

FCC Test Report

Product Name : Active Mobile Gateway-with Comm

Trade Name : Omnitrac

Model No. : CV90-JE103

FCC ID. : 2AE8ZAMGC

Applicant : Omnitrac, LLC

Address : 9276 Scranton Road, Suite 200 San Diego
California 92121 USA

Date of Receipt : Mar. 15, 2019

Issued Date : Apr. 25, 2019

Report No. : 1930232R-RFUSP01V01

Report Version : V1.0



The test results relate only to the samples tested.

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Test Report Certification

Issued Date : Apr. 25, 2019

Report No. : 1930232R-RFUSP01V01



Product Name : Active Mobile Gateway-with Comm
Applicant : Omnitrac, LLC
Address : 9276 Scranton Road, Suite 200 San Diego California 92121
USA
Manufacturer : PCI Private Limited
Trade name : Omnitrac
Model No. : CV90-JE103
FCC ID. : 2AE8ZAMGC
EUT Voltage : DC 12V
Testing Voltage : DC 12V
Applicable Standard : FCC CFR Title 47 Part 15 Subpart C Section 15.247: 2018
ANSI C63.10: 2013
Laboratory Name : Hsin Chu Laboratory
Address : No.372-2, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu
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Test Result : Complied

Documented By


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(Fonbo Fang / Engineering Adm. Specialist)

Tested By

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(Scott Chang / Engineer)

Approved By

:



(Louis Hsu / Deputy Manager)

Revision History

Report No.	Version	Description	Issued Date
1930232R-RFUSP01V01	V1.0	Initial issue of report	Apr. 25, 2019

TABLE OF CONTENTS

Description	Page
1. General Information	6
1.1. EUT Description	6
1.2. Test Mode	8
1.3. Tested System Details	9
1.4. Configuration of tested System	9
1.5. EUT Exercise Software	10
1.6. Test Facility	11
1.7. List of Test Equipment	13
1.8. Duty Cycle	16
1.9. Uncertainty	18
2. Aetenna Requirements	19
3. Conducted Emission	20
3.1. Test Setup	20
3.2. Limits	20
3.3. Test Procedure	20
3.4. Test Specification	20
3.5. Test Result	20
4. Maximum peak conducted output power	21
4.1. Test Setup	21
4.2. Test procedures	21
4.3. Limits	21
4.4. Test Specification	21
4.5. Test Result	22
5. Radiated Emission	23
5.1. Test Setup	23
5.2. Limits	24
5.3. Test Procedure	25
5.4. Test Specification	25
5.5. Test Result	26
6. RF antenna conducted test	50
6.1. Test Setup	50
6.2. Limits	50
6.3. Test Procedure	50
6.4. Test Specification	50
6.5. Test Result	51
7. Band Edge	63

7.1.	Test Setup	63
7.2.	Limits	63
7.3.	Test Procedure	63
7.4.	Test Specification.....	63
7.5.	Test Result	64
8.	Number of hopping frequency	90
8.1.	Test Setup	90
8.2.	Limits	90
8.3.	Test Procedures	91
8.4.	Test Specification.....	91
8.5.	Test Result	92
9.	Carrier Frequency Separation	95
9.1.	Test Setup	95
9.2.	Limits	95
9.3.	Test Procedures	95
9.4.	Test Specification.....	95
9.5.	Test Result	96
10.	-20dB Bandwidth	102
10.1.	Test Setup	102
10.2.	Limits	102
10.3.	Test Procedures	102
10.4.	Test Specification.....	102
10.5.	Test Result	103
11.	Dwell Time	109
11.1.	Test Setup	109
11.2.	Limits	109
11.3.	Test Procedures	110
11.4.	Test Specification.....	110
11.5.	Test Result	111
Attachment 1.....		117
Test Setup Photograph		117
Attachment 2.....		119
EUT External Photograph.....		119
Attachment 3.....		123
EUT Internal Photograph.....		123
Attachment 4.....		160
Co-location		160

1. General Information

1.1. EUT Description

Product Name	Active Mobile Gateway-with Comm
Trade Name	Omnitracs
Model No.	CV90-JE103
Frequency Range/Channel Number	2402~2480MHz / 79 Channels
Type of Modulation	GFSK, $\pi/4$ -DQPSK, 8-DPSK

Antenna Information	
Antenna Type	inverted F Antenna
Antenna Gain	2.87dBi

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

Note:

1. This device is a Active Mobile Gateway-with Comm including 2.4GHz b/g/n, 5GHz a/n/ac, BT2.0/BT 4.0 and WWAN 3G/4G transmitting and receiving functions.
2. This device contain module that FCC ID: 2AE8ZIVG02.
3. 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.
4. The laptop was used to configure the EUT to continuously transmit at a specified output power in all channels with different modes and modulations schemes, testing software power setting as below.

Mode	Power setting parameter		
	Low Channel	Middle Channel	High Channel
GFSK	Default	Default	Default
$\pi/4$ -DQPSK	Default	Default	Default
8-DPSK	Default	Default	Default

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 Mode
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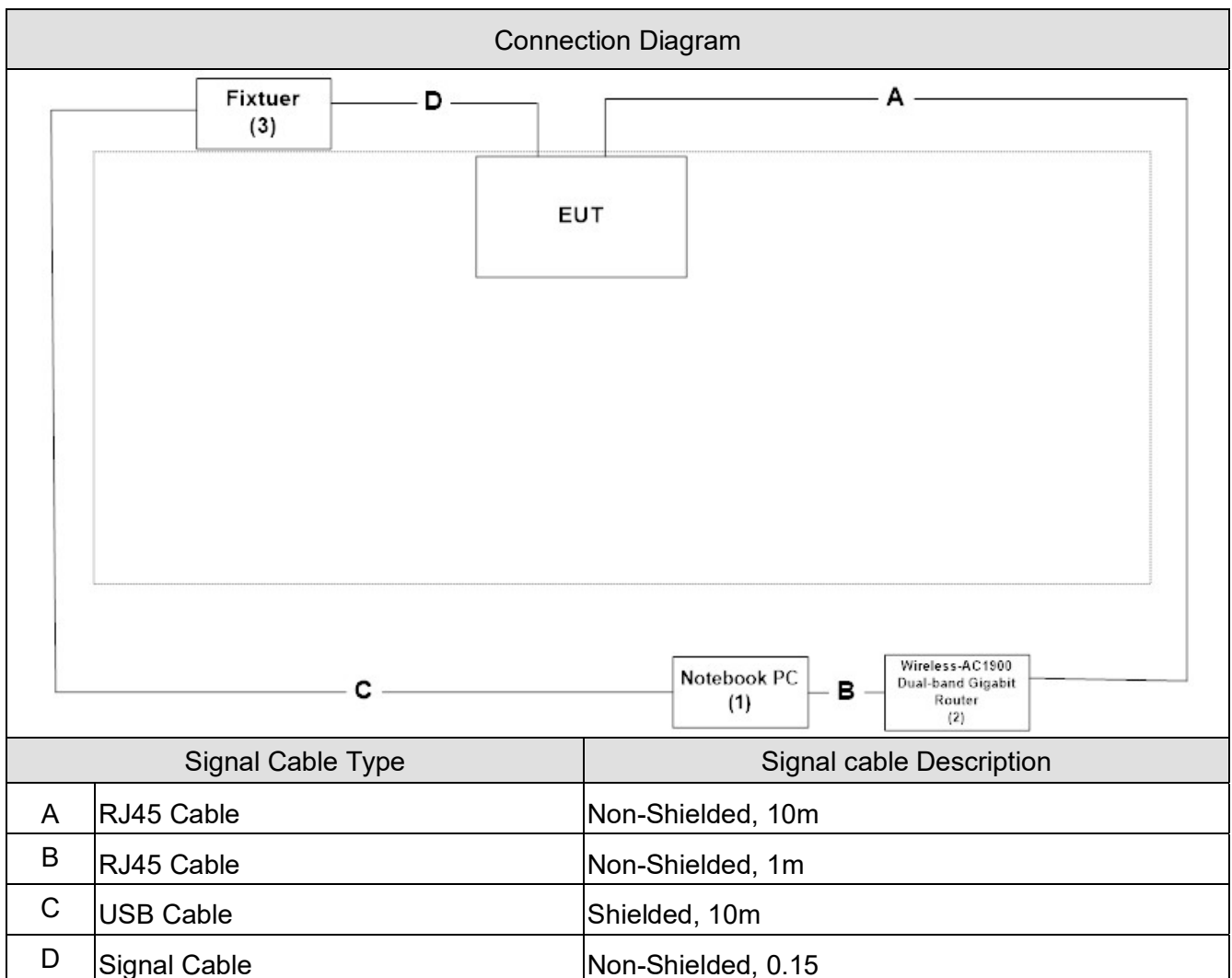
Test Items	Modulation	Channel	Result
Conducted Emission	GFSK/ π /4-DQPSK/ 8-DPSK	00/39/78	N/A
Maximum peak conducted output power	GFSK/ π /4-DQPSK/ 8-DPSK	00/39/78	Complies
Radiated Emission	GFSK/ π /4-DQPSK/ 8-DPSK	00/39/78	Complies
RF antenna conducted test	GFSK/ π /4-DQPSK/ 8-DPSK	00/39/78	Complies
Band Edge	GFSK/ π /4-DQPSK/ 8-DPSK	00/39/78	Complies
Number of hopping Frequency	GFSK/ π /4-DQPSK/ 8-DPSK	00/39/78	Complies
Carrier Frequency Separation	GFSK/ π /4-DQPSK/ 8-DPSK	00/39/78	Complies
-20dB Bandwidth	GFSK/ π /4-DQPSK/ 8-DPSK	00/39/78	Complies
Dwell Time	GFSK/ π /4-DQPSK/ 8-DPSK	00/39/78	Complies

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	HP Compaq	NX6320FF	CNU7020BXT	DoC	Non-Shielded, 1.8m
2 Wireless-AC1900 Dual-band Gigabit Router	ASUS	RT-AC68R	E31BG000017	DoC	Non-Shielded, 1.8m
3 Fixtuer	PCI	--	--	DoC	--

1.4. Configuration of tested System



1.5. EUT Exercise Software

1	Set the EUT as shown in Section 1.4.
2	Execute the "Tear Term" and keyin command on the laptop.
3	Execute QCA software.
4	Configure test mode, test channel and data rate.
5	EUT start transmitting or receiving continuously.
6	Verify that the device is working properly.

1.6. Test Facility

Ambient conditions in the laboratory:

Items	Test Item	Required (IEC 68-1)	Actual	Test Site
Temperature (°C)	FCC PART 15 C 15.207 Conducted Emission	15 - 35	23	--
Humidity (%RH)		25 - 75	50	
Barometric pressure (mbar)		860 - 1060	950-1000	
Temperature (°C)	FCC PART 15 C 15.247 Maximum peak conducted output power	15 - 35	24	3
Humidity (%RH)		25 - 75	45	
Barometric pressure (mbar)		860 - 1060	950-1000	
Temperature (°C)	FCC PART 15 C 15.247 Radiated Emission	15 - 35	25	2
Humidity (%RH)		25 - 75	54	
Barometric pressure (mbar)		860 - 1060	950-1000	
Temperature (°C)	FCC PART 15 C 15.247 RF antenna conducted test	15 - 35	24	3
Humidity (%RH)		25 - 75	45	
Barometric pressure (mbar)		860 - 1060	950-1000	
Temperature (°C)	FCC PART 15 C 15.247 Band Edge	15 - 35	25	2
Humidity (%RH)		25 - 75	50	
Barometric pressure (mbar)		860 - 1060	950-1000	
Temperature (°C)	FCC PART 15 C 15.247 Number of hopping Frequency	15 - 35	24	3
Humidity (%RH)		25 - 75	45	
Barometric pressure (mbar)		860 - 1060	950-1000	
Temperature (°C)	FCC PART 15 C 15.247 Carrier Frequency Separation	15 - 35	24	3
Humidity (%RH)		25 - 75	45	
Barometric pressure (mbar)		860 - 1060	950-1000	
Temperature (°C)	FCC PART 15 C 15.247 -20dB Bandwidth	15 - 35	24	3
Humidity (%RH)		25 - 75	45	
Barometric pressure (mbar)		860 - 1060	950-1000	
Temperature (°C)	FCC PART 15 C 15.247 Dwell Time	15 - 35	24	3
Humidity (%RH)		25 - 75	45	
Barometric pressure (mbar)		860 - 1060	950-1000	

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 related certificate for our laboratories about the test site and management system can be downloaded from DEKRA Testing and Certification Co., Ltd. Web Site:

<http://www.dekra.com.tw/english/about/certificates.aspx?bval=5>

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

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

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1.7. List of Test Equipment

Maximum peak conducted output power / SR10-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
High Speed Peak Power Meter Dual Input	Anritsu	ML2496A	1602004	2018/12/17	2019/12/16
Pulse Power Sensor	Anritsu	MA2411B	1531043	2018/12/17	2019/12/16
Pulse Power Sensor	Anritsu	MA2411B	1531044	2018/12/17	2019/12/16
Power Meter	Keysight	8990B	MY51000248	2018/06/07	2019/06/06
Power Sensor	Keysight	N1923A	MY57240005	2018/06/07	2019/06/06

Radiated Emission / CB2H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Signal Analyzer	R&S	FSVA40	101455	2018/11/05	2019/11/04
Signal & Spectrum Analyzer	R&S	FSV40	101049	2018/12/21	2019/12/20
EXA Signal Analyzer	Keysight	N9010A	MY51440132	2019/03/15	2020/03/14
Bilog Antenna	Teseq	CBL6112D	23191	2018/06/26	2019/06/25
Horn Antenna	Schwarzbeck	BBHA 9120D	639	2018/06/01	2019/05/31
Horn Antenna	Schwarzbeck	BBHA 9170	202	2019/01/16	2020/01/15
Pre-Amplifier	Dekra	AP-025C	201801236	2019/02/18	2020/02/17
Pre-Amplifier	EMCI	EMC11830I	980366	2018/12/21	2019/12/20
Pre-Amplifier	Dekra	AP-400C	201801231	2018/12/05	2019/12/04
Horn Antenna	Schwarzbeck	BBHA 9120D	01656	2018/10/17	2019/10/16
Band Reject Filter	Micro-Tronics	BRM50702	G192	2019/03/27	2020/03/26
Signal Analyzer	R&S	FSV40	101435	2018/07/19	2019/07/18
Coaxial Cable	Huber+Suhner	SF104_SF104_ SF104_SF104(16.0m)	CB2-H	2018/08/21	2019/08/20

RF antenna conducted test / SR10-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Spectrum Analyzer	Keysight	N9030B	MY57140404	2018/06/26	2019/06/25
Spectrum Analyzer	Keysight	N9010B	MY57110159	2018/05/25	2019/05/24
Spectrum Analyzer	Agilent	N9010A	US47140172	2018/07/18	2019/07/17
Signal & Spectrum Analyzer	R&S	FSV40	101049	2018/12/21	2019/12/20

Band Edge / CB2-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Signal Analyzer	R&S	FSVA40	101455	2018/11/05	2019/11/04
Signal & Spectrum Analyzer	R&S	FSV40	101049	2018/12/21	2019/12/20
EXA Signal Analyzer	Keysight	N9010A	MY51440132	2019/03/15	2020/03/14
Bilog Antenna	Teseq	CBL6112D	23191	2018/06/26	2019/06/25
Horn Antenna	Schwarzbeck	BBHA 9120D	639	2018/06/01	2019/05/31
Horn Antenna	Schwarzbeck	BBHA 9170	202	2019/01/16	2020/01/15
Pre-Amplifier	Dekra	AP-025C	201801236	2019/02/18	2020/02/17
Pre-Amplifier	EMCI	EMC11830I	980366	2018/12/21	2019/12/20
Pre-Amplifier	Dekra	AP-400C	201801231	2018/12/05	2019/12/04
Horn Antenna	Schwarzbeck	BBHA 9120D	01656	2018/10/17	2019/10/16
Band Reject Filter	Micro-Tronics	BRM50702	G192	2019/03/27	2020/03/26
Signal Analyzer	R&S	FSV40	101435	2018/07/19	2019/07/18
Coaxial Cable	Huber+Suhner	SF104_SF104_ SF104_SF104(1 6.0m)	CB2-H	2018/08/21	2019/08/20

Number of hopping frequency / SR10-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Spectrum Analyzer	Keysight	N9030B	MY57140404	2018/06/26	2019/06/25
Spectrum Analyzer	Keysight	N9010B	MY57110159	2018/05/25	2019/05/24
Spectrum Analyzer	Agilent	N9010A	US47140172	2018/07/18	2019/07/17
Signal & Spectrum Analyzer	R&S	FSV40	101049	2018/12/21	2019/12/20

Carrier Frequency Separation / SR10-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Spectrum Analyzer	Keysight	N9030B	MY57140404	2018/06/26	2019/06/25
Spectrum Analyzer	Keysight	N9010B	MY57110159	2018/05/25	2019/05/24
Spectrum Analyzer	Agilent	N9010A	US47140172	2018/07/18	2019/07/17
Signal & Spectrum Analyzer	R&S	FSV40	101049	2018/12/21	2019/12/20

-20dB Bandwidth / SR10-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Spectrum Analyzer	Keysight	N9030B	MY57140404	2018/06/26	2019/06/25
Spectrum Analyzer	Keysight	N9010B	MY57110159	2018/05/25	2019/05/24
Spectrum Analyzer	Agilent	N9010A	US47140172	2018/07/18	2019/07/17
Signal & Spectrum Analyzer	R&S	FSV40	101049	2018/12/21	2019/12/20

Dwell Time / SR10-H

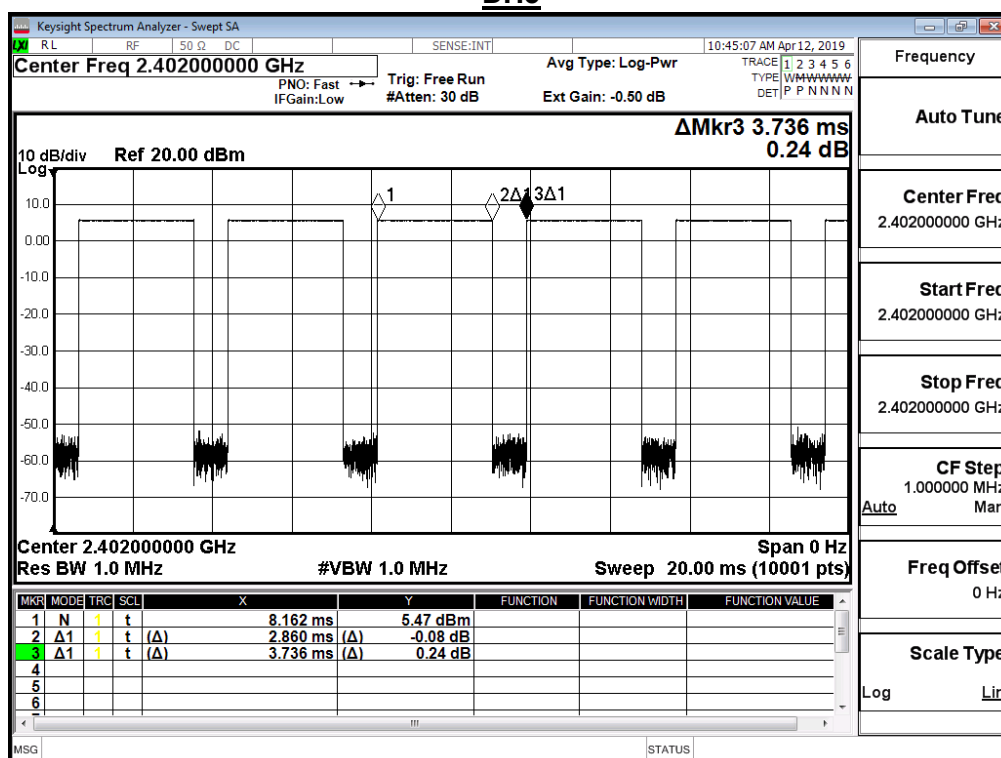
Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Spectrum Analyzer	Keysight	N9030B	MY57140404	2018/06/26	2019/06/25
Spectrum Analyzer	Keysight	N9010B	MY57110159	2018/05/25	2019/05/24
Spectrum Analyzer	Agilent	N9010A	US47140172	2018/07/18	2019/07/17
Signal & Spectrum Analyzer	R&S	FSV40	101049	2018/12/21	2019/12/20

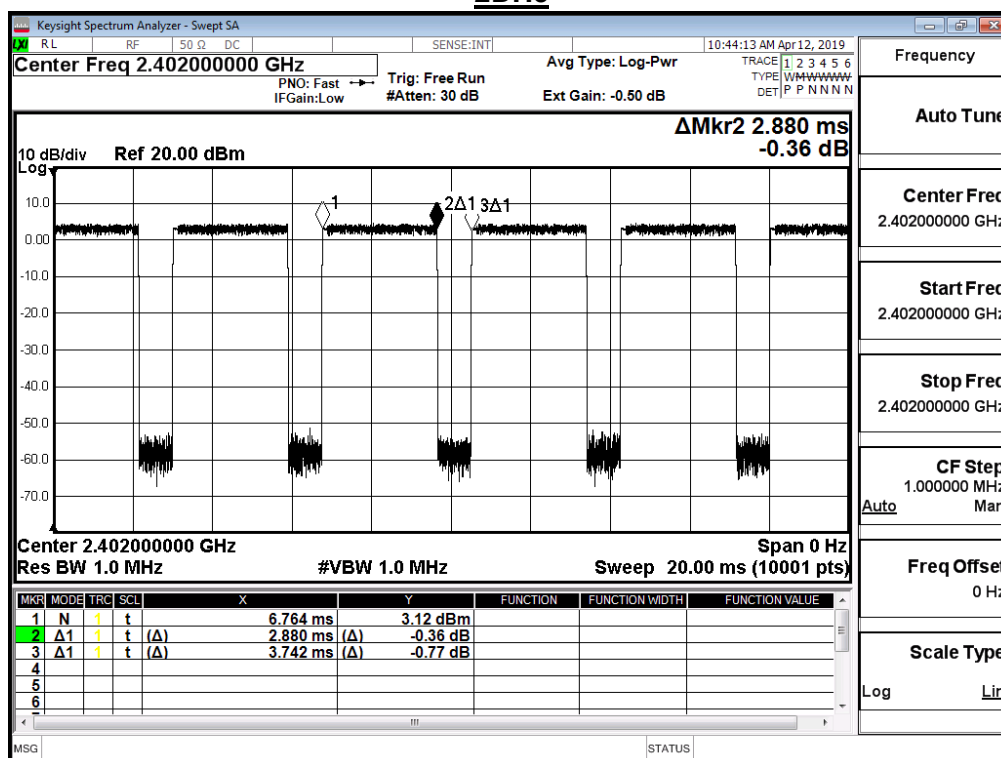
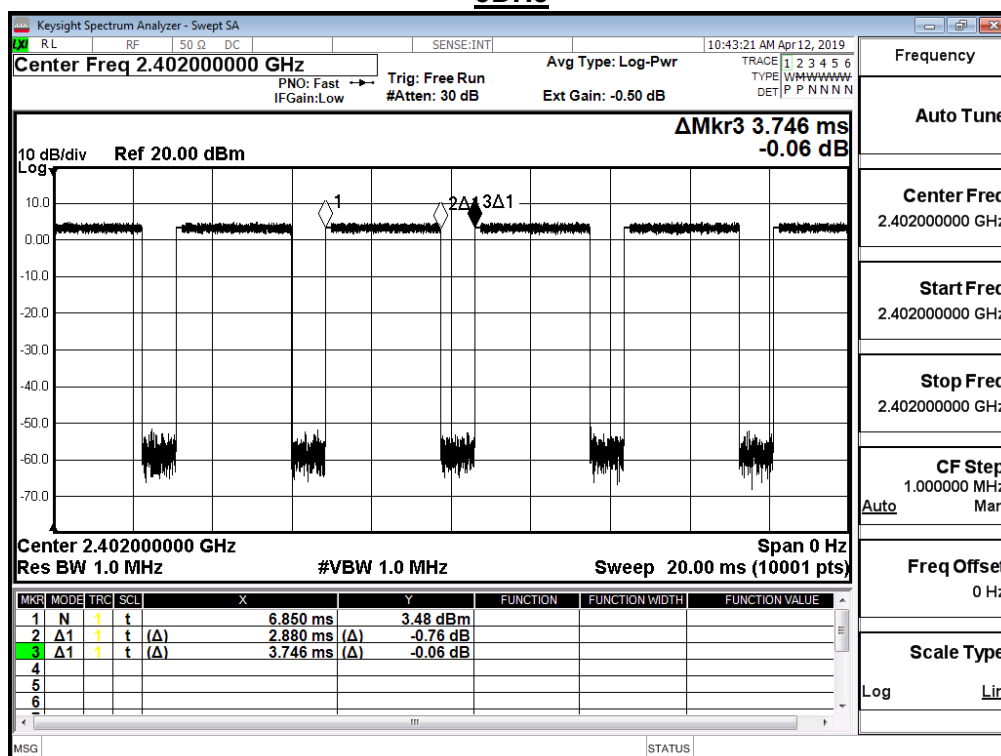
Note: All equipment upon which need to calibrated are with calibration period of 1 year.

1.8. Duty Cycle

Mode	On Time(ms)	On+Off Time(ms)	Duty Cycle(%)	Duty Factor(dB)	1/T Minimum VBW (kHz)
DH5	2.860	3.736	76.55%	1.16	0.350
2DH5	2.880	3.742	76.96%	1.14	0.347
3DH5	2.880	3.746	76.88%	1.14	0.347

DH5



2DH5**3DH5**

1.9. Uncertainty

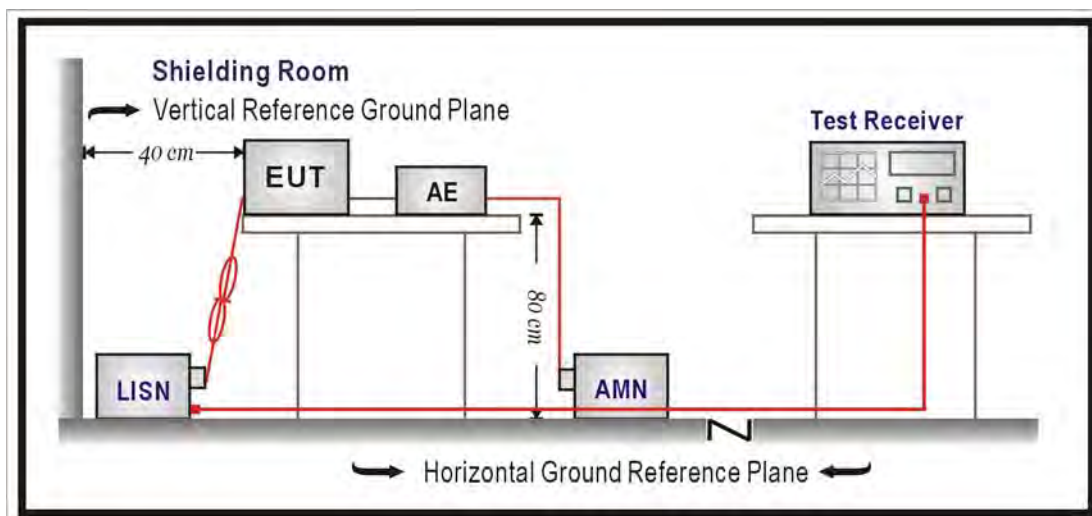
Test item	Uncertainty
Maximum peak conducted output power	± 1.27 dB
Radiated Emission	30MHz~1GHz as ± 3.43 dB 1GHz~26.5Ghz as ± 3.65 dB
RF antenna conducted test	± 1.27 dB
Band Edge	± 3.65 dB
Number of hopping frequency	± 1.27 dB
Carrier Frequency Separation	± 50 Hz
-20dB Bandwidth	± 50 Hz
Dwell Time	± 25 msec

2. **Aetenna Requirements**

According to FCC 47CFR 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

3. Conducted Emission

3.1. Test Setup



3.2. 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.

3.3. 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 /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm 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.

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

3.4. Test Specification

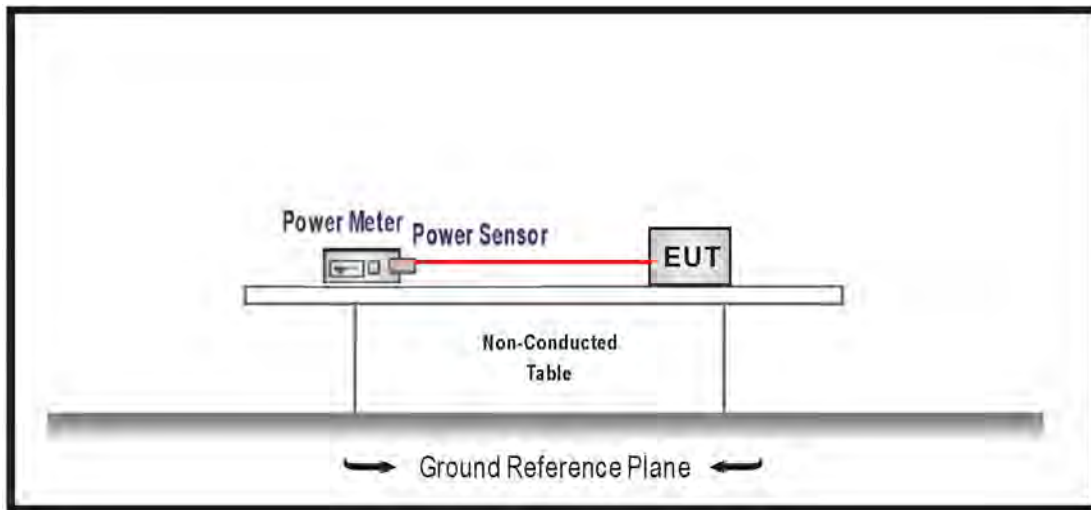
According to FCC Part 15 Subpart C Paragraph 15.207: 2018

3.5. Test Result

Owing to the DC operation of EUT, this test item is not performed.

4. Maximum peak conducted output power

4.1. Test Setup



4.2. Test procedures

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

4.3. Limits

For frequency hopping systems operating in the 902-928 MHz band: 1 Watt for systems employing at least 50 hopping channels; and, 0.25 Watts for systems employing less than 50 hopping channels.

For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

4.4. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2018.

4.5. Test Result

Product	Active Mobile Gateway-with Comm		
Test Item	Maximum peak conducted output power		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/04/16	Test Site	SR10-H

GFSK

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)
00	2402	3.970	≤ 30
39	2441	4.450	≤ 30
78	2480	4.580	≤ 30

$\pi/4$ -DQPSK

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)
00	2402	2.880	≤ 30
39	2441	3.760	≤ 30
78	2480	3.850	≤ 30

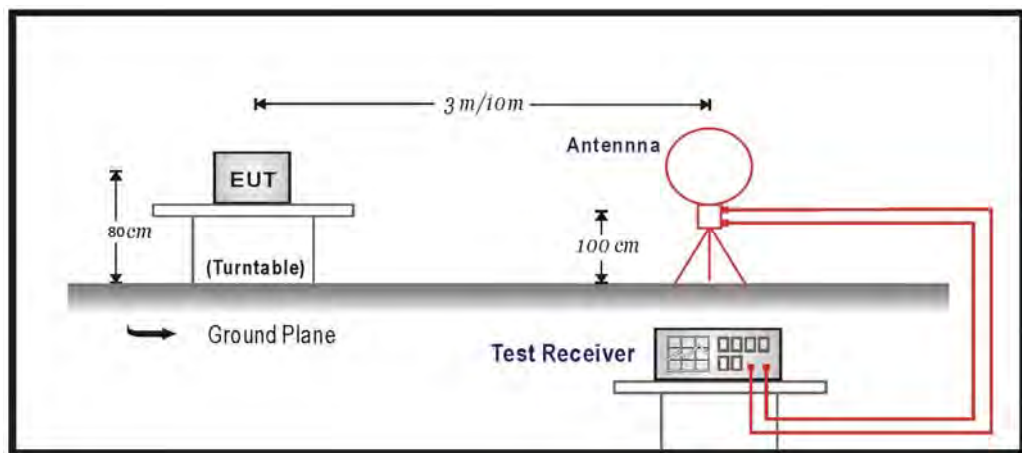
8-DPSK

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)
00	2402	3.060	≤ 30
39	2441	4.070	≤ 30
78	2480	4.120	≤ 30

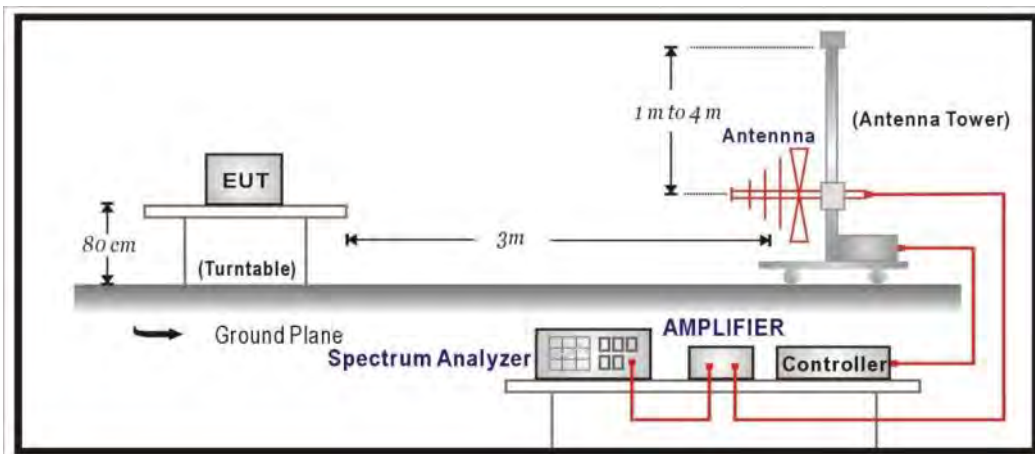
5. Radiated Emission

5.1. Test Setup

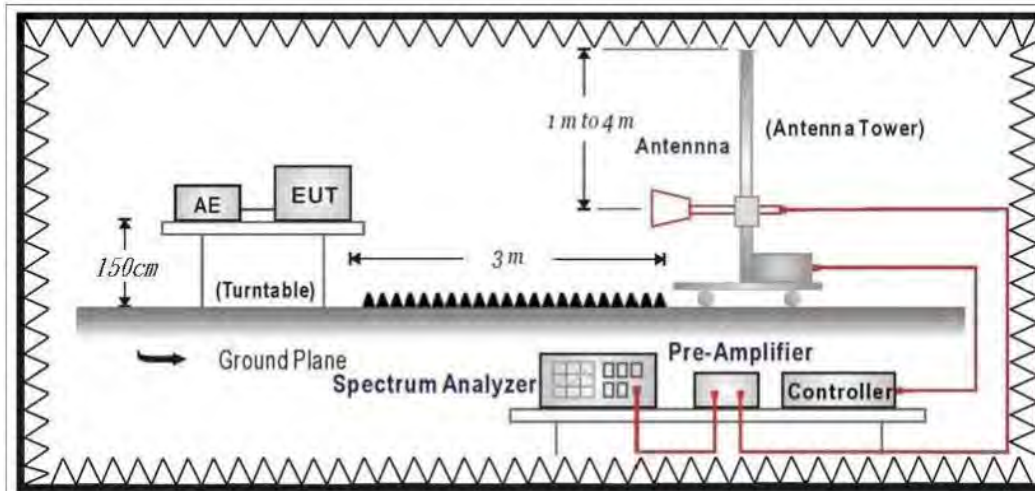
Under 30MHz Test Setup:



Under 1GHz Test Setup:



Above 1GHz Test Setup:



5.2. 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	dBuV/m
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Remarks:

1. RF Voltage (dBuV) = $20 \log$ RF Voltage (uV)
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.

5.3. 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 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 9KHz(inclde The the lowest oscillator frequency generated within the device up to the 10th harmonic) 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.

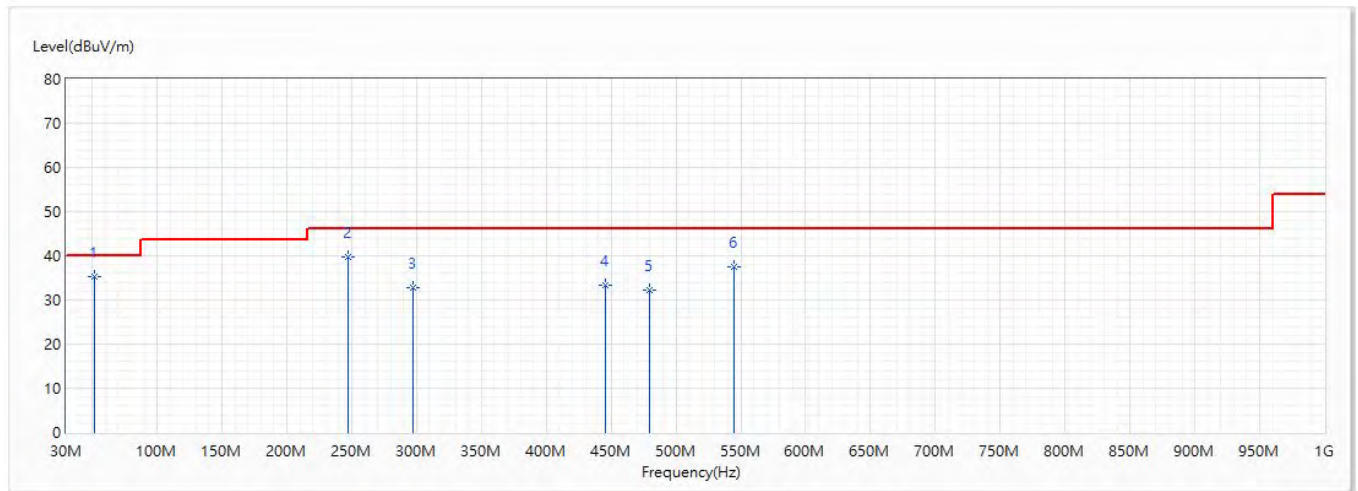
5.4. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2018

5.5. Test Result

30MHz-1GHz Spurious

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/13
Test Voltage :	DC 12V	Polarity :	Horizontal
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_DH5_2441MHz		

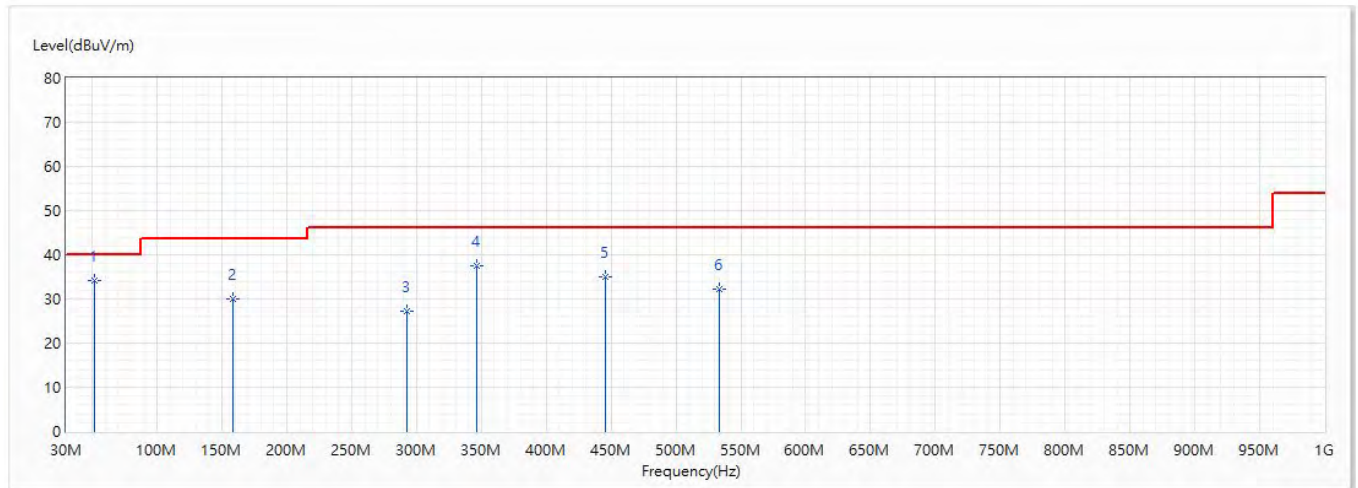


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
* 1	51.825	35.38	40.00	-4.62	61.46	-26.08	QP
2	247.523	39.65	46.00	-6.35	60.82	-21.17	QP
3	296.993	32.82	46.00	-13.18	52.92	-20.10	QP
4	445.403	33.33	46.00	-12.67	49.11	-15.78	QP
5	479.353	32.30	46.00	-13.70	47.49	-15.19	QP
6	544.585	37.46	46.00	-8.54	51.83	-14.37	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/13
Test Voltage :	DC 12V	Polarity :	Vertical
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_DH5_2441MHz		

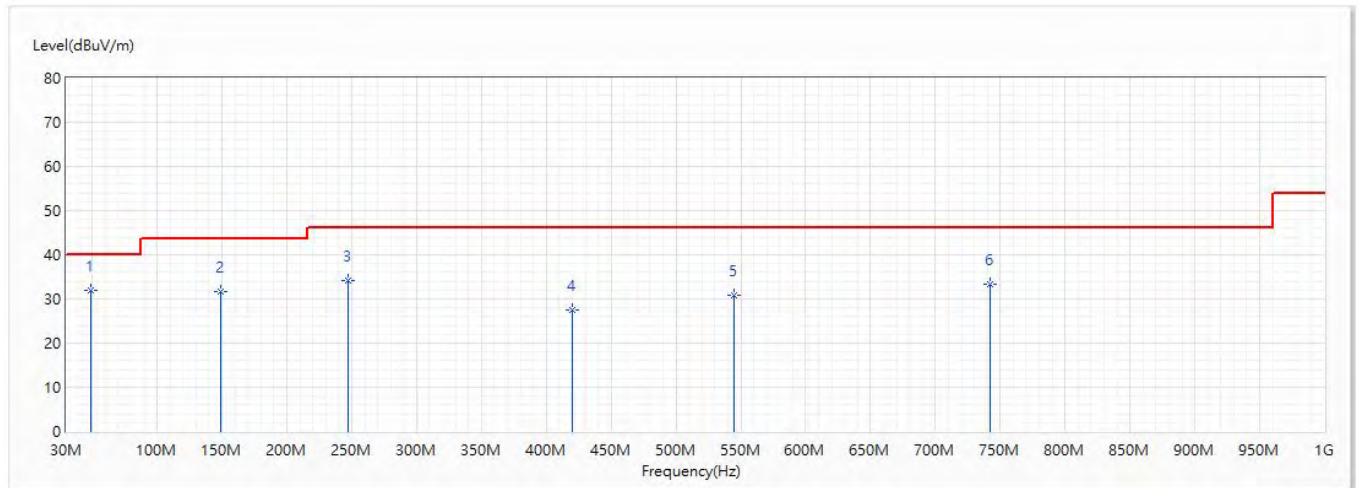


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
* 1	51.583	34.04	40.00	-5.96	60.06	-26.02	QP
2	158.525	29.97	43.50	-13.53	53.19	-23.22	QP
3	292.87	27.20	46.00	-18.80	47.39	-20.19	QP
4	346.463	37.47	46.00	-8.53	55.99	-18.52	QP
5	445.403	35.08	46.00	-10.92	50.86	-15.78	QP
6	533.43	32.28	46.00	-13.72	46.77	-14.49	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/13
Test Voltage :	DC 12V	Polarity :	Horizontal
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_2DH5_2441MHz		

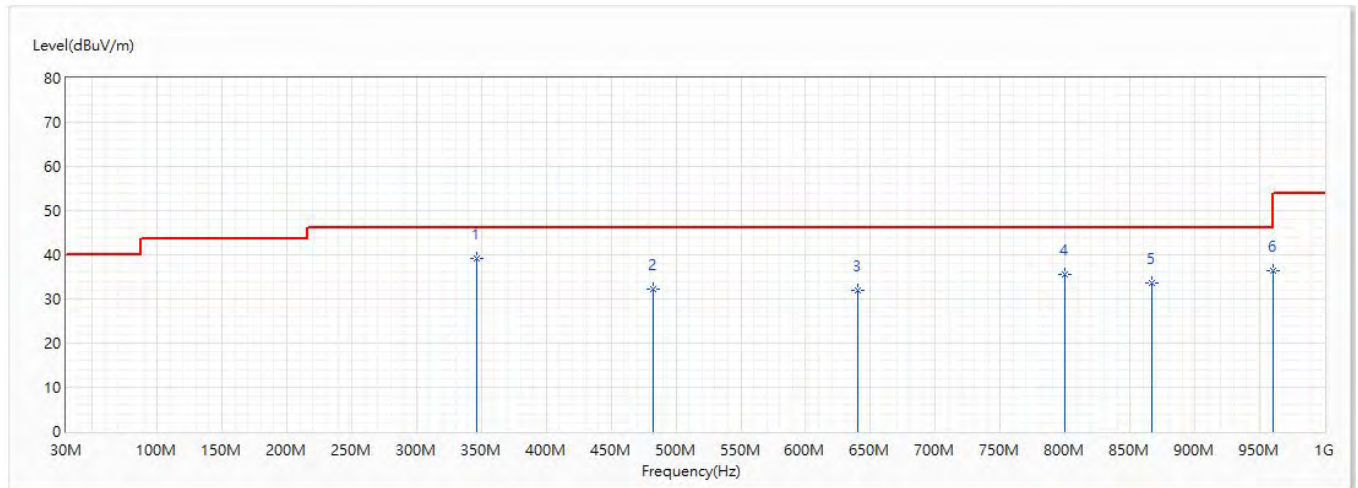


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
* 1	48.43	31.83	40.00	-8.17	56.53	-24.70	QP
2	148.583	31.54	43.50	-11.96	54.19	-22.65	QP
3	247.28	34.21	46.00	-11.79	55.39	-21.18	QP
4	419.94	27.45	46.00	-18.55	43.72	-16.27	QP
5	544.343	30.82	46.00	-15.18	45.19	-14.37	QP
6	742.465	33.31	46.00	-12.69	45.40	-12.09	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/13
Test Voltage :	DC 12V	Polarity :	Vertical
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_2DH5_2441MHz		

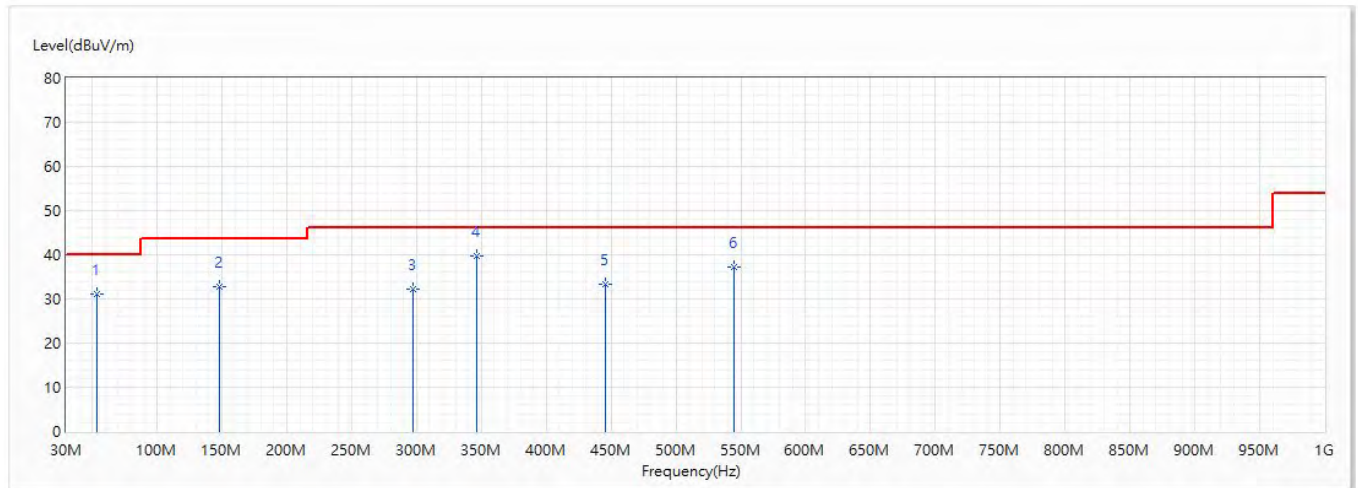


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
* 1	346.463	39.28	46.00	-6.72	57.80	-18.52	QP
2	482.263	32.16	46.00	-13.84	47.31	-15.15	QP
3	640.13	31.92	46.00	-14.08	45.18	-13.26	QP
4	800.18	35.54	46.00	-10.46	47.00	-11.46	QP
5	866.868	33.51	46.00	-12.49	44.14	-10.63	QP
6	960.23	36.50	54.00	-17.50	45.76	-9.26	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/13
Test Voltage :	DC 12V	Polarity :	Horizontal
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_3DH5_2441MHz		

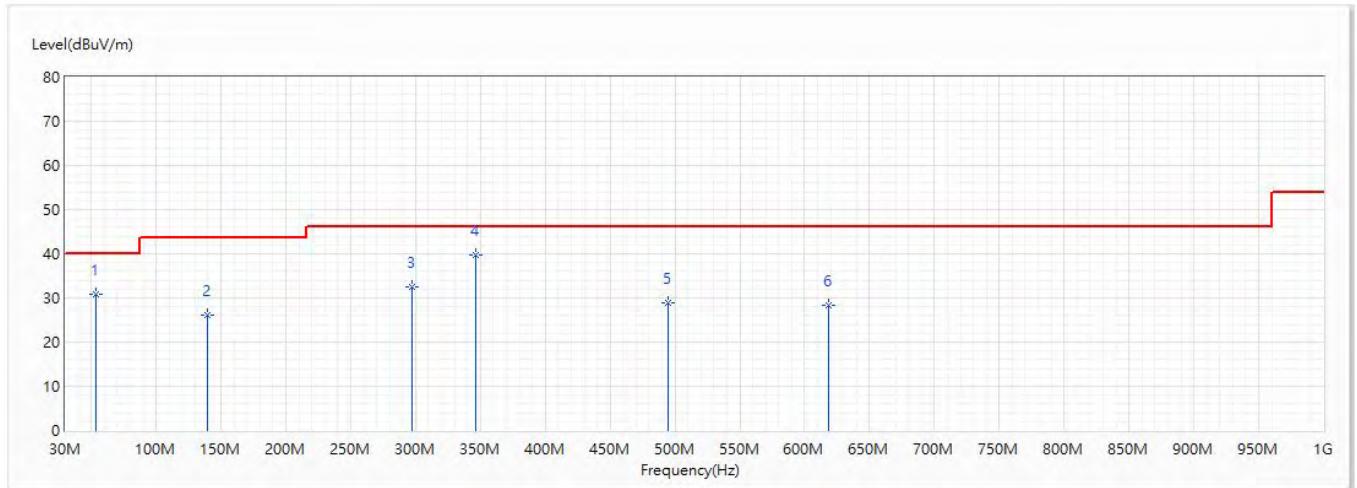


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	53.28	31.10	40.00	-8.90	57.62	-26.52	QP
2	148.34	32.77	43.50	-10.73	55.40	-22.63	QP
3	296.993	32.12	46.00	-13.88	52.22	-20.10	QP
* 4	346.463	39.84	46.00	-6.16	58.36	-18.52	QP
5	445.403	33.38	46.00	-12.62	49.16	-15.78	QP
6	544.585	37.32	46.00	-8.68	51.69	-14.37	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/13
Test Voltage :	DC 12V	Polarity :	Vertical
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_3DH5_2441MHz		



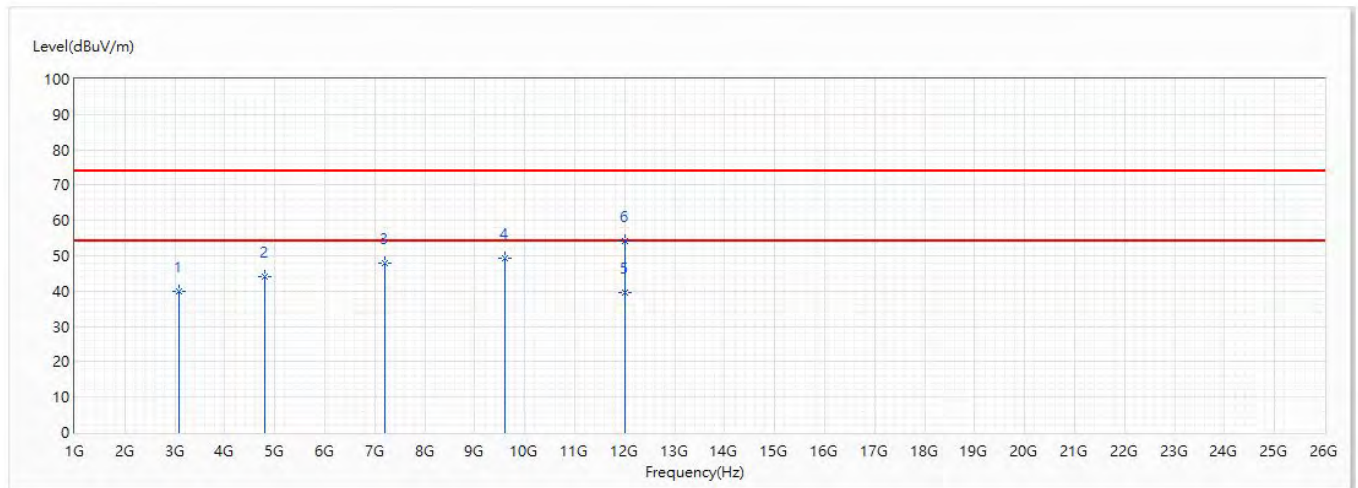
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	53.765	30.88	40.00	-9.12	57.55	-26.67	QP
2	139.368	26.01	43.50	-17.49	48.18	-22.17	QP
3	296.993	32.53	46.00	-13.47	52.63	-20.10	QP
* 4	346.463	39.73	46.00	-6.27	58.25	-18.52	QP
5	494.388	28.76	46.00	-17.24	43.70	-14.94	QP
6	618.548	28.47	46.00	-17.53	41.87	-13.40	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.

Harmonic & Spurious:

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/11
Test Voltage :	DC 12V	Polarity :	Horizontal
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_DH5_2402MHz		

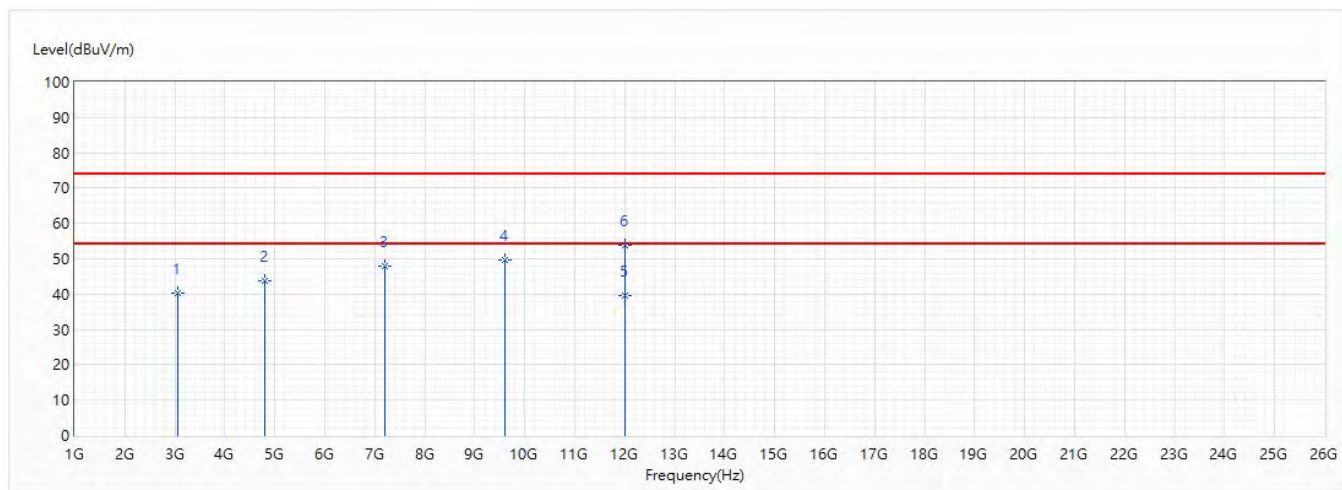


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	3072.6	39.93	74.00	-34.07	44.82	-4.89	PK
2	4804	44.01	74.00	-29.99	43.50	0.51	PK
3	7206	47.96	74.00	-26.04	38.34	9.62	PK
4	9608	49.35	74.00	-24.65	34.63	14.72	PK
* 5	12010	39.58	54.00	-14.42	21.14	18.44	AV
6	12010	54.13	74.00	-19.87	35.69	18.44	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/11
Test Voltage :	DC 12V	Polarity :	Vertical
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_DH5_2402MHz		

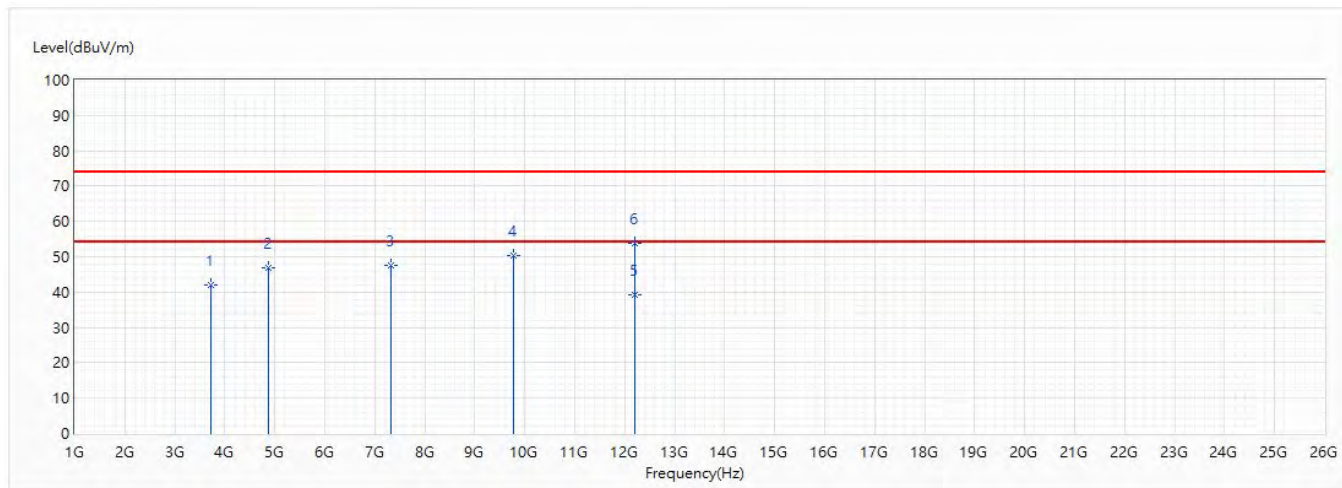


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	3071	40.43	74.00	-33.57	45.32	-4.89	PK
2	4804	43.78	74.00	-30.22	43.27	0.51	PK
3	7206	47.97	74.00	-26.03	38.35	9.62	PK
4	9608	49.68	74.00	-24.32	34.96	14.72	PK
* 5	12010	39.62	54.00	-14.38	21.18	18.44	AV
6	12010	53.70	74.00	-20.30	35.26	18.44	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/11
Test Voltage :	DC 12V	Polarity :	Horizontal
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_DH5_2441MHz		

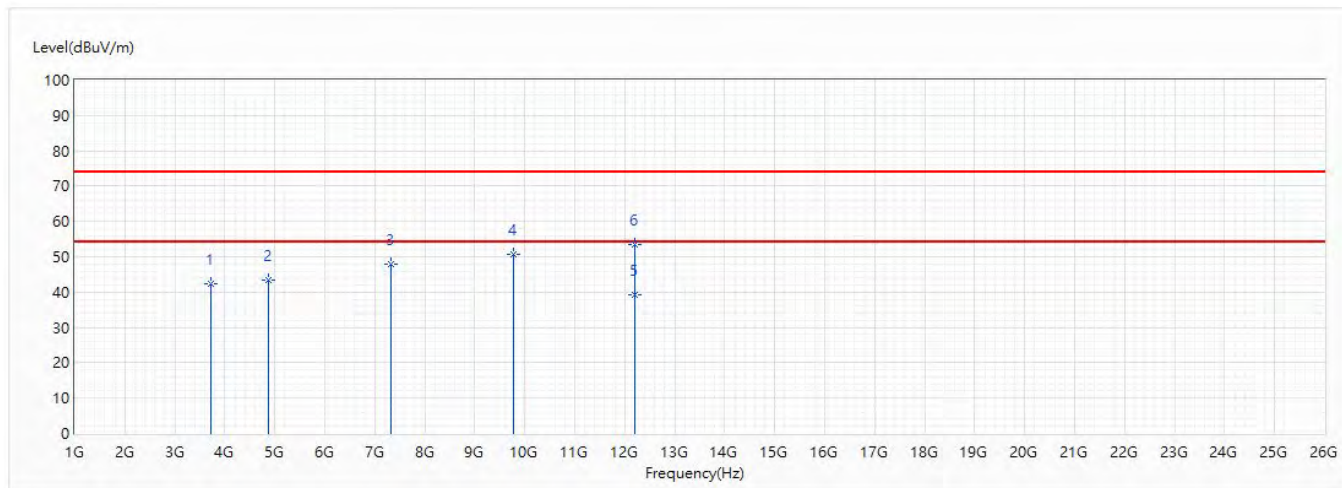


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	3714	42.15	74.00	-31.85	45.50	-3.35	PK
2	4882	46.79	74.00	-27.21	45.95	0.84	PK
3	7323	47.59	74.00	-26.41	37.32	10.27	PK
4	9764	50.27	74.00	-23.73	35.16	15.11	PK
5	12205	39.16	74.00	-34.84	20.98	18.18	PK
* 6	12205	53.97	74.00	-20.03	35.79	18.18	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/11
Test Voltage :	DC 12V	Polarity :	Vertical
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_DH5_2441MHz		

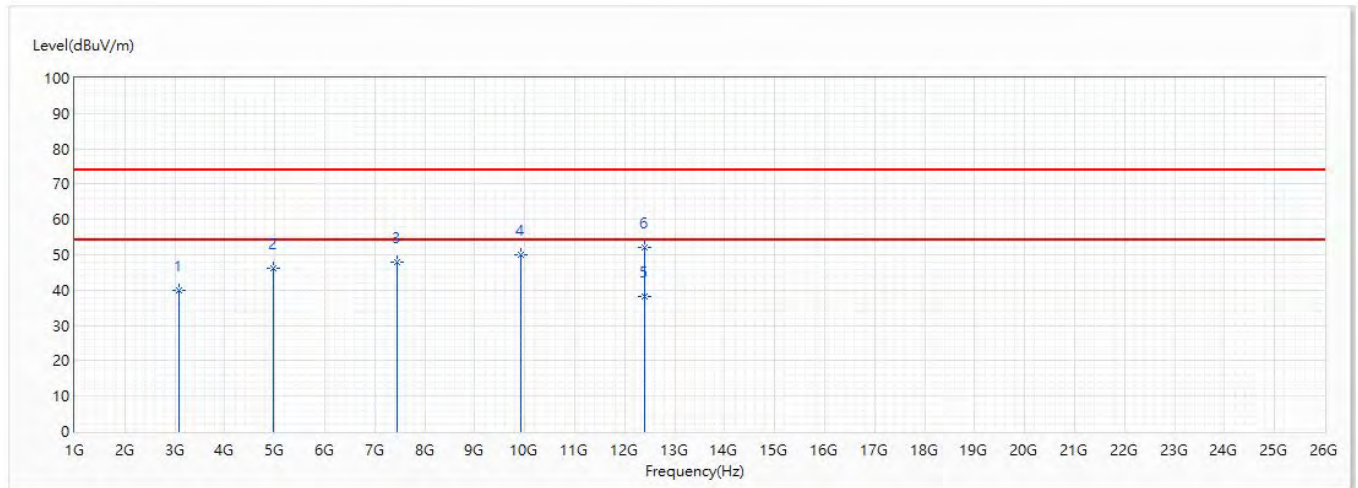


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	3714	42.42	74.00	-31.58	45.77	-3.35	PK
2	4882	43.28	74.00	-30.72	42.44	0.84	PK
3	7323	47.87	74.00	-26.13	37.60	10.27	PK
4	9764	50.66	74.00	-23.34	35.55	15.11	PK
* 5	12205	39.13	54.00	-14.87	20.95	18.18	AV
6	12205	53.45	74.00	-20.55	35.27	18.18	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/11
Test Voltage :	DC 12V	Polarity :	Horizontal
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_DH5_2480MHz		

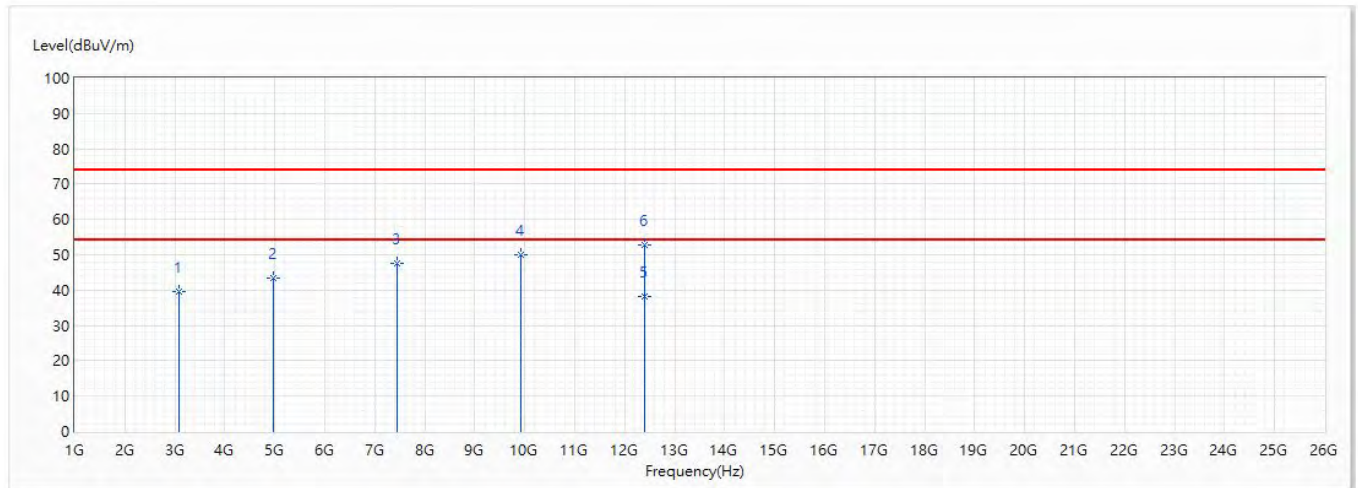


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	3072	39.98	74.00	-34.02	44.87	-4.89	PK
2	4960	46.15	74.00	-27.85	45.00	1.15	PK
3	7440	47.82	74.00	-26.18	36.97	10.85	PK
4	9920	49.94	74.00	-24.06	34.58	15.36	PK
* 5	12400	38.08	54.00	-15.92	20.21	17.87	AV
6	12400	52.22	74.00	-21.78	34.35	17.87	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/11
Test Voltage :	DC 12V	Polarity :	Vertical
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_DH5_2480MHz		

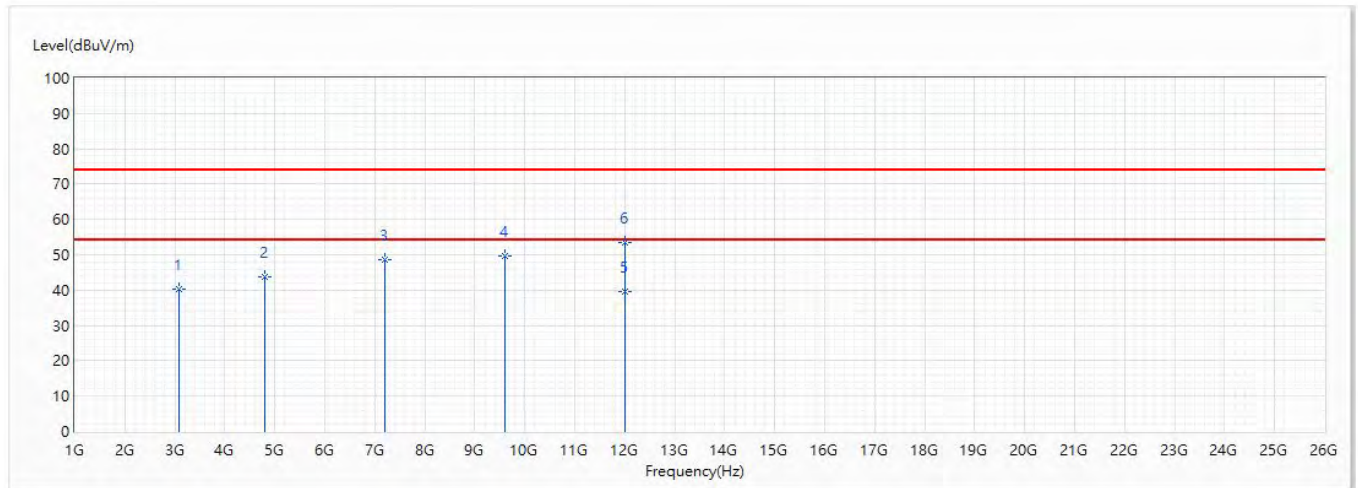


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	3072	39.61	74.00	-34.39	44.50	-4.89	PK
2	4960	43.29	74.00	-30.71	42.14	1.15	PK
3	7440	47.63	74.00	-26.37	36.78	10.85	PK
4	9920	50.14	74.00	-23.86	34.78	15.36	PK
* 5	12400	38.15	54.00	-15.85	20.28	17.87	AV
6	12400	52.69	74.00	-21.31	34.82	17.87	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/11
Test Voltage :	DC 12V	Polarity :	Horizontal
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_2DH5_2402MHz		

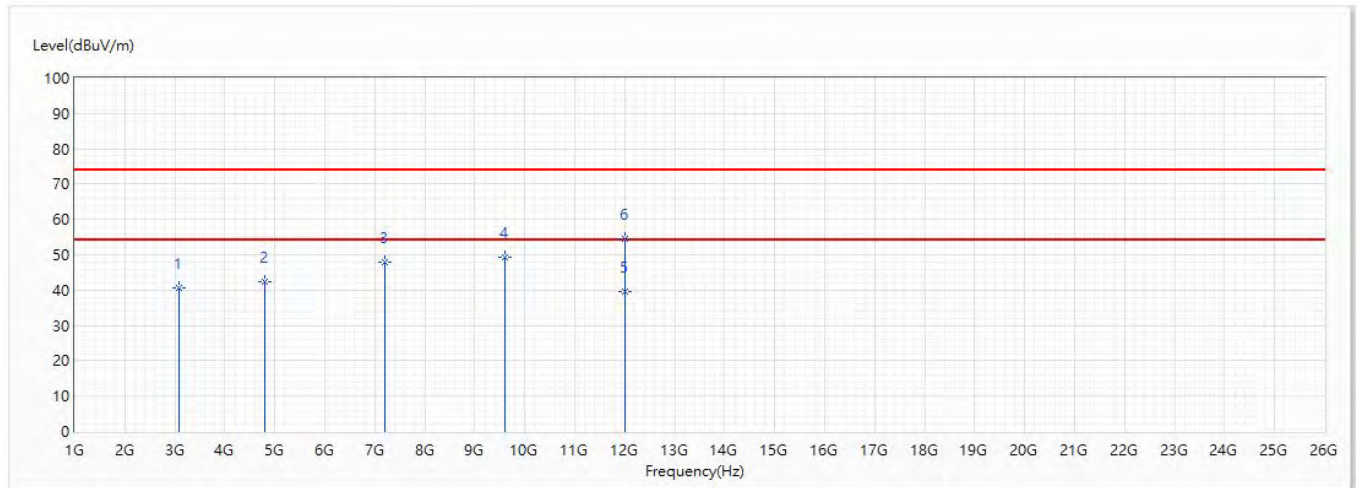


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	3072	40.20	74.00	-33.80	45.09	-4.89	PK
2	4804	43.60	74.00	-30.40	43.09	0.51	PK
3	7206	48.51	74.00	-25.49	38.89	9.62	PK
4	9608	49.59	74.00	-24.41	34.87	14.72	PK
* 5	12010	39.60	54.00	-14.40	21.16	18.44	AV
6	12010	53.48	74.00	-20.52	35.04	18.44	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/11
Test Voltage :	DC 12V	Polarity :	Vertical
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_2DH5_2402MHz		

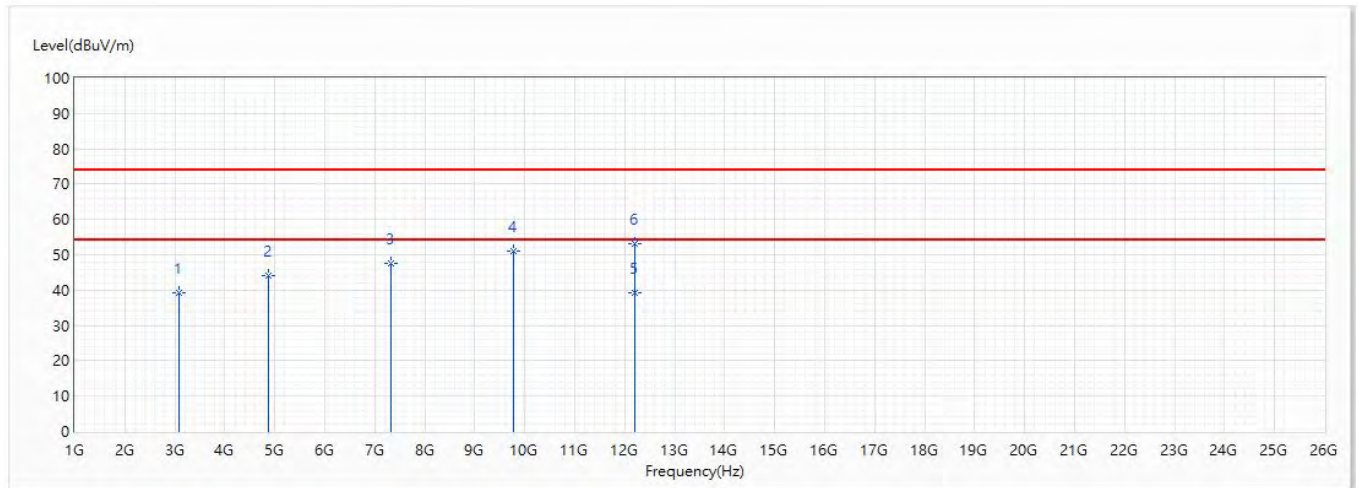


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	3072.1	40.55	74.00	-33.45	45.44	-4.89	PK
2	4804	42.44	74.00	-31.56	41.93	0.51	PK
3	7206	47.79	74.00	-26.21	38.17	9.62	PK
4	9608	49.24	74.00	-24.76	34.52	14.72	PK
* 5	12010	39.72	54.00	-14.28	21.28	18.44	AV
6	12010	54.58	74.00	-19.42	36.14	18.44	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/11
Test Voltage :	DC 12V	Polarity :	Horizontal
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_2DH5_2441MHz		

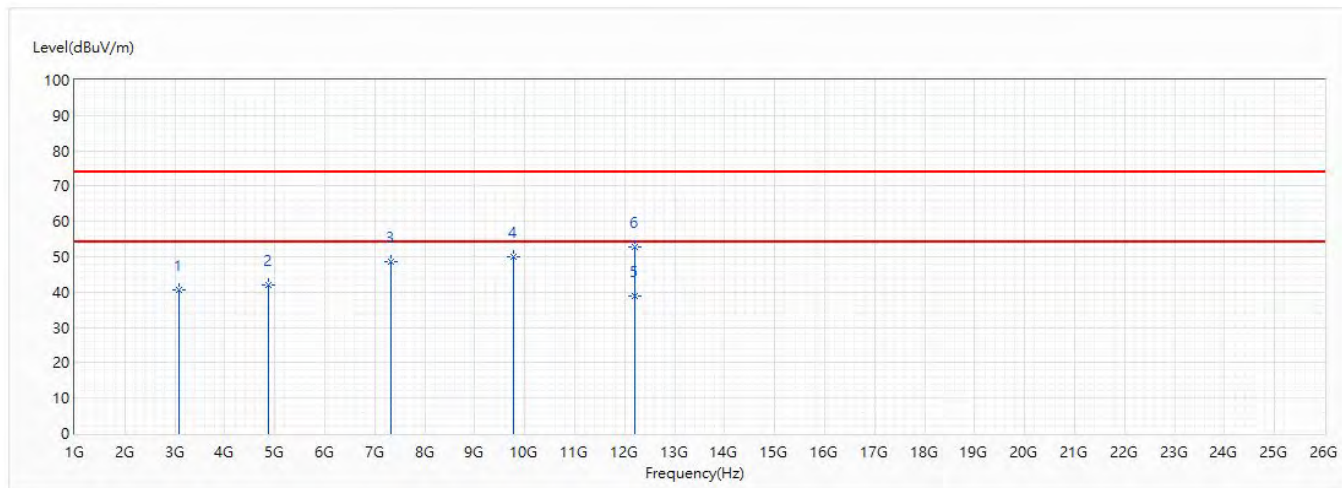


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	3072	39.17	74.00	-34.83	44.06	-4.89	PK
2	4882	44.10	74.00	-29.90	43.26	0.84	PK
3	7323	47.40	74.00	-26.60	37.13	10.27	PK
4	9764	51.20	74.00	-22.80	36.09	15.11	PK
* 5	12205	39.07	54.00	-14.93	20.89	18.18	AV
6	12205	53.03	74.00	-20.97	34.85	18.18	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/11
Test Voltage :	DC 12V	Polarity :	Vertical
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_2DH5_2441MHz		

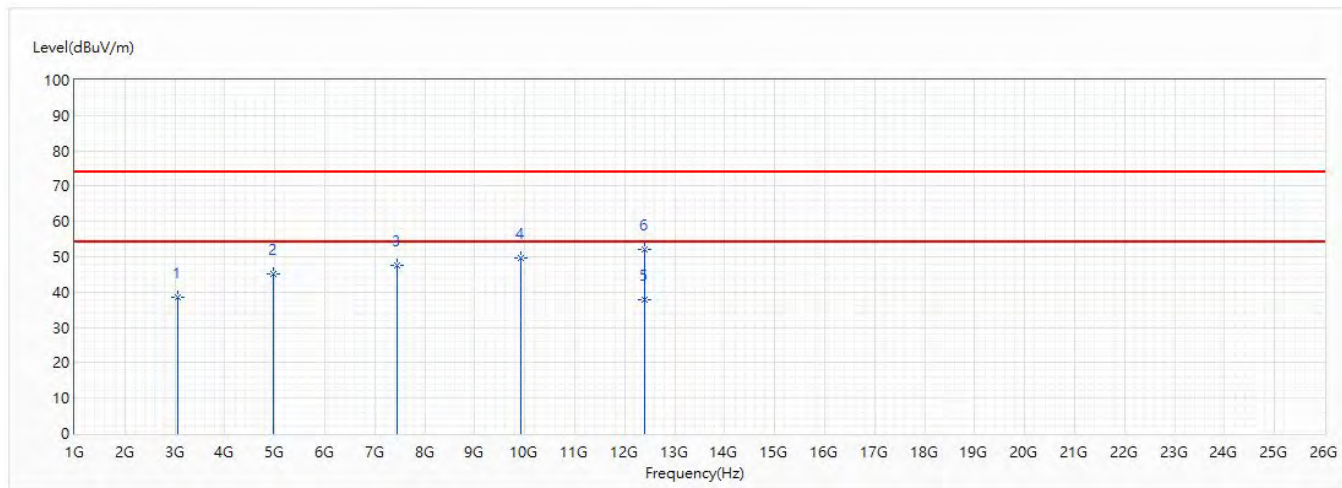


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	3072	40.52	74.00	-33.48	45.41	-4.89	PK
2	4882	42.07	74.00	-31.93	41.23	0.84	PK
3	7323	48.52	74.00	-25.48	38.25	10.27	PK
4	9764	50.14	74.00	-23.86	35.03	15.11	PK
* 5	12205	39.06	54.00	-14.94	20.88	18.18	AV
6	12205	52.90	74.00	-21.10	34.72	18.18	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/11
Test Voltage :	DC 12V	Polarity :	Horizontal
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_2DH5_2480MHz		

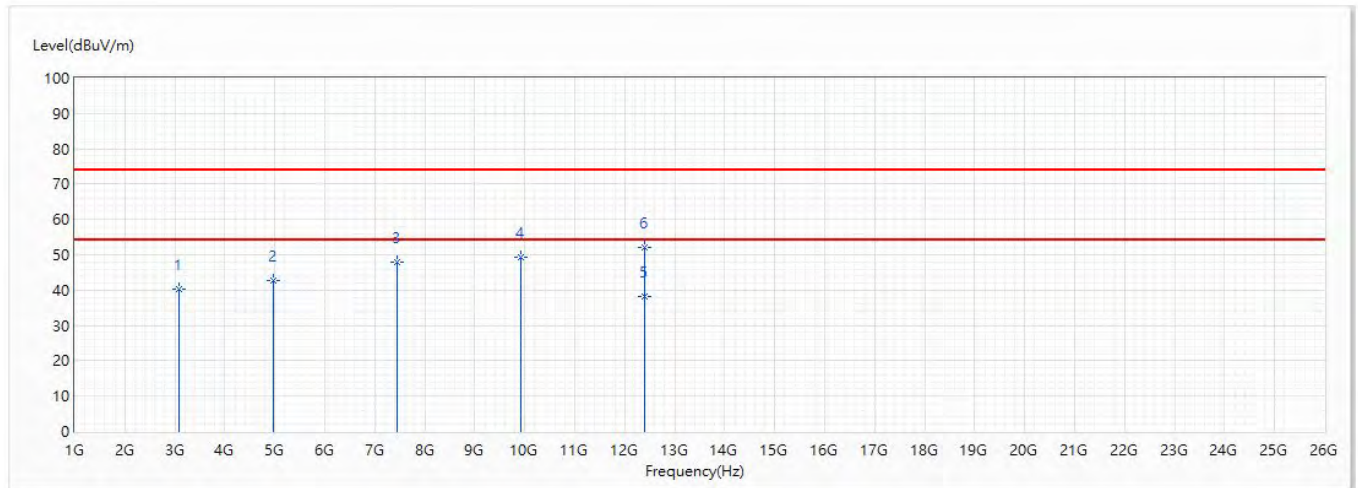


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	3071	38.45	74.00	-35.55	43.34	-4.89	PK
2	4960	45.14	74.00	-28.86	43.99	1.15	PK
3	7440	47.44	74.00	-26.56	36.59	10.85	PK
4	9920	49.62	74.00	-24.38	34.26	15.36	PK
* 5	12400	37.88	54.00	-16.12	20.01	17.87	AV
6	12400	51.92	74.00	-22.08	34.05	17.87	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/11
Test Voltage :	DC 12V	Polarity :	Vertical
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_2DH5_2480MHz		

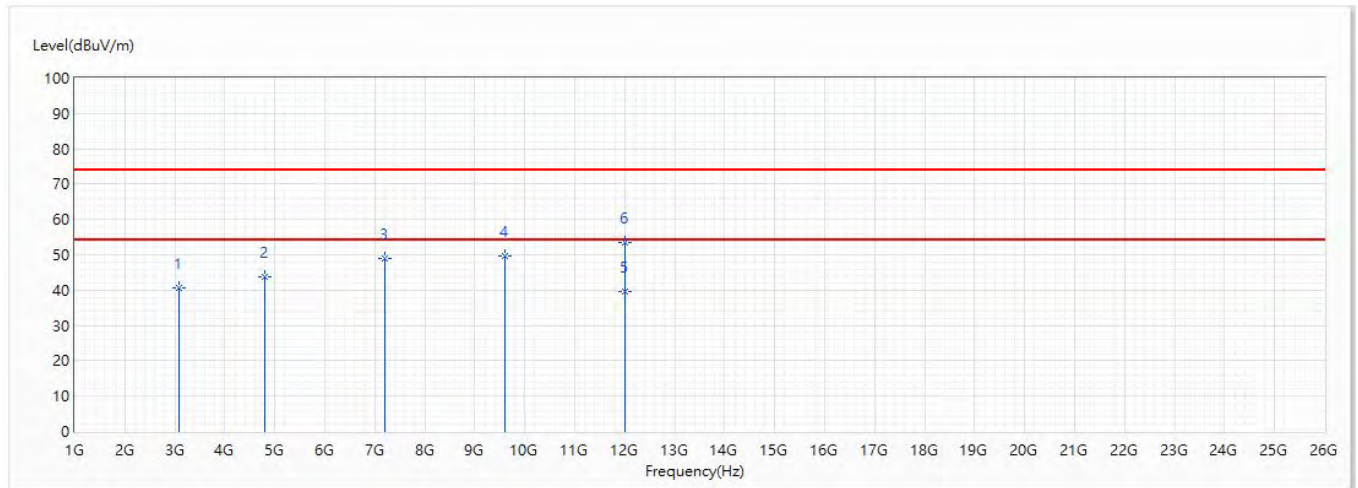


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	3072	40.14	74.00	-33.86	45.03	-4.89	PK
2	4960	42.55	74.00	-31.45	41.40	1.15	PK
3	7440	47.95	74.00	-26.05	37.10	10.85	PK
4	9920	49.35	74.00	-24.65	33.99	15.36	PK
* 5	12400	38.22	54.00	-15.78	20.35	17.87	AV
6	12400	52.09	74.00	-21.91	34.22	17.87	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/11
Test Voltage :	DC 12V	Polarity :	Horizontal
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_3DH5_2402MHz		

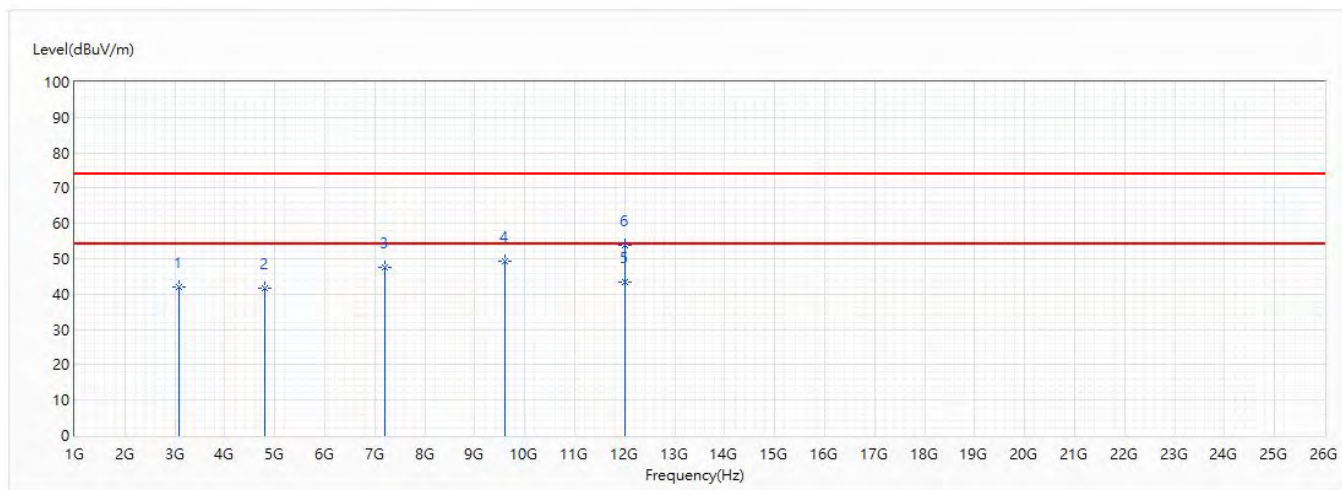


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	3072	40.63	74.00	-33.37	45.52	-4.89	PK
2	4804	43.72	74.00	-30.28	43.21	0.51	PK
3	7206	48.91	74.00	-25.09	39.29	9.62	PK
4	9608	49.58	74.00	-24.42	34.86	14.72	PK
* 5	12010	39.59	54.00	-14.41	21.15	18.44	AV
6	12010	53.43	74.00	-20.57	34.99	18.44	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/11
Test Voltage :	DC 12V	Polarity :	Vertical
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_3DH5_2402MHz		

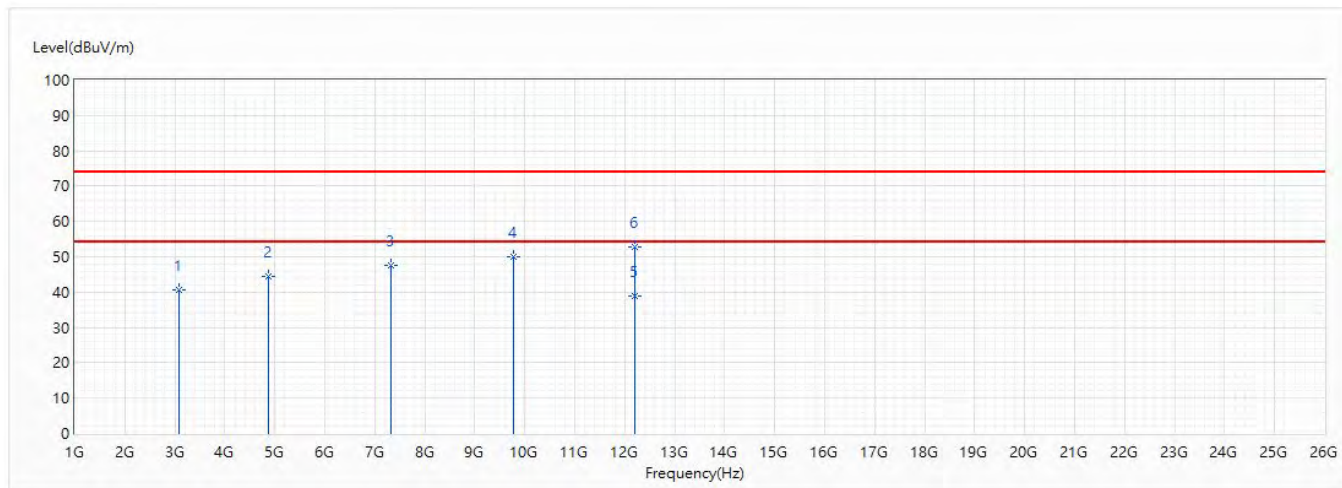


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	3072.2	42.14	74.00	-31.86	47.03	-4.89	PK
2	4804	41.81	74.00	-32.19	41.30	0.51	PK
3	7206	47.62	74.00	-26.38	38.00	9.62	PK
4	9608	49.35	74.00	-24.65	34.63	14.72	PK
* 5	12010	43.33	54.00	-10.67	24.89	18.44	AV
6	12010	53.69	74.00	-20.31	35.25	18.44	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/11
Test Voltage :	DC 12V	Polarity :	Horizontal
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_3DH5_2441MHz		

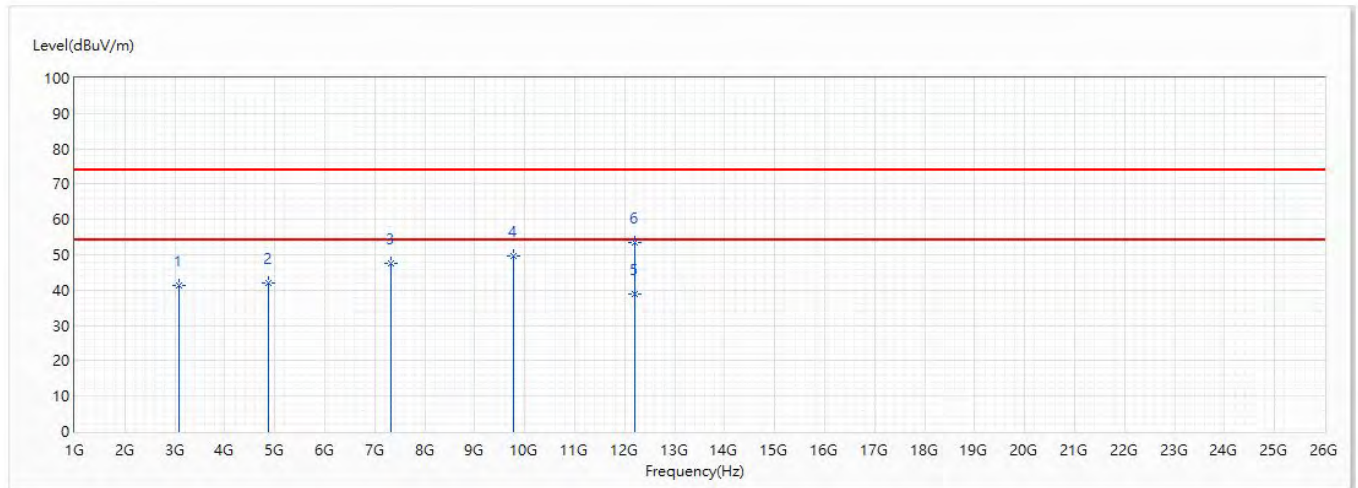


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	3072	40.52	74.00	-33.48	45.41	-4.89	PK
2	4882	44.58	74.00	-29.42	43.74	0.84	PK
3	7323	47.73	74.00	-26.27	37.46	10.27	PK
4	9764	50.11	74.00	-23.89	35.00	15.11	PK
* 5	12205	38.95	54.00	-15.05	20.77	18.18	AV
6	12205	52.88	74.00	-21.12	34.70	18.18	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/11
Test Voltage :	DC 12V	Polarity :	Vertical
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_3DH5_2441MHz		

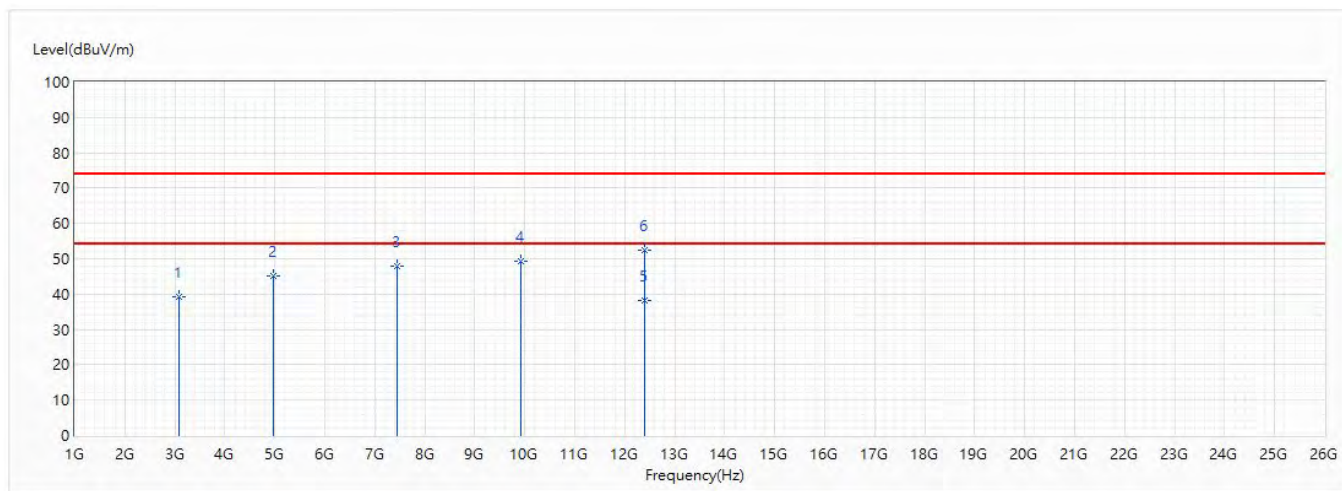


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	3072	41.15	74.00	-32.85	46.04	-4.89	PK
2	4882	42.13	74.00	-31.87	41.29	0.84	PK
3	7323	47.54	74.00	-26.46	37.27	10.27	PK
4	9764	49.72	74.00	-24.28	34.61	15.11	PK
* 5	12205	39.03	54.00	-14.97	20.85	18.18	AV
6	12205	53.57	74.00	-20.43	35.39	18.18	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/11
Test Voltage :	DC 12V	Polarity :	Horizontal
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_3DH5_2480MHz		

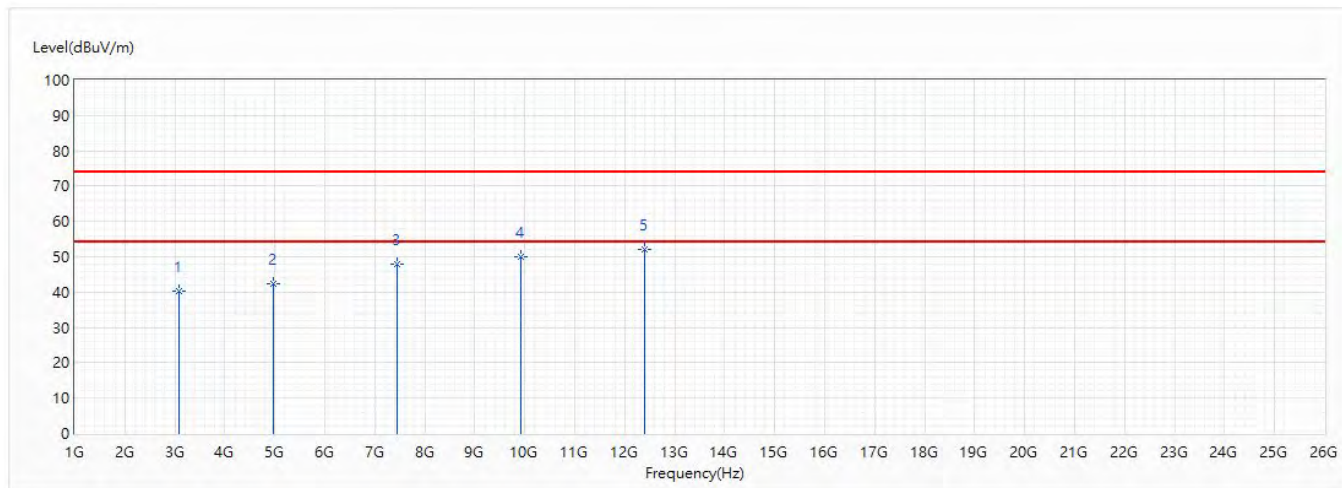


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	3072.6	39.24	74.00	-34.76	44.13	-4.89	PK
2	4960	45.10	74.00	-28.90	43.95	1.15	PK
3	7440	48.05	74.00	-25.95	37.20	10.85	PK
4	9920	49.20	74.00	-24.80	33.84	15.36	PK
* 5	12400	38.04	54.00	-15.96	20.17	17.87	AV
6	12400	52.33	74.00	-21.67	34.46	17.87	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/11
Test Voltage :	DC 12V	Polarity :	Vertical
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_3DH5_2480MHz		



No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	3072.6	40.23	74.00	-33.77	45.12	-4.89	PK
2	4960	42.26	74.00	-31.74	41.11	1.15	PK
3	7440	48.02	74.00	-25.98	37.17	10.85	PK
4	9920	49.88	74.00	-24.12	34.52	15.36	PK
* 5	12400	51.91	74.00	-22.09	34.04	17.87	PK

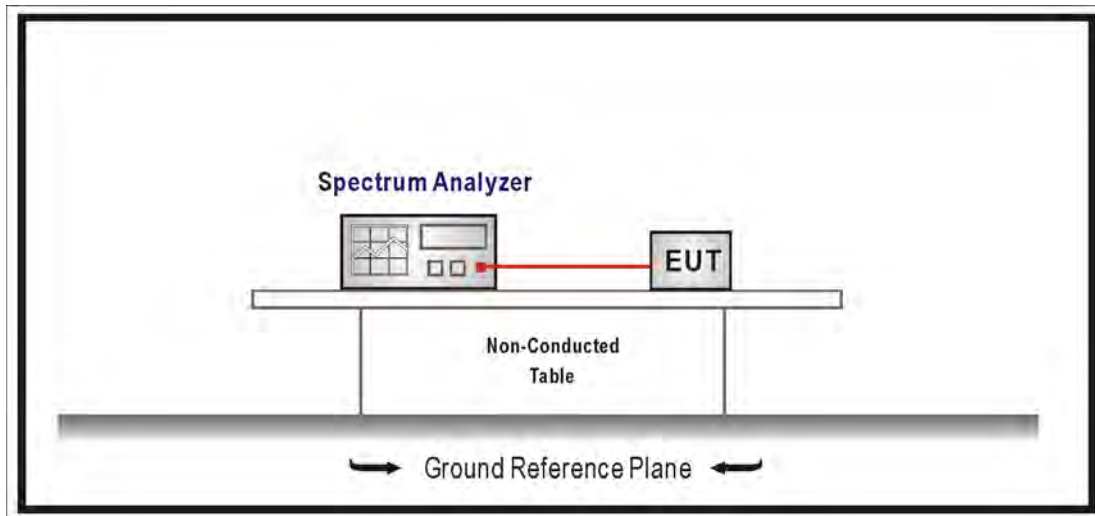
Note:

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.

6. RF antenna conducted test

6.1. Test Setup

RF Conducted Measurement:



6.2. 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)).

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

6.4. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2018

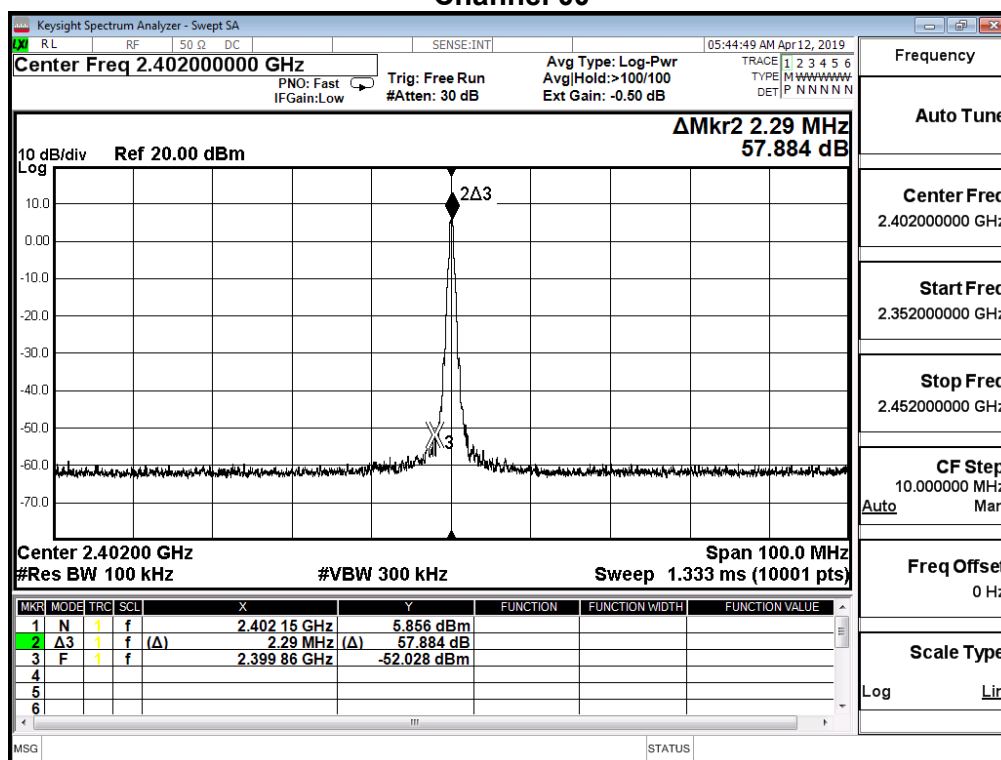
6.5. Test Result

Product	Active Mobile Gateway-with Comm		
Test Item	RF antenna conducted test		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/04/16	Test Site	SR10-H

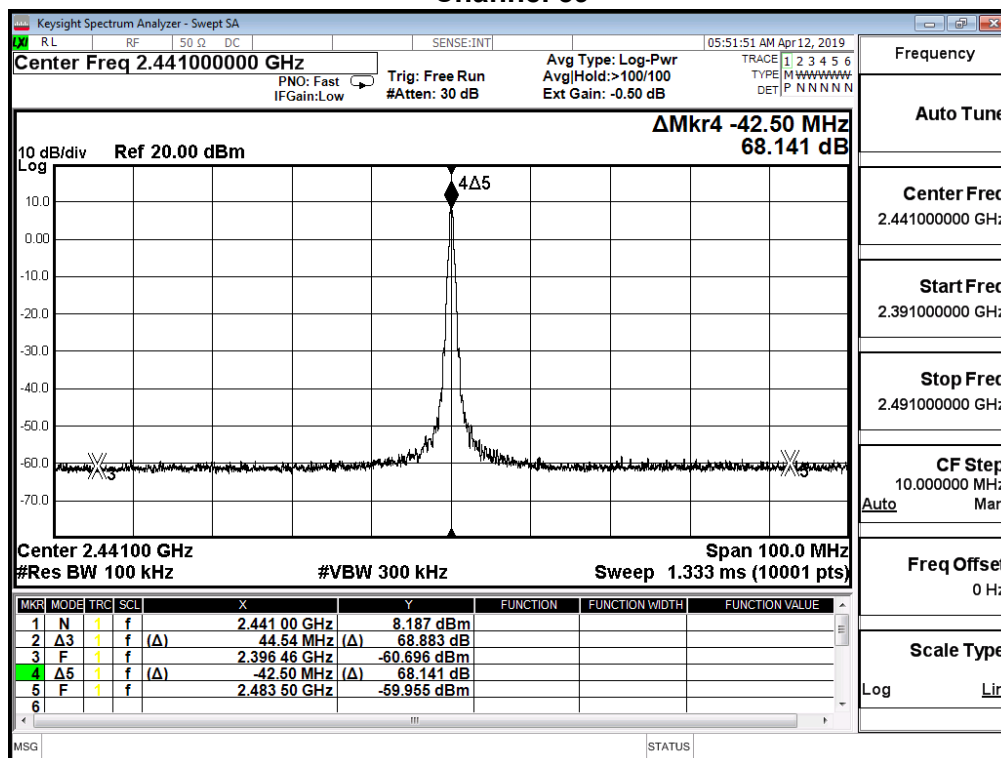
GFSK

Channel	Frequency (MHz)	Measure Level (dBc)	Limit (dBc)
00	2402	38.796	≥ 20
39	2441	45.333	≥ 20
78	2480	47.816	≥ 20

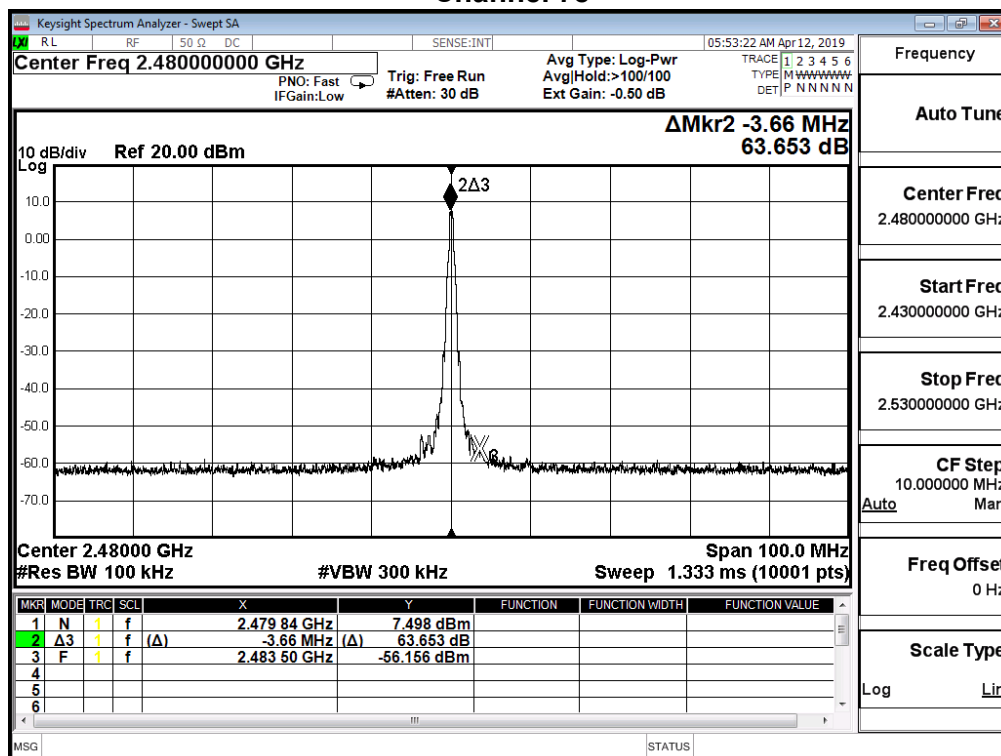
Channel 00



Channel 39



Channel 78

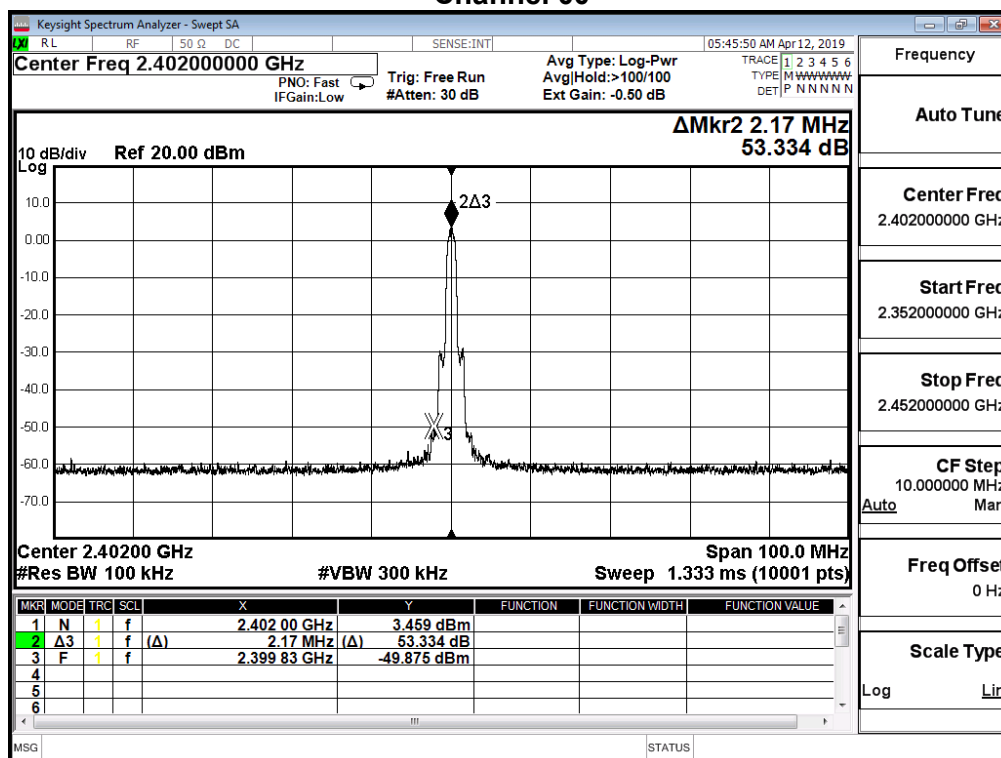


Product	Active Mobile Gateway-with Comm		
Test Item	RF antenna conducted test		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/04/16	Test Site	SR10-H

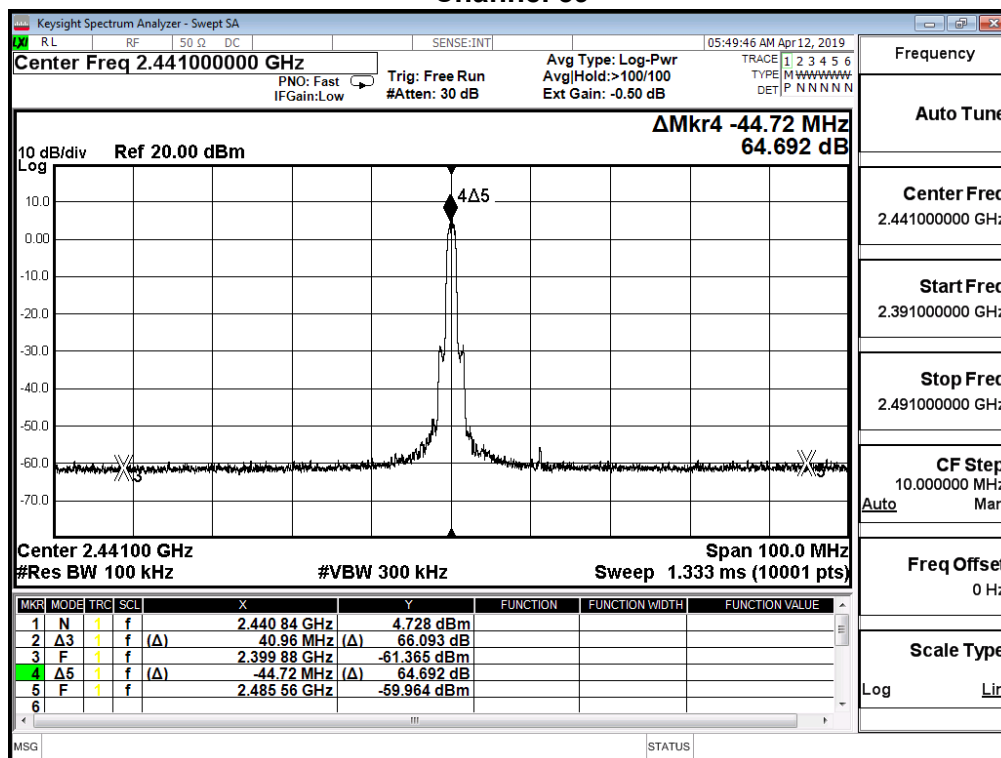
 $\pi/4$ -DQPSK

Channel	Frequency (MHz)	Measure Level (dBc)	Limit (dBc)
00	2402	41.188	≥ 20
39	2441	47.615	≥ 20
78	2480	40.438	≥ 20

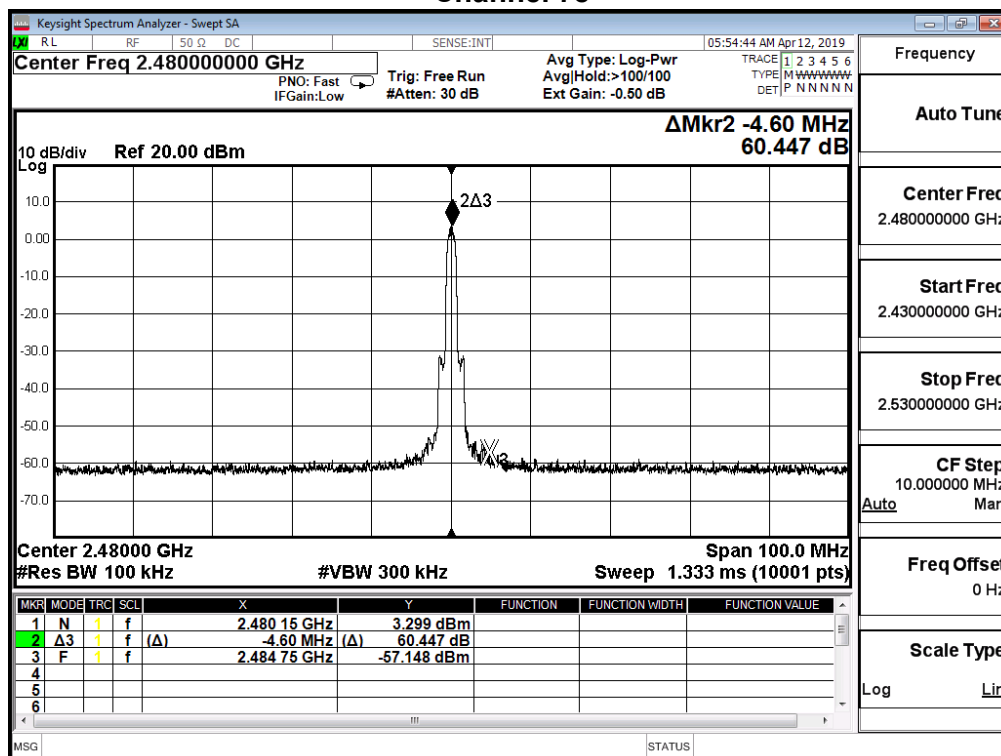
Channel 00



Channel 39



Channel 78

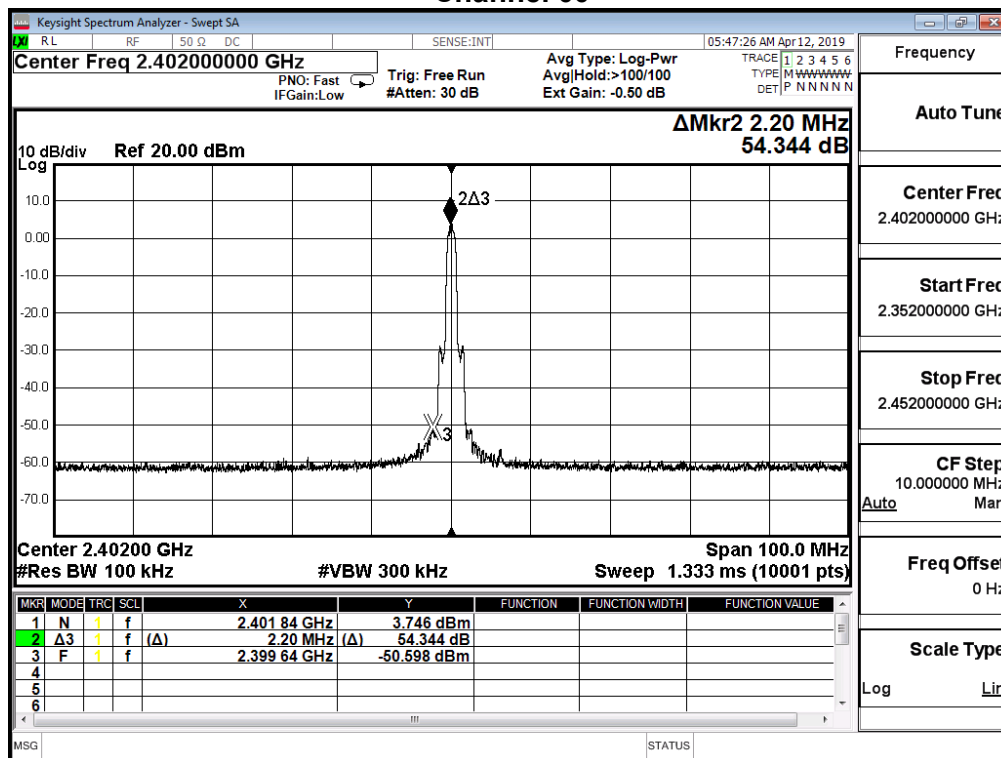


Product	Active Mobile Gateway-with Comm		
Test Item	RF antenna conducted test		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/04/16	Test Site	SR10-H

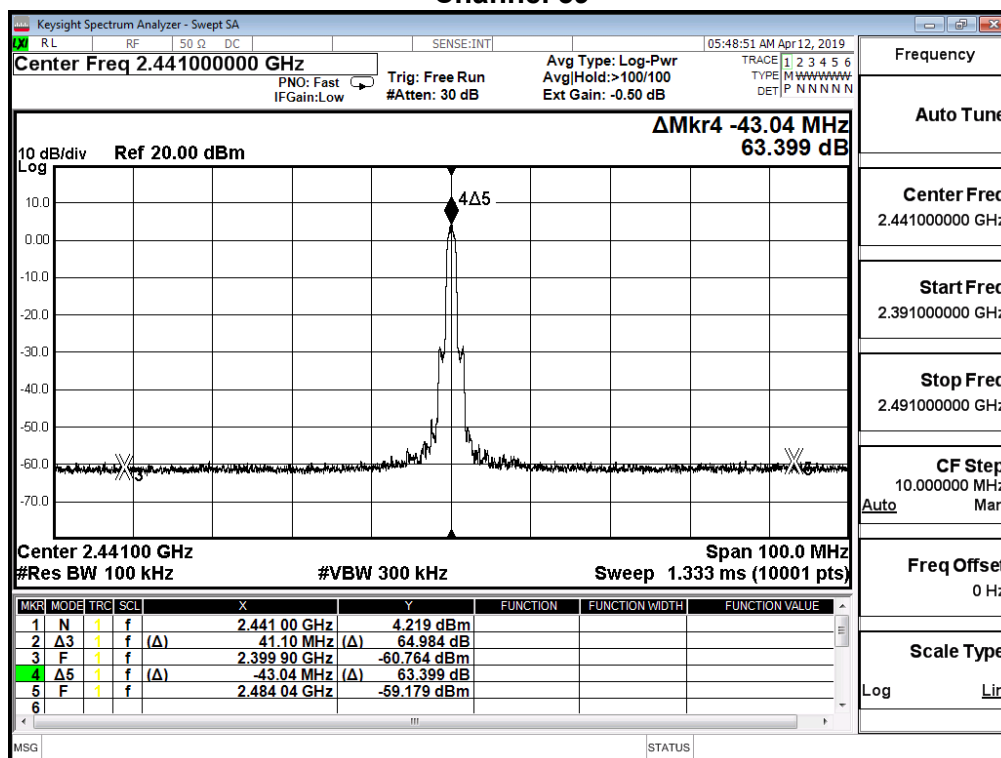
8-DPSK

Channel	Frequency (MHz)	Measure Level (dBc)	Limit (dBc)
00	2402	40.564	≥ 20
39	2441	46.346	≥ 20
78	2480	45.103	≥ 20

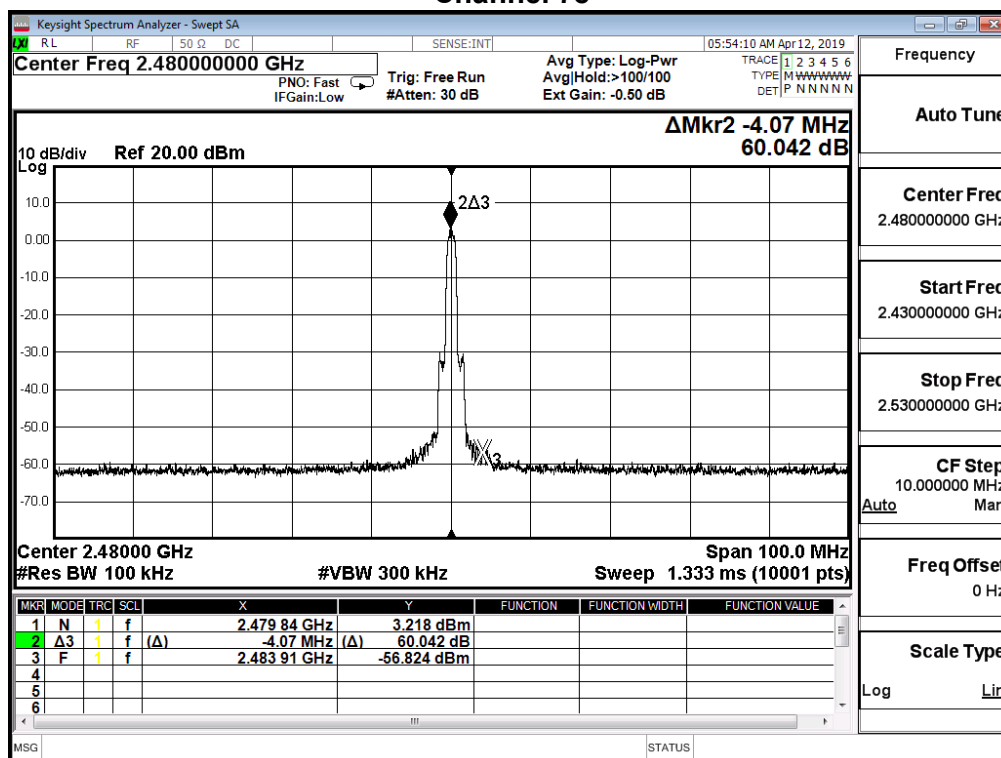
Channel 00



Channel 39

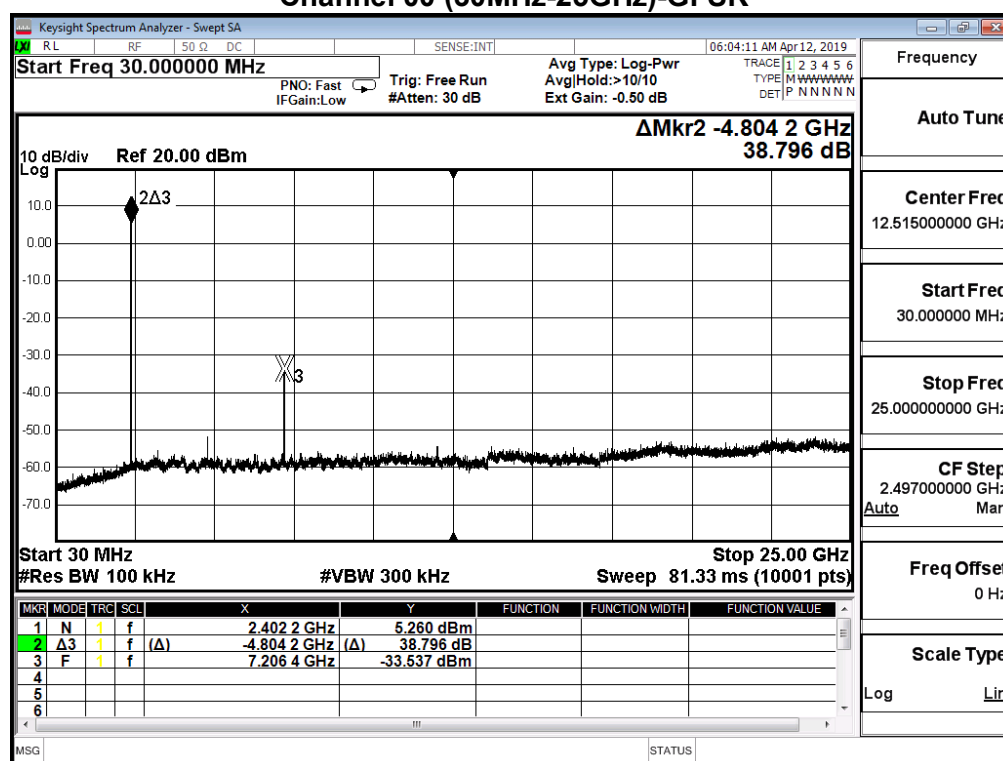


Channel 78

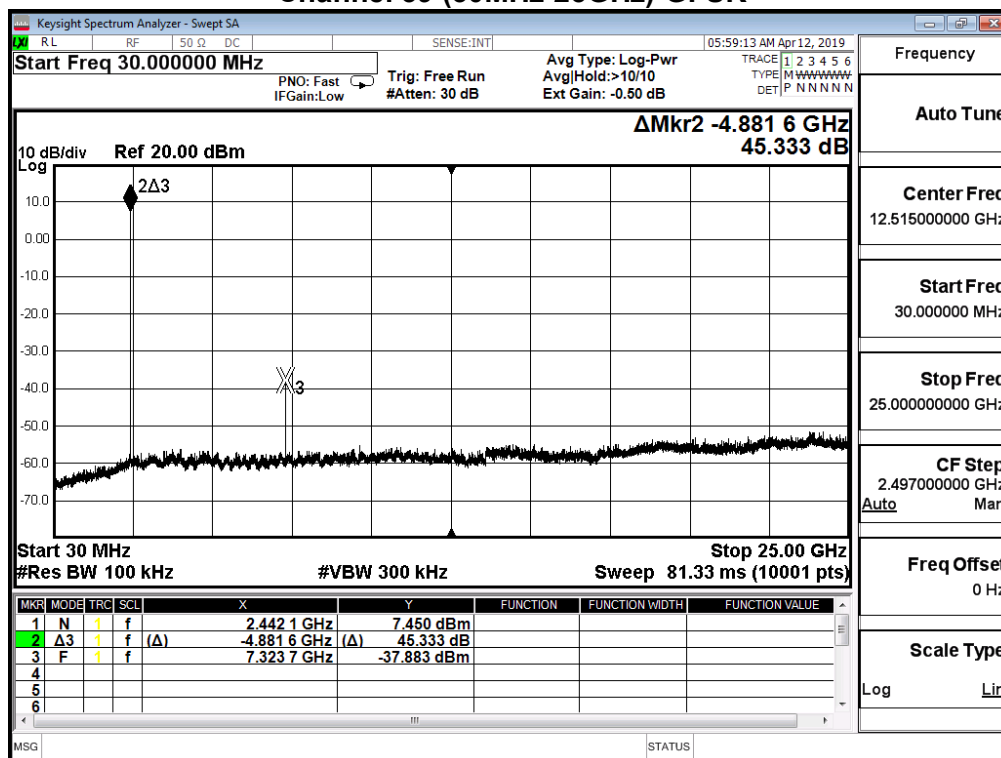


Product	Active Mobile Gateway-with Comm		
Test Item	RF antenna conducted test		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/04/16	Test Site	SR10-H

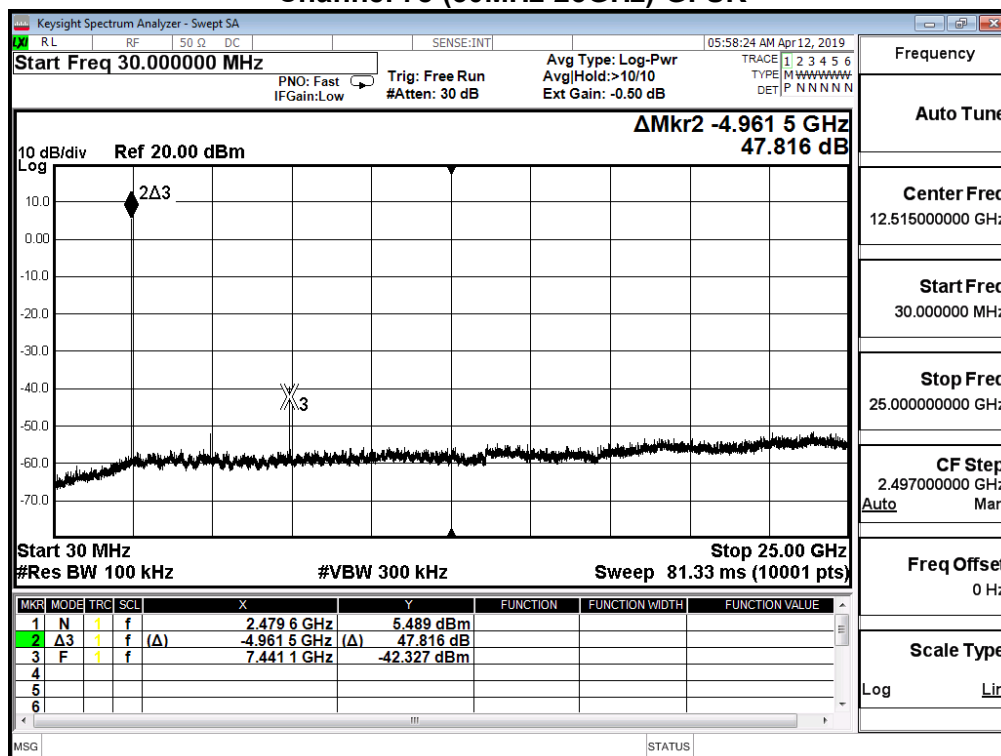
Channel 00 (30MHz-25GHz)-GFSK

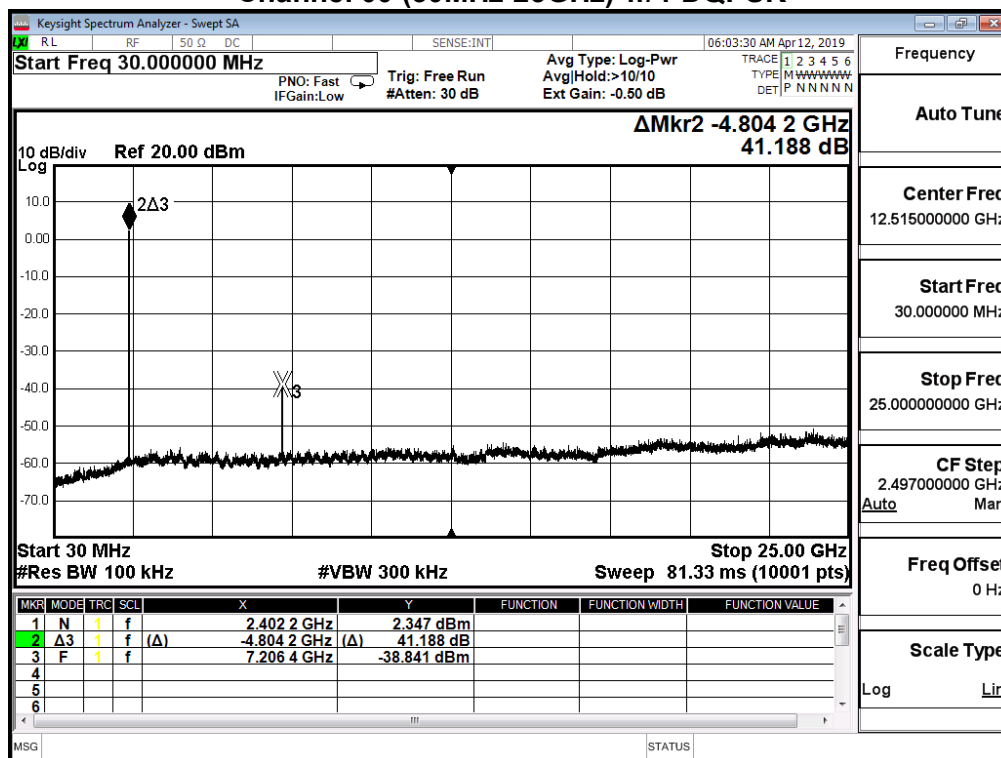
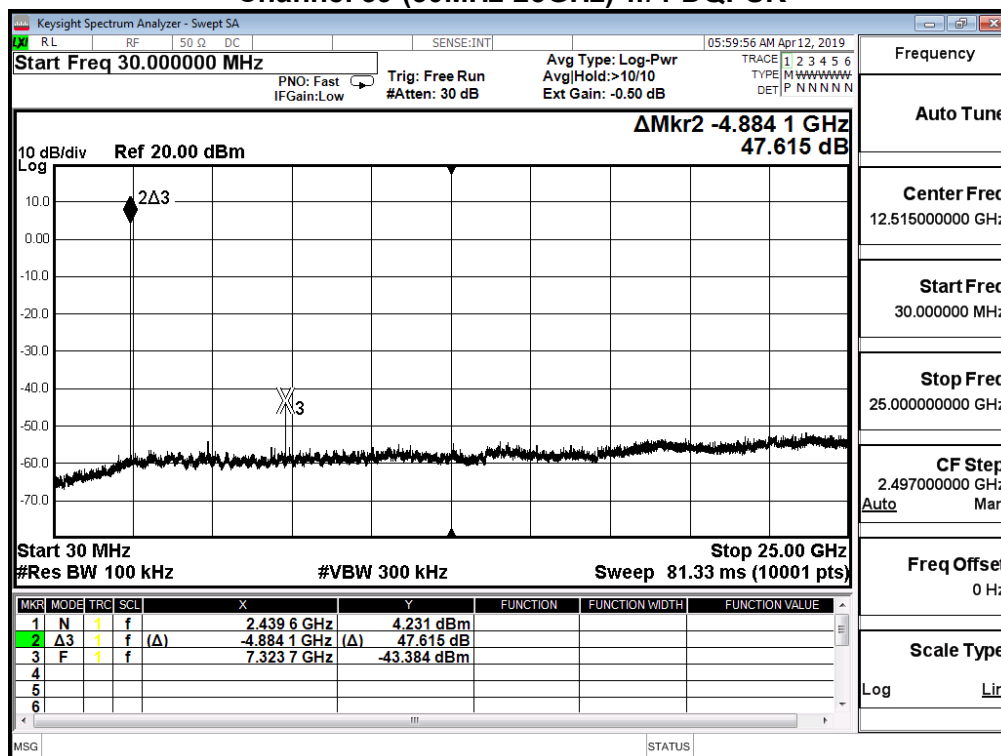


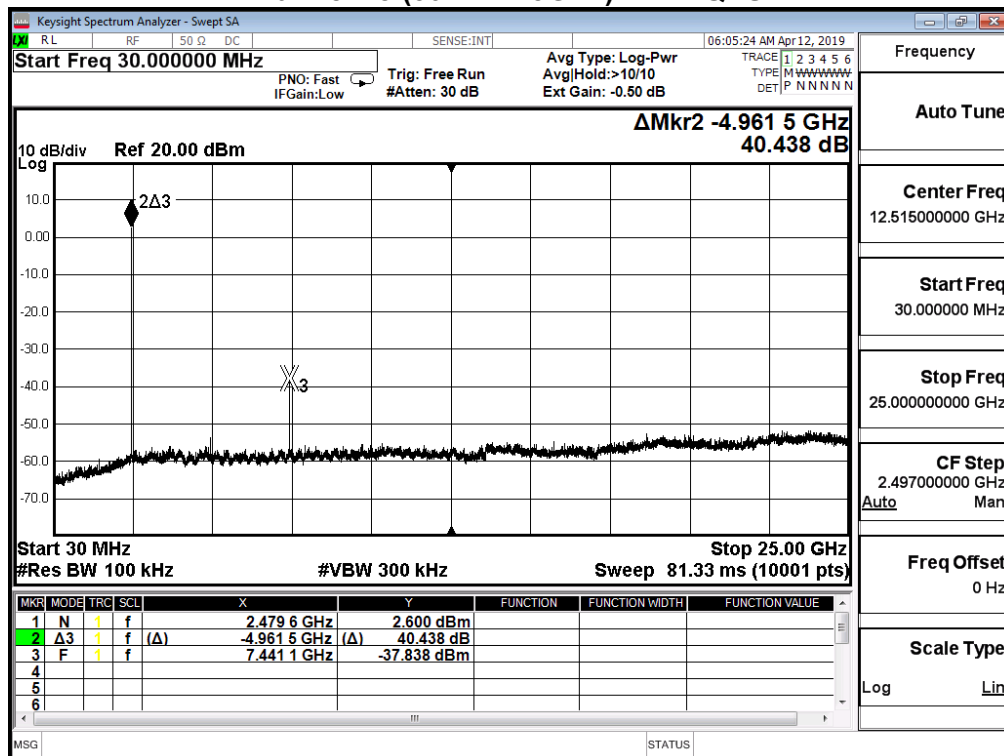
Channel 39 (30MHz-25GHz)-GFSK



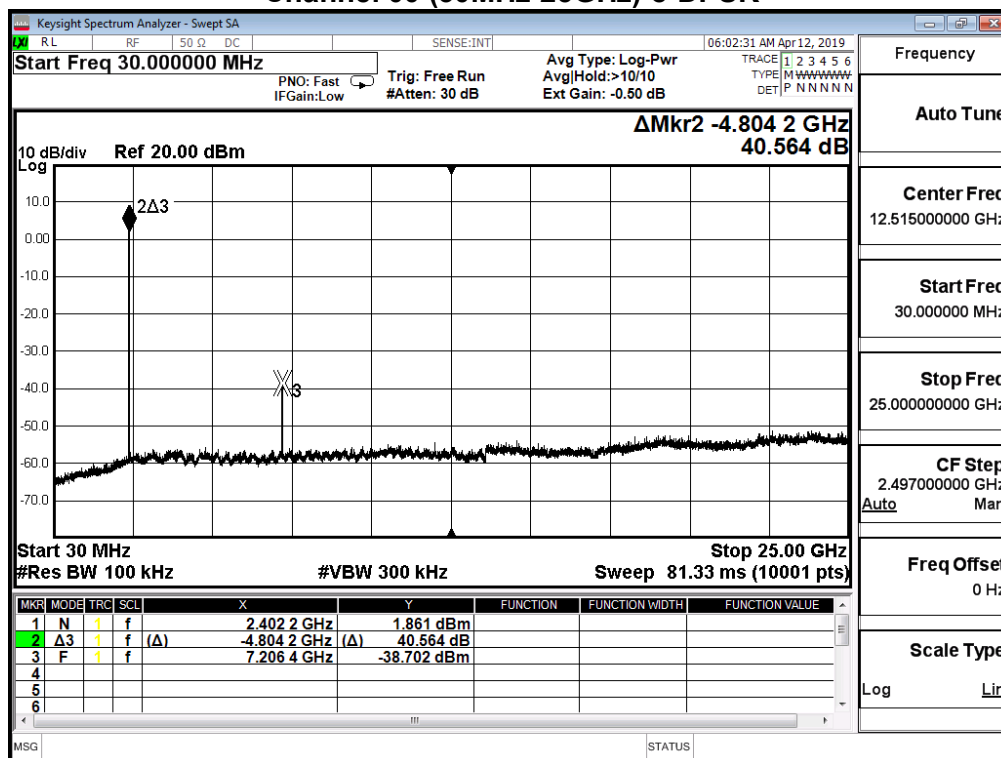
Channel 78 (30MHz-25GHz)-GFSK



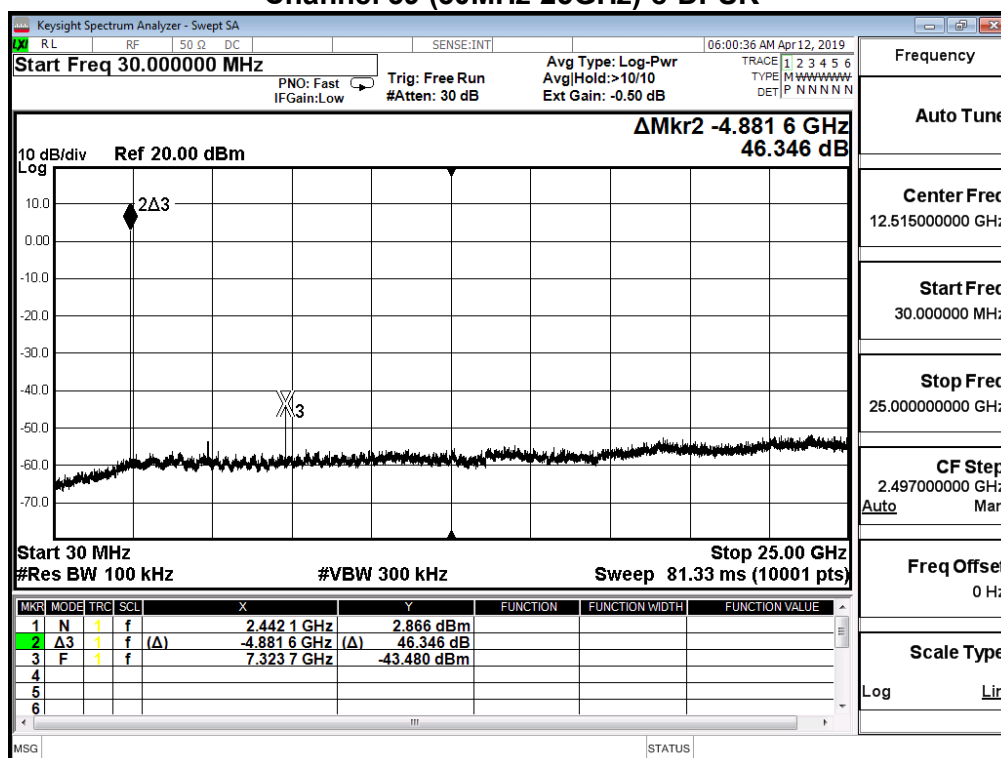
Channel 00 (30MHz-25GHz)- $\pi/4$ -DQPSKChannel 39 (30MHz-25GHz)- $\pi/4$ -DQPSK

Channel 78 (30MHz-25GHz)- $\pi/4$ -DQPSK

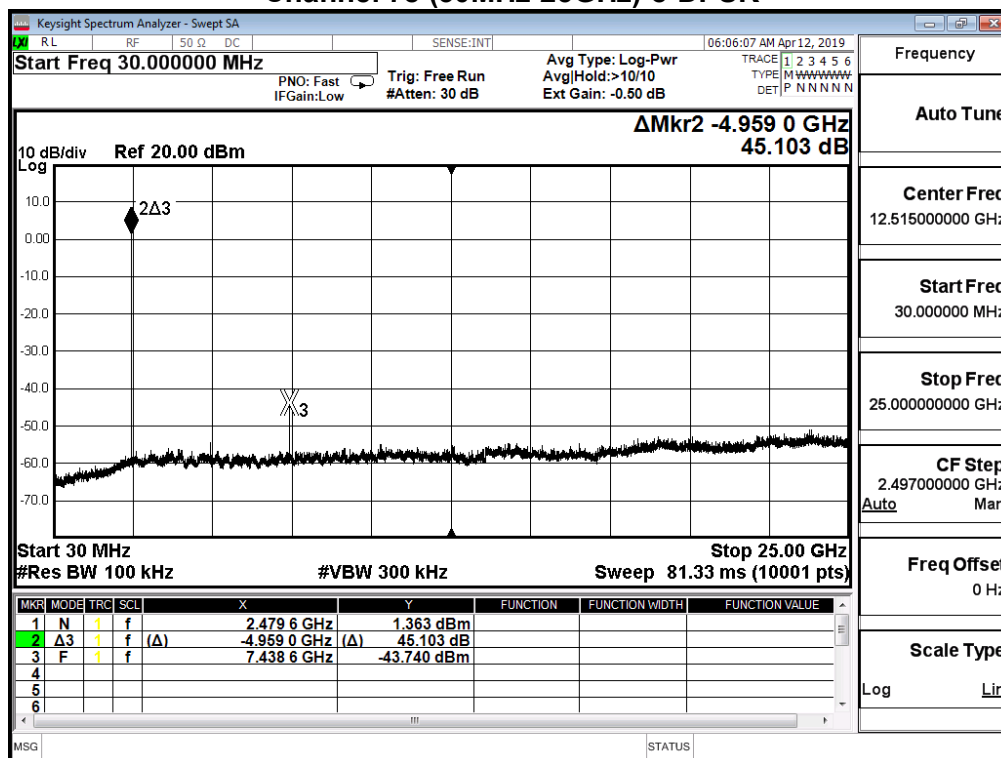
Channel 00 (30MHz-25GHz)-8-DPSK



Channel 39 (30MHz-25GHz)-8-DPSK



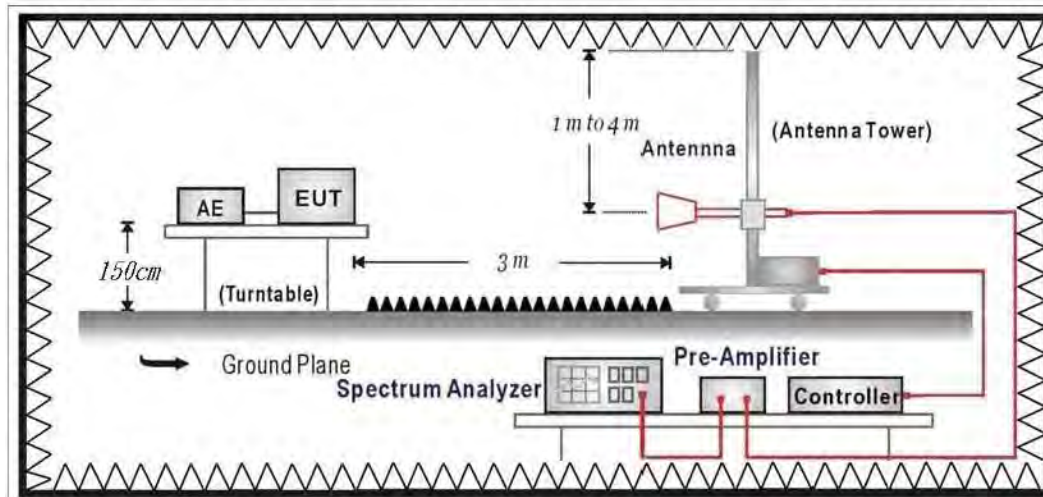
Channel 78 (30MHz-25GHz)-8-DPSK



7. Band Edge

7.1. Test Setup

RF Radiated Measurement:



7.2. 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.

7.3. 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 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.

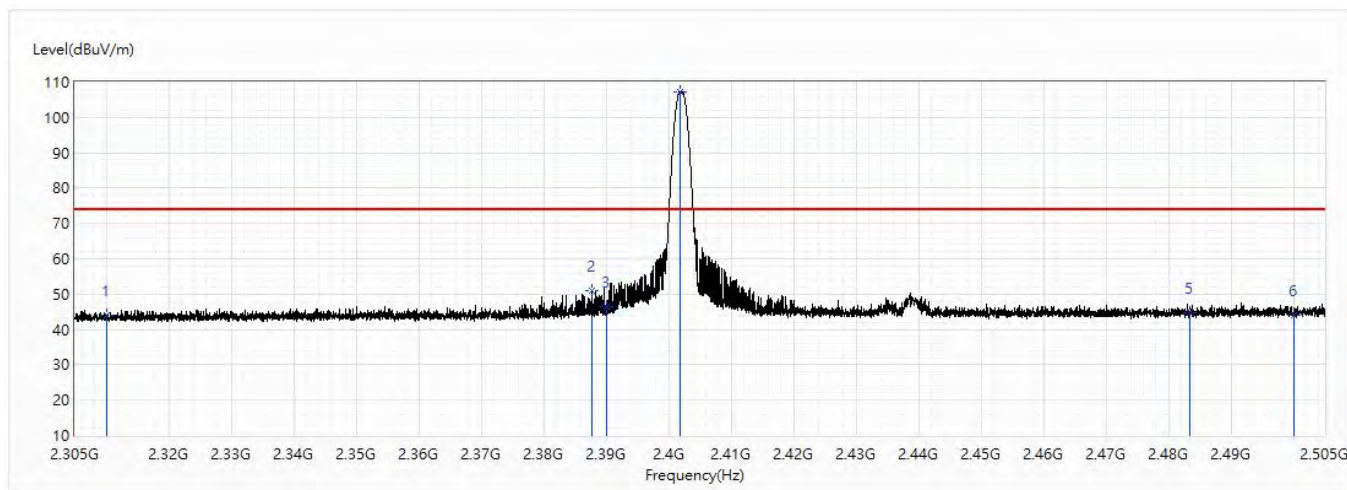
Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.10: 2013 on radiated measurement.

7.4. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2018

7.5. Test Result

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/12
Test Voltage :	DC 12V	Polarity :	Horizontal
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_DH5_2402MHz		

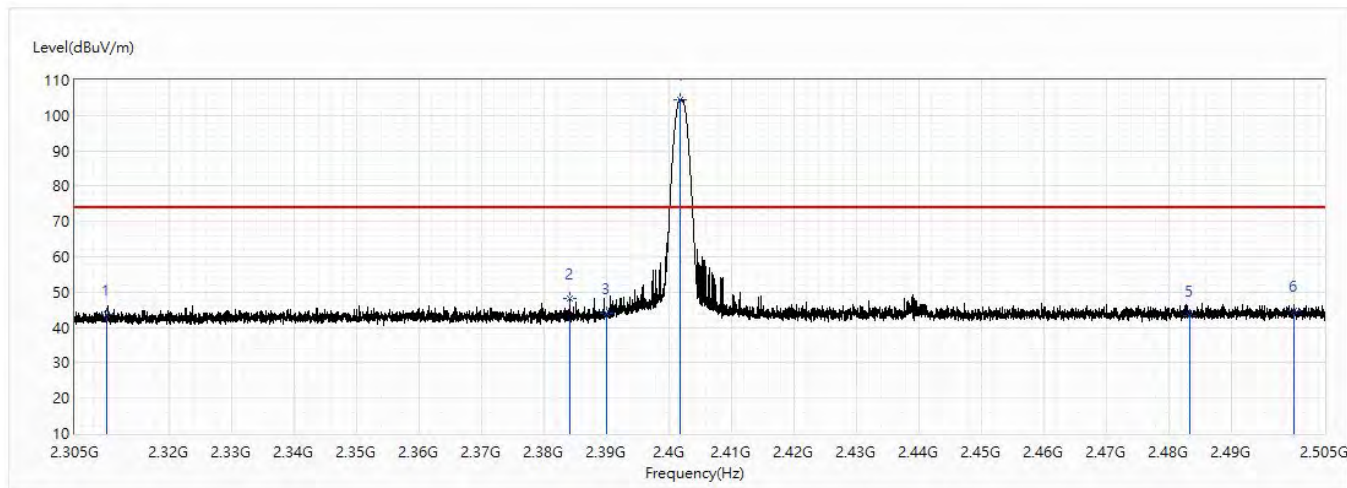


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310	44.03	74.00	-29.97	29.79	14.24	PK
2	2387.8	50.84	74.00	-23.16	36.03	14.81	PK
3	2390	46.57	74.00	-27.43	31.76	14.81	PK
! 4	2401.875	107.26	74.00	33.26	92.34	14.92	PK
5	2483.5	44.73	74.00	-29.27	29.25	15.48	PK
6	2500	43.90	74.00	-30.10	28.31	15.59	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/13
Test Voltage :	DC 12V	Polarity :	Vertical
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_DH5_2402MHz		

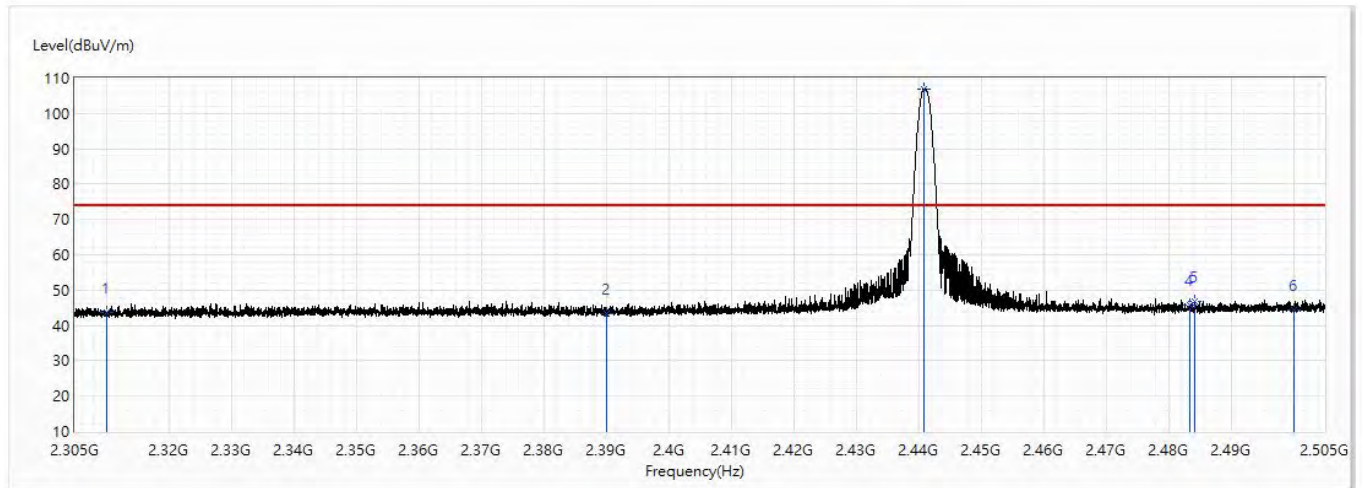


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310	43.82	74.00	-30.18	29.58	14.24	PK
2	2384.2	48.33	74.00	-25.67	33.56	14.77	PK
3	2390	43.90	74.00	-30.10	29.09	14.81	PK
! 4	2401.825	104.52	74.00	30.52	89.60	14.92	PK
5	2483.5	43.29	74.00	-30.71	27.81	15.48	PK
6	2500	44.73	74.00	-29.27	29.14	15.59	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/13
Test Voltage :	DC 12V	Polarity :	Horizontal
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_DH5_2441MHz		

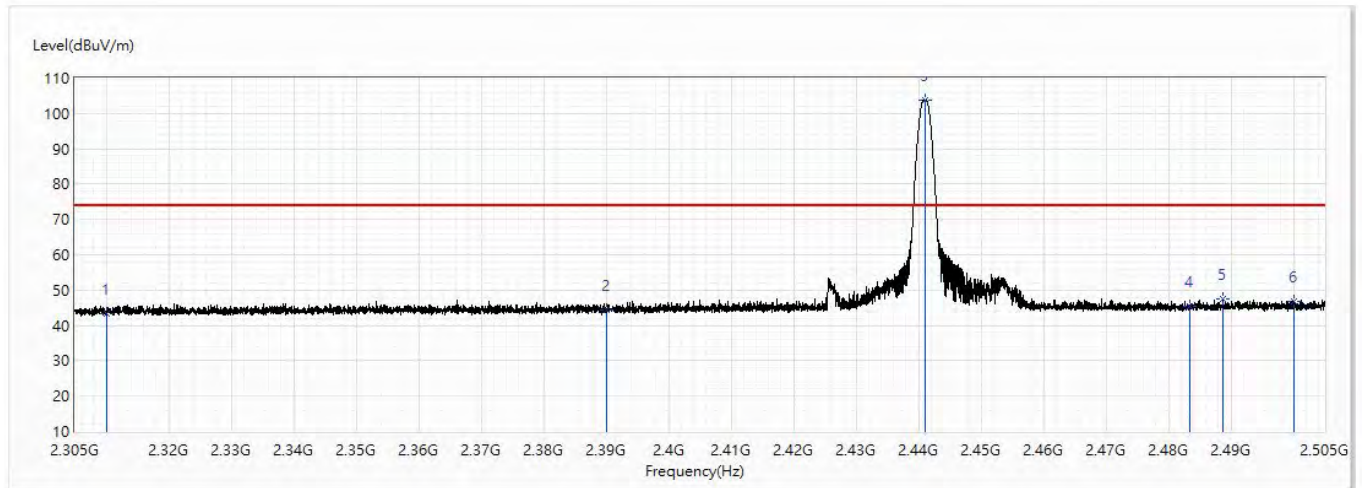


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310	43.83	74.00	-30.17	29.59	14.24	PK
2	2390	43.48	74.00	-30.52	28.67	14.81	PK
! 3	2440.825	106.82	74.00	32.82	91.61	15.21	PK
4	2483.5	45.72	74.00	-28.28	30.24	15.48	PK
5	2484.15	46.90	74.00	-27.10	31.42	15.48	PK
6	2500	44.43	74.00	-29.57	28.84	15.59	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/13
Test Voltage :	DC 12V	Polarity :	Vertical
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_DH5_2441MHz		

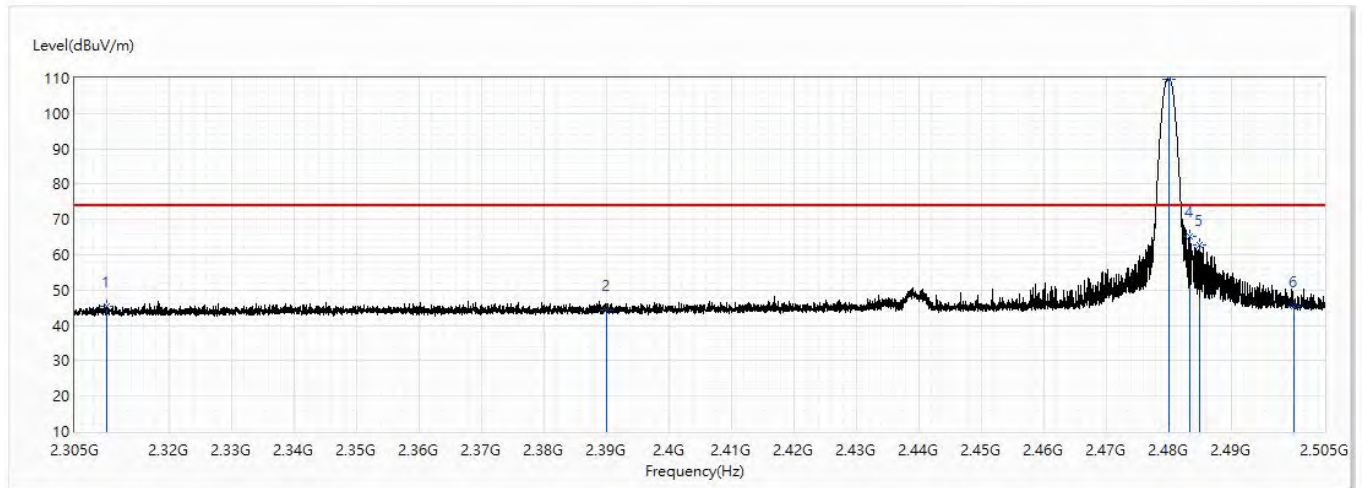


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310	43.47	74.00	-30.53	29.23	14.24	PK
2	2390	44.47	74.00	-29.53	29.66	14.81	PK
! 3	2441.15	103.87	74.00	29.87	88.66	15.21	PK
4	2483.5	45.32	74.00	-28.68	29.84	15.48	PK
5	2488.725	47.40	74.00	-26.60	31.88	15.52	PK
6	2500	46.78	74.00	-27.22	31.19	15.59	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/13
Test Voltage :	DC 12V	Polarity :	Horizontal
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_DH5_2480MHz		

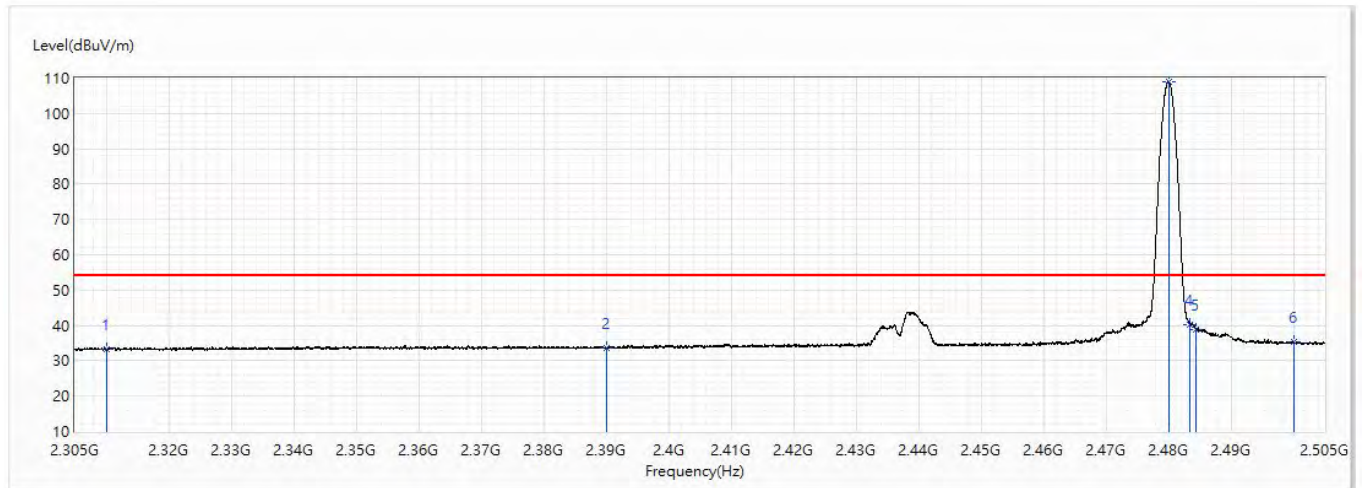


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310	45.25	74.00	-28.75	31.01	14.24	PK
2	2390	44.40	74.00	-29.60	29.59	14.81	PK
! 3	2480.175	109.73	74.00	35.73	94.27	15.46	PK
4	2483.5	65.22	74.00	-8.78	49.74	15.48	PK
5	2485	62.89	74.00	-11.11	47.41	15.48	PK
6	2500	45.42	74.00	-28.58	29.83	15.59	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/13
Test Voltage :	DC 12V	Polarity :	Horizontal
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_DH5_2480MHz		

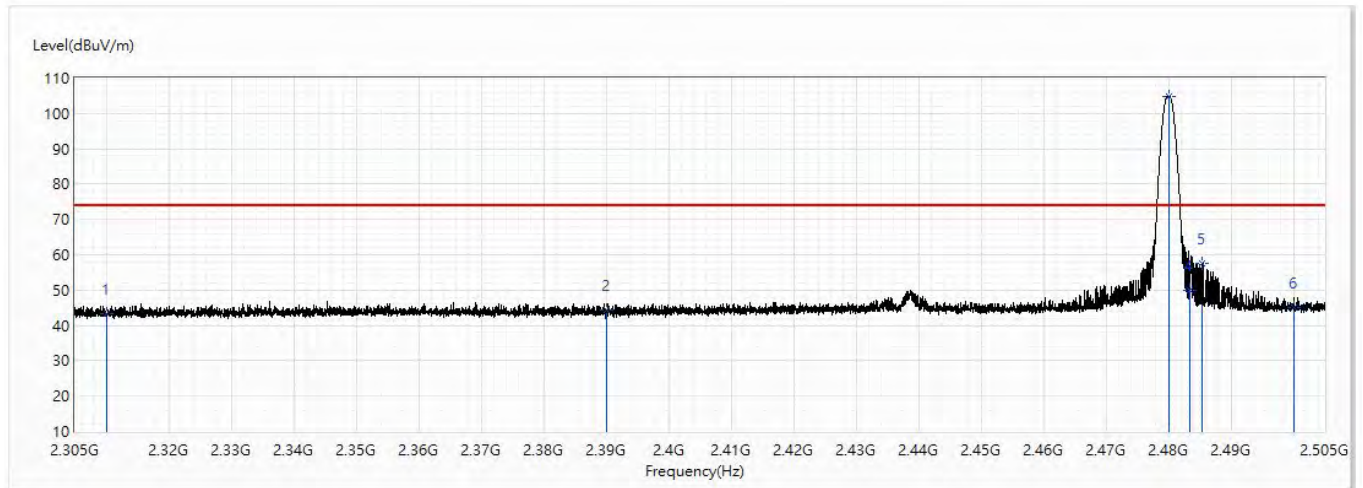


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310	33.12	54.00	-20.88	18.88	14.24	AV
2	2390	33.67	54.00	-20.33	18.86	14.81	AV
! 3	2480	108.99	54.00	54.99	93.53	15.46	AV
4	2483.5	40.33	54.00	-13.67	24.85	15.48	AV
5	2484.425	38.93	54.00	-15.07	23.45	15.48	AV
6	2500	35.52	54.00	-18.48	19.93	15.59	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/13
Test Voltage :	DC 12V	Polarity :	Vertical
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_DH5_2480MHz		

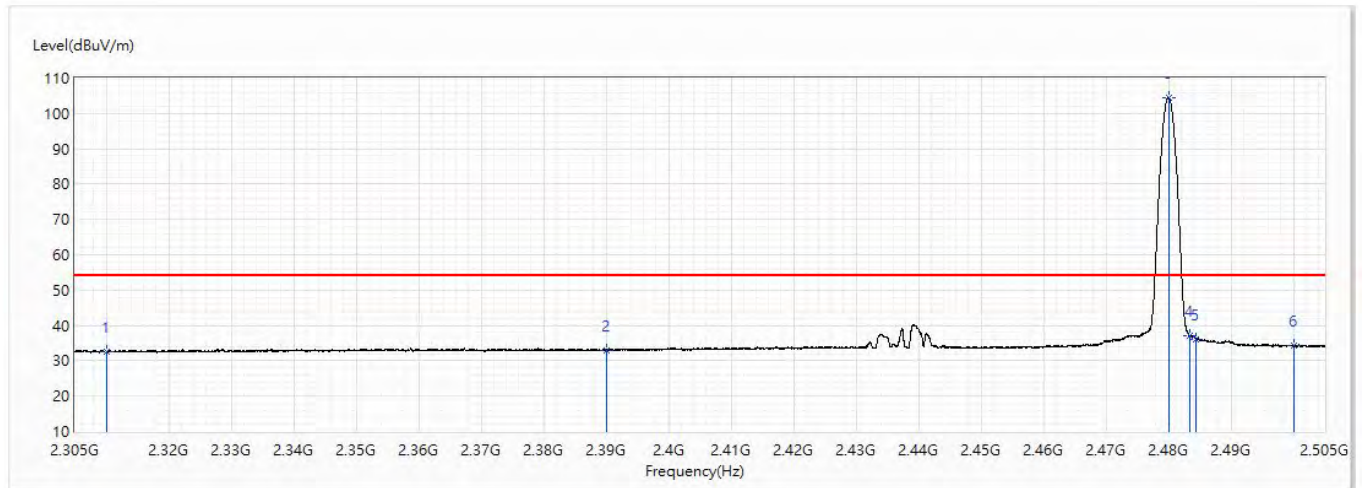


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310	43.32	74.00	-30.68	29.08	14.24	PK
2	2390	44.38	74.00	-29.62	29.57	14.81	PK
! 3	2480.175	104.77	74.00	30.77	89.31	15.46	PK
4	2483.5	50.07	74.00	-23.93	34.59	15.48	PK
5	2485.35	57.58	74.00	-16.42	42.09	15.49	PK
6	2500	45.10	74.00	-28.90	29.51	15.59	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/13
Test Voltage :	DC 12V	Polarity :	Vertical
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_DH5_2480MHz		

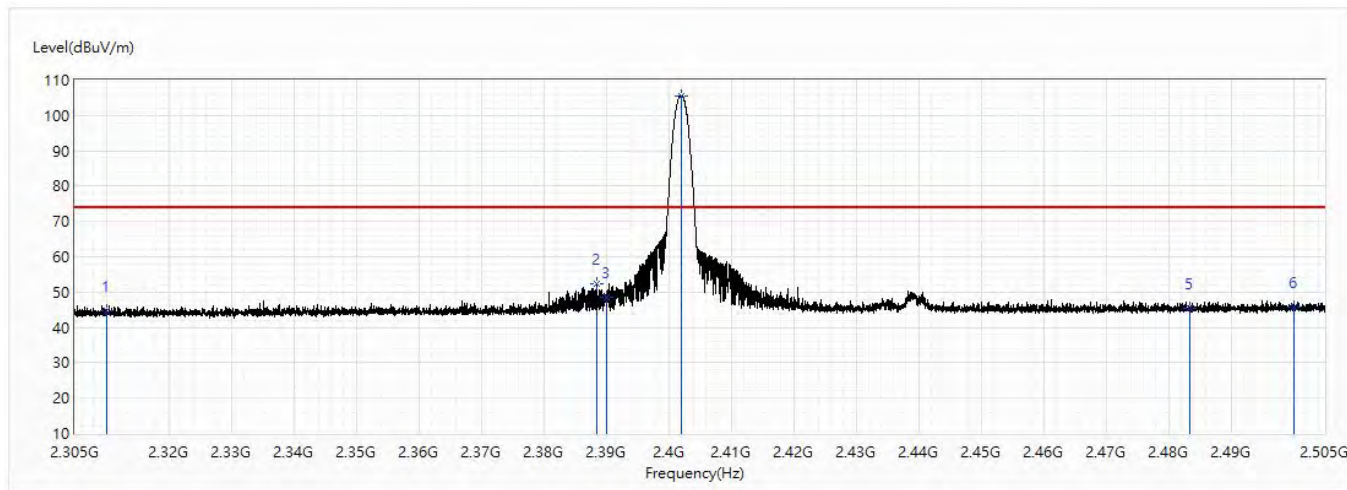


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310	32.67	54.00	-21.33	18.43	14.24	AV
2	2390	33.00	54.00	-21.00	18.19	14.81	AV
! 3	2480	104.52	54.00	50.52	89.06	15.46	AV
4	2483.5	37.05	54.00	-16.95	21.57	15.48	AV
5	2484.475	36.19	54.00	-17.81	20.71	15.48	AV
6	2500	34.36	54.00	-19.64	18.77	15.59	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/13
Test Voltage :	DC 12V	Polarity :	Horizontal
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_2DH5_2402MHz		

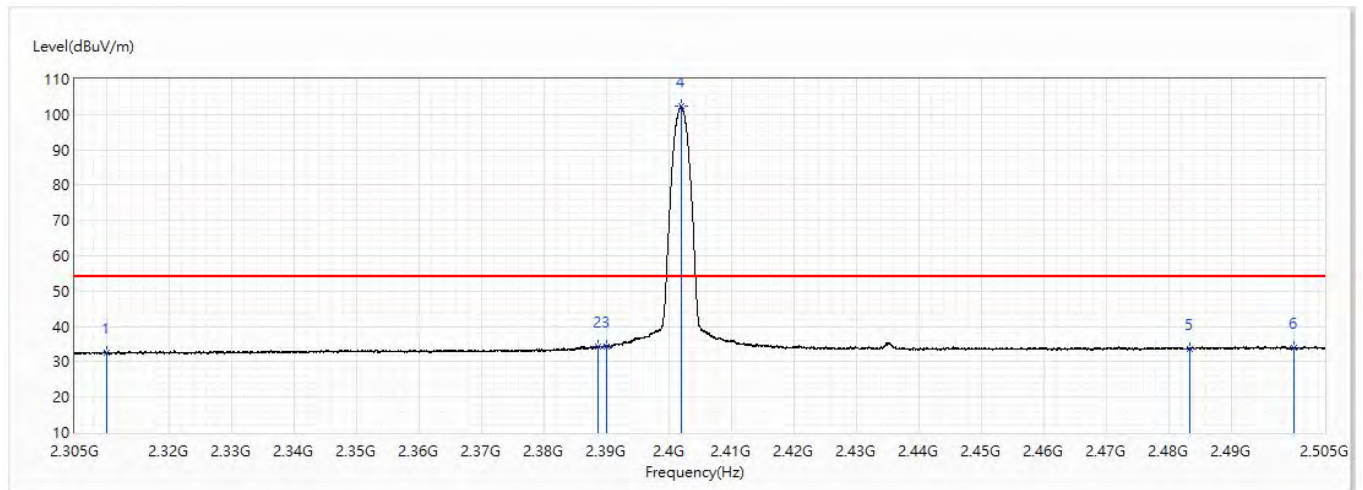


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310	44.65	74.00	-29.35	30.41	14.24	PK
2	2388.55	52.42	74.00	-21.58	37.61	14.81	PK
3	2390	48.59	74.00	-25.41	33.78	14.81	PK
! 4	2402.125	105.60	74.00	31.60	90.68	14.92	PK
5	2483.5	45.33	74.00	-28.67	29.85	15.48	PK
6	2500	45.61	74.00	-28.39	30.02	15.59	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/13
Test Voltage :	DC 12V	Polarity :	Horizontal
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_2DH5_2402MHz		

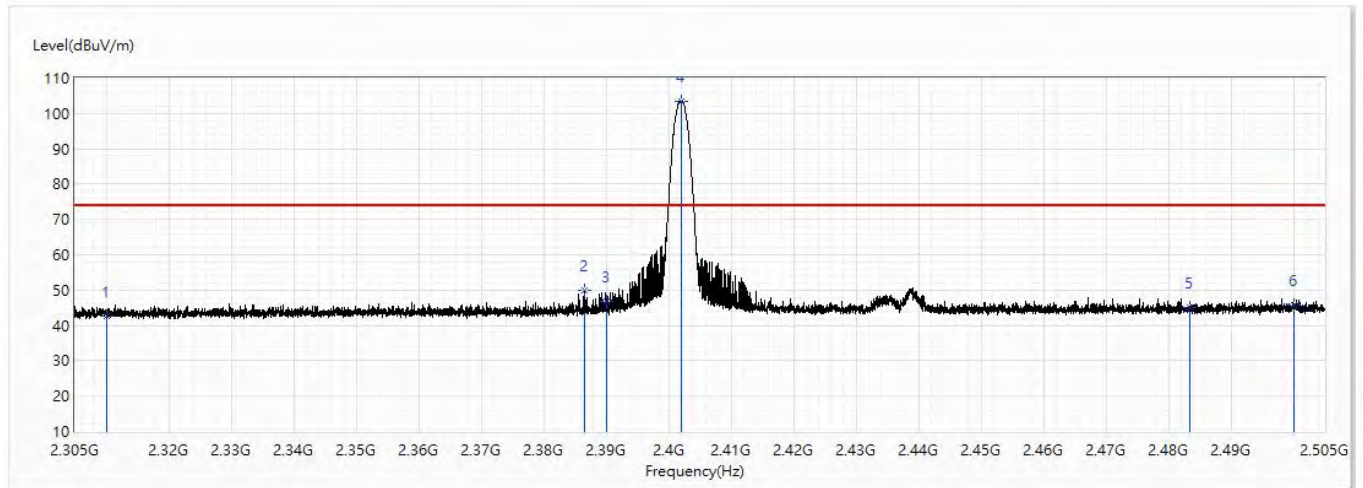


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310	32.40	54.00	-21.60	18.16	14.24	AV
2	2388.75	34.16	54.00	-19.84	19.35	14.81	AV
3	2390	34.29	54.00	-19.71	19.48	14.81	AV
! 4	2402	102.20	54.00	48.20	87.28	14.92	AV
5	2483.5	33.72	54.00	-20.28	18.24	15.48	AV
6	2500	34.01	54.00	-19.99	18.42	15.59	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/13
Test Voltage :	DC 12V	Polarity :	Vertical
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_2DH5_2402MHz		

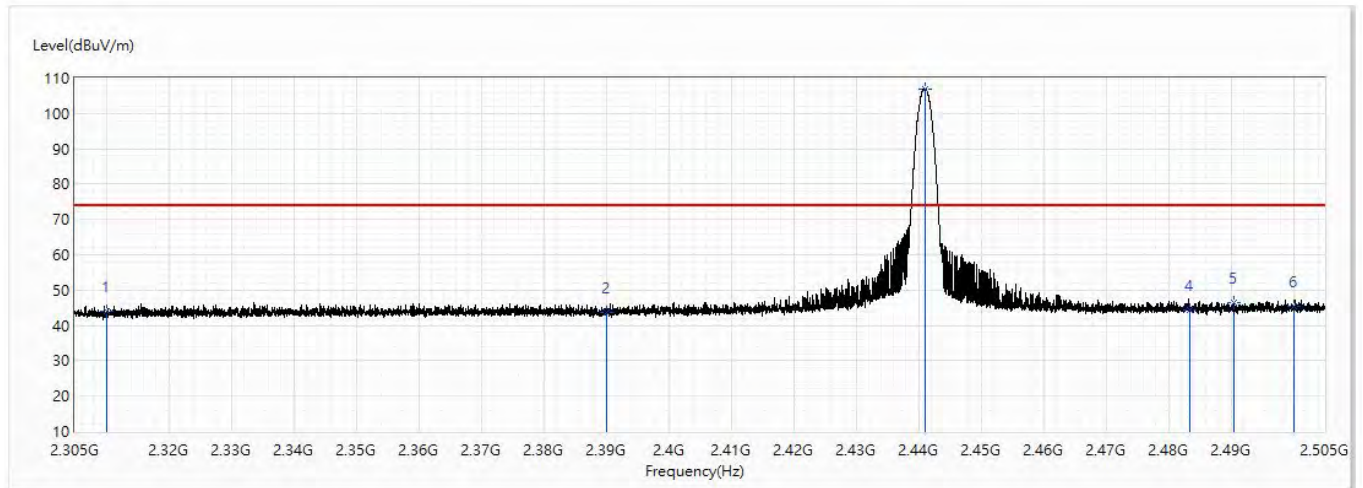


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310	42.56	74.00	-31.44	28.32	14.24	PK
2	2386.6	49.80	74.00	-24.20	35.00	14.80	PK
3	2390	46.80	74.00	-27.20	31.99	14.81	PK
! 4	2402.075	103.56	74.00	29.56	88.64	14.92	PK
5	2483.5	45.15	74.00	-28.85	29.67	15.48	PK
6	2500	45.61	74.00	-28.39	30.02	15.59	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/13
Test Voltage :	DC 12V	Polarity :	Horizontal
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_2DH5_2441MHz		

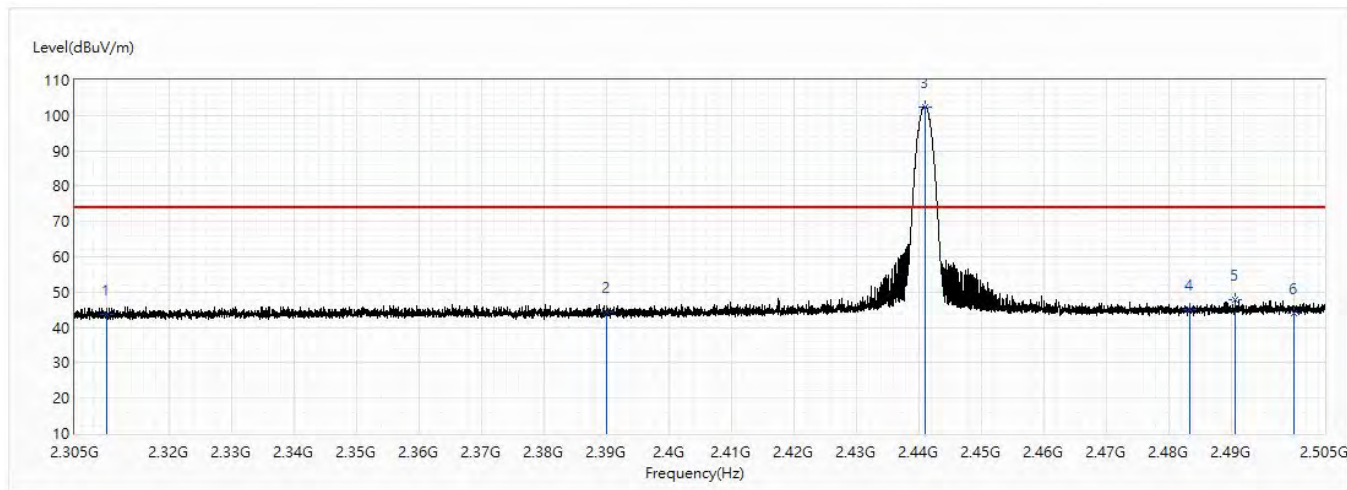


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310	44.02	74.00	-29.98	29.78	14.24	PK
2	2390	43.54	74.00	-30.46	28.73	14.81	PK
! 3	2441.125	106.95	74.00	32.95	91.74	15.21	PK
4	2483.5	44.48	74.00	-29.52	29.00	15.48	PK
5	2490.425	46.50	74.00	-27.50	30.98	15.52	PK
6	2500	45.55	74.00	-28.45	29.96	15.59	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/13
Test Voltage :	DC 12V	Polarity :	Vertical
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_2DH5_2441MHz		

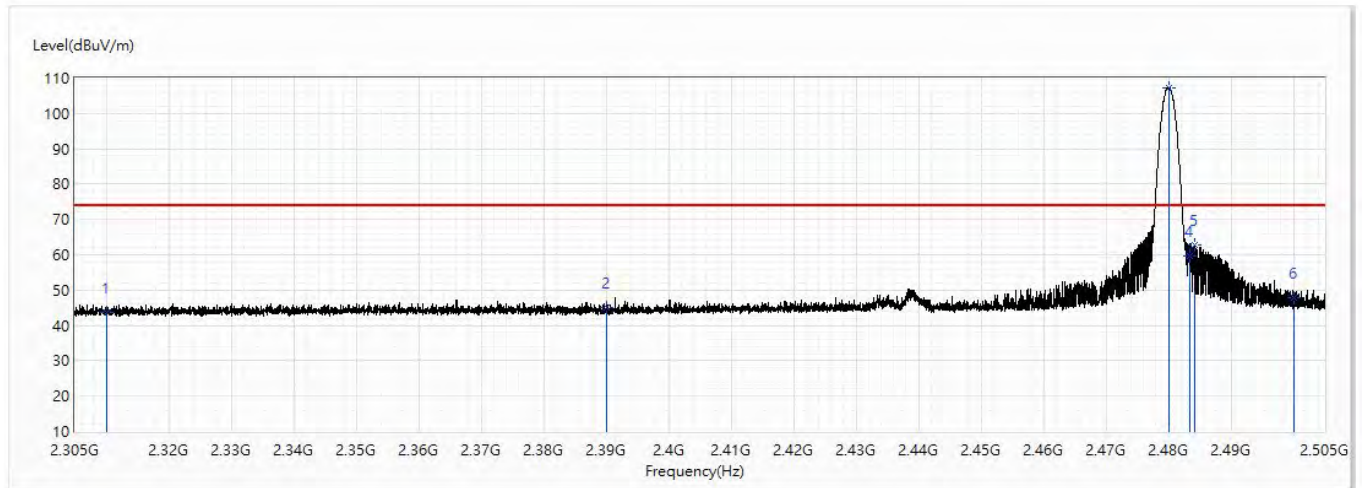


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310	43.54	74.00	-30.46	29.30	14.24	PK
2	2390	44.52	74.00	-29.48	29.71	14.81	PK
! 3	2441.175	102.46	74.00	28.46	87.25	15.21	PK
4	2483.5	44.99	74.00	-29.01	29.51	15.48	PK
5	2490.625	47.74	74.00	-26.26	32.22	15.52	PK
6	2500	44.16	74.00	-29.84	28.57	15.59	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/13
Test Voltage :	DC 12V	Polarity :	Horizontal
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_2DH5_2480MHz		

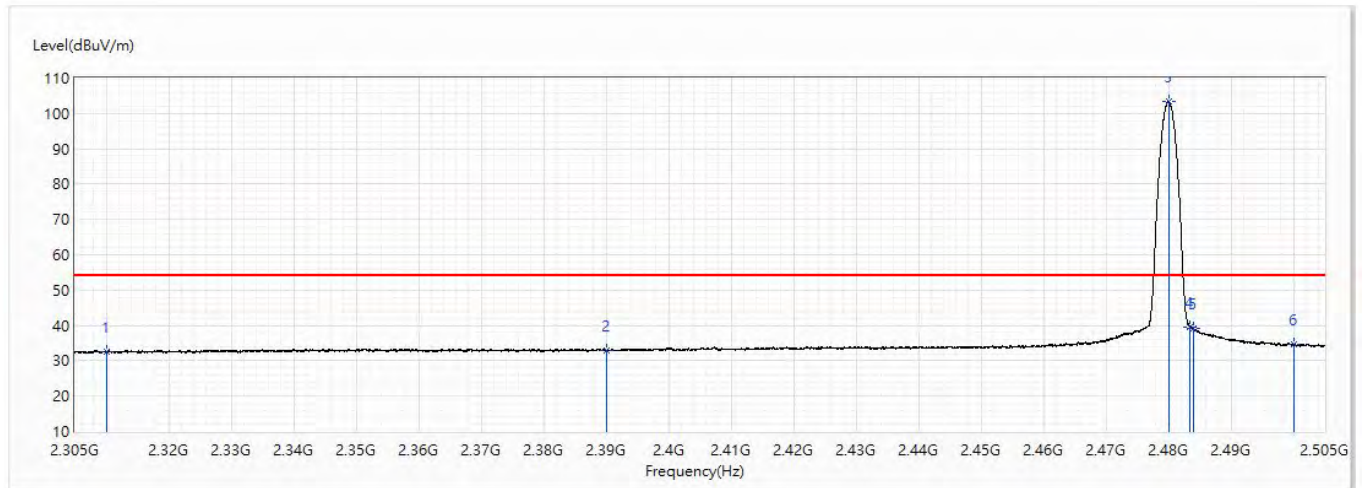


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310	43.69	74.00	-30.31	29.45	14.24	PK
2	2390	45.18	74.00	-28.82	30.37	14.81	PK
! 3	2480.1	107.21	74.00	33.21	91.75	15.46	PK
4	2483.5	59.57	74.00	-14.43	44.09	15.48	PK
5	2484.25	62.61	74.00	-11.39	47.13	15.48	PK
6	2500	47.72	74.00	-26.28	32.13	15.59	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/13
Test Voltage :	DC 12V	Polarity :	Horizontal
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_2DH5_2480MHz		

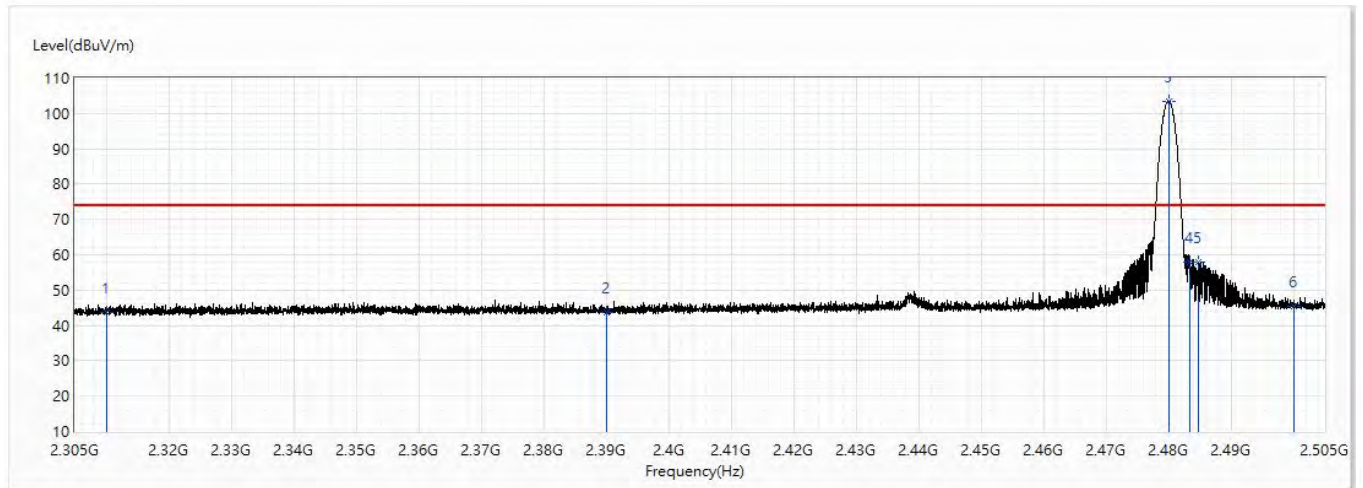


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310	32.47	54.00	-21.53	18.23	14.24	AV
2	2390	32.81	54.00	-21.19	18.00	14.81	AV
! 3	2480	103.42	54.00	49.42	87.96	15.46	AV
4	2483.5	39.52	54.00	-14.48	24.04	15.48	AV
5	2484	39.15	54.00	-14.85	23.67	15.48	AV
6	2500	34.56	54.00	-19.44	18.97	15.59	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/13
Test Voltage :	DC 12V	Polarity :	Vertical
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_2DH5_2480MHz		

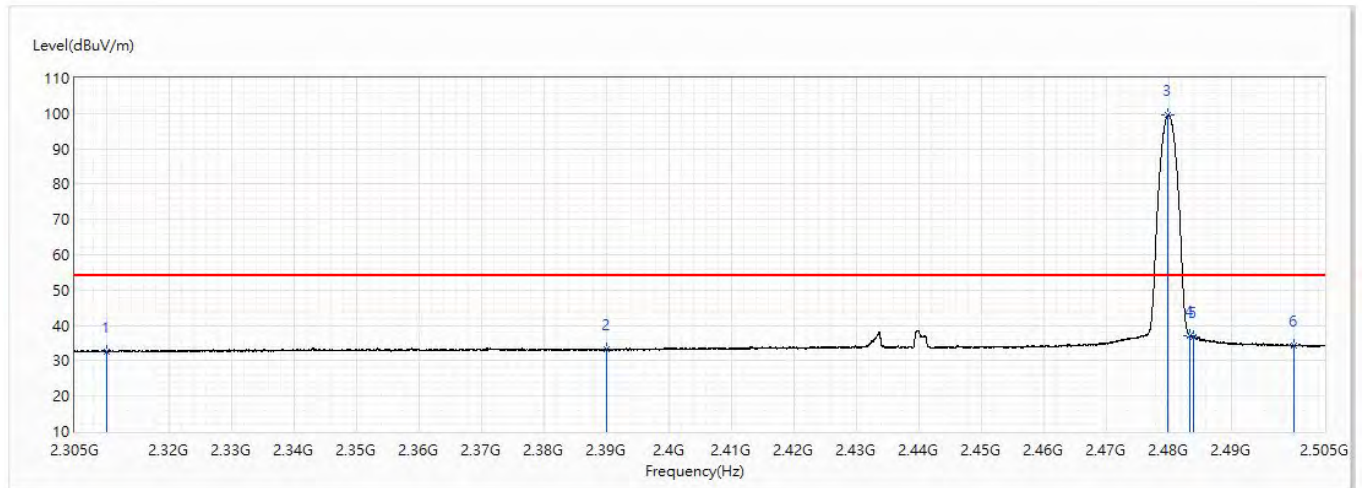


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310	43.66	74.00	-30.34	29.42	14.24	PK
2	2390	43.66	74.00	-30.34	28.85	14.81	PK
! 3	2480.075	103.28	74.00	29.28	87.82	15.46	PK
4	2483.5	57.98	74.00	-16.02	42.50	15.48	PK
5	2484.8	57.78	74.00	-16.22	42.30	15.48	PK
6	2500	45.27	74.00	-28.73	29.68	15.59	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/13
Test Voltage :	DC 12V	Polarity :	Vertical
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_2DH5_2480MHz		

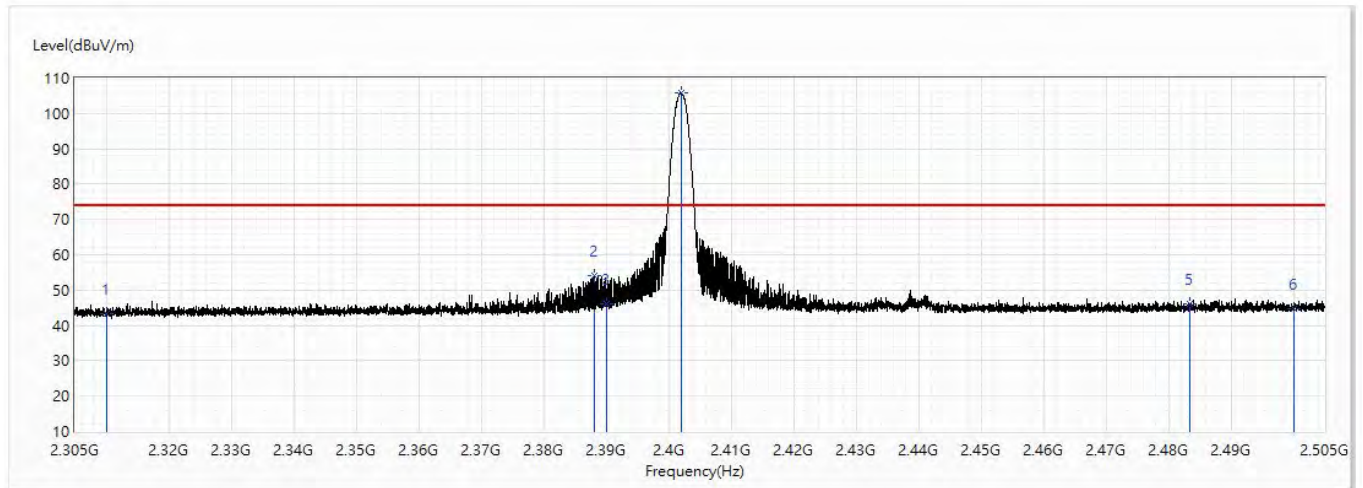


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310	32.48	54.00	-21.52	18.24	14.24	AV
2	2390	33.18	54.00	-20.82	18.37	14.81	AV
! 3	2479.975	99.59	54.00	45.59	84.13	15.46	AV
4	2483.5	36.95	54.00	-17.05	21.47	15.48	AV
5	2484	36.89	54.00	-17.11	21.41	15.48	AV
6	2500	34.29	54.00	-19.71	18.70	15.59	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/13
Test Voltage :	DC 12V	Polarity :	Horizontal
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_3DH5_2402MHz		

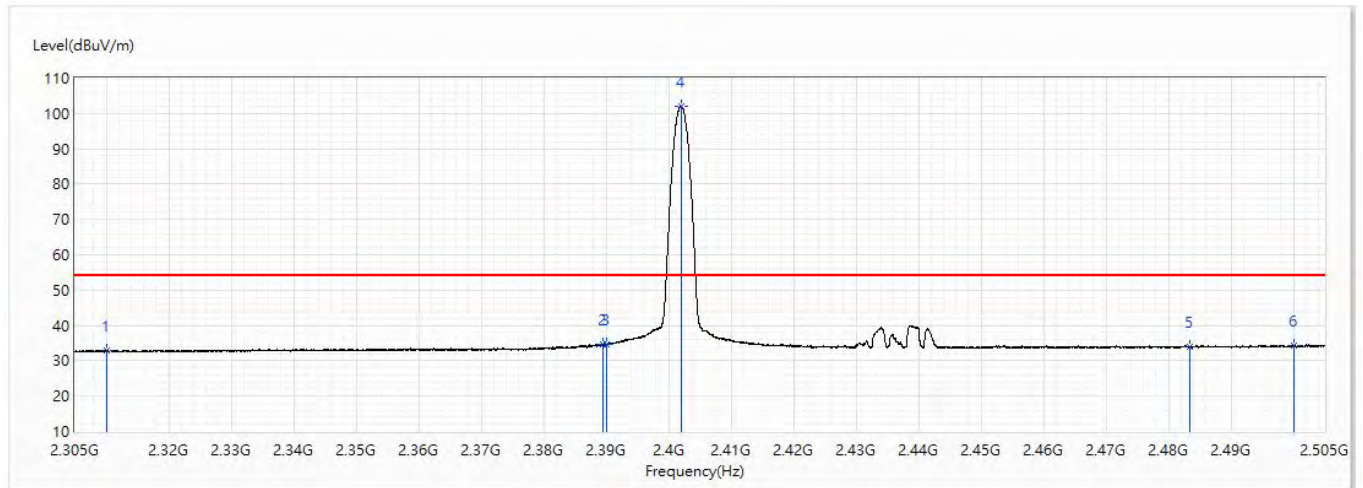


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310	43.27	74.00	-30.73	29.03	14.24	PK
2	2388.05	54.05	74.00	-19.95	39.24	14.81	PK
3	2390	46.24	74.00	-27.76	31.43	14.81	PK
! 4	2402	105.95	74.00	31.95	91.03	14.92	PK
5	2483.5	45.96	74.00	-28.04	30.48	15.48	PK
6	2500	44.87	74.00	-29.13	29.28	15.59	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/13
Test Voltage :	DC 12V	Polarity :	Horizontal
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_3DH5_2402MHz		

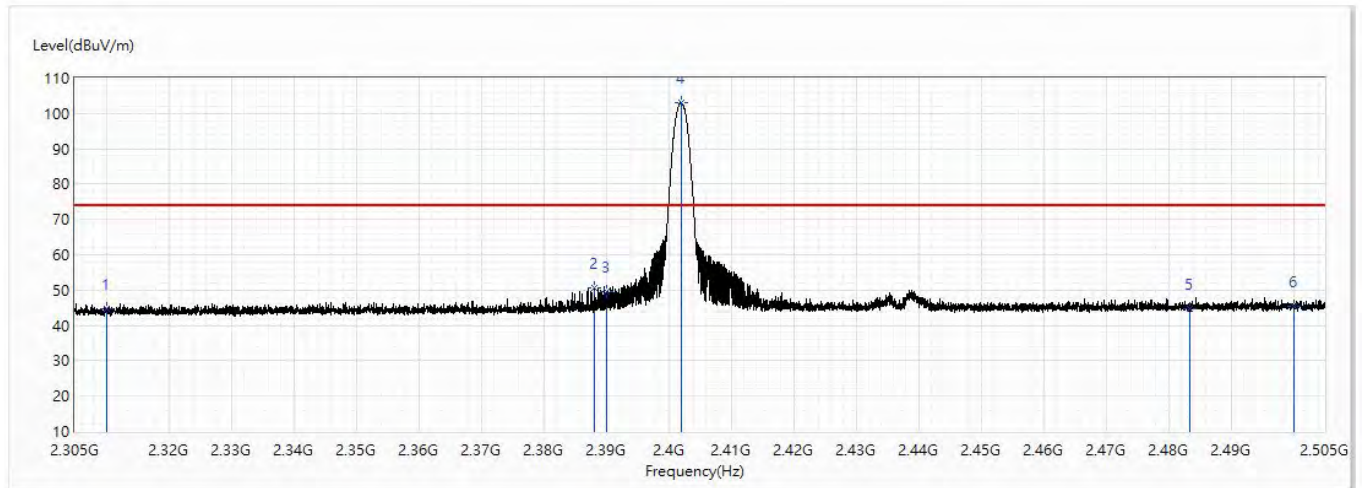


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310	32.75	54.00	-21.25	18.51	14.24	AV
2	2389.45	34.58	54.00	-19.42	19.77	14.81	AV
3	2390	34.59	54.00	-19.41	19.78	14.81	AV
! 4	2402.025	102.06	54.00	48.06	87.14	14.92	AV
5	2483.5	33.93	54.00	-20.07	18.45	15.48	AV
6	2500	34.43	54.00	-19.57	18.84	15.59	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/13
Test Voltage :	DC 12V	Polarity :	Vertical
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_3DH5_2402MHz		

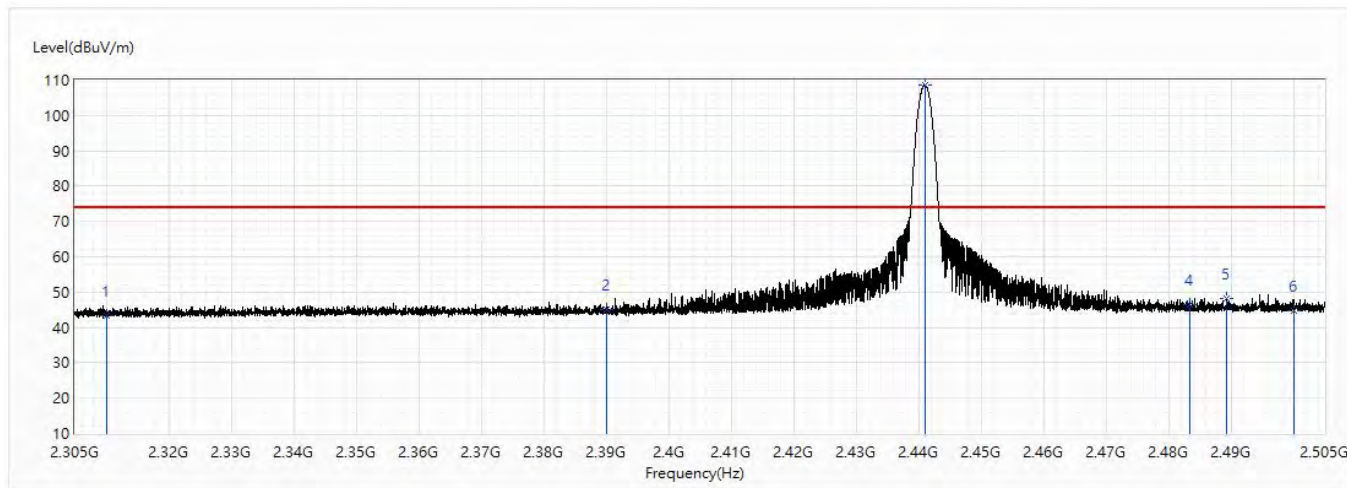


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310	44.57	74.00	-29.43	30.33	14.24	PK
2	2388.15	50.59	74.00	-23.41	35.78	14.81	PK
3	2390	49.42	74.00	-24.58	34.61	14.81	PK
! 4	2402	103.11	74.00	29.11	88.19	14.92	PK
5	2483.5	44.89	74.00	-29.11	29.41	15.48	PK
6	2500	45.49	74.00	-28.51	29.90	15.59	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/13
Test Voltage :	DC 12V	Polarity :	Horizontal
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_3DH5_2441MHz		

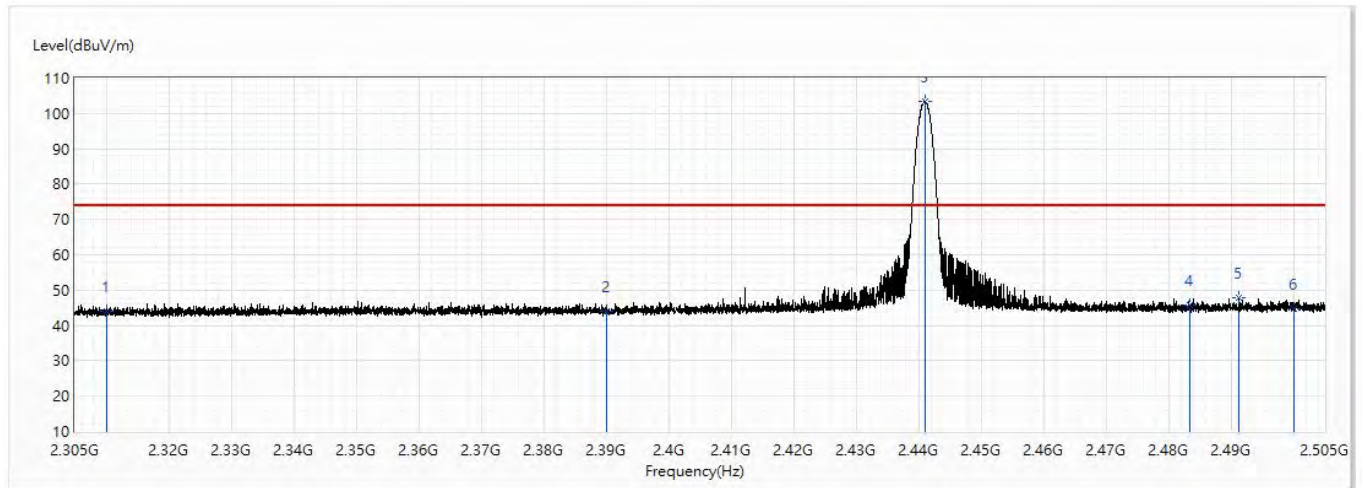


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310	43.46	74.00	-30.54	29.22	14.24	PK
2	2390	45.17	74.00	-28.83	30.36	14.81	PK
! 3	2441.025	108.64	74.00	34.64	93.43	15.21	PK
4	2483.5	46.41	74.00	-27.59	30.93	15.48	PK
5	2489.35	48.29	74.00	-25.71	32.77	15.52	PK
6	2500	44.66	74.00	-29.34	29.07	15.59	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/13
Test Voltage :	DC 12V	Polarity :	Vertical
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_3DH5_2441MHz		

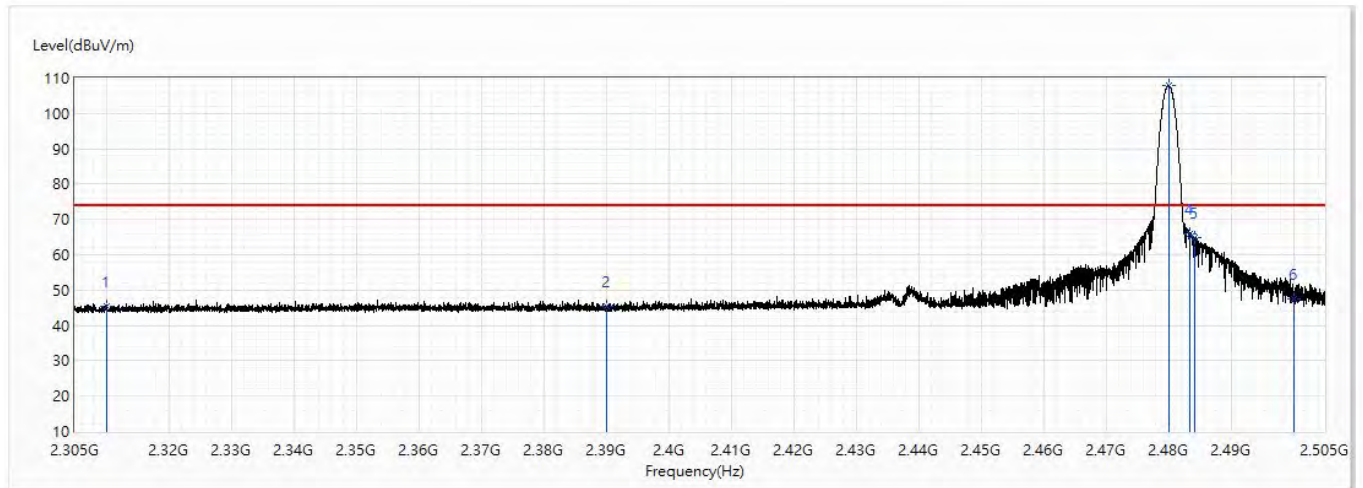


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310	43.97	74.00	-30.03	29.73	14.24	PK
2	2390	44.12	74.00	-29.88	29.31	14.81	PK
! 3	2441	103.39	74.00	29.39	88.18	15.21	PK
4	2483.5	45.87	74.00	-28.13	30.39	15.48	PK
5	2491.25	47.88	74.00	-26.12	32.34	15.54	PK
6	2500	44.78	74.00	-29.22	29.19	15.59	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/13
Test Voltage :	DC 12V	Polarity :	Horizontal
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_3DH5_2480MHz		

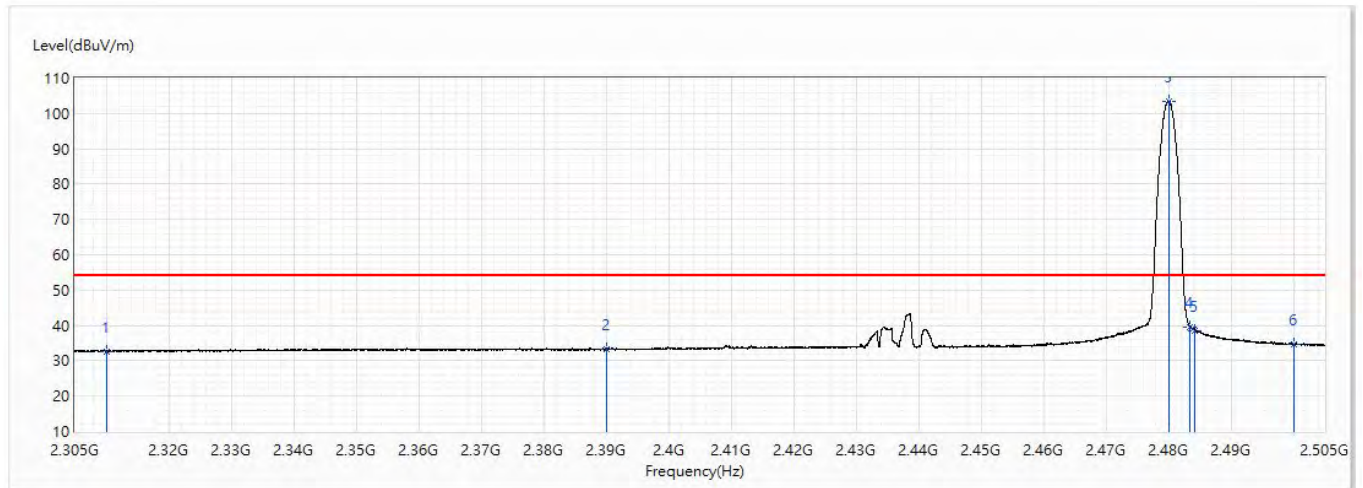


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310	45.38	74.00	-28.62	31.14	14.24	PK
2	2390	45.28	74.00	-28.72	30.47	14.81	PK
! 3	2480	107.94	74.00	33.94	92.48	15.46	PK
4	2483.5	65.74	74.00	-8.26	50.26	15.48	PK
5	2484.225	64.75	74.00	-9.25	49.27	15.48	PK
6	2500	47.66	74.00	-26.34	32.07	15.59	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/13
Test Voltage :	DC 12V	Polarity :	Horizontal
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_3DH5_2480MHz		

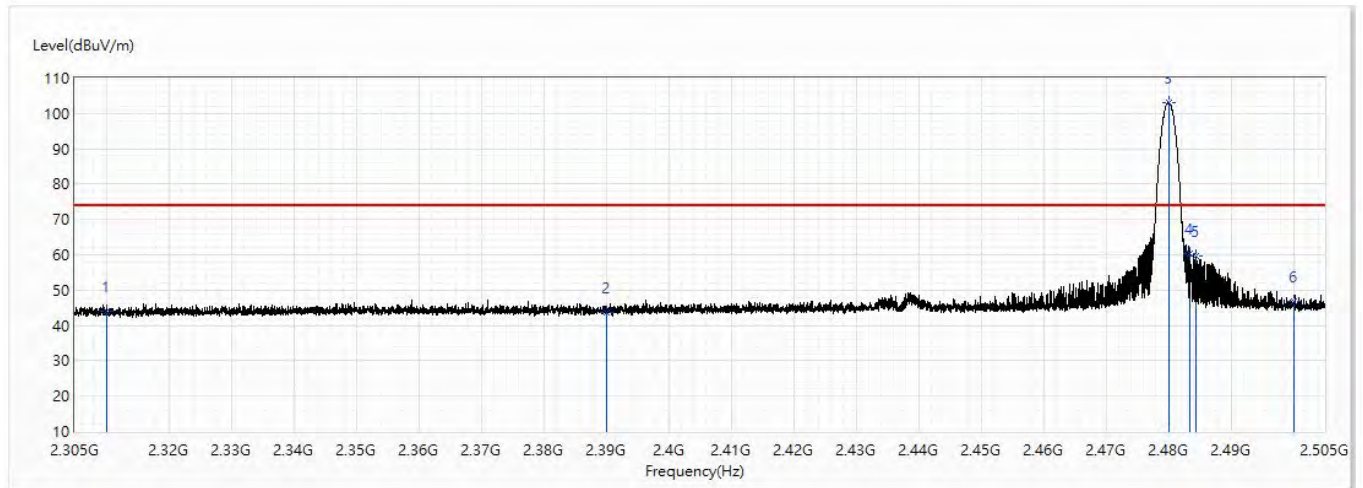


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310	32.71	54.00	-21.29	18.47	14.24	AV
2	2390	33.19	54.00	-20.81	18.38	14.81	AV
! 3	2480	103.55	54.00	49.55	88.09	15.46	AV
4	2483.5	39.63	54.00	-14.37	24.15	15.48	AV
5	2484.275	38.57	54.00	-15.43	23.09	15.48	AV
6	2500	34.66	54.00	-19.34	19.07	15.59	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/13
Test Voltage :	DC 12V	Polarity :	Vertical
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_3DH5_2480MHz		

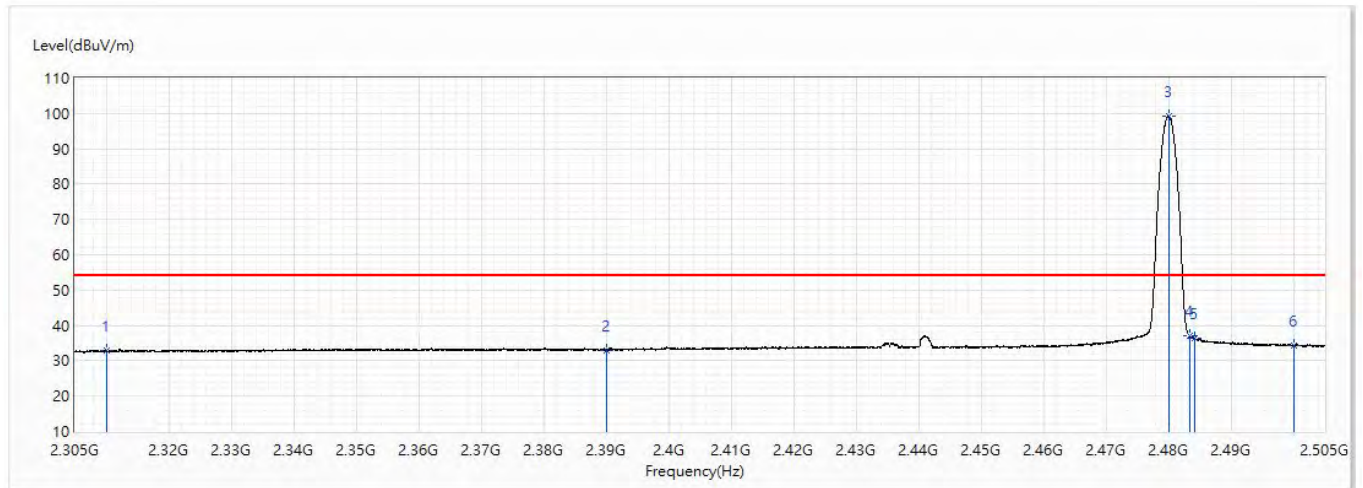


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310	44.18	74.00	-29.82	29.94	14.24	PK
2	2390	43.73	74.00	-30.27	28.92	14.81	PK
! 3	2480.025	103.13	74.00	29.13	87.67	15.46	PK
4	2483.5	60.47	74.00	-13.53	44.99	15.48	PK
5	2484.475	59.81	74.00	-14.19	44.33	15.48	PK
6	2500	46.92	74.00	-27.08	31.33	15.59	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.

Site :	CB2-H	Engineer :	Scott
Model No :	CV90-JE103	Test Date :	2019/4/13
Test Voltage :	DC 12V	Polarity :	Vertical
Test Mode :	Mode 1: Transmit Mode		
Note :	802.15.1_3DH5_2480MHz		



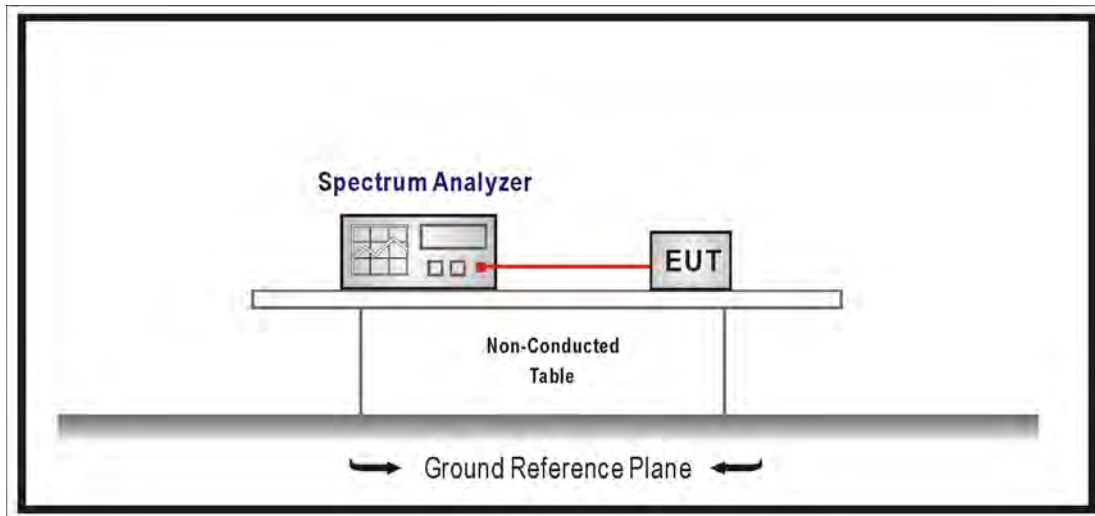
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310	32.84	54.00	-21.16	18.60	14.24	AV
2	2390	32.98	54.00	-21.02	18.17	14.81	AV
! 3	2480.025	99.28	54.00	45.28	83.82	15.46	AV
4	2483.5	36.96	54.00	-17.04	21.48	15.48	AV
5	2484.225	36.33	54.00	-17.67	20.85	15.48	AV
6	2500	34.29	54.00	-19.71	18.70	15.59	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.

8. Number of hopping frequency

8.1. Test Setup



8.2. Limits

For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

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

8.3. Test Procedures

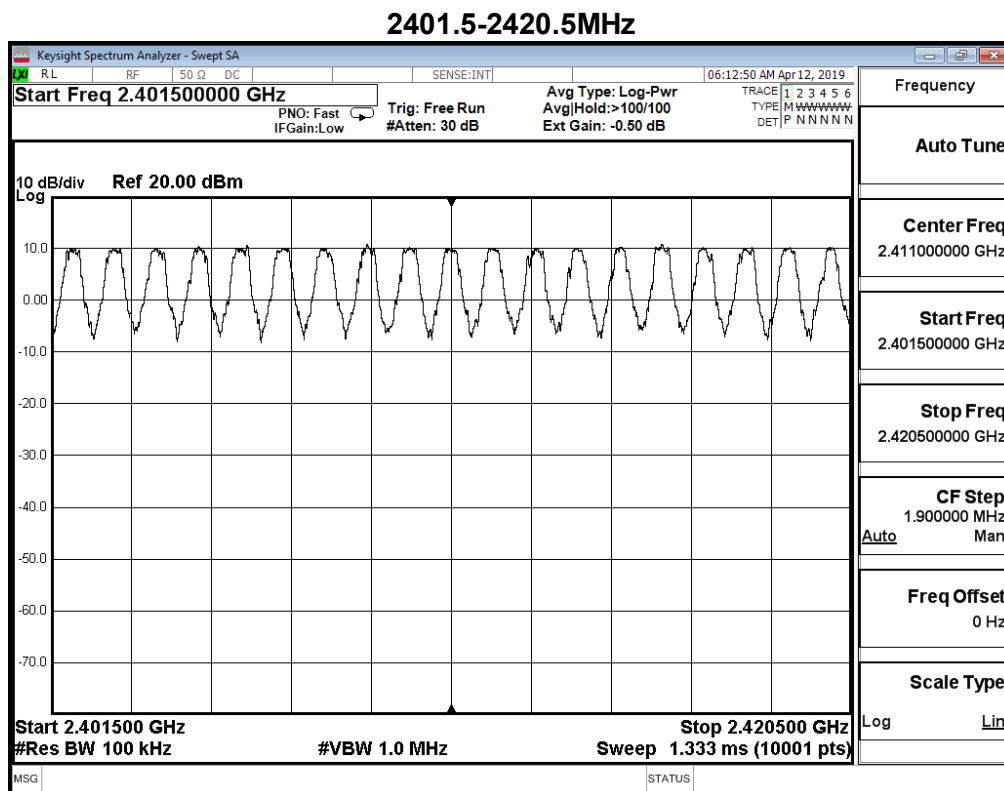
The EUT was setup according to ANSI C63.10: 2013 and tested according to FHSS test procedure of FCC KDB 558074 D01 v05r02 for compliance to FCC 47CFR 15.247 requirements,

8.4. Test Specification

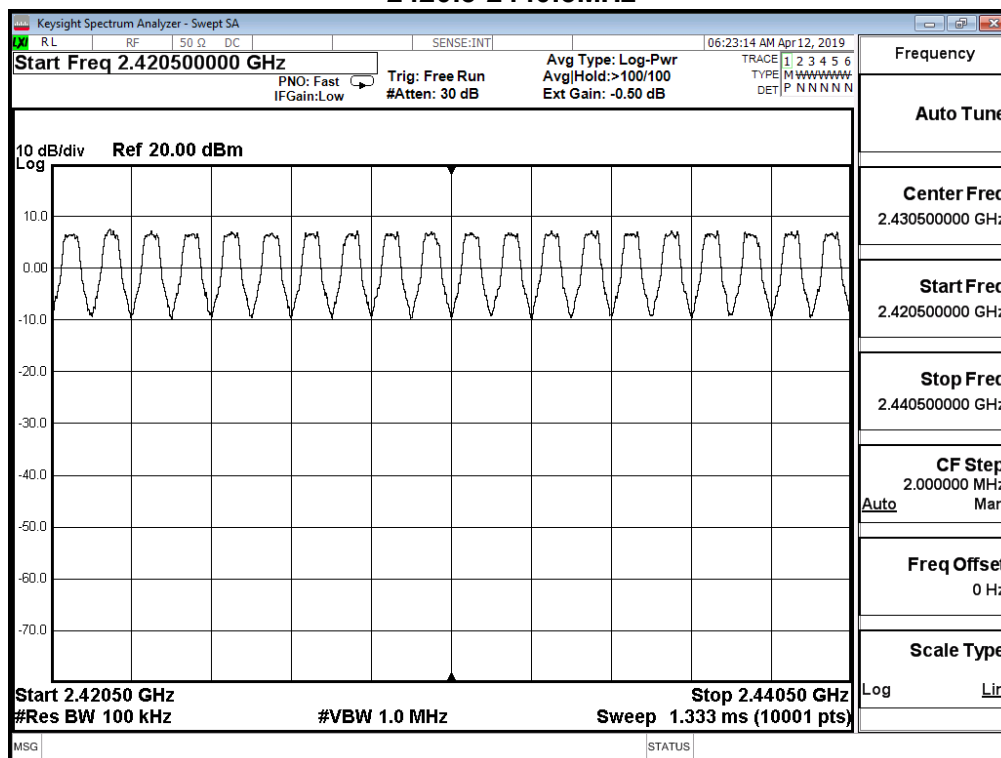
According to FCC Part 15 Subpart C Paragraph 15.247: 2018

Product	Active Mobile Gateway-with Comm		
Test Item	Number of hopping frequency		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/04/16	Test Site	SR10-H

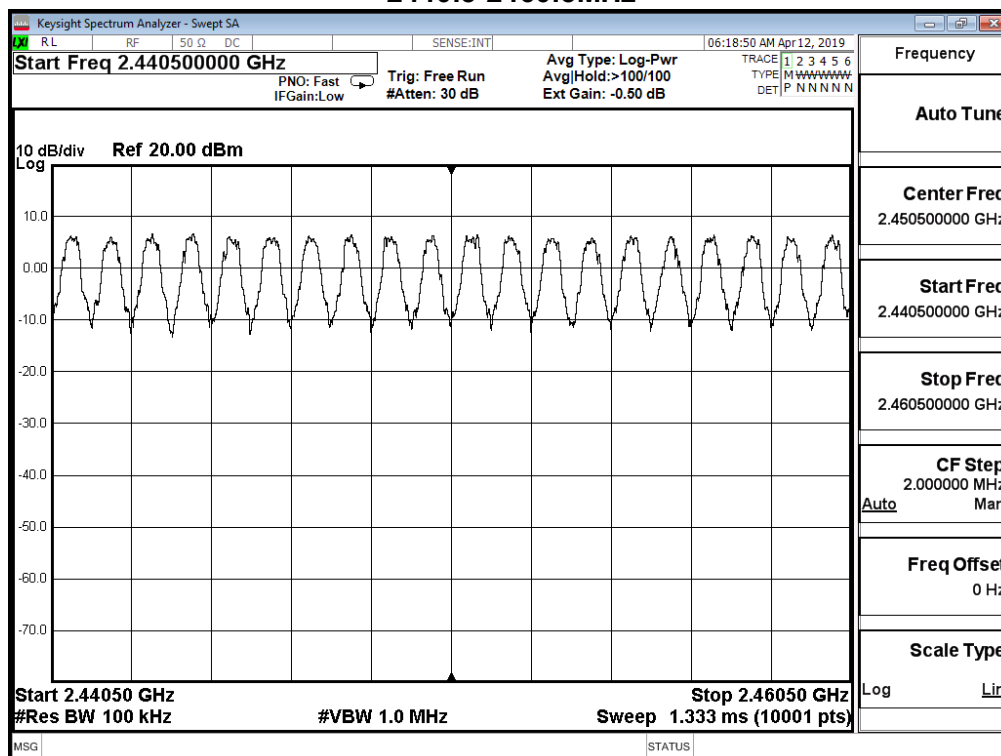
Frequency Range (MHz)	Measure Level (Channels)	Limit (Channels)
2402 - 2480	79	≥ 75



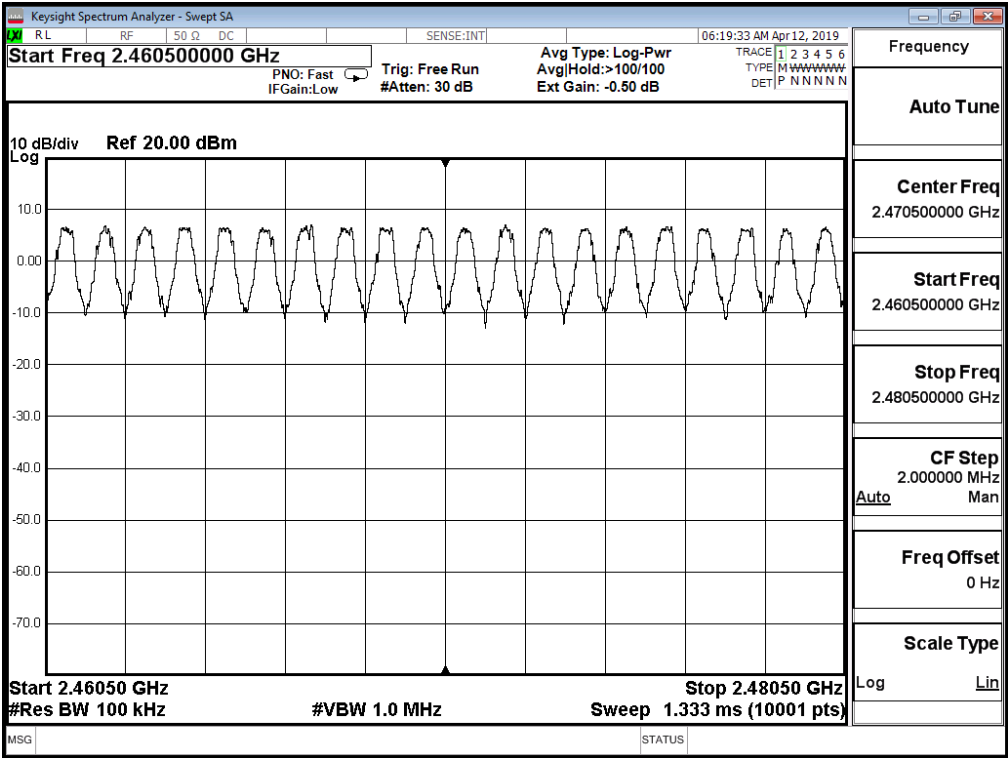
2420.5-2440.5MHz



2440.5-2460.5MHz

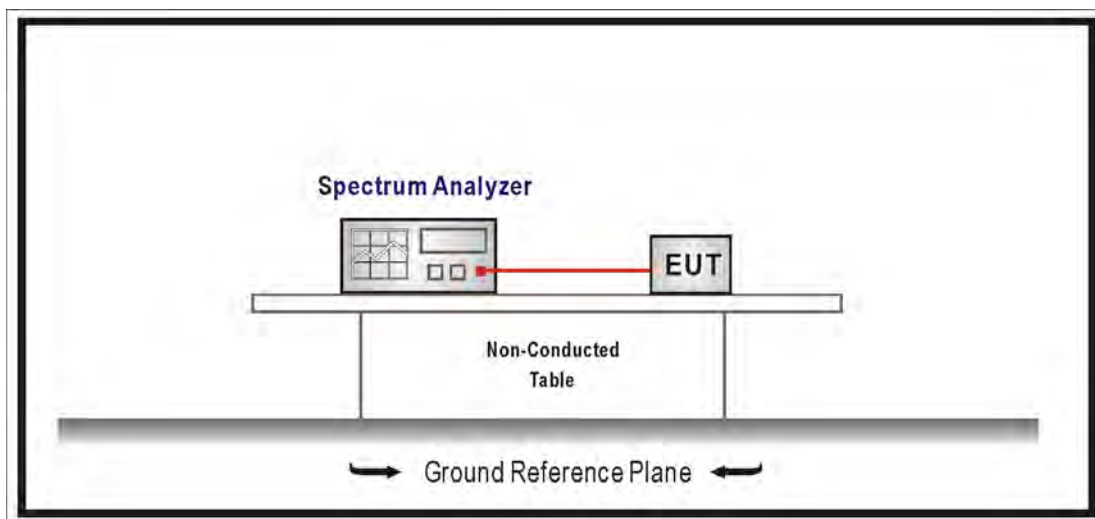


2460.5-2480.5MHz



9. Carrier Frequency Separation

9.1. Test Setup



9.2. Limits

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an Maximum peak conducted output power no greater than 125 mW. The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudo randomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

9.3. Test Procedures

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

9.4. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2018

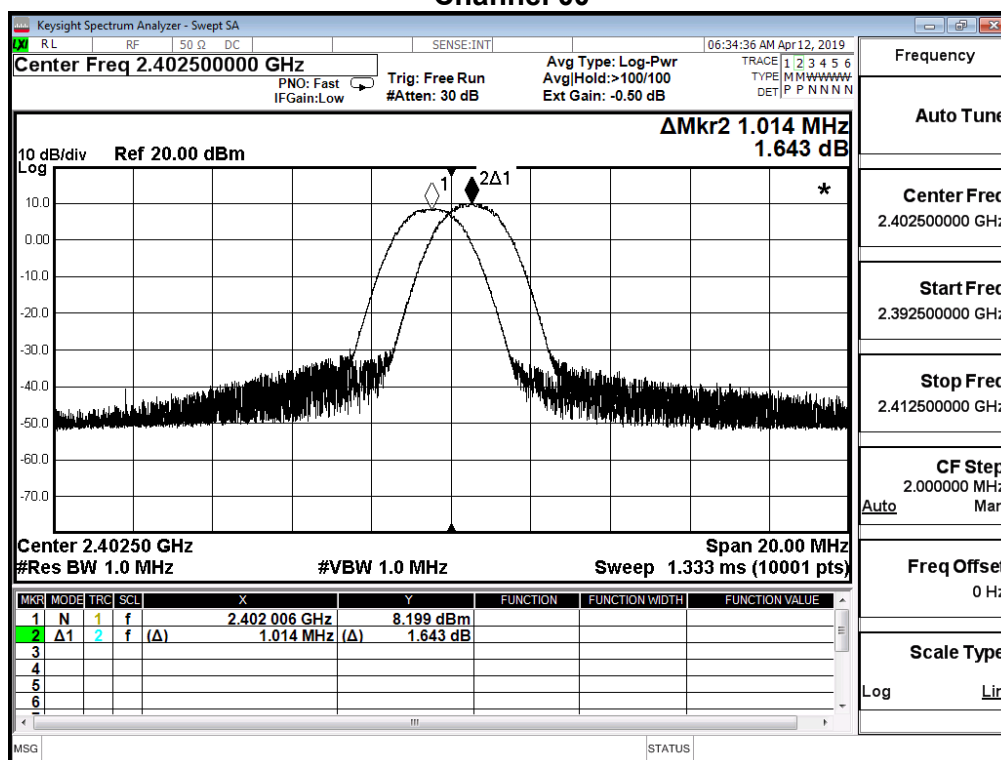
9.5. Test Result

Product	Active Mobile Gateway-with Comm		
Test Item	Carrier Frequency Separation		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/04/16	Test Site	SR10-H

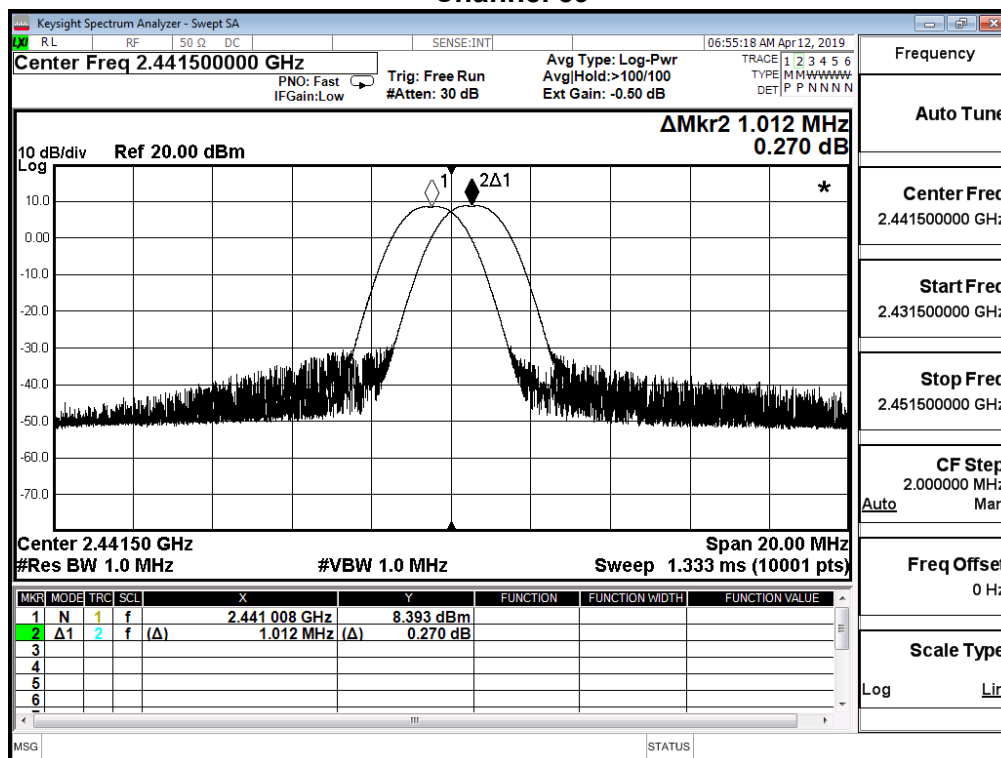
GFSK

Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)
00	2402	1.014	≥ 0.759
39	2441	1.012	≥ 0.757
78	2480	1.008	≥ 0.759

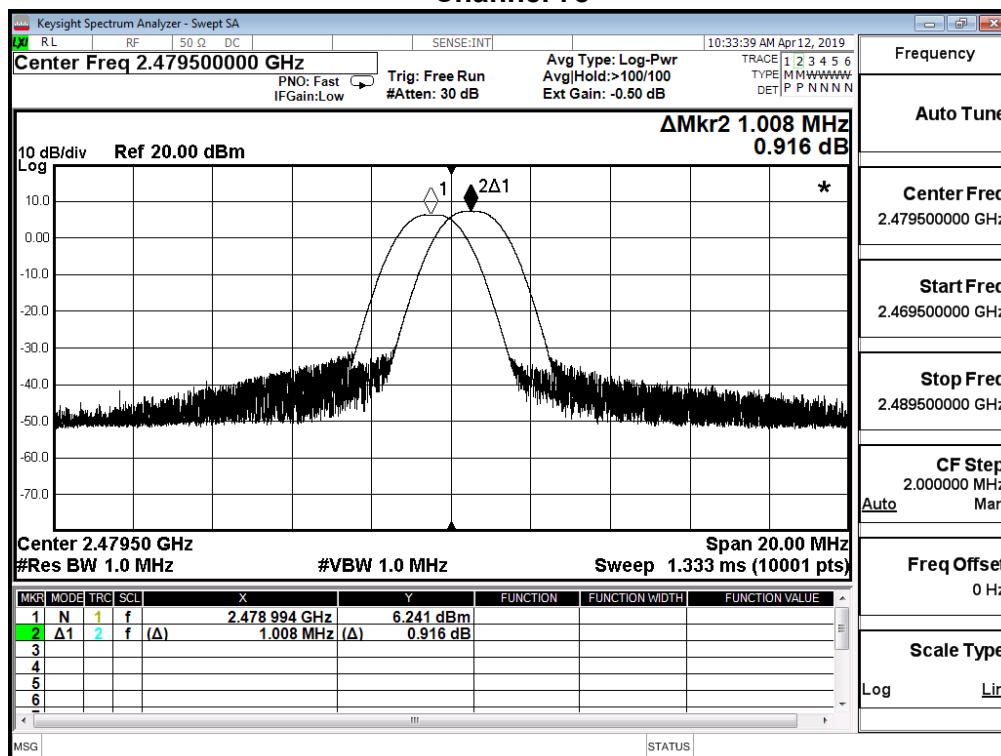
Channel 00



Channel 39



Channel 78

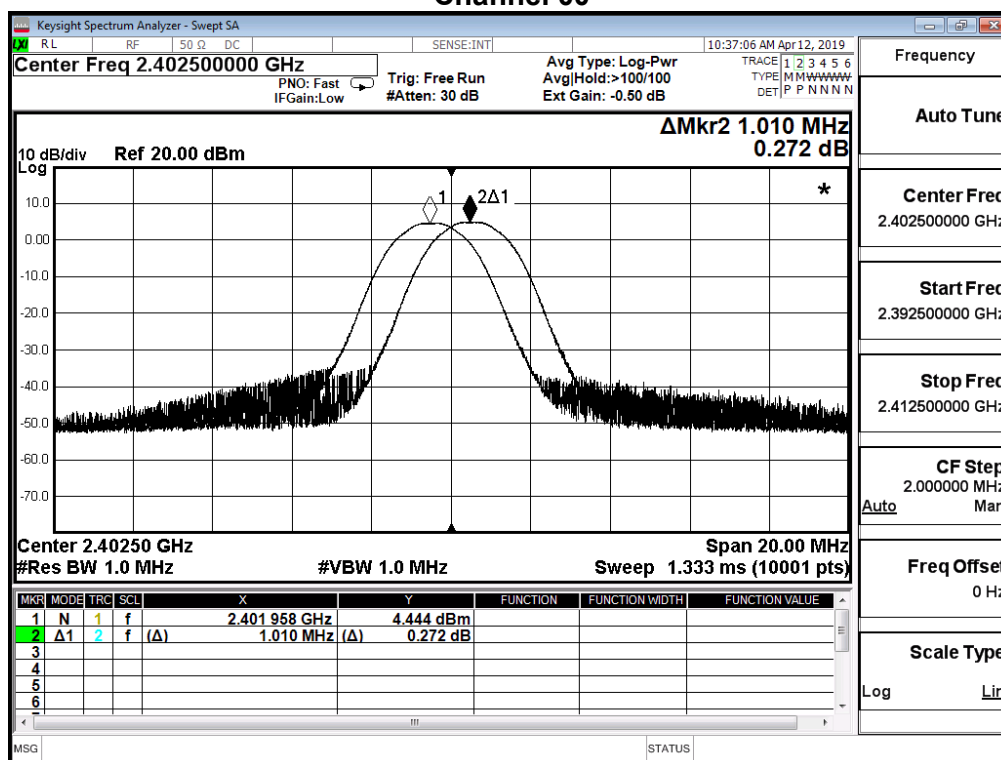


Product	Active Mobile Gateway-with Comm		
Test Item	Carrier Frequency Separation		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/04/16	Test Site	SR10-H

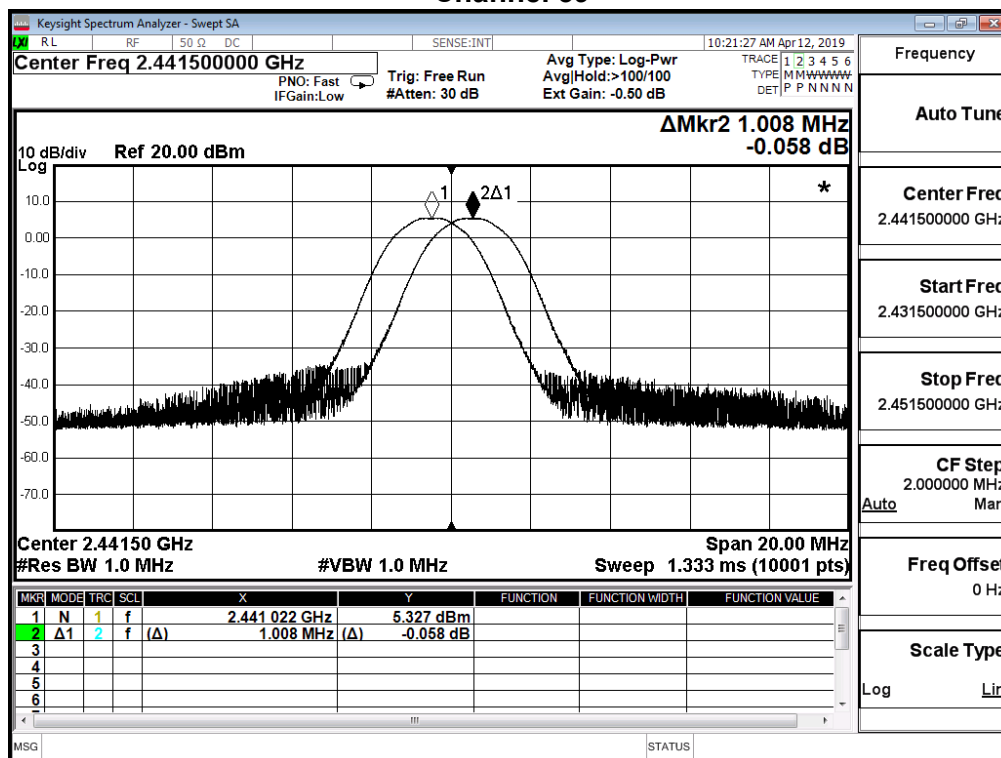
 $\pi/4$ -DQPSK

Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)
00	2402	1.010	≥ 0.915
39	2441	1.008	≥ 0.917
78	2480	1.016	≥ 0.911

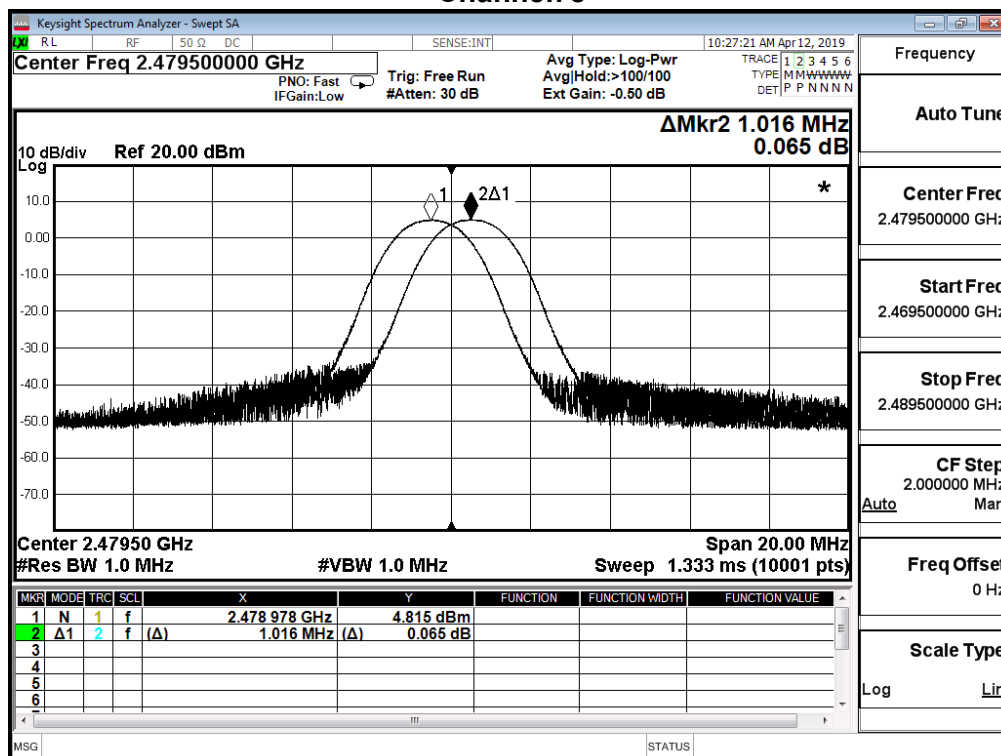
Channel 00



Channel 39



Channel78

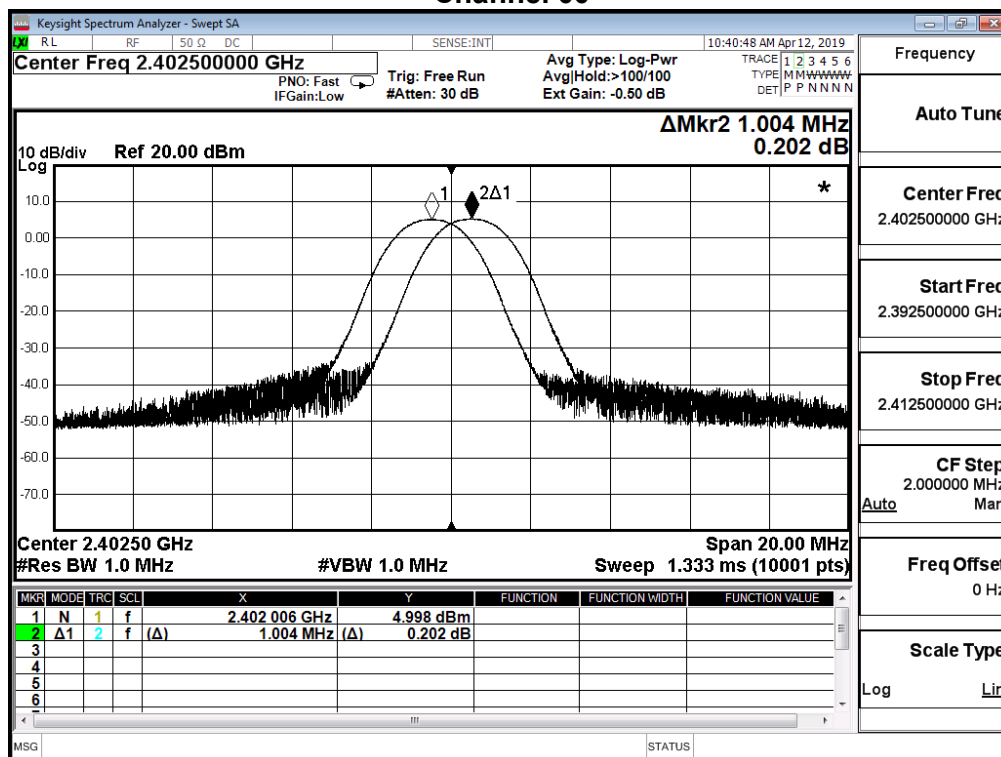


Product	Active Mobile Gateway-with Comm		
Test Item	Carrier Frequency Separation		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/04/16	Test Site	SR10-H

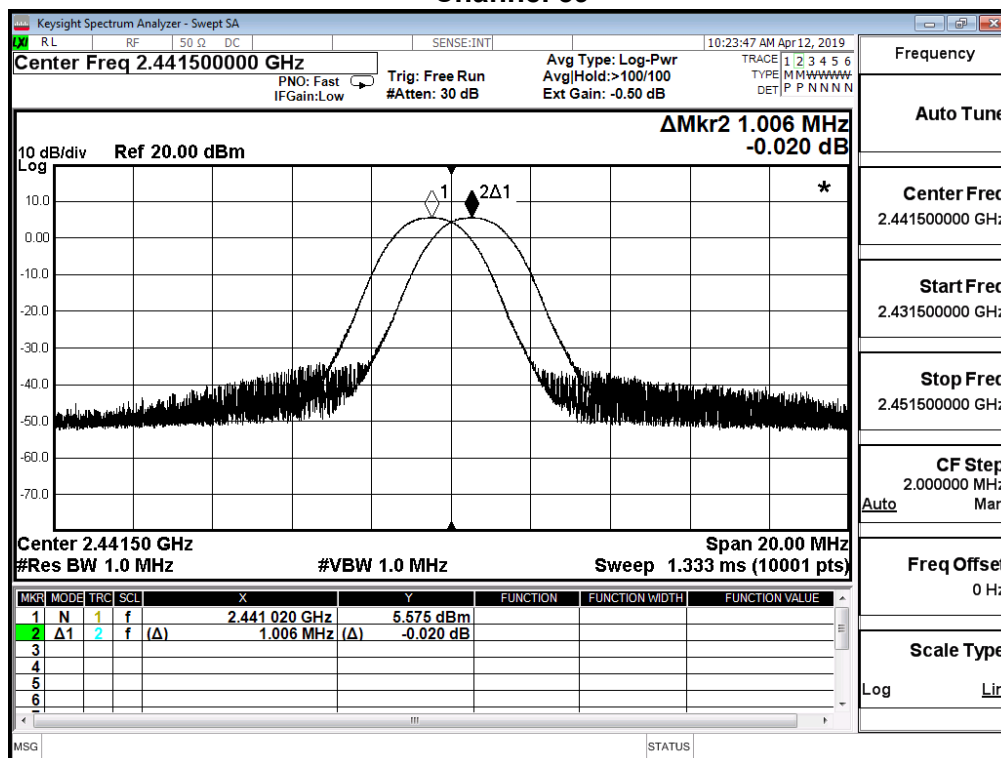
8-DPSK

Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)
00	2402	1.004	≥ 0.925
39	2441	1.006	≥ 0.921
78	2480	1.012	≥ 0.924

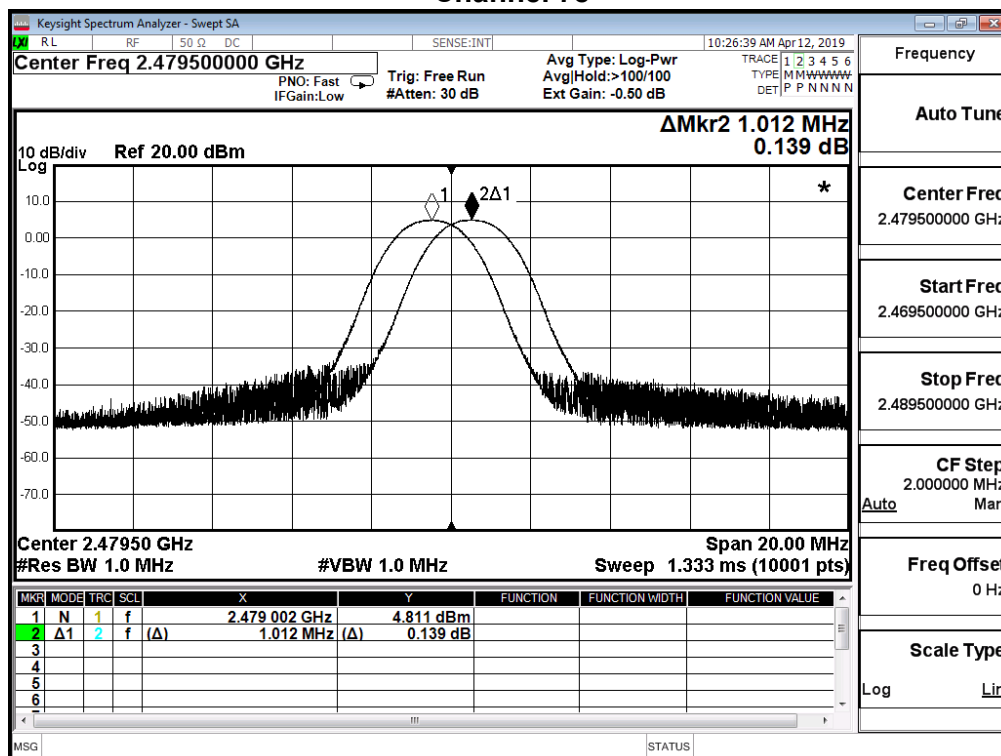
Channel 00



Channel 39

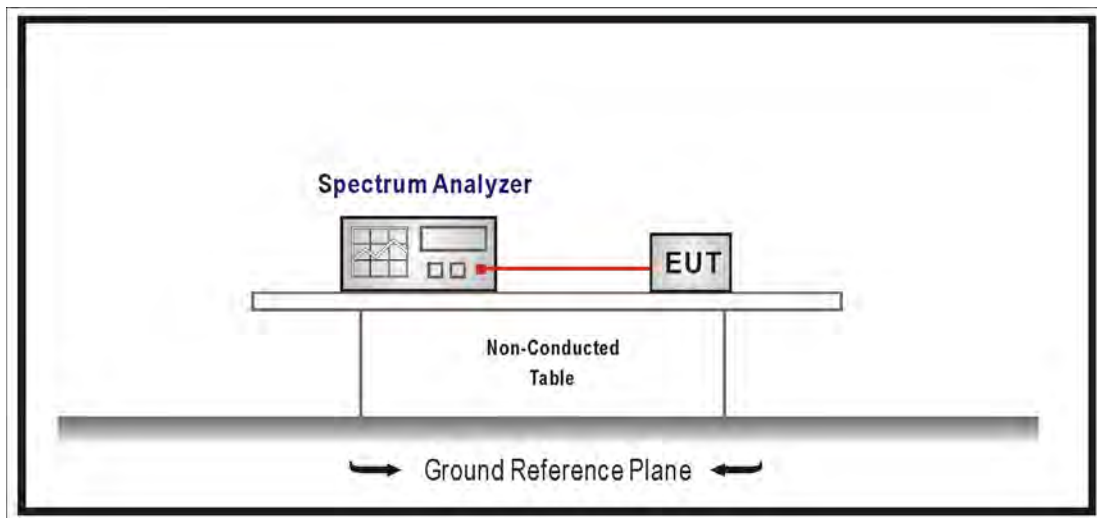


Channel 78



10. -20dB Bandwidth

10.1. Test Setup



10.2. Limits

N/A

10.3. Test Procedures

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

Use the following spectrum analyzer settings:

Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel

RBW \geq 1% of the 20 dB bandwidth, VBW \geq RBW, Sweep = auto, Detector function = peak,

Trace = max hold, The EUT should be transmitting at its maximum data rate.

10.4. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2018.

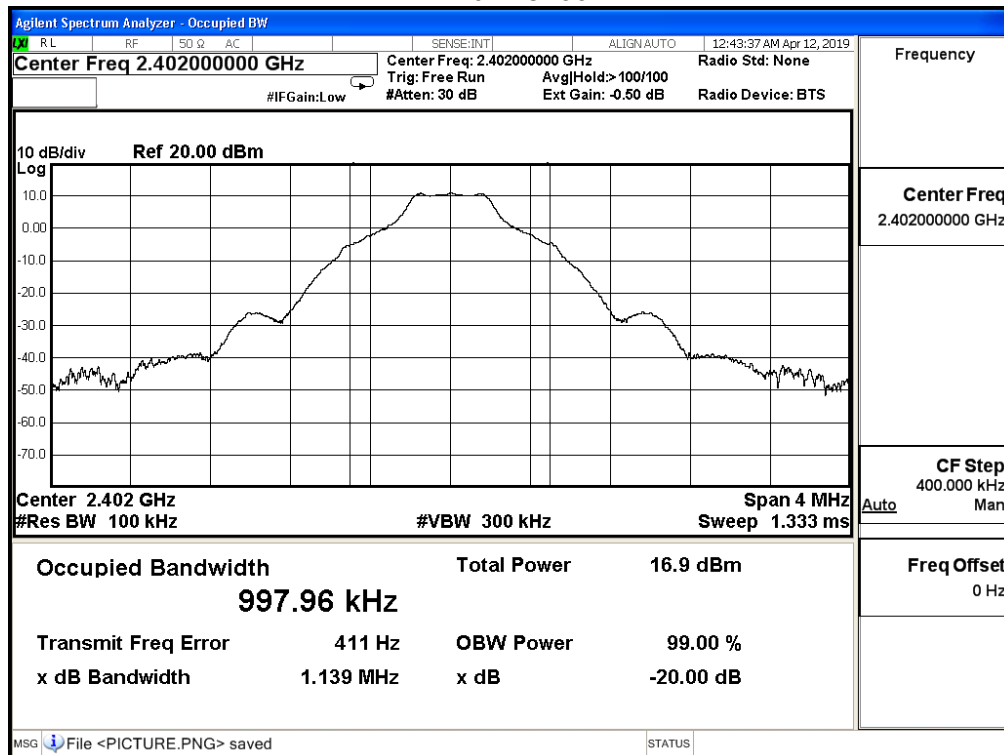
10.5. Test Result

Product	Active Mobile Gateway-with Comm		
Test Item	-20dB Bandwidth		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/04/16	Test Site	SR10-H

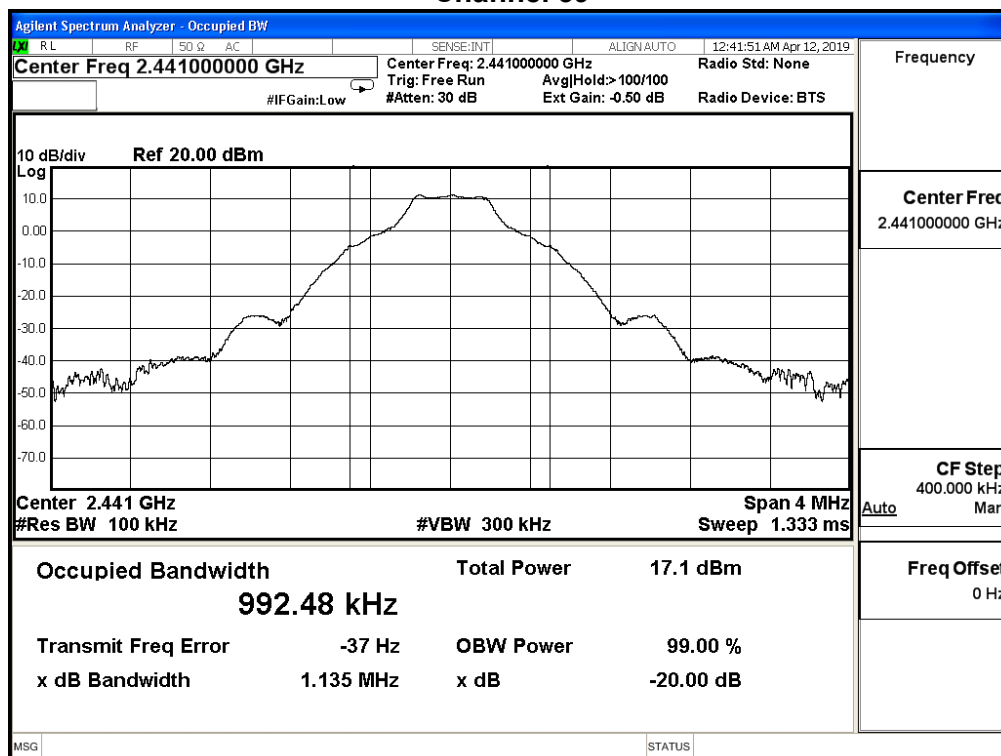
GFSK

Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)
00	2402	1.139	---
39	2441	1.135	---
78	2480	1.138	---

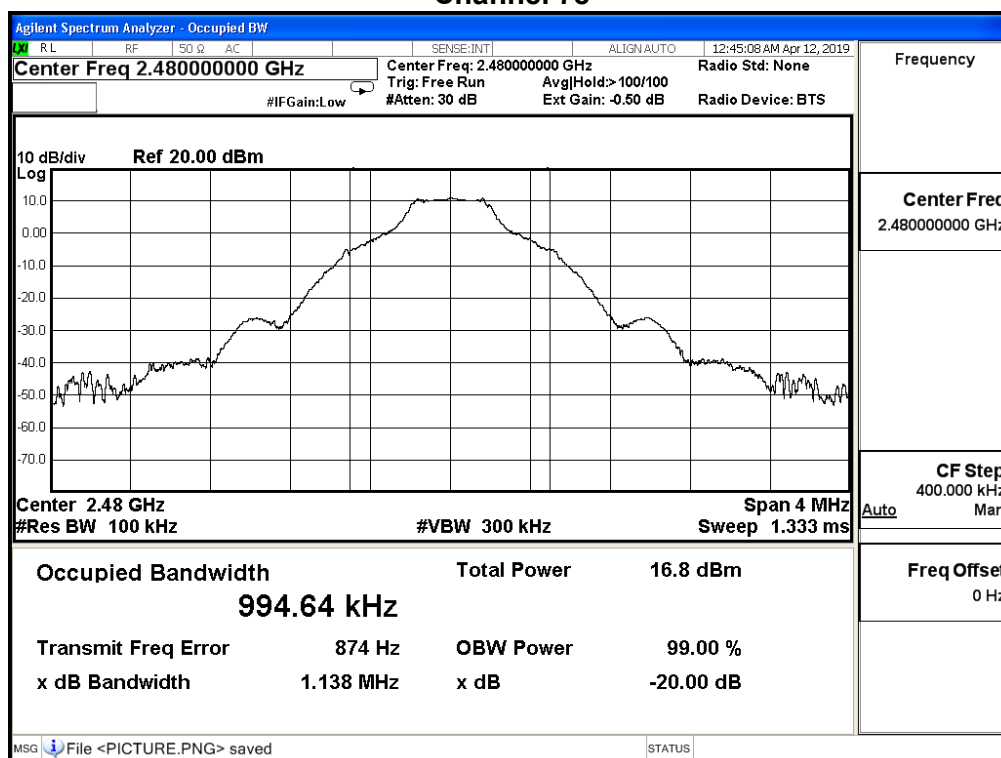
Channel 00



Channel 39



Channel 78

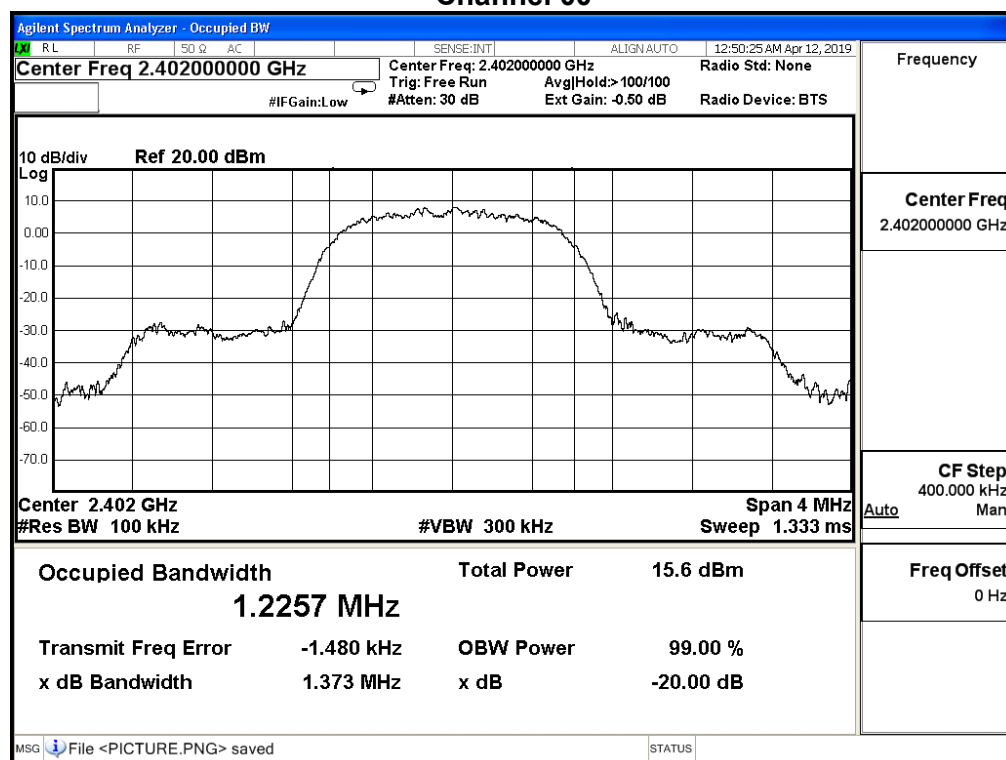


Product	Active Mobile Gateway-with Comm		
Test Item	-20dB Bandwidth		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/04/16	Test Site	SR10-H

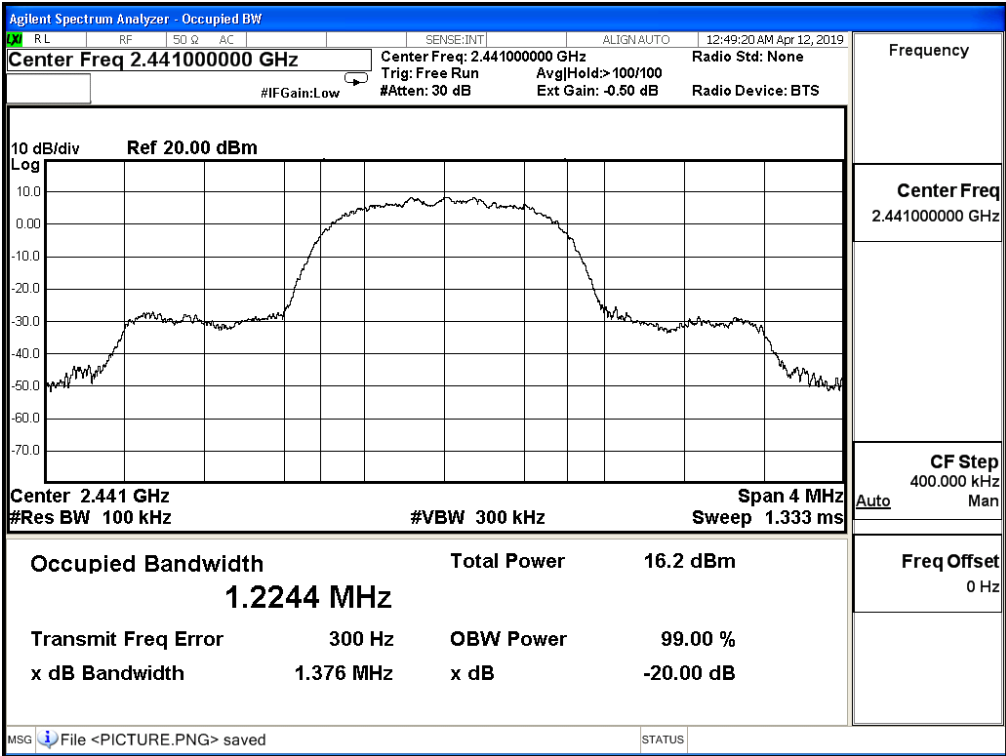
$\pi/4$ -DQPSK

Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)
00	2402	1.373	---
39	2441	1.376	---
78	2480	1.367	---

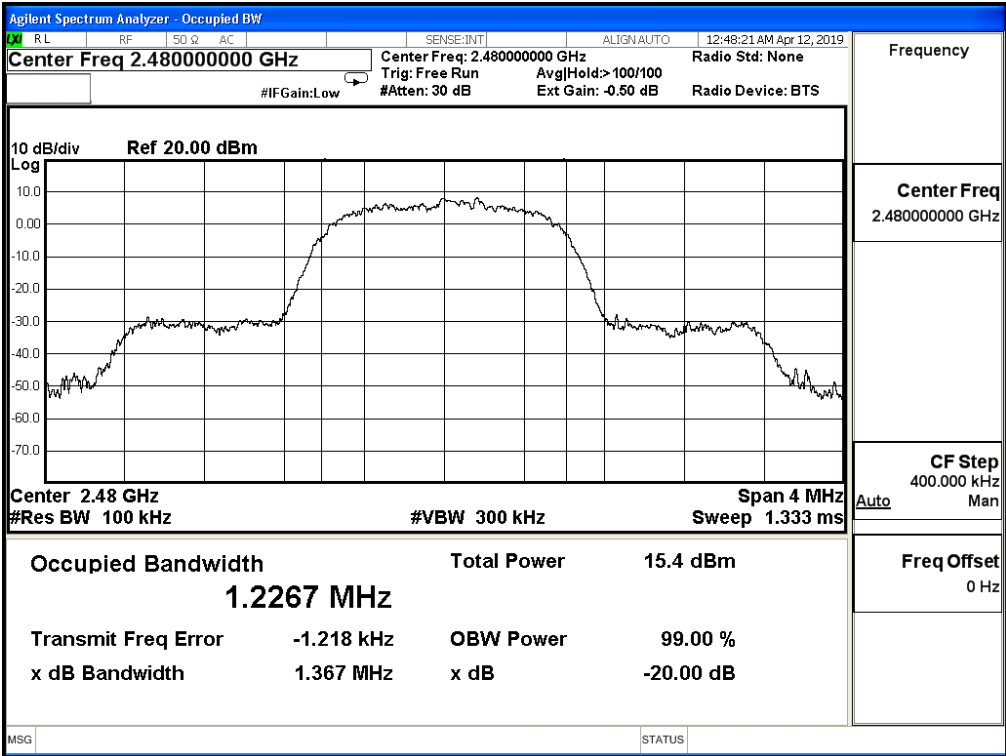
Channel 00



Channel 39



Channel 78

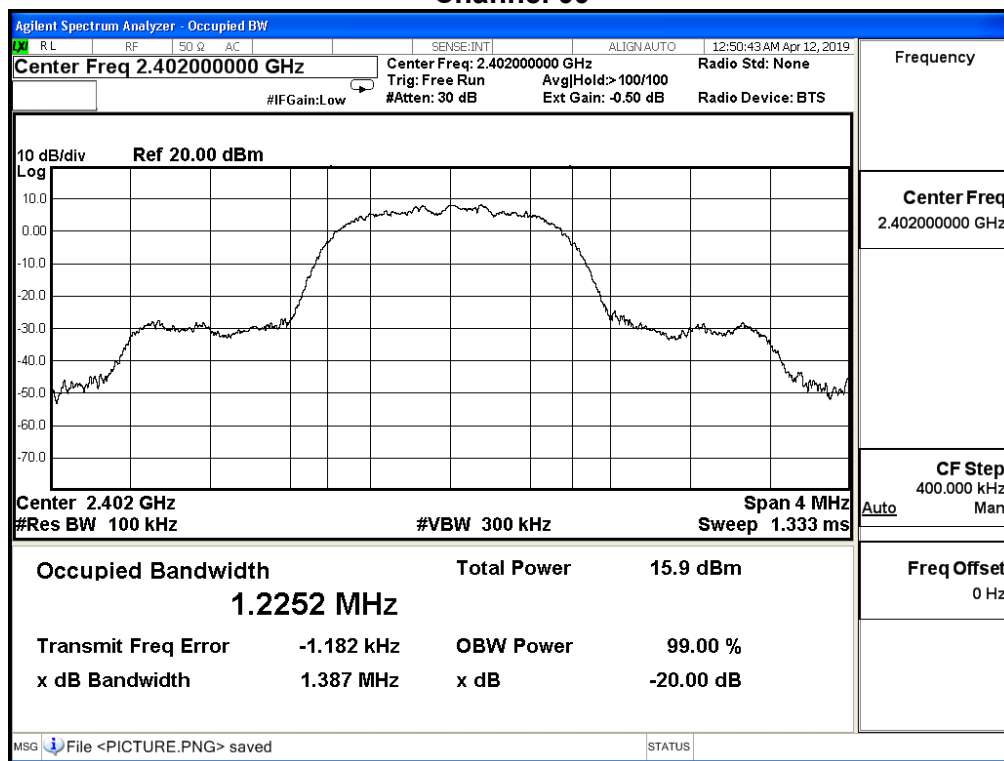


Product	Active Mobile Gateway-with Comm		
Test Item	-20dB Bandwidth		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/04/16	Test Site	SR10-H

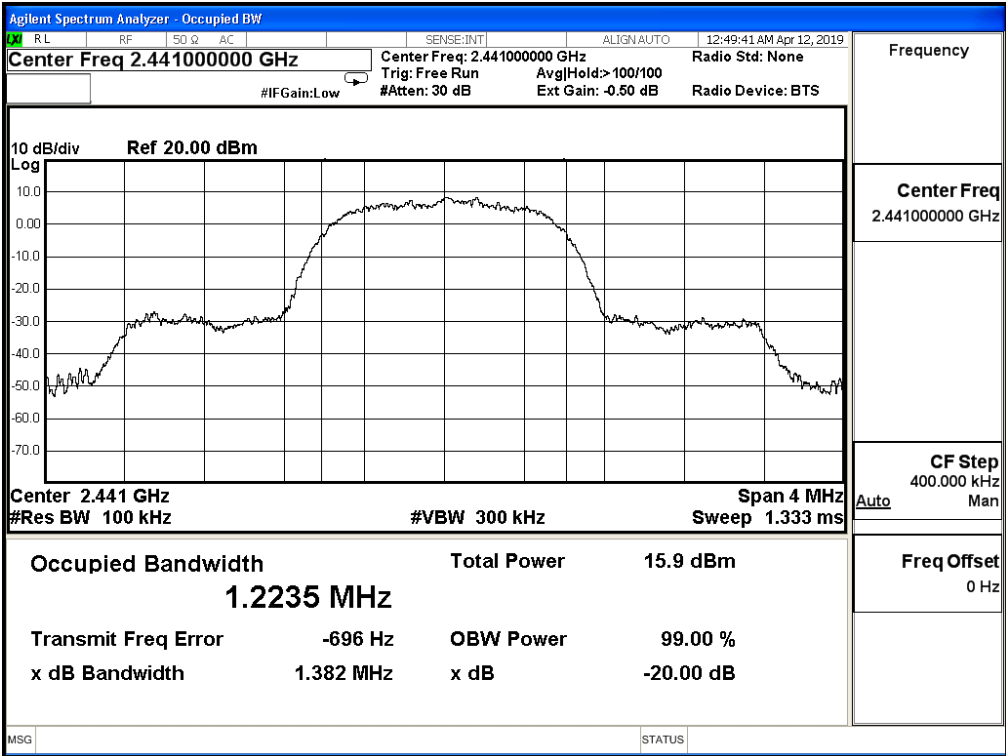
8-DPSK

Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)
00	2402	1.387	---
39	2441	1.382	---
78	2480	1.386	---

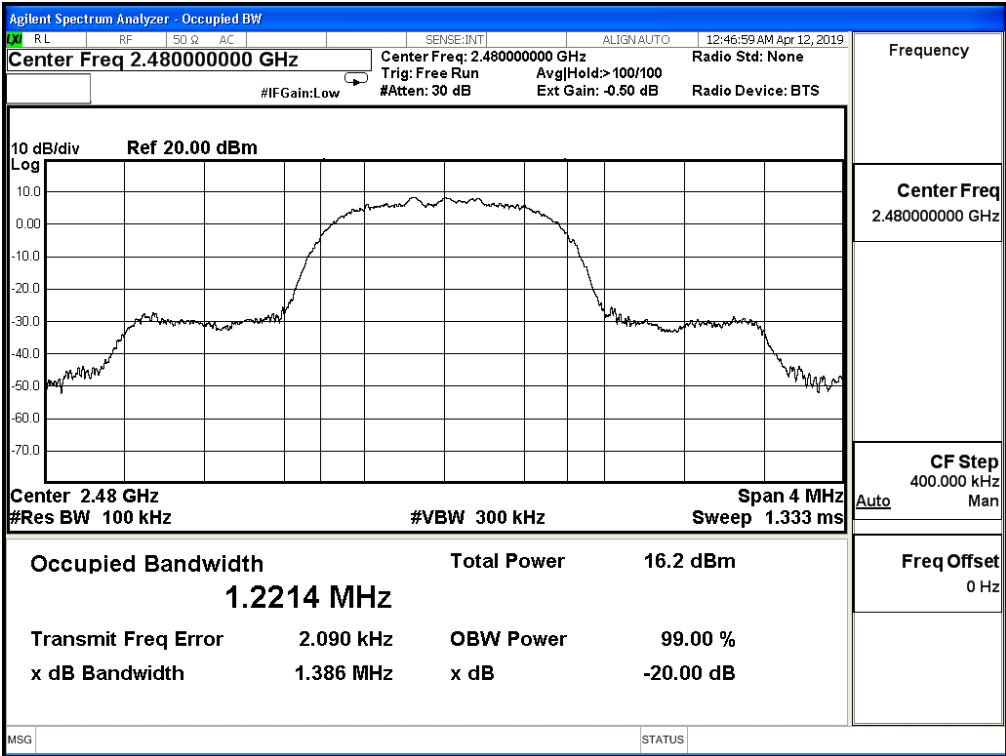
Channel 00



Channel 39

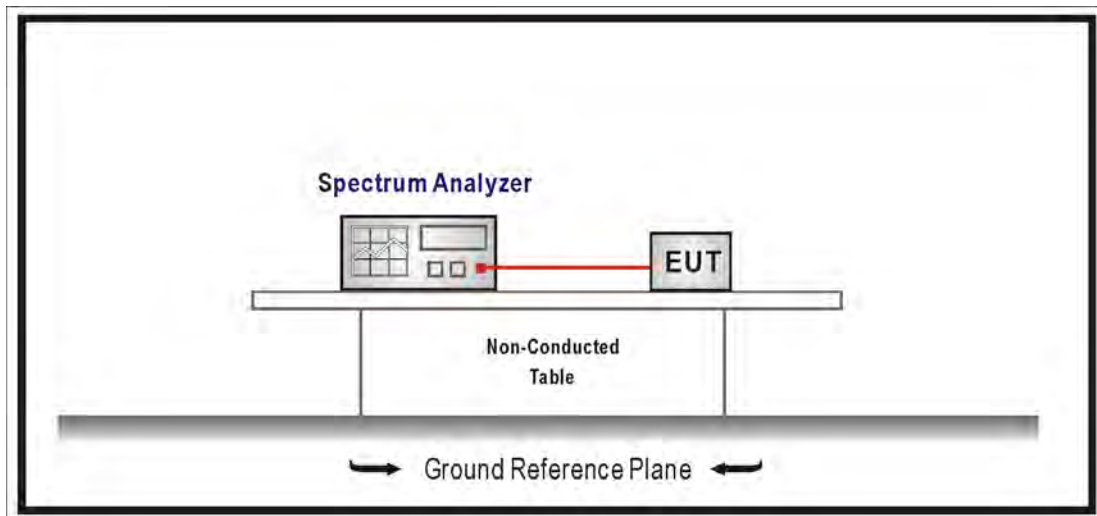


Channel 78



11. Dwell Time

11.1. Test Setup



11.2. Limits

For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period.

For frequency hopping systems operating in the 2400-2483.5 MHz bands. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

For frequency hopping systems operating in the 5725-5850 MHz bands. The average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 30 second period.

11.3. Test Procedures

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

Span = zero span, centered on a hopping channel, RBW = 1 MHz, VBW \geq RBW,

Sweep = as necessary to capture the entire dwell time per hopping channel,

Detector function = peak, Trace = max hold.

11.4. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2018

11.5. Test Result

Product	Active Mobile Gateway-with Comm		
Test Item	Dwell Time		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/04/16	Test Site	SR10-H

GFSK

Occupancy Time of Frequency Hopping System

A) 2402MHz Test Time Period: $0.4 \times 79 = 31.60 \text{ sec}$, Time slot length : 2.883 ms = 0.00288 sec

Dwell Time : 0.00288 $\times (266.67/79) \times 31.60 = 0.3075$ sec ◦

B) 2441MHz Test Time Period: $0.4 \times 79 = 31.60 \text{ sec}$, Time slot length : 2.879 ms = 0.00288 sec

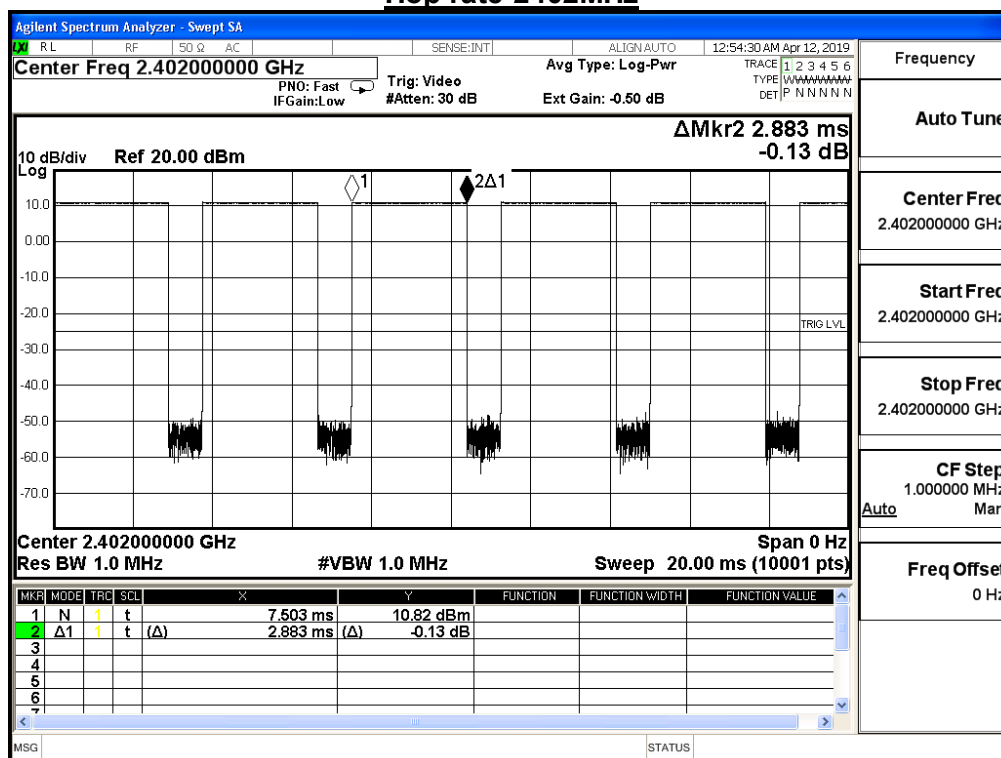
Dwell Time : 0.00288 $\times (266.67/79) \times 31.60 = 0.3071$ sec ◦

C) 2480MHz Test Time Period: $0.4 \times 79 = 31.60 \text{ sec}$, Time slot length : 2.879 ms = 0.00288 sec

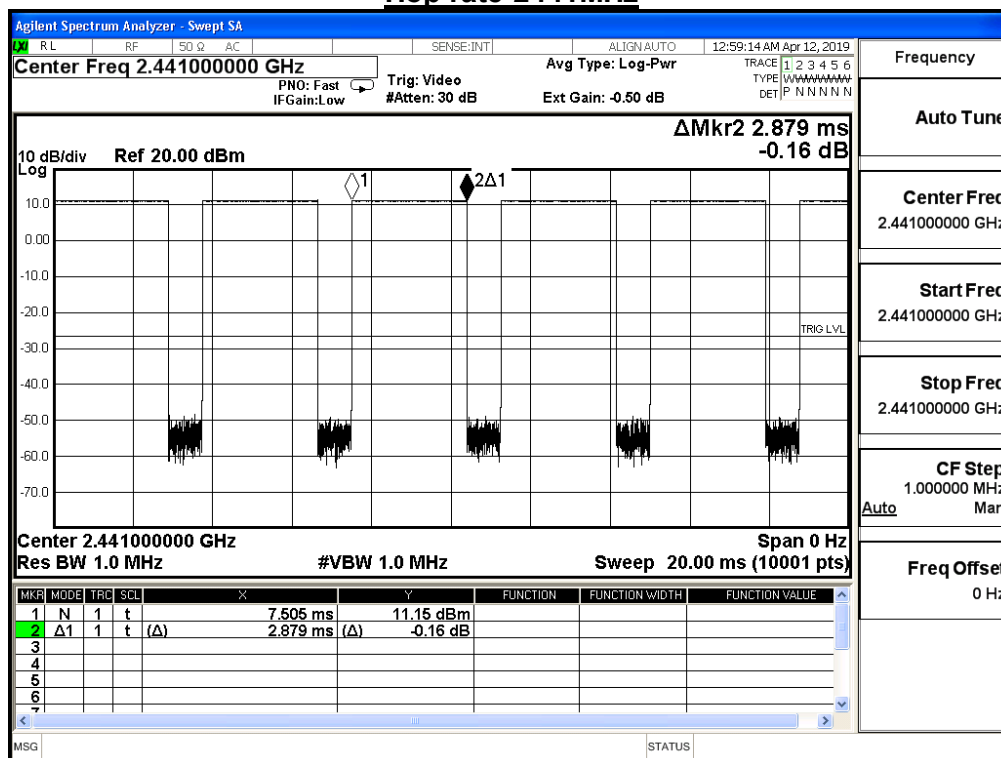
Dwell Time : 0.00288 $\times (266.67/79) \times 31.60 = 0.3071$ sec ◦

Test Result: The Average Occupancy Time of Each Highest , Middle and Lowest Channel Is Less Than 0.4sec , And Corresponds to The Standard ◦

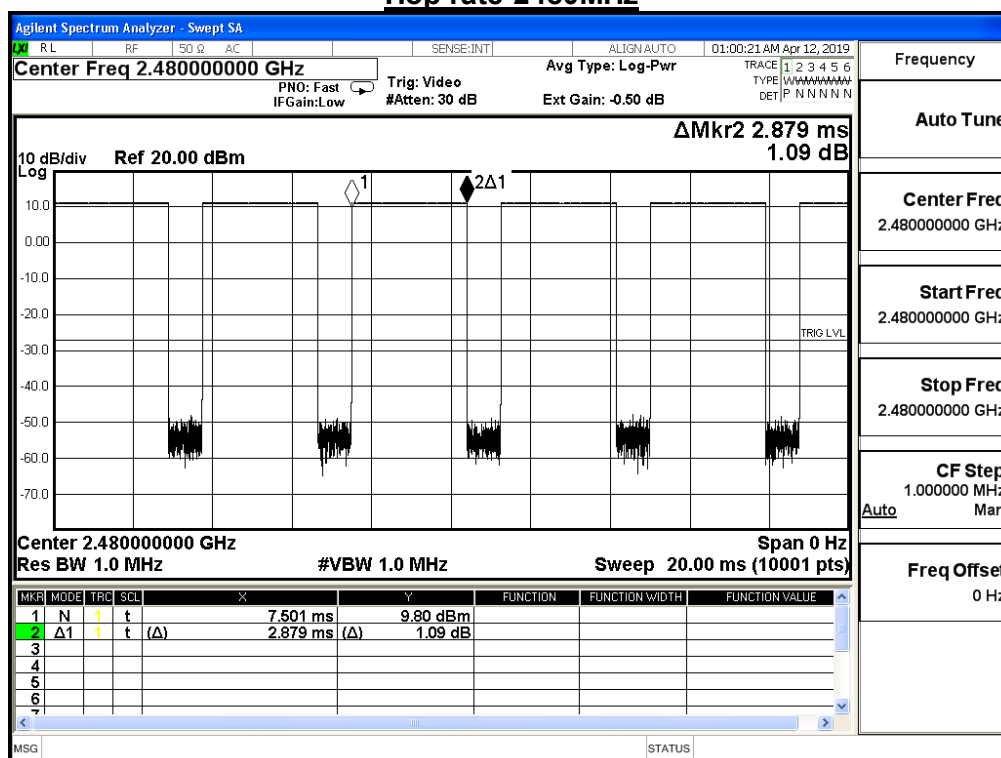
Hop rate-2402MHz



Hop rate-2441MHz



Hop rate-2480MHz



Note: Dwell time = time slot length * hop rate / number of hopping channels * period

Product	Active Mobile Gateway-with Comm		
Test Item	Dwell Time		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/04/16	Test Site	SR10-H

$\pi/4$ -DQPSK

Occupancy Time of Frequency Hopping System

A) 2402MHz Test Time Period: $0.4 \times 79 = 31.60\text{sec}$, Time slot length : 2.885 ms = 0.00289 sec

Dwell Time : 0.00289 $\times (266.67/79) \times 31.60 = 0.3077$ sec ◦

B) 2441MHz Test Time Period: $0.4 \times 79 = 31.60\text{sec}$, Time slot length : 2.887ms = 0.00289 sec

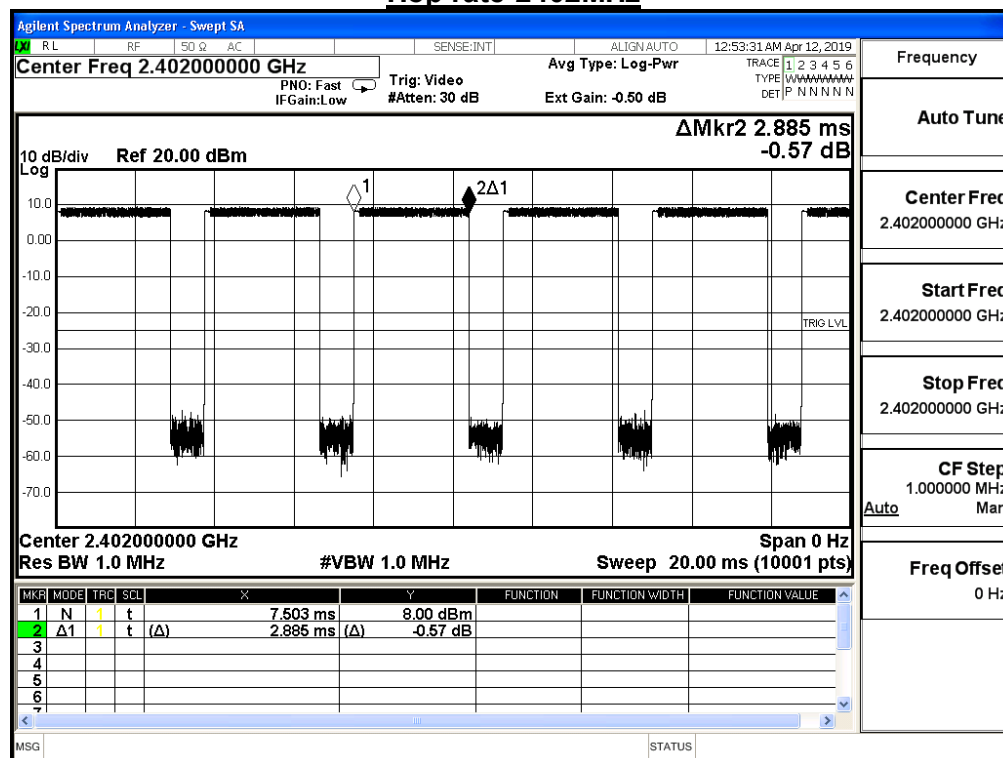
Dwell Time : 0.00289 $\times (266.67/79) \times 31.60 = 0.3080$ sec ◦

C) 2480MHz Test Time Period: $0.4 \times 79 = 31.60\text{sec}$, Time slot length : 2.887 ms = 0.00289 sec

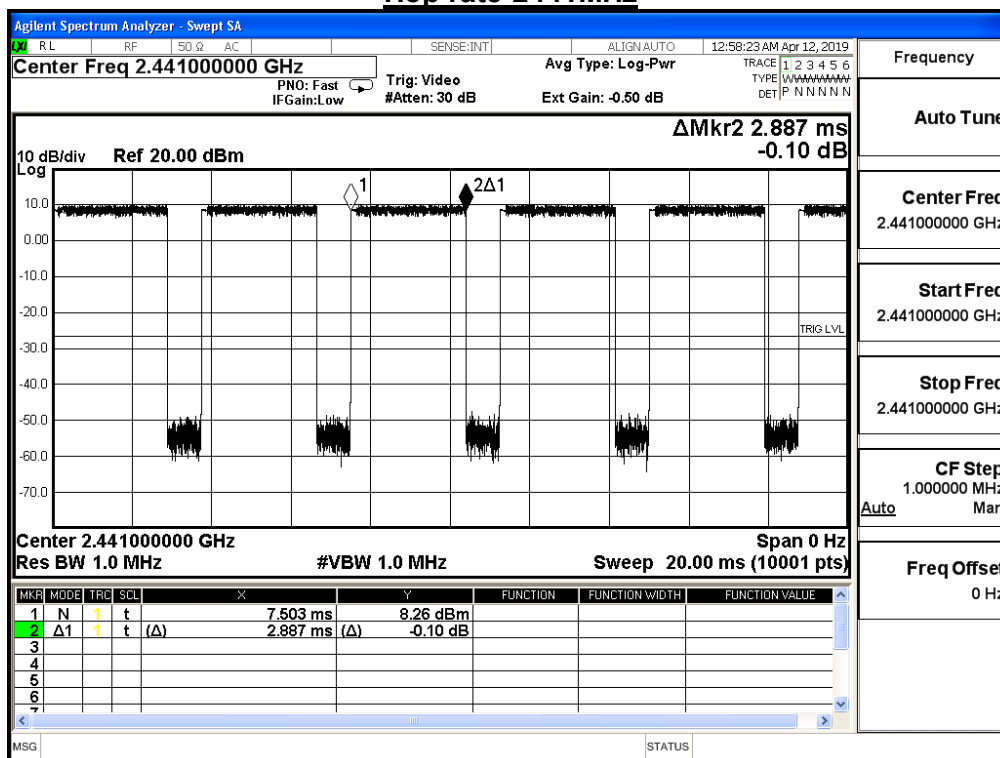
Dwell Time : 0.00289 $\times (266.67/79) \times 31.60 = 0.3080$ sec ◦

Test Result: The Average Occupancy Time of Each Highest , Middle and Lowest Channel Is Less Than 0.4sec , And Corresponds to The Standard ◦

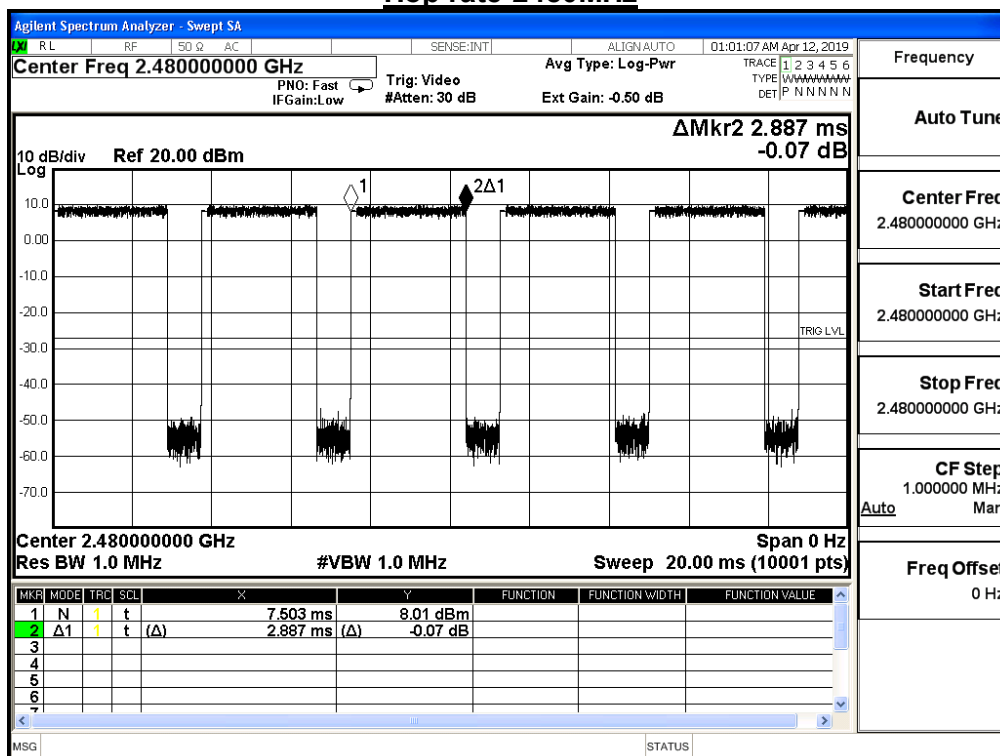
Hop rate-2402MHz



Hop rate-2441MHz



Hop rate-2480MHz



Note: Dwell time = time slot length * hop rate / number of hopping channels * period

Product	Active Mobile Gateway-with Comm		
Test Item	Dwell Time		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/04/16	Test Site	SR10-H

8-DPSK

Occupancy Time of Frequency Hopping System

A) 2402MHz Test Time Period: $0.4 \times 79 = 31.60\text{sec}$, Time slot length : $2.883\text{ ms} = 0.00288\text{ sec}$

Dwell Time : $0.00288 \times (266.67/79) \times 31.60 = 0.3075\text{ sec}$.

B) 2441MHz Test Time Period: $0.4 \times 79 = 31.60\text{sec}$, Time slot length : $2.889\text{ ms} = 0.00289\text{ sec}$

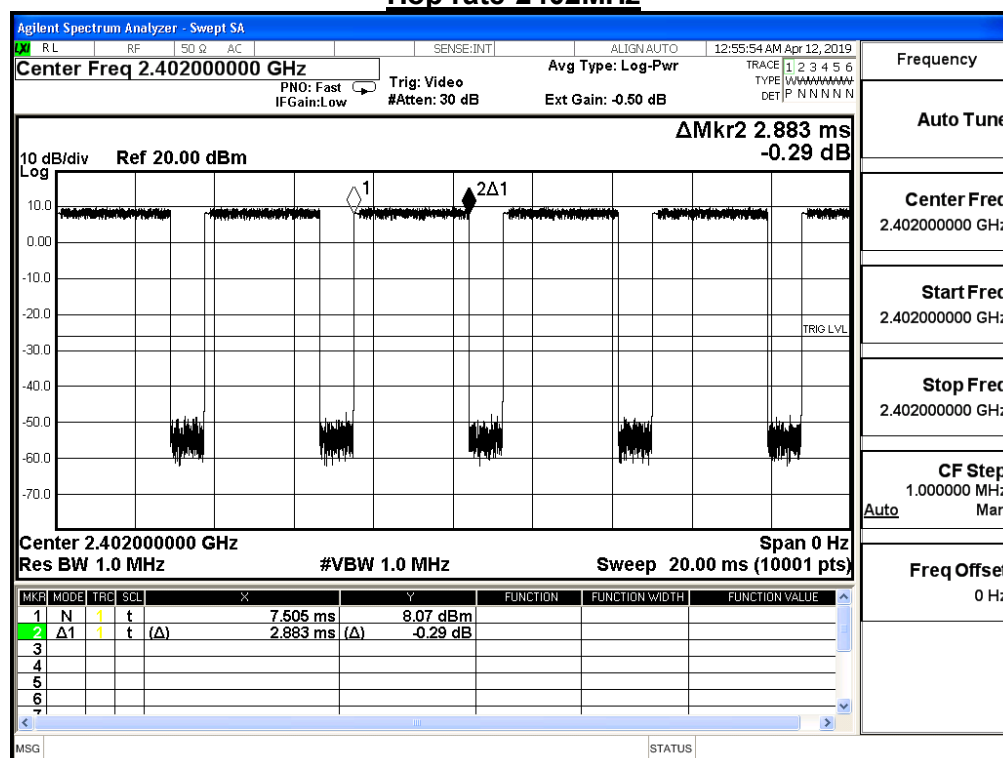
Dwell Time : $0.00289 \times (266.67/79) \times 31.60 = 0.3082\text{ sec}$.

C) 2480MHz Test Time Period: $0.4 \times 79 = 31.60\text{sec}$, Time slot length : $2.880\text{ ms} = 0.00288\text{ sec}$

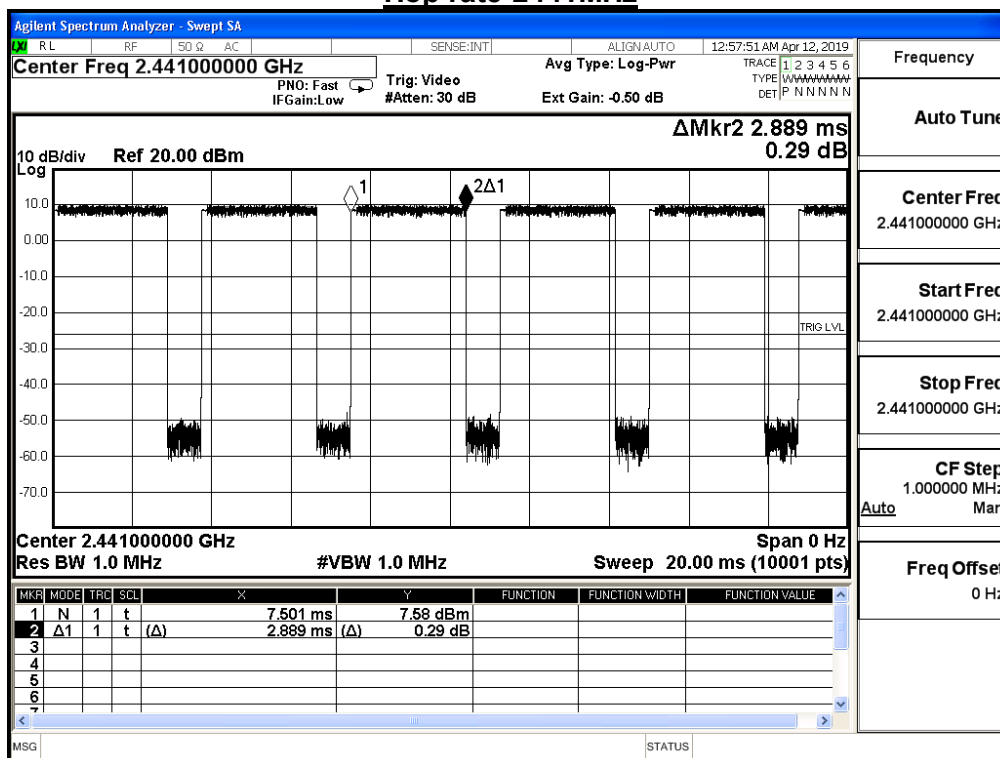
Dwell Time : $0.00288 \times (266.67/79) \times 31.60 = 0.3072\text{ sec}$.

Test Result: The Average Occupancy Time of Each Highest , Middle and Lowest Channel Is Less Than 0.4sec , And Corresponds to The Standard .

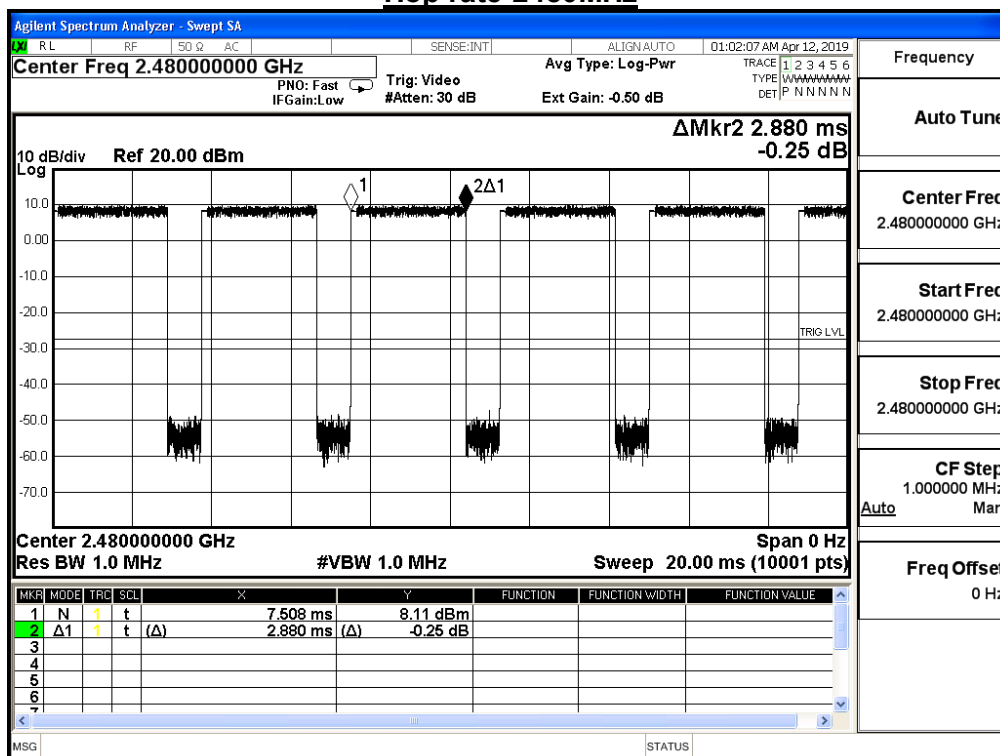
Hop rate-2402MHz



Hop rate-2441MHz



Hop rate-2480MHz



Note: Dwell time = time slot length * hop rate / number of hopping channels * period