FCC RF Test Report

APPLICANT	:	Honeywell International Inc
EQUIPMENT	:	mobile computer
BRAND NAME	:	Honeywell
MODEL NAME	:	CT37X0N
FCC ID	:	HD5-CT37X0N
STANDARD	:	FCC Part 15 Subpart C §15.247
CLASSIFICATION	:	(DSS) Spread Spectrum Transmitter
TEST DATE(S)	:	Aug. 13, 2024

We, Sporton International Inc. (Kunshan), would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. (Kunshan), the test report shall not be reproduced except in full.

Jason Jia

Approved by: Jason Jia

ACCREDITED
Cert #5145.02

Sporton International Inc. (Kunshan)
No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China

TABLE OF CONTENTS

REVISION HISTORY **3**
SUMMARY OF TEST RESULT **4**
1 GENERAL DESCRIPTION **5**
1.1 Applicant 5
1.2 Manufacturer 5
1.3 Product Feature of Equipment Under Test 5
1.4 Product Specification of Equipment Under Test 5
1.5 Modification of EUT 5
1.6 Testing Location 6
1.7 Test Software 6
1.8 Applicable Standards 6
2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST **7**
2.1 Carrier Frequency Channel 7
2.2 Test Mode 8
2.3 Connection Diagram of Test System 9
2.4 Support Unit used in test configuration and system 9
2.5 EUT Operation Test Setup 9
2.6 Measurement Results Explanation Example 10
3 TEST RESULT **11**
3.1 Output Power Measurement 11
3.2 Conducted Band Edges Measurement 13
3.3 Radiated Band Edges and Spurious Emission Measurement 20
3.4 Antenna Requirements 24
4 LIST OF MEASURING EQUIPMENT **25**
5 MEASUREMENT UNCERTAINTY **26**
APPENDIX A. RADIATED SPURIOUS EMISSION
APPENDIX B. DUTY CYCLE PLOTS
APPENDIX C. SETUP PHOTOGRAPHS

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR461913-01A	Rev. 01	Initial issue of report	Aug. 22, 2024

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.247(b)(1)	Peak Output Power	≤ 125 mW	Pass	-
3.2	15.247(d)	Conducted Band Edges	≤ 20dBc	Pass	-
3.3	15.247(d)	Radiated Band Edges and Radiated Spurious Emission	15.209(a) & 15.247(d)	Pass	Under limit 23.98 dB at 2496.340 MHz
3.4	15.203 & 15.247(b)	Antenna Requirement	15.203 & 15.247(b)	Pass	-

Note: This is a variant report for CT37X0N, the change note could be referred to the CT37X0N_Operational Description of Product Equality Declaration which is exhibit separately. According to the change, only the related test cases were verified from original report FR461913A.

Conformity Assessment Condition:

1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacturer who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
2. The measurement uncertainty please refer to each test result in the section “Measurement Uncertainty”

Disclaimer:

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.

1 General Description

1.1 Applicant

Honeywell International Inc
9680 Old Bailes Rd, Fort Mill, SC 29707

1.2 Manufacturer

Honeywell International Inc
9680 Old Bailes Rd, Fort Mill, SC 29707

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	mobile computer
Brand Name	Honeywell
Model Name	CT37X0N
FCC ID	HD5-CT37X0N
SN	Conducted: 24211X0009 Radiation: 24211X016C
HW Version	V1.0
SW Version	514 03.00.0273-N-DEBUG- FIMG
EUT Stage	Identical Prototype

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx/Rx Frequency Range	2402 MHz ~ 2480 MHz
Number of Channels	79
Carrier Frequency of Each Channel	2402+n*1 MHz; n=0~78
Maximum Output Power to Antenna	Bluetooth BR(1Mbps) : 7.79 dBm (0.0060 W) Bluetooth EDR (2Mbps) : 7.94 dBm (0.0062 W) Bluetooth EDR (3Mbps) : 8.35 dBm (0.0068 W)
Antenna Type / Gain	LDS Antenna type with gain 1.5 dBi
Type of Modulation	Bluetooth BR (1Mbps) : GFSK Bluetooth EDR (2Mbps) :π/4-DQPSK Bluetooth EDR (3Mbps) : 8-DPSK

1.5 Modification of EUT

No modifications are made to the EUT during all test items.

1.6 Testing Location

Sporton International Inc. (Kunshan) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Test Firm	Sporton International Inc. (Kunshan)		
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	03CH06-KS TH01-KS	CN1257	314309

1.7 Test Software

Item	Site	Manufacturer	Name	Version
1.	TH01-KS	SPORTON	FCC BT2.0 Ver3.0_For_CHINA_190111	3.0
2.	03CH06-KS	AUDIX	E3	210616

1.8 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- 47 CFR Part 15 Subpart C §15.247
- FCC KDB 558074 D01 15.247 Meas Guidance v05r02
- ANSI C63.10-2013

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

2 Test Configuration of Equipment Under Test

2.1 Carrier Frequency Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
2400-2483.5 MHz	0	2402	27	2429	54	2456
	1	2403	28	2430	55	2457
	2	2404	29	2431	56	2458
	3	2405	30	2432	57	2459
	4	2406	31	2433	58	2460
	5	2407	32	2434	59	2461
	6	2408	33	2435	60	2462
	7	2409	34	2436	61	2463
	8	2410	35	2437	62	2464
	9	2411	36	2438	63	2465
	10	2412	37	2439	64	2466
	11	2413	38	2440	65	2467
	12	2414	39	2441	66	2468
	13	2415	40	2442	67	2469
	14	2416	41	2443	68	2470
	15	2417	42	2444	69	2471
	16	2418	43	2445	70	2472
	17	2419	44	2446	71	2473
	18	2420	45	2447	72	2474
	19	2421	46	2448	73	2475
	20	2422	47	2449	74	2476
	21	2423	48	2450	75	2477
	22	2424	49	2451	76	2478
	23	2425	50	2452	77	2479
	24	2426	51	2453	78	2480
	25	2427	52	2454	-	-
	26	2428	53	2455	-	-

2.2 Test Mode

a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (X plane) were recorded in this report, and the worst mode of radiated spurious emissions is Bluetooth 3Mbps mode, and recorded in this report.

The following summary table is showing all test modes to demonstrate in compliance with the standard.

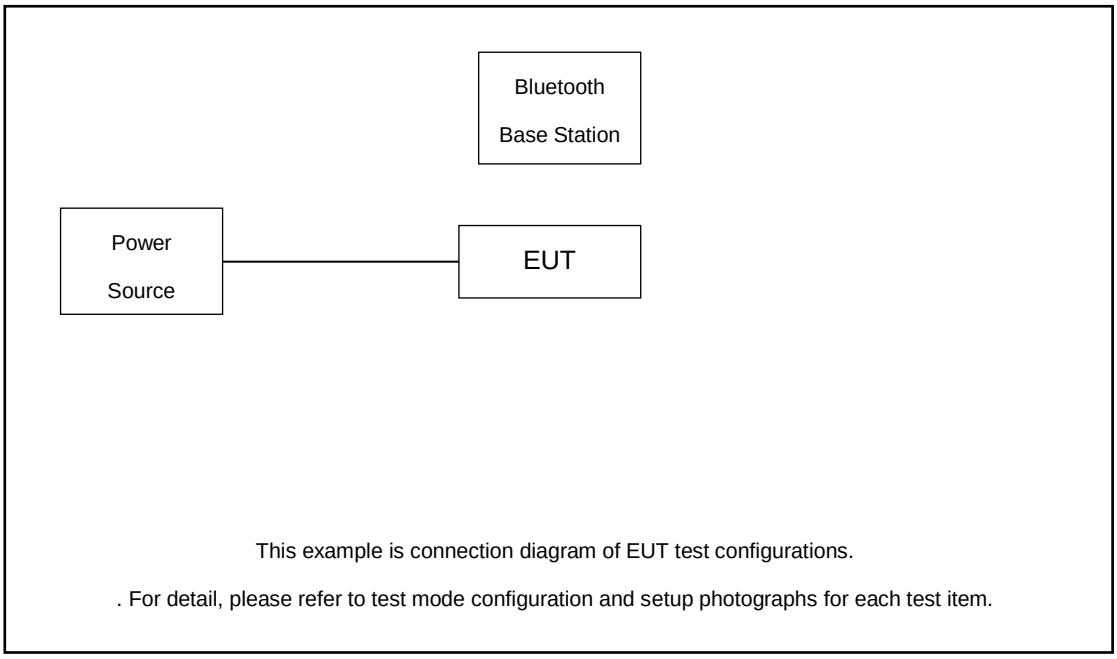
Summary table of Test Cases			
Test Item	**Data Rate / Modulation**		
	Bluetooth BR 1Mbps GFSK	**Bluetooth EDR 2Mbps π/4-DQPSK**	**Bluetooth EDR 3Mbps 8-DPSK**
Conducted Test Cases	Mode 1: CH00_2402 MHz Mode 2: CH39_2441 MHz Mode 3: CH78_2480 MHz	Mode 4: CH00_2402 MHz Mode 5: CH39_2441 MHz Mode 6: CH78_2480 MHz	Mode 7: CH00_2402 MHz Mode 8: CH39_2441 MHz Mode 9: CH78_2480 MHz
Radiated Test Cases	**Bluetooth EDR 3Mbps 8-DPSK**		
	Mode 1: CH78_2480 MHz		

Remark:

1. For radiated test cases, the worst mode data rate 3Mbps was reported only, because this data rate has the highest RF output power at preliminary tests, and no other significantly frequencies found in conducted spurious emission.
2. For Radiated Test Cases, the tests were performed with Adapter and USB Cable.

2.3 Connection Diagram of Test System

For radiated emission:



2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	USB Cable	N/A	N/A	N/A	N/A	N/A
2.	Adapter	N/A	N/A	N/A	N/A	N/A

2.5 EUT Operation Test Setup

For Bluetooth function, the engineering test program was provided and enabled to make EUT connect with Bluetooth base station to continuous transmit.

2.6 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example :

The spectrum analyzer offset is derived from RF cable loss.

Offset = RF cable loss.

Following shows an offset computation example with cable loss 5.8 dB.

Offset(dB) = RF cable loss(dB).

= 5.8 (dB)

3 Test Result

3.1 Output Power Measurement

3.1.1 Limit of Output Power

The maximum peak conducted output power of the intentional radiator shall not exceed the following: For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band 0.125 watts.

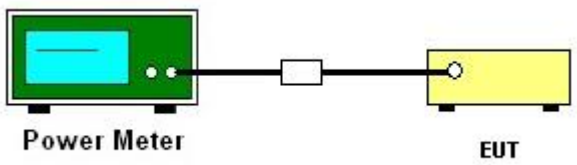
3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.1.3 Test Procedures

1. The testing follows ANSI C63.10-2013 clause 7.8.5.
1. The RF output of EUT was connected to the power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.
2. Set to the maximum power setting and enable the EUT transmit continuously.
3. Measure the conducted output power with cable loss and record the results in the test report.
4. Measure and record the results in the test report.

3.1.4 Test Setup



3.1.5 Test Result of Peak Output Power

TestMode	Antenna	CH.	Peak Power (dBm)	Power Limit (dBm)	Pass/Fail	Power Setting
DH5	Ant6	0	7.31	20.97	Pass	Default
		39	**7.79**	20.97	Pass	Default
		78	6.46	20.97	Pass	Default
2DH5	Ant6	0	7.51	20.97	Pass	Default
		39	**7.94**	20.97	Pass	Default
		78	6.63	20.97	Pass	Default
3DH5	Ant6	0	7.90	20.97	Pass	Default
		39	**8.35**	20.97	Pass	Default
		78	7.05	20.97	Pass	Default

3.2 Conducted Band Edges Measurement

3.2.1 Limit of Band Edges

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.

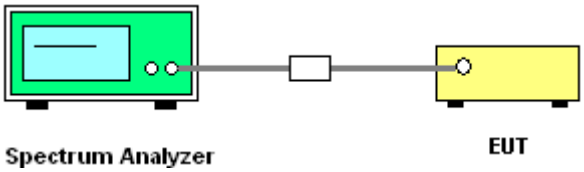
3.2.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.2.3 Test Procedures

1. The testing follows ANSI C63.10-2013 clause 7.8.6.
2. Set to the maximum power setting and enable the EUT transmit continuously.
3. Set RBW = 100kHz, VBW = 300kHz. Band edge emissions must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100kHz RBW. The attenuation shall be 30 dB instead of 20 dB when RMS conducted output power procedure is used.
4. Enable hopping function of the EUT and then repeat step 2. and 3.
5. Measure and record the results in the test report.

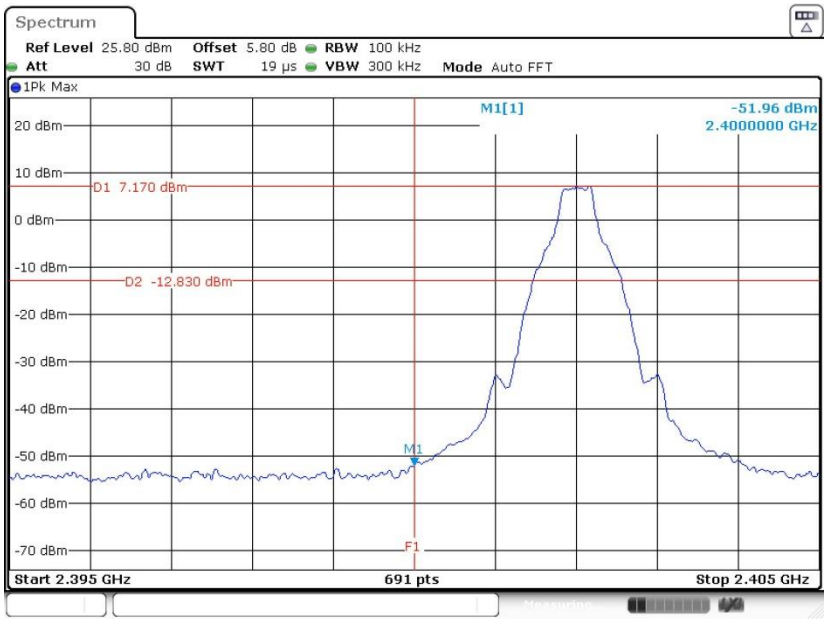
3.2.4 Test Setup



3.2.5 Test Result of Conducted Band Edges

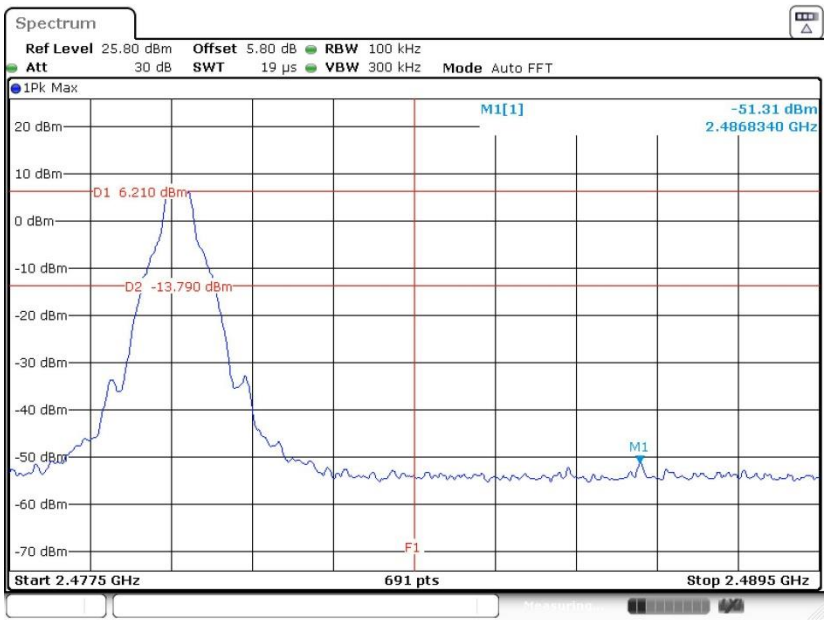
<1Mbps>

Low Band Edge Plot on Channel 00



Date: 13.AUG.2024 02:20:46

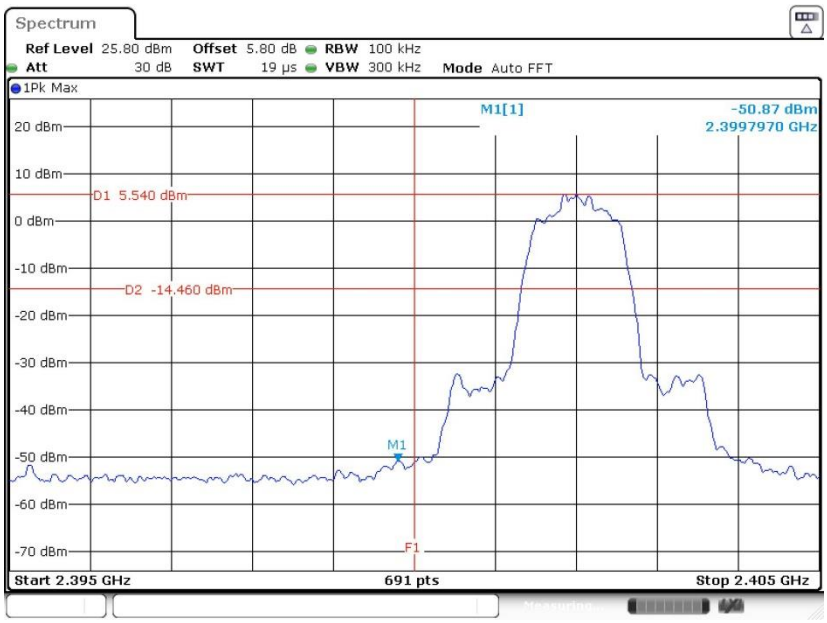
High Band Edge Plot on Channel 78



Date: 13.AUG.2024 02:22:30

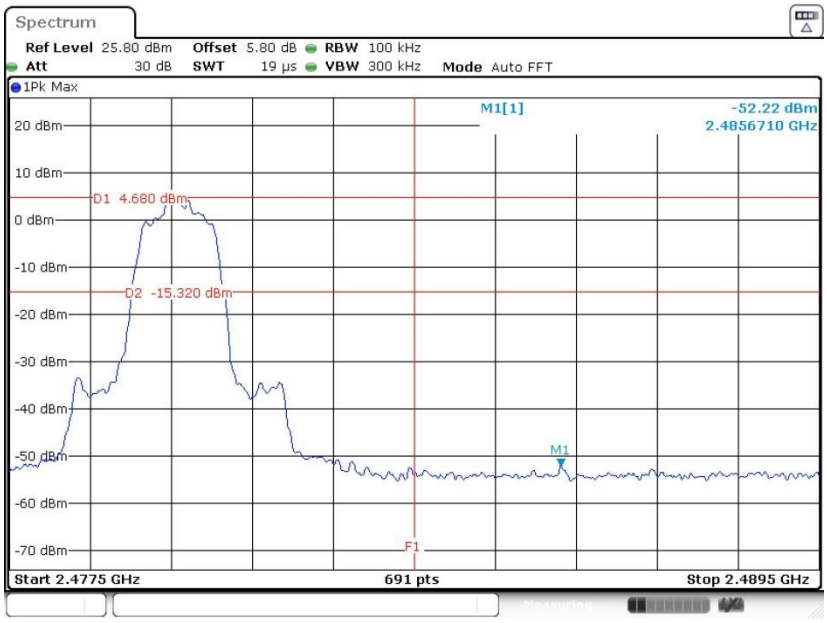
<2Mbps>

Low Band Edge Plot on Channel 00



Date: 13.AUG.2024 02:24:24

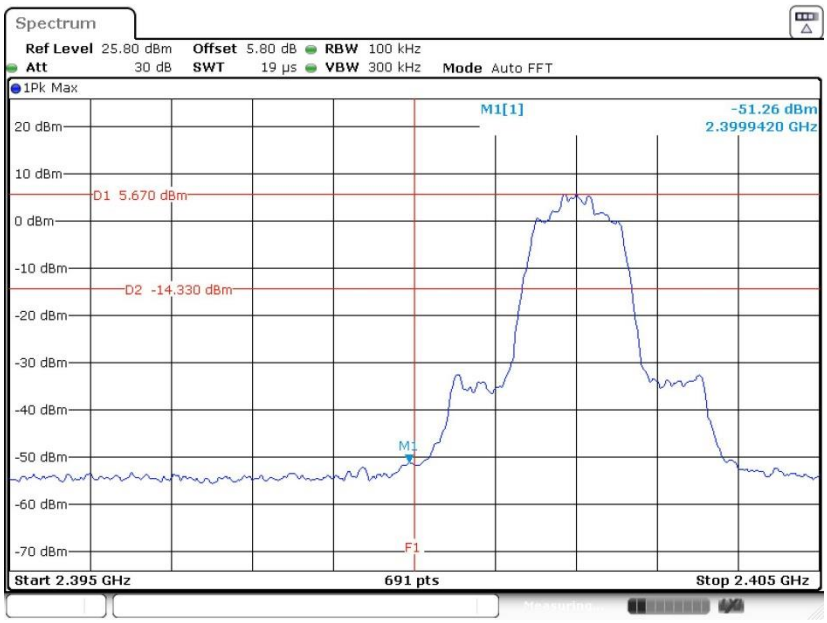
High Band Edge Plot on Channel 78



Date: 13.AUG.2024 02:23:46

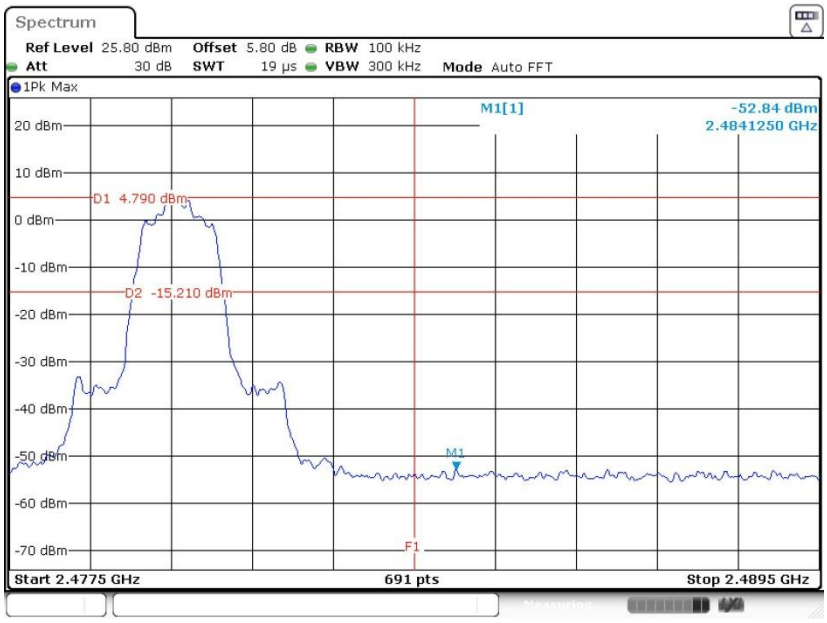
<3Mbps>

Low Band Edge Plot on Channel 00



Date: 13.AUG.2024 02:25:06

High Band Edge Plot on Channel 78

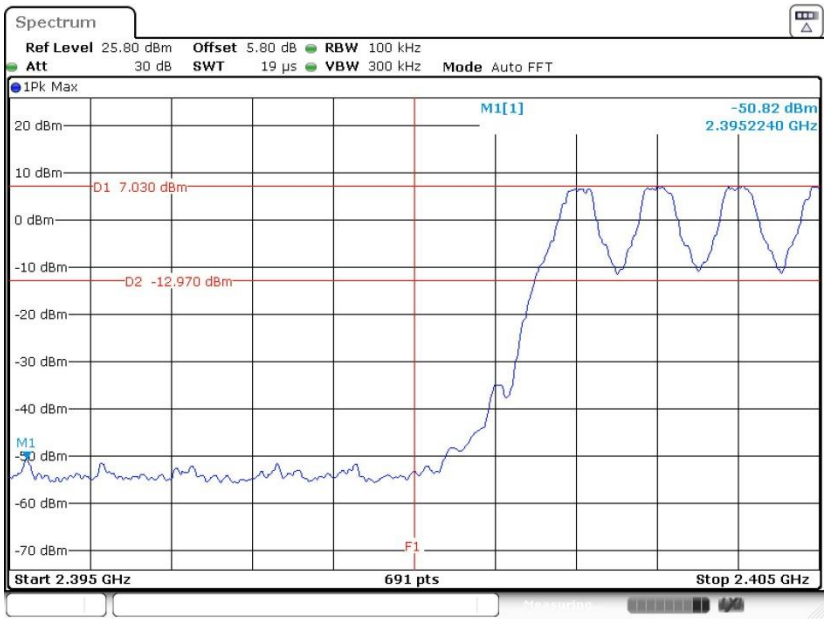


Date: 13.AUG.2024 02:25:47

3.2.6 Test Result of Conducted Hopping Mode Band Edges

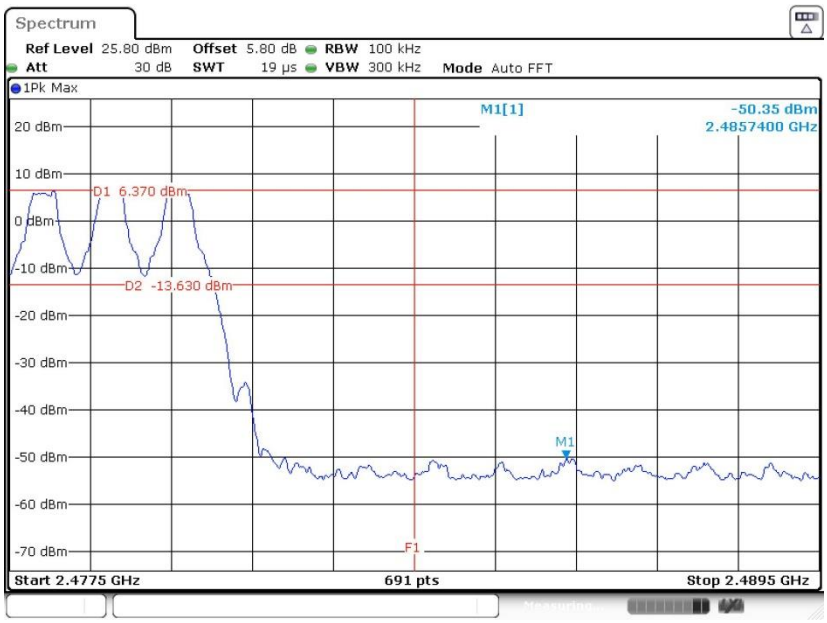
<1Mbps>

Hopping Mode Low Band Edge Plot



Date: 13.AUG.2024 02:26:30

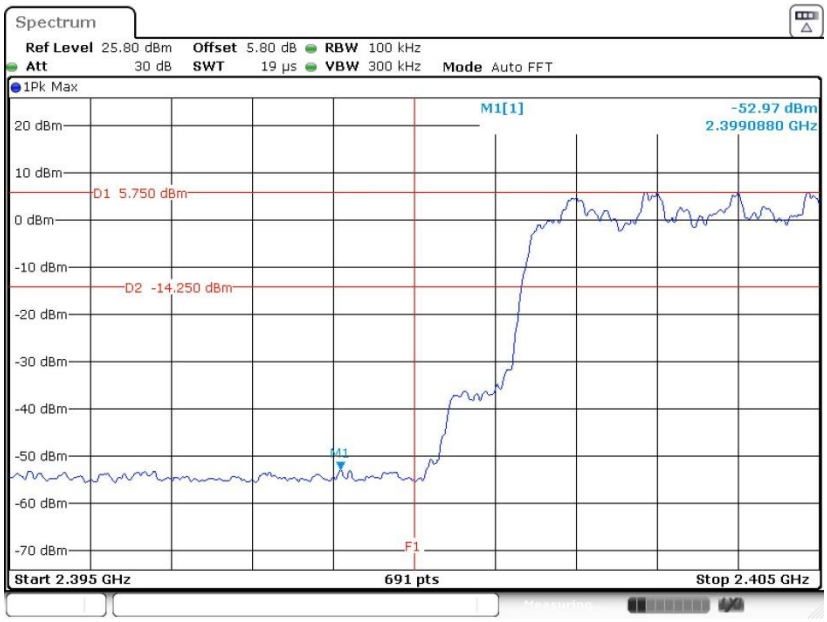
Hopping Mode High Band Edge Plot



Date: 13.AUG.2024 02:27:01

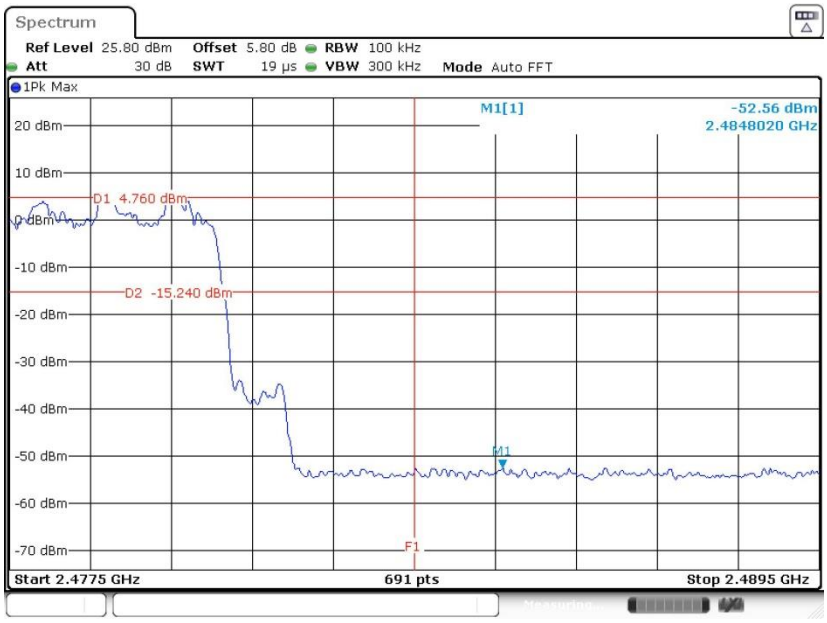
<2Mbps>

Hopping Mode Low Band Edge Plot



Date: 13.AUG.2024 02:27:38

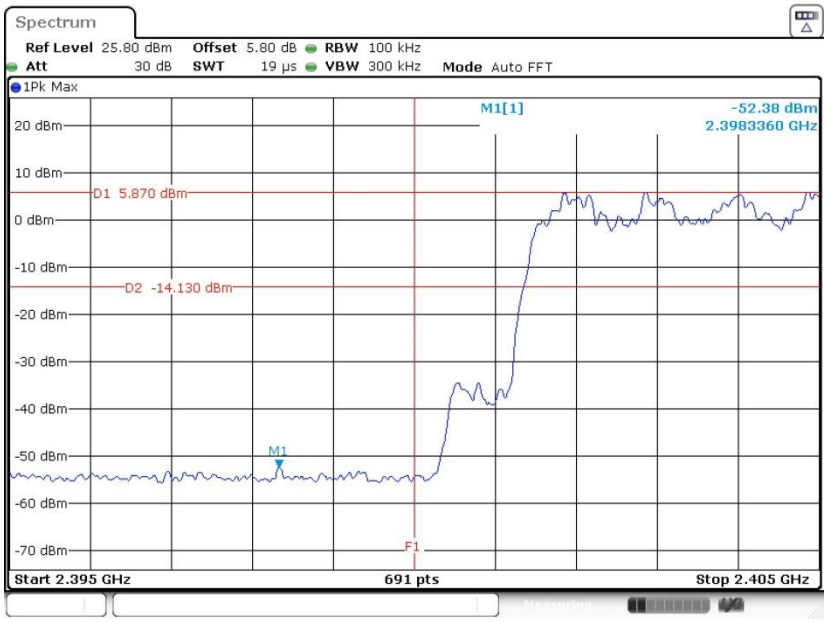
Hopping Mode High Band Edge Plot



Date: 13.AUG.2024 02:28:11

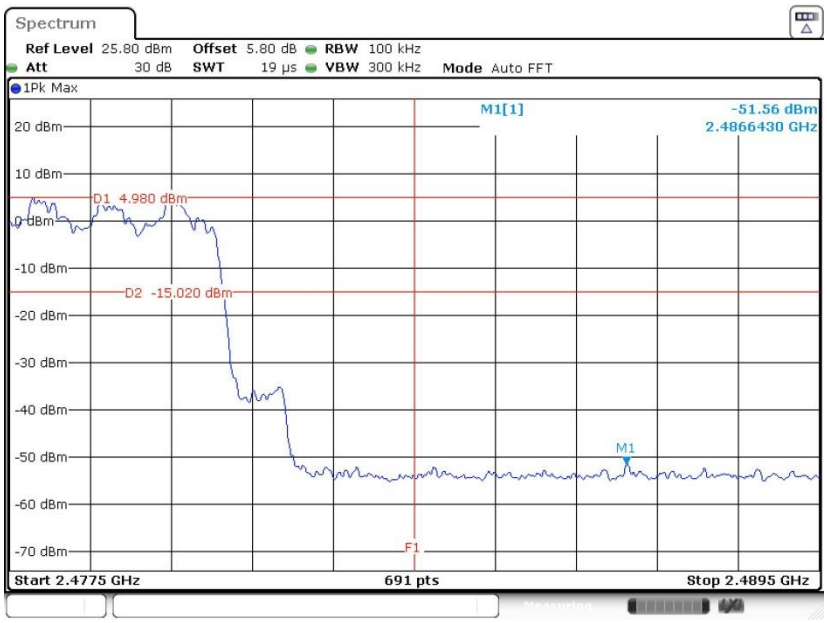
<3Mbps>

Hopping Mode Low Band Edge Plot



Date: 13.AUG.2024 02:28:48

Hopping Mode High Band Edge Plot



Date: 13.AUG.2024 02:29:20

.

3.3 Radiated Band Edges and Spurious Emission Measurement

3.3.1 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

3.3.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

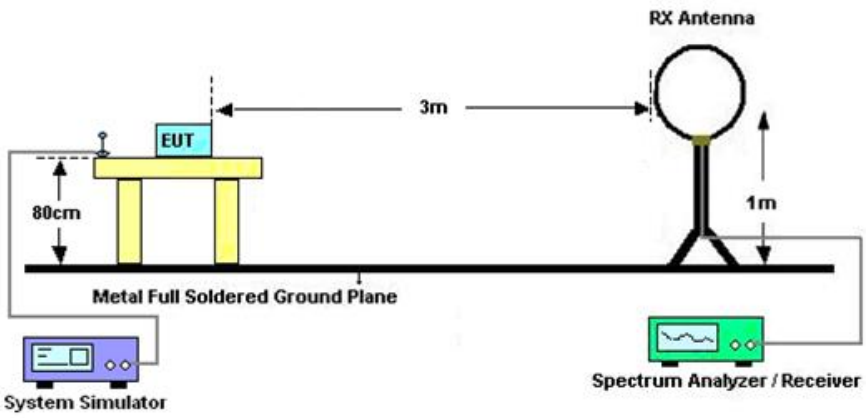
3.3.3 Test Procedures

1. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
4. Set to the maximum power setting and enable the EUT transmit continuously.
5. Use the following spectrum analyzer settings:
   (1) Span shall wide enough to fully capture the emission being measured;
   (2) Set RBW=100 kHz for f < 1 GHz, RBW=1MHz for f>1GHz ; 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. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
8. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than peak limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

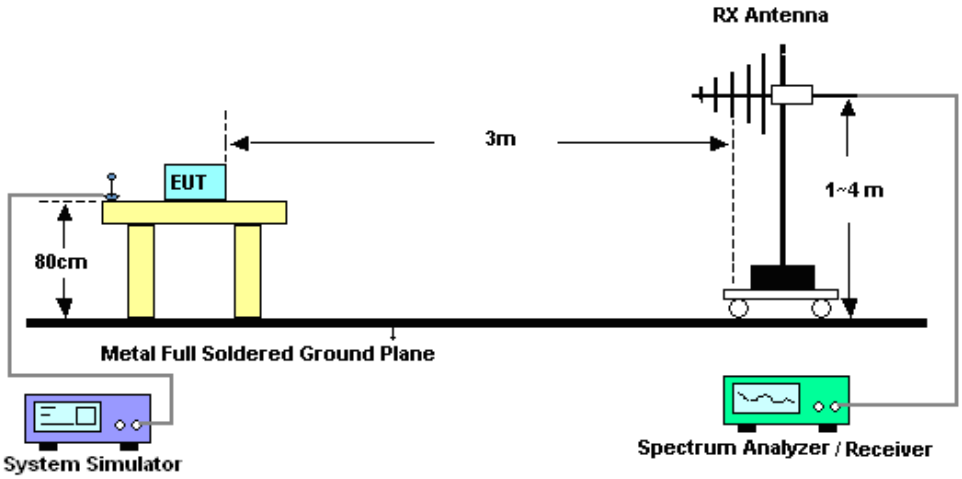
Note: The average levels were calculated from the peak level corrected with duty cycle correction factor (-24.82 dB) derived from 20log (dwell time/100ms). This correction is only for signals that hop with the fundamental signal, such as band-edge and harmonic. Other spurious signals that are independent of the hopping signal would not use this correction.

3.3.4 Test Setup

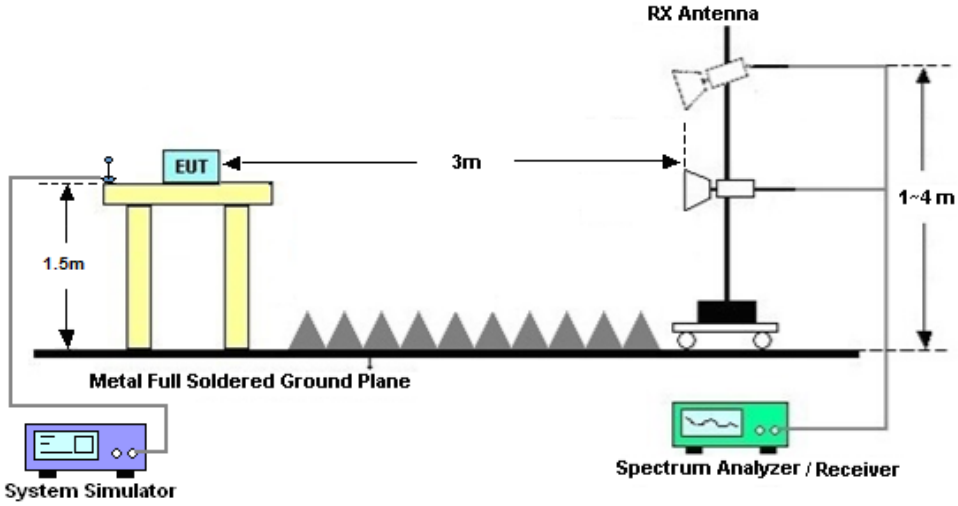
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

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

There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

3.3.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix A.

3.3.7 Test Result of Radiated Spurious Emission (30MHz ~ 10th Harmonic or 40GHz, whichever is lower)

Please refer to Appendix A.

3.3.8 Duty cycle correction factor for average measurement

Please refer to Appendix B.

3.4 Antenna Requirements

3.4.1 Standard Applicable

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

3.4.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.4.3 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	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101040	10Hz~40GHz	Oct. 11, 2023	Aug. 13, 2024	Oct. 10, 2024	Conducted (TH01-KS)
Pulse Power Senor	Anritsu	MA2411B	0917070	300MHz~40GHz	Jan. 02, 2024	Aug. 13, 2024	Jan. 01, 2025	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Jan. 02, 2024	Aug. 13, 2024	Jan. 01, 2025	Conducted (TH01-KS)
EMI Test Receiver	Keysight	N9038A	MY56400004	3Hz~8.5GHz;Max 30dBm	Oct. 10, 2023	Aug. 13, 2024	Oct. 09, 2024	Radiation (03CH06-KS)
EXA Spectrum Analyzer	Keysight	N9010B	MY60242126	10Hz-44GHz	Oct. 10, 2023	Aug. 13, 2024	Oct. 09, 2024	Radiation (03CH06-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Oct. 10, 2023	Aug. 13, 2024	Oct. 09, 2024	Radiation (03CH06-KS)
Bilog Antenna	TeseQ	CBL6111D	59913	30MHz-1GHz	Aug. 19, 2023	Aug. 13, 2024	Aug. 18, 2024	Radiation (03CH06-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00240132	1GHz~18GHz	Jul. 11, 2024	Aug. 13, 2024	Jul. 10, 2025	Radiation (03CH06-KS)
SHF-EHF Horn	Com-power	AH-840	101093	18GHz~40GHz	Jan. 05, 2024	Aug. 13, 2024	Jan. 04, 2025	Radiation (03CH06-KS)
Amplifier	SONOMA	310N	380827	9KHz ~1GHZ	Jul. 05, 2024	Aug. 13, 2024	Jul. 04, 2025	Radiation (03CH06-KS)
Amplifier	MITEQ	EM18G40GGA	060728	18~40GHz	Jan. 04, 2024	Aug. 13, 2024	Jan. 03, 2025	Radiation (03CH06-KS)
high gain Amplifier	MITEQ	AMF-7D-00101800-30-10P	2082395	1Ghz-18Ghz	Jan. 04, 2024	Aug. 13, 2024	Jan. 03, 2025	Radiation (03CH06-KS)
Amplifier	Keysight	83017A	MY53270319	500MHz~26.5GHz	Oct. 10, 2023	Aug. 13, 2024	Oct. 09, 2024	Radiation (03CH06-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Aug. 13, 2024	NCR	Radiation (03CH06-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Aug. 13, 2024	NCR	Radiation (03CH06-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Aug. 13, 2024	NCR	Radiation (03CH06-KS)

NCR: No Calibration Required

5 Measurement Uncertainty

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI 63.10-2013. All the measurement uncertainty value were shown with a coverage K=2 to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.

Uncertainty of Conducted Measurement

Conducted Bandedge	**±2.22 dB**
Conducted Power	**±0.50 dB**

Uncertainty of Radiated Emission Measurement (9 KHz ~ 30 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.30 dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**6.06 dB**

Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.18 dB**

Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.38 dB**

---------- THE END ----------

Appendix A. Radiated Spurious Emission Test Data

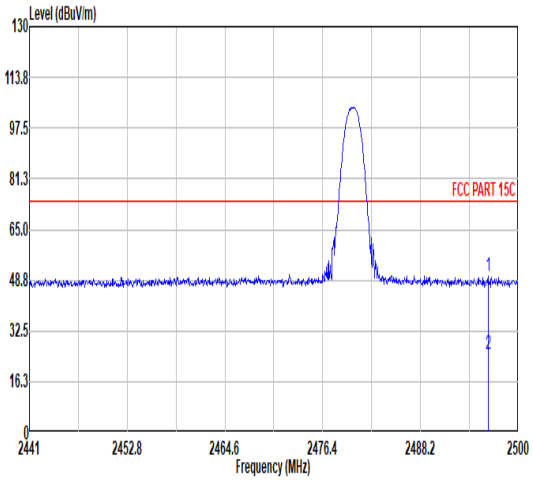
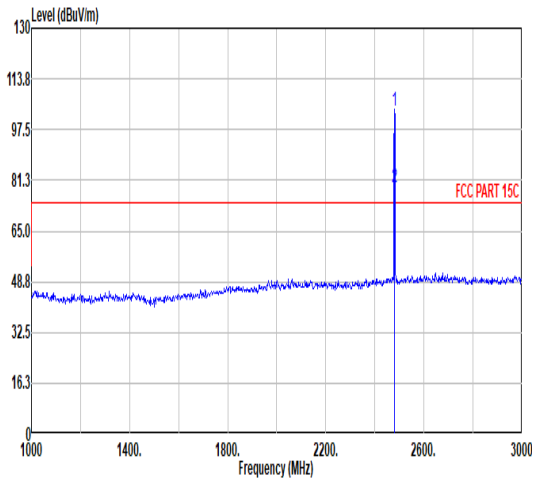
Test Engineer :	Levi zhao	Relative Humidity :	41~42%
		Temperature :	22 ~23℃

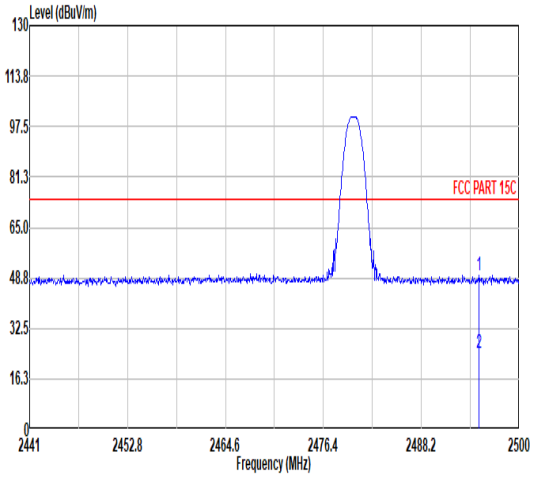
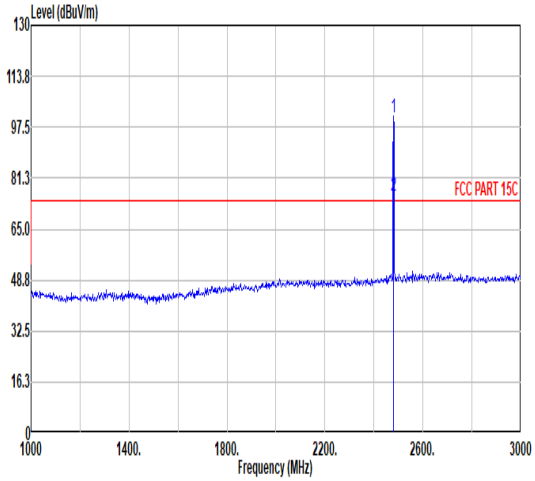
Radiated Spurious Emission Test Modes

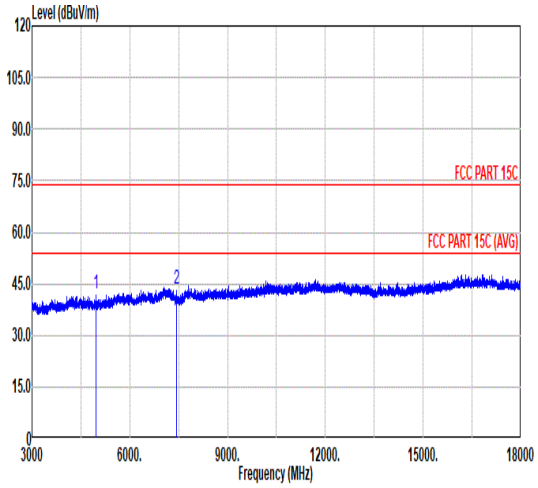
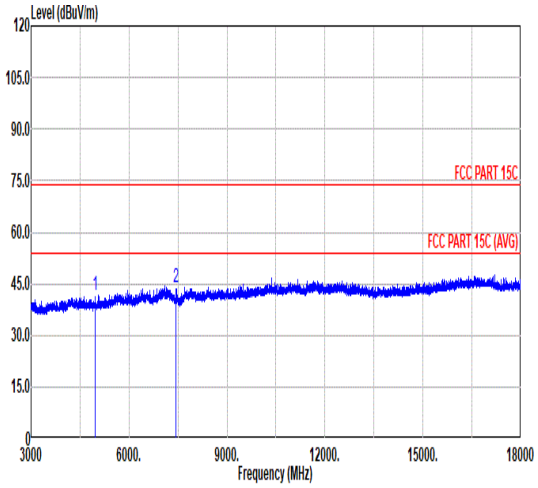
Mode	Band (MHz)	Antenna	Modulation	Channel	Frequency	Data Rate	RU	Remark
Mode 1	2400-2483.5	6	Bluetooth BR_GFSK	78	2480	1Mbps	-	-

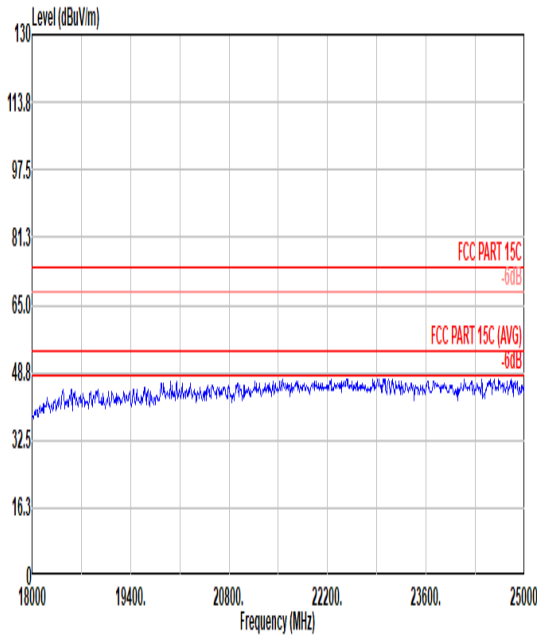
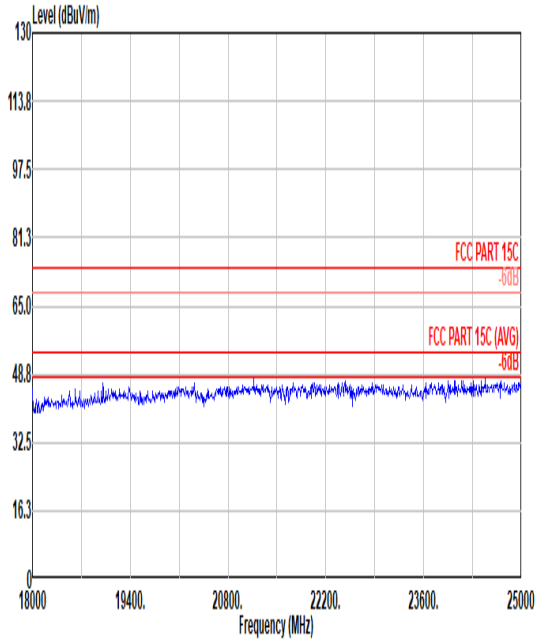
Summary of each worse mode

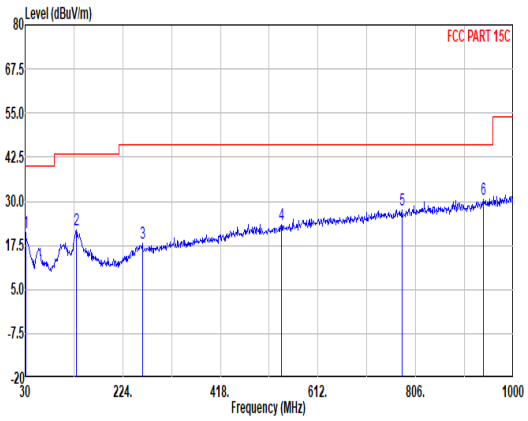
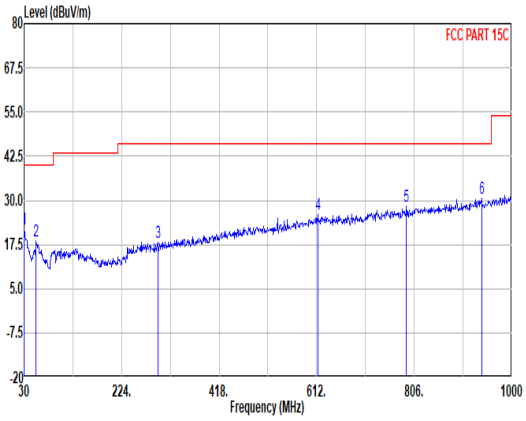
Mode	Modulation	Ch.	Freq. (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pol.	Peak Avg.	Result	Remark
1	Bluetooth BR_GFSK	78	2496.34	50.02	74.00	-23.98	H	PEAK	Pass	Band Edge
1	Bluetooth BR_GFSK	78	7440.00	43.72	74.00	-30.28	V	PEAK	Pass	Harmonic

Mode	1	
	Band Edge	
	2400-2483.5_Bluetooth BR_GFSK_CH78_2480MHz	
ANT	6	
Pol.	Horizontal	Fundamental
Peak	 Freq Level Limit Line Over Limit Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2496.34 50.02 74.00 -23.98 41.23 32.29 7.35 36.85 6.00 155 100 PEAK 2 2496.34 25.20 54.00 -28.80 16.41 32.29 7.35 36.85 6.00 155 100 AVERAGE	 Freq Level Limit Line Over Limit Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2480.00 103.58 ------ ------ 94.89 32.22 7.32 36.85 6.00 155 100 PEAK 2 2480.00 78.76 ------ ------ 70.07 32.22 7.32 36.85 6.00 155 100 AVERAGE

Mode	1	
	Band Edge	
	2400-2483.5_Bluetooth BR_GFSK_CH78_2480MHz	
ANT	6	
Pol.	Vertical	Fundamental
Peak	 Freq Level Limit Line Over Limit Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2495.10 49.40 74.00 -24.60 40.62 32.28 7.35 36.85 6.00 356 66 PEAK 2 2495.10 24.58 54.00 -29.42 15.80 32.28 7.35 36.85 6.00 356 66 AVERAGE	 Freq Level Limit Line Over Limit Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2480.00 100.46 ------ ------ 91.77 32.22 7.32 36.85 6.00 356 66 PEAK 2 2480.00 75.64 ------ ------ 66.95 32.22 7.32 36.85 6.00 356 66 AVERAGE

Mode	1	
	Harmonic	
	2400-2483.5_Bluetooth BR_GFSK_CH78_2480MHz	
ANT	6	
Pol.	Horizontal	Vertical
Peak Avg	 Freq Level Limit Line Over Limit Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 4960.00 41.94 74.00 -32.06 59.49 34.00 9.61 61.16 0.00 --- --- PEAK 2 7440.00 43.56 74.00 -30.44 57.11 35.70 11.77 61.02 0.00 --- --- PEAK	 Freq Level Limit Line Over Limit Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 4960.00 41.73 74.00 -32.27 59.28 34.00 9.61 61.16 0.00 --- --- PEAK 2 7440.00 43.72 74.00 -30.28 57.27 35.70 11.77 61.02 0.00 --- --- PEAK

Mode	1	
	18G-25G	
	2400-2483.5_Bluetooth BR_GFSK_CH78_2480MHz	
ANT	6	
Pol.	Horizontal	Vertical
Peak Avg		

Mode	1	
	30-1G	
	2400-2483.5_Bluetooth BR_GFSK_CH78_2480MHz	
ANT	6	
Pol.	Horizontal	Vertical
QP		

Horizontal:

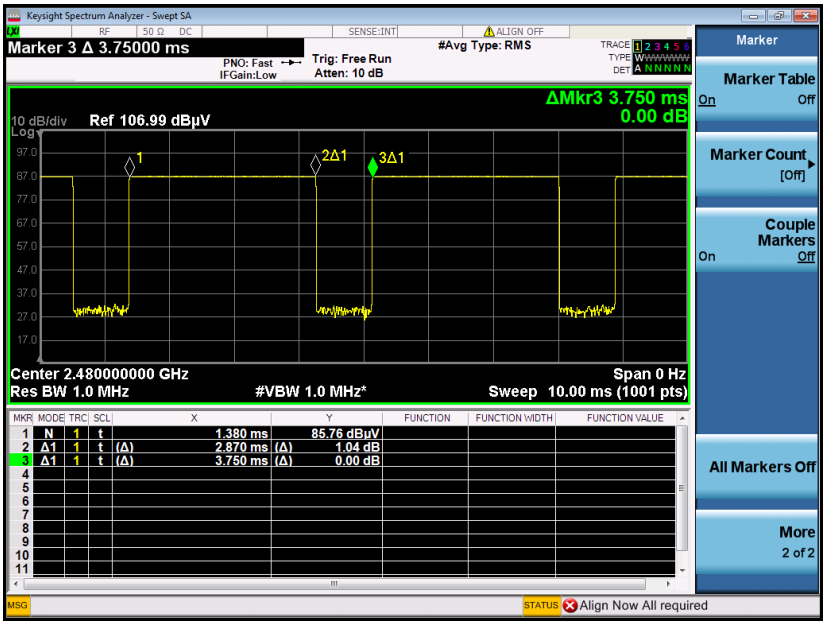
	Freq	Level	Limit Line	Over Limit	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	30.97	21.15	40.00	-18.85	28.26	25.09	0.76	32.96	0.00	---	---	Peak
2	131.85	22.01	43.50	-21.49	35.46	17.56	1.70	32.71	0.00	---	---	Peak
3	262.80	18.27	46.00	-27.73	29.51	19.56	2.21	33.01	0.00	---	---	Peak
4	539.25	23.47	46.00	-22.53	28.94	24.87	3.18	33.52	0.00	---	---	Peak
5	778.84	27.46	46.00	-18.54	28.71	27.88	4.16	33.29	0.00	---	---	Peak
6	939.86	30.46	46.00	-15.54	28.29	29.69	4.56	32.08	0.00	---	---	Peak

Vertical:

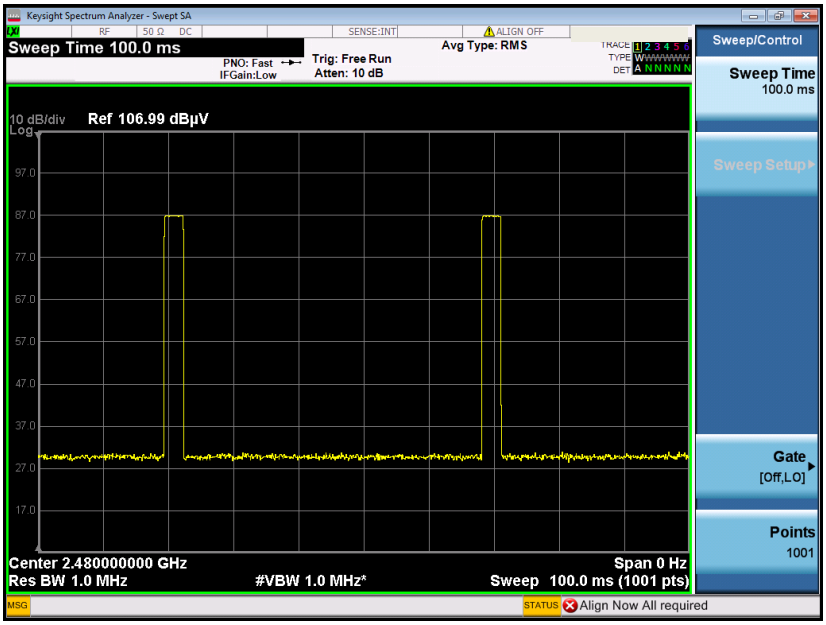
	Freq	Level	Limit Line	Over Limit	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	30.00	21.87	40.00	-18.13	28.32	25.74	0.76	32.95	0.00	---	---	Peak
2	54.25	18.48	40.00	-21.52	36.70	13.55	1.01	32.78	0.00	---	---	Peak
3	295.78	18.14	46.00	-27.86	29.20	19.25	2.52	32.83	0.00	---	---	Peak
4	613.94	26.04	46.00	-19.96	29.63	26.26	3.67	33.52	0.00	---	---	Peak
5	790.48	28.33	46.00	-17.67	29.37	28.06	4.19	33.29	0.00	---	---	Peak
6	939.86	30.72	46.00	-15.28	28.55	29.69	4.56	32.08	0.00	---	---	Peak

Appendix B. Duty Cycle Plots

3DH5 on time (One Pulse) Plot on Channel 78



3DH5 on time (Count Pulses) Plot on Channel 78



Note:

1. Worst case Duty cycle = on time/100 milliseconds = 2 * 2.87 / 100 = 5.74 %
2. Worst case Duty cycle correction factor = 20*log(Duty cycle) = -24.82 dB
3. 3DH5 has the highest duty cycle worst case and is reported.