

# FCC Part 15C Measurement and Test Report

For

**Shenzhen QiyueOptronics Company Limited**

**Flat3, Tower 3, Excellence Meilin Center Plaza, Zhongkang Road 128,**

**Shangmeilin, Futian District, Shenzhen, China**

**FCC ID: XOMQ55S218**

<b>FCC Rule(s):</b>	<u>FCC Part 15C</u>
<b>Product Description:</b>	<u>55 INCH SMART 4K UHD TV</u>
<b>Tested Model:</b>	<u>RQSM5527</u>
<b>Report No.:</b>	<u>WTG19G10073456W</u>
<b>Sample Receipt Date:</b>	<u>2019-10-24</u>
<b>Tested Date:</b>	<u>2019-10-24 to 2019-11-05</u>
<b>Issued Date:</b>	<u>2019-11-05</u>
<b>Tested By:</b>	<u>Rode Liu / Engineer</u>
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Note: This test report is limited to the above client company and the product model only. It may not be duplicated without prior permitted by Shenzhen SEM Test Technology Co., Ltd.

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## Report version

Version No.	Date of issue	Description
Rev.00	2019-11-05	Original
/	/	/

# 1. GENERAL INFORMATION

## 1.1 Product Description for Equipment Under Test (EUT)

### Client Information

Applicant: Shenzhen QiyueOptronics Company Limited  
 Address of applicant: Flat3,Tower 3, Excellence Meilin Center Plaza, Zhongkang Road  
 128, Shangmeilin, Futian District, Shenzhen, China  
 Manufacturer: SHENZHEN QIYUE OPTRONICS COMPANY LIMITED  
 BRANCH  
 Address of manufacturer: SEIYU INDUSTRIAL PARK,DA SAN VILLAGE,DA SHUI  
 KENG,GUANLAN TOWN,LONGHUA NEW DISTRICT,  
 SHENZHEN,P.R.C

General Description of EUT	
Product Name:	55 INCH SMART4KUHD TV
Trade Name:	RCA smarTVirtuoso,RCA, PROSCAN, RCA SCENIUM, TECHNICOLOR, SYLVANIA
Model No.:	RQSM5527
Adding Model(s):	XXXXXXXXXXXXXXXXXXXXX55XXXXXXXXXXXXXXXXXXXXX (Where "X" can be any alphanumeric of A-Z or 0-9 or blank or -, indicates different client)
Rated Voltage:	AC 100-240V
Power Adapter Model:	N/A
<i>Note: The test data is gathered from a production sample provided by the manufacturer. The appearance of others models listed in the report is different from main-test model RQSM5527, but the circuit and the electronic construction do not change, declared by the manufacturer.</i>	

Technical Characteristics of EUT	
Support Standards:	802.11b, 802.11g, 802.11n
Frequency Range:	2412-2462MHz for 802.11b/g/n(HT20) 2422-2452MHz for 802.11n(HT40)
RF Output Power:	23.93dBm (Conducted)
Type of Modulation:	DBPSK,BPSK,DQPSK,QPSK,16QAM,64QAM
Data Rate:	1-11Mbps, 6-54Mbps, up to 300Mbps
Quantity of Channels:	11 for 802.11b/g/n(HT20); 7 for 802.11n(HT40)
Channel Separation:	5MHz
Type of Antenna:	Integral
Antenna Gain:	4.4 dBi

## 1.2 Test Standards

The tests were performed according to following standards:

**FCC Rules Part 15.247**: Frequency Hopping, Direct Spread Spectrum and Hybrid Systems that are in operation within the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz.

**558074 D01 15.247 Meas Guidance v05r02**: Guidance For Compliance Measurements On Digital Transmission System, Frequency Hopping Spread Spectrum System, And Hybrid System Devices Operating Under Section 15.247 Of The Fcc Rules

**662911 D01 Multiple Transmitter Output v02r01**: Emissions Testing of Transmitters with Multiple Outputs in the Same Band

**ANSI C63.10-2013**: American National Standard for Testing Unlicensed Wireless Devices.

**Maintenance of compliance** is the responsibility of the manufacturer. Any modification of the product, which result in lowering the emission, should be checked to ensure compliance has been maintained.

## 1.3 Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, KDB 558074 D01 15.247 Meas Guidance v05r02, KDB 662911 D01 Multiple Transmitter Output v02r01

The equipment under test (EUT) was configured to measure its highest possible emission level. The test modes were adapted accordingly in reference to the Operating Instructions.

## 1.4 Test Facility

### Address of the test laboratory

Laboratory: Shenzhen SEM Test Technology Co., Ltd.

Address: 1/F, Building A, Hongwei Industrial Park, Liuxian 2nd Road, Bao'an District, Shenzhen, P.R.C. (518101)

### FCC – Registration No.: 125990

Shenzhen SEM Test Technology Co., Ltd.

EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. The Designation Number is CN5010, and Test Firm Registration Number is 125990.

### Industry Canada (IC) Registration No.: 11464A

The 3m Semi-anechoic chamber of Shenzhen SEM Test Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 11464A.

## 1.5 EUT Setup and Test Mode

The EUT was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements. All testing shall be performed under maximum output power condition, with a duty cycle equal to 100%, and to measure its highest possible emissions level, more detailed description as follows:

Test Mode List		
Test Mode	Description	Remark
TM1	802.11b	Low:2412MHz, Middle:2437MHz,High:2462MHz
TM2	802.11g	Low:2412MHz, Middle:2437MHz,High:2462MHz
TM3	802.11n-HT20	Low:2412MHz, Middle:2437MHz,High:2462MHz
TM4	802.11n-HT40	Low:2422MHz, Middle:2437MHz,High:2452MHz

Test Conditions	
Temperature:	22~25°C
Relative Humidity:	50~55 %.
ATM Pressure:	1019 mbar

EUT Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite

Special Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite

Auxiliary Equipment List and Details			
Description	Manufacturer	Model	Serial Number

## 1.6 Measurement Uncertainty

Measurement uncertainty		
Parameter	Conditions	Uncertainty
RF Output Power	Conducted	$\pm 0.42\text{dB}$
Occupied Bandwidth	Conducted	$\pm 1.5\%$
Power Spectral Density	Conducted	$\pm 1.8\text{dB}$
Conducted Spurious Emission	Conducted	$\pm 2.17\text{dB}$
Conducted Emissions	Conducted	9-150kHz $\pm 3.74\text{dB}$
		0.15-30MHz $\pm 3.34\text{dB}$
Transmitter Spurious Emissions	Radiated	30-200MHz $\pm 4.52\text{dB}$
		0.2-1GHz $\pm 5.56\text{dB}$
		1-6GHz $\pm 3.84\text{dB}$
		6-18GHz $\pm 3.92\text{dB}$

## 1.7 Test Equipment List and Details

No.	Description	Manufacturer	Model	Serial No.	Cal Date	Due Date
SEMT-1072	Spectrum Analyzer	Agilent	E4407B	MY41440400	2019-04-30	2020-04-29
SEMT-1031	Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/035	2019-04-30	2020-04-29
SEMT-1007	EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2019-04-30	2020-04-29
SEMT-1008	Amplifier	Agilent	8447F	3113A06717	2019-04-30	2020-04-29
SEMT-1043	Amplifier	C&D	PAP-1G18	2002	2019-04-30	2020-04-29
SEMT-1011	Broadband Antenna	Schwarz beck	VULB9163	9163-333	2019-05-05	2021-05-04
SEMT-1042	Horn Antenna	ETS	3117	00086197	2019-05-05	2021-05-04
SEMT-1121	Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170582	2019-05-05	2021-05-04
SEMT-1069	Loop Antenna	Schwarz beck	FMZB 1516	9773	2019-05-05	2021-05-04
SEMT-1001	EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2019-04-30	2020-04-29
SEMT-1003	L.I.S.N	Schwarz beck	NSLK8126	8126-224	2019-04-30	2020-04-29
SEMT-1002	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2019-04-30	2020-04-29
SEMT-1168	Pre-amplifier	Direction Systems Inc.	PAP-0126	14141-12838	2019-04-30	2020-04-29
SEMT-1169	Pre-amplifier	Direction Systems Inc.	PAP-2640	14145-14153	2019-04-30	2020-04-29
SEMT-1163	Spectrum Analyzer	Rohde & Schwarz	FSP40	100612	2019-04-30	2020-04-29
SEMT-1170	DRG Horn Antenna	A.H. SYSTEMS	SAS-574	571	2019-05-05	2021-05-04
SEMT-1166	Power Limiter	Agilent	N9356B	MY45450376	2019-04-30	2020-04-29
SEMT-1048	RF Limiter	ATTEN	AT-BSF-2400~2500	/	2019-04-30	2020-04-29
SEMT-1076	RF Switcher	Top Precision	RCS03-A2	/	2019-04-30	2020-04-29
SEMT-C001	Cable	Zheng DI	LL142-07-07-10M(A)	/	2019-03-18	2020-03-17
SEMT-C002	Cable	Zheng DI	ZT40-2.92J-2.92J-6M	/	2019-03-18	2020-03-17
SEMT-C003	Cable	Zheng DI	ZT40-2.92J-2.92J-2.5M	/	2019-03-18	2020-03-17
SEMT-C004	Cable	Zheng DI	2M0RFC	/	2019-03-18	2020-03-17
SEMT-C005	Cable	Zheng DI	1M0RFC	/	2019-03-18	2020-03-17
SEMT-C006	Cable	Zheng DI	1M0RFC	/	2019-03-18	2020-03-17



<b>Software List</b>			
<b>Description</b>	<b>Manufacturer</b>	<b>Model</b>	<b>Version</b>
EMI Test Software (Radiated Emission)*	Farad	EZ-EMC	RA-03A1
EMI Test Software (Conducted Emission)*	Farad	EZ-EMC	RA-03A1

\*Remark: indicates software version used in the compliance certification testing

## 2. SUMMARY OF TEST RESULTS

<b>FCC Rules</b>	<b>Description of Test Item</b>	<b>Result</b>
§2.1093	RF Exposure	Compliant
§15.203; §15.247(b)(4)(i)	Antenna Requirement	Compliant
§15.205	Restricted Band of Operation	Compliant
§15.207(a)	Conducted Emission	Compliant
§15.247(e)	Power Spectral Density	Compliant
§15.247(a)(2)	DTS Bandwidth	Compliant
§15.247(b)(3)	RF Output Power	Compliant
§15.209(a)	Radiated Emission	Compliant
§15.247(d)	Band Edge (Out of Band Emissions)	Compliant

N/A: not applicable

### **3. RF Exposure**

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#### **3.1 Standard Applicable**

According to §1.1307 and §2.1091, the mobile transmitter must comply the RF exposure requirements.

#### **3.2 Test Result**

This product complied with the requirement of the RF exposure, please see the RF Exposure Report.

## **4. Antenna Requirement**

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### **4.1 Standard Applicable**

According to FCC Part 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

### **4.2 Evaluation Information**

This product has two integral antennas, fulfill the requirement of this section.

## 5. Power Spectral Density

### 5.1 Standard Applicable

According to 15.247(a)(1)(iii), 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.

### 5.2 Test Procedure

According to the KDB 558074 D01 v05r02 Subclause 8.4 and ANSI C63.10-2013 Subclause 11.10.2, such specifications require that the same method as used to determine the conducted output power shall also be used to determine the power spectral density. The test method of power spectral density as below:

- a) Connect the antenna port(s) to the spectrum analyzer input,
- b) Configure the spectrum analyzer as shown below:
- c) Center frequency = DTS channel center frequency
- d) Span = 1.5 times the DTS bandwidth
- e)  $RBW = 3 \text{ kHz} \leq RBW \leq 100 \text{ kHz}$ ,  $VBW \geq 3 \times RBW$
- f) Sweep time = auto couple
- g) Detector = peak
- h) Trace mode = max hold
- i) Place the radio in continuous transmit mode, allow the trace to stabilize, view the transmitter wave form on the spectrum analyzer.
- j) Use the peak marker function to determine the maximum amplitude level within the RBW.
- k) If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

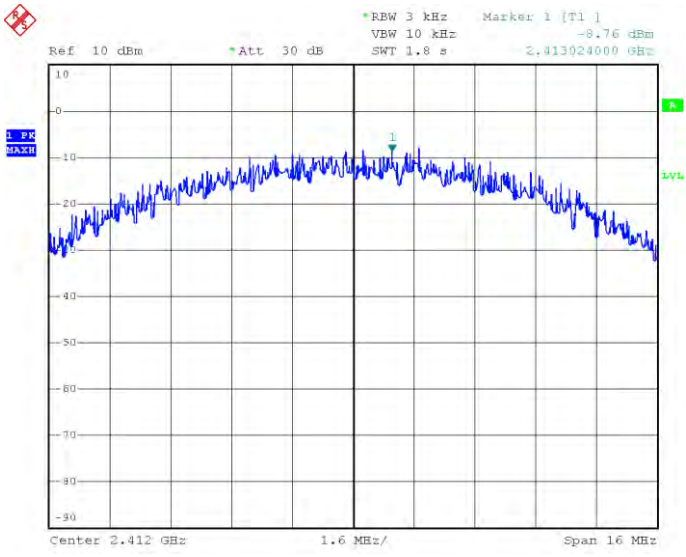
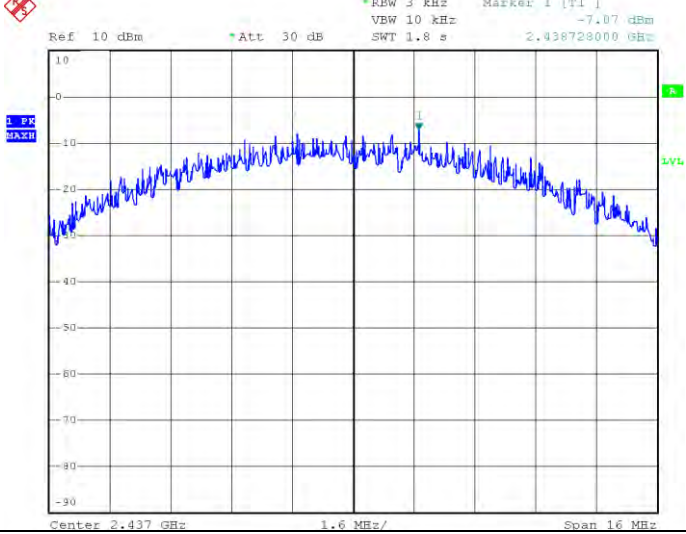
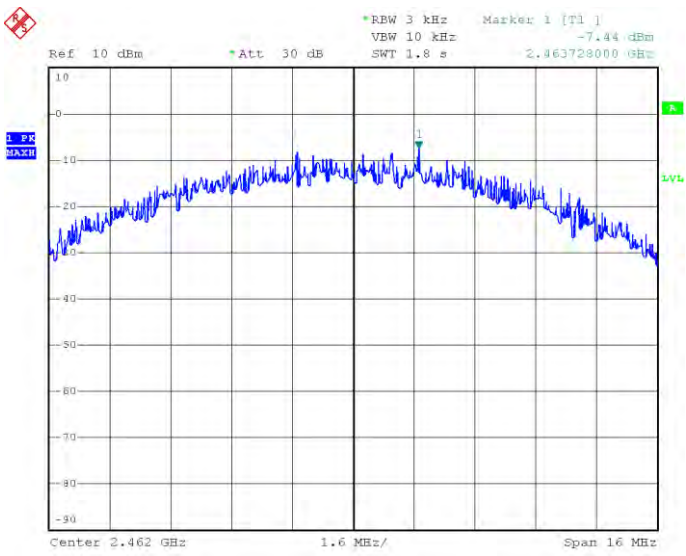
### 5.3 Summary of Test Results/Plots

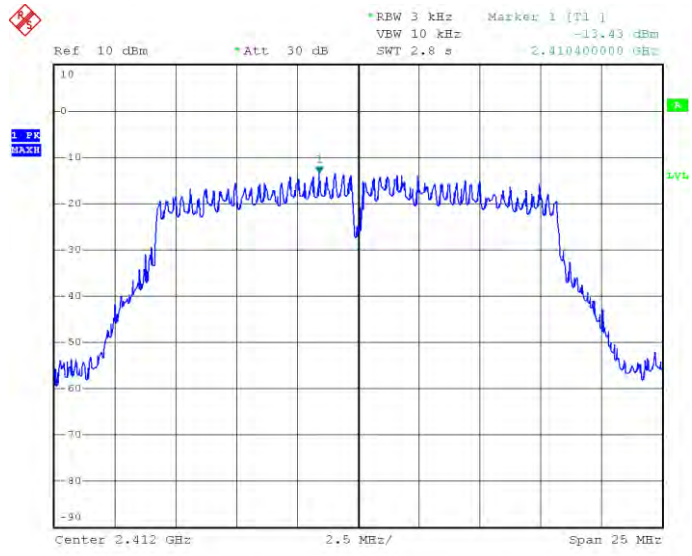
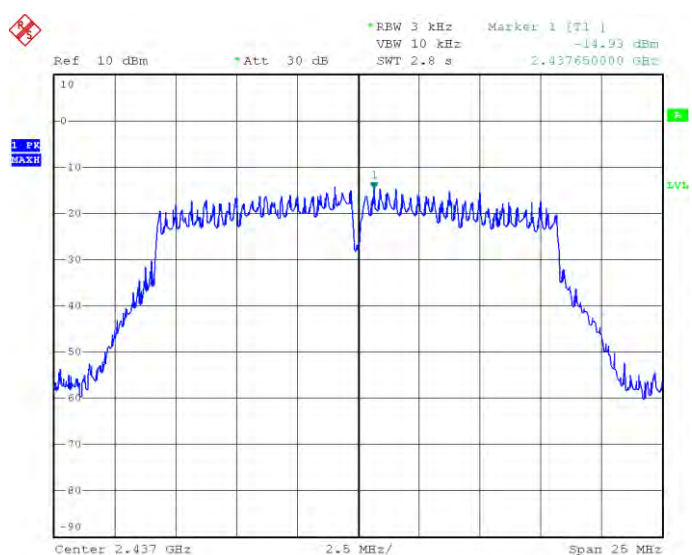
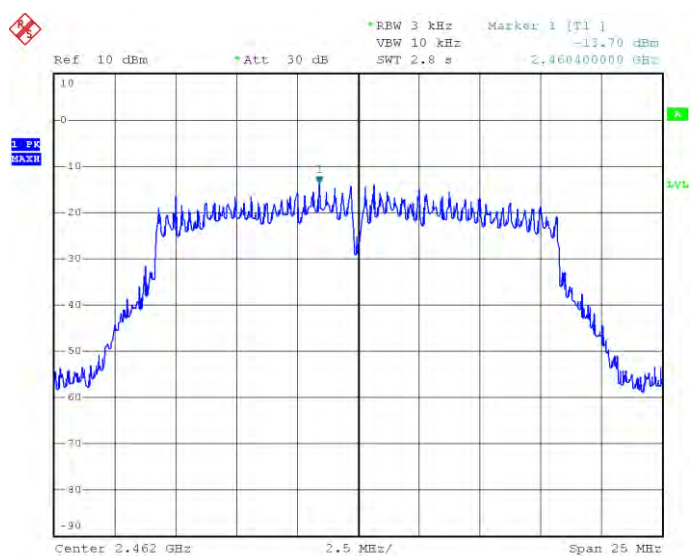
Test Mode	Test Channel MHz	Test Result(dBm/3kHz)		Total dBm	Limit dBm/3kHz
		Antenna 1	Antenna 2		
802.11b_11Mbps	2412	-8.76	-7.66	/	8
	2437	-7.07	-7.71	/	8
	2462	-7.44	-8.07	/	8
802.11g_54Mbps	2412	-13.43	-15.23	/	8
	2437	-14.93	-14.64	/	8
	2462	-13.70	-15.35	/	8
802.11n-HT20_MCS7	2412	-12.96	-14.23	-10.54	6.55
	2437	-13.79	-16.29	-11.85	6.55
	2462	-13.64	-15.22	-11.35	6.55
802.11n-HT40_MCS7	2422	-20.35	-21.96	-18.07	6.55
	2437	-19.99	-22.89	-18.19	6.55
	2452	-20.25	-20.34	-17.28	6.55

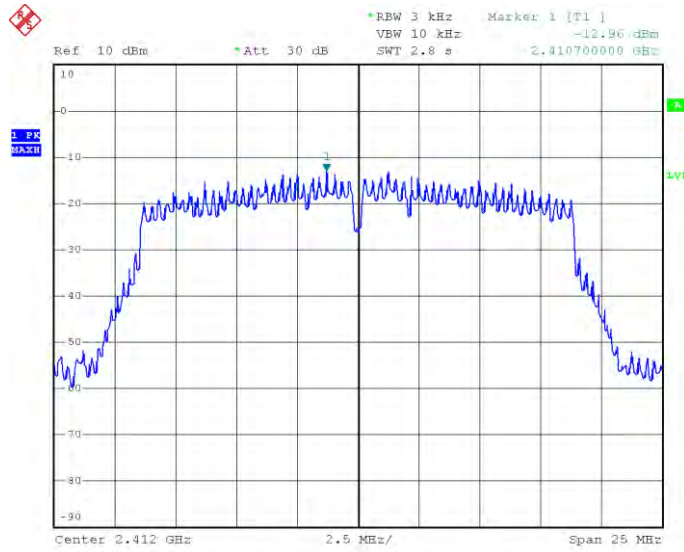
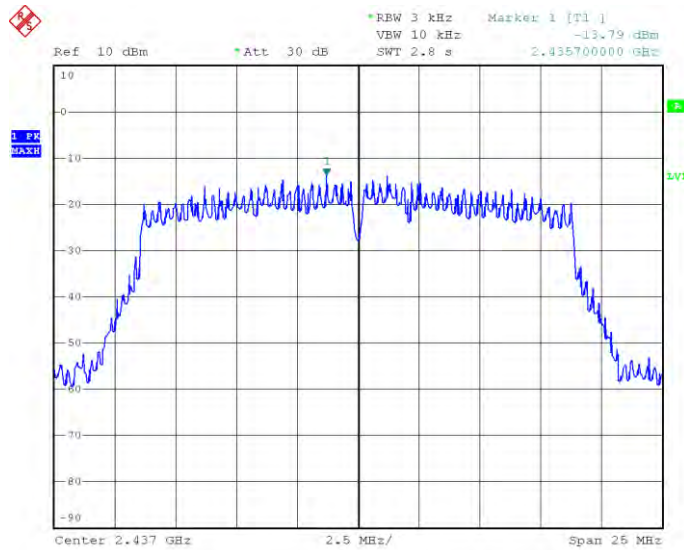
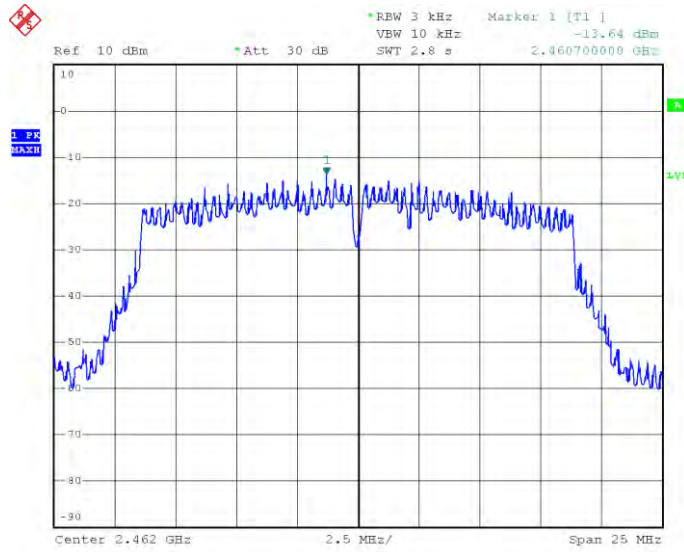
Note: ANT Directional gain =  $G_{ANT} + 10 \log(N_{ANT}) = 7.45 \text{ dBi}$ , so the limit is:  $8 - (7.45 - 6) = 6.55 \text{ (dBm/3KHz)}$ .

Please refer to the following test plots:

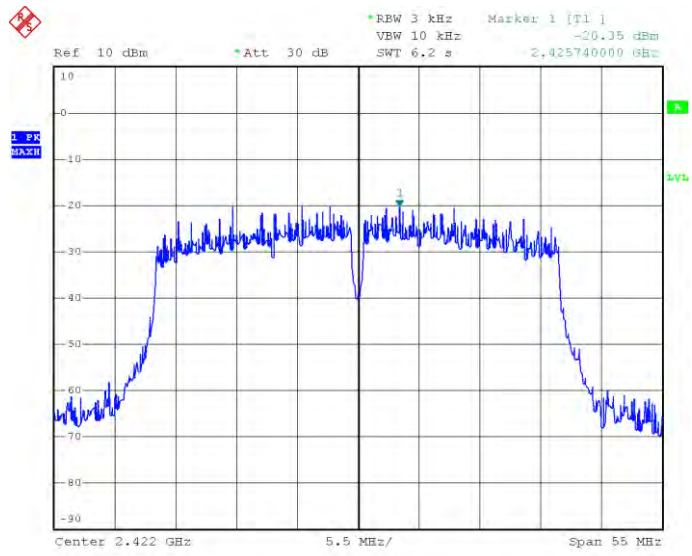
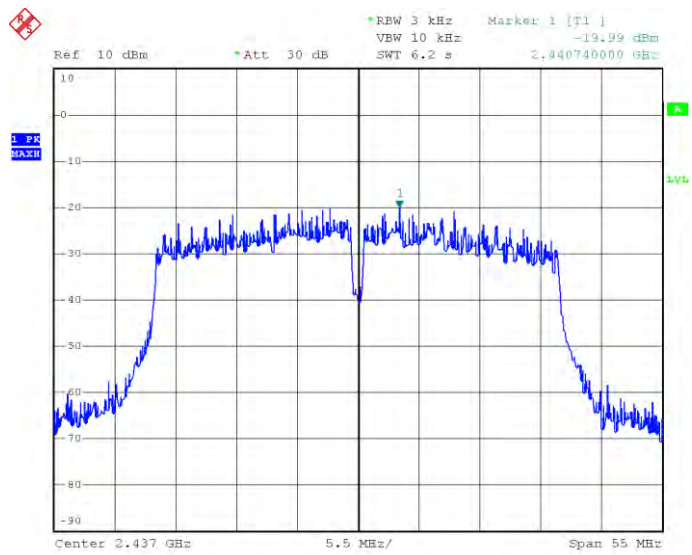
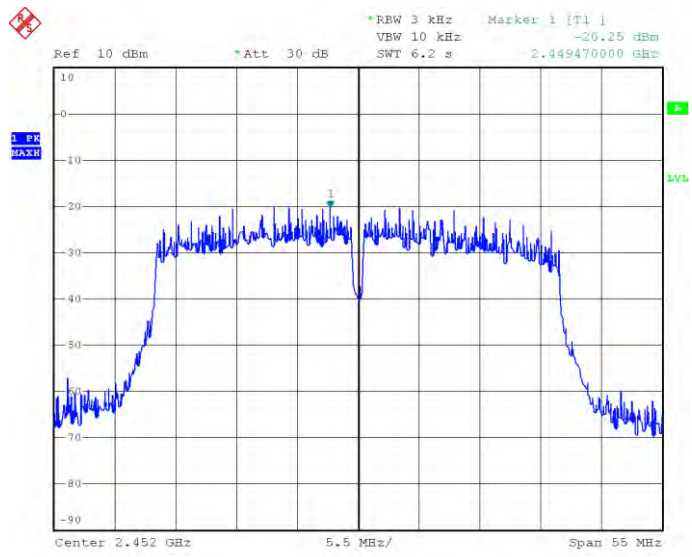
➤ Antenna 1

<p>802.11b-Low</p>	 <p>Ref 10 dBm *Att 30 dB *RBW 3 kHz Marker 1 [T1] -8.76 dBm          VBW 10 kHz SWT 1.8 s 2.413024000 GHz</p> <p>Center 2.412 GHz 1.6 MHz/ Span 16 MHz</p>
<p>802.11b-Middle</p>	 <p>Ref 10 dBm *Att 30 dB *RBW 3 kHz Marker 1 [T1] -7.07 dBm          VBW 10 kHz SWT 1.8 s 2.438728000 GHz</p> <p>Center 2.437 GHz 1.6 MHz/ Span 16 MHz</p>
<p>802.11b-High</p>	 <p>Ref 10 dBm *Att 30 dB *RBW 3 kHz Marker 1 [T1] -7.44 dBm          VBW 10 kHz SWT 1.8 s 2.463728000 GHz</p> <p>Center 2.462 GHz 1.6 MHz/ Span 16 MHz</p>

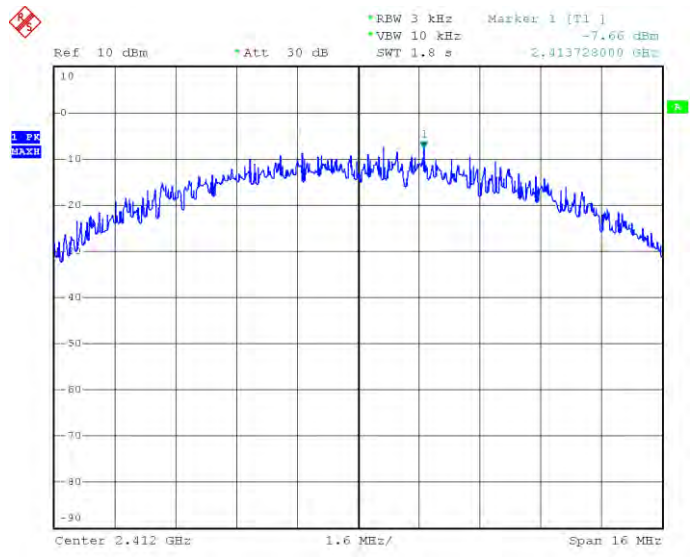
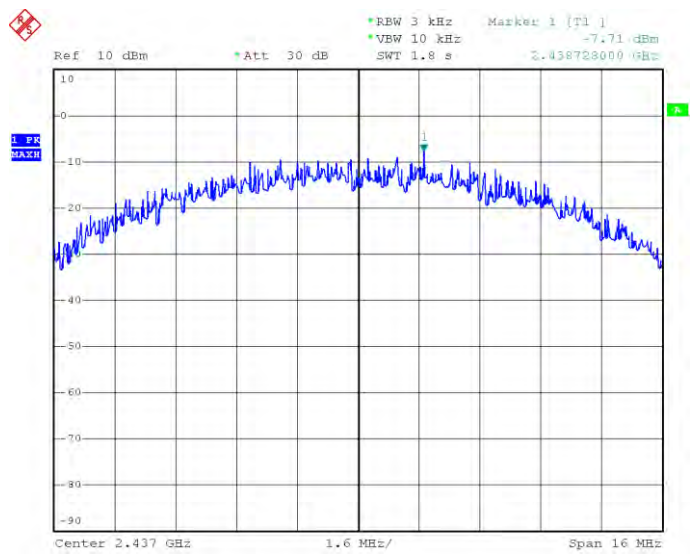
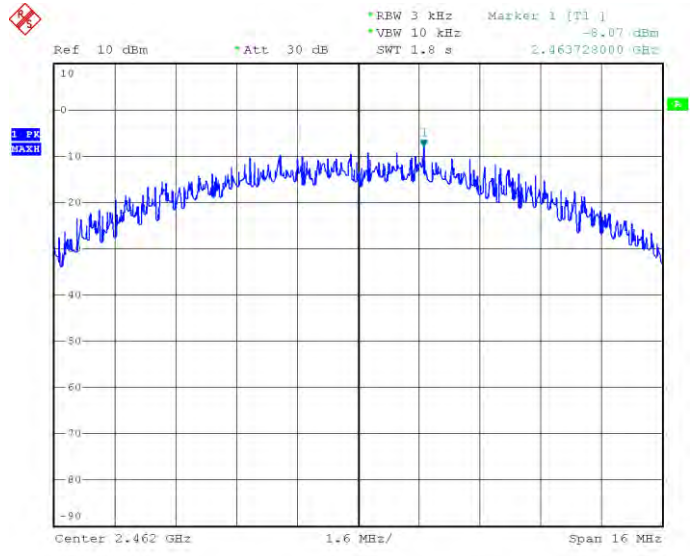
<p>802.11g-Low</p>	 <p>Ref 10 dBm Att 30 dB RBW 3 kHz Marker 1 [T1] -13.43 dBm          VBW 10 kHz 2.410400000 GHz          SWT 2.8 s</p> <p>Center 2.412 GHz 2.5 MHz/ Span 25 MHz</p>
<p>802.11g-Middle</p>	 <p>Ref 10 dBm Att 30 dB RBW 3 kHz Marker 1 [T1] -14.93 dBm          VBW 10 kHz 2.437650000 GHz          SWT 2.8 s</p> <p>Center 2.437 GHz 2.5 MHz/ Span 25 MHz</p>
<p>802.11g-High</p>	 <p>Ref 10 dBm Att 30 dB RBW 3 kHz Marker 1 [T1] -13.70 dBm          VBW 10 kHz 2.460400000 GHz          SWT 2.8 s</p> <p>Center 2.462 GHz 2.5 MHz/ Span 25 MHz</p>

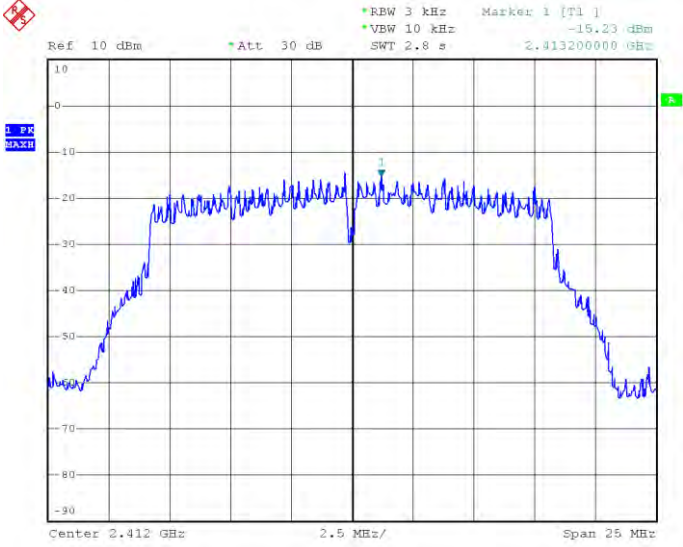
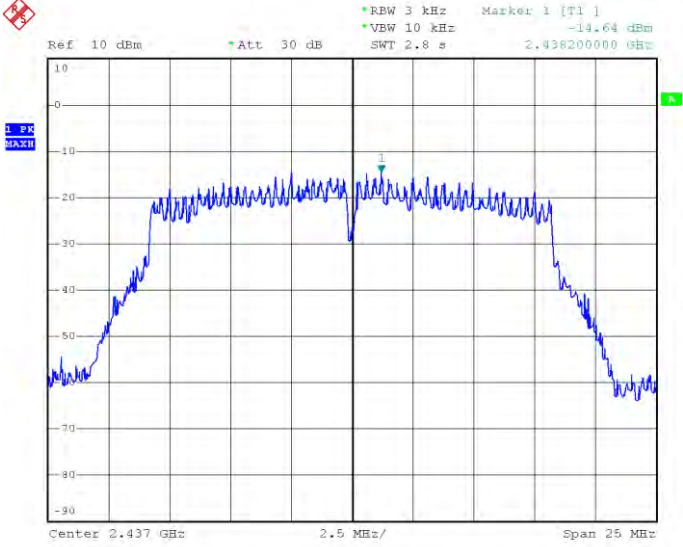
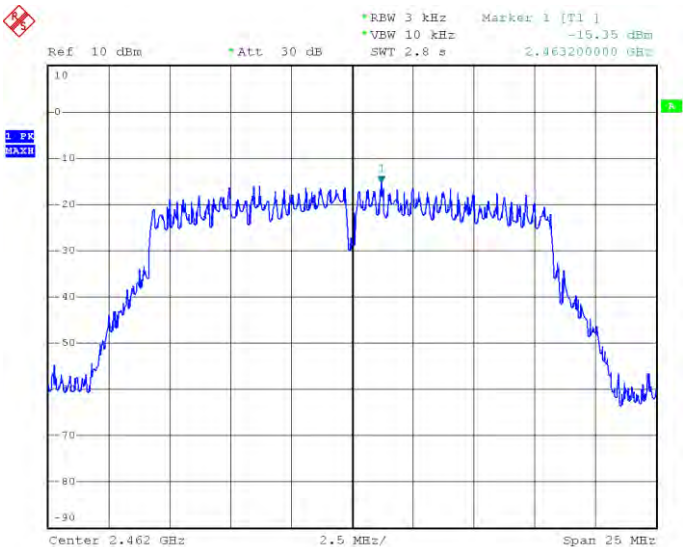
<p>802.11n-HT20-Low</p>	 <p>Ref 10 dBm Att 30 dB RBW 3 kHz Marker 1 [T1] -12.96 dBm          VBW 10 kHz 2.410700000 GHz          SWT 2.8 s</p> <p>Center 2.412 GHz 2.5 MHz/ Span 25 MHz</p>
<p>802.11n-HT20-Middle</p>	 <p>Ref 10 dBm Att 30 dB RBW 3 kHz Marker 1 [T1] -13.79 dBm          VBW 10 kHz 2.435700000 GHz          SWT 2.8 s</p> <p>Center 2.437 GHz 2.5 MHz/ Span 25 MHz</p>
<p>802.11n-HT20-High</p>	 <p>Ref 10 dBm Att 30 dB RBW 3 kHz Marker 1 [T1] -13.64 dBm          VBW 10 kHz 2.460700000 GHz          SWT 2.8 s</p> <p>Center 2.462 GHz 2.5 MHz/ Span 25 MHz</p>

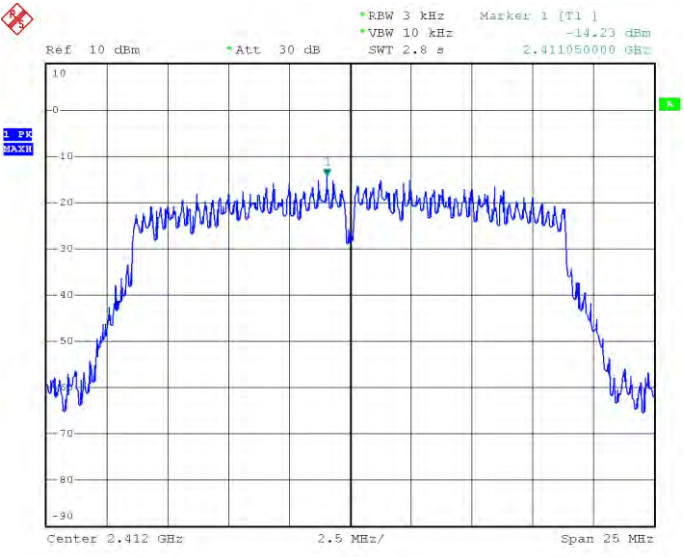
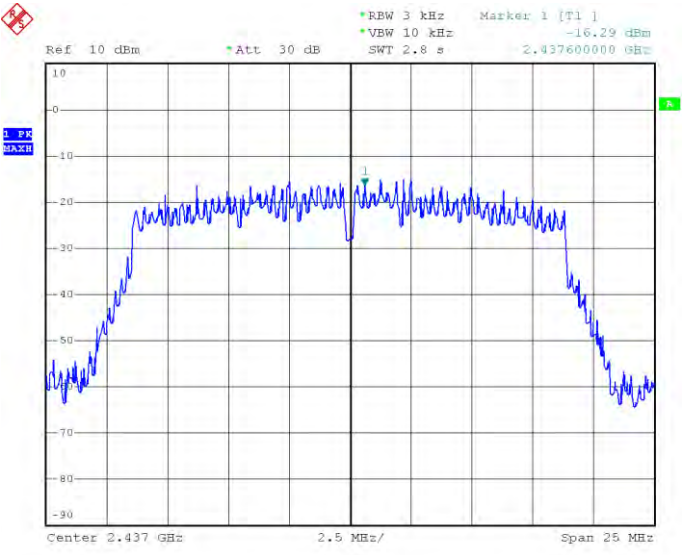
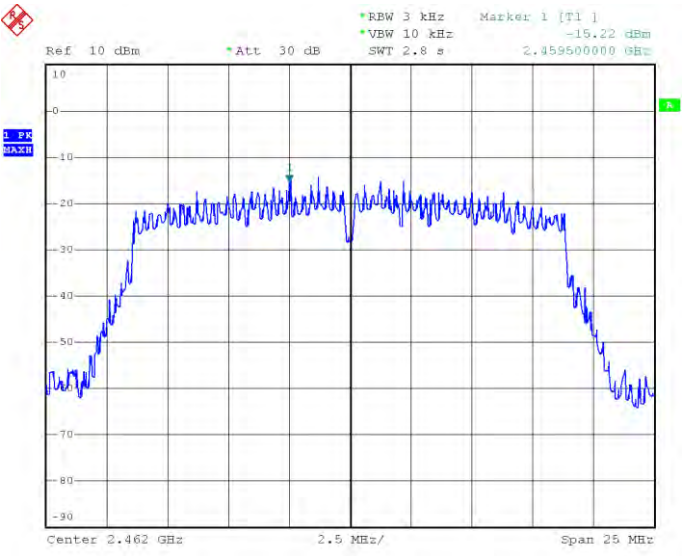


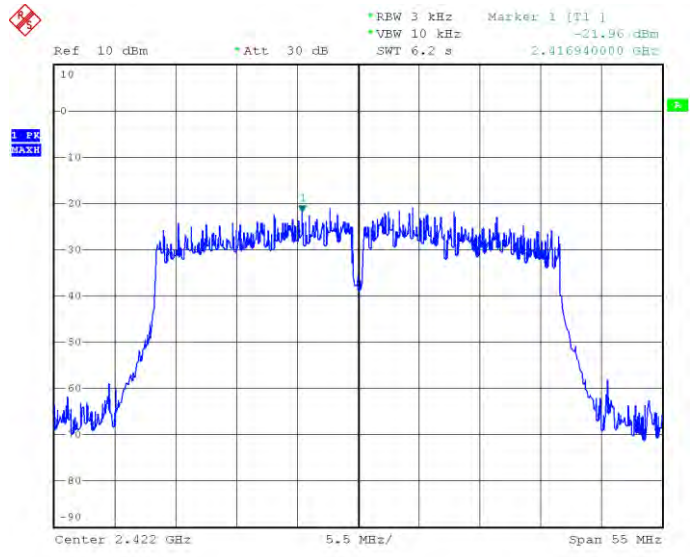
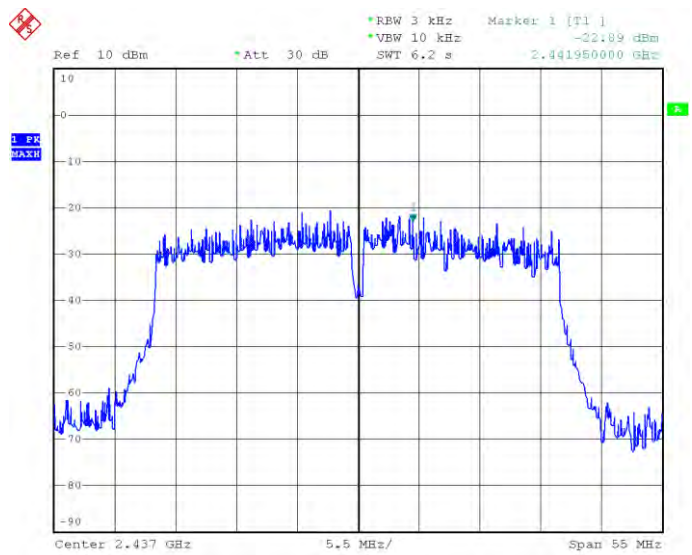
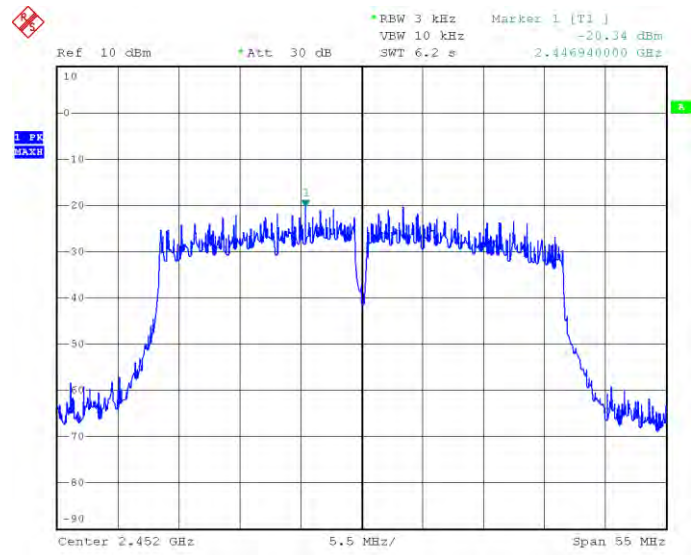
<p>802.11n-HT40-Low</p>	
<p>802.11n-HT40-Middle</p>	
<p>802.11n-HT40-High</p>	

➤ Antenna 2

<p>802.11b-Low</p>	 <p>Ref: 10 dBm    *Att: 30 dB    *RBW 3 kHz    Marker: 1 [T1]    -7.66 dBm      *VBW 10 kHz    SWT 1.8 s    2.413728000 GHz</p> <p>Center 2.412 GHz    1.6 MHz/    Span 16 MHz</p>
<p>802.11b-Middle</p>	 <p>Ref: 10 dBm    *Att: 30 dB    *RBW 3 kHz    Marker: 1 [T1]    -7.71 dBm      *VBW 10 kHz    SWT 1.8 s    2.438728000 GHz</p> <p>Center 2.437 GHz    1.6 MHz/    Span 16 MHz</p>
<p>802.11b-High</p>	 <p>Ref: 10 dBm    *Att: 30 dB    *RBW 3 kHz    Marker: 1 [T1]    -8.07 dBm      *VBW 10 kHz    SWT 1.8 s    2.463728000 GHz</p> <p>Center 2.462 GHz    1.6 MHz/    Span 16 MHz</p>

<p>802.11g-Low</p>	 <p>Ref: 10 dBm    Att: 30 dB    *RBW 3 kHz    Marker 1 [F1]    -15.23 dBm      *VBW 10 kHz    SWT 2.8 s    2.413200000 GHz</p> <p>Center 2.412 GHz    2.5 MHz/    Span 25 MHz</p>
<p>802.11g-Middle</p>	 <p>Ref: 10 dBm    Att: 30 dB    *RBW 3 kHz    Marker 1 [F1]    -14.64 dBm      *VBW 10 kHz    SWT 2.8 s    2.438200000 GHz</p> <p>Center 2.437 GHz    2.5 MHz/    Span 25 MHz</p>
<p>802.11g-High</p>	 <p>Ref: 10 dBm    Att: 30 dB    *RBW 3 kHz    Marker 1 [F1]    -15.35 dBm      *VBW 10 kHz    SWT 2.8 s    2.463200000 GHz</p> <p>Center 2.462 GHz    2.5 MHz/    Span 25 MHz</p>

<p>802.11n-HT20-Low</p>	 <p>Ref 10 dBm    Att 30 dB    RBW 3 kHz    Marker 1 [T1]    -14.23 dBm      VBW 10 kHz    SWT 2.8 s    2.411050000 GHz</p> <p>Center 2.412 GHz    2.5 MHz/    Span 25 MHz</p>
<p>802.11n-HT20-Middle</p>	 <p>Ref 10 dBm    Att 30 dB    RBW 3 kHz    Marker 1 [T1]    -16.29 dBm      VBW 10 kHz    SWT 2.8 s    2.437600000 GHz</p> <p>Center 2.437 GHz    2.5 MHz/    Span 25 MHz</p>
<p>802.11n-HT20-High</p>	 <p>Ref 10 dBm    Att 30 dB    RBW 3 kHz    Marker 1 [T1]    -15.22 dBm      VBW 10 kHz    SWT 2.8 s    2.459500000 GHz</p> <p>Center 2.462 GHz    2.5 MHz/    Span 25 MHz</p>

<p>802.11n-HT40-Low</p>	
<p>802.11n-HT40-Middle</p>	
<p>802.11n-HT40-High</p>	

## 6. DTS Bandwidth

### 6.1 Standard Applicable

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 6 dB bandwidth shall be at least 500 kHz.

### 6.2 Test Procedure

According to the KDB 558074 D01 v05r02 Subclause 8.2 and ANSI C63.10-2013 Subclause 11.8.1, the test method of DTS Bandwidth as below:

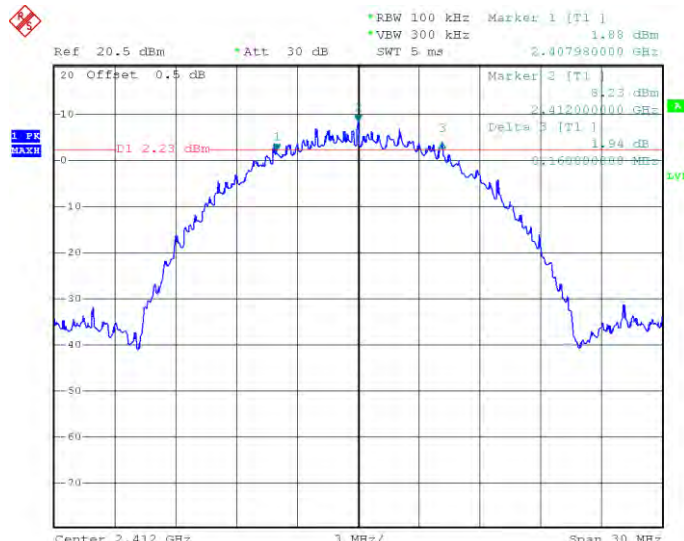
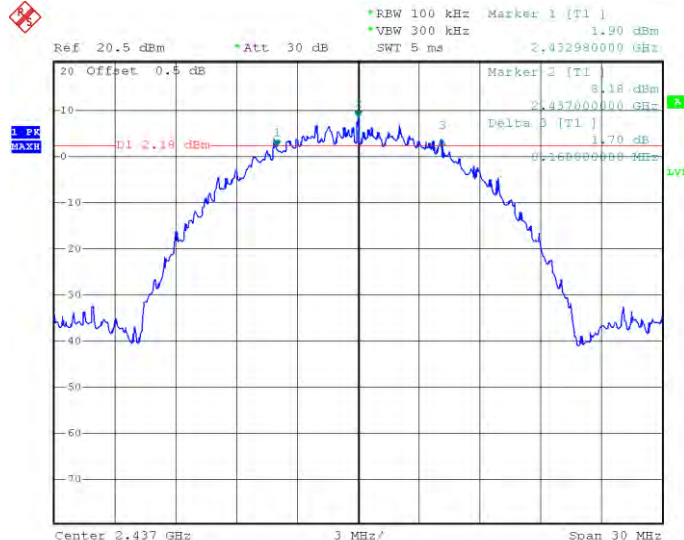
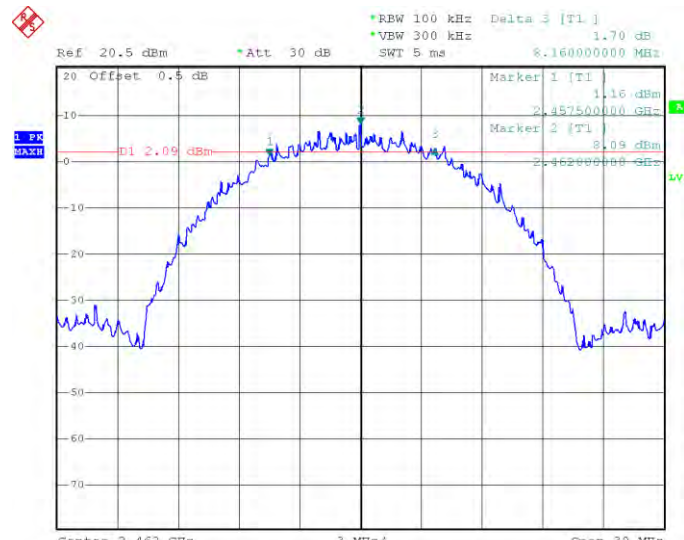
- a) Set RBW = 100 kHz.
- b) Set the video bandwidth (VBW)  $\geq 3 \times$  RBW.
- c) Detector = Peak.
- d) Trace mode = max hold.
- e) Sweep = auto couple.
- f) Allow the trace to stabilize.
- g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

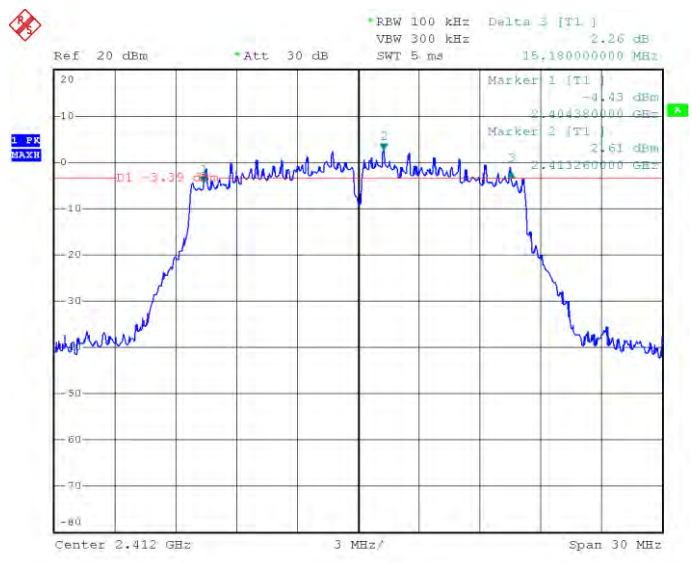
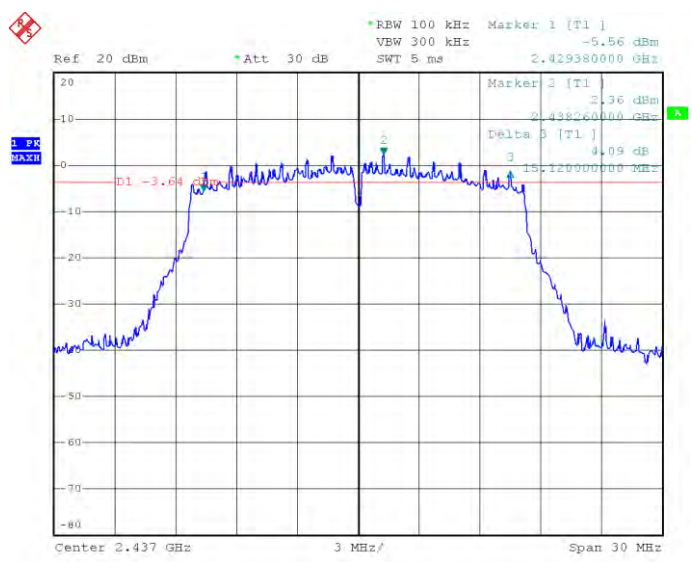
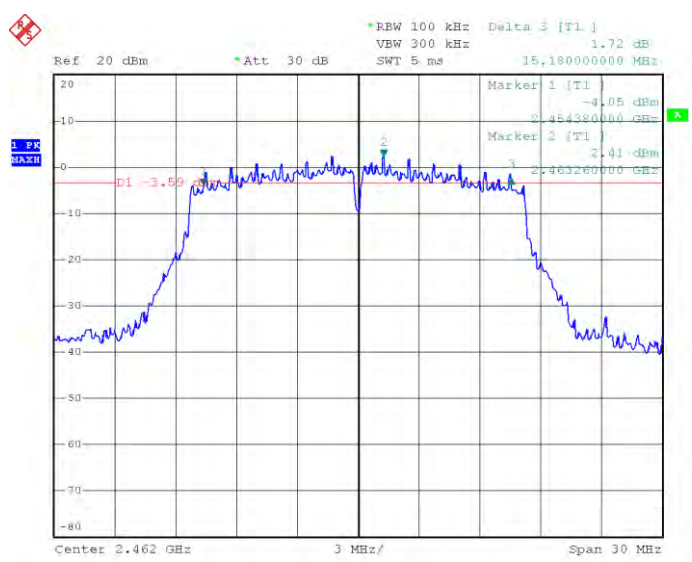
### 6.3 Summary of Test Results/Plots

Test Mode	Test Channel MHz	Test Result(MHz)		Limit kHz
		Antenna 1	Antenna 2	
802.11b_11Mbps	2412	8.16	8.20	$\geq 500$
	2437	8.16	8.34	$\geq 500$
	2462	8.16	8.40	$\geq 500$
802.11g_54Mbps	2412	15.18	15.70	$\geq 500$
	2437	15.12	15.24	$\geq 500$
	2462	15.18	15.18	$\geq 500$
802.11n-HT20_MCS7	2412	16.92	16.32	$\geq 500$
	2437	16.20	16.50	$\geq 500$
	2462	16.02	16.38	$\geq 500$
802.11n-HT40_MCS7	2422	35.04	35.24	$\geq 500$
	2437	34.92	34.88	$\geq 500$
	2452	35.00	35.04	$\geq 500$

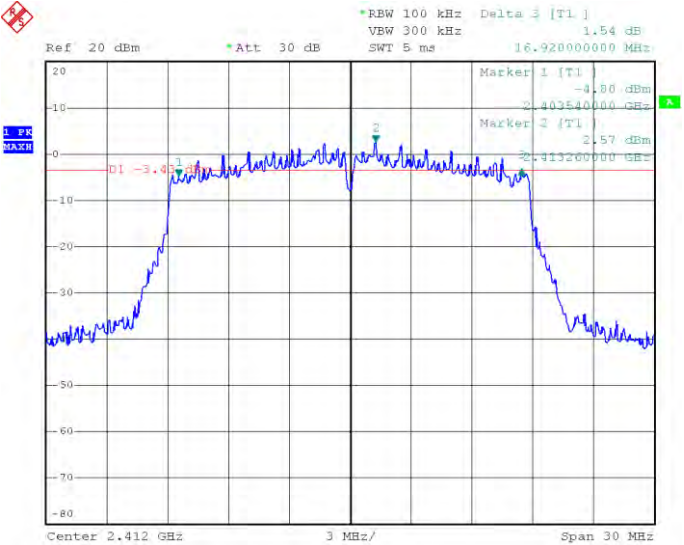
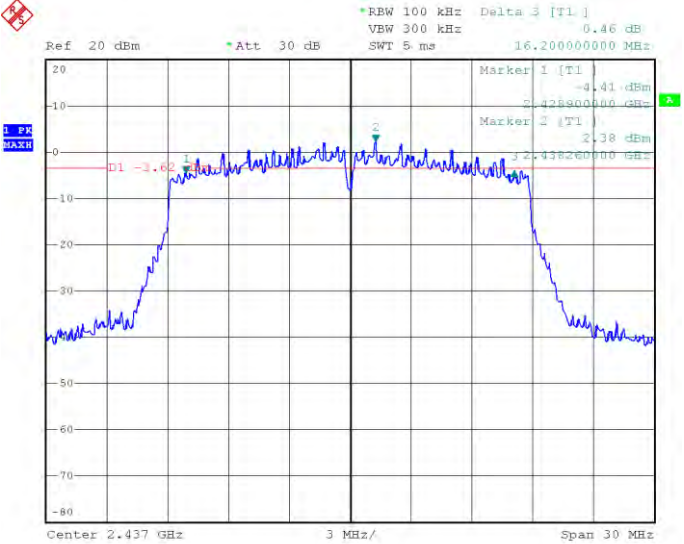
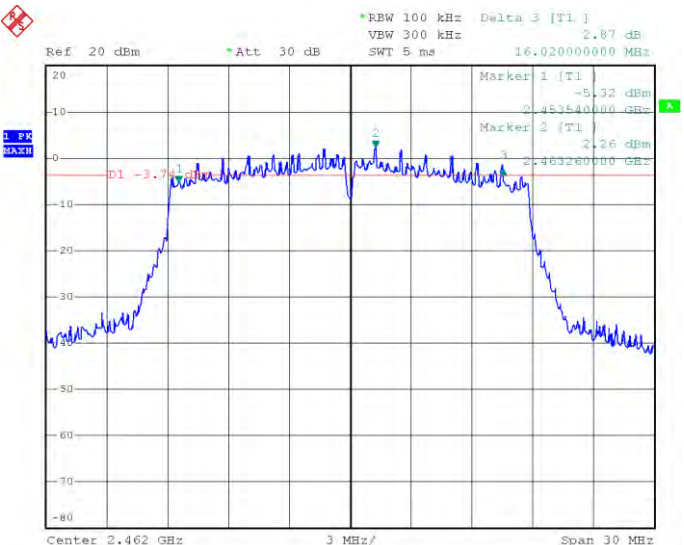
Please refer to the following test plots:

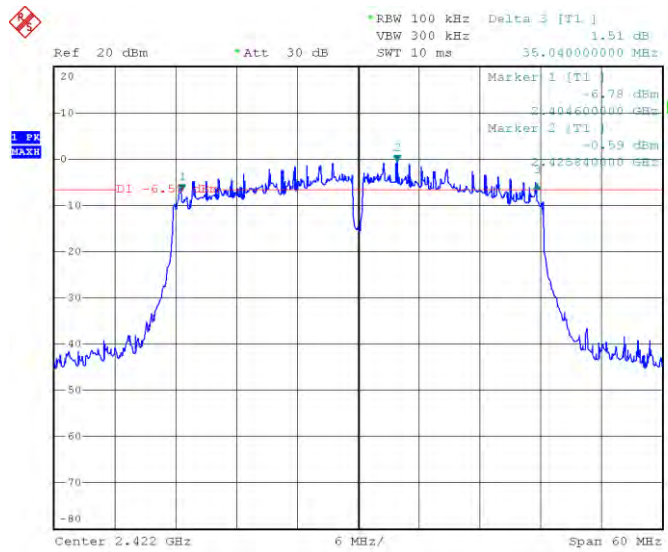
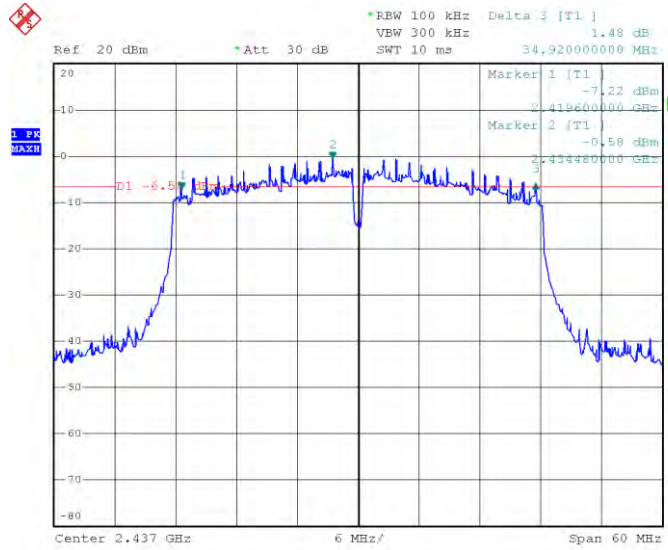
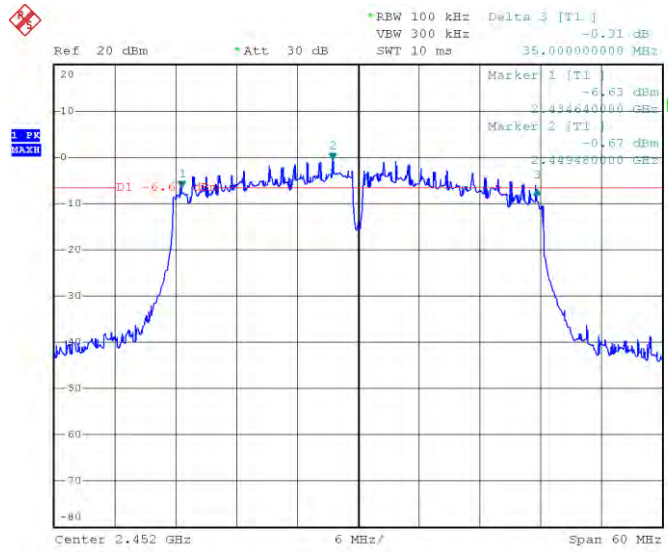
➤ Antenna 1

<p>802.11b-Low</p>	 <p>Ref: 20.5 dBm    Att: 30 dB    RBW 100 kHz    Marker 1 [T1]    1.88 dBm          VBW 300 kHz    SWT 5 ms    2.407980000 GHz</p> <p>20 Offset 0.5 dB    Marker 2 [T1]    8.23 dBm          2.412000000 GHz</p> <p>1 PK MAXH    D1 2.23 dBm    Delta 3 [T1]    1.94 dB          2.416000000 GHz</p> <p>Center 2.412 GHz    3 MHz/    Span 30 MHz</p>
<p>802.11b-Middle</p>	 <p>Ref: 20.5 dBm    Att: 30 dB    RBW 100 kHz    Marker 1 [T1]    1.90 dBm          VBW 300 kHz    SWT 5 ms    2.432980000 GHz</p> <p>20 Offset 0.5 dB    Marker 2 [T1]    8.18 dBm          2.437000000 GHz</p> <p>1 PK MAXH    D1 2.19 dBm    Delta 3 [T1]    1.70 dB          2.441000000 GHz</p> <p>Center 2.437 GHz    3 MHz/    Span 30 MHz</p>
<p>802.11b-High</p>	 <p>Ref: 20.5 dBm    Att: 30 dB    RBW 100 kHz    Delta 3 [T1]    1.70 dB          VBW 300 kHz    SWT 5 ms    8.160000000 MHz</p> <p>20 Offset 0.5 dB    Marker 1 [T1]    1.16 dBm          2.457500000 GHz</p> <p>1 PK MAXH    D1 2.09 dBm    Marker 2 [T1]    8.09 dBm          2.462000000 GHz</p> <p>Center 2.462 GHz    3 MHz/    Span 30 MHz</p>

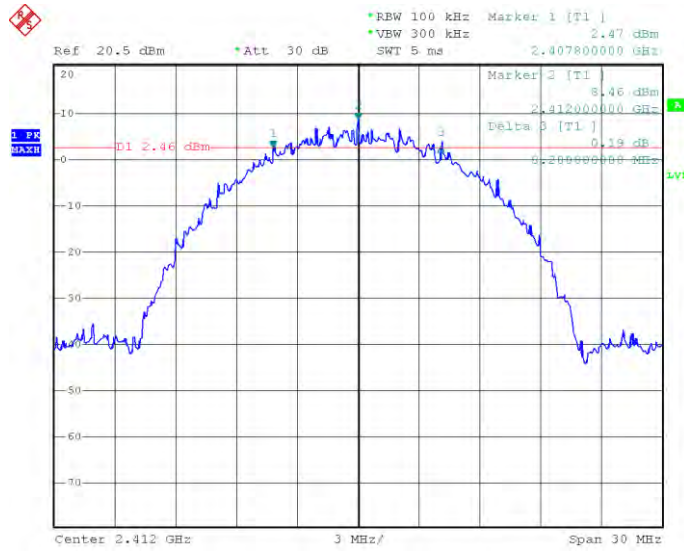
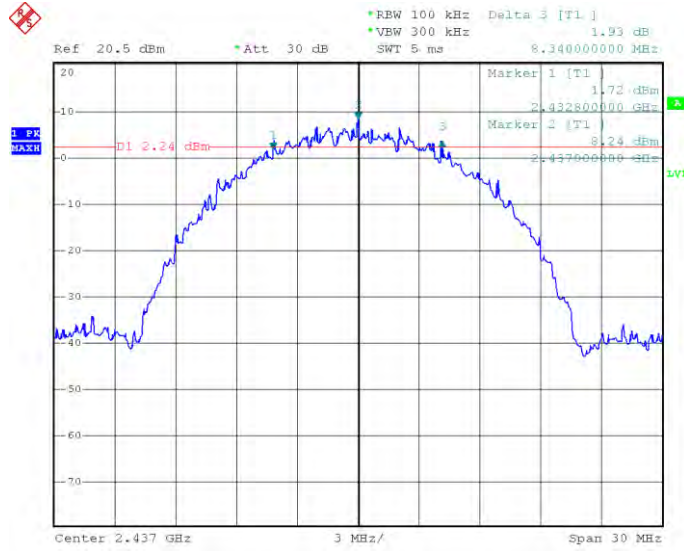
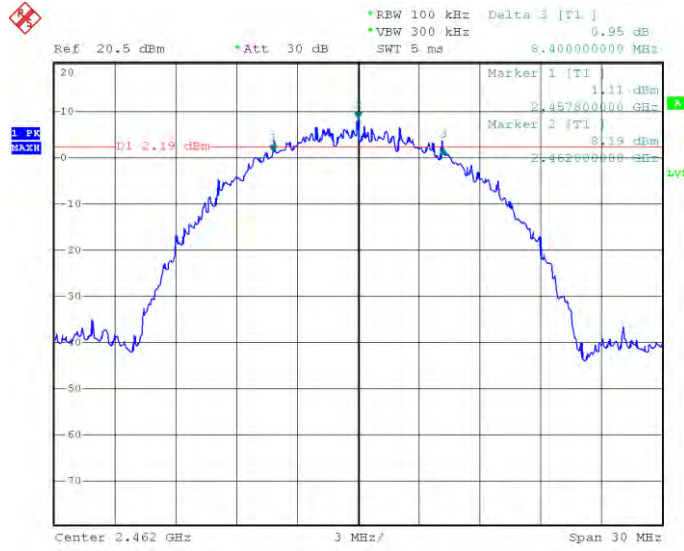
<p>802.11g-Low</p>	 <p>             *RBW 100 kHz Delta 3 [T1 ]              VEW 300 kHz 2.26 dB              Ref 20 dBm *Att 30 dB SWT 5 ms 15.180000000 MHz              Marker 1 [T1 ] -4.43 dBm              2.404380000 GHz              Marker 2 [T1 ] 2.61 dBm              2.411260000 GHz              D1 -3.39 dBm              Center 2.412 GHz 3 MHz/ Span 30 MHz         </p>
<p>802.11g-Middle</p>	 <p>             *RBW 100 kHz Marker 1 [T1 ]              VEW 300 kHz -5.56 dBm              Ref 20 dBm *Att 30 dB SWT 5 ms 2.429380000 GHz              Marker 2 [T1 ] 1.36 dBm              2.438260000 GHz              Delta 3 [T1 ] 4.09 dB              15.120000000 MHz              D1 -3.64 dBm              Center 2.437 GHz 3 MHz/ Span 30 MHz         </p>
<p>802.11g-High</p>	 <p>             *RBW 100 kHz Delta 3 [T1 ]              VEW 300 kHz 1.72 dB              Ref 20 dBm *Att 30 dB SWT 5 ms 15.180000000 MHz              Marker 1 [T1 ] -4.05 dBm              2.454380000 GHz              Marker 2 [T1 ] 2.41 dBm              2.463260000 GHz              D1 -3.59 dBm              Center 2.462 GHz 3 MHz/ Span 30 MHz         </p>

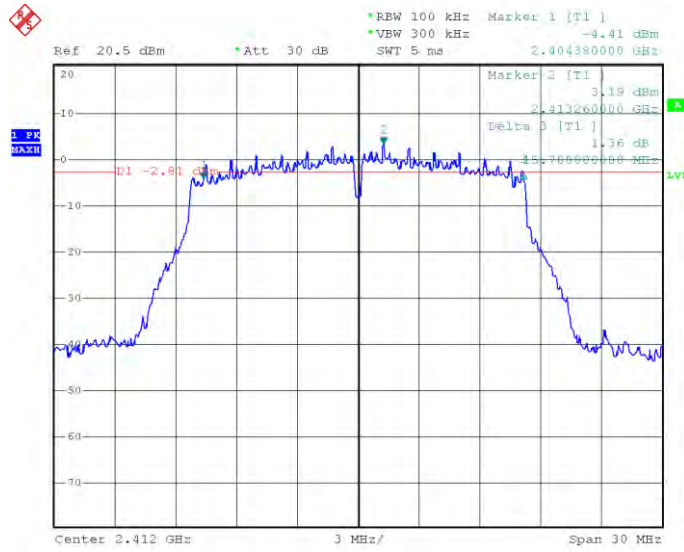
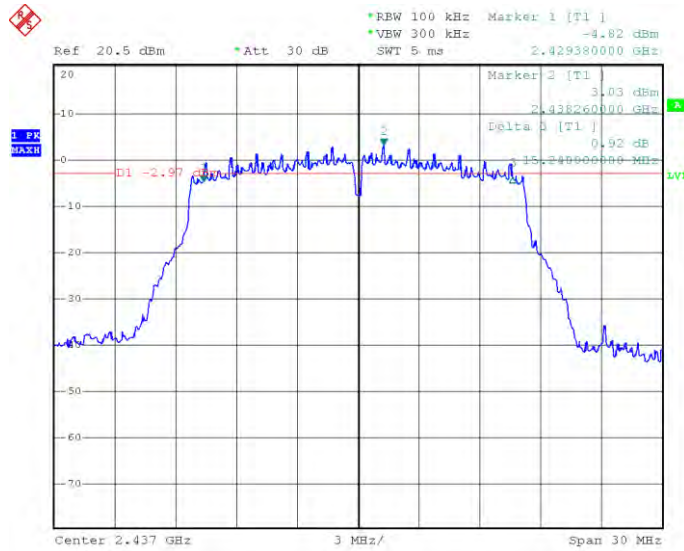
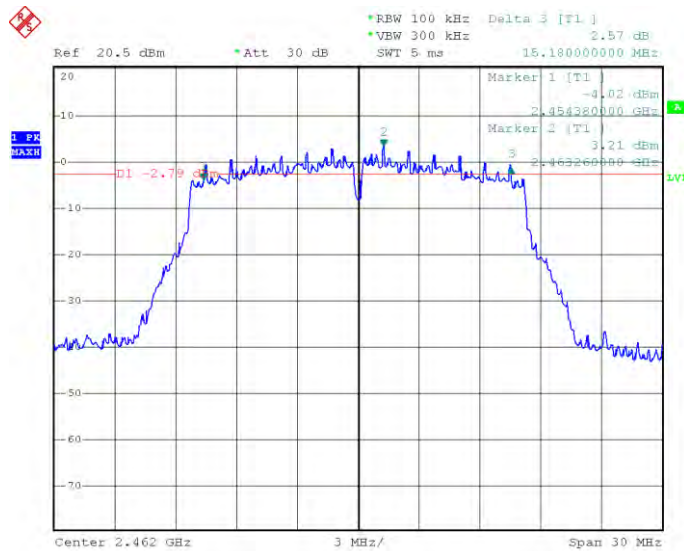


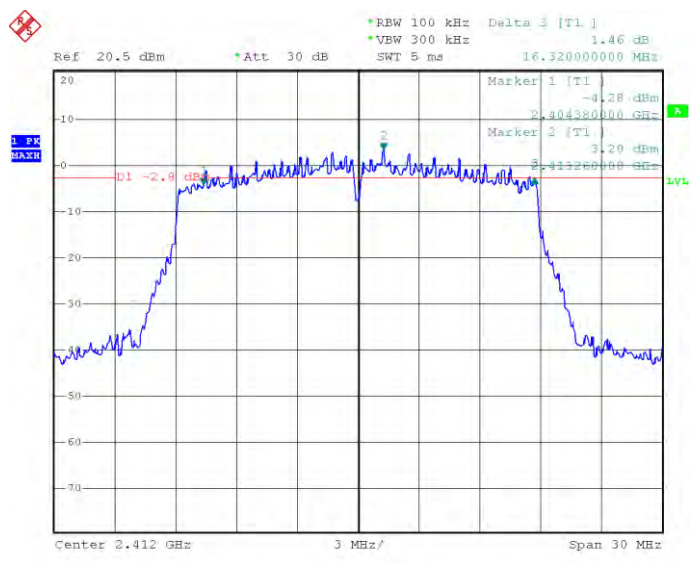
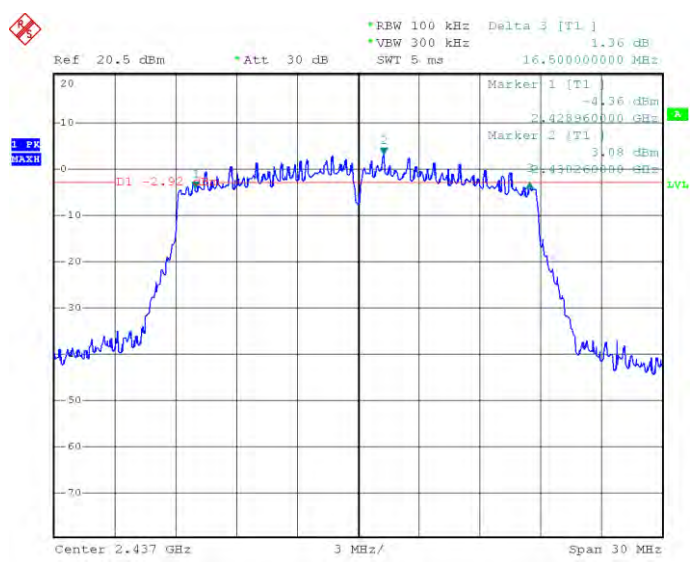
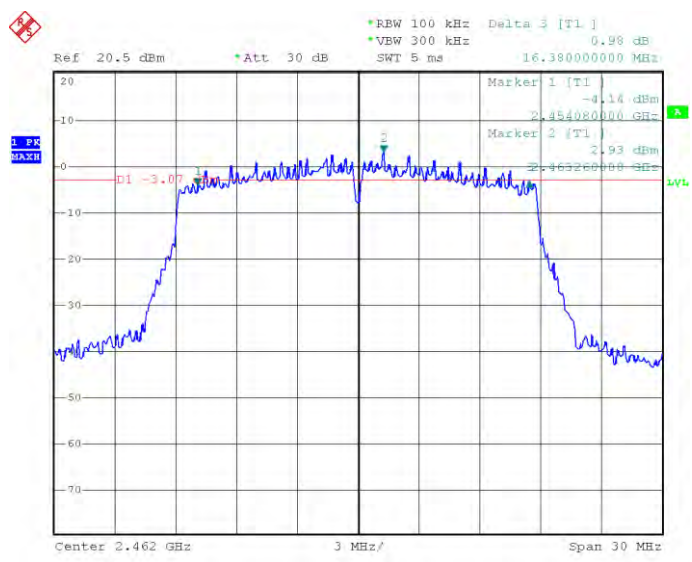
<p>802.11n-HT20-Low</p>	 <p>                     *RBW 100 kHz Delta 3 [T1]                      VBW 300 kHz 1.54 dB                      Ref 20 dBm Att 30 dB SWT 5 ms 16.920000000 MHz                 </p> <p>                     Marker 1 [T1] -4.80 dBm                      2.403540000 GHz                      Marker 2 [T1] 2.157 dBm                      2.413200000 GHz                 </p> <p>                     D1 -3.41 dBm                      2.413200000 GHz                 </p> <p>                     Center 2.412 GHz 3 MHz/ Span 30 MHz                 </p>
<p>802.11n-HT20-Middle</p>	 <p>                     *RBW 100 kHz Delta 3 [T1]                      VBW 300 kHz 0.46 dB                      Ref 20 dBm Att 30 dB SWT 5 ms 16.200000000 MHz                 </p> <p>                     Marker 1 [T1] -4.41 dBm                      2.428000000 GHz                      Marker 2 [T1] 2.138 dBm                      2.438200000 GHz                 </p> <p>                     D1 -3.62 dBm                      2.438200000 GHz                 </p> <p>                     Center 2.437 GHz 3 MHz/ Span 30 MHz                 </p>
<p>802.11n-HT20-High</p>	 <p>                     *RBW 100 kHz Delta 3 [T1]                      VBW 300 kHz 2.87 dB                      Ref 20 dBm Att 30 dB SWT 5 ms 16.020000000 MHz                 </p> <p>                     Marker 1 [T1] -5.32 dBm                      2.453540000 GHz                      Marker 2 [T1] 2.126 dBm                      2.463200000 GHz                 </p> <p>                     D1 -3.71 dBm                      2.463200000 GHz                 </p> <p>                     Center 2.462 GHz 3 MHz/ Span 30 MHz                 </p>

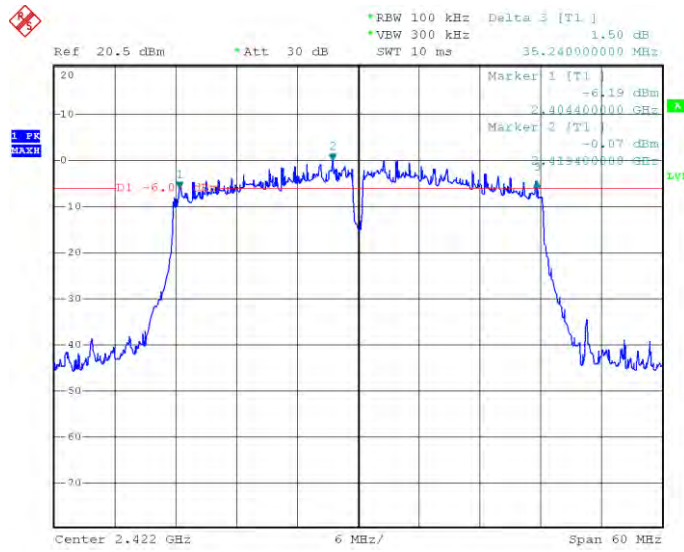
<p>802.11n-HT40-Low</p>	 <p>             *RBW 100 kHz Delta 3 [T1]              VEW 300 kHz 1.51 dB              Ref 20 dBm Att 30 dB SWT 10 ms 35.040000000 MHz              Marker 1 [T1] -6.78 dBm              2.404600000 GHz              Marker 2 [T1] -0.59 dBm              2.428800000 GHz              D1 -6.5              Center 2.422 GHz 6 MHz/ Span 60 MHz         </p>
<p>802.11n-HT40-Middle</p>	 <p>             *RBW 100 kHz Delta 3 [T1]              VEW 300 kHz 1.48 dB              Ref 20 dBm Att 30 dB SWT 10 ms 34.920000000 MHz              Marker 1 [T1] -7.22 dBm              2.419600000 GHz              Marker 2 [T1] -0.58 dBm              2.433800000 GHz              D1 -6.5              Center 2.437 GHz 6 MHz/ Span 60 MHz         </p>
<p>802.11n-HT40-High</p>	 <p>             *RBW 100 kHz Delta 3 [T1]              VEW 300 kHz -0.31 dB              Ref 20 dBm Att 30 dB SWT 10 ms 35.000000000 MHz              Marker 1 [T1] -6.63 dBm              2.434600000 GHz              Marker 2 [T1] -0.67 dBm              2.438800000 GHz              D1 -6.6              Center 2.452 GHz 6 MHz/ Span 60 MHz         </p>

➤ Antenna 2

<p>802.11b-Low</p>	 <p>Ref: 20.5 dBm *Att: 30 dB *RBW 100 kHz *VBW 300 kHz *SWT 5 ms</p> <p>Marker 1 [T1] 2.407800000 GHz 2.47 dBm          Marker 2 [T1] 2.412000000 GHz 8.46 dBm          Delta 3 [T1] 0.19 dB</p> <p>1 PK MAXH          D1 2.46 dBm</p> <p>Center 2.412 GHz 3 MHz/ Span 30 MHz</p>
<p>802.11b-Middle</p>	 <p>Ref: 20.5 dBm *Att: 30 dB *RBW 100 kHz *VBW 300 kHz *SWT 5 ms</p> <p>Delta 3 [T1] 1.93 dB          Marker 1 [T1] 2.432800000 GHz 1.72 dBm          Marker 2 [T1] 2.437000000 GHz 8.29 dBm</p> <p>1 PK MAXH          D1 2.24 dBm</p> <p>Center 2.437 GHz 3 MHz/ Span 30 MHz</p>
<p>802.11b-High</p>	 <p>Ref: 20.5 dBm *Att: 30 dB *RBW 100 kHz *VBW 300 kHz *SWT 5 ms</p> <p>Delta 3 [T1] 0.95 dB          Marker 1 [T1] 2.457800000 GHz 1.11 dBm          Marker 2 [T1] 2.462000000 GHz 8.19 dBm</p> <p>1 PK MAXH          D1 2.19 dBm</p> <p>Center 2.462 GHz 3 MHz/ Span 30 MHz</p>

<p>802.11g-Low</p>	 <p>                     Ref: 20.5 dBm    Att: 30 dB    RBW 100 kHz    Marker 1 [T1]    -4.41 dBm                      VBW 300 kHz    SWT 5 ms    2.404380000 GHz                      Marker 2 [T1]    3.19 dBm                      2.413260000 GHz                      Delta 3 [T1]    1.36 dB                      15.766000000 MHz                      D1 -2.81 dBm                      1 PK MAXH                      Center 2.412 GHz    3 MHz/    Span 30 MHz                 </p>
<p>802.11g-Middle</p>	 <p>                     Ref: 20.5 dBm    Att: 30 dB    RBW 100 kHz    Marker 1 [T1]    -4.82 dBm                      VBW 300 kHz    SWT 5 ms    2.429380000 GHz                      Marker 2 [T1]    3.03 dBm                      2.438260000 GHz                      Delta 3 [T1]    0.92 dB                      15.766000000 MHz                      D1 -2.97 dBm                      1 PK MAXH                      Center 2.437 GHz    3 MHz/    Span 30 MHz                 </p>
<p>802.11g-High</p>	 <p>                     Ref: 20.5 dBm    Att: 30 dB    RBW 100 kHz    Delta 3 [T1]    2.57 dB                      VBW 300 kHz    SWT 5 ms    15.180000000 MHz                      Marker 1 [T1]    -4.02 dBm                      2.454380000 GHz                      Marker 2 [T1]    3.21 dBm                      2.463260000 GHz                      D1 -2.79 dBm                      1 PK MAXH                      Center 2.462 GHz    3 MHz/    Span 30 MHz                 </p>

<p>802.11n-HT20-Low</p>	 <p>Ref: 20.5 dBm *Att: 30 dB *RBW: 100 kHz Delta: 3 [T1] *VSW: 300 kHz 1.46 dB *SWT: 5 ms 16.320000000 MHz</p> <p>Marker 1 [T1] -4.28 dBm 2.404380000 GHz Marker 2 [T1] 3.20 dBm 2.413260000 GHz</p> <p>D1 -2.9 dBm</p> <p>Center 2.412 GHz 3 MHz/ Span 30 MHz</p>
<p>802.11n-HT20-Middle</p>	 <p>Ref: 20.5 dBm *Att: 30 dB *RBW: 100 kHz Delta: 3 [T1] *VSW: 300 kHz 1.36 dB *SWT: 5 ms 16.500000000 MHz</p> <p>Marker 1 [T1] -4.36 dBm 2.428860000 GHz Marker 2 [T1] 3.08 dBm 2.430260000 GHz</p> <p>D1 -2.92 dBm</p> <p>Center 2.437 GHz 3 MHz/ Span 30 MHz</p>
<p>802.11n-HT20-High</p>	 <p>Ref: 20.5 dBm *Att: 30 dB *RBW: 100 kHz Delta: 3 [T1] *VSW: 300 kHz 0.98 dB *SWT: 5 ms 16.380000000 MHz</p> <p>Marker 1 [T1] -4.14 dBm 2.454080000 GHz Marker 2 [T1] 2.93 dBm 2.463260000 GHz</p> <p>D1 -3.07 dBm</p> <p>Center 2.462 GHz 3 MHz/ Span 30 MHz</p>

<p>802.11n-HT40-Low</p>	 <p>                     Ref 20.5 dBm *Att 30 dB RBW 100 kHz Delta 3 [T1] 1.50 dB                      *VBW 300 kHz SWT 10 ms 35.240000000 MHz                      Marker 1 [T1] -6.19 dBm 2.404400000 GHz                      Marker 2 [T1] -0.07 dBm 2.413400000 GHz                      D1 -6.0                      1 PK MAXH                      2                      3                      4                      5                      6                      7                      8                      9                      10                      11                      12                      13                      14                      15                      16                      17                      18                      19                      20                      21                      22                      23                      24                      25                      26                      27                      28                      29                      30                      31                      32                      33                      34                      35                      36                      37                      38                      39                      40                      41                      42                      43                      44                      45                      46                      47                      48                      49                      50                      51                      52                      53                      54                      55                      56                      57                      58                      59                      60                      61                      62                      63                      64                      65                      66                      67                      68                      69                      70                      71                      72                      73                      74                      75                      76                      77                      78                      79                      80                      81                      82                      83                      84                      85                      86                      87                      88                      89                      90                      91                      92                      93                      94                      95                      96                      97                      98                      99                      100                      101                      102                      103                      104                      105                      106                      107                      108                      109                      110                      111                      112                      113                      114                      115                      116                      117                      118                      119                      120                      121                      122                      123                      124                      125                      126                      127                      128                      129                      130                      131                      132                      133                      134                      135                      136                      137                      138                      139                      140                      141                      142                      143                      144                      145                      146                      147                      148                      149                      150                      151                      152                      153                      154                      155                      156                      157                      158                      159                      160                      161                      162                      163                      164                      165                      166                      167                      168                      169                      170                      171                      172                      173                      174                      175                      176                      177                      178                      179                      180                      181                      182                      183                      184                      185                      186                      187                      188                      189                      190                      191                      192                      193                      194                      195                      196                      197                      198                      199                      200                      201                      202                      203                      204                      205                      206                      207                      208                      209                      210                      211                      212                      213                      214                      215                      216                      217                      218                      219                      220                      221                      222                      223                      224                      225                      226                      227                      228                      229                      230                      231                      232                      233                      234                      235                      236                      237                      238                      239                      240                      241                      242                      243                      244                      245                      246                      247                      248                      249                      250                      251                      252                      253                      254                      255                      256                      257                      258                      259                      260                      261                      262                      263                      264                      265                      266                      267                      268                      269                      270                      271                      272                      273                      274                      275                      276                      277                      278                      279                      280                      281                      282                      283                      284                      285                      286                      287                      288                      289                      290                      291                      292                      293                      294                      295                      296                      297                      298                      299                      300                      301                      302                      303                      304                      305                      306                      307                      308                      309                      310                      311                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   432                      433                      434                      435                      436                      437                      438                      439                      440                      441                      442                      443                      444                      445                      446                      447                      448                      449                      450                      451                      452                      453                      454                      455                      456                      457                      458                      459                      460                      461                      462                      463                      464                      465                      466                      467                      468                      469                      470                      471                      472                      473                      474                      475                      476                      477                      478                      479                      480                      481                      482                      483                      484                      485                      486                      487                      488                      489                      490                      491                      492                      493                      494                      495                      496                      497                      498                      499                      500                      501                      502                      503                      504                      505                      506                      507                      508                      509                      510                      511                      512                      513                      514                      515                      516                      517                      518                      519                      520                      521                      522                      523                      524                      525                      526                      527                      528                      529                      530                      531                      532                      533                      534                      535                      536                      537                      538                      539                      540                      541                      542                      543                      544                      545                      546                      547                      548                      549                      550                      551                      552                      553                      554                      555                      556                      557                      558                      559                      560                      561                      562                      563                      564                      565                      566                      567                      568                      569                      570                      571                      572                      573                      574                      575                      576                      577                      578                      579                      580                      581                      582                      583                      584                      585                      586                      587                      588                      589                      590                      591                      592                      593                      594                      595                      596                      597                      598                      599                      600                      601                      602                      603                      604                      605                      606                      607                      608                      609                      610                      611                      612                      613                      614                      615                      616                      617                      618                      619                      620                      621                      622                      623                      624                      625                      626                      627                      628                      629                      630                      631                      632                      633                      634                      635                      636                      637                      638                      639                      640                      641                      642                      643                      644                      645                      646                      647                      648                      649                      650                      651                      652                      653                      654                      655                      656                      657                      658                      659                      660                      661                      662                      663                      664                      665                      666                      667                      668                      669                      670                      671                      672                      673                      674                      675                      676                      677                      678                      679                      680                      681                      682                      683                      684                      685                      686                      687                      688                      689                      690                      691                      692                      693                      694                      695                      696                      697                      698                      699                      700                      701                      702                      703                      704                      705                      706                      707                      708                      709                      710                      711                      712                      713                      714                      715                      716                      717                      718                      719                      720                      721                      722                      723                      724                      725                      726                      727                      728                      729                      730                      731                      732                      733                      734                      735                      736                      737                      738                      739                      740                      741                      742                      743                      744                      745                      746                      747                      748                      749                      750                      751                      752                      753                      754                      755                      756                      757                      758                      759                      760                      761                      762                      763                      764                      765                      766                      767                      768                      769                      770                      771                      772                      773                      774                      775                      776                      777                      778                      779                      780                      781                      782                      783                      784                      785                      786                      787                      788                      789                      790                      791                      792                      793                      794                      795                      796                      797                      798                      799                      800                      801                      802                      803                      804                      805                      806                      807                      808                      809                      810                      811                      812                      813                      814                      815                      816                      817                      818                      819                      820                      821                      822                      823                      824                      825                      826                      827                      828                      829                      830                      831                      832                      833                      834                      835                      836                      837                      838                      839                      840                      841                      842                      843                      844                      845                      846                      847                      848                      849                      850                      851                      852                      853                      854                      855                      856                      857                      858                      859                      860                      861                      862                      863                      864                      865                      866                      867                      868                      869                      870                      871                      872                      873                      874                      875                      876                      877                      878                      879                      880                      881                      882                      883                      884                      885                      886                      887                      888                      889                      890                      891                      892                      893                      894                      895                      896                      897                      898                      899                      900                      901                      902                      903                      904                      905                      906                      907                      908                      909                      910                      911                      912                      913                      914                      915                      916                      917                      918                      919                      920                      921                      922                      923                      924                      925                      926                      927                      928                      929                      930                      931                      932                      933                      934                      935                      936                      937                      938                      939                      940                      941                      942                      943                      944                      945                      946                      947                      948                      949                      950                      951                      952                      953                      954                      955                      956                      957                      958                      959                      960                      961                      962                      963                      964                      965                      966                      967                      968                      969                      970                      971                      972                      973                      974                      975                      976                      977                      978                      979                      980                      981                      982                      983                      984                      985                      986                      987                      988                      989                      990                      991                      992                      993                      994                      995                      996                      997                      998                      999                      1000                      1001                      1002                      1003                      1004                      1005                      1006                      1007                      1008                      1009                      1010                      1011                      1012                      1013                      1014                      1015                      1016                      1017                      1018                      1019                      1020                      1021                      1022                      1023                      1024                      1025                      1026                      1027                      1028                      1029                      1030                      1031                      1032                      1033                      1034                      1035                      1036                      1037                      1038                      1039                      1040                      1041                      1042                      1043                      1044                      1045                      1046                      1047                      1048                      1049                      1050                      1051                      1052                      1053                      1054                      1055                      1056                      1057                      1058                      1059                      1060                      1061                      1062                      1063                      1064                      1065                      1066                      1067                      1068                      1069                      1070                      1071                      1072                      1073                      1074                      1075                      1076                      1077                      1078                      1079                      1080                      1081                      1082                      1083                      1084                      1085                      1086                      1087                      1088                      1089                      1090                      1091                      1092                      1093                      1094                      1095                      1096                      1097                      1098                      1099                      1100                      1101                      1102                      1103                      1104                      1105                      1106                      1107                      1108                      1109                      1110                      1111                      1112                      1113                      1114                      1115                      1116                      1117                      1118                      1119                      1120                      1121                      1122                      1123                      1124                      1125                      1126                      1127                      1128                      1129                      1130                      1131                      1132                      1133                      1134                      1135                      1136                      1137                      1138                      1139                      1140                      1141                      1142                      1143                      1144                      1145                      1146                      1147                      1148                      1149                      1150                      1151                      1152                      1153                      1154                      1155                      1156                      1157                      1158                      1159                      1160                      1161                      1162                      1163                      1164                      1165                      1166                      1167                      1168                      1169                      1170                      1171                      1172                      1173                      1174                      1175                      1176                      1177                      1178                      1179                      1180                      1181                      1182                      1183                      1184                      1185                      1186                      1187                      1188                      1189                      1190                      1191                      1192                      1193                      1194                      1195                      1196                      1197                      1198                      1199                      1200                      1201                      1202                      1203                      1204                      1205                      1206                      1207                      1208                      1209                      1210                      1211                      1212                      1213                      1214                      1215                      1216                      1217                      1218                      1219                      1220                      1221                      1222                      1223                      1224                      1225                      1226                      1227                      1228                      1229                      1230                      1231                      1232                      1233                      1234                      1235                      1236                      1237                      1238                      1239                      1240                      1241                      1242                      1243                      1244                      1245                      1246                      1247                      1248                      1249                      1250                      1251                      1252                      1253                      1254                      1255                      1256                      1257                      1258                      1259                      1260                      1261                      1262                      1263                      1264                      1265                      1266                      1267                      1268                      1269                      1270                      1271                      1272                      1273                      1274                      1275                      1276                      1277                      1278                      1279                      1280                      1281                      1282                      1283                      1284                      1285                      1286                      1287                      1288                      1289                      1290                      1291                      1292                      1293                      1294                      1295                      1296                      1297                      1298                      1299                      1300                      1301                      1302                      1303                      1304                      1305                      1306                      1307                      1308                      1309                      1310                      1311                      1312                      1313                      1314                      1315                      1316                      1317                      1318                      1319                      1320                      1321                      1322                      1323                      1324                      1325                      1326                      1327                      1328                      1329                      1330                      1331                      1332                      1333                      1334                      1335                      1336                      1337                      1338                      1339                      1340                      1341                      1342                      1343                      1344                      1345                      1346                      1347                      1348                      1349                      1350                      1351                      1352                      1353                      1354                      1355                      1356                      1357                      1358                      1359                      1360                      1361                      1362                      1363                      1364                      1365                      1366                      1367                      1368                      1369                      1370                      1371                      1372                      1373                      1374                      1375                      1376                      1377                      1378                      1379                      1380                      1381                      1382                      1383                      1384                      1385                      1386                      1387                      1388                      1389                      1390                      1391                      1392                      1393                      1394                      1395                      1396                      1397                      1398                      1399                      1400                      1401                      1402                      1403                      1404                      1405                      1406                      1407                      1408                      1409                      1410                      1411                      1412                      1413                      1414                      1415                      1416                      1417                      1418                      1419                      1420                      1421                      1422                      1423                      1424                      1425                      1426                      1427                      1428                      1429                      1430                      1431                      1432                      1433                      1434                      1435                      1436                      1437                      1438                      1439                      1440                      1441                      1442                      1443                      1444                      1445                      1446                      1447                      1448                      1449                      1450                      1451                      1452                      1453                      1454                      1455                      14</p>
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## 7. RF Output Power

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### 7.1 Standard Applicable

According to 15.247(b)(3), for systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt.

### 7.2 Test Procedure

According to section KDB-558074 D01 v05r02 Subclause 8.3.1.1, this procedure shall be used when the measurement instrument has available a resolution bandwidth that is greater than the DTS bandwidth.

- a) Set the RBW  $\geq$  DTS bandwidth.
- b) Set VBW  $\geq 3 \times$  RBW.
- c) Set span  $\geq 3 \times$  RBW
- d) Sweep time = auto couple.
- e) Detector = peak.
- f) Trace mode = max hold.
- g) Allow trace to fully stabilize.
- h) Use peak marker function to determine the peak amplitude level.

### 7.3 Summary of Test Results/Plots

Test Mode	Frequency MHz	Power 1 dBm	Power 2 dBm	Power 1 mW	Power 2 mW	Total Power dBm	Output Power mW	Limit mW
802.11b _11Mbps	2412	21.88	21.84	154.17	152.76	/	/	1000
	2437	21.96	21.74	157.04	149.28	/	/	1000
	2462	21.62	21.49	145.21	140.93	/	/	1000
802.11g _54Mbps	2412	21.62	21.47	145.21	140.28	/	/	1000
	2437	21.43	21.69	139.00	147.57	/	/	1000
	2462	21.07	21.06	127.94	127.64	/	/	1000
802.11n HT20_MCS7	2412	20.96	20.87	124.74	122.18	23.93	246.92	716.14
	2437	20.77	20.65	119.40	116.14	23.72	235.54	716.14
	2462	20.62	20.73	115.35	118.30	23.69	233.65	716.14
802.11n HT40_MCS7	2422	18.58	20.78	72.11	119.67	22.83	191.78	716.14
	2437	17.92	20.42	61.94	110.15	22.36	172.10	716.14
	2452	18.26	19.58	66.99	90.78	21.98	157.77	716.14

Note: ANT Directional gain =  $G_{ANT} + 10 \log(N_{ANT}) = 7.45\text{dBi}$ , so the limit is:  $30 - (7.45 - 6) = 28.55(\text{dBm})$ .



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## 8. Field Strength of Spurious Emissions

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### 8.1 Standard Applicable

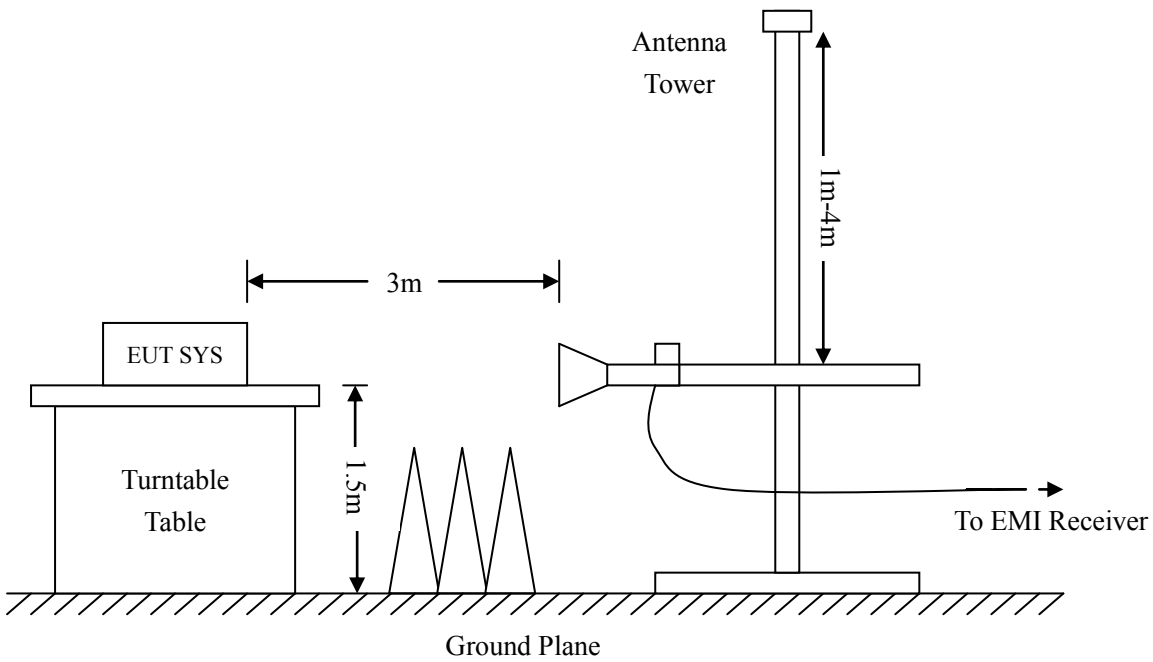
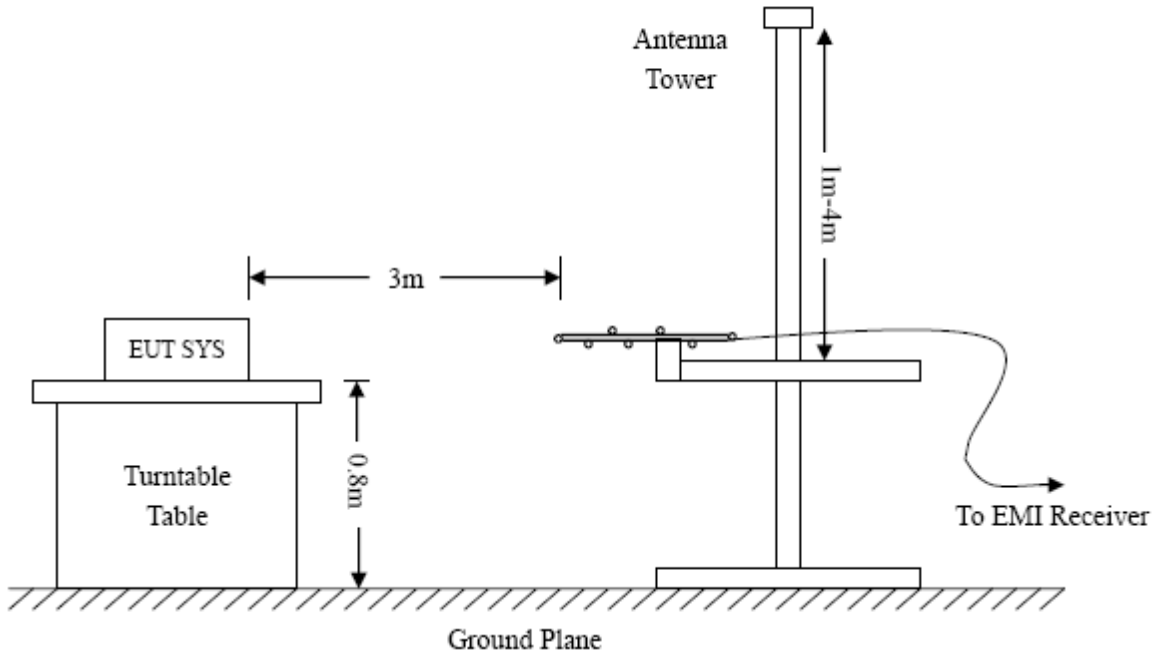
According to §15.247(d), in any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).

The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in §15.35 for limiting peak emissions apply. Spurious Radiated Emissions measurements starting below or at the lowest crystal frequency.

### 8.2 Test Procedure

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.205 15.247(a) and FCC Part 15.209 Limit.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle. The spacing between the peripherals was 10 cm.



Frequency :9kHz-30MHz  
 RBW=10KHz,  
 VBW =30KHz  
 Sweep time= Auto  
 Trace = max hold  
 Detector function = peak

Frequency :30MHz-1GHz  
 RBW=120KHz,  
 VBW=300KHz  
 Sweep time= Auto  
 Trace = max hold  
 Detector function = peak, QP

Frequency :Above 1GHz  
 RBW=1MHz,  
 VBW=3MHz(Peak), 10Hz(AV)  
 Sweep time= Auto  
 Trace = max hold  
 Detector function = peak, AV

### 8.3 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and the Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

$$\text{Corr. Ampl.} = \text{Indicated Reading} + \text{Ant. Factor} + \text{Cable Loss} - \text{Ampl. Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of  $-6\text{dB}\mu\text{V}$  means the emission is  $6\text{dB}\mu\text{V}$  below the maximum limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Corr. Ampl.} - \text{FCC Part 15 Limit}$$

### 8.4 Summary of Test Results/Plots

*Note: 1. This EUT was tested in 3 orthogonal positions and the worst case position data was reported.*

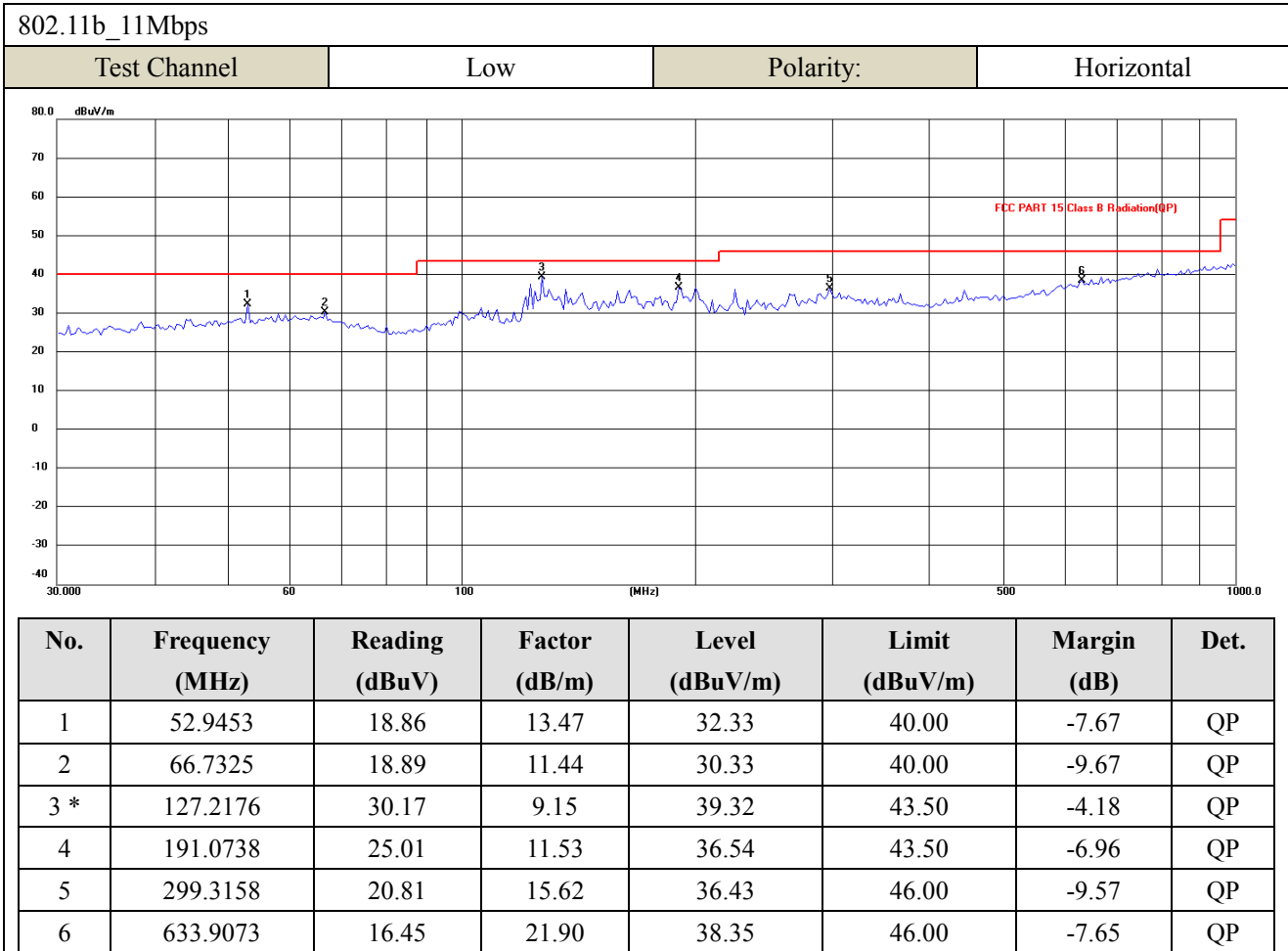
*All test modes (different data rate and different modulation) are performed, but only the worst case is recorded in this report.*

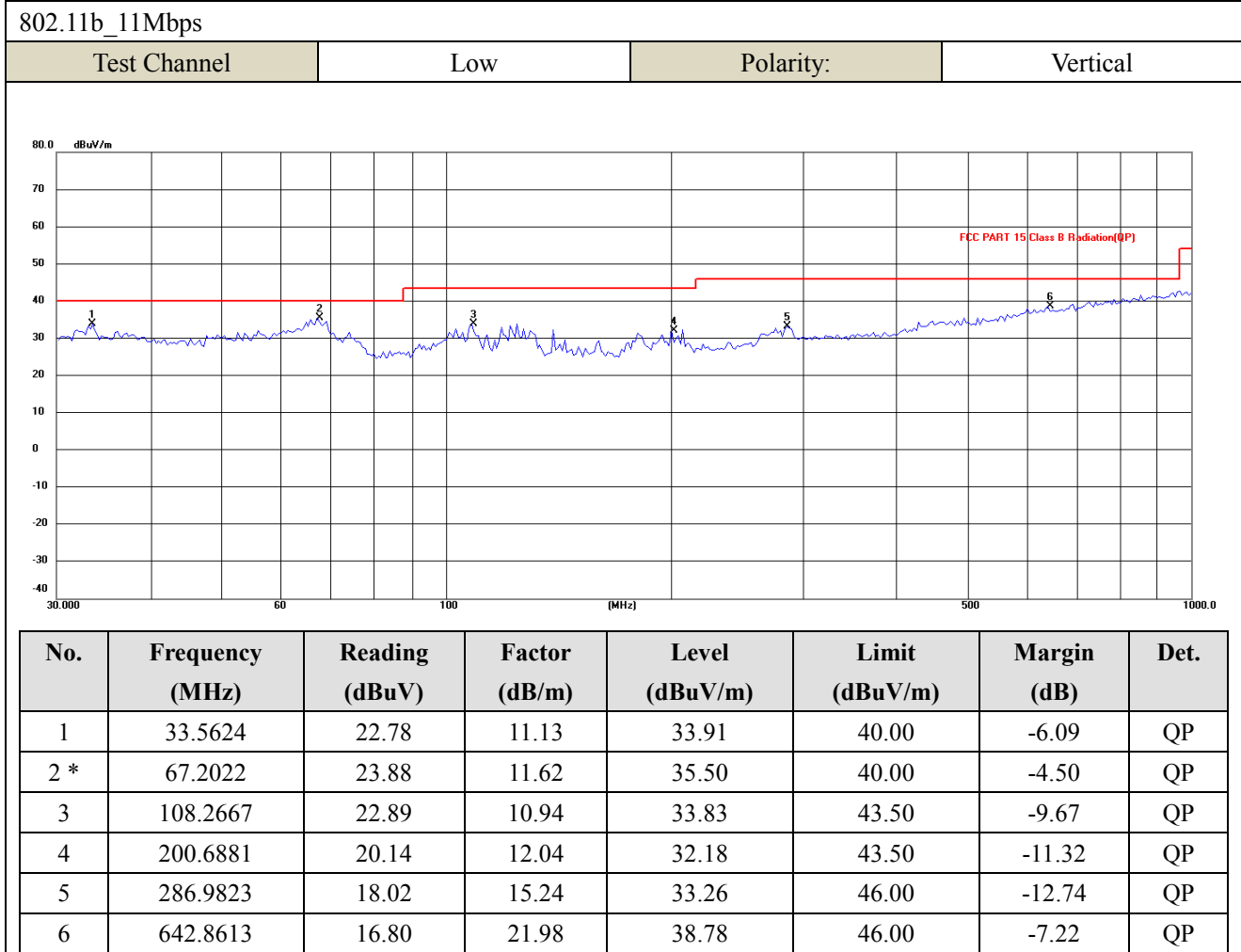
*2. For 9kHz ~ 30MHz, The EUT was pre-scanned the frequency band (9kHz~30MHz), found the radiated level lower than the limit, so don't show on the report.*

*3. For 30MHz ~1000MHz, Have pre-scan all modulation mode, found the 802.11b mode low channel at antenna 1 which it was worst case, so only the worst case's data on the test report.*

*4. For above 1GHz, Have pre-scan all modulation mode, found the antenna 1 which it was worst case, so only the worst case's data on the test report.*

- Spurious Emissions Below 1GHz
- Worst case Antenna 1





## ➤ Spurious Emissions Above 1GHz at antenna1

## ➤ Test Mode: 802.11b\_11Mbps

Frequency (MHz)	Reading (dBUV/m)	Correct dB/m	Result (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Polar H/V	Detector
Low Channel-2412MHz							
4824.000	53.69	-3.87	49.82	74	-24.18	H	PK
4824.000	38.24	-3.87	34.37	54	-19.63	H	AV
7236.000	45.50	1.14	46.64	74	-27.36	H	PK
7236.000	33.98	1.19	35.17	54	-18.83	H	AV
4824.000	56.11	-3.86	52.25	74	-21.75	V	PK
4824.000	39.10	-3.86	35.24	54	-18.76	V	AV
7236.000	47.51	1.10	48.61	74	-25.39	V	PK
7236.000	35.64	1.10	36.74	54	-17.26	V	AV
Middle Channel-2437MHz							
4874.000	53.24	-3.74	49.50	74	-24.50	H	PK
4874.000	38.19	-3.74	34.45	54	-19.55	H	AV
7311.000	45.67	1.47	47.14	74	-26.86	H	PK
7311.000	30.70	1.47	32.17	54	-21.83	H	AV
4874.000	51.27	-3.74	47.53	74	-26.47	V	PK
4874.000	37.89	-3.74	34.15	54	-19.85	V	AV
7311.000	44.68	1.47	46.15	74	-27.85	V	PK
7311.000	30.48	1.47	31.95	54	-22.05	V	AV
High Channel-2462MHz							
4924.000	53.42	-3.59	49.83	74	-24.17	H	PK
4924.000	39.06	-3.59	35.47	54	-18.53	H	AV
7386.000	43.38	1.79	45.17	74	-28.83	H	PK
7386.000	31.53	1.79	33.32	54	-20.68	H	AV
4924.000	51.34	-3.59	47.75	74	-26.25	V	PK
4924.000	38.14	-3.59	34.55	54	-19.45	V	AV
7386.000	43.79	1.79	45.58	74	-28.42	V	PK
7386.000	30.68	1.79	32.47	54	-21.53	V	AV

➤ Test Mode: 802.11g\_54Mbps

Frequency (MHz)	Reading (dBUV/m)	Correct dB/m	Result (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Polar H/V	Detector
Low Channel-2412MHz							
4824.000	55.30	-3.86	51.44	74	-22.56	H	PK
4824.000	41.93	-3.86	38.07	54	-15.93	H	AV
7236.000	48.02	1.10	49.12	74	-24.88	H	PK
7236.000	33.90	1.10	35.00	54	-19.00	H	AV
4824.000	55.39	-3.86	51.53	74	-22.47	V	PK
4824.000	41.95	-3.86	38.09	54	-15.91	V	AV
7236.000	48.42	1.10	49.52	74	-24.48	V	PK
7236.000	34.64	1.10	35.74	54	-18.26	V	AV
Middle Channel-2437MHz							
4874.000	54.90	-3.74	51.16	74	-22.84	H	PK
4874.000	42.98	-3.74	39.24	54	-14.76	H	AV
7311.000	46.98	1.47	48.45	74	-25.55	H	PK
7311.000	34.77	1.47	36.24	54	-17.76	H	AV
4874.000	56.47	-3.74	52.73	74	-21.27	V	PK
4874.000	43.16	-3.74	39.42	54	-14.58	V	AV
7311.000	47.60	1.47	49.07	74	-24.93	V	PK
7311.000	34.43	1.47	35.90	54	-18.10	V	AV
High Channel-2462MHz							
4924.000	53.80	-3.59	50.21	74	-23.79	H	PK
4924.000	40.45	-3.59	36.86	54	-17.14	H	AV
7386.000	46.78	1.79	48.57	74	-25.43	H	PK
7386.000	34.23	1.79	36.02	54	-17.98	H	AV
4924.000	55.51	-3.59	51.92	74	-22.08	V	PK
4924.000	41.99	-3.59	38.40	54	-15.60	V	AV
7386.000	47.78	1.79	49.57	74	-24.43	V	PK
7386.000	35.05	1.79	36.84	54	-17.16	V	AV

➤ Test Mode: 802.11n-HT20\_MCS7

Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Polar H/V	Detector
Low Channel-2412MHz							
4824.000	55.40	-3.86	51.54	74	-22.46	H	PK
4824.000	40.24	-3.86	36.38	54	-17.62	H	AV
7236.000	46.86	1.10	47.96	74	-26.04	H	PK
7236.000	33.94	1.10	35.04	54	-18.96	H	AV
4824.000	56.11	-3.86	52.25	74	-21.75	V	PK
4824.000	42.48	-3.86	38.62	54	-15.38	V	AV
7236.000	48.41	1.10	49.51	74	-24.49	V	PK
7236.000	34.87	1.10	35.97	54	-18.03	V	AV
Middle Channel-2437MHz							
4874.000	53.96	-3.74	50.22	74	-23.78	H	PK
4874.000	42.18	-3.74	38.44	54	-15.56	H	AV
7311.000	48.34	1.47	49.81	74	-24.19	H	PK
7311.000	32.60	1.47	34.07	54	-19.93	H	AV
4874.000	54.32	-3.74	50.58	74	-23.42	V	PK
4874.000	41.92	-3.74	38.18	54	-15.82	V	AV
7311.000	47.69	1.47	49.16	74	-24.84	V	PK
7311.000	34.30	1.47	35.77	54	-18.23	V	AV
High Channel-2462MHz							
4924.000	53.70	-3.59	50.11	74	-23.89	H	PK
4924.000	42.93	-3.59	39.34	54	-14.66	H	AV
7386.000	47.91	1.79	49.70	74	-24.30	H	PK
7386.000	35.60	1.79	37.39	54	-16.61	H	AV
4924.000	55.10	-3.59	51.51	74	-22.49	V	PK
4924.000	40.78	-3.59	37.19	54	-16.81	V	AV
7386.000	47.75	1.79	49.54	74	-24.46	V	PK
7386.000	34.46	1.79	36.25	54	-17.75	V	AV



➤ Test Mode: 802.11n-HT40\_MCS7

Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Polar H/V	Detector
Low Channel-2422MHz							
4844.000	53.25	-3.90	49.35	74.00	-24.65	H	PK
4824.000	38.25	-3.90	34.35	54.00	-19.65	H	AV
7266.000	46.48	1.06	47.54	74.00	-26.46	H	PK
7266.000	32.56	1.06	33.62	54.00	-20.38	H	AV
4844.000	54.22	-3.90	50.32	74.00	-23.68	V	PK
4824.000	39.42	-3.90	35.52	54.00	-18.48	V	AV
7266.000	48.81	1.06	49.87	74.00	-24.13	V	PK
7266.000	34.78	1.06	35.84	54.00	-18.16	V	AV
Middle Channel-2437MHz							
4874.000	52.53	-3.74	48.79	74.00	-25.21	H	PK
4874.000	37.88	-3.74	34.14	54.00	-19.86	H	AV
7311.000	44.88	1.47	46.35	74.00	-27.65	H	PK
7311.000	32.03	1.47	33.50	54.00	-20.50	H	AV
4874.000	53.74	-3.74	50.00	74.00	-24.00	V	PK
4874.000	39.95	-3.74	36.21	54.00	-17.79	V	AV
7311.000	45.78	1.47	47.25	74.00	-26.75	V	PK
7311.000	34.00	1.47	35.47	54.00	-18.53	V	AV
High Channel-2452MHz							
4904.000	52.65	-3.63	49.02	74.00	-24.98	H	PK
4904.000	39.37	-3.63	35.74	54.00	-18.26	H	AV
7356.000	45.63	1.62	47.25	74.00	-26.75	H	PK
7356.000	30.73	1.62	32.35	54.00	-21.65	H	AV
4904.000	54.84	-3.63	51.21	74.00	-22.79	V	PK
4904.000	40.83	-3.63	37.20	54.00	-16.80	V	AV
7356.000	48.18	1.62	49.80	74.00	-24.20	V	PK
7356.000	35.12	1.62	36.74	54.00	-17.26	V	AV

Note: Testing is carried out with frequency rang 9kHz to the tenth harmonics, other than listed in the table above are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

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## 9. Out of Band Emissions

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### 9.1 Standard Applicable

According to §15.247(d), in any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).

### 9.2 Test Procedure

According to the KDB 558074D01 v05r02Subclause 8.4 and ANSI C63.10-2013 Subclause 11.11, the Emissions in nonrestricted frequency bands test method as follows:

- a) Set the center frequency and span to encompass frequency range to be measured.
- b) Set the RBW = 100 kHz.
- c) Set the VBW  $\geq [3 \times \text{RBW}]$ .
- 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.

According to the KDB 558074 D01 v05r02Subclause 8.5 and ANSI C63.10-2013 Subclause 11.12, the Emissions in restricted frequency bands test method as follows:

#### A. Radiated emission measurements:

Set span = wide enough to capture the peak level of the emission operating on the channel closest to the bandedge, as well as any modulation products which fall outside of the authorized band of operation (2310MHz to 2420MHz for low bandedge, 2460MHz to 2500MHz for the high bandedge)

RBW = 1MHz, VBW = 1MHz for peak value measured

RBW = 1MHz, VBW = 10Hz for average value measured

Sweep = auto; Detector function = peak/average; Trace = max hold

All the trace to stabilize, set the marker on the emission at the bandedge, or on the highest modulation product outside of the band, if this level is greater than that at the bandedge. Enable the marker-delta function, then use the marker-to-peak function to move the marker to the peak of the in-band emission. Those emission must comply with the 15.209 limit for fall in the restricted bands listed in section 15.205. Note that the method of measurement KDB publication number: 913591 may be used for the radiated bandedge measurements.

## B. Antenna-port conducted measurements

Peak emission levels are measured by setting the instrument as follows:

- a) RBW = as specified in Table 9/
- b) VBW  $\geq [3 \times \text{RBW}]$ .
- c) Detector = peak.
- d) Sweep time = auto.
- e) Trace mode = max hold.
- f) Allow sweeps to continue until the trace stabilizes. (Note that the required measurement time may be lengthened for low-duty-cycle applications.)

**Table 9—RBW as a function of frequency**

Frequency	RBW
9 kHz to 150 kHz	200 Hz to 300 Hz
0.15 MHz to 30 MHz	9 kHz to 10 kHz
30 MHz to 1000 MHz	100 kHz to 120 kHz
>1000 MHz	1 MHz

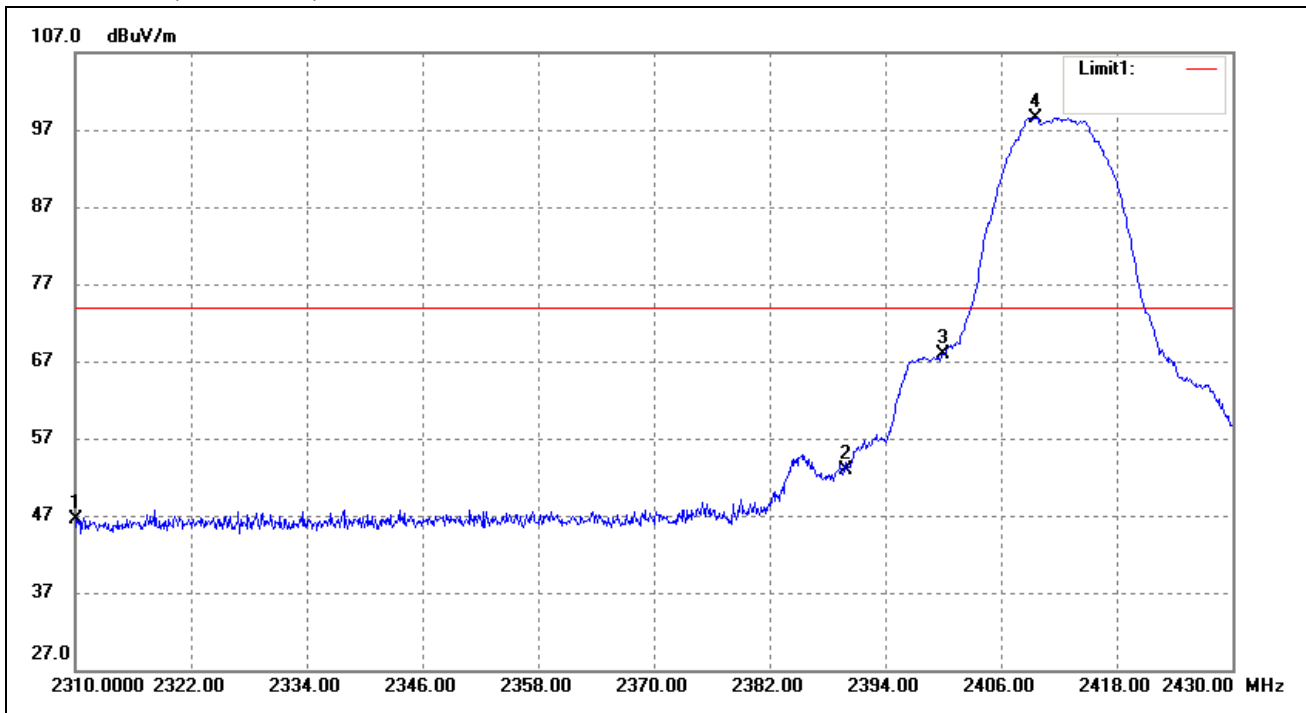
If the peak-detected amplitude can be shown to comply with the average limit, then it is not necessary to perform a separate average measurement.

Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) are attenuated by at least the minimum requirements specified in section 8.1. Report the three highest emissions relative to the limit.

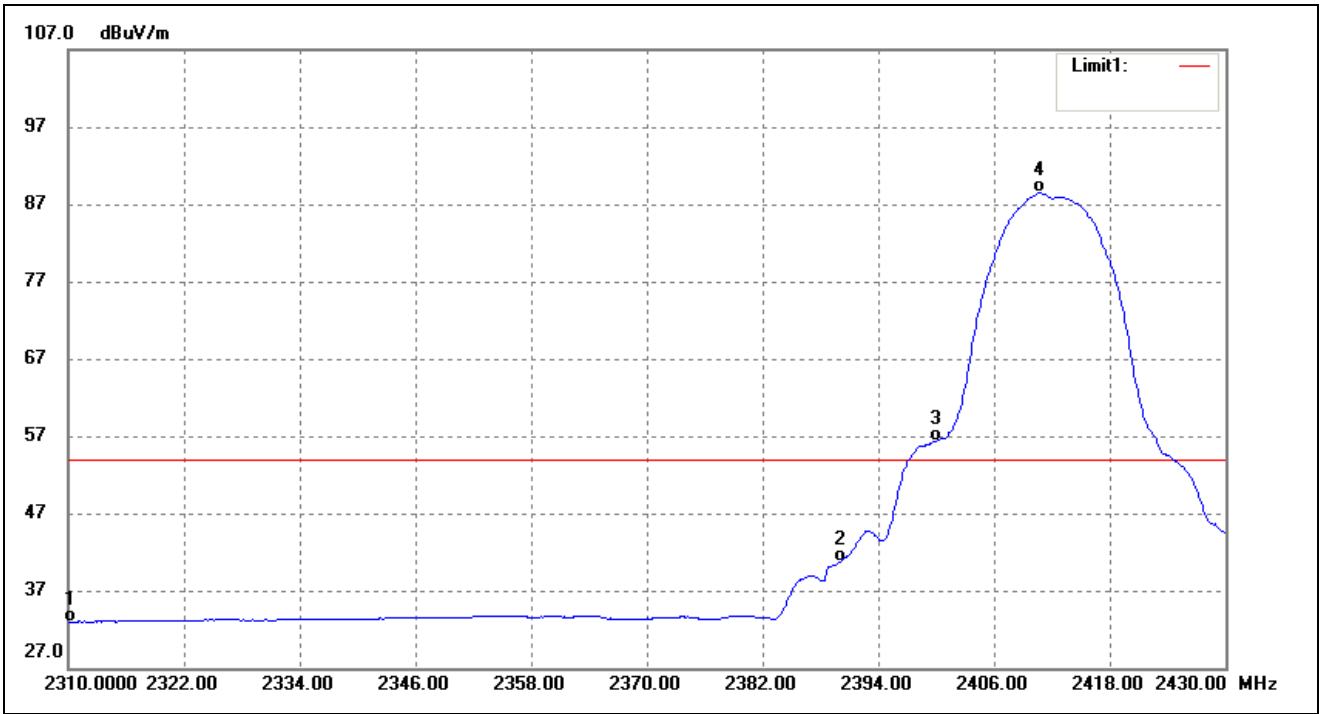
## 9.3 Summary of Test Results/Plots

*Note: 1. Have pre-scan all modulation mode, found the 802.11b/g/n-HT20/n-HT40 mode (Vertical) at antenna 1 and 802.11n-HT20/n-HT40 mode (Vertical) at antenna 1+2 which it was worst case, so only the worst case's data on the test report.*

- Radiated test
  - Antenna 1
  - 802.11b-Lowest Band edge
  - Vertical (Worst case)

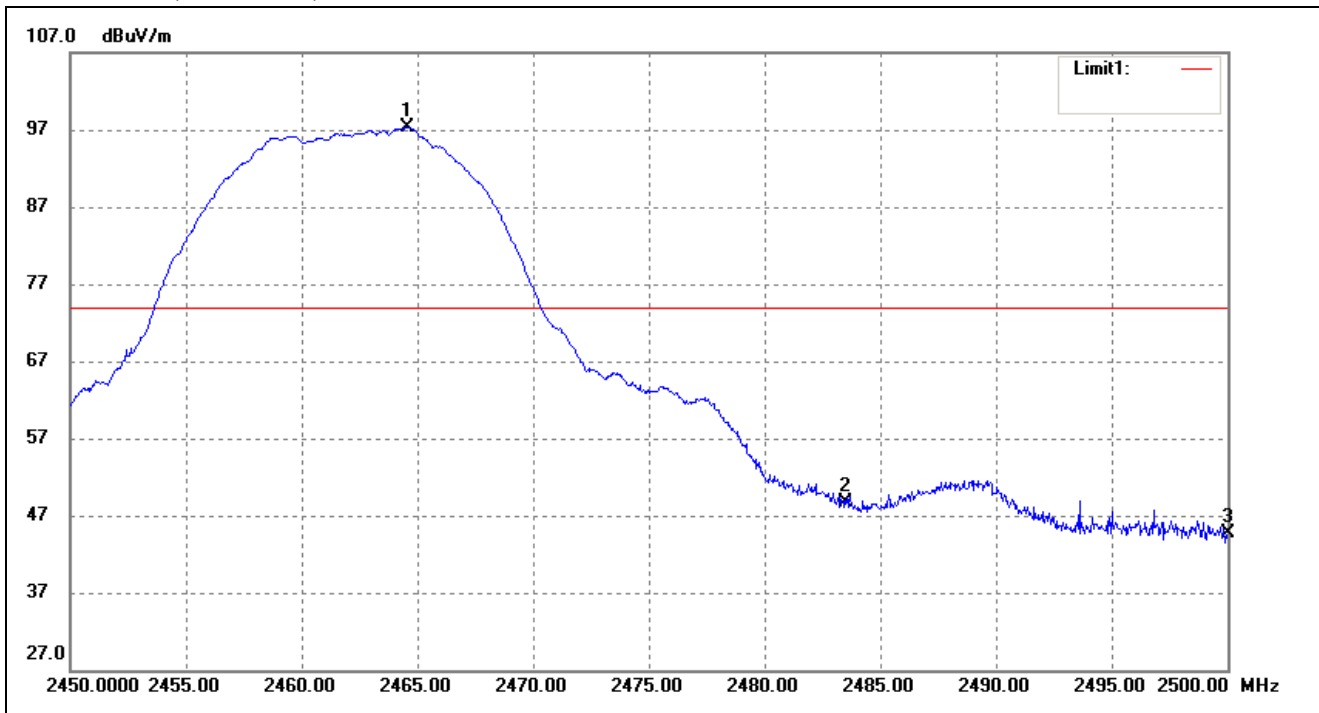


No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2310.000	54.22	-7.78	46.44	74.00	-27.56	peak
2	2390.000	60.31	-7.32	52.99	74.00	-21.01	peak
3	2400.000	75.09	-7.26	67.83	74.00	-6.17	peak
4	2409.600	105.78	-7.19	98.59	/	/	peak

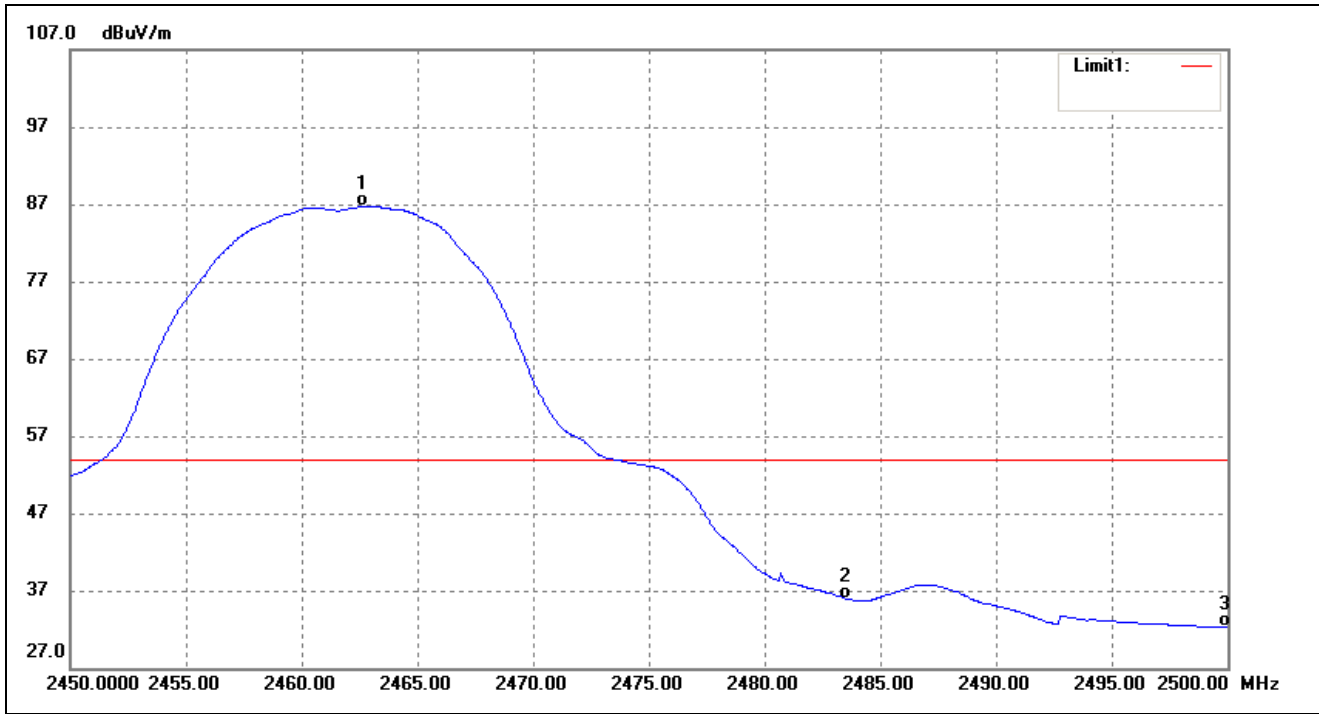


No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2310.000	40.76	-7.78	32.98	54.00	-21.02	AVG
2	2390.000	48.09	-7.32	40.77	54.00	-13.23	AVG
3	2400.000	63.62	-7.26	56.36	/		AVG
4	2410.680	95.66	-7.19	88.47			AVG

➤ 802.11b-Highest Band edge  
Vertical (Worst case)

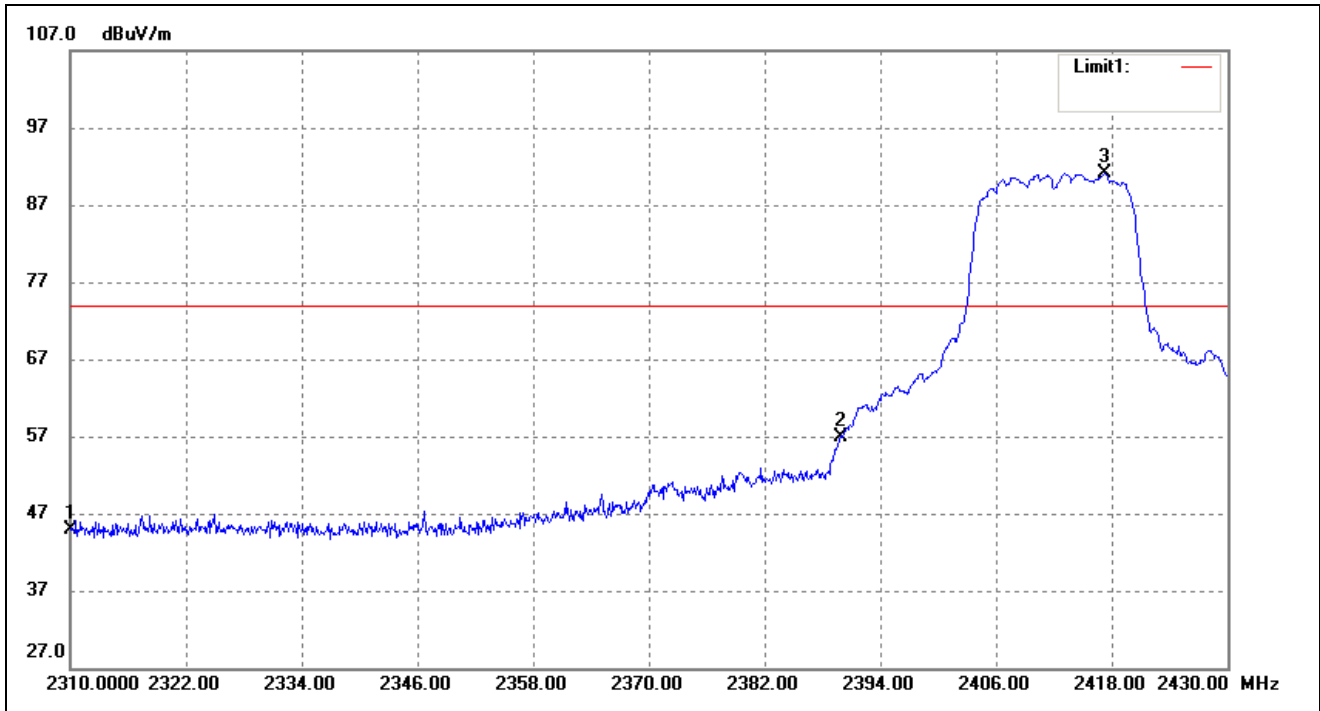


No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2464.550	104.22	-6.89	97.33	/	/	peak
2	2483.500	55.54	-6.77	48.77	74.00	-25.23	peak
3	2500.000	51.41	-6.67	44.74	74.00	-29.26	peak



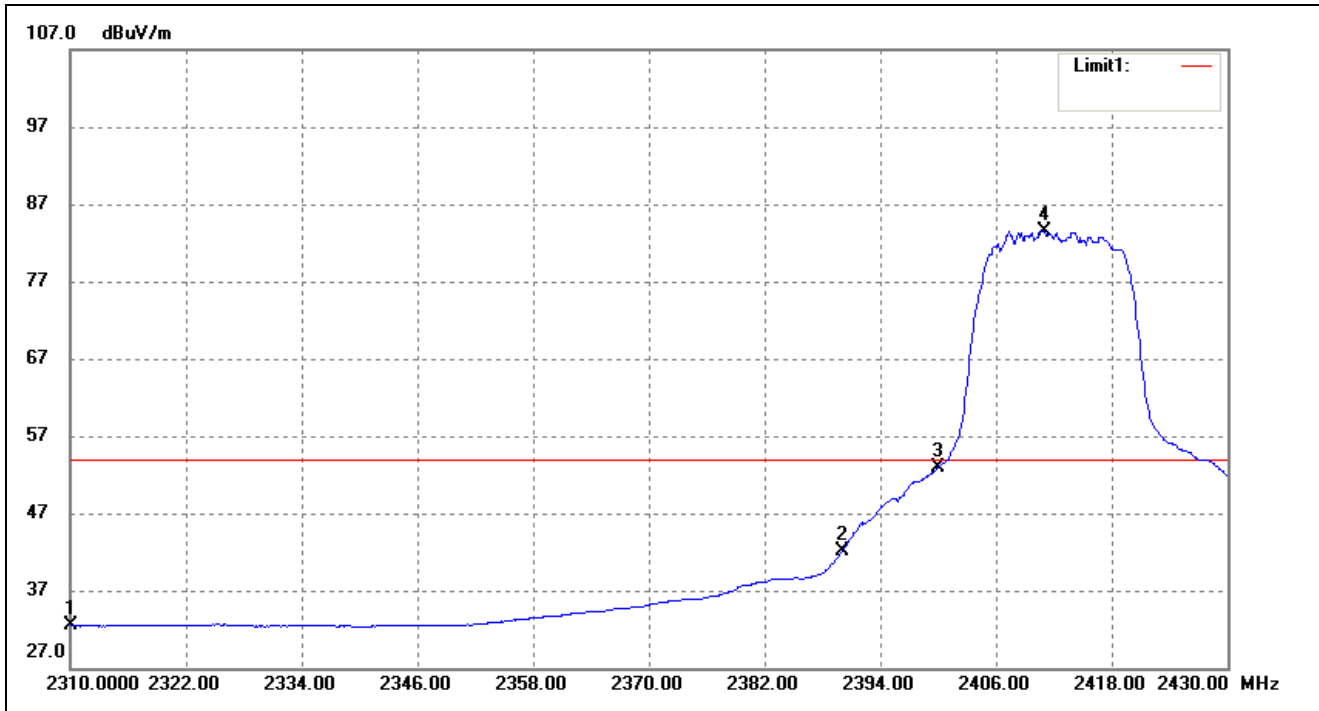
No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2462.650	93.53	-6.89	86.64	/	/	AVG
2	2483.500	42.75	-6.77	35.98	54.00	-18.02	AVG
3	2500.000	38.90	-6.67	32.23	54.00	-21.77	AVG

➤ 802.11g-Lowest Band edge  
Vertical (Worst case)



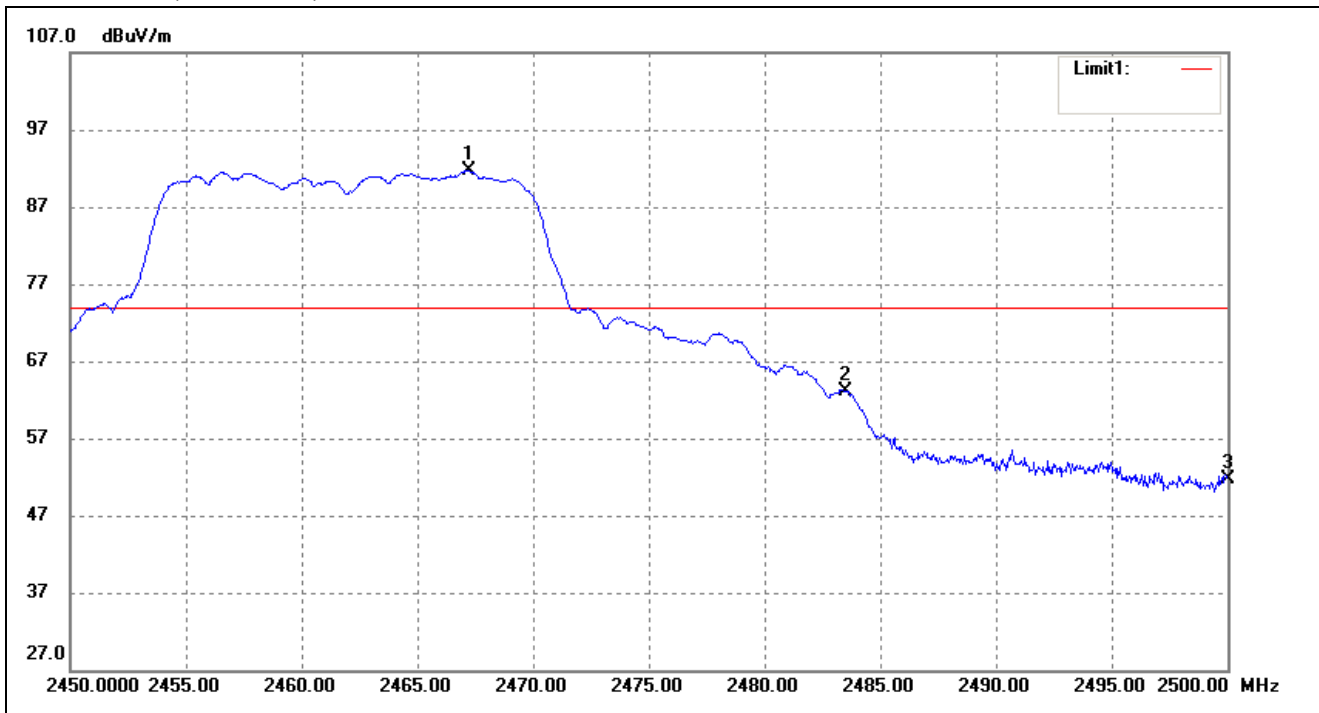
No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2310.000	52.77	-7.78	44.99	74.00	-29.01	peak
2	2390.000	64.15	-7.32	56.83	74.00	-17.17	peak
3	2417.280	98.16	-7.15	91.01	/	/	peak



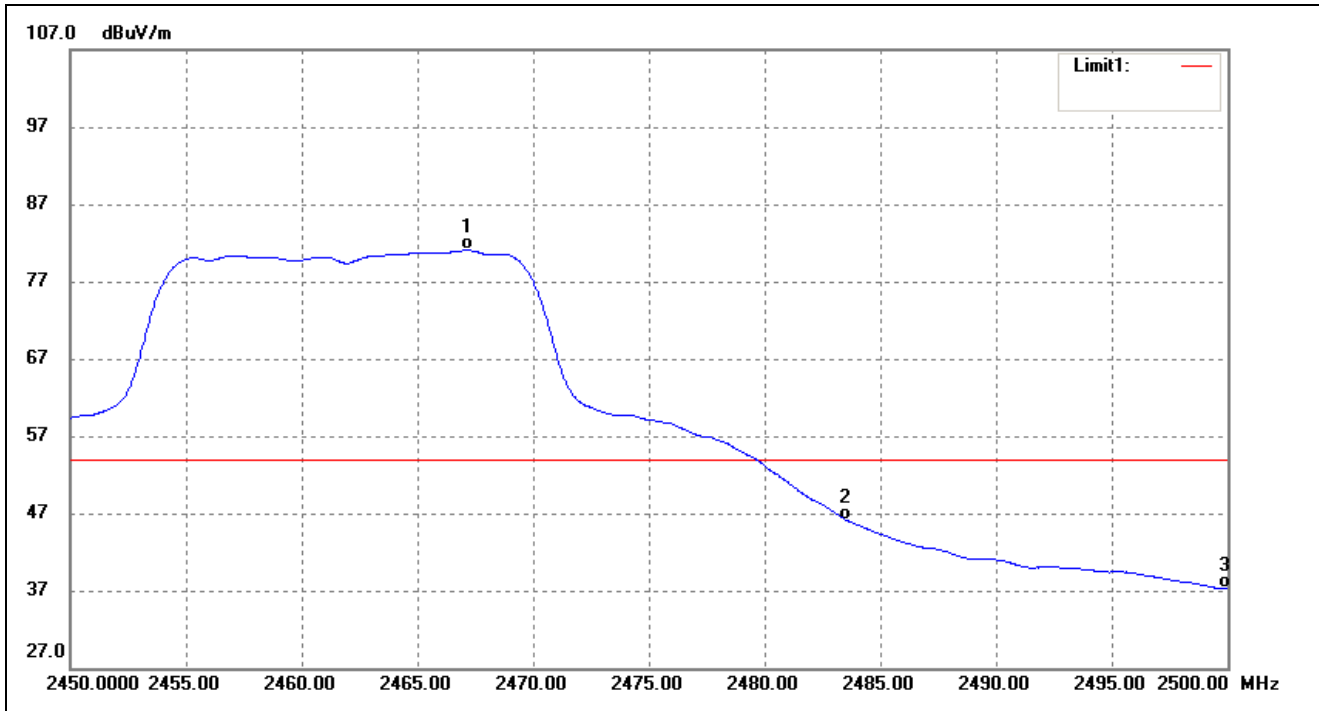


No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2310.000	40.23	-7.78	32.45	54.00	-21.55	peak
2	2390.000	49.42	-7.32	42.10	54.00	-11.90	peak
3	2400.000	60.23	-7.26	52.97	/		peak
4	2411.040	90.69	-7.19	83.50			peak

➤ 802.11g-Highest Band edge  
Vertical (Worst case)

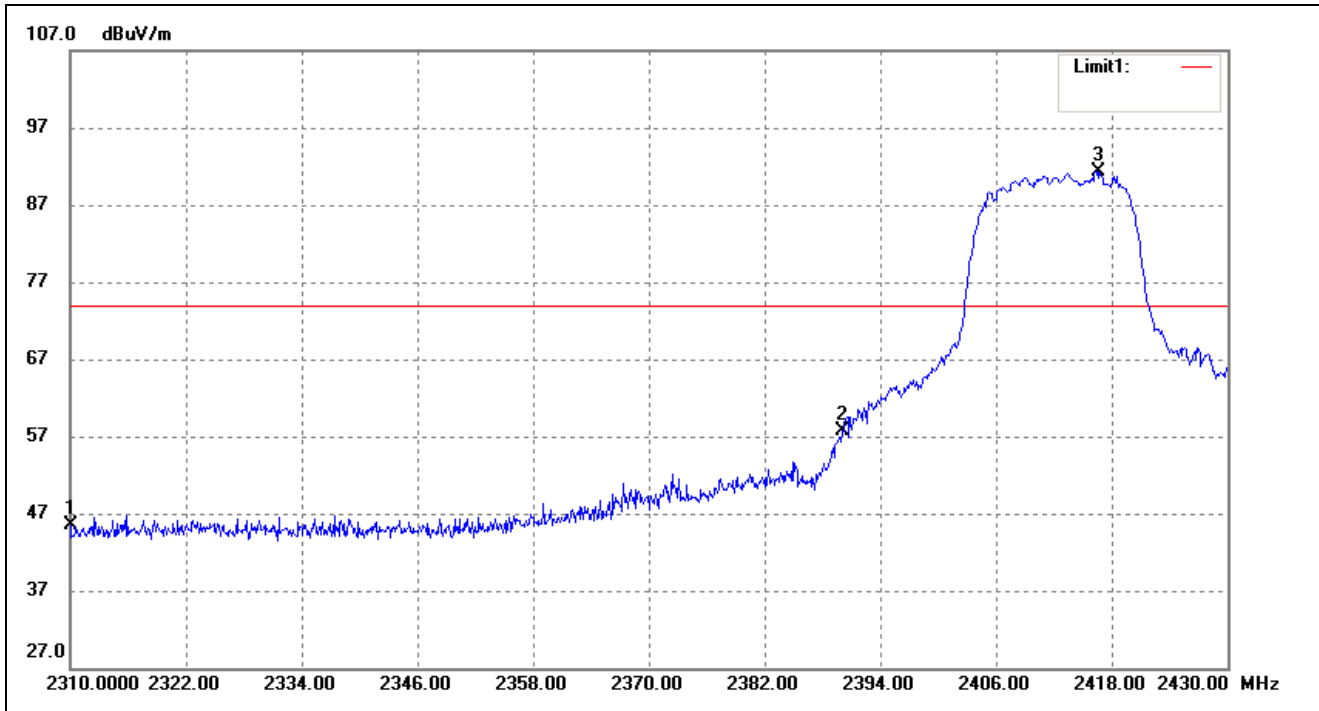


No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2467.250	98.54	-6.86	91.68	/	/	peak
2	2483.500	69.94	-6.77	63.17	74.00	-10.83	peak
3	2500.000	58.34	-6.67	51.67	74.00	-22.33	peak

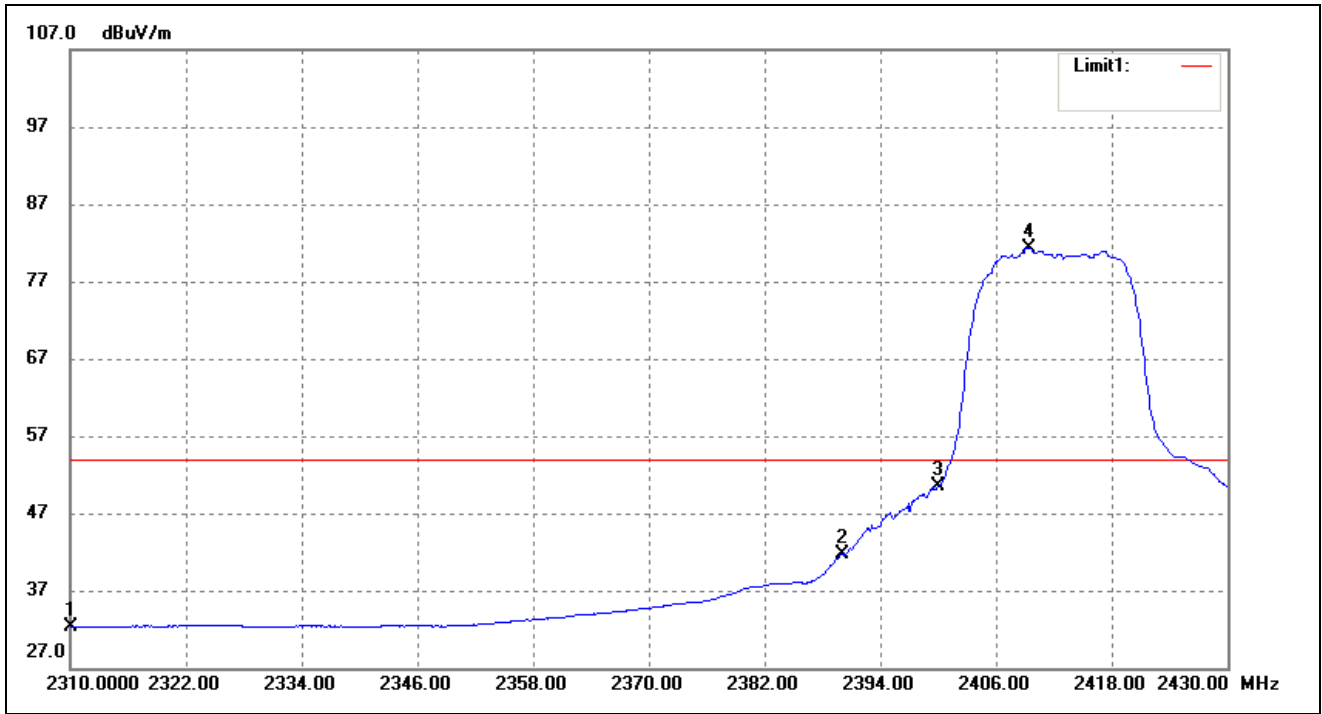


No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2467.150	87.91	-6.86	81.05	/	/	AVG
2	2483.500	52.93	-6.77	46.16	54.00	-7.84	AVG
3	2500.000	43.87	-6.67	37.20	54.00	-16.80	AVG

➤ 802.11n-HT20-Lowest Band edge  
Vertical (Worst case)

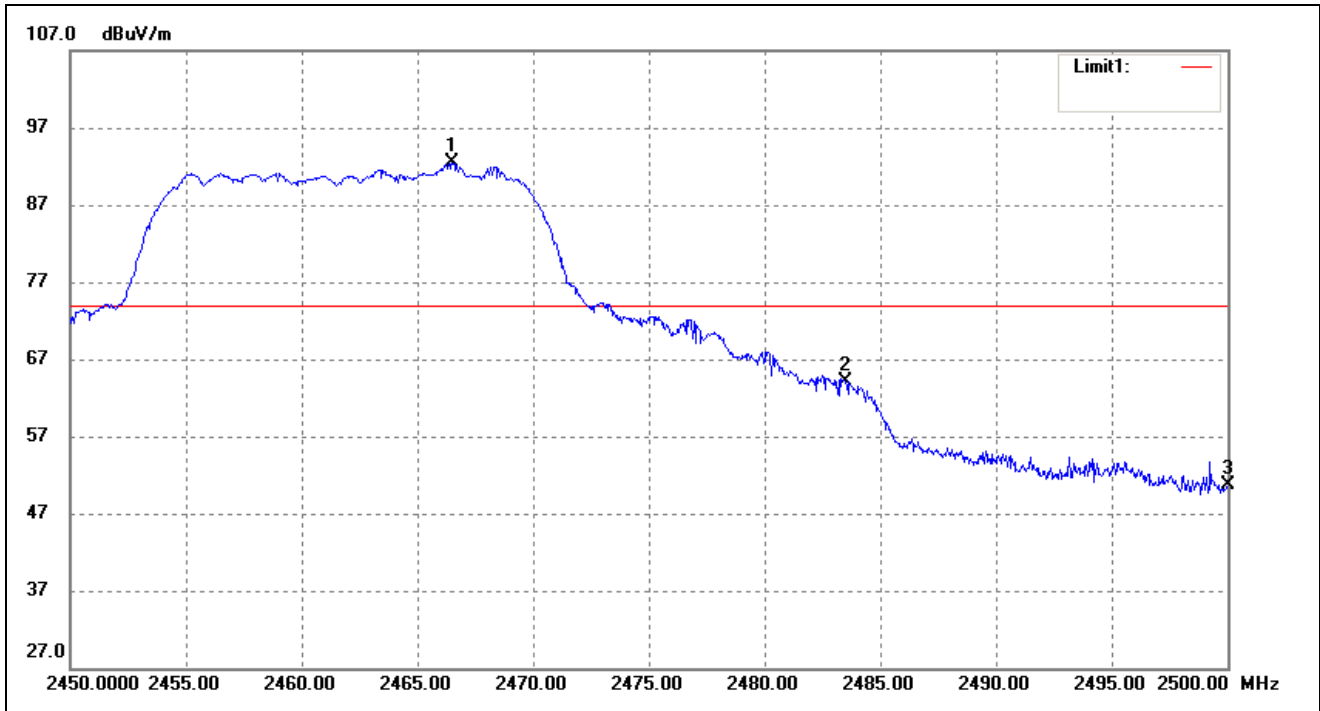


No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2310.000	53.37	-7.78	45.59	74.00	-28.41	peak
2	2390.000	64.97	-7.32	57.65	74.00	-16.35	peak
3	2416.680	98.48	-7.15	91.33	/	/	peak

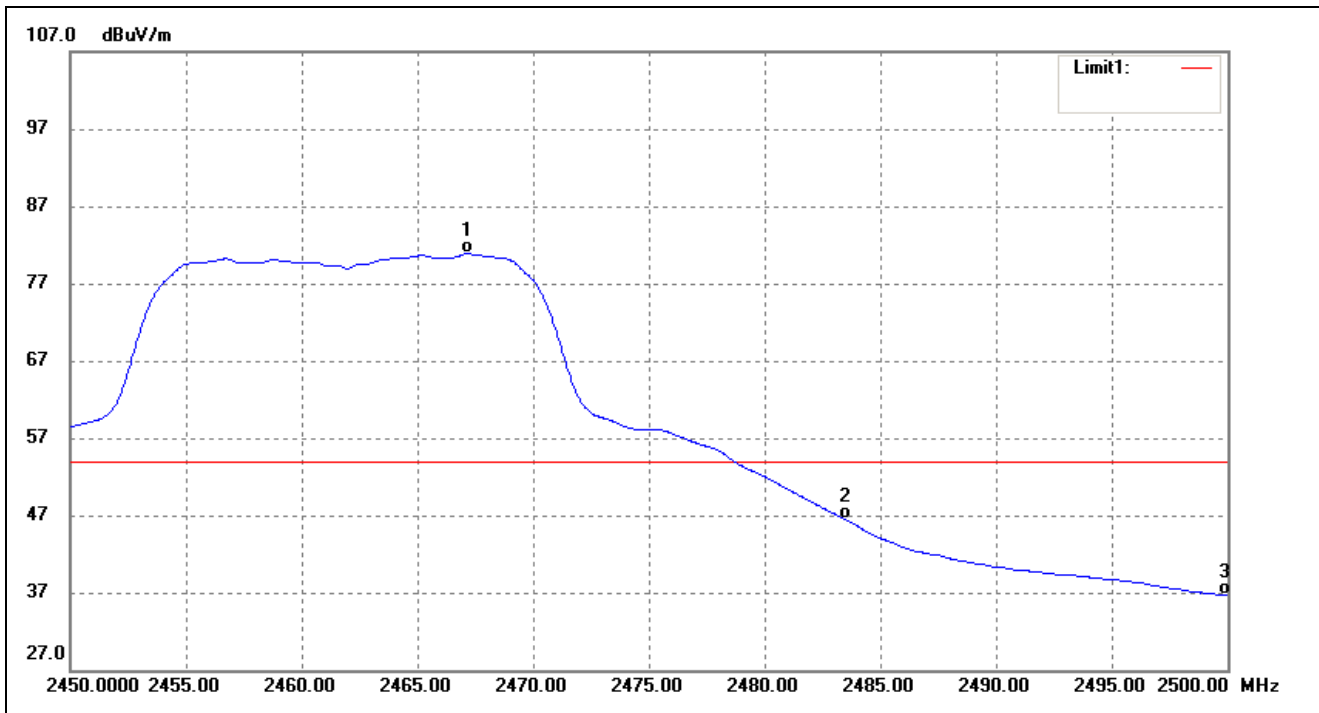


No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2310.000	40.11	-7.78	32.33	54.00	-21.67	AVG
2	2390.000	49.11	-7.32	41.79	54.00	-12.21	AVG
3	2400.000	57.72	-7.26	50.46	/		AVG
4	2409.360	88.47	-7.21	81.26			AVG

- 802.11n-HT20-Highest Band edge
- Vertical (Worst case)

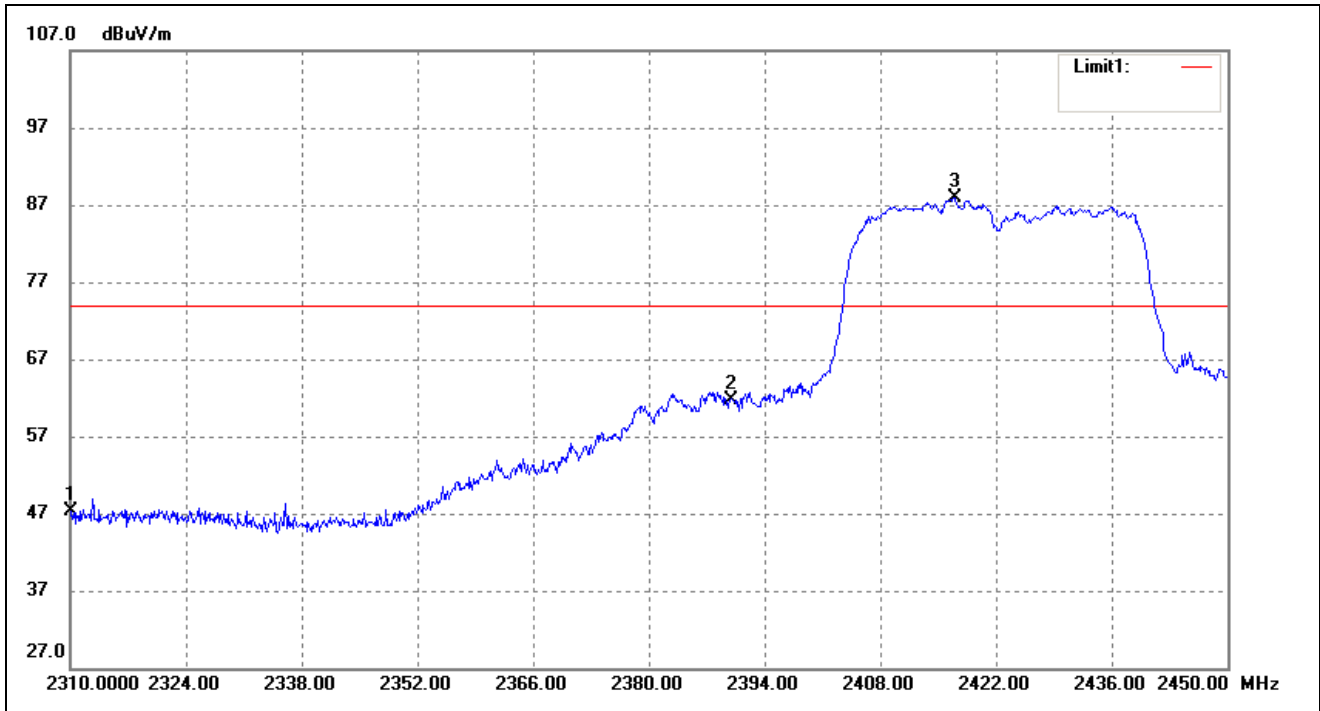


No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2466.500	99.30	-6.86	92.44	/	/	peak
2	2483.500	70.83	-6.77	64.06	74.00	-9.94	peak
3	2500.000	57.34	-6.67	50.67	74.00	-23.33	peak



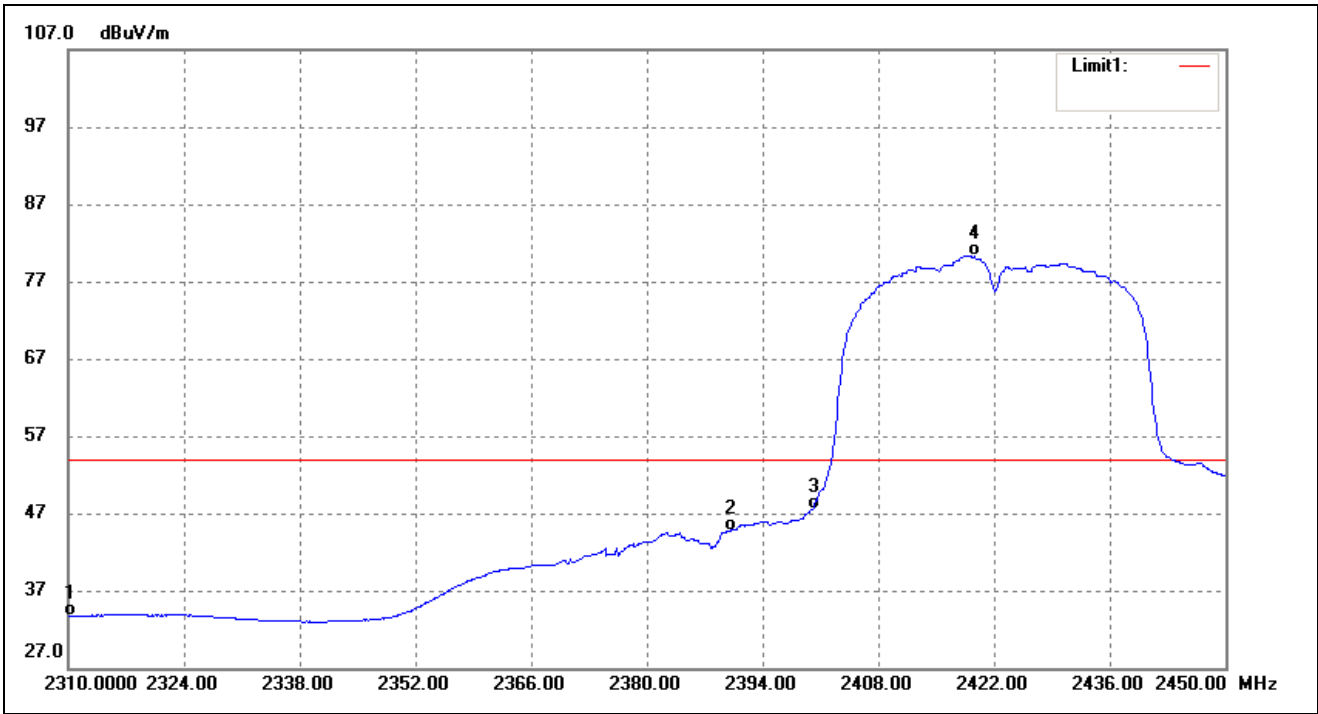
No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2467.150	87.71	-6.86	80.85	/	/	AVG
2	2483.500	53.21	-6.77	46.44	54.00	-7.56	AVG
3	2500.000	43.29	-6.67	36.62	54.00	-17.38	AVG

- 802.11n-HT40-Lowest Band edge  
Vertical (Worst case)



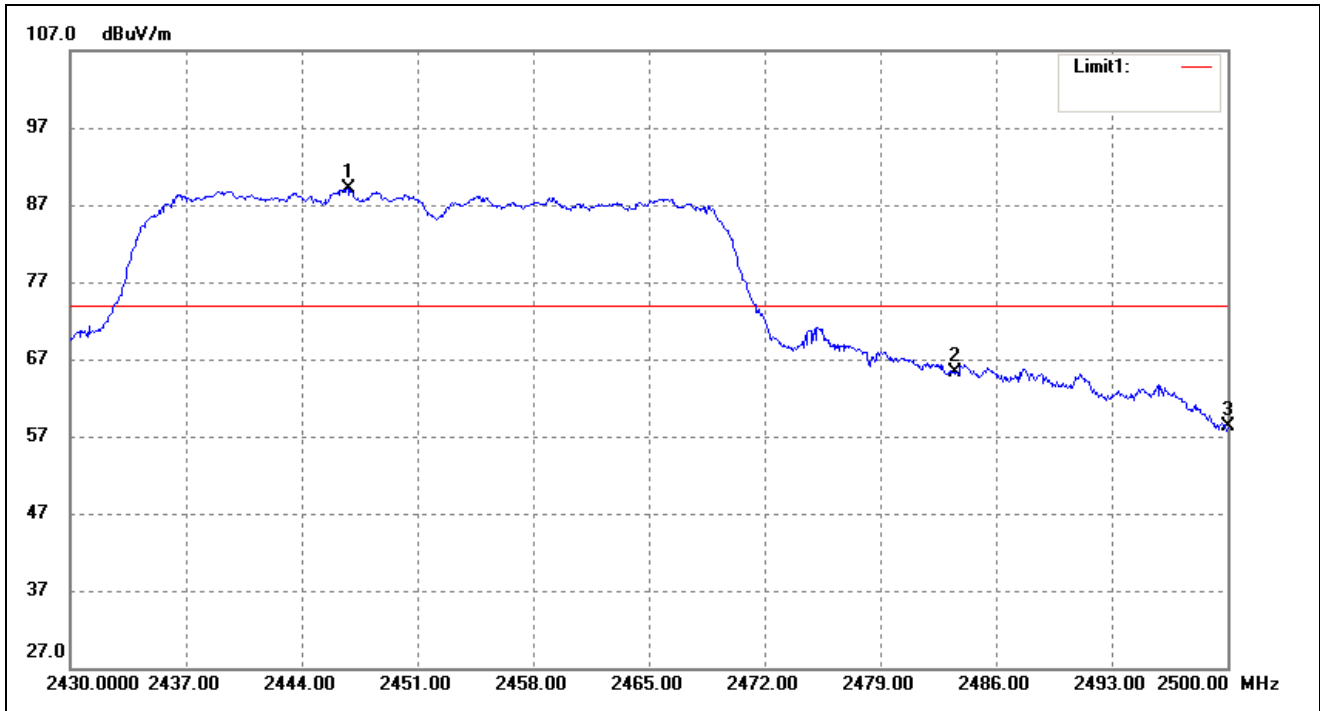
No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2310.000	55.14	-7.78	47.36	74.00	-26.64	peak
2	2390.000	68.94	-7.32	61.62	74.00	-12.38	peak
3	2416.960	95.08	-7.15	87.93	/	/	peak



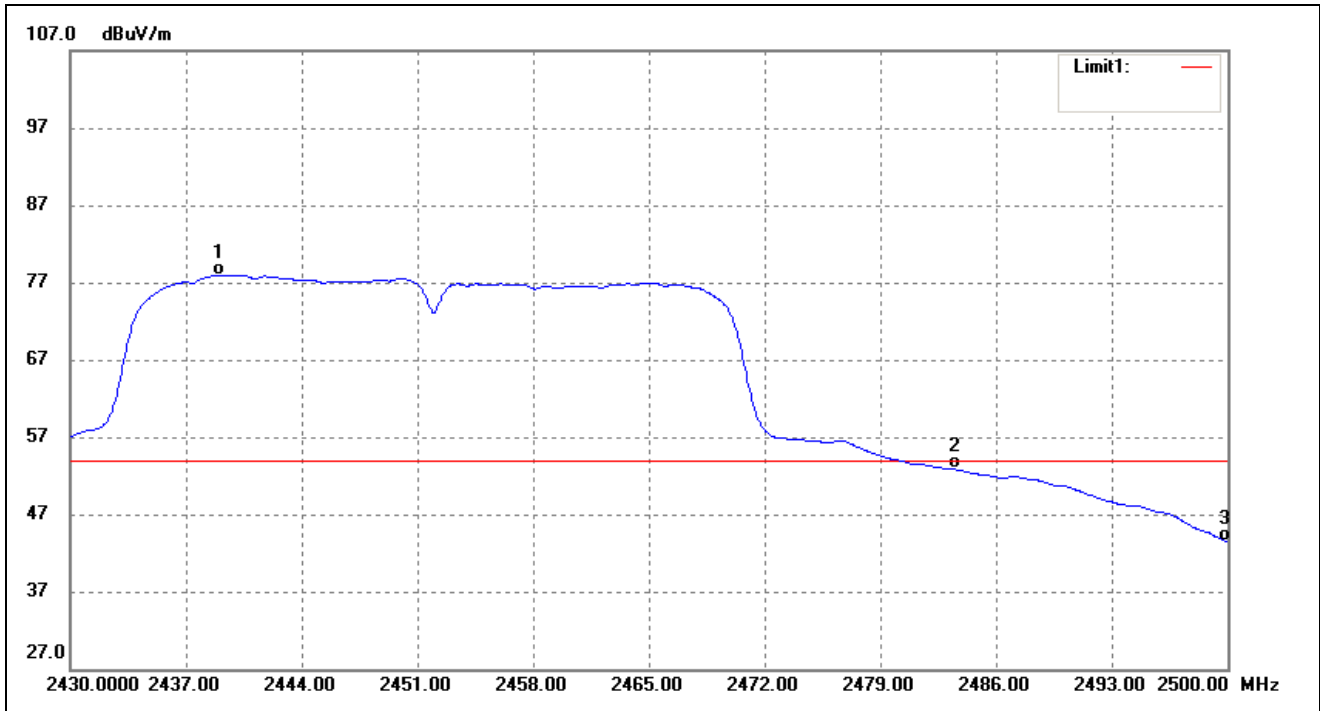


No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2310.000	41.50	-7.78	33.72	54.00	-20.28	AVG
2	2390.000	52.09	-7.32	44.77	54.00	-9.23	AVG
3	2400.000	54.84	-7.26	47.58	/		AVG
4	2419.620	87.42	-7.14	80.28			AVG

- 802.11n-HT40-Highest Band edge  
Vertical (Worst case)

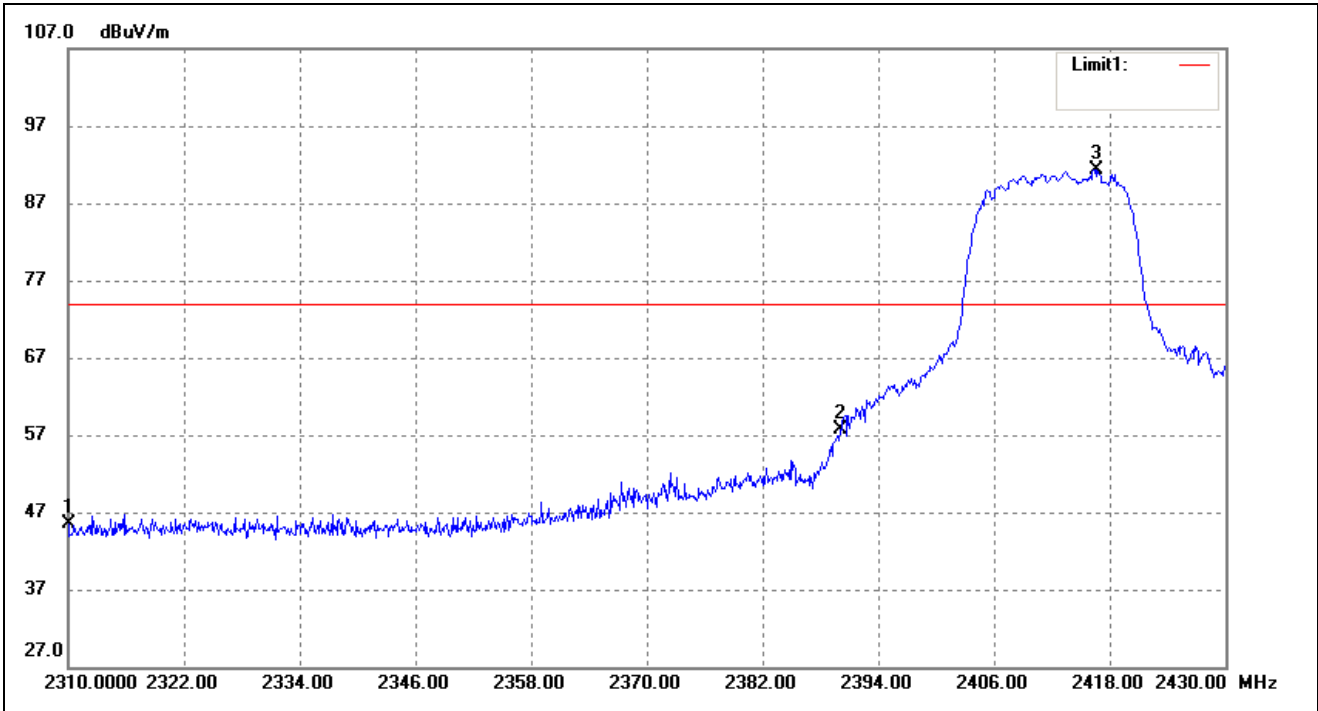


No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2446.800	96.00	-6.98	89.02	/	/	peak
2	2483.500	72.14	-6.77	65.37	74.00	-8.63	peak
3	2500.000	64.96	-6.67	58.29	74.00	-15.71	peak

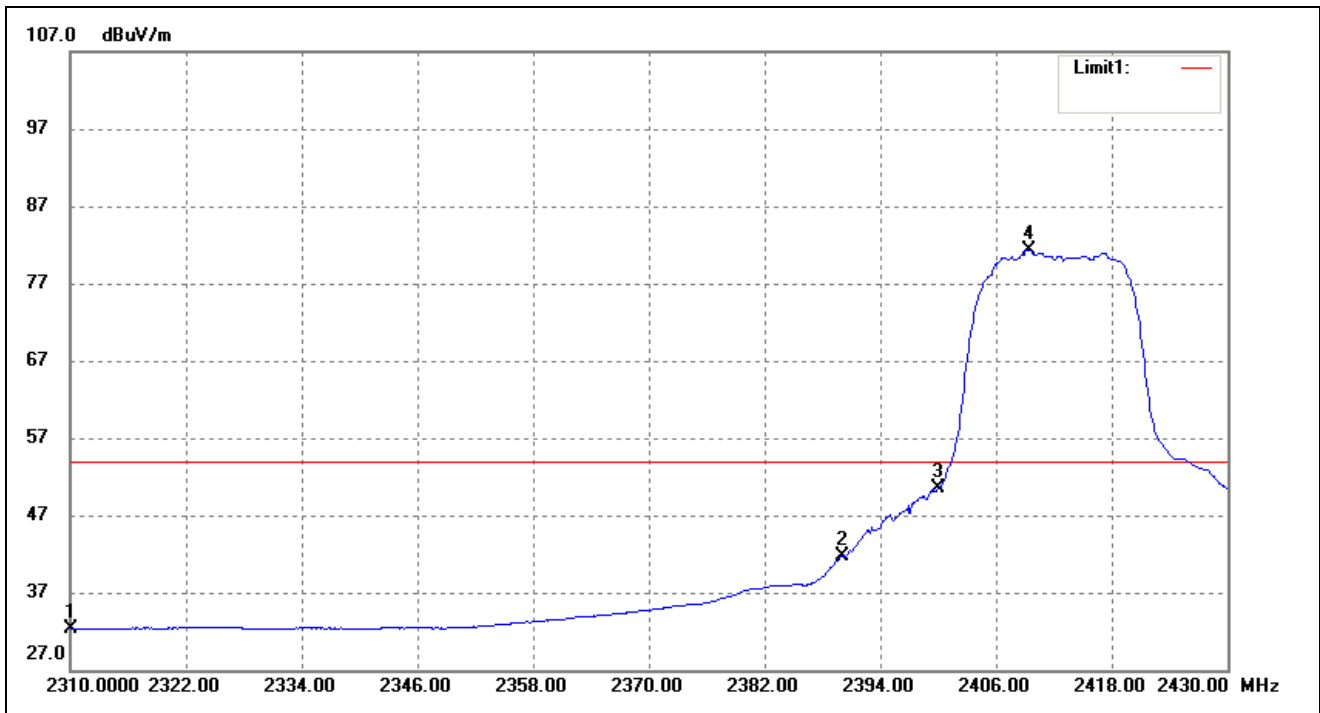


No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2439.030	85.01	-7.03	77.98	/	/	AVG
2	2483.500	57.23	-6.77	50.46	54.00	-3.54	AVG
3	2500.000	50.17	-6.67	43.50	54.00	-10.50	AVG

Antenna 1+2:  
 802.11n-HT20-Lowest Band edge  
 Vertical (Worst case)



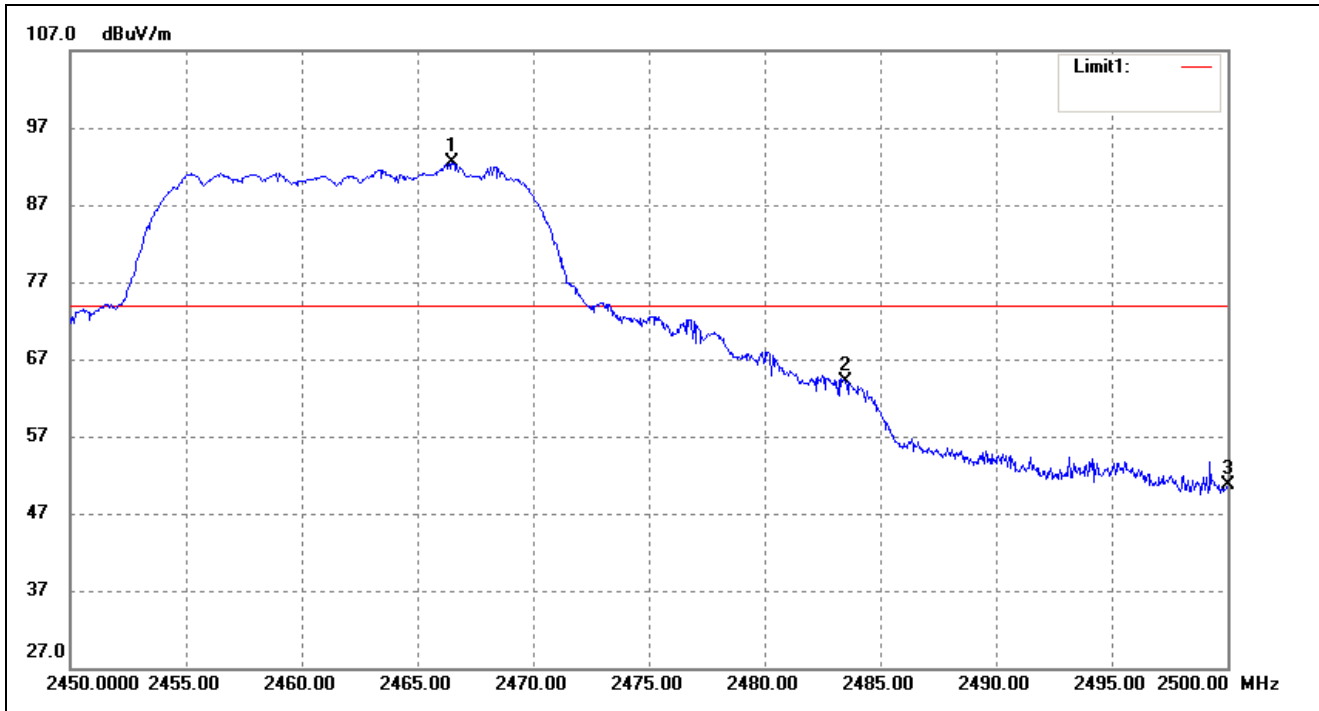
No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2310.000	53.37	-7.78	45.59	74.00	-28.41	peak
2	2390.000	64.97	-7.32	57.65	74.00	-16.35	peak
3	2416.680	98.48	-7.15	91.33	/	/	peak



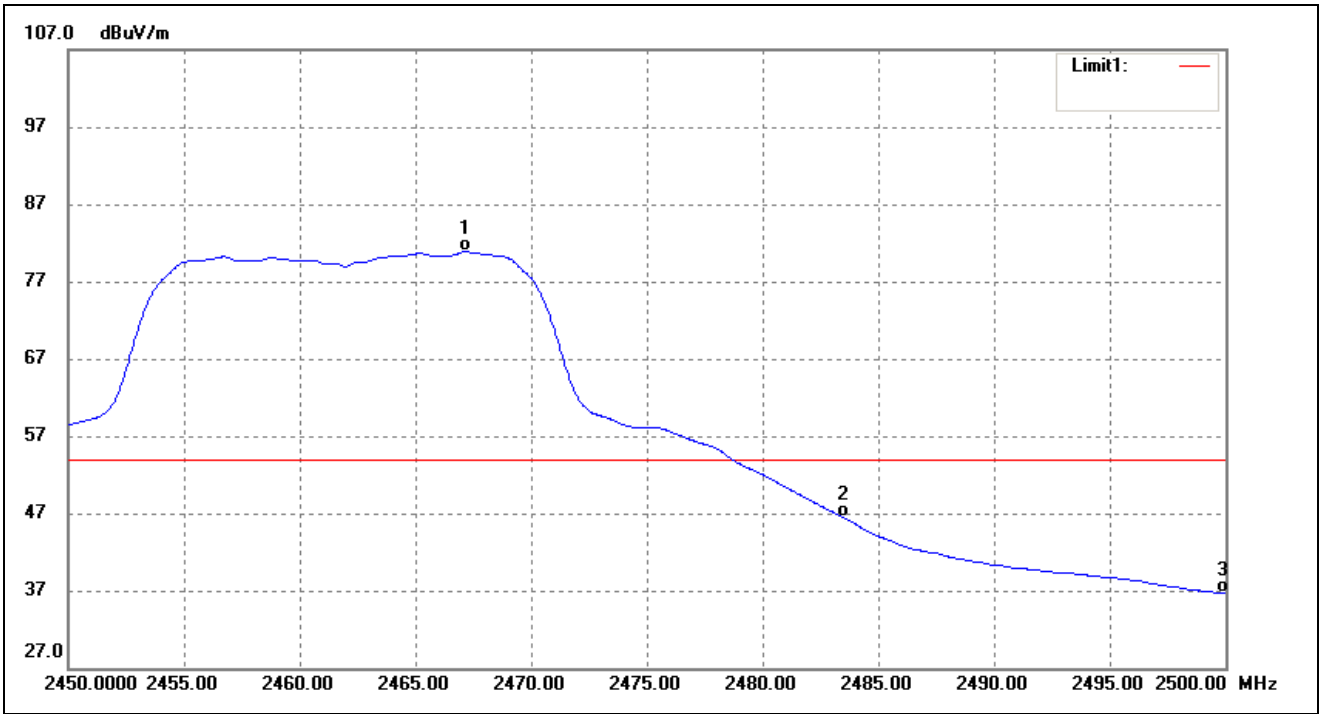
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2310.000	40.11	-7.78	32.33	54.00	-21.67	peak
2	2390.000	49.11	-7.32	41.79	54.00	-12.21	peak
4	2409.360	88.47	-7.21	81.26	/		peak

## 802.11n-HT20-Highest Band edge

Vertical (Worst case)



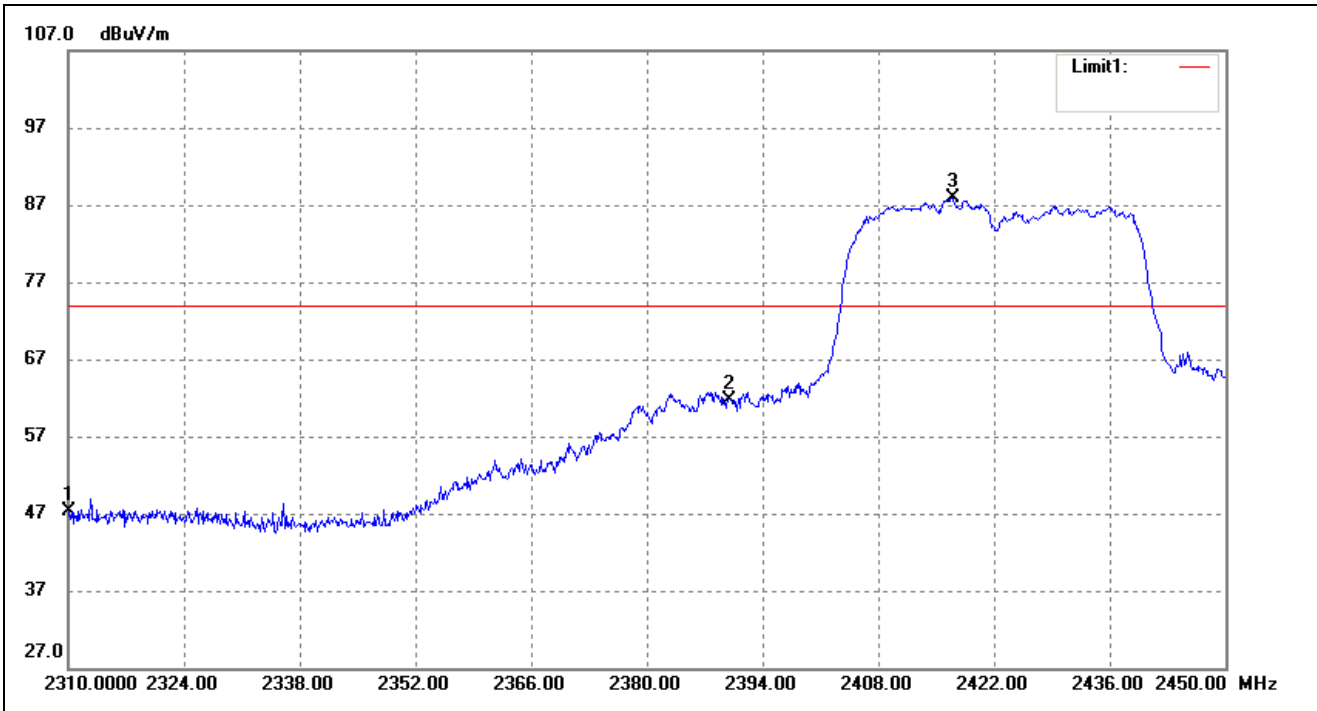
No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2466.500	99.30	-6.86	92.44	/	/	peak
2	2483.500	70.83	-6.77	64.06	74.00	-9.94	peak
3	2500.000	57.34	-6.67	50.67	74.00	-23.33	peak



No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2467.150	87.71	-6.86	80.85	/	/	AVG
2	2483.500	53.21	-6.77	46.44	54.00	-7.56	AVG
3	2500.000	43.29	-6.67	36.62	54.00	-17.38	AVG

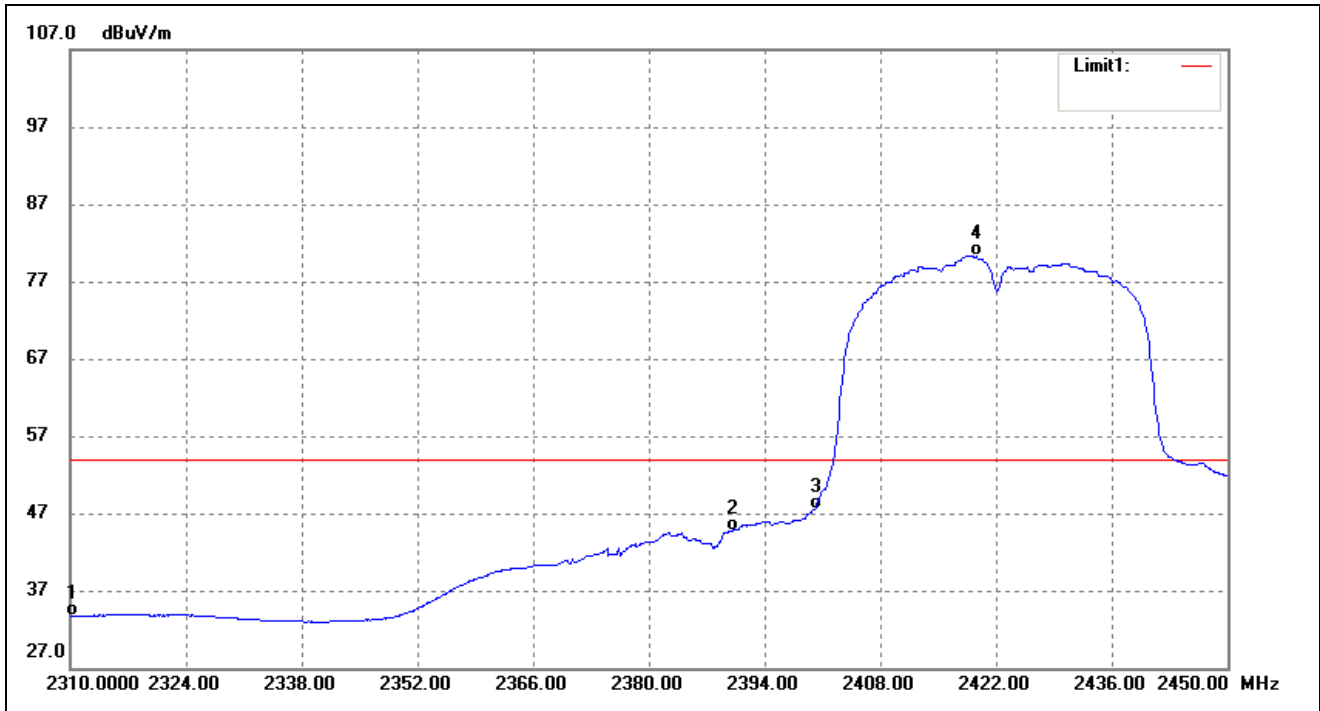
802.11n-HT40-Lowest Band edge

Vertical (Worst case)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2310.000	55.14	-7.78	47.36	74.00	-26.64	peak
2	2390.000	68.94	-7.32	61.62	74.00	-12.38	peak
3	2416.960	95.08	-7.15	87.93	/	/	peak

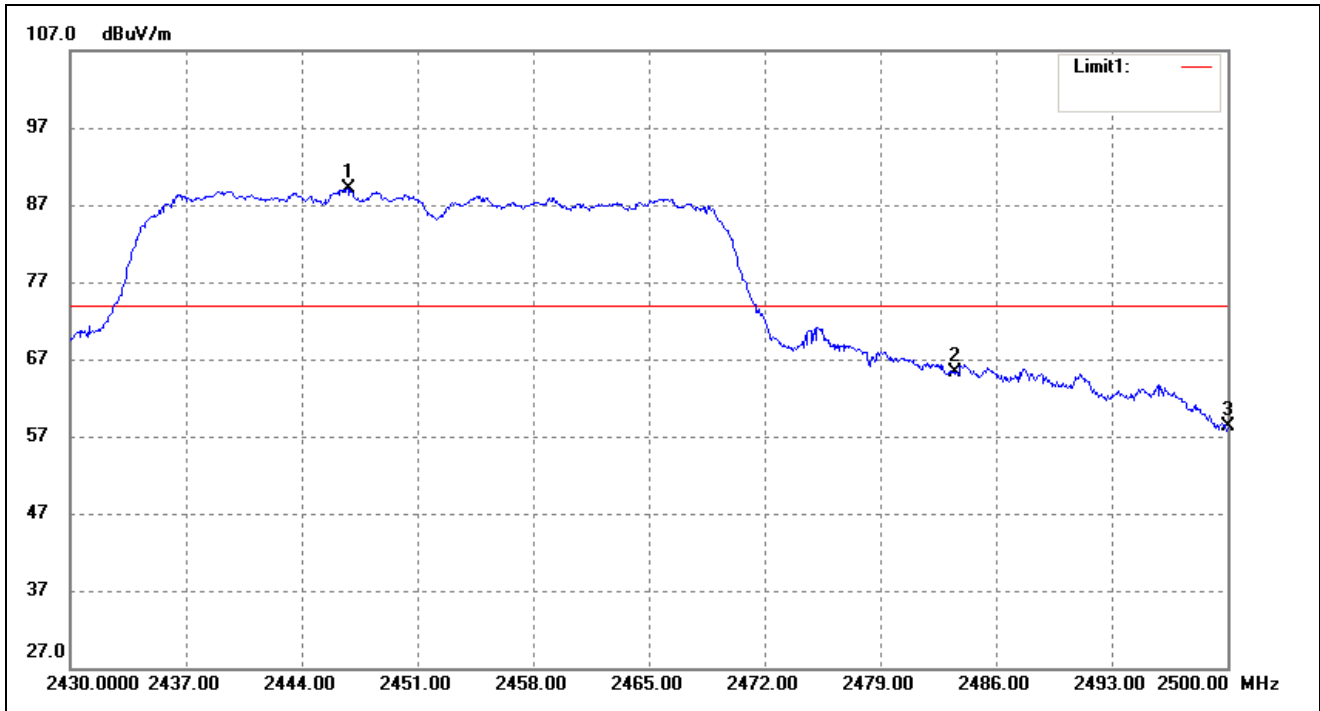




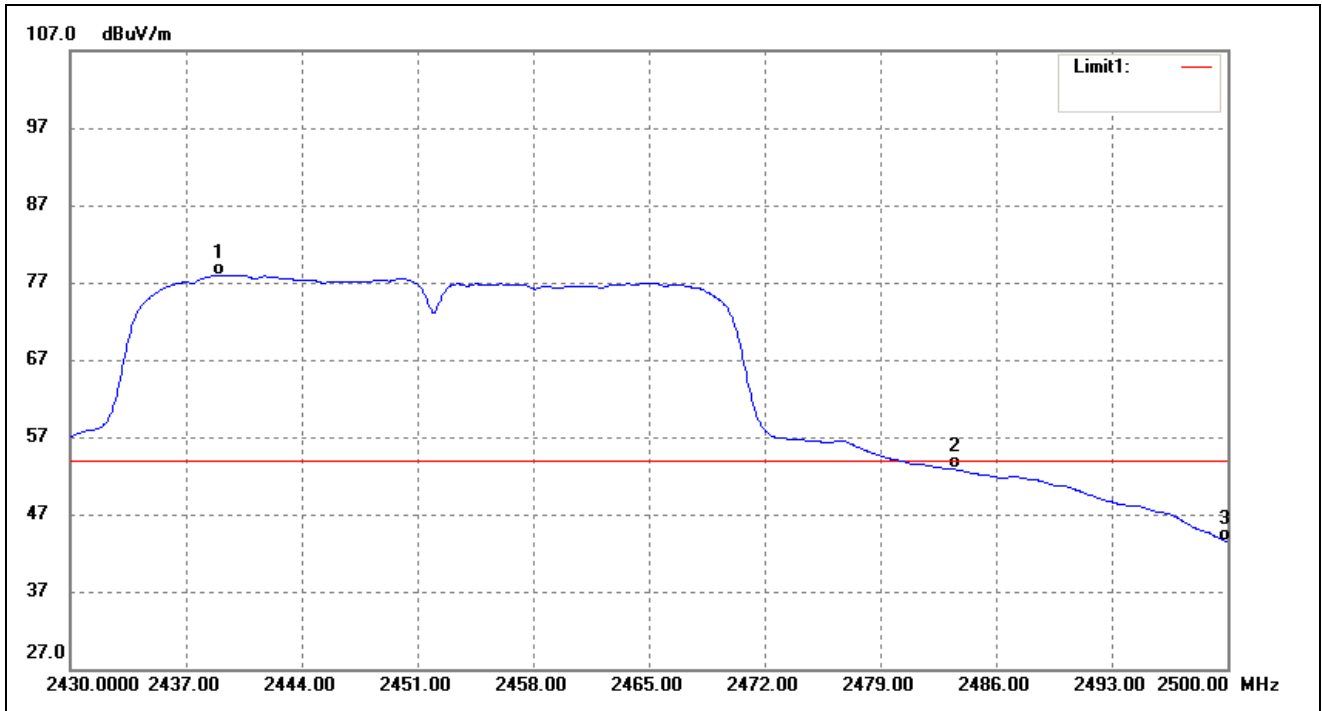
No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2310.000	41.50	-7.78	33.72	54.00	-20.28	AVG
2	2390.000	52.09	-7.32	44.77	54.00	-9.23	AVG
3	2400.000	54.84	-7.26	47.58	/		AVG
4	2419.620	87.42	-7.14	80.28			AVG

## 802.11n-HT40-Highest Band edge

Vertical (Worst case)



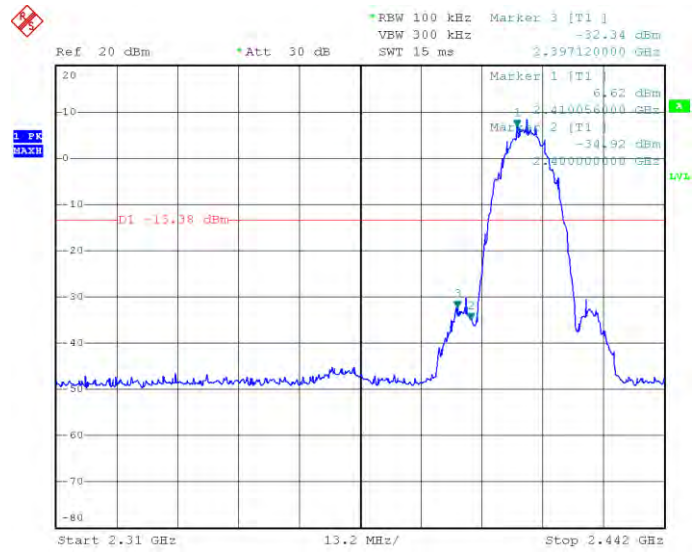
No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2446.800	96.00	-6.98	89.02	/	/	peak
2	2483.500	72.14	-6.77	65.37	74.00	-8.63	peak
3	2500.000	64.96	-6.67	58.29	74.00	-15.71	peak



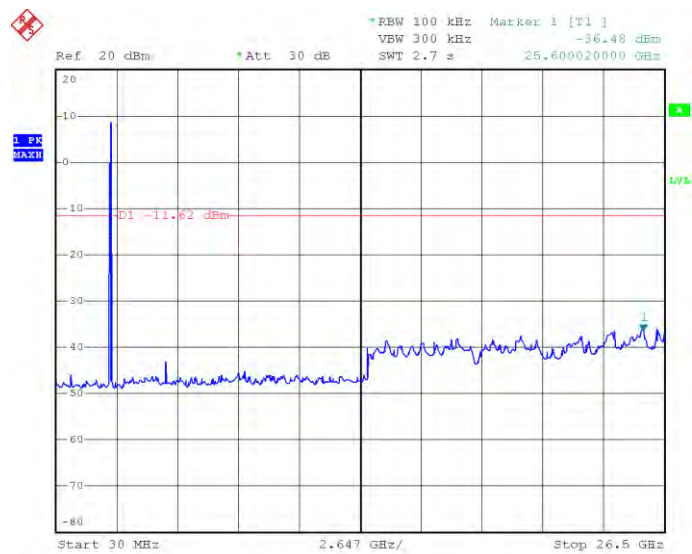
No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2439.030	85.01	-7.03	77.98	/	/	AVG
2	2483.500	57.60	-6.77	50.83	54.00	-3.17	AVG
3	2500.000	50.17	-6.67	43.50	54.00	-10.50	AVG

➤ Antenna 1

802.11b\_11Mbps

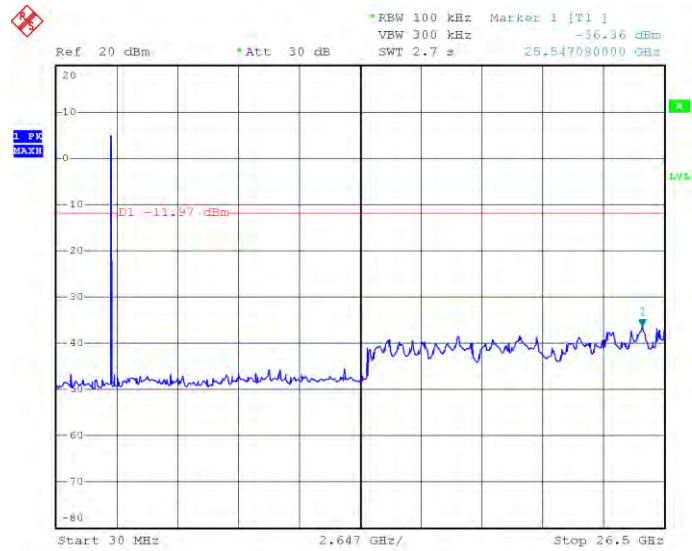
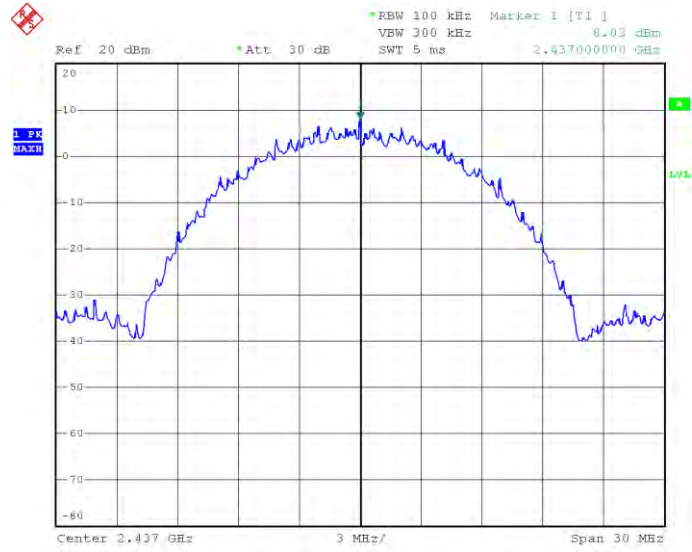


Low



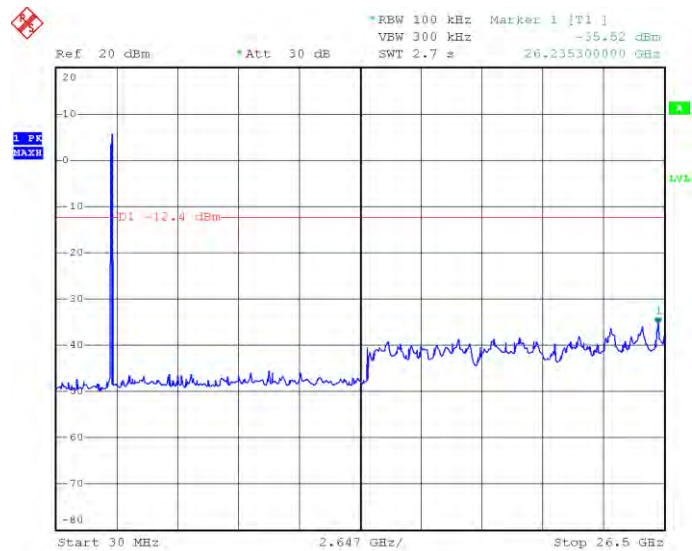
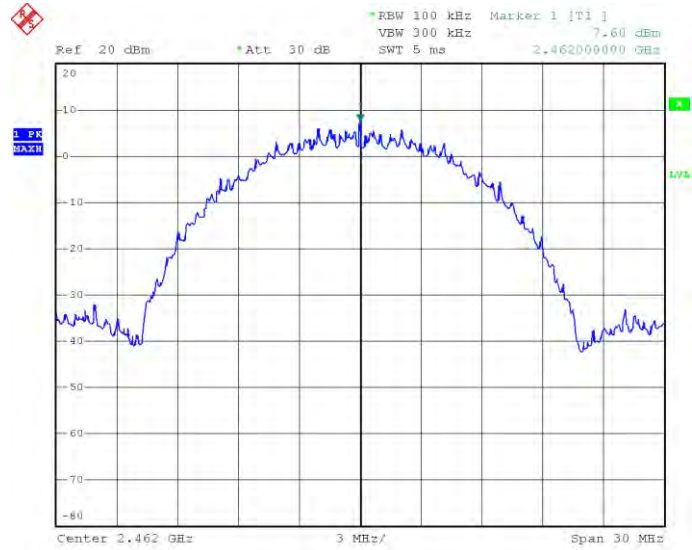
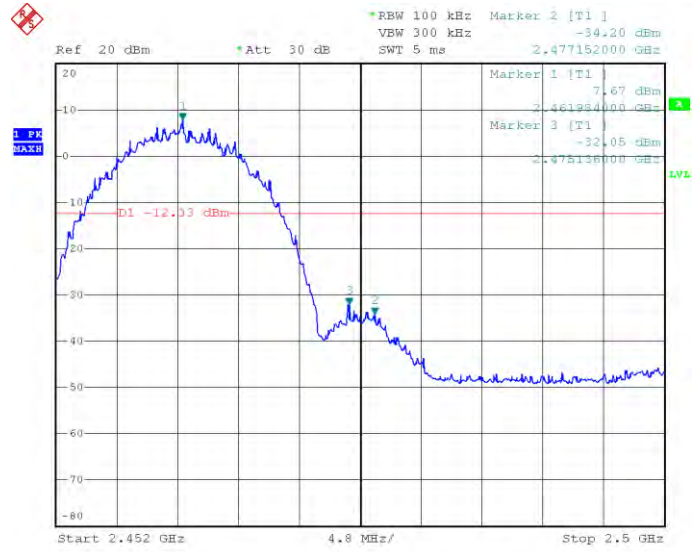
802.11b\_11Mbps

Middle



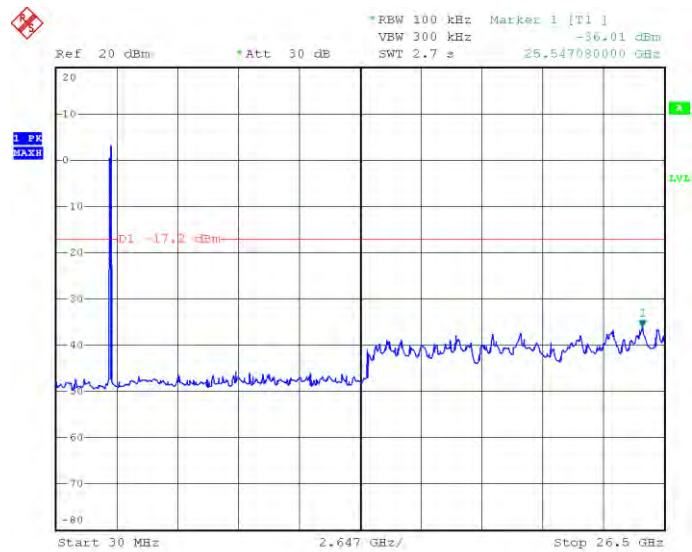
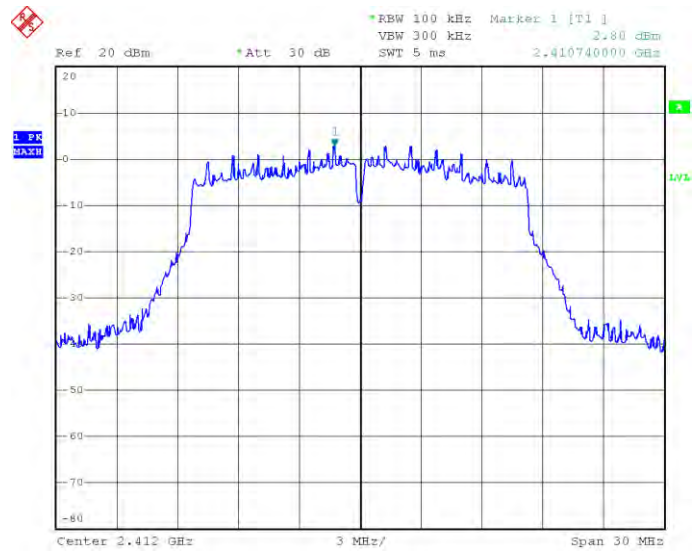
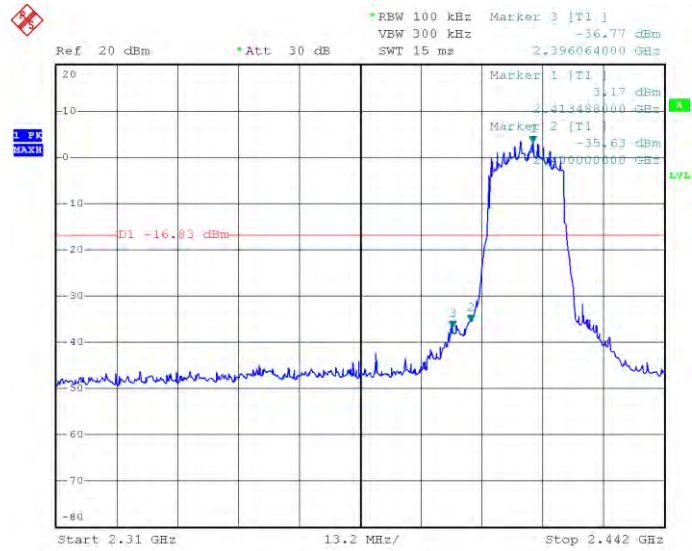
802.11b\_11Mbps

High



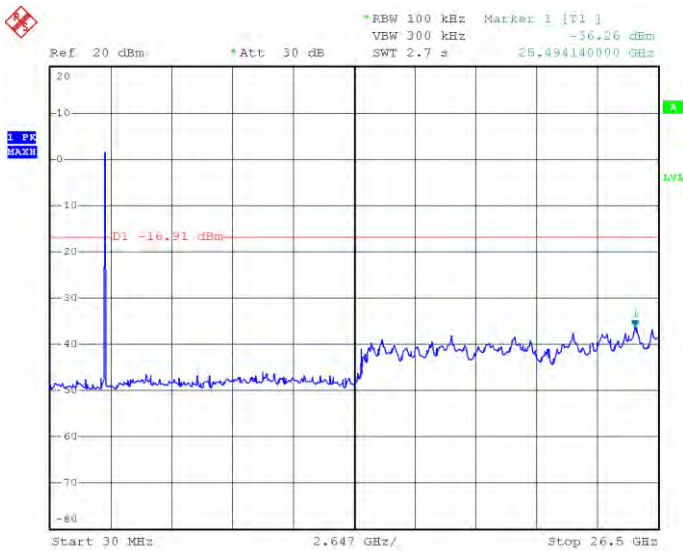
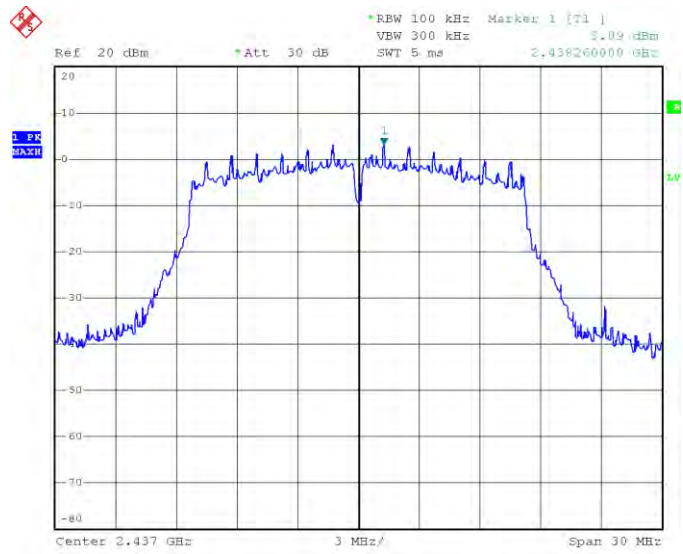
802.11g\_54Mbps

Low



802.11g\_54Mbps

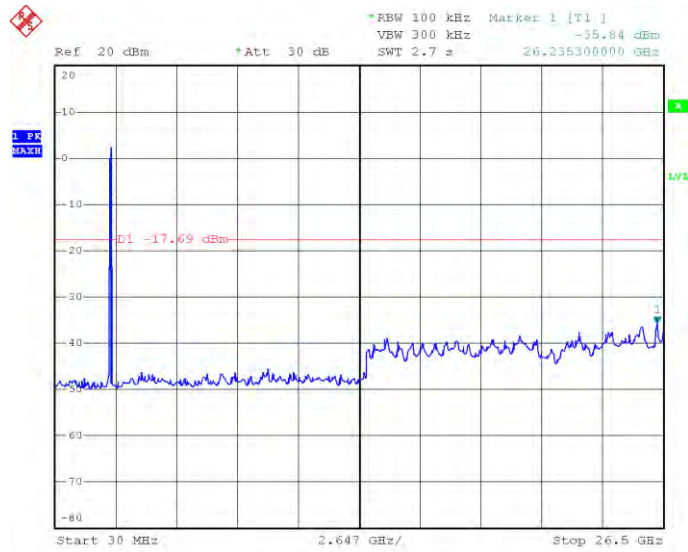
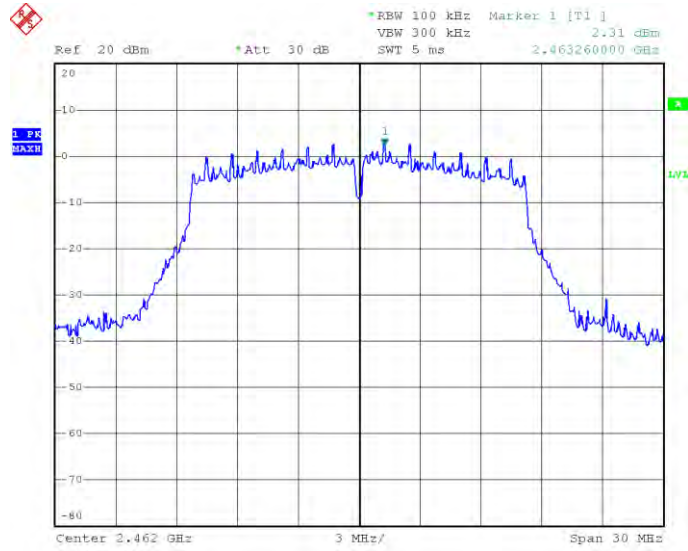
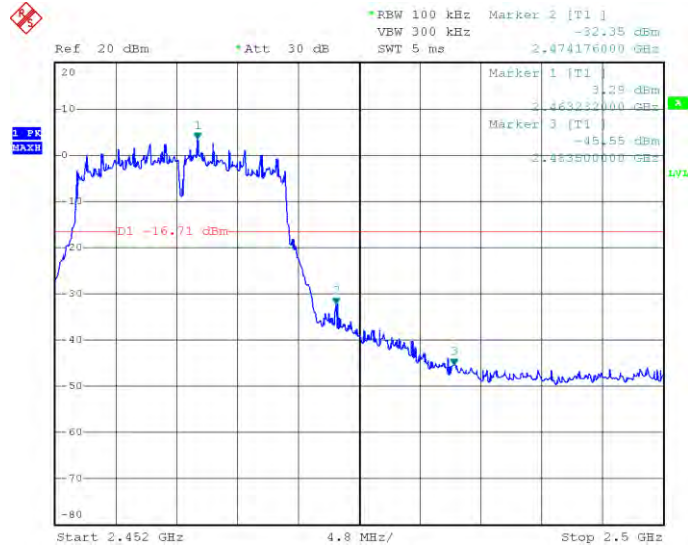
Middle





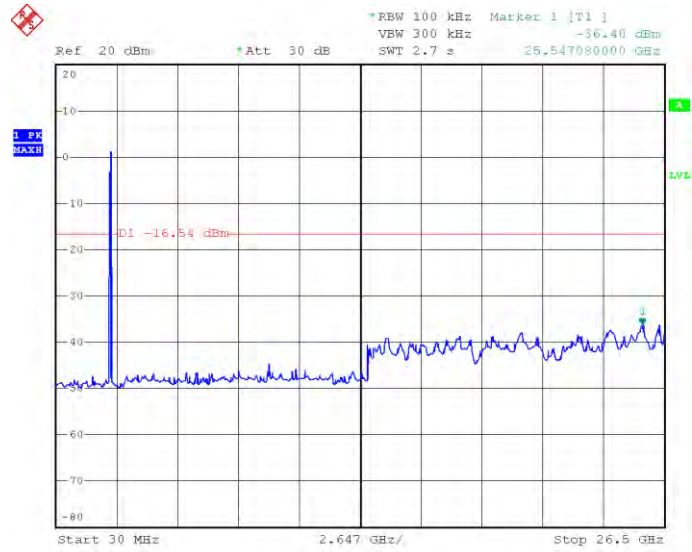
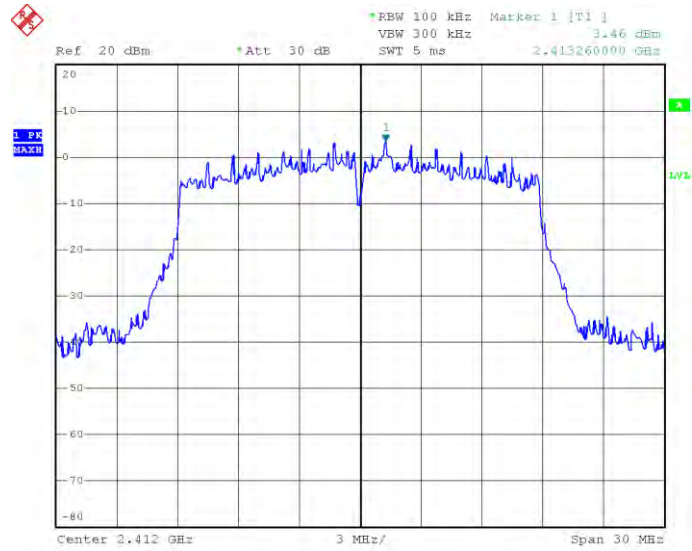
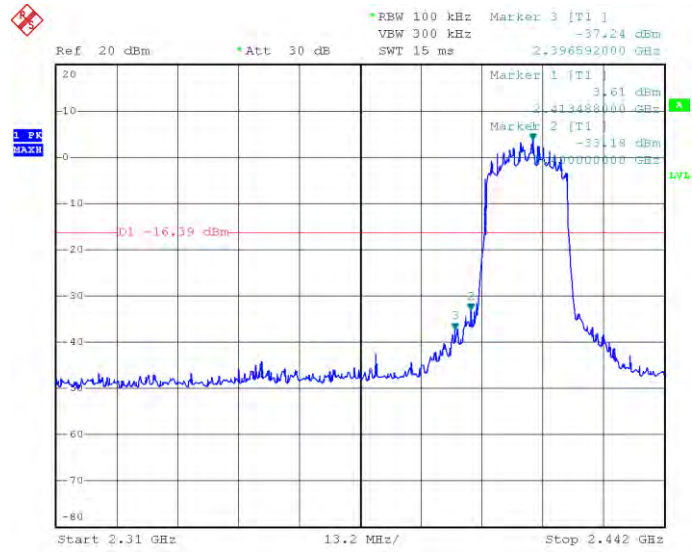
802.11g\_54Mbps

High



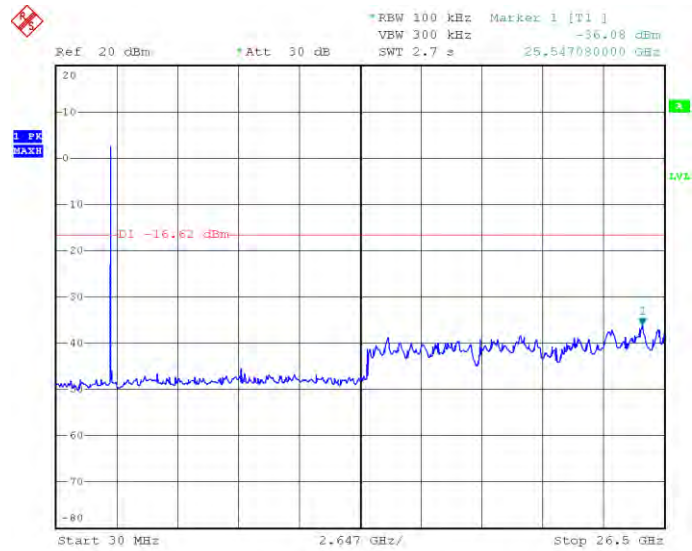
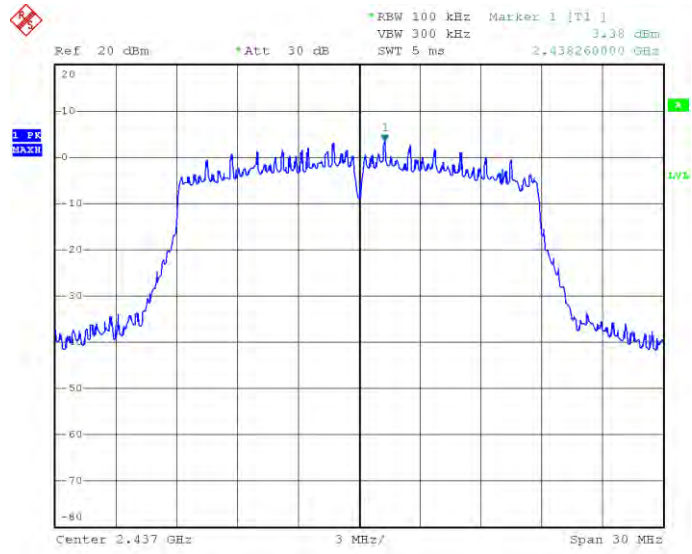
802.11n-HT20\_MCS7

Low



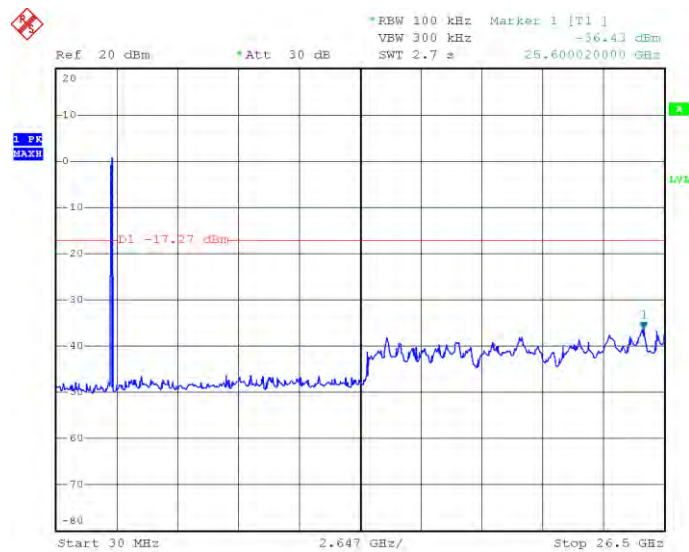
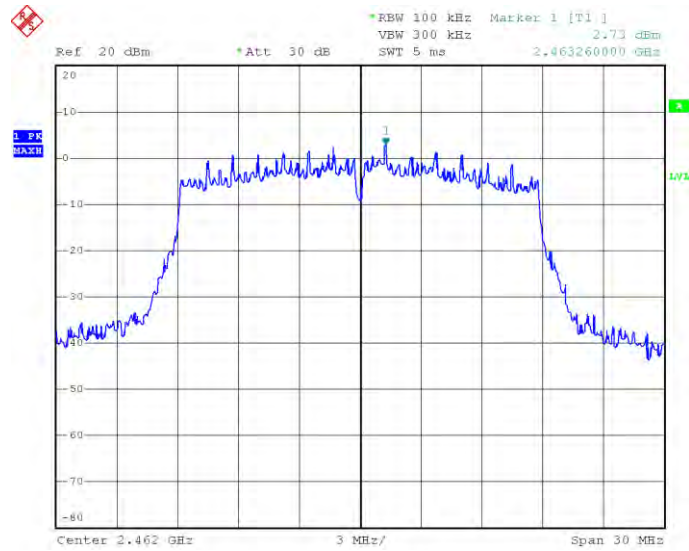
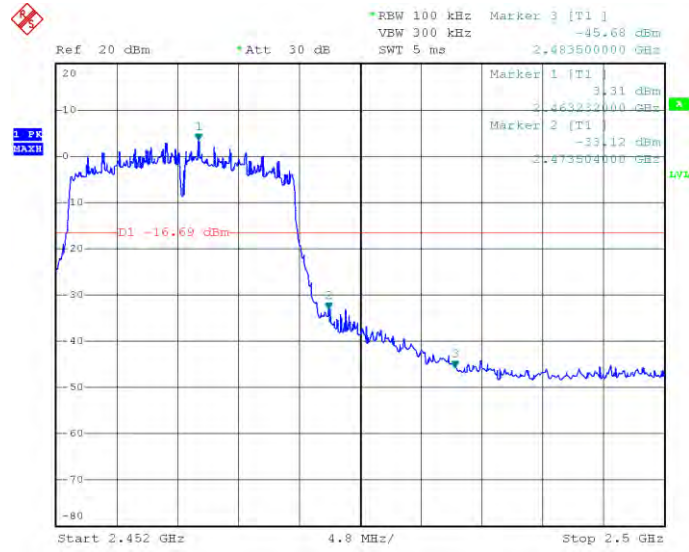
802.11n-HT20\_MCS7

Middle



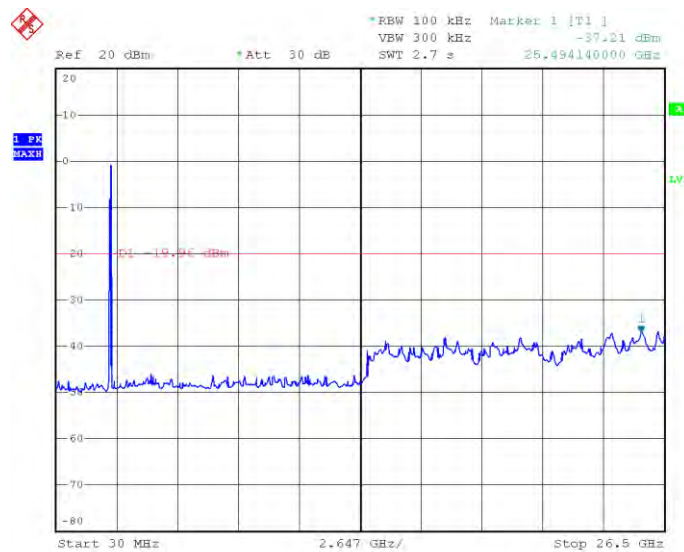
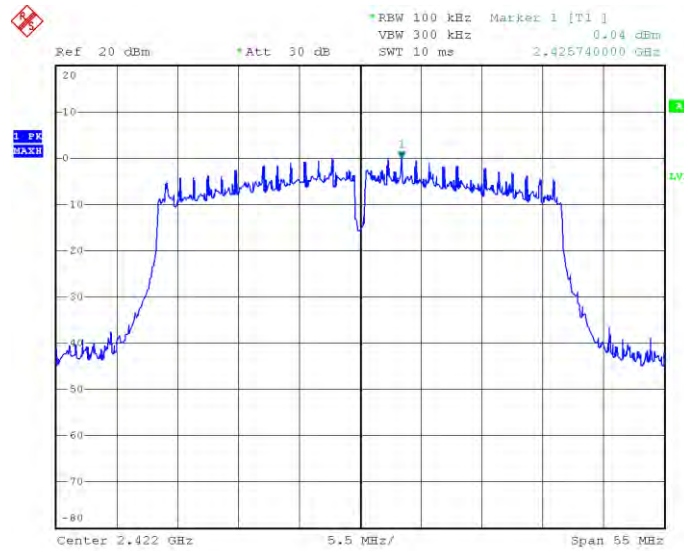
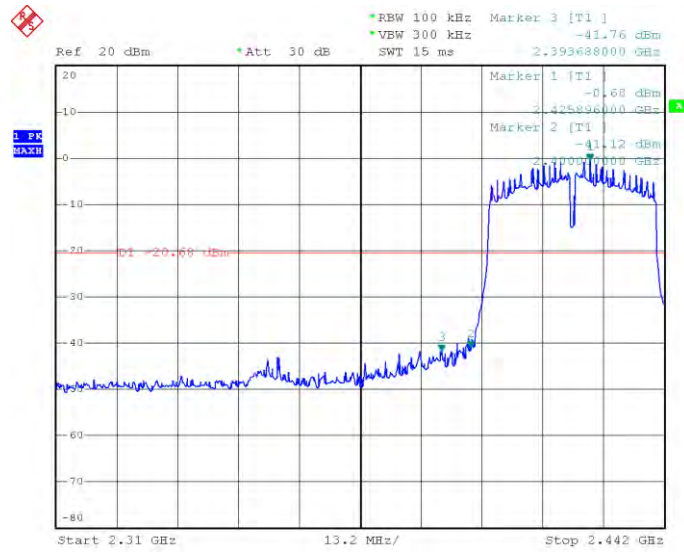
802.11n-HT20\_MCS7

High



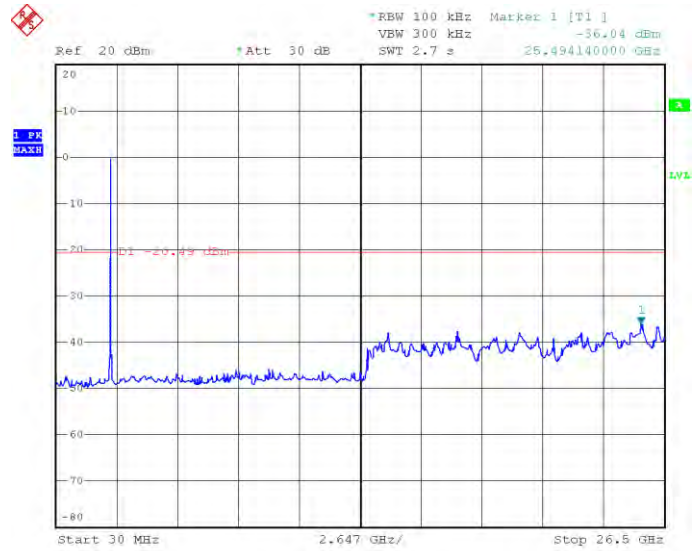
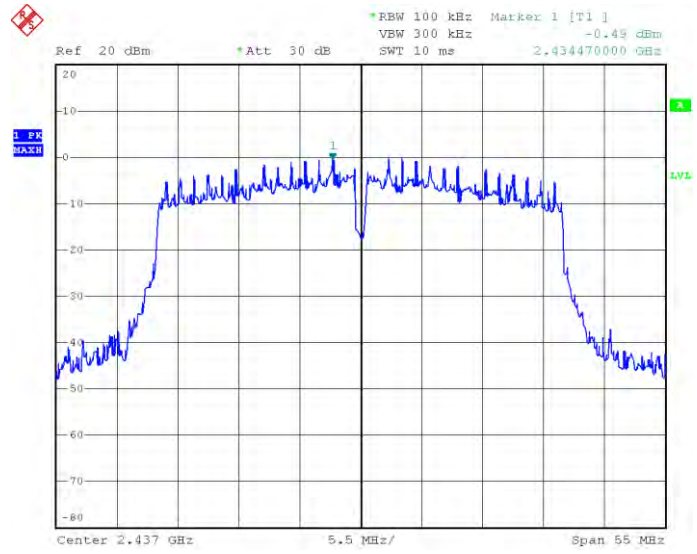
802.11n-HT40\_MCS7

Low



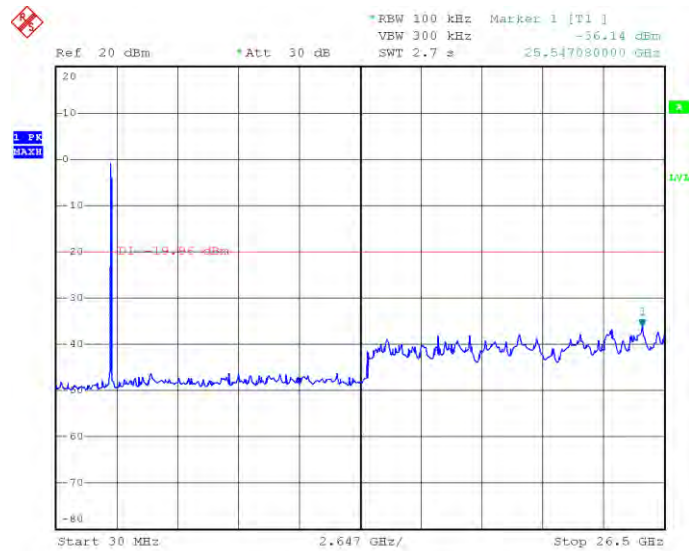
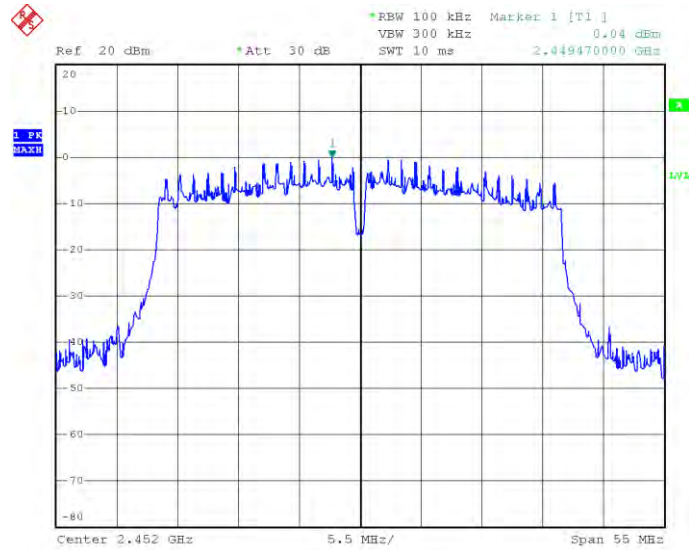
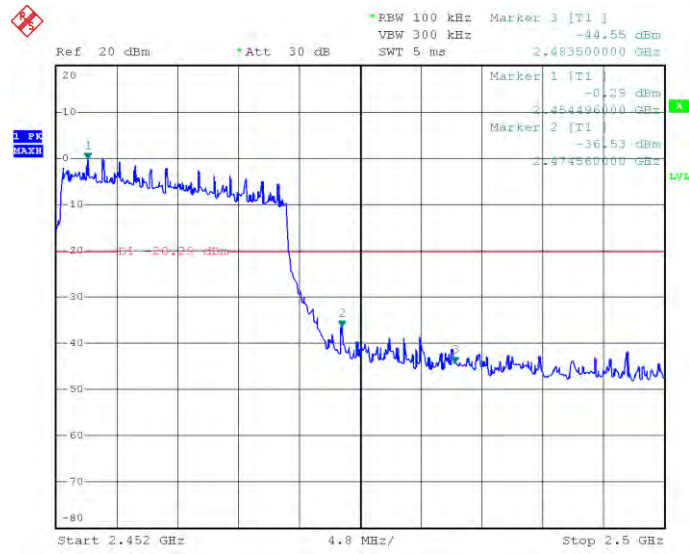
802.11n-HT40\_MCS7

Middle



802.11n-HT40\_MCS7

High

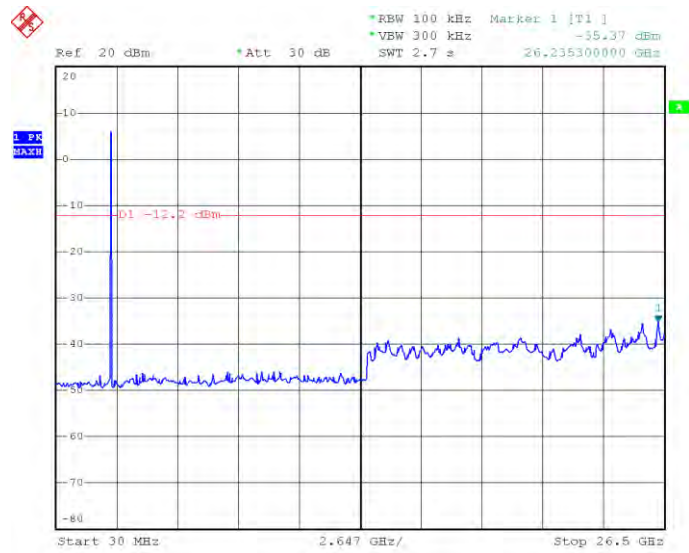
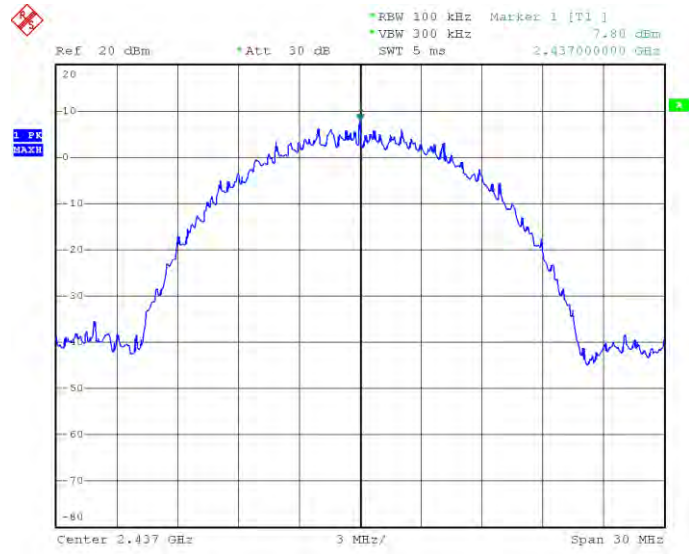






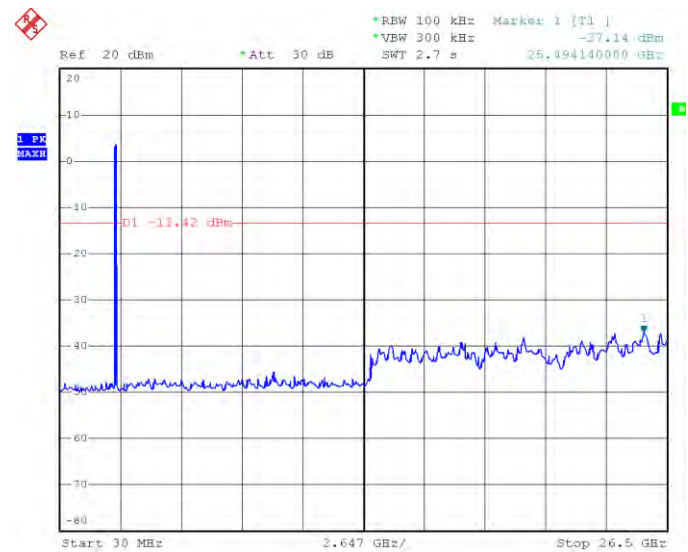
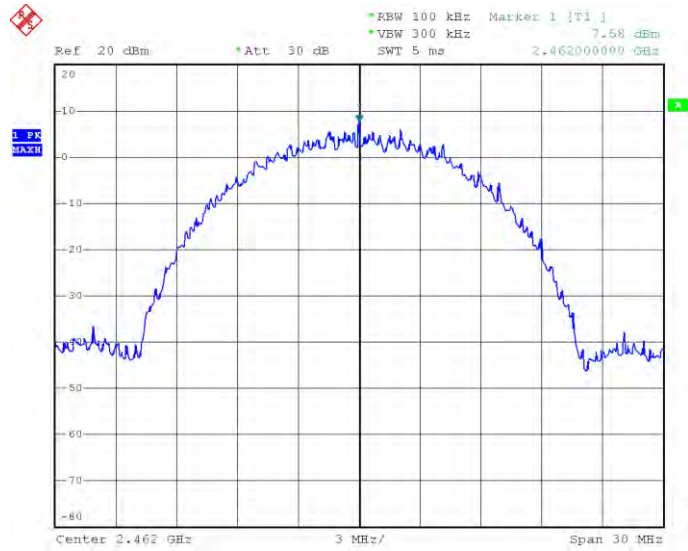
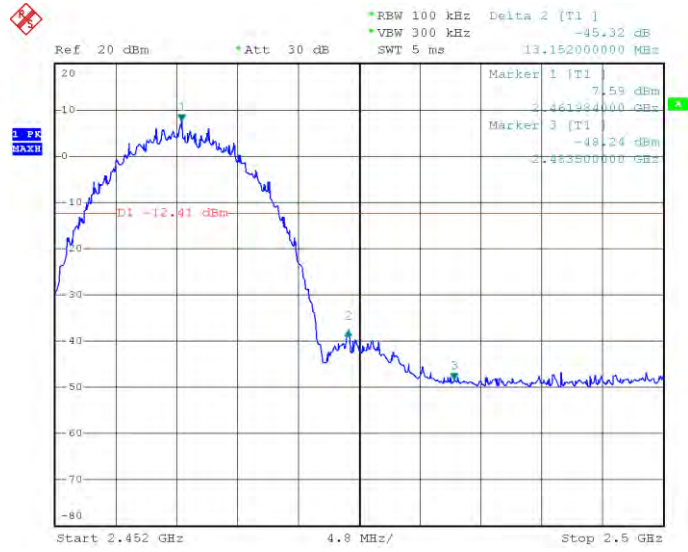
802.11b\_11Mbps

Middle



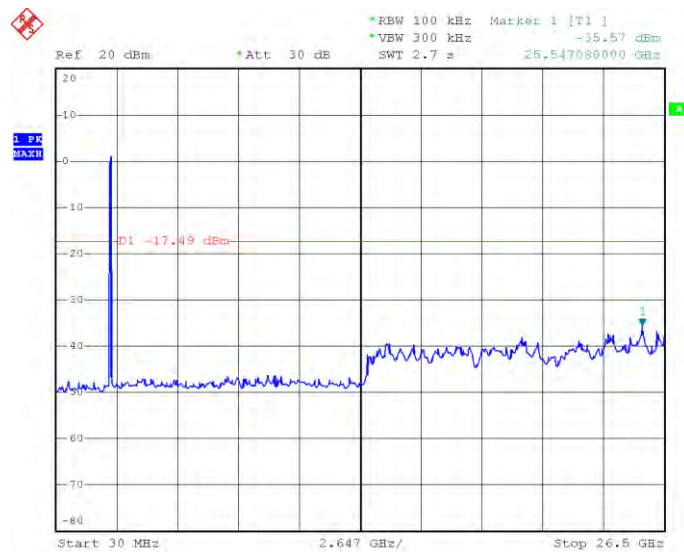
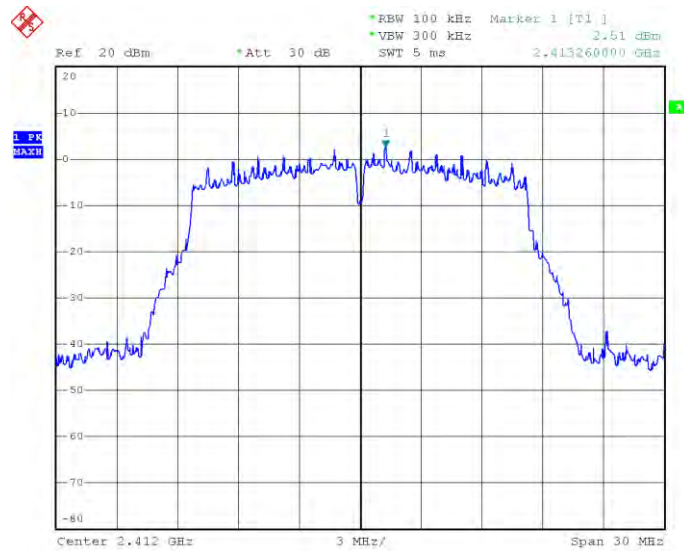
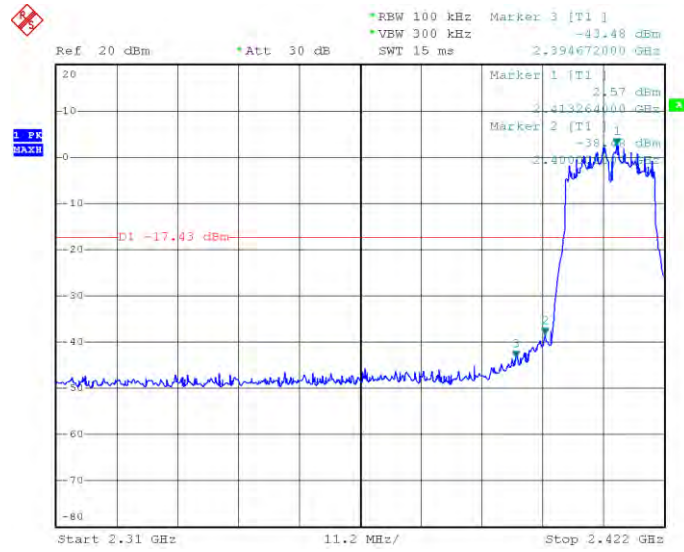
802.11b\_11Mbps

High



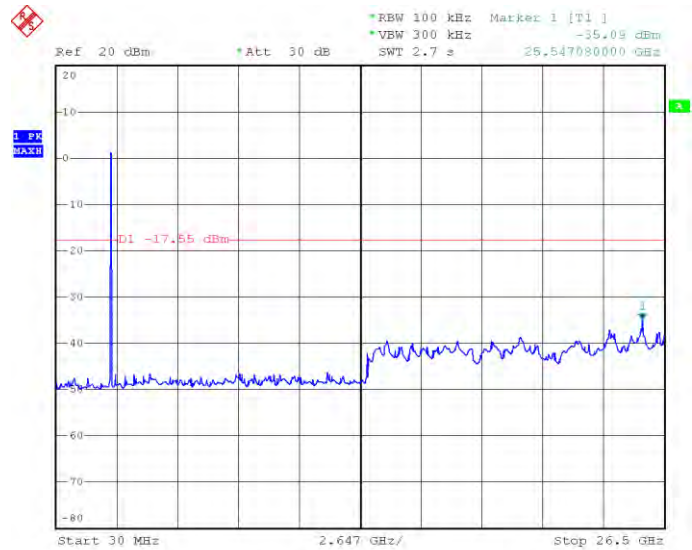
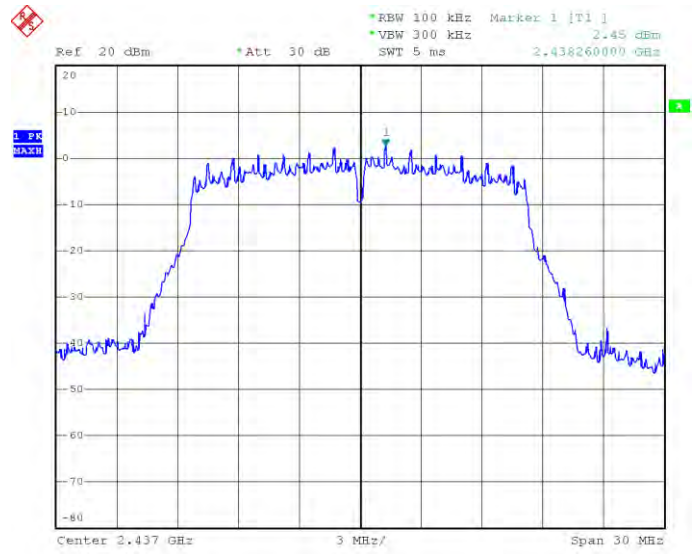
802.11g\_54Mbps

Low



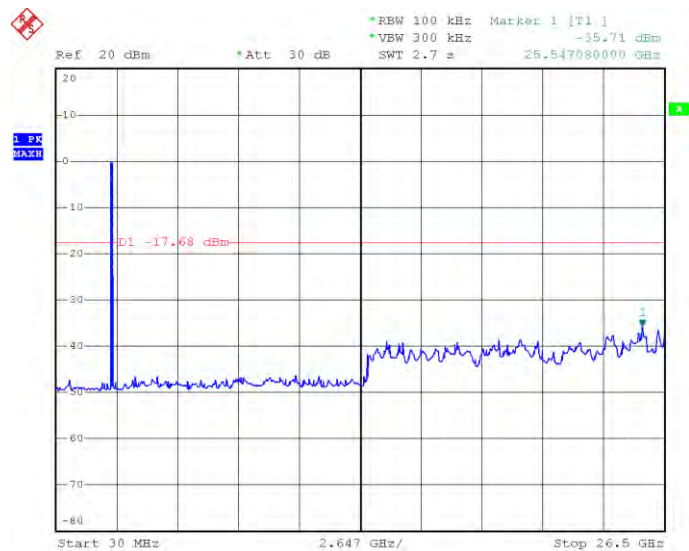
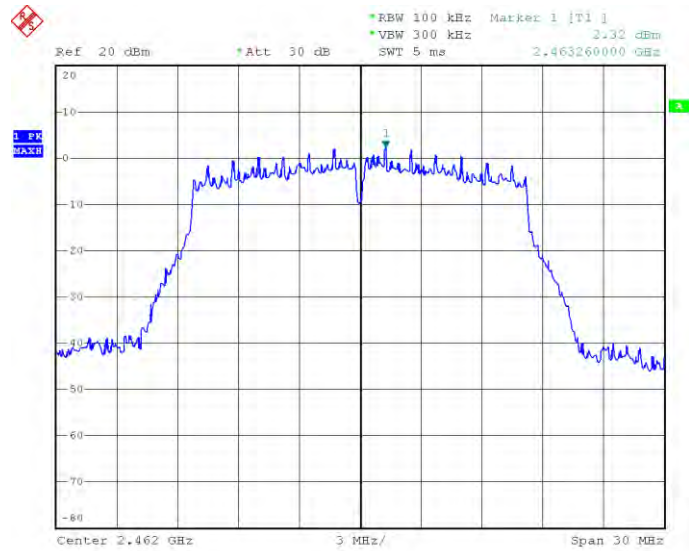
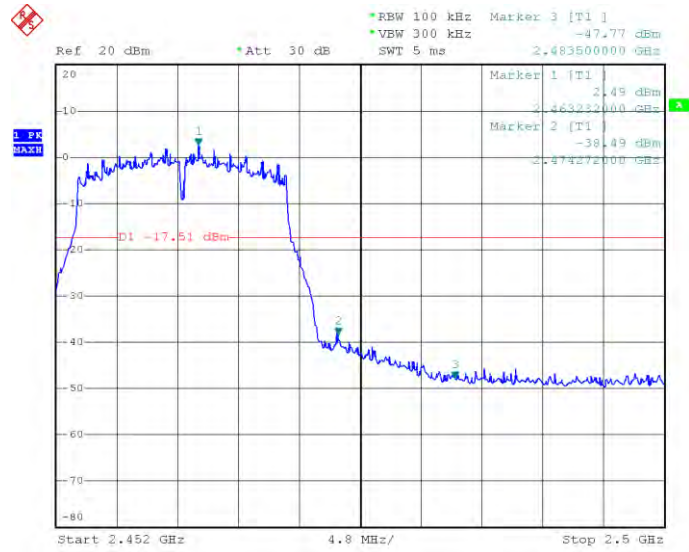
802.11g\_54Mbps

Middle



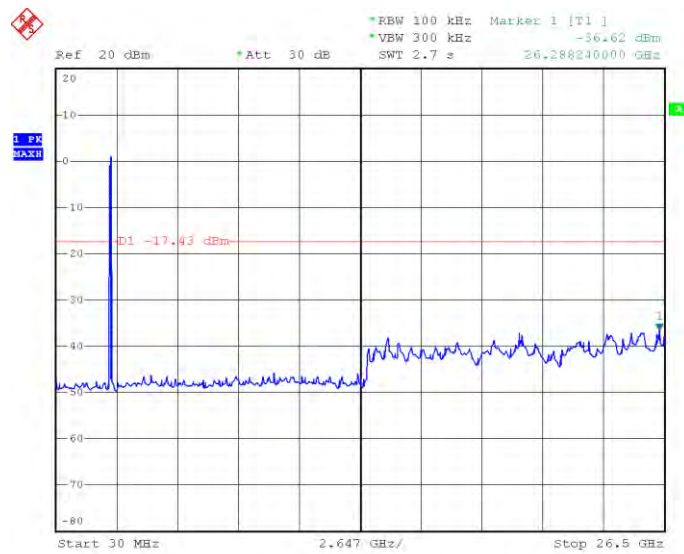
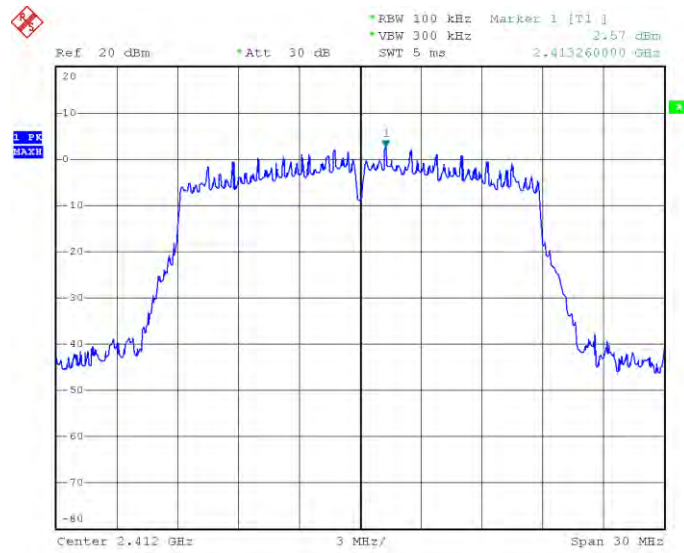
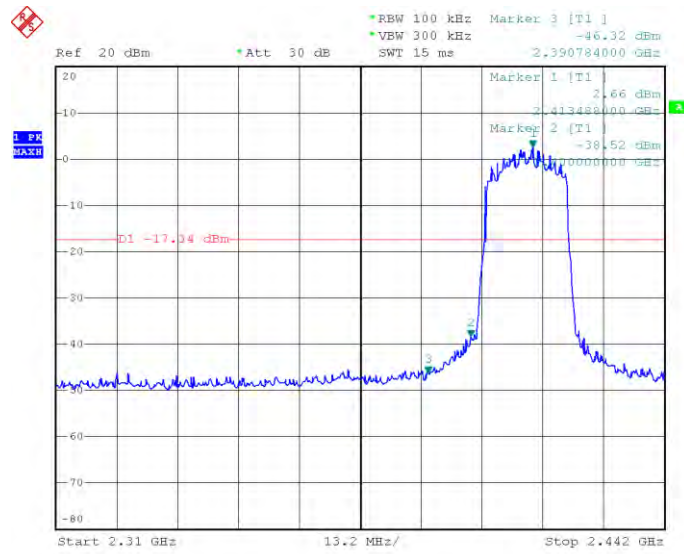
802.11g\_54Mbps

High



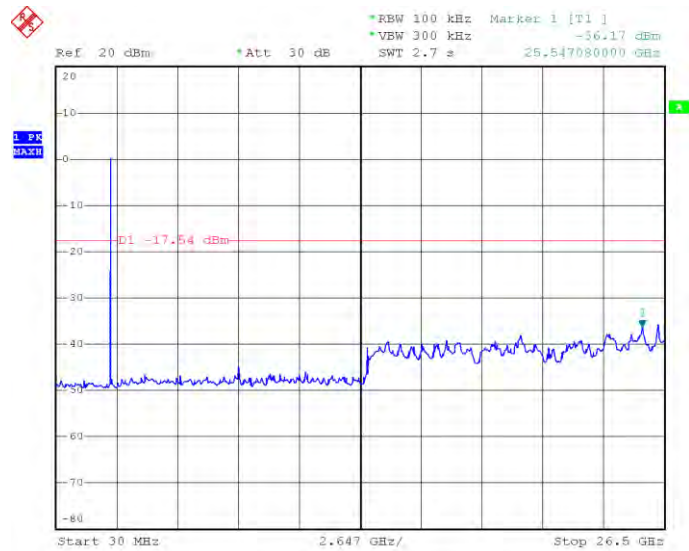
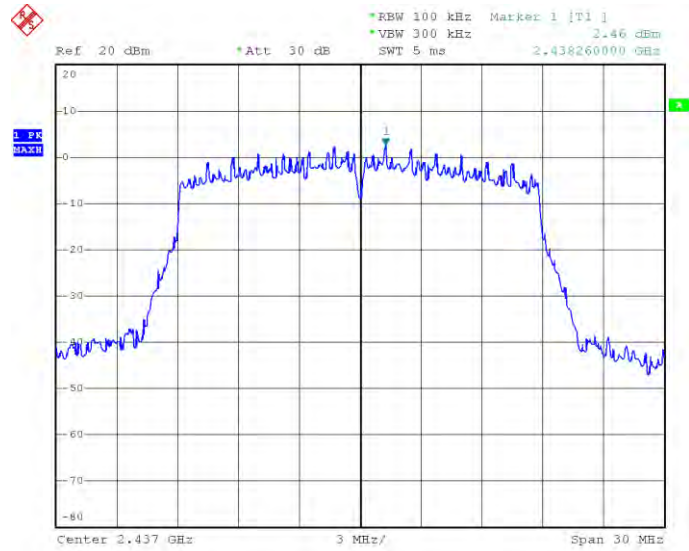
802.11n-HT20\_MCS7

Low



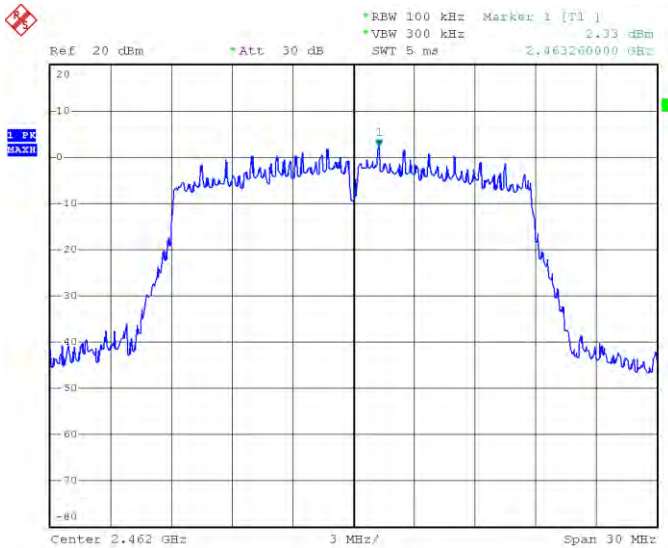
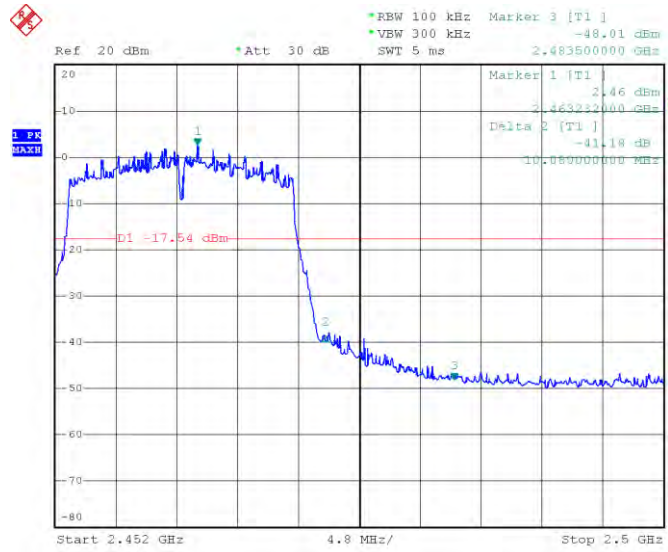
802.11n-HT20\_MCS7

Middle



802.11n-HT20\_MCS7

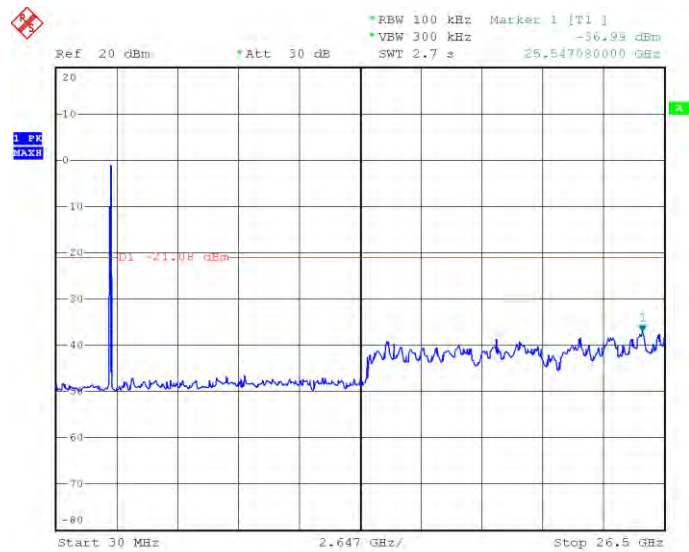
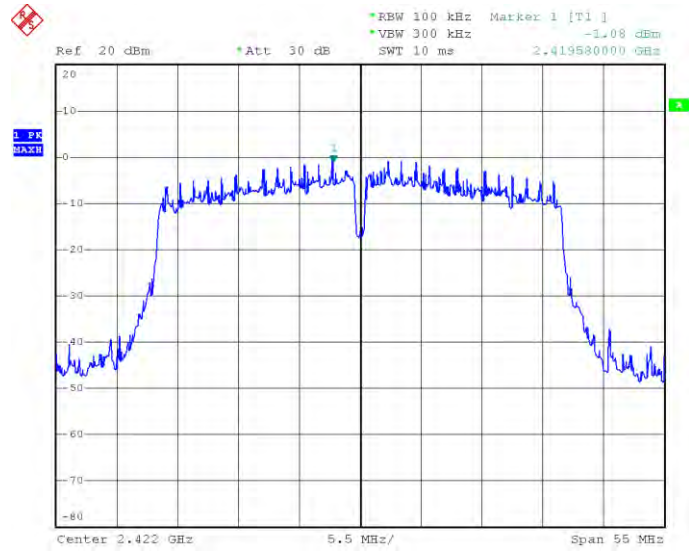
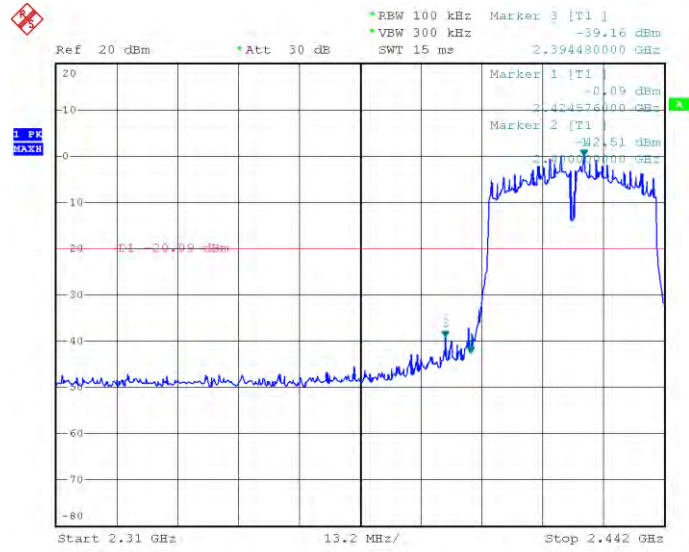
High





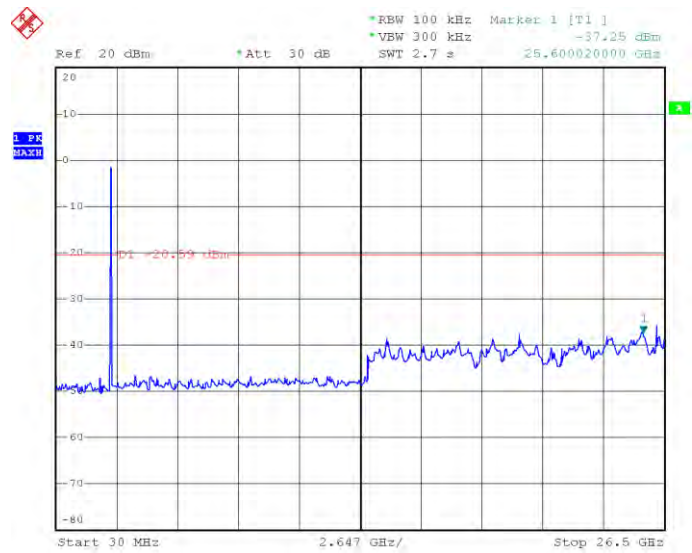
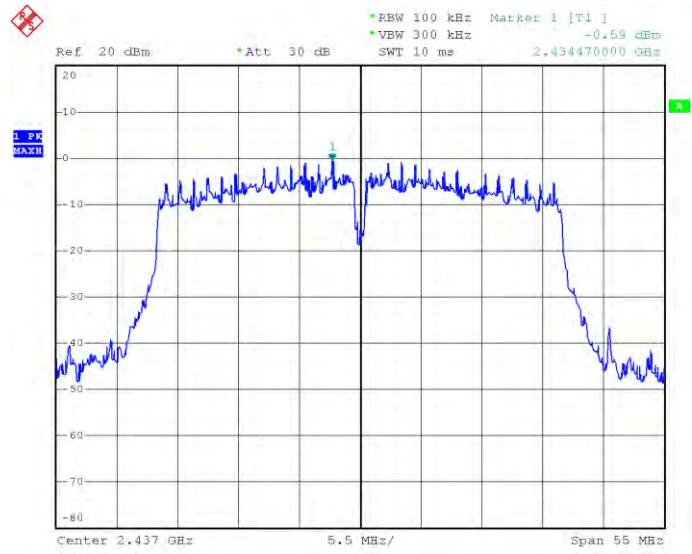
802.11n-HT40\_MCS7

Low



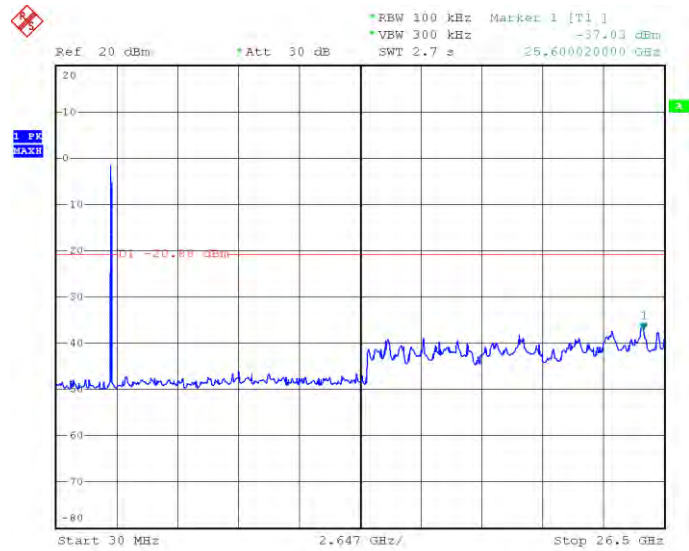
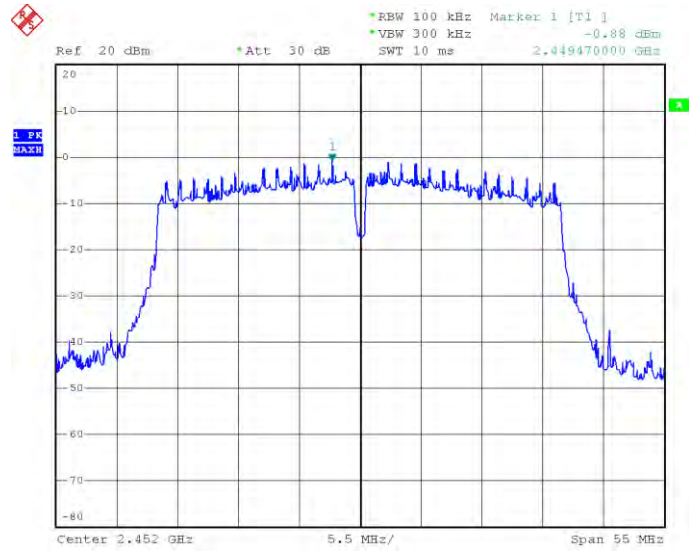
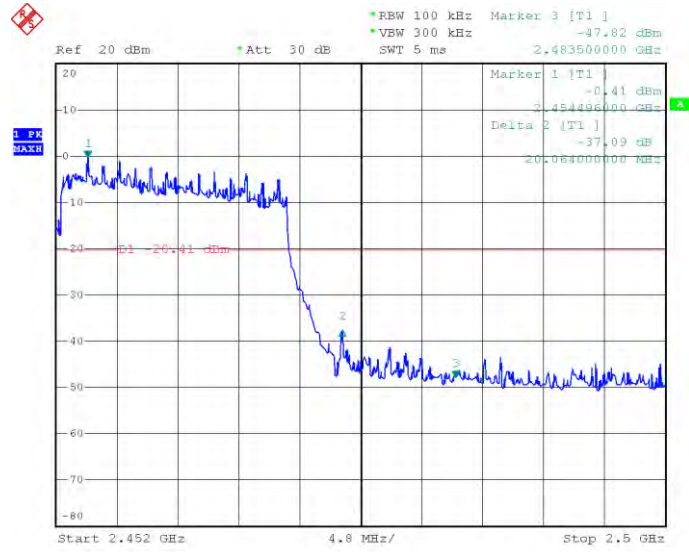
802.11n-HT40\_MCS7

Middle



802.11n-HT40\_MCS7

High



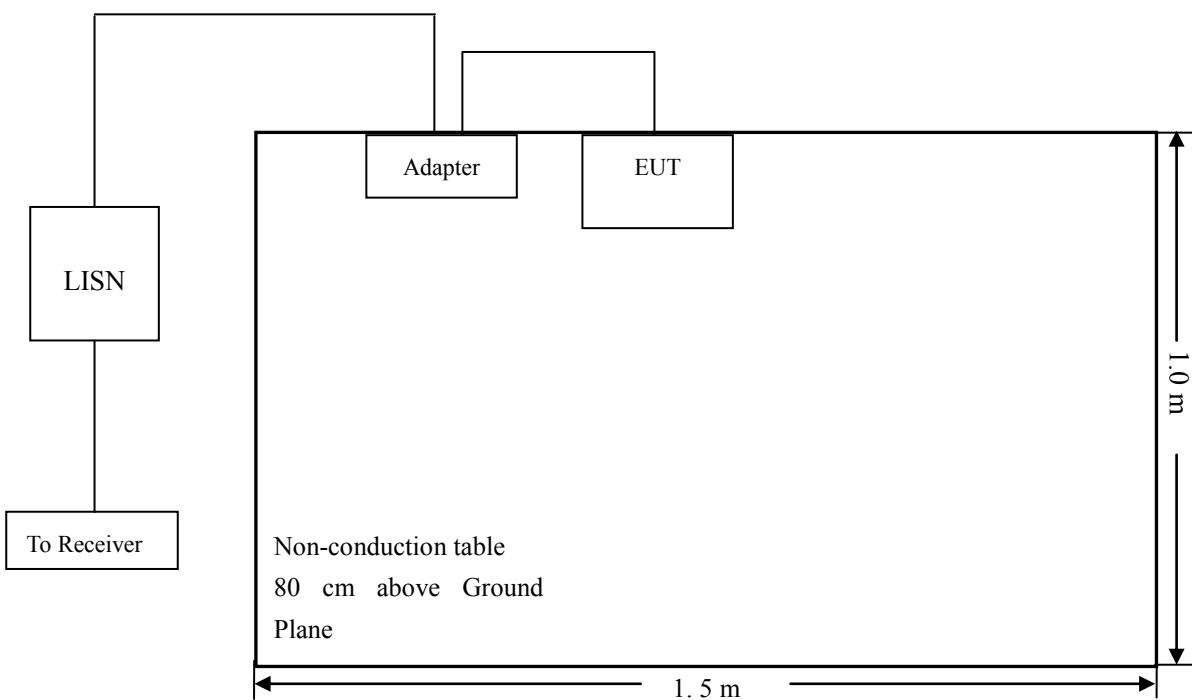
## 10. Conducted Emissions

### 10.1 Test Procedure

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 Limit.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle. The spacing between the peripherals was 10 cm.

### 10.2 Basic Test Setup Block Diagram



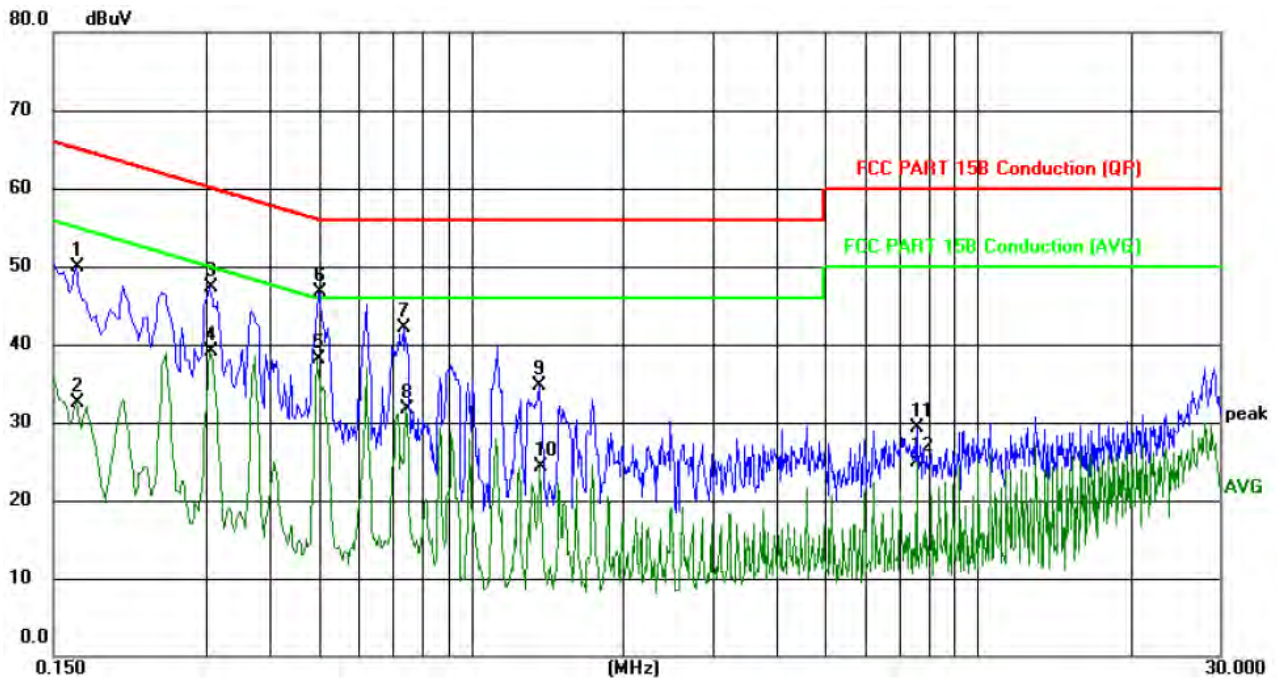
### 10.3 Test Receiver Setup

During the conducted emission test, the test receiver was set with the following configurations:

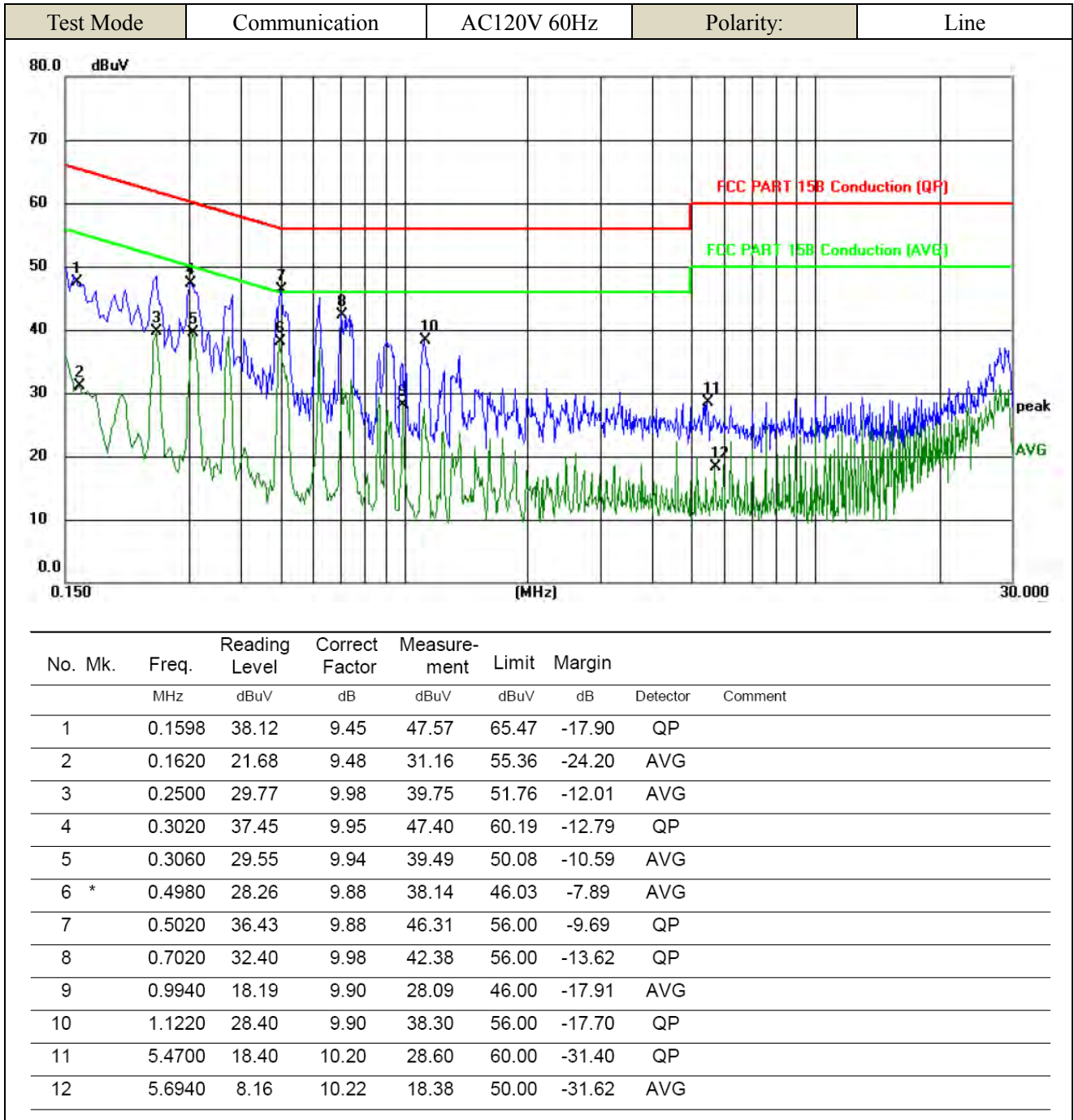
Start Frequency ..... 150 kHz  
 Stop Frequency ..... 30 MHz  
 Sweep Speed ..... Auto  
 IF Bandwidth ..... 10 kHz  
 Quasi-Peak Adapter Bandwidth ..... 9 kHz  
 Quasi-Peak Adapter Mode ..... Normal

### 10.4 Summary of Test Results/Plots

Test Mode	Communication	AC120V 60Hz	Polarity:	Neutral
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No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV	Limit dBuV	Margin dB	Detector	Comment
1	0.1660	40.29	9.55	49.84	65.16	-15.32	QP	
2	0.1660	22.98	9.55	32.53	55.16	-22.63	AVG	
3	0.3060	37.27	9.94	47.21	60.08	-12.87	QP	
4	0.3060	29.13	9.94	39.07	50.08	-11.01	AVG	
5 *	0.4980	28.19	9.88	38.07	46.03	-7.96	AVG	
6	0.5020	36.73	9.88	46.61	56.00	-9.39	QP	
7	0.7380	32.06	10.00	42.06	56.00	-13.94	QP	
8	0.7460	21.63	10.00	31.63	46.00	-14.37	AVG	
9	1.3660	24.53	10.18	34.71	56.00	-21.29	QP	
10	1.3700	14.05	10.19	24.24	46.00	-21.76	AVG	
11	7.5940	19.06	10.32	29.38	60.00	-30.62	QP	
12	7.5940	14.57	10.32	24.89	50.00	-25.11	AVG	



\*\*\*\*\* END OF REPORT \*\*\*\*\*