

**FCC 47 CFR PART 15 SUBPART C****TEST REPORT****For****Product Name: Enjoy TV****Brand Name: N/A****Model No.: ATV495****Series Model.:ATV195E,ATV395,ATV396,ATV596A/I/T,ATV1930,ATV1940,  
ATV1950,ATV1950A/T2/I,ATV1526,ATV1886,ATV1900B,  
ATV1920A/I/T2,ATV588,ATV387,ATV488,ATV325,ATV1966****FCC ID: ZJU-16S95A2****Test Report Number:  
C160425R02-RPW****Issued for****Shenzhen Geniatech Inc., Ltd****18F, GDC Building, No 9th, Gaoxin Middle 3rd Road, Nanshan, Shenzhen, China****Issued by****Compliance Certification Services Inc.****Kun shan Laboratory****No.10 Weiye Rd., Innovation park, Eco&Tec,  
Development Zone, Kunshan City, Jiangsu, China****TEL: 86-512-57355888****FAX: 86-512-57370818**

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## 1. TEST RESULT CERTIFICATION

<b>Product Name:</b>	Enjoy TV
<b>Trade Name:</b>	N/A
<b>Model Name.:</b>	ATV495
<b>Series Model:</b>	ATV195E,ATV395,ATV396,ATV596A/I/T,ATV1930,ATV1940,ATV1950,ATV1950A/T2/I,ATV1526,ATV1886,ATV1900B,ATV1920A/I/T2,ATV588,ATV387,ATV488,ATV325,ATV1966
<b>Applicant Discrepancy:</b>	Initial
<b>Device Category:</b>	Mobile unit
<b>Date of Test:</b>	May 2, 2016 ~ May 4, 2016
<b>Applicant:</b>	<b>Shenzhen Geniatech Inc., Ltd</b> 18F, GDC Building, No 9th, Gaoxin Middle 3rd Road, Nanshan, Shenzhen, China
<b>Manufacturer:</b>	<b>Shenzhen Geniatech Inc., Ltd</b> 18F, GDC Building, No 9th, Gaoxin Middle 3rd Road, Nanshan, Shenzhen, China
<b>Application Type:</b>	Certification

APPLICABLE STANDARDS	
STANDARD	TEST RESULT
FCC 47 CFR Part 15 Subpart C	No non-compliance noted

### We hereby certify that:

The above equipment was tested by Compliance Certification Services Inc. 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 15.207, 15.209, 15.247.

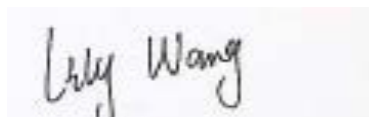
The test results of this report relate only to the tested sample EUT identified in this report.

**Approved by:**



Jeff.Fang  
RF Manager  
Compliance Certification Service Inc.

**Tested by:**



Lily.Wang  
Test Engineer  
Compliance Certification Service Inc.

## 2. EUT DESCRIPTION

<b>Product Name:</b>	Enjoy TV
<b>Brand Name:</b>	N/A
<b>Model Name:</b>	ATV495
<b>Series Model:</b>	ATV195E,ATV395,ATV396,ATV596A/I/T,ATV1930,ATV1940,ATV1950,ATV1950A/T2/I,ATV1526,ATV1886,ATV1900B,ATV1920A/I/T2,ATV588,ATV387,ATV488,ATV325,ATV1966
<b>Model Discrepancy:</b>	Just appearance is not the same size
<b>Power Adapter:</b>	Model :SUN-0500200 Input: 100-240V~0.3A 50/60Hz Output: DC5V 2A
<b>Frequency Range:</b>	2.4G:2412MHz-2462MHz
<b>Transmit Power:</b>	IEEE 802.11b mode: 19.00 dBm IEEE 802.11g mode: 22.71 dBm IEEE 802.11n HT20 mode: 22.49 dBm
<b>Modulation Technique:</b>	IEEE802.11b mode: DSSS (1,2,5.5 and 11 Mbps) IEEE802.11g mode: DSSS /OFDM (6,9,12,18,24,36,48 and 54 Mbps) IEEE802.11n HT20 mode: OFDM (MCS0~MCS7)
<b>Number of Channels:</b>	IEEE 802.11b/g/n HT20 mode: 11 Channels
<b>Antenna Specification:</b>	FPCB antenna for 2.4GHz Gain 3.0dBi

### Remark:

1.The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.

2.This submittal(s) (test report) is intended for **FCC ID: ZJU-16S95A2** filing to comply with Section 15.207, 15.209 and 15.247 of the FCC Part 15, Subpart C Rules.

### **3. TEST METHODOLOGY**

The tests documented in this report were performed in accordance with ANSI C63.10 2013 and FCC CFR 47 15.207, 15.209 and 15.247.

#### **3.1.EUT CONFIGURATION**

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

#### **3.2.EUT EXERCISE**

The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements.

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.

#### **3.3.GENERAL TEST PROCEDURES**

##### **Conducted Emissions**

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.10 2013 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

##### **Radiated Emissions**

Under 1GHz

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.10:2013.

Above 1GHz

The EUT is placed on a turn table, which is 1.5 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.10:2013.

### 3.4.FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS

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
8.37625 - 8.38675	156.7 - 156.9	2655 - 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

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.

### 3.5. DESCRIPTION OF TEST MODES

The EUT transmitting and receiving with only one antenna working at b/g/n mode.

The worst-case data rates:

IEEE802.11b mode:

Channel Low (2412MHz)

Channel Mid (2437MHz)

Channel High (2462MHz) with 1Mbps data rate was chosen for full testing.

IEEE802.11g mode:

Channel Low (2412MHz)

Channel Mid (2437MHz)

Channel High (2462MHz) with 24Mbps data rate was chosen for full testing.

IEEE 802.11n HT20 MHz Channel mode:

Channel Low (2412MHz)

Channel Mid (2437MHz)

Channel High (2462MHz) with MCS0 data rate was chosen for full testing.

### 3.6. ANTENNA DESCRIPTION

an intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached or an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section”

- \* the antenna of this EUT is a unique(FPCB Antenna for 2.4G WiFi).
- \* the EUT complies with the requirement of 15.203.



## 4. INSTRUMENT CALIBRATION

### 4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

#### Equipment Used for Emissions Measurement

Conducted Emissions Test Site					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY44020154	2015-9-11	2016-9-10
Spectrum Analyzer	RS	FSU26	200789	2015-8-10	2016-8-9
OSCILLOSCOPE	Agilent	DSO6104A	MY44002585	2016-3-2	2017-3-1
Power meter	Anritsu	ML2495A	1445010	2016-04-23	2017-04-22
Power sensor	Anritsu	MA2411B	1339220	2016-04-23	2017-04-22
Power SPLITTER	Mini-Circuits	ZN2PD-9G	SF078500430	N.C.R	N.C.R
DC Power Supply	AGILENT	E3632A	MY50340053	N.C.R	N.C.R
Temp. / Humidity Chamber	TERCHY	MHK-120AK	X30109	2016-1-11	2017-1-10
Test Software			EZ-EMC		

977 Chamber					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY44020154	2015-9-11	2016-9-10
Spectrum Analyzer	RS	FSU26	200789	2015-8-10	2016-8-9
EMI Test Receiver	R&S	ESCI	101378	2016-1-6	2017-1-5
Pre-Amplifier	MINI	ZFL-1000VH2	070306	2016-1-13	2017-1-12
Pre-Amplifier	Miteq	JS41-00101800-32-10P	1675713	2015-8-10	2016-8-9
Bilog Antenna	Sunol	JB1	A062604	2016-3-6	2017-3-5
Bilog Antenna	Sunol	JB1	A110204-1	2016-3-6	2017-3-5
Horn-antenna	SCHWARZBECK	9120D	D:266	2016-3-7	2017-3-5
Horn-antenna	SCHWARZBECK	9120D	D:267	2015-11-10	2016-11-9
Turn Table	CT	CT123	4165	N.C.R	N.C.R
Antenna Tower	CT	CTERG23	3256	N.C.R	N.C.R
Controller	CT	CT100	95637	N.C.R	N.C.R
Test Software			EZ-EMC		



Conducted Emission					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
EMI TEST RECEIVER	R&S	ESCI	100781	2016-3-2	2017-3-1
V (V-LISN)	SCHWARZBECK	NNLK 8129	8129-143	2015-11-2	2016-11-1
LISN (EUT)	FCC	FCC-LISN-50/250-50-2-02	05012	2015-9-16	2016-9-15
Pulse LIMITER	R&S	ESH3-Z2	100524	2016-1-6	2017-1-5
Test Software			EZ-EMC		

**Remark:** The measurement uncertainty is less than +/- 2.81dB, which is evaluated as per the NAMAS NIS 81 and CISPR/A/291/CDV.

Expanded Uncertainty (95% CONFIDENCE INTERVAL): K=2

## **5. FACILITIES AND ACCREDITATIONS**

### **5.1.FACILITIES**

All measurement facilities used to collect the measurement data are located at CCS China Kunshan Lab at 10#Weiye Rd, Innovation Park Eco. & Tec. Development Zone Kunshan city JiangSu, (215300), CHINA.

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.10 2013 and CISPR Publication 22.

### **5.2.EQUIPMENT**

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.



Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

### **5.3.LABORATORY ACCREDITATIONS AND LISTING**

The test facilities used to perform radiated and conducted emissions tests are accredited by American Association for Laboratory Accreditation Program for the specific scope accreditation under Lab Code: 200581-0 to perform Electromagnetic Interference tests according to FCC Part 15 and CISPR 22 requirements. In addition, the test facilities are listed with Industry Canada, Certification and Engineering Bureau, 2324E-1 for 10m chamber 10m, 2324E-2 for 10m chamber 3m; the test facilities are listed with USA, Certification and Engineering Bureau, 424105 for 10m chamber 10m, 238958 for 10m chamber 3m.

**5.4.TABLE OF ACCREDITATIONS AND LISTINGS**

Country	Agency	Scope of Accreditation	Logo
USA	A2LA	47 CFR FCC Part 15/18 (using ANSI C63.10 :2013); VCCI V3; CNS 13438; CNS 13439; CNS 13803; CISPR 11; EN 55011; CISPR 13; EN 55013; CISPR 22:2005; CISPR 22:1997 +A1 :2000+A2 :2002; EN 55022:2006; EN55022 :1998 +A1 :2001+A2 :2003; EN 61000-6-3 (excluding discontinuous interference); EN 61000-6-4; AS/NZS CISPR 22; CAN/CSA-CEI/IEC CISPR 22; EN 61000-3-2; EN 61000-3-3; EN550024; EN 61000-4-2; EN 61000-4-3; EN61000-4-4; EN 61000-4-5; EN 61000-4-6; IEC 61000-4-8; EN 61000-4-11; IEC61000-3-2; IEC61000-3-3; IEC 61000-4-2; IEC 61000-4-3; IEC 61000-4-4; IEC 61000-4-5; IEC 61000-4-6; IEC 61000-4-8; IEC 61000-4-11; EN 300 220-3; EN 300 328; EN 300 330-2; EN 300 440-1; EN 300-440-2; EN 300 893; EN 301 489-01; EN 301 489-3; EN 301 489-07; EN 301 489-17; 47 CFR FCC Part 15, 22, 24	
USA	FCC	3/10 meter Sites to perform FCC Part 15/18 measurements	 93105, 90471
Japan	VCCI	3/10 meter Sites and conducted test sites to perform radiated/conducted measurements	<b>VCCI</b> R-1600 C-1707 G-216

*\* No part of this report may be used to claim or imply product endorsement by A2LA or any agency of the US Government.*

## 6. SETUP OF EQUIPMENT UNDER TEST

### 6.1.SETUP CONFIGURATION OF EUT

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

### 6.2.SUPPORT EQUIPMENT

No.	Device Type	Brand	Model	Series No.	FCC ID
1.	N/A				

**Remark:**

2. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
3. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

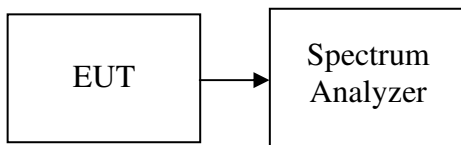
**4. FCC PART 15.247 REQUIREMENTS**

**4.1.6DB BANDWIDTH**

**LIMIT**

According to §15.247(a)(2), systems using digital modulation techniques may operate in the 902 - 928 MHz, and 2400 - 2483.5 MHz bands, and 5725 - 5850 MHz bands. The minimum 6dB bandwidth shall be at least 500kHz.

**Test Configuration**



**TEST PROCEDURE**

The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the selected span. The VBW is set to 3 times the RBW. The sweep time is occupied.

**TEST RESULTS**

*No non-compliance noted*

**Test Data**

**IEEE 802.11b mode**

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	8.029	>500	PASS
Mid	2437	8.077		PASS
High	2462	7.981		PASS

**IEEE 802.11g mode**

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	16.442	>500	PASS
Mid	2437	16.442		PASS
High	2462	16.442		PASS

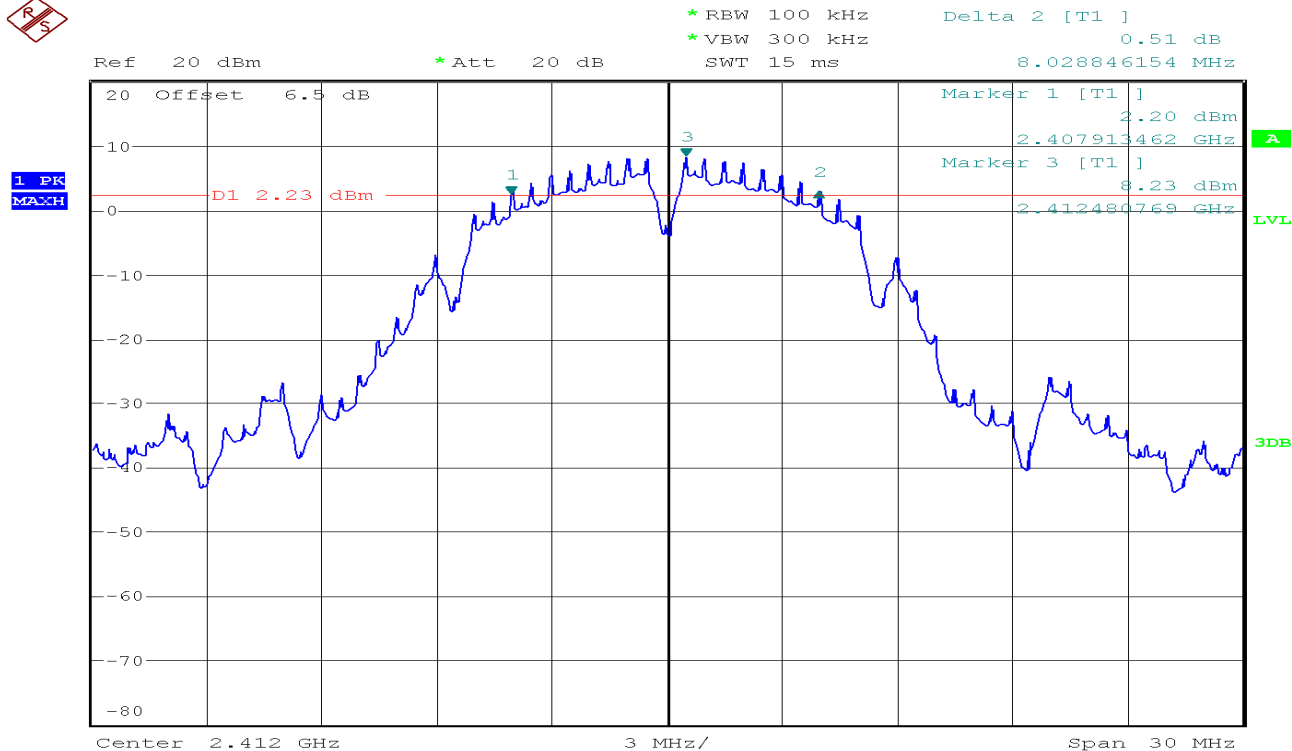
**IEEE 802.11n HT20 mode**

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	17.692	>500	PASS
Mid	2437	17.740		PASS
High	2462	17.692		PASS

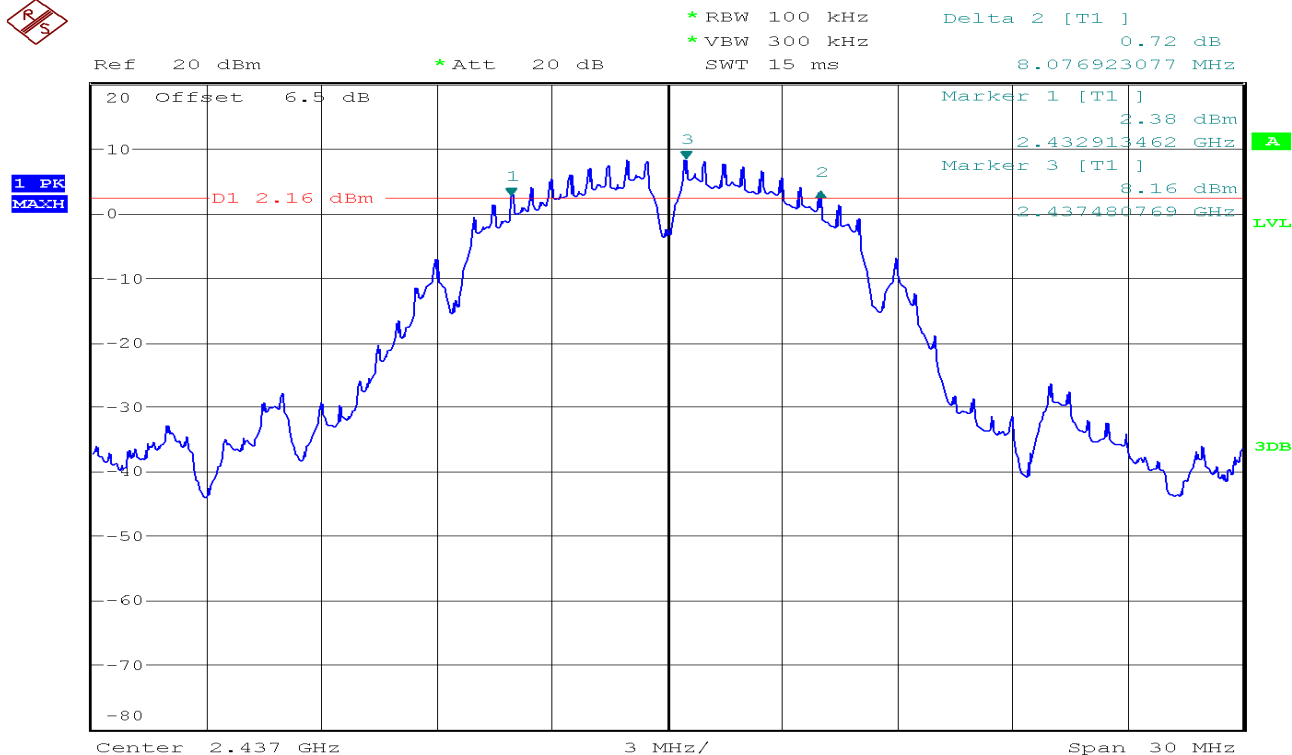
**Test Plot**

**IEEE 802.11b MODE**

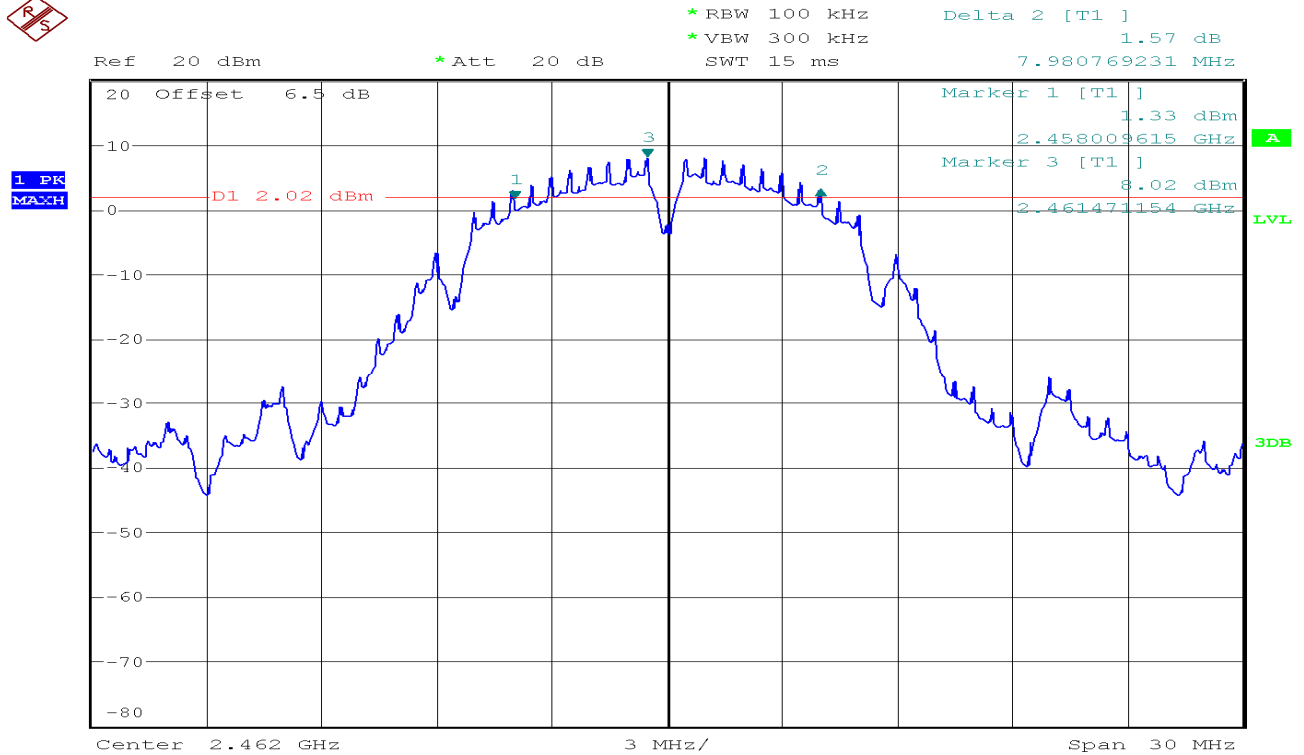
**6dB Bandwidth (CH Low)**



**6dB Bandwidth (CH Mid)**

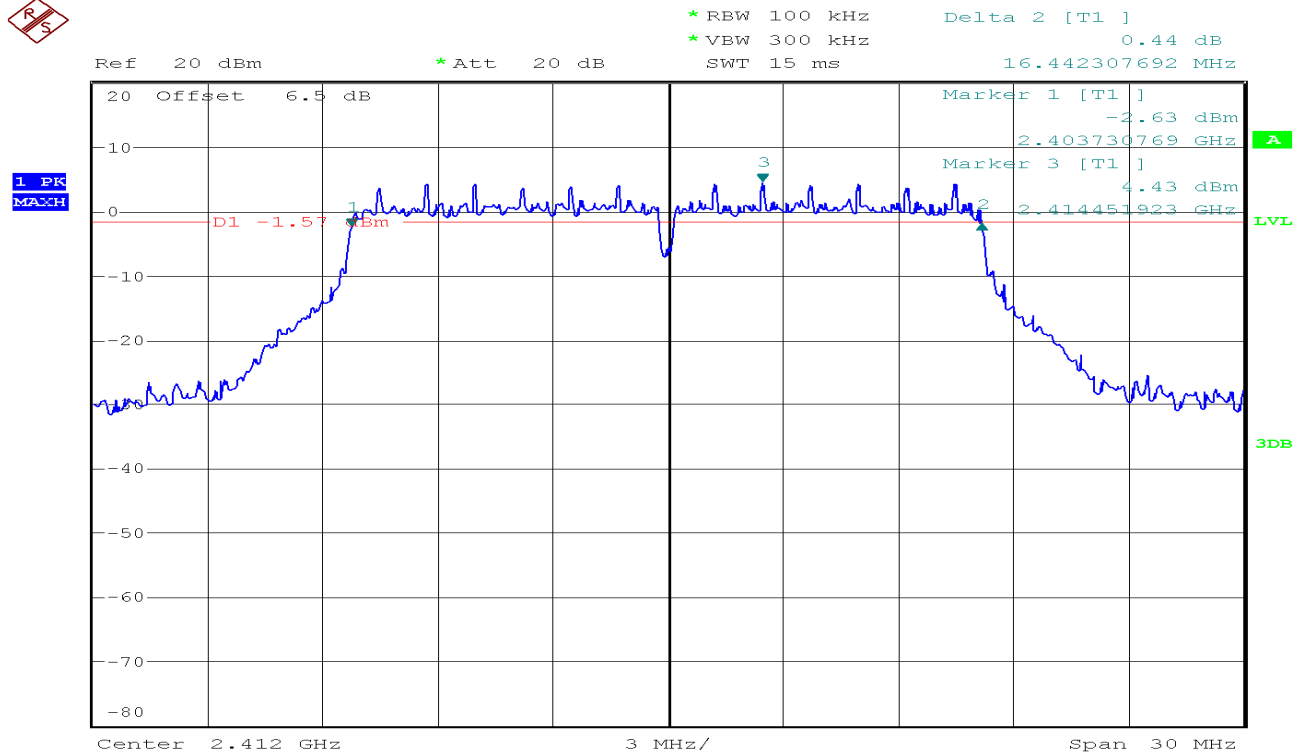


**6dB Bandwidth (CH High)**

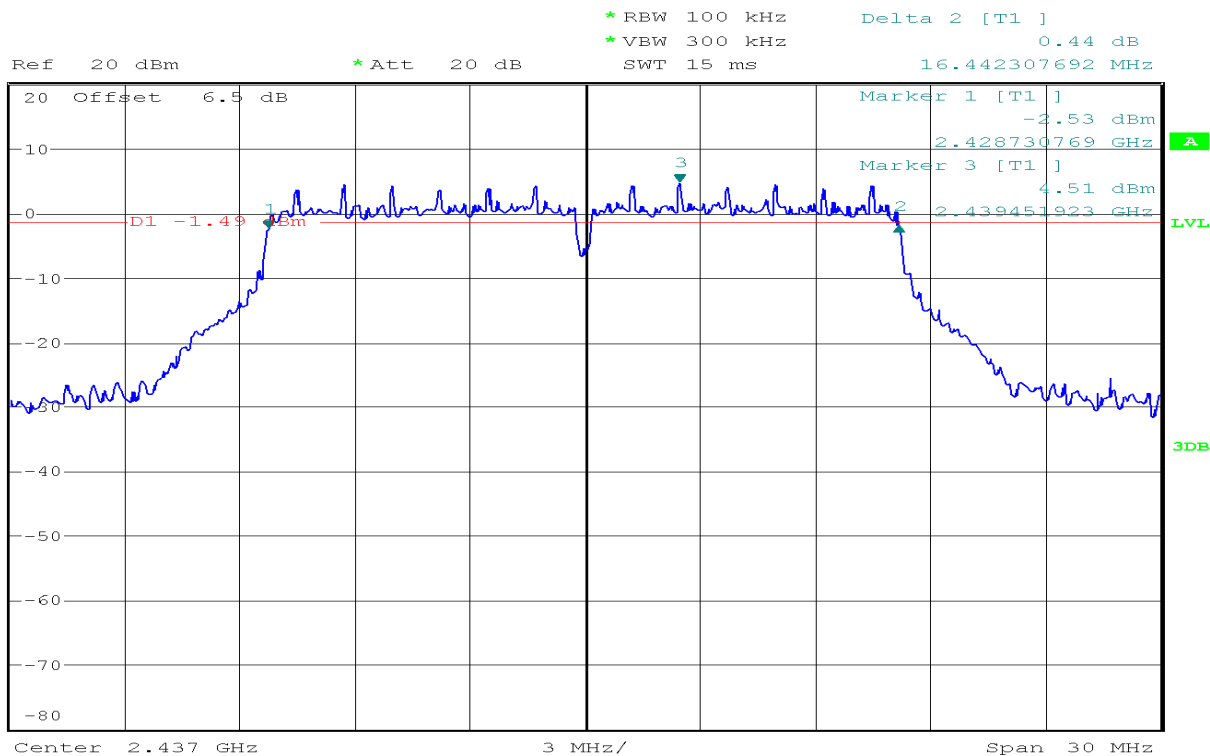


**IEEE 802.11g MODE**

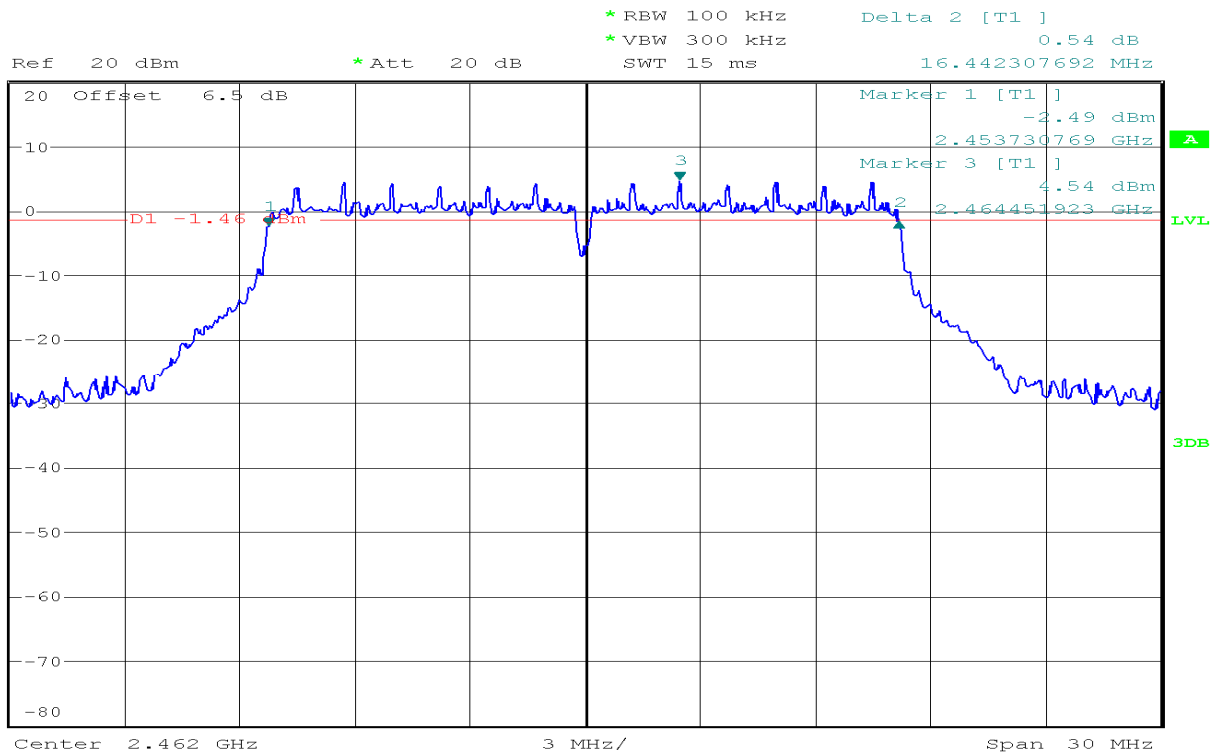
**6dB Bandwidth (CH Low)**



6dB Bandwidth (CH Mid)



6dB Bandwidth (CH High)



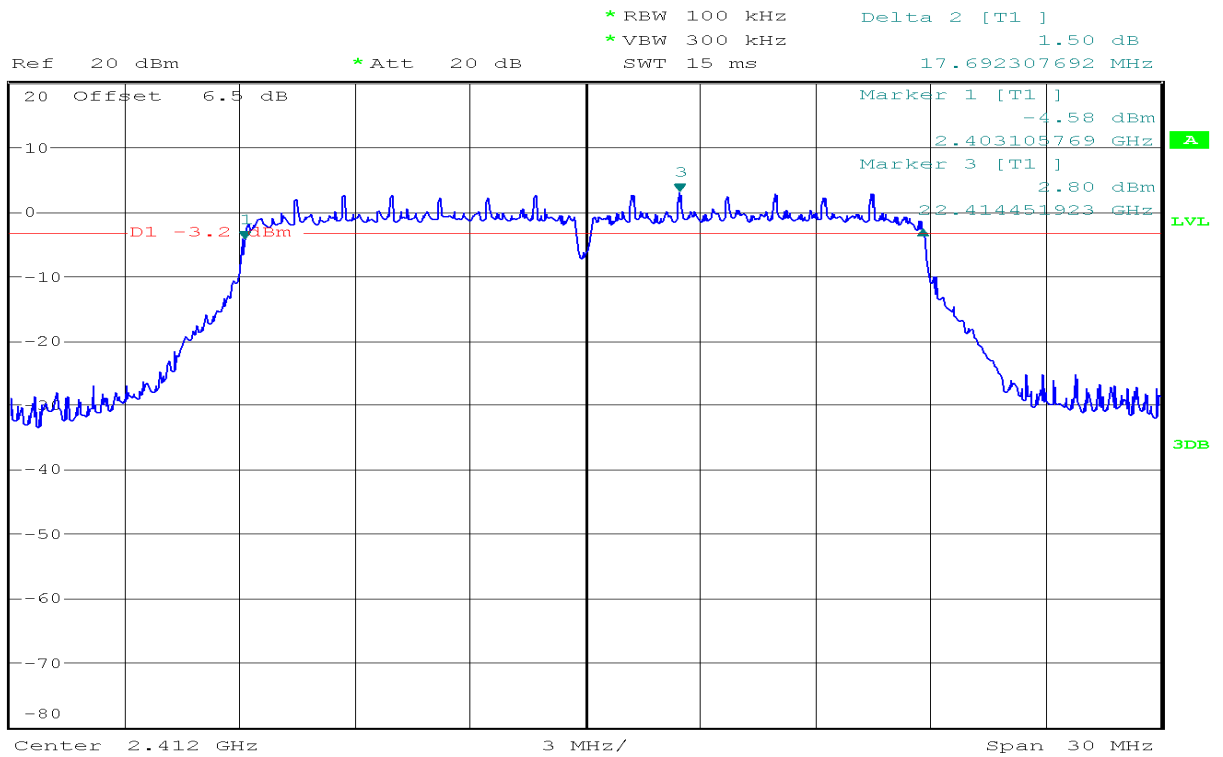


**IEEE 802.11n HT20 mode**

**6dB Bandwidth (CH Low)**



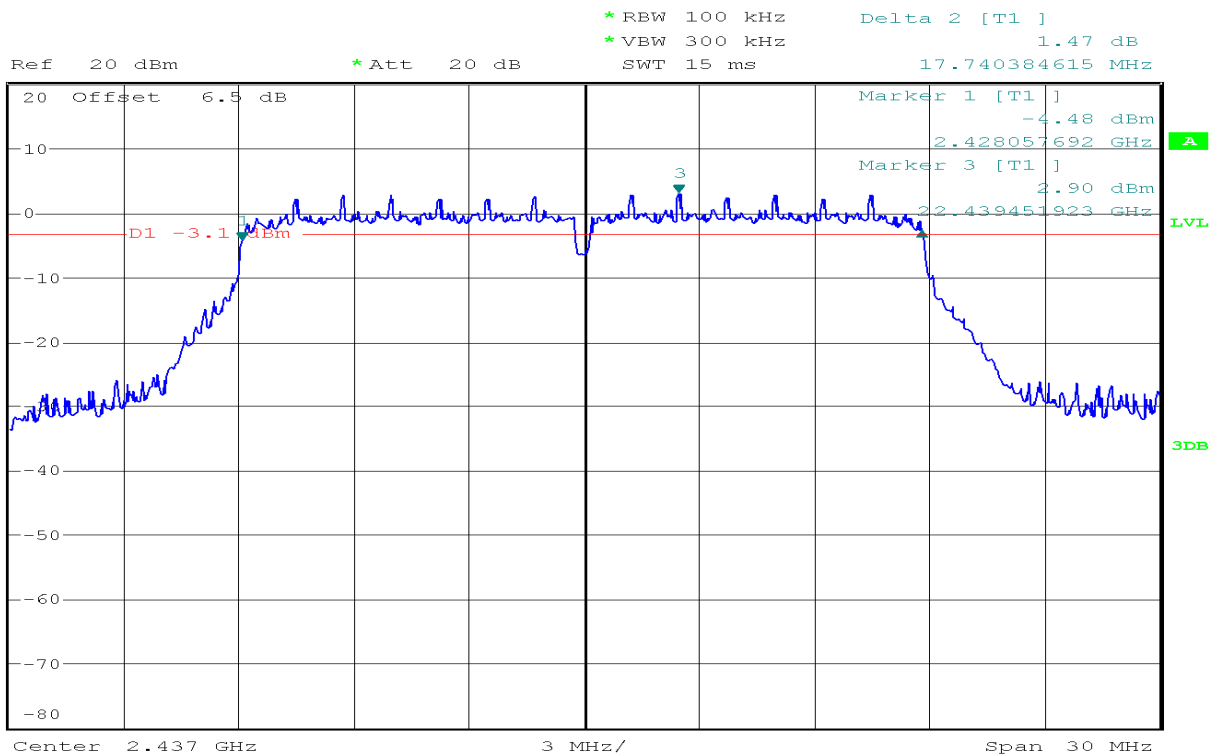
1 PK  
MACH



**6dB Bandwidth (CH Mid)**



1 PK  
MACH



**6dB Bandwidth (CH High)**

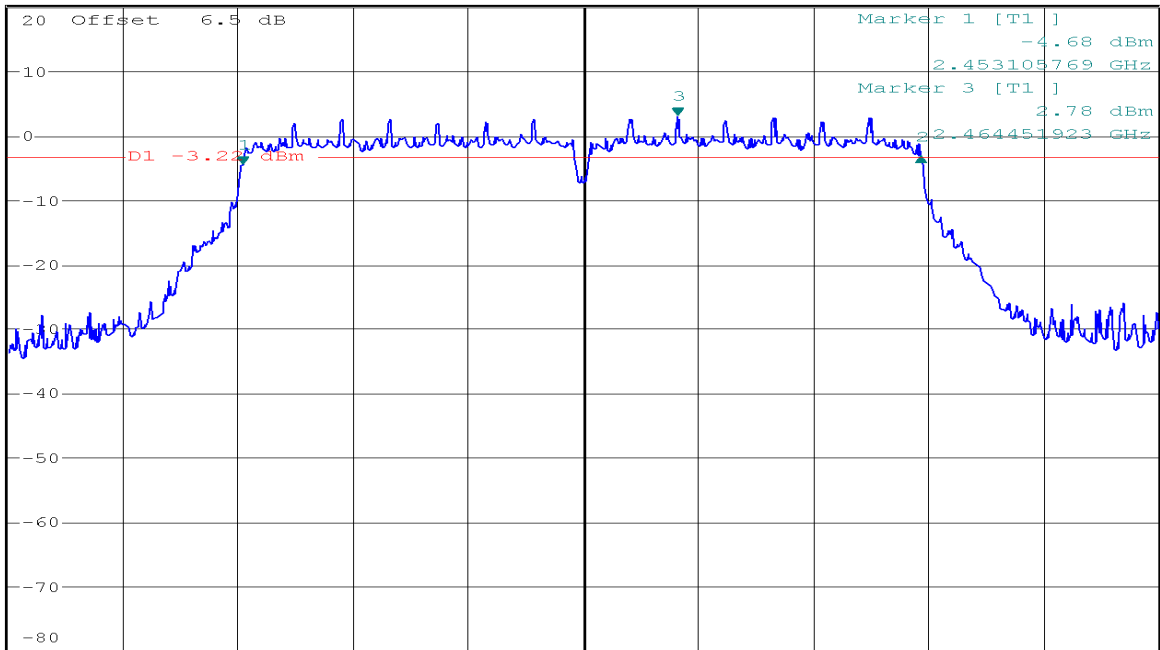


\* RBW 100 kHz      Delta 2 [T1]      1.15 dB  
 \* VBW 300 kHz  
 SWT 15 ms      17.692307692 MHz

Ref 20 dBm

\* Att 20 dB

1 PK  
 MATH



Center 2.462 GHz

3 MHz/

Span 30 MHz

## **4.2. PEAK POWER**

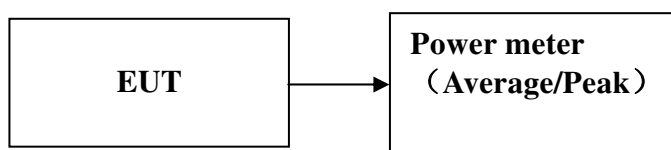
### **LIMIT**

The maximum peak output power of the intentional radiator shall not exceed the following:

1. According to §15.247(b)(3), for systems using digital modulation in the bands of 902-928 MHz, and 2400-2483.5 MHz: 1 Watt.

2. According to §15.247(b)(4), the conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### **Test Configuration**



### **TEST PROCEDURE**

1. The EUT transmitter output is connected to the Power meter.  
The Power meter is set to the peak power detection.
2. The testing follows the Measurement Procedure FCC KDB No. 558074 D01 DTS Meas.
3. Guidance v03r05. 9.1.2 PKPM1 Peak power meter method.

### **TEST RESULTS**

*No non-compliance noted*

**Test Data**

Test mode: IEEE 802.11b mode

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Limit (dBm)
Low	2412	18.82	30.00
Mid	2437	19.00	30.00
High	2462	18.98	30.00

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Limit (dBm)
Low	2412	22.62	30.00
Mid	2437	22.71	30.00
High	2462	22.64	30.00

Test mode: IEEE 802.11n HT20 mode

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Limit (dBm)
Low	2412	22.38	30.00
Mid	2437	22.47	30.00
High	2462	22.49	30.00

**Duty Cycle of Test Signal**

IEEE 802.11b mode: Duty Cycle of Test Signal is  $\geq 98\%$

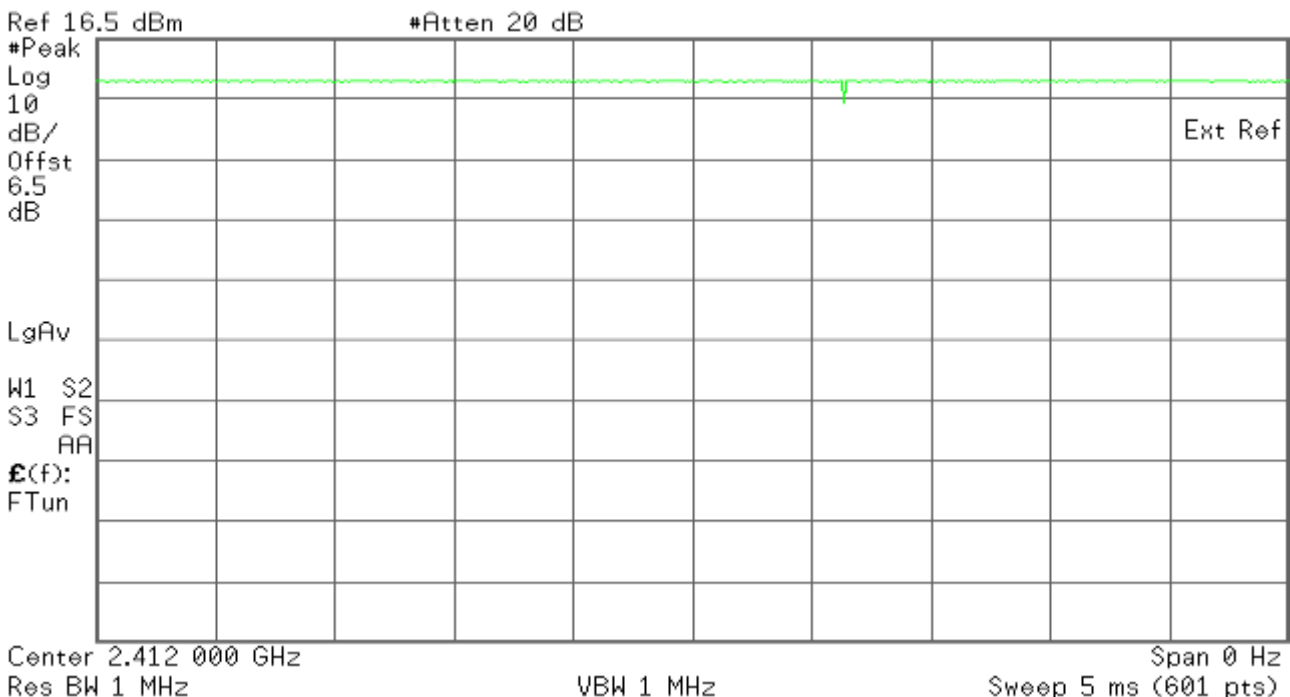
IEEE 802.11g mode: Duty Cycle= $1.408/1.442=0.98$

IEEE 802.11n HT20 mode: Duty Cycle= $1.317/1.35=0.98$

IEEE 802.11b mode:



R T



**IEEE 802.11g mode:**

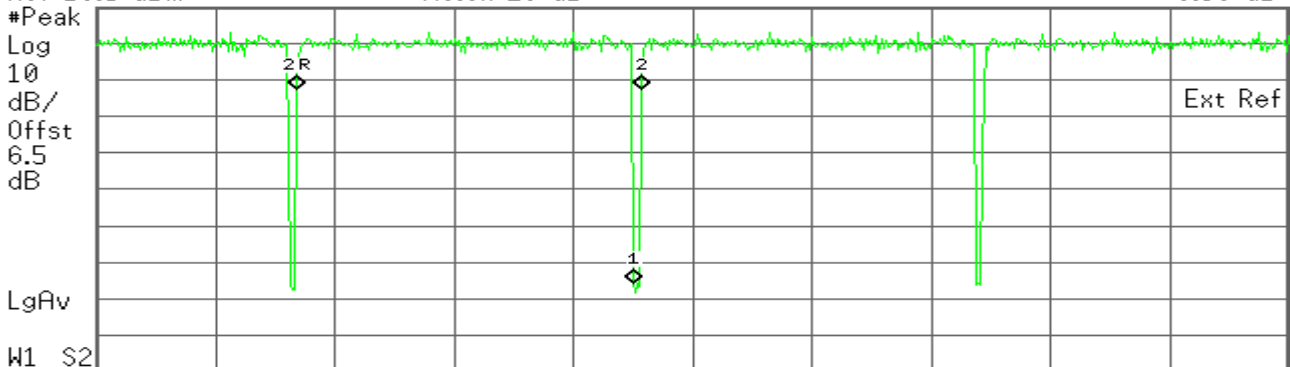
Agilent

R T

▲ Mkr2 1.442 ms  
-0.30 dB

Ref 16.5 dBm

#Atten 20 dB



LgAv

W1 S2  
Center 2.412 000 GHz

Span 0 Hz

Res BW 1 MHz

VBW 1 MHz

Sweep 5 ms (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1R	(1)	Time	841.7 μs	-5.88 dBm
1Δ	(1)	Time	1.408 ms	-53.55 dB
2R	(1)	Time	841.7 μs	-5.88 dBm
2Δ	(1)	Time	1.442 ms	-0.30 dB

**IEEE 802.11n HT20 mode:**

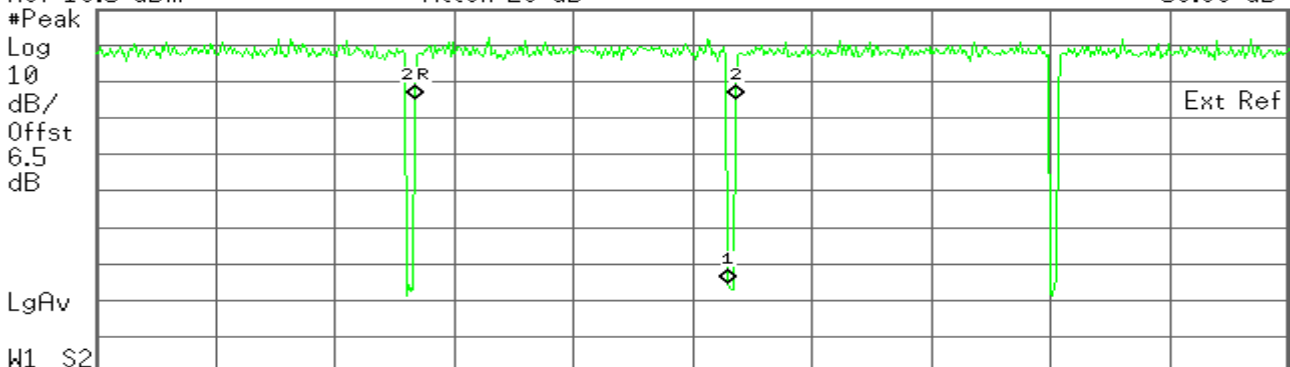
Agilent

R T

▲ Mkr1 1.317 ms  
-50.69 dB

Ref 16.5 dBm

#Atten 20 dB



LgAv

W1 S2  
Center 2.412 000 GHz

Span 0 Hz

Res BW 1 MHz

VBW 1 MHz

Sweep 5 ms (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1R	(1)	Time	1.333 ms	-8.03 dBm
1Δ	(1)	Time	1.317 ms	-50.69 dB
2R	(1)	Time	1.333 ms	-8.03 dBm
2Δ	(1)	Time	1.35 ms	-0.23 dB

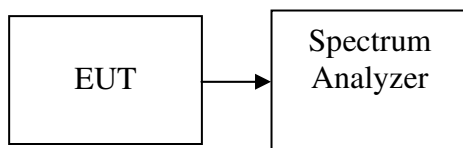
### **4.3. PEAK POWER SPECTRAL DENSITY**

#### **LIMIT**

1. According to §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.

2. According to §15.247(f), the digital modulation operation of the hybrid system, with the frequency hopping turned off, shall comply with the power density requirements of paragraph (d) of this section.

#### **Test Configuration**



#### **TEST PROCEDURE**

1. Place the EUT on the table and set it in transmitting mode.

Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.

2. Set the spectrum analyzer as RBW = 3 kHz, VBW = 10 kHz, Span = 1.5 times the DTS bandwidth, Sweep = auto

3. Record the max reading.

4. Repeat the above procedure until the measurements for all frequencies are completed.

#### **TEST RESULTS**

*No non-compliance noted*

#### **Test Data**

**Test mode: IEEE 802.11b mode**

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-5.21	8.00	PASS
Mid	2437	-5.72	8.00	PASS
High	2462	-6.30	8.00	PASS

**Test mode: IEEE 802.11g mode**

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-9.95	8.00	PASS
Mid	2437	-8.67	8.00	PASS
High	2462	-9.57	8.00	PASS

**Test mode: IEEE 802.11n HT20 mode**

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-11.41	8.00	PASS
Mid	2437	-11.74	8.00	PASS
High	2462	-11.69	8.00	PASS

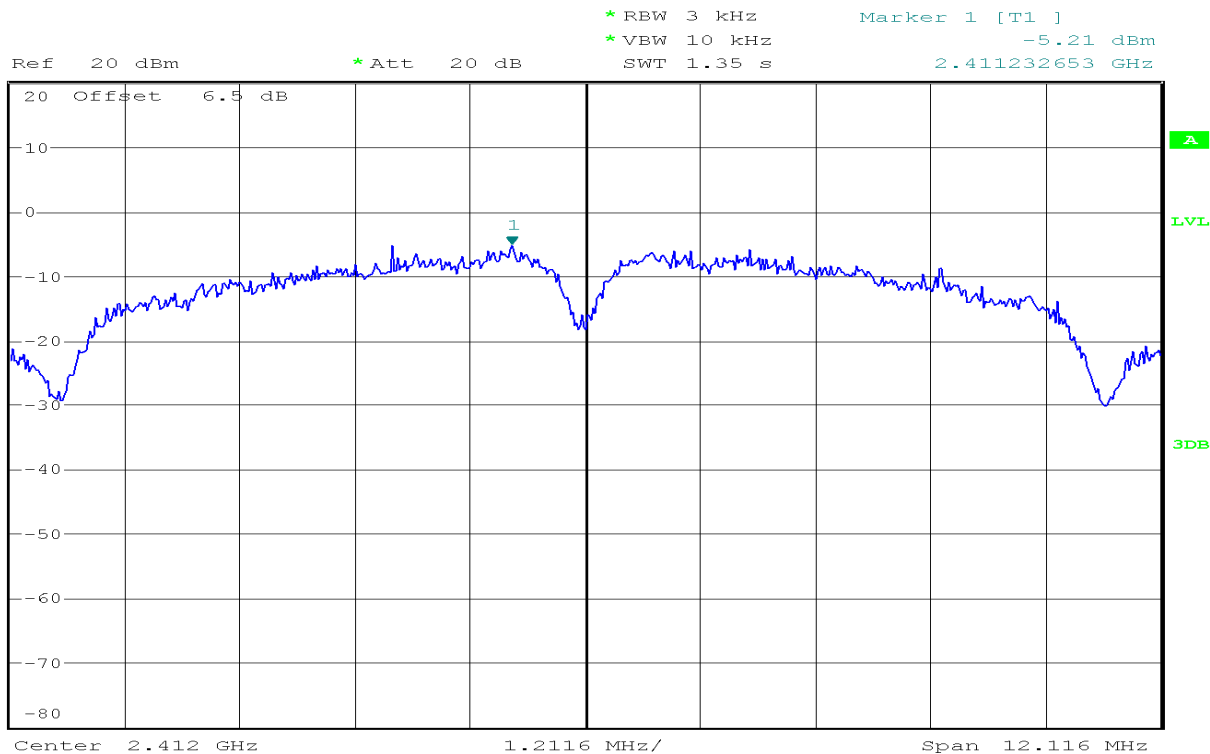
**Test Plot**

**IEEE 802.11b mode**

**PPSD (CH Low)**



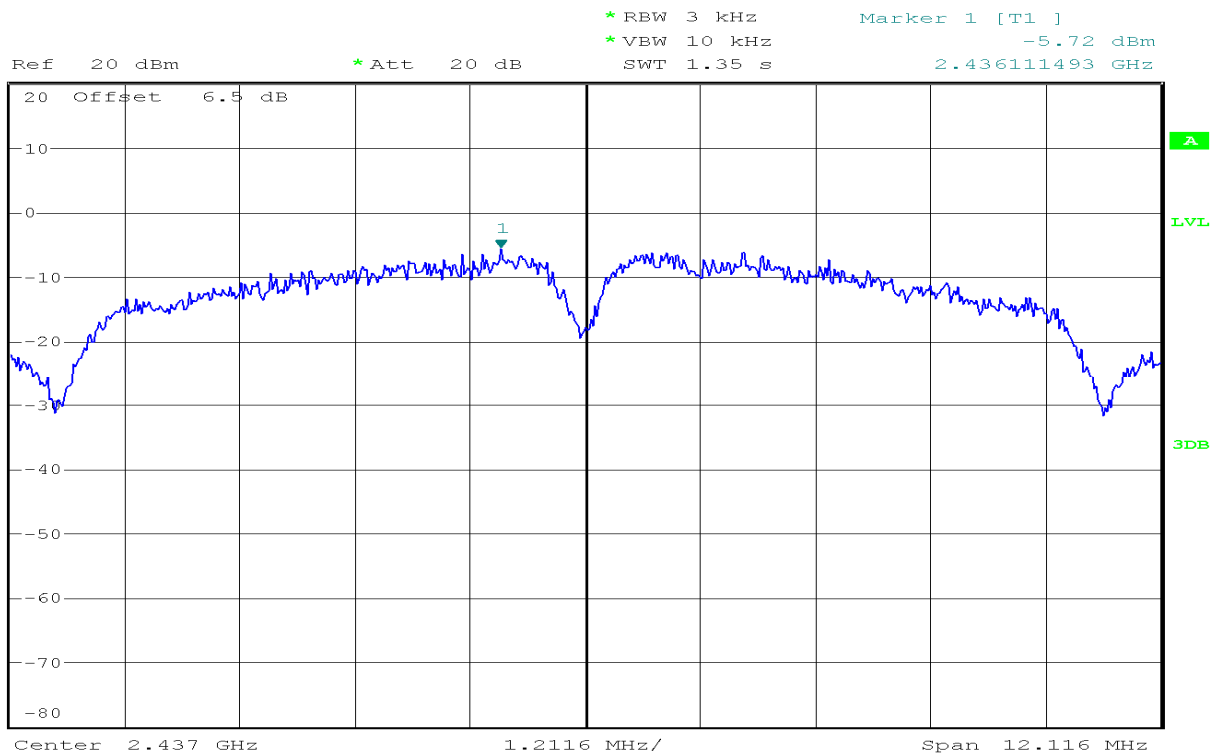
1 PK  
MATH



**PPSD(CH Mid)**

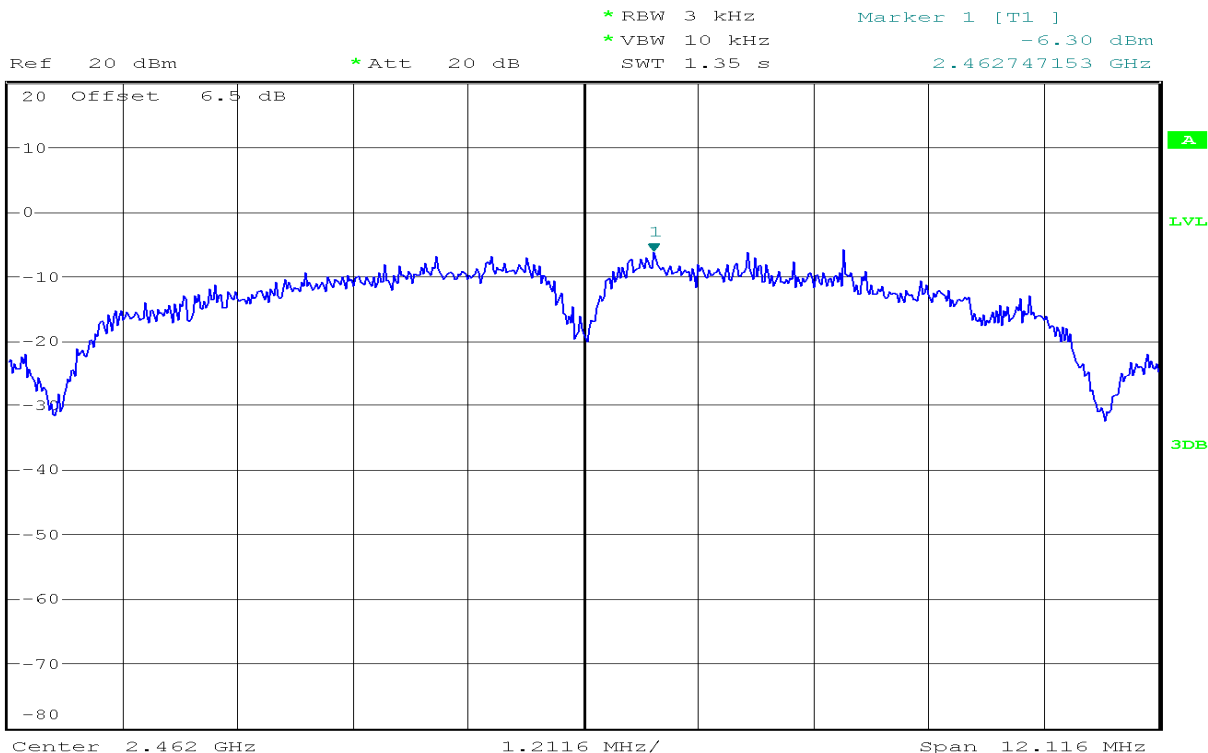


1 PK  
MATH



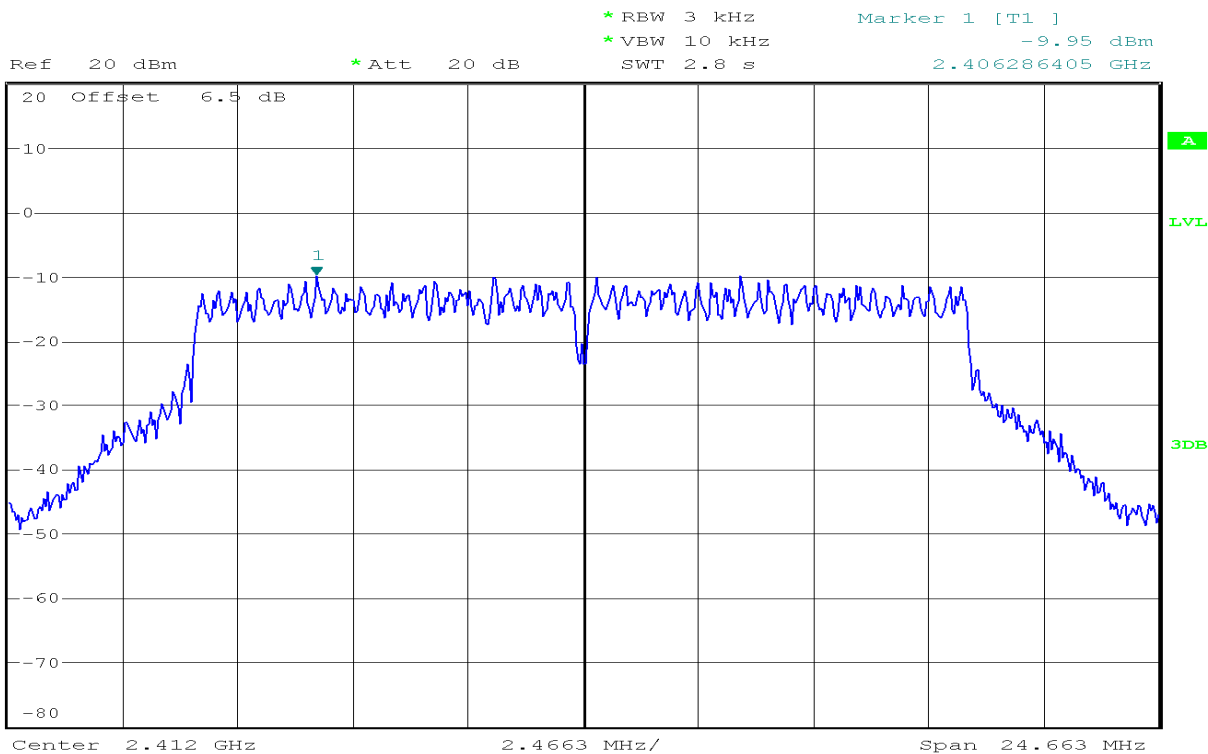


**PPSD (CH High)**



**IEEE 802.11g mode**

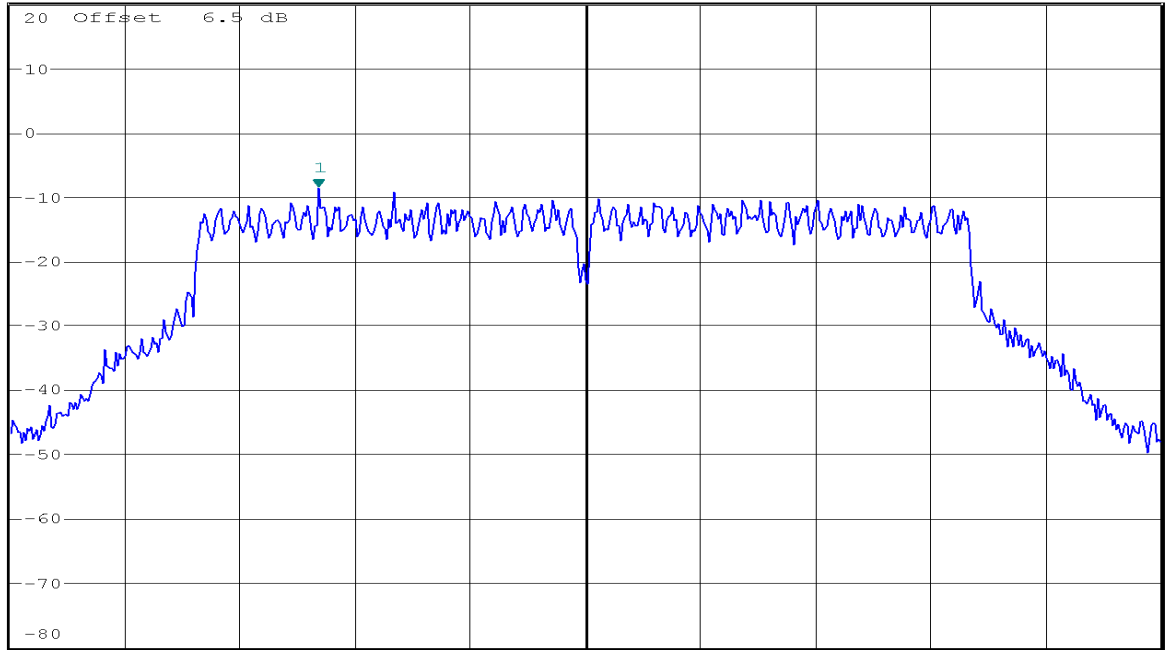
**PPSD (CH Low)**



PPSD (CH Mid)



Ref 20 dBm \* Att 20 dB \* RBW 3 kHz \* VBW 10 kHz SWT 2.8 s Marker 1 [T1 ] -8.67 dBm 2.431286405 GHz

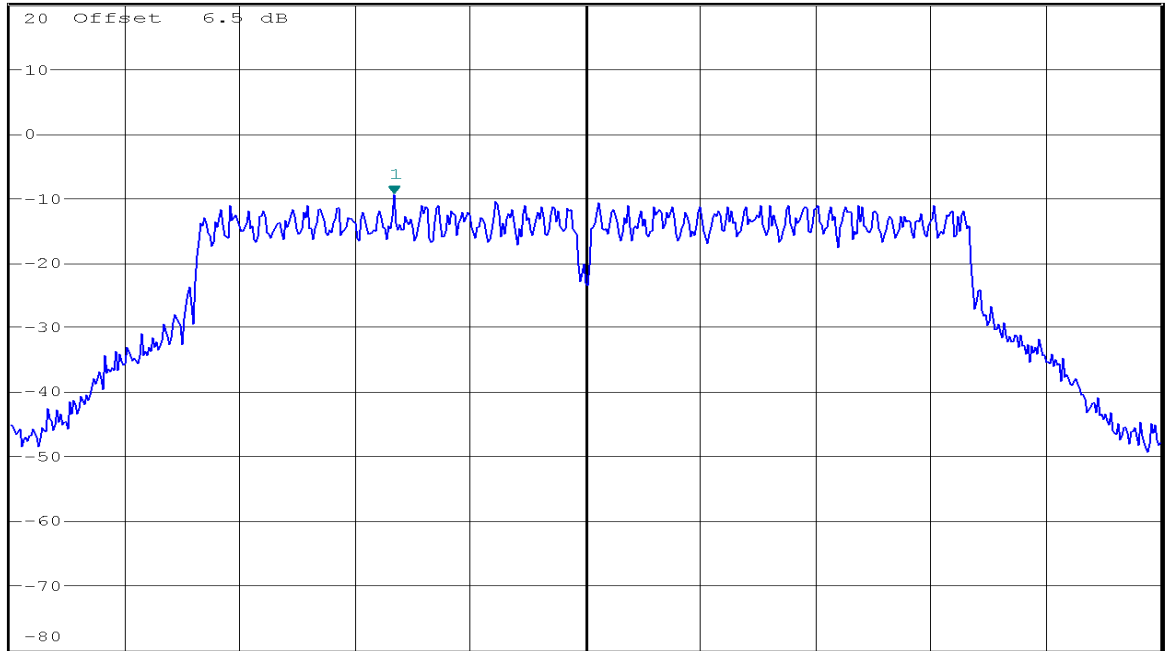


Center 2.437 GHz 2.4663 MHz/ Span 24.663 MHz

PPSD (CH High)



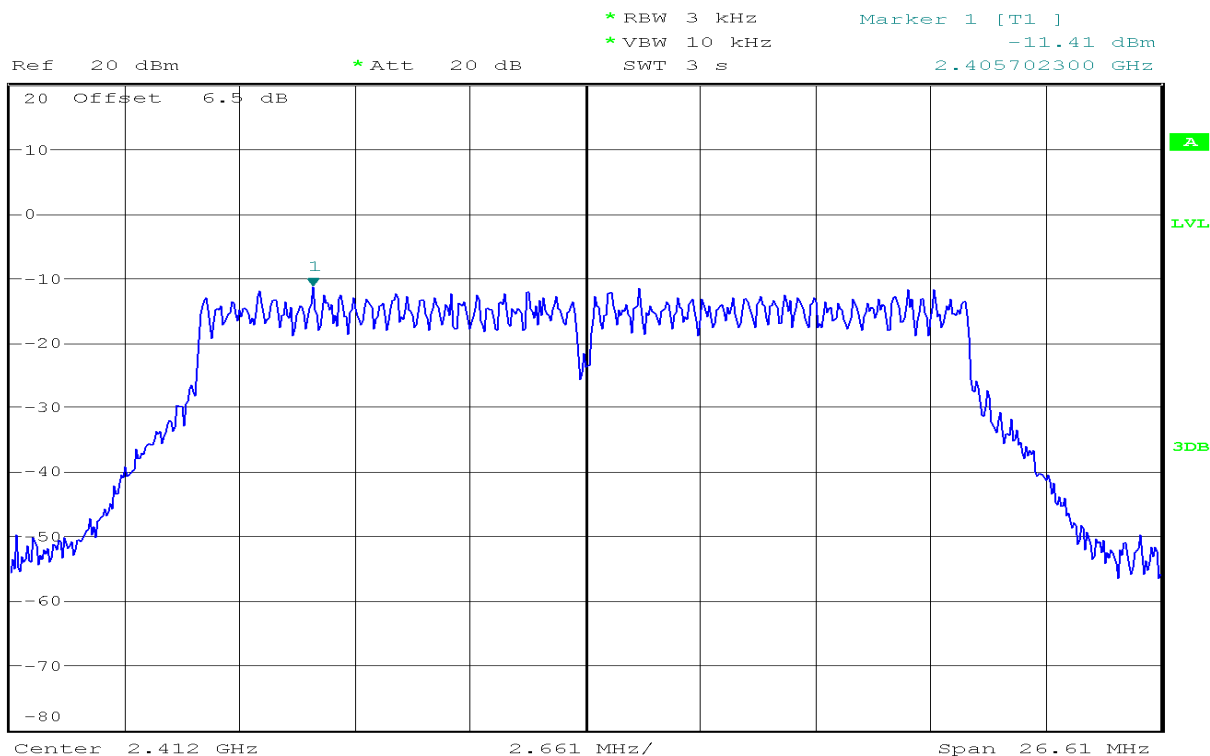
Ref 20 dBm \* Att 20 dB \* RBW 3 kHz \* VBW 10 kHz SWT 2.8 s Marker 1 [T1 ] -9.57 dBm 2.457889500 GHz



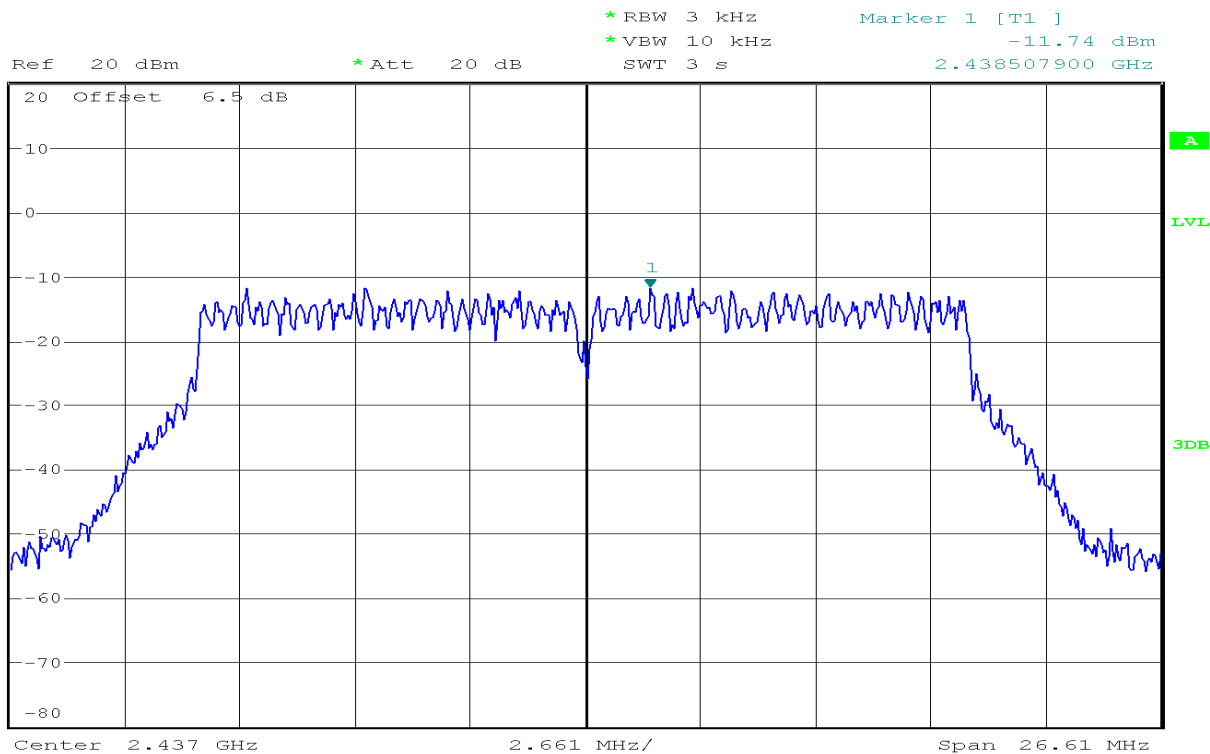
Center 2.462 GHz 2.4663 MHz/ Span 24.663 MHz

**IEEE 802.11n HT20 mode**

**PPSD (CH Low)**



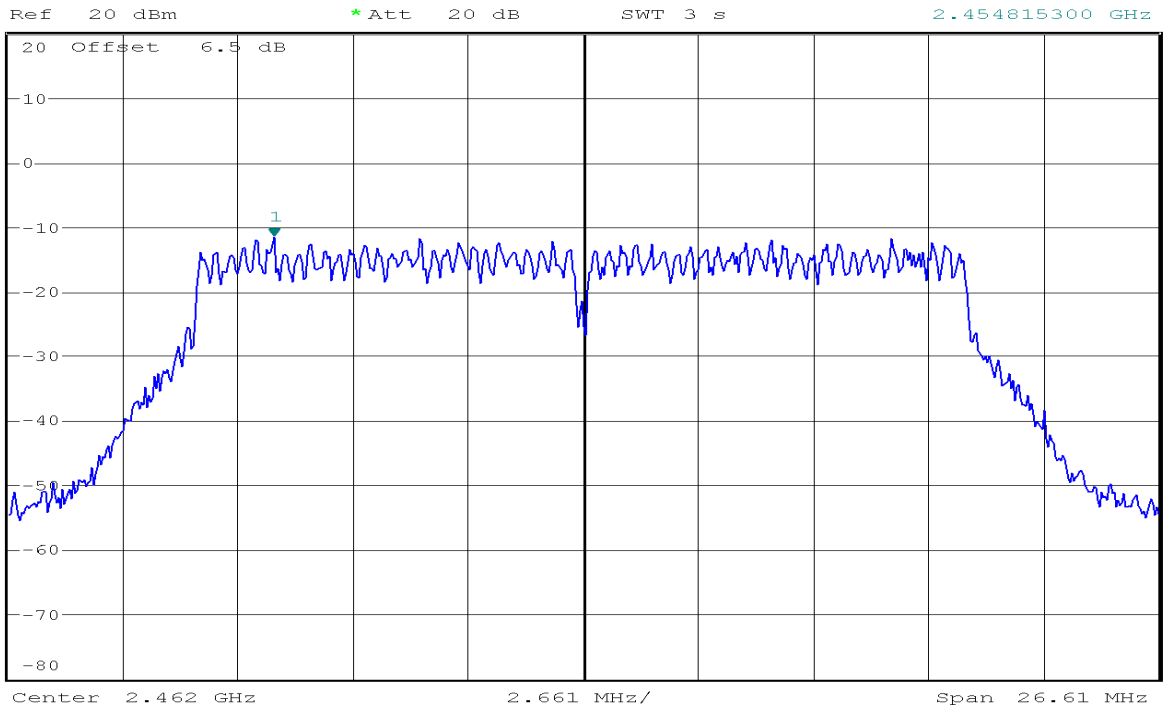
**PPSD (CH Mid)**



PPSD (CH High)



\* RBW 3 kHz  
\* VBW 10 kHz  
SWT 3 s  
Marker 1 [T1 ]  
-11.69 dBm  
2.454815300 GHz



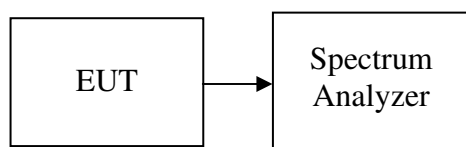
## 4.4.SPURIOUS EMISSIONS

### Conducted Measurement

#### LIMIT

According to §15.247(d), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. 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 Section 15.205(c)).

#### Test Configuration



#### TEST PROCEDURE

Conducted RF measurements of the transmitter output were made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

Measurements are made over the 30MHz to 40GHz range with the transmitter set to the lowest, middle, and highest channels.

#### TEST RESULTS

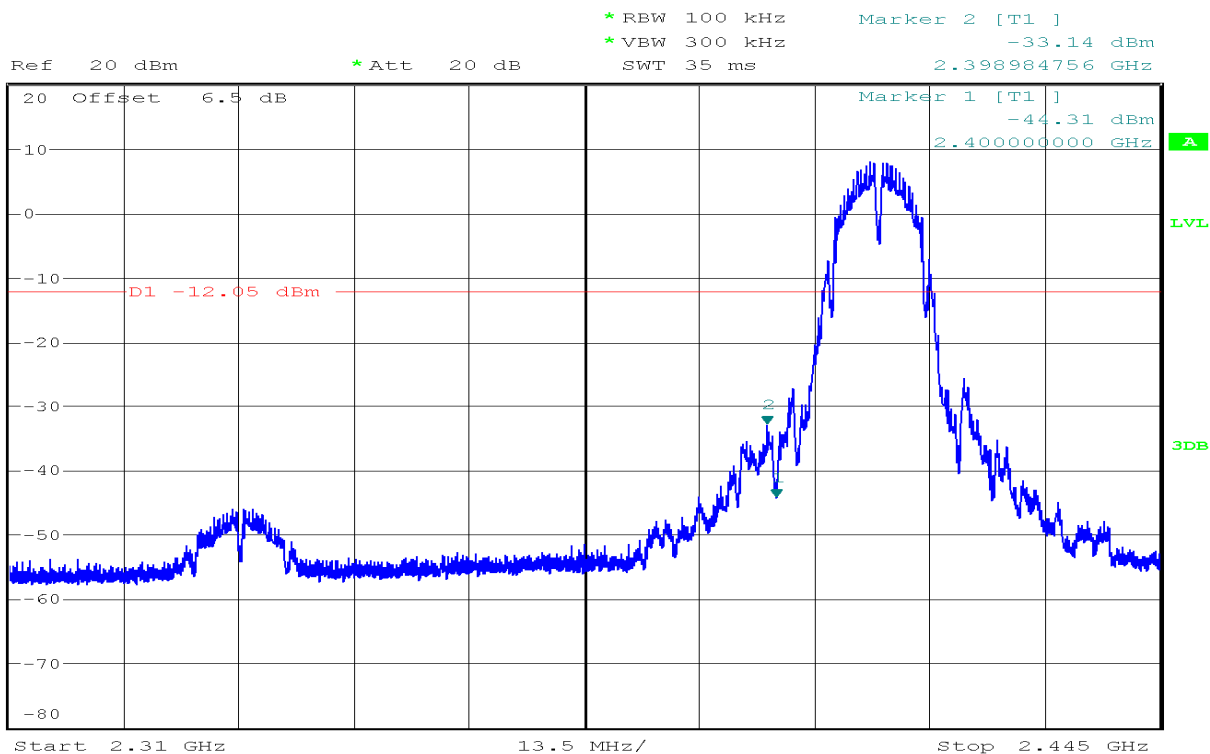
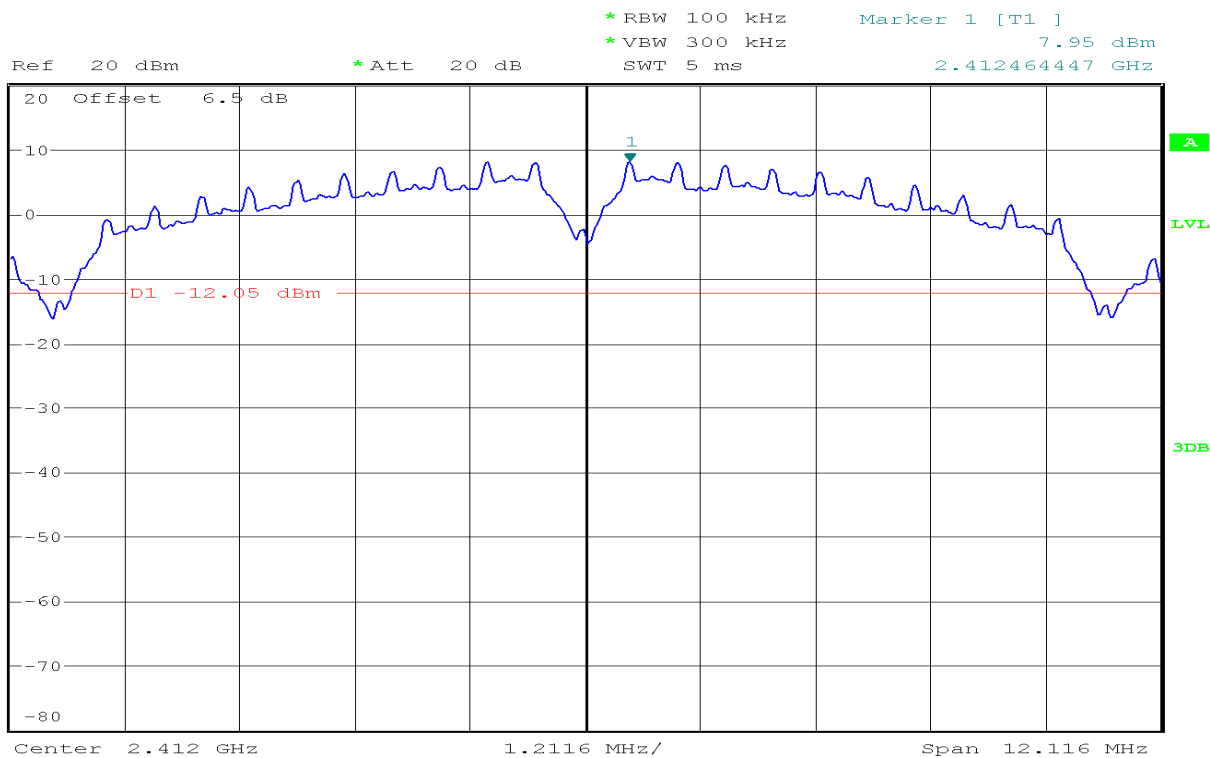
*No non-compliance noted*

**Test Plot**

**OUT-OF-BAND SPURIOUS EMISSIONS-CONDUCTED MEASUREMENT**

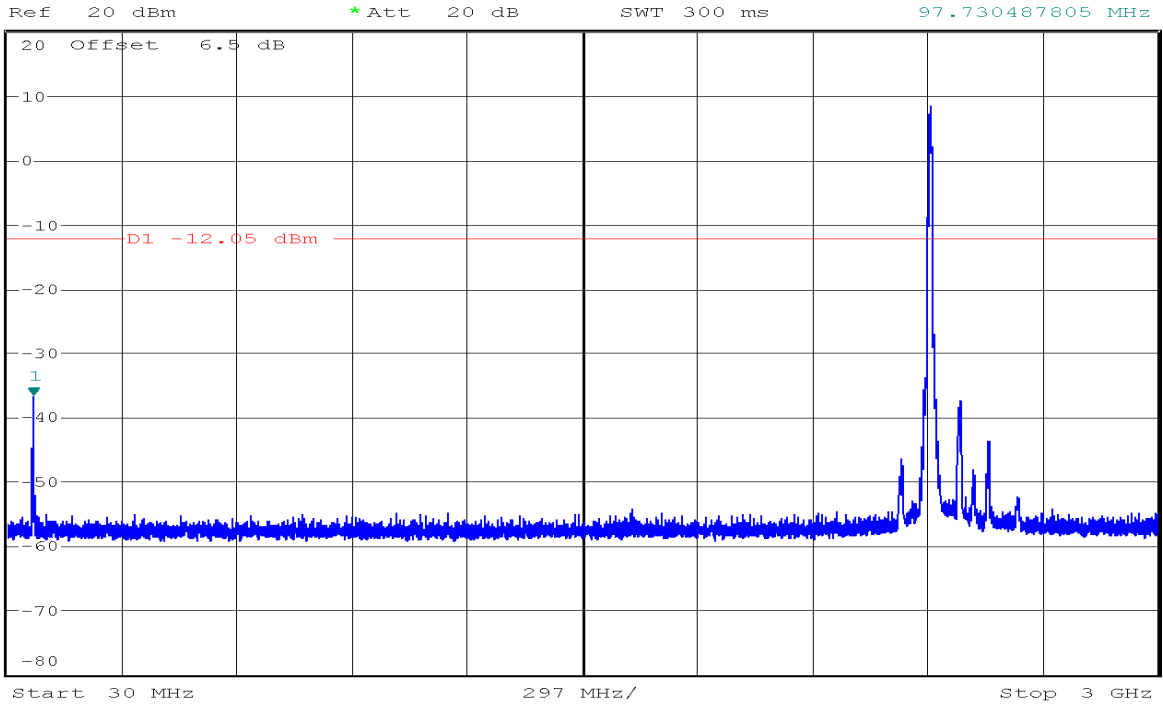
**IEEE 802.11b mode**

**CH Low**

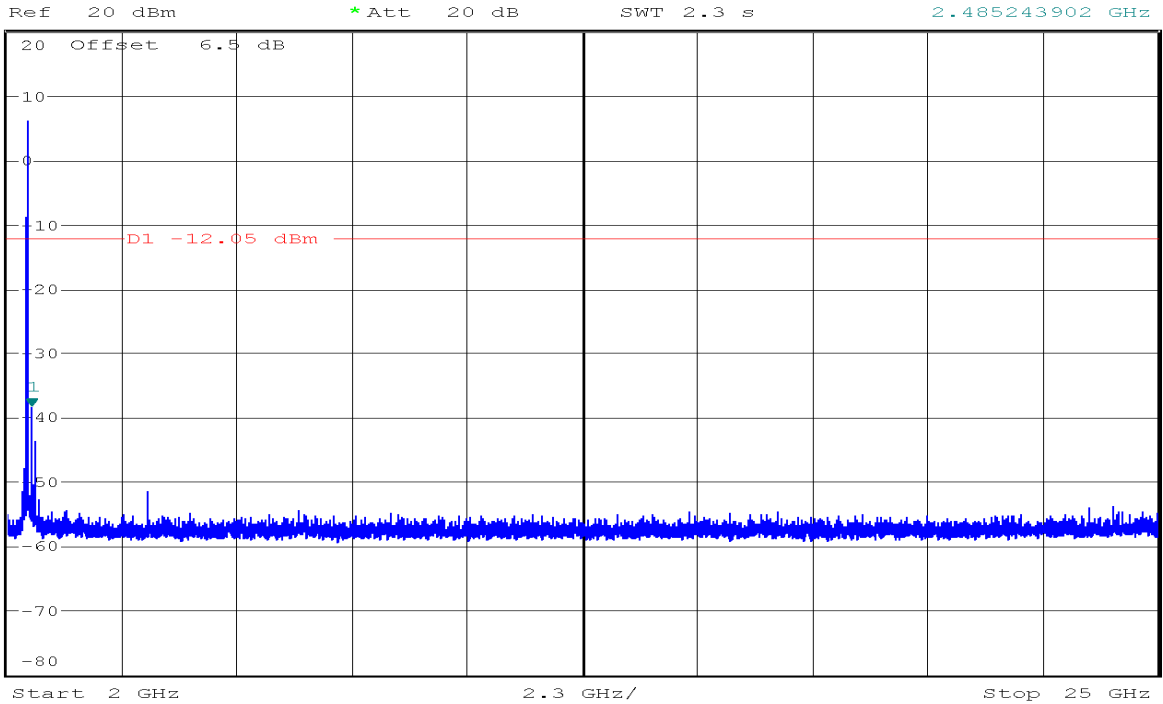




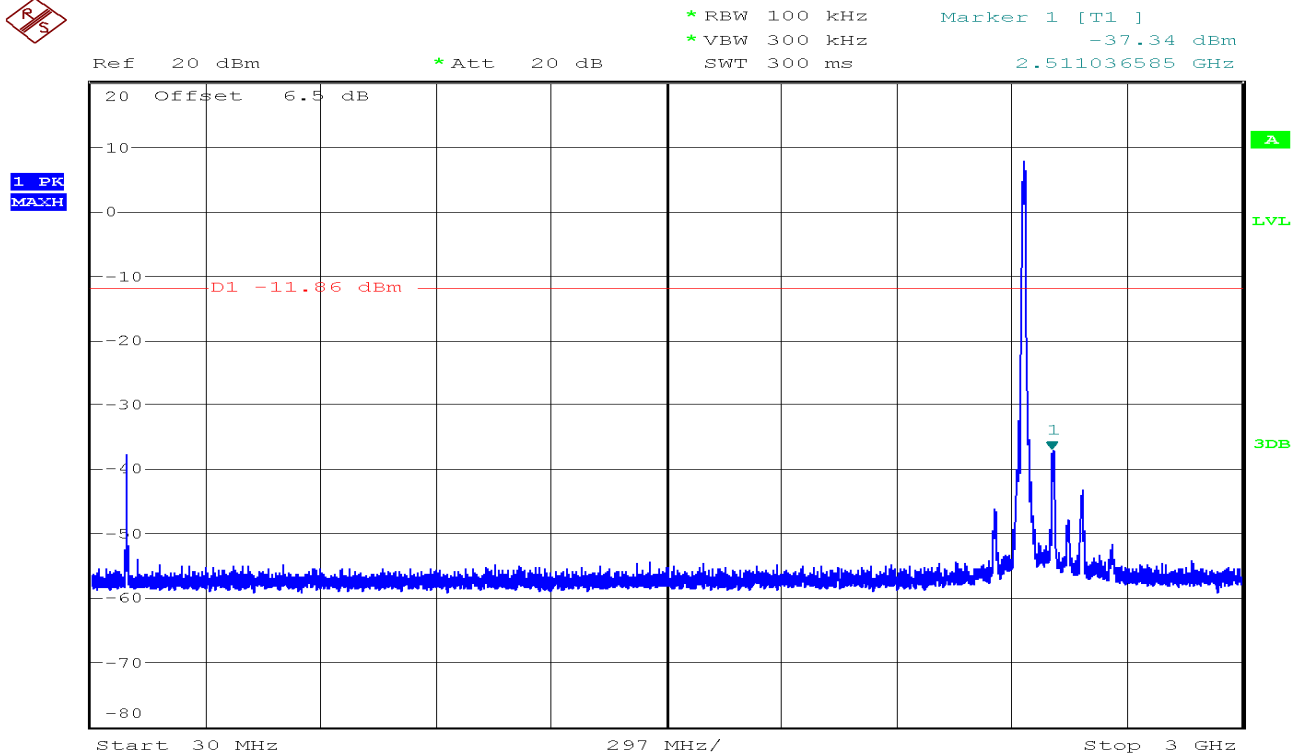
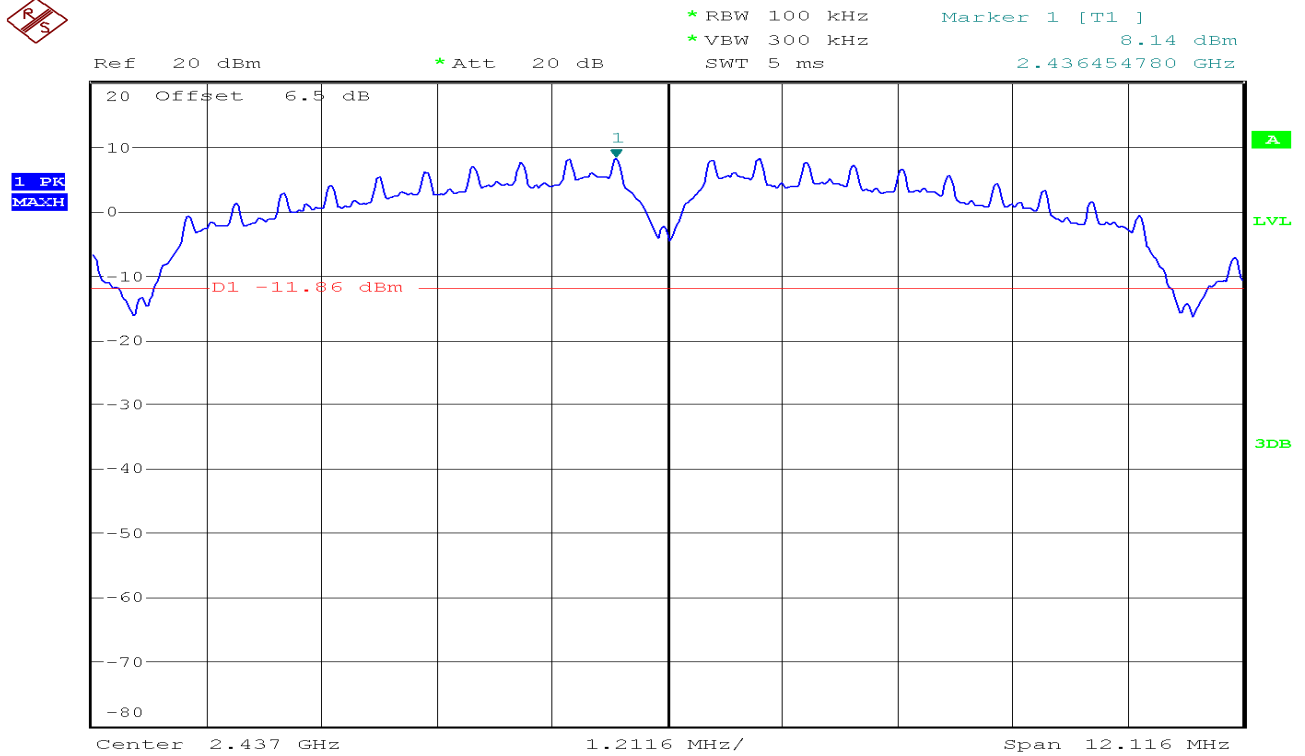
\* RBW 100 kHz      Marker 1 [T1 ]  
\* VBW 300 kHz      -36.82 dBm  
SWT 300 ms      97.730487805 MHz



\* RBW 100 kHz      Marker 1 [T1 ]  
\* VBW 300 kHz      -38.45 dBm  
SWT 2.3 s      2.485243902 GHz



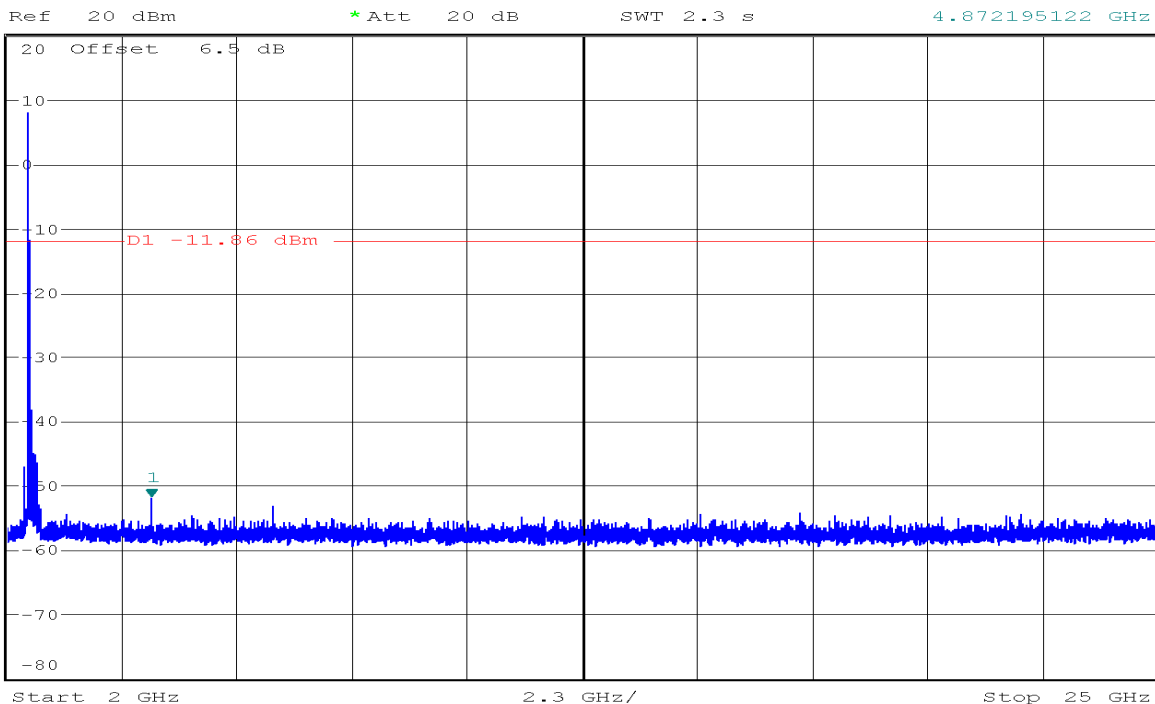
CH Mid







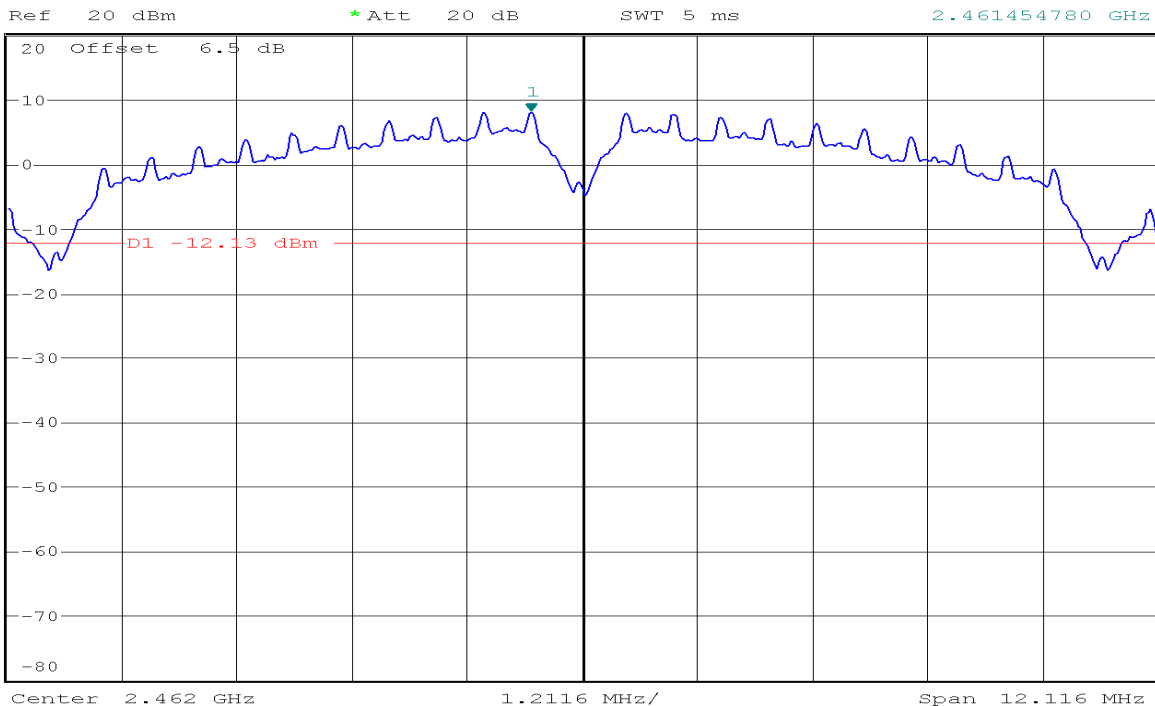
\* RBW 100 kHz      Marker 1 [T1 ]  
 \* VBW 300 kHz      -51.91 dBm  
 SWT 2.3 s            4.872195122 GHz



**CH High**

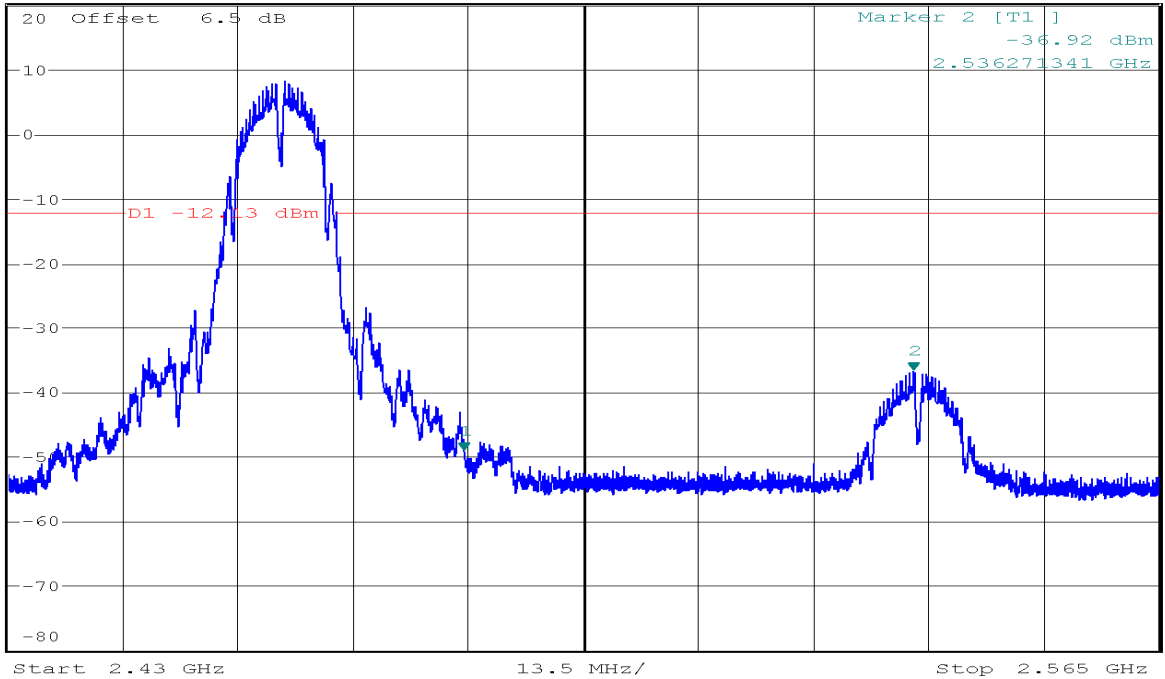


\* RBW 100 kHz      Marker 1 [T1 ]  
 \* VBW 300 kHz      7.87 dBm  
 SWT 5 ms            2.461454780 GHz

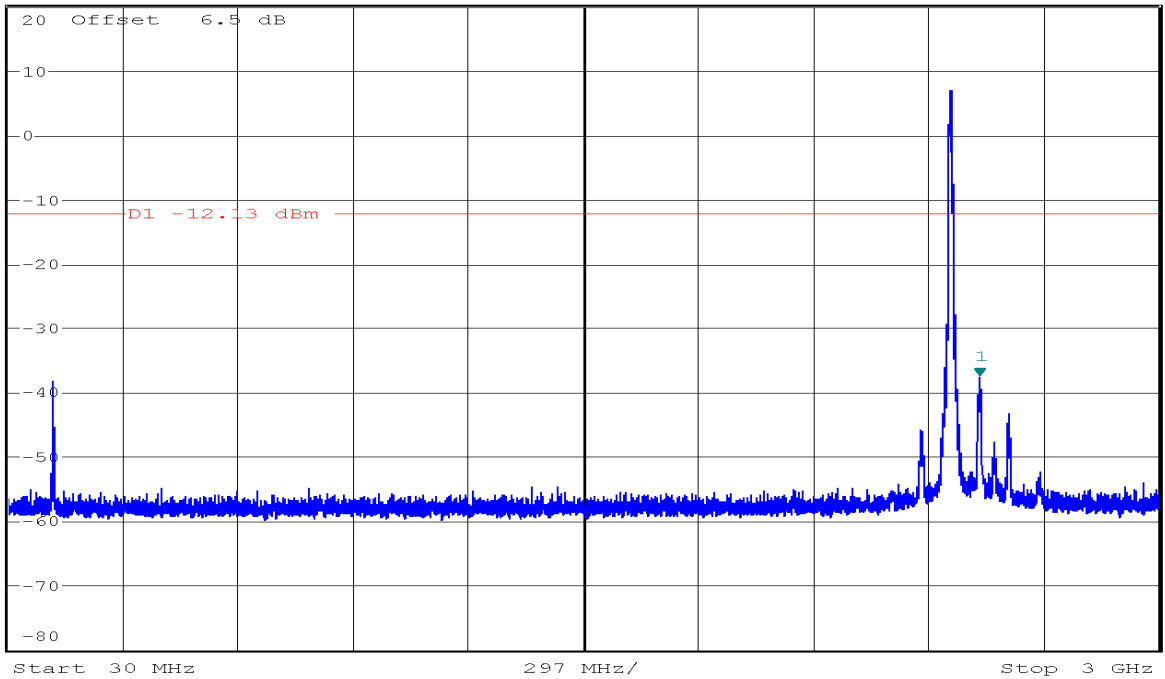




Ref 20 dBm      \*Att 20 dB      \*RBW 100 kHz      Marker 1 [T1] -49.13 dBm  
\*VBW 300 kHz      2.483500000 GHz  
SWT 35 ms



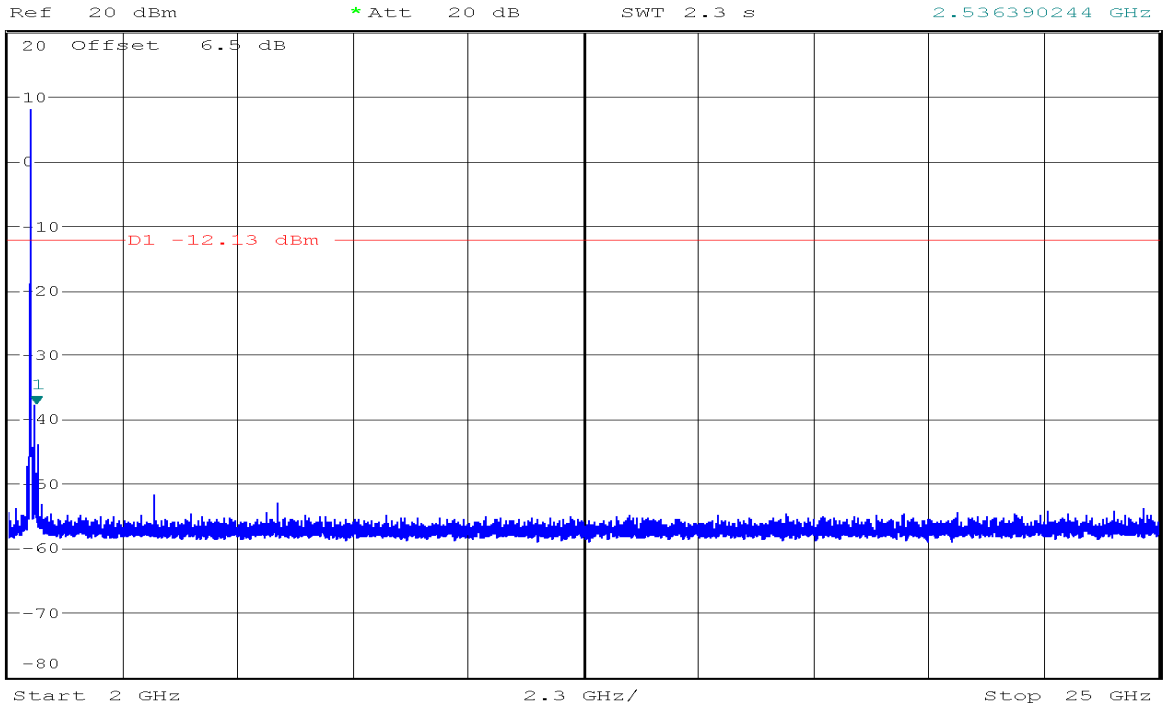
Ref 20 dBm      \*Att 20 dB      \*RBW 100 kHz      Marker 1 [T1] -37.69 dBm  
\*VBW 300 kHz      2.536390244 GHz  
SWT 300 ms





\* RBW 100 kHz  
\* VBW 300 kHz  
SWT 2.3 s

Marker 1 [T1 ]  
-37.89 dBm  
2.536390244 GHz



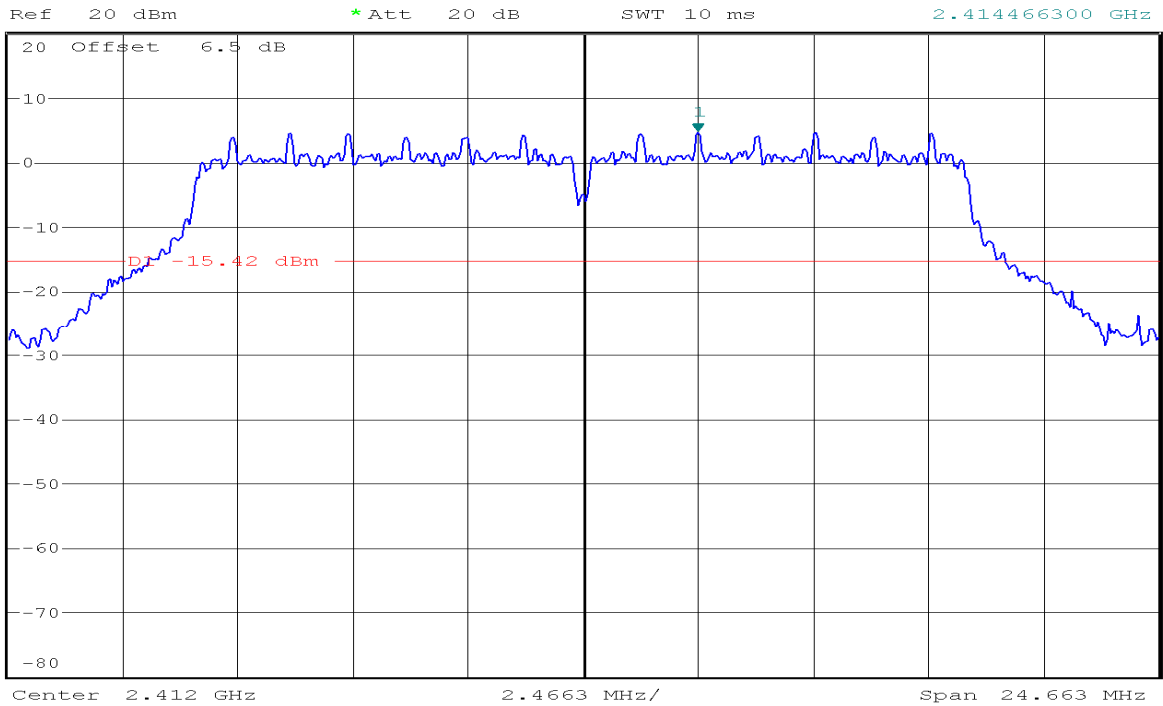
**IEEE 802.11g mode**

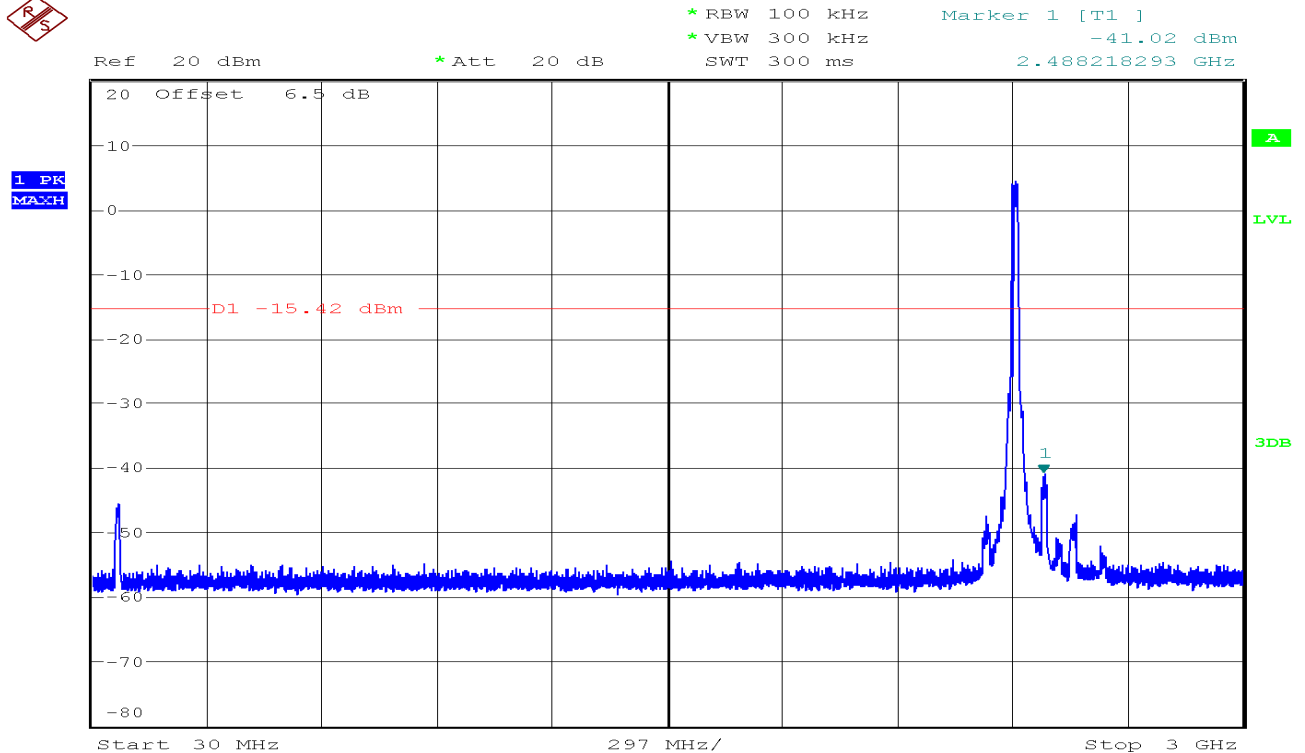
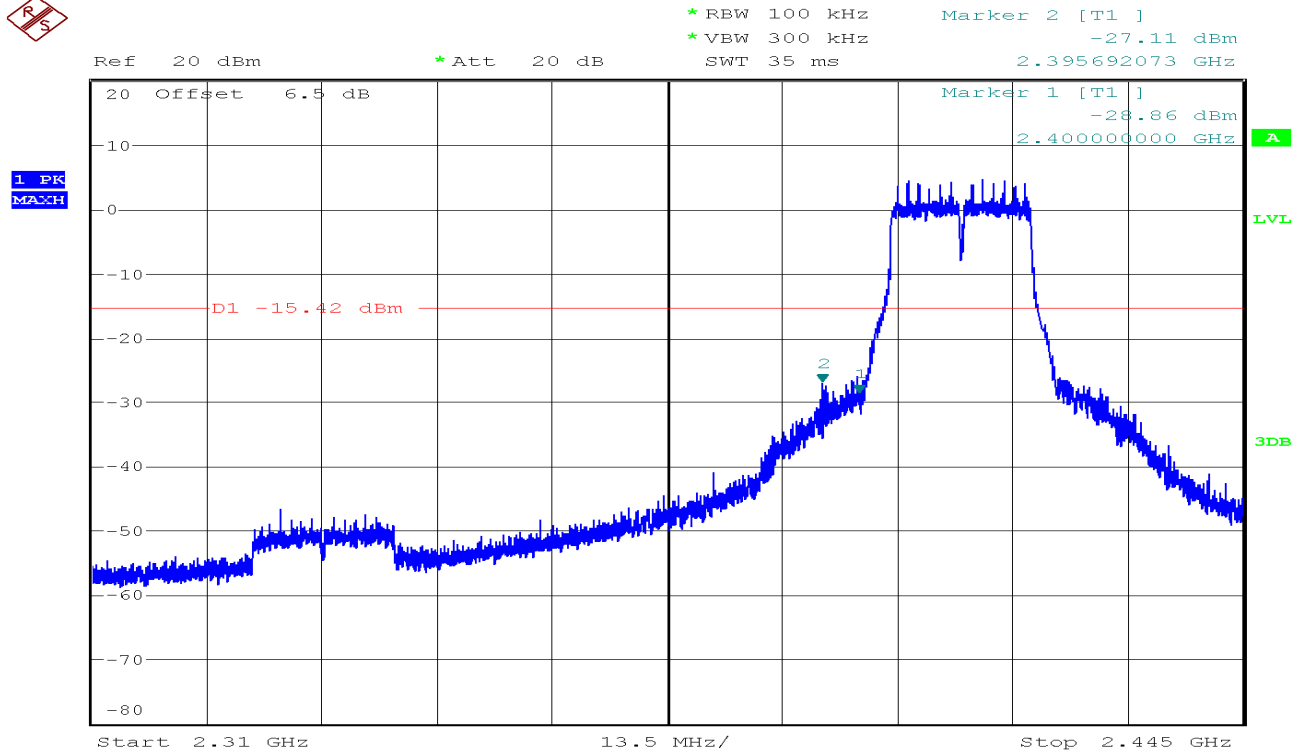
**CH Low**



\* RBW 100 kHz  
\* VBW 300 kHz  
SWT 10 ms

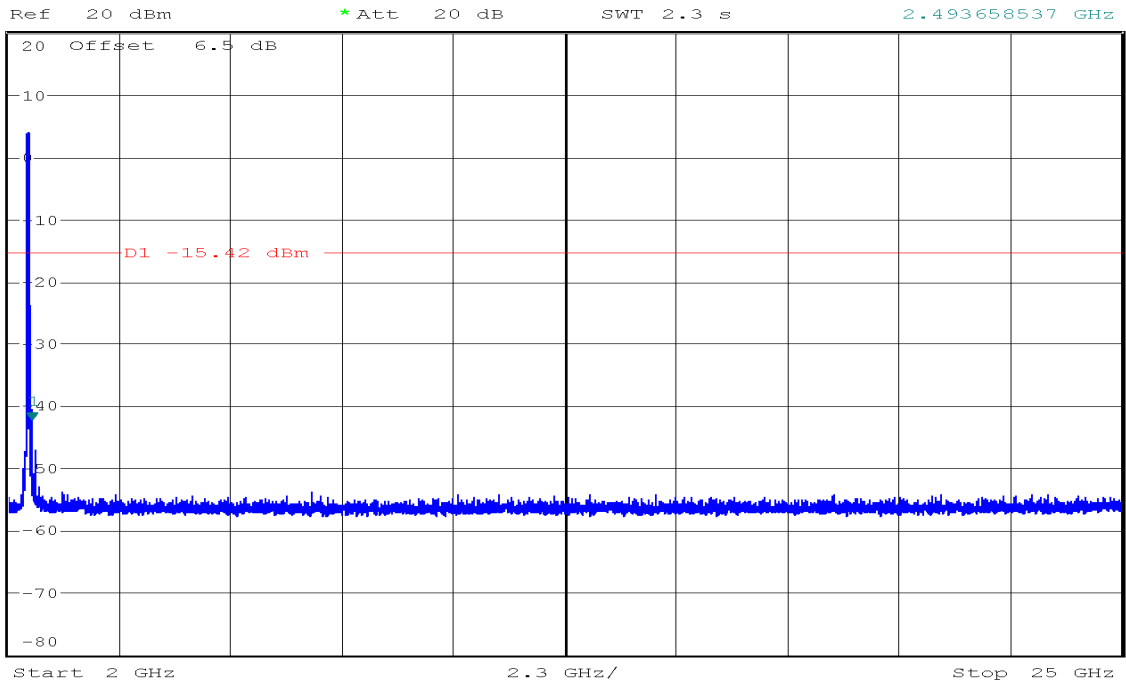
Marker 1 [T1 ]  
4.58 dBm  
2.414466300 GHz







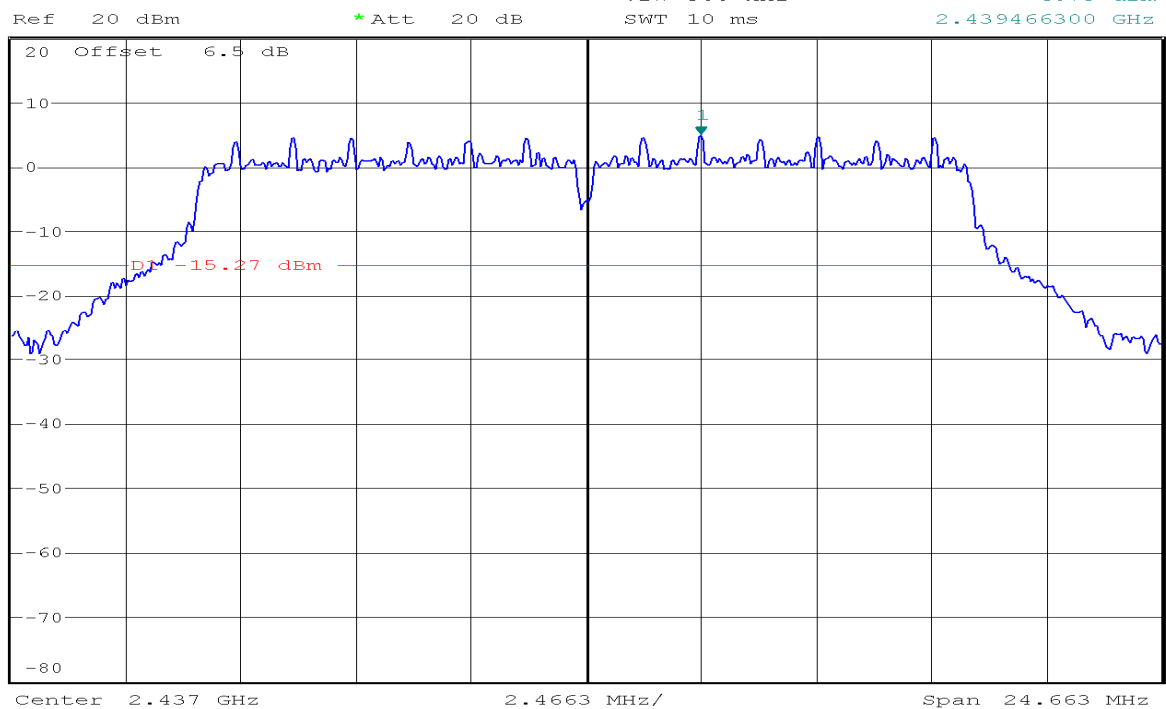
\*RBW 100 kHz      Marker 1 [T1 ]  
 \*VBW 300 kHz      -42.40 dBm  
 SWT 2.3 s      2.493658537 GHz



CH Mid

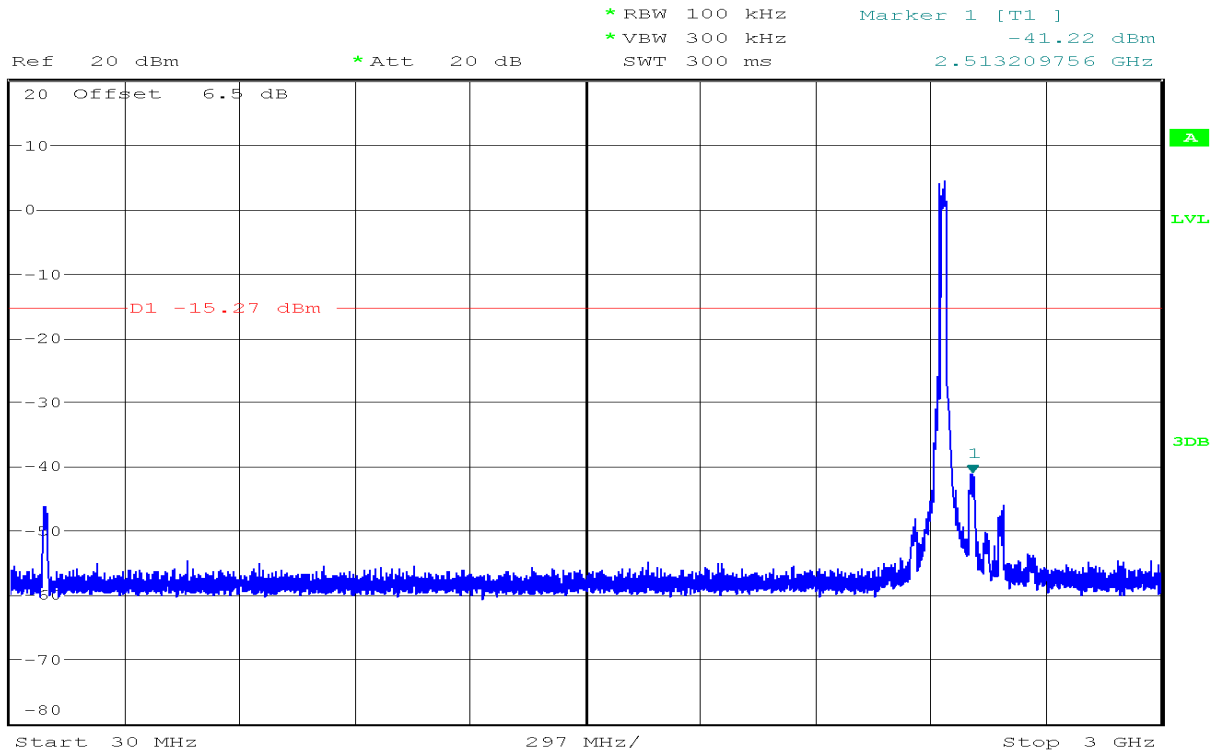


\*RBW 100 kHz      Marker 1 [T1 ]  
 \*VBW 300 kHz      4.73 dBm  
 SWT 10 ms      2.439466300 GHz

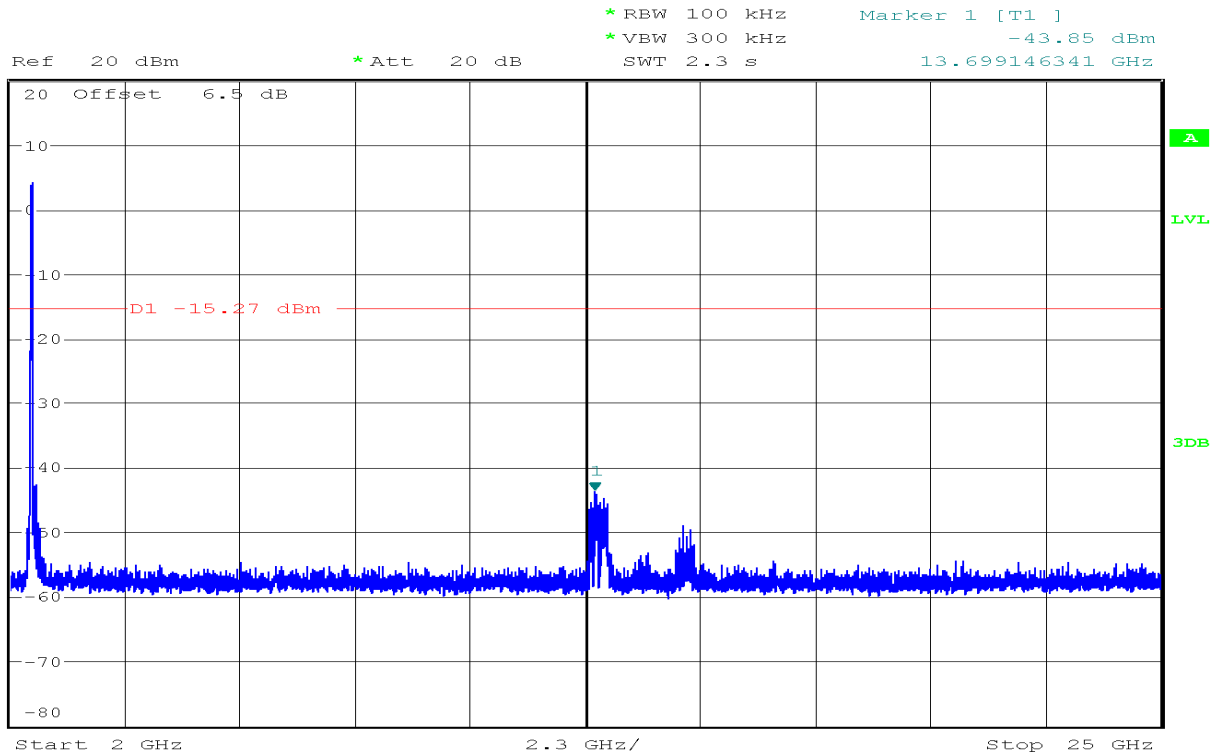




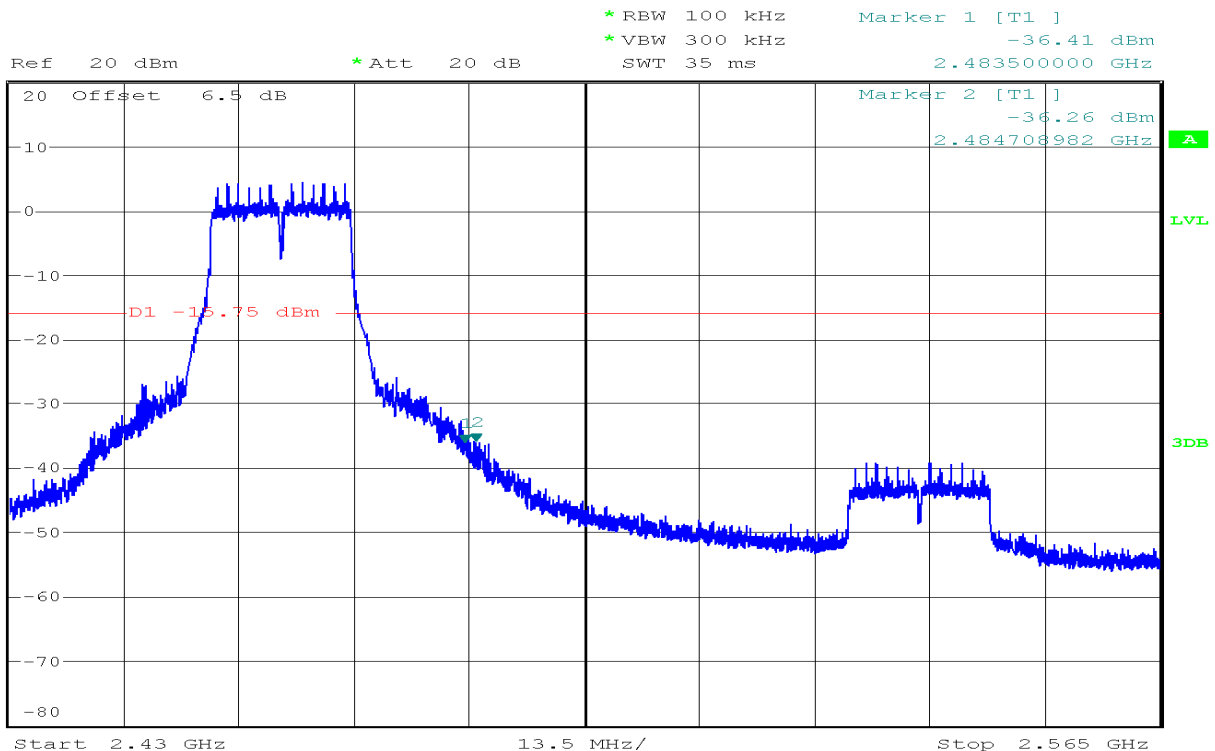
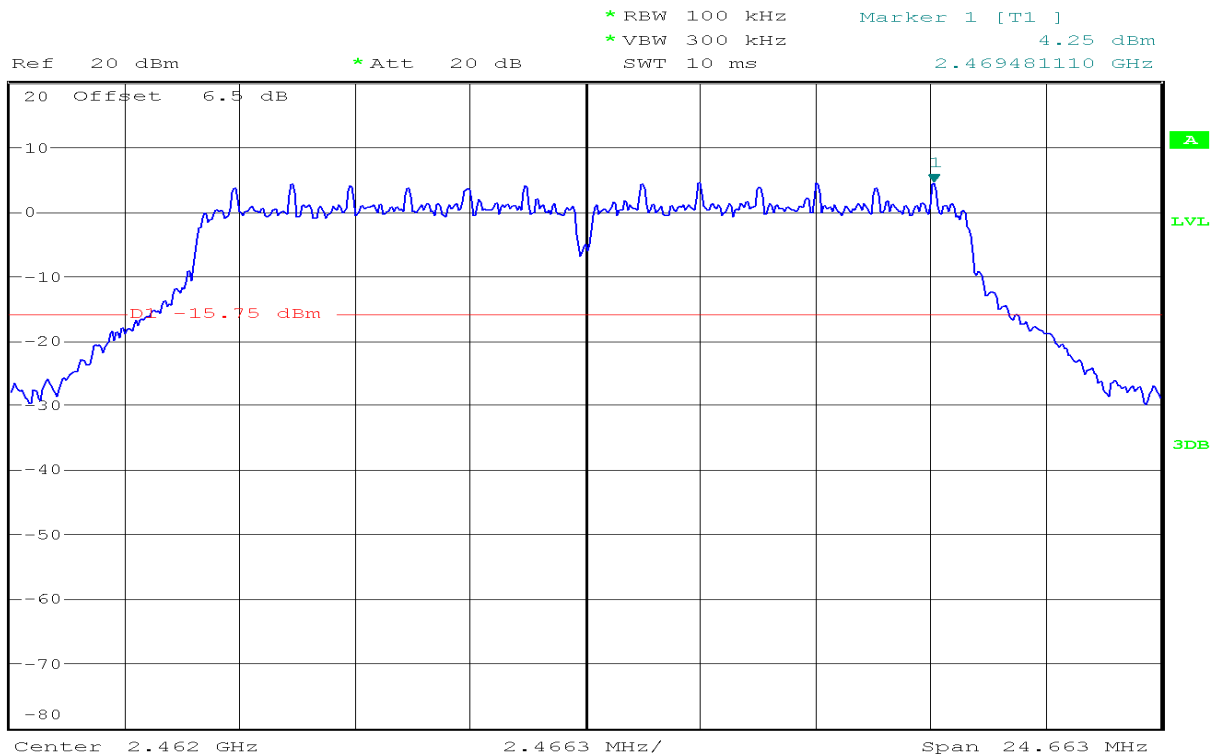
1 PK  
MATH



1 PK  
MATH

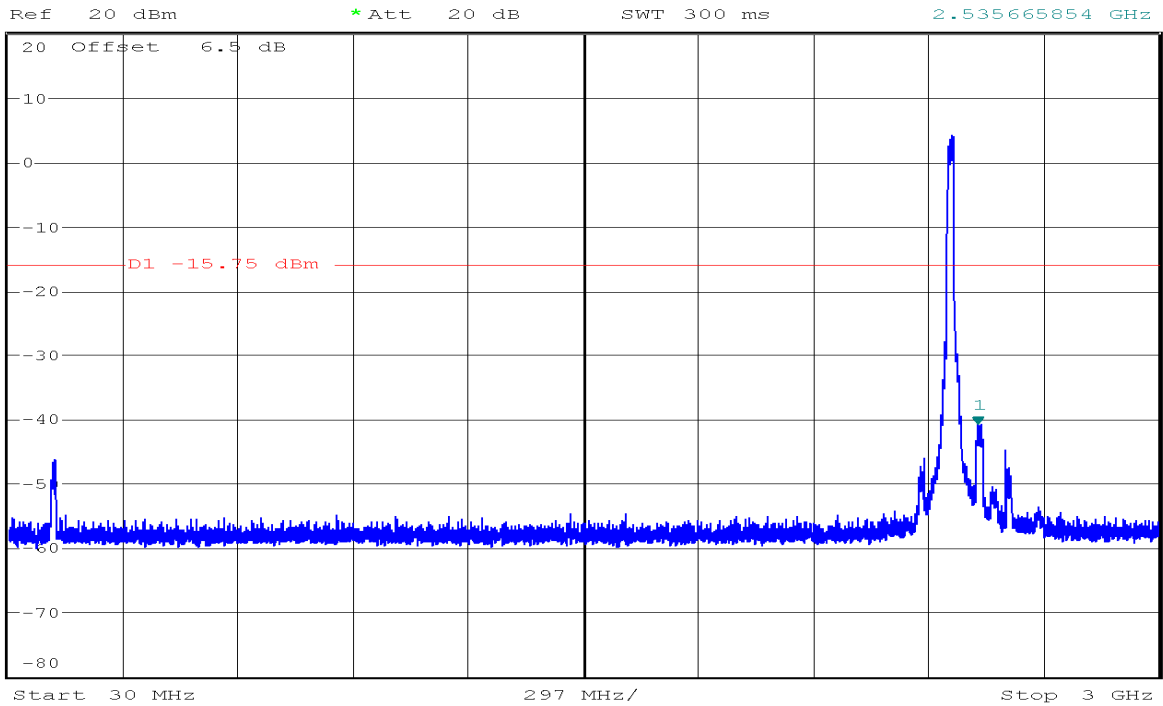


CH High

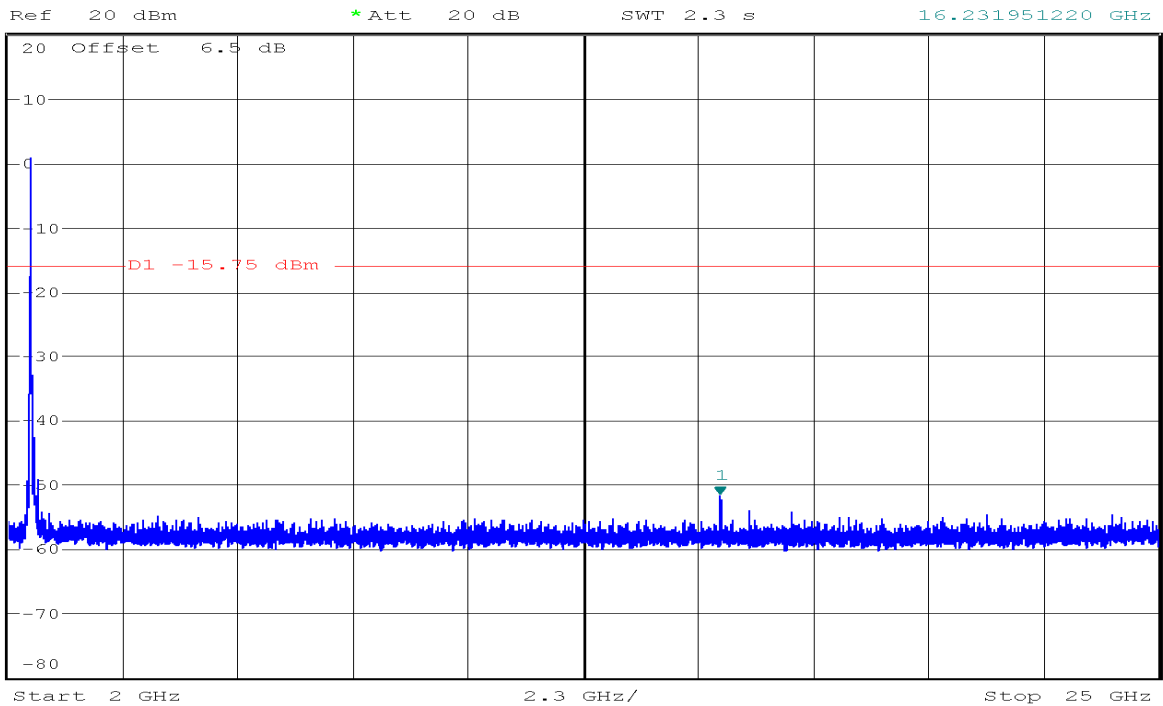




\* RBW 100 kHz      Marker 1 [T1 ]  
 \* VBW 300 kHz      -41.13 dBm  
 SWT 300 ms      2.535665854 GHz



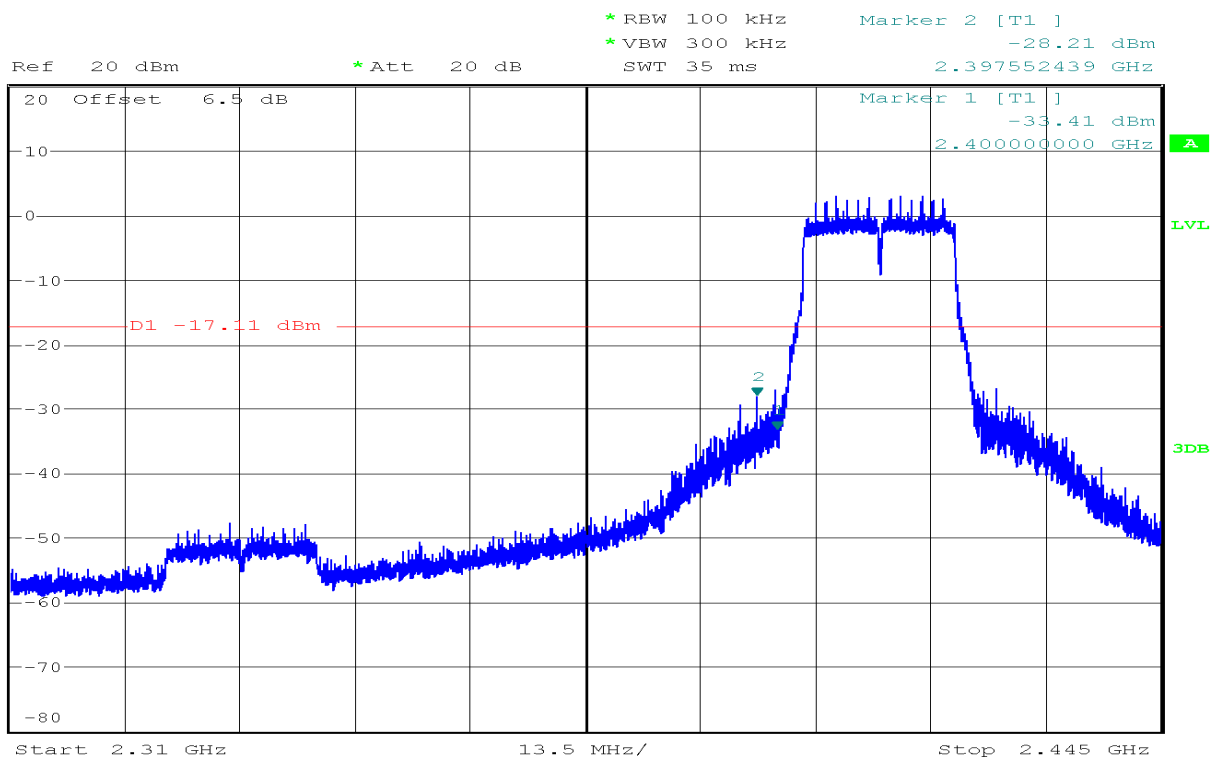
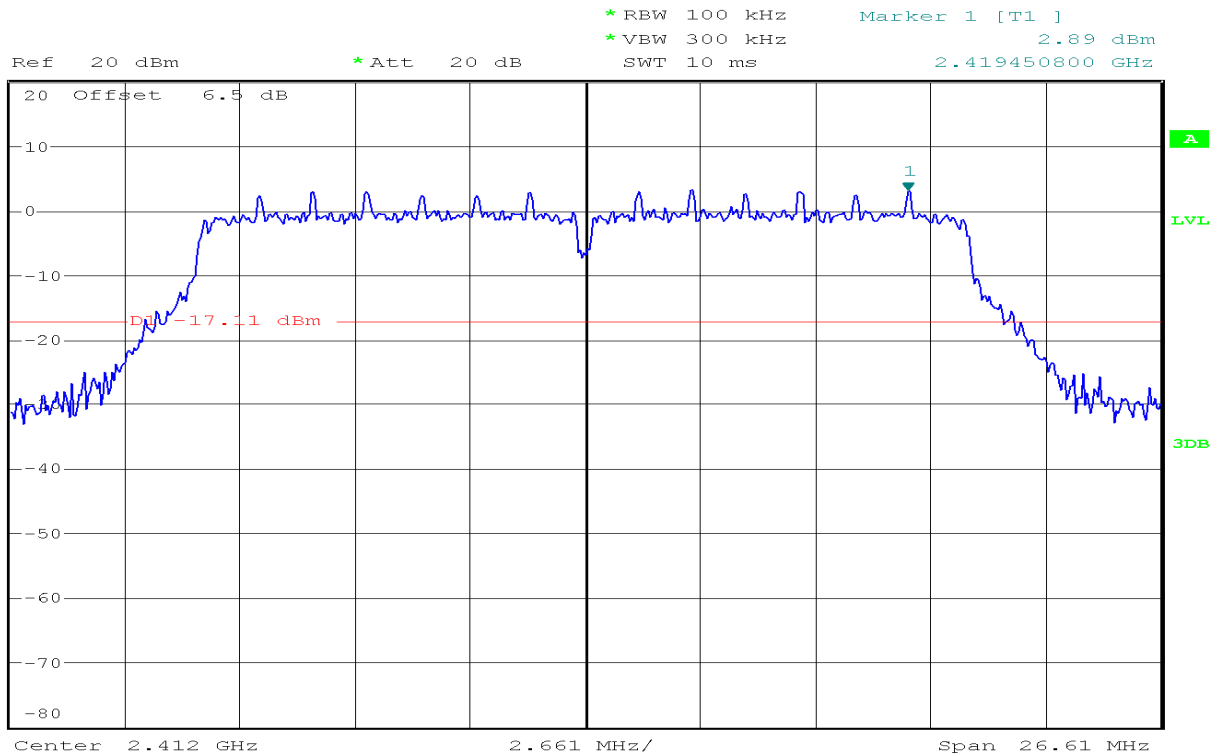
\* RBW 100 kHz      Marker 1 [T1 ]  
 \* VBW 300 kHz      -51.79 dBm  
 SWT 2.3 s      16.231951220 GHz





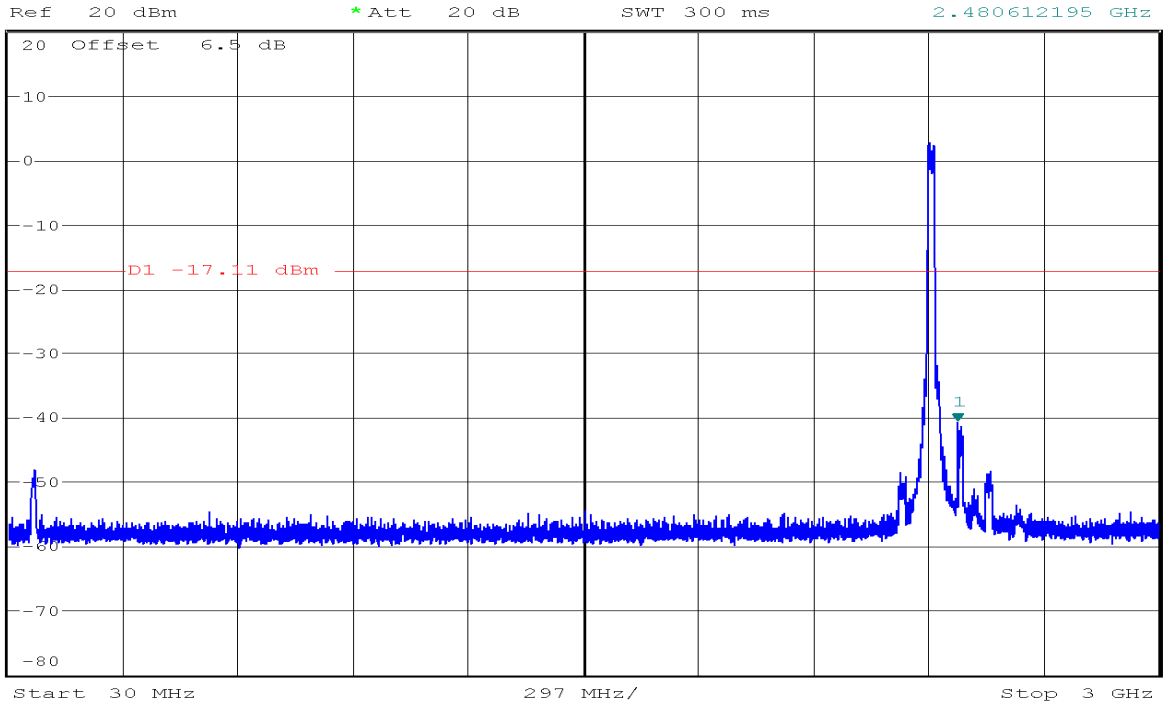
IEEE 802.11n HT20 mode

CH Low

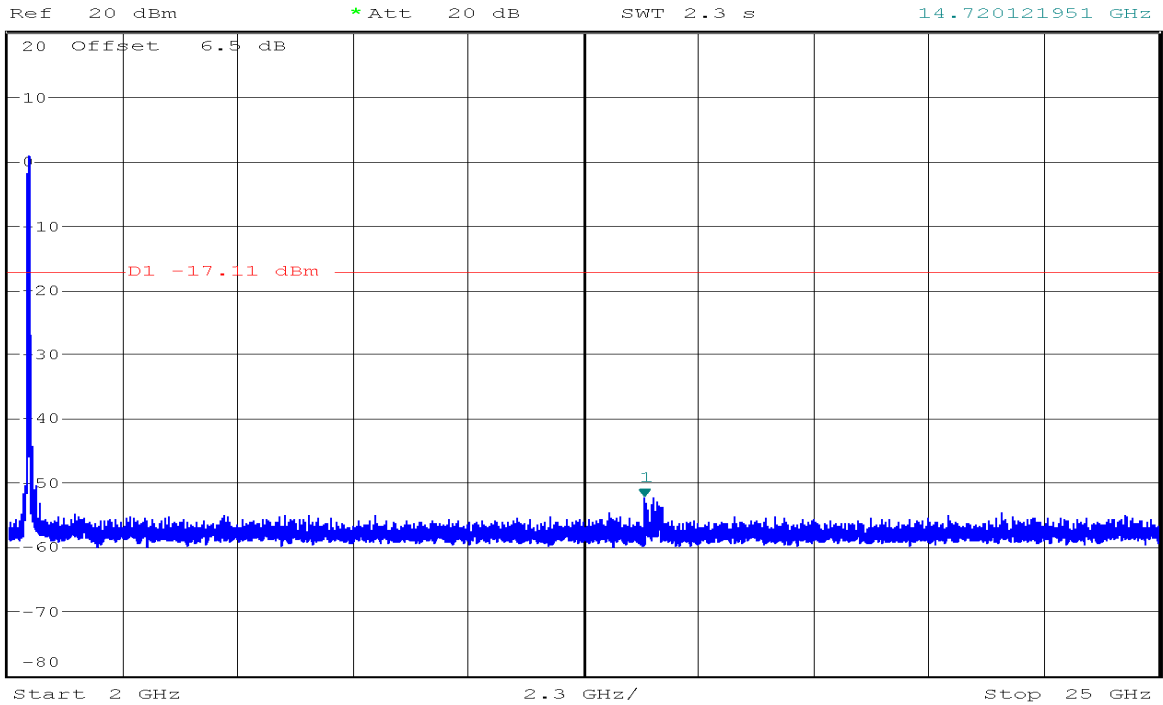




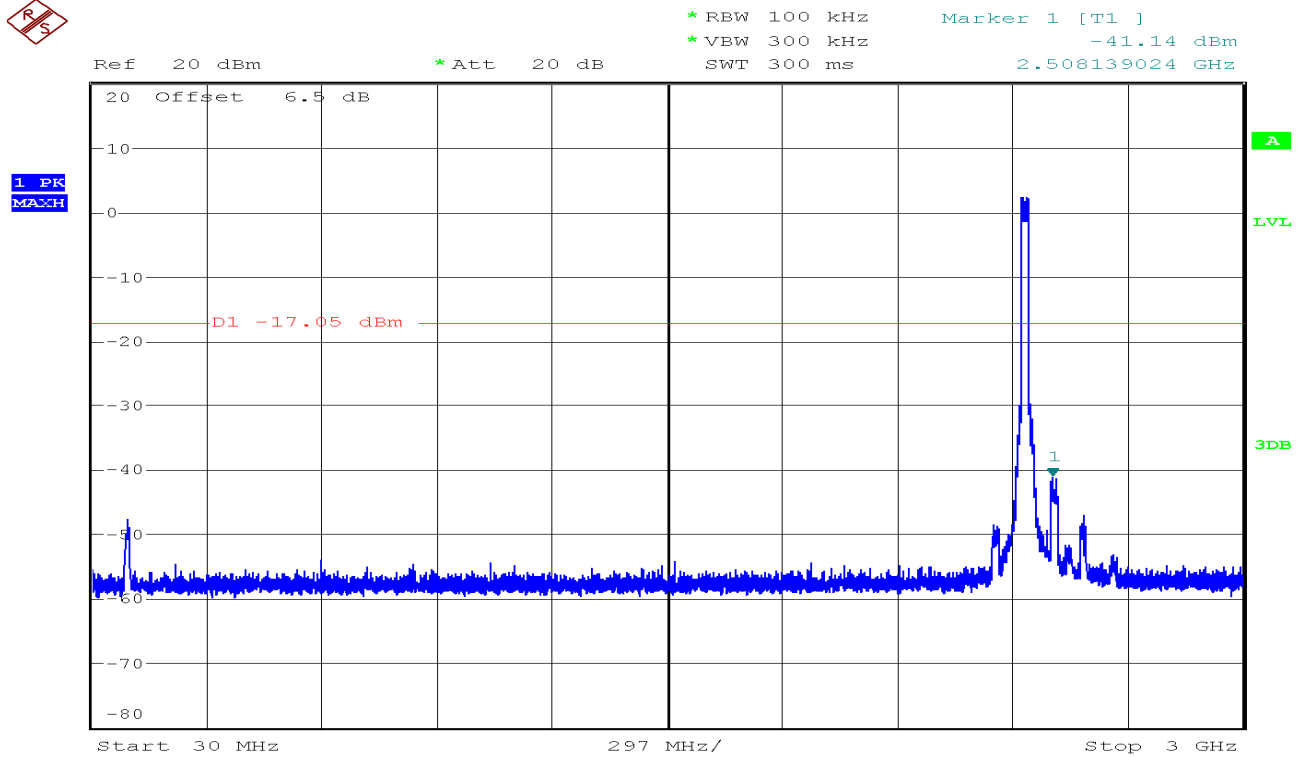
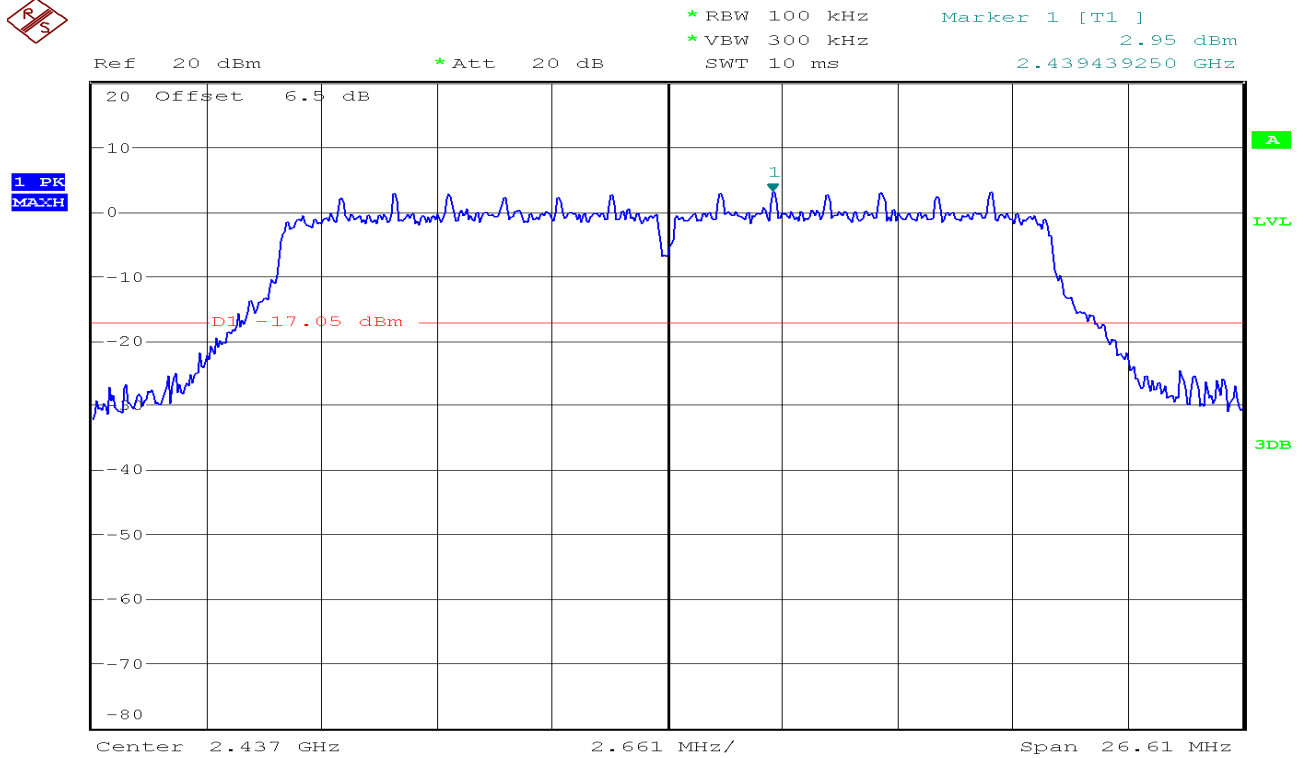
\* RBW 100 kHz      Marker 1 [T1 ]  
\* VBW 300 kHz      -40.84 dBm  
SWT 300 ms      2.480612195 GHz



\* RBW 100 kHz      Marker 1 [T1 ]  
\* VBW 300 kHz      -52.31 dBm  
SWT 2.3 s      14.720121951 GHz

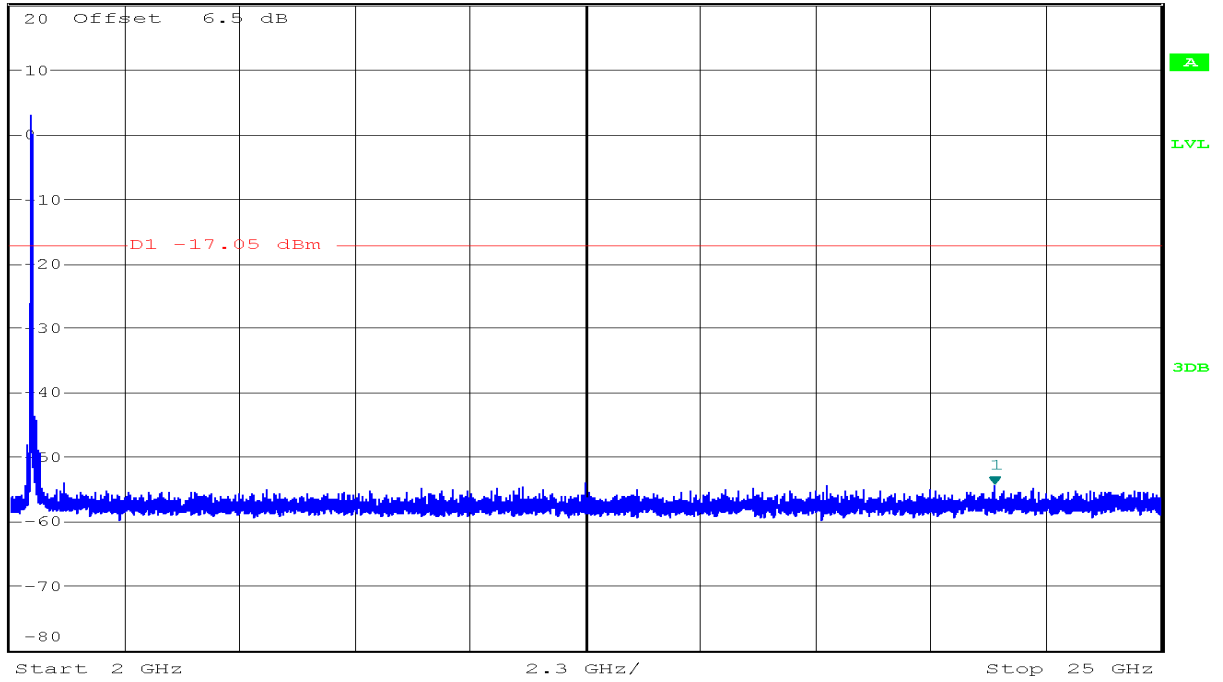


**CH Mid**





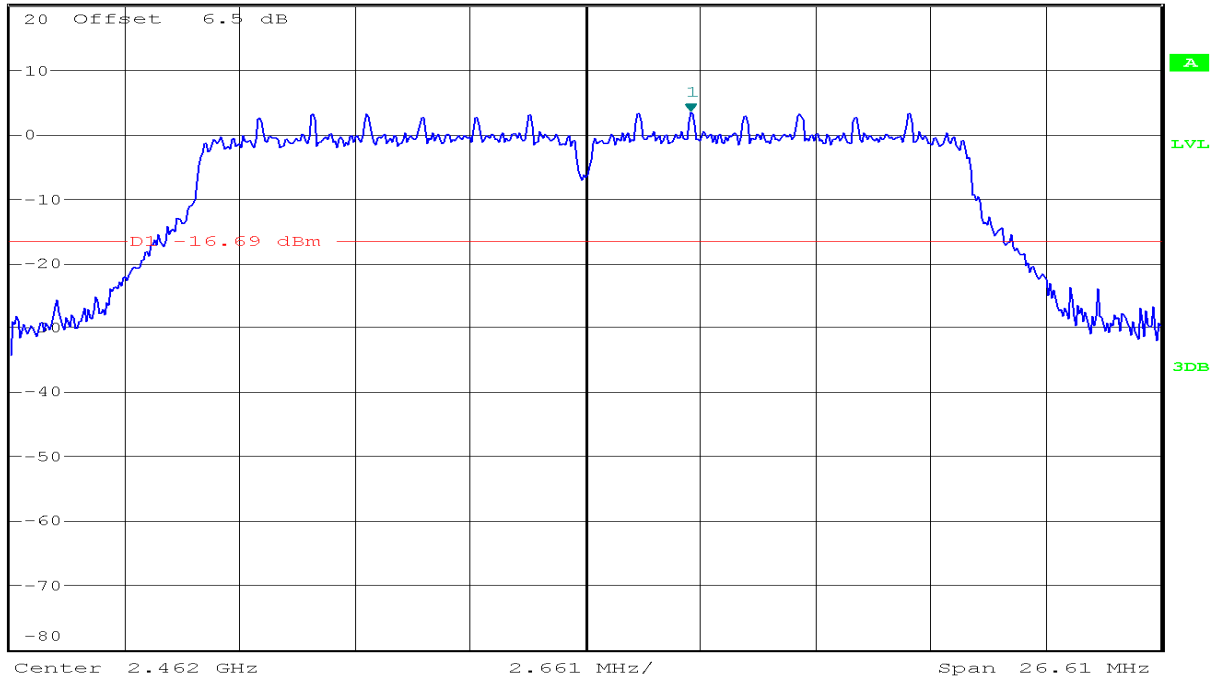
Ref 20 dBm      \*Att 20 dB      \*RBW 100 kHz      Marker 1 [T1]      -54.49 dBm  
 \*VBW 300 kHz      SWT 2.3 s      21.681829268 GHz



**CH High**

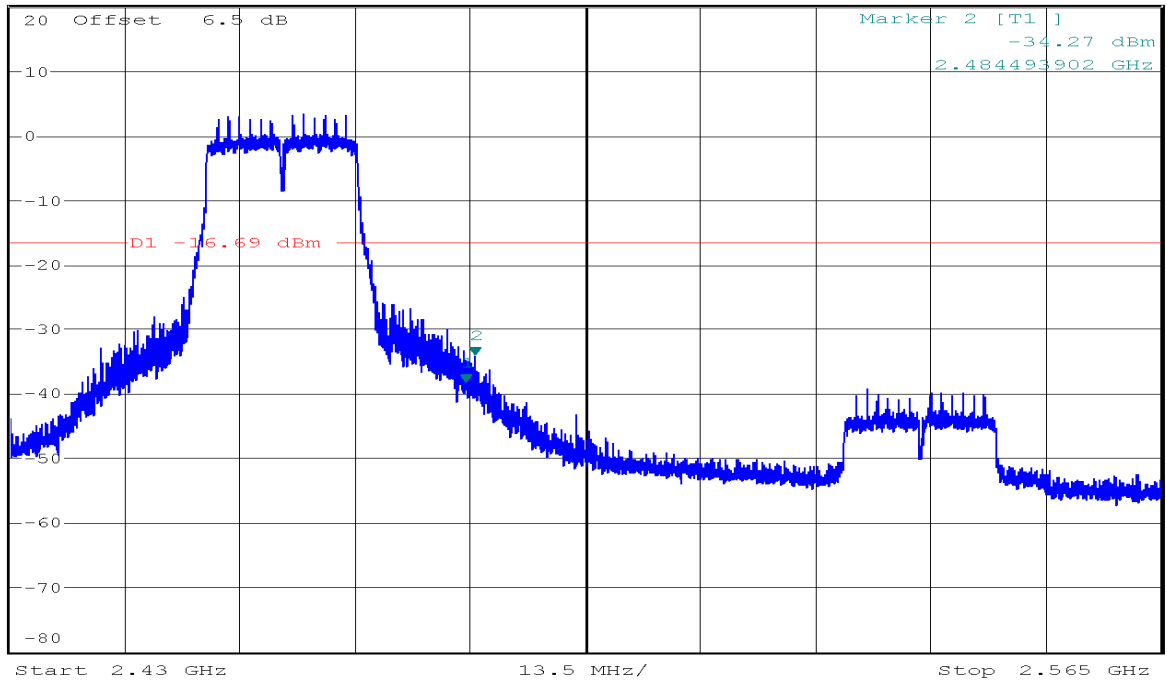


Ref 20 dBm      \*Att 20 dB      \*RBW 100 kHz      Marker 1 [T1]      3.31 dBm  
 \*VBW 300 kHz      SWT 10 ms      2.464439250 GHz

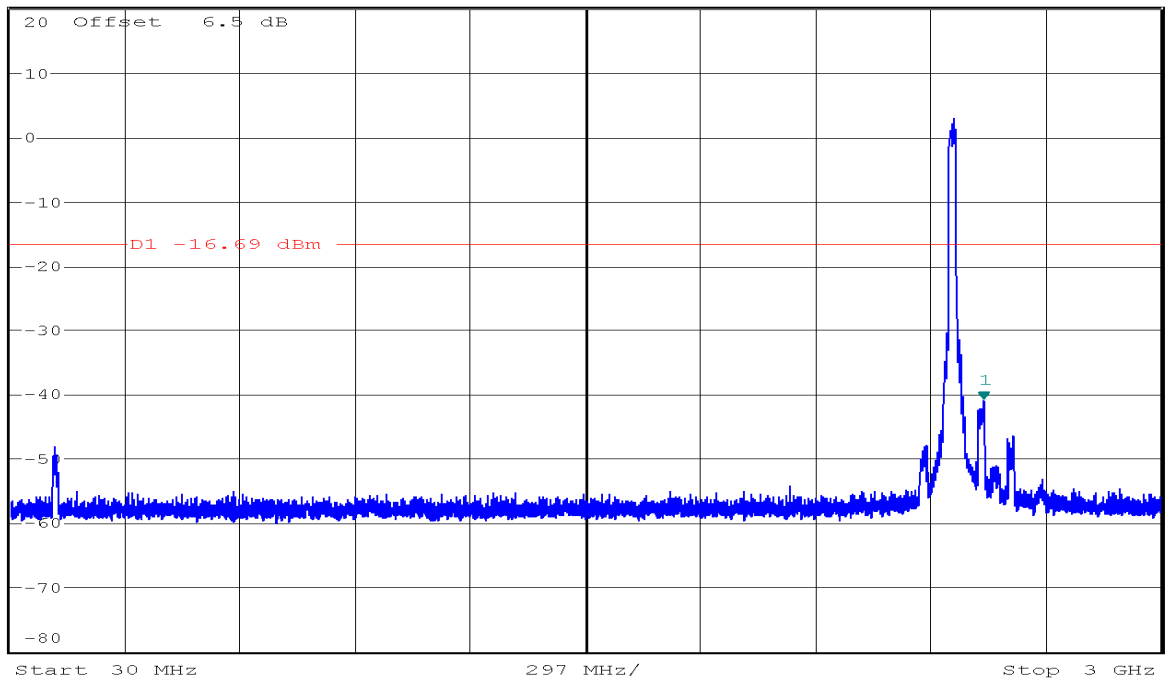




Ref 20 dBm \* Att 20 dB \* RBW 100 kHz Marker 1 [T1] -38.60 dBm  
 \* VBW 300 kHz 2.483500000 GHz  
 SWT 35 ms



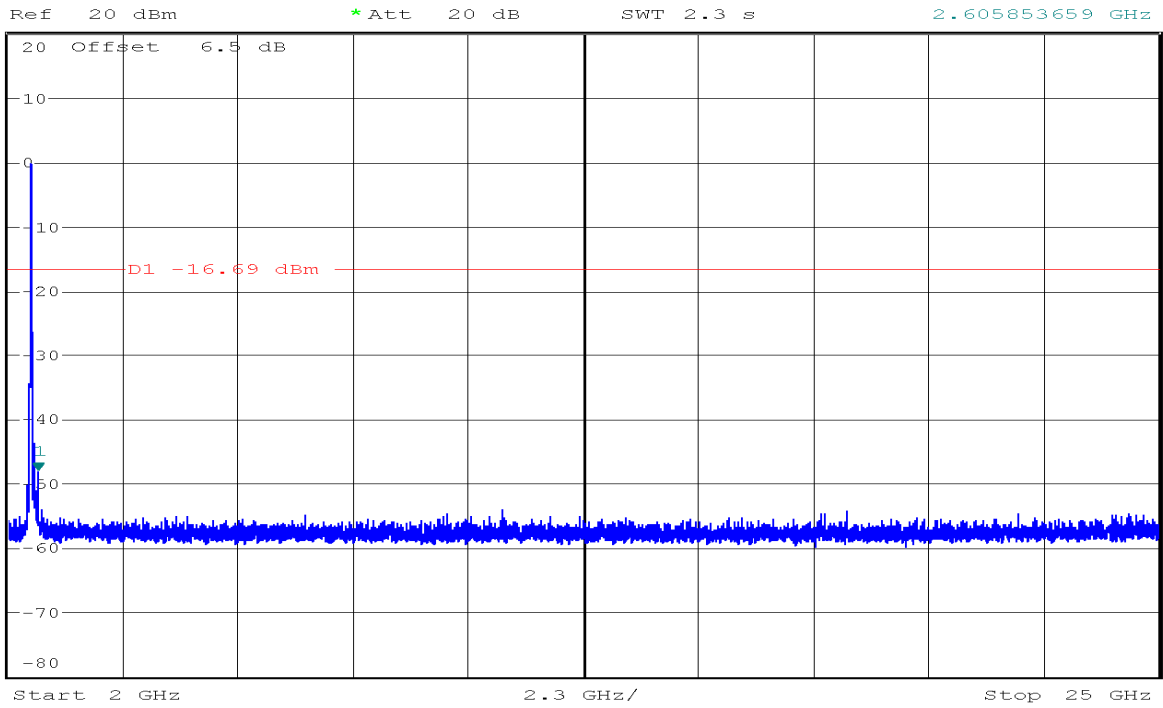
Ref 20 dBm \* Att 20 dB \* RBW 100 kHz Marker 1 [T1] -41.03 dBm  
 \* VBW 300 kHz 2.541823171 GHz  
 SWT 300 ms





\* RBW 100 kHz  
\* VBW 300 kHz  
SWT 2.3 s

Marker 1 [T1 ]  
-48.18 dBm  
2.605853659 GHz



## 4.5.RADIATED EMISSIONS

### LIMIT

Radiated emissions from 9 kHz to 25 GHz were measured according to the methods defines in ANSI C63.10-2013. The EUT was placed above the ground plane, 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz. The interface cables and equipment positions were varied within limits of reasonable applications to determine the positions producing maximum radiated emissions

1. According to §15.209(a), except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

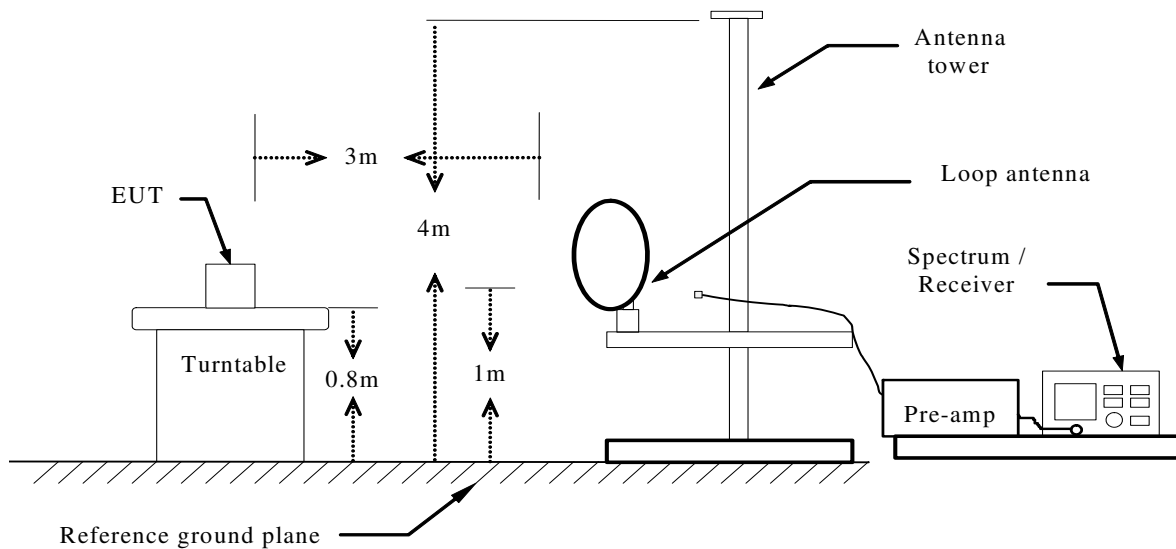
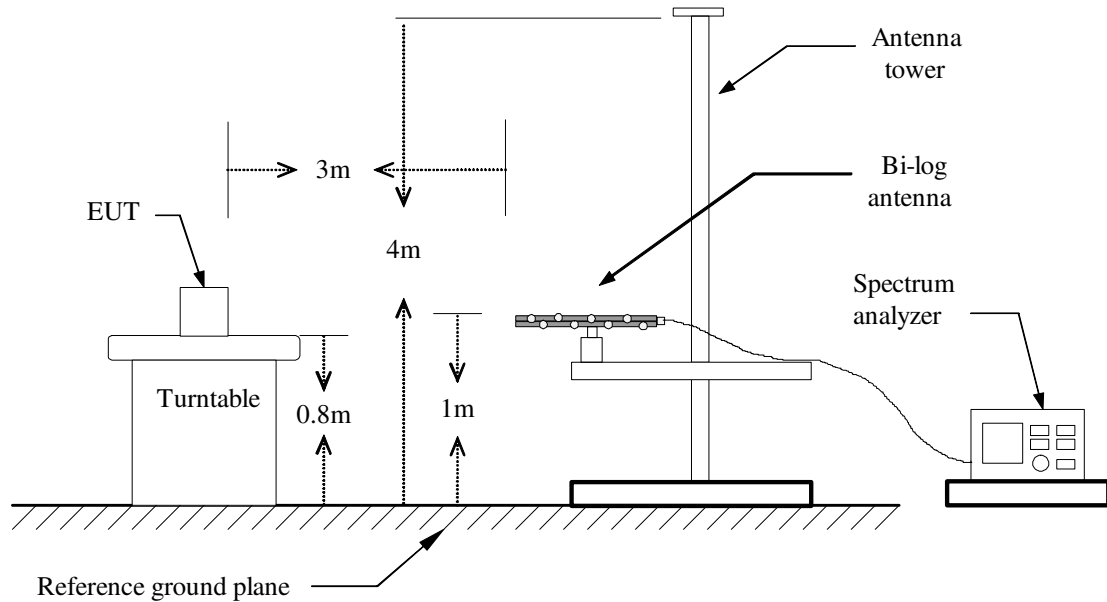
FREQUENCIES(MHz)	FIELD STRENGTH (microvolts/meter)	MEASUREMENT DISTANCE(meters)
0.009~0.490	2400/F(kHz)	300
0.490~1.705	24000/F(kHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

**Remark:** 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., Sections 15.231 and 15.241.

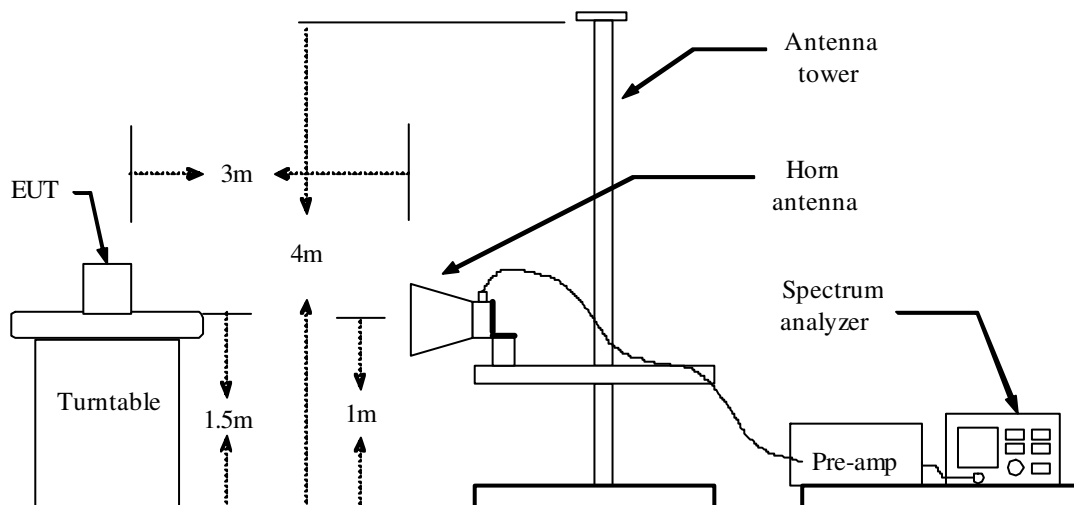
2. In the emission table above, the tighter limit applies at the band edges.

Frequency (MHz)	Field Strength ( $\mu$ V/m at 3-meter)	Field Strength (dB $\mu$ V/m at 3-meter)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

### Test Configuration

**Below 30MHz****Below 1 GHz**



**Above 1 GHz****TEST PROCEDURE**

1. The EUT is placed on a turntable above ground plane, which is 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m 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:

Below 1GHz:

RBW=100kHz / VBW=300kHz / Sweep=AUTO

Above 1GHz:

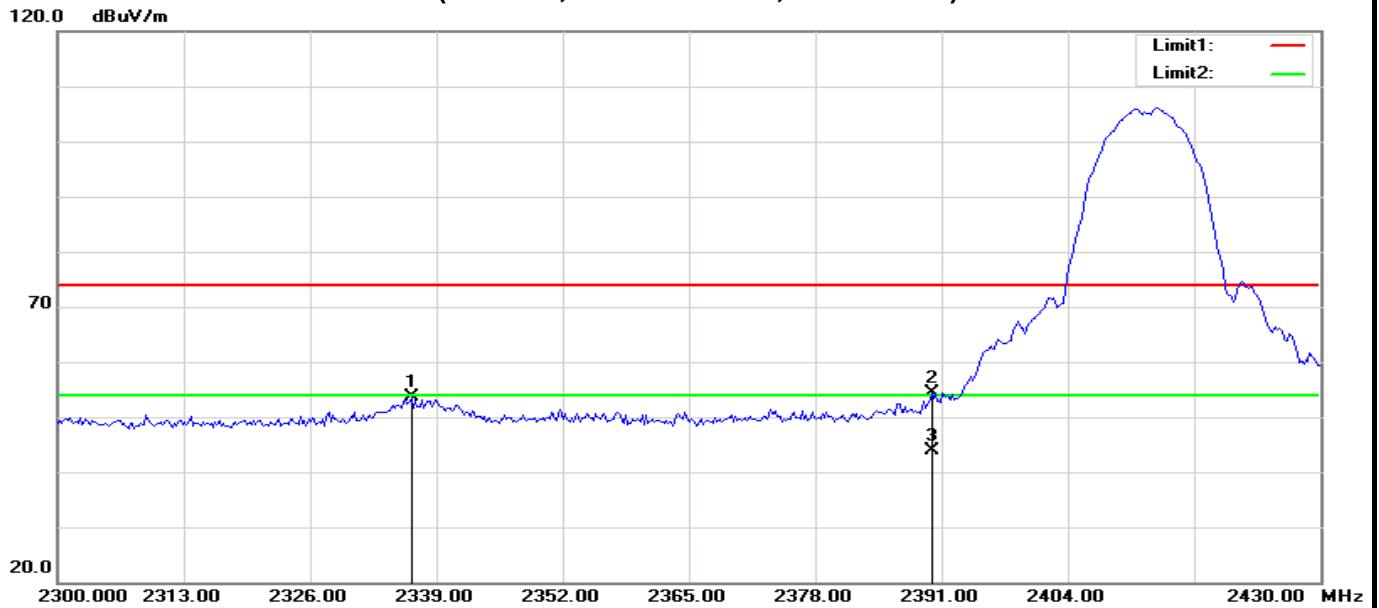
PEAK: RBW=VBW=1MHz / Sweep=AUTO

AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO

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

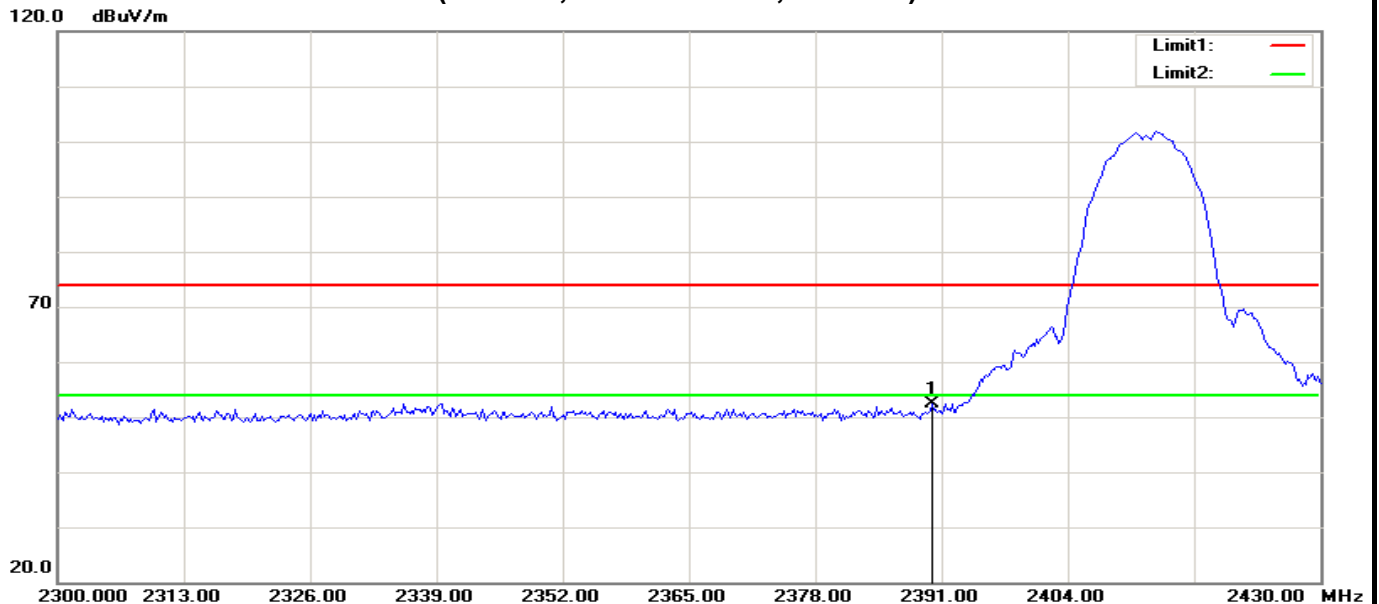
**TEST RESULTS**

**RESTRICTED BANDEDGE (b Mode, Low Channel, Horizontal)**



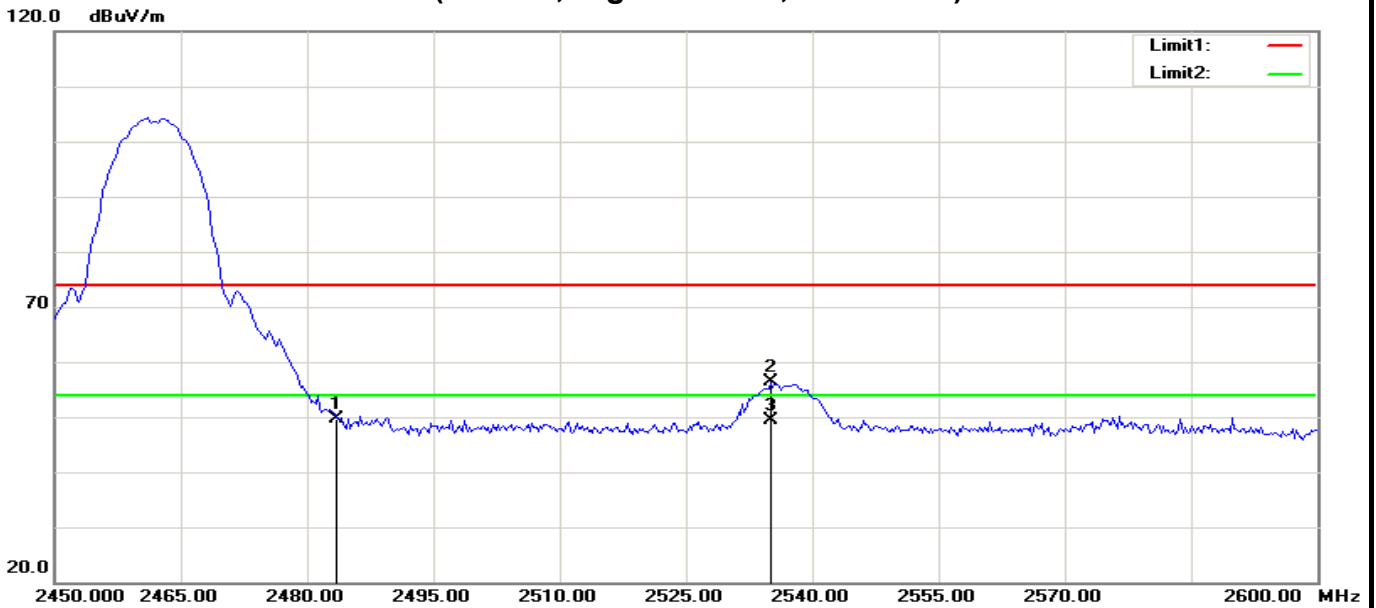
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2336.458	62.10	-8.59	53.51	74.00	-20.49	100	266	peak
2	2390.000	62.74	-8.47	54.27	74.00	-19.73	100	271	peak
3	2390.000	52.29	-8.47	43.82	54.00	-10.18	100	271	AVG

**RESTRICTED BANDEDGE (b Mode, Low Channel, Vertical)**



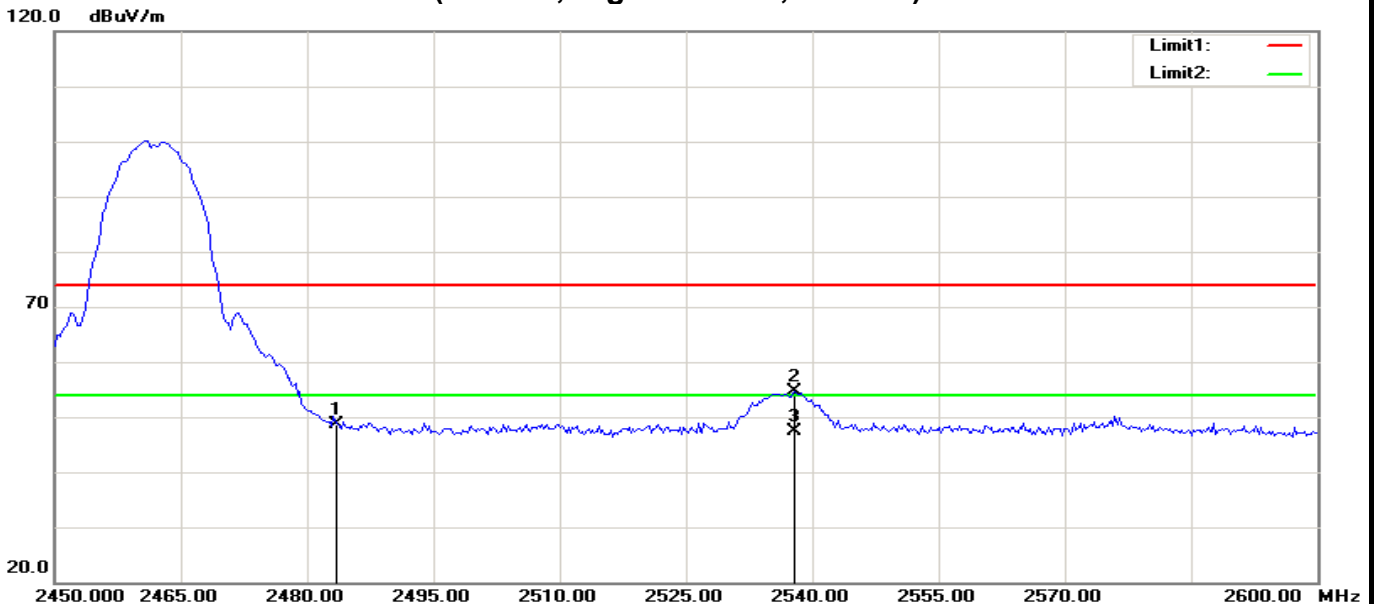
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2390.000	60.87	-8.47	52.40	74.00	-21.60	100	215	peak

**RESTRICTED BANDEDGE (b Mode, High Channel, Horizontal)**



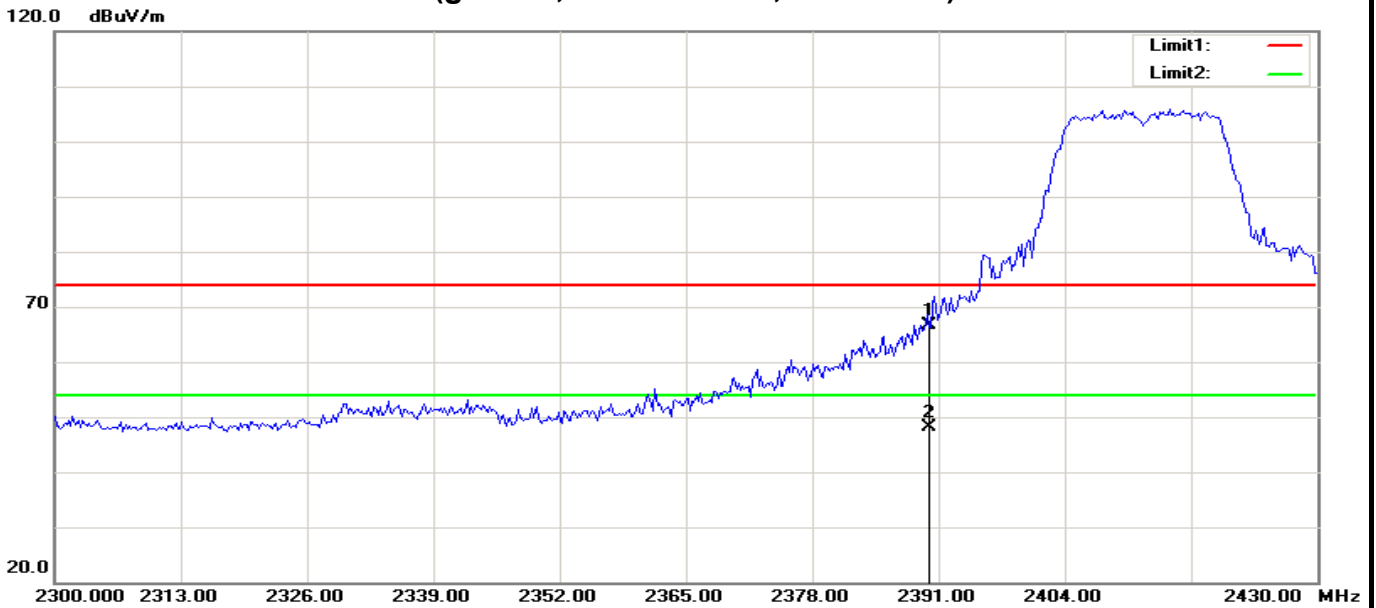
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	57.79	-8.26	49.53	74.00	-24.47	100	268	peak
2	2535.096	64.56	-8.14	56.42	74.00	-17.58	100	268	peak
3	2535.096	57.62	-8.14	49.48	54.00	-4.52	100	270	AVG

**RESTRICTED BANDEDGE (b Mode, High Channel, Vertical)**



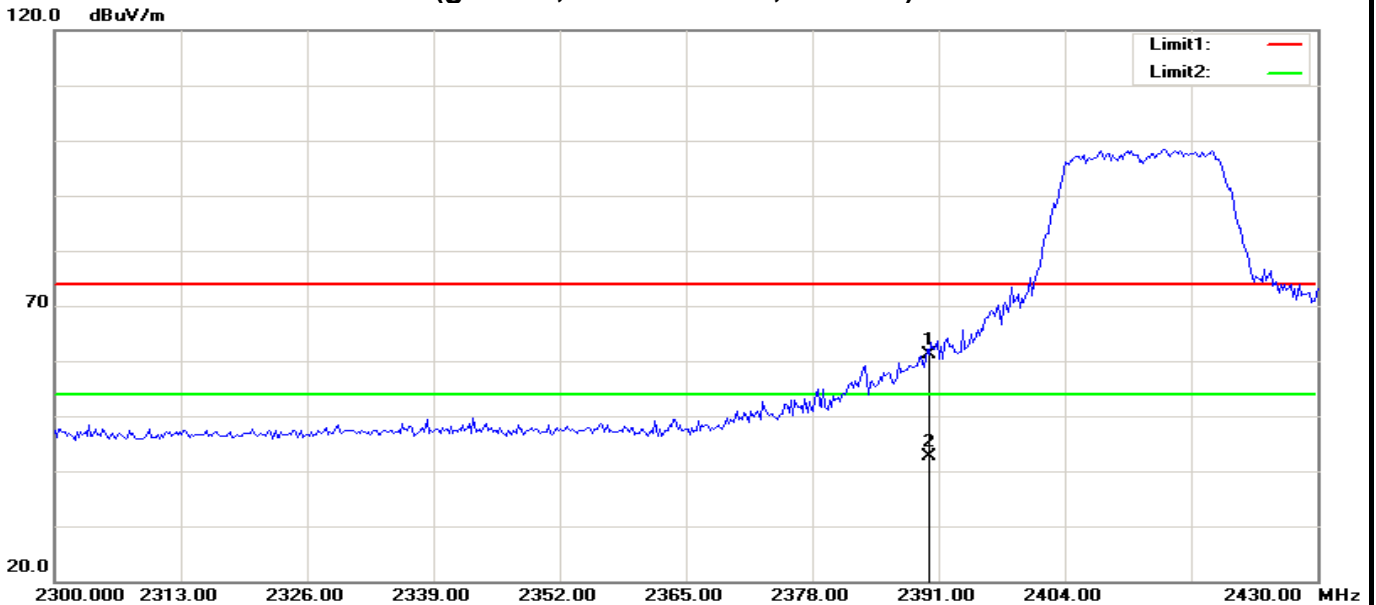
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	57.01	-8.26	48.75	74.00	-25.25	100	213	peak
2	2537.981	62.72	-8.13	54.59	74.00	-19.41	100	216	peak
3	2537.981	55.62	-8.13	47.49	54.00	-6.51	100	219	AVG

**RESTRICTED BANDEDGE (g Mode, Low Channel, Horizontal)**



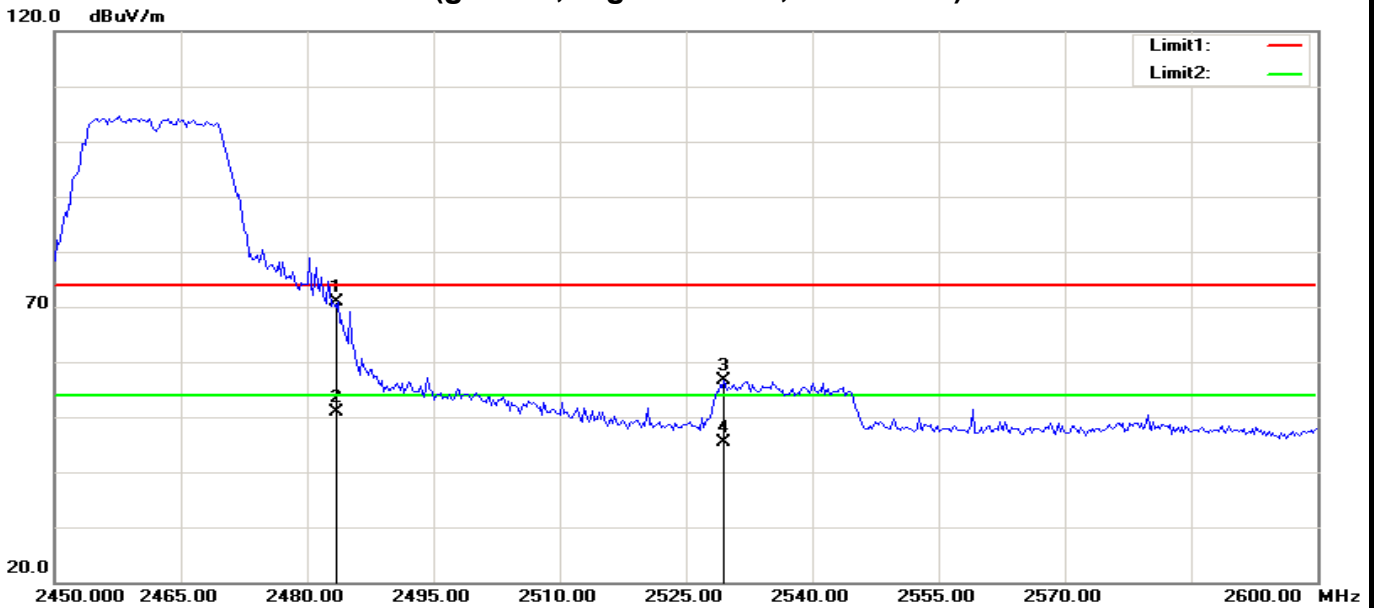
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2390.000	75.03	-8.47	66.56	74.00	-7.44	100	261	peak
2	2390.000	56.62	-8.47	48.15	54.00	-5.85	100	266	AVG

**RESTRICTED BANDEDGE (g Mode, Low Channel, Vertical)**



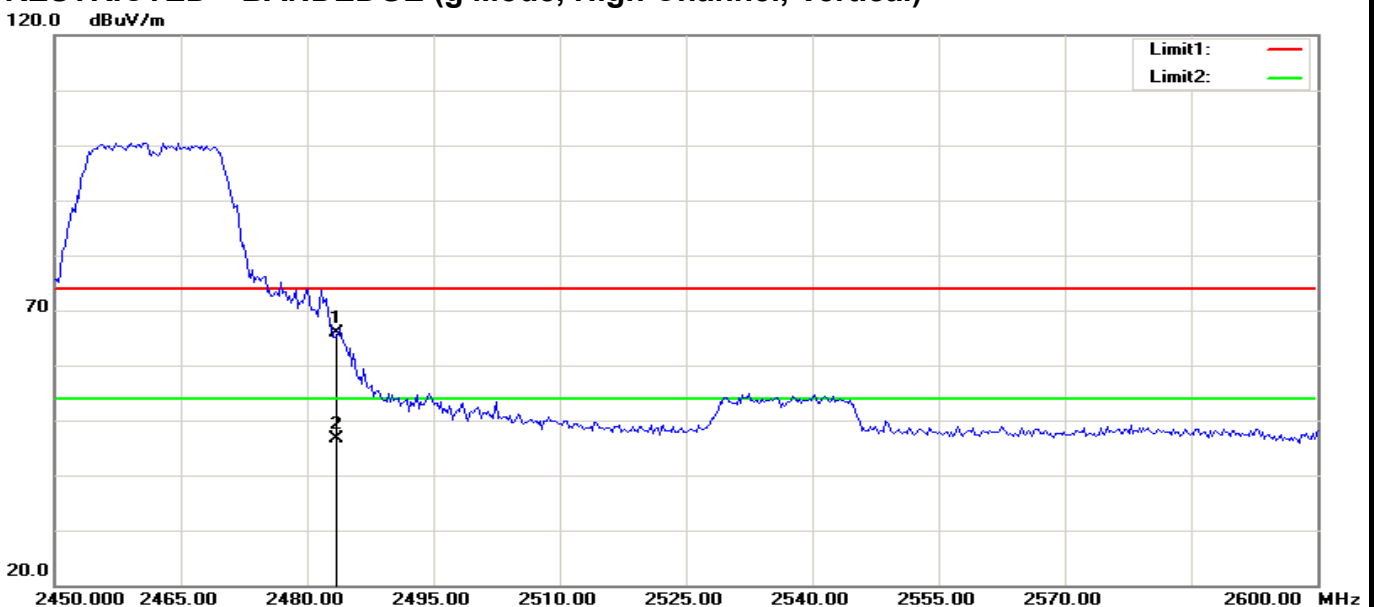
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2390.000	69.59	-8.47	61.12	74.00	-12.88	100	354	peak
2	2390.000	50.98	-8.47	42.51	54.00	-11.49	100	354	AVG

**RESTRICTED BANDEDGE (g Mode, High Channel, Horizontal)**



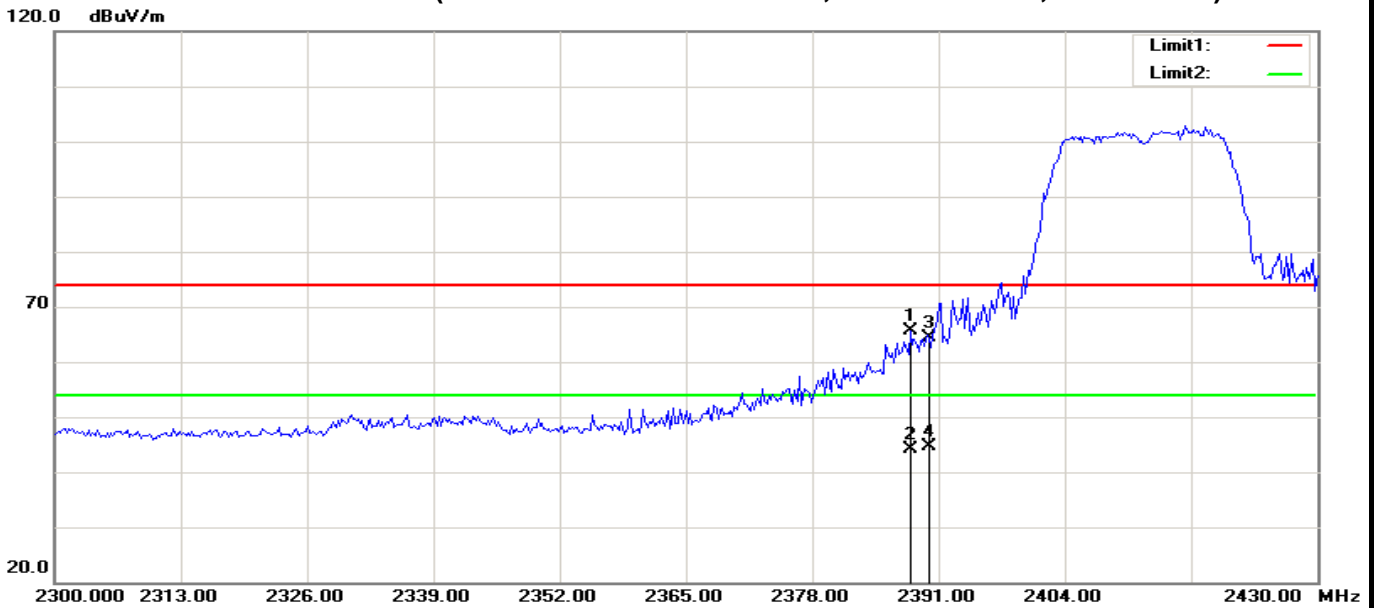
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	79.15	-8.26	70.89	74.00	-3.11	100	267	peak
2	2483.500	59.21	-8.26	50.95	54.00	-3.05	100	270	AVG
3	2529.567	64.74	-8.15	56.59	74.00	-17.41	100	273	peak
4	2529.567	53.56	-8.15	45.41	54.00	-8.59	100	276	AVG

**RESTRICTED BANDEDGE (g Mode, High Channel, Vertical)**



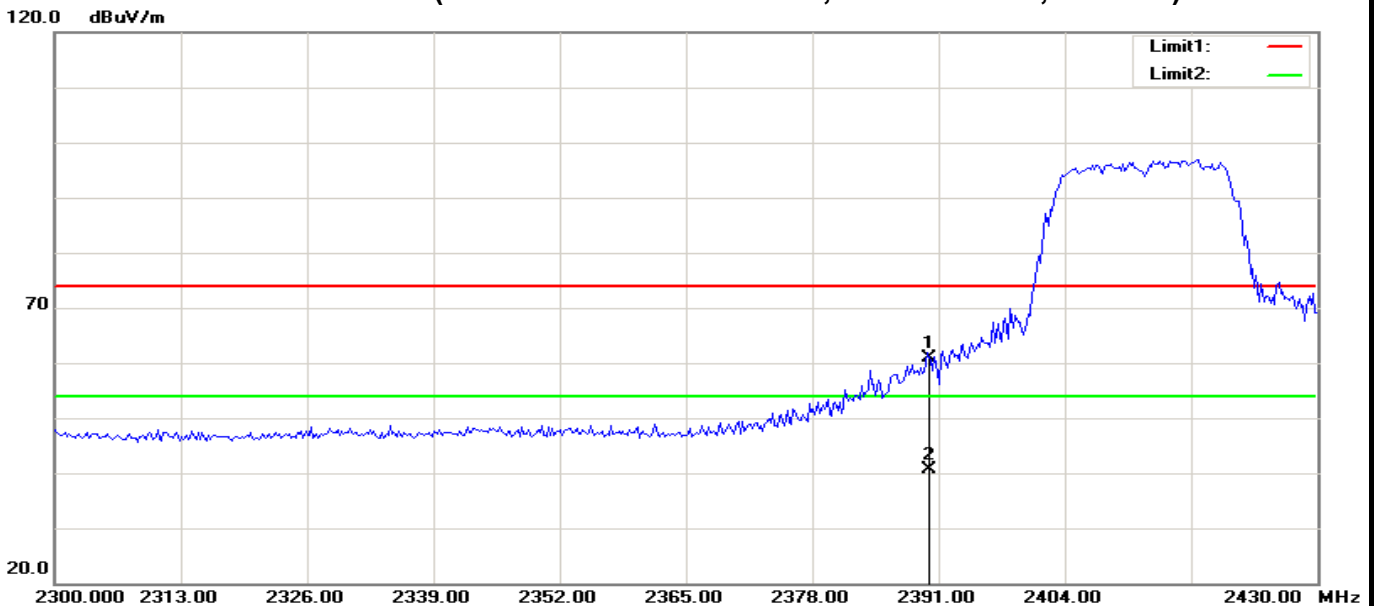
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	74.10	-8.26	65.84	74.00	-8.16	100	211	peak
2	2483.500	54.93	-8.26	46.67	54.00	-7.33	100	213	AVG

**RESTRICTED BANDEDGE (IEEE 802.11n HT20 mode, Low Channel, Horizontal)**



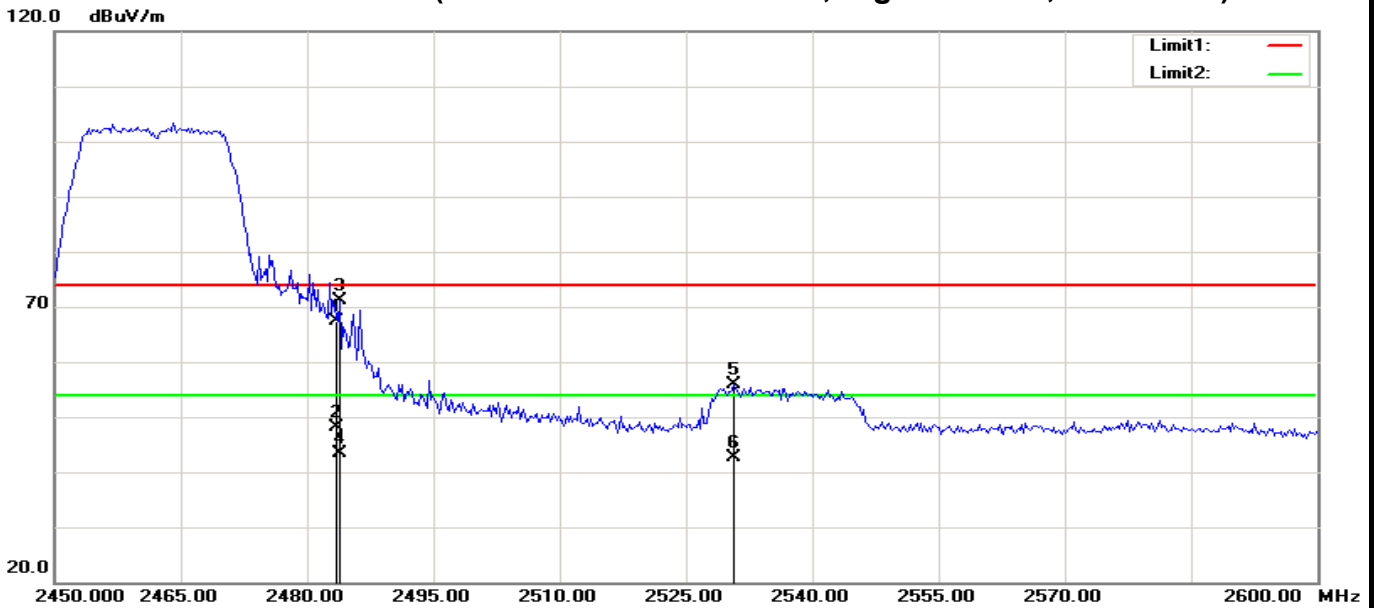
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2388.125	74.05	-8.47	65.58	74.00	-8.42	100	268	peak
2	2388.125	52.59	-8.47	44.12	54.00	-9.88	100	267	AVG
3	2390.000	72.73	-8.47	64.26	74.00	-9.74	100	268	peak
4	2390.000	53.12	-8.47	44.65	54.00	-9.35	100	270	AVG

**RESTRICTED BANDEDGE (IEEE 802.11n HT20 mode, Low Channel, Vertical)**



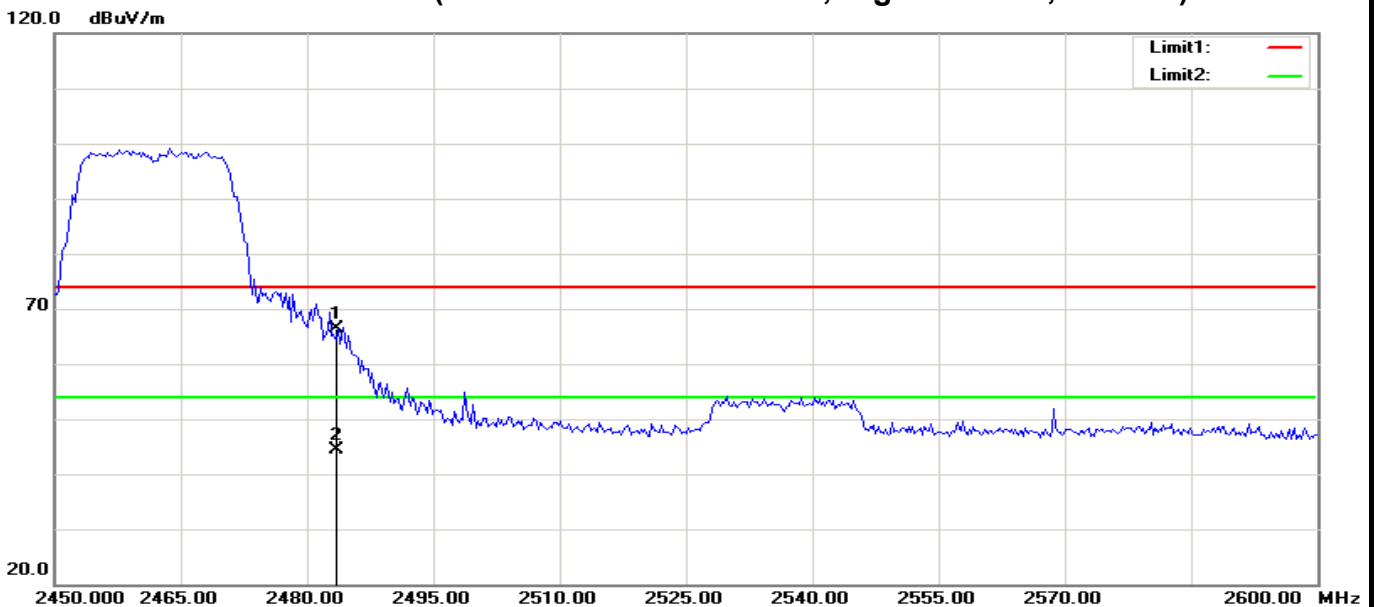
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2390.000	69.47	-8.47	61.00	74.00	-13.00	100	237	peak
2	2390.000	49.08	-8.47	40.61	54.00	-13.39	100	290	AVG

**RESTRICTED BANDEDGE (IEEE 802.11n HT20 mode, High Channel, Horizontal)**



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	75.67	-8.26	67.41	74.00	-6.59	100	270	peak
2	2483.500	56.30	-8.26	48.04	54.00	-5.96	100	273	AVG
3	2483.894	79.28	-8.26	71.02	74.00	-2.98	100	240	peak
4	2483.894	51.59	-8.26	43.33	54.00	-10.67	100	238	AVG
5	2530.769	64.11	-8.15	55.96	74.00	-18.04	100	267	peak
6	2530.769	50.74	-8.15	42.59	54.00	-11.41	100	267	AVG

**RESTRICTED BANDEDGE (IEEE 802.11n HT20 mode, High Channel, Vertical)**



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	74.73	-8.26	66.47	74.00	-7.53	100	241	peak
2	2483.500	52.55	-8.26	44.29	54.00	-9.71	100	243	AVG

## Below 1GHz

<b>Operation Mode:</b>	Normal Link	<b>Test Date:</b>	2016-5-2
<b>Temperature:</b>	25°C	<b>Tested by:</b>	Lily.Wang
<b>Humidity:</b>	48% RH	<b>Polarity:</b>	Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
48.4300	V	23.39	9.95	33.34	40.00	-6.66	peak
199.7500	V	28.11	12.28	40.39	43.50	-3.11	peak
235.6400	V	24.76	13.11	37.87	46.00	-8.13	peak
397.6300	V	22.94	16.87	39.81	46.00	-6.19	peak
600.3600	V	21.44	20.15	41.59	46.00	-4.41	peak
800.1800	V	15.44	22.87	38.31	46.00	-7.69	peak
31.9400	H	13.39	19.70	33.09	40.00	-6.91	peak
199.7500	H	26.70	12.28	38.98	43.50	-4.52	peak
234.6700	H	30.28	13.09	43.37	46.00	-2.63	peak
397.6300	H	25.79	16.87	42.66	46.00	-3.34	peak
596.4800	H	23.94	20.10	44.04	46.00	-1.96	peak
800.1800	H	17.43	22.87	40.30	46.00	-5.70	peak

**Remark:**

1. *Measuring frequencies from 30 MHz to the 1GHz (No emission found between lowest internal used/generated frequency to 30 MH).*
2. *Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using peak/quasi-peak detector mode.*
3. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, 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.*
4. *Margin (dB) = Result (dBuV/m) – Limit (dBuV/m).*



**Above 1 GHz**

**Operation Mode:** TX / IEEE 802.11b / CH Low

**Test Date:** 2016-5-2

**Temperature:** 24°C

**Tested by:** Lily.Wang

**Humidity:** 48 % RH

**Polarity:** Ver. / Hor.

**Horizontal**

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	4814.103	44.25	-3.38	40.87	74.00	-33.13	100	260	peak
2	7511.218	42.06	2.20	44.26	74.00	-29.74	100	227	peak
N/A									

**Vertical**

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	5004.808	44.53	-2.94	41.59	74.00	-32.41	100	255	peak
2	7729.167	43.85	3.22	47.07	74.00	-26.93	100	188	peak
N/A									

**Operation Mode:** TX / IEEE 802.11b / CH Mid

**Test Date:** 2016-5-2

**Temperature:** 24°C

**Tested by:** Lily.Wang

**Humidity:** 48 % RH

**Polarity:** Ver. / Hor.

**Horizontal**

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	4814.103	43.86	-3.38	40.48	74.00	-33.52	100	255	peak
2	7429.487	42.01	1.81	43.82	74.00	-30.18	100	200	peak
N/A									

**Vertical**

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	4977.564	44.46	-3.00	41.46	74.00	-32.54	100	260	peak
2	7620.192	43.59	2.71	46.30	74.00	-27.70	100	2	peak
N/A									



# Compliance Certification Services Inc.

Date of Issue :May 9, 2016

Report No: C160425R02-RPW

FCC ID: ZJU-16S95A2

**Operation Mode:** TX / IEEE 802.11b / CH High

**Test Date:** 2016-5-2

**Temperature:** 24°C

**Tested by:** Lily.Wang

**Humidity:** 48 % RH

**Polarity:** Ver. / Hor.

### Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	4814.103	43.56	-3.38	40.18	74.00	-33.82	100	271	peak
2	7701.923	43.27	3.09	46.36	74.00	-27.64	100	305	peak
N/A									

### Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	5358.974	44.26	-2.49	41.77	74.00	-32.23	100	333	peak
2	7620.192	41.85	2.71	44.56	74.00	-29.44	100	313	peak
N/A									

**Operation Mode:** TX / IEEE 802.11g / CH Low

**Test Date:** 2016-5-2

**Temperature:** 24°C

**Tested by:** Lily.Wang

**Humidity:** 48 % RH

**Polarity:** Ver. / Hor.

### Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	4977.564	44.65	-3.00	41.65	74.00	-32.35	100	233	peak
2	7838.141	42.43	3.73	46.16	74.00	-27.84	100	98	peak
N/A									

### Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	4977.564	44.23	-3.00	41.23	74.00	-32.77	100	261	peak
2	7511.218	41.50	2.20	43.70	74.00	-30.30	100	159	peak
N/A									



# Compliance Certification Services Inc.

Date of Issue :May 9, 2016

Report No: C160425R02-RPW

FCC ID: ZJU-16S95A2

Operation Mode: TX / IEEE 802.11g / CH Mid

Test Date: 2016-5-2

Temperature: 24°C

Tested by: Lily.Wang

Humidity: 48 % RH

Polarity: Ver. / Hor.

## Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	4814.103	44.40	-3.38	41.02	74.00	-32.98	100	60	peak
2	7320.513	42.29	1.30	43.59	74.00	-30.41	100	17	peak
N/A									

## Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	5004.808	44.54	-2.94	41.60	74.00	-32.40	100	259	peak
2	7075.320	46.89	0.15	47.04	74.00	-26.96	100	244	peak
N/A									

Operation Mode: TX / IEEE 802.11g / CH High

Test Date: 2016-5-2

Temperature: 24°C

Tested by: Lily.Wang

Humidity: 48 % RH

Polarity: Ver. / Hor.

## Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	4895.833	43.23	-3.19	40.04	74.00	-33.96	100	359	peak
2	7320.513	43.42	1.30	44.72	74.00	-29.28	100	11	peak
N/A									

## Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	4977.564	45.64	-3.00	42.64	74.00	-31.36	100	261	peak
2	7729.167	42.70	3.22	45.92	74.00	-28.08	100	252	peak
N/A									

**Operation Mode:** TX / IEEE 802.11n HT20 mode / CH Low

**Test Date:** 2016-5-2

**Temperature:** 24°C

**Tested by:** Lily.Wang

**Humidity:** 48 % RH

**Polarity:** Ver. / Hor.

### Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	4596.154	44.48	-3.89	40.59	74.00	-33.41	100	270	peak
2	7729.167	42.30	3.22	45.52	74.00	-28.48	100	277	peak
N/A									

### Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	4895.833	43.72	-3.19	40.53	74.00	-33.47	100	102	peak
2	7620.192	42.54	2.71	45.25	74.00	-28.75	100	205	peak
N/A									

**Operation Mode:** TX / IEEE 802.11n HT20 mode / CH Mid

**Test Date:** 2016-5-2

**Temperature:** 24°C

**Tested by:** Lily.Wang

**Humidity:** 48 % RH

**Polarity:** Ver. / Hor.

### Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	4895.833	43.35	-3.19	40.16	74.00	-33.84	100	148	peak
2	7783.654	42.46	3.48	45.94	74.00	-28.06	100	332	peak
N/A									

### Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	4487.180	46.92	-4.15	42.77	74.00	-31.23	100	286	peak
2	7701.923	42.28	3.09	45.37	74.00	-28.63	100	313	peak
N/A									



# Compliance Certification Services Inc.

Date of Issue :May 9, 2016

Report No: C160425R02-RPW

FCC ID: ZJU-16S95A2

**Operation Mode:** TX / IEEE 802.11n HT20 mode / CH High **Test Date:** 2016-5-2

**Temperature:** 24°C

**Tested by:** Lily.Wang

**Humidity:** 48 % RH

**Polarity:** Ver. / Hor.

### Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	4868.590	44.43	-3.26	41.17	74.00	-32.83	100	164	peak
2	7674.680	41.79	2.96	44.75	74.00	-29.25	100	91	peak
N/A									

### Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	4814.103	44.57	-3.38	41.19	74.00	-32.81	100	155	peak
2	7701.923	42.47	3.09	45.56	74.00	-28.44	100	136	peak
N/A									

## 4.6.POWERLINE CONDUCTED EMISSIONS

### LIMIT

According to §15.207(a), except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that 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 the limits in the following table, as measured using a 50  $\mu$ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency Range (MHz)	Limits (dB $\mu$ V)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56*	56 to 46*
0.50 to 5	56	46
5 to 30	60	50

\* Decreases with the logarithm of the frequency.

### Test Configuration

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

### TEST 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.

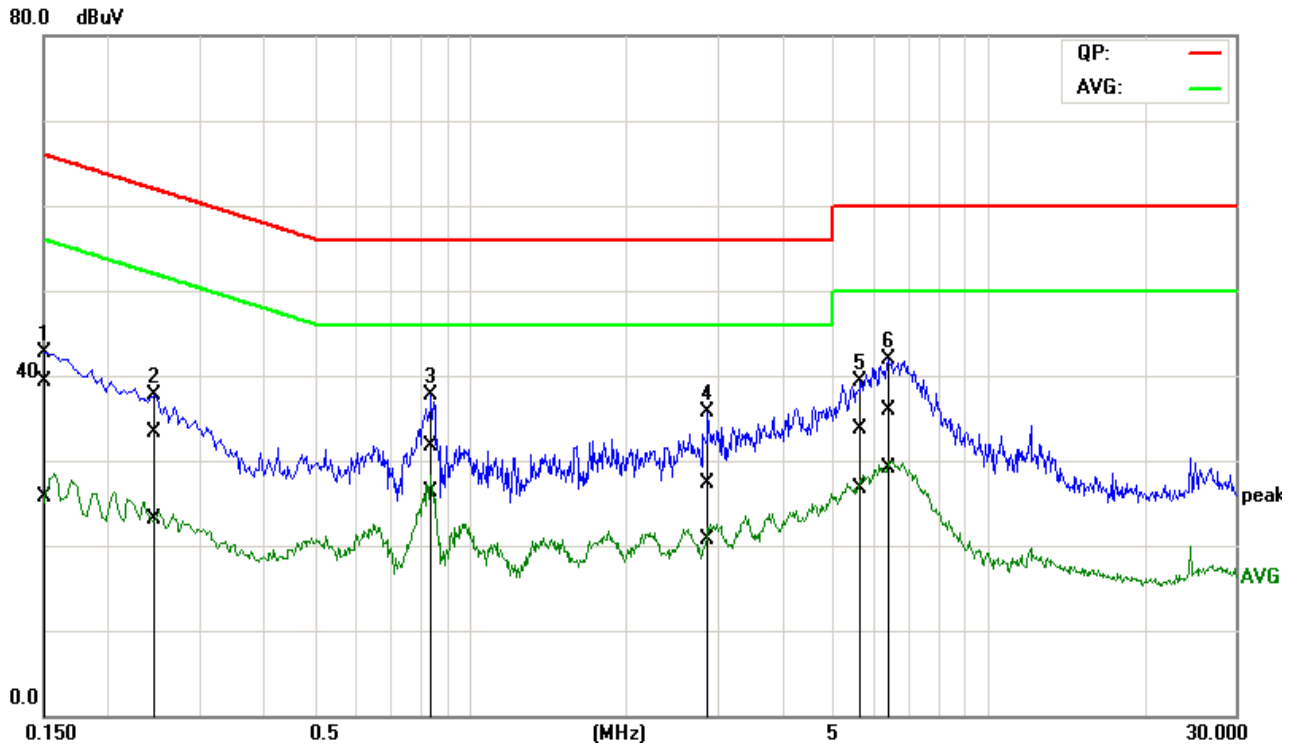
### TEST RESULTS

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the following data page, and these signals are then quasi-peaked.

### TEST DATA

Job No.:	C160425R02	Date:	2016-5-4
Model No.:	ATV495	Time:	PM 01:15:57
Standard:	FCC Class B	Temp.(C)/Hum.(%):	22(C)/48%
Test item:	Conduction test	Test By:	Lily.Wang
Line:	L1	Test Voltage:	AC 120V/60Hz
Model:		Description:	

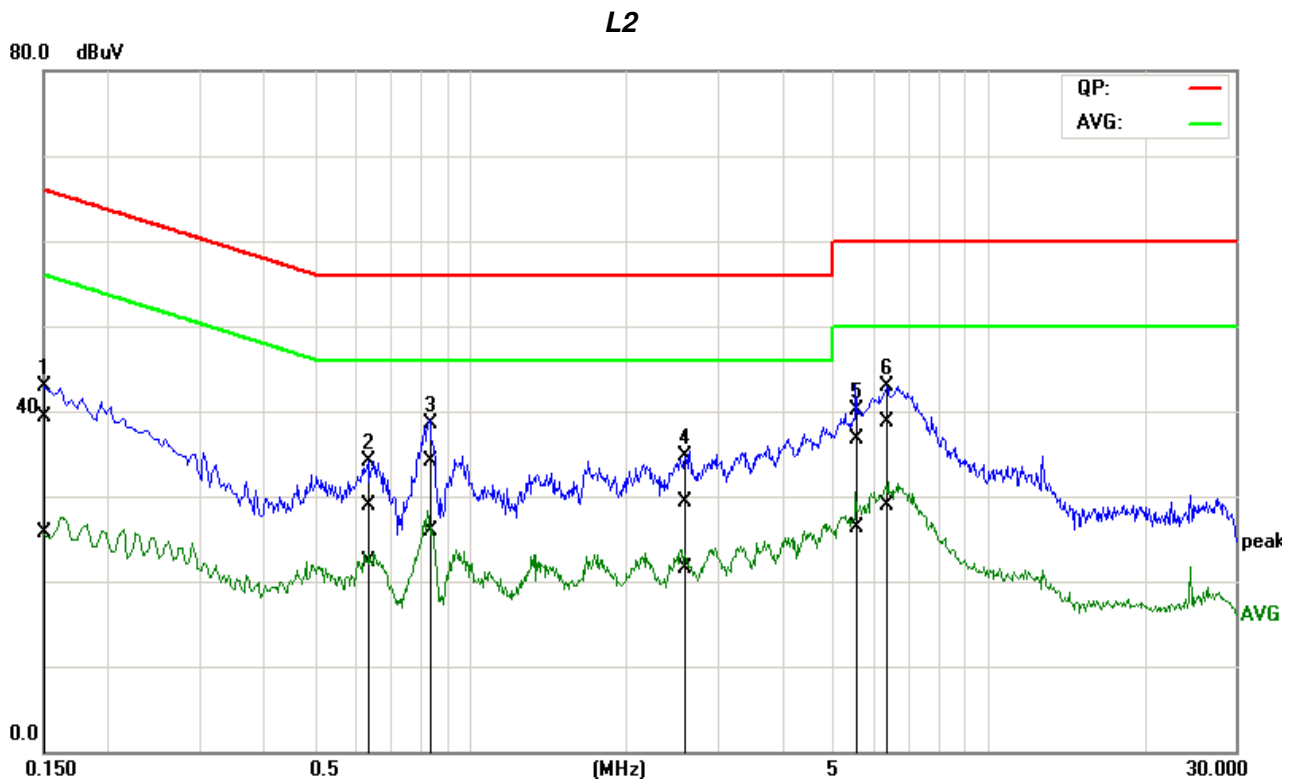
**L1**



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.1500	19.59	6.01	19.79	39.38	25.80	66.00	56.00	-26.62	-30.20	Pass
2	0.2429	13.51	3.21	19.80	33.31	23.01	62.00	52.00	-28.69	-28.99	Pass
3*	0.8343	11.90	6.46	19.80	31.70	26.26	56.00	46.00	-24.30	-19.74	Pass
4	2.8968	7.36	0.81	19.88	27.24	20.69	56.00	46.00	-28.76	-25.31	Pass
5	5.6304	13.84	6.76	19.93	33.77	26.69	60.00	50.00	-26.23	-23.31	Pass
6	6.3793	15.99	9.14	19.92	35.91	29.06	60.00	50.00	-24.09	-20.94	Pass

**Note:** 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Job No.:	C160425R02	Date:	2016-5-4
Model No.:	ATV495	Time:	PM 01:22:12
Standard:	FCC Class B	Temp.(C)/Hum.(%):	22(C)/48%
Test item:	Conduction test	Test By:	Lily.Wang
Line:	L2	Test Voltage:	AC 120V/60Hz
Model:		Description:	

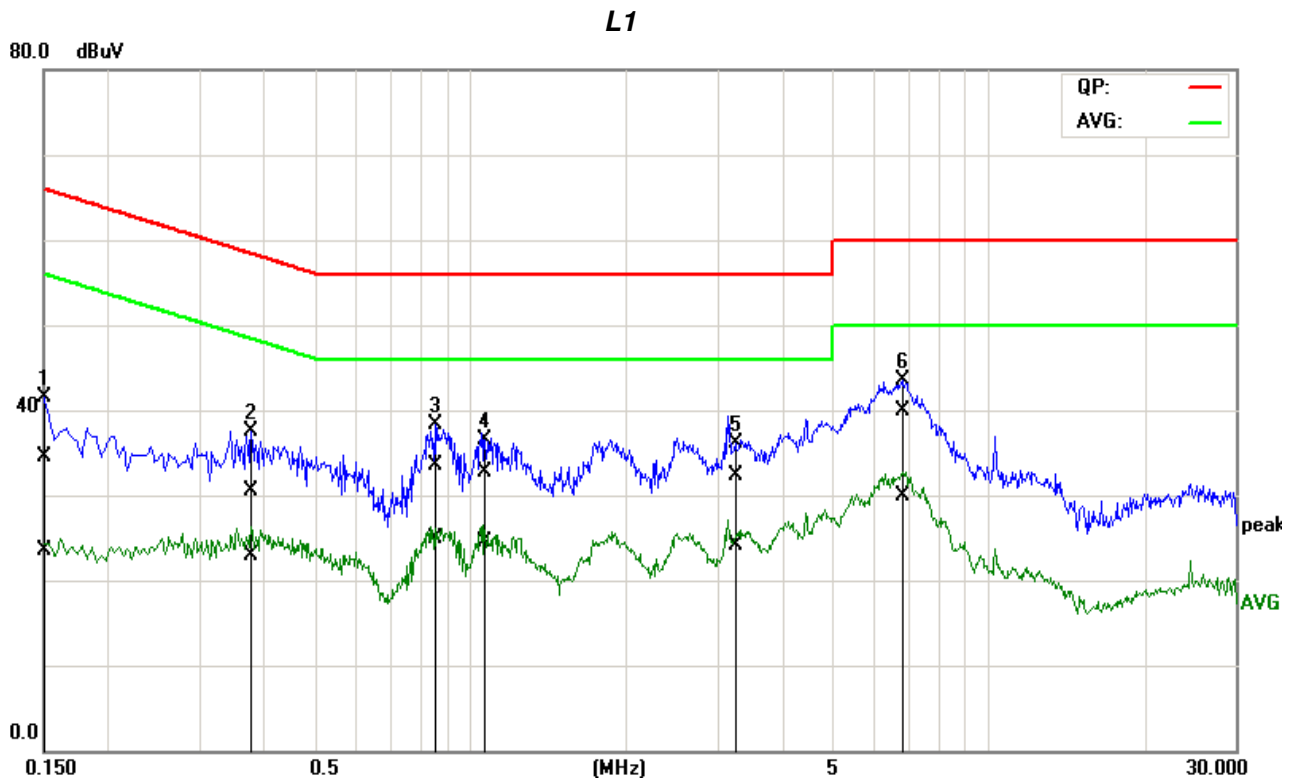


No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.1515	19.58	5.95	19.74	39.32	25.69	65.92	55.92	-26.60	-30.23	Pass
2	0.6371	9.16	2.48	19.75	28.91	22.23	56.00	46.00	-27.09	-23.77	Pass
3*	0.8410	14.35	6.24	19.74	34.09	25.98	56.00	46.00	-21.91	-20.02	Pass
4	2.5923	9.48	1.75	19.78	29.26	21.53	56.00	46.00	-26.74	-24.47	Pass
5	5.6121	16.80	6.54	19.85	36.65	26.39	60.00	50.00	-23.35	-23.61	Pass
6	6.3957	18.85	8.97	19.86	38.71	28.83	60.00	50.00	-21.29	-21.17	Pass

**Note:** 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).



Job No.:	C160425R02	Date:	2016-5-4
Model No.:	ATV495	Time:	PM 01:28:16
Standard:	FCC Class B	Temp.(C)/Hum.(%):	22(C)/48%
Test item:	Conduction test	Test By:	Lily.Wang
Line:	L1	Test Voltage:	AC 240V/60Hz
Model:		Description:	

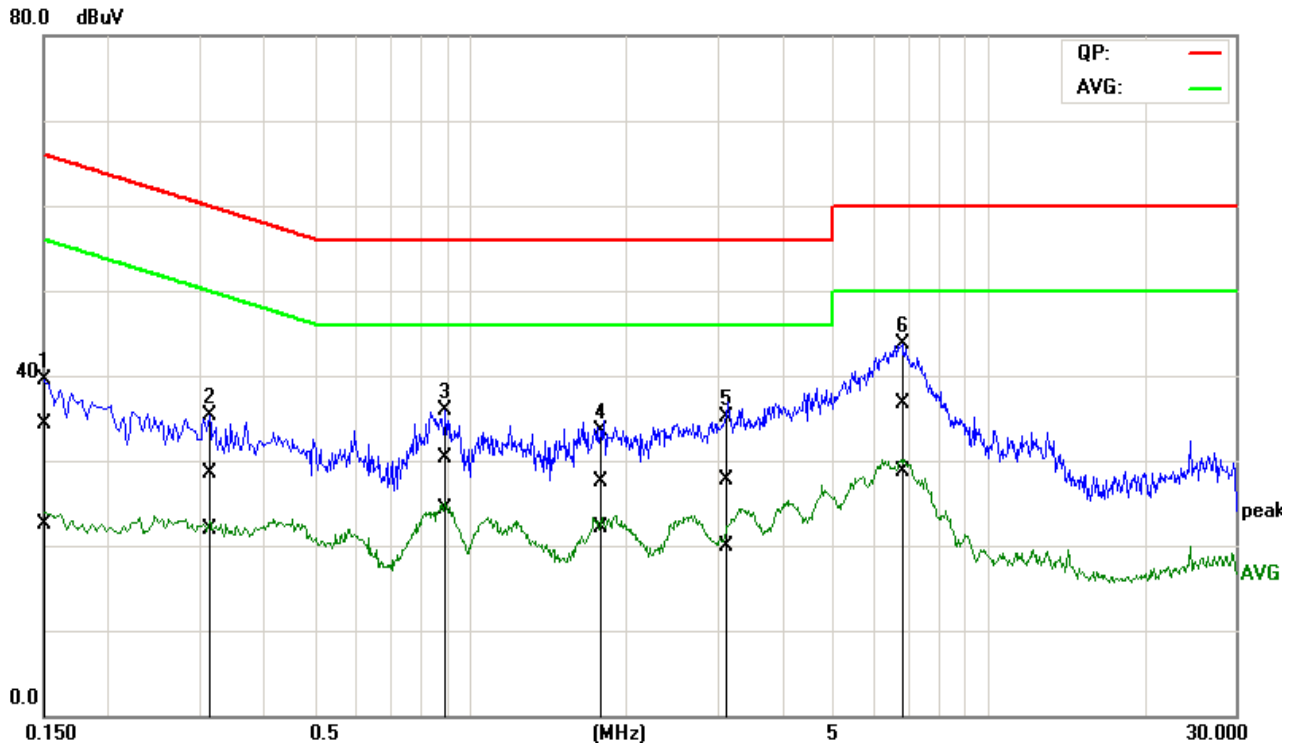


No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.1514	14.64	3.74	19.79	34.43	23.53	65.92	55.92	-31.49	-32.39	Pass
2	0.3750	10.71	3.13	19.80	30.51	22.93	58.39	48.39	-27.88	-25.46	Pass
3	0.8423	13.70	5.10	19.80	33.50	24.90	56.00	46.00	-22.50	-21.10	Pass
4	1.0688	12.94	4.76	19.79	32.73	24.55	56.00	46.00	-23.27	-21.45	Pass
5	3.2354	12.32	4.27	19.89	32.21	24.16	56.00	46.00	-23.79	-21.84	Pass
6*	6.8189	19.90	9.94	19.92	39.82	29.86	60.00	50.00	-20.18	-20.14	Pass

**Note:** 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Job No.:	C160425R02	Date:	2016-5-4
Model No.:	ATV495	Time:	PM 01:33:07
Standard:	FCC Class B	Temp.(C)/Hum.(%):	22(C)/48%
Test item:	Conduction test	Test By:	Lily.Wang
Line:	L2	Test Voltage:	AC 240V/60Hz
Model:		Description:	

**L2**



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.1502	14.61	2.82	19.74	34.35	22.56	65.99	55.99	-31.64	-33.43	Pass
2	0.3143	8.85	2.13	19.75	28.60	21.88	59.86	49.86	-31.26	-27.98	Pass
3	0.8854	10.51	4.52	19.74	30.25	24.26	56.00	46.00	-25.75	-21.74	Pass
4	1.7746	7.77	2.25	19.76	27.53	22.01	56.00	46.00	-28.47	-23.99	Pass
5	3.0866	7.83	0.10	19.79	27.62	19.89	56.00	46.00	-28.38	-26.11	Pass
6*	6.7495	16.90	8.87	19.87	36.77	28.74	60.00	50.00	-23.23	-21.26	Pass

**Note:** 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Remark:

- 1.The measuring frequencies range between 0.15 MHz and 30 MHz.
- 2.The emissions measured in the frequency range between 0.15 MHz and 30MHz were made with an instrument using Quasi-peak detector and Average detector.
- 3.“---” denotes the emission level was or more than 2dB below the Average limit, and no re-check was made.
- 4.The IF bandwidth of SPA between 0.15MHz and 30MHz was 10KHz. The IF bandwidth of Test Receiver between 0.15MHz and 30MHz was 9kHz.

**END OF REPORT**