

# FCC Test Report

Product Name : UHD651-L

Trade Name : Vestel

Model No. : UHD651-L

FCC ID. : XU6-UHD651-L

Applicant : VESTEL TRADE CO.

Address : Organize Sanayi Bölgesi (45030) Manisa/Türkiye

Date of Receipt : Feb. 18, 2017

Issued Date : Apr. 17, 2017

Report No. : 1720411R-RFUSP01V00-A

Report Version : V1.0



The test results relate only to the samples tested.

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# Test Report Certification

Issued Date : Apr. 17, 2017

Report No. : 1720411R-RFUSP01V00-A

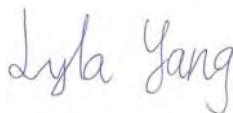


Product Name : UHD651-L  
Applicant : VESTEL TRADE CO.  
Address : Organize Sanayi Bölgesi (45030) Manisa/Türkiye  
Manufacturer : VESTEL TRADE CO.  
Model No. : UHD651-L  
FCC ID. : XU6-UHD651-L  
EUT Voltage : AC 100-240V, 50-60Hz  
Testing Voltage : AC 120V/60Hz  
Trade Name : Vestel  
Applicable Standard : FCC CFR Title 47 Part 15 Subpart C Section 15.247: 2015  
Test Lab : Hsin Chu Laboratory  
Test Result : Complied

The test results relate only to the samples tested.

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Documented By :



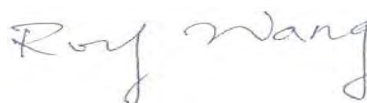
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Tested By :



( Carter Hsu / Senior Engineer )

Approved By :



( Roy Wang / Director )

**Revision History**

Report No.	Version	Description	Issued Date
1720411R-RFUSP01V00-A	V1.0	Initial issue of report	Apr. 17, 2017

## Laboratory Information

We, **DEKRA Testing and Certification Co., Ltd.**, are an independent RF consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted (audited or listed) by the following related bodies in compliance with ISO 17025 specified testing scopes:

<b>Taiwan R.O.C.</b>	<b>:</b>	<b>TAF, Accreditation Number: 3024</b>
<b>USA</b>	<b>:</b>	<b>FCC, Registration Number: 834100</b>
<b>Canada</b>	<b>:</b>	<b>IC, Submission No: 181665 / IC Registration Number: 22397-1 / 22397-2 / 22397-3</b>

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](http://www.dekra.com.tw/index_en.aspx)

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## TABLE OF CONTENTS

Description	Page
1. General Information.....	7
1.1. EUT Description .....	7
1.2. Test Mode .....	9
1.3. Tested System Details .....	10
1.4. Configuration of tested System .....	10
1.5. EUT Exercise Software .....	10
1.6. Test Facility.....	11
2. Conducted Emission .....	12
2.1. Test Equipment.....	12
2.2. Test Setup .....	12
2.3. Limits .....	13
2.4. Test Procedure .....	13
2.5. Test Specification.....	13
2.6. Uncertainty .....	13
2.7. Test Result.....	14
3. Peak Power Output .....	16
3.1. Test Equipment.....	16
3.2. Test Setup .....	16
3.3. Test procedures .....	16
3.4. Limits .....	16
3.5. Test Specification.....	16
3.6. Test Result.....	17
4. Radiated Emission .....	20
4.1. Test Equipment.....	20
4.2. Test Setup .....	20
4.3. Limits .....	21
4.4. Test Procedure .....	21
4.5. Test Specification.....	21
4.6. Test Result.....	22
5. RF antenna conducted test .....	46
5.1. Test Equipment.....	46
5.2. Test Setup .....	46
5.3. Limits .....	47
5.4. Test Procedure .....	47
5.5. Test Specification.....	47
5.6. Test Result.....	48
6. Band Edge.....	60
6.1. Test Equipment.....	60
6.2. Test Setup .....	60
6.3. Limits .....	61
6.4. Test Procedure .....	61

6.5.	Test Specification.....	61
6.6.	Test Result.....	62
7.	Number of hopping frequency .....	98
7.1.	Test Equipment.....	98
7.2.	Test Setup .....	98
7.3.	Limits .....	99
7.4.	Test Procedures .....	99
7.5.	Test Specification.....	99
7.6.	Test Result.....	100
8.	Carrier Frequency Separation .....	104
8.1.	Test Equipment.....	104
8.2.	Test Setup .....	104
8.3.	Limits .....	104
8.4.	Test Procedures .....	104
8.5.	Test Specification.....	104
8.6.	Test Result.....	105
9.	Occupied Bandwidth .....	114
9.1.	Test Equipment.....	114
9.2.	Test Setup .....	114
9.3.	Limits .....	114
9.4.	Test Procedures .....	115
9.5.	Test Specification.....	115
9.6.	Test Result.....	116
10.	Dwell Time.....	125
10.1.	Test Equipment.....	125
10.2.	Test Setup .....	125
10.3.	Limits .....	125
10.4.	Test Procedures .....	126
10.5.	Test Specification.....	126
10.6.	Test Result.....	127
Attachment 1 .....		139
	Test Setup Photograph.....	139
Attachment 2.....		146
	EUT External Photograph.....	146
Attachment 3.....		150
	EUT Internal Photograph.....	150

## 1. General Information

### 1.1. EUT Description

Product Name	UHD651-L
Trade Name	Vestel
Model No.	UHD651-L
Frequency Range/Channel Number	2402~2480MHz / 79 Channels
Type of Modulation	GFSK, $\pi/4$ -DQPSK, 8-DPSK

Antenna Information	
Antenna Type	PIFA Antenna
Antenna Gain	2 dBi

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 UHD651-L including 2.4GHz b/g/n (2x2), BT2.0, BT4.0 and 5GHz a/n (2x2) transmitting and receiving function.
2. Regards to the frequency band operation; the lowest 、middle and highest frequency of channel were selected to perform the test, and then shown on this report.
3. This device is a composite device in accordance with Part 15 regulations. The receiving function was tested and its number is 1720411R-RFUSP01V00.



## 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	
TX	Mode 1: Tx_DH5 Mode 2: Tx_2DH5 Mode 3: Tx_3DH5

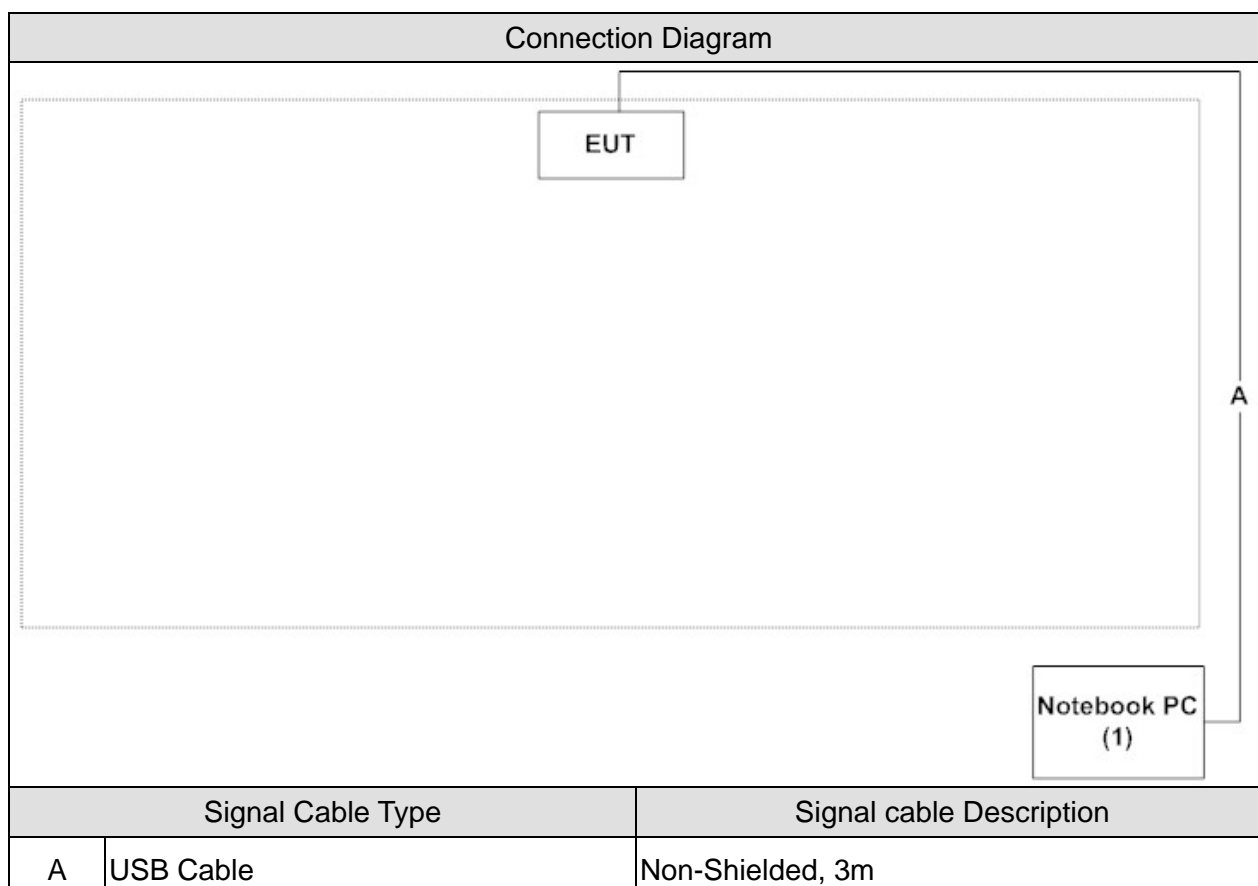
Emission	Mode 1	Mode 2	Mode 3
Conducted Emission	No	No	Yes
Peak Power Output	Yes	Yes	Yes
Radiated Emission	Yes	Yes	Yes
RF antenna conducted test	Yes	Yes	Yes
Band Edge	Yes	Yes	Yes
Number of hopping Frequency	Yes	No	No
Carrier Frequency Separation	Yes	Yes	Yes
Occupied Bandwidth	Yes	Yes	Yes
Dwell Time	Yes	Yes	Yes

### 1.3. Tested System Details

The types for all equipments, 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	ASUS	X522EP	E5N0CV04326 4197	DoC	Non-Shielded, 1.8m, one ferrite core bonded

### 1.4. Configuration of tested System



### 1.5. EUT Exercise Software

1	Setup the EUT as shown in Section 1.4.
2	Execute the test program "Bluetool".
3	Configure the test mode, the test channel, and the data rate.
4	Press "Start TX" to start the continuous transmitting.
5	Verify that the EUT works properly.

## 1.6. Test Facility

Ambient conditions in the laboratory:

Items	Test Item	Required (IEC 68-1)	Actual
Temperature (°C)	FCC PART 15 C 15.207 Conducted Emission (FHSS)	15 - 35	23
Humidity (%RH)		25 - 75	50
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Peak Power Output (FHSS)	15 - 35	24
Humidity (%RH)		25 - 75	45
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Radiated Emission (FHSS)	15 - 35	25
Humidity (%RH)		25 - 75	54
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Band Edge (FHSS)	15 - 35	25
Humidity (%RH)		25 - 75	50
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Number of hopping Frequency (FHSS)	15 - 35	24
Humidity (%RH)		25 - 75	45
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Carrier Frequency Separation (FHSS)	15 - 35	24
Humidity (%RH)		25 - 75	45
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Occupied Bandwidth (FHSS)	15 - 35	24
Humidity (%RH)		25 - 75	45
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 RF antenna conducted test (FHSS)	15 - 35	24
Humidity (%RH)		25 - 75	45
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Dwell Time (FHSS)	15 - 35	24
Humidity (%RH)		25 - 75	45
Barometric pressure (mbar)		860 - 1060	950-1000

## 2. Conducted Emission

### 2.1. Test Equipment

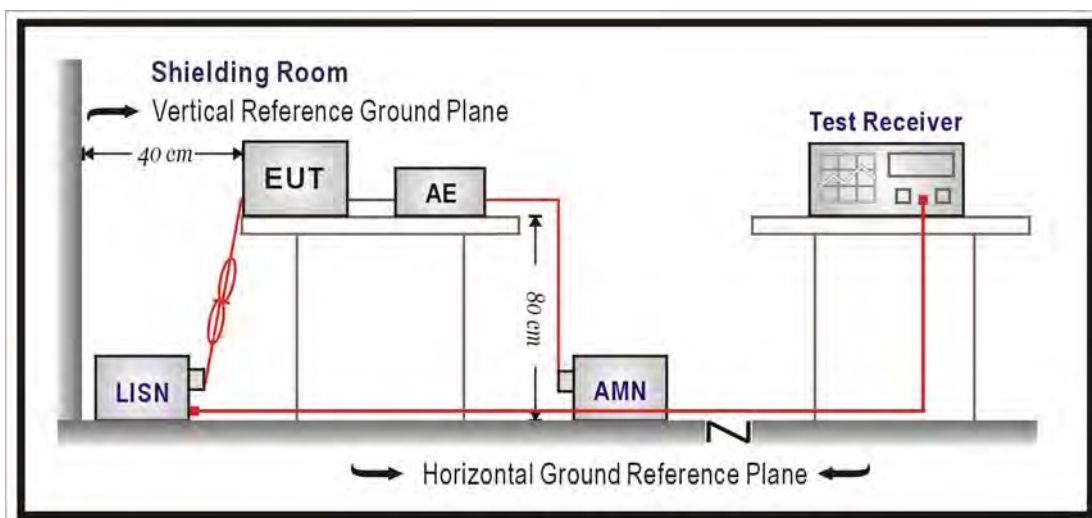
The following test equipments are used during the test:

Conducted Emission / SR2-H

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Artificial Mains Network	R&S	ENV4200	848411/010	2018/02/05
LISN	R&S	ENV216	100092	2017/08/16
Test Receiver	R&S	ESCS 30	836858/022	2018/01/14

Note: All equipments that need to calibrate are with calibration period of 1 year.

### 2.2. Test Setup



### 2.3. Limits

FCC Part 15 Subpart C Paragraph 15.207 Limits (dBuV)		
Frequency MHz	QP	AV
0.15 - 0.50	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30	60	50

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

### 2.4. 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 C63.10:2009 on conducted measurement.

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

### 2.5. Test Specification

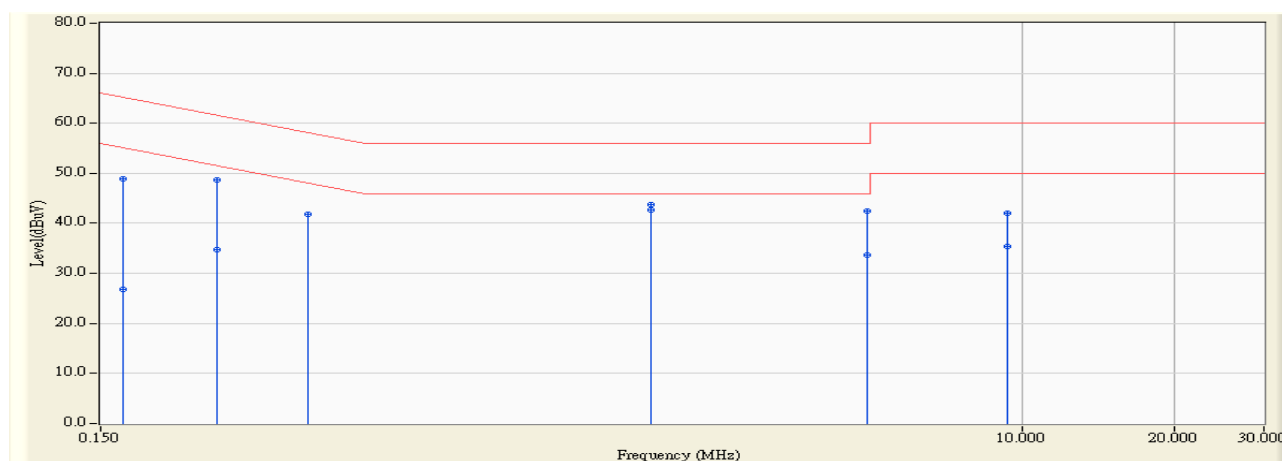
According to FCC Part 15 Subpart C Paragraph 15.207: 2015

### 2.6. Uncertainty

The measurement uncertainty is defined as  $\pm 2.26$  dB.

## 2.7. Test Result

Site : SR2-H	Time : 2017/04/11
Limit : CISPR_B_00M_QP	Margin : 10
Probe : SR2-H_LISN(16A)-6_0712 - Line1	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 3: Tx_3DH5_2442MHz

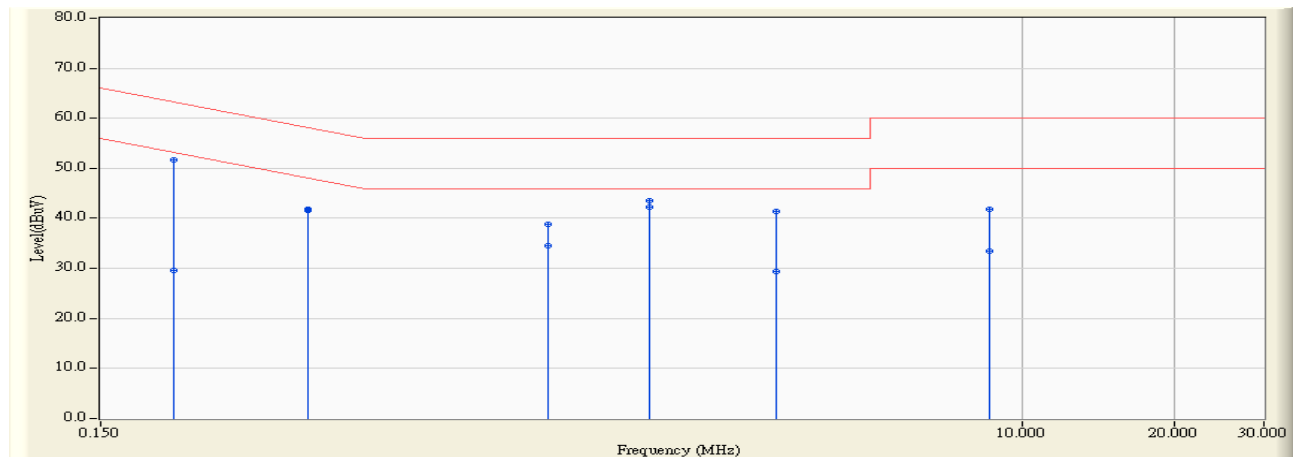


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.166	9.753	39.250	49.003	-16.174	65.177	QUASIPeAK
2		0.166	9.753	17.140	26.893	-28.284	55.177	AVERAGE
3		0.255	9.744	38.870	48.614	-12.963	61.577	QUASIPeAK
4		0.255	9.744	24.980	34.724	-16.853	51.577	AVERAGE
5		0.384	9.732	32.160	41.892	-16.293	58.184	QUASIPeAK
6		0.384	9.732	32.000	41.732	-6.453	48.184	AVERAGE
7		1.834	9.853	33.850	43.703	-12.297	56.000	QUASIPeAK
8	*	1.834	9.853	32.760	42.613	-3.387	46.000	AVERAGE
9		4.939	9.922	32.620	42.542	-13.458	56.000	QUASIPeAK
10		4.939	9.922	23.660	33.582	-12.418	46.000	AVERAGE
11		9.302	10.101	32.040	42.141	-17.859	60.000	QUASIPeAK
12		9.302	10.101	25.210	35.311	-14.689	50.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : SR2-H	Time : 2017/04/11
Limit : CISPR_B_00M_QP	Margin : 10
Probe : SR2-H_LISN(16A)-6_0712 - Line2	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 3: Tx_3DH5_2442MHz



	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	0.209	9.750	41.960	51.710	-11.551	63.261	QUASIPeAK
2	0.209	9.750	19.870	29.620	-23.641	53.261	AVERAGE
3	0.384	9.750	32.140	41.890	-16.294	58.184	QUASIPeAK
4	0.384	9.750	31.840	41.590	-6.594	48.184	AVERAGE
5	1.154	9.825	28.940	38.765	-17.235	56.000	QUASIPeAK
6	1.154	9.825	24.780	34.605	-11.395	46.000	AVERAGE
7	1.830	9.845	33.650	43.495	-12.505	56.000	QUASIPeAK
8	* 1.830	9.845	32.510	42.355	-3.645	46.000	AVERAGE
9	3.259	9.844	31.460	41.304	-14.696	56.000	QUASIPeAK
10	3.259	9.844	19.510	29.354	-16.646	46.000	AVERAGE
11	8.619	10.070	31.680	41.749	-18.251	60.000	QUASIPeAK
12	8.619	10.070	23.480	33.549	-16.451	50.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

### 3. Peak Power Output

#### 3.1. Test Equipment

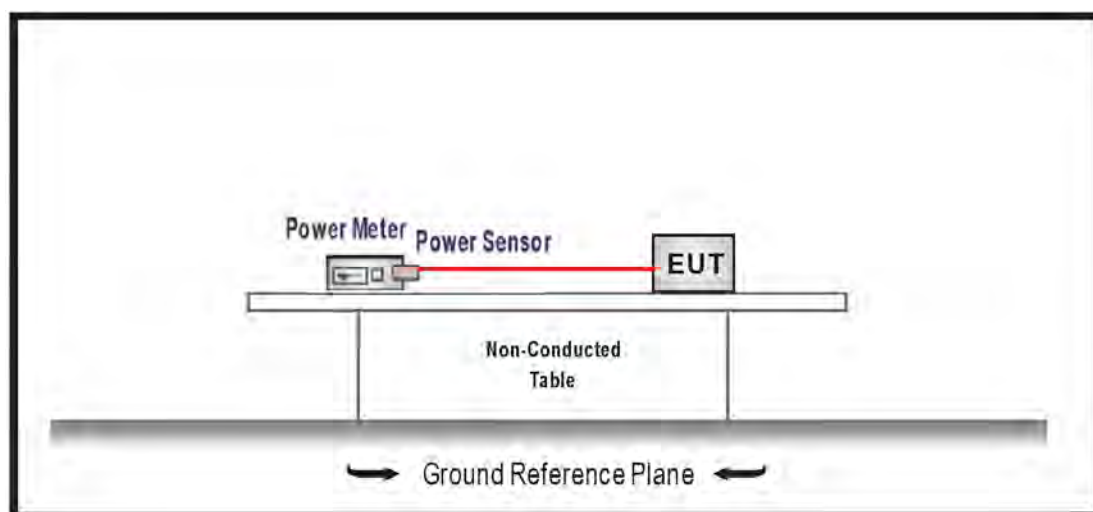
The following test equipment is used during the test:

Peak Power Output / SR10-H

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
High Speed Peak Power Meter Dual Input	Anritsu	ML2496A	1602004	2018/01/19
Pulse Power Sensor	Anritsu	MA2411B	1531043	2018/01/19
Pulse Power Sensor	Anritsu	MA2411B	1531044	2018/01/19

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

#### 3.2. Test Setup



#### 3.3. Test procedures

The EUT was setup according to ANSI C63.10:2013 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements

#### 3.4. 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 in the 2400-2483.5 MHz band employing at least 75 hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1Watt.

For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 Watt.

#### 3.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2015.



**3.6. Test Result**

Product	UHD651-L		
Test Item	Peak Power Output		
Test Mode	Mode 1: Tx_DH5		
Date of Test	2017/03/21	Test Site	SR10-H

**GFSK**

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
00	2402	-1.160	30	Pass
39	2441	-1.020	30	Pass
78	2480	-0.970	30	Pass

Product	UHD651-L		
Test Item	Peak Power Output		
Test Mode	Mode 2: Tx_2DH5		
Date of Test	2017/03/21	Test Site	SR10-H

 **$\pi/4$ -DQPSK**

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
00	2402	1.620	30	Pass
39	2441	1.890	30	Pass
78	2480	1.920	30	Pass

Product	UHD651-L		
Test Item	Peak Power Output		
Test Mode	Mode 3: Tx_3DH5		
Date of Test	2017/03/21	Test Site	SR10-H

**8-DPSK**

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
00	2402	2.190	30	Pass
39	2441	2.370	30	Pass
78	2480	2.540	30	Pass

## 4. Radiated Emission

### 4.1. Test Equipment

The following test equipments are used during the test:

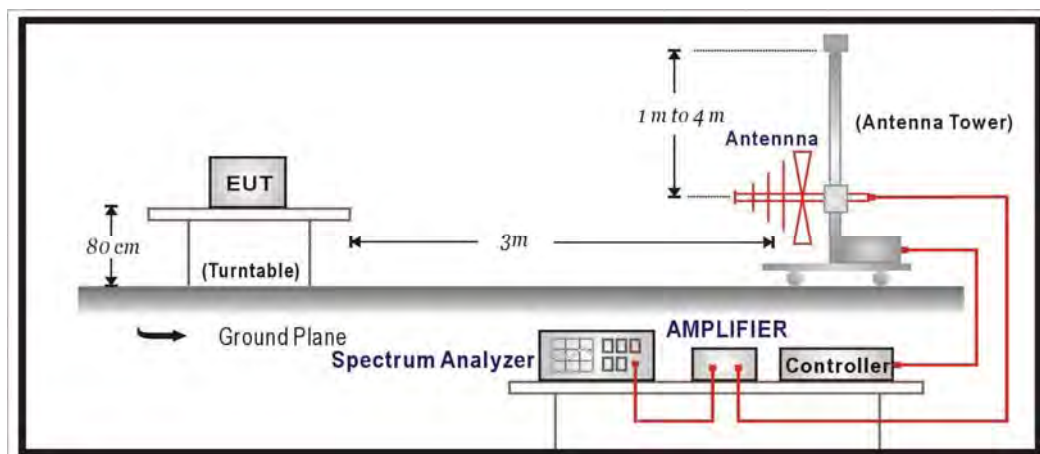
Radiated Emission / CB4-H

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Bilog Antenna	Schaffner	CBL6112B	2891	2017/08/14
Horn Antenna	Schwarzbeck	BBHA 9120	D312	2017/10/25
Pre-Amplifier	EMCI	EMC0031835	980233	2018/02/02
Pre-Amplifier	Schwarzbeck	DBL-1840N506	013	2017/09/29
Pre-Amplifier	Miteq	JS41-001040000-58-5P	1573954	2017/10/04
Horn Antenna	Schwarzbeck	BBHA 9170	203	2017/08/28
Signal & Spectrum Analyzer	R&S	FSV40	101049	2018/01/22

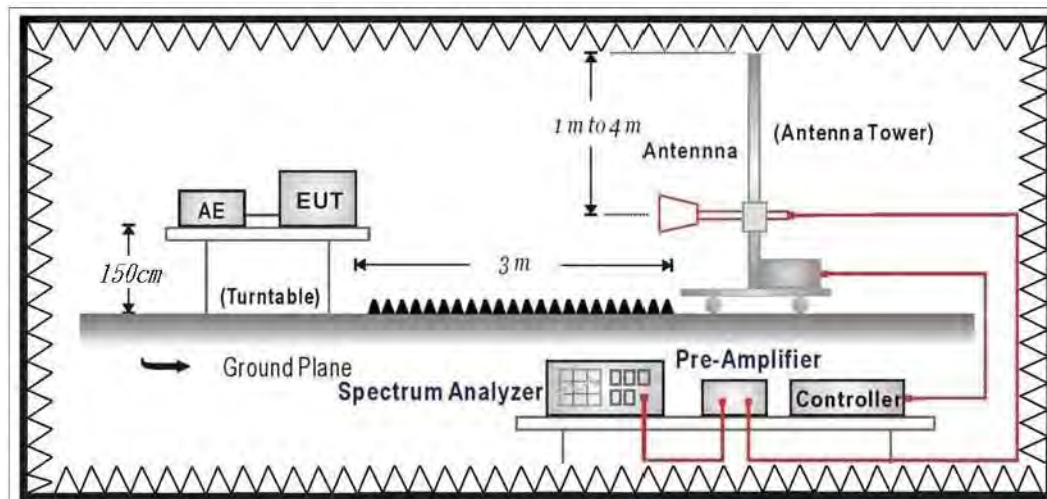
Note: All equipments that need to calibrate are with calibration period of 1 year.

### 4.2. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:



### 4.3. 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.

<b>FCC Part 15 Subpart C Paragraph 15.209 Limits</b>		
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.

### 4.4. Test Procedure

The EUT was setup according to ANSI C63.10:2013 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 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 below or equal to 1000 MHz, the limits shown are based on measuring equipment employing a quasi-peak detector function and on any frequency or frequencies above 1000 MHz the radiated limits shown are based upon the use of measurement instrumentation employing an average detector function. When average radiated emission measurement are included emission measurement below 1000 MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit. The bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.

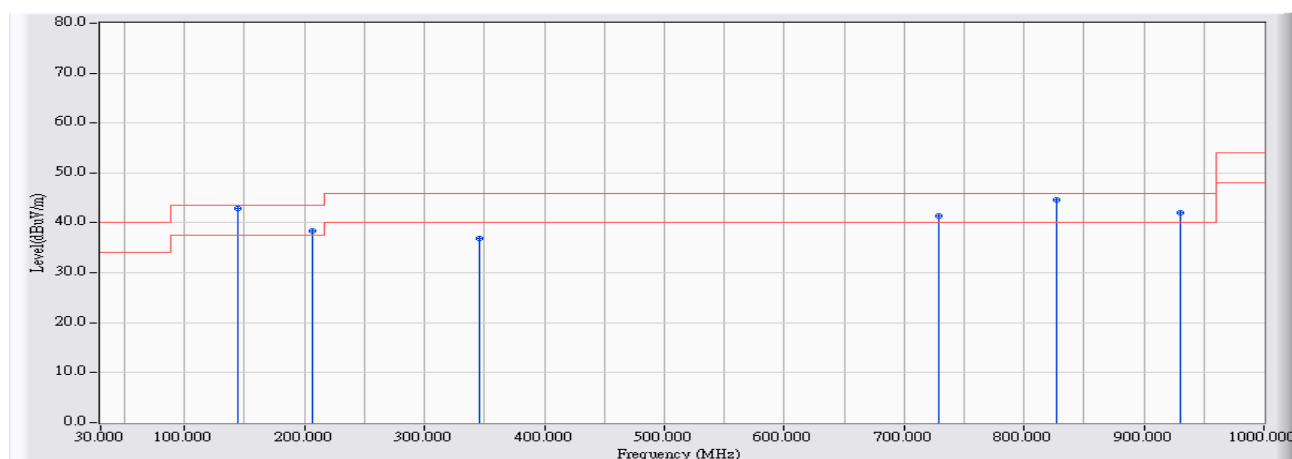
### 4.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2015

## 4.6. Test Result

### 30MHz-1GHz Spurious

Site : CB4-H	Time : 2017/03/23
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB4_FCC_EFS_S2_30M-1GHz_1116 - HORIZONTAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 1: Tx_DH5_2441MHz

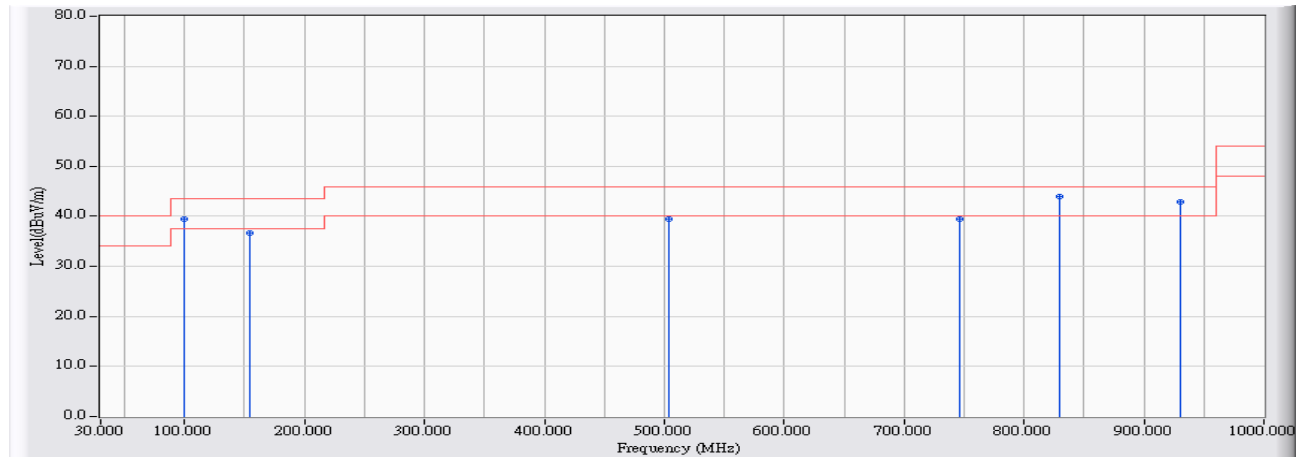


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	144.232	-21.852	64.699	42.847	-0.653	43.500	QUASIPeAK
2		206.188	-22.763	61.123	38.360	-5.140	43.500	QUASIPeAK
3		345.589	-17.456	54.353	36.896	-9.104	46.000	QUASIPeAK
4		728.942	-10.605	52.065	41.460	-4.540	46.000	QUASIPeAK
5		827.685	-9.773	54.452	44.680	-1.320	46.000	QUASIPeAK
6		930.299	-8.213	50.276	42.062	-3.938	46.000	QUASIPeAK

Note:

1. All Reading Levels are Quasi-Peak value.
2. “ \* ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : CB4-H	Time : 2017/03/23
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB4_FCC_EFS_S2_30M-1GHz_1116 - VERTICAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 1: Tx_DH5_2441MHz

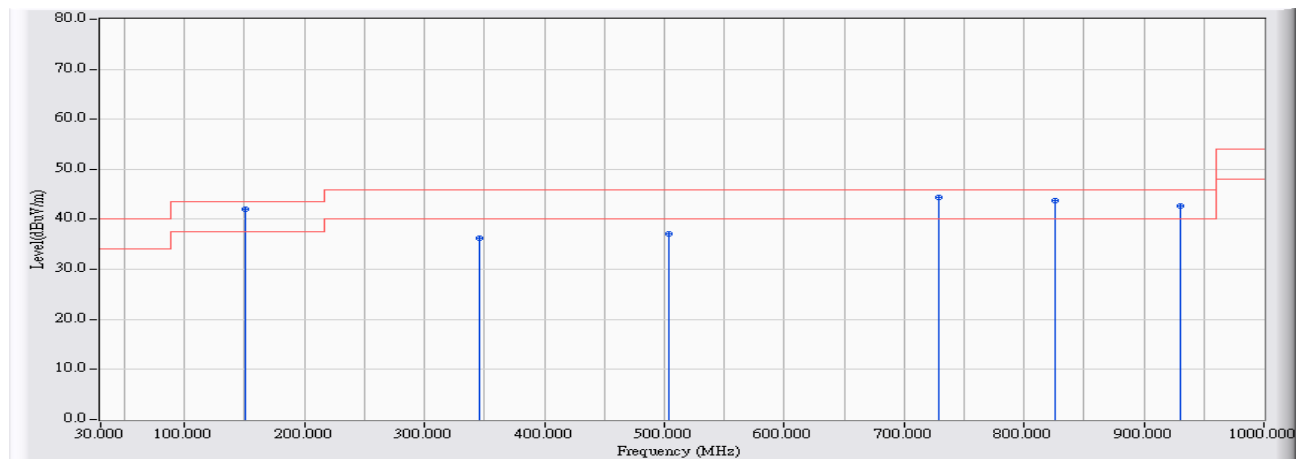


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	99.701	-23.442	62.948	39.506	-3.994	43.500	QUASIPeAK
2	153.912	-22.475	59.155	36.679	-6.821	43.500	QUASIPeAK
3	504.351	-13.848	53.402	39.555	-6.445	46.000	QUASIPeAK
4	746.367	-11.111	50.599	39.489	-6.511	46.000	QUASIPeAK
5	* 829.621	-9.685	53.639	43.953	-2.047	46.000	QUASIPeAK
6	930.299	-8.213	51.176	42.962	-3.038	46.000	QUASIPeAK

Note:

1. All Reading Levels are Quasi-Peak value.
2. “ \* ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : CB4-H	Time : 2017/03/23
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB4_FCC_EFS_S2_30M-1GHz_1116 - HORIZONTAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 2: Tx_2DH5_2441MHz



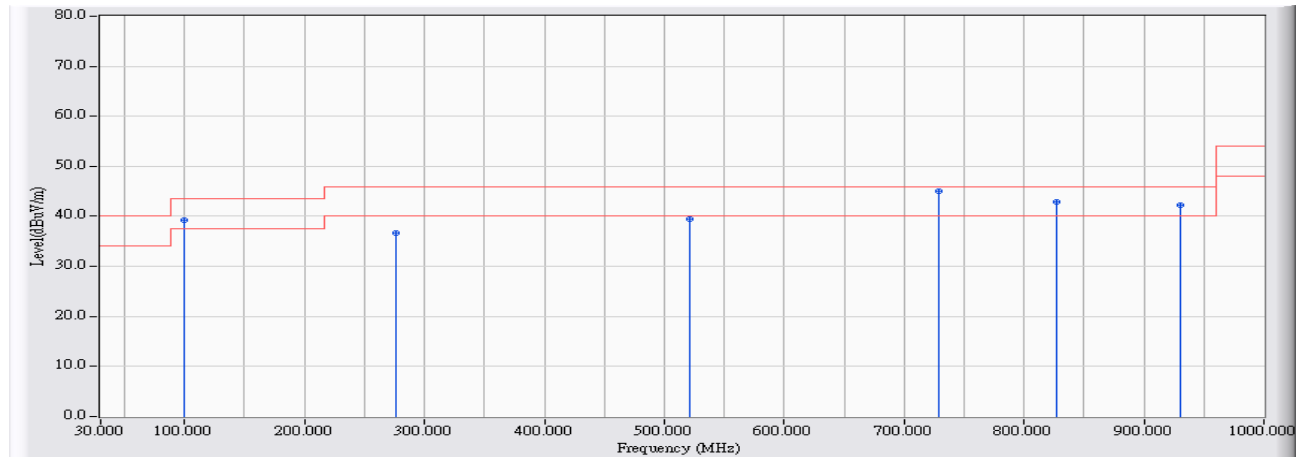
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	150.040	-22.209	64.283	42.074	-1.426	43.500	QUASIPeAK
2		345.589	-17.456	53.734	36.277	-9.723	46.000	QUASIPeAK
3		504.351	-13.848	50.984	37.137	-8.863	46.000	QUASIPeAK
4		728.942	-10.605	54.917	44.312	-1.688	46.000	QUASIPeAK
5		825.749	-9.859	53.584	43.725	-2.275	46.000	QUASIPeAK
6		930.299	-8.213	50.880	42.666	-3.334	46.000	QUASIPeAK

## Note:

1. All Reading Levels are Quasi-Peak value.
2. “ \* ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor



Site : CB4-H	Time : 2017/03/23
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB4_FCC_EFS_S2_30M-1GHz_1116 - VERTICAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 2: Tx_2DH5_2441MHz

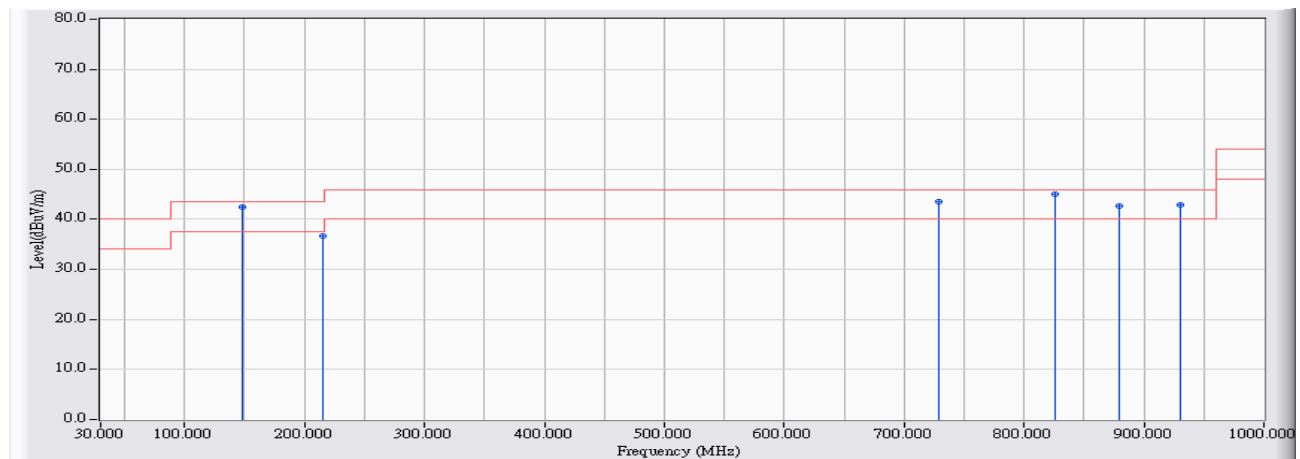


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		99.701	-23.442	62.635	39.193	-4.307	43.500	QUASIPeAK
2		275.888	-19.608	56.346	36.738	-9.262	46.000	QUASIPeAK
3		521.776	-13.617	53.162	39.545	-6.455	46.000	QUASIPeAK
4	*	728.942	-10.605	55.646	45.041	-0.959	46.000	QUASIPeAK
5		827.685	-9.773	52.663	42.891	-3.109	46.000	QUASIPeAK
6		930.299	-8.213	50.388	42.174	-3.826	46.000	QUASIPeAK

Note:

1. All Reading Levels are Quasi-Peak value.
2. “ \* ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : CB4-H	Time : 2017/03/23
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB4_FCC_EFS_S2_30M-1GHz_1116 - HORIZONTAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 3: Tx_3DH5_2441MHz

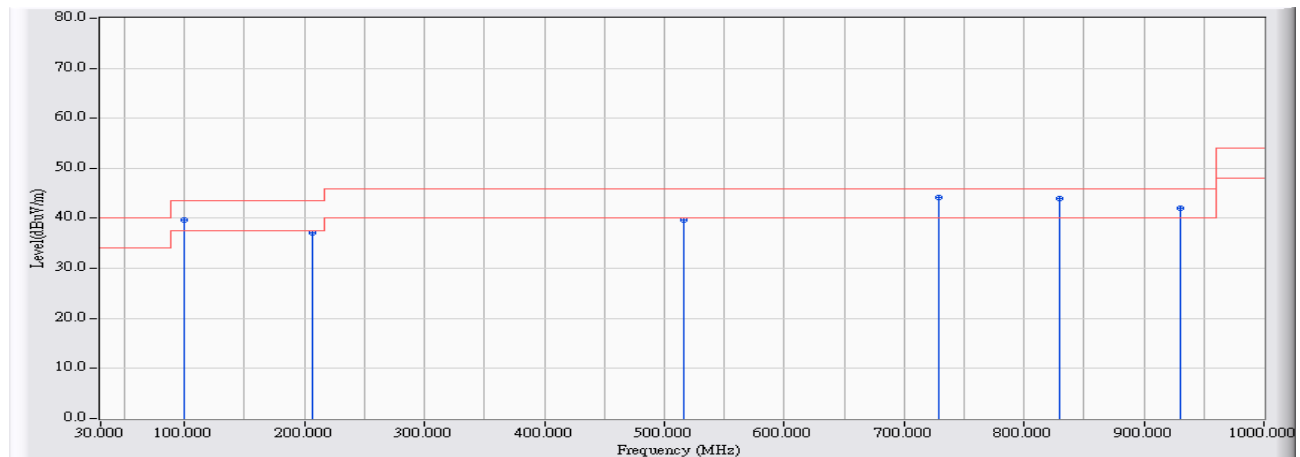


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	148.104	-22.089	64.597	42.508	-0.992	43.500	QUASIPeAK
2		215.868	-22.227	58.826	36.599	-6.901	43.500	QUASIPeAK
3		728.942	-10.605	54.055	43.450	-2.550	46.000	QUASIPeAK
4		825.749	-9.859	54.795	44.936	-1.064	46.000	QUASIPeAK
5		879.960	-8.654	51.413	42.759	-3.241	46.000	QUASIPeAK
6		930.299	-8.213	51.102	42.888	-3.112	46.000	QUASIPeAK

## Note:

1. All Reading Levels are Quasi-Peak value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : CB4-H	Time : 2017/03/23
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB4_FCC_EFS_S2_30M-1GHz_1116 - VERTICAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 3: Tx_3DH5_2441MHz



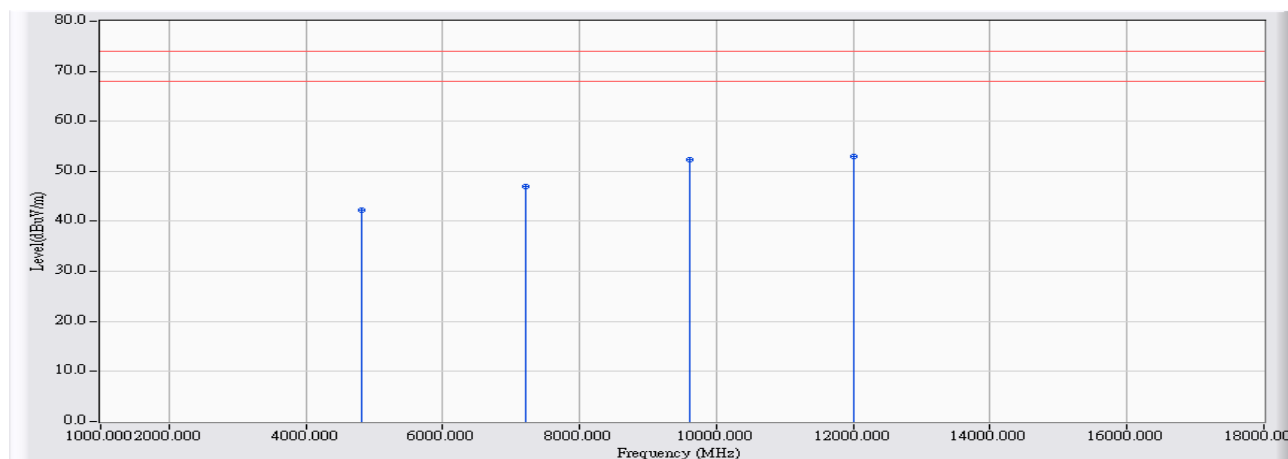
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	99.701	-23.442	63.062	39.620	-3.880	43.500	QUASIPeAK
2	206.188	-22.763	59.871	37.108	-6.392	43.500	QUASIPeAK
3	515.968	-13.569	53.264	39.694	-6.306	46.000	QUASIPeAK
4	* 728.942	-10.605	54.757	44.152	-1.848	46.000	QUASIPeAK
5	829.621	-9.685	53.578	43.892	-2.108	46.000	QUASIPeAK
6	930.299	-8.213	50.336	42.122	-3.878	46.000	QUASIPeAK

Note:

1. All Reading Levels are Quasi-Peak value.
2. “ \* ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

**Harmonic & Spurious:**

Site : CB4-H	Time : 2017/03/31
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B432_1-18GHz_3M_1116 - HORIZONTAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 1: Tx_DH5_2402MHz

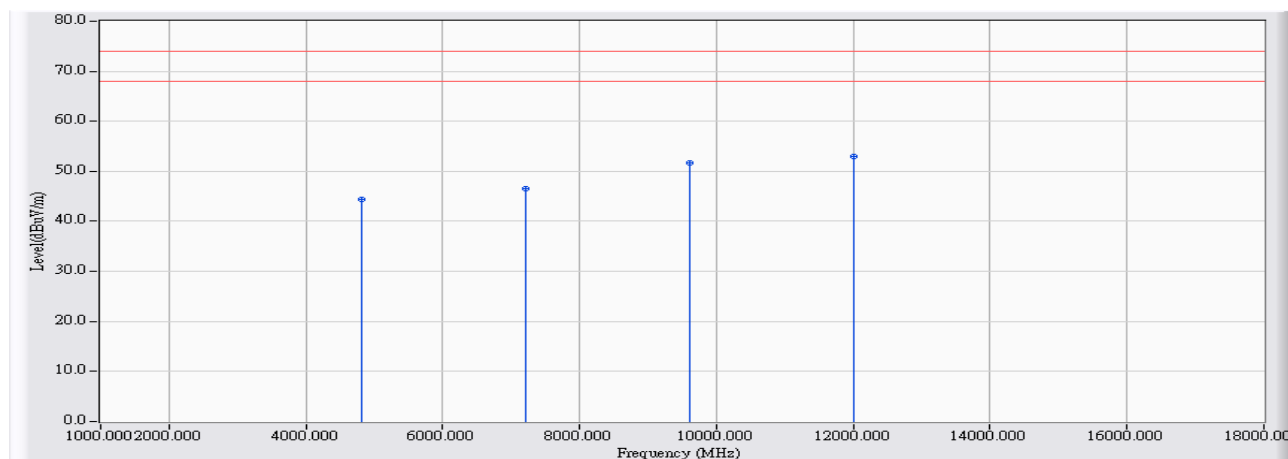


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4804.000	6.802	35.500	42.303	-31.697	74.000	PEAK
2		7206.000	14.870	32.090	46.961	-27.039	74.000	PEAK
3		9608.000	21.015	31.250	52.266	-21.734	74.000	PEAK
4	*	12010.000	24.909	28.070	52.979	-21.021	74.000	PEAK

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB4-H	Time : 2017/03/31
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B432_1-18GHz_3M_1116 - VERTICAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 1: Tx_DH5_2402MHz

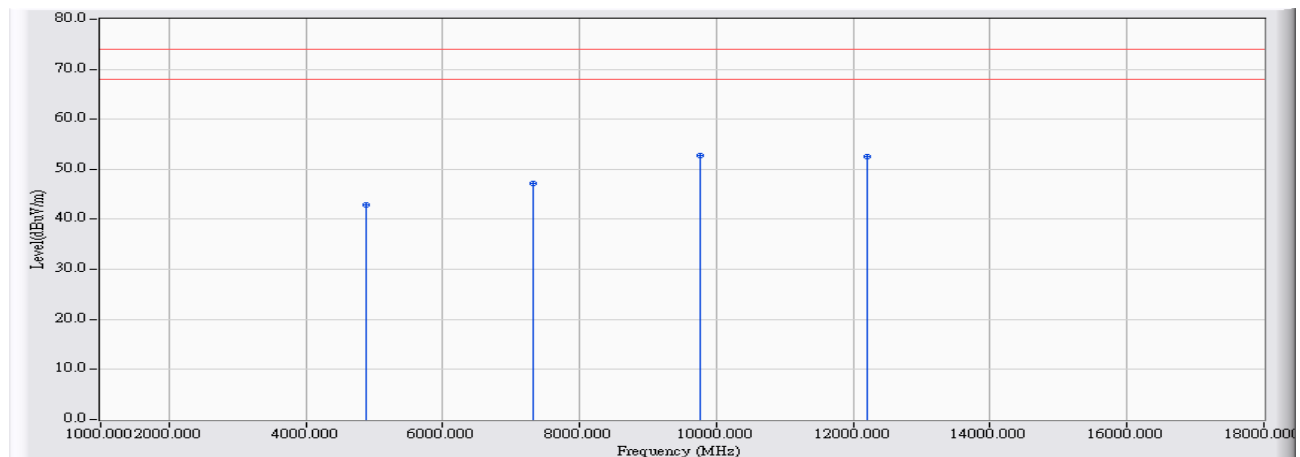


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4804.000	6.802	37.630	44.433	-29.567	74.000	PEAK
2		7206.000	14.870	31.740	46.611	-27.389	74.000	PEAK
3		9608.000	21.015	30.600	51.616	-22.384	74.000	PEAK
4	*	12010.000	24.909	27.970	52.879	-21.121	74.000	PEAK

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB4-H	Time : 2017/03/31
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B432_1-18GHz_3M_1116 - HORIZONTAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 1: Tx_DH5_2441MHz

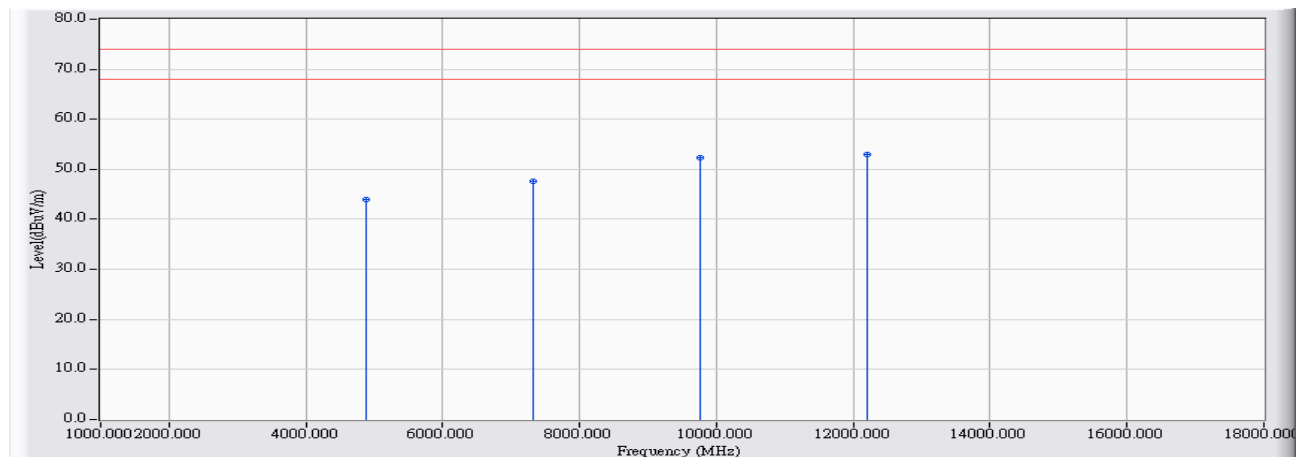


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4882.000	6.972	35.980	42.953	-31.047	74.000	PEAK
2		7323.000	15.439	31.780	47.220	-26.780	74.000	PEAK
3	*	9764.000	21.328	31.390	52.718	-21.282	74.000	PEAK
4		12205.000	24.333	28.150	52.483	-21.517	74.000	PEAK

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " \* ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB4-H	Time : 2017/03/31
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B432_1-18GHz_3M_1116 - VERTICAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 1: Tx_DH5_2441MHz

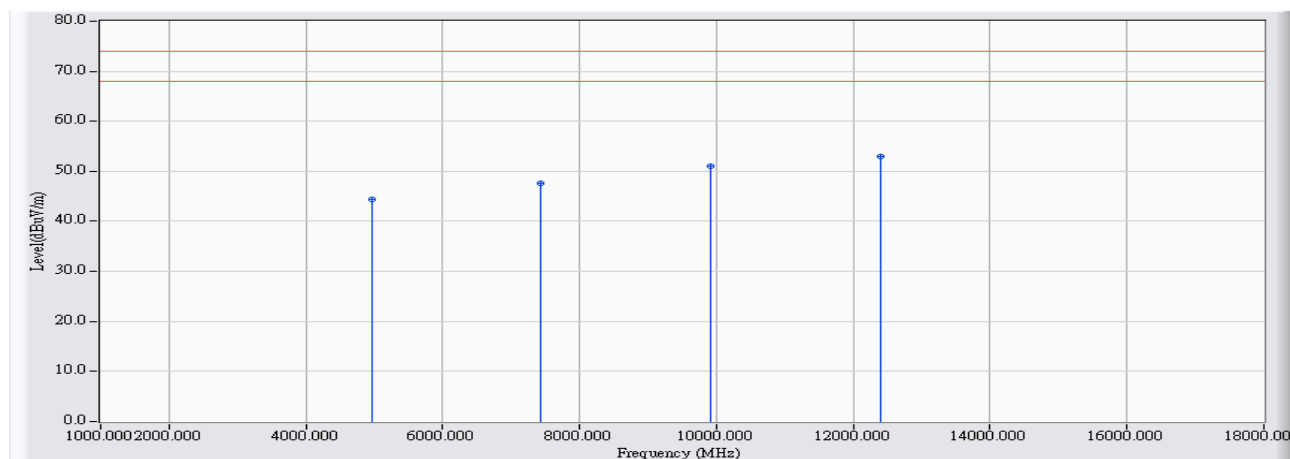


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4882.000	6.972	36.960	43.933	-30.067	74.000	PEAK
2		7323.000	15.439	32.110	47.550	-26.450	74.000	PEAK
3		9764.000	21.328	31.110	52.438	-21.562	74.000	PEAK
4	*	12205.000	24.333	28.580	52.913	-21.087	74.000	PEAK

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB4-H	Time : 2017/03/31
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B432_1-18GHz_3M_1116 - HORIZONTAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 1: Tx_DH5_2480MHz



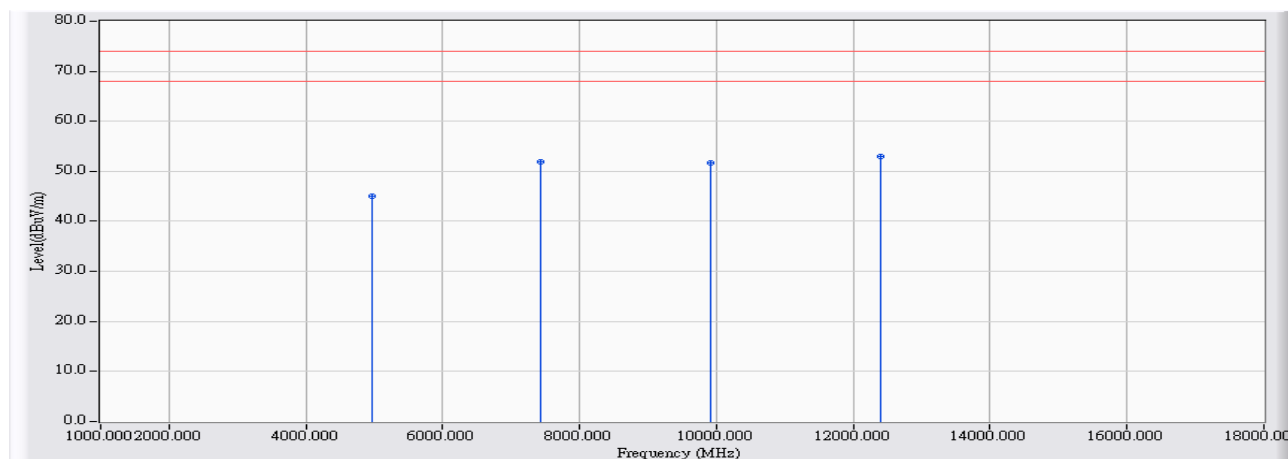
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4960.000	7.143	37.180	44.323	-29.677	74.000	PEAK
2		7440.000	16.008	31.640	47.648	-26.352	74.000	PEAK
3		9920.000	21.640	29.470	51.110	-22.890	74.000	PEAK
4	*	12400.000	23.756	29.120	52.876	-21.124	74.000	PEAK

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.



Site : CB4-H	Time : 2017/03/31
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B432_1-18GHz_3M_1116 - VERTICAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 1: Tx_DH5_2480MHz

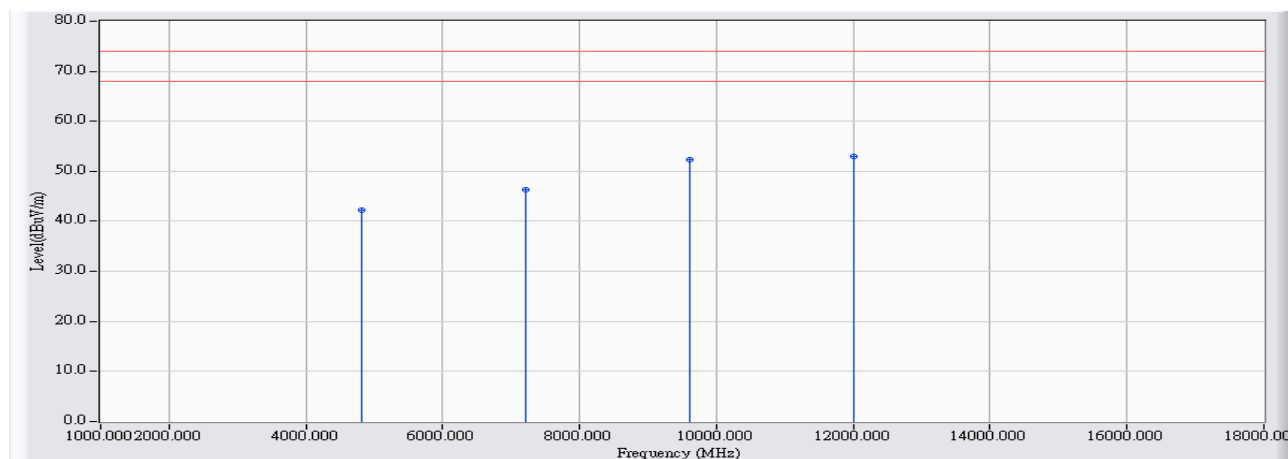


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4960.000	7.143	37.930	45.073	-28.927	74.000	PEAK
2		7440.000	16.008	35.950	51.958	-22.042	74.000	PEAK
3		9920.000	21.640	30.110	51.750	-22.250	74.000	PEAK
4	*	12400.000	23.756	29.150	52.906	-21.094	74.000	PEAK

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB4-H	Time : 2017/03/31
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B432_1-18GHz_3M_1116 - HORIZONTAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 2: Tx_2DH5_2402MHz

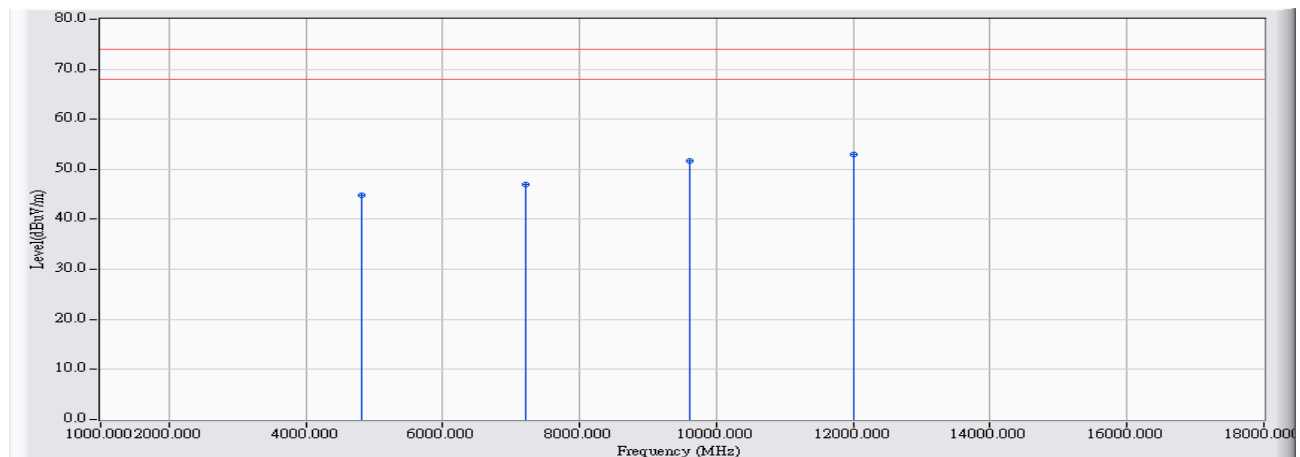


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4804.000	6.802	35.480	42.283	-31.717	74.000	PEAK
2		7206.000	14.870	31.560	46.431	-27.569	74.000	PEAK
3		9608.000	21.015	31.410	52.426	-21.574	74.000	PEAK
4	*	12010.000	24.909	28.040	52.949	-21.051	74.000	PEAK

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB4-H	Time : 2017/03/31
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B432_1-18GHz_3M_1116 - VERTICAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 2: Tx_2DH5_2402MHz

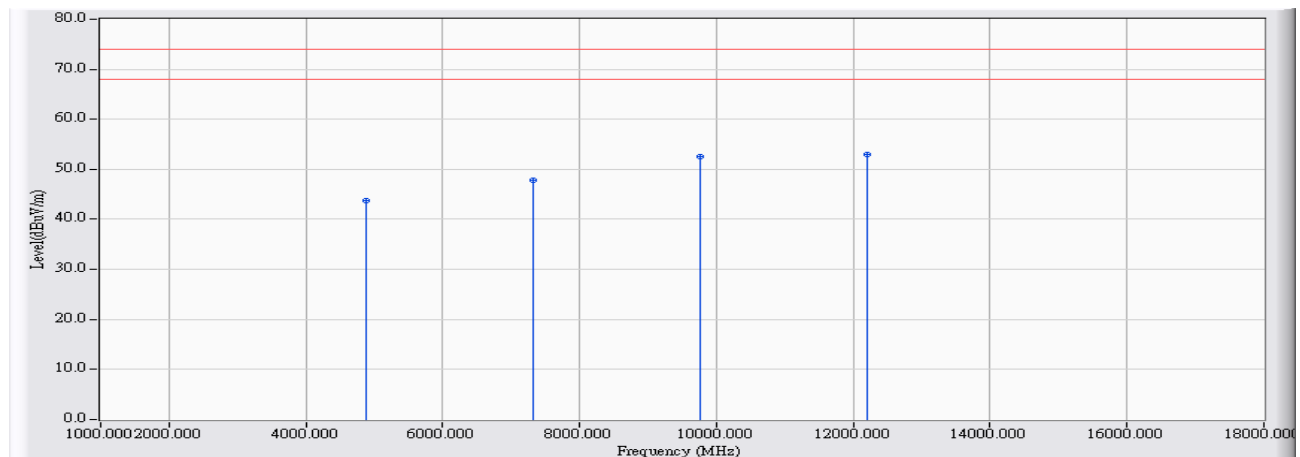


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4804.000	6.802	37.960	44.763	-29.237	74.000	PEAK
2		7206.000	14.870	32.190	47.061	-26.939	74.000	PEAK
3		9608.000	21.015	30.750	51.766	-22.234	74.000	PEAK
4	*	12010.000	24.909	28.000	52.909	-21.091	74.000	PEAK

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB4-H	Time : 2017/03/31
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B432_1-18GHz_3M_1116 - HORIZONTAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 2: Tx_2DH5_2441MHz

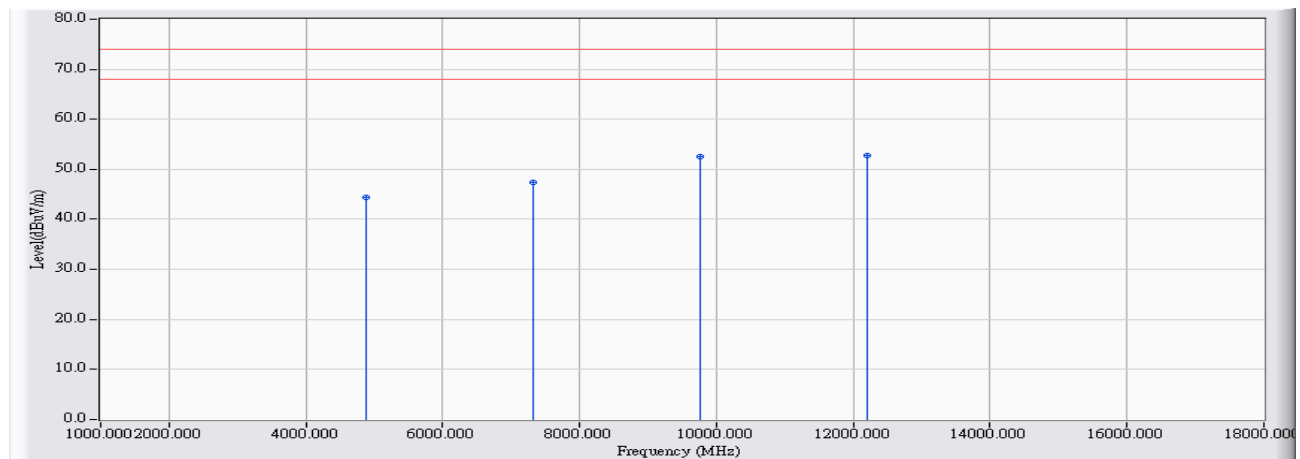


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4882.000	6.972	36.790	43.763	-30.237	74.000	PEAK
2		7323.000	15.439	32.340	47.780	-26.220	74.000	PEAK
3		9764.000	21.328	31.240	52.568	-21.432	74.000	PEAK
4	*	12205.000	24.333	28.580	52.913	-21.087	74.000	PEAK

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB4-H	Time : 2017/03/31
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B432_1-18GHz_3M_1116 - VERTICAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 2: Tx_2DH5_2441MHz

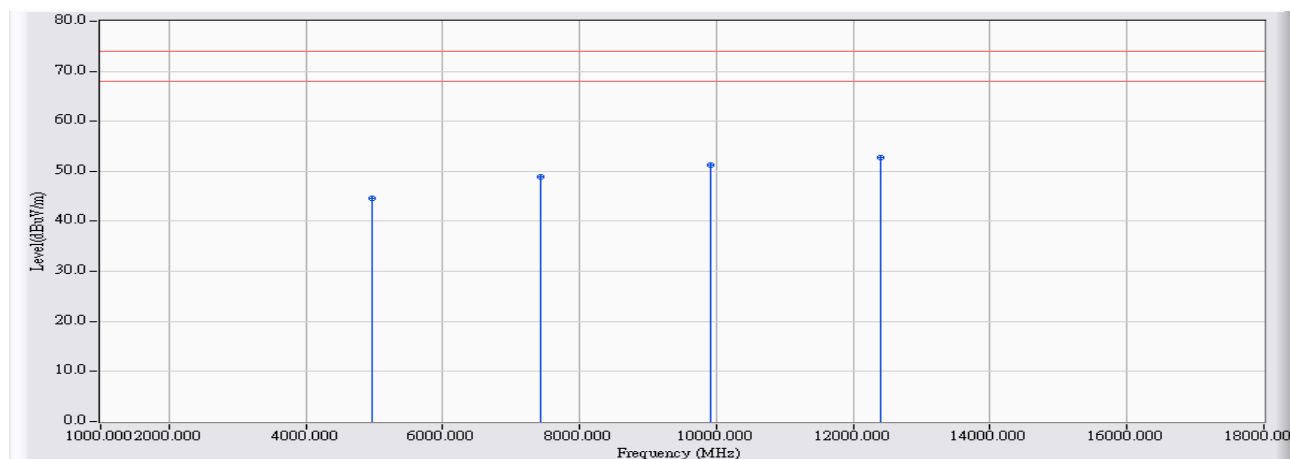


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4882.000	6.972	37.350	44.323	-29.677	74.000	PEAK
2		7323.000	15.439	31.900	47.340	-26.660	74.000	PEAK
3		9764.000	21.328	31.250	52.578	-21.422	74.000	PEAK
4	*	12205.000	24.333	28.530	52.863	-21.137	74.000	PEAK

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB4-H	Time : 2017/03/31
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B432_1-18GHz_3M_1116 - HORIZONTAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 2: Tx_2DH5_2480MHz

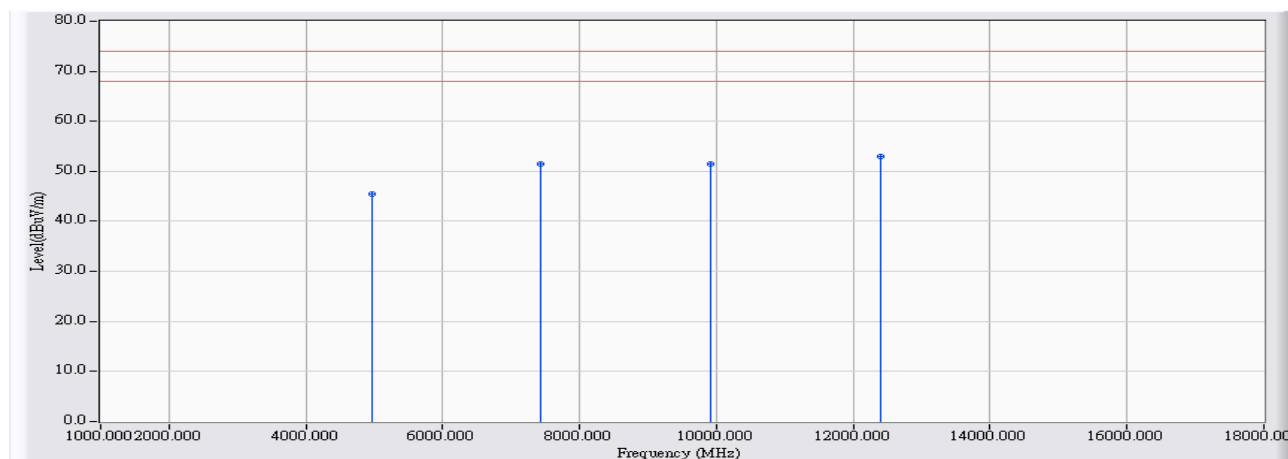


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4960.000	7.143	37.420	44.563	-29.437	74.000	PEAK
2		7440.000	16.008	32.790	48.798	-25.202	74.000	PEAK
3		9920.000	21.640	29.590	51.230	-22.770	74.000	PEAK
4	*	12400.000	23.756	29.010	52.766	-21.234	74.000	PEAK

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB4-H	Time : 2017/03/31
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B432_1-18GHz_3M_1116 - VERTICAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 2: Tx_2DH5_2480MHz

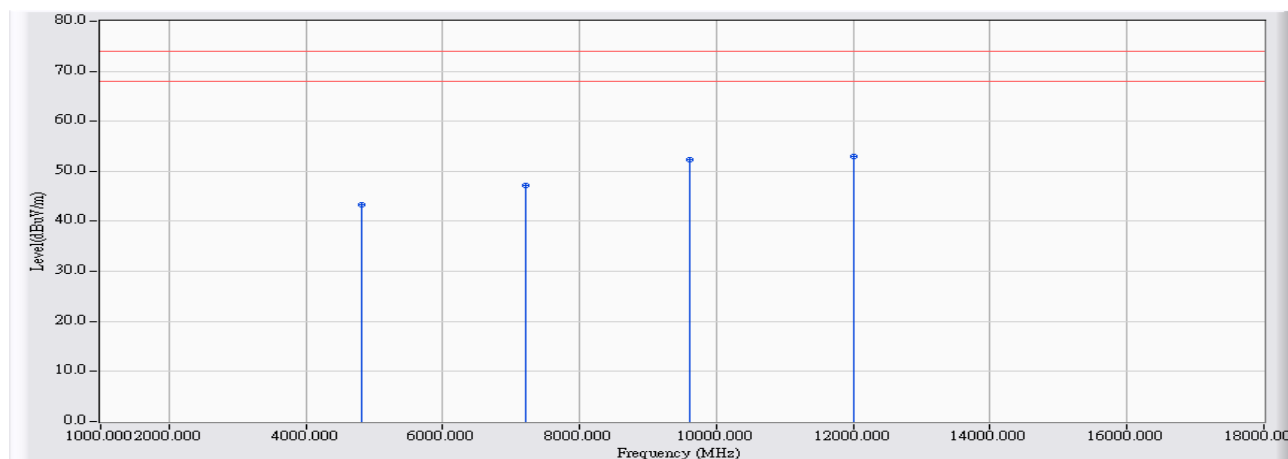


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4960.000	7.143	38.280	45.423	-28.577	74.000	PEAK
2		7440.000	16.008	35.480	51.488	-22.512	74.000	PEAK
3		9920.000	21.640	29.810	51.450	-22.550	74.000	PEAK
4	*	12400.000	23.756	29.200	52.956	-21.044	74.000	PEAK

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB4-H	Time : 2017/03/31
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B432_1-18GHz_3M_1116 - HORIZONTAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 3: Tx_3DH5_2402MHz



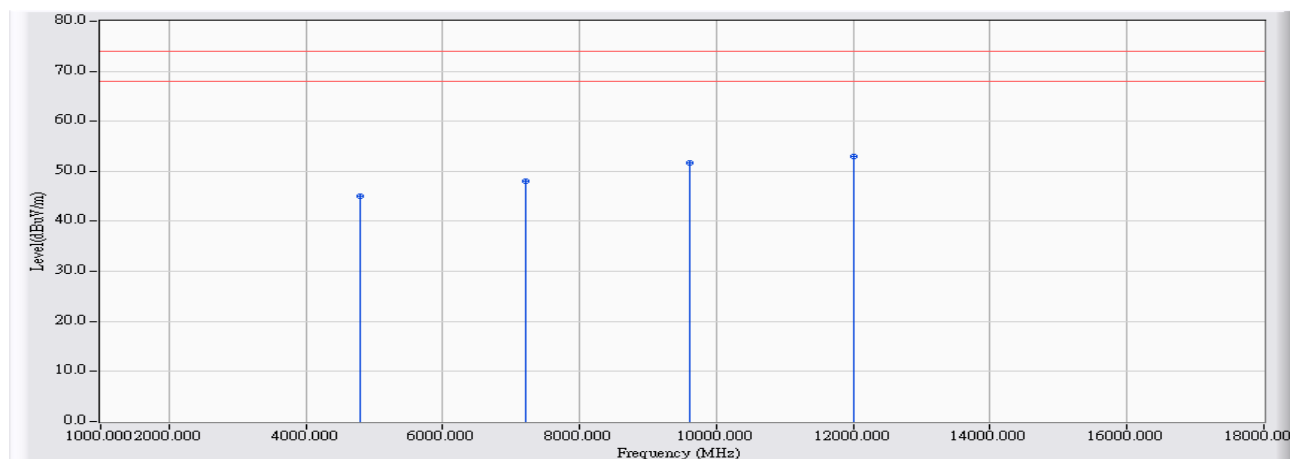
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4804.000	6.802	36.600	43.403	-30.597	74.000	PEAK
2		7206.000	14.870	32.250	47.121	-26.879	74.000	PEAK
3		9608.000	21.015	31.350	52.366	-21.634	74.000	PEAK
4	*	12010.000	24.909	28.090	52.999	-21.001	74.000	PEAK

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.



Site : CB4-H	Time : 2017/03/31
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B432_1-18GHz_3M_1116 - VERTICAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 3: Tx_3DH5_2402MHz

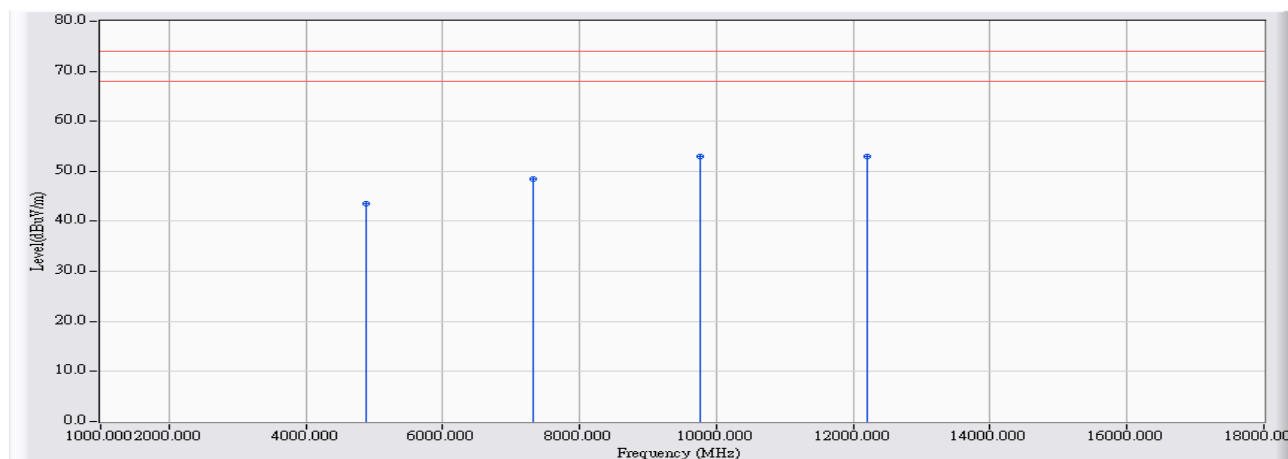


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4802.000	6.798	38.180	44.978	-29.022	74.000	PEAK
2		7206.000	14.870	33.270	48.141	-25.859	74.000	PEAK
3		9608.000	21.015	30.770	51.786	-22.214	74.000	PEAK
4	*	12010.000	24.909	28.040	52.949	-21.051	74.000	PEAK

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB4-H	Time : 2017/03/31
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B432_1-18GHz_3M_1116 - HORIZONTAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 3: Tx_3DH5_2441MHz

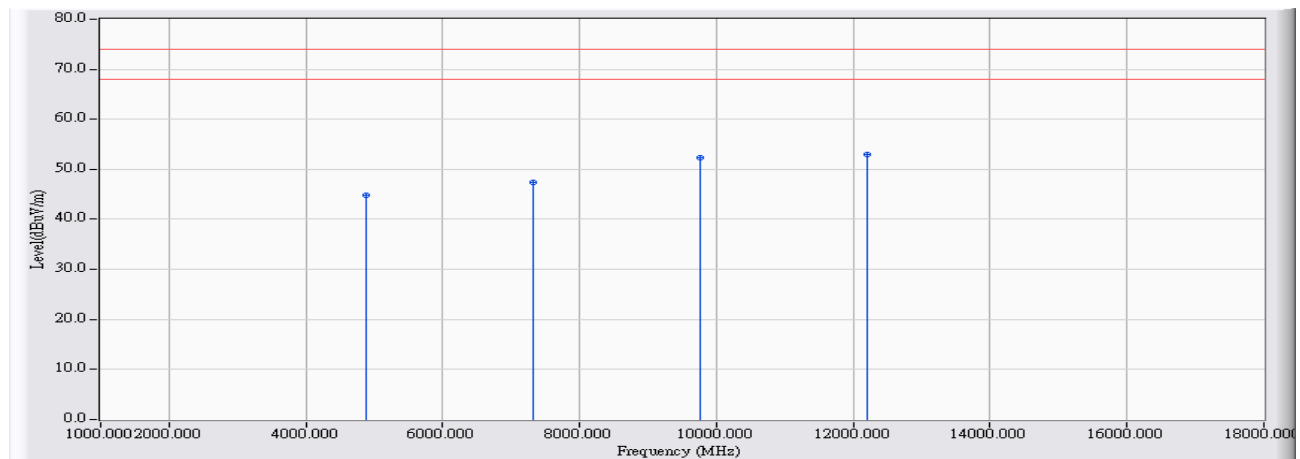


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4882.000	6.972	36.480	43.453	-30.547	74.000	PEAK
2		7323.000	15.439	33.130	48.570	-25.430	74.000	PEAK
3	*	9764.000	21.328	31.720	53.048	-20.952	74.000	PEAK
4		12205.000	24.333	28.630	52.963	-21.037	74.000	PEAK

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB4-H	Time : 2017/03/31
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B432_1-18GHz_3M_1116 - VERTICAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 3: Tx_3DH5_2441MHz

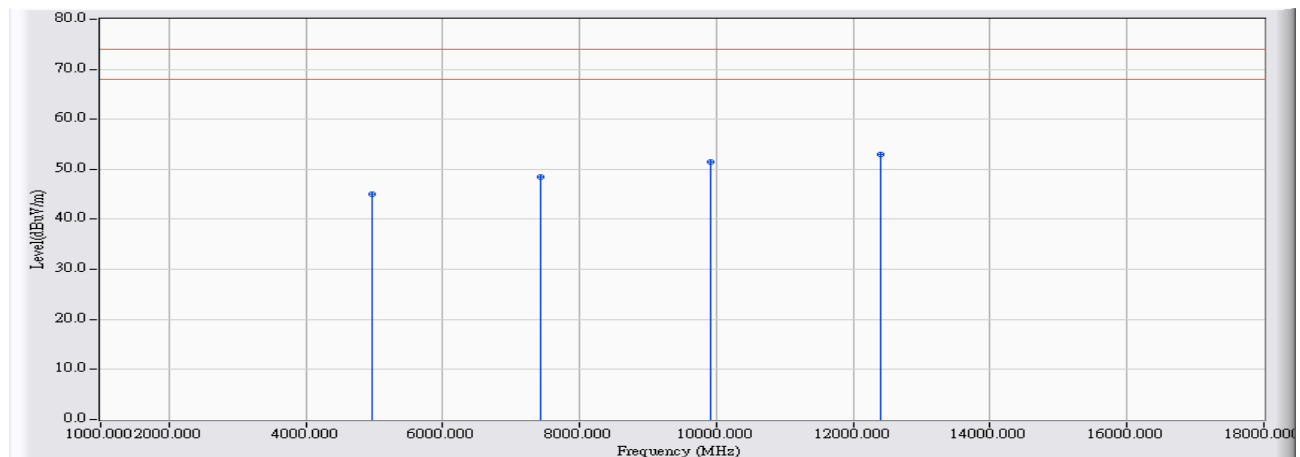


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4882.000	6.972	37.950	44.923	-29.077	74.000	PEAK
2		7323.000	15.439	31.980	47.420	-26.580	74.000	PEAK
3		9764.000	21.328	30.950	52.278	-21.722	74.000	PEAK
4	*	12205.000	24.333	28.570	52.903	-21.097	74.000	PEAK

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " \* ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB4-H	Time : 2017/03/31
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B432_1-18GHz_3M_1116 - HORIZONTAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 3: Tx_3DH5_2480MHz

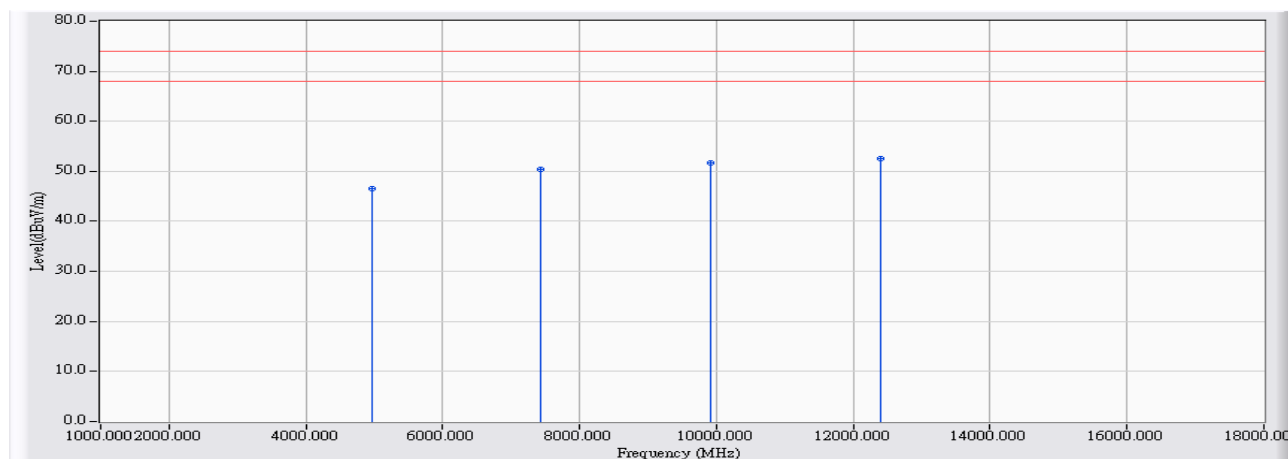


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4960.000	7.143	37.980	45.123	-28.877	74.000	PEAK
2		7440.000	16.008	32.530	48.538	-25.462	74.000	PEAK
3		9920.000	21.640	29.860	51.500	-22.500	74.000	PEAK
4	*	12400.000	23.756	29.200	52.956	-21.044	74.000	PEAK

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB4-H	Time : 2017/03/31
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B432_1-18GHz_3M_1116 - VERTICAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 3: Tx_3DH5_2480MHz



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4960.000	7.143	39.380	46.523	-27.477	74.000	PEAK
2		7440.000	16.008	34.430	50.438	-23.562	74.000	PEAK
3		9920.000	21.640	29.980	51.620	-22.380	74.000	PEAK
4	*	12400.000	23.756	28.790	52.546	-21.454	74.000	PEAK

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " \* ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

## 5. RF antenna conducted test

### 5.1. Test Equipment

The following test equipment is used during the test:

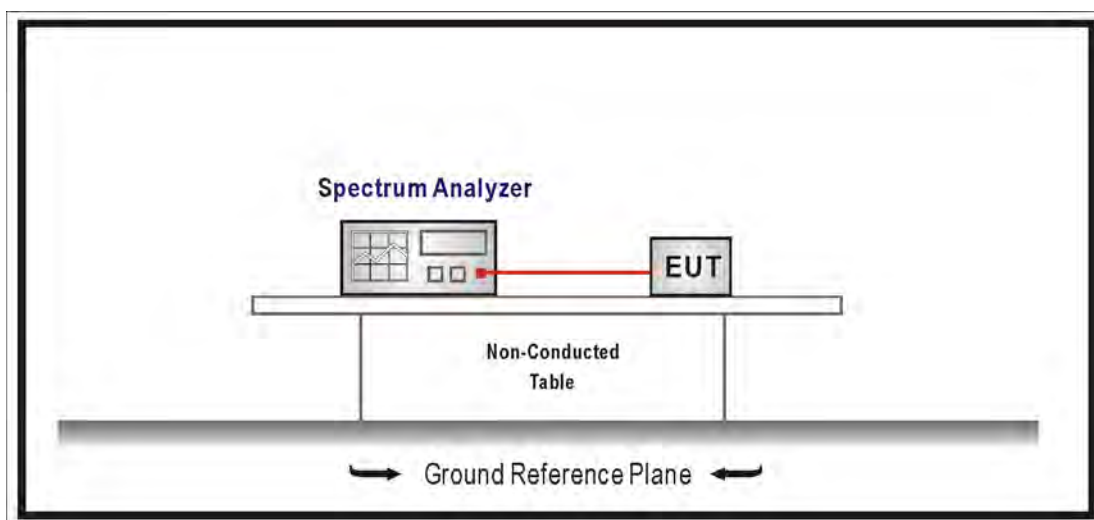
RF antenna conducted test / SR10-H

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A	US47140172	2017/08/08

Note: All equipments that need to calibrate are with calibration period of 1 year.

### 5.2. Test Setup

RF Conducted Measurement:



### **5.3. Limits**

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on an RF conducted or radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

### **5.4. Test Procedure**

The EUT was setup according to ANSI C63.10:2013 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements

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

### **5.5. Test Specification**

According to FCC Part 15 Subpart C Paragraph 15.247: 2015

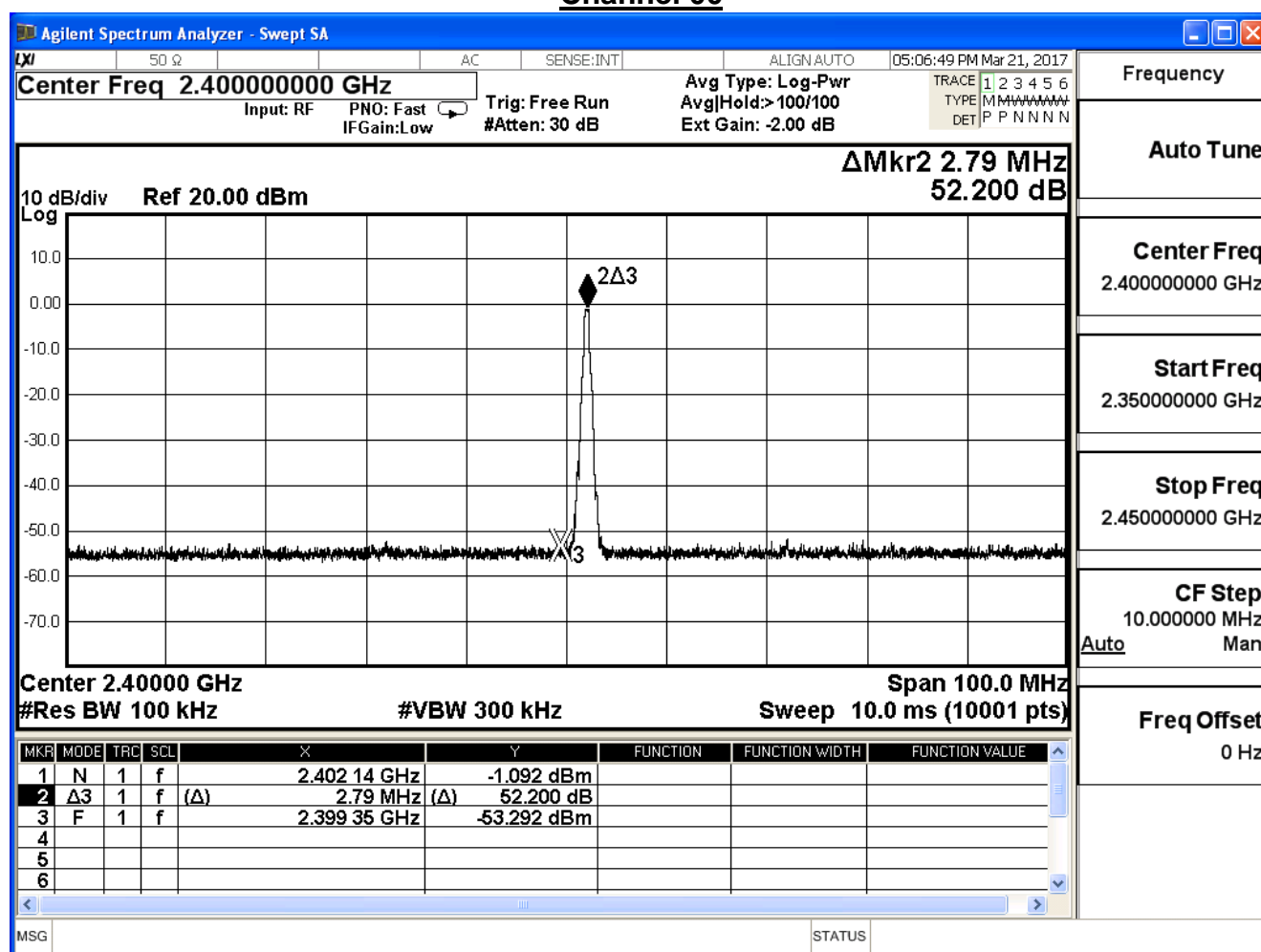
## 5.6. Test Result

Product	UHD651-L		
Test Item	RF antenna conducted test		
Test Mode	Mode 1: Tx_DH5		
Date of Test	2017/03/21	Test Site	SR10-H

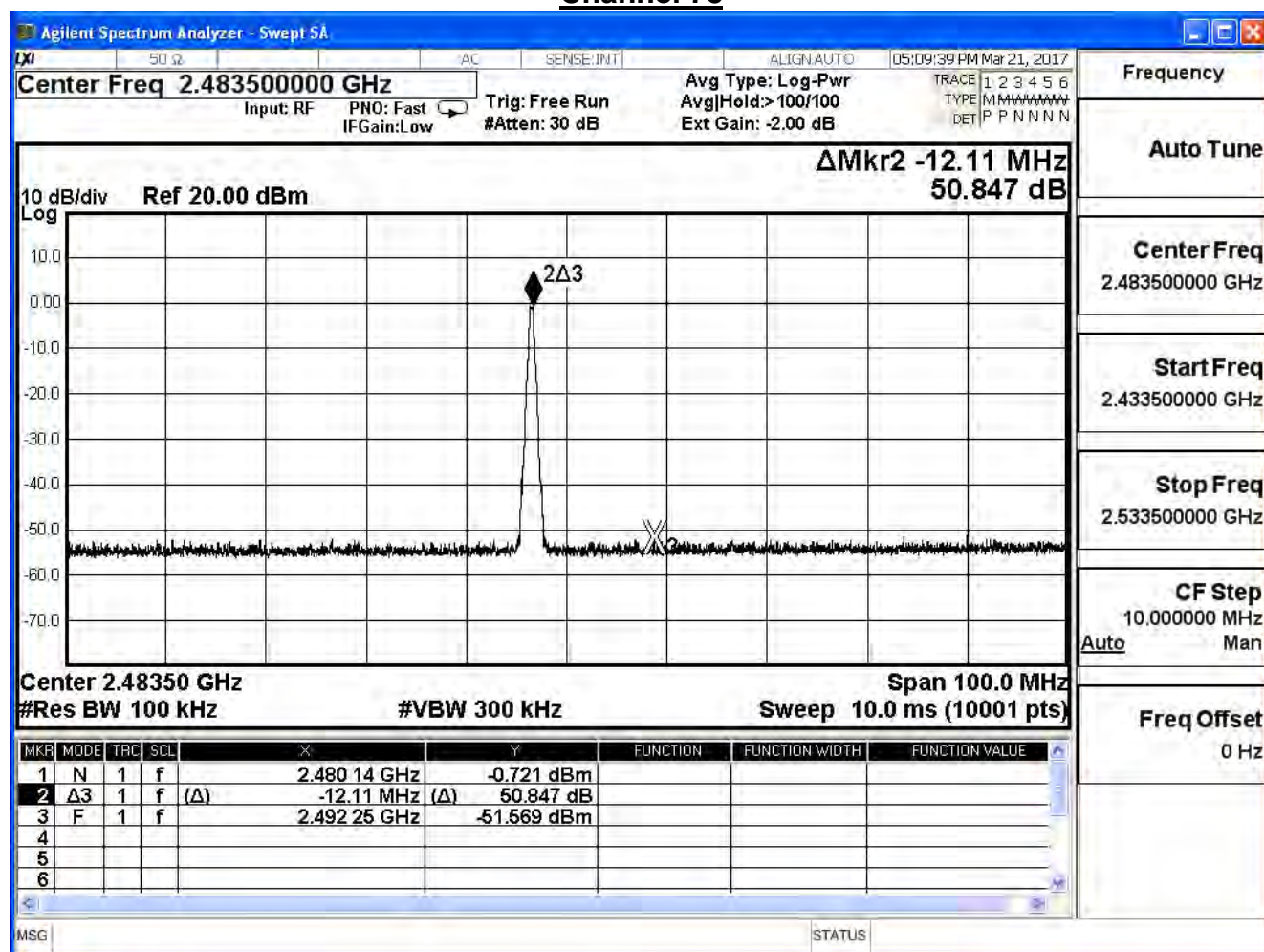
### GFSK

Channel	Frequency (MHz)	Measure Level (dBc)	Limit (dBc)	Result
00	2402	52.200	$\geq 20$	Pass
78	2480	50.847	$\geq 20$	Pass

### Channel 00



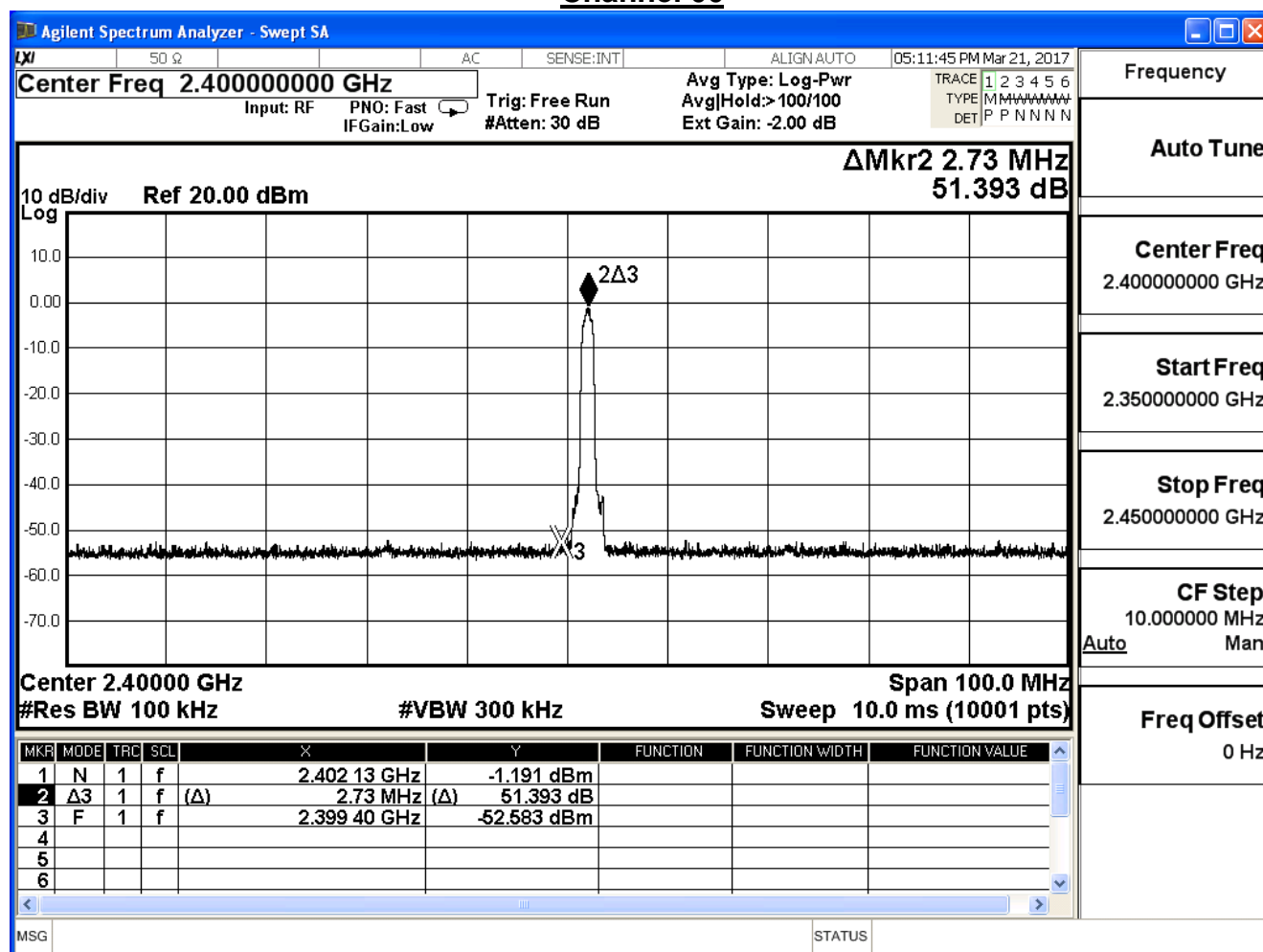


**Channel 78**

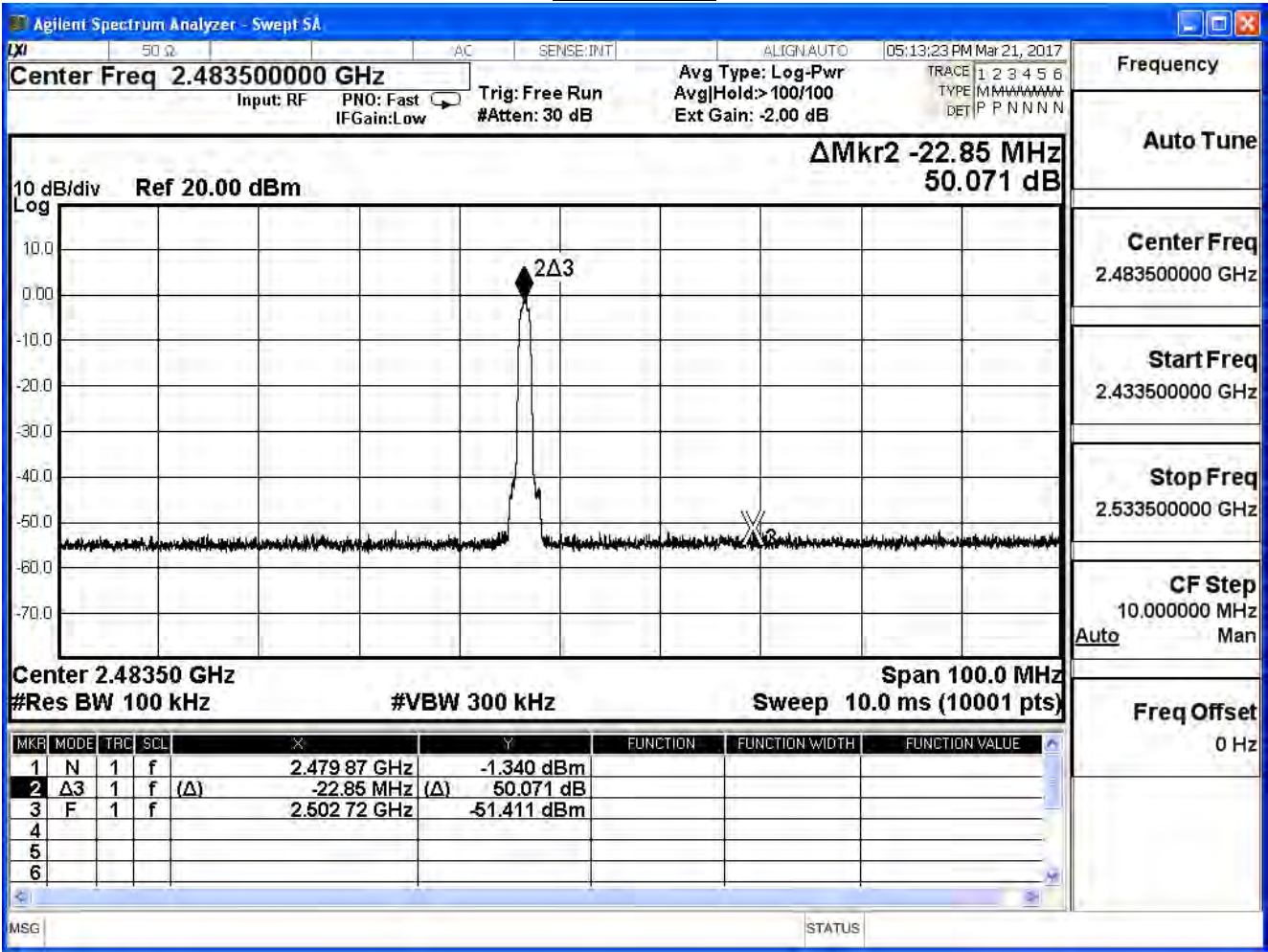
Product	UHD651-L		
Test Item	RF antenna conducted test		
Test Mode	Mode 2: Tx_2DH5		
Date of Test	2017/03/21	Test Site	SR10-H

 **$\pi/4$ -DQPSK**

Channel	Frequency (MHz)	Measure Level (dBc)	Limit (dBc)	Result
00	2402	51.393	$\geq 20$	Pass
78	2480	50.071	$\geq 20$	Pass

**Channel 00**

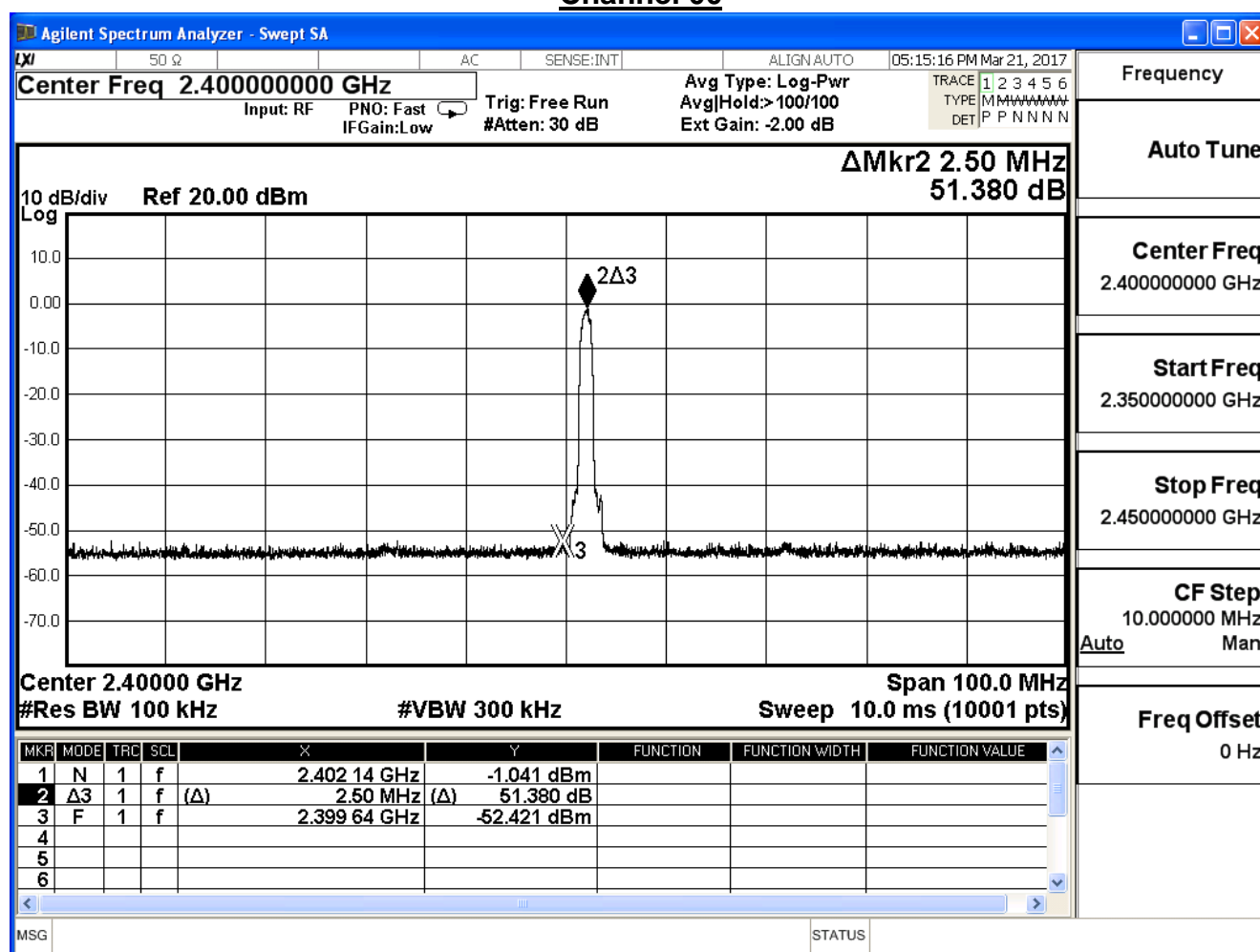
Channel 78

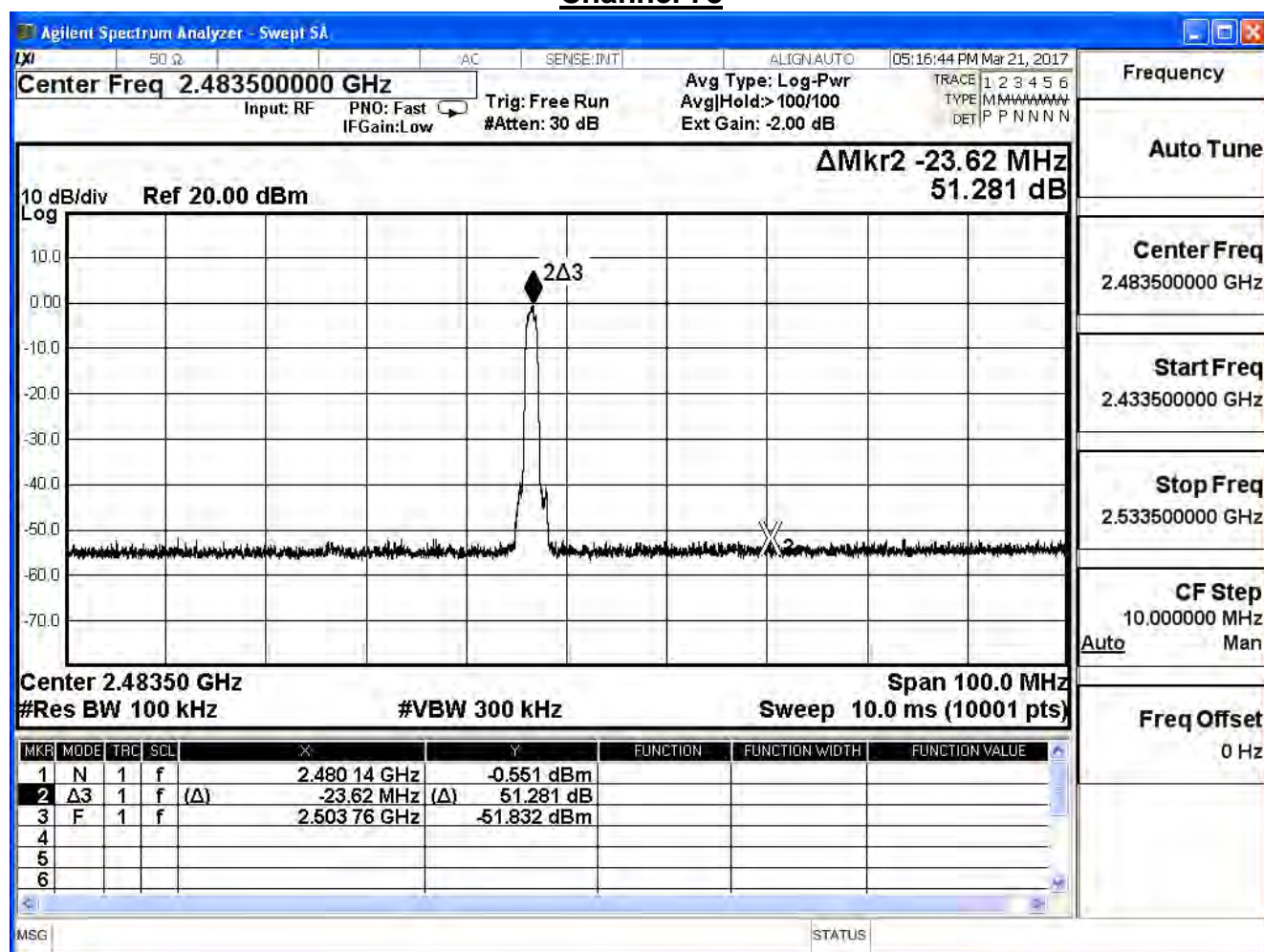


Product	UHD651-L		
Test Item	RF antenna conducted test		
Test Mode	Mode 3: Tx_3DH5		
Date of Test	2017/03/21	Test Site	SR10-H

**8-DPSK**

Channel	Frequency (MHz)	Measure Level (dBc)	Limit (dBc)	Result
00	2402	51.380	$\geq 20$	Pass
78	2480	51.281	$\geq 20$	Pass

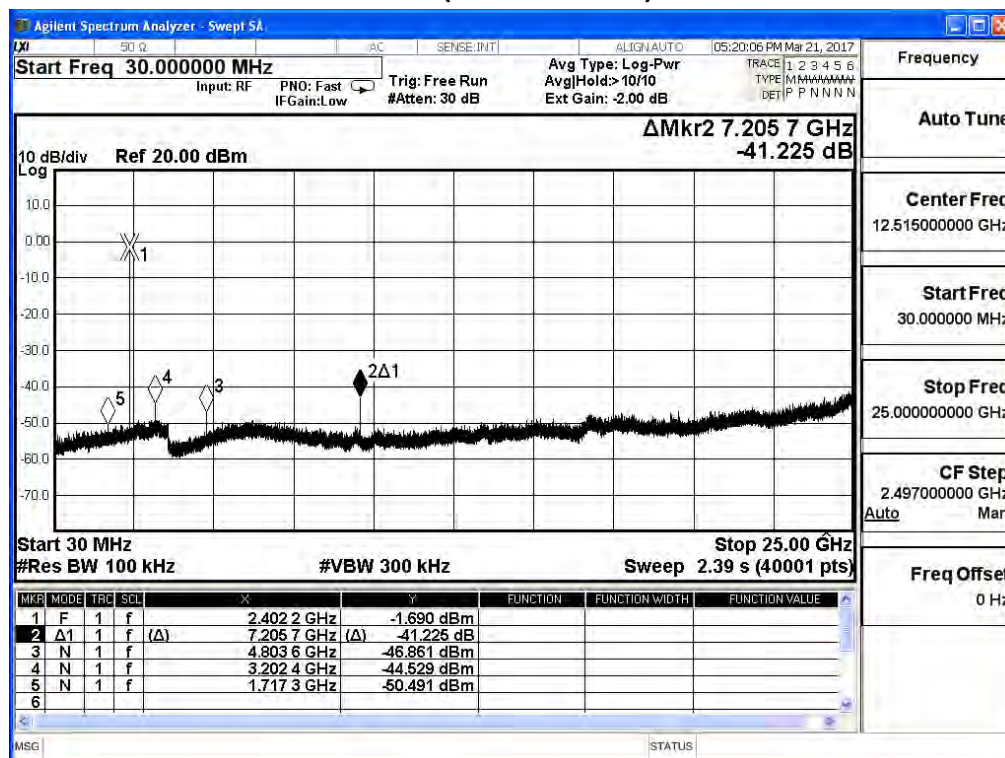
**Channel 00**

**Channel 78**

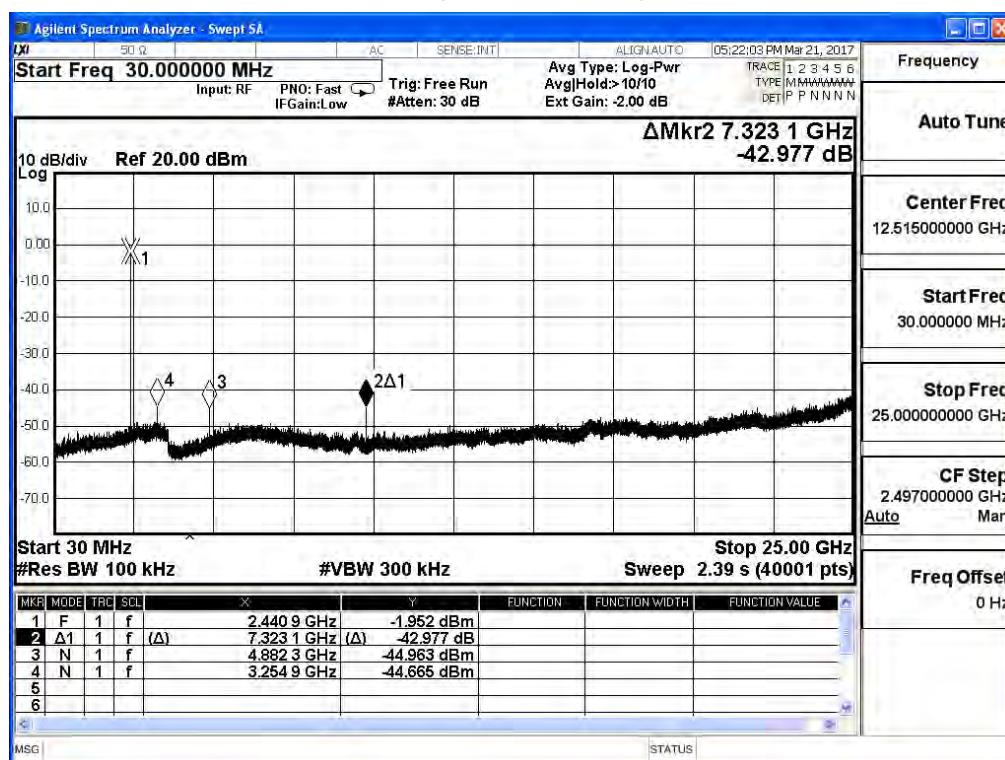


Product	UHD651-L		
Test Item	RF antenna conducted test		
Test Mode	Mode 1: Tx_DH5		
Date of Test	2017/03/21	Test Site	SR10-H

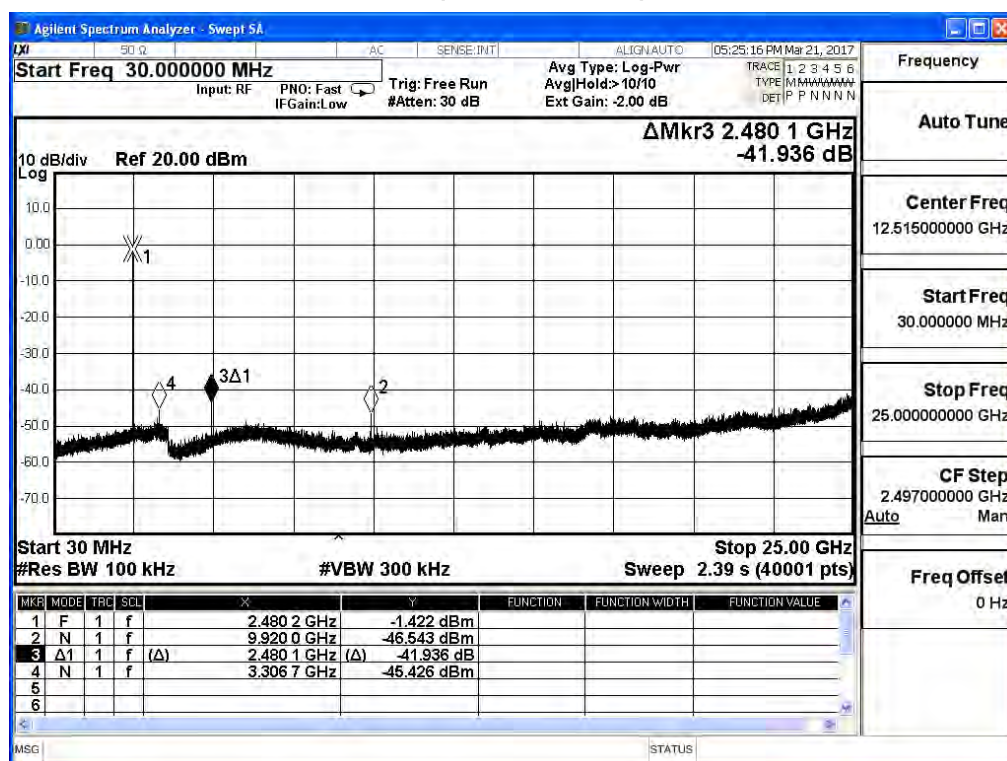
## Channel 00 (30MHz-25GHz)- GFSK



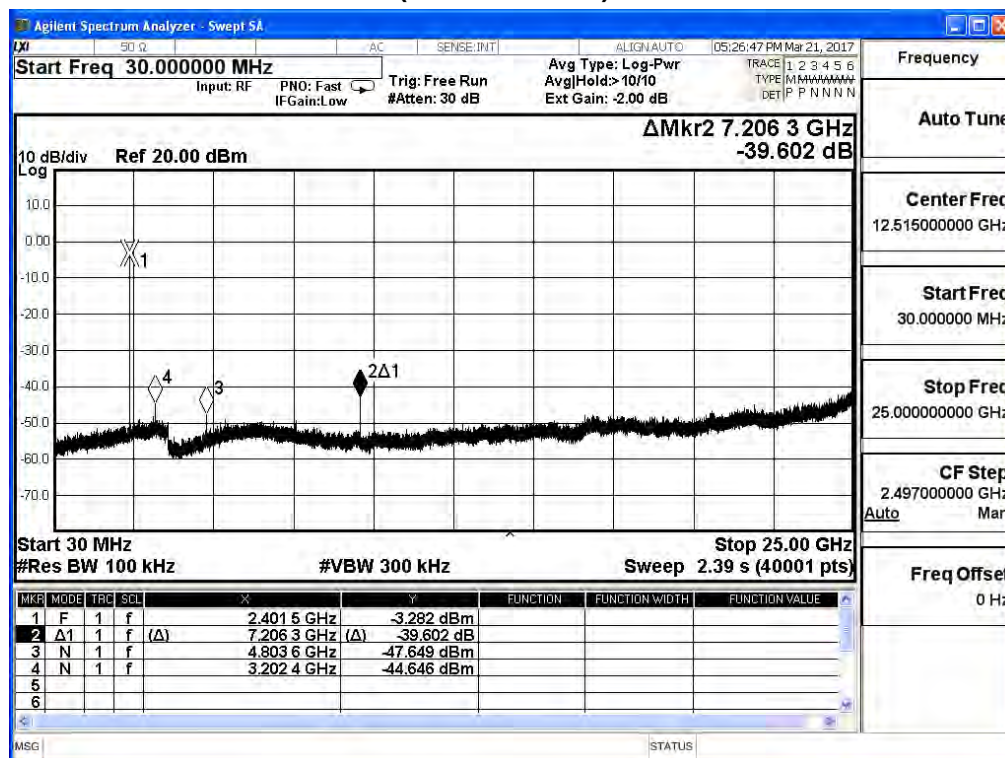
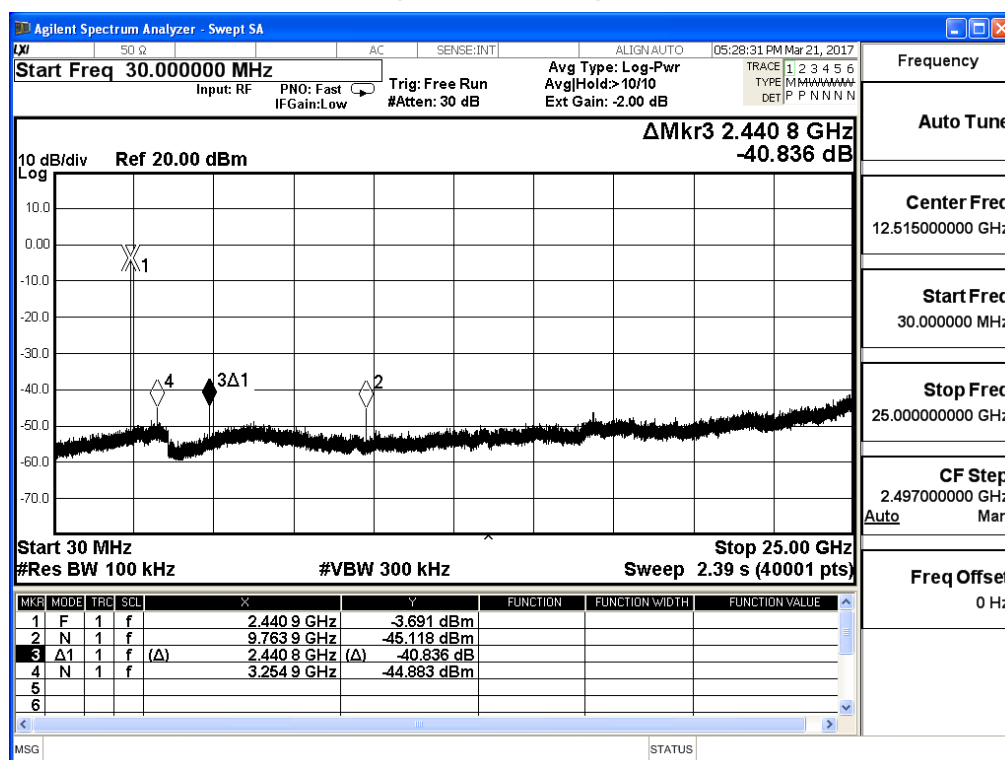
## Channel 39 (30MHz-25GHz)- GFSK



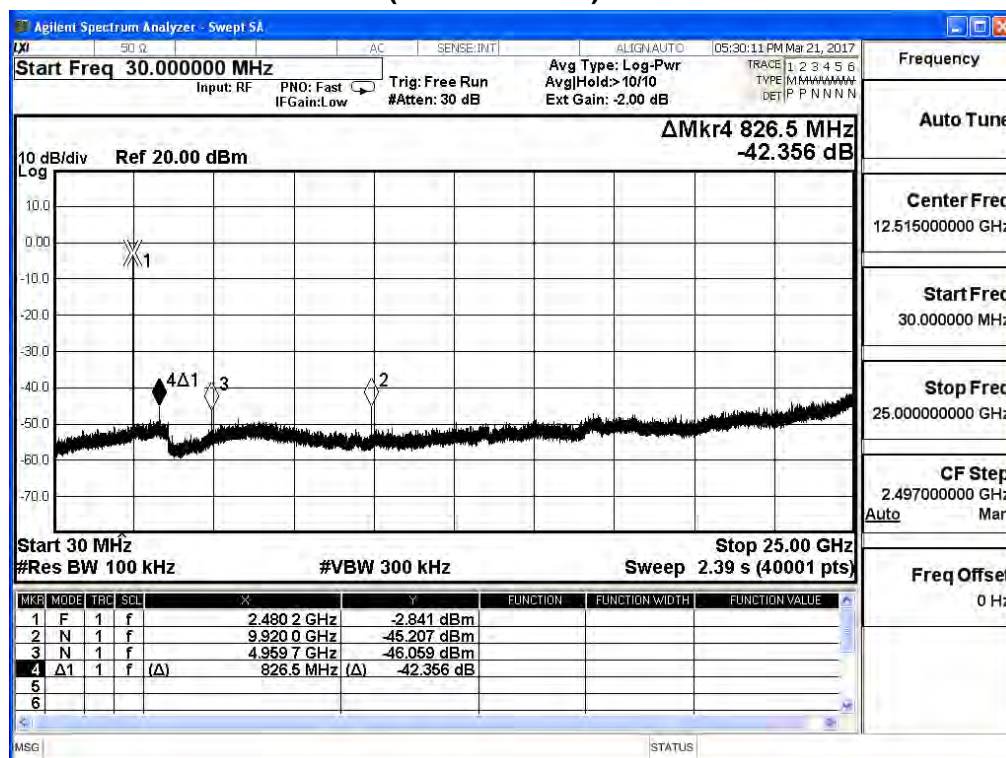
## Channel 78 (30MHz-25GHz)- GFSK



Product	UHD651-L		
Test Item	RF antenna conducted test		
Test Mode	Mode 2: Tx_2DH5		
Date of Test	2017/03/21	Test Site	SR10-H

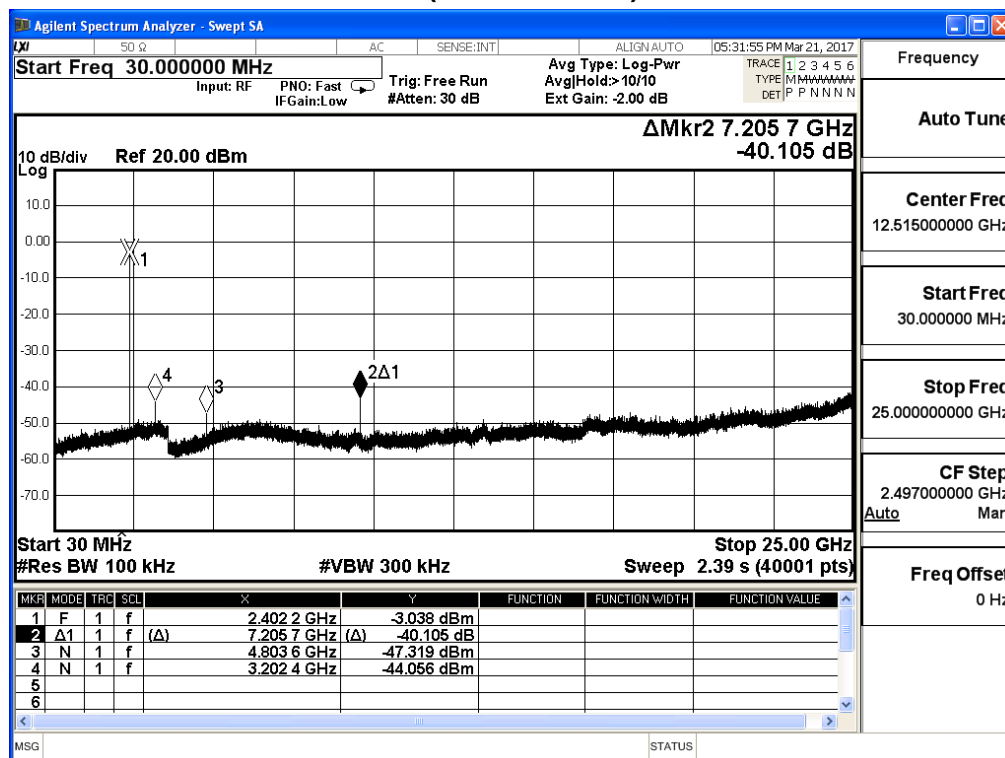
Channel 00 (30MHz-25GHz)-  $\pi/4$ -DQPSKChannel 39 (30MHz-25GHz)-  $\pi/4$ -DQPSK



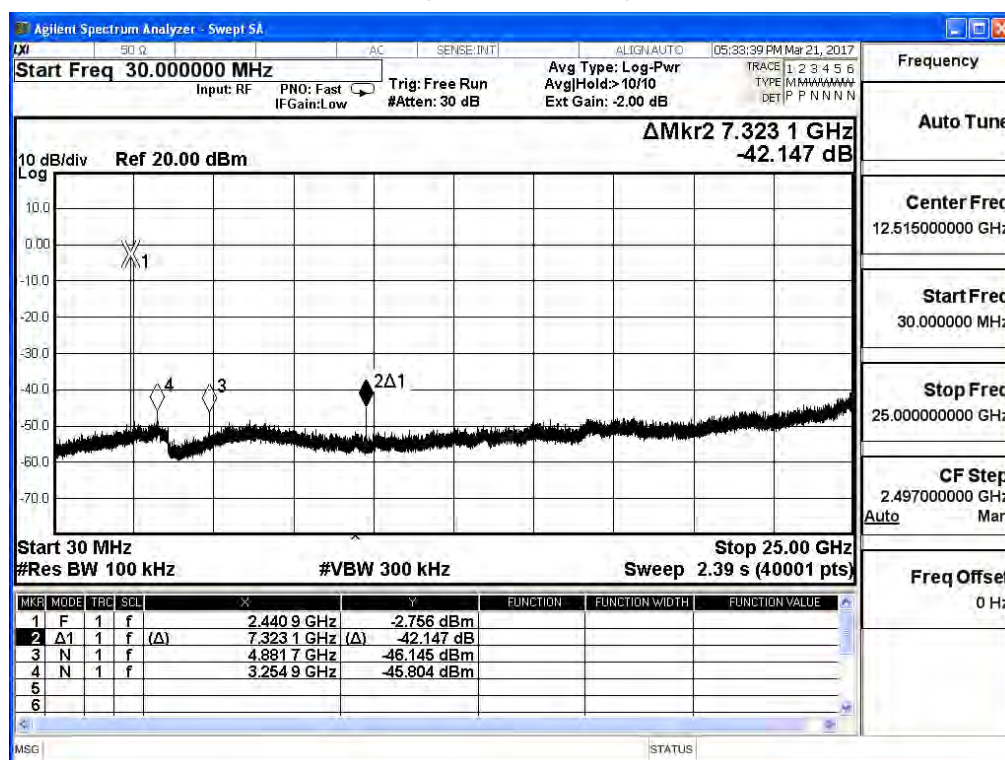
Channel 78 (30MHz-25GHz)-  $\pi/4$ -DQPSK

Product	UHD651-L		
Test Item	RF antenna conducted test		
Test Mode	Mode 3: Tx_3DH5		
Date of Test	2017/03/21	Test Site	SR10-H

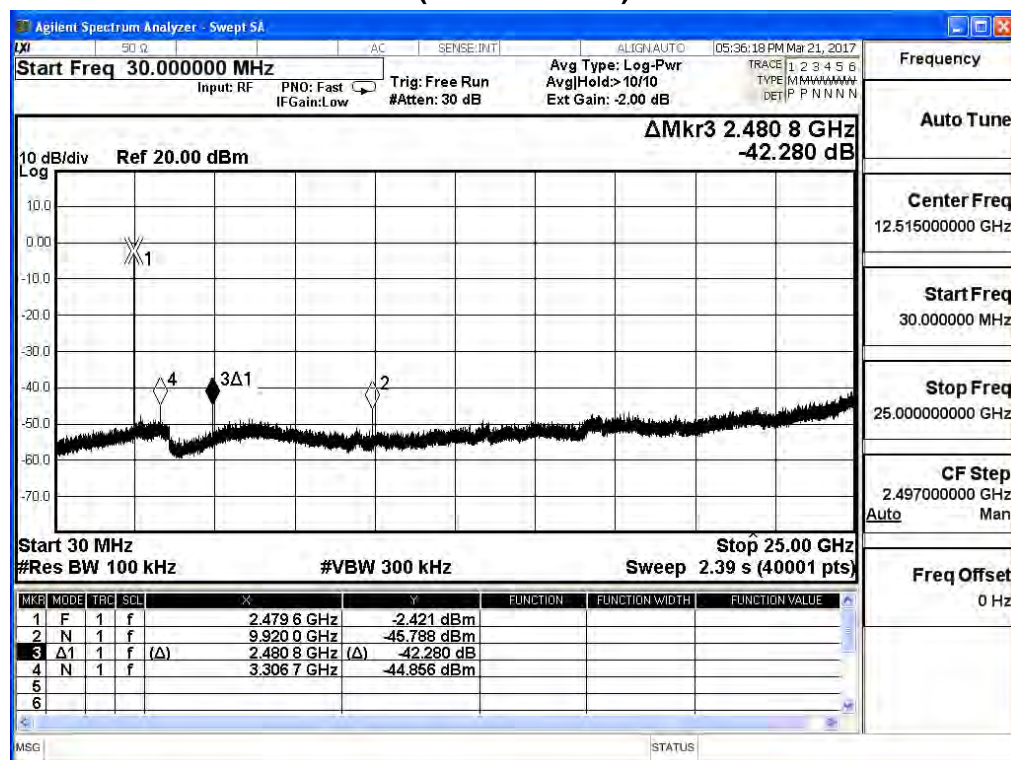
## Channel 00 (30MHz-25GHz)- 8-DPSK



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



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



## 6. Band Edge

### 6.1. Test Equipment

The following test equipments are used during the test:

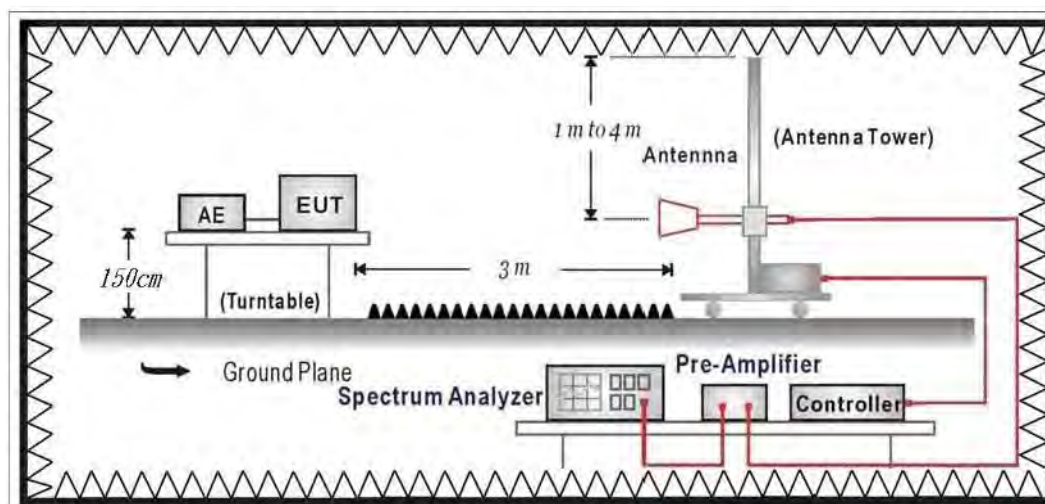
Band Edge / CB4-H

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Horn Antenna	Schwarzbeck	BBHA 9120	D312	2017/10/25
Signal & Spectrum Analyzer	R&S	FSV40	101049	2018/01/05

Note: All equipments that need to calibrate are with calibration period of 1 year.

### 6.2. Test Setup

RF Radiated Measurement:



### **6.3. Limits**

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

### **6.4. Test Procedure**

The EUT was setup according to ANSI C63.10:2013 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements

The EUT and its simulators are placed on a turn table which is 1.5 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

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

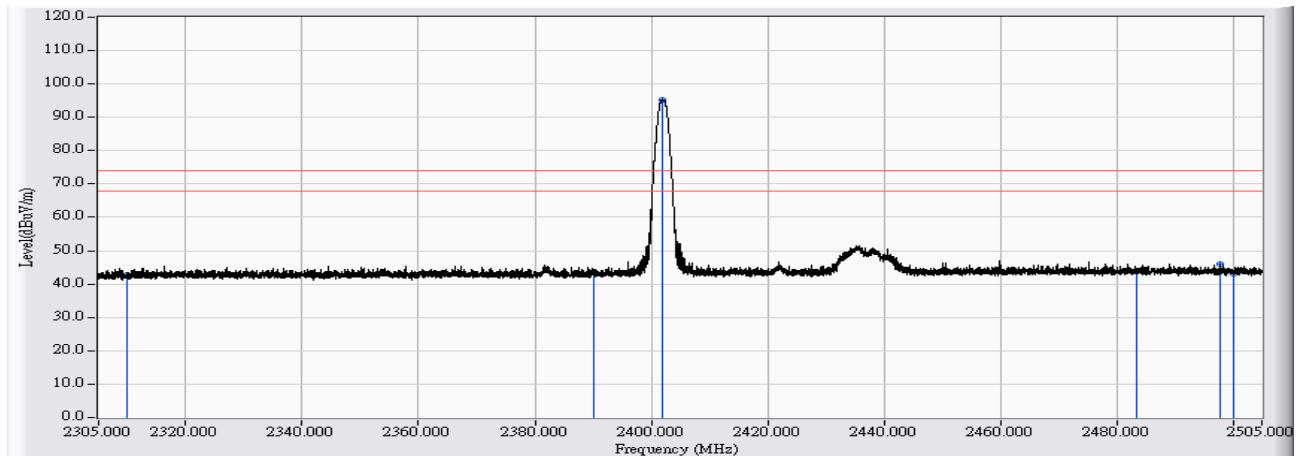
Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.10:2013 on radiated measurement.

### **6.5. Test Specification**

According to FCC Part 15 Subpart C Paragraph 15.247: 2015

## 6.6. Test Result

Site : CB4-H	Time : 2017/04/07
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - HORIZONTAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 1: Tx_DH5_2402MHz

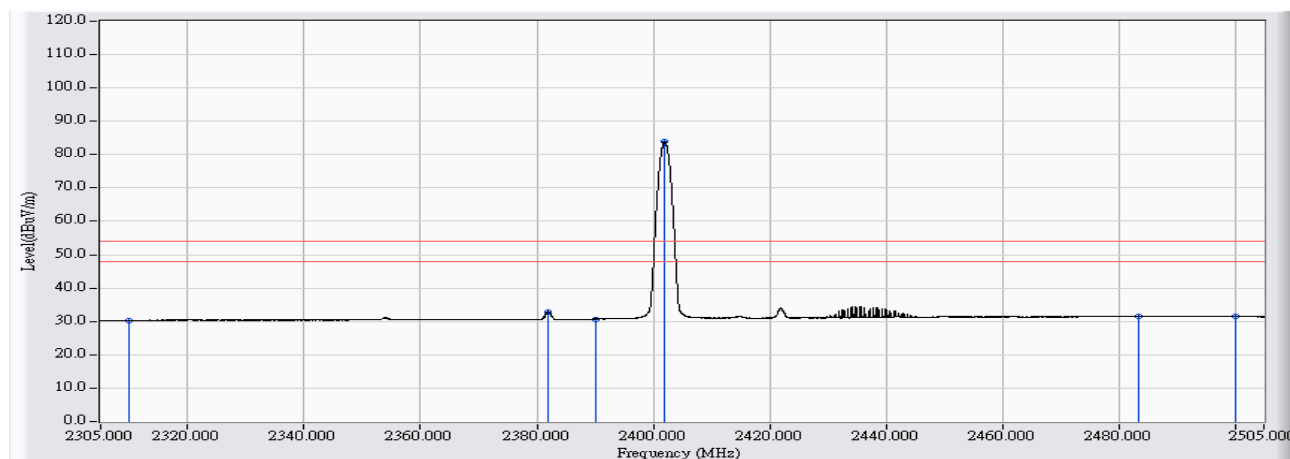


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	12.455	30.326	42.781	-31.219	74.000	PEAK
2		2390.000	13.127	30.639	43.767	-30.233	74.000	PEAK
3	*	2401.810	13.138	82.129	95.267	21.267	74.000	PEAK
4		2483.500	13.725	30.124	43.849	-30.151	74.000	PEAK
5		2497.801	13.625	32.361	45.985	-28.015	74.000	PEAK
6		2500.000	13.617	29.417	43.034	-30.966	74.000	PEAK

### Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " \* ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : CB4-H	Time : 2017/04/07
Limit : FCC_SpartC_15.209_03M_AV	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - HORIZONTAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 1: Tx_DH5_2402MHz



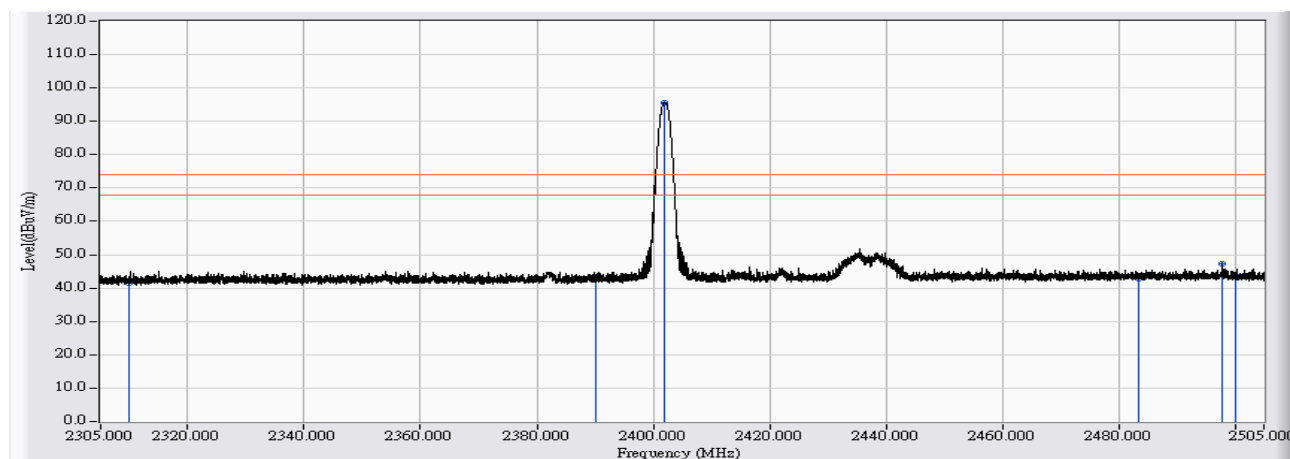
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	12.455	17.759	30.214	-23.786	54.000	AVERAGE
2		2381.812	13.034	19.726	32.759	-21.241	54.000	AVERAGE
3		2390.000	13.127	17.575	30.703	-23.297	54.000	AVERAGE
4	*	2401.910	13.138	70.735	83.873	29.873	54.000	AVERAGE
5		2483.500	13.725	17.762	31.487	-22.513	54.000	AVERAGE
6		2500.000	13.617	17.835	31.452	-22.548	54.000	AVERAGE

## Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " \* ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.



Site : CB4-H	Time : 2017/04/07
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - VERTICAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 1: Tx_DH5_2402MHz



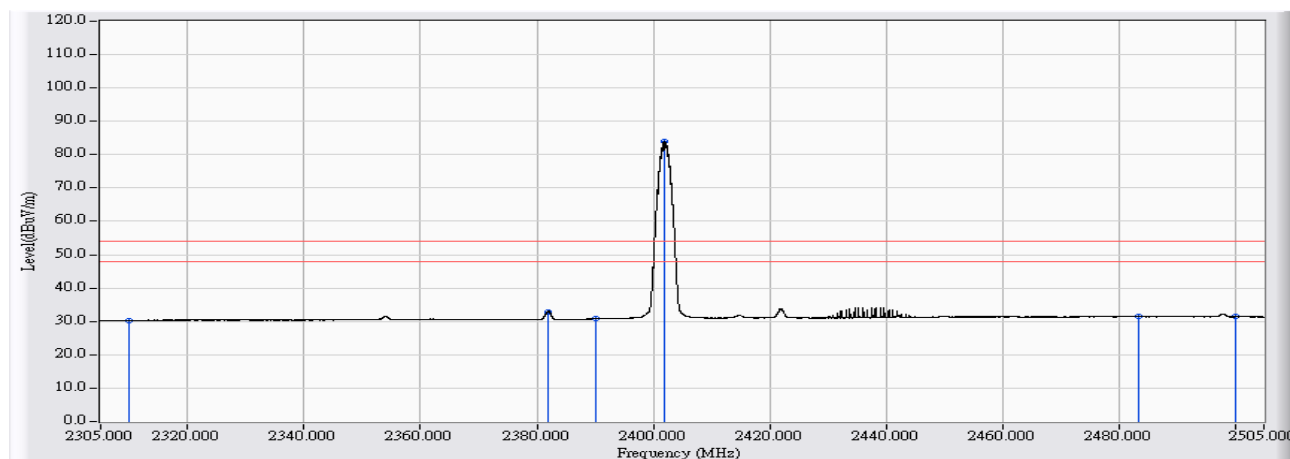
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	12.455	29.164	41.619	-32.381	74.000	PEAK
2		2390.000	13.127	30.318	43.446	-30.554	74.000	PEAK
3	*	2401.870	13.138	82.356	95.494	21.494	74.000	PEAK
4		2483.500	13.725	28.984	42.709	-31.291	74.000	PEAK
5		2497.901	13.623	33.577	47.200	-26.800	74.000	PEAK
6		2500.000	13.617	30.151	43.768	-30.232	74.000	PEAK

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " \* ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.



Site : CB4-H	Time : 2017/04/07
Limit : FCC_SpartC_15.209_03M_AV	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - VERTICAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 1: Tx_DH5_2402MHz

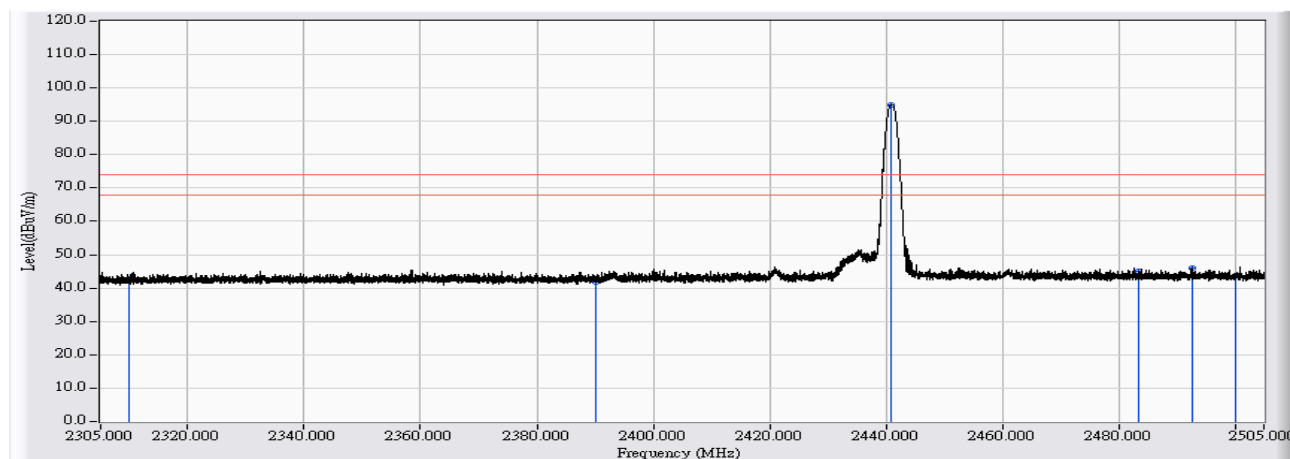


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	12.455	17.743	30.198	-23.802	54.000	AVERAGE
2		2381.812	13.034	19.810	32.843	-21.157	54.000	AVERAGE
3		2390.000	13.127	17.702	30.830	-23.170	54.000	AVERAGE
4	*	2402.010	13.139	70.892	84.031	30.031	54.000	AVERAGE
5		2483.500	13.725	17.748	31.473	-22.527	54.000	AVERAGE
6		2500.000	13.617	17.796	31.413	-22.587	54.000	AVERAGE

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " \* ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : CB4-H	Time : 2017/04/07
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - HORIZONTAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 1: Tx_DH5_2441MHz



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	12.455	30.314	42.769	-31.231	74.000	PEAK
2		2390.000	13.127	28.817	41.945	-32.055	74.000	PEAK
3	*	2440.846	13.399	81.602	95.001	21.001	74.000	PEAK
4		2483.500	13.725	31.223	44.948	-29.052	74.000	PEAK
5		2492.581	13.686	32.264	45.950	-28.050	74.000	PEAK
6		2500.000	13.617	30.149	43.766	-30.234	74.000	PEAK

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " \* ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : CB4-H	Time : 2017/04/07
Limit : FCC_SpartC_15.209_03M_AV	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - HORIZONTAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 1: Tx_DH5_2441MHz

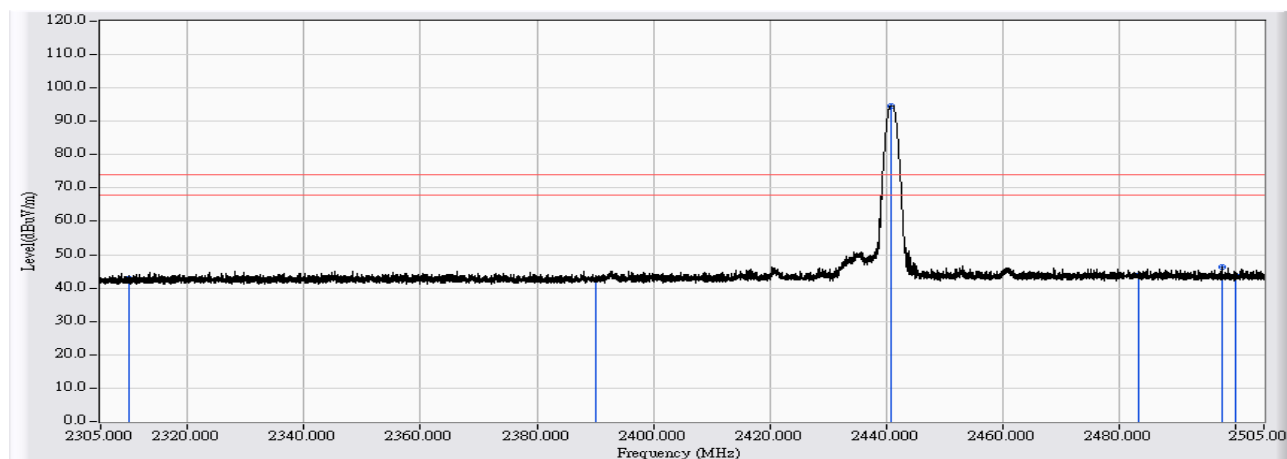


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	12.455	17.782	30.237	-23.763	54.000	AVERAGE
2		2390.000	13.127	17.468	30.596	-23.404	54.000	AVERAGE
3	*	2440.946	13.400	70.294	83.694	29.694	54.000	AVERAGE
4		2483.500	13.725	17.851	31.576	-22.424	54.000	AVERAGE
5		2485.142	13.725	17.862	31.586	-22.414	54.000	AVERAGE
6		2500.000	13.617	17.851	31.468	-22.532	54.000	AVERAGE

## Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " \* ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : CB4-H	Time : 2017/04/07
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - VERTICAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 1: Tx_DH5_2441MHz



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	12.455	30.470	42.925	-31.075	74.000	PEAK
2		2390.000	13.127	29.458	42.586	-31.414	74.000	PEAK
3	*	2440.866	13.399	81.301	94.700	20.700	74.000	PEAK
4		2483.500	13.725	30.144	43.869	-30.131	74.000	PEAK
5		2497.781	13.625	32.594	46.219	-27.781	74.000	PEAK
6		2500.000	13.617	30.181	43.798	-30.202	74.000	PEAK

## Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " \* ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : CB4-H	Time : 2017/04/07
Limit : FCC_SpartC_15.209_03M_AV	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - VERTICAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 1: Tx_DH5_2441MHz

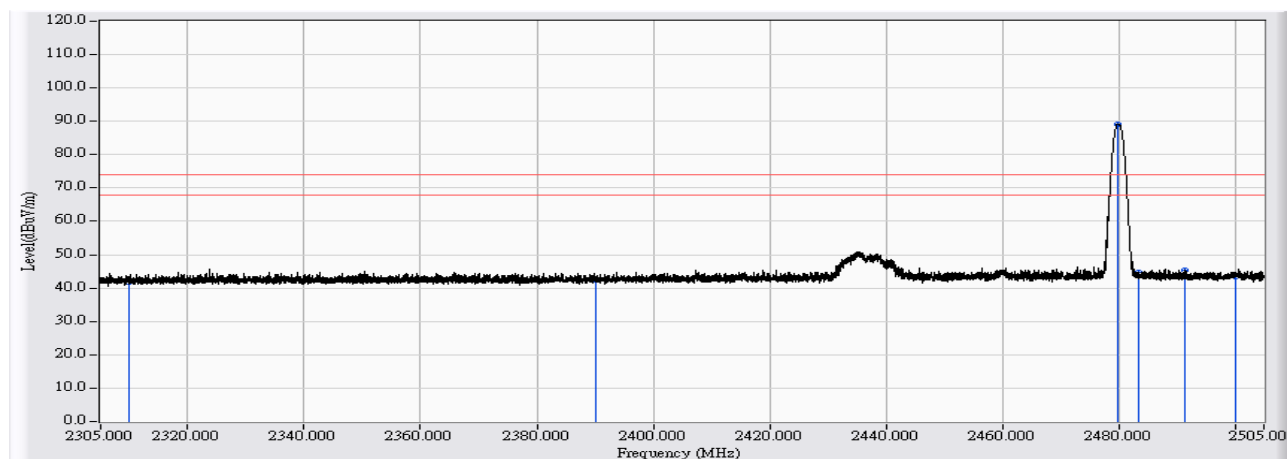


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	12.455	17.787	30.242	-23.758	54.000	AVERAGE
2		2390.000	13.127	17.513	30.641	-23.359	54.000	AVERAGE
3	*	2440.986	13.401	70.072	83.472	29.472	54.000	AVERAGE
4		2483.500	13.725	17.829	31.554	-22.446	54.000	AVERAGE
5		2488.482	13.713	18.055	31.768	-22.232	54.000	AVERAGE
6		2500.000	13.617	17.894	31.511	-22.489	54.000	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " \* ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : CB4-H	Time : 2017/04/07
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - HORIZONTAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 1: Tx_DH5_2480MHz

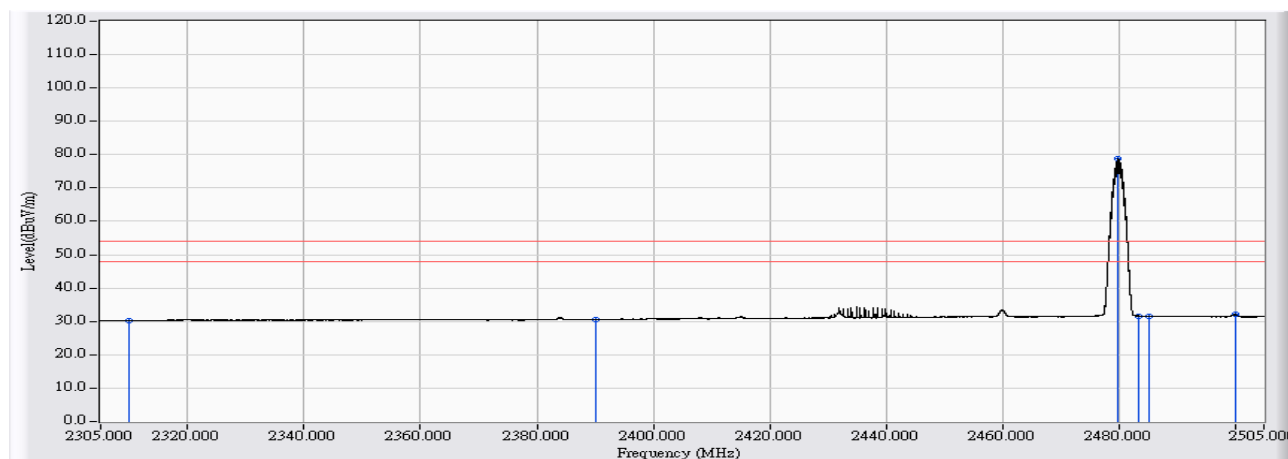


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	12.455	29.445	41.900	-32.100	74.000	PEAK
2		2390.000	13.127	29.407	42.535	-31.465	74.000	PEAK
3	*	2479.842	13.700	75.352	89.052	15.052	74.000	PEAK
4		2483.500	13.725	30.916	44.641	-29.359	74.000	PEAK
5		2491.361	13.701	31.573	45.273	-28.727	74.000	PEAK
6		2500.000	13.617	29.971	43.588	-30.412	74.000	PEAK

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " \* ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : CB4-H	Time : 2017/04/07
Limit : FCC_SpartC_15.209_03M_AV	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - HORIZONTAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 1: Tx_DH5_2480MHz

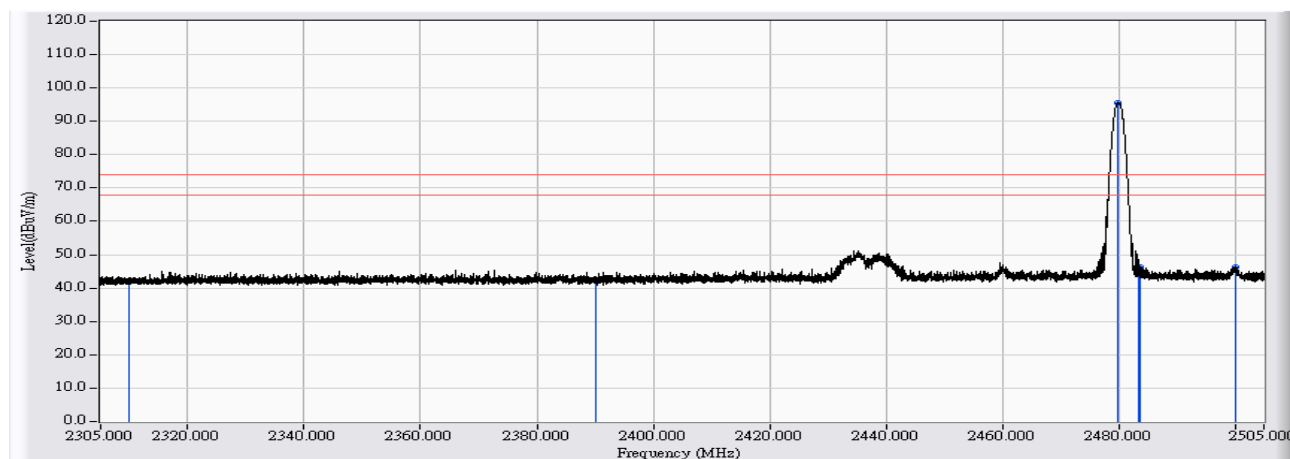


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	12.455	17.784	30.239	-23.761	54.000	AVERAGE
2		2390.000	13.127	17.457	30.585	-23.415	54.000	AVERAGE
3	*	2479.982	13.701	65.070	78.771	24.771	54.000	AVERAGE
4		2483.500	13.725	17.936	31.661	-22.339	54.000	AVERAGE
5		2485.142	13.725	17.838	31.562	-22.438	54.000	AVERAGE
6		2500.000	13.617	18.448	32.065	-21.935	54.000	AVERAGE

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " \* ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : CB4-H	Time : 2017/04/07
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - VERTICAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 1: Tx_DH5_2480MHz



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	12.455	29.322	41.777	-32.223	74.000	PEAK
2		2390.000	13.127	29.279	42.407	-31.593	74.000	PEAK
3	*	2479.962	13.701	81.702	95.403	21.403	74.000	PEAK
4		2483.500	13.725	30.710	44.435	-29.565	74.000	PEAK
5		2483.782	13.727	32.681	46.408	-27.592	74.000	PEAK
6		2500.000	13.617	32.727	46.344	-27.656	74.000	PEAK

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " \* ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.



Site : CB4-H	Time : 2017/04/07
Limit : FCC_SpartC_15.209_03M_AV	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - VERTICAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 1: Tx_DH5_2480MHz

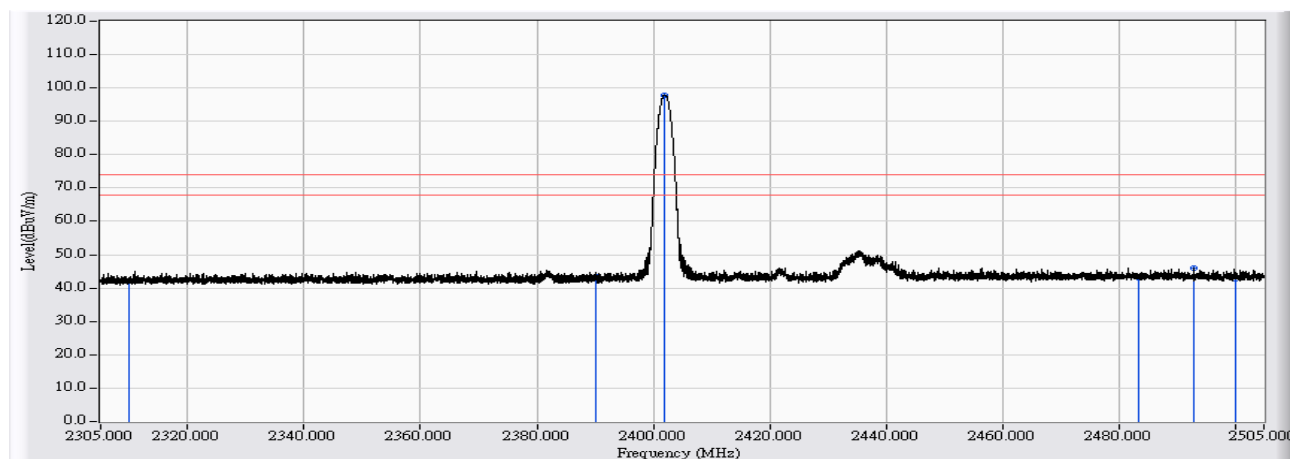


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	12.455	17.804	30.259	-23.741	54.000	AVERAGE
2		2390.000	13.127	17.441	30.569	-23.431	54.000	AVERAGE
3	*	2479.942	13.701	70.418	84.119	30.119	54.000	AVERAGE
4		2483.500	13.725	18.495	32.220	-21.780	54.000	AVERAGE
5		2499.960	13.617	21.159	34.776	-19.224	54.000	AVERAGE
6		2500.000	13.617	21.124	34.741	-19.259	54.000	AVERAGE

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " \* ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : CB4-H	Time : 2017/04/07
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - HORIZONTAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 2: Tx_2DH5_2402MHz

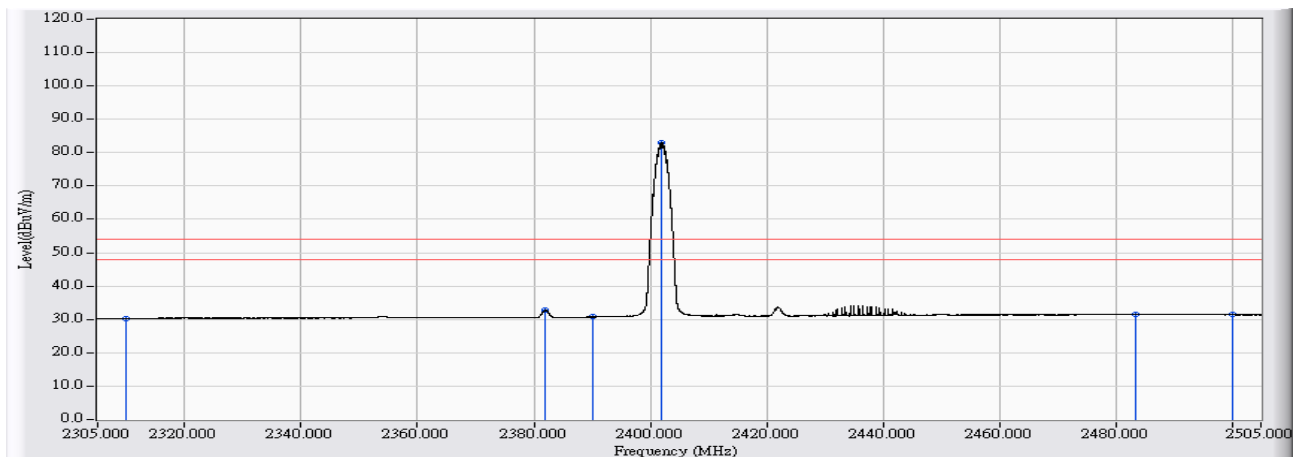


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	12.455	29.631	42.086	-31.914	74.000	PEAK
2		2390.000	13.127	30.300	43.428	-30.572	74.000	PEAK
3	*	2401.890	13.138	84.787	97.925	23.925	74.000	PEAK
4		2483.500	13.725	29.543	43.268	-30.732	74.000	PEAK
5		2492.921	13.683	32.378	46.061	-27.939	74.000	PEAK
6		2500.000	13.617	29.173	42.790	-31.210	74.000	PEAK

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " \* ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : CB4-H	Time : 2017/04/07
Limit : FCC_SpartC_15.209_03M_AV	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - HORIZONTAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 2: Tx_2DH5_2402MHz

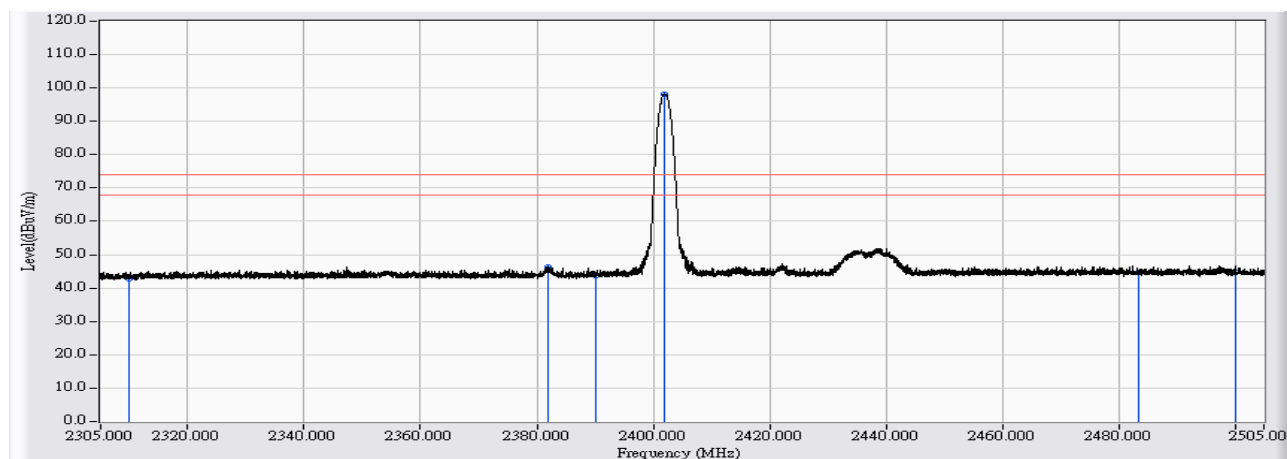


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	12.455	17.760	30.215	-23.785	54.000	AVERAGE
2		2381.952	13.035	19.741	32.776	-21.224	54.000	AVERAGE
3		2390.000	13.127	17.611	30.739	-23.261	54.000	AVERAGE
4	*	2401.930	13.138	69.968	83.107	29.107	54.000	AVERAGE
5		2483.500	13.725	17.764	31.489	-22.511	54.000	AVERAGE
6		2500.000	13.617	17.853	31.470	-22.530	54.000	AVERAGE

## Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " \* ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : CB4-H	Time : 2017/04/07
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - VERTICAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 2: Tx_2DH5_2402MHz

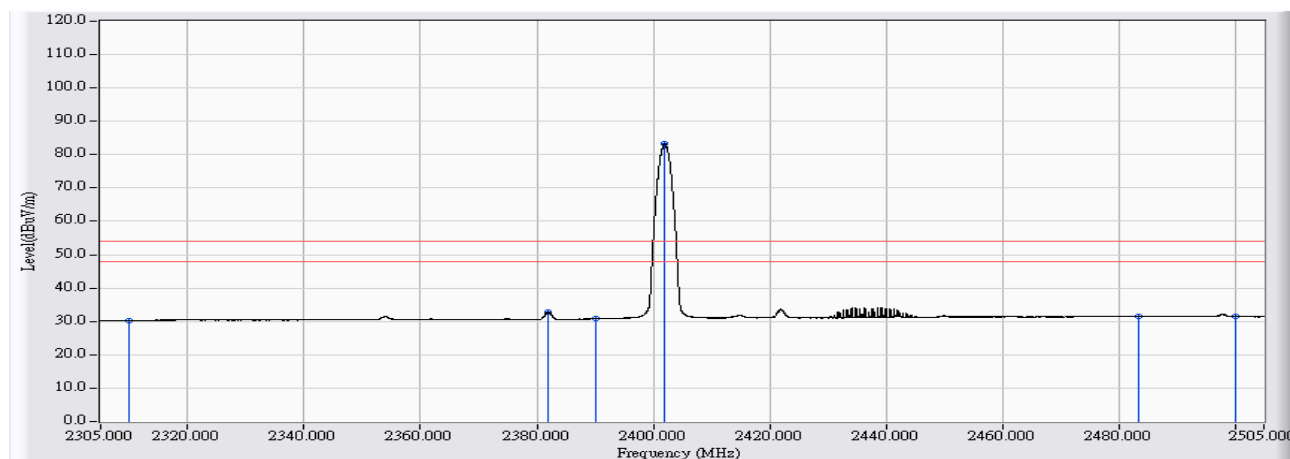


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	12.455	30.485	42.940	-31.060	74.000	PEAK
2		2381.812	13.034	33.231	46.264	-27.736	74.000	PEAK
3		2390.000	13.127	30.500	43.628	-30.372	74.000	PEAK
4	*	2401.830	13.138	85.020	98.158	24.158	74.000	PEAK
5		2483.500	13.725	30.942	44.667	-29.333	74.000	PEAK
6		2500.000	13.617	31.030	44.647	-29.353	74.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " \* ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : CB4-H	Time : 2017/04/07
Limit : FCC_SpartC_15.209_03M_AV	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - VERTICAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 2: Tx_2DH5_2402MHz

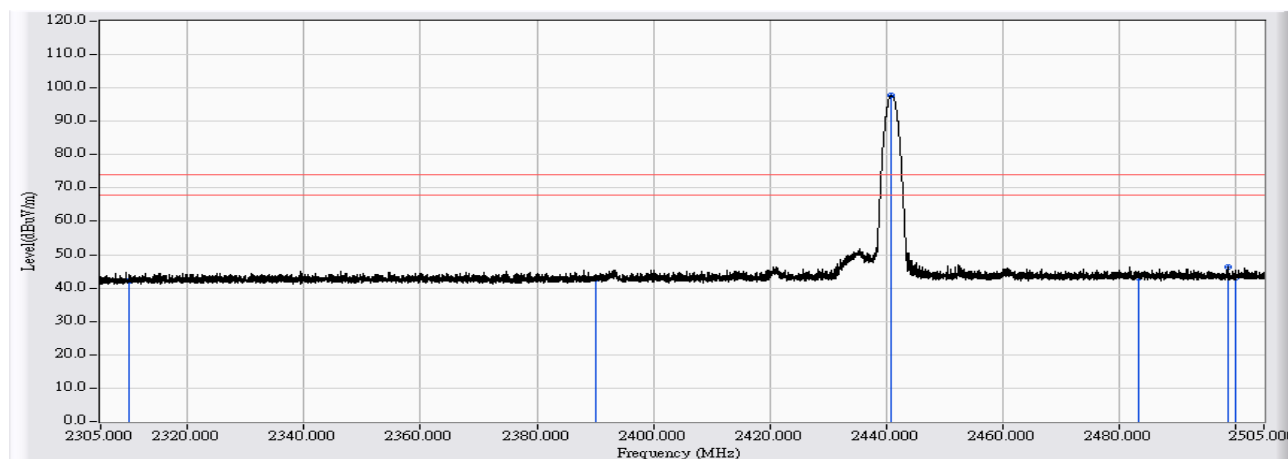


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	12.455	17.797	30.252	-23.748	54.000	AVERAGE
2		2381.952	13.035	19.812	32.847	-21.153	54.000	AVERAGE
3		2390.000	13.127	17.781	30.909	-23.091	54.000	AVERAGE
4	*	2401.930	13.138	70.222	83.361	29.361	54.000	AVERAGE
5		2483.500	13.725	17.781	31.506	-22.494	54.000	AVERAGE
6		2500.000	13.617	17.807	31.424	-22.576	54.000	AVERAGE

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " \* ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : CB4-H	Time : 2017/04/07
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - HORIZONTAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 2: Tx_2DH5_2441MHz

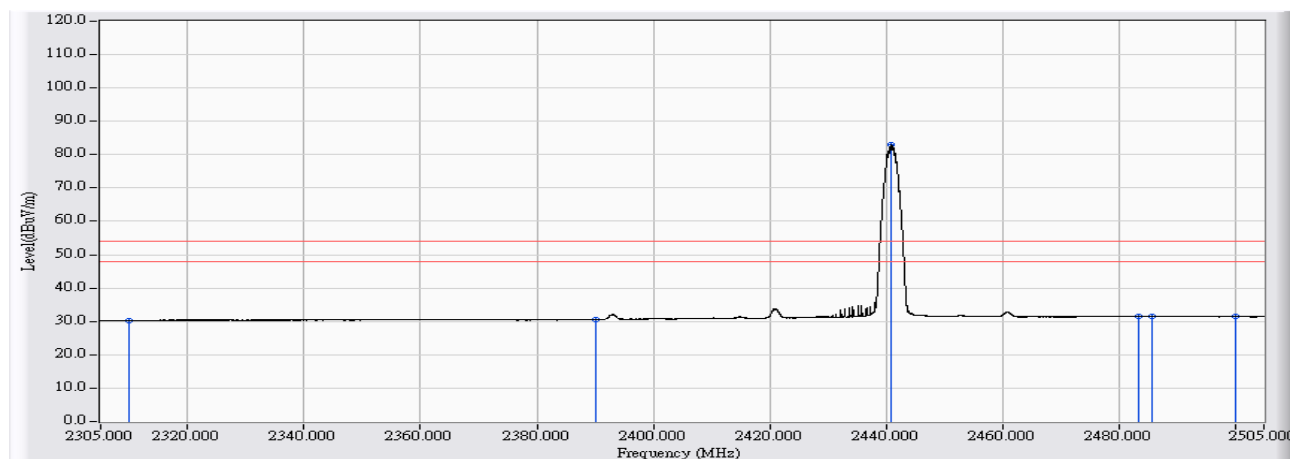


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	12.455	29.532	41.987	-32.013	74.000	PEAK
2		2390.000	13.127	29.545	42.673	-31.327	74.000	PEAK
3	*	2440.826	13.399	84.257	97.656	23.656	74.000	PEAK
4		2483.500	13.725	29.370	43.095	-30.905	74.000	PEAK
5		2498.801	13.620	32.824	46.444	-27.556	74.000	PEAK
6		2500.000	13.617	29.567	43.184	-30.816	74.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " \* ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : CB4-H	Time : 2017/04/07
Limit : FCC_SpartC_15.209_03M_AV	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - HORIZONTAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 2: Tx_2DH5_2441MHz

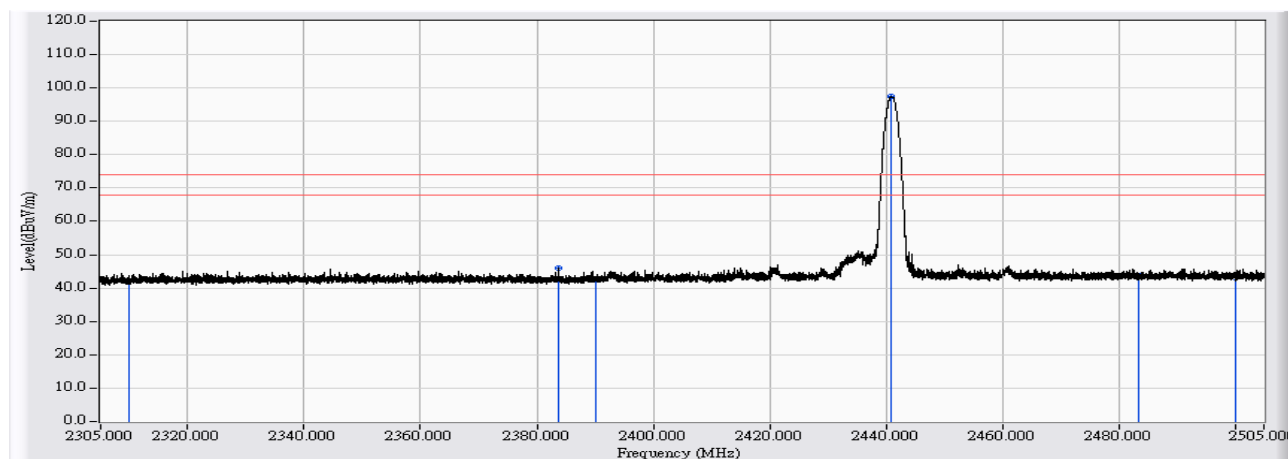


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	2310.000	12.455	17.867	30.322	-23.678	54.000	AVERAGE
2	2390.000	13.127	17.455	30.583	-23.417	54.000	AVERAGE
3	* 2441.006	13.401	69.492	82.893	28.893	54.000	AVERAGE
4	2483.500	13.725	17.816	31.541	-22.459	54.000	AVERAGE
5	2485.642	13.722	17.828	31.551	-22.449	54.000	AVERAGE
6	2500.000	13.617	17.863	31.480	-22.520	54.000	AVERAGE

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " \* ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : CB4-H	Time : 2017/04/07
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - VERTICAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 2: Tx_2DH5_2441MHz



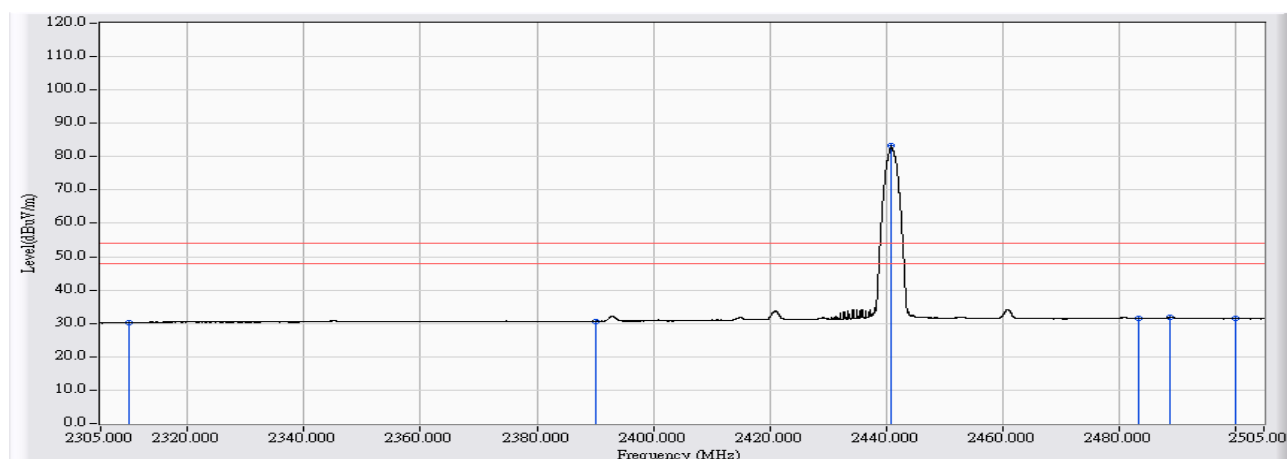
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	12.455	29.791	42.246	-31.754	74.000	PEAK
2		2383.632	13.058	32.877	45.935	-28.065	74.000	PEAK
3		2390.000	13.127	29.626	42.754	-31.246	74.000	PEAK
4	*	2440.886	13.399	83.943	97.342	23.342	74.000	PEAK
5		2483.500	13.725	30.150	43.875	-30.125	74.000	PEAK
6		2500.000	13.617	29.451	43.068	-30.932	74.000	PEAK

## Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " \* ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.



Site : CB4-H	Time : 2017/04/07
Limit : FCC_SpartC_15.209_03M_AV	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - VERTICAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 2: Tx_2DH5_2441MHz

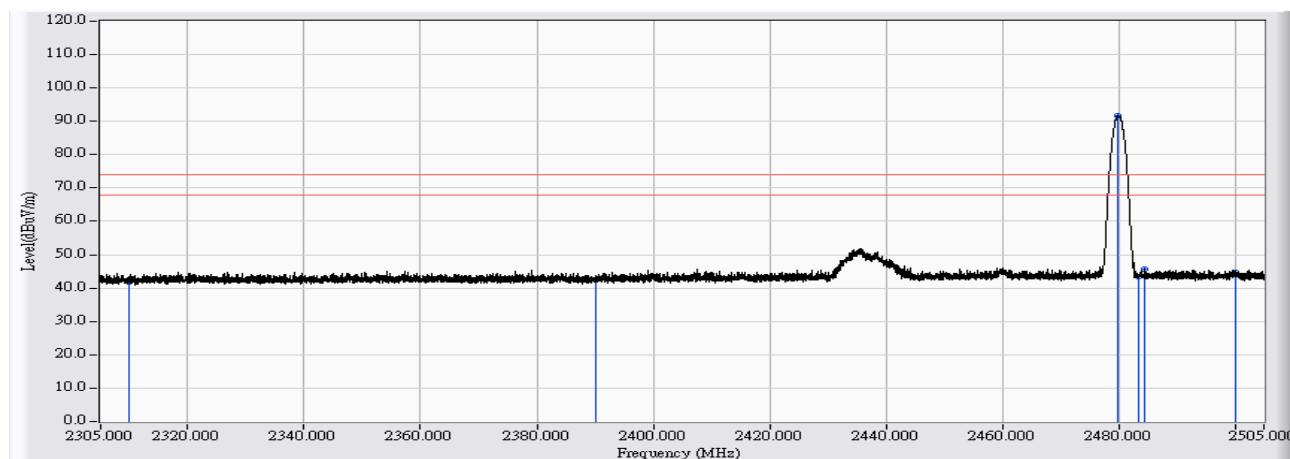


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	12.455	17.779	30.234	-23.766	54.000	AVERAGE
2		2390.000	13.127	17.510	30.638	-23.362	54.000	AVERAGE
3	*	2440.946	13.400	69.985	83.385	29.385	54.000	AVERAGE
4		2483.500	13.725	17.844	31.569	-22.431	54.000	AVERAGE
5		2488.722	13.712	18.064	31.776	-22.224	54.000	AVERAGE
6		2500.000	13.617	17.849	31.466	-22.534	54.000	AVERAGE

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " \* ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : CB4-H	Time : 2017/04/07
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - HORIZONTAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 2: Tx_2DH5_2480MHz

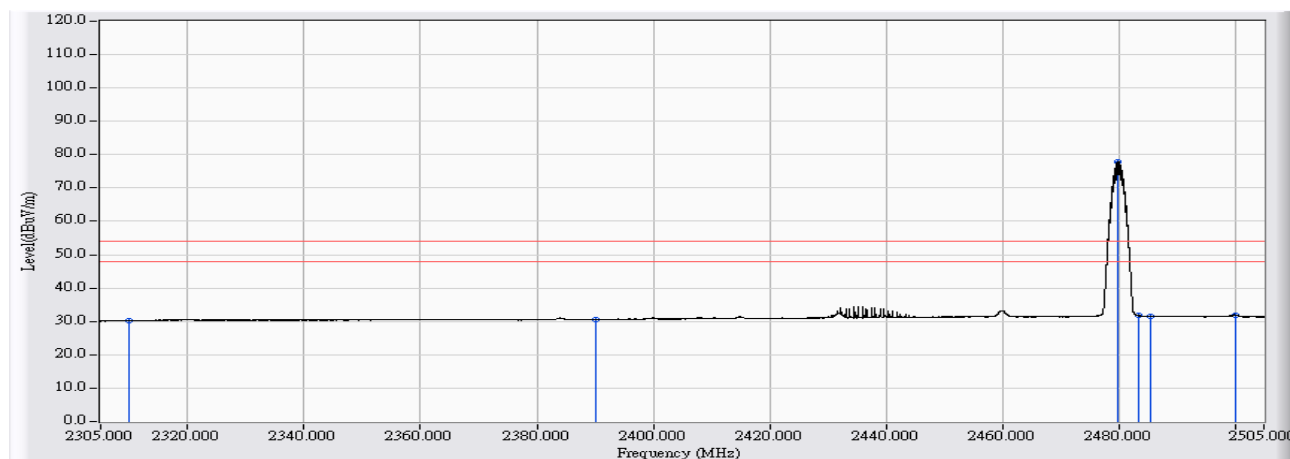


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	12.455	29.513	41.968	-32.032	74.000	PEAK
2		2390.000	13.127	29.394	42.522	-31.478	74.000	PEAK
3	*	2479.862	13.701	77.918	91.618	17.618	74.000	PEAK
4		2483.500	13.725	29.702	43.427	-30.573	74.000	PEAK
5		2484.582	13.726	31.952	45.678	-28.322	74.000	PEAK
6		2500.000	13.617	31.220	44.837	-29.163	74.000	PEAK

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " \* ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : CB4-H	Time : 2017/04/07
Limit : FCC_SpartC_15.209_03M_AV	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - HORIZONTAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 2: Tx_2DH5_2480MHz

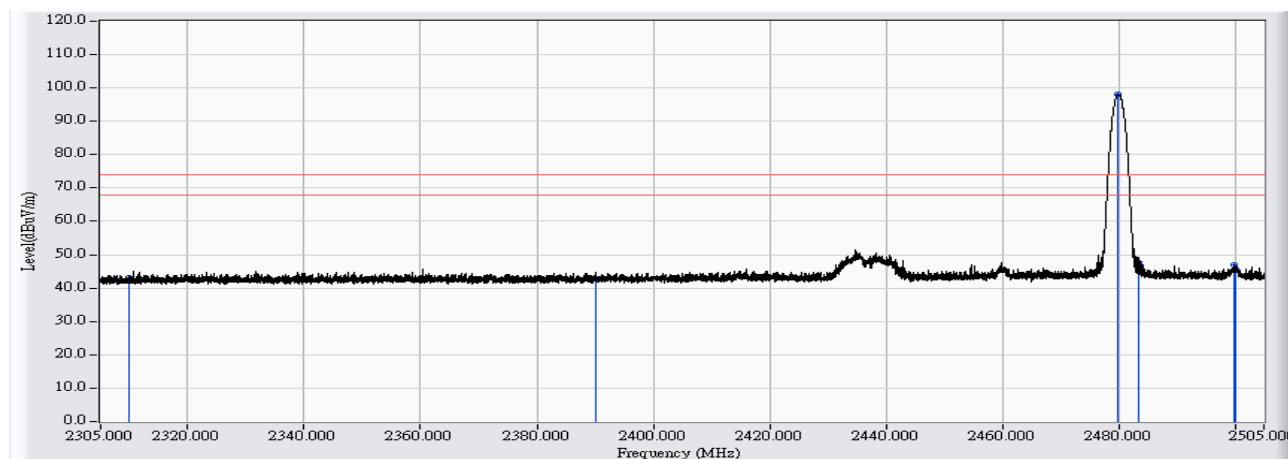


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	12.455	17.767	30.222	-23.778	54.000	AVERAGE
2		2390.000	13.127	17.457	30.585	-23.415	54.000	AVERAGE
3	*	2479.902	13.701	64.163	77.864	23.864	54.000	AVERAGE
4		2483.500	13.725	17.972	31.697	-22.303	54.000	AVERAGE
5		2485.402	13.723	17.890	31.613	-22.387	54.000	AVERAGE
6		2500.000	13.617	18.343	31.960	-22.040	54.000	AVERAGE

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " \* ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : CB4-H	Time : 2017/04/07
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - VERTICAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 2: Tx_2DH5_2480MHz

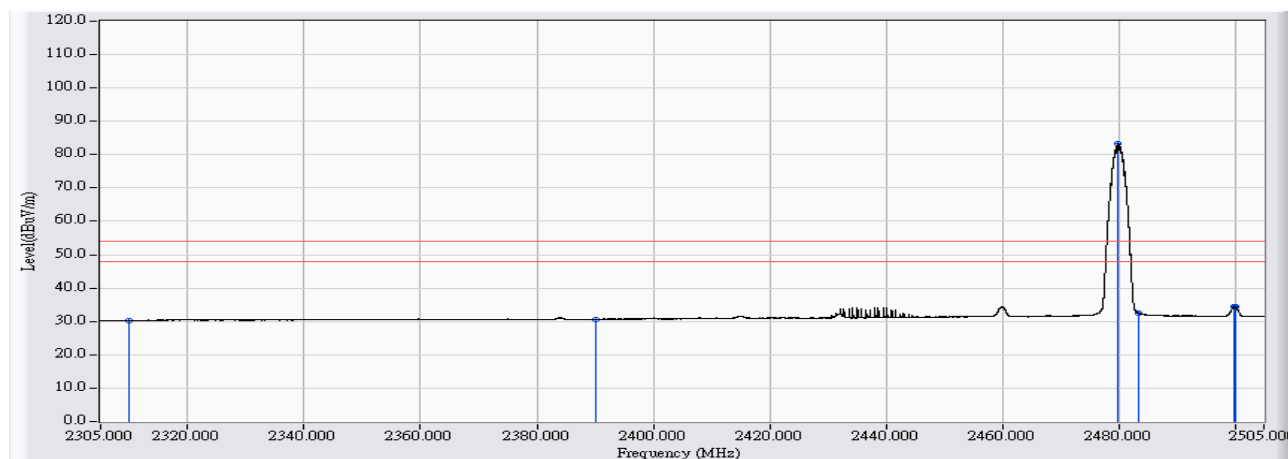


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	12.455	30.683	43.138	-30.862	74.000	PEAK
2		2390.000	13.127	29.568	42.696	-31.304	74.000	PEAK
3	*	2479.882	13.701	84.284	97.985	23.985	74.000	PEAK
4		2483.500	13.725	33.849	47.574	-26.426	74.000	PEAK
5		2499.860	13.617	33.331	46.949	-27.051	74.000	PEAK
6		2500.000	13.617	32.171	45.788	-28.212	74.000	PEAK

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " \* ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : CB4-H	Time : 2017/04/07
Limit : FCC_SpartC_15.209_03M_AV	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - VERTICAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 2: Tx_2DH5_2480MHz

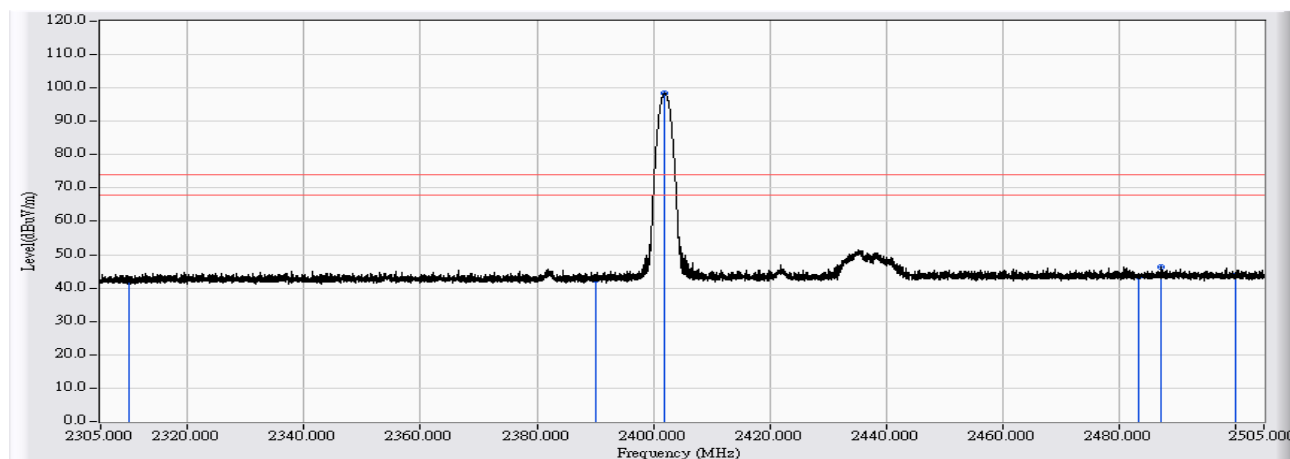


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	12.455	17.765	30.220	-23.780	54.000	AVERAGE
2		2390.000	13.127	17.504	30.632	-23.368	54.000	AVERAGE
3	*	2479.962	13.701	69.584	83.285	29.285	54.000	AVERAGE
4		2483.500	13.725	18.727	32.452	-21.548	54.000	AVERAGE
5		2499.960	13.617	20.840	34.457	-19.543	54.000	AVERAGE
6		2500.000	13.617	20.820	34.437	-19.563	54.000	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " \* ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : CB4-H	Time : 2017/04/07
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - HORIZONTAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 3: Tx_3DH5_2402MHz

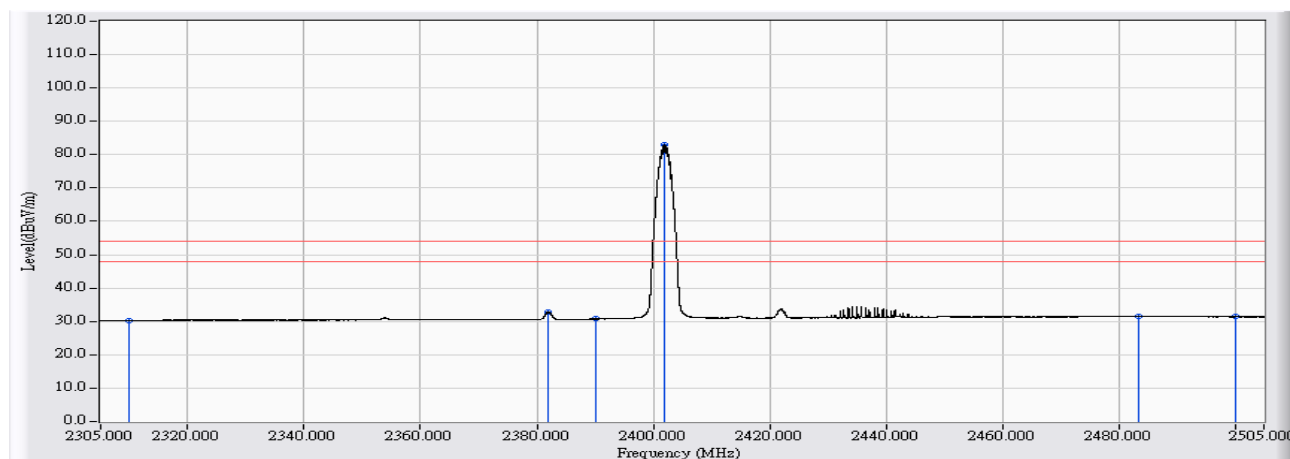


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	12.455	29.806	42.261	-31.739	74.000	PEAK
2		2390.000	13.127	29.447	42.575	-31.425	74.000	PEAK
3	*	2401.970	13.138	85.359	98.498	24.498	74.000	PEAK
4		2483.500	13.725	29.564	43.289	-30.711	74.000	PEAK
5		2487.362	13.717	32.474	46.191	-27.809	74.000	PEAK
6		2500.000	13.617	30.063	43.680	-30.320	74.000	PEAK

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " \* ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : CB4-H	Time : 2017/04/07
Limit : FCC_SpartC_15.209_03M_AV	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - HORIZONTAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 3: Tx_3DH5_2402MHz

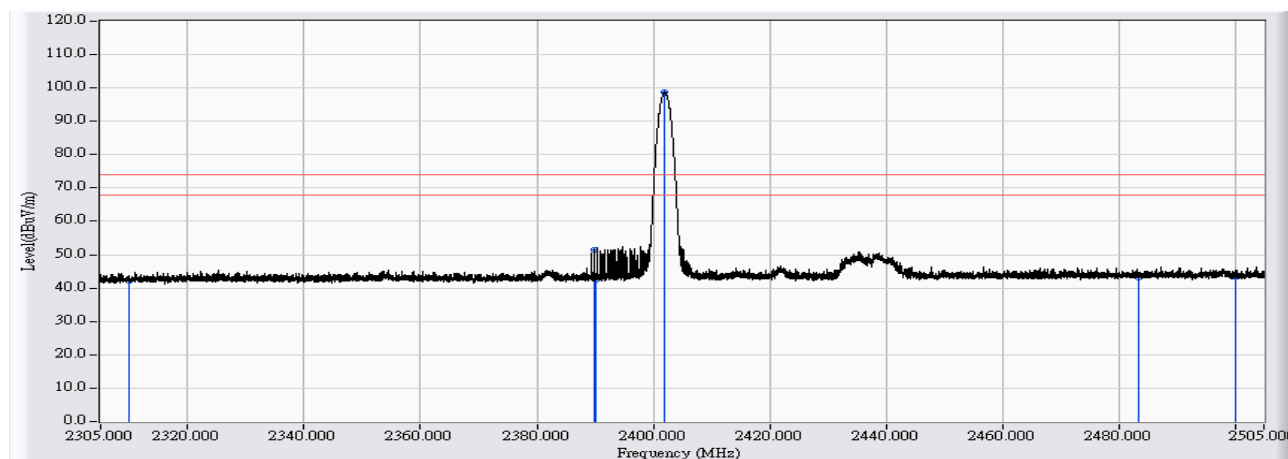


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	12.455	17.792	30.247	-23.753	54.000	AVERAGE
2		2381.912	13.035	19.716	32.751	-21.249	54.000	AVERAGE
3		2390.000	13.127	17.623	30.751	-23.249	54.000	AVERAGE
4	*	2402.030	13.139	69.909	83.048	29.048	54.000	AVERAGE
5		2483.500	13.725	17.724	31.449	-22.551	54.000	AVERAGE
6		2500.000	13.617	17.878	31.495	-22.505	54.000	AVERAGE

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " \* ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : CB4-H	Time : 2017/04/07
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - VERTICAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 3: Tx_3DH5_2402MHz



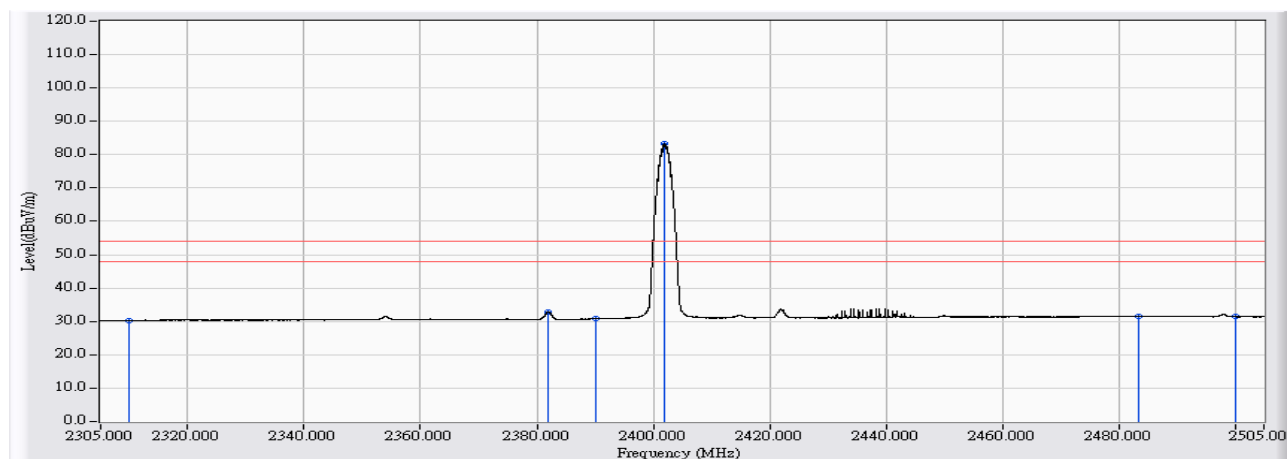
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	12.455	29.565	42.020	-31.980	74.000	PEAK
2		2389.831	13.126	38.463	51.589	-22.411	74.000	PEAK
3		2390.000	13.127	29.430	42.558	-31.442	74.000	PEAK
4	*	2401.990	13.138	85.617	98.756	24.756	74.000	PEAK
5		2483.500	13.725	29.522	43.247	-30.753	74.000	PEAK
6		2500.000	13.617	29.889	43.506	-30.494	74.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " \* ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.



Site : CB4-H	Time : 2017/04/07
Limit : FCC_SpartC_15.209_03M_AV	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - VERTICAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 3: Tx_3DH5_2402MHz

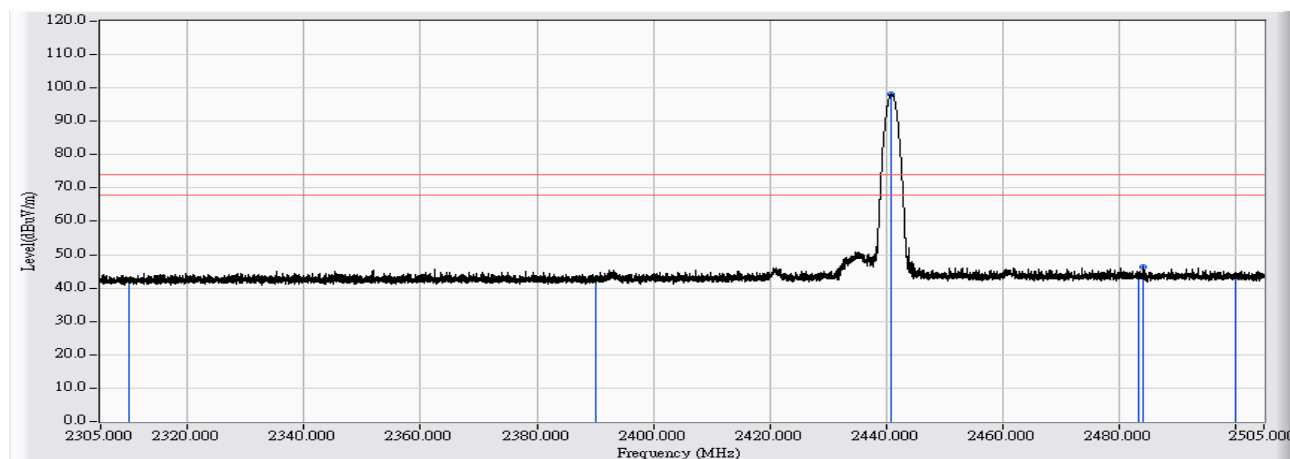


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	12.455	17.762	30.217	-23.783	54.000	AVERAGE
2		2381.832	13.034	19.782	32.816	-21.184	54.000	AVERAGE
3		2390.000	13.127	17.701	30.829	-23.171	54.000	AVERAGE
4	*	2401.970	13.138	70.173	83.312	29.312	54.000	AVERAGE
5		2483.500	13.725	17.787	31.512	-22.488	54.000	AVERAGE
6		2500.000	13.617	17.753	31.370	-22.630	54.000	AVERAGE

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " \* ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : CB4-H	Time : 2017/04/07
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - HORIZONTAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 3: Tx_3DH5_2441MHz

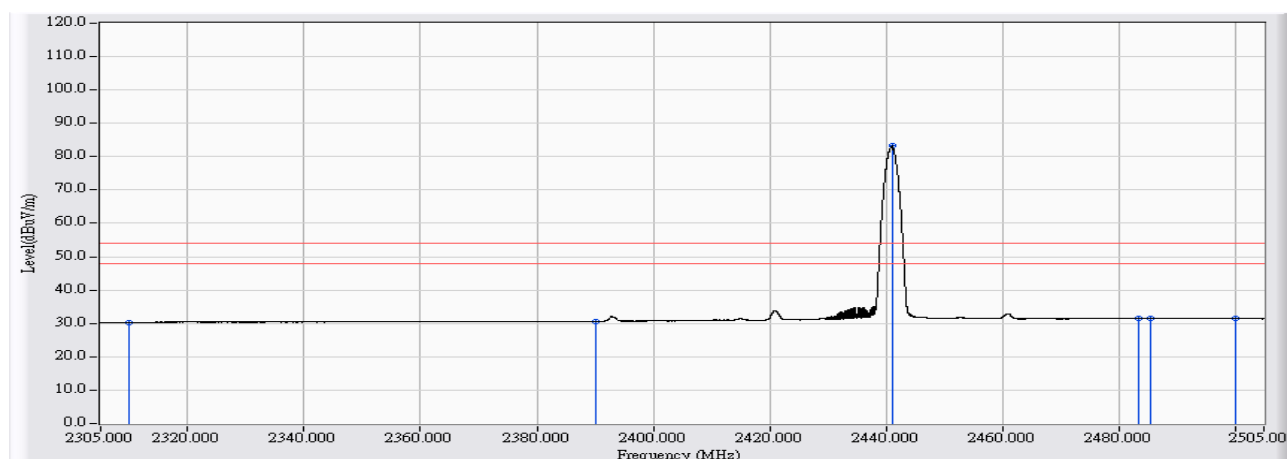


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	12.455	30.089	42.544	-31.456	74.000	PEAK
2		2390.000	13.127	29.512	42.640	-31.360	74.000	PEAK
3	*	2440.986	13.401	84.822	98.222	24.222	74.000	PEAK
4		2483.500	13.725	30.038	43.763	-30.237	74.000	PEAK
5		2484.342	13.727	32.698	46.425	-27.575	74.000	PEAK
6		2500.000	13.617	30.005	43.622	-30.378	74.000	PEAK

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " \* ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : CB4-H	Time : 2017/04/07
Limit : FCC_SpartC_15.209_03M_AV	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - HORIZONTAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 3: Tx_3DH5_2441MHz

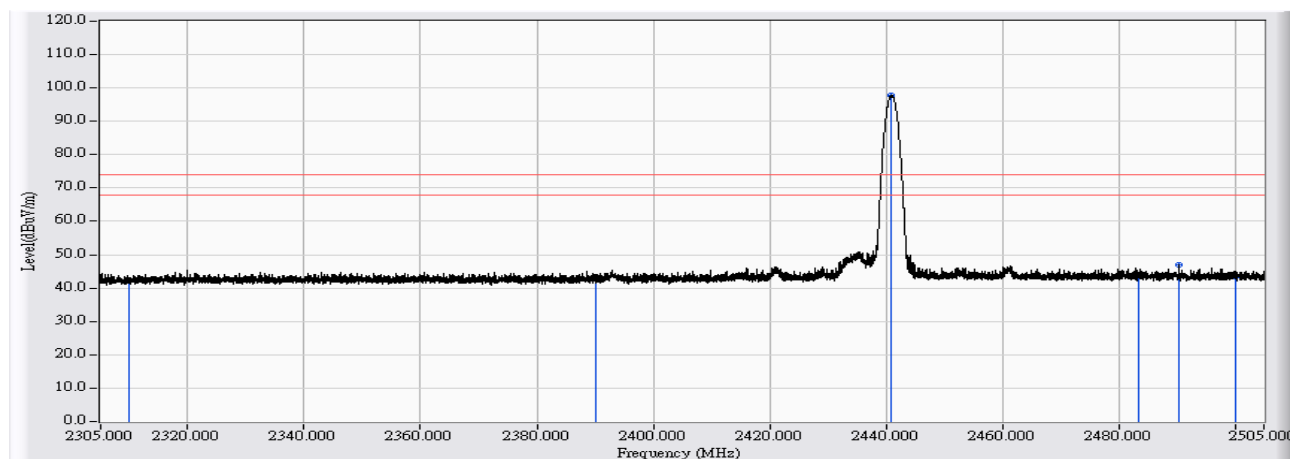


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	12.455	17.786	30.241	-23.759	54.000	AVERAGE
2		2390.000	13.127	17.487	30.615	-23.385	54.000	AVERAGE
3	*	2441.066	13.402	69.918	83.319	29.319	54.000	AVERAGE
4		2483.500	13.725	17.813	31.538	-22.462	54.000	AVERAGE
5		2485.402	13.723	17.796	31.519	-22.481	54.000	AVERAGE
6		2500.000	13.617	17.836	31.453	-22.547	54.000	AVERAGE

## Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " \* ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : CB4-H	Time : 2017/04/07
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - VERTICAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 3: Tx_3DH5_2441MHz



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	12.455	29.938	42.393	-31.607	74.000	PEAK
2		2390.000	13.127	30.061	43.189	-30.811	74.000	PEAK
3	*	2440.986	13.401	84.560	97.960	23.960	74.000	PEAK
4		2483.500	13.725	29.828	43.553	-30.447	74.000	PEAK
5		2490.361	13.706	33.373	47.080	-26.920	74.000	PEAK
6		2500.000	13.617	29.833	43.450	-30.550	74.000	PEAK

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " \* ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : CB4-H	Time : 2017/04/07
Limit : FCC_SpartC_15.209_03M_AV	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - VERTICAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 3: Tx_3DH5_2441MHz

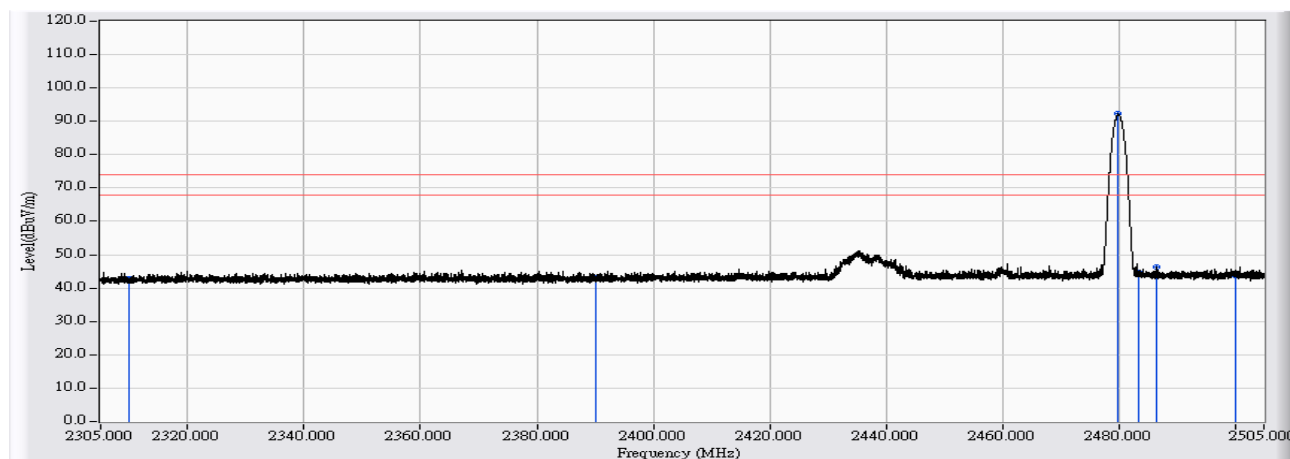


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	12.455	17.783	30.238	-23.762	54.000	AVERAGE
2		2390.000	13.127	17.564	30.692	-23.308	54.000	AVERAGE
3	*	2441.026	13.401	69.213	82.614	28.614	54.000	AVERAGE
4		2483.500	13.725	17.788	31.513	-22.487	54.000	AVERAGE
5		2488.642	13.712	18.041	31.753	-22.247	54.000	AVERAGE
6		2500.000	13.617	17.824	31.441	-22.559	54.000	AVERAGE

## Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " \* ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : CB4-H	Time : 2017/04/07
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - HORIZONTAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 3: Tx_3DH5_2480MHz

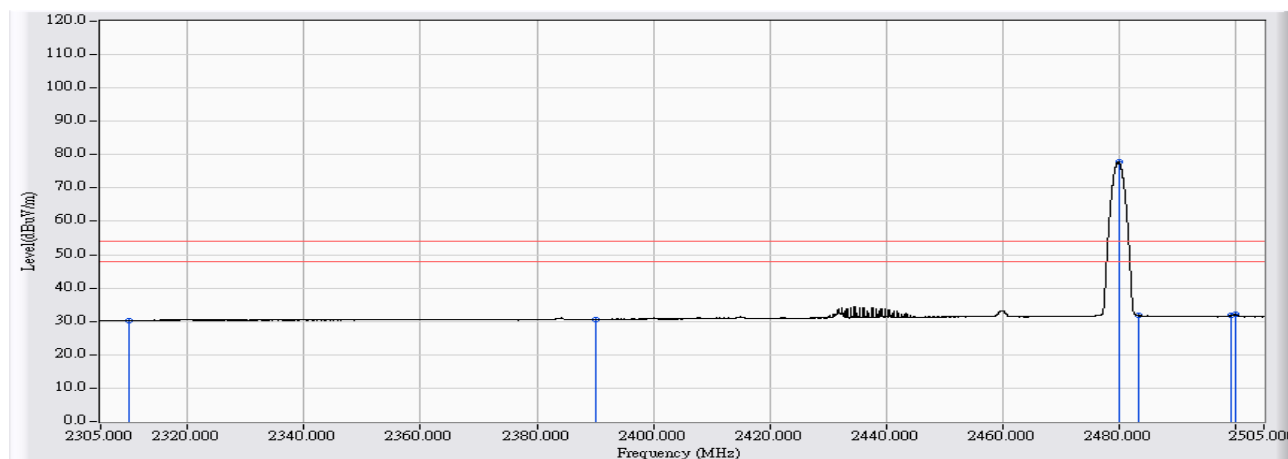


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	12.455	30.197	42.652	-31.348	74.000	PEAK
2		2390.000	13.127	30.029	43.157	-30.843	74.000	PEAK
3	*	2479.962	13.701	78.495	92.196	18.196	74.000	PEAK
4		2483.500	13.725	30.882	44.607	-29.393	74.000	PEAK
5		2486.562	13.720	32.665	46.384	-27.616	74.000	PEAK
6		2500.000	13.617	30.186	43.803	-30.197	74.000	PEAK

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " \* ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : CB4-H	Time : 2017/04/07
Limit : FCC_SpartC_15.209_03M_AV	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - HORIZONTAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 3: Tx_3DH5_2480MHz

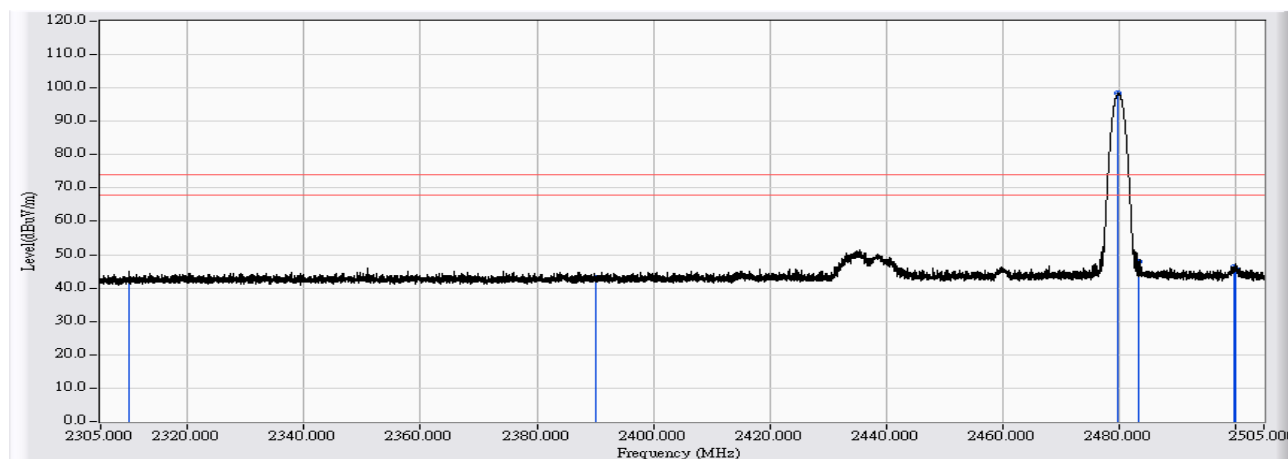


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	12.455	17.807	30.262	-23.738	54.000	AVERAGE
2		2390.000	13.127	17.474	30.602	-23.398	54.000	AVERAGE
3	*	2480.002	13.701	64.166	77.867	23.867	54.000	AVERAGE
4		2483.500	13.725	17.973	31.698	-22.302	54.000	AVERAGE
5		2499.341	13.619	18.142	31.761	-22.239	54.000	AVERAGE
6		2500.000	13.617	18.424	32.041	-21.959	54.000	AVERAGE

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " \* ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : CB4-H	Time : 2017/04/07
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - VERTICAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 3: Tx_3DH5_2480MHz



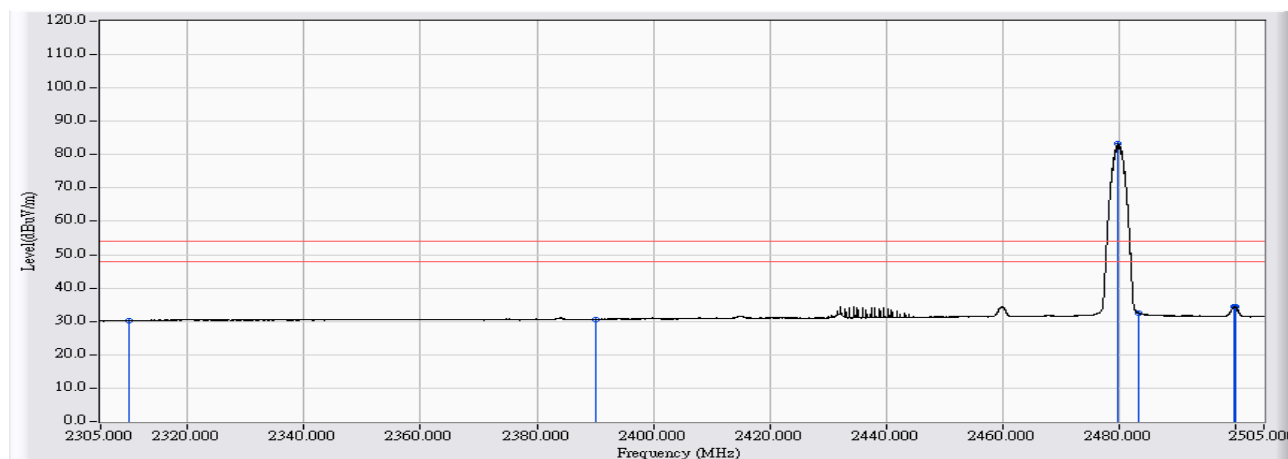
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	12.455	29.924	42.379	-31.621	74.000	PEAK
2		2390.000	13.127	30.076	43.204	-30.796	74.000	PEAK
3	*	2479.962	13.701	84.855	98.556	24.556	74.000	PEAK
4		2483.500	13.725	34.151	47.876	-26.124	74.000	PEAK
5		2499.880	13.617	32.594	46.212	-27.788	74.000	PEAK
6		2500.000	13.617	32.159	45.776	-28.224	74.000	PEAK

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " \* ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.



Site : CB4-H	Time : 2017/04/07
Limit : FCC_SpartC_15.209_03M_AV	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - VERTICAL	Power : AC 120V/60Hz
EUT : UHD651-L	Note : Mode 3: Tx_3DH5_2480MHz



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	12.455	17.838	30.293	-23.707	54.000	AVERAGE
2		2390.000	13.127	17.513	30.641	-23.359	54.000	AVERAGE
3	*	2479.962	13.701	69.502	83.203	29.203	54.000	AVERAGE
4		2483.500	13.725	18.693	32.418	-21.582	54.000	AVERAGE
5		2499.760	13.618	20.684	34.302	-19.698	54.000	AVERAGE
6		2500.000	13.617	20.803	34.420	-19.580	54.000	AVERAGE

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " \* ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

## 7. Number of hopping frequency

### 7.1. Test Equipment

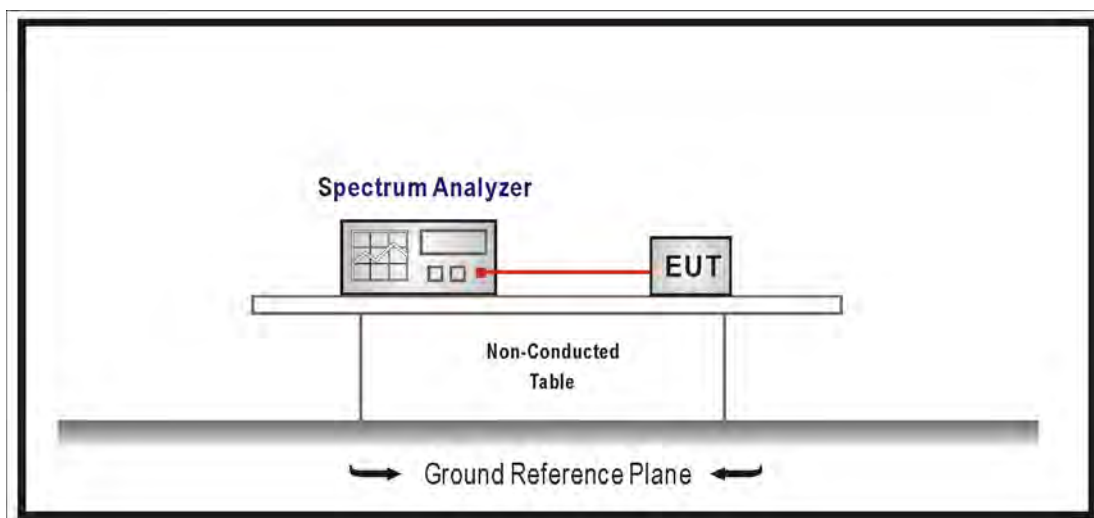
The following test equipment is used during the test:

Number of hopping frequency / SR10-H

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A	US47140172	2017/08/08

Note: All equipments that need to calibrate are with calibration period of 1 year.

### 7.2. Test Setup



### **7.3. 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.

For frequency hopping systems operating in the 2400-2483.5 MHz bands, which use fewer than 75 hopping frequencies, may employ intelligent hopping techniques to avoid interference to other transmissions. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 non-overlapping channels are used.

For frequency hopping systems operating in the 5725-5850 MHz band shall use at least 75 hopping frequencies.

### **7.4. Test Procedures**

The EUT was setup according to ANSI C63.10: 2013 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements ,

Span = the frequency band of operation ,RBW  $\geq$  1% of the span, VBW  $\geq$  RBW,

Sweep = auto, Detector function = peak, Trace = max hold.

### **7.5. Test Specification**

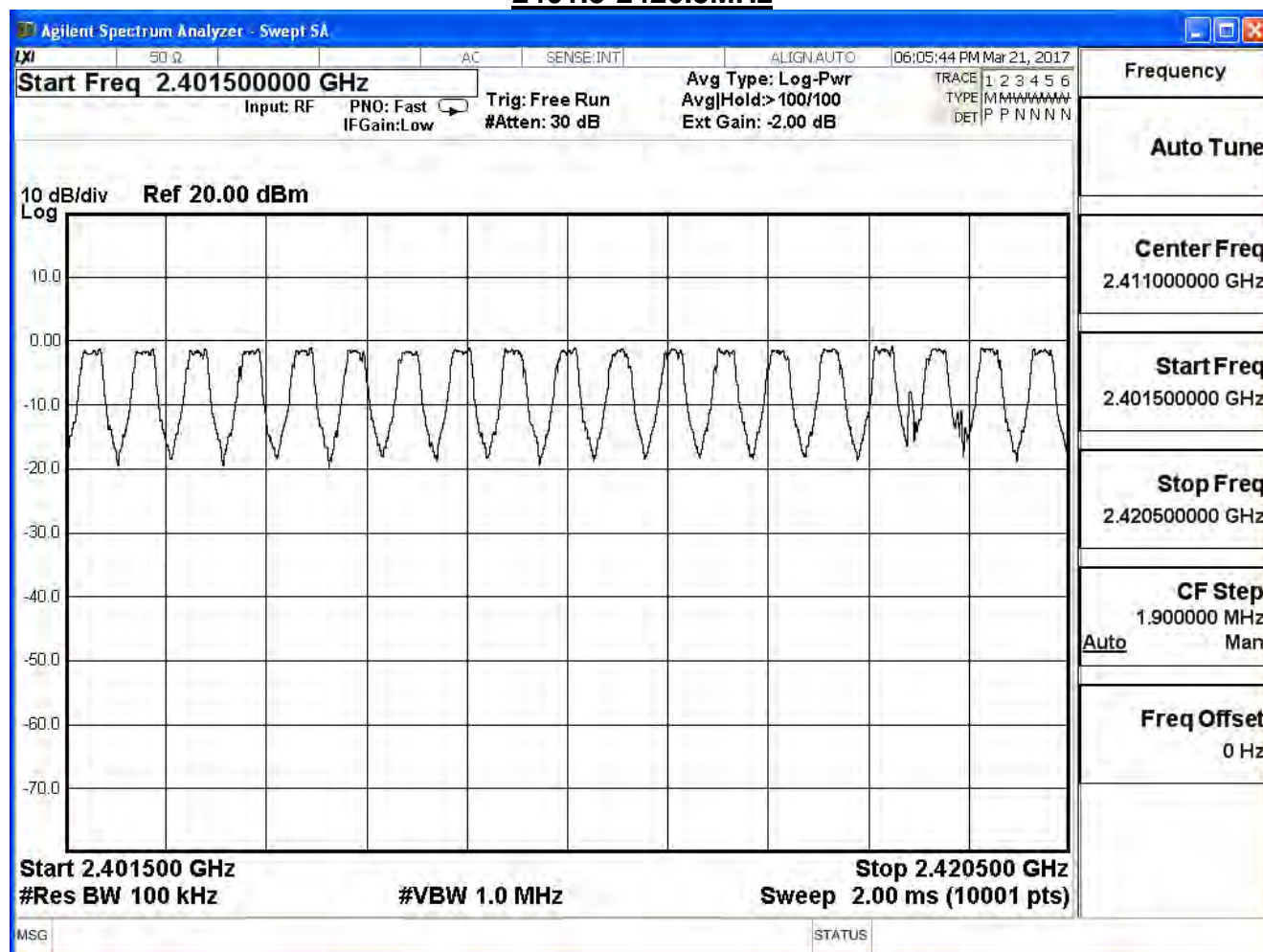
According to FCC Part 15 Subpart C Paragraph 15.247: 2015

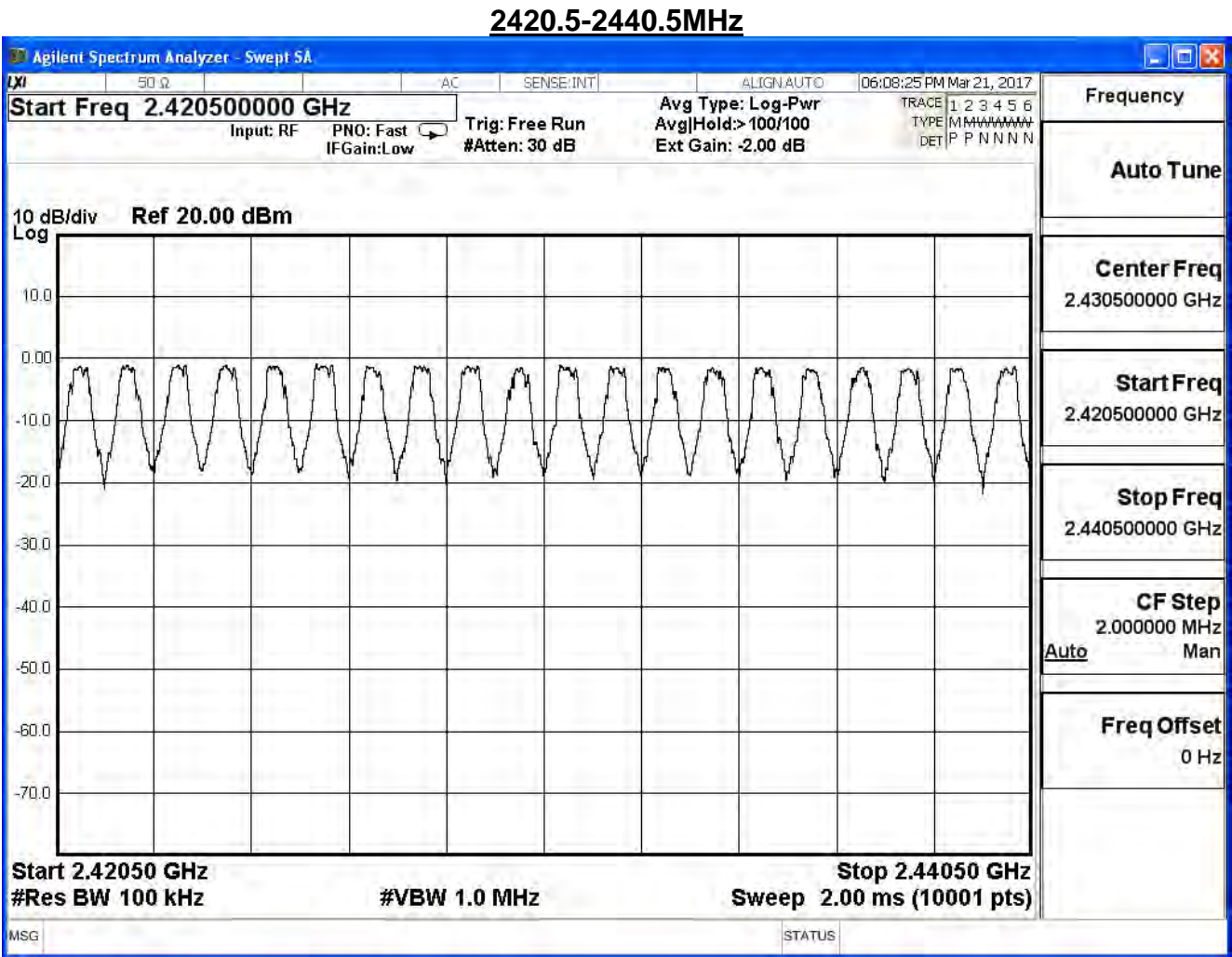
## 7.6. Test Result

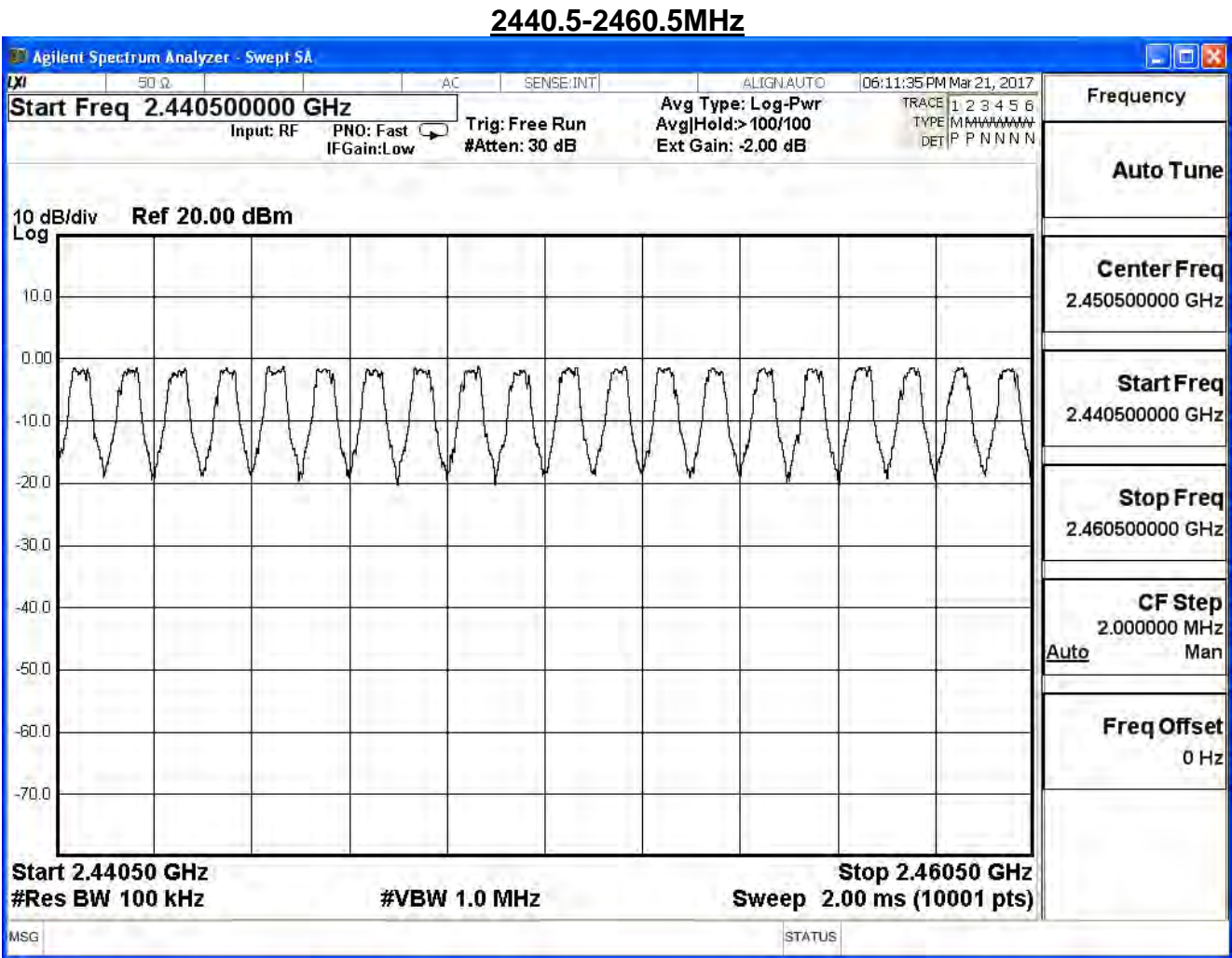
Product	UHD651-L		
Test Item	Number of hopping frequency		
Test Mode	Mode 1: Tx_DH5		
Date of Test	2017/03/21	Test Site	SR10-H

Frequency Range (MHz)	Measure Level (Channels)	Limit (Channels)	Result
2402 - 2480	79	$\geq 75$	Pass

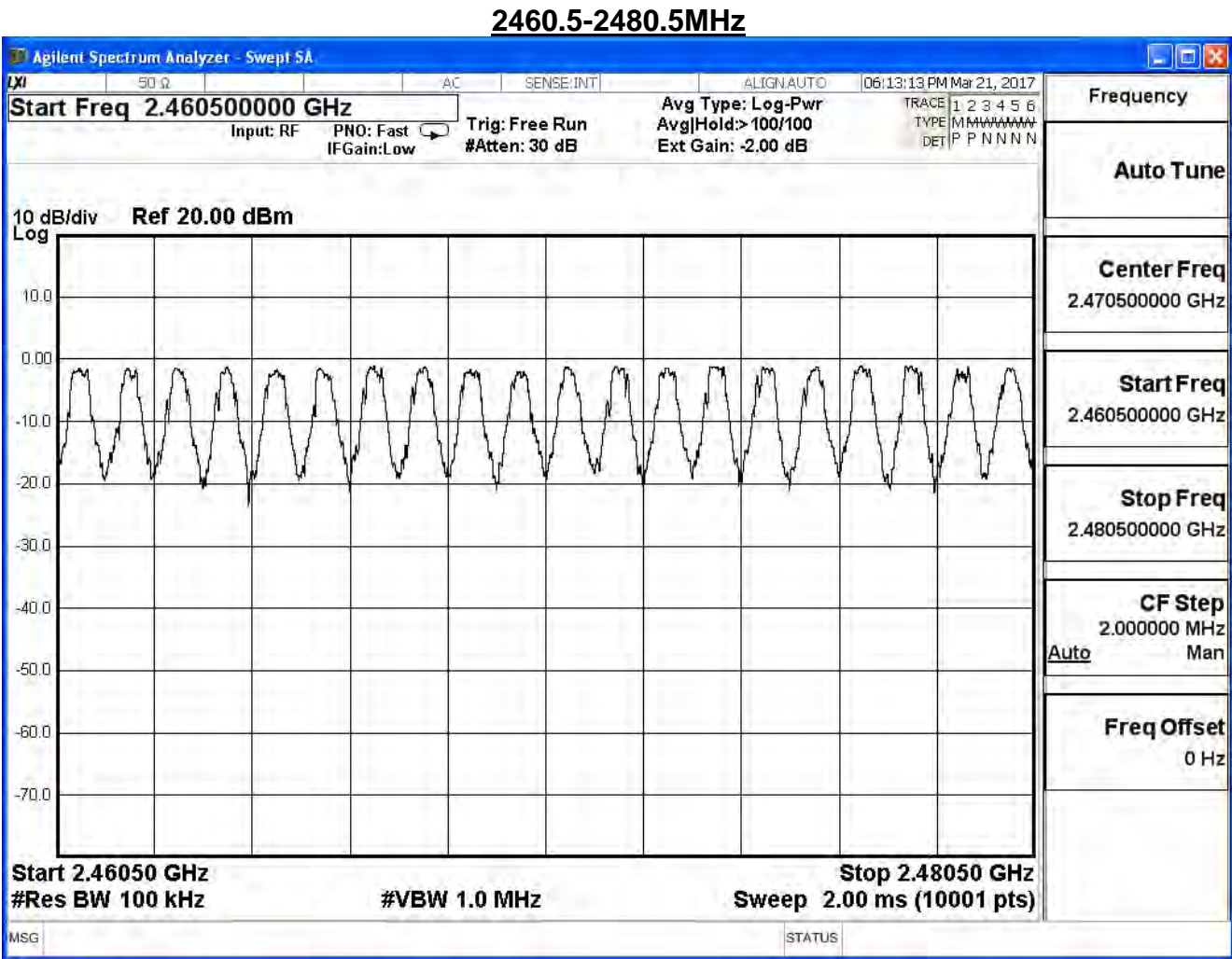
### 2401.5-2420.5MHz











## 8. Carrier Frequency Separation

### 8.1. Test Equipment

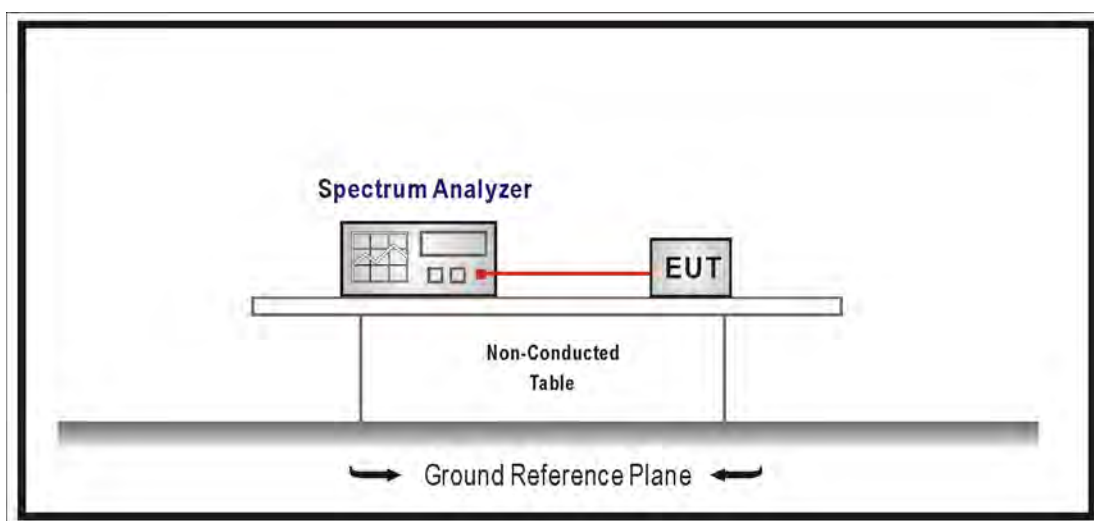
The following test equipment is used during the test:

Carrier Frequency Separation / SR10-H

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A	US47140172	2017/08/08

Note: All equipments that need to calibrate are with calibration period of 1 year.

### 8.2. Test Setup



### 8.3. Limits

For frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater.

### 8.4. Test Procedures

The EUT was setup according to ANSI C63.10: 2013 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements

Span = wide enough to capture the peaks of two adjacent channels

Resolution Bandwidth (RBW)  $\geq$  1% of the span, VBW  $\geq$  RBW

Sweep = auto, Detector function = peak, Trace = max hold

### 8.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2015



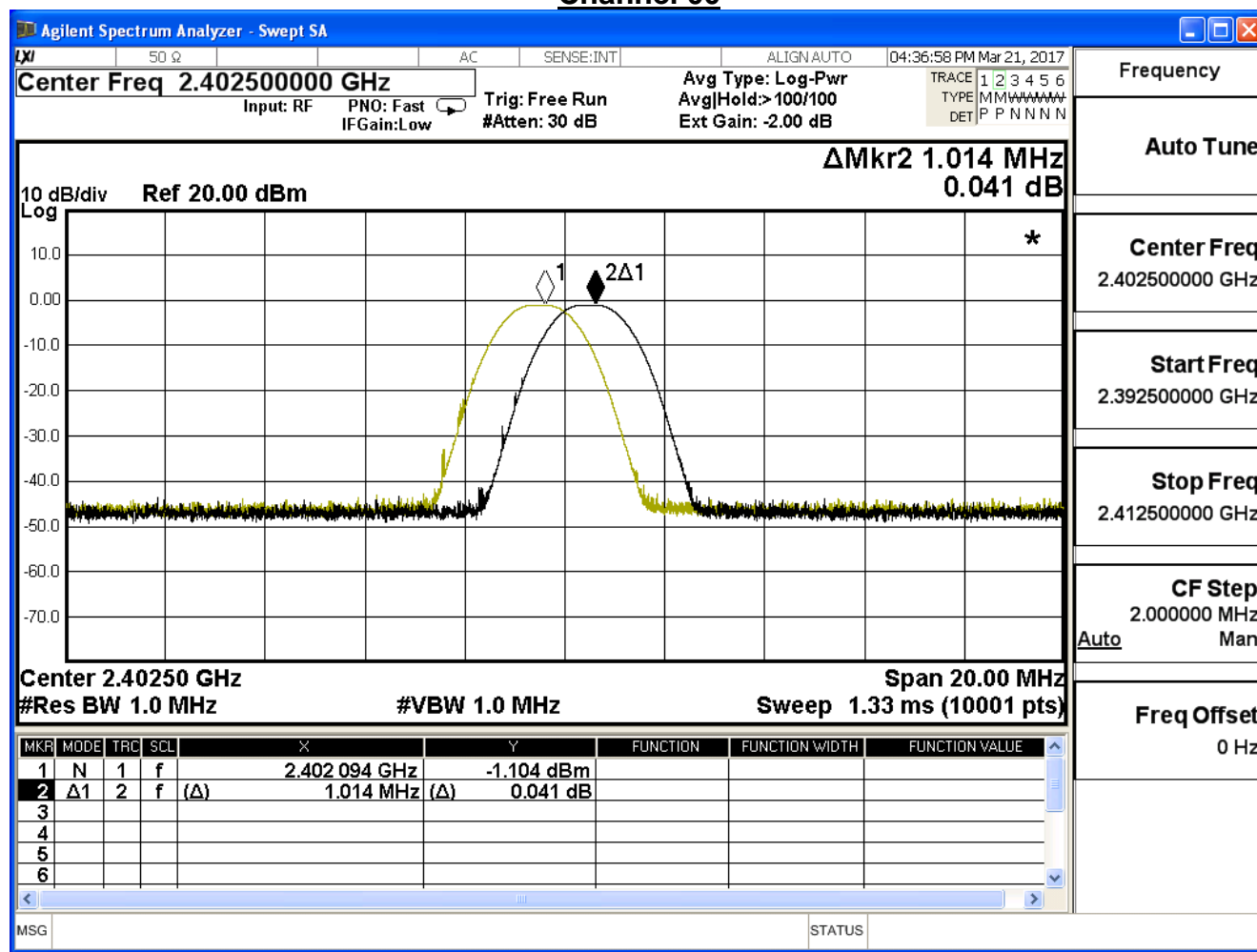
## 8.6. Test Result

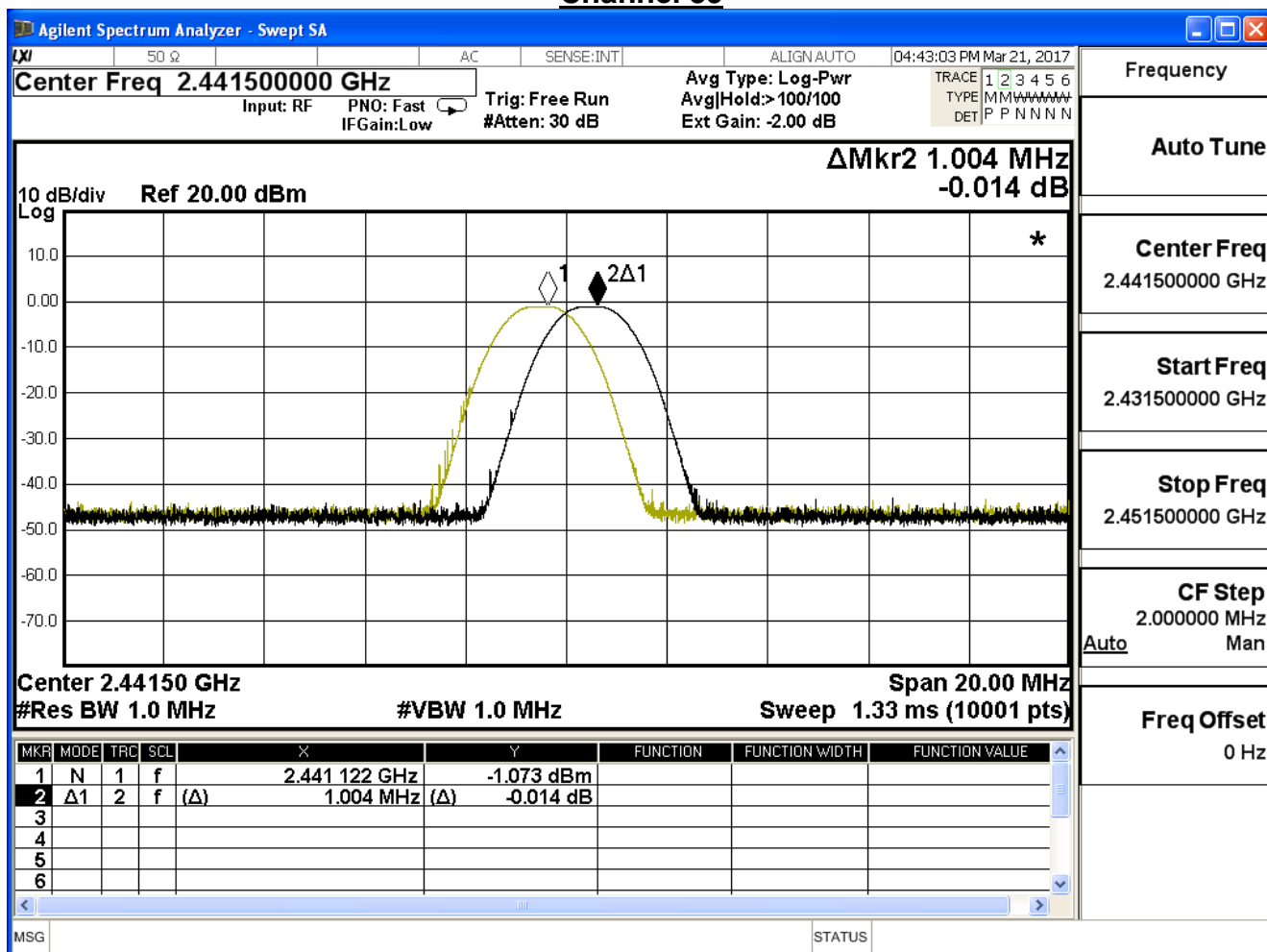
Product	UHD651-L		
Test Item	Carrier Frequency Separation		
Test Mode	Mode 1: Tx_DH5		
Date of Test	2017/03/21	Test Site	SR10-H

### GFSK

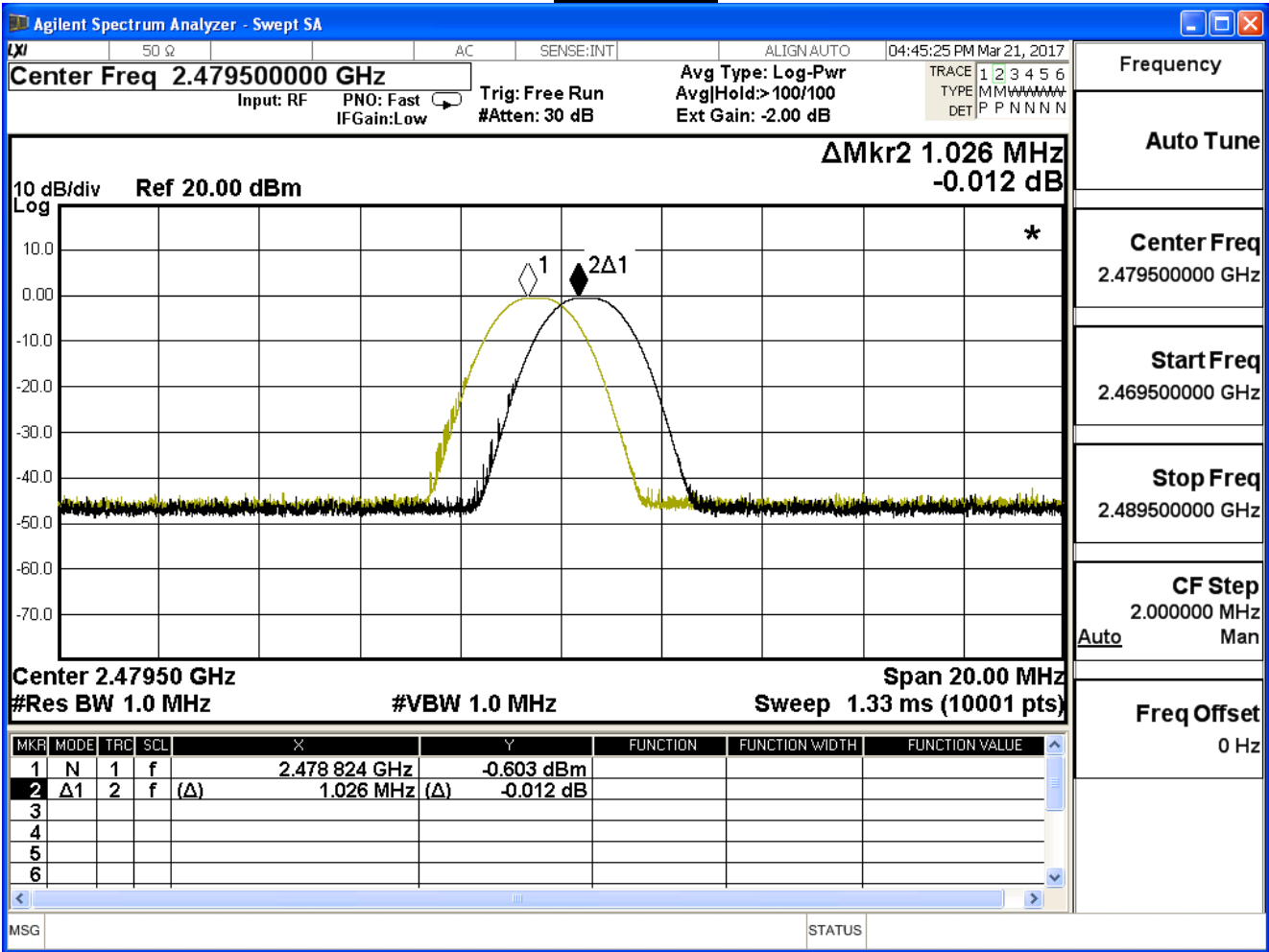
Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
00	2402	1.014	0.738	Pass
39	2441	1.004	0.739	Pass
78	2480	1.026	0.738	Pass

### Channel 00



**Channel 39**

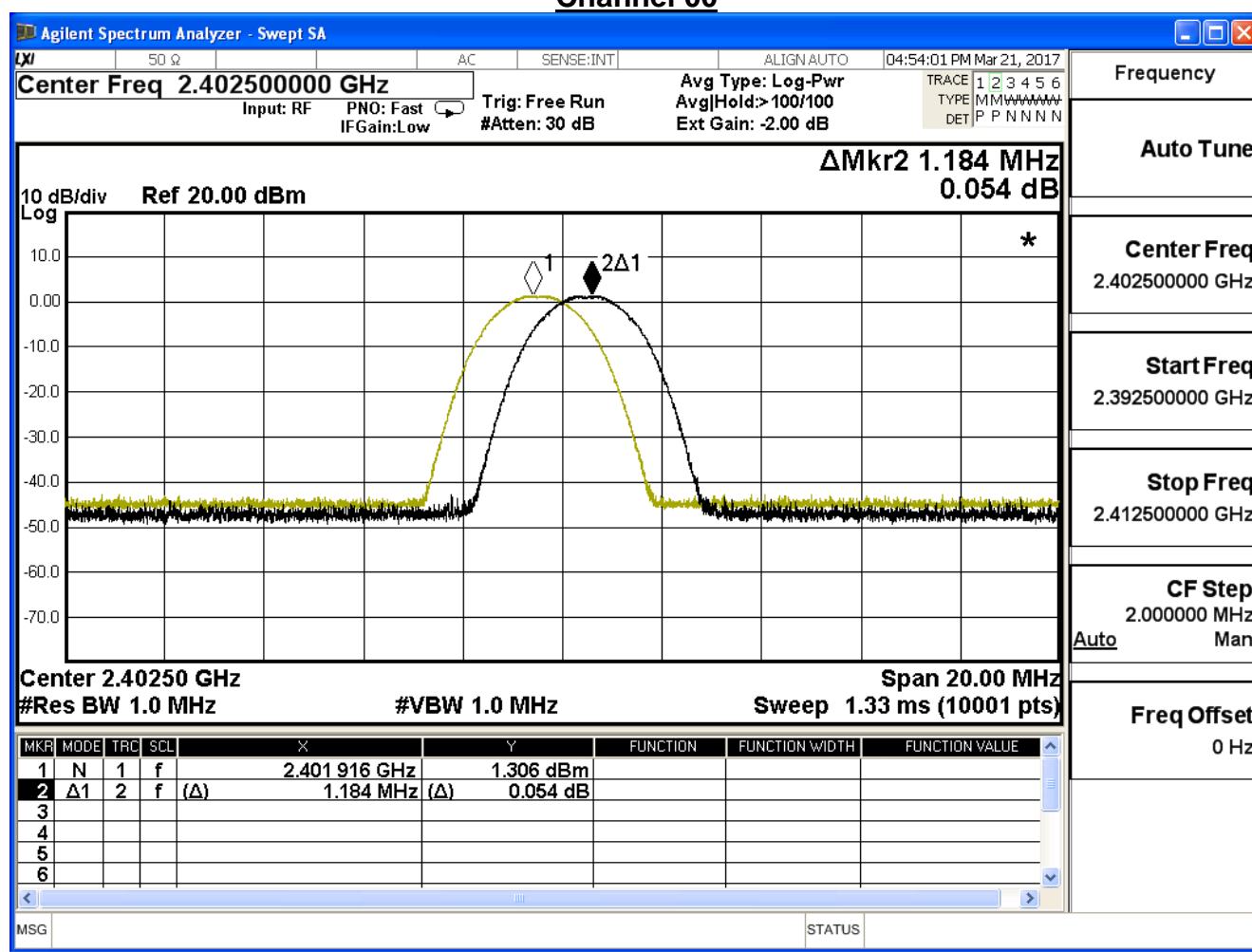
Channel 78

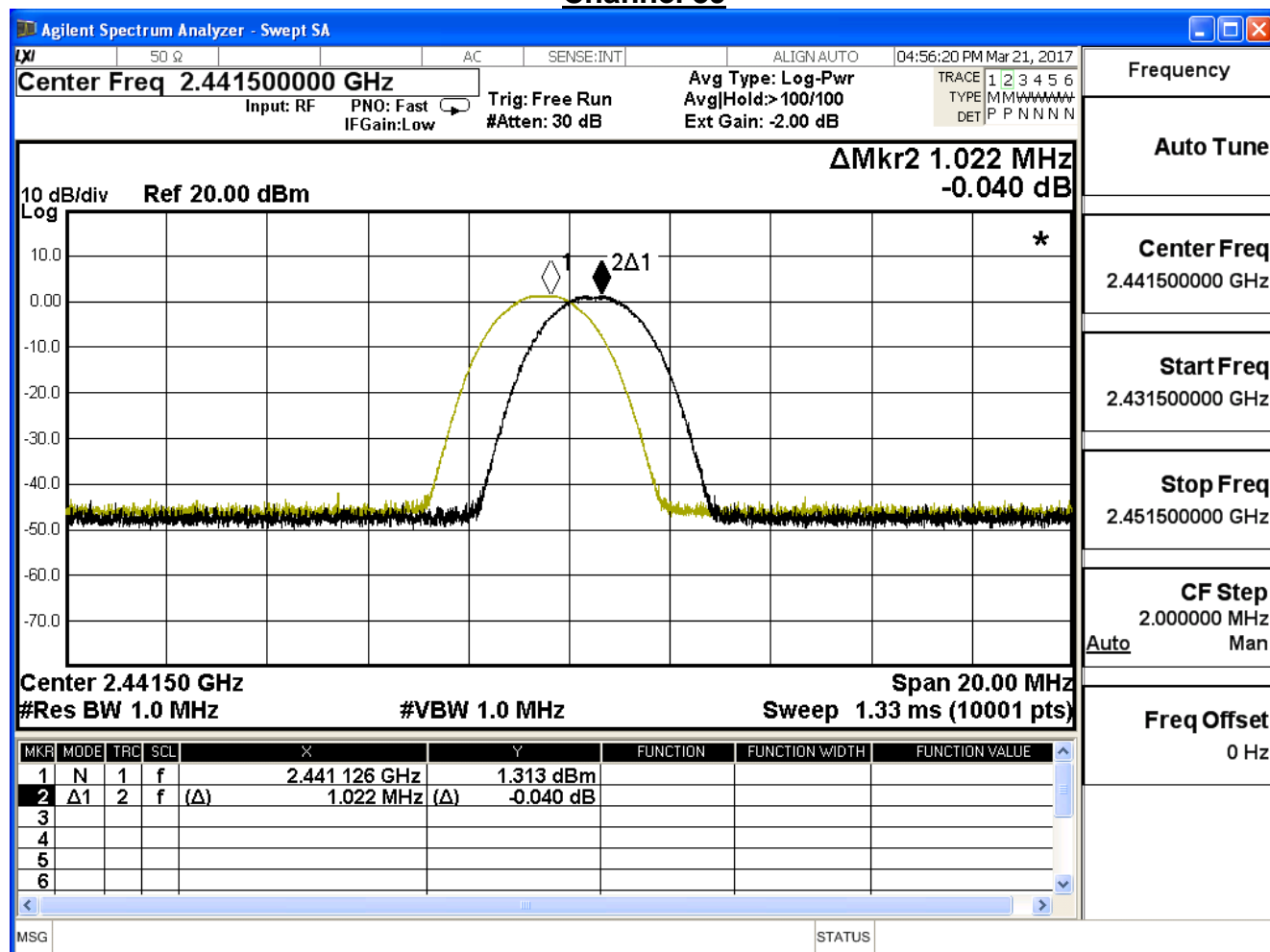


Product	UHD651-L		
Test Item	Carrier Frequency Separation		
Test Mode	Mode 2: Tx_2DH5		
Date of Test	2017/03/21	Test Site	SR10-H

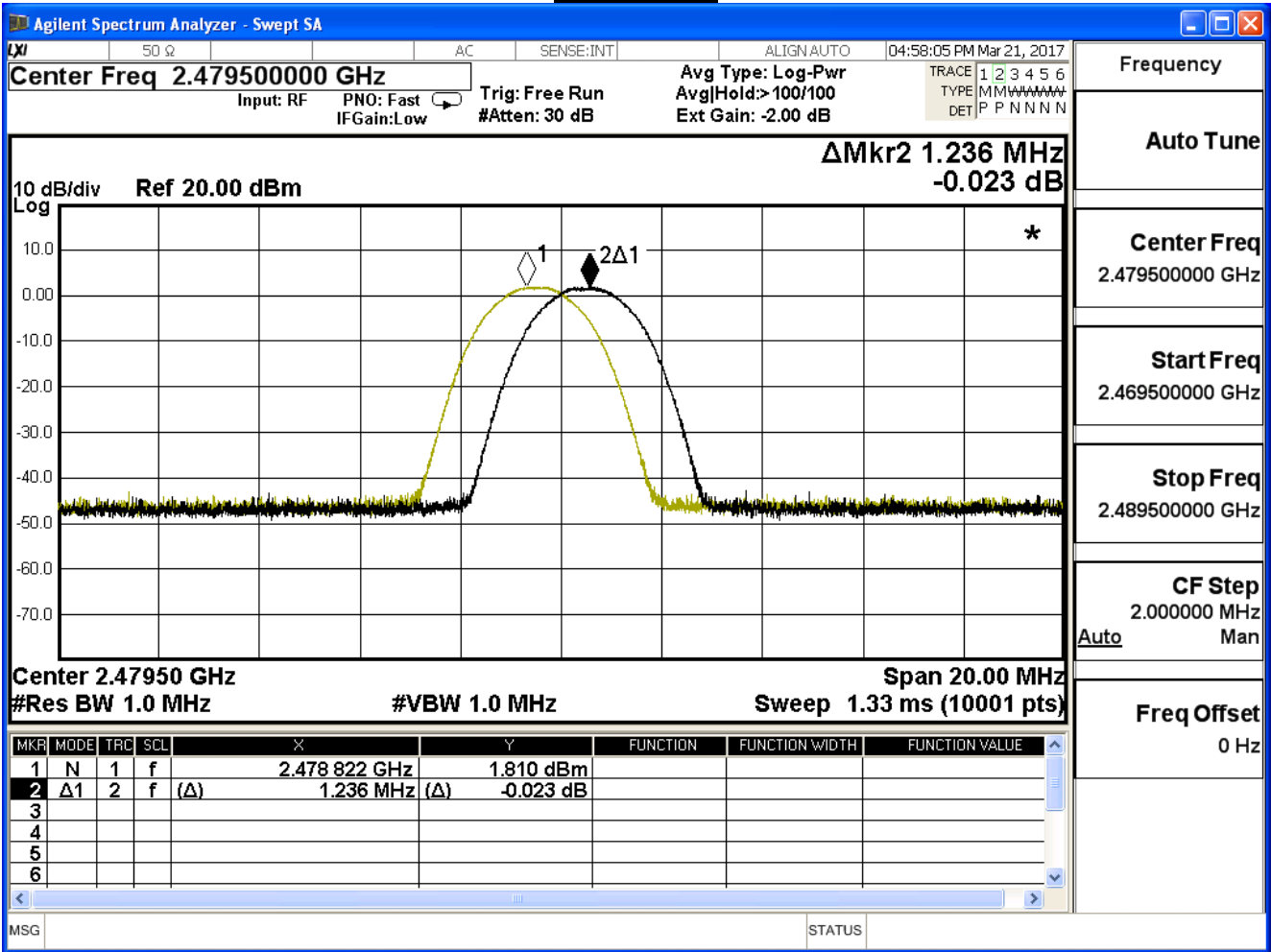
 **$\pi/4$ -DQPSK**

Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
00	2402	1.184	0.926	Pass
39	2441	1.022	0.929	Pass
78	2480	1.236	0.927	Pass

**Channel 00**

**Channel 39**

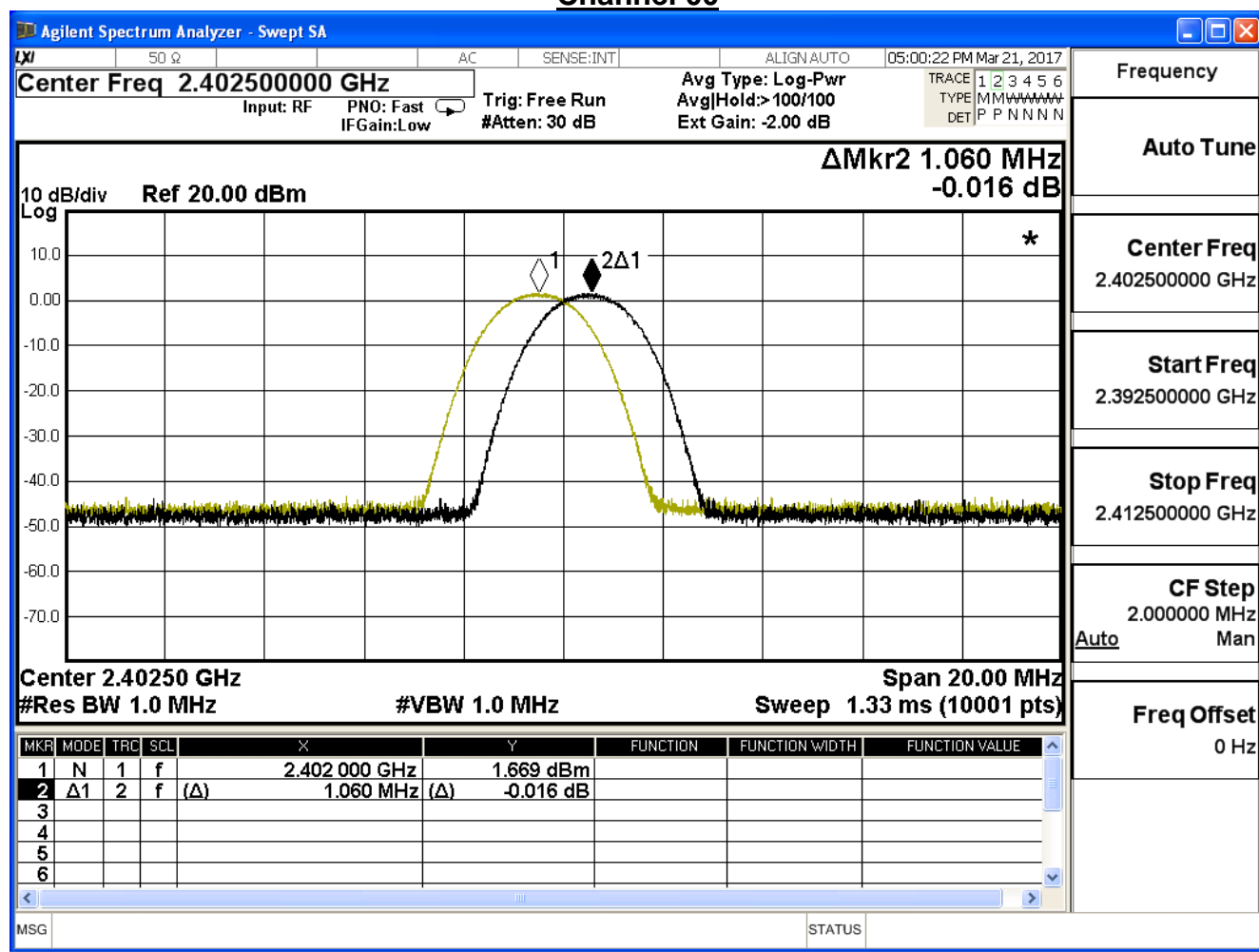
Channel 78



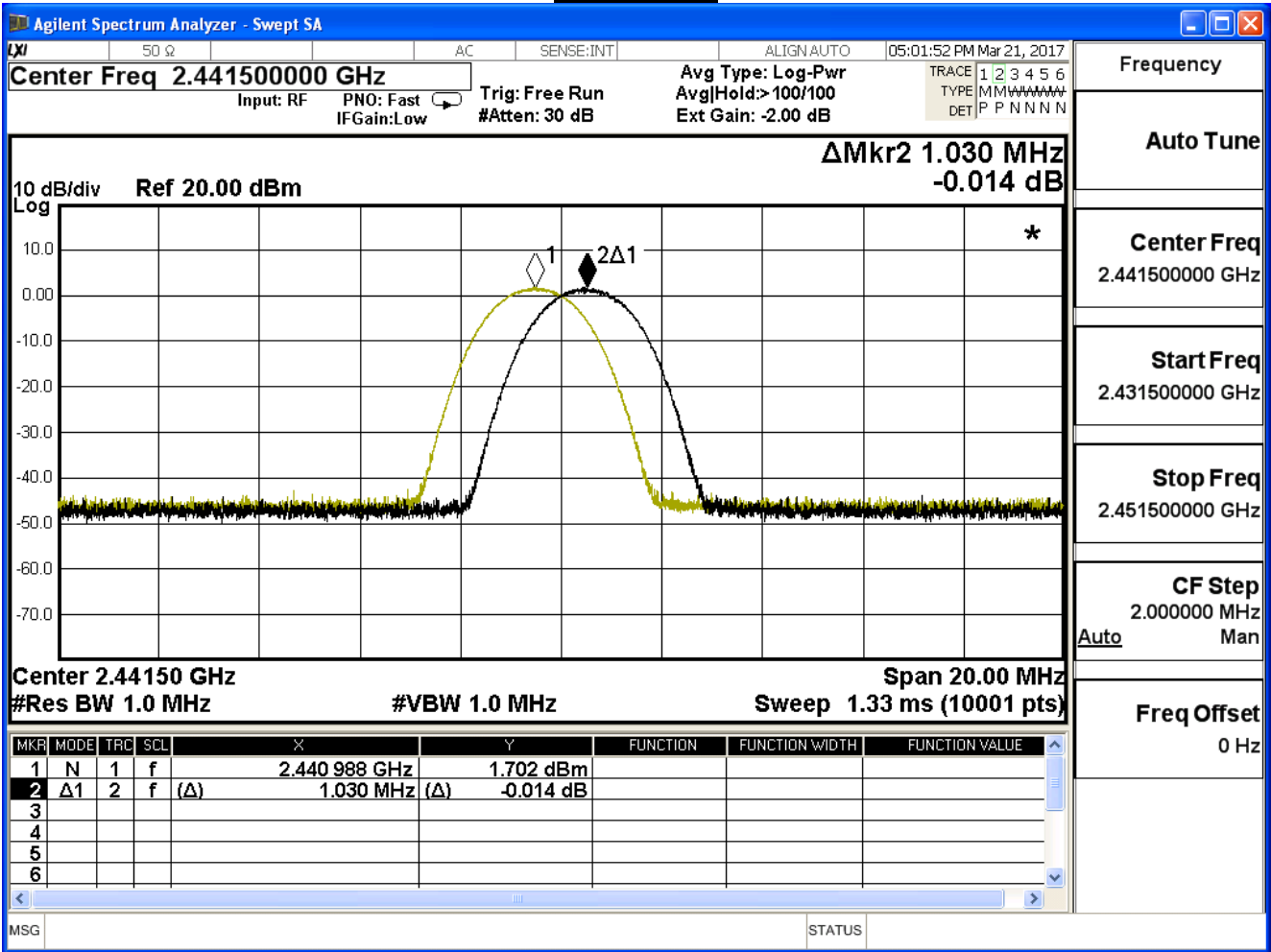
Product	UHD651-L		
Test Item	Carrier Frequency Separation		
Test Mode	Mode 3: Tx_3DH5		
Date of Test	2017/03/21	Test Site	SR10-H

**8-DPSK**

Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
00	2402	1.060	0.926	Pass
39	2441	1.030	0.926	Pass
78	2480	1.010	0.927	Pass

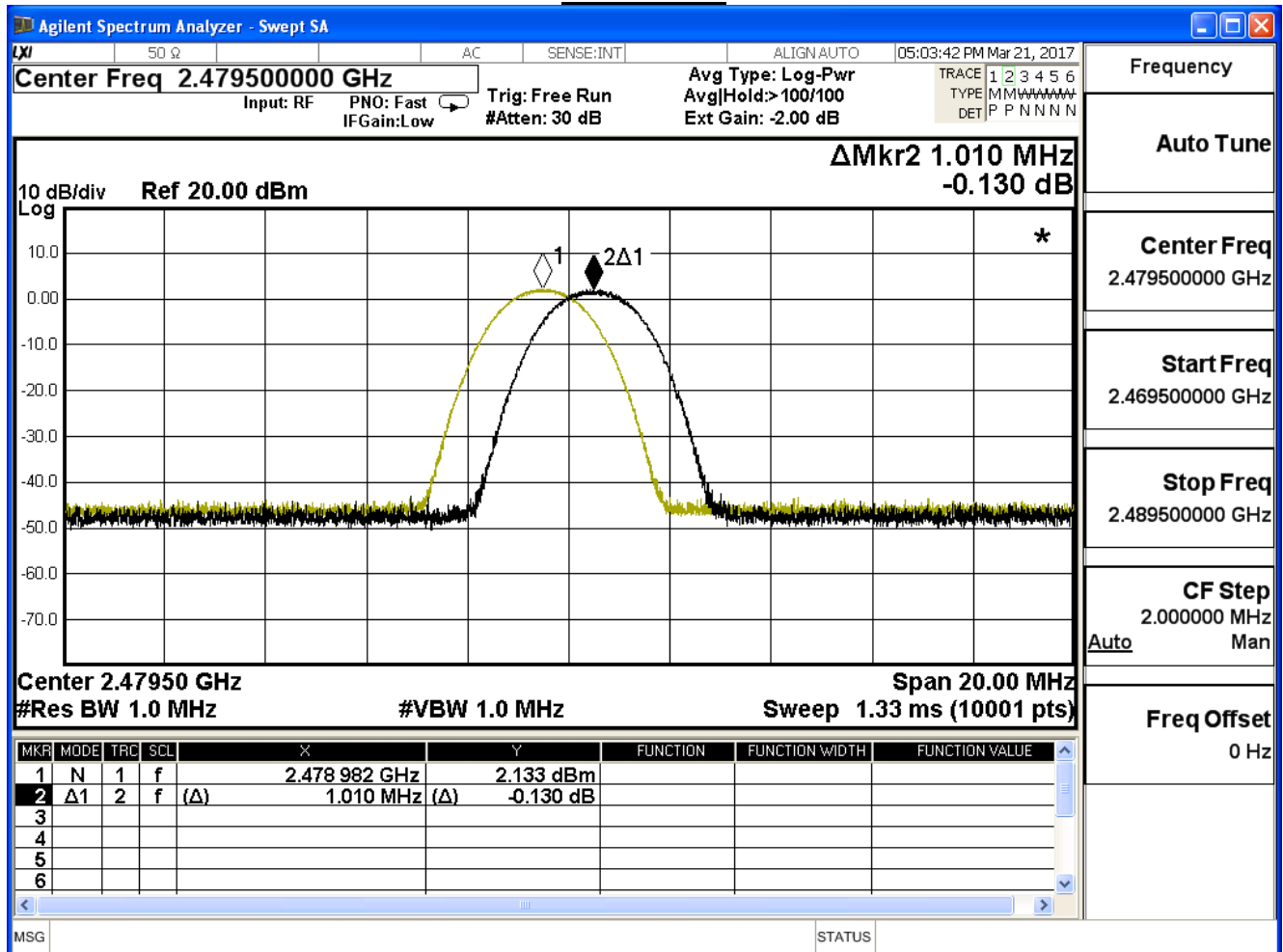
**Channel 00**

Channel 39





## Channel 78



## 9. Occupied Bandwidth

### 9.1. Test Equipment

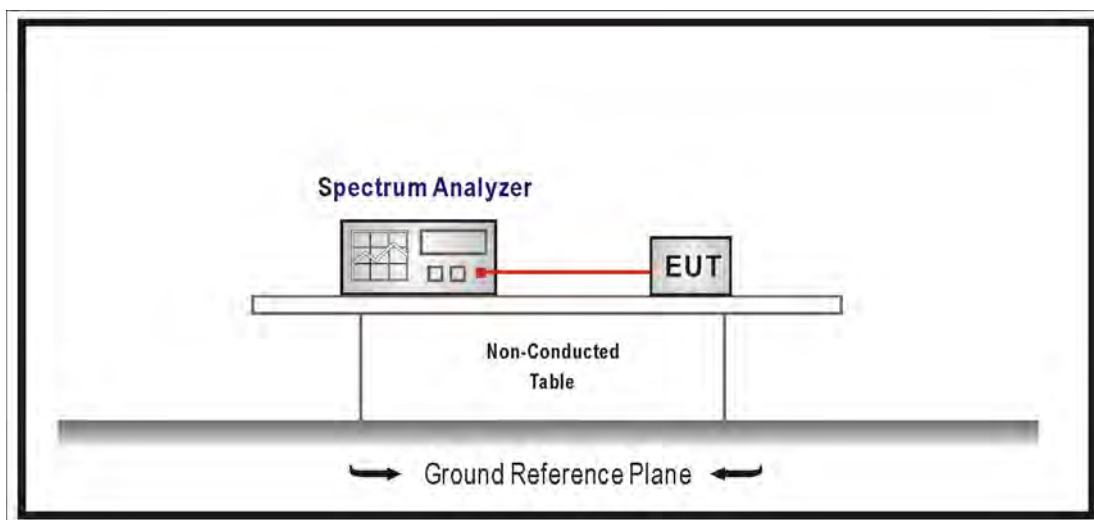
The following test equipment is used during the test:

Occupied Bandwidth / SR10-H

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A	US47140172	2017/08/08

Note: All equipments that need to calibrate are with calibration period of 1 year.

### 9.2. Test Setup



### 9.3. 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.

For frequency hopping systems operating in the 5725-5850 MHz bands. The maximum 20 dB bandwidth of the hopping channel is 1 MHz.

For 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.

#### **9.4. Test Procedures**

The EUT was setup according to ANSI C63.10: 2013 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 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.

#### **9.5. Test Specification**

According to FCC Part 15 Subpart C Paragraph 15.247: 2015

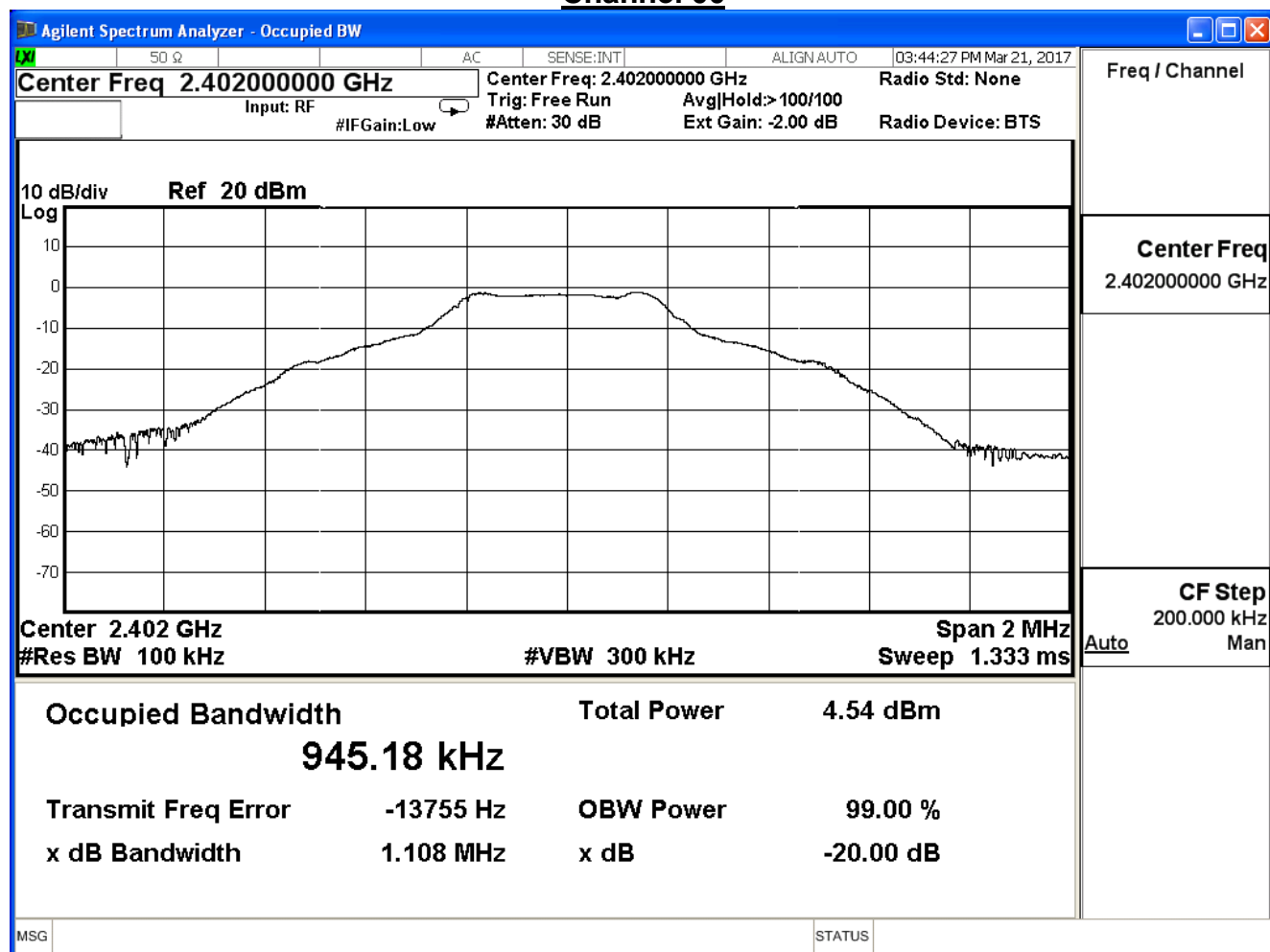
## 9.6. Test Result

Product	UHD651-L		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: Tx_DH5		
Date of Test	2017/03/21	Test Site	SR10-H

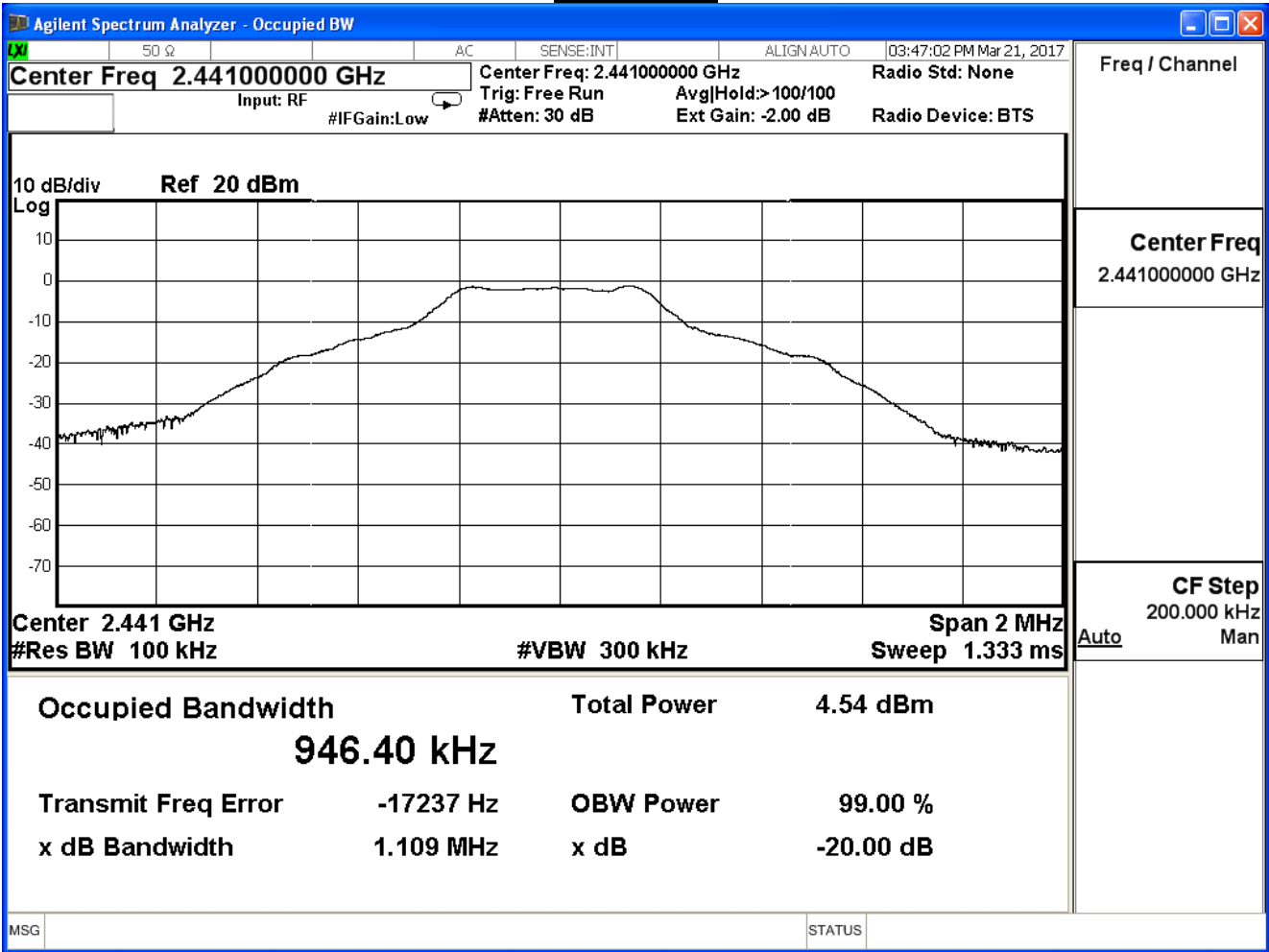
### GFSK

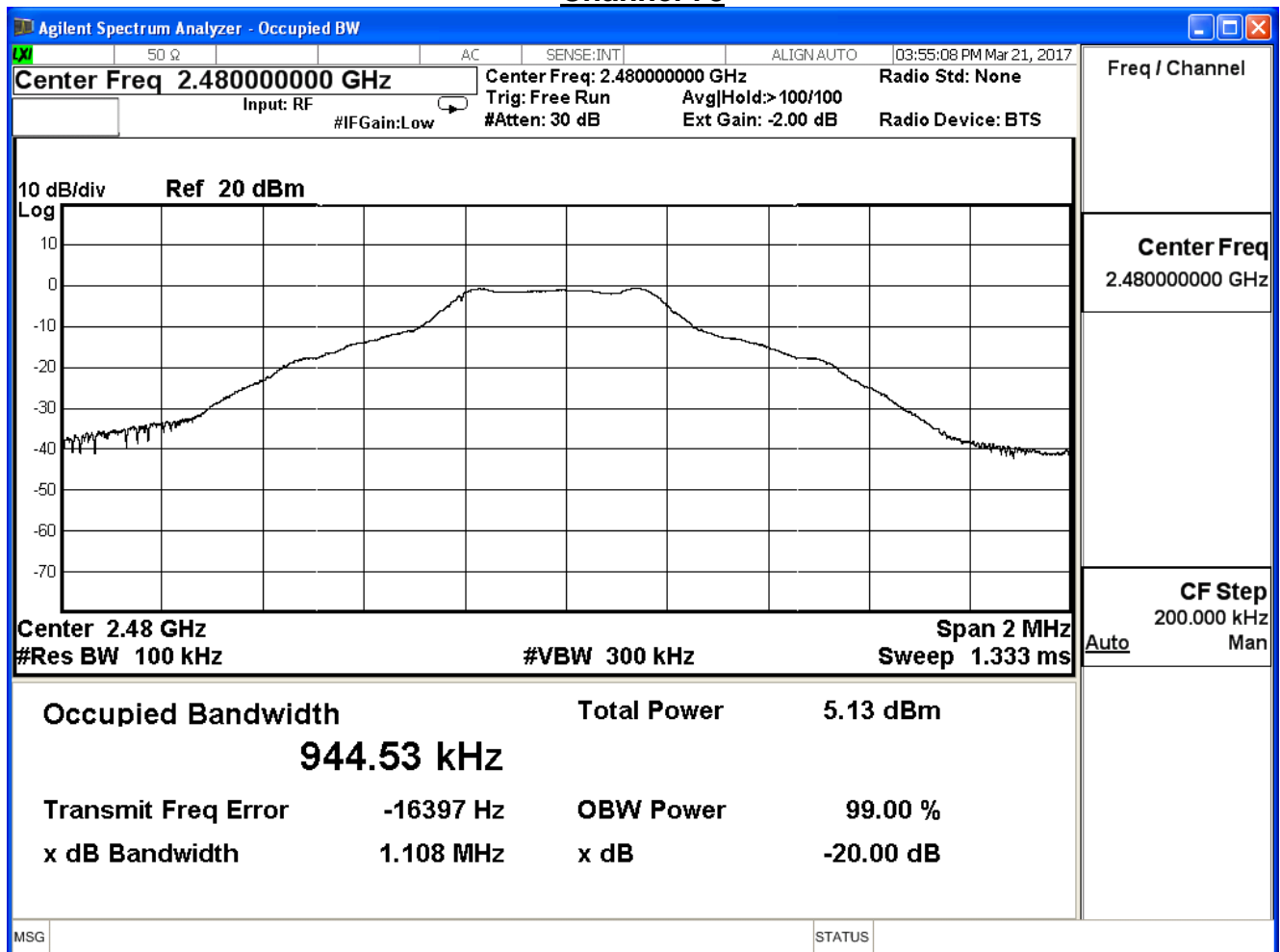
Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
00	2402	1.108	--	Pass
39	2441	1.109	--	Pass
78	2480	1.108	--	Pass

### Channel 00



Channel 39

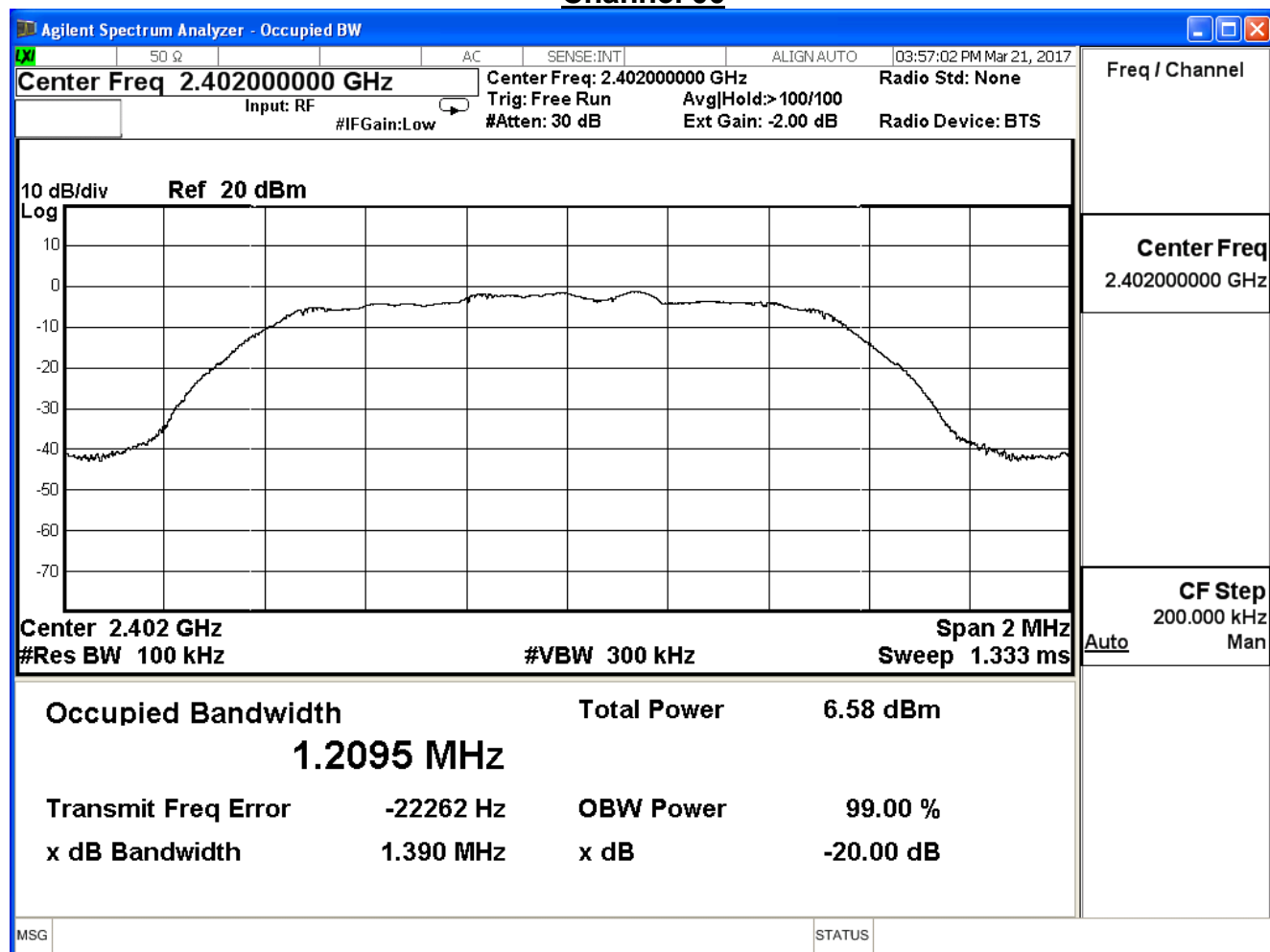


**Channel 78**

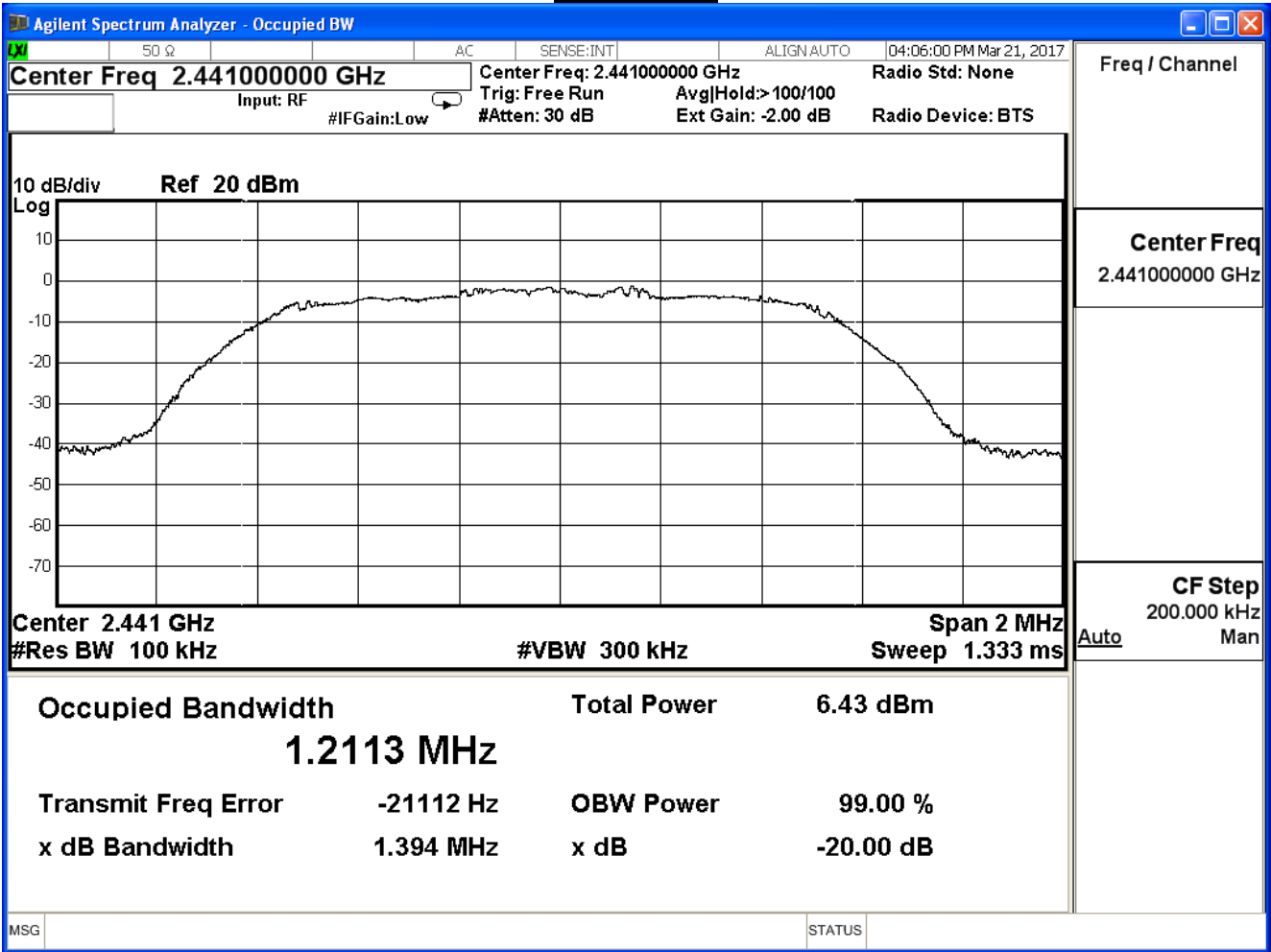
Product	UHD651-L		
Test Item	Occupied Bandwidth		
Test Mode	Mode 2: Tx_2DH5		
Date of Test	2017/03/21	Test Site	SR10-H

 **$\pi/4$ -DQPSK**

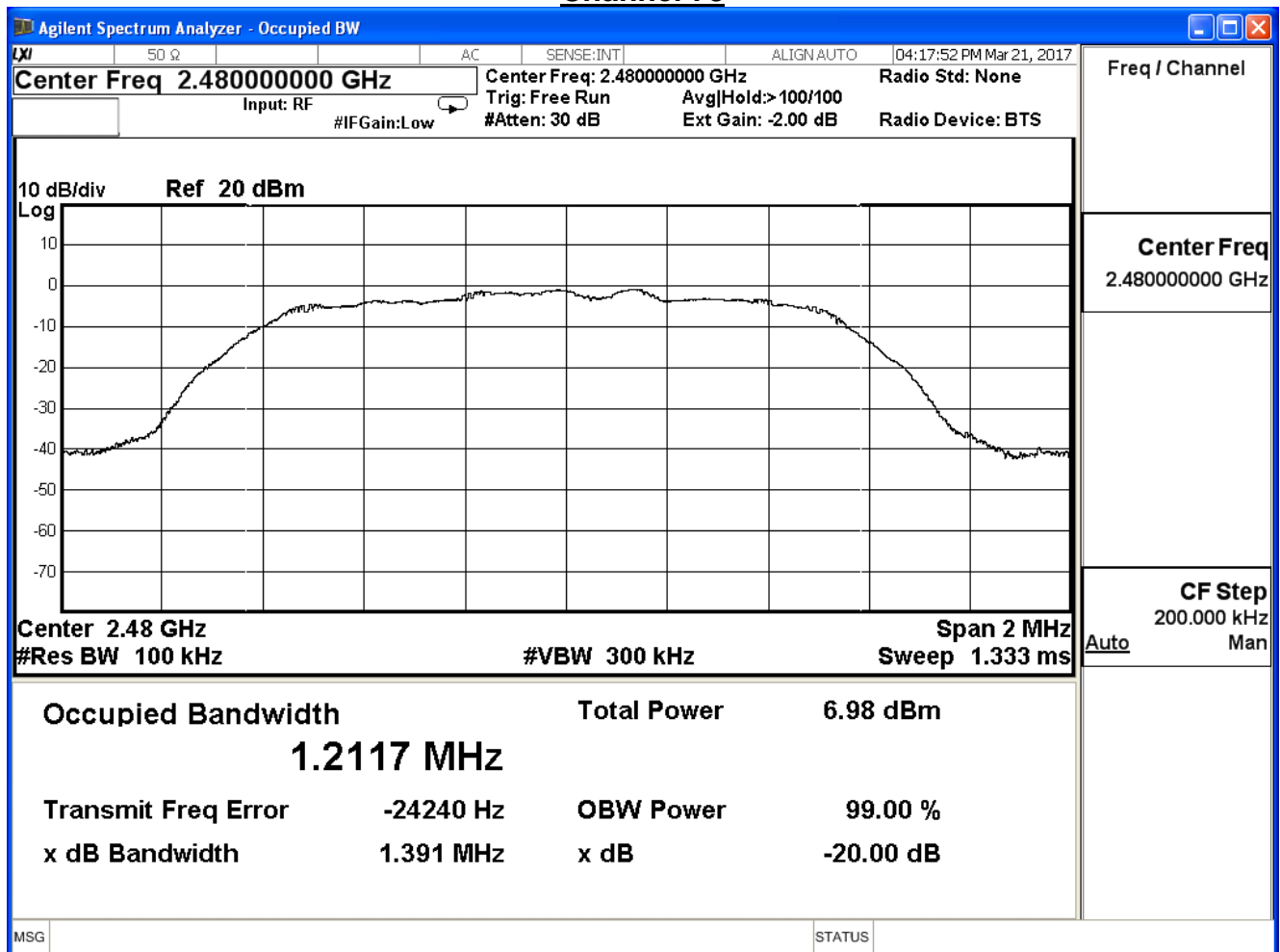
Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
00	2402	1.390	--	Pass
39	2441	1.394	--	Pass
78	2480	1.391	--	Pass

**Channel 00**

Channel 39





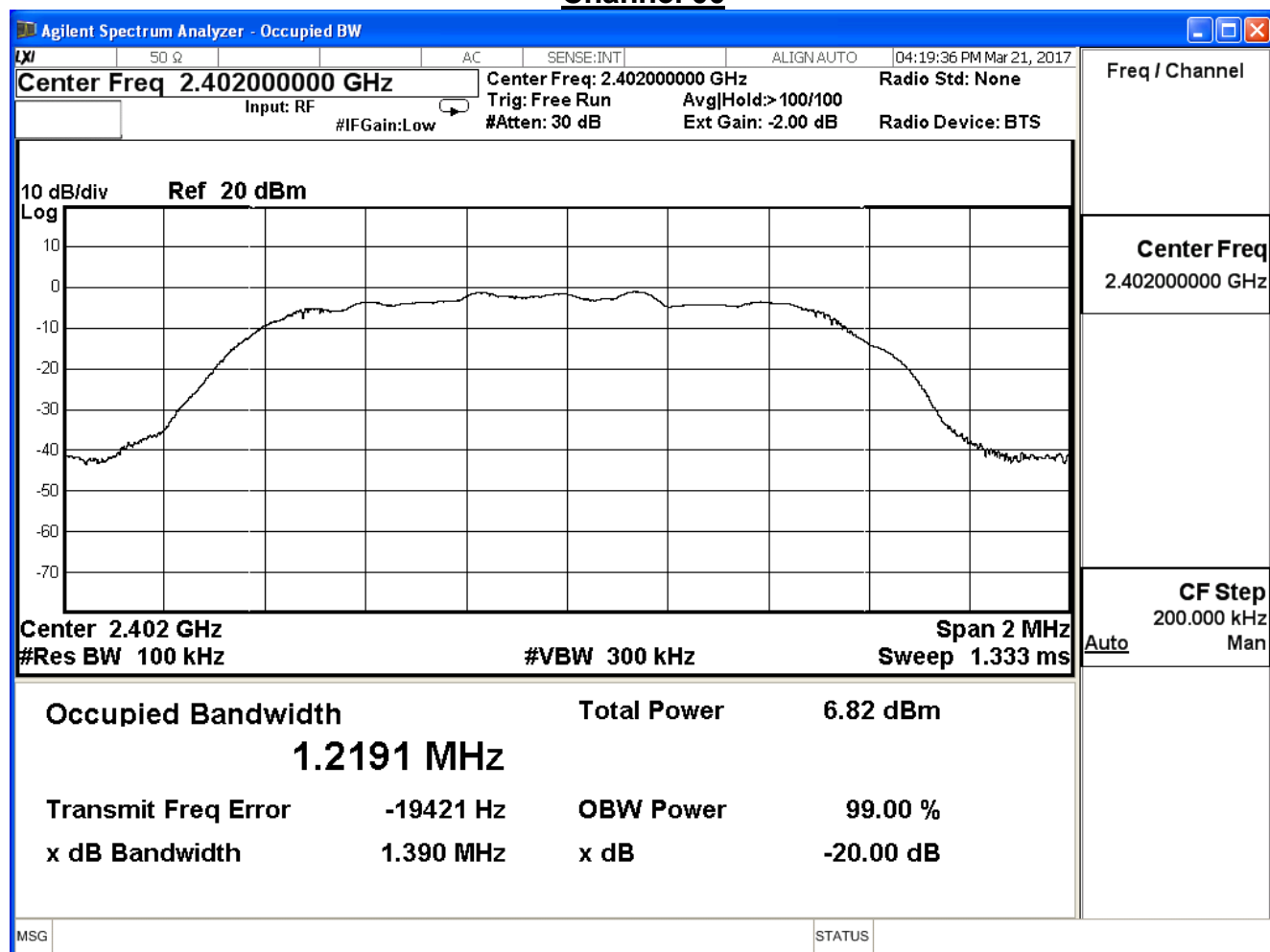
**Channel 78**

Product	UHD651-L		
Test Item	Occupied Bandwidth		
Test Mode	Mode 3: Tx_3DH5		
Date of Test	2017/03/21	Test Site	SR10-H

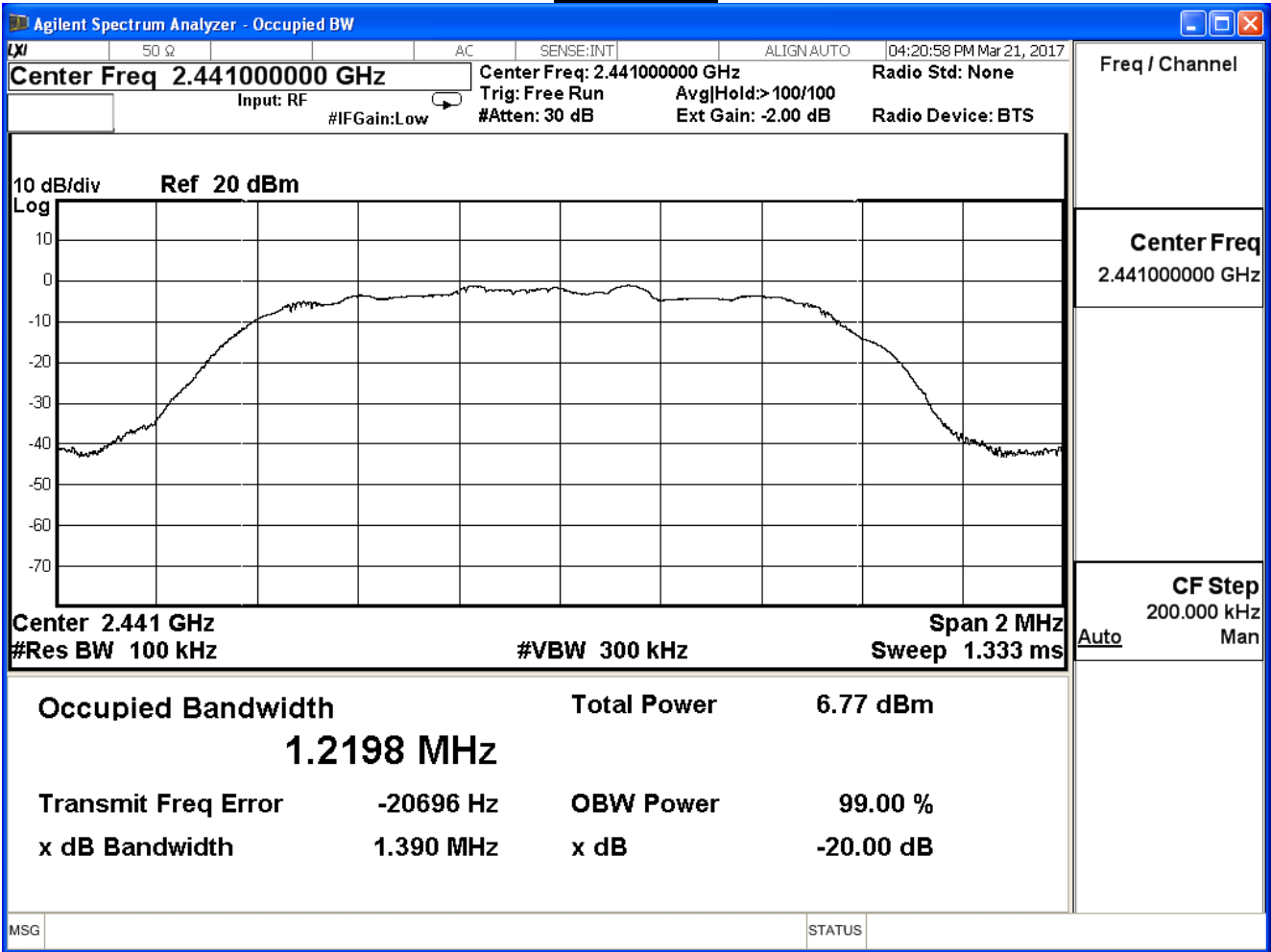
## 8-DPSK

Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
00	2402	1.390	--	Pass
39	2441	1.390	--	Pass
78	2480	1.391	--	Pass

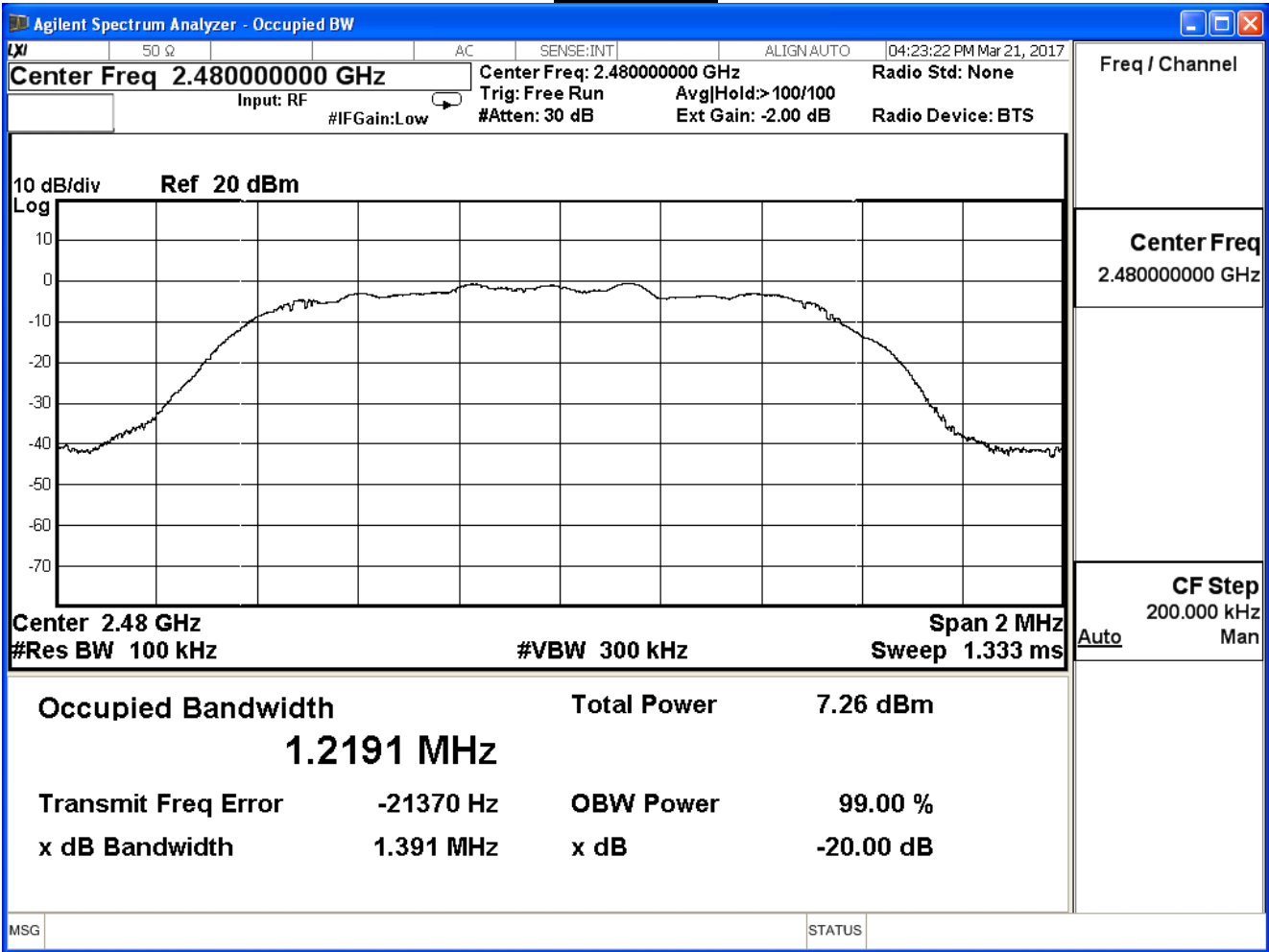
### Channel 00



Channel 39



Channel 78



## 10. Dwell Time

### 10.1. Test Equipment

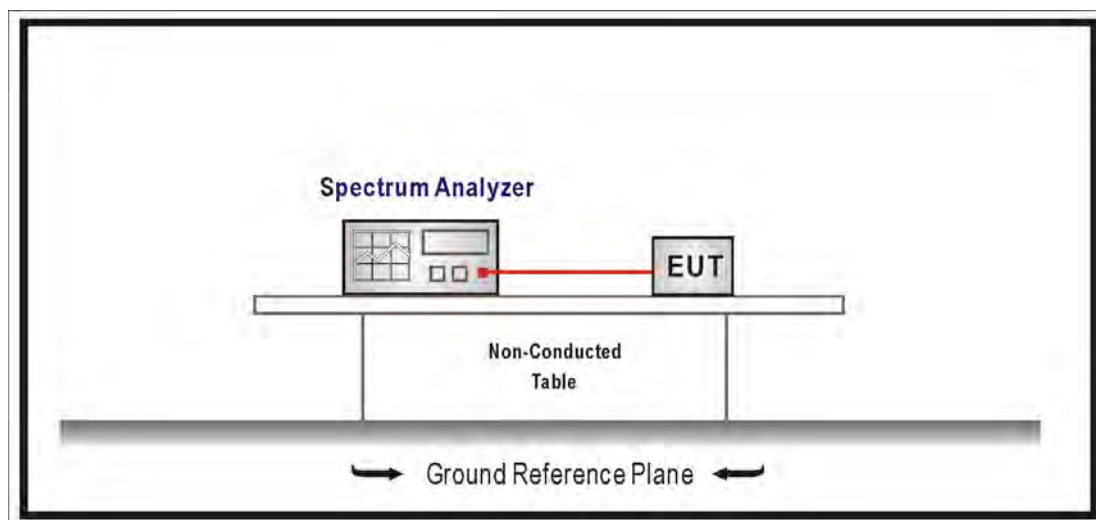
The following test equipment is used during the test:

Dwell Time / SR10-H

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A	US47140172	2017/08/08

Note: All equipments that need to calibrate are with calibration period of 1 year.

### 10.2. Test Setup



### 10.3. 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.

#### **10.4. Test Procedures**

The EUT was setup according to ANSI C63.10: 2013 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 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.

#### **10.5. Test Specification**

According to FCC Part 15 Subpart C Paragraph 15.247: 2015

## 10.6. Test Result

Product	UHD651-L		
Test Item	Dwell Time		
Test Mode	Mode 1: Tx_DH5		
Date of Test	2017/03/21	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 : 2.886 ms = 0.002886 sec

Dwell Time : 0.002886  $\times (266.67/79) \times 31.60 =$  0.3078 sec °

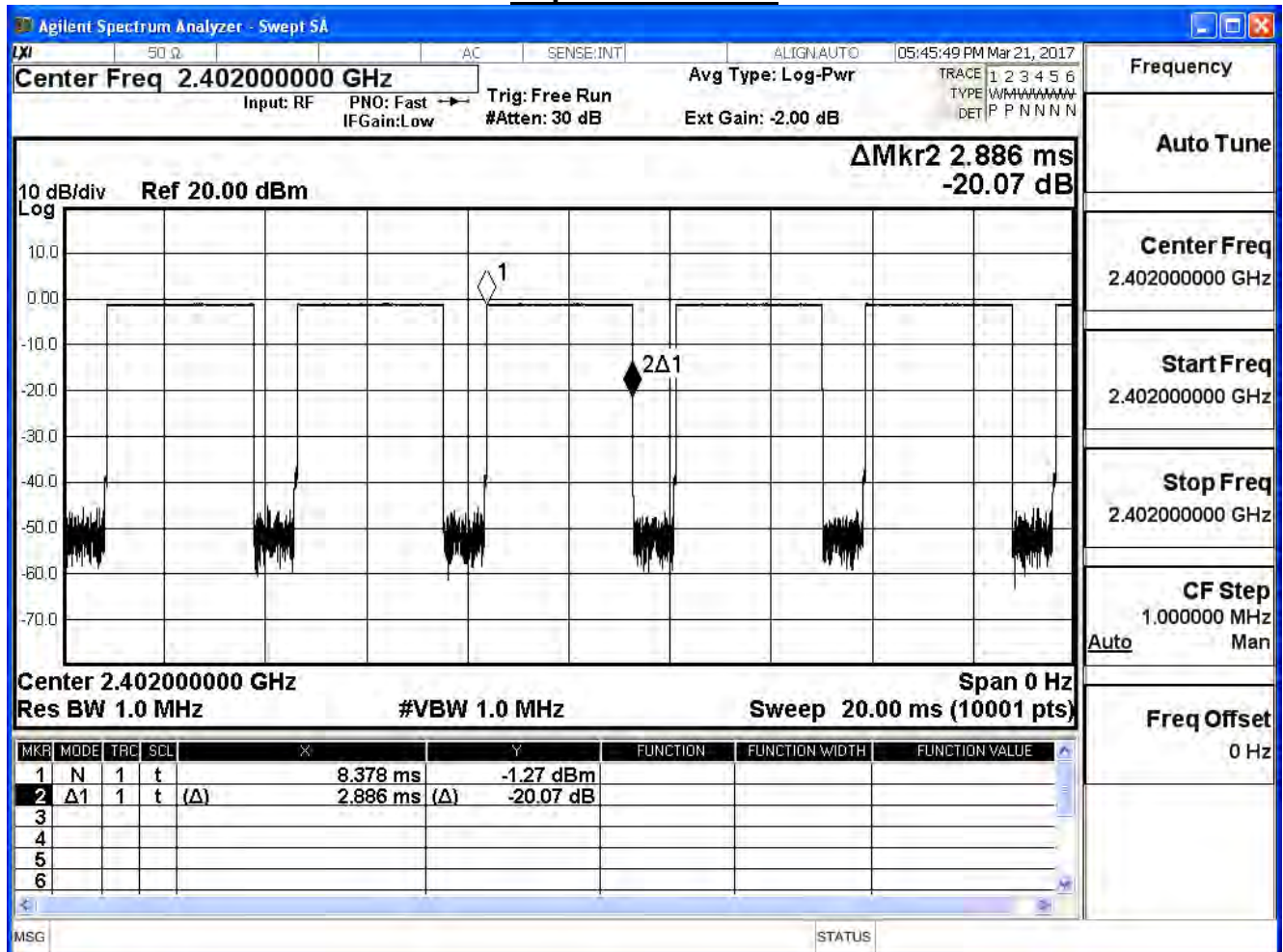
B) 2441MHz Test Time Period:  $0.4 \times 79 = 31.60\text{sec}$  , Time slot length : 2.888 ms = 0.002888 sec

Dwell Time : 0.002888  $\times (266.67/79) \times 31.60 =$  0.3081 sec °

C) 2480MHz Test Time Period:  $0.4 \times 79 = 31.60\text{sec}$  , Time slot length : 2.888 ms = 0.002888 sec

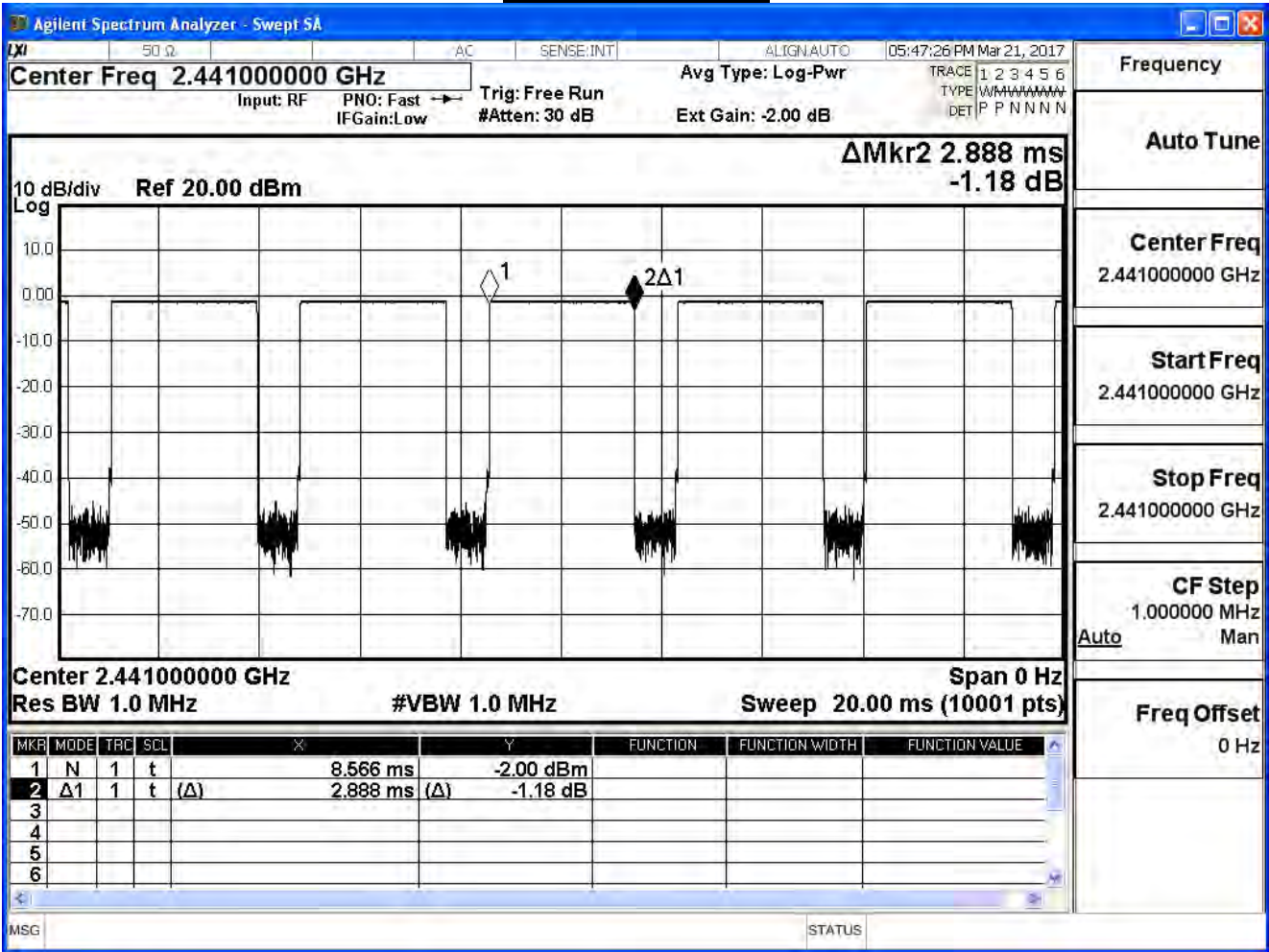
Dwell Time : 0.002888  $\times (266.67/79) \times 31.60 =$  0.3081 sec °

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

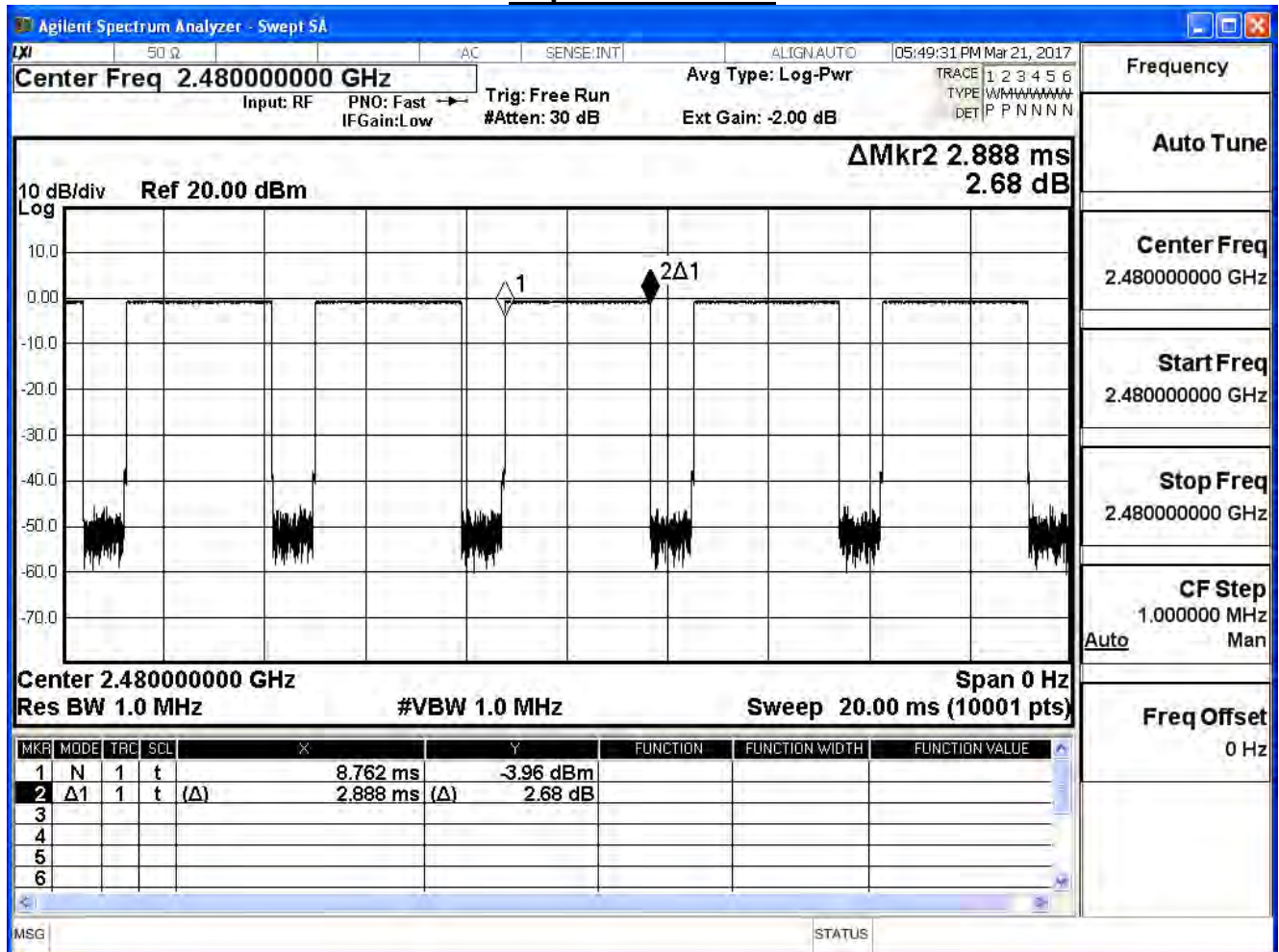
**Hop rate-2402MHz**



Hop rate-2441MHz



## Hop rate-2480MHz



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

Product	UHD651-L		
Test Item	Dwell Time		
Test Mode	Mode 2: Tx_2DH5		
Date of Test	2017/03/21	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 : 2.892 ms = 0.002892 sec

Dwell Time : 0.002892 \* (266.67/79) \* 31.60 = 0.3085 sec °

B) 2441MHz Test Time Period:  $0.4 \times 79 = 31.60\text{sec}$  , Time slot length : 2.890 ms = 0.002890 sec

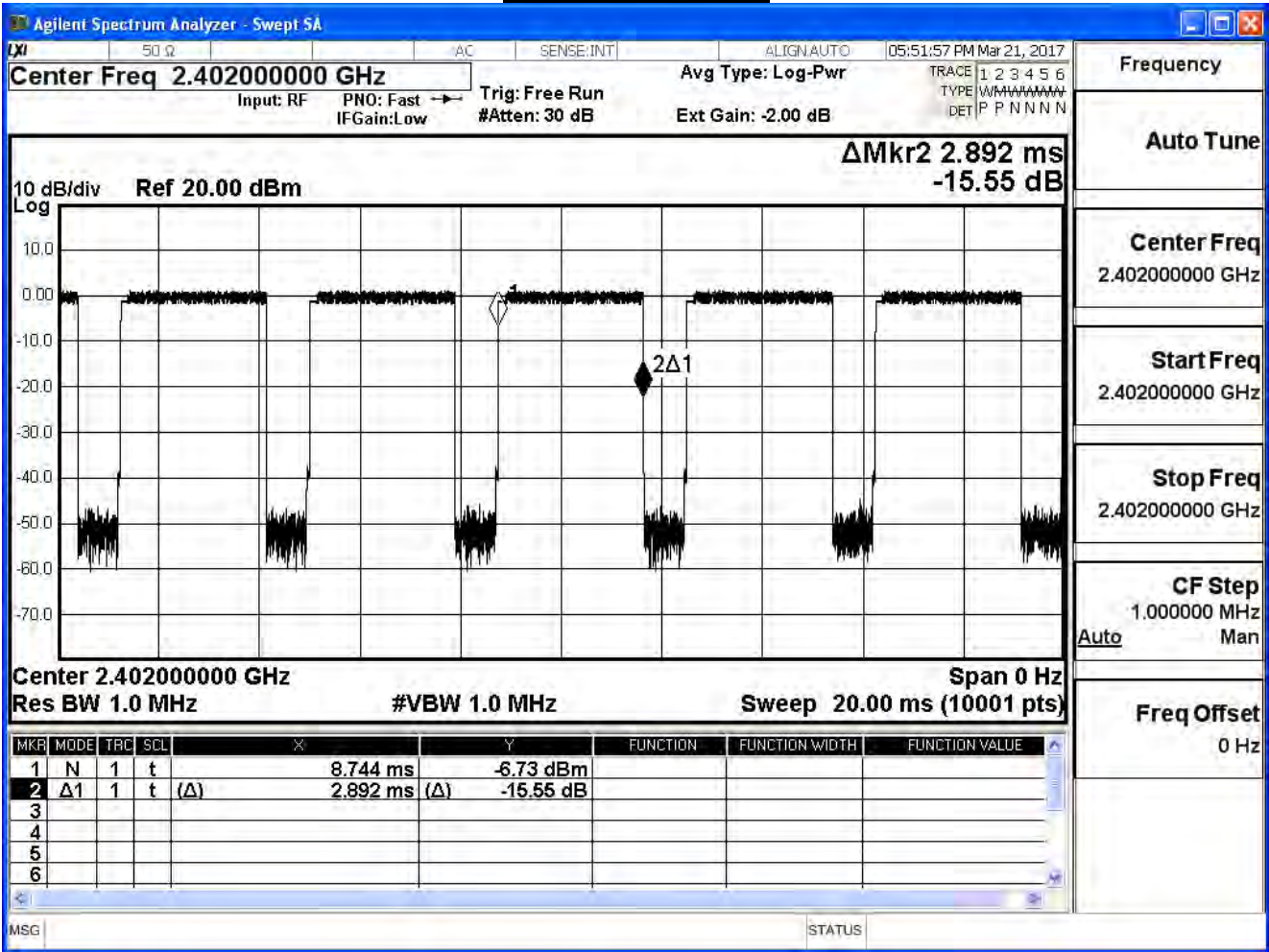
Dwell Time : 0.002890 \* (266.67/79) \* 31.60 = 0.3083 sec °

C) 2480MHz Test Time Period:  $0.4 \times 79 = 31.60\text{sec}$  , Time slot length : 2.890 ms = 0.002890 sec

Dwell Time : 0.002890 \* (266.67/79) \* 31.60 = 0.3083 sec °

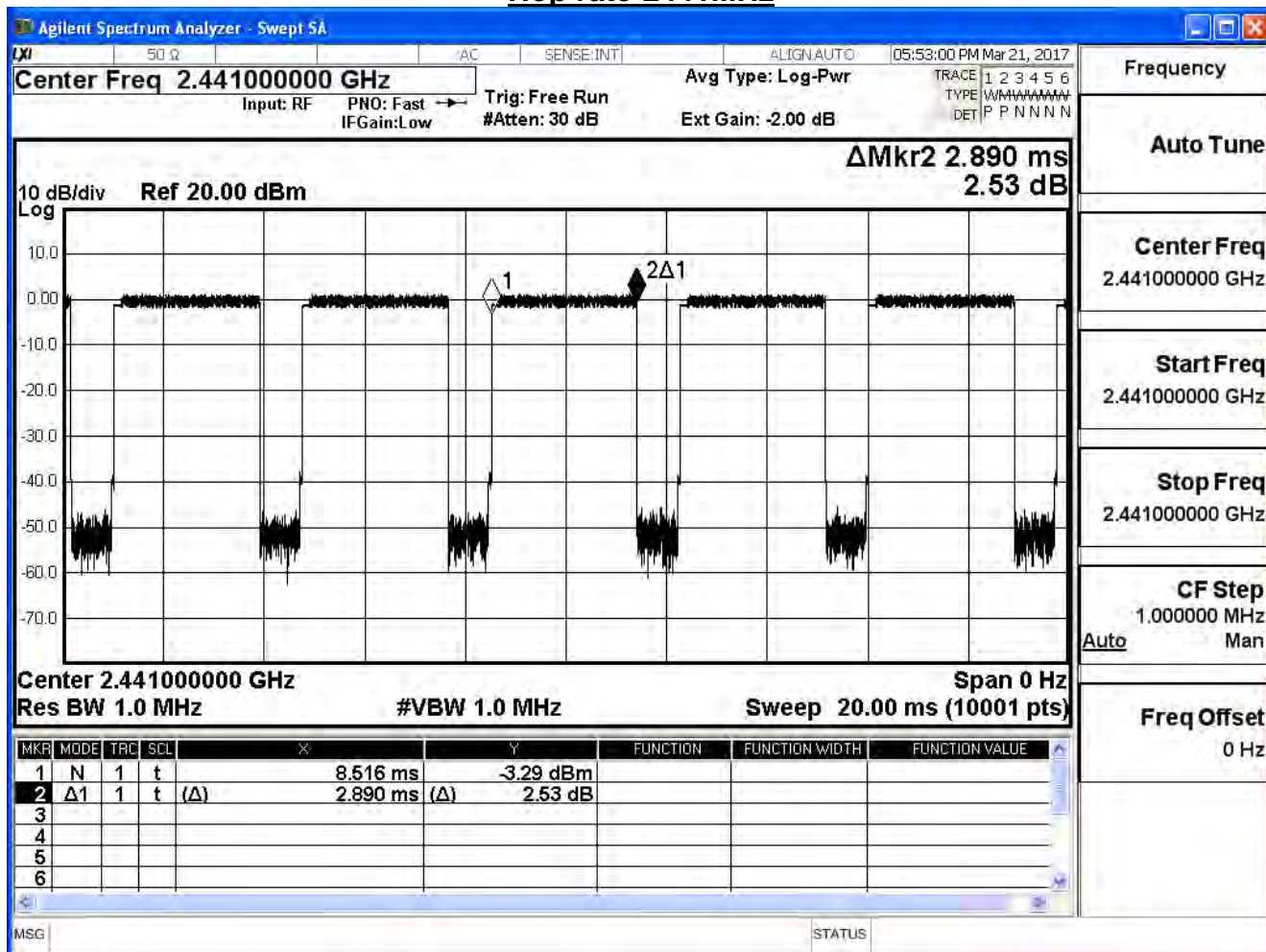
Test Result: The Average Occupancy Time of Each Highest , Middle and Lowest Channel Is Less Than 0.4sec , And Corresponds to The Standard °

Hop rate-2402MHz

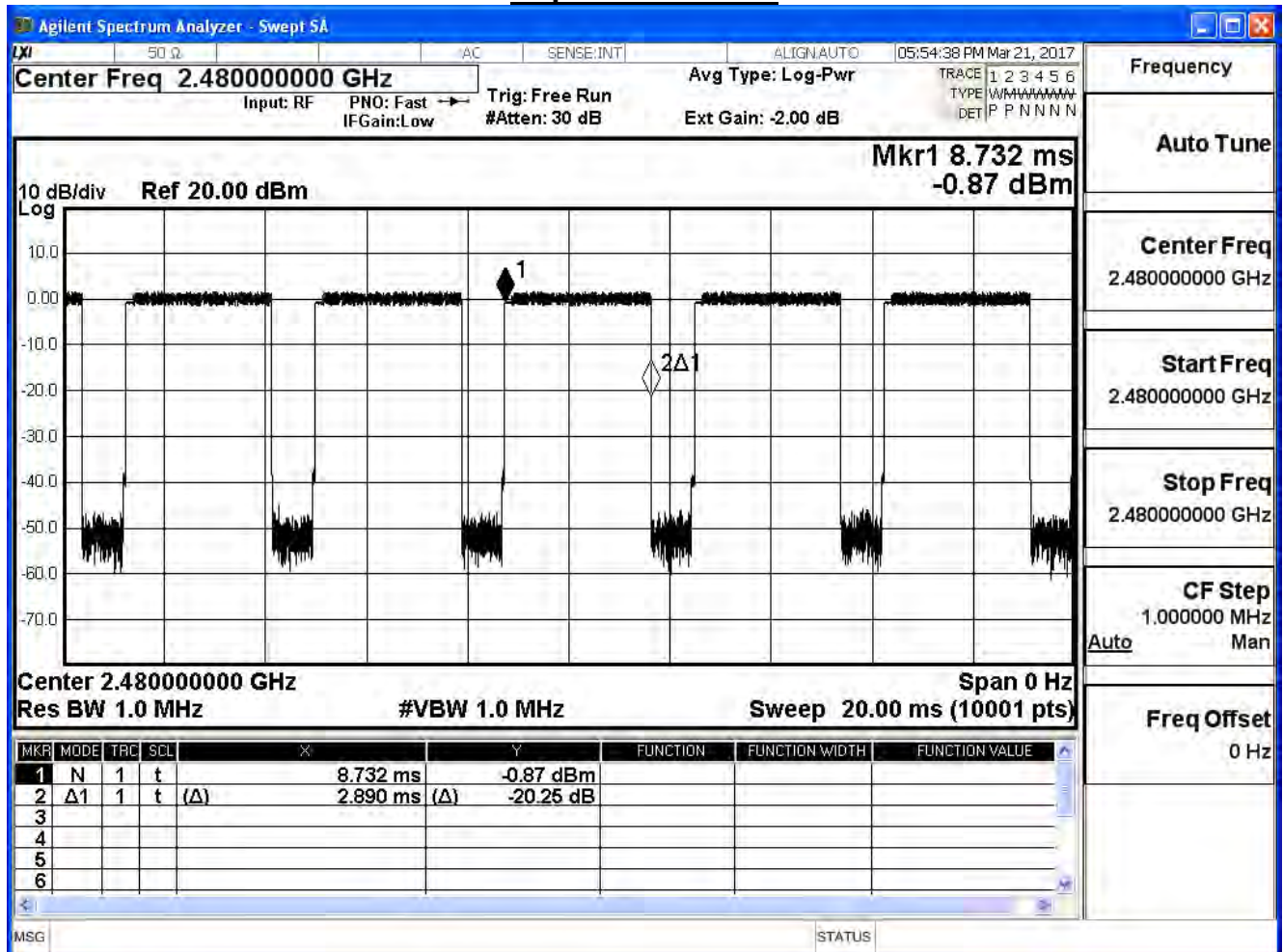




### Hop rate-2441MHz



## Hop rate-2480MHz



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

Product	UHD651-L		
Test Item	Dwell Time		
Test Mode	Mode 3: Tx_3DH5		
Date of Test	2017/03/21	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 : 2.894ms = 0.002894 sec

Dwell Time :  $0.002894 \times (266.67/79) \times 31.60 = 0.3087$  sec °

B) 2441MHz Test Time Period:  $0.4 \times 79 = 31.60\text{sec}$  , Time slot length : 2.894 ms = 0.002894 sec

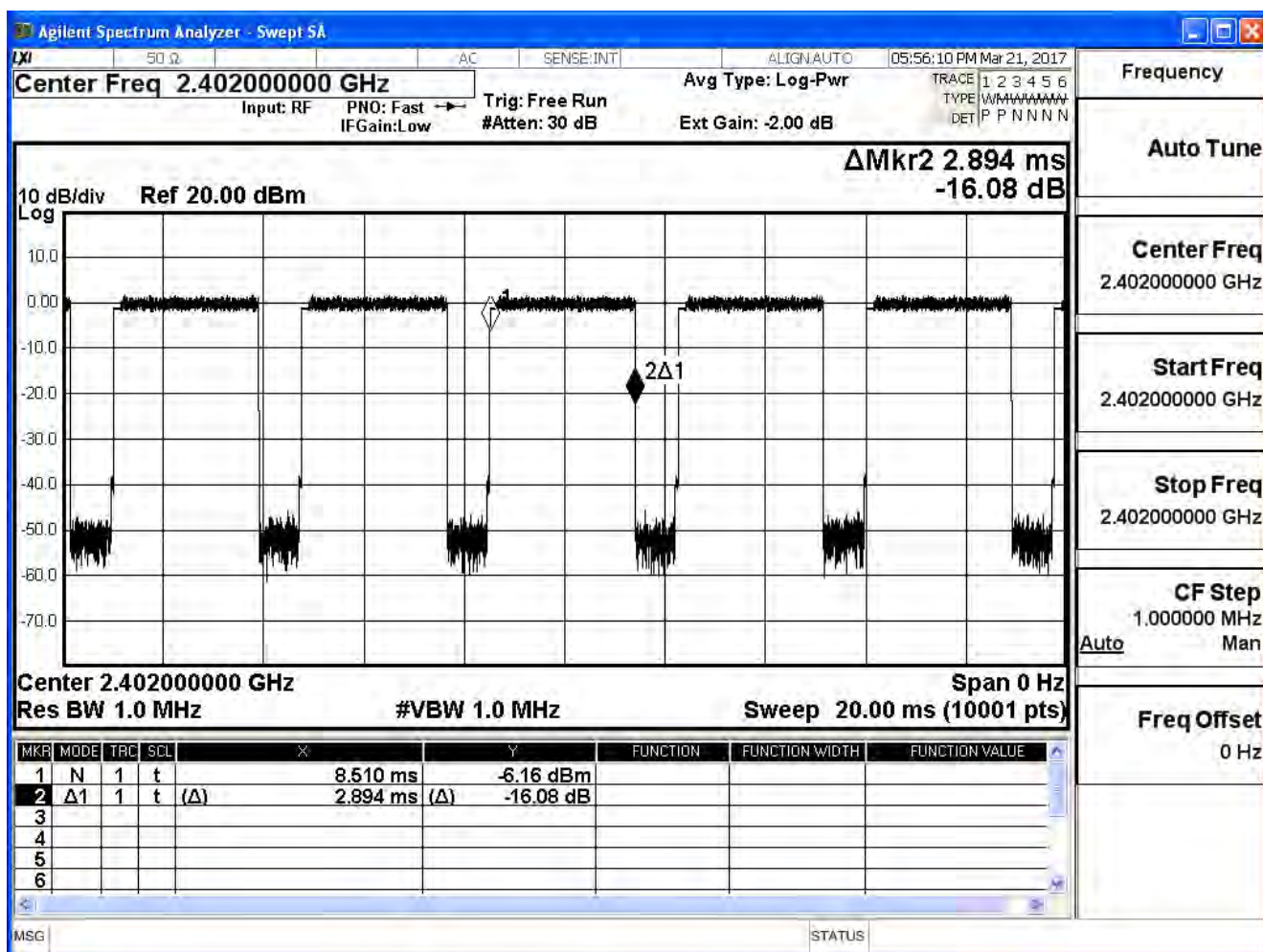
Dwell Time :  $0.002894 \times (266.67/79) \times 31.60 = 0.3087$  sec °

C) 2480MHz Test Time Period:  $0.4 \times 79 = 31.60\text{sec}$  , Time slot length : 2.894 ms = 0.002894 sec

Dwell Time :  $0.002894 \times (266.67/79) \times 31.60 = 0.3087$  sec °

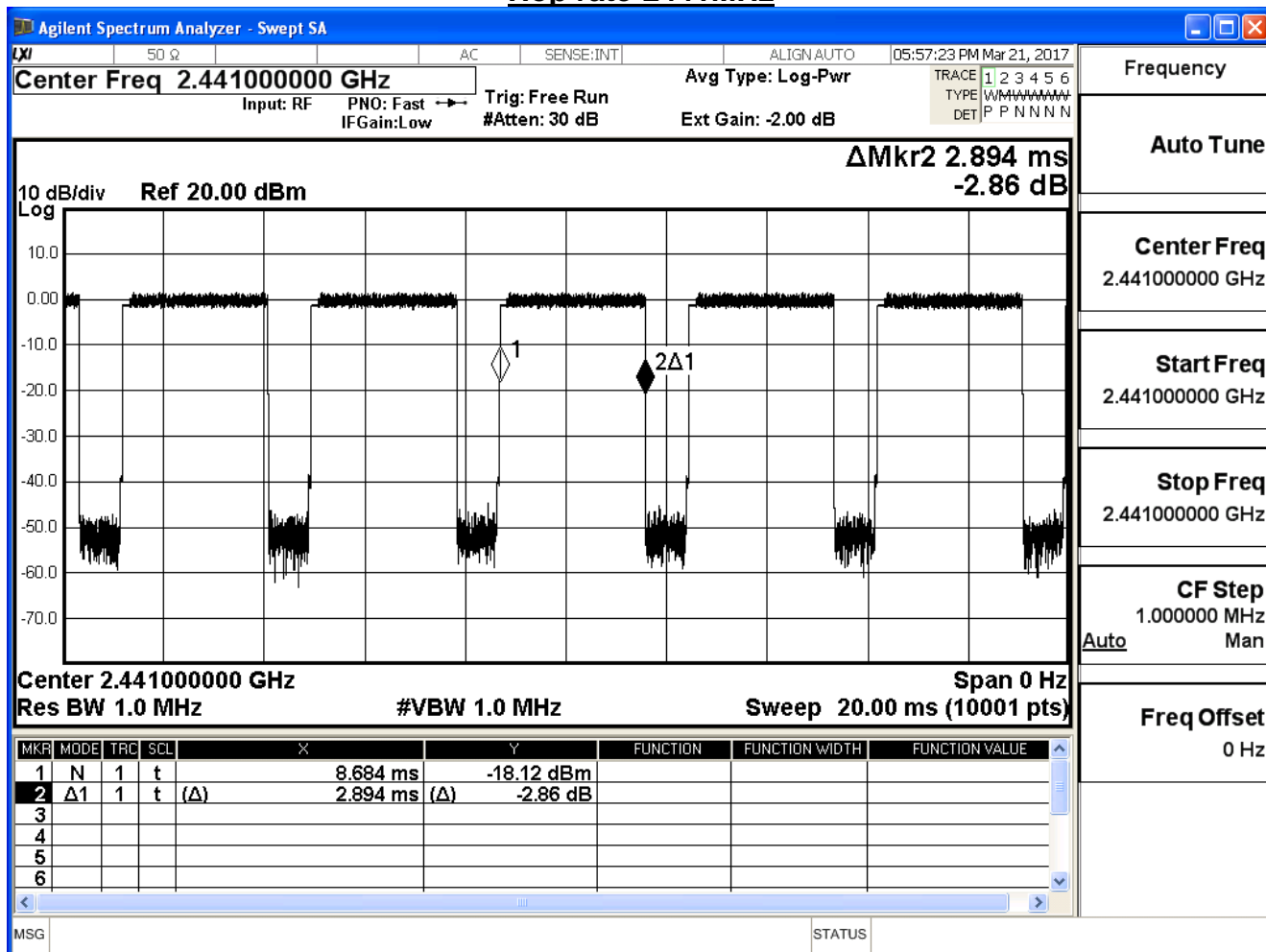
Test Result: The Average Occupancy Time of Each Highest , Middle and Lowest Channel Is Less Than 0.4sec , And Corresponds to The Standard °

### Hop rate-2402MHz

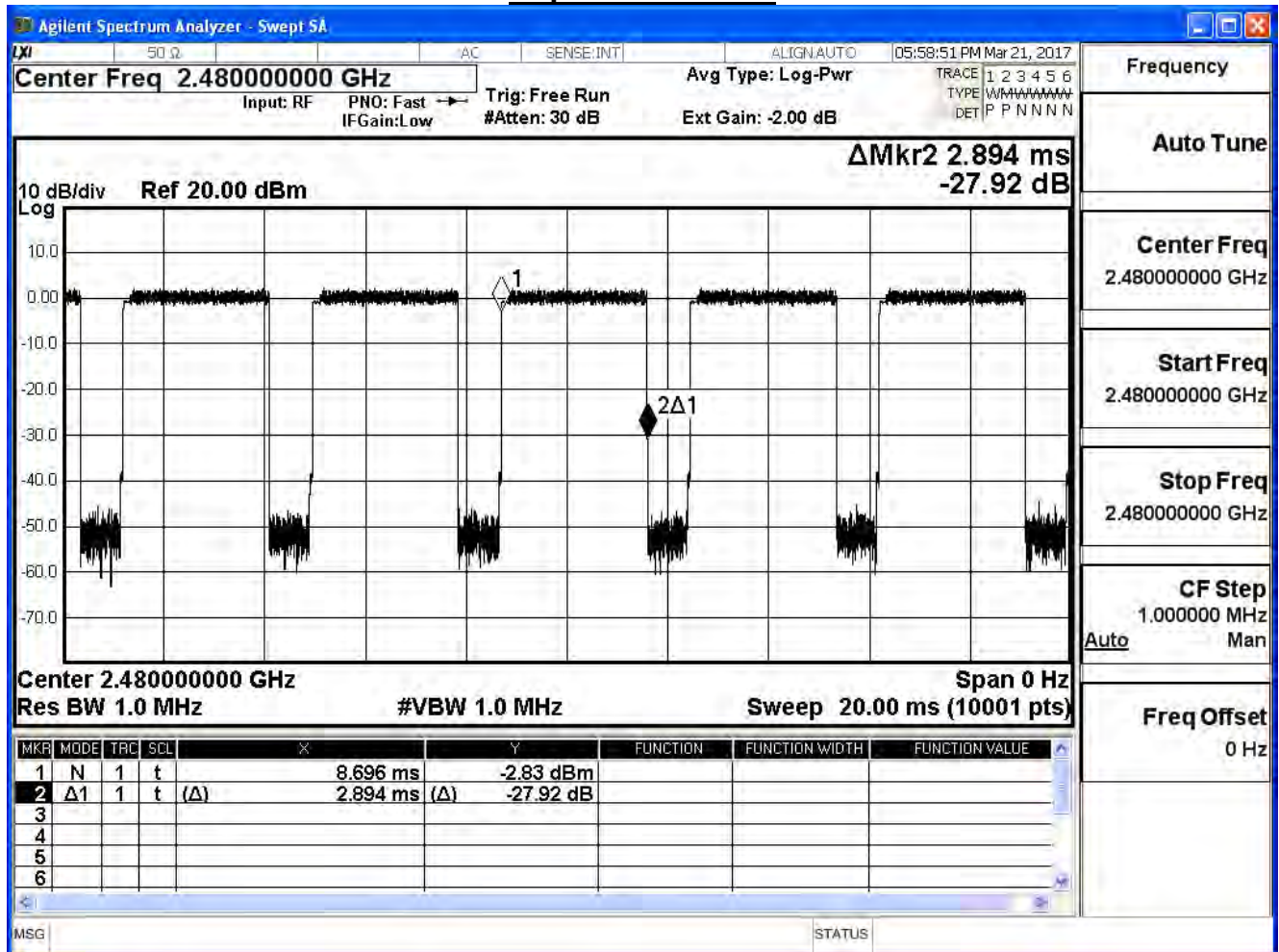




## Hop rate-2441MHz



## Hop rate-2480MHz



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

## Attachment 1

### ➤ Test Setup Photograph

#### <Conducted Emission>

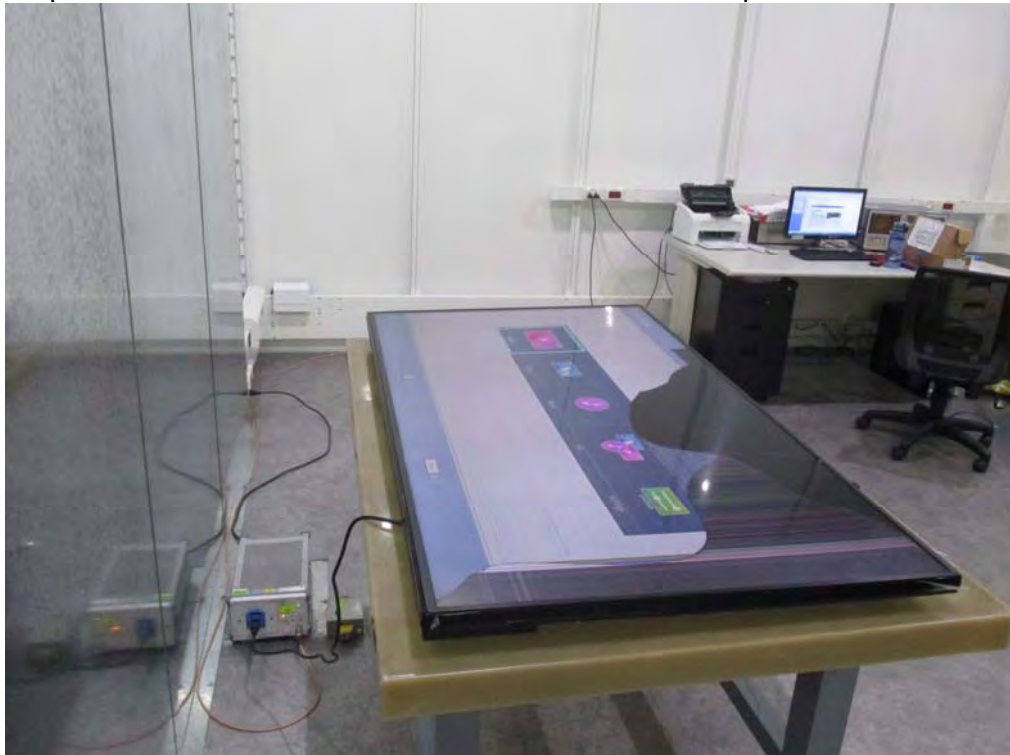
Test Mode : Mode 3: Tx\_3DH5

Description : Front View of Conducted Emission Test Setup



Test Mode : Mode 3: Tx\_3DH5

Description : Back View of Conducted Emission Test Setup





**<Radiated Emission>**

Test Mode : Mode 1: Tx\_DH5

Description : Front View of Radiated Emission Test Setup (Bi-Log)



Test Mode : Mode 1: Tx\_DH5

Description : Back View of Radiated Emission Test Setup (Bi-Log)



Test Mode : Mode 2: Tx\_2DH5

Description : Front View of Radiated Emission Test Setup (Bi-Log)



Test Mode : Mode 2: Tx\_2DH5

Description : Back View of Radiated Emission Test Setup (Bi-Log)





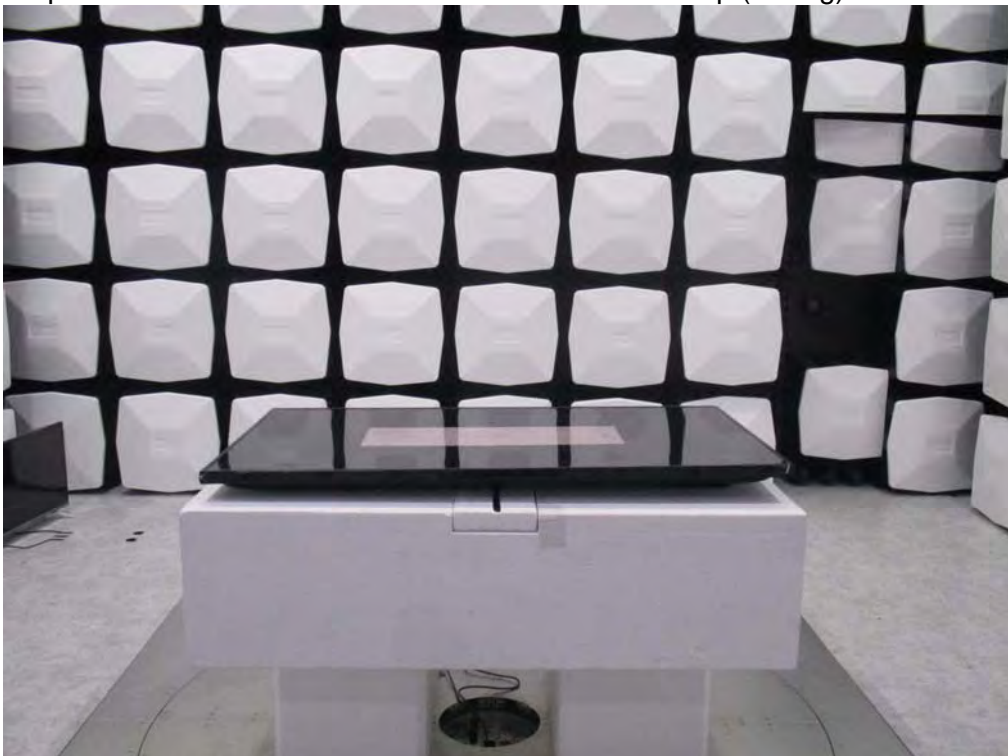
Test Mode : Mode 3: Tx\_3DH5

Description : Front View of Radiated Emission Test Setup (Bi-Log)



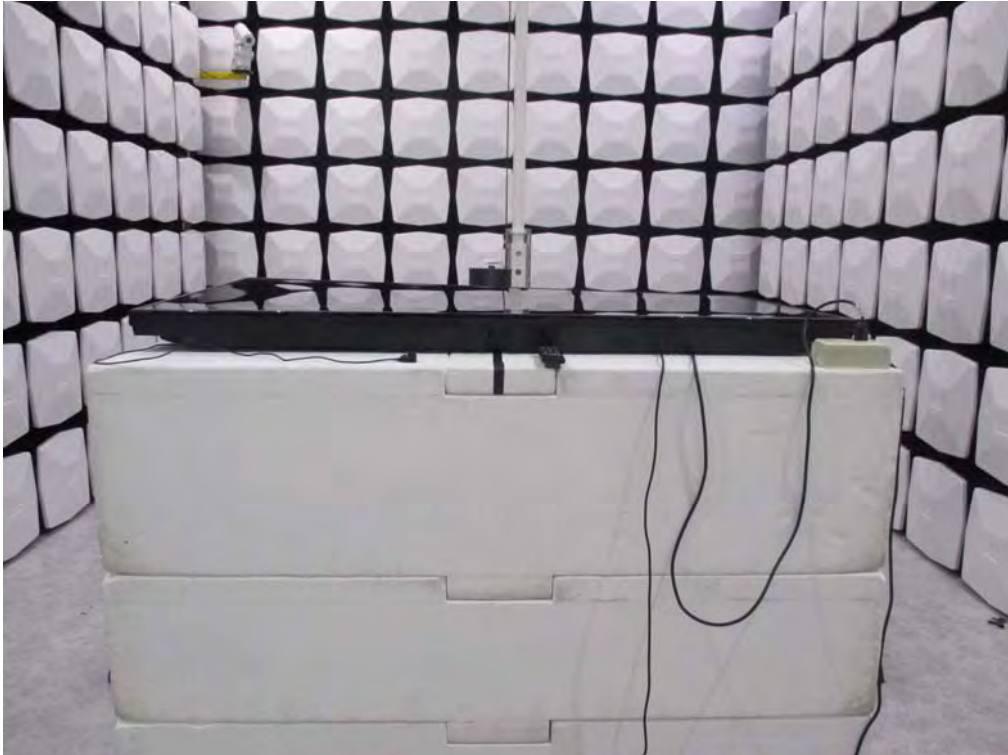
Test Mode : Mode 3: Tx\_3DH5

Description : Back View of Radiated Emission Test Setup (Bi-Log)



Test Mode : Mode 1: Tx\_DH5

Description : Front View of Radiated Emission Test Setup (Horn)



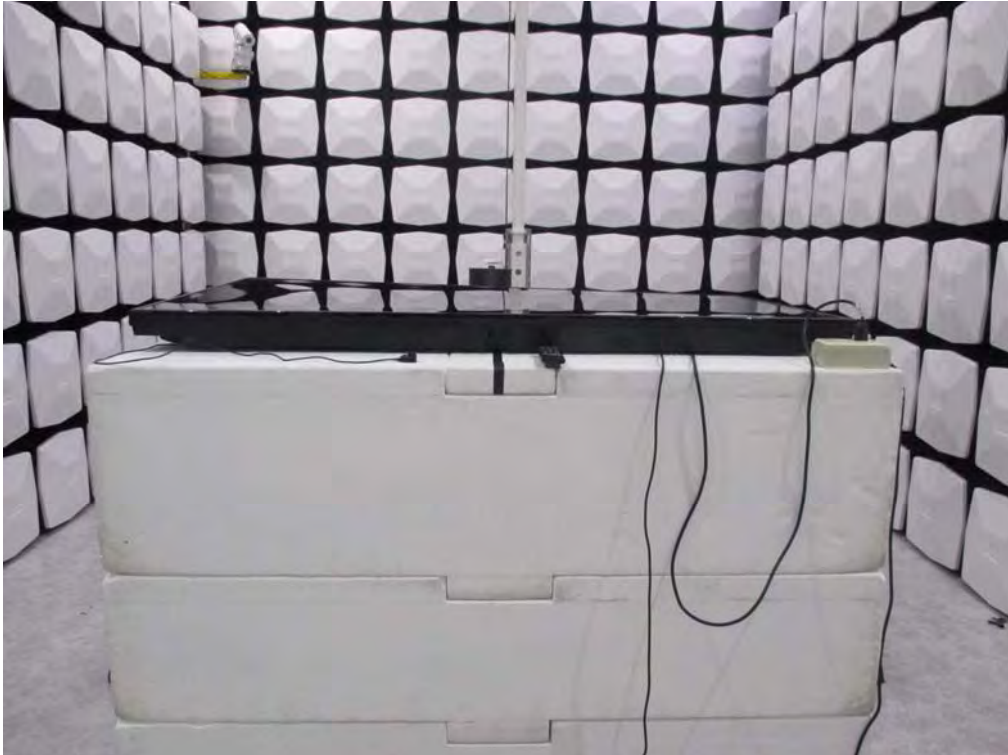
Test Mode : Mode 1: Tx\_DH5

Description : Back View of Radiated Emission Test Setup (Horn)



Test Mode : Mode 2: Tx\_2DH5

Description : Front View of Radiated Emission Test Setup (Horn)



Test Mode : Mode 2: Tx\_2DH5

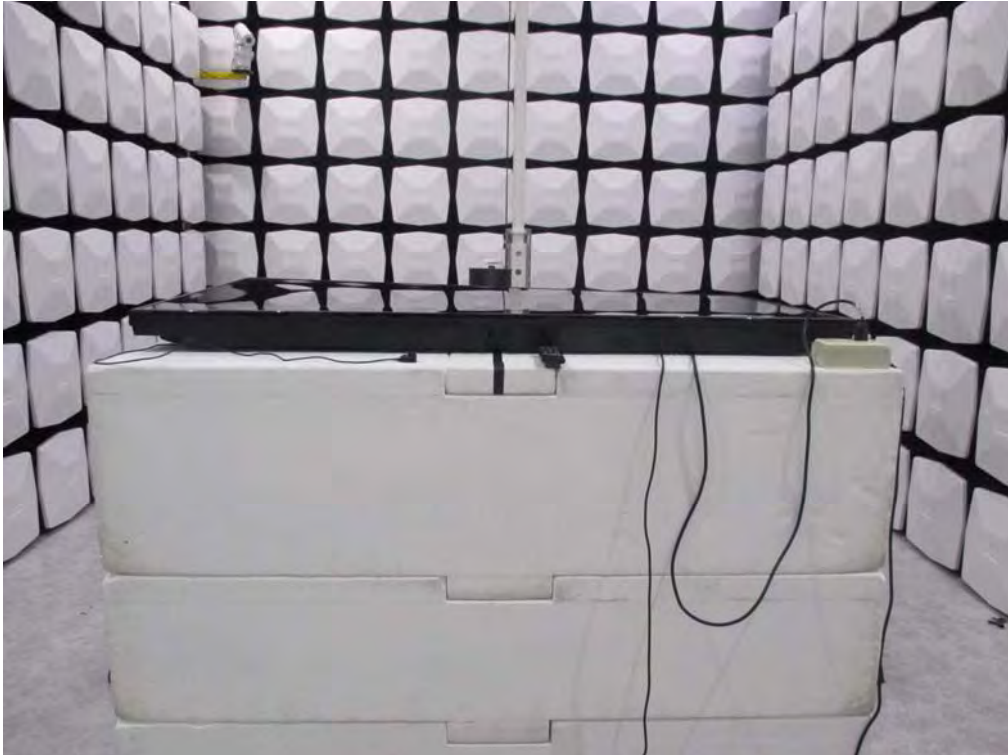
Description : Back View of Radiated Emission Test Setup (Horn)





Test Mode : Mode 3: Tx\_3DH5

Description : Front View of Radiated Emission Test Setup (Horn)



Test Mode : Mode 3: Tx\_3DH5

Description : Back View of Radiated Emission Test Setup (Horn)



## Attachment 2

### ➤ EUT External Photograph

(1) EUT Photo



(2) EUT Photo



(3) EUT Photo



(4) EUT Photo

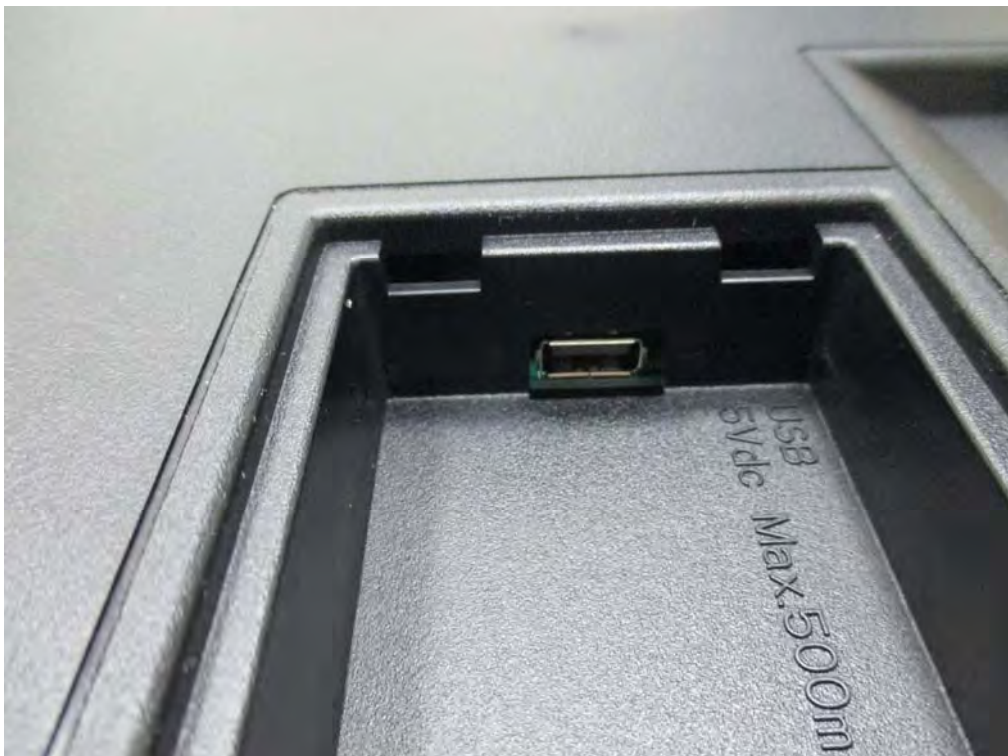




(5) EUT Photo



(6) EUT Photo



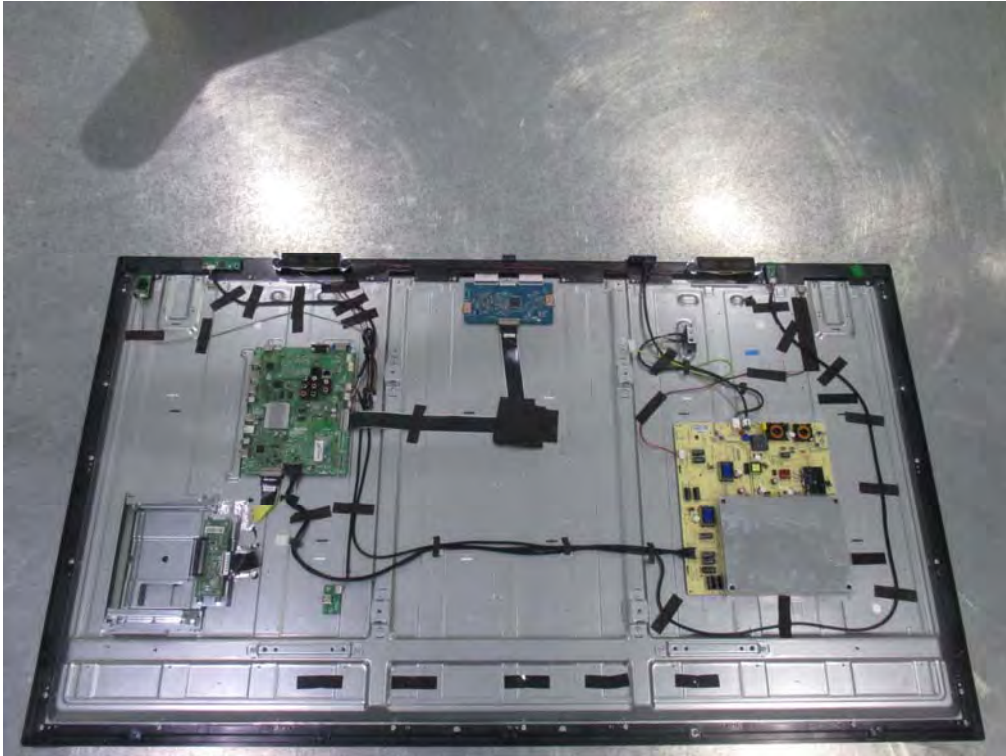
(7) EUT Photo



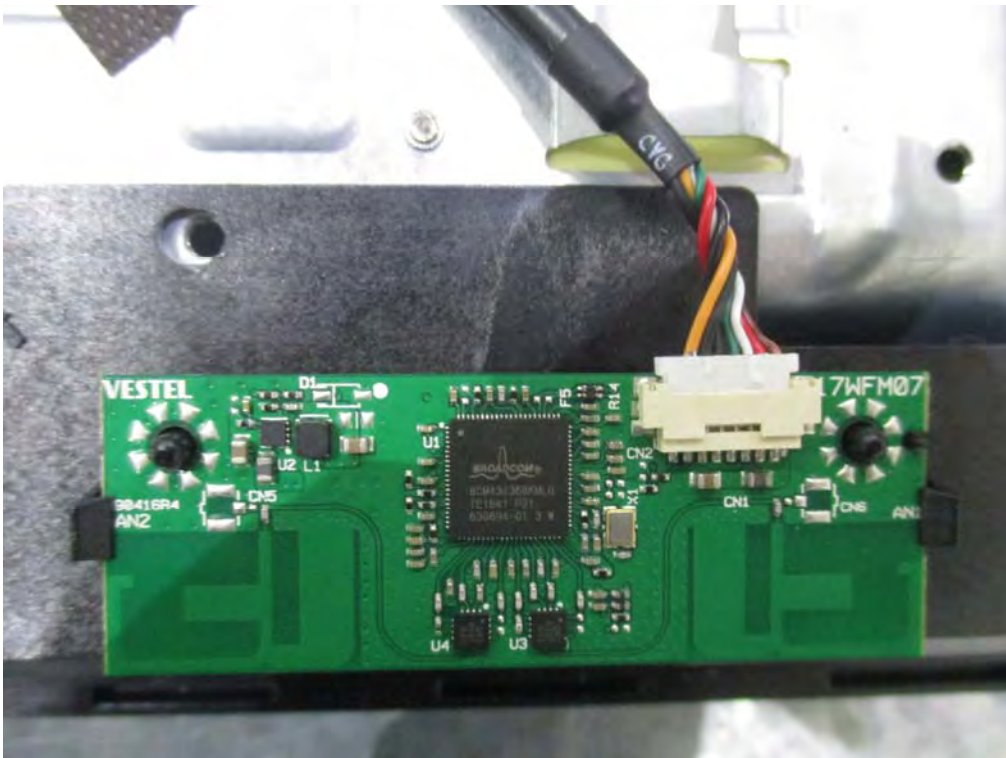
### Attachment 3

#### ➤ EUT Internal Photograph

##### (1) EUT Photo

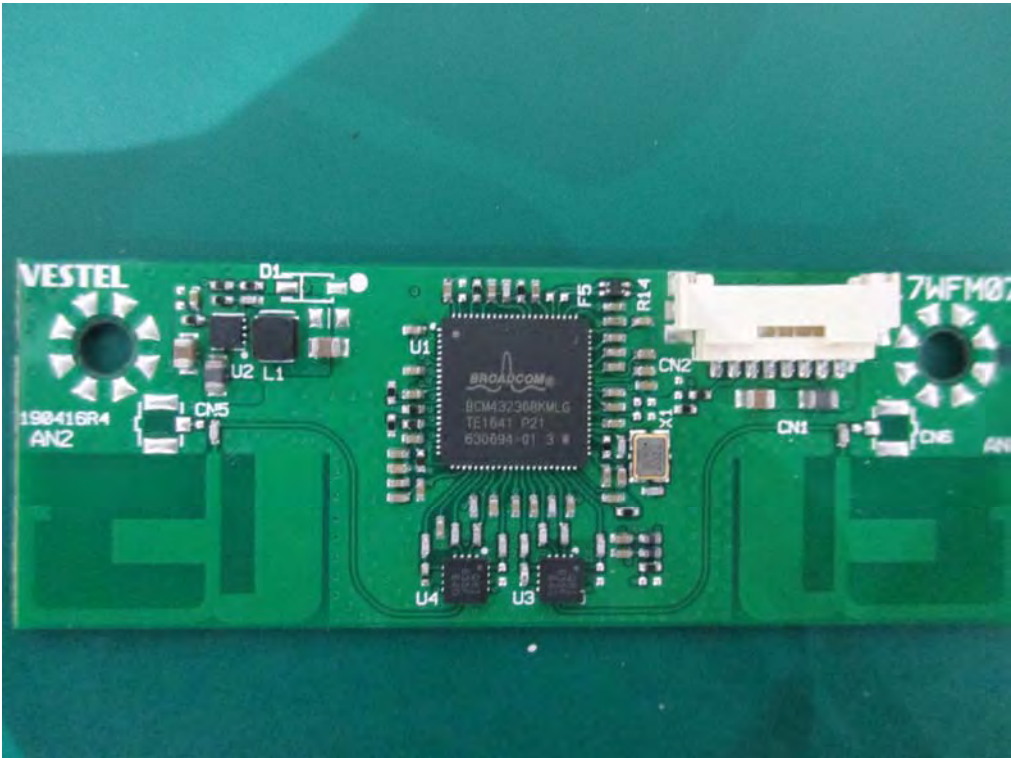


##### (2) EUT Photo (WiFi)





(3) EUT Photo



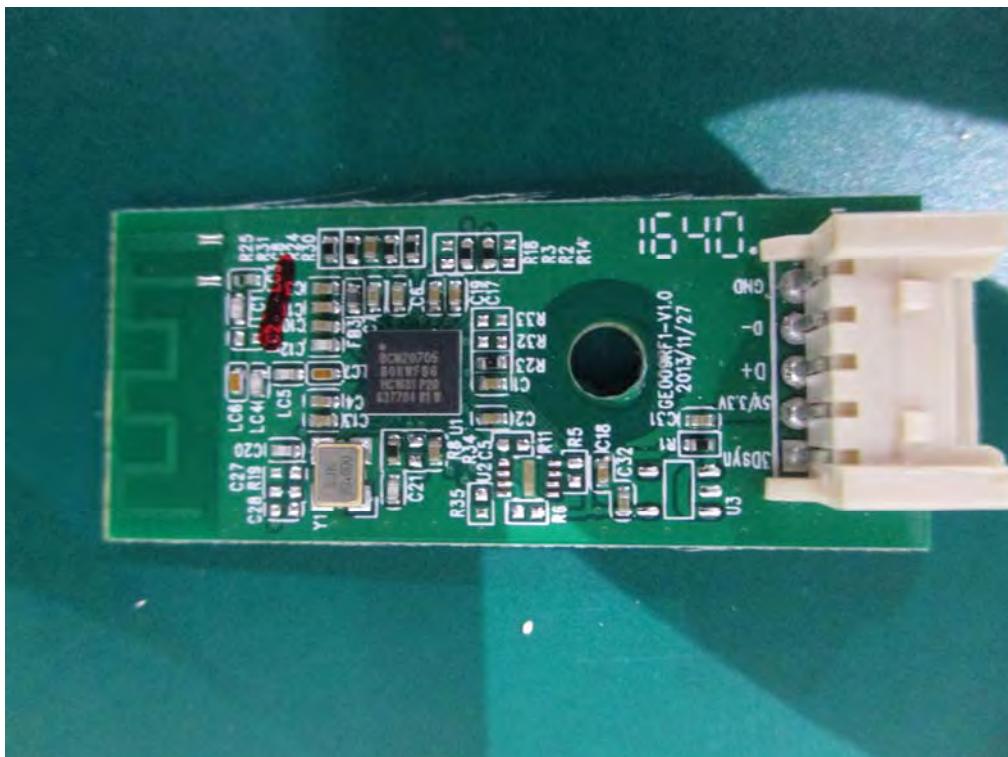
(4) EUT Photo



(5) EUT Photo (BT)



(6) EUT Photo

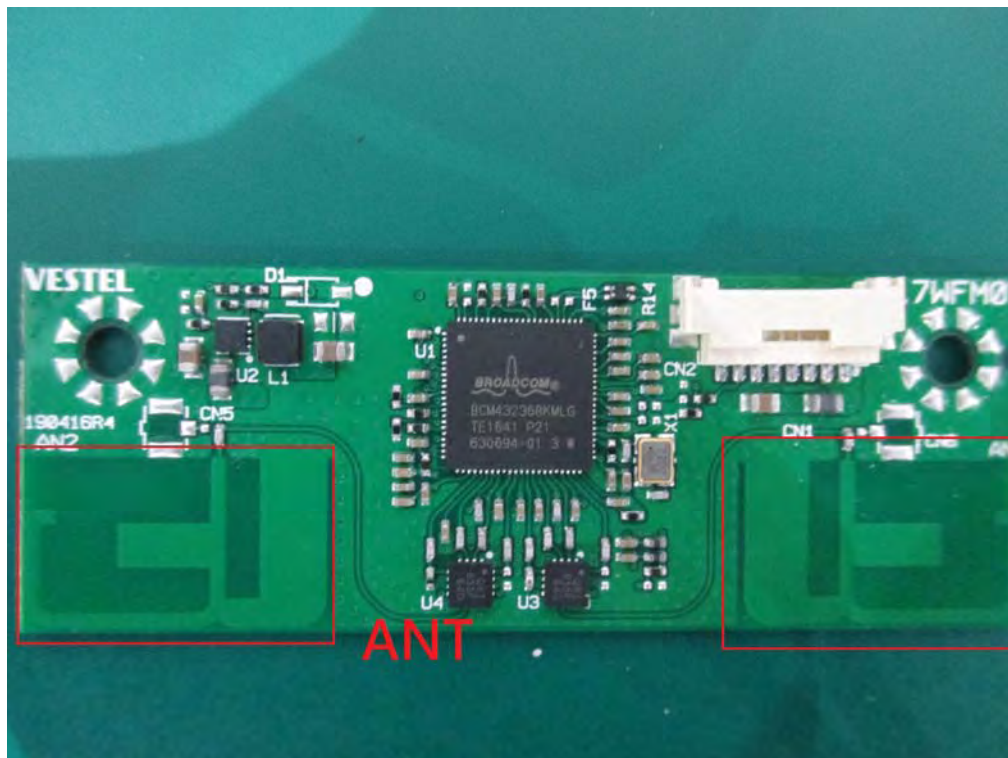




(7) EUT Photo



(8) EUT Photo (WLAN)(Antenna Location)



(9) EUT Photo (BT)(Antenna Location)

