Summary of Verification

FCC ID : Q54URS0030X

FCC the Reference Number : 44625

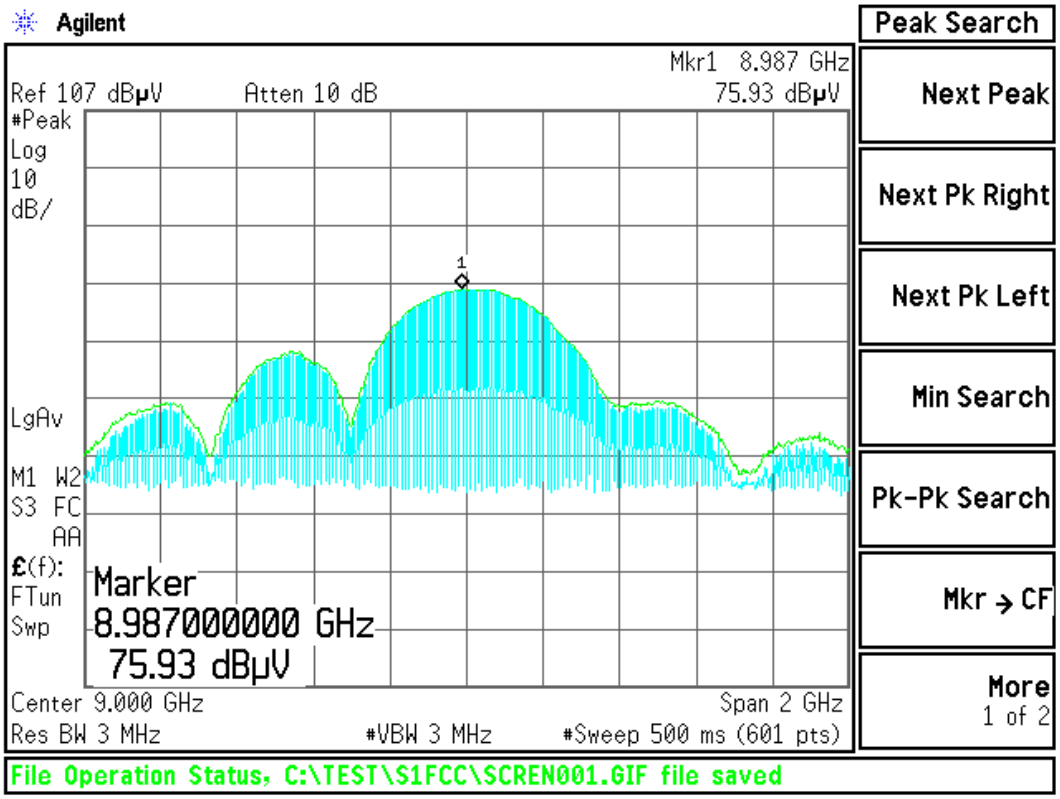
1. Submitted sample was tested by FCC Lab and failed as below.
   - The maximum level was 80.6 dBuV/m at Peak Emissions within a 50 MHz Bandwidth.
   - FCC limit : 70.8 dBuV/m.
   - Result : +9.8dB over.
2. Retested another sample by JNDL and also failed as below.

2.1 Antenna polarity "V" (measured distance : 1 meter)

Emission Frequency [MHz]	Measure Value [dBµV]	Plot #	Cable Loss [dB]	Antenna Factor [dB/m]	Amp Gain [dB]	Dist. Correct [dB]	F/S dBµV/m @ 3m	Limit dBµV/m @ 3m	Margin [dB]
8987.00	75.93	1	5.84	36.72	29.67	-9.54	79.27	70.80	**-8.47**

* F/S(Field Strength) = Measuring Value + CL + AF -G amp + Dcf

Plot #1

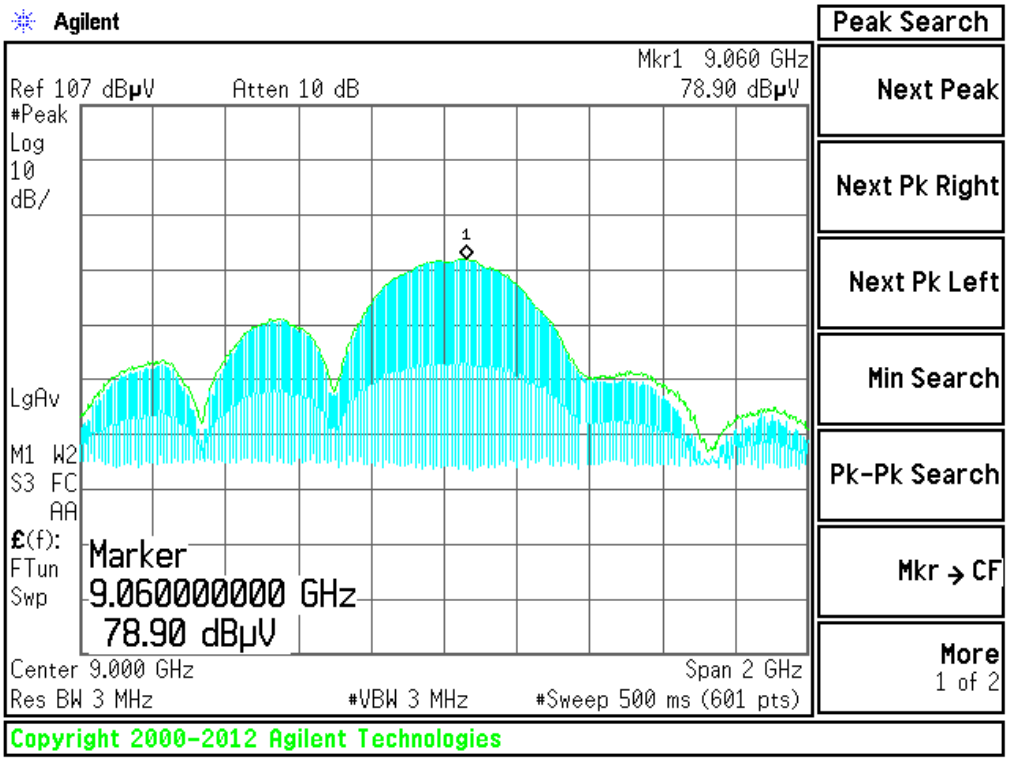


2.2 Antenna polarity "H" (measured distance : 1 meter)

Emission Frequency [MHz]	Measure Value [dBµV]	Plot #	Cable Loss [dB]	Antenna Factor [dB/m]	Amp Gain [dB]	Dist. Correct [dB]	F/S dBµV/m @ 3m	Limit dBµV/m @ 3m	Margin [dB]
9060.00	78.90	2	5.86	36.83	29.66	-9.54	**82.40**	70.80	**-11.60**

* F/S(Field Strength) = Measuring Value + CL + AF -G amp + Dcf

Plot #2



2.3 The maximum level was **82.4 dBuV/m** at **Peak Emissions within a 50 MHz Bandwidth.**

3. The reason of deviation of test results between submitted one and retested one.

3.1 Applied the wrong Antenna Factor.(used 30.2, corrected 36.7) : 6.5 dB diff.

3.2 Didn't add the cable loss of Short Cable (50cm length) : 2 dB diff.

3.3 The used microwave amplifier(AGILENT 83006A) gain level was unstable during the testing. So, new amplifier was used for retest.(MITEQ NSPS2650-NVG)

4. EUT Modification

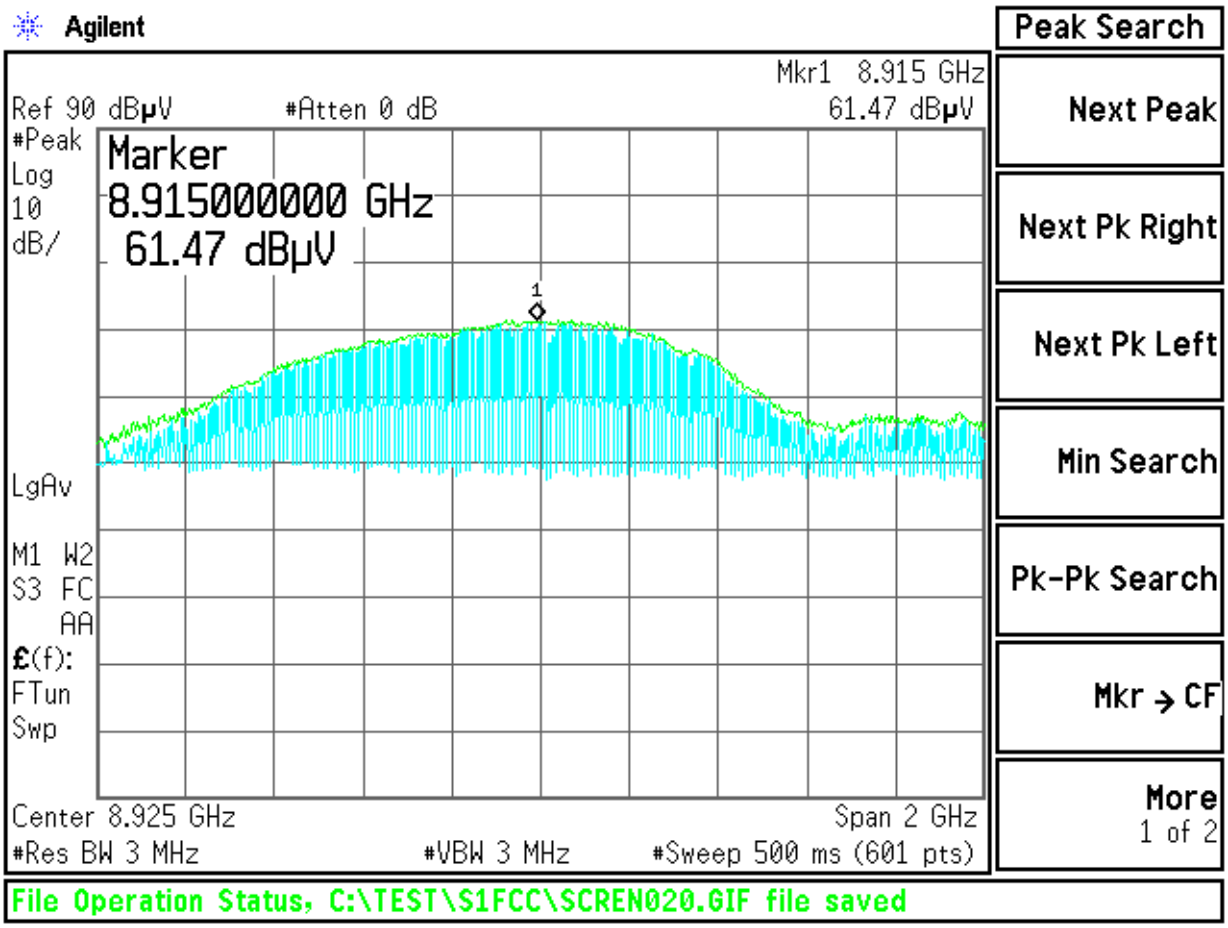
- MCU & FPGA Version Upgrade.(V1.0 →V1.1)
- Changed UWB Pulse width (-20% decrees) and pulse Level (-15% decrees) at MCU & FPGA
- No modification hardware changed.

5. The result of Retest after modification.

5.1 Antenna polarity "V" (measured distance : 1 meter)

Emission Frequency [MHz]	Measure Value [dBμV]	Plot #	Cable Loss [dB]	Antenna Factor [dB/m]	Amp Gain [dB]	Dist. Correct [dB]	F/S dBμV/m @ 3m	Limit dBμV/m @ 3m	Margin [dB]
8915.00	61.47	3	5.81	36.70	29.68	-9.54	64.76	70.80	6.04

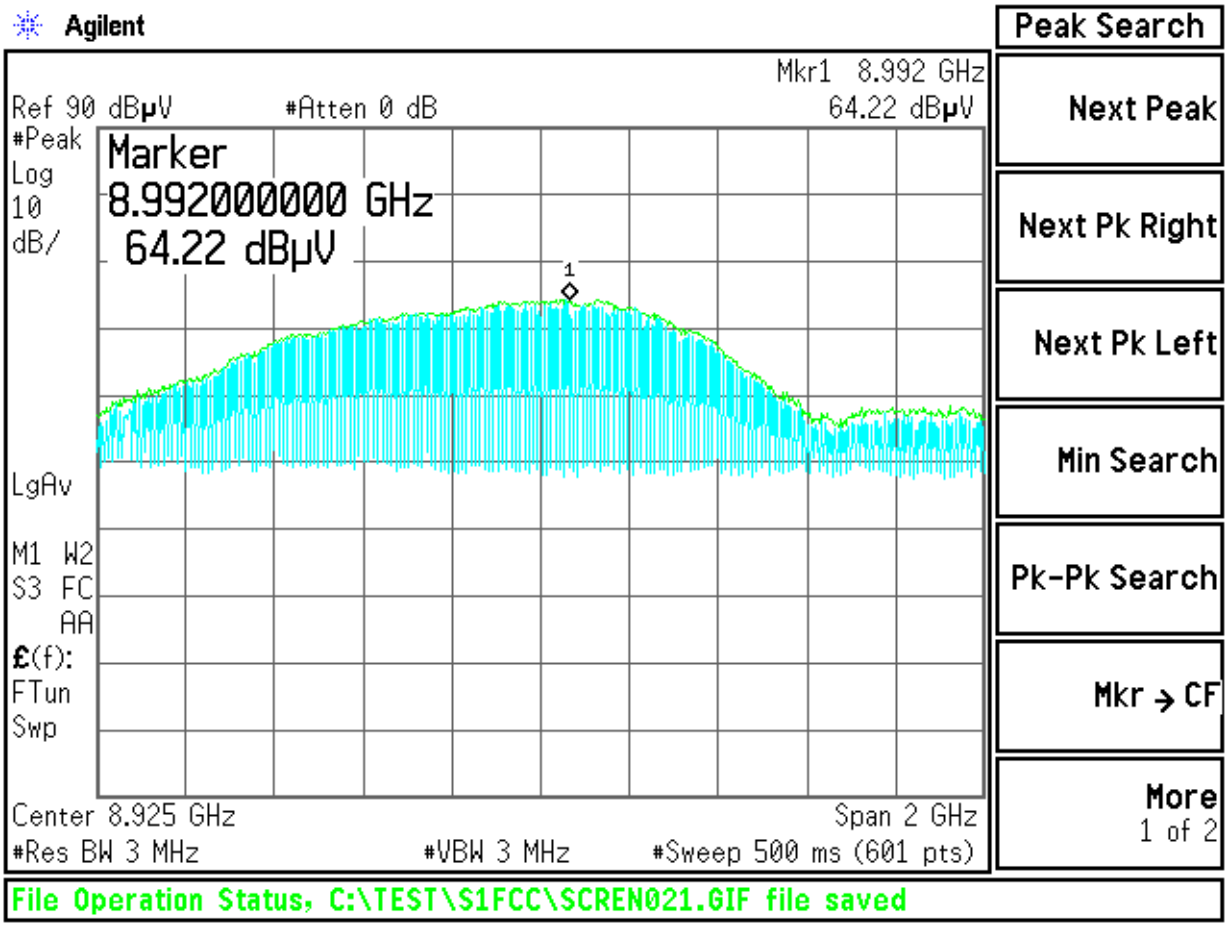
Plot #3



5.2 Antenna polarity "H" (measured distance :1 meter)

Emission Frequency [MHz]	Measure Value [dBµV]	Plot #	Cable Loss [dB]	Antenna Factor [dB/m]	Amp Gain [dB]	Dist. Correct [dB]	F/S dBµV/m @ 3m	Limit dBµV/m @ 3m	Margin [dB]
8992.00	64.22	4	5.84	36.72	29.67	-9.54	**67.57**	70.80	3.23

Plot #4



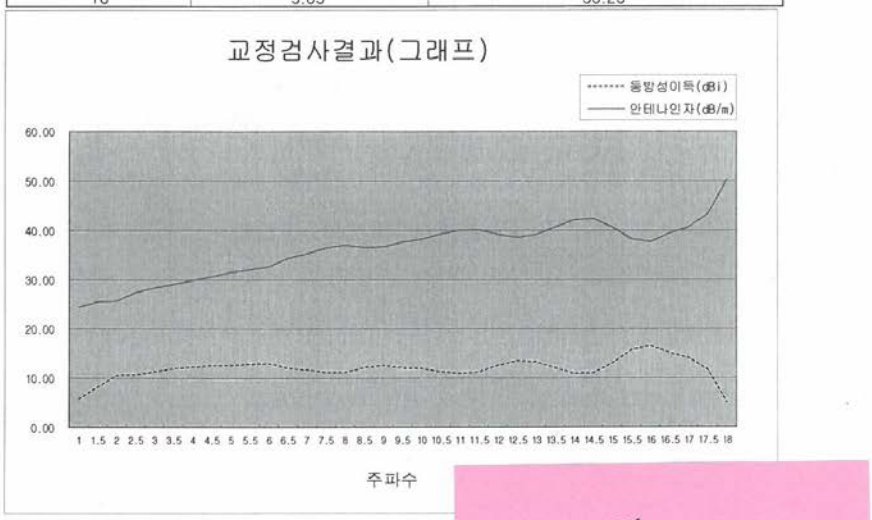
5.3 The maximum level was **67.57 dBuV/m** at **Peak Emissions within a 50 MHz Bandwidth.**

6. BBHA 9120D(S/N: 568) HORN ANTENNA FACTOR

(CALIBRATION BY NATIONAL RADIO RESEARCH AGENCY, due to calibration 2014-12-12)

교정검사성적서 Certificate of Calibration		교정 번호(Certificate No.):2012-344
		2쪽 중 2쪽(2Page of 2pages)
주파수(GHz)	등방성이득(dBi)	자유공간안테나인자(dB/m)
1	5.77	24.45
1.5	8.20	25.54
2	10.55	25.69
2.5	10.71	27.47
3	11.34	28.42
3.5	11.98	29.12
4	12.32	29.94
4.5	12.60	30.68
5	12.65	31.55
5.5	12.90	32.12
6	13.08	32.70
6.5	12.09	34.38
7	11.74	35.38
7.5	11.20	36.52
8	11.19	37.09
8.5	12.21	36.60
9	12.59	36.72
9.5	12.12	37.66
10	11.98	38.24
10.5	11.31	39.33
11	10.99	40.06
11.5	11.25	40.18
12	12.58	39.22
12.5	13.53	38.63
13	13.31	39.19
13.5	12.10	40.72
14	10.98	42.16
14.5	11.07	42.38
15	13.08	40.69
15.5	15.72	38.30
16	16.60	37.70
16.5	15.11	39.46
17	14.15	40.68
17.5	11.78	43.30
18	5.05	50.28

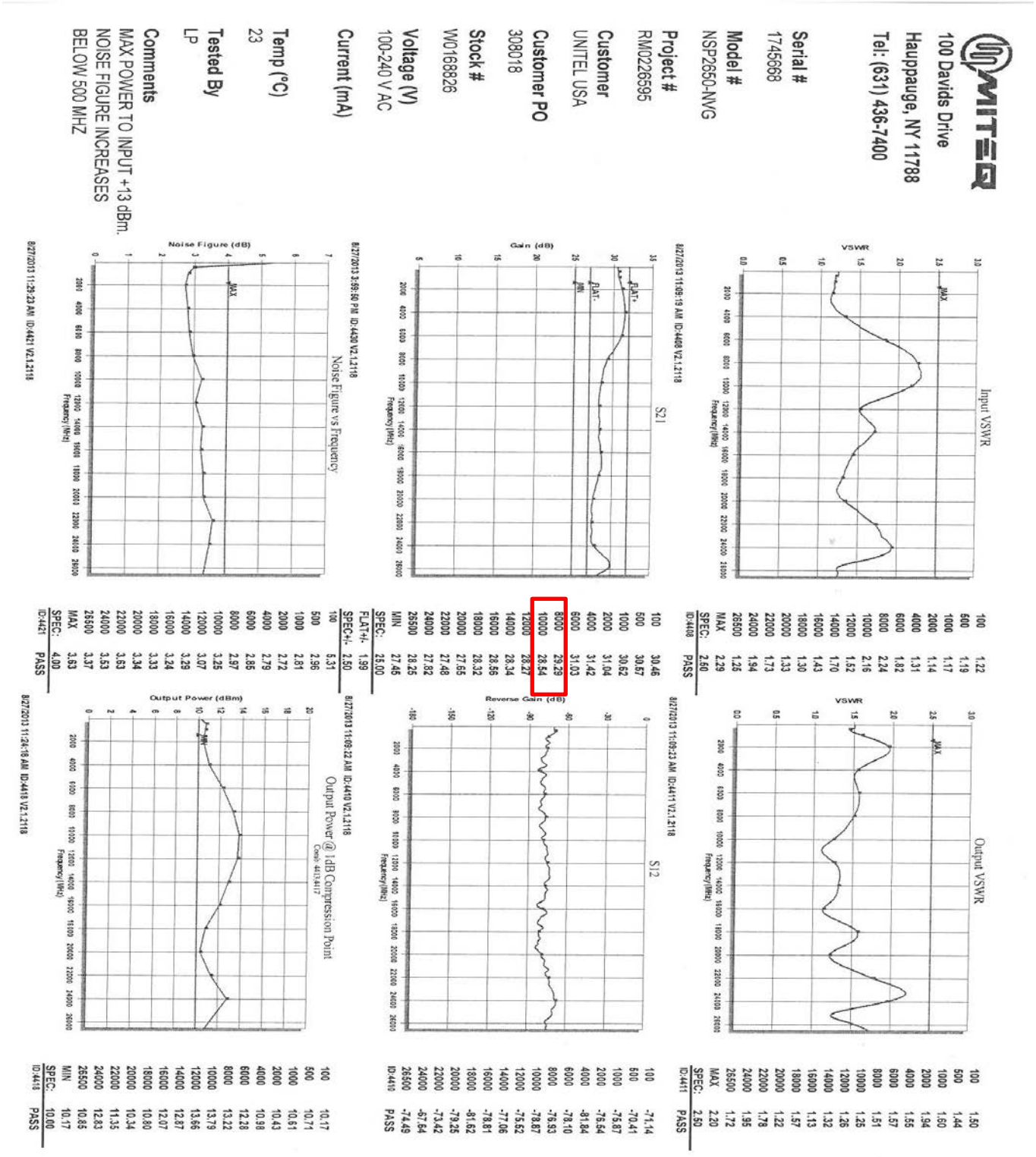
교정검사결과(그래프)



EE-066

7. NSPS2650-NVG(S/N:1745668)

7.1 Data Sheet (due to Calibration 2014/08/27)

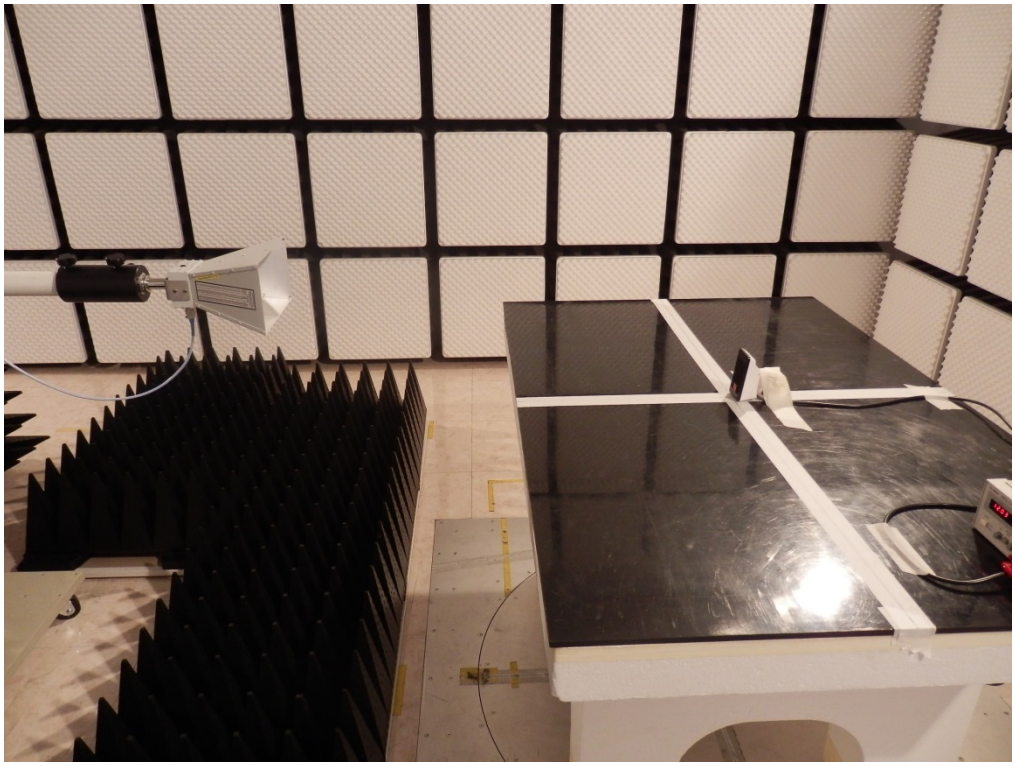


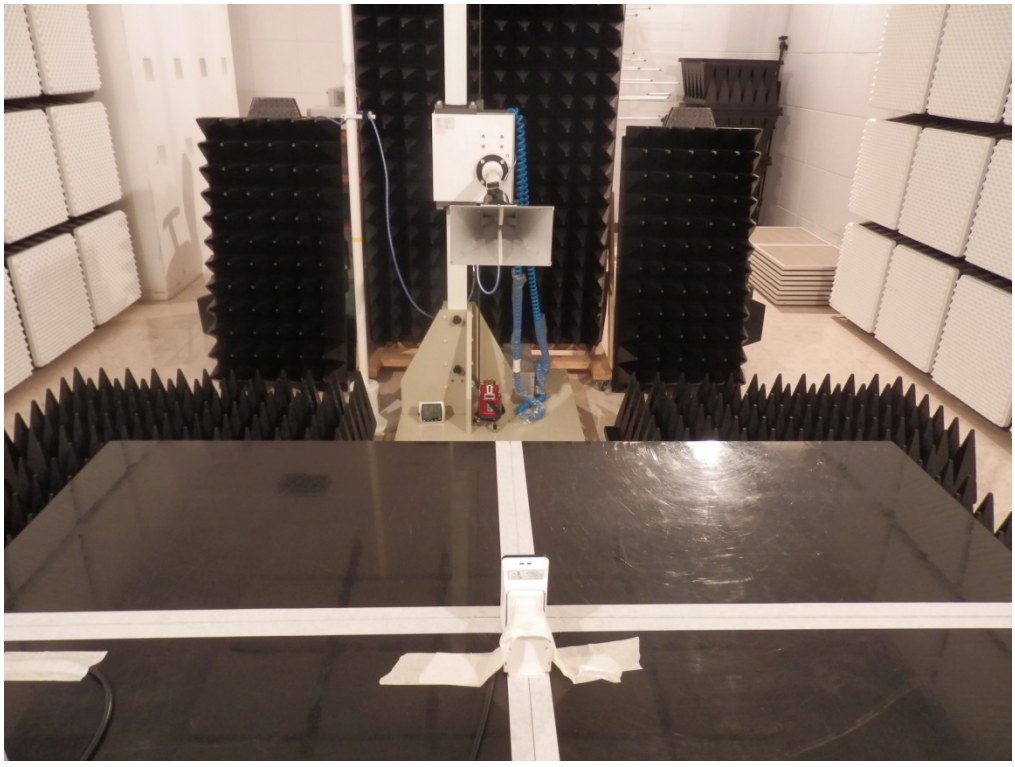
7.2 verification amplifier gain (used power meter and signal generator)

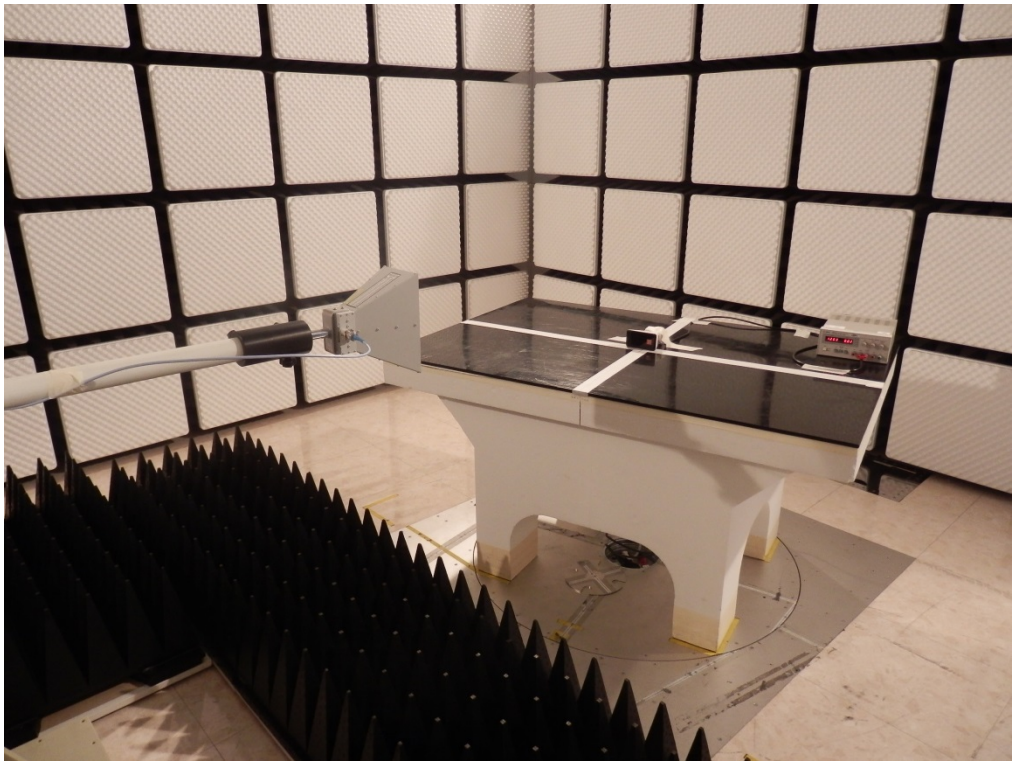
Frequency	**MITEQ 1-26.5G**	Frequency	**MITEQ 1-26.5G**
[MHz]	gain (dB)	[MHz]	gain (dB)
1000	31.48	14000	28.85
1500	31.63	14500	29.16
2000	31.81	15000	29.24
2500	32.00	15500	29.38
3000	32.11	16000	29.65
3500	32.20	16500	29.77
4000	32.24	17000	29.81
4500	32.33	17500	29.87
5000	32.16	18000	29.85
5500	31.92	18500	29.76
6000	31.89	19000	29.22
6500	31.55	19500	28.89
7000	31.07	20000	28.61
7500	30.55	20500	28.34
8000	30.15	21000	28.25
8500	29.75	21500	28.43
9000	29.67	22000	28.27
9500	29.57	22500	28.23
10000	29.50	23000	28.28
10500	29.36	23500	28.71
11000	29.28	24000	29.32
11500	29.29	24500	30.07
12000	29.15	25000	30.53
12500	29.05	25500	30.75
13000	29.08	26000	30.22
13500	28.98	26500	29.02

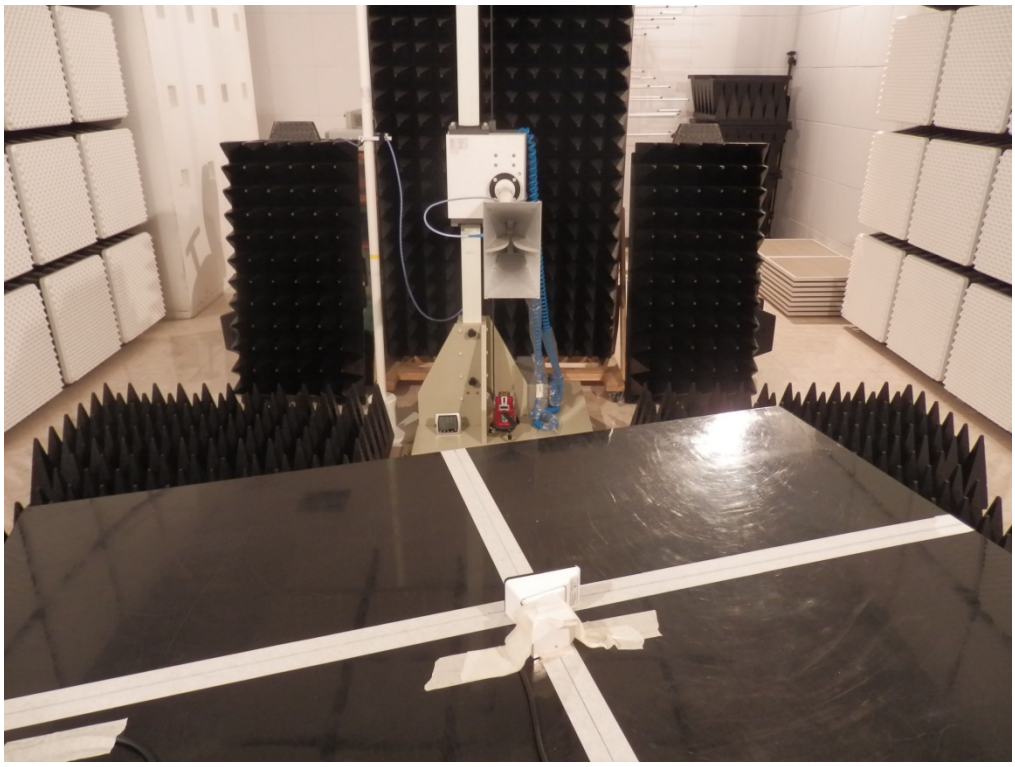
8. Test Setup Photos

8.1 Original another EUT (Black cover)









8.2 Modification EUT (White cover)