



Test Report

FCC Part15 Subpart C& RSS-247 Issue 3

Product Name : 2620011024000
Model No. : 2620011024000
FCC ID : R7T2001102
IC : 5136A-2001102

Applicant : Würth Elektronik eiSos GmbH & Co. KG
Address : Max-Eyth-Str. 1 · 74638 Waldenburg,
Germany

Date of Receipt : Jan. 11, 2019
Test Date : Jan. 12, 2019 ~ Feb. 20, 2019
Issued Date : Aug. 23, 2024
Report No. : 2470363R-RF-US-P06V03
Report Version : V1.0

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

This report must not be used to claim product endorsement by A2LA or any agency of the government.

The test report shall not be reproduced without the written approval of DEKRA Testing & Certification (Suzhou) Co., Ltd.

Test Report Certification

Issued Date : Aug. 23, 2024

Report No. : 2470363R-RF-US-P06V03



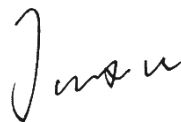
Product Name : 2620011024000
Applicant : Würth Elektronik eiSos GmbH & Co. KG
Address : Max-Eyth-Str. 1 · 74638 Waldenburg, Germany
Manufacturer : Würth Elektronik eiSos GmbH & Co. KG
Address : Max-Eyth-Str. 1 · 74638 Waldenburg, Germany
Factory : Würth Elektronik eiSos GmbH & Co. KG
Address : Max-Eyth-Str. 1 · 74638 Waldenburg, Germany
Model No : 2620011024000
Trade name :



FCC ID : R7T2001102
IC : 5136A-2001102
EUT Voltage : 1.71-3.3 Vdc
Test Voltage : 3.0Vdc
Applicable Standard : 47 CFR FCC Part 15 (Section 15.247)
ANSI C63.10: 2013
RSS-Gen Issue 5
RSS-247 Issue 3
Test Result : Complied
Performed Location : DEKRA Testing & Certification (Suzhou) Co., Ltd.
No.99 Hongye Rd., Suzhou Industrial Park, Suzhou, 215006,
Jiangsu, China
TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098
FCC Designation Number: CN1199; ISED Lab Code: 4075B

Tested By

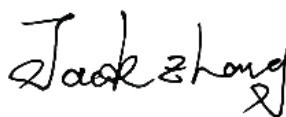
:



(Project Engineer: Jun Xu)

Approved By

:



(Manager: Jack Zhang)

TABLE OF CONTENTS

Description	Page
1. General Information.....	7
1.1. EUT Description	7
1.2. Antenna information	9
1.3. Mode of Operation.....	9
1.4. Tested System Details	11
1.5. Configuration of Tested System.....	12
1.6. EUT Exercise Software	13
2. Technical Test.....	14
2.1. Summary of Test Result	14
2.2. Test Environment.....	16
3. Conducted Emission	17
3.1. Test Equipment	17
3.2. Test Setup	17
3.3. Limit	18
3.4. Test Procedure	18
3.5. Uncertainty	18
3.6. Test Result	19
4. Emissions in restricted frequency bands	19
4.1. Test Equipment	20
4.2. Test Setup	21
4.3. Limit	22
4.4. Test Procedure	25
4.5. Uncertainty	25
4.6. Test Result	26
5. 20dB Bandwidth	26
5.1. Test Equipment	46
5.2. Test Setup	46
5.3. Limit	46
5.4. Test Procedure	47
5.5. Uncertainty	47
5.6. Test Result	48
6. Carrier Frequency Separation	54
6.1. Test Equipment	54
6.2. Test Setup	54
6.3. Limit	55
6.4. Test Procedure	55
6.5. Uncertainty	55

6.6.	Test Result	56
7.	Number of Hopping Frequencies	62
7.1.	Test Equipment	62
7.2.	Test Setup	62
7.3.	Limit	62
7.4.	Test Procedure	63
7.5.	Uncertainty	63
7.6.	Test Result	64
8.	Time of Occupancy (Dwell Time)	67
8.1.	Test Equipment	67
8.2.	Test Setup	67
8.3.	Limit	67
8.4.	Test Procedure	68
8.5.	Uncertainty	68
8.6.	Test Result	69
9.	Peak Output Power	75
9.1.	Test Equipment	75
9.2.	Test Setup	75
9.3.	Limit	76
9.4.	Test Procedure	76
9.5.	Uncertainty	76
9.6.	Test Result	77
10.	Emissions in non-restricted frequency bands	80
10.1.	Test Equipment	80
10.2.	Test Setup	80
10.3.	Limit	81
10.4.	Test Procedure	81
10.5.	Uncertainty	81
10.6.	Test Result	82
11.	Radiated Emission Band Edge	83
11.1.	Test Equipment	83
11.2.	Test Setup	83
11.3.	Limit	84
11.4.	Test Procedure	84
11.5.	Uncertainty	84
11.6.	Duty Factor	85
11.7.	Test Result	86
12.	Antenna Requirement	86

12.1. Limit	110
12.2. Antenna Connector Construction.....	110

History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
2470363R-RF-US-P06V03	V1.0	Initial Issued Report	Aug. 23, 2024

1. General Information

1.1. EUT Description

Product Name	2620011024000
Model No.	2620011024000
HVIN	2001102
PMN	2001102
UPN	2001102
EUT Voltage	1.71-3.3Vdc
Test Voltage	3.0Vdc
Wireless specification	Bluetooth (BR/EDR)
Frequency Range	2402- 2480 MHz
Channel Number	79
Channel Separation	1MHz
Type of Modulation	GFSK, Pi/4 DQPSK, 8DPSK
Data Rate	1Mbps(GFSK), 2Mbps(Pi/4 DQPSK), 3Mbps(8DPSK)
Antenna Type	Reference to Antenna List
Peak Antenna Gain	Reference to Antenna List

Note: This report is based on FCC ID: WAP3043, IC: 7922A-3043. The customer changes the Applicant, Manufacturer, Factory, Product Name, Product Model and other information. At the same time, we update the standard RSS-247 Issue 2 to RSS-247 Issue 3. No additional testing is required after technical evaluation. Test data references FCC ID: WAP3043, IC: 7922A-3043.

Bluetooth Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
00	2402 MHz	01	2403 MHz	02	2404 MHz	03	2405 MHz
04	2406 MHz	05	2407 MHz	06	2408 MHz	07	2409 MHz
08	2410 MHz	09	2411 MHz	10	2412 MHz	11	2413 MHz
12	2414 MHz	13	2415 MHz	14	2416 MHz	15	2417 MHz
16	2418 MHz	17	2419 MHz	18	2420 MHz	19	2421 MHz
20	2422 MHz	21	2423 MHz	22	2424 MHz	23	2425 MHz
24	2426 MHz	25	2427 MHz	26	2428 MHz	27	2429 MHz
28	2430 MHz	29	2431 MHz	30	2432 MHz	31	2433 MHz
32	2434 MHz	33	2435 MHz	34	2436 MHz	35	2437 MHz
36	2438 MHz	37	2439 MHz	38	2440 MHz	39	2441 MHz
40	2442 MHz	41	2443 MHz	42	2444 MHz	43	2445 MHz
44	2446 MHz	45	2447 MHz	46	2448 MHz	47	2449 MHz
48	2450 MHz	49	2451 MHz	50	2452 MHz	51	2453 MHz
52	2454 MHz	53	2455 MHz	54	2456 MHz	55	2457 MHz
56	2458 MHz	57	2459 MHz	58	2460 MHz	59	2461 MHz
60	2462 MHz	61	2463 MHz	62	2464 MHz	63	2465 MHz
64	2466 MHz	65	2467 MHz	66	2468 MHz	67	2469 MHz
68	2470 MHz	69	2471 MHz	70	2472 MHz	71	2473 MHz
72	2474 MHz	73	2475 MHz	74	2476 MHz	75	2477 MHz
76	2478 MHz	77	2479 MHz	78	2480 MHz	N/A	N/A

1.2 Antenna information

Antenna manufacturer	N/A					
Antenna Delivery	☒	1*TX+1*RX	☐	2*TX+2*RX	☐	3*TX+3*RX
Antenna technology	☒	SISO				
	☐	MIMO	☐	Basic		
			☐	CDD		
			☐	Beam-forming		
Antenna Type	☐	External	☐	Dipole		
	☒	Internal	☐	PIFA		
			☒	PCB		
			☐	Ceramic Chip Antenna		
			☐	Stamping Antenna		
			☐	Metal plate type F antenna		
			☐	Monopole antenna		
Antenna Gain	-0.5dBi					

1.3 Mode of Operation

DEKRA has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Test Mode
Mode 1: Transmitter-1Mbps(GFSK_DH5)
Mode 2: Transmitter-2Mbps(Pi/4 DQPSK_DH5)
Mode 3: Transmitter-3Mbps(8DPSK_DH5)
Mode 4: Transmitter-Hopping

Note:

1. For portable device, radiated spurious emission was verified over X, Y, Z Axis, and shown the worst case on this report.
2. Regards to the frequency band operation for systems using FHSS modulation: normal operation (hopping) was selected to test for conducted spurious test.
3. The extreme test condition for voltage and temperature were declared by the manufacturer.
4. The reading values of all the test items contain cable loss.

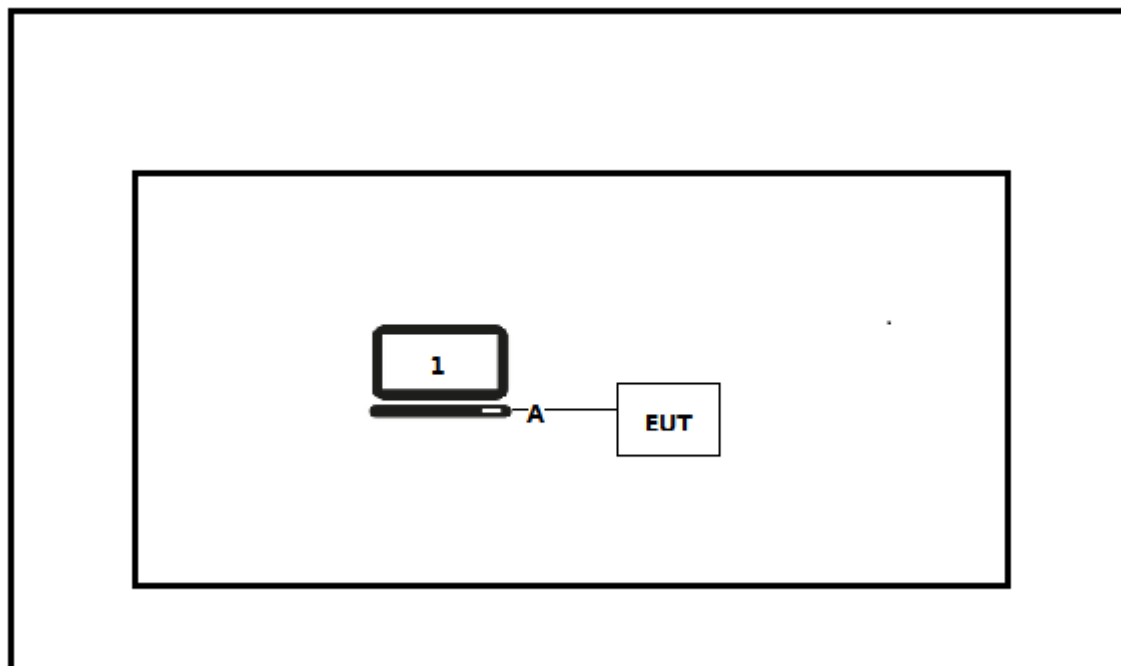
1.4 Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

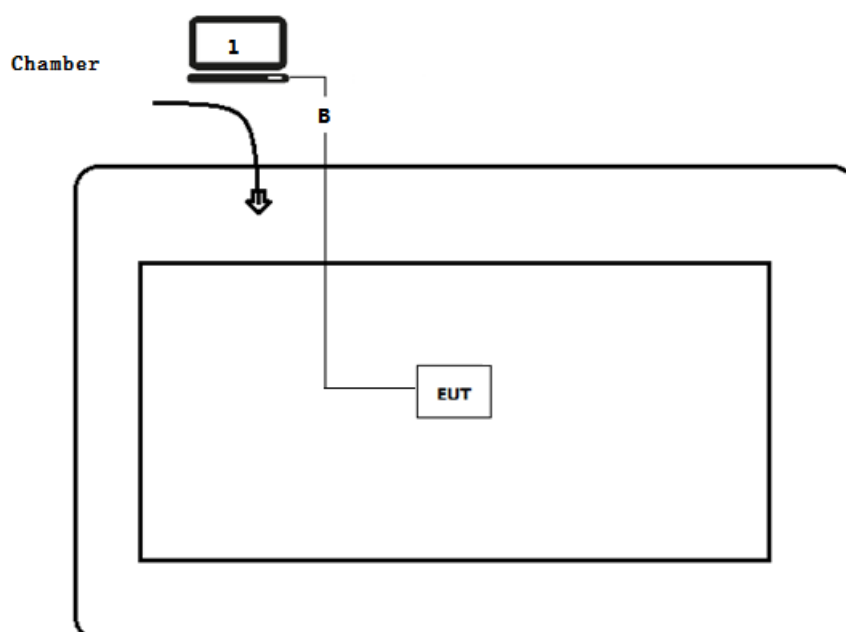
Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook	Think Pad	2526	LV-A3285	Power by adapter
A	USB Cable	N/A	N/A	N/A	Shield, 0.5m
B	USB Cable	N/A	N/A	N/A	Shield, 10m

1.5 Configuration of Tested System

Test setup Diagram- Conducted test



Test setup Diagram- Radiated Emission



1.6 EUT Exercise Software

1	Setup the EUT and simulators as shown on above.
2	Turn on the power of all equipment.
3	Run RF software [CyBluetool], and set the test mode and channel, then press OK to start to continue transmit.

2. Technical Test

2.1. Summary of Test Result

- ☒ No deviations from the test standards
- ☐ Deviations from the test standards as below description:

For FCC

Performed Test Item	Normative References	Test Performed	Deviation
Conducted Emission	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.207	Yes	No
Emissions in restricted frequency bands	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.209	Yes	No
20dB Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(a)(1)	Yes	No
Carrier Frequency Separation	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(a)(1)	Yes	No
Number of Hopping Frequencies	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(a)(1)(iii)	Yes	No
Time of Occupancy (Dwell Time)	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(a)(1)(iii)	Yes	No
Peak Output Power	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(b)(1)	Yes	No
Emissions in non-restricted frequency bands	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.215(c), 15.247(d)	Yes	No
Radiated Emission Band Edge	FCC CFR Title 47 Part 15 Subpart C: 2015 15.247(d)	Yes	No
Antenna Requirement	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.203	Yes	No

For ISED

Performed Test Item	Normative References	Test Performed	Deviation
Conducted Emission	RSS-Gen Issue 5 Section 8.8	Yes	No
Radiated Emission	RSS-Gen Issue 5 Section 8.9	Yes	No
20dB Bandwidth	RSS-247 Issue 3 Section 5.1	Yes	No
Carrier Frequency Separation	RSS-247 Issue 3 Section 5.1	Yes	No
Number of Hopping Frequencies	RSS-247 Issue 3 Section 5.1	Yes	No
Time of Occupancy (Dwell Time)	RSS-247 Issue 3 Section 5.1	Yes	No
Peak Output Power	RSS-247 Issue 3 Section 5.4	Yes	No
Emissions in non-restricted frequency bands	RSS-247 Issue 3 Section 5.5	Yes	No
Radiated Emission Band Edge	RSS-Gen Issue 5 Section 8.10	Yes	No
Antenna Requirement	RSS-Gen Issue 5 Section 8.3	Yes	No

2.2. Test Environment

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	21
Humidity (%RH)	25-75	50
Barometric pressure (mbar)	860-1060	950-1000

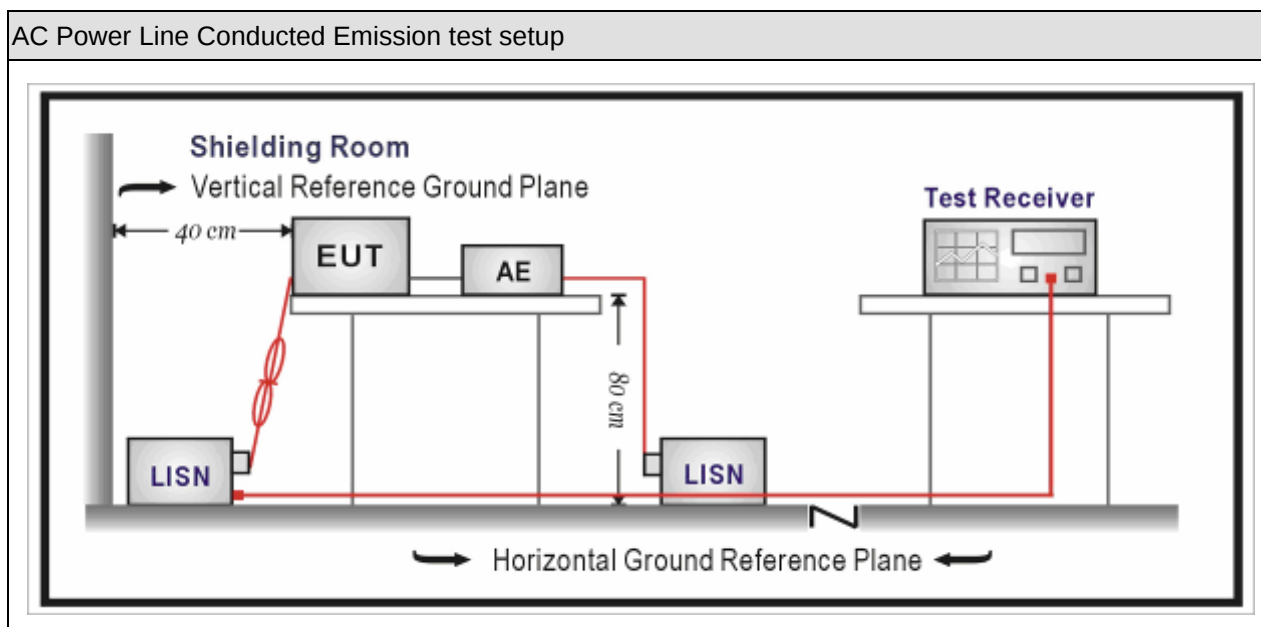
3. Conducted Emission

3.1. Test Equipment

AC Power Line Conducted Emission / TR-1					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100906	2018.03.05	2019.03.04
Two-Line V-Network	R&S	ENV 216	101189	2018.07.16	2019.07.15
Two-Line V-Network	R&S	ENV 216	101044	2018.09.15	2019.09.15
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	N/A	N/A
50ohm Termination	SHX	TF2	07081402	2018.09.15	2019.09.15
Temperature/Humidity Meter	Zhichen	ZC1-2	TR1-TH	2019.01.05	2020.01.04
Quietek EMI V3(test software)	Quietek	N/A	N/A	N/A	N/A

Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

3.2. Test Setup



3.3. Limit

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

Note 1: The lower limit shall apply at the transition frequencies.

Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

3.4. Test Procedure

Test Method			
	References Rule	Chapter	Item
☒	ANSI C63.10-2013	6.2	Standard test method for ac power-line conducted emissions from unlicensed wireless devices

3.5. Uncertainty

The measurement uncertainty is defined as ± 2.02 dB

3.6. Test Result

Note : Not applicable, EUT is DC powered.

4. Emissions in restricted frequency bands

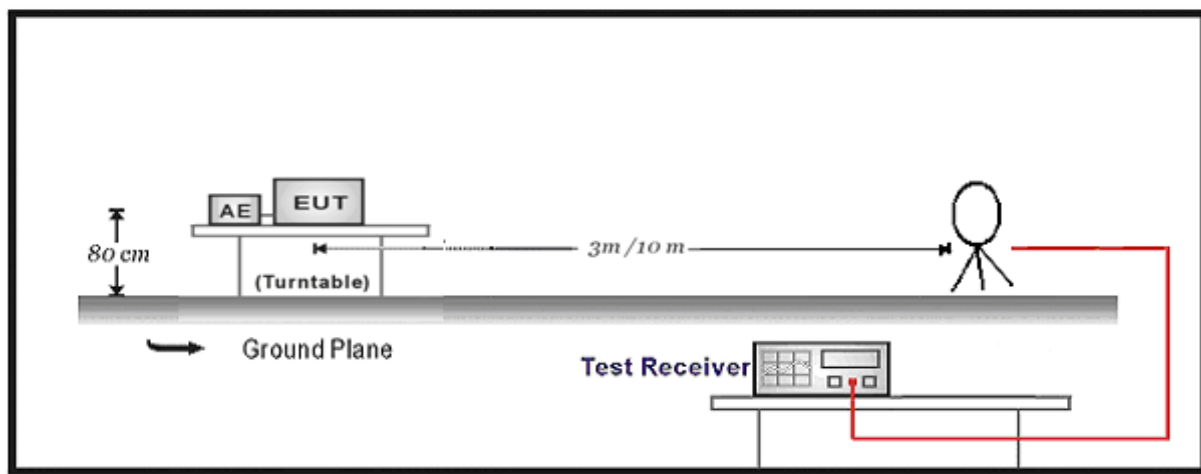
4.1. Test Equipment

Radiated Emission(Below 1GHz) / AC-2					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100573	2018.03.29	2019.03.28
Loop Antenna	R&S	HFH2-Z2	833799/003	2018.11.16	2019.11.15
Bilog Antenna	Teseq GmbH	CBL6112D	27611	2018.10.16	2019.10.15
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC2-C	2018.03.02	2019.03.01
Temperature/Humidity Meter	Zhichen	ZC1-2	AC2-TH	2019.01.04	2020.01.03
Quietek EMI V3(test software)	Quietek	N/A	N/A	N/A	N/A
Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

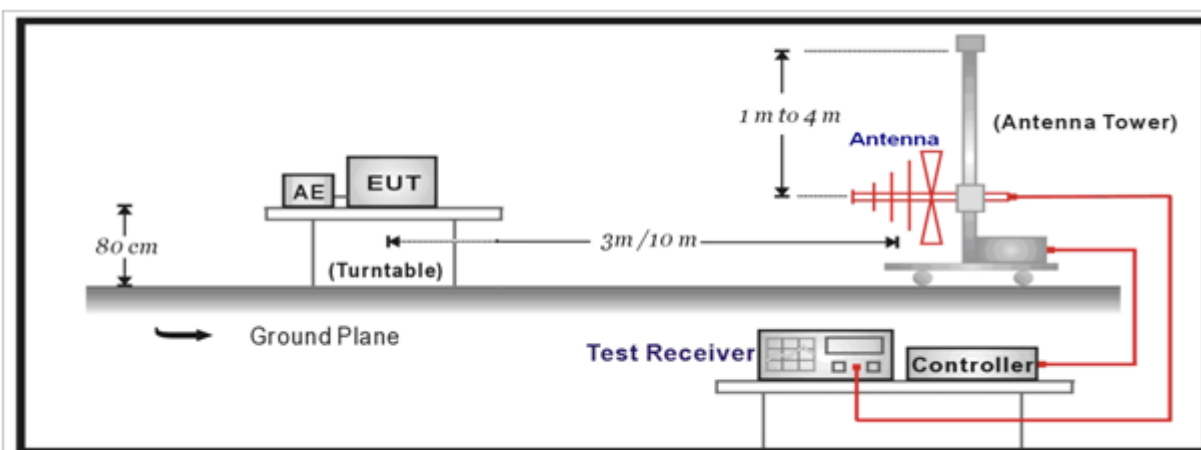
Radiated Emission(Above 1GHz) / AC-5					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2019.01.04	2020.01.03
Preamplifier	Miteq	NSP1800-25	1364185	2018.05.06	2019.05.05
Preamplifier	QuiTek	AP-040G	CHM-0906001	2018.05.06	2019.05.05
DRG Horn	ETS-Lindgren	3117	00123988	2019.01.22	2020.01.21
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2018.11.25	2019.11.24
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2018.03.02	2019.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2018.03.02	2019.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	AC5-C3	2018.03.02	2019.03.01
EMI Receiver	Agilent	N9038A	MY51210196	2018.06.10	2019.06.09
Temperature/Humidity Meter	Zhichen	ZC1-2	AC5-TH	2019.01.04	2020.01.03
Quietek EMI V3(test software)	Quietek	N/A	N/A	N/A	N/A
Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

4.2. Test Setup

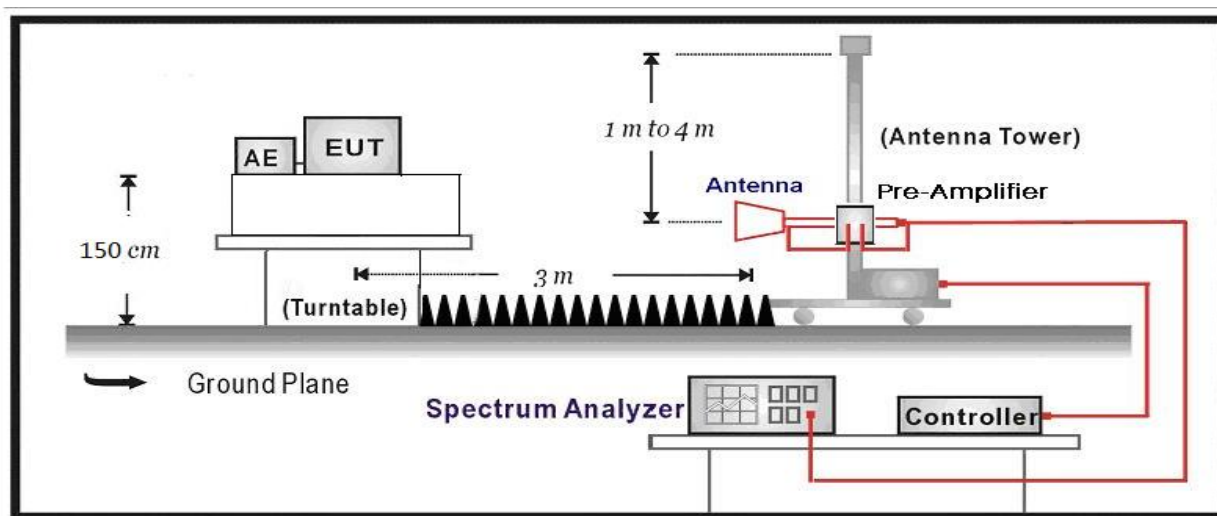
Below 30MHz Test Setup:



30MHz-1GHz Test Setup:



Above 1GHz Test Setup:



4.3. Limit

For FCC:

Restricted Bands of operation			
Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090 – 0.110	16.42 – 16.423	399.9 – 410	4.5 – 5.15
0.495 – 0.505	16.69475 – 16.69525	608 – 614	5.35 – 5.46
2.1735 – 2.1905	16.80425 – 16.80475	960 – 1240	7.25 – 7.75
4.125 – 4.128	25.5 – 25.67	1300 – 1427	8.025 – 8.5
4.17725 – 4.17775	37.5 – 38.25	1435 – 1626.5	9.0 – 9.2
4.20725 – 4.20775	73 – 74.6	1645.5 – 1646.5	9.3 – 9.5
6.215 – 6.218	74.8 – 75.2	1660 – 1710	10.6 – 12.7
6.26775 – 6.26825	108 – 121.94	1718.8 – 1722.2	13.25 – 13.4
6.31175 – 6.31225	123 – 138	2200 – 2300	14.47 – 14.5
8.291 – 8.294	149.9 – 150.05	2310 – 2390	15.35 – 16.2
8.362 – 8.366	156.52475 – 156.52525	2483.5 – 2500	17.7 – 21.4
8.37625 – 8.38675	156.7 – 156.9	2690 – 2900	22.01 – 23.12
8.81425 – 8.81475	162.0125 – 167.17	3260 – 3267	23.6 – 24.0
12.29 – 12.293	167.72 – 173.2	3332 – 3339	31.2 – 31.8
12.51975 – 12.52025	240 – 285	3345.8 – 3358	36.43 – 36.5
12.57675 – 12.57725	322 – 335.4	3600 – 4400	
13.36 – 13.41			

For ISED:

Restricted Bands of operation

Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090-0.110	13.36-13.41	1645.5-1646.5	13.25-13.4
2.1735-2.1905	16.42-16.423	1660-1710	14.47-14.5
3.020-3.026	16.69475-16.69525	1718.8-1722.2	15.35-16.2
4.125-4.128	16.80425-16.80475	2200-2300	17.7-21.4
4.17725-4.17775	25.5-25.67	2310-2390	22.01-23.12
4.20725-4.20775	37.5-38.25	2655-2900	23.6-24.0
5.677-5.683	73-74.6	3260-3267	31.2-31.8
6.215-6.218	74.8-75.2	3332-3339	36.43-36.5
6.26775-6.26825	108-138	3345.8-3358	Above 38.6
6.31175-6.31225	156.52475-156.52525	3500-4400	
8.291-8.294	156.7-156.9	4500-5150	
8.362-8.366	240-285	5350-5460	
8.37625-8.38675	322-335.4	7250-7750	
8.41425-8.41475	399.9-410	8025-8500	
12.29-12.293	608-614	9.0-9.2	
12.51975-12.52025	960-1427	9.3-9.5	
12.57675-12.57725	1435-1626.5	10.6-12.7	

Restricted Band Emissions Limit			
Frequency (MHz)	Field strength (μ V/m)	Field strength (dB μ V/m)	Measurement distance (m)
0.009 - 0.49	2400/F(kHz)	48.5 – 13.8	300 _(Note 1)
0.49 - 1.705	24000/F(kHz)	33.8 - 23	30 _(Note 1)
1.705 - 30	30	29.5	30 _(Note 1)
30 - 88	100	40	3 _(Note 2)
88 - 216	150	43.5	3 _(Note 2)
216 - 960	200	46	3 _(Note 2)
Above 960	500	54	3 _(Note 2)

Note 1: At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade).

Note 2: At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated that the signal levels needed to be measured at the distance employed can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 meters unless it can be further demonstrated that measurements at a distance of 30 meters or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements).

4.4. Test Procedure

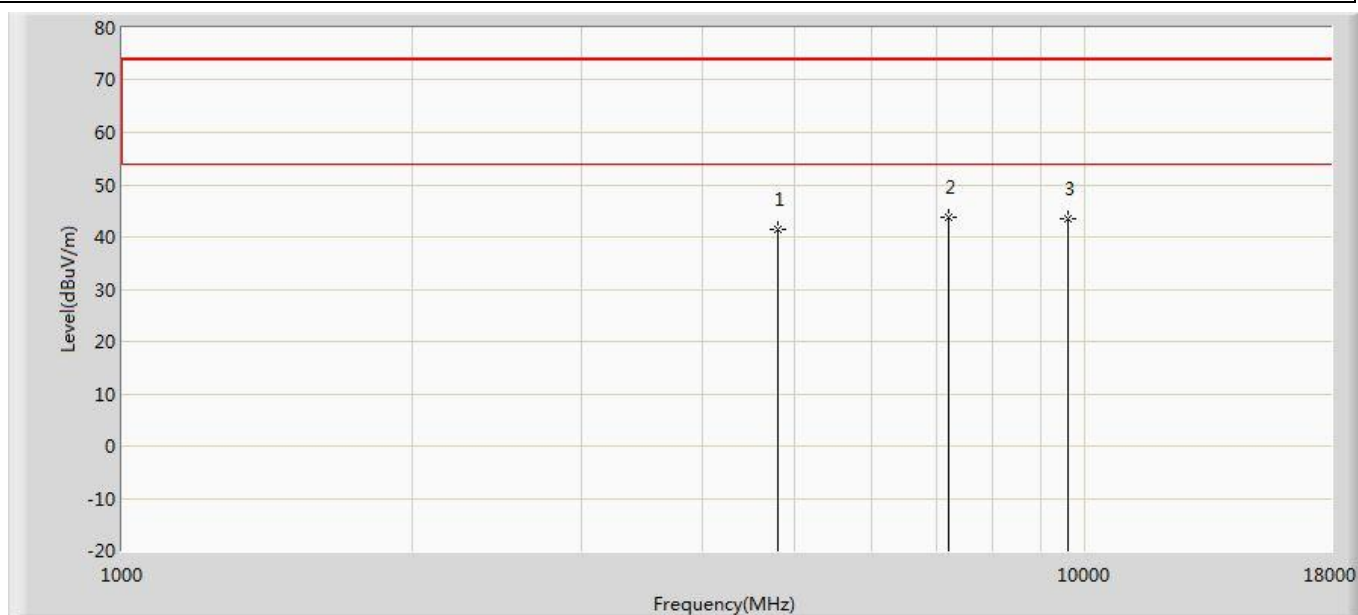
Test Method			
	References Rule	Chapter	Description
☒	ANSI C63.10	6.4	Radiated emissions from unlicensed wireless devices below 30 MHz
☒	ANSI C63.10	6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz
☒	ANSI C63.10	6.6	Radiated emissions from unlicensed wireless devices above 1 GHz

4.5. Uncertainty

The measurement uncertainty above 1G is defined as ± 3.9 dB
below 1G is defined as ± 3.8 dB

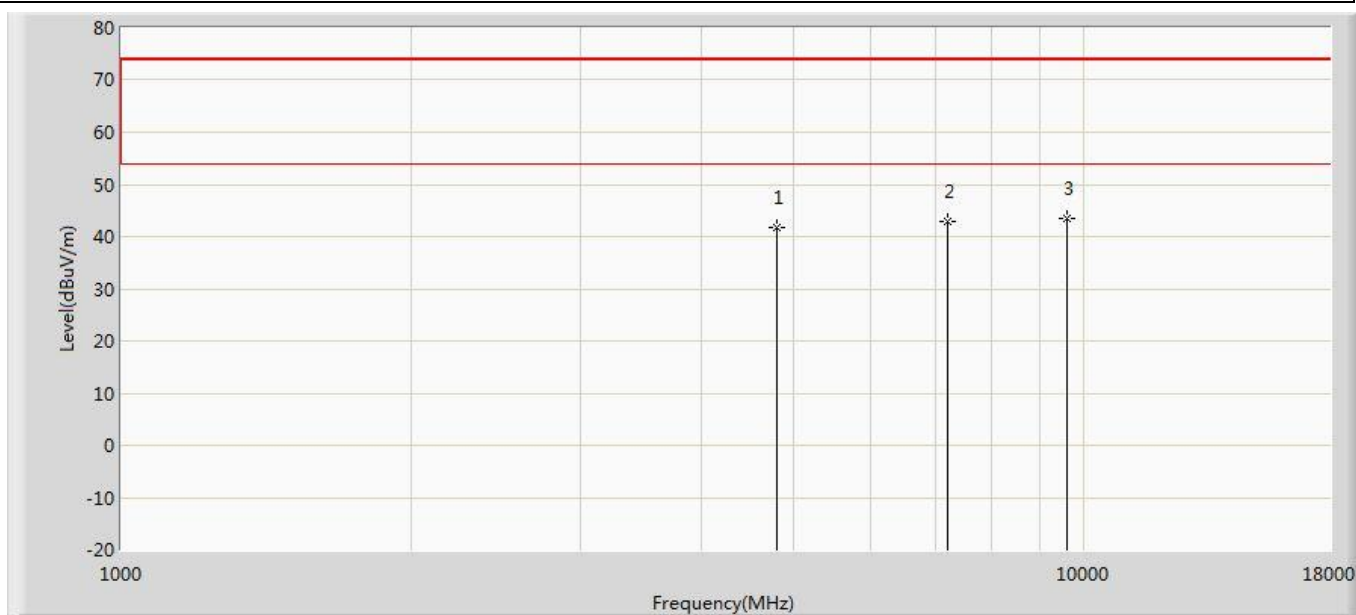
4.6. Test Result

Profile: 1912068R	Page No.: 71
Engineer: Tommie	
Site: AC5	Time: 2019/01/23 - 02:32
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 1: Transmit at 2402MHz by DH5	



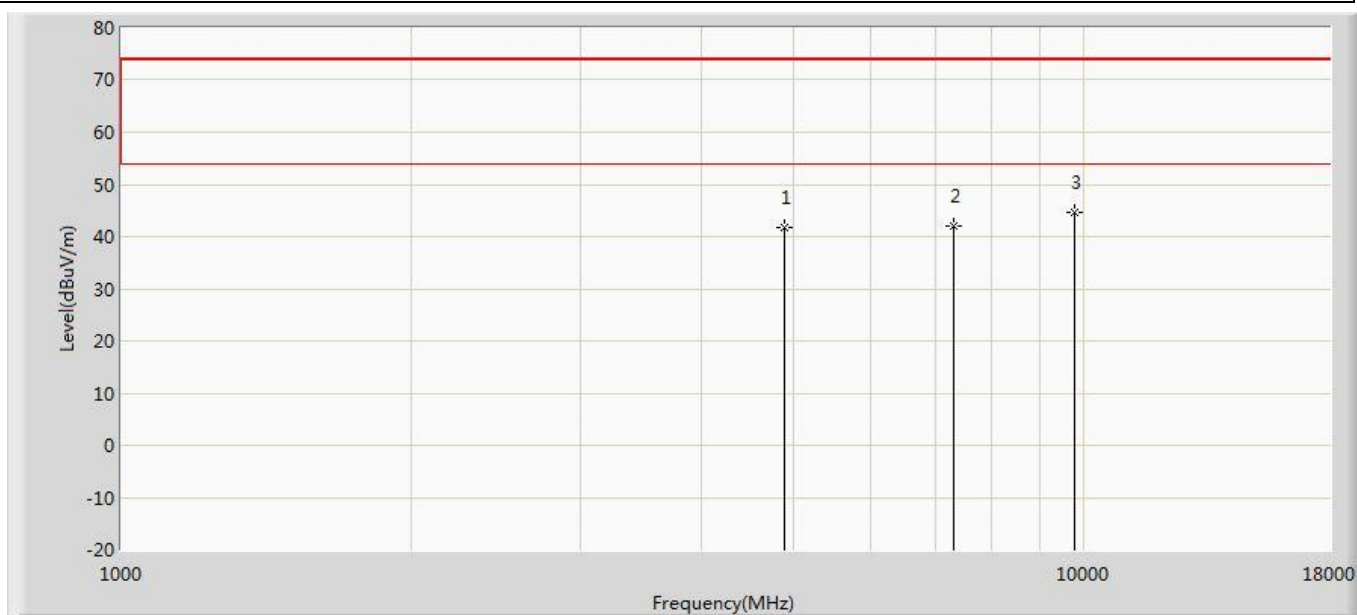
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	41.553	43.276	-32.447	74.000	-1.723	PK
2	*	7206.000	43.897	41.978	-30.103	74.000	1.919	PK
3		9608.000	43.520	38.621	-30.480	74.000	4.899	PK

Profile: 1912068R	Page No.: 72
Engineer: Tommie	
Site: AC5	Time: 2019/01/23 - 02:32
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 1: Transmit at 2402MHz by DH5	



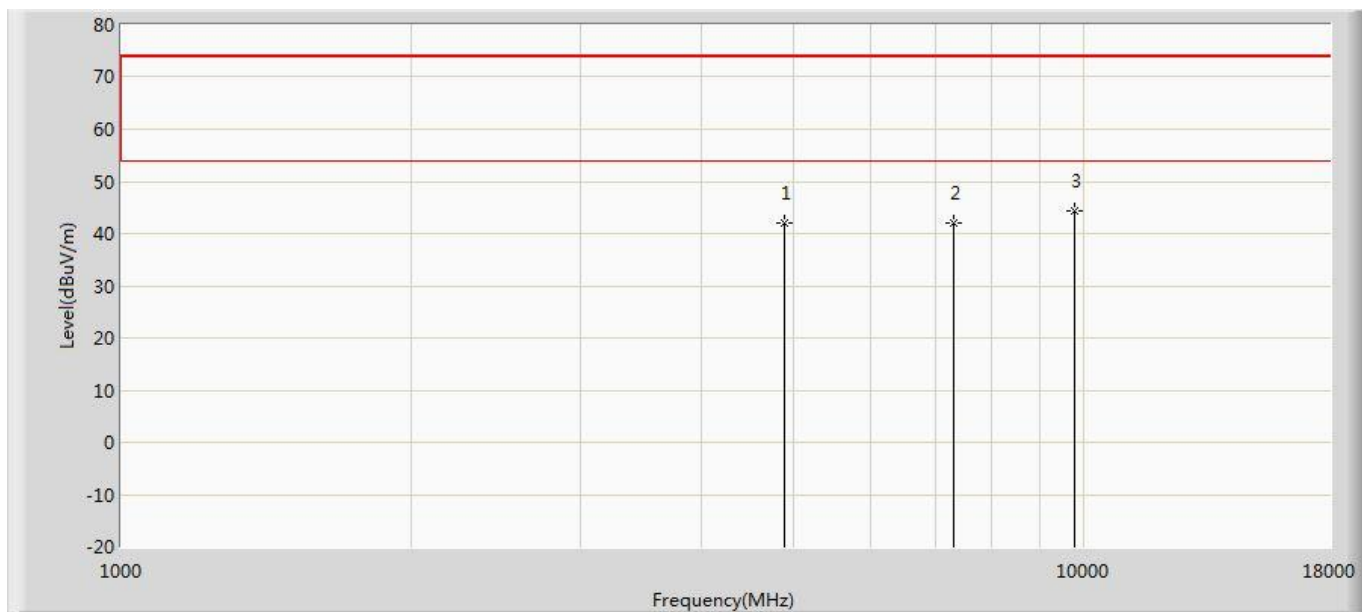
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	41.676	43.399	-32.324	74.000	-1.723	PK
2		7206.000	42.896	40.977	-31.104	74.000	1.919	PK
3	*	9608.000	43.387	38.488	-30.613	74.000	4.899	PK

Profile: 1912068R	Page No.: 73
Engineer: Tommie	
Site: AC5	Time: 2019/01/23 - 02:32
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 1: Transmit at 2441MHz by DH5	



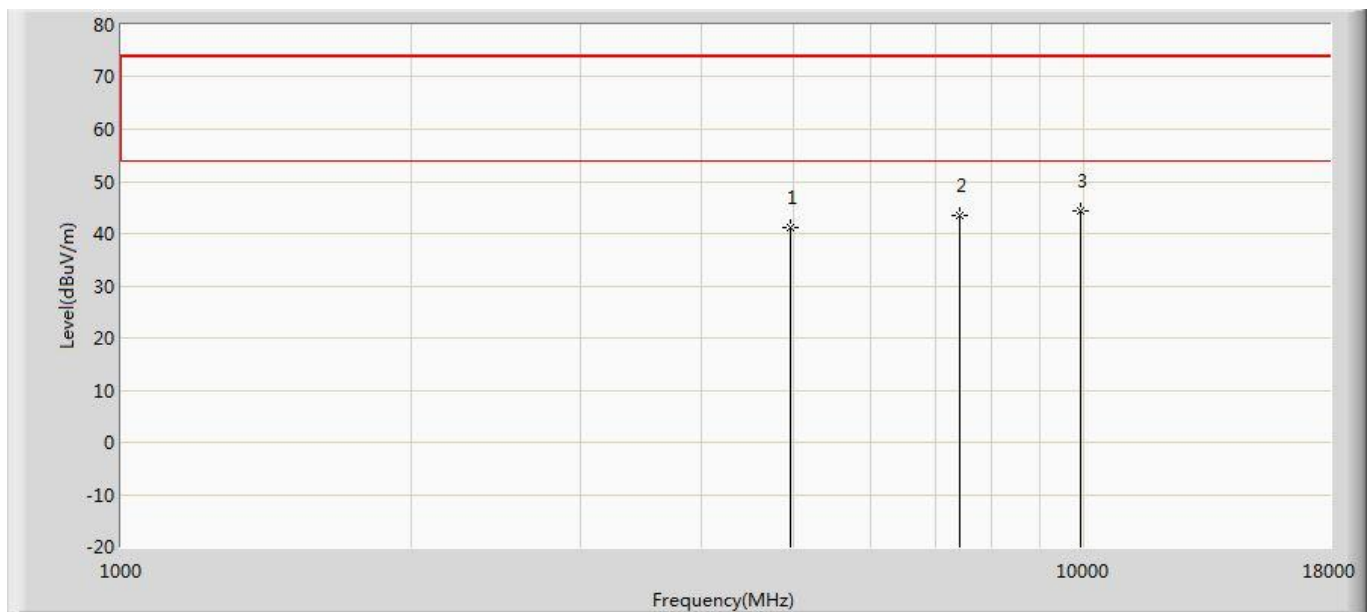
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	41.779	43.096	-32.221	74.000	-1.317	PK
2		7323.000	41.911	40.003	-32.089	74.000	1.909	PK
3	*	9764.000	44.756	38.756	-29.244	74.000	6.001	PK

Profile: 1912068R	Page No.: 74
Engineer: Tommie	
Site: AC5	Time: 2019/01/23 - 02:32
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 1:Transmit at 2441MHz by DH5	



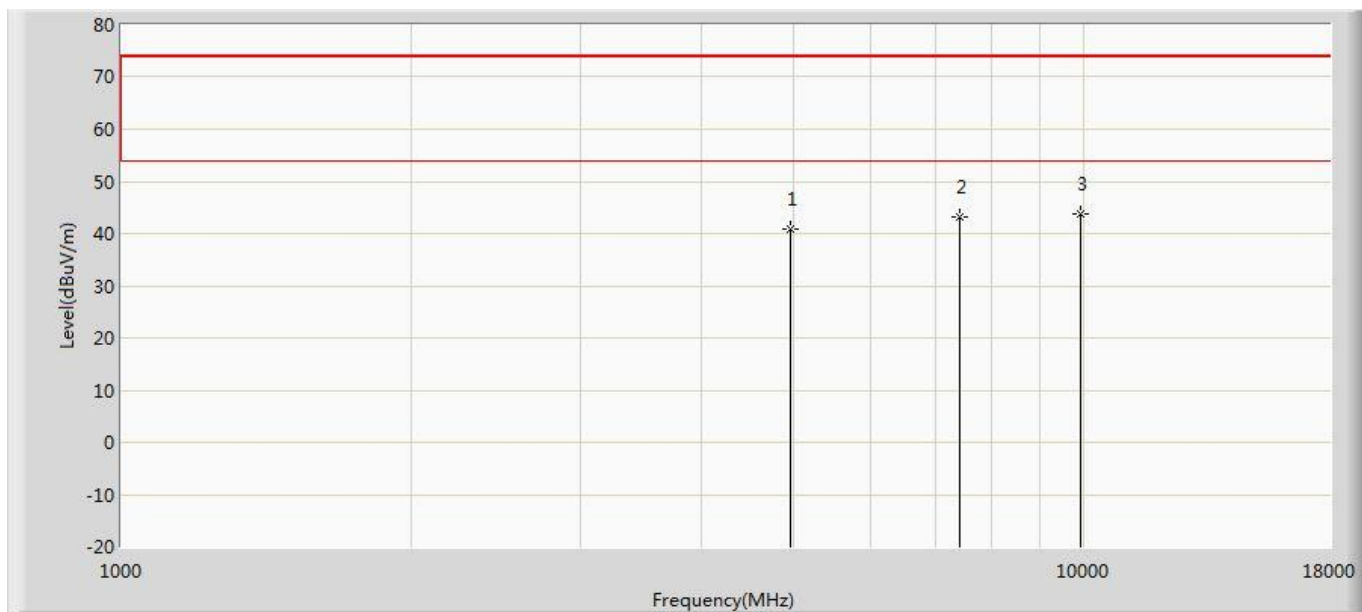
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	42.083	43.400	-31.917	74.000	-1.317	PK
2		7323.000	42.155	40.247	-31.845	74.000	1.909	PK
3	*	9764.000	44.325	38.325	-29.675	74.000	6.001	PK

Profile: 1912068R	Page No.: 75
Engineer: Tommie	
Site: AC5	Time: 2019/01/23 - 02:32
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 1:Transmit at 2480MHz by DH5	



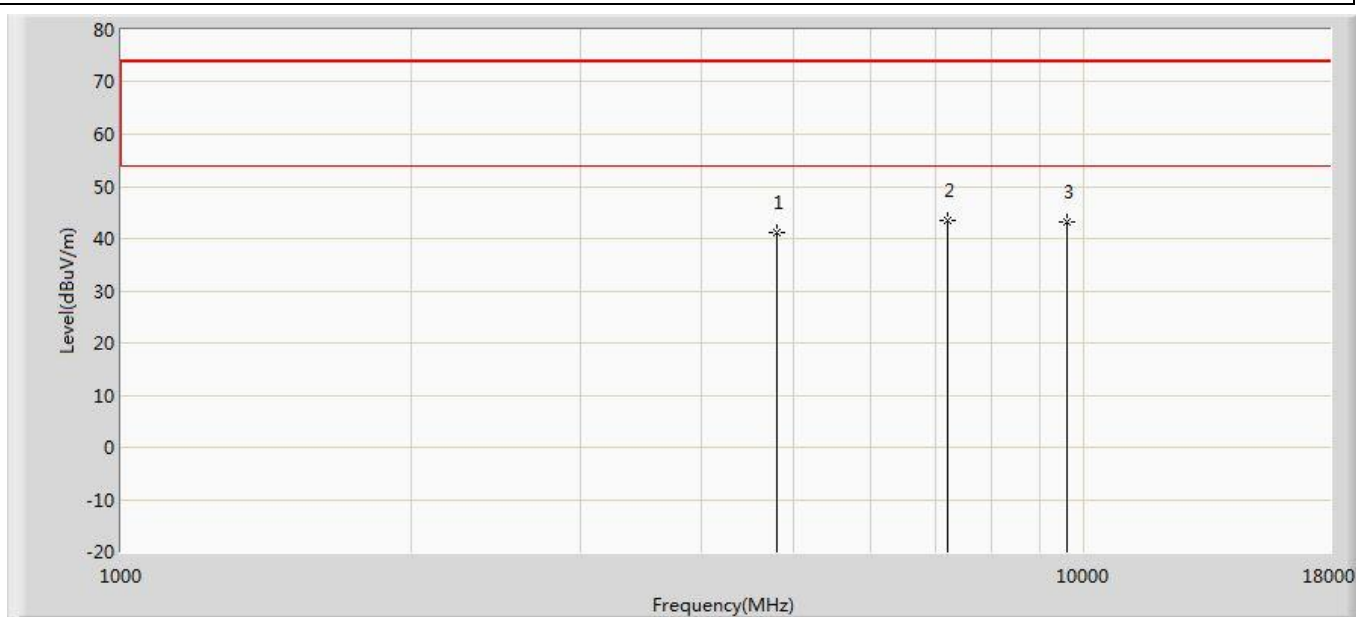
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	41.048	42.196	-32.952	74.000	-1.148	PK
2		7440.000	43.608	41.182	-30.392	74.000	2.426	PK
3	*	9920.000	44.415	39.161	-29.585	74.000	5.253	PK

Profile: 1912068R	Page No.: 76
Engineer: Tommie	
Site: AC5	Time: 2019/01/23 - 02:32
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 1:Transmit at 2480MHz by DH5	



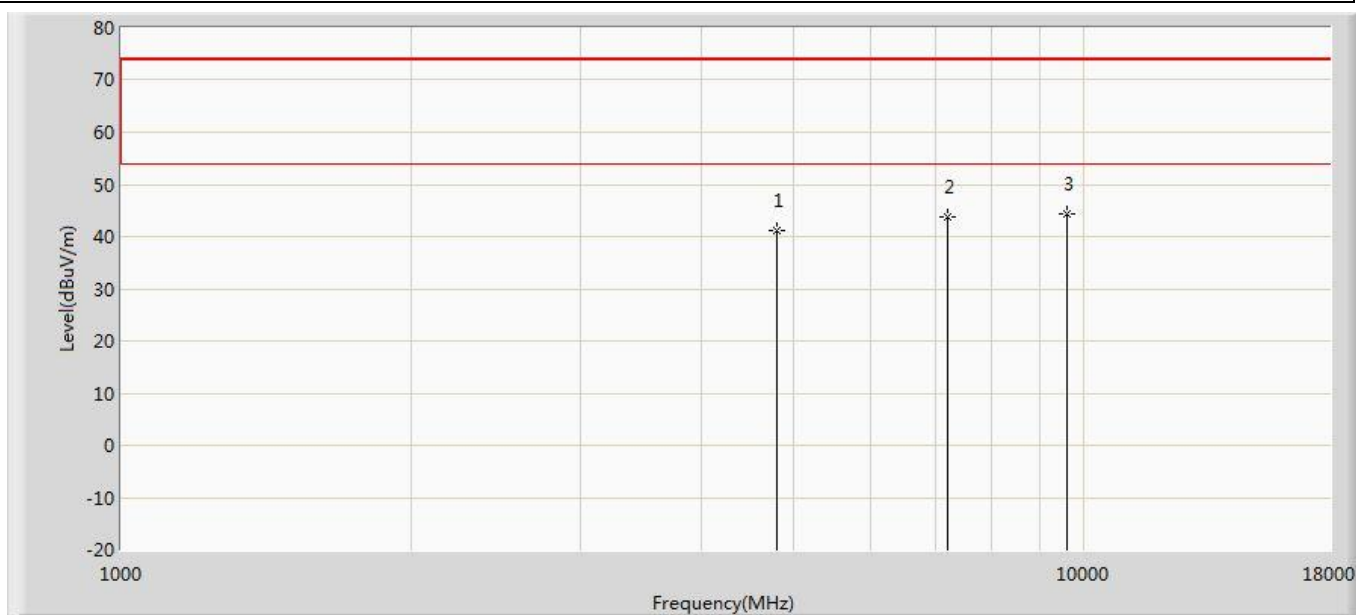
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	40.827	41.975	-33.173	74.000	-1.148	PK
2		7440.000	43.219	40.793	-30.781	74.000	2.426	PK
3	*	9920.000	43.803	38.549	-30.197	74.000	5.253	PK

Profile: 1912068R	Page No.: 77
Engineer: Tommie	
Site: AC5	Time: 2019/01/23 - 02:32
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 2:Transmit at 2402MHz by 2DH5	



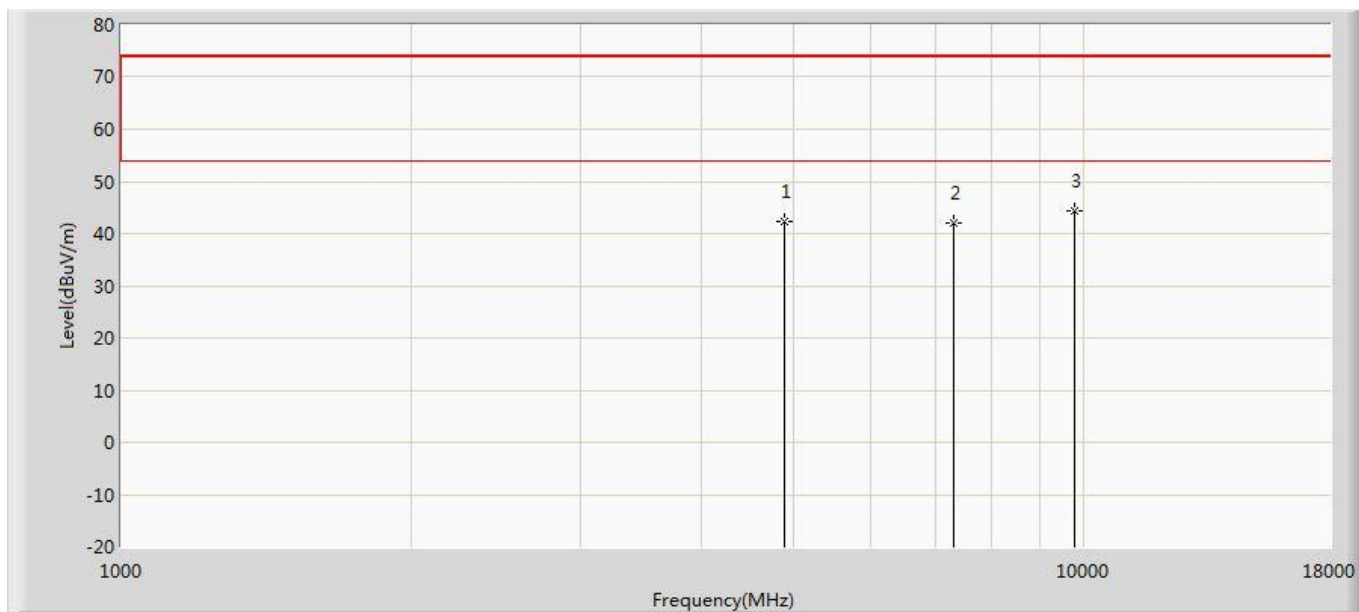
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	41.051	42.774	-32.949	74.000	-1.723	PK
2	*	7206.000	43.339	41.420	-30.661	74.000	1.919	PK
3		9608.000	43.203	38.304	-30.797	74.000	4.899	PK

Profile: 1912068R	Page No.: 78
Engineer: Tommie	
Site: AC5	Time: 2019/01/23 - 02:33
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 2:Transmit at 2402MHz by 2DH5	



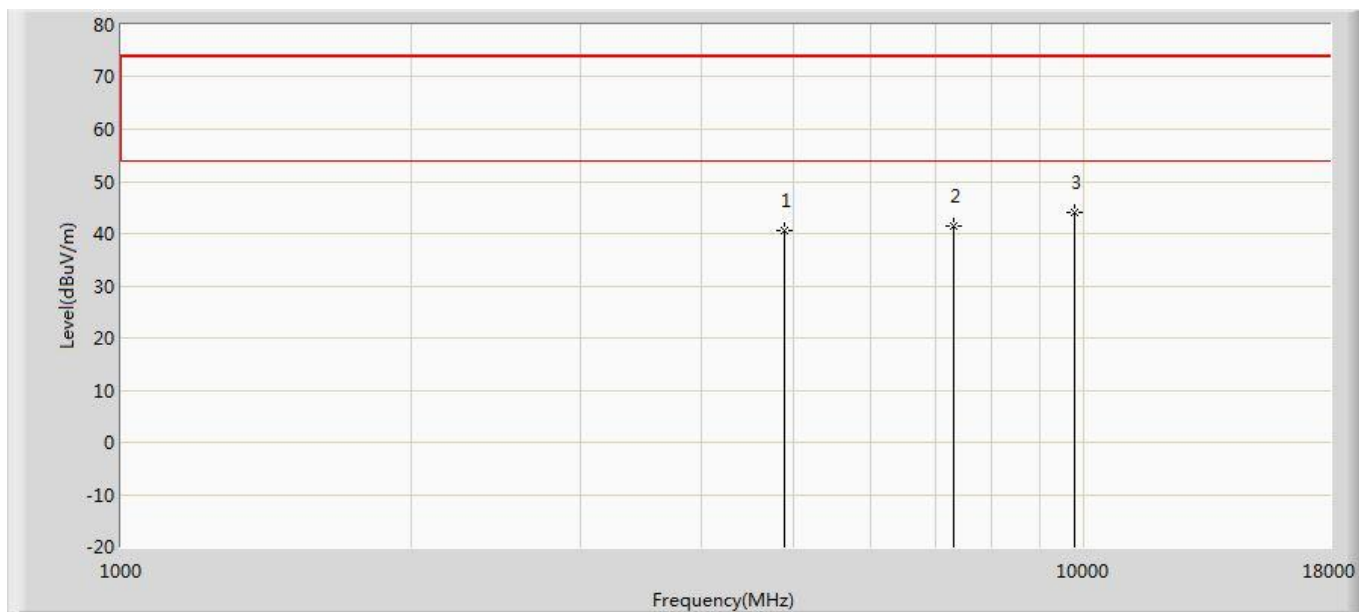
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	41.180	42.903	-32.820	74.000	-1.723	PK
2		7206.000	43.703	41.784	-30.297	74.000	1.919	PK
3	*	9608.000	44.205	39.306	-29.795	74.000	4.899	PK

Profile: 1912068R	Page No.: 79
Engineer: Tommie	
Site: AC5	Time: 2019/01/23 - 02:33
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 2:Transmit at 2441MHz by 2DH5	



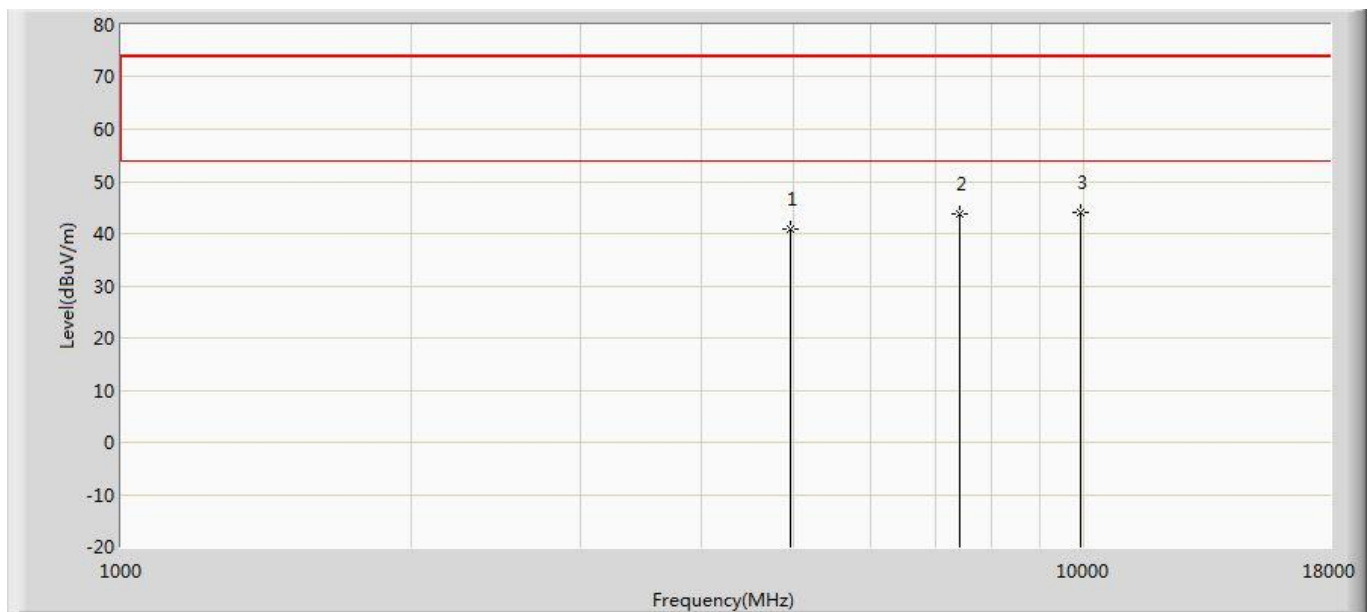
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	42.199	43.516	-31.801	74.000	-1.317	PK
2		7323.000	42.080	40.172	-31.920	74.000	1.909	PK
3	*	9764.000	44.301	38.301	-29.699	74.000	6.001	PK

Profile: 1912068R	Page No.: 80
Engineer: Tommie	
Site: AC5	Time: 2019/01/23 - 02:33
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 2:Transmit at 2441MHz by 2DH5	



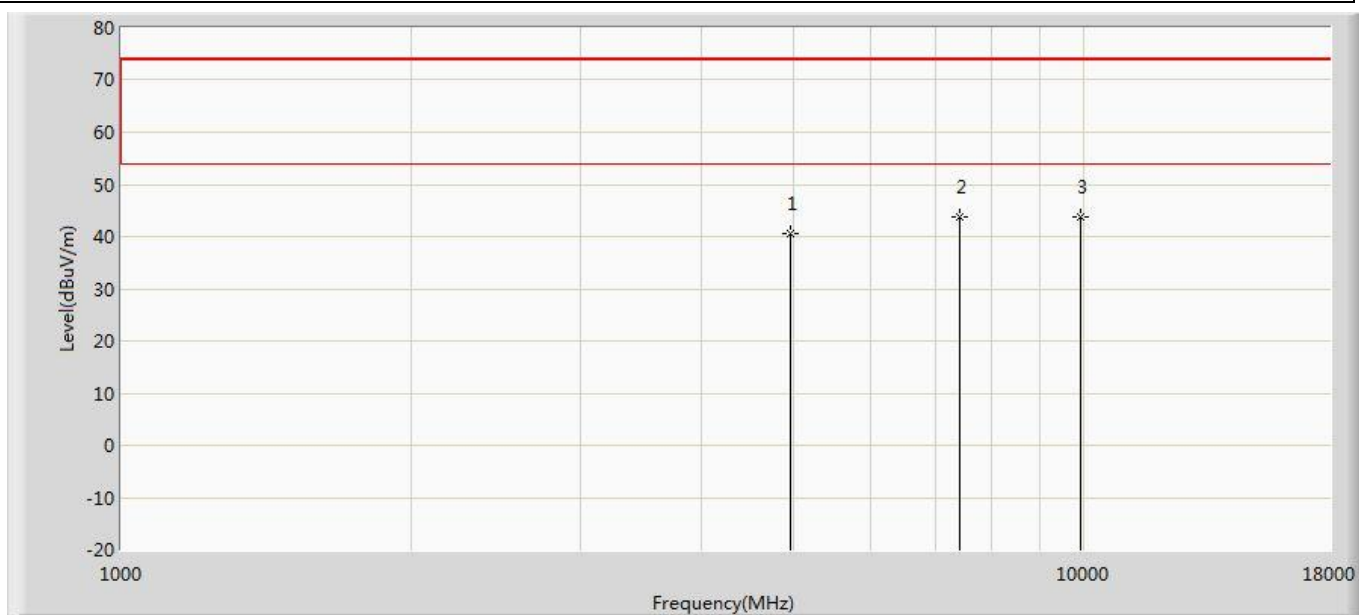
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	40.647	41.964	-33.353	74.000	-1.317	PK
2		7323.000	41.405	39.497	-32.595	74.000	1.909	PK
3	*	9764.000	44.123	38.123	-29.877	74.000	6.001	PK

Profile: 1912068R	Page No.: 81
Engineer: Tommie	
Site: AC5	Time: 2019/01/23 - 02:33
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 2:Transmit at 2480MHz by 2DH5	



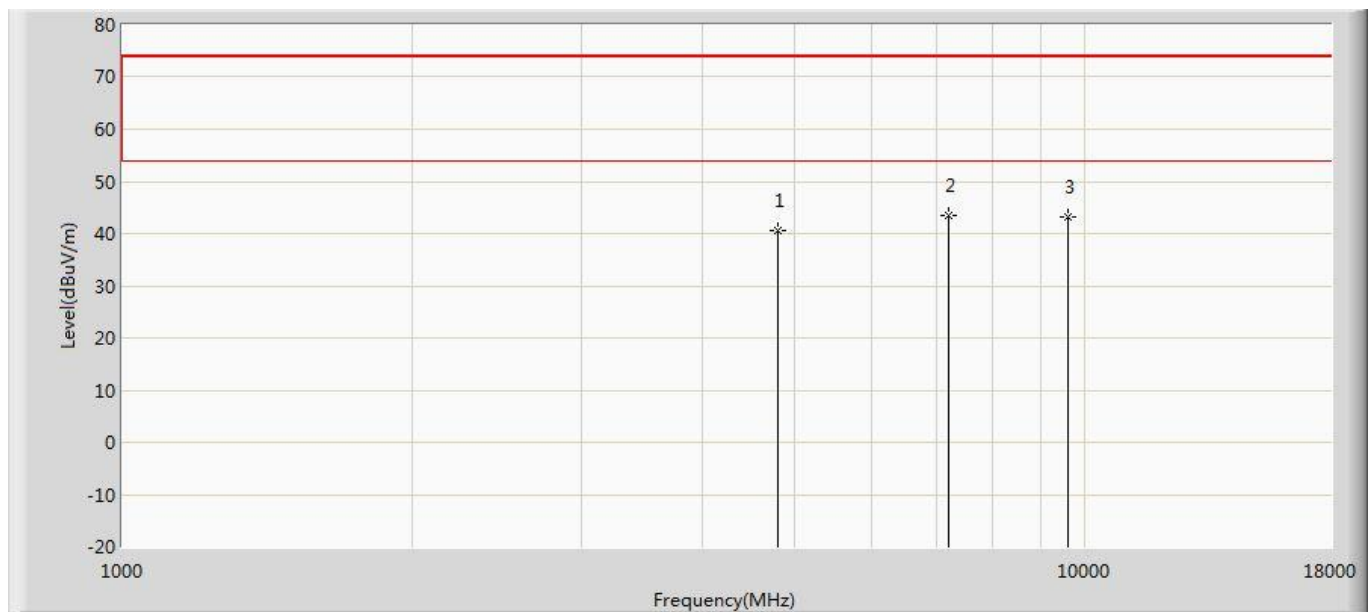
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	40.831	41.979	-33.169	74.000	-1.148	PK
2		7440.000	43.724	41.298	-30.276	74.000	2.426	PK
3	*	9920.000	44.129	38.875	-29.871	74.000	5.253	PK

Profile: 1912068R	Page No.: 82
Engineer: Tommie	
Site: AC5	Time: 2019/01/23 - 02:33
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 2:Transmit at 2480MHz by 2DH5	



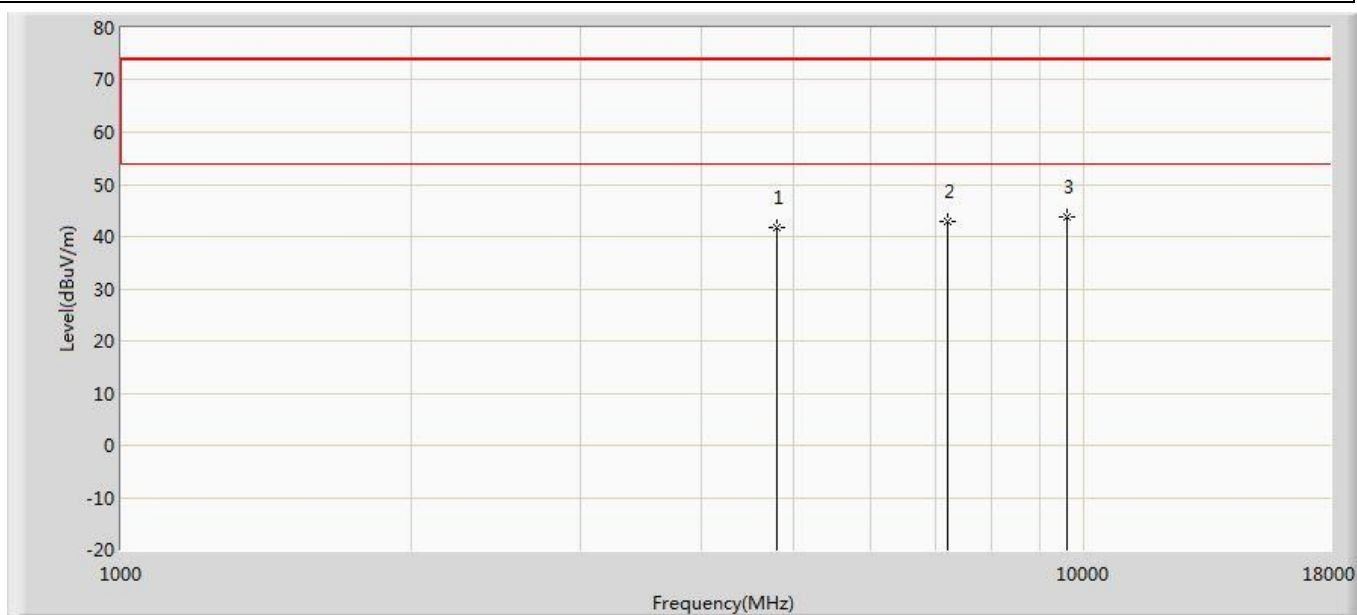
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	40.688	41.836	-33.312	74.000	-1.148	PK
2	*	7440.000	43.853	41.427	-30.147	74.000	2.426	PK
3		9920.000	43.717	38.463	-30.283	74.000	5.253	PK

Profile: 1912068R	Page No.: 83
Engineer: Tommie	
Site: AC5	Time: 2019/01/23 - 02:33
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 3:Transmit at 2402MHz by 3DH5	



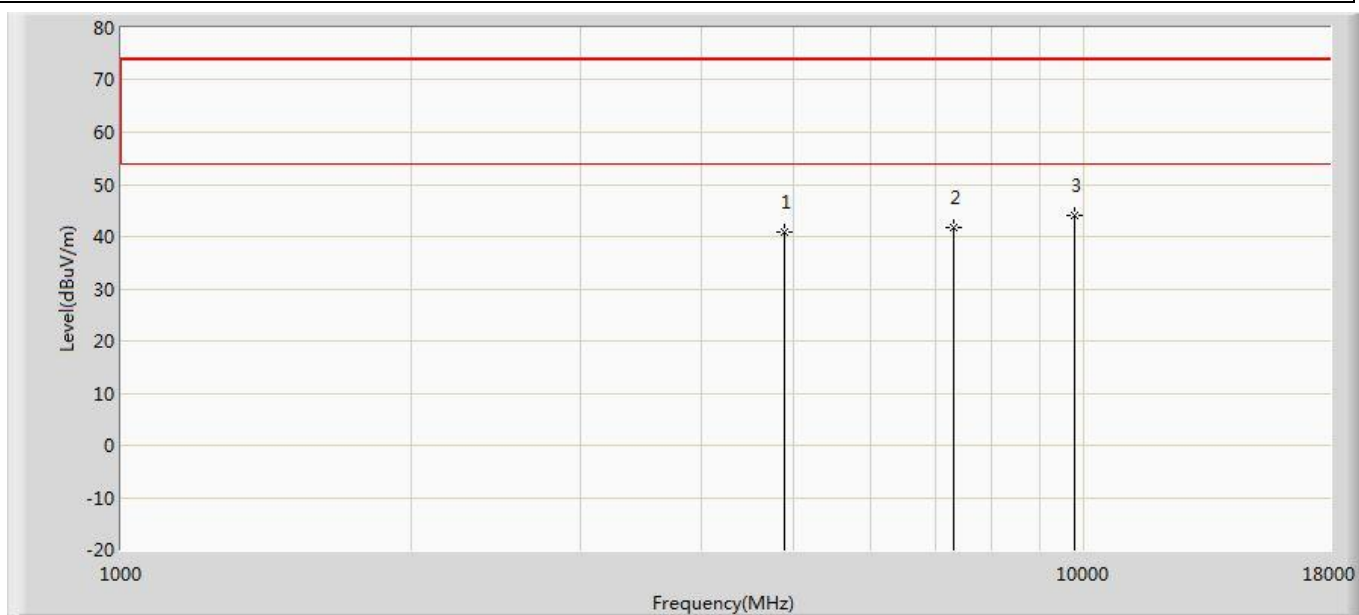
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	40.715	42.438	-33.285	74.000	-1.723	PK
2	*	7206.000	43.424	41.505	-30.576	74.000	1.919	PK
3		9608.000	43.121	38.222	-30.879	74.000	4.899	PK

Profile: 1912068R	Page No.: 84
Engineer: Tommie	
Site: AC5	Time: 2019/01/23 - 02:33
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 3:Transmit at 2402MHz by 3DH5	



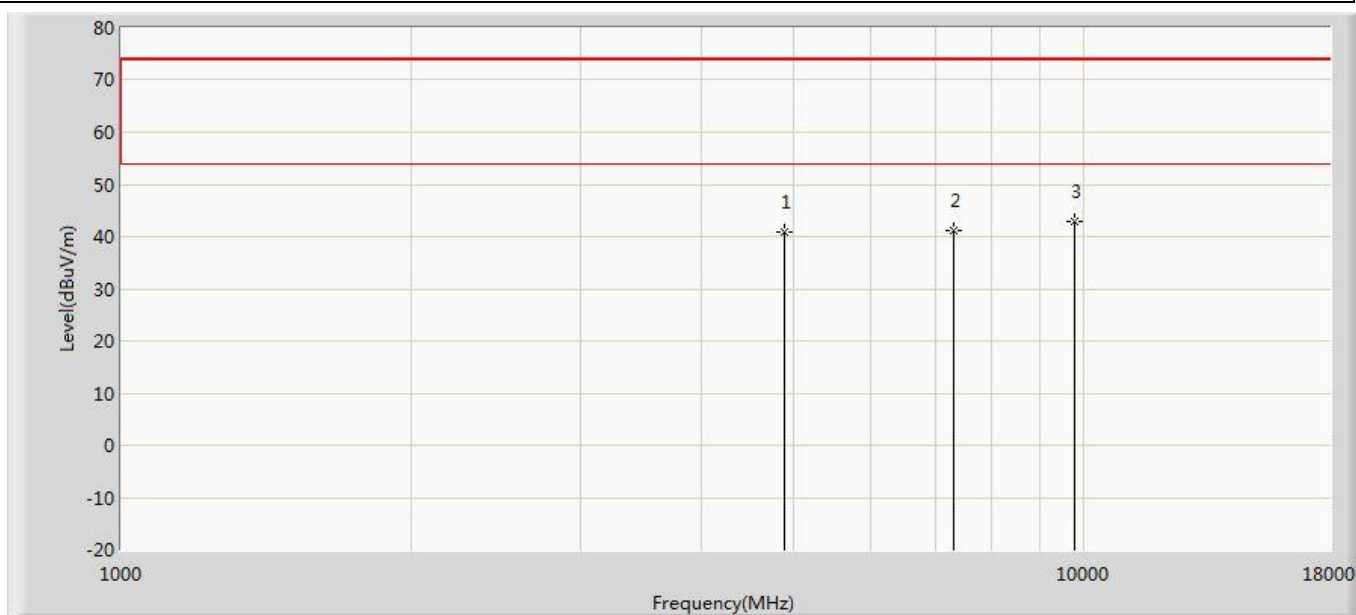
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	41.725	43.448	-32.275	74.000	-1.723	PK
2		7206.000	42.938	41.019	-31.062	74.000	1.919	PK
3	*	9608.000	43.828	38.929	-30.172	74.000	4.899	PK

Profile: 1912068R	Page No.: 85
Engineer: Tommie	
Site: AC5	Time: 2019/01/23 - 02:33
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 3:Transmit at 2441MHz by 3DH5	



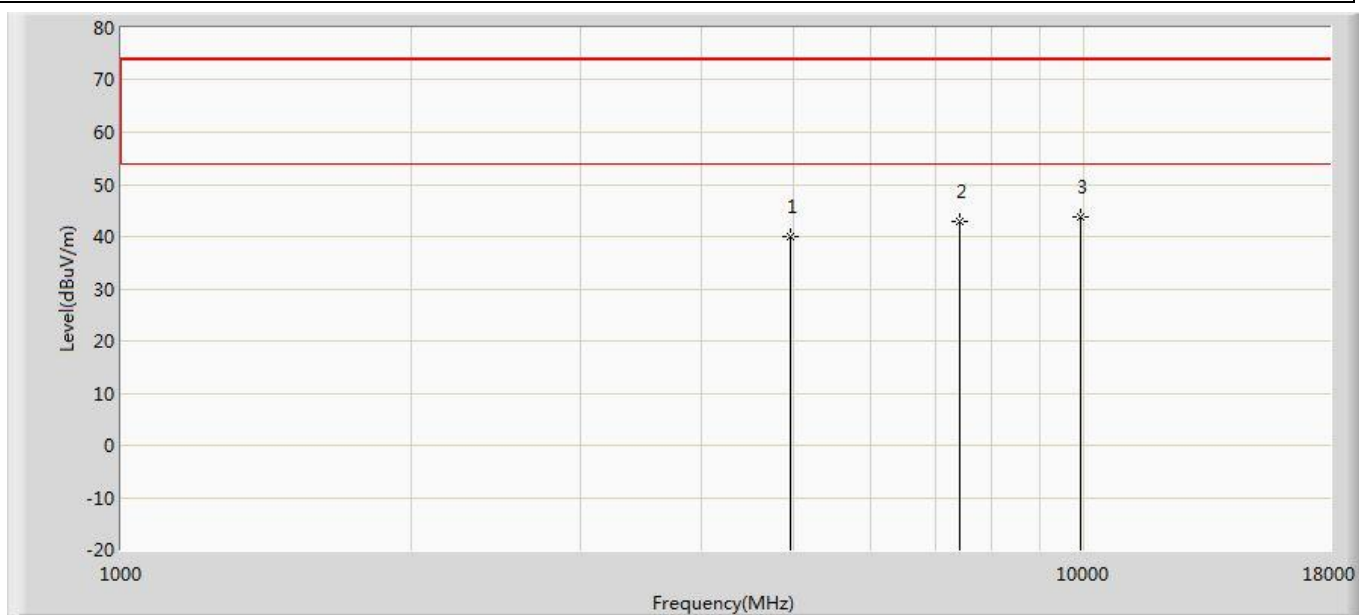
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	40.873	42.190	-33.127	74.000	-1.317	PK
2		7323.000	41.873	39.965	-32.127	74.000	1.909	PK
3	*	9764.000	43.937	37.937	-30.063	74.000	6.001	PK

Profile: 1912068R	Page No.: 86
Engineer: Tommie	
Site: AC5	Time: 2019/01/23 - 02:33
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 3:Transmit at 2441MHz by 3DH5	



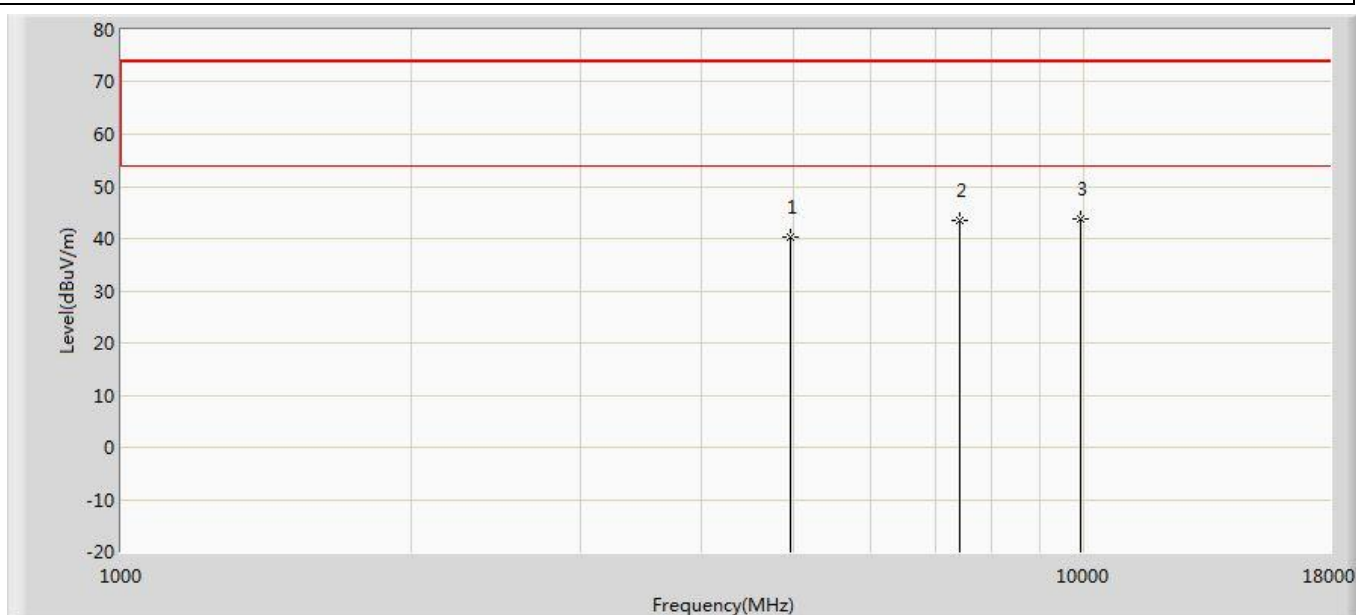
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	40.996	42.313	-33.004	74.000	-1.317	PK
2		7323.000	41.139	39.231	-32.861	74.000	1.909	PK
3	*	9764.000	42.952	36.952	-31.048	74.000	6.001	PK

Profile: 1912068R	Page No.: 87
Engineer: Tommie	
Site: AC5	Time: 2019/01/23 - 02:33
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 3:Transmit at 2480MHz by 3DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	39.914	41.062	-34.086	74.000	-1.148	PK
2		7440.000	42.995	40.569	-31.005	74.000	2.426	PK
3	*	9920.000	43.663	38.409	-30.337	74.000	5.253	PK

Profile: 1912068R	Page No.: 88
Engineer: Tommie	
Site: AC5	Time: 2019/01/23 - 02:34
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 3:Transmit at 2480MHz by 3DH5	



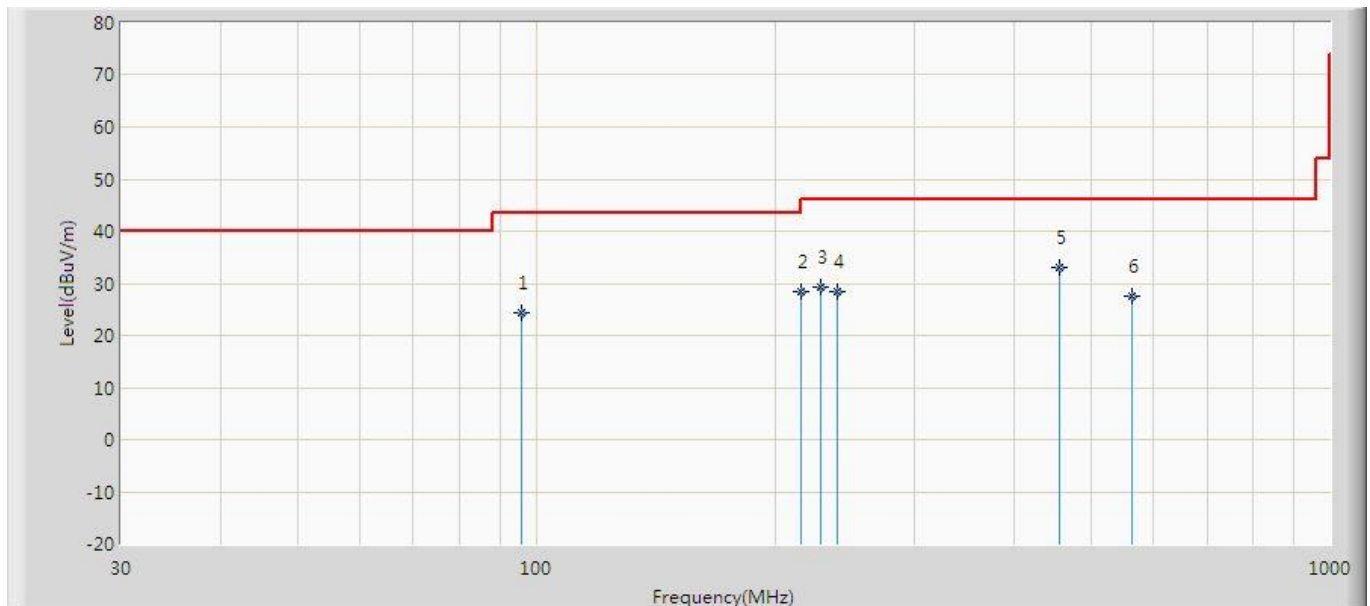
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	40.387	41.535	-33.613	74.000	-1.148	PK
2		7440.000	43.536	41.110	-30.464	74.000	2.426	PK
3	*	9920.000	43.827	38.573	-30.173	74.000	5.253	PK

Note:

1. Measured Level = Reading Level + Factor.
2. The test frequency range, 9kHz~30MHz, 18GHz~26GHz, both of the worst case are at least 20dB below the limits, therefore no data appear in the report.
3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.
4. As the radiated emission was performed, so conducted emission was not tested.

The worst case of Radiated Emission below 1GHz:

Site: AC3	Time: 2019/01/22 - 23:13
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC3_3m (30-1000MHz)	Polarity: Horizontal
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 1: Transmit	

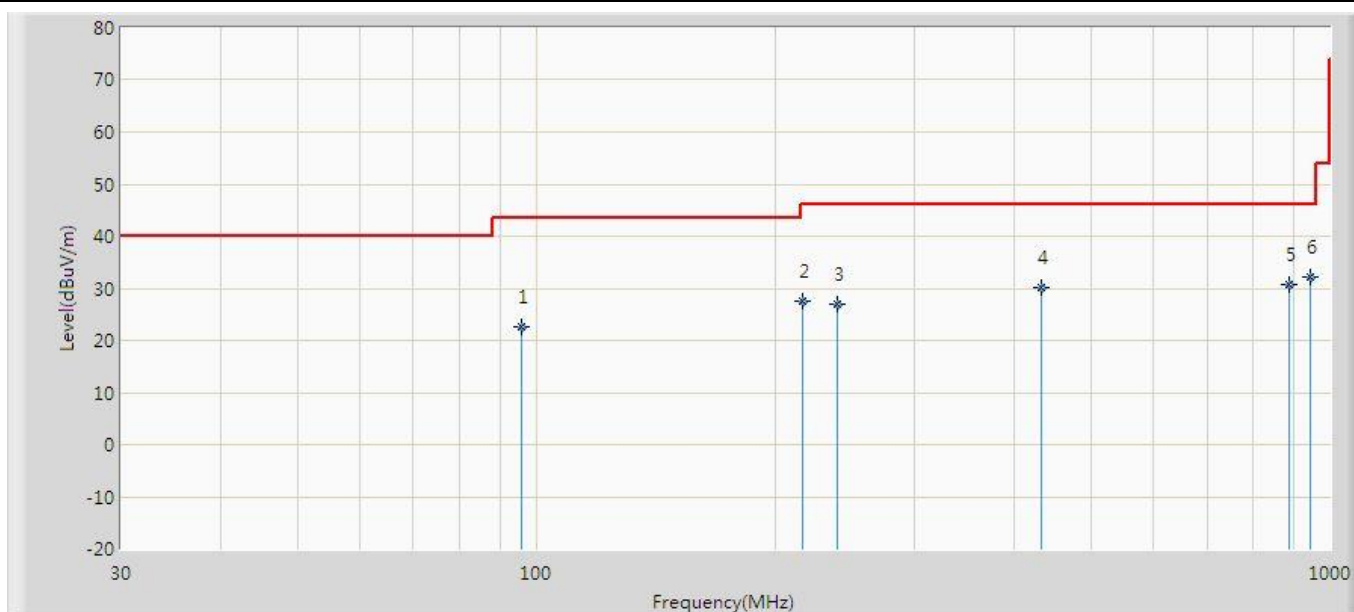


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		95.960	24.352	9.400	-19.148	43.500	14.952	QP
2		215.997	28.468	11.100	-15.032	43.500	17.367	QP
3		227.880	29.420	10.800	-16.580	46.000	18.620	QP
4		240.005	28.355	10.900	-17.645	46.000	17.455	QP
5	*	455.830	32.939	5.900	-13.061	46.000	27.039	QP
6		564.106	27.629	0.300	-18.371	46.000	27.329	QP

Note:

1. " * ", means this data is the worst emission level.
2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

Site: AC3	Time: 2019/01/22 - 23:13
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC3_3m (30-1000MHz)	Polarity: Vertical
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 1: Transmit	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		95.960	22.682	2.200	-20.818	43.500	20.482	QP
2		216.240	27.441	4.700	-18.559	46.000	22.741	QP
3		240.005	27.050	3.800	-18.950	46.000	23.251	QP
4		432.460	30.232	5.400	-15.768	46.000	24.833	QP
5		889.662	30.651	-2.700	-15.349	46.000	33.351	QP
6	*	946.044	32.293	-2.300	-13.707	46.000	34.594	QP

Note:

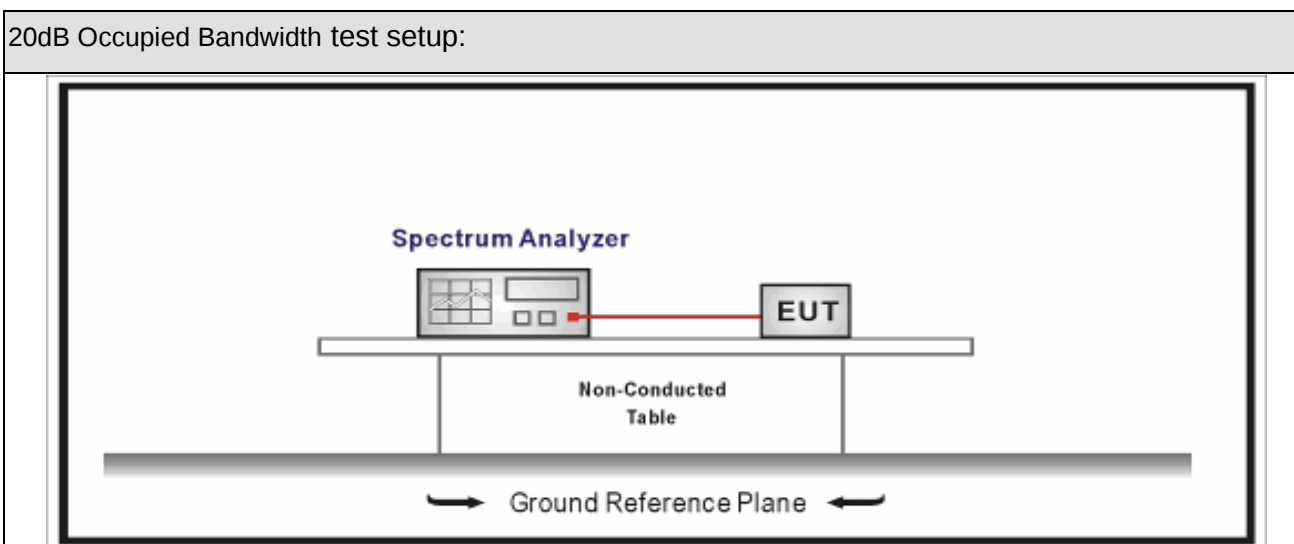
1. " * ", means this data is the worst emission level.
2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

5. 20dB Bandwidth

5.1 Test Equipment

20dB Occupied Bandwidth / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2019.02.04	2020.02.03
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2018.04.09	2019.04.08
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2018.04.09	2019.04.08
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2018.04.10	2019.04.09
Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

5.2 Test Setup



5.3 Limit

Carrier Frequency Separation	
☒	For frequency hopping systems operating in 2400-2483.5 MHz band, within frequency range.
☐	For frequency hopping systems operating in 902-928 MHz band, the maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.
☐	For frequency hopping systems operating in 5725-5850 MHz band, the maximum 20 dB bandwidth of the hopping channel is 1 MHz.

5.4 Test Procedure

Test Method			
	References Rule	Chapter	Description
☒	ANSI C63.10	6.9.2	Occupied bandwidth tests

5.5 Uncertainty

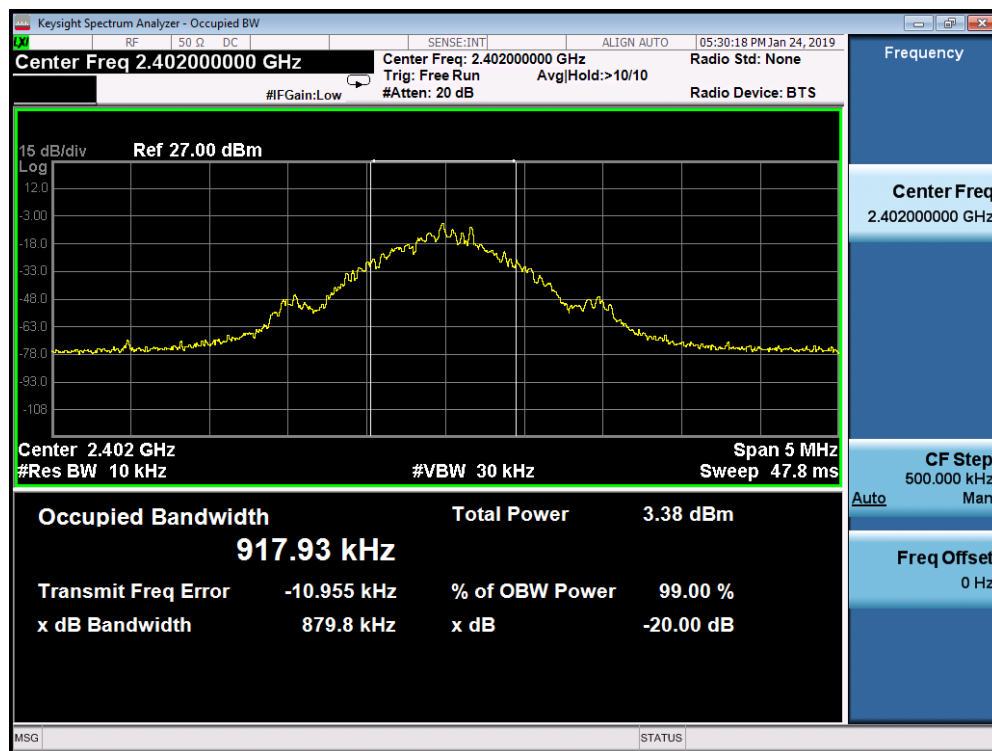
The measurement uncertainty is defined as ± 1 kHz

5.6 Test Result

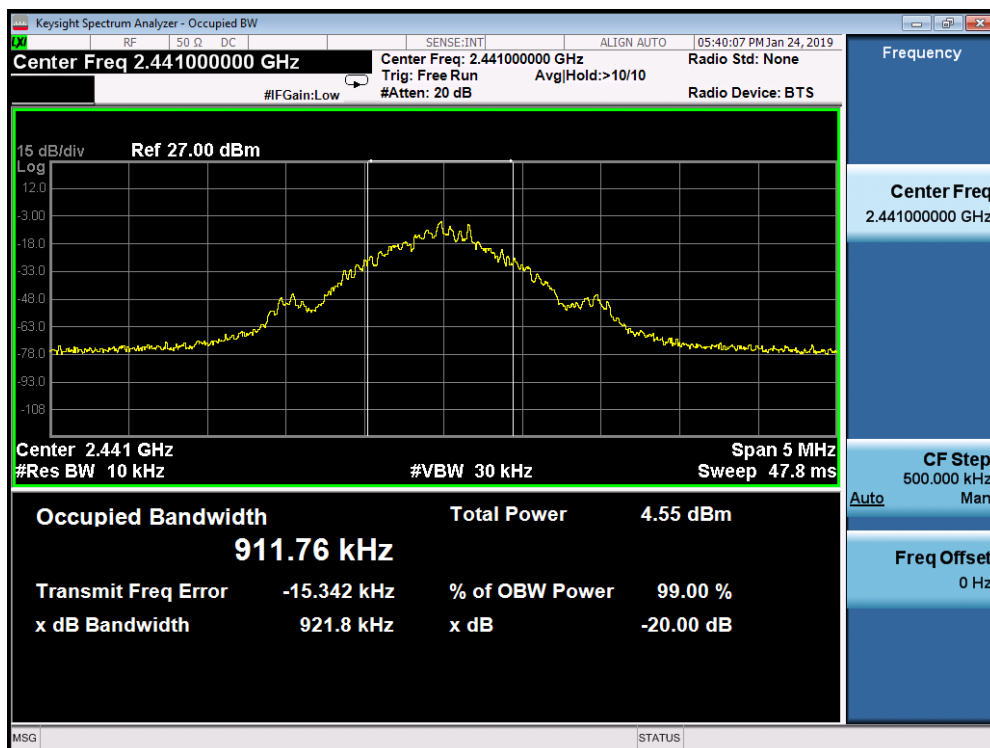
Product Name	: 2620011024000	Test Voltage	: 3 Vdc
Test Mode	: Mode 1	Test Site	: TR-8
Test Date	: 2019.01.24	Test Engineer	: Simon

Channel No.	Frequency (MHz)	20dB Bandwidth (kHz)	99% Bandwidth (kHz)
00	2402	879.8	917.93
39	2441	921.8	911.76
78	2480	919.8	908.62

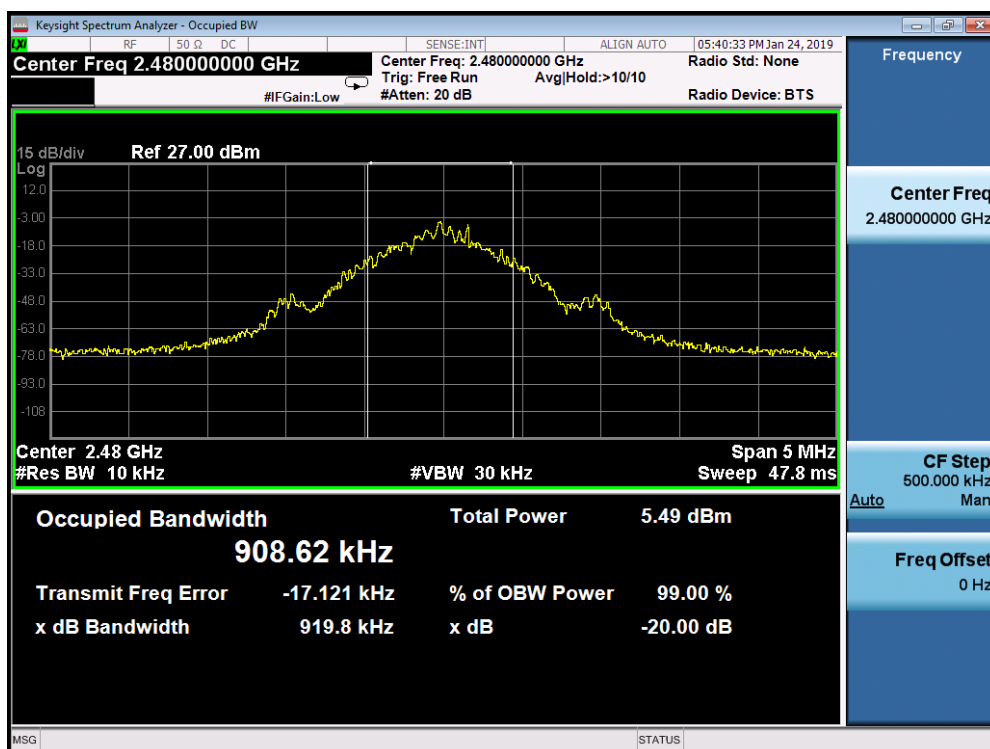
Channel 00 (2402MHz)



Channel 39 (2441MHz)



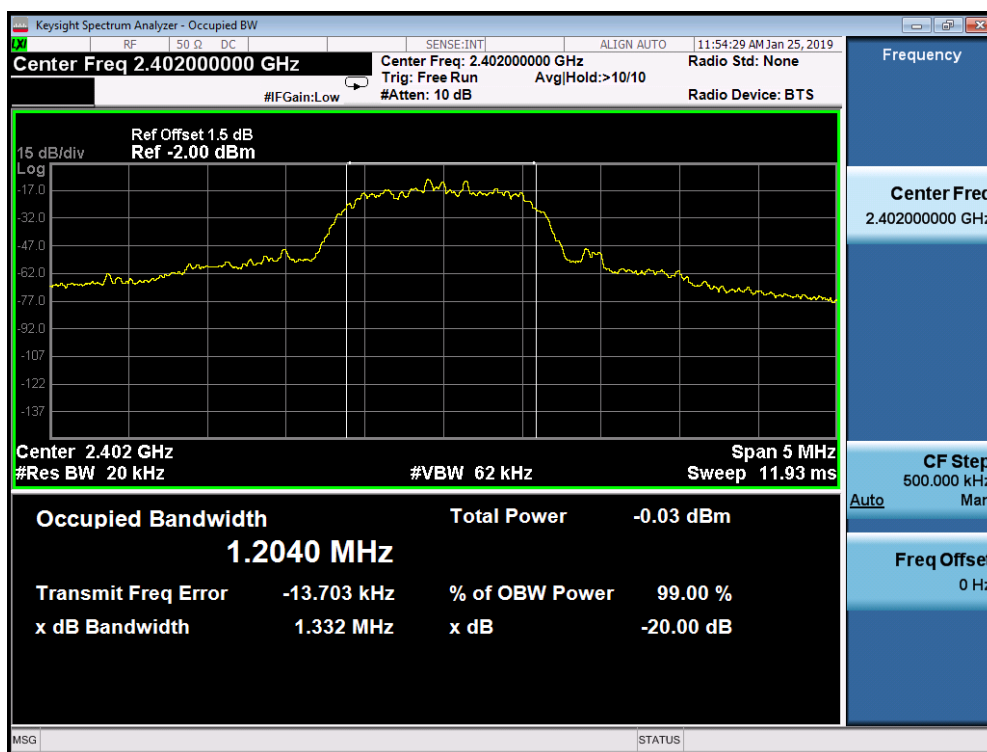
Channel 78 (2480MHz)



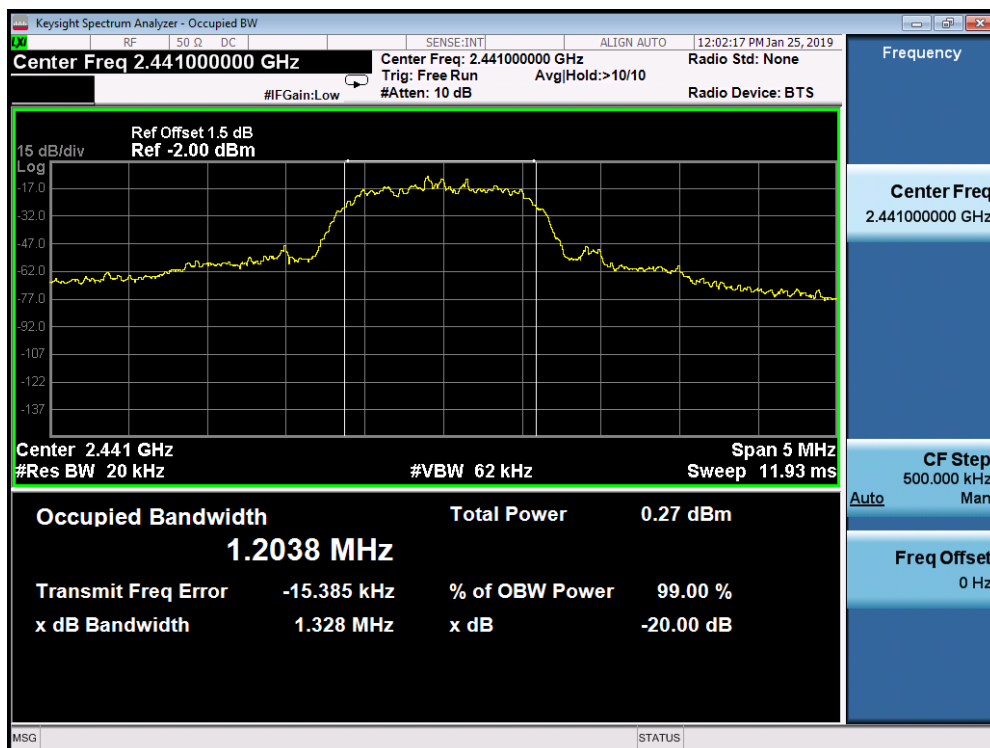
Product Name	: 2620011024000	Test Voltage	: 3 Vdc
Test Mode	: Mode 2	Test Site	: TR-8
Test Date	: 2019.01.25	Test Engineer	: Simon

Channel No.	Frequency (MHz)	20dB Bandwidth (kHz)	99% Bandwidth (kHz)
00	2402	1332	1204.0
39	2441	1328	1203.8
78	2480	1332	1206.0

Channel 00 (2402MHz)



Channel 39 (2441MHz)



Channel 78 (2480MHz)

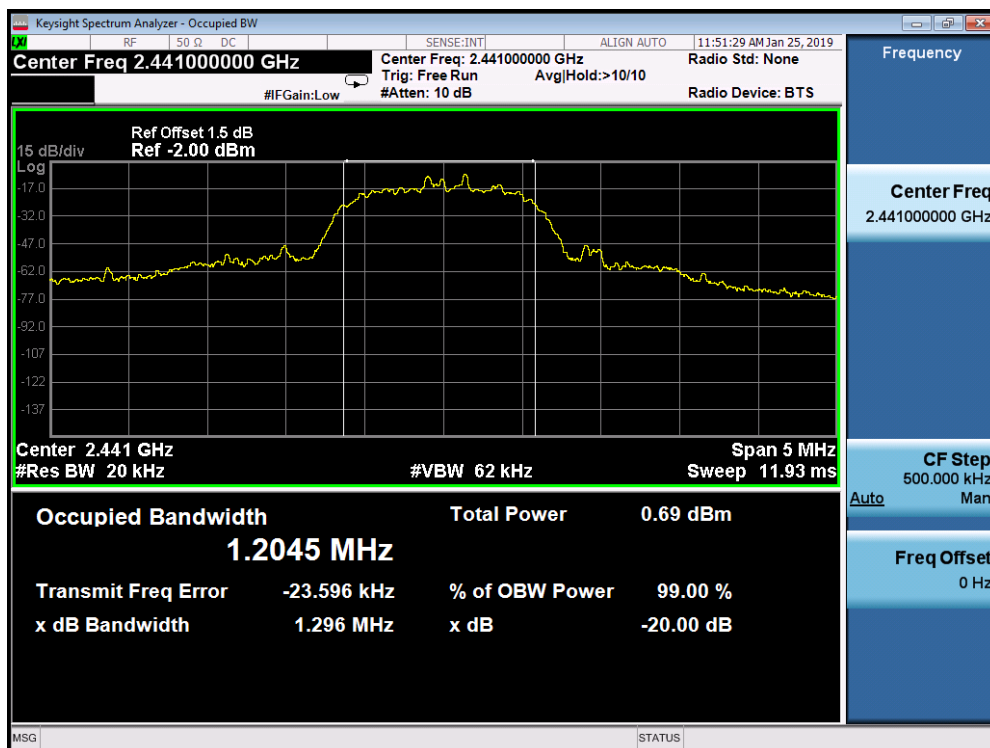


Product Name	: 2620011024000	Power	: 3 Vdc
Test Mode	: Mode 3	Test Site	: TR-8
Test Date	: 2019.01.25	Test Engineer	: Simon

Channel No.	Frequency (MHz)	20dB Bandwidth (kHz)	99% Bandwidth (kHz)
00	2402	1303	1206.4
39	2441	1296	1204.5
78	2480	1302	1208.3

Channel 00 (2402MHz)



Channel 39 (2441MHz)**Channel 78 (2480MHz)**

6. Carrier Frequency Separation

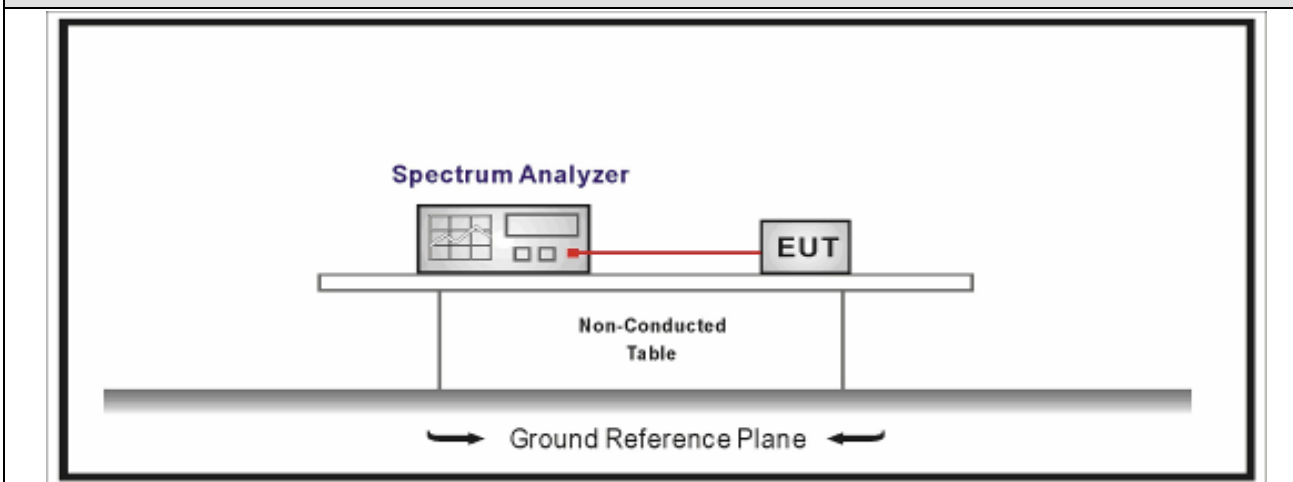
6.1. Test Equipment

Carrier Frequency Separation / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2019.02.04	2020.02.03
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2018.04.09	2019.04.08
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2018.04.09	2019.04.08
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2018.04.10	2019.04.09

Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

6.2. Test Setup

Carrier Frequency Separation test setup:



6.3. Limit

Carrier Frequency Separation	
☐	Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.
☒	Frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel.
☐	The 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period;
☐	The 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.
☐	Frequency hopping systems operating in the 5725-5850 MHz band shall use at least 75 hopping frequencies. The maximum 20 dB bandwidth of the hopping channel is 1 MHz.

6.4. Test Procedure

Test Method			
	References Rule	Chapter	Description
☒	ANSI C63.10	7.8.2	Carrier frequency separation

6.5. Uncertainty

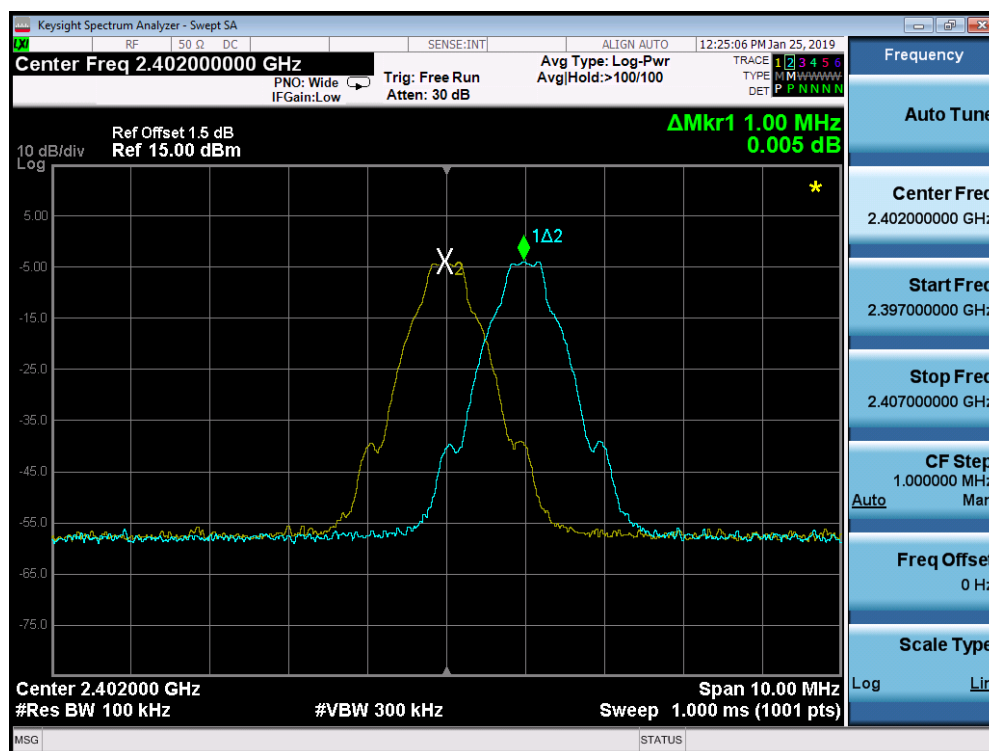
The measurement uncertainty is defined as ± 1 kHz

6.6. Test Result

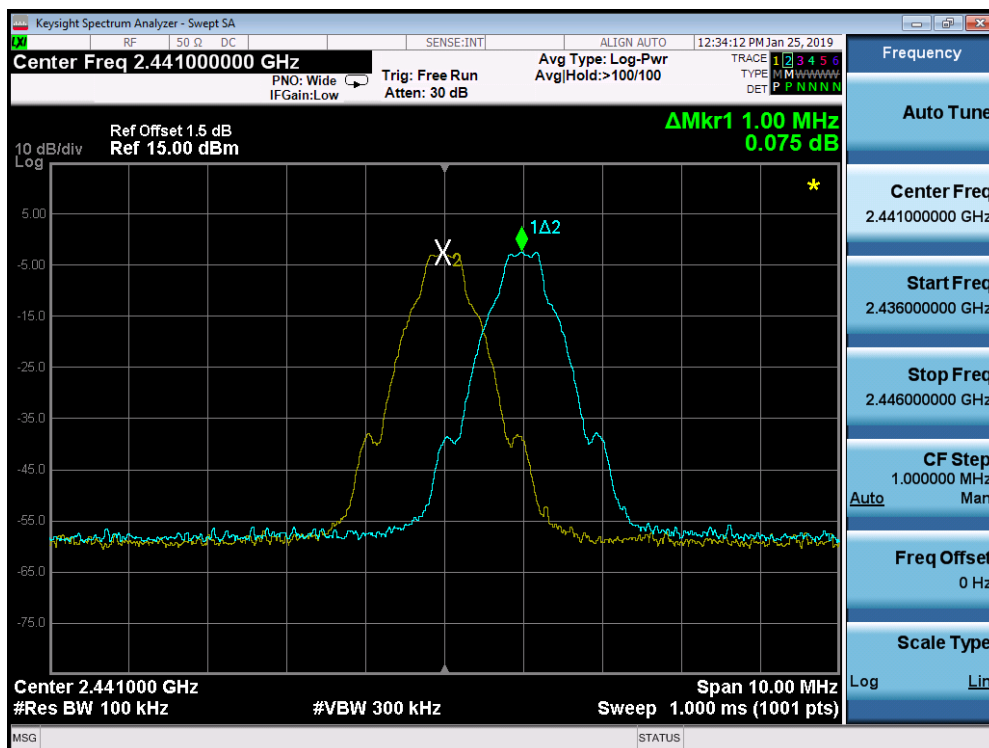
Product Name	: 2620011024000	Test Voltage	: 3 Vdc
Test Mode	: Mode 1	Test Site	: TR-8
Test Date	: 2019.01.25	Test Engineer	: Simon

Channel No.	Frequency (MHz)	Carrier Frequency Separation (kHz)	Limit (kHz)	Result
00	2402	1000	586.5	Pass
39	2441	1000	614.5	Pass
78	2480	1000	613.2	Pass

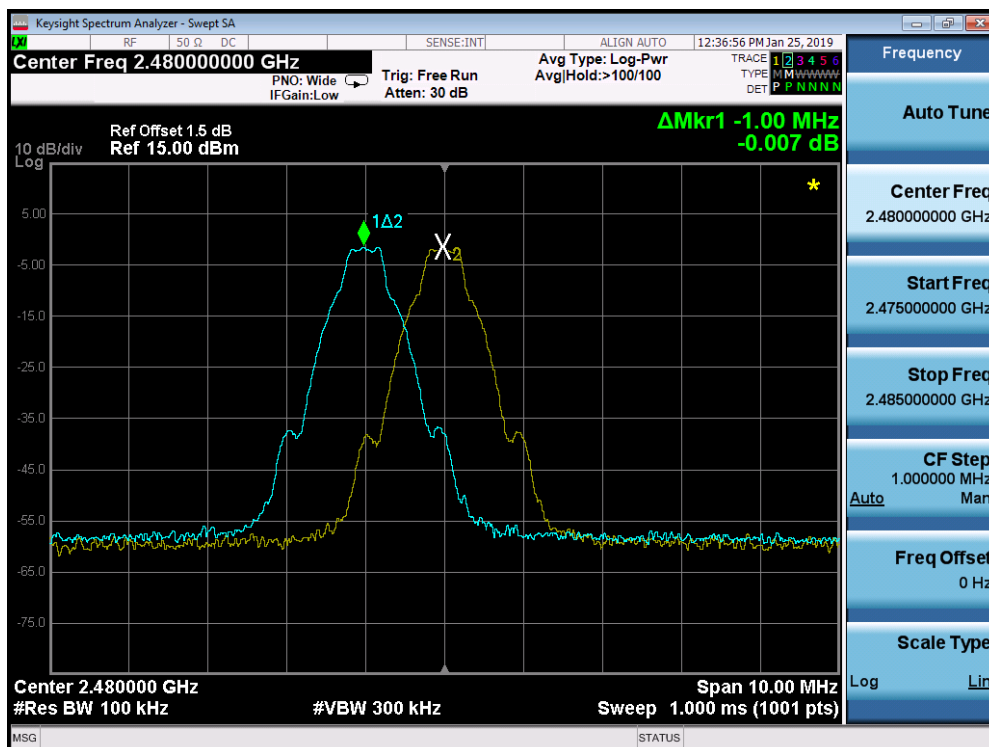
Channel 00 (2402MHz)



Channel 39 (2441MHz)



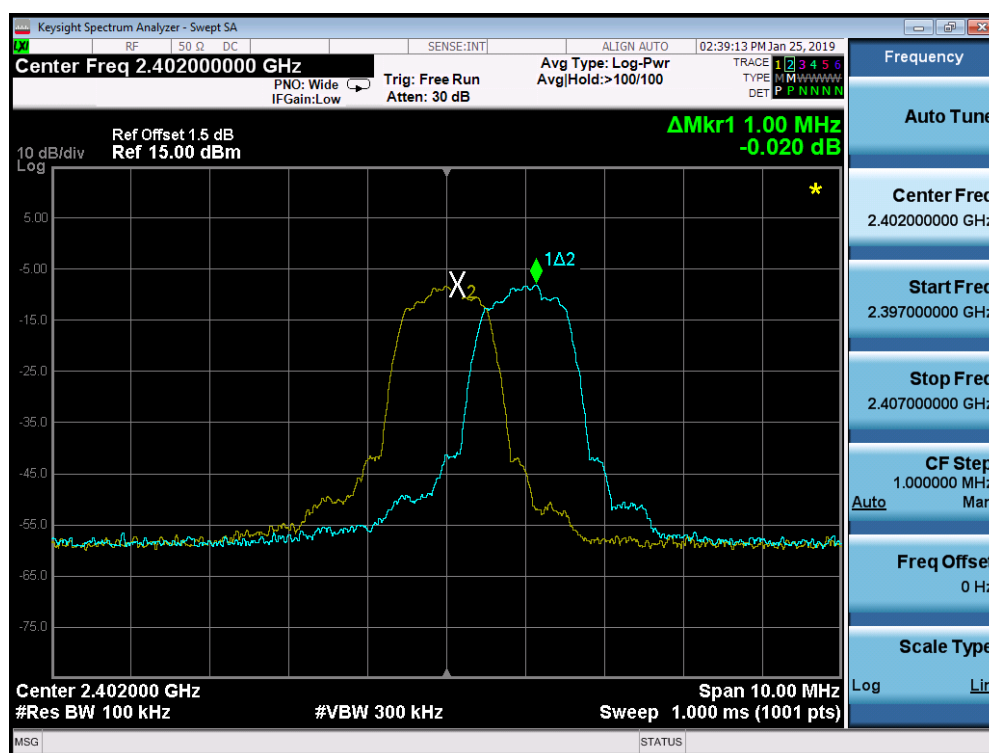
Channel 78 (2480MHz)



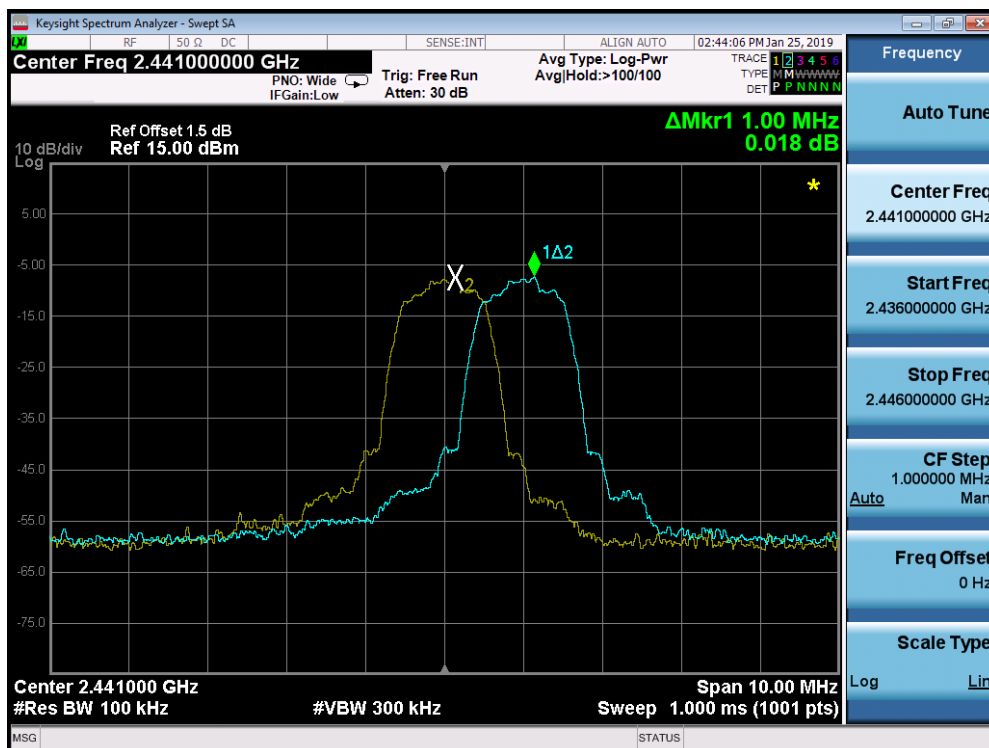
Product Name	: 2620011024000	Power	: 3 Vdc
Test Mode	: Mode 2	Test Site	: TR-8
Test Date	: 2019.01.25	Test Engineer	: Simon

Channel No.	Frequency (MHz)	Carrier Frequency Separation (kHz)	Limit (kHz)	Result
00	2402	1000	888.0	Pass
39	2441	1000	885.3	Pass
78	2480	1000	888.0	Pass

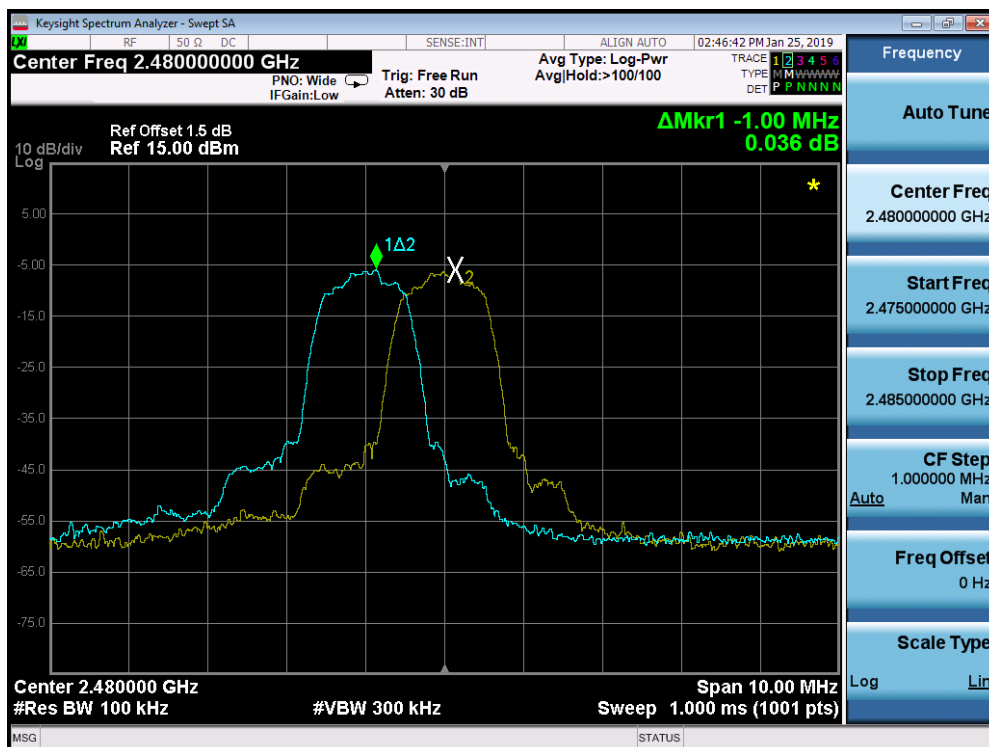
Channel 00 (2402MHz)



Channel 39 (2441MHz)



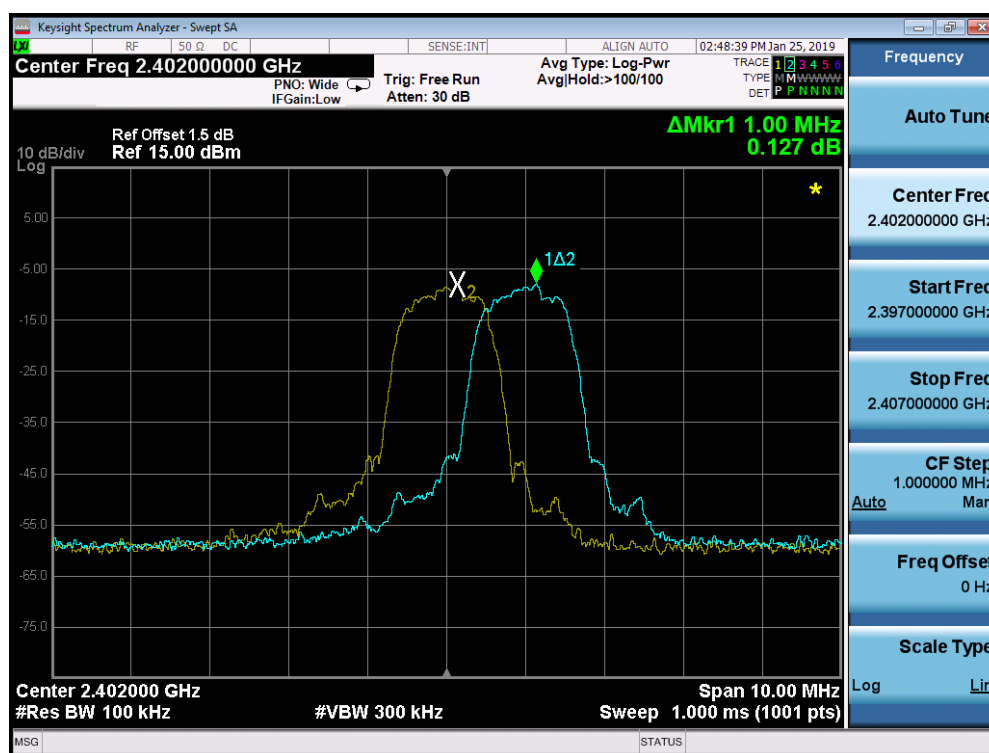
Channel 78 (2480MHz)



Product Name	: 2620011024000	Power	: 3 Vdc
Test Mode	: Mode 3	Test Site	: TR-8
Test Date	: 2019.01.25	Test Engineer	: Simon

Channel No.	Frequency (MHz)	Carrier Frequency Separation (kHz)	Limit (kHz)	Result
00	2402	1000	868.7	Pass
39	2441	1000	864.0	Pass
78	2480	1000	868.0	Pass

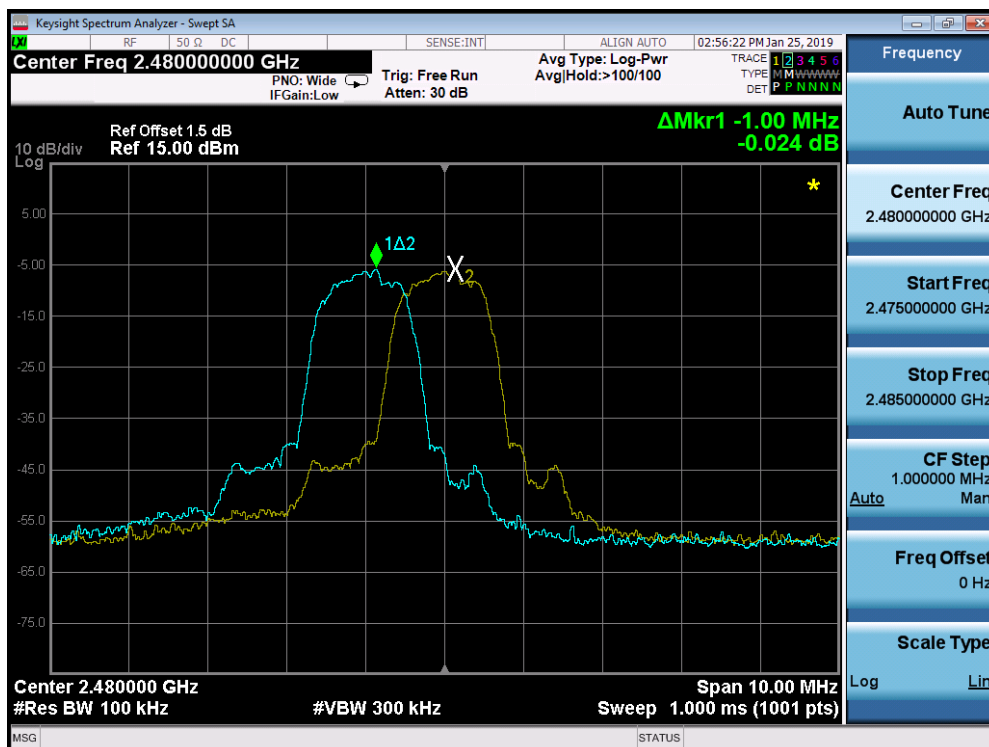
Channel 00 (2402MHz)



Channel 39 (2441MHz)



Channel 78 (2480MHz)

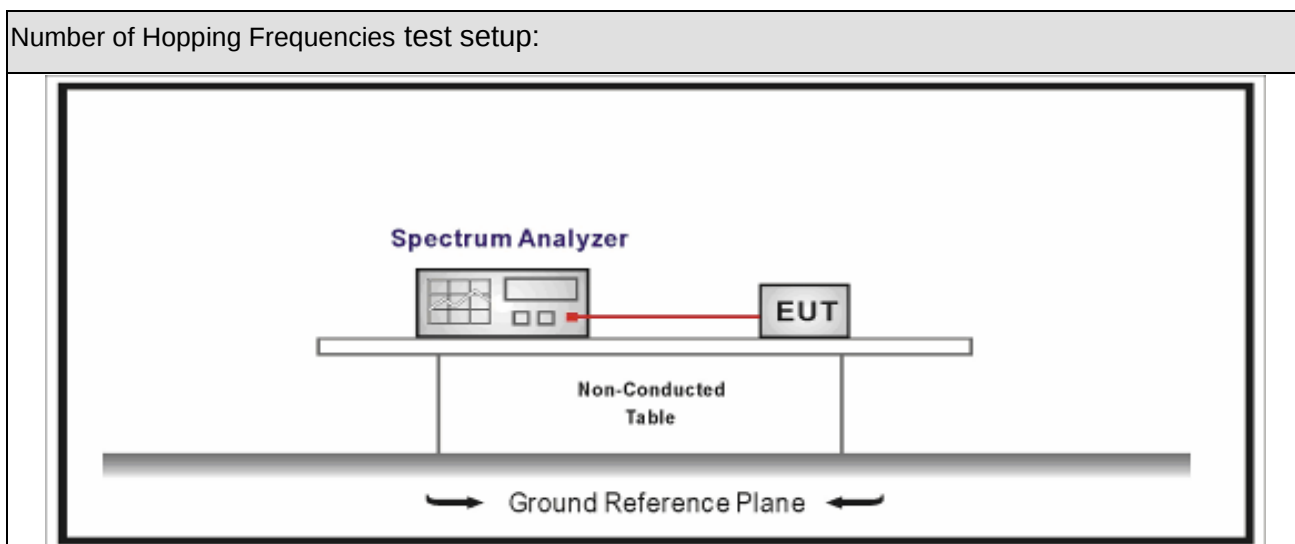


7. Number of Hopping Frequencies

7.1. Test Equipment

Number of Hopping Frequencies / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2019.02.04	2020.02.03
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2018.04.09	2019.04.08
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2018.04.09	2019.04.08
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2018.04.10	2019.04.09
Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

7.2. Test Setup



7.3. Limit

Carrier Frequency Separation	
☒	For frequency hopping systems operating in the 2400-2483.5 MHz band shall use at least 15 hopping frequencies.
☐	For frequency hopping systems operating in 902-928 MHz band, if the 20 dB bandwidth of the hopping channel is less than 250 kHz, shall use at least 50 hopping frequencies.
☐	For frequency hopping systems operating in 902-928 MHz band, if the 20 dB bandwidth of the hopping channel is higher than 250 kHz, shall use at least 25 hopping frequencies.
☐	For frequency hopping systems operating in the 5725-5850 MHz band shall use at least 75 hopping frequencies.

7.4. Test Procedure

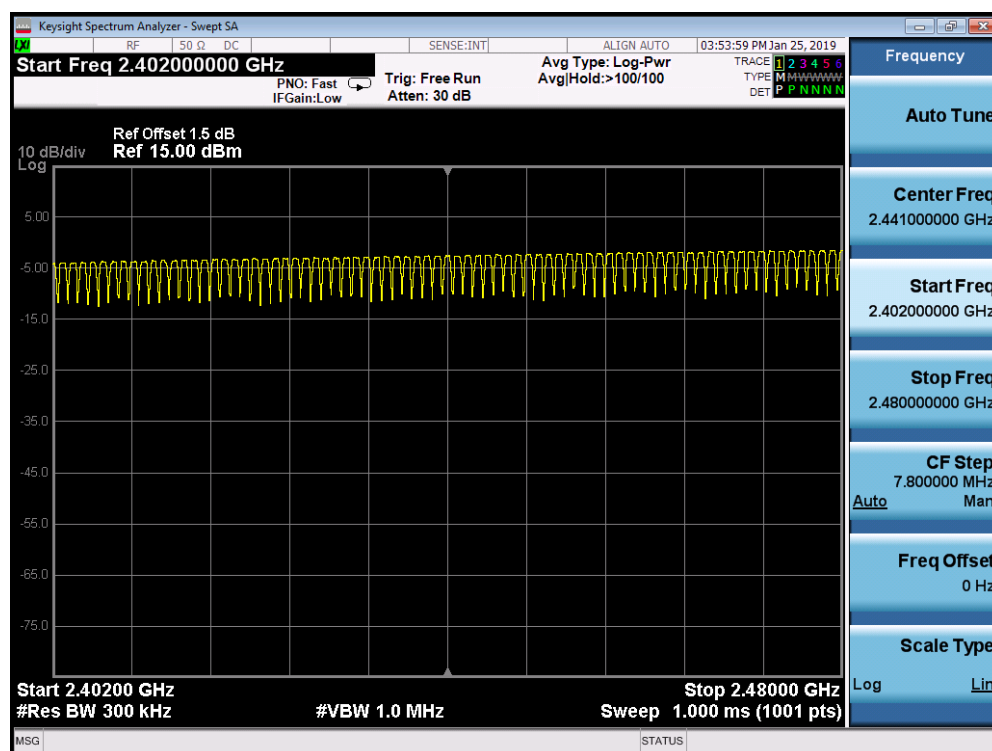
Test Method			
	References Rule	Chapter	Description
☒	ANSI C63.10	7.8.3	Number of Hopping Frequencies

7.5. Uncertainty

The measurement uncertainty is defined as ± 1 kHz

Product Name	:	2620011024000	Test Voltage	:	3 Vdc
Test Mode	:	Mode 1	Test Site	:	TR-8
Test Date	:	2019.01.25	Test Engineer	:	Simon

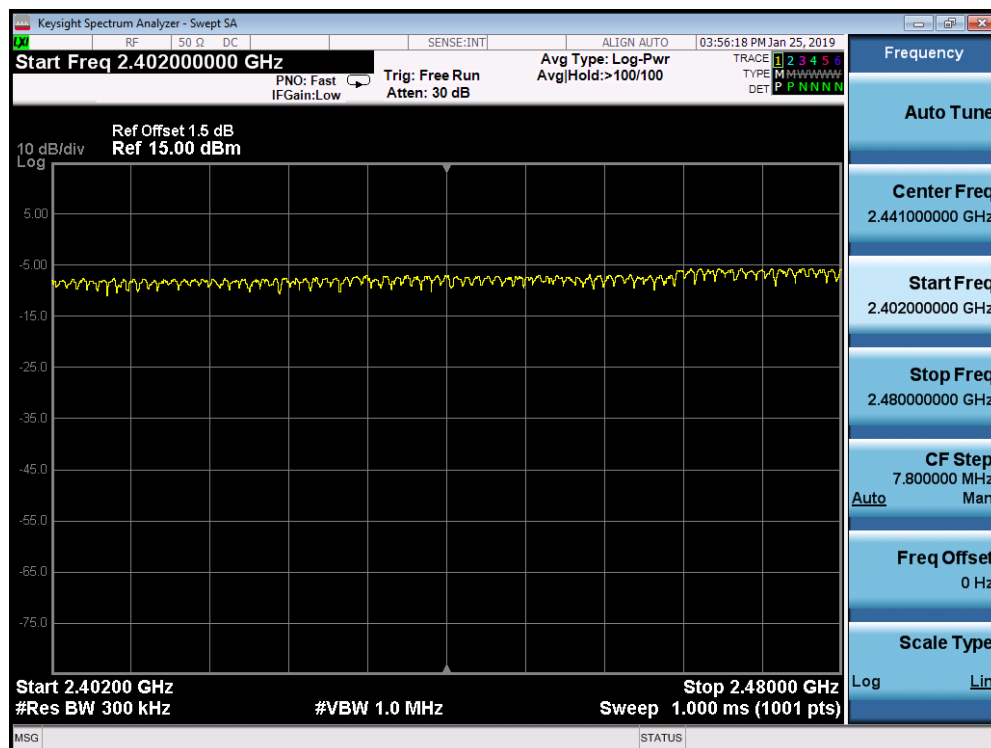
Frequency Band (MHz)	Number of Hopping Frequencies	Limit	Result
2400 - 2483.5	79	>15	Pass



Product Name	: 2620011024000	Power	: 3 Vdc
Test Mode	: Mode 2	Test Site	: TR-8
Test Date	: 2019.01.25	Test Engineer	: Simon

Frequency Band (MHz)	Number of Hopping Frequencies	Limit	Result
2400 - 2483.5	79	>15	Pass

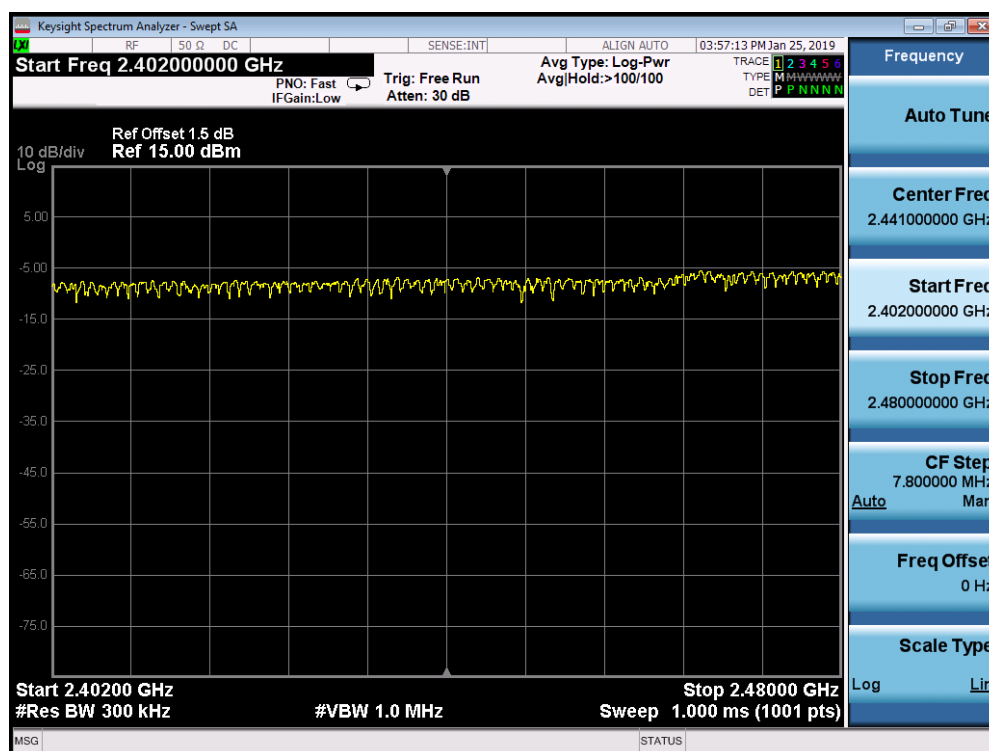
2402 - 2480 MHz



Product Name	: 2620011024000	Power	: 3 Vdc
Test Mode	: Mode 3	Test Site	: TR-8
Test Date	: 2019.01.25	Test Engineer	: Simon

Frequency Band (MHz)	Number of Hopping Frequencies	Limit	Result
2400 - 2483.5	79	>15	Pass

2402 - 2480 MHz

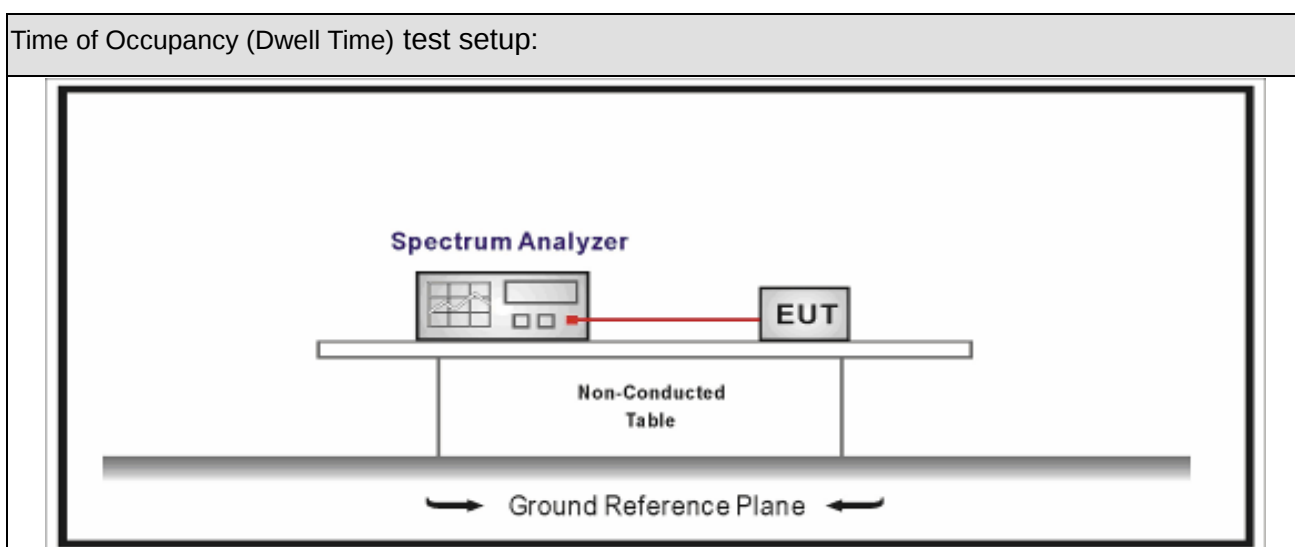


8. Time of Occupancy (Dwell Time)

8.1. Test Equipment

Time of Occupancy (Dwell Time) / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2019.02.04	2020.02.03
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2018.04.09	2019.04.08
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2018.04.09	2019.04.08
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2018.04.10	2019.04.09
Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

8.2. Test Setup



8.3. Limit

Time of Occupancy (Dwell Time)	
☒	Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.
☐	For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period
☐	For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping

	frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period.
☐	Frequency hopping systems operating in the 5725-5850 MHz band shall use at least 75 hopping frequencies. The maximum 20 dB bandwidth of the hopping channel is 1 MHz. The average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 30 second period.

8.4. Test Procedure

Test Method			
	References Rule	Chapter	Description
☒	ANSI C63.10	7.8.4	Time of Occupancy (Dwell Time)

8.5. Uncertainty

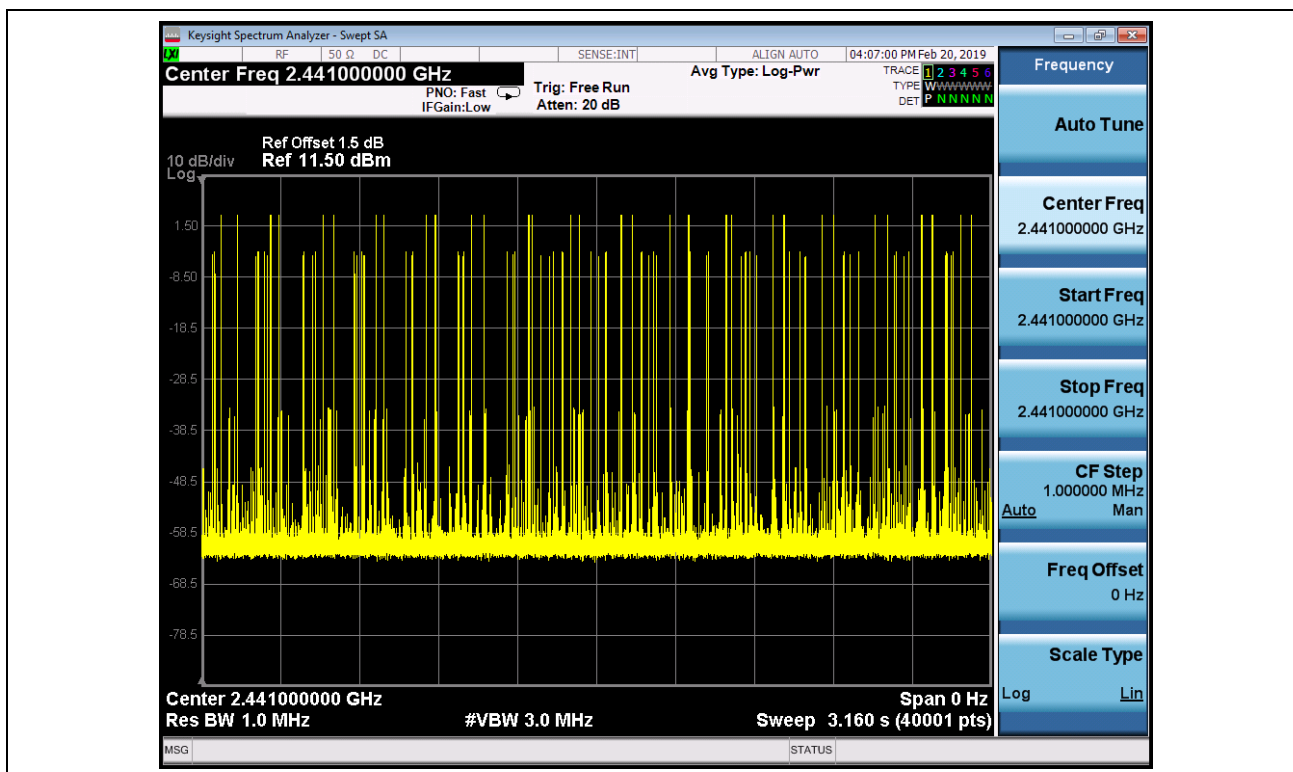
The measurement uncertainty is defined as $\pm 0.1 \text{ us}$

Product Name	:	2620011024000	Test Voltage	:	3 Vdc
Test Mode	:	Mode 1(GFSK_DH1)	Test Site	:	TR-8
Test Date	:	2019.02.20	Test Engineer	:	Simon

Channel No.	Frequency (MHz)	Time of Occupancy (ms)	Limit (ms)	Result
39	2441	132.96	< 400	Pass

Note3: We have evaluated different packet type, shown in the report is the worst data.





Product Name	: 2620011024000	Test Voltage	: 3 Vdc
Test Mode	: Mode 1(GFSK_DH3)	Test Site	: TR-8
Test Date	: 2019.02.20	Test Engineer	: Simon

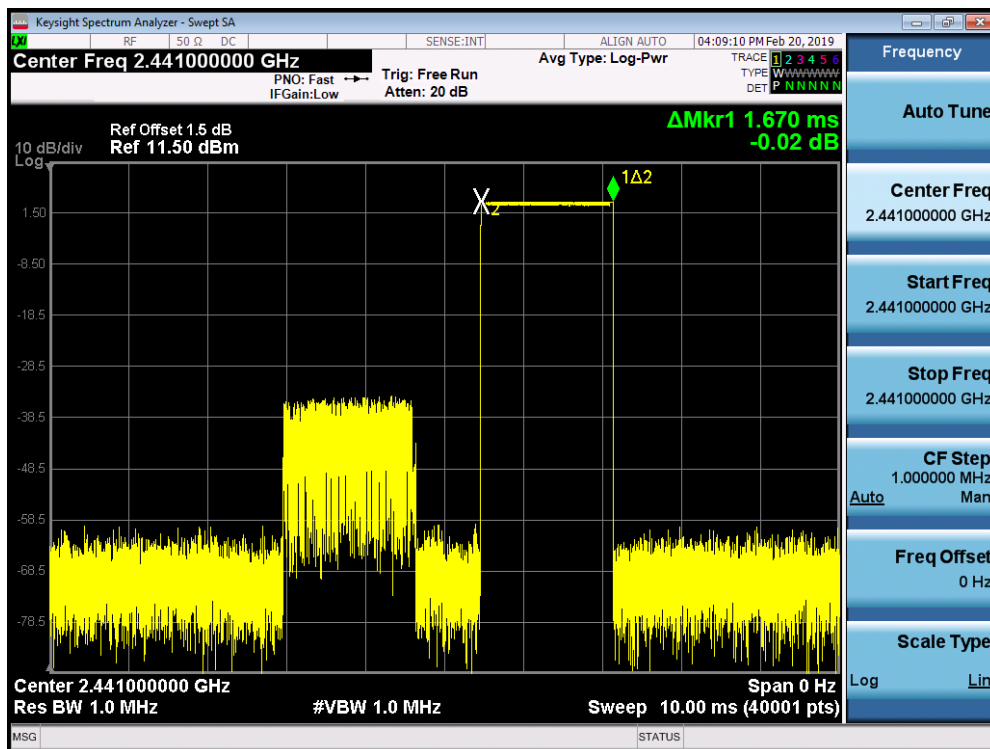
Channel No.	Frequency (MHz)	Time of Occupancy (ms)	Limit (ms)	Result
39	2441	317.3	< 400	Pass

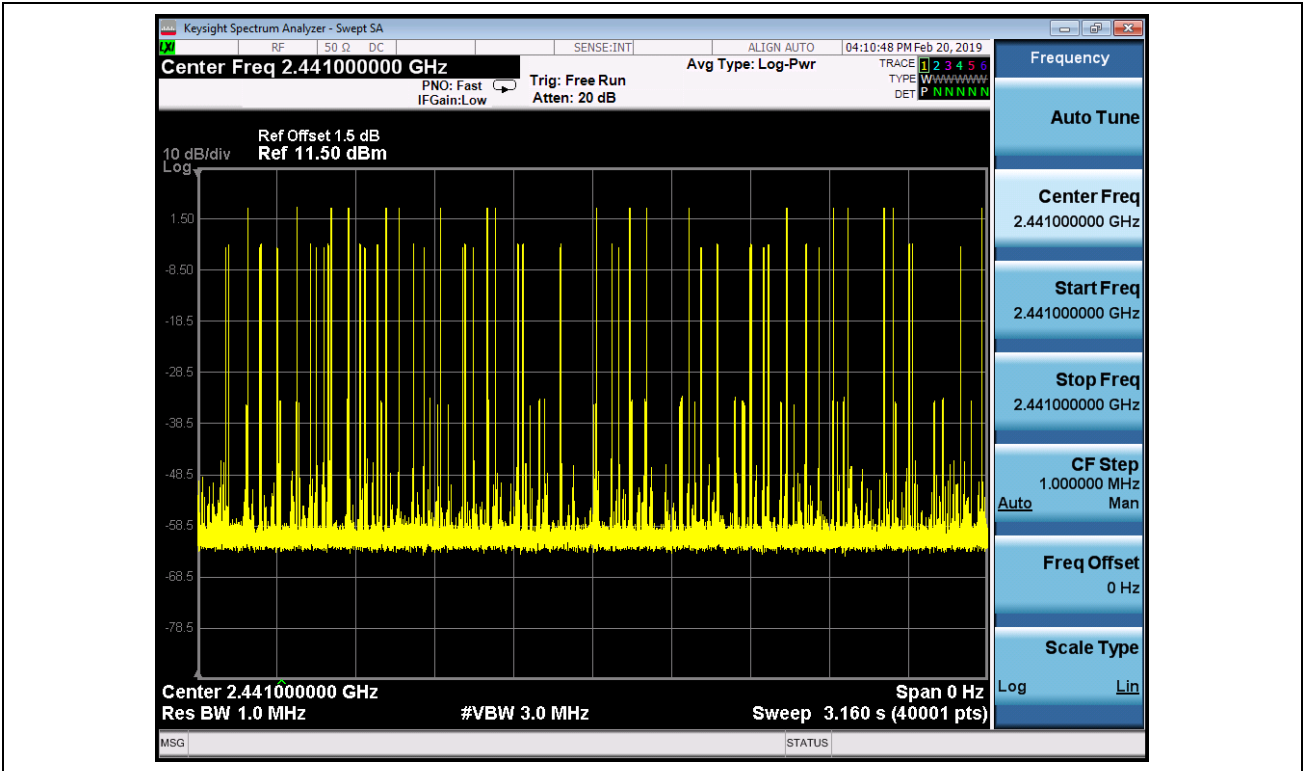
Note1: Test Time Period: $0.4 \times 79 = 31.6 \text{ sec}$

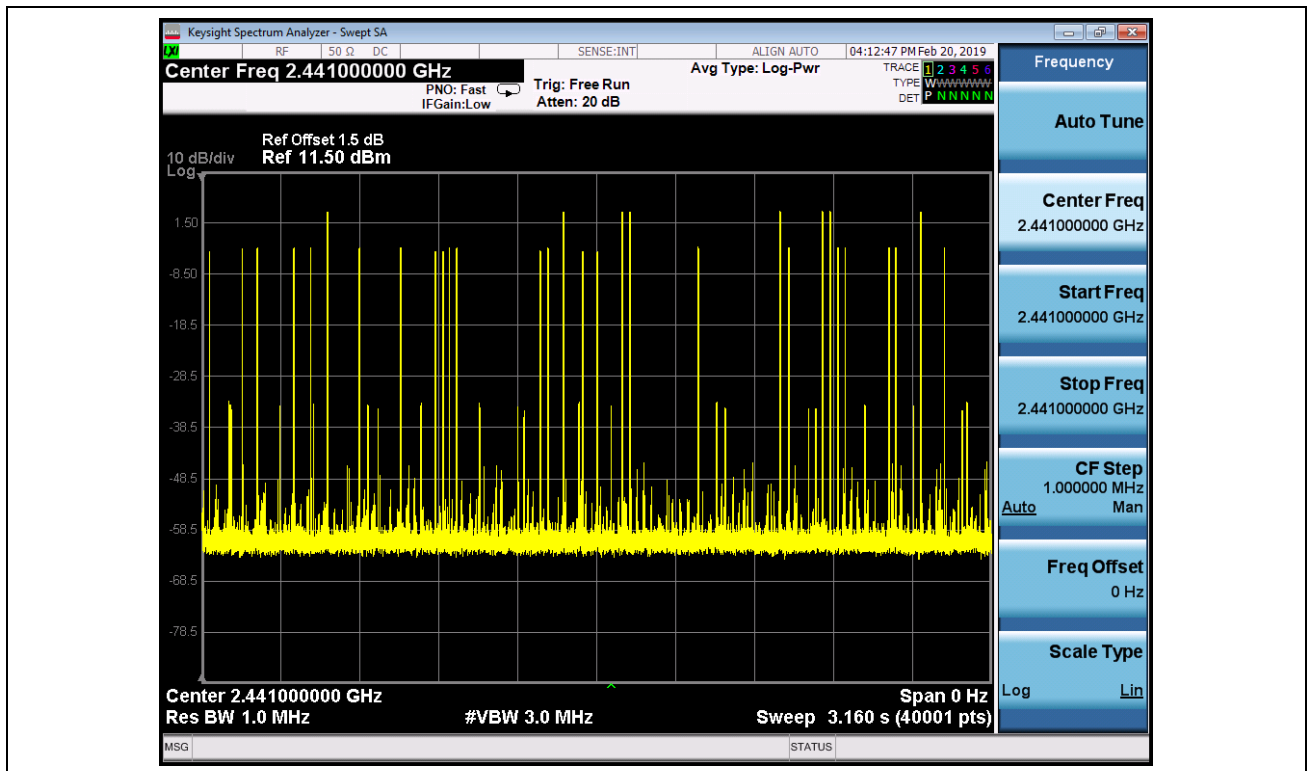
Note2: Time of Occupancy = $1.67 \times 19 \times 31.6 / 3.16 = 317.3 \text{ ms}$

Note3: We have evaluated different packet type, shown in the report is the worst data.

Channel 39 (2441MHz) - (DH3)







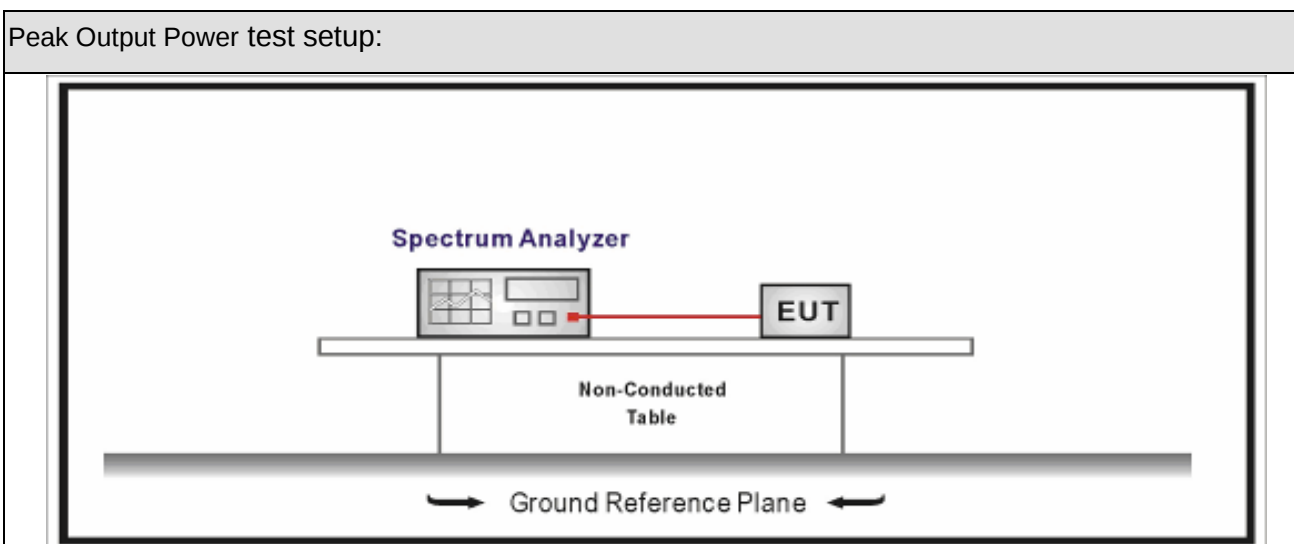
Note: The packet time of AFH mode is same as normal mode, due to the packet time of AFH mode multiply with lesser factor is dwell time of $0.4 \times 20 = 8S$, the dwell time of AFH mode comply with the limit.

9. Peak Output Power

9.1. Test Equipment

Peak Output Power / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2019.02.04	2020.02.03
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2018.04.09	2019.04.08
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2018.04.09	2019.04.08
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2018.04.10	2019.04.09
Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

9.2. Test Setup



9.3. Limit

Peak Output Power	
☐	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.
☒	Frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.
☐	For frequency hopping systems operating in the 902-928 MHz band: 1 watt for systems employing at least 50 hopping channels; and, 0.25 watts for systems employing less than 50 hopping channels, but at least 25 hopping channels

9.4. Test Procedure

Test Method			
	References Rule	Chapter	Description
☒	ANSI C63.10	7.8.5	Output power test procedure for frequency-hopping spread-spectrum (FHSS) devices

9.5. Uncertainty

The measurement uncertainty is defined as ± 1.0 dB

9.6. Test Result

Product Name	:	2620011024000	Test Voltage	:	3 Vdc
Test Mode	:	Mode 1	Test Site	:	TR-8
Test Date	:	2019.01.24	Test Engineer	:	Simon

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Limit (dBm)	Result
00	2402	2.89	21.00	Pass
39	2441	3.68	21.00	Pass
78	2480	3.89	21.00	Pass

Product Name	:	2620011024000	Test Voltage	:	3 Vdc
Test Mode	:	Mode 2	Test Site	:	TR-8
Test Date	:	2019.01.24	Test Engineer	:	Simon

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Limit (dBm)	Result
00	2402	1.69	21.00	Pass
39	2441	1.58	21.00	Pass
78	2480	2.03	21.00	Pass

Product Name	:	2620011024000	Test Voltage	:	3 Vdc
Test Mode	:	Mode 3	Test Site	:	TR-8
Test Date	:	2019.01.24	Test Engineer	:	Simon

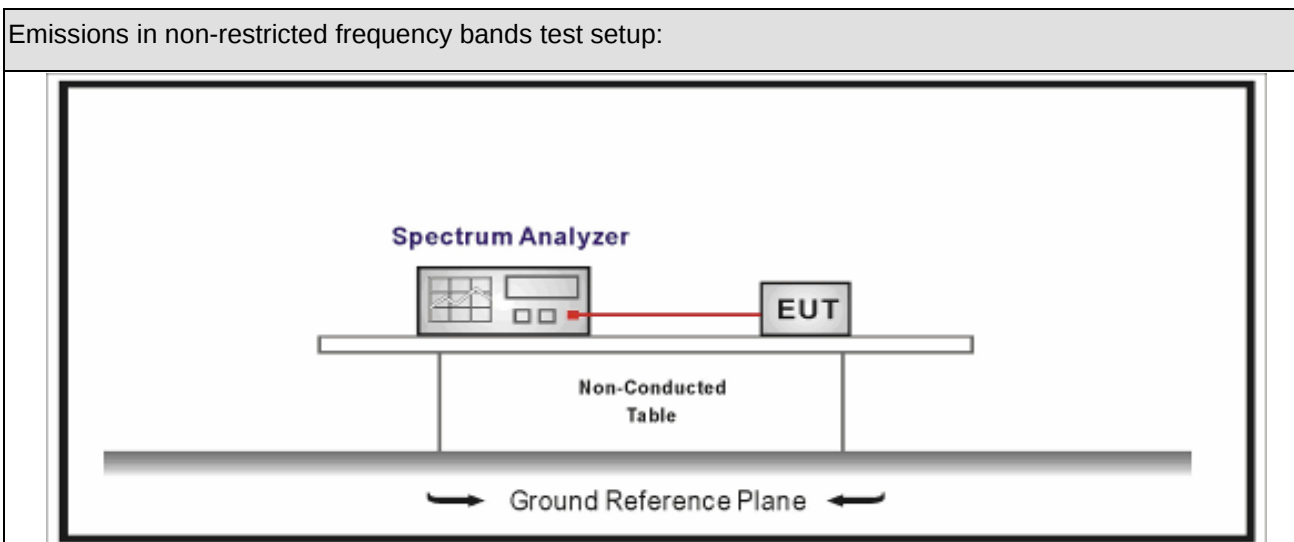
Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Limit (dBm)	Result
00	2402	1.65	21.00	Pass
39	2441	2.01	21.00	Pass
78	2480	2.40	21.00	Pass

10. Emissions in non-restricted frequency bands

10.1. Test Equipment

Emissions in non-restricted frequency bands / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2019.02.04	2020.02.03
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2018.04.09	2019.04.08
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2018.04.09	2019.04.08
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2018.04.10	2019.04.09
Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

10.2. Test Setup



10.3. Limit

Un-Restricted Band Emissions Limit	
RF Output power (Detection methods)	Limit(dB)
RF Output power(Average detector)	30c(Note1)
RF Output power(PK detector)	20c(Note2)
Note 1: If maximum conducted (average) output power was used to demonstrate compliance as described in 9.2, then the peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 30 dBc). Note 2: If the maximum peak conducted output power procedure was used, then the peak output power measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 20 dBc).	

10.4. Test Procedure

Test Method			
	References Rule	Chapter	Description
☒	ANSI C63.10	7.8.6	Band-edge Compliance of RF Conducted Emissions

10.5. Uncertainty

The measurement uncertainty is defined as ± 1.0 dB

10.6. Test Result

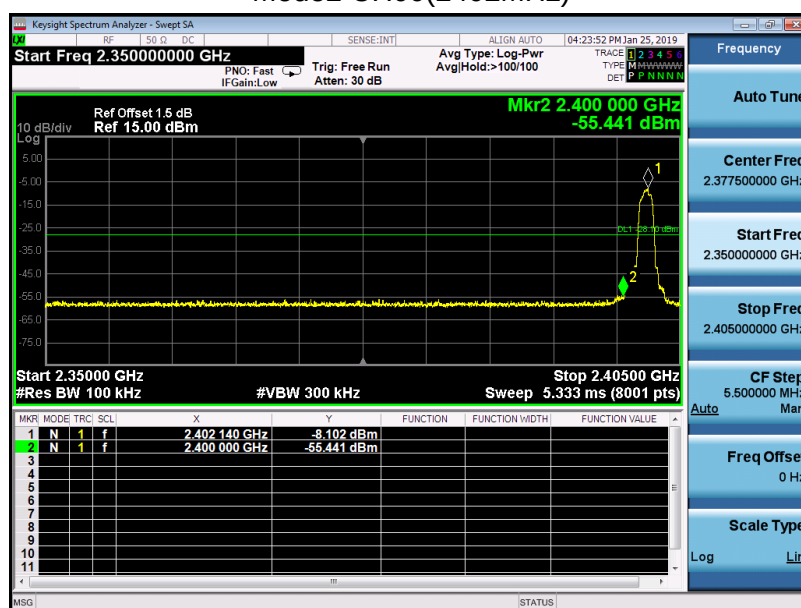
Product Name	: 2620011024000	Test Voltage	: 3 Vdc
Test Mode	: Mode 1~4	Test Site	: TR-8
Test Date	: 2019.01.25	Test Engineer	: Simon

Mode	Channel	Test Frequency (MHz)	In-Band PSD[a] (dBm/100kHz)	Frequency (MHz)	Out-Band PSD[b] (dBm/100kHz)	[a]-[b] (dB)	Limit (dB)	Result
1	00	2402	-3.961	2400.00	-56.410	52.449	>20	Pass
1	78	2480	-1.503	2500.00	-58.539	57.036	>20	Pass
2	00	2402	-8.102	2400.00	-55.441	47.339	>20	Pass
2	78	2480	-7.188	2500.00	-78.333	71.145	>20	Pass
3	00	2402	-8.793	2400.00	-60.946	52.153	>20	Pass
3	78	2480	-6.805	2500.00	-78.439	71.634	>20	Pass
4	00~78	00~78	-4.069	2400.00	-59.625	55.556	>20	Pass

Note1: The worst case of Emissions in non-restricted frequency bands as below:

2: Mode 1-3, The In-Band PSD is the highest PSD of All channels.

Mode2 CH00(2402MHz)



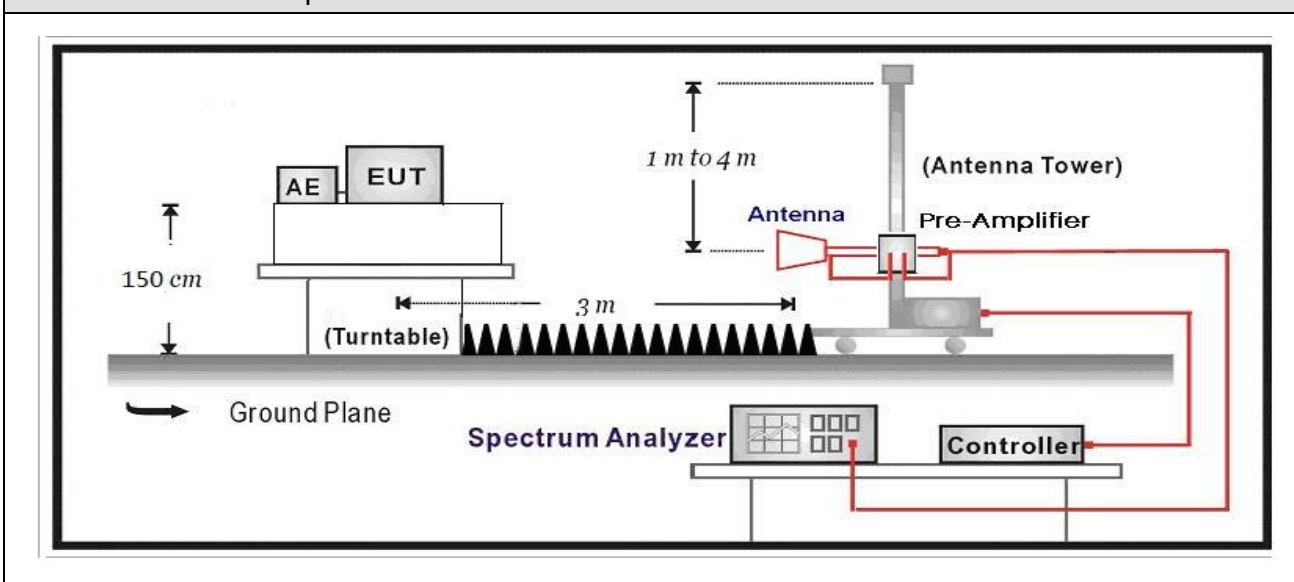
11. Radiated Emission Band Edge

11.1. Test Equipment

Radiated Emission(Above 1GHz) / AC-5					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
EMI Receiver	Agilent	N9038A	MY51210196	2018.07.16	2019.07.15
Pre-Amplifier	Miteq	NSP1800-25	1364185	2018.05.03	2019.05.02
DRG Horn Antenna	ETS-Lindgren	3117	00167055	2018.07.12	2019.07.11
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2018.09.18	2019.09.17
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2018.02.28	2019.02.27
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2018.02.28	2019.02.27
Temperature/Humidity Meter	Zhichen	ZC1-2	AC5-TH	2019.01.05	2020.01.04

11.2. Test Setup

Above 1GHz Test Setup:



11.3. Limit

Band edge Limit				
Frequency bands (MHz)	Detector	Limit (dB μ V/m)	RBW (MHz)	Distance (m)
2310-2390	PK	74	1	3
2483.5-2500	AV	54	1	3

Note: The field strength of emissions appearing within these frequency bands shall not exceed the limits.

11.4. Test Procedure

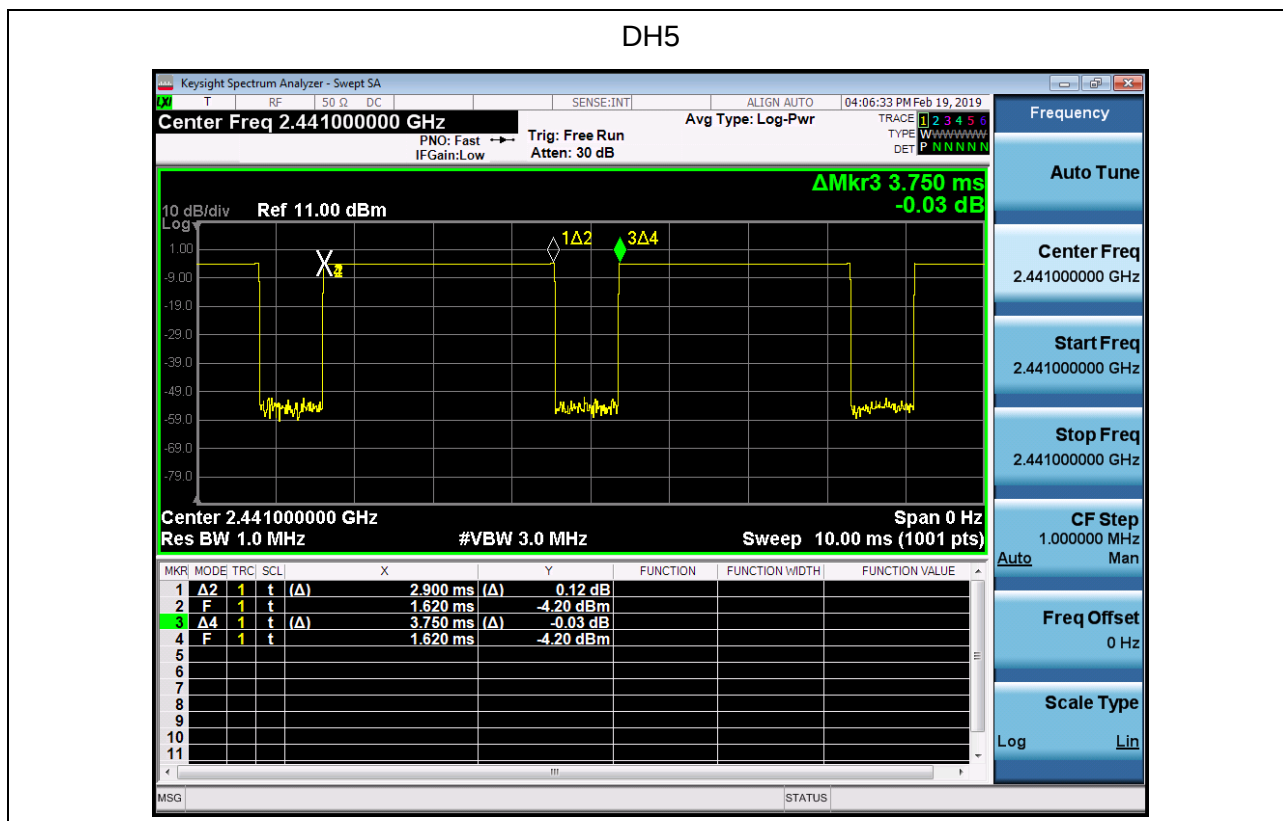
Test Method			
	References Rule	Chapter	Description
☐	DA 00-705	N/A	duty cycle correction factor
☒	ANSI C63.10	6.10	Band-edge testing
	☒ ANSI C63.10	6.10.5	Restricted-band band-edge measurements
	☐ ANSI C63.10	6.10.6	Marker-delta method
☐	ANSI C63.10	6.4	Radiated emissions from unlicensed wireless devices below 30 MHz
☐	ANSI C63.10	6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz
☒	ANSI C63.10	6.6	Radiated emissions from unlicensed wireless devices above 1 GHz

11.5. Uncertainty

The measurement uncertainty above 1G is defined as ± 3.9 dB
below 1G is defined as ± 3.8 dB

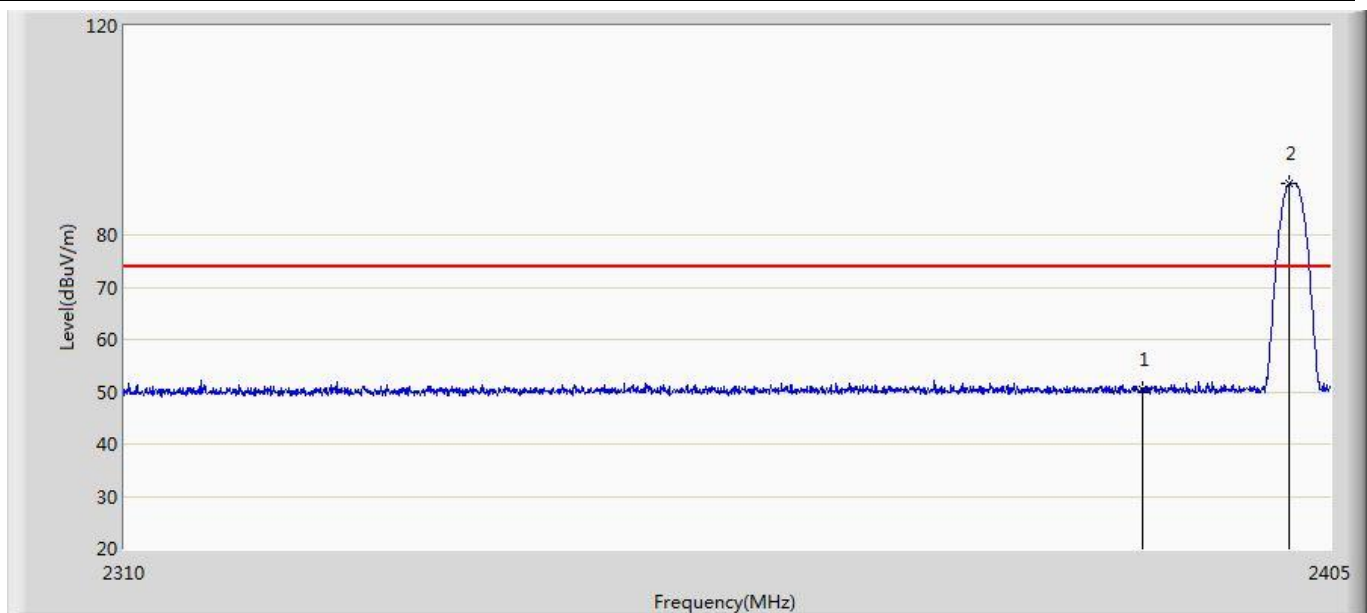
11.6. Duty Cycle

Test Mode	Tx On (ms)	Tx Off (ms)	Reduced VBW (Hz)	Tx On + Tx Off (ms)	Duty Cycle
DH5	2.90	0.85	360	3.75	77.33%



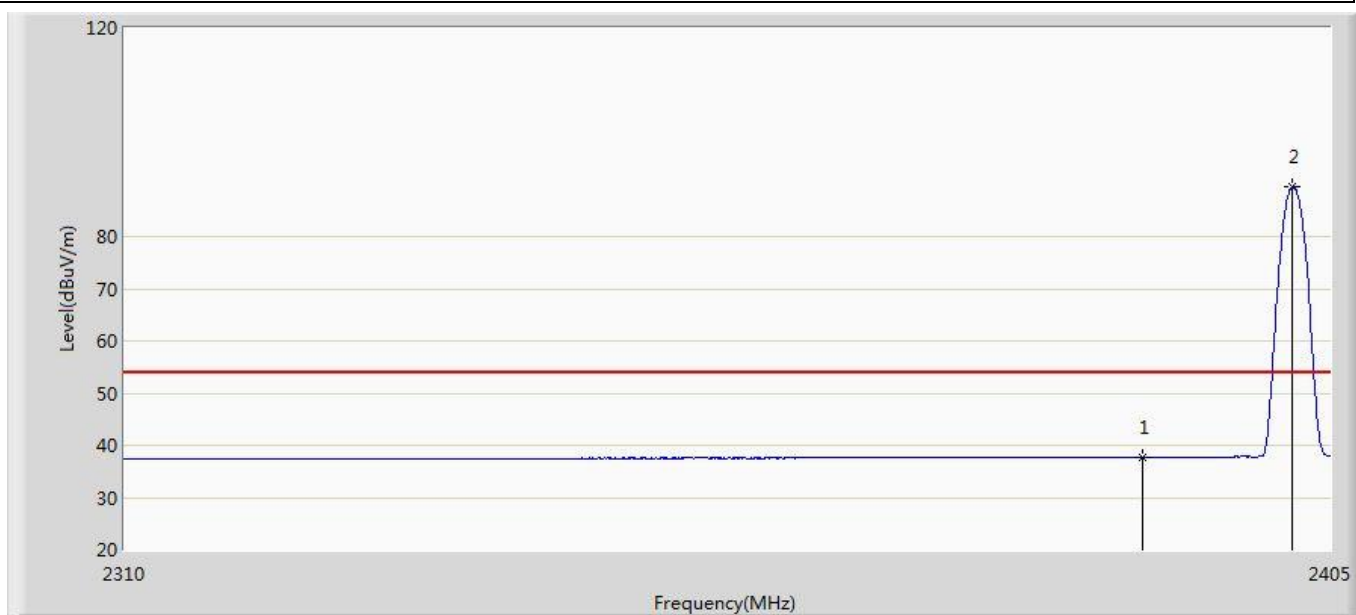
11.7. Test Result

Profile: 1912068R	Page No.: 1
Engineer: Tommie	
Site: AC5	Time: 2019/01/22 - 23:30
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 1:Transmit at 2402MHz by DH5	



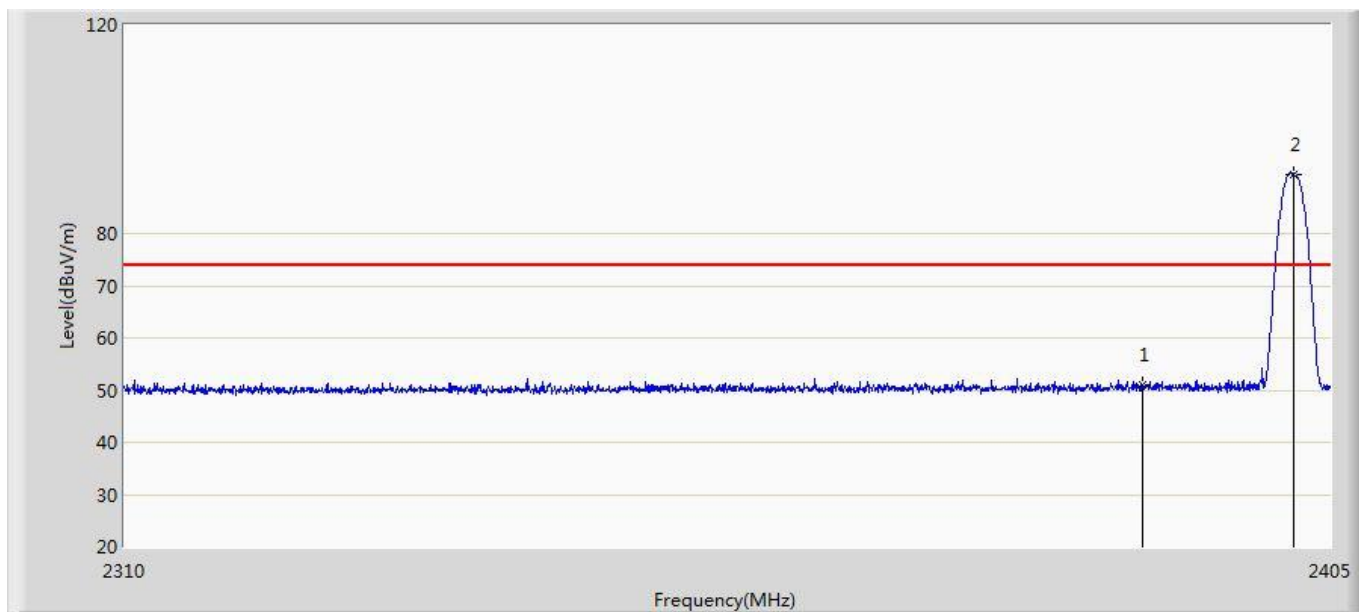
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.524	14.842	-23.476	74.000	35.682	PK
2	*	2401.770	89.739	54.027	N/A	N/A	35.712	PK

Profile: 1912068R	Page No.: 2
Engineer: Tommie	
Site: AC5	Time: 2019/01/22 - 23:33
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 1:Transmit at 2402MHz by DH5	



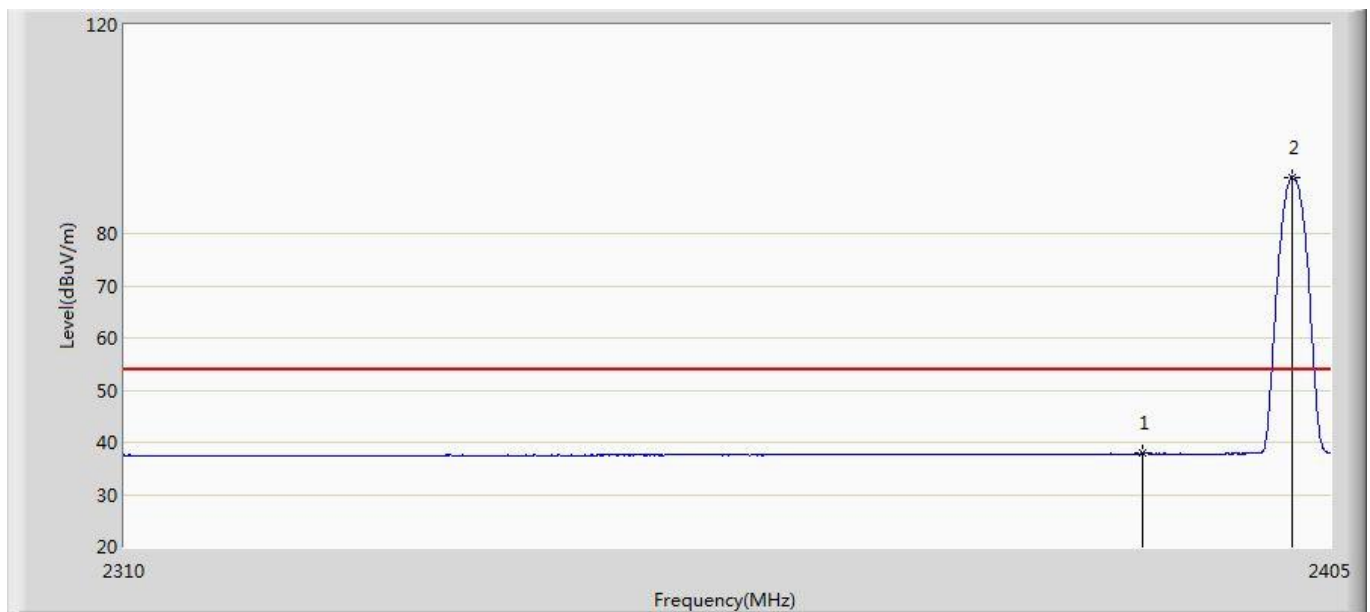
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	37.660	1.978	-16.340	54.000	35.682	AV
2	*	2401.960	89.479	53.766	N/A	N/A	35.712	AV

Profile: 1912068R	Page No.: 3
Engineer: Tommie	
Site: AC5	Time: 2019/01/22 - 23:38
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 1:Transmit at 2402MHz by DH5	



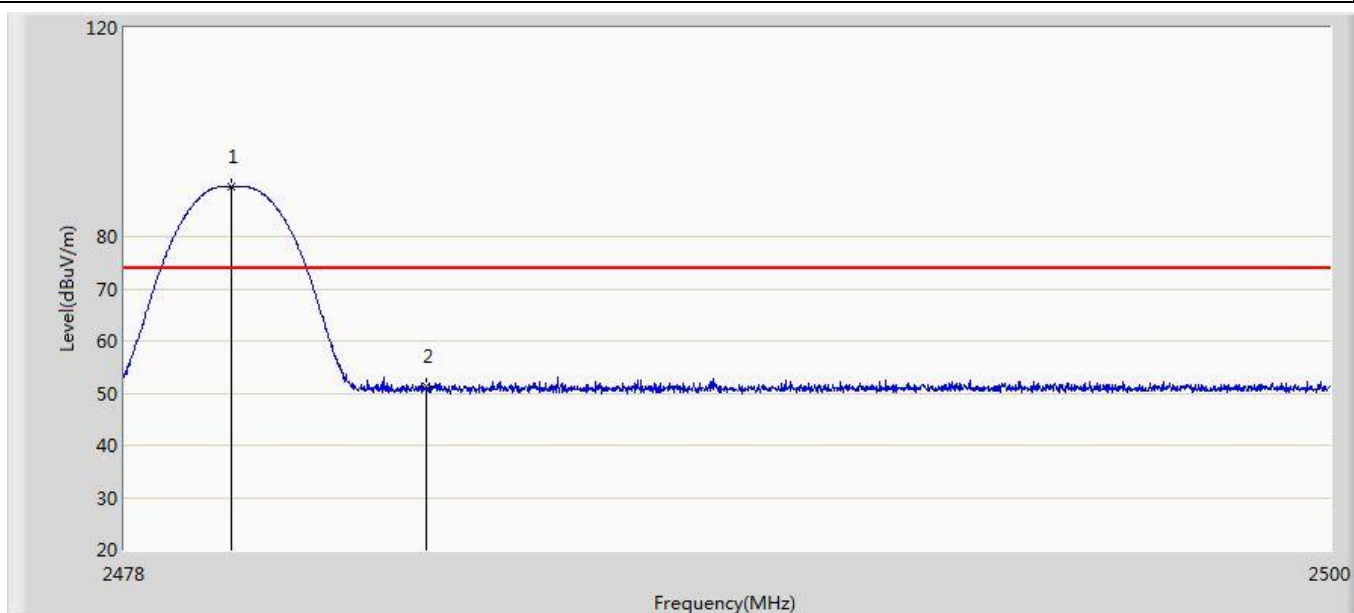
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.973	15.291	-23.027	74.000	35.682	PK
2	*	2402.055	91.447	55.734	N/A	N/A	35.712	PK

Profile: 1912068R	Page No.: 4
Engineer: Tommie	
Site: AC5	Time: 2019/01/22 - 23:41
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 1:Transmit at 2402MHz by DH5	



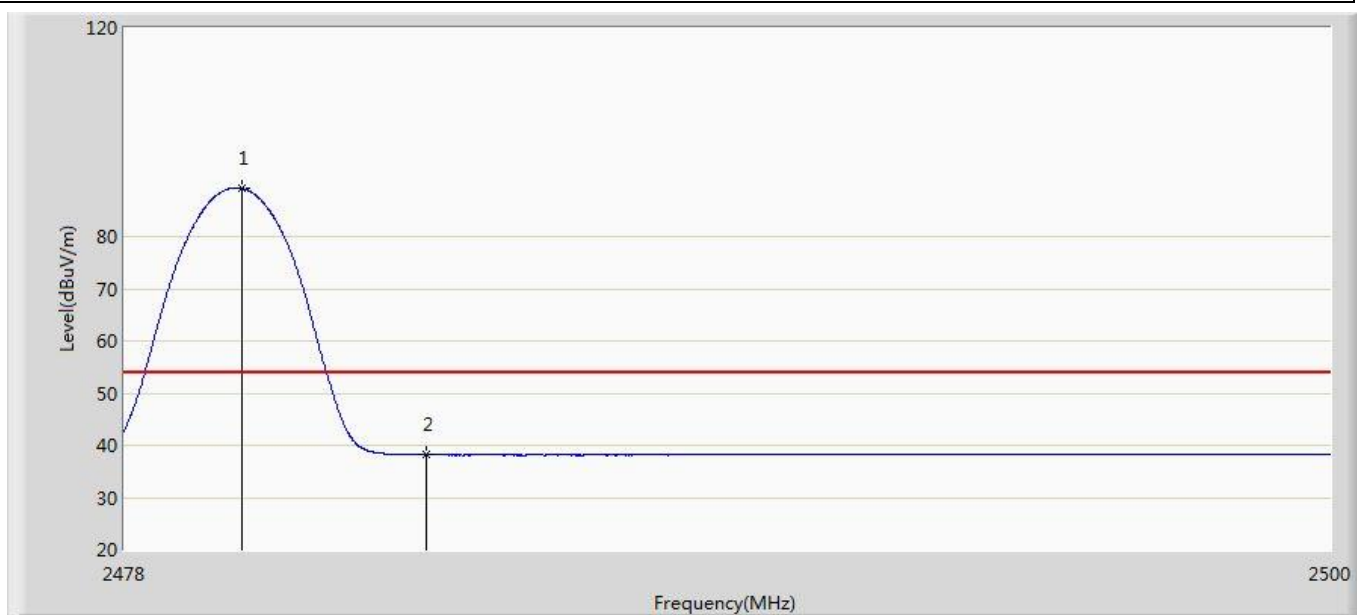
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	37.867	2.185	-16.133	54.000	35.682	AV
2	*	2401.913	90.779	55.067	N/A	N/A	35.712	AV

Profile: 1912068R	Page No.: 5
Engineer: Tommie	
Site: AC5	Time: 2019/01/22 - 23:43
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 1:Transmit at 2480MHz by DH5	



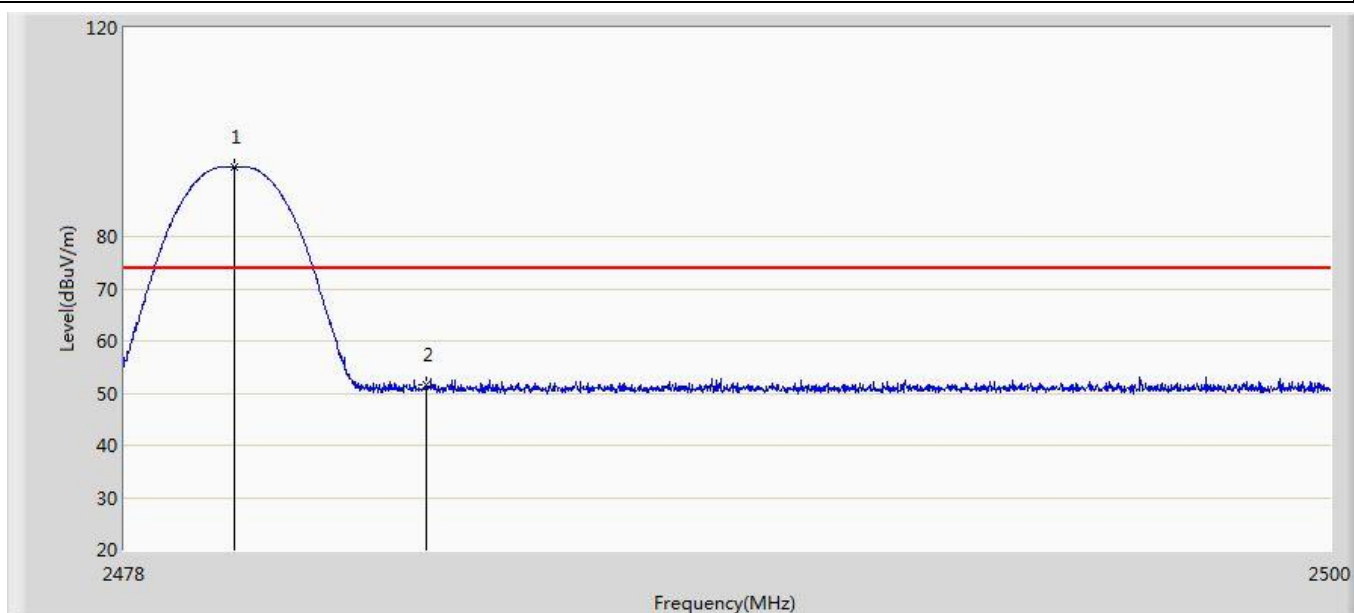
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.947	89.525	53.659	N/A	N/A	35.866	PK
2		2483.500	51.360	15.468	-22.640	74.000	35.891	PK

Profile: 1912068R	Page No.: 6
Engineer: Tommie	
Site: AC5	Time: 2019/01/22 - 23:46
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 1:Transmit at 2480MHz by DH5	



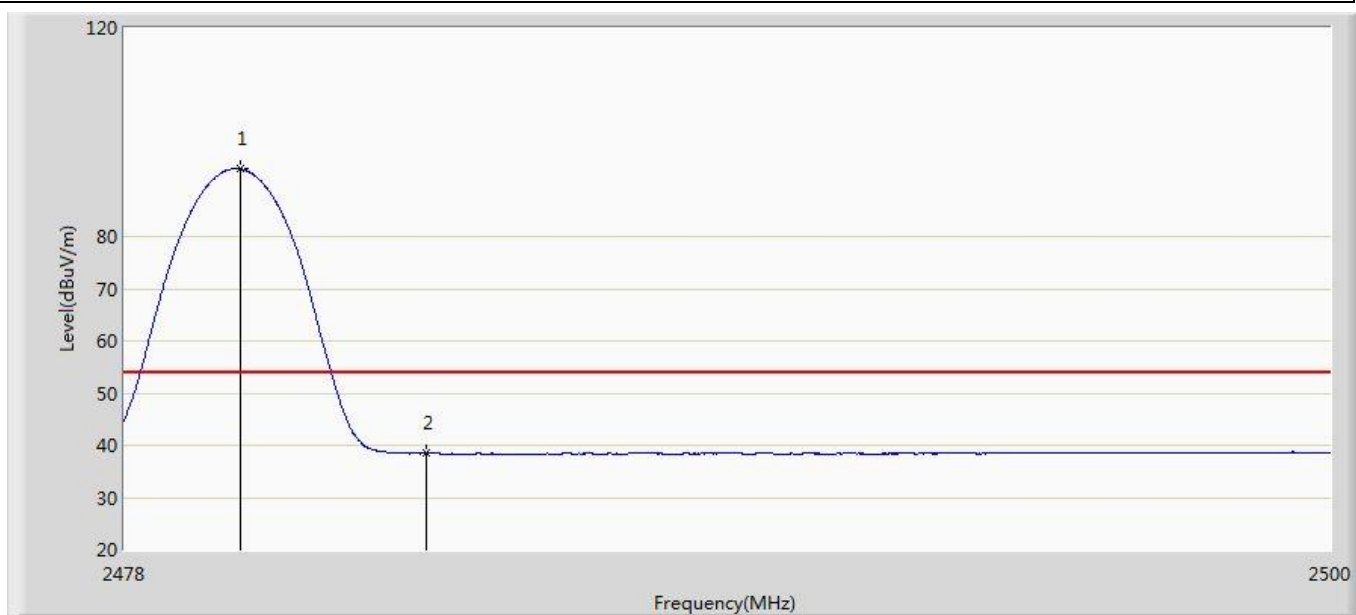
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.145	89.263	53.396	N/A	N/A	35.867	AV
2		2483.500	38.172	2.280	-15.828	54.000	35.891	AV

Profile: 1912068R	Page No.: 7
Engineer: Tommie	
Site: AC5	Time: 2019/01/22 - 23:47
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 1:Transmit at 2480MHz by DH5	



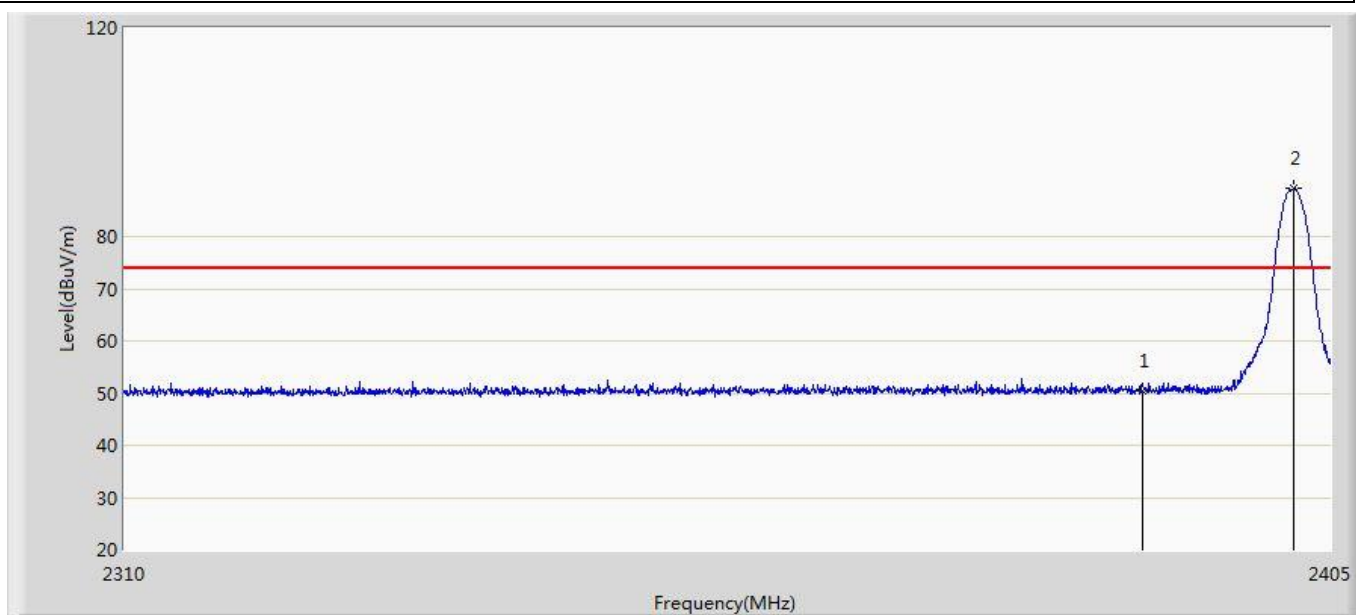
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.013	93.268	57.402	N/A	N/A	35.866	PK
2		2483.500	51.598	15.706	-22.402	74.000	35.891	PK

Profile: 1912068R	Page No.: 8
Engineer: Tommie	
Site: AC5	Time: 2019/01/22 - 23:49
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 1:Transmit at 2480MHz by DH5	



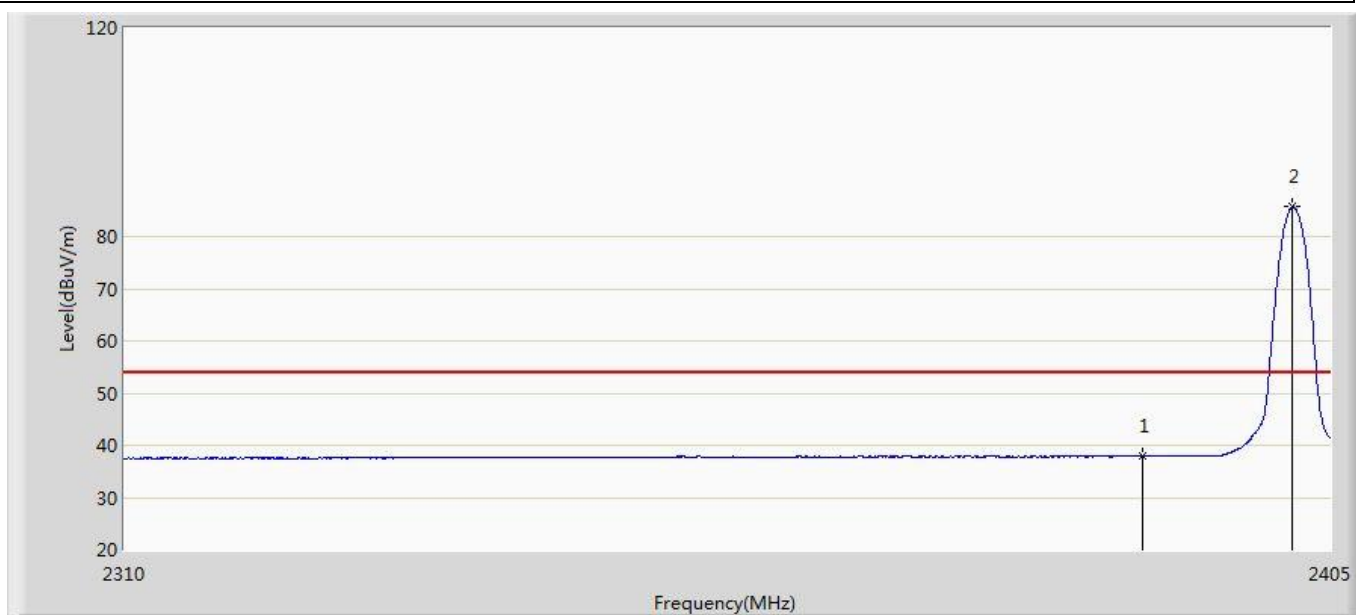
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.112	92.956	57.089	N/A	N/A	35.867	AV
2		2483.500	38.429	2.537	-15.571	54.000	35.891	AV

Profile: 1912068R	Page No.: 9
Engineer: Tommie	
Site: AC5	Time: 2019/01/23 - 00:19
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 2:Transmit at 2402MHz by 2DH5	



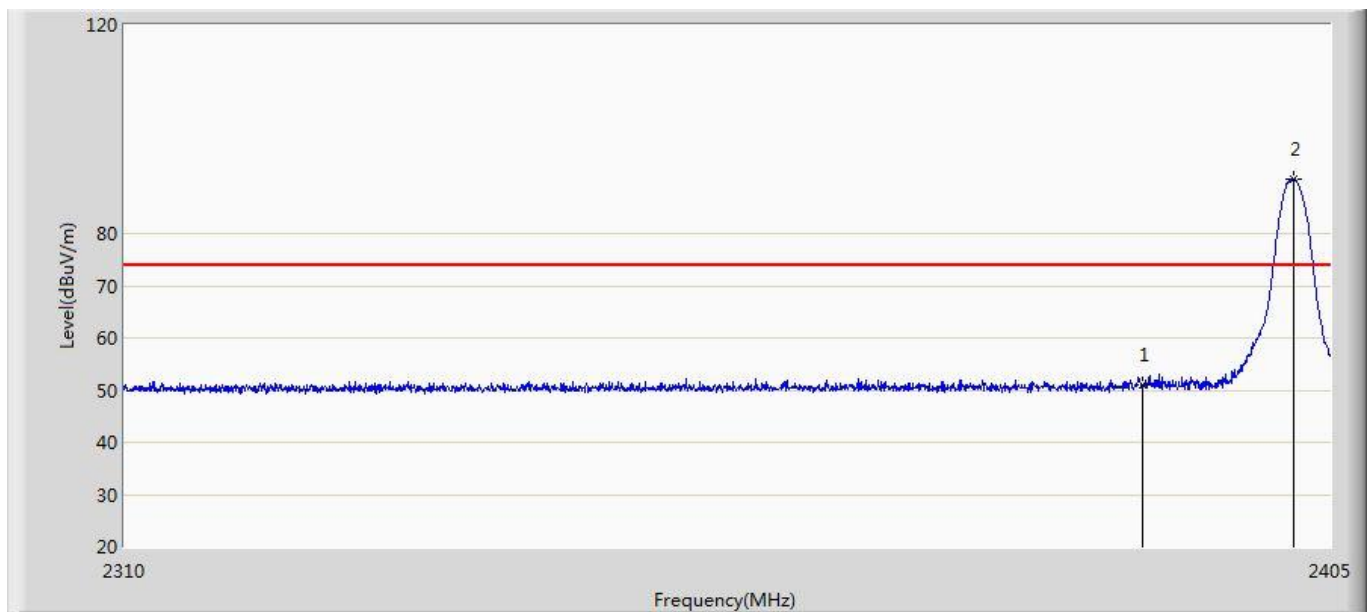
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.451	14.769	-23.549	74.000	35.682	PK
2	*	2402.055	89.170	53.457	N/A	N/A	35.712	PK

Profile: 1912068R	Page No.: 10
Engineer: Tommie	
Site: AC5	Time: 2019/01/23 - 00:23
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 2:Transmit at 2402MHz by 2DH5	



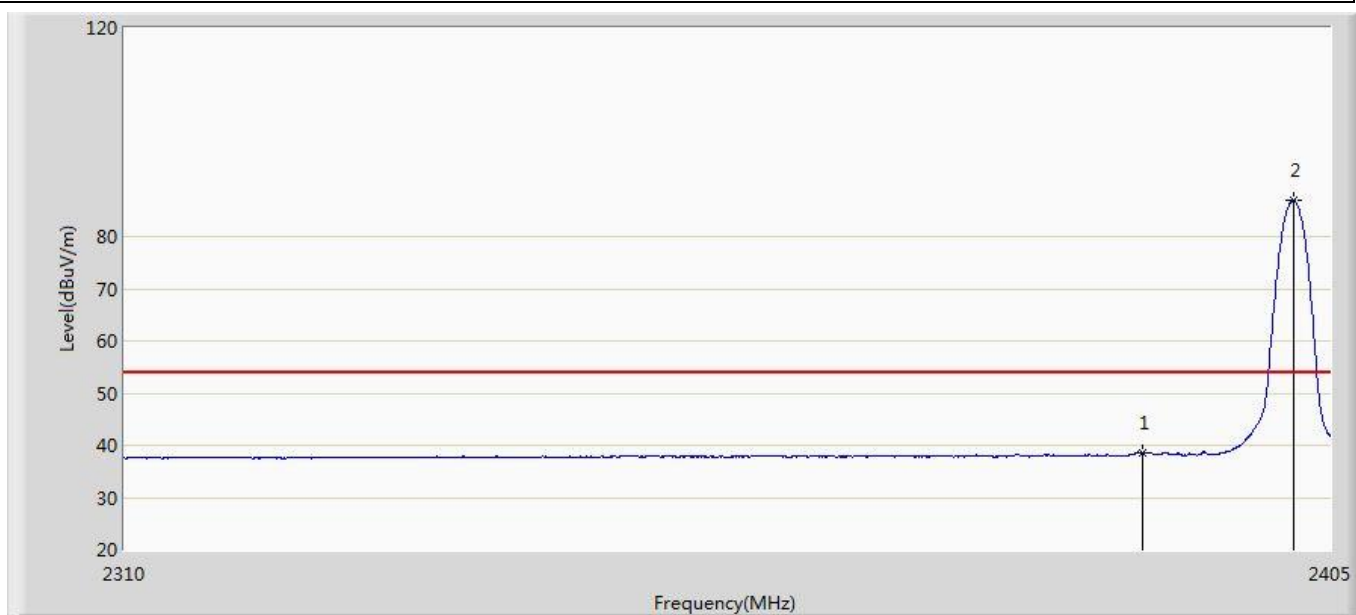
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	37.905	2.223	-16.095	54.000	35.682	AV
2	*	2401.960	85.695	49.982	N/A	N/A	35.712	AV

Profile: 1912068R	Page No.: 11
Engineer: Tommie	
Site: AC5	Time: 2019/01/23 - 00:24
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 2:Transmit at 2402MHz by 2DH5	



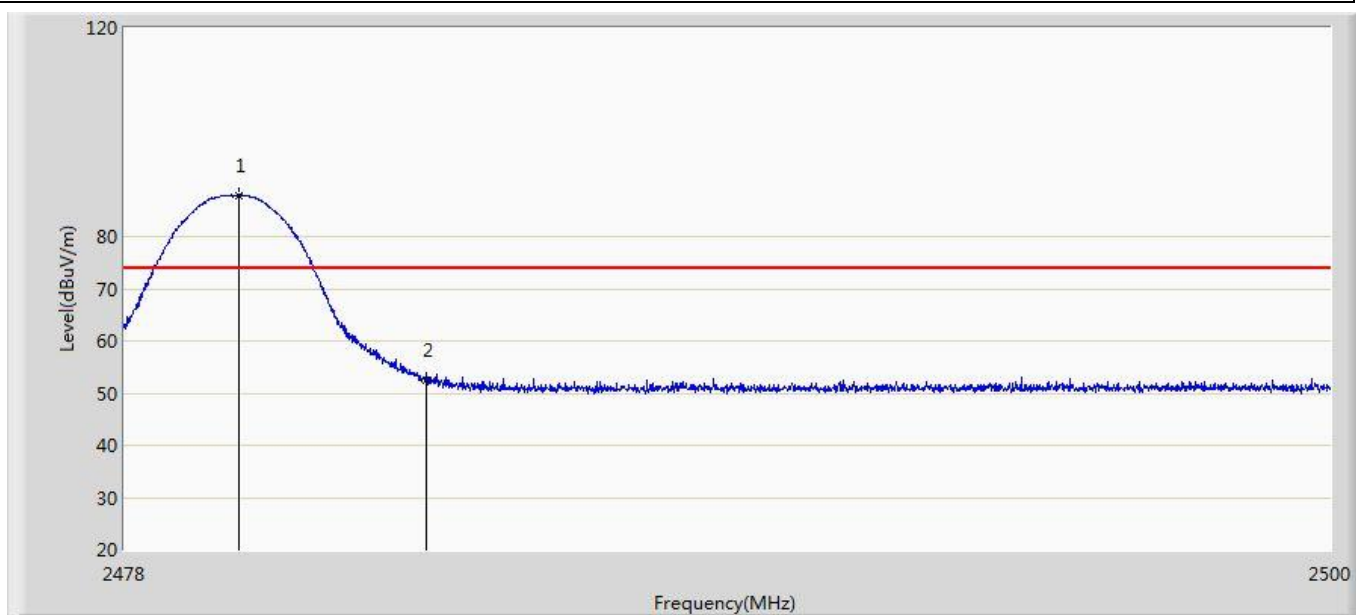
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	51.004	15.322	-22.996	74.000	35.682	PK
2	*	2402.055	90.355	54.642	N/A	N/A	35.712	PK

Profile: 1912068R	Page No.: 12
Engineer: Tommie	
Site: AC5	Time: 2019/01/23 - 00:26
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 2:Transmit at 2402MHz by 2DH5	



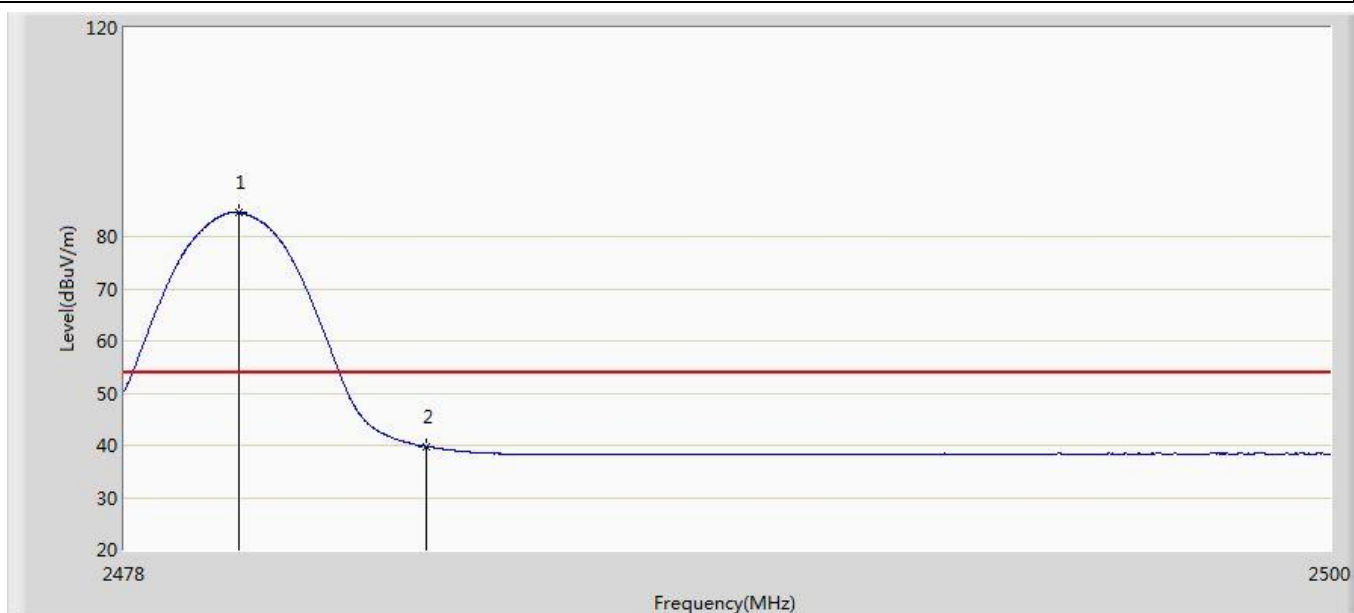
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	38.496	2.814	-15.504	54.000	35.682	AV
2	*	2402.055	87.018	51.305	N/A	N/A	35.712	AV

Profile: 1912068R	Page No.: 13
Engineer: Tommie	
Site: AC5	Time: 2019/01/23 - 00:28
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 2:Transmit at 2480MHz by 2DH5	



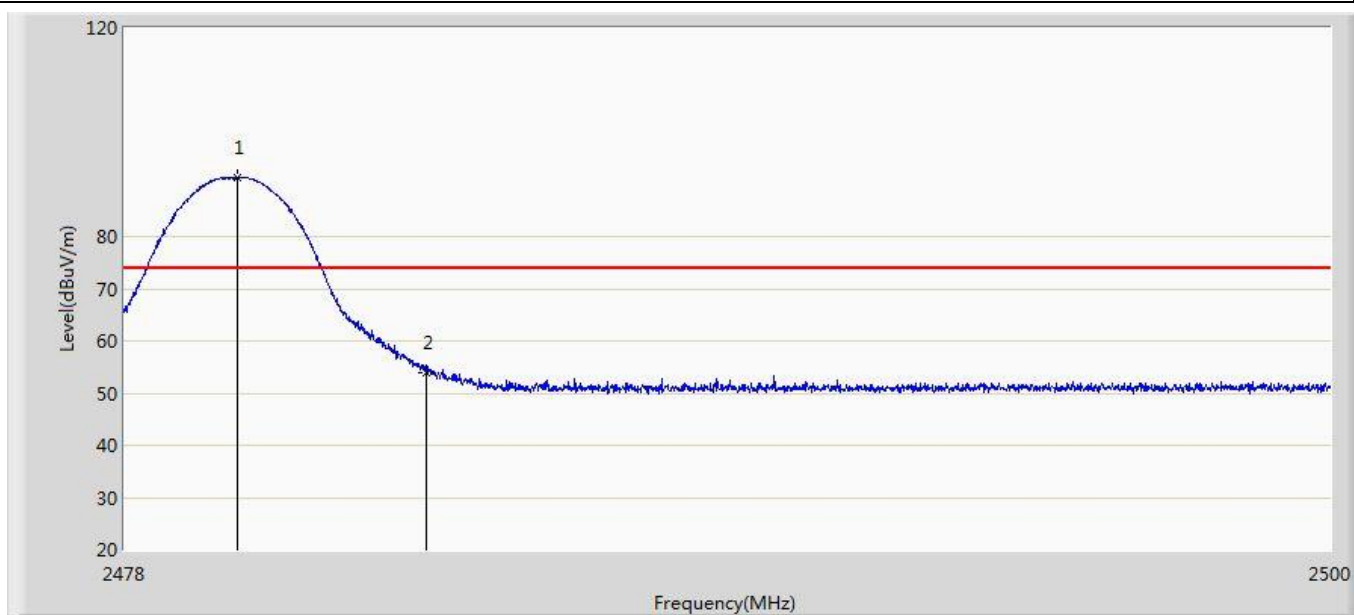
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.079	87.864	51.997	N/A	N/A	35.867	PK
2		2483.500	52.383	16.491	-21.617	74.000	35.891	PK

Profile: 1912068R	Page No.: 14
Engineer: Tommie	
Site: AC5	Time: 2019/01/23 - 00:30
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 2:Transmit at 2480MHz by 2DH5	



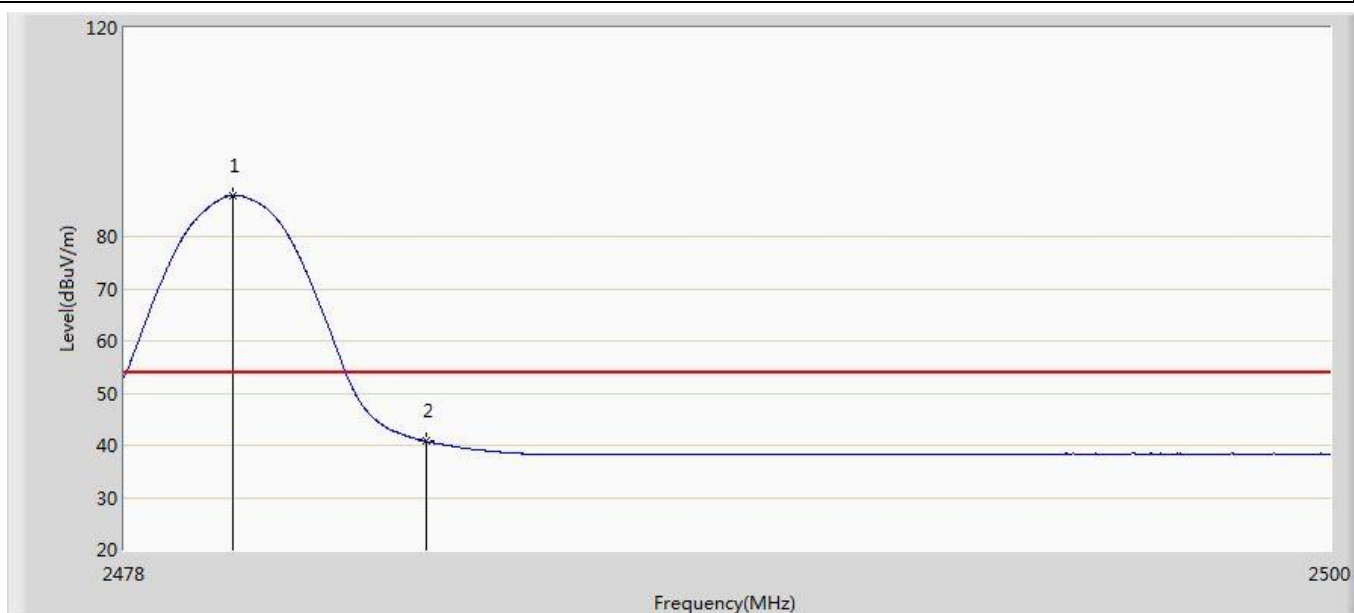
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.079	84.606	48.739	N/A	N/A	35.867	AV
2		2483.500	39.795	3.903	-14.205	54.000	35.891	AV

Profile: 1912068R	Page No.: 15
Engineer: Tommie	
Site: AC5	Time: 2019/01/23 - 00:32
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 2:Transmit at 2480MHz by 2DH5	



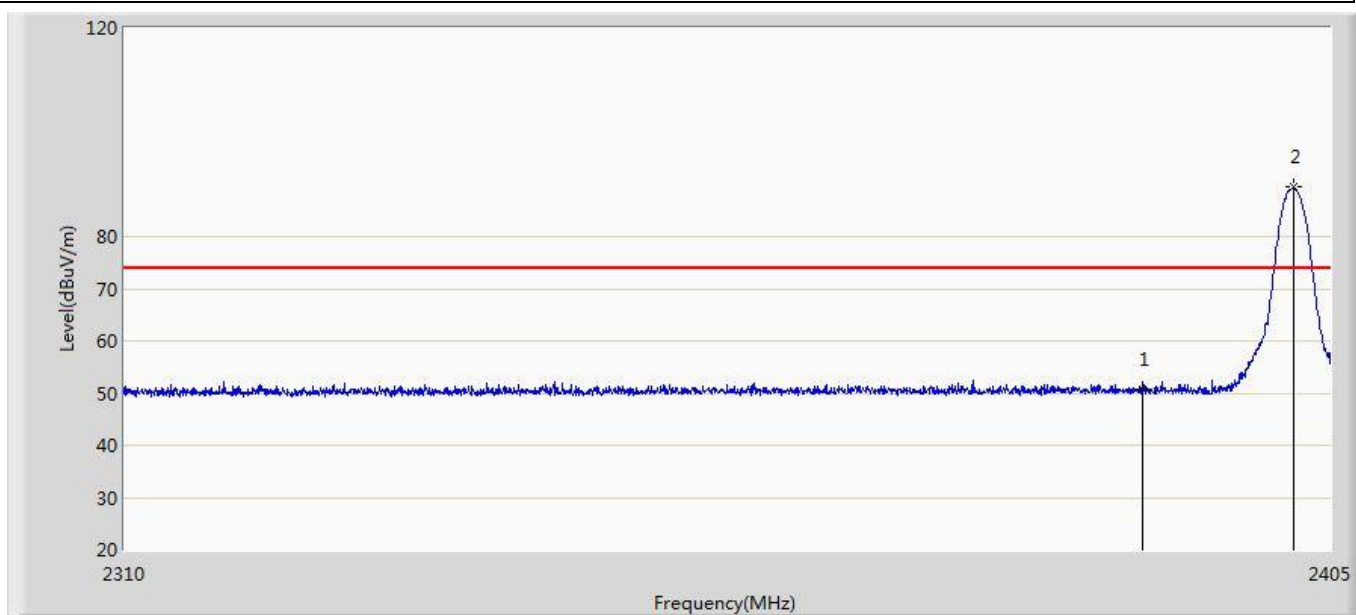
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.046	91.381	55.514	N/A	N/A	35.866	PK
2		2483.500	53.933	18.041	-20.067	74.000	35.891	PK

Profile: 1912068R	Page No.: 16
Engineer: Tommie	
Site: AC5	Time: 2019/01/23 - 00:34
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 2:Transmit at 2480MHz by 2DH5	



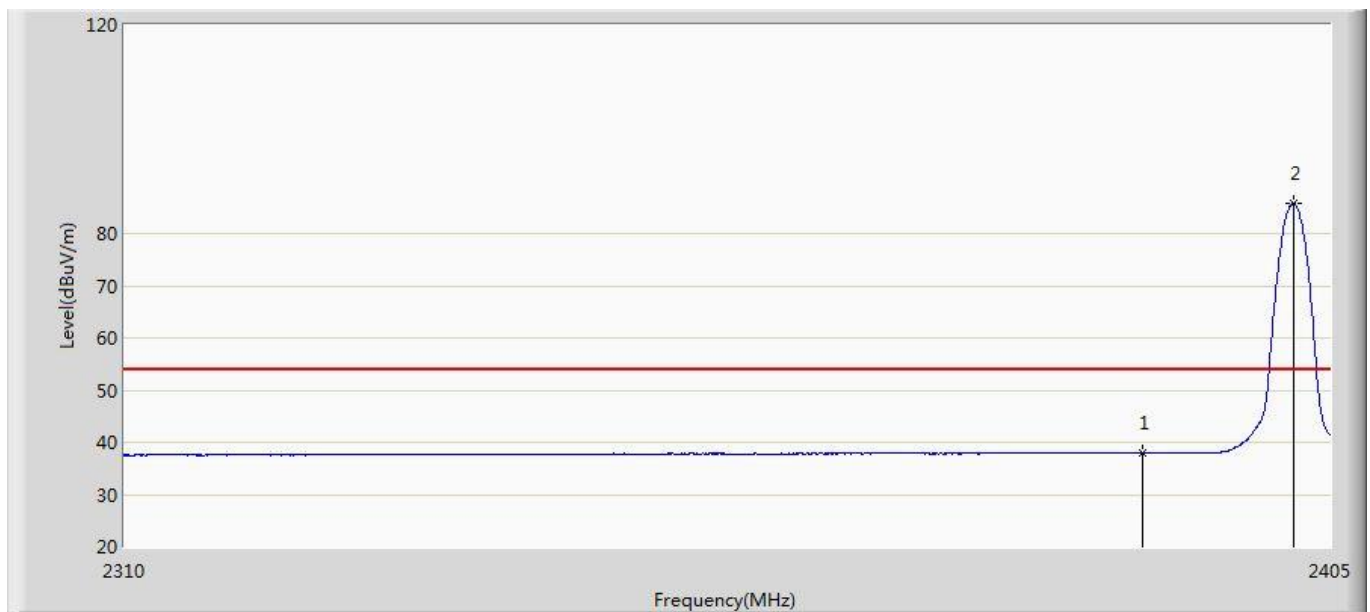
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.969	87.871	52.005	N/A	N/A	35.866	AV
2		2483.500	40.743	4.851	-13.257	54.000	35.891	AV

Profile: 1912068R	Page No.: 17
Engineer: Tommie	
Site: AC5	Time: 2019/01/23 - 00:36
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 3:Transmit at 2402MHz by 3DH5	



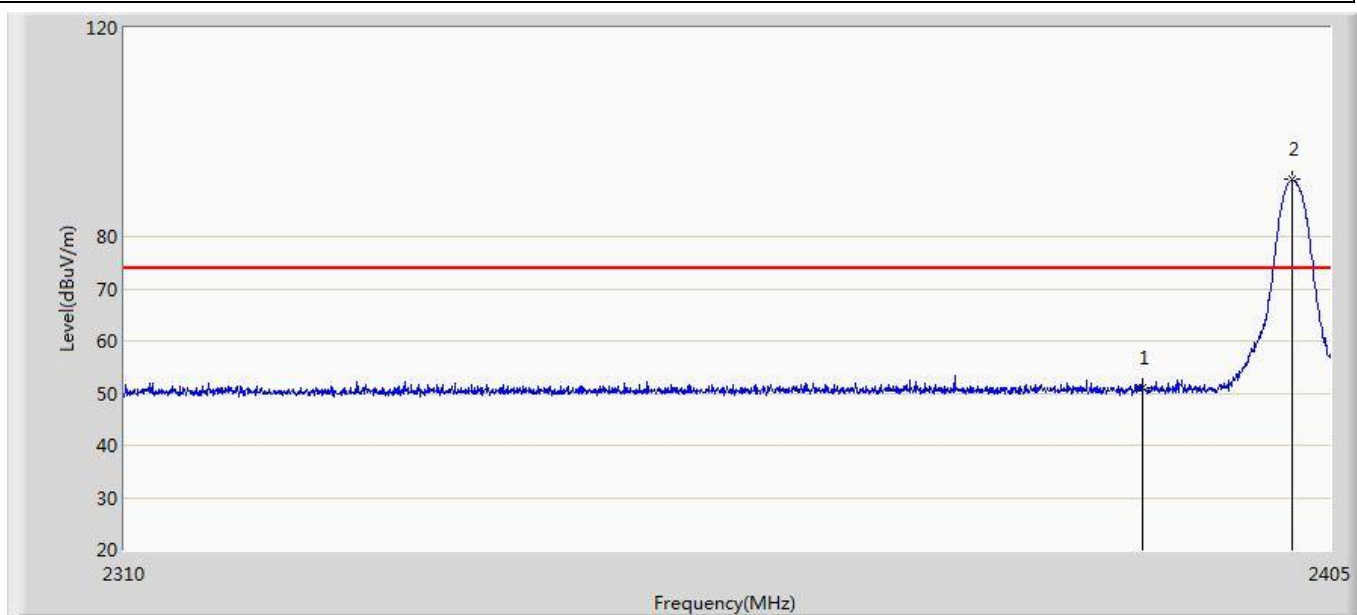
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.703	15.021	-23.297	74.000	35.682	PK
2	*	2402.055	89.443	53.730	N/A	N/A	35.712	PK

Profile: 1912068R	Page No.: 18
Engineer: Tommie	
Site: AC5	Time: 2019/01/23 - 00:39
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 3:Transmit at 2402MHz by 3DH5	



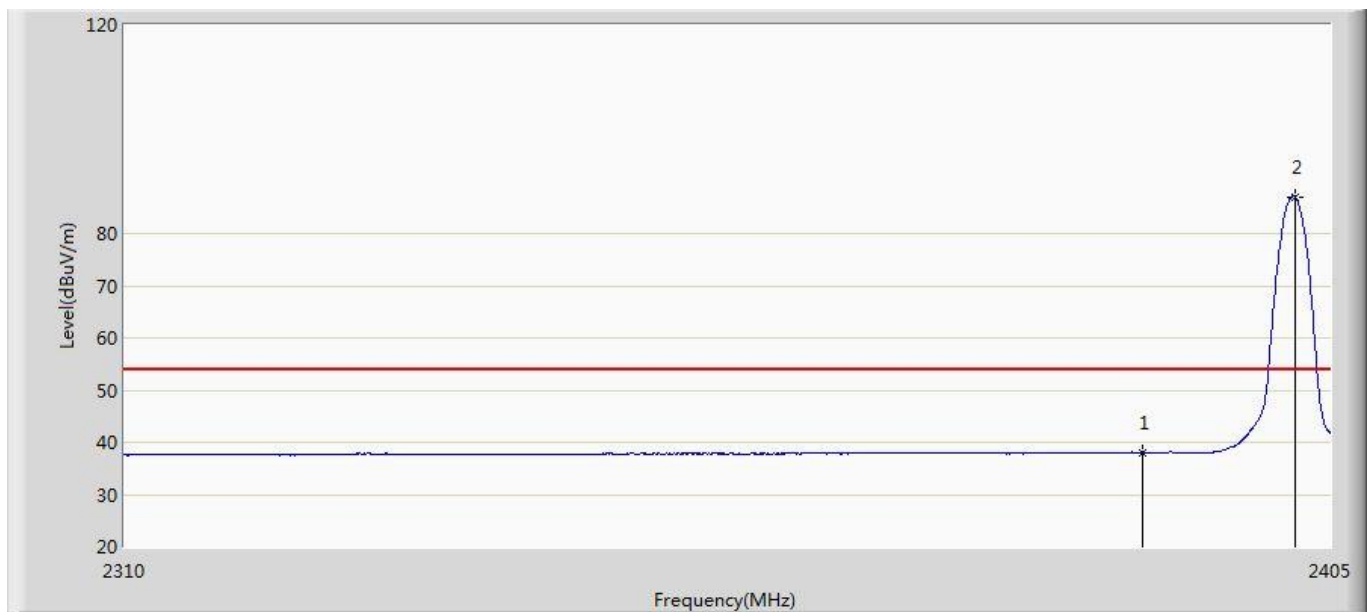
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	37.921	2.239	-16.079	54.000	35.682	AV
2	*	2402.055	85.730	50.017	N/A	N/A	35.712	AV

Profile: 1912068R	Page No.: 19
Engineer: Tommie	
Site: AC5	Time: 2019/01/23 - 00:41
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 3:Transmit at 2402MHz by 3DH5	



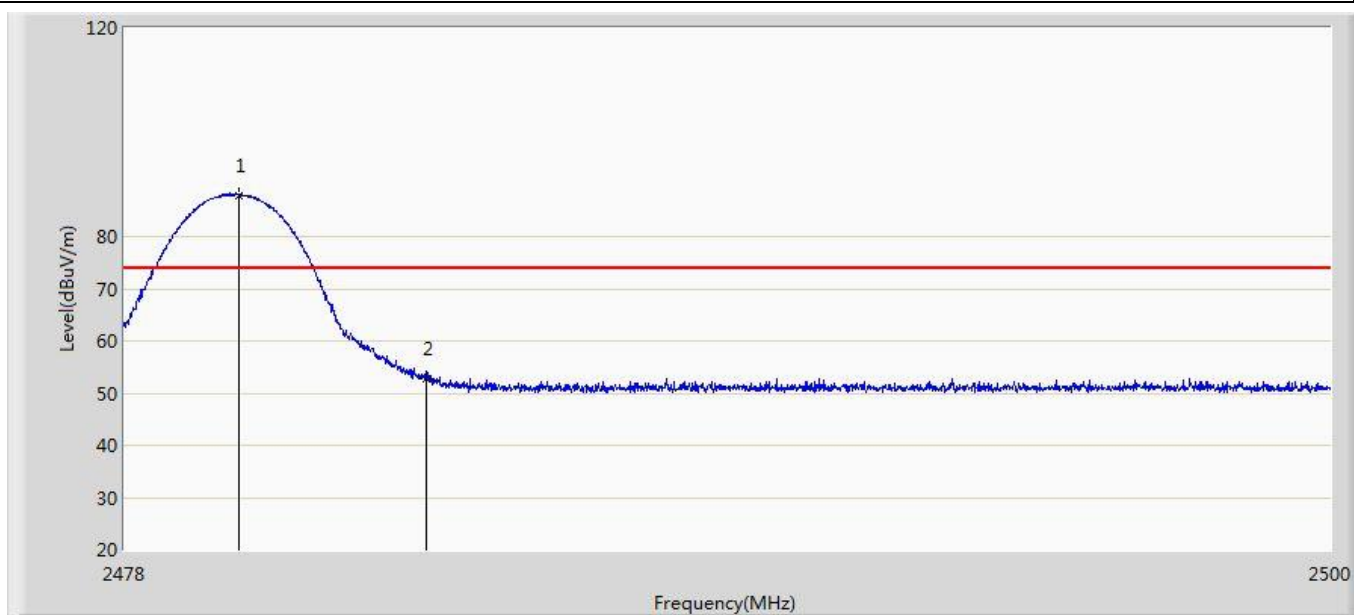
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.909	15.227	-23.091	74.000	35.682	PK
2	*	2401.913	91.016	55.304	N/A	N/A	35.712	PK

Profile: 1912068R	Page No.: 20
Engineer: Tommie	
Site: AC5	Time: 2019/01/23 - 00:42
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 3:Transmit at 2402MHz by 3DH5	



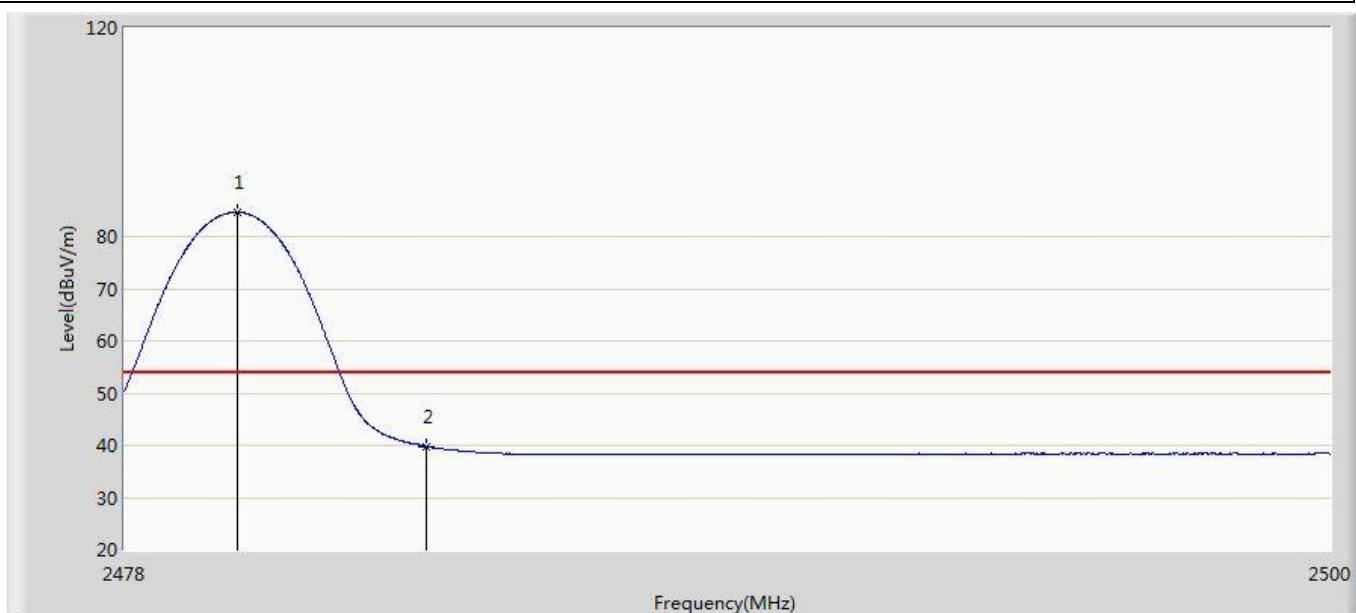
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	38.051	2.369	-15.949	54.000	35.682	AV
2	*	2402.198	87.016	51.303	N/A	N/A	35.714	AV

Profile: 1912068R	Page No.: 21
Engineer: Tommie	
Site: AC5	Time: 2019/01/23 - 00:44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 3:Transmit at 2480MHz by 3DH5	



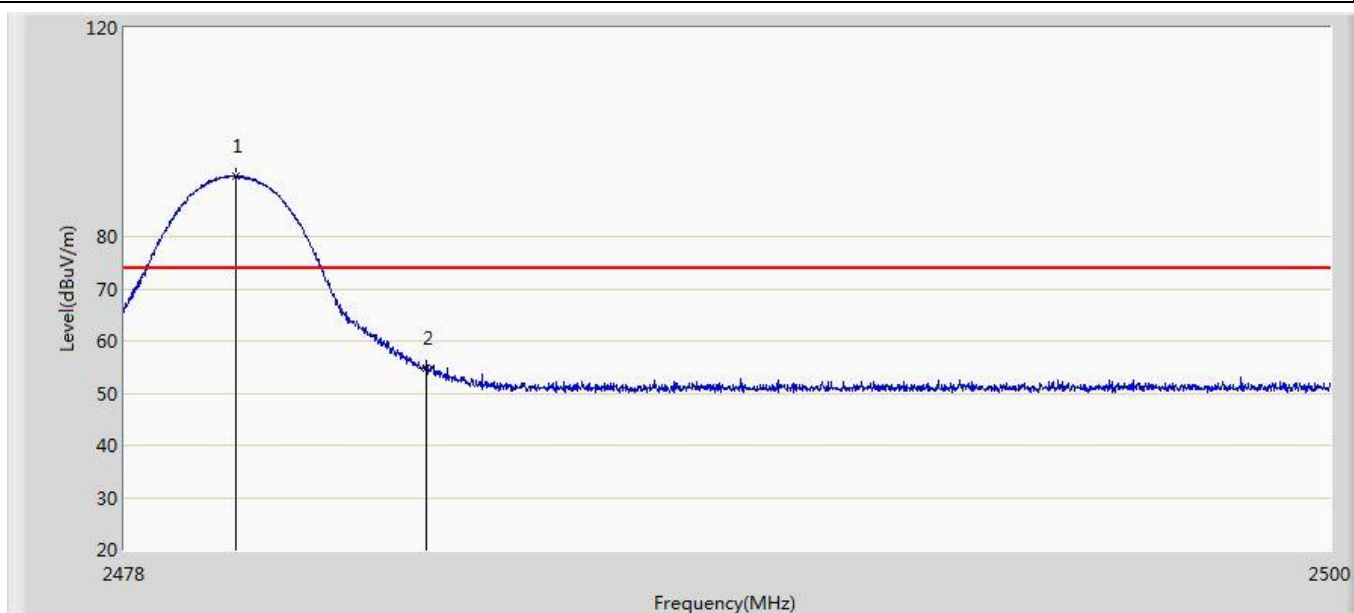
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.079	87.921	52.054	N/A	N/A	35.867	PK
2		2483.500	52.688	16.796	-21.312	74.000	35.891	PK

Profile: 1912068R	Page No.: 22
Engineer: Tommie	
Site: AC5	Time: 2019/01/23 - 00:47
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 3:Transmit at 2480MHz by 3DH5	



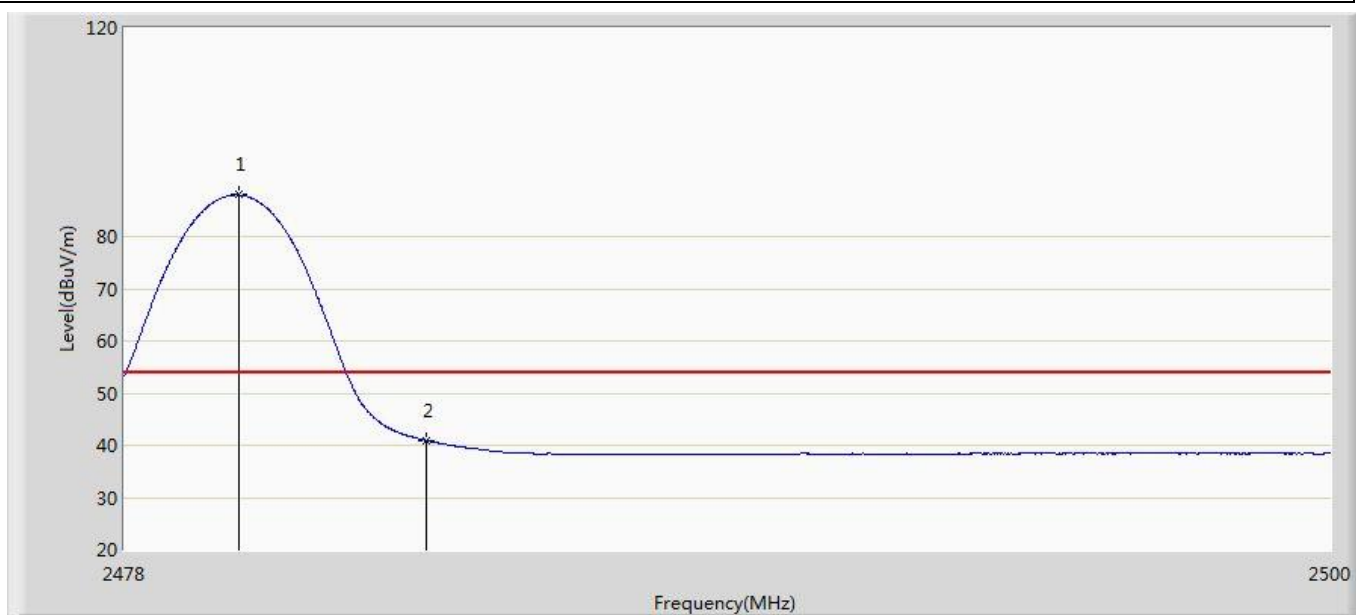
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.046	84.683	48.816	N/A	N/A	35.866	AV
2		2483.500	39.762	3.870	-14.238	54.000	35.891	AV

Profile: 1912068R	Page No.: 23
Engineer: Tommie	
Site: AC5	Time: 2019/01/23 - 00:49
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 3:Transmit at 2480MHz by 3DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.035	91.585	55.718	N/A	N/A	35.866	PK
2		2483.500	54.743	18.851	-19.257	74.000	35.891	PK

Profile: 1912068R	Page No.: 24
Engineer: Tommie	
Site: AC5	Time: 2019/01/23 - 00:51
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: 2620011024000	Power: 3 Vdc
Note: Mode 3:Transmit at 2480MHz by 3DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.079	87.976	52.109	N/A	N/A	35.867	AV
2		2483.500	40.899	5.007	-13.101	54.000	35.891	AV

12. Antenna Requirement

12.1. Limit

Antenna Requirement Limit	
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. 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 provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.	

12.2. Antenna Connector Construction

Antenna Connector Construction	
☒	The use of a permanently attached antenna
☐	The antenna use of a unique coupling to the intentional radiator
☐	The use of a nonstandard antenna jack or electrical connector
Please refer to the attached document "Internal Photograph" to show the antenna connector.	

_____ The End _____