# Initial measurements of UHSDR DDC board v1.0.

SP9BSL, October 2019.
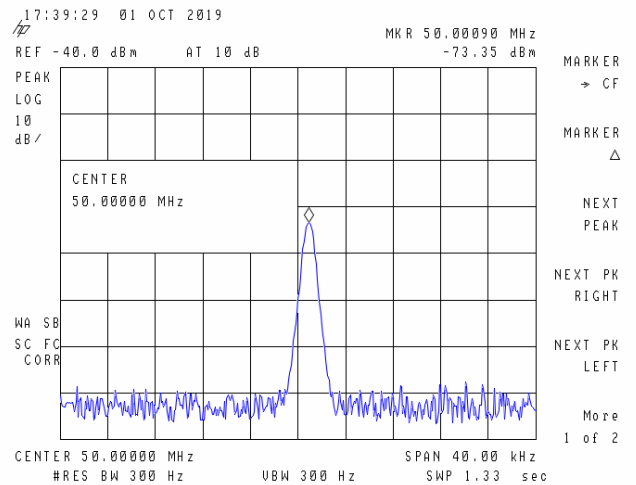
1. Comparision the level meter readings in different places of 1st Nyquist zone, 2nd and 3rd. ADC fsampling=122.88MHz.

Methodology of measurements: dBm set to -73dB at 3.72MHz and not changed for other frequencies. ADC driver aplification: 23dB, attenuator: 0dB, LNA: off, signal source: N2PK with 50dB attenuator.
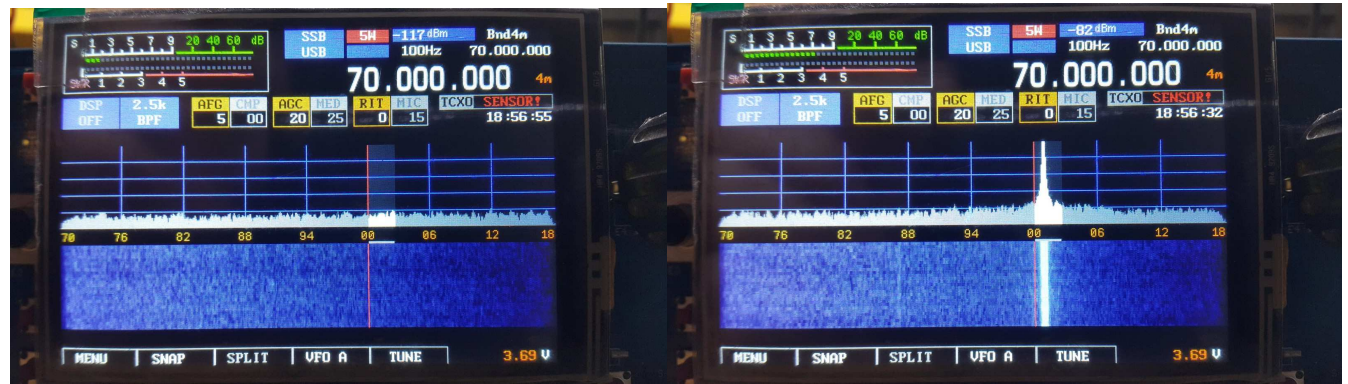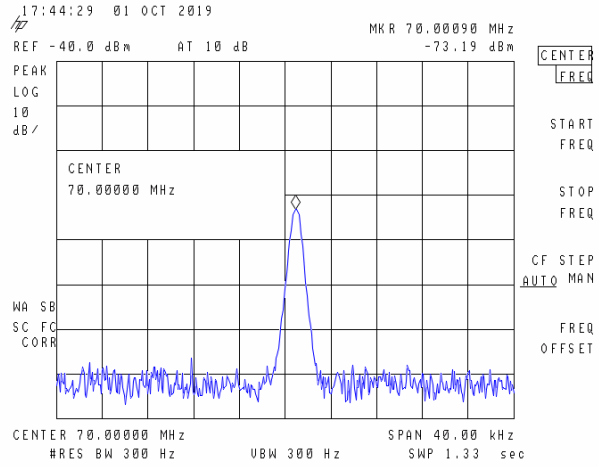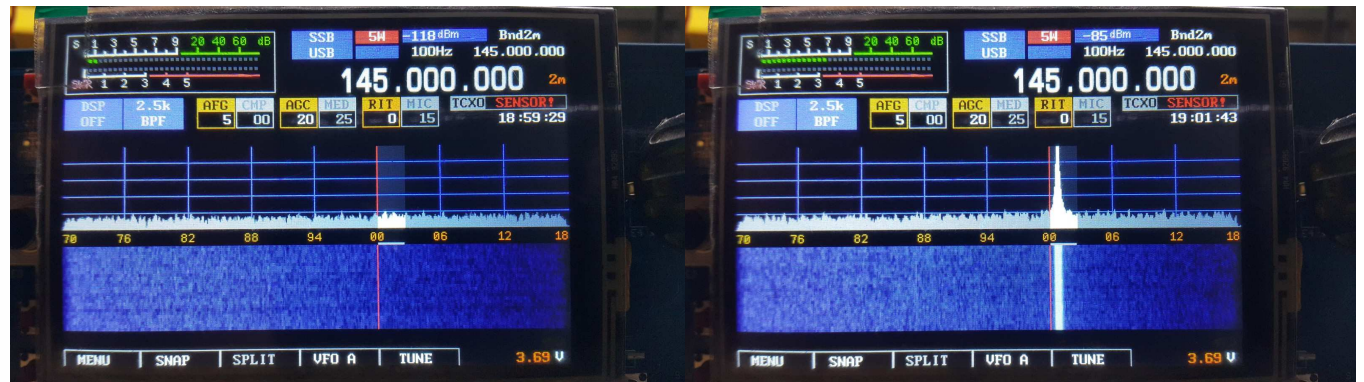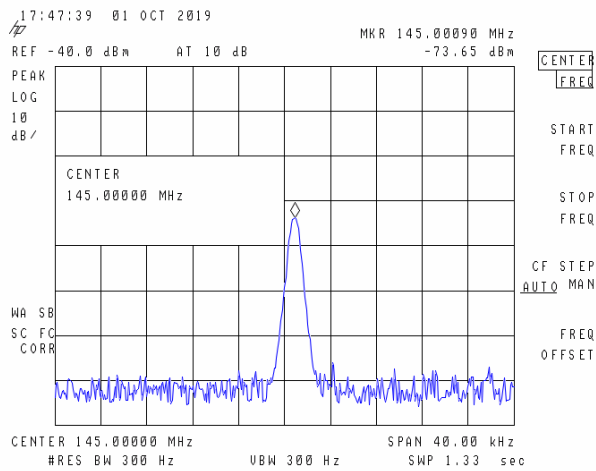
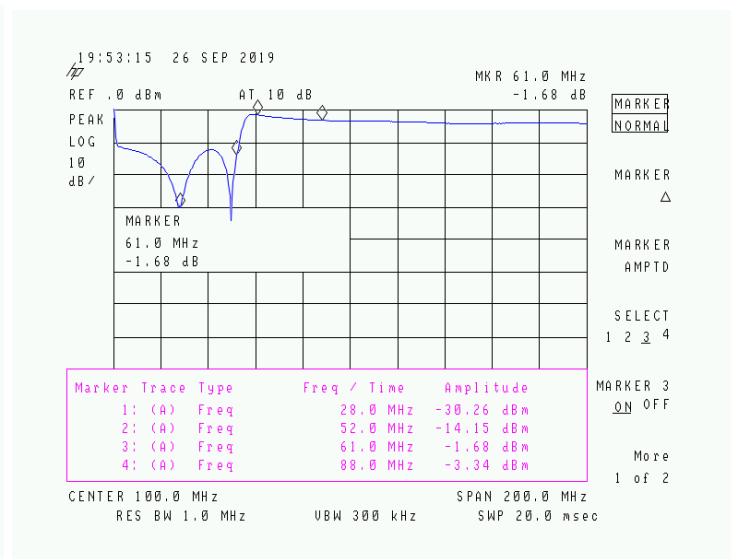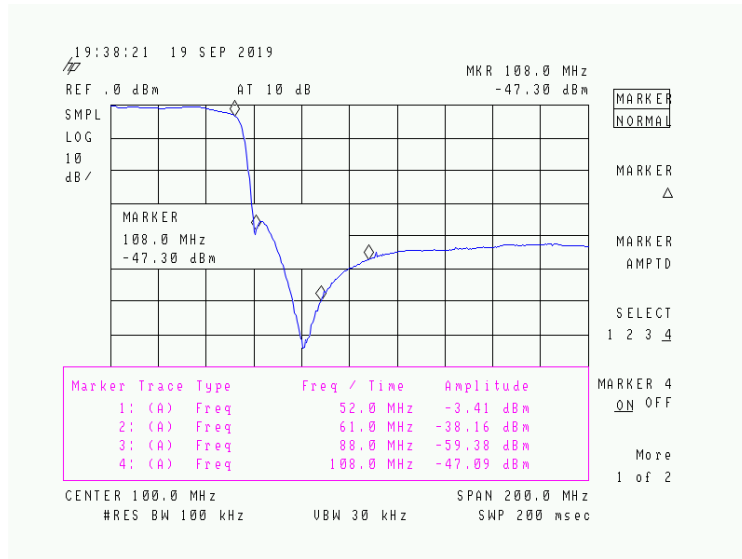### a. 3.719MHz (1st Nyquist zone)
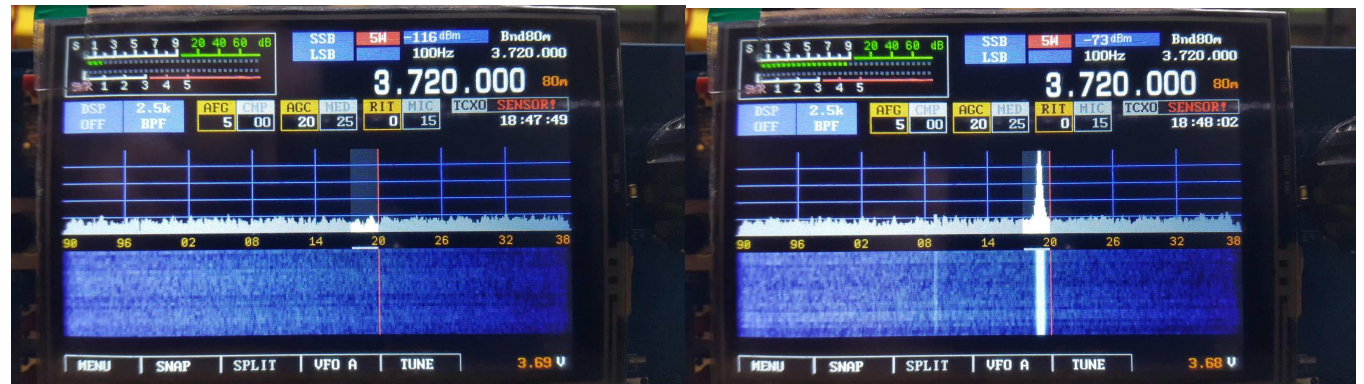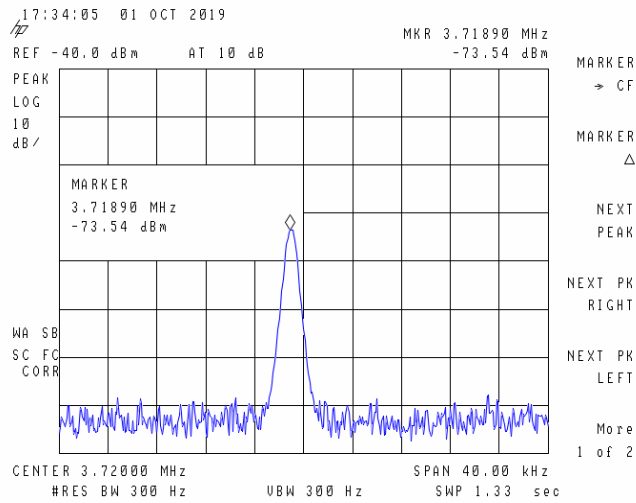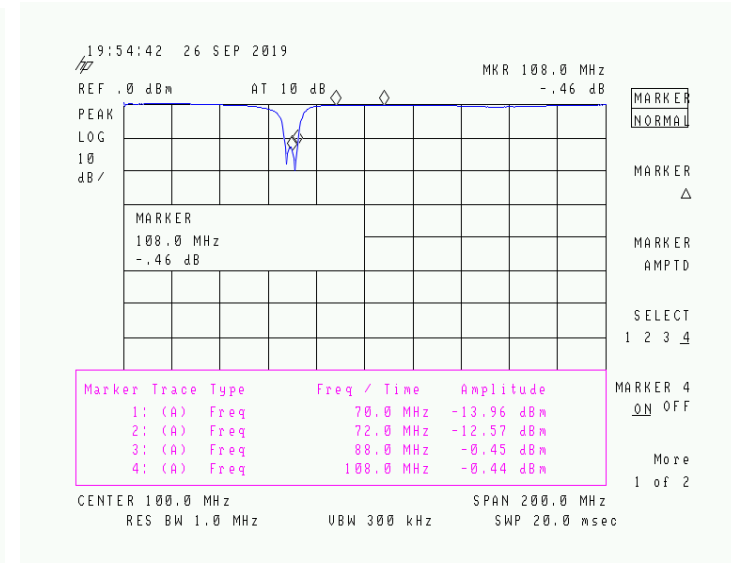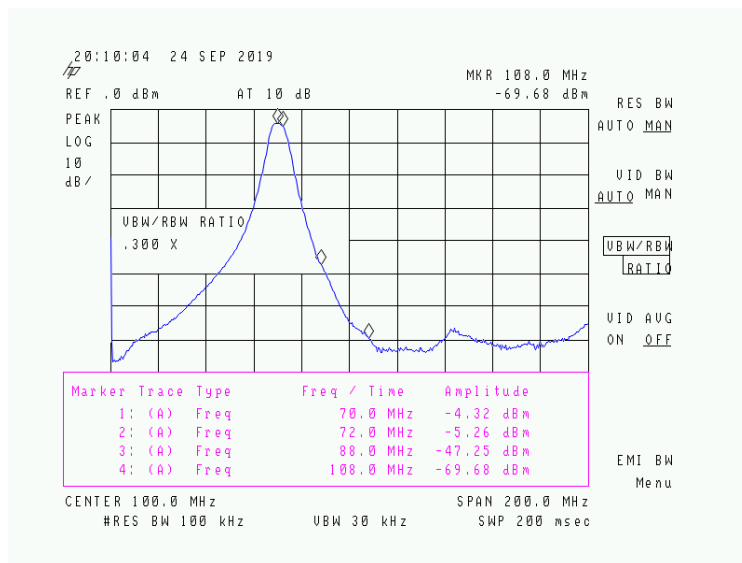

b. 50.001MHz

c. 70.001MHz

d. 145.001MHz

2. Antialias filter responses and return loss (S21, S11).
a. LPF 52MHz
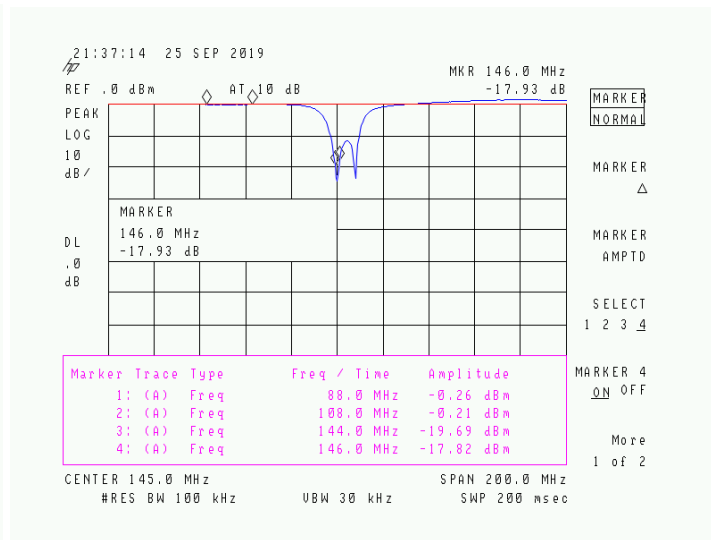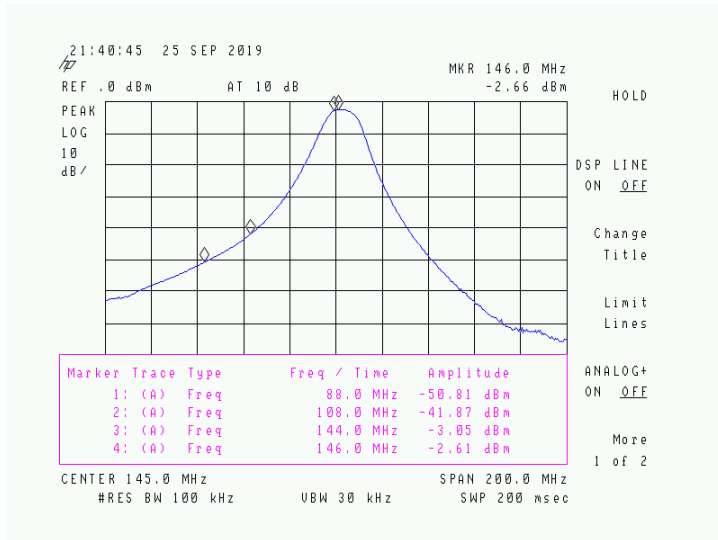

19:38:21 19 SEP 2019		MKR 108.0 MHz	
REF .0 dBm	AT 10 dB	-47.30 dBm	MARKER NORMAL
SMPL LOG 10 dB/			MARKER △
MARKER 108.0 MHz -47.30 dBm			MARKER AMPTD
			SELECT 1 2 3 4
Marker Trace Type	Freq / Time	Amplitude	MARKER 4 ON OFF
1: (A) Freq	52.0 MHz	-3.41 dBm	
2: (A) Freq	61.0 MHz	-38.16 dBm	
3: (A) Freq	88.0 MHz	-59.38 dBm	More
4: (A) Freq	108.0 MHz	-47.09 dBm	1 of 2
CENTER 100.0 MHz		SPAN 200.0 MHz	
#RES BW 100 kHz	VBW 30 kHz	SWP 200 msec	

19:53:15 26 SEP 2019		MKR 61.0 MHz	
REF .0 dBm	AT 10 dB	-1.68 dB	MARKER NORMAL
PEAK LOG 10 dB/			MARKER △
MARKER 61.0 MHz -1.68 dB			MARKER AMPTD
			SELECT 1 2 3 4
Marker Trace Type	Freq / Time	Amplitude	MARKER 3 ON OFF
1: (A) Freq	28.0 MHz	-30.26 dBm	
2: (A) Freq	52.0 MHz	-14.15 dBm	
3: (A) Freq	61.0 MHz	-1.68 dBm	More
4: (A) Freq	88.0 MHz	-3.34 dBm	1 of 2
CENTER 100.0 MHz		SPAN 200.0 MHz	
RES BW 1.0 MHz	VBW 300 kHz	SWP 20.0 msec	

b. BPF 4m

20:10:04 24 SEP 2019		MKR 108.0 MHz	
REF .0 dBm	AT 10 dB	-69.68 dBm	RES BW AUTO MAN
PEAK LOG 10 dB/			VID BW AUTO MAN
VBW/RBW RATIO .300 X			VBW/RBW RATIO
			VID AVG ON OFF
Marker Trace Type	Freq / Time	Amplitude	
1: (A) Freq	70.0 MHz	-4.32 dBm	
2: (A) Freq	72.0 MHz	-5.26 dBm	
3: (A) Freq	88.0 MHz	-47.25 dBm	EMI BW
4: (A) Freq	108.0 MHz	-69.68 dBm	Menu
CENTER 100.0 MHz		SPAN 200.0 MHz	
#RES BW 100 kHz	VBW 30 kHz	SWP 200 msec	

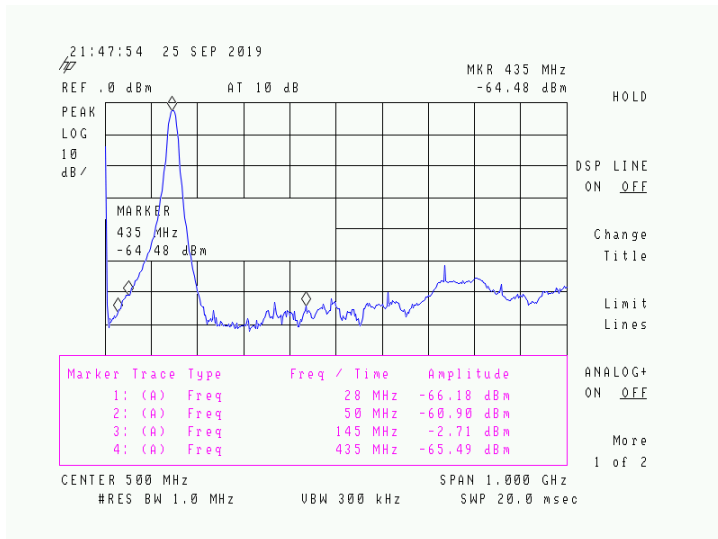|			
19:54:42 26 SEP 2019		MKR 108.0 MHz	
REF .0 dBm	AT 10 dB	-.46 dB	MARKER NORMAL
PEAK LOG 10 dB/			MARKER △
MARKER 108.0 MHz -.46 dB			MARKER AMPTD
			SELECT 1 2 3 4
Marker Trace Type	Freq / Time	Amplitude	MARKER 4 ON OFF
1: (A) Freq	70.0 MHz	-13.96 dBm	
2: (A) Freq	72.0 MHz	-12.57 dBm	
3: (A) Freq	88.0 MHz	-0.45 dBm	More
4: (A) Freq	108.0 MHz	-0.44 dBm	1 of 2
CENTER 100.0 MHz		SPAN 200.0 MHz	
RES BW 1.0 MHz	VBW 300 kHz	SWP 20.0 msec	

c. BPF 2m

and wideband view S21 of 2m BPF:

Conclusions:
1. Need separate dBm adjustment for different Nyquist zones and 6m band (caused by sinx/x phenomenon).
2. For VHF S-meter has different dBm levels - need to implement this in firmware (S9 for HF: -73dBm, S9 for VHF: -93dBm).