Re-Calibration of Lowband Receiver 03

Changed the bias-T

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Introduction

- In memo 130, on the recalibration of Rcv3 done in 2018_08, we noticed that it was difficult to calibrate the Antsim3 spectra
- In the same memo calibration of Rcv3 done in 2017 was shown for comparison where the residues of Antsim2 seemed reasonable.
- Between 2017 & 2018, a couple of changes were made to the Receiver03 one of which was replacing the Bias -Tee
  - Hence the old Bias Tee was put back into the Rcv03 and calibration was carried our in 2019_01
- This memo summarizes the results of this calibration.
- For this calibration to be similar to the one in 2017, we planned use Antsim2 as the cross check load.
  - But on comparing the S11 of the Antsim used here to that in memo #92 & memo#130, The antsim used might be Antsim1

Files used:

/data5/edges/data/Receiver03_2019_01_14_040_to_200/*temp*C

Corrected s11:

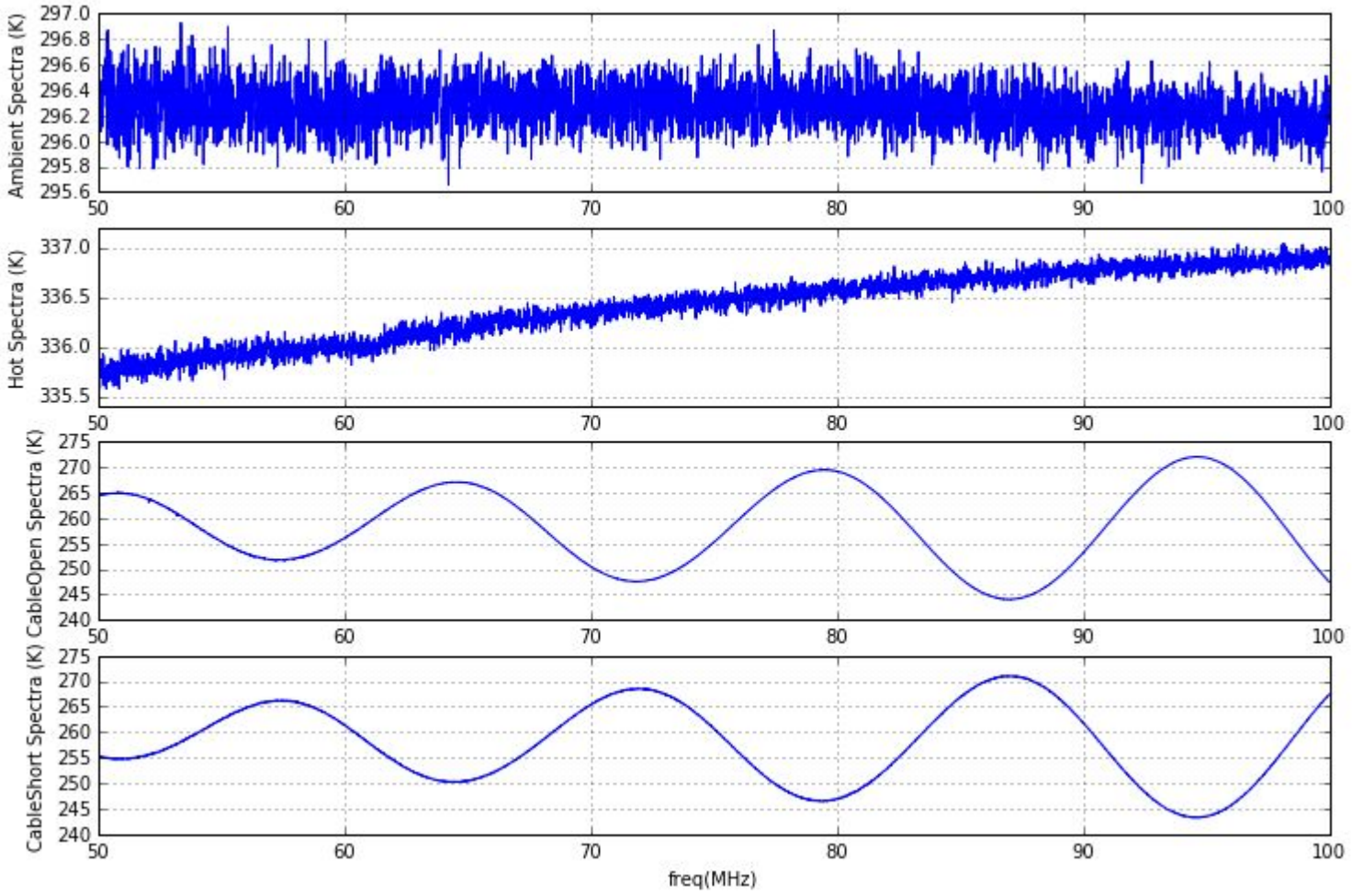
/data5/edges/data/Receiver03_2019_01_14_040_to_200/*temp*C/S11/corrected

Standards used:

Male standard - Maury - 50.177 ohm (25 degC)

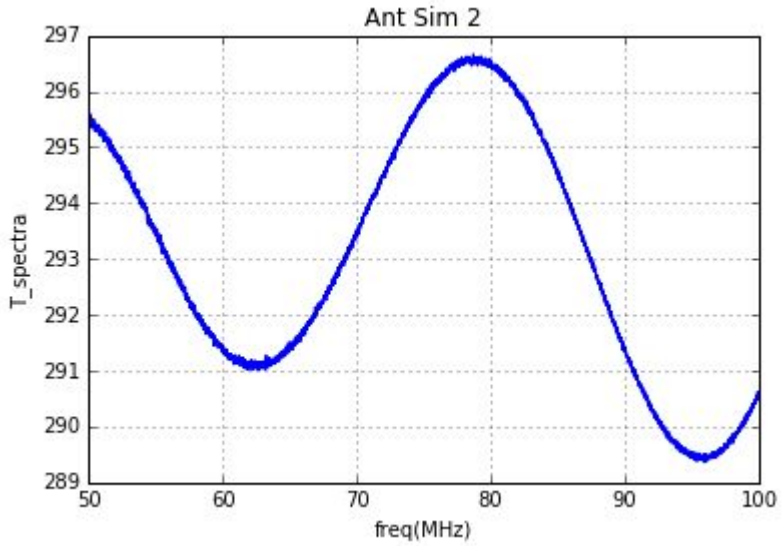
Female Standard - Phil's kit - 49.99 ohm (25 degC)

Uncalibrated Spectra data [50-100 MHz] @ 25C for the loads

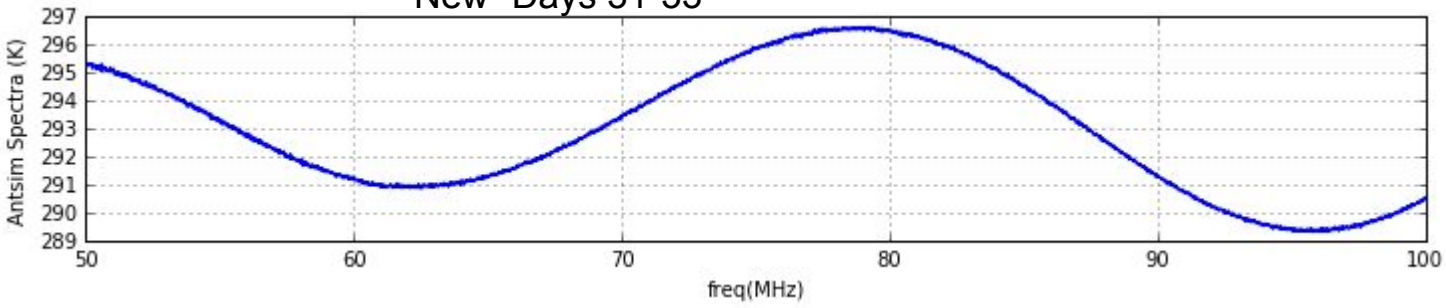


Uncalibrated Spectra data [50-100 MHz] @ 25C for the Antsim

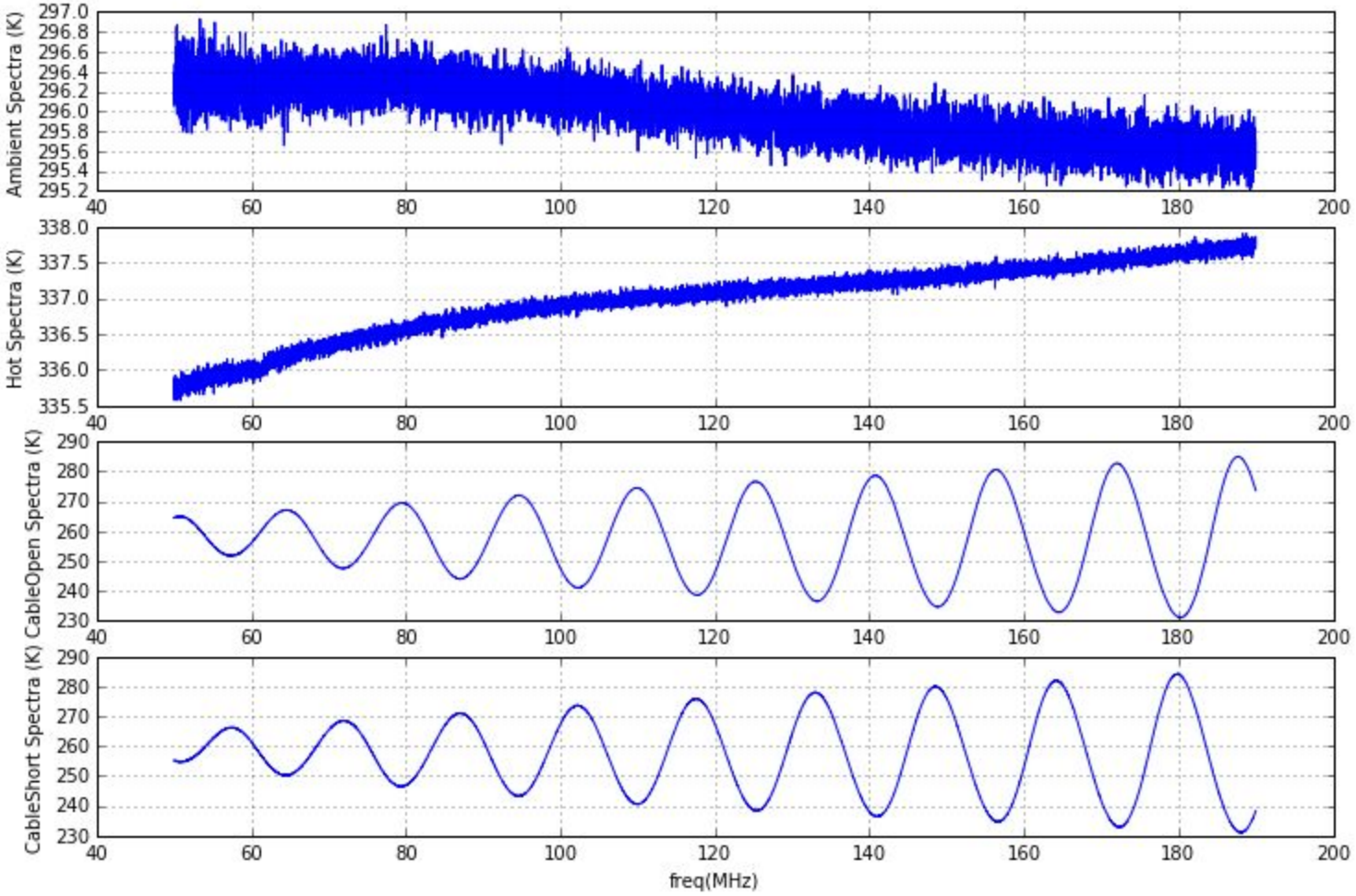
Old- Days 16-21



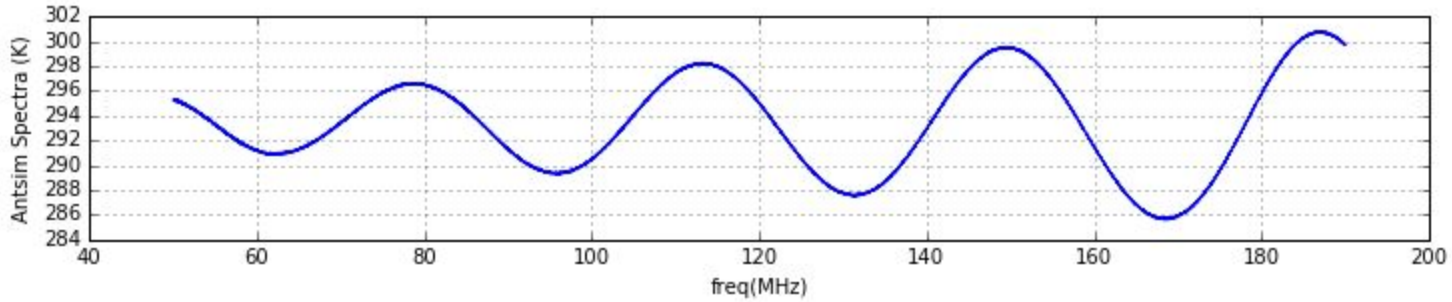
New- Days 31-33



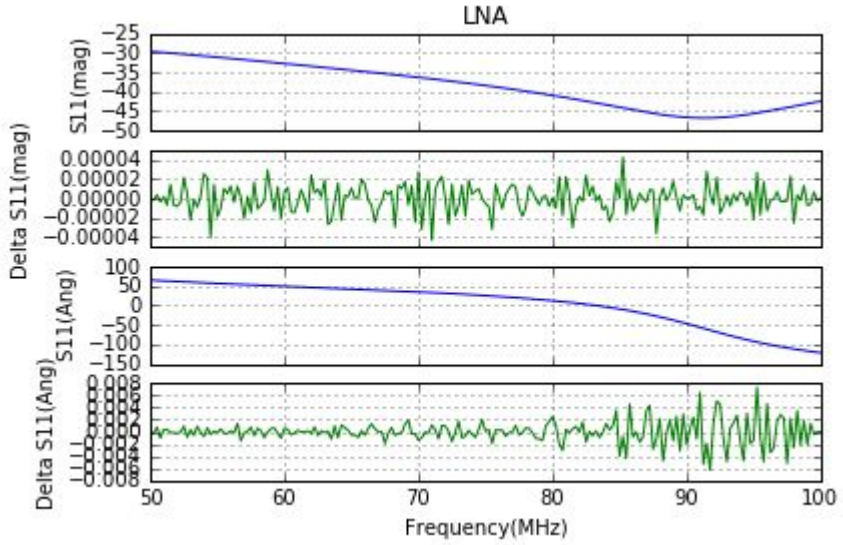
Uncalibrated Spectra data [50-190 MHz] @ 25C for the loads

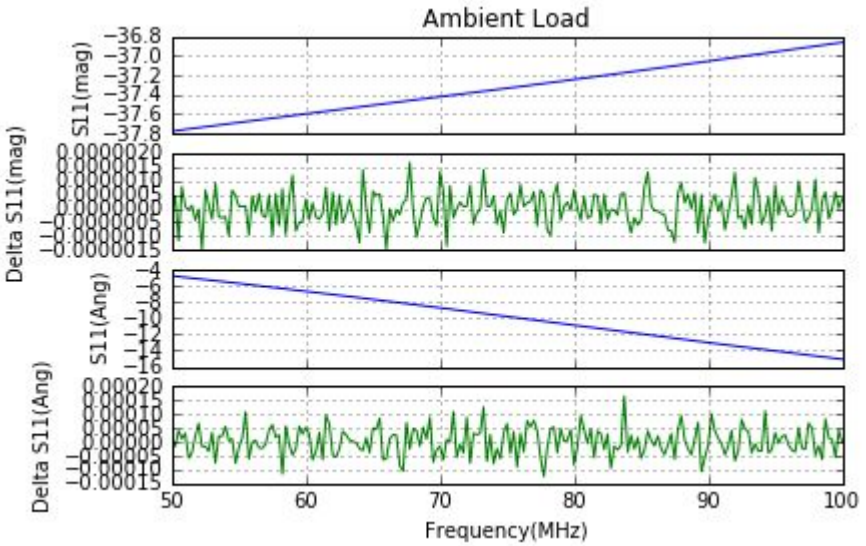


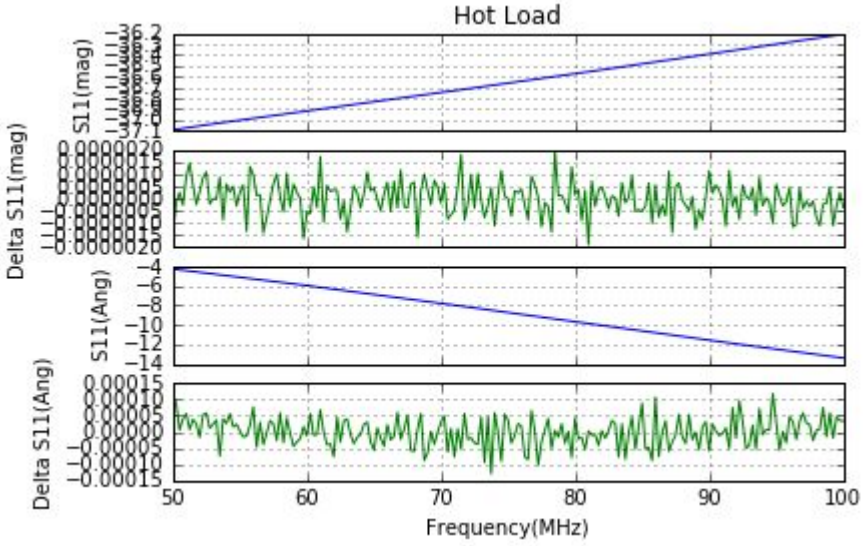
Uncalibrated Spectra data [50-190 MHz] @ 25C for the Antsim

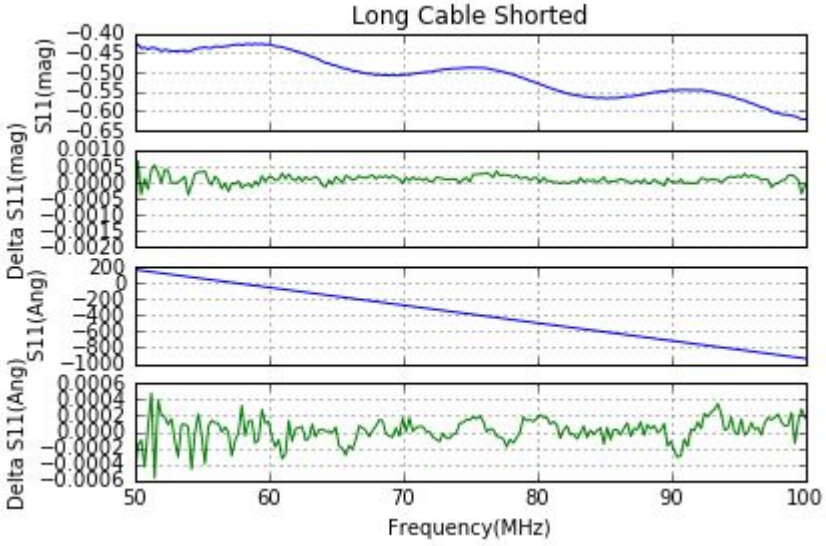


Reflection coefficients of the loads @25C [50 -100 MHz]

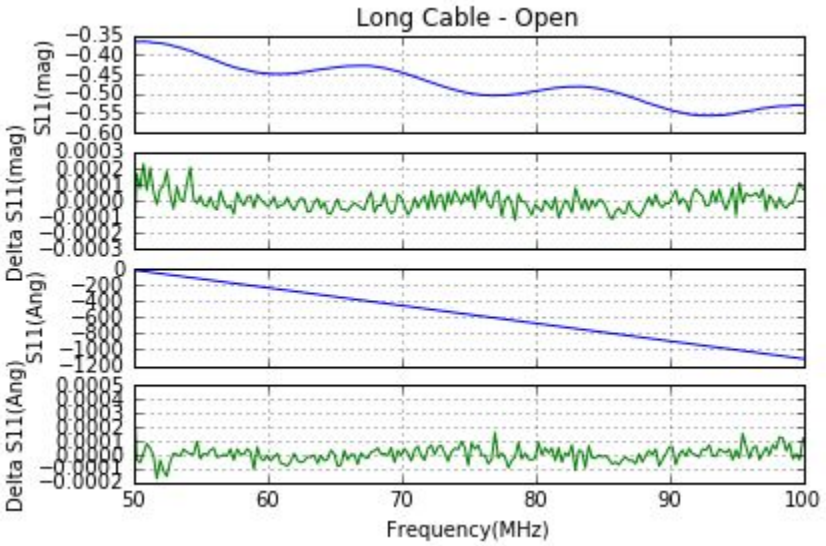


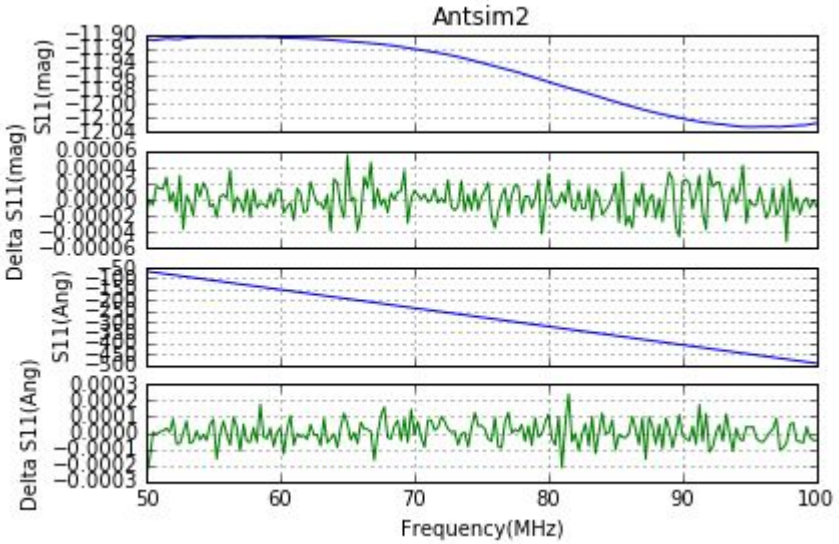






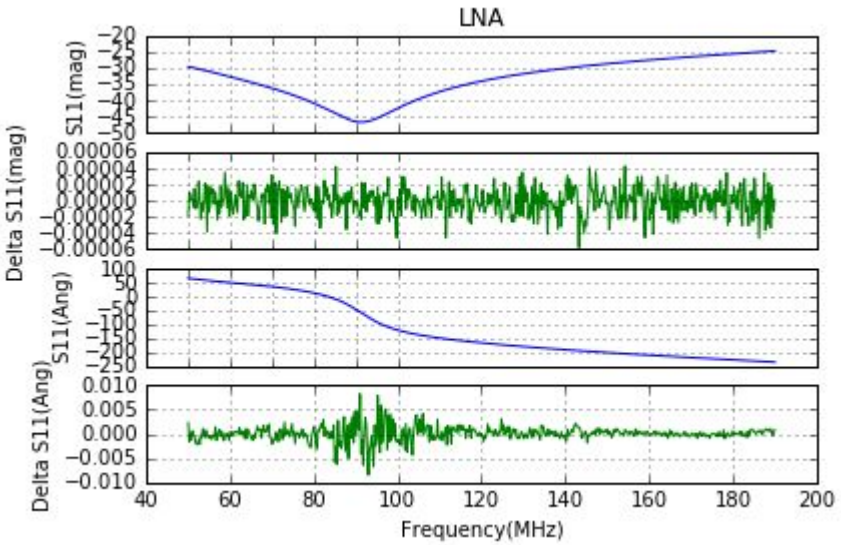
Reflection coefficients of the loads @25C [50 -100 MHz]

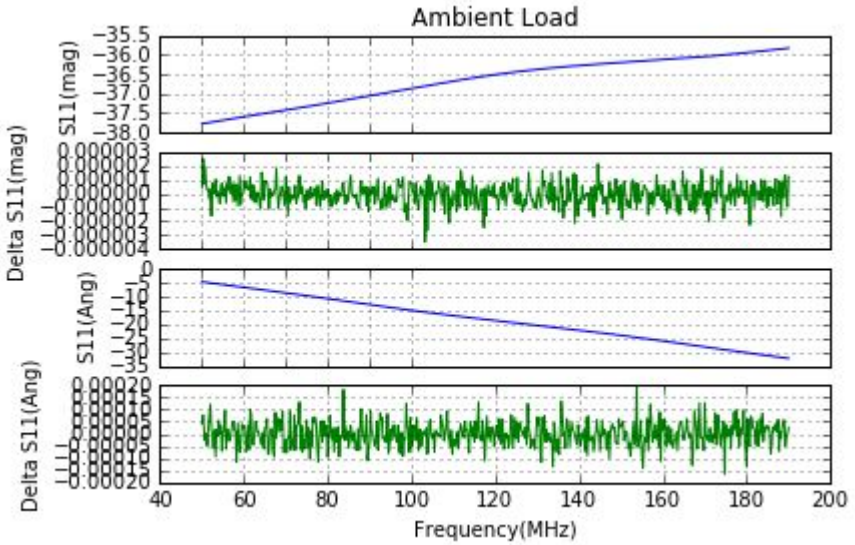


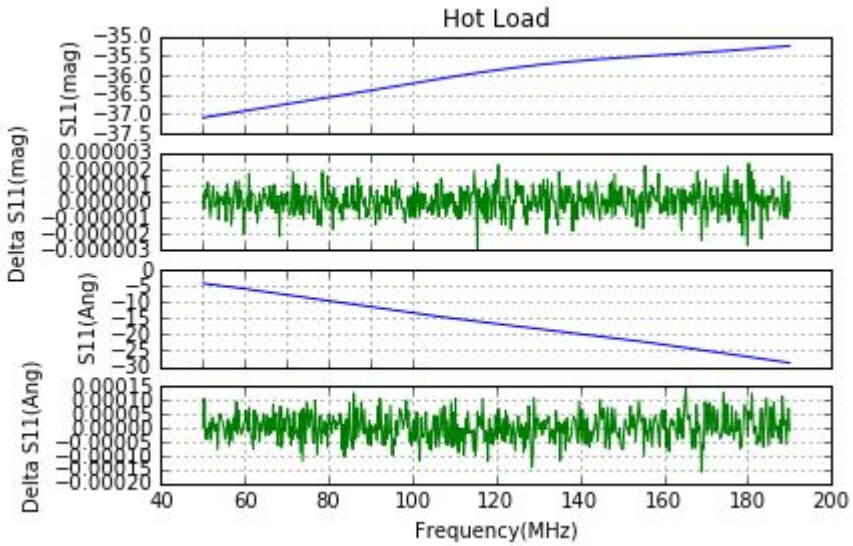


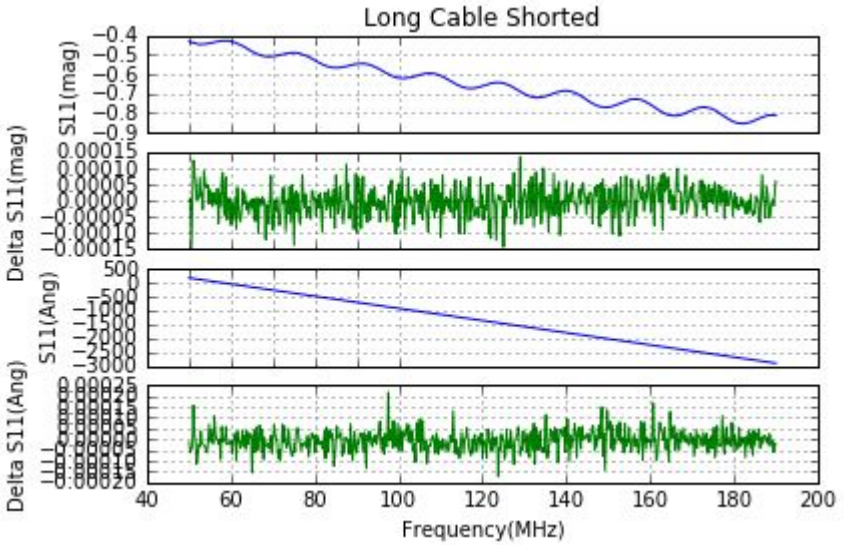
The S11 is the same between the two measurements: 1.) 2019_[16:21]; 2.) 2019_[31:33] .
Memo #92 indicates that thisS11 could be Antsim1 not Antsim2.

Reflection coefficients of the loads @25C [50 -190 MHz]

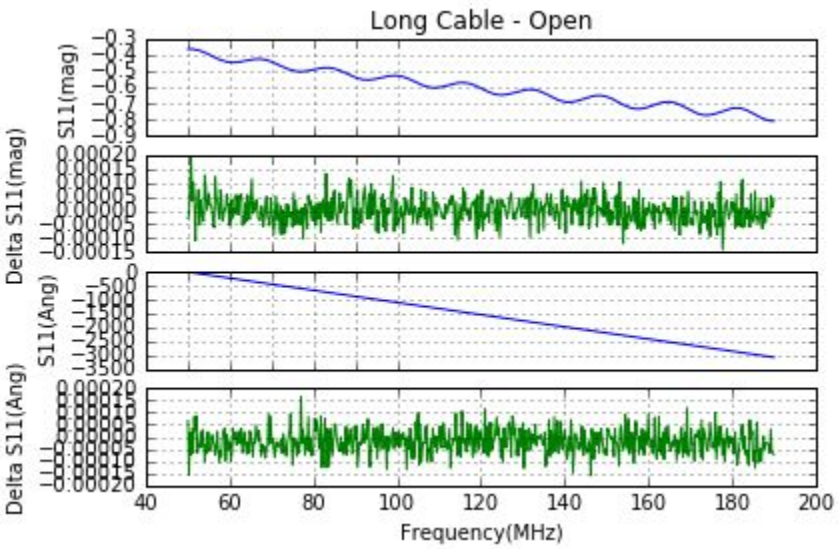


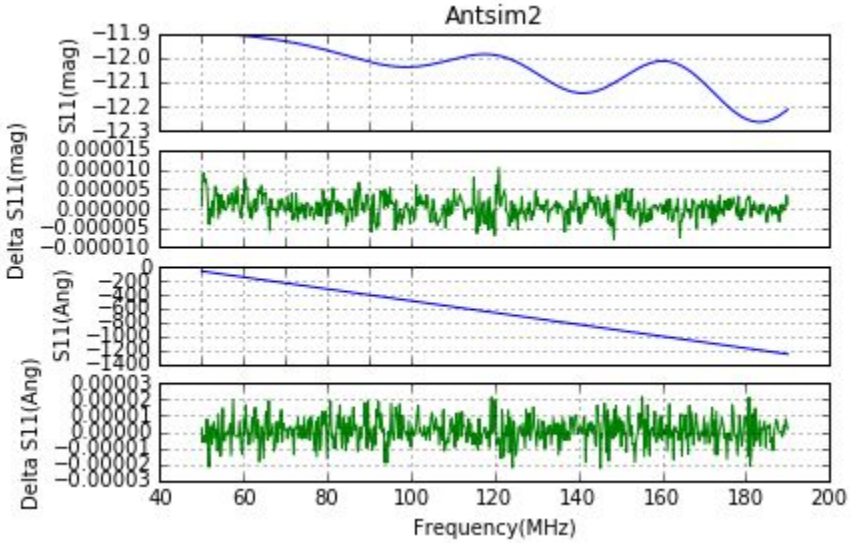




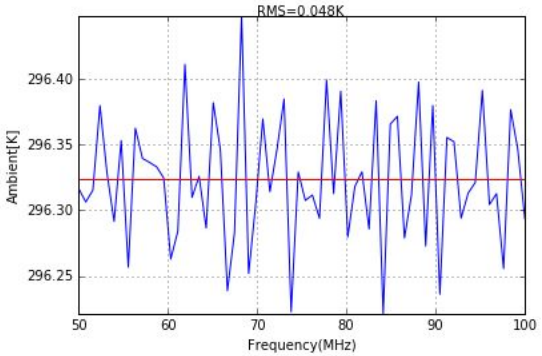


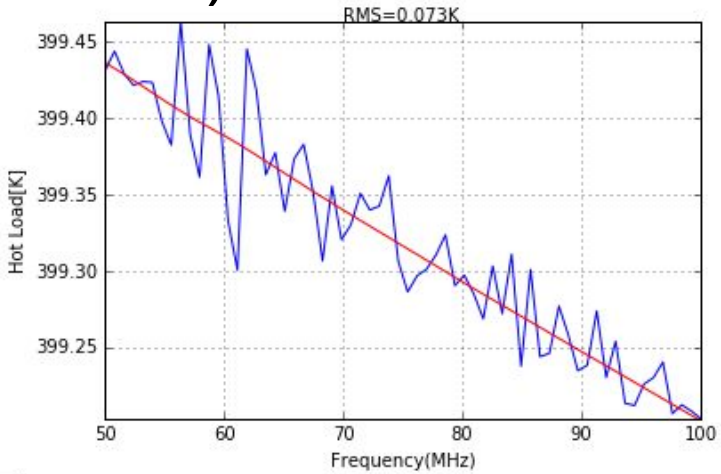
Reflection coefficients of the loads @25C [50 -190 MHz]

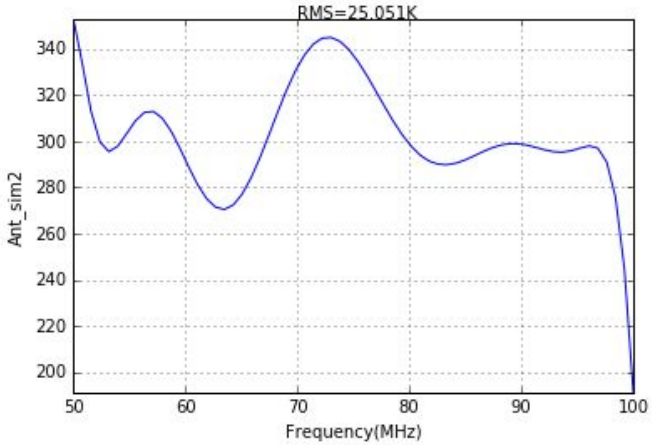


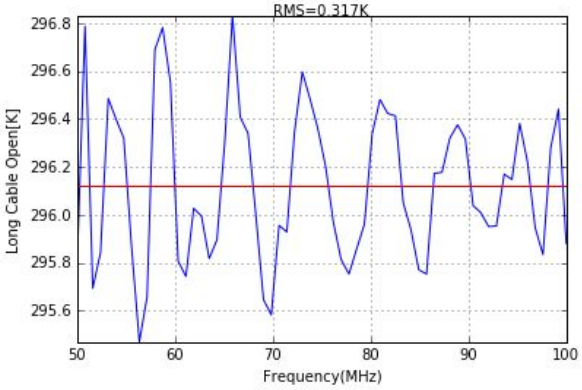


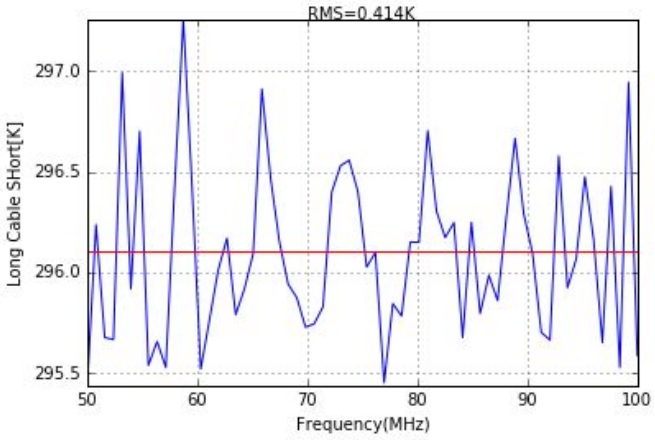
Calibration Cross checks (50-100 MHz) - (17 terms to model C1 & C2 and 18 terms to model Tu,Tc,Ts.











Calibration Cross checks(50-190 MHz) - (30 terms to model C1 & C2 and 31 terms to model Tu,Tc,Ts.