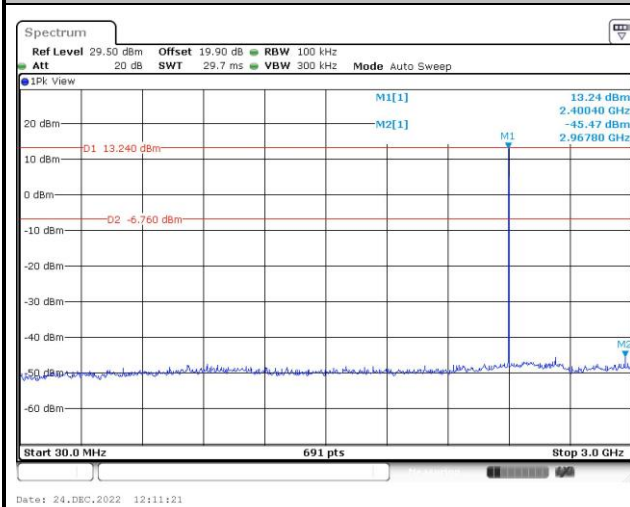


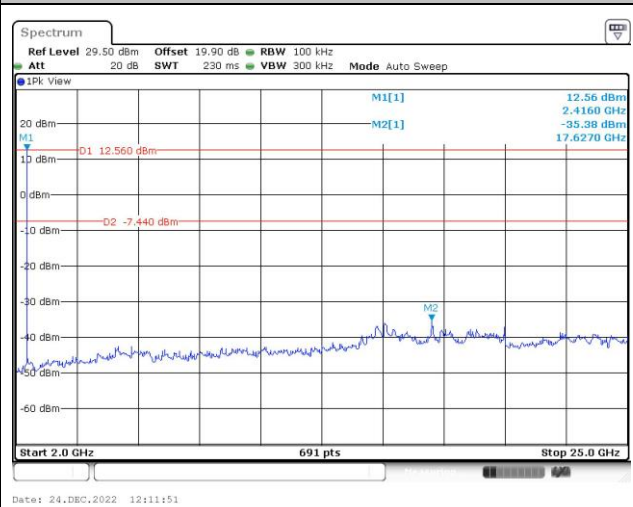


<2Mbps>

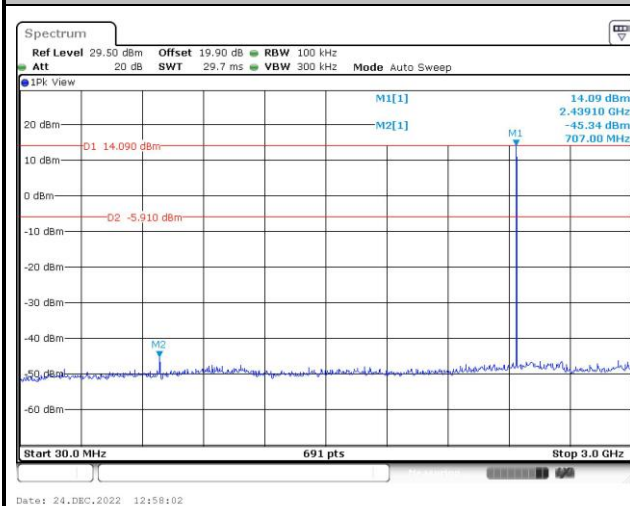
CSE Plot on CH 00 between 30 MHz ~ 3 GHz



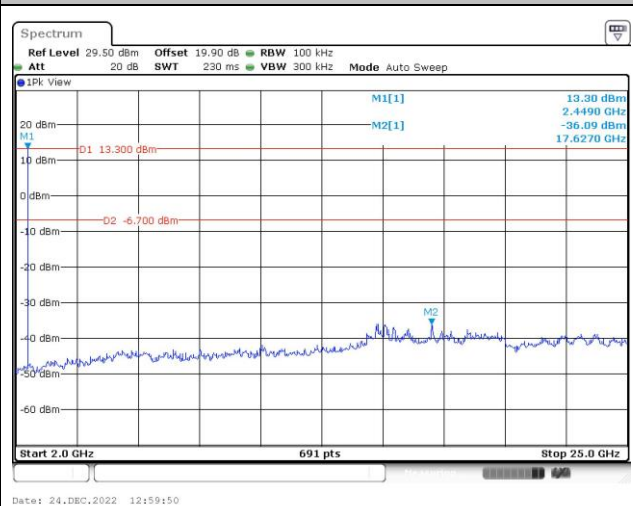
CSE Plot on CH 00 between 2 GHz ~ 25 GHz



CSE Plot on CH 39 between 30 MHz ~ 3 GHz

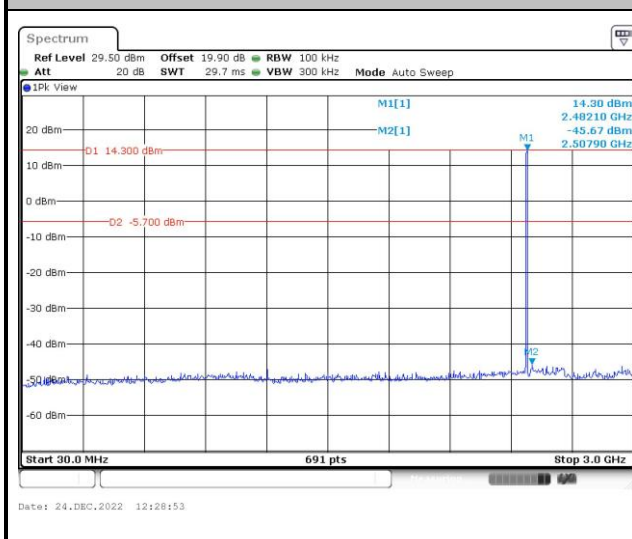


CSE Plot on CH 39 between 2 GHz ~ 25 GHz

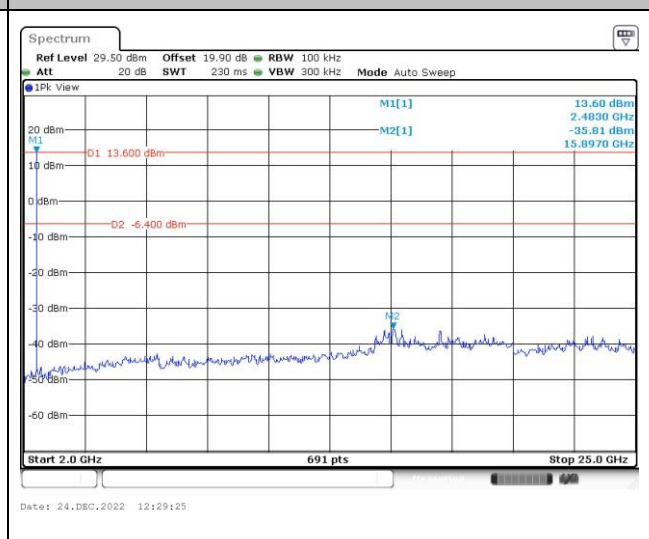




CSE Plot on CH 78 between 30 MHz ~ 3 GHz



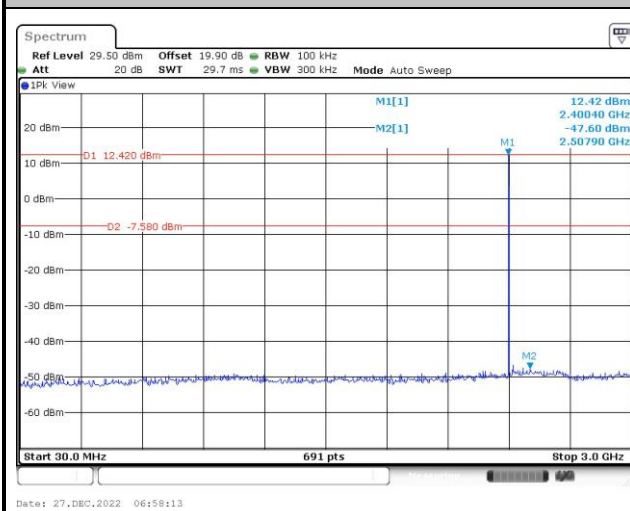
CSE Plot on CH 78 between 2 GHz ~ 25 GHz



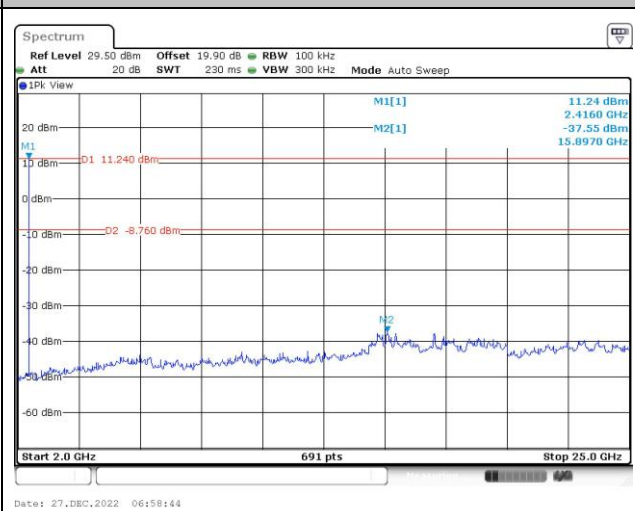


<3Mbps>

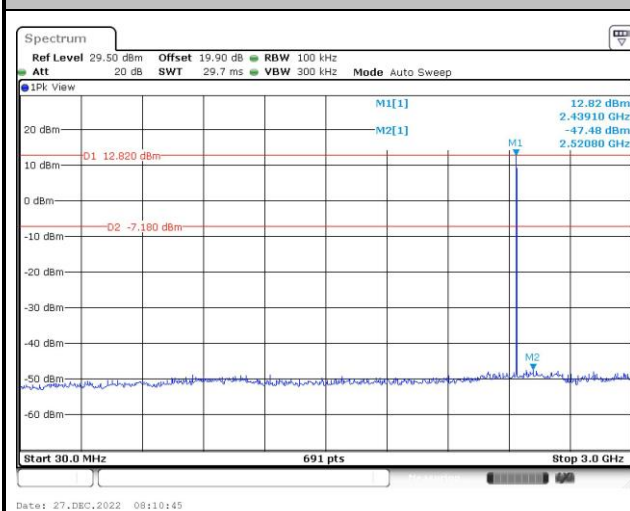
CSE Plot on CH 00 between 30 MHz ~ 3 GHz



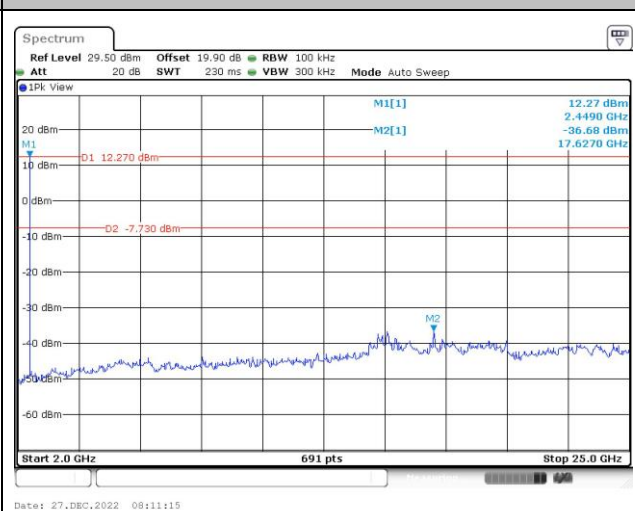
CSE Plot on CH 00 between 2 GHz ~ 25 GHz



CSE Plot on CH 39 between 30 MHz ~ 3 GHz

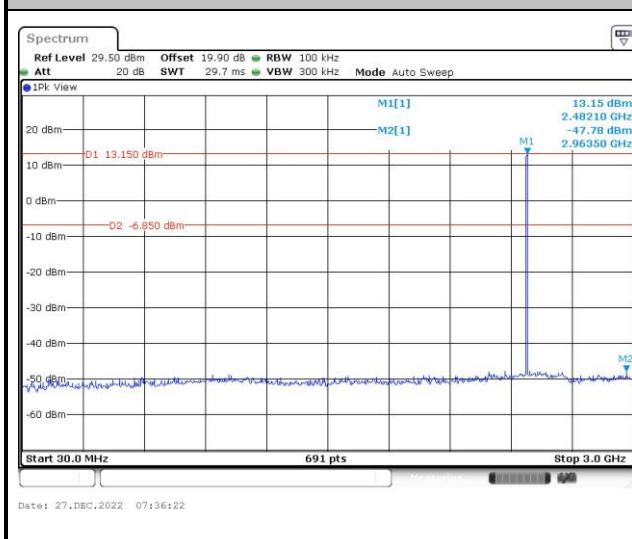


CSE Plot on CH 39 between 2 GHz ~ 25 GHz

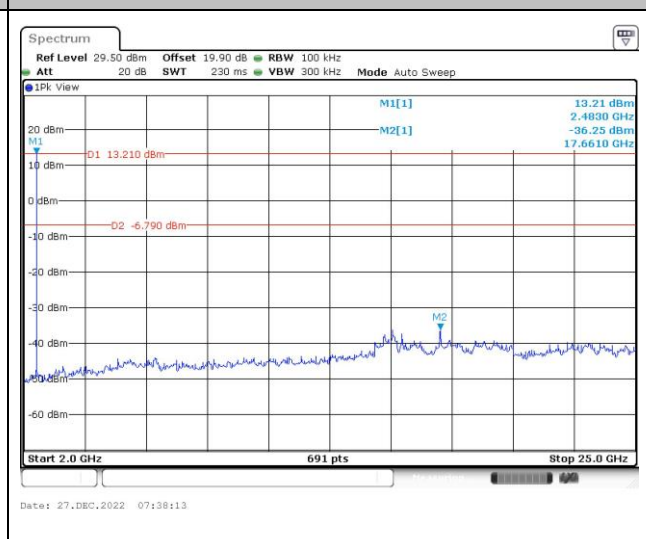




CSE Plot on CH 78 between 30 MHz ~ 3 GHz



CSE Plot on CH 78 between 2 GHz ~ 25 GHz

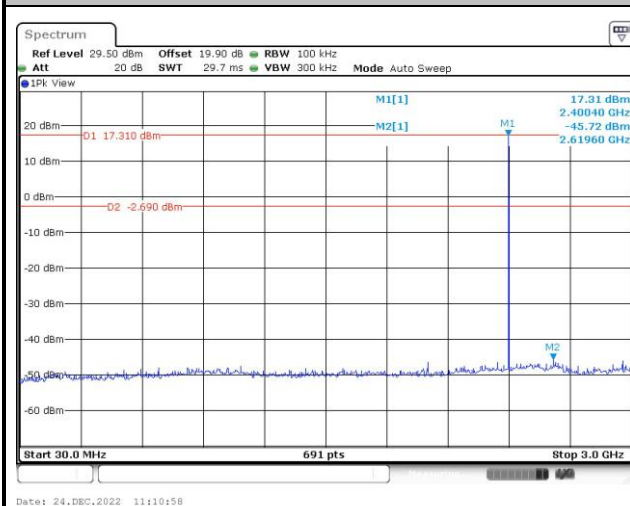




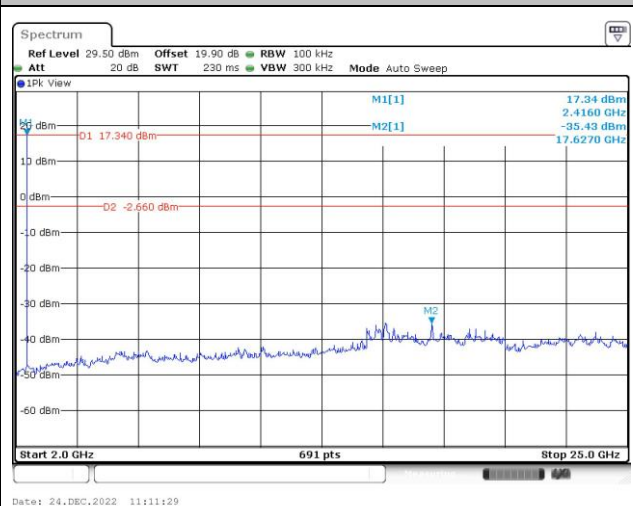
MIMO <Ant. 4>

<1Mbps>

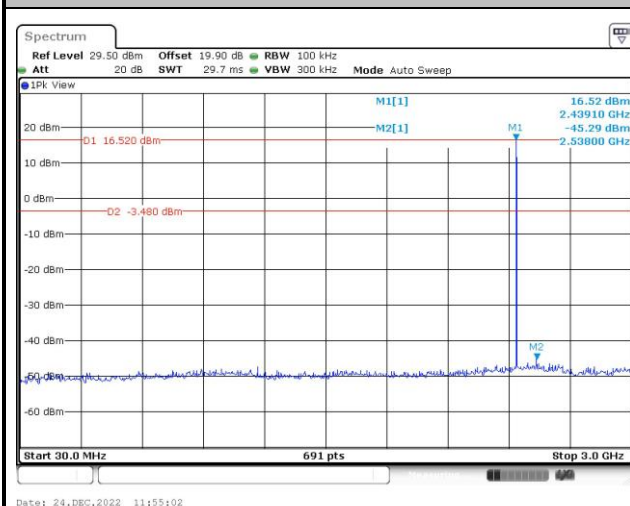
CSE Plot on CH 00 between 30 MHz ~ 3 GHz



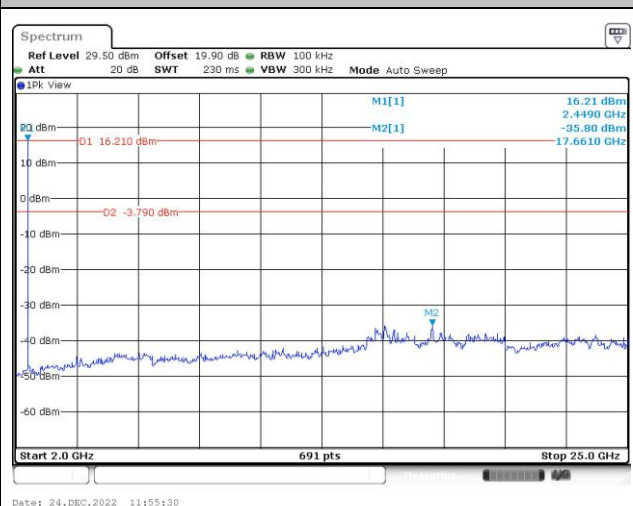
CSE Plot on CH 00 between 2 GHz ~ 25 GHz



CSE Plot on CH 39 between 30 MHz ~ 3 GHz

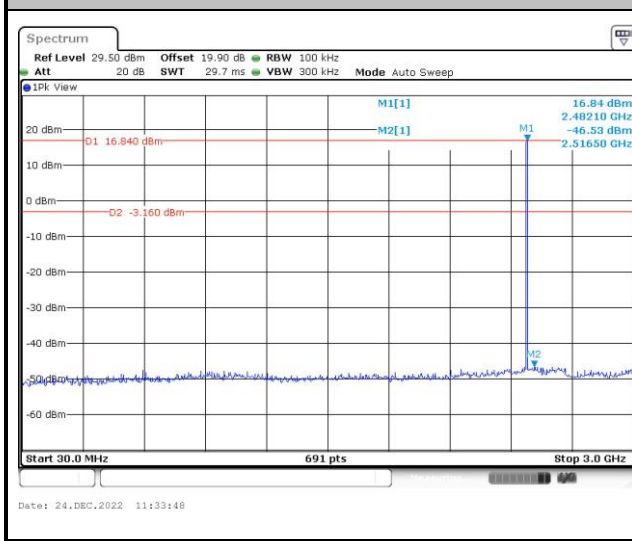


CSE Plot on CH 39 between 2 GHz ~ 25 GHz

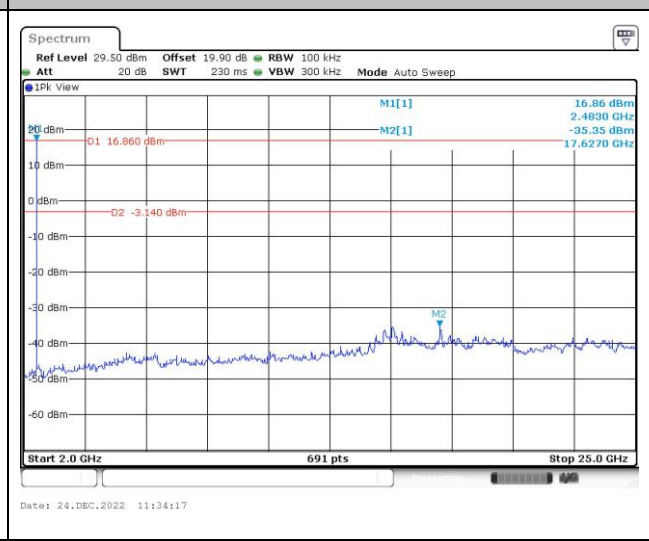


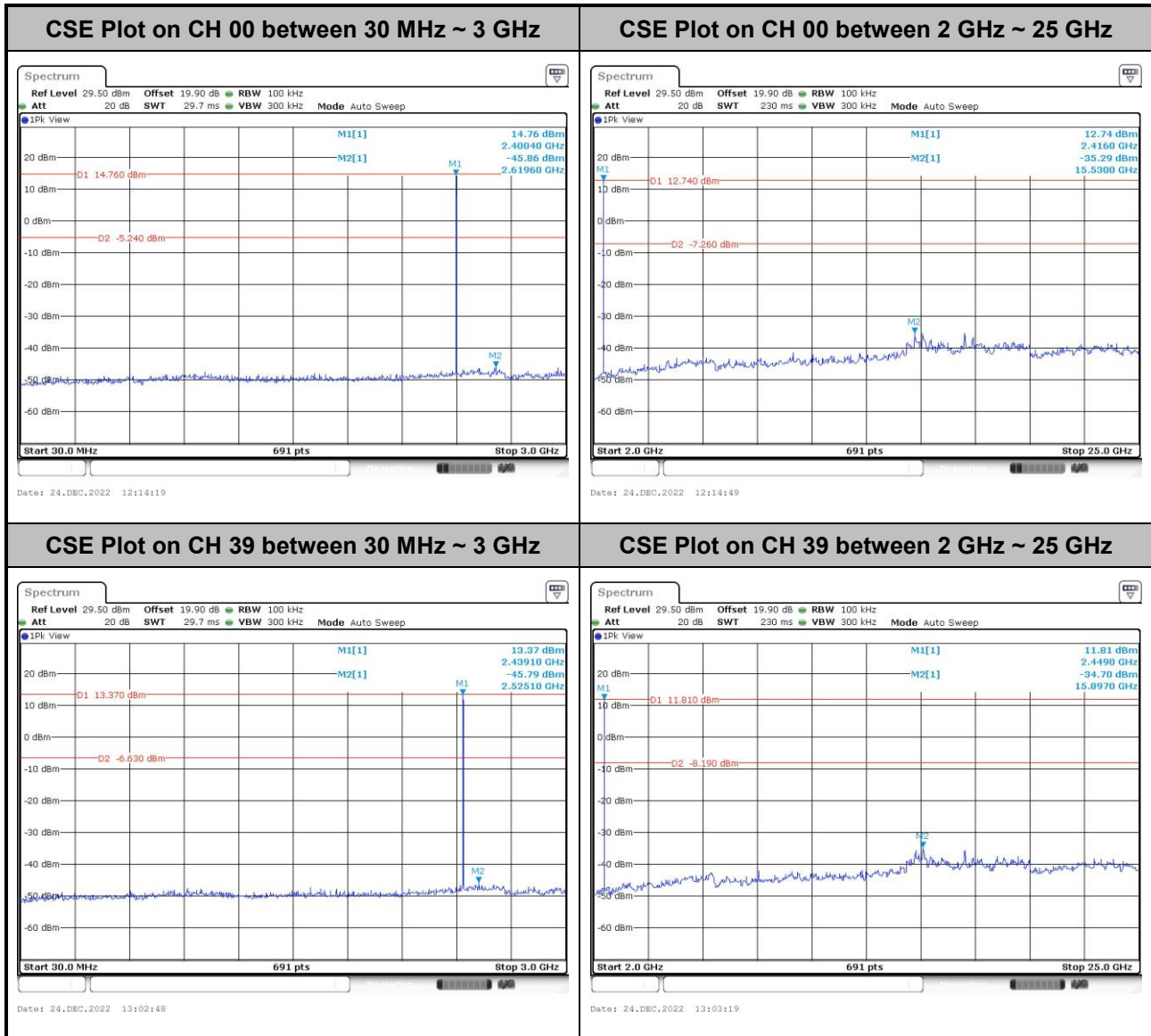


CSE Plot on CH 78 between 30 MHz ~ 3 GHz



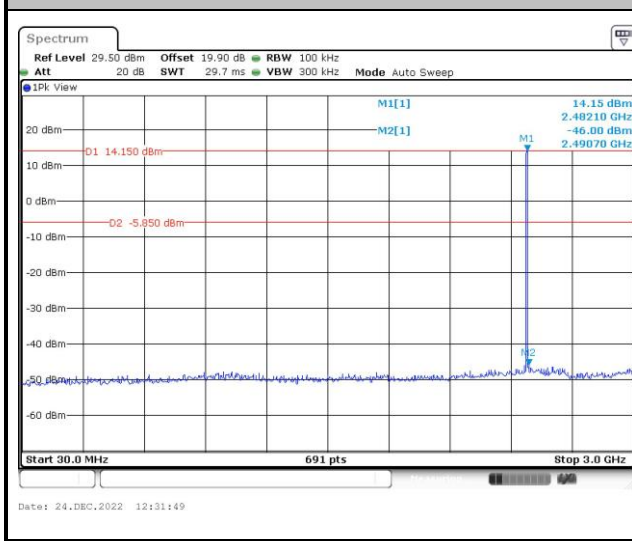
CSE Plot on CH 78 between 2 GHz ~ 25 GHz



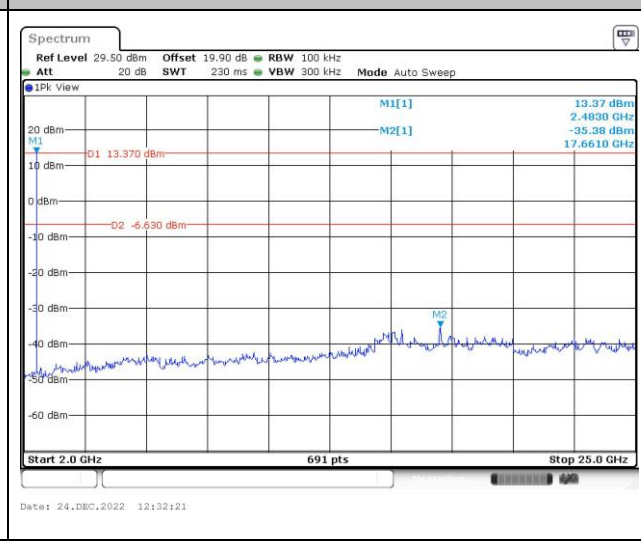
<2Mbps>




CSE Plot on CH 78 between 30 MHz ~ 3 GHz

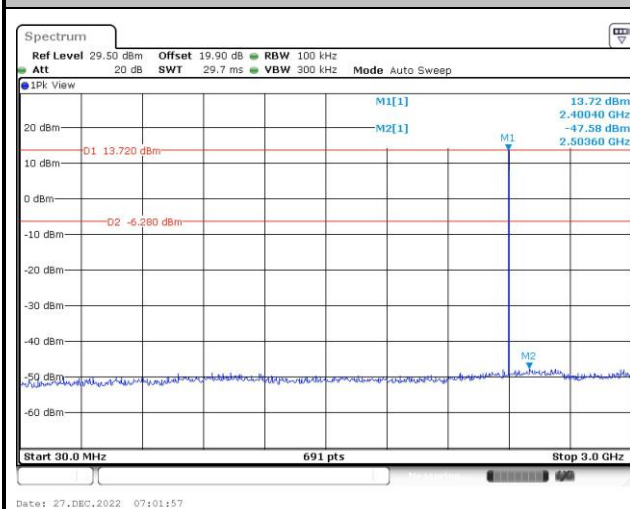
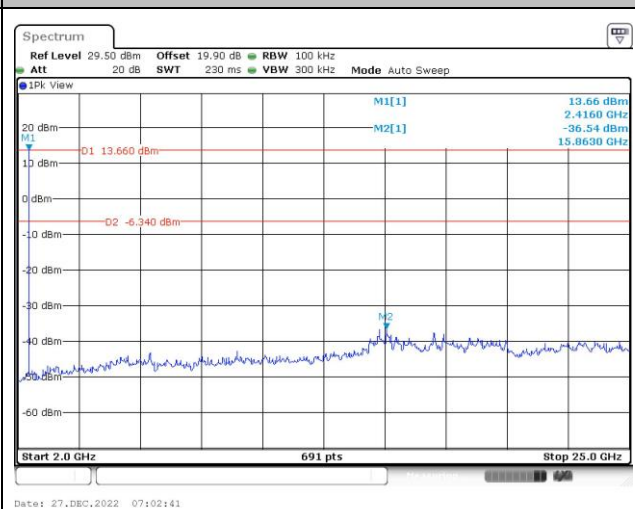
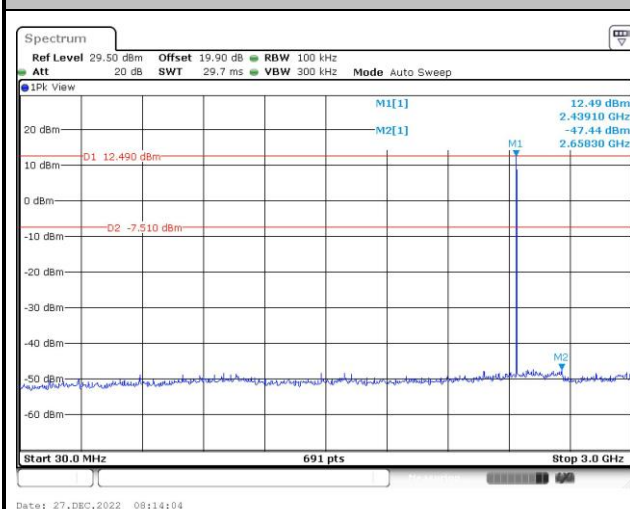
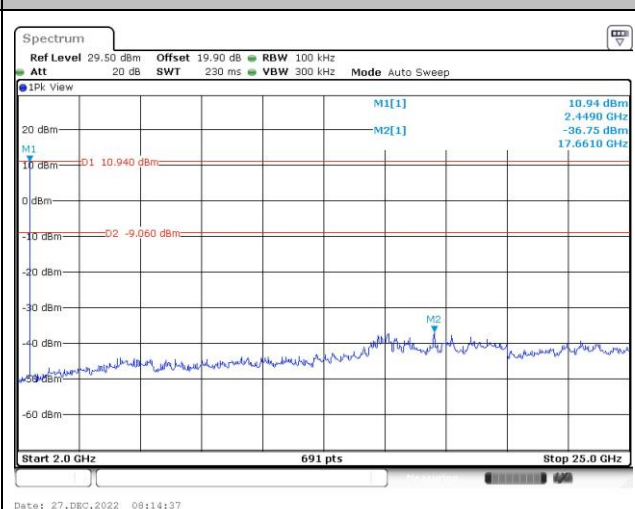


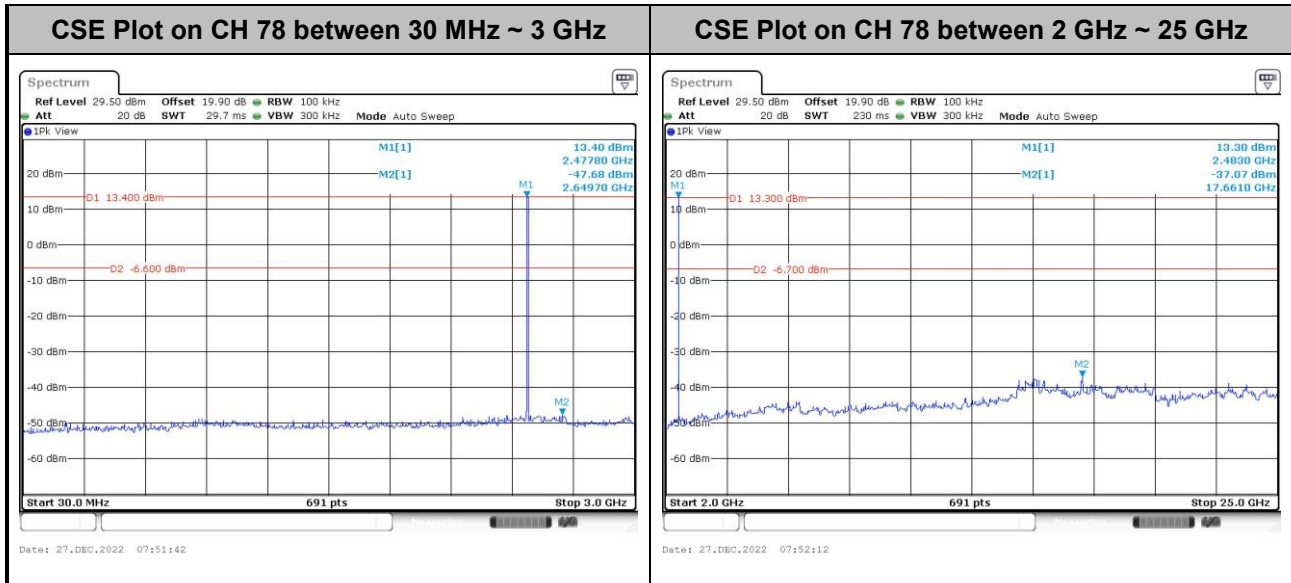
CSE Plot on CH 78 between 2 GHz ~ 25 GHz





<3Mbps>

CSE Plot on CH 00 between 30 MHz ~ 3 GHz**CSE Plot on CH 00 between 2 GHz ~ 25 GHz****CSE Plot on CH 39 between 30 MHz ~ 3 GHz****CSE Plot on CH 39 between 2 GHz ~ 25 GHz**



3.8 Radiated Band Edges and Spurious Emission Measurement

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

Measuring Instruments

Please refer to the measuring equipment list in this test report.

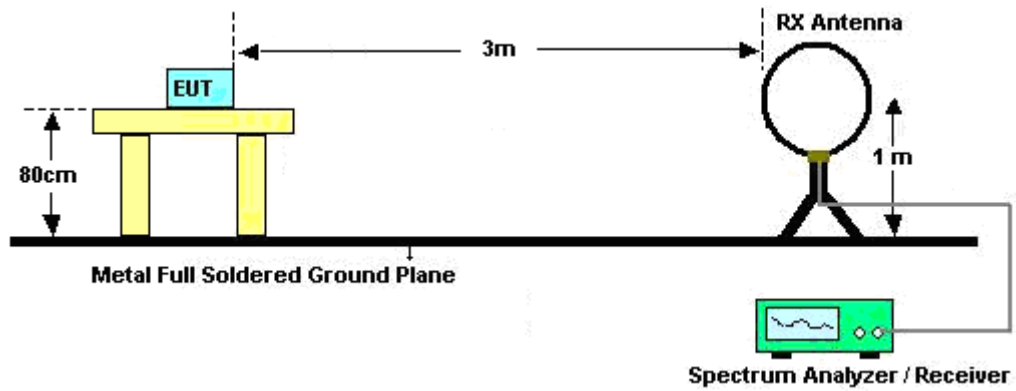
Test Procedures

1. The EUT is placed on a turntable with 0.8 meter for frequency below 1 GHz and 1.5 meter for frequency above 1 GHz respectively above ground.
2. The EUT is set 3 meters away from the receiving antenna, which is mounted on the top of a variable height antenna tower.
3. For each suspected emission, the EUT is 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 the maximum power setting and enable the EUT to 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 = 1 MHz 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 = $N_1 \cdot L_1 + N_2 \cdot L_2 + \dots + N_{n-1} \cdot L_{n-1} + N_n \cdot L_n$
Where N_1 is number of type 1 pulses, L_1 is length of type 1 pulses, etc.
Average Emission Level = Peak Emission Level + $20 \cdot \log(\text{Duty cycle})$
6. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
7. Radiated testing below 1 GHz is performed by adjusting the antenna tower from 1 m to 4 m and by rotating the turn table from 0 degree to 360 degrees to find the peak maximum hold reading. When there is no suspected emission found and the emission level is with at least 6 dB margin against QP limit line, the position is marked as “-”.
8. Radiated testing above 1 GHz is performed by adjusting the antenna tower from 1 m to 4 m and by rotating the turn table from 0 degree to 360 degrees to find the peak maximum hold reading for scanning all frequencies. When there is no suspected emission found and the harmonic emission level is with at least 6 dB margin against average limit line, the position is marked as “-”.

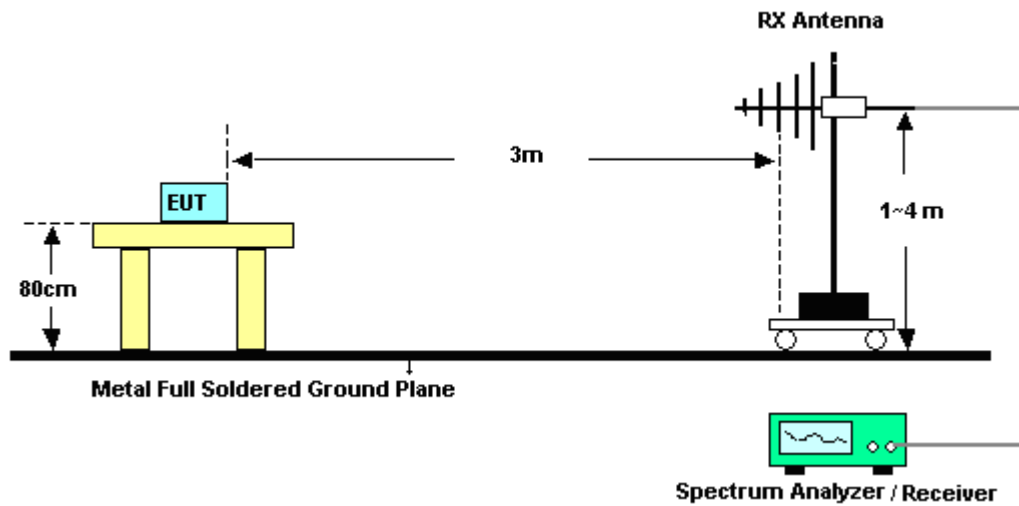
Note: The average levels are calculated from the peak level corrected with duty cycle correction factor (-24.79dB) derived from $20 \log(\text{dwell time}/100\text{ms})$. This correction is only for signals that hop with the fundamental signal, such as band-edge and harmonic. Other spurious signals that are independent of the hopping signal would not use this correction.

Test Setup

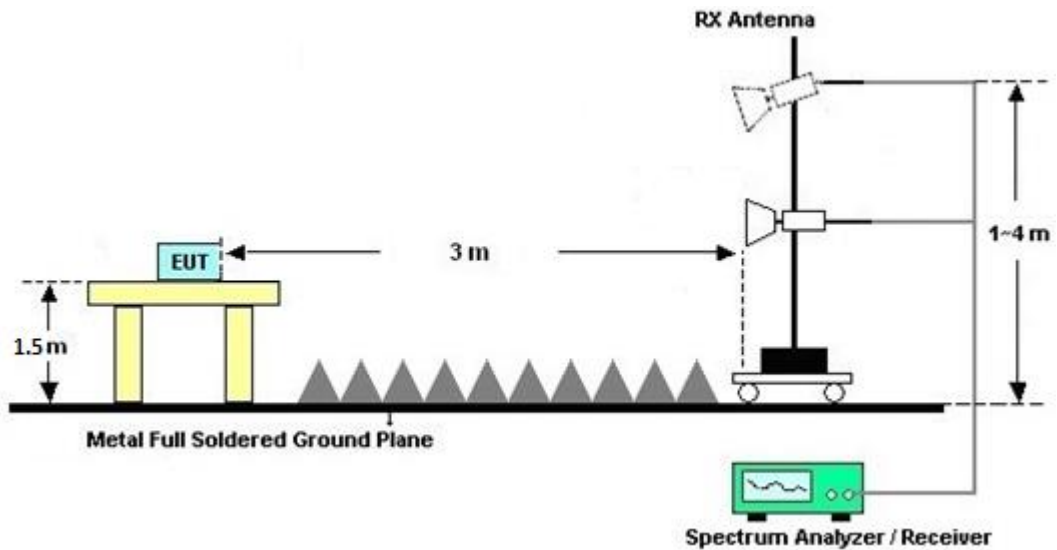
For radiated test below 30MHz



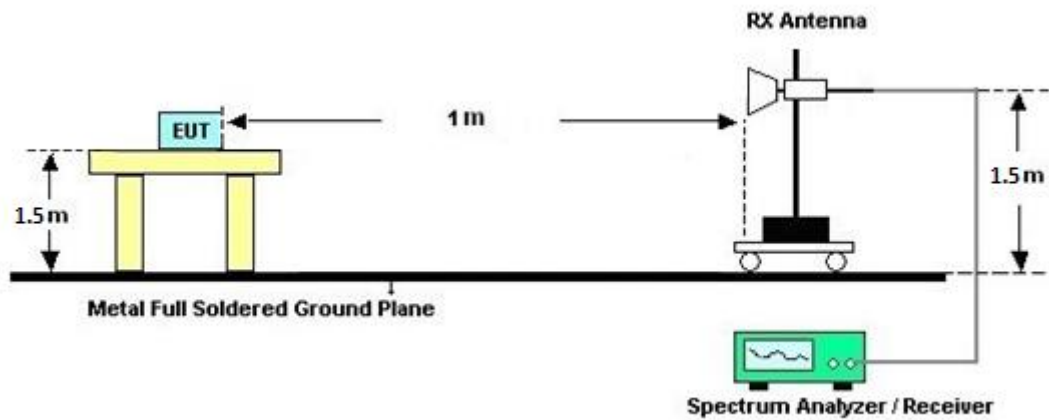
For radiated test from 30MHz to 1GHz



For radiated test from 1GHz to 18GHz



For radiated test above 18GHz



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

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

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

Test Result of Radiated Spurious at Band Edges

Please refer to Appendix C and D.

Duty Cycle

Please refer to Appendix E.

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

Please refer to Appendix C and D.

3.9 AC Conducted Emission Measurement

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 (dBμV)	
	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.

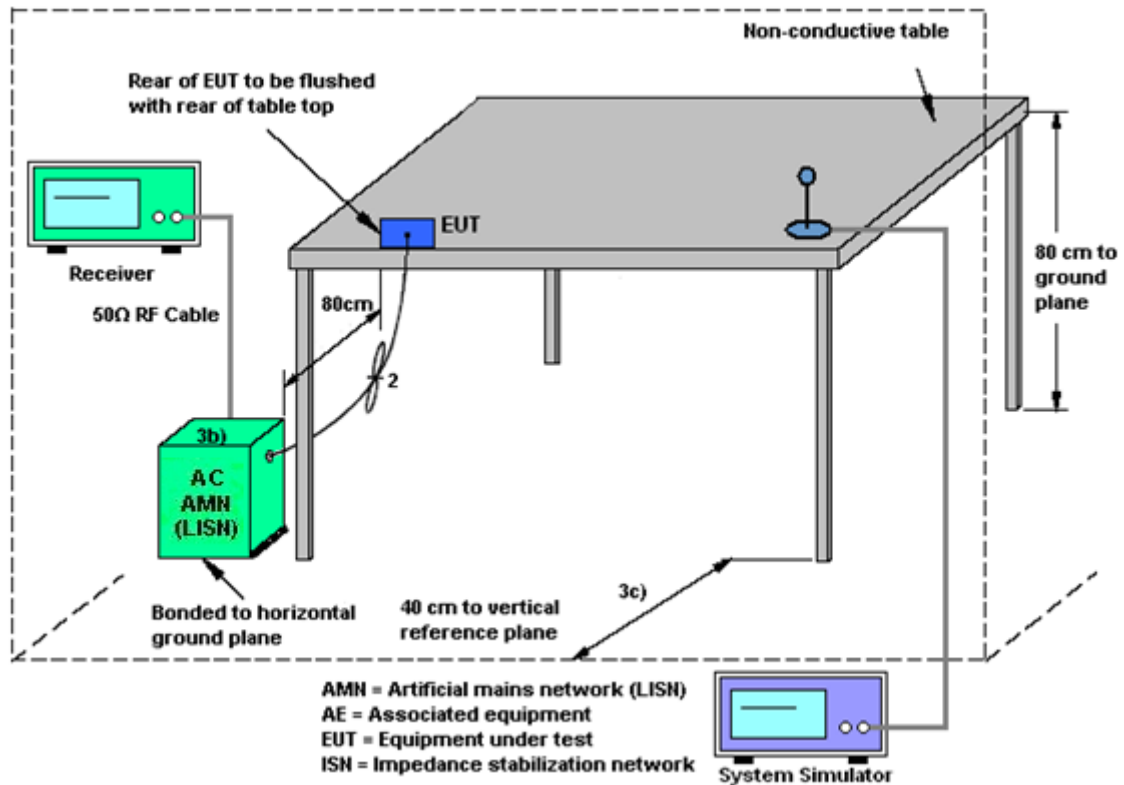
Measuring Instruments

Please refer to the measuring equipment list in this test report.

Test Procedures

1. The EUT is placed 0.4 meter away from the conducting wall of the shielding room, and is 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 shall be used.
6. Both Line and Neutral shall be tested in order to find out the maximum conducted emission.
7. The frequency range from 150 kHz to 30 MHz is scanned.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9 kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

Test Setup



Test Result of AC Conducted Emission

Please refer to Appendix B.



3.10 Antenna Requirements

Standard Applicable

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.

Antenna Anti-Replacement Construction

An embedded-in antenna design is used.



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	Sep. 20, 2022	Nov. 27, 2022~ Dec. 22, 2022	Sep. 19, 2023	Radiation (03CH16-HY)
Preamplifier	EMEC	EM18G40G	060715	18GHz~40GHz	Dec. 24, 2021	Nov. 27, 2022~ Dec. 22, 2022	Dec. 23, 2022	Radiation (03CH16-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA9170	00993	18GHz~40GHz	Nov. 24, 2022	Nov. 27, 2022~ Dec. 22, 2022	Nov. 23, 2023	Radiation (03CH16-HY)
Amplifier	SONOMA	310N	371607	9kHz~1GHz	Jul. 04, 2022	Nov. 27, 2022~ Dec. 22, 2022	Jul. 03, 2023	Radiation (03CH16-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00802N1D01N-06	47020 & 06	30MHz~1GHz	Oct. 08, 2022	Nov. 27, 2022~ Dec. 22, 2022	Oct. 07, 2023	Radiation (03CH16-HY)
EMI Test Receiver	Keysight	N9038A(MXE)	MY57290111	3Hz~26.5GHz	Dec. 15, 2021	Nov. 27, 2022~ Dec. 13, 2022	Dec. 14, 2022	Radiation (03CH16-HY)
Signal Analyzer	Keysight	N9010B	MY62170278	10Hz~44GHz	Sep. 11, 2022	Nov. 27, 2022~ Dec. 22, 2022	Sep. 10, 2023	Radiation (03CH16-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1522	1GHz~18GHz	Mar. 10, 2022	Nov. 27, 2022~ Dec. 22, 2022	Mar. 09, 2023	Radiation (03CH16-HY)
Preamplifier	Keysight	83017A	MY53270264	1GHz~26.5GHz	Dec. 09, 2021	Nov. 27, 2022~ Dec. 07, 2022	Dec. 08, 2022	Radiation (03CH16-HY)
Preamplifier	EMEC	EM1G18G	060812	1GHz~18GHz	Dec. 27, 2021	Nov. 27, 2022~ Dec. 22, 2022	Dec. 26, 2022	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	805935/4	N/A	Aug. 09, 2022	Nov. 27, 2022~ Dec. 22, 2022	Aug. 08, 2023	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	802434/4	N/A	Aug. 09, 2022	Nov. 27, 2022~ Dec. 22, 2022	Aug. 08, 2023	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	EC-A5-300-5757	N/A	Aug. 09, 2022	Nov. 27, 2022~ Dec. 22, 2022	Aug. 08, 2023	Radiation (03CH16-HY)
Controller	ChainTek	3000-1	N/A	Control Turn table & Ant Mast	N/A	Nov. 27, 2022~ Dec. 22, 2022	N/A	Radiation (03CH16-HY)
Antenna Mast	ChainTek	MBS-520-1	N/A	1m~4m	N/A	Nov. 27, 2022~ Dec. 22, 2022	N/A	Radiation (03CH16-HY)
Turn Table	ChainTek	T-200-S-1	N/A	0~360 Degree	N/A	Nov. 27, 2022~ Dec. 22, 2022	N/A	Radiation (03CH16-HY)
Software	Audix	E3 6.2009-8-24	RK-001136	N/A	N/A	Nov. 27, 2022~ Dec. 22, 2022	N/A	Radiation (03CH16-HY)
Hygrometer	TECEPEL	DTM-303A	TP201996	N/A	Nov. 17, 2022	Nov. 25, 2022~ Dec. 30, 2022	Nov. 16, 2023	Conducted (TH05-HY)
Power Meter	Anritsu	ML2495A	1036004	N/A	Aug. 08, 2022	Nov. 25, 2022~ Dec. 30, 2022	Aug. 07, 2023	Conducted (TH05-HY)
Power Sensor	Anritsu	MA2411B	1027253	300MHz~40GHz	Aug. 08, 2022	Nov. 25, 2022~ Dec. 30, 2022	Aug. 07, 2023	Conducted (TH05-HY)
Signal Analyzer	Rohde & Schwarz	FSV40	101905	10Hz - 40GHz(amp)	Aug. 03, 2022	Nov. 25, 2022~ Dec. 30, 2022	Aug. 02, 2023	Conducted (TH05-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Dec. 07, 2022	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102388	9kHz~3.6GHz	Dec. 01, 2022	Dec. 07, 2022	Nov. 30, 2023	Conduction (CO05-HY)
Hygrometer	Testo	608-H1	34913912	N/A	Nov. 17, 2022	Dec. 07, 2022	Nov. 16, 2023	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100081	9kHz~30MHz	Nov. 17, 2022	Dec. 07, 2022	Nov. 16, 2023	Conduction (CO05-HY)
Software	Rohde & Schwarz	EMC32	N/A	N/A	N/A	Dec. 07, 2022	N/A	Conduction (CO05-HY)
Pulse Limiter	SCHWARZBECK	VTSD 9561-FN	00691	N/A	Aug. 01, 2022	Dec. 07, 2022	Jul. 31, 2023	Conduction (CO05-HY)
LISN Cable	MVE	RG-400	260260	N/A	Dec. 30, 2021	Dec. 07, 2022	Dec. 29, 2022	Conduction (CO05-HY)

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	3.50 dB
---	---------

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	6.50 dB
---	---------

Uncertainty of Radiated Emission Measurement (1000 MHz ~ 6000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.60 dB
---	---------

Uncertainty of Radiated Emission Measurement (6000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.50 dB
---	---------

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.60 dB
---	---------

Appendix A. Test Result of Conducted Test Items

Test Engineer:	Hank Hsu	Temperature:	21~25	°C
Test Date:	2022/11/25~12/30	Relative Humidity:	51~54	%

<Ant.3>

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	1.022	0.906	0.999	0.6811	Pass
DH	1Mbps	1	39	2441	1.019	0.903	1.003	0.6792	Pass
DH	1Mbps	1	78	2480	1.019	0.906	0.999	0.6792	Pass
2DH	2Mbps	1	0	2402	1.298	1.181	0.999	0.8654	Pass
2DH	2Mbps	1	39	2441	1.303	1.181	0.999	0.8683	Pass
2DH	2Mbps	1	78	2480	1.303	1.181	1.003	0.8683	Pass
3DH	3Mbps	1	0	2402	1.259	1.160	0.999	0.8393	Pass
3DH	3Mbps	1	39	2441	1.259	1.158	0.994	0.8393	Pass
3DH	3Mbps	1	78	2480	1.259	1.160	0.999	0.8393	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
DH5	79	106.670	2.90	0.31	0.4	Pass
DH5 (AFH)	20	53.330	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	20.30	20.97	Pass
	39	1	20.47	20.97	Pass
	78	1	20.50	20.97	Pass
2DH1	0	1	18.85	20.97	Pass
	39	1	20.49	20.97	Pass
	78	1	19.17	20.97	Pass
3DH1	0	1	19.41	20.97	Pass
	39	1	20.45	20.97	Pass
	78	1	19.60	20.97	Pass

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

DH	CH.	NTX	Average Power (dBm)	Duty Factor (dB)
DH1	0	1	19.53	5.15
	39	1	19.94	5.15
	78	1	20.03	5.15
2DH1	0	1	16.43	5.07
	39	1	18.10	5.07
	78	1	16.85	5.07
3DH3	0	1	16.05	1.84
	39	1	17.49	1.84
	78	1	16.47	1.84

TEST RESULTS DATA**Number of Hopping Frequency**

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

<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	1.022	0.905	1.003	0.6813	Pass
DH	1Mbps	1	39	2441	1.019	0.908	1.003	0.6793	Pass
DH	1Mbps	1	78	2480	1.019	0.905	0.994	0.6793	Pass
2DH	2Mbps	1	0	2402	1.303	1.181	0.999	0.8687	Pass
2DH	2Mbps	1	39	2441	1.298	1.181	1.003	0.8653	Pass
2DH	2Mbps	1	78	2480	1.298	1.181	1.003	0.8653	Pass
3DH	3Mbps	1	0	2402	1.259	1.161	1.003	0.8393	Pass
3DH	3Mbps	1	39	2441	1.263	1.161	0.999	0.8420	Pass
3DH	3Mbps	1	78	2480	1.259	1.158	0.990	0.8393	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
DH5	79	106.670	2.88	0.31	0.4	Pass
DH5 (AFH)	20	53.330	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	20.70	20.97	Pass
	39	1	20.60	20.97	Pass
	78	1	19.42	20.97	Pass
2DH1	0	1	20.81	20.97	Pass
	39	1	20.63	20.97	Pass
	78	1	19.81	20.97	Pass
3DH1	0	1	19.94	20.97	Pass
	39	1	20.05	20.97	Pass
	78	1	19.43	20.97	Pass

TEST RESULTS DATA				
Average Power Table				
(Reporting Only)				
DH	CH.	NTX	Average Power (dBm)	Duty Factor (dB)
DH1	0	1	19.70	5.15
	39	1	19.63	5.15
	78	1	18.61	5.15
2DH1	0	1	18.07	5.07
	39	1	17.92	5.07
	78	1	17.24	5.07
3DH1	0	1	16.69	5.08
	39	1	16.75	5.08
	78	1	16.06	5.08

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

MIMO <Ant.3+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	1.019	0.906	1.003	0.6793	Pass
DH	1Mbps	1	39	2441	1.019	0.871	1.007	0.6793	Pass
DH	1Mbps	1	78	2480	1.019	0.906	1.164	0.6793	Pass
2DH	2Mbps	1	0	2402	1.298	1.181	1.146	0.8653	Pass
2DH	2Mbps	1	39	2441	1.298	1.181	0.881	0.8653	Pass
2DH	2Mbps	1	78	2480	1.298	1.181	1.142	0.8653	Pass
3DH	3Mbps	1	0	2402	1.259	1.161	1.012	0.8393	Pass
3DH	3Mbps	1	39	2441	1.259	1.161	1.016	0.8393	Pass
3DH	3Mbps	1	78	2480	1.259	1.158	0.994	0.8393	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 Ant 3(dBm)	Peak Power Ant 4(dBm)	Peak Power Ant 3+4(dBm)	Power Limit (dBm)	Test Result
DH1	0	1	17.37	18.04	20.73	20.97	Pass
	39	1	18.34	17.48	20.94	20.97	Pass
	78	1	17.89	17.37	20.65	20.97	Pass
2DH1	0	1	16.60	17.50	20.08	20.97	Pass
	39	1	17.40	16.56	20.01	20.97	Pass
	78	1	17.05	16.62	19.85	20.97	Pass
3DH1	0	1	16.63	17.66	20.19	20.97	Pass
	39	1	17.69	17.20	20.46	20.97	Pass
	78	1	17.53	17.23	20.39	20.97	Pass

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

DH	CH.	NTX	Average Power Ant 3(dBm)	Average Power Ant 4(dBm)	Average Power Ant 3+4(dBm)	Duty Factor Ant 3(dB)	Duty Factor Ant 4(dB)
DH1	0	1	16.41	17.23	19.85	5.15	5.15
	39	1	17.68	16.79	20.27	5.15	5.15
	78	1	17.15	16.68	19.93	5.15	5.15
2DH1	0	1	13.84	14.97	17.45	5.05	5.08
	39	1	14.57	13.95	17.28	5.05	5.08
	78	1	14.33	14.12	17.24	5.05	5.08
3DH1	0	1	13.41	14.65	17.09	5.08	5.08
	39	1	14.58	14.02	17.32	5.08	5.08
	78	1	14.40	14.19	17.31	5.08	5.08

TEST RESULTS DATA**Number of Hopping Frequency**

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



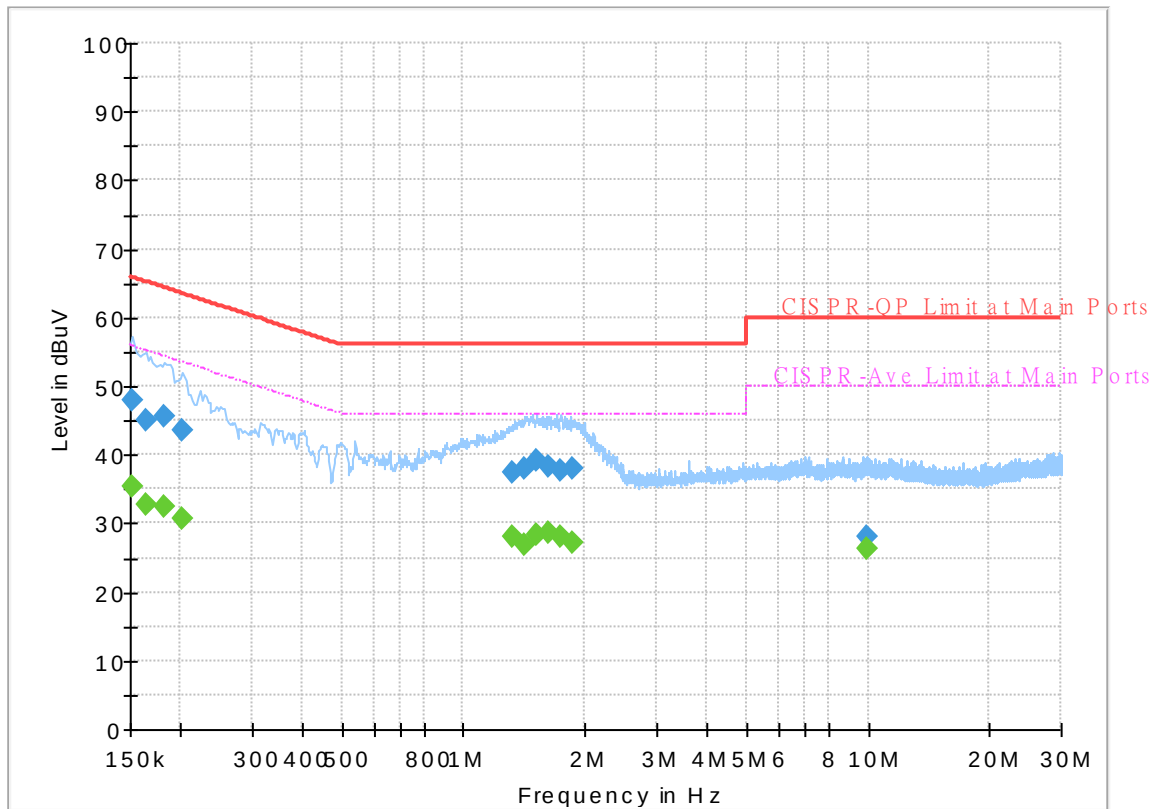
Appendix B. AC Conducted Emission Test Results

Test Engineer :	Tom Lee	Temperature :	23~26℃
		Relative Humidity :	45~55%

EUT Information

Report NO : 262403-04
 Test Mode : Mode 1
 Test Voltage : 120Vac/60Hz
 Phase : Line

Full Spectrum



Final_Result

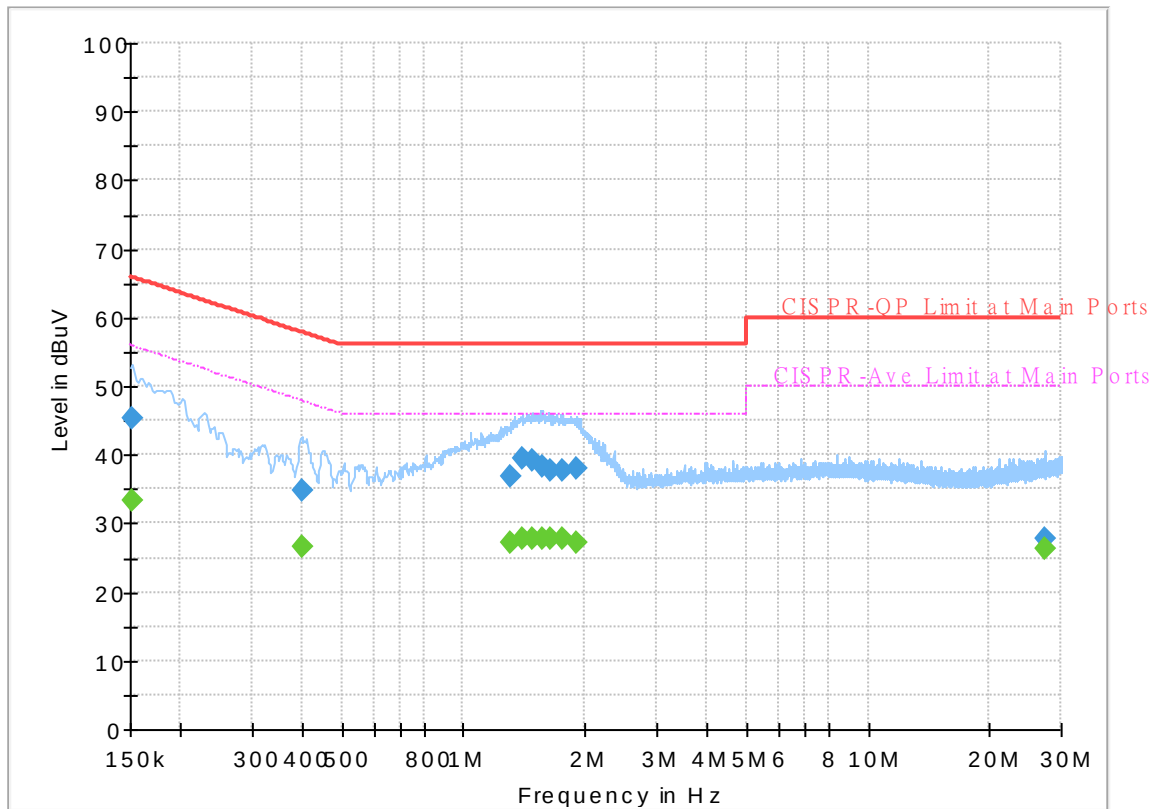
Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.152250	---	35.44	55.88	20.44	L1	OFF	19.8
0.152250	48.02	---	65.88	17.86	L1	OFF	19.8
0.163500	---	32.62	55.28	22.66	L1	OFF	19.8
0.163500	45.06	---	65.28	20.22	L1	OFF	19.8
0.181500	---	32.53	54.42	21.89	L1	OFF	19.8
0.181500	45.49	---	64.42	18.93	L1	OFF	19.8
0.201750	---	30.57	53.54	22.97	L1	OFF	19.8
0.201750	43.55	---	63.54	19.99	L1	OFF	19.8
1.322250	---	28.00	46.00	18.00	L1	OFF	19.8
1.322250	37.52	---	56.00	18.48	L1	OFF	19.8
1.410000	---	26.95	46.00	19.05	L1	OFF	19.9
1.410000	38.11	---	56.00	17.89	L1	OFF	19.9
1.515750	---	28.44	46.00	17.56	L1	OFF	19.9
1.515750	39.20	---	56.00	16.80	L1	OFF	19.9
1.623750	---	28.68	46.00	17.32	L1	OFF	19.9
1.623750	38.27	---	56.00	17.73	L1	OFF	19.9
1.747500	---	27.97	46.00	18.03	L1	OFF	19.9
1.747500	37.76	---	56.00	18.24	L1	OFF	19.9
1.864500	---	27.33	46.00	18.67	L1	OFF	19.9
1.864500	37.88	---	56.00	18.12	L1	OFF	19.9
9.980250	---	26.42	50.00	23.58	L1	OFF	20.2

9.980250	28.16	---	60.00	31.84	L1	OFF	20.2
----------	-------	-----	-------	-------	----	-----	------

EUT Information

Report NO : 262403-04
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	---	33.31	55.88	22.57	N	OFF	19.8
0.152250	45.38	---	65.88	20.50	N	OFF	19.8
0.397500	---	26.60	47.91	21.31	N	OFF	19.8
0.397500	34.84	---	57.91	23.07	N	OFF	19.8
1.302000	---	27.08	46.00	18.92	N	OFF	19.8
1.302000	36.98	---	56.00	19.02	N	OFF	19.8
1.394250	---	27.65	46.00	18.35	N	OFF	19.8
1.394250	39.51	---	56.00	16.49	N	OFF	19.8
1.475250	---	27.82	46.00	18.18	N	OFF	19.8
1.475250	39.14	---	56.00	16.86	N	OFF	19.8
1.567500	---	27.88	46.00	18.12	N	OFF	19.8
1.567500	38.29	---	56.00	17.71	N	OFF	19.8
1.648500	---	27.84	46.00	18.16	N	OFF	19.8
1.648500	37.81	---	56.00	18.19	N	OFF	19.8
1.756500	---	27.73	46.00	18.27	N	OFF	19.8
1.756500	37.73	---	56.00	18.27	N	OFF	19.8
1.902750	---	27.22	46.00	18.78	N	OFF	19.8
1.902750	38.08	---	56.00	17.92	N	OFF	19.8
27.435750	---	26.21	50.00	23.79	N	OFF	20.9
27.435750	27.77	---	60.00	32.23	N	OFF	20.9



Appendix C. Radiated Spurious Emission

Test Engineer :	Andy Yang, Karl Hou and Steven Wu	Temperature :	18~23°C
		Relative Humidity :	50~65%



<Open Mode>

2.4GHz 2400~2483.5MHz

BT (Band Edge @ 3m)

BT Ant	Note	Frequency	Level	Margin	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
3		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BT CH00 2402MHz		2357.985	45.59	-28.41	74	41.47	27.23	7.37	30.48	109	232	P	H
		2357.985	20.8	-33.2	54	-	-	-	-	-	-	A	H
	*	2402	109.38	-	-	104.97	27.41	7.46	30.46	109	232	P	H
	*	2402	84.59	-	-	-	-	-	-	-	-	A	H
													H
													H
		2361.135	45.96	-28.04	74	41.81	27.24	7.38	30.47	388	43	P	V
		2361.135	21.17	-32.83	54	-	-	-	-	-	-	A	V
	*	2402	105.66	-	-	101.25	27.41	7.46	30.46	388	43	P	V
	*	2402	80.87	-	-	-	-	-	-	-	-	A	V
													V
													V
BT CH 39 2441MHz		2334.08	45.84	-28.16	74	41.8	27.2	7.32	30.48	106	230	P	H
		2334.08	21.05	-32.95	54	-	-	-	-	-	-	A	H
	*	2441	111.68	-	-	106.96	27.65	7.52	30.45	106	230	P	H
	*	2441	86.89	-	-	-	-	-	-	-	-	A	H
		2496.01	46.98	-27.02	74	41.93	27.88	7.6	30.43	106	230	P	H
		2496.01	22.19	-31.81	54	-	-	-	-	-	-	A	H
		2347.52	45.28	-28.72	74	41.21	27.2	7.35	30.48	386	42	P	V
		2347.52	20.49	-33.51	54	-	-	-	-	-	-	A	V
	*	2441	109.48	-	-	104.76	27.65	7.52	30.45	386	42	P	V
	*	2441	84.69	-	-	-	-	-	-	-	-	A	V
		2493.49	46.46	-27.54	74	41.42	27.87	7.6	30.43	386	42	P	V
		2493.49	21.67	-32.33	54	-	-	-	-	-	-	A	V



BT CH 78 2480MHz	*	2480	112.2	-	-	107.24	27.82	7.58	30.44	114	230	P	H
	*	2480	87.41	-	-	-	-	-	-	-	-	A	H
		2483.52	48.98	-25.02	74	44	27.83	7.59	30.44	114	230	P	H
		2483.52	24.19	-29.81	54	-	-	-	-	-	-	A	H
													H
													H
	*	2480	110.84	-	-	105.88	27.82	7.58	30.44	381	43	P	V
	*	2480	86.05	-	-	-	-	-	-	-	-	A	V
		2483.6	47.82	-26.18	74	42.84	27.83	7.59	30.44	381	43	P	V
		2483.6	23.03	-30.97	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 Ant 3	Note	Frequency (MHz)	Level (dBμV/m)	Margin (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	44.22	-29.78	74	66.77	32.32	11.3	66.17	-	-	P	H
		4804	19.43	-34.57	54	-	-	-	-	-	-	A	H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
		4804	40.23	-33.77	74	62.78	32.32	11.3	66.17	-	-	P	V
		4804	15.44	-38.56	54	-	-	-	-	-	-	A	V
													V
													V
													V
													V
													V
													V
													V
													V



BT Ant 3	Note	Frequency (MHz)	Level (dBμV/m)	Margin (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 39 2441MHz		4882	41.75	-32.25	74	63.77	32.73	11.36	66.11	-	-	P	H
		4882	16.96	-37.04	54	-	-	-	-	-	-	A	H
		7323	44.77	-29.23	74	59.95	37.06	13.48	65.72	-	-	P	H
		7323	19.98	-34.02	54	-	-	-	-	-	-	A	H
													H
													H
													H
													H
													H
													H
													H
													H
													H
		4882	42.65	-31.35	74	64.67	32.73	11.36	66.11	-	-	P	V
		4882	17.86	-36.14	54	-	-	-	-	-	-	A	V
		7323	44.27	-29.73	74	59.45	37.06	13.48	65.72	-	-	P	V
		7323	19.48	-34.52	54	-	-	-	-	-	-	A	V
													V
													V
													V
													V
													V
													V
													V
													V
													V

[illegible]



2.4GHz 2400~2483.5MHz

BT (Band Edge @ 3m)

BT	Note	Frequency	Level	Margin	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant					Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
4		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BT CH00 2402MHz		2387.28	46.47	-27.53	74	42.16	27.35	7.43	30.47	122	148	P	H
		2387.28	21.68	-32.32	54	-	-	-	-	-	-	A	H
	*	2402	112.98	-	-	108.57	27.41	7.46	30.46	122	148	P	H
	*	2402	88.19	-	-	-	-	-	-	-	-	A	H
													H
													H
		2312.205	45.78	-28.22	74	41.79	27.2	7.28	30.49	383	33	P	V
		2312.205	20.99	-33.01	54	-	-	-	-	-	-	A	V
	*	2402	108.85	-	-	104.44	27.41	7.46	30.46	383	33	P	V
	*	2402	84.06	-	-	-	-	-	-	-	-	A	V
													V
													V
BT CH 39 2441MHz		2375.52	46.33	-27.67	74	42.09	27.3	7.41	30.47	135	237	P	H
		2375.52	21.54	-32.46	54	-	-	-	-	-	-	A	H
	*	2441	114.08	-	-	109.36	27.65	7.52	30.45	135	237	P	H
	*	2441	89.29	-	-	-	-	-	-	-	-	A	H
		2495.66	46.69	-27.31	74	41.64	27.88	7.6	30.43	135	237	P	H
		2495.66	21.9	-32.1	54	-	-	-	-	-	-	A	H
		2386.58	46.17	-27.83	74	41.86	27.35	7.43	30.47	372	164	P	V
		2386.58	21.38	-32.62	54	-	-	-	-	-	-	A	V
	*	2441	109.8	-	-	105.08	27.65	7.52	30.45	372	164	P	V
	*	2441	85.01	-	-	-	-	-	-	-	-	A	V
		2492.93	46.88	-27.12	74	41.84	27.87	7.6	30.43	372	164	P	V
		2492.93	22.09	-31.91	54	-	-	-	-	-	-	A	V



BT CH 78 2480MHz	*	2480	113.25	-	-	108.29	27.82	7.58	30.44	100	226	P	H
	*	2480	88.46	-	-	-	-	-	-	-	-	A	H
		2483.64	49.32	-24.68	74	44.34	27.83	7.59	30.44	100	226	P	H
		2483.64	24.53	-29.47	54	-	-	-	-	-	-	A	H
													H
													H
	*	2480	111.74	-	-	106.78	27.82	7.58	30.44	400	68	P	V
	*	2480	86.95	-	-	-	-	-	-	-	-	A	V
		2484.04	47.61	-26.39	74	42.62	27.84	7.59	30.44	400	68	P	V
		2484.04	22.82	-31.18	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 Ant 4	Note	Frequency (MHz)	Level (dBμV/m)	Margin (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	40.08	-33.92	74	62.63	32.32	11.3	66.17	-	-	P	H
		4804	15.29	-38.71	54	-	-	-	-	-	-	A	H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
		4804	39.72	-34.28	74	62.27	32.32	11.3	66.17	-	-	P	V
		4804	14.93	-39.07	54	-	-	-	-	-	-	A	V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V



BT Ant 4	Note	Frequency (MHz)	Level (dBμV/m)	Margin (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 39 2441MHz		4882	45.32	-28.68	74	67.34	32.73	11.36	66.11	-	-	P	H
		4882	20.53	-33.47	54	-	-	-	-	-	-	A	H
		7323	45.94	-28.06	74	61.12	37.06	13.48	65.72	-	-	P	H
		7323	21.15	-32.85	54	-	-	-	-	-	-	A	H
													H
													H
													H
													H
													H
													H
													H
													H
													H
		4882	43.99	-30.01	74	66.01	32.73	11.36	66.11	-	-	P	V
		4882	19.2	-34.8	54	-	-	-	-	-	-	A	V
		7323	46.08	-27.92	74	61.26	37.06	13.48	65.72	-	-	P	V
		7323	21.29	-32.71	54	-	-	-	-	-	-	A	V
													V
													V
													V
													V
													V
													V
													V
													V

BT Ant 4	Note	Frequency (MHz)	Level (dBμV/m)	Margin (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 78 2480MHz		4960	44.56	-29.44	74	66.09	33.12	11.41	66.06	-	-	P	H
		4960	19.77	-34.23	54	-	-	-	-	-	-	A	H
		7440	44.43	-29.57	74	60.27	36.46	13.49	65.79	-	-	P	H
		7440	19.64	-34.36	54	-	-	-	-	-	-	A	H
													H
													H
													H
													H
													H
													H
													H
													H
													H
		4960	42.43	-31.57	74	63.96	33.12	11.41	66.06	-	-	P	V
		4960	17.64	-36.36	54	-	-	-	-	-	-	A	V
		7440	44.03	-29.97	74	59.87	36.46	13.49	65.79	-	-	P	V
		7440	19.24	-34.76	54	-	-	-	-	-	-	A	V
													V
													V
													V
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	
												V	



2.4GHz 2400~2483.5MHz

BT (Band Edge @ 3m)

BT	Note	Frequency	Level	Margin	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant					Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
3+4		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BT CH00 2402MHz		2356.725	45.03	-28.97	74	40.91	27.23	7.37	30.48	145	307	P	H
		2356.725	20.24	-33.76	54	-	-	-	-	-	-	A	H
	*	2402	101.23	-	-	96.82	27.41	7.46	30.46	145	307	P	H
	*	2402	76.44	-	-	-	-	-	-	-	-	A	H
													H
													H
		2358.405	45.21	-28.79	74	41.09	27.23	7.37	30.48	384	147	P	V
		2358.405	20.42	-33.58	54	-	-	-	-	-	-	A	V
	*	2402	95.98	-	-	91.57	27.41	7.46	30.46	384	147	P	V
	*	2402	71.19	-	-	-	-	-	-	-	-	A	V
													V
													V
BT CH 39 2441MHz		2387.7	45.16	-28.84	74	40.85	27.35	7.43	30.47	115	151	P	H
		2387.7	20.37	-33.63	54	-	-	-	-	-	-	A	H
	*	2441	106.98	-	-	102.26	27.65	7.52	30.45	115	151	P	H
	*	2441	82.19	-	-	-	-	-	-	-	-	A	H
		2489.78	45.67	-28.33	74	40.65	27.86	7.59	30.43	115	151	P	H
		2489.78	20.88	-33.12	54	-	-	-	-	-	-	A	H
		2372.86	45.18	-28.82	74	40.96	27.29	7.4	30.47	376	65	P	V
		2372.86	20.39	-33.61	54	-	-	-	-	-	-	A	V
	*	2441	102.76	-	-	98.04	27.65	7.52	30.45	376	65	P	V
	*	2441	77.97	-	-	-	-	-	-	-	-	A	V
		2489.71	45.67	-28.33	74	40.65	27.86	7.59	30.43	376	65	P	V
		2489.71	20.88	-33.12	54	-	-	-	-	-	-	A	V



BT CH 78 2480MHz	*	2480	111.62	-	-	106.66	27.82	7.58	30.44	100	149	P	H
	*	2480	86.83	-	-	-	-	-	-	-	-	A	H
		2483.6	48.11	-25.89	74	43.13	27.83	7.59	30.44	100	149	P	H
		2483.6	23.32	-30.68	54	-	-	-	-			A	H
													H
													H
	*	2480	108.54	-	-	103.58	27.82	7.58	30.44	400	46	P	V
	*	2480	83.75	-	-	-	-	-	-	-	-	A	V
		2483.68	47.07	-26.93	74	42.09	27.83	7.59	30.44	400	46	P	V
		2483.68	22.28	-31.72	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 Ant 3+4	Note	Frequency (MHz)	Level (dBμV/m)	Margin (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	44.25	-29.75	74	66.8	32.32	11.3	66.17	-	-	P	H
		4804	19.46	-34.54	54	-	-	-	-	-	-	A	H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
		4804	40.91	-33.09	74	63.46	32.32	11.3	66.17	-	-	P	V
		4804	16.12	-37.88	54	-	-	-	-	-	-	A	V
													V
													V
													V
													V
													V
													V
													V
													V



BT Ant 3+4	Note	Frequency (MHz)	Level (dBμV/m)	Margin (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 39 2441MHz		4882	39.75	-34.25	74	61.77	32.73	11.36	66.11	-	-	P	H
		4882	14.96	-39.04	54	-	-	-	-	-	-	A	H
		7323	44.02	-29.98	74	59.2	37.06	13.48	65.72	-	-	P	H
		7323	19.23	-34.77	54	-	-	-	-	-	-	A	H
													H
													H
													H
													H
													H
													H
													H
													H
													H
		4882	40	-34	74	62.02	32.73	11.36	66.11	-	-	P	V
		4882	15.21	-38.79	54	-	-	-	-	-	-	A	V
		7323	44.49	-29.51	74	59.67	37.06	13.48	65.72	-	-	P	V
		7323	19.7	-34.3	54	-	-	-	-	-	-	A	V
													V
													V
													V
													V
													V
													V
													V
													V
													V

BT Ant 3+4	Note	Frequency (MHz)	Level (dBμV/m)	Margin (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 78 2480MHz		4960	40.41	-33.59	74	61.94	33.12	11.41	66.06	-	-	P	H
		4960	15.62	-38.38	54	-	-	-	-	-	-	A	H
		7440	43.01	-30.99	74	58.85	36.46	13.49	65.79	-	-	P	H
		7440	18.22	-35.78	54	-	-	-	-	-	-	A	H
													H
													H
													H
													H
													H
													H
													H
													H
		4960	40.06	-33.94	74	61.59	33.12	11.41	66.06	-	-	P	V
		4960	15.27	-38.73	54	-	-	-	-	-	-	A	V
		7440	43.68	-30.32	74	59.52	36.46	13.49	65.79	-	-	P	V
		7440	18.89	-35.11	54	-	-	-	-	-	-	A	V
													V
													V
													V
													V
												V	
												V	
												V	
												V	
												V	
												V	
												V	
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line. 3. The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only.												

Emission above 18GHz

2.4GHz BT (SHF)

BT	Note	Frequency	Level	Margin	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant					Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
3+4		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz BT SHF		21760	39.51	-48.69	88.2	59.35	38	-3.09	54.75	-	-	P	H
		31656	42.51	-31.49	74	60.61	40.45	-1.83	56.72	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
		20392	38.34	-35.66	74	59.32	37.77	-3.85	54.9	-	-	P	V
		31656	43.56	-30.44	74	61.66	40.45	-1.83	56.72	-	-	P	V
													V
													V
													V
													V
													V
													V
													V
												V	
												V	
Remark	1. No other spurious found.												
	2. All results are PASS against limit line.												
	3. The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only.												

Emission below 1GHz

2.4GHz BT (LF)

[illegible]



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	P eak or A verage
H/V	H orizontal or V ertical



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

BT	Note	Frequency	Level	Margin	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
		(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

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. Margin 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. Margin Limit(dB)
= Level(dBμV/m) – Limit Line(dBμV/m)
= 55.45(dBμV/m) – 74(dBμV/m)
= -18.55(dB)

Peak measured complies with the limit line, so test result is “PASS”.



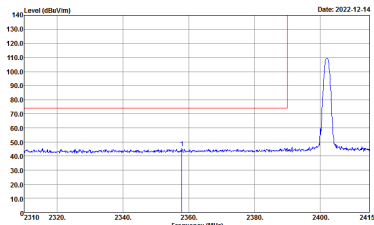
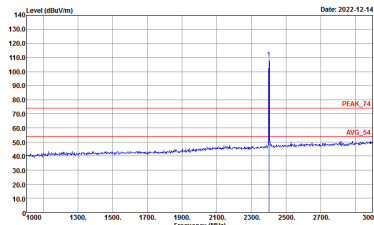
Appendix D. Radiated Spurious Emission Plots

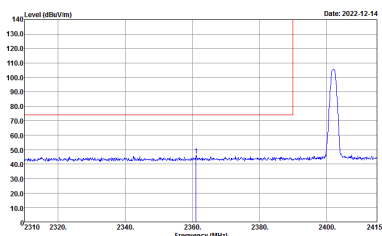
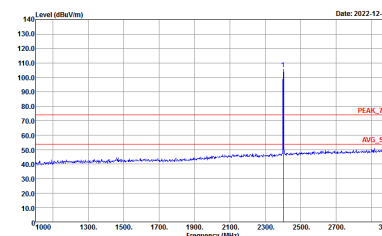
Test Engineer :	Andy Yang, Karl Hou and Steven Wu	Temperature :	18~23°C
		Relative Humidity :	50~65%

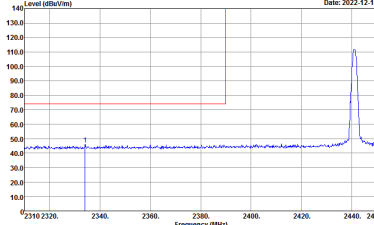
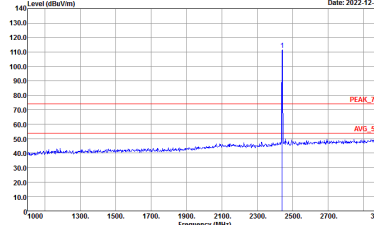
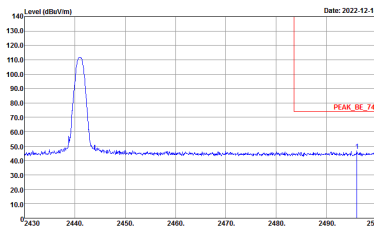
<Open Mode>

2.4GHz 2400~2483.5MHz

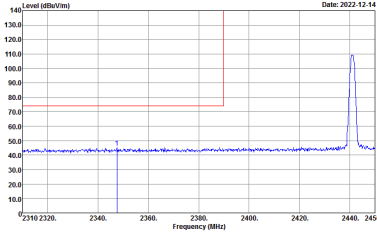
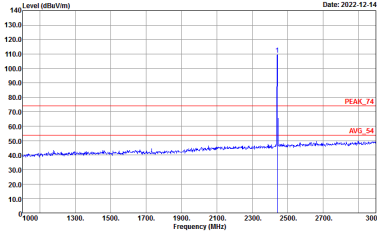
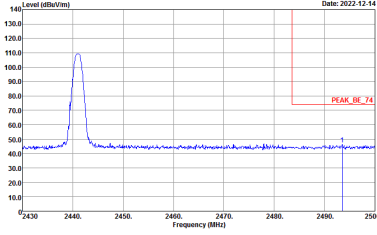
BT (Band Edge @ 3m)

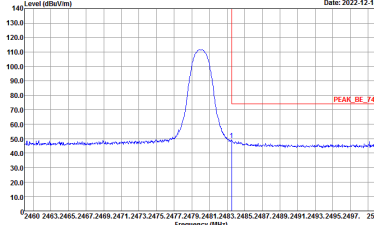
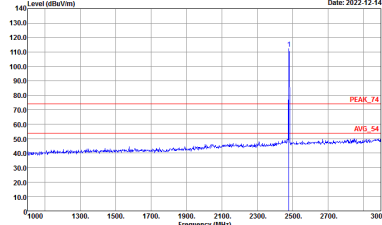
BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH00 2402MHz	
3	Horizontal	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522_220310 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522_220310 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH00 2402MHz	
3	Vertical	Fundamental
Peak	 Site : 03CH16-11Y Condition : PEAK_85_74 3m 91200_1522_220310 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH16-11Y Condition : PEAK_74 3m 91200_1522_220310 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH39 2441MHz	
3	Horizontal	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522_220310 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto	 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522_220310 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto
	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522_220310 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto	Left blank



BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH39 2441MHz	
3	Vertical	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522_220310 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522_220310 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522_220310 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank

BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH78 2480MHz	
3	Horizontal	Fundamental
Peak	 Site : 03CH16-14Y Condition : PEAK_74 3m 91200_1522_220310 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH16-14Y Condition : PEAK_74 3m 91200_1522_220310 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto



BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH78 2480MHz	
3	Vertical	Fundamental
Peak	Level (dBuV/m) Date: 2022-12-14 PEAK_74 Site : 03CH16-14Y Condition : PEAK_74 3m 91200_1522_220310 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Level (dBuV/m) Date: 2022-12-14 PEAK_74 Site : 03CH16-14Y Condition : PEAK_74 3m 91200_1522_220310 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto



2.4GHz 2400~2483.5MHz

BT (Harmonic @ 3m)

BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH00 2402MHz	
3	Horizontal	Vertical
Peak Avg.	Level (dBuV/m) Date: 2022-12-14 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522_220310 HORIZONTAL	Level (dBuV/m) Date: 2022-12-14 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522_220310 VERTICAL



BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH00 2402MHz	
3	Horizontal	Vertical
14.47G ~14.5G Avg.	Site : 03CH16-HY Condition : AV6_54 3m 91200_1522_220310 HORIZONTAL	Site : 03CH16-HY Condition : AV6_54 3m 91200_1522_220310 VERTICAL
	Site : 03CH16-HY Condition : AV6_54 3m 91200_1522_220310 HORIZONTAL	Site : 03CH16-HY Condition : AV6_54 3m 91200_1522_220310 VERTICAL



BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH39 2441MHz	
3	Horizontal	Vertical
Peak Avg.	Level (dBuV/m) Date: 2022-12-14 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522_220310 HORIZONTAL	Level (dBuV/m) Date: 2022-12-14 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522_220310 VERTICAL



BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH39 2441MHz	
3	Horizontal	Vertical
14.47G ~14.5G Avg.	Site : 03CH16-HY Condition : AV6_54 3m 91200_1522_220310 HORIZONTAL	Site : 03CH16-HY Condition : AV6_54 3m 91200_1522_220310 VERTICAL
	Site : 03CH16-HY Condition : AV6_54 3m 91200_1522_220310 HORIZONTAL	Site : 03CH16-HY Condition : AV6_54 3m 91200_1522_220310 VERTICAL



BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH78 2480MHz	
3	Horizontal	Vertical
Peak Avg.	Level (dBuV/m) Date: 2022-12-14 Site : 03CH16-HY Condition : PEAK_74 3m 9120D_1522_220310 HORIZONTAL	Level (dBuV/m) Date: 2022-12-14 Site : 03CH16-HY Condition : PEAK_74 3m 9120D_1522_220310 VERTICAL

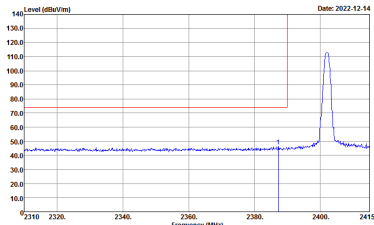
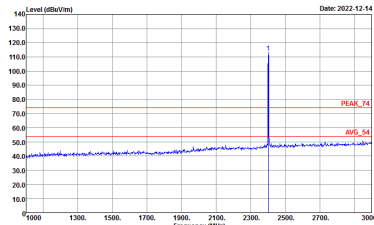


BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH78 2480MHz	
3	Horizontal	Vertical
14.47G ~14.5G Avg.	Site : 03CH16-HY Condition : AV6_54 3m 91200_1522_220310 HORIZONTAL	Site : 03CH16-HY Condition : AV6_54 3m 91200_1522_220310 VERTICAL
	Site : 03CH16-HY Condition : AV6_54 3m 91200_1522_220310 HORIZONTAL	Site : 03CH16-HY Condition : AV6_54 3m 91200_1522_220310 VERTICAL

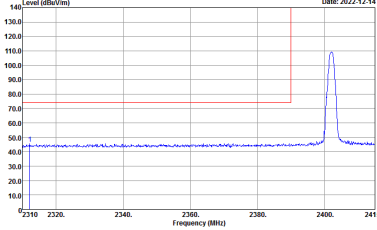
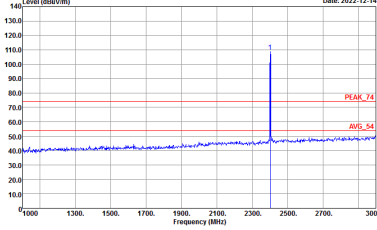


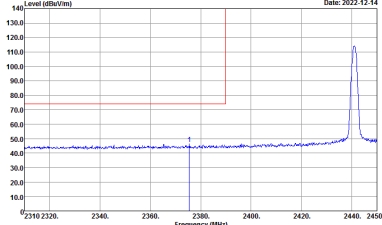
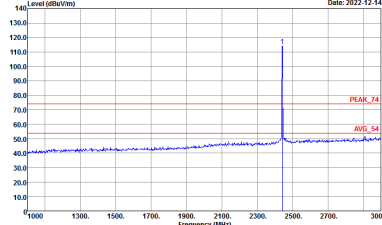
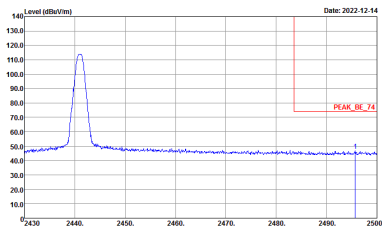
2.4GHz 2400~2483.5MHz

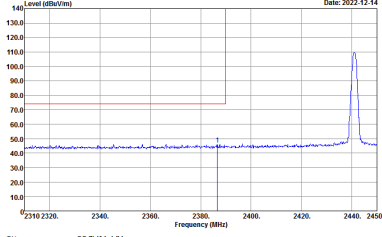
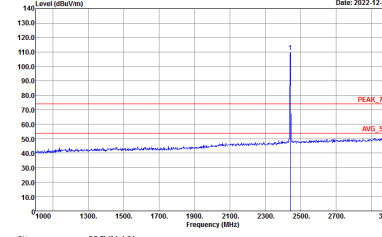
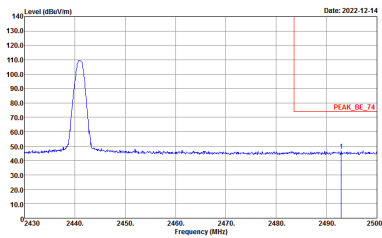
BT (Band Edge @ 3m)

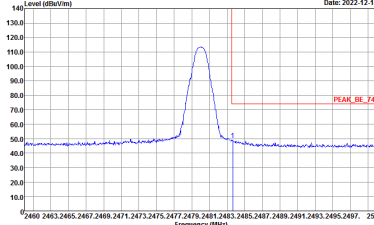
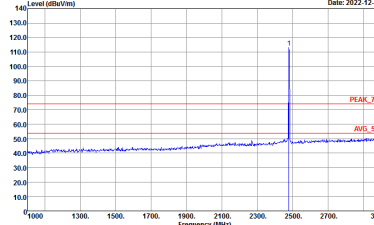
BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH00 2402MHz	
4	Horizontal	Fundamental
Peak	 Site : 03CH16-HV Condition : PEAK_BE_74 3m 91200_1522_220310 HORIZONTAL	 Site : 03CH16-HV Condition : PEAK_74 3m 91200_1522_220310 HORIZONTAL



BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH00 2402MHz	
4	Vertical	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522_220310 VERTICAL	 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522_220310 VERTICAL

BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH39 2441MHz	
4	Horizontal	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522_220310 HORIZONTAL RBW:1000.000kHz VBW:3000.000kHz SWT:Auto	 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522_220310 HORIZONTAL RBW:1000.000kHz VBW:3000.000kHz SWT:Auto
	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522_220310 HORIZONTAL RBW:1000.000kHz VBW:3000.000kHz SWT:Auto	Left blank

BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH39 2441MHz	
4	Vertical	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522_220310 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522_220310 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522_220310 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank

BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH78 2480MHz	
4	Horizontal	Fundamental
Peak	 Site : 03CH16-14Y Condition : PEAK_B7_74 3m 91200_1522_220310 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH16-14Y Condition : PEAK_74 3m 91200_1522_220310 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

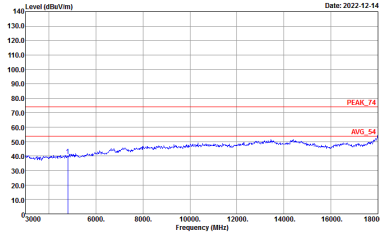
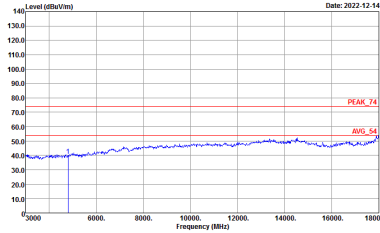


BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH78 2480MHz	
4	Vertical	Fundamental
Peak	Site : 03CH16-14Y Condition : PEAK_74 3m 91200_1522_220310 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Site : 03CH16-14Y Condition : PEAK_74 3m 91200_1522_220310 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

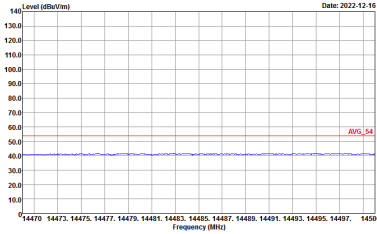
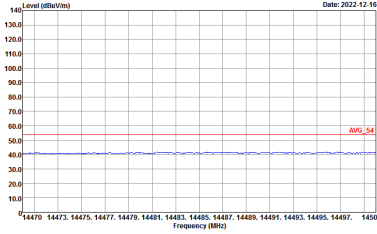
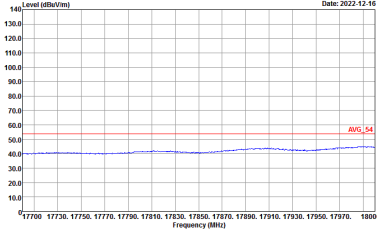
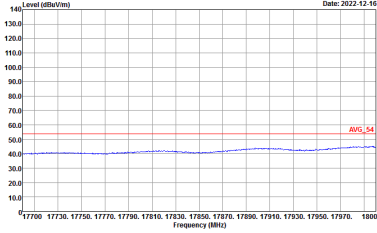


2.4GHz 2400~2483.5MHz

BT (Harmonic @ 3m)

BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH00 2402MHz	
4	Horizontal	Vertical
Peak Avg.	 Site : 03CH16-HY Condition : PEAK_74 3m 91200 1522 220310 HORIZONTAL	 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522_220310 VERTICAL

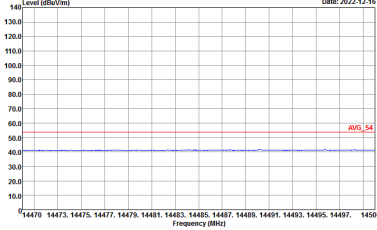
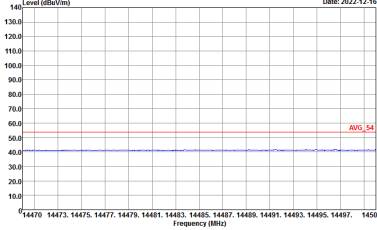
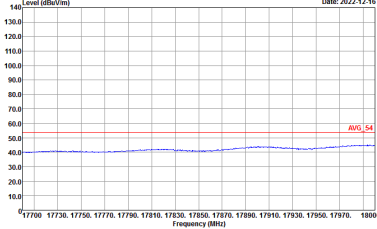
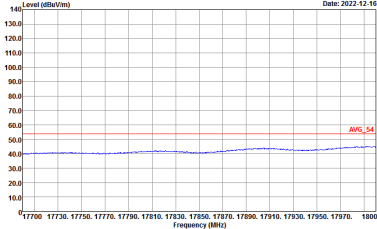


BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH00 2402MHz	
4	Horizontal	Vertical
14.47G ~14.5G Avg.	 Site : 03CH16-HY Condition : AV6_54 3m 91200_1522_220310 HORIZONTAL	 Site : 03CH16-HY Condition : AV6_54 3m 91200_1522_220310 VERTICAL
	 Site : 03CH16-HY Condition : AV6_54 3m 91200_1522_220310 HORIZONTAL	 Site : 03CH16-HY Condition : AV6_54 3m 91200_1522_220310 VERTICAL



BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH39 2441MHz	
4	Horizontal	Vertical
Peak Avg.	Level (dBuV/m) Date: 2022-12-14 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522_220310 HORIZONTAL	Level (dBuV/m) Date: 2022-12-14 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522_220310 VERTICAL

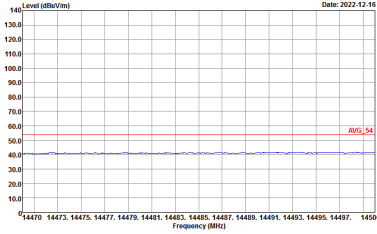
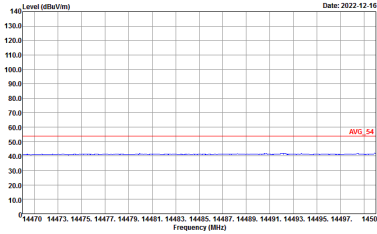
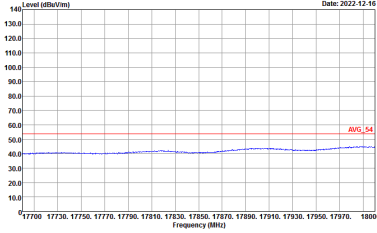
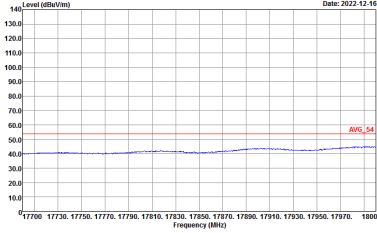


BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH39 2441MHz	
4	Horizontal	Vertical
14.47G ~14.5G Avg.	 Site : 03CH16-HY Condition : AV6_54 3m 91200_1522_220310 HORIZONTAL	 Site : 03CH16-HY Condition : AV6_54 3m 91200_1522_220310 VERTICAL
	 Site : 03CH16-HY Condition : AV6_54 3m 91200_1522_220310 HORIZONTAL	 Site : 03CH16-HY Condition : AV6_54 3m 91200_1522_220310 VERTICAL



BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH78 2480MHz	
4	Horizontal	Vertical
Peak Avg.	Level (dBuV/m) Date: 2022-12-15 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522_220310 HORIZONTAL	Level (dBuV/m) Date: 2022-12-15 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522_220310 VERTICAL

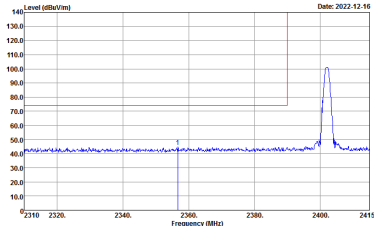
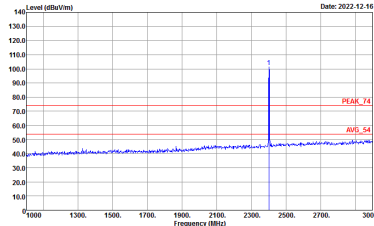


BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH78 2480MHz	
4	Horizontal	Vertical
14.47G ~14.5G Avg.	 Site : 03CH16-HY Condition : AV6_54 3m 91200_1522_220310 HORIZONTAL	 Site : 03CH16-HY Condition : AV6_54 3m 91200_1522_220310 VERTICAL
	 Site : 03CH16-HY Condition : AV6_54 3m 91200_1522_220310 HORIZONTAL	 Site : 03CH16-HY Condition : AV6_54 3m 91200_1522_220310 VERTICAL

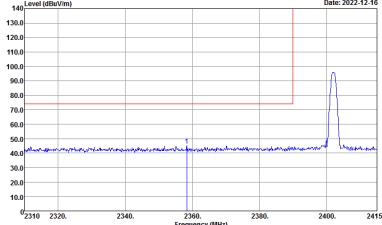
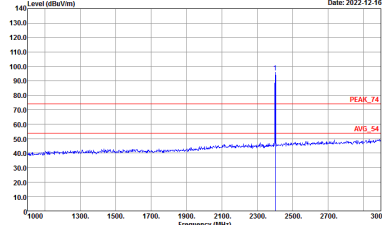


2.4GHz 2400~2483.5MHz

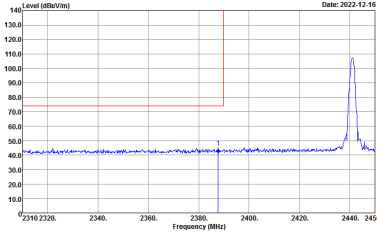
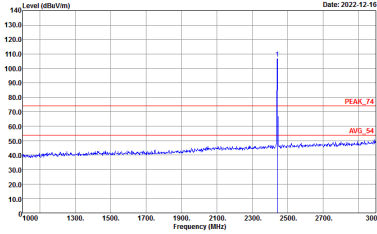
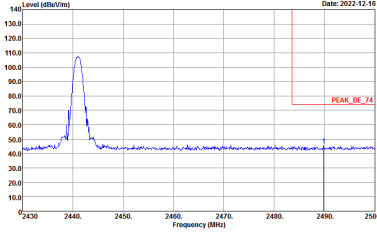
BT (Band Edge @ 3m)

BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH00 2402MHz	
3+4	Horizontal	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522_220310 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522_220310 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto



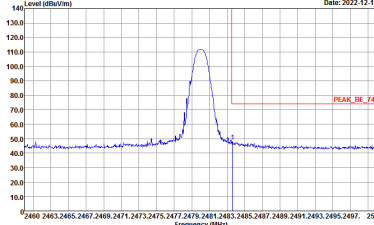
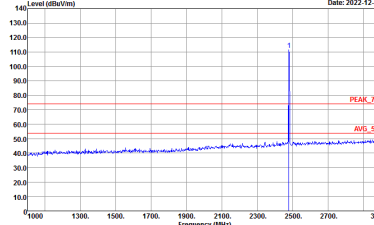
BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH00 2402MHz	
3+4	Vertical	Fundamental
Peak	 Site : 03CH16-11Y Condition : PEAK_85_74 3m 91200_1522_220310 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH16-11Y Condition : PEAK_74 3m 91200_1522_220310 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

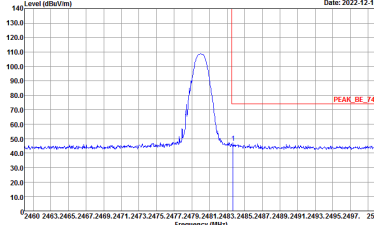
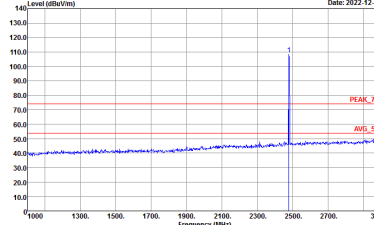


BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH39 2441MHz	
3+4	Horizontal	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522_220310 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522_220310 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522_220310 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank



BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH39 2441MHz	
3+4	Vertical	Fundamental
Peak	Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522_220310 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522_220310 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
	Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522_220310 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank

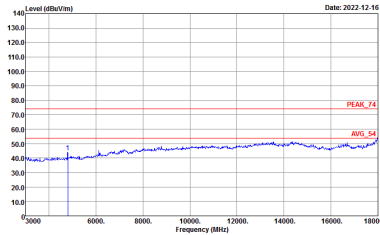
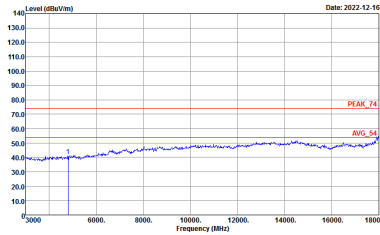
BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH78 2480MHz	
3+4	Horizontal	Fundamental
Peak	 Site : 03CH16-14Y Condition : PEAK_74 3m 91200_1522_220310 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH16-14Y Condition : PEAK_74 3m 91200_1522_220310 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH78 2480MHz	
3+4	Vertical	Fundamental
Peak	 Site : 03CH16-14Y Condition : PEAK_BE_74 3m 91200_1522_220310 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH16-14Y Condition : PEAK_74 3m 91200_1522_220310 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

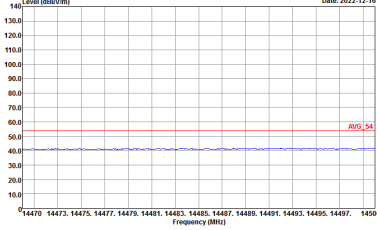
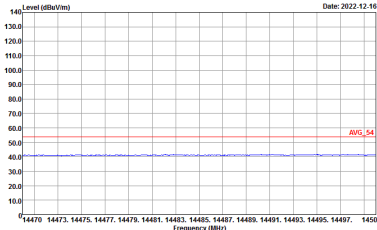
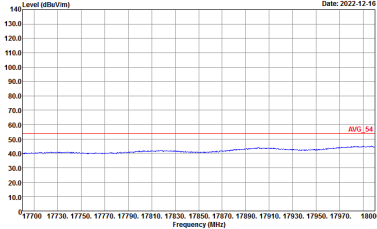
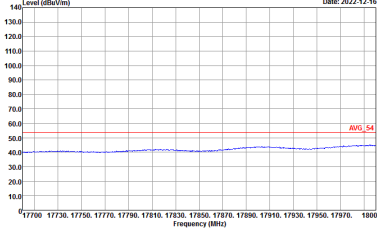


2.4GHz 2400~2483.5MHz

BT (Harmonic @ 3m)

BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH00 2402MHz	
3+4	Horizontal	Vertical
Peak Avg.	 Site : 03CH16-HY Condition : PEAK_74 3m 9120.1522 220310 HORIZONTAL	 Site : 03CH16-HY Condition : PEAK_74 3m 9120.1522 220310 VERTICAL



BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH00 2402MHz	
3+4	Horizontal	Vertical
14.47G ~14.5G Avg.	 Site : 03CH16-HY Condition : AV6_54 3m 91200_1522_220310 HORIZONTAL	 Site : 03CH16-HY Condition : AV6_54 3m 91200_1522_220310 VERTICAL
	 Site : 03CH16-HY Condition : AV6_54 3m 91200_1522_220310 HORIZONTAL	 Site : 03CH16-HY Condition : AV6_54 3m 91200_1522_220310 VERTICAL



BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH39 2441MHz	
3+4	Horizontal	Vertical
Peak Avg.	Level (dBuV/m) Date: 2022-12-16 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522_220310 HORIZONTAL	Level (dBuV/m) Date: 2022-12-16 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522_220310 VERTICAL

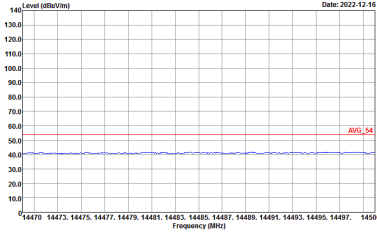
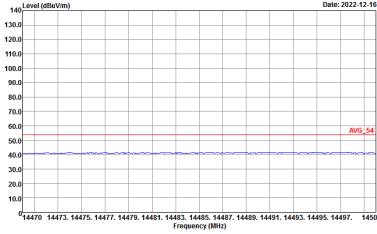
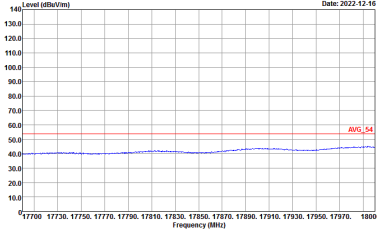
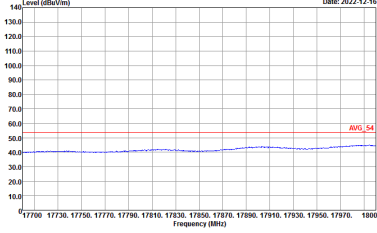


BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH39 2441MHz	
3+4	Horizontal	Vertical
14.47G ~14.5G Avg.	Level (dBuV/m) Date: 2022-12-16 Frequency (MHz) Site : 03CH16-HY Condition : AV6_54 3m 91200_1522_220310 HORIZONTAL AVG_54	Level (dBuV/m) Date: 2022-12-16 Frequency (MHz) Site : 03CH16-HY Condition : AV6_54 3m 91200_1522_220310 VERTICAL AVG_54
	Level (dBuV/m) Date: 2022-12-16 Frequency (MHz) Site : 03CH16-HY Condition : AV6_54 3m 91200_1522_220310 HORIZONTAL AVG_54	Level (dBuV/m) Date: 2022-12-16 Frequency (MHz) Site : 03CH16-HY Condition : AV6_54 3m 91200_1522_220310 VERTICAL AVG_54



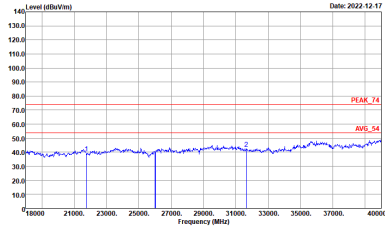
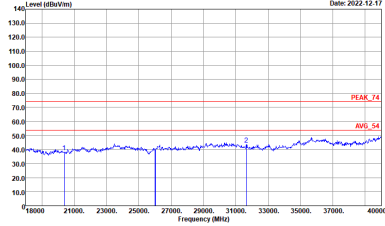
BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH78 2480MHz	
3+4	Horizontal	Vertical
Peak Avg.	Level (dBuV/m) Date: 2022-12-16 Site : 03CH16-HY Condition : PEAK_74 3m 9120D_1522_220310 HORIZONTAL	Level (dBuV/m) Date: 2022-12-16 Site : 03CH16-HY Condition : PEAK_74 3m 9120D_1522_220310 VERTICAL



BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH78 2480MHz	
3+4	Horizontal	Vertical
14.47G ~14.5G Avg.	 Site : 03CH16-HY Condition : AV6_54 3m 91200_1522_220310 HORIZONTAL	 Site : 03CH16-HY Condition : AV6_54 3m 91200_1522_220310 VERTICAL
	 Site : 03CH16-HY Condition : AV6_54 3m 91200_1522_220310 HORIZONTAL	 Site : 03CH16-HY Condition : AV6_54 3m 91200_1522_220310 VERTICAL



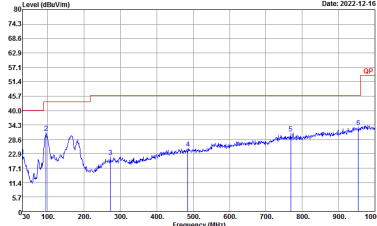
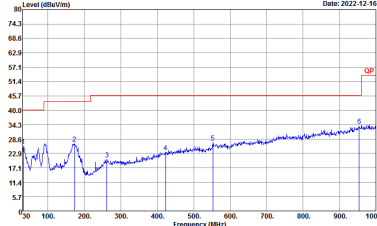
Emission above 18GHz
2.4GHz BT (SHF @ 1m)

BT	2.4GHz 2400~2483.5MHz	
ANT	BT SHF	
3+4	Horizontal	Vertical
Peak Avg.	 Site : 03CH16-HY Condition : PEAK_74 1m SHF ANT_9170_00993 HORIZONTAL	 Site : 03CH16-HY Condition : PEAK_74 1m SHF ANT_9170_00993 VERTICAL



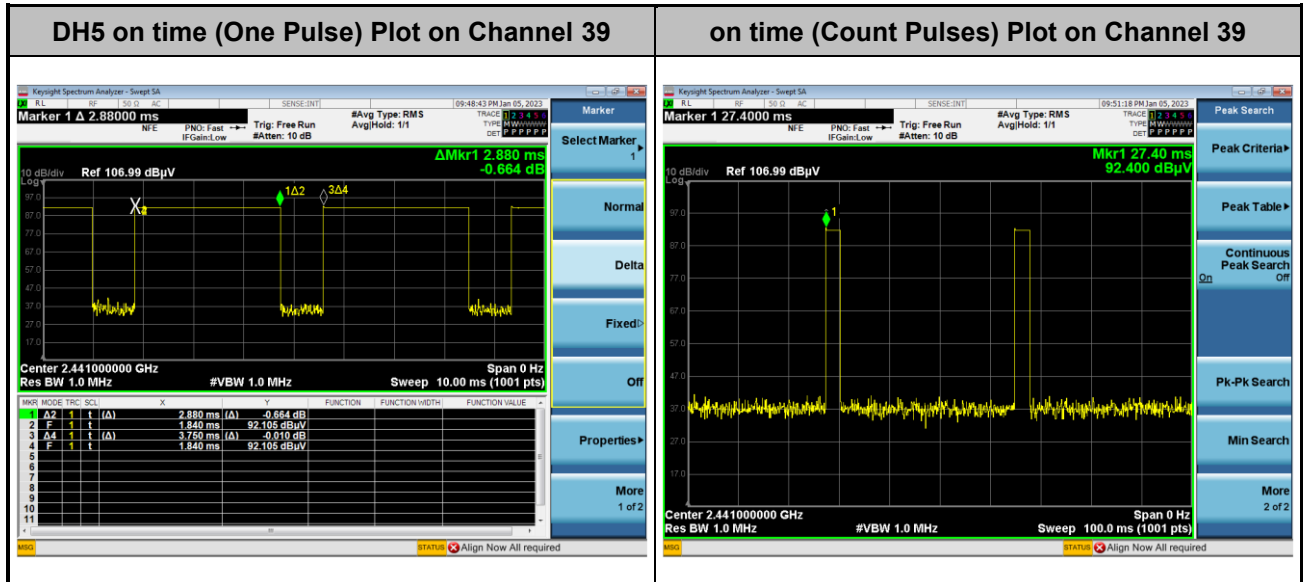
Emission below 1GHz

2.4GHz BT (LF)

BT	2.4GHz 2400~2483.5MHz	
ANT	BT LF	
3+4	Horizontal	Vertical
QP / Peak	 Site : 03CH16-HY Condition : QP 3m BIL06_47020_221008_H HORIZONTAL	 Site : 03CH16-HY Condition : QP 3m BIL06_47020_221008_H VERTICAL

Appendix E. Duty Cycle Plots

<Ant. 3>



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 on time period to have DH5 packet completing one hopping sequence is

$$2.88 \text{ ms} \times 20 \text{ channels} = 57.6 \text{ ms}$$

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. $[100 \text{ ms} / 57.6 \text{ ms}] = 2 \text{ hops}$

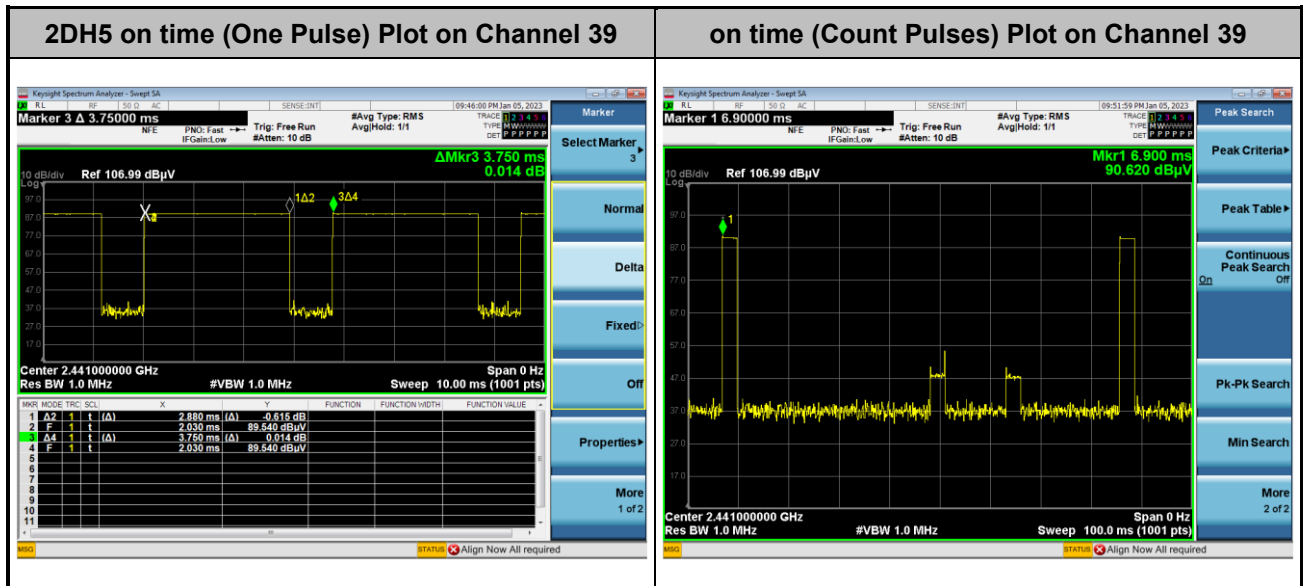
Thus, the maximum possible ON time:

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

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

$$20 \times \log(5.76 \text{ ms}/100 \text{ ms}) = -24.79 \text{ dB}$$

<Ant. 4>



Note:

1. Worst case Duty cycle = on time/100 milliseconds = $2 \times 2.88 / 100 = 5.76 \%$
2. Worst case Duty cycle correction factor = $20 \times \log(\text{Duty cycle}) = -24.79 \text{ dB}$
3. 2DH5 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 on time period to have DH5 packet completing one hopping sequence is

$$2.88 \text{ ms} \times 20 \text{ channels} = 57.6 \text{ ms}$$

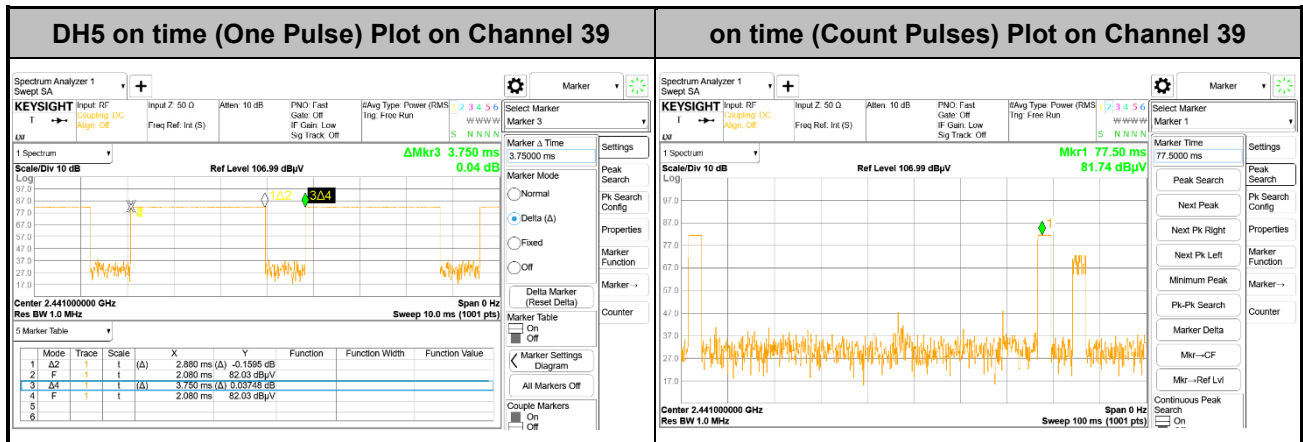
There cannot be 2 complete hopping sequences within 100ms period, considering the random hopping behavior, maximum 2 hops can be possibly observed within the period. $[100 \text{ ms} / 57.6 \text{ ms}] = 2 \text{ hops}$

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,

$$20 \times \log(5.76 \text{ ms}/100 \text{ ms}) = -24.79 \text{ dB}$$

MIMO <Ant. 3+4>

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 on time period to have DH5 packet completing one hopping sequence is

$$2.88 \text{ ms} \times 20 \text{ channels} = 57.6 \text{ ms}$$

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. $[100 \text{ ms} / 57.6 \text{ ms}] = 2 \text{ hops}$

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,

$$20 \times \log(5.76 \text{ ms}/100 \text{ ms}) = -24.79 \text{ dB}$$

—————THE END—————