

FCC Test Report

Product Name : KNOT LR9 kit
Brand Name : MikroTik
Model No. : RB924iR-2nD-BT5&BG77&R11e-LR9,
RB924i-2nD-BT5&BG77
FCC ID : TV7924BT5LR9

Applicant : Mikrotikls SIA
Address : Brīvības gatve 214i,Rīga LV-1039 Latvia

Date of Receipt : Jul. 27, 2021
Issued Date : Dec. 20, 2021
Report No. : 2171120R-RFUSBLEV01-A
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 TAF or any agency of the government.

Measurement uncertainties evaluated for each testing system and associated connections are given here to provide the system information for reference. Compliance determinations do not take into account measurement uncertainties for each testing system, but are based on the results of the compliance measurement.

The test report shall not be reproduced except in full without the written approval of DEKRA Testing and Certification Co., Ltd.


Test Report Certification



Product Name : KNOT LR9 kit
Applicant : Mikrotiks SIA
Address : Brīvības gatve 214i, Rīga LV-1039 Latvia
Manufacturer : Mikrotiks SIA
Address : Brīvības gatve 214i, Rīga LV-1039 Latvia
Brand Name : MikroTik
Model No. : RB924iR-2nD-BT5&BG77&R11e-LR9, RB924i-2nD-BT5&BG77
FCC ID : TV7924BT5LR9
EUT Voltage : DC 5 ~ 24V
Testing Voltage : AC 120V/60Hz
Applicable Standard : FCC CFR Title 47 Part 15 Subpart C Section 15.247
ANSI C63.10: 2013
Laboratory Name : Hsin Chu Laboratory
Address : No.372-2, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu
County 310, Taiwan, R.O.C.
TEL: +886-3-582-8001 / FAX: +886-3-582-8958
Test Result : Complied

Documented By : 

(Amelia Wu / Project Specialist)

Approved By : 

(Louis Hsu / Deputy Manager)

The test results relate only to the samples tested.
The test report shall not be reproduced except in full without the written approval of DEKRA
Testing and Certification Co., Ltd.

Revision History

Version	Description	Issued Date
V1.0	Initial issue of report	Dec. 20, 2021

TABLE OF CONTENTS

Description	Page
1. General Information	6
1.1 EUT Description	6
1.2 Test Mode	8
1.3 Comments and Remarks	8
1.4 Tested System Details	9
1.5 Configuration of tested System	9
1.6 EUT Operation of during Test	10
1.7 Test Facility	11
1.8 List of Test Equipment	13
1.9 Measurement Uncertainty	14
1.10 Duty Cycle	15
2. AC Power Line Conducted Emission	16
2.1 Test Setup	16
2.2 Test Limit	16
2.3 Test Procedure	16
2.4 Test Specification	16
2.5 Test Result of AC Power Line Conducted Emission	17
3. Maximum Conducted Output Power	21
3.1 Test Setup	21
3.2 Test Limit	21
3.3 Test procedures	21
3.4 Test Specification	21
3.5 Test Result of Maximum Conducted Output Power	22
4. Radiated Emission	23
4.1 Test Setup	23
4.2 Test Limit	24
4.3 Test Procedure	25
4.4 Test Specification	25
4.5 Test Result of Radiated Emissions (30 MHz ~ 1 GHz)	26
4.6 Test Result of Radiated Emissions (1 GHz ~ 10 th Harmonic)	30
5. Antenna Port Conducted Emission	42
5.1 Test Setup	42
5.2 Test Limit	42
5.3 Test Procedure	42
5.4 Test Specification	42
5.5 Test Result of Antenna Port Conducted Emission	43
6. Radiated Emission Band Edge	46
6.1 Test Setup	46
6.2 Test Limit	46
6.3 Test Procedure	47
6.4 Test Specification	47
6.5 Test Result of Radiated Emission Band Edge	48

7.	Occupied Bandwidth & DTS Bandwidth.....	72
7.1	Test Setup.....	72
7.2	Test Limit	72
7.3	Test Procedures.....	72
7.4	Test Specification.....	72
7.5	Test Result of Occupied Bandwidth.....	73
7.6	Test Result of DTS Bandwidth.....	75
8.	Maximum Power Spectral Density	77
8.1	Test Setup.....	77
8.2	Test Limit	77
8.3	Test Procedures.....	77
8.4	Test Specification.....	77
8.5	Test Result of Maximum Power Spectral Density	78
Appendix A	80
	Test Result of Radiated Emissions Co-location	80
Appendix B	88
<input type="checkbox"/>	Test Setup Photograph	88

1. General Information

1.1 EUT Description

Product Name	KNOT LR9 kit
Brand Name	MikroTik
Model No.	RB924iR-2nD-BT5&BG77&R11e-LR9, RB924i-2nD-BT5&BG77
Frequency Range	1 Mbps: 2402 ~ 2480 MHz 2 Mbps: 2402 ~ 2480 MHz
Channel Number	1 Mbps: 40 Channels 2 Mbps: 40 Channels
Type of Modulation	GFSK

Accessories Information				
No.	Equipment Name	Brand Name	Model No.	Rating
1	Adapter	ULLPOWER	SAW30-240-1200U	INPUT: AC 100-240V, 50/60Hz, 0.8A OUTPUT: DC 24V, 1200mA
2	PoE injector / PoE injector connected to ETH 1 (PoE in)	MikroTik	RBGPOE	DC 18-57 V

The difference for each model is shown as below:

Model No.	LoRa Function
RB924iR-2nD-BT5&BG77&R11e-LR9	With
RB924i-2nD-BT5&BG77	Without

Antenna Information				
Ant.	Brand Name	Model No.	Type	Gain (dBi)
0	MikroTik	N/A	PIFA	2

GFSK (1 Mbps/2 Mbps)

Working Frequency of Each Channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
00	2402 MHz	10	2422 MHz	20	2442 MHz	30	2462 MHz
01	2404 MHz	11	2424 MHz	21	2444 MHz	31	2464 MHz
02	2406 MHz	12	2426 MHz	22	2446 MHz	32	2466 MHz
03	2408 MHz	13	2428 MHz	23	2448 MHz	33	2468 MHz
04	2410 MHz	14	2430 MHz	24	2450 MHz	34	2470 MHz
05	2412 MHz	15	2432 MHz	25	2452 MHz	35	2472 MHz
06	2414 MHz	16	2434 MHz	26	2454 MHz	36	2474 MHz
07	2416MHz	17	2436 MHz	27	2456 MHz	37	2476 MHz
08	2418 MHz	18	2438 MHz	28	2458 MHz	38	2478 MHz
09	2420 MHz	19	2440 MHz	29	2460 MHz	39	2480 MHz

Note:

1. Regards to the frequency band operation; the lowest , middle and highest frequency of channel were selected to perform the test, and then shown on this report.
2. The above EUT information is declared by the manufacturer.
3. This device contains WWAN LTE module FCC ID: XMR201912BG77.

1.2 Test Mode

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

Test Mode	Mode 1: Transmit (Adapter) Mode 2: Transmit (PoE)
-----------	--

Test Items	Test Mode	Modulation	Channel	Result
AC Power Line Conducted Emission	Mode 1	GFSK (1 Mbps)	19	Pass
	Mode 2			Pass
Maximum Conducted Output Power	Mode 1	GFSK (1 Mbps)	00/19/39	Pass
		GFSK (2 Mbps)	00/19/39	Pass
Radiated Emission Below 1 GHz	Mode 1	GFSK (1 Mbps)	19	Pass
	Mode 2			
Radiated Emission Above 1 GHz	Mode 1	GFSK (1 Mbps)	00/19/39	Pass
		GFSK (2 Mbps)	00/19/39	Pass
Antenna Port Conducted Emission	Mode 1	GFSK (1 Mbps)	00/19/39	Pass
		GFSK (2 Mbps)	00/19/39	Pass
Radiated Emission Band Edge	Mode 1	GFSK (1 Mbps)	00/19/39	Pass
		GFSK (2 Mbps)	00/19/39	Pass
Occupied Bandwidth & DTS Bandwidth	Mode 1	GFSK (1 Mbps)	00/19/39	Pass
		GFSK (2 Mbps)	00/19/39	Pass
Maximum Power Spectral Density	Mode 1	GFSK (1 Mbps)	00/19/39	Pass
		GFSK (2 Mbps)	00/19/39	Pass

Note:

- Determining compliance shall be based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
- For radiated emission below 1 GHz and AC power line conducted emission have performed all modes of operation were investigated and the worst-case emissions are reported.
- The EUT could be applied with WLAN 2.4 GHz function, Bluetooth function, LoRa function and WWAN LTE function; therefore Co-location Maximum Permissible Exposure (Please refer to DEKRA Report No.: 2171120R-RFUSMPEV02) and Radiated Emission Co-location (Please refer to Appendix A) tests are added for simultaneously transmit between WLAN 2.4 GHz function, Bluetooth function, LoRa function and WWAN LTE function. <Simultaneous Transmission Analysis Mode: 1. WLAN 2.4 GHz function + WWAN LTE function, 2. Bluetooth function + WWAN LTE function, 3. LoRa function + WWAN LTE function>

1.3 Comments and Remarks

The product specification and testing instructions for the EUT declared in the report are provided by the manufacturer who will take all responsibilities for the accuracy.

1.4 Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system.

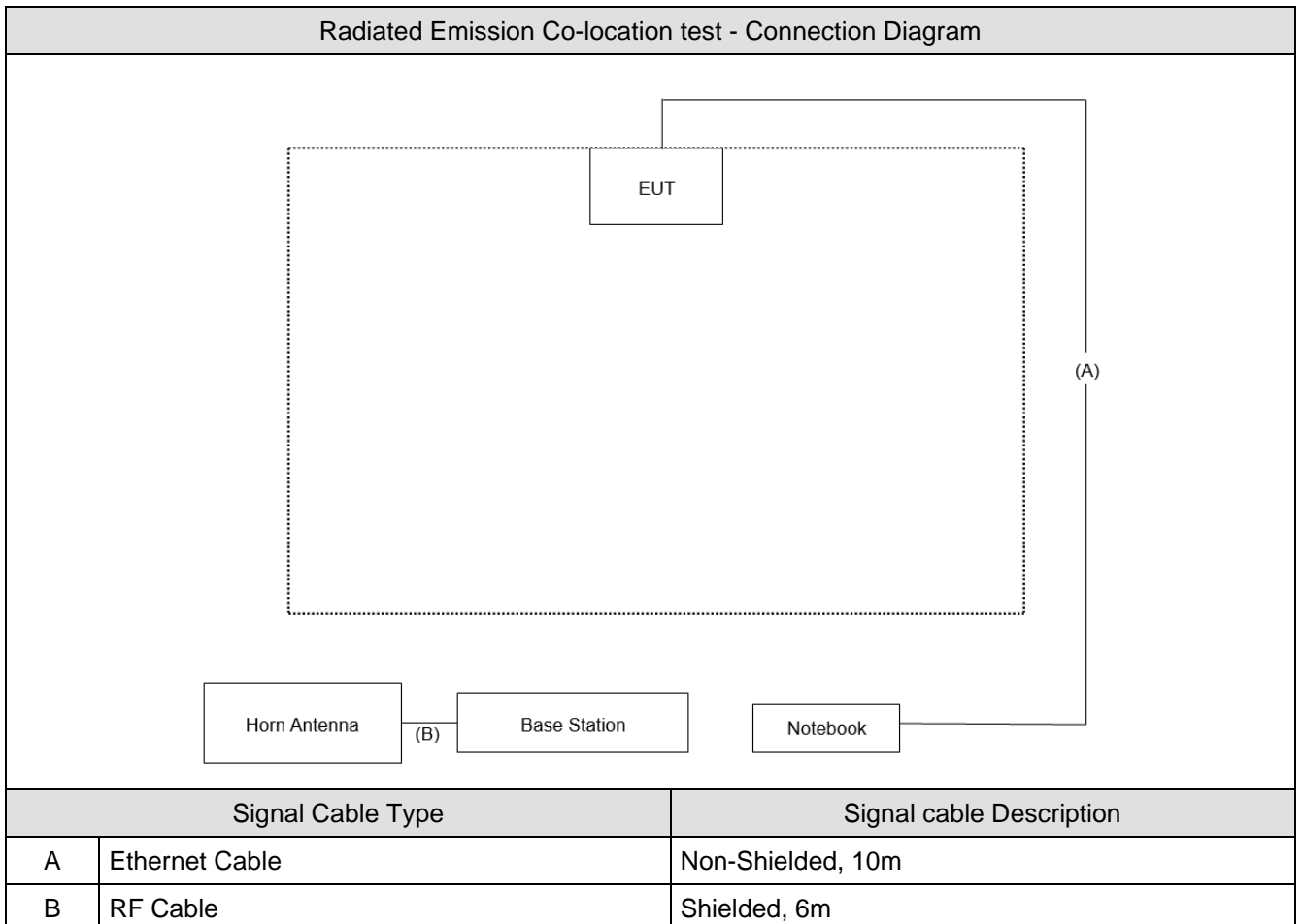
For Radiated Emission Co-location test:

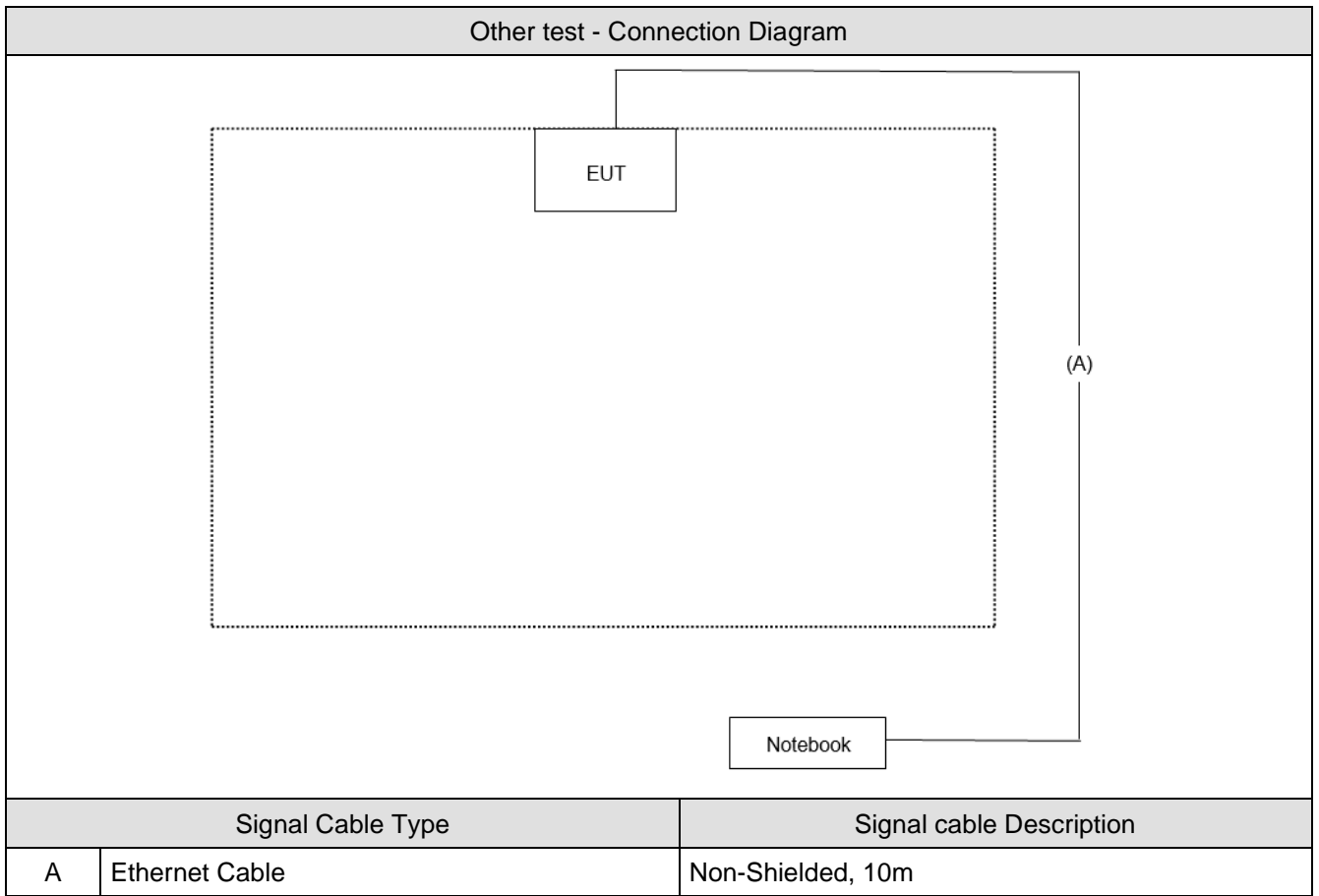
	Product	Manufacturer	Model No.	Serial No.	FCC ID
1	Notebook	Lenovo	Lenovo Ideapad 510S	MP16Z7TB	SDoC
2	Base Station	R&S	CMW500	157118	-
3	Horn Antenna	Schwarzbeck	BBHA 9120D	1640	-

For other test:

	Product	Manufacturer	Model No.	Serial No.	FCC ID
1	Notebook	Lenovo	Lenovo Ideapad 510S	MP16Z7TB	SDoC

1.5 Configuration of tested System





1.6 EUT Operation of during Test

1.	Set the EUT as shown.
2.	Open the command software Putty.
3.	Execute the control command.
4.	Configure test mode, test channel and data rate.
5.	Let the EUT start transmitting continuously.
6.	Verify that device is working properly

1.7 Test Facility

Ambient conditions in the laboratory:

Items	Test Item	Actually	Tested by	Test Date	Test Site
Temperature (°C)	AC power Line Conducted Emission	22.9	Ling Chen	2021/11/25	SR2-H
Humidity (%RH)		59			
Temperature (°C)	Maximum Peak Conducted	24	Clemens Fang	2021/9/10	SR12-H
Humidity (%RH)	Output Power	69			
Temperature (°C)	Radiated Emission	24.8 ~ 25	Ling Chen	2021/8/26 ~ 2021/9/9	CB2-H
Humidity (%RH)		60 ~ 62			
Temperature (°C)	Antenna Port Conducted Emission	24	Clemens Fang	2021/9/10	SR12-H
Humidity (%RH)		69			
Temperature (°C)	Radiated Emission Band Edge	25	Ling Chen	2021/8/26	CB2-H
Humidity (%RH)		62			
Temperature (°C)	Occupied Bandwidth &	24	Clemens Fang	2021/9/10	SR12-H
Humidity (%RH)	DTS Bandwidth	69			
Temperature (°C)	Maximum Power Spectral Density	24	Clemens Fang	2021/9/10	SR12-H
Humidity (%RH)		69			

Note: Test site information refers to Laboratory Information.

Laboratory Information

USA : **FCC Registration Number: TW3024**
Canada : **CAB identifier : TW3024**

The address and introduction of DEKRA Testing and Certification Co., Ltd. laboratories can be founded in our Web site: <http://www.dekra.com.tw>

If you have any comments, please don't hesitate to contact us. Our test sites as below:

Test Laboratory	DEKRA Testing and Certification Co., Ltd.
Address	<ol style="list-style-type: none"> No.372-2, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 31061, Taiwan, R.O.C. No.372, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 31061, Taiwan, R.O.C.
Phone number	<ol style="list-style-type: none"> +886-3-582-8001 +886-3-582-8001
Fax number	<ol style="list-style-type: none"> +886-3-582-8958 +886-3-582-8958
Email address	info.tw@dekra.com
Website	http://www.dekra.com.tw
<p>Note: Test site number for address 1 includes SR2-H. Test site number for address 2 includes CB2-H, CB3-H, CB4-H, SR10-H and SR12-H.</p>	

1.8 List of Test Equipment

SR2-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Artificial Mains Network	R&S	ENV4200	848411/010	2020/12/24	2021/12/23
Test Receiver	R&S	ESCS 30	836858/022	2021/02/22	2022/02/21
LISN	R&S	ENV216	100092	2021/06/08	2022/06/07
Coaxial Cable(9 m)	Harbour	RG-400	SR2-H	2021/08/15	2022/08/14
DEKRA Testing System	DEKRA	Version 2.0	SR2-H	N/A	N/A

SR12-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
High Speed Peak Power Meter Dual Input	Anritsu	ML2496A	1602004	2020/11/30	2021/11/29
Pulse Power Sensor	Anritsu	MA2411B	1531043	2020/11/30	2021/11/29
EXA Signal Analyzer	Keysight	N9010A	MY51440132	2021/01/25	2022/01/24
Pulse Power Sensor	Anritsu	MA2411B	1531044	2020/11/30	2021/11/29
Power Meter	Keysight	8990B	MY51000248	2021/05/21	2022/05/20
Power Sensor	Keysight	N1923A	MY57240005	2021/05/21	2022/05/20
Spectrum Analyzer	Keysight	N9010B	MY57110159	2021/03/29	2022/03/28
Spectrum Analyzer	Agilent	N9010A	US47140172	2021/05/28	2022/05/27
Signal & Spectrum Analyzer	R&S	FSV40	101049	2021/03/31	2022/03/30

CB2-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Signal Analyzer	R&S	FSVA40	101455	2021/10/22	2022/10/21
Signal & Spectrum Analyzer	R&S	FSV40	101049	2021/03/31	2022/03/30
Signal Analyzer	R&S	FSVA40	101435	2021/06/04	2022/06/03
EXA Signal Analyzer	Keysight	N9010A	MY51440132	2021/01/25	2022/01/24
Trilog Broadband Antenna	Schwarzbeck	VULB 9168	1272	2021/08/20	2022/08/19
Bilog Antenna	Teseq	CBL6112D	23191	2021/02/26	2022/02/25
Horn Antenna	Schwarzbeck	BBHA 9120D	639	2021/05/17	2022/05/16
Horn Antenna	Schwarzbeck	BBHA 9170	202	2020/12/16	2021/12/15
Pre-Amplifier	EMCI	EMC01820I	980365	2021/05/28	2022/05/27
Pre-Amplifier	EMEC	EM01G18GA	060741	2021/07/02	2022/07/01
Pre-Amplifier	DEKRA	AP-400C	201801231	2020/11/16	2021/11/15
EMI Test Receiver	R&S	ESR7	102260	2020/12/28	2021/12/27
Magnetic Loop Antenna	Teseq	HLA 6121	44287	2020/09/23	2021/09/22
Coaxial Cable(13m)	Huber+Suhner	SF104	CB2-H	2021/08/17	2022/08/16
Coaxial Cable(3m)	Suhnerr,Rosnol	SF102_Rosnol	CB2-H	2021/08/17	2022/08/18
DEKRA Testing System	DEKRA	Version 2.0	CB2-H	NA	NA

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

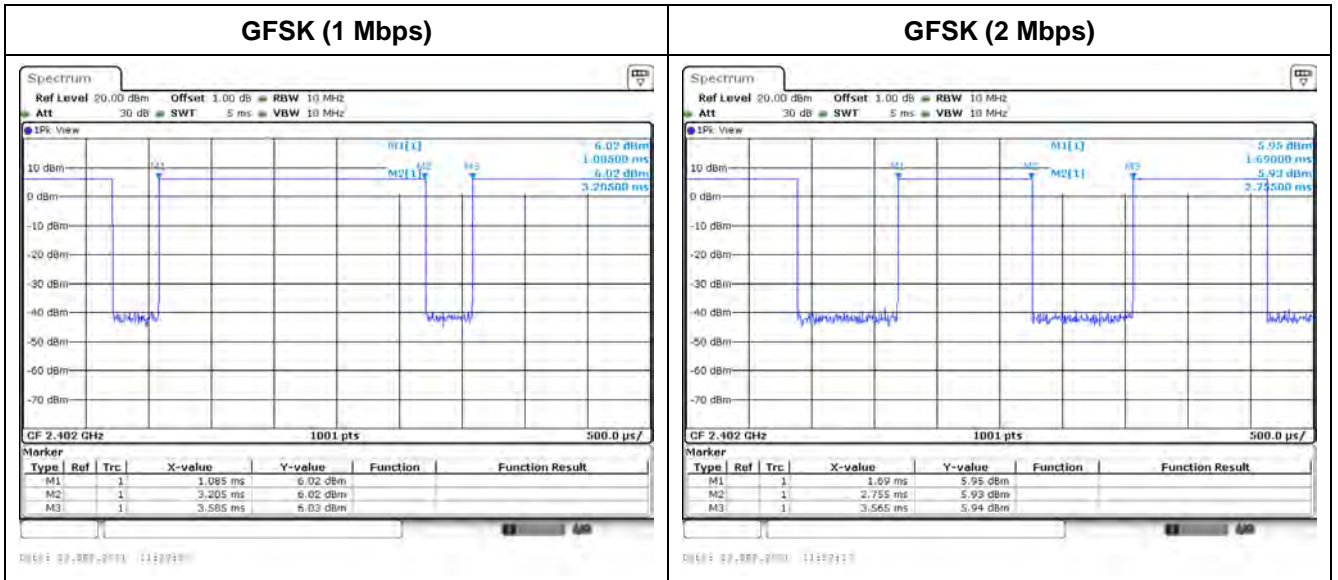
1.9 Measurement Uncertainty

Uncertainties have been calculated according to the DEKRA internal document with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor ($k=2$)).

Test item	Uncertainty
AC Power Line Conducted Emission	± 2.10 dB
Maximum Conducted Output Power	± 1.16 dB
Radiated Emission	± 3.25 dB below 1 GHz ± 3.32 dB above 1 GHz
Antenna Port Conducted Emission	± 1.60 dB
Radiated Emission Band Edge	± 3.32 dB
Occupied Bandwidth & DTS Bandwidth	± 282.55 Hz
Maximum Power Spectral Density	± 1.60 dB

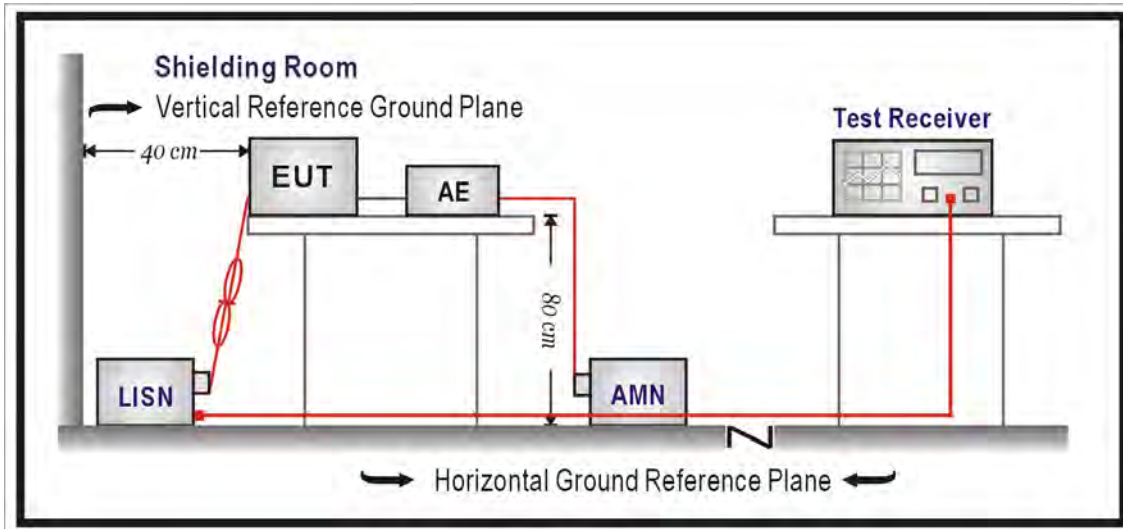
1.10 Duty Cycle

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
GFSK (1 Mbps)	2.120	2.500	84.80	0.72	0.472
GFSK (2 Mbps)	1.065	1.875	56.80	2.46	0.939



2. AC Power Line Conducted Emission

2.1 Test Setup



2.2 Test Limit

Frequency (MHz)	QP (dBuV)	AV (dBuV)
0.15 - 0.50	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30	60	50

Remarks: In the above table, the tighter limit applies at the band edges.

2.3 Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50 uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50 ohm/50 uH coupling impedance with 50 ohm termination. (Please refer to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2013 on conducted measurement.

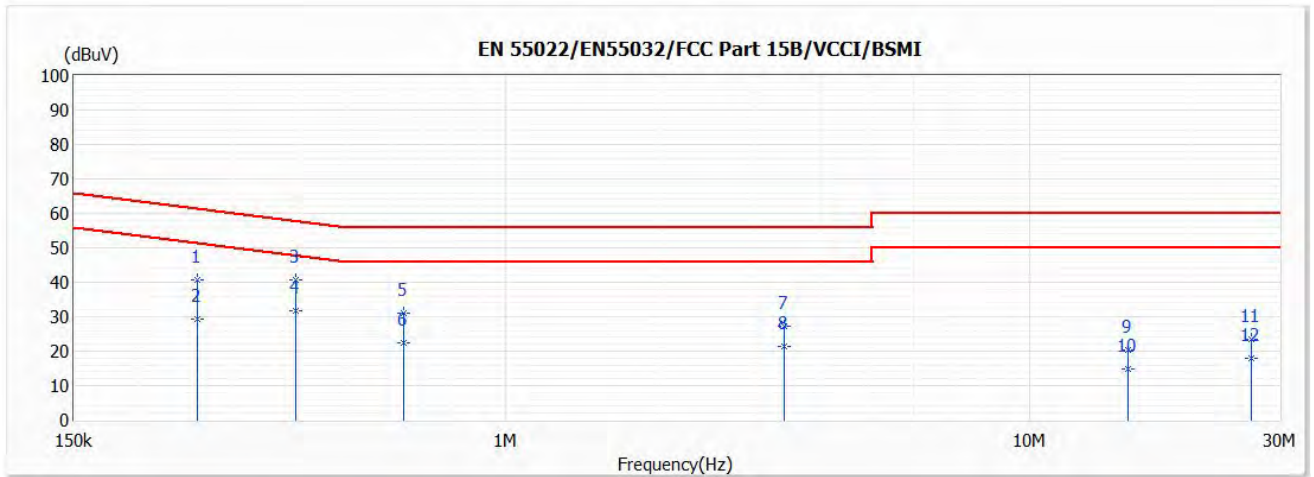
AC Power Line Conducted Emissions were investigated over the frequency range from 0.15 MHz to 30 MHz using a receiver bandwidth of 9 kHz.

2.4 Test Specification

According to FCC Part 15 Subpart C Paragraph 15.207.

2.5 Test Result of AC Power Line Conducted Emission

Test Mode	Mode 1: Transmit (Adapter)	Phase	Line
Test Condition	GFSK (1 Mbps) / 2440 MHz		

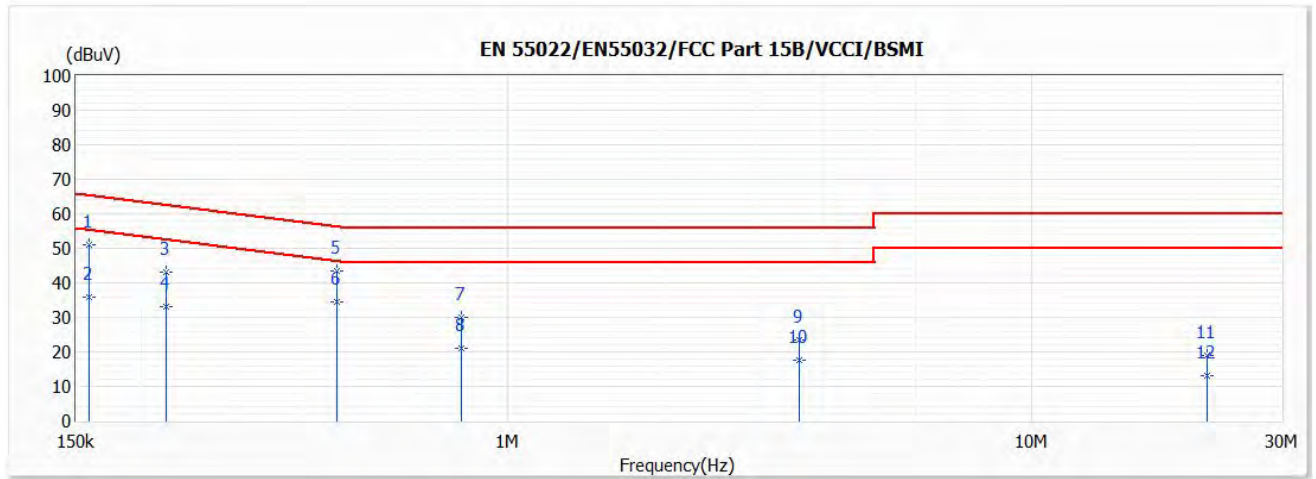


No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	0.258	40.77	61.51	-20.74	31.13	9.64	QP
2	0.258	29.41	51.51	-22.10	19.77	9.64	AV
3	0.397	40.65	57.91	-17.26	30.99	9.66	QP
*4	0.397	31.84	47.91	-16.07	22.18	9.66	AV
5	0.640	31.10	56.00	-24.90	21.42	9.68	QP
6	0.640	22.56	46.00	-23.44	12.88	9.68	AV
7	3.404	27.37	56.00	-28.63	17.52	9.85	QP
8	3.404	21.34	46.00	-24.66	11.49	9.85	AV
9	15.424	20.44	60.00	-39.56	10.17	10.27	QP
10	15.424	14.76	50.00	-35.24	4.49	10.27	AV
11	26.487	23.54	60.00	-36.46	13.06	10.48	QP
12	26.487	17.82	50.00	-32.18	7.34	10.48	AV

Note:

1. "*" means this data is the worst emission level.
2. Emission Level = Reading Level + Correct Factor (Correct Factor = LISN Insertion Loss + Cable Loss).
3. Margin = Emission Level - Limit.

Test Mode	Mode 1: Transmit (Adapter)	Phase	Neutral
Test Condition	GFSK (1 Mbps) / 2440 MHz		

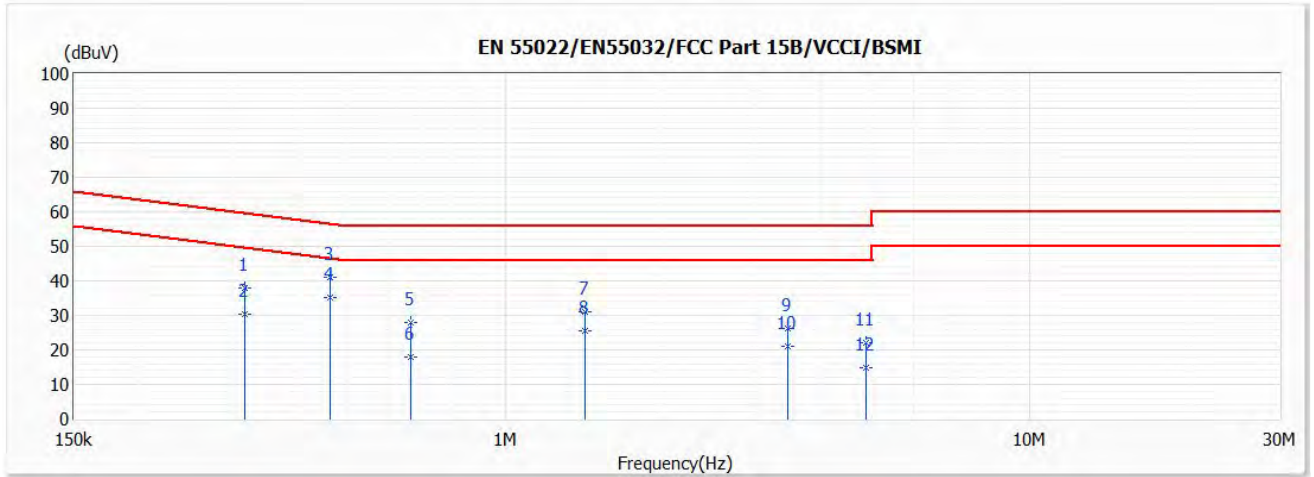


No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	0.159	51.09	65.53	-14.44	41.45	9.64	QP
2	0.159	35.84	55.53	-19.69	26.20	9.64	AV
3	0.223	43.01	62.72	-19.71	33.37	9.64	QP
4	0.223	33.16	52.72	-19.56	23.52	9.64	AV
5	0.471	43.40	56.50	-13.10	33.72	9.68	QP
*6	0.471	34.43	46.50	-12.07	24.75	9.68	AV
7	0.816	30.05	56.00	-25.95	20.33	9.72	QP
8	0.816	21.14	46.00	-24.86	11.42	9.72	AV
9	3.607	23.47	56.00	-32.53	13.60	9.87	QP
10	3.607	17.55	46.00	-28.45	7.68	9.87	AV
11	21.580	18.85	60.00	-41.15	8.25	10.60	QP
12	21.580	12.98	50.00	-37.02	2.38	10.60	AV

Note:

1. "*" means this data is the worst emission level.
2. Emission Level = Reading Level + Correct Factor (Correct Factor = LISN Insertion Loss + Cable Loss).
3. Margin = Emission Level - Limit.

Test Mode	Mode 2: Transmit (PoE)	Phase	Line
Test Condition	GFSK (1 Mbps) / 2440 MHz		

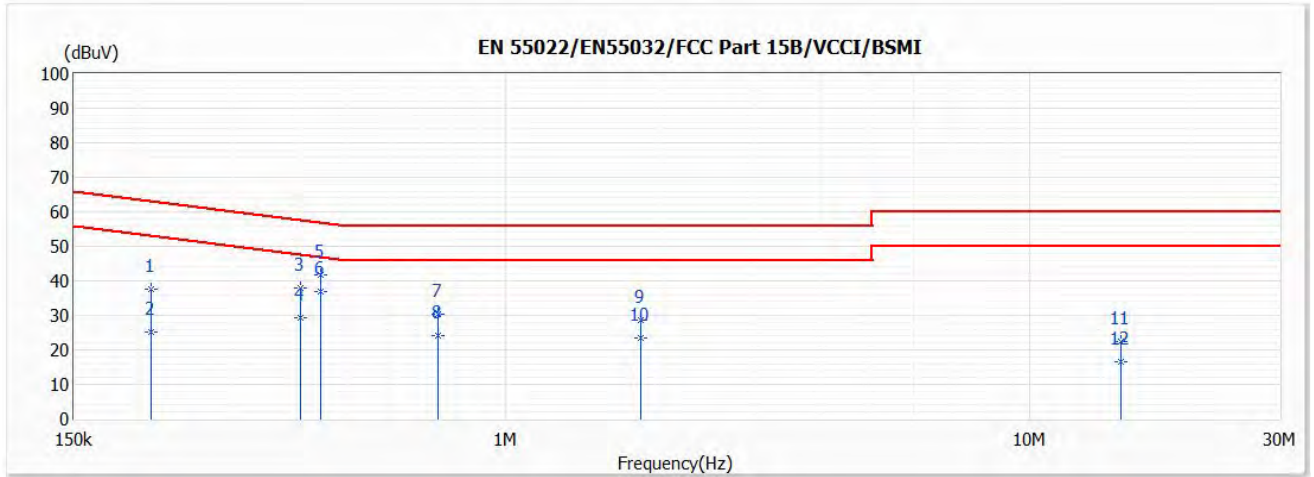


No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	0.317	37.87	59.78	-21.91	28.22	9.65	QP
2	0.317	30.35	49.78	-19.43	20.70	9.65	AV
3	0.462	40.90	56.66	-15.76	31.23	9.67	QP
*4	0.462	35.16	46.66	-11.50	25.49	9.67	AV
5	0.660	27.85	56.00	-28.15	18.17	9.68	QP
6	0.660	17.84	46.00	-28.16	8.16	9.68	AV
7	1.420	31.09	56.00	-24.91	21.35	9.74	QP
8	1.420	25.40	46.00	-20.60	15.66	9.74	AV
9	3.453	26.22	56.00	-29.78	16.37	9.85	QP
10	3.453	20.89	46.00	-25.11	11.04	9.85	AV
11	4.881	21.99	56.00	-34.01	12.06	9.93	QP
12	4.881	14.91	46.00	-31.09	4.98	9.93	AV

Note:

1. "*" means this data is the worst emission level.
2. Emission Level = Reading Level + Correct Factor (Correct Factor = LISN Insertion Loss + Cable Loss).
3. Margin = Emission Level - Limit.

Test Mode	Mode 2: Transmit (PoE)	Phase	Neutral
Test Condition	GFSK (1 Mbps) / 2440 MHz		



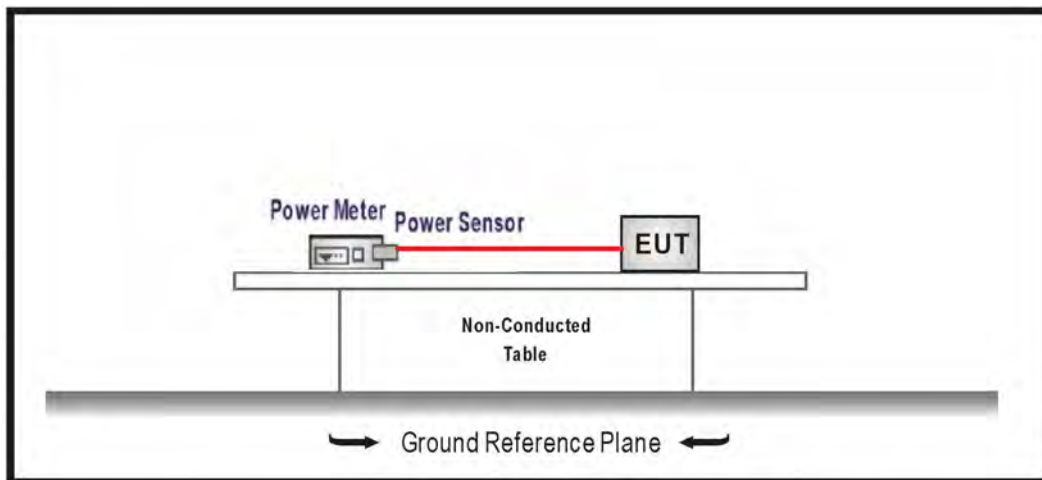
No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	0.211	37.65	63.17	-25.52	28.01	9.64	QP
2	0.211	25.12	53.17	-28.05	15.48	9.64	AV
3	0.406	37.89	57.73	-19.84	28.22	9.67	QP
4	0.406	29.40	47.73	-18.33	19.73	9.67	AV
5	0.443	41.70	57.01	-15.31	32.03	9.67	QP
*6	0.443	37.01	47.01	-10.00	27.34	9.67	AV
7	0.744	30.43	56.00	-25.57	20.72	9.71	QP
8	0.744	24.03	46.00	-21.97	14.32	9.71	AV
9	1.805	28.56	56.00	-27.44	18.78	9.78	QP
10	1.805	23.41	46.00	-22.59	13.63	9.78	AV
11	14.948	22.34	60.00	-37.66	11.98	10.36	QP
12	14.948	16.65	50.00	-33.35	6.29	10.36	AV

Note:

1. "*" means this data is the worst emission level.
2. Emission Level = Reading Level + Correct Factor (Correct Factor = LISN Insertion Loss + Cable Loss).
3. Margin = Emission Level - Limit.

3. Maximum Conducted Output Power

3.1 Test Setup



3.2 Test Limit

The Maximum Conducted Output Power shall be less 1 Watt.

3.3 Test procedures

The EUT was setup according to ANSI C63.10: 2013; tested according to DTS test procedure of KDB 558074 D01 v05r02 for compliance to FCC 47CFR 15.247 requirements.

3.4 Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247.

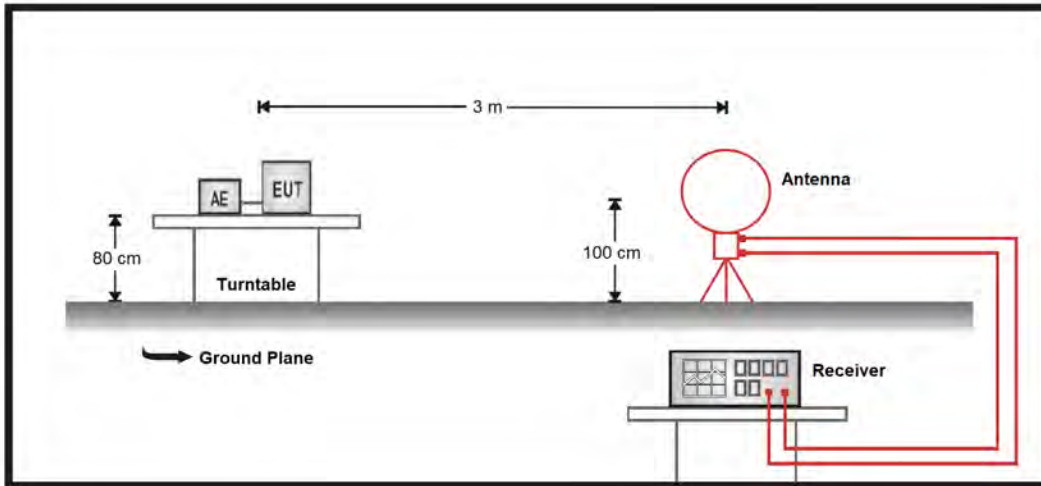
3.5 Test Result of Maximum Conducted Output Power

Modulation	Channel	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
GFSK (1 Mbps)	00	2402	6.590	≤ 30.00	Pass
	19	2440	6.770	≤ 30.00	Pass
	39	2480	2.100	≤ 30.00	Pass
GFSK (2 Mbps)	00	2402	6.610	≤ 30.00	Pass
	19	2440	6.790	≤ 30.00	Pass
	39	2480	2.120	≤ 30.00	Pass

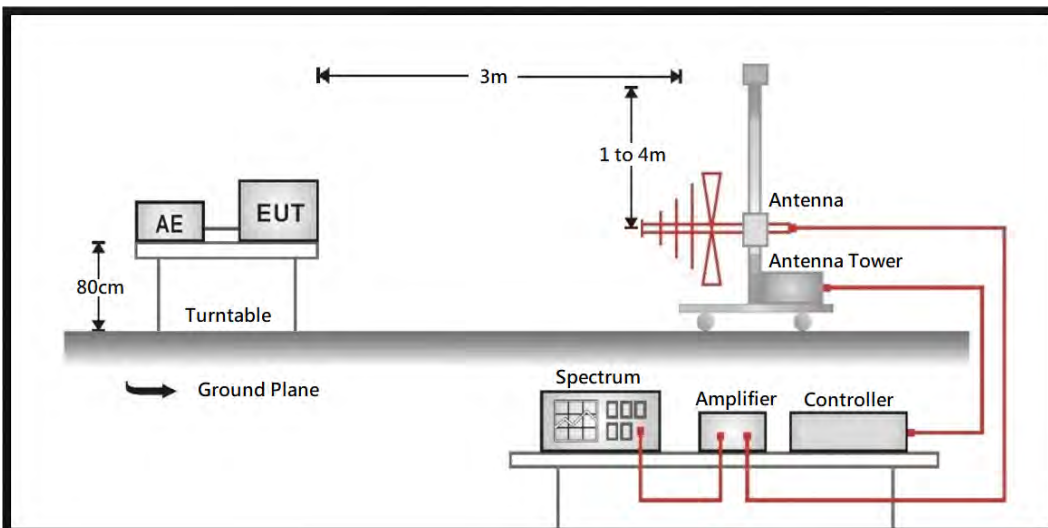
4. Radiated Emission

4.1 Test Setup

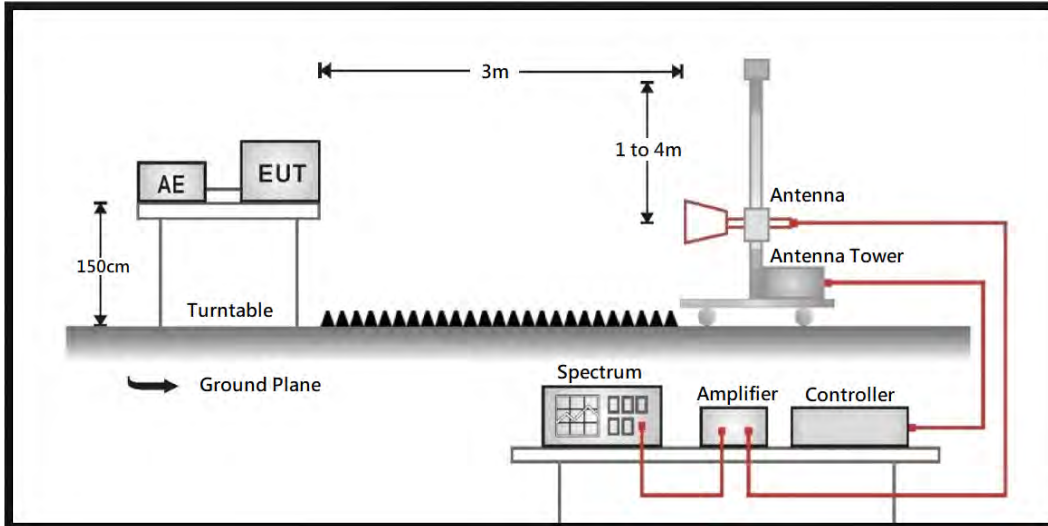
9 kHz ~ 30 MHz



30 MHz ~ 1 GHz



Above 1 GHz



4.2 Test Limit

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20 dB below the level of the fundamental or to the general radiated emission limit in paragraph 15.209, whichever is the lesser attenuation.

Frequency (MHz)	Field strength (uV/m)	Field strength (dBuV/m)	Measurement distance (m)
0.009 – 0.490	2400/F(kHz)	20 log (2400/F(kHz))	300
0.490 – 1.705	24000/F(kHz)	20 log (24000/F(kHz))	30
1.705 - 30	30	29.5	30
30 - 88	100	40	3
88 - 216	150	43.5	3
216 - 960	200	46	3
Above 960	500	54	3

Remarks:

1. Field strength (dBuV/m) = 20 log Field strength (uV/m)
2. In the Above Table, the tighter limit applies at the band edges.
3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system

4.3 Test Procedure

The EUT was setup according to ANSI C63.10: 2013 and tested according to DTS test procedure of KDB 558074 D01V05r02 for compliance to FCC 47CFR 15.247 requirements.

The EUT and its simulators are placed on a turn table which is 0.8 or 1.5 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.10: 2013 on radiated measurement.

On any frequency or frequencies from 9 kHz (include The the lowest oscillator frequency generated within the device up to the 10th harmonic) to 1000 MHz, the limit shown are based on measuring equipment employing a quasi-peak detector function and on any frequency or frequencies above 1000 MHz the radiated limit shown are based upon the use of measurement instrumentation employing an average detector function. When average radiated emission measurement are included emission measurement below 1000 MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.

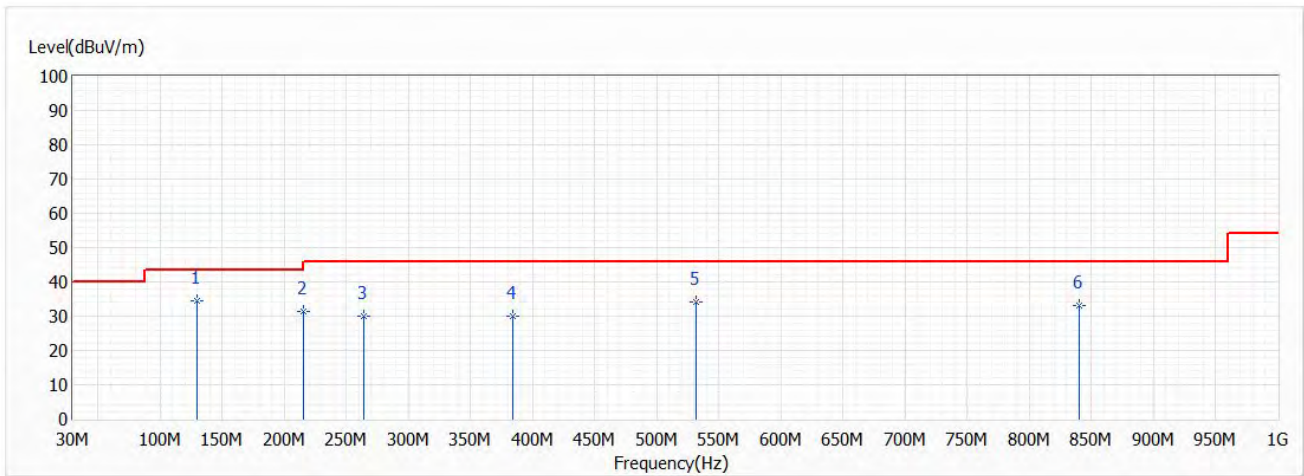
The bandwidth below 1 GHz setting on the field strength meter is 120 kHz and above 1 GHz is 1MHz.

4.4 Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247.

4.5 Test Result of Radiated Emissions (30 MHz ~ 1 GHz)

Test Mode	Mode 1: Transmit (Adapter)	Test Voltage	120V/60Hz
Test Condition	GFSK (1 Mbps) / 2440 MHz	Polarity	Horizontal

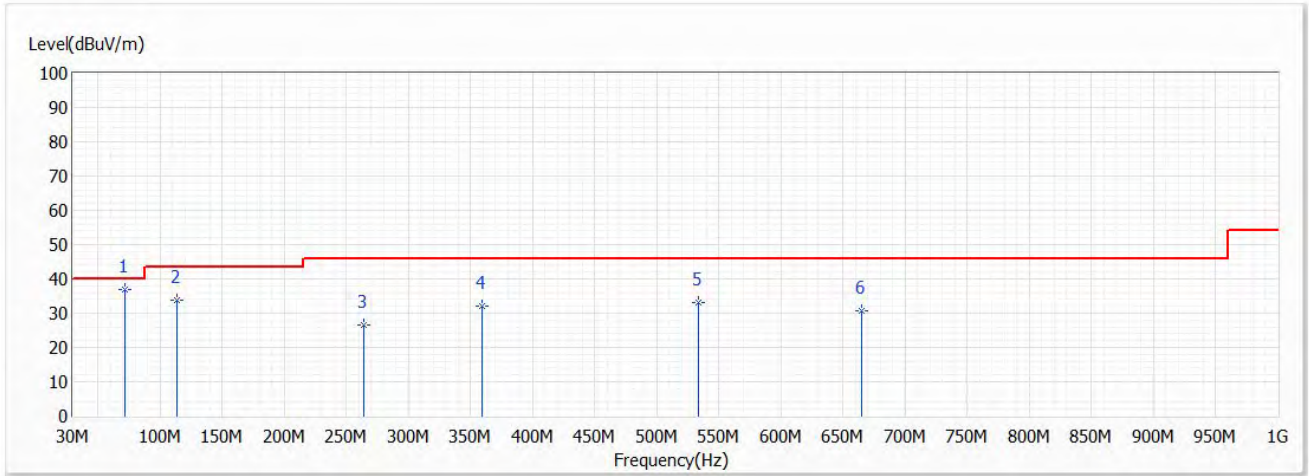


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
* 1	129.668	34.48	43.50	-9.02	38.11	-3.63	QP
2	215.876	31.48	43.50	-12.02	37.89	-6.41	QP
3	263.891	30.09	46.00	-15.91	32.32	-2.23	QP
4	383.808	30.02	46.00	-15.98	29.63	0.39	QP
5	531.975	34.16	46.00	-11.84	30.37	3.79	QP
6	840.071	33.20	46.00	-12.80	25.83	7.37	QP

Note:

1. All reading levels is Quasi-Peak value.
2. “ * ”, means this data is the worst value.
3. Emission Level = Reading Level + Correct Factor
4. The emission under 30MHz were not included is because their levels are lower than 20dB from limit.

Test Mode	Mode 1: Transmit (Adapter)	Test Voltage	120V/60Hz
Test Condition	GFSK (1 Mbps) / 2440 MHz	Polarity	Vertical

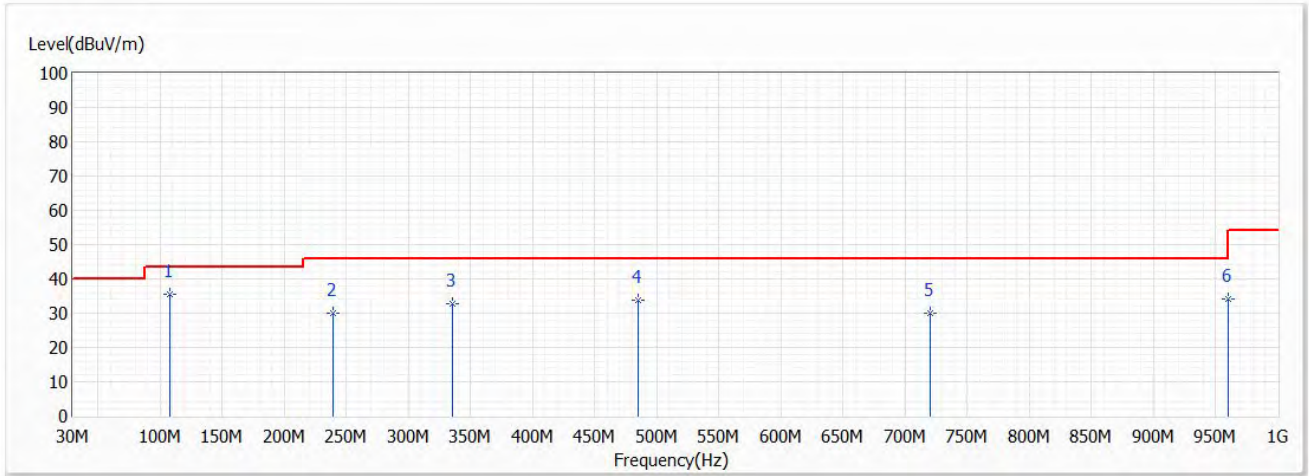


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
* 1	71.953	36.86	40.00	-3.14	46.02	-9.16	QP
2	113.905	33.64	43.50	-9.86	36.95	-3.31	QP
3	263.891	26.42	46.00	-19.58	28.65	-2.23	QP
4	359.800	32.16	46.00	-13.84	32.32	-0.16	QP
5	533.430	33.21	46.00	-12.79	29.30	3.91	QP
6	664.986	30.52	46.00	-15.48	25.15	5.37	QP

Note:

1. All reading levels is Quasi-Peak value.
2. “ * ”, means this data is the worst value.
3. Emission Level = Reading Level + Correct Factor
4. The emission under 30MHz were not included is because their levels are lower than 20dB from limit.

Test Mode	Mode 2: Transmit (PoE)	Test Voltage	120V/60Hz
Test Condition	GFSK (1 Mbps) / 2440 MHz	Polarity	Horizontal

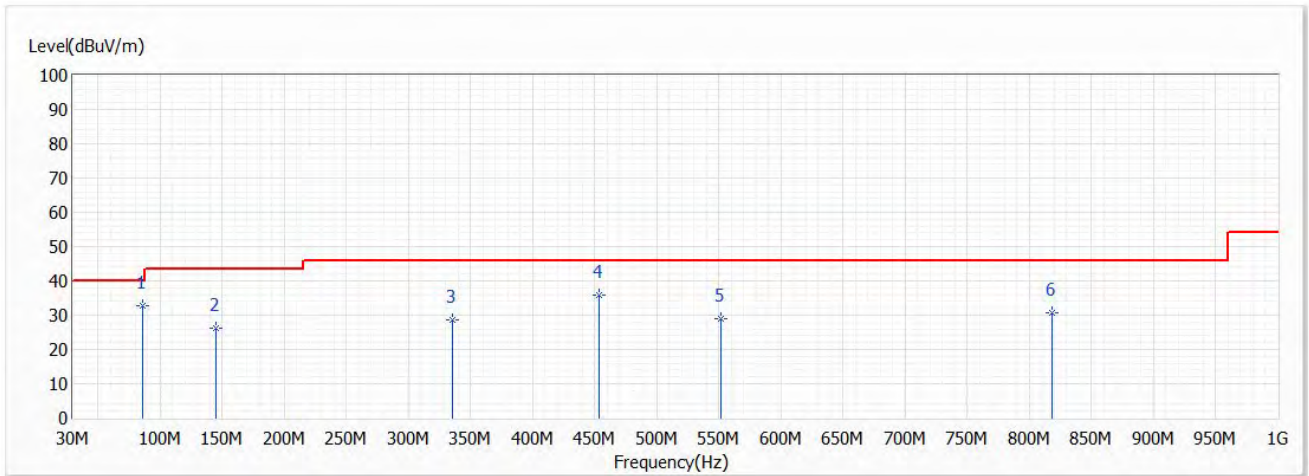


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
* 1	108.085	35.53	43.50	-7.97	39.43	-3.90	QP
2	239.884	29.91	46.00	-16.09	33.97	-4.06	QP
3	335.914	32.60	46.00	-13.40	33.52	-0.92	QP
4	485.415	33.85	46.00	-12.15	30.79	3.06	QP
5	720.034	29.87	46.00	-16.13	24.18	5.69	QP
6	960.109	34.07	54.00	-19.93	25.56	8.51	QP

Note:

1. All reading levels is Quasi-Peak value.
2. “ * ”, means this data is the worst value.
3. Emission Level = Reading Level + Correct Factor
4. The emission under 30MHz were not included is because their levels are lower than 20dB from limit.

Test Mode	Mode 2: Transmit (PoE)	Test Voltage	120V/60Hz
Test Condition	GFSK (1 Mbps) / 2440 MHz	Polarity	Vertical



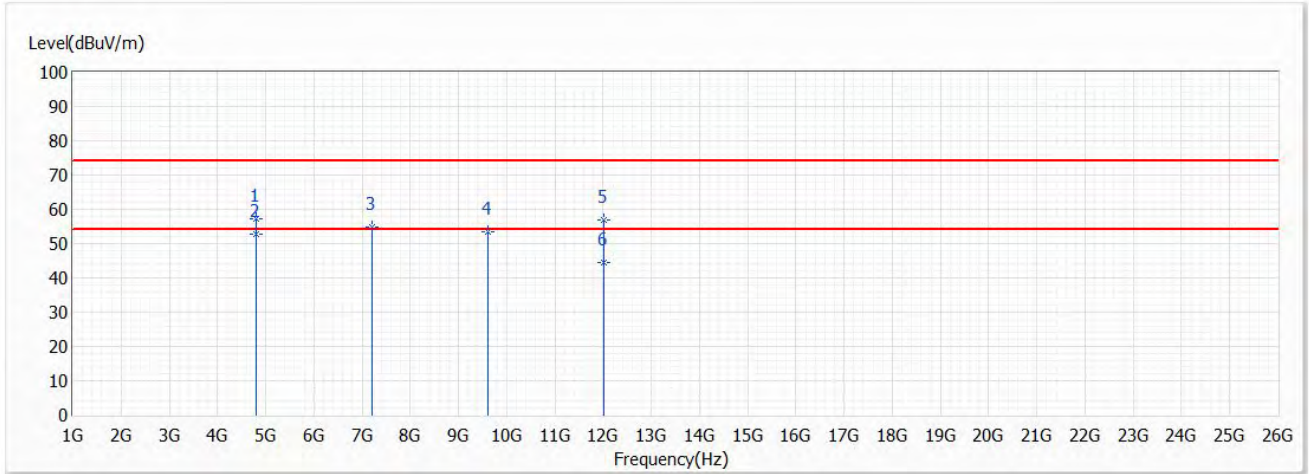
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
* 1	86.018	32.70	40.00	-7.30	40.39	-7.69	QP
2	145.188	26.36	43.50	-17.14	31.17	-4.81	QP
3	335.793	28.69	46.00	-17.31	29.62	-0.93	QP
4	453.405	35.80	46.00	-10.20	33.40	2.40	QP
5	551.739	28.83	46.00	-17.17	24.13	4.70	QP
6	818.489	30.65	46.00	-15.35	23.68	6.97	QP

Note:

1. All reading levels is Quasi-Peak value.
2. “ * ”, means this data is the worst value.
3. Emission Level = Reading Level + Correct Factor
4. The emission under 30MHz were not included is because their levels are lower than 20dB from limit.

4.6 Test Result of Radiated Emissions (1 GHz ~ 10th Harmonic)

Test Mode	Mode 1: Transmit (Adapter)	Test Voltage	120V/60Hz
Test Condition	GFSK (1 Mbps) / 2402 MHz	Polarity	Horizontal

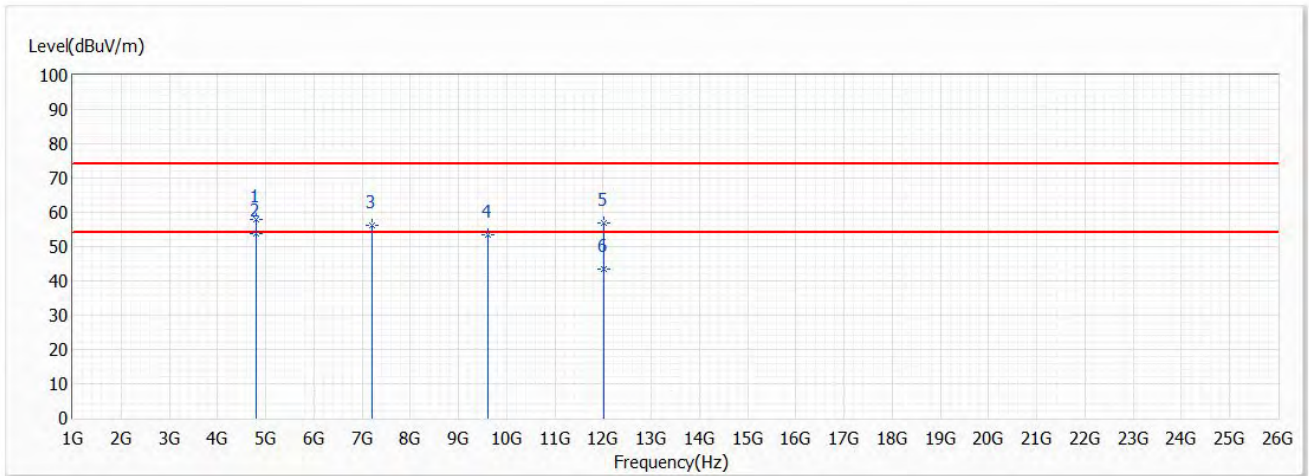


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	4804.000	57.16	74.00	-16.84	70.99	-13.83	PK
* 2	4804.000	52.64	54.00	-1.36	66.47	-13.83	AV
3	7206.000	54.91	74.00	-19.09	59.65	-4.74	PK
4	9608.000	53.55	74.00	-20.45	55.94	-2.39	PK
5	12010.000	56.86	74.00	-17.14	56.20	0.66	PK
6	12010.000	44.34	54.00	-9.66	43.62	0.66	AV

Note:

1. “ * ”, means this data is the worst value.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.
4. The emission above 13GHz were not included is because their levels are lower than 20dB form limit.

Test Mode	Mode 1: Transmit (Adapter)	Test Voltage	120V/60Hz
Test Condition	GFSK (1 Mbps) / 2402 MHz	Polarity	Vertical

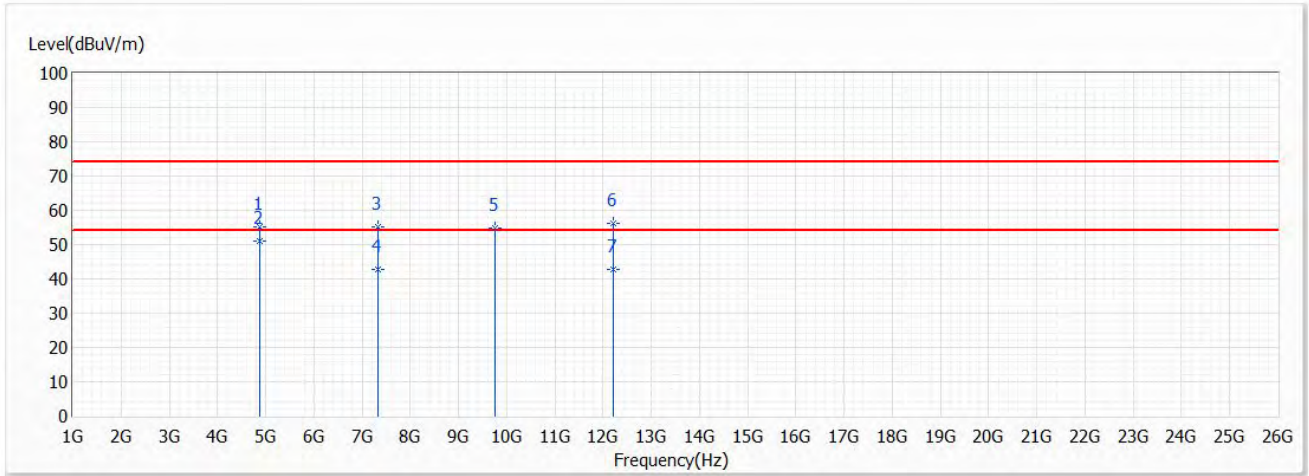


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	4804.000	57.96	74.00	-16.04	71.79	-13.83	PK
* 2	4804.000	53.63	54.00	-0.37	67.46	-13.83	AV
3	7206.000	56.09	74.00	-17.91	60.83	-4.74	PK
4	9608.000	53.39	74.00	-20.61	55.78	-2.39	PK
5	12010.000	57.01	74.00	-16.99	56.35	0.66	PK
6	12010.000	43.59	54.00	-10.41	42.93	0.66	AV

Note:

1. “ * ”, means this data is the worst value.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.
4. The emission above 13GHz were not included is because their levels are lower than 20dB form limit.

Test Mode	Mode 1: Transmit (Adapter)	Test Voltage	120V/60Hz
Test Condition	GFSK (1 Mbps) / 2440 MHz	Polarity	Horizontal

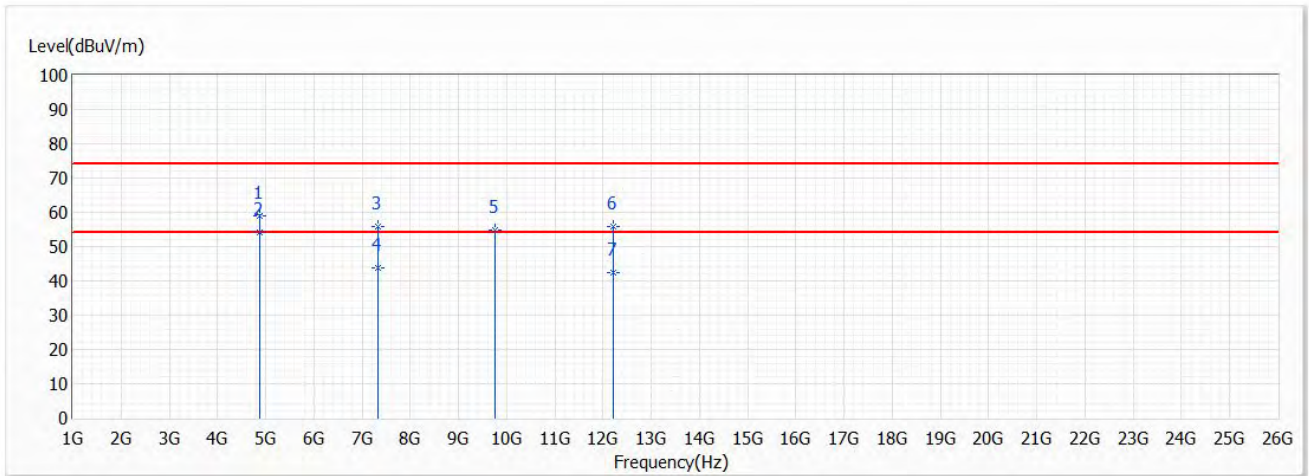


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	4880.000	55.17	74.00	-18.83	62.71	-13.54	PK
* 2	4880.000	51.04	54.00	-2.96	64.58	-13.54	AV
3	7320.000	55.24	74.00	-18.76	59.83	-4.59	PK
4	7320.000	42.67	54.00	-11.33	47.26	-4.59	AV
5	9760.000	54.71	74.00	-19.29	56.74	-2.03	PK
6	12200.000	56.28	74.00	-17.72	55.66	0.62	PK
7	12200.000	42.73	54.00	-11.27	42.11	0.62	AV

Note:

1. “ * ”, means this data is the worst value.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.
4. The emission above 13GHz were not included is because their levels are lower than 20dB form limit.

Test Mode	Mode 1: Transmit (Adapter)	Test Voltage	120V/60Hz
Test Condition	GFSK (1 Mbps) / 2440 MHz	Polarity	Vertical

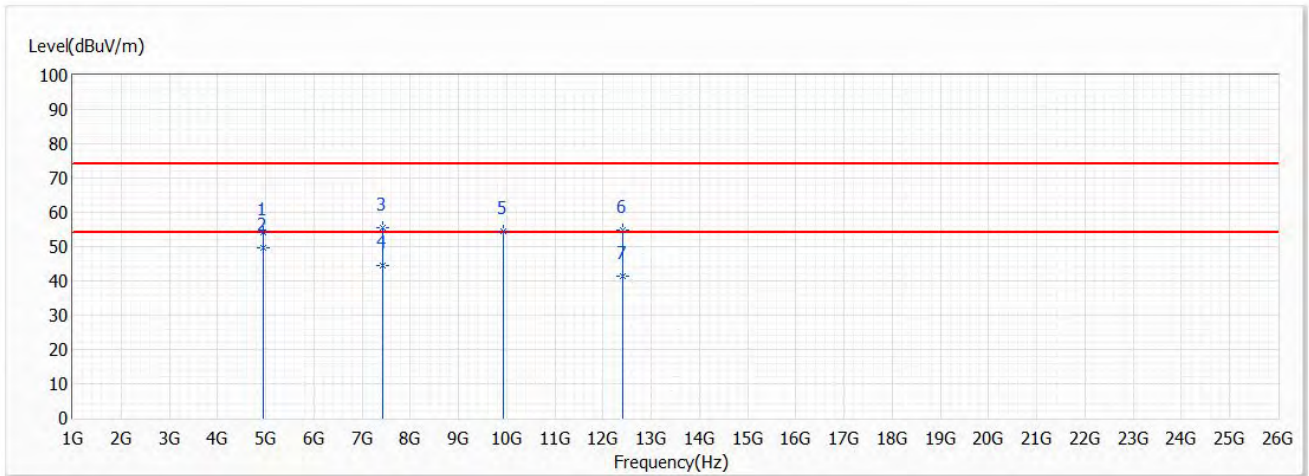


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	4880.000	58.86	74.00	-15.14	72.40	-13.54	PK
* 2	4880.000	53.97	54.00	-0.03	67.51	-13.54	AV
3	7320.000	55.89	74.00	-18.11	60.48	-4.59	PK
4	7320.000	43.85	54.00	-10.15	48.44	-4.59	AV
5	9760.000	54.77	74.00	-19.23	56.80	-2.03	PK
6	12200.000	55.93	74.00	-18.07	55.31	0.62	PK
7	12200.000	42.51	54.00	-11.49	41.89	0.62	AV

Note:

1. “ * ”, means this data is the worst value.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.
4. The emission above 13GHz were not included is because their levels are lower than 20dB form limit.

Test Mode	Mode 1: Transmit (Adapter)	Test Voltage	120V/60Hz
Test Condition	GFSK (1 Mbps) / 2480 MHz	Polarity	Horizontal

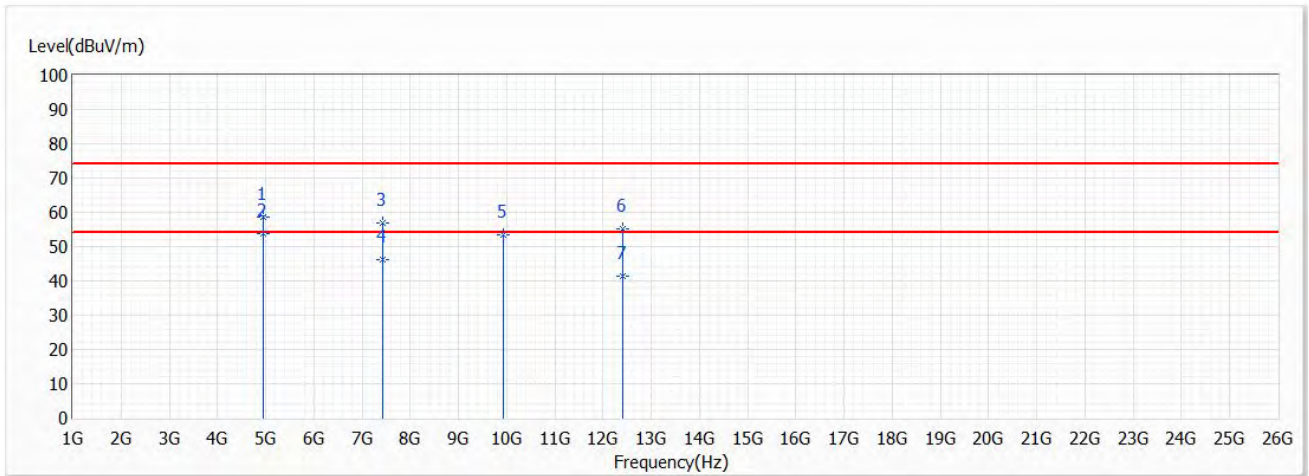


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	4960.000	54.16	74.00	-19.84	67.39	-13.23	PK
* 2	4960.000	49.64	54.00	-4.36	62.87	-13.23	AV
3	7440.000	55.64	74.00	-18.36	60.08	-4.44	PK
4	7440.000	44.35	54.00	-9.65	48.79	-4.44	AV
5	9920.000	54.37	74.00	-19.63	56.01	-1.64	PK
6	12400.000	54.92	74.00	-19.08	54.34	0.58	PK
7	12400.000	41.38	54.00	-12.62	40.80	0.58	AV

Note:

1. “ * ”, means this data is the worst value.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.
4. The emission above 13GHz were not included is because their levels are lower than 20dB form limit.

Test Mode	Mode 1: Transmit (Adapter)	Test Voltage	120V/60Hz
Test Condition	GFSK (1 Mbps) / 2480 MHz	Polarity	Vertical

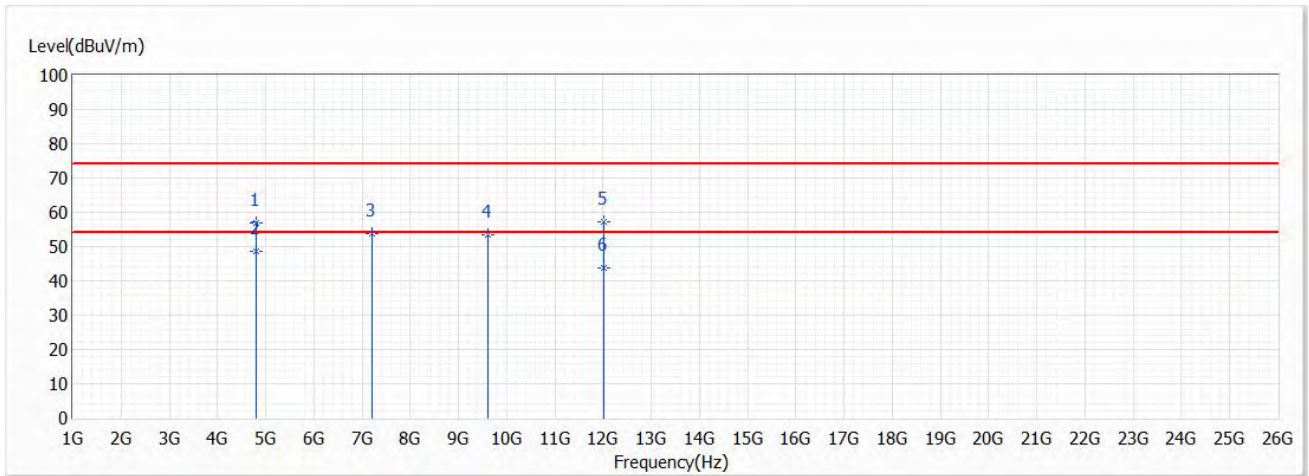


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	4960.000	58.62	74.00	-15.38	71.85	-13.23	PK
* 2	4960.000	53.88	54.00	-0.12	67.11	-13.23	AV
3	7440.000	56.86	74.00	-17.14	61.30	-4.44	PK
4	7440.000	46.16	54.00	-7.84	50.60	-4.44	AV
5	9920.000	53.42	74.00	-20.58	55.06	-1.64	PK
6	12400.000	55.09	74.00	-18.91	54.51	0.58	PK
7	12400.000	41.47	54.00	-12.53	40.89	0.58	AV

Note:

1. “ * ”, means this data is the worst value.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.
4. The emission above 13GHz were not included is because their levels are lower than 20dB form limit.

Test Mode	Mode 1: Transmit (Adapter)	Test Voltage	120V/60Hz
Test Condition	GFSK (2 Mbps) / 2402 MHz	Polarity	Horizontal

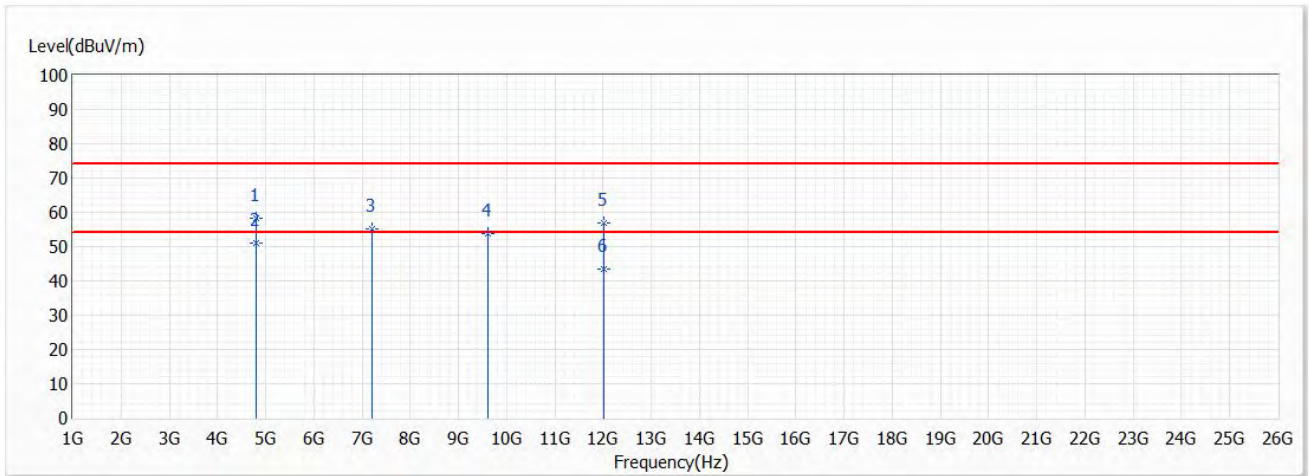


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	4804.000	56.84	74.00	-17.16	70.67	-13.83	PK
* 2	4804.000	48.53	54.00	-5.47	62.36	-13.83	AV
3	7206.000	53.88	74.00	-20.12	58.62	-4.74	PK
4	9608.000	53.54	74.00	-20.46	55.93	-2.39	PK
5	12010.000	57.18	74.00	-16.82	56.52	0.66	PK
6	12010.000	43.72	54.00	-10.28	43.06	0.66	AV

Note:

1. “ * ”, means this data is the worst value.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.
4. The emission above 13GHz were not included is because their levels are lower than 20dB form limit.

Test Mode	Mode 1: Transmit (Adapter)	Test Voltage	120V/60Hz
Test Condition	GFSK (2 Mbps) / 2402 MHz	Polarity	Vertical

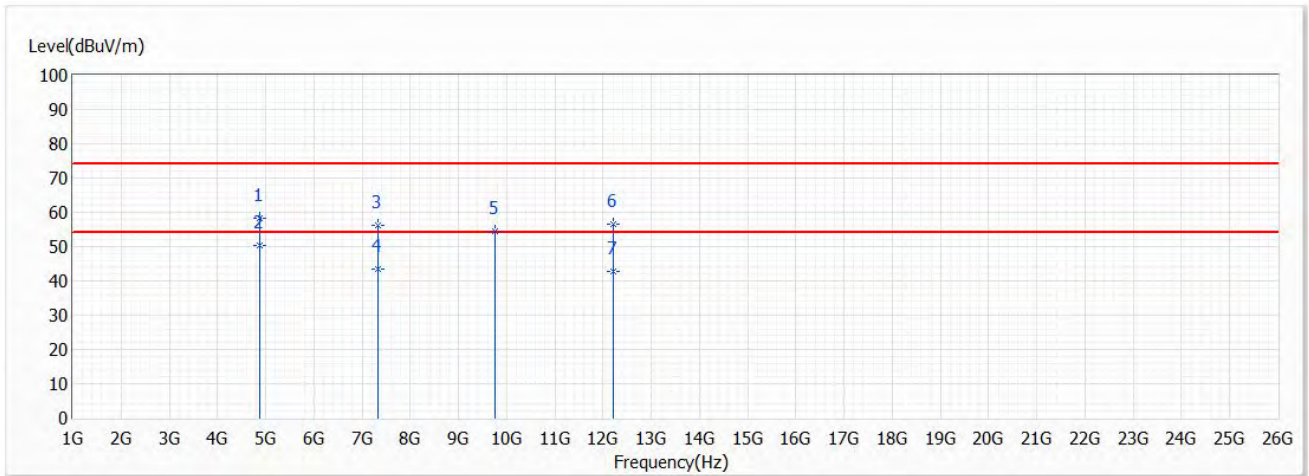


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	4804.000	58.28	74.00	-15.72	72.11	-13.83	PK
* 2	4804.000	51.06	54.00	-2.94	64.89	-13.83	AV
3	7206.000	55.24	74.00	-18.76	59.98	-4.74	PK
4	9608.000	53.86	74.00	-20.14	56.25	-2.39	PK
5	12010.000	56.81	74.00	-17.19	56.15	0.66	PK
6	12010.000	43.47	54.00	-10.53	42.81	0.66	AV

Note:

1. “ * ”, means this data is the worst value.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.
4. The emission above 13GHz were not included is because their levels are lower than 20dB form limit.

Test Mode	Mode 1: Transmit (Adapter)	Test Voltage	120V/60Hz
Test Condition	GFSK (2 Mbps) / 2440 MHz	Polarity	Horizontal

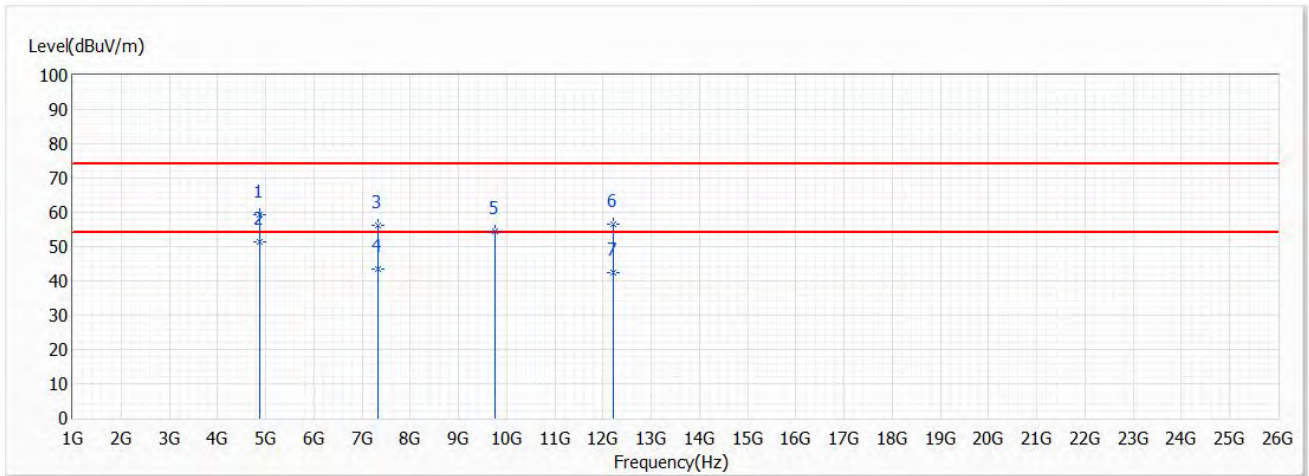


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	4880.000	58.13	74.00	-15.87	71.67	-13.54	PK
* 2	4880.000	50.22	54.00	-3.78	63.76	-13.54	AV
3	7320.000	56.13	74.00	-17.87	60.72	-4.59	PK
4	7320.000	43.53	54.00	-10.47	48.12	-4.59	AV
5	9760.000	54.52	74.00	-19.48	56.55	-2.03	PK
6	12200.000	56.46	74.00	-17.54	55.84	0.62	PK
7	12200.000	42.63	54.00	-11.37	42.01	0.62	AV

Note:

1. “ * ”, means this data is the worst value.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.
4. The emission above 13GHz were not included is because their levels are lower than 20dB form limit.

Test Mode	Mode 1: Transmit (Adapter)	Test Voltage	120V/60Hz
Test Condition	GFSK (2 Mbps) / 2440 MHz	Polarity	Vertical

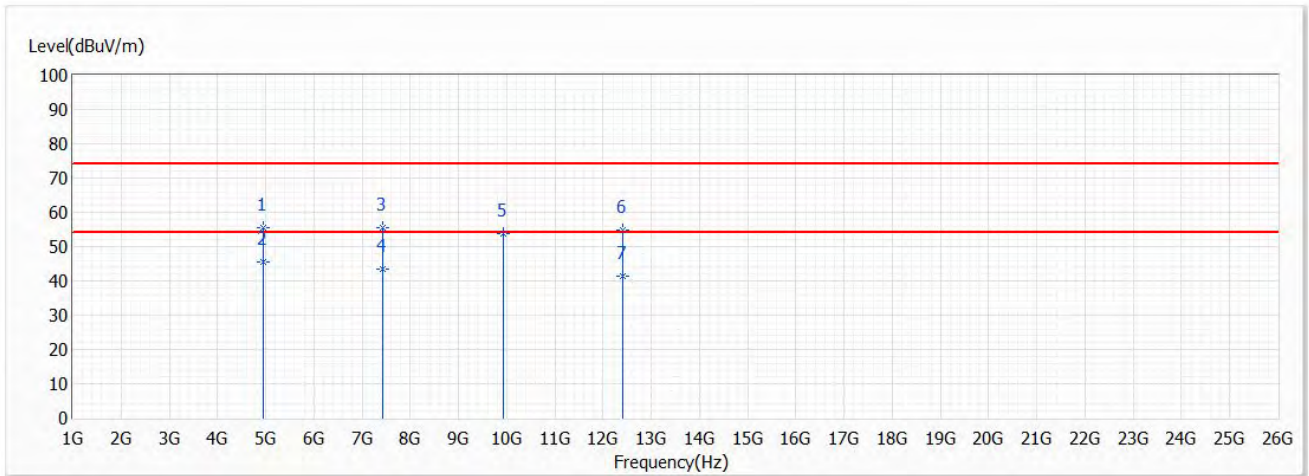


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	4880.000	59.21	74.00	-14.79	72.75	-13.54	PK
* 2	4880.000	51.37	54.00	-2.63	64.91	-13.54	AV
3	7320.000	56.25	74.00	-17.75	60.84	-4.59	PK
4	7320.000	43.62	54.00	-10.38	48.21	-4.59	AV
5	9760.000	54.62	74.00	-19.38	56.65	-2.03	PK
6	12200.000	56.64	74.00	-17.36	56.02	0.62	PK
7	12200.000	42.56	54.00	-11.44	41.94	0.62	AV

Note:

1. “ * ”, means this data is the worst value.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.
4. The emission above 13GHz were not included is because their levels are lower than 20dB form limit.

Test Mode	Mode 1: Transmit (Adapter)	Test Voltage	120V/60Hz
Test Condition	GFSK (2 Mbps) / 2480 MHz	Polarity	Horizontal

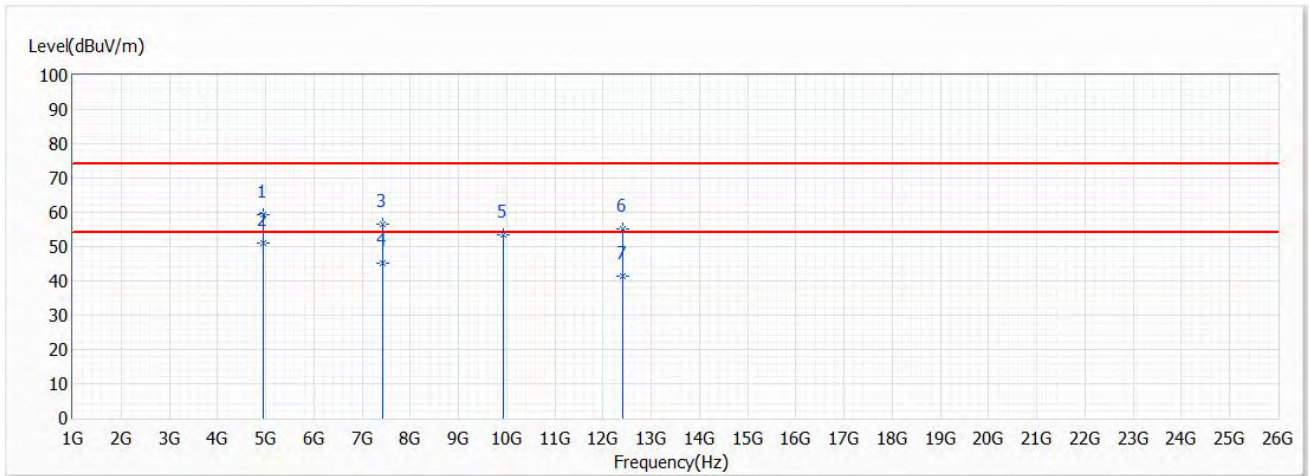


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	4960.000	55.42	74.00	-18.58	62.65	-13.23	PK
* 2	4960.000	45.39	54.00	-8.61	58.62	-13.23	AV
3	7440.000	55.49	74.00	-18.51	59.93	-4.44	PK
4	7440.000	43.48	54.00	-10.52	47.92	-4.44	AV
5	9920.000	53.74	74.00	-20.26	55.38	-1.64	PK
6	12400.000	54.73	74.00	-19.27	54.15	0.58	PK
7	12400.000	41.21	54.00	-12.79	40.63	0.58	AV

Note:

1. “ * ”, means this data is the worst value.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.
4. The emission above 13GHz were not included is because their levels are lower than 20dB form limit.

Test Mode	Mode 1: Transmit (Adapter)	Test Voltage	120V/60Hz
Test Condition	GFSK (2 Mbps) / 2480 MHz	Polarity	Vertical



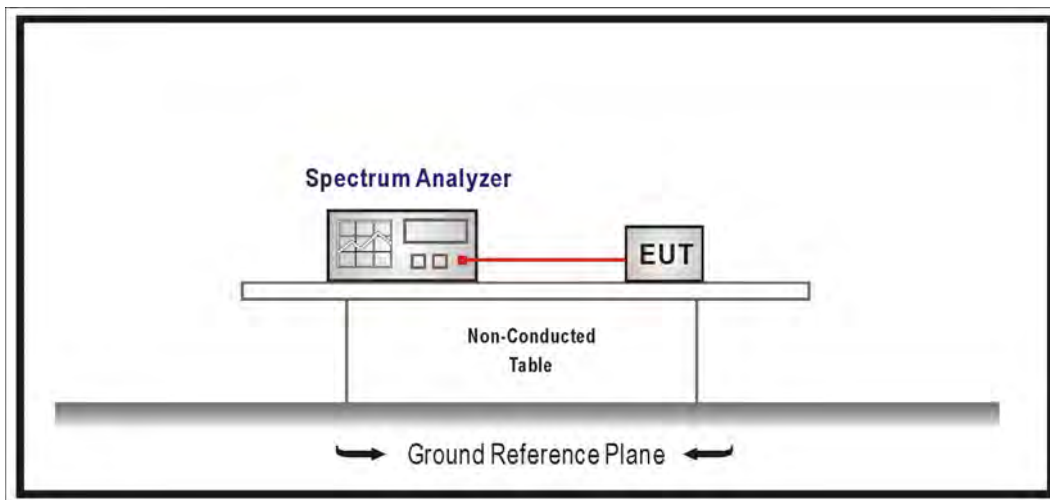
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	4960.000	59.23	74.00	-14.77	72.46	-13.23	PK
* 2	4960.000	51.19	54.00	-2.81	64.42	-13.23	AV
3	7440.000	56.67	74.00	-17.33	61.11	-4.44	PK
4	7440.000	45.25	54.00	-8.75	49.69	-4.44	AV
5	9920.000	53.29	74.00	-20.71	54.93	-1.64	PK
6	12400.000	55.13	74.00	-18.87	54.55	0.58	PK
7	12400.000	41.24	54.00	-12.76	40.66	0.58	AV

Note:

1. “ * ”, means this data is the worst value.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.
4. The emission above 13GHz were not included is because their levels are lower than 20dB form limit.

5. Antenna Port Conducted Emission

5.1 Test Setup



5.2 Test Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limit. If the transmitter complies with the conducted power limit based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limit specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limit specified in §15.209(a) (see §15.205(c)).

5.3 Test Procedure

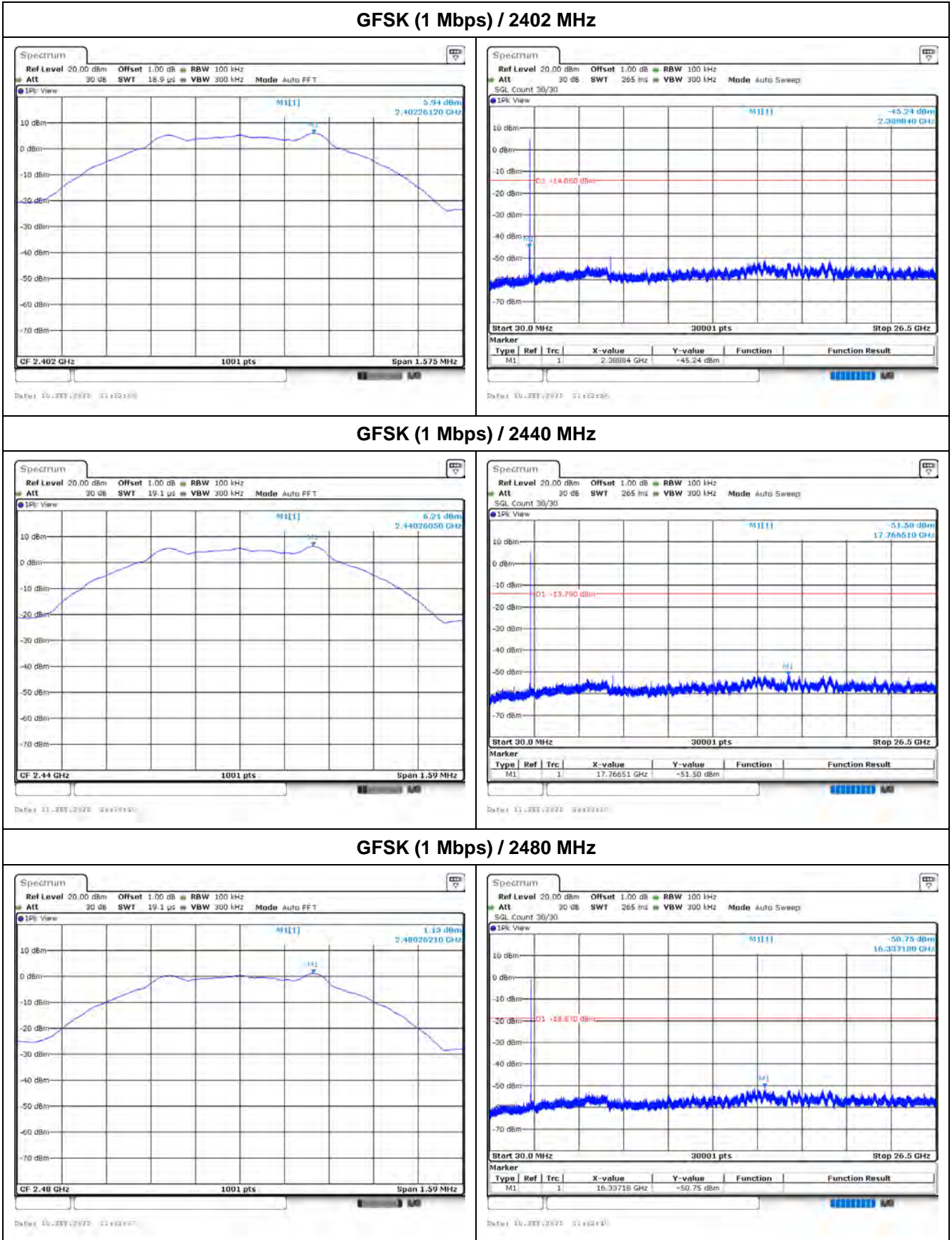
The EUT was setup according to ANSI C63.10: 2013 and tested according to DTS test procedure of KDB 558074 D01 V05r02 for compliance to FCC 47CFR 15.247 requirements.

Set RBW = 100 kHz, Set VBW > RBW, scan up through 10th harmonic.

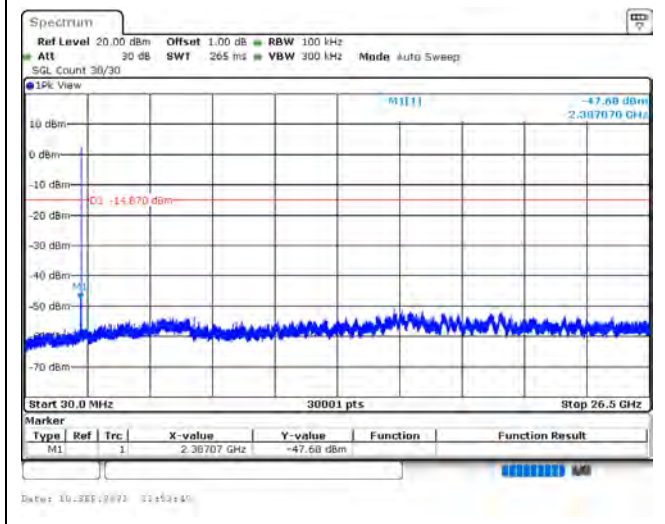
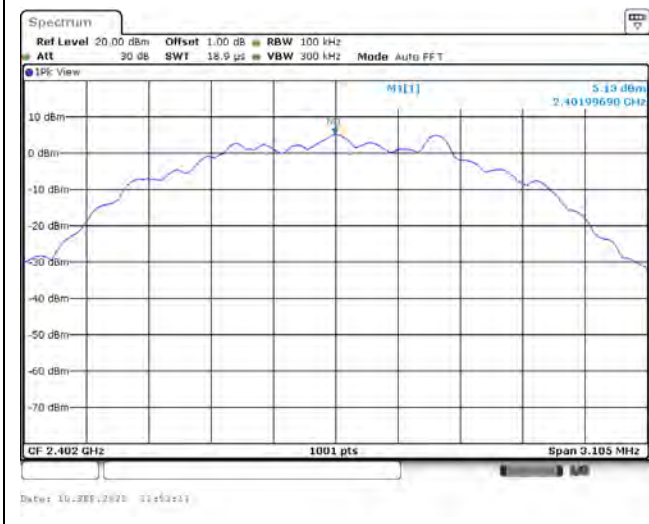
5.4 Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247.

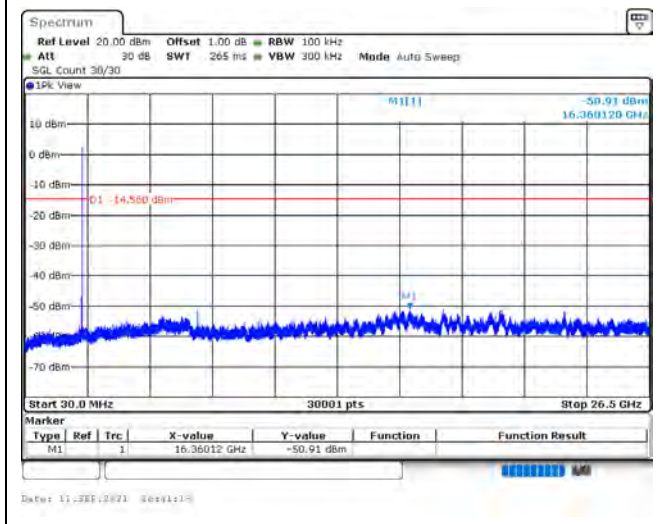
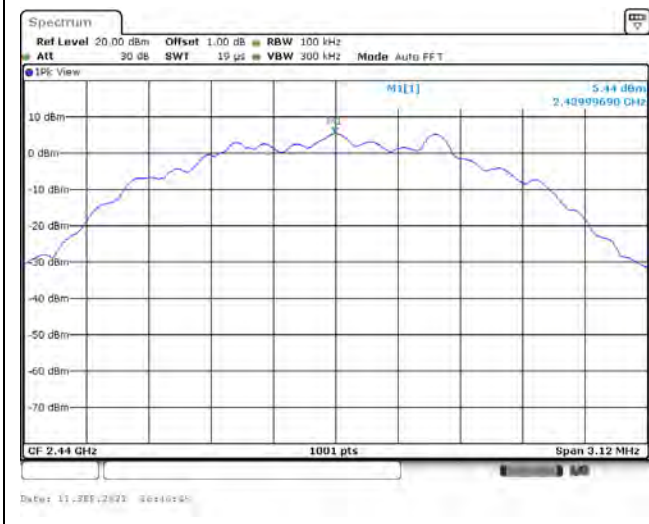
5.5 Test Result of Antenna Port Conducted Emission



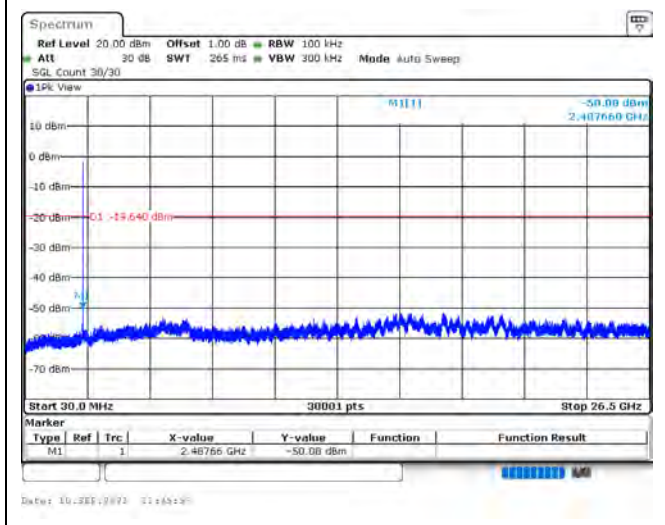
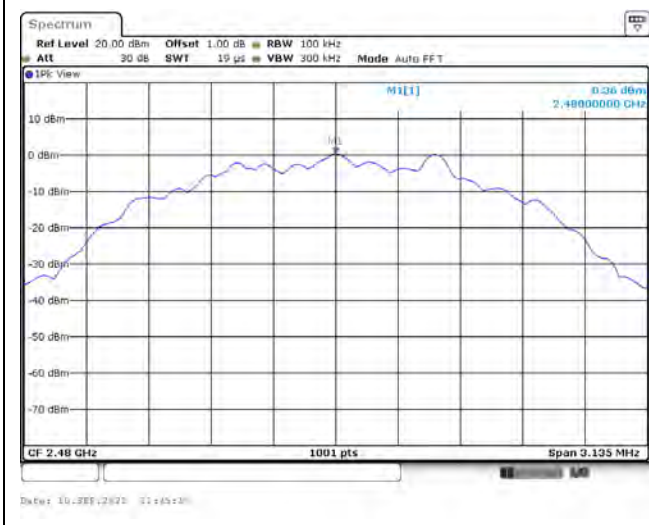
GFSK (2 Mbps) / 2402 MHz

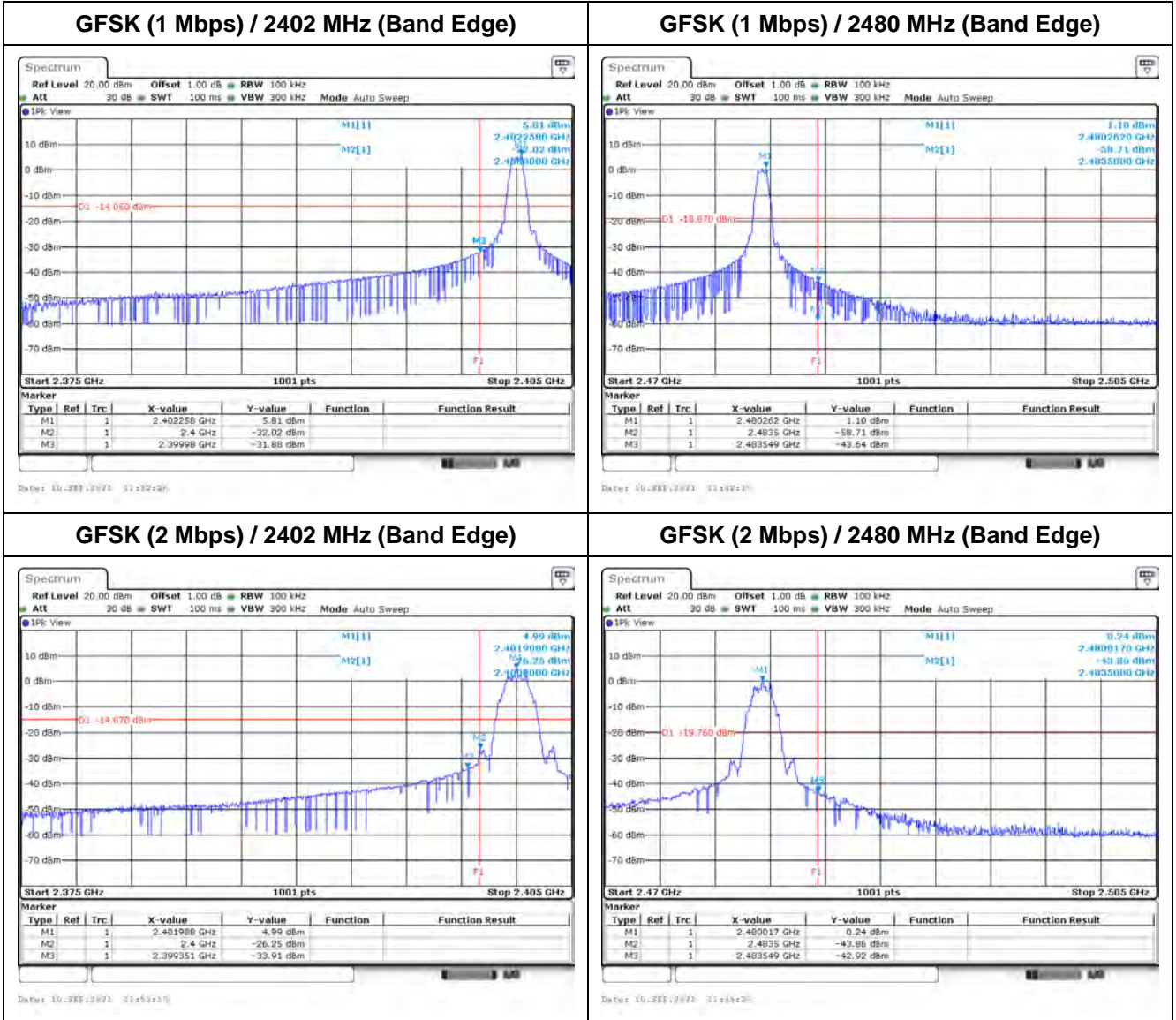


GFSK (2 Mbps) / 2440 MHz



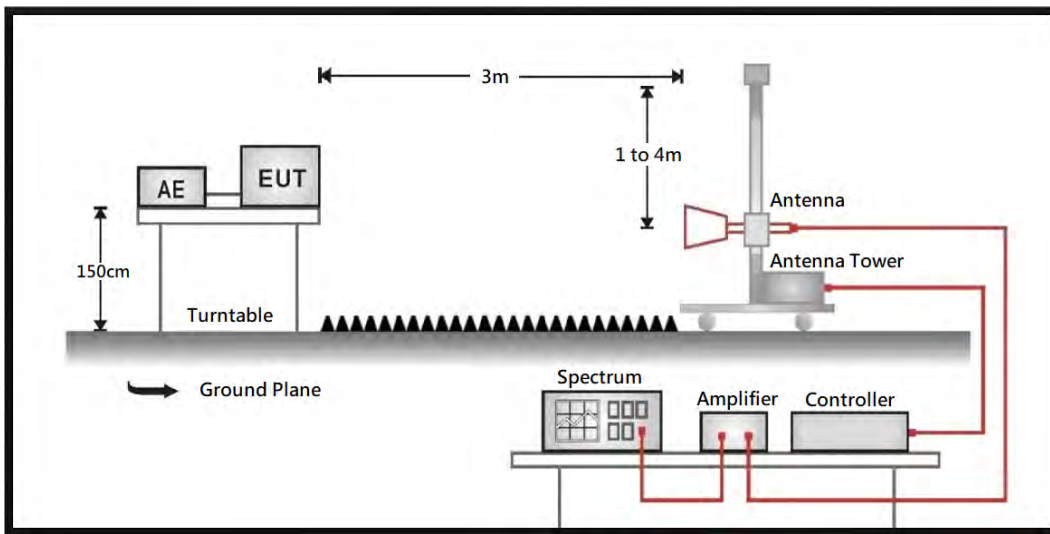
GFSK (2 Mbps) / 2480 MHz





6. Radiated Emission Band Edge

6.1 Test Setup



6.2 Test Limit

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20 dB below the level of the fundamental or to the general radiated emission limit in paragraph 15.209, whichever is the lesser attenuation.

Frequency (MHz)	Field strength (uV/m)	Field strength (dBuV/m)	Measurement distance (m)
30 - 88	100	40	3
88 - 216	150	43.5	3
216 - 960	200	46	3
Above 960	500	54	3

Remarks:

1. Field strength (dBuV/m) = 20 log Field strength (uV/m)
2. In the Above Table, the tighter limit applies at the band edges.
3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system

6.3 Test Procedure

The EUT was setup according to ANSI C63.10: 2013 and tested according to FHSS test procedure of FCC KDB 558074 D01 v05r02 for compliance to FCC 47CFR 15.247 requirements.

The EUT and its simulators are placed on a turn table which is 1.5 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

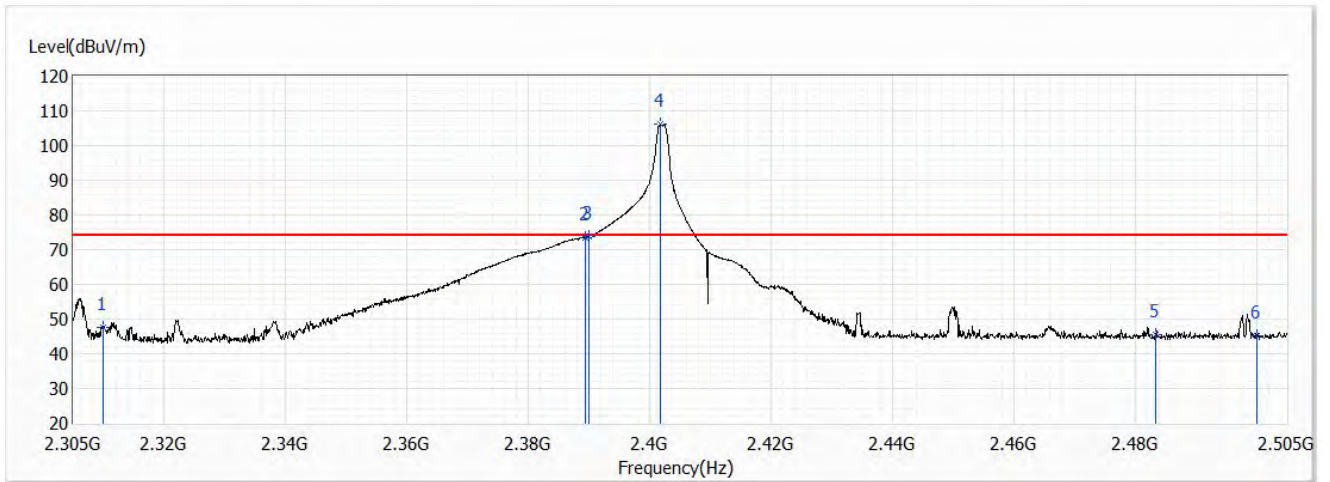
Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.10: 2013 on radiated measurement.

6.4 Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247.

6.5 Test Result of Radiated Emission Band Edge

Test Mode	Mode 1: Transmit (Adapter)	Test Voltage	120V/60Hz
Test Condition	GFSK (1 Mbps) / 2402 MHz	Polarity	Horizontal

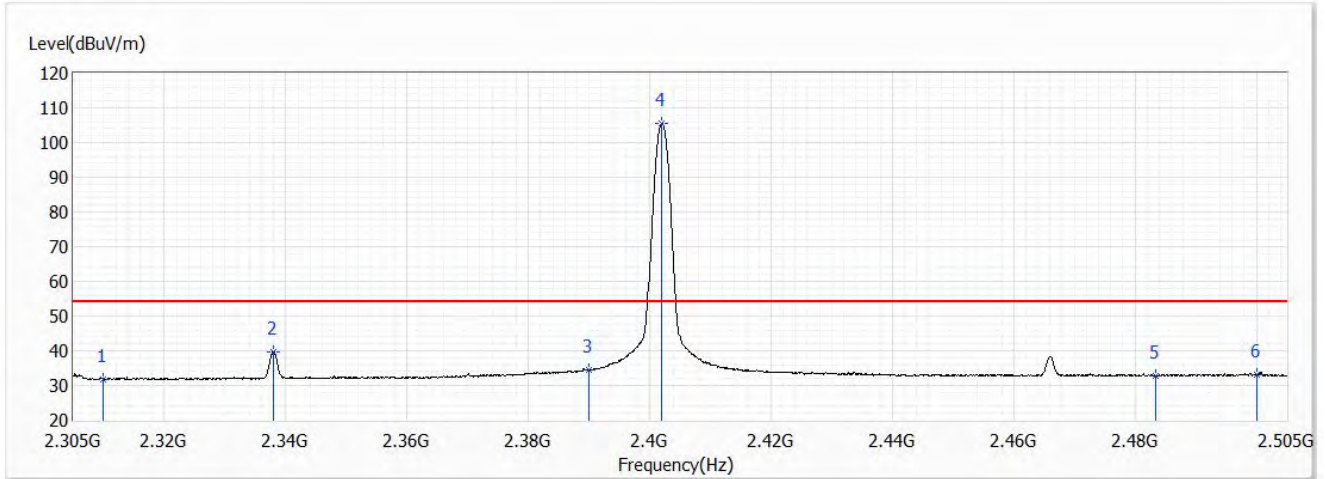


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	47.71	74.00	-26.29	34.72	12.99	PK
2	2389.400	73.58	74.00	-0.42	60.10	13.48	PK
3	2390.000	73.92	74.00	-0.08	60.44	13.48	PK
! 4	2401.800	106.05	74.00	32.05	92.49	13.56	PK
5	2483.500	45.45	74.00	-28.55	31.38	14.07	PK
6	2500.000	45.06	74.00	-28.94	30.89	14.17	PK

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
4. The fundamental for reference only, it's not restricted by unwanted emission limit.

Test Mode	Mode 1: Transmit (Adapter)	Test Voltage	120V/60Hz
Test Condition	GFSK (1 Mbps) / 2402 MHz	Polarity	Horizontal

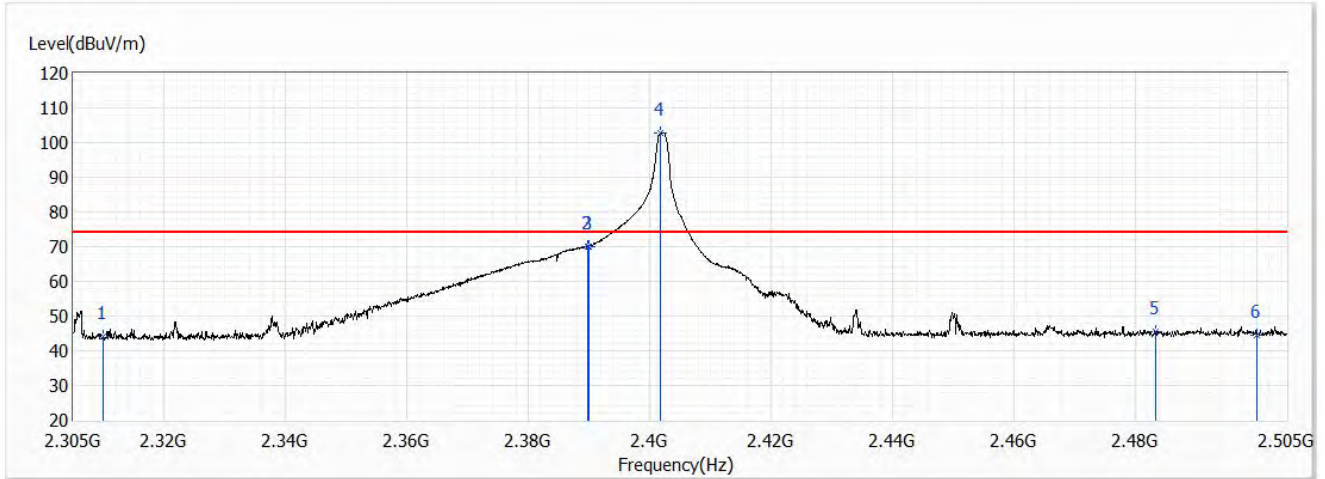


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	31.86	54.00	-22.14	18.87	12.99	AV
2	2338.000	39.66	54.00	-14.34	26.50	13.16	AV
3	2390.000	34.33	54.00	-19.67	20.85	13.48	AV
! 4	2402.000	105.51	54.00	51.51	91.95	13.56	AV
5	2483.500	32.86	54.00	-21.14	18.79	14.07	AV
6	2500.000	33.16	54.00	-20.84	18.99	14.17	AV

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
4. The fundamental for reference only, it's not restricted by unwanted emission limit.

Test Mode	Mode 1: Transmit (Adapter)	Test Voltage	120V/60Hz
Test Condition	GFSK (1 Mbps) / 2402 MHz	Polarity	Vertical

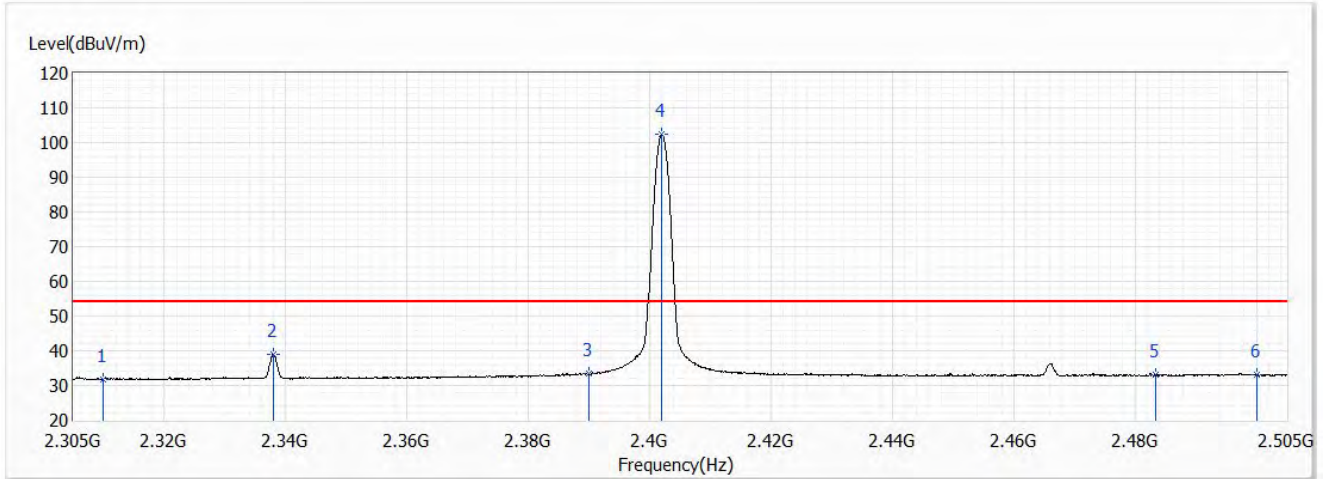


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	44.27	74.00	-29.73	31.28	12.99	PK
2	2389.700	70.02	74.00	-3.98	56.54	13.48	PK
3	2390.000	70.15	74.00	-3.85	56.67	13.48	PK
! 4	2401.800	102.76	74.00	28.76	89.20	13.56	PK
5	2483.500	45.45	74.00	-28.55	31.38	14.07	PK
6	2500.000	44.52	74.00	-29.48	30.35	14.17	PK

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
4. The fundamental for reference only, it's not restricted by unwanted emission limit.

Test Mode	Mode 1: Transmit (Adapter)	Test Voltage	120V/60Hz
Test Condition	GFSK (1 Mbps) / 2402 MHz	Polarity	Vertical

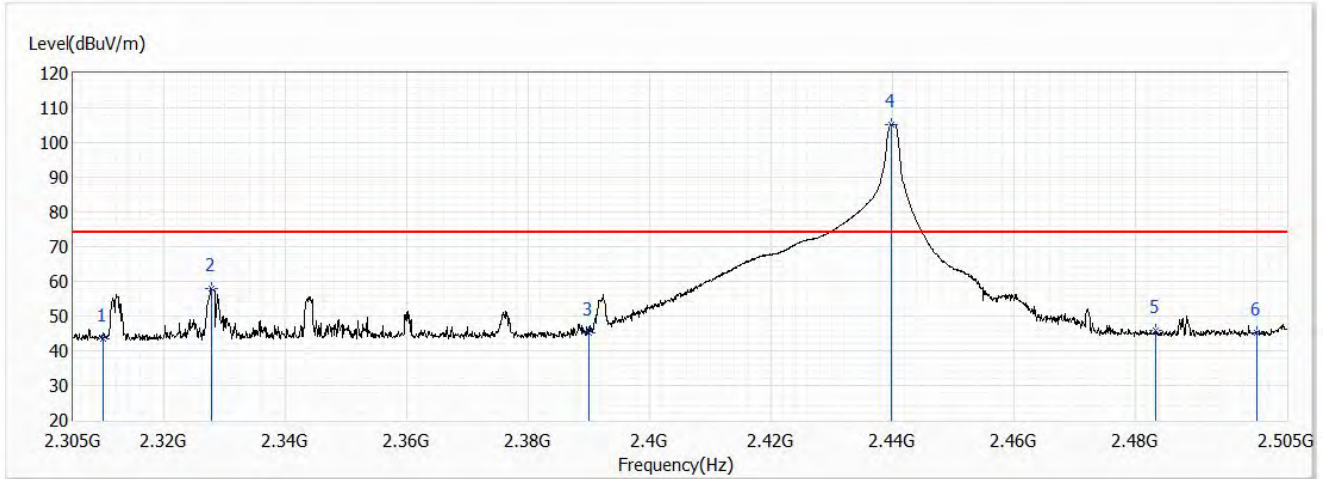


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	31.77	54.00	-22.23	18.78	12.99	AV
2	2338.000	38.81	54.00	-15.19	25.65	13.16	AV
3	2390.000	33.40	54.00	-20.60	19.92	13.48	AV
! 4	2402.000	102.25	54.00	48.25	88.69	13.56	AV
5	2483.500	32.98	54.00	-21.02	18.91	14.07	AV
6	2500.000	32.99	54.00	-21.01	18.82	14.17	AV

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
4. The fundamental for reference only, it's not restricted by unwanted emission limit.

Test Mode	Mode 1: Transmit (Adapter)	Test Voltage	120V/60Hz
Test Condition	GFSK (1 Mbps) / 2440 MHz	Polarity	Horizontal

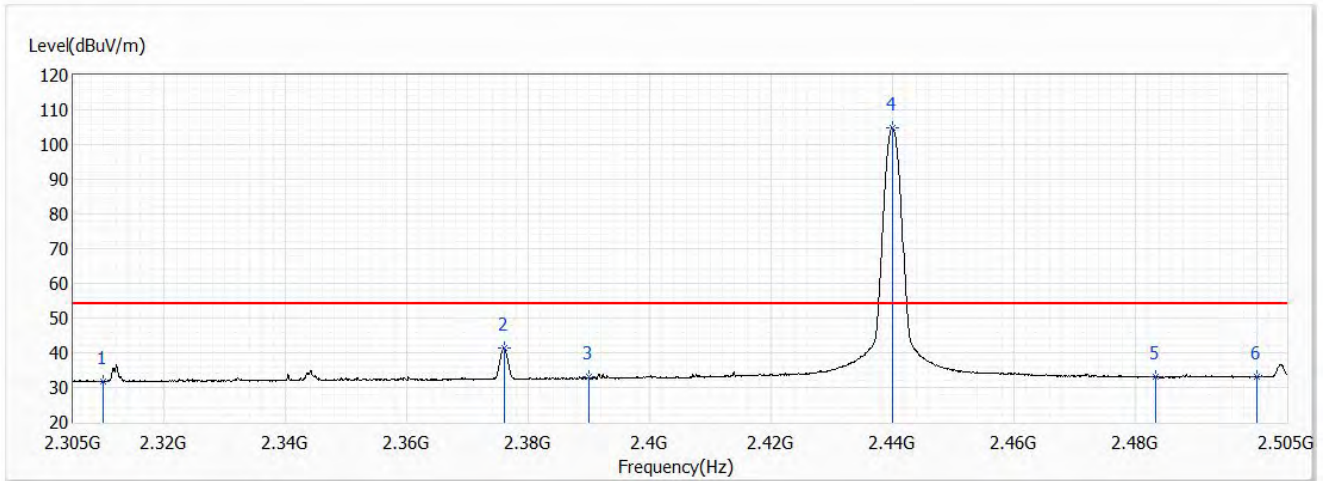


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	43.41	74.00	-30.59	30.42	12.99	PK
2	2327.700	57.96	74.00	-16.04	44.86	13.10	PK
3	2390.000	45.33	74.00	-28.67	31.85	13.48	PK
! 4	2439.900	105.29	74.00	31.29	91.50	13.79	PK
5	2483.500	45.79	74.00	-28.21	31.72	14.07	PK
6	2500.000	45.25	74.00	-28.75	31.08	14.17	PK

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
4. The fundamental for reference only, it's not restricted by unwanted emission limit.

Test Mode	Mode 1: Transmit (Adapter)	Polarity	Horizontal
Test Condition	GFSK (1 Mbps) / 2440 MHz	Test Voltage	120V/60Hz

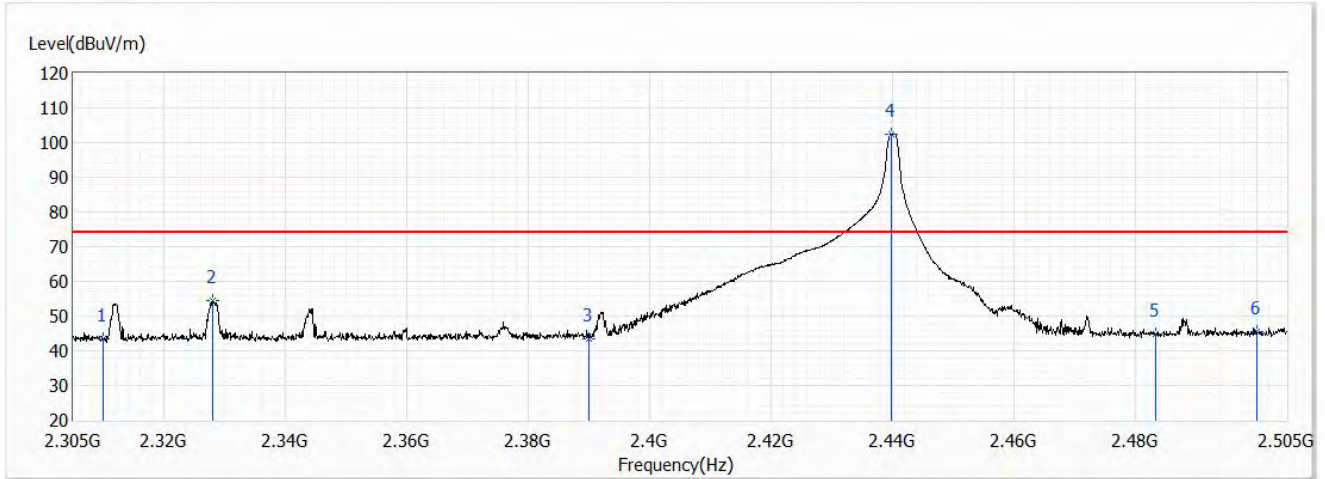


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	31.66	54.00	-22.34	18.67	12.99	AV
2	2376.000	41.35	54.00	-12.65	27.95	13.40	AV
3	2390.000	32.95	54.00	-21.05	19.47	13.48	AV
! 4	2440.100	104.79	54.00	50.79	91.00	13.79	AV
5	2483.500	33.23	54.00	-20.77	19.16	14.07	AV
6	2500.000	33.09	54.00	-20.91	18.92	14.17	AV

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
4. The fundamental for reference only, it's not restricted by unwanted emission limit.

Test Mode	Mode 1: Transmit (Adapter)	Test Voltage	120V/60Hz
Test Condition	GFSK (1 Mbps) / 2440 MHz	Polarity	Vertical

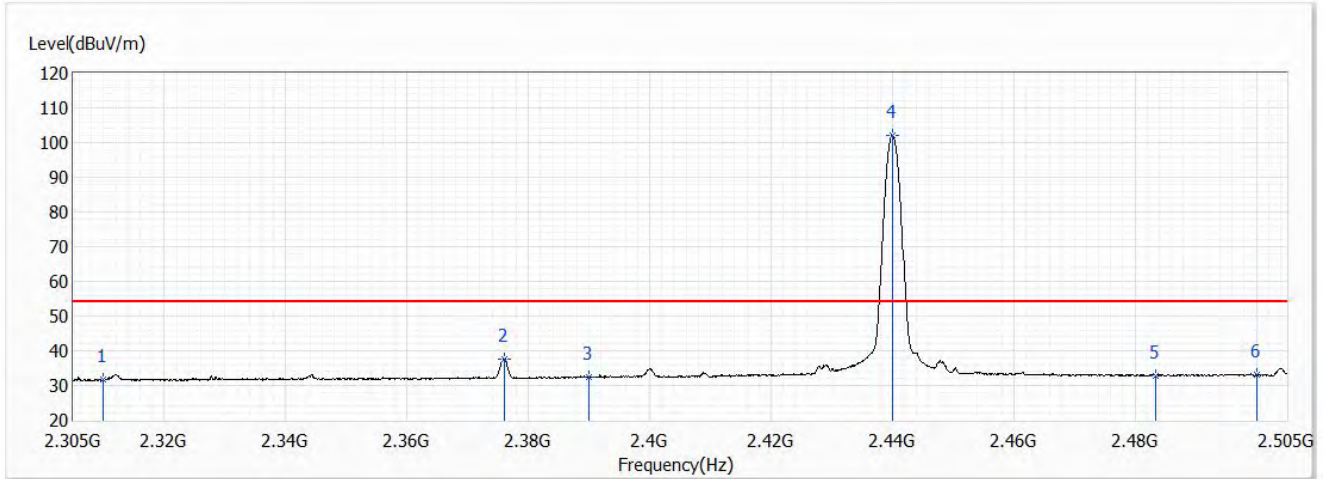


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	43.55	74.00	-30.45	30.56	12.99	PK
2	2327.900	54.33	74.00	-19.67	41.23	13.10	PK
3	2390.000	43.45	74.00	-30.55	29.97	13.48	PK
! 4	2439.800	102.53	74.00	28.53	88.74	13.79	PK
5	2483.500	44.78	74.00	-29.22	30.71	14.07	PK
6	2500.000	45.40	74.00	-28.60	31.23	14.17	PK

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
4. The fundamental for reference only, it's not restricted by unwanted emission limit.

Test Mode	Mode 1: Transmit (Adapter)	Test Voltage	120V/60Hz
Test Condition	GFSK (1 Mbps) / 2440 MHz	Polarity	Vertical

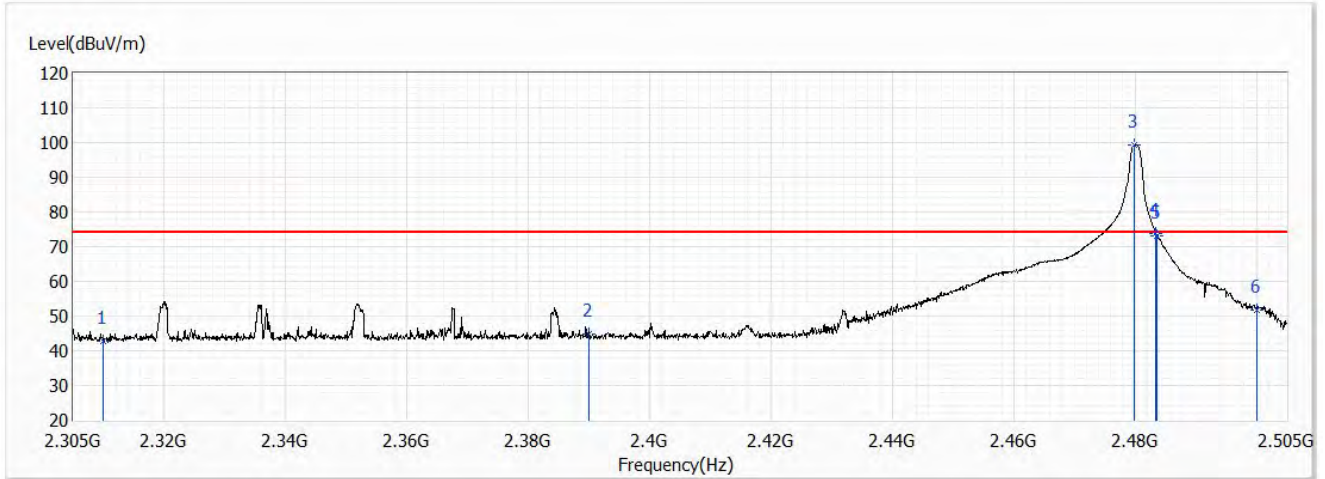


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	31.60	54.00	-22.40	18.61	12.99	AV
2	2376.000	37.57	54.00	-16.43	24.17	13.40	AV
3	2390.000	32.41	54.00	-21.59	18.93	13.48	AV
! 4	2440.100	102.03	54.00	48.03	88.24	13.79	AV
5	2483.500	32.82	54.00	-21.18	18.75	14.07	AV
6	2500.000	33.02	54.00	-20.98	18.85	14.17	AV

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
4. The fundamental for reference only, it's not restricted by unwanted emission limit.

Test Mode	Mode 1: Transmit (Adapter)	Test Voltage	120V/60Hz
Test Condition	GFSK (1 Mbps) / 2480 MHz	Polarity	Horizontal

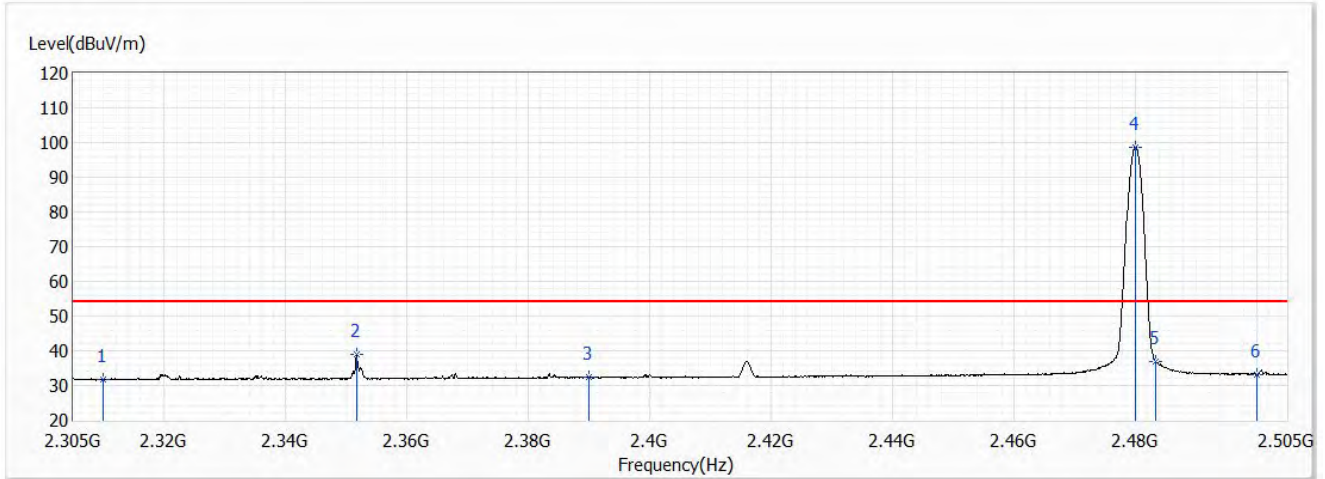


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	42.62	74.00	-31.32	29.69	12.99	PK
2	2390.000	44.71	74.00	-29.29	31.23	13.48	PK
! 3	2479.800	99.22	74.00	25.22	85.18	14.04	PK
4	2483.500	73.96	74.00	-0.04	59.89	14.07	PK
5	2483.700	73.26	74.00	-0.74	59.19	14.07	PK
6	2500.000	51.80	74.00	-22.20	37.63	14.17	PK

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
4. The fundamental for reference only, it's not restricted by unwanted emission limit.

Test Mode	Mode 1: Transmit (Adapter)	Test Voltage	120V/60Hz
Test Condition	GFSK (1 Mbps) / 2480 MHz	Polarity	Horizontal

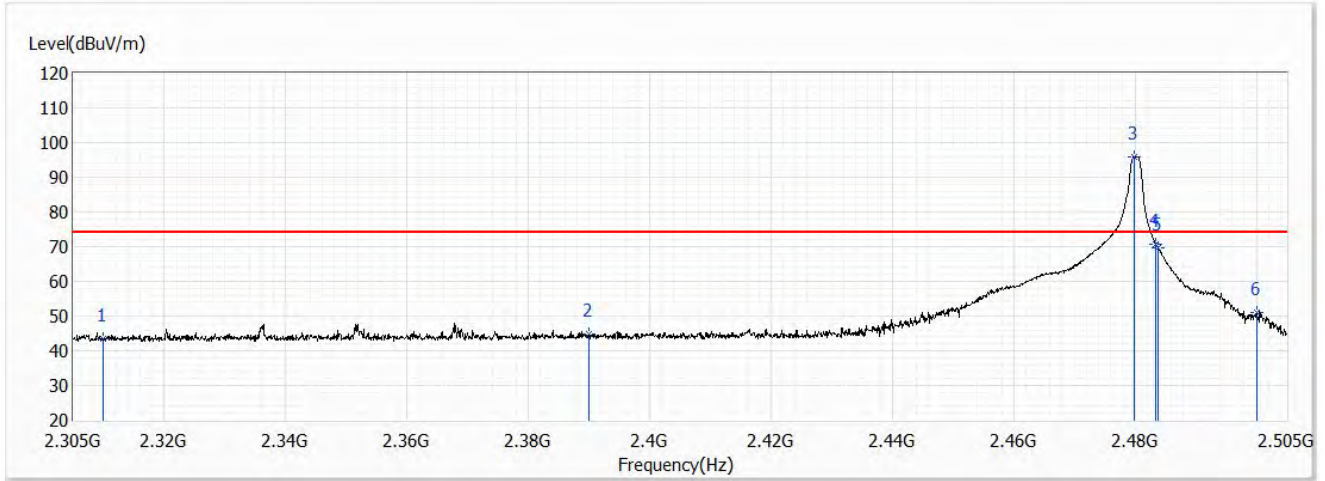


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	31.64	54.00	-22.36	18.65	12.99	AV
2	2351.700	38.86	54.00	-15.14	25.61	13.25	AV
3	2390.000	32.37	54.00	-21.63	18.89	13.48	AV
! 4	2480.100	98.61	54.00	44.61	84.57	14.04	AV
5	2483.500	36.84	54.00	-17.16	22.77	14.07	AV
6	2500.000	33.26	54.00	-20.74	19.09	14.17	AV

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
4. The fundamental for reference only, it's not restricted by unwanted emission limit.

Test Mode	Mode 1: Transmit (Adapter)	Test Voltage	120V/60Hz
Test Condition	GFSK (1 Mbps) / 2480 MHz	Polarity	Vertical

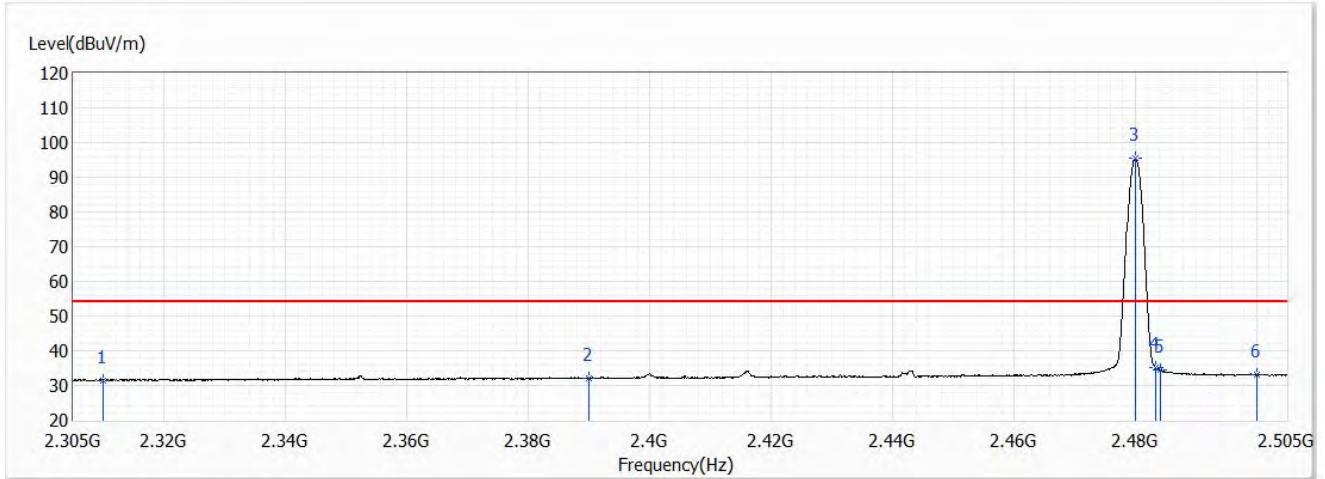


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	43.46	74.00	-30.54	30.47	12.99	PK
2	2390.000	44.80	74.00	-29.20	31.32	13.48	PK
! 3	2479.800	95.92	74.00	21.92	81.88	14.04	PK
4	2483.500	70.69	74.00	-3.31	56.62	14.07	PK
5	2483.800	69.63	74.00	-4.37	55.56	14.07	PK
6	2500.000	50.92	74.00	-23.08	36.75	14.17	PK

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
4. The fundamental for reference only, it's not restricted by unwanted emission limit.

Test Mode	Mode 1: Transmit (Adapter)	Test Voltage	120V/60Hz
Test Condition	GFSK (1 Mbps) / 2480 MHz	Polarity	Vertical

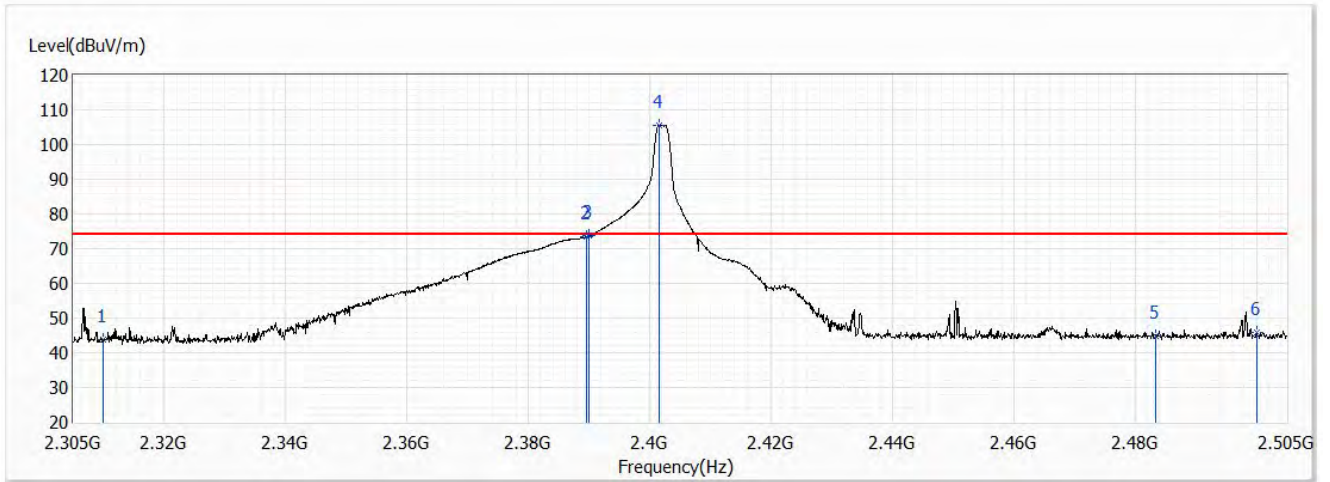


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	31.53	54.00	-22.47	18.54	12.99	AV
2	2390.000	32.02	54.00	-21.98	18.54	13.48	AV
! 3	2480.100	95.36	54.00	41.36	81.32	14.04	AV
4	2483.500	35.12	54.00	-18.88	21.05	14.07	AV
5	2484.200	34.56	54.00	-19.44	20.49	14.07	AV
6	2500.000	32.99	54.00	-21.01	18.82	14.17	AV

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
4. The fundamental for reference only, it's not restricted by unwanted emission limit.

Test Mode	Mode 1: Transmit (Adapter)	Test Voltage	120V/60Hz
Test Condition	GFSK (2 Mbps) / 2402 MHz	Polarity	Horizontal

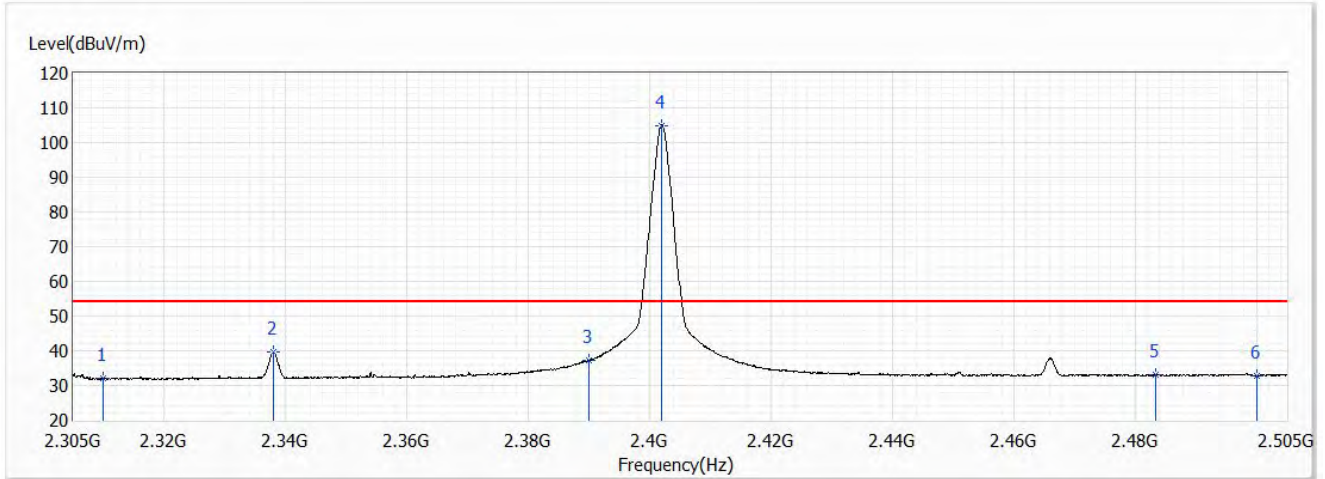


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	43.71	74.00	-30.29	30.72	12.99	PK
2	2389.600	73.47	74.00	-0.53	59.99	13.48	PK
3	2390.000	73.72	74.00	-0.28	60.24	13.48	PK
! 4	2401.600	105.62	74.00	31.62	92.07	13.55	PK
5	2483.500	44.75	74.00	-29.25	30.62	14.07	PK
6	2500.000	45.87	74.00	-28.13	31.70	14.17	PK

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
4. The fundamental for reference only, it's not restricted by unwanted emission limit.

Test Mode	Mode 1: Transmit (Adapter)	Test Voltage	120V/60Hz
Test Condition	GFSK (2 Mbps) / 2402 MHz	Polarity	Horizontal

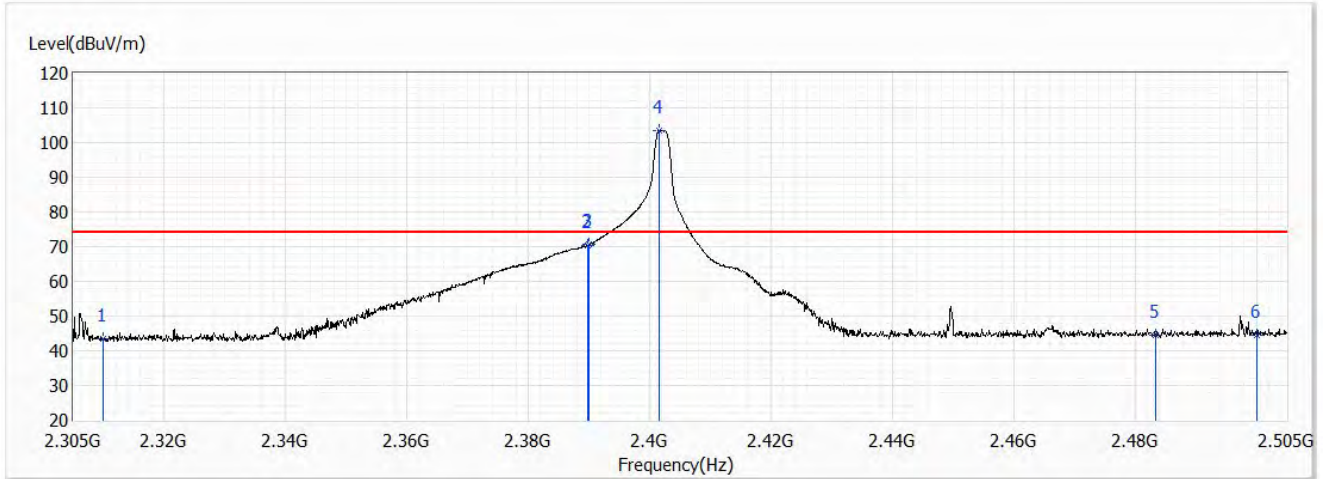


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	31.99	54.00	-22.01	19.00	12.99	AV
2	2337.900	39.52	54.00	-14.48	26.36	13.16	AV
3	2390.000	37.31	54.00	-16.69	23.83	13.48	AV
! 4	2402.000	105.00	54.00	51.00	91.44	13.56	AV
5	2483.500	33.05	54.00	-20.95	18.98	14.07	AV
6	2500.000	32.91	54.00	-21.09	18.74	14.17	AV

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
4. The fundamental for reference only, it's not restricted by unwanted emission limit.

Test Mode	Mode 1: Transmit (Adapter)	Test Voltage	120V/60Hz
Test Condition	GFSK (2 Mbps) / 2402 MHz	Polarity	Vertical

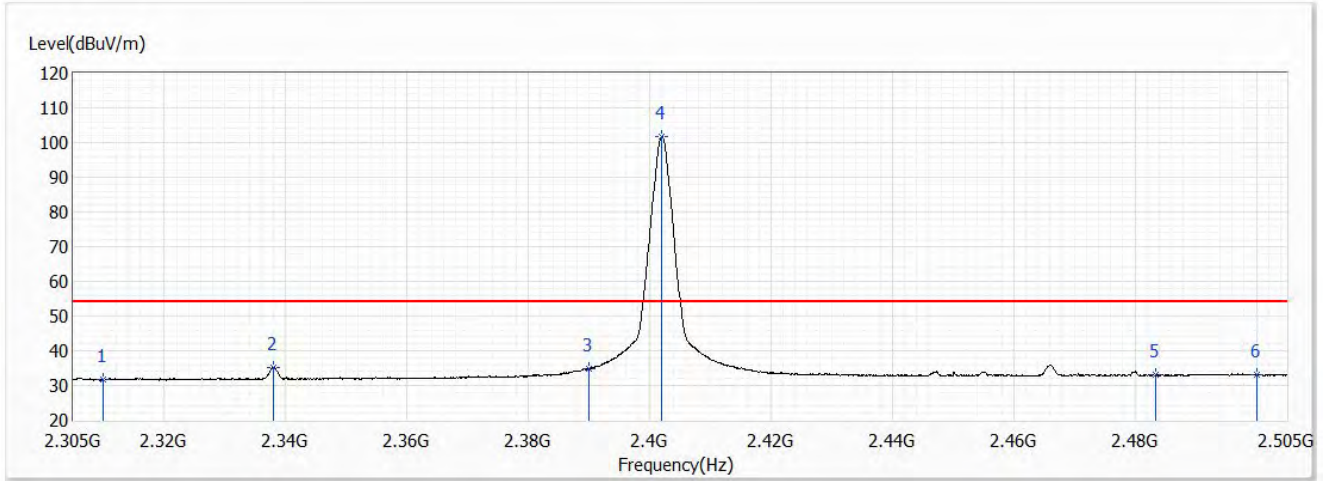


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	43.58	74.00	-30.42	30.59	12.99	PK
2	2389.700	70.27	74.00	-3.73	56.79	13.48	PK
3	2390.000	70.59	74.00	-3.41	57.11	13.48	PK
! 4	2401.600	103.42	74.00	29.42	89.87	13.55	PK
5	2483.500	44.33	74.00	-29.67	30.26	14.07	PK
6	2500.000	44.47	74.00	-29.53	30.30	14.17	PK

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
4. The fundamental for reference only, it's not restricted by unwanted emission limit.

Test Mode	Mode 1: Transmit (Adapter)	Test Voltage	120V/60Hz
Test Condition	GFSK (2 Mbps) / 2402 MHz	Polarity	Vertical

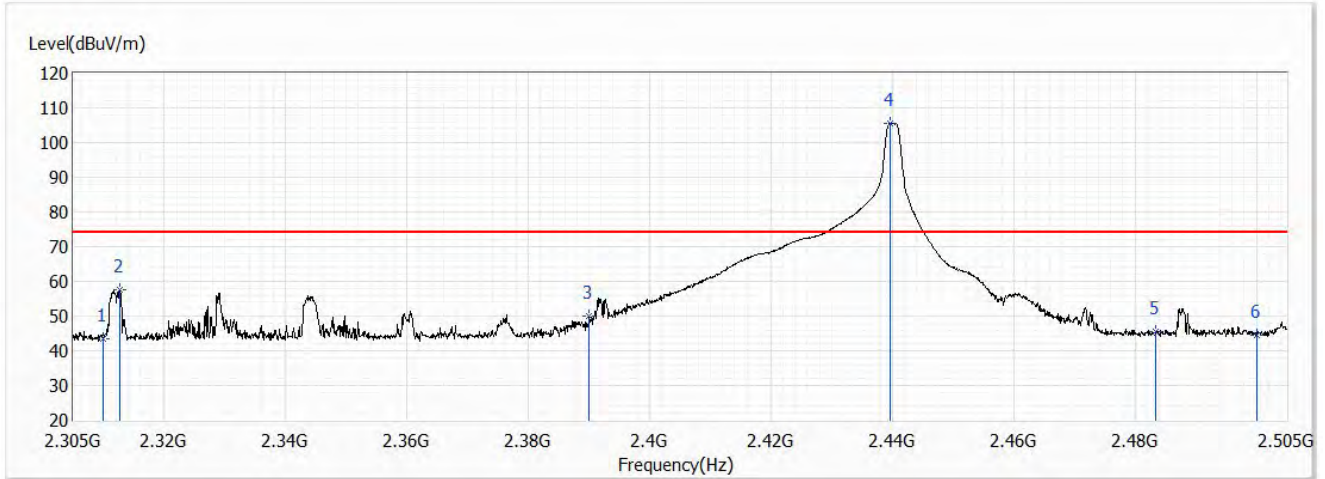


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	31.75	54.00	-22.25	18.76	12.99	AV
2	2337.900	35.25	54.00	-18.75	22.09	13.16	AV
3	2390.000	34.85	54.00	-19.15	21.37	13.48	AV
! 4	2402.000	101.71	54.00	47.71	88.15	13.56	AV
5	2483.500	33.05	54.00	-20.95	18.98	14.07	AV
6	2500.000	33.19	54.00	-20.81	19.02	14.17	AV

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
4. The fundamental for reference only, it's not restricted by unwanted emission limit.

Test Mode	Mode 1: Transmit (Adapter)	Test Voltage	120V/60Hz
Test Condition	GFSK (2 Mbps) / 2440 MHz	Polarity	Horizontal

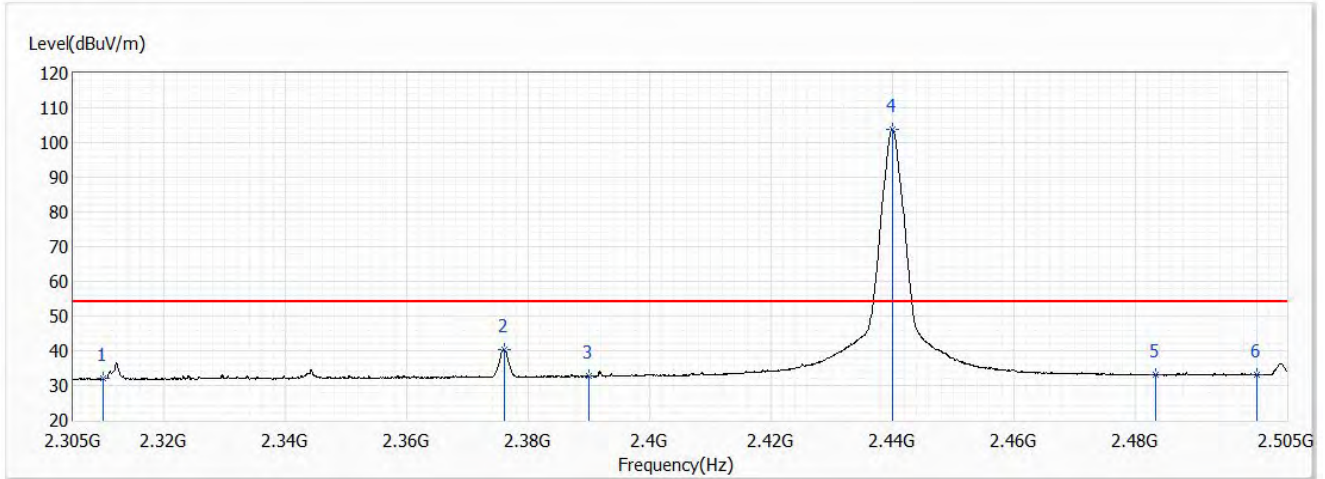


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	43.52	74.00	-30.48	30.53	12.99	PK
2	2312.700	57.46	74.00	-16.54	44.46	13.00	PK
3	2390.000	50.17	74.00	-23.83	36.69	13.48	PK
! 4	2439.600	105.50	74.00	31.50	91.71	13.79	PK
5	2483.500	45.46	74.00	-28.54	31.39	14.07	PK
6	2500.000	44.35	74.00	-29.65	30.18	14.17	PK

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
4. The fundamental for reference only, it's not restricted by unwanted emission limit.

Test Mode	Mode 1: Transmit (Adapter)	Polarity	Horizontal
Test Condition	GFSK (2 Mbps) / 2440 MHz	Test Voltage	120V/60Hz

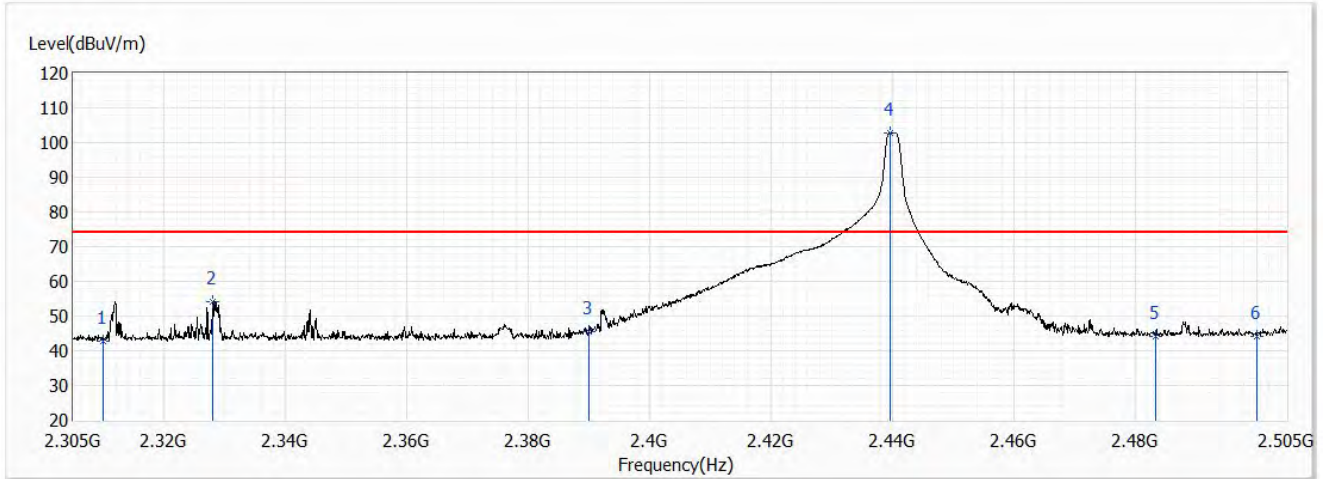


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	31.97	54.00	-22.03	18.98	12.99	AV
2	2376.000	40.47	54.00	-13.53	27.07	13.40	AV
3	2390.000	32.89	54.00	-21.11	19.41	13.48	AV
! 4	2440.000	103.77	54.00	49.77	89.98	13.79	AV
5	2483.500	33.11	54.00	-20.89	19.04	14.07	AV
6	2500.000	32.98	54.00	-21.02	18.81	14.17	AV

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
4. The fundamental for reference only, it's not restricted by unwanted emission limit.

Test Mode	Mode 1: Transmit (Adapter)	Test Voltage	120V/60Hz
Test Condition	GFSK (2 Mbps) / 2440 MHz	Polarity	Vertical

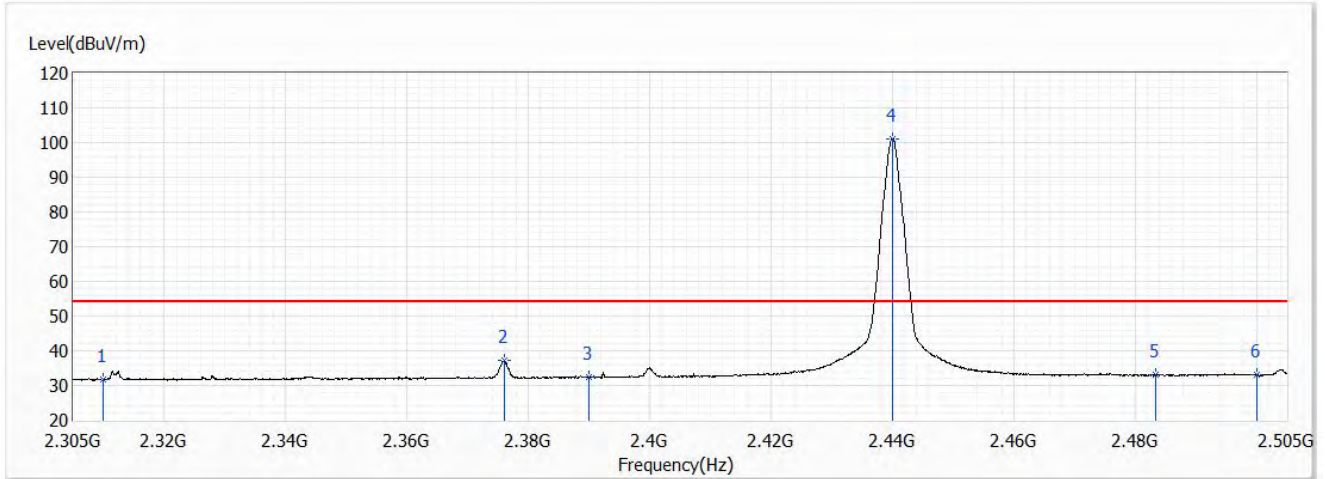


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	42.80	74.00	-31.20	29.81	12.99	PK
2	2328.000	54.24	74.00	-19.76	41.14	13.10	PK
3	2390.000	45.43	74.00	-28.57	31.95	13.48	PK
! 4	2439.600	102.85	74.00	28.85	89.06	13.79	PK
5	2483.500	44.30	74.00	-29.70	30.23	14.07	PK
6	2500.000	44.04	74.00	-29.96	29.87	14.17	PK

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
4. The fundamental for reference only, it's not restricted by unwanted emission limit.

Test Mode	Mode 1: Transmit (Adapter)	Test Voltage	120V/60Hz
Test Condition	GFSK (2 Mbps) / 2440 MHz	Polarity	Vertical

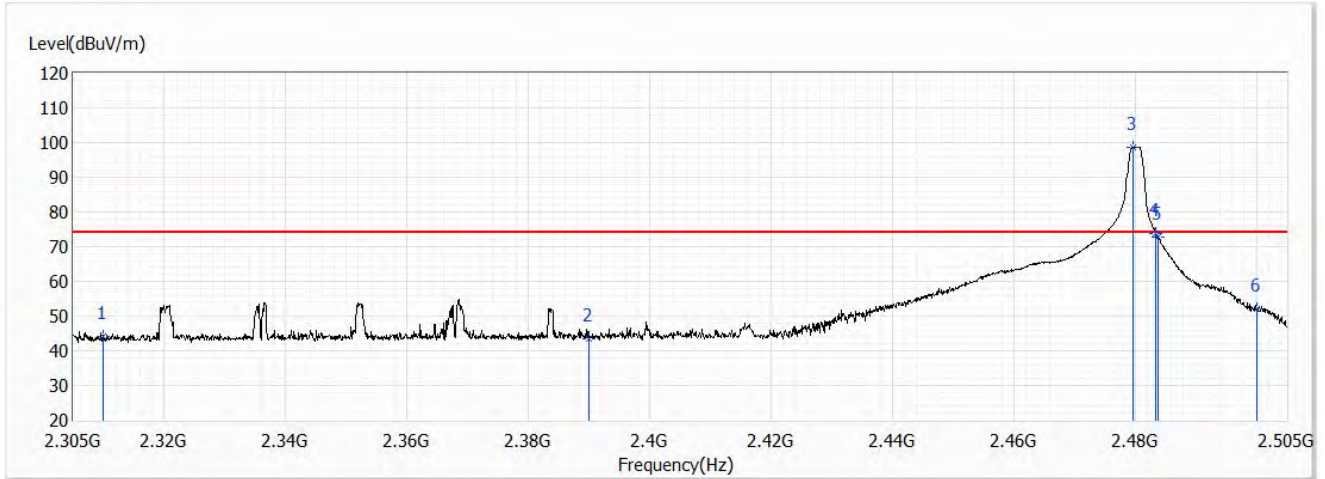


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	31.70	54.00	-22.30	18.71	12.99	AV
2	2376.000	37.13	54.00	-16.87	23.73	13.40	AV
3	2390.000	32.34	54.00	-21.66	18.86	13.48	AV
! 4	2440.000	101.11	54.00	47.11	87.32	13.79	AV
5	2483.500	33.01	54.00	-20.99	18.94	14.07	AV
6	2500.000	33.02	54.00	-20.98	18.85	14.17	AV

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
4. The fundamental for reference only, it's not restricted by unwanted emission limit.

Test Mode	Mode 1: Transmit (Adapter)	Test Voltage	120V/60Hz
Test Condition	GFSK (2 Mbps) / 2480 MHz	Polarity	Horizontal

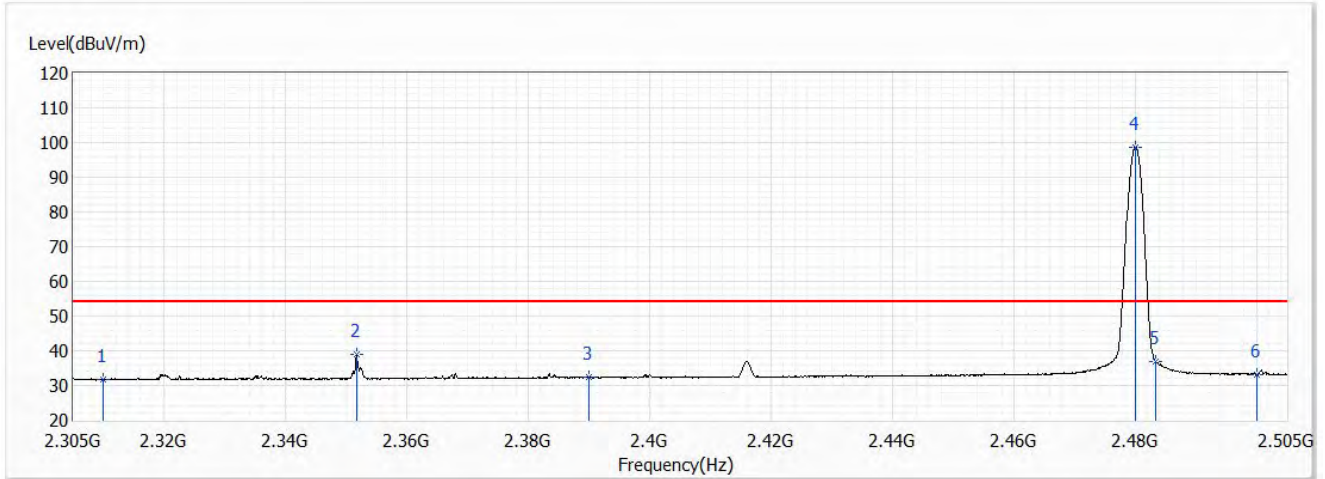


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	44.31	74.00	-29.69	31.32	12.99	PK
2	2390.000	43.57	74.00	-30.43	30.09	13.48	PK
! 3	2479.600	98.77	74.00	24.77	84.73	14.04	PK
4	2483.500	73.66	74.00	-0.34	59.59	14.07	PK
5	2483.800	72.65	74.00	-1.35	58.58	14.07	PK
6	2500.000	52.01	74.00	-21.99	37.84	14.17	PK

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
4. The fundamental for reference only, it's not restricted by unwanted emission limit.

Test Mode	Mode 1: Transmit (Adapter)	Test Voltage	120V/60Hz
Test Condition	GFSK (2 Mbps) / 2480 MHz	Polarity	Horizontal

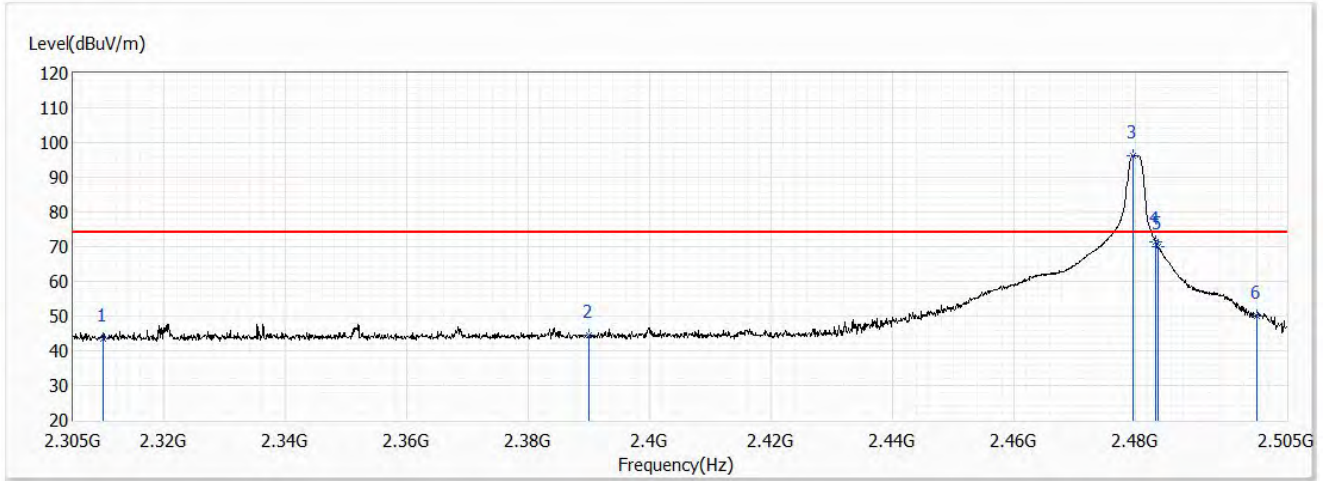


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	31.75	54.00	-22.25	18.76	12.99	AV
2	2390.000	32.35	54.00	-21.65	18.87	13.48	AV
! 3	2480.000	97.72	54.00	43.72	83.62	14.04	AV
4	2483.500	44.21	54.00	-9.79	30.14	14.07	AV
5	2483.800	41.49	54.00	-12.51	27.42	14.07	AV
6	2500.000	33.22	54.00	-20.78	19.05	14.17	AV

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
4. The fundamental for reference only, it's not restricted by unwanted emission limit.

Test Mode	Mode 1: Transmit (Adapter)	Test Voltage	120V/60Hz
Test Condition	GFSK (2 Mbps) / 2480 MHz	Polarity	Vertical

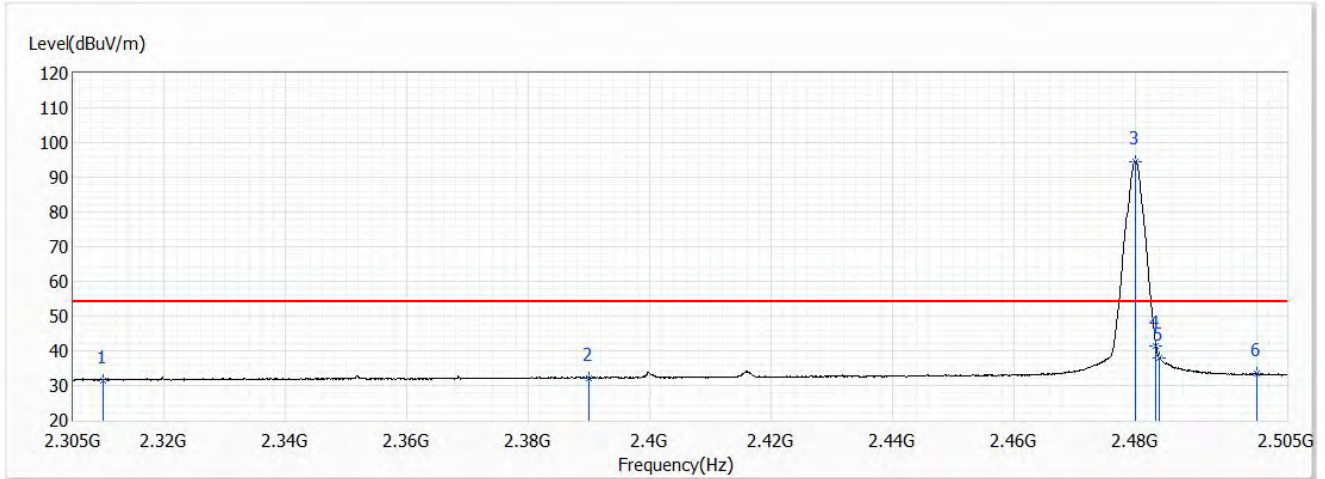


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	43.40	74.00	-30.60	30.41	12.99	PK
2	2390.000	44.36	74.00	-29.64	30.88	13.48	PK
! 3	2479.600	96.26	74.00	22.26	82.22	14.04	PK
4	2483.500	71.21	74.00	-2.79	57.14	14.07	PK
5	2483.800	70.10	74.00	-3.90	56.03	14.07	PK
6	2500.000	49.88	74.00	-24.12	35.71	14.17	PK

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
4. The fundamental for reference only, it's not restricted by unwanted emission limit.

Test Mode	Mode 1: Transmit (Adapter)	Test Voltage	120V/60Hz
Test Condition	GFSK (2 Mbps) / 2480 MHz	Polarity	Vertical



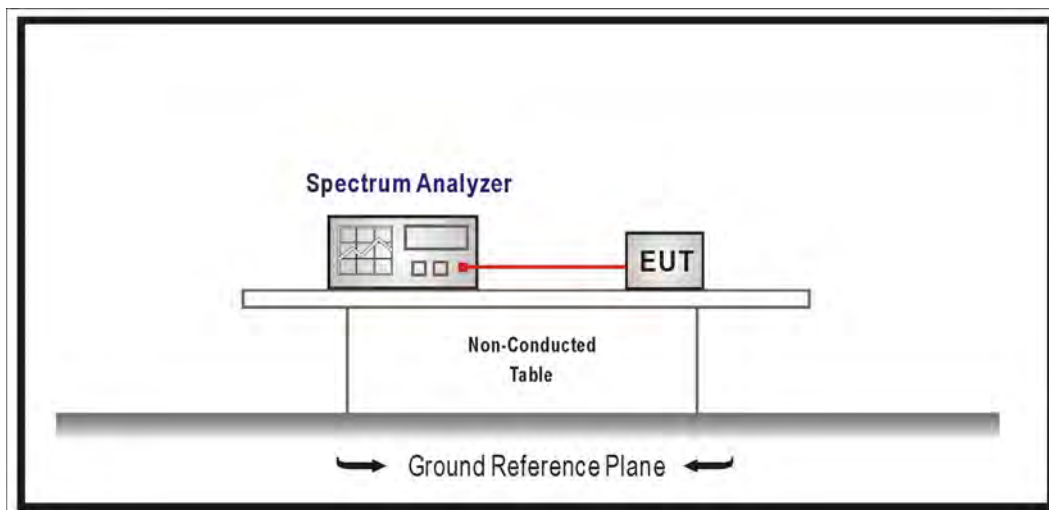
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	31.51	54.00	-22.49	18.52	12.99	AV
2	2390.000	32.20	54.00	-21.80	18.72	13.48	AV
! 3	2480.000	94.48	54.00	40.48	80.44	14.04	AV
4	2483.500	41.33	54.00	-12.67	27.26	14.07	AV
5	2484.000	37.97	54.00	-16.03	23.90	14.07	AV
6	2500.000	33.37	54.00	-20.63	19.20	14.17	AV

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
4. The fundamental for reference only, it's not restricted by unwanted emission limit.

7. Occupied Bandwidth & DTS Bandwidth

7.1 Test Setup



7.2 Test Limit

The 6 dB bandwidth: ≥ 500 kHz.

Occupied Bandwidth: NA

7.3 Test Procedures

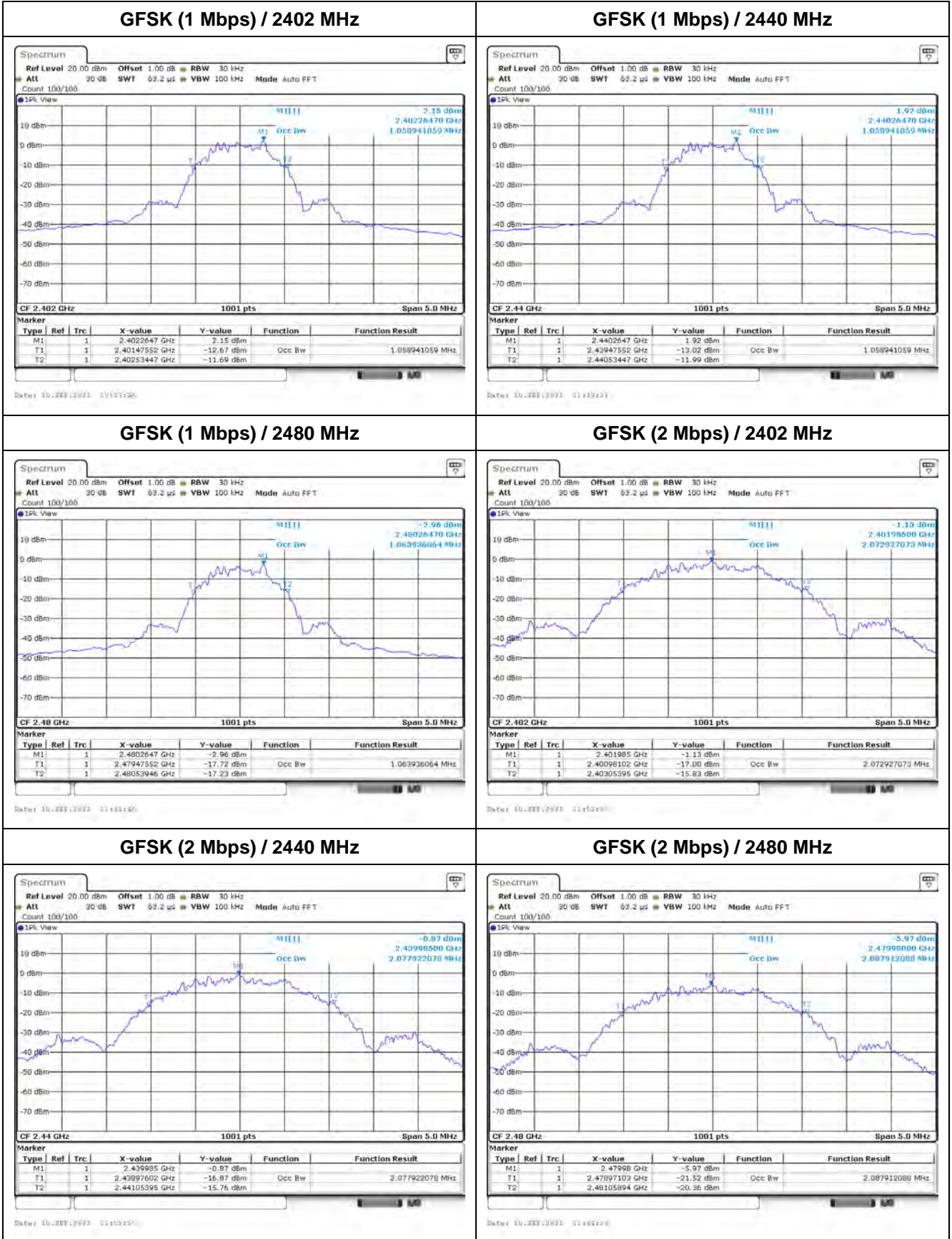
The EUT was setup according to ANSI C63.10: 2013; tested according to DTS test procedure of KDB 558074 D01 V05r02 for compliance to FCC 47CFR 15.247 requirements.

7.4 Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247.

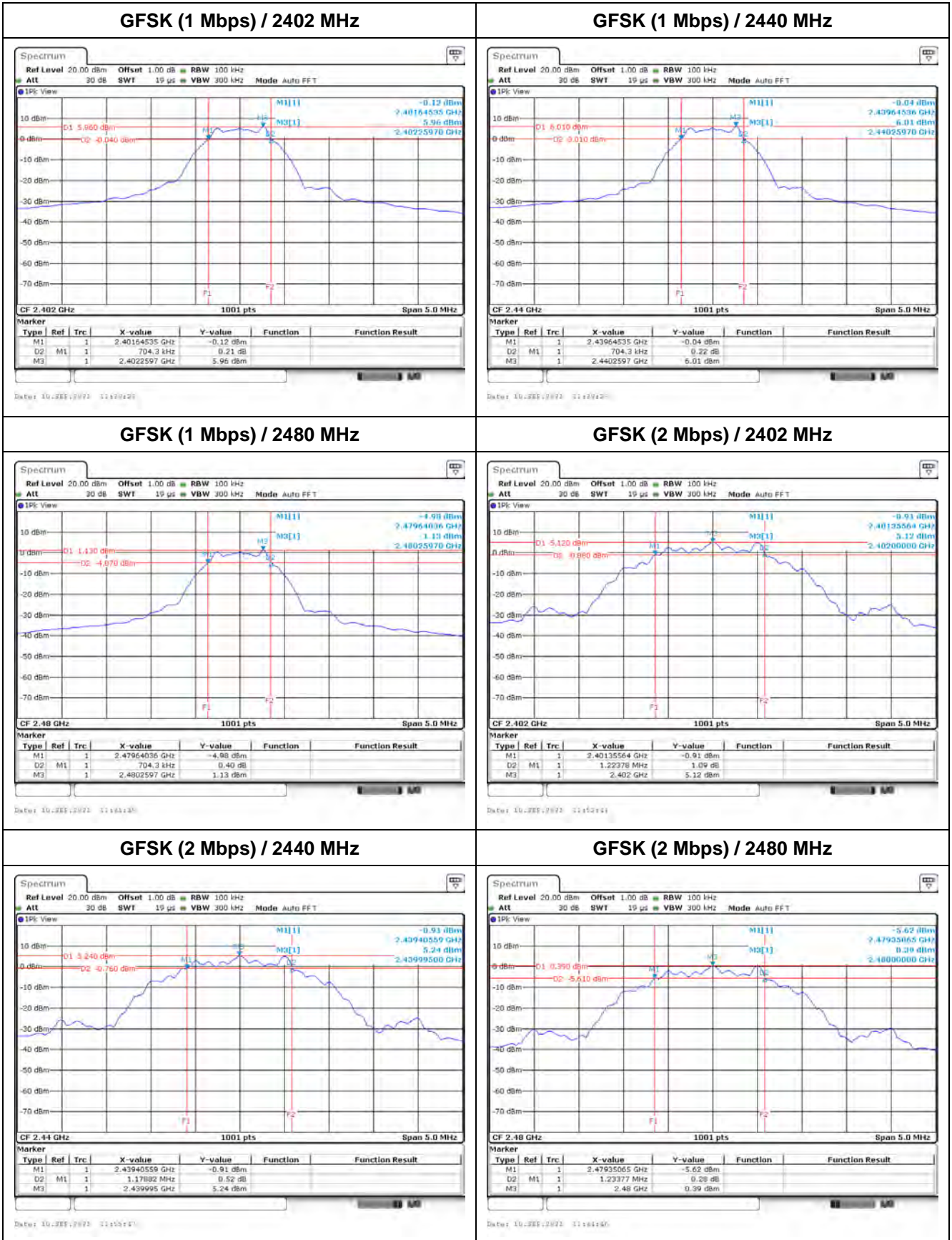
7.5 Test Result of Occupied Bandwidth

Modulation	Channel	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)
GFSK (1 Mbps)	00	2402	1.058	-
	19	2440	1.058	-
	39	2480	1.063	-
GFSK (2 Mbps)	00	2402	2.072	-
	19	2440	2.077	-
	39	2480	2.087	-



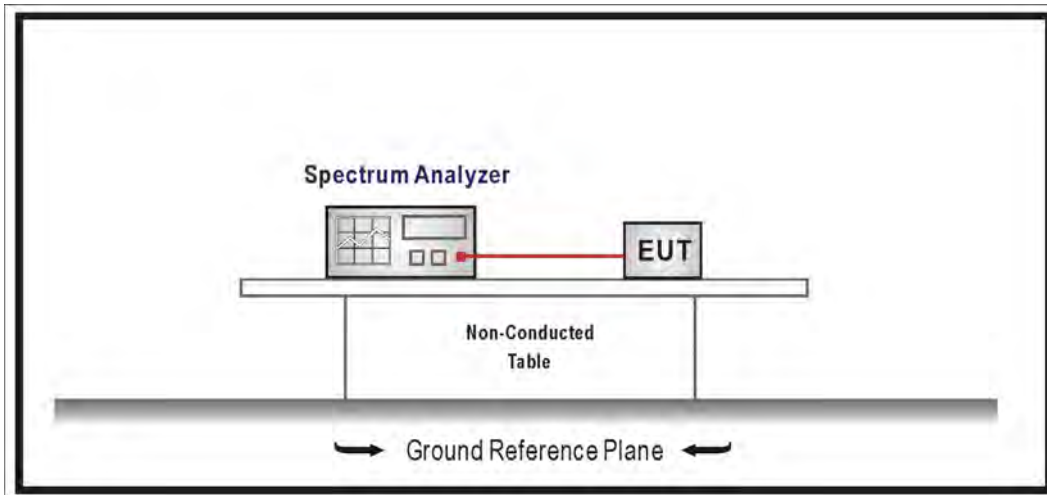
7.6 Test Result of DTS Bandwidth

Modulation	Channel	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
GFSK (1 Mbps)	00	2402	0.704	≥ 0.500	Pass
	19	2440	0.704	≥ 0.500	Pass
	39	2480	0.704	≥ 0.500	Pass
GFSK (2 Mbps)	00	2402	1.223	≥ 0.500	Pass
	19	2440	1.178	≥ 0.500	Pass
	39	2480	1.233	≥ 0.500	Pass



8. Maximum Power Spectral Density

8.1 Test Setup



8.2 Test Limit

The peak power spectral density conducted from the intentional radiated to the antenna shall not be greater than +8 dBm in any 3 kHz band during any time interval of continuous transmission.

8.3 Test Procedures

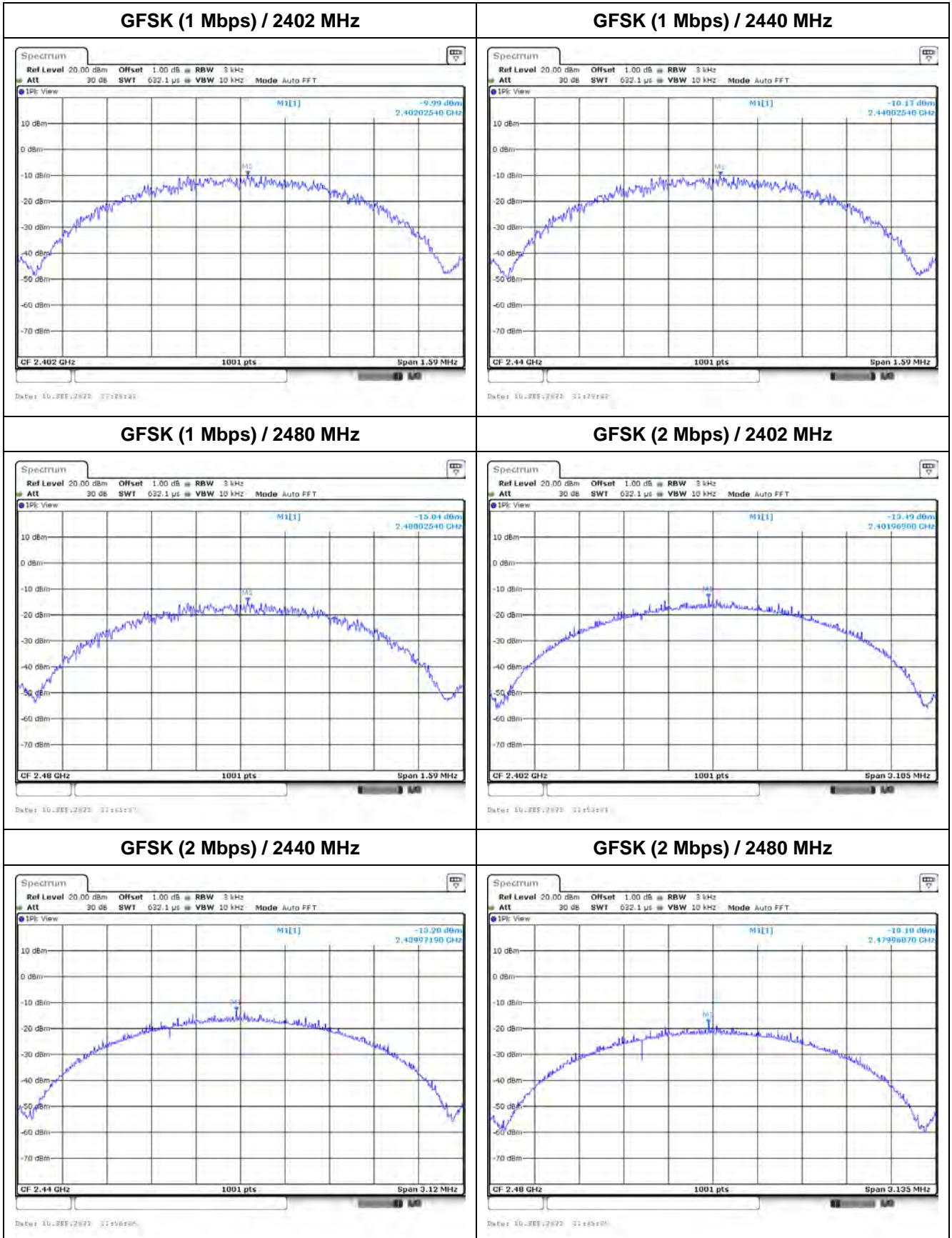
The EUT was setup according to ANSI C63.10: 2013; tested according to DTS test procedure of KDB 558074 D01 V05r02 for compliance to FCC 47CFR 15.247 requirements.

8.4 Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247

8.5 Test Result of Maximum Power Spectral Density

Modulation	Channel	Frequency (MHz)	Measure Value (dBm/3kHz)	Limit (dBm/3kHz)	Result
GFSK (1 Mbps)	00	2402	-9.990	≤ 8.000	Pass
	19	2440	-10.170	≤ 8.000	Pass
	39	2480	-15.040	≤ 8.000	Pass
GFSK (2 Mbps)	00	2402	-13.490	≤ 8.000	Pass
	19	2440	-13.200	≤ 8.000	Pass
	39	2480	-18.100	≤ 8.000	Pass



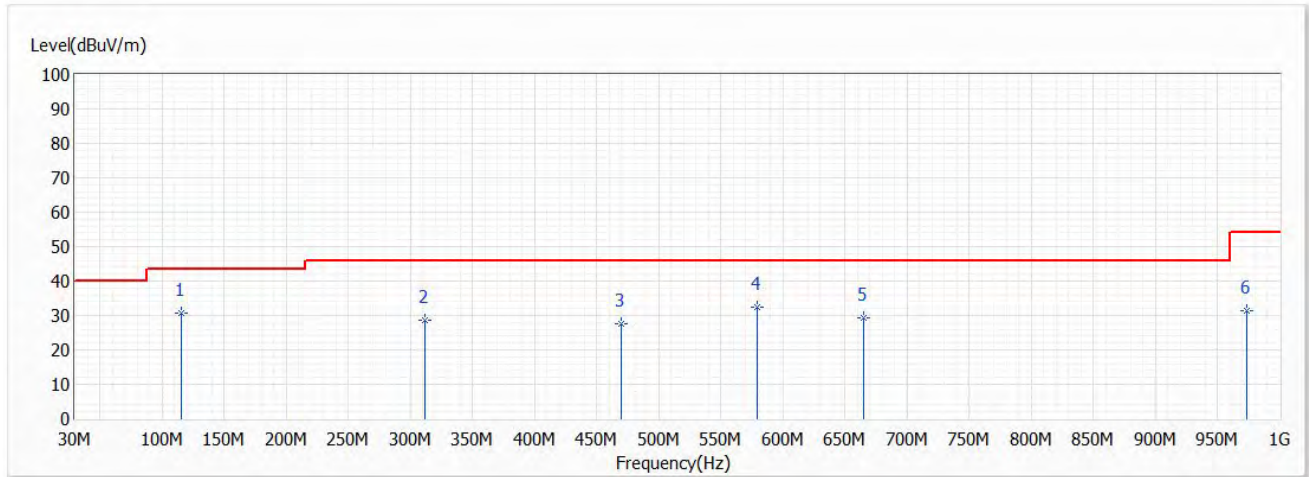
Appendix A

➤ Test Result of Radiated Emissions Co-location

Bluetooth + WWAN LTE function

30 MHz ~ 1 GHz:

Test Mode	Transmit	Polarity	Horizontal
Test Condition	Bluetooth + LTE Cat M1		

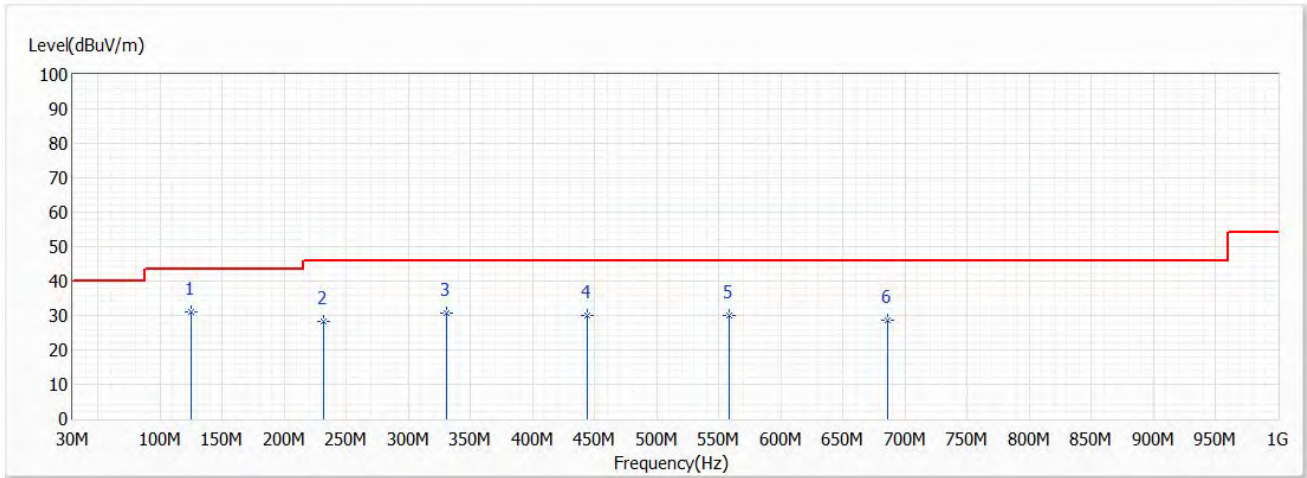


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
* 1	115.239	30.65	43.50	-12.85	33.96	-3.31	QP
2	312.028	28.46	46.00	-17.54	29.99	-1.53	QP
3	470.016	27.63	46.00	-18.37	24.83	2.80	QP
4	579.020	32.36	46.00	-13.64	27.65	4.71	QP
5	665.108	29.33	46.00	-16.67	23.96	5.37	QP
6	972.961	31.34	54.00	-22.66	22.71	8.63	QP

Note:

1. All reading levels is Quasi-Peak value.
2. “ * ”, means this data is the worst value.
3. Emission Level = Reading Level + Correct Factor
4. The emission under 30MHz were not included is because their levels are lower than 20dB from limit.

Test Mode	Transmit	Polarity	Vertical
Test Condition	Bluetooth + LTE Cat M1		

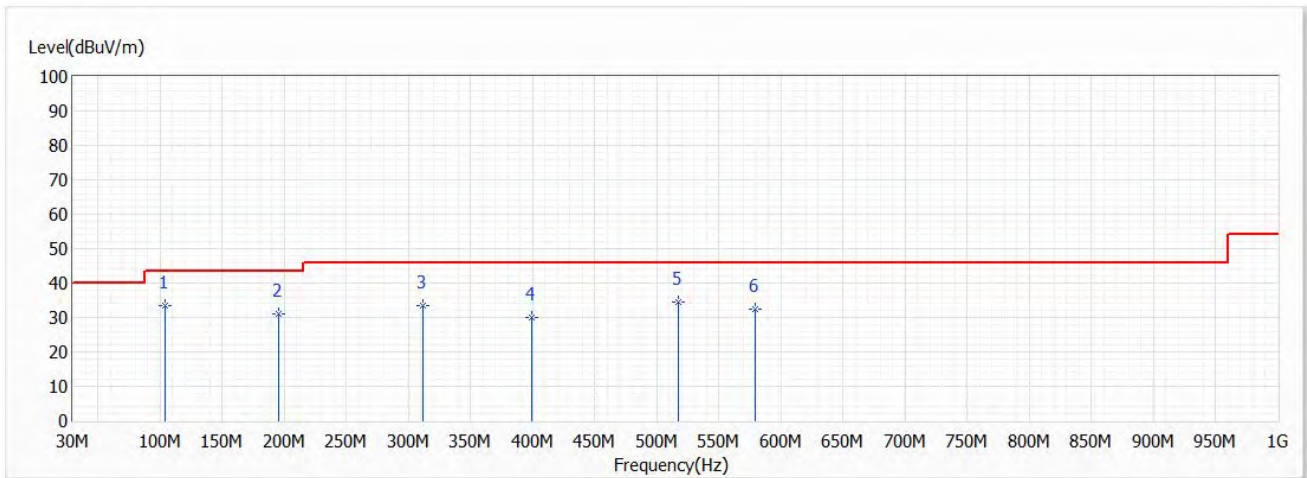


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
* 1	125.666	31.15	43.50	-12.35	34.67	-3.52	QP
2	231.760	28.38	46.00	-17.62	33.46	-5.08	QP
3	330.336	30.53	46.00	-15.47	31.61	-1.08	QP
4	443.826	29.84	46.00	-16.16	27.75	2.09	QP
5	558.044	30.11	46.00	-15.89	25.44	4.67	QP
6	685.841	28.61	46.00	-17.39	23.25	5.36	QP

Note:

1. All reading levels is Quasi-Peak value.
2. “ * ”, means this data is the worst value.
3. Emission Level = Reading Level + Correct Factor
4. The emission under 30MHz were not included is because their levels are lower than 20dB from limit.

Test Mode	Transmit	Polarity	Horizontal
Test Condition	Bluetooth + LTE NB-IoT		

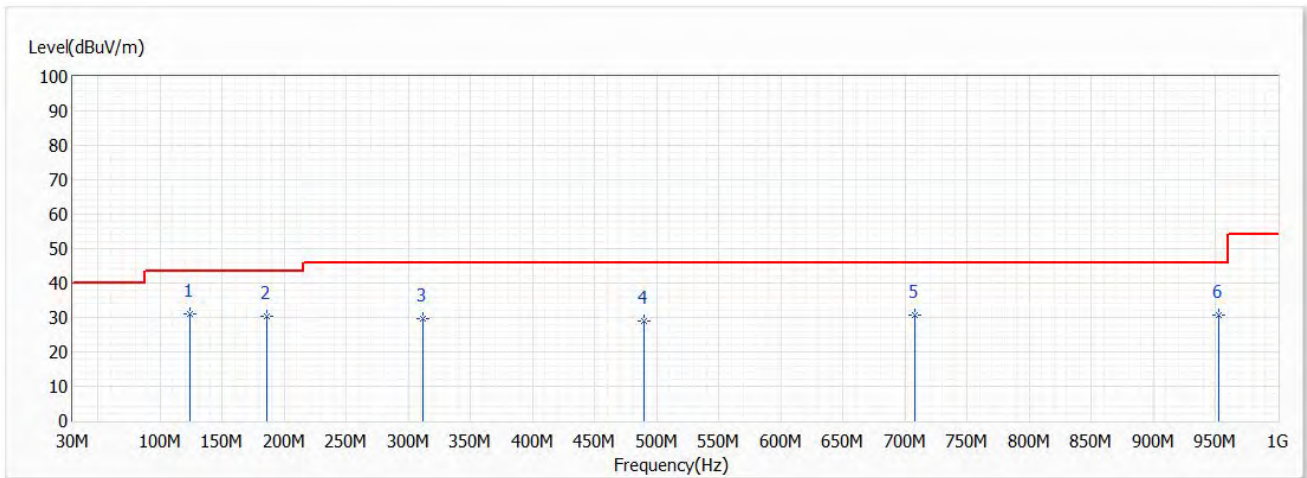


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
* 1	104.084	33.57	43.50	-9.93	37.77	-4.20	QP
2	195.628	30.95	43.50	-12.55	37.38	-6.43	QP
3	312.028	33.28	46.00	-12.72	34.81	-1.53	QP
4	399.085	29.91	46.00	-16.09	28.75	1.16	QP
5	517.425	34.39	46.00	-11.61	31.05	3.34	QP
6	579.020	32.35	46.00	-13.65	27.64	4.71	QP

Note:

1. All reading levels is Quasi-Peak value.
2. “ * ”, means this data is the worst value.
3. Emission Level = Reading Level + Correct Factor
4. The emission under 30MHz were not included is because their levels are lower than 20dB from limit.

Test Mode	Transmit	Polarity	Vertical
Test Condition	Bluetooth + LTE NB-IoT		



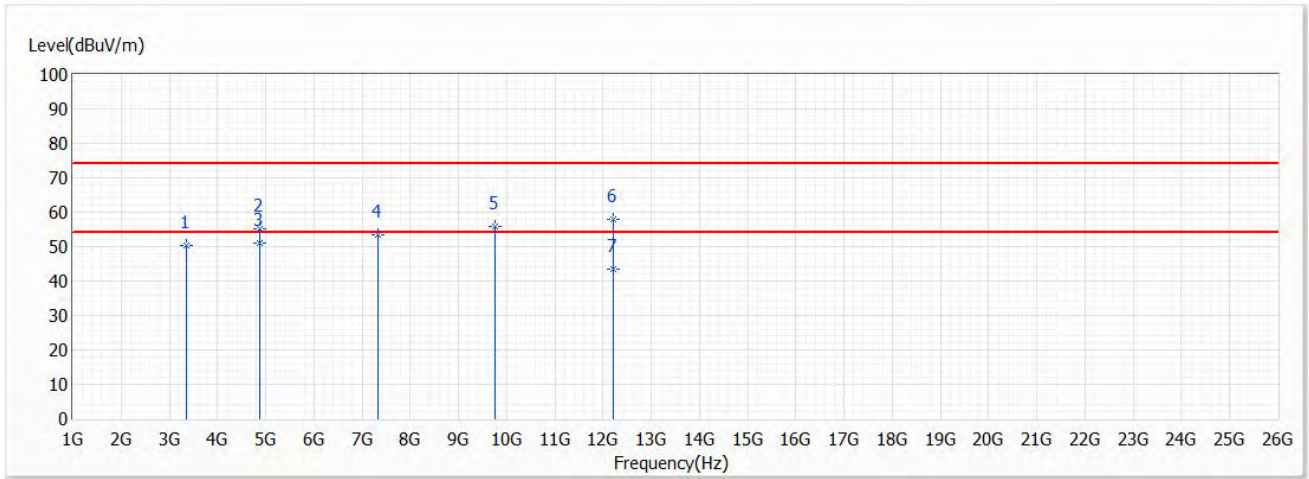
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
* 1	124.696	30.91	43.50	-12.59	34.36	-3.45	QP
2	186.413	30.27	43.50	-13.23	36.83	-6.56	QP
3	311.906	29.61	46.00	-16.39	31.14	-1.53	QP
4	489.538	28.86	46.00	-17.14	25.78	3.08	QP
5	707.788	30.70	46.00	-15.30	25.24	5.46	QP
6	952.470	30.81	46.00	-15.19	22.44	8.37	QP

Note:

1. All reading levels is Quasi-Peak value.
2. “ * ”, means this data is the worst value.
3. Emission Level = Reading Level + Correct Factor
4. The emission under 30MHz were not included is because their levels are lower than 20dB from limit.

Above 1 GHz:

Test Mode	Transmit	Polarity	Horizontal
Test Condition	Bluetooth + LTE Cat M1		

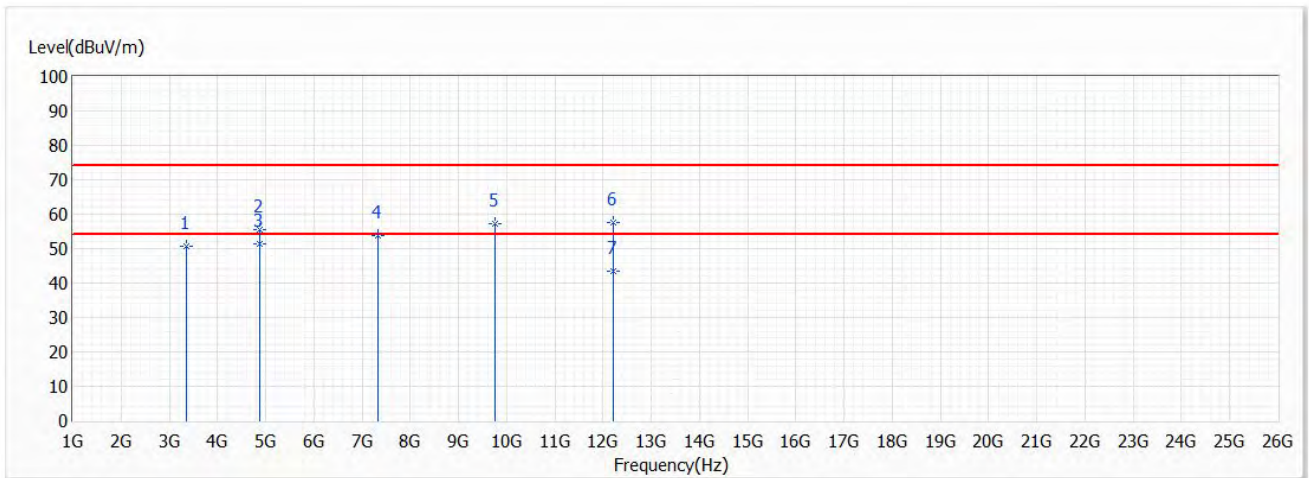


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	3345.700	50.27	74.00	-23.73	68.62	-18.35	PK
2	4880.000	55.16	74.00	-18.84	68.40	-13.24	PK
* 3	4880.000	51.07	54.00	-2.93	64.31	-13.24	AV
4	7320.000	53.32	74.00	-20.68	58.92	-5.60	PK
5	9760.000	55.93	74.00	-18.07	58.02	-2.09	PK
6	12200.000	57.88	74.00	-16.12	56.82	1.06	PK
7	12200.000	43.52	54.00	-10.48	42.46	1.06	AV

Note:

- 1.All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst value.
- 3.Emission Level = Reading Level + Correct Factor.
- 4.The average measurement was not performed when the peak measured data under the limit of average detection.
- 5.The emission above 13GHz were not included is because their levels are lower than 20dB form limit.

Test Mode	Transmit	Polarity	Vertical
Test Condition	Bluetooth + LTE Cat M1		

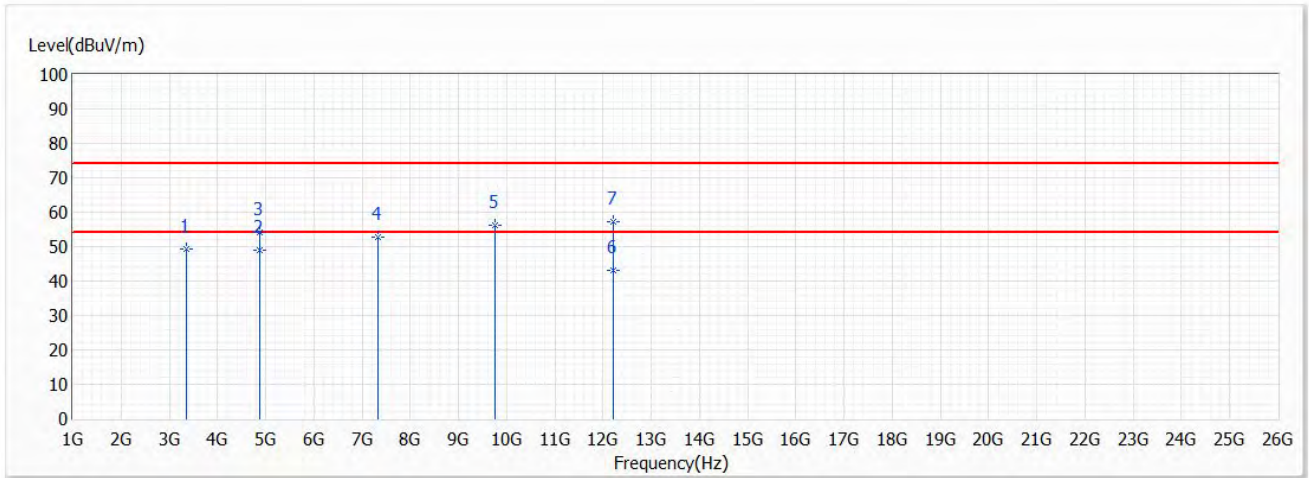


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	3345.700	50.73	74.00	-23.27	69.08	-18.35	PK
2	4880.000	55.67	74.00	-18.33	68.91	-13.24	PK
* 3	4880.000	51.42	54.00	-2.58	64.66	-13.24	AV
4	7320.000	53.84	74.00	-20.16	59.44	-5.60	PK
5	9760.000	57.14	74.00	-16.86	59.23	-2.09	PK
6	12200.000	57.62	74.00	-16.38	56.56	1.06	PK
7	12200.000	43.29	54.00	-10.71	42.23	1.06	AV

Note:

- 1.All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst value.
- 3.Emission Level = Reading Level + Correct Factor.
- 4.The average measurement was not performed when the peak measured data under the limit of average detection.
- 5.The emission above 13GHz were not included is because their levels are lower than 20dB form limit.

Test Mode	Transmit	Polarity	Horizontal
Test Condition	Bluetooth + LTE NB-IoT		

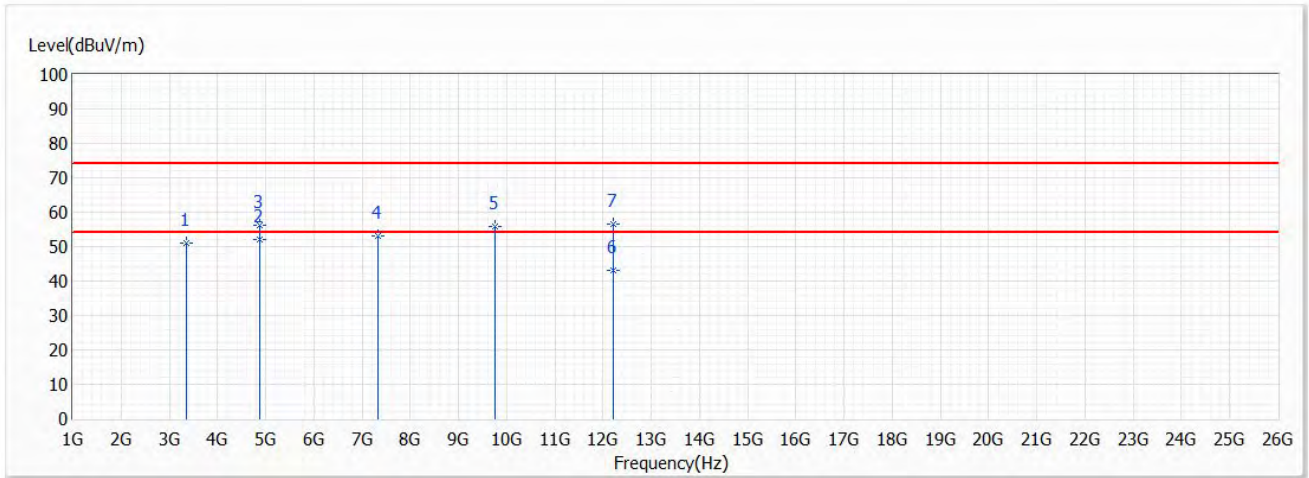


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	3345.700	49.22	74.00	-24.78	67.57	-18.35	PK
* 2	4880.000	49.11	54.00	-4.89	62.35	-13.24	AV
3	4880.000	54.25	74.00	-19.75	67.49	-13.24	PK
4	7320.000	52.79	74.00	-21.21	58.39	-5.60	PK
5	9760.000	56.36	74.00	-17.64	58.45	-2.09	PK
6	12200.000	42.96	54.00	-11.04	41.90	1.06	AV
7	12200.000	57.27	74.00	-16.73	56.21	1.06	PK

Note:

- 1.All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst value.
- 3.Emission Level = Reading Level + Correct Factor.
- 4.The average measurement was not performed when the peak measured data under the limit of average detection.
- 5.The emission above 13GHz were not included is because their levels are lower than 20dB form limit.

Test Mode	Transmit	Polarity	Vertical
Test Condition	Bluetooth + LTE NB-IoT		



No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	3345.700	50.96	74.00	-23.04	69.31	-18.35	PK
* 2	4880.000	52.19	54.00	-1.81	65.43	-13.24	AV
3	4880.000	56.06	74.00	-17.94	69.30	-13.24	PK
4	7320.000	53.11	74.00	-20.89	58.71	-5.60	PK
5	9760.000	55.86	74.00	-18.14	57.95	-2.09	PK
6	12200.000	43.26	54.00	-10.74	42.20	1.06	AV
7	12200.000	56.62	74.00	-17.38	55.56	1.06	PK

Note:

- 1.All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst value.
- 3.Emission Level = Reading Level + Correct Factor.
- 4.The average measurement was not performed when the peak measured data under the limit of average detection.
- 5.The emission above 13GHz were not included is because their levels are lower than 20dB form limit.