

General Update

- SPR
 - Install of additional 30A sockets for rack power supply
- NRDZ
 - Additional rack for NRDZ storage nodes and equipment
 - Internet upgrade for additional data transfer
- Other
 - Wire harness construction for Antonio Feeds
 - RFSOC Enclosure construction
 - SRI will setup their transmitter again (Tuesday)
- Documentation:
 - Uploaded memos to GitHub
 - Attemplifier document finished
 - In process of writing up RFSOC design
- CHIME:
 - Geotechnical in prep
 - Clearing field in prep
 - Shasta County Use Permit APPROVED
- Antonio Feed
 - 6 Pyramids gold-plating done
 - Quotes for 6 LNA modules
 - Quotes for 3 Feed bases
 - Get anechoic chamber from Minex
 - 2K investigation
 - 1K azimuth encoder replacement
- ATA full buildout
 - PAM design and prototype
 - PAX control board (Mike / Todd)
 - Drive box control board
 - Control box replacement PCB ordered
 - Antenna PSU retrofit

NRDZ internet bandwidth requirements:

- CU Boulder estimates 400 - 800 Mbit bandwidth for data transfer from HCRO to CU Boulder
- Investigated possibilities to upgrade existing 1Gbit line
- Additional lines up to 5Gbit are available immediately, in 1G or 2G lines.
 - 1G = \$1200 2G = \$1700 per month
- For 10G link installation time 9 to 12 months and costs are not known yet.
- To upgrade our network infrastructure to handle more than 1G internet approx. 5K minimum to upgrade firewall and WAN switch.
- In addition to upgrade our network core switch to support full 10G to all access switches approx. 5K



Antenna retrofit:

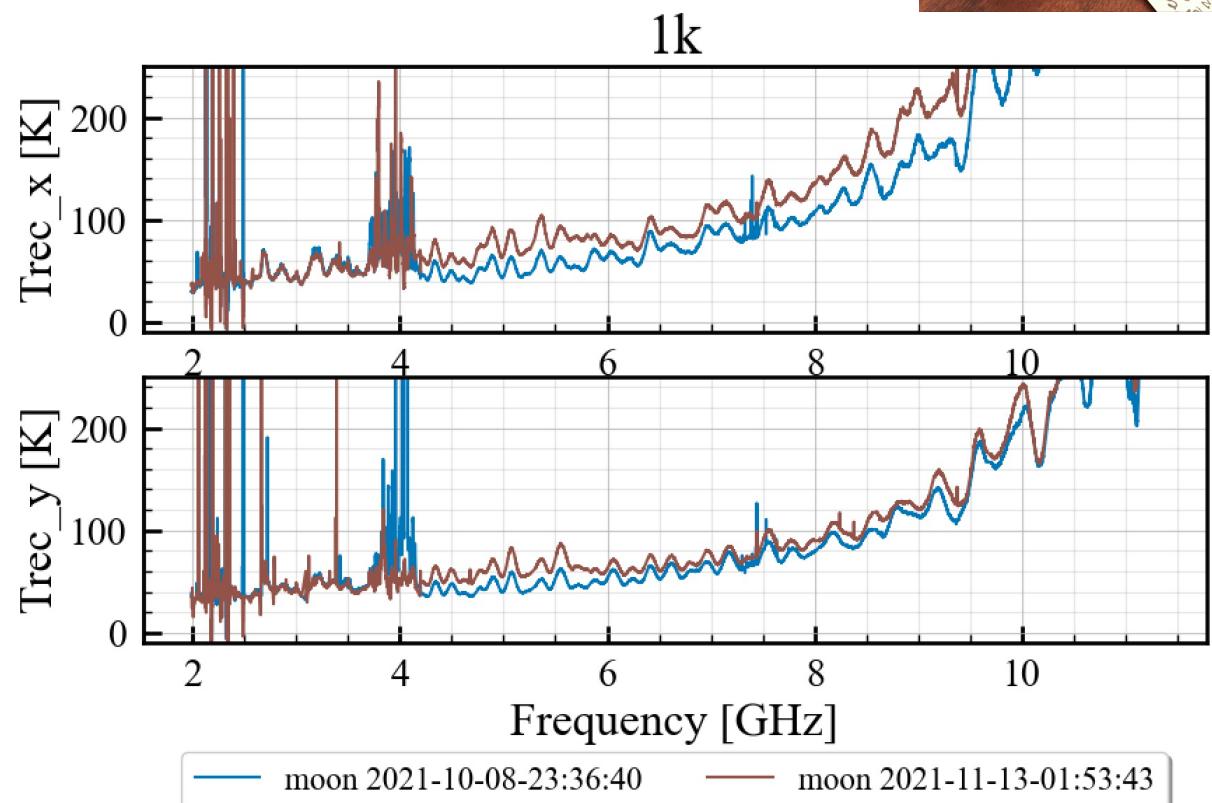
- Currently 19 antennas can house an Antonio Feed
- Retrofit includes installation of 48V power supply and power cable to the feed.
- 48V PSUs arrived and we are in the process of retrofitting them while we also do the semi annual maintenance.
- Control box retrofit, waiting for PCBs to be assembled, we still hope to have all of the control boxes upgraded this year.



Ant	Feed Version	Antennas	
		Feed installed	Control Box
<u>1A</u>	V1	YES	-
<u>1B</u>	V1	-	OLD
<u>1C</u>	V2	YES	-
<u>1D</u>	V1	-	OLD
<u>1E</u>	V2	YES	-
<u>1F</u>	V1	YES	-
<u>1G</u>	V2	YES	-
<u>1H</u>	V2	YES	-
<u>1J</u>	V1	-	-
<u>1K</u>	V2	YES	-
<u>2A</u>	V2	YES	-
<u>2B</u>	V2	YES	-
<u>2C</u>	V2	YES	OLD
<u>2D</u>	V1	-	-
<u>2E</u>	V2	YES	OLD
<u>2F</u>	V1	-	OLD
<u>2G</u>	V1	-	-
<u>2H</u>	V2	YES	-
<u>2J</u>	V2	YES	-
<u>2K</u>	V2	-	-
<u>2L</u>	V2	YES	OLD
<u>2M</u>	V2	YES	OLD
<u>3C</u>	V2	YES	OLD
<u>3D</u>	V2	YES	OLD
<u>3E</u>	V1	-	OLD
<u>3F</u>	-	-	-
<u>3G</u>	-	-	-
<u>3H</u>	-	-	-
<u>3I</u>	V1	-	OLD
<u>3L</u>	V2	YES	OLD
<u>4E</u>	V1	-	-
<u>4F</u>	V1	-	-
<u>4G</u>	V1	YES	OLD
<u>4H</u>	V1	-	-
<u>4J</u>	V2	YES	OLD
<u>4K</u>	V1	-	OLD
<u>4L</u>	V1	-	OLD
<u>5B</u>	V2	YES	-
<u>5C</u>	V1	YES	-
<u>5E</u>	V1	-	OLD
<u>5G</u>	V1	-	OLD
<u>5H</u>	V1	-	-

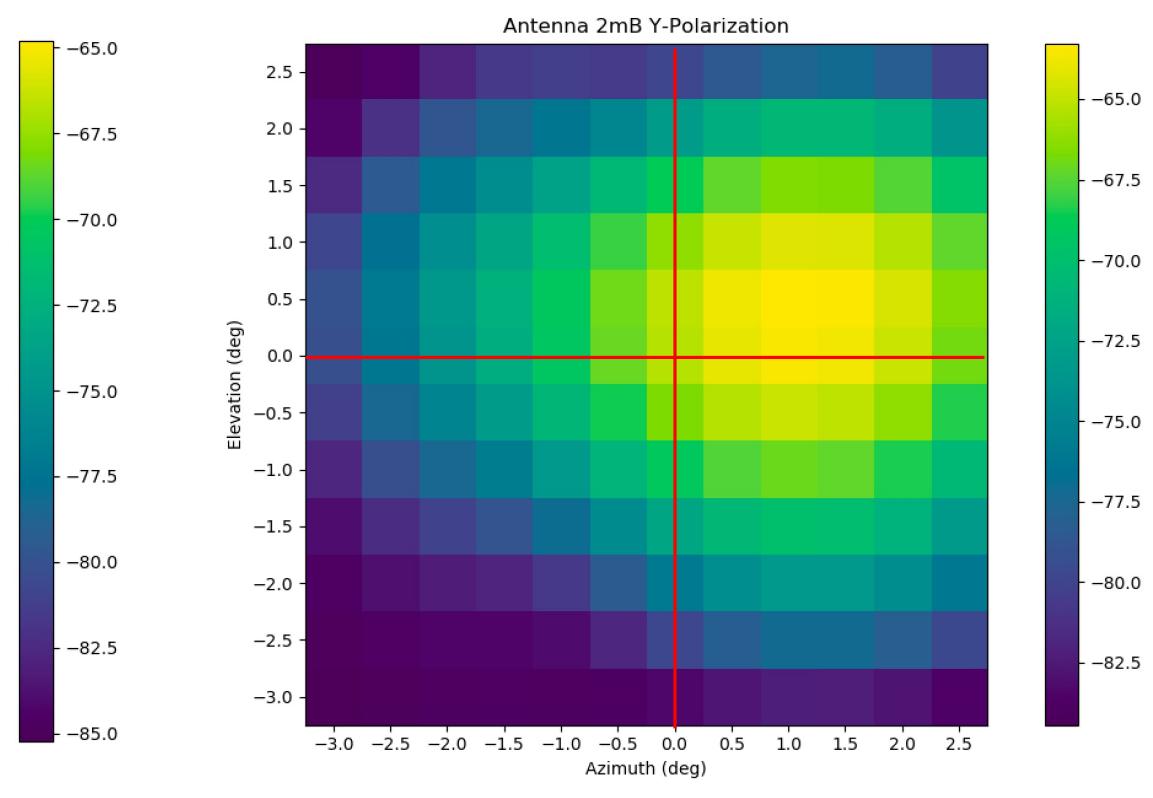
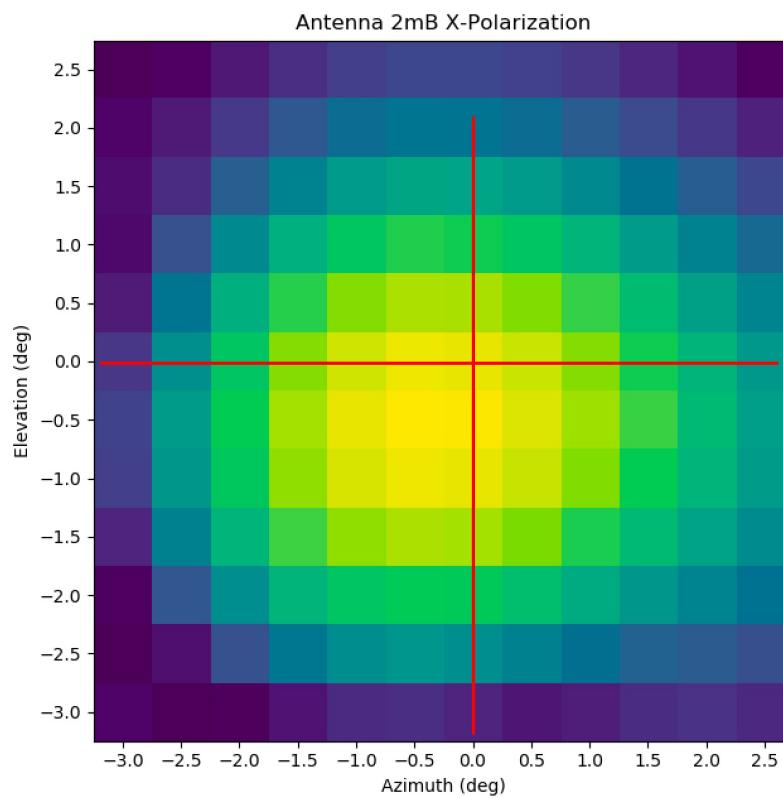
1K azimuth encoder replacement :

- Actual position of antenna differed from the readout
- When moving the antenna, readout jumped all over the place
- Replaced with last spare az encoder
- Calibrated rough pointing to <1deg error by looking at a satellite.
- T Point done over the weekend

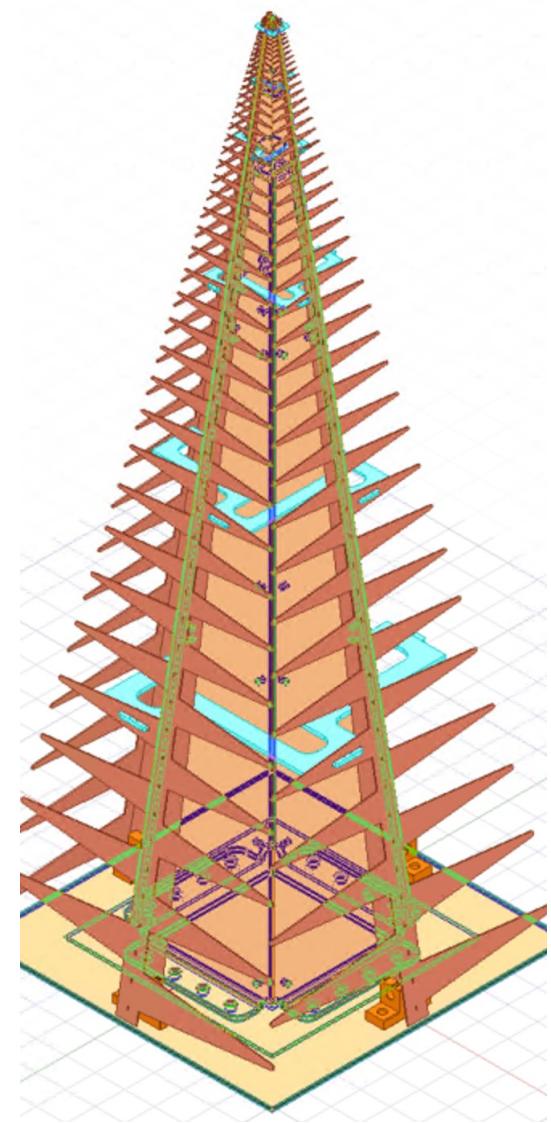


2K investigation :

- Original measurement

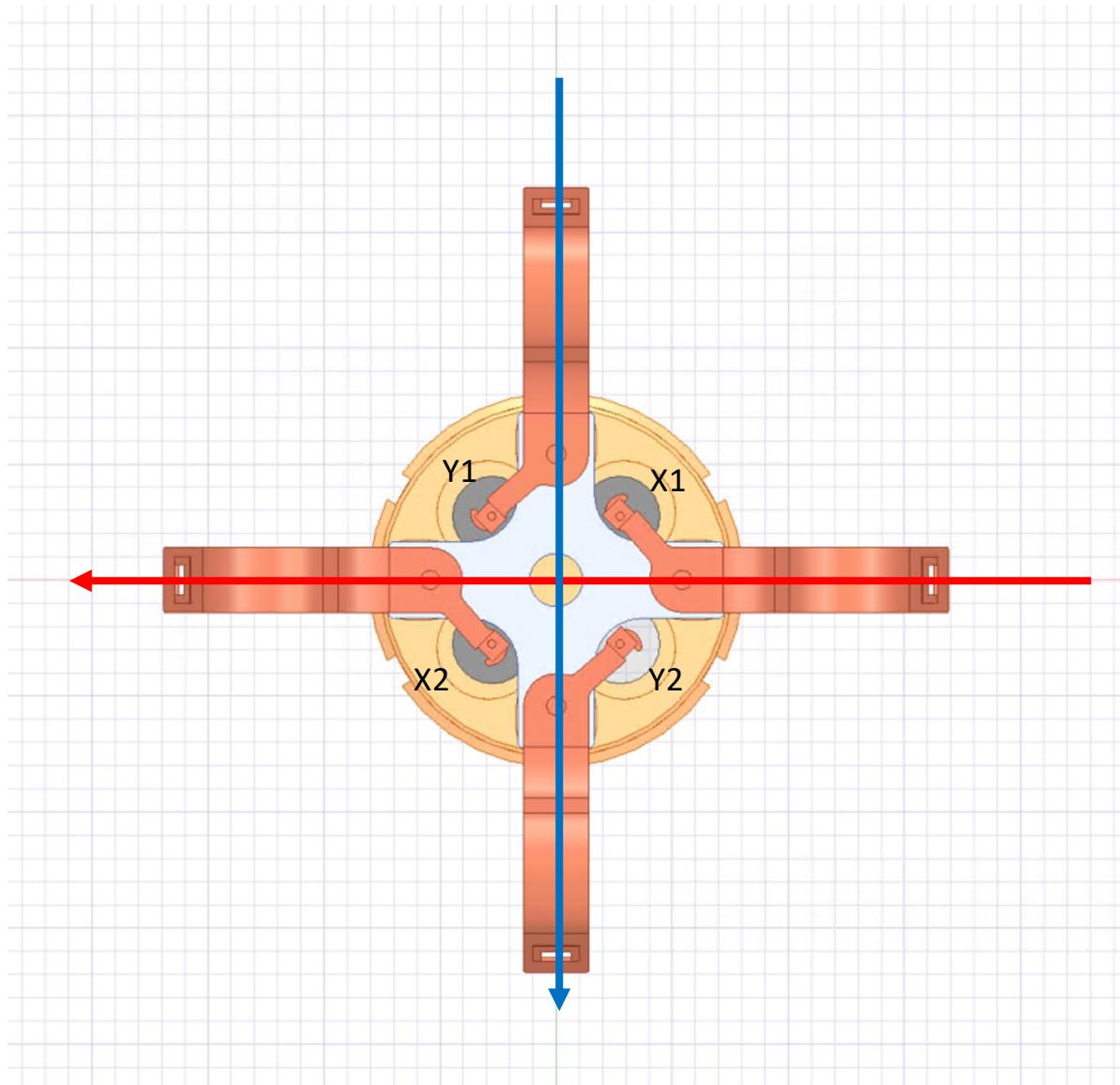


HFSS Simulation:



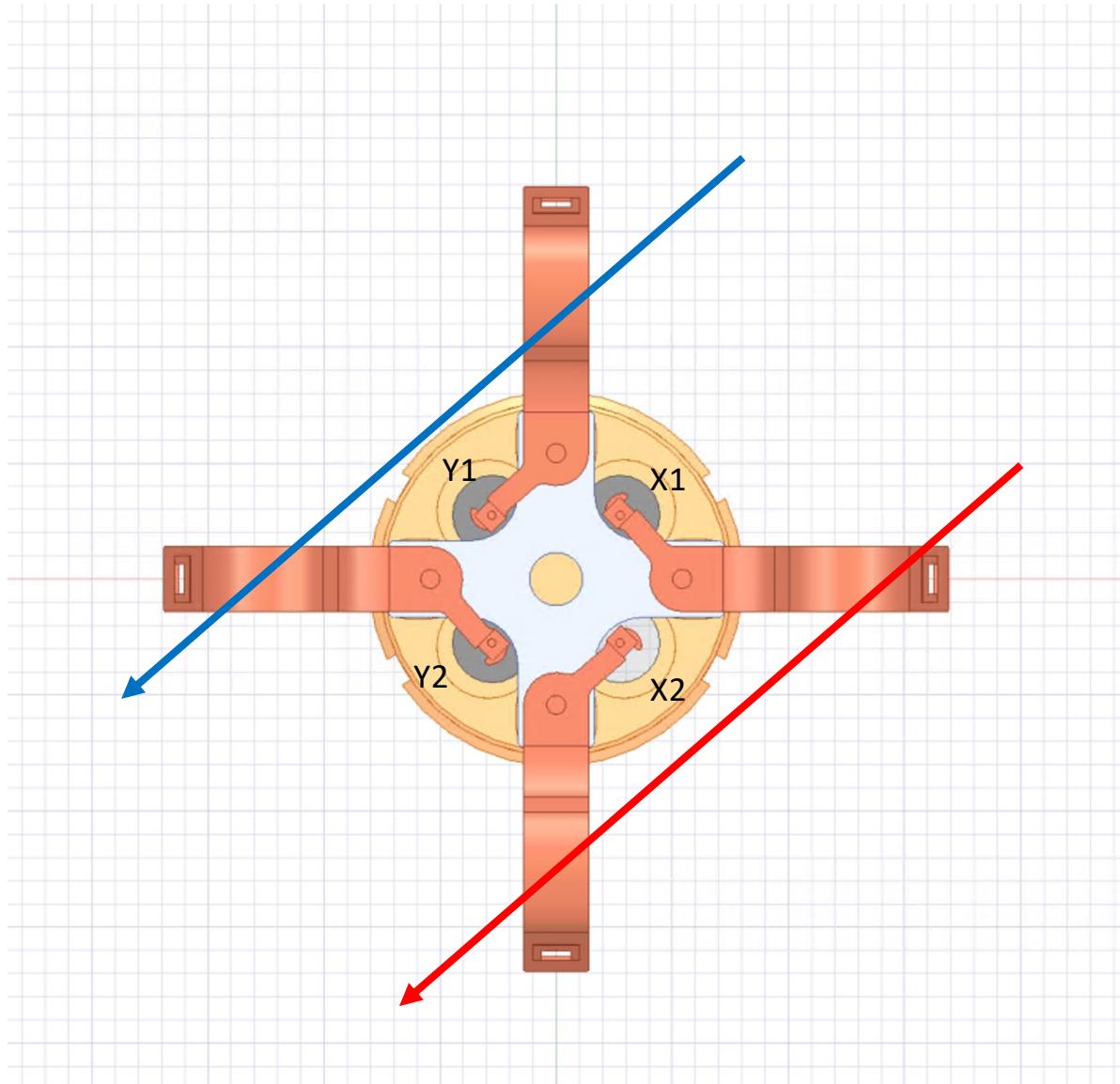
HFSS Simulation:

- Correct configuration

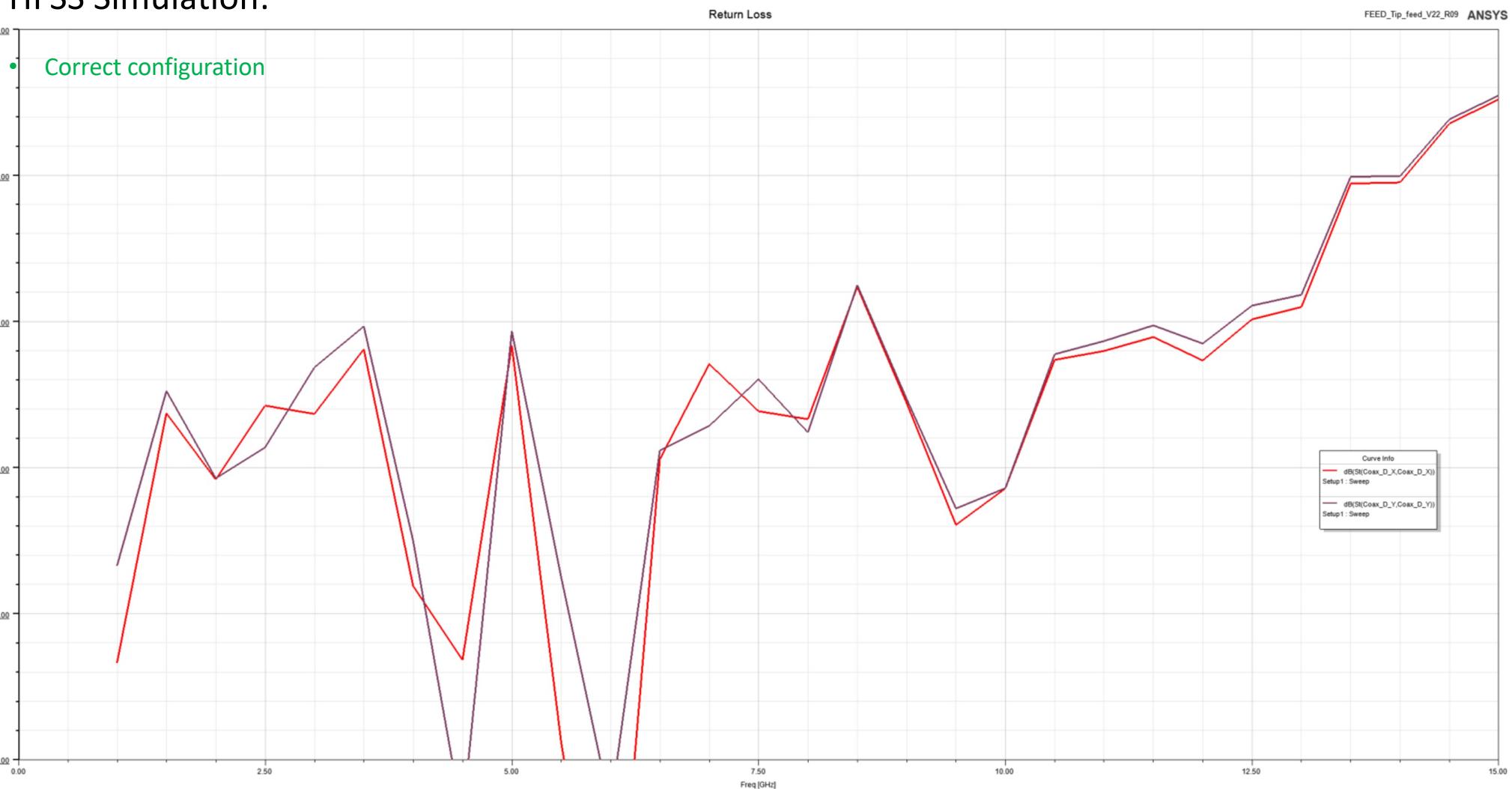


HFSS Simulation:

- Incorrect configuration



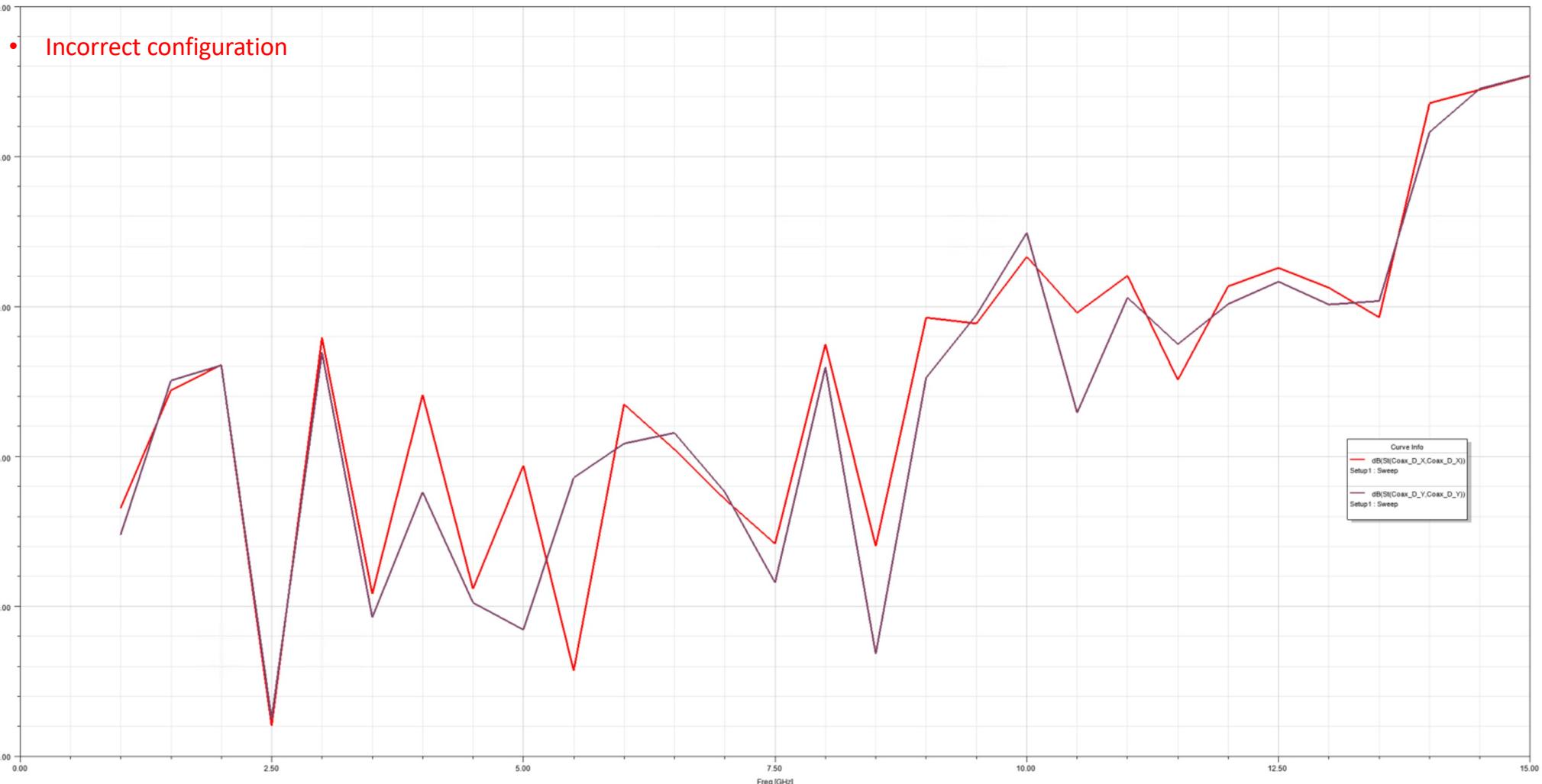
HFSS Simulation:



HFSS Simulation:

Return Loss

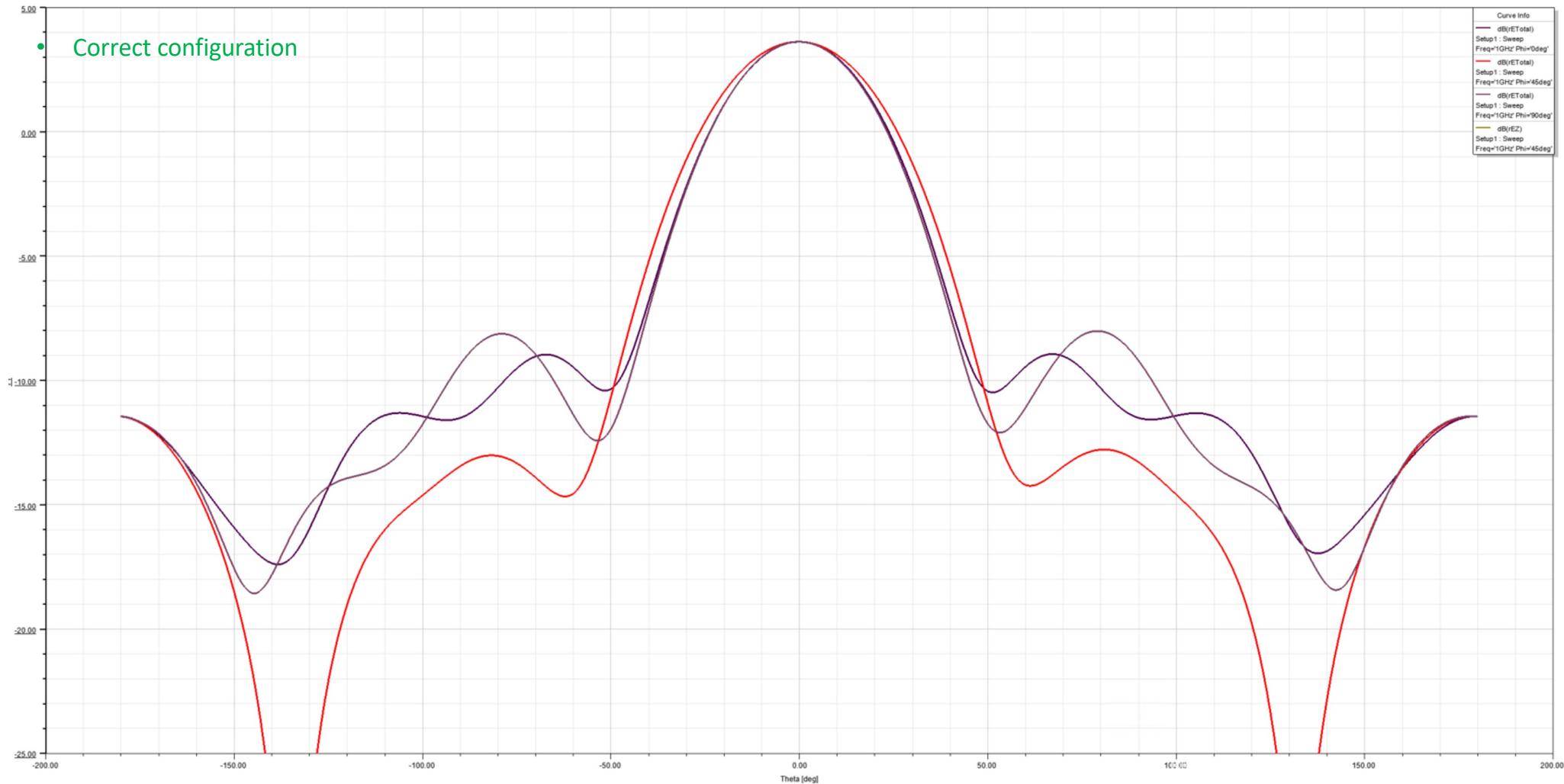
FEED_Tip_feed_V22_R09 ANSYS



HFSS Simulation:

Beam Pattern @1GHz

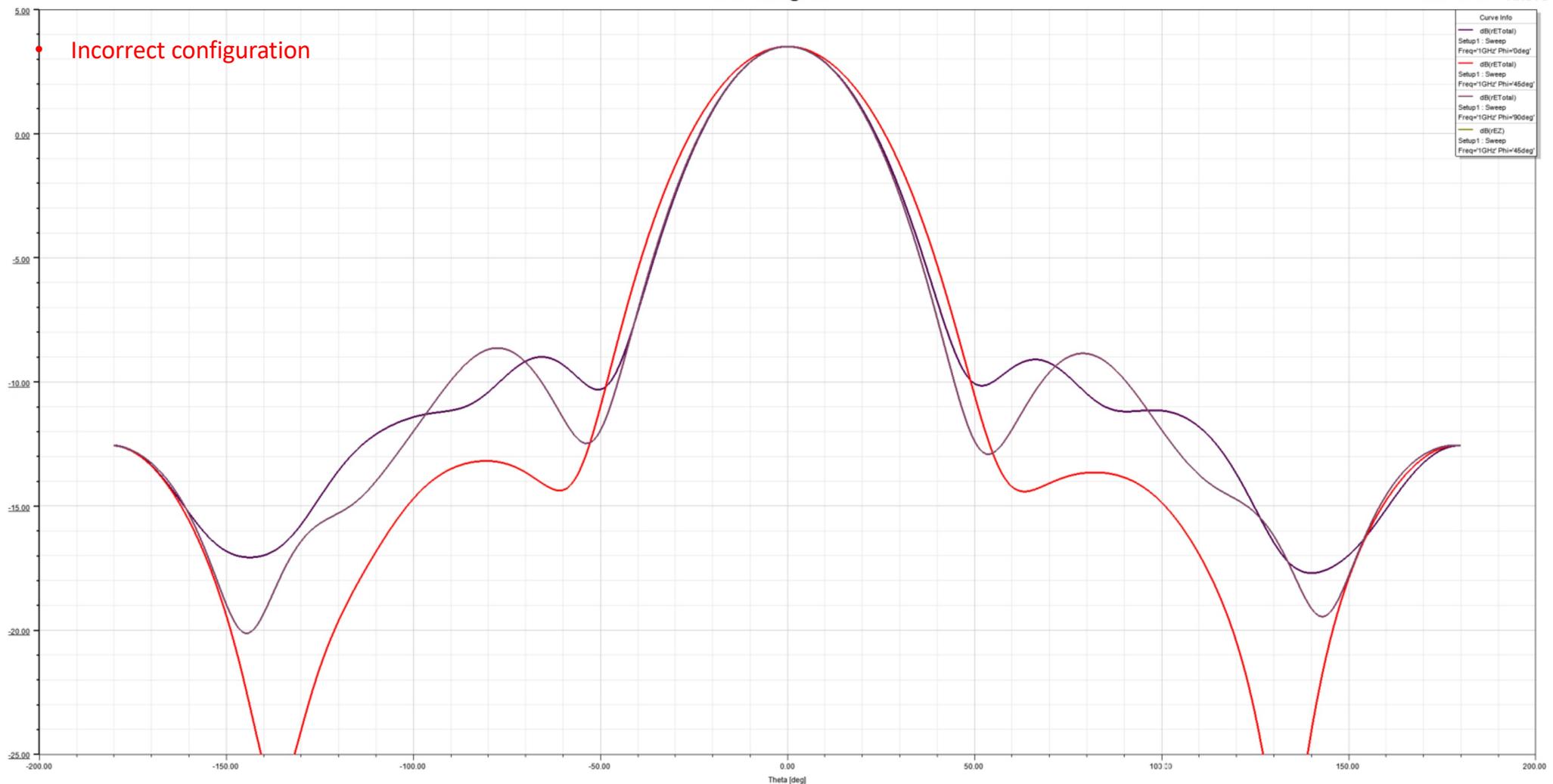
FEED_Tip_feed_V22_R09 ANSYS



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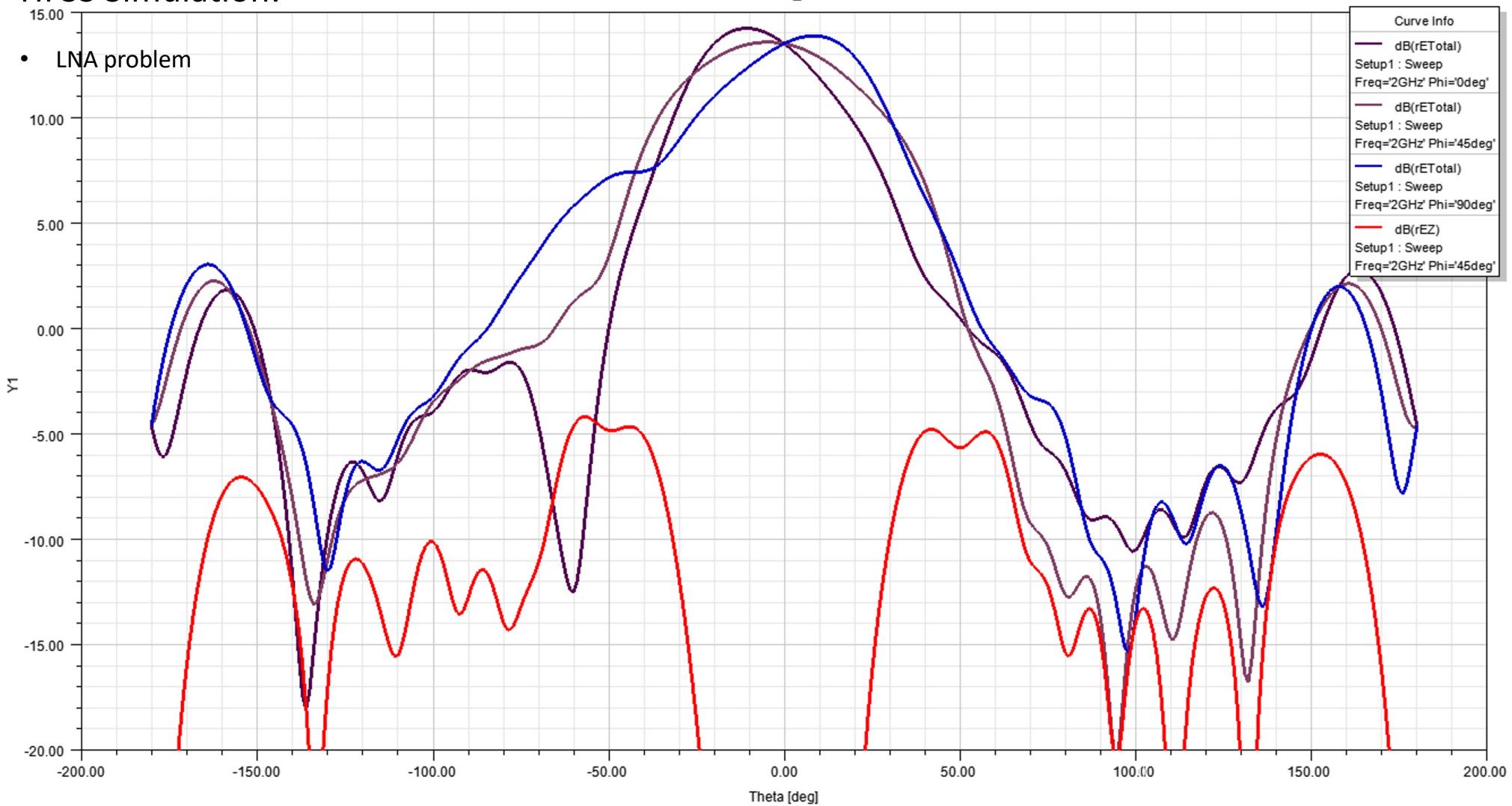
FEED_Tip_feed_V22_R09 ANSYS



HFSS Simulation:

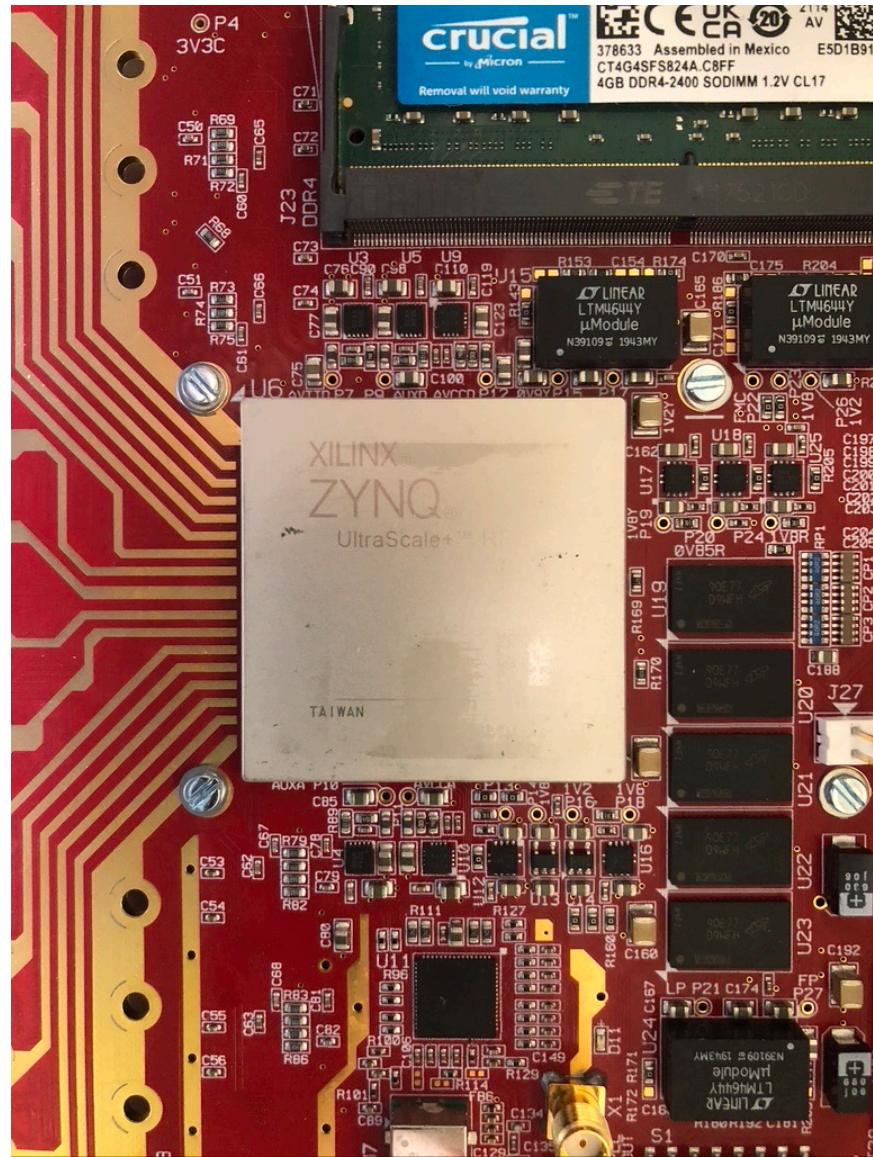
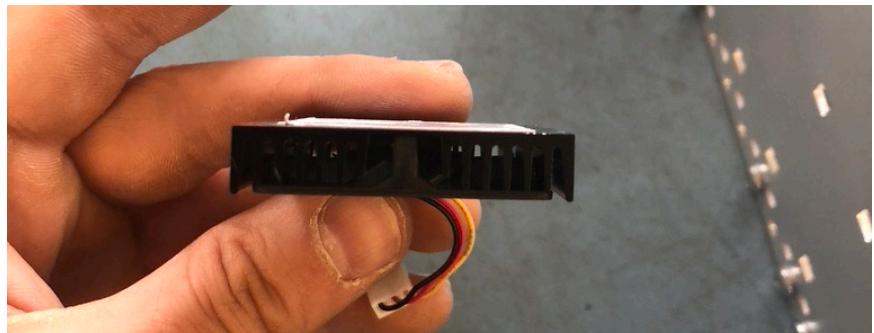
Beam Pattern @2GHz

FEED_Tip_feed_V22_R09 ANSYS



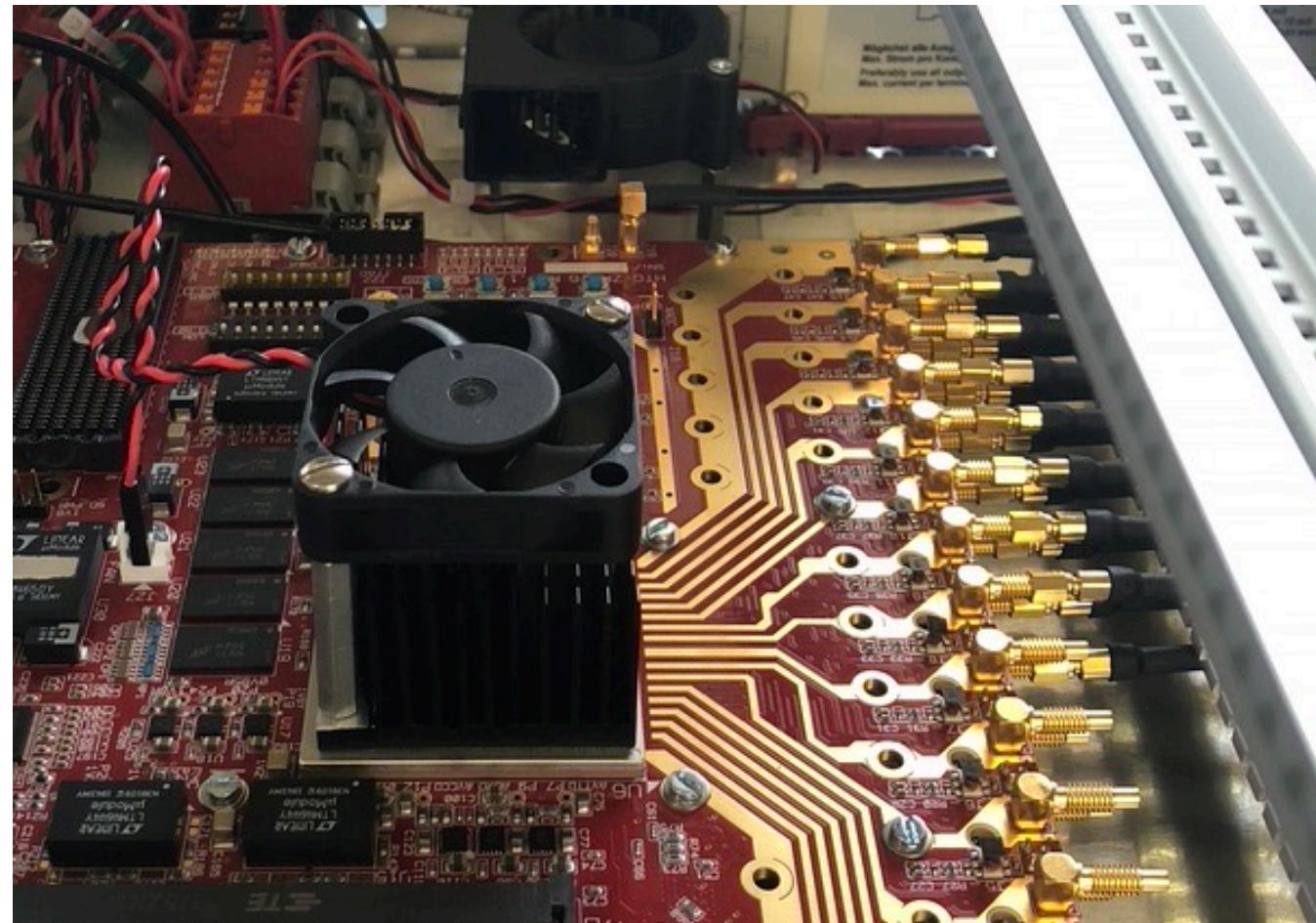
RFSoC heatsink:

- First generation about 5 deg improvement
 - Voltage firmware:
 - 81 degC new
 - 87 deg C original
 - 1st prototype 40x40 mm with 0.72W fan
 - 2nd prototype 45x45 mm with 2.00W fan



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GitHub:

<https://github.com/SETIatHCRO/Front-Page/tree/master/MEMOS>

master	Front-Page / MEMOS /	Go to file	Add file	...
AlexanderPollak	added attempter memo	0d4320d 26 seconds ago	History	
..				
2019-10 Antenna Tsys Measurement	added memos	4 months ago		
2020-01 Snap Board Enclosure	updated correct date of document	last month		
2020-02 PAX Power Level Control Software	added memos	4 months ago		
2020-09 ATA Dynamic Range Report	added memos	4 months ago		
2020-10 RFCB-Measurement Report	added memos	4 months ago		
2021-03 Interface & Rate Sheet	replaced old rate sheet	2 months ago		
2021-04 Pointing-Calibration	fix formatting	last month		
2021-07 Antonio Feed Buildout	added memos	4 months ago		
2021-08 Tsys-Calibration(RonMaddalena)	updated memo	2 months ago		
2021-09 ATA Beamformer	Add ATA GUPPI file format description	23 days ago		
2021-12 Attempter Module	added attempter memo	26 seconds ago		
.DS_Store	added attempter memo	26 seconds ago		
Readme.md	Update Readme.md	14 months ago		



OPEN TO VISITORS
THURSDAY & FRIDAY 9:00AM - 3:00PM

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DUE TO THE SENSITIVITY OF OUR
RADIO TELESCOPES, PLEASE PUT YOUR
CELL PHONE ON AIRPLANE MODE AND
TURN OFF WIFI AND BLUETOOTH CAR
CONNECTIONS DURING YOUR VISIT.





