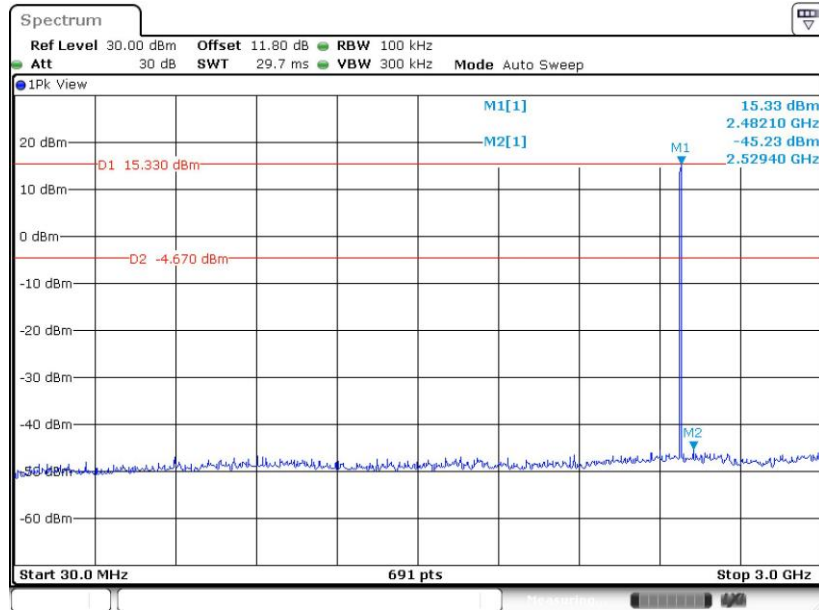


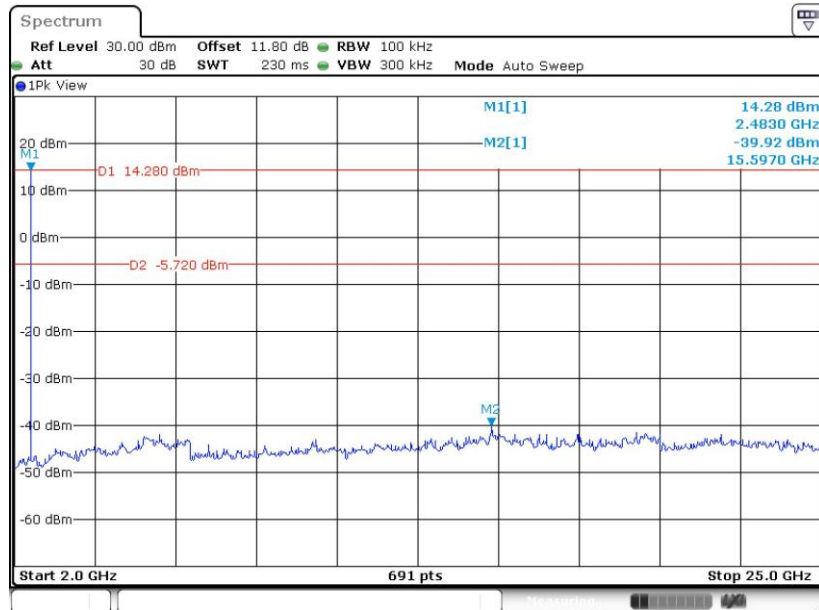


CSE Plot on CH 78 between 30 MHz ~ 3 GHz



Date: 5.JAN.2021 00:44:19

CSE Plot on CH 78 between 2 GHz ~ 25 GHz

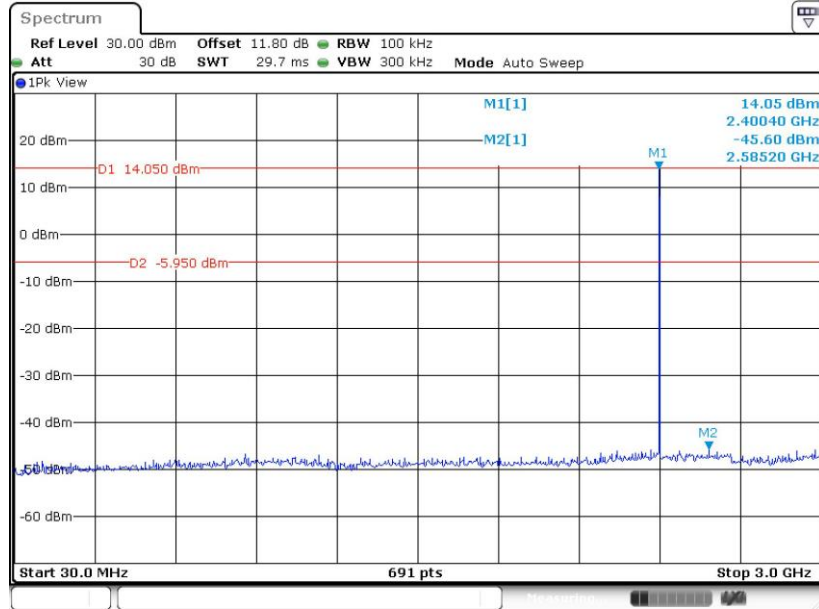


Date: 5.JAN.2021 00:44:55



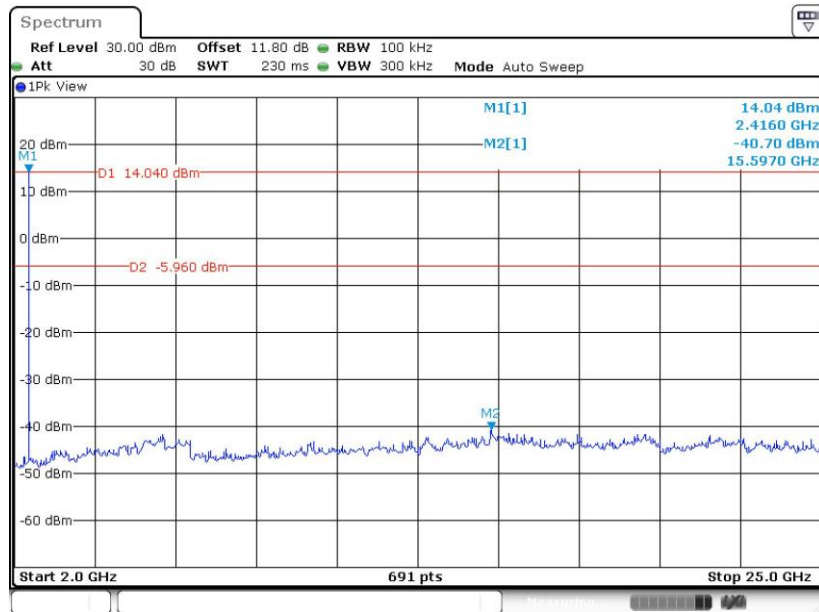
<2Mbps>

CSE Plot on CH 00 between 30 MHz ~ 3 GHz



Date: 5.JAN.2021 00:50:02

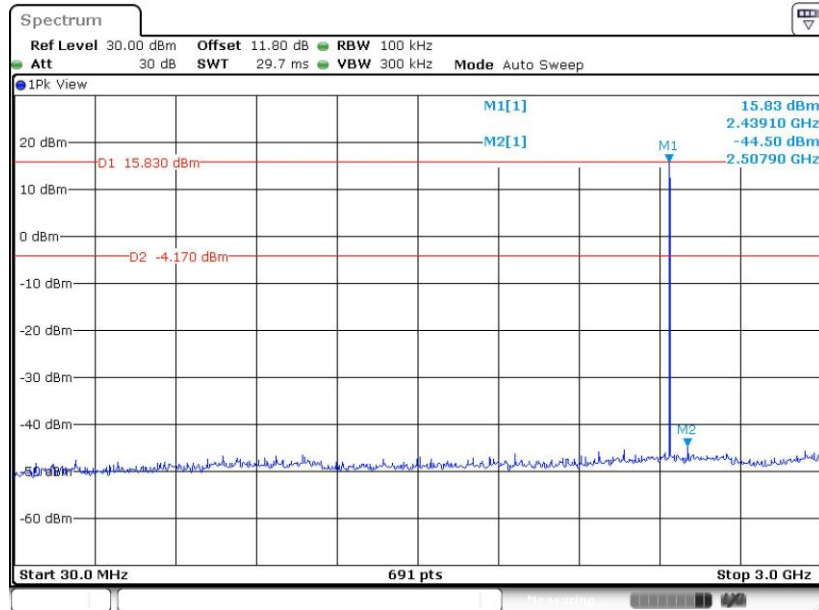
CSE Plot on CH 00 between 2 GHz ~ 25 GHz



Date: 5.JAN.2021 00:50:30

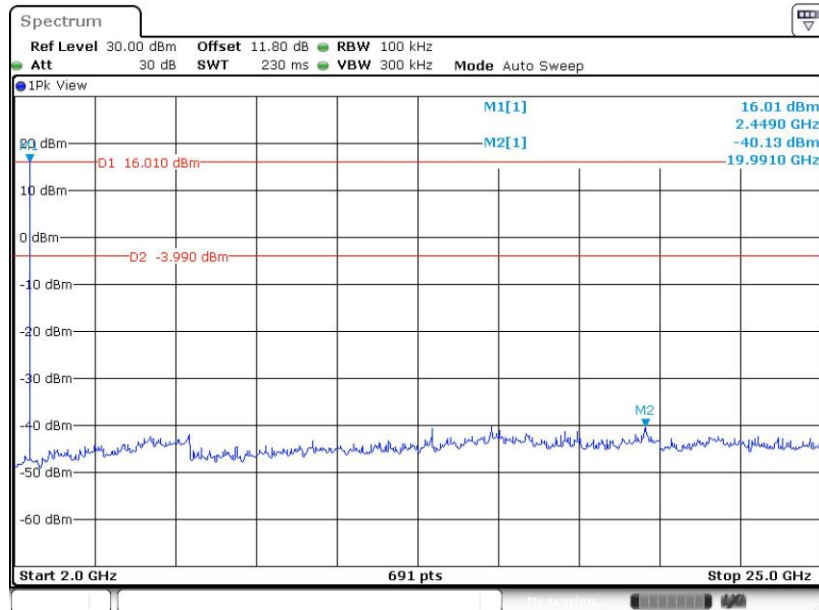


CSE Plot on CH 39 between 30 MHz ~ 3 GHz



Date: 5.JAN.2021 00:54:24

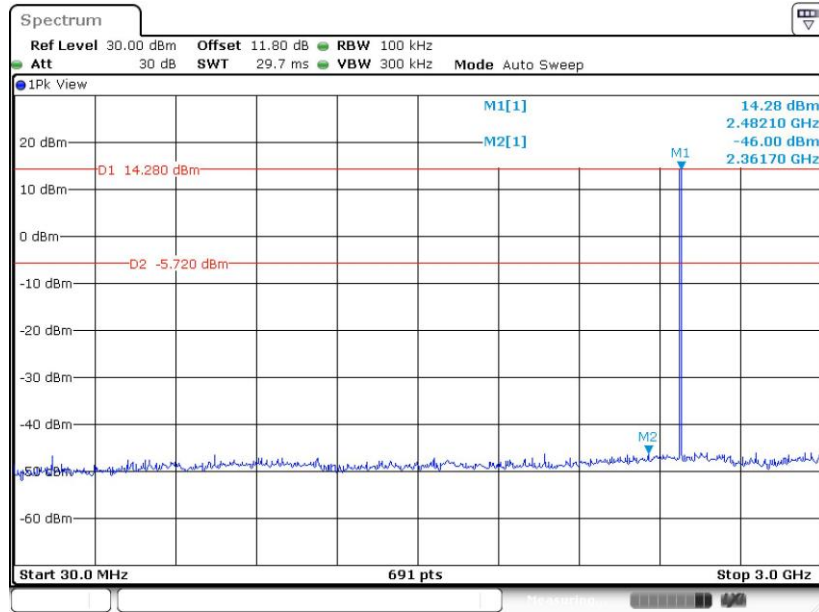
CSE Plot on CH 39 between 2 GHz ~ 25 GHz



Date: 5.JAN.2021 00:54:53

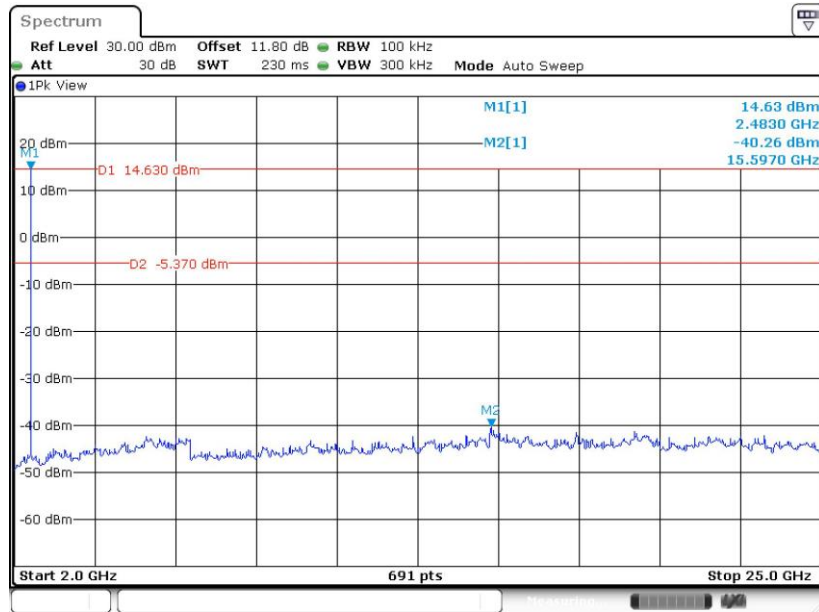


CSE Plot on CH 78 between 30 MHz ~ 3 GHz



Date: 5.JAN.2021 00:59:15

CSE Plot on CH 78 between 2 GHz ~ 25 GHz

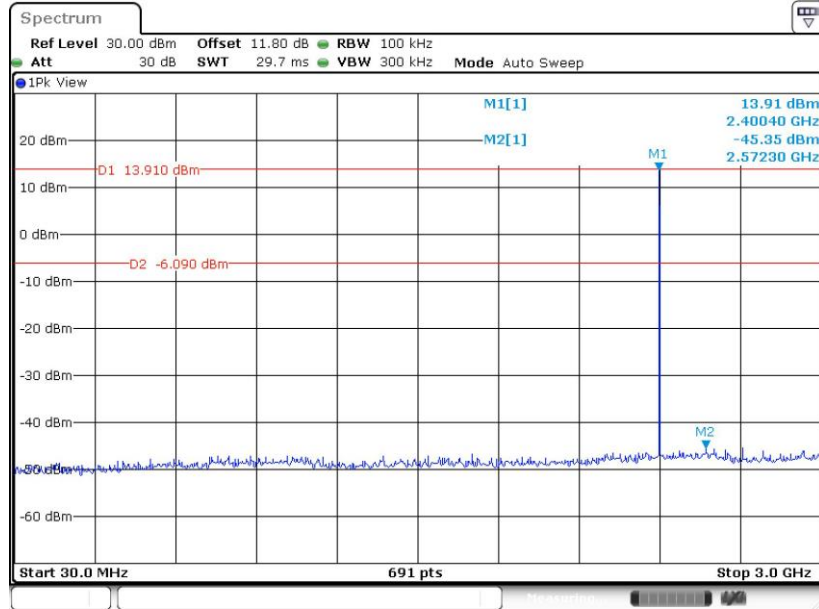


Date: 5.JAN.2021 00:59:44



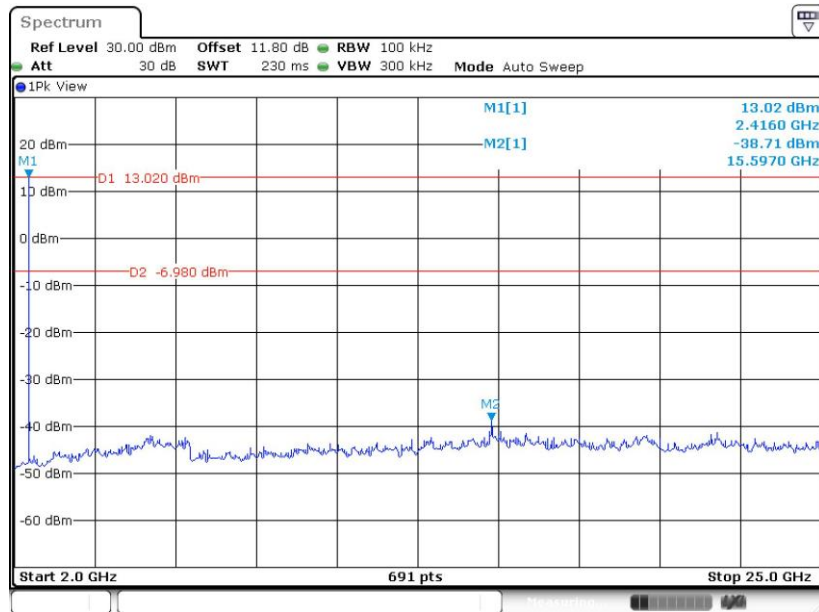
<3Mbps>

CSE Plot on CH 00 between 30 MHz ~ 3 GHz



Date: 5.JAN.2021 01:04:44

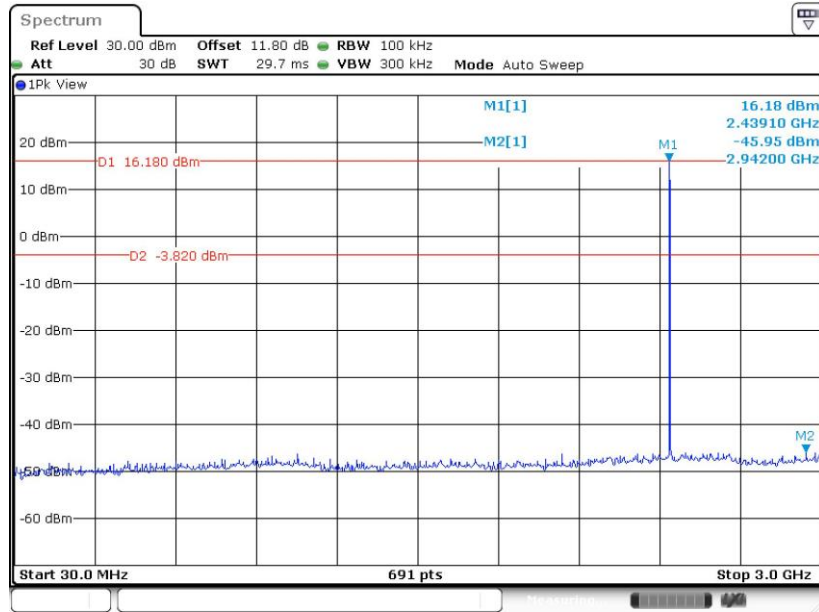
CSE Plot on CH 00 between 2 GHz ~ 25 GHz



Date: 5.JAN.2021 01:05:13

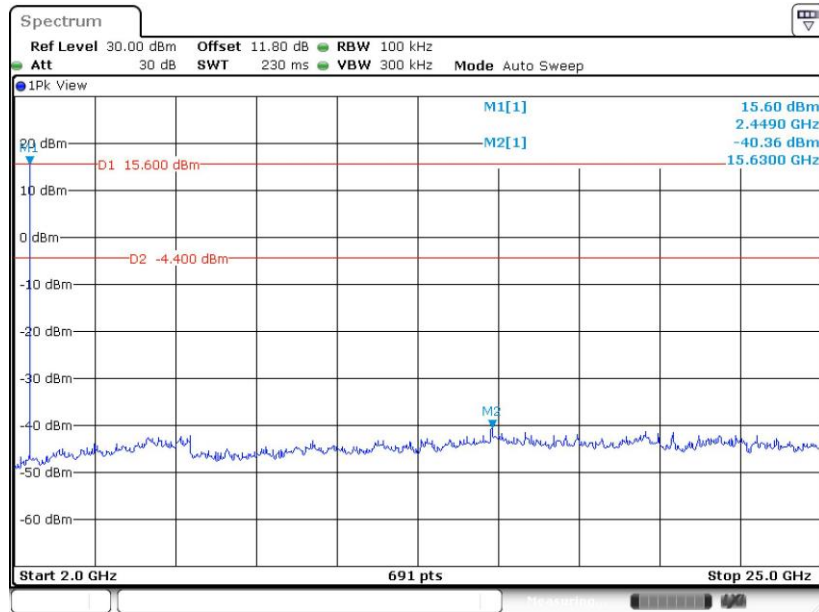


CSE Plot on CH 39 between 30 MHz ~ 3 GHz



Date: 5.JAN.2021 01:09:51

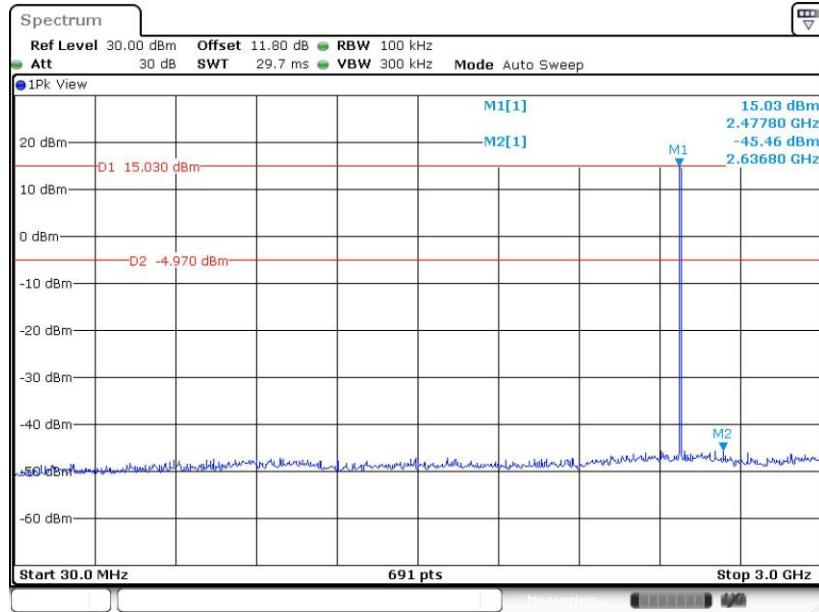
CSE Plot on CH 39 between 2 GHz ~ 25 GHz



Date: 5.JAN.2021 01:10:25

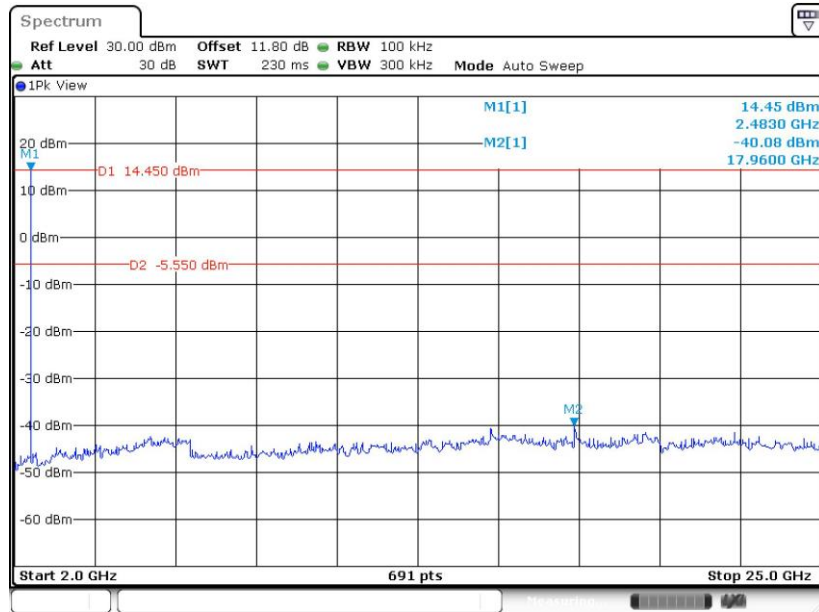


CSE Plot on CH 78 between 30 MHz ~ 3 GHz



Date: 5.JAN.2021 01:31:44

CSE Plot on CH 78 between 2 GHz ~ 25 GHz



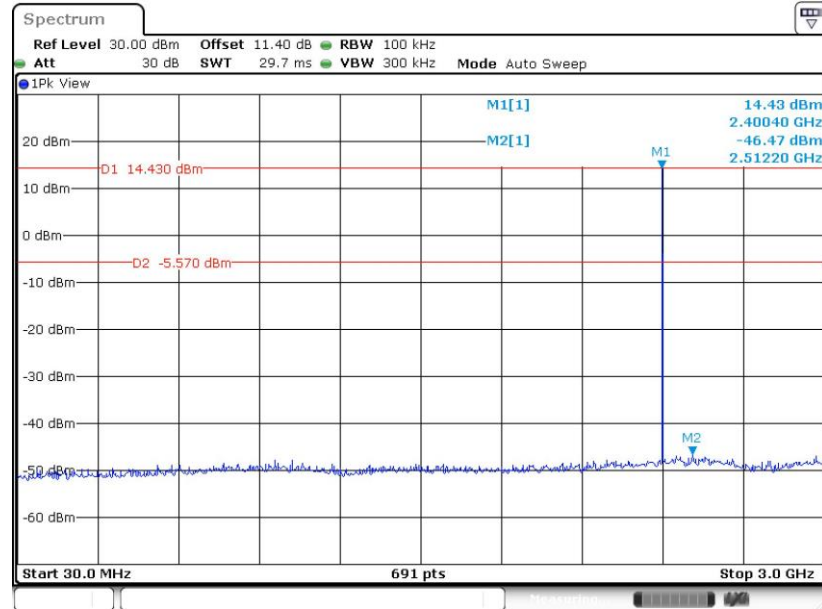
Date: 5.JAN.2021 01:32:14



<Camera Mode with Ant. 6>

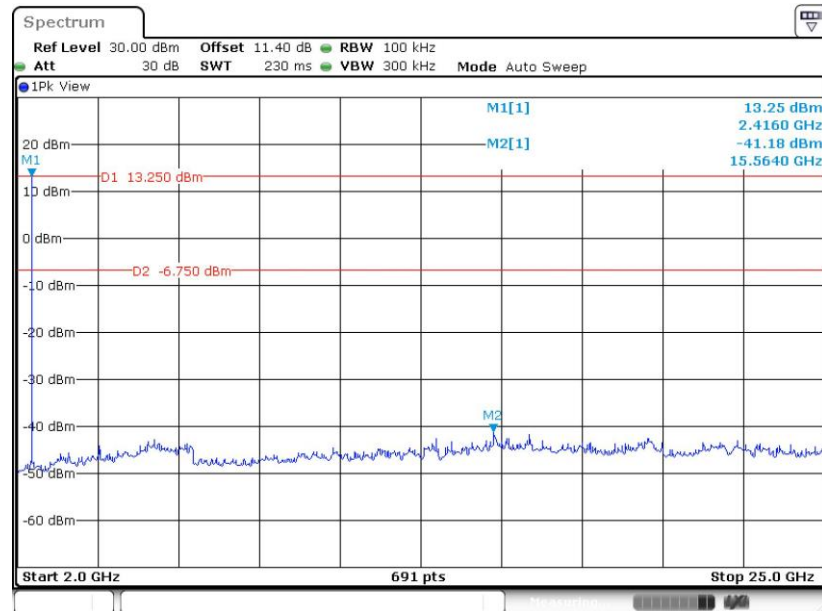
<1Mbps>

CSE Plot on CH 00 between 30 MHz ~ 3 GHz



Date: 30.DEC.2020 20:20:34

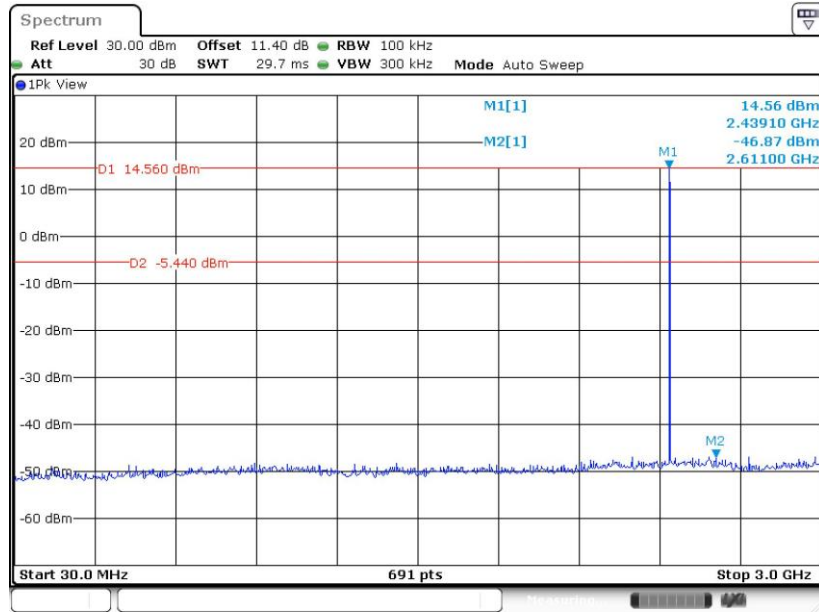
CSE Plot on CH 00 between 2 GHz ~ 25 GHz



Date: 30.DEC.2020 20:21:05

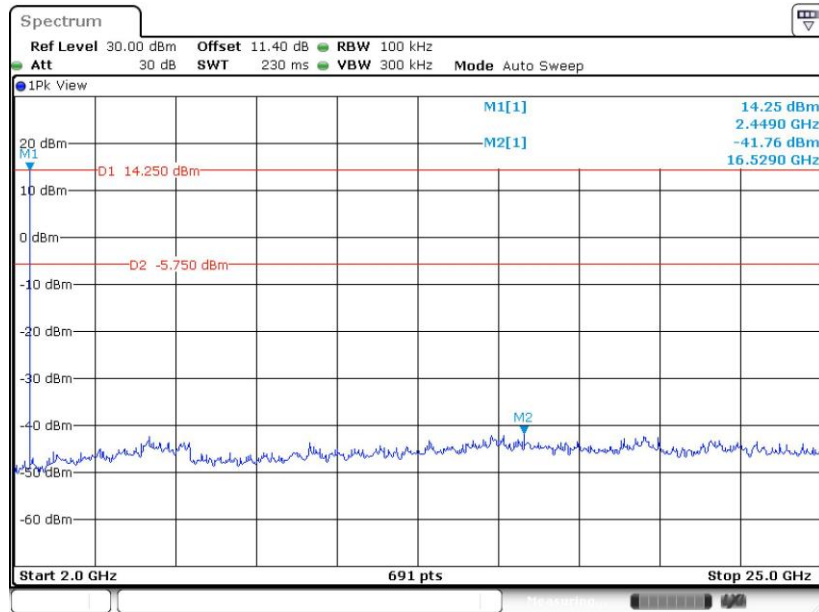


CSE Plot on CH 39 between 30 MHz ~ 3 GHz



Date: 30.DEC.2020 20:57:44

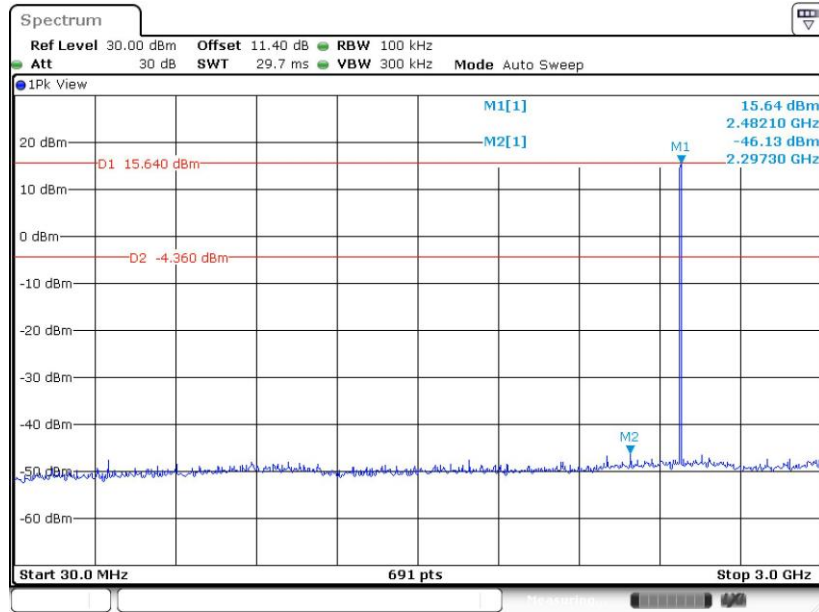
CSE Plot on CH 39 between 2 GHz ~ 25 GHz



Date: 30.DEC.2020 20:58:14

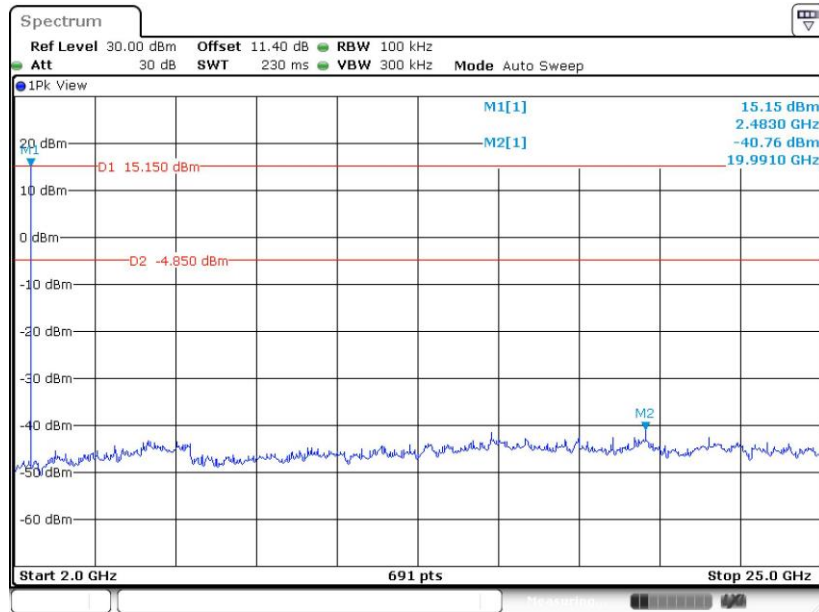


CSE Plot on CH 78 between 30 MHz ~ 3 GHz



Date: 30.DEC.2020 21:04:22

CSE Plot on CH 78 between 2 GHz ~ 25 GHz

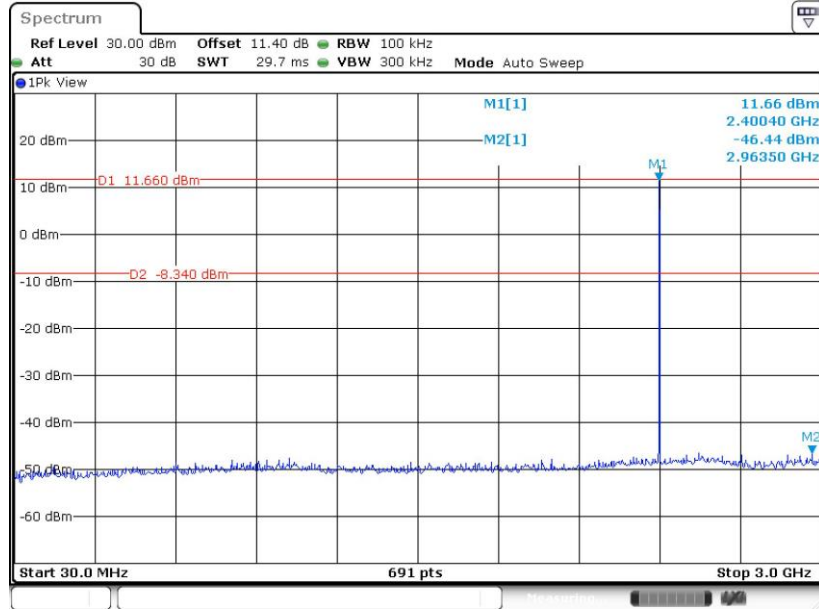


Date: 30.DEC.2020 21:04:52



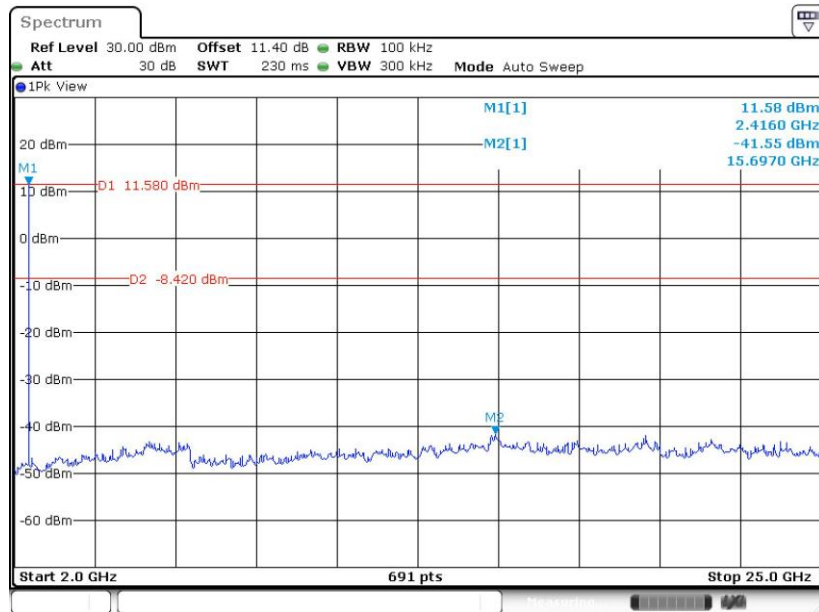
<2Mbps>

CSE Plot on CH 00 between 30 MHz ~ 3 GHz



Date: 30.DECEMBER.2020 21:10:47

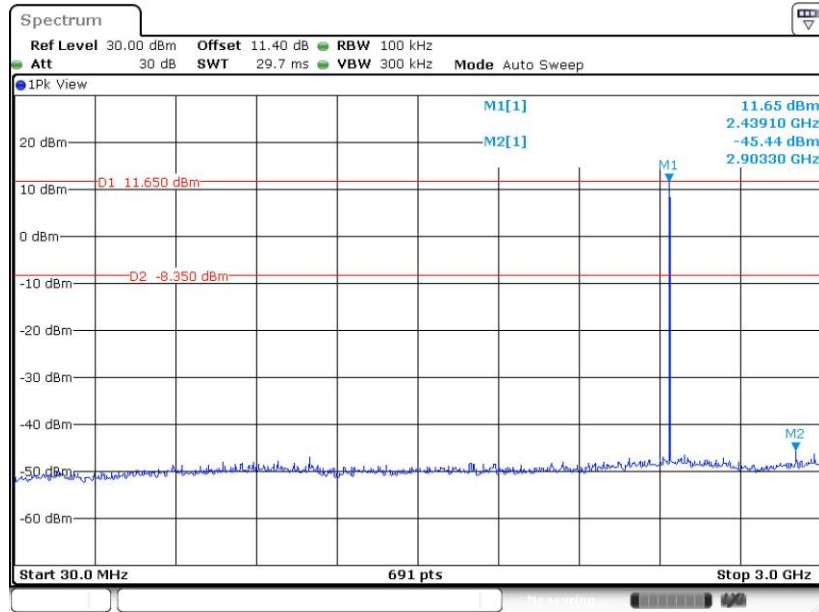
CSE Plot on CH 00 between 2 GHz ~ 25 GHz



Date: 30.DECEMBER.2020 21:11:18

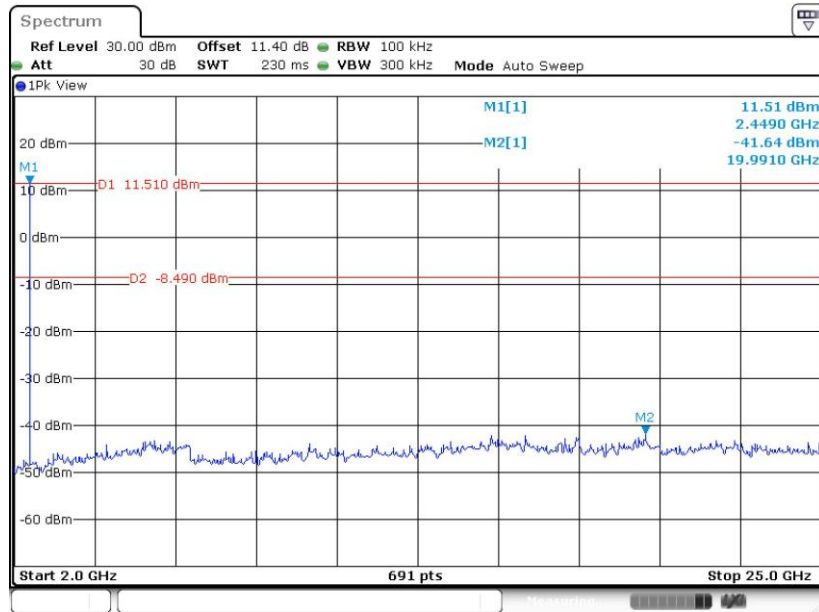


CSE Plot on CH 39 between 30 MHz ~ 3 GHz



Date: 30.DEC.2020 21:18:20

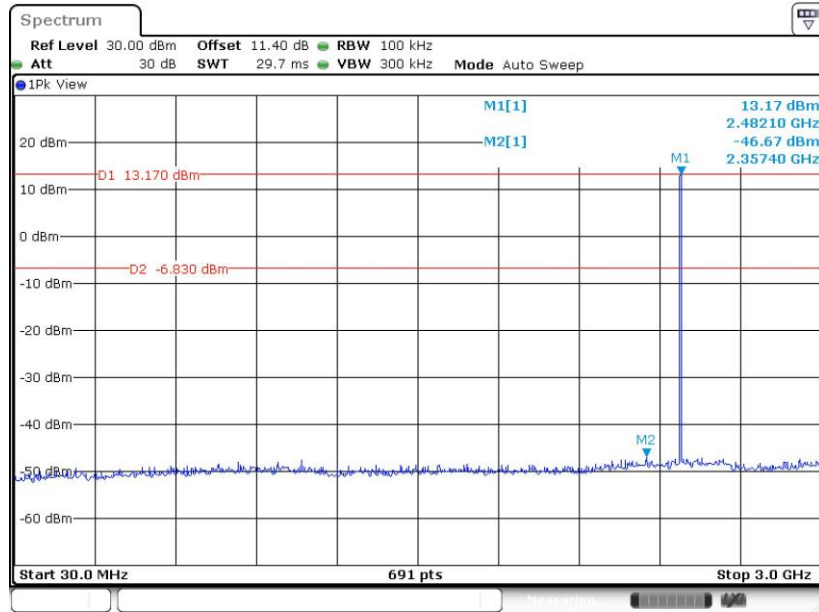
CSE Plot on CH 39 between 2 GHz ~ 25 GHz



Date: 30.DEC.2020 21:18:49

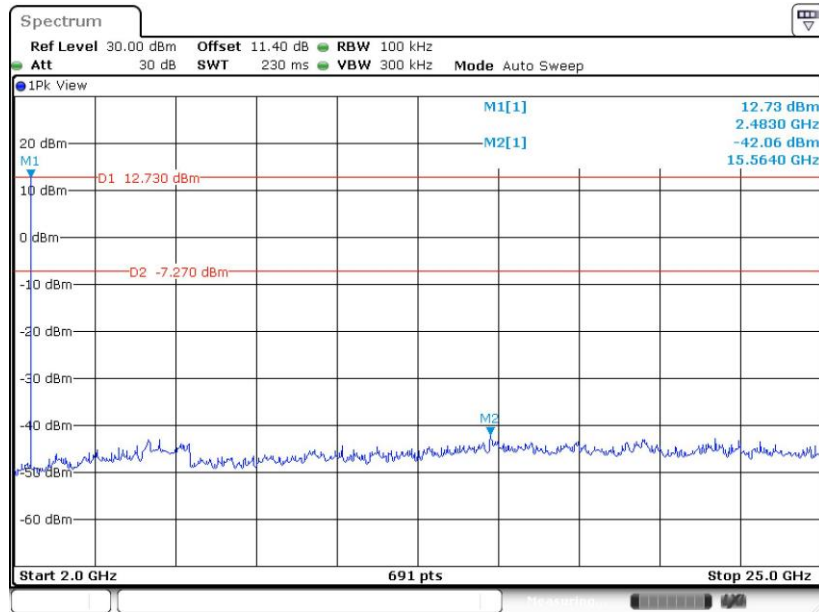


CSE Plot on CH 78 between 30 MHz ~ 3 GHz



Date: 30.DEC.2020 21:29:01

CSE Plot on CH 78 between 2 GHz ~ 25 GHz

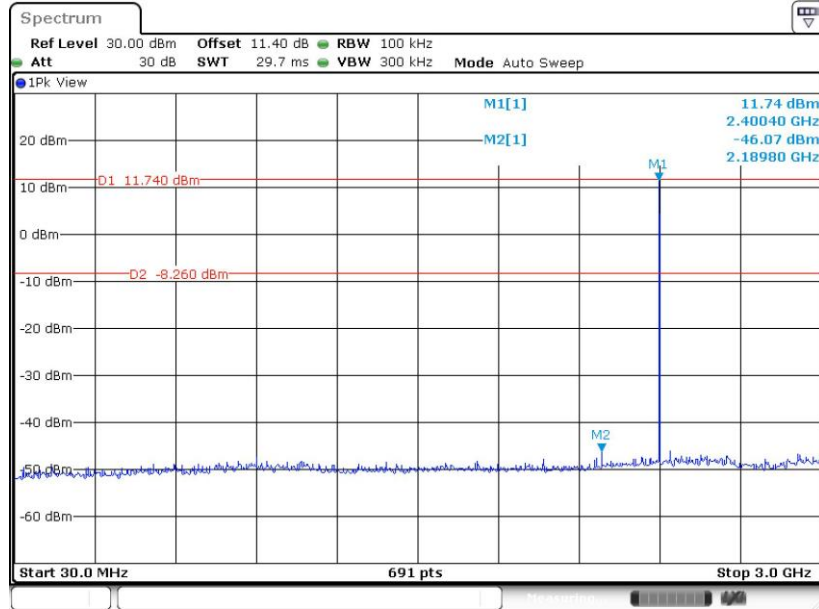


Date: 30.DEC.2020 21:31:59



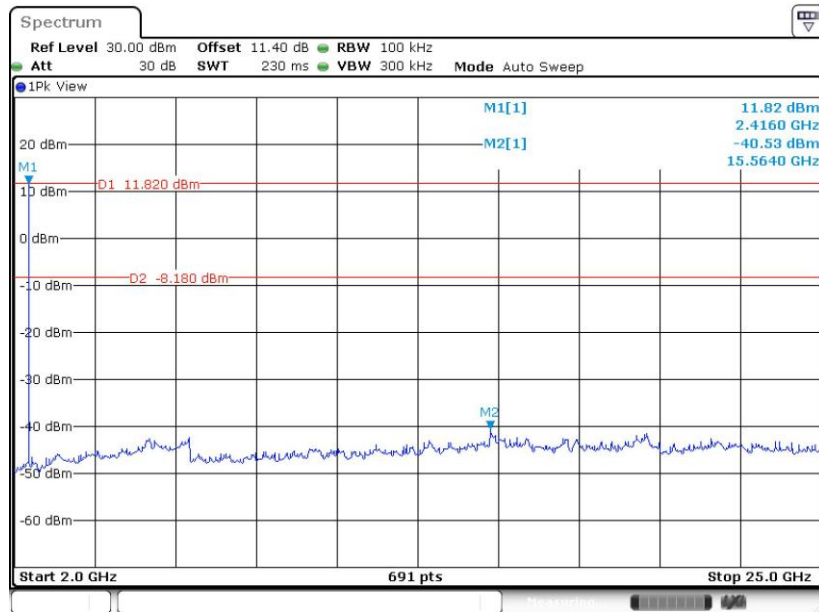
<3Mbps>

CSE Plot on CH 00 between 30 MHz ~ 3 GHz



Date: 30.DECEMBER.2020 21:37:48

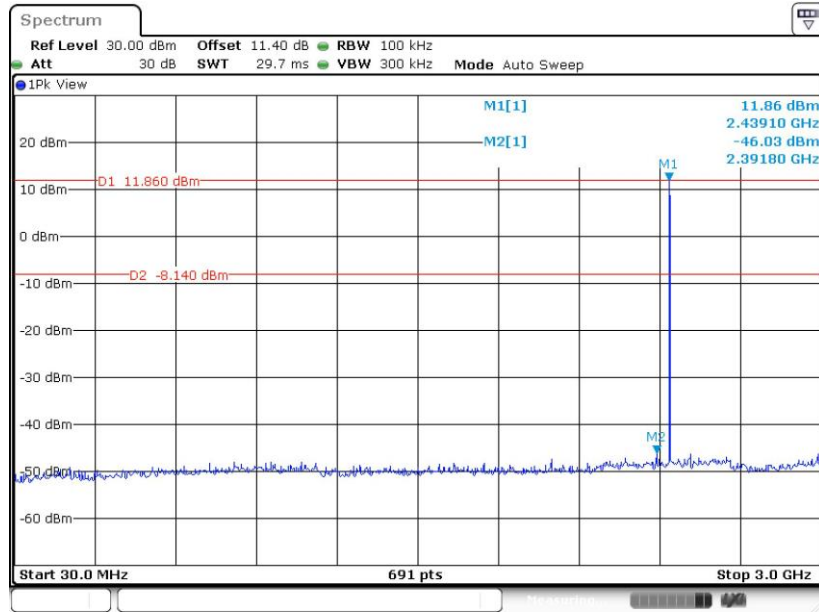
CSE Plot on CH 00 between 2 GHz ~ 25 GHz



Date: 30.DECEMBER.2020 21:40:38

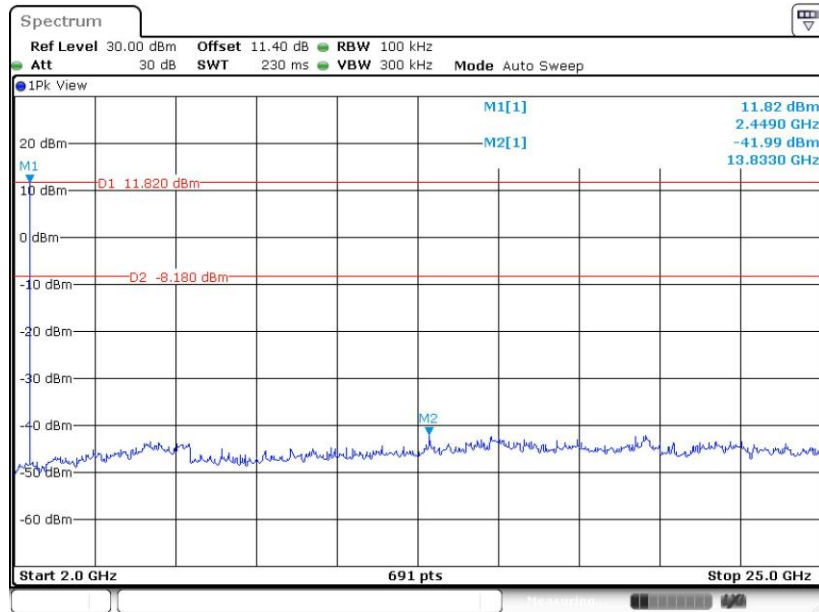


CSE Plot on CH 39 between 30 MHz ~ 3 GHz



Date: 30.DEC.2020 22:02:42

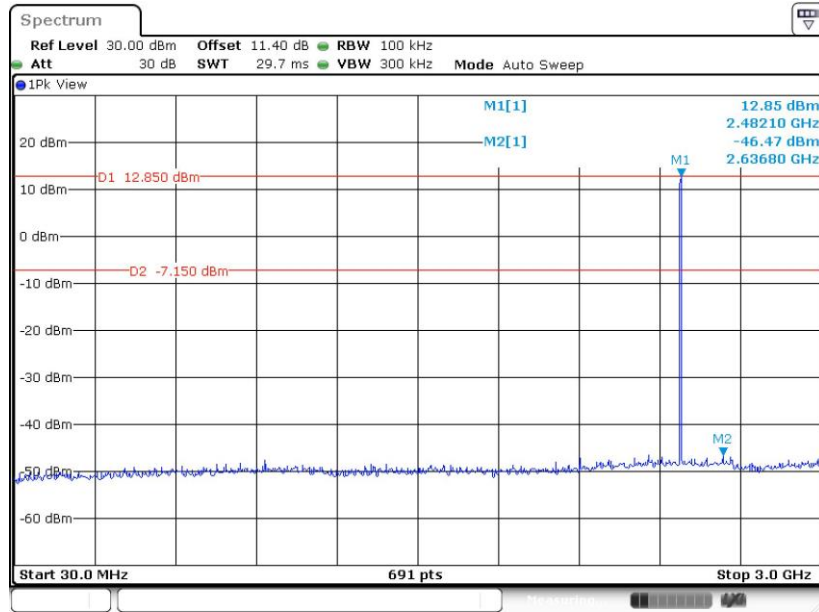
CSE Plot on CH 39 between 2 GHz ~ 25 GHz



Date: 30.DEC.2020 22:03:13

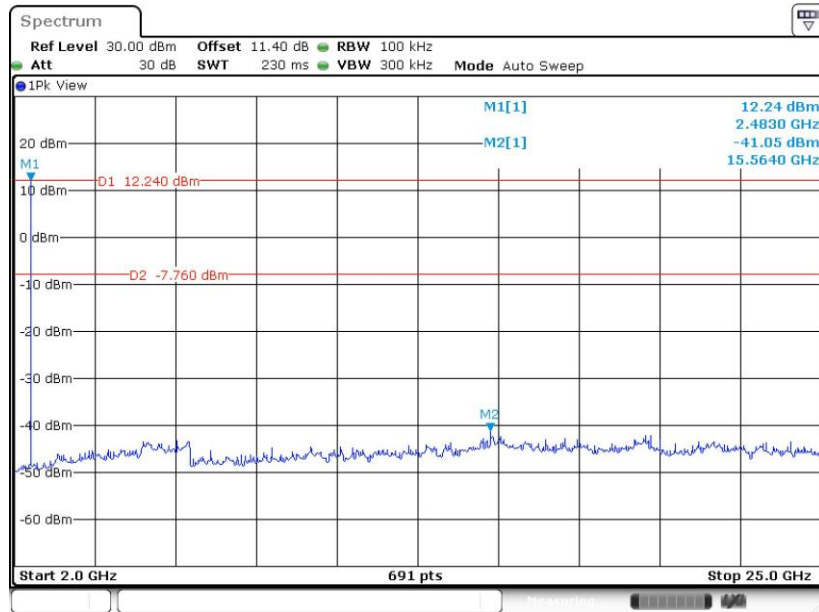


CSE Plot on CH 78 between 30 MHz ~ 3 GHz



Date: 30.DEC.2020 22:07:44

CSE Plot on CH 78 between 2 GHz ~ 25 GHz



Date: 30.DEC.2020 22:09:03



3.8 Radiated Band Edges and Spurious Emission Measurement

3.8.1 Limit of Radiated Band Edges and Spurious Emission

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. In addition, radiated emissions which fall in the restricted bands must also comply with the limits as below.

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

3.8.2 Measuring Instruments

See list of measuring equipment of this test report.



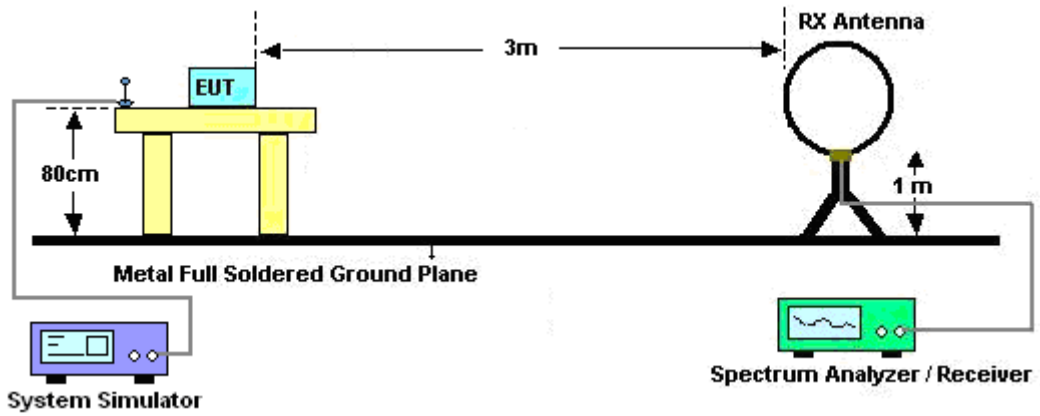
3.8.3 Test Procedures

1. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
4. Set to the maximum power setting and enable the EUT transmit continuously.
5. Use the following spectrum analyzer settings:
 - (1) Span shall wide enough to fully capture the emission being measured;
 - (2) Set RBW=100 kHz for $f < 1$ GHz, RBW=1MHz for $f > 1$ GHz ; VBW \geq RBW; Sweep = auto; Detector function = peak; Trace = max hold for peak
 - (3) For average measurement: use duty cycle correction factor method per 15.35(c).
Duty cycle = On time/100 milliseconds
On time = $N_1 * L_1 + N_2 * L_2 + \dots + N_{n-1} * L_{n-1} + N_n * L_n$
Where N_1 is number of type 1 pulses, L_1 is length of type 1 pulses, etc.
Average Emission Level = Peak Emission Level + $20 * \log(\text{Duty cycle})$
6. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
7. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
8. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

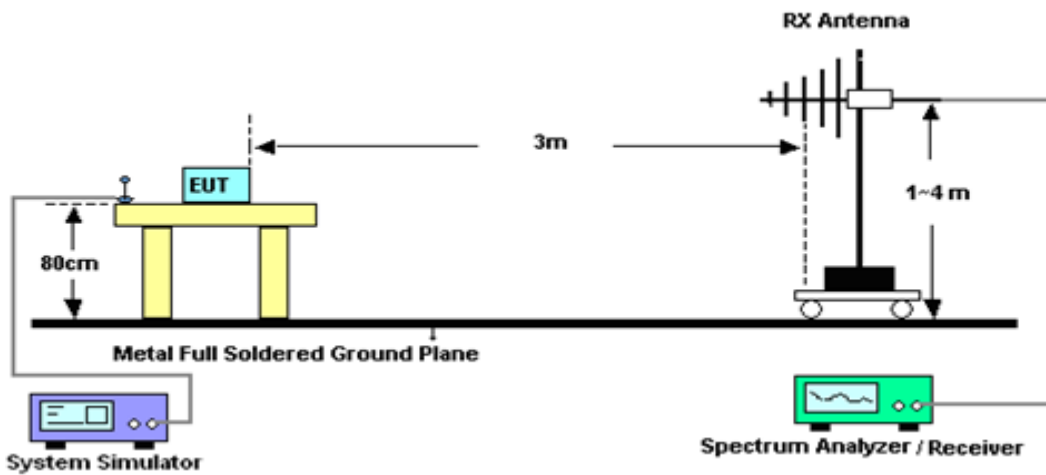
Note: The average levels were calculated from the peak level corrected with duty cycle correction factor (-24.76dB) derived from $20 \log(\text{dwell time}/100\text{ms})$. This correction is only for signals that hop with the fundamental signal, such as band-edge and harmonic. Other spurious signals that are independent of the hopping signal would not use this correction.

3.8.4 Test Setup

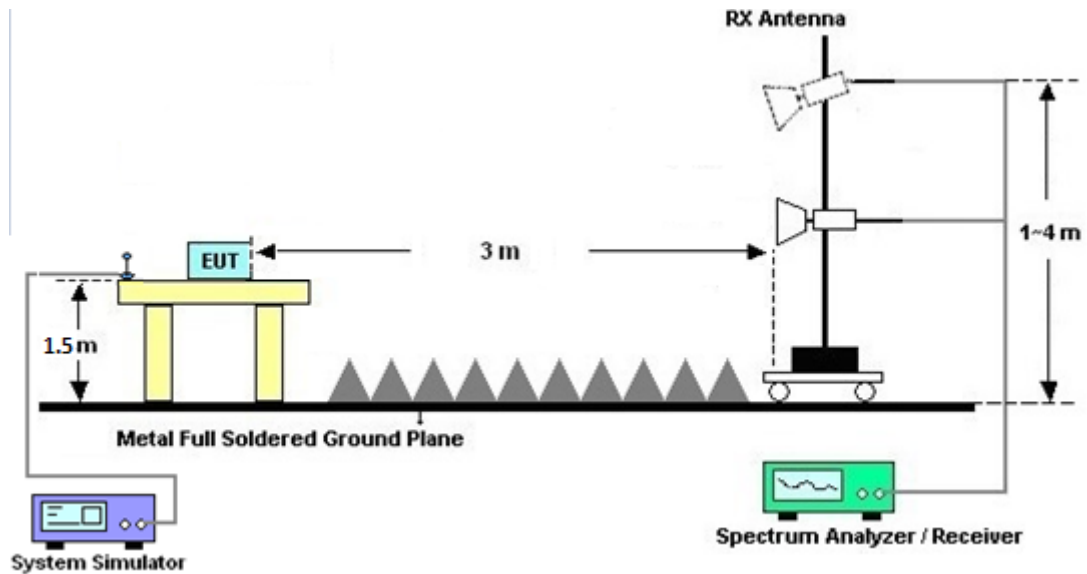
For radiated test below 30MHz



For radiated test from 30MHz to 1GHz



For radiated test above 1GHz



3.8.5 Test Results of Radiated Spurious Emissions (9 kHz ~ 30 MHz)

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

There is a comparison data of both open-field test site and alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result came out very similar.

3.8.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix C and D.

3.8.7 Duty Cycle

Please refer to Appendix E.

3.8.8 Test Result of Radiated Spurious Emission (30MHz ~ 10th Harmonic)

Please refer to Appendix C and D.



3.9 AC Conducted Emission Measurement

3.9.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of emission (MHz)	Conducted limit (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

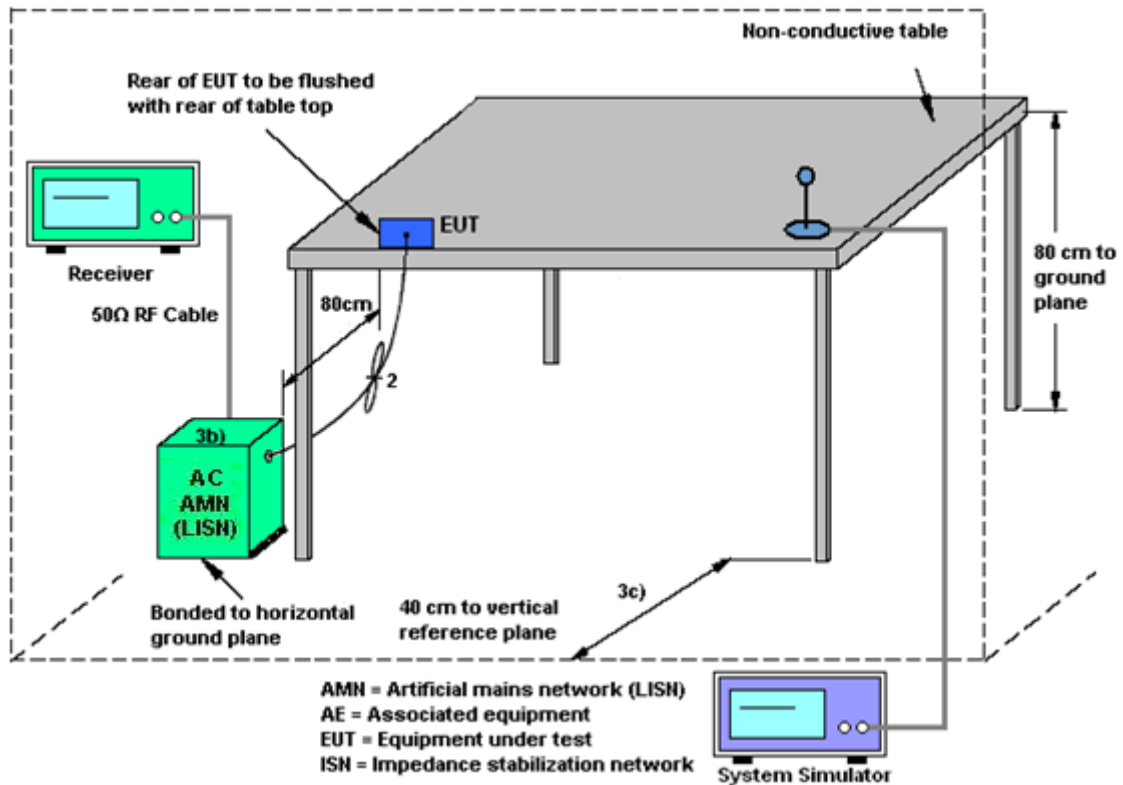
3.9.2 Measuring Instruments

See list of measuring equipment of this test report.

3.9.3 Test Procedures

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

3.9.4 Test Setup



3.9.5 Test Result of AC Conducted Emission

Please refer to Appendix B.



3.10 Antenna Requirements

3.10.1 Standard Applicable

If directional gain of transmitting antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the rule.

3.10.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.10.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.



4 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Jul. 14, 2020	Nov. 20, 2020~ Dec. 30, 2020	Jul. 13, 2021	Radiation (03CH15-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00800N1D01N -06	41912 & 05	30MHz~1GHz	Feb. 09, 2020	Nov. 20, 2020~ Dec. 30, 2020	Feb. 08, 2021	Radiation (03CH15-HY)
Amplifier	SONOMA	310N	363440	9kHz~1GHz	Dec. 27, 2019	Nov. 20, 2020~ Dec. 25, 2020	Dec. 26, 2020	Radiation (03CH15-HY)
Amplifier	SONOMA	310N	187312	9kHz~1GHz	Dec. 02, 2020	Dec. 26, 2020~ Dec. 30, 2020	Dec. 01, 2021	Radiation (03CH15-HY)
Horn Antenna	SCHWARZBE CK	BBHA 9120 D	9120D-01620	1GHz~18GHz	Nov. 03, 2020	Nov. 20, 2020~ Dec. 30, 2020	Nov. 02, 2021	Radiation (03CH15-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA 9170	BBHA9170576	18GHz~40GHz	May 22, 2020	Nov. 20, 2020~ Dec. 30, 2020	May 21, 2021	Radiation (03CH15-HY)
Preamplifier	Jet-Power	JPA0118-55-30 3	171000180005 5006	1GHz~18GHz	May 07, 2020	Nov. 20, 2020~ Dec. 30, 2020	May 06, 2021	Radiation (03CH15-HY)
Preamplifier	Keysight	83017A	MY53270195	1GHz~26.5GHz	Aug. 21, 2020	Nov. 20, 2020~ Dec. 30, 2020	Aug. 20, 2021	Radiation (03CH15-HY)
Preamplifier	EMEC	EM18G40G	0600789	18-40GHz	Oct. 27, 2020	Nov. 20, 2020~ Dec. 30, 2020	Oct. 26, 2021	Radiation (03CH15-HY)
EMI Test Receiver	Keysight	N9038A (MXE)	MY54130085	20MHz~8.4GHz	Nov. 02, 2020	Nov. 20, 2020~ Dec. 30, 2020	Nov. 01, 2021	Radiation (03CH15-HY)
Spectrum Analyzer	Agilent	E4446A	MY50180136	3Hz~44GHz	May 04, 2020	Nov. 20, 2020~ Dec. 30, 2020	May 03, 2021	Radiation (03CH15-HY)
Antenna Mast	ChainTek	MBS-520-1	N/A	1m~4m	N/A	Nov. 20, 2020~ Dec. 30, 2020	N/A	Radiation (03CH15-HY)
Turn Table	ChainTek	T-200-S-1	N/A	0~360 Degree	N/A	Nov. 20, 2020~ Dec. 30, 2020	N/A	Radiation (03CH15-HY)
Software	Audix	E3 6.2009-8-24 (k5)	RK-000451	N/A	N/A	Nov. 20, 2020~ Dec. 30, 2020	N/A	Radiation (03CH15-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104, 102E	MY36980/4, MY9838/4PE,5 08405/2E	30MHz~18G	Nov. 16, 2020	Nov. 20, 2020~ Dec. 30, 2020	Nov. 15, 2021	Radiation (03CH15-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	505134/2	30MHz~40GHz	Feb. 25, 2020	Nov. 20, 2020~ Dec. 30, 2020	Feb. 24, 2021	Radiation (03CH15-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	800740/2	30MHz~40GHz	Feb. 25, 2020	Nov. 20, 2020~ Dec. 30, 2020	Feb. 24, 2021	Radiation (03CH15-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY9837/4PE	9kHz~30MHz	Mar. 12, 2020	Nov. 20, 2020~ Dec. 30, 2020	Mar. 11, 2021	Radiation (03CH15-HY)
Filter	Wainwright	WLJ4-1000-15 30-6000-40ST	SN4	1.53GHz Low Pass Filter	Jul. 03, 2020	Nov. 20, 2020~ Dec. 30, 2020	Jul. 02, 2021	Radiation (03CH15-HY)
Filter	Wainwright	WHKX12-2700 -3000-18000-6 0ST	SN4	3GHz High Pass Filter	Sep. 16, 2020	Nov. 20, 2020~ Dec. 30, 2020	Sep. 15, 2021	Radiation (03CH15-HY)



Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Dec. 12, 2020~ Dec. 22, 2020	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102317	9kHz~3.6GHz	Sep. 11, 2020	Dec. 12, 2020~ Dec. 22, 2020	Sep. 10, 2021	Conduction (CO05-HY)
Hygrometer	Testo	608-H1	34913912	N/A	Nov. 18, 2020	Dec. 12, 2020~ Dec. 22, 2020	Nov. 17, 2021	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Dec. 01, 2020	Dec. 12, 2020~ Dec. 22, 2020	Nov. 30, 2021	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100081	9kHz~30MHz	Nov. 16, 2020	Dec. 12, 2020~ Dec. 22, 2020	Nov. 15, 2021	Conduction (CO05-HY)
Software	Rohde & Schwarz	EMC32 V10.30	N/A	N/A	N/A	Dec. 12, 2020~ Dec. 22, 2020	N/A	Conduction (CO05-HY)
LF Cable	HUBER + SUHNER	RG-214/U	LF01	N/A	Jan. 02, 2020	Dec. 12, 2020~ Dec. 22, 2020	Jan. 01, 2021	Conduction (CO05-HY)
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100851	N/A	Jan. 02, 2020	Dec. 12, 2020~ Dec. 22, 2020	Jan. 01, 2021	Conduction (CO05-HY)
Hygrometer	Testo	608-H1	34893241	N/A	Mar. 02, 2020	Nov. 17, 2020~ Jan. 05, 2021	Mar. 01, 2021	Conducted (TH05-HY)
Power Meter	Anritsu	ML2495A	1036004	N/A	Aug. 12, 2020	Nov. 17, 2020~ Jan. 05, 2021	Aug. 11, 2021	Conducted (TH05-HY)
Power Sensor	Anritsu	MA2411B	1027253	300MHz~40GHz	Aug. 12, 2020	Nov. 17, 2020~ Jan. 05, 2021	Aug. 11, 2021	Conducted (TH05-HY)
Signal Analyzer	Rohde & Schwarz	FSV40	101566	10Hz ~ 40GHz	Jul. 22, 2020	Nov. 17, 2020~ Jan. 05, 2021	Jul. 21, 2021	Conducted (TH05-HY)
Switch Box & RF Cable	EM Electronics	EMSW18SE	SW200302	N/A	Mar. 17, 2020	Nov. 17, 2020~ Jan. 05, 2021	Mar. 16, 2021	Conducted (TH05-HY)



5 Uncertainty of Evaluation

Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.3
-------------------------------------------------------------------------	-----

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.7
-------------------------------------------------------------------------	-----

Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.3
-------------------------------------------------------------------------	-----

Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.9
-------------------------------------------------------------------------	-----

Appendix A. Test Result of Conducted Test Items

Test Engineer:	Derek Hsu	Temperature:	21~25	°C
Test Date:	2020/11/17~2021/01/05	Relative Humidity:	51~54	%

<Normal Mode with Ant. 4>

TEST RESULTS DATA									
20dB and 99% Occupied Bandwidth and Hopping Channel Separation									
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	20db BW (MHz)	99% Bandwidth (MHz)	Hopping Channel Separation Measurement (MHz)	Hopping Channel Separation Measurement Limit (MHz)	Pass/Fail
DH	1Mbps	1	0	2402	0.892	0.825	0.999	0.5943	Pass
DH	1Mbps	1	39	2441	0.892	0.825	0.999	0.5943	Pass
DH	1Mbps	1	78	2480	0.889	0.825	0.999	0.5924	Pass
2DH	2Mbps	1	0	2402	1.259	1.166	0.999	0.8393	Pass
2DH	2Mbps	1	39	2441	1.259	1.161	1.077	0.8393	Pass
2DH	2Mbps	1	78	2480	1.281	1.166	1.020	0.8539	Pass
3DH	3Mbps	1	0	2402	1.233	1.149	0.933	0.8220	Pass
3DH	3Mbps	1	39	2441	1.229	1.146	0.999	0.8191	Pass
3DH	3Mbps	1	78	2480	1.229	1.146	1.155	0.8191	Pass

TEST RESULTS DATA						
Dwell Time						
Mod.	Hopping Channel Number Rate	Hops Over Occupancy Time(hops)	Package Transfer Time (msec)	Dwell Time (sec)	Limits (sec)	Pass/Fail
Nomal	79	106.67	2.88	0.31	0.4	Pass
AFH	20	53.33	2.88	0.15	0.4	Pass

TEST RESULTS DATA					
Peak Power Table					
DH	CH.	NTX	Peak Power (dBm)	Power Limit (dBm)	Test Result
DH1	0	1	17.70	20.97	Pass
	39	1	19.40	20.97	Pass
	78	1	18.16	20.97	Pass
2DH1	0	1	16.90	20.97	Pass
	39	1	18.55	20.97	Pass
	78	1	17.48	20.97	Pass
3DH1	0	1	17.29	20.97	Pass
	39	1	18.95	20.97	Pass
	78	1	17.97	20.97	Pass

TEST RESULTS DATA				
Average Power Table				
(Reporting Only)				
DH	CH.	NTX	Average Power (dBm)	Duty Factor (dB)
DH1	0	1	17.47	5.22
	39	1	19.26	5.22
	78	1	17.82	5.22
2DH1	0	1	14.24	5.12
	39	1	15.88	5.12
	78	1	14.93	5.12
3DH1	0	1	14.30	5.15
	39	1	15.98	5.15
	78	1	15.01	5.15

TEST RESULTS DATA			
Number of Hopping Frequency			
Number of Hopping (Channel)	Adaptive Frequency Hopping (Channel)	Limits (Channel)	Pass/Fail
79	20	> 15	Pass

<Normal Mode with Ant. 5>

TEST RESULTS DATA**20dB and 99% Occupied Bandwidth and Hopping Channel Separation**

Mod.	Data Rate	NTX	CH.	Freq. (MHz)	20db BW (MHz)	99% Bandwidth (MHz)	Hopping Channel Separation Measurement (MHz)	Hopping Channel Separation Measurement Limit (MHz)	Pass/Fail
DH	1Mbps	1	0	2402	0.892	0.825	0.999	0.5943	Pass
DH	1Mbps	1	39	2441	0.892	0.825	0.990	0.5943	Pass
DH	1Mbps	1	78	2480	0.892	0.825	1.003	0.5943	Pass
2DH	2Mbps	1	0	2402	1.285	1.166	1.151	0.8567	Pass
2DH	2Mbps	1	39	2441	1.259	1.166	1.159	0.8393	Pass
2DH	2Mbps	1	78	2480	1.285	1.164	1.003	0.8567	Pass
3DH	3Mbps	1	0	2402	1.229	1.143	1.003	0.8191	Pass
3DH	3Mbps	1	39	2441	1.229	1.149	0.999	0.8191	Pass
3DH	3Mbps	1	78	2480	1.229	1.146	1.146	0.8191	Pass

TEST RESULTS DATA**Dwell Time**

Mod.	Hopping Channel Number Rate	Hops Over Occupancy Time(hops)	Package Transfer Time (msec)	Dwell Time (sec)	Limits (sec)	Pass/Fail
Nomal	79	106.67	2.88	0.31	0.4	Pass
AFH	20	53.33	2.88	0.15	0.4	Pass

TEST RESULTS DATA**Peak Power Table**

DH	CH.	NTX	Peak Power (dBm)	Power Limit (dBm)	Test Result
DH1	0	1	16.30	20.97	Pass
	39	1	18.96	20.97	Pass
	78	1	17.18	20.97	Pass
2DH1	0	1	16.65	20.97	Pass
	39	1	18.72	20.97	Pass
	78	1	17.31	20.97	Pass
3DH1	0	1	17.09	20.97	Pass
	39	1	18.95	20.97	Pass
	78	1	17.71	20.97	Pass

TEST RESULTS DATA**Average Power Table****(Reporting Only)**

DH	CH.	NTX	Average Power (dBm)	Duty Factor (dB)
DH1	0	1	16.08	5.22
	39	1	18.36	5.22
	78	1	17.07	5.22
2DH1	0	1	14.19	5.12
	39	1	16.18	5.12
	78	1	14.88	5.12
3DH1	0	1	14.27	5.15
	39	1	16.28	5.15
	78	1	14.93	5.15

TEST RESULTS DATA**Number of Hopping Frequency**

Number of Hopping (Channel)	Adaptive Frequency Hopping (Channel)	Limits (Channel)	Pass/Fail
79	20	> 15	Pass

<Camera Mode with Ant. 6>

TEST RESULTS DATA**20dB and 99% Occupied Bandwidth and Hopping Channel Separation**

Mod.	Data Rate	NTX	CH.	Freq. (MHz)	20db BW (MHz)	99% Bandwidth (MHz)	Hopping Channel Separation Measurement (MHz)	Hopping Channel Separation Measurement Limit (MHz)	Pass/Fail
DH	1Mbps	1	0	2402	0.892	0.825	1.003	0.5943	Pass
DH	1Mbps	1	39	2441	0.892	0.828	1.003	0.5943	Pass
DH	1Mbps	1	78	2480	0.892	0.825	1.007	0.5943	Pass
2DH	2Mbps	1	0	2402	1.259	1.164	1.081	0.8393	Pass
2DH	2Mbps	1	39	2441	1.259	1.166	1.307	0.8393	Pass
2DH	2Mbps	1	78	2480	1.246	1.166	1.146	0.8307	Pass
3DH	3Mbps	1	0	2402	1.216	1.149	1.155	0.8104	Pass
3DH	3Mbps	1	39	2441	1.229	1.146	0.925	0.8191	Pass
3DH	3Mbps	1	78	2480	1.229	1.146	0.868	0.8191	Pass

TEST RESULTS DATA**Dwell Time**

Mod.	Hopping Channel Number Rate	Hops Over Occupancy Time(hops)	Package Transfer Time (msec)	Dwell Time (sec)	Limits (sec)	Pass/Fail
Nomal	79	106.67	2.90	0.31	0.4	Pass
AFH	20	53.33	2.90	0.15	0.4	Pass

TEST RESULTS DATA**Peak Power Table**

DH	CH.	NTX	Peak Power (dBm)	Power Limit (dBm)	Test Result
DH1	0	1	16.93	20.97	Pass
	39	1	16.81	20.97	Pass
	78	1	18.34	20.97	Pass
2DH1	0	1	15.91	20.97	Pass
	39	1	16.10	20.97	Pass
	78	1	17.41	20.97	Pass
3DH1	0	1	16.31	20.97	Pass
	39	1	16.46	20.97	Pass
	78	1	17.84	20.97	Pass

TEST RESULTS DATA**Average Power Table****(Reporting Only)**

DH	CH.	NTX	Average Power (dBm)	Duty Factor (dB)
DH1	0	1	16.82	5.22
	39	1	16.66	5.22
	78	1	18.22	5.22
2DH1	0	1	13.36	5.15
	39	1	13.49	5.15
	78	1	14.83	5.15
3DH1	0	1	13.37	5.12
	39	1	13.66	5.12
	78	1	14.84	5.12

TEST RESULTS DATA**Number of Hopping Frequency**

Number of Hopping (Channel)	Adaptive Frequency Hopping (Channel)	Limits (Channel)	Pass/Fail
79	20	> 15	Pass



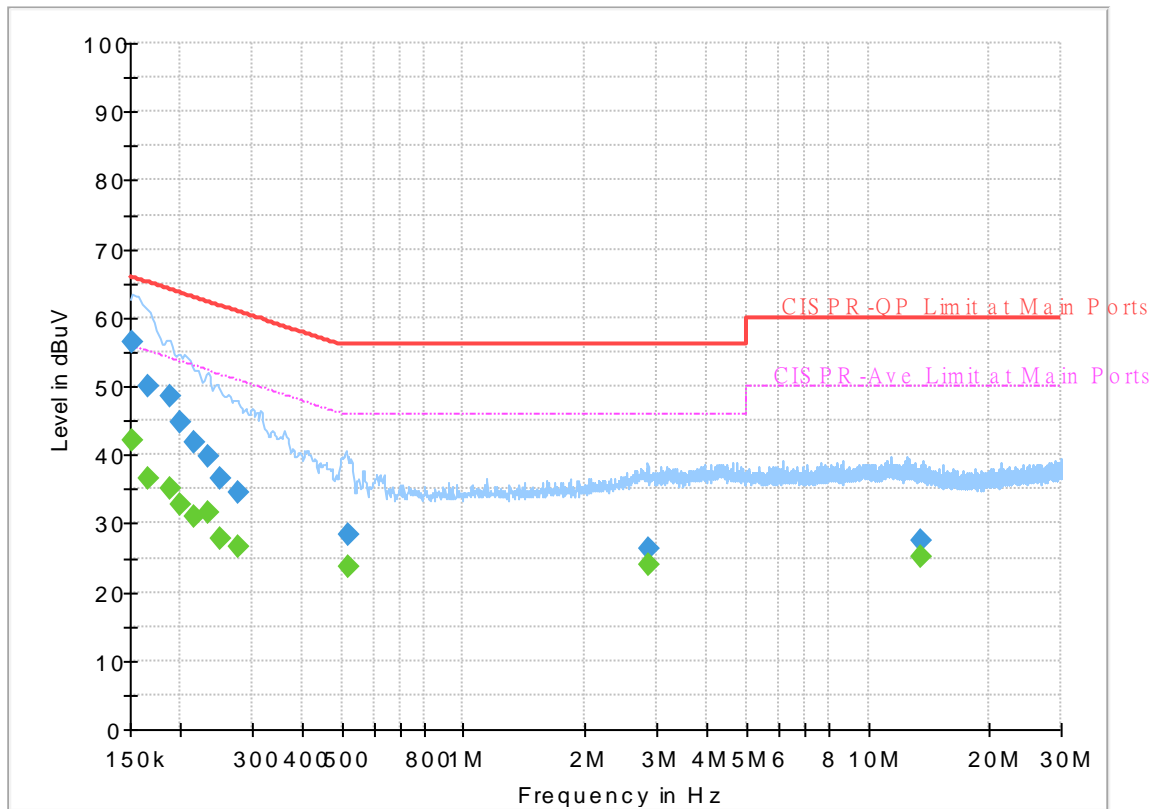
Appendix B. AC Conducted Emission Test Results

Test Engineer :	Tom Lee and Howard Huang	Temperature :	23~26°C
		Relative Humidity :	40~50%

EUT Information

Report NO : 082114
 Test Mode : Mode 1
 Test Voltage : 120Vac/60Hz
 Phase : Line

Full Spectrum



Final_Result

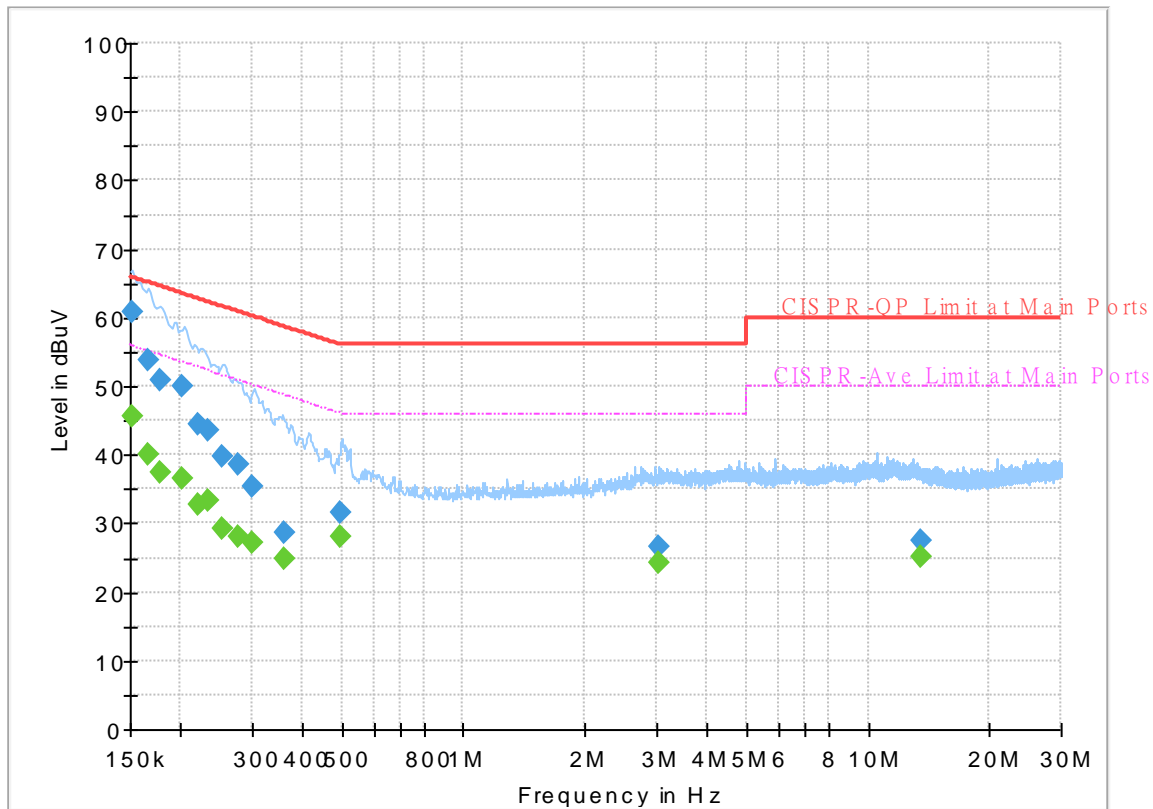
Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.152250	---	42.23	55.88	13.65	L1	OFF	19.6
0.152250	56.56	---	65.88	9.32	L1	OFF	19.6
0.165750	---	36.63	55.17	18.54	L1	OFF	19.6
0.165750	50.01	---	65.17	15.16	L1	OFF	19.6
0.188250	---	35.02	54.11	19.09	L1	OFF	19.6
0.188250	48.42	---	64.11	15.69	L1	OFF	19.6
0.199500	---	32.66	53.63	20.97	L1	OFF	19.6
0.199500	44.81	---	63.63	18.82	L1	OFF	19.6
0.215610	---	30.90	52.99	22.09	L1	OFF	19.5
0.215610	41.80	---	62.99	21.19	L1	OFF	19.5
0.232800	---	31.51	52.35	20.84	L1	OFF	19.5
0.232800	39.73	---	62.35	22.62	L1	OFF	19.5
0.250890	---	27.66	51.73	24.07	L1	OFF	19.5
0.250890	36.42	---	61.73	25.31	L1	OFF	19.5
0.277980	---	26.56	50.88	24.32	L1	OFF	19.5
0.277980	34.64	---	60.88	26.24	L1	OFF	19.5
0.516750	---	23.79	46.00	22.21	L1	OFF	19.5
0.516750	28.46	---	56.00	27.54	L1	OFF	19.5
2.856750	---	24.07	46.00	21.93	L1	OFF	19.7
2.856750	26.36	---	56.00	29.64	L1	OFF	19.7
13.560000	---	25.19	50.00	24.81	L1	OFF	20.1

13.560000	27.41	---	60.00	32.59	L1	OFF	20.1
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EUT Information

Report NO : 082114
 Test Mode : Mode 1
 Test Voltage : 120Vac/60Hz
 Phase : Neutral

Full Spectrum



Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.152250	---	45.68	55.88	10.20	N	OFF	19.6
0.152250	60.96	---	65.88	4.92	N	OFF	19.6
0.165660	---	39.92	55.18	15.26	N	OFF	19.6
0.165660	53.69	---	65.18	11.49	N	OFF	19.6
0.177900	---	37.43	54.58	17.15	N	OFF	19.6
0.177900	51.00	---	64.58	13.58	N	OFF	19.6
0.201120	---	36.63	53.56	16.93	N	OFF	19.6
0.201120	49.86	---	63.56	13.70	N	OFF	19.6
0.222000	---	32.62	52.74	20.12	N	OFF	19.6
0.222000	44.41	---	62.74	18.33	N	OFF	19.6
0.233790	---	33.37	52.31	18.94	N	OFF	19.6
0.233790	43.44	---	62.31	18.87	N	OFF	19.6
0.253230	---	29.28	51.65	22.37	N	OFF	19.6
0.253230	39.84	---	61.65	21.81	N	OFF	19.6
0.277350	---	28.19	50.90	22.71	N	OFF	19.6
0.277350	38.66	---	60.90	22.24	N	OFF	19.6
0.300750	---	27.15	50.22	23.07	N	OFF	19.6
0.300750	35.34	---	60.22	24.88	N	OFF	19.6
0.361500	---	24.77	48.69	23.92	N	OFF	19.6
0.361500	28.76	---	58.69	29.93	N	OFF	19.6
0.498390	---	28.10	46.03	17.93	N	OFF	19.6

0.498390	31.54	---	56.03	24.49	N	OFF	19.6
3.045750	---	24.24	46.00	21.76	N	OFF	19.7
3.045750	26.66	---	56.00	29.34	N	OFF	19.7
13.560000	---	25.26	50.00	24.74	N	OFF	20.2
13.560000	27.53	---	60.00	32.47	N	OFF	20.2



Appendix C. Radiated Spurious Emission

Test Engineer :	Leo Lee, Mancy Chou, and Bigshow Wang	Temperature :	22.5~24.2°C
		Relative Humidity :	44~57%

<Normal Mode with Ant. 4>

2.4GHz 2400~2483.5MHz

BT (Band Edge @ 3m)

BT	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.	
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)	
BT CH00 2402MHz		2323.965	44.58	-29.42	74	41.24	27.75	6.53	30.94	114	307	P	H	
		2323.965	19.82	-34.18	54	-	-	-	-	-	-	A	H	
	*	2402	106.9	-	-	103.65	27.5	6.66	30.91	114	307	P	H	
	*	2402	82.14	-	-	-	-	-	-	-	-	A	H	
													H	
			2378.88	45.13	-28.87	74	41.84	27.58	6.63	30.92	342	25	P	V
			2378.88	20.37	-33.63	54	-	-	-	-	-	-	A	V
	*		2402	101.29	-	-	98.04	27.5	6.66	30.91	342	25	P	V
	*		2402	76.53	-	-	-	-	-	-	-	-	A	V
														V
BT CH 39 2441MHz		2387	44.59	-29.41	74	41.32	27.55	6.64	30.92	100	302	P	H	
		2387	19.83	-34.17	54	-	-	-	-	-	-	A	H	
	*	2441	109.75	-	-	106.42	27.5	6.72	30.89	100	302	P	H	
	*	2441	84.99	-	-	-	-	-	-	-	-	A	H	
			2489.92	45.48	-28.52	74	42.13	27.42	6.8	30.87	100	302	P	H
			2489.92	20.72	-33.28	54	-	-	-	-	-	-	A	H
			2363.34	44.56	-29.44	74	41.24	27.65	6.6	30.93	367	49	P	V
			2363.34	19.8	-34.2	54	-	-	-	-	-	-	A	V
	*		2441	106.49	-	-	103.16	27.5	6.72	30.89	367	49	P	V
	*		2441	81.73	-	-	-	-	-	-	-	-	A	V
			2486	45.14	-28.86	74	41.8	27.43	6.79	30.88	367	49	P	V
			2486	20.38	-33.62	54	-	-	-	-	-	-	A	V



BT CH 78 2480MHz	*	2480	108.42	-	-	105.08	27.44	6.78	30.88	100	310	P	H
	*	2480	83.66	-	-	-	-	-	-	-	-	A	H
		2484.68	55.02	-18.98	74	51.68	27.43	6.79	30.88	100	310	P	H
		2484.68	30.26	-23.74	54	-	-	-	-	-	-	A	H
													H
													H
	*	2480	104.95	-	-	101.61	27.44	6.78	30.88	400	46	P	V
	*	2480	80.19	-	-	-	-	-	-	-	-	A	V
		2484.92	51.88	-22.12	74	48.54	27.43	6.79	30.88	400	46	P	V
		2484.92	27.12	-26.88	54	-	-	-	-	-	-	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz
BT (Harmonic @ 3m)

BT	Note	Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)	
BT CH 00 2402MHz		4804	40.28	-33.72	74	58.21	31.1	10.05	59.08	100	0	P	H	
		4804	15.52	-38.48	54	-	-	-	-	-	-	A	H	
													H	
													H	
		4804	39.33	-34.67	74	57.26	31.1	10.05	59.08	100	0	P	V	
		4804	14.57	-39.43	54	-	-	-	-	-	-	-	A	V
													V	
													V	
BT CH 39 2441MHz		4882	39.73	-34.27	74	57.71	31.04	10.11	59.13	100	0	P	H	
		4882	14.97	-39.03	54	-	-	-	-	-	-	A	H	
		7323	46.09	-27.91	74	56.02	36.3	12.32	58.55	100	0	P	H	
		7323	21.33	-32.67	54	-	-	-	-	-	-	A	H	
		4882	39.5	-34.5	74	57.48	31.04	10.11	59.13	100	0	P	V	
		4882	14.74	-39.26	54	-	-	-	-	-	-	A	V	
		7323	44.89	-29.11	74	54.82	36.3	12.32	58.55	100	0	P	V	
		7323	20.13	-33.87	54	-	-	-	-	-	-	A	V	
BT CH 78 2480MHz		4960	39.84	-34.16	74	57.63	31.22	10.17	59.18	100	0	P	H	
		4960	15.08	-38.92	54	-	-	-	-	-	-	A	H	
		7440	45.57	-28.43	74	55.26	36.3	12.39	58.38	100	0	P	H	
		7440	20.81	-33.19	54	-	-	-	-	-	-	A	H	
		4960	40.38	-33.62	74	58.17	31.22	10.17	59.18	100	0	P	V	
		4960	15.62	-38.38	54	-	-	-	-	-	-	A	V	
		7440	45.71	-28.29	74	55.4	36.3	12.39	58.38	100	0	P	V	
		7440	20.95	-33.05	54	-	-	-	-	-	-	A	V	
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.													



Emission below 1GHz
2.4GHz BT (LF)

BT	Note	Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)	
2.4GHz BT LF		49.4	25.4	-14.6	40	41.87	15	0.91	32.38	-	-	P	H	
		93.05	27.14	-16.36	43.5	42.72	15.36	1.37	32.31	-	-	P	H	
		159.98	27.33	-16.17	43.5	41.24	16.7	1.81	32.42	-	-	P	H	
		718.7	38.13	-7.87	46	40.09	26.83	3.63	32.42	-	-	P	H	
		827.34	37.77	-8.23	46	37.72	27.95	3.98	31.88	-	-	P	H	
		903.97	37.98	-8.02	46	37.08	28.62	4.18	31.9	100	0	P	H	
														H
														H
														H
														H
														H
														H
			44.55	29.63	-10.37	40	43.9	17.21	0.84	32.32	-	-	P	V
			49.4	30.91	-9.09	40	47.38	15	0.91	32.38	-	-	P	V
			93.05	26.91	-16.59	43.5	42.49	15.36	1.37	32.31	-	-	P	V
			161.92	24.38	-19.12	43.5	38.37	16.61	1.82	32.42	-	-	P	V
			718.7	39.4	-6.6	46	41.36	26.83	3.63	32.42	100	0	P	V
			903.97	37.4	-8.6	46	36.5	28.62	4.18	31.9	-	-	P	V
														V
														V
														V
														V
														V
														V
Remark	1. No other spurious found. 2. All results are PASS against limit line.													



<Normal Mode with Ant. 5>

2.4GHz 2400~2483.5MHz

BT (Band Edge @ 3m)

BT	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.	
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)	
BT CH00 2402MHz		2336.355	45.65	-28.35	74	42.31	27.73	6.55	30.94	100	299	P	H	
		2336.355	20.86	-33.14	54	-	-	-	-	-	-	A	H	
	*	2402	105.68	-	-	102.43	27.5	6.66	30.91	100	299	P	H	
	*	2402	80.89	-	-	-	-	-	-	-	-	A	H	
													H	
													H	
			2322.705	45.39	-28.61	74	42.05	27.75	6.53	30.94	381	29	P	V
			2322.705	20.6	-33.4	54	-	-	-	-	-	-	A	V
	*		2402	103.1	-	-	99.85	27.5	6.66	30.91	381	29	P	V
	*		2402	78.31	-	-	-	-	-	-	-	-	A	V
													V	
													V	
BT CH 39 2441MHz		2358.58	44.52	-29.48	74	41.19	27.67	6.59	30.93	100	297	P	H	
		2358.58	19.73	-34.27	54	-	-	-	-	-	-	A	H	
	*	2441	110.78	-	-	107.45	27.5	6.72	30.89	100	297	P	V	
	*	2441	85.99	-	-	-	-	-	-	-	-	A	V	
			2484.81	44.57	-29.43	74	41.23	27.43	6.79	30.88	100	297	P	H
			2484.81	19.78	-34.22	54	-	-	-	-	-	-	A	H
			2374.26	44.67	-29.33	74	41.37	27.6	6.62	30.92	400	20	P	H
			2374.26	19.88	-34.12	54	-	-	-	-	-	-	A	H
	*		2441	102.65	-	-	99.32	27.5	6.72	30.89	400	20	P	V
	*		2441	77.86	-	-	-	-	-	-	-	-	A	V
		2486.91	44.65	-29.35	74	41.31	27.43	6.79	30.88	400	20	P	V	
		2486.91	19.86	-34.14	54	-	-	-	-	-	-	A	V	



BT CH 78 2480MHz	*	2480	109.7	-	-	106.36	27.44	6.78	30.88	100	302	P	H
	*	2480	84.91	-	-	-	-	-	-	-	-	A	H
		2484.52	56.7	-17.3	74	53.36	27.43	6.79	30.88	100	302	P	H
		2484.52	31.91	-22.09	54	-	-	-	-	-	-	A	H
													H
													H
	*	2480	106.2	-	-	102.86	27.44	6.78	30.88	400	16	P	V
	*	2480	81.41	-	-	-	-	-	-	-	-	A	V
		2485.08	52.7	-21.3	74	49.36	27.43	6.79	30.88	400	16	P	V
		2485.08	27.91	-26.09	54	-	-	-	-	-	-	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz
BT (Harmonic @ 3m)

BT	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)	
BT CH 00 2402MHz		4804	39.05	-34.95	74	56.98	31.1	10.05	59.08	100	0	P	H	
		4804	14.26	-39.74	54	-	-	-	-	-	-	A	H	
													H	
													H	
		4804	39.83	-34.17	74	57.76	31.1	10.05	59.08	100	0	P		
		4804	15.04	-38.96	54	-	-	-	-	-	-	-	A	V
														V
														V
BT CH 39 2441MHz		4882	39.51	-34.49	74	57.49	31.04	10.11	59.13	100	0	P	H	
		4882	14.72	-39.28	54	-	-	-	-	-	-	A	H	
		7323	45.57	-28.43	74	55.5	36.3	12.32	58.55	100	0	P	H	
		4882	20.78	-33.22	54	-	-	-	-	-	-	A	H	
		4882	40.04	-33.96	74	58.02	31.04	10.11	59.13	100	0	P	V	
		4882	15.25	-38.75	54	-	-	-	-	-	-	A	V	
		7323	44.88	-29.12	74	54.81	36.3	12.32	58.55	100	0	P	V	
		7323	20.09	-33.91	54	-	-	-	-	-	-	A	V	
BT CH 78 2480MHz		4960	39.53	-34.47	74	57.32	31.22	10.17	59.18	100	0	P	H	
		4960	14.74	-39.26	54	-	-	-	-	-	-	A	H	
		7440	45.86	-28.14	74	55.55	36.3	12.39	58.38	100	0	P	H	
		7440	21.07	-32.93	54	-	-	-	-	-	-	A	H	
		4960	39.74	-34.26	74	57.53	31.22	10.17	59.18	100	0	P	V	
		4960	14.95	-39.05	54	-	-	-	-	-	-	A	V	
		7440	46.56	-27.44	74	56.25	36.3	12.39	58.38	100	0	P	V	
		7440	21.77	-32.23	54	-	-	-	-	-	-	A	V	
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.													



Emission below 1GHz
2.4GHz BT (LF)

Table with 14 columns: BT, Note, Frequency (MHz), Level (dBµV/m), Over Limit (dB), Limit Line (dBµV/m), Read Level (dBµV), Antenna Factor (dB/m), Path Loss (dB), Preamp Factor (dB), Ant Pos (cm), Table Pos (deg), Peak Avg. (P/A), Pol. (H/V). Rows include data for 2.4GHz BT LF and a Remark section.



<Camera Mode with Ant. 6>

2.4GHz 2400~2483.5MHz

BT (Band Edge @ 3m)

BT	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.	
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)	
BT CH00 2402MHz		2389.59	47.78	-26.22	74	44.52	27.54	6.64	30.92	129	50	P	H	
		2389.59	22.99	-31.01	54	-	-	-	-	-	-	A	H	
	*	2402	110.3	-	-	107.05	27.5	6.66	30.91	129	50	P	H	
	*	2402	85.51	-	-	-	-	-	-	-	-	A	H	
													H	
													H	
			2387.91	44.95	-29.05	74	41.68	27.55	6.64	30.92	327	101	P	V
			2387.91	20.16	-33.84	54	-	-	-	-	-	-	A	V
	*		2402	110.08	-	-	106.83	27.5	6.66	30.91	327	101	P	V
	*		2402	85.29	-	-	-	-	-	-	-	-	A	V
													V	
													V	
BT CH 39 2441MHz		2327.64	45.44	-28.56	74	42.1	27.74	6.54	30.94	133	49	P	H	
		2327.64	20.65	-33.35	54	-	-	-	-	-	-	A	H	
	*	2441	109.82	-	-	106.49	27.5	6.72	30.89	133	49	P	H	
	*	2441	85.03	-	-	-	-	-	-	-	-	A	H	
			2484.88	45.14	-28.86	74	41.8	27.43	6.79	30.88	133	49	P	H
			2484.88	20.35	-33.65	54	-	-	-	-	-	-	A	H
			2363.62	44.54	-29.46	74	41.22	27.65	6.6	30.93	325	102	P	V
			2363.62	19.75	-34.25	54	-	-	-	-	-	-	A	V
	*		2441	109.19	-	-	105.86	27.5	6.72	30.89	325	102	P	V
	*		2441	84.4	-	-	-	-	-	-	-	-	A	V
			2498.67	45.06	-28.94	74	41.72	27.4	6.81	30.87	325	102	P	V
			2498.67	20.27	-33.73	54	-	-	-	-	-	-	A	V



BT CH 78 2480MHz	*	2480	108.99	-	-	105.65	27.44	6.78	30.88	112	50	P	H
	*	2480	84.2	-	-	-	-	-	-	-	-	A	H
		2483.84	54.78	-19.22	74	51.44	27.43	6.79	30.88	112	50	P	H
		2483.84	29.99	-24.01	54	-	-	-	-	-	-	A	H
													H
													H
	*	2480	109.83	-	-	106.49	27.44	6.78	30.88	328	50	P	V
	*	2480	85.04	-	-	-	-	-	-	-	-	A	V
		2483.68	55.44	-18.56	74	52.1	27.43	6.79	30.88	328	50	P	V
		2483.68	30.65	-23.35	54	-	-	-	-	-	-	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz
BT (Harmonic @ 3m)

BT	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)	
BT CH 00 2402MHz		4804	43.61	-30.39	74	61.54	31.1	10.05	59.08	100	0	P	H	
		4804	18.82	-35.18	54	-	-	-	-	-	-	A	H	
													H	
													H	
		4804	42.49	-31.51	74	60.42	31.1	10.05	59.08	100	0	P	V	
		4804	17.7	-36.3	54	-	-	-	-	-	-	-	A	V
													V	
													V	
BT CH 39 2441MHz		4882	40.01	-33.99	74	57.99	31.04	10.11	59.13	100	0	P	H	
		4882	15.22	-38.78	54	-	-	-	-	-	-	A	H	
		7323	44.54	-29.46	74	54.47	36.3	12.32	58.55	100	0	P	H	
		7323	19.75	-34.25	54	-	-	-	-	-	-	A	H	
		4882	40.56	-33.44	74	58.54	31.04	10.11	59.13	100	0	P	V	
		4882	15.77	-38.23	54	-	-	-	-	-	-	-	A	V
		7323	45.24	-28.76	74	55.17	36.3	12.32	58.55	100	0	P	V	
		7323	20.45	-33.55	54	-	-	-	-	-	-	-	A	V
BT CH 78 2480MHz		4960	41.19	-32.81	74	58.98	31.22	10.17	59.18	100	0	P	H	
		4960	16.4	-37.6	54	-	-	-	-	-	-	A	H	
		7440	45.17	-28.83	74	54.86	36.3	12.39	58.38	100	0	P	H	
		7440	20.38	-33.62	54	-	-	-	-	-	-	A	H	
		4960	41.73	-32.27	74	59.52	31.22	10.17	59.18	100	0	P	V	
		4960	16.94	-37.06	54	-	-	-	-	-	-	A	V	
		7440	45.85	-28.15	74	55.54	36.3	12.39	58.38	100	0	P	V	
		7440	21.06	-32.94	54	-	-	-	-	-	-	-	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.													



Emission below 1GHz
2.4GHz BT (LF)

BT	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)	
2.4GHz BT LF		49.4	22.98	-17.02	40	39.45	15	0.91	32.38	-	-	P	H	
		93.05	27.19	-16.31	43.5	42.77	15.36	1.37	32.31	-	-	P	H	
		159.01	27.29	-16.21	43.5	41.12	16.79	1.8	32.42	-	-	P	H	
		163.86	27.39	-16.11	43.5	41.64	16.32	1.84	32.41	-	-	P	H	
		734.22	37	-9	46	38.22	27.54	3.68	32.44	-	-	P	H	
		903.97	39.5	-6.5	46	38.6	28.62	4.18	31.9	100	0	P	H	
														H
														H
														H
														H
														H
														H
														H
														H
														H
			49.4	30.98	-9.02	40	47.45	15	0.91	32.38	-	-	P	V
			92.08	26.46	-17.04	43.5	42.21	15.23	1.35	32.33	-	-	P	V
			163.86	24.9	-18.6	43.5	39.15	16.32	1.84	32.41	-	-	P	V
		374.35	24.71	-21.29	46	33.58	20.78	2.64	32.29	-	-	P	V	
		714.82	35.62	-10.38	46	37.78	26.62	3.63	32.41	-	-	P	V	
		898.15	38.38	-7.62	46	37.6	28.57	4.16	31.95	100	0	P	V	
													V	
													V	
													V	
													V	
													V	
													V	
Remark	1. No other spurious found. 2. All results are PASS against limit line.													



Note symbol

*	Fundamental Frequency which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
!	Test result is over limit line.
P/A	Peak or Average
H/V	Horizontal or Vertical



A calculation example for radiated spurious emission is shown as below:

BT	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BT CH 00 2402MHz		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

1. Path Loss(dB) = Cable loss(dB) + Filter loss(dB) + Attenuator loss(dB)
2. Level(dBμV/m) =
Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
3. Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 2390MHz:

1. Level(dBμV/m)
= Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
= 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)
= 55.45 (dBμV/m)
2. Over Limit(dB)
= Level(dBμV/m) – Limit Line(dBμV/m)
= 55.45(dBμV/m) – 74(dBμV/m)
= -18.55(dB)

For Average Limit @ 2390MHz:

1. Level(dBμV/m)
= Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
= 32.22(dB/m) + 4.58(dB) + 42.6(dBμV) – 35.86 (dB)
= 43.54 (dBμV/m)
2. Over Limit(dB)
= Level(dBμV/m) – Limit Line(dBμV/m)
= 43.54(dBμV/m) – 54(dBμV/m)
= -10.46(dB)

Both peak and average measured complies with the limit line, so test result is “PASS”.



Appendix D. Radiated Spurious Emission Plots

Test Engineer :	Leo Lee, Mancy Chou, and Bigshow Wang	Temperature :	22.5~24.2°C
		Relative Humidity :	44~57%

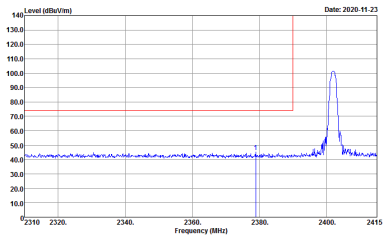
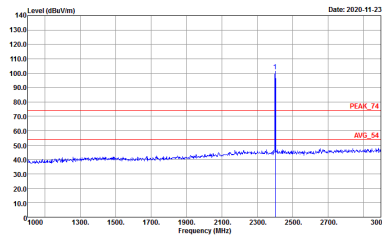
<Normal Mode with Ant. 4>

2.4GHz 2400~2483.5MHz

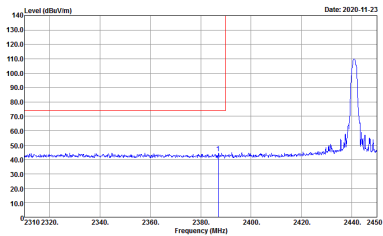
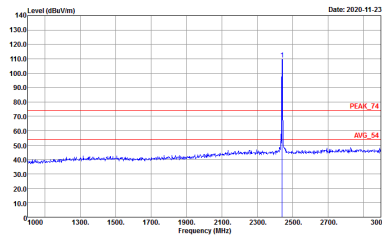
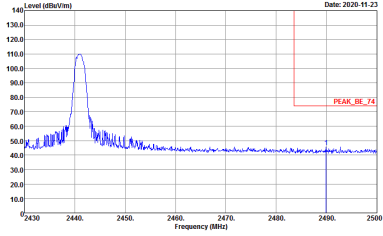
BT (Band Edge @ 3m)

BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BT CH00 2402MHz	
	Horizontal	Fundamental
Peak	<p>Site : 03CH15-HY Condition : PEAK_BE_74 3m 91200_15_1620 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p>	<p>Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p>



BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BT CH00 2402MHz	
	Vertical	Fundamental
Peak	 <p>Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 VERTICAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p>	 <p>Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 VERTICAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p>

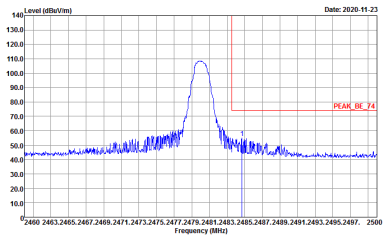
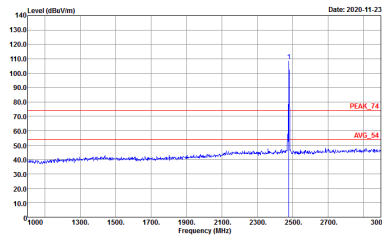


BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BT CH39 2441MHz	
	Horizontal	Fundamental
Peak	 <p>Site : 03CH15-HY Condition : PEAK_BE_74 3m 91200_15_1620 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Peak	 <p>Site : 03CH15-HY Condition : PEAK_BE_74 3m 91200_15_1620 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	Left blank

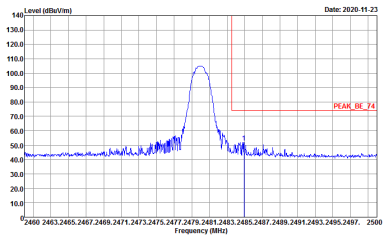
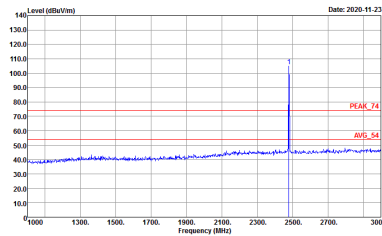


BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BT CH39 2441MHz	
	Vertical	Fundamental
Peak	<p>Site : 03CH15-HY Condition : PEAK_BE_74 3m 91200_15_1620 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Peak	<p>Site : 03CH15-HY Condition : PEAK_BE_74 3m 91200_15_1620 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	Left blank



BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BT CH78 2480MHz	
	Horizontal	Fundamental
Peak	 <p>Date: 2020-11-23</p> <p>Site : 03CH15-HY Condition : PEAK_BC_74 3m 91200_15_1620 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Date: 2020-11-23</p> <p>Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>

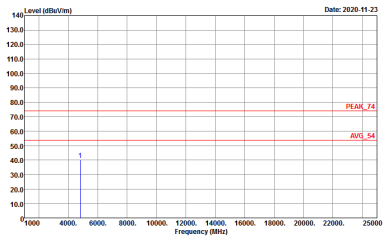
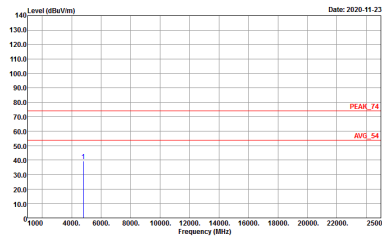


BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
BT CH78 2480MHz		
	Vertical	Fundamental
Peak	 <p>Site : 03CH15-HY Condition : PEAK_BC_74 3m 9120D_15_1620 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Site : 03CH15-HY Condition : PEAK_74 3m 9120D_15_1620 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>

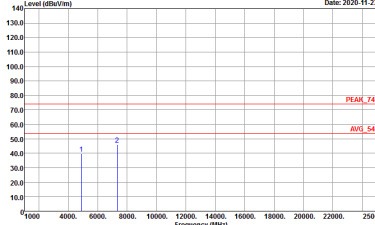
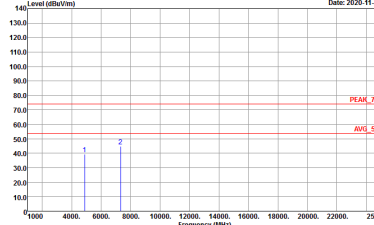


2.4GHz 2400~2483.5MHz

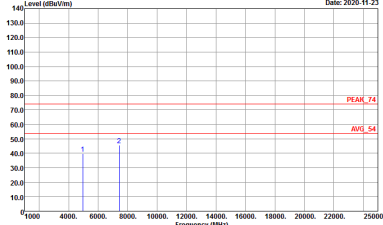
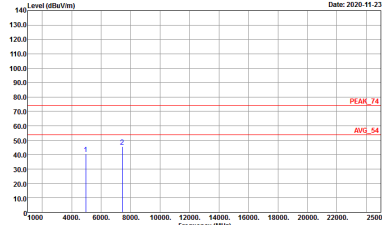
BT (Harmonic @ 3m)

BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	BT CH00 2402MHz	
	Horizontal	Vertical
Peak Avg.	 <p>Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 HORIZONTAL Detector : Peak</p>	 <p>Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 VERTICAL Detector : Peak</p>



BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	BT CH39 2441MHz	
	Horizontal	Vertical
<p>Peak</p> <p>Avg.</p>	 <p>Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 HORIZONTAL</p>	 <p>Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 VERTICAL</p>

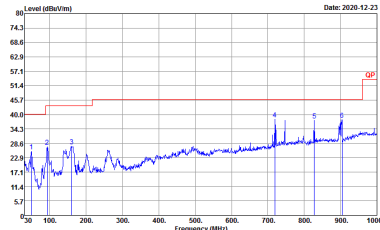
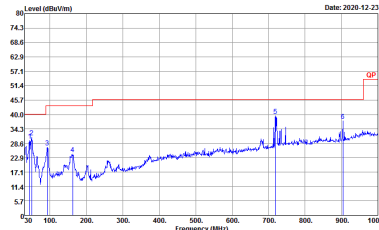


BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	BT CH78 2480MHz	
	Horizontal	Vertical
Peak Avg.	 <p>Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 HORIZONTAL</p>	 <p>Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 VERTICAL</p>



Emission below 1GHz

2.4GHz BT (LF)

BT	2.4GHz 2400~2483.5MHz	
	BT LF	
	Horizontal	Vertical
QP / Peak	 <p>Site : 03CH15-HY Condition : QP 3m B1LOG_15_41912 HORIZONTAL</p>	 <p>Site : 03CH15-HY Condition : QP 3m B1LOG_15_41912 VERTICAL</p>



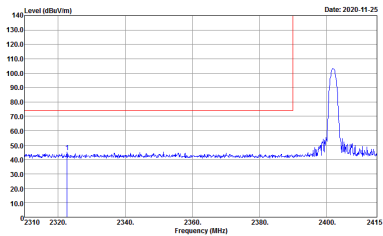
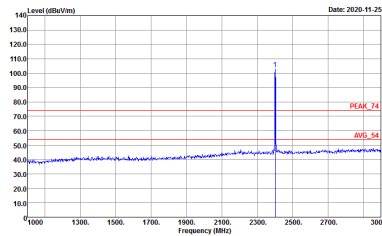
<Normal Mode with Ant. 5>

2.4GHz 2400~2483.5MHz

BT (Band Edge @ 3m)

BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BT CH00 2402MHz	
	Horizontal	Fundamental
Peak	<p>Site : 03CH15-HY Condition : PEAK_BE_74 3m 91200_15_1620 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>



BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BT CH00 2402MHz	
	Vertical	Fundamental
Peak	 <p>Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 VERTICAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p>	 <p>Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 VERTICAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p>

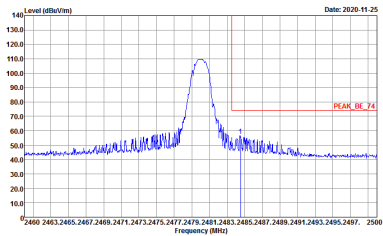
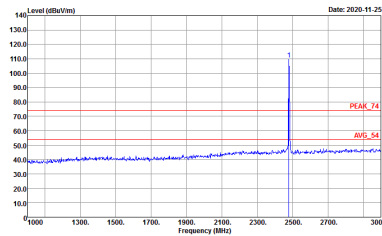


BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BT CH39 2441MHz	
	Horizontal	Fundamental
Peak	<p>Site : 03CH15-HY Condition : PEAK_BE_74 3m 91200_15_1620 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Peak	<p>Site : 03CH15-HY Condition : PEAK_BE_74 3m 91200_15_1620 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	Left blank

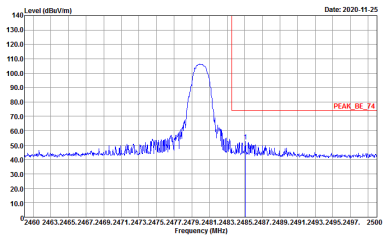
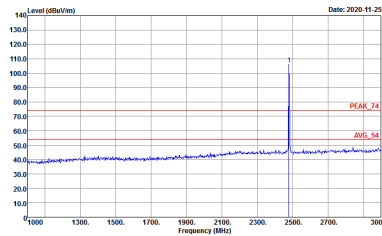


BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BT CH39 2441MHz	
	Vertical	Fundamental
Peak	<p>Site : 03CH15-HY Condition : PEAK_BE_74 3m 91200_15_1620 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Peak	<p>Site : 03CH15-HY Condition : PEAK_BE_74 3m 91200_15_1620 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	Left blank



BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BT CH78 2480MHz	
	Horizontal	Fundamental
Peak	 <p>Site : 03CH15-HY Condition : PEAK_BC_74 3m 91200_15_1620 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>

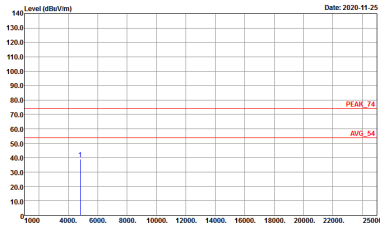
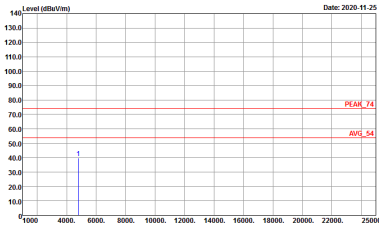


BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BT CH78 2480MHz	
	Vertical	Fundamental
Peak	 <p>Date: 2020-11-25</p> <p>Site : 03CH15-HY Condition : PEAK_BC_74 3m 9120D_15_1620 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Date: 2020-11-25</p> <p>Site : 03CH15-HY Condition : PEAK_74 3m 9120D_15_1620 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>

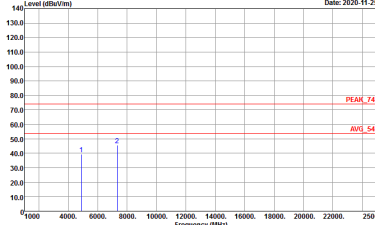
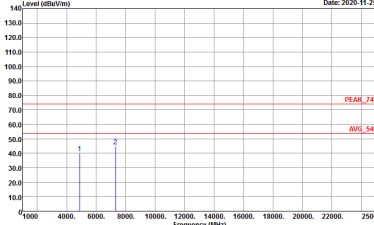


2.4GHz 2400~2483.5MHz

BT (Harmonic @ 3m)

BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	BT CH00 2402MHz	
	Horizontal	Vertical
<p>Peak Avg.</p>	 <p>Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 HORIZONTAL</p>	 <p>Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 VERTICAL</p>



BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	BT CH39 2441MHz	
	Horizontal	Vertical
Peak Avg.	 <p>Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 HORIZONTAL</p>	 <p>Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 VERTICAL</p>

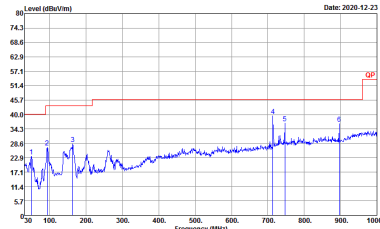
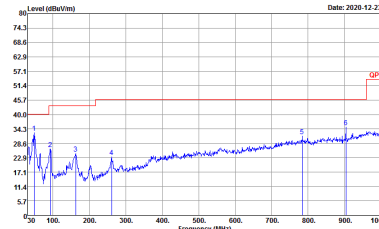


BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	BT CH78 2480MHz	
	Horizontal	Vertical
<p>Peak</p> <p>Avg.</p>	<p>Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 HORIZONTAL</p>	<p>Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 VERTICAL</p>



Emission below 1GHz

2.4GHz BT (LF)

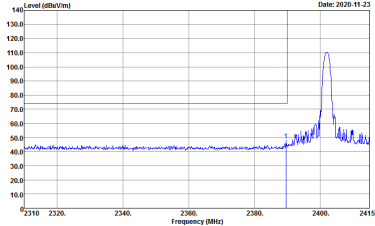
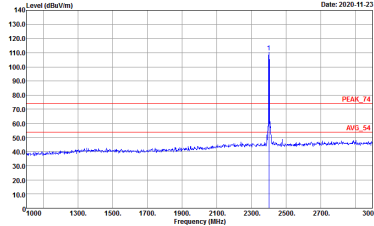
BT	2.4GHz 2400~2483.5MHz	
	BT LF	
	Horizontal	Vertical
QP / Peak	 <p data-bbox="430 833 662 862">Site : 03CH15-HY Condition : QP 3m B1LOG_15_41912 HORIZONTAL</p>	 <p data-bbox="901 833 1133 862">Site : 03CH15-HY Condition : QP 3m B1LOG_15_41912 VERTICAL</p>



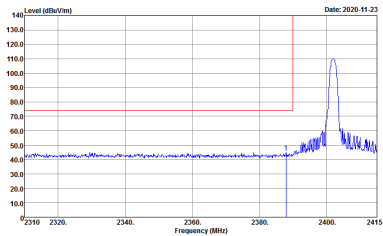
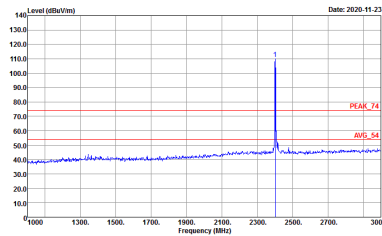
<Camera Mode with Ant. 6>

2.4GHz 2400~2483.5MHz

BT (Band Edge @ 3m)

BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
BT CH00 2402MHz		
Peak	<p style="text-align: center;">Horizontal</p>  <p>Site : 03CH15-HY Condition : PEAK_BE_74 3m 91200_15_1620 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p style="text-align: center;">Fundamental</p>  <p>Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>



BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BT CH00 2402MHz	
	Vertical	Fundamental
Peak	 <p>Site : 03CH15-HY Condition : PEAK_8C_74 3m 9120D_15_1620 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Site : 03CH15-HY Condition : PEAK_74 3m 9120D_15_1620 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>

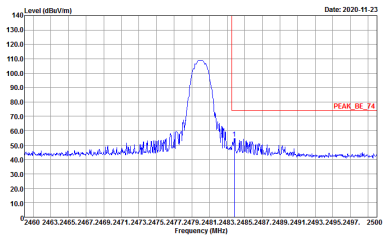
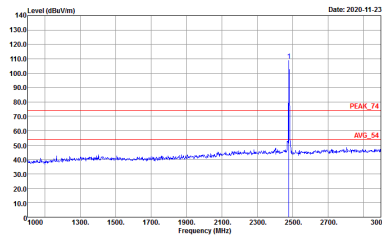


BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BT CH39 2441MHz	
	Horizontal	Fundamental
Peak	<p>Site : 03CH15-HY Condition : PEAK_BE_74 3m 91200_15_1620 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Peak	<p>Site : 03CH15-HY Condition : PEAK_BE_74 3m 91200_15_1620 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	Left blank

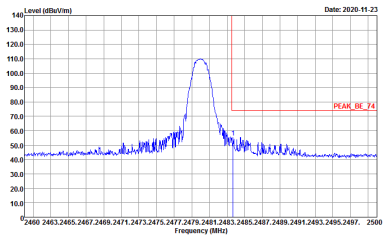
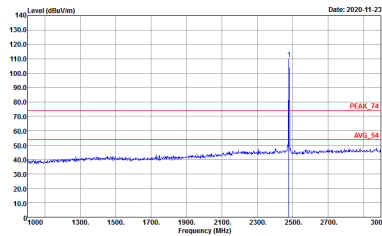


BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BT CH39 2441MHz	
	Vertical	Fundamental
Peak	<p>Date: 2020-11-23</p> <p>Site : 03CH15-HY Condition : PEAK_BE_74 3m 91200_15_1620 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Date: 2020-11-23</p> <p>Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Peak	<p>Date: 2020-11-23</p> <p>Site : 03CH15-HY Condition : PEAK_BE_74 3m 91200_15_1620 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	Left blank



BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BT CH78 2480MHz	
	Horizontal	Fundamental
Peak	 <p>Site : 03CH15-HY Condition : PEAK_BC_74 3m 91200_15_1620 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>

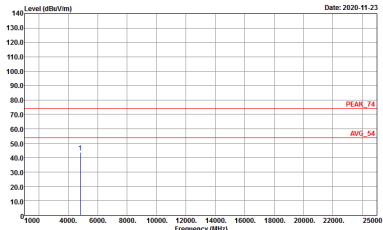
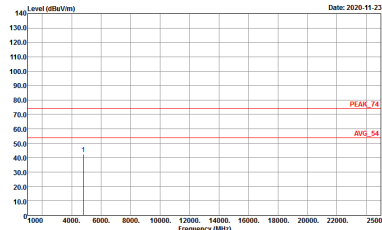


BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BT CH78 2480MHz	
	Vertical	Fundamental
Peak	 <p>Date: 2020-11-23</p> <p>Site : 03CH15-HY Condition : PEAK_BC_74 3m 91200_15_1620 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Date: 2020-11-23</p> <p>Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>

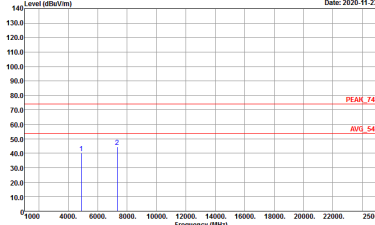
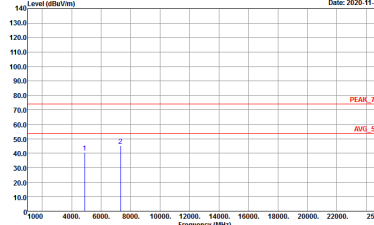


2.4GHz 2400~2483.5MHz

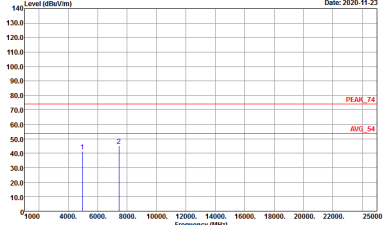
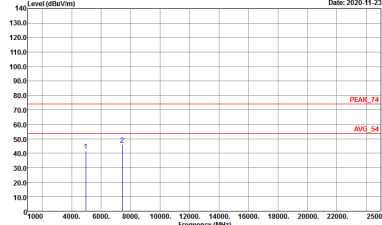
BT (Harmonic @ 3m)

BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	BT CH00 2402MHz	
	Horizontal	Vertical
Peak Avg.	 <p>Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 HORIZONTAL</p>	 <p>Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 VERTICAL</p>



BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	BT CH39 2441MHz	
	Horizontal	Vertical
Peak Avg.	 <p>Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 HORIZONTAL</p>	 <p>Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 VERTICAL</p>

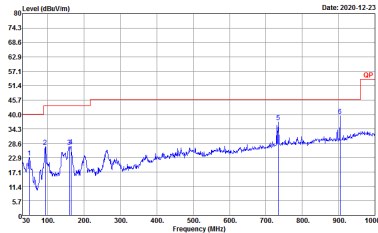
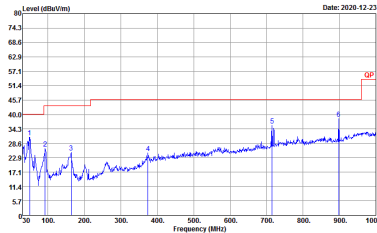


BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	BT CH78 2480MHz	
	Horizontal	Vertical
<p>Peak</p> <p>Avg.</p>	 <p>Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 HORIZONTAL</p>	 <p>Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 VERTICAL</p>



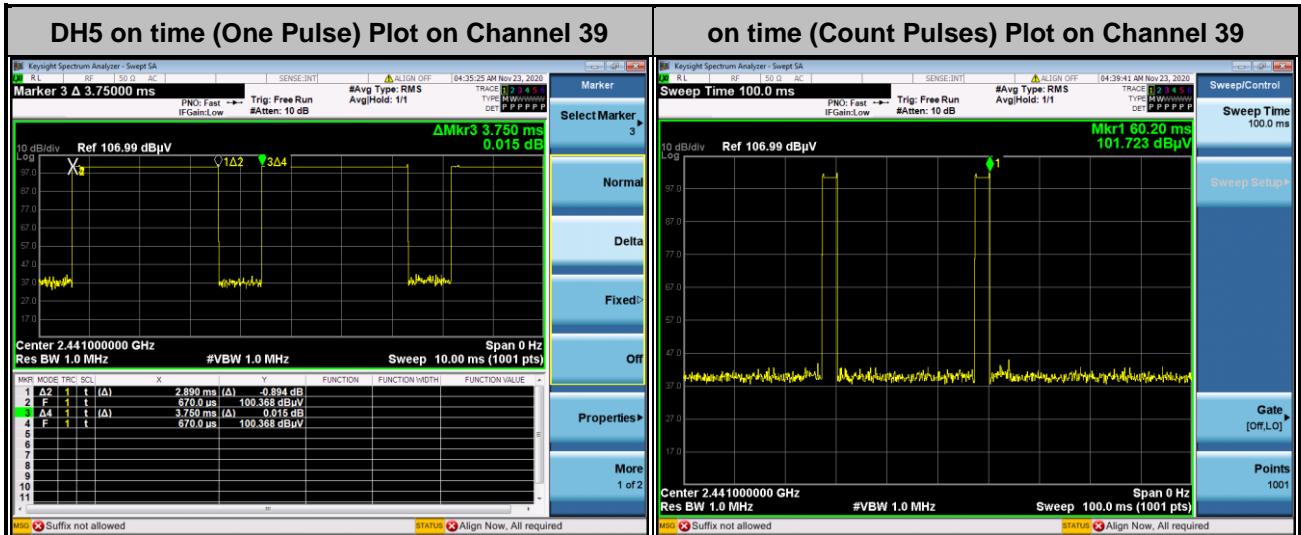
Emission below 1GHz

2.4GHz BT (LF)

BT	2.4GHz 2400~2483.5MHz	
	BT LF	
	Horizontal	Vertical
QP / Peak	 <p>Site : 03CH15-HY Condition : QP 3m B1LOG_15_41912 HORIZONTAL</p>	 <p>Site : 03CH15-HY Condition : QP 3m B1LOG_15_41912 VERTICAL</p>

Appendix E. Duty Cycle Plots

<Normal Mode with Ant. 4>



Note:

1. Worst case Duty cycle = on time/100 milliseconds = $2 * 2.89 / 100 = 5.78 \%$
2. Worst case Duty cycle correction factor = $20 * \log(\text{Duty cycle}) = -24.76 \text{ dB}$
3. DH5 has the highest duty cycle worst case and is reported.

Duty Cycle Correction Factor Consideration for AFH mode:

Bluetooth normal hopping rate is 1600Hz and reduced to 800Hz in AFH mode; due to the reduced number of hopping frequencies, with the same packet configuration the dwell time in each channel frequency within 100msec period is longer in AFH mode than normal mode.

In AFH mode, the minimum hopping frequencies are 20, to get the longest dwell time DH5 packet is observed; the period to have DH5 packet completing one hopping sequence is

$$2.89 \text{ ms} \times 20 \text{ channels} = 57.8 \text{ ms}$$

There cannot be 2 complete hopping sequences within 100ms period, considering the random hopping behavior, maximum 2 hops can be possibly observed within the period. $[100 \text{ ms} / 57.8 \text{ ms}] = 2 \text{ hops}$

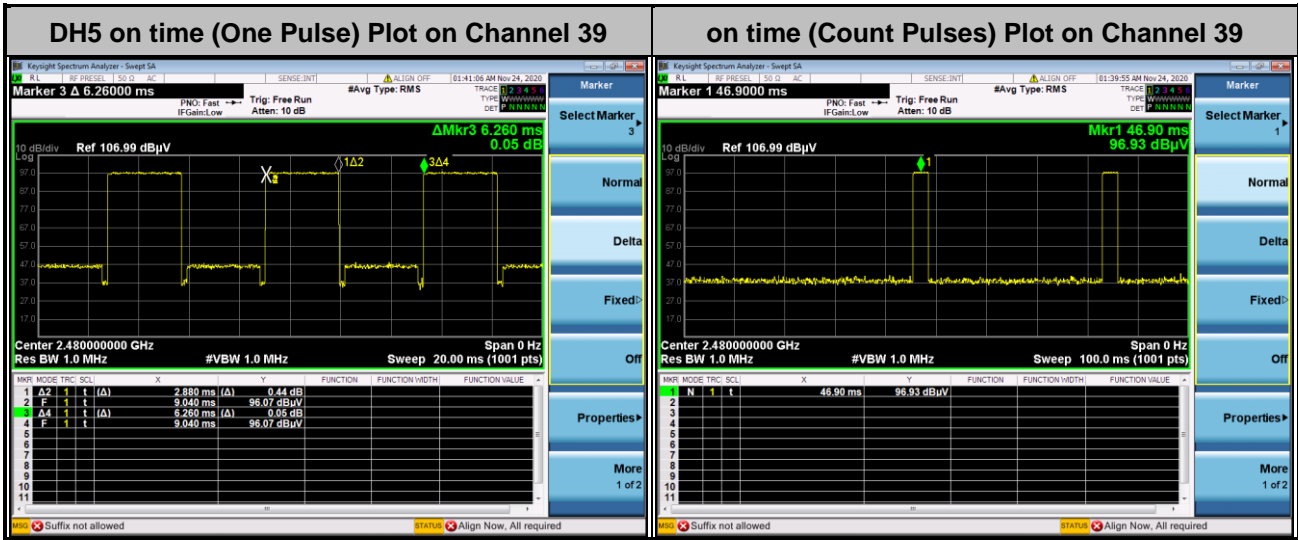
Thus, the maximum possible ON time:

$$2.89 \text{ ms} \times 2 = 5.78 \text{ ms}$$

Worst case Duty Cycle Correction factor, which is derived from the maximum possible ON time,

$$20 \times \log(5.78 \text{ ms}/100 \text{ ms}) = -24.76 \text{ dB}$$

<Normal Mode with Ant. 5>



Note:

1. Worst case Duty cycle = on time/100 milliseconds = $2 * 2.88 / 100 = 5.76 \%$
2. Worst case Duty cycle correction factor = $20 * \log(\text{Duty cycle}) = -24.79 \text{ dB}$
3. **DH5** has the highest duty cycle worst case and is reported.

Duty Cycle Correction Factor Consideration for AFH mode:

Bluetooth normal hopping rate is 1600Hz and reduced to 800Hz in AFH mode; due to the reduced number of hopping frequencies, with the same packet configuration the dwell time in each channel frequency within 100msec period is longer in AFH mode than normal mode.

In AFH mode, the minimum hopping frequencies are 20, to get the longest dwell time DH5 packet is observed; the period to have DH5 packet completing one hopping sequence is

$$2.88 \text{ ms} \times 20 \text{ channels} = 57.7 \text{ ms}$$

There cannot be 2 complete hopping sequences within 100ms period, considering the random hopping behavior, maximum 2 hops can be possibly observed within the period. $[100 \text{ ms} / 57.7 \text{ ms}] = 2 \text{ hops}$

Thus, the maximum possible ON time:

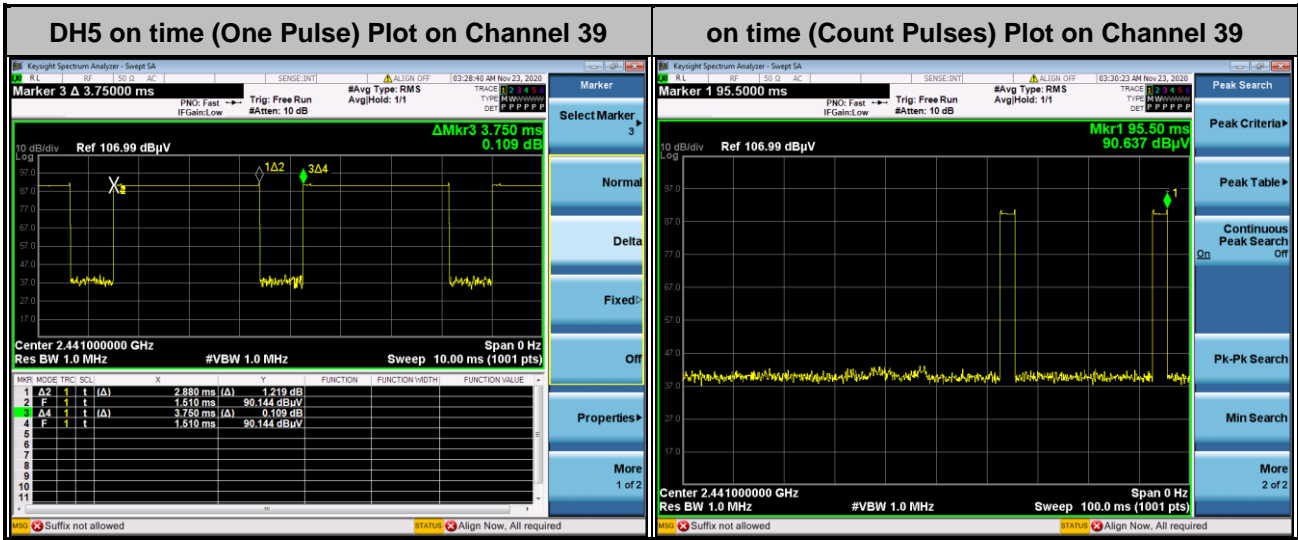
$$2.88 \text{ ms} \times 2 = 5.76 \text{ ms}$$

Worst case Duty Cycle Correction factor, which is derived from the maximum possible ON time,

$$20 \times \log(5.77 \text{ ms}/100 \text{ ms}) = -24.79 \text{ dB}$$



<Camera Mode with Ant. 6>



Note:

4. Worst case Duty cycle = on time/100 milliseconds = $2 * 2.88 / 100 = 5.76 \%$
5. Worst case Duty cycle correction factor = $20 * \log(\text{Duty cycle}) = -24.79 \text{ dB}$
6. **DH5** has the highest duty cycle worst case and is reported.

Duty Cycle Correction Factor Consideration for AFH mode:

Bluetooth normal hopping rate is 1600Hz and reduced to 800Hz in AFH mode; due to the reduced number of hopping frequencies, with the same packet configuration the dwell time in each channel frequency within 100msec period is longer in AFH mode than normal mode.

In AFH mode, the minimum hopping frequencies are 20, to get the longest dwell time DH5 packet is observed; the period to have DH5 packet completing one hopping sequence is

$$2.88 \text{ ms} \times 20 \text{ channels} = 57.7 \text{ ms}$$

There cannot be 2 complete hopping sequences within 100ms period, considering the random hopping behavior, maximum 2 hops can be possibly observed within the period. $[100 \text{ ms} / 57.7 \text{ ms}] = 2 \text{ hops}$

Thus, the maximum possible ON time:

$$2.88 \text{ ms} \times 2 = 5.76 \text{ ms}$$

Worst case Duty Cycle Correction factor, which is derived from the maximum possible ON time,

$$20 \times \log(5.77 \text{ ms}/100 \text{ ms}) = -24.79 \text{ dB}$$