

FCC/ISED Test Report

Product Name : KNOT
Trade Name : MikroTik
Model No. : RB924i-2nD-BT5&BG77
FCC ID : TV7924BT5BG77
IC : 7442A-924BT5BG77

Applicant : Mikrotikls SIA
Address : Brivibas gatve 214i, Riga, LV-1039, Latvia

Date of Receipt : Dec. 28, 2020
Issued Date : Jun. 01, 2021
Report No. : 20C1010R-E3032110108
Report Version : V1.0



The test results relate only to the samples tested.

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Test Report Certification

Issued Date : Jun. 01, 2021

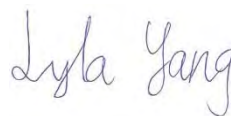
Report No. : 20C1010R-E3032110108



Product Name : KNOT
Applicant : Mikrotiks SIA
Address : Brivibas gatve 214i, Riga, LV-1039, Latvia
Manufacturer : Mikrotiks SIA
Address : Brivibas gatve 214i, Riga, LV-1039, Latvia
Trade Name : MikroTik
Model No. : RB924i-2nD-BT5&BG77
FCC ID : TV7924BT5BG77
IC : 7442A-924BT5BG77
EUT Voltage : AC 100-240V, 50/60Hz
Testing Voltage : AC 120V/60Hz
Applicable Standard : FCC CFR Title 47 Part 15 Subpart C Section 15.247: 2019
ANSI C63.10: 2013
RSS-247 Issue 2 (Feb. 2017)
Laboratory Name : Hsin Chu Laboratory
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Test Result : Complied

Documented By

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(Lyla Yang / Engineering Adm. Specialist)

Tested By

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(Ling Chen / Engineer)

Approved By

:



(Louis Hsu / Deputy Manager)

Revision History

Version	Description	Issued Date
V1.0	Initial issue of report	Jun. 01, 2021

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1. General Information

1.1. EUT Description

Product Name	KNOT
Trade Name	MikroTik
Model No.	RB924i-2nD-BT5&BG77
Frequency Range	2402~2480MHz
Channel Number	40 Channels
Type of Modulation	GFSK

Accessories Information	
Power Adapter	ULLPOWER, SAW30-240-1200U I/P: 100-240V~ 50/60Hz, 0.8A O/P: 24V  1200mA Cable out: Non-Shielded, 1.5m
PoE injector / POE injector connected to ETH 1(PoE in)	MikroTik / RBGPOE

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

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

Note:

1. These test results on a sample of the device are for the purpose of demonstrating Compliance with Part 15 Subpart C Paragraph 15.247.
2. 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.
3. This device contains a certified WWAN module (FCC ID: XMR201912BG77; IC: 10224A-201912BG77).
4. The EUT description is from the customer declaration.

1.2. Test Mode

DEKRA has verified the construction and function in typical operation. The preliminary tests were performed in different data rate, and to find the worst condition, which was shown in this test report. The following table is the final test mode.

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

Test Items	Modulation	Channel	Result
Conducted Emission	GFSK	19	Complies
Maximum peak conducted output power	GFSK	00/19/39	Complies
Radiated Emission	GFSK	00/19/39	Complies
RF antenna conducted test	GFSK	00/19/39	Complies
Radiated Emission Band Edge	GFSK	00/19/39	Complies
DTS Bandwidth	GFSK	00/19/39	Complies
Occupied Bandwidth	GFSK	00/19/39	Complies
Power Density	GFSK	00/19/39	Complies

Note:

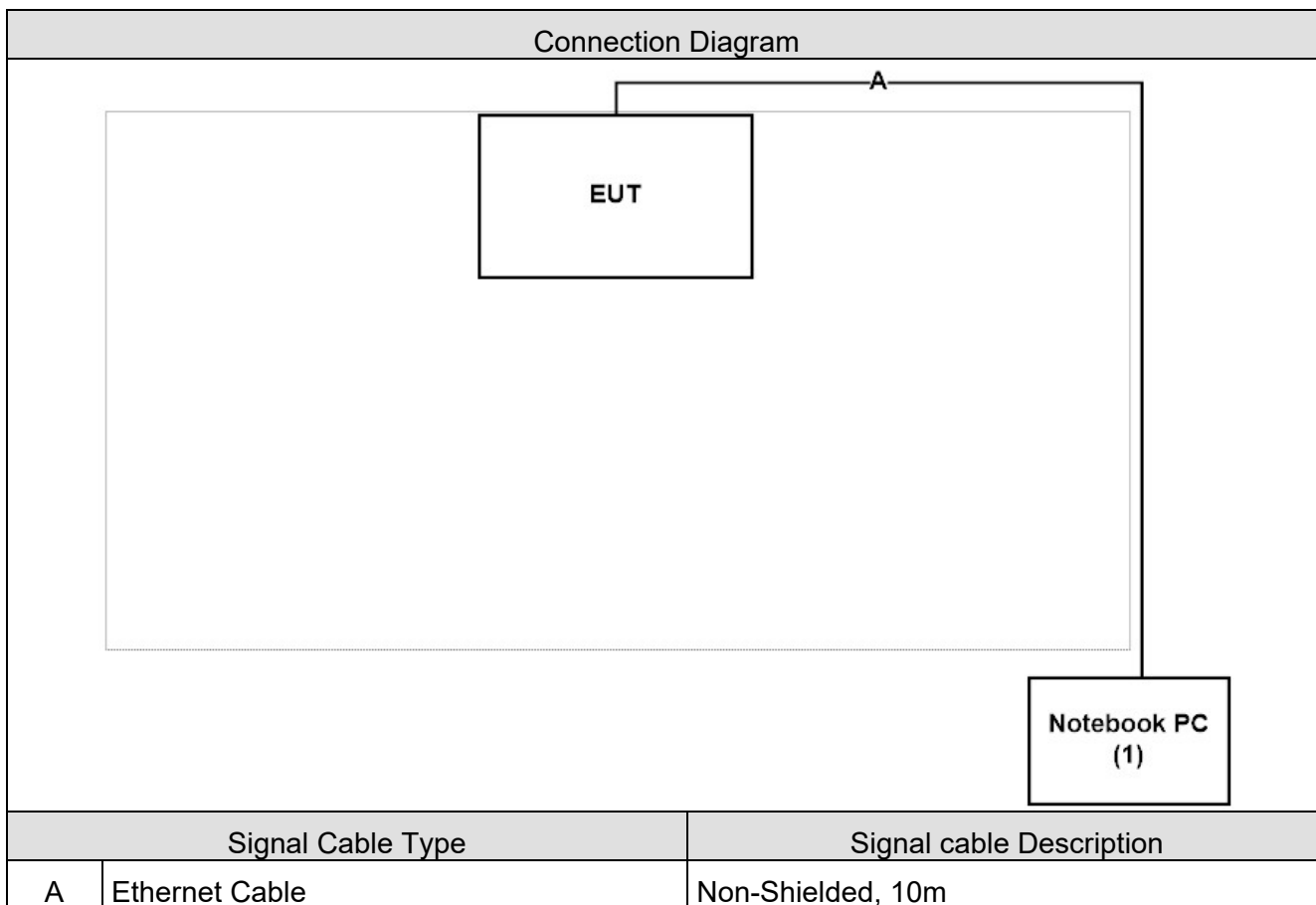
1. Determining compliance shall be based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

1.3. 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.	FCC ID	Power Cord
1 Notebook PC	Lenove	80SJ	MP16Z7TB	DoC	--

1.4. Configuration of tested System



1.5. Operation Descriptions

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.

1.6. 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.

1.7. Test Facility

Ambient conditions in the laboratory:

Items	Test Item	Required	Test Site
Temperature (°C)	Conducted Emission	15 - 35	2
Humidity (%RH)		25 - 75	
Temperature (°C)	Maximum peak conducted output power	15 - 35	1
Humidity (%RH)		25 - 75	
Temperature (°C)	Radiated Emission	15 - 35	1
Humidity (%RH)		25 - 75	
Temperature (°C)	RF antenna conducted test	15 - 35	1
Humidity (%RH)		25 - 75	
Temperature (°C)	Radiated Emission Band Edge	15 - 35	1
Humidity (%RH)		25 - 75	
Temperature (°C)	DTS Bandwidth	15 - 35	1
Humidity (%RH)		25 - 75	
Temperature (°C)	Occupied Bandwidth	15 - 35	1
Humidity (%RH)		25 - 75	
Temperature (°C)	Power Density	15 - 35	1
Humidity (%RH)		25 - 75	

Note: Test site information refers to Laboratory Information.

Laboratory Information

USA : FCC Registration Number: TW3024
Canada : IC Registration Number: 22397-1 / 22397-2 / 22397-3

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:

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Address	1. No.372, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 31061, Taiwan, R.O.C. 2. No.372-2, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 31061, Taiwan, R.O.C.
Phone number	1. +886-3-582-8001 2. +886-3-582-8001
Fax number	1. +886-3-582-8958 2. +886-3-582-8958
Email address	info.tw@dekra.com
Website	http://www.dekra.com.tw

1.8. List of Test Equipment

Conducted Emission / 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	2020/06/22	2021/06/21

Maximum peak conducted output power / 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
Pulse Power Sensor	Anritsu	MA2411B	1531044	2020/11/30	2021/11/29
Power Meter	Keysight	8990B	MY51000248	2020/05/20	2021/05/19
Power Sensor	Keysight	N1923A	MY57240005	2020/05/20	2021/05/19

Radiated Emission / CB2-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Signal Analyzer	R&S	FSVA40	101455	2020/10/12	2021/10/11
Signal & Spectrum Analyzer	R&S	FSV40	101049	2021/03/31	2022/03/30
Signal Analyzer	R&S	FSVA40	101435	2020/06/24	2021/06/23
EXA Signal Analyzer	Keysight	N9010A	MY51440132	2021/01/25	2022/01/24
Bilog Antenna	Teseq	CBL6112D	23191	2021/02/26	2022/02/25
Horn Antenna	Schwarzbeck	BBHA 9120D	639	2020/06/04	2021/06/03
Horn Antenna	Schwarzbeck	BBHA 9170	202	2020/12/16	2021/12/15
Pre-Amplifier	EMCI	EMC01820I	980365	2020/06/19	2021/06/18
Pre-Amplifier	EMEC	EM01G18GA	060741	2020/07/24	2021/07/23
Pre-Amplifier	DEKRA	AP-400C	201801231	2020/11/16	2021/11/15
Band Reject Filter	Micro-Tronics	BRM50702	G258	2020/12/16	2021/12/15
Coaxial Cable(13m)	Huber+Suhner	SF104	CB2-H	2020/07/25	2021/07/24
DEKRA Testing System	DEKRA	Version 1.2	CB2-H	NA	NA

RF antenna conducted test / SR12-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Spectrum Analyzer	Keysight	N9030B	MY57140404	2020/06/03	2021/06/02
Spectrum Analyzer	Keysight	N9010B	MY57110159	2021/03/29	2022/03/28
Spectrum Analyzer	Agilent	N9010A	US47140172	2020/06/18	2021/06/17
Signal & Spectrum Analyzer	R&S	FSV40	101049	2021/03/31	2022/03/30

Radiated Emission Band Edge / CB2-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Signal Analyzer	R&S	FSVA40	101455	2020/10/12	2021/10/11
Signal & Spectrum Analyzer	R&S	FSV40	101049	2021/03/31	2022/03/30
Signal Analyzer	R&S	FSVA40	101435	2020/06/24	2021/06/23
EXA Signal Analyzer	Keysight	N9010A	MY51440132	2021/01/25	2022/01/24
Bilog Antenna	Teseq	CBL6112D	23191	2021/02/26	2022/02/25
Horn Antenna	Schwarzbeck	BBHA 9120D	639	2020/06/04	2021/06/03
Horn Antenna	Schwarzbeck	BBHA 9170	202	2020/12/16	2021/12/15
Pre-Amplifier	EMCI	EMC01820I	980365	2020/06/19	2021/06/18
Pre-Amplifier	EMEC	EM01G18GA	060741	2020/07/24	2021/07/23
Pre-Amplifier	DEKRA	AP-400C	201801231	2020/11/16	2021/11/15
Band Reject Filter	Micro-Tronics	BRM50702	G258	2020/12/16	2021/12/15
Coaxial Cable(13m)	Huber+Suhner	SF104	CB2-H	2020/07/25	2021/07/24
DEKRA Testing System	DEKRA	Version 1.2	CB2-H	NA	NA

DTS Bandwidth / SR12-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Spectrum Analyzer	Keysight	N9030B	MY57140404	2020/06/03	2021/06/02
Spectrum Analyzer	Keysight	N9010B	MY57110159	2021/03/29	2022/03/28
Spectrum Analyzer	Agilent	N9010A	US47140172	2020/06/18	2021/06/17
Signal & Spectrum Analyzer	R&S	FSV40	101049	2021/03/31	2022/03/30

Occupied Bandwidth / SR12-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Spectrum Analyzer	Keysight	N9030B	MY57140404	2020/06/03	2021/06/02
Spectrum Analyzer	Keysight	N9010B	MY57110159	2021/03/29	2022/03/28
Spectrum Analyzer	Agilent	N9010A	US47140172	2020/06/18	2021/06/17
Signal & Spectrum Analyzer	R&S	FSV40	101049	2021/03/31	2022/03/30

Power Density / SR12-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Spectrum Analyzer	Keysight	N9030B	MY57140404	2020/06/03	2021/06/02
Spectrum Analyzer	Keysight	N9010B	MY57110159	2021/03/29	2022/03/28
Spectrum Analyzer	Agilent	N9010A	US47140172	2020/06/18	2021/06/17
Signal & Spectrum Analyzer	R&S	FSV40	101049	2021/03/31	2022/03/30

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

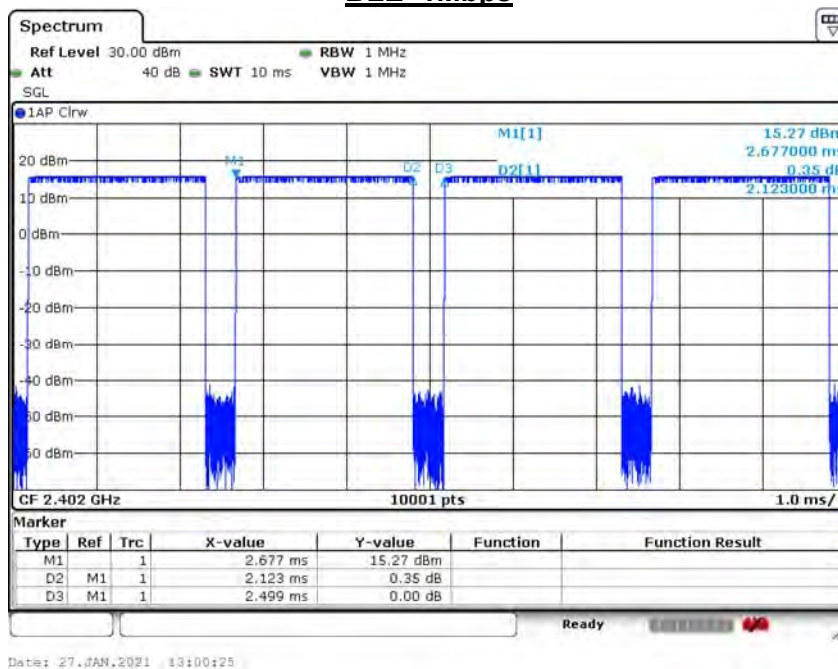
1.9. Uncertainty

Test item	Uncertainty
Conducted Emission	± 2.26 dB
Maximum peak conducted output power	± 1.27 dB
Radiated Emission	30MHz~1GHz as ± 3.43 dB 1GHz~26.5GHz as ± 3.65 dB
RF antenna conducted test	± 1.27 dB
Radiated Emission Band Edge	± 3.9 dB
DTS Bandwidth	± 50 Hz
Occupied Bandwidth	± 50 Hz
Power Density	± 1.27 dB

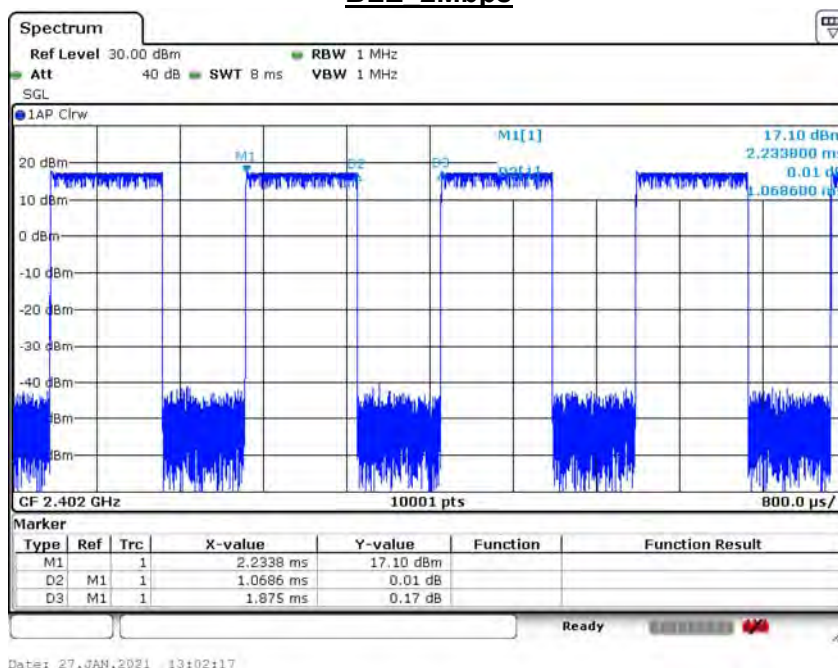
1.10. Duty Cycle

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor(dB) linear voltage	Duty Factor (dB) Power	1/T Minimum VBW (kHz)
BLE_1Mbps	2.123	2.499	84.95%	1.416325	0.71	0.471
BLE_2Mbps	1.069	1.875	56.99%	4.883722	2.44	0.936

BLE 1Mbps

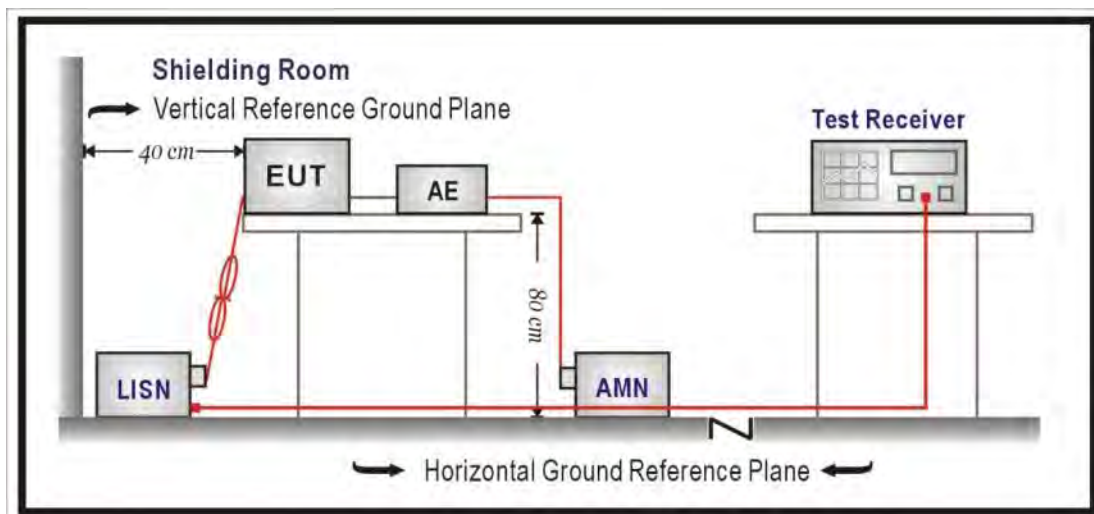


BLE 2Mbps



2. Conducted Emission

2.1. Test Setup



2.2. Limits

FCC Part 15 Subpart C Paragraph 15.207 Limits (dBuV)		
Frequency	QP	AV
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 was setup according to ANSI C63.4: 2013 and tested according to DTS test procedure of KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs.)

Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.

The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.

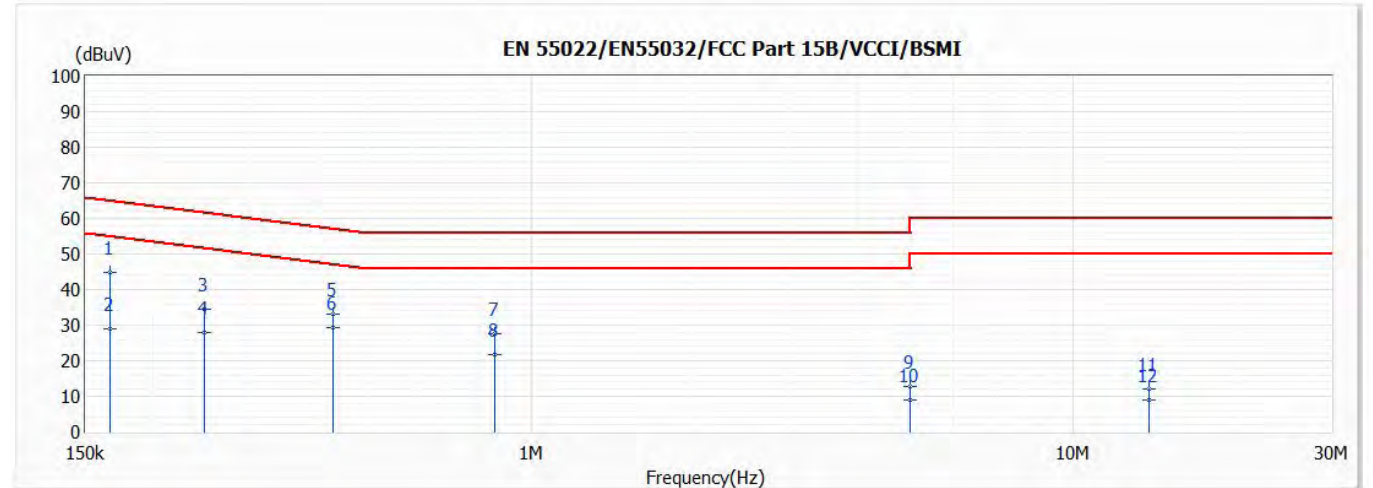
Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.

2.4. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247 and RSS-247.

2.5. Test Result

Model No	RB924i-2nD-BT5&BG77	Site	SR2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/3/25
Test Mode	Mode 1: Transmit Adapter Mode	Engineer	Scott Lin
Phase	L	Temperature (°C)	21.5
Test Condition	802.15.1 BLE 1M Ch 19,2.440G	Humidity (%RH)	56

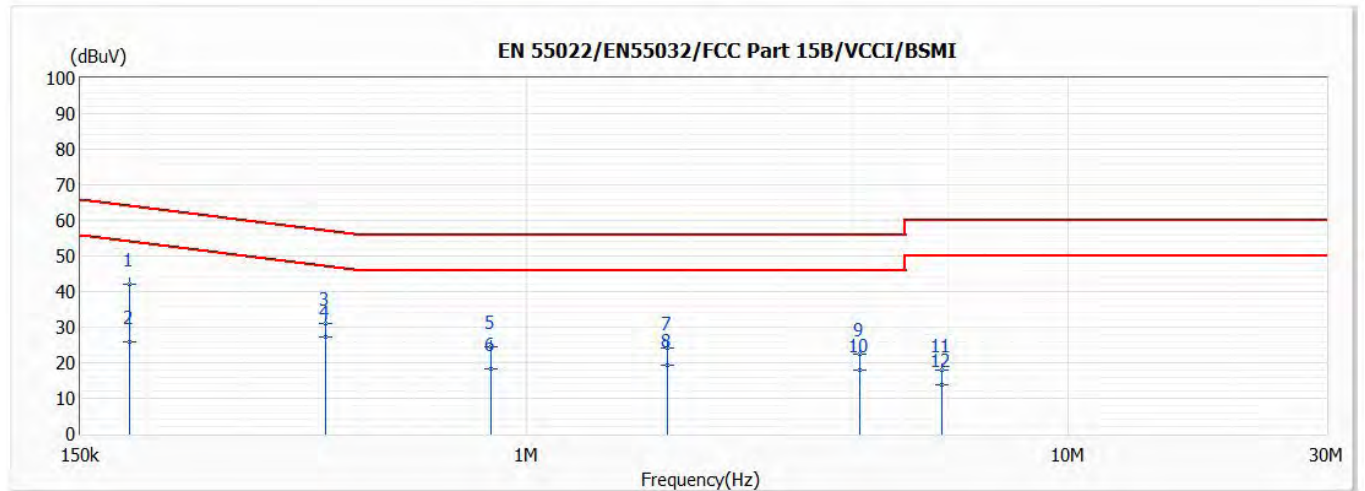


No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	0.167	44.75	65.13	-20.38	35.10	9.65	QP
2	0.167	28.86	55.13	-26.27	19.21	9.65	AV
3	0.249	34.44	61.78	-27.35	24.78	9.65	QP
4	0.249	28.04	51.78	-23.75	18.38	9.65	AV
5	0.430	33.27	57.25	-23.98	23.59	9.68	QP
*6	0.430	29.24	47.25	-18.01	19.56	9.68	AV
7	0.857	27.62	56.00	-28.38	17.89	9.73	QP
8	0.857	21.72	46.00	-24.28	12.00	9.73	AV
9	4.989	12.90	56.00	-43.10	2.95	9.94	QP
10	4.989	8.94	46.00	-37.06	-1.00	9.94	AV
11	13.804	12.15	60.00	-47.85	1.92	10.23	QP
12	13.804	8.84	50.00	-41.16	-1.38	10.23	AV

Remark:

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.

Model No	RB924i-2nD-BT5&BG77	Site	SR2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/3/25
Test Mode	Mode 1: Transmit Adapter Mode	Engineer	Scott Lin
Phase	N	Temperature (°C)	21.5
Test Condition	802.15.1 BLE 1M Ch 19,2.440G	Humidity (%RH)	56

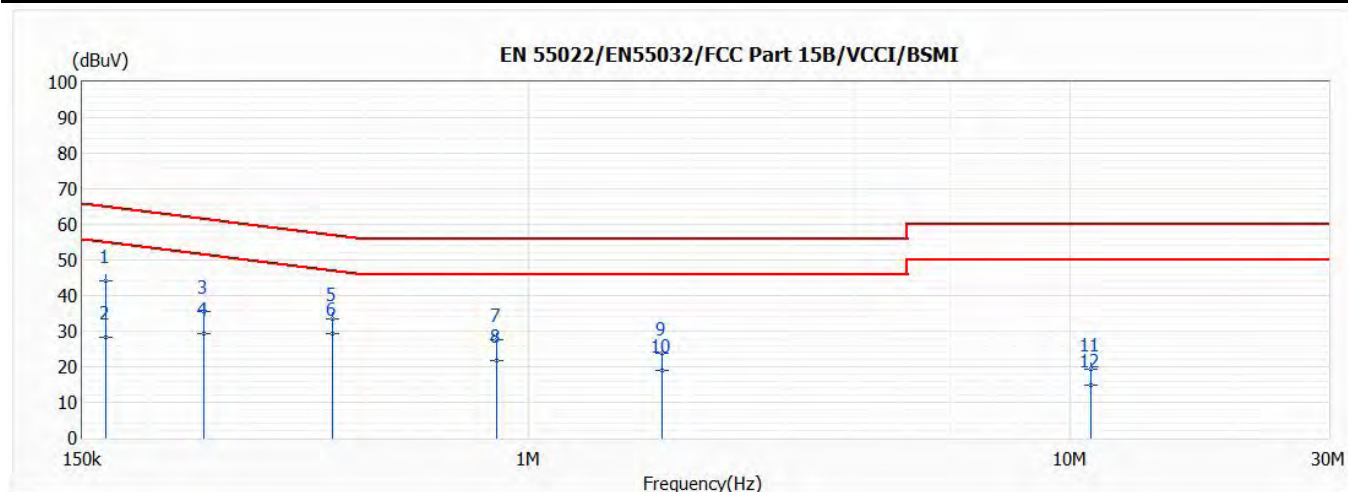


No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	0.185	42.12	64.25	-22.13	32.49	9.63	QP
2	0.185	26.03	54.25	-28.22	16.39	9.63	AV
3	0.426	31.11	57.33	-26.21	21.44	9.67	QP
*4	0.426	27.12	47.33	-20.21	17.45	9.67	AV
5	0.860	24.61	56.00	-31.39	14.90	9.71	QP
6	0.860	18.16	46.00	-27.84	8.45	9.71	AV
7	1.819	24.28	56.00	-31.72	14.51	9.77	QP
8	1.819	19.37	46.00	-26.63	9.60	9.77	AV
9	4.128	22.53	56.00	-33.47	12.65	9.89	QP
10	4.128	18.04	46.00	-27.96	8.15	9.89	AV
11	5.836	17.89	60.00	-42.11	7.92	9.97	QP
12	5.836	13.77	50.00	-36.23	3.79	9.97	AV

Remark:

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.

Model No	RB924i-2nD-BT5&BG77	Site	SR2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/3/25
Test Mode	Mode 1: Transmit Adapter Mode	Engineer	Scott Lin
Phase	L	Temperature (°C)	21.5
Test Condition	802.15.1 BLE 2M Ch 19,2.440G	Humidity (%RH)	56

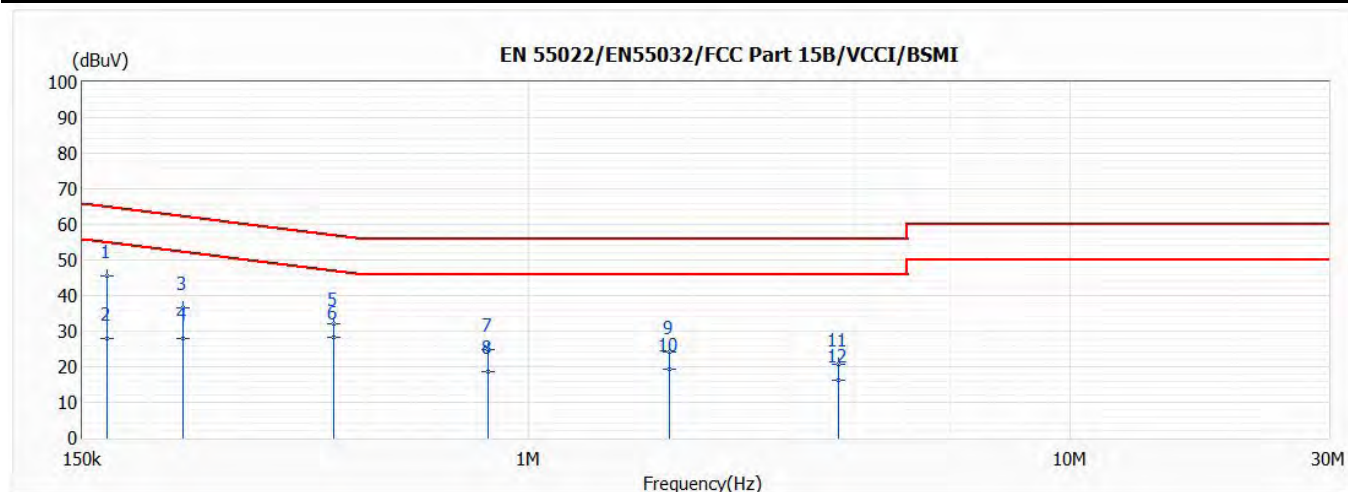


No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	0.166	44.20	65.16	-20.96	34.55	9.65	QP
2	0.166	28.27	55.16	-26.89	18.62	9.65	AV
3	0.251	35.53	61.73	-26.20	25.87	9.65	QP
4	0.251	29.34	51.73	-22.39	19.69	9.65	AV
5	0.434	33.31	57.18	-23.87	23.62	9.68	QP
*6	0.434	29.22	47.18	-17.96	19.53	9.68	AV
7	0.871	27.50	56.00	-28.50	17.77	9.73	QP
8	0.871	21.89	46.00	-24.11	12.16	9.73	AV
9	1.763	23.65	56.00	-32.35	13.87	9.78	QP
10	1.763	18.84	46.00	-27.16	9.06	9.78	AV
11	10.912	19.23	60.00	-40.77	9.08	10.15	QP
12	10.912	14.69	50.00	-35.31	4.55	10.15	AV

Remark:

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.

Model No	RB924i-2nD-BT5&BG77	Site	SR2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/3/25
Test Mode	Mode 1: Transmit Adapter Mode	Engineer	Scott Lin
Phase	N	Temperature (°C)	21.5
Test Condition	802.15.1 BLE 2M Ch 19,2.440G	Humidity (%RH)	56

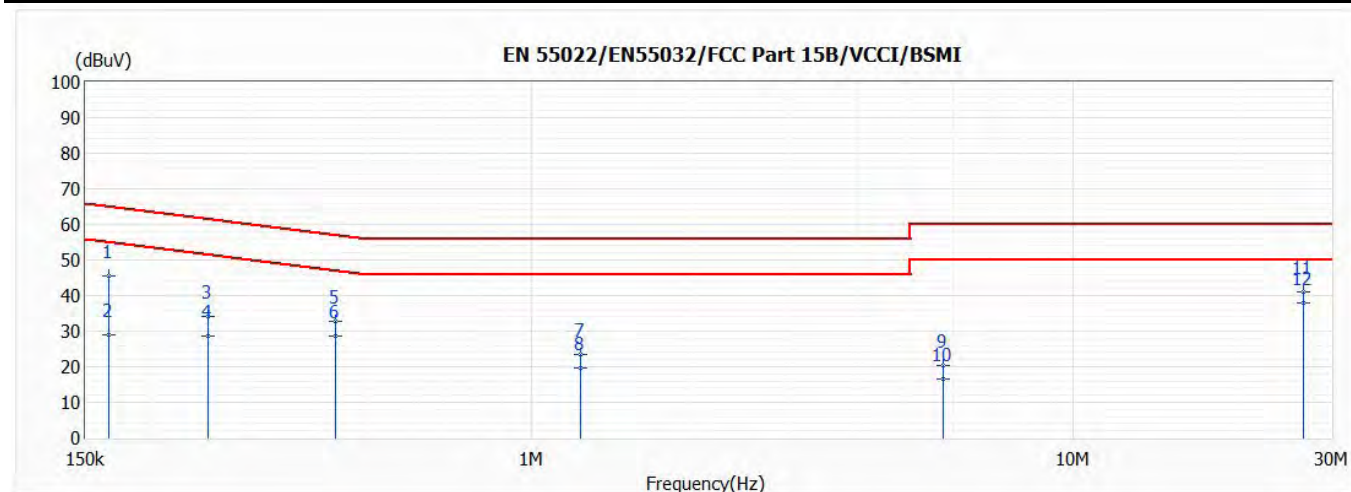


No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	0.167	45.48	65.12	-19.64	35.85	9.64	QP
2	0.167	28.03	55.12	-27.09	18.39	9.64	AV
3	0.230	36.56	62.44	-25.88	26.92	9.64	QP
4	0.230	27.82	52.44	-24.62	18.18	9.64	AV
5	0.437	32.21	57.12	-24.91	22.54	9.67	QP
*6	0.437	28.25	47.12	-18.87	18.58	9.67	AV
7	0.840	24.84	56.00	-31.16	15.13	9.71	QP
8	0.840	18.75	46.00	-27.25	9.04	9.71	AV
9	1.817	24.11	56.00	-31.89	14.34	9.77	QP
10	1.817	19.25	46.00	-26.75	9.48	9.77	AV
11	3.731	20.85	56.00	-35.15	10.98	9.87	QP
12	3.731	16.26	46.00	-29.74	6.40	9.87	AV

Remark:

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.

Model No	RB924i-2nD-BT5&BG77	Site	SR2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/3/25
Test Mode	Mode 2: Transmit PoE Mode	Engineer	Scott Lin
Phase	L	Temperature (°C)	21.5
Test Condition	802.15.1 BLE 1M Ch 19,2.440G	Humidity (%RH)	56

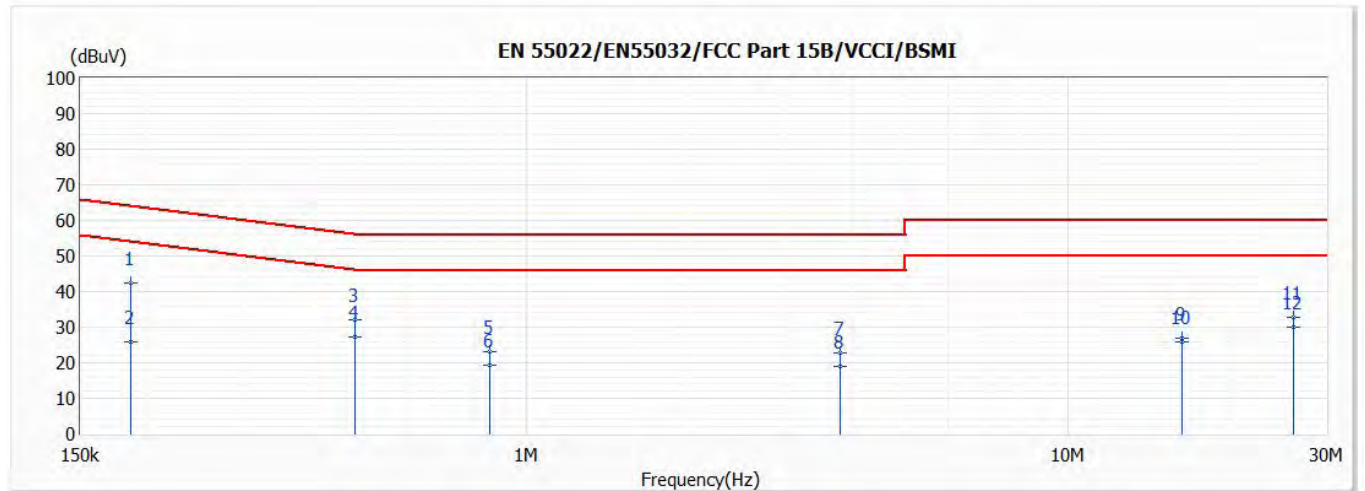


No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	0.165	45.65	65.18	-19.53	36.00	9.65	QP
2	0.165	29.06	55.18	-26.12	19.41	9.65	AV
3	0.253	34.29	61.66	-27.37	24.63	9.65	QP
4	0.253	28.48	51.66	-23.18	18.82	9.65	AV
5	0.434	32.69	57.18	-24.49	23.01	9.68	QP
6	0.434	28.69	47.18	-18.49	19.00	9.68	AV
7	1.233	23.62	56.00	-32.38	13.87	9.75	QP
8	1.233	19.58	46.00	-26.42	9.83	9.75	AV
9	5.759	20.30	60.00	-39.70	10.34	9.97	QP
10	5.759	16.48	50.00	-33.52	6.51	9.97	AV
11	26.609	41.00	60.00	-19.00	30.55	10.45	QP
*12	26.609	37.93	50.00	-12.07	27.49	10.45	AV

Remark:

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.

Model No	RB924i-2nD-BT5&BG77	Site	SR2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/3/25
Test Mode	Mode 2: Transmit PoE Mode	Engineer	Scott Lin
Phase	N	Temperature (°C)	21.5
Test Condition	802.15.1 BLE 1M Ch 19,2.440G	Humidity (%RH)	56

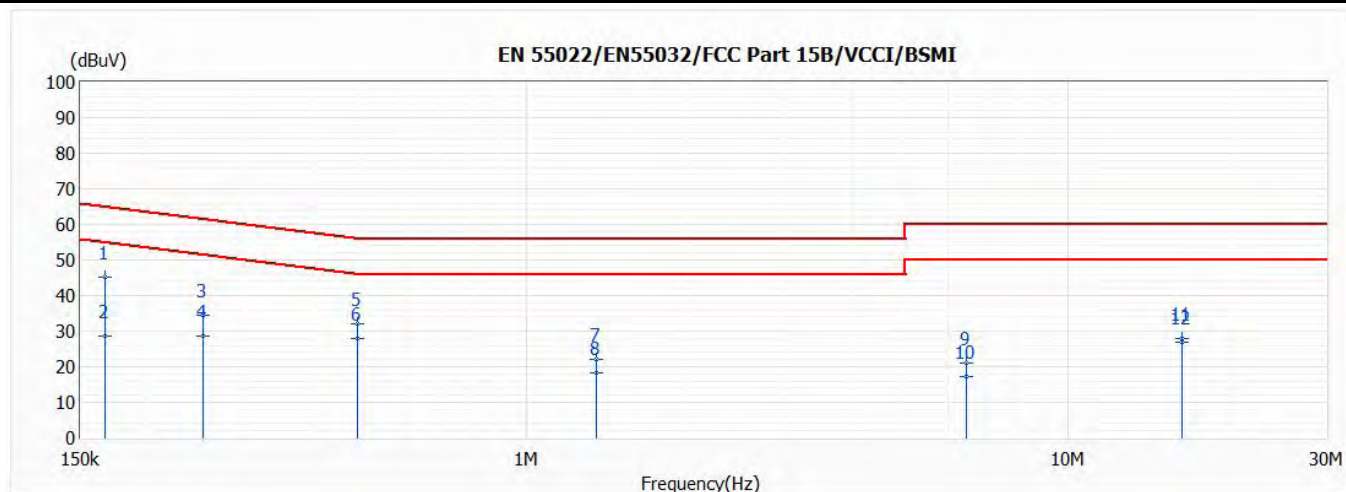


No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	0.186	42.42	64.22	-21.80	32.79	9.63	QP
2	0.186	25.82	54.22	-28.40	16.19	9.63	AV
3	0.483	32.06	56.29	-24.23	22.38	9.68	QP
*4	0.483	27.31	46.29	-18.98	17.63	9.68	AV
5	0.853	23.15	56.00	-32.85	13.44	9.71	QP
6	0.853	19.46	46.00	-26.54	9.76	9.71	AV
7	3.800	22.74	56.00	-33.26	12.87	9.87	QP
8	3.800	19.05	46.00	-26.95	9.18	9.87	AV
9	16.228	26.90	60.00	-33.10	16.51	10.39	QP
10	16.228	25.91	50.00	-24.09	15.52	10.39	AV
11	25.999	32.87	60.00	-27.13	22.22	10.65	QP
12	25.999	30.11	50.00	-19.89	19.46	10.65	AV

Remark:

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.

Model No	RB924i-2nD-BT5&BG77	Site	SR2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/3/25
Test Mode	Mode 2: Transmit PoE Mode	Engineer	Scott Lin
Phase	L	Temperature (°C)	21.5
Test Condition	802.15.1 BLE 2M Ch 19,2.440G	Humidity (%RH)	56

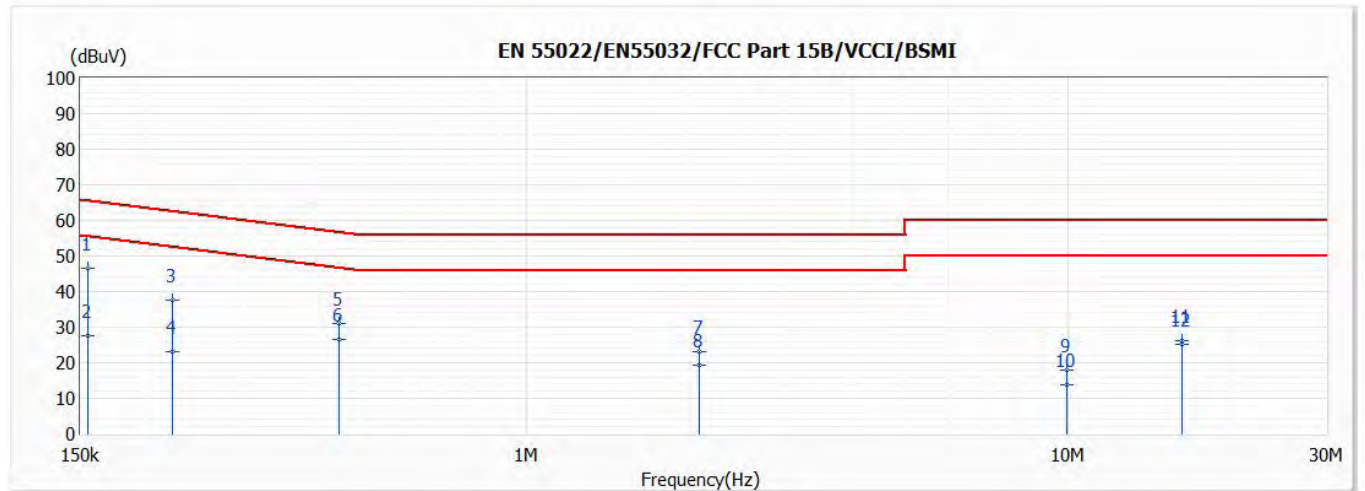


No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	0.166	45.17	65.15	-19.98	35.52	9.65	QP
2	0.166	28.52	55.15	-26.63	18.87	9.65	AV
3	0.253	34.61	61.65	-27.05	24.95	9.65	QP
4	0.253	28.45	51.65	-23.21	18.79	9.65	AV
5	0.486	32.05	56.23	-24.18	22.36	9.69	QP
*6	0.486	28.10	46.23	-18.13	18.41	9.69	AV
7	1.347	22.23	56.00	-33.77	12.47	9.76	QP
8	1.347	18.23	46.00	-27.77	8.47	9.76	AV
9	6.473	20.87	60.00	-39.13	10.88	10.00	QP
10	6.473	17.19	50.00	-32.81	7.19	10.00	AV
11	16.228	27.93	60.00	-32.07	17.64	10.29	QP
12	16.228	26.87	50.00	-23.13	16.58	10.29	AV

Remark:

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.

Model No	RB924i-2nD-BT5&BG77	Site	SR2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/3/25
Test Mode	Mode 2: Transmit PoE Mode	Engineer	Scott Lin
Phase	N	Temperature (°C)	21.5
Test Condition	802.15.1 BLE 2M Ch 19,2.440G	Humidity (%RH)	56



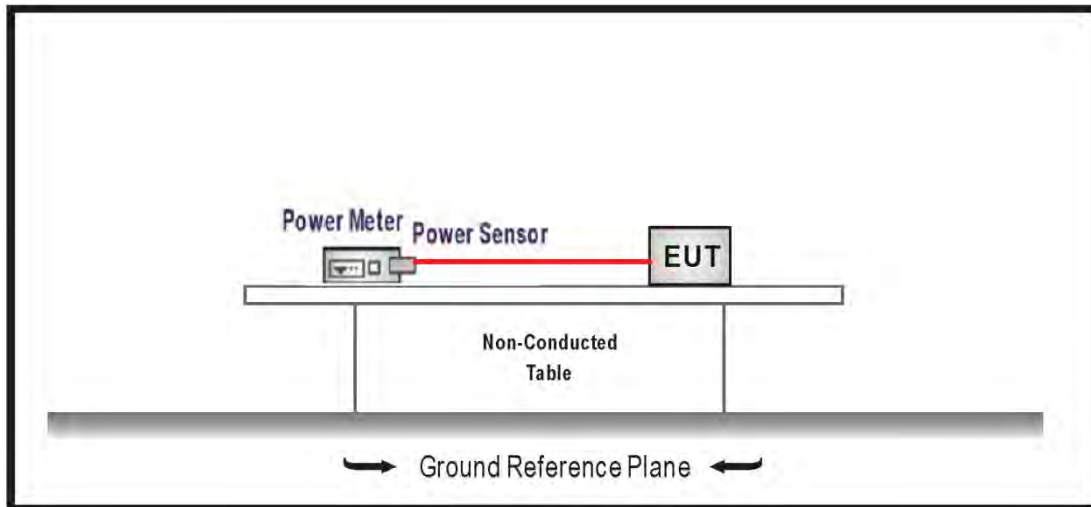
No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
*1	0.155	46.69	65.75	-19.06	37.05	9.64	QP
2	0.155	27.55	55.75	-28.19	17.91	9.64	AV
3	0.222	37.44	62.74	-25.30	27.80	9.64	QP
4	0.222	23.05	52.74	-29.69	13.41	9.64	AV
5	0.450	30.88	56.87	-25.99	21.21	9.67	QP
6	0.450	26.55	46.87	-20.32	16.88	9.67	AV
7	2.084	22.95	56.00	-33.05	13.17	9.78	QP
8	2.084	19.18	46.00	-26.82	9.39	9.78	AV
9	9.943	17.76	60.00	-42.24	7.62	10.14	QP
10	9.943	13.77	50.00	-36.23	3.64	10.14	AV
11	16.228	26.36	60.00	-33.64	15.97	10.39	QP
12	16.228	25.25	50.00	-24.75	14.86	10.39	AV

Remark:

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 peak conducted output power

3.1. Test Setup



3.2. Test procedures

The EUT was tested according to DTS test procedure section 8.3.1.3 of KDB 558074 D01 v05r02 & Subclause 11.9.1.3 of ANSI C63.10 Measurement to FCC 47CFR 15.247 requirements.

3.3. Limits

The maximum peak power shall be less 1 Watt.

3.4. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247 and RSS-247.

3.5. Test Result

Product	KNOT		
Test Item	Maximum peak conducted output power		
Test Mode	Mode 1: Transmit Adapter Mode		
Date of Test	2021/05/07	Test Site	SR12-H
Temperature (°C)	24.0	Humidity (%RH)	68.0

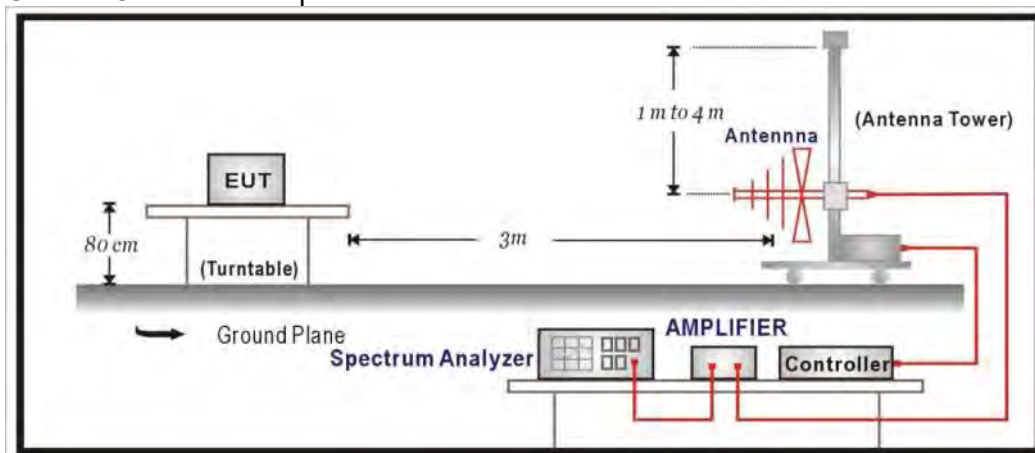
GFSK_1Mbps			
Channel No.	Frequency (MHz)	Measure Value (dBm)	Limit (dBm)
00	2402	4.520	≤ 30
19	2440	4.100	≤ 30
39	2480	3.420	≤ 30

GFSK_2Mbps			
Channel No.	Frequency (MHz)	Measure Value (dBm)	Limit (dBm)
00	2402	4.530	≤ 30
19	2440	4.110	≤ 30
39	2480	3.430	≤ 30

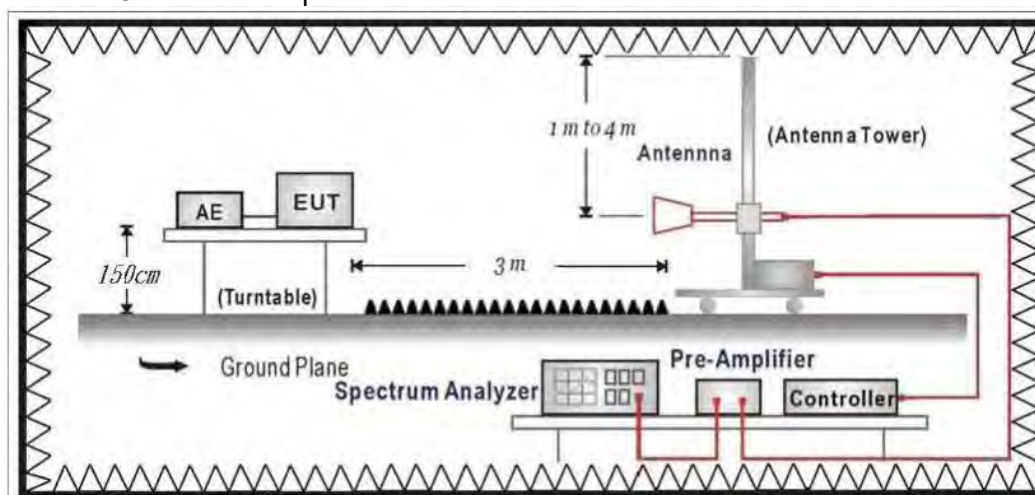
4. Radiated Emission

4.1. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:



4.2. Limits

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

FCC Part 15 Subpart C Paragraph 15.209 Limits		
Frequency MHz	uV/m @3m	dBuV/m@3m
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

Remarks: E field strength (dBuV/m) = 20 log E field strength (uV/m)

4.3. 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. The EUT and its simulators are placed on a turn table which is 1.5 meter above ground (under 1GHz) or 1.5 meter above ground (above 1GHz). 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 below or equal to 1000 MHz, the limits shown are based on measuring equipment employing a quasi-peak detector function and on any frequency or frequencies above 1000 MHz the radiated limits 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 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.

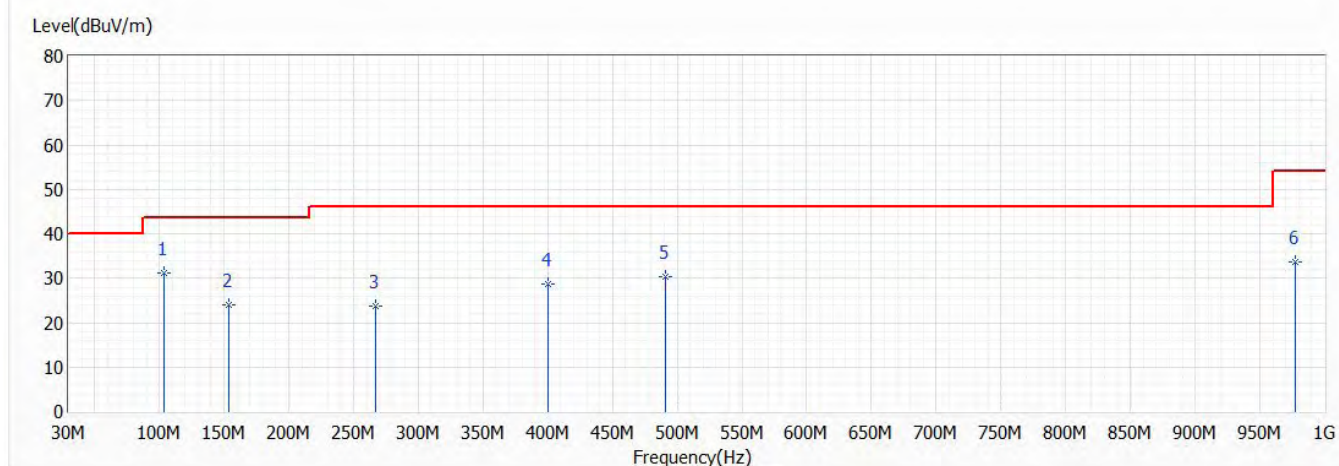
4.4. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247 and RSS-247.

4.5. Test Result

30MHz-1GHz Spurious

Model No	RB924i-2nD-BT5&BG77	Site	CB2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/5/5
Test Mode	Mode 1: Transmit Adapter Mode	Engineer	Ling Chen
Polarity	Horizontal	Temperature (°C)	23.0
Test Condition	Ch 39,2.48G,BW1M	Humidity (%RH)	55.0

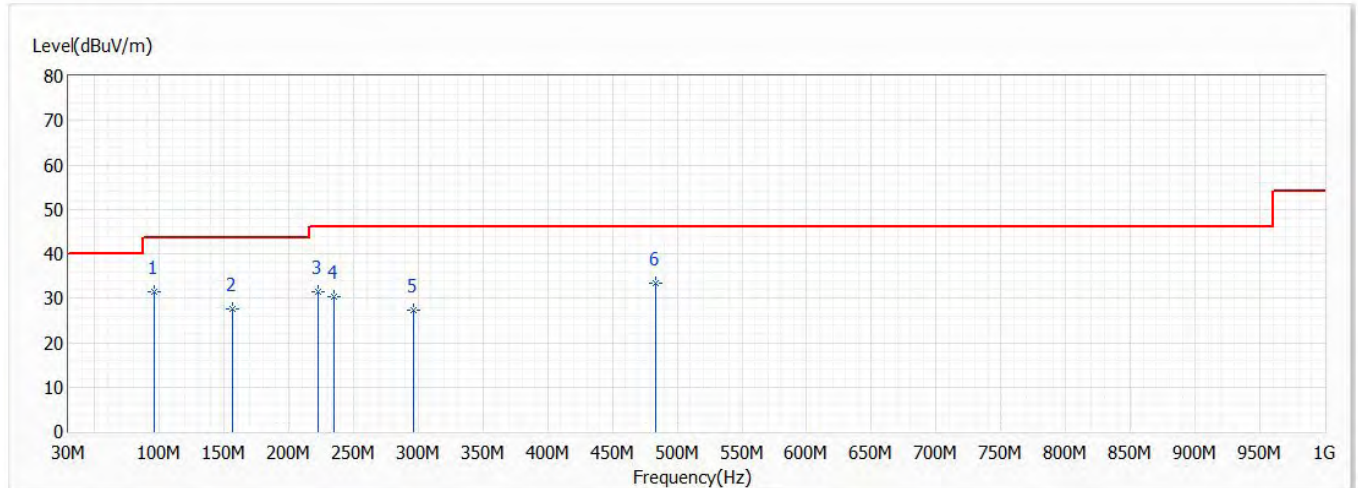


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
* 1	103.720	31.07	43.50	-12.43	35.05	-3.98	QP
2	153.675	24.10	43.50	-19.40	27.85	-3.75	QP
3	266.680	23.68	46.00	-22.32	25.45	-1.77	QP
4	400.055	28.81	46.00	-17.19	26.79	2.02	QP
5	491.235	30.29	46.00	-15.71	26.66	3.63	QP
6	977.205	33.58	54.00	-20.42	23.74	9.84	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.

Model No	RB924i-2nD-BT5&BG77	Site	CB2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/5/5
Test Mode	Mode 1: Transmit Adapter Mode	Engineer	Ling Chen
Polarity	Vertical	Temperature (°C)	23.0
Test Condition	Ch 39,2.48G,BW1M	Humidity (%RH)	55.0

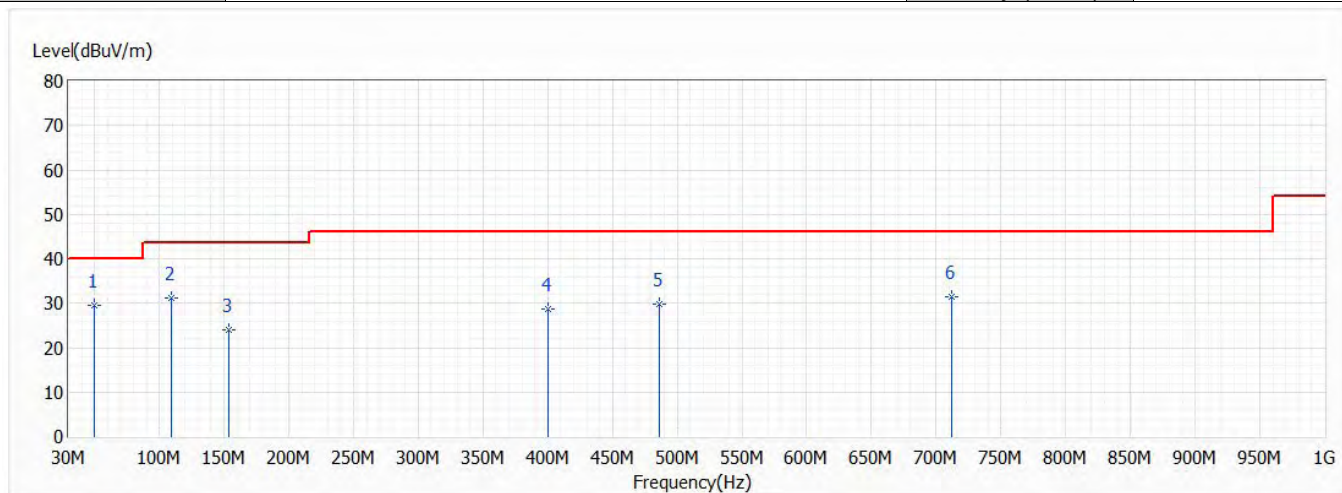


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
* 1	95.960	31.33	43.50	-12.17	36.55	-5.22	QP
2	156.585	27.66	43.50	-15.84	31.59	-3.93	QP
3	222.545	31.53	46.00	-14.47	35.11	-3.58	QP
4	235.155	30.45	46.00	-15.55	33.32	-2.87	QP
5	296.750	27.44	46.00	-18.56	28.72	-1.28	QP
6	483.475	33.39	46.00	-12.61	29.89	3.50	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.

Model No	RB924i-2nD-BT5&BG77	Site	CB2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/5/5
Test Mode	Mode 2: Transmit PoE Mode	Engineer	Ling Chen
Polarity	Horizontal	Temperature (°C)	23.0
Test Condition	Ch 39,2.48G,BW1M	Humidity (%RH)	55.0

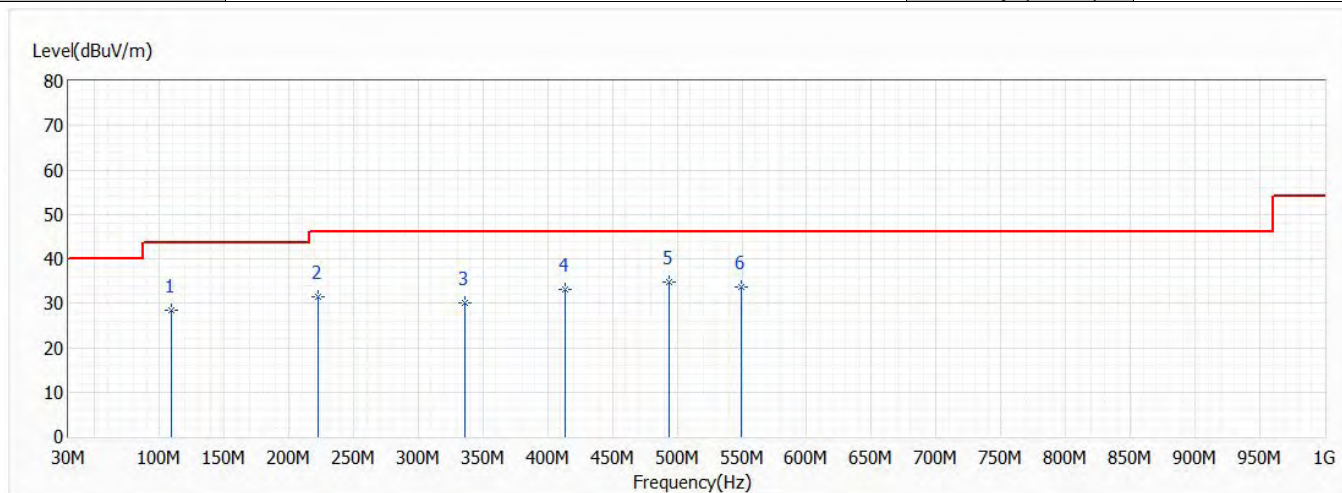


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
* 1	49.400	29.46	40.00	-10.54	34.86	-5.40	QP
2	109.540	31.11	43.50	-12.39	34.51	-3.40	QP
3	153.675	24.10	43.50	-19.40	27.85	-3.75	QP
4	400.055	28.81	46.00	-17.19	26.79	2.02	QP
5	486.385	29.77	46.00	-16.23	26.21	3.56	QP
6	712.395	31.44	46.00	-14.56	25.20	6.24	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.

Model No	RB924i-2nD-BT5&BG77	Site	CB2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/5/5
Test Mode	Mode 2: Transmit PoE Mode	Engineer	Ling Chen
Polarity	Vertical	Temperature (°C)	23.0
Test Condition	Ch 39,2.48G,BW1M	Humidity (%RH)	55.0



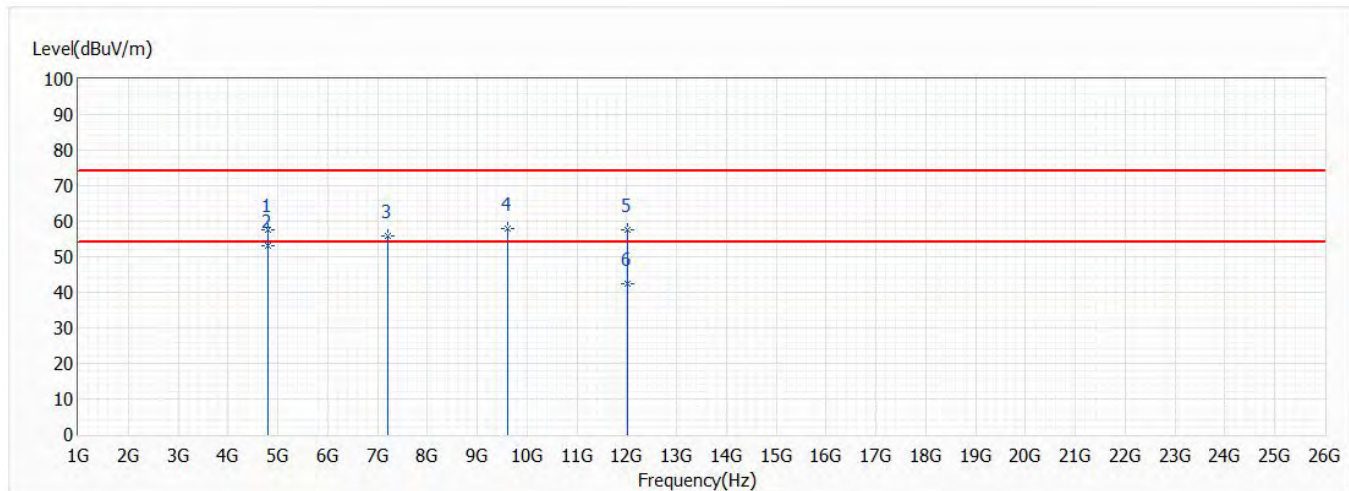
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	109.540	28.38	43.50	-15.12	31.78	-3.40	QP
2	222.545	31.53	46.00	-14.47	35.11	-3.58	QP
3	336.035	29.99	46.00	-16.01	30.03	-0.04	QP
4	413.150	33.17	46.00	-12.83	30.91	2.26	QP
* 5	494.145	34.88	46.00	-11.12	31.20	3.68	QP
6	549.435	33.62	46.00	-12.38	29.20	4.42	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 1GHz Spurious

Model No	RB924i-2nD-BT5&BG77	Site	CB2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/5/4
Test Mode	Mode 1: Transmit Adapter Mode	Engineer	Ling Chen
Polarity	Horizontal	Temperature (°C)	23.0
Test Condition	Ch 0,2.402G,BW1M	Humidity (%RH)	55.0

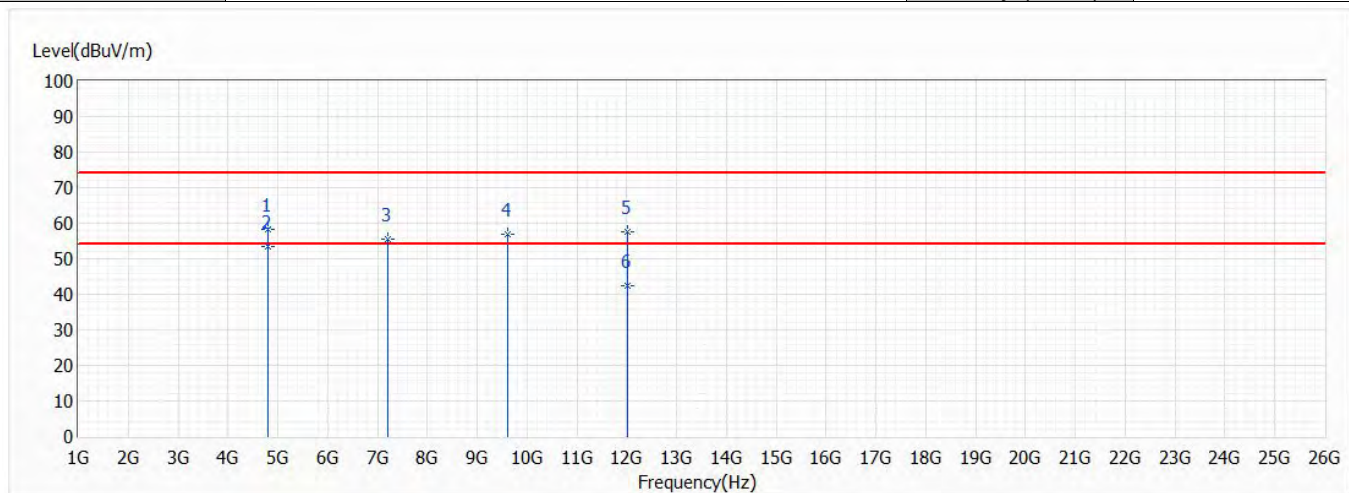


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	4804.000	57.64	74.00	-16.36	69.17	-11.53	PK
* 2	4804.000	53.14	54.00	-0.86	64.67	-11.53	AV
3	7206.000	55.77	74.00	-18.23	58.97	-3.20	PK
4	9608.000	58.05	74.00	-15.95	57.19	0.86	PK
5	12010.000	57.65	74.00	-16.35	52.11	5.54	PK
6	12010.000	42.53	54.00	-11.47	36.99	5.54	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.

Model No	RB924i-2nD-BT5&BG77	Site	CB2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/5/4
Test Mode	Mode 1: Transmit Adapter Mode	Engineer	Ling Chen
Polarity	Vertical	Temperature (°C)	23.0
Test Condition	Ch 0,2.402G,BW1M	Humidity (%RH)	55.0

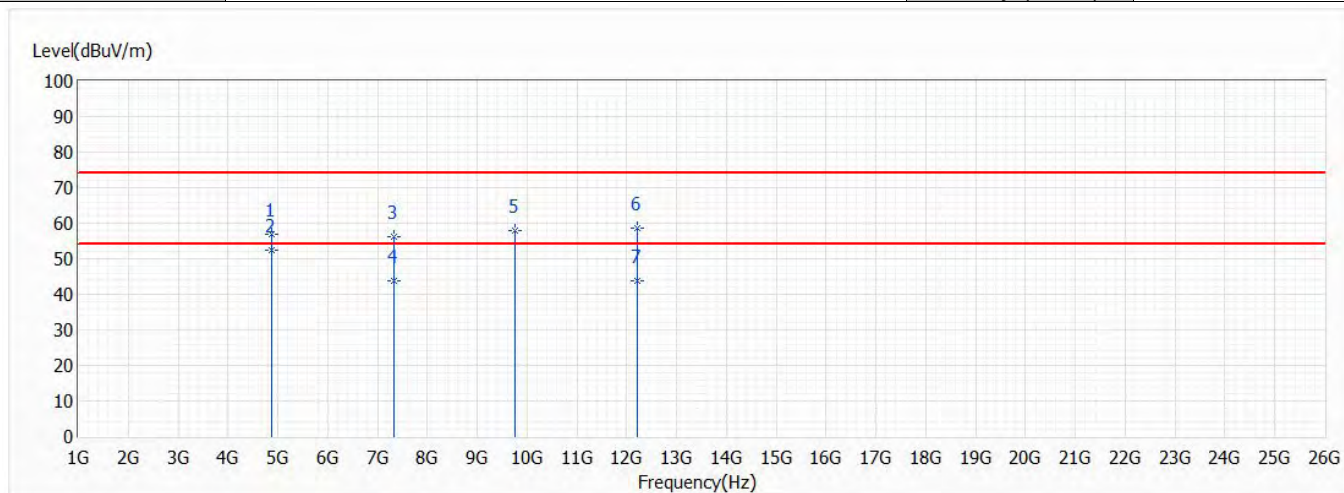


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	4804.000	58.25	74.00	-15.75	69.78	-11.53	PK
* 2	4804.000	53.51	54.00	-0.49	65.04	-11.53	AV
3	7206.000	55.65	74.00	-18.35	58.85	-3.20	PK
4	9608.000	56.95	74.00	-17.05	56.09	0.86	PK
5	12010.000	57.46	74.00	-16.54	51.92	5.54	PK
6	12010.000	42.37	54.00	-11.63	36.83	5.54	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.

Model No	RB924i-2nD-BT5&BG77	Site	CB2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/5/5
Test Mode	Mode 1: Transmit Adapter Mode	Engineer	Ling Chen
Polarity	Horizontal	Temperature (°C)	23.0
Test Condition	Ch 0,2.44G,BW1M	Humidity (%RH)	55.0

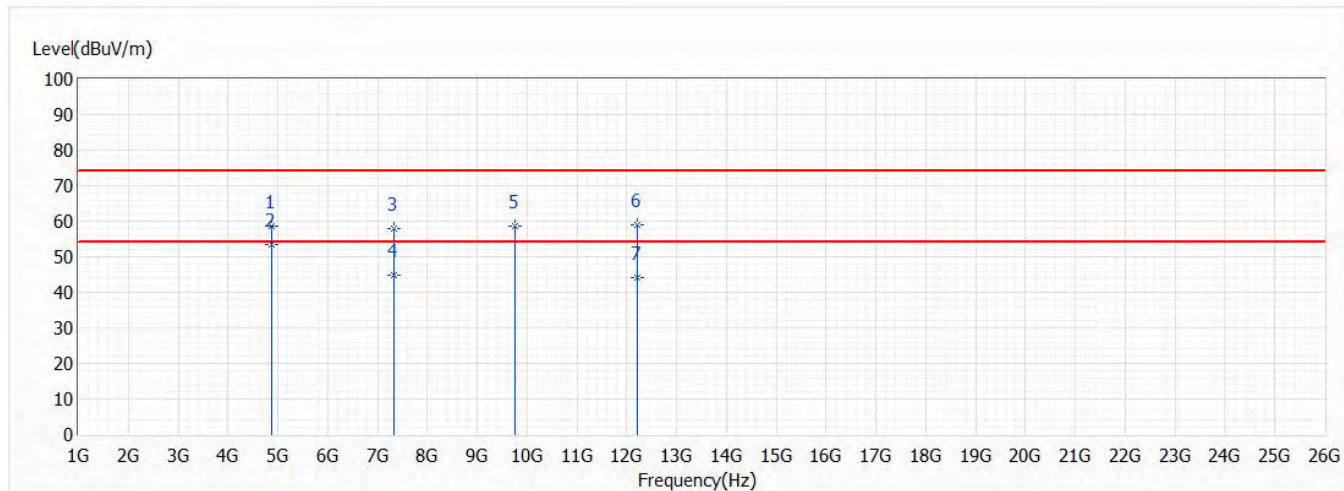


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	4880.000	56.95	74.00	-17.05	68.24	-11.29	PK
* 2	4880.000	52.31	54.00	-1.69	63.60	-11.29	AV
3	7320.000	56.37	74.00	-17.63	59.21	-2.84	PK
4	7320.000	43.75	54.00	-10.25	46.59	-2.84	AV
5	9760.000	57.96	74.00	-16.04	57.01	0.95	PK
6	12200.000	58.72	74.00	-15.28	53.65	5.07	PK
7	12200.000	43.77	54.00	-10.23	38.70	5.07	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.

Model No	RB924i-2nD-BT5&BG77	Site	CB2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/5/5
Test Mode	Mode 1: Transmit Adapter Mode	Engineer	Ling Chen
Polarity	Vertical	Temperature (°C)	23.0
Test Condition	Ch 0,2.44G,BW1M	Humidity (%RH)	55.0

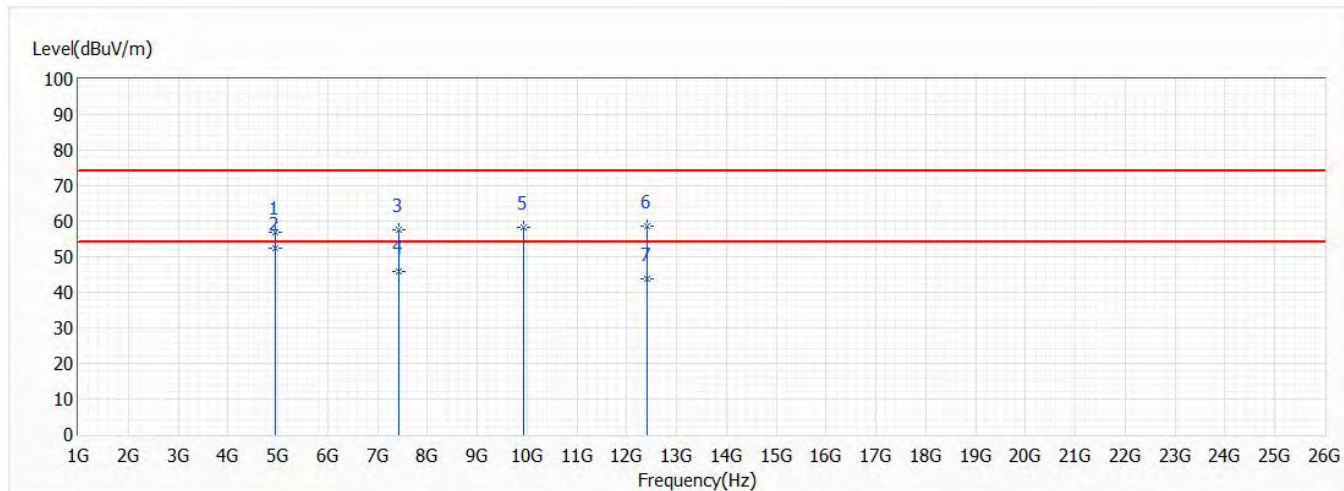


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	4880.000	58.76	74.00	-15.24	70.05	-11.29	PK
* 2	4880.000	53.58	54.00	-0.42	64.87	-11.29	AV
3	7320.000	58.04	74.00	-15.96	60.88	-2.84	PK
4	7320.000	44.85	54.00	-9.15	47.69	-2.84	AV
5	9760.000	58.61	74.00	-15.39	57.66	0.95	PK
6	12200.000	59.06	74.00	-14.94	53.99	5.07	PK
7	12200.000	44.28	54.00	-9.72	39.21	5.07	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.

Model No	RB924i-2nD-BT5&BG77	Site	CB2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/5/5
Test Mode	Mode 1: Transmit Adapter Mode	Engineer	Ling Chen
Polarity	Horizontal	Temperature (°C)	23.0
Test Condition	Ch 39,2.48G,BW1M	Humidity (%RH)	55.0

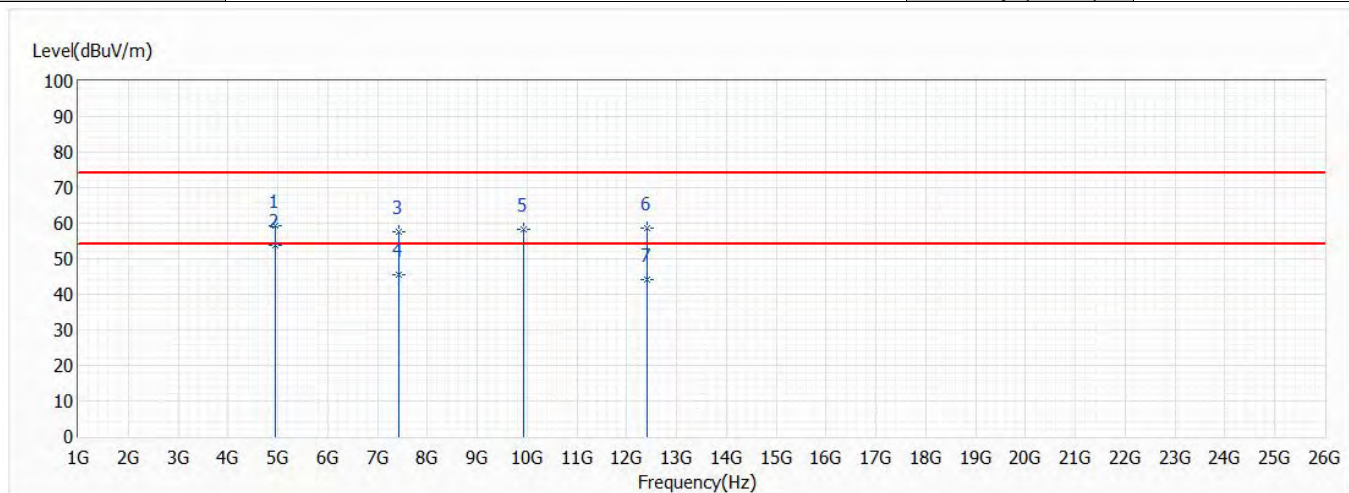


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	4960.000	56.89	74.00	-17.11	68.01	-11.12	PK
* 2	4960.000	52.25	54.00	-1.75	63.37	-11.12	AV
3	7440.000	57.62	74.00	-16.38	59.94	-2.32	PK
4	7440.000	45.73	54.00	-8.27	48.05	-2.32	AV
5	9920.000	58.11	74.00	-15.89	56.96	1.15	PK
6	12400.000	58.53	74.00	-15.47	54.03	4.50	PK
7	12400.000	43.76	54.00	-10.24	39.26	4.50	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.

Model No	RB924i-2nD-BT5&BG77	Site	CB2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/5/5
Test Mode	Mode 1: Transmit Adapter Mode	Engineer	Ling Chen
Polarity	Vertical	Temperature (°C)	23.0
Test Condition	Ch 39,2.48G,BW1M	Humidity (%RH)	55.0

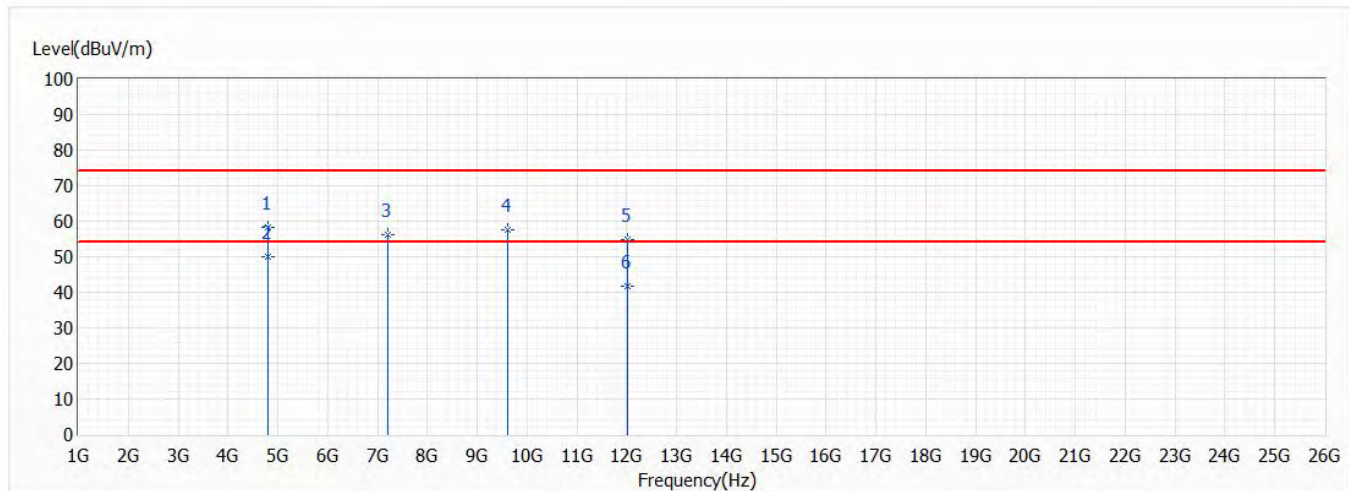


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	4960.000	59.18	74.00	-14.82	70.30	-11.12	PK
* 2	4960.000	53.72	54.00	-0.28	64.84	-11.12	AV
3	7440.000	57.67	74.00	-16.33	59.99	-2.32	PK
4	7440.000	45.56	54.00	-8.44	47.88	-2.32	AV
5	9920.000	58.25	74.00	-15.75	57.10	1.15	PK
6	12400.000	58.69	74.00	-15.31	54.19	4.50	PK
7	12400.000	44.21	54.00	-9.79	39.71	4.50	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.

Model No	RB924i-2nD-BT5&BG77	Site	CB2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/5/5
Test Mode	Mode 1: Transmit Adapter Mode	Engineer	Ling Chen
Polarity	Horizontal	Temperature (°C)	23.0
Test Condition	Ch 0,2.402G,BW2M	Humidity (%RH)	55.0

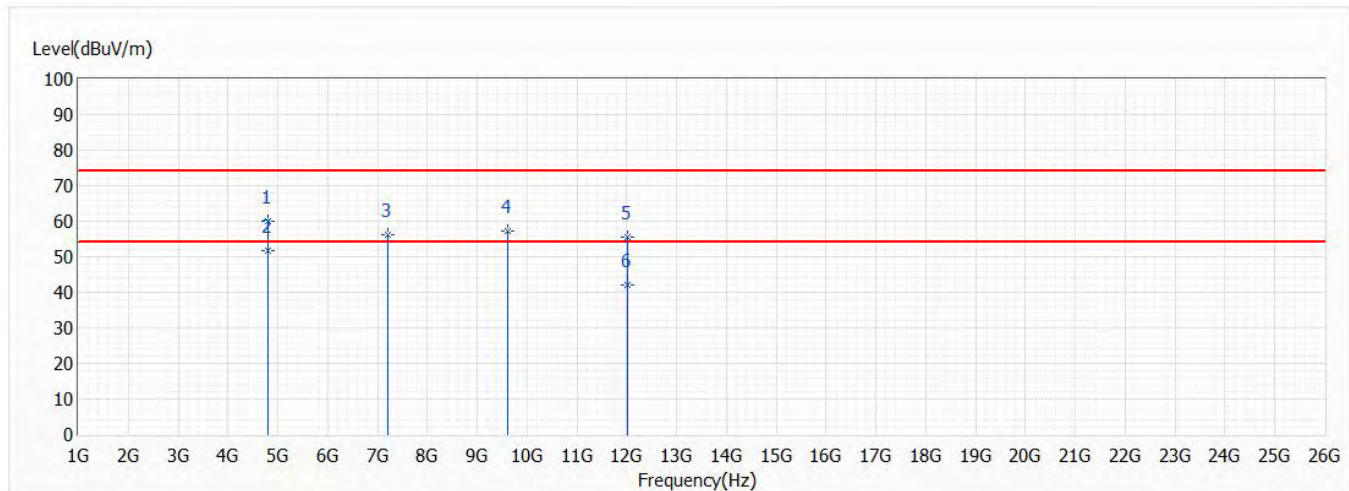


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	4804.000	58.21	74.00	-15.79	69.74	-11.53	PK
* 2	4804.000	50.13	54.00	-3.87	61.66	-11.53	AV
3	7206.000	56.07	74.00	-17.93	59.27	-3.20	PK
4	9608.000	57.67	74.00	-16.33	56.81	0.86	PK
5	12010.000	54.95	74.00	-19.05	49.41	5.54	PK
6	12010.000	41.83	54.00	-12.17	36.29	5.54	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.

Model No	RB924i-2nD-BT5&BG77	Site	CB2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/5/5
Test Mode	Mode 1: Transmit Adapter Mode	Engineer	Ling Chen
Polarity	Vertical	Temperature (°C)	23.0
Test Condition	Ch 0,2.402G,BW2M	Humidity (%RH)	55.0

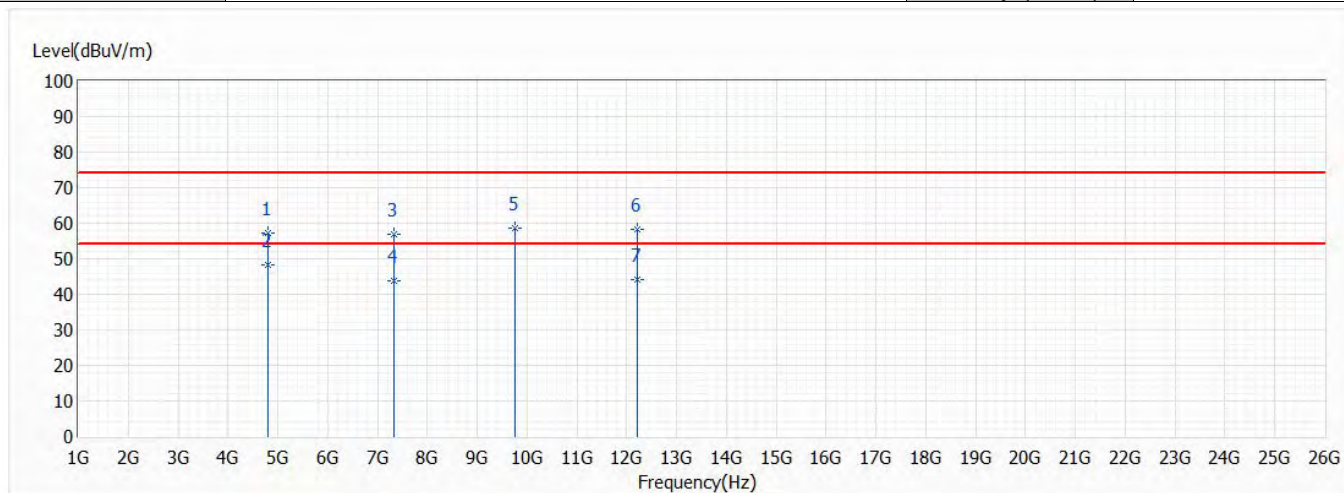


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	4804.000	60.04	74.00	-13.96	71.57	-11.53	PK
* 2	4804.000	51.77	54.00	-2.23	63.30	-11.53	AV
3	7206.000	56.31	74.00	-17.69	59.51	-3.20	PK
4	9608.000	57.24	74.00	-16.76	56.38	0.86	PK
5	12010.000	55.43	74.00	-18.57	49.89	5.54	PK
6	12010.000	41.94	54.00	-12.06	36.40	5.54	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.

Model No	RB924i-2nD-BT5&BG77	Site	CB2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/5/5
Test Mode	Mode 1: Transmit Adapter Mode	Engineer	Ling Chen
Polarity	Horizontal	Temperature (°C)	23.0
Test Condition	Ch 19,2.44G,BW2M	Humidity (%RH)	55.0

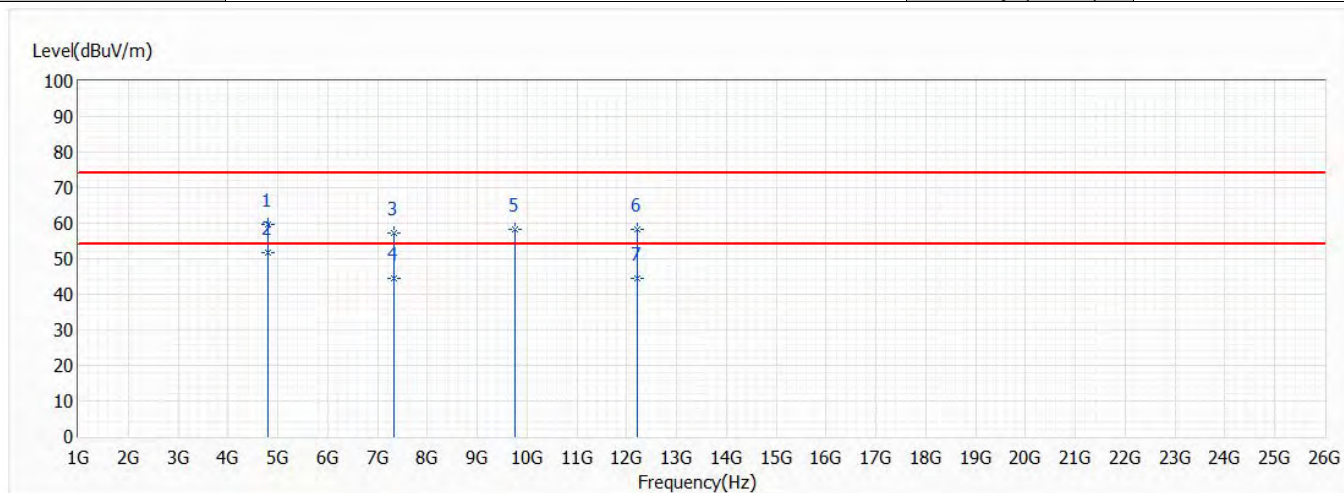


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	4804.000	57.16	74.00	-16.84	68.69	-11.53	PK
* 2	4804.000	48.42	54.00	-5.58	59.95	-11.53	AV
3	7320.000	56.82	74.00	-17.18	59.66	-2.84	PK
4	7320.000	43.94	54.00	-10.06	46.78	-2.84	AV
5	9760.000	58.62	74.00	-15.38	57.67	0.95	PK
6	12200.000	58.28	74.00	-15.72	53.21	5.07	PK
7	12200.000	44.23	54.00	-9.77	39.16	5.07	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.

Model No	RB924i-2nD-BT5&BG77	Site	CB2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/5/5
Test Mode	Mode 1: Transmit Adapter Mode	Engineer	Ling Chen
Polarity	Vertical	Temperature (°C)	23.0
Test Condition	Ch 19,2.44G,BW2M	Humidity (%RH)	55.0

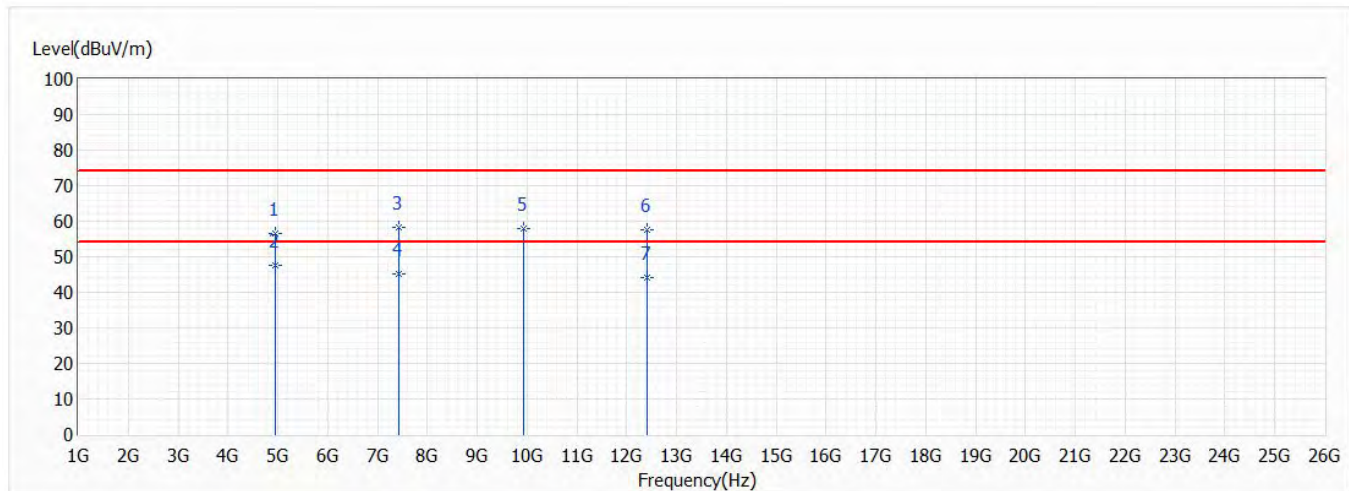


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	4800.000	59.65	74.00	-14.35	71.21	-11.56	PK
* 2	4800.000	51.72	54.00	-2.28	63.28	-11.56	AV
3	7320.000	57.31	74.00	-16.69	60.15	-2.84	PK
4	7320.000	44.48	54.00	-9.52	47.32	-2.84	AV
5	9760.000	58.40	74.00	-15.60	57.45	0.95	PK
6	12200.000	58.21	74.00	-15.79	53.14	5.07	PK
7	12200.000	44.32	54.00	-9.68	39.25	5.07	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.

Model No	RB924i-2nD-BT5&BG77	Site	CB2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/5/5
Test Mode	Mode 1: Transmit Adapter Mode	Engineer	Ling Chen
Polarity	Horizontal	Temperature (°C)	23.0
Test Condition	Ch 39,2.48G,BW2M	Humidity (%RH)	55.0

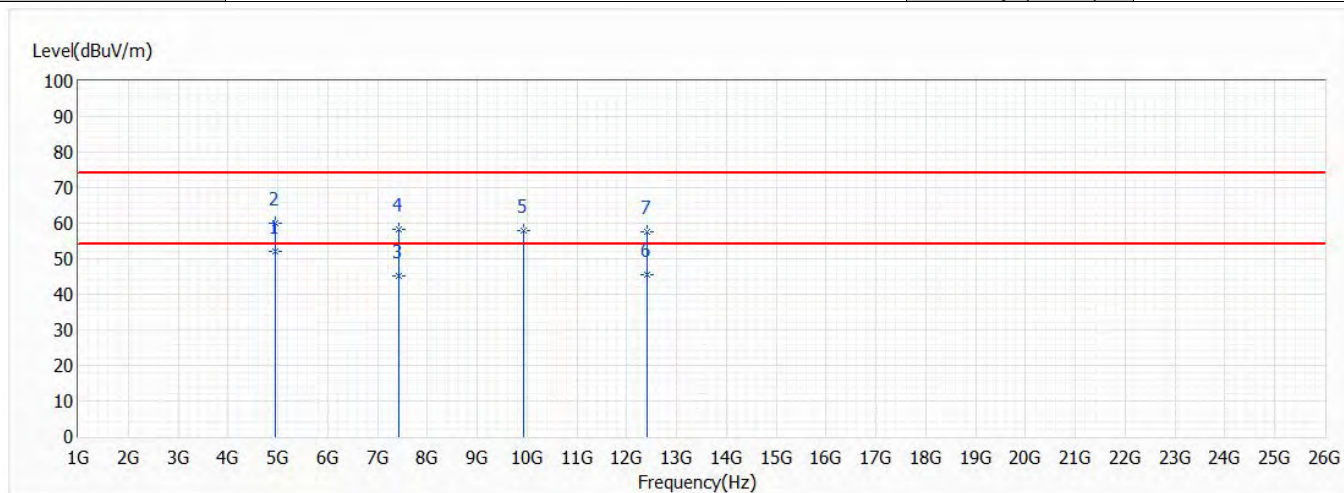


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	4960.000	56.61	74.00	-17.39	67.73	-11.12	PK
* 2	4960.000	47.65	54.00	-6.35	58.77	-11.12	AV
3	7440.000	58.38	74.00	-15.62	60.70	-2.32	PK
4	7440.000	45.14	54.00	-8.86	47.46	-2.32	AV
5	9920.000	57.89	74.00	-16.11	56.74	1.15	PK
6	12400.000	57.45	74.00	-16.55	52.95	4.50	PK
7	12400.000	44.02	54.00	-9.98	39.52	4.50	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.

Model No	RB924i-2nD-BT5&BG77	Site	CB2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/5/5
Test Mode	Mode 1: Transmit Adapter Mode	Engineer	Ling Chen
Polarity	Vertical	Temperature (°C)	23.0
Test Condition	Ch 39,2.48G,BW2M	Humidity (%RH)	55.0



No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
* 1	4960.000	52.03	54.00	-1.97	63.15	-11.12	AV
2	4960.000	59.93	74.00	-14.07	71.05	-11.12	PK
3	7440.000	45.32	54.00	-8.68	47.64	-2.32	AV
4	7440.000	58.27	74.00	-15.73	60.59	-2.32	PK
5	9920.000	57.94	74.00	-16.06	56.79	1.15	PK
6	12400.000	45.46	54.00	-8.54	40.96	4.50	AV
7	12400.000	57.68	74.00	-16.32	53.18	4.50	PK

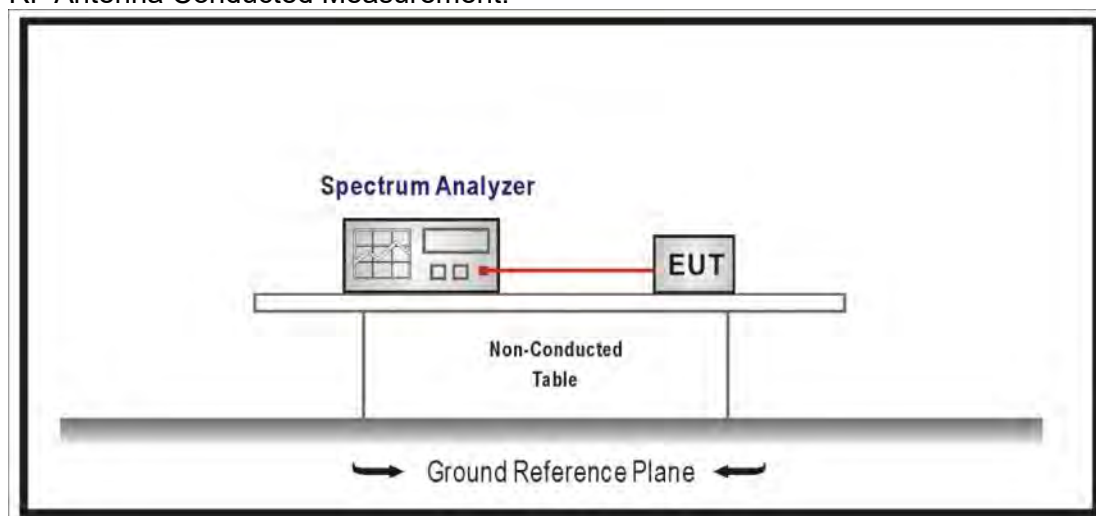
Note:

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.

5. RF antenna conducted test

5.1. Test Setup

RF Antenna Conducted Measurement:



5.2. Limits

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum 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 an RF conducted or radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

5.3. Test Procedure

The EUT was setup according to ANSI C63.10: 2013 and tested according to DTS test procedure section 11.2 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 and RSS-247.

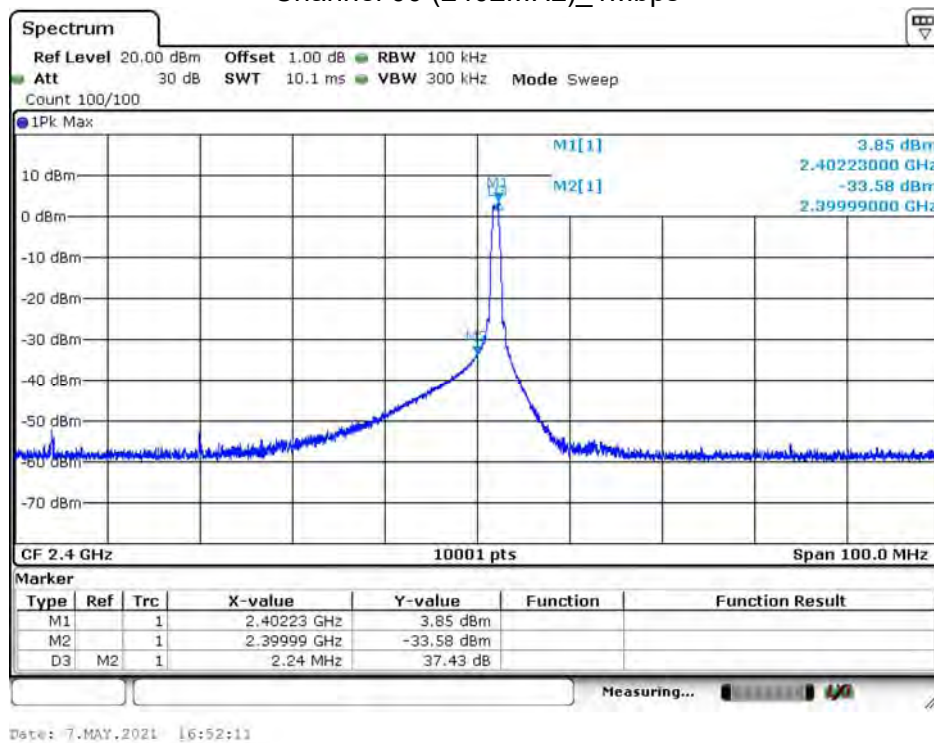
5.5. Test Result

Product	KNOT		
Test Item	RF antenna conducted test		
Test Mode	Mode 1: Transmit Adapter Mode		
Date of Test	2021/05/07	Test Site	SR12-H
Temperature (°C)	24.0	Humidity (%RH)	68.0

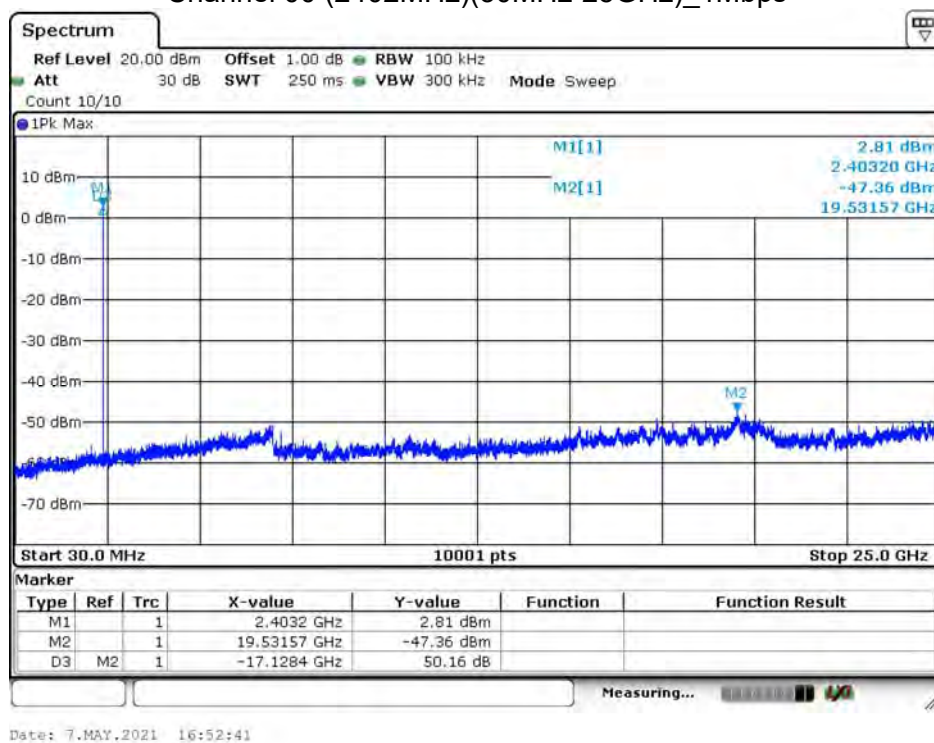
GFSK_1Mbps			
Channel No.	Frequency (MHz)	Measure Value (dBc)	Limit (dBc)
00	2402	37.430	≥ 20
19	2440	50.080	≥ 20
39	2480	48.210	≥ 20

GFSK_2Mbps			
Channel No.	Frequency (MHz)	Measure Value (dBc)	Limit (dBc)
00	2402	31.110	≥ 20
19	2440	47.570	≥ 20
39	2480	46.420	≥ 20

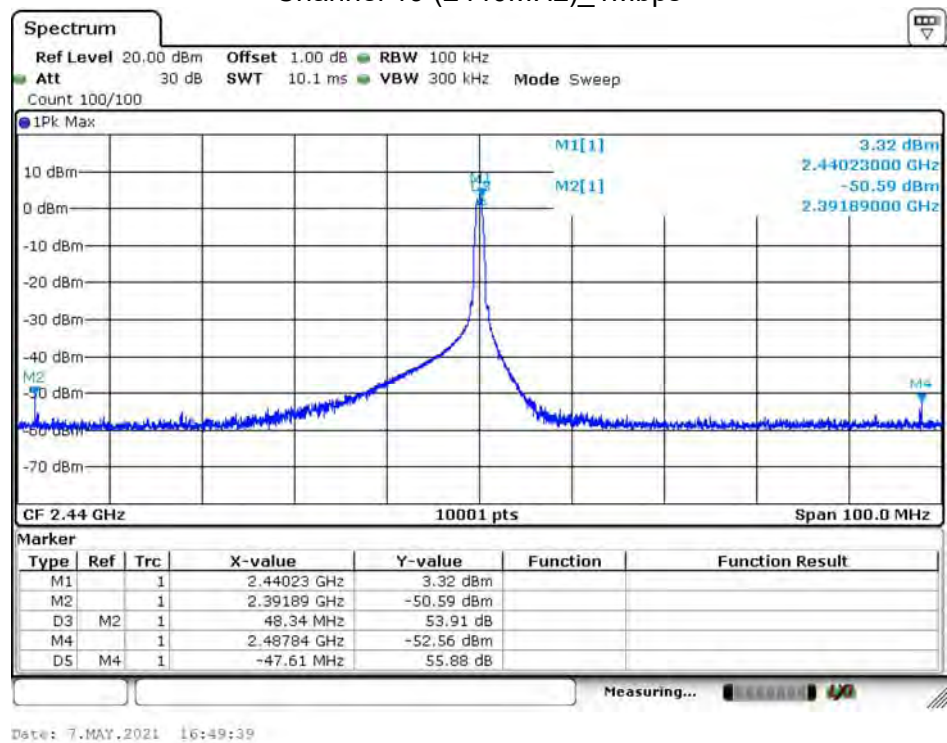
Channel 00 (2402MHz)_1Mbps



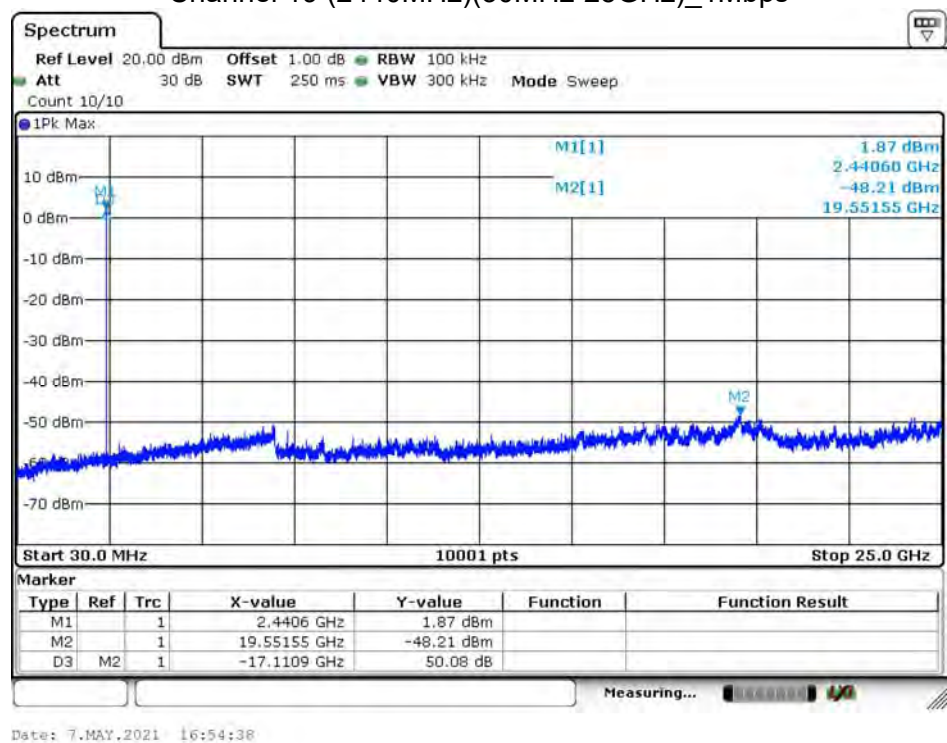
Channel 00 (2402MHz)(30MHz-25GHz)_1Mbps



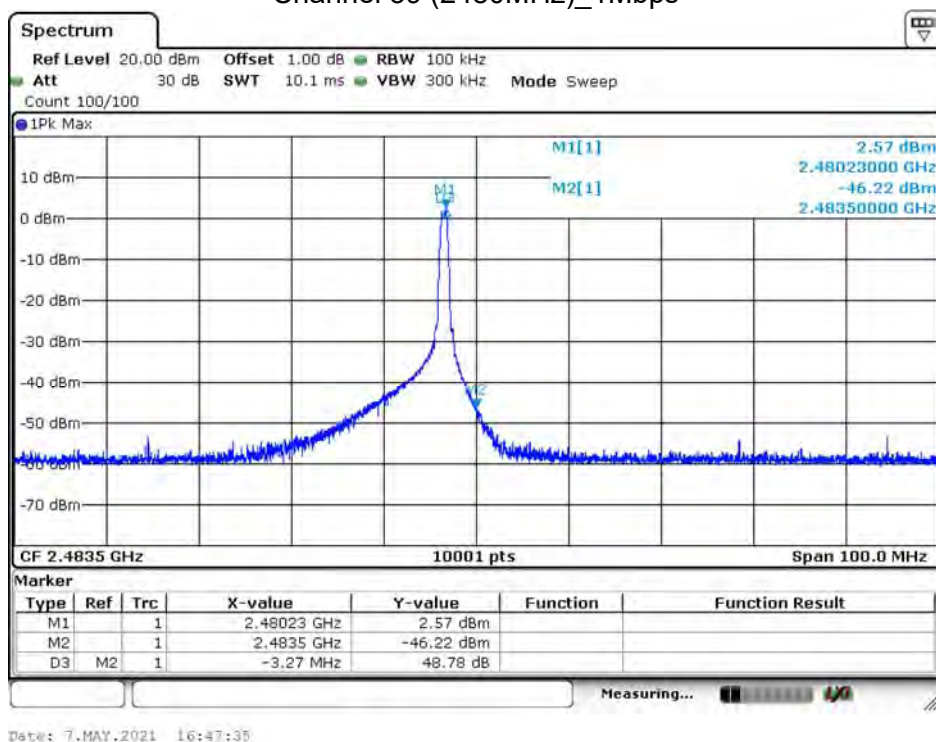
Channel 19 (2440MHz)_1Mbps



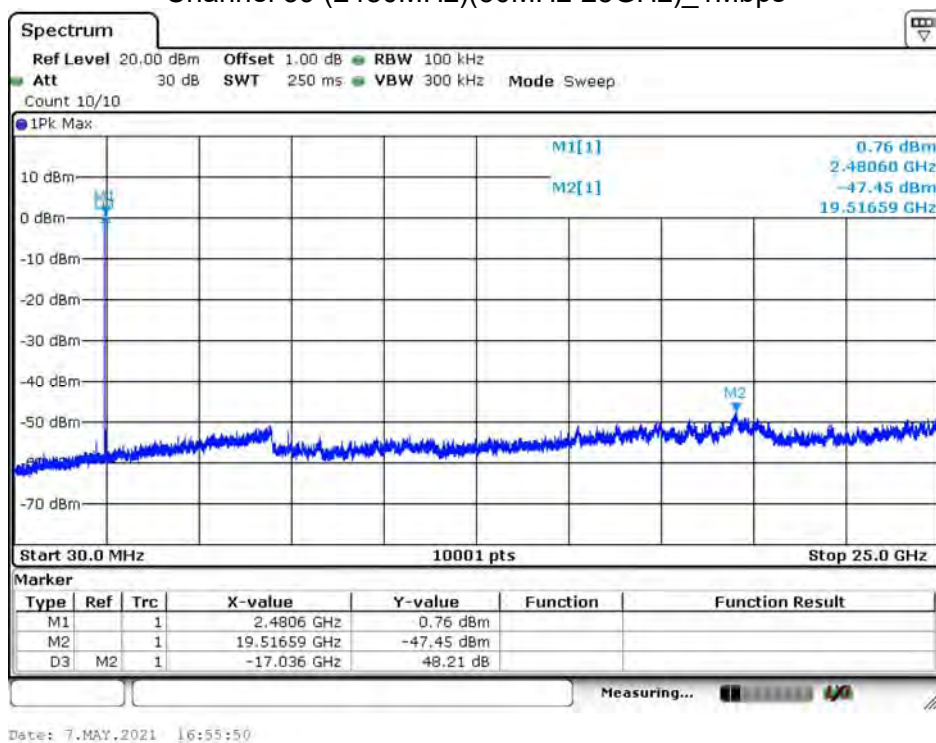
Channel 19 (2440MHz)(30MHz-25GHz)_1Mbps



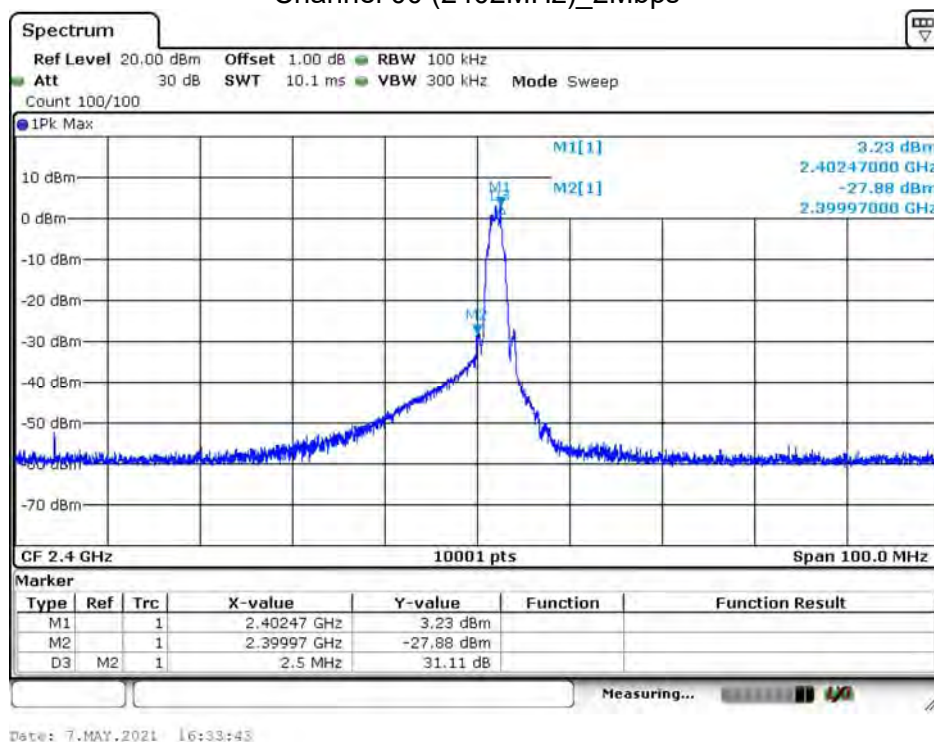
Channel 39 (2480MHz)_1Mbps



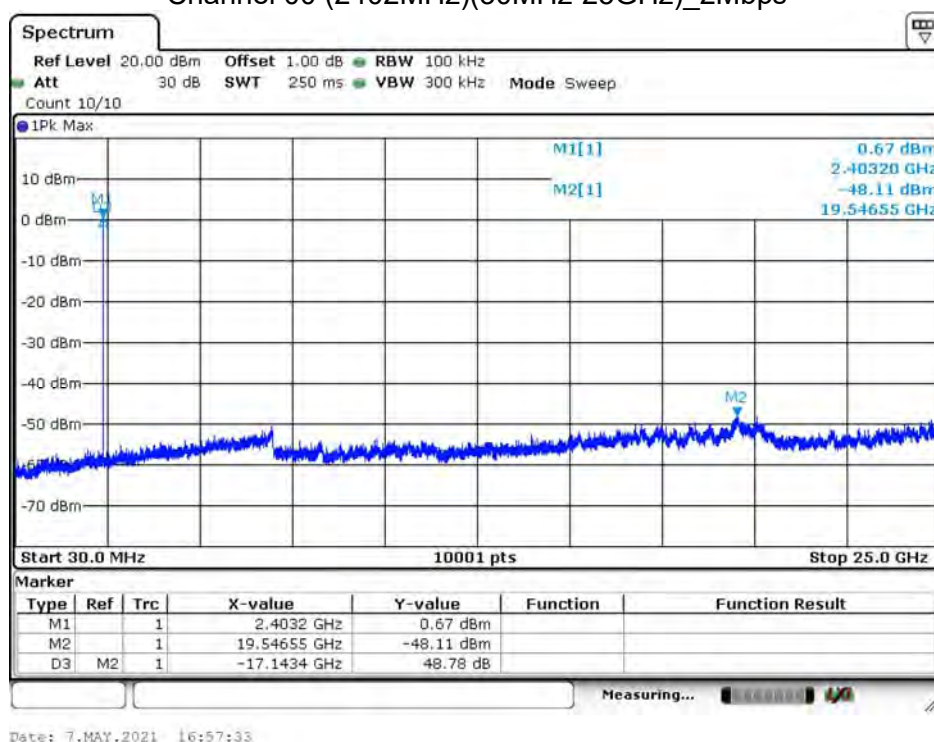
Channel 39 (2480MHz)(30MHz-25GHz)_1Mbps



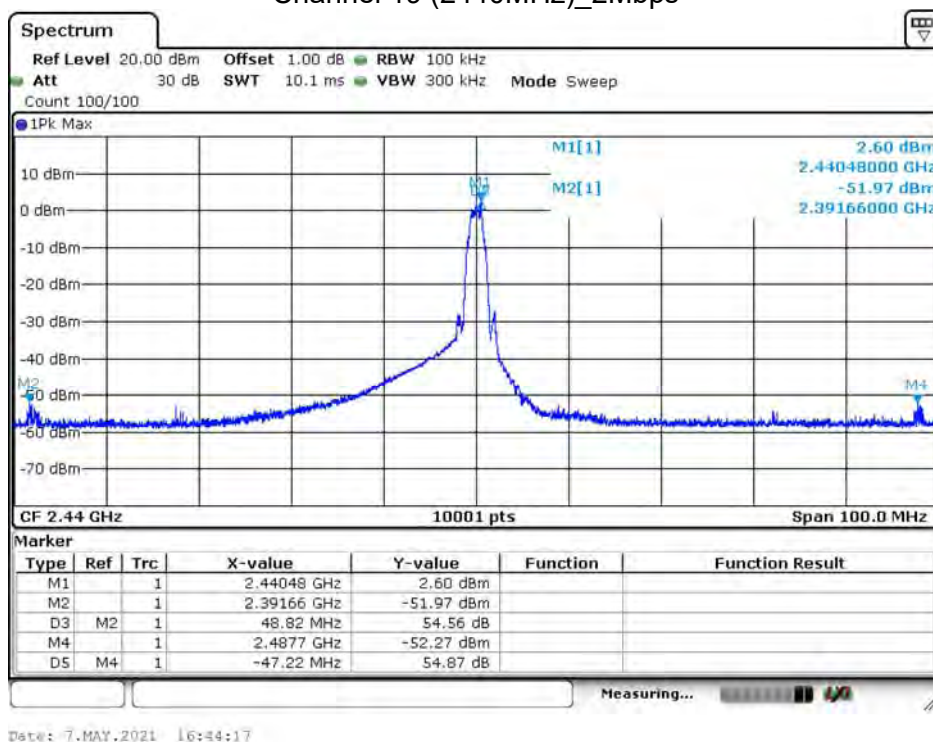
Channel 00 (2402MHz)_2Mbps



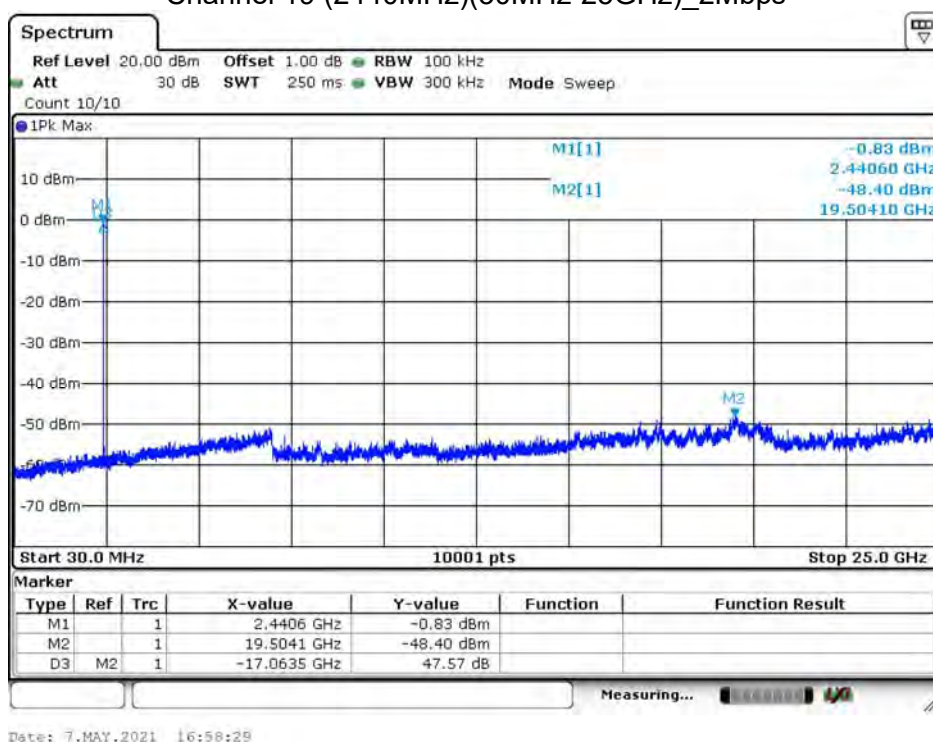
Channel 00 (2402MHz)(30MHz-25GHz)_2Mbps



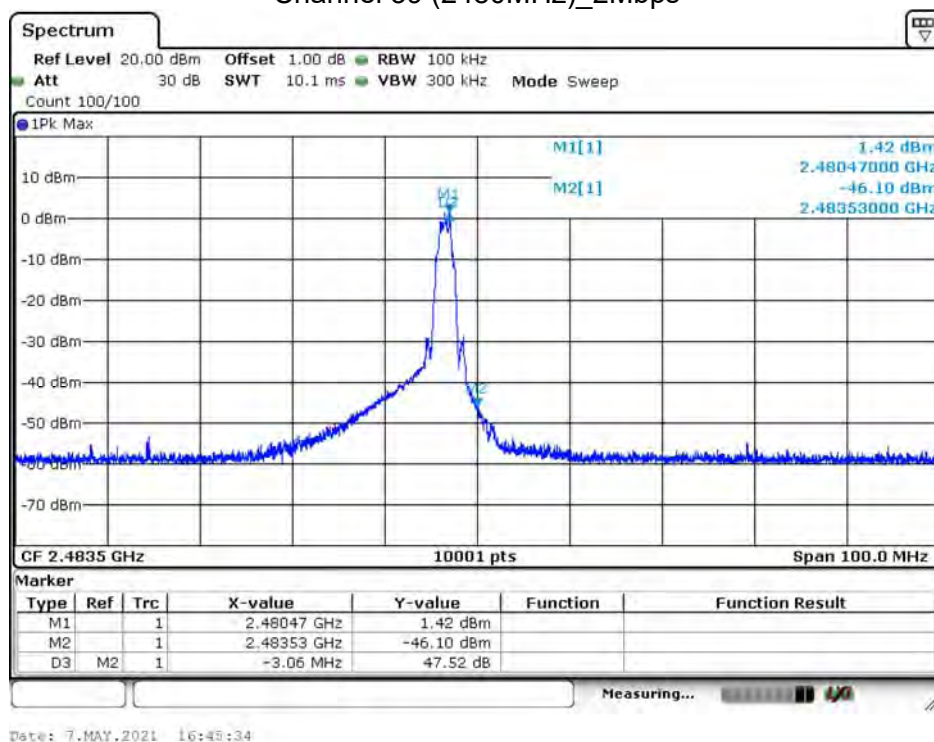
Channel 19 (2440MHz)_2Mbps



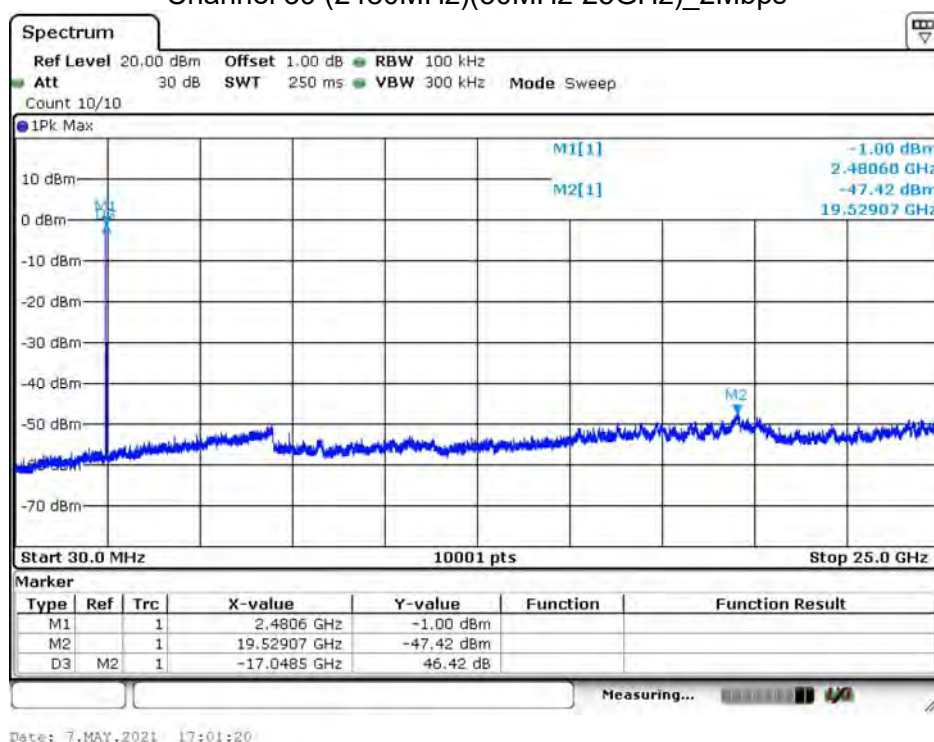
Channel 19 (2440MHz)(30MHz-25GHz)_2Mbps



Channel 39 (2480MHz)_2Mbps

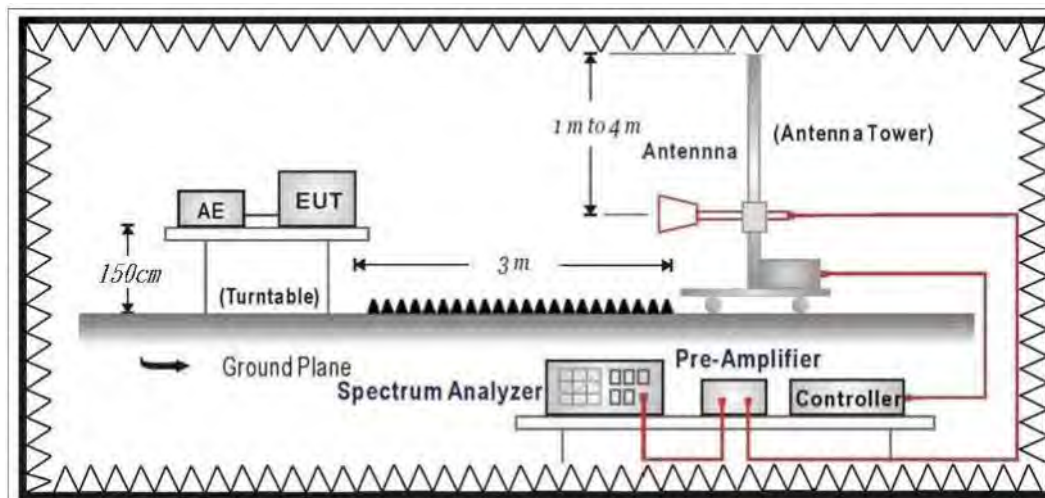


Channel 39 (2480MHz)(30MHz-25GHz)_2Mbps



6. Radiated Emission Band Edge

6.1. Test Setup



6.2. Limits

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

6.3. 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. 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 EUT was positioned such that the distance from antenna to the EUT was 3 meters. The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

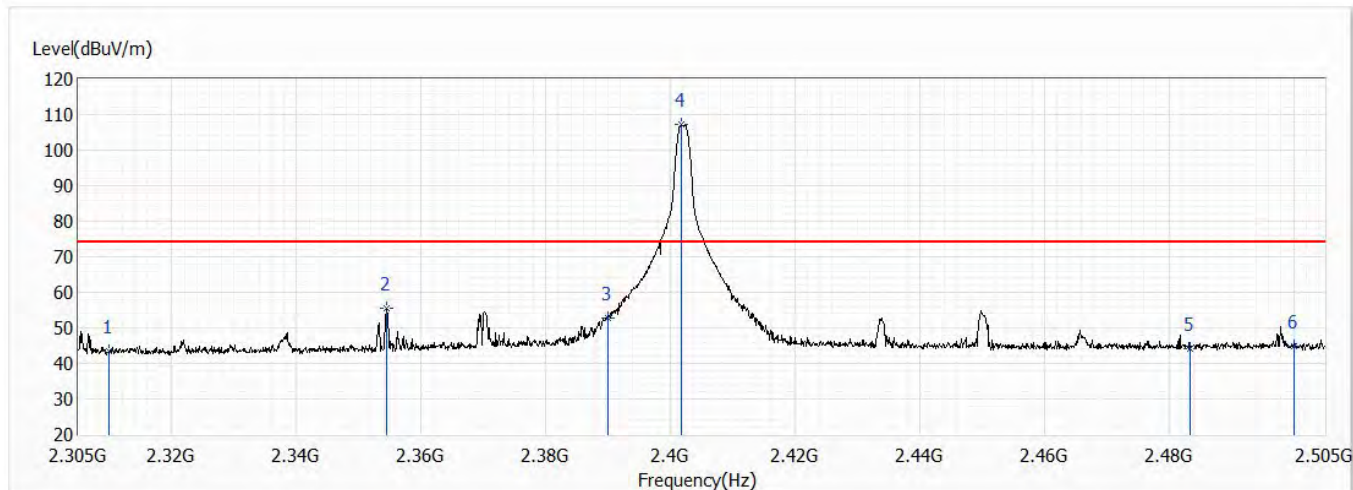
Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.10: 2013 on radiated measurement.

6.4. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247 and RSS-247.

6.5. Test Result

Model No	RB924i-2nD-BT5&BG77	Site	CB2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/5/3
Test Mode	Mode 1: Transmit Adapter Mode	Engineer	Ling Chen
Polarity	Horizontal	Temperature (°C)	23.0
Test Condition	Ch 0,2.402G,BW1M	Humidity (%RH)	55.0

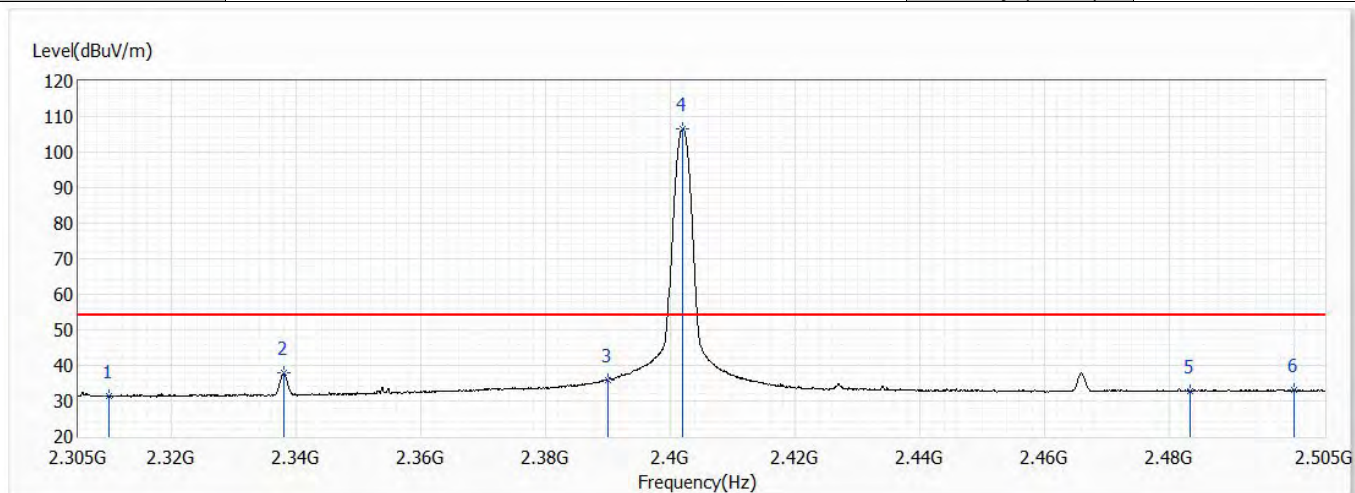


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	43.60	74.00	-30.40	30.62	12.98	PK
2	2354.400	55.47	74.00	-18.53	42.18	13.29	PK
3	2390.000	52.59	74.00	-21.41	39.07	13.52	PK
! 4	2401.800	107.07	74.00	33.07	93.46	13.61	PK
5	2483.500	44.20	74.00	-29.80	29.99	14.21	PK
6	2500.000	44.91	74.00	-29.09	30.58	14.33	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.

Model No	RB924i-2nD-BT5&BG77	Site	CB2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/5/3
Test Mode	Mode 1: Transmit Adapter Mode	Engineer	Ling Chen
Polarity	Horizontal	Temperature (°C)	23.0
Test Condition	Ch 0,2.402G,BW1M	Humidity (%RH)	55.0

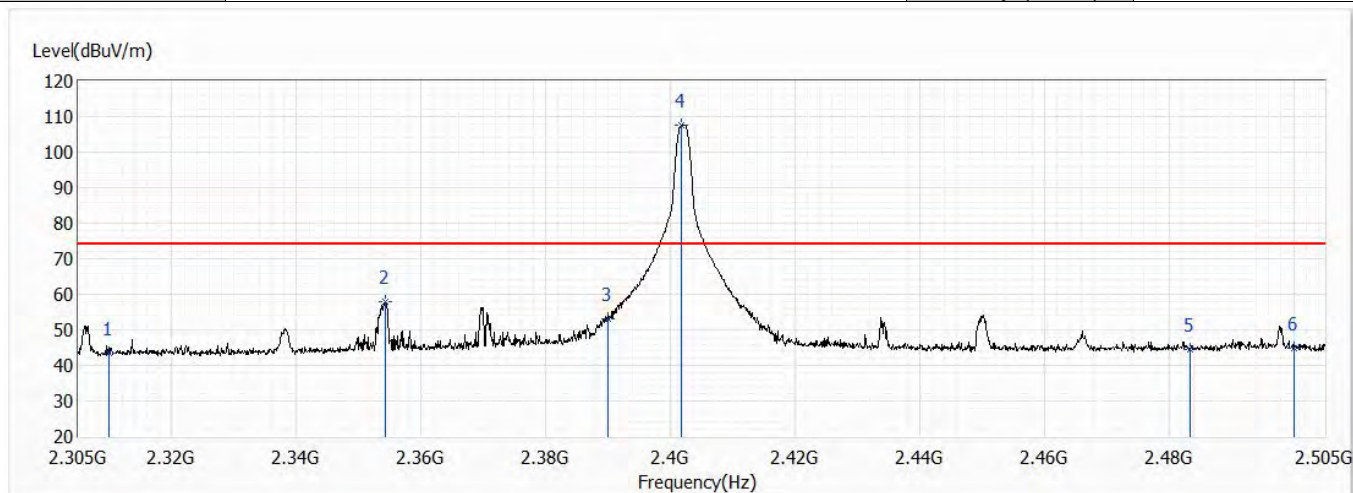


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	31.27	54.00	-22.73	18.29	12.98	AV
2	2337.900	37.77	54.00	-16.23	24.60	13.17	AV
3	2390.000	35.88	54.00	-18.12	22.36	13.52	AV
! 4	2402.000	106.55	54.00	52.55	92.94	13.61	AV
5	2483.500	32.90	54.00	-21.10	18.69	14.21	AV
6	2500.000	32.99	54.00	-21.01	18.66	14.33	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.

Model No	RB924i-2nD-BT5&BG77	Site	CB2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/5/3
Test Mode	Mode 1: Transmit Adapter Mode	Engineer	Ling Chen
Polarity	Vertical	Temperature (°C)	23.0
Test Condition	Ch 0,2.402G,BW1M	Humidity (%RH)	55.0

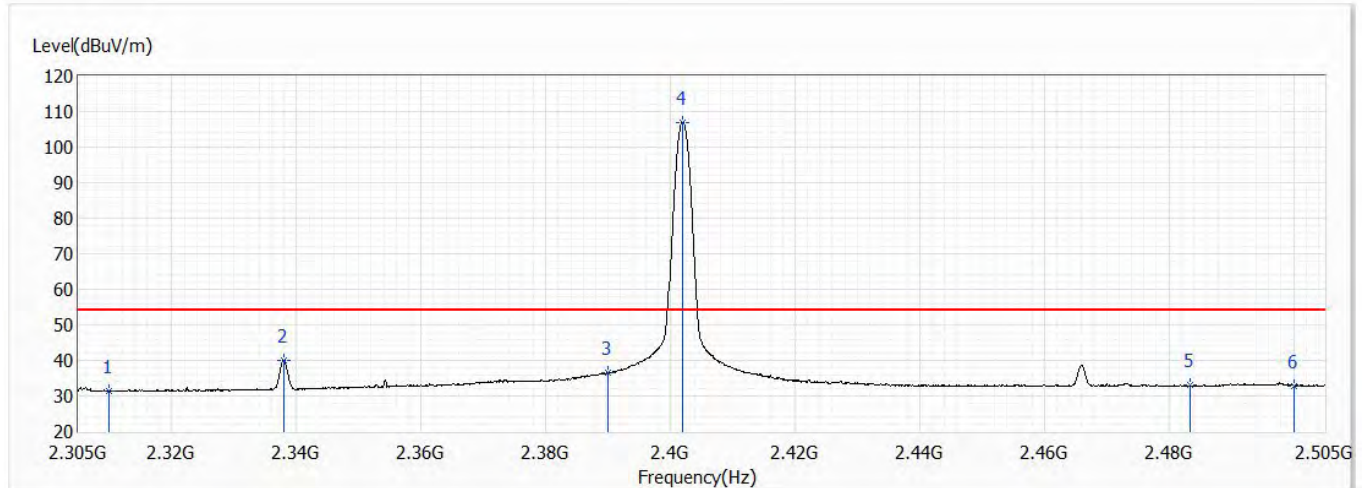


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	43.47	74.00	-30.53	30.49	12.98	PK
2	2354.200	57.94	74.00	-16.06	44.65	13.29	PK
3	2390.000	52.94	74.00	-21.06	39.42	13.52	PK
! 4	2401.800	107.58	74.00	33.58	93.97	13.61	PK
5	2483.500	44.58	74.00	-29.42	30.37	14.21	PK
6	2500.000	44.92	74.00	-29.08	30.59	14.33	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.

Model No	RB924i-2nD-BT5&BG77	Site	CB2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/5/3
Test Mode	Mode 1: Transmit Adapter Mode	Engineer	Ling Chen
Polarity	Vertical	Temperature (°C)	23.0
Test Condition	Ch 0,2.402G,BW1M	Humidity (%RH)	55.0

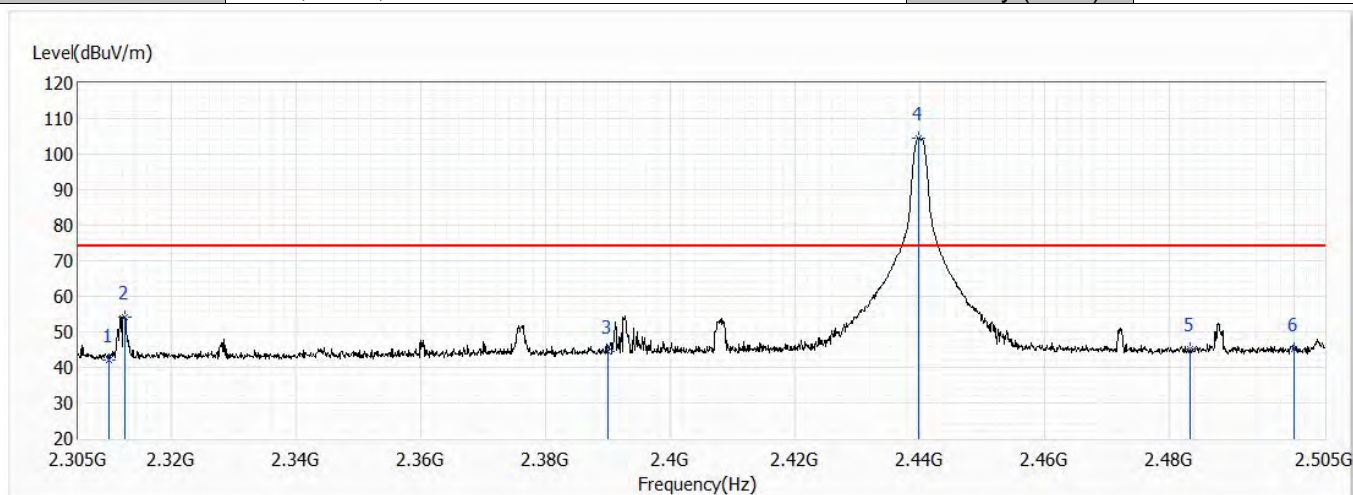


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	31.34	54.00	-22.66	18.36	12.98	AV
2	2338.000	40.06	54.00	-13.94	26.89	13.17	AV
3	2390.000	36.61	54.00	-17.39	23.09	13.52	AV
! 4	2402.000	107.04	54.00	53.04	93.43	13.61	AV
5	2483.500	32.95	54.00	-21.05	18.74	14.21	AV
6	2500.000	32.91	54.00	-21.09	18.58	14.33	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.

Model No	RB924i-2nD-BT5&BG77	Site	CB2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/5/3
Test Mode	Mode 1: Transmit Adapter Mode	Engineer	Ling Chen
Polarity	Horizontal	Temperature (°C)	23.0
Test Condition	Ch 19,2.44G,BW1M	Humidity (%RH)	55.0

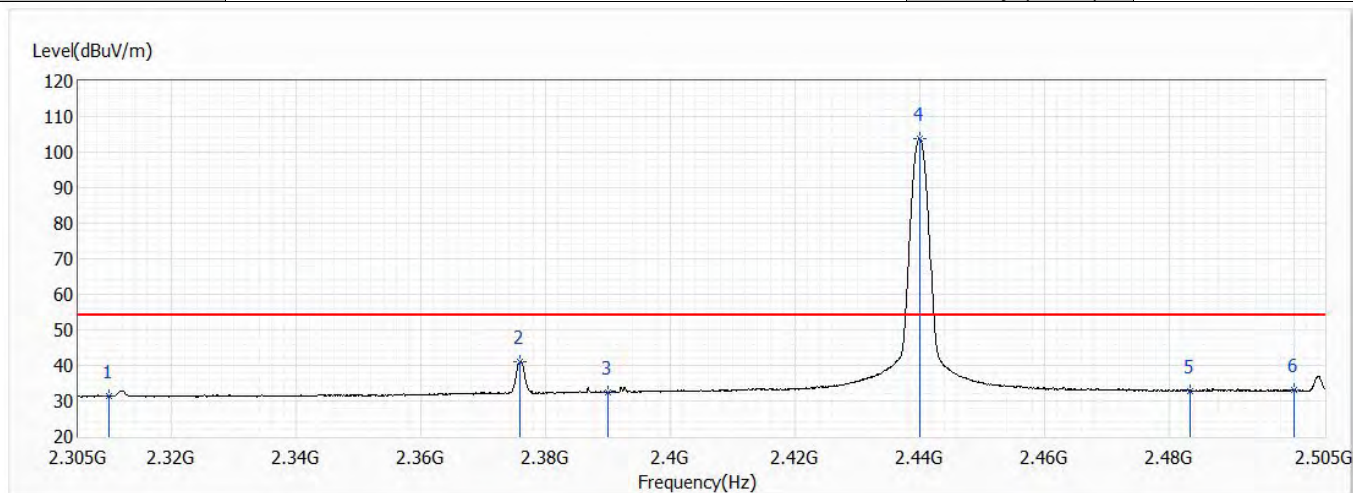


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	42.22	74.00	-31.78	29.24	12.98	PK
2	2312.400	54.21	74.00	-19.79	41.23	12.98	PK
3	2390.000	44.50	74.00	-29.50	30.98	13.52	PK
! 4	2439.800	104.35	74.00	30.35	90.46	13.89	PK
5	2483.500	45.14	74.00	-28.86	30.93	14.21	PK
6	2500.000	45.27	74.00	-28.73	30.94	14.33	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.

Model No	RB924i-2nD-BT5&BG77	Site	CB2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/5/3
Test Mode	Mode 1: Transmit Adapter Mode	Engineer	Ling Chen
Polarity	Horizontal	Temperature (°C)	23.0
Test Condition	Ch 19,2.44G,BW1M	Humidity (%RH)	55.0

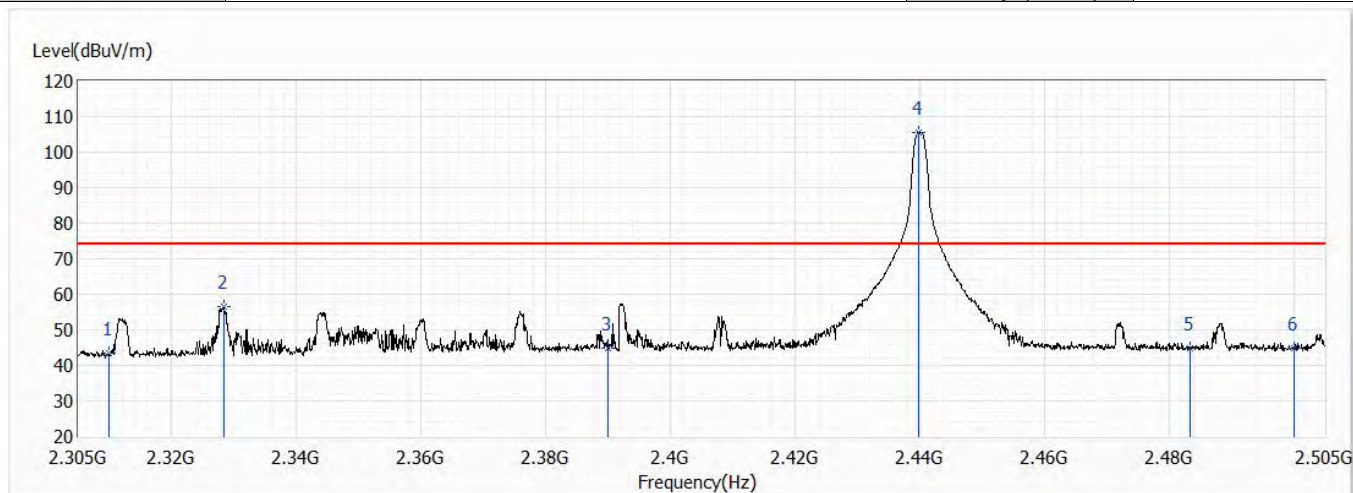


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	31.45	54.00	-22.55	18.47	12.98	AV
2	2375.800	41.14	54.00	-12.86	27.71	13.43	AV
3	2390.000	32.56	54.00	-21.44	19.04	13.52	AV
! 4	2440.000	103.87	54.00	49.87	89.98	13.89	AV
5	2483.500	32.79	54.00	-21.21	18.58	14.21	AV
6	2500.000	33.07	54.00	-20.93	18.74	14.33	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.

Model No	RB924i-2nD-BT5&BG77	Site	CB2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/5/3
Test Mode	Mode 1: Transmit Adapter Mode	Engineer	Ling Chen
Polarity	Vertical	Temperature (°C)	23.0
Test Condition	Ch 19,2.44G,BW1M	Humidity (%RH)	55.0

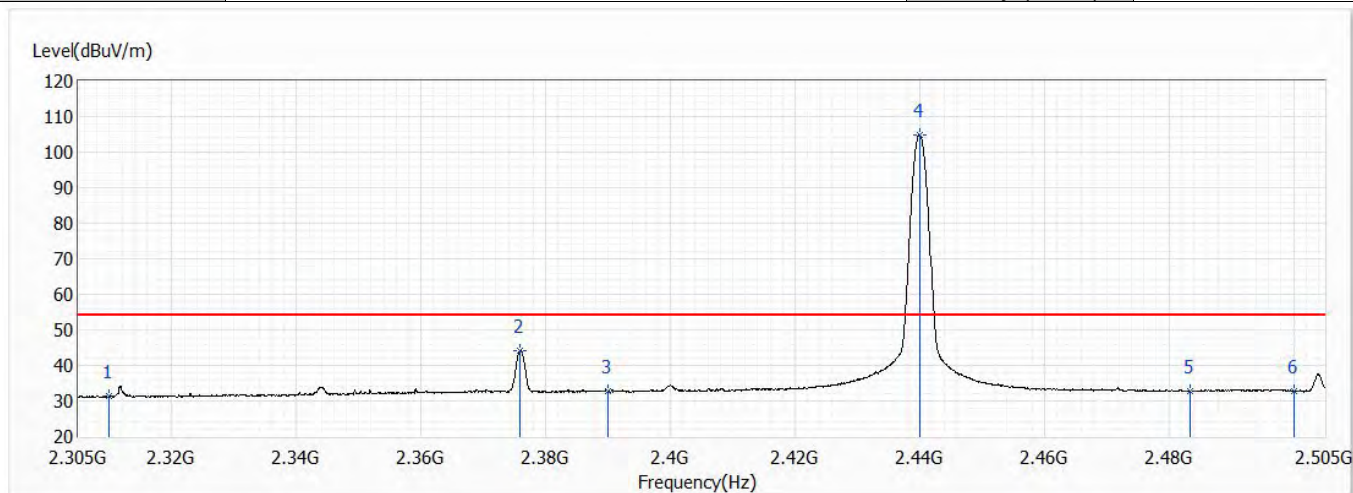


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	43.61	74.00	-30.39	30.63	12.98	PK
2	2328.300	56.40	74.00	-17.60	43.30	13.10	PK
3	2390.000	44.84	74.00	-29.16	31.32	13.52	PK
! 4	2439.800	105.45	74.00	31.45	91.56	13.89	PK
5	2483.500	44.97	74.00	-29.03	30.76	14.21	PK
6	2500.000	44.89	74.00	-29.11	30.56	14.33	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.

Model No	RB924i-2nD-BT5&BG77	Site	CB2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/5/3
Test Mode	Mode 1: Transmit Adapter Mode	Engineer	Ling Chen
Polarity	Vertical	Temperature (°C)	23.0
Test Condition	Ch 19,2.44G,BW1M	Humidity (%RH)	55.0

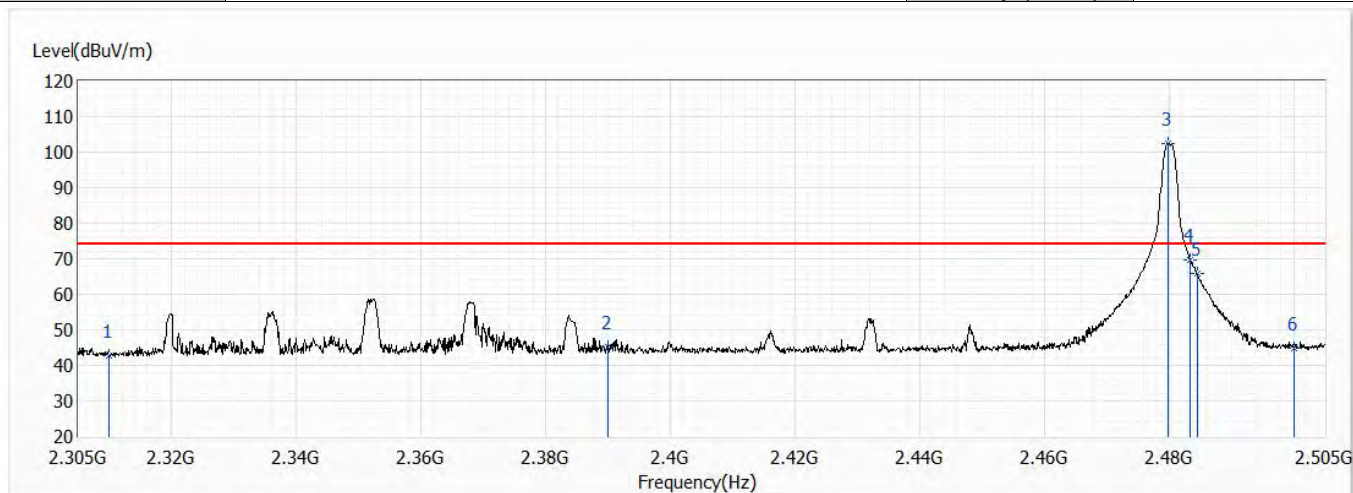


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	31.29	54.00	-22.71	18.31	12.98	AV
2	2375.800	44.10	54.00	-9.90	30.67	13.43	AV
3	2390.000	32.70	54.00	-21.30	19.18	13.52	AV
! 4	2440.000	104.92	54.00	50.92	91.03	13.89	AV
5	2483.500	32.75	54.00	-21.25	18.54	14.21	AV
6	2500.000	32.75	54.00	-21.25	18.42	14.33	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.

Model No	RB924i-2nD-BT5&BG77	Site	CB2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/5/3
Test Mode	Mode 1: Transmit Adapter Mode	Engineer	Ling Chen
Polarity	Horizontal	Temperature (°C)	23.0
Test Condition	Ch 39,2.48G,BW1M	Humidity (%RH)	55.0

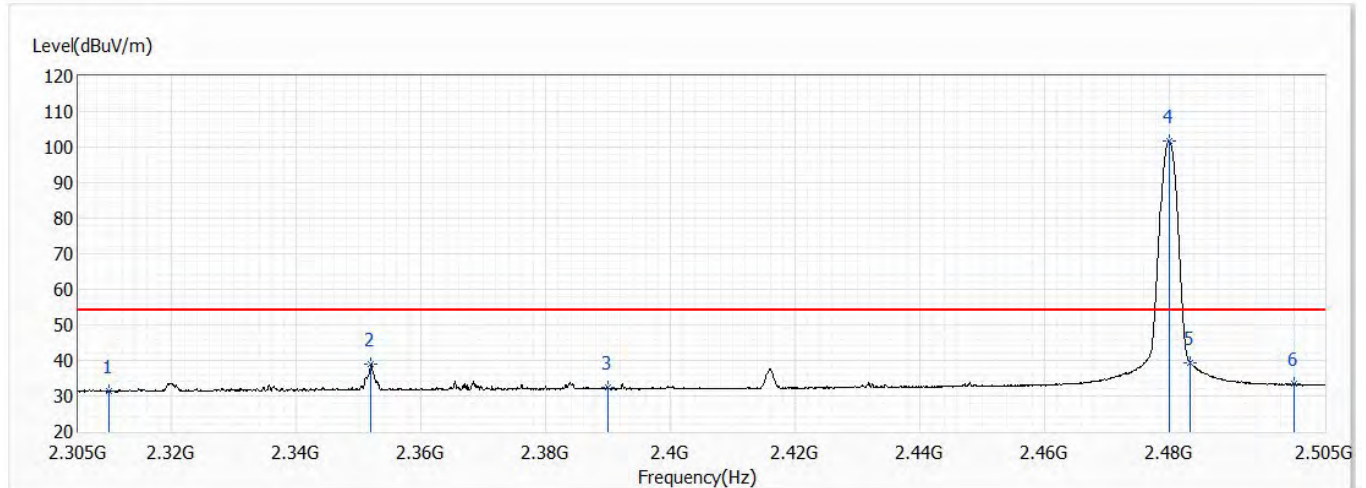


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	42.87	74.00	-31.13	29.89	12.98	PK
2	2390.000	45.32	74.00	-28.68	31.80	13.52	PK
! 3	2479.800	102.29	74.00	28.29	88.11	14.18	PK
4	2483.500	69.63	74.00	-4.37	55.42	14.21	PK
5	2484.500	65.81	74.00	-8.19	51.60	14.21	PK
6	2500.000	44.71	74.00	-29.29	30.38	14.33	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.

Model No	RB924i-2nD-BT5&BG77	Site	CB2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/5/3
Test Mode	Mode 1: Transmit Adapter Mode	Engineer	Ling Chen
Polarity	Horizontal	Temperature (°C)	23.0
Test Condition	Ch 39,2.48G,BW1M	Humidity (%RH)	55.0

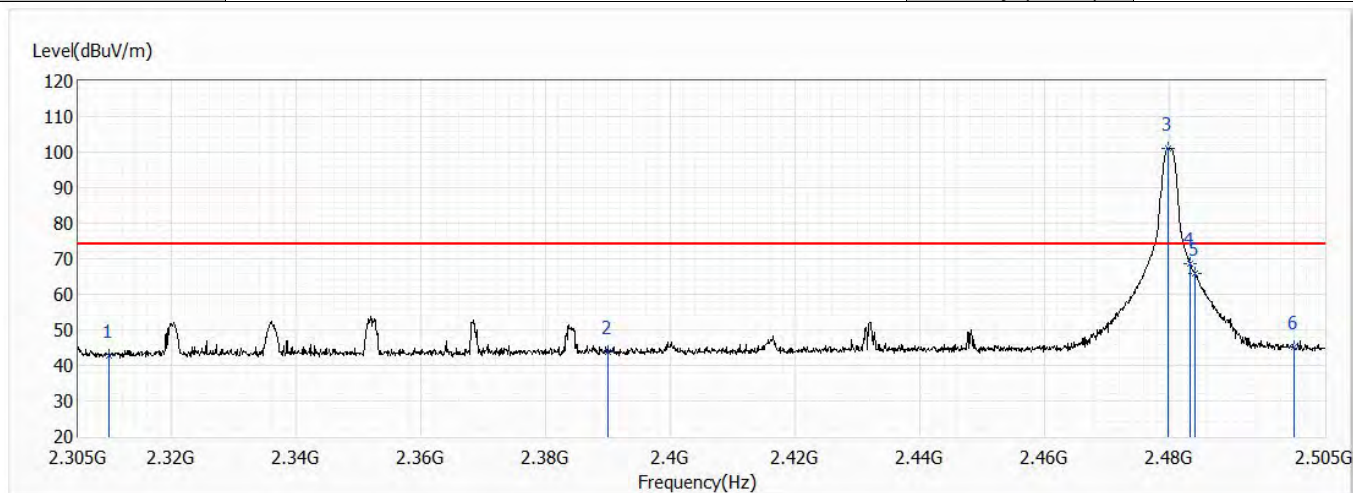


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	31.26	54.00	-22.74	18.28	12.98	AV
2	2351.900	39.04	54.00	-14.96	25.78	13.26	AV
3	2390.000	32.38	54.00	-21.62	18.86	13.52	AV
! 4	2480.000	101.78	54.00	47.78	87.60	14.18	AV
5	2483.500	39.32	54.00	-14.68	25.11	14.21	AV
6	2500.000	33.34	54.00	-20.66	19.01	14.33	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.

Model No	RB924i-2nD-BT5&BG77	Site	CB2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/5/3
Test Mode	Mode 1: Transmit Adapter Mode	Engineer	Ling Chen
Polarity	Vertical	Temperature (°C)	23.0
Test Condition	Ch 39,2.48G,BW1M	Humidity (%RH)	55.0

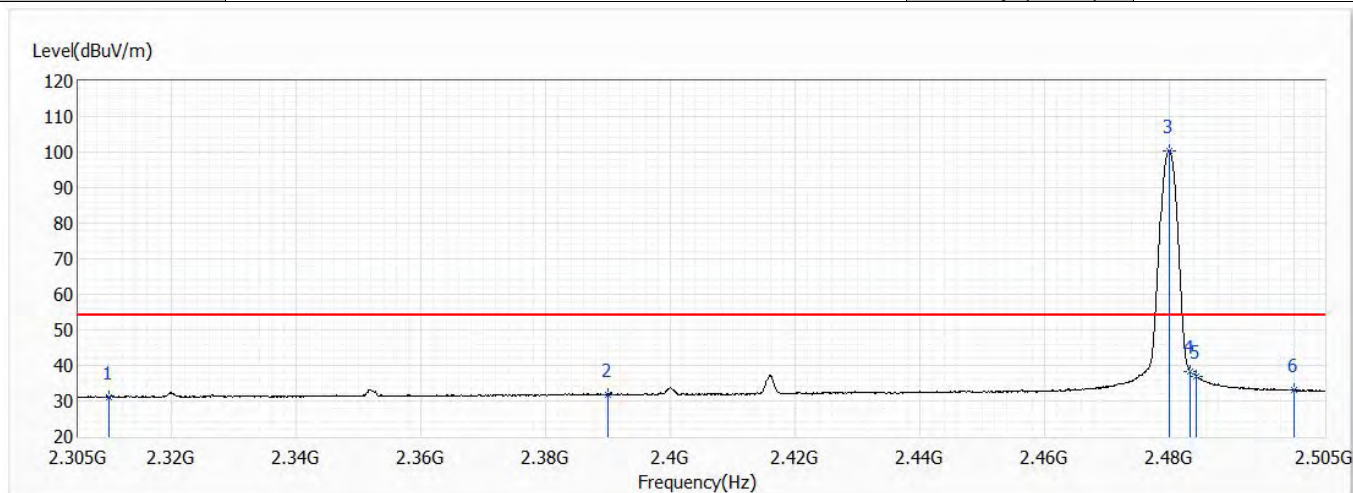


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	42.66	74.00	-31.34	29.68	12.98	PK
2	2390.000	43.68	74.00	-30.32	30.16	13.52	PK
! 3	2479.800	100.95	74.00	26.95	86.77	14.18	PK
4	2483.500	68.76	74.00	-5.24	54.55	14.21	PK
5	2484.200	65.94	74.00	-8.06	51.73	14.21	PK
6	2500.000	45.21	74.00	-28.79	30.88	14.33	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.

Model No	RB924i-2nD-BT5&BG77	Site	CB2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/5/3
Test Mode	Mode 1: Transmit Adapter Mode	Engineer	Ling Chen
Polarity	Vertical	Temperature (°C)	23.0
Test Condition	Ch 39,2.48G,BW1M	Humidity (%RH)	55.0

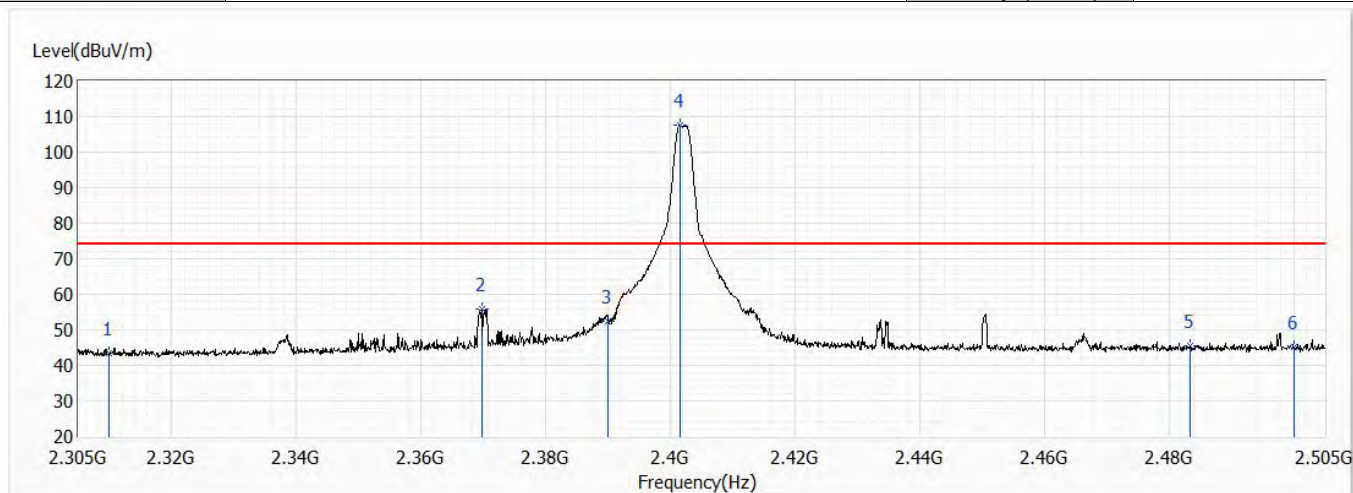


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	31.08	54.00	-22.92	18.10	12.98	AV
2	2390.000	31.71	54.00	-22.29	18.19	13.52	AV
! 3	2480.000	100.47	54.00	46.47	86.29	14.18	AV
4	2483.500	38.42	54.00	-15.58	24.21	14.21	AV
5	2484.400	37.05	54.00	-16.95	22.84	14.21	AV
6	2500.000	33.02	54.00	-20.98	18.69	14.33	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.

Model No	RB924i-2nD-BT5&BG77	Site	CB2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/5/4
Test Mode	Mode 1: Transmit Adapter Mode	Engineer	Ling Chen
Polarity	Horizontal	Temperature (°C)	23.0
Test Condition	Ch 0,2.402G,BW2M	Humidity (%RH)	55.0

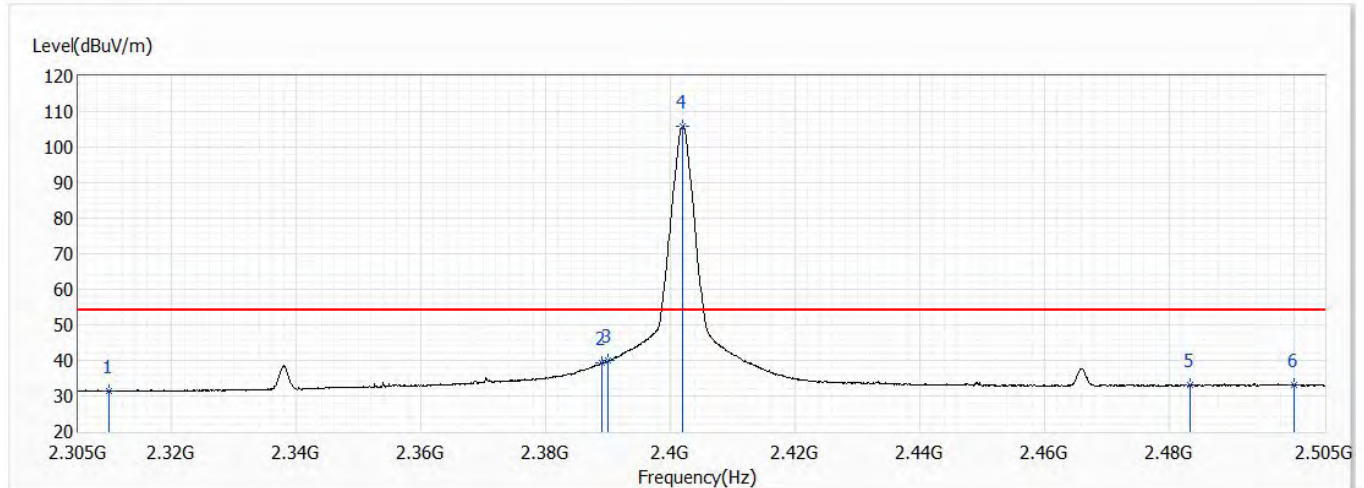


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	43.37	74.00	-30.63	30.39	12.98	PK
2	2369.700	55.77	74.00	-18.23	42.38	13.39	PK
3	2390.000	52.56	74.00	-21.44	39.04	13.52	PK
! 4	2401.500	107.51	74.00	33.51	93.90	13.61	PK
5	2483.500	45.42	74.00	-28.58	31.21	14.21	PK
6	2500.000	45.08	74.00	-28.92	30.75	14.33	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.

Model No	RB924i-2nD-BT5&BG77	Site	CB2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/5/4
Test Mode	Mode 1: Transmit Adapter Mode	Engineer	Ling Chen
Polarity	Horizontal	Temperature (°C)	23.0
Test Condition	Ch 0,2.402G,BW2M	Humidity (%RH)	55.0

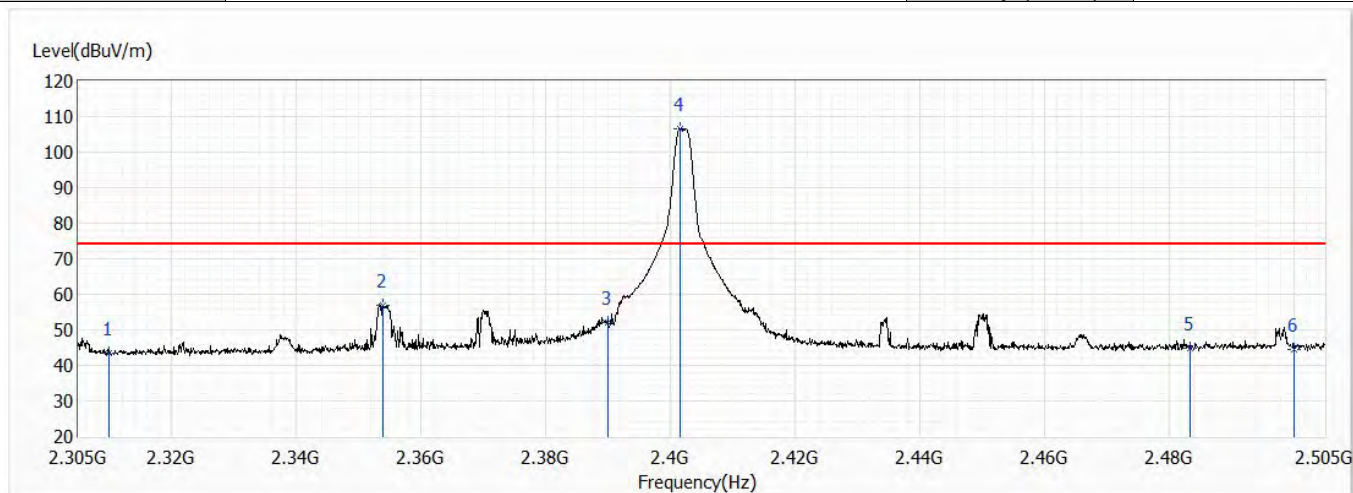


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	31.32	54.00	-22.68	18.34	12.98	AV
2	2389.100	39.41	54.00	-14.59	25.89	13.52	AV
3	2390.000	39.89	54.00	-14.11	26.37	13.52	AV
! 4	2402.000	105.79	54.00	51.79	92.18	13.61	AV
5	2483.500	33.00	54.00	-21.00	18.79	14.21	AV
6	2500.000	33.11	54.00	-20.89	18.78	14.33	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.

Model No	RB924i-2nD-BT5&BG77	Site	CB2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/5/4
Test Mode	Mode 1: Transmit Adapter Mode	Engineer	Ling Chen
Polarity	Vertical	Temperature (°C)	23.0
Test Condition	Ch 0,2.402G,BW2M	Humidity (%RH)	55.0

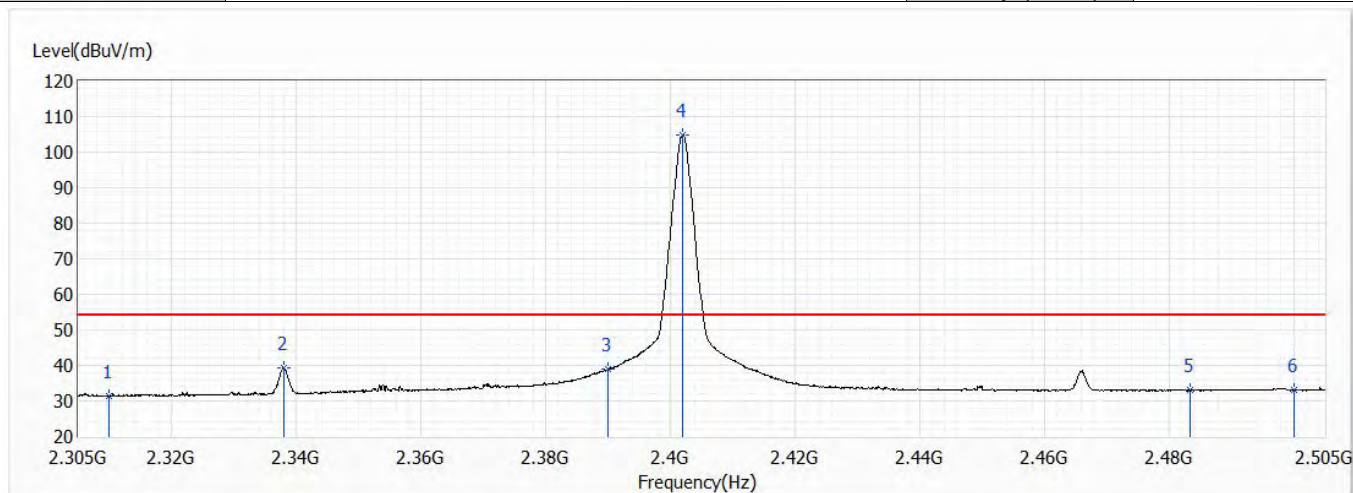


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	43.41	74.00	-30.59	30.43	12.98	PK
2	2353.800	56.91	74.00	-17.09	43.63	13.28	PK
3	2390.000	51.97	74.00	-22.03	38.45	13.52	PK
! 4	2401.500	106.51	74.00	32.51	92.90	13.61	PK
5	2483.500	44.97	74.00	-29.03	30.76	14.21	PK
6	2500.000	44.63	74.00	-29.37	30.30	14.33	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.

Model No	RB924i-2nD-BT5&BG77	Site	CB2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/5/4
Test Mode	Mode 1: Transmit Adapter Mode	Engineer	Ling Chen
Polarity	Vertical	Temperature (°C)	23.0
Test Condition	Ch 0,2.402G,BW2M	Humidity (%RH)	55.0

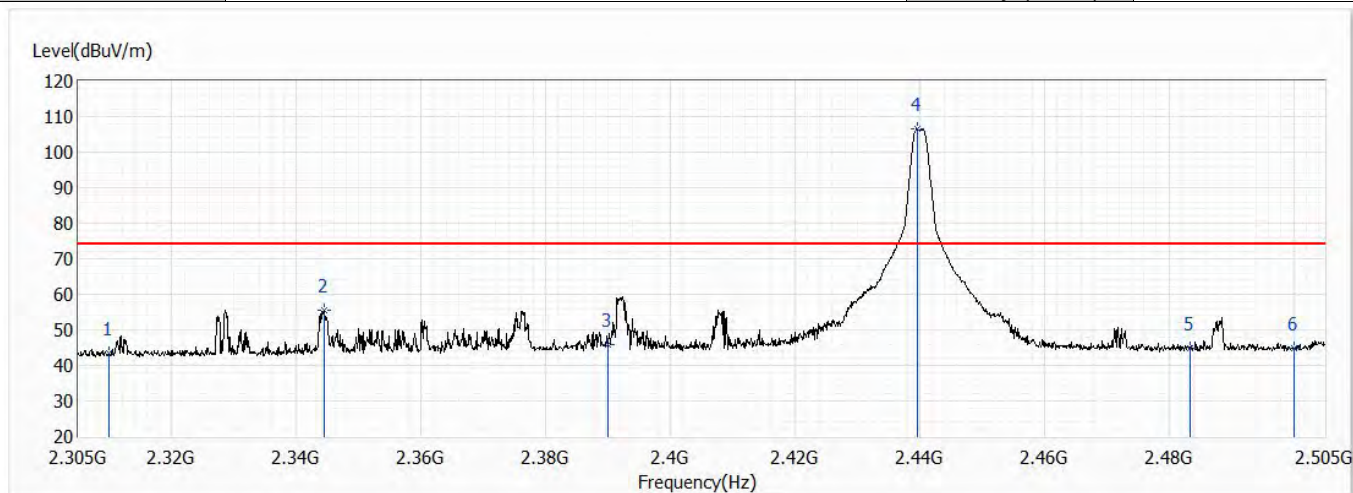


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	31.43	54.00	-22.57	18.45	12.98	AV
2	2337.900	39.34	54.00	-14.66	26.17	13.17	AV
3	2390.000	38.93	54.00	-15.07	25.41	13.52	AV
! 4	2402.000	104.85	54.00	50.85	91.24	13.61	AV
5	2483.500	33.01	54.00	-20.99	18.80	14.21	AV
6	2500.000	33.00	54.00	-21.00	18.67	14.33	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.

Model No	RB924i-2nD-BT5&BG77	Site	CB2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/5/4
Test Mode	Mode 1: Transmit Adapter Mode	Engineer	Ling Chen
Polarity	Horizontal	Temperature (°C)	23.0
Test Condition	Ch 19,2.44G,BW2M	Humidity (%RH)	55.0

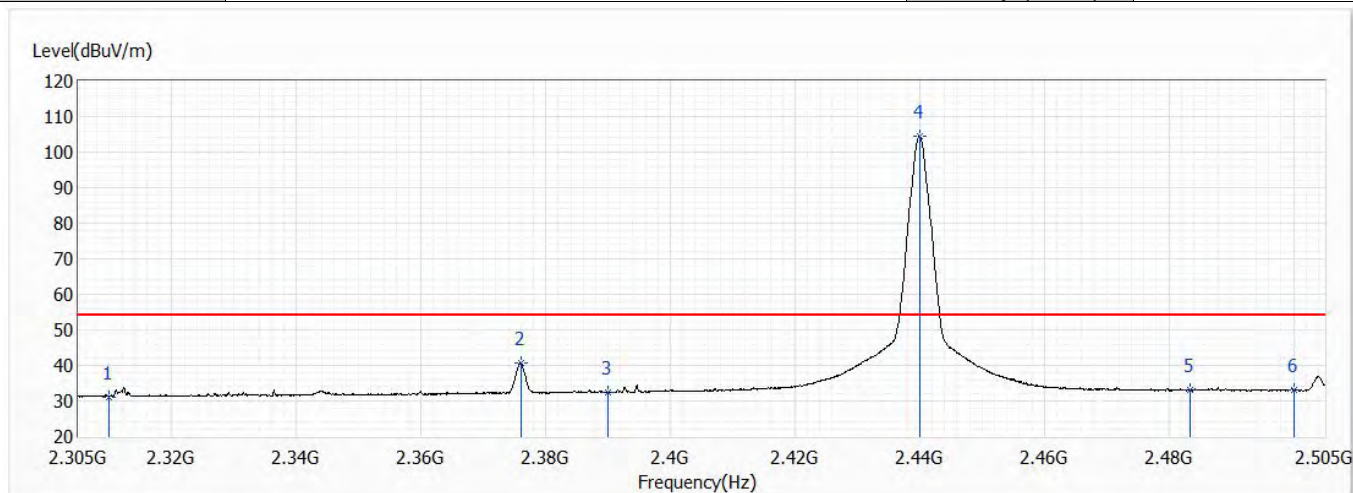


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	43.58	74.00	-30.42	30.60	12.98	PK
2	2344.400	55.46	74.00	-18.54	42.25	13.21	PK
3	2390.000	45.88	74.00	-28.12	32.36	13.52	PK
! 4	2439.600	106.44	74.00	32.44	92.55	13.89	PK
5	2483.500	44.97	74.00	-29.03	30.76	14.21	PK
6	2500.000	44.88	74.00	-29.12	30.55	14.33	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.

Model No	RB924i-2nD-BT5&BG77	Site	CB2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/5/4
Test Mode	Mode 1: Transmit Adapter Mode	Engineer	Ling Chen
Polarity	Horizontal	Temperature (°C)	23.0
Test Condition	Ch 19,2.44G,BW2M	Humidity (%RH)	55.0

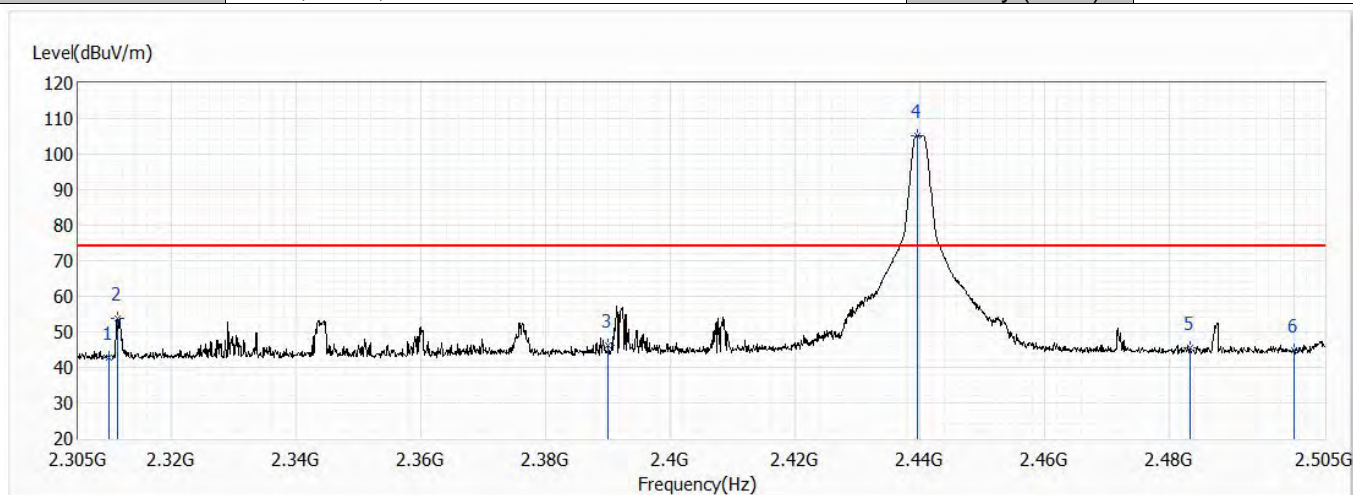


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	31.20	54.00	-22.80	18.22	12.98	AV
2	2376.000	40.55	54.00	-13.45	27.12	13.43	AV
3	2390.000	32.46	54.00	-21.54	18.94	13.52	AV
! 4	2440.000	104.41	54.00	50.41	90.52	13.89	AV
5	2483.500	33.02	54.00	-20.98	18.81	14.21	AV
6	2500.000	33.16	54.00	-20.84	18.83	14.33	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.

Model No	RB924i-2nD-BT5&BG77	Site	CB2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/5/4
Test Mode	Mode 1: Transmit Adapter Mode	Engineer	Ling Chen
Polarity	Vertical	Temperature (°C)	23.0
Test Condition	Ch 19,2.44G,BW2M	Humidity (%RH)	55.0

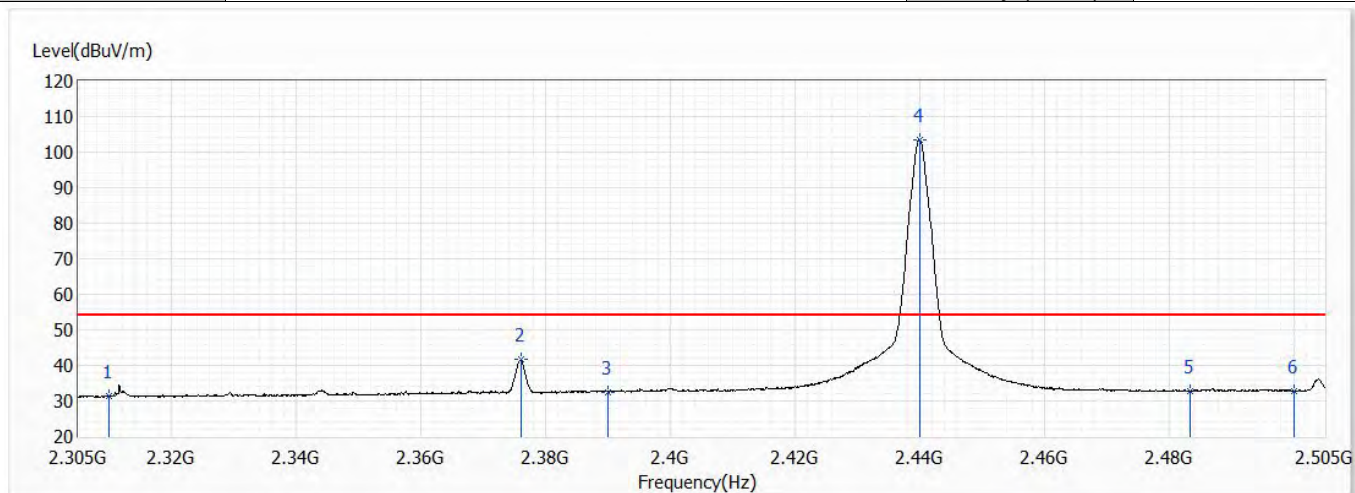


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	42.93	74.00	-31.07	29.95	12.98	PK
2	2311.200	53.91	74.00	-20.09	40.93	12.98	PK
3	2390.000	46.27	74.00	-27.73	32.75	13.52	PK
! 4	2439.600	105.34	74.00	31.34	91.45	13.89	PK
5	2483.500	45.44	74.00	-28.56	31.23	14.21	PK
6	2500.000	44.85	74.00	-29.15	30.52	14.33	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.

Model No	RB924i-2nD-BT5&BG77	Site	CB2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/5/4
Test Mode	Mode 1: Transmit Adapter Mode	Engineer	Ling Chen
Polarity	Vertical	Temperature (°C)	23.0
Test Condition	Ch 19,2.44G,BW2M	Humidity (%RH)	55.0

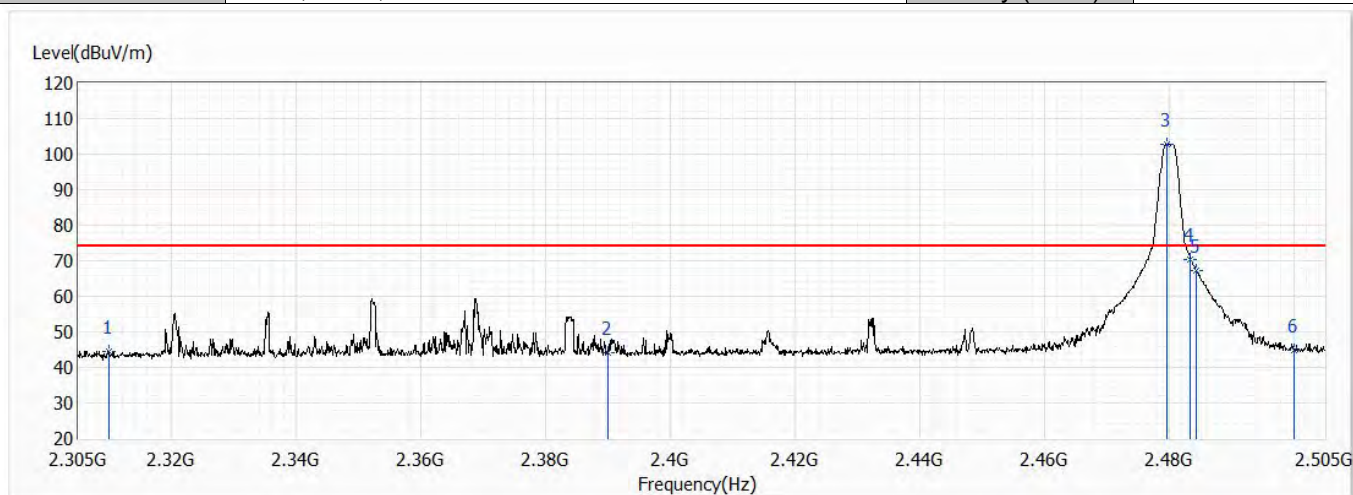


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	31.32	54.00	-22.68	18.34	12.98	AV
2	2376.000	41.62	54.00	-12.38	28.19	13.43	AV
3	2390.000	32.47	54.00	-21.53	18.95	13.52	AV
! 4	2440.000	103.56	54.00	49.56	89.67	13.89	AV
5	2483.500	32.84	54.00	-21.16	18.63	14.21	AV
6	2500.000	32.86	54.00	-21.14	18.53	14.33	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.

Model No	RB924i-2nD-BT5&BG77	Site	CB2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/4/29
Test Mode	Mode 1: Transmit Adapter Mode	Engineer	Ling Chen
Polarity	Horizontal	Temperature (°C)	23.0
Test Condition	Ch 39,2.48G,BW2M	Humidity (%RH)	55.0

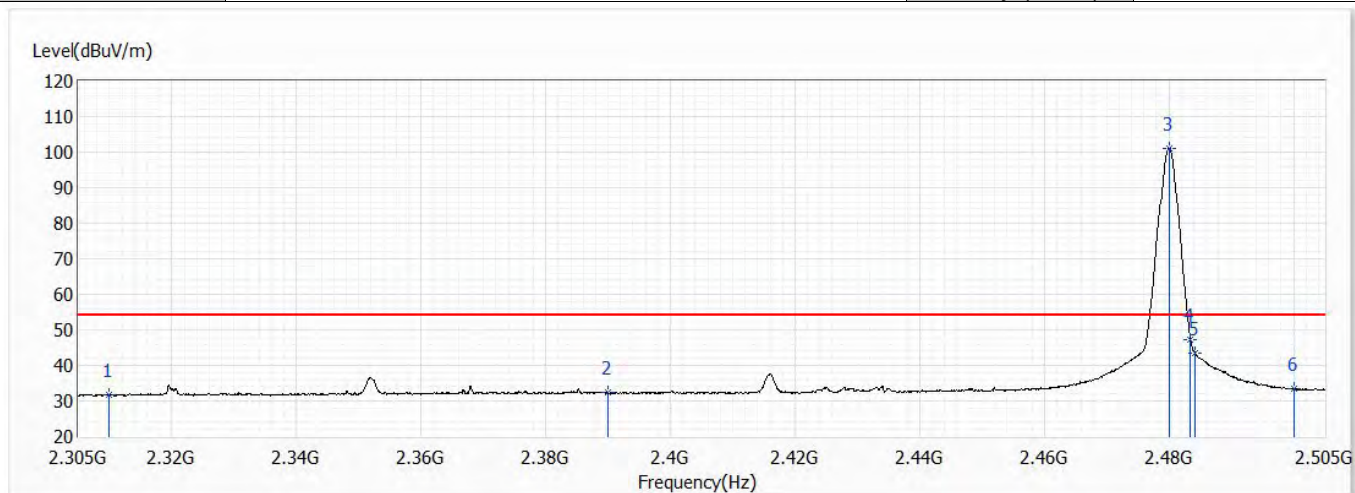


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	44.60	74.00	-29.40	31.62	12.98	PK
2	2390.000	44.09	74.00	-29.91	30.57	13.52	PK
! 3	2479.600	102.85	74.00	28.85	88.67	14.18	PK
4	2483.500	70.46	74.00	-3.54	56.25	14.21	PK
5	2484.400	67.40	74.00	-6.60	53.19	14.21	PK
6	2500.000	44.78	74.00	-29.22	30.45	14.33	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.

Model No	RB924i-2nD-BT5&BG77	Site	CB2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/4/29
Test Mode	Mode 1: Transmit Adapter Mode	Engineer	Ling Chen
Polarity	Horizontal	Temperature (°C)	23.0
Test Condition	Ch 39,2.48G,BW2M	Humidity (%RH)	55.0

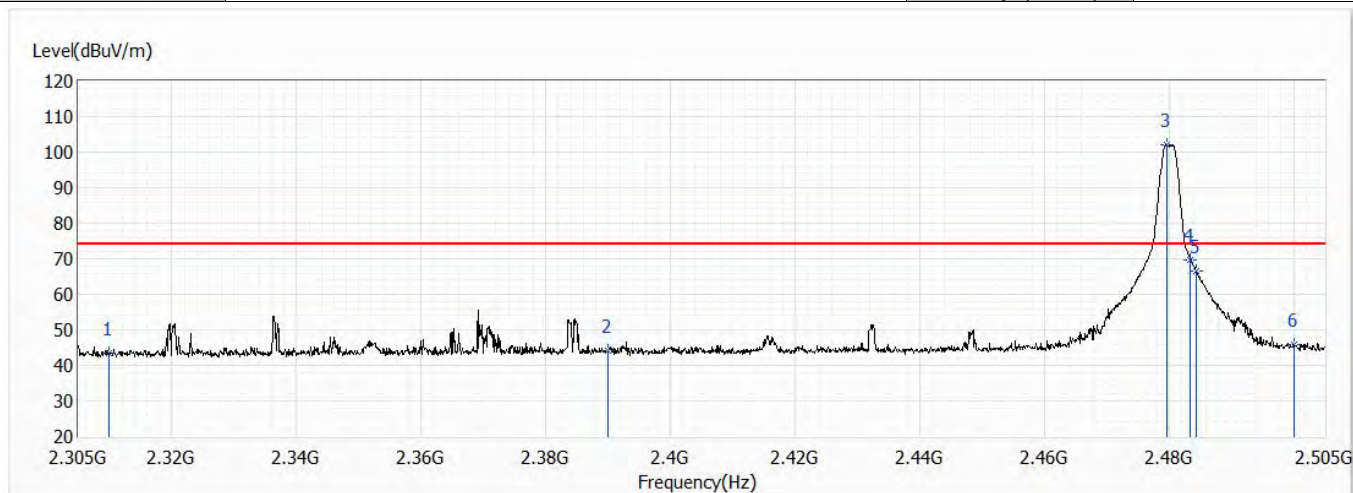


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	31.64	54.00	-22.36	18.66	12.98	AV
2	2390.000	32.27	54.00	-21.73	18.75	13.52	AV
! 3	2480.000	101.15	54.00	47.15	86.97	14.18	AV
4	2483.500	47.35	54.00	-6.65	33.14	14.21	AV
5	2484.200	43.40	54.00	-10.60	29.19	14.21	AV
6	2500.000	33.34	54.00	-20.66	19.01	14.33	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.

Model No	RB924i-2nD-BT5&BG77	Site	CB2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/4/29
Test Mode	Mode 1: Transmit Adapter Mode	Engineer	Ling Chen
Polarity	Vertical	Temperature (°C)	23.0
Test Condition	Ch 39,2.48G,BW2M	Humidity (%RH)	55.0

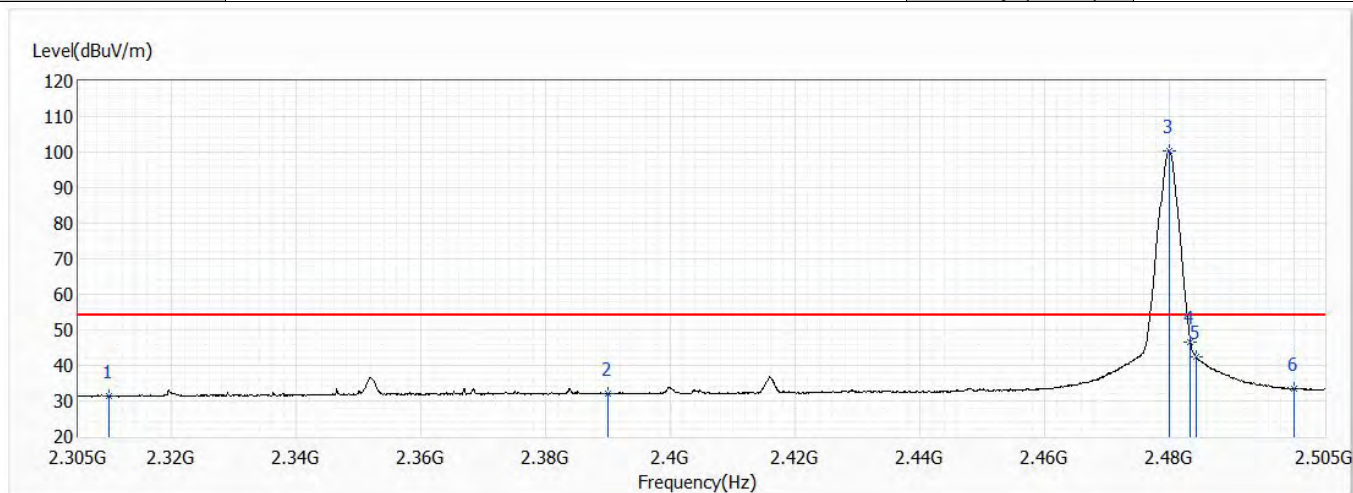


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	43.45	74.00	-30.55	30.47	12.98	PK
2	2390.000	44.18	74.00	-29.82	30.66	13.52	PK
! 3	2479.600	102.06	74.00	28.06	87.88	14.18	PK
4	2483.500	69.63	74.00	-4.37	55.42	14.21	PK
5	2484.400	66.49	74.00	-7.51	52.28	14.21	PK
6	2500.000	45.86	74.00	-28.14	31.53	14.33	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.

Model No	RB924i-2nD-BT5&BG77	Site	CB2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/4/29
Test Mode	Mode 1: Transmit Adapter Mode	Engineer	Ling Chen
Polarity	Vertical	Temperature (°C)	23.0
Test Condition	Ch 39,2.48G,BW2M	Humidity (%RH)	55.0



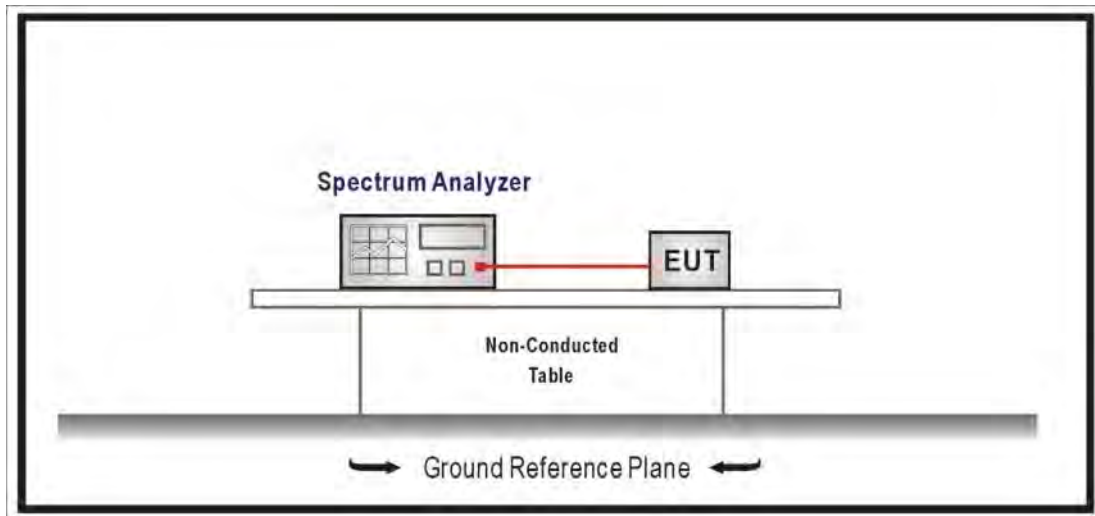
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	31.28	54.00	-22.72	18.30	12.98	AV
2	2390.000	31.90	54.00	-22.10	18.38	13.52	AV
! 3	2480.000	100.28	54.00	46.28	86.10	14.18	AV
4	2483.500	46.49	54.00	-7.51	32.28	14.21	AV
5	2484.300	42.30	54.00	-11.70	28.09	14.21	AV
6	2500.000	33.32	54.00	-20.68	18.99	14.33	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. DTS Bandwidth

7.1. Test Setup



7.2. Test Procedures

The EUT was setup according to ANSI C63.10: 2013; tested procedure section 8.1 of KDB 558074 D01 v05r02 for compliance to FCC 47CFR 15.247 requirements. Set RBW = 100KHz, Set the $VBW \geq 3 \times RBW$, Sweep Time=Auto, Set Peak Detector.

7.3. Limits

The 6 dB bandwidth must be greater than 500 kHz.

7.4. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247 and RSS-247.

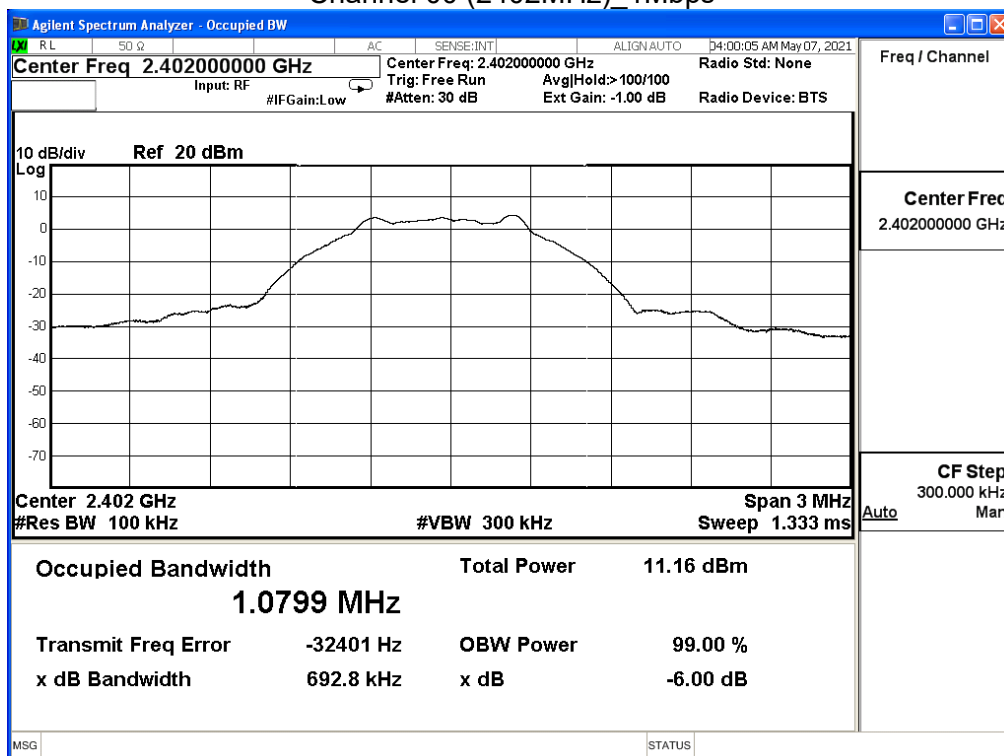
7.5. Test Result

Product	KNOT		
Test Item	DTS Bandwidth		
Test Mode	Mode 1: Transmit Adapter Mode		
Date of Test	2021/05/07	Test Site	SR12-H
Temperature (°C)	24.0	Humidity (%RH)	68.0

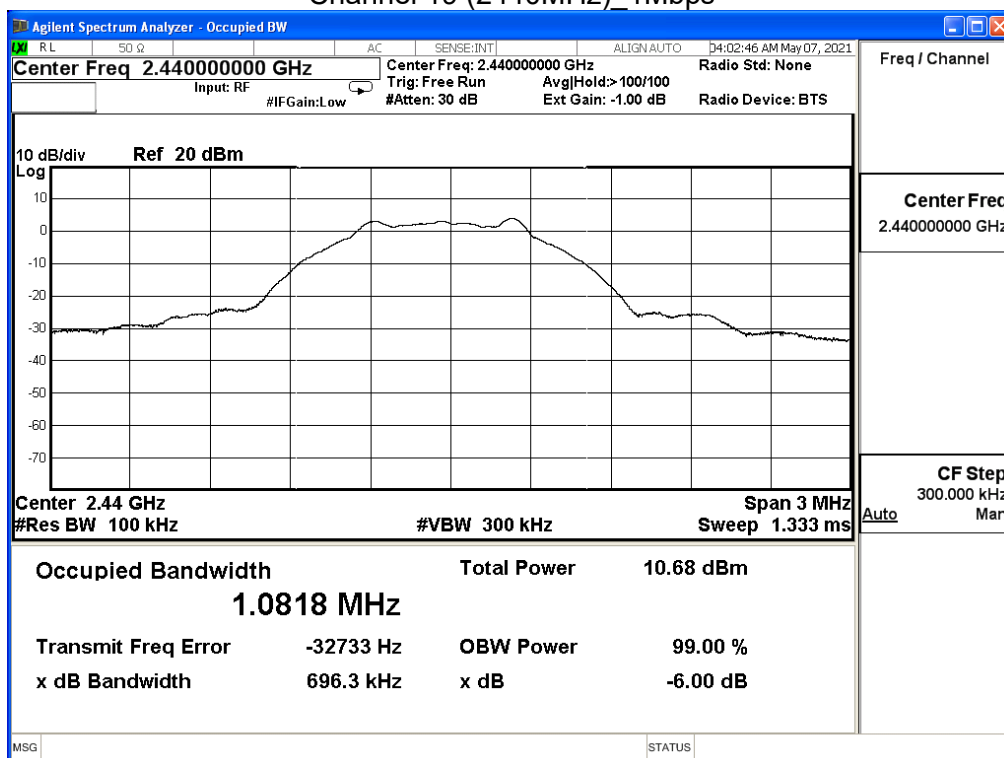
GFSK_1Mbps			
Channel No.	Frequency (MHz)	Measure Value (MHz)	Limit (MHz)
00	2402	0.692	≥ 0.5
19	2440	0.696	≥ 0.5
39	2480	0.698	≥ 0.5

GFSK_2Mbps			
Channel No.	Frequency (MHz)	Measure Value (MHz)	Limit (MHz)
00	2402	1.241	≥ 0.5
19	2440	1.245	≥ 0.5
39	2480	1.250	≥ 0.5

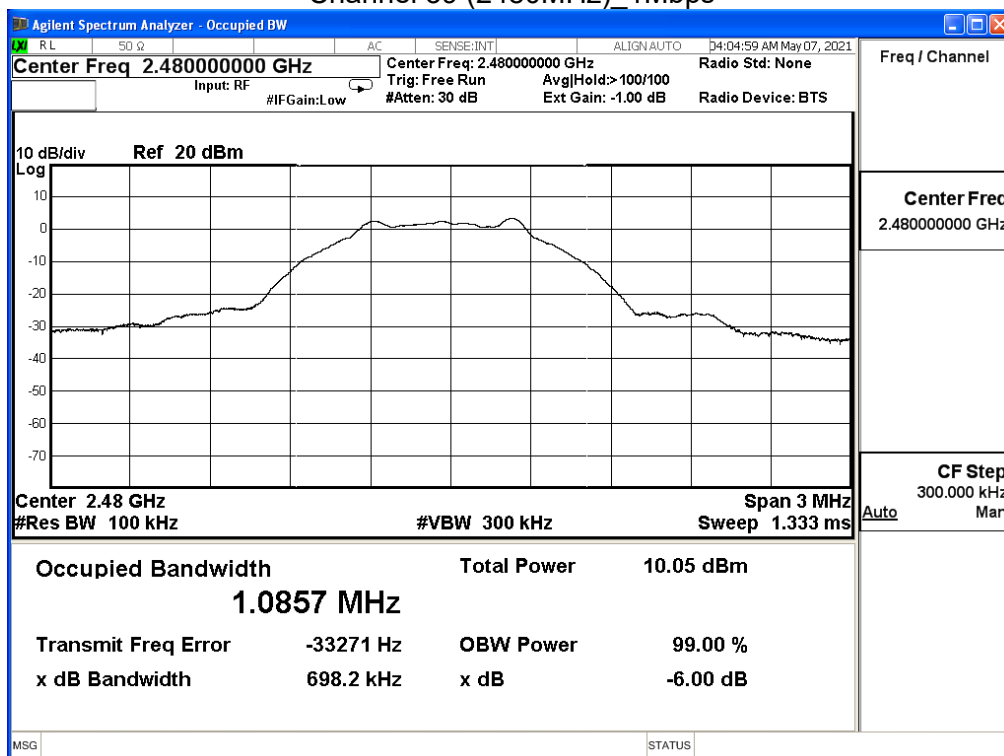
Channel 00 (2402MHz)_1Mbps



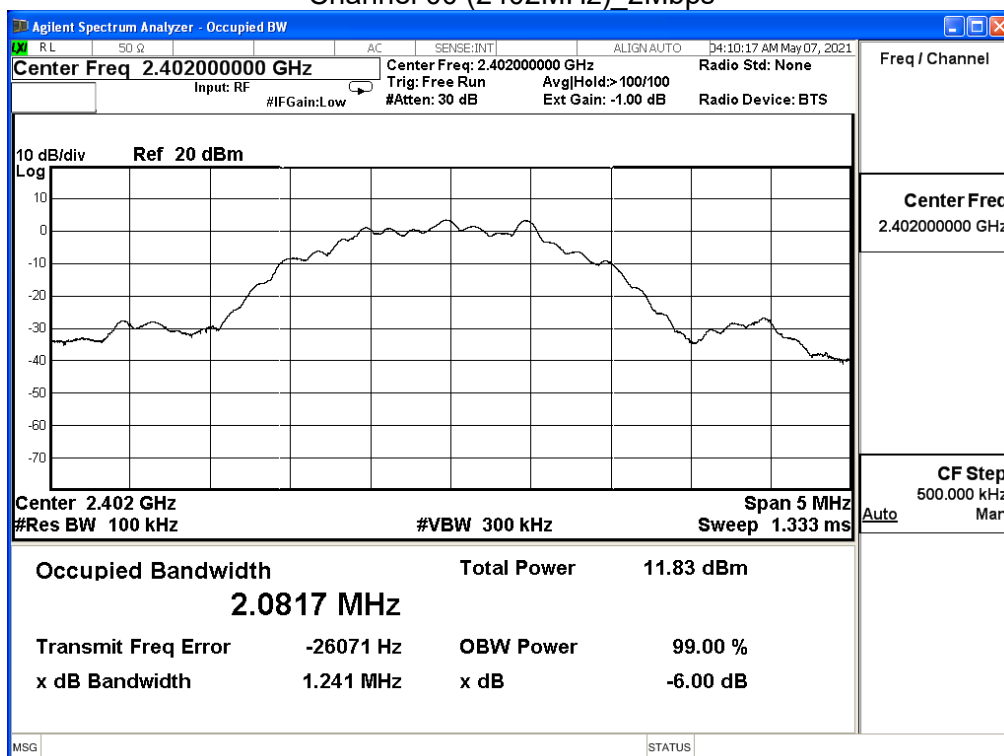
Channel 19 (2440MHz)_1Mbps



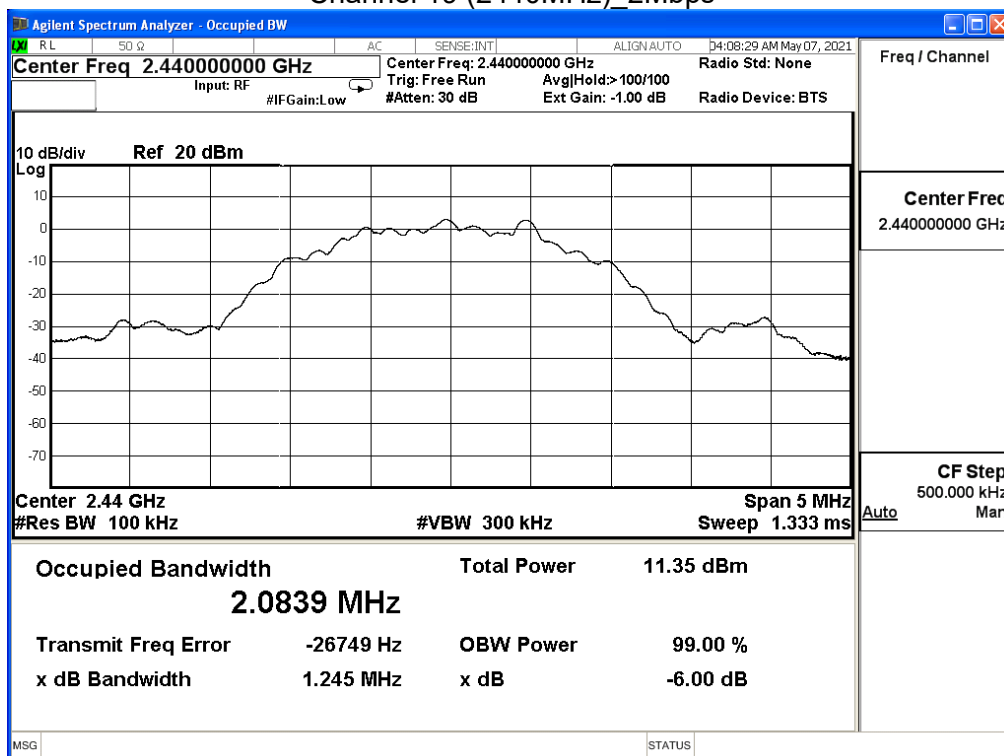
Channel 39 (2480MHz)_1Mbps



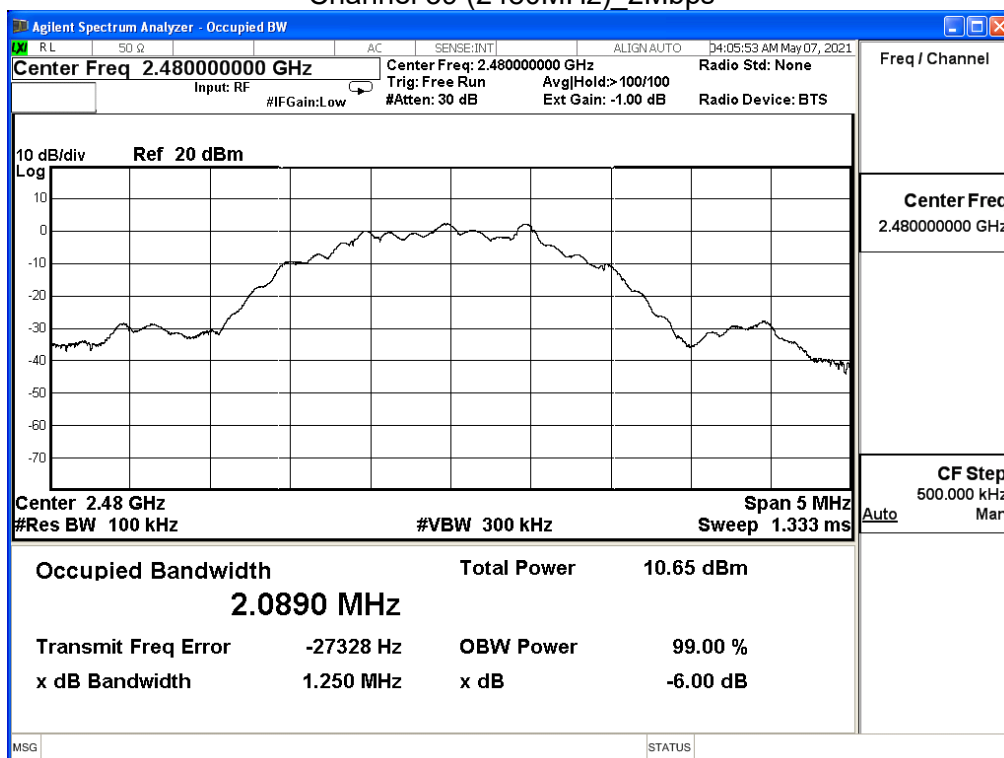
Channel 00 (2402MHz)_2Mbps



Channel 19 (2440MHz) 2Mbps

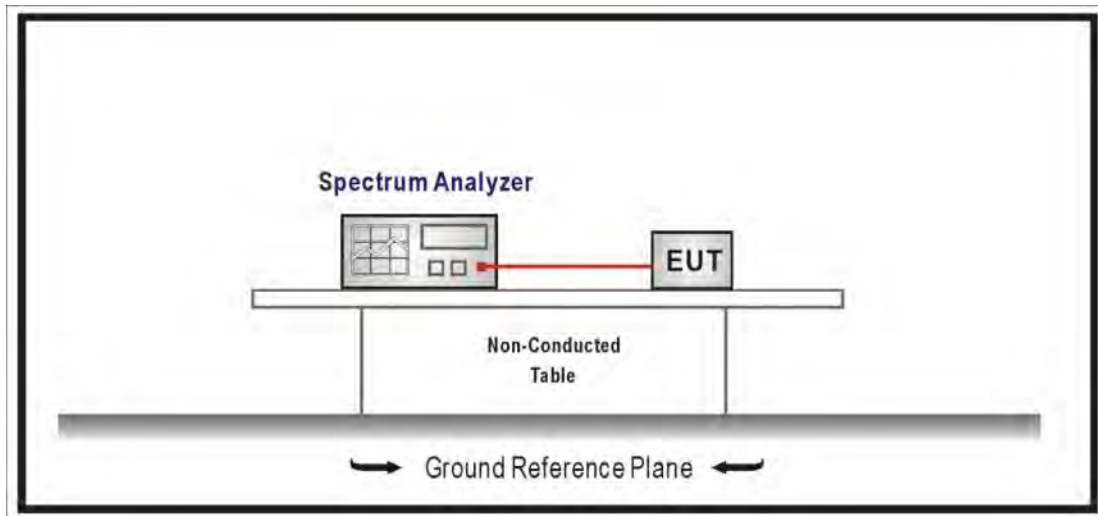


Channel 39 (2480MHz) 2Mbps



8. Occupied Bandwidth

8.1. Test Setup



8.2. 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. Set RBW = 1-5% of the OBW, Set the VBW $\geq 3 \times$ RBW, Sweep Time=Auto.

8.3. Limits

N/A

8.4. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247 and RSS-247.

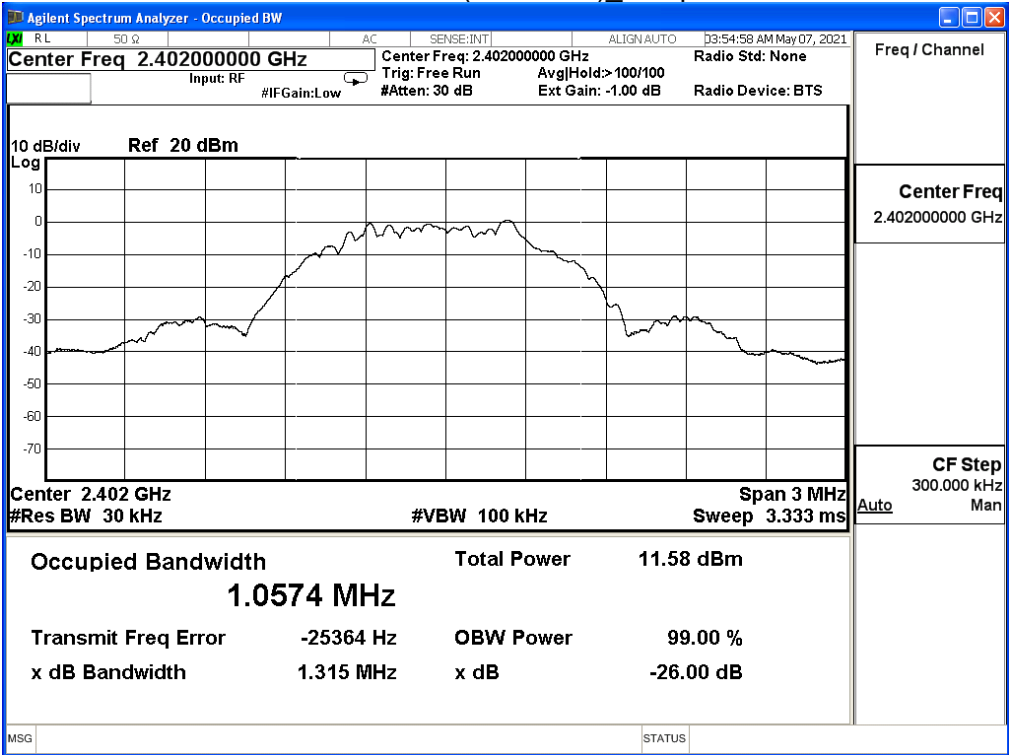
8.5. Test Result

Product	KNOT		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: Transmit Adapter Mode		
Date of Test	2021/05/07	Test Site	SR12-H
Temperature (°C)	24.0	Humidity (%RH)	68.0

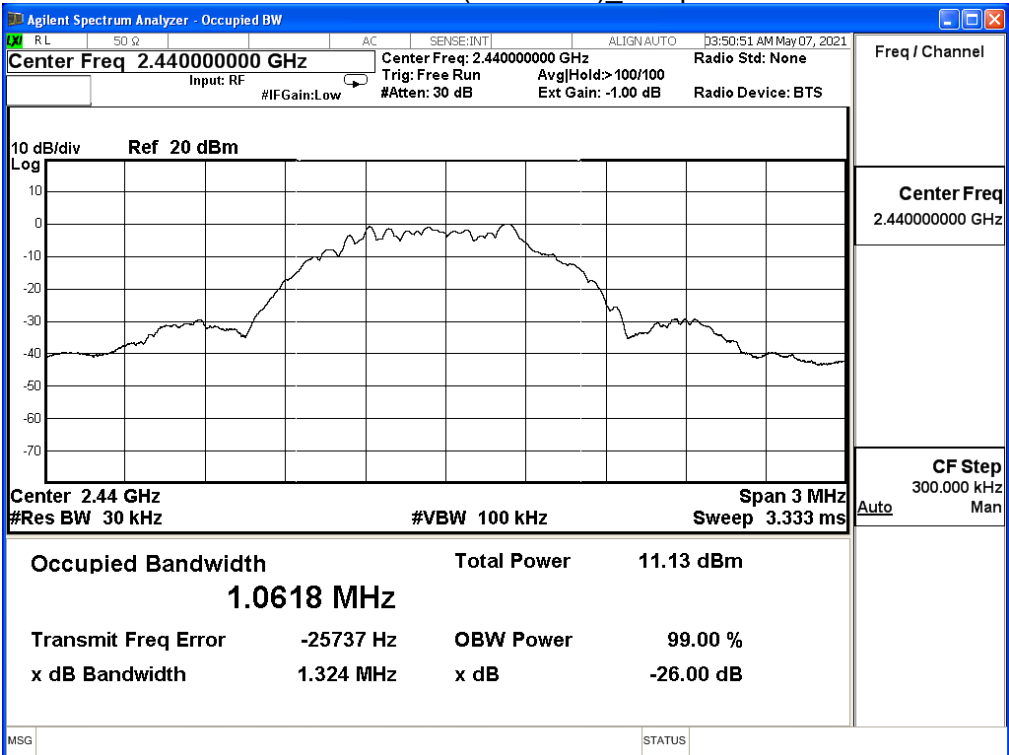
GFSK_1Mbps			
Channel No.	Frequency (MHz)	Measure Value (MHz)	Limit (MHz)
00	2402	1.057	--
19	2440	1.061	--
39	2480	1.061	--

GFSK_2Mbps			
Channel No.	Frequency (MHz)	Measure Value (MHz)	Limit (MHz)
00	2402	2.090	--
19	2440	2.094	--
39	2480	2.102	--

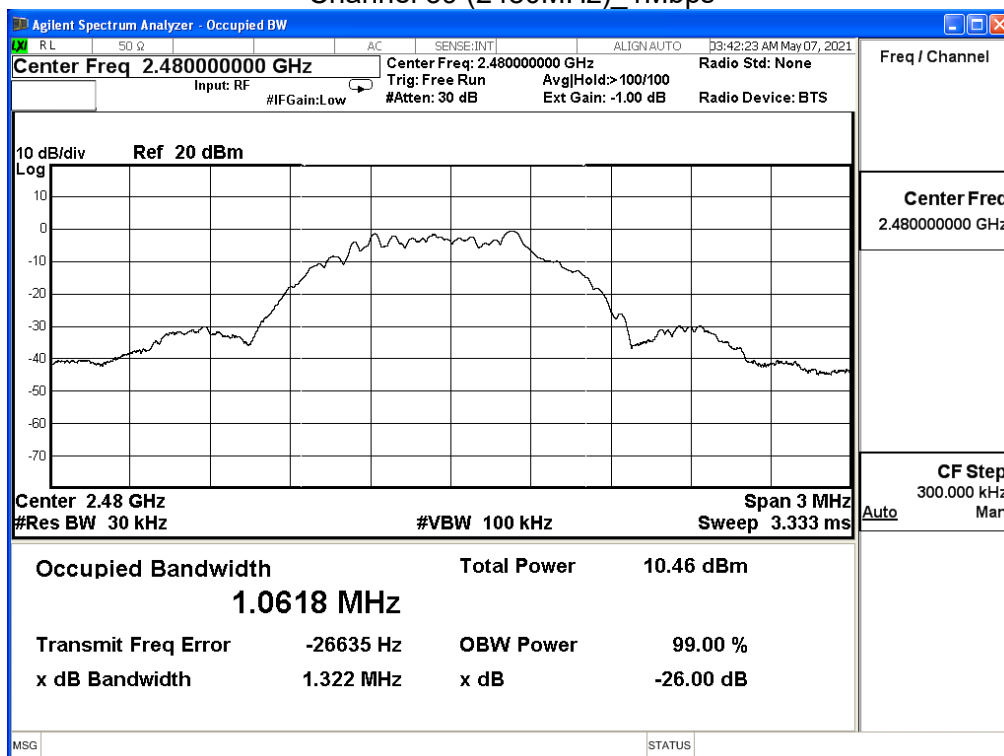
Channel 00 (2402MHz)_1Mbps



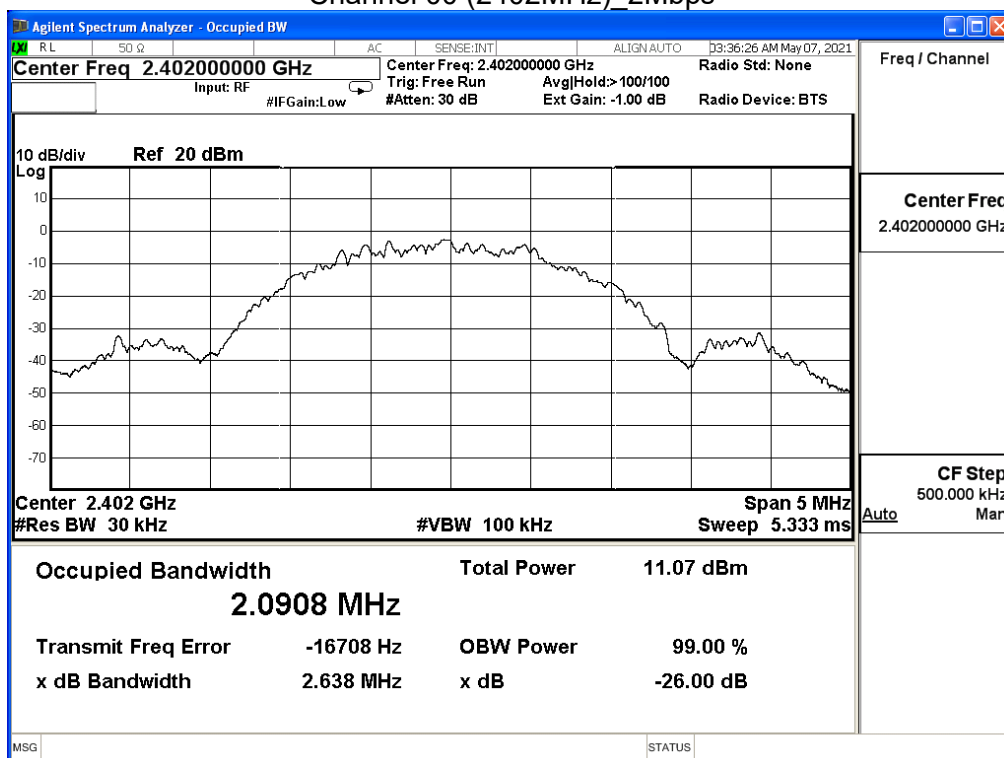
Channel 19 (2440MHz)_1Mbps



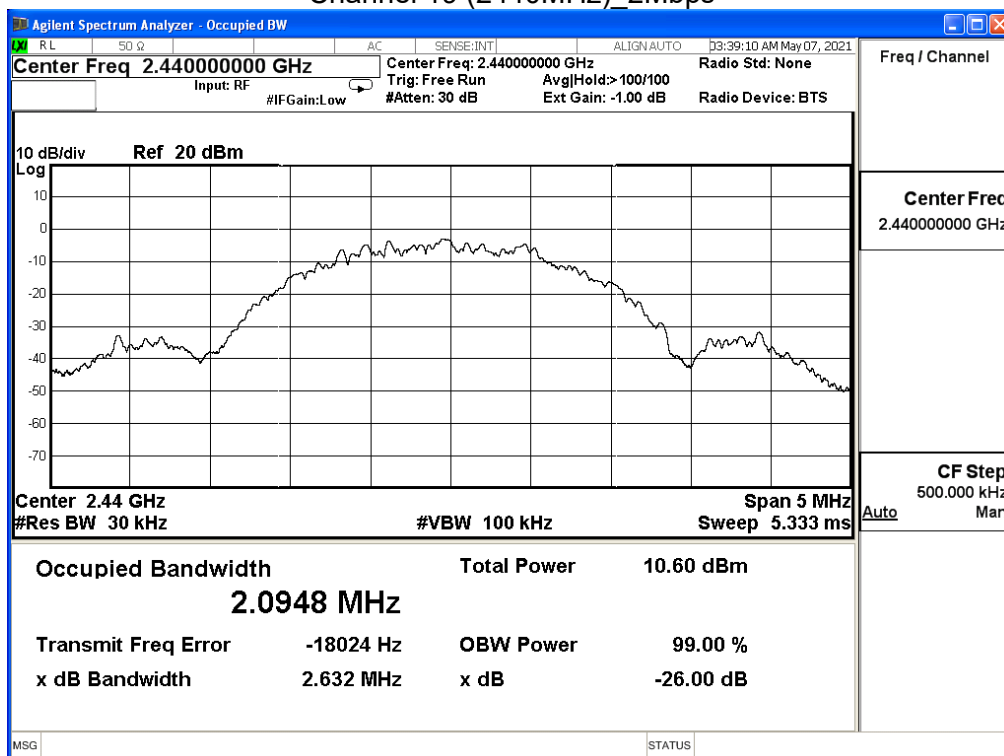
Channel 39 (2480MHz)_1Mbps



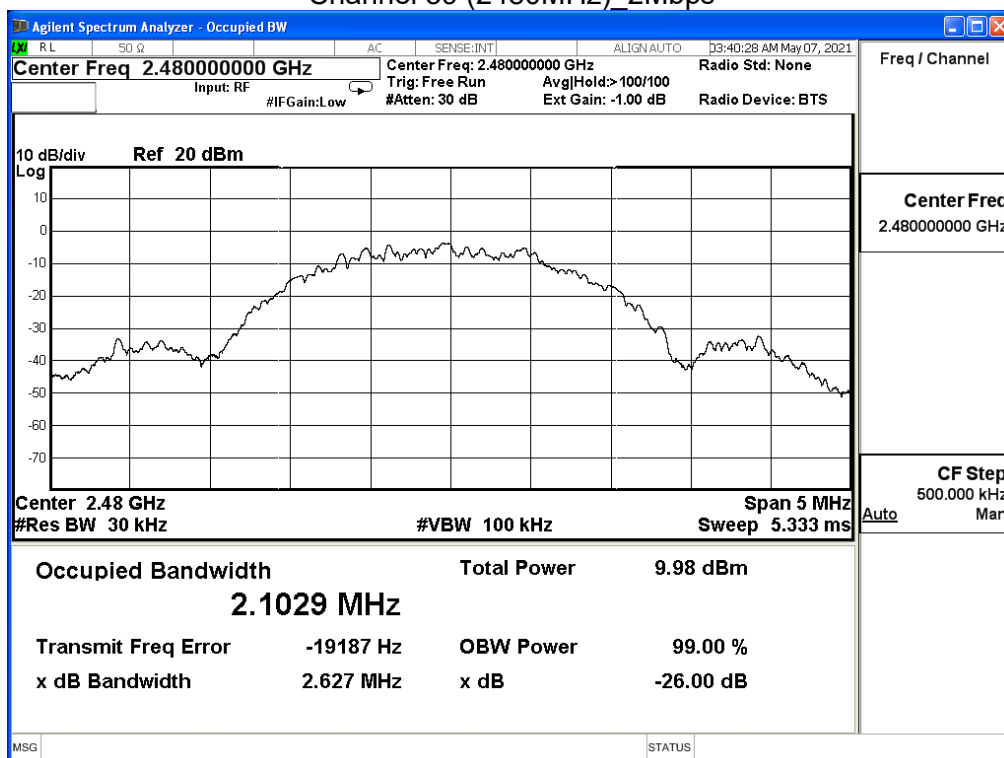
Channel 00 (2402MHz)_2Mbps



Channel 19 (2440MHz) 2Mbps

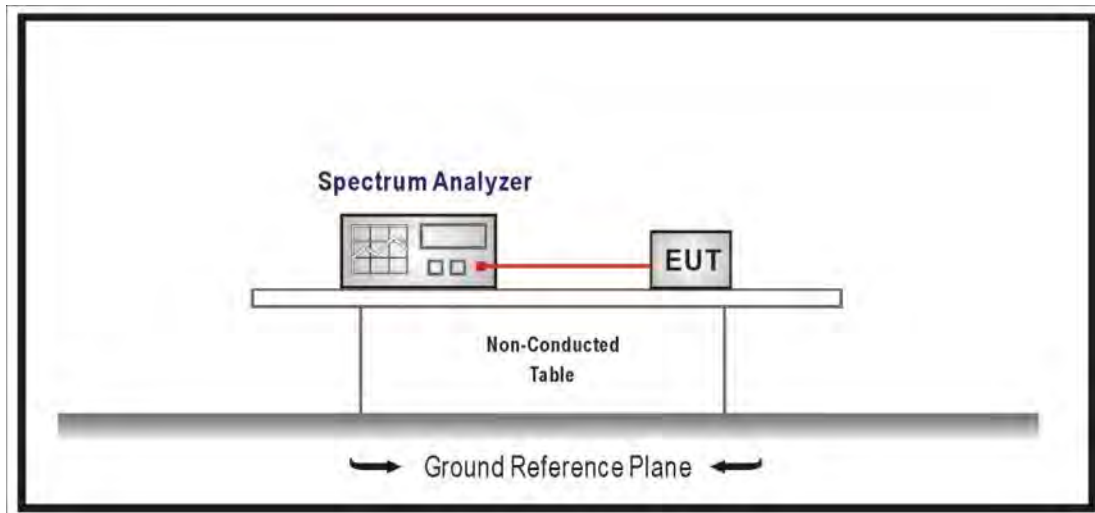


Channel 39 (2480MHz) 2Mbps



9. Power Density

9.1. Test Setup



9.2. Limits

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

9.3. Test Procedures

The EUT was setup according to ANSI C63.10: 2013; tested according to DTS test procedure section 10.2 of KDB 558074 D01 v05r02 for compliance to FCC 47CFR 15.247 requirements. Set 3KHz $\leq$ RBW $\leq$ 100 kHz, Set VBW $\geq$ 3xRBW, Sweep time=Auto, Set Peak detector.

9.4. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247 and RSS-247.

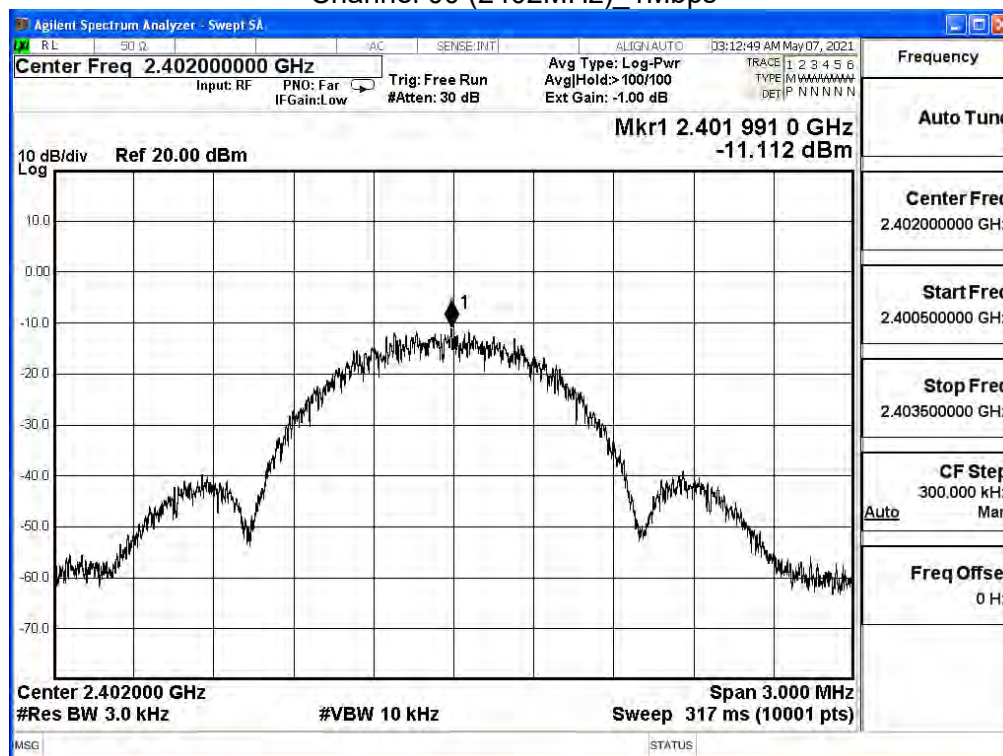
9.5. Test Result

Product	KNOT		
Test Item	Power Density		
Test Mode	Mode 1: Transmit Adapter Mode		
Date of Test	2021/05/07	Test Site	SR12-H
Temperature (°C)	24.0	Humidity (%RH)	68.0

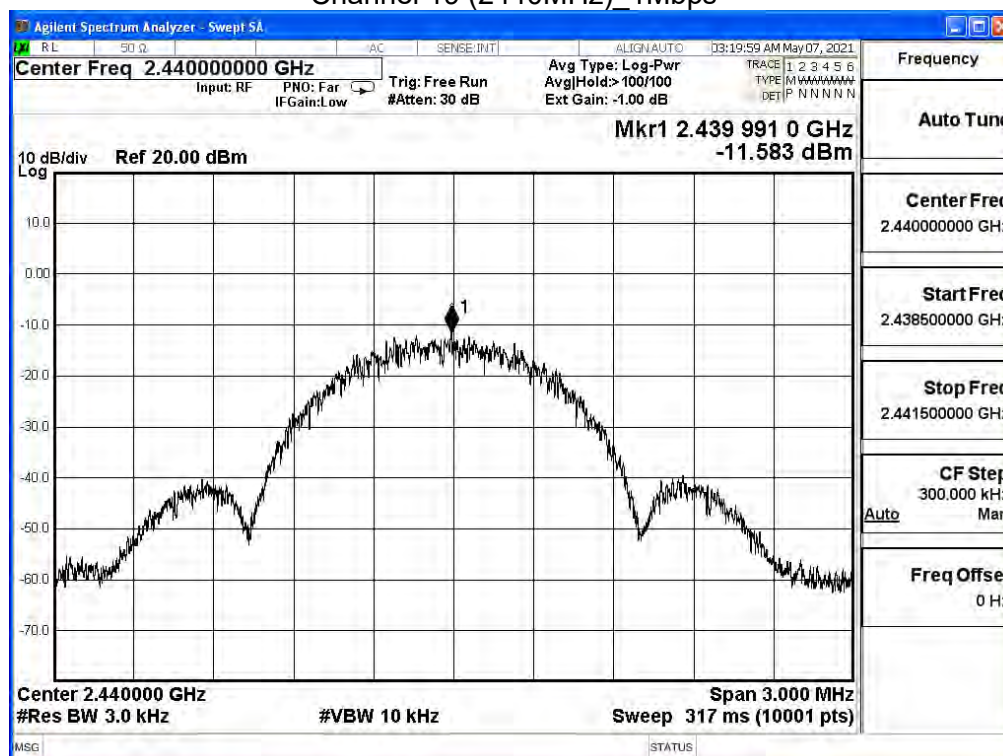
GFSK_1Mbps			
Channel No.	Frequency (MHz)	Measure Value (dBm/3kHz)	Limit (dBm/3kHz)
00	2402	-11.112	≤ 8
19	2440	-11.583	≤ 8
39	2480	-12.259	≤ 8

GFSK_2Mbps			
Channel No.	Frequency (MHz)	Measure Value (dBm/3kHz)	Limit (dBm/3kHz)
00	2402	-14.894	≤ 8
19	2440	-15.299	≤ 8
39	2480	-15.902	≤ 8

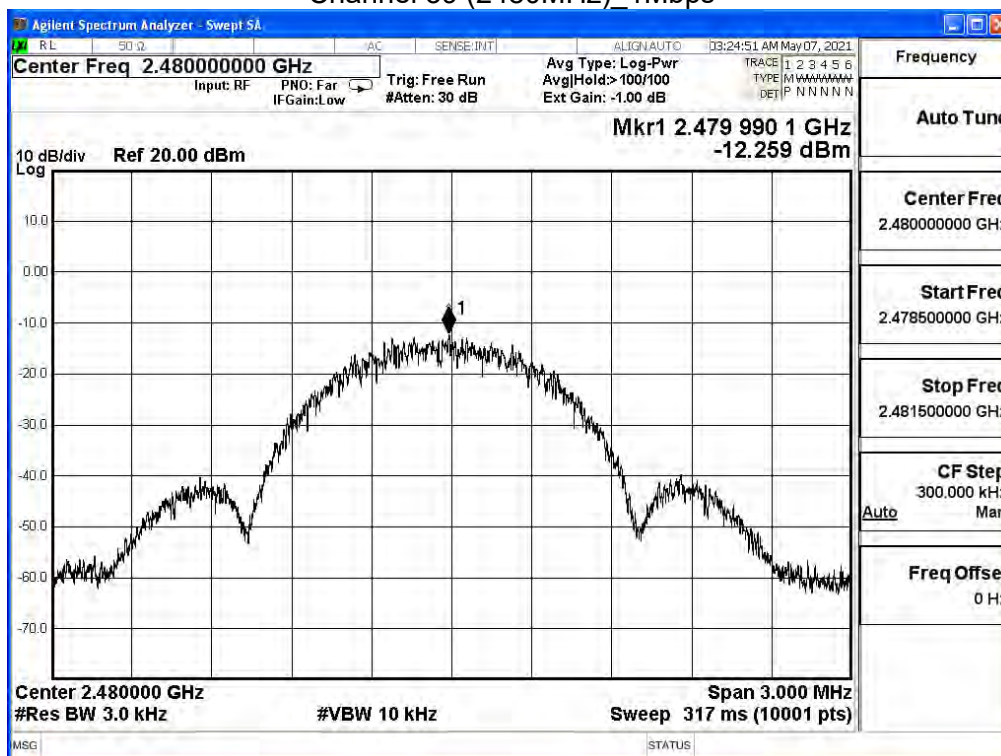
Channel 00 (2402MHz)_1Mbps



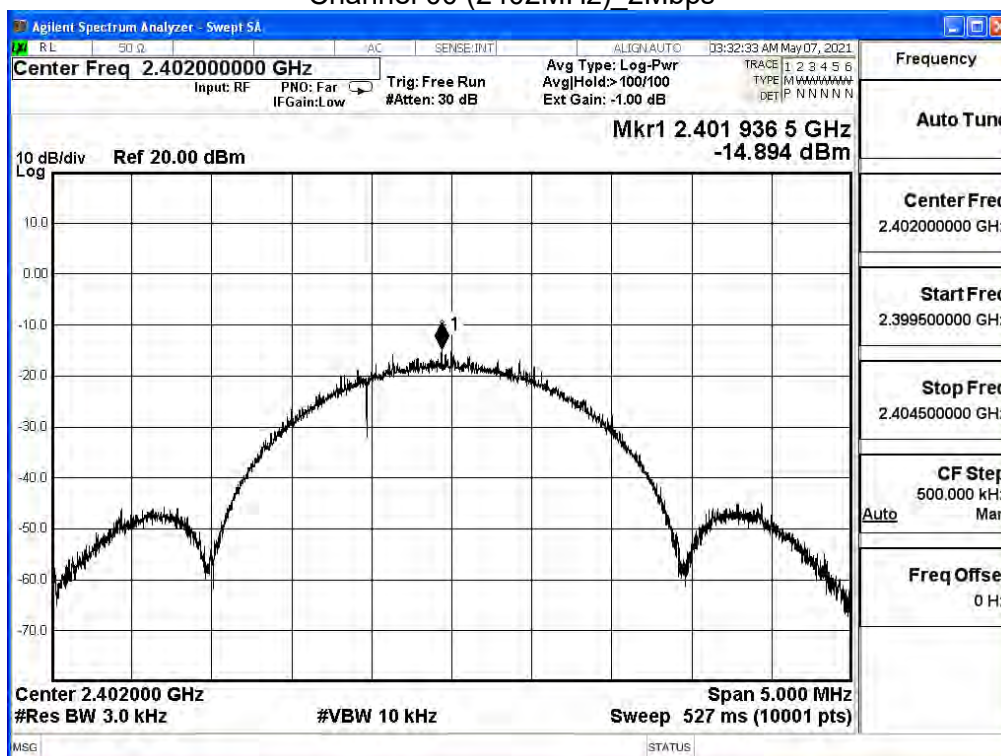
Channel 19 (2440MHz)_1Mbps



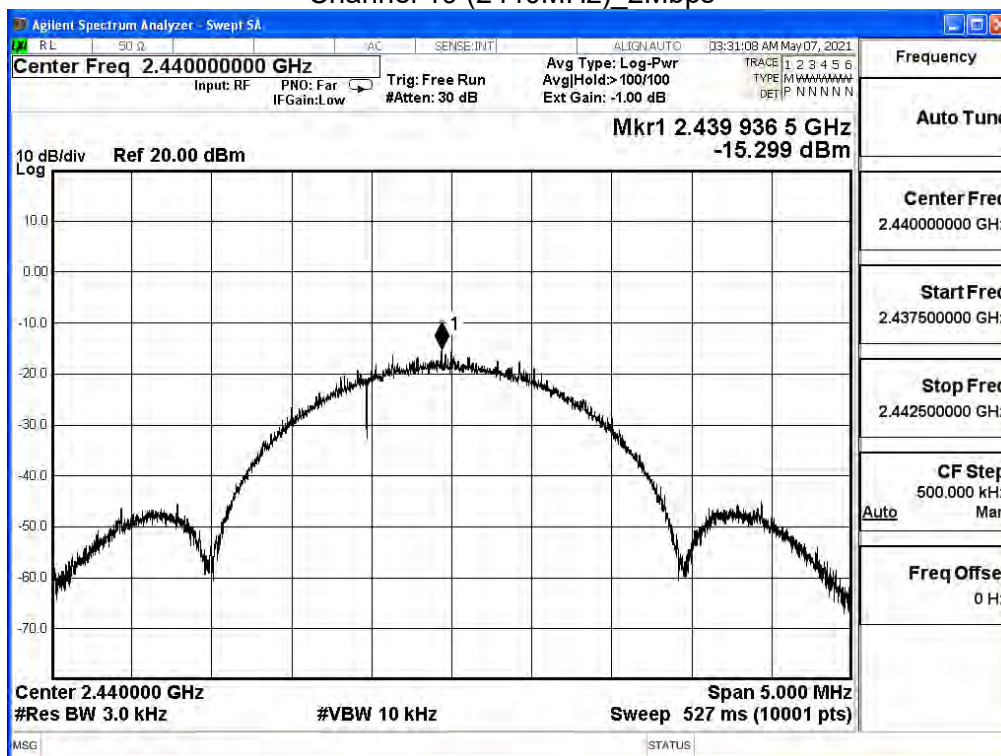
Channel 39 (2480MHz) 1Mbps



Channel 00 (2402MHz) 2Mbps



Channel 19 (2440MHz) 2Mbps



Channel 39 (2480MHz) 2Mbps

