



FCC 47 CFR PART 15 SUBPART C

TEST REPORT

For

Product Name: Mobile Phone

Brand Name: DMD Mobile

Model No.: M3

Series Model: M5, M8

**Test Report Number:
KS120820A02-RPB**

Issued for

Instant Communication Sdn Bhd

**L3-1 SME Technopreneur Centre III, Block 3740, Persiaran APEC, Cyber 8, 63000 Cyberjaya,
Selangor, Malaysia**

Issued by

Compliance Certification Services Inc.

Kun shan Laboratory

**No.10 Weiye Rd., Innovation park, Eco&Tec,
Development Zone, Kunshan City, Jiangsu, China**

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TESTING CERT #2541.01

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TABLE OF CONTENTS

1.	TEST RESULT CERTIFICATION.....	3
2.	EUT DESCRIPTION.....	4
3.	TEST METHODOLOGY	5
3.1.	EUT CONFIGURATION	5
3.2.	EUT EXERCISE	5
3.3.	GENERAL TEST PROCEDURES.....	5
3.4.	FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS.....	6
3.5.	DESCRIPTION OF TEST MODES.....	7
4.	INSTRUMENT CALIBRATION.....	8
4.1.	MEASURING INSTRUMENT CALIBRATION	8
5.	FACILITIES AND ACCREDITATIONS	10
5.1.	FACILITIES	10
5.2.	EQUIPMENT.....	10
5.3.	LABORATORY ACCREDITATIONS AND LISTING	10
5.4.	TABLE OF ACCREDITATIONS AND LISTINGS	11
6.	SETUP OF EQUIPMENT UNDER TEST	12
6.1.	SETUP CONFIGURATION OF EUT	12
6.2.	SUPPORT EQUIPMENT.....	12
7.	FCC PART 15.247 REQUIREMENTS.....	13
7.1.	6DB BANDWIDTH	13
7.2.	PEAK POWER	20
7.3.	PEAK POWER SPECTRAL DENSITY	29
7.4.	BAND EDGES MEASUREMENT	37
7.5.	SPURIOUS EMISSIONS	54
7.6.	POWERLINE CONDUCTED EMISSIONS	73
7.7.	ANTENNA REQUIREMENT.....	76



1. TEST RESULT CERTIFICATION

Product Name:	Mobile Phone
Trade Name:	DMD Mobile
Model Name.:	M3
Series Model:	M5, M8
Applicant Discrepancy:	Initial
Device Category:	MOBILE DEVICES
Date of Test:	August 27, 2012
Applicant:	Instant Communication Sdn Bhd L3-1 SME Technopreneur Centre III, Block 3740, Persiaran APEC, Cyber 8, 63000 Cyberjaya, Selangor, Malaysia
Manufacturer:	Instant Communication Sdn Bhd L3-1 SME Technopreneur Centre III, Block 3740, Persiaran APEC, Cyber 8, 63000 Cyberjaya, Selangor, Malaysia
Application Type:	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 C63.4: 2003 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:

Hadiif Hoo
RF Manager
Compliance Certification Service Inc.

Tested by:

Sean Yu
Test Engineer
Compliance Certification Service Inc.



2. EUT DESCRIPTION

Product Name:	Mobile Phone
Brand Name:	DMD Mobile
Model Name:	M3
Series Model:	M5, M8
Model Discrepancy:	Only model name different.
Frequency Range:	GSM/GPRS/EDGE 850: 824.20 ~ 848.80 MHz GSM/GPRS/EDGE1900: 1850.20 ~ 1909.80 MHz WCDMA/HSUPA Band V:826.40 ~ 846.60 MHz Bluetooth:2402 ~ 2480 MHz 802.11B/G:2412~2462 MHz 802.11N (20Mhz) :2412~2462 MHz 802.11N (40Mhz) :2422~2452 MHz
Transmit Power:	IEEE 802.11b mode: 16.09dBm (40.6mW) IEEE 802.11g mode: 15.70 dBm (37.1mW) IEEE 802.11n Standard-20 MHz Channel mode: 16.31 dBm (42.7mW) IEEE 802.11n Wide-40 MHz Channel mode: 13.68 dBm (23.3mW)
Modulation Technique:	IEEE 802.11b mode: DSSS (1, 2, 5.5 and 11 Mbps) IEEE 802.11g mode: DSSS /OFDM (6, 9, 12, 18, 24, 36, 48 and 54 Mbps) IEEE 802.11n Standard -20 MHz Channel mode: OFDM (MCS 0~7) IEEE 802.11n Wide -40 MHz Channel mode: OFDM (MCS 0~15)
Number of Channels:	IEEE 802.11b/g mode: 11 Channels IEEE 802.11n Standard-20 MHz Channel mode: 11 Channels IEEE 802.11n Wide-40 MHz Channel mode: 7 Channels
Antenna Specification:	PIFA antennas for 2.4GHz Gain 1.22 dBi
Power Adapter Power Rating :	Power supply and ADP (rating): Model name:KY-252<IC> INPUT: AC 110-240V 50/60Hz 0.1A OUTPUT: DC 5V 1000mA Battery (rating): Model name: BP-M3-01 Capacitance: 1200mAh 3.7V 4.2V

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: Q3GDMDM3** 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 C63.4 2003 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 C63.4 2003 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

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 C63.4 2003.



3.4. 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
¹ 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	(²)
13.36 - 13.41			

¹ Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

² 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.



3.5. DESCRIPTION OF TEST MODES

The EUT transmitting and receiving with one (chain 0) antenna working at b/g/n mode, so one antenna working configuration was used for a/b/g mode testing in this report.

The EUT transmitting and receiving with two antennas simultaneously working at n mode, so 2x2 configuration was used for all testing in this report.

The worst-case data rates are determined to be as follows for each mode based on investigation by measuring the average power, peak power and PPSP across all data rates, bandwidths, and modulations.

The worst-case data rates:

IEEE802.11b mode:

Channel Low (2412MHz)

Channel Mid (2437MHz)

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

IEEE802.11g mode:

Channel Low (2412MHz)

Channel Mid (2437MHz)

Channel High (2462MHz) with 6Mbps data rate were chosen for full testing.

IEEE 802.11n Standard-20 MHz Channel mode:

Channel Low (2412MHz)

Channel Mid (2437MHz)

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

IEEE 802.11n Wide-40 MHz Channel mode:

Channel Low (2422MHz)

Channel Mid (2437MHz)

Channel High (2452MHz) with MCS0 data rate were chosen for full testing.



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 Due
Spectrum Analyzer	Agilent	E4446A	MY44020154	2013-5-12
DETECTOR NEGATIVE	Agilent	8473B	MY42240176	2013-5-12
OSCILLOSCOPE	Agilent	DSO6104A	MY44002585	2013-3-24
Peak and Avg Power Sensor	Agilent	E9327A	US40441788	2013-3-24
EPM-P Series Power Meter	Agilent	E4416A	GB41292714	2013-5-12
Power SPLITTER	Mini-Circuits	ZN2PD-9G	SF078500430	2013-5-12
DC POWER SUPPLY	GW instek	GPS-3303C	E903131	2013-5-12
Temp. / Humidity Chamber	Kingson	THS-M1	242	2013-3-12
Test Software	EZ-EMC			

977 Chamber				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY44020154	2013-5-12
EMI Test Receiver	R&S	ESPI3	101026	2013-3-15
Pre-Amplifier	MINI	ZFL-1000VH2	d041703	2013-5-12
Pre-Amplifier	Miteq	NSP4000-NF	870629	2013-5-12
Bilog Antenna	Sunol	JB1	A110204-2	2013-5-12
Horn-antenna	SCHWARZBECK	BBHA9120D	D:266	2013-6-07
Turn Table	CT	CT123	4165	N.C.R
Antenna Tower	CT	CTERG23	3256	N.C.R
Controller	CT	CT100	95637	N.C.R
Test Software	EZ-EMC			



Conducted Emission				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI TEST RECEIVER	R&S	ESCI3	100781	2013-3-15
V (V-LISN)	Schwarzbeck	NNLK 8129	8129-143	2013-3-15
LISN (EUT)	FCC	FCC-LISN-50/250-50-2-02	SN:05012	2013-3-15
TRANSIENT LIMITER	SCHAFFNER	CFL9206	1710	2013-4-8
Test Software	EZ-EMC			

Remark:

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



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 C63.4 2003 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, IC5743 for 10m chamber 10m, IC5743 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 C63.4 :2003); 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	 TESTING CERT #2541.01
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	VCCI 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	N/A	N/A	N/A	N/A

Remark:

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



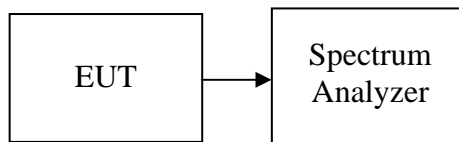
7. FCC PART 15.247 REQUIREMENTS

7.1. 6DB BANDWIDTH

LIMIT

According to §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 6dB bandwidth shall be at least 500 kHz.

Test Configuration



TEST PROCEDURE

KDB 558074 D01 DTS Measurement Guidance V01

The transmitter output is connected to the spectrum analyzer. Set the RBW = 1%-5% of the emission bandwidth, VBW ≥ 3 x RBW, Detector = Peak, Trace mode = max hold, Sweep = auto couple. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6dB relative to the maximum level measured in the fundamental emission.

TEST RESULTS

No non-compliance noted

Test Data

IEEE 802.11b mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	10.118	>500	PASS
Mid	2437	10.138		PASS
High	2462	10.135		PASS

IEEE 802.11g mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	16.527	>500	PASS
Mid	2437	16.460		PASS
High	2462	16.515		PASS

802.11n Standard-20 MHz Channel mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	17.761	>500	PASS
Mid	2437	17.667		PASS
High	2462	17.662		PASS

802.11n Wide-40 MHz Channel mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	35.997	>500	PASS
Mid	2437	36.133		PASS
High	2462	35.585		PASS



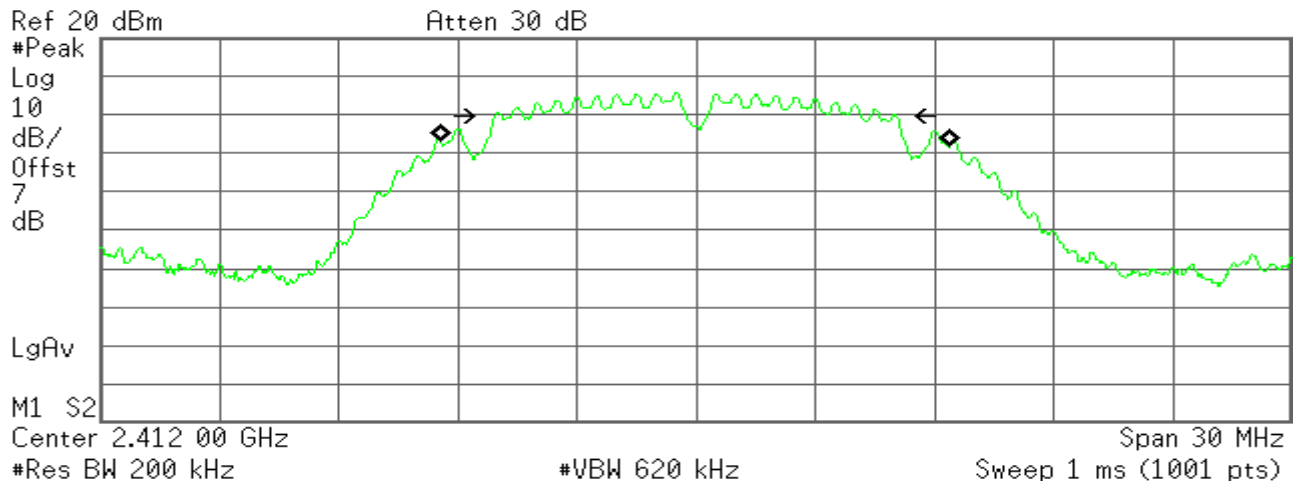
Test Plot

IEEE 802.11b MODE

6dB Bandwidth (CH Low)

Agilent

R T



Occupied Bandwidth
12.8447 MHz

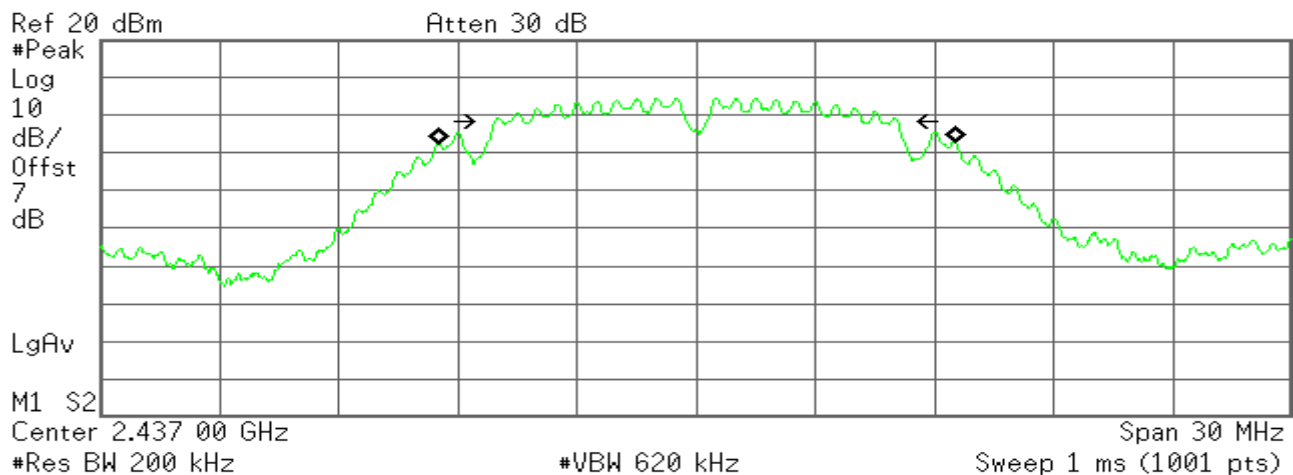
Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error -21.521 kHz
x dB Bandwidth 10.118 MHz

6dB Bandwidth (CH Mid)

Agilent

R T



Occupied Bandwidth
13.0010 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

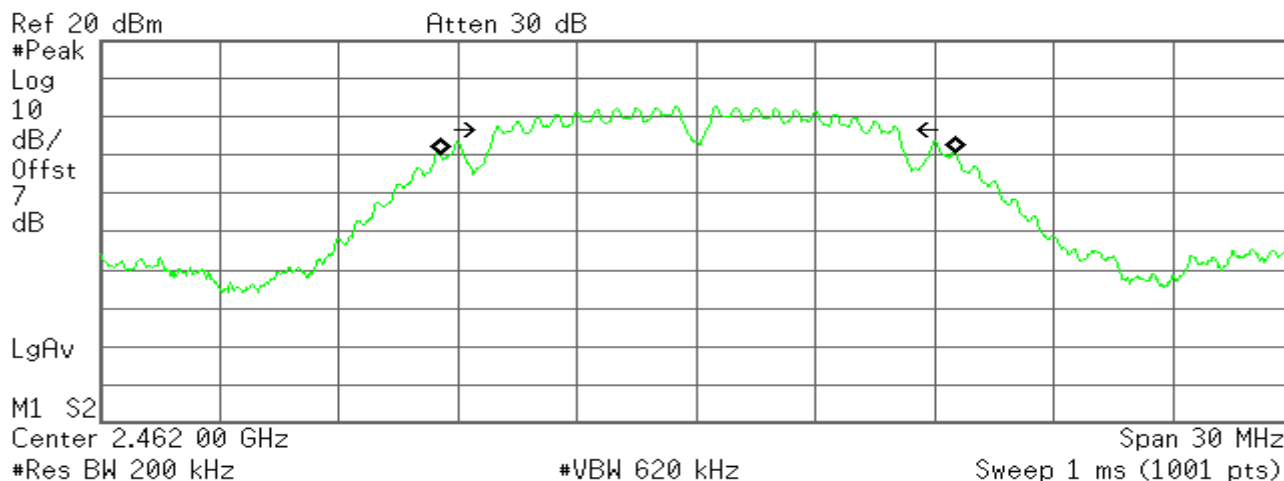
Transmit Freq Error 22.915 kHz
x dB Bandwidth 10.138 MHz



6dB Bandwidth (CH High)

* Agilent

R T



Occupied Bandwidth
12.9651 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

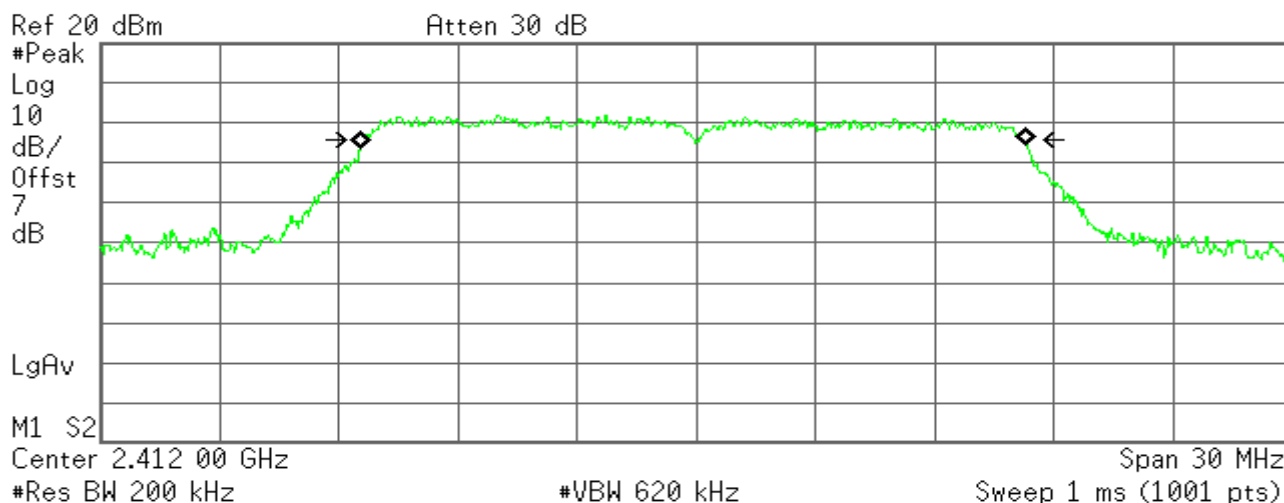
Transmit Freq Error 24.856 kHz
x dB Bandwidth 10.135 MHz

IEEE 802.11g MODE

6dB Bandwidth (CH Low)

* Agilent

R T



Occupied Bandwidth
16.7517 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

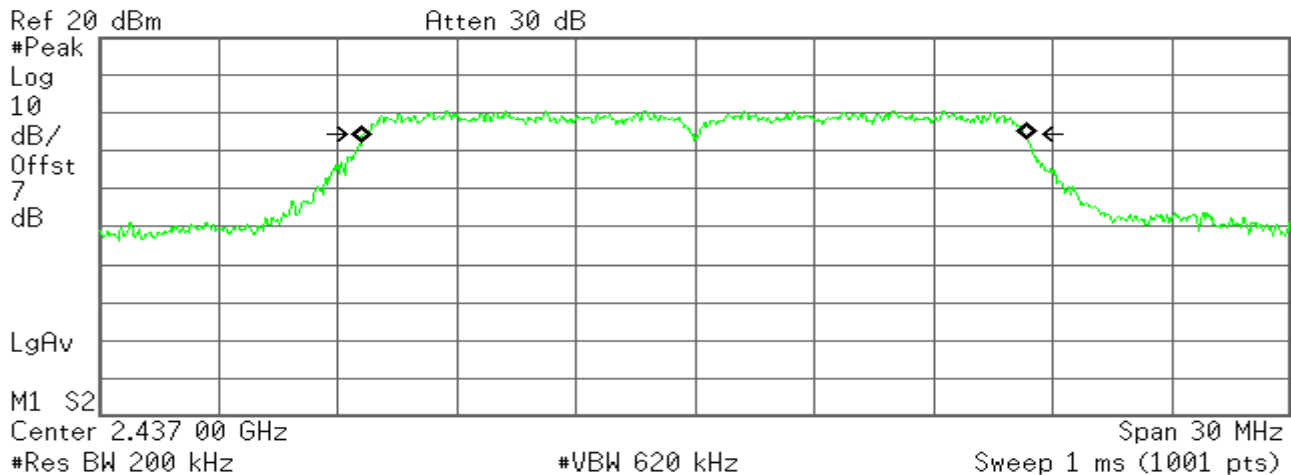
Transmit Freq Error -59.746 kHz
x dB Bandwidth 16.527 MHz



6dB Bandwidth (CH Mid)

* Agilent

R T



Occupied Bandwidth
16.7408 MHz

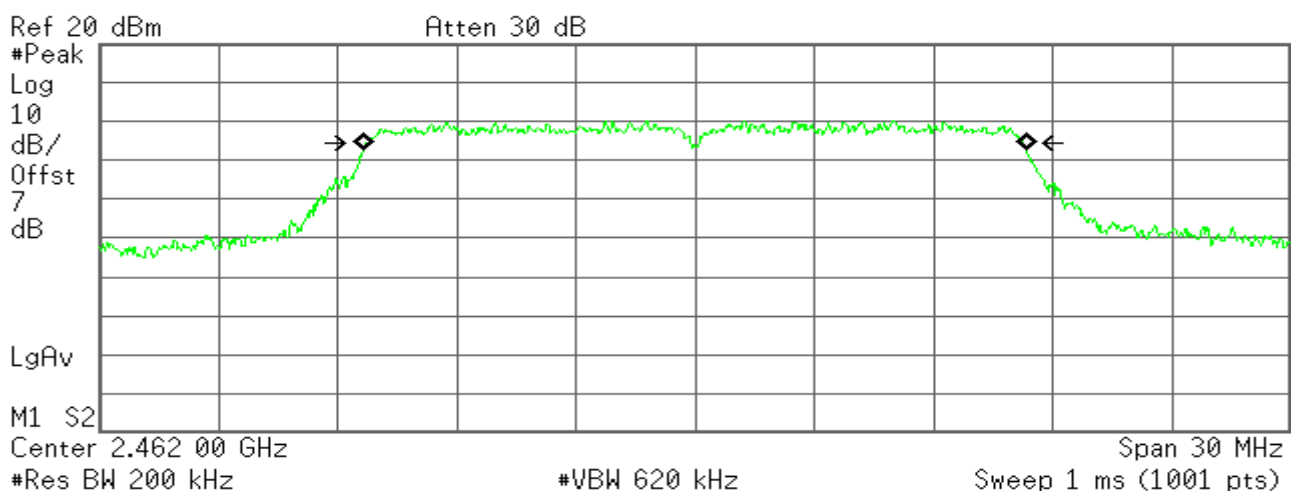
Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error -17.911 kHz
x dB Bandwidth 16.460 MHz

6dB Bandwidth (CH High)

* Agilent

R T



Occupied Bandwidth
16.6644 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error 6.966 kHz
x dB Bandwidth 16.515 MHz

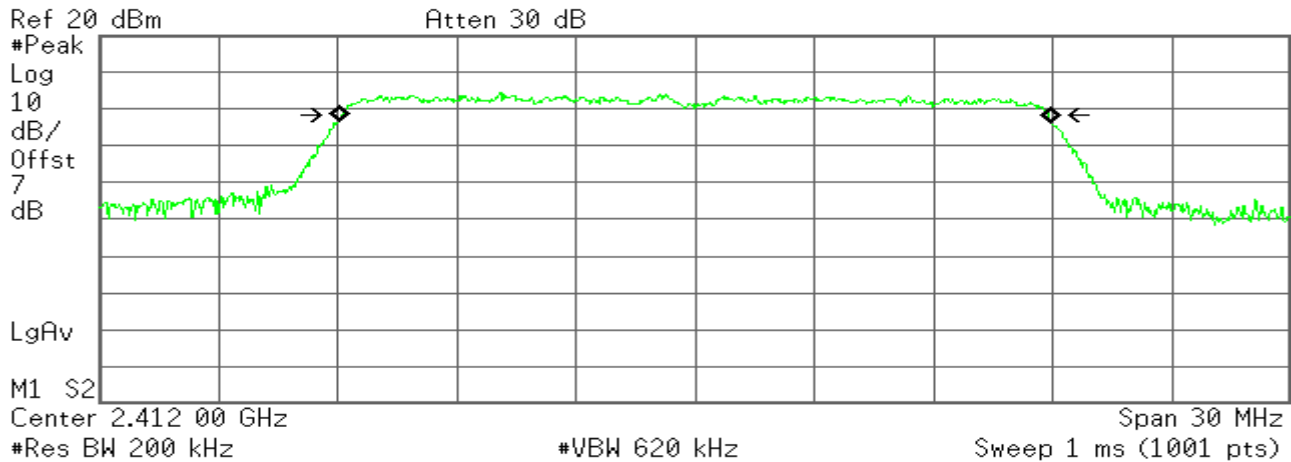


802.11n Standard-20 MHz Channel mode

6dB Bandwidth (CH Low)

* Agilent

R T



Occupied Bandwidth
17.9205 MHz

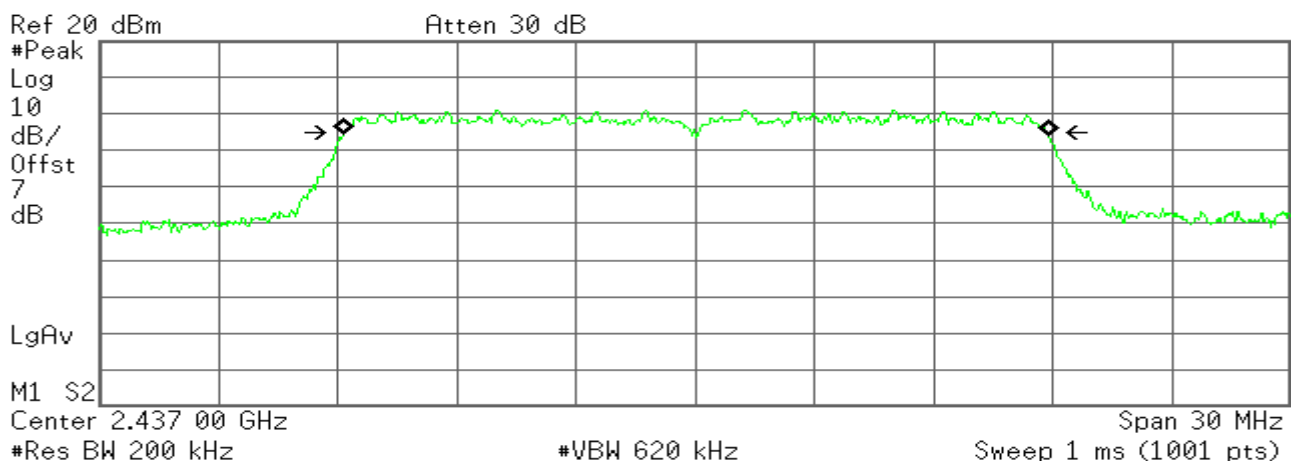
Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error -14.640 kHz
x dB Bandwidth 17.761 MHz

6dB Bandwidth (CH Mid)

* Agilent

R T



Occupied Bandwidth
17.7197 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

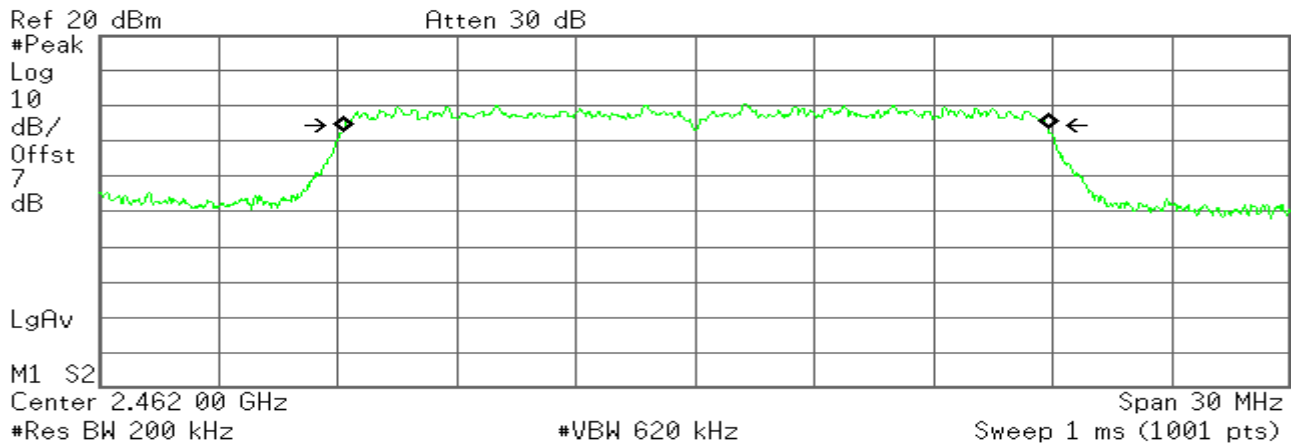
Transmit Freq Error 11.668 kHz
x dB Bandwidth 17.667 MHz



6dB Bandwidth (CH High)

Agilent

R T



Occupied Bandwidth
17.7227 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

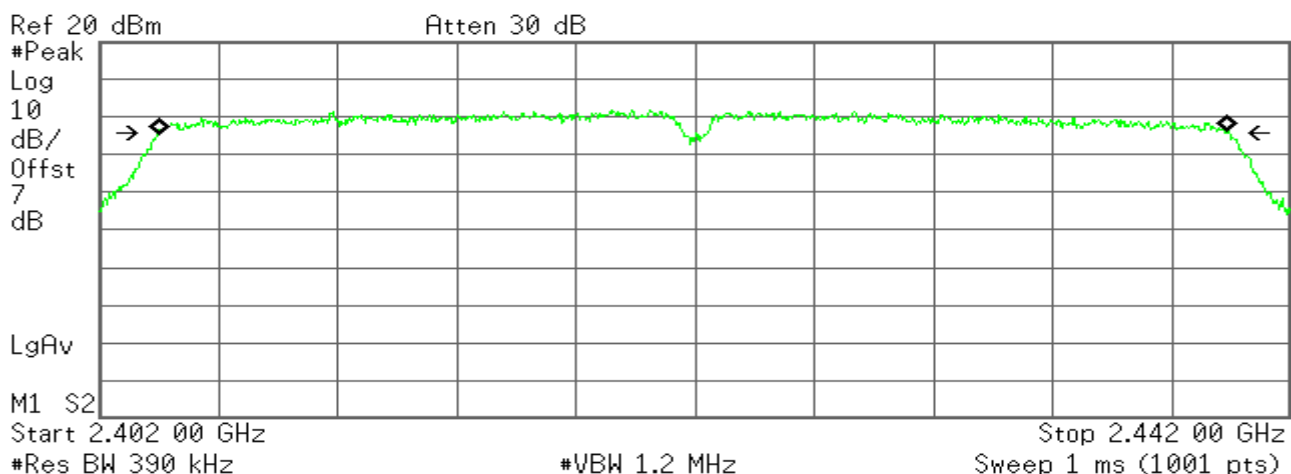
Transmit Freq Error 10.964 kHz
x dB Bandwidth 17.662 MHz

802.11n Wide-40 MHz Channel mode

6dB Bandwidth (CH Low)

Agilent

R T



Occupied Bandwidth
35.8482 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

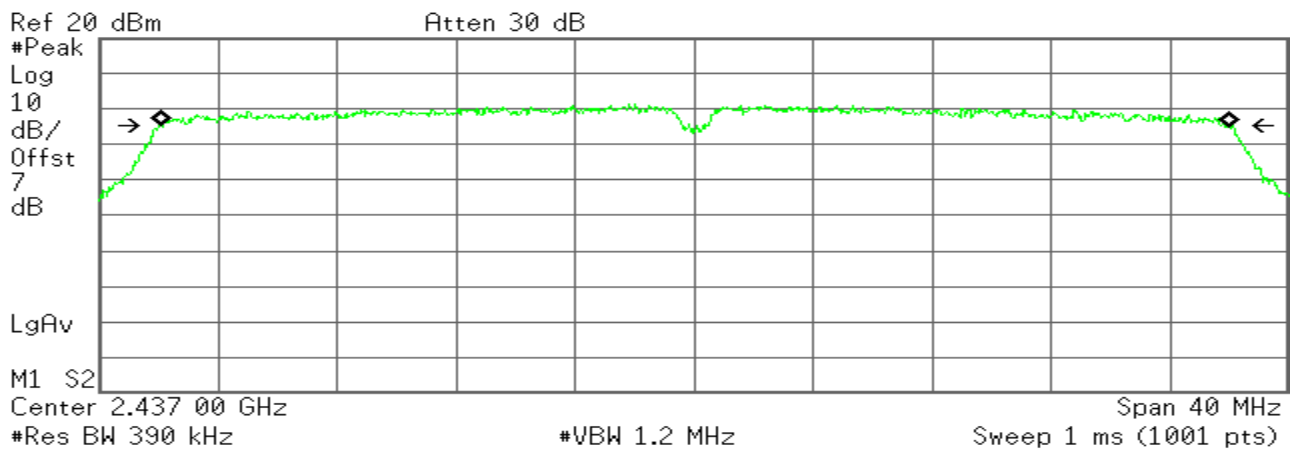
Transmit Freq Error -36.462 kHz
x dB Bandwidth 35.997 MHz



6dB Bandwidth (CH Mid)

* Agilent

R T



Occupied Bandwidth
35.8702 MHz

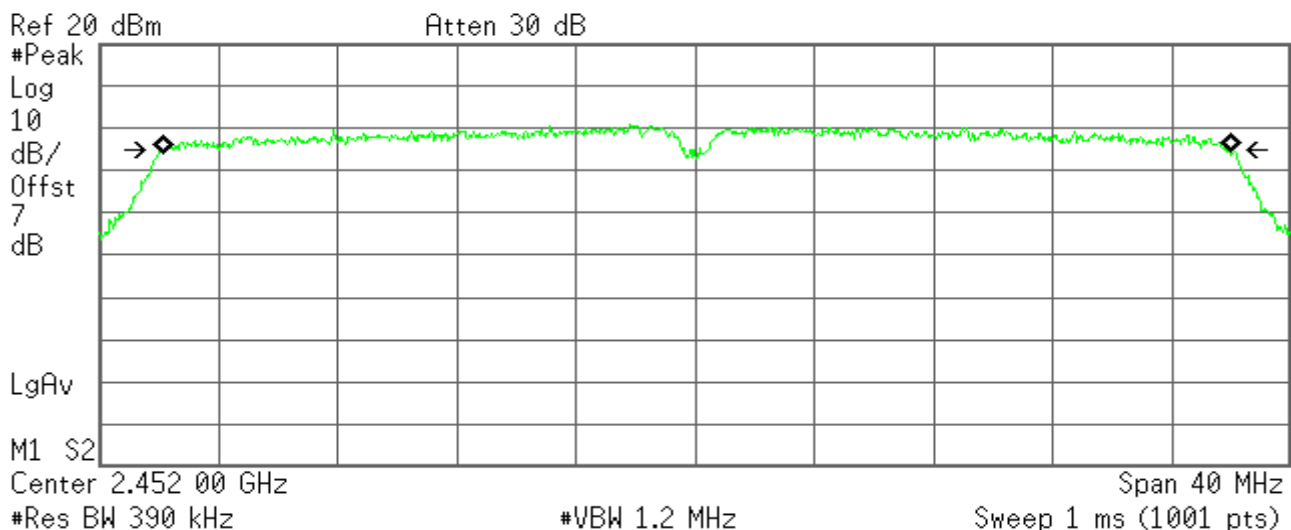
Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error 25.210 kHz
x dB Bandwidth 36.133 MHz

6dB Bandwidth (CH High)

* Agilent

R T



Occupied Bandwidth
35.8130 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error 38.299 kHz
x dB Bandwidth 35.585 MHz



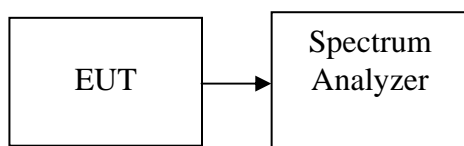
7.2. PEAK POWER

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, 2400-2483.5 MHz, and 5725-5850 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

KDB 558074 D01 DTS Measurement Guidance V01

The transmitter output is connected to the spectrum analyzer. Set the RBW = 1MHz , VBW =3MHz, Detector = Peak, Trace mode = max hold, Sweep = auto couple. Record the max reading.

test results

No non-compliance noted



Test Data

Test mode: IEEE 802.11b mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	16.09	0.0406	1.00	PASS
Mid	2437	15.96	0.0323		PASS
High	2462	15.47	0.0352		PASS

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	15.51	0.0355	1.00	PASS
Mid	2437	15.70	0.0371		PASS
High	2462	14.88	0.0308		PASS

Test mode: 802.11n Standard-20 MHz Channel mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	16.31	0.0427	1.00	PASS
Mid	2437	15.62	0.0364		PASS
High	2462	15.63	0.0364		PASS

Test mode: 802.11n Wide-40 MHz Channel mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2422	13.58	0.0288	1.00	PASS
Mid	2437	13.68	0.0233		PASS
High	2452	12.86	0.0193		PASS



Test Plot

IEEE 802.11b mode

Peak Power (CH Low)

* Agilent

R T

Ref 20 dBm

Atten 20 dB

#Peak
Log
10
dB/
Offst
11
dB

LgAv

M1 S2

Center 2.412 00 GHz

#Res BW 1 MHz

#VBW 3 MHz

Span 12 MHz

Sweep 1 ms (601 pts)

Channel Power

16.09 dBm /10.1180 MHz

Power Spectral Density

-53.96 dBm/Hz

Peak Power (CH Mid)

* Agilent

R T

Ref 20 dBm

Atten 20 dB

#Peak
Log
10
dB/
Offst
11
dB

LgAv

M1 S2

Center 2.437 000 GHz

#Res BW 1 MHz

#VBW 3 MHz

Span 12.02 MHz

Sweep 1 ms (601 pts)

Channel Power

15.96 dBm /10.1380 MHz

Power Spectral Density

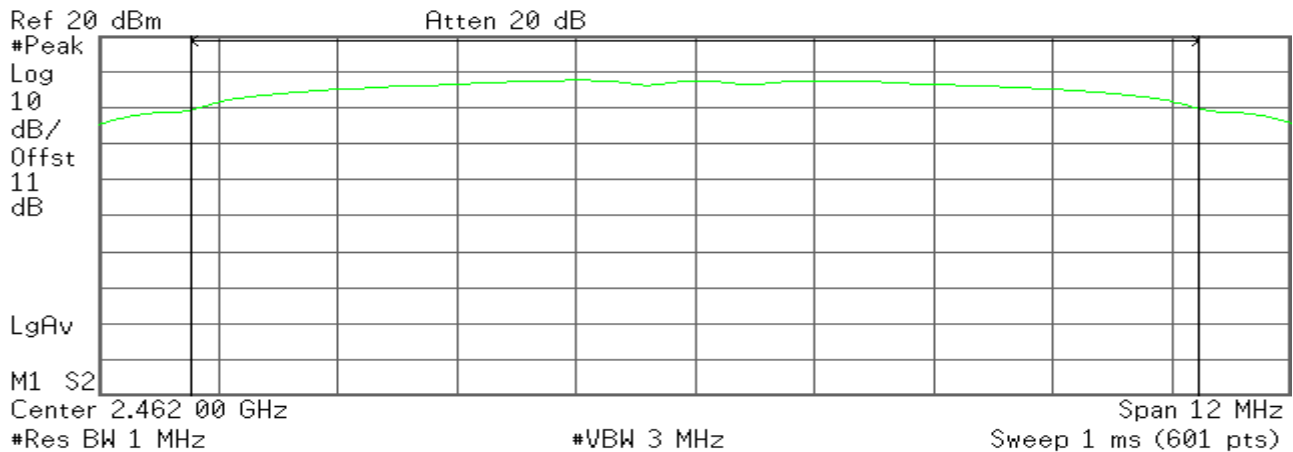
-54.10 dBm/Hz



Peak Power (CH High)

* Agilent

R T

**Channel Power**

15.47 dBm /10.1350 MHz

Power Spectral Density

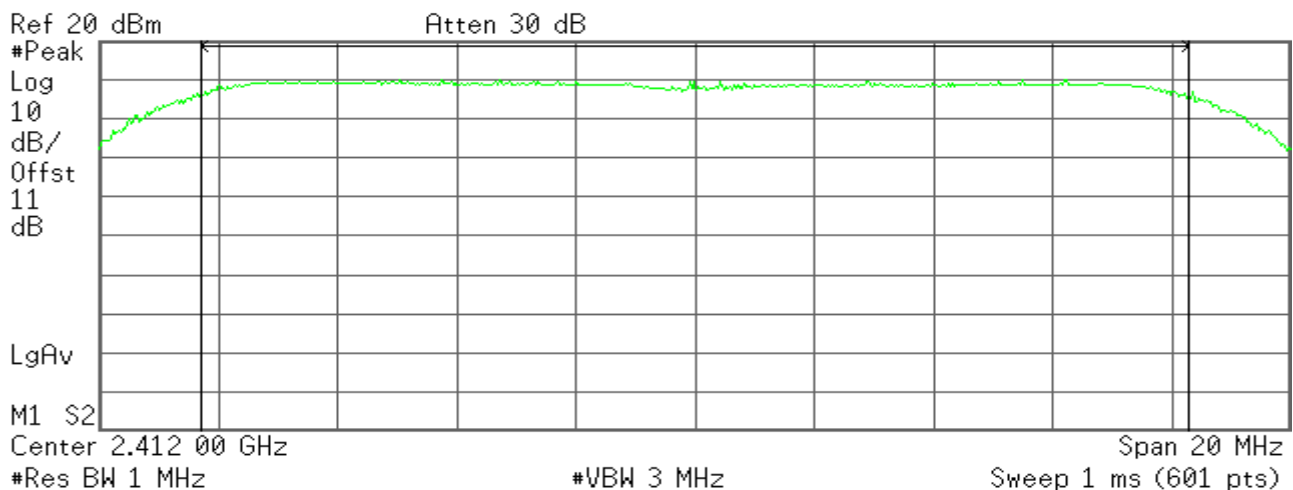
-54.59 dBm/Hz

IEEE 802.11g mode

Peak Power (CH Low)

* Agilent

R T

**Channel Power**

15.51 dBm /16.5200 MHz

Power Spectral Density

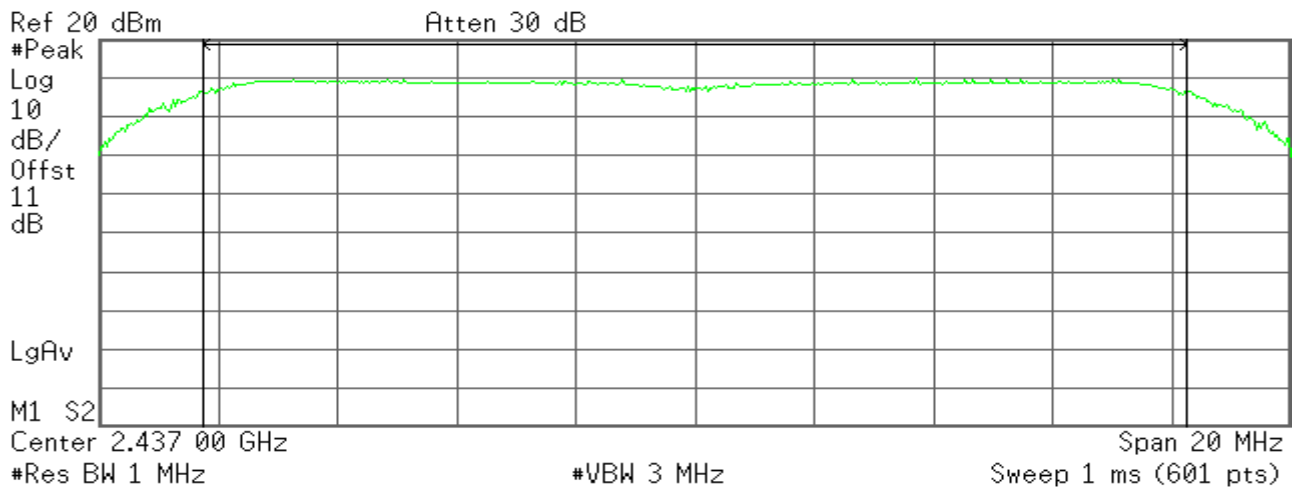
-56.67 dBm/Hz



Peak Power (CH Mid)

* Agilent

R T

**Channel Power**

15.70 dBm /16.4600 MHz

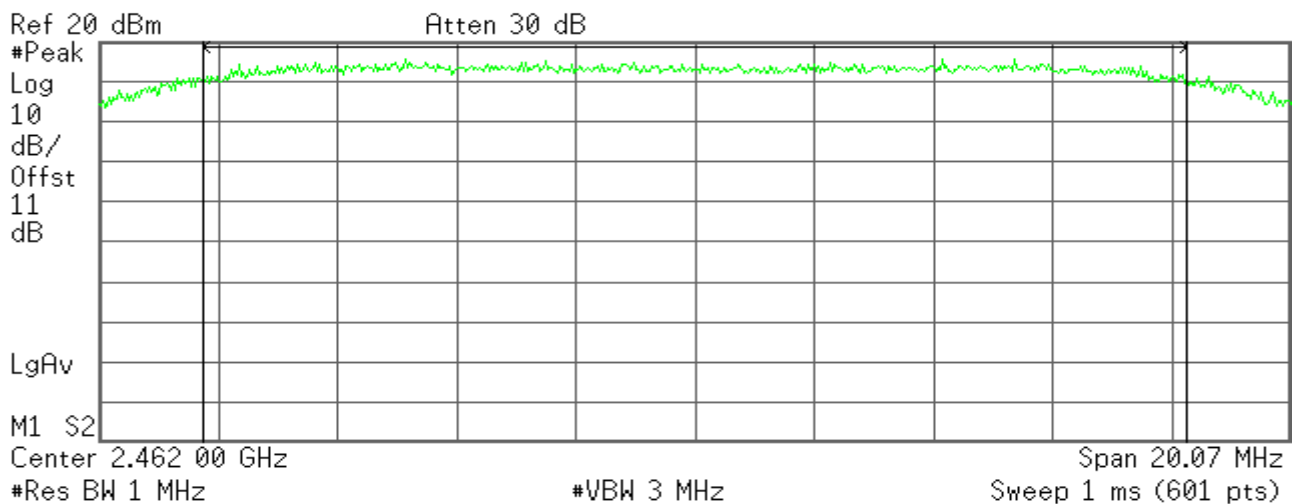
Power Spectral Density

-56.47 dBm/Hz

Peak Power (CH High)

* Agilent

R T

**Channel Power**

14.88 dBm /16.5150 MHz

Power Spectral Density

-57.60 dBm/Hz

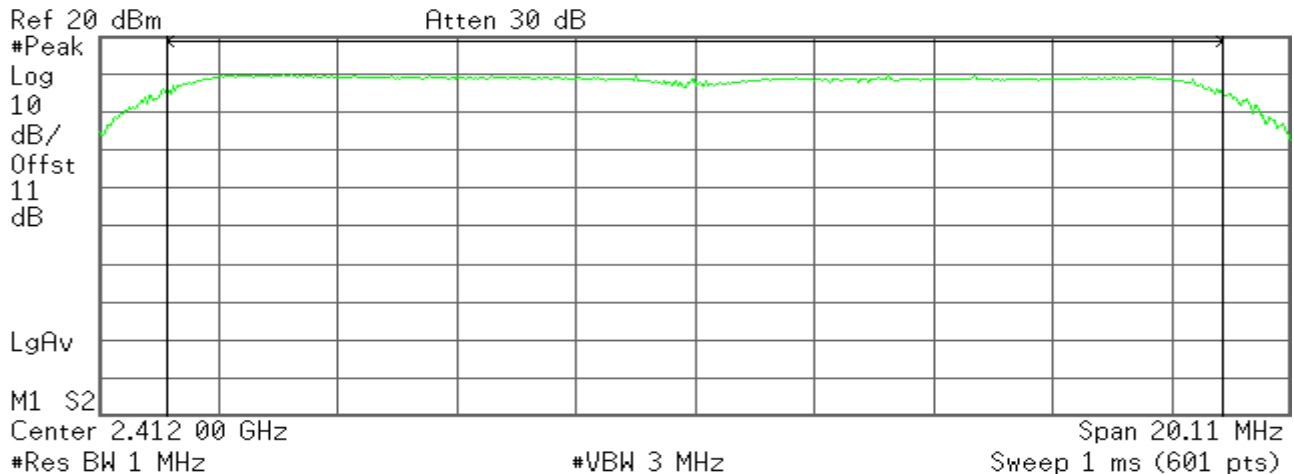


802.11n Standard-20 MHz Channel mode

Peak Power (CH Low)

* Agilent

R T



Channel Power

16.31 dBm /17.7610 MHz

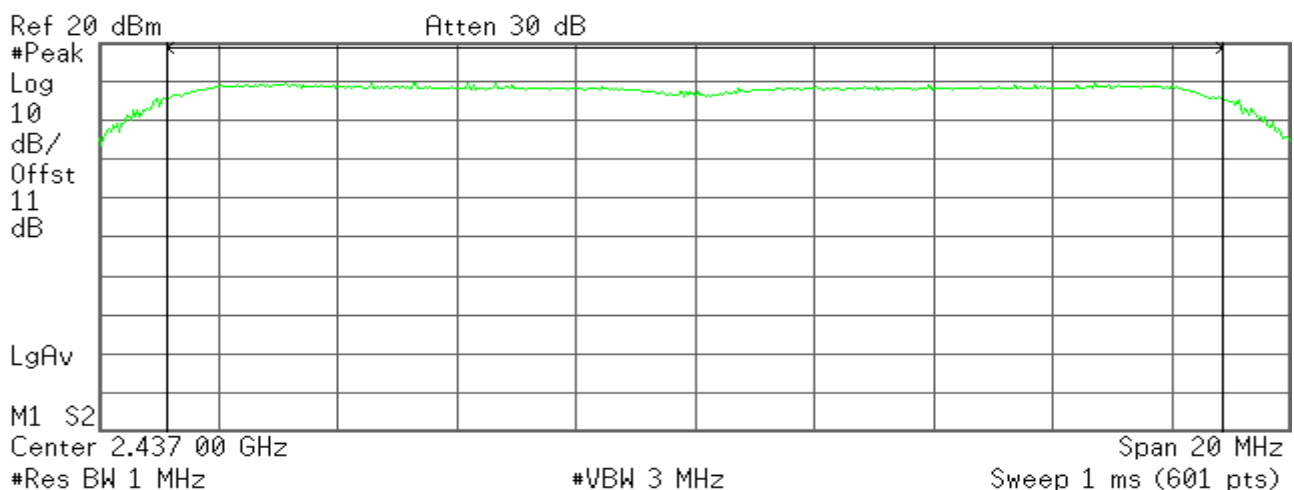
Power Spectral Density

-56.18 dBm/Hz

Peak Power (CH Mid)

* Agilent

R T



Channel Power

15.62 dBm /17.6670 MHz

Power Spectral Density

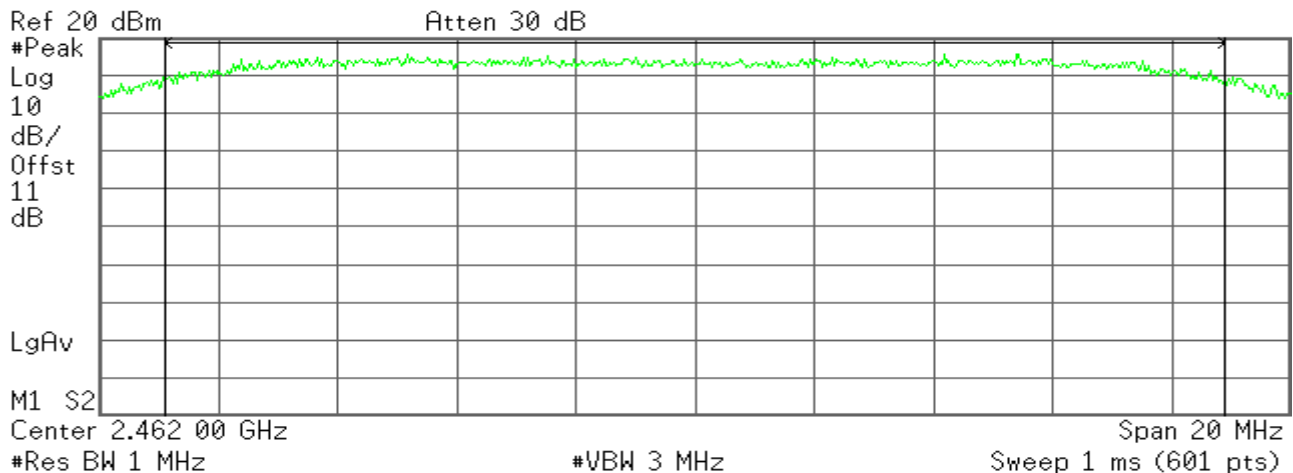
-56.85 dBm/Hz



Peak Power (CH High)

Agilent

R T

**Channel Power**

15.63 dBm /17.7600 MHz

Power Spectral Density

-57.86 dBm/Hz

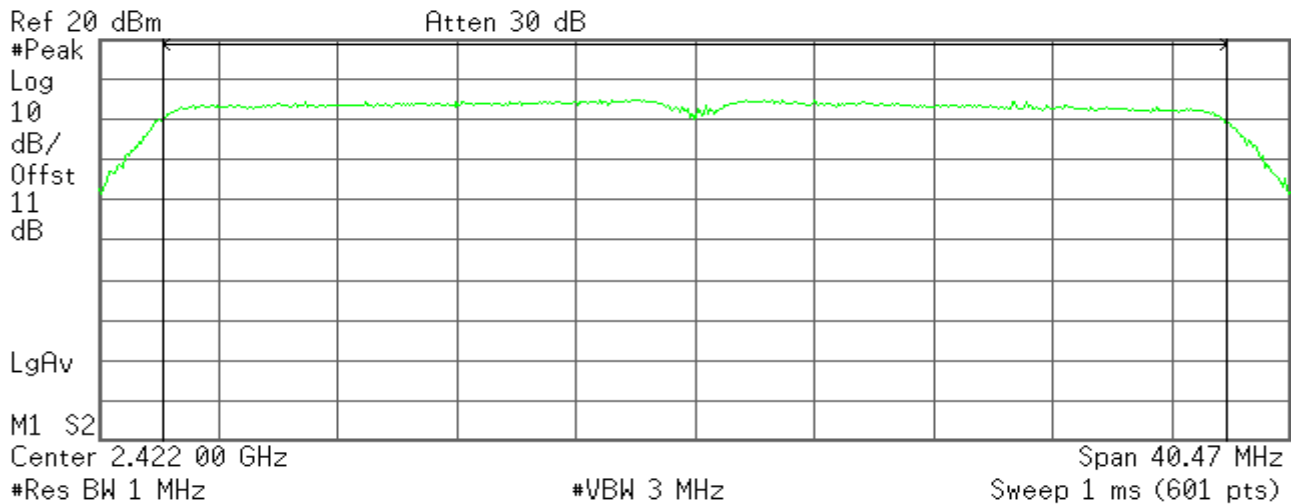
802.11n Wide-40 MHz Channel mode

Peak Power (CH Low)



* Agilent

R T

**Channel Power**

13.58 dBm /36.0000 MHz

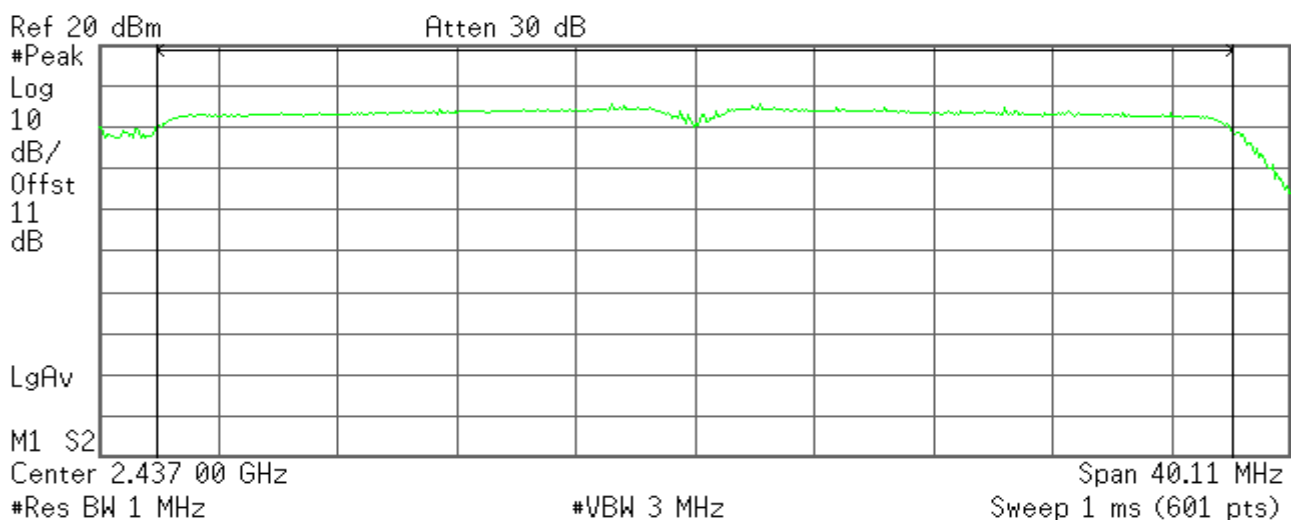
Power Spectral Density

-61.98 dBm/Hz

Peak Power (CH Mid)

* Agilent

R T

**Channel Power**

13.68 dBm /36.1000 MHz

Power Spectral Density

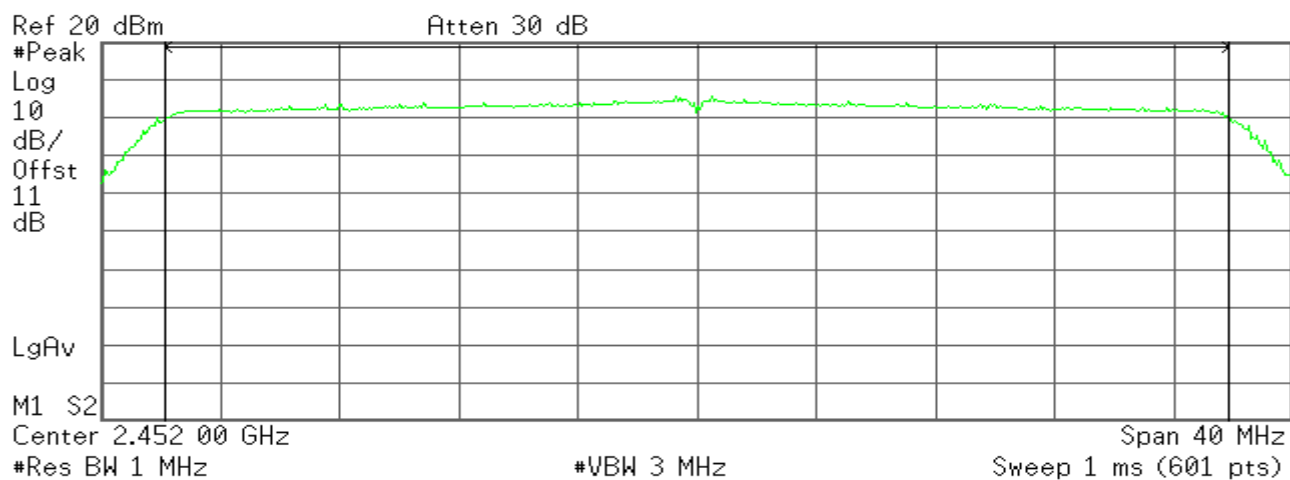
-61.90 dBm/Hz



Peak Power (CH High)

* Agilent

R T



Channel Power

12.86 dBm /35.5800 MHz

Power Spectral Density

-62.65 dBm/Hz

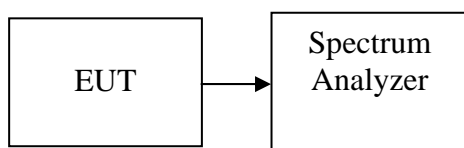


7.3. PEAK POWER SPECTRAL DENSITY

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

KDB 558074 D01 DTS Measurement Guidance V01 dated 01-18-12.

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 = 100 kHz, VBW = 300 kHz, Span = 20 MHz, Sweep time = 2.44 ms
3. Record the max. reading.
4. Repeat the above procedure until the measurements for all frequencies are completed.
5. Scale the observed power level to an equivalent value in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where $BWCF = 10\log(3\text{ kHz}/100\text{ kHz} = -15.2\text{ dB})$.

TEST RESULTS

No non-compliance noted



Test Data

Test mode: IEEE 802.11b mode

Channel	Frequency (MHz)	reading (dBm)	BWCF	Peak PSD Level (dBm)	Limit (dBm)	Result
Low	2412	5.59	-15.2	-9.61	8.00	PASS
Mid	2437	5.31	-15.2	-9.89	8.00	PASS
High	2462	4.68	-15.2	-10.52	8.00	PASS

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	reading (dBm)	BWCF	Peak PSD Level (dBm)	Limit (dBm)	Result
Low	2412	0.83	-15.2	-14.37	8.00	PASS
Mid	2437	-0.08	-15.2	-15.28	8.00	PASS
High	2462	-0.67	-15.2	-15.87	8.00	PASS

Test mode: IEEE 802.11n Standard-20 MHz Channel mode

Channel	Frequency (MHz)	reading (dBm)	BWCF	Peak PSD Level (dBm)	Limit (dBm)	Result
Low	2412	0.68	-15.2	-14.52	8.00	PASS
Mid	2437	-0.47	-15.2	-15.67	8.00	PASS
High	2462	-0.78	-15.2	-15.98	8.00	PASS

Test mode: IEEE 802.11n Wide-40 MHz Channel mode

Channel	Frequency (MHz)	reading (dBm)	BWCF	Peak PSD Level (dBm)	Limit (dBm)	Result
Low	2422	-1.20	-15.2	-16.4	8.00	PASS
Mid	2437	-1.84	-15.2	-17.04	8.00	PASS
High	2452	-2.69	-15.2	-17.89	8.00	PASS



Test Plot

IEEE 802.11b mode

PPSD (CH Low)

Agilent

R T

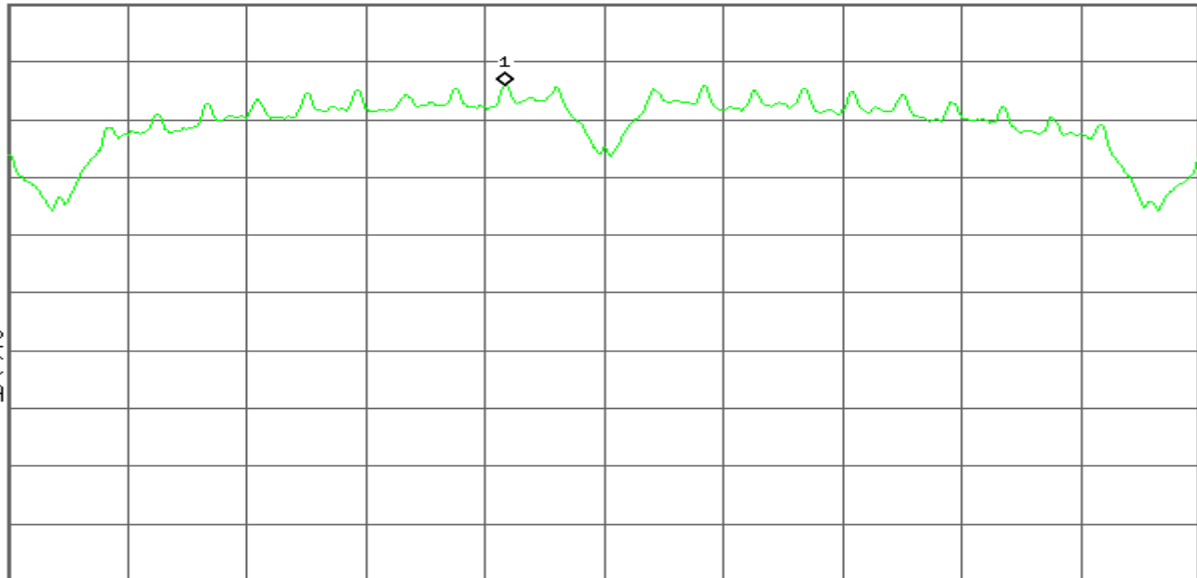
Mkr1 2.411 00 GHz
5.95 dBm

Ref 20 dBm

Atten 20 dB

Peak
Log
10
dB/
Offst
11
dB

LgAv

M1 S2
S3 FC
AAE(f):
FTun
Swp

Center 2.412 00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Span 12 MHz
Sweep 1.16 ms (601 pts)

PPSD (CH Mid)

Agilent

R T

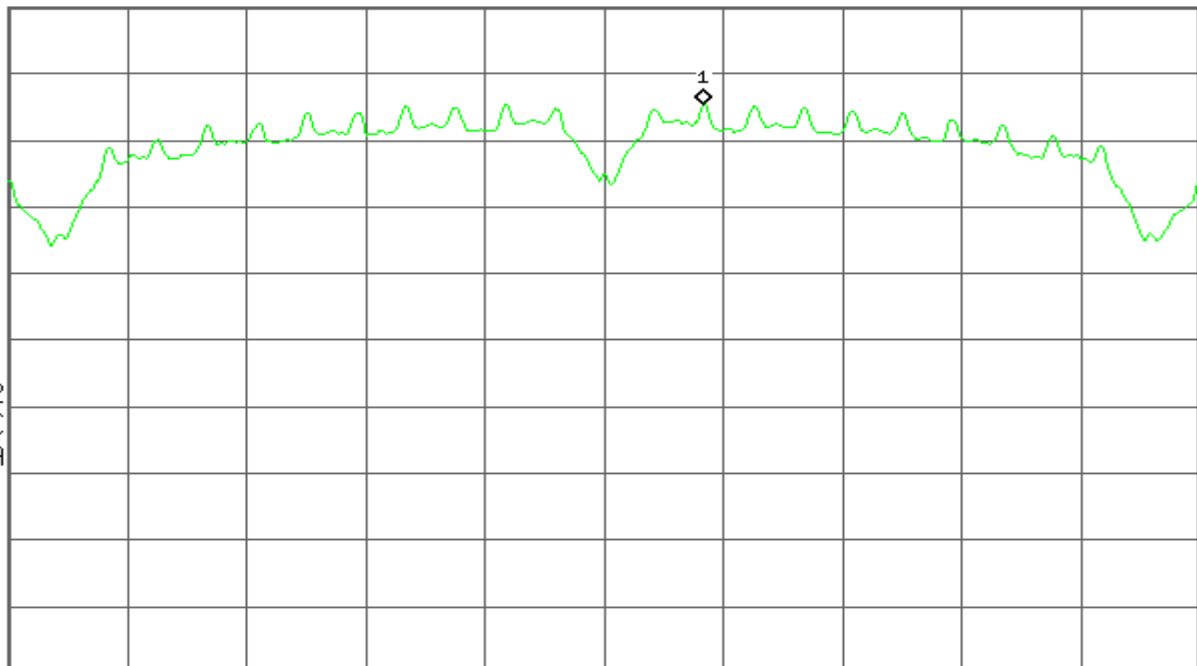
Mkr1 2.438 00 GHz
5.31 dBm

Ref 20 dBm

Atten 20 dB

Peak
Log
10
dB/
Offst
11
dB

LgAv

M1 S2
S3 FC
AAE(f):
FTun
Swp

Center 2.437 00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Span 12 MHz
Sweep 1.16 ms (601 pts)



PPSD (CH High)

* Agilent

R T

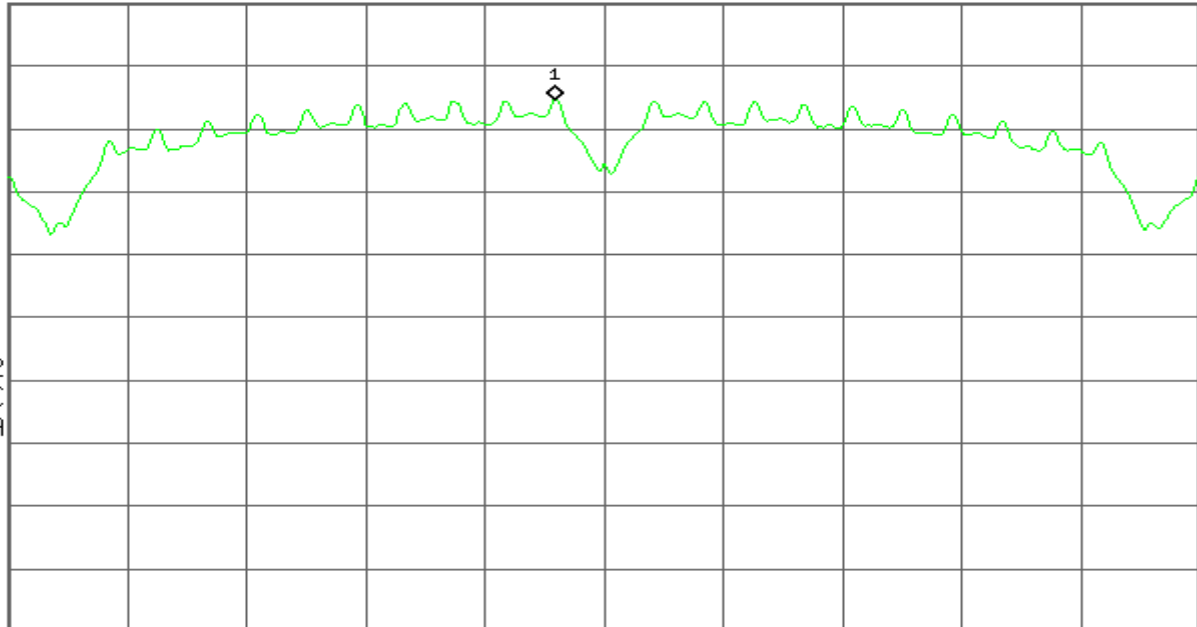
Mkr1 2.461 50 GHz
4.68 dBm

Ref 20 dBm

Atten 20 dB

Peak
Log
10
dB/
Offst
11
dB

LgAv

M1 S2
S3 FC
AAE(f):
FTun
Swp

Center 2.462 00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Span 12 MHz
Sweep 1.16 ms (601 pts)

IEEE 802.11g mode

PPSD (CH Low)

* Agilent

R T

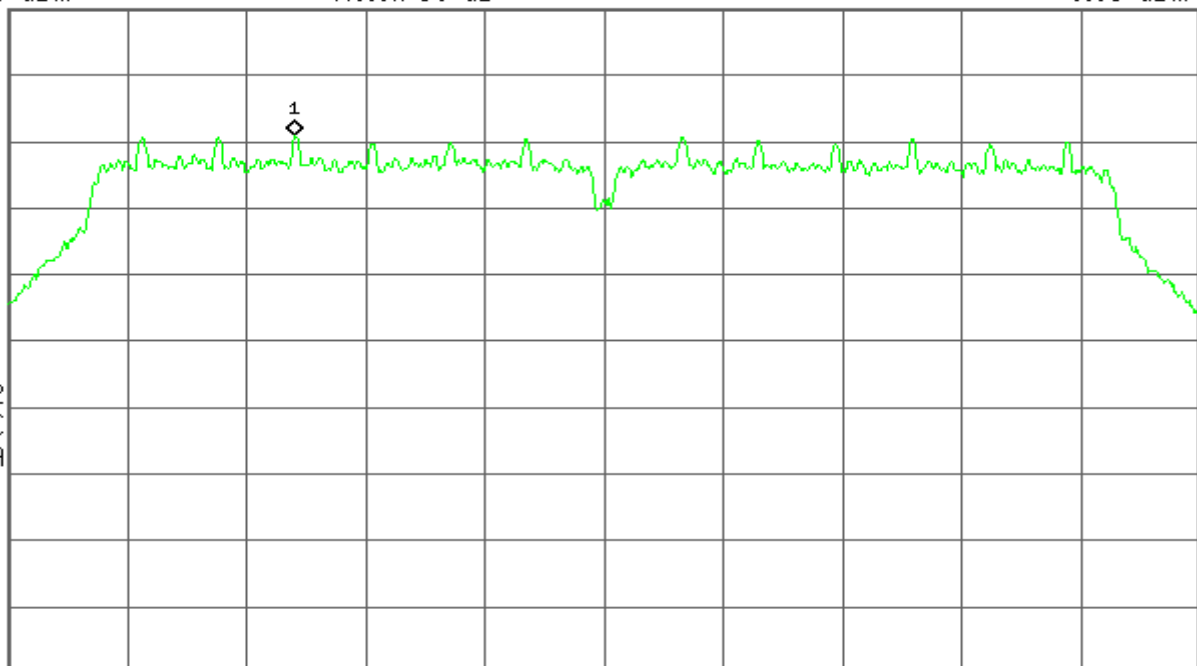
Mkr1 2.406 999 GHz
0.83 dBm

Ref 20 dBm

Atten 30 dB

#Peak
Log
10
dB/
Offst
7
dB

LgAv

M1 S2
S3 FC
AAE(f):
FTun
Swp

Start 2.402 346 GHz

#Res BW 100 kHz

#VBW 300 kHz

Stop 2.421 654 GHz
#Sweep 2.467 ms (1001 pts)



PPSD (CH Mid)

* Agilent

R T

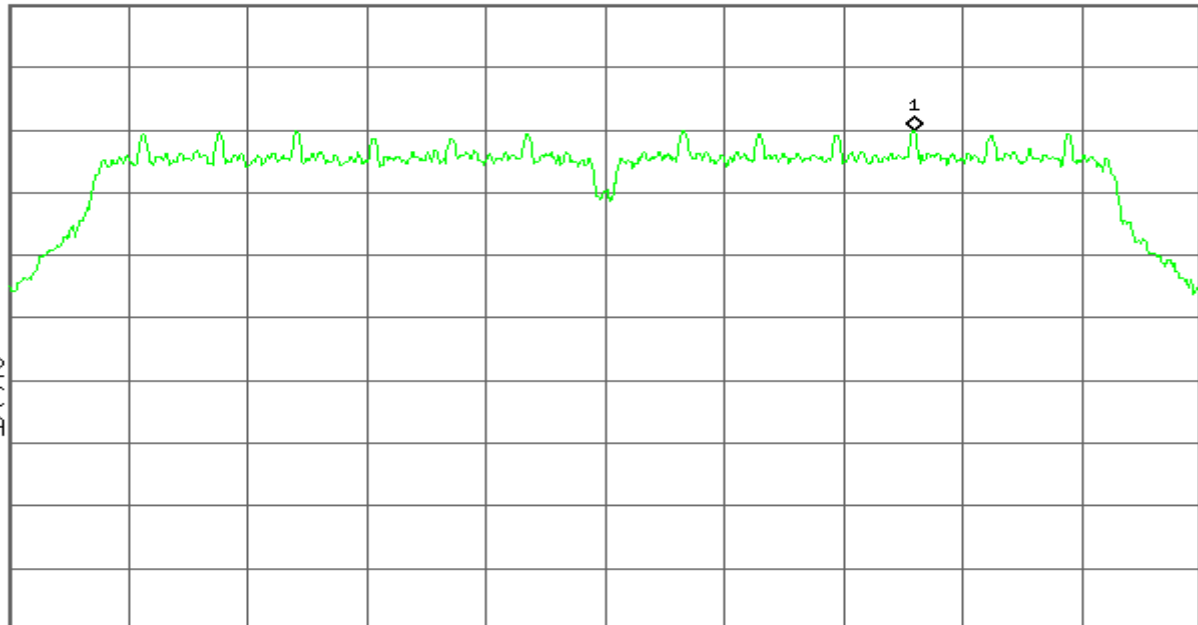
Mkr1 2.442 001 GHz
-0.08 dBm

Ref 20 dBm

Atten 30 dB

#Peak
Log
10
dB/
Offst
7
dB

LgAv

M1 S2
S3 FC
AAE(f):
FTun
Swp

Center 2.437 000 GHz

Span 19.31 MHz

#Res BW 100 kHz

#VBW 300 kHz

#Sweep 2.467 ms (1001 pts)

PPSD (CH High)

* Agilent

R T

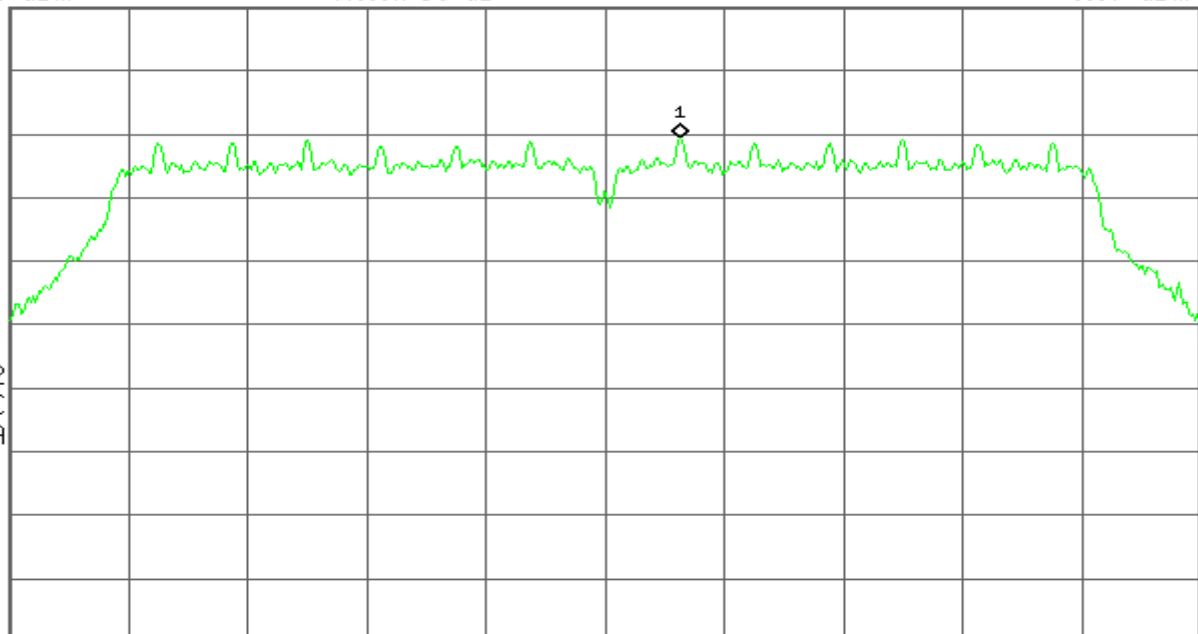
Mkr1 2.463 27 GHz
-0.67 dBm

Ref 20 dBm

Atten 30 dB

Peak
Log
10
dB/
Offst
7
dB

LgAv

M1 S2
S3 FC
AAE(f):
FTun
Swp

Center 2.462 00 GHz

Span 20 MHz

#Res BW 100 kHz

#VBW 300 kHz

#Sweep 2.44 ms (601 pts)



802.11n Standard-20 MHz Channel mode

PPSD (CH Low)

Agilent

R T

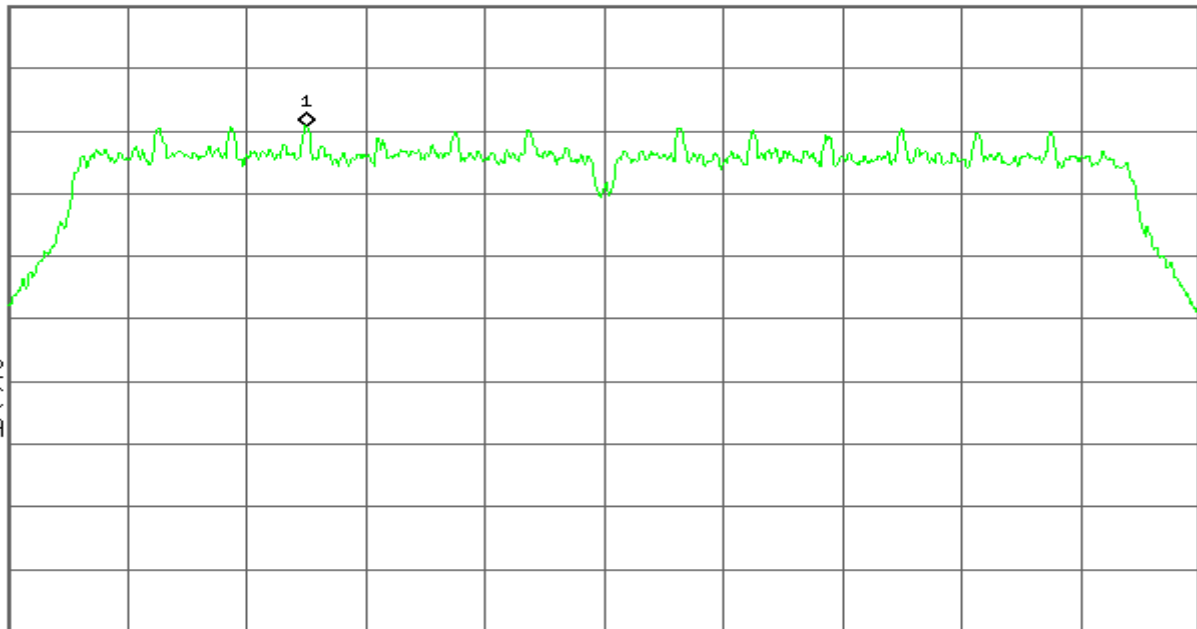
Mkr1 2.407 02 GHz
0.68 dBm

Ref 20 dBm

Atten 30 dB

#Peak
Log
10
dB/
Offst
7
dB

LgAv

M1 S2
S3 FC
AAE(f):
FTun
Swp

Center 2.412 00 GHz

Span 20 MHz

#Res BW 100 kHz

#VBW 300 kHz

#Sweep 2.467 ms (1001 pts)

PPSD (CH Mid)

Agilent

R T

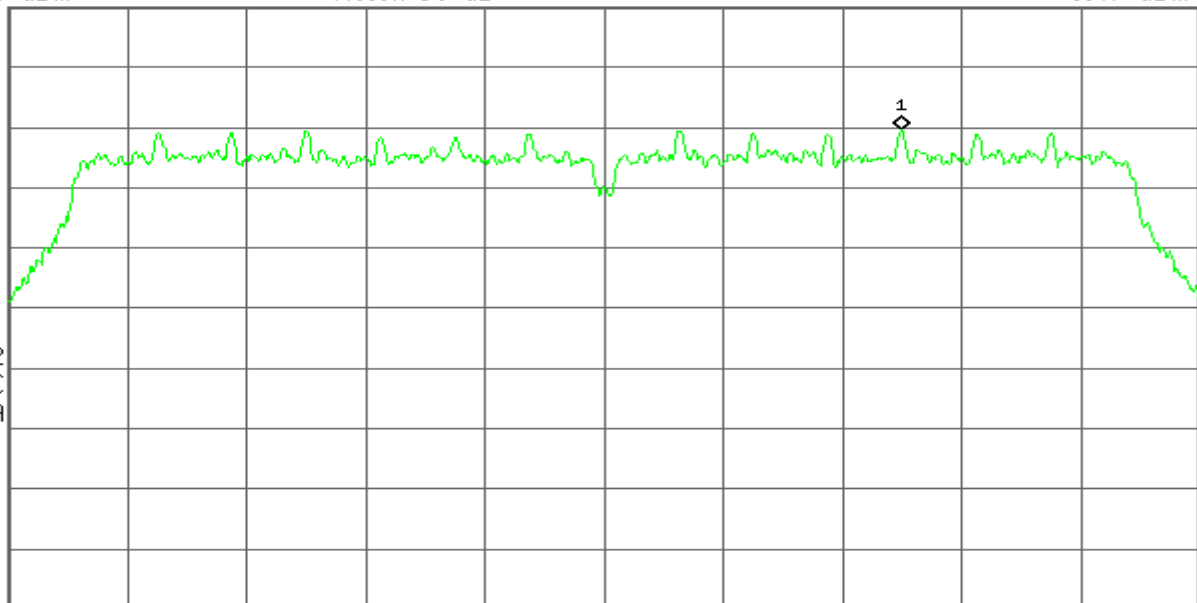
Mkr1 2.442 00 GHz
-0.47 dBm

Ref 20 dBm

Atten 30 dB

#Peak
Log
10
dB/
Offst
7
dB

LgAv

M1 S2
S3 FC
AAE(f):
FTun
Swp

Center 2.437 00 GHz

Span 20 MHz

#Res BW 100 kHz

#VBW 300 kHz

#Sweep 2.467 ms (1001 pts)



PPSD (CH High)

Agilent

R T

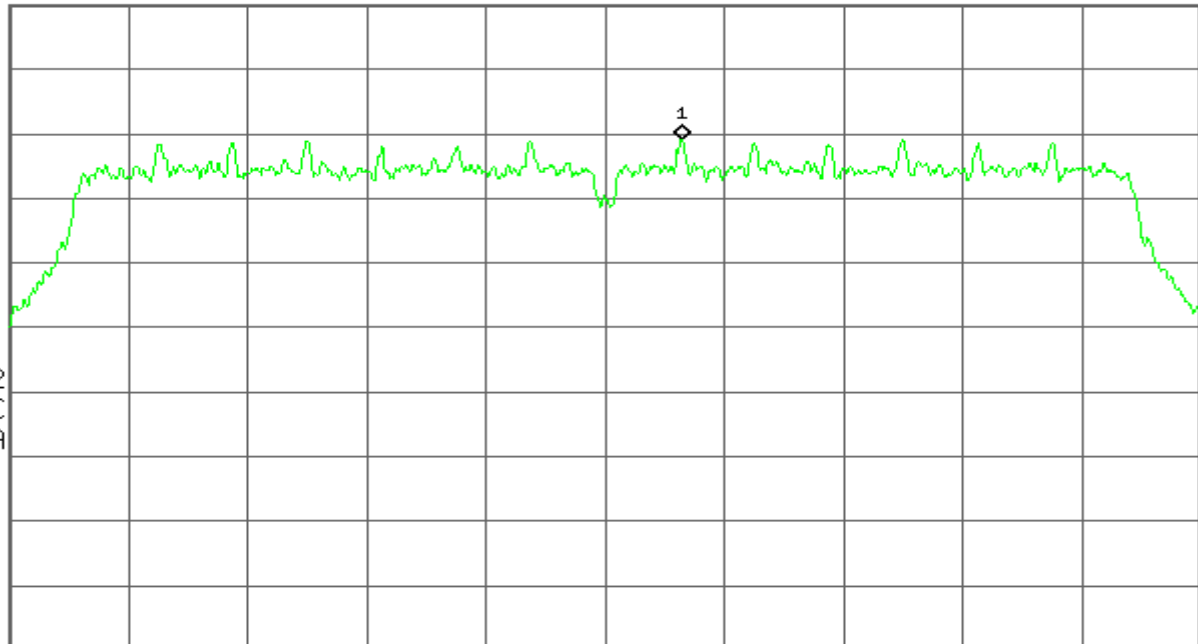
Mkr1 2.463 28 GHz
-0.78 dBm

Ref 20 dBm

Atten 30 dB

#Peak
Log
10
dB/
Offst
7
dB

LgAv

M1 S2
S3 FC
AAE(f):
FTun
Swp

Start 2.452 00 GHz

Stop 2.472 00 GHz

#Res BW 100 kHz

#VBW 300 kHz

#Sweep 2.467 ms (1001 pts)

802.11n Wide-40 MHz Channel mode

PPSD (CH Low)

Agilent

R T

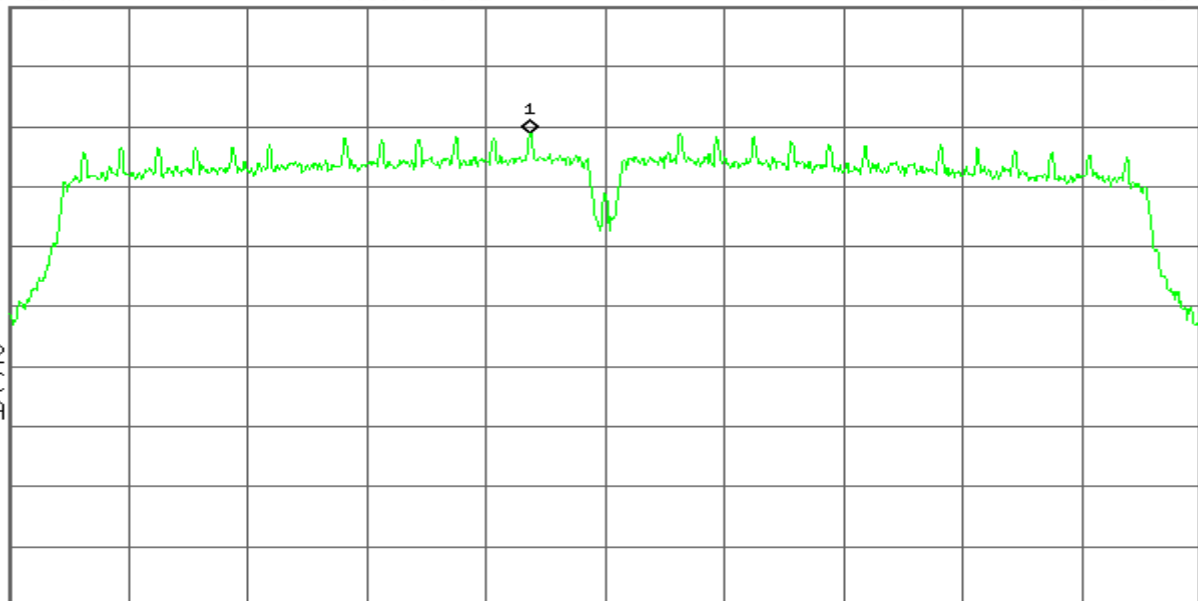
Mkr1 2.419 48 GHz
-1.20 dBm

Ref 20 dBm

Atten 30 dB

#Peak
Log
10
dB/
Offst
7
dB

LgAv

M1 S2
S3 FC
AAE(f):
FTun
Swp

Center 2.422 00 GHz

Span 40 MHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 3.867 ms (1001 pts)



PPSD (CH Mid)

* Agilent

R T

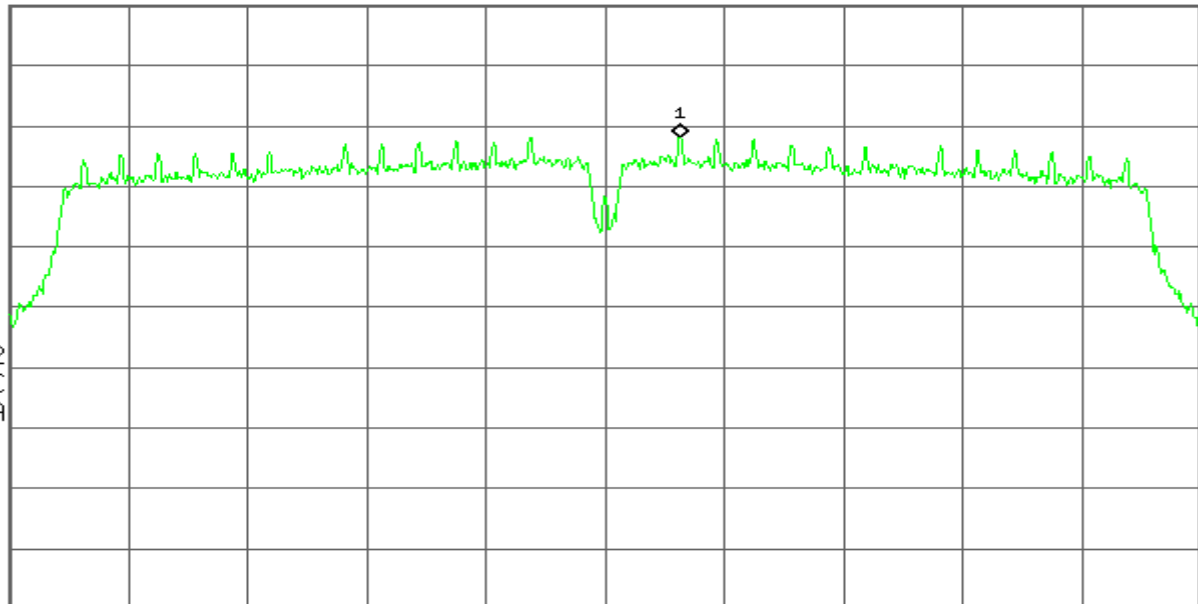
Mkr1 2.439 52 GHz
-1.84 dBm

Ref 20 dBm

Atten 30 dB

#Peak
Log
10
dB/
Offst
7
dB

LgAv

M1 S2
S3 FC
AA£(f):
FTun
Swp

Center 2.437 00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Span 40 MHz
Sweep 3.867 ms (1001 pts)

PPSD (CH High)

* Agilent

R T

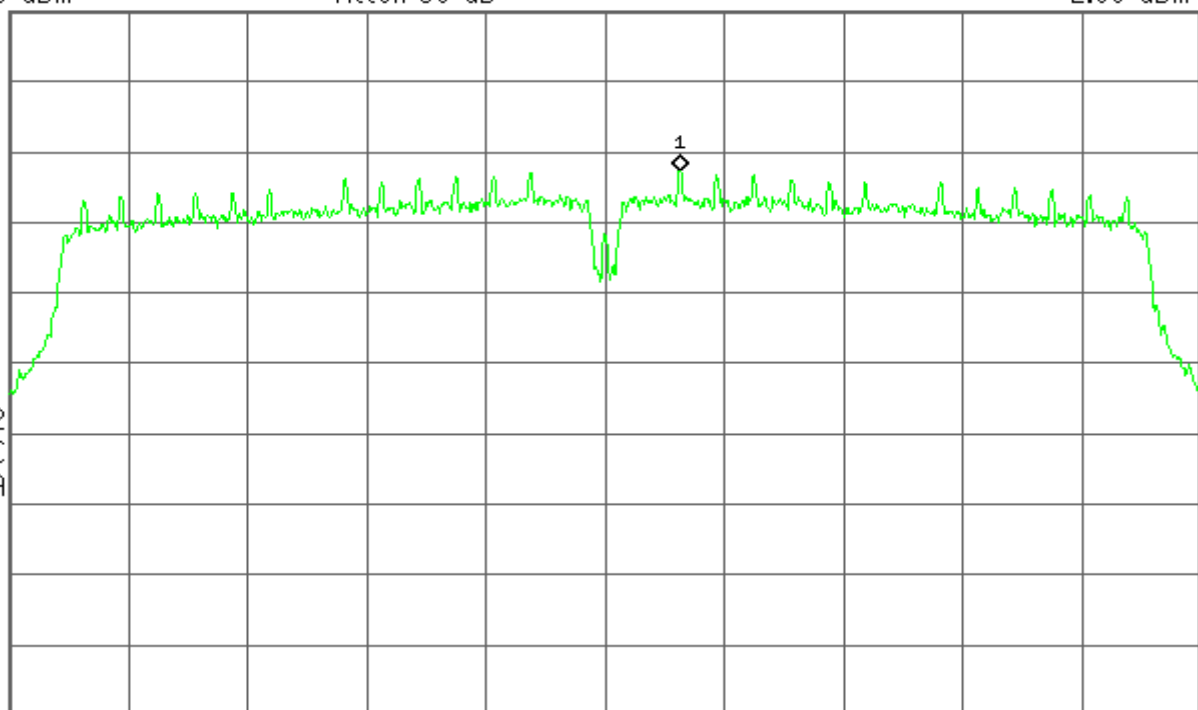
Mkr1 2.454 52 GHz
-2.69 dBm

Ref 20 dBm

Atten 30 dB

#Peak
Log
10
dB/
Offst
7
dB

LgAv

M1 S2
S3 FC
AA£(f):
FTun
Swp

Center 2.452 00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Span 40 MHz
Sweep 3.867 ms (1001 pts)

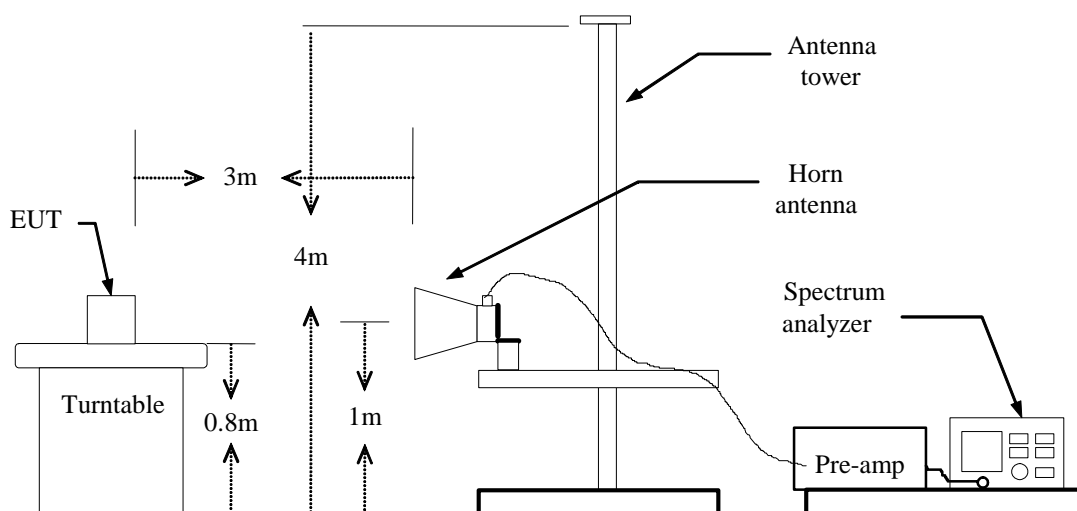


7.4. BAND EDGES MEASUREMENT

LIMIT

According to §15.247(c), 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 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power. 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).

Test Configuration



TEST PROCEDURE

KDB 558074 D01 DTS Measurement Guidance V01

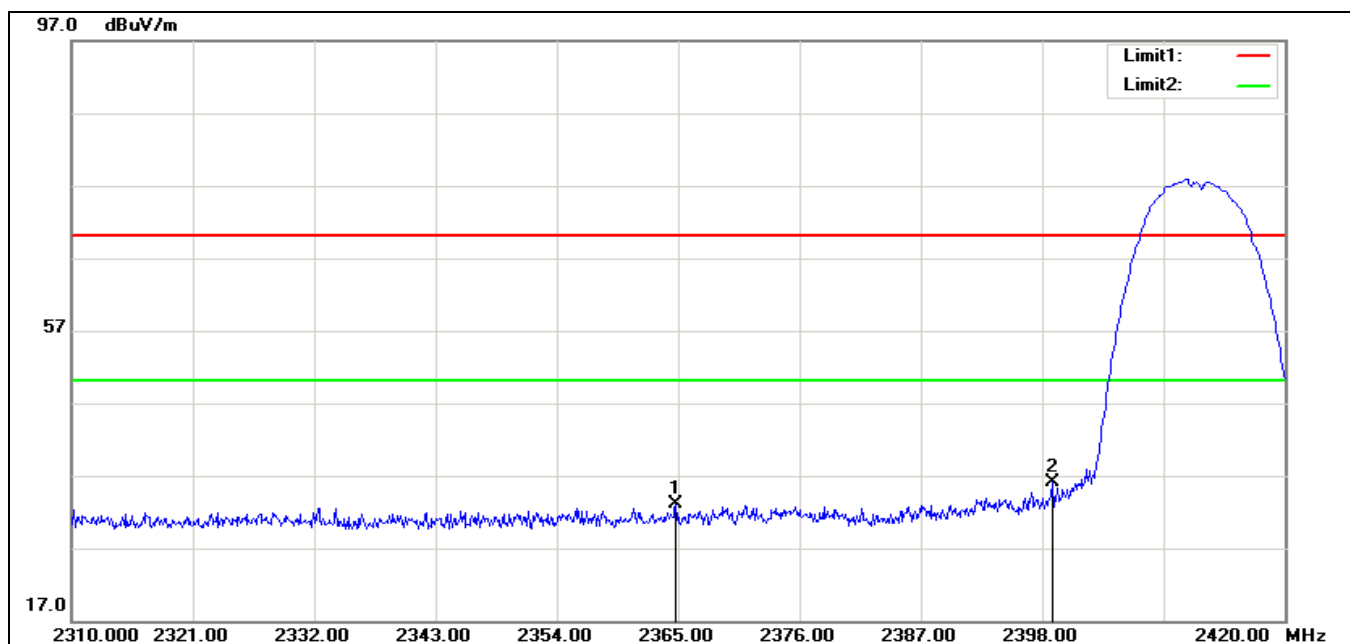
1. The EUT is placed on a turntable, which is 0.8m above the ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
 - (a) PEAK: RBW=1MHz / VBW=3MHz / Sweep=AUTO
 - (b) AVERAGE: RBW=1MHz / VBW $\geq 1/T$ / Sweep=AUTO
5. Repeat the procedures until all the PEAK and AVERAGE versus POLARIZATION are measured.



TEST RESULT

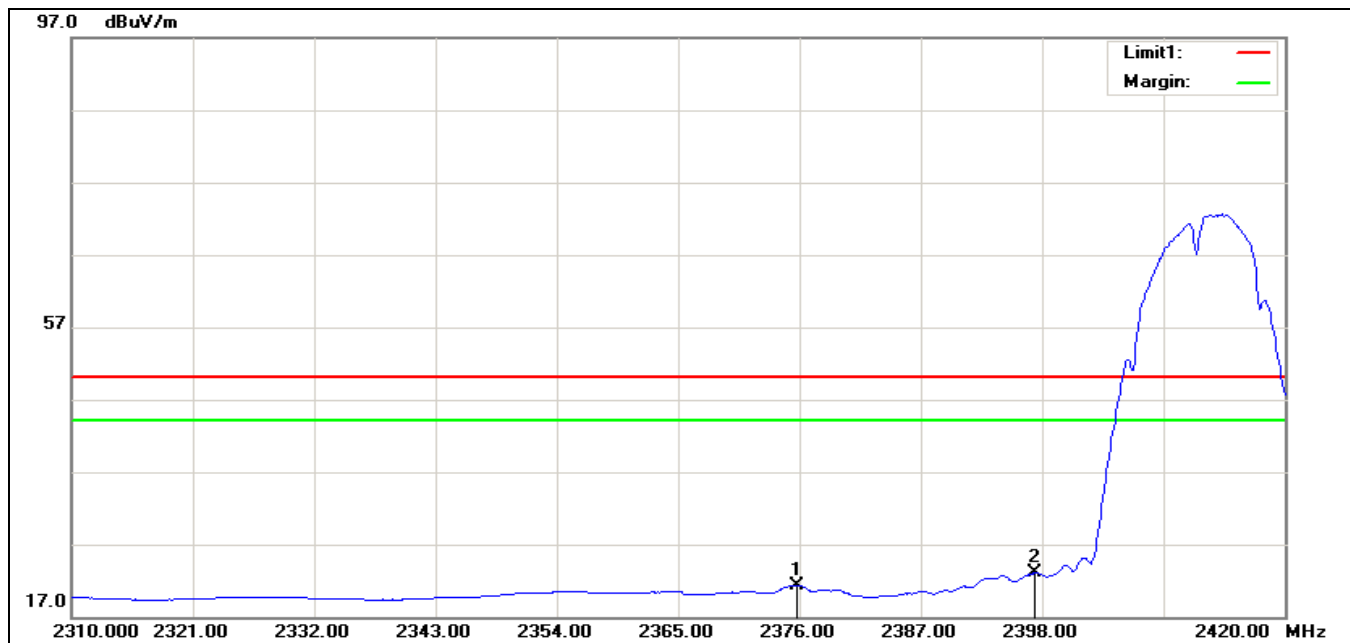
RESTRICTED BANDEDGE (b Mode, Low Channel, Vertical)

PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2364.780	47.04	-14.05	32.99	70.00	-37.01	100	338	peak
2	2398.880	50.01	-13.93	36.08	70.00	-33.92	100	0	peak

AVG

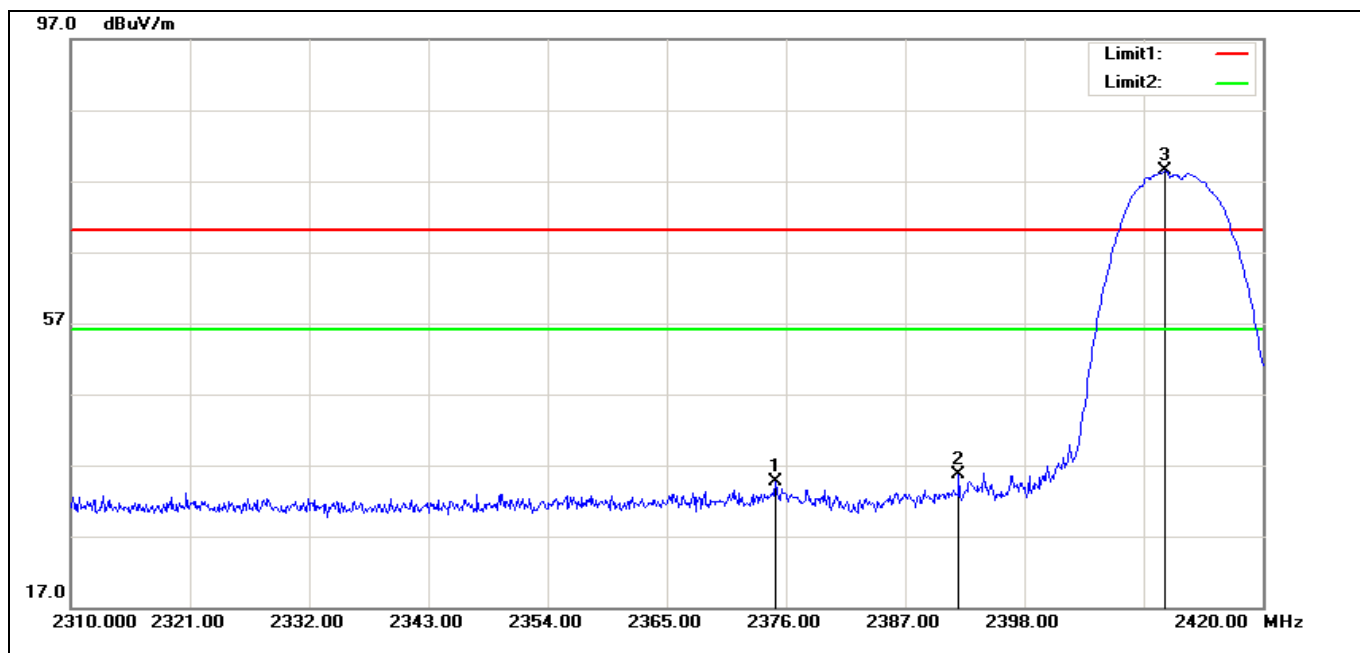


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2375.780	35.37	-14.01	21.36	50.00	-28.64	100	26	peak
2	2397.340	36.96	-13.93	23.03	50.00	-26.97	100	39	peak



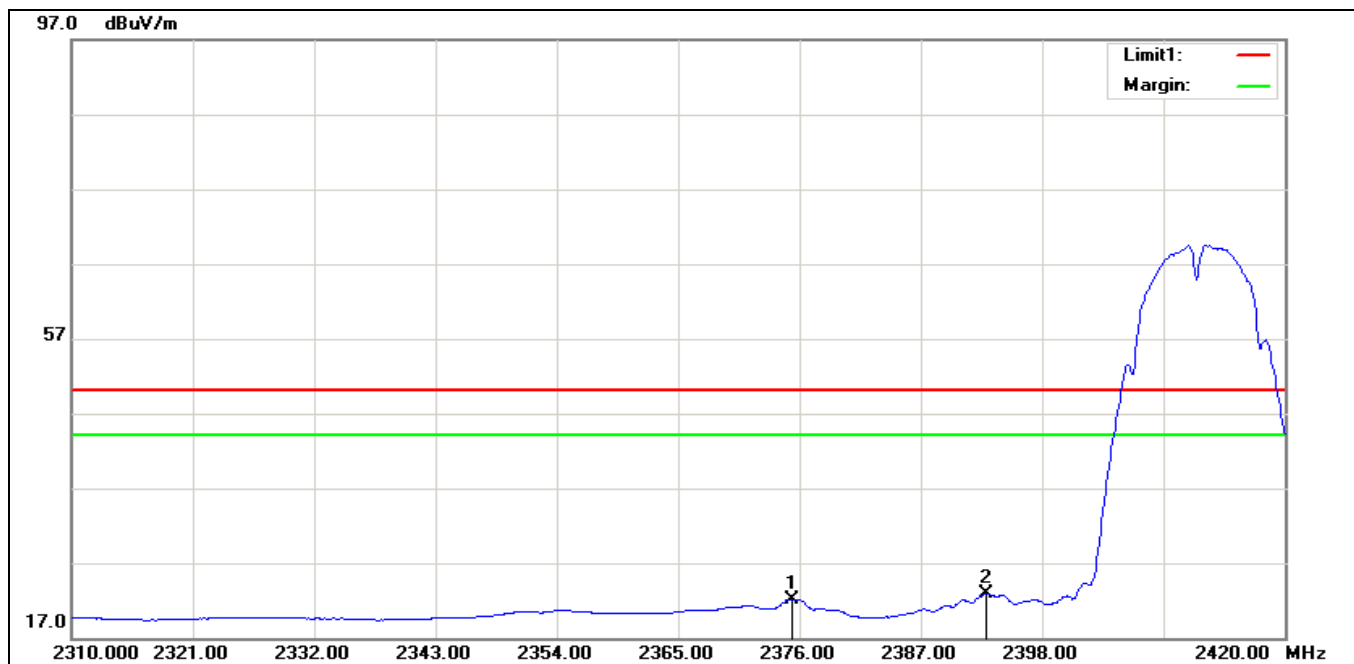
RESTRICTED BANDEDGE (b Mode, Low Channel, Horizontal)

PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2375.010	48.78	-14.01	34.77	70.00	-35.23	100	0	peak
2	2391.950	49.56	-13.95	35.61	70.00	-34.39	100	359	peak

AVG

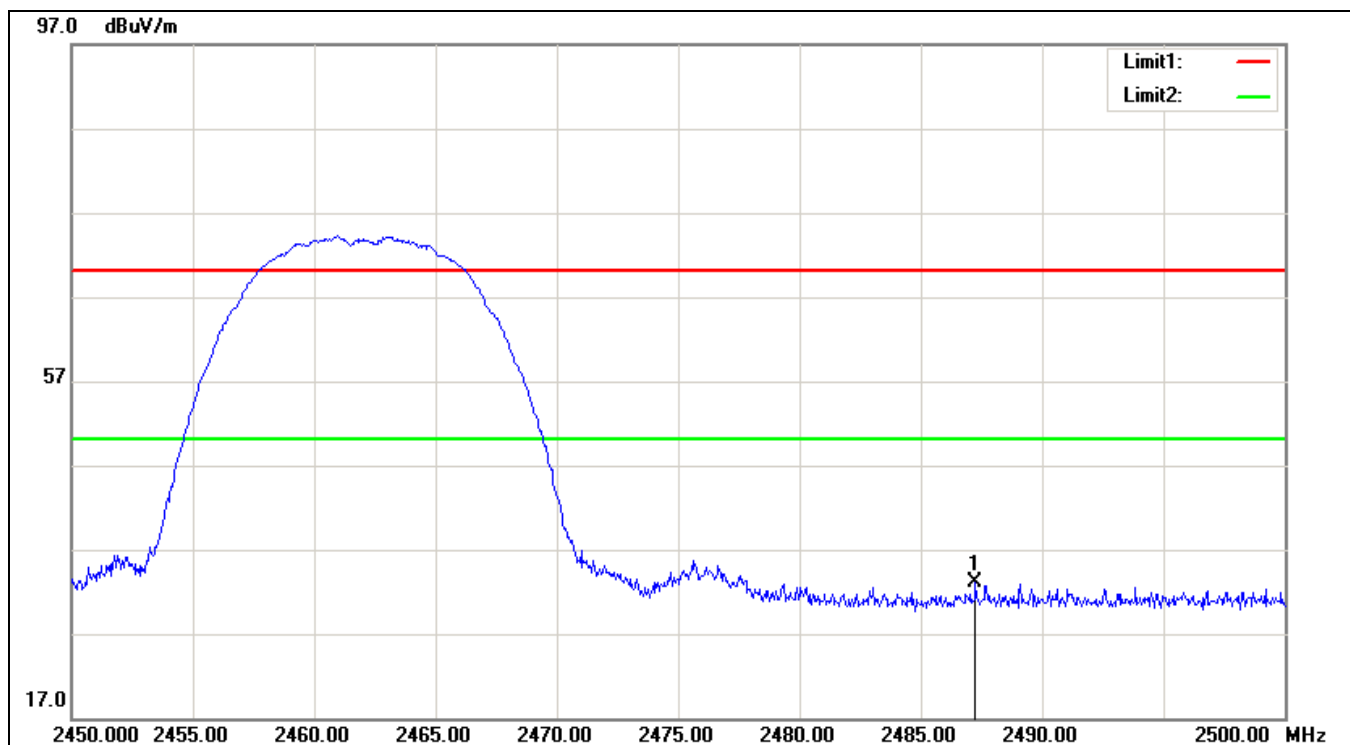


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2375.340	36.15	-14.01	22.14	50.00	-27.86	100	334	peak
2	2392.940	36.86	-13.95	22.91	50.00	-27.09	100	35	peak



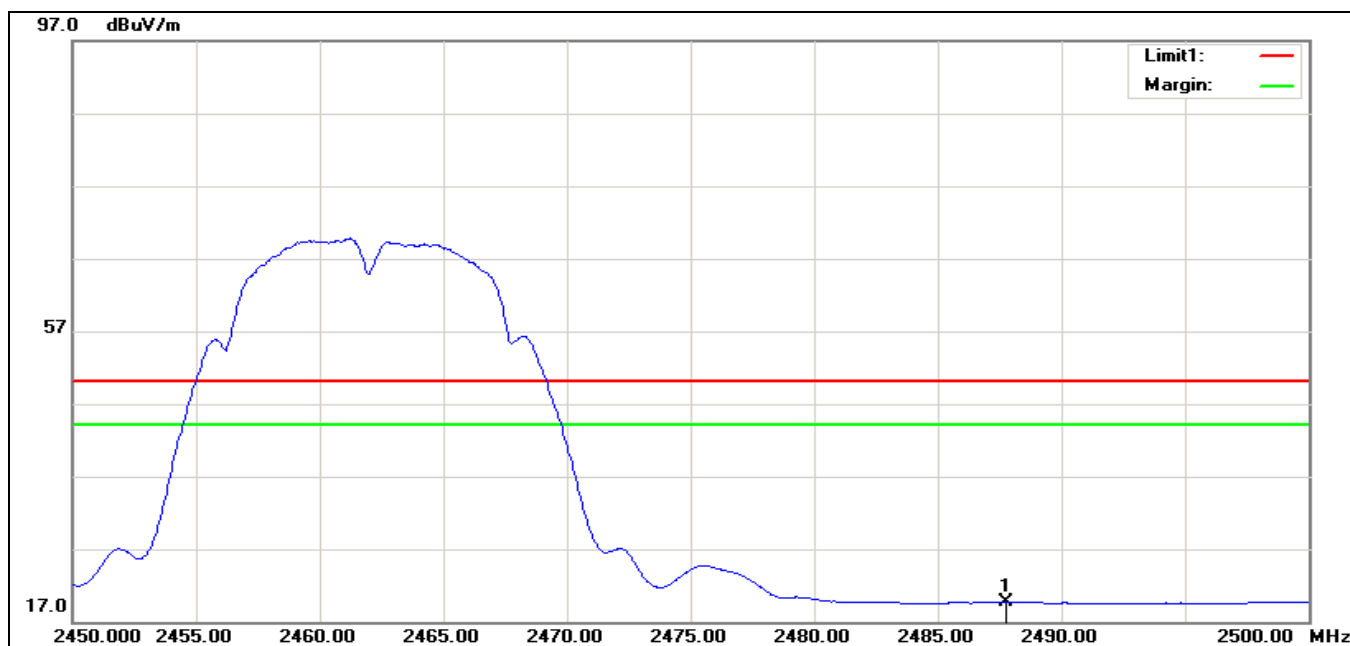
RESTRICTED BANDEDGE (b Mode, High Channel, Horizontal)

PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2487.250	46.77	-13.61	33.16	70.00	-36.84	100	61	peak

AVG

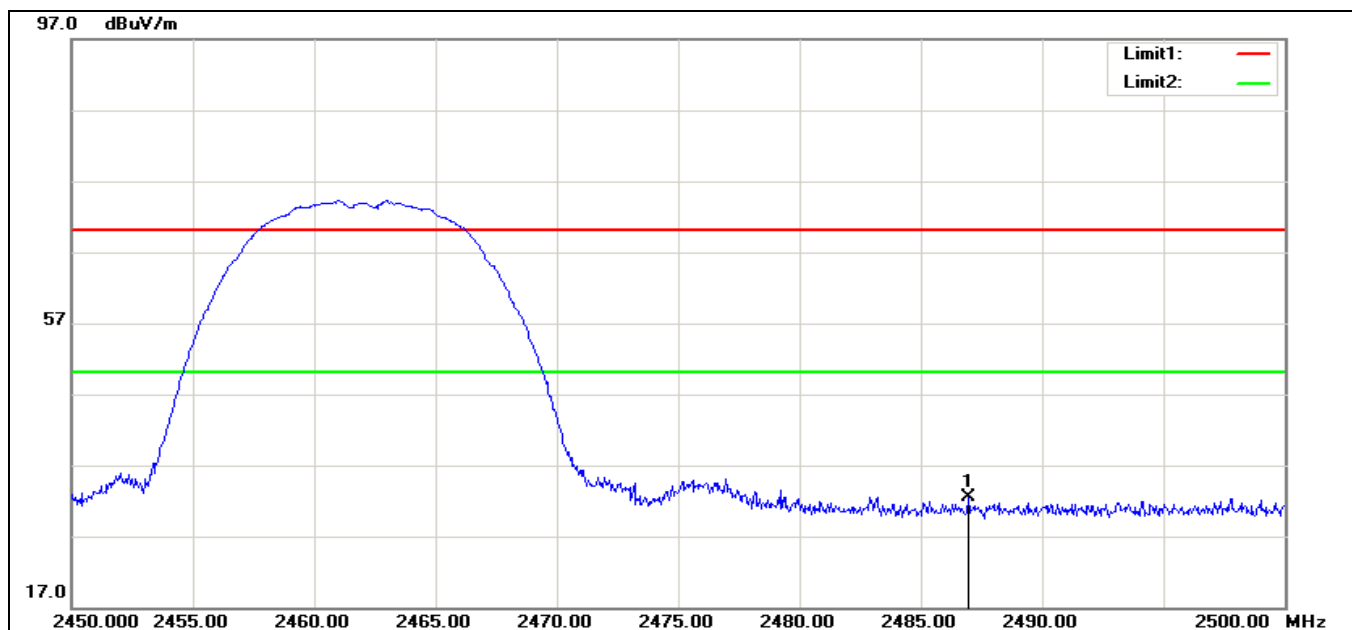


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2487.750	33.31	-13.61	19.70	50.00	-30.30	100	22	peak



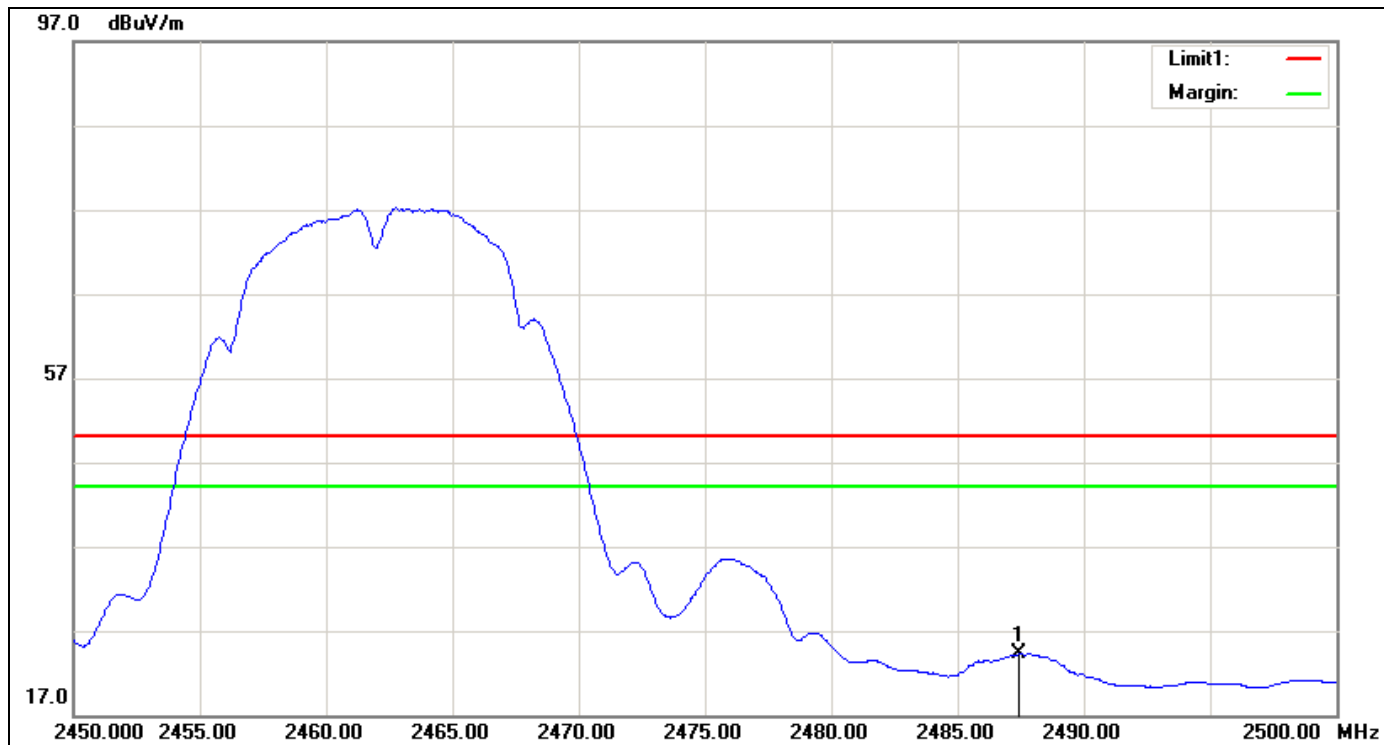
RESTRICTED BANDEDGE (b Mode, High Channel, Vertical)

PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2486.950	46.09	-13.61	32.48	70.00	-37.52	100	347	peak

AVG

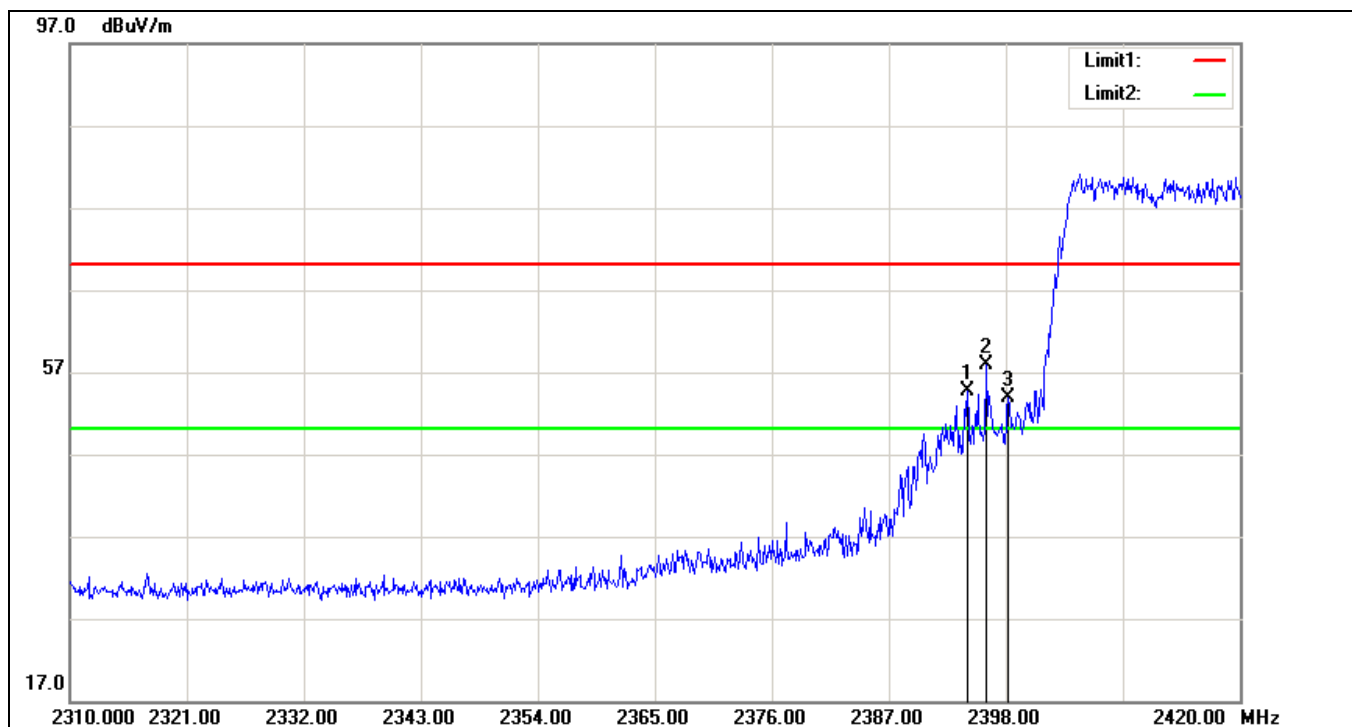


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2487.450	37.87	-13.61	24.26	50.00	-25.74	100	359	peak



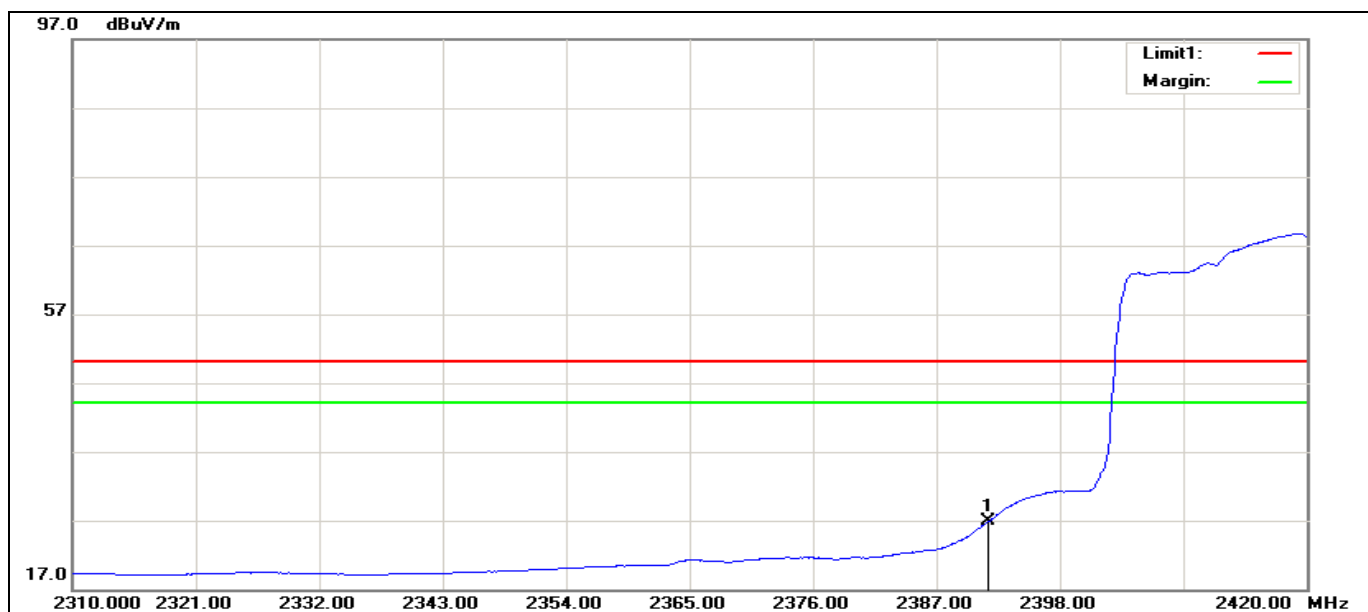
RESTRICTED BANDEDGE (g Mode, Low Channel, Horizontal)

PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2394.370	68.64	-13.94	54.70	70.00	-15.30	100	347	peak
2	2396.130	71.89	-13.94	57.95	70.00	-12.05	100	338	peak
3	2398.220	67.88	-13.93	53.95	70.00	-16.05	100	334	peak

AVG

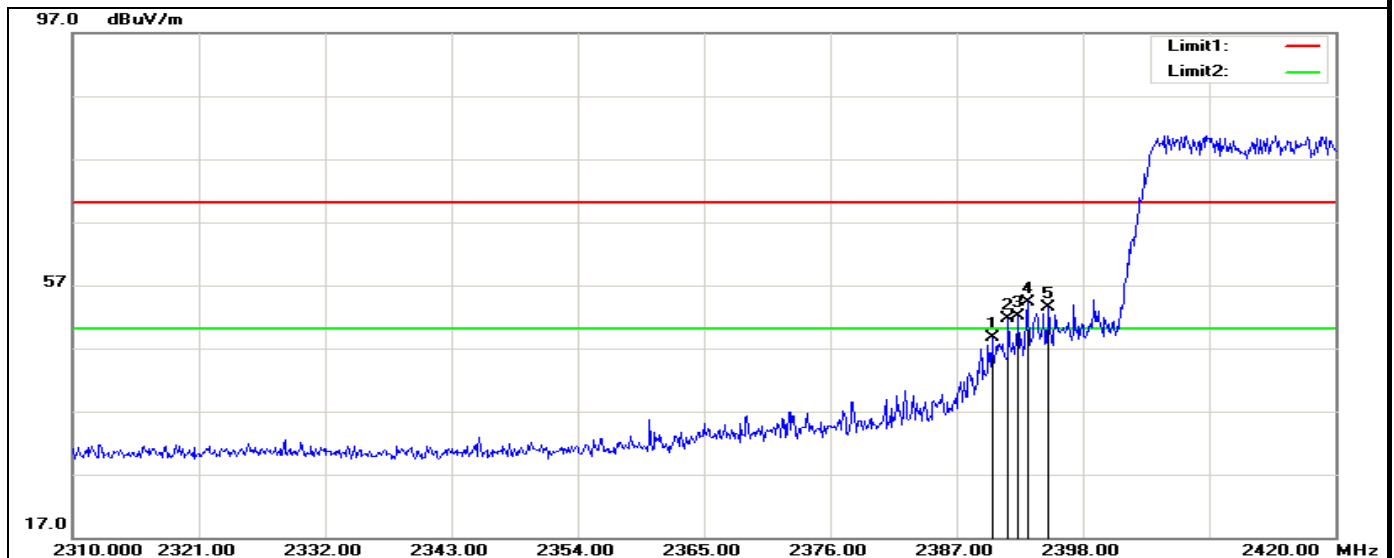


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2391.620	40.81	-13.95	26.86	50.00	-23.14	100	151	peak



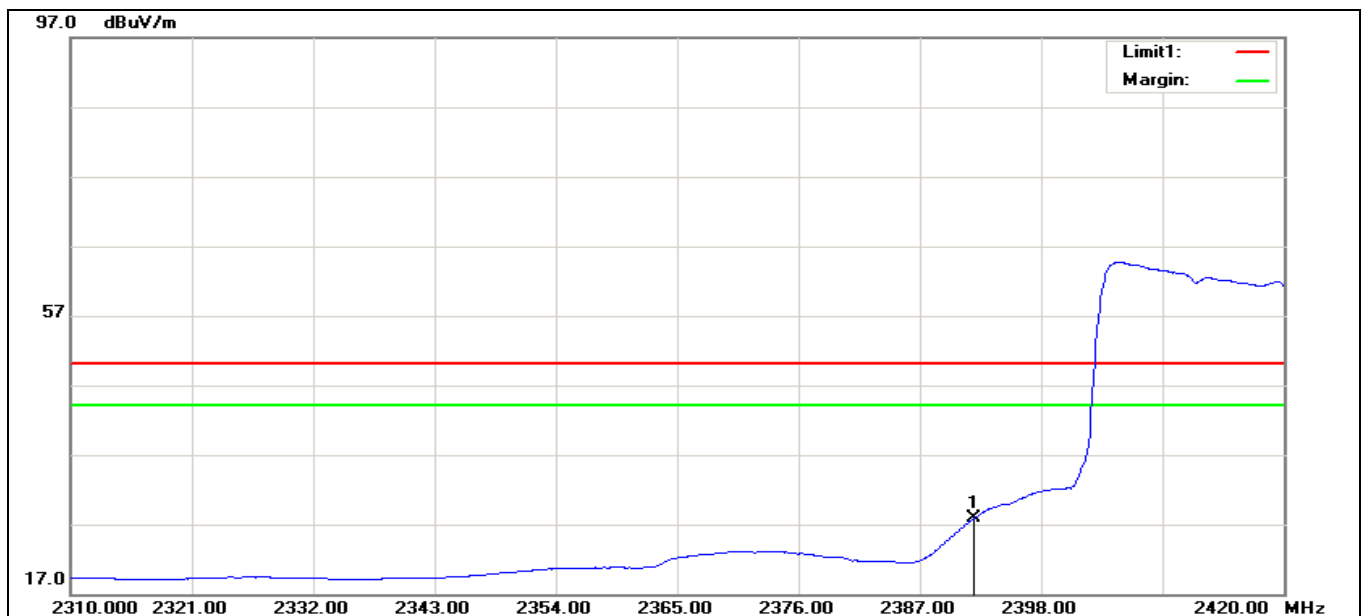
RESTRICTED BANDEDGE (g Mode, Low Channel, Vertical)

PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2390.080	62.64	-13.96	48.68	70.00	-21.32	100	347	peak
2	2391.510	65.55	-13.95	51.60	70.00	-18.40	100	343	peak
3	2392.390	66.01	-13.95	52.06	70.00	-17.94	100	343	peak
4	2393.160	68.24	-13.95	54.29	70.00	-15.71	100	338	peak
5	2395.030	67.49	-13.94	53.55	70.00	-16.45	100	343	peak

AVG

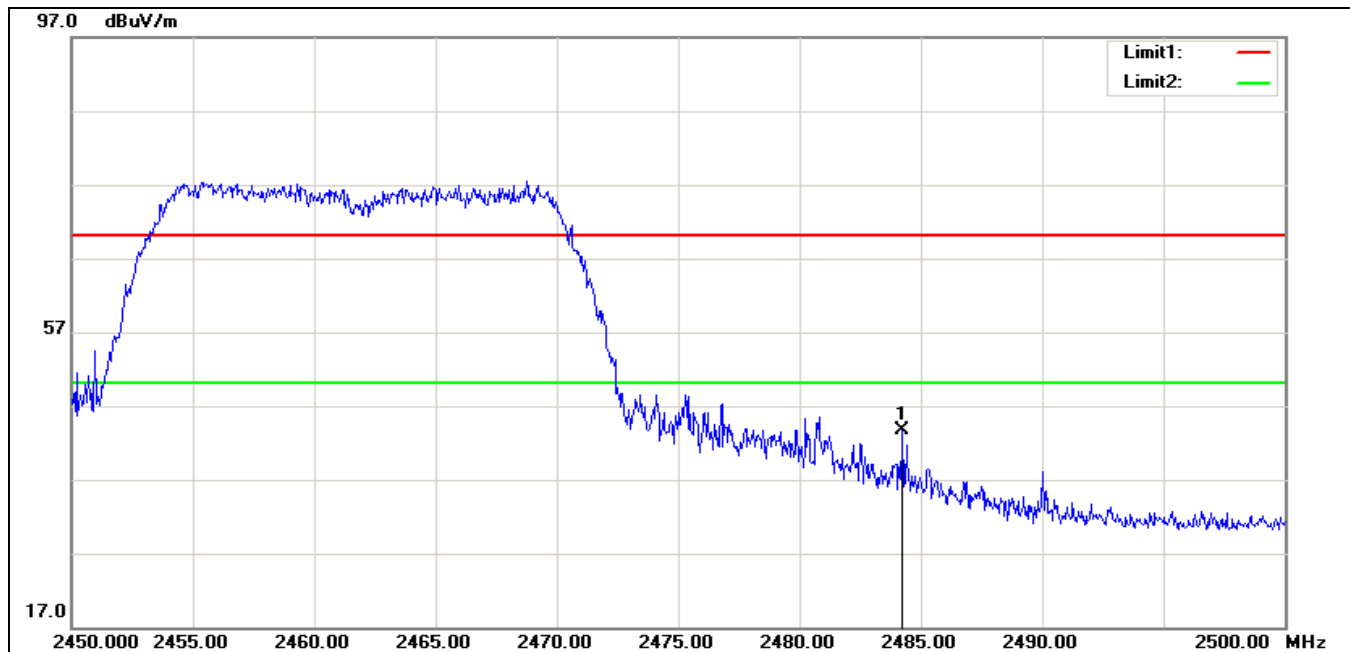


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2391.950	41.86	-13.95	27.91	50.00	-22.09	100	324	peak



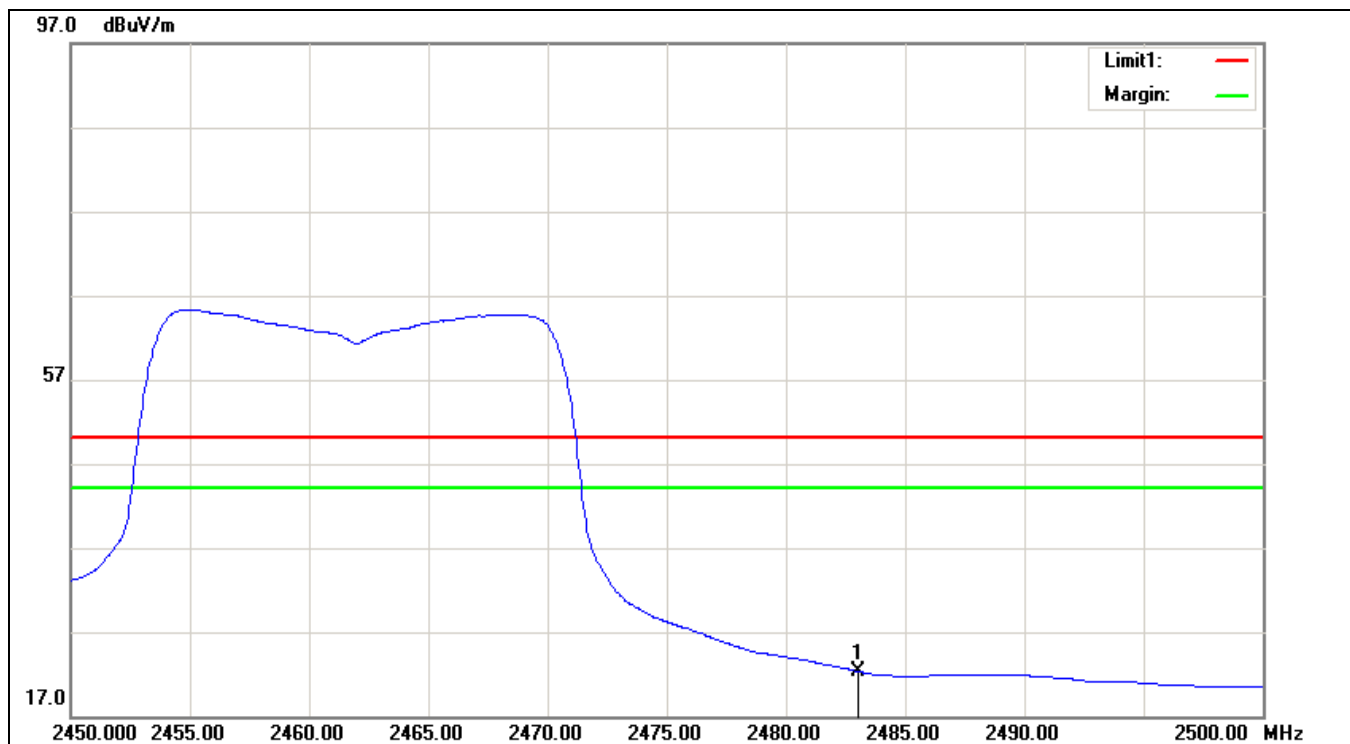
RESTRICTED BANDEDGE (g Mode, High Channel, Horizontal)

PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2484.250	57.23	-13.62	43.61	70.00	-26.39	100	209	peak

AVG

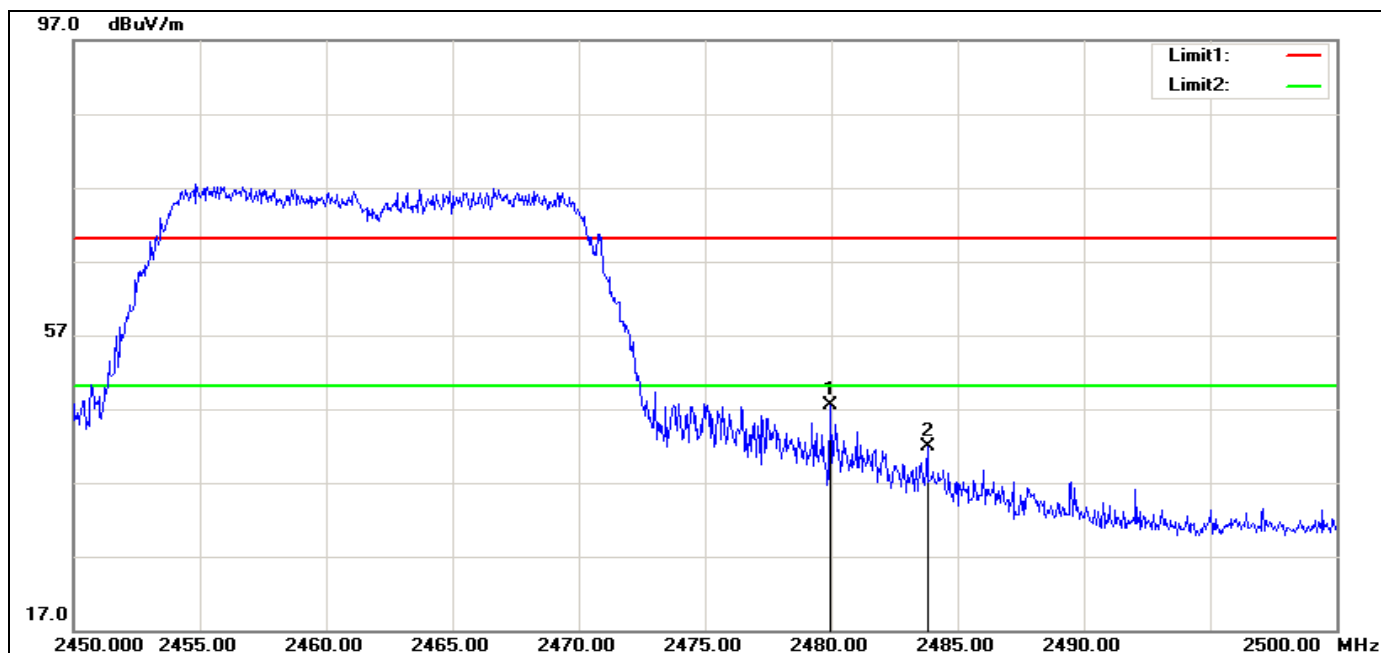


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.050	35.92	-13.63	22.29	50.00	-27.71	100	164	peak



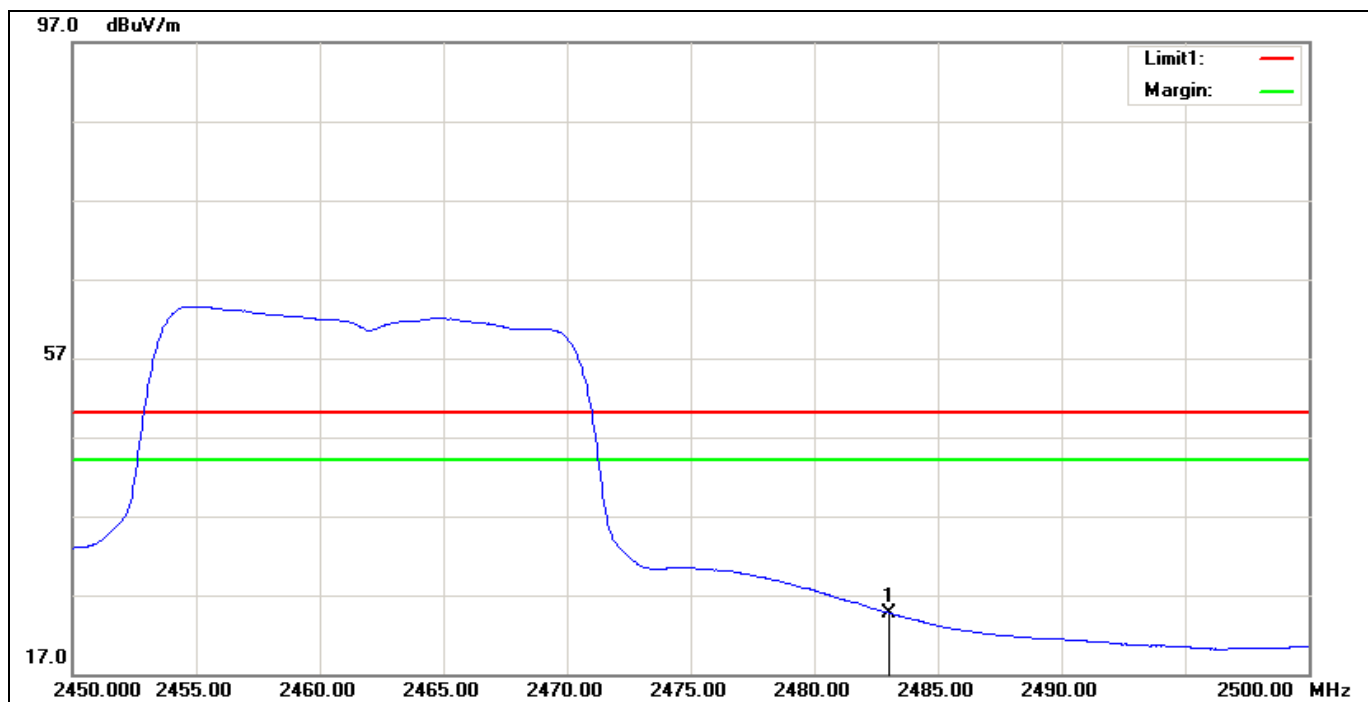
RESTRICTED BANDEDGE (g Mode, High Channel, Vertical)

PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2479.950	61.12	-13.64	47.48	70.00	-22.52	100	213	peak
2	2483.800	55.47	-13.62	41.85	70.00	-28.15	100	208	peak

AVG

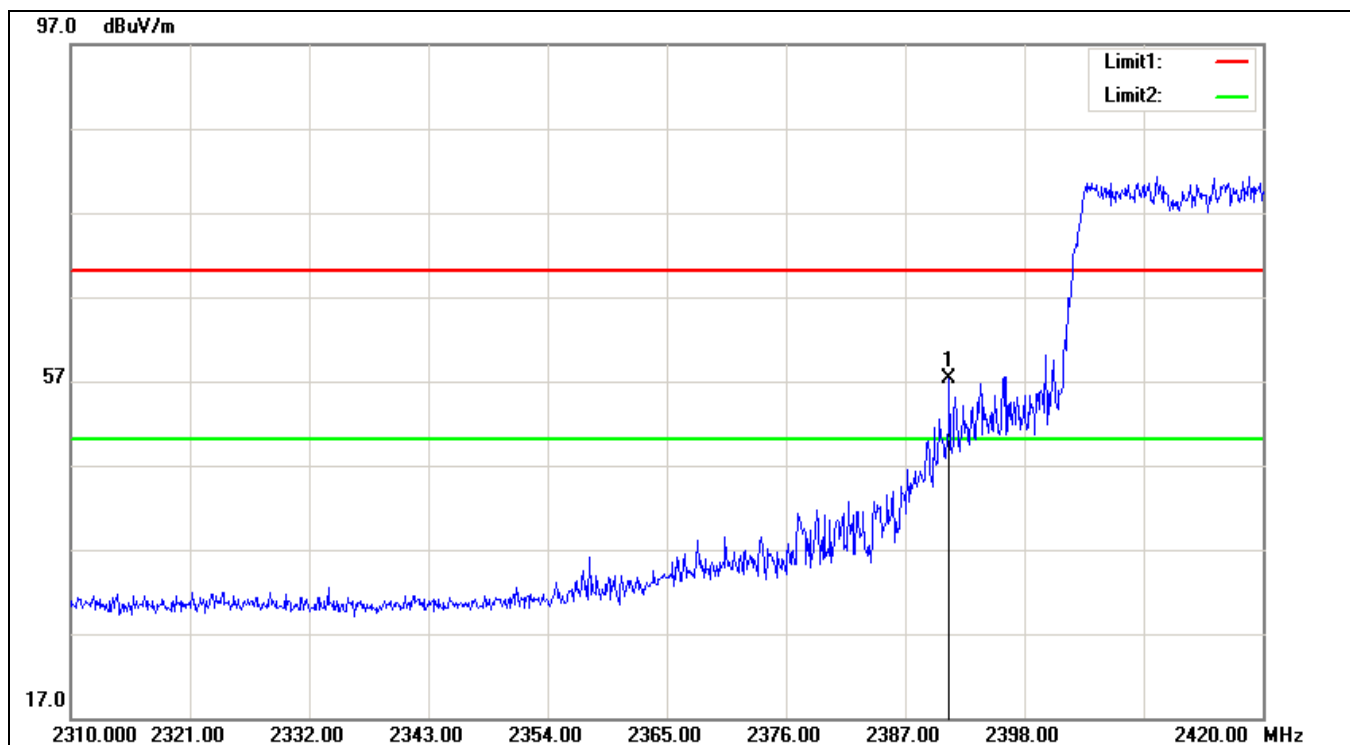


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.050	38.36	-13.63	24.73	50.00	-25.27	100	333	peak



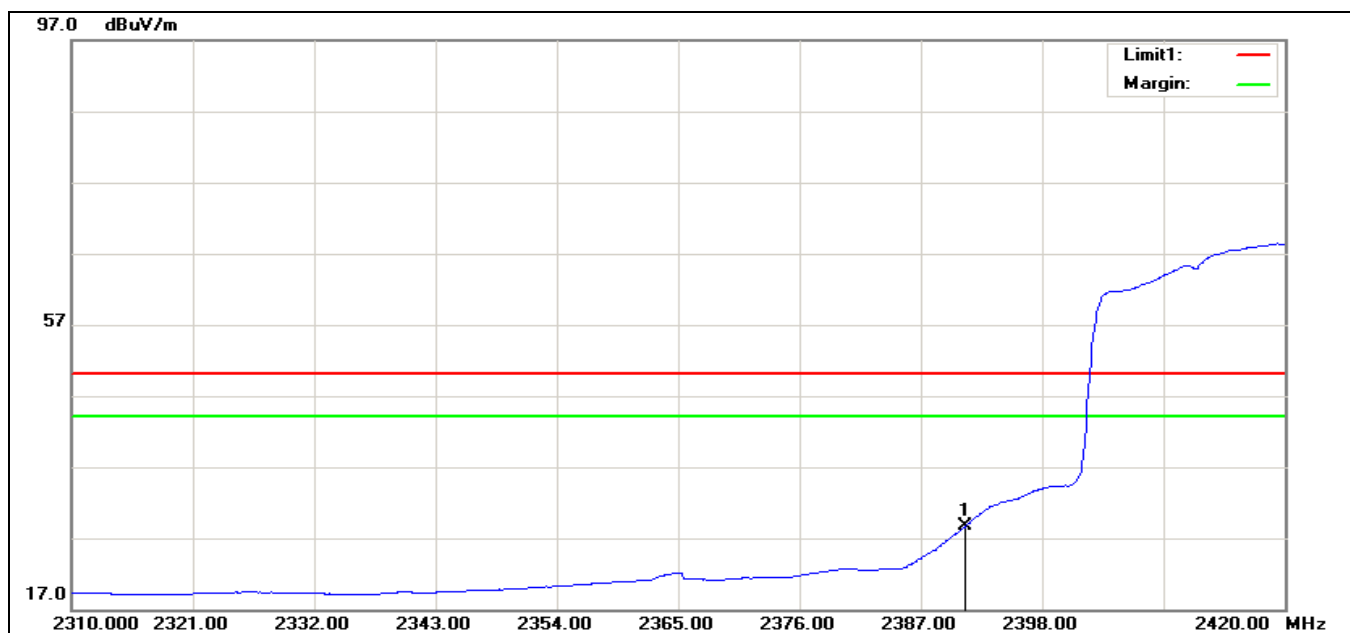
RESTRICTED BANDEDGE (802.11n Standard-20 MHz Channel mode, Low Channel, Horizontal)

PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2391.070	71.24	-13.95	57.29	70.00	-12.71	100	347	peak

AVG

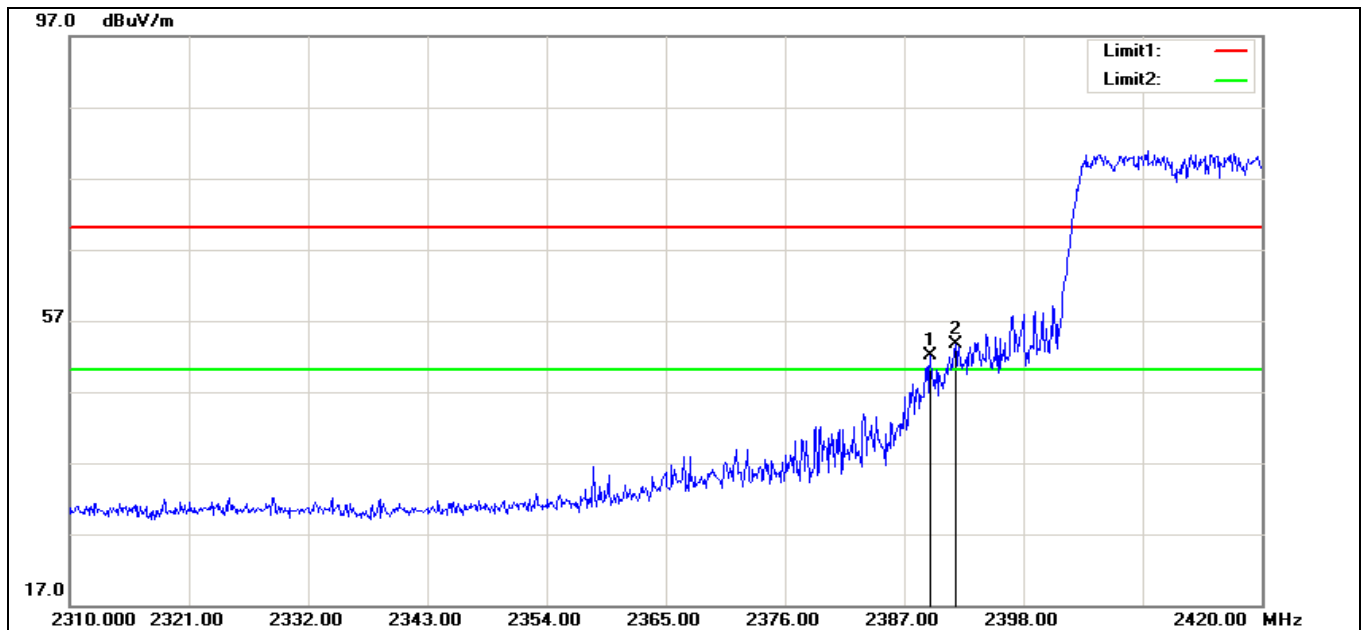


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2391.070	42.63	-13.95	28.68	50.00	-21.32	100	320	peak



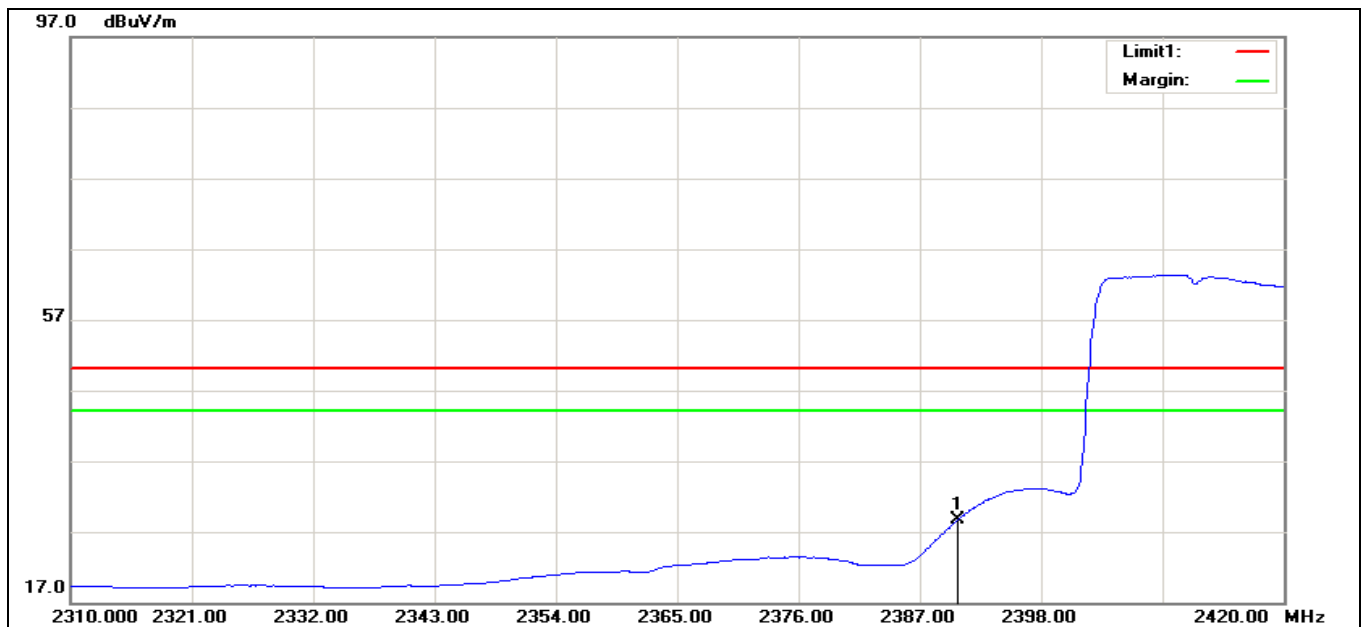
RESTRICTED BANDEDGE (802.11n Standard-20 MHz Channel mode, Low Channel, Vertical)

PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2389.420	66.09	-13.96	52.13	70.00	-17.87	100	352	peak
2	2391.730	67.62	-13.95	53.67	70.00	-16.33	100	343	peak

AVG

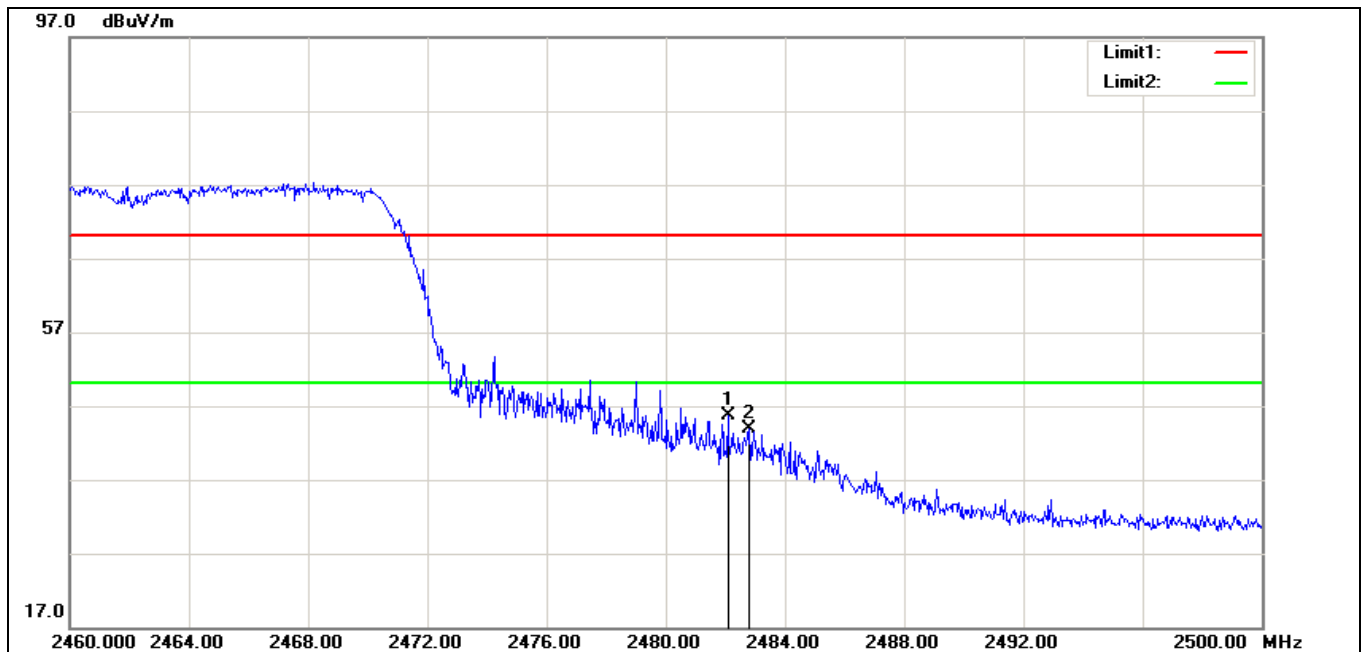


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2390.410	42.59	-13.96	28.63	50.00	-21.37	100	324	peak



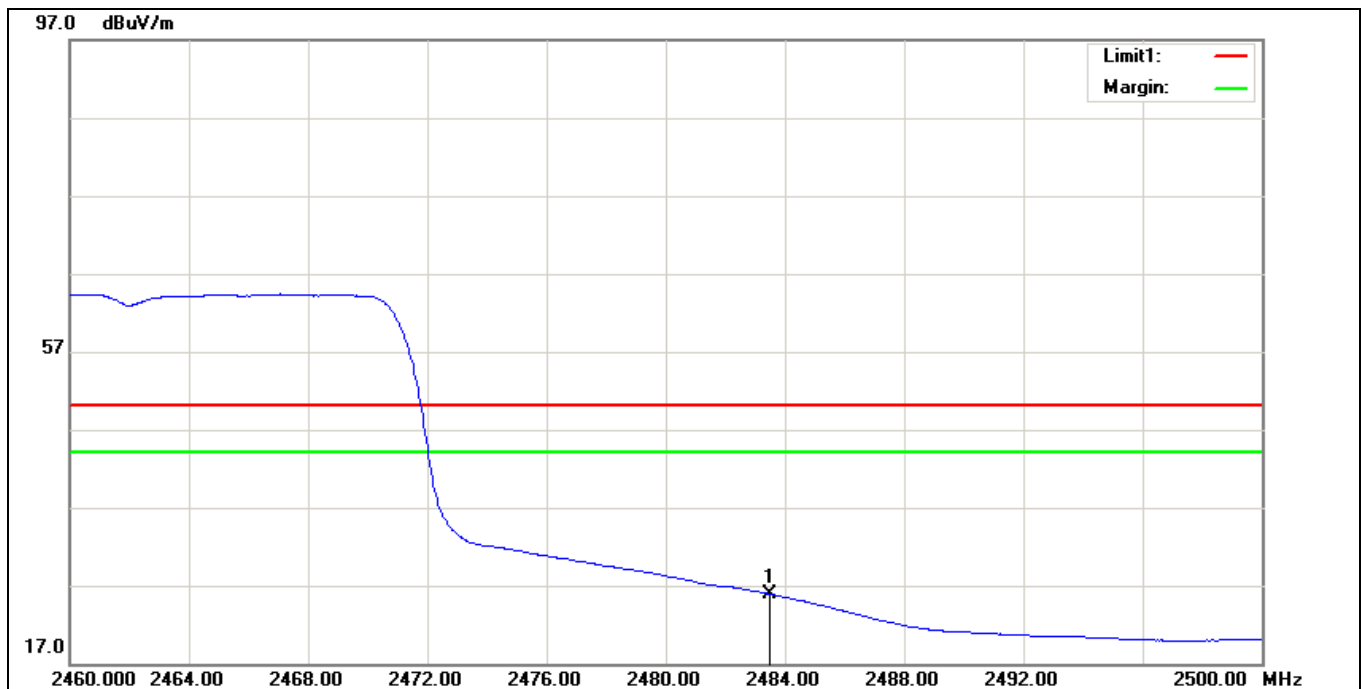
RESTRICTED BANDEDGE (802.11n Standard-20 MHz Channel mode, High Channel, Horizontal)

PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2482.080	59.34	-13.63	45.71	70.00	-24.29	100	13	peak
2	2482.800	57.59	-13.63	43.96	70.00	-26.04	100	17	peak

AVG

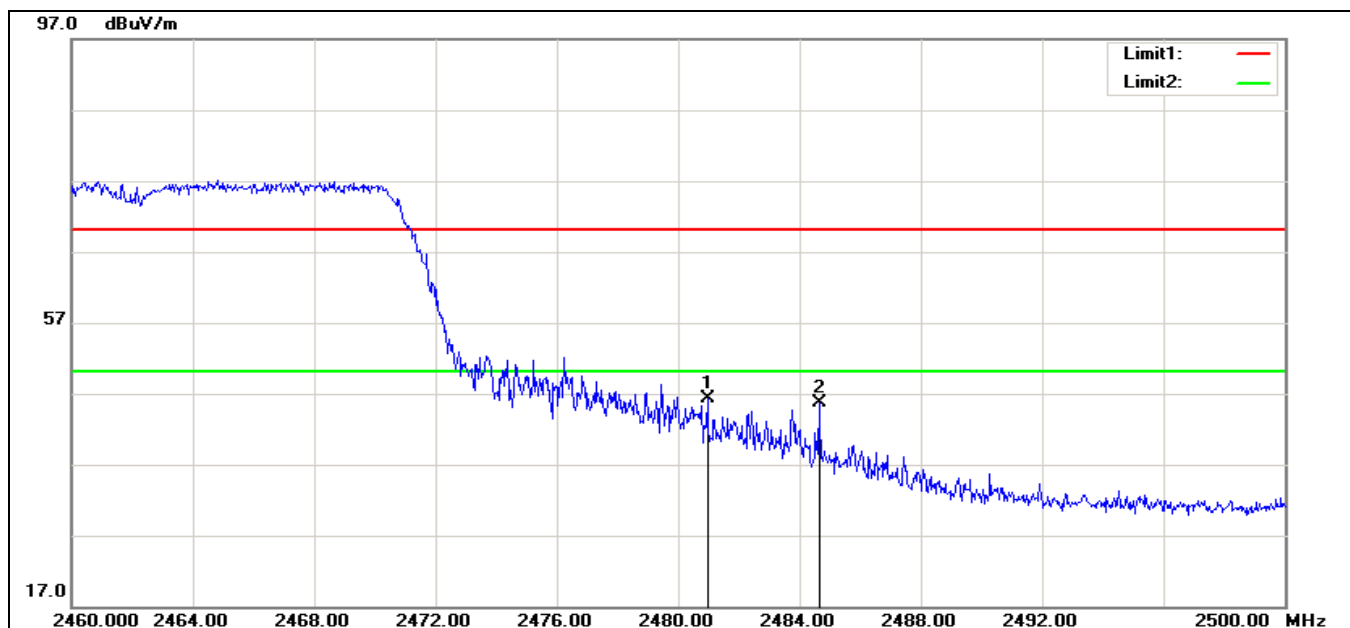


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	39.54	-13.62	25.92	50.00	-24.08	100	30	peak

RESTRICTED BANDEDGE (802.11n Standard-20 MHz Channel mode, High Channel, Vertical)

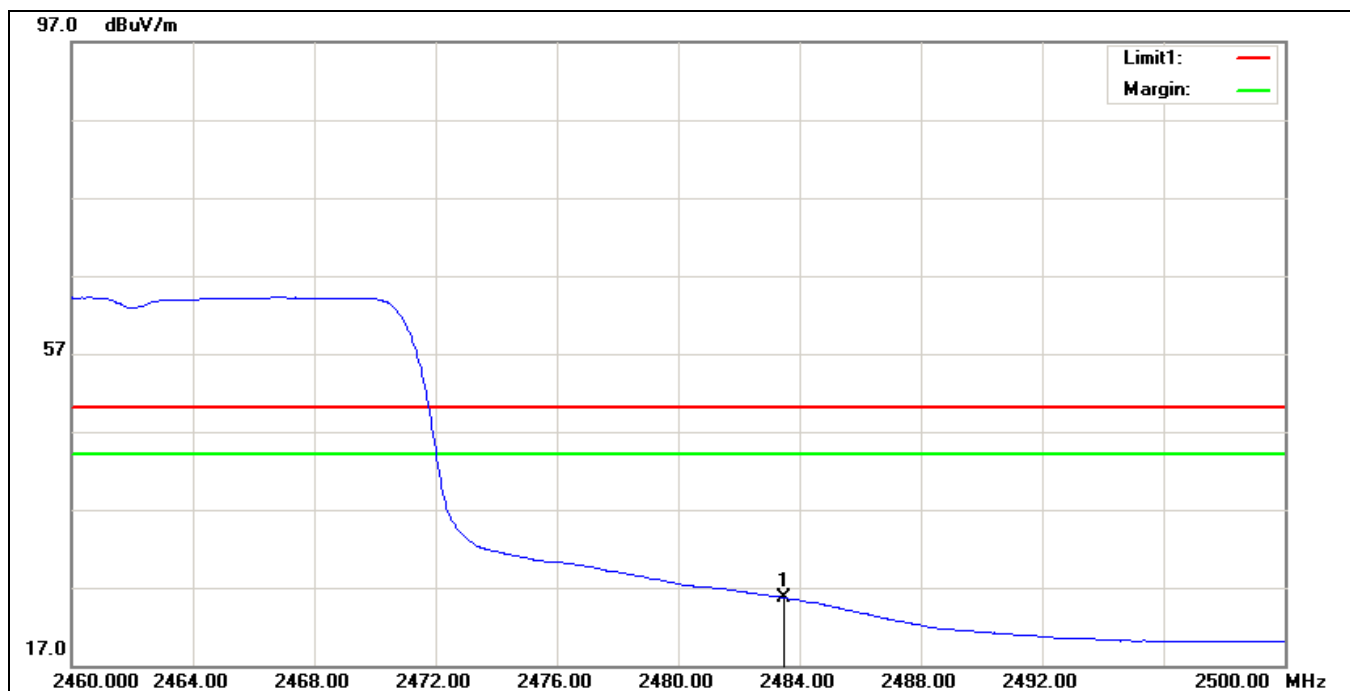


PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2480.960	60.01	-13.63	46.38	70.00	-23.62	100	49	peak
2	2484.640	59.30	-13.62	45.68	70.00	-24.32	100	26	peak

AVG

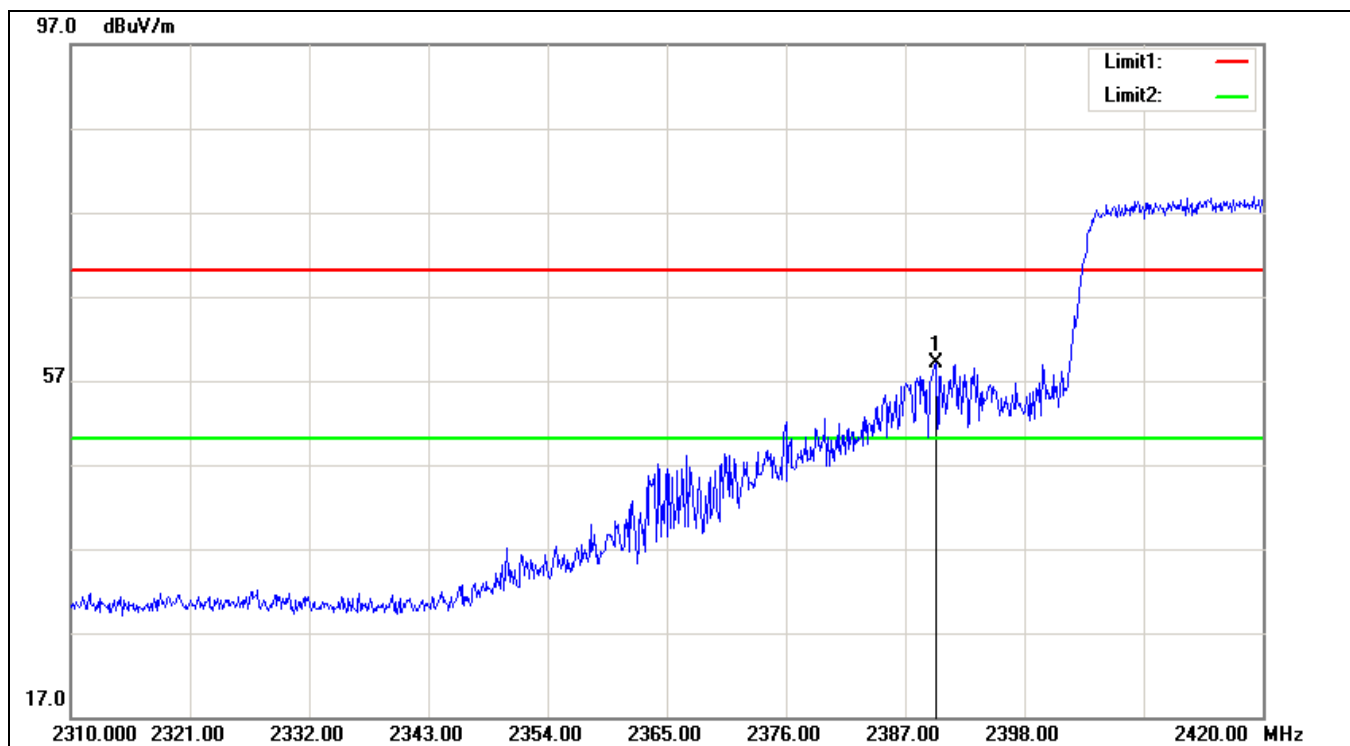


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	39.27	-13.62	25.65	50.00	-24.35	100	25	peak

RESTRICTED BANDEDGE (802.11n Wide-40 MHz Channel mode, Low Channel, Horizontal)

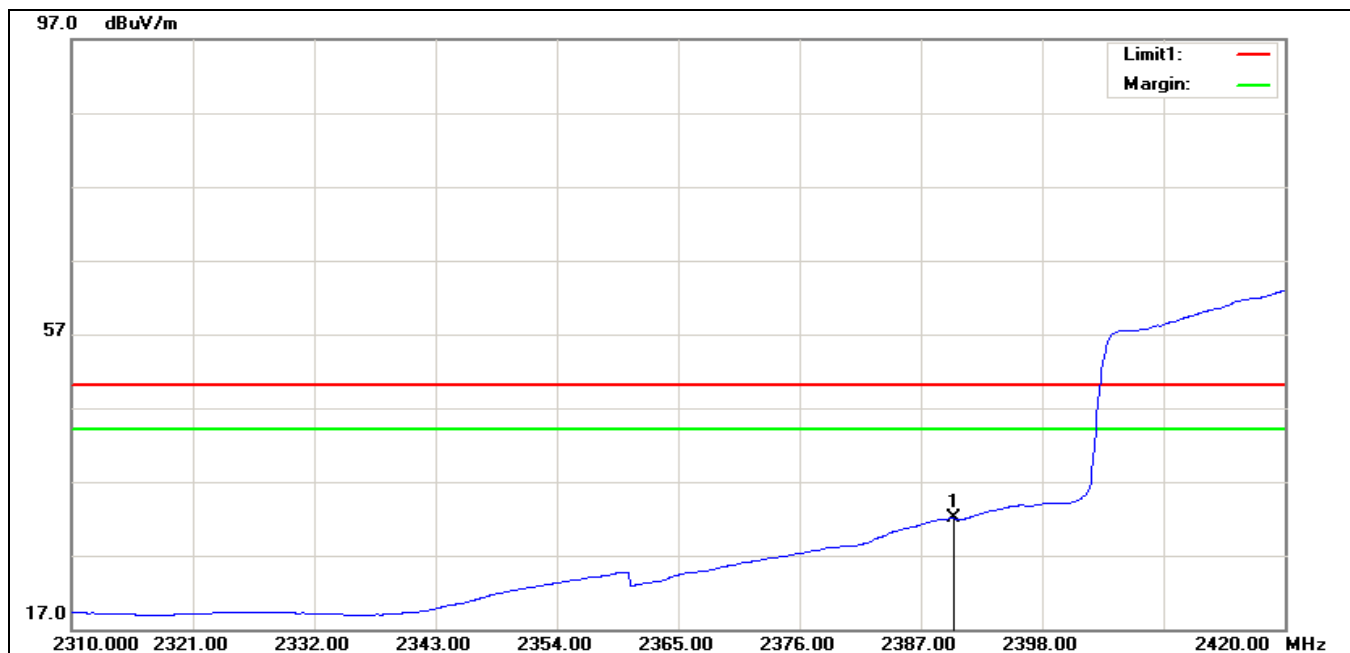


PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2389.860	73.04	-13.96	59.08	70.00	-10.92	100	347	peak

AVG

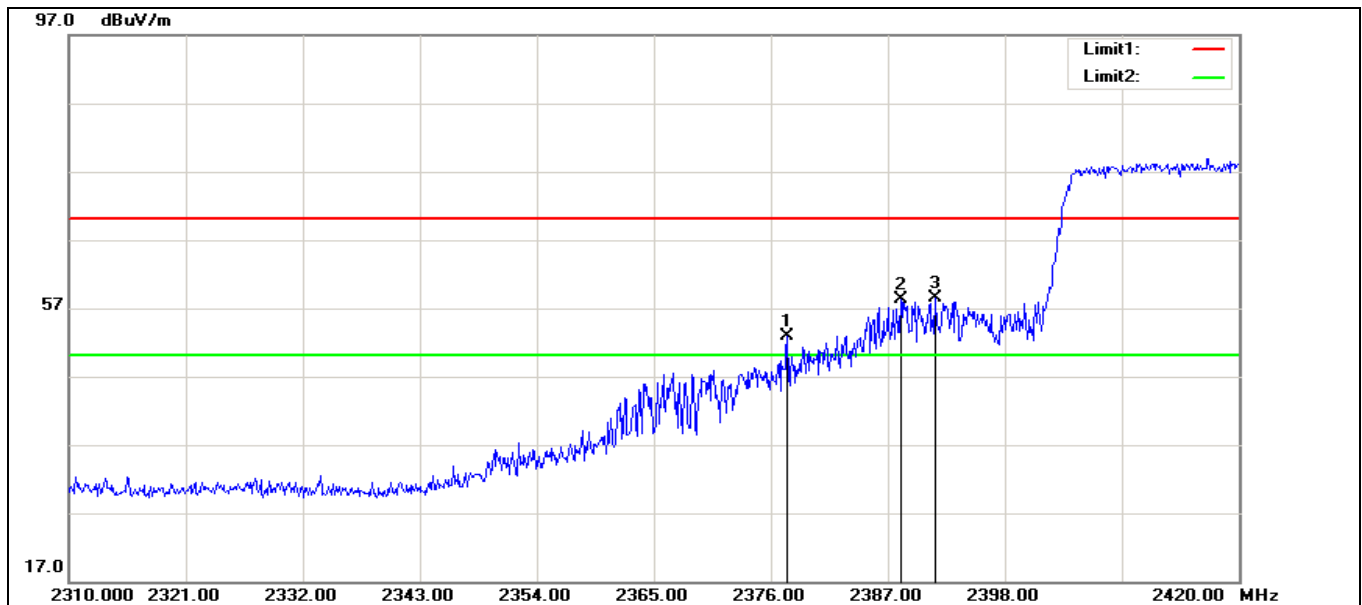


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2390.000	45.95	-13.96	31.99	50.00	-18.01	100	50	peak



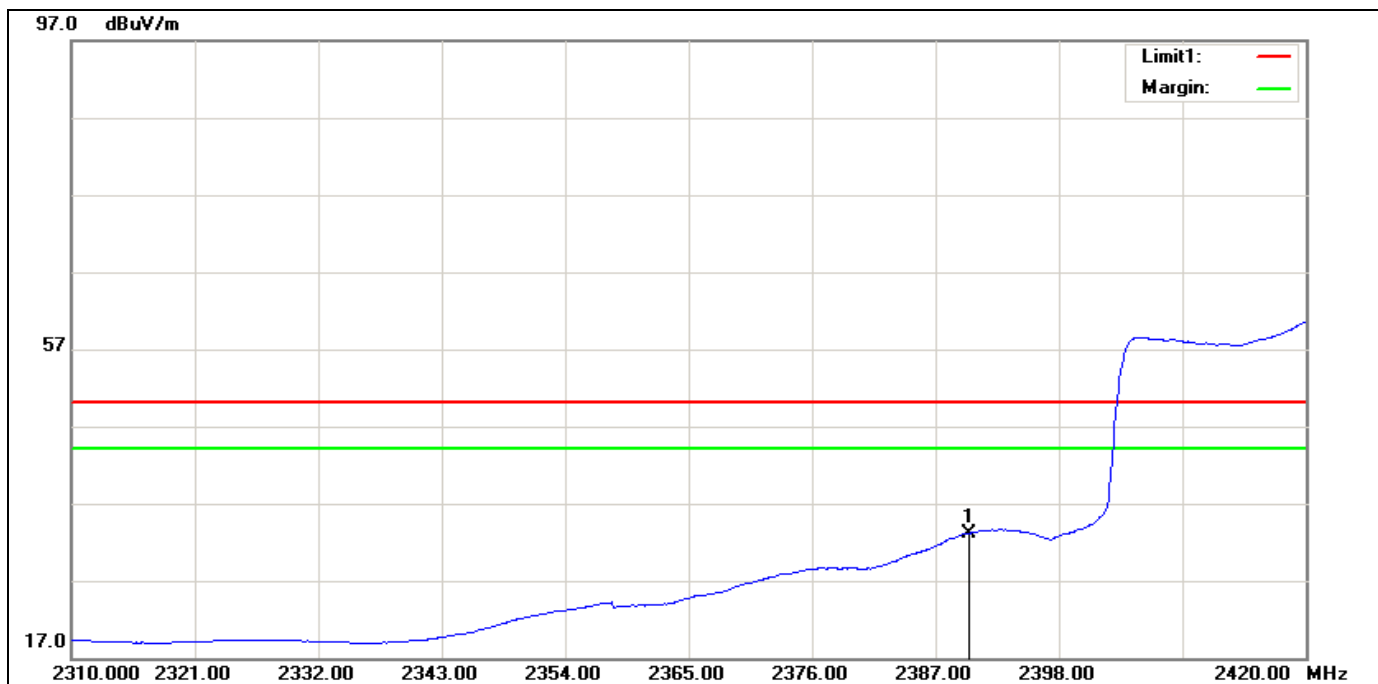
RESTRICTED BANDEDGE (802.11n Wide-40 MHz Channel mode, Low Channel, Vertical)

PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2377.540	66.90	-14.00	52.90	70.00	-17.10	100	353	peak
2	2388.210	72.27	-13.96	58.31	70.00	-11.69	100	344	peak
3	2391.400	72.51	-13.95	58.56	70.00	-11.44	100	8	peak

AVG

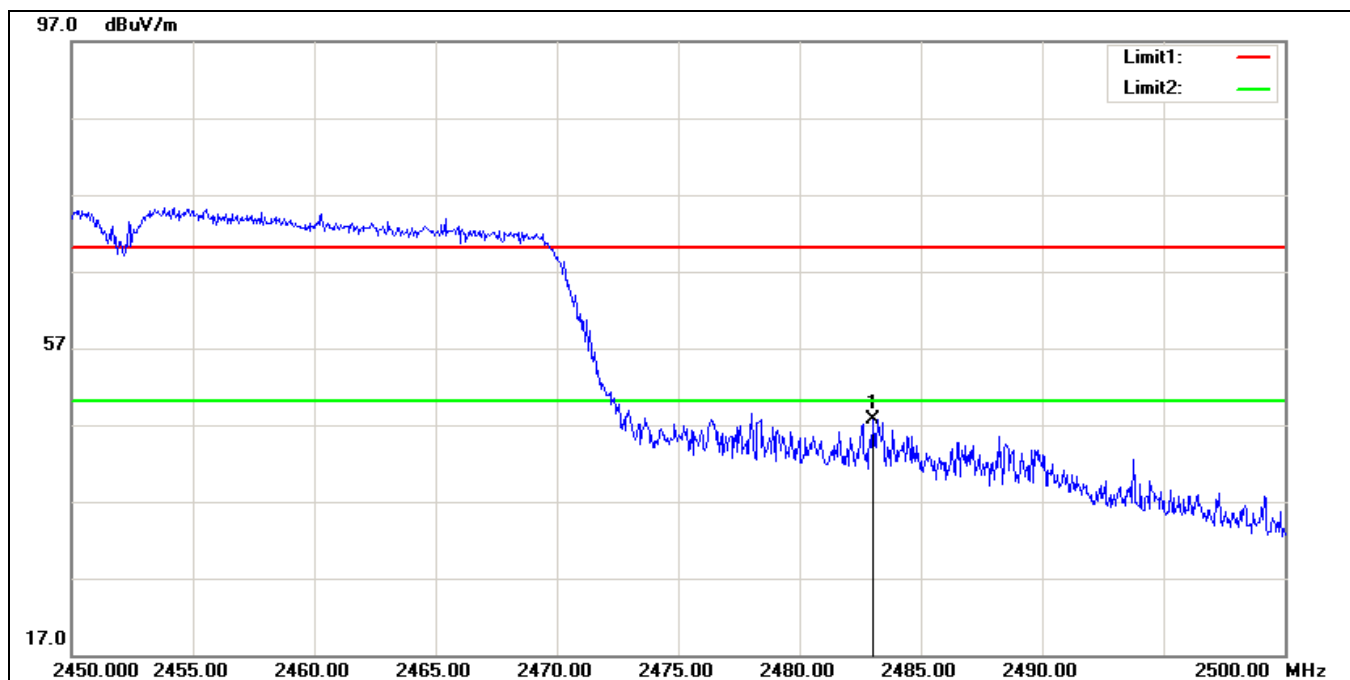


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2390.000	47.13	-13.96	33.17	50.00	-16.83	325	50	peak



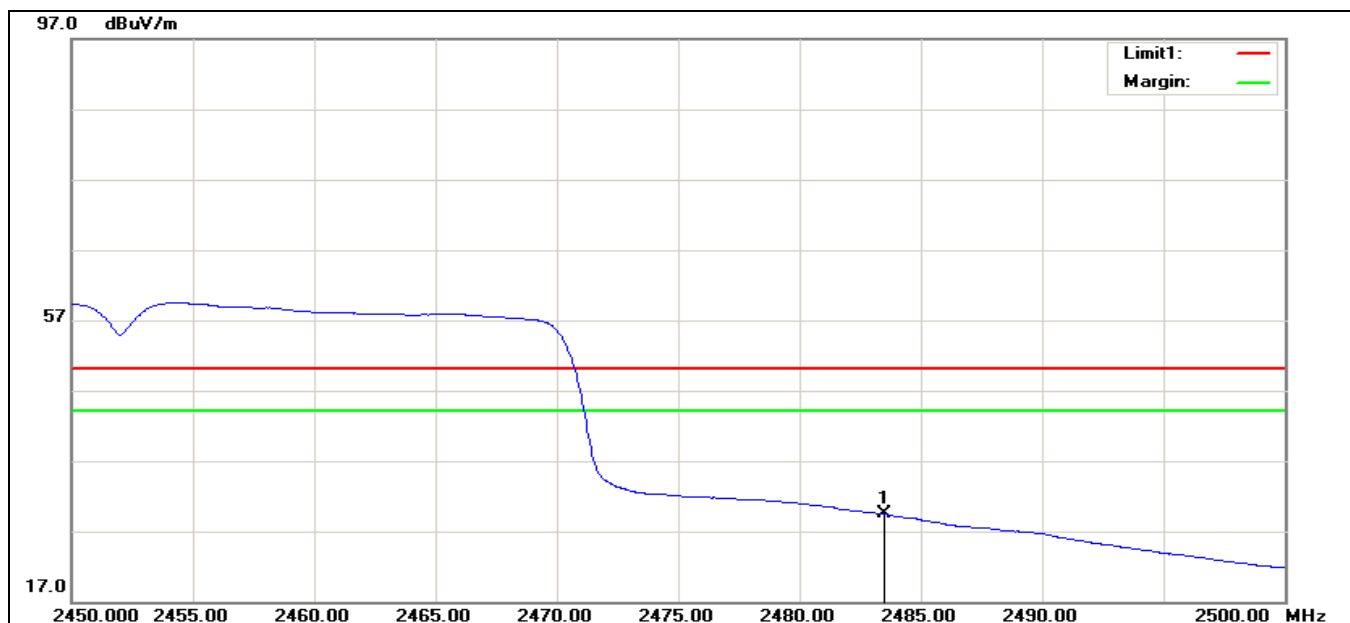
RESTRICTED BANDEDGE (802.11n Wide-40 MHz Channel mode, High Channel, Horizontal)

PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.050	61.37	-13.63	47.74	70.00	-22.26	100	192	peak

AVG

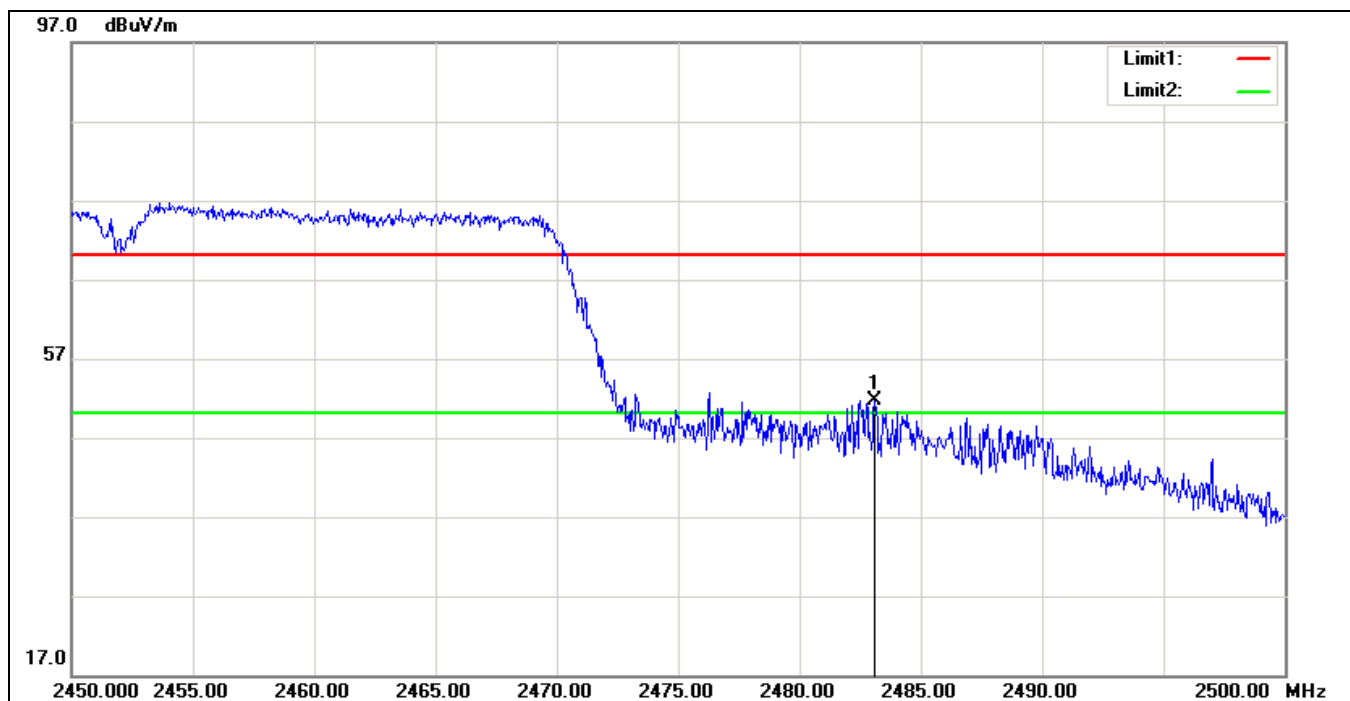


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	43.05	-13.62	29.43	50.00	-20.57	200		peak

RESTRICTED BANDEDGE (802.11n Wide-40 MHz Channel mode, High Channel, Vertical)

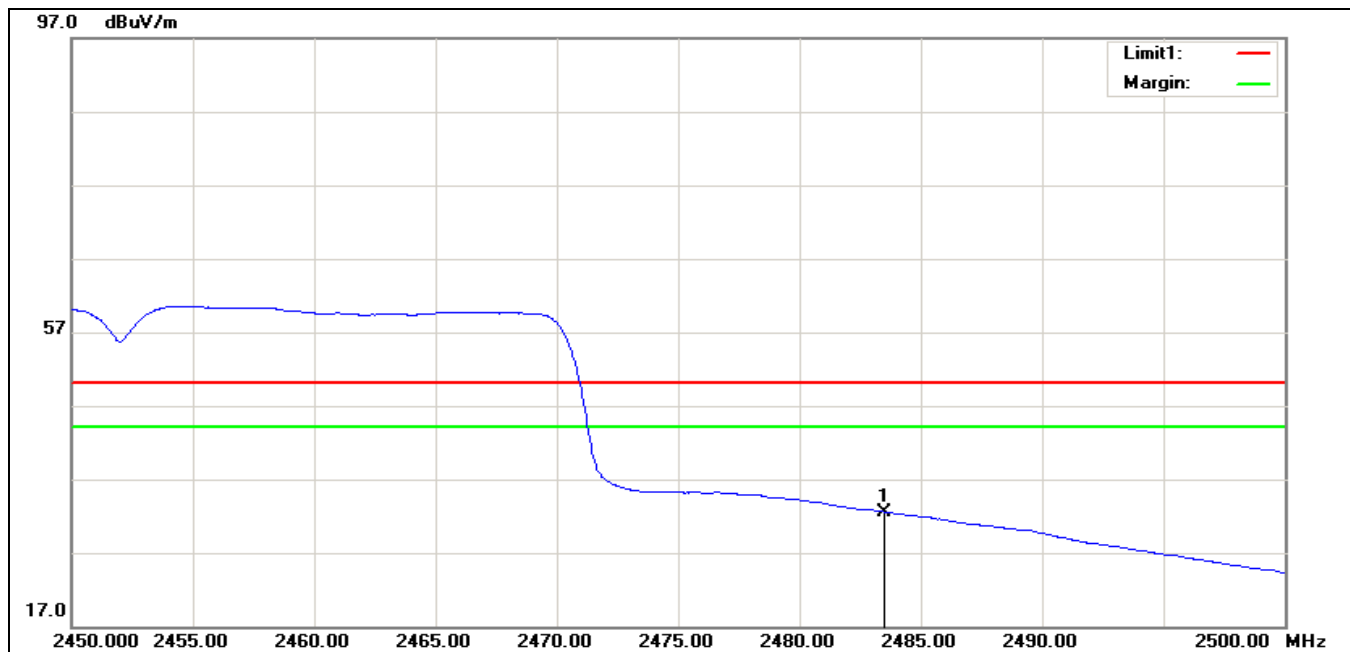


PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.100	65.26	-13.63	51.63	70.00	-18.37	100	193	peak

AVG



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	46.19	-13.62	32.57	50.00	-17.43	186		peak



7.5. SPURIOUS EMISSIONS

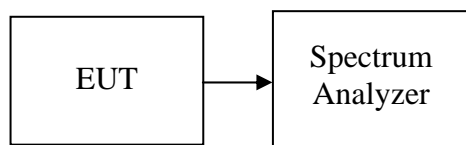
7.5.1. Conducted Measurement

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)).

If Conducted power was measured based on the use of RMS averaging over a time interval, therefore the required attenuation is 30 dB.

Test Configuration



TEST PROCEDURE

KDB 558074 D01 DTS Measurement Guidance V01

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 100 kHz.

Measurements are made over the 30MHz to 26GHz range with the transmitter set to the lowest, middle, and highest channels.

TEST RESULTS

No non-compliance noted



Test Plot

IEEE 802.11b mode

CH Low

Agilent

R T

Mkr3 6.96 GHz
69.00 dBμV

Ref 137 dBμV

Atten 40 dB

Peak

Log

10

dB/

Offst

7

dB

DI

89.3

dBμV

LgAv

M1 S2

Start 30 MHz

Stop 26.00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 2.482 s (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.41 GHz	109.34 dBμV
2	(1)	Freq	4.62 GHz	66.13 dBμV
3	(1)	Freq	6.96 GHz	69.00 dBμV

CH Mid

Agilent

R T

Mkr2 6.96 GHz
68.63 dBμV

Ref 137 dBμV

Atten 40 dB

Peak

Log

10

dB/

Offst

7

dB

DI

89.3

dBμV

LgAv

M1 S2

Start 30 MHz

Stop 26.00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 2.482 s (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.44 GHz	109.37 dBμV
2	(1)	Freq	6.96 GHz	68.63 dBμV



CH High

* Agilent

R T

Mkr1 2.46 GHz
109.49 dBμV

Ref 137 dBμV

Atten 40 dB

Peak

Log

10

dB/

Offst

7

dB

DI

89.5

dBμV

LgAv

M1 S2

Start 30 MHz

Stop 26.00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 2.482 s (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.46 GHz	109.49 dBμV
2	(1)	Freq	6.96 GHz	67.10 dBμV

IEEE 802.11g mode

CH Low

* Agilent

R T

Mkr1 2.41 GHz
105.58 dBμV

Ref 137 dBμV

Atten 40 dB

Peak

Log

10

dB/

Offst

7

dB

DI

85.6

dBμV

LgAv

M1 S2

Start 30 MHz

Stop 26.00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 2.482 s (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.41 GHz	105.58 dBμV
2	(1)	Freq	6.96 GHz	67.56 dBμV



CH Mid

Agilent

R T

Mkr1 2.44 GHz

105.34 dBμV

Ref 137 dBμV

Atten 40 dB

Peak

Log

10

dB/

Offst

7

dB

DI

85.3

dBμV

LgAv

M1 S2

Start 30 MHz

Stop 26.00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 2.482 s (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.44 GHz	105.34 dBμV
2	(1)	Freq	6.96 GHz	68.20 dBμV

CH High

Agilent

R T

Mkr1 2.46 GHz

106.54 dBμV

Ref 137 dBμV

Atten 40 dB

Peak

Log

10

dB/

Offst

7

dB

DI

86.5

dBμV

LgAv

M1 S2

Start 30 MHz

Stop 26.00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 2.482 s (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.46 GHz	106.54 dBμV
2	(1)	Freq	6.96 GHz	67.66 dBμV



802.11n Standard-20 MHz Channel mode

CH Low

Agilent

R T

Mkr1 2.41 GHz

105.20 dBμV

Ref 137 dBμV

Atten 40 dB

Peak

Log

10

dB/

Offst

7

dB

DI

85.2

dBμV

LgAv

M1 S2

Start 30 MHz ^

Stop 26.00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 2.482 s (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.41 GHz	105.20 dBμV
2	(1)	Freq	6.96 GHz	69.24 dBμV

CH Mid

Agilent

R T

Mkr1 2.44 GHz

105.51 dBμV

Ref 137 dBμV

Atten 40 dB

Peak

Log

10

dB/

Offst

7

dB

DI

85.2

dBμV

LgAv

M1 S2

Start 30 MHz

Stop 26.00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 2.482 s (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.44 GHz	105.51 dBμV
2	(1)	Freq	6.96 GHz	67.91 dBμV



CH High

Agilent

R T

Mkr1 2.46 GHz
106.75 dB μ VRef 137 dB μ V

Atten 40 dB

Peak

Log

10

dB/

Offst

7

dB

DI

86.7

dB μ V

LgAv

M1 S2

Start 30 MHz

Stop 26.00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 2.482 s (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.46 GHz	106.75 dB μ V
2	(1)	Freq	6.96 GHz	67.98 dB μ V

802.11n Wide-40 MHz Channel mode

CH Low

Agilent

R T

Mkr1 2.42 GHz
104.19 dB μ VRef 137 dB μ V

Atten 40 dB

Peak

Log

10

dB/

Offst

7

dB

DI

84.2

dB μ V

LgAv

M1 S2

Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 2.482 s (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.42 GHz	104.19 dB μ V
2	(1)	Freq	6.96 GHz	68.50 dB μ V



Compliance Certification Services Inc.

Report No: KS120820A02-RPB

FCC ID: Q3GDMDM3

Date of Issue :August 28, 2012

CH Mid

Agilent

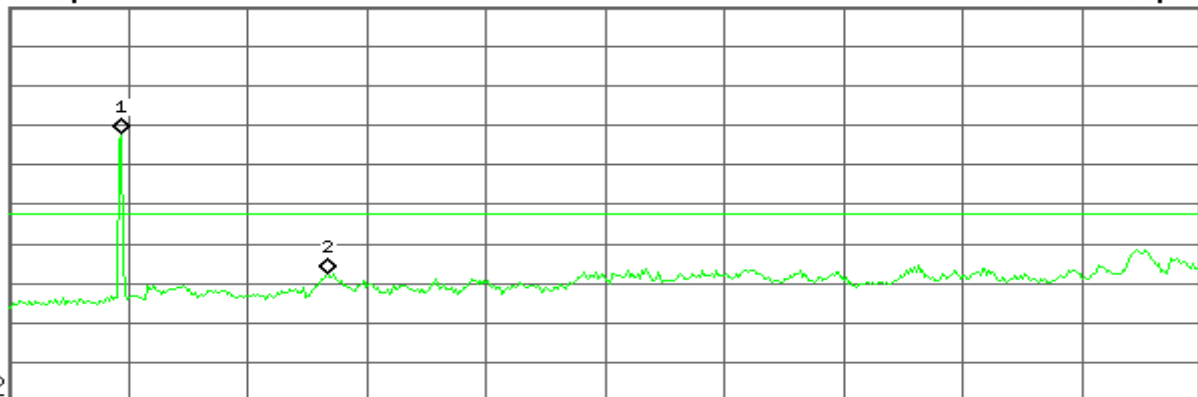
R T

Mkr1 2.44 GHz
104.80 dB μ V

Ref 137 dB μ V

Atten 40 dB

Peak
Log
10
dB/
Offst
7
dB
DI
84.8
dB μ V
LgAv



M1 S2

Center 13.02 GHz

Span 25.97 GHz

*Res BW 100 kHz

*VBW 300 kHz

Sweep 2.482 s (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.44 GHz	104.80 dB μ V
2	(1)	Freq	6.96 GHz	69.42 dB μ V

CH High

Agilent

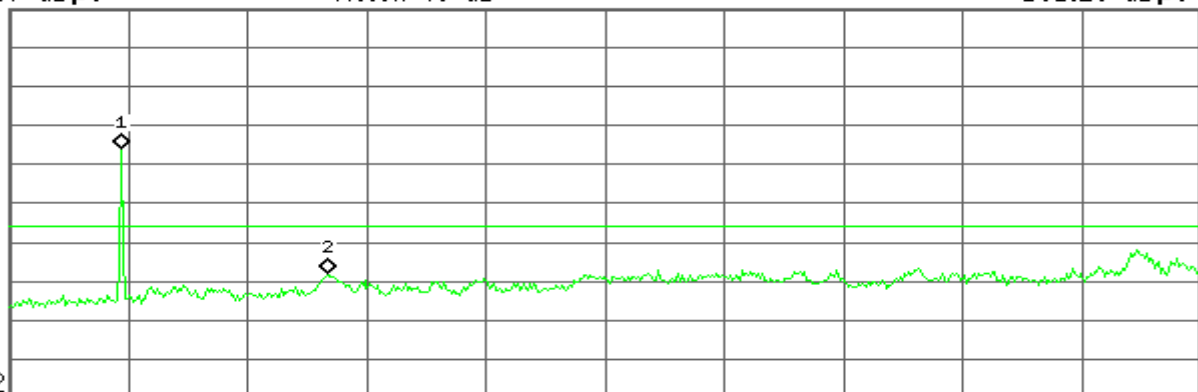
R T

Mkr1 2.45 GHz
101.26 dB μ V

Ref 137 dB μ V

Atten 40 dB

Peak
Log
10
dB/
Offst
7
dB
DI
81.3
dB μ V
LgAv



M1 S2

Start 30 MHz

Stop 26.00 GHz

*Res BW 100 kHz

*VBW 300 kHz

Sweep 2.482 s (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.45 GHz	101.26 dB μ V
2	(1)	Freq	6.96 GHz	69.10 dB μ V



7.5.2. RADIATED EMISSIONS

LIMIT

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:

Frequency (MHz)	Field Strength ($\mu\text{V/m}$)	Measurement Distance (m)
30-88	100*	3
88-216	150*	3
216-960	200*	3
Above 960	500	3

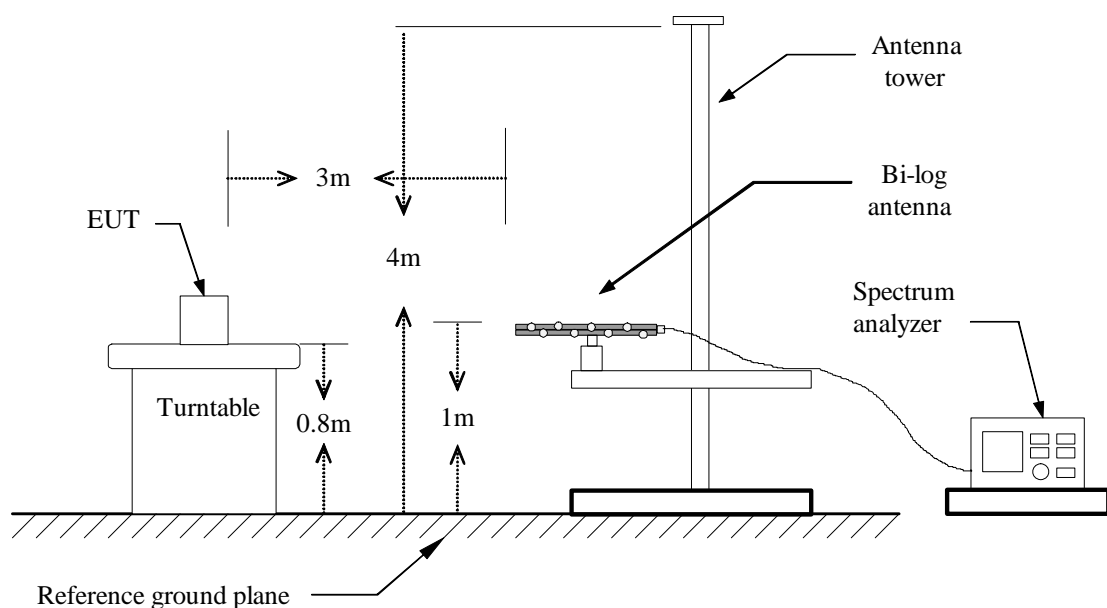
Remark: Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of 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 ($\mu\text{V/m}$ at 3-meter)	Field Strength (dB $\mu\text{V/m}$ at 3-meter)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

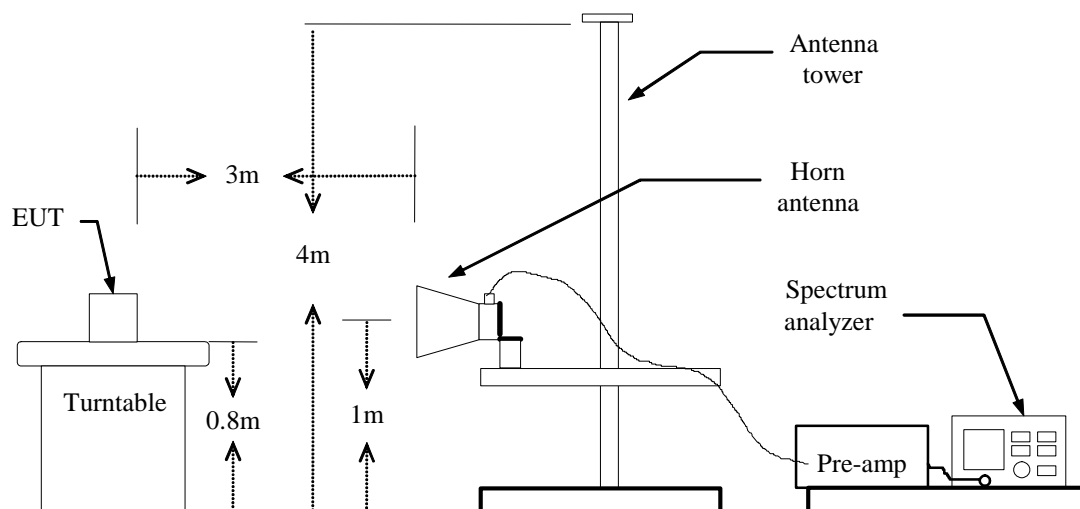
Test Configuration

Below 1 GHz





Above 1 GHz



TEST PROCEDURE

KDB 558074 D01 DTS Measurement Guidance V01

1. The EUT is placed on a turntable, which is 0.8m above the ground plane.
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 emission.
4. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
(a) PEAK: RBW=1MHz / VBW=3MHz / Sweep=AUTO
(b) AVERAGE: RBW=1MHz / VBW $\geq 1/T$ / Sweep=AUTO
5. Repeat the procedures until all the PEAK and AVERAGE versus POLARIZATION are measured.

TEST RESULTS



Compliance Certification Services Inc.

Report No: KS120820A02-RPB

FCC ID: Q3GDMDM3

Date of Issue :August 28, 2012

Below 1GHz

Operation Mode: Normal Link(with Bluetooth ON)

Test Date: August 27,2012

Temperature: 22°C

Tested by: Sean Yu

Humidity: 48% RH

Polarity: Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
65.36	V	49.25	-12.22	37.03	40	-2.97	Peak
71.65	V	42.46	-14.41	28.05	40	-11.95	Peak
199.16	V	34.19	-9.49	24.7	43.5	-18.8	Peak
399.58	V	31.74	1.44	33.18	46	-12.82	Peak
760.16	V	30.75	2.38	33.13	46	-12.87	Peak
765.42	V	34.46	3.27	37.73	46	-8.27	Peak
66.35	H	33.76	-5.87	27.89	40	-12.11	Peak
70.28	H	42.78	-14.45	28.33	40	-11.67	Peak
198.45	H	38.48	-9.01	29.47	43.5	-14.03	Peak
398.25	H	35.75	1.44	37.19	46	-8.81	Peak
755.29	H	34.48	2.38	36.86	46	-9.14	Peak
796.35	H	39.65	3.24	42.89	46	-3.11	QP

Remark:

1. Measuring frequencies from 30 MHz to the 1GHz (No emission found between lowest internal used/generated frequency to 30 MHz).
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. $\text{Margin (dB)} = \text{Result (dBuV/m)} - \text{Limit (dBuV/m)}$.



Compliance Certification Services Inc.

Report No: KS120820A02-RPB

FCC ID: Q3GDMDM3

Date of Issue :August 28, 2012

Above 1 GHz

Operation Mode: TX / IEEE 802.11b / CH Low(with Bluetooth ON) **Test Date:** August 27,2012

Temperature: 22°C

Tested by: Sean Yu

Humidity: 48 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin Peak(dB)	Margin AVG (dB)
4825.71	V	36.22	28.34	12.41	48.63	40.75	74	54	-25.37	-13.25
7236.58	V	38.85	27.71	15.48	54.33	43.19	74	54	-19.67	-10.81
4824.54	H	34.55	28.34	12.41	46.96	40.75	74	54	-27.04	-13.25
7233.23	H	38.67	27.16	15.47	54.14	42.63	74	54	-19.86	-11.37
N/A										

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. 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.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Compliance Certification Services Inc.

Report No: KS120820A02-RPB

FCC ID: Q3GDMDM3

Date of Issue :August 28, 2012

Operation Mode: TX / IEEE 802.11b / CH Mid(with Bluetooth ON)

Test Date: August 27,2012

Temperature: 22°C

Tested by:Sean Yu

Humidity: 48 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin Peak(dB)	Margin AVG(dB)
4865.36	V	36.49	28.75	12.41	48.9	41.16	74	54	-25.1	-12.84
7307.16	V	38.15	27.46	15.48	53.63	42.94	74	54	-20.37	-11.06
4866.58	H	34.46	28.72	12.41	46.87	41.13	74	54	-27.13	-12.87
7321.16	H	38.15	27.68	15.47	53.62	43.15	74	54	-20.38	-10.85
N/A										

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. 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.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

Operation Mode: TX / IEEE 802.11b / CH High(with Bluetooth ON)**Test Date:** August 27,2012

Temperature: 22°C

Tested by: Sean Yu

Humidity: 48 % RH

Polarity: Ver. / Hor.

[illegible]

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown “ --- ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. 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.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Compliance Certification Services Inc.

Report No: KS120820A02-RPB

FCC ID: Q3GDMDM3

Date of Issue :August 28, 2012

Operation Mode: TX / IEEE 802.11g / CH Low(with Bluetooth ON)

Test Date: August 27,2012

Temperature: 24°C

Tested by:Sean Yu

Humidity: 48 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin Peak(dB)	Margin AVG(dB)
4819	V	36.49	28.21	12.41	48.9	40.62	74	54	-25.1	-13.38
7233.82	V	38.12	27.61	15.48	53.6	43.09	74	54	-20.4	-10.91
4823.67	H	34.32	28.63	12.41	46.73	41.04	74	54	-27.27	-12.96
7238.45	H	38.21	27.7	15.48	53.69	43.18	74	54	-20.31	-10.82
N/A										

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. 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.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Compliance Certification Services Inc.

Report No: KS120820A02-RPB

FCC ID: Q3GDMDM3

Date of Issue :August 28, 2012

Operation Mode: TX / IEEE 802.11g / CH Mid(with Bluetooth ON)

Test Date: August 27,2012

Temperature: 24°C

Tested by: Sean Yu

Humidity: 48 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin Peak(dB)	Margin AVG(dB)
4876.54	V	36.7	28.72	12.68	49.38	41.4	74	54	-24.62	-12.6
7320.75	V	38.55	27.89	15.76	54.31	43.65	74	54	-19.69	-10.35
4875.65	H	34.49	28.55	12.68	47.17	41.23	74	54	-26.83	-12.77
7318.44	H	38.55	27.32	15.74	54.29	43.06	74	54	-19.71	-10.94
N/A										

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. 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.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Compliance Certification Services Inc.

Report No: KS120820A02-RPB

FCC ID: Q3GDMDM3

Date of Issue :August 28, 2012

Operation Mode: TX / IEEE 802.11g / CH High(with Bluetooth ON)**Test Date:** August 27,2012**Temperature:** 24°C**Tested by:** Sean Yu**Humidity:** 48 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin Peak(dB)	Margin AVG(dB)
4935.33	V	36.56	28.56	12.94	49.5	41.5	74	54	-24.5	-12.5
7391.67	V	38.85	27.24	15.82	54.67	43.06	74	54	-19.33	-10.94
4925.67	H	34.72	28.15	12.93	47.65	41.08	74	54	-26.35	-12.92
7389.33	H	38.39	27.21	15.82	54.21	43.03	74	54	-19.79	-10.97
N/A										

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. 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.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Compliance Certification Services Inc.

Report No: KS120820A02-RPB

FCC ID: Q3GDMDM3

Date of Issue :August 28, 2012

Operation Mode: TX / 802.11n Standard-20 MHz Channel mode
CH Low(with Bluetooth ON) **Test Date:** August 27,2012

Temperature: 24°C **Tested by:** Sean Yu

Humidity: 48 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin Peak(dB)	Margin AVG(dB)
4832.66	V	36.85	28.42	12.41	49.26	40.83	74	54	-24.74	-13.17
7230.43	V	38.85	27.24	15.48	54.33	42.72	74	54	-19.67	-11.28
4824.54	H	34.27	28.24	12.41	46.68	40.65	74	54	-27.32	-13.35
7212.56	H	38.56	27.46	15.48	54.04	42.94	74	54	-19.96	-11.06
N/A										

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. 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.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

Operation Mode: TX / 802.11n Standard-20 MHz Channel mode
CH 11 (Bluetooth ON)

Test Date: August 27, 2012

Temperature: 24°C

Tested by: Sean Yu

Humidity: 48 % RH

Polarity: Ver. / Hor.

[illegible]

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. 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.
6. $\text{Margin (dB)} = \text{Remark result (dBuV/m)} - \text{Average limit (dBuV/m)}$.



Compliance Certification Services Inc.

Report No: KS120820A02-RPB

FCC ID: Q3GDMDM3

Date of Issue :August 28, 2012

Operation Mode: TX / 802.11n Standard-20 MHz Channel mode
CH High (with Bluetooth ON) **Test Date:** August 27,2012

Temperature: 24°C **Tested by:** Sean Yu

Humidity: 48 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin Peak(dB)	Margin AVG(dB)
4930.66	V	36.45	28.17	12.93	49.38	41.1	74	54	-24.62	-12.9
7387.67	V	38.63	27.45	15.82	54.45	43.27	74	54	-19.55	-10.73
4924.67	H	34.63	28.75	12.93	47.56	41.68	74	54	-26.44	-12.32
7384.78	H	38.25	27.31	15.82	54.07	43.13	74	54	-19.93	-10.87
N/A										

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. 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.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



7.6. 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 μ 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 μ 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



Operation Mode: Normal Link
(with Bluetooth ON)

Test Date: August 27, 2012

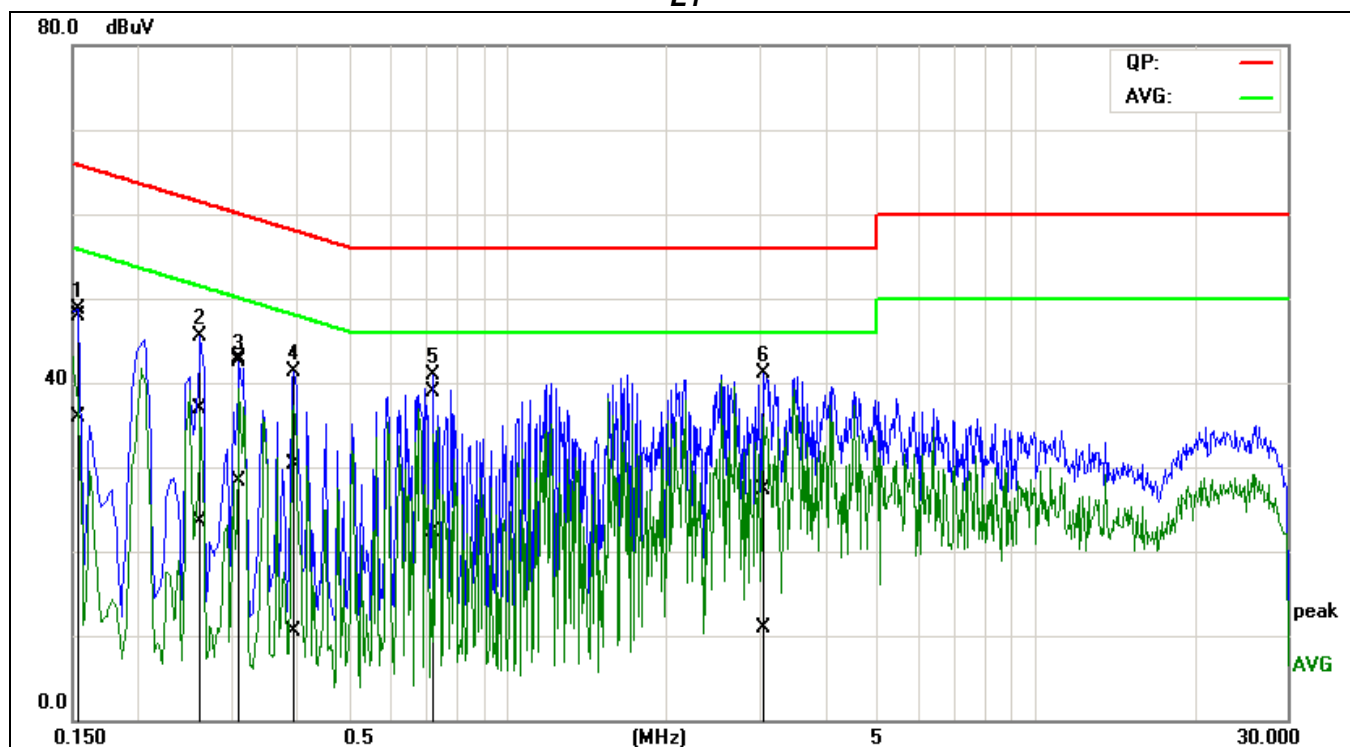
Temperature: 23°C

Tested by: Sean Yu

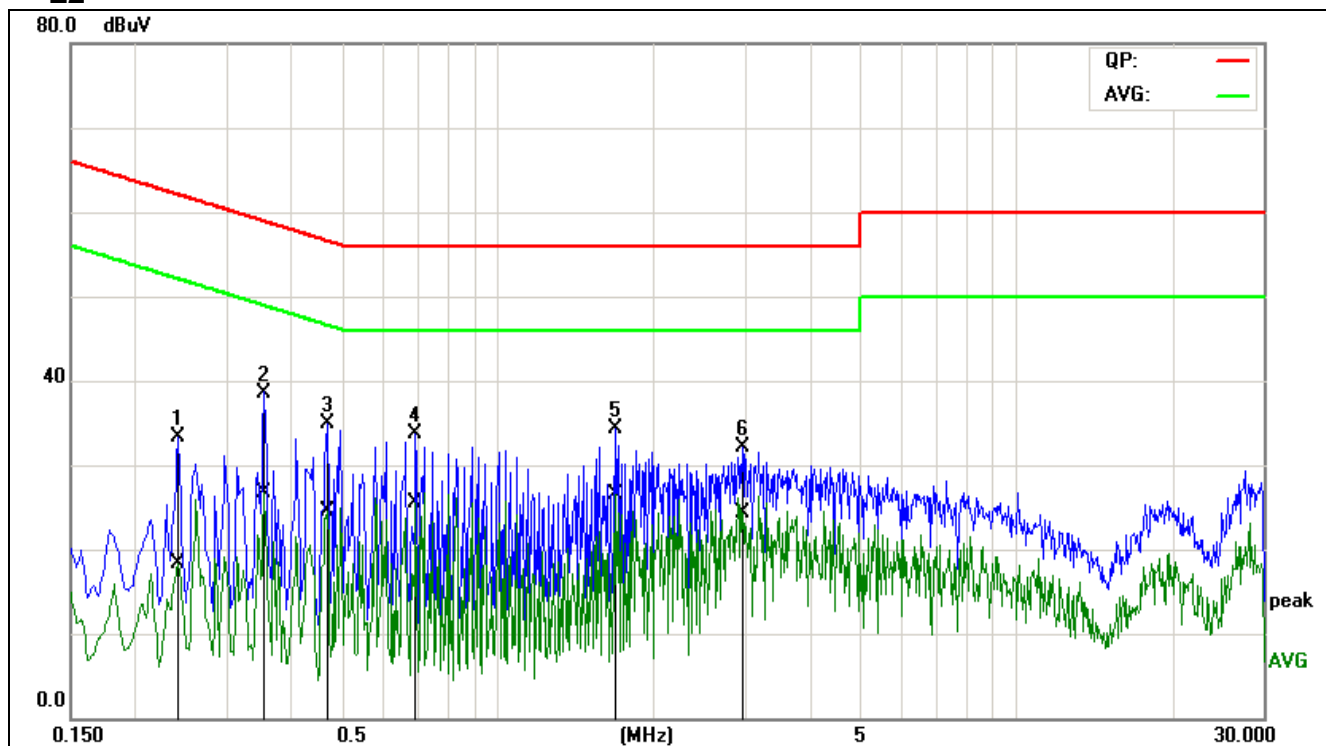
Humidity: 50% RH

Test Voltage: AC 120V/60Hz

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	0.1511	37.75	25.58	10.25	48.00	35.83	65.94	55.94	-17.94	-20.11	Pass
2	0.2640	26.58	13.18	10.24	36.82	23.42	61.30	51.30	-24.48	-27.88	Pass
3*	0.3122	32.56	18.03	10.29	42.85	28.32	59.91	49.91	-17.06	-21.59	Pass
4	0.3925	20.10	0.22	10.30	30.40	10.52	58.01	48.01	-27.61	-37.49	Pass
5	0.7247	28.61	12.01	10.29	38.90	22.30	56.00	46.00	-17.10	-23.70	Pass
6	3.0059	17.09	0.67	10.29	27.38	10.96	56.00	46.00	-28.62	-35.04	Pass

**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	0.2420	22.91	7.97	10.38	33.29	18.35	62.03	52.03	-28.74	-33.68	Pass
2	0.3540	28.04	16.05	10.56	38.60	26.61	58.87	48.87	-20.27	-22.26	Pass
3	0.4700	24.09	13.77	10.73	34.82	24.50	56.51	46.51	-21.69	-22.01	Pass
4	0.6940	22.95	14.64	10.81	33.76	25.45	56.00	46.00	-22.24	-20.55	Pass
5*	1.6860	23.43	15.50	10.91	34.34	26.41	56.00	46.00	-21.66	-19.59	Pass
6	2.9740	21.06	13.45	10.95	32.01	24.40	56.00	46.00	-23.99	-21.60	Pass

Remark:

1. Measuring frequencies from 0.15 MHz to 30MHz.
2. The emissions measured in frequency range from 0.15 MHz to 30MHz were made with an instrument using Quasi-peak detector and average detector.
3. The IF bandwidth of SPA between 0.15MHz and 30MHz was 10 kHz; the IF bandwidth of Test Receiver between 0.15MHz and 30MHz was 9 kHz;
4. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line)



7.7. ANTENNA REQUIREMENT

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 Sections 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 Section 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.

Note: This PIFA antenna is integral antenna which passes antenna requirement.

The equipment meets the requirements yes

End of report