FCC TEST REPORT

For

Mobile Phone

Model Number: RMX2195

FCC ID: 2AUYFRMX2195

Report Number : WT208002438

Test Laboratory	:	Shenzhen Academy of Metrology and Quality Inspection
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TEST REPORT DECLARATION

Applicant	:	Realme Chongqing Mobile Telecommunications Corp., Ltd.
Address	:	No.178 Yulong Avenue, Yufengshan, Yubei District, Chongqing, China.
Manufacturer	:	Realme Chongqing Mobile Telecommunications Corp., Ltd.
Address	:	No.178 Yulong Avenue, Yufengshan, Yubei District, Chongqing, China.
EUT Description	:	Mobile Phone
Model No	:	RMX2195
Trade mark	:	realme
Serial Number	:	/
FCC ID	:	2AUYFRMX2195

Test Standards:

FCC Part 15 15.207, 15.209, 15.247 (2019)

The EUT described above is tested by Shenzhen Academy of Metrology and Quality Inspection EMC Laboratory to determine the maximum emissions from the EUT. Shenzhen Academy of Metrology and Quality Inspection EMC Laboratory is assumed full responsibility for the accuracy of the test results. 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 FCC Rules Part 15.207, 15.209, 15.247.

The test report is valid for above tested sample only and shall not be reproduced in part without written approval of the laboratory.

Project Engineer:	黄思 (Huang Si 黄思)	Date:	Oct.29, 2020
Checked by:	林奕翔 (Lin Yixiang 林奕翔)	Date:	Oct.29, 2020
Approved by:	林斌 (Lin Bin 林斌)	Date:	Oct.29, 2020

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1. TEST RESULTS SUMMARY

Table 1 Test Results Summary

Test Items	FCC Rules	Test Results
20dB bandwidth measurement	15.247 (a) (1)	Pass
Carrier frequency separation measurement	15.247 (a) (1)	Pass
Number of hopping channel	15.247 (a) (1) III	Pass
Time of occupancy	15.247 (a) (1) III	Pass
Maximum conducted output power	15.247 (b) (1)	Pass
Band edge compliance measurement	15.247 (d)	Pass
Radiated spurious emission &Radiated restricted band measurement	15.247 (d) / 15.205 & 15.209	Pass
Conducted spurious emission	15.247 (d)	Pass
Conducted emission	15.207	Pass
Antenna requirements	15.203	Pass

Remark: “N/A” means “Not applicable.”

2. GENERAL INFORMATION

2.1. Report Information

This report is not a certificate of quality; it only applies to the sample of the specific product/equipment given at the time of its testing. The results are not used to indicate or imply that they are application to the similar items. In addition, such results must not be used to indicate or imply that SMQ approves recommends or endorses the manufacture, supplier or use of such product/equipment, or that SMQ in any way guarantees the later performance of the product/equipment.

The sample/s mentioned in this report is/are supplied by Applicant, SMQ therefore assumes no responsibility for the accuracy of information on the brand name, model number, origin of manufacture or any information supplied.

Additional copies of the report are available to the Applicant at an additional fee. No third part can obtain a copy of this report through SMQ, unless the applicant has authorized SMQ in writing to do so.

The lab will not be liable for any loss or damage resulting for false, inaccurate, inappropriate or incomplete product information provided by the applicant/manufacturer.

2.2. Laboratory Accreditation and Relationship to Customer

The testing report were performed by the Shenzhen Academy of Metrology and quality Inspection EMC Laboratory (Guangdong EMC compliance testing center), in their facilities located at NETC Building, No.4 Tongfa Rd., Xili, Nanshan, Shenzhen, China. At the time of testing, Laboratory is accredited by the following organizations:

China National Accreditation Service for Conformity Assessment (CNAS) accredits the Laboratory for conformance to FCC standards, EMC international standards and EN standards. The Registration Number is CNAS L0579.

The Laboratory is Accredited Testing Laboratory of FCC with Designation number CN1165 and Site registration number 582918.

The Laboratory is registered to perform emission tests with Innovation, Science and Economic Development (ISED), and the registration number is 11177A.

The Laboratory is registered to perform emission tests with VCCI, and the registration number are C-20048, G20076, R-20077, R-20078 and T-20047.

The Laboratory is Accredited Testing Laboratory of American Association for Laboratory Accreditation (A2LA) and certificate number is 3292.01.

2.3. Measurement Uncertainty

Conducted Emission
9 kHz~150 kHz 3.7dB
150 kHz~30MHz 3.3dB

Radiated Emission
30MHz~1000MHz 4.3dB
1GHz~6GHz 4.6 dB
6GHz~18GHz 5.1dB
18GHz~26.5GHz 5.1dB

3. PRODUCT DESCRIPTION

NOTE: The extreme test conditions for temperature and antenna gain were declared by the manufacturer.

3.1. EUT Description

Description	:	Mobile Phone
Manufacturer	:	Realme Chongqing Mobile Telecommunications Corp., Ltd.
Model Number	:	RMX2195
Operate Frequency	:	2.402GHz~2.480GHz
Antenna Designation	:	BT: PIFA ANTENNA
Modulation	:	Wi-Fi : DSSS (DBPSK, DQPSK, CCK) for 802.11B OFDM (BPSK, QPSK, 16QAM, 64QAM) for 802.11G/N
Operating voltage	:	3.45V (Low)/3.87V (Nominal)/ 4.45V (Max)
Software Version	:	Color OS 7.2
Hardware Version	:	11

Remark: The model of adaptor, OP92JAUH (1#) and OP92JAEH (3#) are identical in circuit design and PCB layout, the only difference is the plug type. The model of adaptor, OP92KAUH (2#) and OP92KAEH (4#) are identical in circuit design and PCB layout, the only difference is the plug type. Unless otherwise specified, the model of adaptor OP92JAUH (1#) and OP92KAUH (2#) were chosen as representative to perform in this report.

WLAN:

Table 2 Working Frequency List (802.11b, 802.11g, 802.11n HT20)

Channel	Frequency	Channel	Frequency
1	2412 MHz	8	2447 MHz
2	2417 MHz	9	2452 MHz
3	2422 MHz	10	2457 MHz
4	2427 MHz	11	2462 MHz
5	2432 MHz	---	---
6	2437 MHz	---	---
7	2442 MHz	---	---

3.2. Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: **2AUYFRMX2195** filing to comply with Section 15.207，15.209，15.247 of the FCC Part 15, Subpart C Rules.

3.3. Block Diagram of EUT Configuration

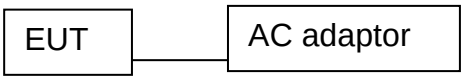


Figure 1 EUT setup

3.4. Operating Condition of EUT

The Radiated spurious emission measurements were carried out in semi-anechoic chamber with 3-meter test range, and EUT is rotated on three test planes to find out the worst emission (X plane).
Worst-case mode and channel used for 30-1000 MHz radiated and power line conducted emissions was the mode and channel with the highest output power.
Worst-case data rates as provided by the client were:
802.11b mode: 1 Mbps
802.11g mode: 6 Mbps
802.11n HT20 mode: MCS0
802.11b and 802.11g operates in SISO mode. For SISO conducted measurements, the modes tested in this report will be considered as a worst case mode.
802.11n operate in SISO mode. For SISO conducted measurements, the modes tested in this report will be considered as a worst case mode.

3.5. Directional Antenna Gain

Directional gain need NOT to be considered.

3.6. Support Equipment List

Table 3 Support Equipment List

Name	Model No	S/N	Manufacturer
Adaptor 1#	OP92JAUH	--	Huizhou Golden Lake Industrial Co.,Ltd
Adaptor 2#	OP92KAUH	--	ShenZhen KunXing Technology Co., Ltd
Adaptor 3#	OP92JAEH	--	Huizhou Golden Lake Industrial Co.,Ltd
Adaptor 4#	OP92KAEH	--	ShenZhen KunXing Technology Co., Ltd

3.7. Test Conditions

Date of test：Oct.12, 2020- Oct.21, 2020
Date of EUT Receive：Oct.10, 2020
Temperature: 22℃-26℃
Relative Humidity: 42%-54%

3.8. Special Accessories

Not available for this EUT intended for grant.

3.9. Equipment Modifications

Not available for this EUT intended for grant.

4. TEST EQUIPMENT USED

Table 4 Test Equipment

No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
SB9058/05	Test Receiver	R&S	ESCI 3	Sep.25,2020	1 Year
SB4357	AMN	R&S	ENN216	Aug.26,2020	1 Year
SB13956	Test Receiver	R&S	ESR26	Feb.14,2020	1 Year
SB3955	Broadband Antenna	Schwarzbeck	VULB 9163	Jan.10,2020	1 Year
SB8501/09	Test Receiver	R&S	ESU40	Feb.14,2020	1 Year
SB3435	Horn Antenna	R&S	HF906	Dec.17,2019	1 Year
SB5472/02	Broadband Antenna	Schwarzbeck	VULB 9163	Jan.10,2020	1 Year
SB9058/03	Pre-Amplifier	R&S	SCU 18	Feb.14,2020	1 Year
SB8501/10	Horn Antenna	R&S	3160-09	Mar.10,2020	3 Years
SB8501/11	Horn Antenna	R&S	3160-09	Mar.09,2020	3 Years
SB8501/12	Horn Antenna	R&S	3160-10	Mar.17,2020	3 Years
SB8501/13	Horn Antenna	R&S	3160-10	Mar.10,2020	3 Years
SB3345	Loop Antenna	Schwarzbeck	FMZB1516-113	Feb.14,2020	1 Year
SB8501/14	Pre-Amplifier	R&S	SCU-03	Feb.14,2020	1 Year
SB8501/15	Pre-Amplifier	R&S	SCU-03	Feb.14,2020	1 Year
SB8501/16	Pre-Amplifier	R&S	SCU 26	Feb.14,2020	1 Year
SB8501/17	Pre-Amplifier	R&S	SCU-18	Feb.14,2020	1 Year
SB9060	Signal Analyzer	R&S	FSQ40	May.18, 2020	1 Year
SB11873/01	Power Sensor	R&S	OSP120+OSP-B157	May.18, 2020	1 Year
--	Radiated Test Software	R&S	EMC 32 8.50.0	--	--
--	AC Line Conducted Test Software	R&S	ES-K1 V1.71	--	--

5. DUTY CYCLE

5.1. Limits of Duty Cycle

None; for reporting purposes only

5.2. Test Procedure

1. Set span = Zero
2. RBW = 10MHz
3. VBW = 10MHz,
4. Detector = Peak

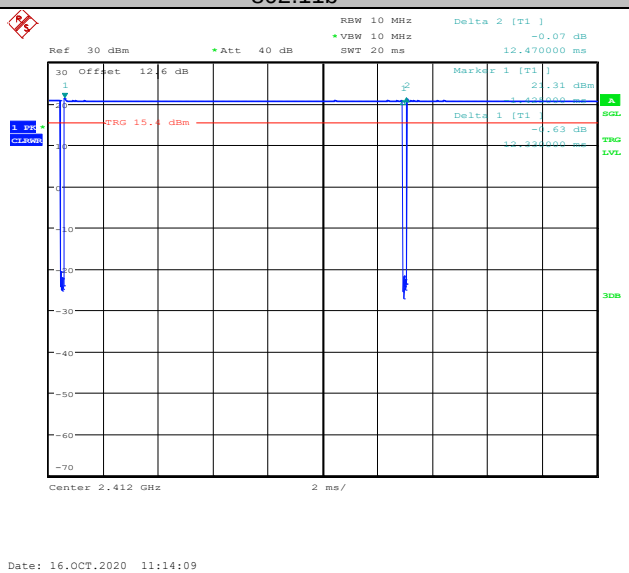
5.3. Test Setup

5.4. Test Data

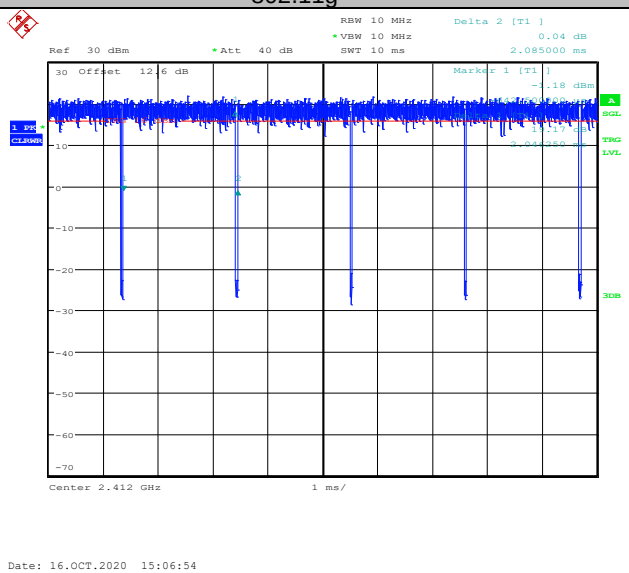
Table 5 Duty Cycle Test Data

Test Mode	On Time (ms)	Duty Cycle (%)	Duty Factor	1/T Minimum VBW (kHz)
802.11b	12.47	98.88	0.08	1
802.11g	2.09	98.14	0.48	1
802.11n HT20	1.95	97.94	0.51	1

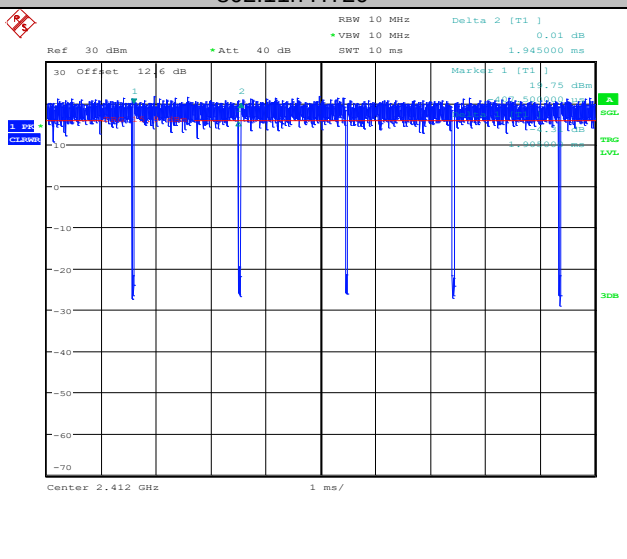
802.11b



802.11g



802.11n HT20


RBW 10 MHz
VBW 10 MHz
SWT 10 ms
Delta 2 [T1]
0.01 dB
1.945000 ms
Ref 30 dBm
Att 40 dB
Offset 12.6 dB
Marker 1 [T1]
19.75 dBm
1 PK
CLRWR
SGL
TRG
LVL
3DB
Center 2.412 GHz
1 ms/
Date: 16.OCT.2020 15:24:15

6. 6DB BANDWIDTH MEASUREMENT

6.1. Limits of 6dB Bandwidth Measurement

CFR 47 (FCC) part 15.247 (a) (2)

6.2. Test Procedure

ANSI C63.10-2013 Clause 11.8
The transmitter output was connected to the spectrum analyzer.
a) Set RBW = 100 kHz.
b) Set the VBW ≥ [3 × RBW].
c)Detector = Peak.
d)Trace mode = max hold.
e)Sweep = auto couple.
f)Allow the trace to stabilize.
g)Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

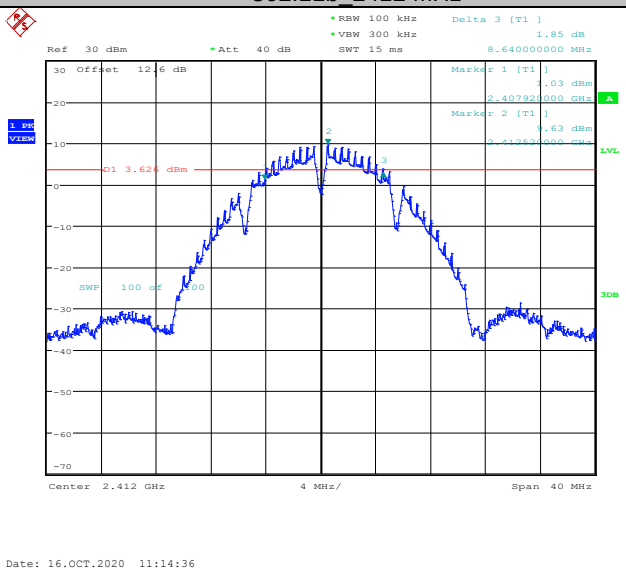
6.3. Test Setup

6.4. Test Data

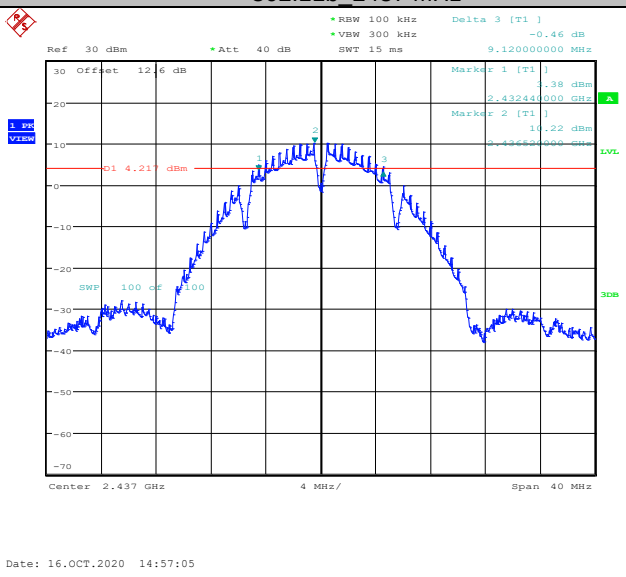
Table 6 6dB Bandwidth Test Data

Test Mode	Channel [MHz]	6dB Bandwidth [MHz]	Verdict
802.11b	2412	8.640	PASS
	2437	9.120	PASS
	2462	9.080	PASS
802.11g	2412	15.520	PASS
	2437	15.760	PASS
	2462	15.120	PASS
802.11n HT20	2412	16.040	PASS
	2437	15.760	PASS
	2462	15.200	PASS

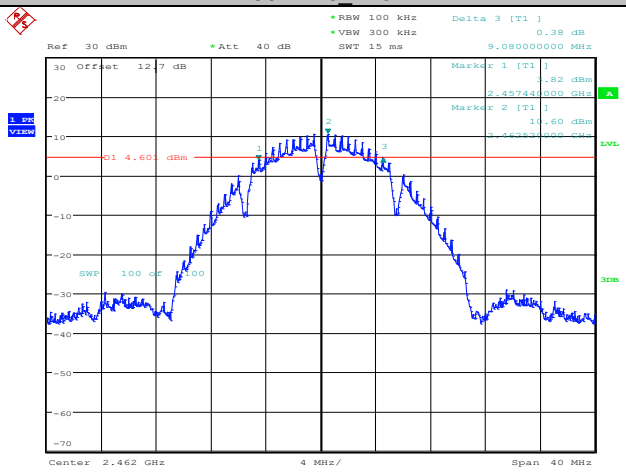
802.11b_2412 MHz



802.11b_2437 MHz



802.11b_2462 MHz



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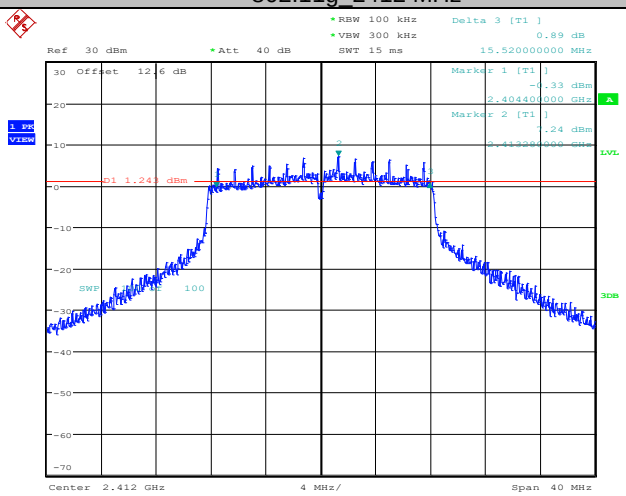
802.11g_2412 MHz



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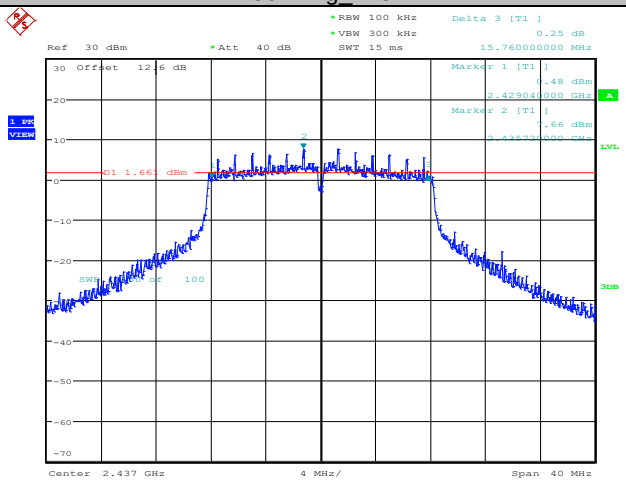
802.11g_2437 MHz



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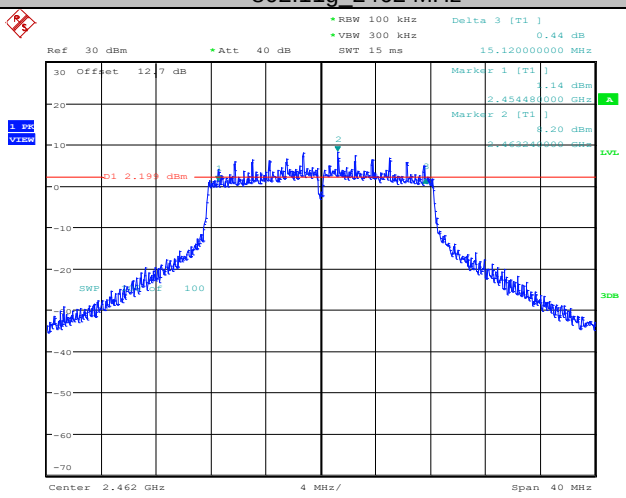
802.11g_2462 MHz



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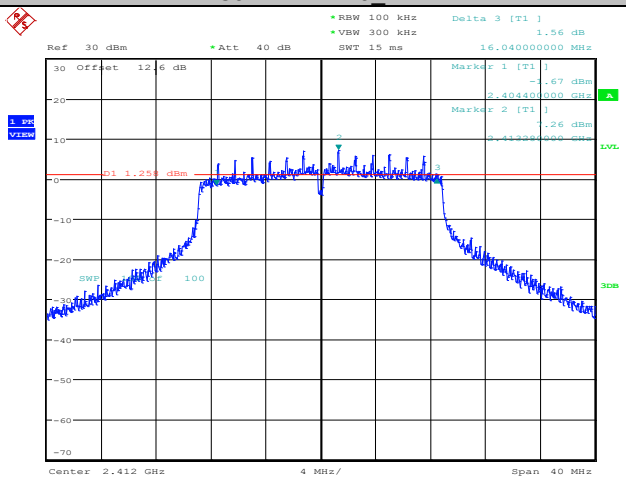
802.11n HT20_2412 MHz



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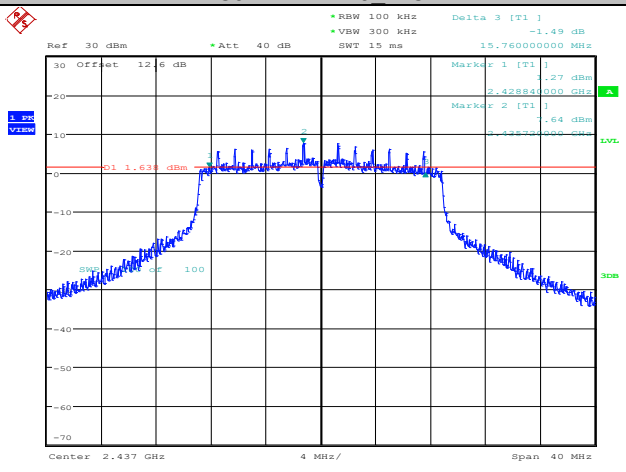
802.11n HT20_2437 MHz



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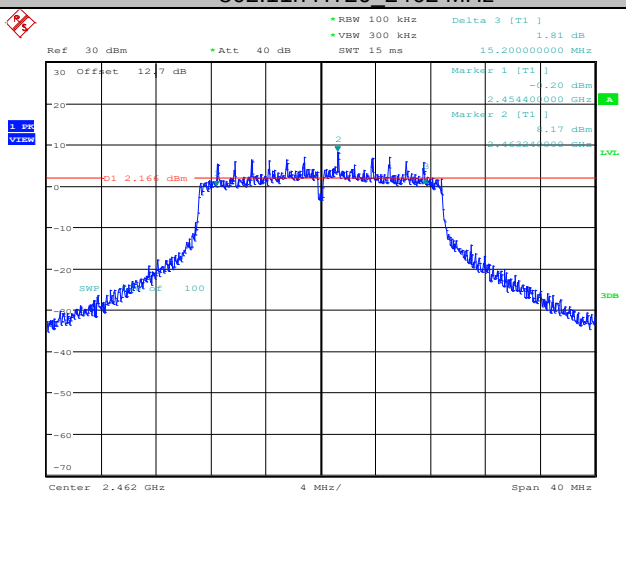
802.11n HT20_2462 MHz



7. MAXIMUM CONDUCTED OUTPUT POWER MEASUREMENT

7.1. Limits of Maximum Conducted Output Power Measurement

CFR 47 (FCC) part 15.247 (b) (3)

7.2. Test Procedure

ANSI C63.10-2013 Clause 11.9
The following procedure can be used when the maximum available RBW of the instrument is less than the
DTS bandwidth:
a) Set the RBW = 1 MHz.

b) Set the VBW ≥ [3 × RBW].

c) Set the span ≥ [1.5 × DTS bandwidth].

d) Detector = peak.
e) Sweep time = auto couple.
f) Trace mode = max hold.
g) Allow trace to fully stabilize.
h) Use the instrument's band/channel power measurement function with the band limits set equal to the DTS bandwidth edges (for some instruments, this may require a manual override to select the peak detector). If the instrument does not have a band power function, then sum the spectrum levels (in linear power units) at intervals equal to the RBW extending across the DTS channel bandwidth.

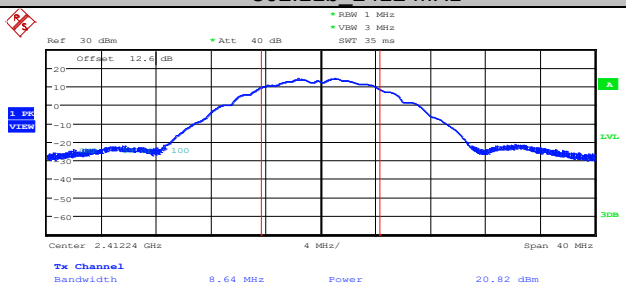
7.3. Test Setup

7.4. Test Data

Table 7 Maximum Conducted Output Power

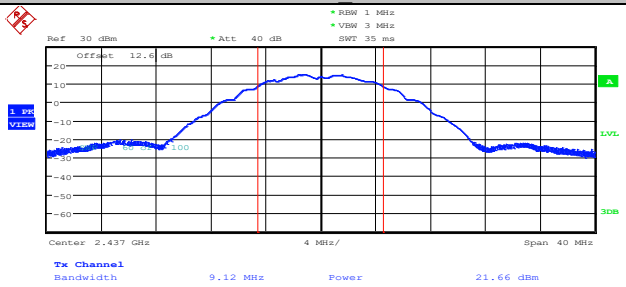
Test Mode	Channel [MHz]	Meas.Level [dBm]	Limit [dBm]	Verdict
802.11b	2412	20.82	<=30	PASS
	2437	21.66	<=30	PASS
	2462	22.04	<=30	PASS
802.11g	2412	24.26	<=30	PASS
	2437	24.82	<=30	PASS
	2462	25.17	<=30	PASS
802.11n HT20	2412	24.04	<=30	PASS
	2437	24.52	<=30	PASS
	2462	24.77	<=30	PASS

802.11b_2412 MHz



Date: 16.OCT.2020 11:15:06

802.11b_2437 MHz



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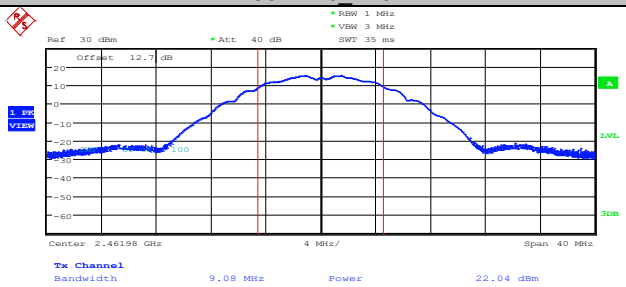
802.11b_2462 MHz



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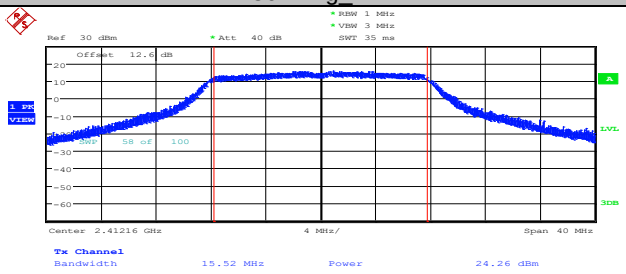
802.11g_2412 MHz



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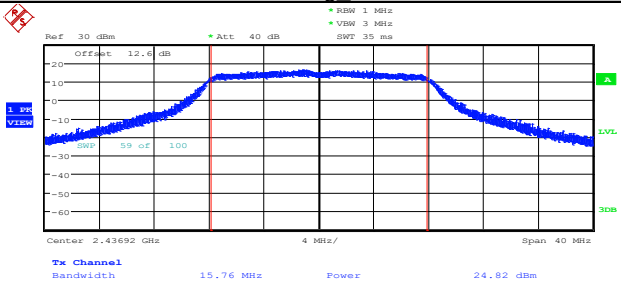
802.11g_2437 MHz



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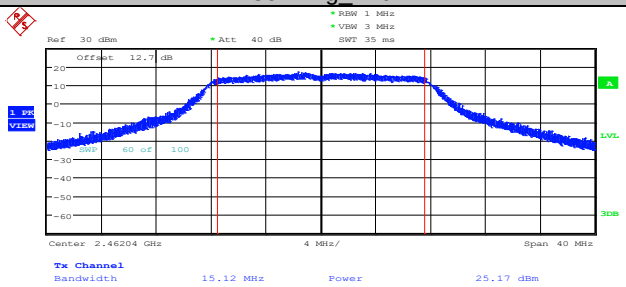
802.11g_2462 MHz



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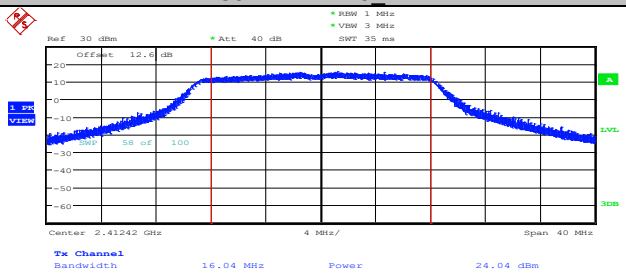
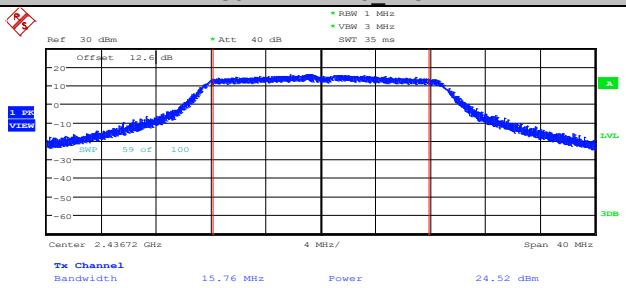
802.11n HT20_2412 MHz



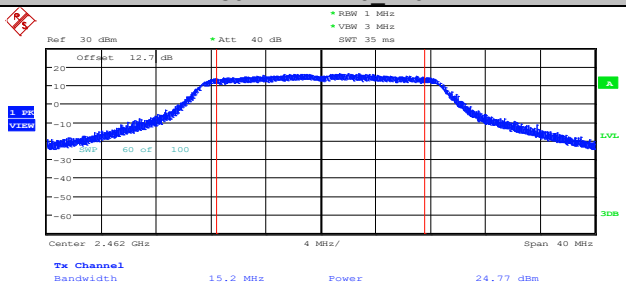
Date: 16.OCT.2020 15:25:11

802.11n HT20_2437 MHz



Date: 16.OCT.2020 15:28:59

802.11n HT20_2462 MHz



Date: 16.OCT.2020 15:32:27

8. MAXIMUM POWER SPECTRAL DENSITY LEVEL MEASUREMENT

8.1. Limits of Maximum Power Spectral Density Level Measurement

CFR 47 (FCC) part 15.247 (e)

8.2. Test Procedure

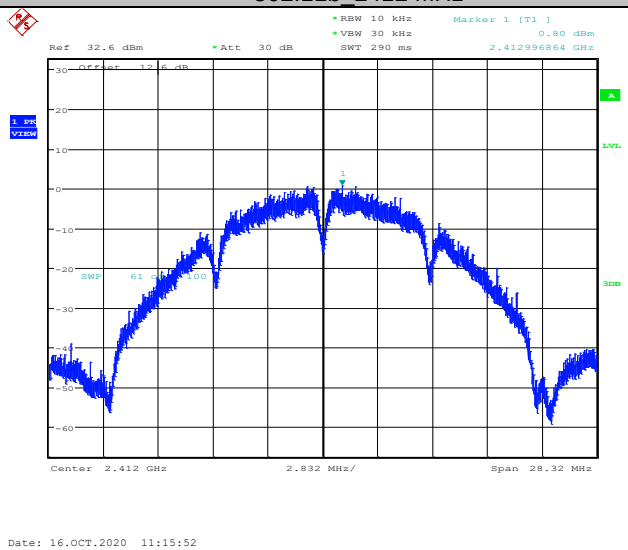
ANSI C63.10-2013 Clause 11.10
The transmitter output was connected to the spectrum analyzer.
a)Set analyzer center frequency to DTS channel center frequency.
b) Set the span to 1.5 times the DTS bandwidth.
c) Set RBW to：3kHz≤RBW≤100 kHz.
d) Set VBW ≥ 3 x RBW.
e) Detector = peak.
f) Sweep time = auto couple.
g) Trace mode = max hold.
h)Allow trace to fully stabilize.
i)Use the peak marker function to determine the maximum amplitude level within the RBW.
j)If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

8.3. Test Data

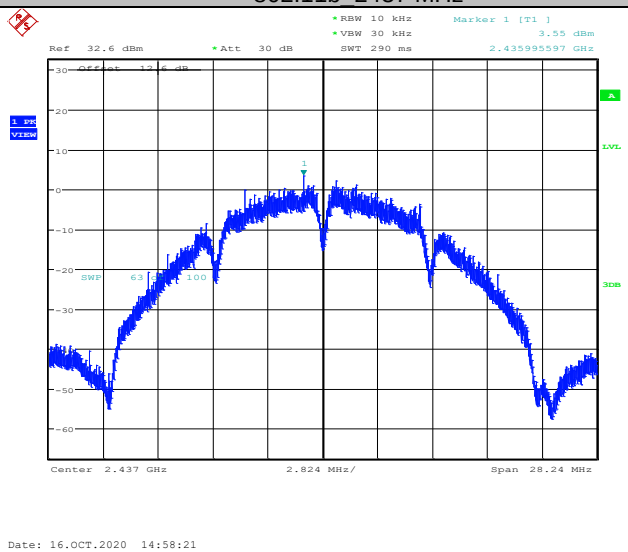
Table 8 Maximum Power Spectral Density Level

Test Mode	Channel [MHz]	Maximum Power Spectral Density Level [dBm]	Limit [dBm]	Verdict
802.11b	2412	0.8	<=8	PASS
	2437	3.55	<=8	PASS
	2462	3.08	<=8	PASS
802.11g	2412	-2.51	<=8	PASS
	2437	-1.82	<=8	PASS
	2462	-1.96	<=8	PASS
802.11n HT20	2412	-2.66	<=8	PASS
	2437	-1.7	<=8	PASS
	2462	-1.96	<=8	PASS

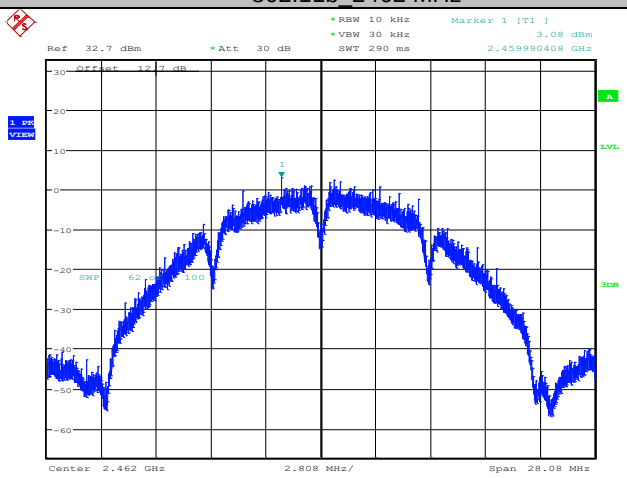
802.11b_2412 MHz



802.11b_2437 MHz

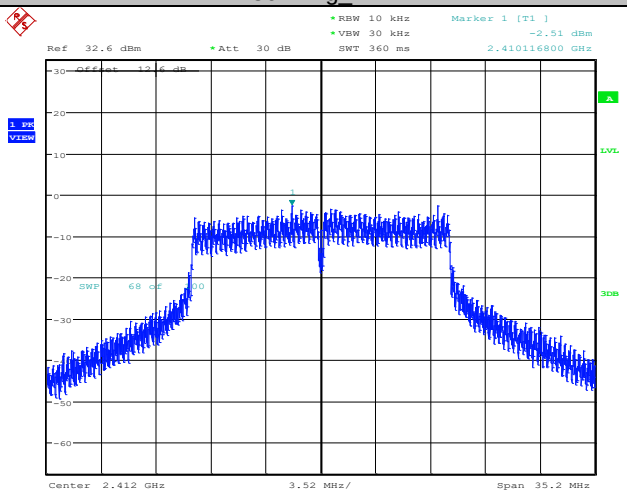


802.11b_2462 MHz



Date: 16.OCT.2020 15:01:37

802.11g_2412 MHz



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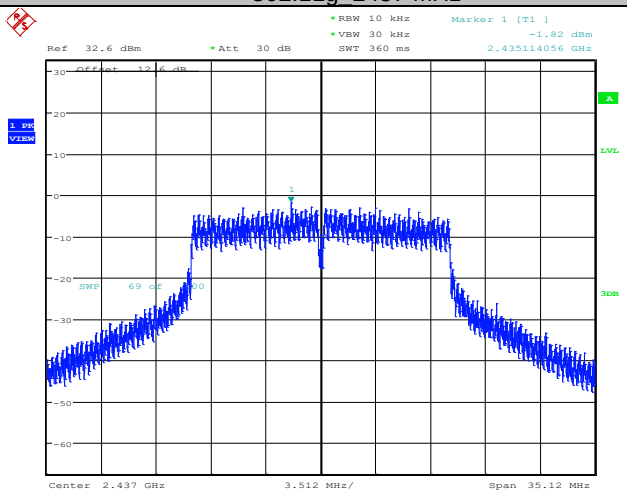
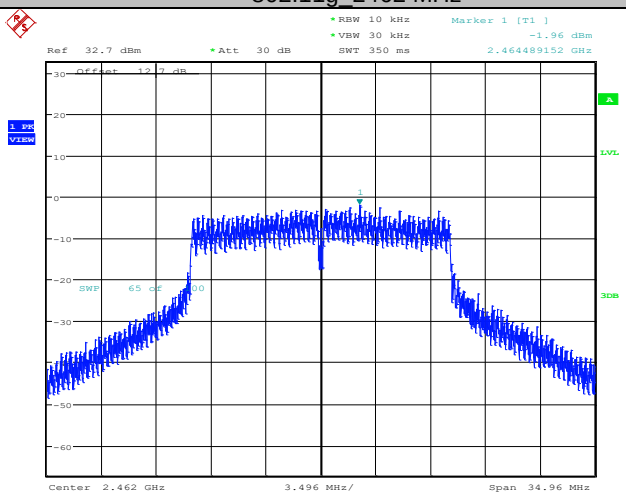
802.11g_2437 MHz



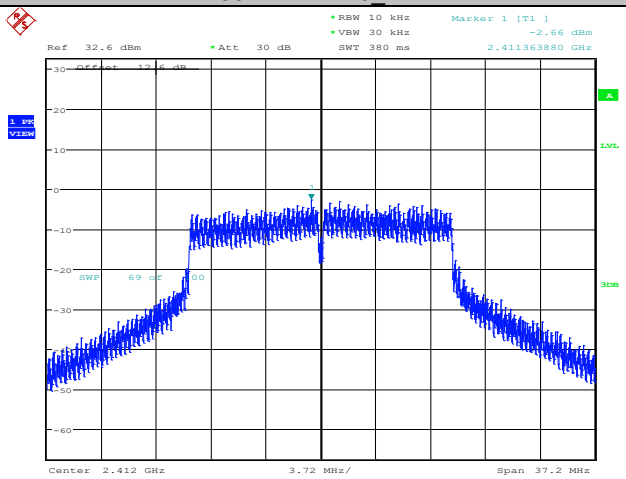
Date: 16.OCT.2020 15:12:21

802.11g_2462 MHz



Date: 16.OCT.2020 15:16:38

802.11n HT20_2412 MHz



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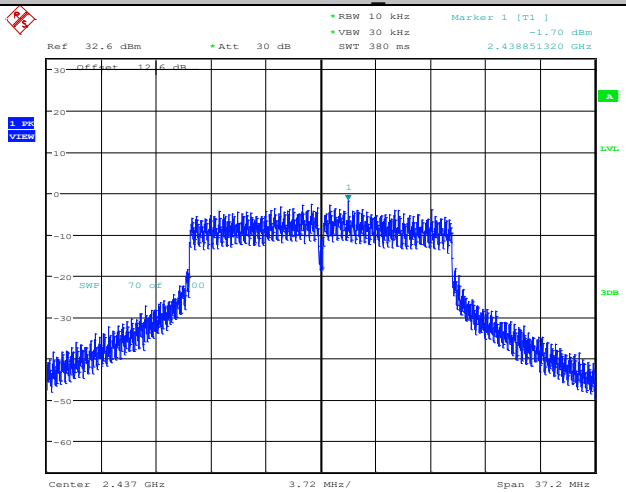
802.11n HT20_2437 MHz



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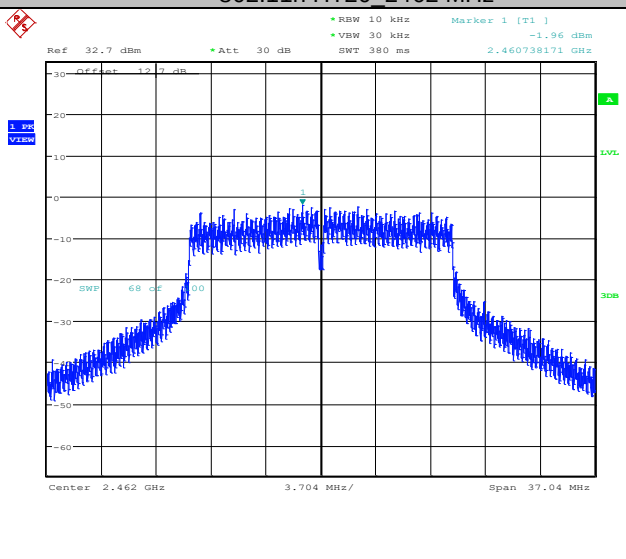
802.11n HT20_2462 MHz



9. CONDUCTED BANDEDGE AND SPURIOUS MEASURMENT

9.1. Limits of Conducted Bandedge and Spurious Measurement

CFR 47 (FCC) part 15.247 (d)

9.2. Test Procedure

ANSI C63.10-2013 Clause 11.11
The transmitter output was connected to the spectrum analyzer.
Establish a reference level by using the following procedure:
a)Set instrument center frequency to DTS channel center frequency.
b)Set the span to ≥ 1.5 times the DTS bandwidth.
c)Set the RBW = 100 kHz.
d)Set the VBW ≥ 3 x RBW.
e)Detector = peak.
f)Sweep time = auto couple.
g)Trace mode = max hold.
h)Allow trace to fully stabilize.
i)Use the peak marker function to determine the maximum PSD level.
Emission level measurement
a)Set the center frequency and span to encompass frequency range to be measured.
b)Set the RBW = 100 kHz.
c)Set the VBW ≥ 3 x RBW.
d)Detector = peak.
e)Sweep time = auto couple.
f)Trace mode = max hold.
g)Allow trace to fully stabilize.
h)Use the peak marker function to determine the maximum amplitude level.

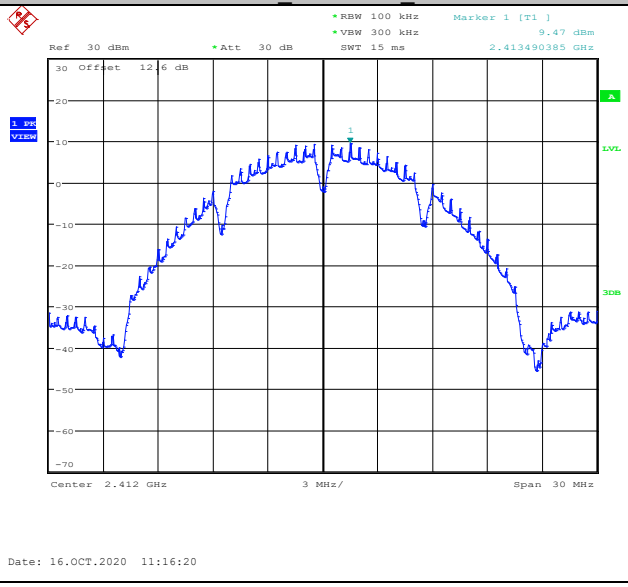
Test Result ： ALL emission outside of 2400-2483.5 MHz are lower at least 20dB than fundamental frequency.

9.3. Test Data

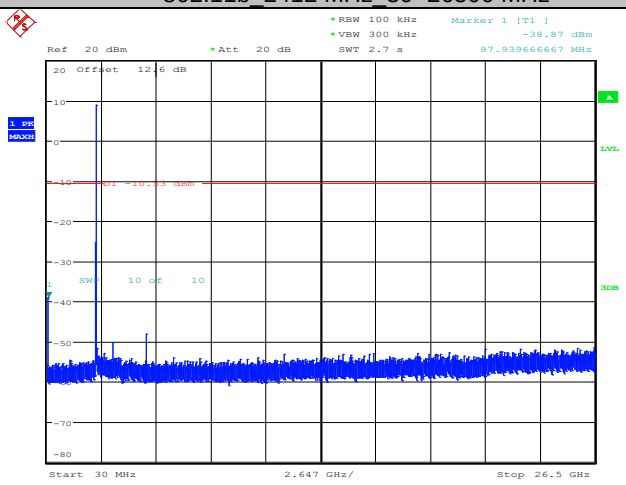
Table 9 Conducted Spurious Emission

Test Mode	Channel [MHz]	Freq.Range [MHz]	Result [dBm]	Limit	Verdict
802.11b	2412	Reference	9.47	---	PASS
		30~26500	-38.87	<=-10.53	PASS
	2437	Reference	10.50	---	PASS
		30~26500	-37.93	<=-9.5	PASS
	2462	Reference	10.48	---	PASS
		30~26500	-37.57	<=-9.52	PASS
802.11g	2412	Reference	7.17	---	PASS
		30~26500	-45.67	<=-12.83	PASS
	2437	Reference	7.68	---	PASS
		30~26500	-49.68	<=-12.32	PASS
	2462	Reference	8.13	---	PASS
		30~26500	-45.25	<=-11.87	PASS
802.11n HT20	2412	Reference	6.22	---	PASS
		30~26500	-48.79	<=-13.78	PASS
	2437	Reference	7.71	---	PASS
		30~26500	-50.17	<=-12.29	PASS
	2462	Reference	8.04	---	PASS
		30~26500	-50.63	<=-11.96	PASS

802.11b_2412 MHz_Reference



802.11b_2412 MHz_30~26500 MHz



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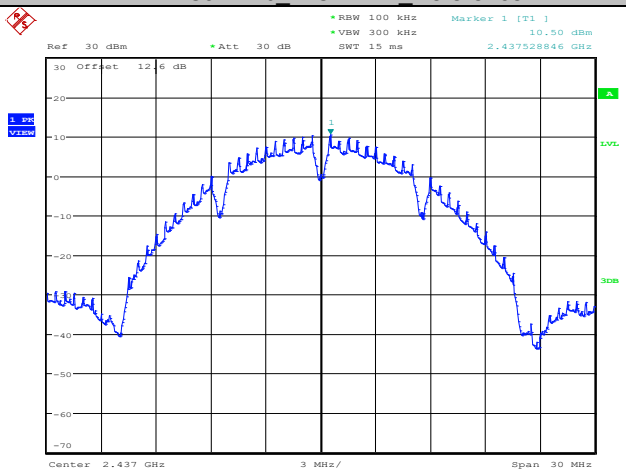
802.11b_2437 MHz_Reference



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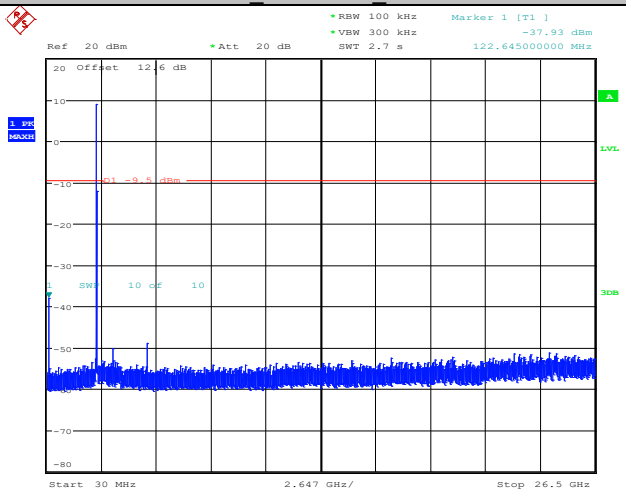
802.11b_2437 MHz_30~26500 MHz



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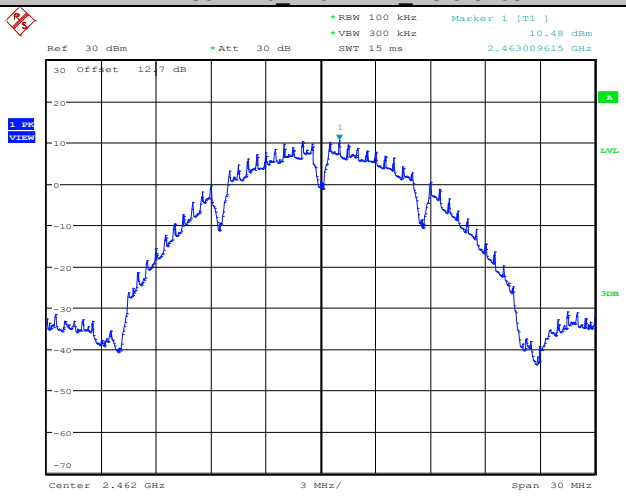
802.11b_2462 MHz_Reference



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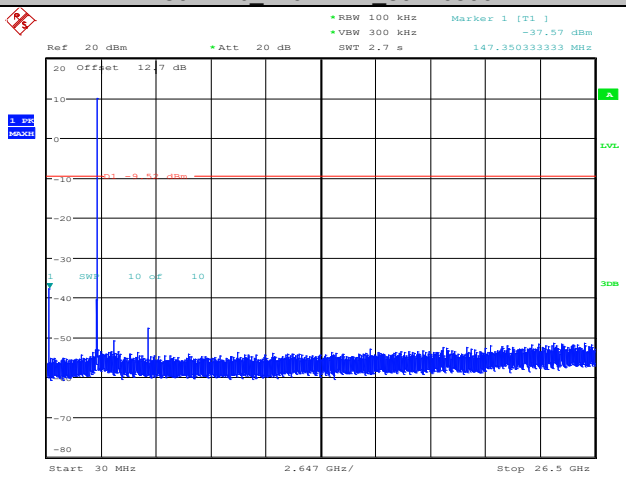
802.11b_2462 MHz_30~26500 MHz



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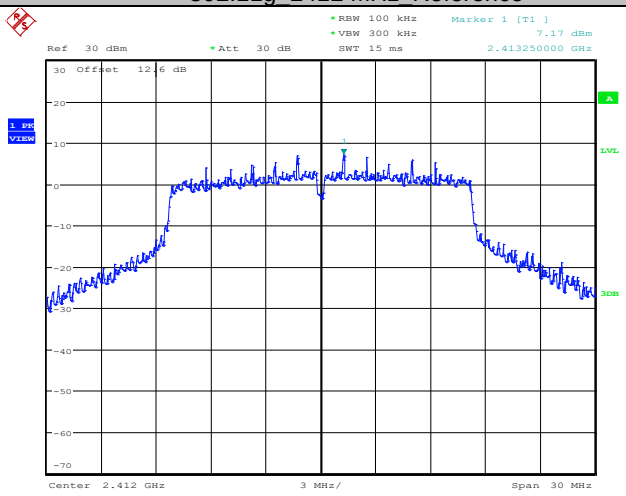
802.11g_2412 MHz_Reference



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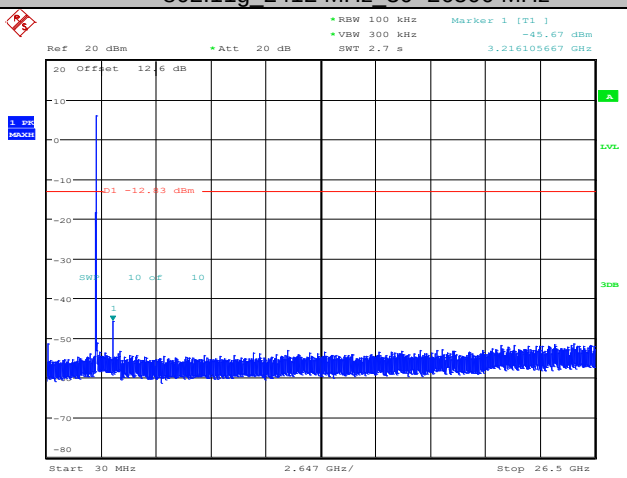
802.11g_2412 MHz_30~26500 MHz



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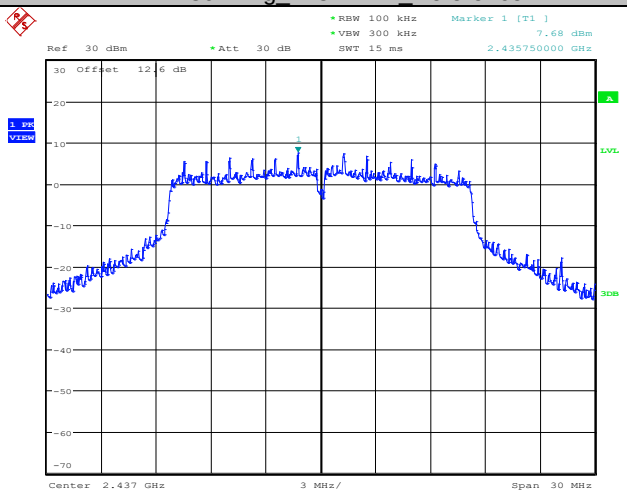
802.11g_2437 MHz_Reference



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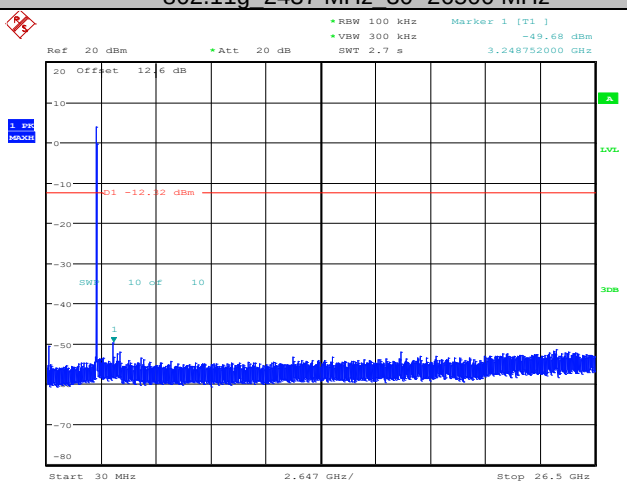
802.11g_2437 MHz_30~26500 MHz



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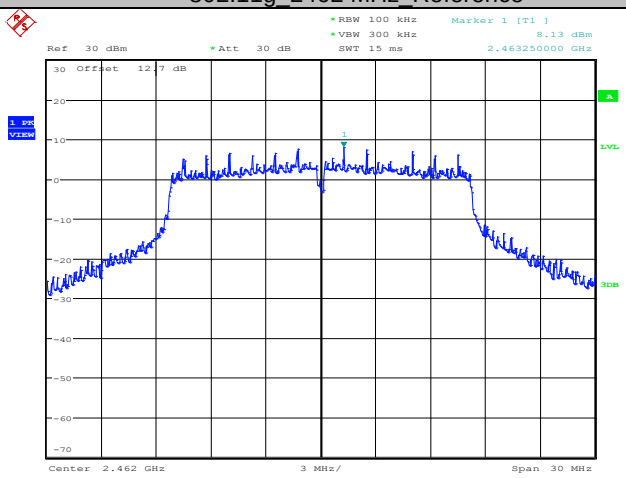
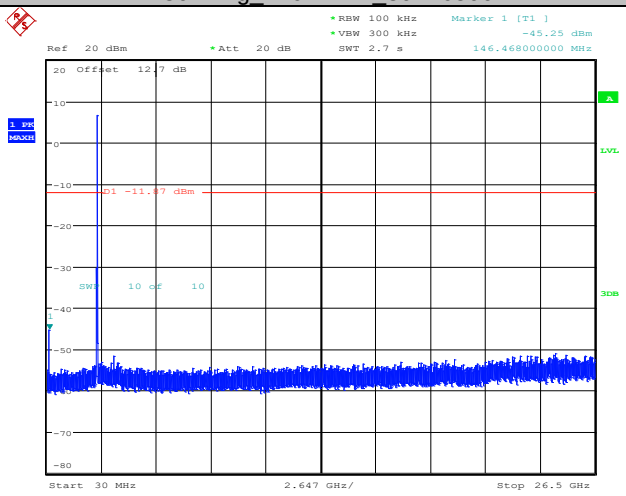
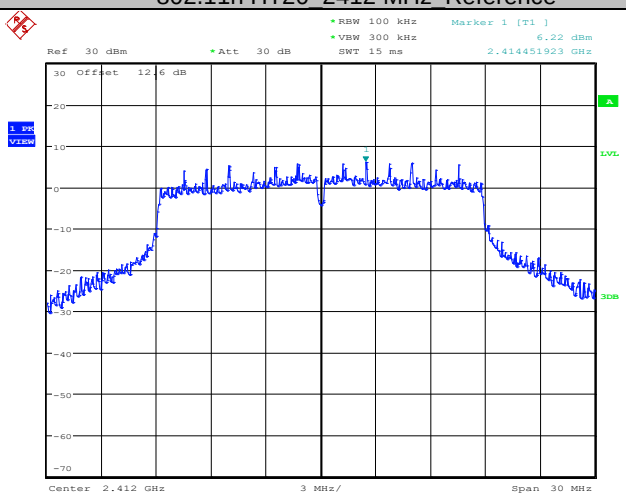
802.11g_2462 MHz_Reference



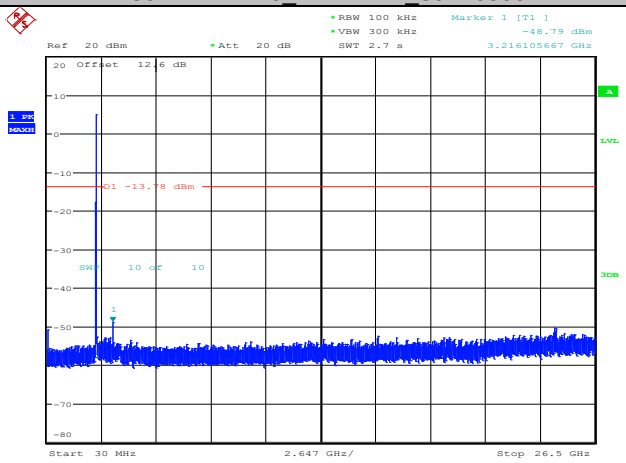
802.11g_2462 MHz_30~26500 MHz



802.11n HT20_2412 MHz_Reference



802.11n HT20_2412 MHz_30~26500 MHz



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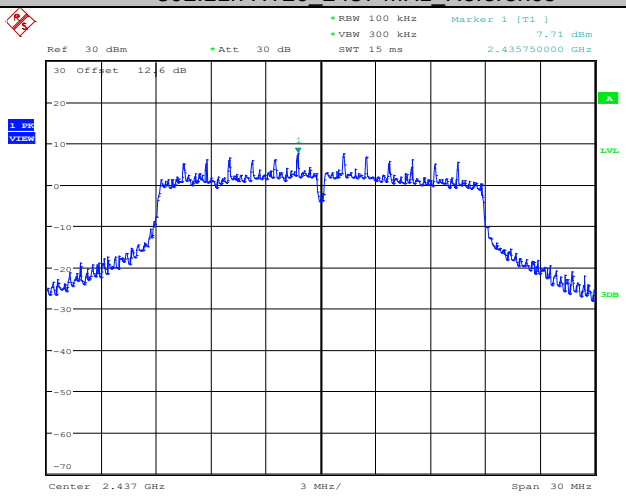
802.11n HT20_2437 MHz_Reference



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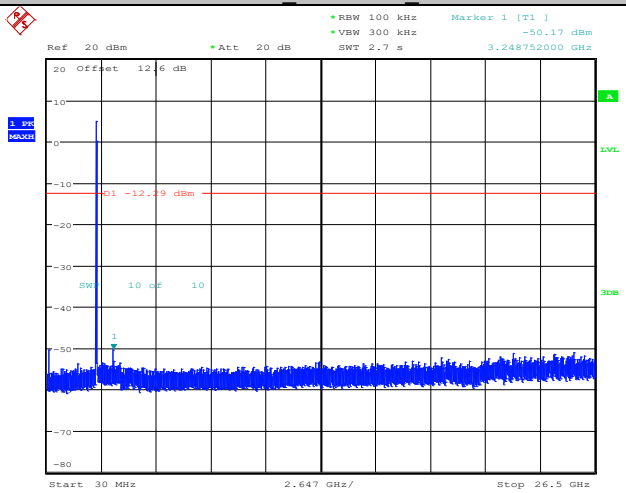
802.11n HT20_2437 MHz_30~26500 MHz



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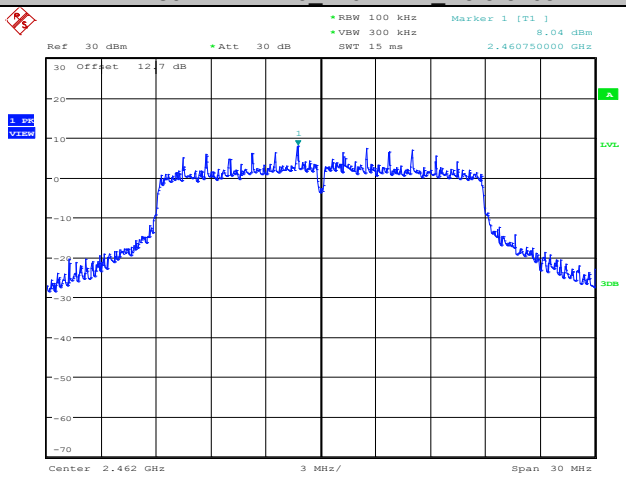
802.11n HT20_2462 MHz_Reference



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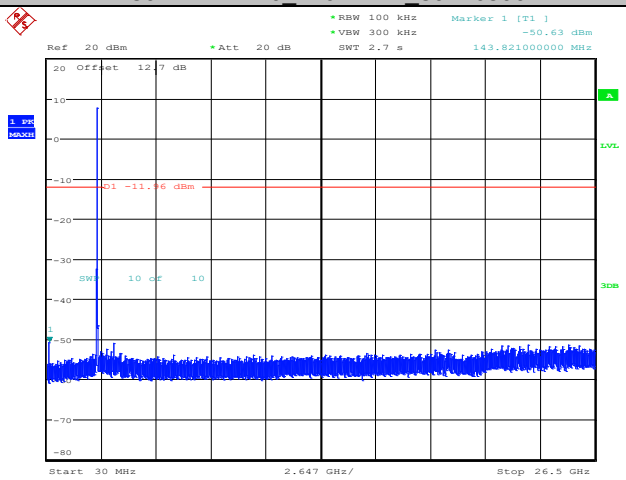
802.11n HT20_2462 MHz_30~26500 MHz

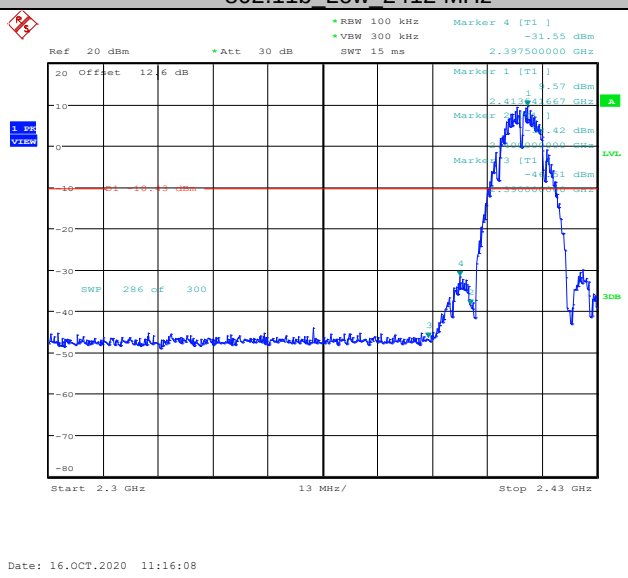


Date: 16.OCT.2020 15:34:32

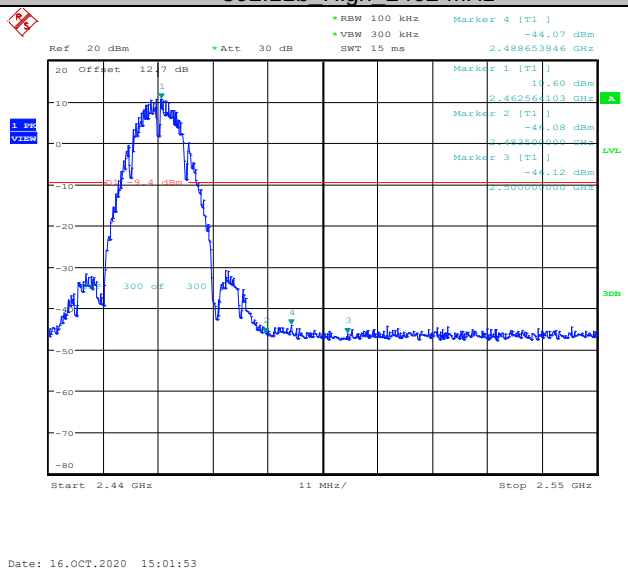
Table 10 Bandedge for RF Conducted Emissions

Test Mode	ChName	Channel [MHz]	Result	Limit	Verdict
802.11b	Low	2412	-31.55	<=-10.43	PASS
	High	2462	-44.07	<=-9.4	PASS
802.11g	Low	2412	-21.74	<=-13.71	PASS
	High	2462	-38.08	<=-11.75	PASS
802.11n HT20	Low	2412	-20.93	<=-13.22	PASS
	High	2462	-36.87	<=-11.63	PASS

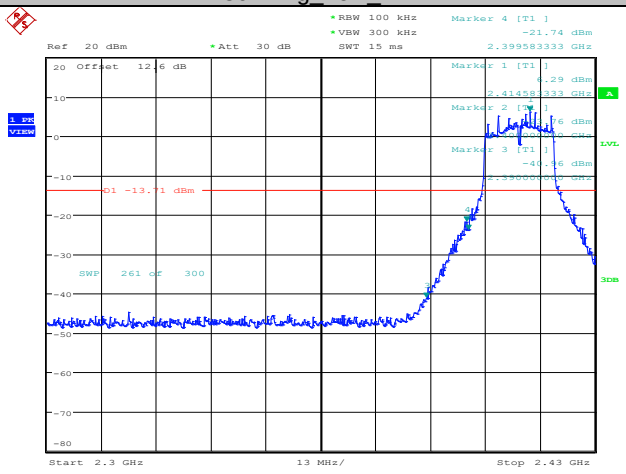
802.11b_Low_2412 MHz



802.11b_High_2462 MHz



802.11g_Low_2412 MHz



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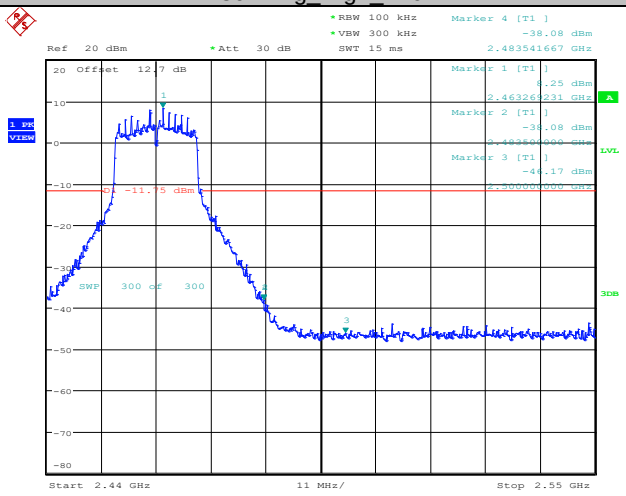
802.11g_High_2462 MHz



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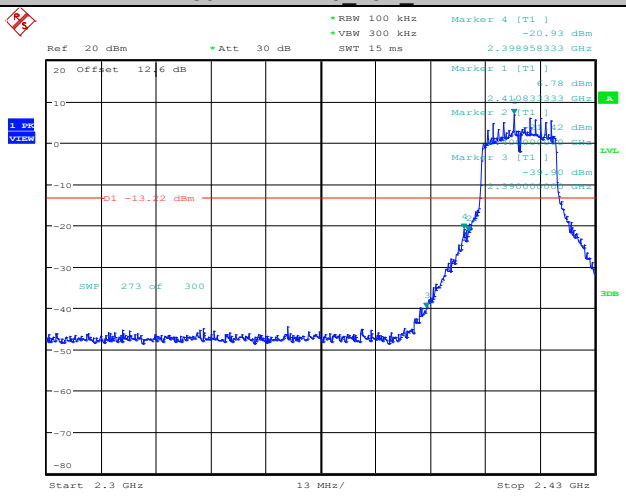
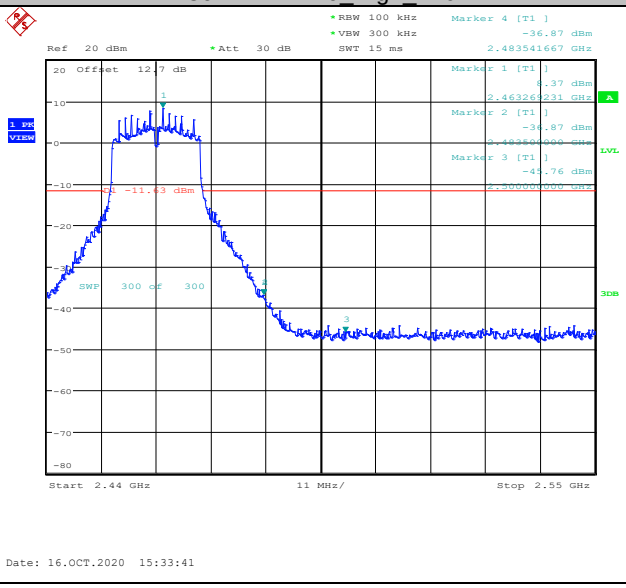
802.11n HT20_Low_2412 MHz



Date: 16.OCT.2020 15:26:26

802.11n HT20_High_2462 MHz



10. RADIATED BANDEDGE AND SPURIOUS MEASUREMENT

10.1. Limits of Radiated Bandedge and Spurious Measurement

Table 11 Radiation Emission Test Limit for FCC (9KHz-1GHz)

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
960~1000	500	3

Table 12 Radiation Emission Test Limit for FCC (Above 1G)

Frequency (MHz)	(dBuV/m) (at 3 meters)	
	PEAK	AVERAGE
Above 1000	74	54

* The lower limit shall apply at the transition frequency.
* The test distance is 3m.

10.2. Test Procedure

ANSI C63.10-2013 Clause 11.12
1. The testing follows the guidelines in ANSI C63.10-2013.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
3. For measurement below 1GHz, the EUT was placed on a turntable with 0.8 meter,above ground. For measurement above 1 GHz, test at FAR, the EUT is placed on a non-conductive table, which is 1.5 meter above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
6. For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
7. Use the following spectrum analyzer settings:
(1) Span shall wide enough to fully capture the emission being measured;
(2) Set RBW=100 kHz for f < 1 GHz; VBW >= RBW; Sweep = auto; Detector function = peak; Trace = max hold;
(3) Set RBW = 1 MHz, VBW= 3MHz for f > 1 GHz for peak measurement.
Set RBW = 1 MHz, and 1/T (on time) for average measurement.

10.3.Test Data

9 kHz-30 MHz

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

Table 13 Radiated Emission Test Data 9 kHz-30 MHz

Frequency (MHz)	Cable Loss +preamp (dB)	Antenna Factor (dB)	Reading (dBμV/m)	Level (dBμV/m)	Polarity (H/V)	Limit (dBμV/m)	Margin (dB)	Note
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--

30MHz-1GHz

Worst case is shown below for 30 MHz-1GHz only.

The emissions don't show in following result tables are more than 20dB below the limits.

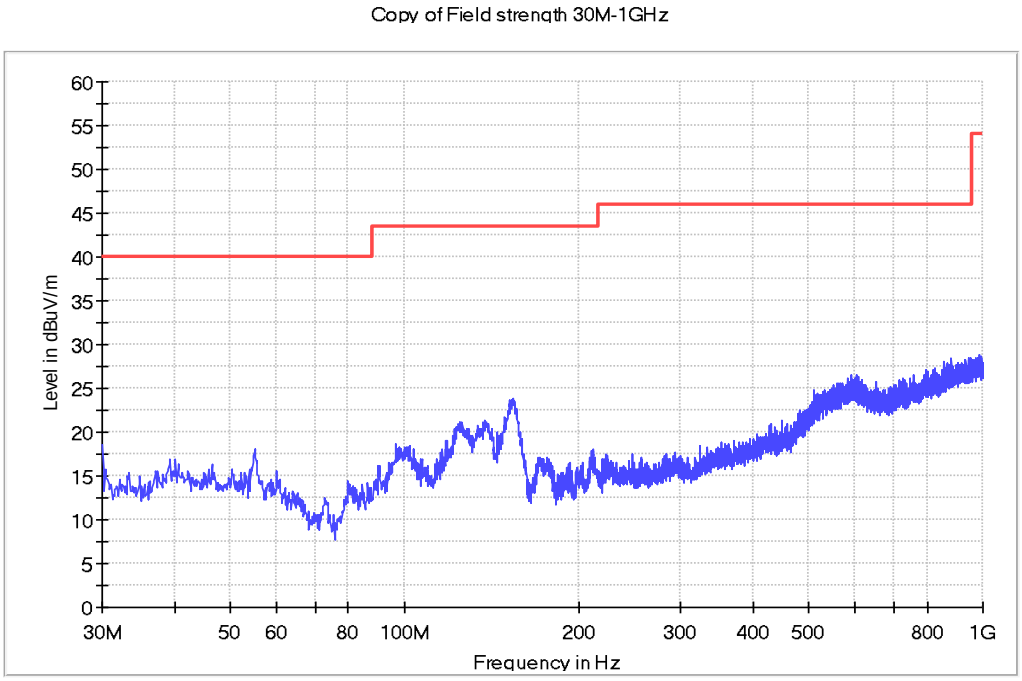
Adaptor 1#

Table 14 Radiated Emission Test Data 30MHz-1GHz

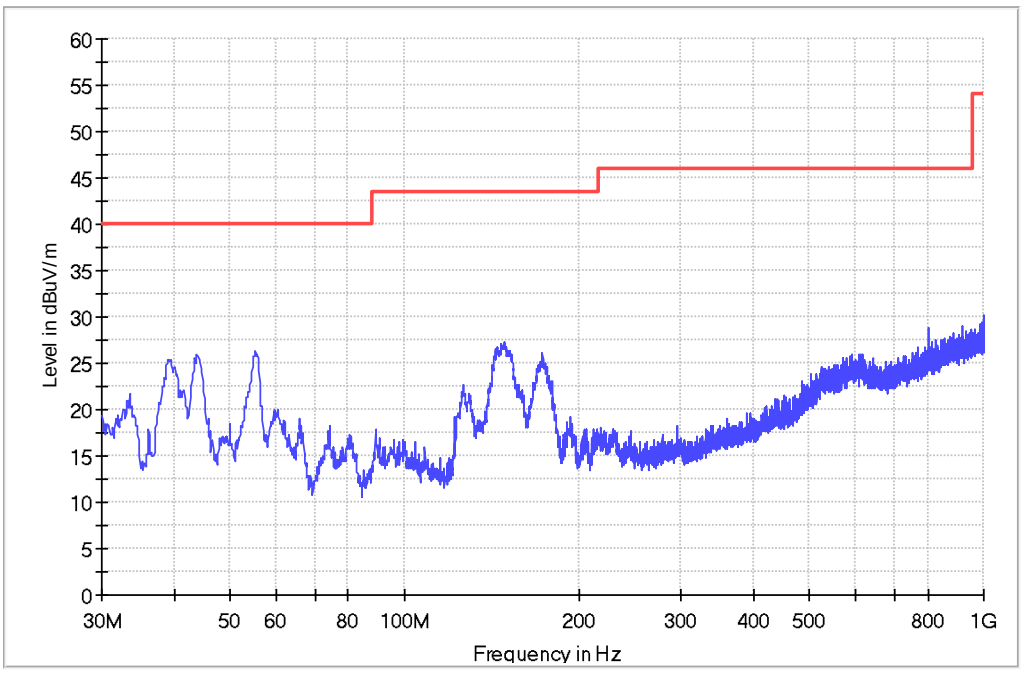
Test mode: Charging and Transmitting								
Frequency (MHz)	Cable Loss +preamp (dB)	Antenna Factor (dB)	Reading (dBμV/m)	Level (dBμV/m)	Polarity (Horizontal/ Vertical)	Limit (dBμV/m)	Margin (dB)	Note
39.340	0.6	12.3	0.2	13.1	Horizontal	40.0	26.9	QP
54.977	0.8	13.3	-0.1	14.0	Horizontal	40.0	26.0	QP
125.908	1.2	10.5	6.2	17.9	Horizontal	43.5	25.6	QP
96.566	1.1	12.8	1.7	15.6	Horizontal	43.5	27.9	QP
154.281	1.4	8.3	10.7	20.4	Horizontal	43.5	23.1	QP
590.660	3.0	16.6	3.4	23.0	Horizontal	46.0	23.0	QP
39.093	0.7	12.3	9.0	22.0	Vertical	40	18.0	QP
43.822	0.7	13.6	7.3	21.6	Vertical	40	18.4	QP
55.220	0.8	13.0	9.2	23.0	Vertical	40	17.0	QP
126.272	1.2	10.5	8.1	19.8	Vertical	43.5	23.7	QP
148.340	1.4	10.5	12.2	24.1	Vertical	43.5	19.4	QP
173.196	1.5	9.0	12.6	23.1	Vertical	43.5	20.4	QP

Remark: Emission level (dBμV)=Read Value(dBμV/m) + Antenna Factor(dB)+ Cable Loss +preamp(dB)

Adaptor 1#
Horizontal



Vertical



Adaptor 2#

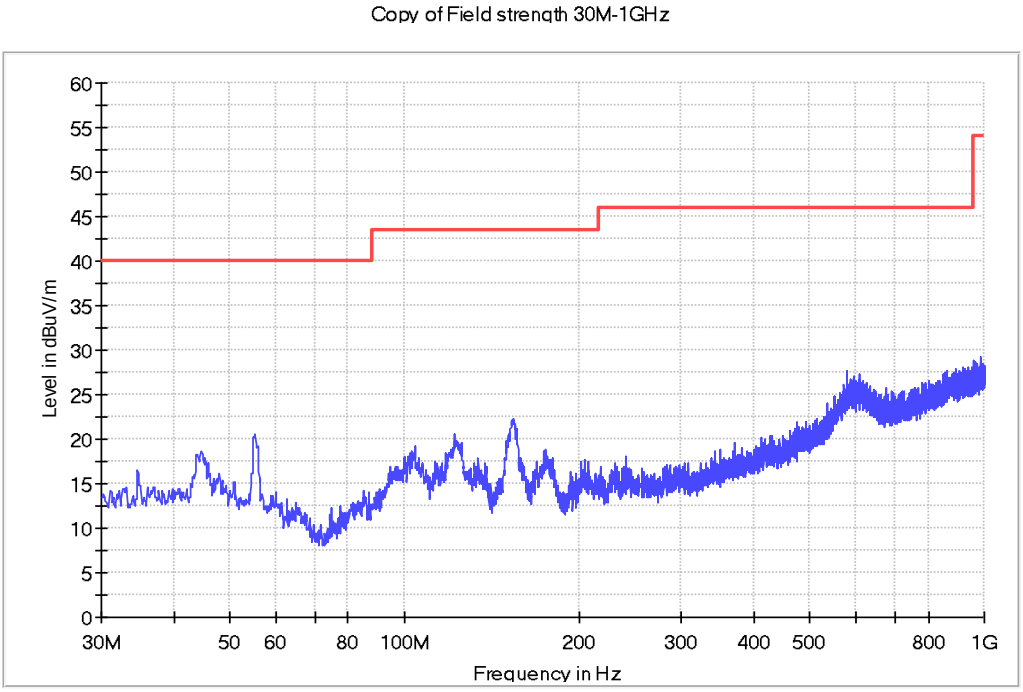
Table 15 Radiated Emission Test Data 30MHz-1GHz

Test mode: Charging and Transmitting								
Frequency (MHz)	Cable Loss +preamp (dB)	Antenna Factor (dB)	Reading (dBμV/m)	Level (dBμV/m)	Polarity (Horizontal/ Vertical)	Limit (dBμV/m)	Margin (dB)	Note
44.550	0.7	13.6	1.3	15.6	Horizontal	40.0	24.4	QP
55.341	0.8	13.0	3.2	17.0	Horizontal	40.0	23.0	QP
104.205	1.3	13.2	1.6	16.1	Horizontal	43.5	27.4	QP
122.028	1.3	10.5	5.3	17.1	Horizontal	43.5	26.4	QP
153.917	1.4	8.3	9.9	19.6	Horizontal	43.5	23.9	QP
580.111	3.0	16.6	4.4	24.0	Horizontal	46.0	22.0	QP
44.307	0.7	13.6	8.8	23.1	Vertical	40	16.9	QP
39.457	0.6	12.3	17.1	30.0	Vertical	40	10.0	QP
55.220	0.8	13.0	9.8	23.6	Vertical	40	16.4	QP
90.630	1.2	11.9	2.9	16.0	Vertical	43.5	27.5	QP
152.826	1.4	8.3	13.3	23.0	Vertical	43.5	20.5	QP
175.980	1.5	9.0	11.6	22.1	Vertical	43.5	21.4	QP

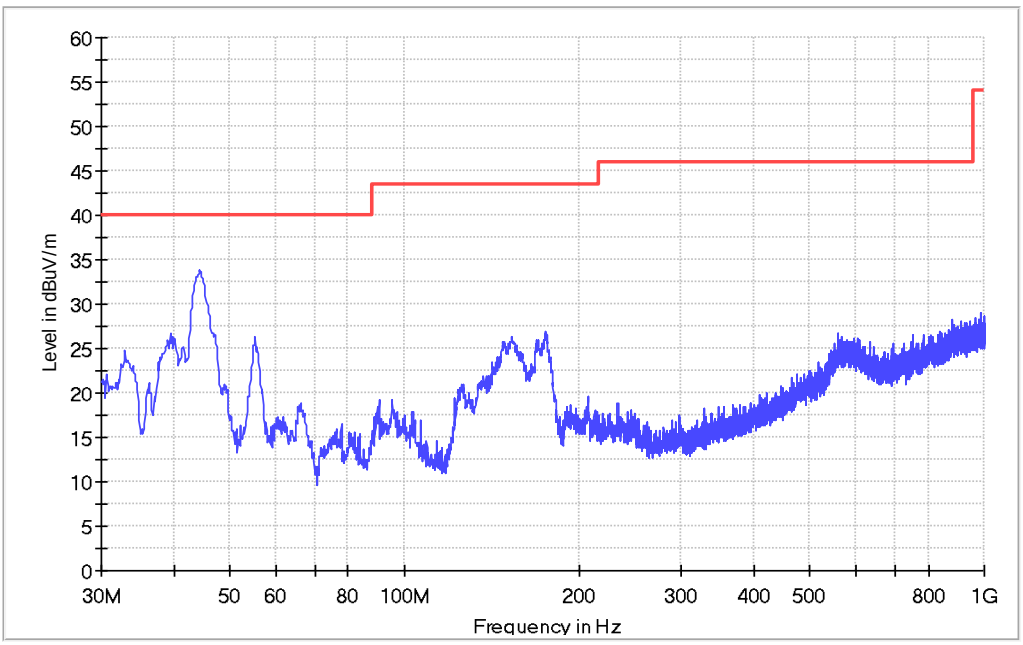
Remark: Emission level (dBμV)=Read Value(dBμV/m) + Antenna Factor(dB)+ Cable Loss +preamp(dB)

Adaptor 2#

Horizontal



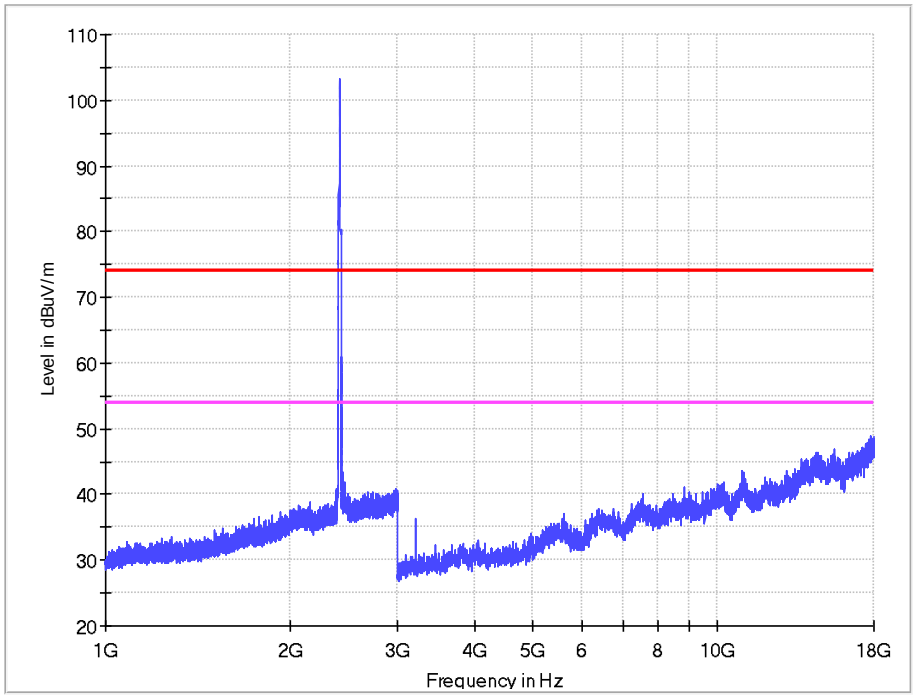
Vertical



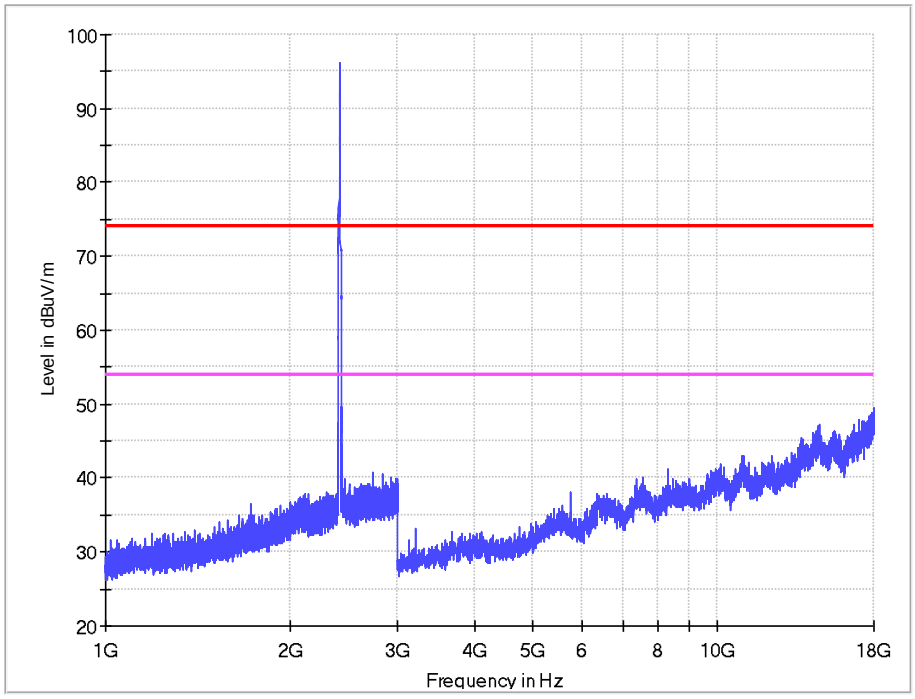
1-18G

802.11b CH1

Horizontal



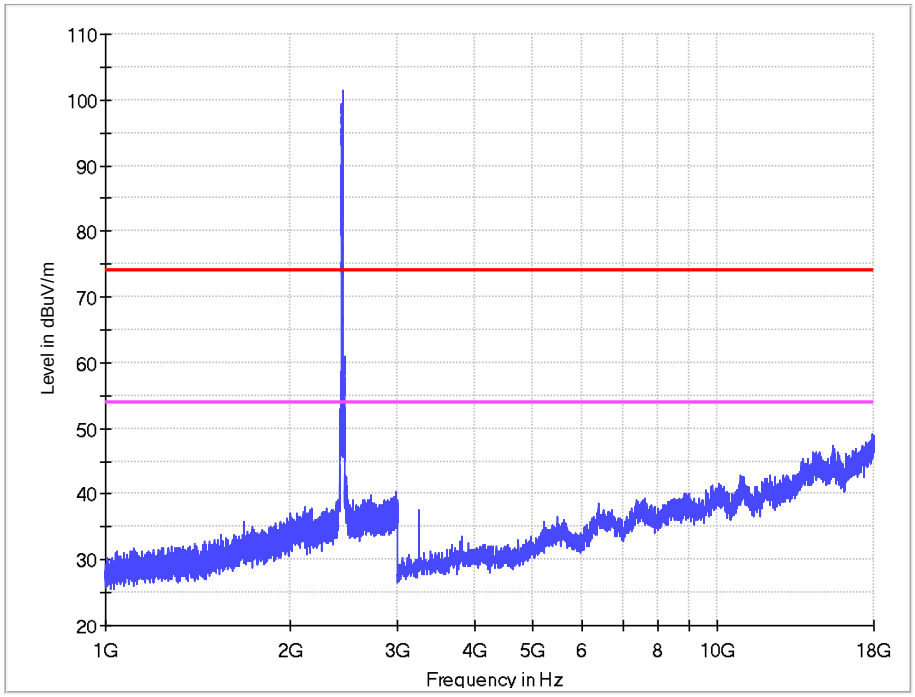
Vertical



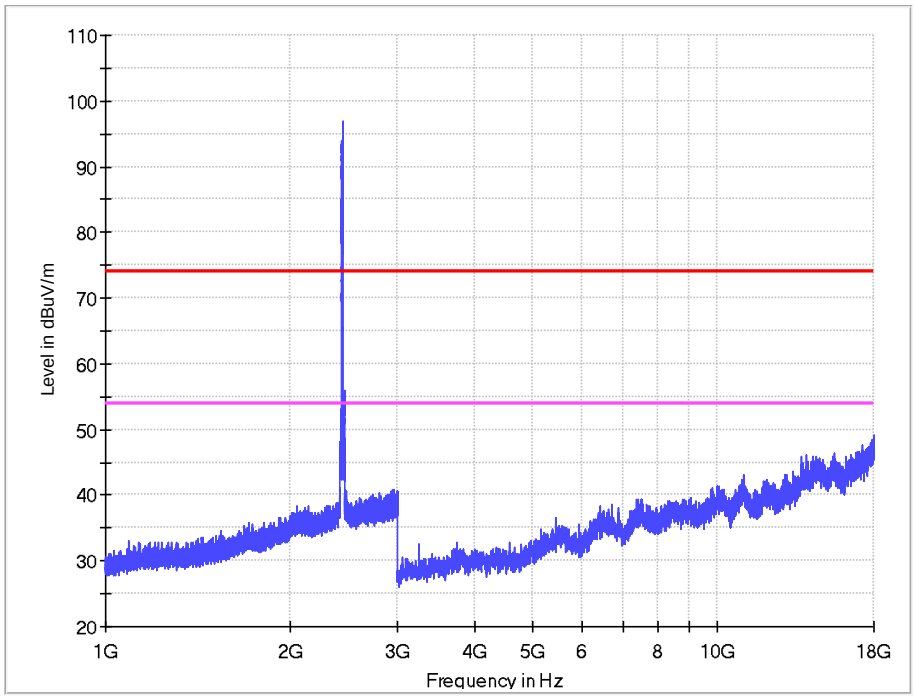
1-18G

802.11b CH6

Horizontal



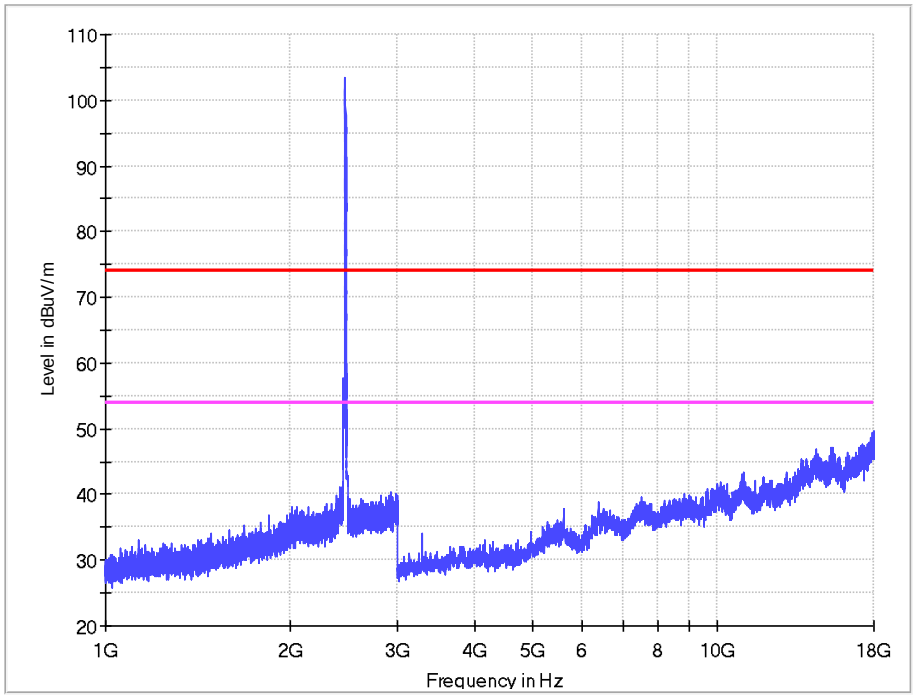
Vertical



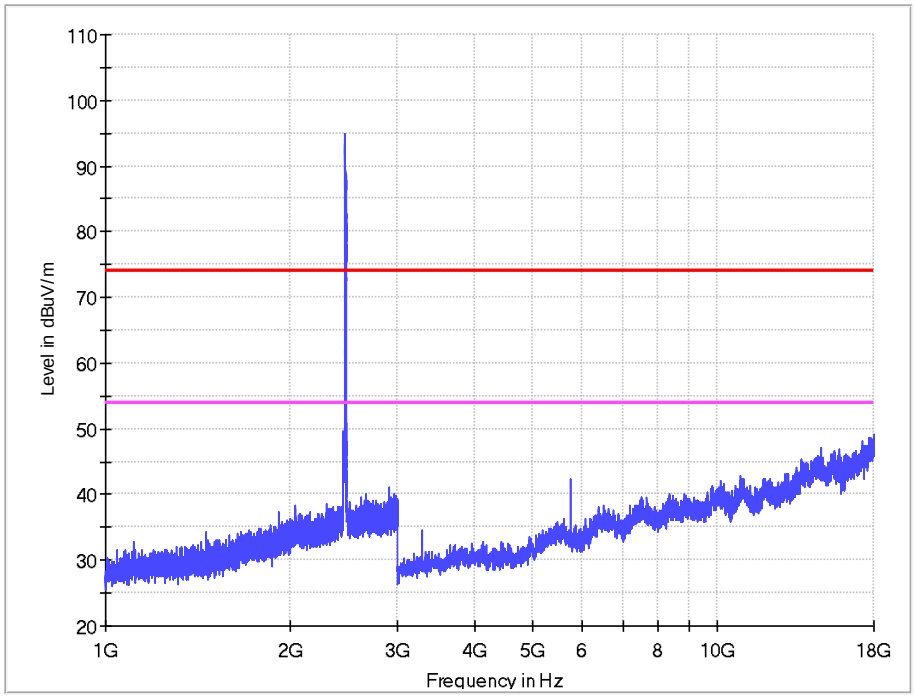
1-18G

802.11b CH11

Horizontal



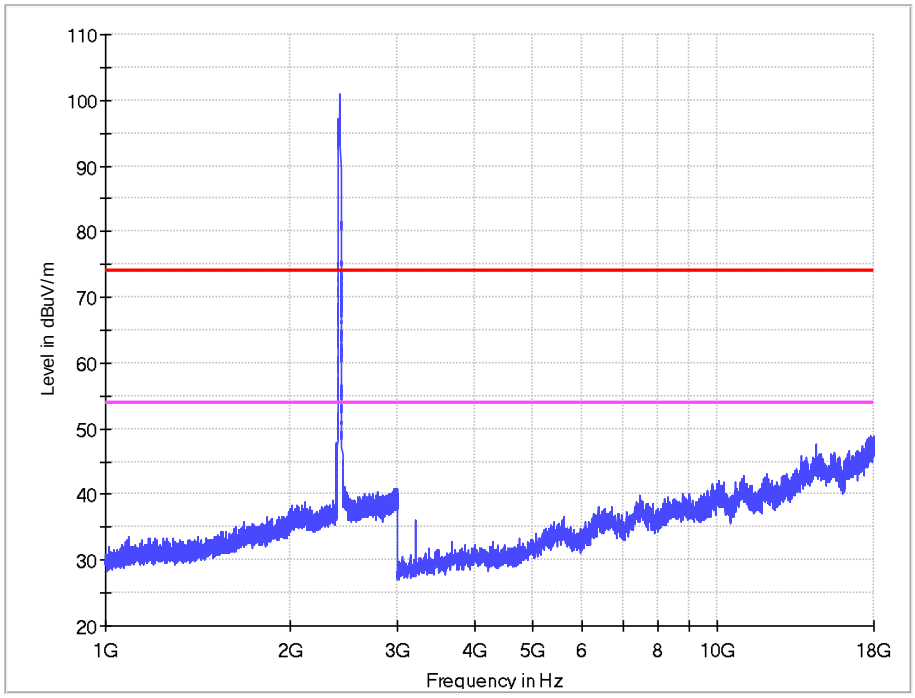
Vertical



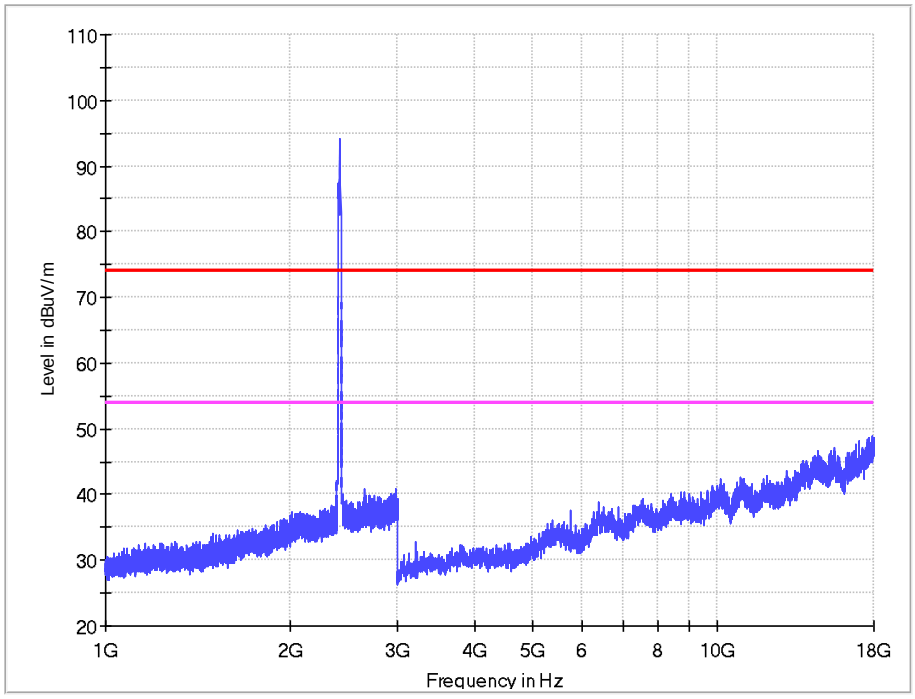
1-18G

802.11g CH1

Horizontal



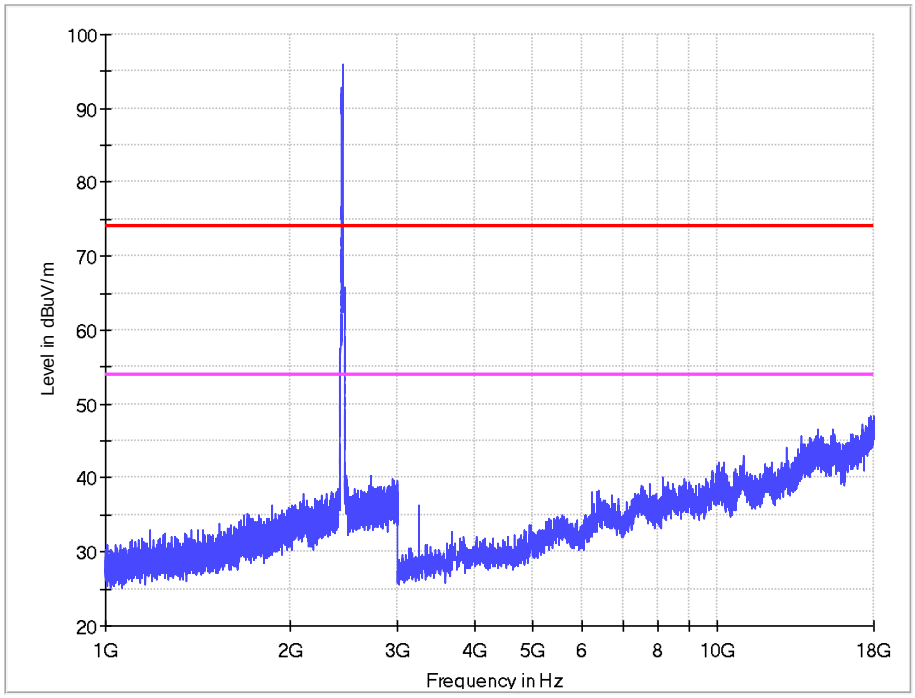
Vertical



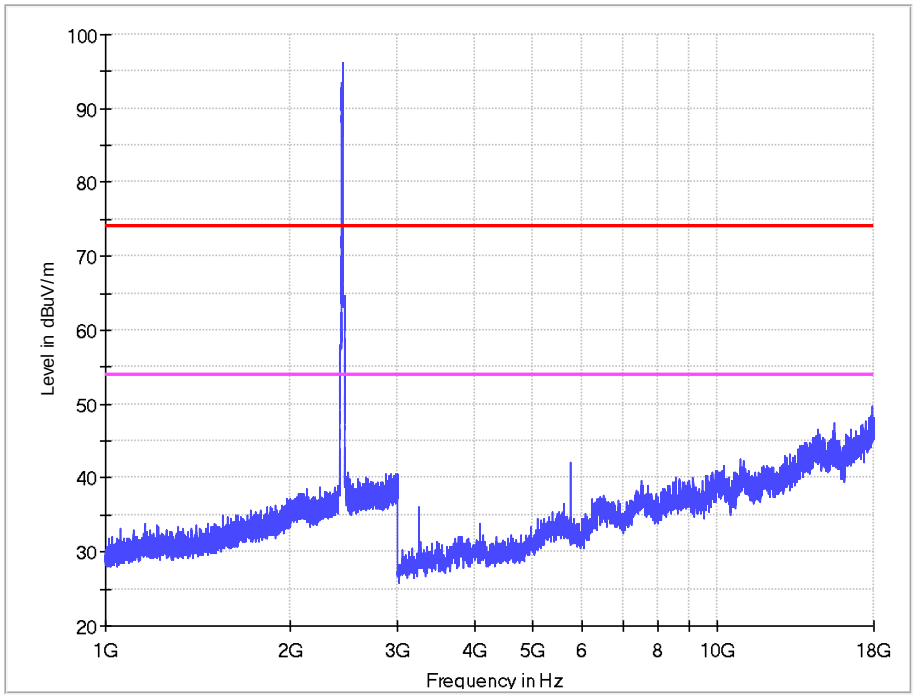
1-18G

802.11g CH6

Horizontal



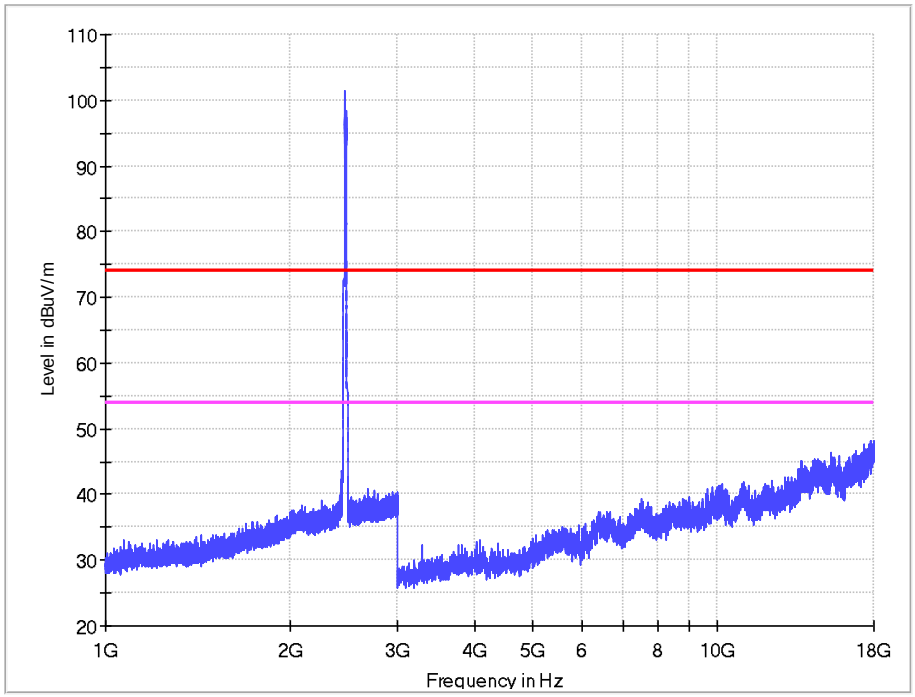
Vertical



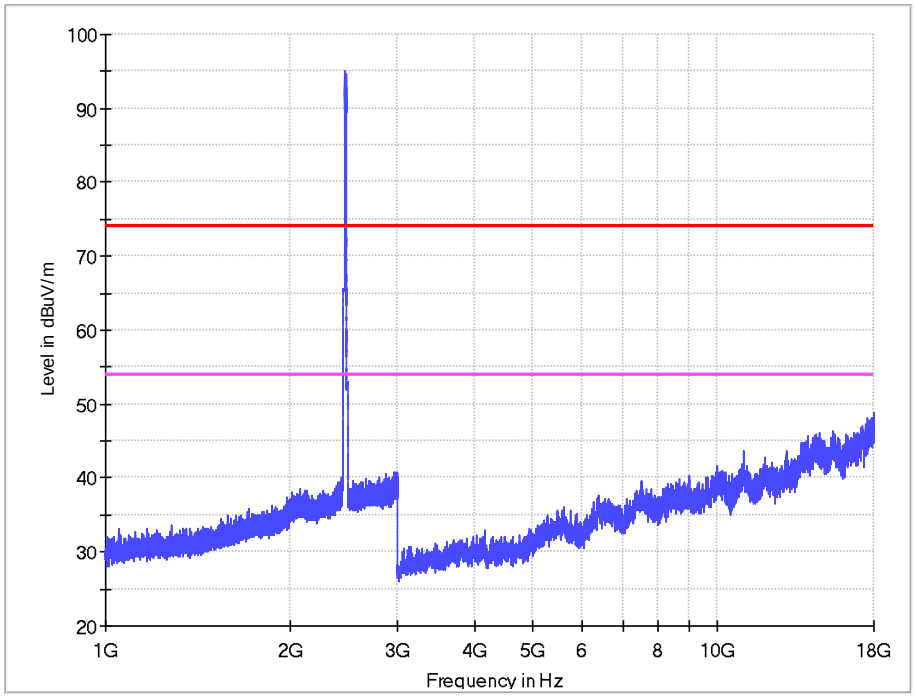
1-18G

802.11g CH11

Horizontal



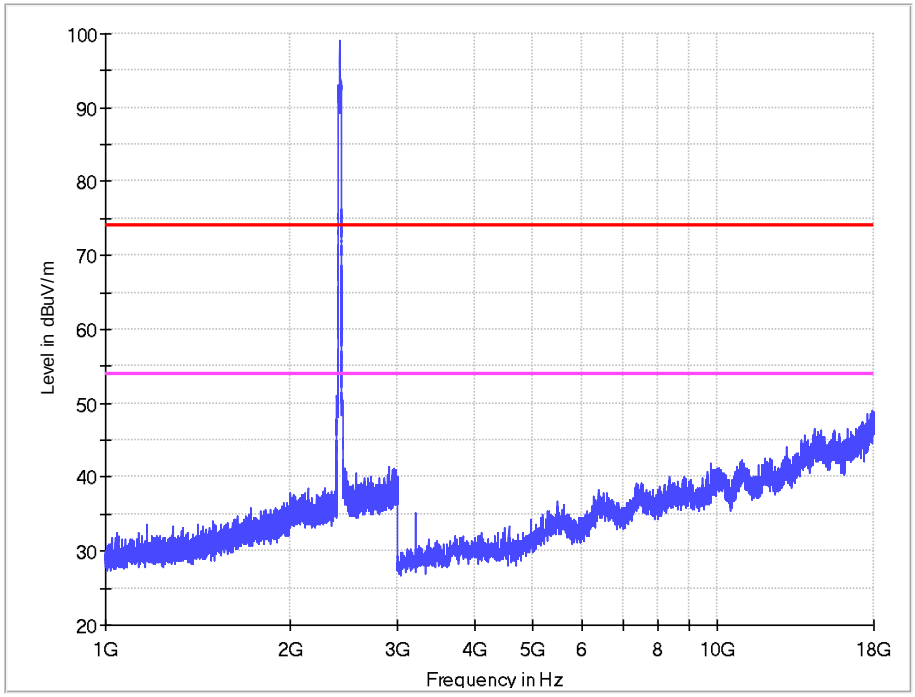
Vertical



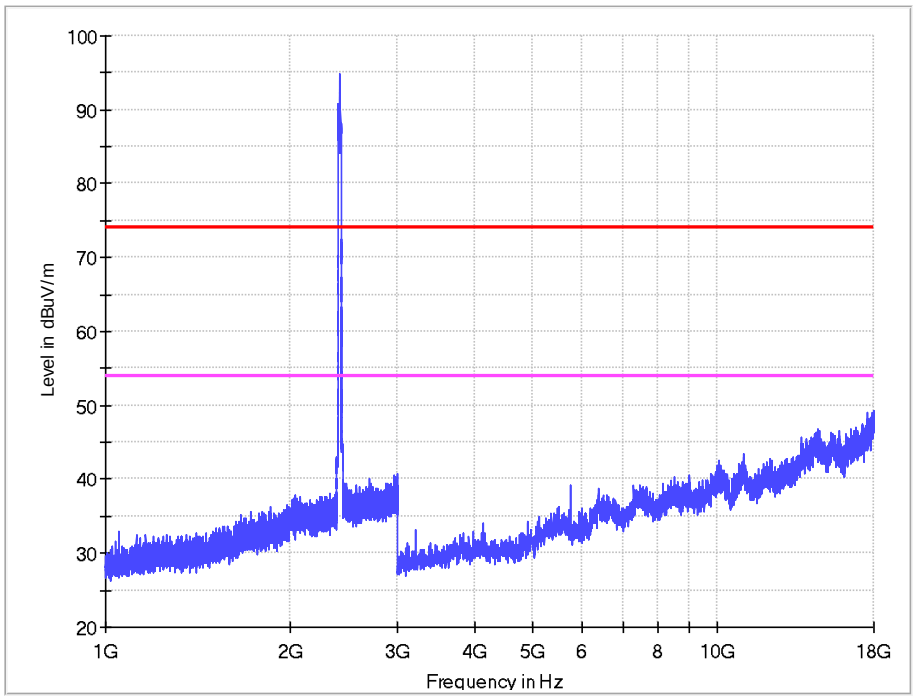
1-18G

802.11n HT20 CH1

Horizontal



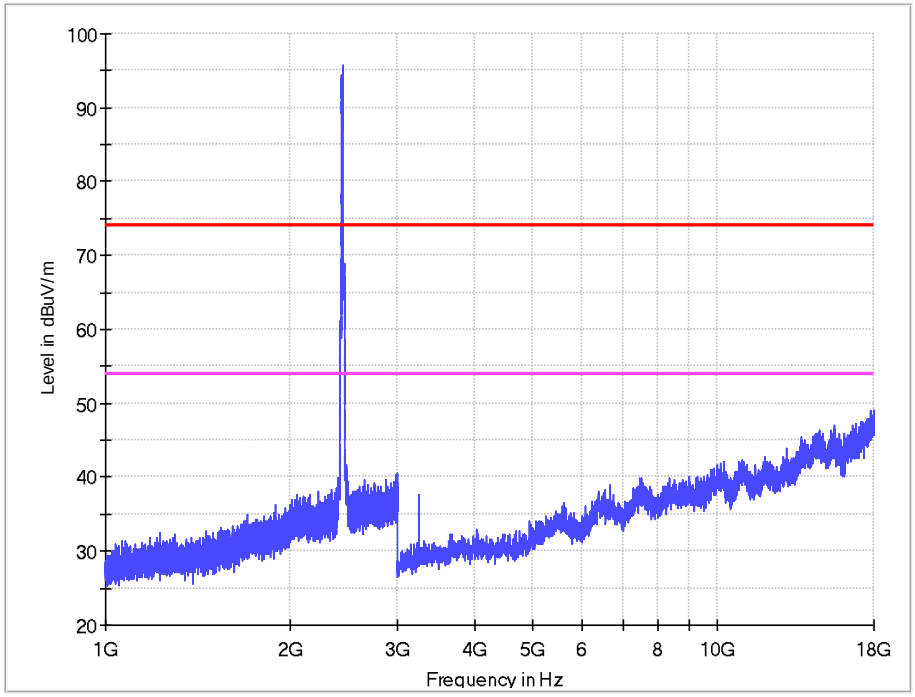
Vertical



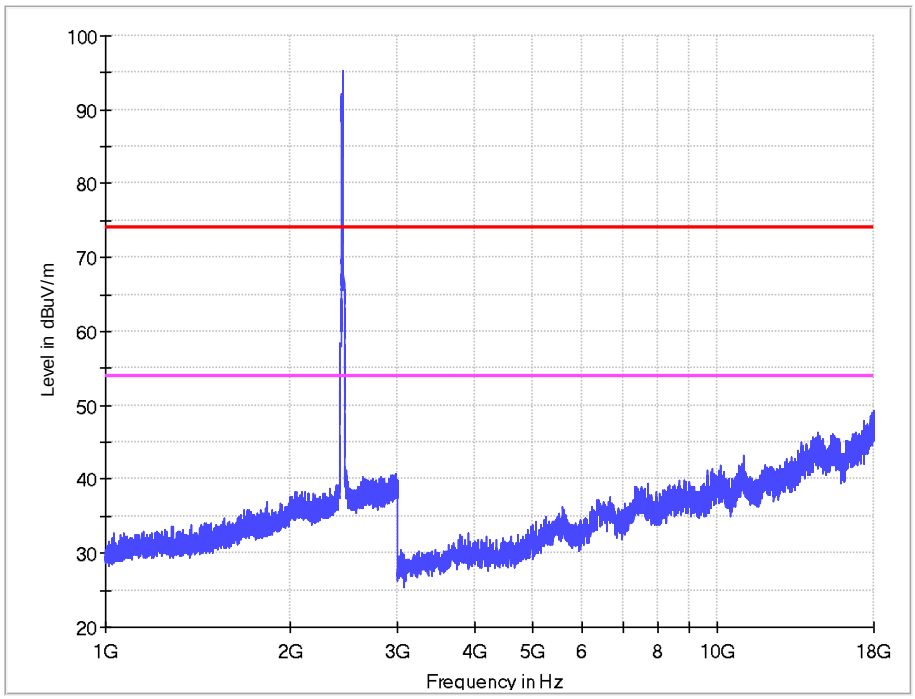
1-18G

802.11n HT20 CH6

Horizontal



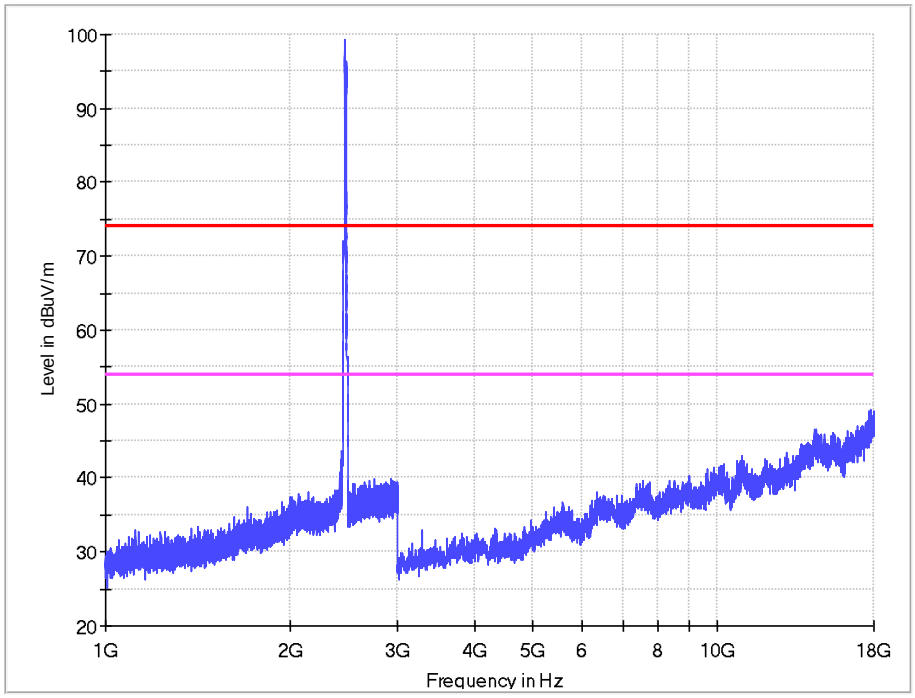
Vertical



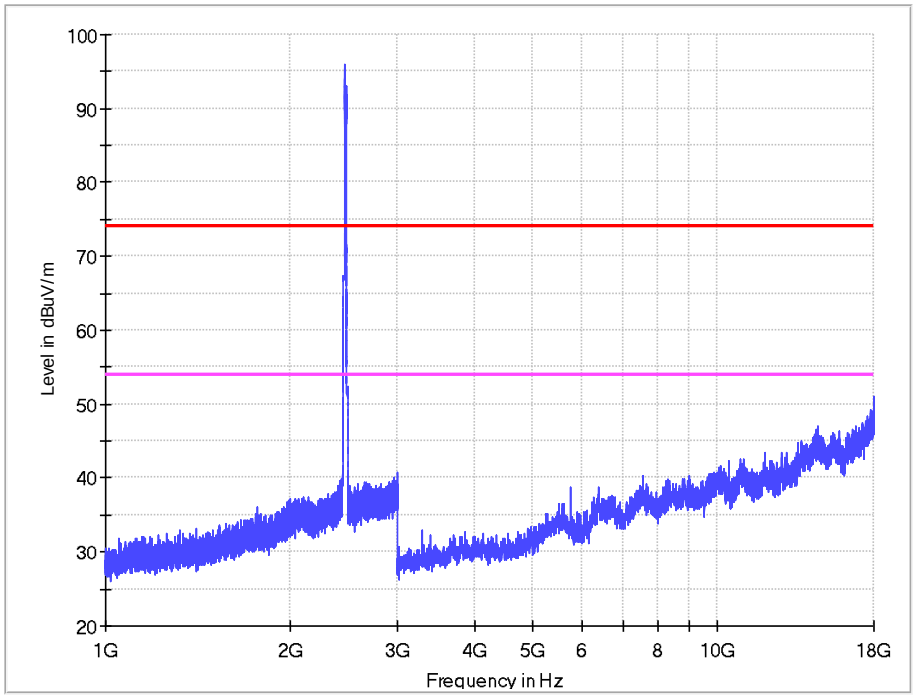
1-18G

802.11n HT20 CH11

Horizontal



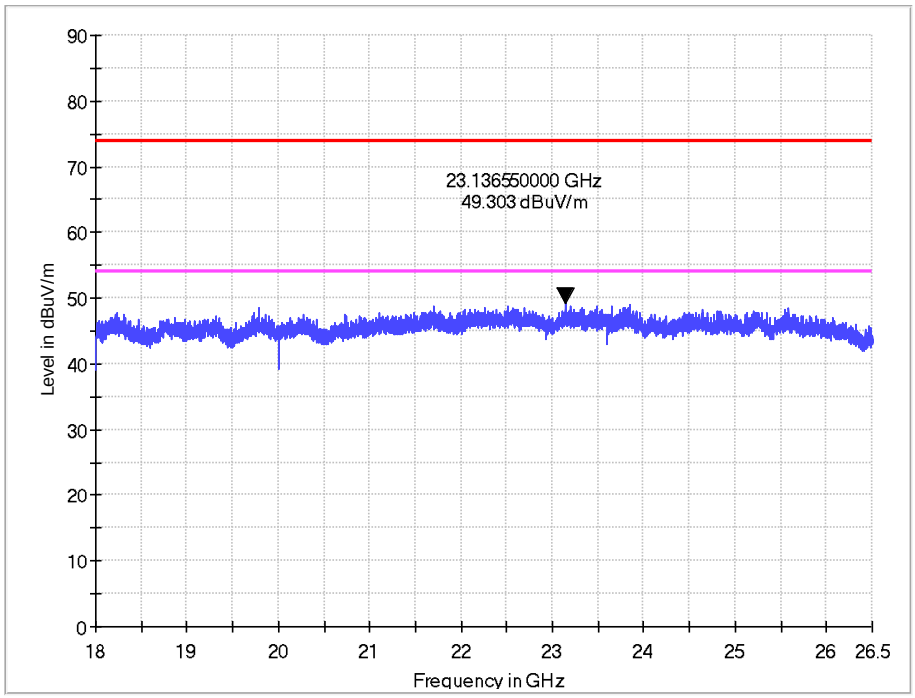
Vertical



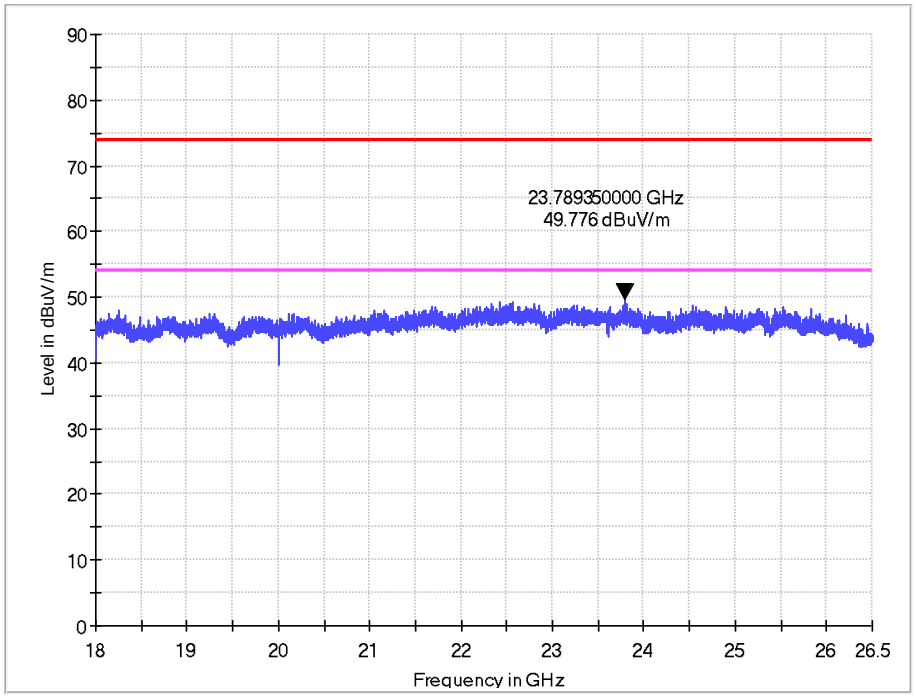
18-26.5G

(Worst Case at 802.11b CH1)

Horizontal



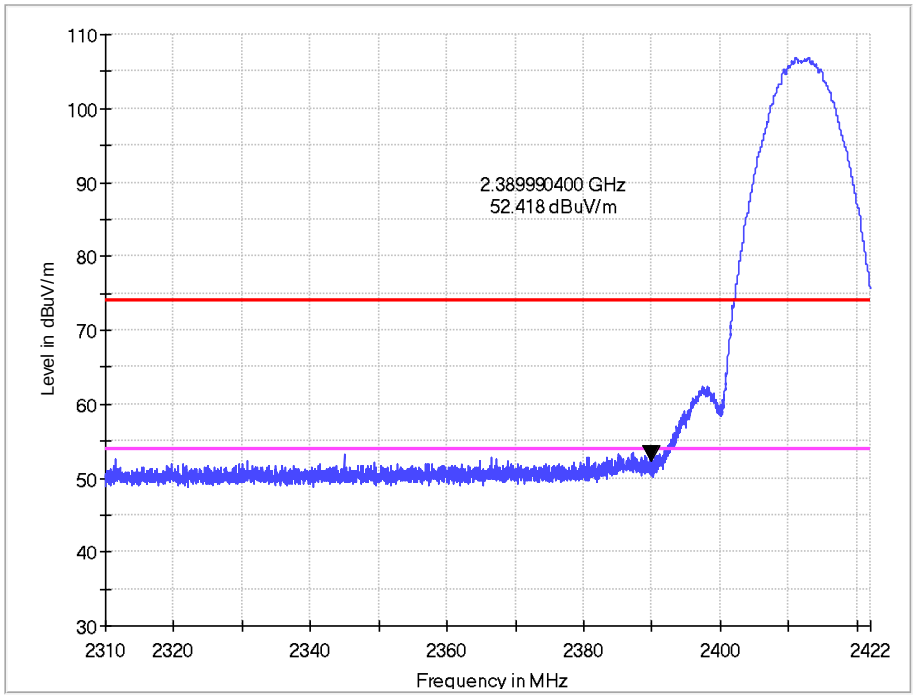
Vertical

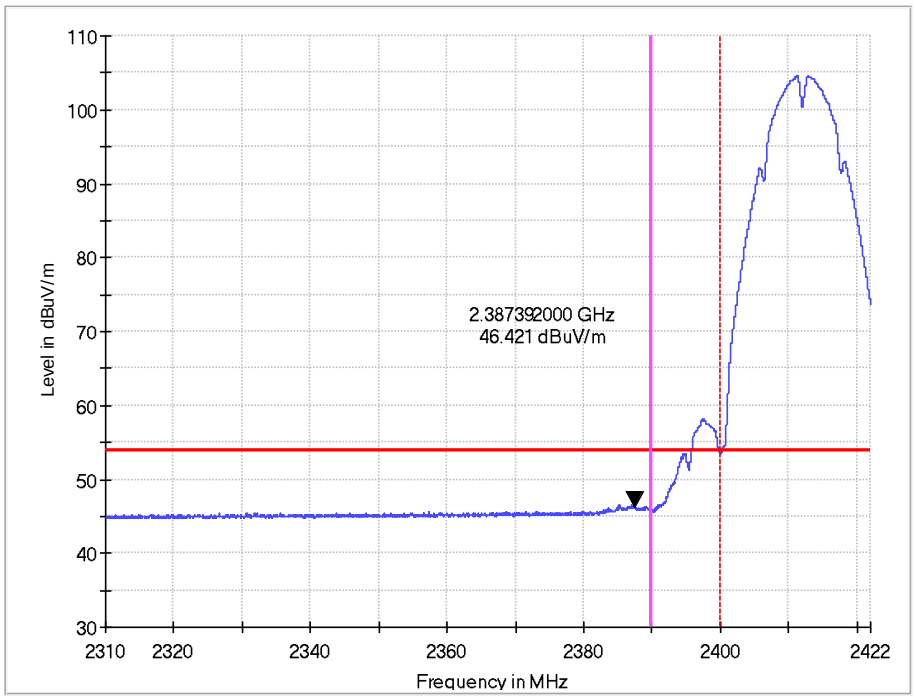


Band edge

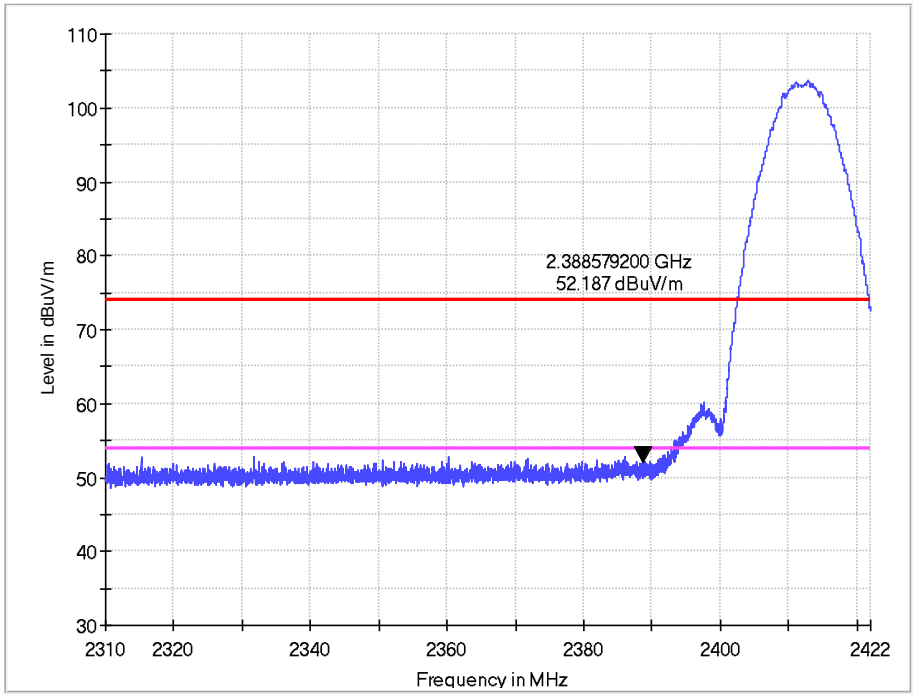
802.11b Lower Channel

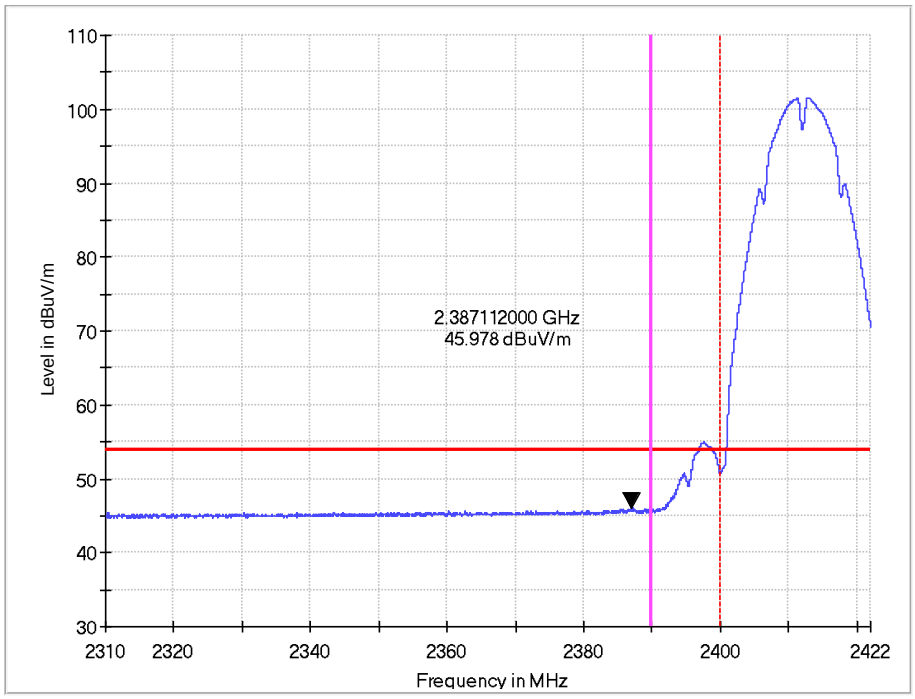
Horizontal





Vertical

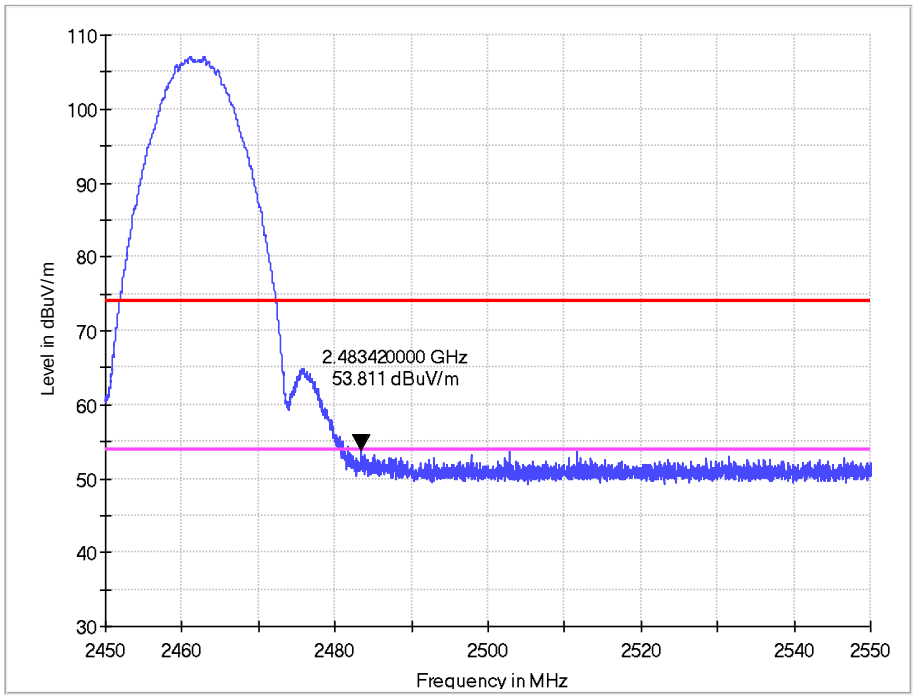

110
100
90
80
70
60
50
40
30
Level in dBuV/m
2.388579200 GHz
52.187 dBuV/m
2310
2320
2340
2360
2380
2400
2422
Frequency in MHz

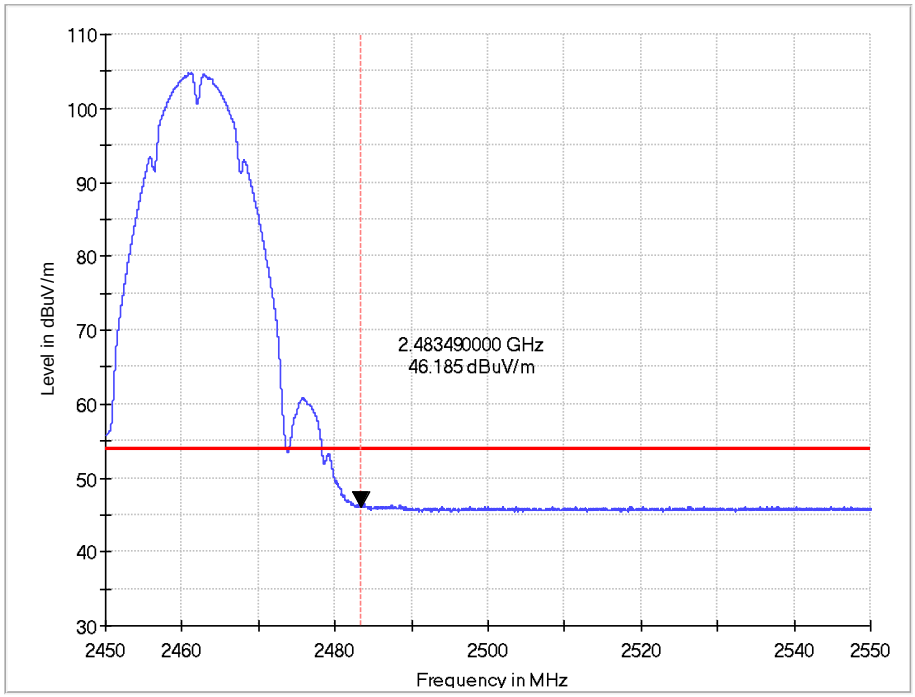

110
100
90
80
70
60
50
40
30
Level in dBuV/m
2.387112000 GHz
45.978 dBuV/m
2310
2320
2340
2360
2380
2400
2422
Frequency in MHz

Band edge

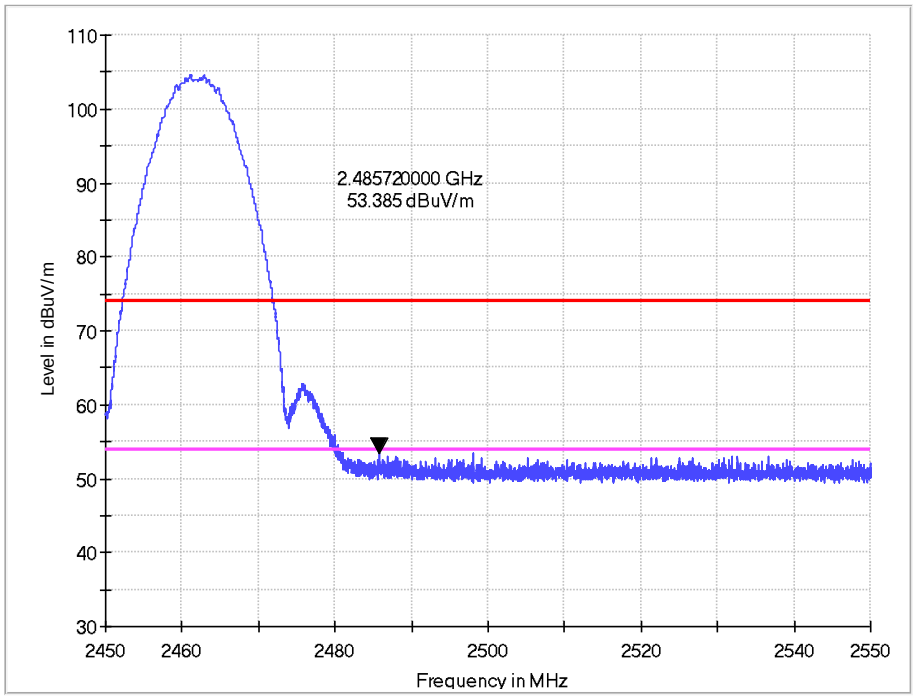
802.11b Upper Channel

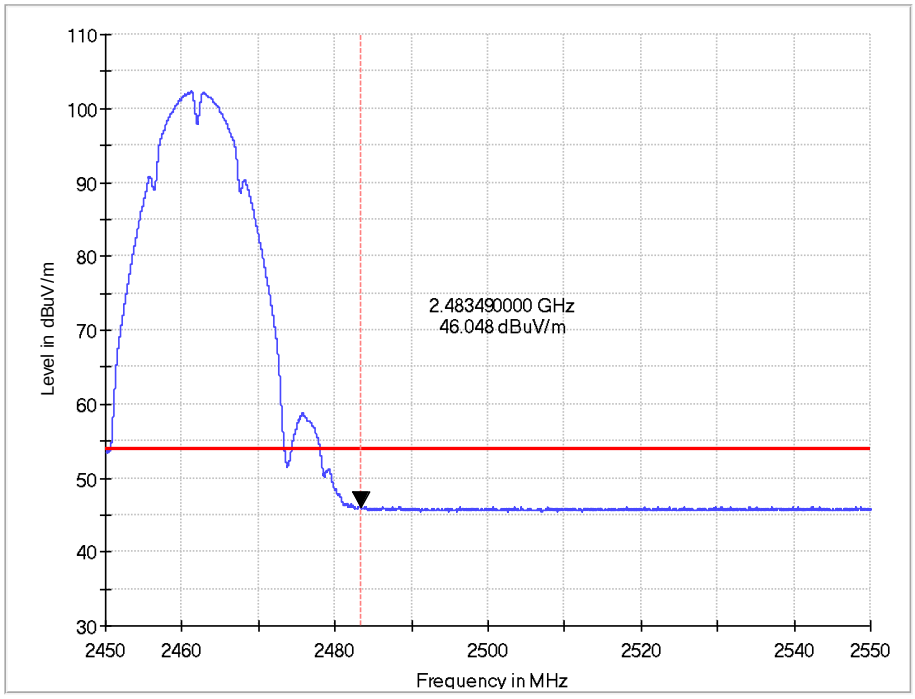
Horizontal





Vertical

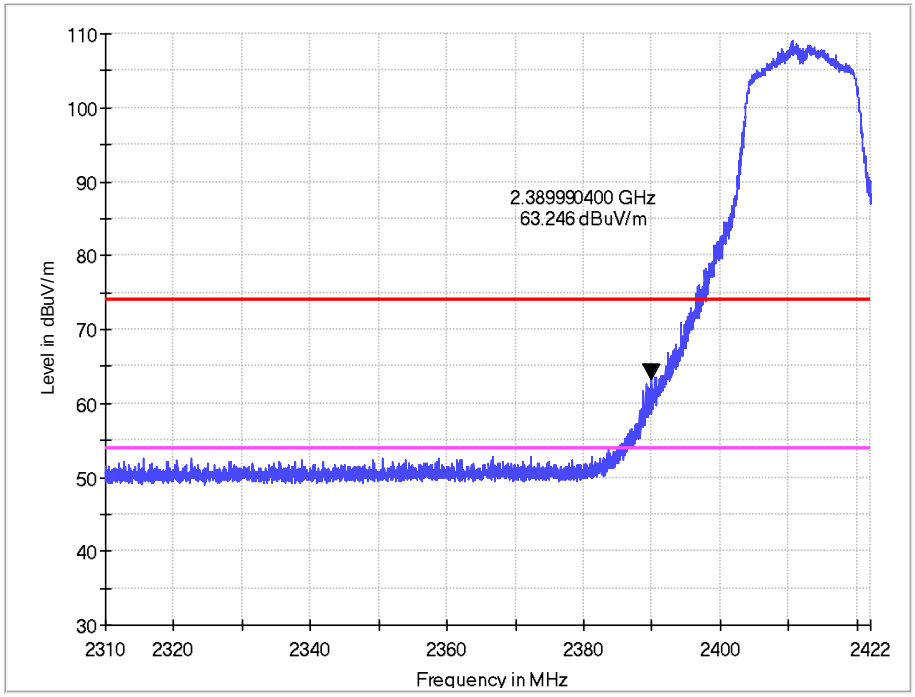

2.485720000 GHz
53.385 dBuV/m
Level in dBuV/m
Frequency in MHz
110
100
90
80
70
60
50
40
30
2450
2460
2480
2500
2520
2540
2550

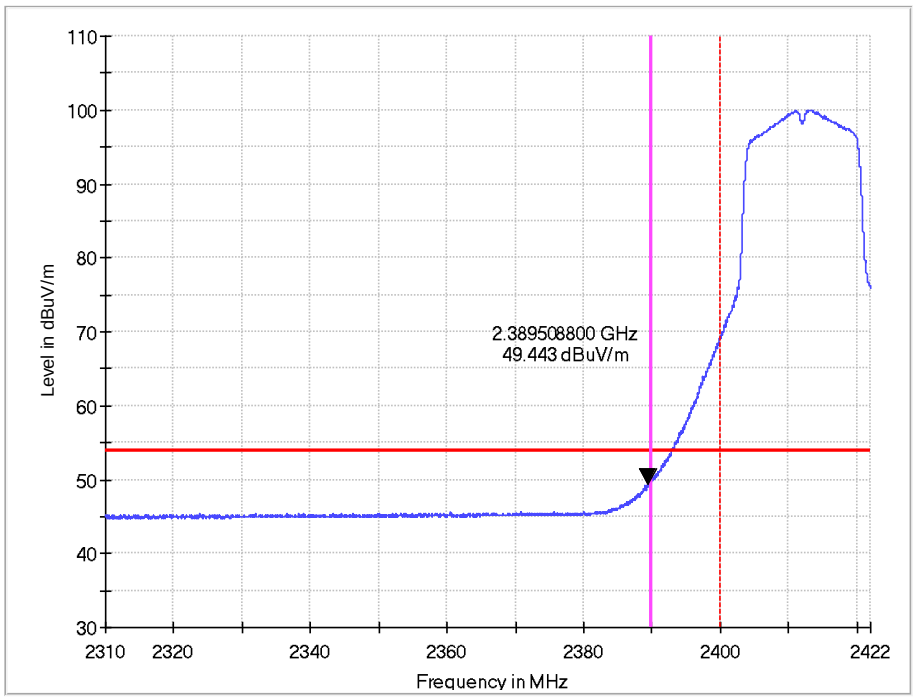

2.483490000 GHz
46.048 dBuV/m
Level in dBuV/m
Frequency in MHz
110
100
90
80
70
60
50
40
30
2450
2460
2480
2500
2520
2540
2550

Band edge

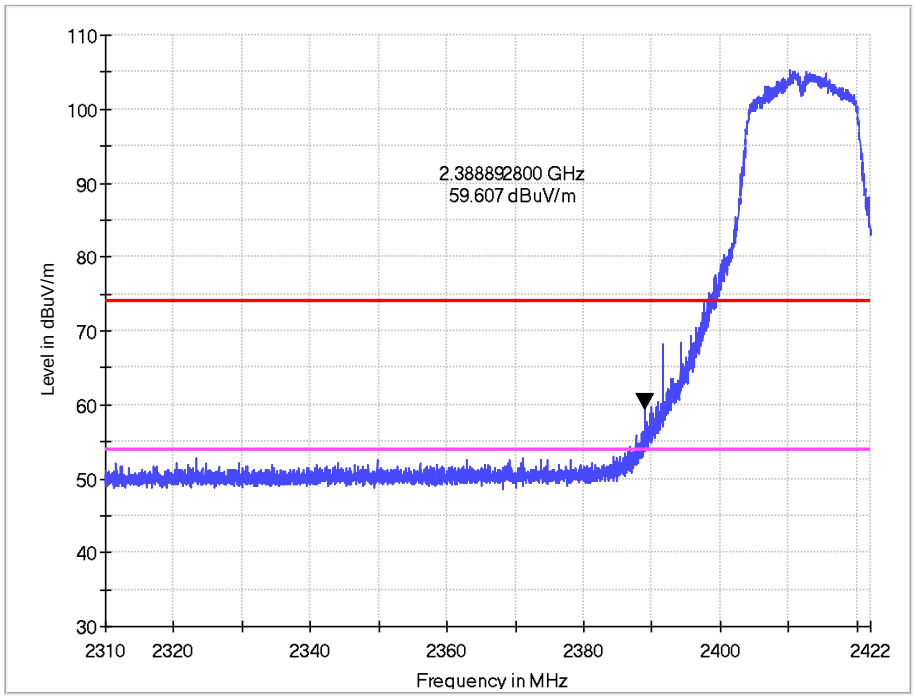
802.11g Lower Channel

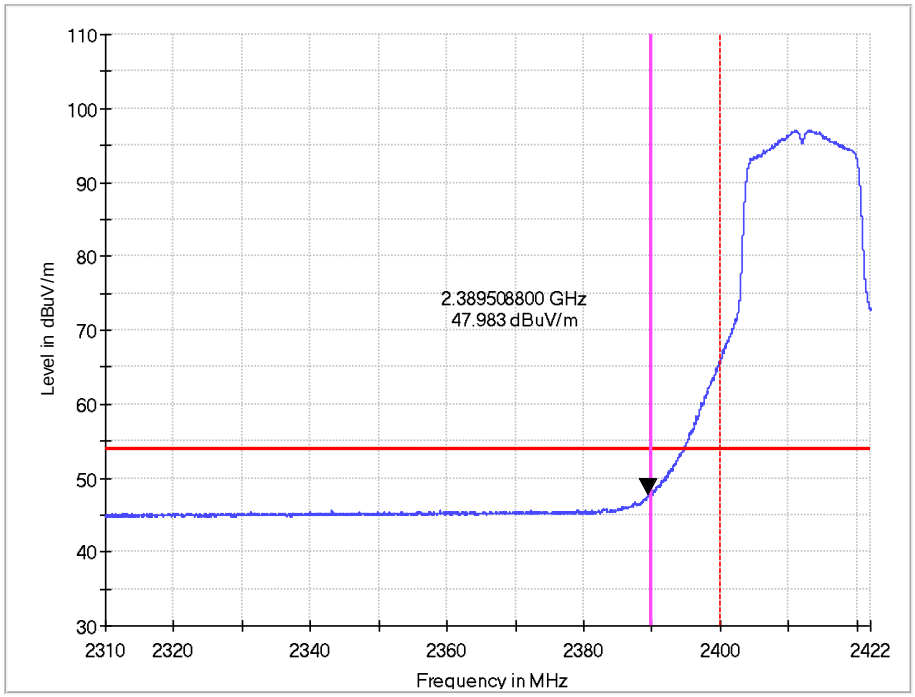
Horizontal





Vertical

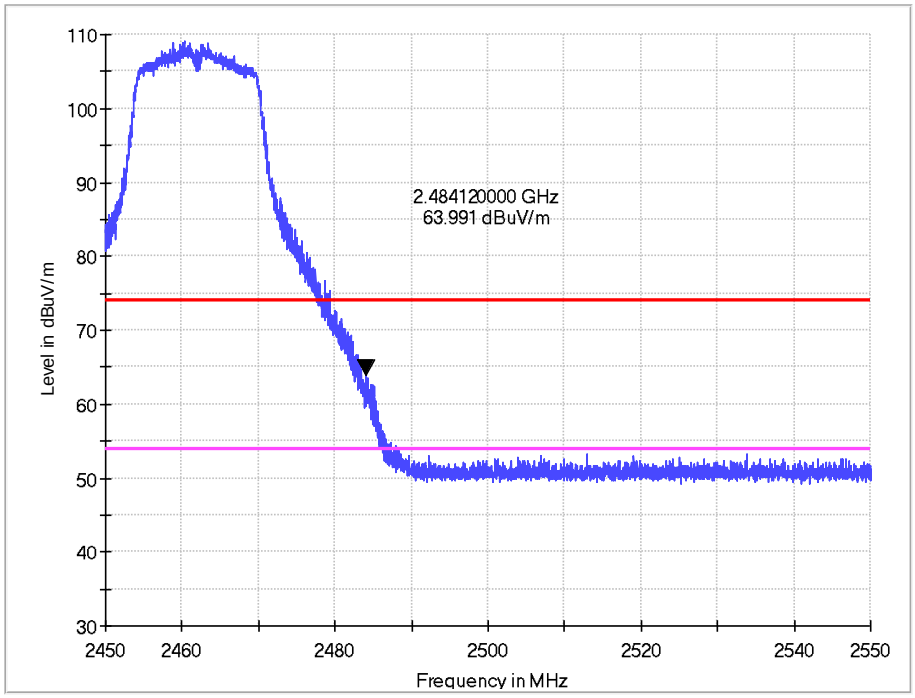

2.388892800 GHz
59.607 dBuV/m
Level in dBuV/m
Frequency in MHz
110
100
90
80
70
60
50
40
30
2310
2320
2340
2360
2380
2400
2422

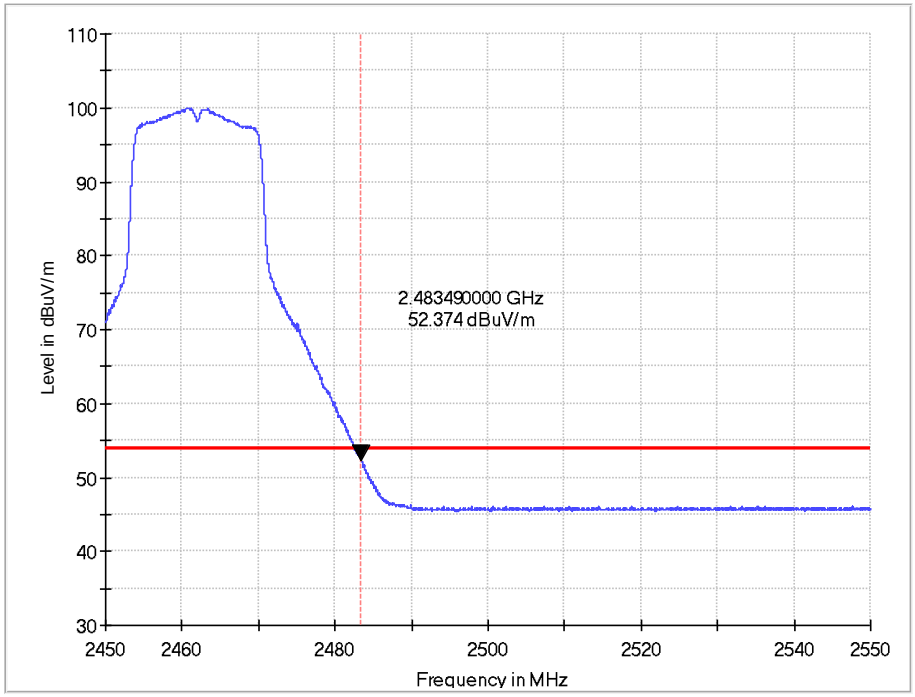

2.389508800 GHz
47.983 dBuV/m
Level in dBuV/m
Frequency in MHz
110
100
90
80
70
60
50
40
30
2310
2320
2340
2360
2380
2400
2422

Band edge

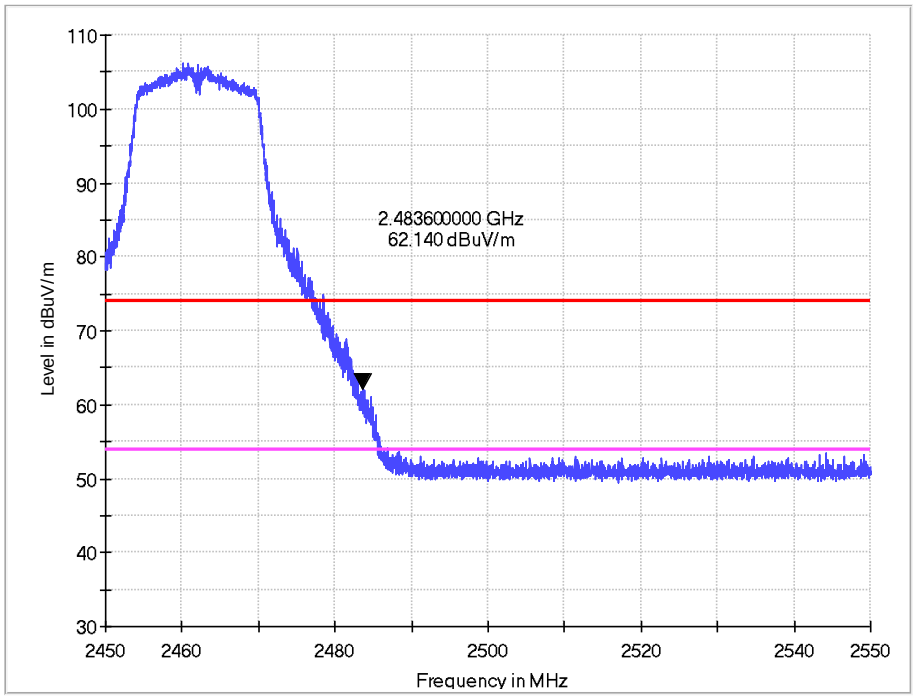
802.11g Upper Channel

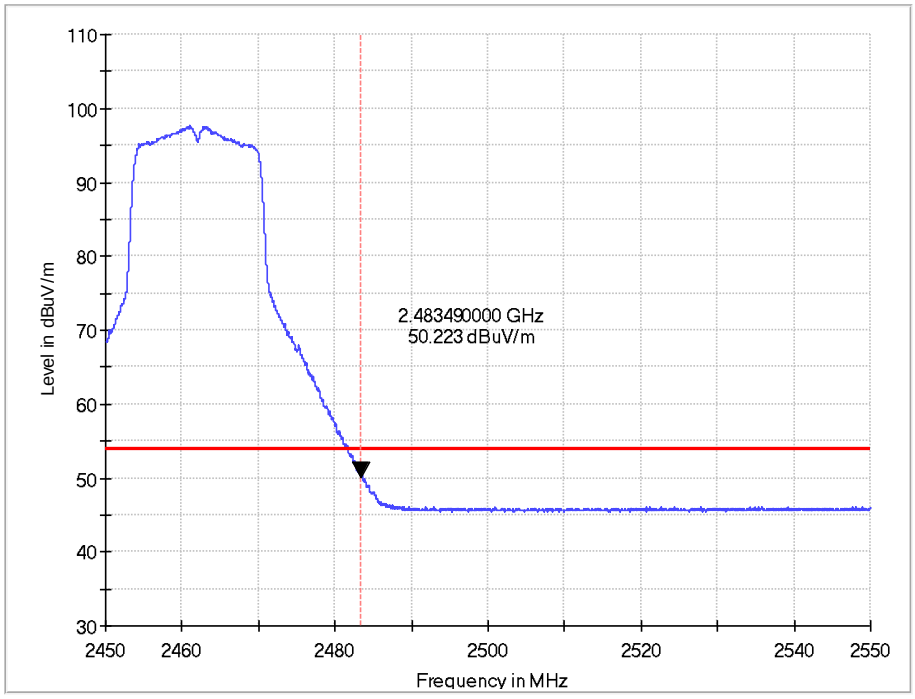
Horizontal





Vertical

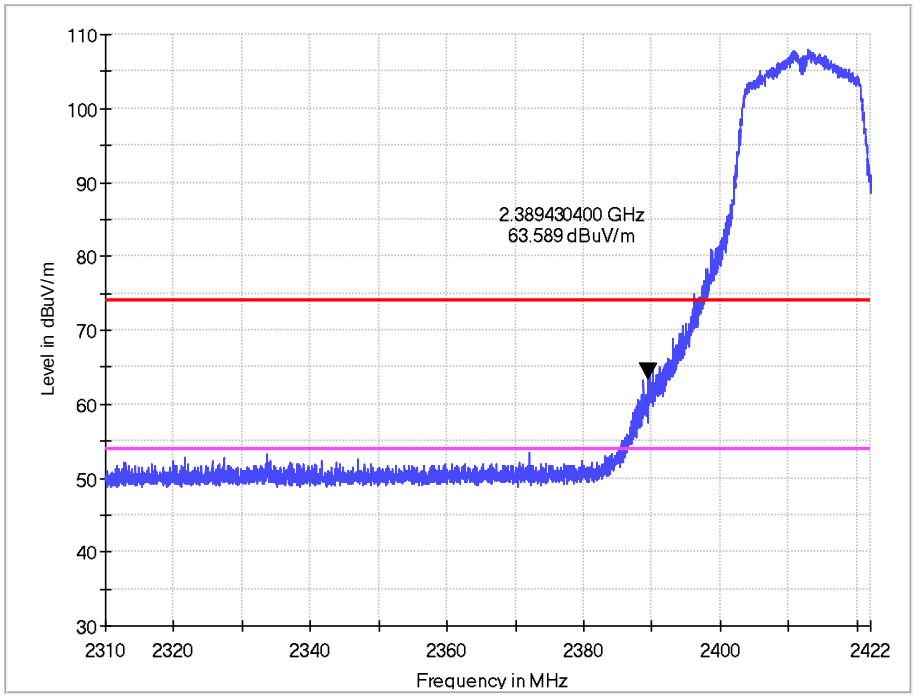

110
100
90
80
70
60
50
40
30
Level in dBuV/m
2.483600000 GHz
62.140 dBuV/m
2450
2460
2480
2500
2520
2540
2550
Frequency in MHz

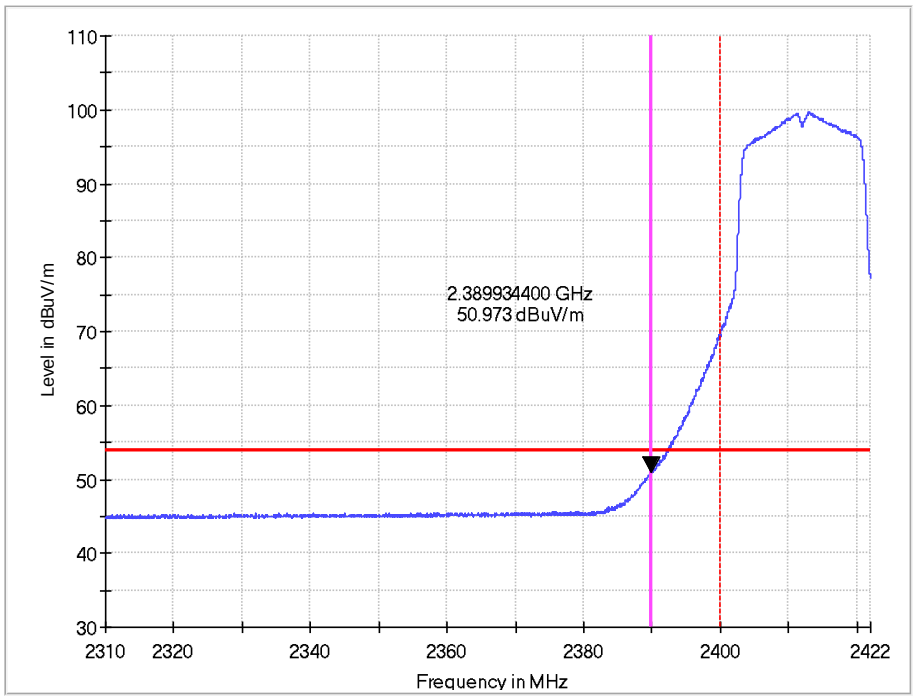

110
100
90
80
70
60
50
40
30
Level in dBuV/m
2.483490000 GHz
50.223 dBuV/m
2450
2460
2480
2500
2520
2540
2550
Frequency in MHz

Band edge

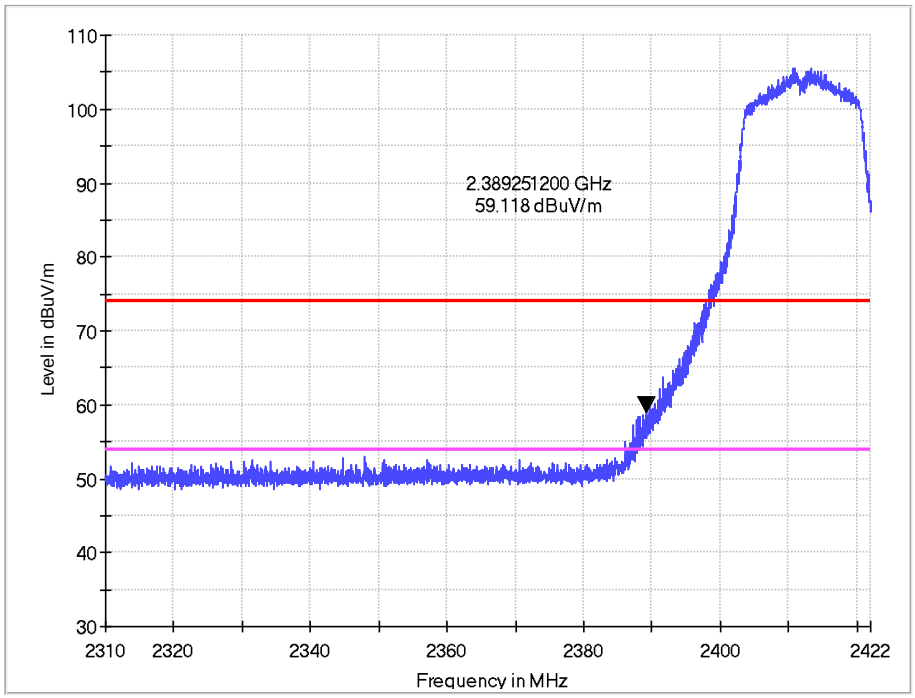
802.11n HT20 Lower Channel

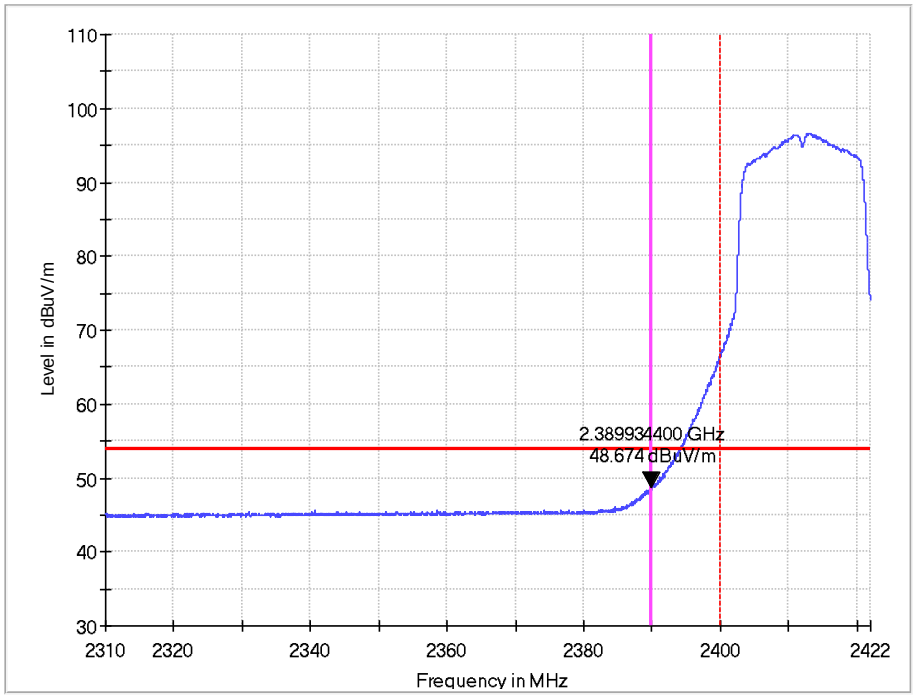
Horizontal





Vertical

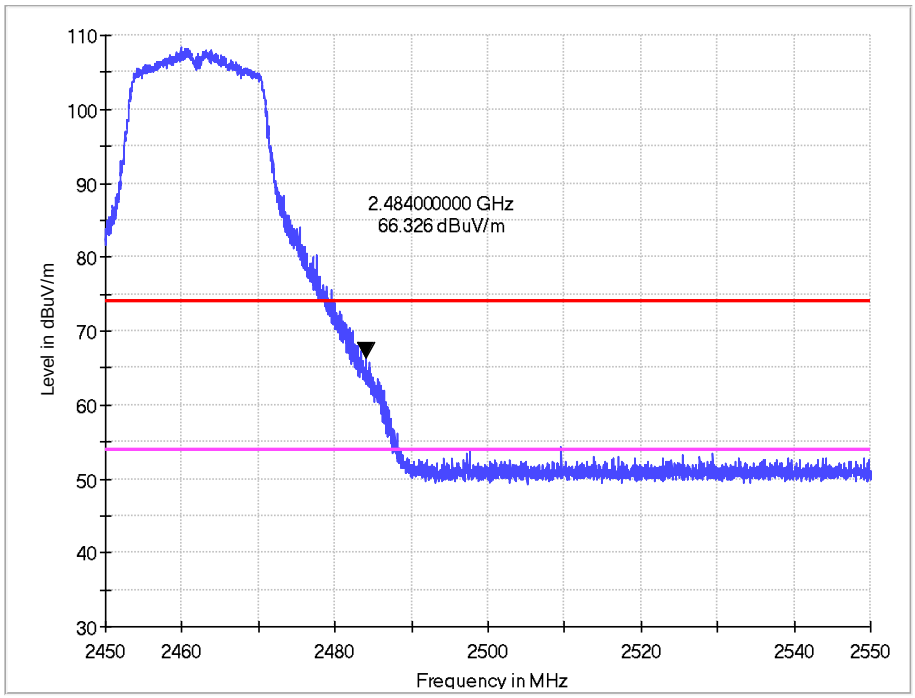

2.389251200 GHz
59.118 dBuV/m
Level in dBuV/m
Frequency in MHz
110
100
90
80
70
60
50
40
30
2310
2320
2340
2360
2380
2400
2422

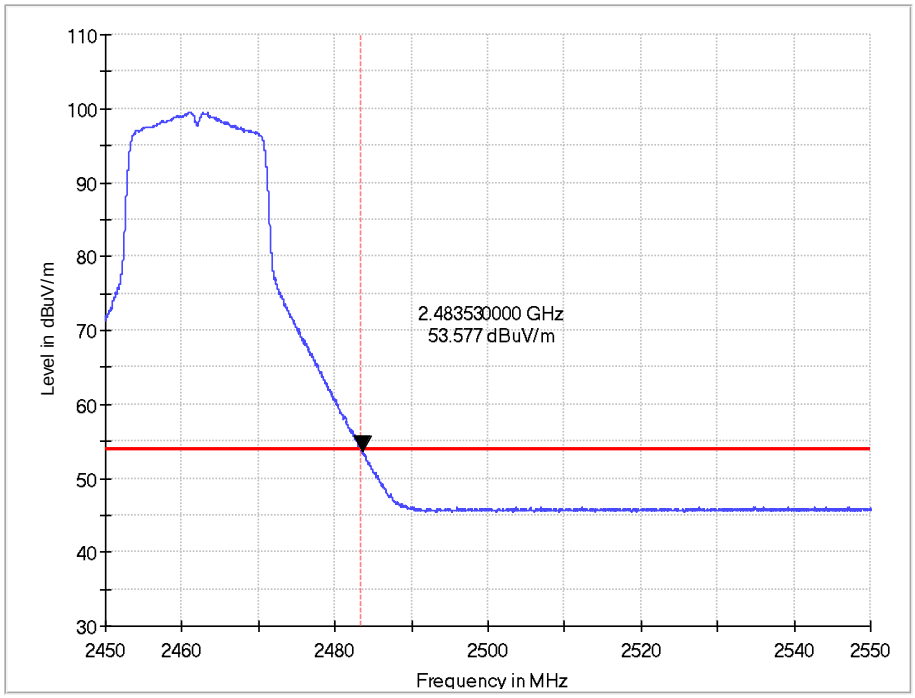

2.389934400 GHz
48.674 dBuV/m
Level in dBuV/m
Frequency in MHz
110
100
90
80
70
60
50
40
30
2310
2320
2340
2360
2380
2400
2422

Band edge

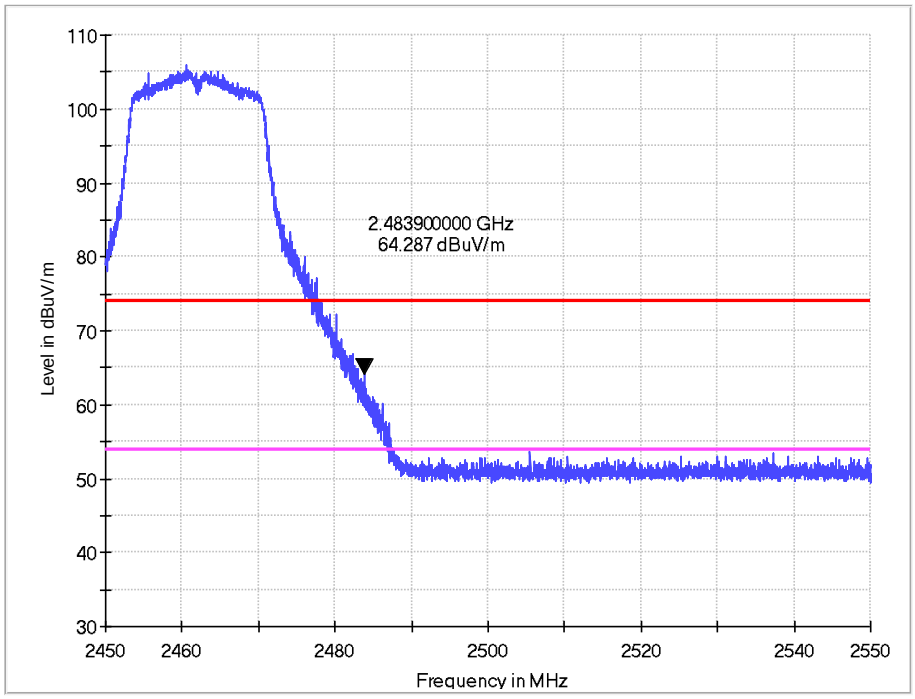
802.11n HT20 Upper Channel

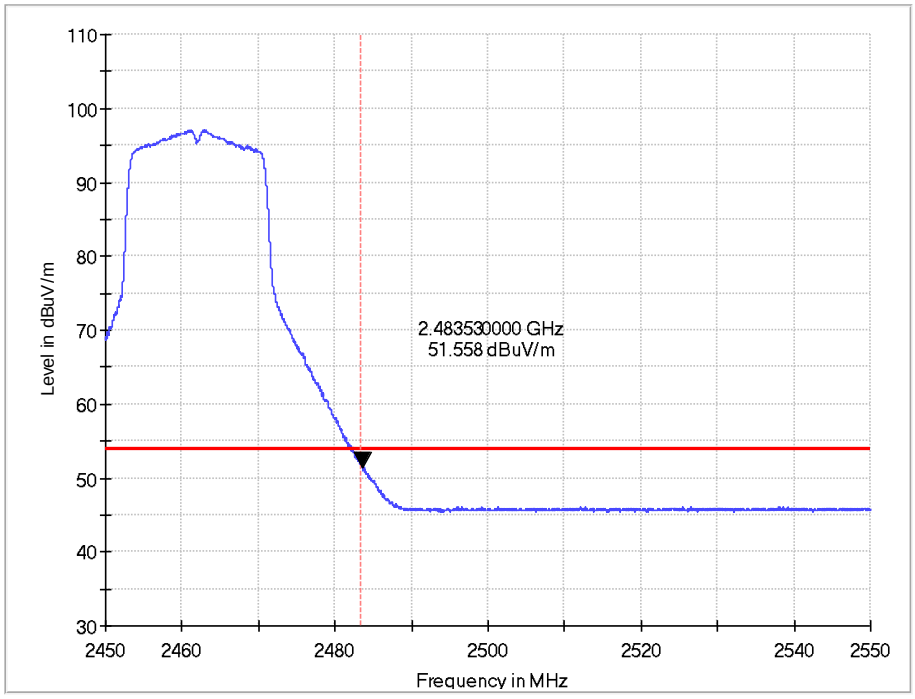
Horizontal





Vertical


110
100
90
80
70
60
50
40
30
Level in dBuV/m
2.483900000 GHz
64.287 dBuV/m
2450
2460
2480
2500
2520
2540
2550
Frequency in MHz


110
100
90
80
70
60
50
40
30
Level in dBuV/m
2.483530000 GHz
51.558 dBuV/m
2450
2460
2480
2500
2520
2540
2550
Frequency in MHz

11. CONDUCTED EMISSION TEST FOR AC POWER PORT MEASUREMENT

11.1. Test Standard and Limit

11.1.1. Test Standard

FCC Part 15 15.207

11.1.2. Test Limit

Table 16 Conducted Disturbance Test Limit

Frequency	Maximum RF Line Voltage (dBμV)	
	Quasi-peak Level	Average Level
150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
500kHz~5MHz	56	46
5MHz~30MHz	60	50

* Decreasing linearly with logarithm of the frequency
* The lower limit shall apply at the transition frequency.

11.2. Test Procedure

The EUT is put on a table of non-conducting material that is 80cm high. The vertical conducting wall of shielding is located 40cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI test receiver (R&S Test Receiver ESCS30) is used to test the emissions from both sides of AC line. According to the requirements 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 mode.
The bandwidth of EMI test receiver is set at 9kHz.

11.3. Test Arrangement

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application. The detailed information refers to test picture.

11.4. Test Data

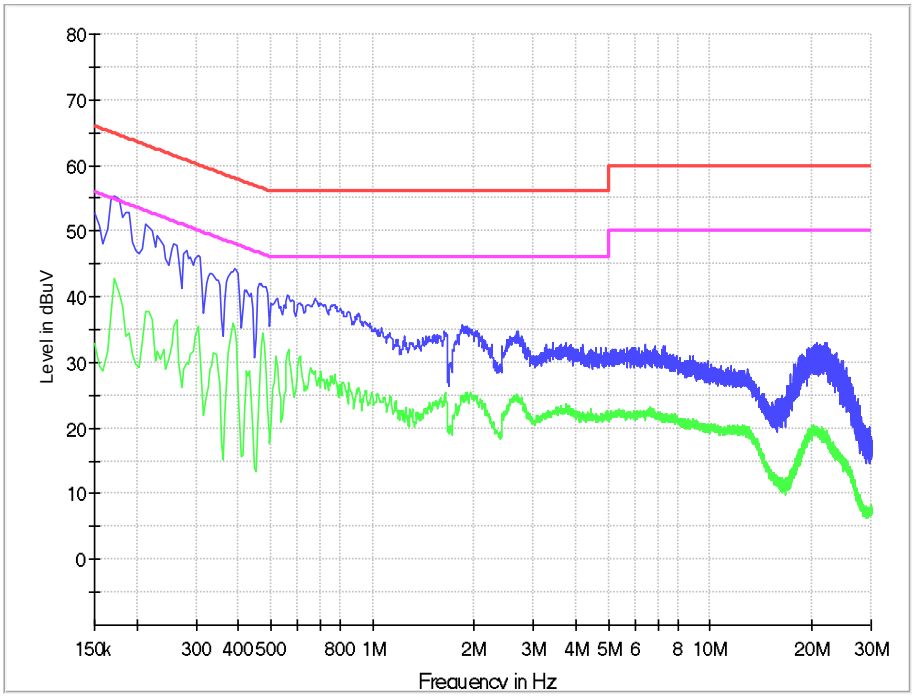
The emissions don’t show in below are too low against the limits. Refer to the test curves.

Table 17 Conducted Emission Test Data

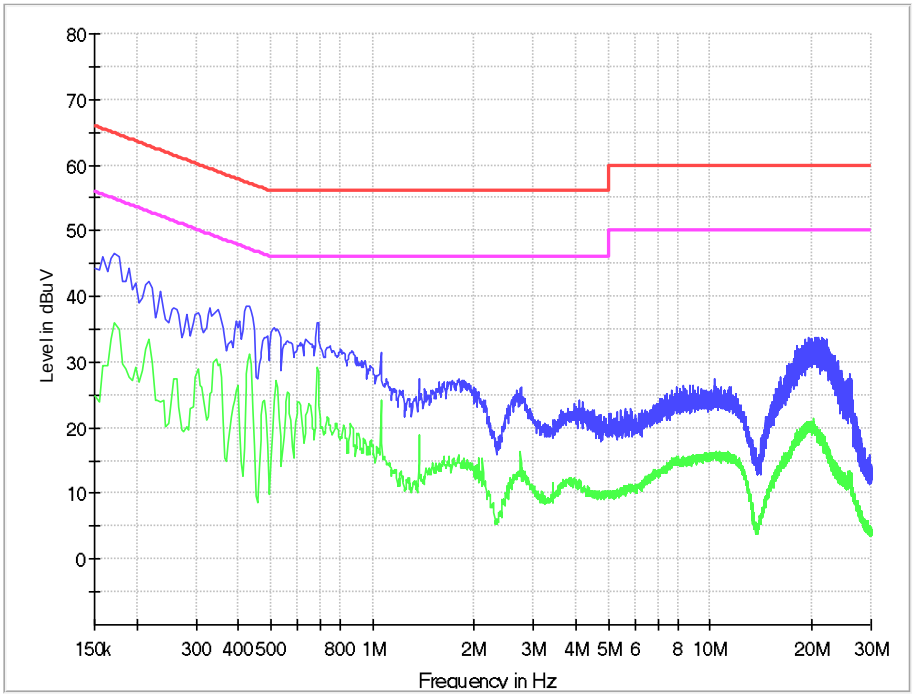
Test mode: Charging and Transmitting								
	Frequency (MHz)	Correction Factor (dB)	Quasi-Peak			Average		
			Reading (dBμV)	Emission Level (dBμV)	Limit (dBμV)	Reading (dBμV)	Emission Level (dBμV)	Limit (dBμV)
Line	0.172	9.7	38.8	48.5	64.9	30.3	40.0	54.9
	0.217	9.7	33.8	43.5	62.9	26.9	36.6	52.9
	0.262	9.7	31.1	40.8	61.4	24.3	34.0	51.4
	0.303	9.7	30.4	40.1	60.2	24.0	33.7	50.2
	0.384	9.7	32.4	42.1	58.2	25.7	35.4	48.2
	0.474	9.7	30.9	40.6	56.4	24.1	33.8	46.4
Neutral	0.172	9.7	32.7	42.4	64.9	25.4	35.1	54.9
	0.217	9.7	28.5	38.2	62.9	23.0	32.7	52.9
	0.339	9.7	26.8	36.5	59.2	18.9	28.6	49.2
	0.433	9.7	27.9	37.6	57.2	21.6	31.3	47.2
	0.514	9.8	23.7	33.5	56	17.1	26.9	46
	0.685	9.8	24.4	34.2	56	19.8	29.6	46

REMARKS: 1. Emission level (dBμV) =Read Value (dBμV) + Correction Factor (dB)
2. Correction Factor (dB) =LISN Factor (dB) + Cable Factor (dB) +Limiter Factor (dB)
3. The other emission levels were very low against the limit.

Adaptor 1#
Line



Neutral



Adaptor 2#

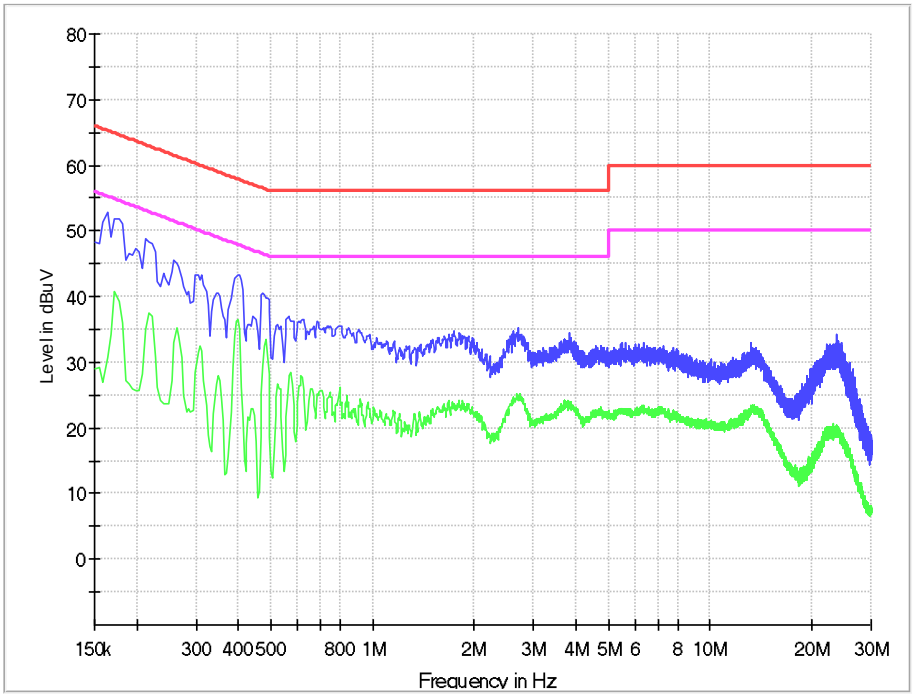
Table 18 Conducted Emission Test Data

Test mode: Charging and Transmitting								
	Frequency (MHz)	Correction Factor (dB)	Quasi-Peak			Average		
			Reading (dBμV)	Emission Level (dBμV)	Limit (dBμV)	Reading (dBμV)	Emission Level (dBμV)	Limit (dBμV)
Line	0.172	9.7	39.6	49.3	64.9	29.3	39.0	54.9
	0.217	9.7	34.7	44.4	62.9	27.3	37.0	52.9
	0.262	9.7	31.1	40.8	61.4	24.8	34.5	51.4
	0.307	9.7	28.9	38.6	60.1	22.7	32.4	50.1
	0.393	9.7	32.5	42.2	58.0	26.4	36.1	48.0
	0.483	9.7	29.5	39.2	56.3	23.0	32.7	46.3
Neutral	0.172	9.7	43.4	53.1	64.9	31.5	41.2	54.9
	0.222	9.7	38.5	48.2	62.7	26.3	36.0	52.7
	0.262	9.7	35.4	45.1	61.4	23.5	33.2	51.4
	0.397	9.7	28.1	37.8	57.9	21.7	31.4	47.9
	0.690	9.8	19.4	29.2	56	17.7	27.5	46
	1.054	9.8	20.0	29.8	56	17.0	26.8	46

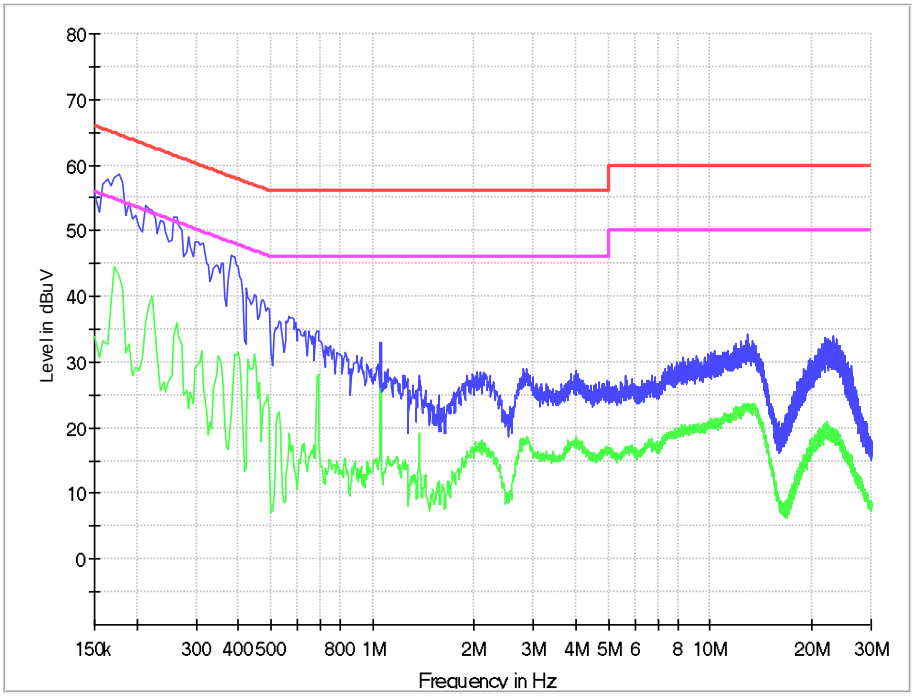
REMARKS: 1. Emission level (dBμV) =Read Value (dBμV) + Correction Factor (dB)
2. Correction Factor (dB) =LISN Factor (dB) + Cable Factor (dB) +Limiter Factor (dB)
3. The other emission levels were very low against the limit.

Adaptor 2#

Line



Neutral



12. ANTENNA REQUIREMENTS

According to Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.
The EUT has a built in antenna which is integrated inside the enclosure, this is permanently attached antenna and meets the requirements of this section.

END OF REPORT