Book represent a complete set of the SRF measurements—i.e., all cases that were measured—however, they were in hardcopy form only. But ATMS users needed the SRFs in digital form, not the hardcopy plots in the Cal Data Book.

Around years 2008 - 2009, these hardcopy plots were digitized and organized by Giovanni De Amici (NGAS) working with Lynn Chidester (SDL). These data are referred to as the “**digitized**” data.

1. Introduction (2/3)

In 2010, original digital data files used to generate some (but not all) of the Cal Data Book hardcopy plots were found through the efforts of Joseph Lyu (IMSG/GESTAR at NASA GSFC), Shiva Ubhayakar (SGT), and the NGES ATMS team. These are referred to as the “**digital**” data.

The NPP project decided that a single SRF dataset should be assembled and vetted for public release. Ed Kim (NASA/GSFC) led a group consisting of Joseph Lyu, Giovanni De Amici, Lynn Chidester, and Kent Anderson (NGES) to assemble a single accurate and consistent SRF dataset from the **digitized** and **digital** data. The resulting SRF data should have sufficient information for scientific purposes. This report documents their consensus final SRF dataset for public release.

In a nutshell, the **digital** data were considered more appropriate provided the data were valid, but valid **digital** data were not available for all tested sensor configurations. For those missing configurations, **digitized** data were examined and found to be satisfactory. For example, usable **digital** data were found for almost all K, Ka and V bands except channel 2 for 50 C, VN. However, for W & G bands, only suitable **digitized** data were found.

1. Introduction (3/3)

For channels 3-22 (channels with LOs), the SRFs have been adjusted for the *actual* LO frequencies, as provided by Kent Anderson in Sept, 2011 (table below). And, both the RF and IF frequencies are provided, so these data files have 3 columns whereas the data files for K & Ka bands have only 2 columns (see example on later slides).

For all files in the public release SRF dataset, the filename format & data format have been standardized. The first 16 lines contain header info. On the next 2 pages are examples—one for 2-column data files, one for 3-column data files.

For channels 3-22, if comparing the public release SRF dataset to the plots in the NGES Calibration Data Book for the ATMS PFM, RE-14029B, in general the Cal Data Book plots show the Intermediate Frequency (IF) along the x-axis. BUT, the user must consider the LO frequency used for the particular plot in the Cal Data Book, the actual on-orbit LO frequency vs. the nominal LO frequency, and the receiver sideband configuration for the particular channel. The LO frequencies used for the public release SRF dataset are listed in this table.

temperature

	-10	20	50	
Ch 3-15 primary LO	V-Band PLO -A	57,290.260	57,290.258	57,290.256
Ch 3-15 secondary LO	V-Band PLO -B	57,290.262	57,290.260	57,290.258
Ch 16 primary LO	GDO - A	82,741.00	82,751.00	82,746.00
Ch 16 secondary LO	GDO - B	82,721.00	82,755.00	82,768.00
Ch 17-22 primary LO	CSO - A	91,652.00	91,652.00	91,657.60
Ch 17-22 secondary LO	CSO - B	91,654.10	91,654.10	91,654.10

Example datafile channels 1 & 2

This is the header from file “SRFm10VNPriCh01.txt” is below with annotation in red.

11/01/04 12:53:03 A:\TRACE165.CSV	date, time, filename of original measurement
Title: -10 C Nominal Primary	measurement configuration; sometimes preceded by a string of characters
Model: E4407B	test equipment model #
Serial Number: US41192776	test equipment serial #
Center Frequency: 23800000000 Hz	test equipment setting: center freq.
Span: 800000000 Hz	test equipment setting: span
Resolution Bandwidth: 1000000 Hz	test equipment setting: resolution bandwidth
Video Bandwidth: 0300 Hz	test equipment setting: video bandwidth
Reference Level: -5.73000e+01 dBm	test equipment setting: reference level
Sweep Time: 3.33333e+00 Sec	test equipment setting: sweep time
Num Points: 2001	number of data points in original measurement
Reviewed/Edited by Ed. Kim, C.-H. J. Lyu, and L. Chidester	reviewers
Trace 1	test equipment setting: data are from trace 1
Hz dBm	headers for 2-columns of data & units
23400000000 -8.05940e+01	1 st line of data
23400400000 -8.05420e+01	2 nd line of data
23400800000 -8.05830e+01	3 rd line of data
etc	

If original file does not have complete data description, the provided data may not have complete info either.

Example datafile channels 3-22

This is the header from file “SRFm10VNPriCh16.txt” is below with annotation in red.

10/23/04 14:58:00 A:\TRACE028.CSV	date, time, filename of original measurement
Title: (Original measured digital data)	measurement configuration; sometimes preceded by a string of characters
Model: E4407B	test equipment model #
Serial Number: US41192777	test equipment serial #
Center Frequency: 5450000000 Hz	test equipment setting: center freq.
Span: 3000000000 Hz	test equipment setting: span
Resolution Bandwidth: 3000000 Hz	test equipment setting: resolution bandwidth
Video Bandwidth: 1000 Hz	test equipment setting: video bandwidth
Reference Level: -5.73000e+01 dBm	test equipment setting: reference level
Sweep Time: 1.30000e+01 Sec	test equipment setting: sweep time
Num Points: 1600	number of data points in original measurement
LO freq [Hz] : 8.27410e+010	the LO frequency in Hz
Reviewed/Edited by Ed. Kim, C.-H. J. Lyu, and L. Chidester	reviewers
Trace 1 Trace 2 Trace 3	test equipment setting: data are from traces 1,2, & 3
Hz Hz dBm	headers for 3-columns of data & units
86691004416 3950000000 -8.79430e+01	RF freq, IF freq, amplitude; note IF freq may be > or < zero
86692880384 3951876172 -8.78900e+01	RF freq, IF freq, amplitude
86694756352 3953752344 -8.77930e+01	RF freq, IF freq, amplitude
etc. Note in the ATMS test data, RF = LO + IF	

If original file does not have complete data description, the compiled data may not have complete info either.



Tested Configurations

Excerpt from NPOESS technical memo from G. De Amici, 15 Aug 2011 , updated

- Assuming that, for a given channel, the SRF depend on the temperature of the receiver (-10, +20 or +50C), the voltage bias provided to the LO (low, nominal or high) and the unit of LO being used (primary or redundant), there will be 18 possible combinations of those parameters. The pre-launch characterization of the ATMS, however, calls for a smaller set of tests. In particular:
- Channels at K and Ka band, which do not employ an LO, are tested only once in each temperature/voltage configuration
- No channel is tested under ‘edge’ conditions, i.e. high (or low) voltage and high (or low) temperature.
- The redundant LO is not tested for channel 16
- The redundant LO is tested only at nominal voltage bias for channels 17-22.
- This test program reduces the number of measured SRFs from the nominal 396 (3 temperatures times 3 voltages times 2 LOs times 22 channels) to a more manageable 196 combinations.

Note: “redundant LO” means the same thing as “secondary LO”

A note from E.Kim & J.Lyu:

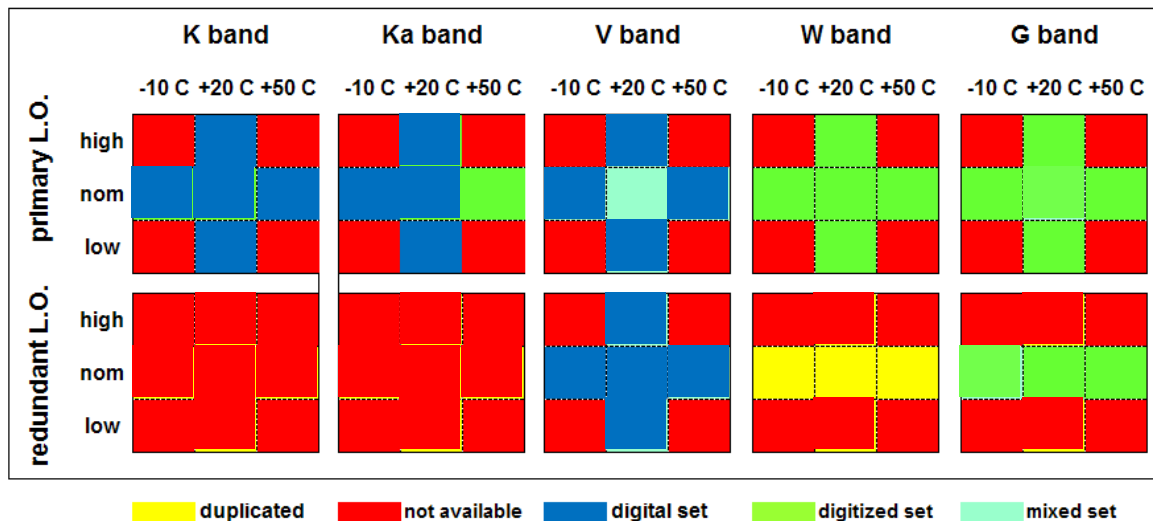
- We found no clearly-identifiable data for the Ch16 secondary LO configurations. So the 3 files SRFm10VNSecCh16.txt , SRFp20VNSecCh16.txt ,SRFp50VNSecCh16.txt contain the same SRF data as for the corresponding primary LO configuration, but the x-axes have been shifted using the secondary LO freq. These “duplicated” data files are represented by the yellow cells on the next slide.

Configuration Matrix

This matrix is a color-coded representation of the data used to generate the public SRF dataset. For an SRF for a configuration that is intermediate between measured configurations, users may either use the SRF of the closest measured configuration or interpolate the SRFs of the bracketing configurations. However, it is not clear how accurate such interpolation would be.

Since activation on November 8, 2011, ATMS configuration has been Primary LO, nominal LO bias, and the RF shelf temperatures are currently near ~ 15C for K/Ka, ~20C for V, ~16C for W, and ~15C for G-band.

Note: “redundant LO” means the same thing as “secondary LO”; and K & Ka bands are shown under “primary LO” even though those bands have no LO.



Adapted from original matrix by G. De Amici

Organization of report

The remaining sections of this report list the SRF file names for each sensor test configuration, and provide file format information.

Unless otherwise noted, the files listed contain **digital** data—i.e., data from the original test measurements as opposed to **digitized** scans of the hardcopy plots in the Calibration Data Book.

Section 2: K and Ka bands

Section 3: V band

Section 4: W band

Section 5: G band

2. K and Ka Bands

2.1 Summary for ATMS PFM K/Ka band SRFs



SRF files are:

SRFp20VNPriCh01.txt
SRFp20VNPriCh02.txt

SRFp20VLPriCh01.txt
SRFp20VLPriCh02.txt

SRFp20VHPriCh01.txt
SRFp20VHPriCh02.txt

SRFm10VNPriCh01.txt
SRFm10VNPriCh02.txt

SRFp50VNPriCh01.txt
SRFp50VNPriCh02.txt

The filenames themselves indicate the test configuration: 'm10' is -10C, 'p20' is +20C, 'p50' is +50C; 'VN' is nominal LO bias voltage, 'VH' is high LO bias voltage, 'VL' is low LO bias voltage; 'Pri' is Primary LO, 'Sec' is Secondary LO, and 'Chxx' is Channel xx

Note in each data file, the first 16 lines contain a brief data description.

Note K & Ka bands do not have an LO, so "Pri" and "Sec" don't really apply, but to keep the filenames consistent, we use "Pri" for these bands. Starting from line # 17, there are 2 columns: frequency and magnitude.

3. V Band



3.1 Summary for ATMS PFM V band SRFs (1/10)

For 20 C, VN, Prim LO, the files are as follows:

SRFp20VNPriCh03.txt
 SRFp20VNPriCh04.txt
 SRFp20VNPriCh05.txt
 SRFp20VNPriCh06.txt
 SRFp20VNPriCh07.txt
 SRFp20VNPriCh08.txt
 SRFp20VNPriCh09.txt
 SRFp20VNPriCh10.txt
 SRFp20VNPriCh11.txt
 SRFp20VNPriCh12.txt
 SRFp20VNPriCh13.txt
 SRFp20VNPriCh14.txt
 SRFp20VNPriCh15.txt

The filenames themselves indicate the test configuration: 'm10' is -10C, 'p20' is +20C, 'p50' is +50C; 'VN' is nominal LO bias voltage, 'VH' is high LO bias voltage, 'VL' is low LO bias voltage; 'Pri' is Primary LO, 'Sec' is Secondary LO, and 'Chxx' is Channel xx

Note in each data file, the first 16 lines contain a brief data description. Starting from line # 17, there are 3 columns: RF frequency, IF frequency and magnitude.

3.2 Summary for ATMS PFM V band SRFs (2/10)

For 20 C, VN, Secondary LO, the files are:

SRFp20VNSecCh03.txt
 SRFp20VNSecCh04.txt
 SRFp20VNSecCh05.txt
 SRFp20VNSecCh06.txt
 SRFp20VNSecCh07.txt
 SRFp20VNSecCh08.txt
 SRFp20VNSecCh09.txt
 SRFp20VNSecCh10.txt
 SRFp20VNSecCh11.txt
 SRFp20VNSecCh12.txt
 SRFp20VNSecCh13.txt
 SRFp20VNSecCh14.txt
 SRFp20VNSecCh15.txt

The filenames themselves indicate the test configuration: 'm10' is -10C, 'p20' is +20C, 'p50' is +50C; 'VN' is nominal LO bias voltage, 'VH' is high LO bias voltage, 'VL' is low LO bias voltage; 'Pri' is Primary LO, 'Sec' is Secondary LO, and 'Chxx' is Channel xx

Note in each data file, the first 16 lines contain a brief data description. Starting from line # 17, there are 3 columns: RF frequency, IF frequency and magnitude.



3.3 Summary for ATMS PFM V band SRFs (3/10)

For 20 C, VL, Prim LO, the files are:

SRFp20VLPriCh03.txt
 SRFp20VLPriCh04.txt
 SRFp20VLPriCh05.txt
 SRFp20VLPriCh06.txt
 SRFp20VLPriCh07.txt
 SRFp20VLPriCh08.txt
 SRFp20VLPriCh09.txt
 SRFp20VLPriCh10.txt
 SRFp20VLPriCh11.txt
 SRFp20VLPriCh12.txt
 SRFp20VLPriCh13.txt
 SRFp20VLPriCh14.txt
 SRFp20VLPriCh15.txt

The filenames themselves indicate the test configuration: 'm10' is -10C, 'p20' is +20C, 'p50' is +50C; 'VN' is nominal LO bias voltage, 'VH' is high LO bias voltage, 'VL' is low LO bias voltage; 'Pri' is Primary LO, 'Sec' is Secondary LO, and 'Chxx' is Channel xx

Note in each data file, the first 16 lines contain a brief data description. Starting from line # 17, there are 3 columns: RF frequency, IF frequency and magnitude.

3.4 Summary for ATMS PFM V band SRFs (4/10)

For 20 C, VL, Secondary LO, the files are:

SRFp20VLSecCh03.txt
 SRFp20VLSecCh04.txt
 SRFp20VLSecCh05.txt
 SRFp20VLSecCh06.txt
 SRFp20VLSecCh07.txt
 SRFp20VLSecCh08.txt
 SRFp20VLSecCh09.txt
 SRFp20VLSecCh10.txt
 SRFp20VLSecCh11.txt
 SRFp20VLSecCh12.txt
 SRFp20VLSecCh13.txt
 SRFp20VLSecCh14.txt
 SRFp20VLSecCh15.txt

The filenames themselves indicate the test configuration: 'm10' is -10C, 'p20' is +20C, 'p50' is +50C; 'VN' is nominal LO bias voltage, 'VH' is high LO bias voltage, 'VL' is low LO bias voltage; 'Pri' is Primary LO, 'Sec' is Secondary LO, and 'Chxx' is Channel xx

Note in each data file, the first 16 lines contain a brief data description. Starting from line # 17, there are 3 columns: RF frequency, IF frequency and magnitude.

3.5 Summary for ATMS PFM V band SRFs (5/10)

For 20 C, VH, Prim LO, the files are:

SRFp20VHPriCh03.txt
 SRFp20VHPriCh04.txt
 SRFp20VHPriCh05.txt
 SRFp20VHPriCh06.txt
 SRFp20VHPriCh07.txt
 SRFp20VHPriCh08.txt
 SRFp20VHPriCh09.txt
 SRFp20VHPriCh10.txt
 SRFp20VHPriCh11.txt
 SRFp20VHPriCh12.txt
 SRFp20VHPriCh13.txt
 SRFp20VHPriCh14.txt
 SRFp20VHPriCh15.txt

The filenames themselves indicate the test configuration: 'm10' is -10C, 'p20' is +20C, 'p50' is +50C; 'VN' is nominal LO bias voltage, 'VH' is high LO bias voltage, 'VL' is low LO bias voltage; 'Pri' is Primary LO, 'Sec' is Secondary LO, and 'Chxx' is Channel xx

Note in each data file, the first 16 lines contain a brief data description. Starting from line # 17, there are 3 columns: RF frequency, IF frequency and magnitude.

3.6 Summary for ATMS PFM V band SRFs (6/10)

For 20 C, VH, Secondary LO, the files are:

SRFp20VHSecCh03.txt
 SRFp20VHSecCh04.txt
 SRFp20VHSecCh05.txt
 SRFp20VHSecCh06.txt
 SRFp20VHSecCh07.txt
 SRFp20VHSecCh08.txt
 SRFp20VHSecCh09.txt
 SRFp20VHSecCh10.txt
 SRFp20VHSecCh11.txt
 SRFp20VHSecCh12.txt
 SRFp20VHSecCh13.txt
 SRFp20VHSecCh14.txt
 SRFp20VHSecCh15.txt

The filenames themselves indicate the test configuration: 'm10' is -10C, 'p20' is +20C, 'p50' is +50C; 'VN' is nominal LO bias voltage, 'VH' is high LO bias voltage, 'VL' is low LO bias voltage; 'Pri' is Primary LO, 'Sec' is Secondary LO, and 'Chxx' is Channel xx

Note in each data file, the first 16 lines contain a brief data description. Starting from line # 17, there are 3 columns: RF frequency, IF frequency and magnitude.



3.7 Summary for ATMS PFM V band SRFs (7/10)

For -10 C, VN, Prim LO, the files are:

SRFm10VNPriCh03.txt
 SRFm10VNPriCh04.txt
 SRFm10VNPriCh05.txt
 SRFm10VNPriCh06.txt
 SRFm10VNPriCh07.txt
 SRFm10VNPriCh08.txt
 SRFm10VNPriCh09.txt
 SRFm10VNPriCh10.txt
 SRFm10VNPriCh11.txt
 SRFm10VNPriCh12.txt
 SRFm10VNPriCh13.txt
 SRFm10VNPriCh14.txt
 SRFm10VNPriCh15.txt

The filenames themselves indicate the test configuration: 'm10' is -10C, 'p20' is +20C, 'p50' is +50C; 'VN' is nominal LO bias voltage, 'VH' is high LO bias voltage, 'VL' is low LO bias voltage; 'Pri' is Primary LO, 'Sec' is Secondary LO, and 'Chxx' is Channel xx

Note in each data file, the first 16 lines contain a brief data description. Starting from line # 17, there are 3 columns: RF frequency, IF frequency and magnitude.



3.8 Summary for ATMS PFM V band SRFs (8/10)

For -10 C, VN, Secondary LO, the files are:

SRFm10VNSecCh03.txt
 SRFm10VNSecCh04.txt
 SRFm10VNSecCh05.txt
 SRFm10VNSecCh06.txt
 SRFm10VNSecCh07.txt
 SRFm10VNSecCh08.txt
 SRFm10VNSecCh09.txt
 SRFm10VNSecCh10.txt
 SRFm10VNSecCh11.txt
 SRFm10VNSecCh12.txt
 SRFm10VNSecCh13.txt
 SRFm10VNSecCh14.txt
 SRFm10VNSecCh15.txt

The filenames themselves indicate the test configuration: 'm10' is -10C, 'p20' is +20C, 'p50' is +50C; 'VN' is nominal LO bias voltage, 'VH' is high LO bias voltage, 'VL' is low LO bias voltage; 'Pri' is Primary LO, 'Sec' is Secondary LO, and 'Chxx' is Channel xx

Note in each data file, the first 16 lines contain a brief data description. Starting from line # 17, there are 3 columns: RF frequency, IF frequency and magnitude.



3.9 Summary for ATMS PFM V band SRFs (9/10)

For 50 C, VN, Prim LO, the files are:

SRFp50VNPriCh03.txt
 SRFp50VNPriCh04.txt
 SRFp50VNPriCh05.txt
 SRFp50VNPriCh06.txt
 SRFp50VNPriCh07.txt
 SRFp50VNPriCh08.txt
 SRFp50VNPriCh09.txt
 SRFp50VNPriCh10.txt
 SRFp50VNPriCh11.txt
 SRFp50VNPriCh12.txt
 SRFp50VNPriCh13.txt
 SRFp50VNPriCh14.txt
 SRFp50VNPriCh15.txt

The filenames themselves indicate the test configuration: 'm10' is -10C, 'p20' is +20C, 'p50' is +50C; 'VN' is nominal LO bias voltage, 'VH' is high LO bias voltage, 'VL' is low LO bias voltage; 'Pri' is Primary LO, 'Sec' is Secondary LO, and 'Chxx' is Channel xx

Note in each data file, the first 16 lines contain a brief data description. Starting from line # 17, there are 3 columns: RF frequency, IF frequency and magnitude.

3.10 Summary for ATMS PFM V band SRFs (10/10)

For 50 C, VN, Secondary LO, the files are:

SRFp50VNSecCh03.txt
 SRFp50VNSecCh04.txt
 SRFp50VNSecCh05.txt
 SRFp50VNSecCh06.txt
 SRFp50VNSecCh07.txt
 SRFp50VNSecCh08.txt
 SRFp50VNSecCh09.txt
 SRFp50VNSecCh10.txt
 SRFp50VNSecCh11.txt
 SRFp50VNSecCh12.txt
 SRFp50VNSecCh13.txt
 SRFp50VNSecCh14.txt
 SRFp50VNSecCh15.txt

The filenames themselves indicate the test configuration: 'm10' is -10C, 'p20' is +20C, 'p50' is +50C; 'VN' is nominal LO bias voltage, 'VH' is high LO bias voltage, 'VL' is low LO bias voltage; 'Pri' is Primary LO, 'Sec' is Secondary LO, and 'Chxx' is Channel xx

Note in each data file, the first 16 lines contain a brief data description. Starting from line # 17, there are 3 columns: RF frequency, IF frequency and magnitude.

4. W Bands

4.1 Summary for ATMS PFM W band SRFs

For W band we did not find any valid, originally-measured **digital** SRF data matching the plots in the Calibration Data Book. Thus, the **digitized** data must be used:

The filenames themselves indicate the test configuration: 'm10' is -10C, 'p20' is +20C, 'p50' is +50C; 'VN' is nominal LO bias voltage, 'VH' is high LO bias voltage, 'VL' is low LO bias voltage; 'Pri' is Primary LO, 'Sec' is Secondary LO, and 'Chxx' is Channel xx

SRFm10VNPriCh16.txt / SRFm10VNSecCh16.txt
 SRFp20VHPriCh16.txt / SRFp20VHSecCh16.txt
 SRFp20VLPriCh16.txt / SRFp20VLSecCh16.txt
 SRFp20VNPriCh16.txt / SRFp20VNSecCh16.txt
 SRFp50VNPriCh16.txt / SRFp50VNSecCh16.txt

Note in each data file, the first 16 lines contain a brief data description. Starting from line # 17, there are 3 columns: RF frequency, IF frequency and magnitude.

5. G Bands

5.1 Summary for ATMS PFM G band SRFs

For G band we did not find any valid, originally-measured **digital** SRF data matching the plots in the Calibration Data Book. Thus, the **digitized** data must be used:

SRFm10VNPriCh17.txt / SRFm10VNSecCh17.txt
 SRFm10VNPriCh18.txt / SRFm10VNSecCh18.txt
 SRFm10VNPriCh19.txt / SRFm10VNSecCh19.txt
 SRFm10VNPriCh20.txt / SRFm10VNSecCh20.txt
 SRFm10VNPriCh21.txt / SRFm10VNSecCh21.txt
 SRFm10VNPriCh22.txt / SRFm10VNSecCh22.txt

SRFp20VHPriCh17.txt / SRFp20VHSecCh17.txt
 SRFp20VHPriCh18.txt / SRFp20VHSecCh18.txt
 SRFp20VHPriCh19.txt / SRFp20VHSecCh19.txt
 SRFp20VHPriCh20.txt / SRFp20VHSecCh20.txt
 SRFp20VHPriCh21.txt / SRFp20VHSecCh21.txt
 SRFp20VHPriCh22.txt / SRFp20VHSecCh22.txt

The filenames themselves indicate the test configuration: ‘m10’ is -10C, ‘p20’ is +20C, ‘p50’ is +50C; ‘VN’ is nominal LO bias voltage, ‘VH’ is high LO bias voltage, ‘VL’ is low LO bias voltage; ‘Pri’ is Primary LO, ‘Sec’ is Secondary LO, and ‘Chxx’ is Channel xx

Note in each data file, the first 16 lines contain a brief data description. Starting from line # 17, there are 3 columns: RF frequency, IF frequency and magnitude.



SRFp20VLPriCh17.txt / SRFp20VLSecCh17.txt
 SRFp20VLPriCh18.txt / SRFp20VLSecCh18.txt
 SRFp20VLPriCh19.txt / SRFp20VLSecCh19.txt
 SRFp20VLPriCh20.txt / SRFp20VLSecCh20.txt
 SRFp20VLPriCh21.txt / SRFp20VLSecCh21.txt
 SRFp20VLPriCh22.txt / SRFp20VLSecCh22.txt

SRFp20VNPriCh17.txt / SRFp20VNSecCh17.txt
 SRFp20VNPriCh18.txt / SRFp20VNSecCh18.txt
 SRFp20VNPriCh19.txt / SRFp20VNSecCh19.txt
 SRFp20VNPriCh20.txt / SRFp20VNSecCh20.txt
 SRFp20VNPriCh21.txt / SRFp20VNSecCh21.txt
 SRFp20VNPriCh22.txt / SRFp20VNSecCh22.txt

SRFp50VNPriCh17.txt / SRFp50VNSecCh17.txt
 SRFp50VNPriCh18.txt / SRFp50VNSecCh18.txt
 SRFp50VNPriCh19.txt / SRFp50VNSecCh19.txt
 SRFp50VNPriCh20.txt / SRFp50VNSecCh20.txt
 SRFp50VNPriCh21.txt / SRFp50VNSecCh21.txt
 SRFp50VNPriCh22.txt / SRFp50VNSecCh22.txt

The filenames themselves indicate the test configuration: 'm10' is -10C, 'p20' is +20C, 'p50' is +50C; 'VN' is nominal LO bias voltage, 'VH' is high LO bias voltage, 'VL' is low LO bias voltage; 'Pri' is Primary LO, 'Sec' is Secondary LO, and 'Chxx' is Channel xx

Note in each data file, the first 16 lines contain a brief data description. Starting from line # 17, there are 3 columns: RF frequency, IF frequency and magnitude.