

General Update

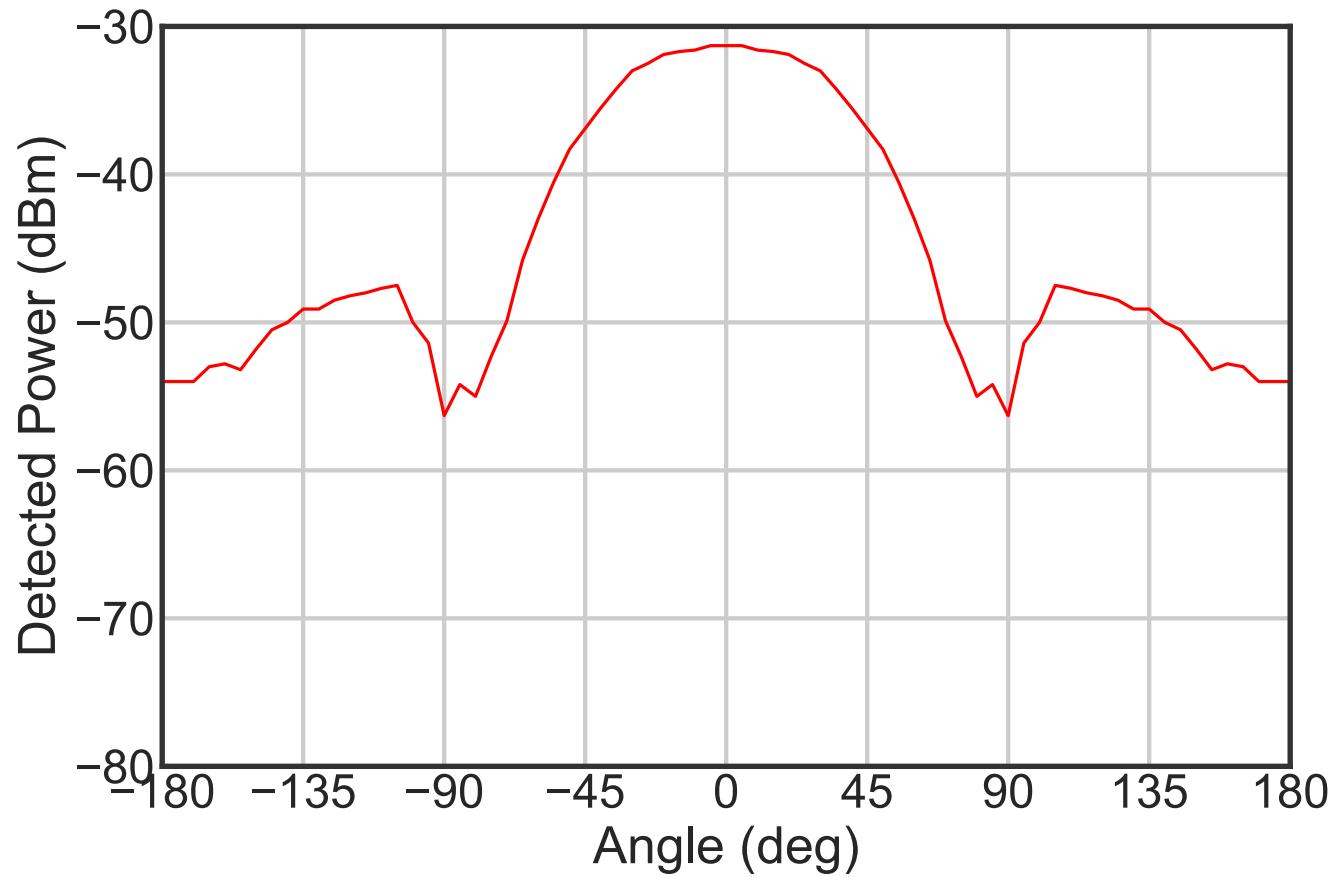
- SPR
 - Network changes
 - IPMI, domain setup
 - SNAPs
 - Verification and testing of gateware (together with hashpipe implementation)
- ATA signal chain verification
 - Investigating 60Hz in 2H
 - Open up 2H and inspect log-periodic part of feed.
 - Move 2H (018) log periodic feed to base of 3C.
 - Power drop investigation ISM 902-928MHz
- Feed Firmware
 - Finishing firmware tests in Lab (update from Janusz)
 - Testing firmware 5.4 on one feed in the field
- Observation
 - Developing capture code for voltage stream design (dada / hashpipe)

Antonio Feed update

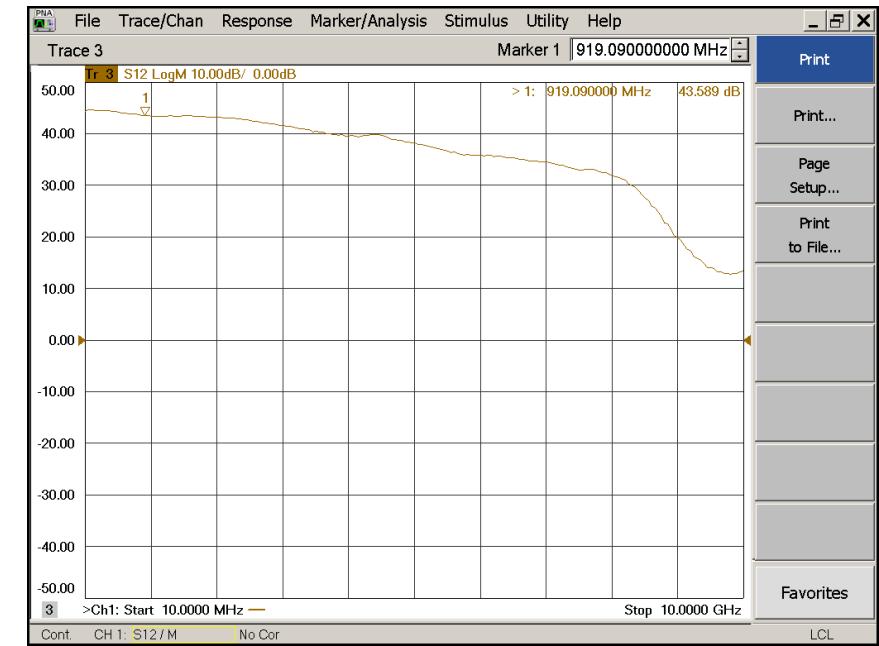
- Transport two log-periodic feeds (2H and 1H) to Minex for repair (next Thursday Friday).
- 3C – replacement of pyramid with new tip-link and modified, preconditioned coaxial wiring.
 - Gold plating
 - LNA to Tip coaxial assembly
 - Inner feed assembly
 - Tip-link assembly
 - Transport to HCRO
 - Installation into feed base, update of firmware
 - Initial testing / installation on antenna/ TSYS
- 4J – replacement of base plate and pyramid with new tip-link and modified, preconditioned coaxial wiring.
 - Replace base plate (HCRO)
 - Gold plating
 - LNA to Tip coaxial assembly
 - Inner feed assembly
 - Tip-link assembly
 - Transport to HCRO

- Beam pattern measurement with known transmitter.

- 150ft distance (45.72m)
- -10dBm transmitter, -5dBi TX, +5dBi RX, +43.5dB amp,
-64.9dB path loss: $\approx -31.4\text{dBm}$



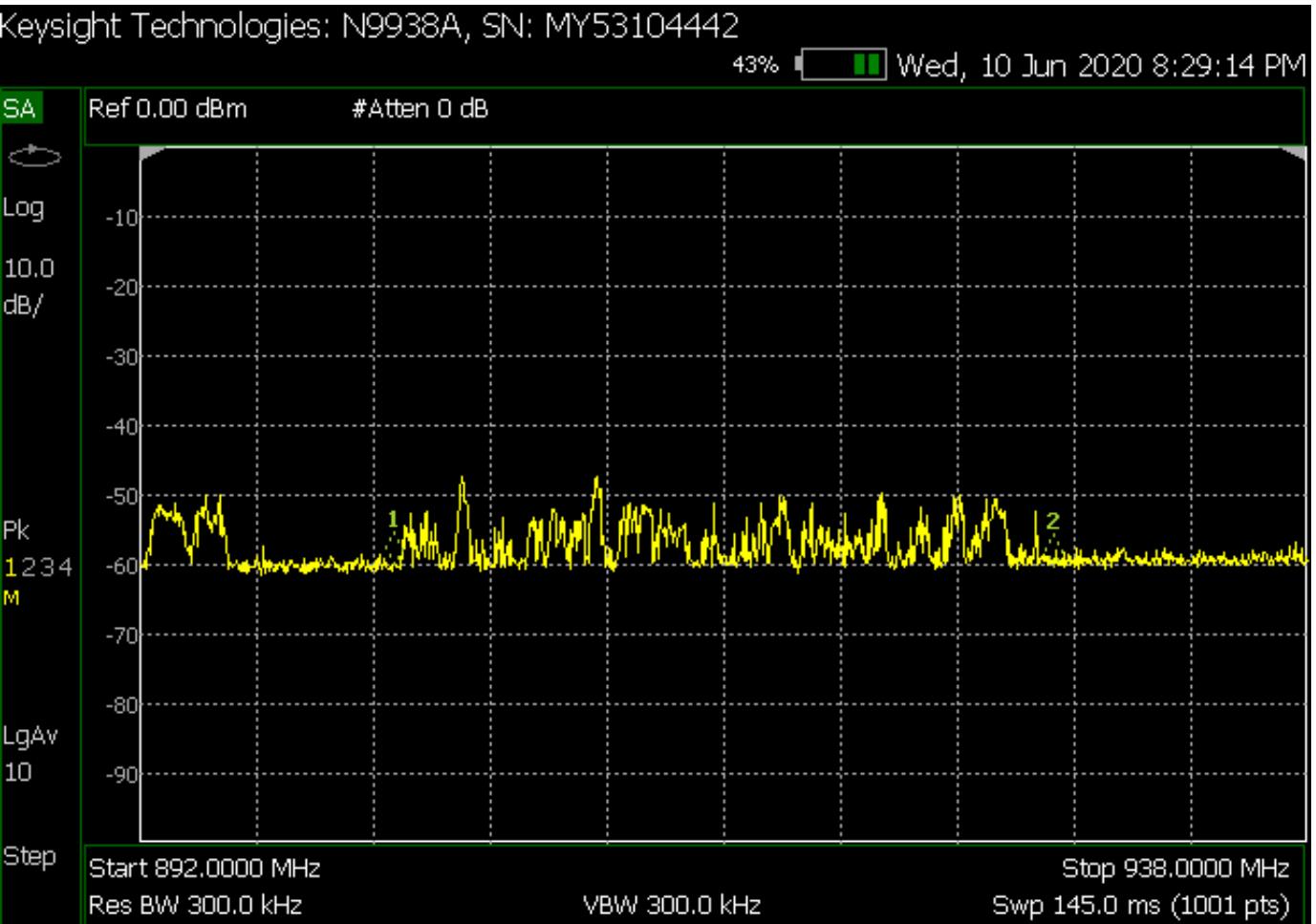
RX amplifier measurement



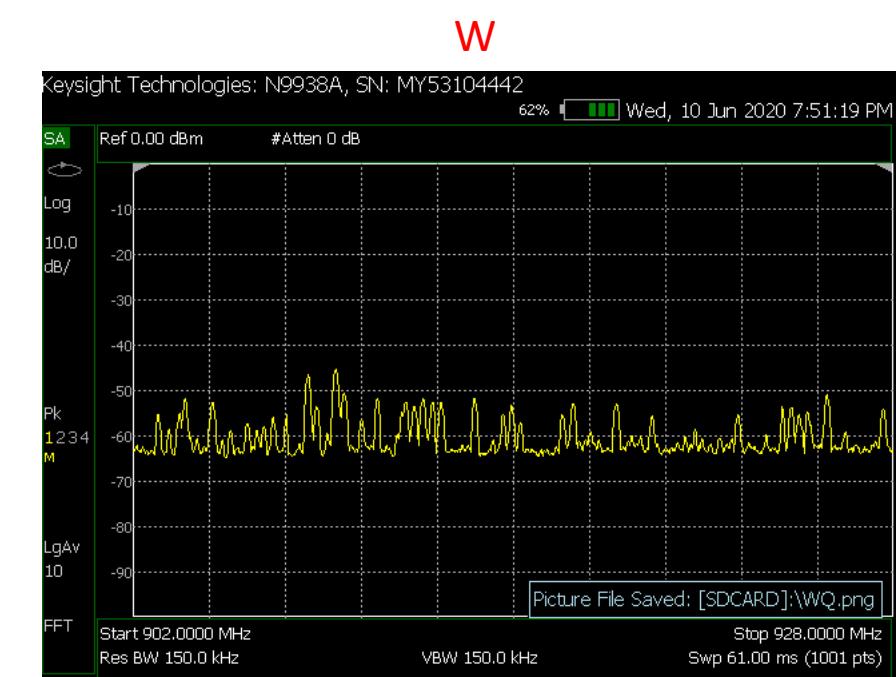
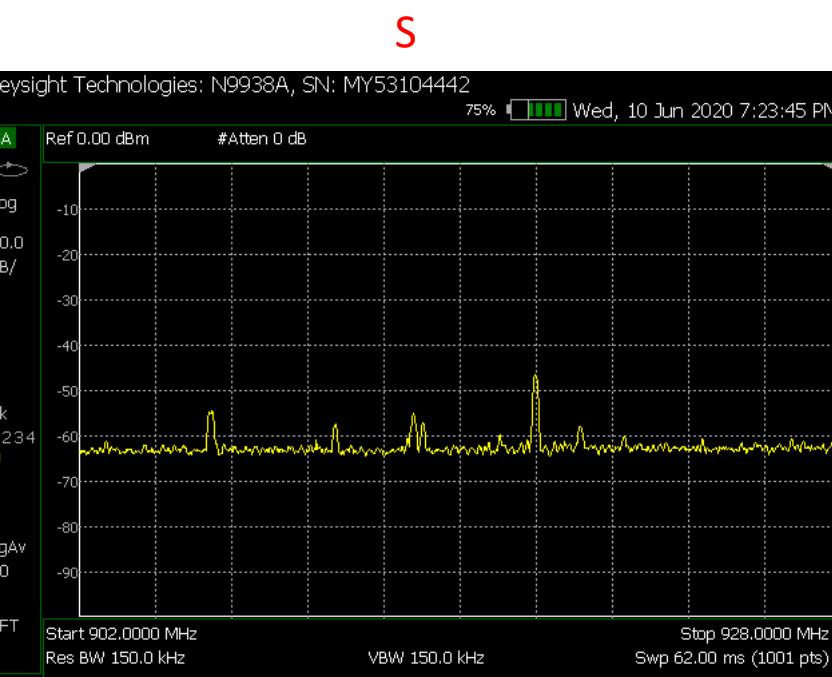
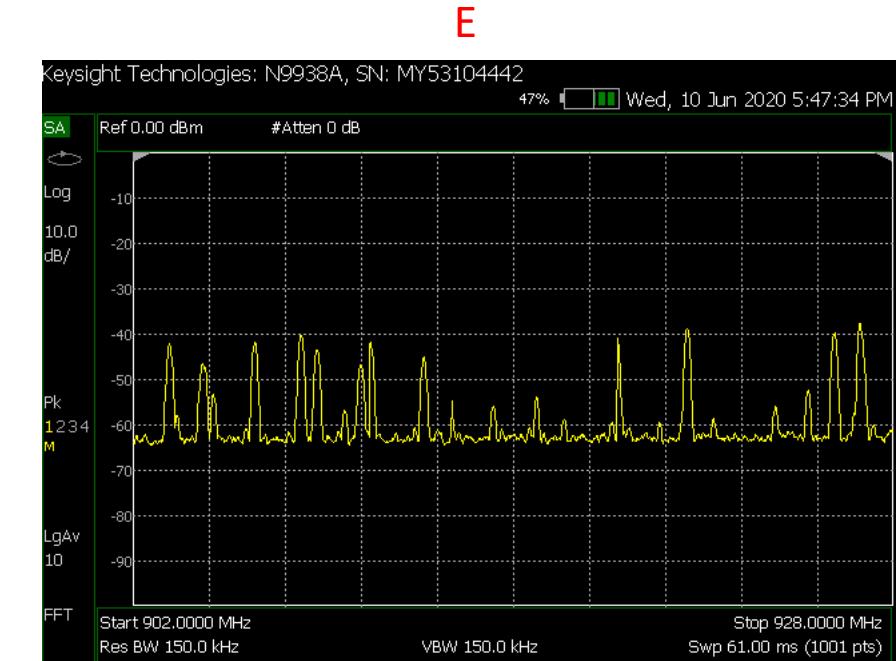
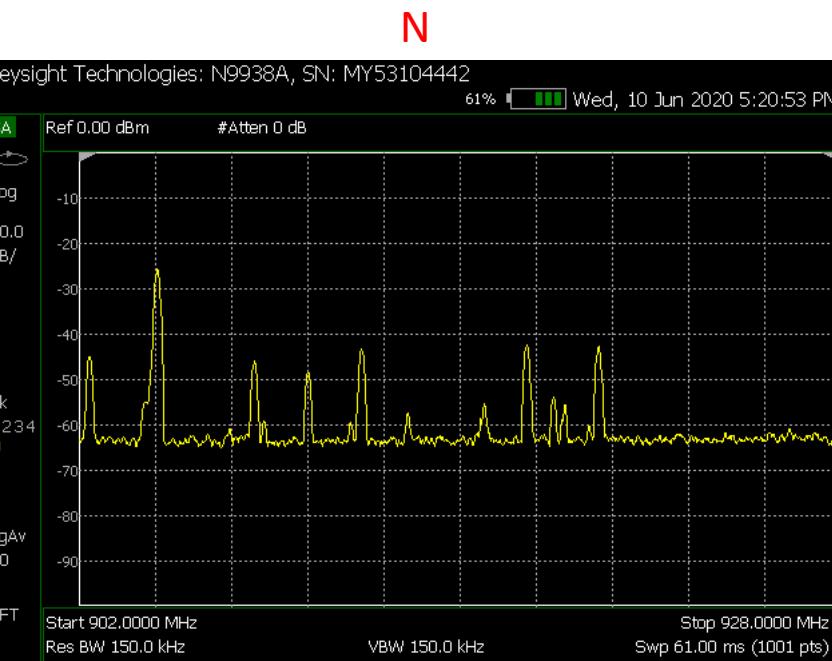
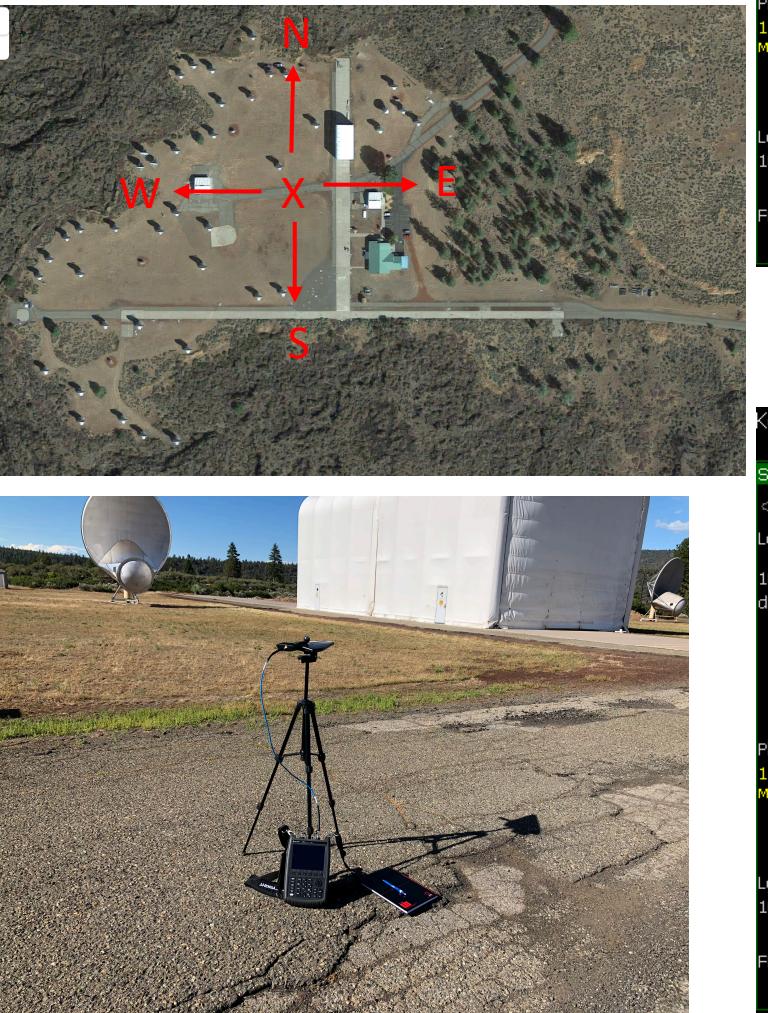
- Measurement with extended bandwidth:

- 892MHz to 938MHz
- RFI confined within ISM band

15min obs: pointing West

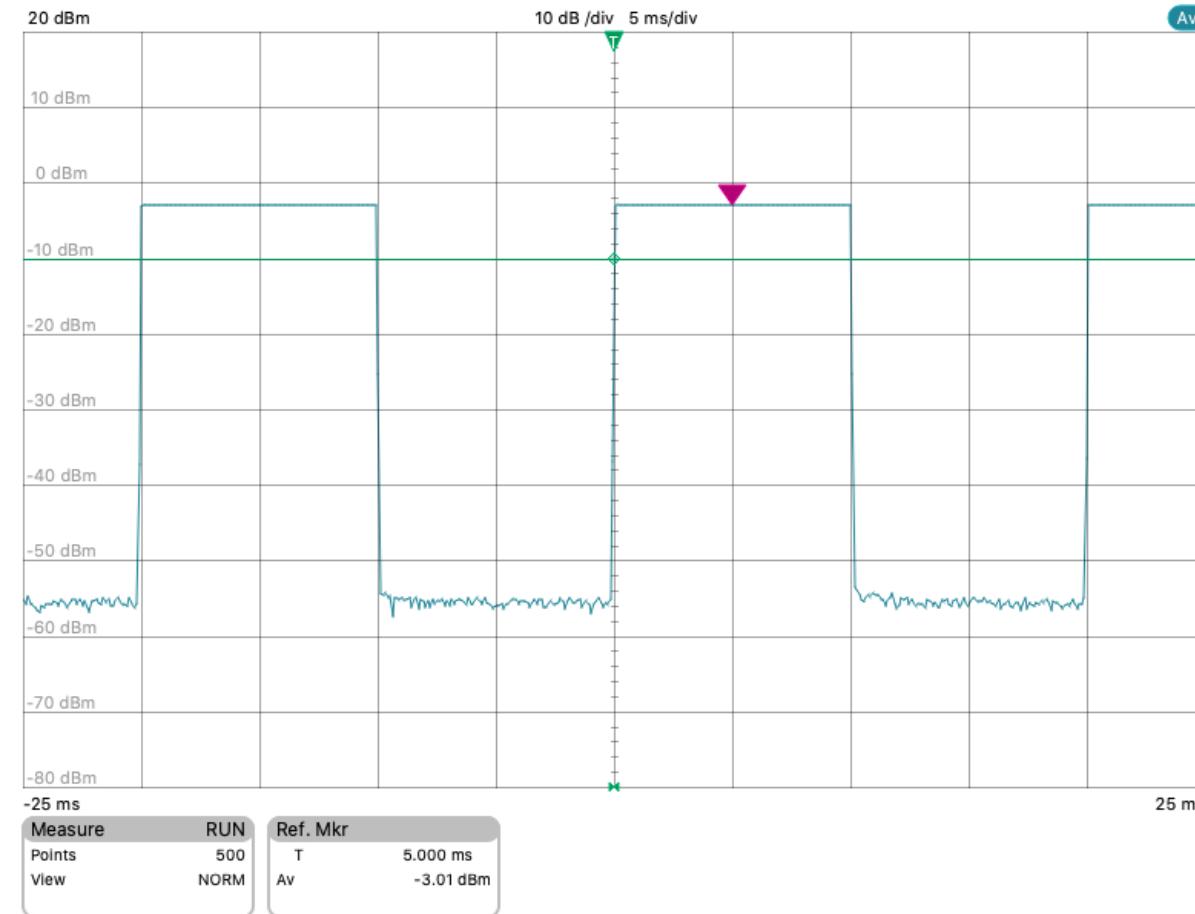


- Pointing with 45 deg steps
- Data not analyzed yet!



- Gain compression test:
 - Transmitted pulses at 920MHz with period 20ms, duty-cycle 50%
 - Power level tested were: -3dBm; 0dBm; 3dBm; 6dBm; 9dBm; 12dBm

measured signal with power meter



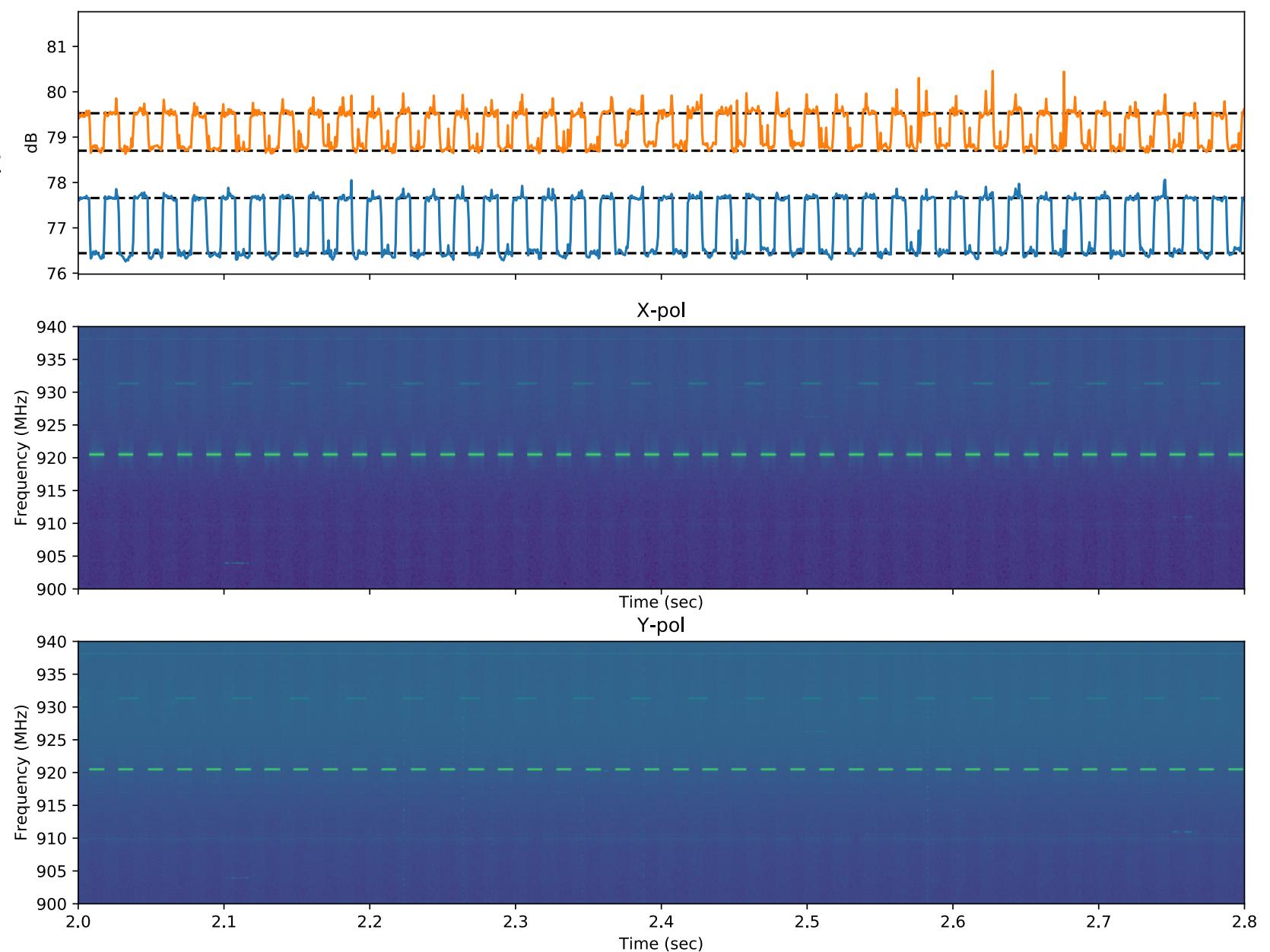
- Gain compression test:
 - Transmitted pulses at 920MHz with period 20ms, duty-cycle 50%
 - Top: Integrated power over the frequency band of 1GHz to 1.2GHz

1c_-3_dBm_pos_180

XX
YY

XX compression: 1.2 dB

YY compression: 0.8 dB



- Gain compression test:
 - Transmitted pulses at 920MHz with period 20ms, duty-cycle 50%
 - Power level tested were: -3dBm; 0dBm; 3dBm; 6dBm; 9dBm; 12dBm
 - LO center frequency 1.1GHz

measured compression for two pointing's

Ant	Pol	Power (dBm)	Azimut h (deg)	Compres sion (dB)	Positio n	Compress ion (dB)
2b	X	-3	180	0.2	270	0.4
2b	X	0	180	0.3	270	0.5
2b	X	3	180	0.4	270	0.8
2b	X	6	180	0.3	270	1.5
2b	X	9	180	0.5	270	3.8
2b	X	12	180	1.3	270	5.7
2b	Y	-3	180	0.4	270	0.3
2b	Y	0	180	0.9	270	0.6
2b	Y	3	180	1.8	270	1
2b	Y	6	180	3.5	270	2
2b	Y	9	180	6.3	270	4
2b	Y	12	180	8.6	270	6.1

AZ=180 EL=65



AZ=270 EL=65



- Gain compression test:

- Transmitted pulses at 920MHz with period 20ms, duty-cycle 50%
- Power level tested were: -3dBm; 0dBm; 3dBm; 6dBm; 9dBm; 12dBm
- LO center frequency 1.1GHz

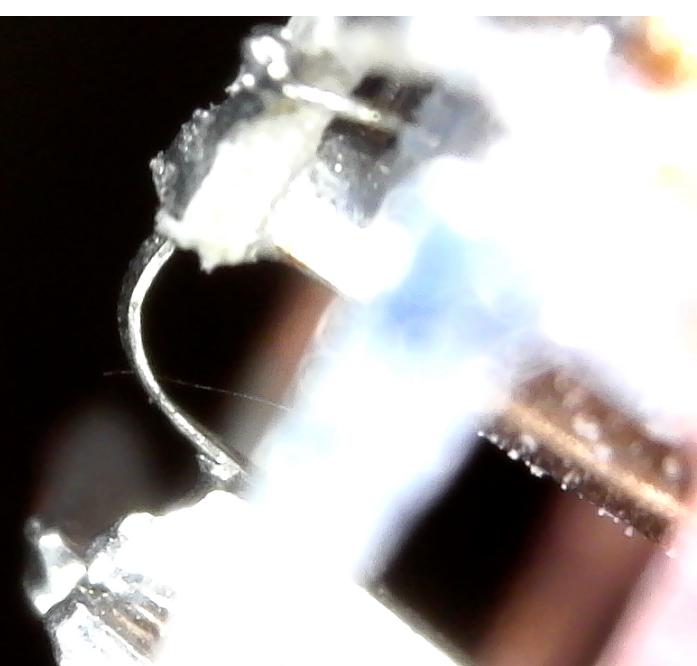
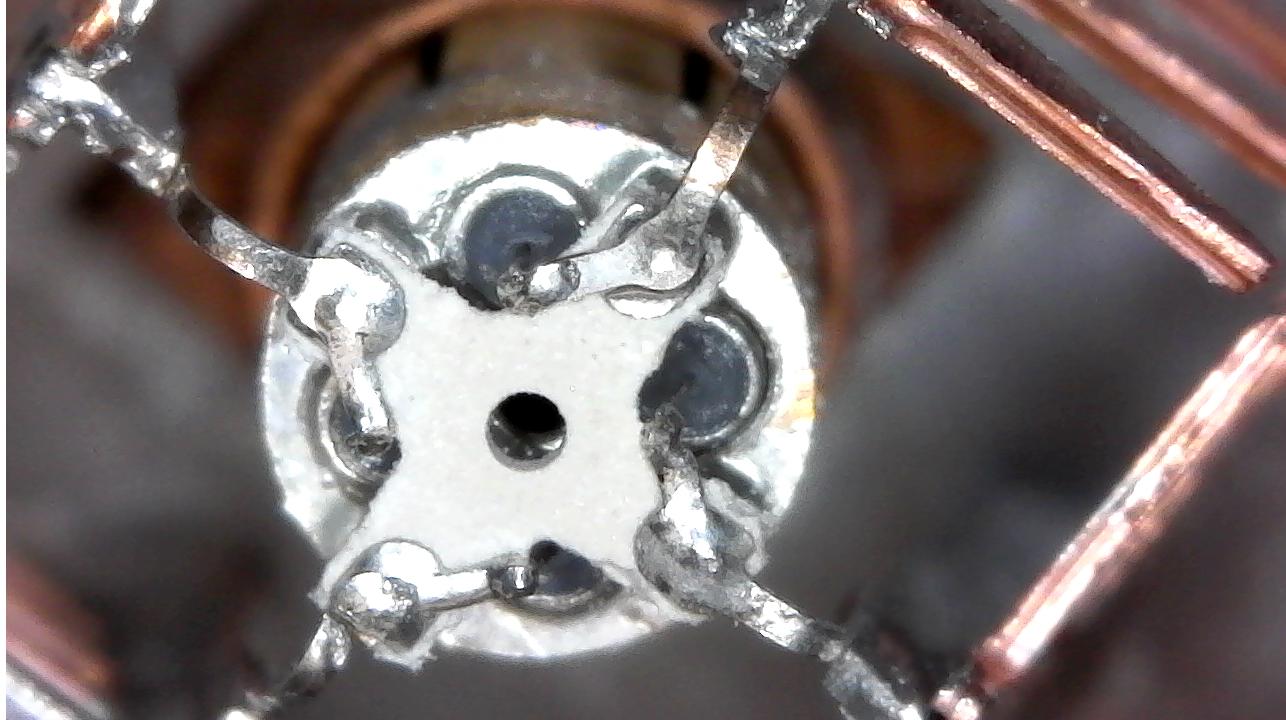
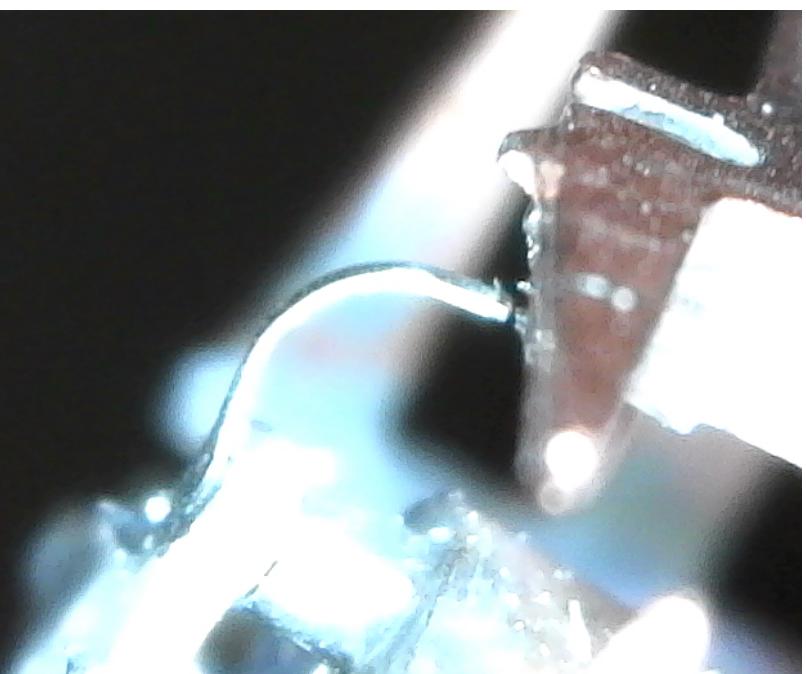
measured compression for two pointing's

Ant	Pol	Power (dBm)	Azimut h (deg)	Compres sion (dB)	Positio n	Compress ion (dB)
2a	X	-3	180	0	270	0.1
2a	X	0	180	0.1	270	0.1
2a	X	3	180	0.1	270	0.1
2a	X	6	180	0.1	270	0.2
2a	X	9	180	0.3	270	0.4
2a	X	12	180	0.6	270	0.6
2a	Y	-3	180	0.2	270	0.2
2a	Y	0	180	0.5	270	0.2
2a	Y	3	180	1	270	0.2
2a	Y	6	180	2.2	270	0.4
2a	Y	9	180	3.9	270	0.8
2a	Y	12	180	6.5	270	1.4

Ant	Pol	Power (dBm)	Azimut h (deg)	Compres sion (dB)	Positio n	Compress ion (dB)
1c	X	-3	180	1.2	270	0.4
1c	X	0	180	2.3	270	0.7
1c	X	3	180	4.3	270	1.3
1c	X	6	180	7.2	270	2.6
1c	X	9	180	9.6	270	4.6
1c	X	12	180	11.3	270	7.2
1c	Y	-3	180	0.8	270	0.4
1c	Y	0	180	1.4	270	0.7
1c	Y	3	180	3.1	270	1.4
1c	Y	6	180	5.2	270	2.6
1c	Y	9	180	7.7	270	4.7
1c	Y	12	180	9.8	270	7

60Hz investigation 2H

- Investigated log-periodic feed!
- Looked at solder connection of coaxial cable.
- Broken tip-link found!



Feed Lab Progress

- Cleanroom ready
- Took out log-periodic feed for transport to Minex
- Looked at 2H



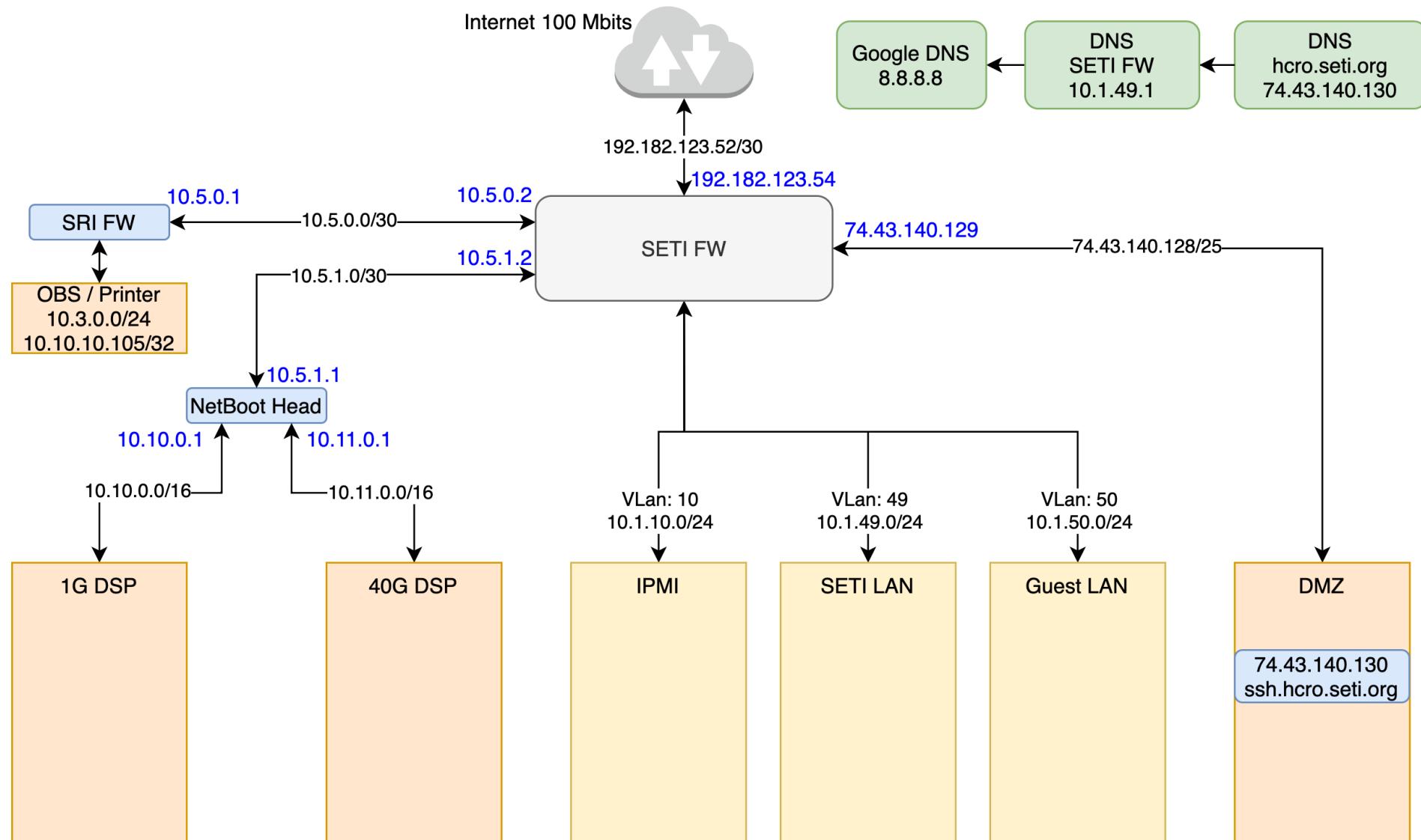
Update

Network changes:

- DNS implemented
- Network range changed
- Integrated 40G NIC into 100 TB storage

ToDo:

- Setup compute node to analyze data
- Implementing of VLans and updating of switch configuration



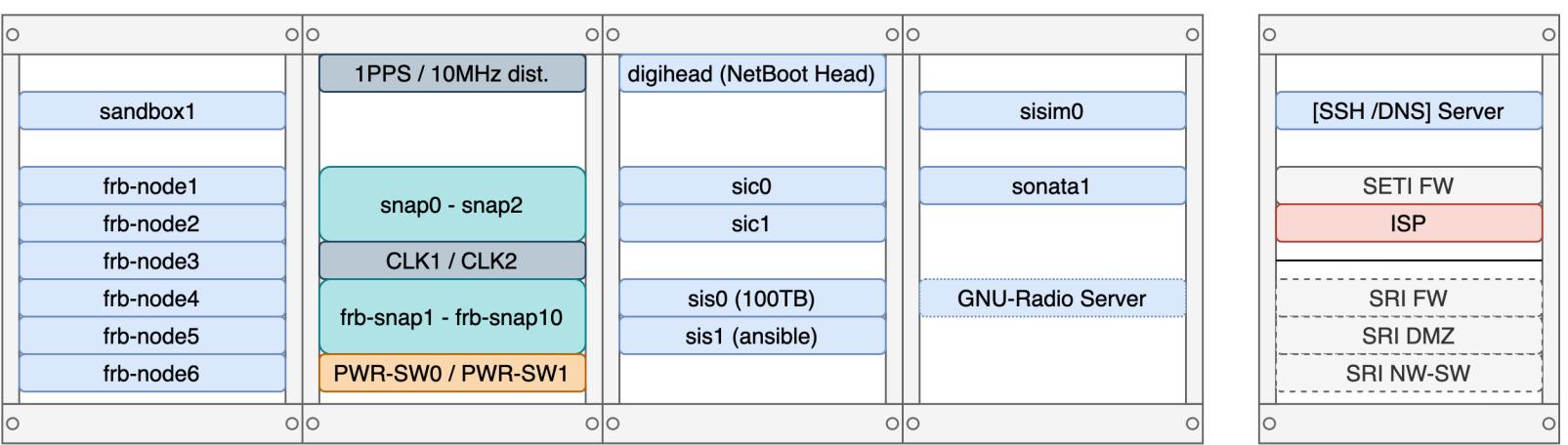
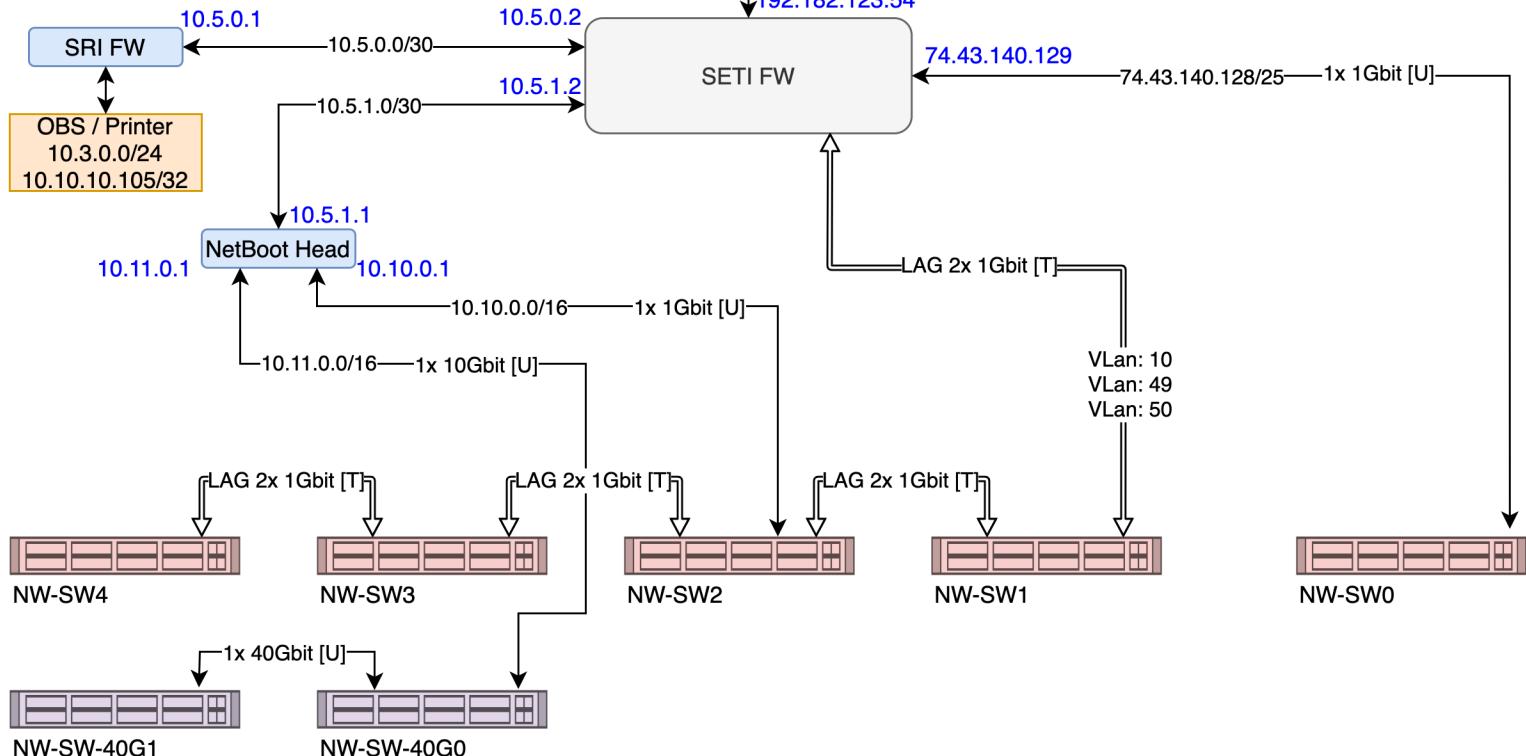
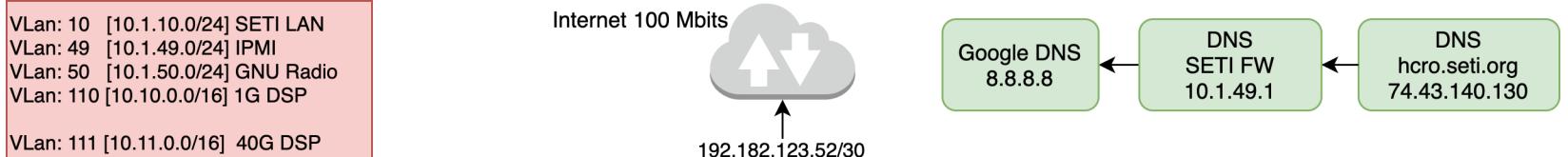
Update

Network changes:

- DNS implemented
- Network range changed
- **LAG 2x 1Gbit implemented**
- **VLANs implemented**
- **Setup SIC1 to analyze data**

To Do:

- Setup IPMI
- Setup DNS domain
(`hcro.seti.org`)



Student Projects and Internships:

Name	Type	Duration (dd/mm/yyyy)	Description	Status
Olivia Durrett	Internship	15/06/2020 to TBC	Astronomical observations and data analysis of pulsars and FRBs	
Sarah Schoultz	Internship	01/07/2020 to 15/10/2020	Outreach, update of posters at ATA, local RFI monitoring	
Daniel Allspach	REU SETI	07/06/2020 to 15/08/2020	Astronomical observations and data analysis of pulsars and FRBs	
Ellie White	REU Berkeley	08/06/2020 to 14/08/2020	GNU Radio Enabled Capabilities for RFI Monitoring and Beamforming	
Hellen Peng	URAP Berkeley	24/02/2020 to 01/05/2020	Software development to control digital step attenuator for IF power leveling	Finished