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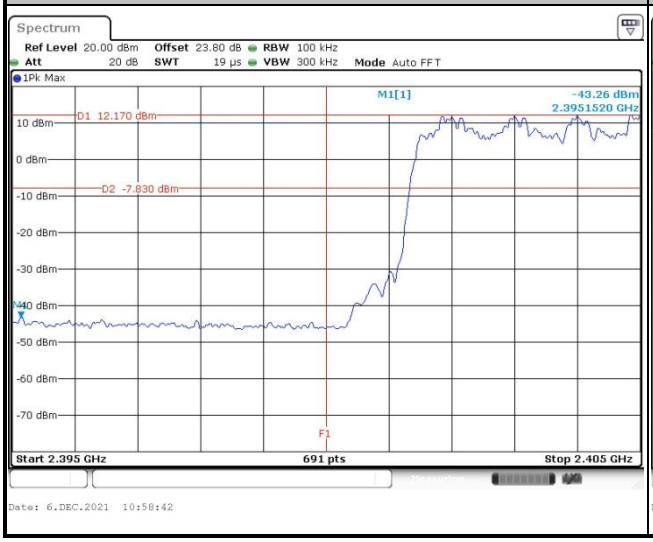
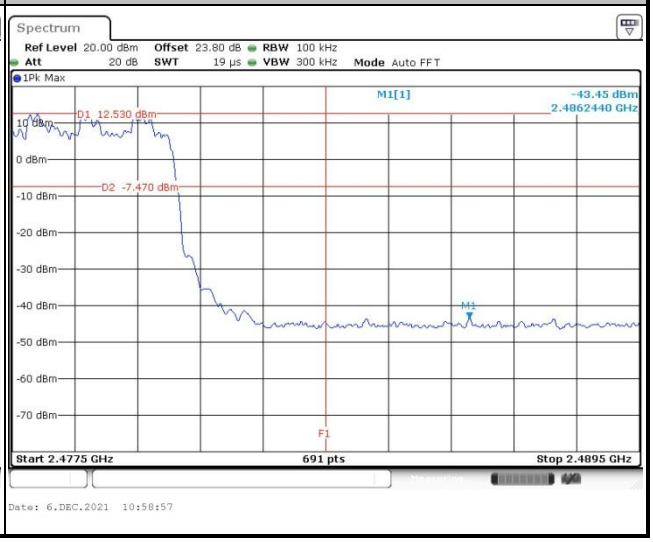
Hopping Mode Low Band Edge Plot	Hopping Mode High Band Edge Plot
	

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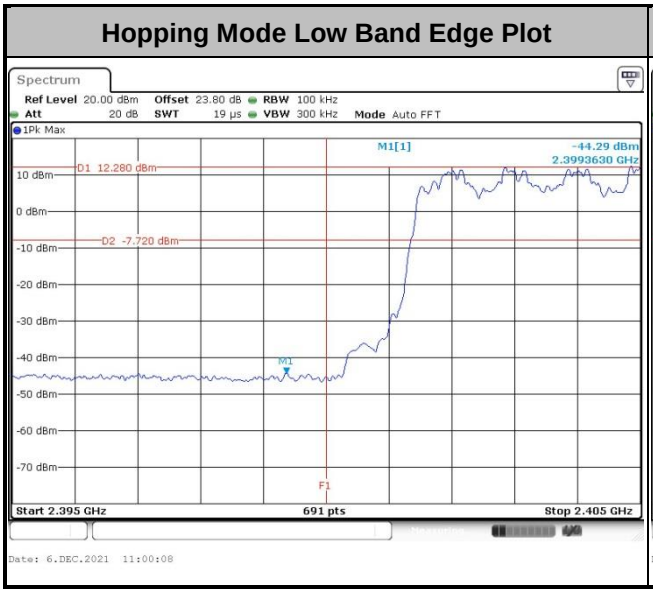
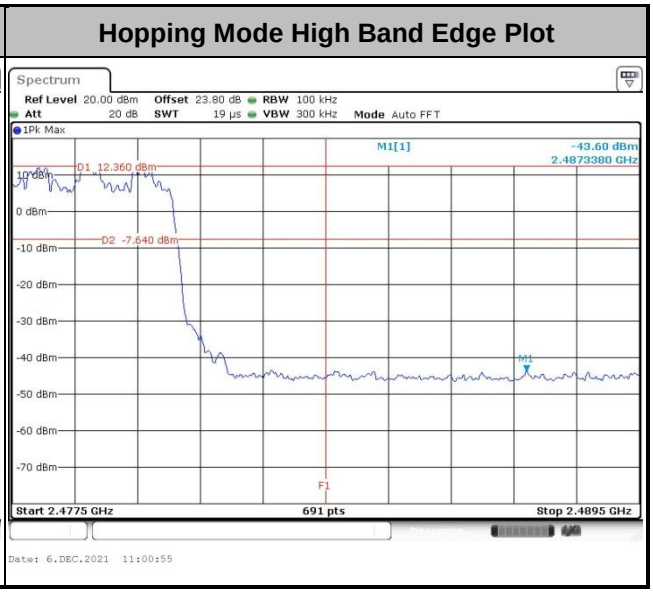
Hopping Mode Low Band Edge Plot	Hopping Mode High Band Edge Plot
	

3.7 Conducted Spurious Emission Measurement

3.7.1 Limit of Spurious Emission Measurement

In any 100 kHz bandwidth outside the intentional radiation frequency band, the radio frequency power shall be at least 20 dB below the highest level of the radiated power. In addition, radiated emissions which fall in the restricted bands must also comply with the radiated emission limits.

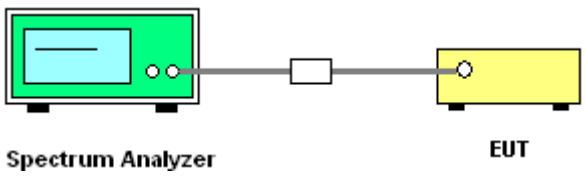
3.7.2 Measuring Instruments

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

3.7.3 Test Procedure

1. The testing follows ANSI C63.10-2013 clause 7.8.8.
2. The RF output of EUT is connected to the spectrum analyzer by RF cable and attenuator. The path loss is compensated to the results for each measurement.
3. Set the maximum power setting and enable the EUT to transmit continuously.
4. Set RBW = 100 kHz, VBW = 300 kHz, scan up through 10th harmonic. All harmonics / spurious must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW.
5. Measure and record the results in the test report.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

3.7.4 Test Setup



3.7.5 Test Result of Conducted Spurious Emission

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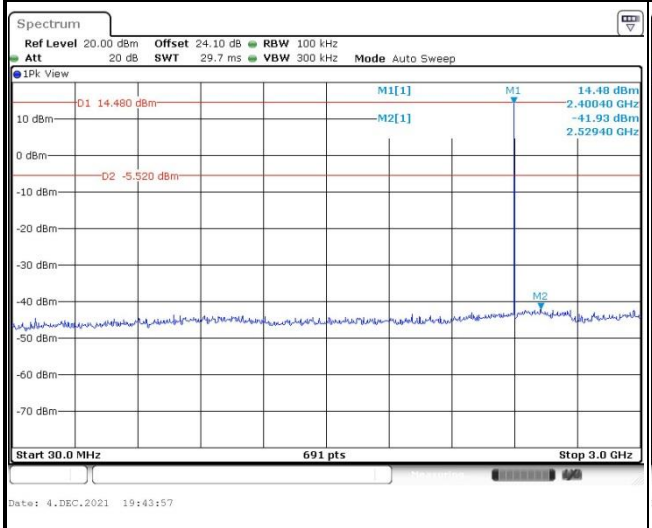
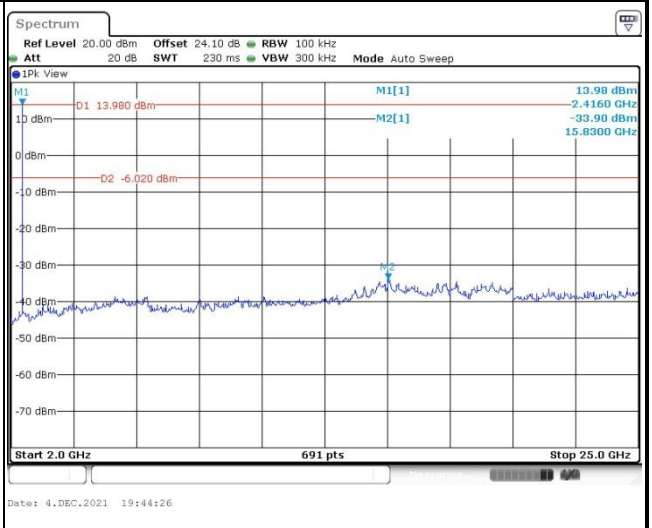
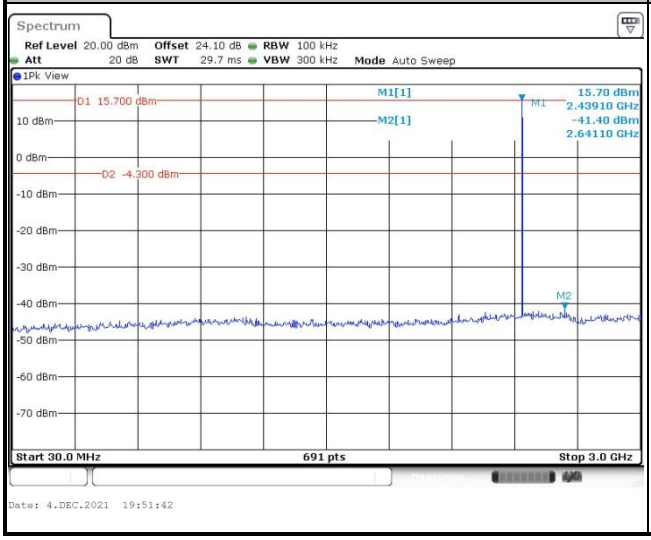
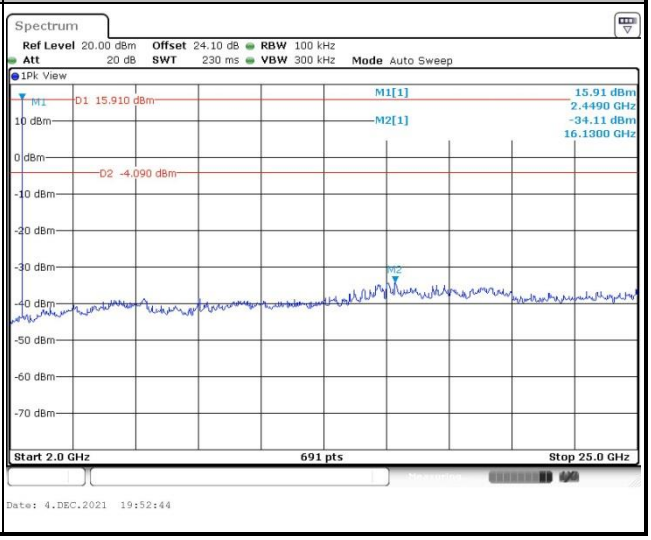
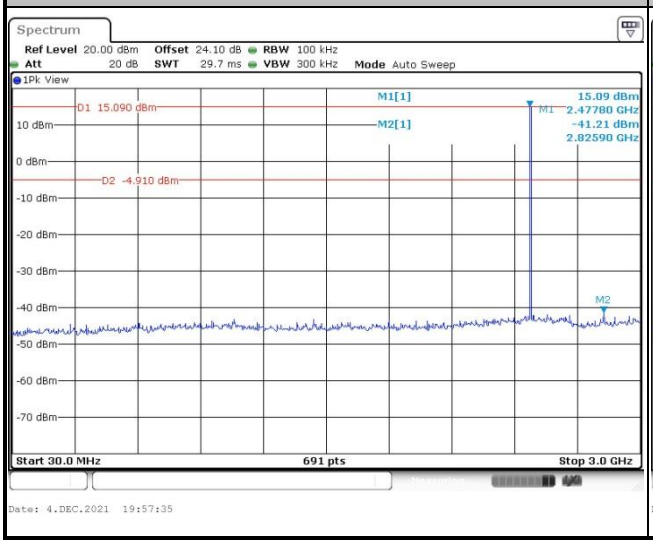
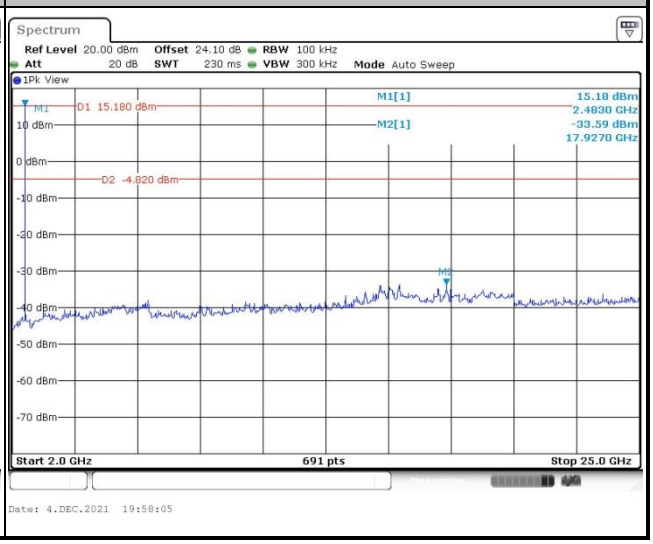
CSE Plot on CH 00 between 30 MHz ~ 3 GHz	CSE Plot on CH 00 between 2 GHz ~ 25 GHz
	
CSE Plot on CH 39 between 30 MHz ~ 3 GHz	**CSE Plot on CH 39 between 2 GHz ~ 25 GHz**
	

CSE Plot on CH 78 between 30 MHz ~ 3 GHz	CSE Plot on CH 78 between 2 GHz ~ 25 GHz
	

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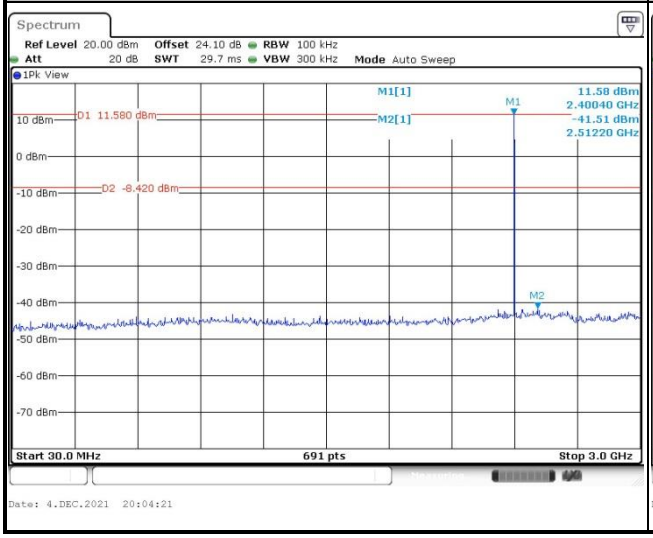	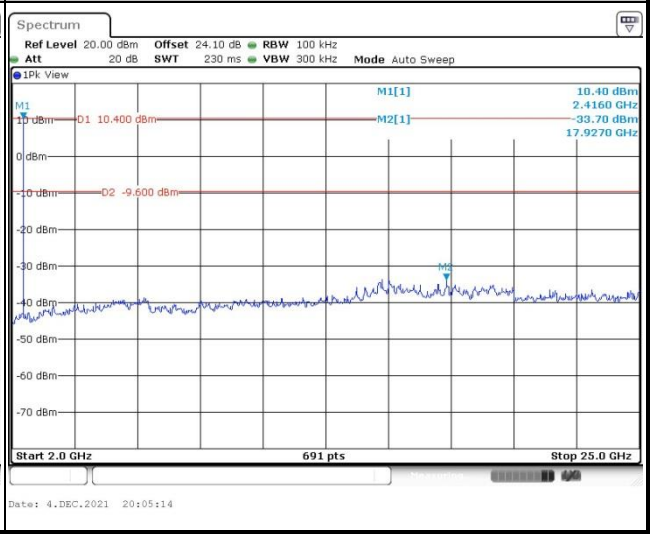

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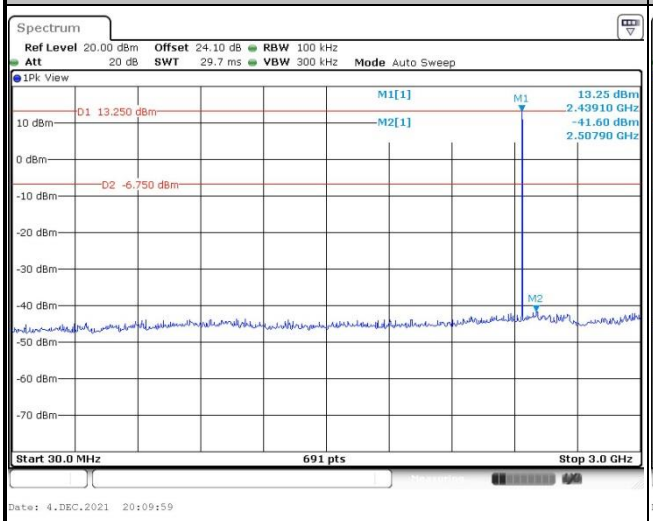
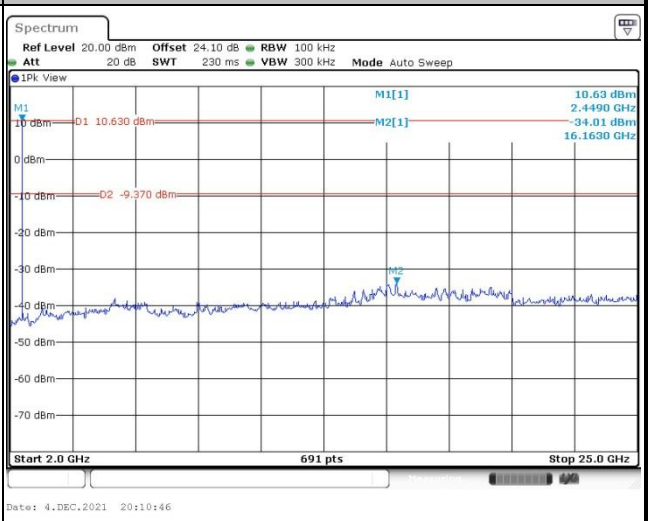
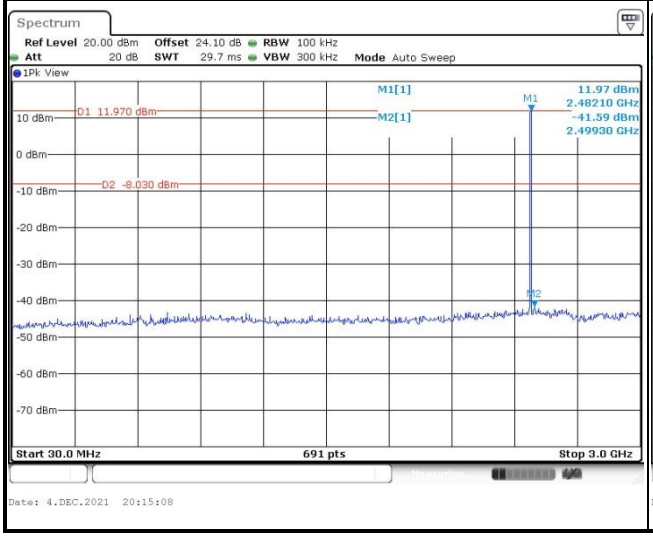
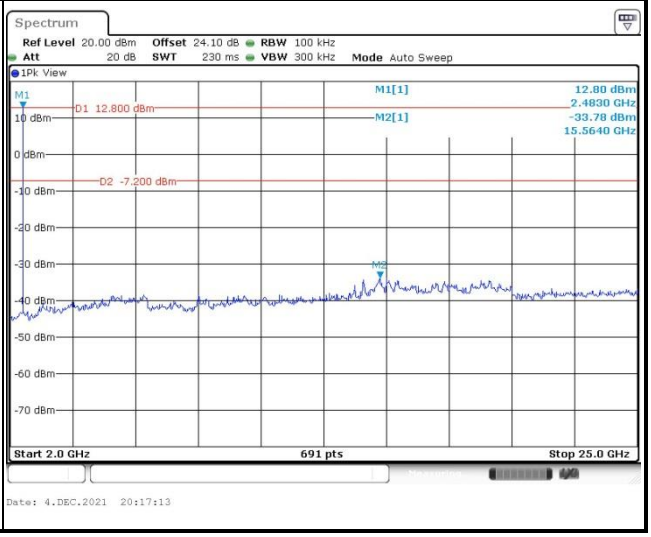
	
CSE Plot on CH 78 between 30 MHz ~ 3 GHz	**CSE Plot on CH 78 between 2 GHz ~ 25 GHz**
	

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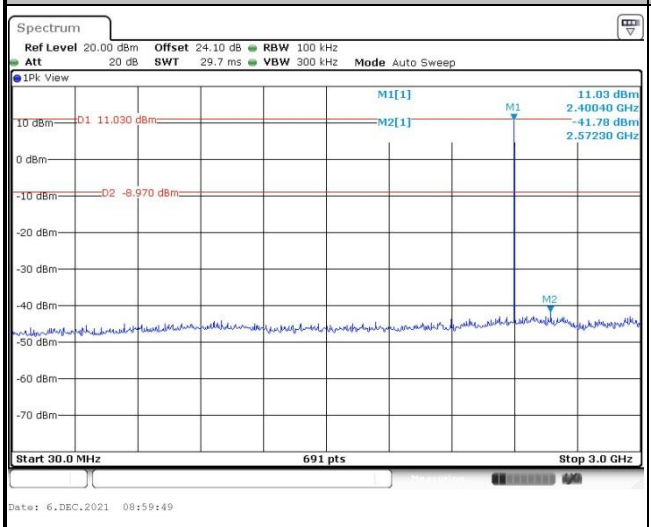
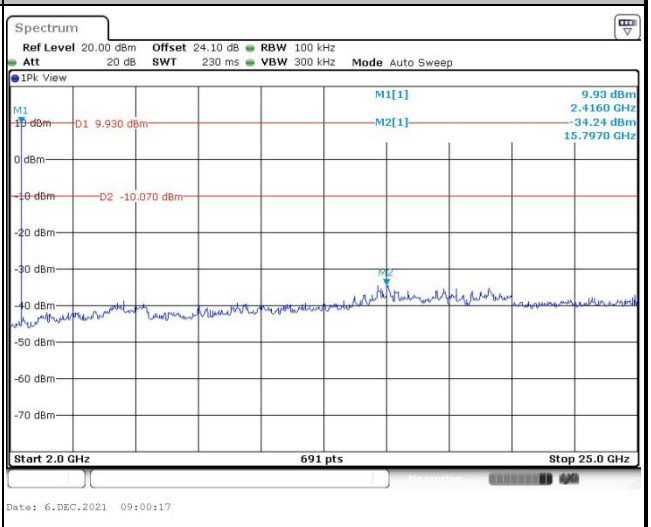
CSE Plot on CH 00 between 30 MHz ~ 3 GHz	CSE Plot on CH 00 between 2 GHz ~ 25 GHz
	
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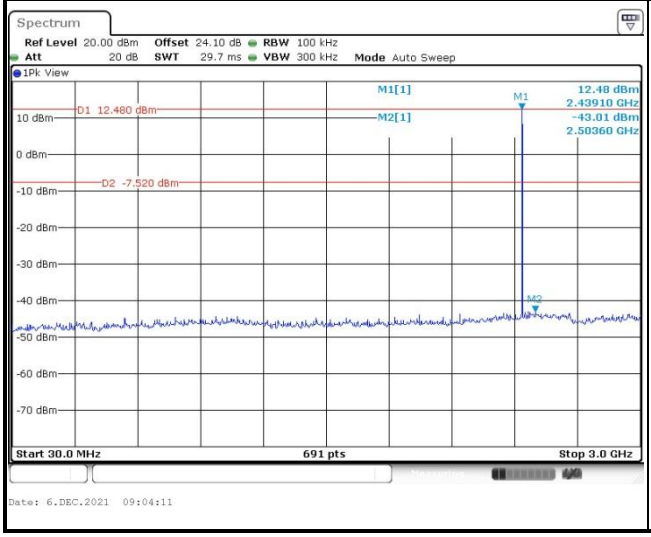
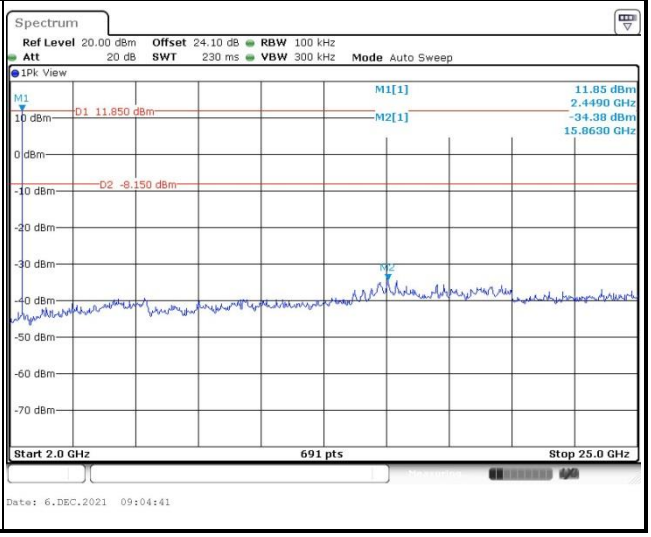
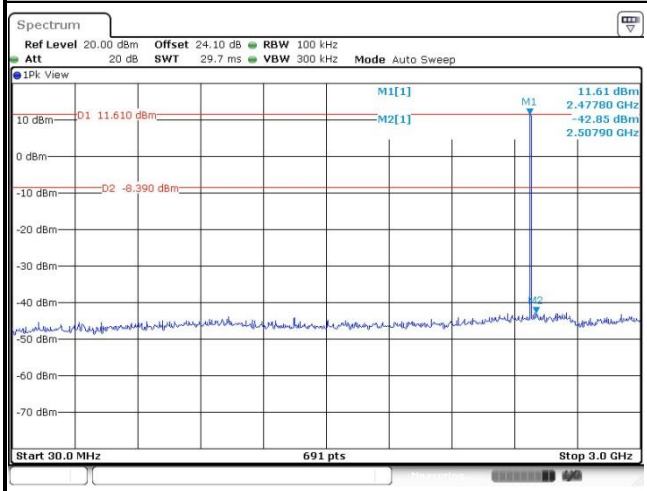
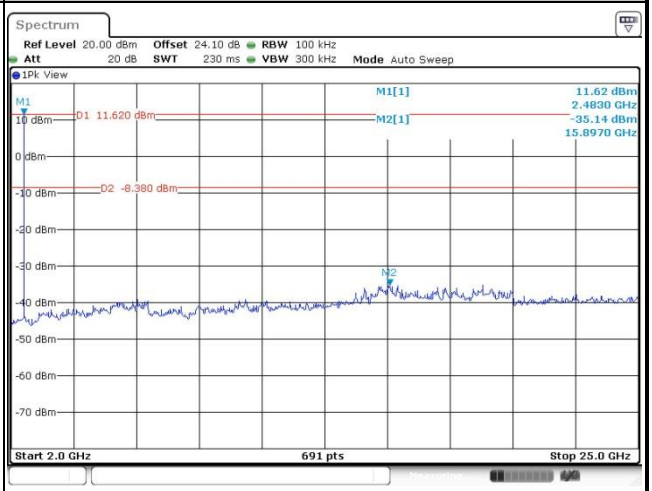
	

CSE Plot on CH 78 between 30 MHz ~ 3 GHz	CSE Plot on CH 78 between 2 GHz ~ 25 GHz
	

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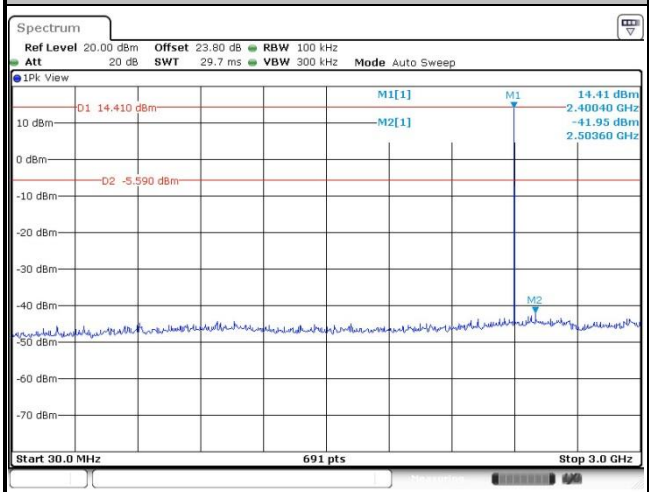
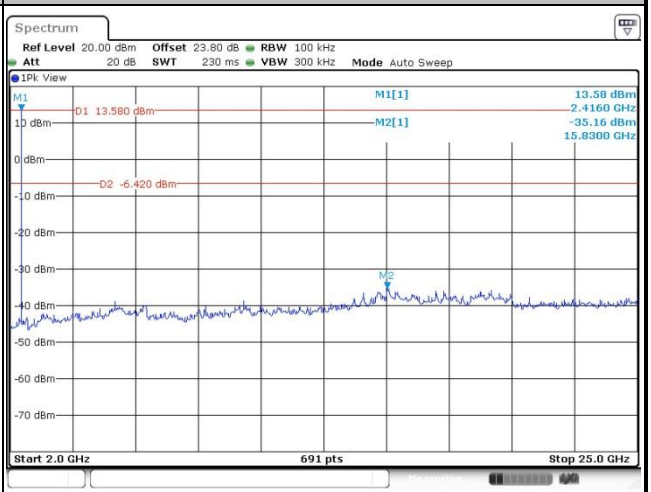
CSE Plot on CH 00 between 30 MHz ~ 3 GHz	CSE Plot on CH 00 between 2 GHz ~ 25 GHz
	

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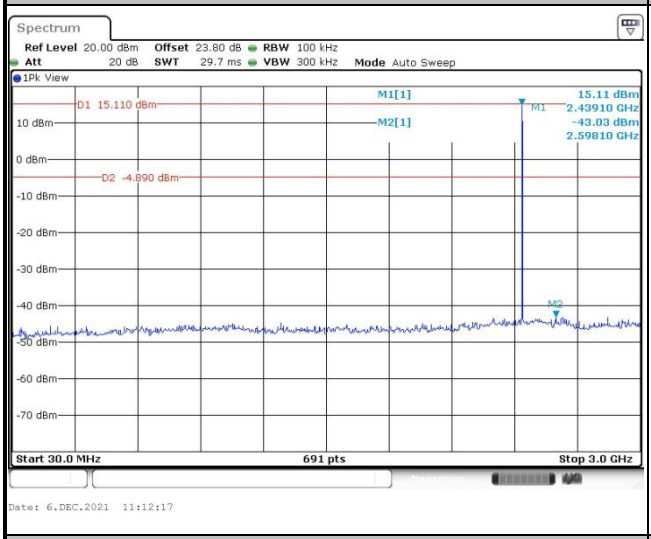	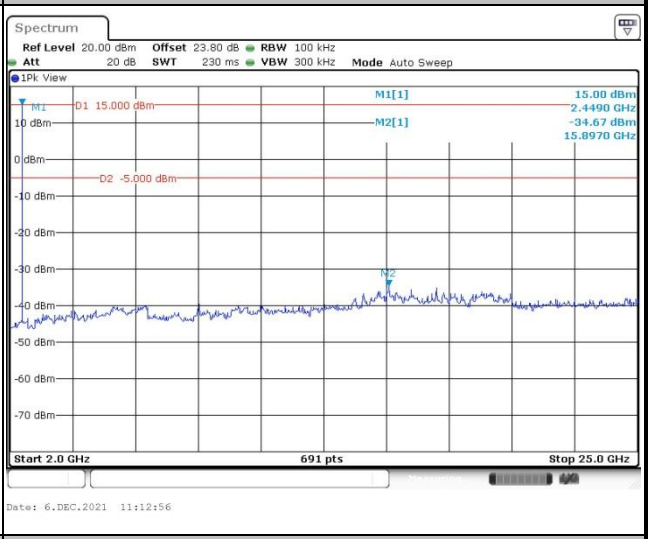
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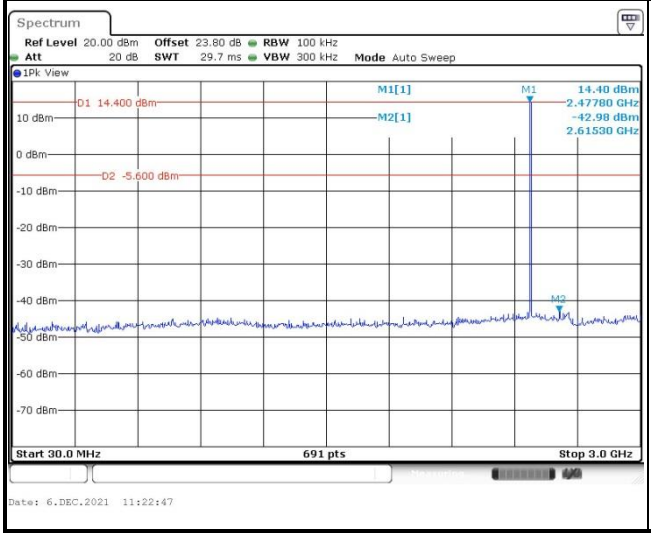	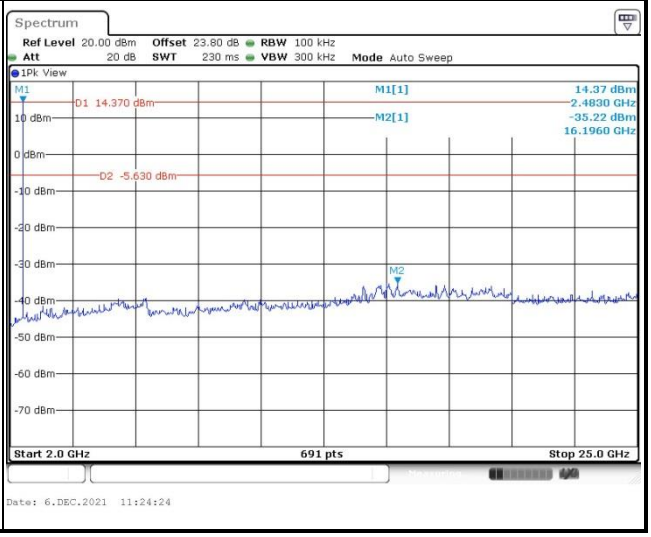

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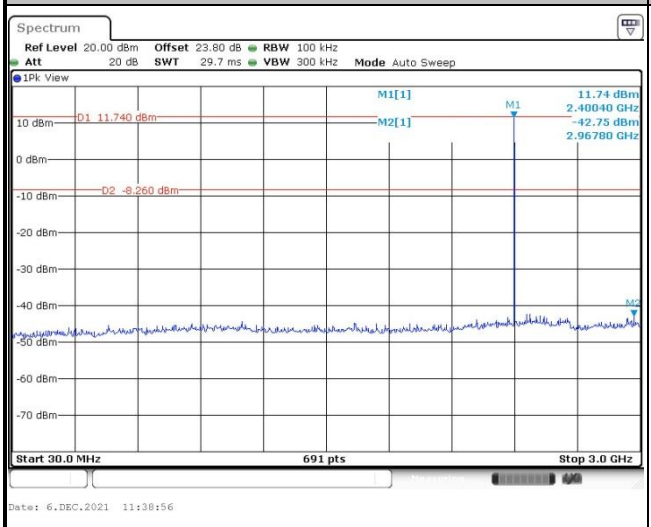
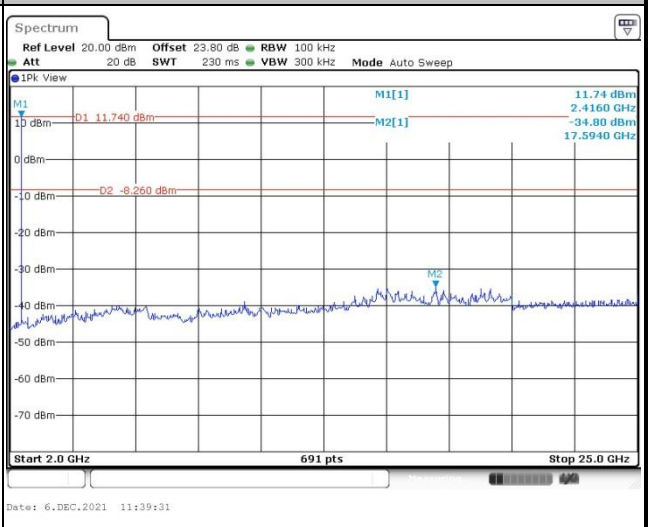
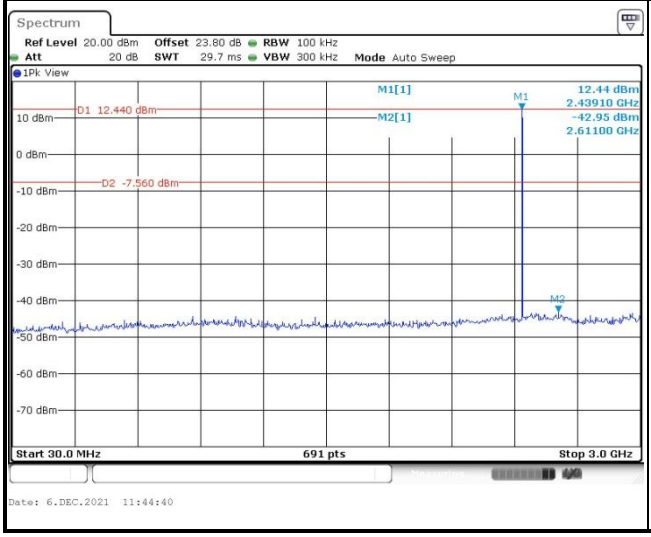
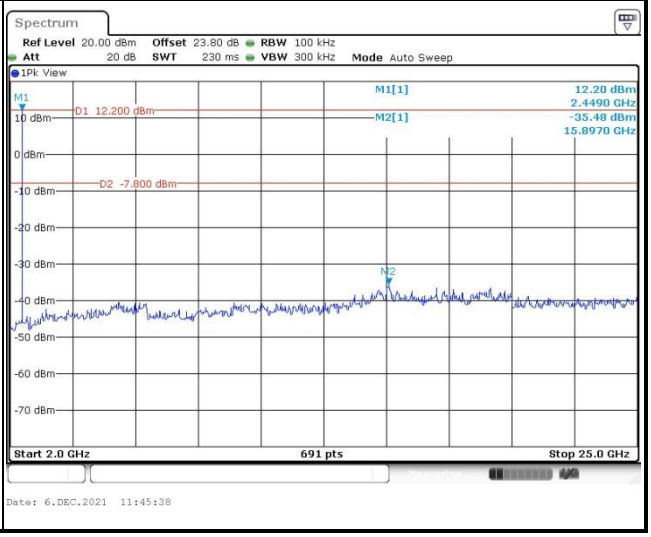
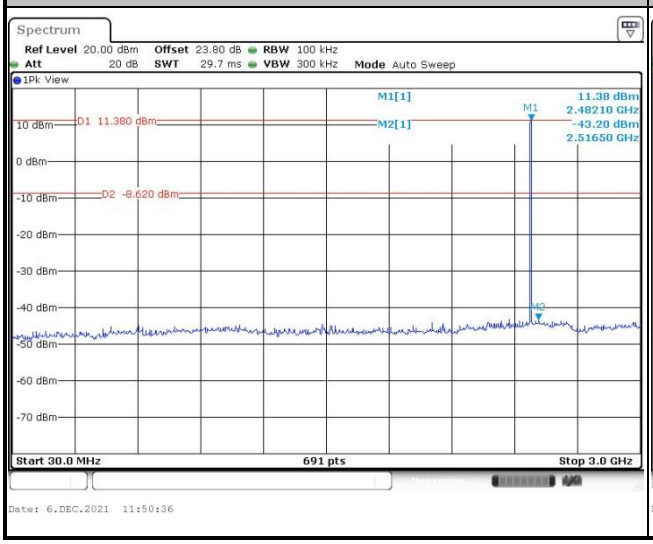
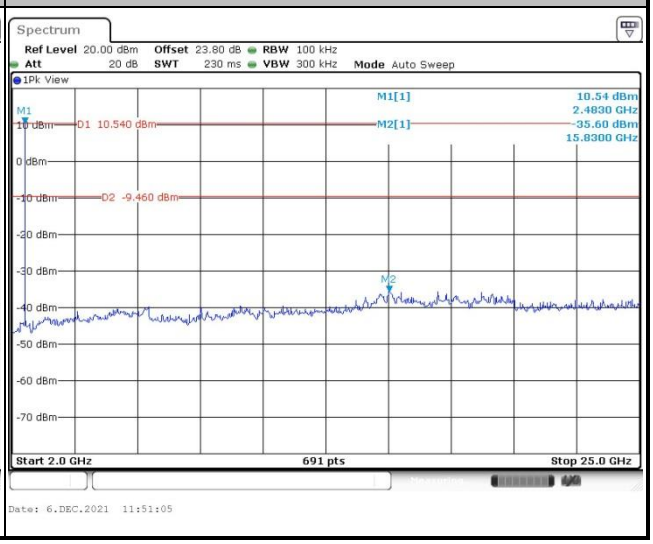
CSE Plot on CH 00 between 30 MHz ~ 3 GHz	CSE Plot on CH 00 between 2 GHz ~ 25 GHz
	
CSE Plot on CH 39 between 30 MHz ~ 3 GHz	**CSE Plot on CH 39 between 2 GHz ~ 25 GHz**
	

CSE Plot on CH 78 between 30 MHz ~ 3 GHz	CSE Plot on CH 78 between 2 GHz ~ 25 GHz
	

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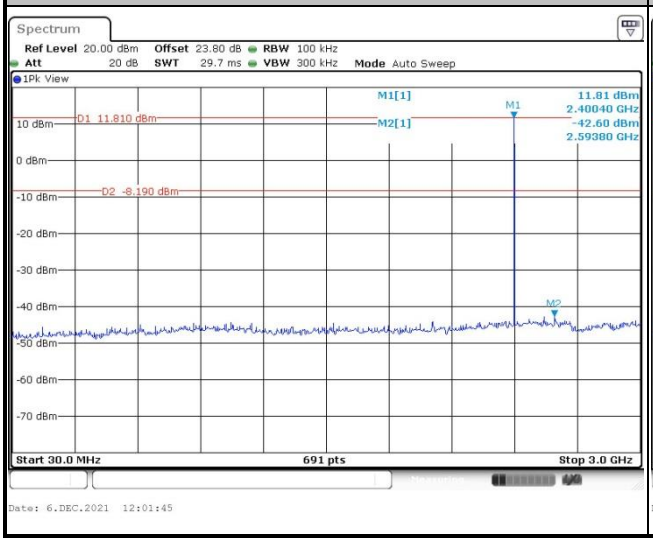
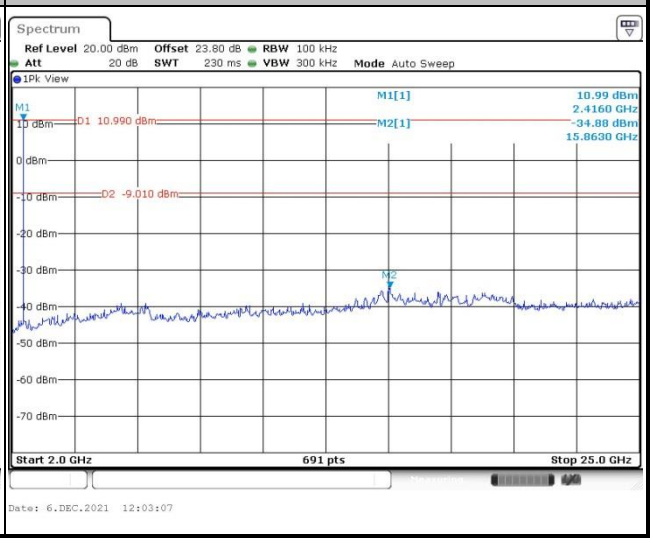
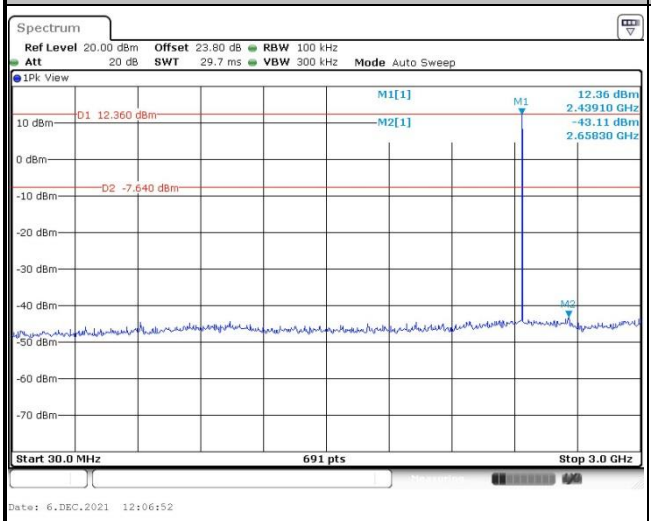
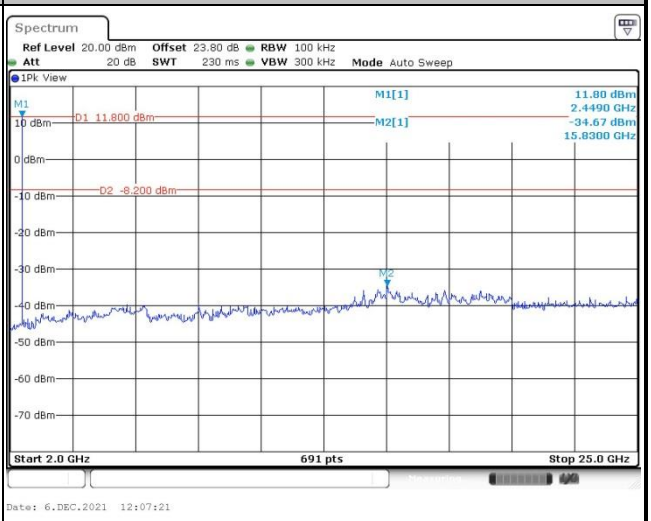
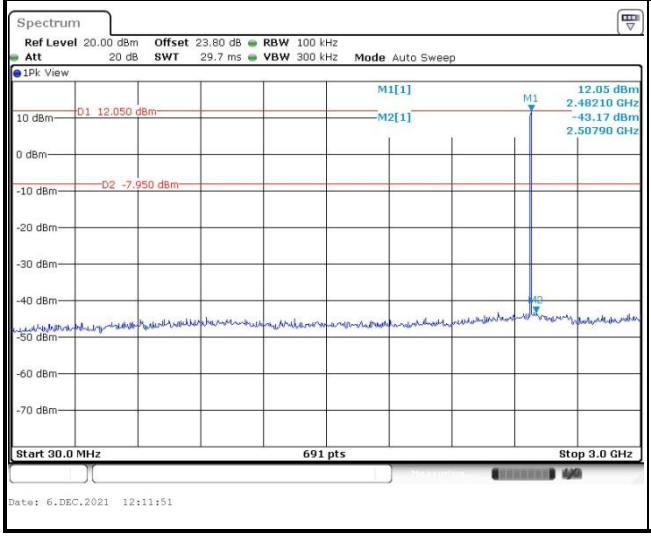
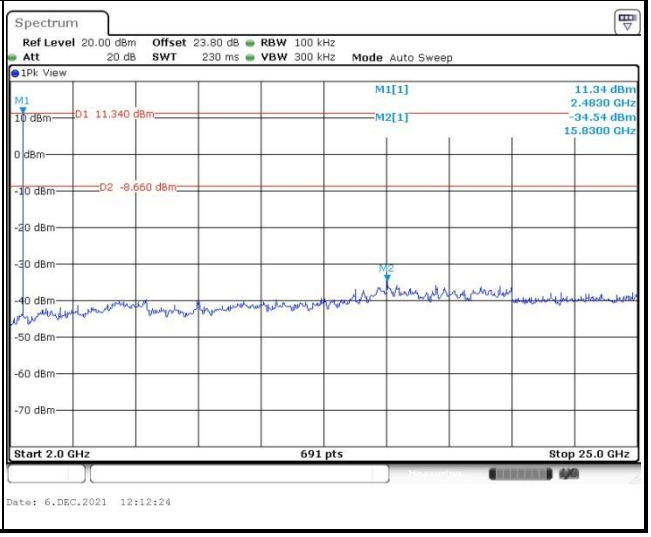
CSE Plot on CH 00 between 30 MHz ~ 3 GHz	CSE Plot on CH 00 between 2 GHz ~ 25 GHz
	

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**
	

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

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

3.8.3 Test Procedures

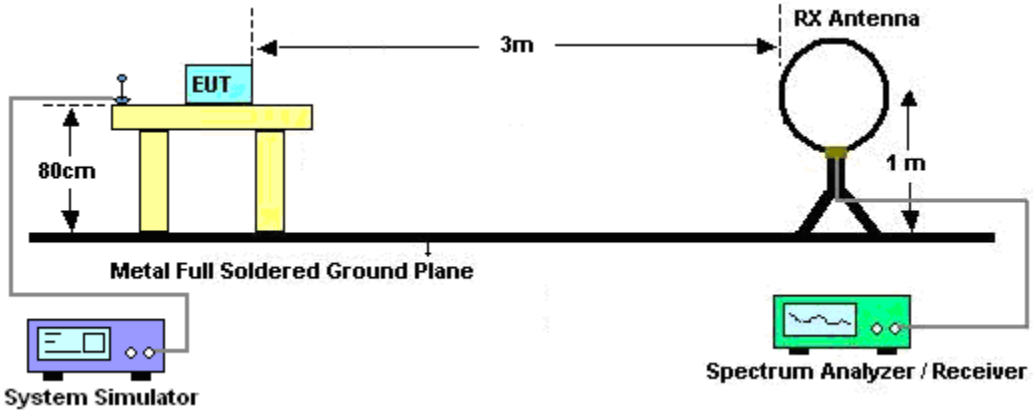
1. The EUT is placed on a turntable with 0.8 meter for frequency below 1 GHz and 1.5 meter for frequency above 1 GHz respectively above ground.
2. The EUT is set 3 meters away from the receiving antenna, which is mounted on the top of a variable height antenna tower.
3. For each suspected emission, the 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 ≥ 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 = $N_1*L_1+N_2*L_2+...+N_{n-1}*LN_{n-1}+N_n*L_n$
   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 (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 "-".

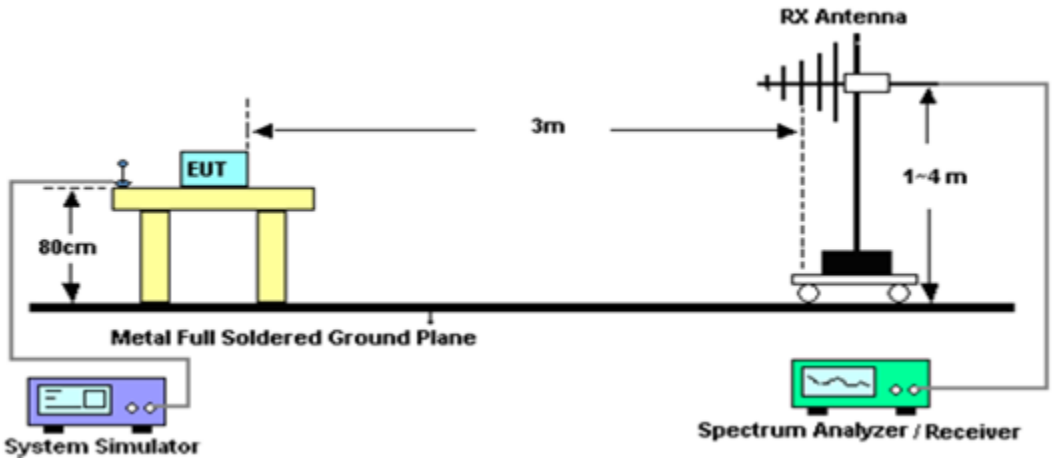
Note: The average levels are calculated from the peak level corrected with duty cycle correction factor (-24.79dB) derived from 20log (dwell time/100ms). This correction is only for signals that hop with the fundamental signal, such as band-edge and harmonic. Other spurious signals that are independent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

3.8.4 Test Setup

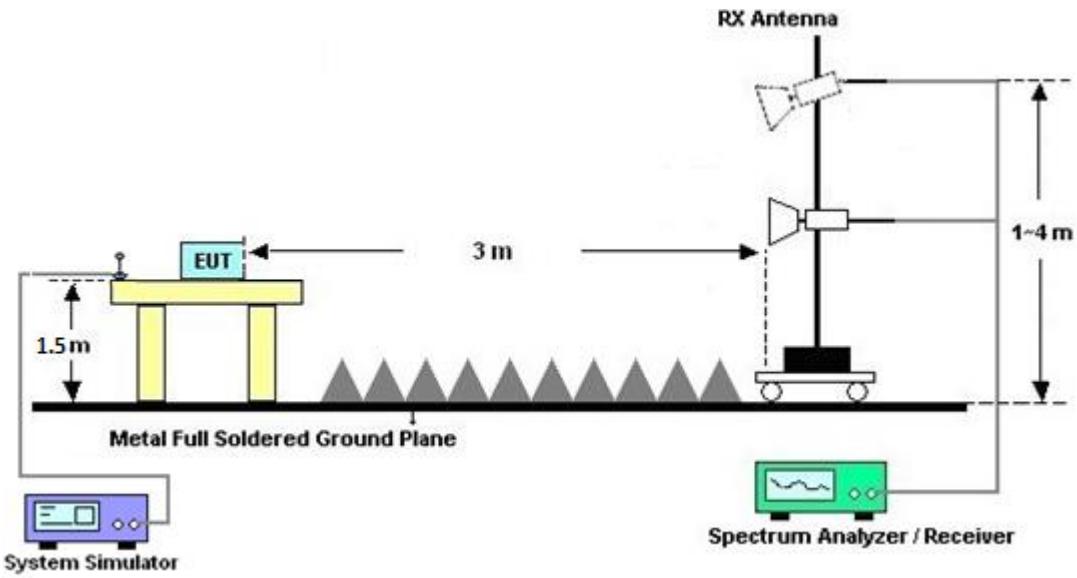
For radiated test below 30MHz



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 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.

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 (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.

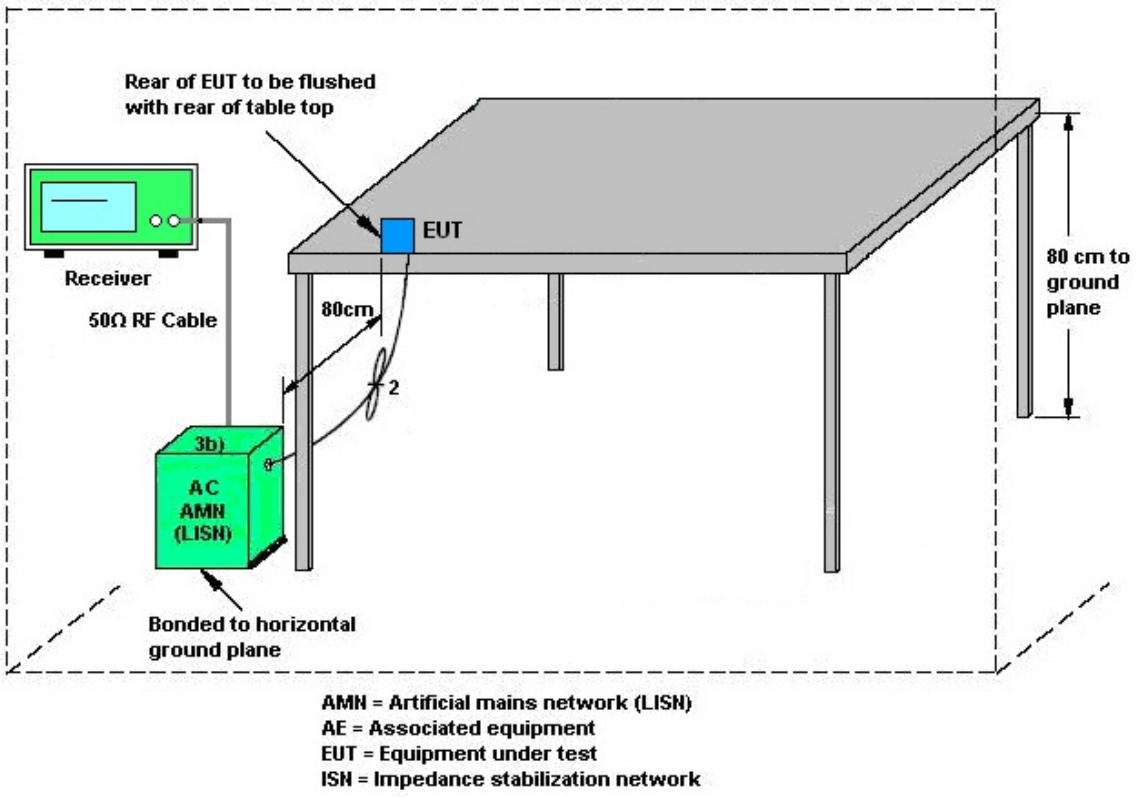
3.9.2 Measuring Instruments

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

3.9.3 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.

3.9.4 Test Setup



AMN = Artificial mains network (LISN)
AE = Associated equipment
EUT = Equipment under test
ISN = Impedance stabilization network

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 6 dBi, the power shall be reduced by the same level in dB comparing to gain minus 6 dBi. 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
EMI Test Receicver	Keysight	N9010B	MY60241055	10Hz~44GHz	Jul. 12, 2021	Nov. 22, 2021~ Dec. 08, 2021	Jul. 11, 2022	Radiation (03CH20-HY)
Preamplifier	COM-POWER	PAM-103	18020201	1MHz-1000MHz	Jan. 04, 2021	Nov. 22, 2021~ Dec. 08, 2021	Jan. 03, 2022	Radiation (03CH20-HY)
Amplifier	EMCI	EMC118A45SE	980792	N/A	Nov. 15, 2021	Nov. 22, 2021~ Dec. 08, 2021	Nov. 14, 2022	Radiation (03CH20-HY)
Preamplifier	EMEC	EM18G40G	060801	18GHz~40GHz	Jun. 22, 2021	Nov. 22, 2021~ Dec. 08, 2021	Jun. 21, 2022	Radiation (03CH20-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100315	9 kHz~30 MHz	Jan. 04, 2021	Nov. 22, 2021~ Dec. 08, 2021	Jan. 03, 2022	Radiation (03CH20-HY)
Bilog Antenna	TESEQ	CBL 6111D&00802 N1D01N-06	55606 & 08	30MHz~1GHz	Oct. 17, 2021	Nov. 22, 2021~ Dec. 08, 2021	Oct. 16, 2022	Radiation (03CH20-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-02294	1GHz~18GHz	Jun. 23, 2021	Nov. 22, 2021~ Dec. 08, 2021	Jun. 22, 2022	Radiation (03CH20-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA9170	00991	18GHz-40GHz	May 12, 2021	Nov. 22, 2021~ Dec. 08, 2021	May 11, 2022	Radiation (03CH20-HY)
Hygrometer	TECPEL	DTM-303B	TP200728	N/A	Mar. 09, 2021	Nov. 22, 2021~ Dec. 08, 2021	Mar. 08, 2022	Radiation (03CH20-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	519229/2,804015/2,804027/2	N/A	Jan. 20, 2021	Nov. 22, 2021~ Dec. 08, 2021	Jan. 19, 2022	Radiation (03CH20-HY)
1.53GHz Low Pass Filter	Wainwright	WLK4-1000-1530-8000-40SS	SN27	N/A	May 25, 2021	Nov. 22, 2021~ Dec. 08, 2021	May 24, 2022	Radiation (03CH20-HY)
Filter	Wainwright	WHKX12-2700-3000-18000-60ST	SN8	N/A	Mar. 26, 2021	Nov. 22, 2021~ Dec. 08, 2021	Mar. 25, 2022	Radiation (03CH20-HY)
Filter	Wainwright	WHKX8-6090-7000-18000-40SS	SN99	N/A	Nov. 04, 2021	Nov. 22, 2021~ Dec. 08, 2021	Nov. 03, 2022	Radiation (03CH20-HY)
Filter	Wainwright	WRCQV14-5425-5825-6525-6925-60SS	SN2	N/A	Jan. 08, 2021	Nov. 22, 2021~ Dec. 08, 2021	Jan. 07, 2022	Radiation (03CH20-HY)
Filter	Wainwright	WRCQV14-6025-6425-7125-7525-60SS	SN1	N/A	Jan. 08, 2021	Nov. 22, 2021~ Dec. 08, 2021	Jan. 07, 2022	Radiation (03CH20-HY)
Filter	Wainwright	WHW2-7100-10000-18000-40CC	SN3	N/A	May 25, 2021	Nov. 22, 2021~ Dec. 08, 2021	May 24, 2022	Radiation (03CH20-HY)
Software	Audix	E3 6.2009-8-24	RK-002156	N/A	N/A	Nov. 22, 2021~ Dec. 08, 2021	N/A	Radiation (03CH20-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1m~4m	N/A	Nov. 22, 2021~ Dec. 08, 2021	N/A	Radiation (03CH20-HY)
Turn Table	EMEC	TT2000	N/A	0~360 Degree	N/A	Nov. 22, 2021~ Dec. 08, 2021	N/A	Radiation (03CH20-HY)
Controller	EMEC	EM1000	N/A	Control Turn table & Ant Mast	N/A	Nov. 22, 2021~ Dec. 08, 2021	N/A	Radiation (03CH20-HY)

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Hygrometer	TECPEL	DTM-303A	TP201996	N/A	Nov. 16, 2021	Nov. 24, 2021~ Dec. 06, 2021	Nov. 15, 2022	Conducted (TH05-HY)
Power Meter	Agilent	E4416A	GB41292344	N/A	Jan. 14, 2021	Nov. 24, 2021~ Dec. 06, 2021	Jan. 13, 2022	Conducted (TH05-HY)
Power Sensor	Agilent	E9327A	US40441548	50MHz~18GHz	Jan. 14, 2021	Nov. 24, 2021~ Dec. 06, 2021	Jan. 13, 2022	Conducted (TH05-HY)
Signal Analyzer	Rohde & Schwarz	FSV40	101566	10Hz~40GHz	Aug. 30, 2021	Nov. 24, 2021~ Dec. 06, 2021	Aug. 29, 2022	Conducted (TH05-HY)
BT Base Station (Measure)	Rohde & Schwarz	CBT	101136	BT 3.0	Oct. 17, 2021	Nov. 24, 2021~ Dec. 06, 2021	Oct. 16, 2022	Conducted (TH05-HY)
Switch Box & RF Cable	EM Electronics	EMSW18SE	SW191204 (BOX8)	N/A	Jan. 07, 2021	Nov. 24, 2021~ Dec. 06, 2021	Jan. 06, 2022	Conducted (TH05-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Nov. 19, 2021	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102388	9kHz~3.6GHz	Nov. 30, 2020	Nov. 19, 2021	Nov. 29, 2021	Conduction (CO05-HY)
Hygrometer	TECPEL	DTM-303A	TP201973	N/A	Oct. 22, 2021	Nov. 19, 2021	Oct. 21, 2022	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Dec. 01, 2020	Nov. 19, 2021	Nov. 30, 2021	Conduction (CO05-HY)
Software	Rohde & Schwarz	EMC32 V10.30	N/A	N/A	N/A	Nov. 19, 2021	N/A	Conduction (CO05-HY)
Pulse Limiter	SCHWARZBECK	VTSD 9561-F N	00691	N/A	Jul. 28, 2021	Nov. 19, 2021	Jul. 27, 2022	Conduction (CO05-HY)
LISN Cable	MVE	RG-400	260260	N/A	Dec. 31, 2020	Nov. 19, 2021	Dec. 30, 2021	Conduction (CO05-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))	**3.1 dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.9 dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.2 dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.7 dB**

Appendix A. Test Result of Conducted Test Items

Test Engineer:	Jacob Yu	Temperature:	22.2~24.1	°C
Test Date:	2021/11/24-2021/12/6	Relative Humidity:	48.2~52.2	%

<Ant.16>

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	0.900	0.828	0.999	0.6001	Pass
DH	1Mbps	1	39	2441	0.897	0.828	0.994	0.5982	Pass
DH	1Mbps	1	78	2480	0.897	0.828	0.999	0.5982	Pass
2DH	2Mbps	1	0	2402	1.272	1.166	0.920	0.8481	Pass
2DH	2Mbps	1	39	2441	1.268	1.166	0.999	0.8451	Pass
2DH	2Mbps	1	78	2480	1.294	1.164	0.999	0.8625	Pass
3DH	3Mbps	1	0	2402	1.242	1.146	0.999	0.8278	Pass
3DH	3Mbps	1	39	2441	1.237	1.149	1.003	0.8249	Pass
3DH	3Mbps	1	78	2480	1.237	1.152	0.999	0.8249	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
3DH5	79	106.670	2.90	0.31	0.4	Pass
3DH5 (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	14.71	30.00	Pass
	39	1	**15.58**	30.00	Pass
	78	1	14.80	30.00	Pass
2DH1	0	1	13.74	20.97	Pass
	39	1	**14.85**	20.97	Pass
	78	1	14.03	20.97	Pass
3DH1	0	1	14.26	20.97	Pass
	39	1	**15.38**	20.97	Pass
	78	1	14.50	20.97	Pass

TEST RESULTS DATA
Average Power Table
(Reporting Only)

DH	CH.	NTX	Average Power (dBm)	Duty Factor (dB)
DH1	0	1	14.38	5.22
	39	1	**15.31**	5.22
	78	1	14.56	5.22
2DH1	0	1	11.26	5.15
	39	1	**12.42**	5.15
	78	1	11.69	5.15
3DH1	0	1	11.32	5.15
	39	1	**12.46**	5.15
	78	1	11.73	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

<Ant.18>

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	0.900	0.828	0.999	0.6001	Pass
DH	1Mbps	1	39	2441	0.897	0.825	0.999	0.5982	Pass
DH	1Mbps	1	78	2480	0.897	0.825	0.999	0.5982	Pass
2DH	2Mbps	1	0	2402	1.272	1.152	1.007	0.8481	Pass
2DH	2Mbps	1	39	2441	1.268	1.166	1.003	0.8451	Pass
2DH	2Mbps	1	78	2480	1.294	1.164	1.003	0.8625	Pass
3DH	3Mbps	1	0	2402	1.237	1.149	0.999	0.8249	Pass
3DH	3Mbps	1	39	2441	1.237	1.146	1.003	0.8249	Pass
3DH	3Mbps	1	78	2480	1.242	1.146	0.999	0.8278	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
2DH5	79	106.670	2.90	0.31	0.4	Pass
2DH5 (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	15.83	30.00	Pass
	39	1	**16.60**	30.00	Pass
	78	1	15.87	30.00	Pass
2DH1	0	1	15.03	20.97	Pass
	39	1	**15.87**	20.97	Pass
	78	1	15.26	20.97	Pass
3DH1	0	1	15.51	20.97	Pass
	39	1	**16.28**	20.97	Pass
	78	1	15.59	20.97	Pass

TEST RESULTS DATA
Average Power Table
(Reporting Only)

DH	CH.	NTX	Average Power (dBm)	Duty Factor (dB)
DH1	0	1	15.54	5.22
	39	1	**16.34**	5.22
	78	1	15.61	5.22
2DH1	0	1	12.46	5.14
	39	1	**13.31**	5.14
	78	1	12.74	5.14
3DH1	0	1	12.50	5.15
	39	1	**13.35**	5.15
	78	1	12.81	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

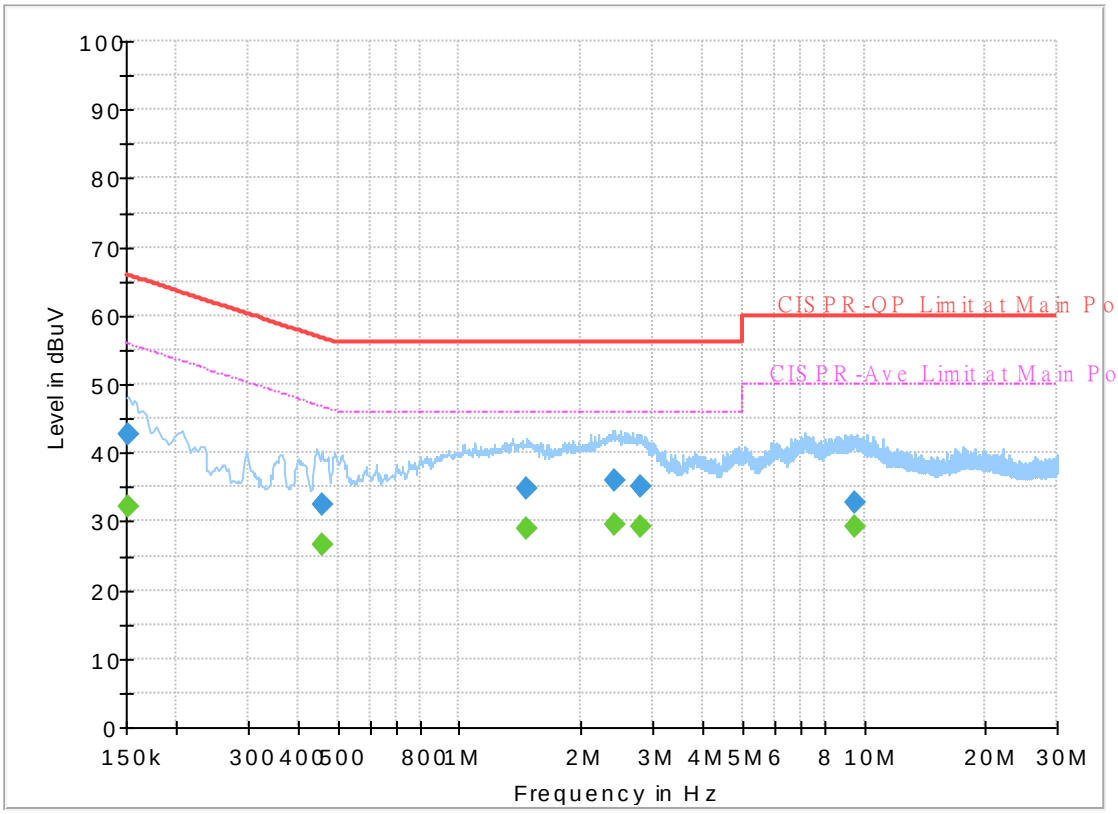
Appendix B. AC Conducted Emission Test Results

Test Engineer :	Calvin Wang	**Temperature :**	23~26℃
		Relative Humidity :	45~55%

EUT Information

Report NO :	1N0901
Test Mode :	Mode 1
Test Voltage :	120Vac/60Hz
Phase :	Line

Full Spectrum



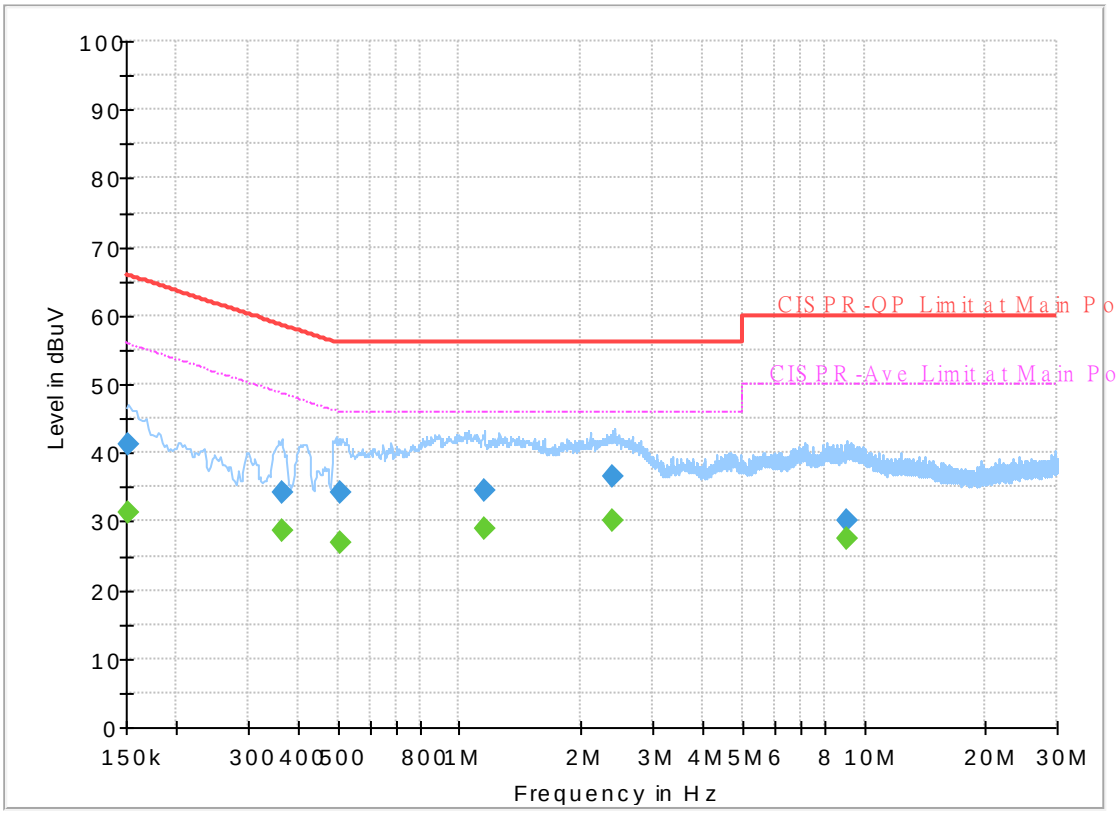
Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.152250	---	32.17	55.88	23.71	L1	OFF	19.7
0.152250	42.58	---	65.88	23.30	L1	OFF	19.7
0.456000	---	26.62	46.77	20.15	L1	OFF	19.8
0.456000	32.56	---	56.77	24.21	L1	OFF	19.8
1.459500	---	29.02	46.00	16.98	L1	OFF	20.2
1.459500	34.94	---	56.00	21.06	L1	OFF	20.2
2.420250	---	29.45	46.00	16.55	L1	OFF	20.1
2.420250	36.10	---	56.00	19.90	L1	OFF	20.1
2.798250	---	29.21	46.00	16.79	L1	OFF	20.1
2.798250	35.02	---	56.00	20.98	L1	OFF	20.1
9.494250	---	29.24	50.00	20.76	L1	OFF	20.1
9.494250	32.83	---	60.00	27.17	L1	OFF	20.1

EUT Information

Report NO :	1N0901
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	---	31.41	55.88	24.47	N	OFF	19.7
0.152250	41.20	---	65.88	24.68	N	OFF	19.7
0.363750	---	28.68	48.64	19.96	N	OFF	19.7
0.363750	34.30	---	58.64	24.34	N	OFF	19.7
0.505500	---	26.77	46.00	19.23	N	OFF	19.8
0.505500	34.34	---	56.00	21.66	N	OFF	19.8
1.151250	---	29.00	46.00	17.00	N	OFF	20.2
1.151250	34.45	---	56.00	21.55	N	OFF	20.2
2.395500	---	30.10	46.00	15.90	N	OFF	20.1
2.395500	36.70	---	56.00	19.30	N	OFF	20.1
9.080250	---	27.50	50.00	22.50	N	OFF	20.1
9.080250	30.01	---	60.00	29.99	N	OFF	20.1

Appendix C. Radiated Spurious Emission

Test Engineer :	Bill Chang, JC Liang and Nick Yu	**Temperature :**	18~20°C
		Relative Humidity :	65~68%

2.4GHz 2400~2483.5MHz

BT (Band Edge @ 3m)

BT Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
16		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BT CH 78 2480MHz	*	2480	108.99	-	-	109.13	27.62	8.55	36.31	100	289	P	H
	*	2480	84.21	30.21	54	-	-	-	-	-	-	A	H
		2483.52	49.23	-24.77	74	49.35	27.63	8.56	36.31	100	289	P	H
		2483.52	24.45	-29.55	54	-	-	-	-	-	-	A	H
													H
													H
	*	2480	103.89	-	-	104.03	27.62	8.55	36.31	390	52	P	V
	*	2480	79.11	25.11	54	-	-	-	-	-	-	A	V
		2483.52	46.36	-27.64	74	46.48	27.63	8.56	36.31	390	52	P	V
		2483.52	21.58	-32.42	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. 16	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 78 2480MHz		4960	43.48	-30.52	74	35.3	33.02	12.82	37.66	400	212	P	H
		4960	18.7	-35.3	54	-	-	-	-	-	-	A	H
		7440	46.54	-27.46	74	33.59	36.22	15.36	38.63	400	183	P	H
		7440	21.76	-32.24	54	-	-	-	-	-	-	A	H
													H
													H
													H
													H
													H
													H
													H
													H
		4960	44.11	-29.89	74	35.93	33.02	12.82	37.66	100	24	P	V
		4960	19.33	-34.67	54	-	-	-	-	-	-	A	V
		7440	46.59	-27.41	74	33.64	36.22	15.36	38.63	100	28	P	V
		7440	21.81	-32.19	54	-	-	-	-	-	-	A	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.

2.4GHz 2400~2483.5MHz

BT (Band Edge @ 3m)

BT	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
18		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BT CH00 2402MHz		2389.275	42.22	-31.78	74	42.84	27.26	8.39	36.27	121	144	P	H
		2389.275	17.43	-36.57	54	-	-	-	-	-	-	A	H
	*	2402	107.88	-	-	108.44	27.31	8.41	36.28	121	144	P	H
	*	2402	83.09	-	-	-	-	-	-	-	-	A	H
													H
													H
		2388.54	39.93	-34.07	74	40.56	27.25	8.39	36.27	400	76	P	V
		2388.54	15.14	-38.86	54	-	-	-	-	-	-	A	V
	*	2402	103.48	-	-	104.04	27.31	8.41	36.28	400	76	P	V
	*	2402	78.69	-	-	-	-	-	-	-	-	A	V
													V
													V
BT CH 39 2441MHz		2354.52	39.44	-34.56	74	40.25	27.12	8.33	36.26	208	148	P	H
		2354.52	14.65	-39.35	54	-	-	-	-	-	-	A	H
	*	2441	108.6	-	-	108.95	27.46	8.48	36.29	208	148	P	H
	*	2441	83.81	-	-	-	-	-	-	-	-	A	H
		2486.7	40.18	-33.82	74	40.28	27.65	8.56	36.31	208	148	P	H
		2486.7	15.39	-38.61	54	-	-	-	-	-	-	A	H
		2381.68	39.17	-34.83	74	39.83	27.23	8.38	36.27	400	55	P	V
		2381.68	14.38	-39.62	54	-	-	-	-	-	-	A	V
	*	2441	105.91	-	-	106.26	27.46	8.48	36.29	400	55	P	V
	*	2441	81.12	-	-	-	-	-	-	-	-	A	V
		2487.33	39.98	-34.02	74	40.08	27.65	8.56	36.31	400	55	P	V
		2487.33	15.19	-38.81	54	-	-	-	-	-	-	A	V

BT CH 78 2480MHz	*	2480	108.97	-	-	109.11	27.62	8.55	36.31	199	199	P	H
	*	2480	84.18	-	-	-	-	-	-	-	-	A	H
		2483.6	49.63	-24.37	74	49.75	27.63	8.56	36.31	199	199	P	H
		2483.6	24.84	-29.16	54	-	-	-	-	-	-	A	H
													H
													H
	*	2480	105.4	-	-	105.54	27.62	8.55	36.31	342	70	P	V
	*	2480	80.61	-	-	-	-	-	-	-	-	A	V
		2483.52	47.97	-26.03	74	48.09	27.63	8.56	36.31	342	70	P	V
		2483.52	23.18	-30.82	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. 18	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	42.75	-31.25	74	35.36	32.22	12.71	37.54	-	-	P	H
		4804	17.96	-36.04	54	-	-	-	-	-	-	A	H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
		4804	41.79	-32.21	74	34.4	32.22	12.71	37.54	-	-	P	V
		4804	17	-37	54	-	-	-	-	-	-	A	V
													V
													V
													V
													V
													V
													V
													V
													V
													V

BT Ant. 18	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)
		4882	43.72	-30.28	74	35.96	32.59	12.29	37.6	-	-	P	H
		4882	18.93	-35.07	54	-	-	-	-	-	-	A	H
		7323	47.62	-26.38	74	34.01	36.75	14.92	38.53	-	-	P	H
		7323	22.83	-31.17	54	-	-	-	-	-	-	A	H
													H
													H
													H
													H
													H
													H
													H
													H
BT CH 39 2441MHz		4882	43.19	-30.81	74	35.43	32.59	12.29	37.6	-	-	P	V
		4882	18.4	-35.6	54	-	-	-	-	-	-	A	V
		7323	47.28	-26.72	74	33.67	36.75	14.92	38.53	-	-	P	V
		7323	22.49	-31.51	54	-	-	-	-	-	-	A	V
													V
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													V
													V
													V

BT Ant. 18	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 78 2480MHz		4960	43.37	-30.63	74	35.19	33.02	12.82	37.66	-	-	P	H
		4960	18.58	-35.42	54	-	-	-	-	-	-	A	H
		7440	47.07	-26.93	74	34.12	36.22	15.36	38.63	-	-	P	H
		7440	22.28	-31.72	54	-	-	-	-	-	-	A	H
													H
													H
													H
													H
													H
													H
													H
													H
		4960	44.1	-29.9	74	35.92	33.02	12.82	37.66	-	-	P	V
		4960	19.31	-34.69	54	-	-	-	-	-	-	A	V
		7440	46.09	-27.91	74	33.14	36.22	15.36	38.63	-	-	P	V
		7440	21.3	-32.7	54	-	-	-	-	-	-	A	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 below 1GHz

2.4GHz BT (LF)

BT	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
18		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz BT LF		30.97	22.69	-17.31	40	33.54	23.9	0.97	35.72	-	-	P	H
		335.55	25.85	-20.15	46	37.83	19.98	3.19	35.15	-	-	P	H
		383.08	25.81	-20.19	46	36.12	21.29	3.41	35.01	-	-	P	H
		431.58	29.73	-16.27	46	38.13	22.85	3.64	34.89	-	-	P	H
		729.37	33.07	-12.93	46	35.01	27.26	4.76	33.96	-	-	P	H
		949.56	33.83	-12.17	46	30.95	30.42	5.61	33.15	-	-	P	H
													H
													H
													H
													H
													H
													H
		54.25	26.63	-13.37	40	48.28	12.82	1.24	35.71	-	-	P	V
		91.11	21.39	-22.11	43.5	40.76	14.64	1.65	35.66	-	-	P	V
		159.01	25.44	-18.06	43.5	42.36	16.44	2.19	35.55	-	-	P	V
		183.26	21.36	-22.14	43.5	39.77	14.76	2.34	35.51	-	-	P	V
		729.37	33.49	-12.51	46	35.43	27.26	4.76	33.96	-	-	P	V
		947.62	35.81	-10.19	46	33.03	30.34	5.6	33.16	-	-	P	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.

<WPC Charging Mode>

2.4GHz 2400~2483.5MHz

BT (Band Edge @ 3m)

BT Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
18		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BT CH 78 2480MHz	*	2480	107.32	-	-	107.46	27.62	8.55	36.31	100	111	P	H
	*	2480	82.53	-	-	-	-	-	-	-	-	A	H
		2483.72	48.13	-25.87	74	48.25	27.63	8.56	36.31	100	111	P	H
		2483.72	23.34	-30.66	54	-	-	-	-	-	-	A	H
													H
													H
	*	2480	105.7	-	-	105.84	27.62	8.55	36.31	378	69	P	V
	*	2480	80.91	-	-	-	-	-	-	-	-	A	V
		2483.76	47.17	-26.83	74	47.28	27.64	8.56	36.31	378	69	P	V
		2483.76	22.38	-31.62	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. 18	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 78 2480MHz		4960	43.52	-30.48	74	35.34	33.02	12.35	37.66			P	H
		4960	18.73	-35.27	54	-	-	-	-	-	-	A	H
		7440	46.66	-27.34	74	33.71	36.22	14.88	38.63			P	H
		7440	21.87	-32.13	54	-	-	-	-	-	-	A	H
													H
													H
													H
													H
													H
													H
													H
													H
		4960	44.49	-29.51	74	36.31	33.02	12.35	37.66			P	V
		4960	19.7	-34.3	54	-	-	-	-	-	-	A	V
		7440	47.1	-26.9	74	34.15	36.22	14.88	38.63			P	V
		7440	22.31	-31.69	54	-	-	-	-	-	-	A	V
													V
													V
													V
													V
													V
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													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 below 1GHz

2.4GHz BT (LF)

BT	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
18		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz BT LF		30.73	25.13	-14.87	40	35.87	24.02	0.95	35.72	-	-	P	H
		97.3	30.19	-13.31	43.5	48.65	15.49	1.64	35.65	-	-	P	H
		168.71	26.77	-16.73	43.5	44.45	15.6	2.18	35.53	-	-	P	H
		782.72	32.37	-13.63	46	33.42	27.74	4.75	33.77	-	-	P	H
		843.83	32.89	-13.11	46	32.56	28.64	4.95	33.55	-	-	P	H
		957.32	35.34	-10.66	46	32.17	30.66	5.25	33.12	-	-	P	H
													H
													H
													H
													H
													H
													H
		30.84	29.16	-10.84	40	39.95	23.97	0.95	35.72	135	161	QP	V
		97.85	27.33	-16.17	43.5	45.65	15.62	1.65	35.65	-	-	P	V
		169.68	26.9	-16.6	43.5	44.66	15.51	2.19	35.53	-	-	P	V
		740.04	31.84	-14.16	46	33.4	27.58	4.62	33.93	-	-	P	V
		900.09	33.84	-12.16	46	32.96	28.74	5.12	33.35	-	-	P	V
		958.29	34.84	-11.16	46	31.63	30.69	5.26	33.12	-	-	P	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.

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	Over	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
		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)

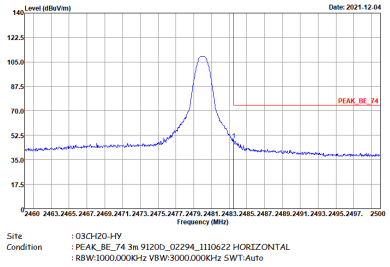
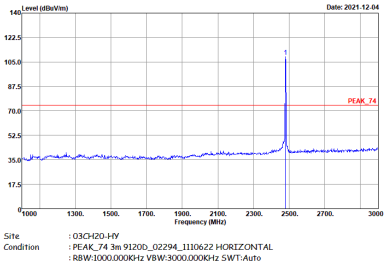
Both peak and average measured complies with the limit line, so test result is “PASS”.

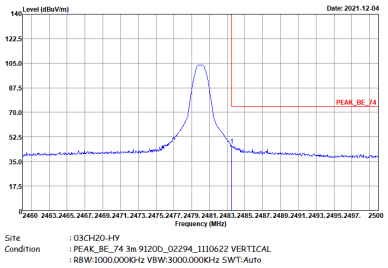
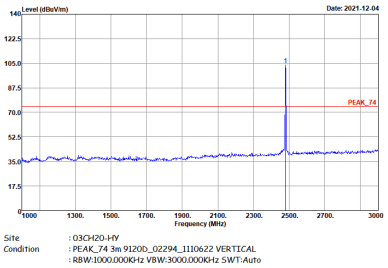
Appendix D. Radiated Spurious Emission Plots

Test Engineer :	Bill Chang, JC Liang and Nick Yu	**Temperature :**	18~20°C
		Relative Humidity :	65~68%

2.4GHz 2400~2483.5MHz

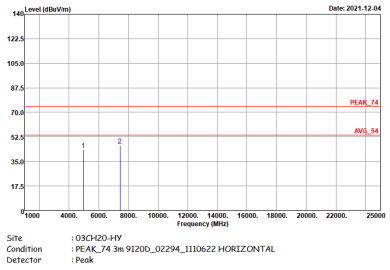
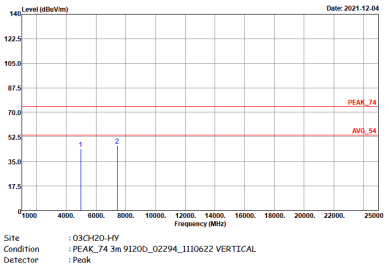
BT (Band Edge @ 3m)

BT	**2.4GHz 2400~2483.5MHz Band Edge @ 3m**	
Ant.	**BT CH78 2480MHz**	
16	**Horizontal**	**Fundamental**
Peak		

BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
Ant.	BT CH78 2480MHz	
16	Vertical	Fundamental
Peak		

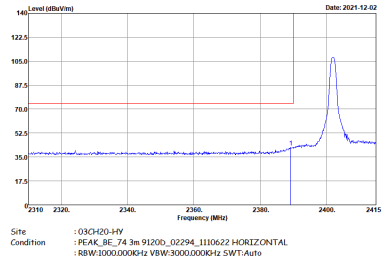
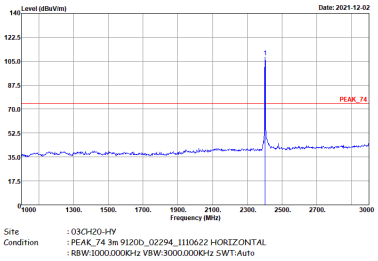
2.4GHz 2400~2483.5MHz

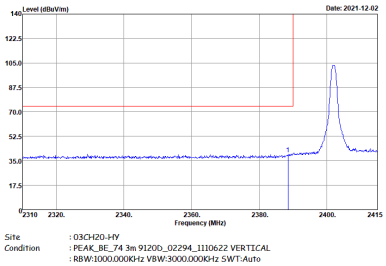
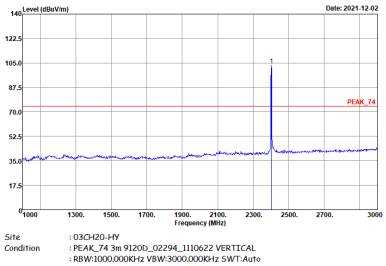
BT (Harmonic @ 3m)

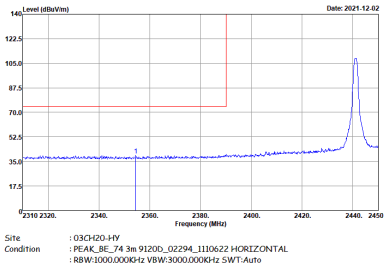
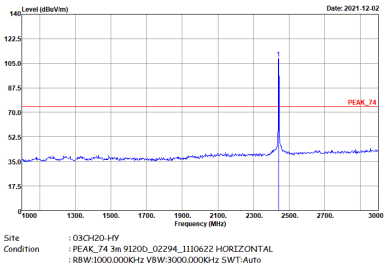
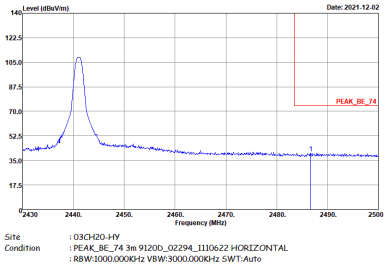
BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
Ant.	BT CH78 2480MHz	
16	Horizontal	Vertical
Peak Avg.		

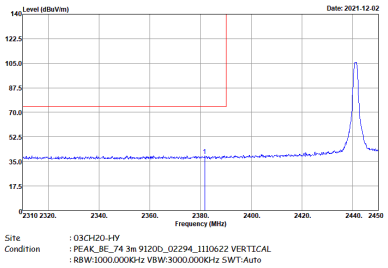
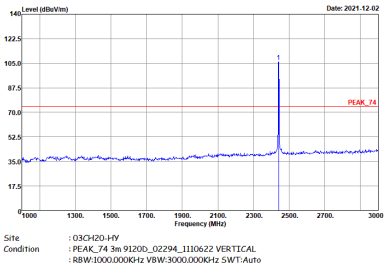
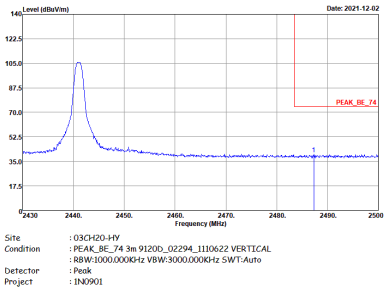
2.4GHz 2400~2483.5MHz

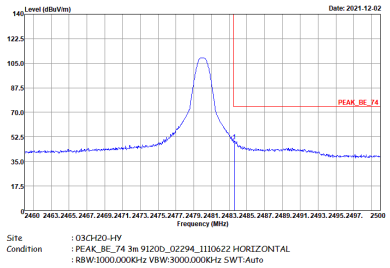
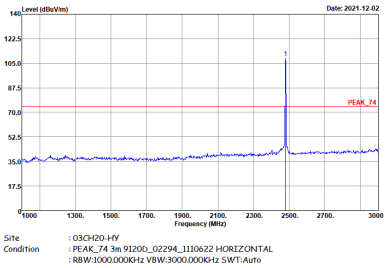
BT (Band Edge @ 3m)

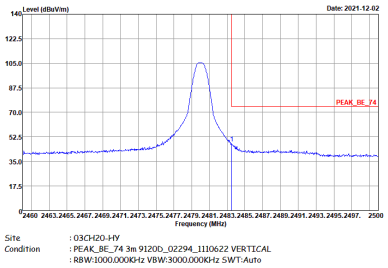
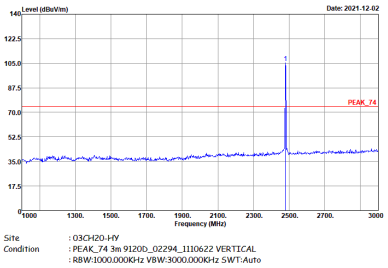
BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
Ant.	BT CH00 2402MHz	
18	Horizontal	Fundamental
Peak		

BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
Ant.	BT CH00 2402MHz	
18	Vertical	Fundamental
Peak		

BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
Ant.	BT CH39 2441MHz	
18	Horizontal	Fundamental
Peak		
Peak		Left blank

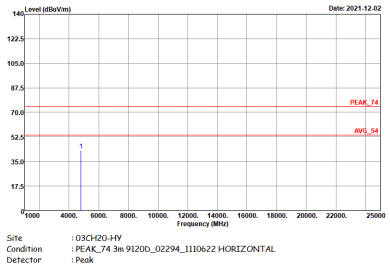
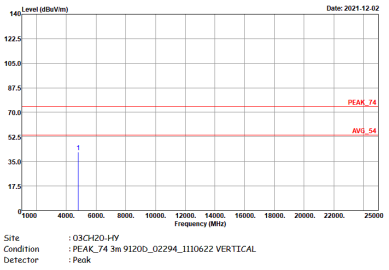
BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
Ant.	BT CH39 2441MHz	
18	Vertical	Fundamental
Peak		
Peak		Left blank

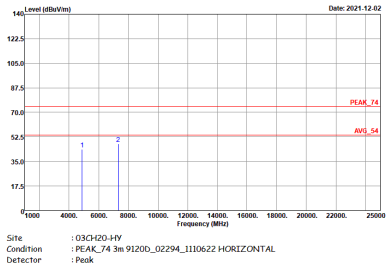
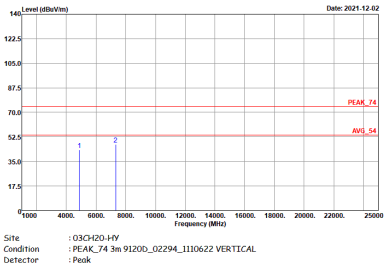
BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
Ant.	BT CH78 2480MHz	
18	Horizontal	Fundamental
Peak		

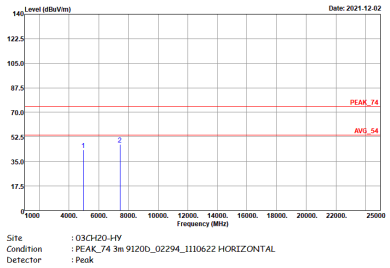
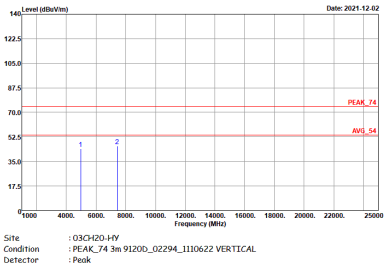
BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
Ant.	BT CH78 2480MHz	
18	Vertical	Fundamental
Peak		

2.4GHz 2400~2483.5MHz

BT (Harmonic @ 3m)

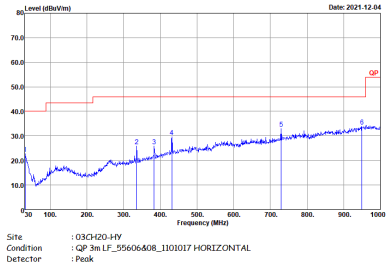
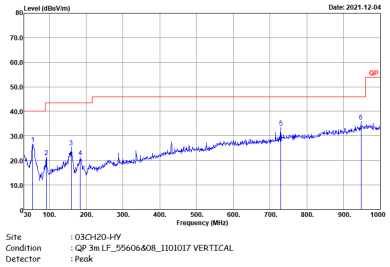
BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
Ant.	BT CH00 2402MHz	
18	Horizontal	Vertical
Peak Avg.		

BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
Ant.	BT CH39 2441MHz	
18	Horizontal	Vertical
Peak Avg.		

BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
Ant.	BT CH78 2480MHz	
18	Horizontal	Vertical
Peak Avg.		

Emission below 1GHz

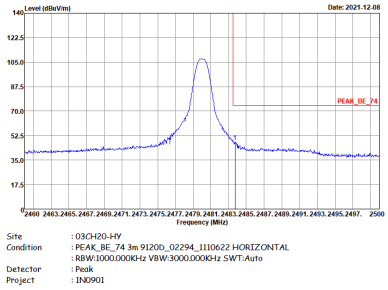
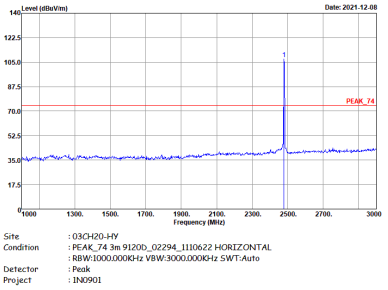
2.4GHz BT (LF)

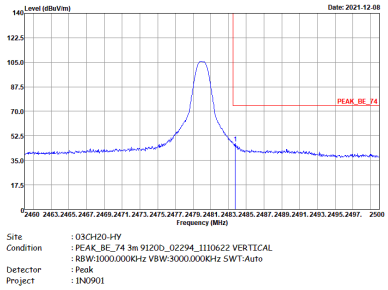
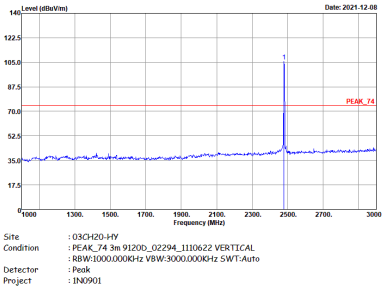
BT	2.4GHz 2400~2483.5MHz	
Ant.	BT LF	
18	Horizontal	Vertical
QP / Peak		

<WPC Charging Mode>

2.4GHz 2400~2483.5MHz

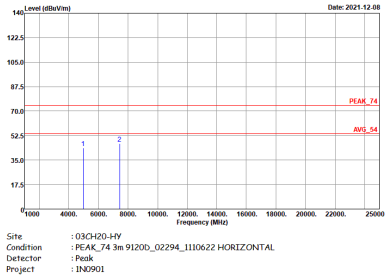
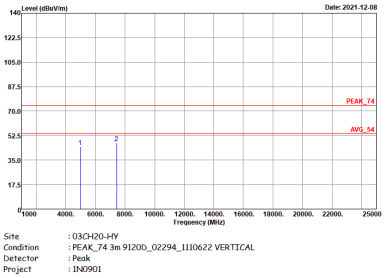
BT (Band Edge @ 3m)

BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
Ant.	BT CH78 2480MHz	
18	Horizontal	Fundamental
Peak		

BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
Ant.	BT CH78 2480MHz	
18	Vertical	Fundamental
Peak		

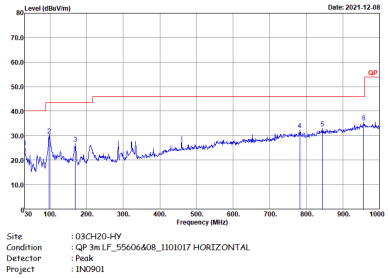
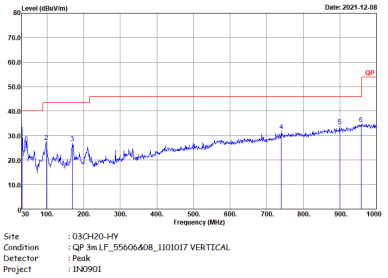
2.4GHz 2400~2483.5MHz

BT (Harmonic @ 3m)

BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
Ant.	BT CH78 2480MHz	
18	Horizontal	Vertical
Peak Avg.		

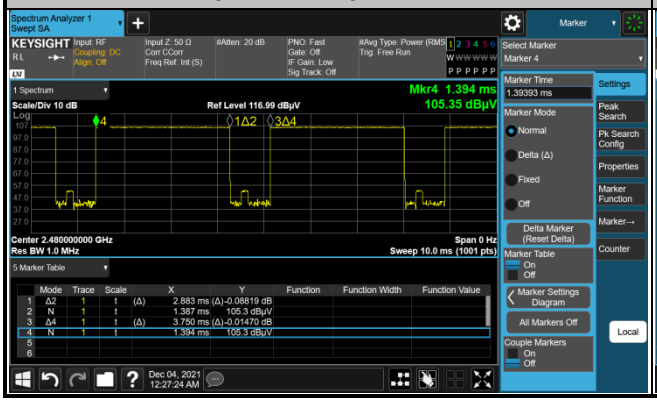
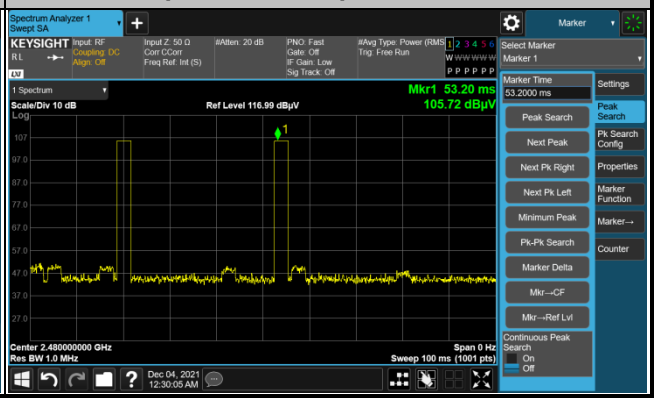
Emission below 1GHz

2.4GHz BT (LF)

BT	2.4GHz 2400~2483.5MHz	
Ant.	BT LF	
18	Horizontal	Vertical
QP / Peak		

Appendix E. Duty Cycle Plots

<Ant. 16>

DH5 on time (One Pulse) Plot on Channel 39	on time (Count Pulses) Plot on Channel 39
	

Note:

1. Worst case Duty cycle = on time/100 milliseconds = 2 * 2.883 / 100 = 5.767 %
2. Worst case Duty cycle correction factor = 20*log(Duty cycle) = -24.78 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

2.883 ms x 20 channels = 57.7 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 ms / 57.7 ms] = 2 hops

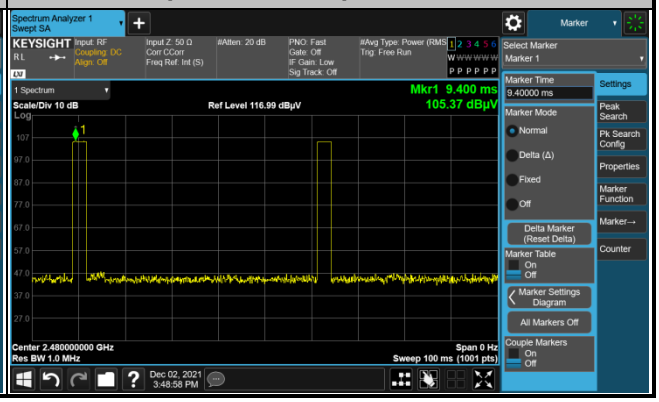
Thus, the maximum possible ON time:

2.883 ms x 2 = 5.77 ms

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

20 x log(5.77 ms/100 ms) = -24.78 dB

<Ant. 18>

DH5 on time (One Pulse) Plot on Channel 39	on time (Count Pulses) Plot on Channel 39
	

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(Duty cycle) = -24.79 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 ms x 20 channels = 57.6 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 ms / 57.6 ms] = 2 hops

Thus, the maximum possible ON time:

2.88 ms x 2 = 5.76 ms

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

20 x log(5.76 ms/100 ms) = -24.79 dB