

# *FCC COMPLIANCE TEST REPORT*

Technical Statement of Conformity  
in accordance with 47 CFR Part 15 Subpart C

## The product

<b>Equipment Under Test</b>	: Bluetooth Muff
<b>Model Number</b>	: BTH-700
<b>Product Series</b>	: BTH-800
<b>Report Number</b>	: HA190462-RA
<b>Issue Date</b>	: 14-June-2019
<b>Test Result</b>	: Compliance

is produced by

Mobility Sound Technology LTD.

5F, No.100, Jian 1<sup>st</sup> Road, ZhongHe Dist., New Taipei City #23585, Taiwan



**HongAn TECHNOLOGY CO., LTD.**

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SL2-IS-E-0023, SL2-R1-E-0023,  
SL2-R2-E-0023, SL2-L1-E-0023

**FCC Designation No.:** TW1071, TW1163

**TAF Accreditation No.:** 1163

**VCCI Registration No.:** R-2156, C-2329, T-219

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# Test Result Certification

**Applicant** : Mobility Sound Technology LTD.

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**Address of Applicant** : 5F, No.100, Jian 1<sup>st</sup> Road, ZhongHe Dist., New Taipei City  
#23585, Taiwan

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**Manufacturer** : Mobility Sound Technology LTD.

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**Address of Manufacturer** : 5F, No.100, Jian 1<sup>st</sup> Road, ZhongHe Dist., New Taipei City  
#23585, Taiwan

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**Trade Name** : MobilitySound

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**Equipment Under Test** : Bluetooth Muff

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**Model Number** : BTH-700

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**Product Series** : BTH-800

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**FCC ID** : XTS-BTH-78

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**Filing Type** : Certification

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**Sample Received Date** : 13-May-2019

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**Test Standard** :

FCC Part 15 Subpart C §15.249

**Deviations from standard test methods & any other specifications : NONE**

**Remark:**

1. This report details the results of the test carried out on one sample.
2. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in both ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules Part 15.203, 15.207, 15.209, 15.247.
3. This report applies to the above sample only and shall not be reproduced in part without written approval of HongAn Technology Co., Ltd.
4. Test Location: HongAn Technology Co., Ltd., No.15-1 Cweishuh Keng, Cweipin Village, Linkou Dist., New Taipei City, Taiwan, R.O.C. FCC Designation No.: TW1071, TW1163.

**Tested by:** Andrew Lin 2019-05-30  
**Andrew Lin / ENG. Dept. Staff**

**Approved by:** Eason Hsieh **Date:** 2019-06-14  
**Eason Hsieh / Section Manager**

## Summary of Test Result

	<b>Test Item</b>	<b>Applicable Standard</b>	<b>Test Result</b>
1	Antenna Requirement	FCC part 15 subpart C §203	Compliance
2	Conducted Emission	FCC part 15 subpart C §207	Compliance
3	Restricted Band of Operation	FCC part 15 subpart C §205	Compliance
4	Radiated Emission	FCC part 15 subpart C §209	Compliance
5	Field Strength	FCC part 15 subpart C §249(a)	Compliance
6	Out of Band Emission	FCC part 15 subpart C §249(d)	Compliance
7	20dB Bandwidth	FCC part 15 subpart C §215(c)	Compliance

# 1 General Description

## 1.1 Description of EUT

<b>Equipment Under Test</b>	:	Bluetooth Muff							
<b>Model Number of EUT</b>	:	BTH-700							
<b>Product Series</b>	:	BTH-800							
<b>Power Supply</b>	:	Input: Charging from USB DC 5 V Output: Li-ion Battery DC 3.7 V; 330mAh							
<b>Frequency Range</b>	:	2402~2480 MHz							
<b>Number of Channels</b>	:	79 Channels							
<b>Carrier Frequency of Each Channel</b>	:	00	2402	20	2422	40	2442	60	2462
		01	2403	21	2423	41	2443	61	2463
		02	2404	22	2424	42	2444	62	2464
		03	2405	23	2425	43	2445	63	2465
		04	2406	24	2426	44	2446	64	2466
		05	2407	25	2427	45	2447	65	2467
		06	2408	26	2428	46	2448	66	2468
		07	2409	27	2429	47	2449	67	2469
		08	2410	28	2430	48	2450	68	2470
		09	2411	29	2431	49	2451	69	2471
		10	2412	30	2432	50	2452	70	2472
		11	2413	31	2433	51	2453	71	2473
		12	2414	32	2434	52	2454	72	2474
		13	2415	33	2435	53	2455	73	2475
		14	2416	34	2436	54	2456	74	2476
		15	2417	35	2437	55	2457	75	2477
		16	2418	36	2438	56	2458	76	2478
		17	2419	37	2439	57	2459	77	2479
		18	2420	38	2440	58	2460	78	2480
		19	2421	39	2441	59	2461	-	-
<b>Antenna Specification</b>	:	Chip Antenna/ Gain: 1.3 dBi							
<b>Modulation Technique</b>	:	FHSS Bluetooth : GFSK Bluetooth EDR : $\pi/4$ -DQPSK, 8-DPSK							
<b>Transmit Data Rate</b>	:	Bluetooth : 1Mbps, 2Mbps, 3Mbps							
<b>Specification</b>	:	<b>Dimensions</b> : 22 cm (L) X 13 cm (W) X 9 cm (H)							



	<p><b>Weight</b> : 350 g</p> <p><b>Intended Function</b> : The EUT is a Bluetooth Muff.</p> <p><b>Product Variance</b> : N/A.</p>
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## 1.2 Test Instruments

Instrument Name	Manufacturer Mode	Model Number	Serial Number	Last Cal. Date	Next Cal. Date
Spectrum Analyzer	R&S	FSV 30	101629	25-Dec-2018	24-Dec-2019
ESCI7 EMI Test Receiver	R&S	ESCI7	100931	09-Aug-2018	08-Aug-2019
Pre-Amplifier	Schaffner	CPA9231A	0405	24-Dec-2018	23-Dec-2019
Pre-Amplifier	Com-Power	PAM-118A	443027	27-Dec-2018	26-Dec-2019
Microwave Preamplifier	Com-Power	PAM-840	461269	17-May-2019	16-May-2020
Bilog Antenna	TESEQ	CBL6111D	25769	29-Jan-2019	28-Jan-2020
Horn Antenna	EMCO	3115	9912-5992	15-May-2019	14-May-2020
Horn Antenna	Com-Power	AH-840	101042	21-May-2019	20-May-2020
Four-Phase-V- Network	Rolf Heine Hochfrequenz- technik	NNB-4/32T	00001	10-Mar-2019	09-Mar-2020
LISN	EMCO	3810/2NM	9702-1819	09-Jul-2018	08-Jul-2019
Active Loop Antenna	EMCO	6502	9202-2717	21-Aug-2018	20-Aug-2019
Coaxial Cable	n/a	8D-FB	HA2-10MSI TE-01	24-Aug-2018	23-Aug-2019
Microflex Cable	HUBER SUHNER	SUCOFLEX 102	MY3368/2	17-May-2019	16-May-2020
Microflex Cable	HUBER SUHNER	SUCOFLEX 102	MY3367/2	17-May-2019	16-May-2020
Coaxial Cable	n/a	RG 223/U	HA2-CE-01	24-Aug-2018	23-Aug-2019

※ The test equipments used are calibrated and can be traced to National ITRI and International Standards.



### 1.3 Auxiliary Equipments

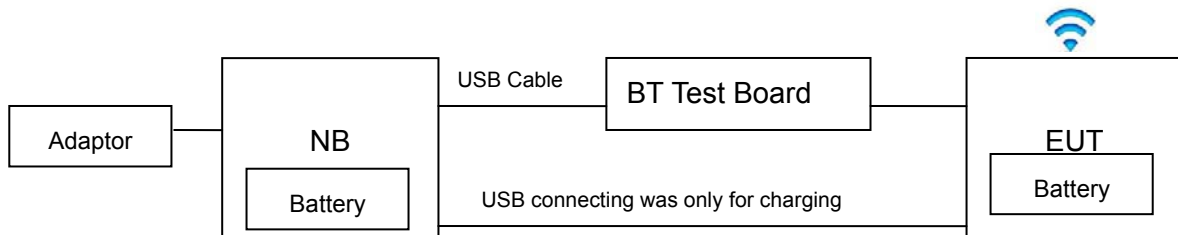
1.3.1. Provided by HongAn Technology Co., Ltd. for Test.

No.	Equipment	Model No.	Serial No.	EMC Approved	Brand	Power Cord
01	NoteBook	N61J	N61JV-021A520M	CE,FCC, C-TICK N13219, BSMI R31018	ASUS	N/A
02	USB Cable	N/A	N/A	N/A	N/A	Shielded; Detachable, 1m w/o core
03	USB Cable	N/A	N/A	N/A	N/A	Non-Shielded; Detachable, 0.2m w/o core

1.3.2. Provided by the Manufacturer

No.	Equipment	Model No.	Serial No.	EMC Approved	Brand	Specification
01	BT Test Board	N/A	N/A	N/A	N/A	N/A

### 1.4 EUT SETUP



Note: Main Test Sample: BTH-700

### 1.5 Identifying the Final Test Mode

1. Mode 1: TX BT mode (1Mbps) CH 00.
2. Mode 2: TX BT mode (1Mbps) CH 39.
3. Mode 3: TX BT mode (1Mbps) CH 78.
4. Mode 4: TX BT mode EDR (2Mbps) CH 00.
5. Mode 5: TX BT mode EDR (2Mbps) CH 39.
6. Mode 6: TX BT mode EDR (2Mbps) CH 78.
7. Mode 7: TX BT mode EDR (3Mbps) CH 00.
8. Mode 8: TX BT mode EDR (3Mbps) CH 39.
9. Mode 9: TX BT mode EDR (3Mbps) CH 78.

Note:

1. After pre-test, we identified that the Test Mode 1 was most likely to produce the maximum

transmitting power and cause maximum disturbance. Therefore, the Final Assessment was performed for the worst case.

2. The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements. During the tests, there was no Test Software has been used.
3. Channel Low (2402 MHz), Mid (2442 MHz) and High (2480 MHz) were chosen for full testing.
4. According to its specifications, the EUT must comply with the requirements of the Section 15.203, 15.207, 15.209 and 15.247 under the FCC Rules Part 15 Subpart C.
5. Test Software: BlueTest3 V2.5.8; RF parameter setting: Channel : 00 , 39 , 78/ Data Rate : 1Mbps , 2Mbps , 3Mbps/ Packet : DH1 , DH3 , DH5 , 2DH1 , 2DH3 , 2DH5 , 3DH1 , 3DH3 , 3DH5/ TX POWER : 50.

## 1.6 Final Test Mode

Conducted Emission: Mode 1.

Radiated Emission (30~1000 MHz): Mode 1.

Radiated Emission (1~26.5GHz): All Modes.

## 1.7 Condition of Power Supply

DC 5V through USB port

## 1.8 EUT Configuration

1. Setup the EUT as shown in Sec.1.4 Block Diagram.
2. Turn on the power of all equipments.
3. Activate the selected Final Test Mode.

## 1.9 Test Methodology

The tests documented in this report were performed in accordance with ANSI C63.10 (2013) and FCC CFR 47 15.203, 15.207, 15.209 and 15.249.

## 1.10 General Test Procedures

### Conducted Emissions

The EUT is set according to the requirements in Section 6.2 of ANSI C63.10 (2013).

### Radiated Emissions

The EUT is set according to the requirements in Section 6.3 of ANSI C63.10 (2013).

## 1.11 Modification

N/A

### 1.12 FCC Part 15.205 restricted bands of operations

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
<sup>1</sup> 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37635-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	( <sup>2</sup> )
13.36-13.41			

<sup>1</sup> Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz

<sup>2</sup> Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.



### 1.13 Qualification of Test Facility

**Name of Test Facility** : HongAn Technology  
**Address of Test Facility** : No. 15-1, Cweishuh Keng, Cweipin Village, Linkou, New Taipei City,  
Taiwan, R.O.C  
**FCC Designation No.** : TW1071, TW1163  
**TAF Accreditation No.** : 1163

## 2 Power line Conducted Emission Measurement

### 2.1 Test Instruments

Refer to Sec. 1.2 Test Instruments.

### 2.2 Test Arrangement and Procedure

1. The EUT was placed on a table, which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.

### 2.3 Limit (§ 15.207)

For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed 250 microvolts (The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz). The limits at specific frequency range is listed as follows:

Frequency (MHz)	Limits (dBuV)	
	Q.P. (Quasi-Peak)	A.V. (Average)
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5.0	56	46
5.0 to 30	60	50

Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line (LINE and NEUTRAL) and ground at the power terminals.

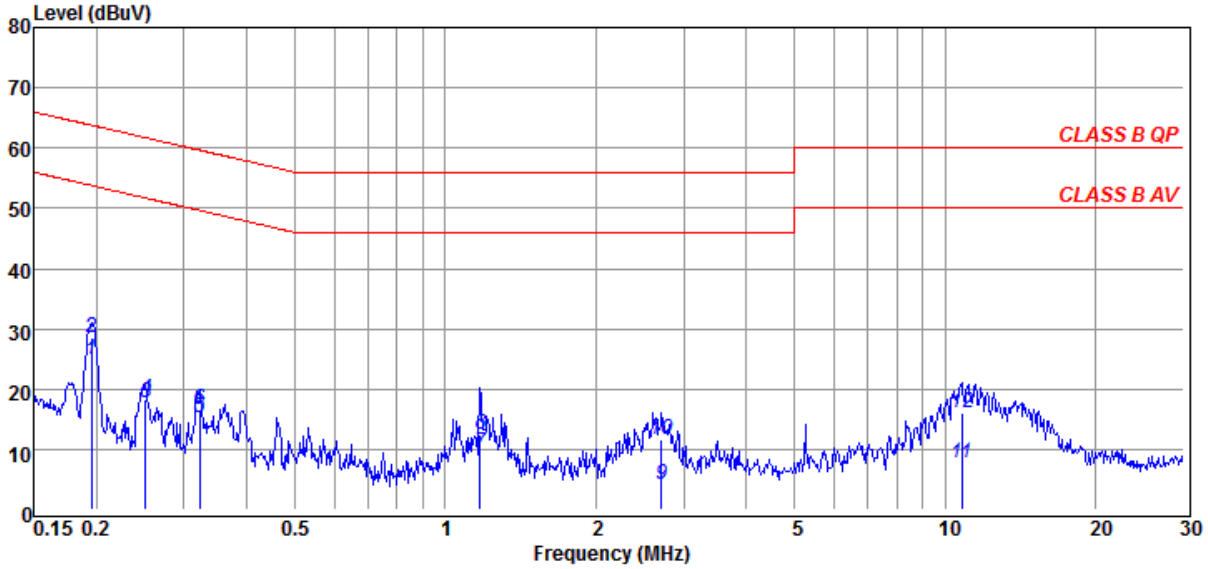
### 2.4 Test Result

#### Compliance

The final test data are shown on the following page(s).

### Conducted Emission Test Data

Test Date : 2019-05-30 Power Line : Line  
 Temperature : 24.8°C Humidity : 48%



No.	Freq MHz	Reading dBuV	C.F dB	Result dBuV	Limit dBuV	Margin dB	Power Line	Remark
1	0.196	24.70	0.15	24.85	53.80	-28.95	LINE	Average
2	0.196	28.33	0.15	28.48	63.80	-35.32	LINE	QP
3	0.251	17.54	0.17	17.71	51.73	-34.02	LINE	Average
4	0.251	18.16	0.17	18.33	61.73	-43.40	LINE	QP
5	0.322	15.03	0.17	15.20	49.66	-34.46	LINE	Average
6	0.322	16.51	0.17	16.68	59.66	-42.98	LINE	QP
7	1.172	9.23	0.26	9.49	46.00	-36.51	LINE	Average
8	1.172	12.08	0.26	12.34	56.00	-43.66	LINE	QP
9	2.707	3.68	0.36	4.04	46.00	-41.96	LINE	Average
10	2.707	11.34	0.36	11.70	56.00	-44.30	LINE	QP
11	10.790	6.96	0.86	7.82	50.00	-42.18	LINE	Average
12	10.790	15.24	0.86	16.10	60.00	-43.90	LINE	QP

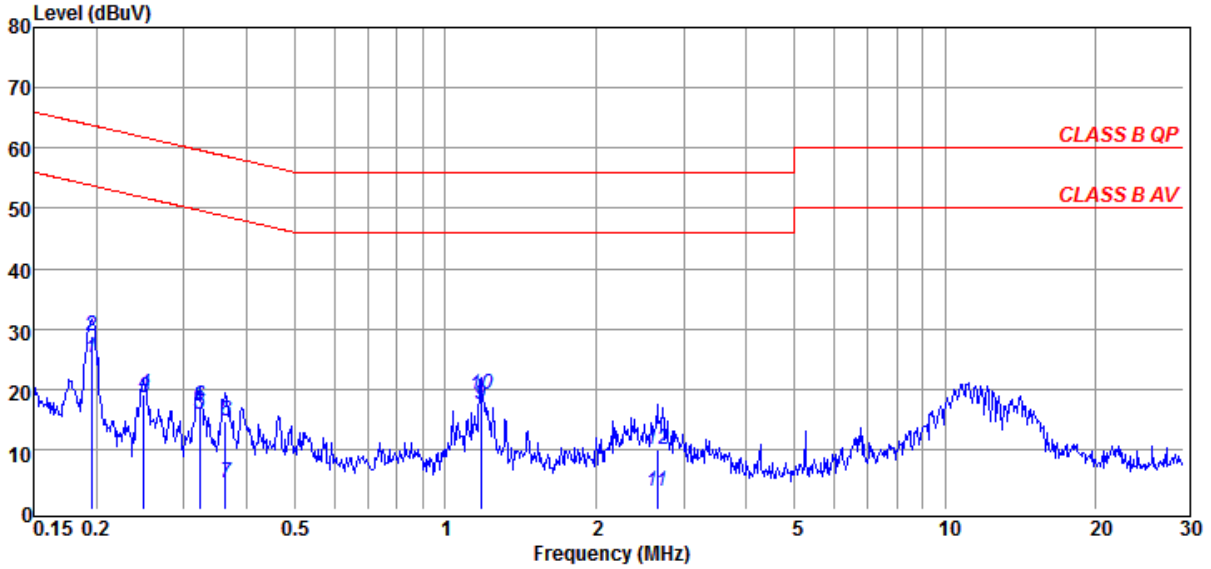
Note 1. C.F (Correction Factor) = LISN Factor + Cable loss ◦

Note 2. Margin = Result - Limit ; Result = Reading + C.F ◦

### Conducted Emission Test Data

Test Date : 2019-05-30  
 Temperature : 24.8°C

Power Line : Neutral  
 Humidity : 48%



No.	Freq MHz	Reading dBuV	C.F dB	Result dBuV	Limit dBuV	Margin dB	Power Line	Remark
1	0.196	25.03	0.14	25.17	53.80	-28.63	NEUTRAL	Average
2	0.196	28.78	0.14	28.92	63.80	-34.88	NEUTRAL	QP
3	0.249	18.46	0.14	18.60	51.78	-33.18	NEUTRAL	Average
4	0.249	18.85	0.14	18.99	61.78	-42.79	NEUTRAL	QP
5	0.322	15.57	0.15	15.72	49.66	-33.94	NEUTRAL	Average
6	0.322	16.92	0.15	17.07	59.66	-42.59	NEUTRAL	QP
7	0.363	4.33	0.15	4.48	48.65	-44.17	NEUTRAL	Average
8	0.363	14.55	0.15	14.70	58.65	-43.95	NEUTRAL	QP
9	1.178	17.22	0.23	17.45	46.00	-28.55	NEUTRAL	Average
10	1.178	18.98	0.23	19.21	56.00	-36.79	NEUTRAL	QP
11	2.650	2.82	0.32	3.14	46.00	-42.86	NEUTRAL	Average
12	2.650	9.63	0.32	9.95	56.00	-46.05	NEUTRAL	QP

Note 1. C.F (Correction Factor) = LISN Factor + Cable loss ◦

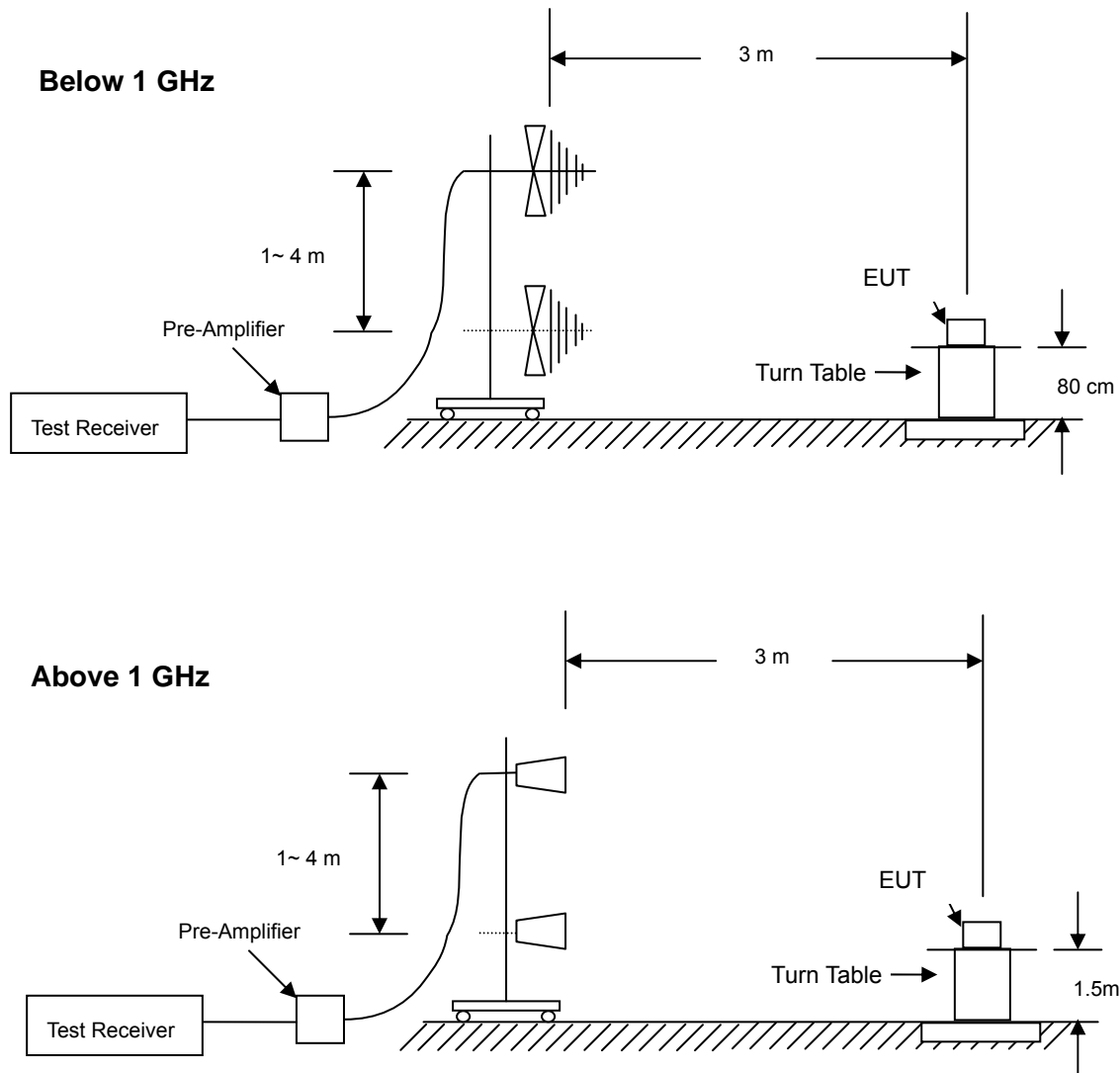
Note 2. Margin = Result - Limit ; Result = Reading + C.F ◦

### 3 Radiated Emission Test

#### 3.1 Test Instruments

Refer to Sec. 1.2 Test Instruments.

#### 3.2 Test Arrangement and Procedure



1. The EUT is placed on a turntable, which is 0.8 m (below 1GHz) and 1.5m (above 1GHz) above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3 m away from the receiving antenna, which is varied from 1 m to 4 m to find out the highest emissions.
4. Maxium procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Set the spectrum analyzer. Refer to each test results for detail setting up.
7. Repeat above procedures until the meausreemnts for all frequencies are complete.



### 3.3 Limit of Field Strength of Fundamental (§ 15.249)

The field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental Frequency (MHz)	Field strength of fundamental (microvolts/ meter)	Field strength of harmonics (meters)
902-928	50	500
2400-2483.5	50	500
5725-5875	50	500
24000-24250	250	2500

Note:

1. Field strength limits are specified at a distance of 3 meters.
2. For frequencies above 1000 MHz, the field strength limits in above table are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

### 3.4 Limit of Spurious Emission (§ 15.209)

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in § 15.209, whichever is lesser attenuation.

Frequency (MHz)	Field strength (microvolts/ meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100**	3
88-216	150**	3
216-960	200**	3
Above 960	500	3

\*\* Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g.§§ 15.231 and 15.241.

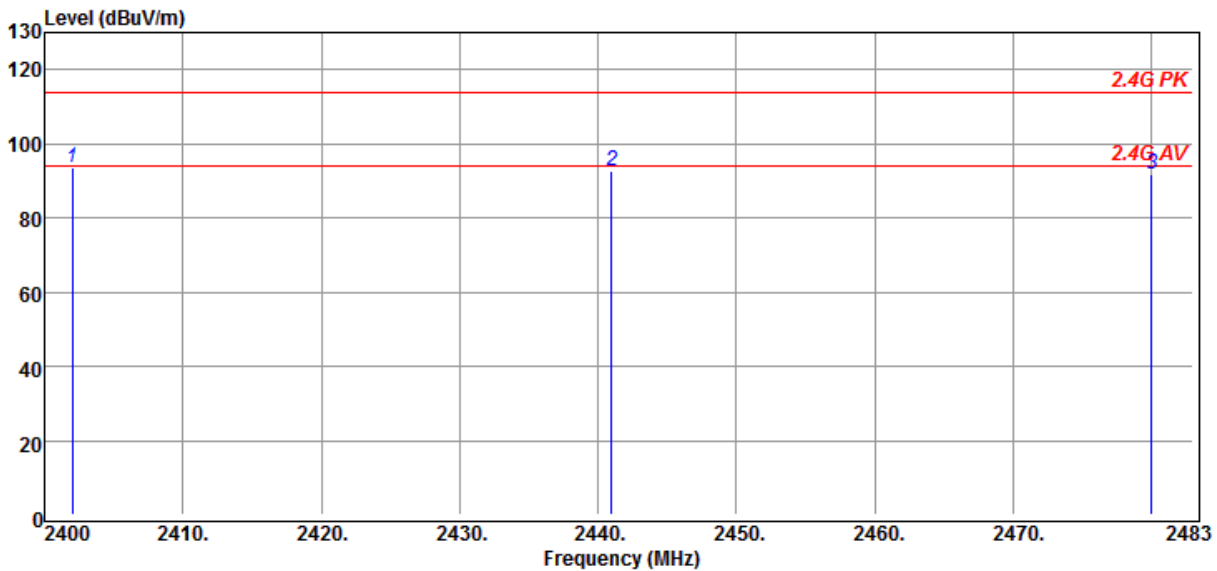
### 3.5 Test Result

#### Compliance

The final test data are shown on the following page(s).

**Radiated Emission Test Data (Field Strength of Fundamental)**

Temperature	: 28.6°C	Humidity	: 58%
Test Date	: 2019-05-30	Tested by	: Andrew Lin
Polarization	: Vertical	Channel	: CH00, 39, 78 (1Mbps)
EUT Position	: X axis		



No.	Freq MHz	Reading dBµV	C.F dB	Result dBµV/m	Limit dBµV/m	Margin dB	Antenna Pol.	Remark
1	2402.00	100.07	-6.65	93.42	94.00	-0.58	VERTICAL	Peak
2	2441.00	99.17	-6.72	92.45	94.00	-1.55	VERTICAL	Peak
3	2480.00	98.28	-6.48	91.80	94.00	-2.20	VERTICAL	Peak

Note 1. C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain ◦

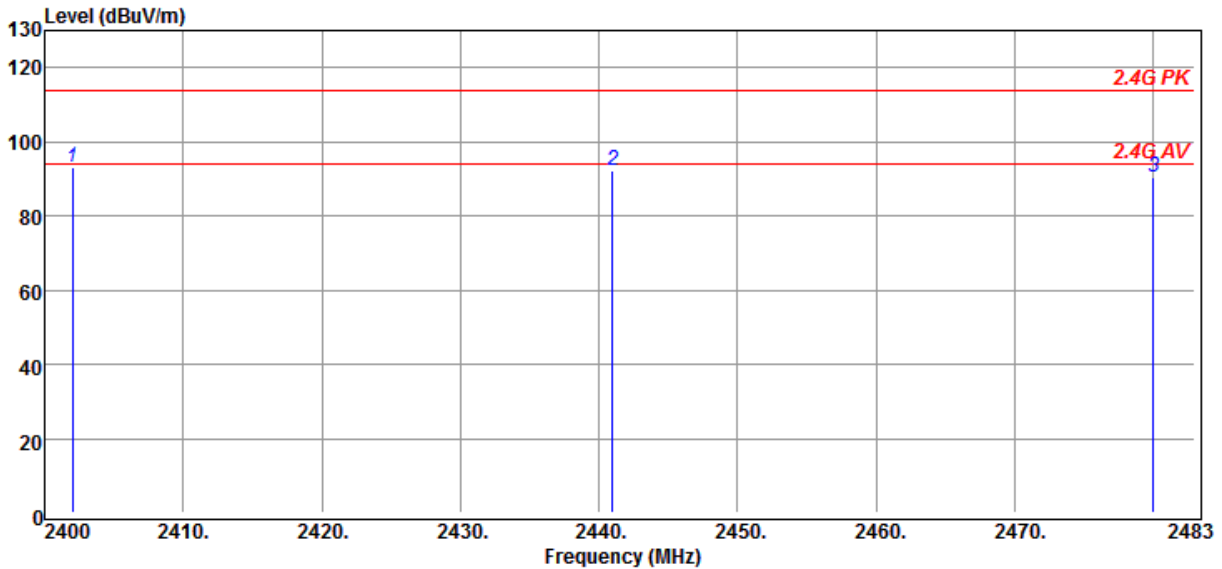
Note 2. Margin = Result - Limit ; Result = Reading + C.F ◦

**Remark :**

1. Measuring frequencies from 1 GHz to the 10<sup>th</sup> harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:  
Peak Setting 1GHz to 10<sup>th</sup> harmonics of fundamental, RBW = 3MHz, VBW =10MHz, Sweep = AUTO.  
Note: Because the 20 dB Bandwidth is over 1MHz, the RBW setting of measuring Field strength of Fundamental should be 3MHz, and VBW should be at 10 MHz.

**Radiated Emission Test Data (Field Strength of Fundamental)**

Temperature	: 28.6°C	Humidity	: 58%
Test Date	: 2019-05-30	Tested by	: Andrew Lin
Polarization	: Horizontal	Channel	: CH00, 39, 78 (1Mbps)
EUT Position	: X axis		



No.	Freq MHz	Reading dBμV	C.F dB	Result dBμV/m	Limit dBμV/m	Margin dB	Antenna Pol.	Remark
1	2402.00	99.95	-6.65	93.30	94.00	-0.70	HORIZONTAL	Peak
2	2441.00	98.72	-6.72	92.00	94.00	-2.00	HORIZONTAL	Peak
3	2480.00	96.77	-6.48	90.29	94.00	-3.71	HORIZONTAL	Peak

Note 1. C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain ◦

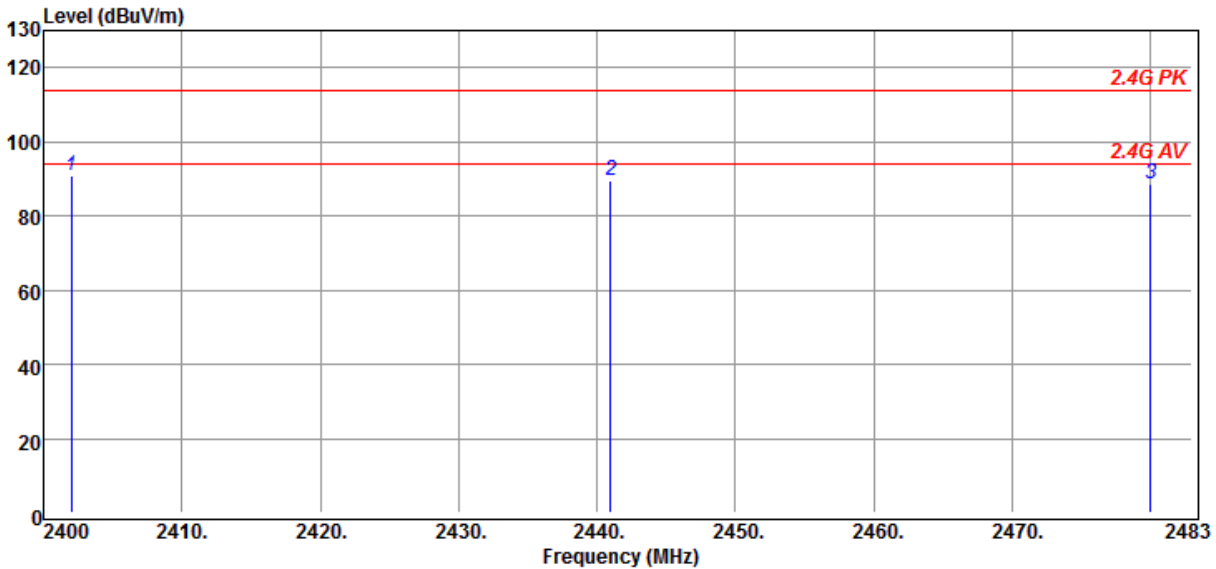
Note 2. Margin = Result - Limit ; Result = Reading + C.F ◦

**Remark :**

1. Measuring frequencies from 1 GHz to the 10<sup>th</sup> harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:  
Peak Setting 1GHz to 10<sup>th</sup> harmonics of fundamental, RBW = 3MHz, VBW =10MHz, Sweep = AUTO.  
Note: Because the 20 dB Bandwidth is over 1MHz, the RBW setting of measuring Field strength of Fundamental should be 3MHz, and VBW should be at 10 MHz.

**Radiated Emission Test Data (Field Strength of Fundamental)**

Temperature	: 28.6°C	Humidity	: 58%
Test Date	: 2019-05-30	Tested by	: Andrew Lin
Polarization	: Vertical	Channel	: CH00, 39, 78 (2Mbps)
EUT Position	: X axis		



No.	Freq MHz	Reading dBµV	C.F dB	Result dBµV/m	Limit dBµV/m	Margin dB	Antenna Pol.	Remark
1	2402.00	97.36	-6.65	90.71	94.00	-3.29	VERTICAL	Peak
2	2441.00	96.29	-6.72	89.57	94.00	-4.43	VERTICAL	Peak
3	2480.00	95.20	-6.48	88.72	94.00	-5.28	VERTICAL	Peak

Note 1. C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain ◦

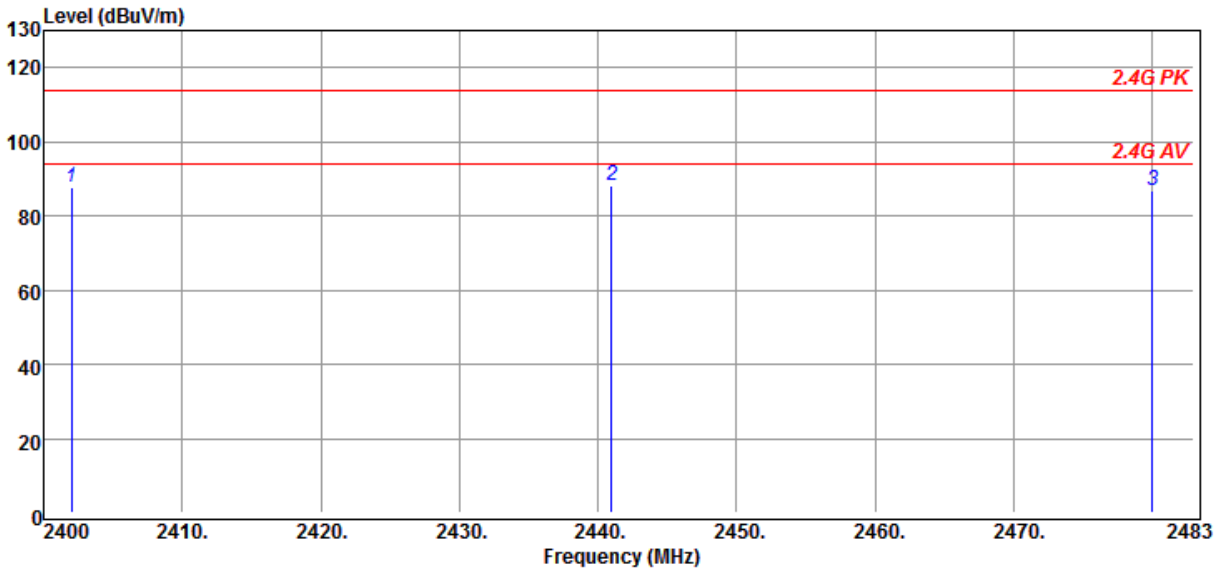
Note 2. Margin = Result - Limit ; Result = Reading + C.F ◦

**Remark :**

1. Measuring frequencies from 1 GHz to the 10<sup>th</sup> harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:  
Peak Setting 1GHz to 10<sup>th</sup> harmonics of fundamental, RBW = 3MHz, VBW =10MHz, Sweep = AUTO.  
Note: Because the 20 dB Bandwidth is over 1MHz, the RBW setting of measuring Field strength of Fundamental should be 3MHz, and VBW should be at 10 MHz.

**Radiated Emission Test Data (Field Strength of Fundamental)**

Temperature	: 28.6°C	Humidity	: 58%
Test Date	: 2019-05-30	Tested by	: Andrew Lin
Polarization	: Horizontal	Channel	: CH00, 39, 78 (2Mbps)
EUT Position	: X axis		



No.	Freq MHz	Reading dBμV	C.F dB	Result dBμV/m	Limit dBμV/m	Margin dB	Antenna Pol.	Remark
1	2402.00	94.53	-6.65	87.88	94.00	-6.12	HORIZONTAL	Peak
2	2441.00	95.04	-6.72	88.32	94.00	-5.68	HORIZONTAL	Peak
3	2480.00	93.25	-6.48	86.77	94.00	-7.23	HORIZONTAL	Peak

Note 1. C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain ◦

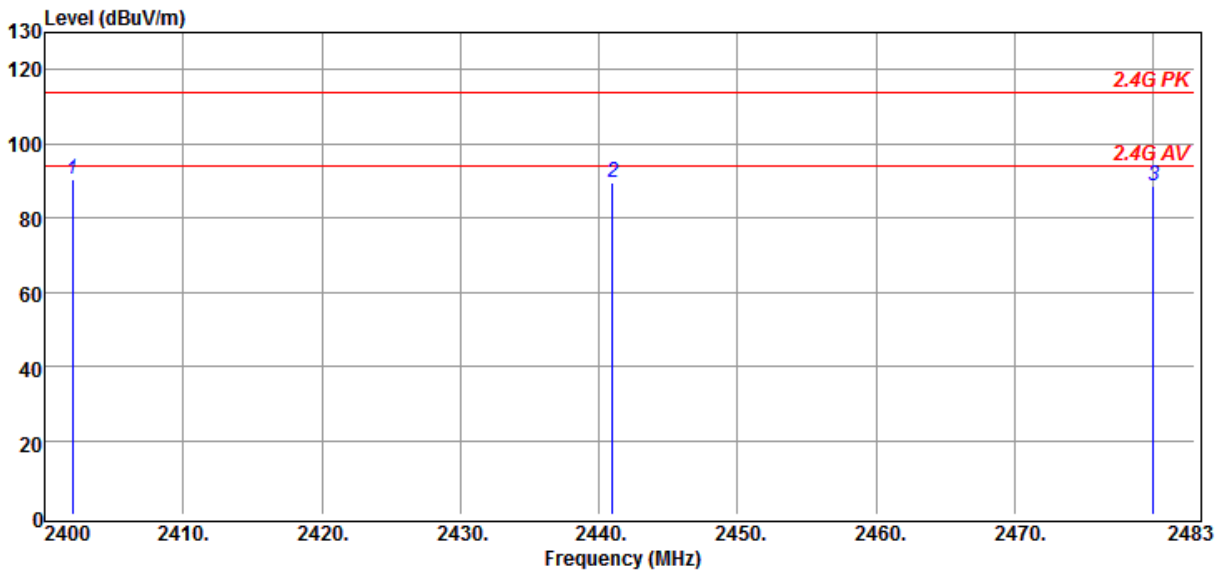
Note 2. Margin = Result - Limit ; Result = Reading + C.F ◦

**Remark :**

1. Measuring frequencies from 1 GHz to the 10<sup>th</sup> harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:  
Peak Setting 1GHz to 10<sup>th</sup> harmonics of fundamental, RBW = 3MHz, VBW =10MHz, Sweep = AUTO.  
Note: Because the 20 dB Bandwidth is over 1MHz, the RBW setting of measuring Field strength of Fundamental should be 3MHz, and VBW should be at 10 MHz.

**Radiated Emission Test Data (Field Strength of Fundamental)**

Temperature	: 28.6°C	Humidity	: 58%
Test Date	: 2019-05-30	Tested by	: Andrew Lin
Polarization	: Vertical	Channel	: CH00, 39, 78 (3Mbps)
EUT Position	: X axis		



No.	Freq MHz	Reading dBµV	C.F dB	Result dBµV/m	Limit dBµV/m	Margin dB	Antenna Pol.	Remark
1	2402.00	97.26	-6.65	90.61	94.00	-3.39	VERTICAL	Peak
2	2441.00	96.26	-6.72	89.54	94.00	-4.46	VERTICAL	Peak
3	2480.00	95.17	-6.48	88.69	94.00	-5.31	VERTICAL	Peak

Note 1. C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain ◦

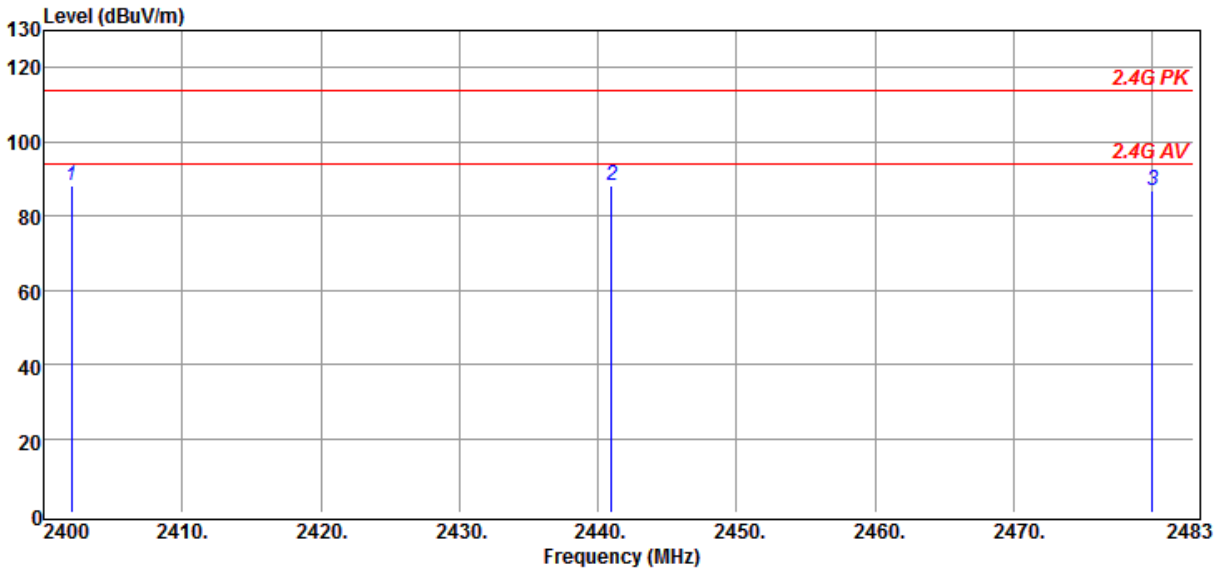
Note 2. Margin = Result - Limit ; Result = Reading + C.F ◦

**Remark :**

1. Measuring frequencies from 1 GHz to the 10<sup>th</sup> harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:  
Peak Setting 1GHz to 10<sup>th</sup> harmonics of fundamental, RBW = 3MHz, VBW =10MHz, Sweep = AUTO.  
Note: Because the 20 dB Bandwidth is over 1MHz, the RBW setting of measuring Field strength of Fundamental should be 3MHz, and VBW should be at 10 MHz.

**Radiated Emission Test Data (Field Strength of Fundamental)**

Temperature	: 28.6°C	Humidity	: 58%
Test Date	: 2019-05-30	Tested by	: Andrew Lin
Polarization	: Horizontal	Channel	: CH00, 39, 78 (3Mbps)
EUT Position	: X axis		



No.	Freq MHz	Reading dBμV	C.F dB	Result dBμV/m	Limit dBμV/m	Margin dB	Antenna Pol.	Remark
1	2402.00	94.81	-6.65	88.16	94.00	-5.84	HORIZONTAL	Peak
2	2441.00	94.93	-6.72	88.21	94.00	-5.79	HORIZONTAL	Peak
3	2480.00	93.38	-6.48	86.90	94.00	-7.10	HORIZONTAL	Peak

Note 1. C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain ◦

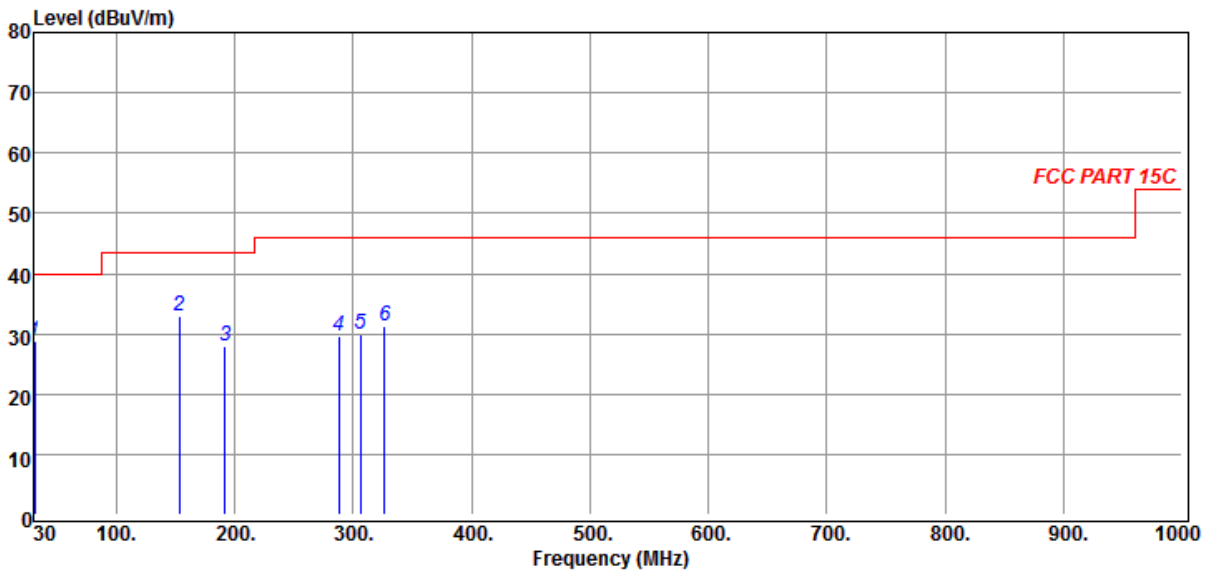
Note 2. Margin = Result - Limit ; Result = Reading + C.F ◦

**Remark :**

1. Measuring frequencies from 1 GHz to the 10<sup>th</sup> harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:  
Peak Setting 1GHz to 10<sup>th</sup> harmonics of fundamental, RBW = 3MHz, VBW =10MHz, Sweep = AUTO.  
Note: Because the 20 dB Bandwidth is over 1MHz, the RBW setting of measuring Field strength of Fundamental should be 3MHz, and VBW should be at 10 MHz.

**Radiated Emission Test Data (Below 1 GHz)**

Temperature	: 28.6°C	Humidity	: 58%
Test Date	: 2019-05-30	Tested by	: Andrew Lin
Polarization	: Vertical	Channel	: CH00
EUT Position	: X axis	Data rate	: 1Mbps



No.	Freq MHz	Reading dBµV	C.F dB	Result dBµV/m	Limit dBµV/m	Margin dB	Antenna Pol.	Remark
1	30.97	32.71	-3.83	28.88	40.00	-11.12	VERTICAL	Peak
2	153.19	44.60	-11.56	33.04	43.50	-10.46	VERTICAL	Peak
3	191.99	41.38	-13.53	27.85	43.50	-15.65	VERTICAL	Peak
4	288.02	38.76	-9.28	29.48	46.00	-16.52	VERTICAL	Peak
5	306.45	38.86	-8.99	29.87	46.00	-16.13	VERTICAL	Peak
6	326.82	39.80	-8.40	31.40	46.00	-14.60	VERTICAL	Peak

Note 1. C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain ◦

Note 2. Margin = Result - Limit ; Result = Reading + C.F ◦

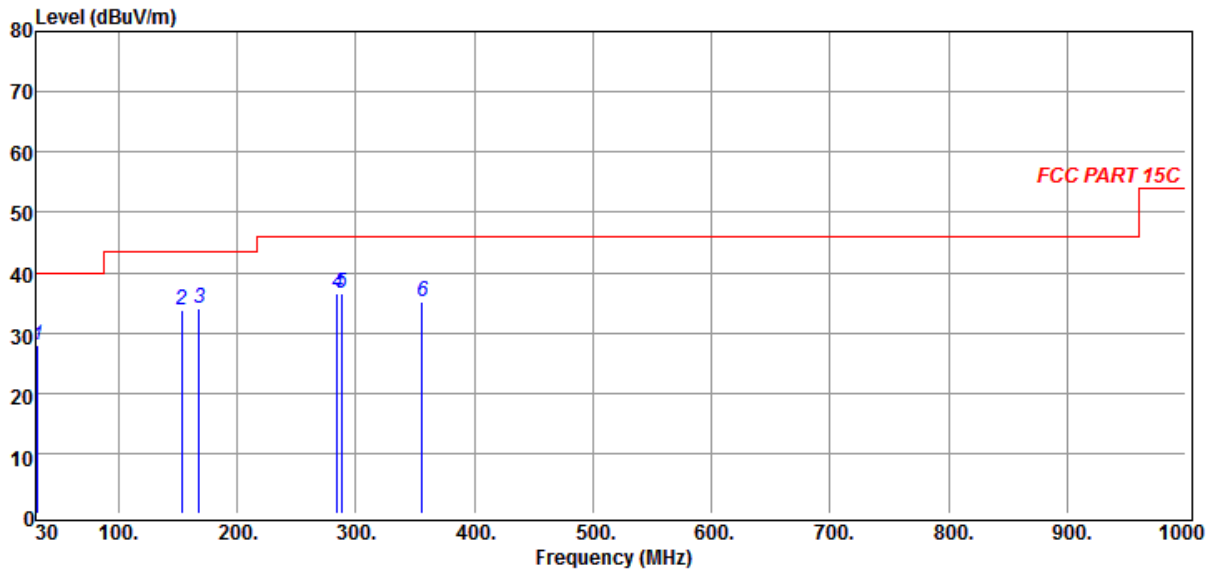
**Remark :**

1. Measuring frequencies from 30 MHz to 1 GHz.
2. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Peak detector mode.
3. Data of measurement within this frequency range shown "----" in the table above means the reading of emissions are attenuated more than 20 dB below the permissible limits or the field strength is too small to be measured.
4. All readings are Peak values. None of the peak value reading exceeds the Q.P. limit. Hence, Q.P. reading was not measured.
5. The IF bandwidth of SPA between 30 MHz to 1 GHz was 100 kHz.



**Radiated Emission Test Data (Below 1 GHz)**

Temperature	: 28.6°C	Humidity	: 58%
Test Date	: 2019-05-30	Tested by	: Andrew Lin
Polarization	: Horizontal	Channel	: CH00
EUT Position	: X axis	Data rate	: 1Mbps



No.	Freq MHz	Reading dBµV	C.F dB	Result dBµV/m	Limit dBµV/m	Margin dB	Antenna Pol.	Remark
1	31.94	32.38	-4.41	27.97	40.00	-12.03	HORIZONTAL	Peak
2	153.19	45.24	-11.56	33.68	43.50	-9.82	HORIZONTAL	Peak
3	167.74	46.57	-12.61	33.96	43.50	-9.54	HORIZONTAL	Peak
4	284.14	45.86	-9.39	36.47	46.00	-9.53	HORIZONTAL	Peak
5	288.02	45.80	-9.28	36.52	46.00	-9.48	HORIZONTAL	Peak
6	355.92	42.19	-7.17	35.02	46.00	-10.98	HORIZONTAL	Peak

Note 1. C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain ◦

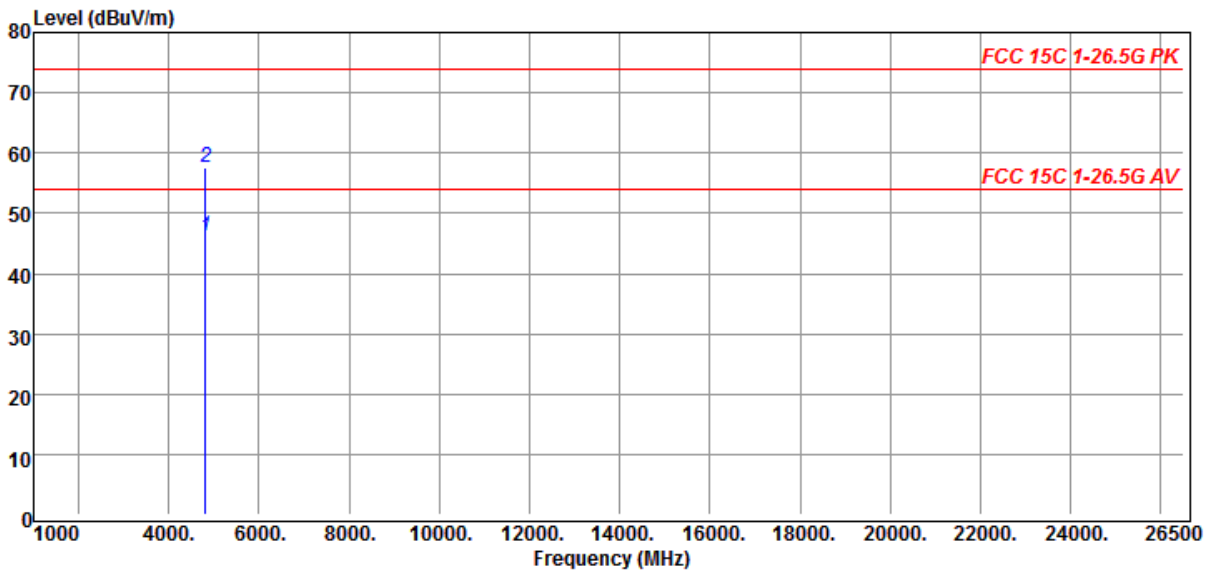
Note 2. Margin = Result - Limit ; Result = Reading + C.F ◦

**Remark :**

1. Measuring frequencies from 30 MHz to 1 GHz.
2. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Peak detector mode.
3. Data of measurement within this frequency range shown “---” in the table above means the reading of emissions are attenuated more than 20 dB below the permissible limits or the field strength is too small to be measured.
4. All readings are Peak values. None of the peak value reading exceeds the Q.P. limit. Hence, Q.P. reading was not measured.
5. The IF bandwidth of SPA between 30 MHz to 1 GHz was 100 kHz.

**Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)**

Temperature	: 28.6°C	Humidity	: 58%
Test Date	: 2019-05-30	Tested by	: Andrew Lin
Polarization	: Vertical	Channel	: CH00
EUT Position	: X axis	Data rate	: 1Mbps



No.	Freq MHz	Reading dBμV	C.F dB	Result dBμV/m	Limit dBμV/m	Margin dB	Antenna Pol.	Remark
1	4804.00	45.50	0.74	46.24	54.00	-7.76	VERTICAL	Average
2	4804.00	56.94	0.74	57.68	74.00	-16.32	VERTICAL	Peak

Note 1. C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain ◦

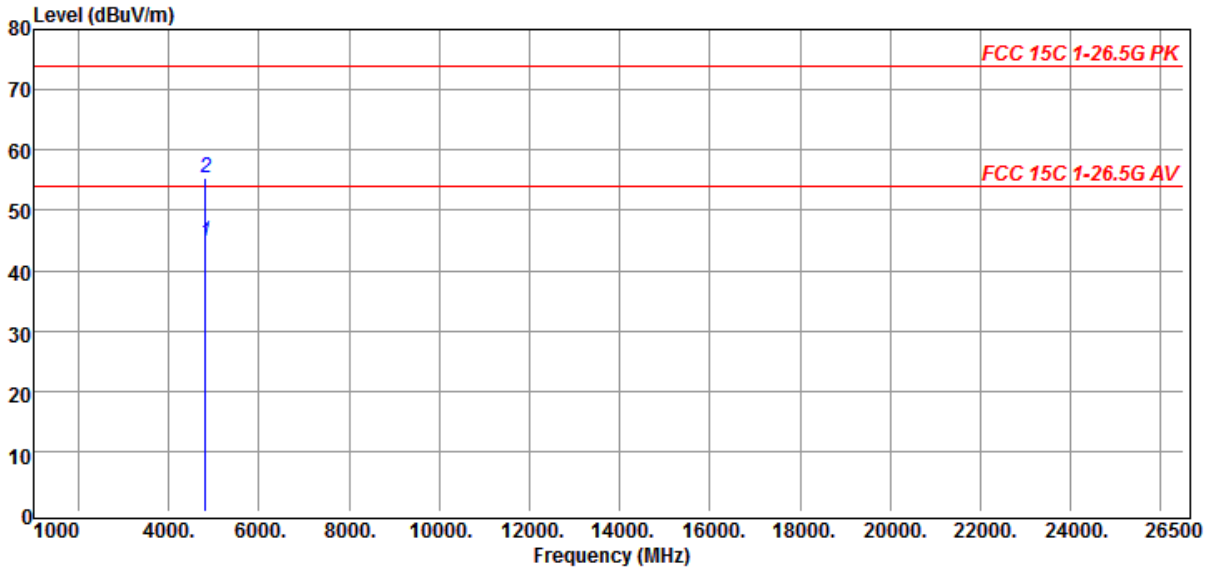
Note 2. Margin = Result - Limit ; Result = Reading + C.F ◦

Remark :

1. Measuring frequencies from 1 GHz to the 10<sup>th</sup> harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:
  - (a) Peak Setting 1GHz to 10<sup>th</sup> harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

**Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)**

Temperature	: 28.6°C	Humidity	: 58%
Test Date	: 2019-05-30	Tested by	: Andrew Lin
Polarization	: Horizontal	Channel	: CH00
EUT Position	: X axis	Data rate	: 1Mbps



No.	Freq MHz	Reading dBµV	C.F dB	Result dBµV/m	Limit dBµV/m	Margin dB	Antenna Pol.	Remark
1	4804.00	44.11	0.74	44.85	54.00	-9.15	HORIZONTAL	Average
2	4804.00	54.54	0.74	55.28	74.00	-18.72	HORIZONTAL	Peak

Note 1. C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain ◦

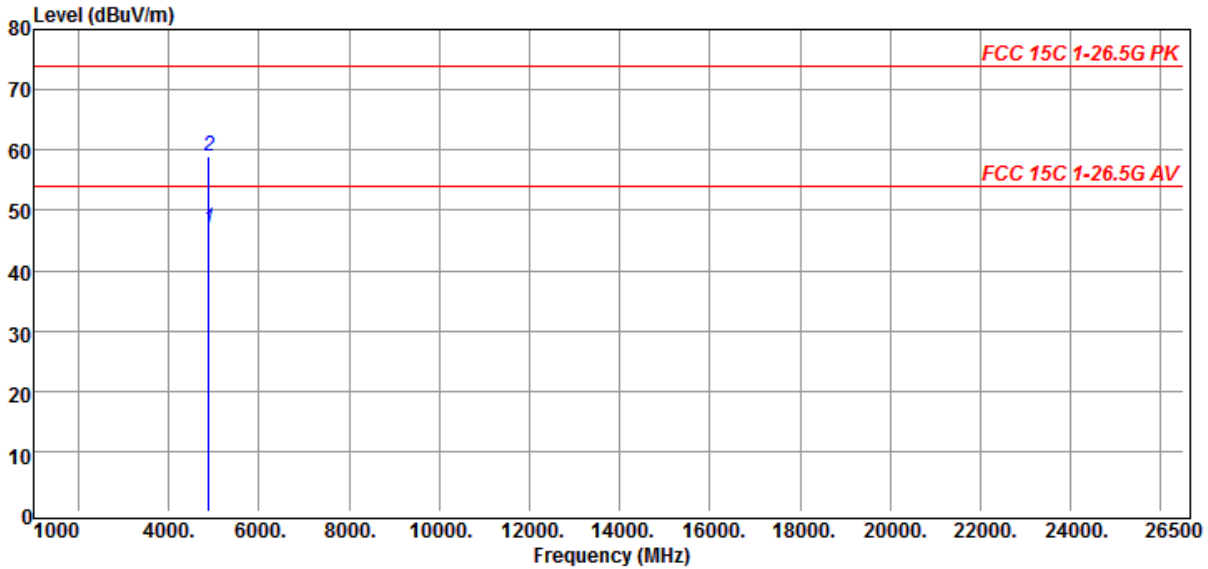
Note 2. Margin = Result - Limit ; Result = Reading + C.F ◦

Remark :

1. Measuring frequencies from 1 GHz to the 10<sup>th</sup> harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:
  - (a) Peak Setting 1GHz to 10<sup>th</sup> harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

**Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)**

Temperature	: 28.6°C	Humidity	: 58%
Test Date	: 2019-05-30	Tested by	: Andrew Lin
Polarization	: Vertical	Channel	: CH39
EUT Position	: X axis	Data rate	: 1Mbps



No.	Freq MHz	Reading dBµV	C.F dB	Result dBµV/m	Limit dBµV/m	Margin dB	Antenna Pol.	Remark
1	4882.00	45.97	1.01	46.98	54.00	-7.02	VERTICAL	Average
2	4882.00	57.93	1.01	58.94	74.00	-15.06	VERTICAL	Peak

Note 1. C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain ◦

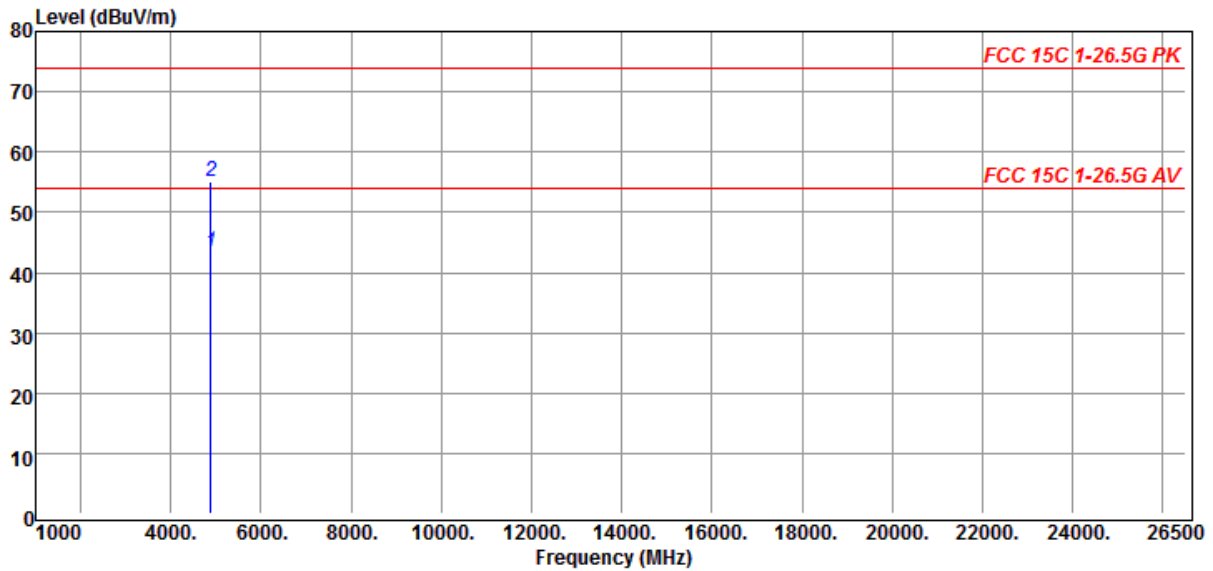
Note 2. Margin = Result - Limit ; Result = Reading + C.F ◦

Remark :

- Measuring frequencies from 1 GHz to the 10<sup>th</sup> harmonic of highest fundamental frequency.
- Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
- Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
- Spectrum setting:
  - Peak Setting 1GHz to 10<sup>th</sup> harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

**Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)**

Temperature	: 28.6°C	Humidity	: 58%
Test Date	: 2019-05-30	Tested by	: Andrew Lin
Polarization	: Horizontal	Channel	: CH39
EUT Position	: X axis	Data rate	: 1Mbps



No.	Freq MHz	Reading dBµV	C.F dB	Result dBµV/m	Limit dBµV/m	Margin dB	Antenna Pol.	Remark
1	4882.00	42.57	1.01	43.58	54.00	-10.42	HORIZONTAL	Average
2	4882.00	54.16	1.01	55.17	74.00	-18.83	HORIZONTAL	Peak

Note 1. C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain ◦

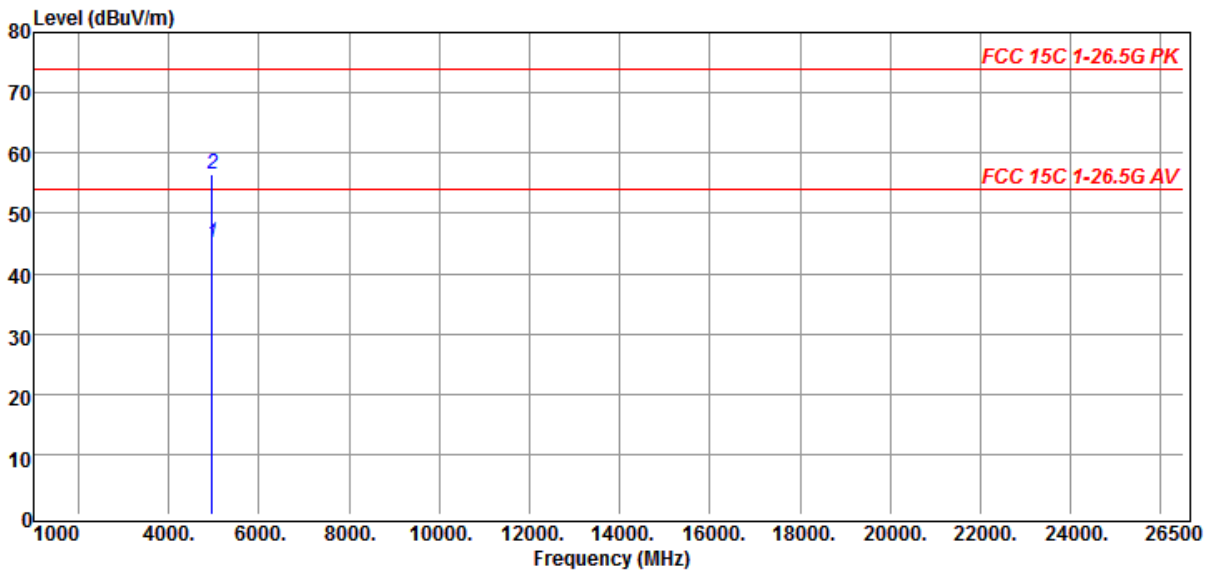
Note 2. Margin = Result - Limit ; Result = Reading + C.F ◦

Remark :

1. Measuring frequencies from 1 GHz to the 10<sup>th</sup> harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:
  - (a) Peak Setting 1GHz to 10<sup>th</sup> harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

**Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)**

Temperature	: 28.6°C	Humidity	: 58%
Test Date	: 2019-05-30	Tested by	: Andrew Lin
Polarization	: Vertical	Channel	: CH78
EUT Position	: X axis	Data rate	: 1Mbps



No.	Freq MHz	Reading dBµV	C.F dB	Result dBUV/m	Limit dBUV/m	Margin dB	Antenna Pol.	Remark
1	4960.00	43.66	1.41	45.07	54.00	-8.93	VERTICAL	Average
2	4960.00	54.94	1.41	56.35	74.00	-17.65	VERTICAL	Peak

Note 1. C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain ◦

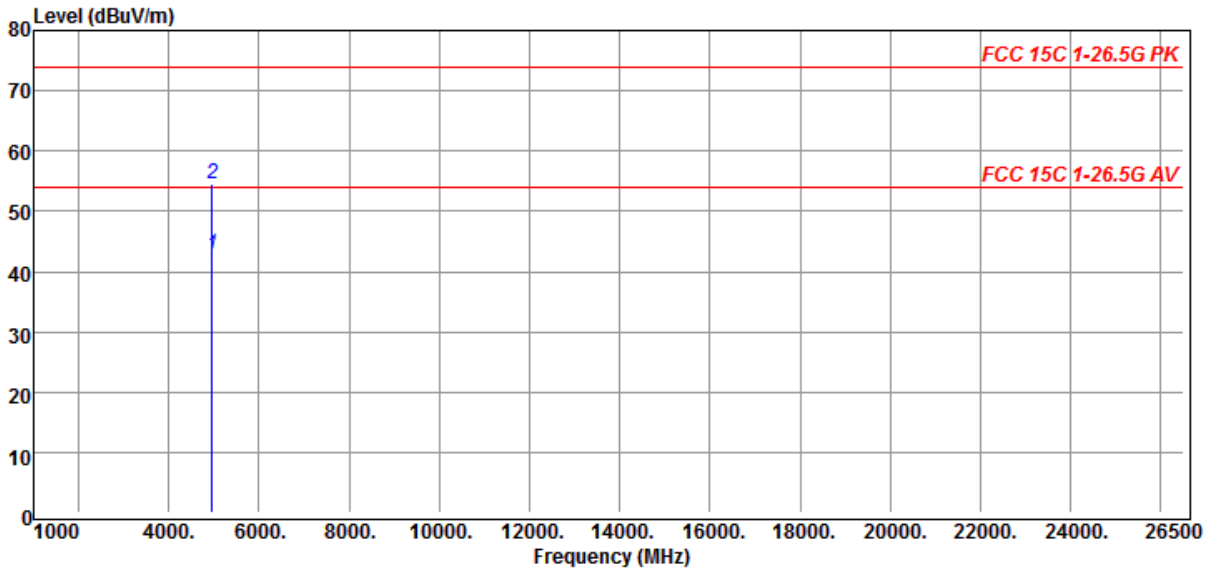
Note 2. Margin = Result - Limit ; Result = Reading + C.F ◦

Remark :

1. Measuring frequencies from 1 GHz to the 10<sup>th</sup> harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:
  - (a) Peak Setting 1GHz to 10<sup>th</sup> harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

**Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)**

Temperature	: 28.6°C	Humidity	: 58%
Test Date	: 2019-05-30	Tested by	: Andrew Lin
Polarization	: Horizontal	Channel	: CH78
EUT Position	: X axis	Data rate	: 1Mbps



No.	Freq MHz	Reading dBμV	C.F dB	Result dBμV/m	Limit dBμV/m	Margin dB	Antenna Pol.	Remark
1	4960.00	41.44	1.41	42.85	54.00	-11.15	HORIZONTAL	Average
2	4960.00	53.05	1.41	54.46	74.00	-19.54	HORIZONTAL	Peak

Note 1. C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain ◦

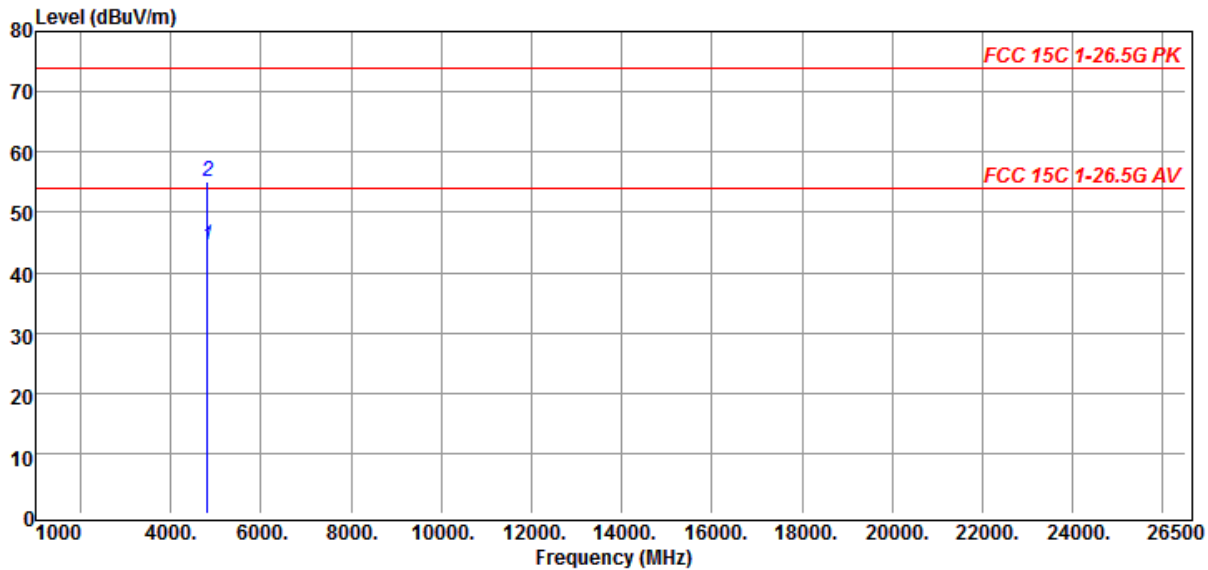
Note 2. Margin = Result - Limit ; Result = Reading + C.F ◦

Remark :

1. Measuring frequencies from 1 GHz to the 10<sup>th</sup> harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:
  - (a) Peak Setting 1GHz to 10<sup>th</sup> harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

**Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)**

Temperature	: 28.6°C	Humidity	: 58%
Test Date	: 2019-05-30	Tested by	: Andrew Lin
Polarization	: Vertical	Channel	: CH00
EUT Position	: X axis	Data rate	: 2Mbps



No.	Freq MHz	Reading dBµV	C.F dB	Result dBµV/m	Limit dBµV/m	Margin dB	Antenna Pol.	Remark
1	4804.00	43.78	0.74	44.52	54.00	-9.48	VERTICAL	Average
2	4804.00	54.29	0.74	55.03	74.00	-18.97	VERTICAL	Peak

Note 1. C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain ◦

Note 2. Margin = Result - Limit ; Result = Reading + C.F ◦

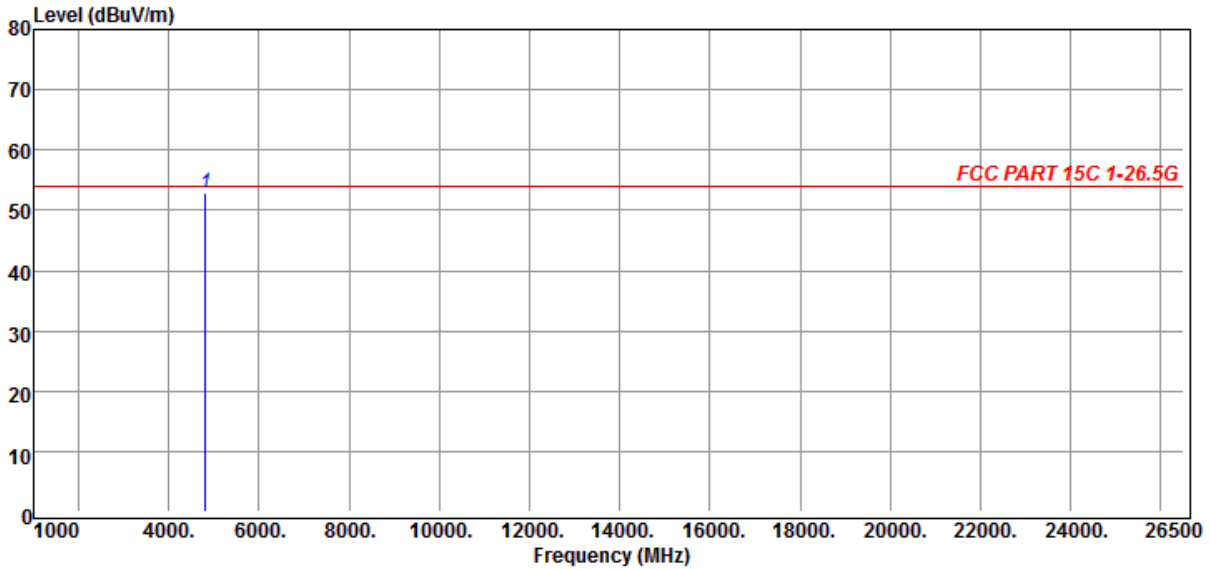
Remark :

1. Measuring frequencies from 1 GHz to the 10<sup>th</sup> harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:
  - (a) Peak Setting 1GHz to 10<sup>th</sup> harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.



**Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)**

Temperature	: 28.6°C	Humidity	: 58%
Test Date	: 2019-05-30	Tested by	: Andrew Lin
Polarization	: Horizontal	Channel	: CH00
EUT Position	: X axis	Data rate	: 2Mbps



No.	Freq MHz	Reading dBµV	C.F dB	Result dBµV/m	Limit dBµV/m	Margin dB	Antenna Pol.	Remark
1	4804.00	52.05	0.74	52.79	54.00	-1.21	HORIZONTAL	Peak

Note 1. C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain ◦

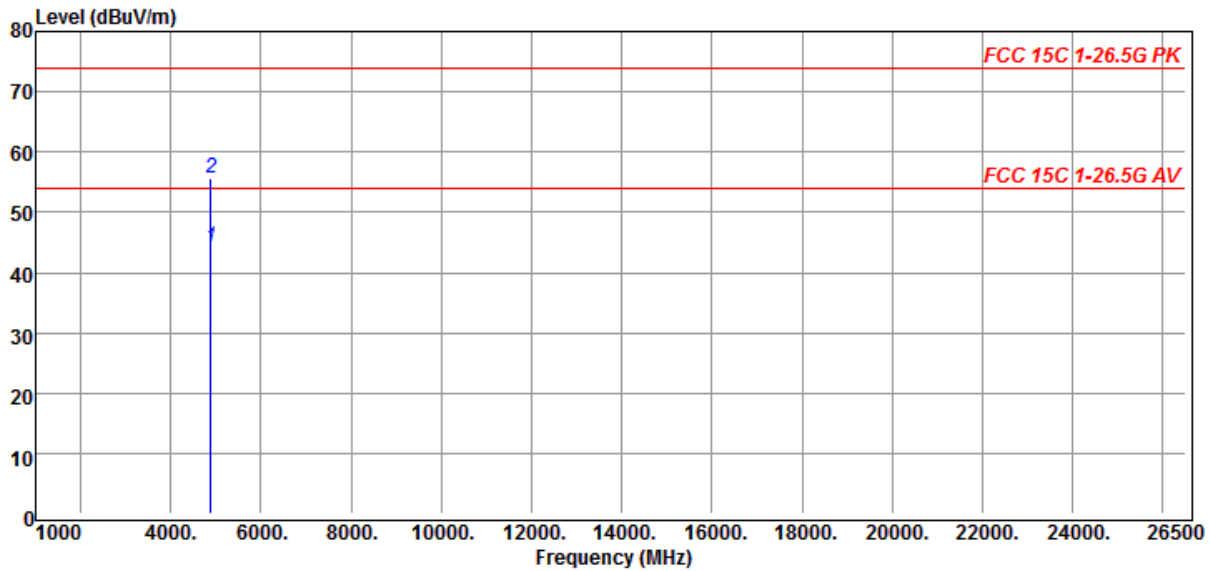
Note 2. Margin = Result - Limit ; Result = Reading + C.F ◦

Remark :

1. Measuring frequencies from 1 GHz to the 10<sup>th</sup> harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:
  - (a) Peak Setting 1GHz to 10<sup>th</sup> harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

**Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)**

Temperature	: 28.6°C	Humidity	: 58%
Test Date	: 2019-05-30	Tested by	: Andrew Lin
Polarization	: Vertical	Channel	: CH39
EUT Position	: X axis	Data rate	: 2Mbps



No.	Freq MHz	Reading dBµV	C.F dB	Result dBµV/m	Limit dBµV/m	Margin dB	Antenna Pol.	Remark
1	4882.00	43.27	1.01	44.28	54.00	-9.72	VERTICAL	Average
2	4882.00	54.75	1.01	55.76	74.00	-18.24	VERTICAL	Peak

Note 1. C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain ◦

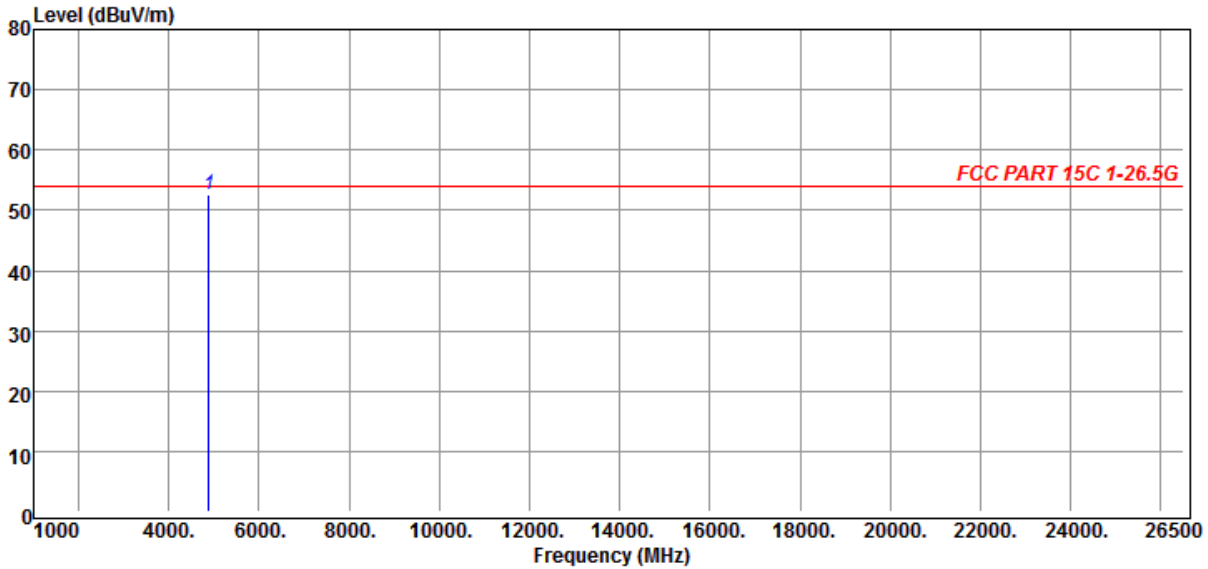
Note 2. Margin = Result - Limit ; Result = Reading + C.F ◦

Remark :

1. Measuring frequencies from 1 GHz to the 10<sup>th</sup> harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:
  - (a) Peak Setting 1GHz to 10<sup>th</sup> harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

**Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)**

Temperature	: 28.6°C	Humidity	: 58%
Test Date	: 2019-05-30	Tested by	: Andrew Lin
Polarization	: Horizontal	Channel	: CH39
EUT Position	: X axis	Data rate	: 2Mbps



No.	Freq MHz	Reading dBµV	C.F dB	Result dBµV/m	Limit dBµV/m	Margin dB	Antenna Pol.	Remark
1	4882.00	51.59	1.01	52.60	54.00	-1.40	HORIZONTAL	Peak

Note 1. C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain ◦

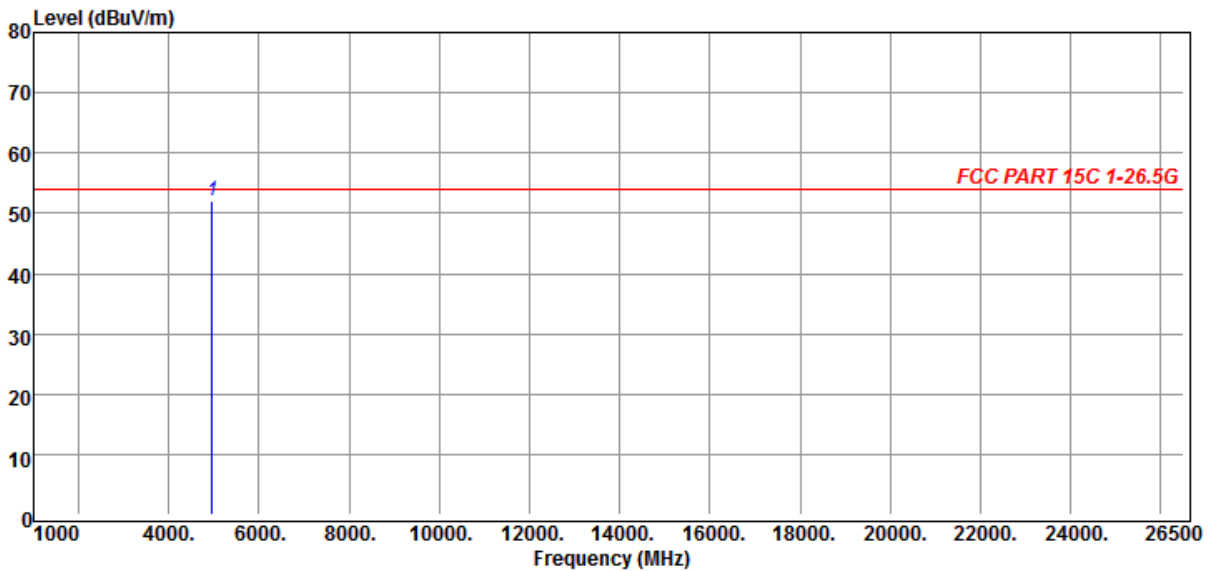
Note 2. Margin = Result - Limit ; Result = Reading + C.F ◦

Remark :

1. Measuring frequencies from 1 GHz to the 10<sup>th</sup> harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:
  - (a) Peak Setting 1GHz to 10<sup>th</sup> harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

**Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)**

Temperature	: 28.6°C	Humidity	: 58%
Test Date	: 2019-05-30	Tested by	: Andrew Lin
Polarization	: Vertical	Channel	: CH78
EUT Position	: X axis	Data rate	: 2Mbps



No.	Freq MHz	Reading dBµV	C.F dB	Result dBµV/m	Limit dBµV/m	Margin dB	Antenna Pol.	Remark
1	4960.00	50.67	1.41	52.08	54.00	-1.92	VERTICAL	Peak

Note 1. C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain ◦

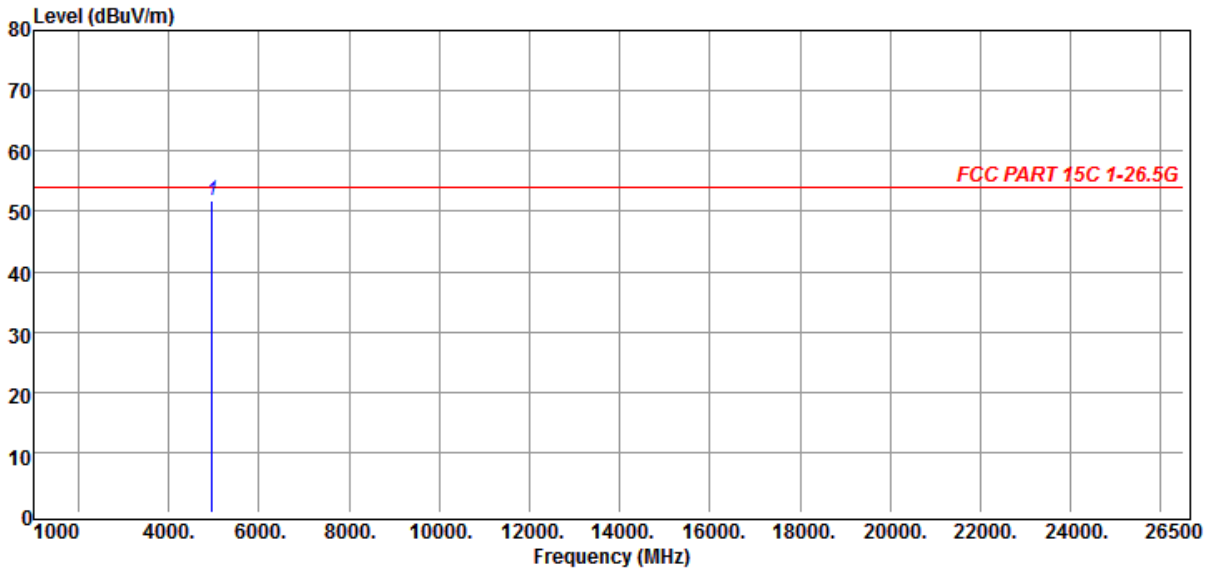
Note 2. Margin = Result - Limit ; Result = Reading + C.F ◦

Remark :

1. Measuring frequencies from 1 GHz to the 10<sup>th</sup> harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:
  - (a) Peak Setting 1GHz to 10<sup>th</sup> harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

**Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)**

Temperature	: 28.6°C	Humidity	: 58%
Test Date	: 2019-05-30	Tested by	: Andrew Lin
Polarization	: Horizontal	Channel	: CH78
EUT Position	: X axis	Data rate	: 2Mbps



No.	Freq MHz	Reading dBμV	C.F dB	Result dBμV/m	Limit dBμV/m	Margin dB	Antenna Pol.	Remark
1	4960.00	50.31	1.41	51.72	54.00	-2.28	HORIZONTAL	Peak

Note 1. C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain ◦

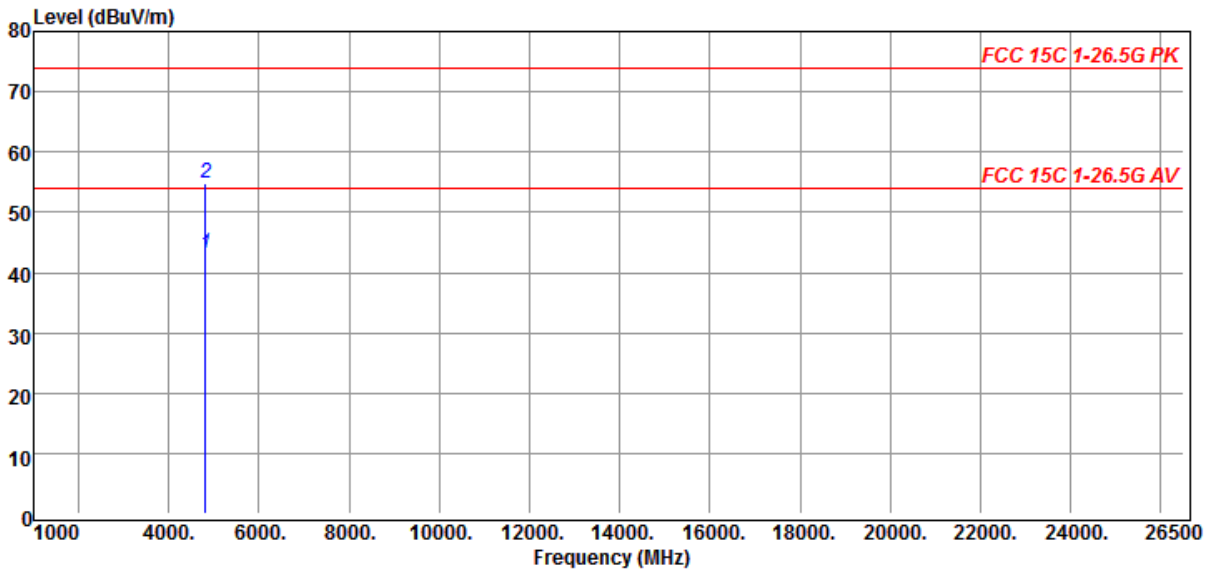
Note 2. Margin = Result - Limit ; Result = Reading + C.F ◦

Remark :

1. Measuring frequencies from 1 GHz to the 10<sup>th</sup> harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:
  - (a) Peak Setting 1GHz to 10<sup>th</sup> harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

**Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)**

Temperature	: 28.6°C	Humidity	: 58%
Test Date	: 2019-05-30	Tested by	: Andrew Lin
Polarization	: Vertical	Channel	: CH00
EUT Position	: X axis	Data rate	: 3Mbps



No.	Freq MHz	Reading dBμV	C.F dB	Result dBμV/m	Limit dBμV/m	Margin dB	Antenna Pol.	Remark
1	4804.00	42.51	0.74	43.25	54.00	-10.75	VERTICAL	Average
2	4804.00	54.01	0.74	54.75	74.00	-19.25	VERTICAL	Peak

Note 1. C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain ◦

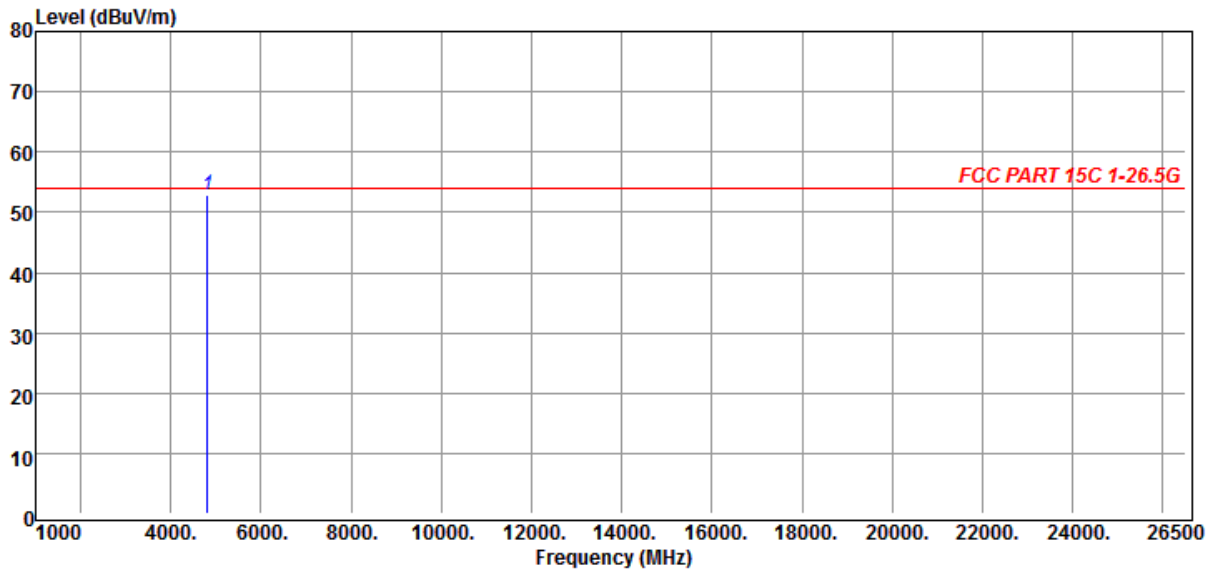
Note 2. Margin = Result - Limit ; Result = Reading + C.F ◦

Remark :

1. Measuring frequencies from 1 GHz to the 10<sup>th</sup> harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:
  - (a) Peak Setting 1GHz to 10<sup>th</sup> harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

**Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)**

Temperature	: 28.6°C	Humidity	: 58%
Test Date	: 2019-05-30	Tested by	: Andrew Lin
Polarization	: Horizontal	Channel	: CH00
EUT Position	: X axis	Data rate	: 3Mbps



No.	Freq MHz	Reading dBμV	C.F dB	Result dBμV/m	Limit dBμV/m	Margin dB	Antenna Pol.	Remark
1	4804.00	52.03	0.74	52.77	54.00	-1.23	HORIZONTAL	Peak

Note 1. C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain ◦

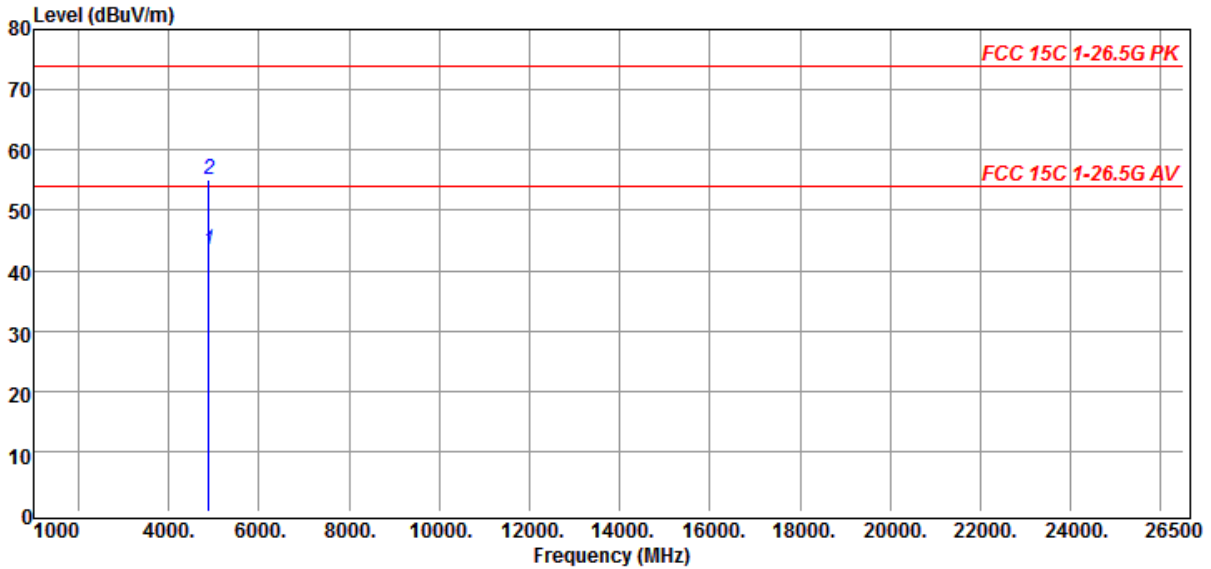
Note 2. Margin = Result - Limit ; Result = Reading + C.F ◦

Remark :

1. Measuring frequencies from 1 GHz to the 10<sup>th</sup> harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:
  - (a) Peak Setting 1GHz to 10<sup>th</sup> harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

**Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)**

Temperature	: 28.6°C	Humidity	: 58%
Test Date	: 2019-05-30	Tested by	: Andrew Lin
Polarization	: Vertical	Channel	: CH39
EUT Position	: X axis	Data rate	: 3Mbps



No.	Freq MHz	Reading dBµV	C.F dB	Result dBµV/m	Limit dBµV/m	Margin dB	Antenna Pol.	Remark
1	4882.00	42.33	1.01	43.34	54.00	-10.66	VERTICAL	Average
2	4882.00	54.02	1.01	55.03	74.00	-18.97	VERTICAL	Peak

Note 1. C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain ◦

Note 2. Margin = Result - Limit ; Result = Reading + C.F ◦

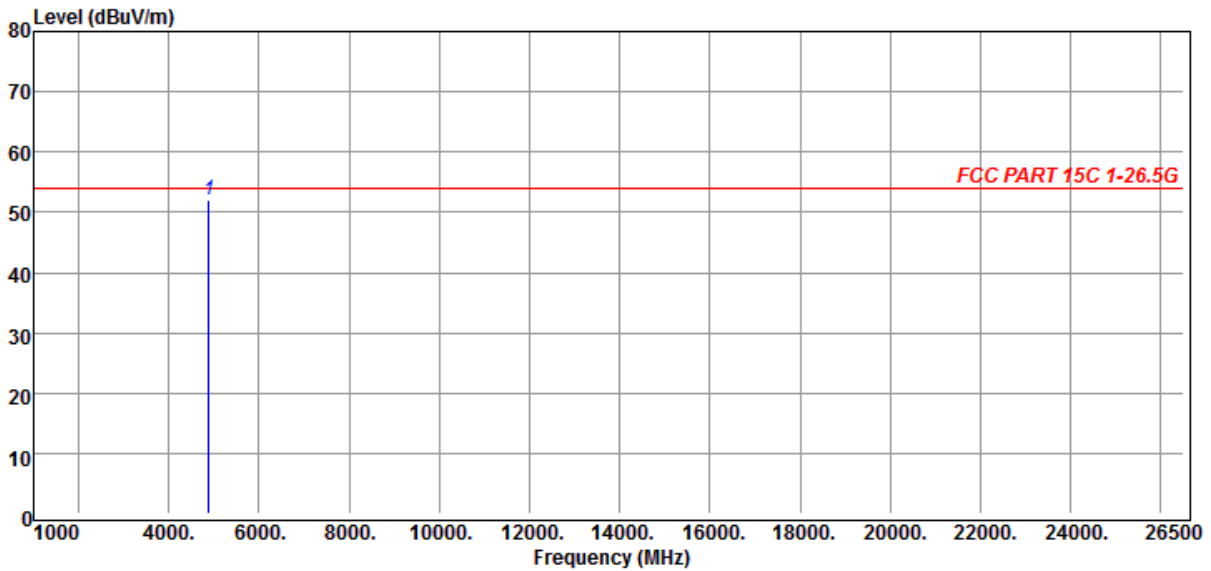
Remark :

1. Measuring frequencies from 1 GHz to the 10<sup>th</sup> harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:
  - (a) Peak Setting 1GHz to 10<sup>th</sup> harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.



**Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)**

Temperature	: 28.6°C	Humidity	: 58%
Test Date	: 2019-05-30	Tested by	: Andrew Lin
Polarization	: Horizontal	Channel	: CH39
EUT Position	: X axis	Data rate	: 3Mbps



No.	Freq MHz	Reading dBµV	C.F dB	Result dBµV/m	Limit dBµV/m	Margin dB	Antenna Pol.	Remark
1	4882.00	51.03	1.01	52.04	54.00	-1.96	HORIZONTAL	Peak

Note 1. C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain ◦

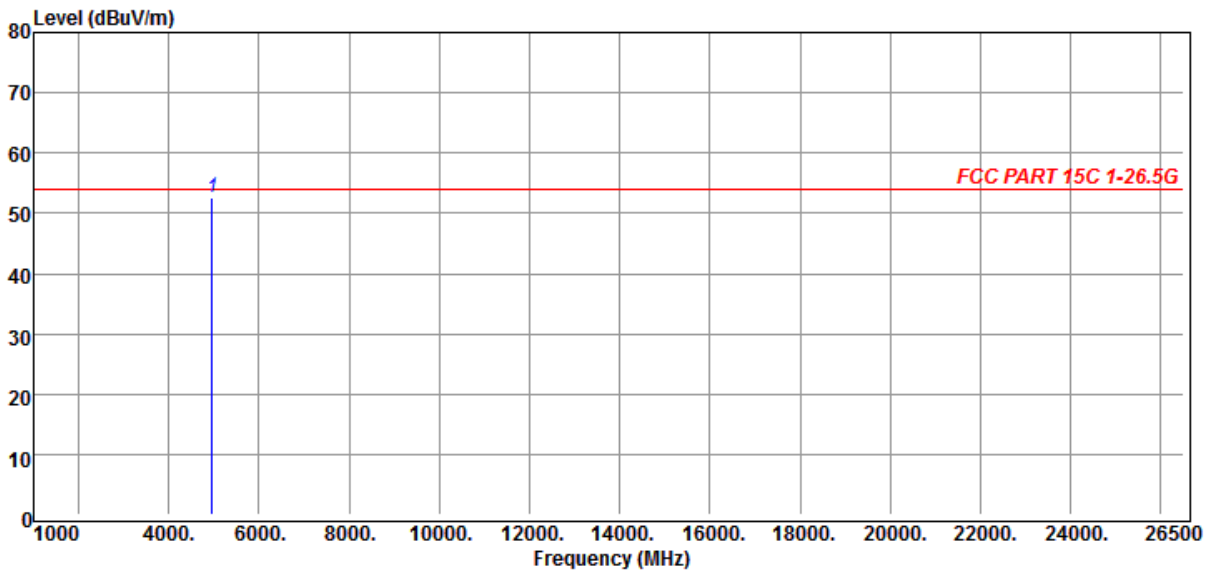
Note 2. Margin = Result - Limit ; Result = Reading + C.F ◦

Remark :

1. Measuring frequencies from 1 GHz to the 10<sup>th</sup> harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:
  - (a) Peak Setting 1GHz to 10<sup>th</sup> harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

**Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)**

Temperature	: 28.6°C	Humidity	: 58%
Test Date	: 2019-05-30	Tested by	: Andrew Lin
Polarization	: Vertical	Channel	: CH78
EUT Position	: X axis	Data rate	: 3Mbps



No.	Freq MHz	Reading dBμV	C.F dB	Result dBμV/m	Limit dBμV/m	Margin dB	Antenna Pol.	Remark
1	4960.00	51.26	1.41	52.67	54.00	-1.33	VERTICAL	Peak

Note 1. C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain ◦

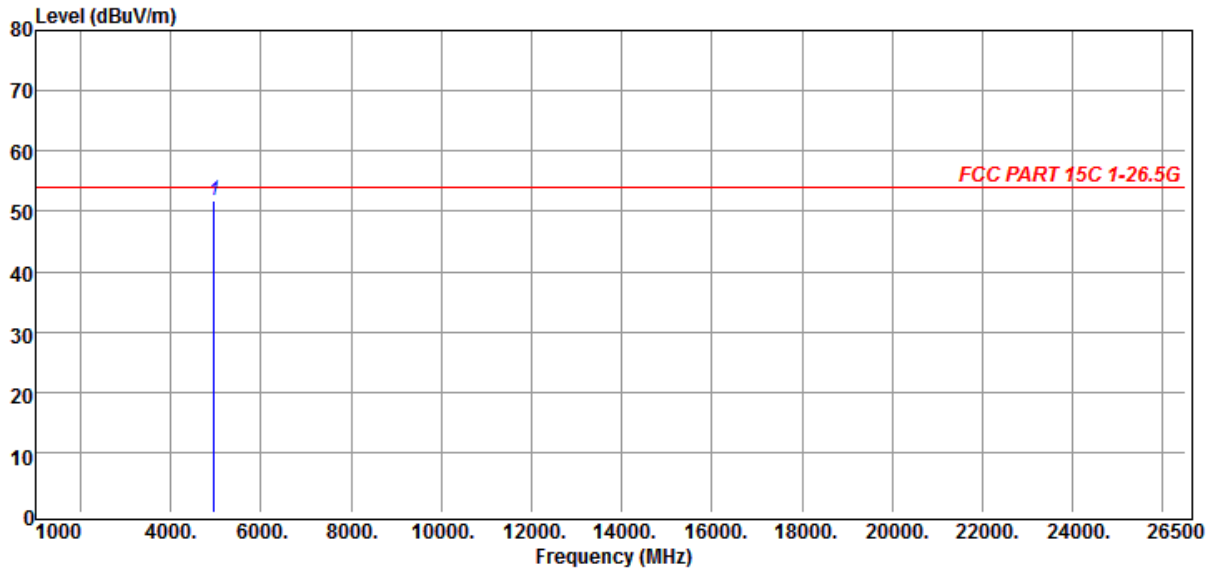
Note 2. Margin = Result - Limit ; Result = Reading + C.F ◦

Remark :

1. Measuring frequencies from 1 GHz to the 10<sup>th</sup> harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:
  - (a) Peak Setting 1GHz to 10<sup>th</sup> harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

**Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)**

Temperature	: 28.6°C	Humidity	: 58%
Test Date	: 2019-05-30	Tested by	: Andrew Lin
Polarization	: Horizontal	Channel	: CH78
EUT Position	: X axis	Data rate	: 3Mbps



No.	Freq MHz	Reading dBμV	C.F dB	Result dBμV/m	Limit dBμV/m	Margin dB	Antenna Pol.	Remark
1	4960.00	50.29	1.41	51.70	54.00	-2.30	HORIZONTAL	Peak

Note 1. C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain ◦

Note 2. Margin = Result - Limit ; Result = Reading + C.F ◦

Remark :

1. Measuring frequencies from 1 GHz to the 10<sup>th</sup> harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:
  - (a) Peak Setting 1GHz to 10<sup>th</sup> harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

## **4 Out of Band Emission Test**

### **4.1 Test Instruments**

Refer to Sec. 1.2 Test Instruments.

### **4.2 Test Arrangement and Procedure**

Refer to Sec. 3.2.

### **4.3 Limit of Field Strength of Fundamental (§ 15.249(d))**

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in § 15.209, whichever is the lesser attenuation.

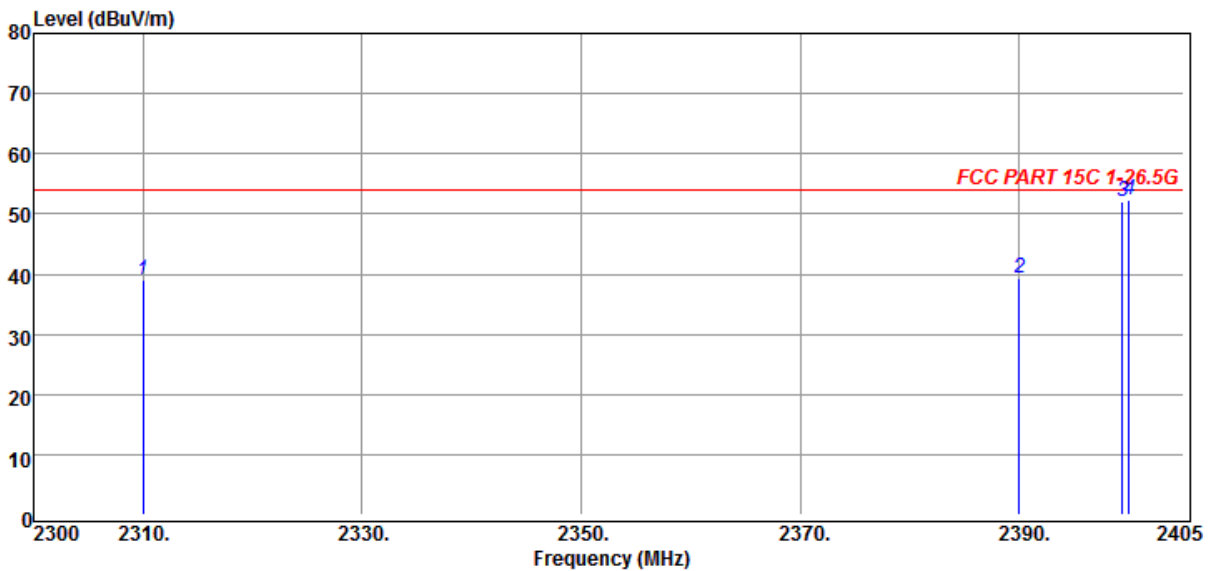
### **4.4 Test Result**

#### **Compliance**

The final test data are shown on the following page(s).

**Band-Edge Test Data (Lower Edge)**

Temperature	: 28.6°C	Humidity	: 58%
Test Date	: 2019-05-30	Tested by	: Andrew Lin
Polarization	: Vertical	Channel	: CH00
EUT Position	: X axis	Data Rate	: 1Mbps



No.	Freq MHz	Reading dBμV	C.F dB	Result dBμV/m	Limit dBμV/m	Margin dB	Antenna Pol.	Remark
1	2310.00	45.85	-6.93	38.92	54.00	-15.08	VERTICAL	Peak
2	2390.00	45.92	-6.67	39.25	54.00	-14.75	VERTICAL	Peak
3	2399.44	58.63	-6.64	51.99	54.00	-2.01	VERTICAL	Peak
4	2400.00	59.05	-6.64	52.41	54.00	-1.59	VERTICAL	Peak

Note 1. C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain ◦

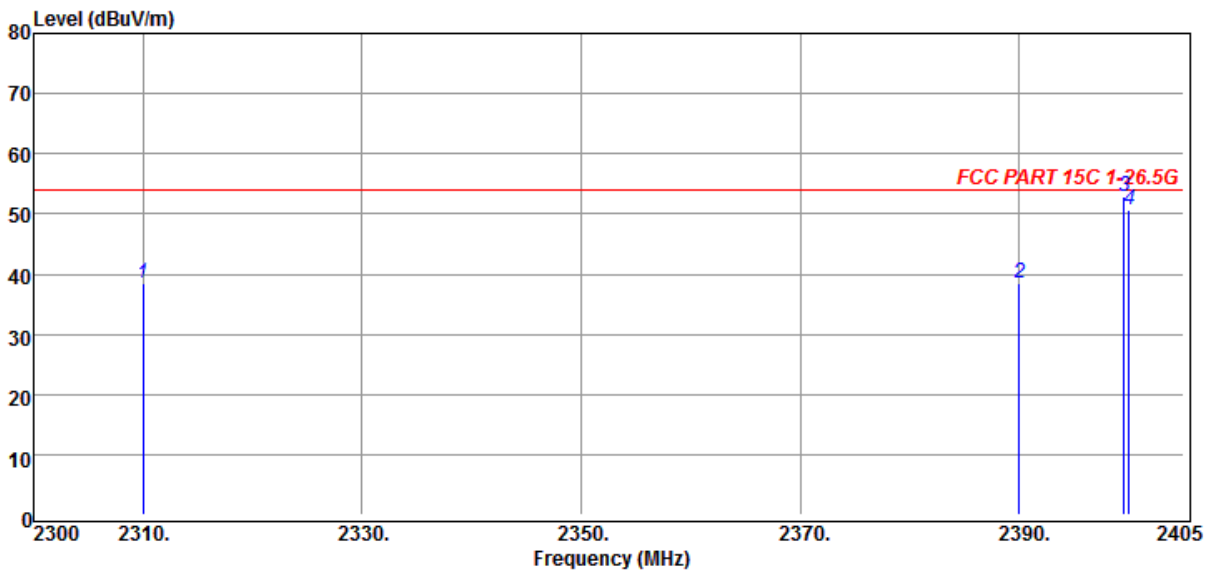
Note 2. Margin = Result - Limit ; Result = Reading + C.F ◦

Remark :

- Measuring frequencies from 1 GHz to the 10<sup>th</sup> harmonic of highest fundamental frequency.
- Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
- Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
- Spectrum setting:
  - Peak Setting 1GHz to 10<sup>th</sup> harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

**Band-Edge Test Data (Lower Edge)**

Temperature	: 28.6°C	Humidity	: 58%
Test Date	: 2019-05-30	Tested by	: Andrew Lin
Polarization	: Horizontal	Channel	: CH00
EUT Position	: X axis	Data Rate	: 1Mbps



No.	Freq MHz	Reading dBμV	C.F dB	Result dBμV/m	Limit dBμV/m	Margin dB	Antenna Pol.	Remark
1	2310.00	45.29	-6.93	38.36	54.00	-15.64	HORIZONTAL	Peak
2	2390.00	45.25	-6.67	38.58	54.00	-15.42	HORIZONTAL	Peak
3	2399.54	59.38	-6.64	52.74	54.00	-1.26	HORIZONTAL	Peak
4	2400.00	57.18	-6.64	50.54	54.00	-3.46	HORIZONTAL	Peak

Note 1. C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain ◦

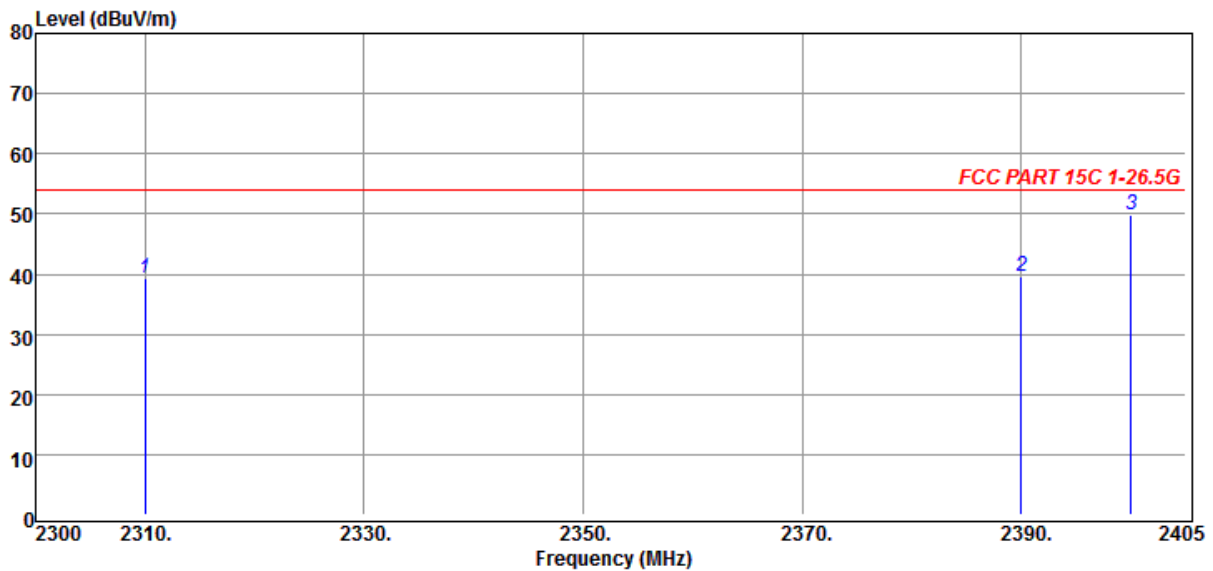
Note 2. Margin = Result - Limit ; Result = Reading + C.F ◦

Remark :

1. Measuring frequencies from 1 GHz to the 10<sup>th</sup> harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:
  - (a) Peak Setting 1GHz to 10<sup>th</sup> harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

**Band-Edge Test Data (Lower Edge)**

Temperature	: 28.6°C	Humidity	: 58%
Test Date	: 2019-05-30	Tested by	: Andrew Lin
Polarization	: Vertical	Channel	: CH00
EUT Position	: X axis	Data Rate	: 2Mbps



No.	Freq MHz	Reading dBμV	C.F dB	Result dBμV/m	Limit dBμV/m	Margin dB	Antenna Pol.	Remark
1	2310.00	46.18	-6.93	39.25	54.00	-14.75	VERTICAL	Peak
2	2390.00	46.16	-6.67	39.49	54.00	-14.51	VERTICAL	Peak
3	2400.00	56.47	-6.64	49.83	54.00	-4.17	VERTICAL	Peak

Note 1. C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain ◦

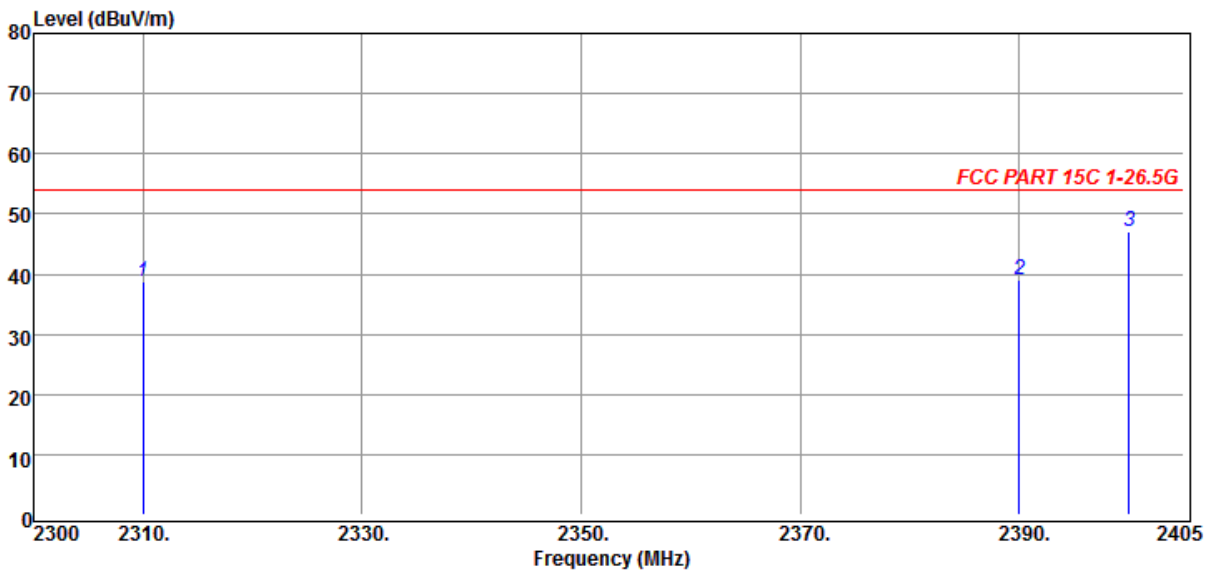
Note 2. Margin = Result - Limit ; Result = Reading + C.F ◦

Remark :

1. Measuring frequencies from 1 GHz to the 10<sup>th</sup> harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:
  - (a) Peak Setting 1GHz to 10<sup>th</sup> harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

**Band-Edge Test Data (Lower Edge)**

Temperature	: 28.6°C	Humidity	: 58%
Test Date	: 2019-05-30	Tested by	: Andrew Lin
Polarization	: Horizontal	Channel	: CH00
EUT Position	: X axis	Data Rate	: 2Mbps



No.	Freq MHz	Reading dBμV	C.F dB	Result dBμV/m	Limit dBμV/m	Margin dB	Antenna Pol.	Remark
1	2310.00	45.70	-6.93	38.77	54.00	-15.23	HORIZONTAL	Peak
2	2390.00	45.63	-6.67	38.96	54.00	-15.04	HORIZONTAL	Peak
3	2400.00	53.68	-6.64	47.04	54.00	-6.96	HORIZONTAL	Peak

Note 1. C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain ◦

Note 2. Margin = Result - Limit ; Result = Reading + C.F ◦

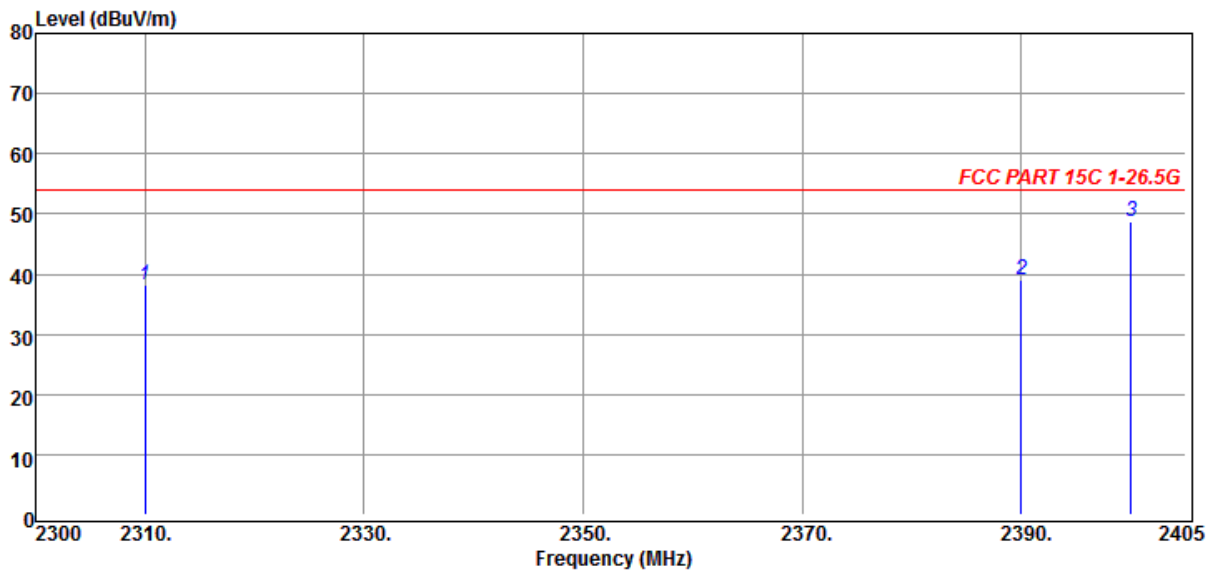
Remark :

- Measuring frequencies from 1 GHz to the 10<sup>th</sup> harmonic of highest fundamental frequency.
- Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
- Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
- Spectrum setting:
  - Peak Setting 1GHz to 10<sup>th</sup> harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.



**Band-Edge Test Data (Lower Edge)**

Temperature	: 28.6°C	Humidity	: 58%
Test Date	: 2019-05-30	Tested by	: Andrew Lin
Polarization	: Vertical	Channel	: CH00
EUT Position	: X axis	Data Rate	: 3Mbps



No.	Freq MHz	Reading dBμV	C.F dB	Result dBμV/m	Limit dBμV/m	Margin dB	Antenna Pol.	Remark
1	2310.00	45.07	-6.93	38.14	54.00	-15.86	VERTICAL	Peak
2	2390.00	45.77	-6.67	39.10	54.00	-14.90	VERTICAL	Peak
3	2400.00	55.32	-6.64	48.68	54.00	-5.32	VERTICAL	Peak

Note 1. C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain ◦

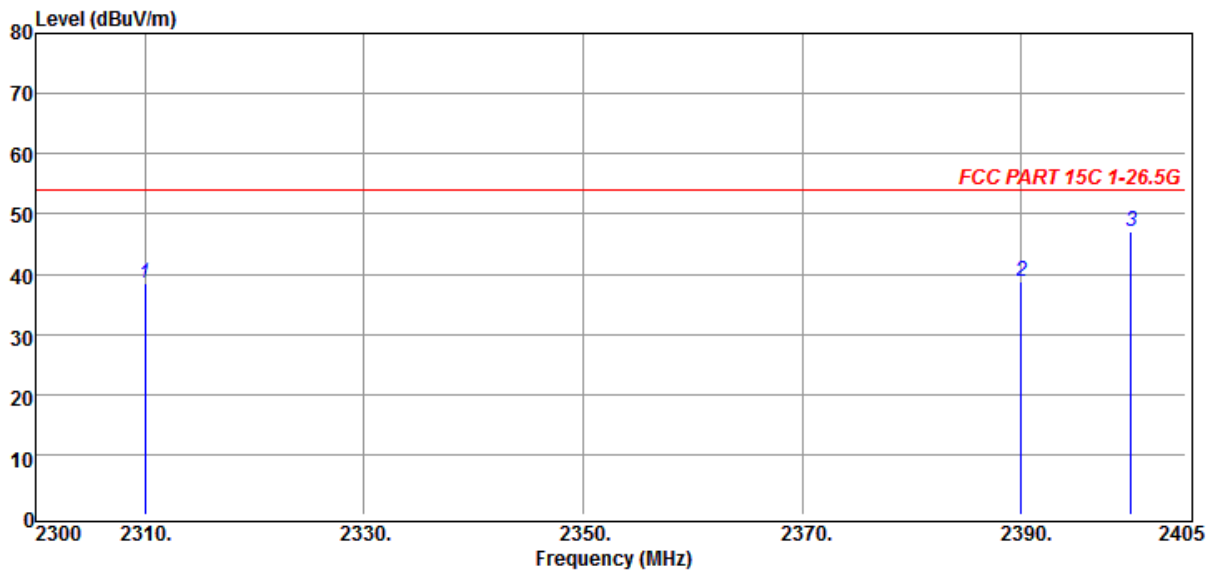
Note 2. Margin = Result - Limit ; Result = Reading + C.F ◦

Remark :

- Measuring frequencies from 1 GHz to the 10<sup>th</sup> harmonic of highest fundamental frequency.
- Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
- Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
- Spectrum setting:
  - Peak Setting 1GHz to 10<sup>th</sup> harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

**Band-Edge Test Data (Lower Edge)**

Temperature	: 28.6°C	Humidity	: 58%
Test Date	: 2019-05-30	Tested by	: Andrew Lin
Polarization	: Horizontal	Channel	: CH00
EUT Position	: X axis	Data Rate	: 3Mbps



No.	Freq MHz	Reading dBμV	C.F dB	Result dBμV/m	Limit dBμV/m	Margin dB	Antenna Pol.	Remark
1	2310.00	45.34	-6.93	38.41	54.00	-15.59	HORIZONTAL	Peak
2	2390.00	45.40	-6.67	38.73	54.00	-15.27	HORIZONTAL	Peak
3	2400.00	53.84	-6.64	47.20	54.00	-6.80	HORIZONTAL	Peak

Note 1. C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain ◦

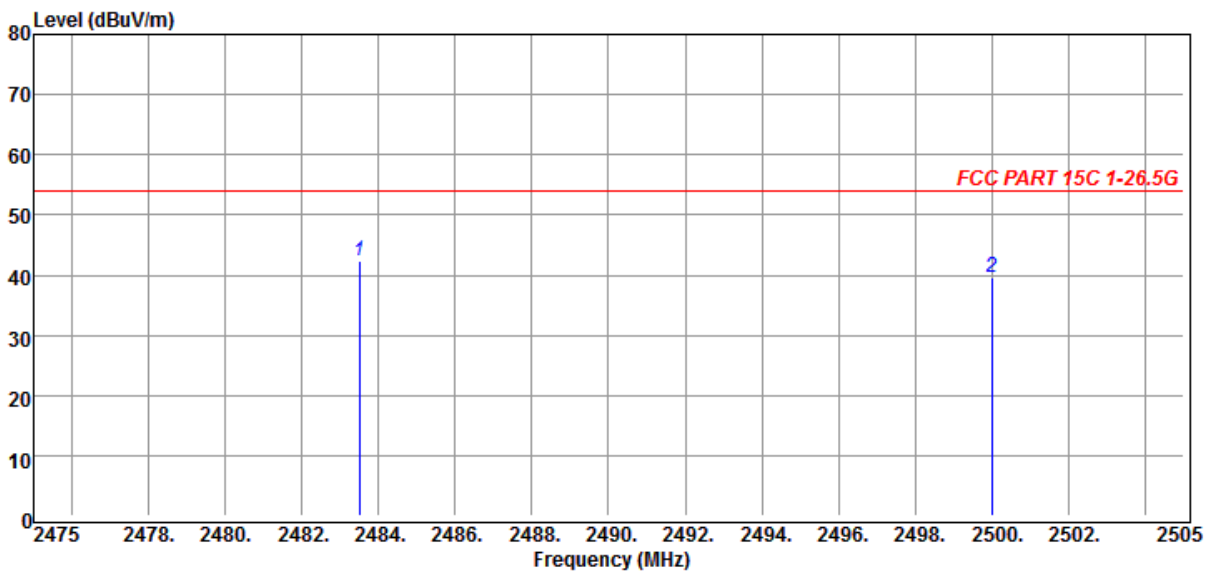
Note 2. Margin = Result - Limit ; Result = Reading + C.F ◦

Remark :

- Measuring frequencies from 1 GHz to the 10<sup>th</sup> harmonic of highest fundamental frequency.
- Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
- Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
- Spectrum setting:
  - (b) Peak Setting 1GHz to 10<sup>th</sup> harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

### Band-Edge Test Data (Upper Edge)

Temperature	: 28.6°C	Humidity	: 58%
Test Date	: 2019-05-30	Tested by	: Andrew Lin
Polarization	: Vertical	Channel	: CH78
EUT Position	: X axis	Data Rate	: 1Mbps



No.	Freq MHz	Reading dBμV	C.F dB	Result dBUV/m	Limit dBUV/m	Margin dB	Antenna Pol.	Remark
1	2483.50	48.70	-6.44	42.26	54.00	-11.74	VERTICAL	Peak
2	2500.00	46.00	-6.31	39.69	54.00	-14.31	VERTICAL	Peak

Note 1. C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain ◦

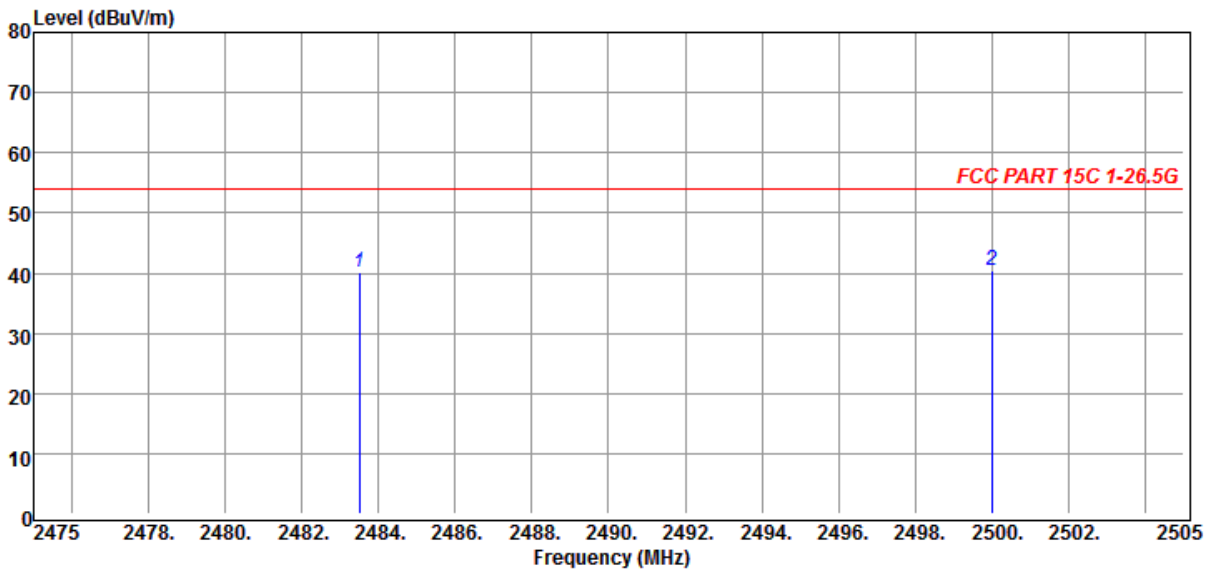
Note 2. Margin = Result - Limit ; Result = Reading + C.F ◦

Remark :

- Measuring frequencies from 1 GHz to the 10<sup>th</sup> harmonic of highest fundamental frequency.
- Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
- Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
- Spectrum setting:
  - Peak Setting 1GHz to 10<sup>th</sup> harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

### Band-Edge Test Data (Upper Edge)

Temperature	: 28.6°C	Humidity	: 58%
Test Date	: 2019-05-30	Tested by	: Andrew Lin
Polarization	: Horizontal	Channel	: CH78
EUT Position	: X axis	Data Rate	: 1Mbps



No.	Freq MHz	Reading dBµV	C.F dB	Result dBµV/m	Limit dBµV/m	Margin dB	Antenna Pol.	Remark
1	2483.50	46.69	-6.44	40.25	54.00	-13.75	HORIZONTAL	Peak
2	2500.00	46.72	-6.31	40.41	54.00	-13.59	HORIZONTAL	Peak

Note 1. C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain ◦

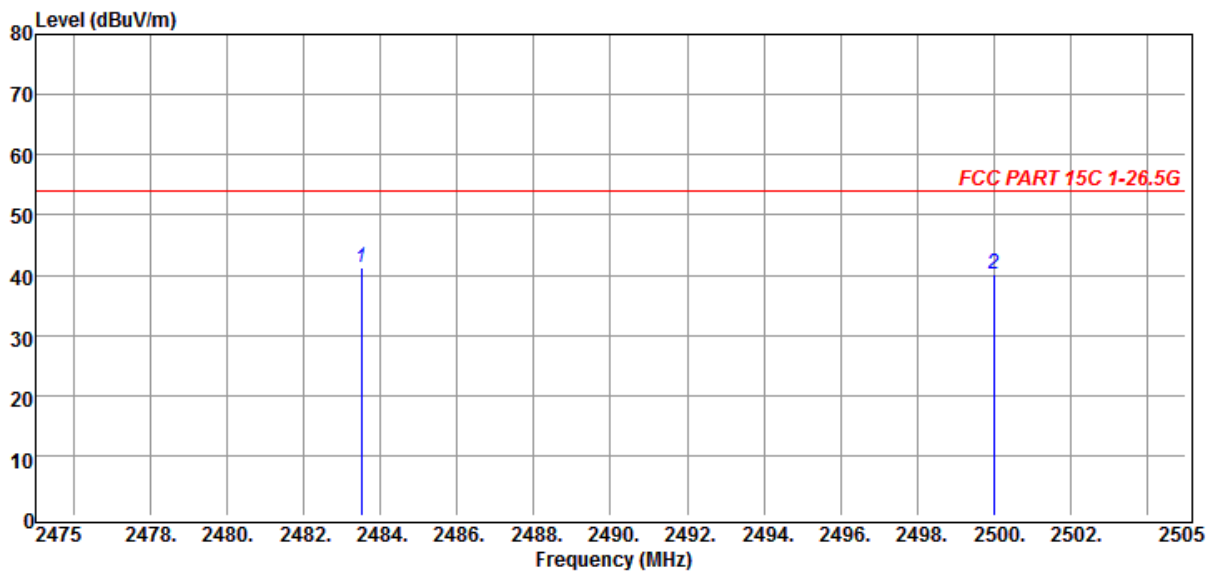
Note 2. Margin = Result - Limit ; Result = Reading + C.F ◦

Remark :

- Measuring frequencies from 1 GHz to the 10<sup>th</sup> harmonic of highest fundamental frequency.
- Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
- Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
- Spectrum setting:
  - Peak Setting 1GHz to 10<sup>th</sup> harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

### Band-Edge Test Data (Upper Edge)

Temperature	: 28.6°C	Humidity	: 58%
Test Date	: 2019-05-30	Tested by	: Andrew Lin
Polarization	: Vertical	Channel	: CH78
EUT Position	: X axis	Data Rate	: 2Mbps



No.	Freq MHz	Reading dBµV	C.F dB	Result dBµV/m	Limit dBµV/m	Margin dB	Antenna Pol.	Remark
1	2483.50	47.77	-6.44	41.33	54.00	-12.67	VERTICAL	Peak
2	2500.00	46.55	-6.31	40.24	54.00	-13.76	VERTICAL	Peak

Note 1. C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain ◦

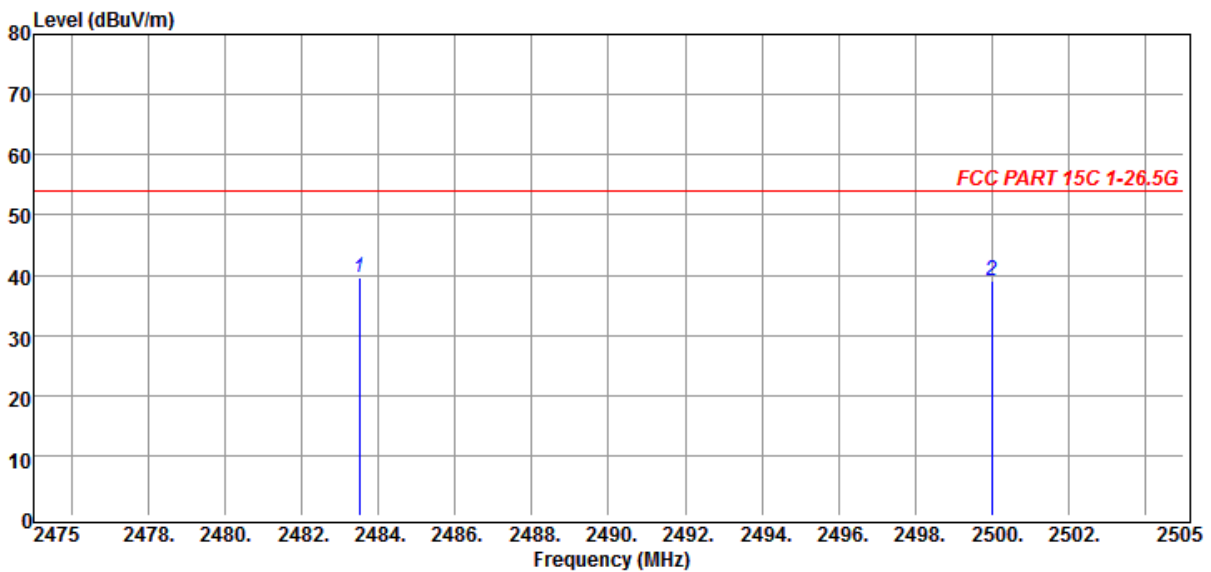
Note 2. Margin = Result - Limit ; Result = Reading + C.F ◦

Remark :

1. Measuring frequencies from 1 GHz to the 10<sup>th</sup> harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:
  - (a) Peak Setting 1GHz to 10<sup>th</sup> harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

### Band-Edge Test Data (Upper Edge)

Temperature	: 28.6°C	Humidity	: 58%
Test Date	: 2019-05-30	Tested by	: Andrew Lin
Polarization	: Horizontal	Channel	: CH78
EUT Position	: X axis	Data Rate	: 2Mbps



No.	Freq MHz	Reading dBµV	C.F dB	Result dBµV/m	Limit dBµV/m	Margin dB	Antenna Pol.	Remark
1	2483.50	46.05	-6.44	39.61	54.00	-14.39	HORIZONTAL	Peak
2	2500.00	45.48	-6.31	39.17	54.00	-14.83	HORIZONTAL	Peak

Note 1. C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain ◦

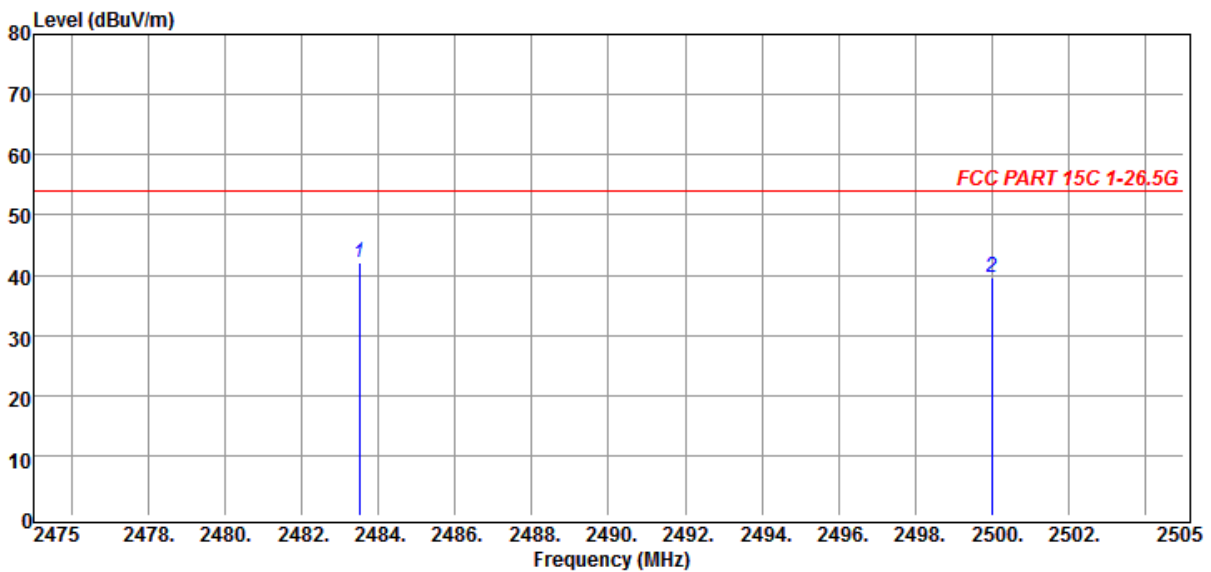
Note 2. Margin = Result - Limit ; Result = Reading + C.F ◦

Remark :

1. Measuring frequencies from 1 GHz to the 10<sup>th</sup> harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:  
Peak Setting 1GHz to 10<sup>th</sup> harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

### Band-Edge Test Data (Upper Edge)

Temperature	: 28.6°C	Humidity	: 58%
Test Date	: 2019-05-30	Tested by	: Andrew Lin
Polarization	: Vertical	Channel	: CH78
EUT Position	: X axis	Data Rate	: 3Mbps



No.	Freq MHz	Reading dBµV	C.F dB	Result dBµV/m	Limit dBµV/m	Margin dB	Antenna Pol.	Remark
1	2483.50	48.56	-6.44	42.12	54.00	-11.88	VERTICAL	Peak
2	2500.00	45.81	-6.31	39.50	54.00	-14.50	VERTICAL	Peak

Note 1. C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain ◦

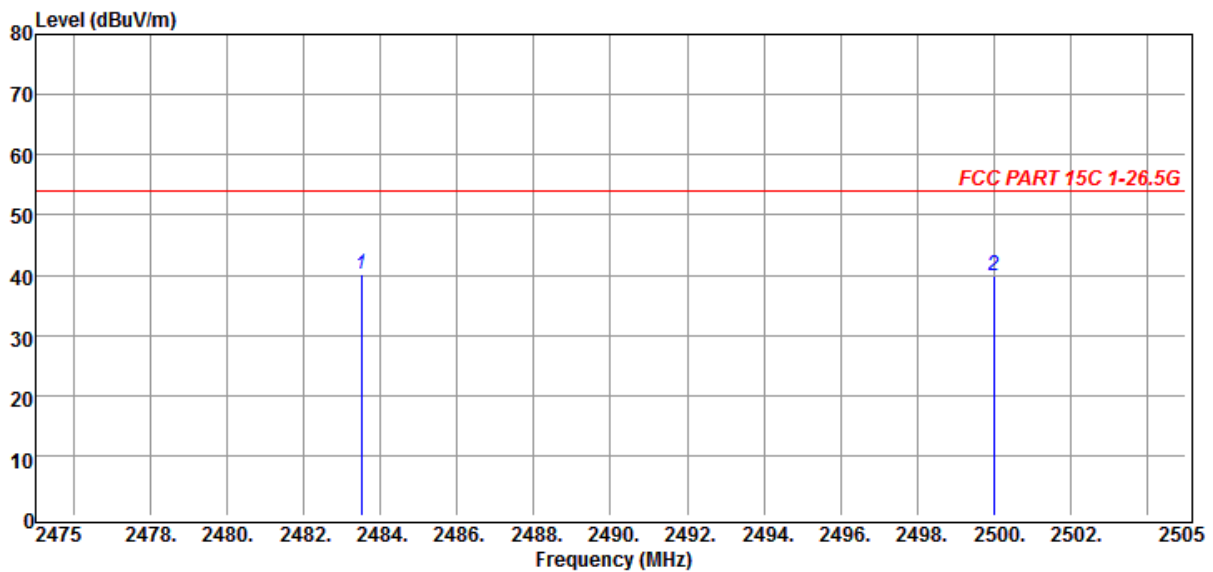
Note 2. Margin = Result - Limit ; Result = Reading + C.F ◦

Remark :

1. Measuring frequencies from 1 GHz to the 10<sup>th</sup> harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:
  - (a) Peak Setting 1GHz to 10<sup>th</sup> harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

### Band-Edge Test Data (Upper Edge)

Temperature	: 28.6°C	Humidity	: 58%
Test Date	: 2019-05-30	Tested by	: Andrew Lin
Polarization	: Horizontal	Channel	: CH78
EUT Position	: X axis	Data Rate	: 3Mbps



No.	Freq MHz	Reading dBμV	C.F dB	Result dBμV/m	Limit dBμV/m	Margin dB	Antenna Pol.	Remark
1	2483.50	46.67	-6.44	40.23	54.00	-13.77	HORIZONTAL	Peak
2	2500.00	46.14	-6.31	39.83	54.00	-14.17	HORIZONTAL	Peak

Note 1. C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain ◦

Note 2. Margin = Result - Limit ; Result = Reading + C.F ◦

Remark :

1. Measuring frequencies from 1 GHz to the 10<sup>th</sup> harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:
  - (a) Peak Setting 1GHz to 10<sup>th</sup> harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

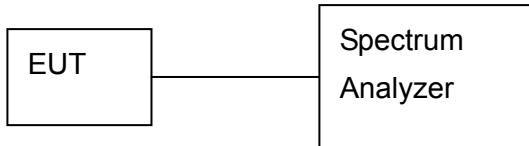


## 5 20 dB Bandwidth

### 5.1 Test Instruments

Refer to Sec. 1.2 Test Instruments.

### 5.2 Test Arrangement and Procedure



1. The transmitter output was connected to a spectrum analyzer (through an attenuator, if it's necessary).
2. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100kHz RBW and 300kHz VBW. Measured the -20 dB bandwidth and plotted the graph.

### 5.3 Limit

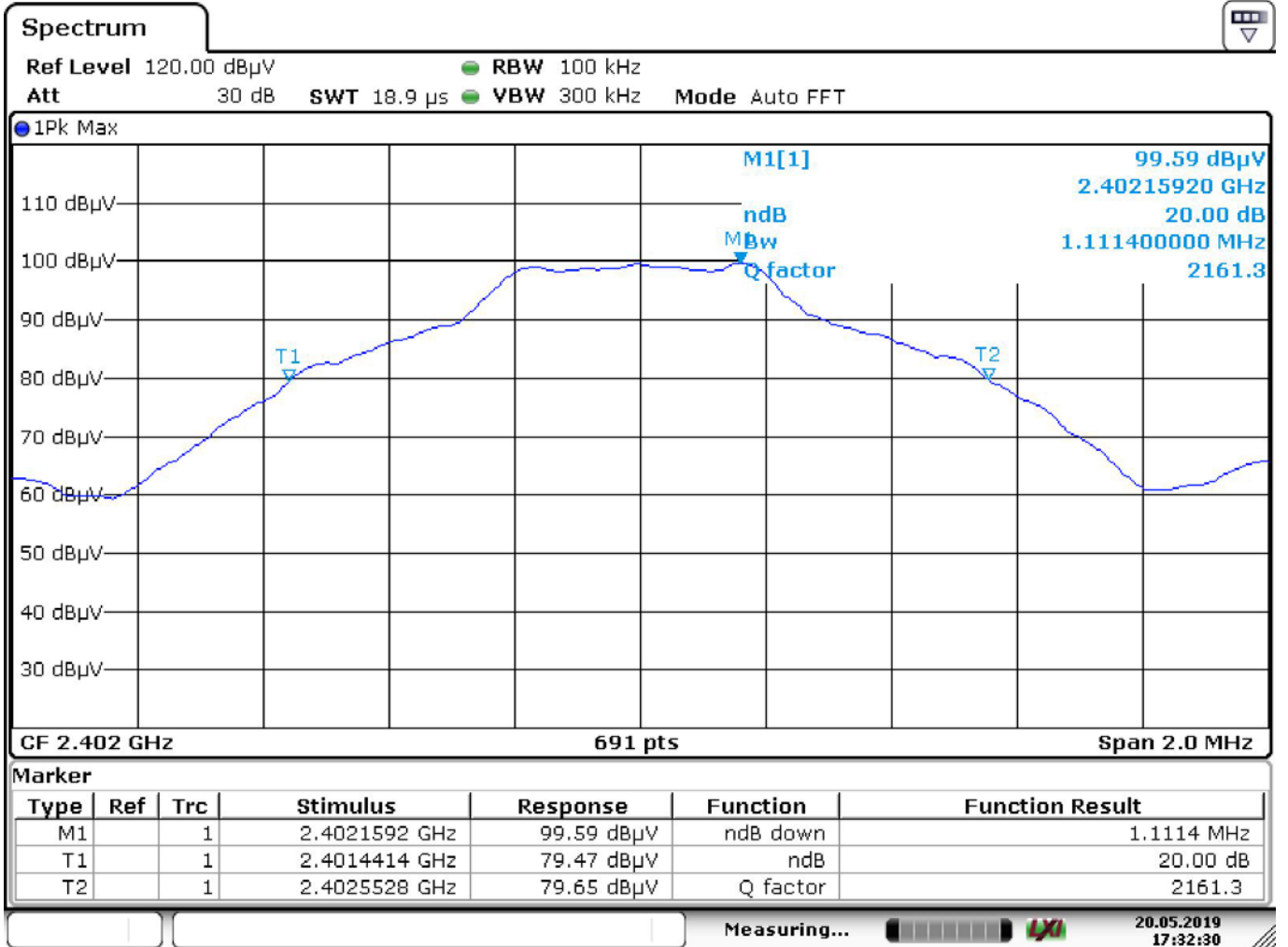
None; For report purpose only.

### 5.4 Test Result

**No non-compliance noted.**

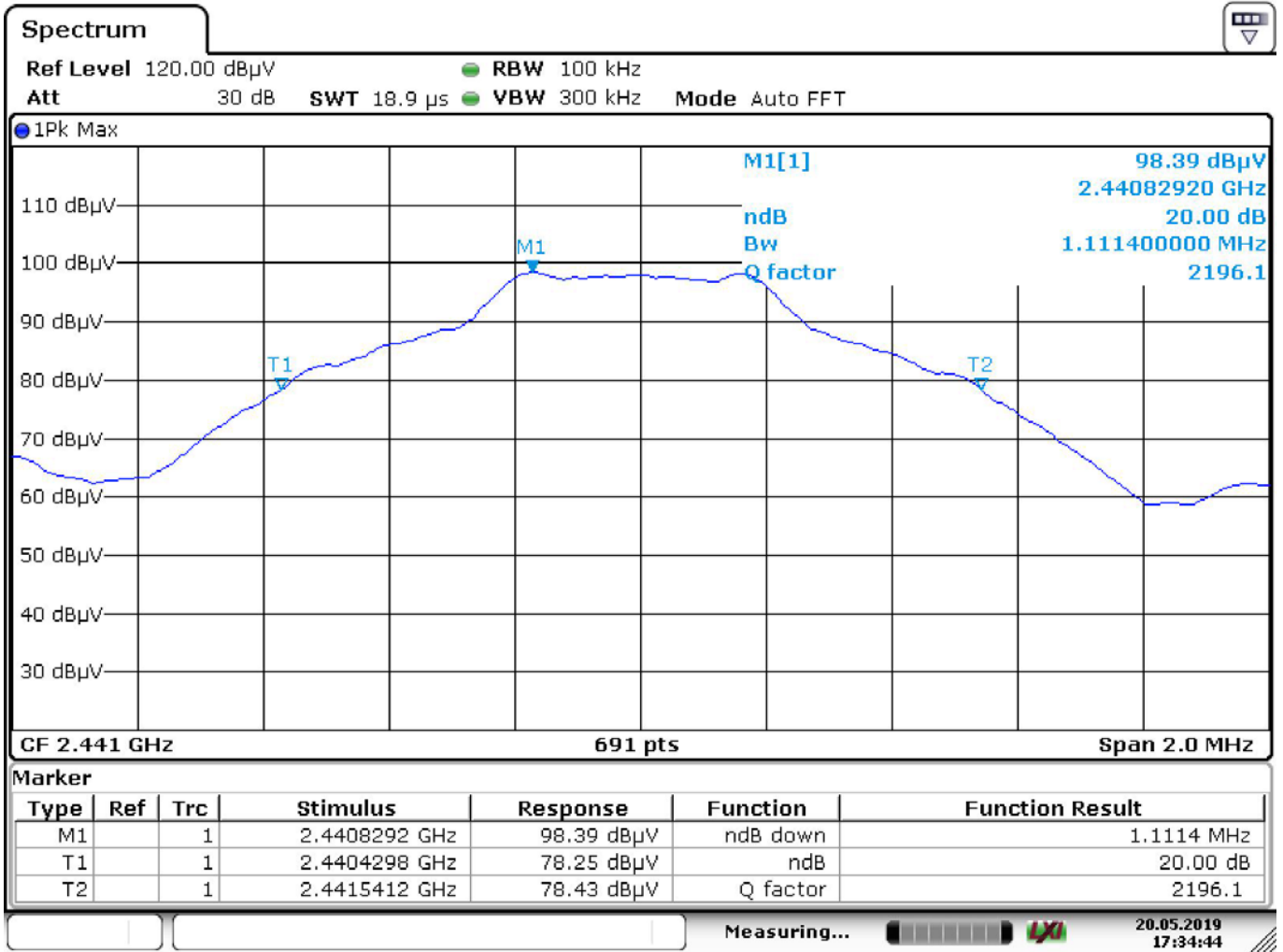
The final test data are shown on the following page(s).

Temperature : 24.8°C Humidity : 48%  
 Test Date : 2019-05-30 Tested by : Andrew Lin  
 Data Rate : 1 Mbps Channel : 00



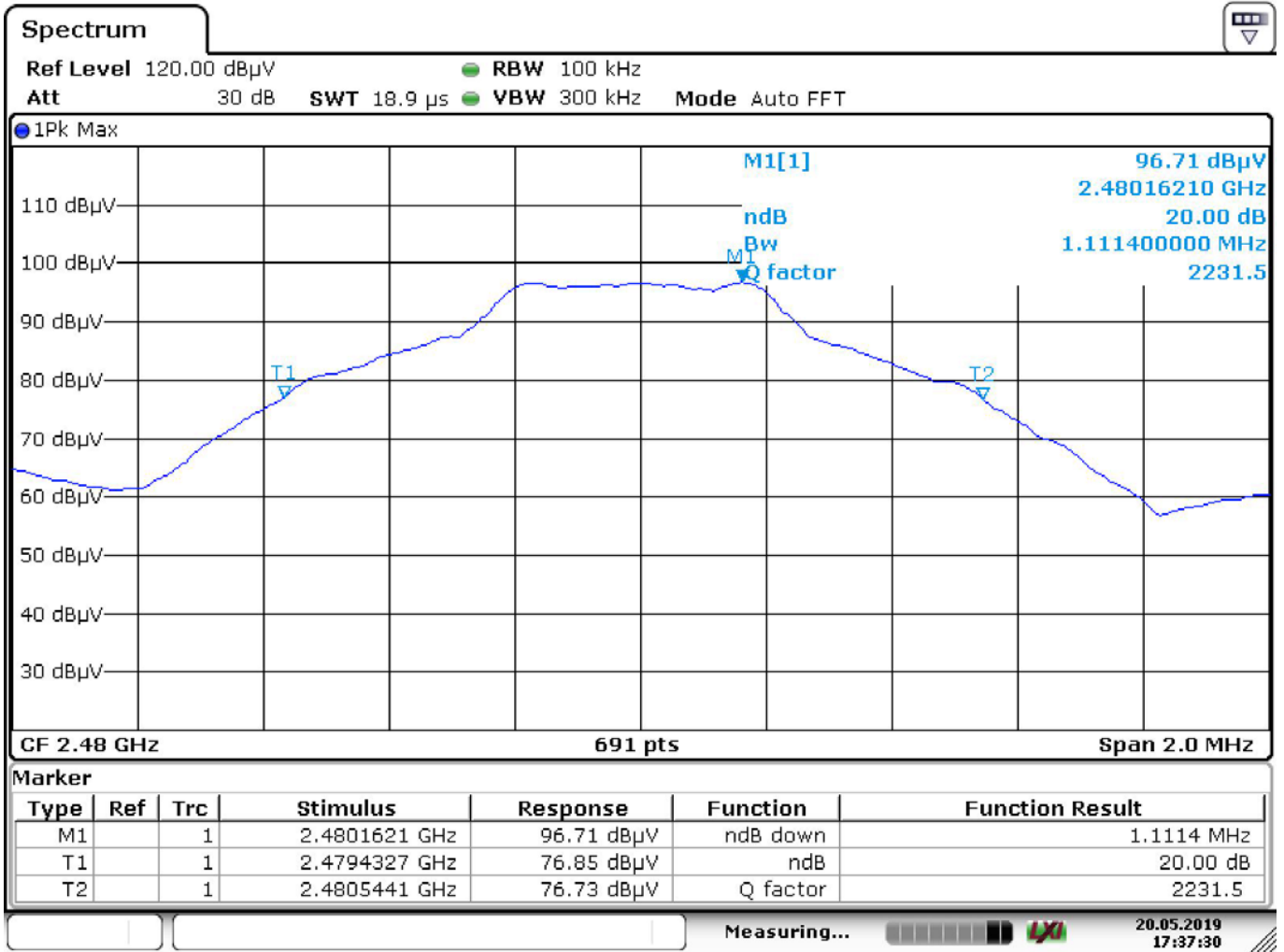
Data Rate : 1 Mbps

Channel : 39

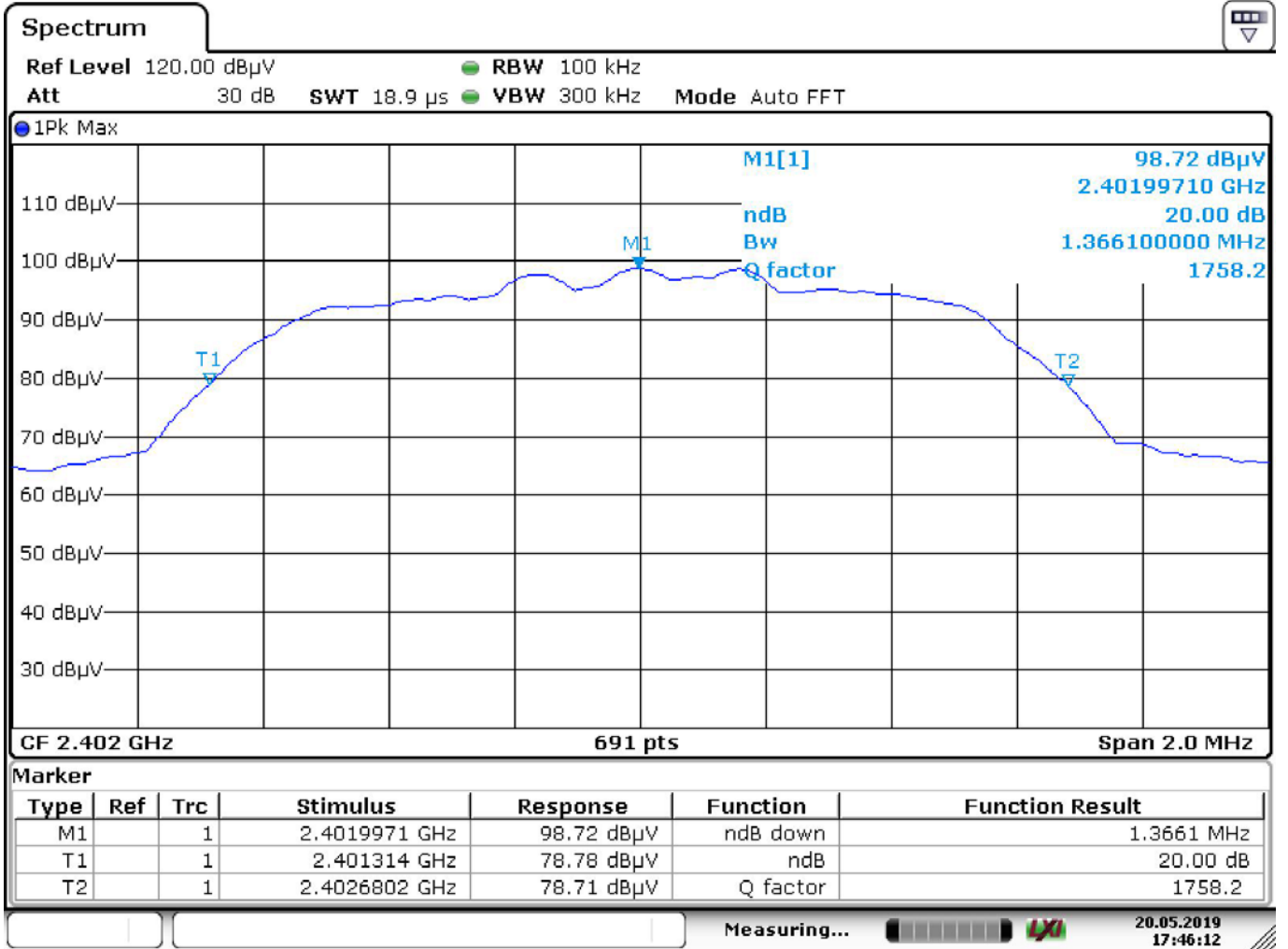


Data Rate : 1 Mbps

Channel : 78

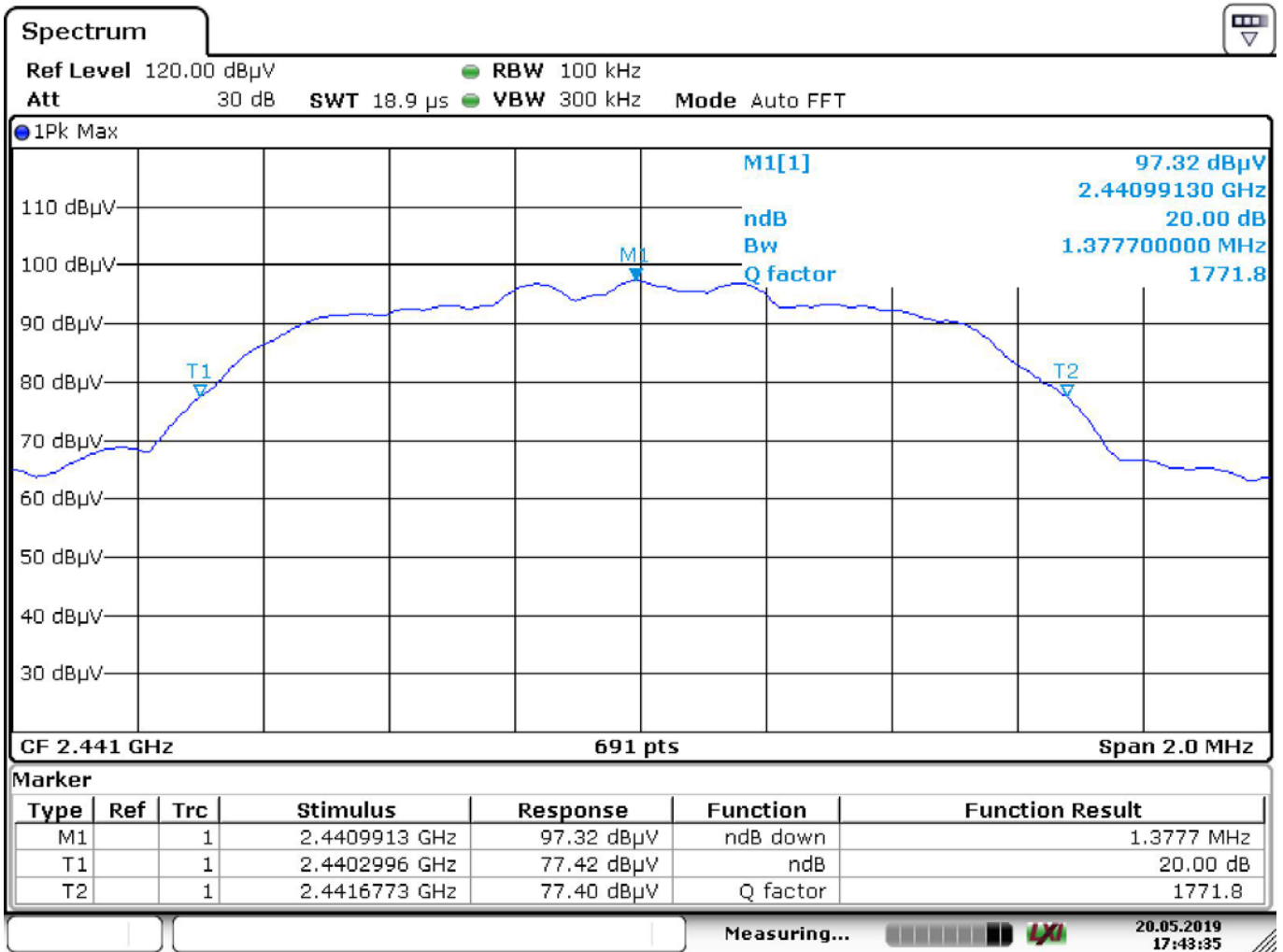


Temperature : 24.8°C Humidity : 48%  
 Test Date : 2019-05-30 Tested by : Andrew Lin  
 Data Rate : 2 Mbps Channel : 00

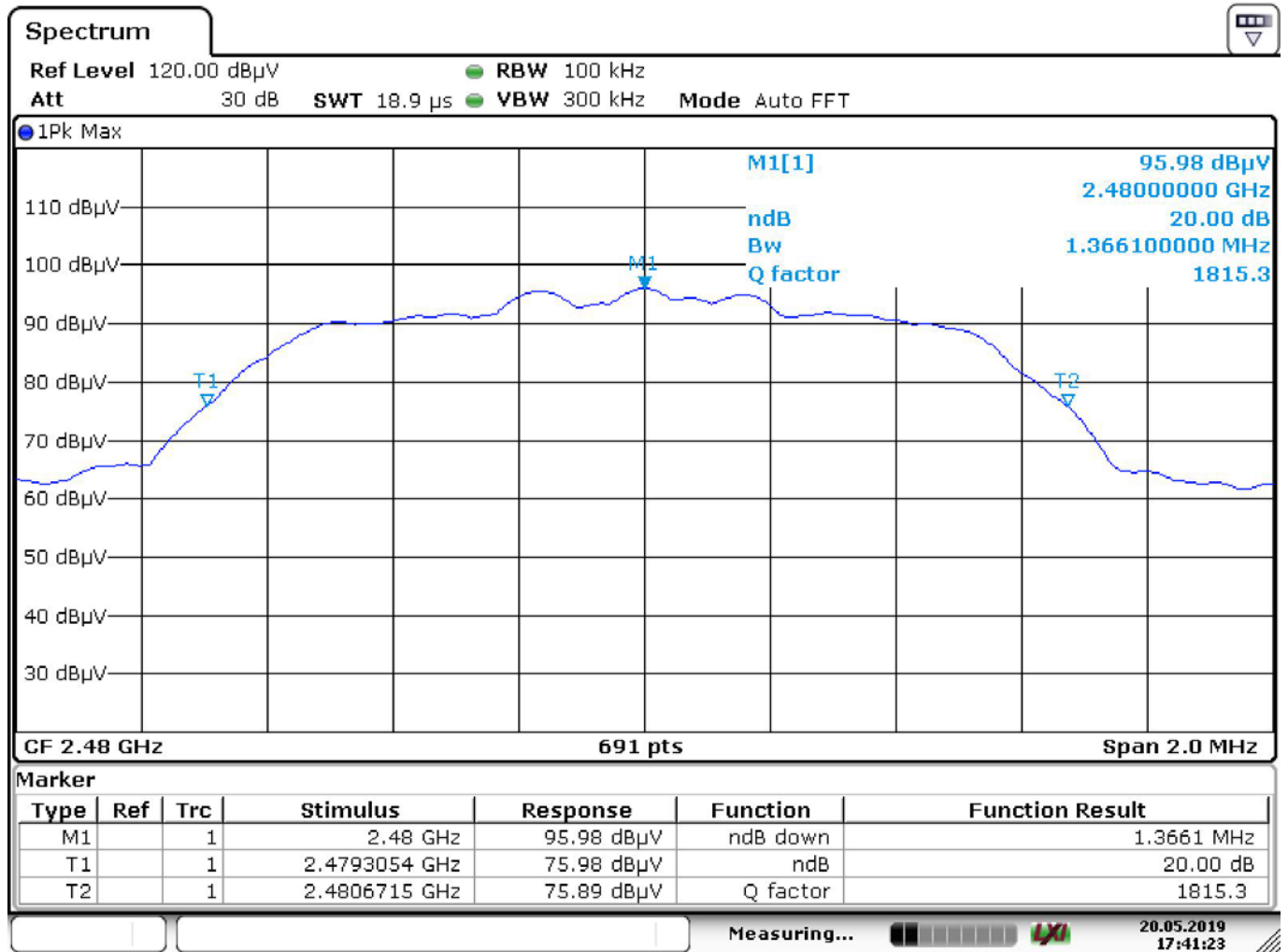


Data Rate : 2 Mbps

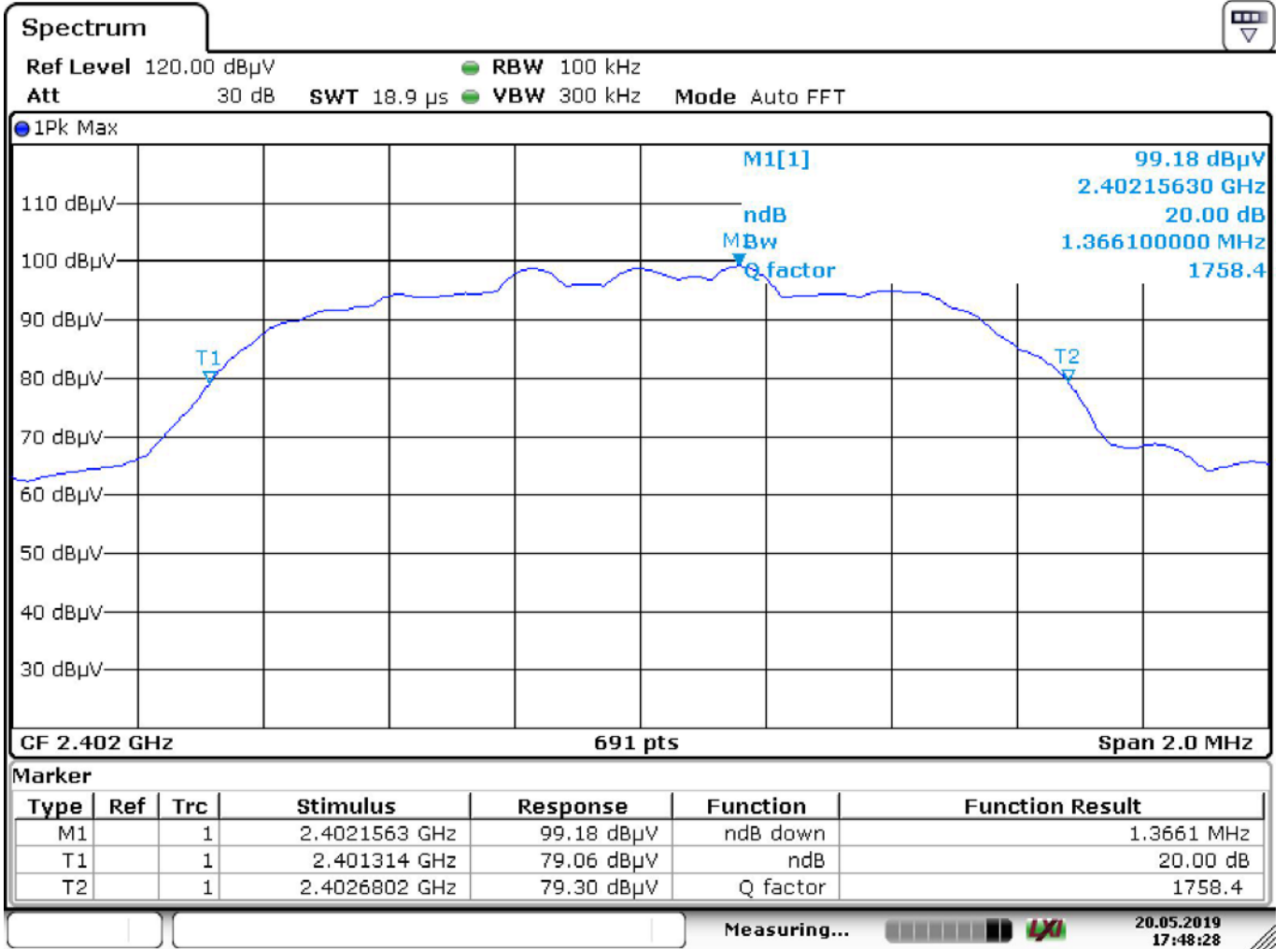
Channel : 39



Data Rate : 2 Mbps Channel : 78



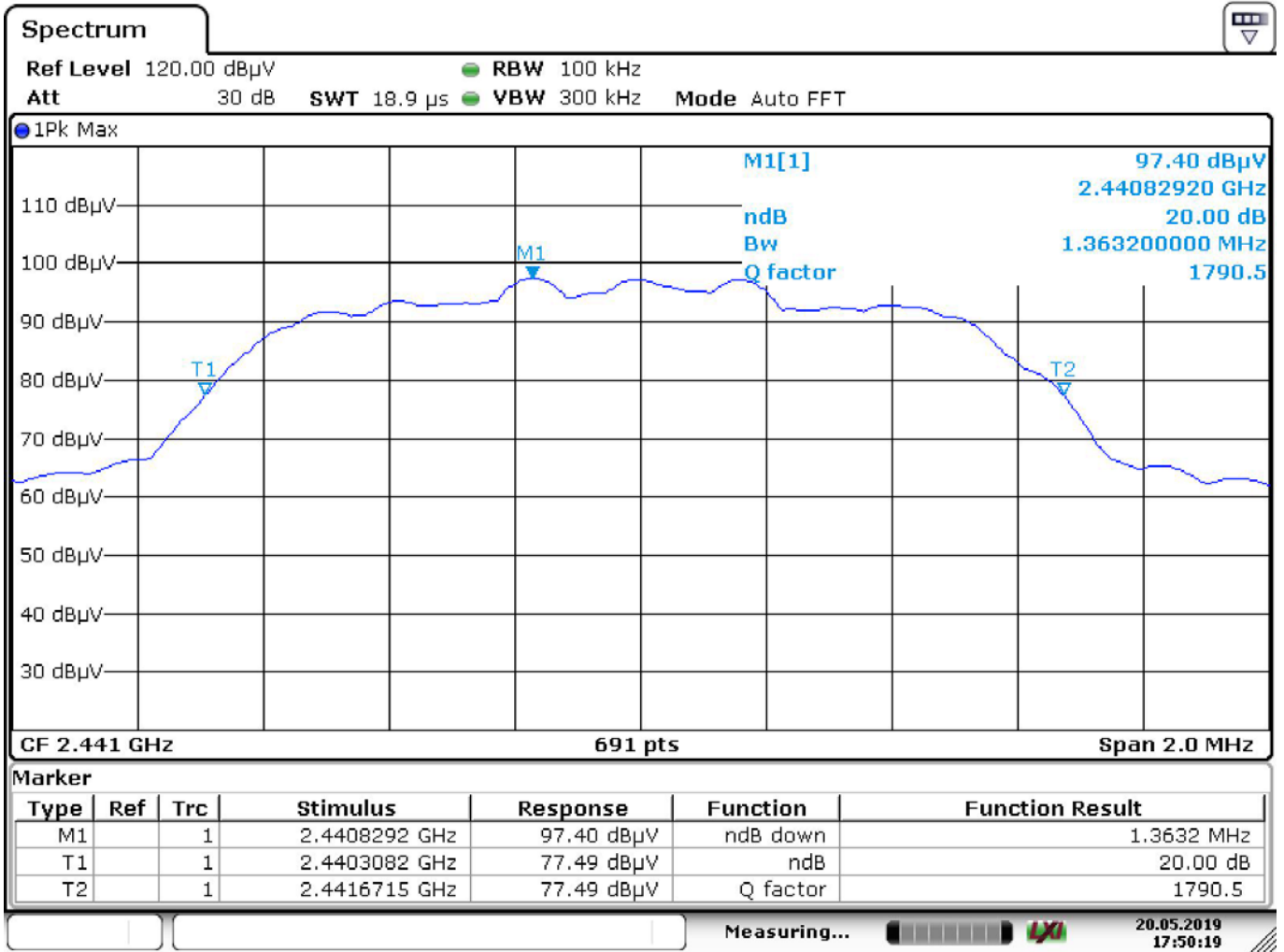
Temperature : 24.8°C Humidity : 48%  
 Test Date : 2019-05-30 Tested by : Andrew Lin  
 Data Rate : 3 Mbps Channel : 00





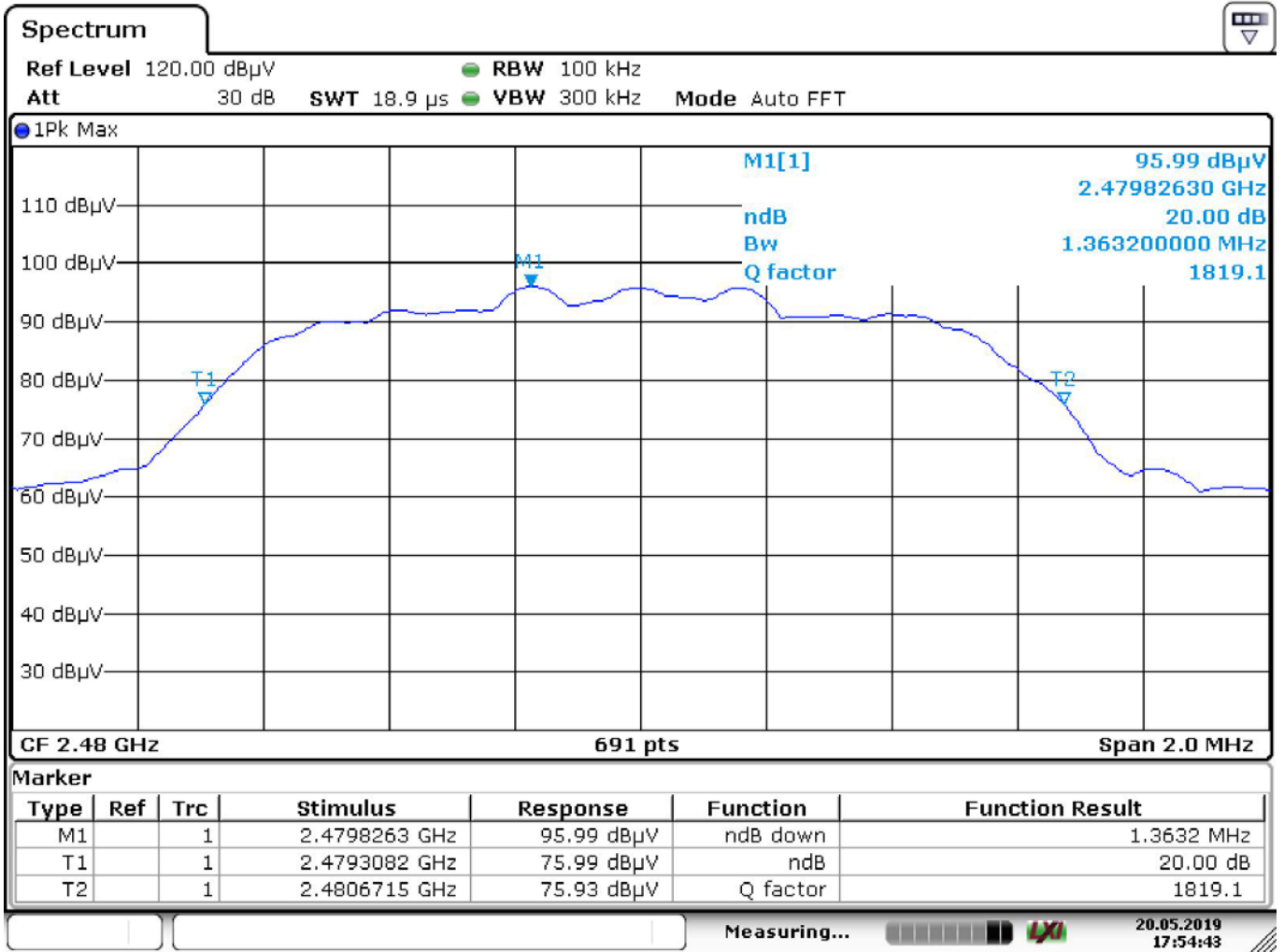
Data Rate : 3 Mbps

Channel : 39



Data Rate : 3 Mbps

Channel : 78



## 6 Antenna requirement

### 6.1 Limit (§ 15.203)

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

### 6.2 Test Result

#### **Compliance.**

The EUT applies a Chip Ceramic antenna.

-----End Of Test Report-----