



## *FCC COMPLIANCE TEST REPORT*

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

### **The product**

<b>Equipment Under Test</b>	: Body Camera
<b>Model Number</b>	: B100
<b>Product Series</b>	: B100 Plus, B100 Pro, B120, B160, B180
<b>Report Number</b>	: HA235115-RA
<b>Issue Date</b>	: 07-Jul-2023
<b>Test Result</b>	: Compliance

is produced by

PAPAGO INC.

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SL2-R2-E-0023, SL2-L1-E-0023

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**FCC Designation No. :** TW1136, TW1163

**TAF Accreditation No. :** 1163

**IC assigned Code :** 11226A-2

**ISED CAB identifier:** TW1163

### **Caution :**

The results in this report apply to the test sample(s) mentioned above at the time of the testing period only and are not to be used to indicate applicability to other similar products. This report does not imply that the production product(s) has met the criteria for certification. The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any government agencies.

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## Release control Record

Report Version	Description	Issued Date
V00	Original release.	07-Jul-2023
V01	Change Specification of Lithium Battery from DC3.7V to DC3.8V.	04-Aug-2023



## Test Result Certification

<b>Applicant</b>	: PAPAGO INC.
<b>Address of Applicant</b>	: 4F., No.200, Gangqian Rd., Neihu District, Taipei City 114, Taiwan(R.O.C)
<b>Manufacturer</b>	: PAPAGO INC.
<b>Address of Manufacturer</b>	: 4F., No.200, Gangqian Rd., Neihu District, Taipei City 114, Taiwan(R.O.C)
<b>Trade Name</b>	: PAPAGO!
<b>Equipment Under Test</b>	: Body Camera
<b>Model Number</b>	: B100
<b>Product Series</b>	: B100 Plus, B100 Pro, B120, B160, B180
<b>FCC ID</b>	: 2AA58-B100
<b>Filing Type</b>	: Certification
<b>Sample Received Date</b>	: 21-Jun-2023
<b>Test Standard</b>	:

☒ FCC Part 15 Subpart C §15.247

**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 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:

Tony Huang

Tony Huang/ ENG. Dept. Staff

Date:

07-Jul-2023

Approved by:

Eason Hsieh

Eason Hsieh/ Authorized Report Reviewer

Date:

04-Aug-2023



## Summary of Test Result

	Test Item	Applicable Standard	Test Result
1	Conducted limits	FCC part 15 subpart C §207	Compliance
2	Radiated emission limits	FCC part 15 subpart C §209	Compliance
3	6dB Bandwidth	FCC part 15 subpart C §247(a)(2)	Compliance
4	Maximum Conducted Output Power	FCC part 15 subpart C §247(b)(3)	Compliance
5	Out of Band Emission	FCC part 15 subpart C §247(d)	Compliance
6	Power Spectral Density	FCC part 15 subpart C §247(e)	Compliance
7	Antenna Requirement	FCC part 15 subpart C §203	Compliance

# 1 General Description

## 1.1 Description of EUT

<b>Equipment Under Test</b>	:	Body Camera									
<b>Model Number of EUT</b>	:	B100									
<b>Product Series</b>	:	B100 Plus, B100 Pro, B120, B160, B180									
<b>Power Supply</b>	:	DC5V (mini USB port) DC3.8V (Lithium Battery)									
<b>Adapter</b>	:	Model: QL010-0501000UU Input: 100-240V~50/60Hz 0.45A Output: 5.0V $\equiv$ 1.0A									
<b>Data Cable</b>	:	Mini USB Cable <input checked="" type="checkbox"/> Shielded <input type="checkbox"/> Non-Shielded <input checked="" type="checkbox"/> Detachable, 1m <input type="checkbox"/> Un-Detachable <input checked="" type="checkbox"/> with Ferrite Core <input type="checkbox"/> without Ferrite Core									
<b>Frequency Range</b>	:	802.11 b/ g/ n HT(20) : 2412~2462 MHz									
<b>Number of Channels</b>	:	11 Channels									
<b>Carrier Frequency of Each Channel</b>	:	Ch.	Fre. (MHz)	Ch.	Fre. (MHz)	Ch.	Fre. (MHz)	Ch.	Fre. (MHz)	Ch.	Fre. (MHz)
		01	2412	02	2417	03	2422	04	2427	05	2432
		06	2437	07	2442	08	2447	09	2452	10	2457
		11	2462								
<b>Antenna Specification</b>	:	FPC Antenna									
<b>Modulation Technique</b>	:	802.11b : DSSS (Type: CCK, DQPSK, DBPSK) 802.11g : OFDM (Type: 64QAM, 16QAM, QPSK, BPSK) 802.11n : OFDM (Type: 64QAM, 16QAM, QPSK, BPSK)									
<b>Transmit Data Rate</b>	:	802.11b : 11/5.5/2/1 Mbps 802.11g : 54/48/36/24/18/12/9/6 Mbps 802.11n : MSC 0/1/2/3/4/5/6/7									
<b>Specification</b>	:	<b>Dimensions</b> : 70mm (L) X 47 mm (W) X 31.5 mm (H) <b>Function</b> : The EUT is a body camera. <b>Product Variance</b> : The manufacturer declares that the series product are identical to the main test sample. For marketing reason, there are different series numbers. <b>※For more detail specification, please refer to the User Manual.</b>									

## 1.2 Test Instruments

### 1.2.1. Instruments Used for Measurement

#### HA2 (Radiated Emission)

Instrument Name	Manufacture	Model Number	Serial Number	Last Cal. Date	Next Cal. Date
EMI Test Receiver	R&S	ESCI7	100931	24-Mar-2023	23-Mar-2024
Spectrum Analyzer	R&S	FSV 40	101296	11-Apr-2023	11-Apr-2024
Preamplifier	SCHAFFNER	CPA 9231A	0405	15-Dec-2022	14-Dec-2023
Preamplifier(1~18GHz)	EMCI	EMC051845SE	980692	02-Dec-2022	01-Dec-2023
Preamplifier(18~40GHz)	EMCI	EMC184045SE	980699	12-May-2023	11-May-2024
Loop Antenna	EMCO	6502	9202-2717	31-Aug-2022	30-Aug-2023
Bilog Antenna(3m)	TESEQ	CBL6111D	47016	22-Jul-2022	21-Jul-2023
Bilog Antenna(10m)	TESEQ	CBL6111D	47016	22-Jul-2022	21-Jul-2023
Horn Antenna	EMCO	3115	9912-5992	24-Feb-2023	23-Feb-2024
Horn Antenna	Com-Power	AH-840	101042	15-May-2023	14-May-2024
Cable	HongAn	8D-FB	HA2-10MSite	19-Aug-2022	18-Aug-2023
RF Cable(1~18GHz)	EMCI	EMC104-SM-NM-1000	191104	30-Nov-2022	29-Nov-2023
RF Cable(1~18GHz)	EMCI	EMC104-SM-NM-8000	191103	30-Nov-2022	29-Nov-2023
RF Cable(18~40GHz)	EMCI	EMC102-KM-KM-1000	200301	12-May-2023	11-May-2024
RF Cable(18~40GHz)	WiSPEC	291LKA2292-8000	WSP-C-202205-001	12-May-2023	11-May-2024
Signal Generator	R&S	SMB100A	110549	23-Aug-2022	22-Aug-2023
Software	Audix	e3 (ver 6.101006a)	N/A	N/A	N/A

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

#### HA2 (Conducted Emission)

Instrument Name	Manufacture	Model Number	Serial Number	Last Cal. Date	Next Cal. Date
EMI Test Receiver	R&S	ESCI7	100931	24-Mar-2023	23-Mar-2024
LISN	EMCO	3810/2NM	9702-1821	26-Jul-2022	25-Jul-2023
LISN	SCHWARZBECK	NSLK 8127	01021	14-Sep-2022	13-Sep-2023
ISN	TESEQ	ISN T800	49426	15-Sep-2022	14-Sep-2023
ISN	TESEQ	ISN T8-Cat6	50581	16-Sep-2022	14-Sep-2023
RF Current Probe	FCC	F-33-4	53	26-Jun-2023	25-Jun-2024
Capacitive Voltage Probe	SCHWARZBECK	CVP 9222 B	01019	17-Jan-2023	16-Jan-2024
Cable	HongAn	RG 223/U	HA2-CE	19-Aug-2022	18-Aug-2023
Signal Generator	R&S	SMB100A	110549	23-Aug-2022	22-Aug-2023
Software	Audix	e3 (ver 6.101006a)	N/A	N/A	N/A
Software	R&S	Click Rate Analyzer(V2.5.2)	N/A	N/A	N/A

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





## HA2 (6dB Bandwidth)

Instrument Name	Manufacture	Model Number	Serial Number	Last Cal. Date	Next Cal. Date
EMI Test Receiver	R&S	ESCI7	100931	24-Mar-2023	23-Mar-2024
Spectrum Analyzer	R&S	FSV 40	101296	11-Apr-2023	11-Apr-2024

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

## HA2 (Maximum Conducted Output Power &amp; Power Spectral Density)

Instrument Name	Manufacture	Model Number	Serial Number	Last Cal. Date	Next Cal. Date
EMI Test Receiver	R&S	ESCI7	100931	24-Mar-2023	23-Mar-2024
Spectrum Analyzer	R&S	FSV 40	101296	11-Apr-2023	11-Apr-2024
Power Sensor	R&S	NRP-Z11	121519	07-Sep-2022	06-Sep-2023
Software	R&S	Power viewer / V11.3, 3.2.2020 Build: 7338 Rev:3230	N/A	N/A	N/A

### 1.3 Auxiliary Equipments

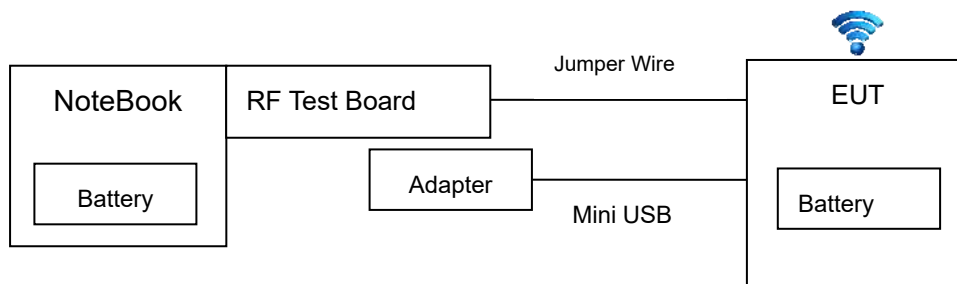
#### 1.3.1. Provided by HongAn Technology Co., Ltd. for Emission Test.

No.	Equipment	Model No.	Serial No.	EMC Approved	Brand	Power Cord
1	NoteBook	N61J	N61JV-021A520M	CE,FCC, C-TICK N13219, BSMI R31018	ASUS	Adapter to Notebook Unshielded*1.8m AC to Adapter Unshielded*1.8m

#### 1.3.2. Provided by the Manufacturer

No.	Equipment	Model No.	Serial No.	EMC Approved	Brand	Power Cord
01	RF Test Board	D-SUN	N/A	N/A	konwerter	Jumper wire: Non-shielded, Detachable, 0.2m, without core

### 1.4 EUT SETUP



Note: Main Test Sample: B100

### 1.5 Identifying the Final Test Mode

1. Mode 1: TX WIFI mode (802.11b) CH 01.
2. Mode 2: TX WIFI mode (802.11b) CH 06.
3. Mode 3: TX WIFI mode (802.11b) CH 11.
4. Mode 4: TX WIFI mode (802.11g) CH 01.
5. Mode 5: TX WIFI mode (802.11g) CH 06.
6. Mode 6: TX WIFI mode (802.11g) CH 11.
7. Mode 7: TX WIFI mode (802.11n HT[20]) CH 01.
8. Mode 8: TX WIFI mode (802.11n HT[20]) CH 06.
9. Mode 9: TX WIFI mode (802.11n HT[20]) CH 11.

Note:

1. During radiated emission pre-test, rotation of the EUT through three orthogonal axes has been evaluated.
2. After pre-test, we identified that the TX Vertical Position was most likely to cause maximum



disturbance and most likely to be susceptible to disturbance. Therefore, the Final Assessment was performed for the worst case. All pre-test data show at appendix.

3. The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements.
4. Channel Low (2412MHz), Mid (2437MHz) and High (2462MHz) with highest data rate were chosen for full testing.
5. According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209 and 15.247 under the FCC Rules Part 15 Subpart C.
6. Test Software: SmartTools V2.3.1.0; RF parameter setting : WIFI Channel 01 , 06 , 11 / Data Rate : 11 Mbps / TX POWER : 40.

## **1.6 Final Test Mode**

1. Radiated Emission (30~1000MHz): Mode 1
2. Field Strength (Fundamental): Mode 1
3. Field Strength (Harmonics): Mode 1
4. Conducted Emission: Mode 1.



## **1.7 Condition of Power Supply**

Switching Adaptor (input: AC110V/0.45A; Output: DC5V/1A)

## **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 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055, 2.1057, 15.203, 15.205, 15.207, 15.209 and 15.247.

## **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.

## 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.

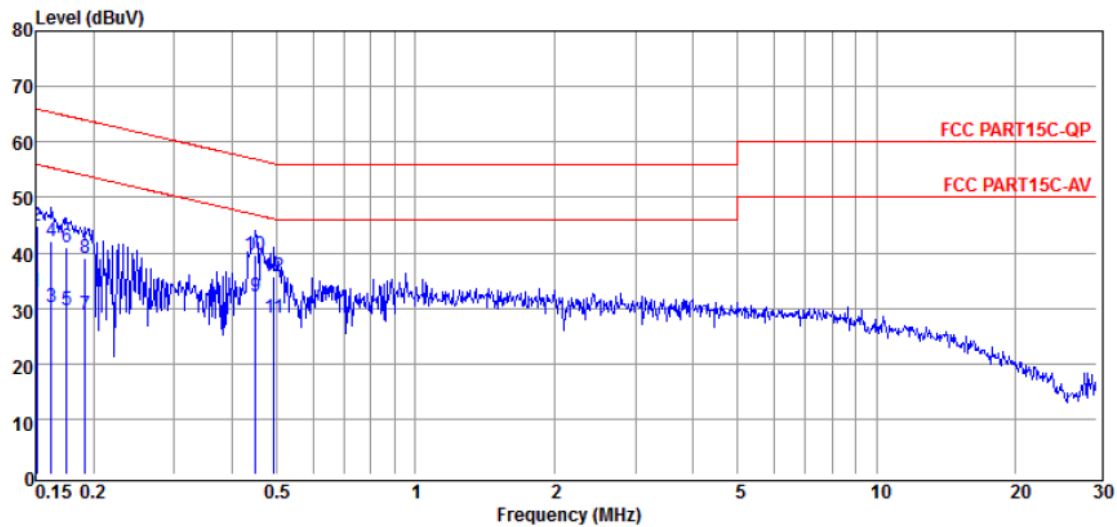
### 2.4 Test Result

#### Compliance.

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

## Power Line Conducted Emission Test Data

Temperature	: 24°C	Humidity	: 56%
Test Date	: 06-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 1	Channel	: CH 01
Power Phase	: Line	Test Site	: HA2



No.	Freq MHz	Reading dBuV	C.F dB	Result dBuV	Limit dBuV	Margin dB	Power Line	Remark
1	0.151	32.97	0.08	33.05	55.96	-22.91	LINE	Average
2	0.151	44.87	0.08	44.95	65.96	-21.01	LINE	QP
3	0.162	30.04	0.08	30.12	55.34	-25.22	LINE	Average
4	0.162	42.12	0.08	42.20	65.34	-23.14	LINE	QP
5	0.175	29.61	0.07	29.68	54.72	-25.04	LINE	Average
6	0.175	40.79	0.07	40.86	64.72	-23.86	LINE	QP
7	0.192	28.65	0.06	28.71	53.93	-25.22	LINE	Average
8	0.192	38.84	0.06	38.90	63.93	-25.03	LINE	QP
9	0.449	31.92	0.09	32.01	46.89	-14.88	LINE	Average
10	0.449	39.40	0.09	39.49	56.89	-17.40	LINE	QP
11	0.494	28.27	0.09	28.36	46.10	-17.74	LINE	Average
12	0.494	35.69	0.09	35.78	56.10	-20.32	LINE	QP

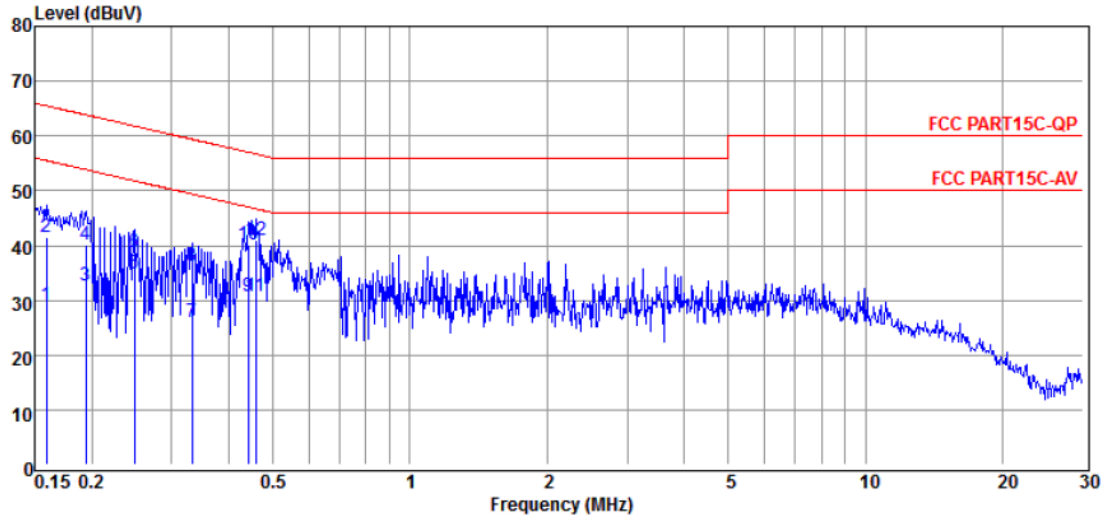
Remark : 1. All readings are Quasi-Peak and Average values.

2. Result = Reading + C.F..

3. Margin = Result – Limit.

# Power Line Conducted Emission Test Data

Temperature : 24°C Humidity : 56%  
 Test Date : 06-Jul-2023 Tested by : Tony Huang  
 Test Mode : Mode 1 Channel : CH 01  
 Power Phase : Neutral Test Site : HA2



No.	Freq MHz	Reading dBμV	C.F dB	Result dBμV	Limit dBμV	Margin dB	Power Line	Remark
1	0.159	28.86	0.09	28.95	55.52	-26.57	NEUTRAL	Average
2	0.159	41.38	0.09	41.47	65.52	-24.05	NEUTRAL	QP
3	0.194	32.68	0.08	32.76	53.84	-21.08	NEUTRAL	Average
4	0.194	39.92	0.08	40.00	63.84	-23.84	NEUTRAL	QP
5	0.248	34.88	0.08	34.96	51.82	-16.86	NEUTRAL	Average
6	0.248	38.75	0.08	38.83	61.82	-22.99	NEUTRAL	QP
7	0.332	26.02	0.10	26.12	49.40	-23.28	NEUTRAL	Average
8	0.332	36.14	0.10	36.24	59.40	-23.16	NEUTRAL	QP
9	0.442	30.55	0.11	30.66	47.02	-16.36	NEUTRAL	Average
10	0.442	40.09	0.11	40.20	57.02	-16.82	NEUTRAL	QP
11	0.459	30.70	0.11	30.81	46.71	-15.90	NEUTRAL	Average
12	0.459	40.92	0.11	41.03	56.71	-15.68	NEUTRAL	QP

Remark : 1. All readings are Quasi-Peak and Average values.

2. Result = Reading + C.F..

3. Margin = Result – Limit.

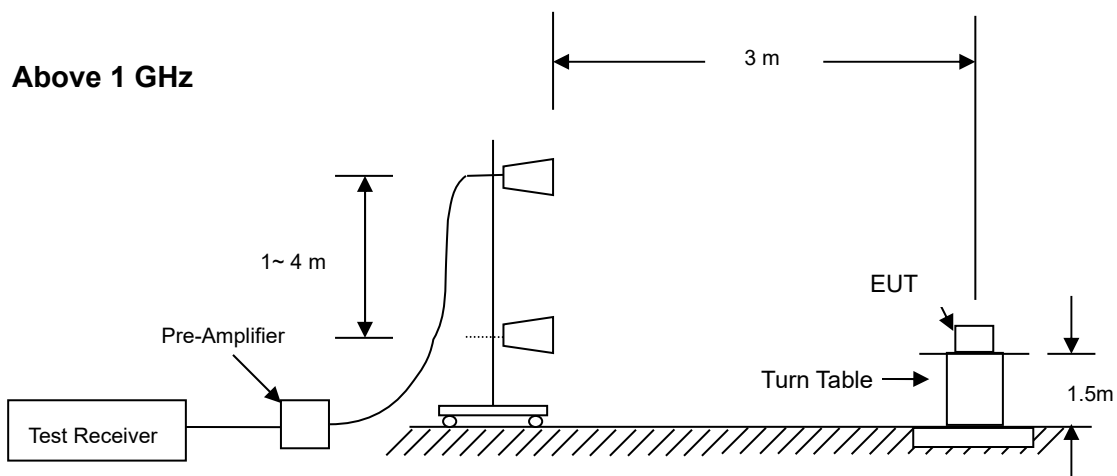
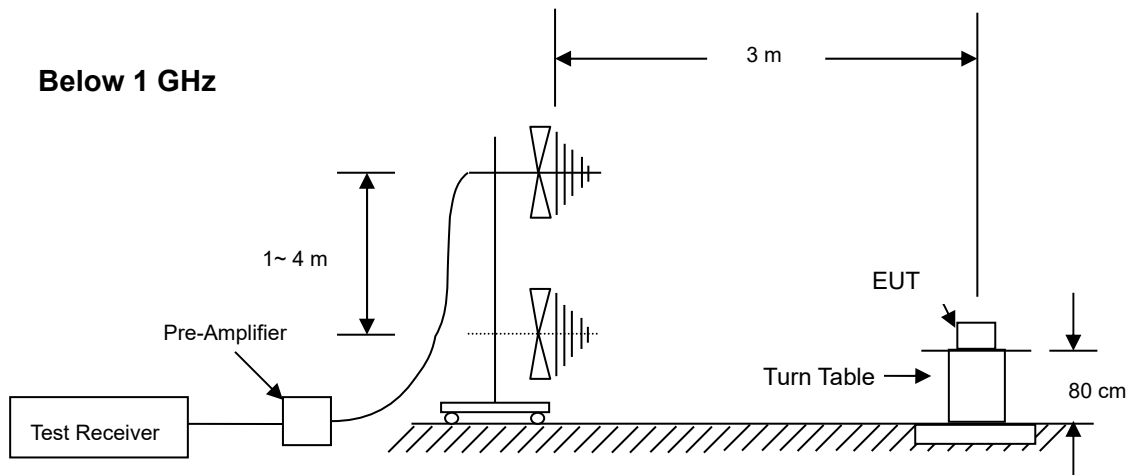


### 3 Radiated Emission Test

#### 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 0.8m (below 1GHz) or 1.5 m (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. Maximum 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 in the following setting as:
  - (a) Below 1 GHz: RBW =100 kHz/ VBW = 300 kHz/ Sweep = AUTO.

(b) Above 1 GHz: Peak: RBW = VBW = 1MHz/ Sweep = AUTO

7. Repeat above procedures until the measurements for all frequencies are complete.

### 3.3 Limit of Field Strength of Fundamental (§ 15.225(a))

The field strength of any emissions within the band 13.553-13.567 MHz shall not exceed 15,848 microvolts/meter at 30 meters.

### 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.

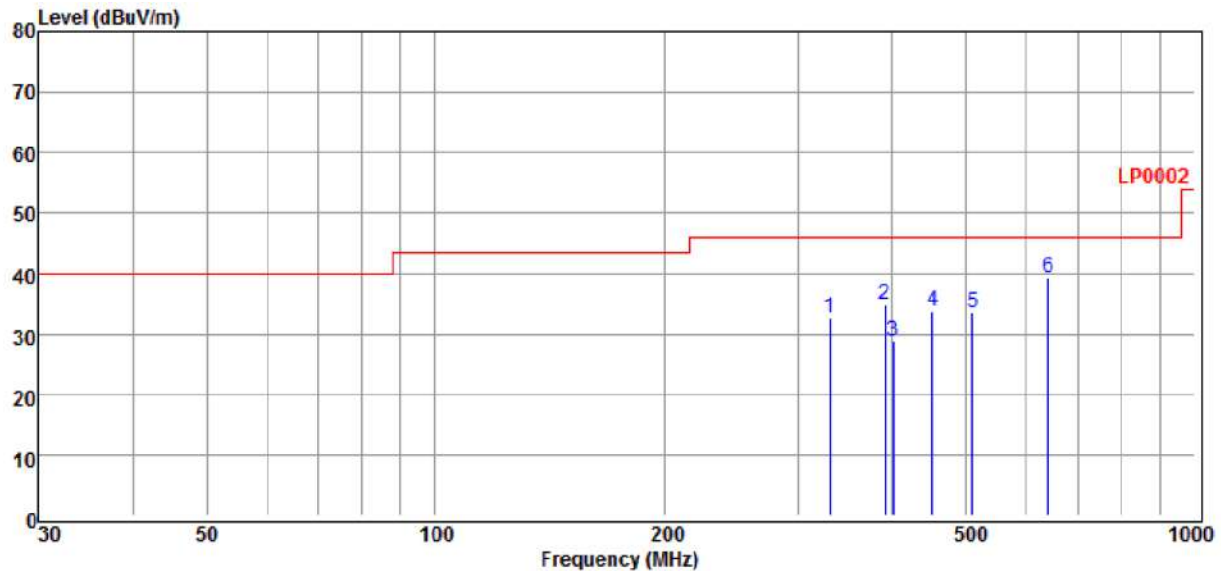
### 3.5 Test Result

#### Compliance

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

### Radiated Emission Test Data (below 1GHz)

Temperature	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 1	Channel	: CH 01
Polarization	: Horizontal	Test Site	: HA2 3m



No.	Freq MHz	Reading dB $\mu$ V	C.F dB/m	Result dB $\mu$ V/m	Limit dB $\mu$ V/m	Margin dB	Antenna Pol.	Remark
1	330.195	40.81	-8.05	32.76	46.00	-13.24	HORIZONTAL	Peak
2	390.723	41.11	-6.21	34.90	46.00	-11.10	HORIZONTAL	Peak
3	400.432	34.58	-5.89	28.69	46.00	-17.31	HORIZONTAL	Peak
4	451.135	38.90	-5.13	33.77	46.00	-12.23	HORIZONTAL	Peak
5	510.044	37.07	-3.55	33.52	46.00	-12.48	HORIZONTAL	Peak
6	640.611	40.26	-1.06	39.20	46.00	-6.80	HORIZONTAL	Peak

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

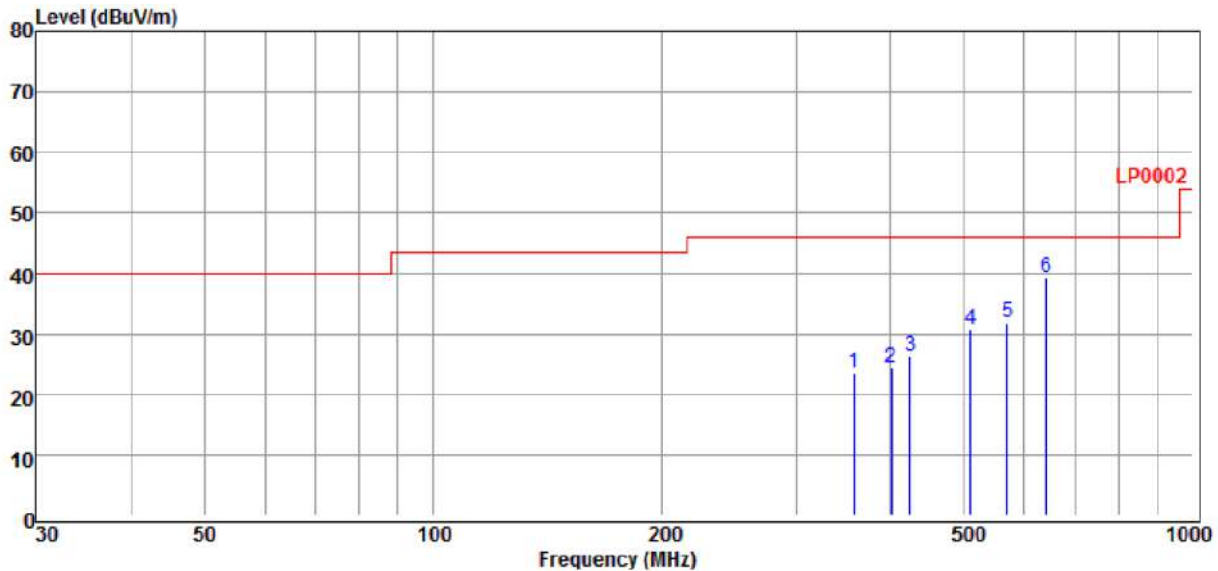
Note 2. Margin = Result - Limit ; Result = Reading + C.F.

Remark :

- 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, RBW = 10kHz, VBW = 30kHz

### Radiated Emission Test Data (below 1GHz)

Temperature	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 1	Channel	: CH 01
Polarization	: Vertical	Test Site	: HA2 3m



No.	Freq MHz	Reading dB $\mu$ V	C.F dB/m	Result dB $\mu$ V/m	Limit dB $\mu$ V/m	Margin dB	Antenna Pol.	Remark
1	357.929	30.69	-7.18	23.51	46.00	-22.49	VERTICAL	Peak
2	400.432	30.21	-5.89	24.32	46.00	-21.68	VERTICAL	Peak
3	425.028	31.42	-5.10	26.32	46.00	-19.68	VERTICAL	Peak
4	510.044	34.24	-3.55	30.69	46.00	-15.31	VERTICAL	Peak
5	570.610	34.17	-2.20	31.97	46.00	-14.03	VERTICAL	Peak
6	640.611	40.31	-1.06	39.25	46.00	-6.75	VERTICAL	Peak

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

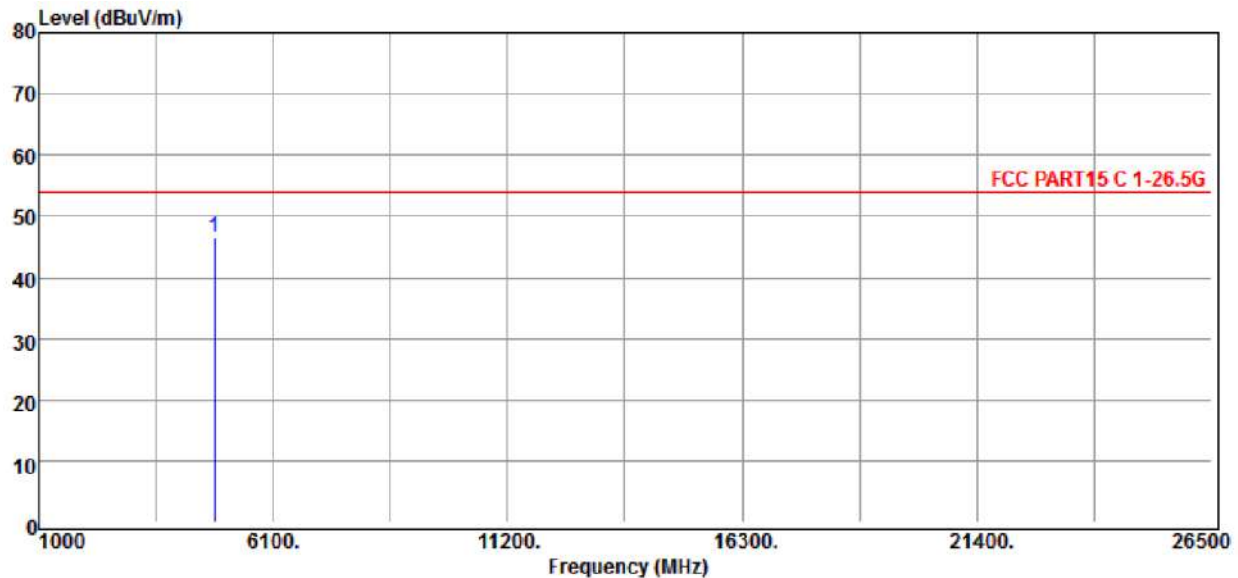
Note 2. Margin = Result - Limit ; Result = Reading + C.F.

Remark :

- 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, RBW = 10kHz, VBW = 30kHz

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

Temperature	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 1	Channel	: CH 01
Polarization	: Horizontal	Test Site	: HA2 3m



No.	Freq MHz	Reading dBuV	C.F dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Antenna Pol.	Remark
1	4824.000	56.48	-10.04	46.44	54.00	-7.56	HORIZONTAL	Peak

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

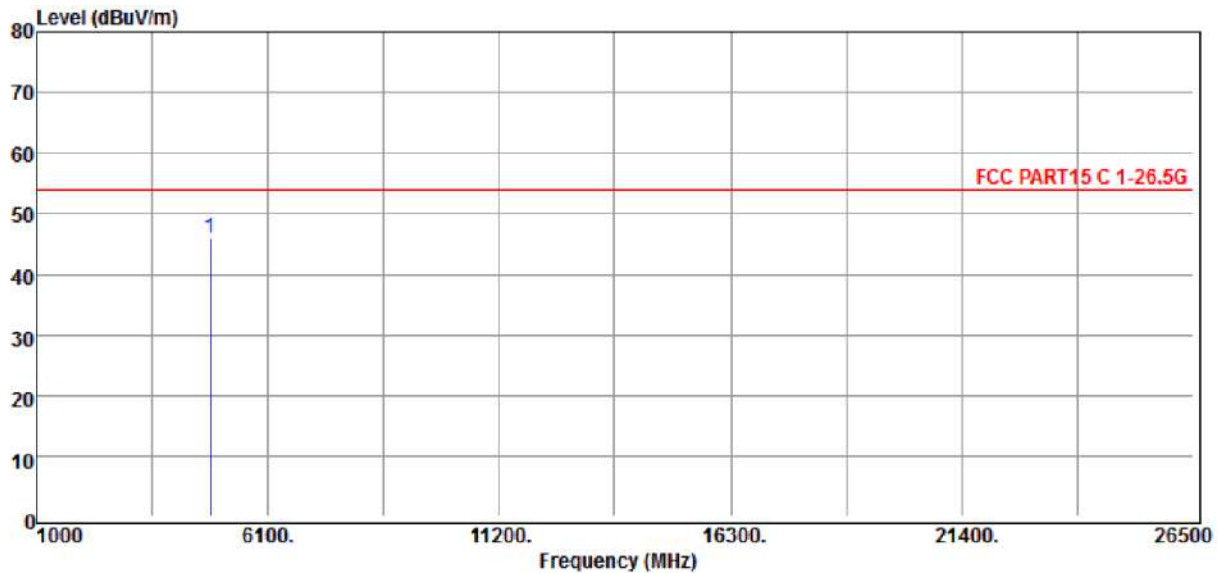
Note 2. Margin = Result - Limit ; Result = Reading + C.F.

### Remark :

1. Measuring frequencies from 30 MHz to 1 GHz.
2. Measurements above show only up to 6 maximum emissions noted.
3. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Q.P. detector mode.
4. 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.
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	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 1	Channel	: CH 01
Polarization	: Vertical	Test Site	: HA2 3m



No.	Freq MHz	Reading dB $\mu$ V	C.F dB/m	Result dB $\mu$ V/m	Limit dB $\mu$ V/m	Margin dB	Antenna Pol.	Remark
1	4824.000	56.13	-10.04	46.09	54.00	-7.91	VERTICAL	Peak

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

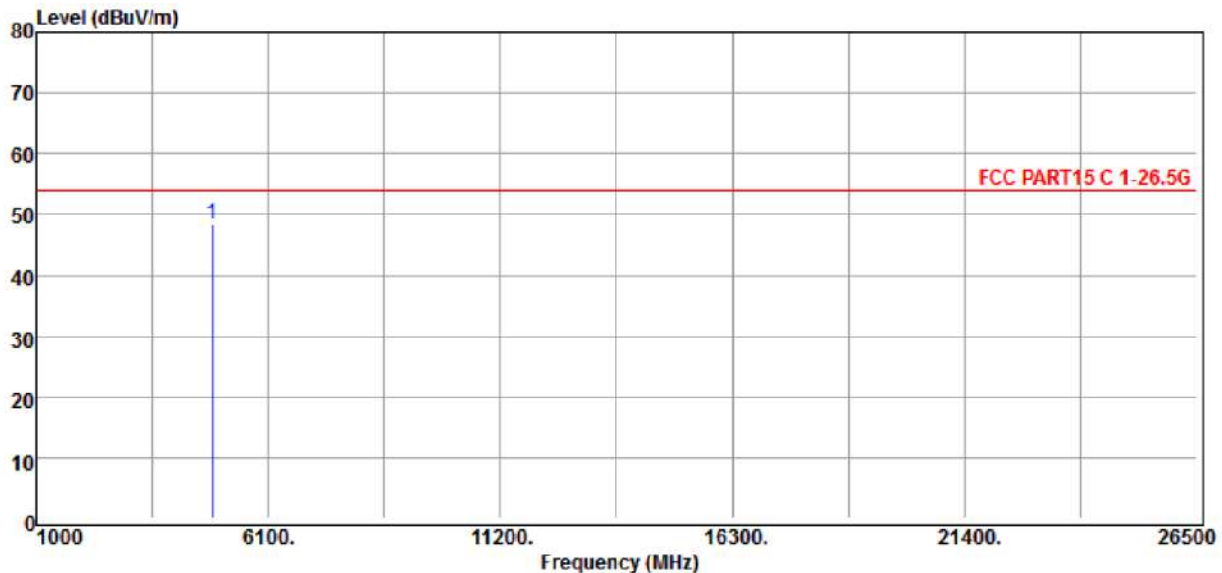
Note 2. Margin = Result - Limit ; Result = Reading + C.F.

Remark :

1. Measuring frequencies from 30 MHz to 1 GHz.
2. Measurements above show only up to 6 maximum emissions noted.
3. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Q.P. detector mode.
4. 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.
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	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 2	Channel	: CH 06
Polarization	: Horizontal	Test Site	: HA2 3m



No.	Freq MHz	Reading dBμV	C.F dB/m	Result dBμV/m	Limit dBμV/m	Margin dB	Antenna Pol.	Remark
1	4874.000	58.12	-9.82	48.30	54.00	-5.70	HORIZONTAL	Peak

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

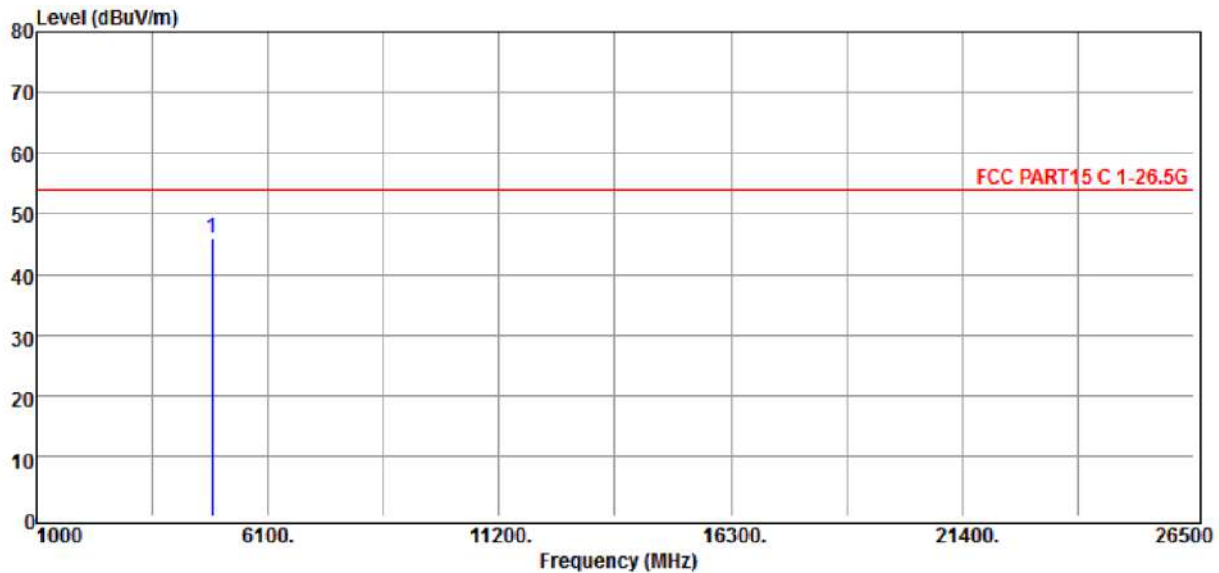
Note 2. Margin = Result - Limit ; Result = Reading + C.F.

Remark :

1. Measuring frequencies from 30 MHz to 1 GHz.
2. Measurements above show only up to 6 maximum emissions noted.
3. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Q.P. detector mode.
4. 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.
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	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 2	Channel	: CH 06
Polarization	: Vertical	Test Site	: HA2 3m



No.	Freq MHz	Reading dBuV	C.F dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Antenna Pol.	Remark
1	4874.000	55.67	-9.82	45.85	54.00	-8.15	VERTICAL	Peak

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

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

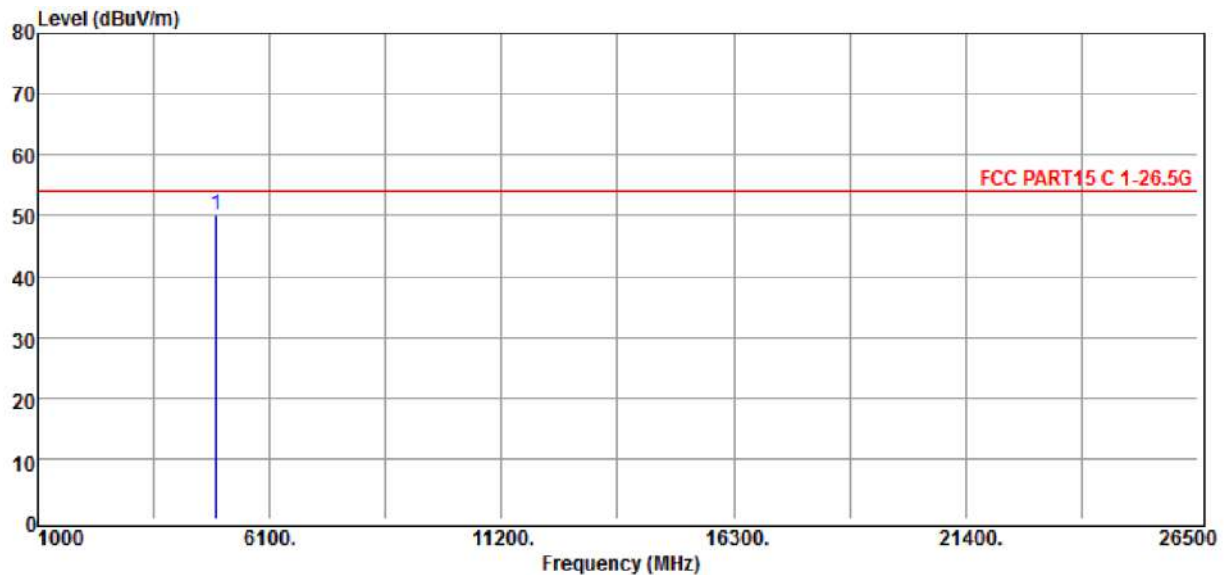
Remark :

1. Measuring frequencies from 30 MHz to 1 GHz.
2. Measurements above show only up to 6 maximum emissions noted.
3. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Q.P. detector mode.
4. 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.
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	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 3	Channel	: CH 11
Polarization	: Horizontal	Test Site	: HA2 3m



No.	Freq MHz	Reading dBuV	C.F dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Antenna Pol.	Remark
1	4924.000	59.87	-9.76	50.11	54.00	-3.89	HORIZONTAL	Peak

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

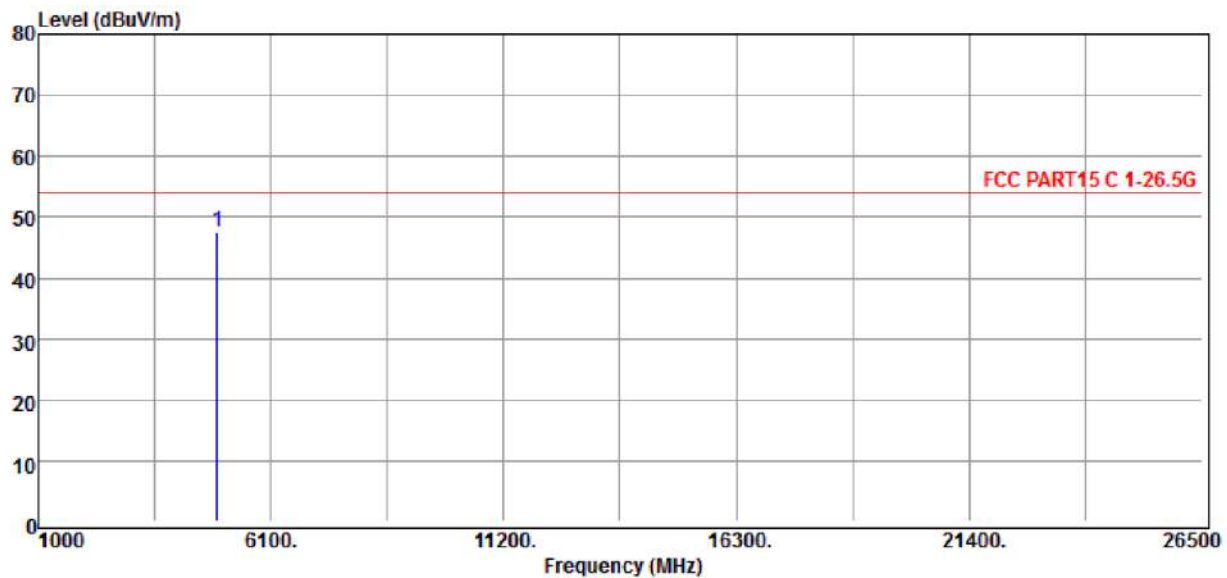
Note 2. Margin = Result - Limit ; Result = Reading + C.F.

Remark :

1. Measuring frequencies from 30 MHz to 1 GHz.
2. Measurements above show only up to 6 maximum emissions noted.
3. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Q.P. detector mode.
4. 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.
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	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 3	Channel	: CH 11
Polarization	: Vertical	Test Site	: HA2 3m



No.	Freq MHz	Reading dBuV	C.F dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Antenna Pol.	Remark
1	4924.000	57.41	-9.76	47.65	54.00	-6.35	VERTICAL	Peak

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

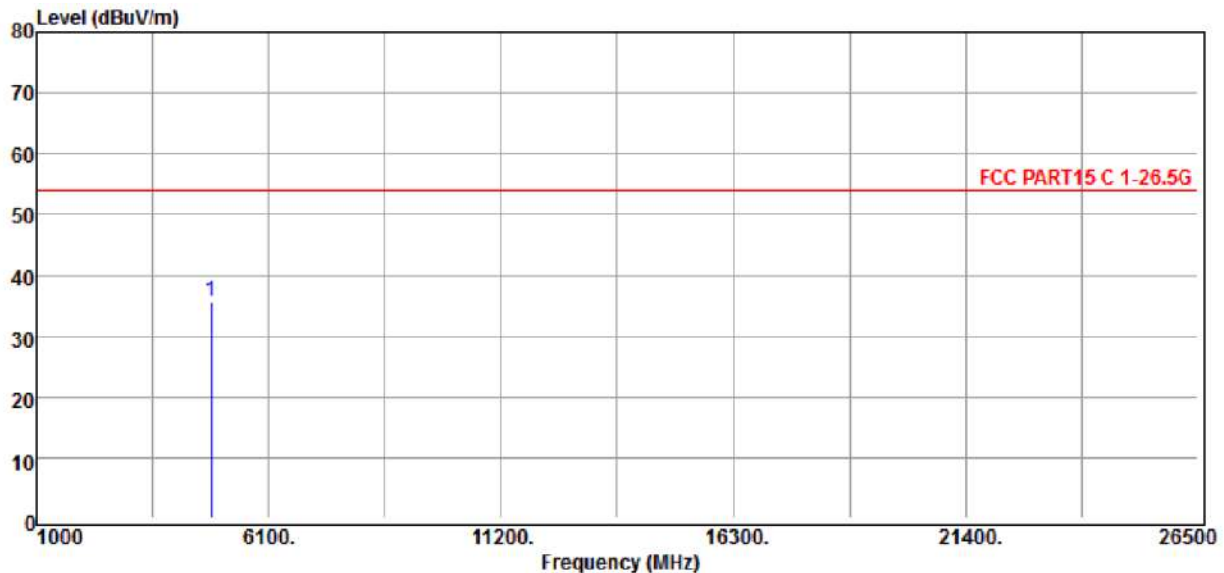
Note 2. Margin = Result - Limit ; Result = Reading + C.F.

Remark :

1. Measuring frequencies from 30 MHz to 1 GHz.
2. Measurements above show only up to 6 maximum emissions noted.
3. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Q.P. detector mode.
4. 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.
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	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 4	Channel	: CH 01
Polarization	: Horizontal	Test Site	: HA2 3m



No.	Freq MHz	Reading dB $\mu$ V	C.F dB/m	Result dB $\mu$ V/m	Limit dB $\mu$ V/m	Margin dB	Antenna Pol.	Remark
1	4824.000	45.64	-10.04	35.60	54.00	-18.40	HORIZONTAL	Peak

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

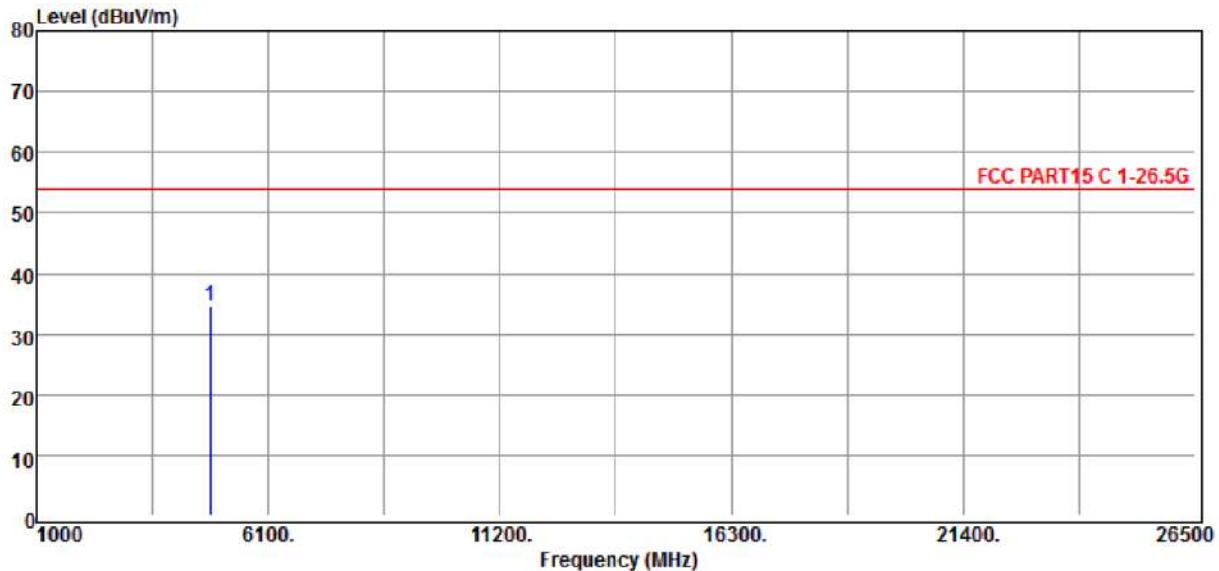
Note 2. Margin = Result - Limit ; Result = Reading + C.F.

Remark :

1. Measuring frequencies from 30 MHz to 1 GHz.
2. Measurements above show only up to 6 maximum emissions noted.
3. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Q.P. detector mode.
4. 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.
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	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 4	Channel	: CH 01
Polarization	: Vertical	Test Site	: HA2 3m



No.	Freq MHz	Reading dBuV	C.F dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Antenna Pol.	Remark
1	4824.000	44.56	-10.04	34.52	54.00	-19.48	VERTICAL	Peak

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

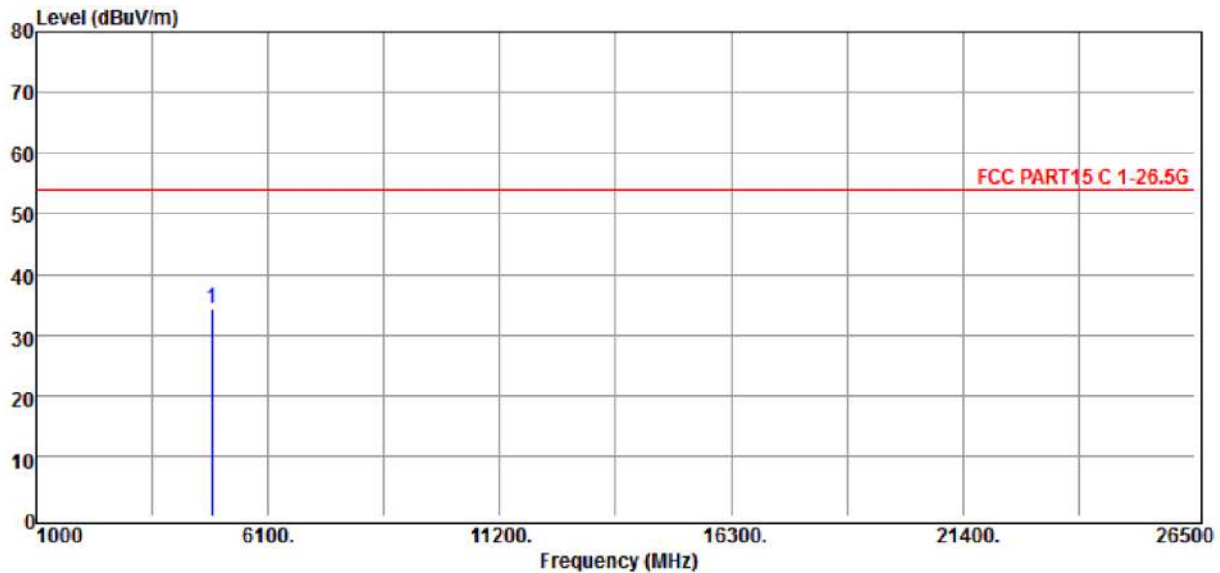
Note 2. Margin = Result - Limit ; Result = Reading + C.F.

Remark :

1. Measuring frequencies from 30 MHz to 1 GHz.
2. Measurements above show only up to 6 maximum emissions noted.
3. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Q.P. detector mode.
4. 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.
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	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 5	Channel	: CH 06
Polarization	: Horizontal	Test Site	: HA2 3m



No.	Freq MHz	Reading dBμV	C.F dB/m	Result dBμV/m	Limit dBμV/m	Margin dB	Antenna Pol.	Remark
1	4874.000	44.07	-9.82	34.25	54.00	-19.75	HORIZONTAL	Peak

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

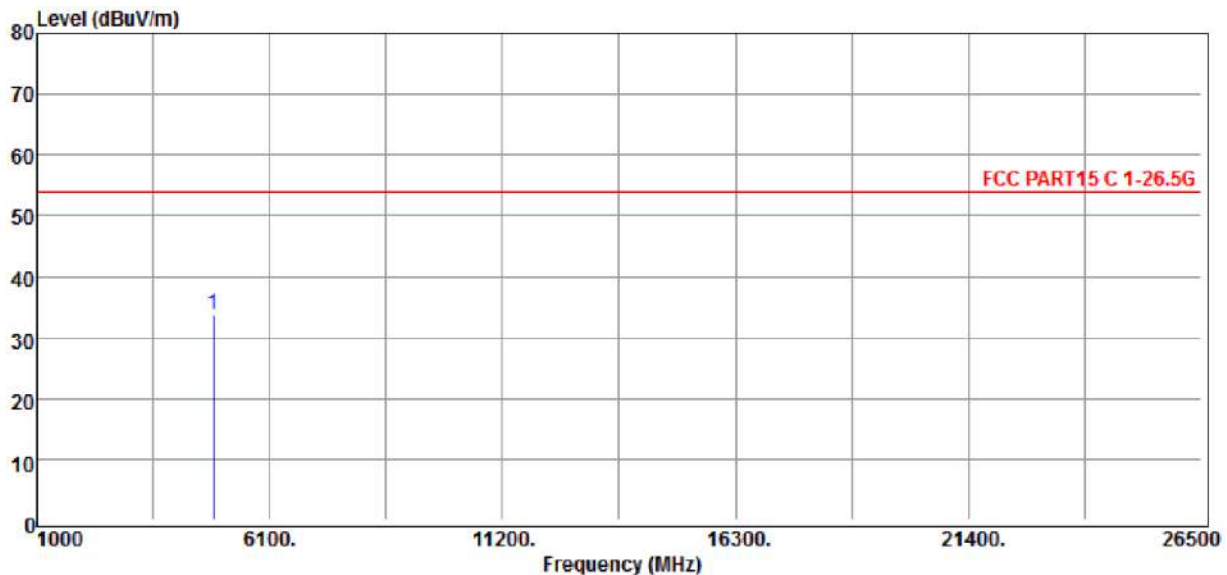
Note 2. Margin = Result - Limit ; Result = Reading + C.F.

Remark :

1. Measuring frequencies from 30 MHz to 1 GHz.
2. Measurements above show only up to 6 maximum emissions noted.
3. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Q.P. detector mode.
4. 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.
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	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 5	Channel	: CH 06
Polarization	: Vertical	Test Site	: HA2 3m



No.	Freq MHz	Reading dBμV	C.F dB/m	Result dBμV/m	Limit dBμV/m	Margin dB	Antenna Pol.	Remark
1	4874.000	43.70	-9.82	33.88	54.00	-20.12	VERTICAL	Peak

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

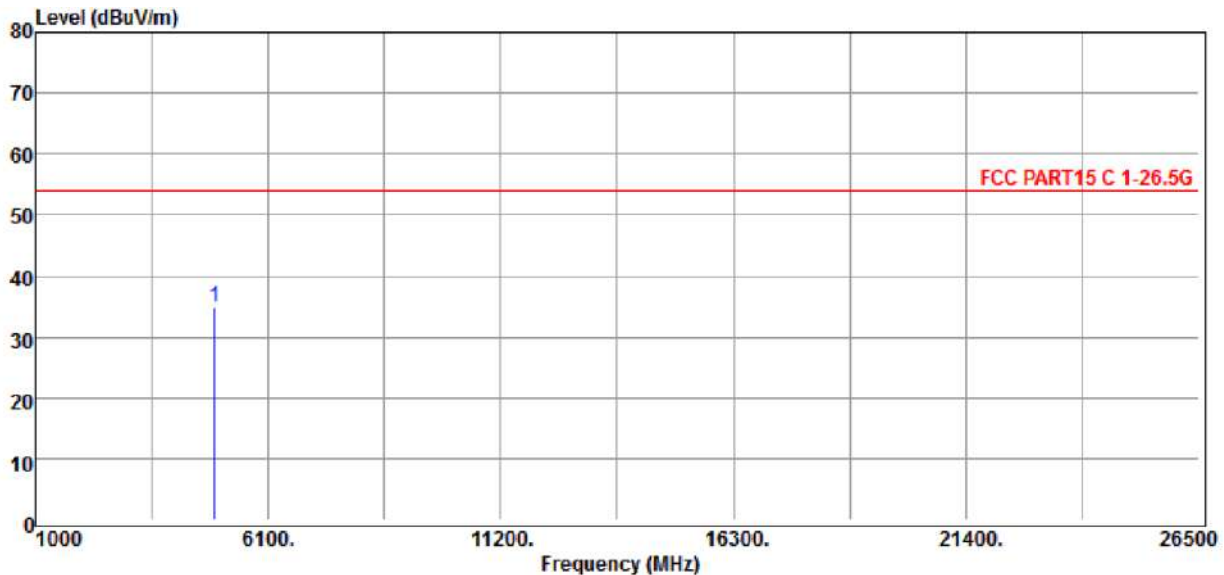
Note 2. Margin = Result - Limit ; Result = Reading + C.F.

Remark :

1. Measuring frequencies from 30 MHz to 1 GHz.
2. Measurements above show only up to 6 maximum emissions noted.
3. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Q.P. detector mode.
4. 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.
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	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 6	Channel	: CH 11
Polarization	: Horizontal	Test Site	: HA2 3m



No.	Freq MHz	Reading dBμV	C.F dB/m	Result dBμV/m	Limit dBμV/m	Margin dB	Antenna Pol.	Remark
1	4924.000	44.59	-9.76	34.83	54.00	-19.17	HORIZONTAL	Peak

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

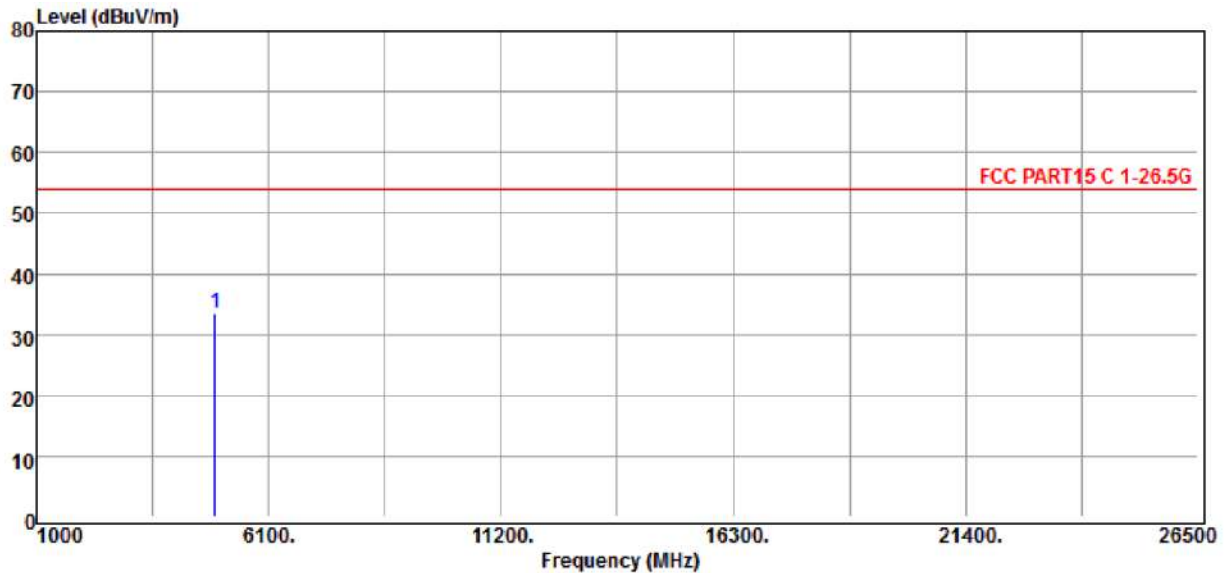
Note 2. Margin = Result - Limit ; Result = Reading + C.F.

#### Remark :

1. Measuring frequencies from 30 MHz to 1 GHz.
2. Measurements above show only up to 6 maximum emissions noted.
3. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Q.P. detector mode.
4. 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.
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	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 6	Channel	: CH 11
Polarization	: Vertical	Test Site	: HA2 3m



No.	Freq MHz	Reading dB $\mu$ V	C.F dB/m	Result dB $\mu$ V/m	Limit dB $\mu$ V/m	Margin dB	Antenna Pol.	Remark
1	4924.000	43.27	-9.76	33.51	54.00	-20.49	VERTICAL	Peak

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

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

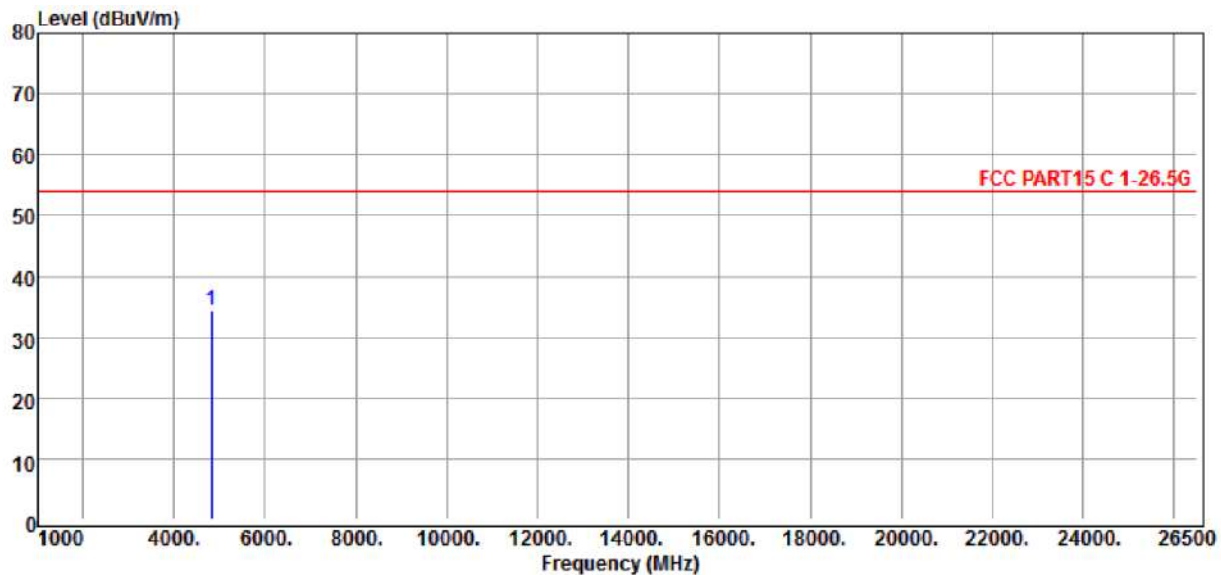
Remark :

1. Measuring frequencies from 30 MHz to 1 GHz.
2. Measurements above show only up to 6 maximum emissions noted.
3. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Q.P. detector mode.
4. 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.
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	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 7	Channel	: CH 01
Polarization	: Horizontal	Test Site	: HA2 3m



No.	Freq MHz	Reading dBμV	C.F dB/m	Result dBμV/m	Limit dBμV/m	Margin dB	Antenna Pol.	Remark
1	4824.000	44.49	-10.04	34.45	54.00	-19.55	HORIZONTAL	Peak

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

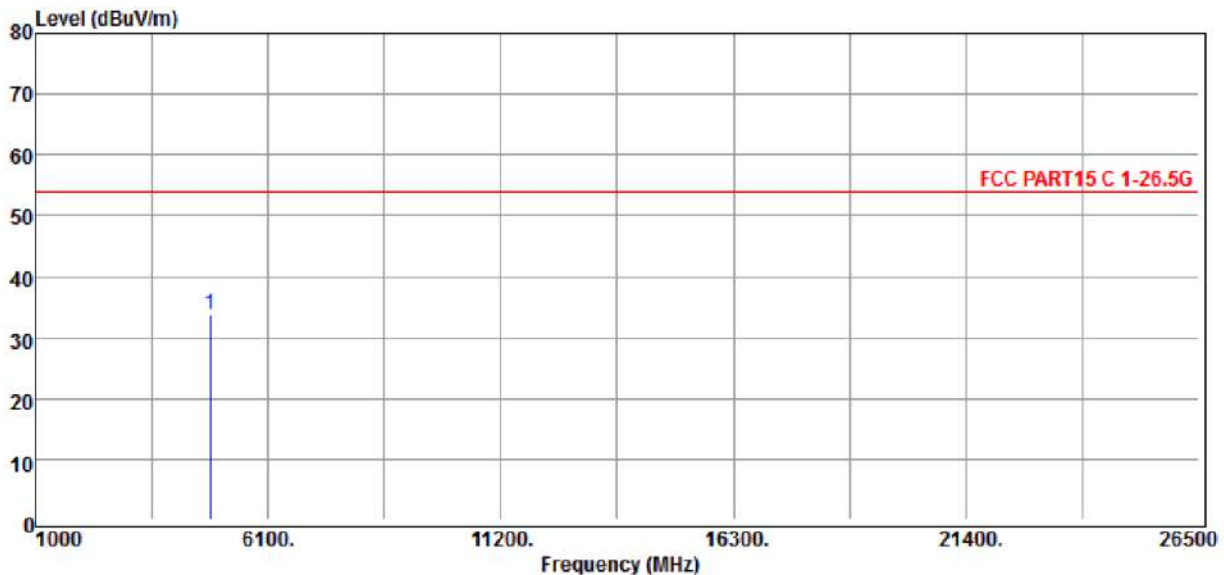
Note 2. Margin = Result - Limit ; Result = Reading + C.F.

### Remark :

1. Measuring frequencies from 30 MHz to 1 GHz.
2. Measurements above show only up to 6 maximum emissions noted.
3. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Q.P. detector mode.
4. 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.
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	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 7	Channel	: CH 01
Polarization	: Vertical	Test Site	: HA2 3m



No.	Freq MHz	Reading dBUV	C.F dB/m	Result dBUV/m	Limit dBUV/m	Margin dB	Antenna Pol.	Remark
1	4824.000	43.90	-10.04	33.86	54.00	-20.14	VERTICAL	Peak

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

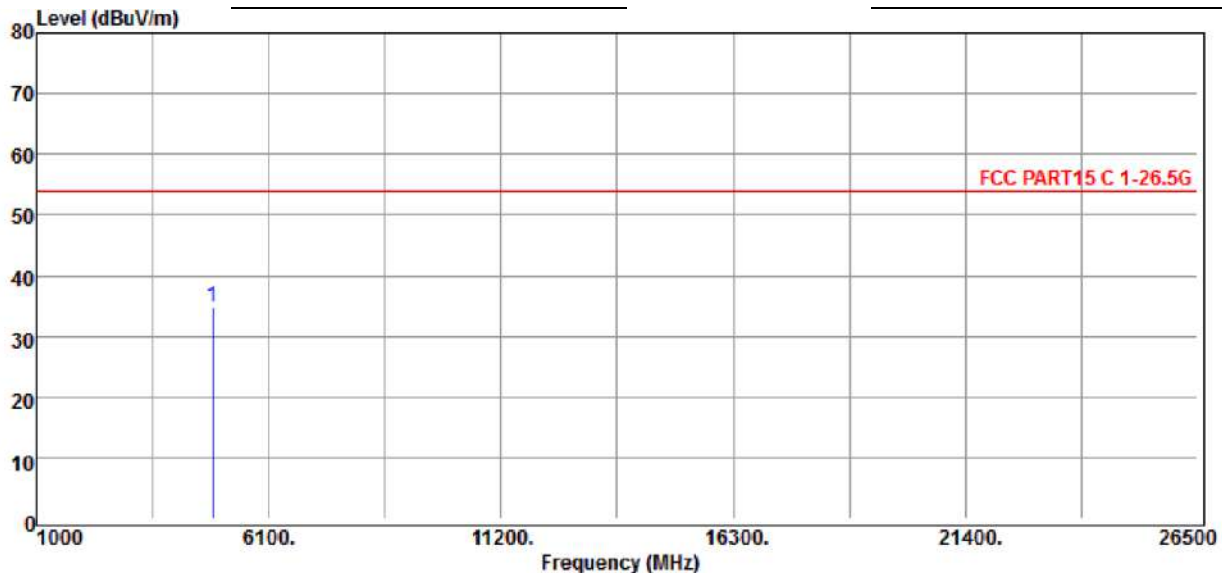
Note 2. Margin = Result - Limit ; Result = Reading + C.F.

Remark :

1. Measuring frequencies from 30 MHz to 1 GHz.
2. Measurements above show only up to 6 maximum emissions noted.
3. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Q.P. detector mode.
4. 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.
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	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 8	Channel	: CH 06
Polarization	: Horizontal	Test Site	: HA2 3m



No.	Freq MHz	Reading dBμV	C.F dB/m	Result dBμV/m	Limit dBμV/m	Margin dB	Antenna Pol.	Remark
1	4874.000	44.80	-9.82	34.98	54.00	-19.02	HORIZONTAL	Peak

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

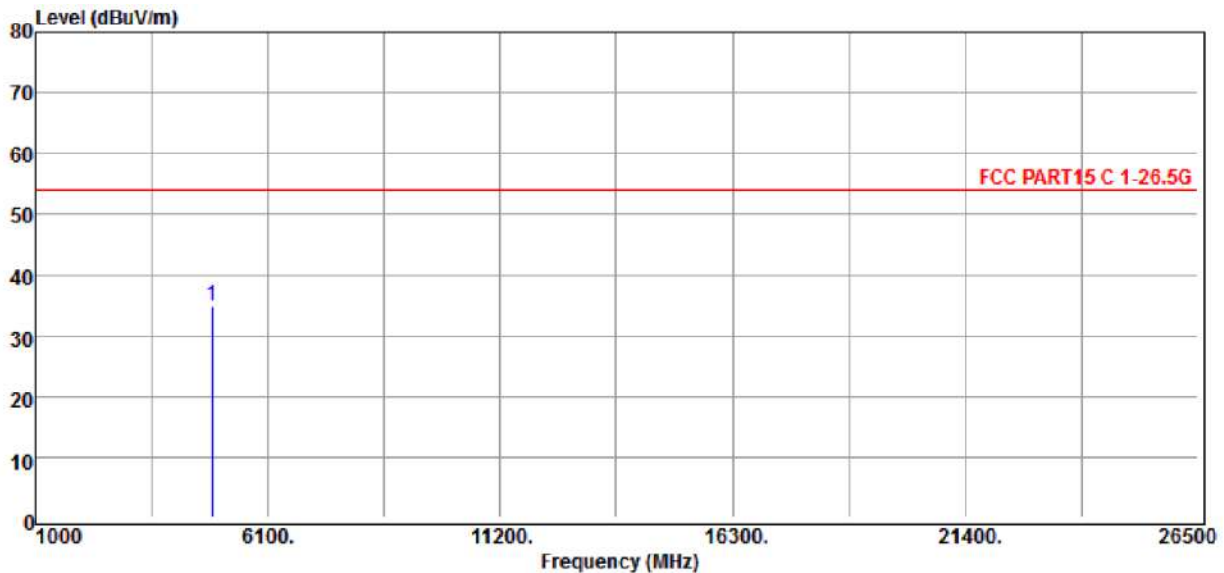
Note 2. Margin = Result - Limit ; Result = Reading + C.F.

Remark :

1. Measuring frequencies from 30 MHz to 1 GHz.
2. Measurements above show only up to 6 maximum emissions noted.
3. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Q.P. detector mode.
4. 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.
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	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 8	Channel	: CH 06
Polarization	: Vertical	Test Site	: HA2 3m



No.	Freq MHz	Reading dBμV	C.F dB/m	Result dBμV/m	Limit dBμV/m	Margin dB	Antenna Pol.	Remark
1	4874.000	44.59	-9.82	34.77	54.00	-19.23	VERTICAL	Peak

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

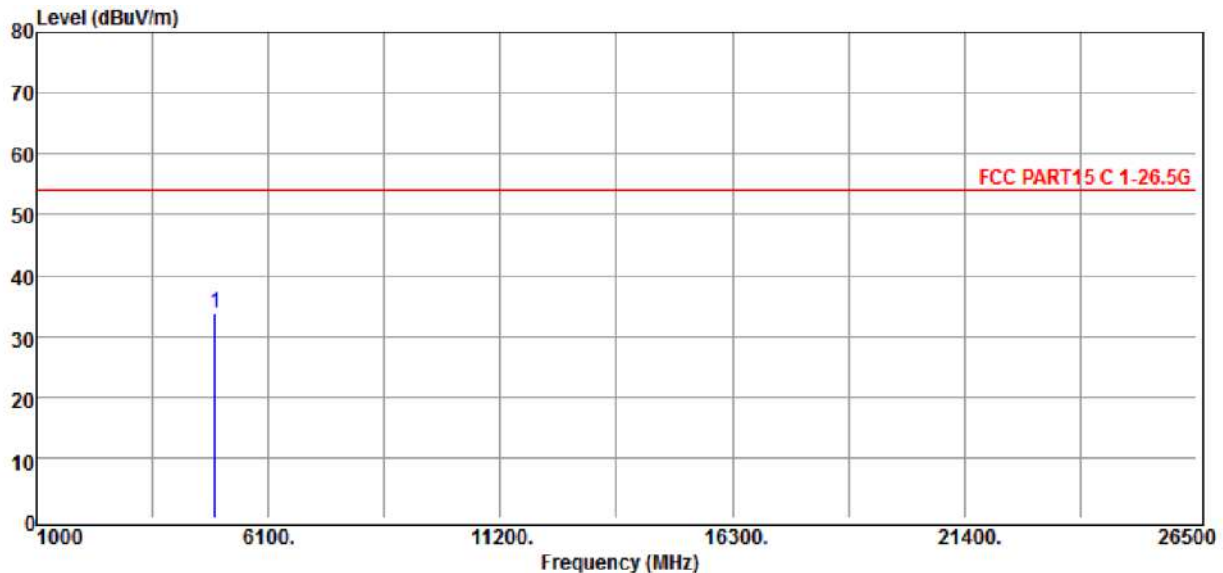
Note 2. Margin = Result - Limit ; Result = Reading + C.F.

Remark :

1. Measuring frequencies from 30 MHz to 1 GHz.
2. Measurements above show only up to 6 maximum emissions noted.
3. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Q.P. detector mode.
4. 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.
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	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 9	Channel	: CH 11
Polarization	: Horizontal	Test Site	: HA2 3m



No.	Freq MHz	Reading dBuV	C.F dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Antenna Pol.	Remark
1	4924.000	43.66	-9.76	33.90	54.00	-20.10	HORIZONTAL	Peak

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

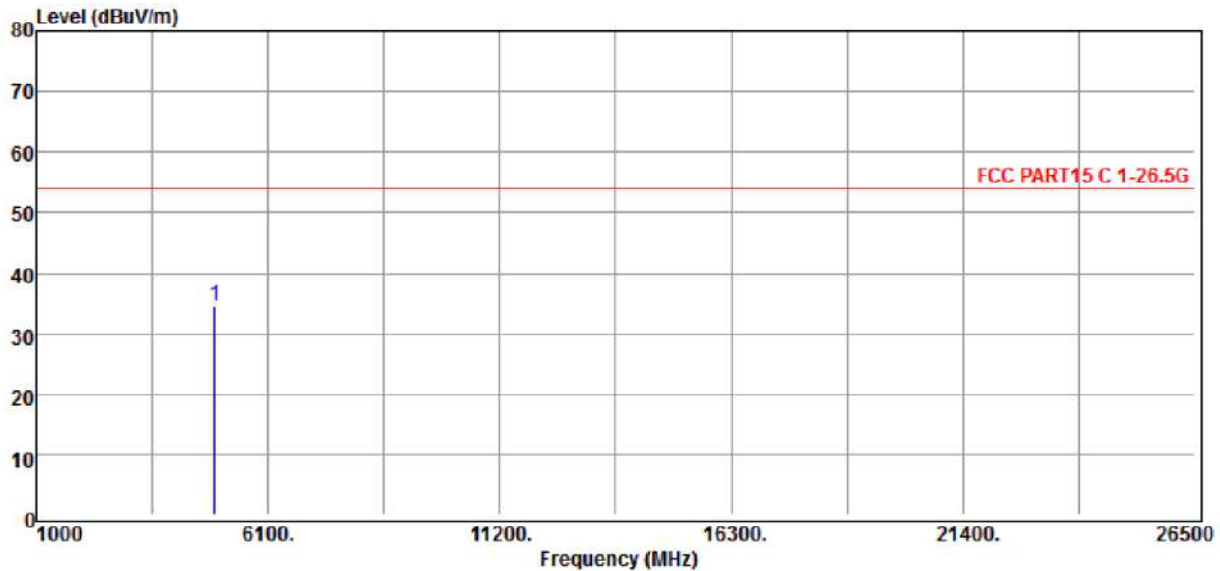
Note 2. Margin = Result - Limit ; Result = Reading + C.F.

### Remark :

1. Measuring frequencies from 30 MHz to 1 GHz.
2. Measurements above show only up to 6 maximum emissions noted.
3. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Q.P. detector mode.
4. 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.
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	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 9	Channel	: CH 11
Polarization	: Vertical	Test Site	: HA2 3m



No.	Freq MHz	Reading dBμV	C.F dB/m	Result dBμV/m	Limit dBμV/m	Margin dB	Antenna Pol.	Remark
1	4924.000	44.39	-9.76	34.63	54.00	-19.37	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. Measurements above show only up to 6 maximum emissions noted.
3. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Q.P. detector mode.
4. 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.
5. The IF bandwidth of SPA between 30 MHz to 1 GHz was 100 kHz.

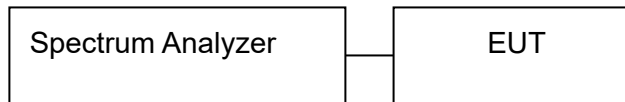


## 4 6 dB Bandwidth of the Emission

### 4.1 Test Instruments

Refer to Sec. 1.2 Test Instruments.

### 4.2 Test Arrangement



### 4.3 Test Procedure

1. Connect the EUT to spectrum analyzer through appropriate attenuator.
2. Spectrum setting; RMB = 100 kHz; VBW  $\geq$  300 kHz. Detector = Peak. Sweep = Auto.
3. Trace = Max Hold.

### 4.4 Limit (§ 15.247(a)(2))

Systems using digital modulation techniques may operate in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

### 4.5 Test Result

#### Compliance

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

Temperature : 25°C

Humidity : 58%

Test Date : 05-Jul-2023

Tested by : Tony Huang

Test Mode : 802.11 b

Test Channel	Frequency (MHz)	Test Result (MHz)	Limit (MHz)
01	2412	7.757	≥0.5
06	2437	7.757	≥0.5
11	2462	7.786	≥0.5

Test Mode : 802.11 g

Test Channel	Frequency (MHz)	Test Result (MHz)	Limit (MHz)
01	2412	16.4690	≥0.5
06	2437	16.440	≥0.5
11	2462	16.440	≥0.5

Test Mode : 802.11 n HT(20)

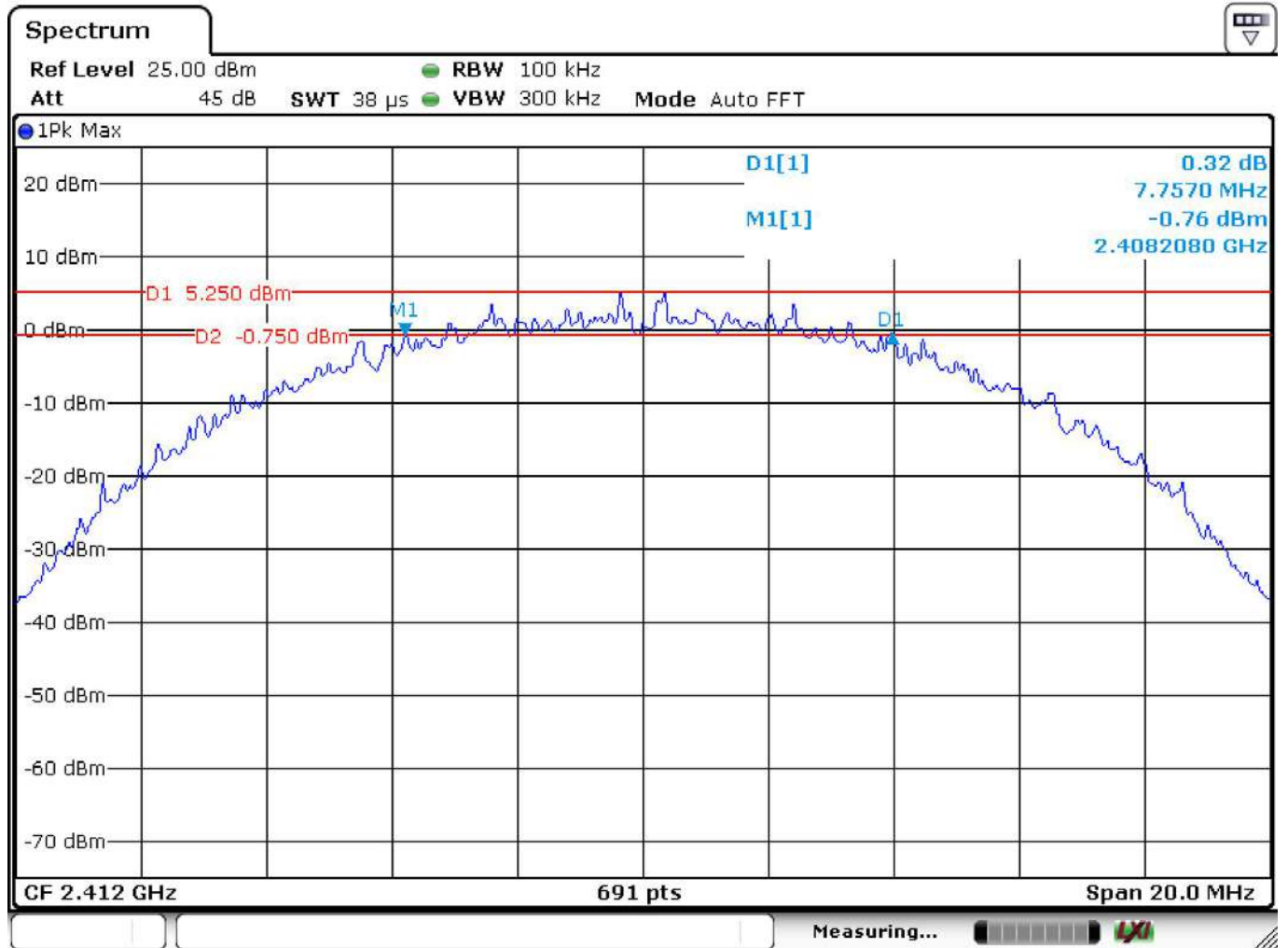
Test Channel	Frequency (MHz)	Test Result (MHz)	Limit (MHz)
01	2412	17.713	≥0.5
06	2437	17.685	≥0.5
11	2462	17.685	≥0.5

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



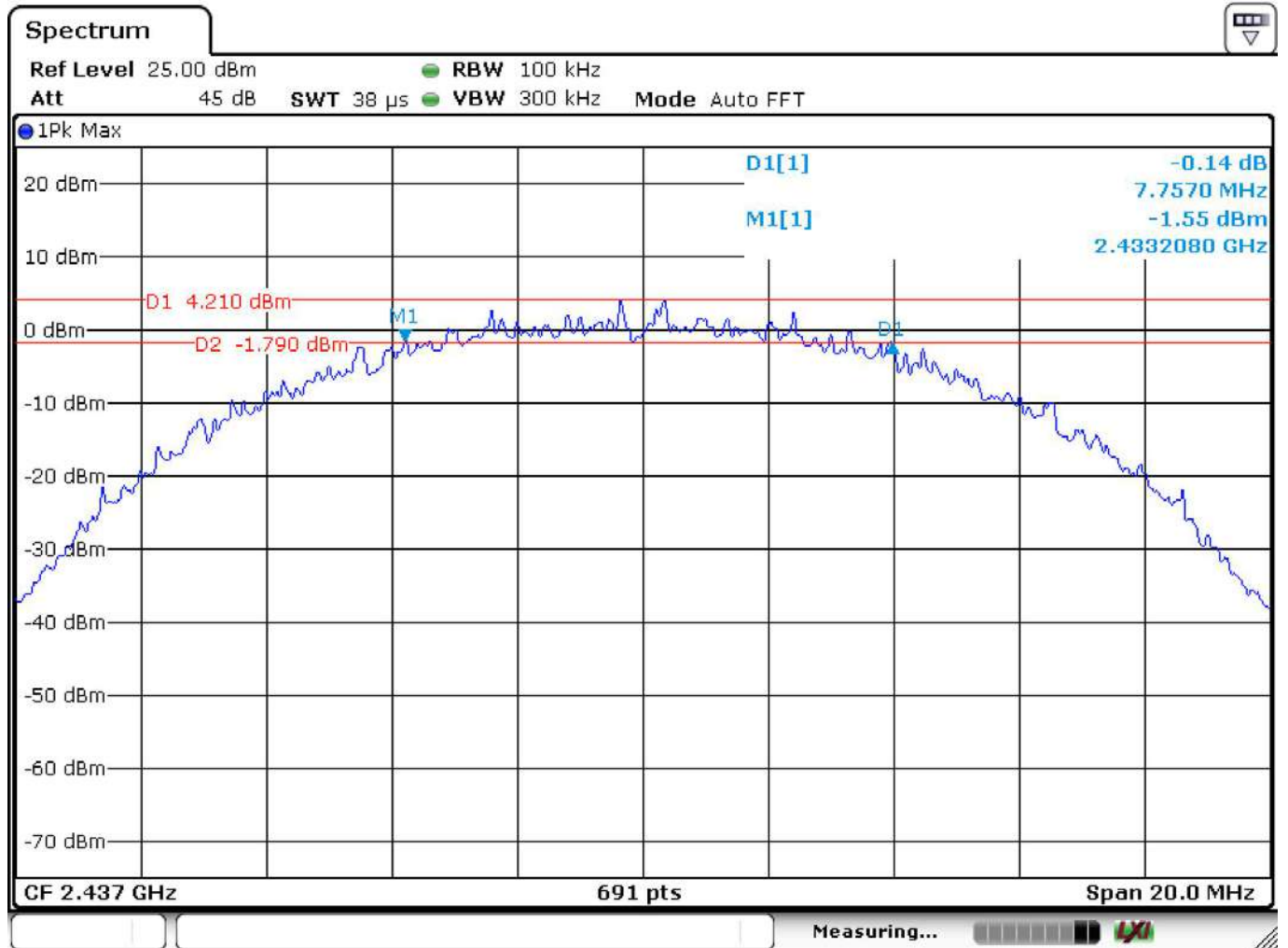


Temperature	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: 802.11b	Channel	: CH01 (2412MHz)



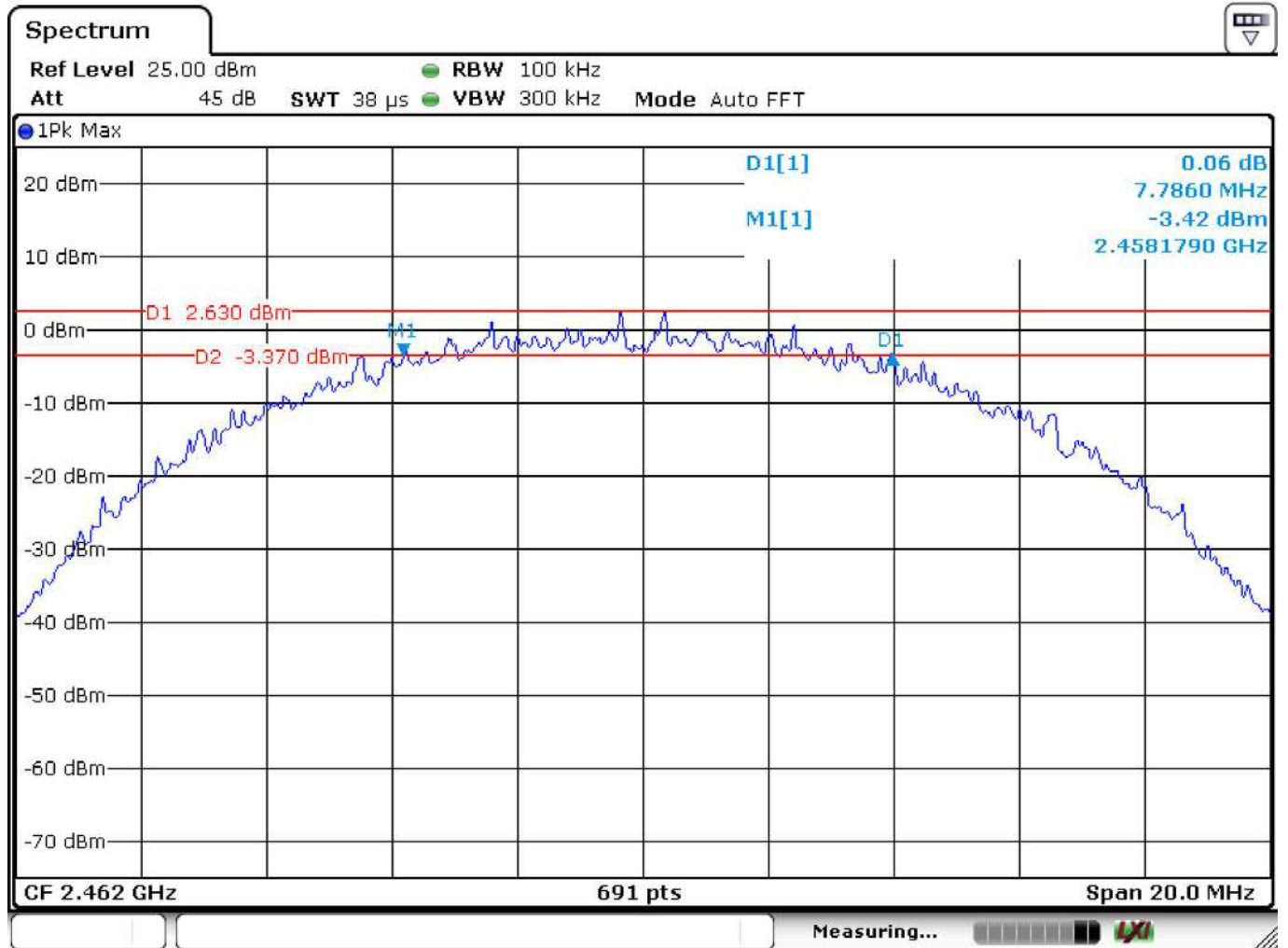


Temperature	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: 802.11b	Channel	: CH06 (2437MHz)



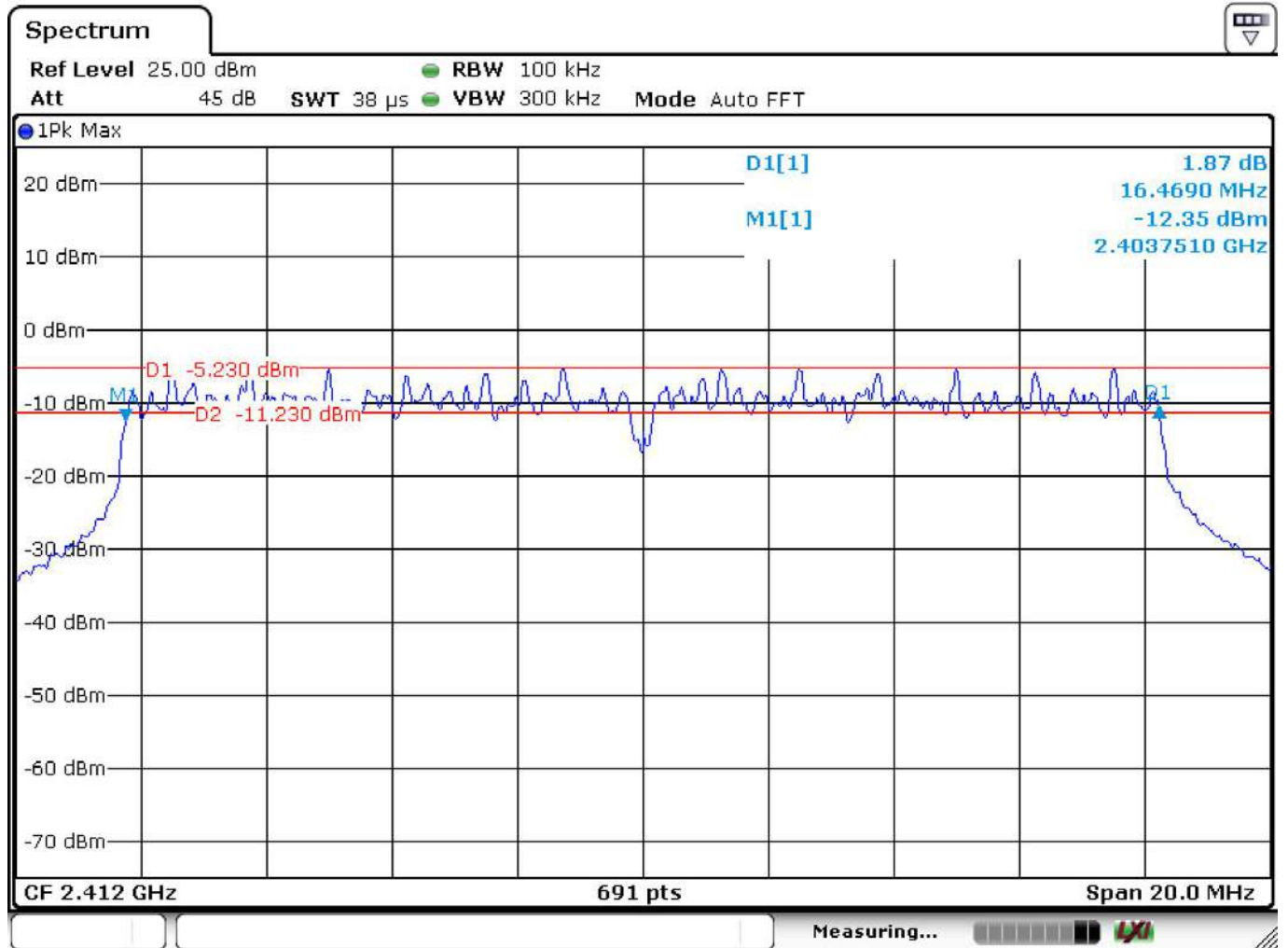


Temperature	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: 802.11b	Channel	: CH11 (2462MHz)



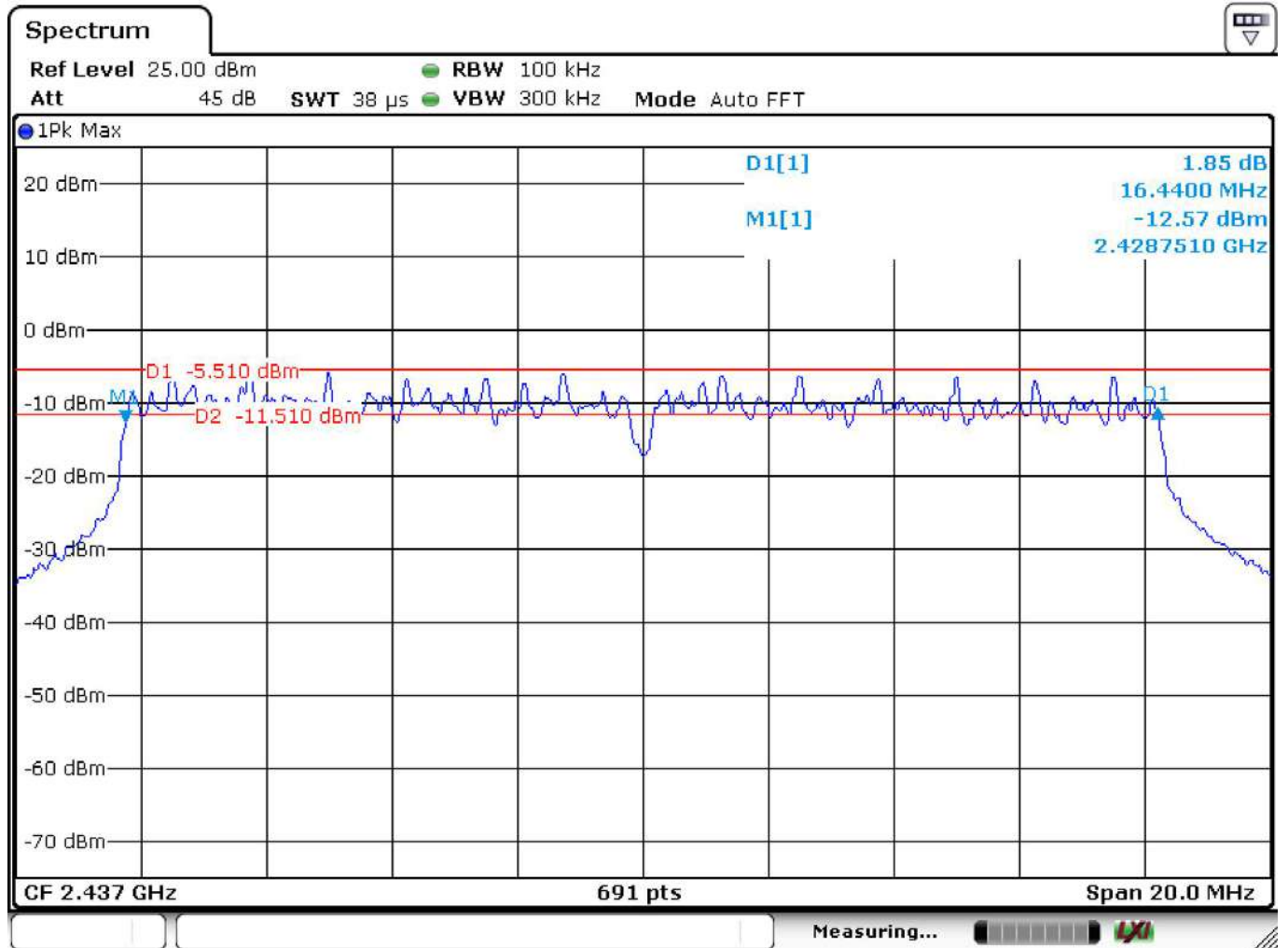


Temperature	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: 802.11g	Channel	: CH01 (2412MHz)



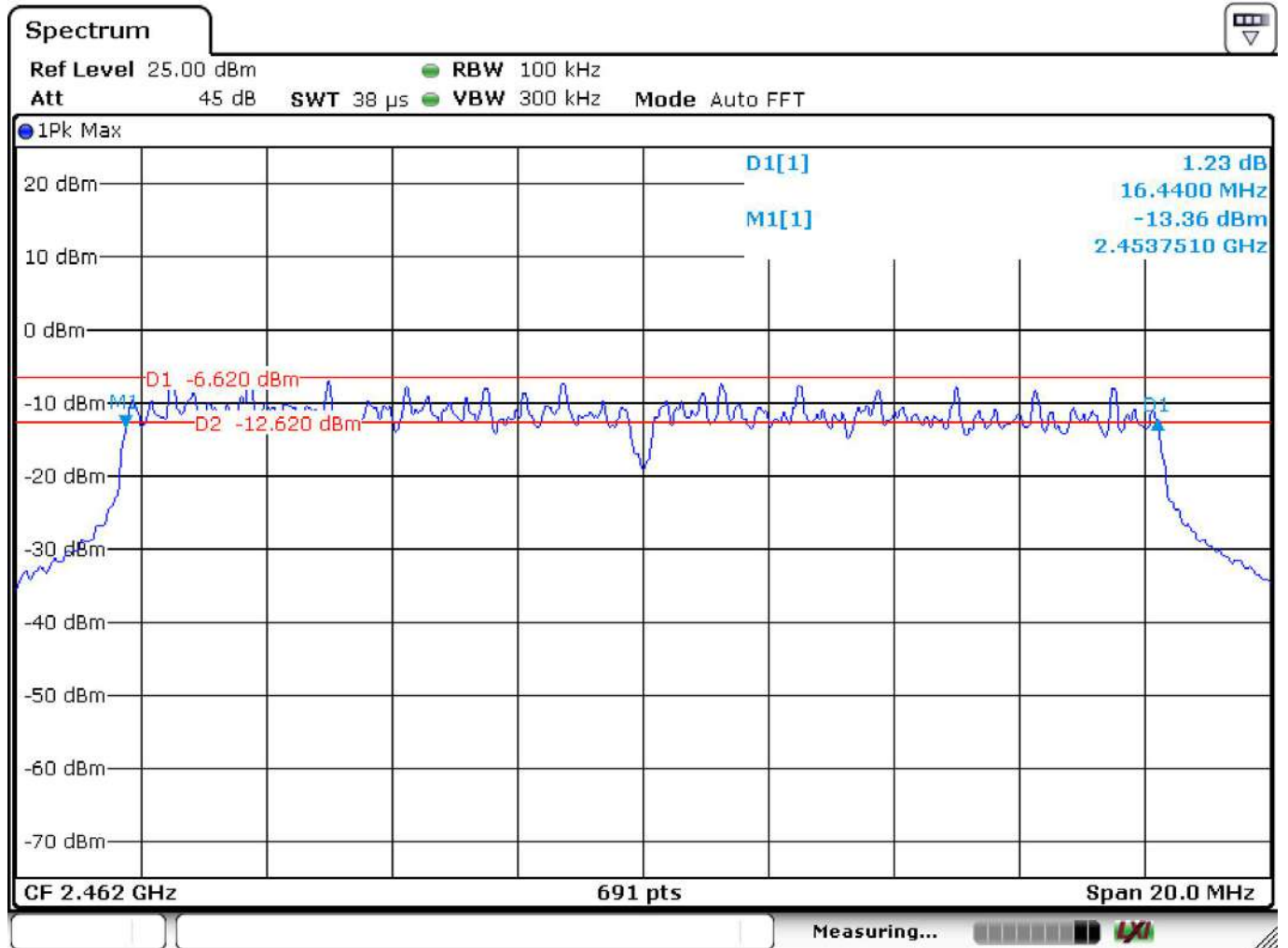


Temperature	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: 802.11g	Channel	: CH06 (2437MHz)



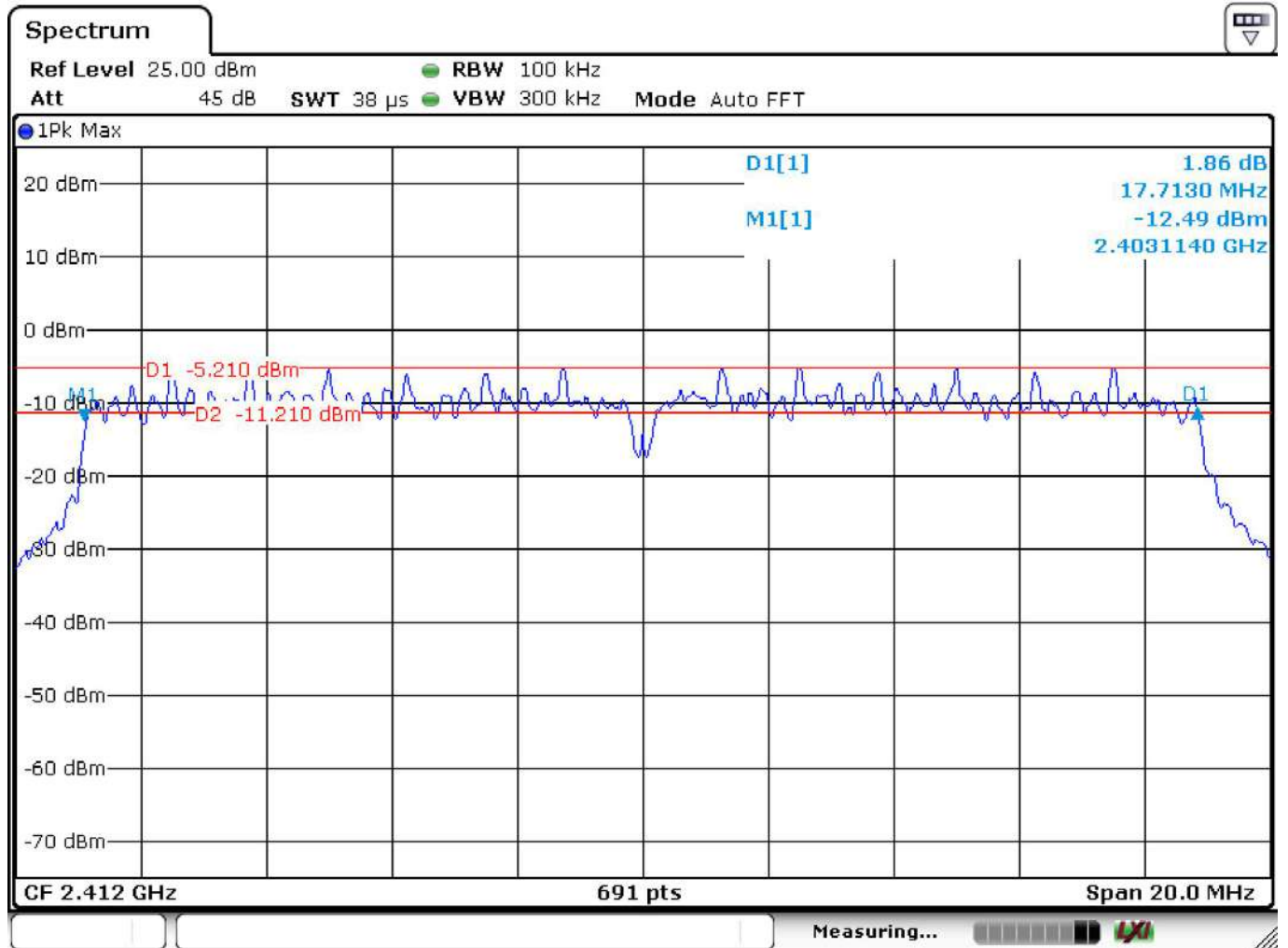


Temperature	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: 802.11g	Channel	: CH11 (2462MHz)



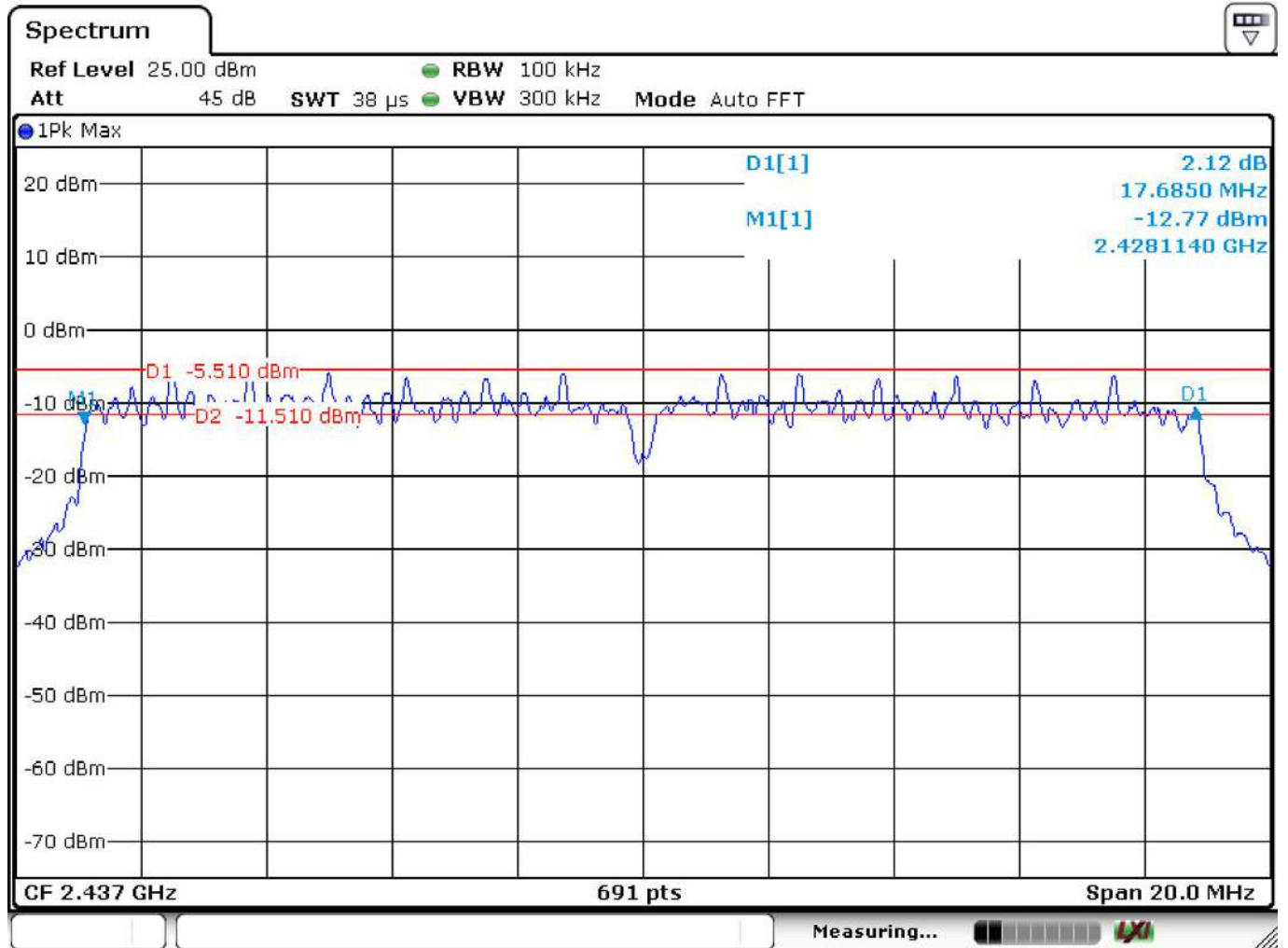


Temperature	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: 802.11n HT(20)	Channel	: CH01 (2412MHz)





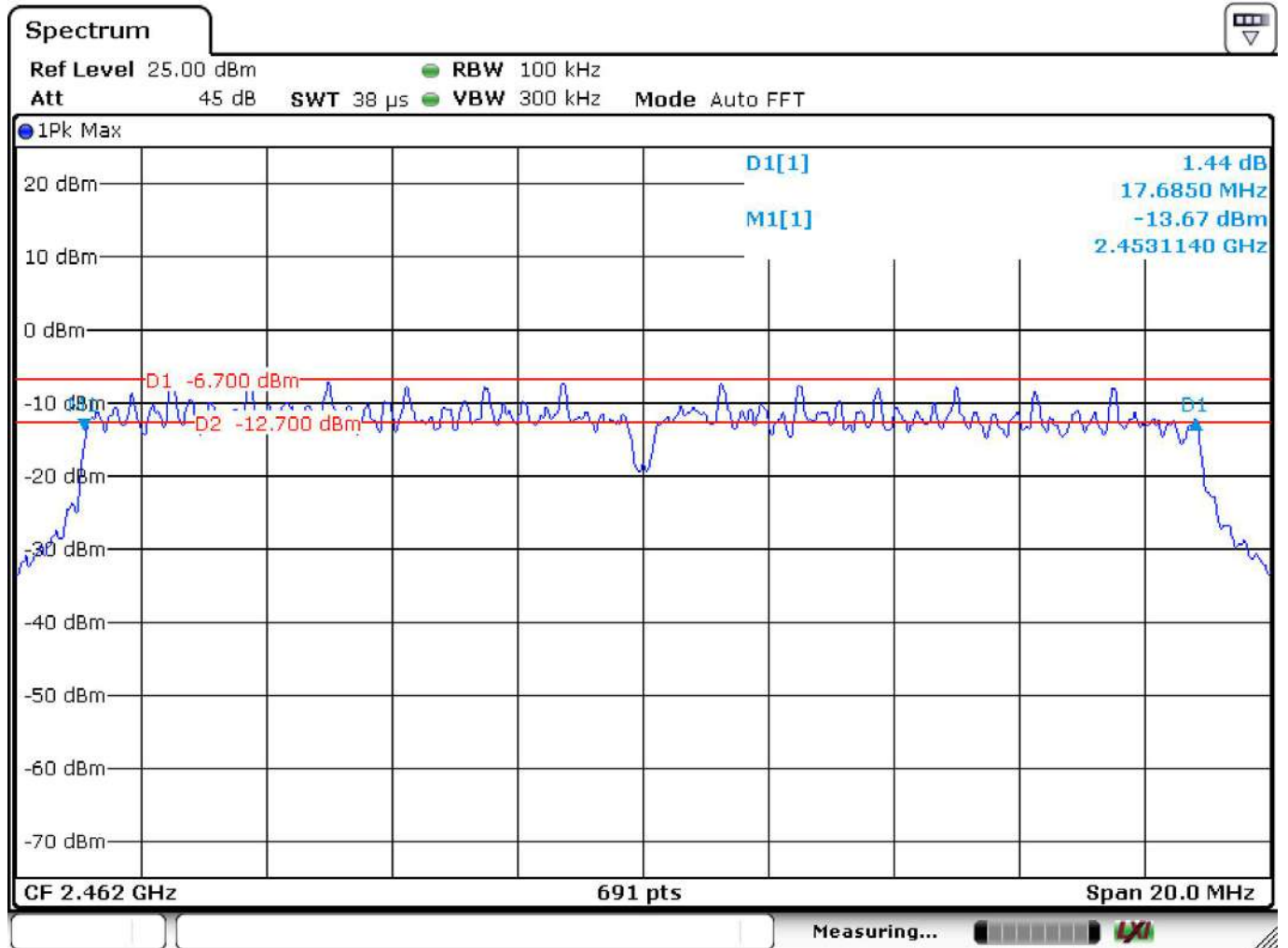
Temperature	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: 802.11n HT(20)	Channel	: CH06 (2437MHz)







Temperature	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: 802.11n HT(20)	Channel	: CH11 (2462MHz)



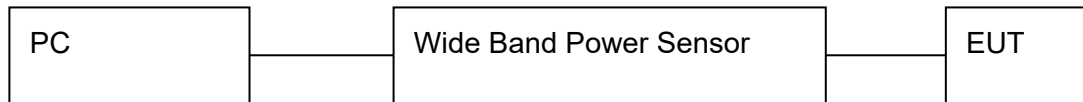


## 5 Maximum Conducted Output Power

### 5.1 Test Instruments

Refer to Sec. 1.2 Test Instruments.

### 5.2 Test Arrangement



### 5.3 Test Procedure

1. To perform the measurement of maximum conducted (Average) output power, firstly, connect the EUT to Wide Band Power Sensor.
2. Then, configure the EUT to transmit continuously (i.e., with a duty cycle of greater than or equal to 98%) and to transmit at its maximum power level.
3. Finally, capture the Maximum reading from PC.
4. Test method in Section 11.9.2.3 of ANSI C63.10 (2013) was used to measure the output power.

### 5.4 Limit (§ 15.247(b)(3))

For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt.

### 5.5 Test Result

#### Compliance

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



Temperature : 25°C

Humidity : 58%

Test Date : 05-Jul-2023

Tested by : Tony Huang

Test Mode : 802.11 b

Test Channel	Frequency (MHz)	Test Result		Limit	
		(dBm)	(W)	(dBm)	(W)
01	2412	10.92	0.012359	30	1
06	2437	9.64	0.009204	30	1
11	2462	9.05	0.008035	30	1

Test Mode : 802.11 g

Test Channel	Frequency (MHz)	Test Result		Limit	
		(dBm)	(W)	(dBm)	(W)
01	2412	3.88	0.002443	30	1
06	2437	2.79	0.001901	30	1
11	2462	1.82	0.001520	30	1

Test Mode : 802.11 n HT(20)

Test Channel	Frequency (MHz)	Test Result		Limit	
		(dBm)	(W)	(dBm)	(W)
01	2412	3.86	0.002432	30	1
06	2437	2.64	0.001836	30	1
11	2462	1.55	0.001428	30	1

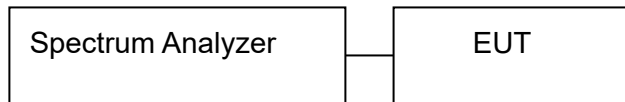


## 6 Out of Band Emission Test

### 6.1 Test Instruments

Refer to Sec. 1.2 Test Instruments.

### 6.2 Test Arrangement



### 6.3 Test Procedure

1. Connect the EUT to spectrum analyzer through appropriate attenuator.
2. Spectrum setting; RMB = 100 kHz; VBW = 300 kHz.
3. Span  $\geq 1.5$  time DTS BW.
4. Detector = Peak.
5. Trace = Max Hold.

### 6.4 Limit (§ 15.247(d))

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in § 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

### 6.5 Test Result

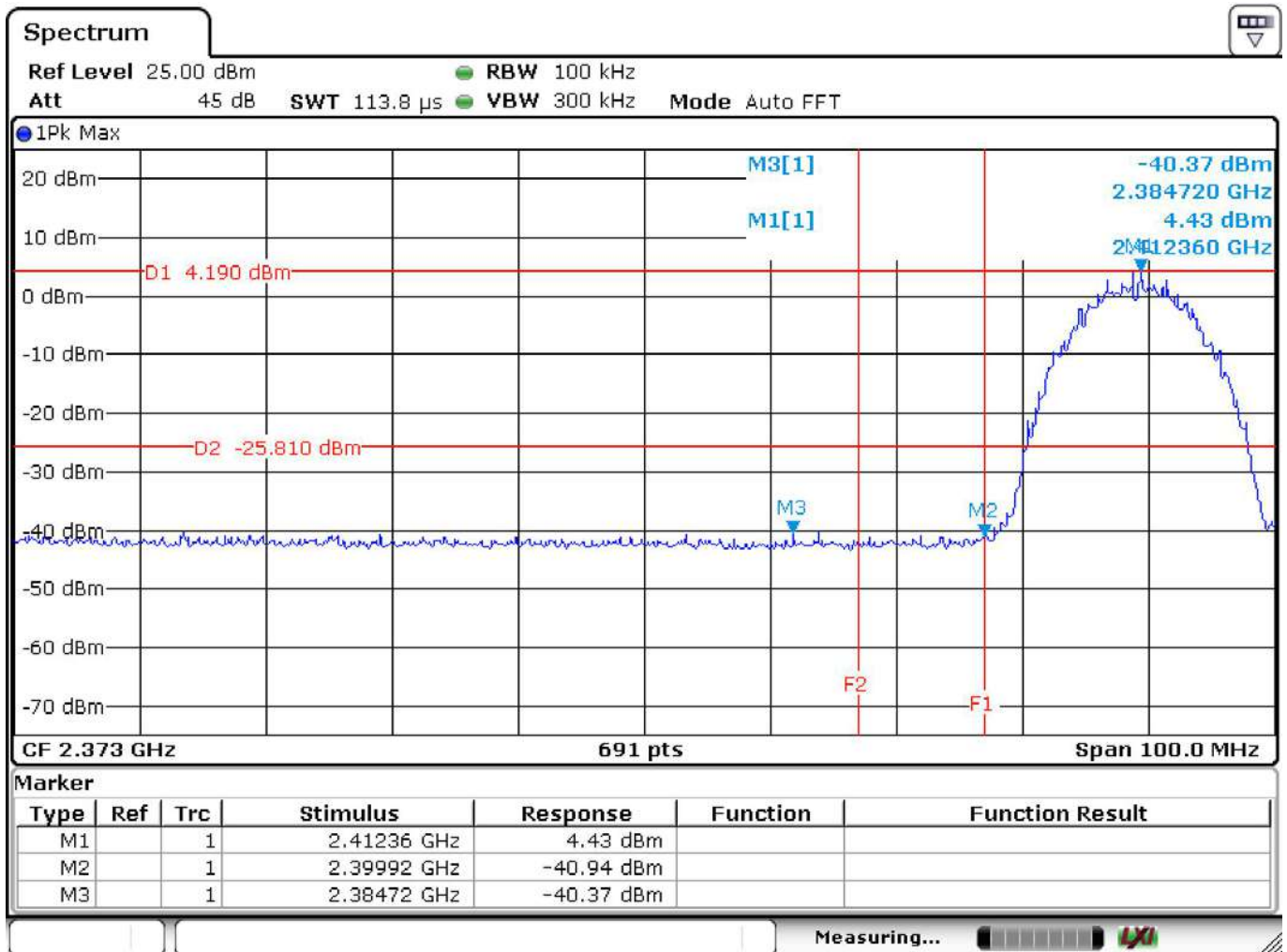
#### Compliance

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



## Band-Edge Test Data (Lower Edge)

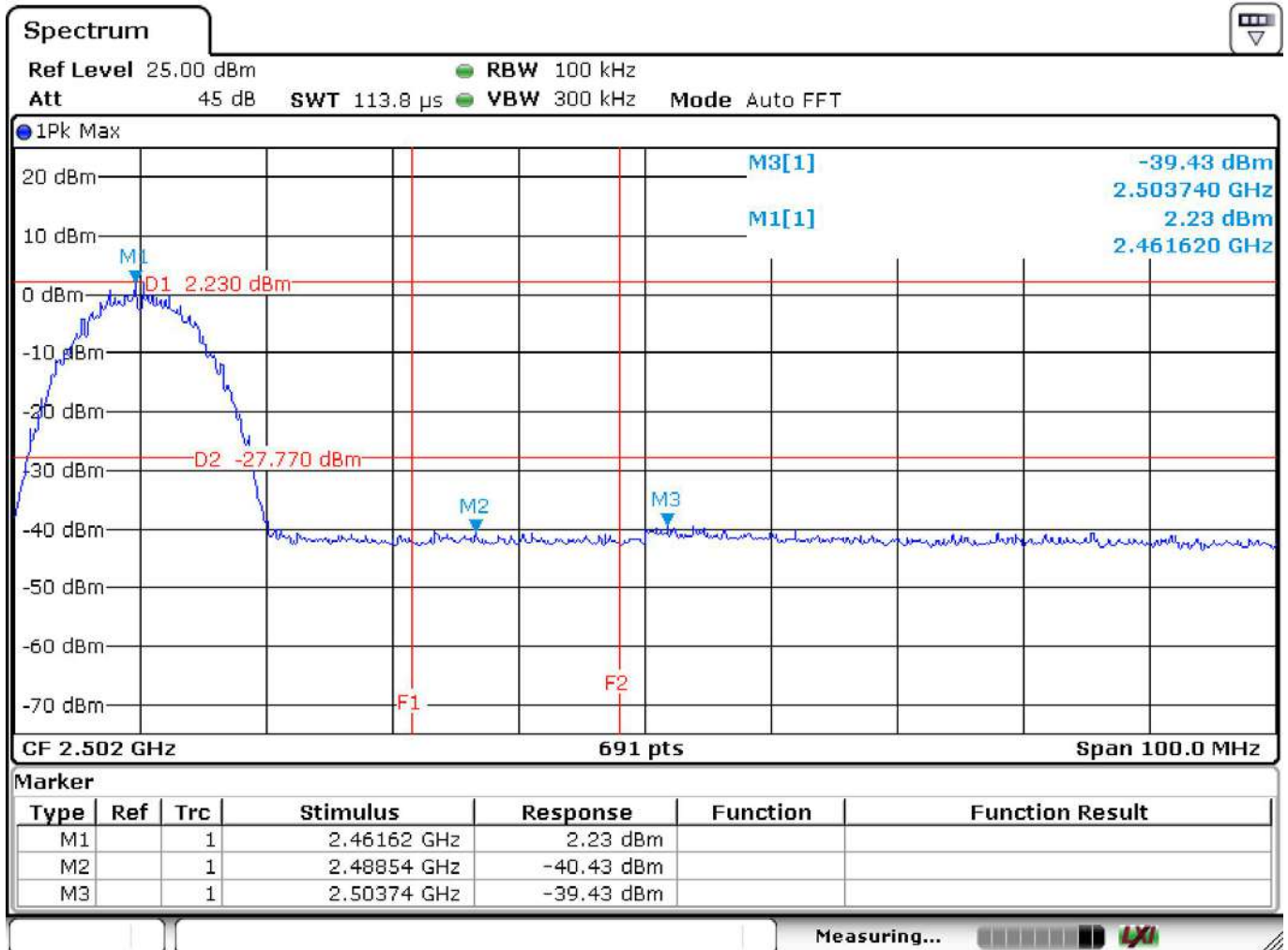
Temperature	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 1 (802.11b)	Channel	: CH01 (2412 MHz)





## Band-Edge Test Data (Upper Edge)

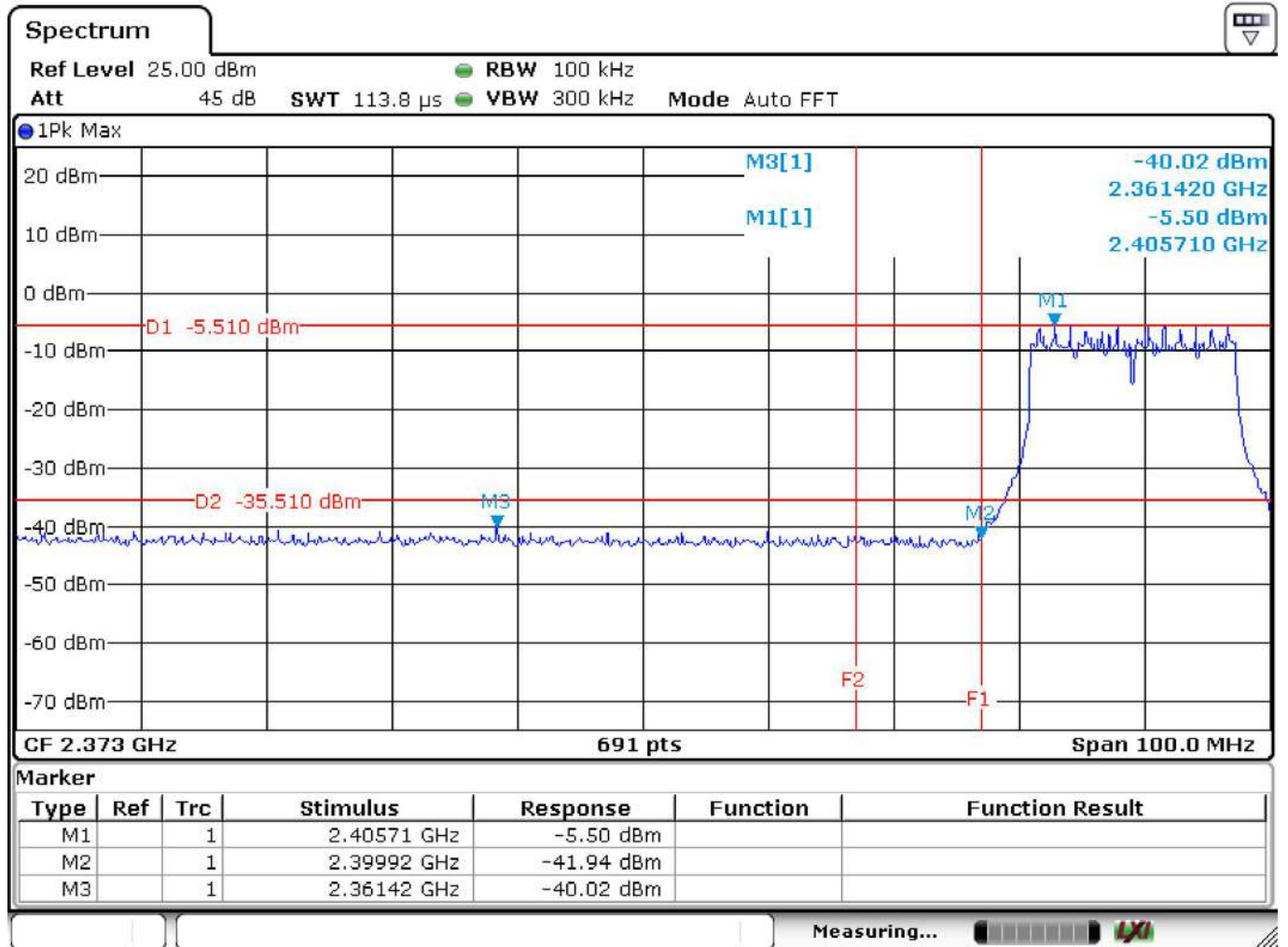
Temperature	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 3 (802.11b)	Channel	: CH11 (2462 MHz)





## Band-Edge Test Data (Lower Edge)

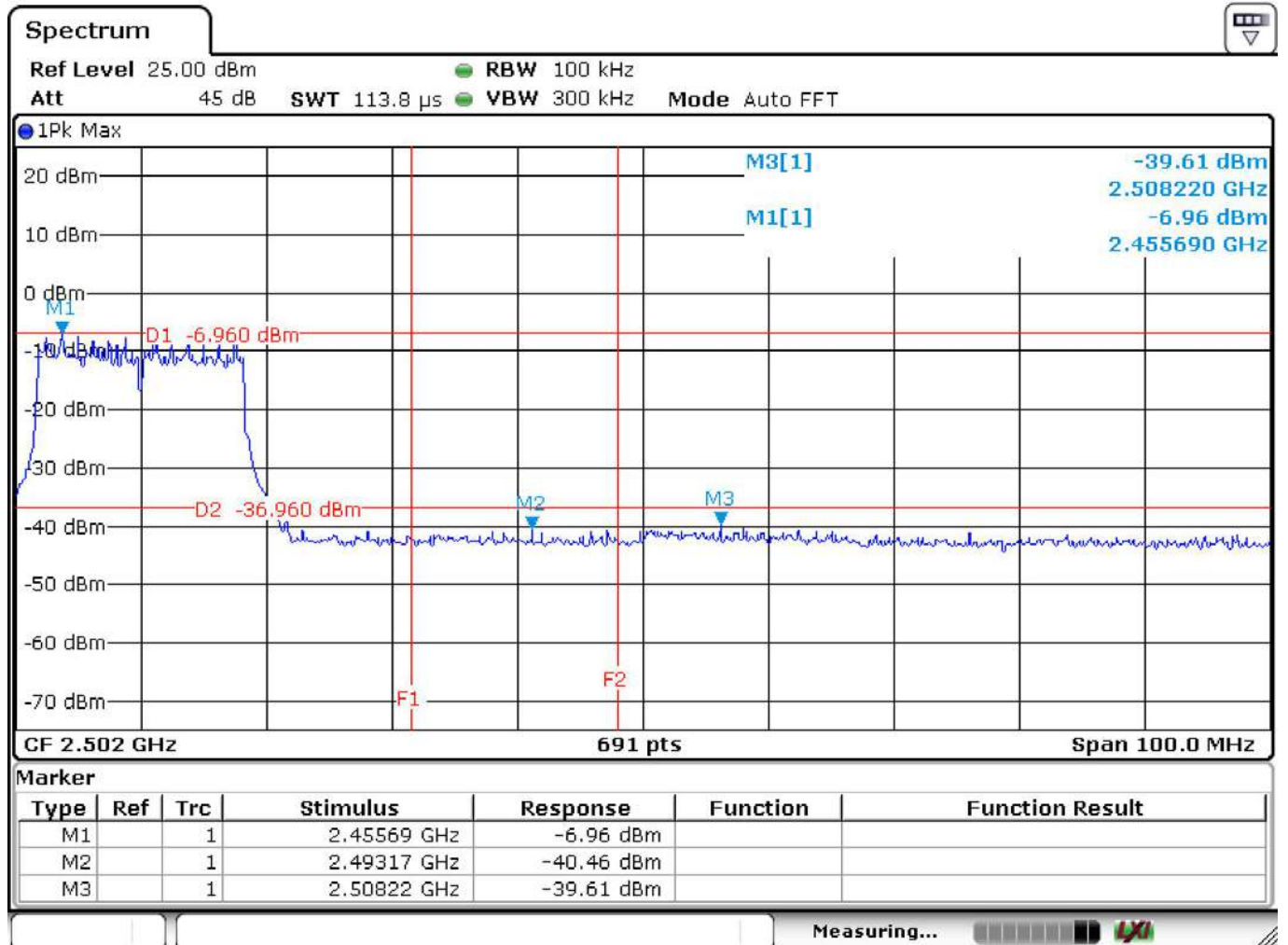
Temperature	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 4 (802.11g)	Channel	: CH01 (2412 MHz)





## Band-Edge Test Data (Upper Edge)

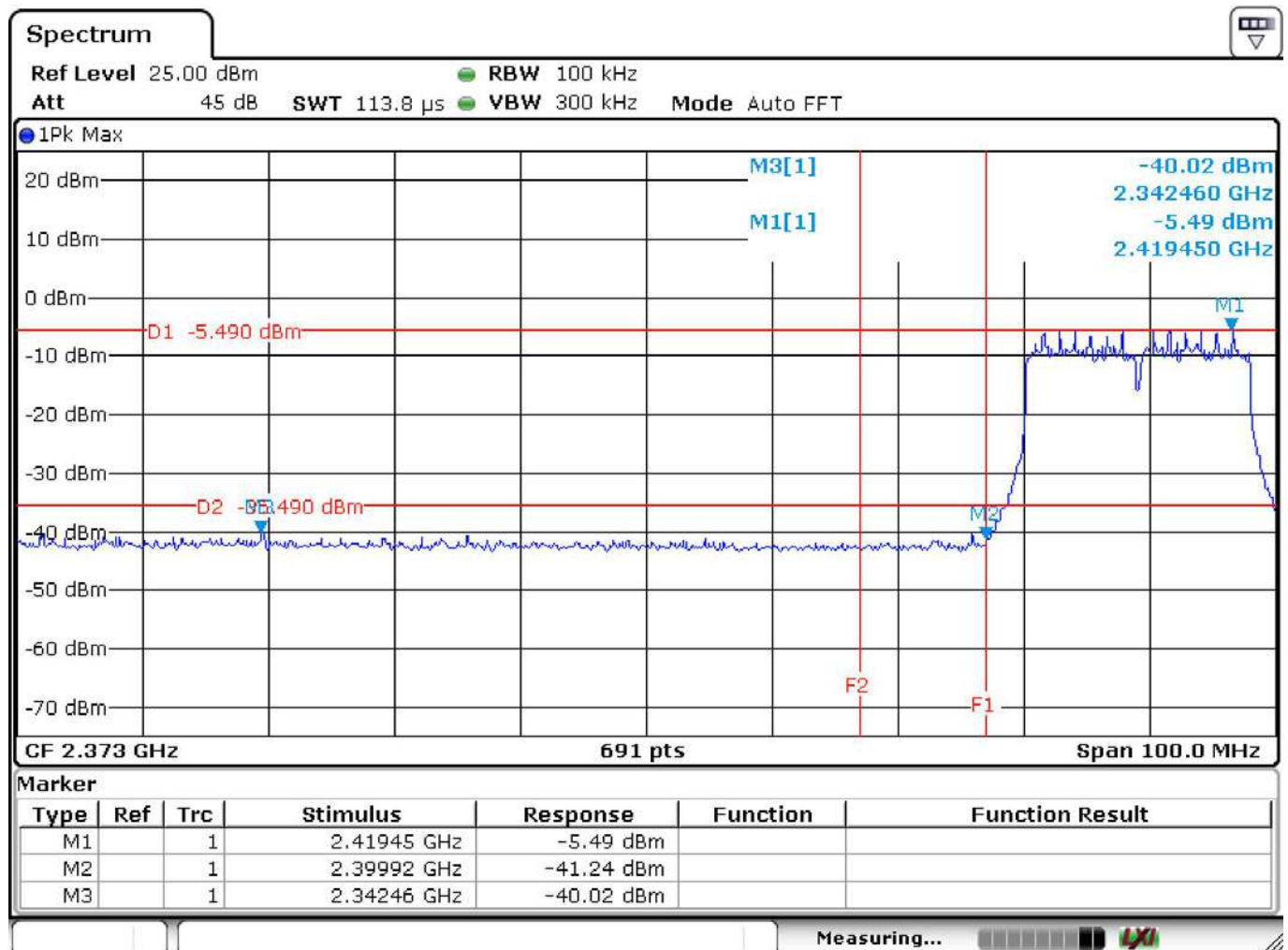
Temperature	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 6 (802.11g)	Channel	: CH11 (2462 MHz)





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

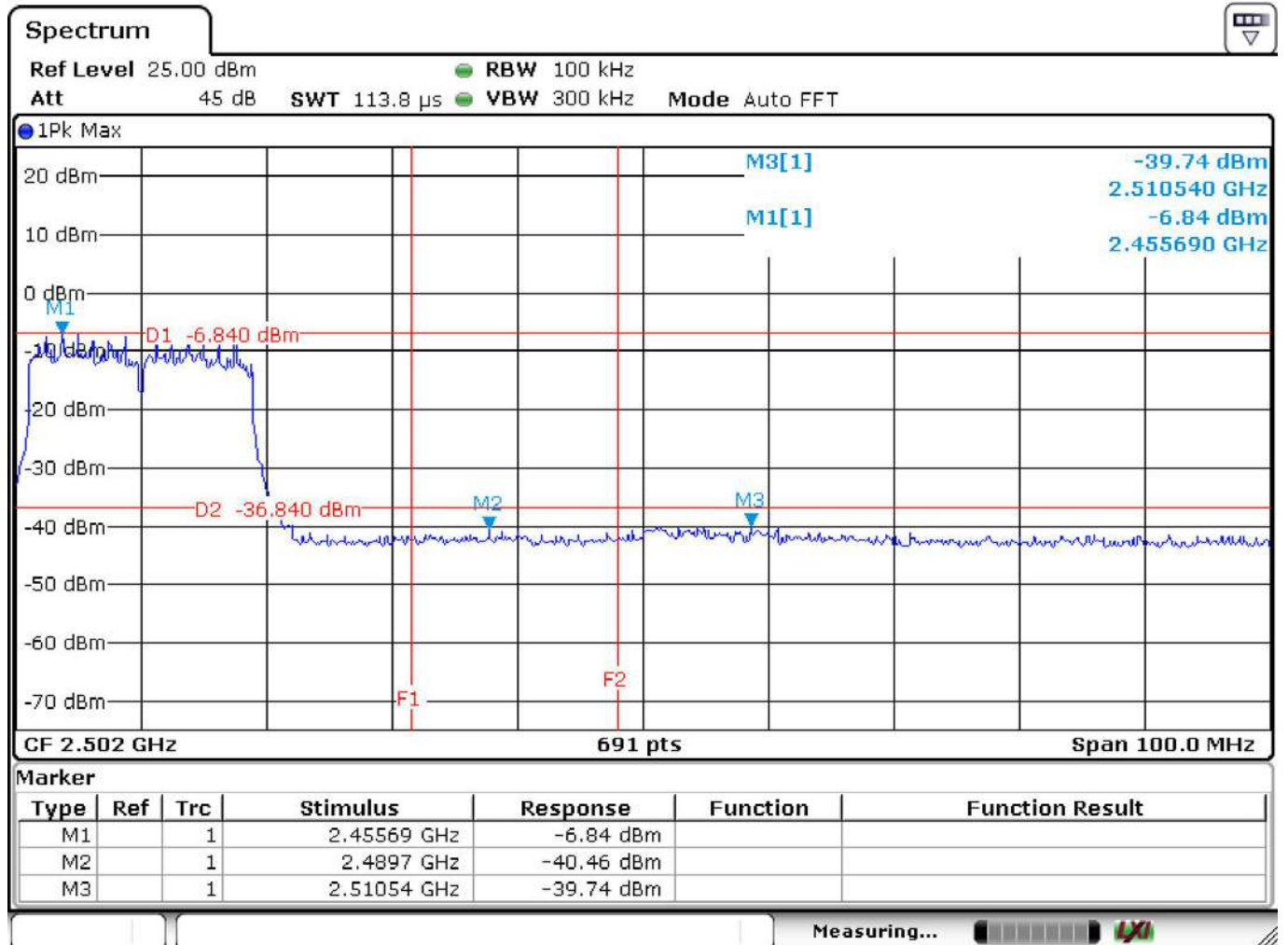
Temperature	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 7 (802.11n 20M)	Channel	: CH01 (2412 MHz)





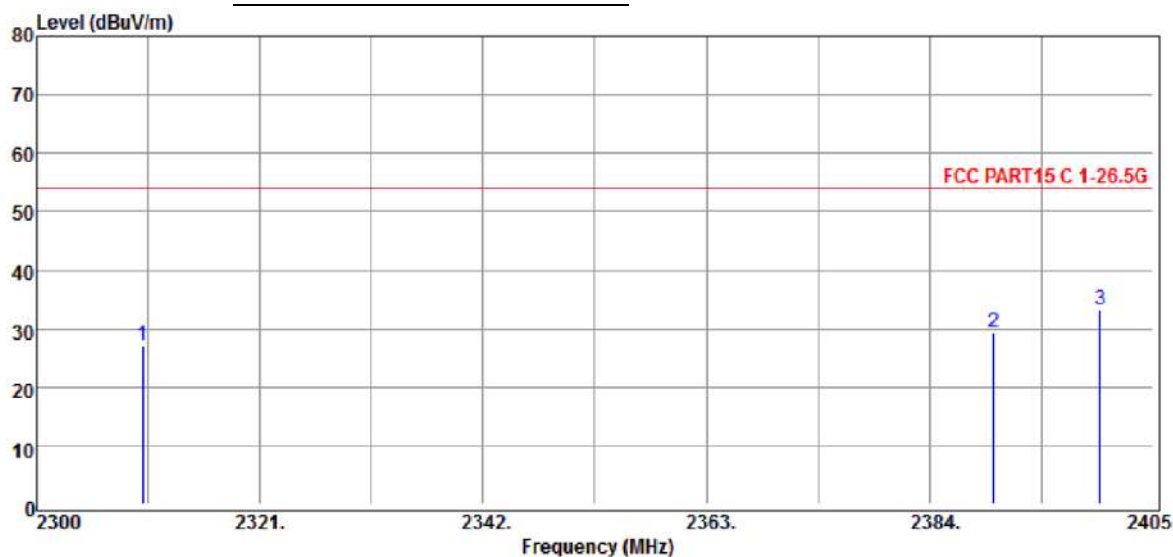
## Band-Edge Test Data (Upper Edge)

Temperature	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 9 (802.11n 20M)	Channel	: CH11 (2462 MHz)



**Radiated Emission in the Restricted Band Test Data (Lower Edge)**

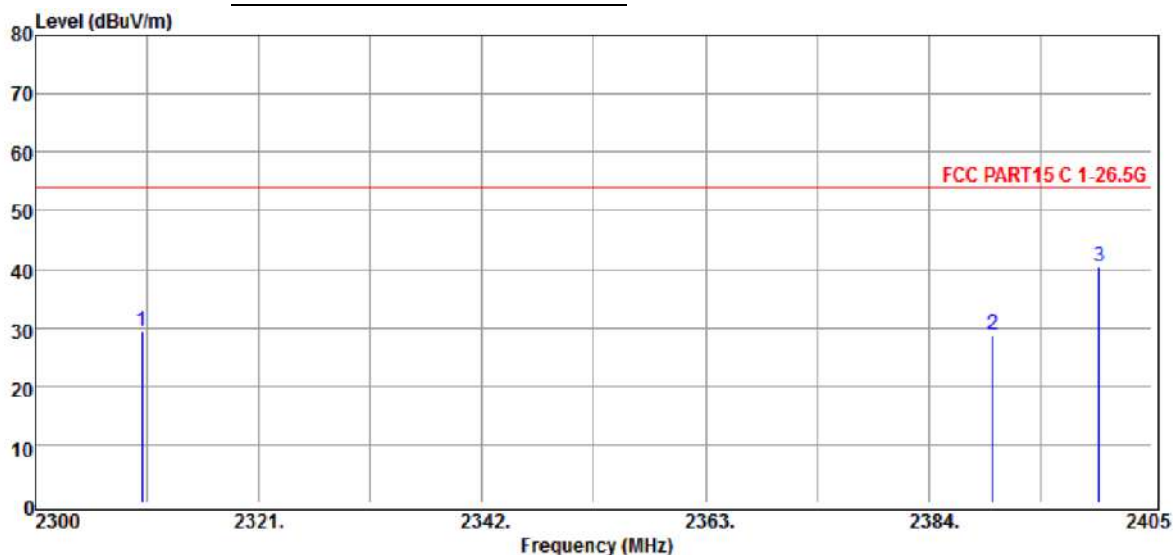
Temperature	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 1 (802.11b)	Channel	: CH01 (2412 MHz)
Polarization	: Horizontal		



No.	Freq MHz	Reading dBUV	C.F dB/m	Result dBUV/m	Limit dBUV/m	Margin dB	Antenna Pol.	Remark
1	2310.000	43.18	-16.10	27.08	54.00	-26.92	HORIZONTAL	Peak
2	2390.000	45.15	-15.83	29.32	54.00	-24.68	HORIZONTAL	Peak
3	2400.000	49.01	-15.82	33.19	54.00	-20.81	HORIZONTAL	Peak

**Radiated Emission in the Restricted Band Test Data (Lower Edge)**

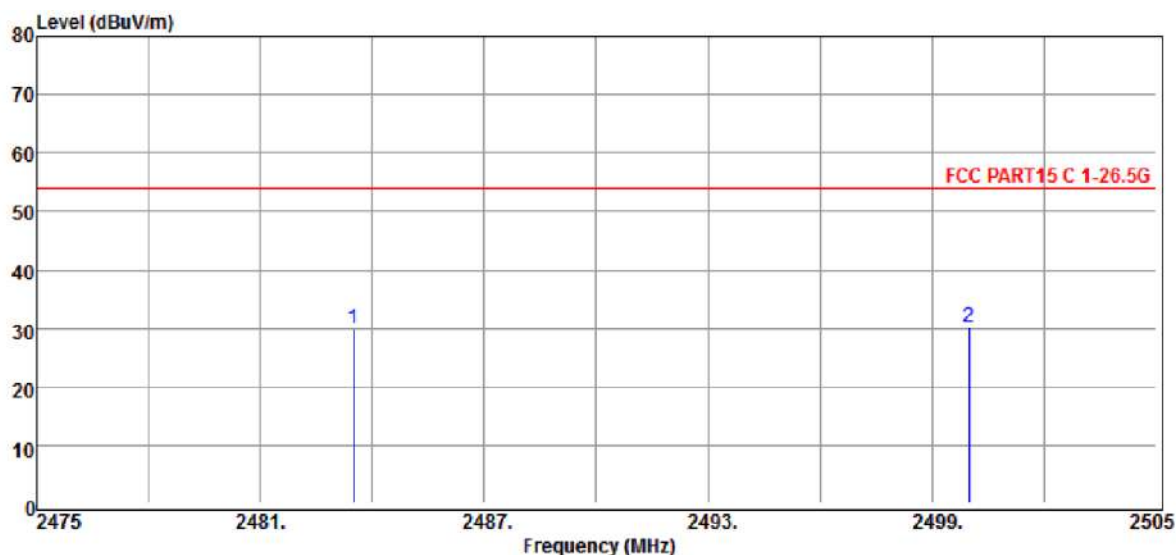
Temperature	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 1 (802.11b)	Channel	: CH01 (2412 MHz)
Polarization	: Vertical		



No.	Freq MHz	Reading dBuV	C.F dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Antenna Pol.	Remark
1	2310.000	45.42	-16.10	29.32	54.00	-24.68	VERTICAL	Peak
2	2390.000	44.58	-15.83	28.75	54.00	-25.25	VERTICAL	Peak
3	2400.000	56.17	-15.82	40.35	54.00	-13.65	VERTICAL	Peak

**Radiated Emission in the Restricted Band Test Data (Upper Edge)**

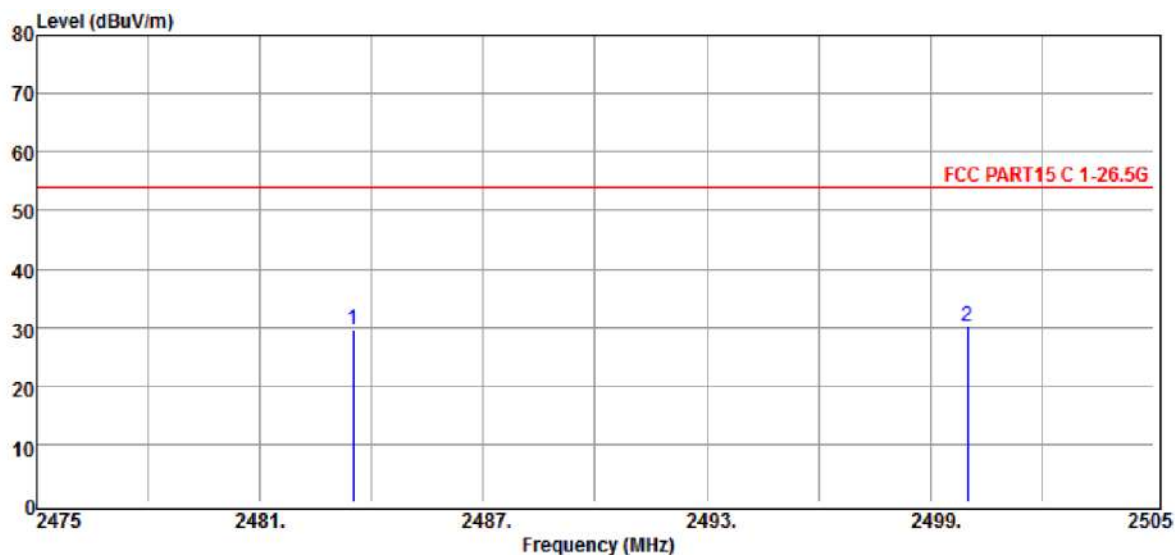
Temperature	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 3 (802.11b)	Channel	: CH11 (2462 MHz)
Polarization	: Horizontal		



No.	Freq MHz	Reading dBuV	C.F dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Antenna Pol.	Remark
1	2483.500	45.24	-15.45	29.79	54.00	-24.21	HORIZONTAL	Peak
2	2500.000	45.45	-15.34	30.11	54.00	-23.89	HORIZONTAL	Peak

**Radiated Emission in the Restricted Band Test Data (Upper Edge)**

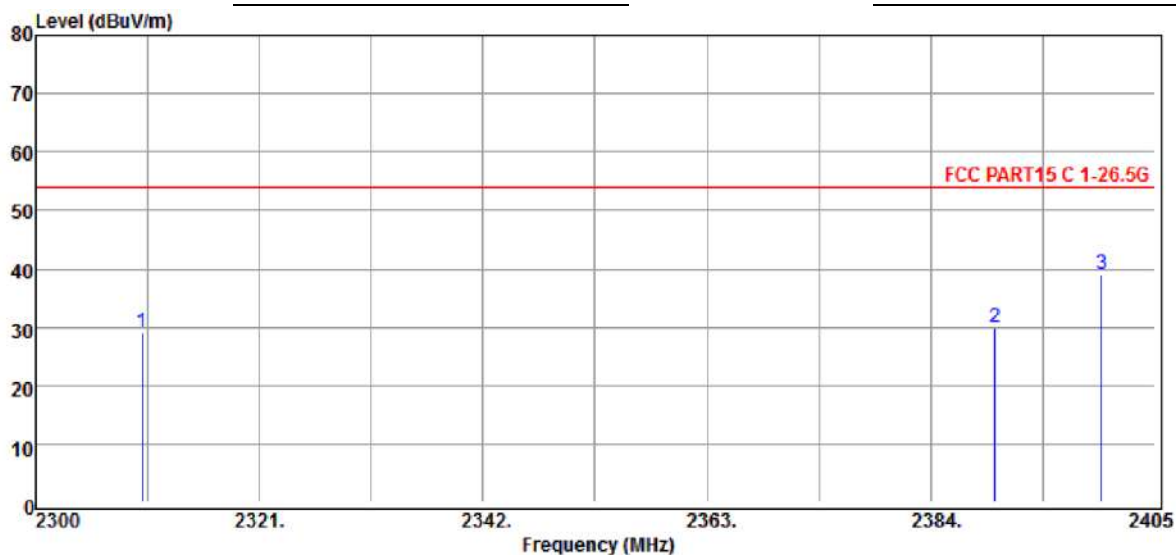
Temperature	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 3 (802.11b)	Channel	: CH11 (2462 MHz)
Polarization	: Vertical		



No.	Freq MHz	Reading dBUV	C.F dB/m	Result dBUV/m	Limit dBUV/m	Margin dB	Antenna Pol.	Remark
1	2483.500	45.16	-15.45	29.71	54.00	-24.29	VERTICAL	Peak
2	2500.000	45.42	-15.34	30.08	54.00	-23.92	VERTICAL	Peak

**Radiated Emission in the Restricted Band Test Data (Lower Edge)**

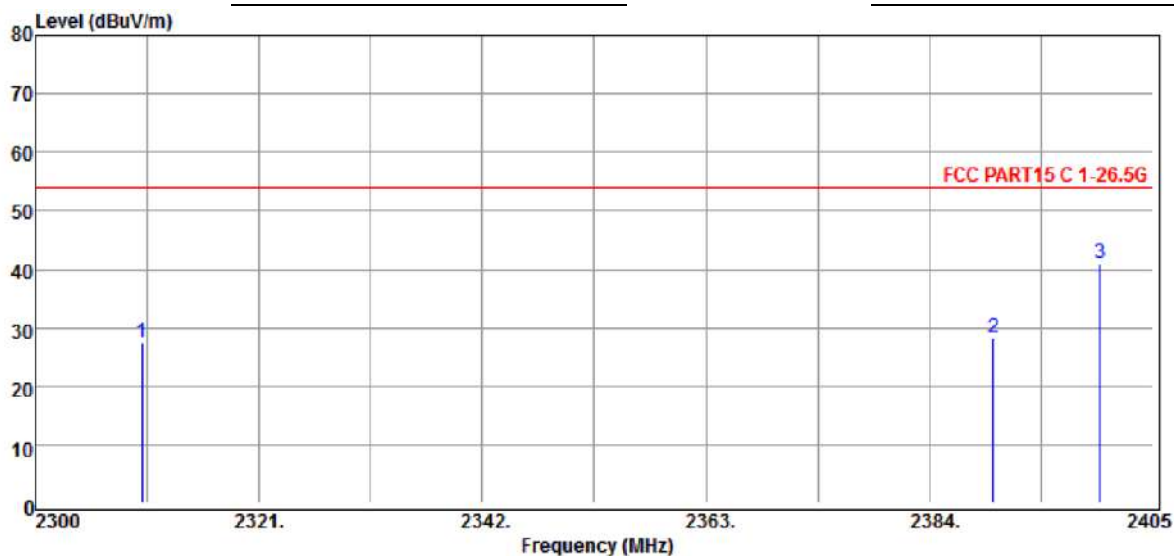
Temperature	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 4 (802.11g)	Channel	: CH01 (2412 MHz)
Polarization	: Horizontal		



No.	Freq MHz	Reading dBuV	C.F dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Antenna Pol.	Remark
1	2310.000	45.25	-16.10	29.15	54.00	-24.85	HORIZONTAL	Peak
2	2390.000	45.61	-15.83	29.78	54.00	-24.22	HORIZONTAL	Peak
3	2400.000	54.95	-15.82	39.13	54.00	-14.87	HORIZONTAL	Peak

**Radiated Emission in the Restricted Band Test Data (Lower Edge)**

Temperature	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 4 (802.11g)	Channel	: CH01 (2412 MHz)
Polarization	: Vertical		

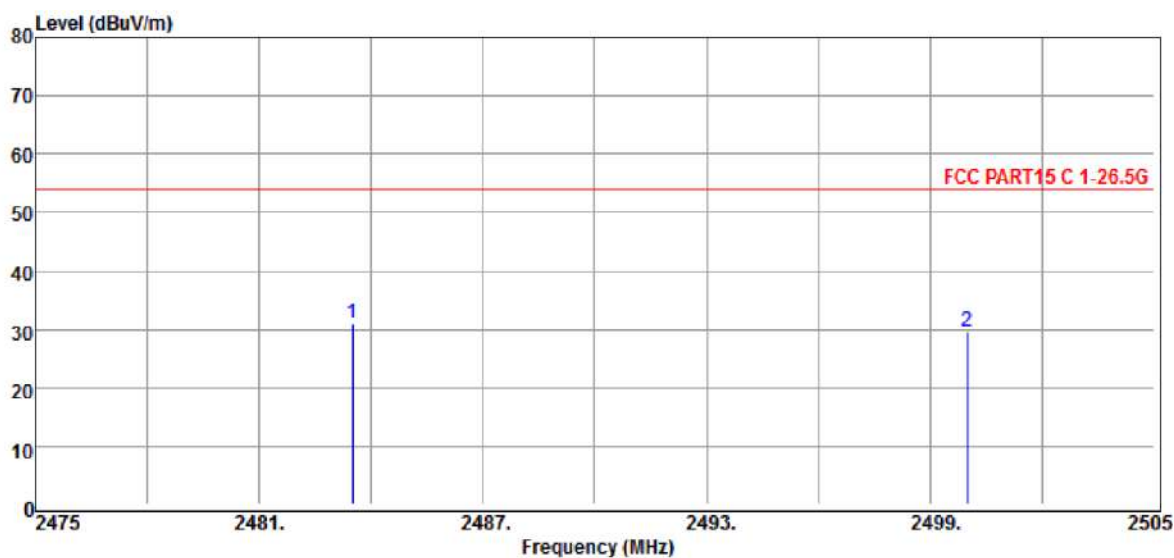


No.	Freq MHz	Reading dBμV	C.F dB/m	Result dBμV/m	Limit dBμV/m	Margin dB	Antenna Pol.	Remark
1	2310.000	43.62	-16.10	27.52	54.00	-26.48	VERTICAL	Peak
2	2390.000	43.98	-15.83	28.15	54.00	-25.85	VERTICAL	Peak
3	2400.000	56.76	-15.82	40.94	54.00	-13.06	VERTICAL	Peak



**Radiated Emission in the Restricted Band Test Data (Upper Edge)**

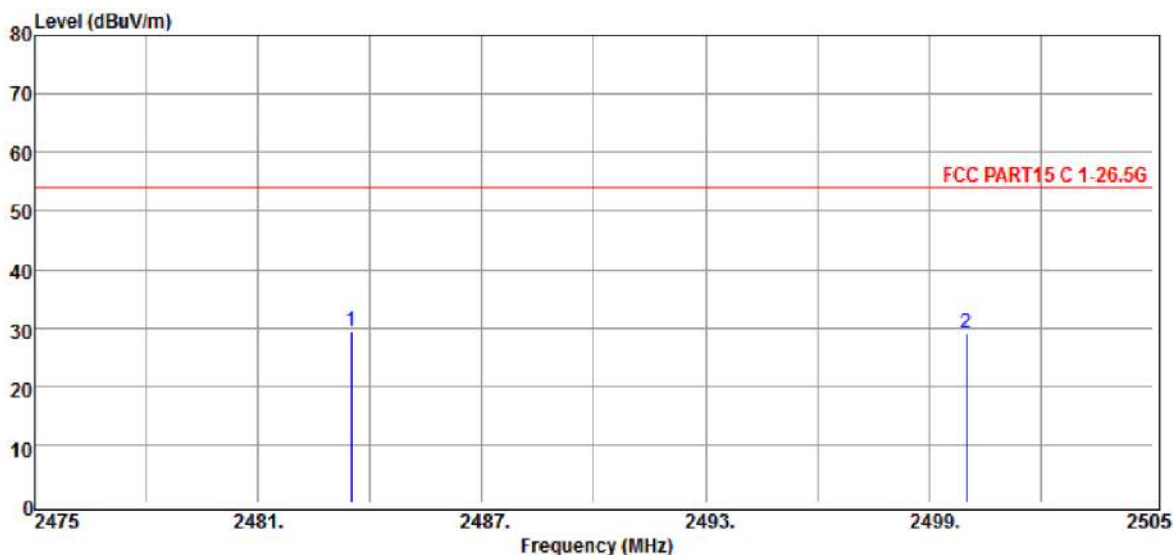
Temperature	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 6 (802.11g)	Channel	: CH11 (2462 MHz)
Polarization	: Horizontal		



No.	Freq MHz	Reading dBuV	C.F dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Antenna Pol.	Remark
1	2483.500	46.45	-15.45	31.00	54.00	-23.00	HORIZONTAL	Peak
2	2500.000	44.89	-15.34	29.55	54.00	-24.45	HORIZONTAL	Peak

**Radiated Emission in the Restricted Band Test Data (Upper Edge)**

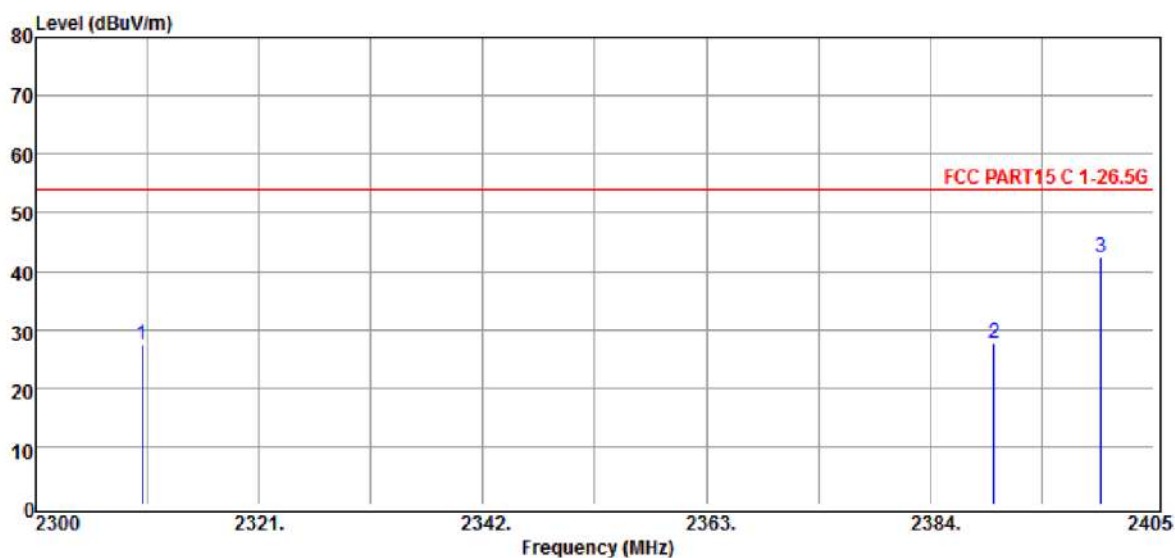
Temperature	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 6 (802.11g)	Channel	: CH11 (2462 MHz)
Polarization	: Vertical		



No.	Freq MHz	Reading dBμV	C.F dB/m	Result dBμV/m	Limit dBμV/m	Margin dB	Antenna Pol.	Remark
1	2483.500	44.80	-15.45	29.35	54.00	-24.65	VERTICAL	Peak
2	2500.000	44.46	-15.34	29.12	54.00	-24.88	VERTICAL	Peak

**Radiated Emission in the Restricted Band Test Data (Lower Edge)**

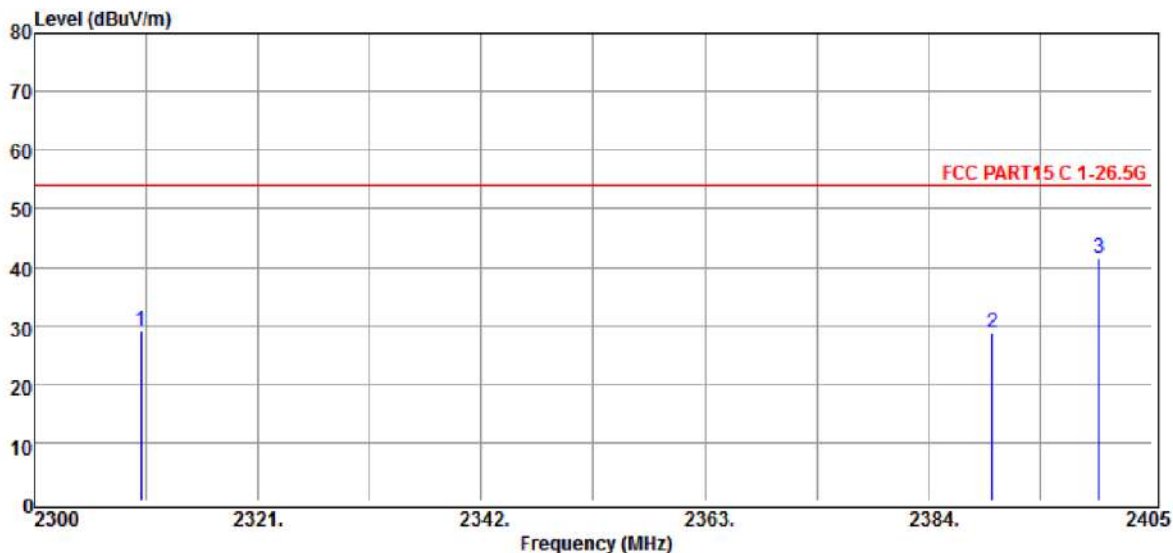
Temperature : 25°C Humidity : 58%  
Test Date : 05-Jul-2023 Tested by : Tony Huang  
Test Mode : Mode 7 (802.11n 20M) Channel : CH01 (2412 MHz)  
Polarization : Horizontal



No.	Freq	Reading	C.F	Result	Limit	Margin	Antenna	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Pol.	
1	2310.000	43.44	-16.10	27.34	54.00	-26.66	HORIZONTAL	Peak
2	2390.000	43.57	-15.83	27.74	54.00	-26.26	HORIZONTAL	Peak
3	2400.000	58.29	-15.82	42.47	54.00	-11.53	HORIZONTAL	Peak

**Radiated Emission in the Restricted Band Test Data (Lower Edge)**

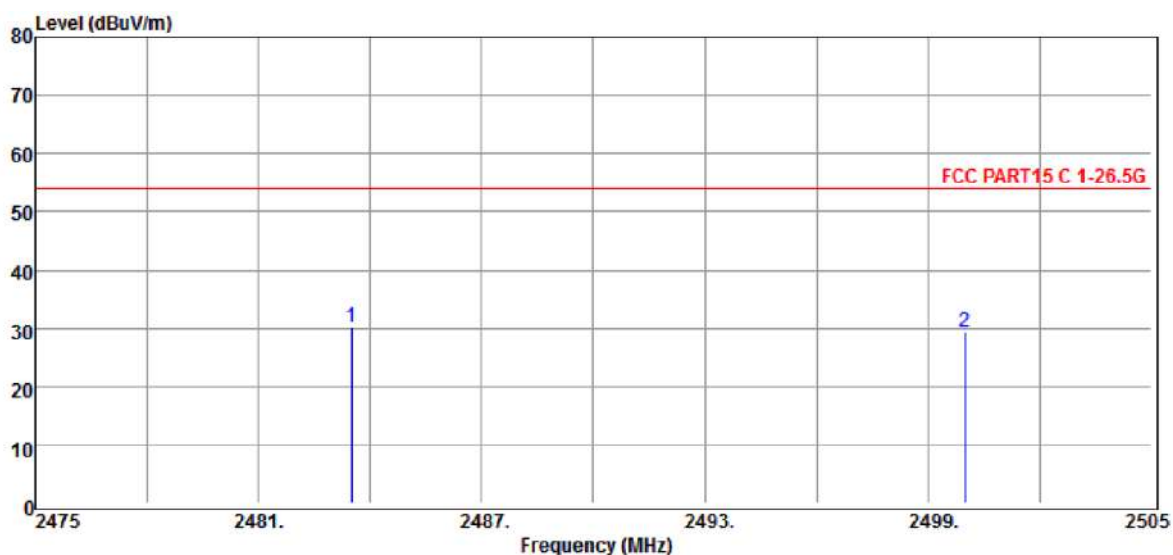
Temperature : 25°C Humidity : 58%  
Test Date : 05-Jul-2023 Tested by : Tony Huang  
Test Mode : Mode 7 (802.11n 20M) Channel : CH01 (2412 MHz)  
Polarization : Vertical



No.	Freq MHz	Reading dBμV	C.F dB/m	Result dBμV/m	Limit dBμV/m	Margin dB	Antenna Pol.	Remark
1	2310.000	45.11	-16.10	29.01	54.00	-24.99	VERTICAL	Peak
2	2390.000	44.59	-15.83	28.76	54.00	-25.24	VERTICAL	Peak
3	2400.000	57.20	-15.82	41.38	54.00	-12.62	VERTICAL	Peak

**Radiated Emission in the Restricted Band Test Data (Upper Edge)**

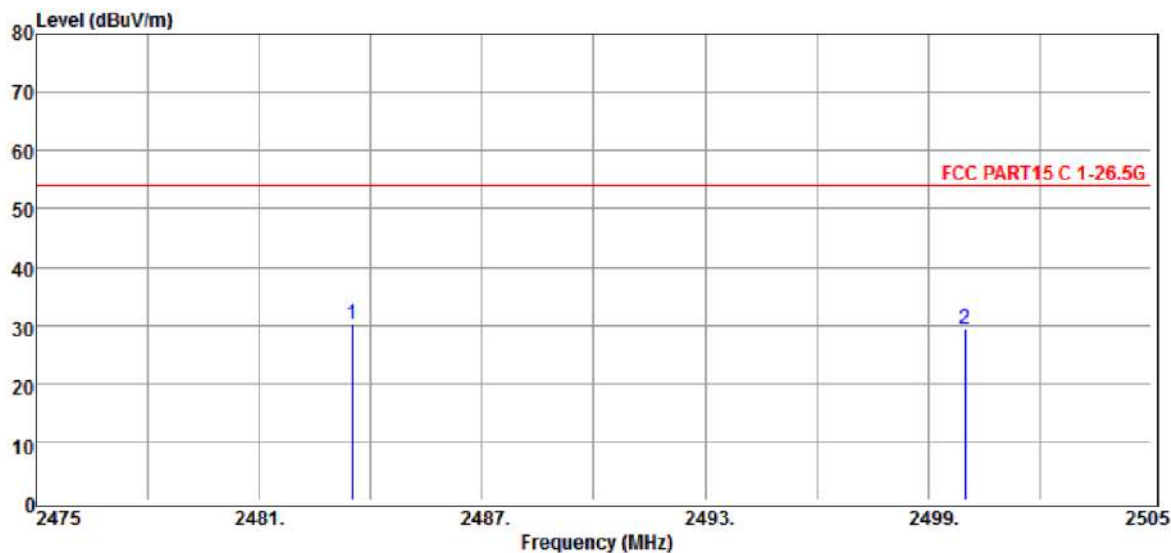
Temperature	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 9 (802.11n 20M)	Channel	: CH11 (2462 MHz)
Polarization	: Horizontal		



No.	Freq MHz	Reading dBuV	C.F dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Antenna Pol.	Remark
1	2483.500	45.70	-15.45	30.25	54.00	-23.75	HORIZONTAL	Peak
2	2500.000	44.55	-15.34	29.21	54.00	-24.79	HORIZONTAL	Peak

**Radiated Emission in the Restricted Band Test Data (Upper Edge)**

Temperature	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 9 (802.11n 20M)	Channel	: CH11 (2462 MHz)
Polarization	: Vertical		



No.	Freq MHz	Reading dBuV	C.F dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Antenna Pol.	Remark
1	2483.500	45.49	-15.45	30.04	54.00	-23.96	VERTICAL	Peak
2	2500.000	44.56	-15.34	29.22	54.00	-24.78	VERTICAL	Peak

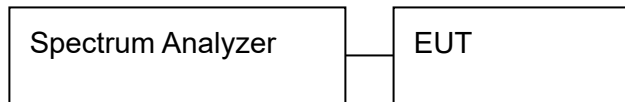


## 7 Power Spectral Density

### 7.1 Test Instruments

Refer to Sec. 1.2 Test Instruments.

### 7.2 Test Arrangement



### 7.3 Test Procedure

1. Connect the EUT to spectrum analyzer through appropriate attenuator.
2. Spectrum setting; RMB = 3 kHz; VBW = 10 kHz; Span = 1.5 times DTS bandwidth; Sweep Time = 2.5 mSec.
3. Trace = Max Hold.
4. Test method in Section 11.10.2 of ANSI C63.10 (2013) was used to measure the power spectral density.

### 7.4 Limit (§ 15.247(e))

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

### 7.5 Test Result

#### Compliance

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



Test Mode : 802.11b

Test Channel	Frequency (MHz)	Reading (dBm)	Limit (dBm/ 3kHz)
1	2412	-0.07	8
6	2437	-1.16	8
11	2462	-2.97	8

Test Mode : 802.11g

Test Channel	Frequency (MHz)	Reading (dBm)	Limit (dBm/ 3kHz)
1	2412	-25.82	8
6	2437	-26.45	8
11	2462	-28.06	8

Test Mode : 802.11n HT(20)

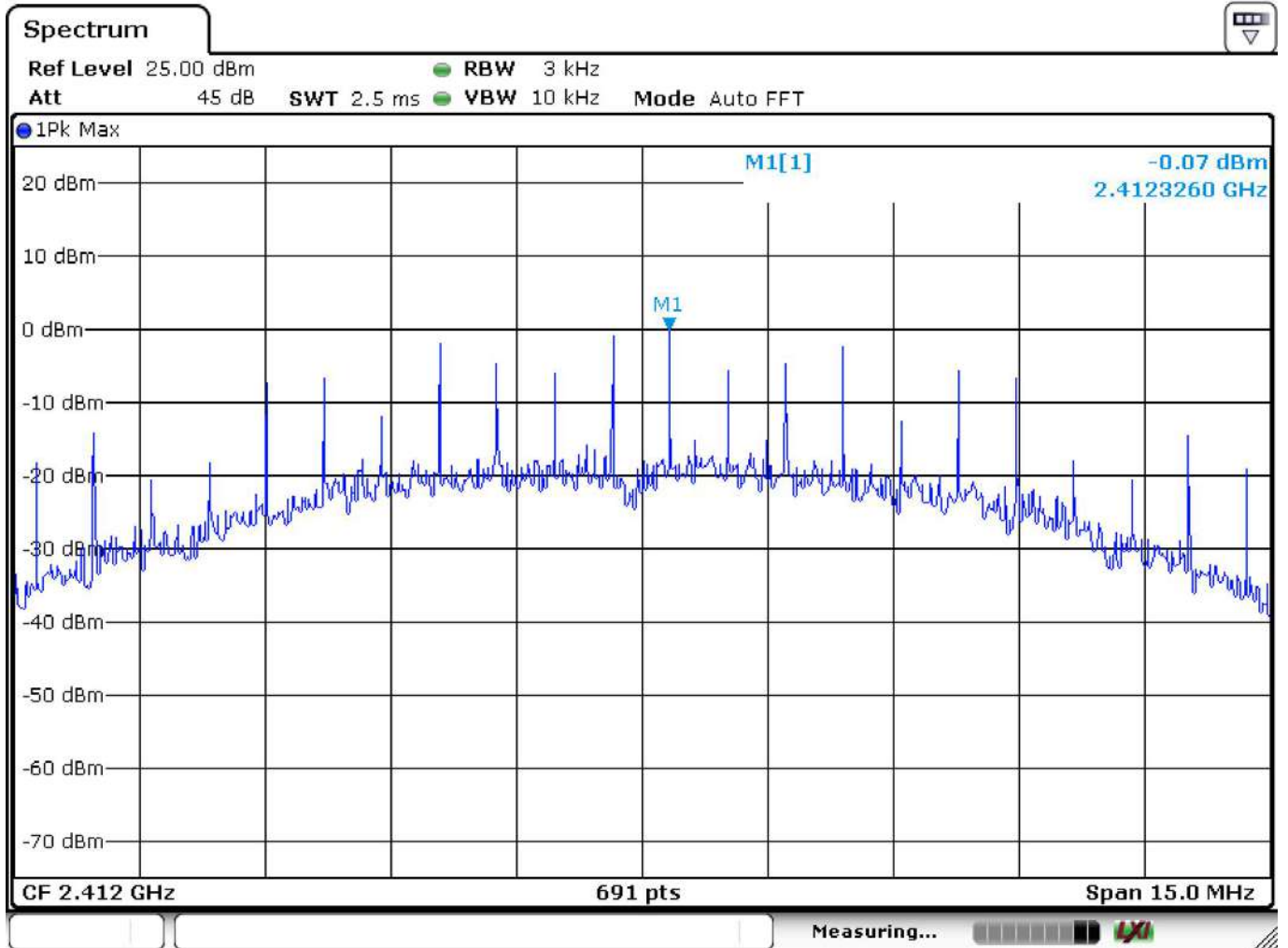
Test Channel	Frequency (MHz)	Reading (dBm)	Limit (dBm/ 3kHz)
1	2412	-25.34	8
6	2437	-26.07	8
11	2462	-27.65	8





## Power Spectral Density Test Data

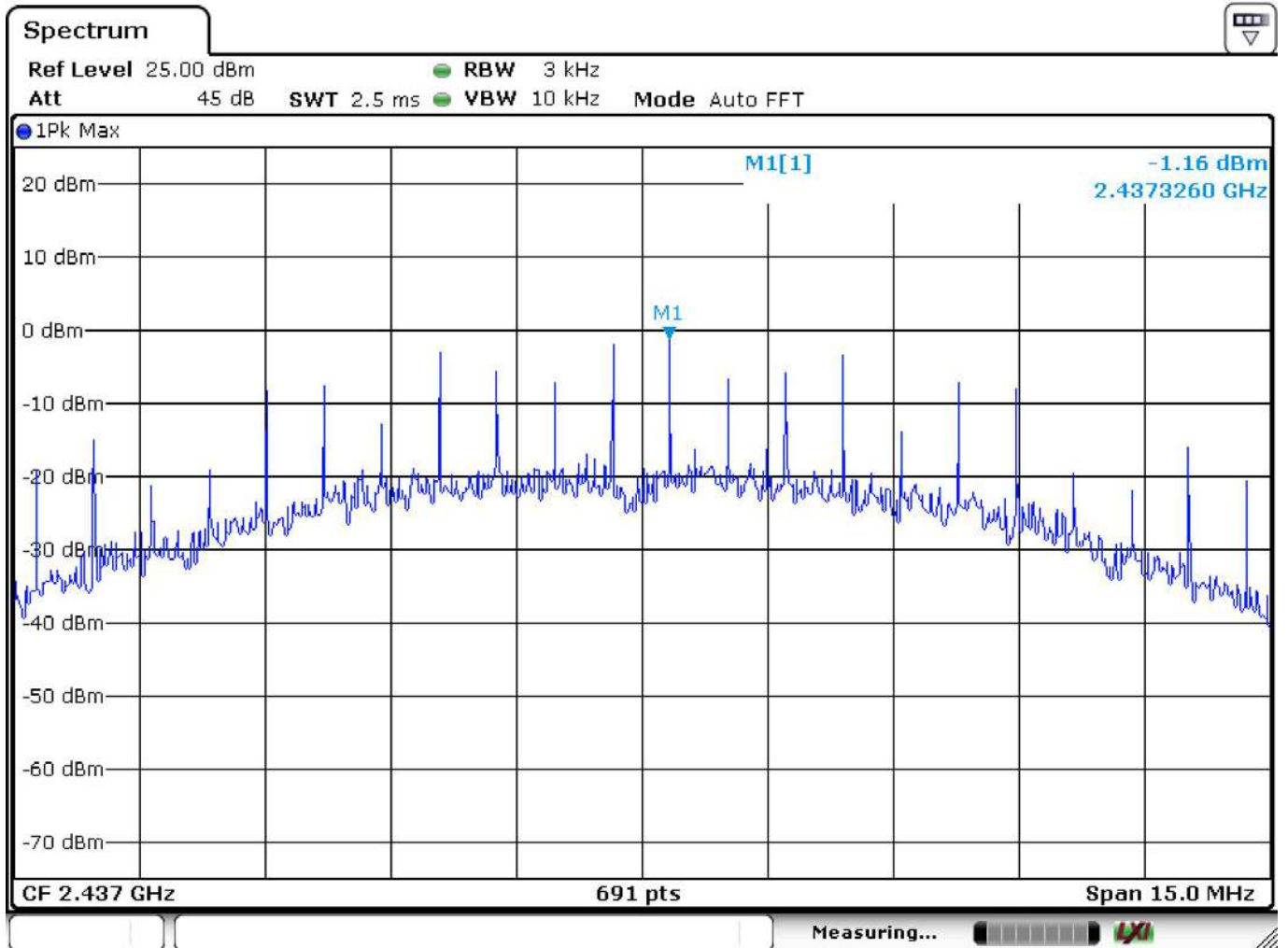
Temperature	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 1	Channel	: CH01 (2412 MHz)





## Power Spectral Density Test Data

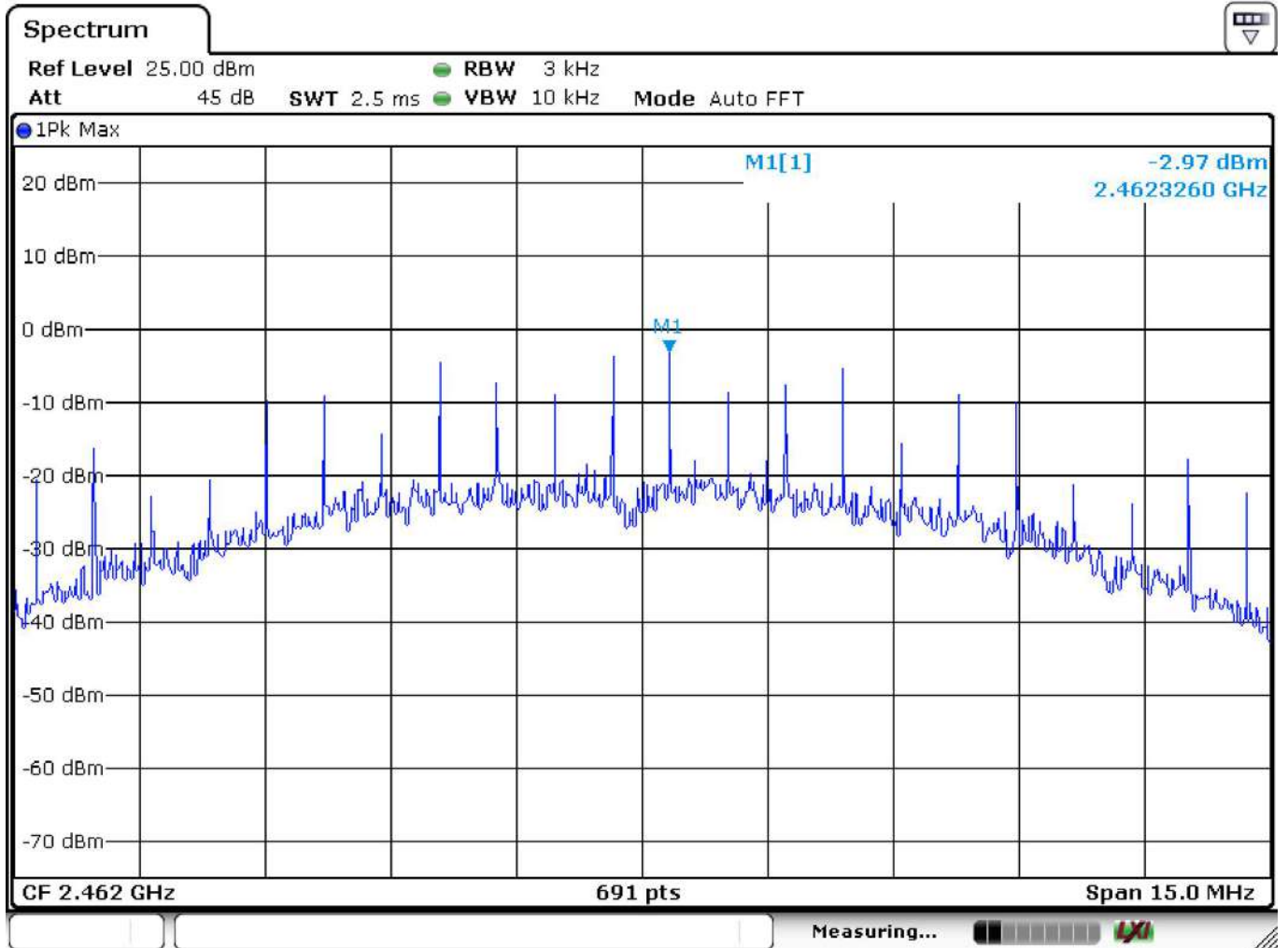
Temperature	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 2	Channel	: CH06 (2437 MHz)





## Power Spectral Density Test Data

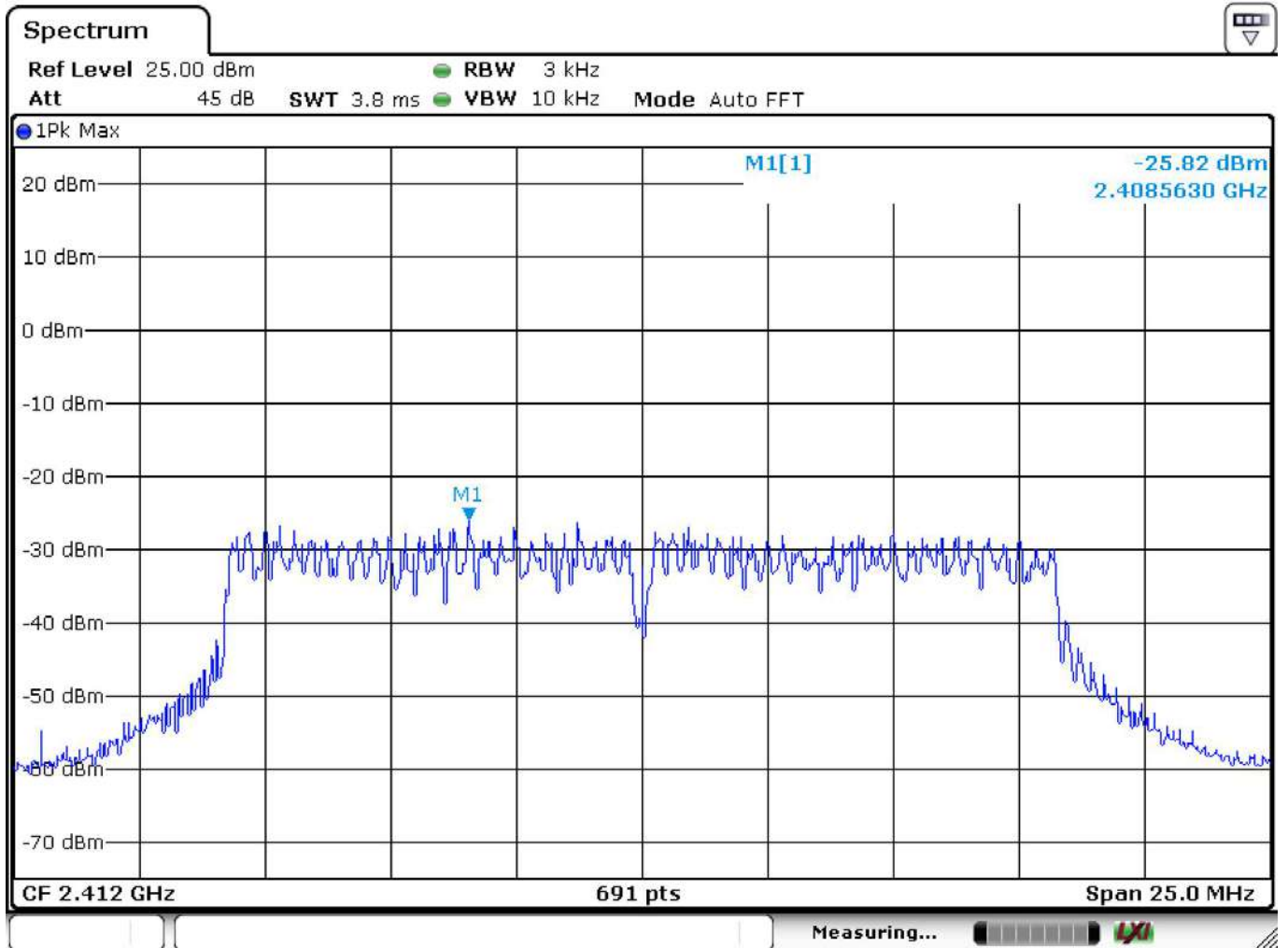
Temperature	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 3	Channel	: CH11 (2462 MHz)





## Power Spectral Density Test Data

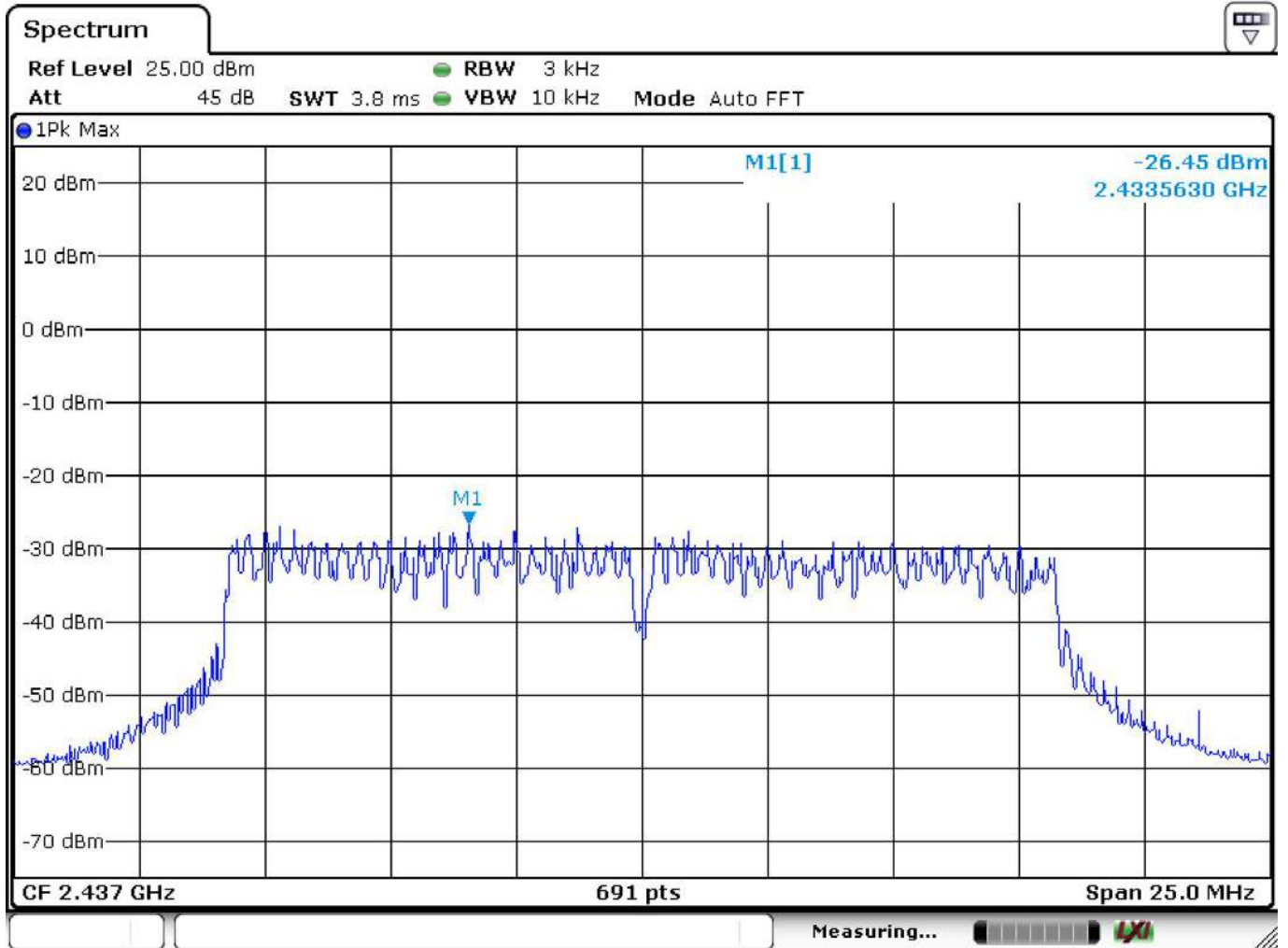
Temperature	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 4	Channel	: CH01 (2412 MHz)





## Power Spectral Density Test Data

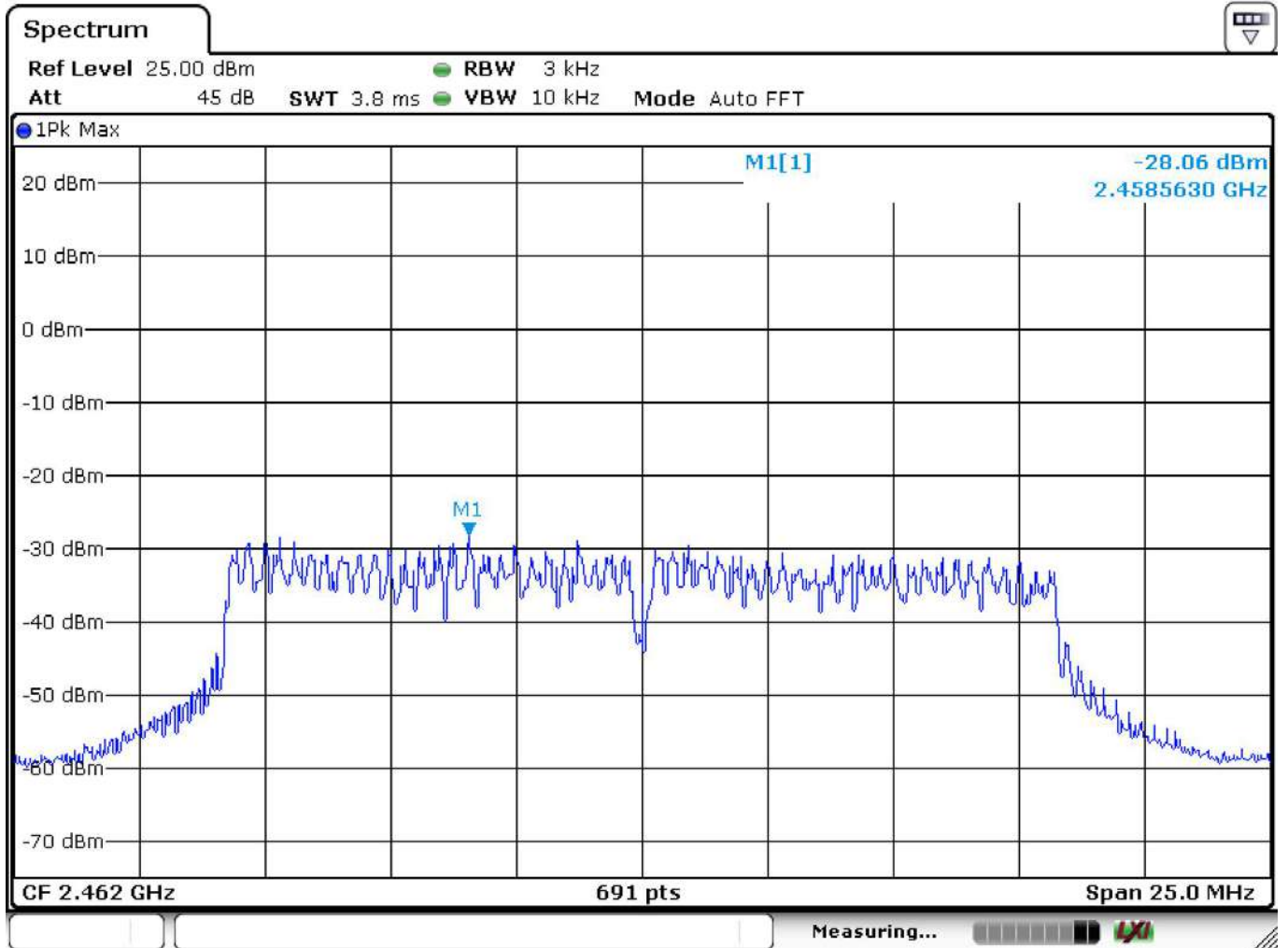
Temperature	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 5	Channel	: CH06 (2437 MHz)





## Power Spectral Density Test Data

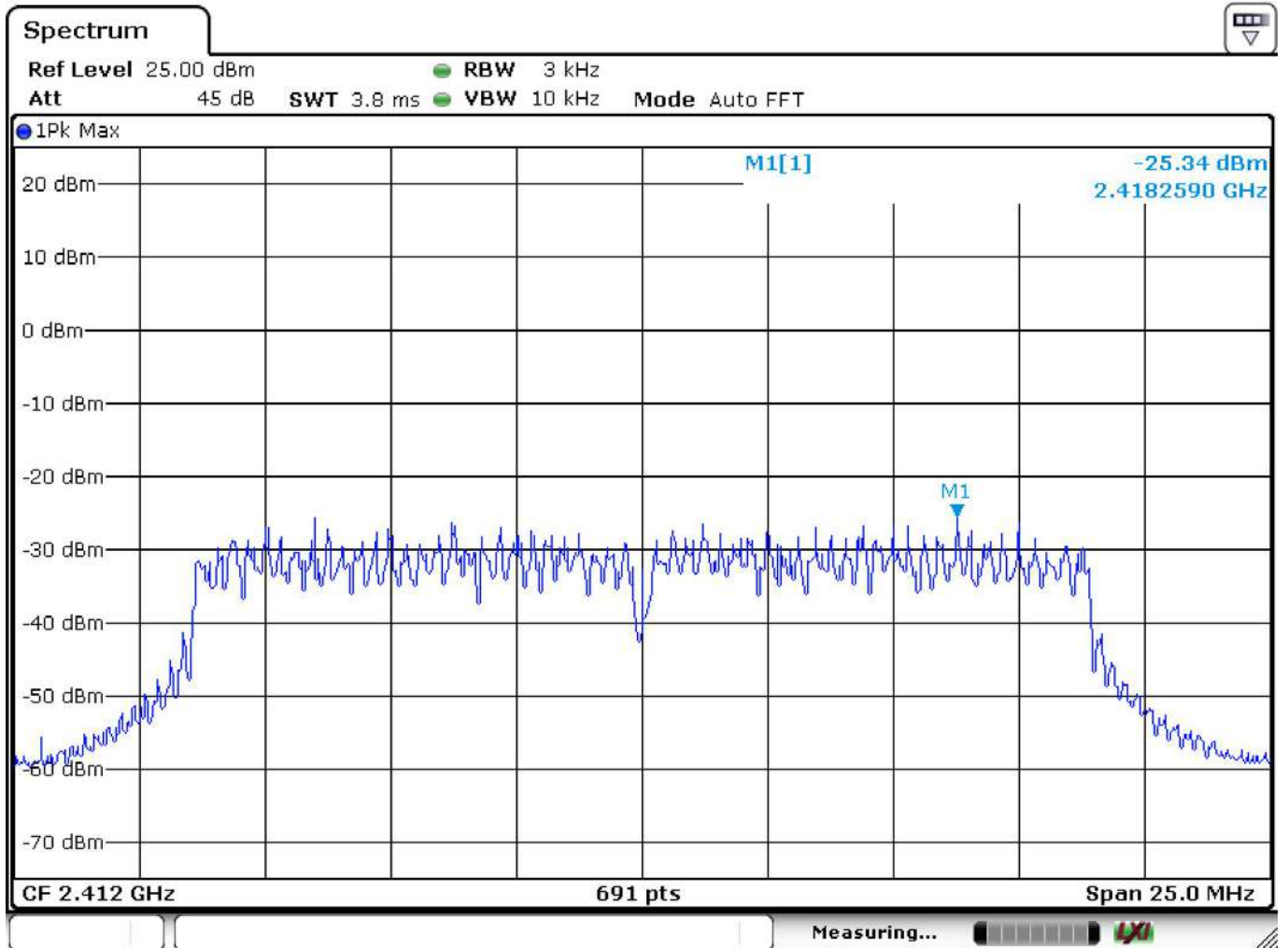
Temperature	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 6	Channel	: CH11 (2462 MHz)





## Power Spectral Density Test Data

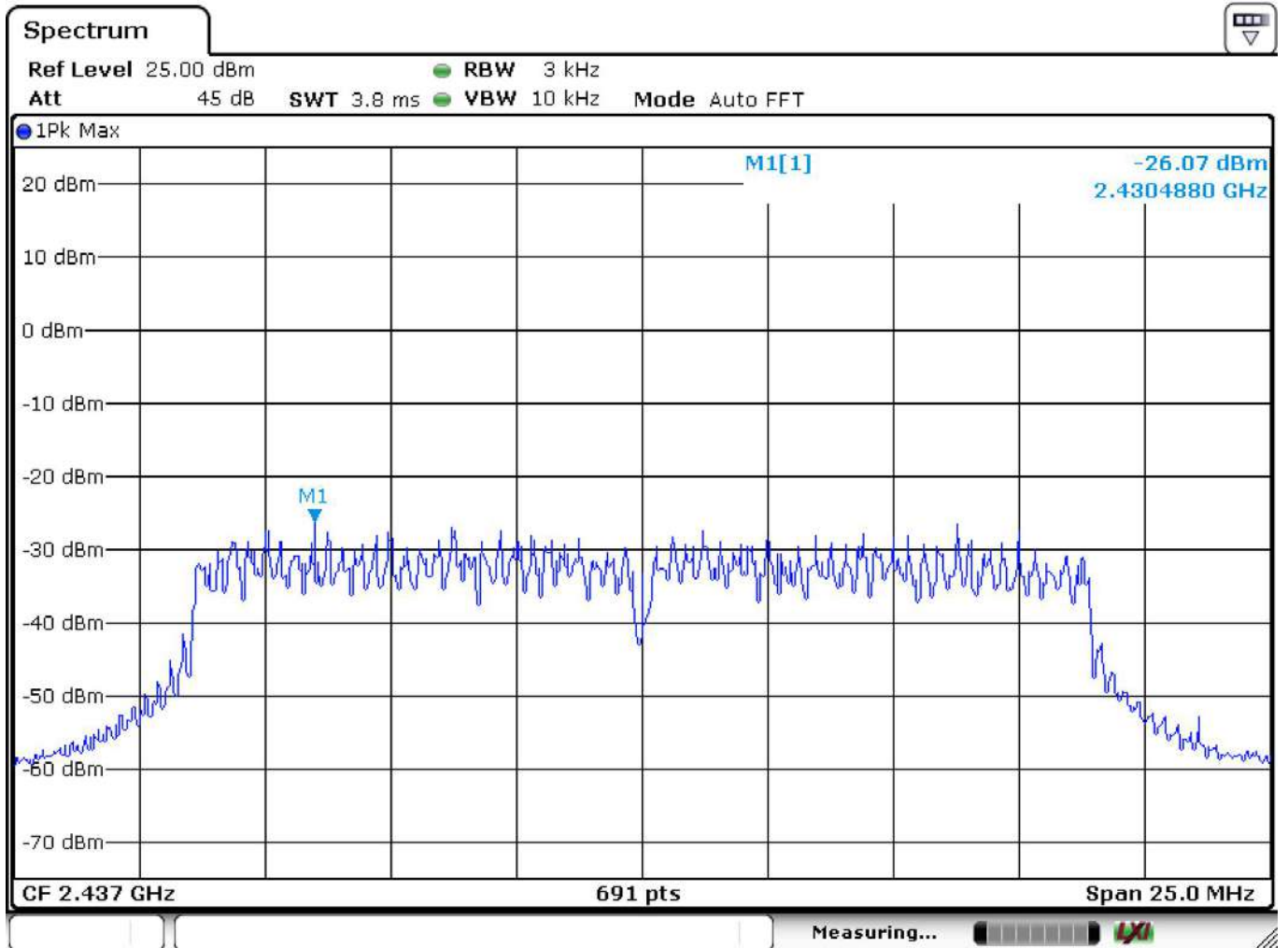
Temperature	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 7	Channel	: CH01 (2412 MHz)





## Power Spectral Density Test Data

Temperature	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 8	Channel	: CH06 (2437 MHz)

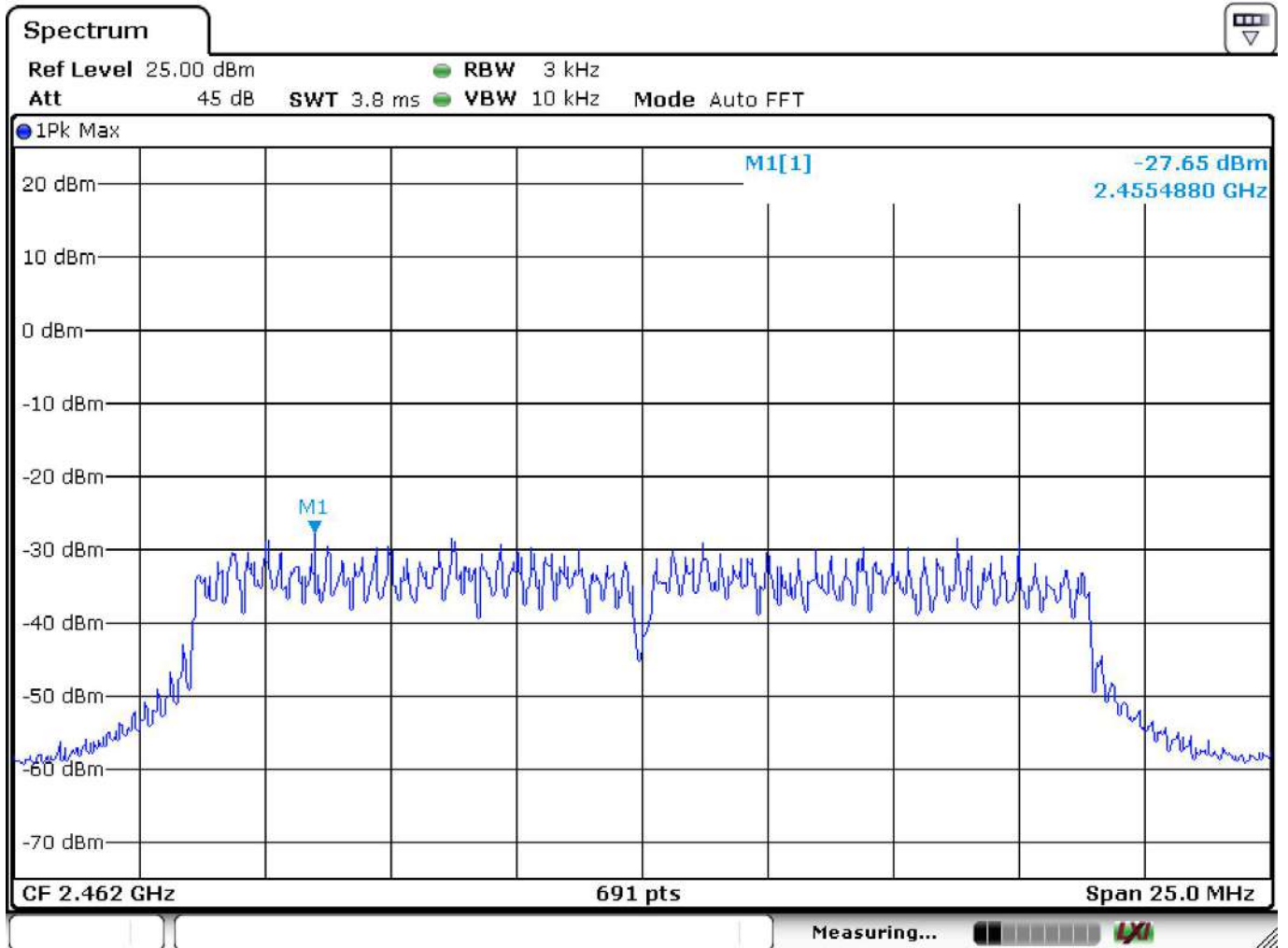






## Power Spectral Density Test Data

Temperature	: 25°C	Humidity	: 58%
Test Date	: 05-Jul-2023	Tested by	: Tony Huang
Test Mode	: Mode 9	Channel	: CH11 (2462 MHz)





## 8 Antenna requirement

### 8.1 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 unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. 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.

### 8.2 Test Result

#### **Compliance.**

The EUT applies a FPC antenna. Antenna Gain: -0.22 dBi.