

# FCC Part 15C Measurement and Test Report

For

**SHENZHEN AMEDIATECH TECHNOLOGY CO., LTD**

**No. 01, 2/F, A Plant, Block B, Minsheng Industrial Park, Longmei Road,  
Gaofeng Community, Dalang Office, Longhua District, Shenzhen, China**

**FCC ID: 2AI6D-X96D**

<b>FCC Rule(s):</b>	<u>FCC Part 15C</u>
<b>Product Description:</b>	<u>Smart TV BOX</u>
<b>Tested Model:</b>	<u>X96D</u>
<b>Report No.:</b>	<u>STR180683771</u>
<b>Sample Receipt Date:</b>	<u>2018-06-28</u>
<b>Tested Date:</b>	<u>2018-06-29 to 2018-07-06</u>
<b>Issued Date:</b>	<u>2018-07-10</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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## 1. GENERAL INFORMATION

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

#### Client Information

Applicant: SHENZHEN AMEDIATECH TECHNOLOGY CO., LTD  
Address of applicant: No. 01, 2/F, A Plant, Block B, Minsheng Industrial Park,  
Longmei Road, Gaofeng Community, Dalang Office, Longhua  
District, Shenzhen, China

Manufacturer: SHENZHEN AMEDIATECH TECHNOLOGY CO., LTD  
Address of manufacturer: No. 01, 2/F, A Plant, Block B, Minsheng Industrial Park,  
Longmei Road, Gaofeng Community, Dalang Office, Longhua  
District, Shenzhen, China

General Description of EUT	
Product Name:	Smart TV BOX
Trade Name:	/
Model No.:	X96D
Adding Model(s):	DL3, X96L, X96Y, X96Y2
Rated Voltage:	Adapter:DC5.0V
Battery:	/
Power Adapter Model:	/
Software Version:	V1.0
Hardware Version:	V1.0
<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 X96D, 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
RF Output Power:	16.14dBm (Conducted)
Type of Modulation:	CCK, OFDM, QPSK, BPSK, 16QAM, 64QAM
Data Rate:	1-11Mbps, 6-54Mbps, up to 72.2Mbps
Quantity of Channels:	11
Channel Separation:	5MHz
Type of Antenna:	Integral
Antenna Gain:	2.5 dBi
Lowest Internal Frequency of EUT:	24MHz

## 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 DTS Meas Guidance v04:** GUIDANCE FOR PERFORMING COMPLIANCE MEASUREMENTS ON DIGITAL TRANSMISSION SYSTEMS (DTS) OPERATING UNDER SECTION 15.247

**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 DTS Meas Guidance v04

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

### **FCC – Registration No.: 125990**

Shenzhen SEM Test Technology Co., Ltd. Laboratory has been recognized to perform compliance testing on equipment subject to the Commissions Declaration Of Conformity (DOC). 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:

<b>Test Mode List</b>		
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

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

<b>Test Conditions</b>	
Temperature:	25 °C
Relative humidity	55 %.
ATM Pressure:	1019 mbar

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

<b>Special Cable List and Details</b>			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
USB LINE	0.8	Unshielded	Without Core

<b>Auxiliary Equipment List and Details</b>			
Description	Manufacturer	Model	Serial Number
AC ADAPTER	KEZHEN	KZ0501500V	/

## 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	2018-05-22	2019-05-21
SEMT-1031	Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/035	2018-05-22	2019-05-21
SEMT-1007	EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2018-05-22	2019-05-21
SEMT-1008	Amplifier	Agilent	8447F	3113A06717	2018-05-22	2019-05-21
SEMT-1043	Amplifier	C&D	PAP-1G18	2002	2018-05-22	2019-05-21
SEMT-1011	Broadband Antenna	Schwarz beck	VULB9163	9163-333	2017-06-08	2020-06-07
SEMT-1042	Horn Antenna	ETS	3117	00086197	2017-06-08	2020-06-07
SEMT-1121	Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170582	2017-06-08	2020-06-07
SEMT-1069	Loop Antenna	Schwarz beck	FMZB 1516	9773	2017-06-08	2020-06-07
SEMT-1001	EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2018-05-22	2019-05-21
SEMT-1003	L.I.S.N	Schwarz beck	NSLK8126	8126-224	2018-05-22	2019-05-21
SEMT-1002	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2018-05-22	2019-05-21
SEMT-1168	Pre-amplifier	Direction Systems Inc.	PAP-0126	14141-12838	2018-05-22	2019-05-21
SEMT-1169	Pre-amplifier	Direction Systems Inc.	PAP-2640	14145-14153	2018-05-22	2019-05-21
SEMT-1163	Spectrum Analyzer	Rohde & Schwarz	FSP40	100612	2018-05-22	2019-05-21
SEMT-1170	DRG Horn Antenna	A.H. SYSTEMS	SAS-574	571	2018-03-19	2021-03-18
SEMT-1166	Power Limiter	Agilent	N9356B	MY45450376	2018-05-22	2019-05-21
SEMT-1048	RF Limiter	ATTEN	AT-BSF-2400~2500	/	2018-05-22	2019-05-21
SEMT-1076	RF Switcher	Top Precision	RCS03-A2	/	2018-05-22	2019-05-21
SEMT-C001	Cable	Zheng DI	LL142-07-07-10M(A)	/	2018-03-19	2019-03-18
SEMT-C002	Cable	Zheng DI	ZT40-2.92J-2.92J-6M	/	2018-03-19	2019-03-18
SEMT-C003	Cable	Zheng DI	ZT40-2.92J-2.92J-2.5M	/	2018-03-19	2019-03-18
SEMT-C004	Cable	Zheng DI	2M0RFC	/	2018-03-19	2019-03-18
SEMT-C005	Cable	Zheng DI	1M0RFC	/	2018-03-19	2019-03-18
SEMT-C006	Cable	Zheng DI	1M0RFC	/	2018-03-19	2019-03-18

## 2. SUMMARY OF TEST RESULTS

FCC Rules	Description of Test Item	Result
§ 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)	6 dB 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 § 2.1093, the portable 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 an integral antenna, 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

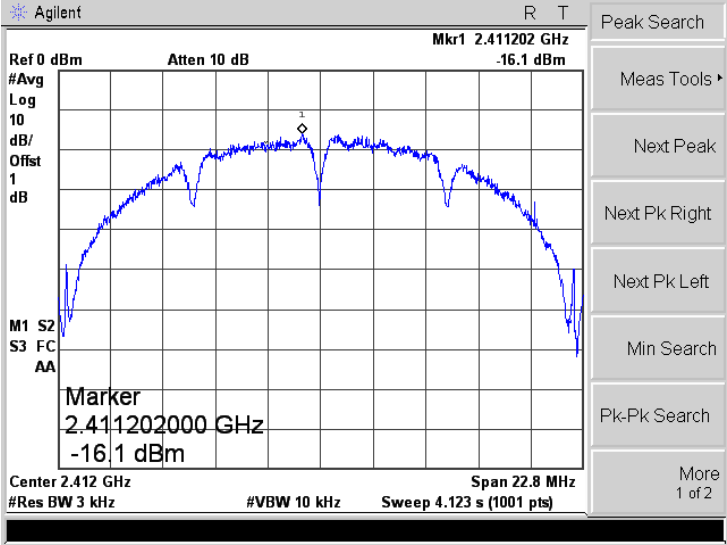
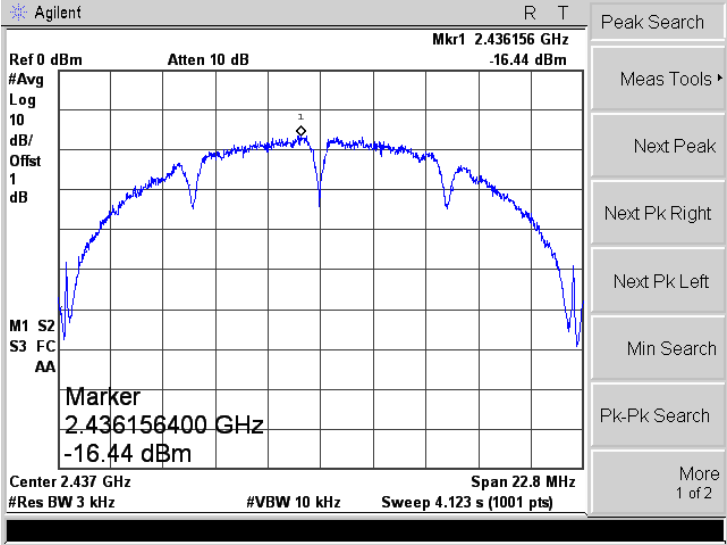
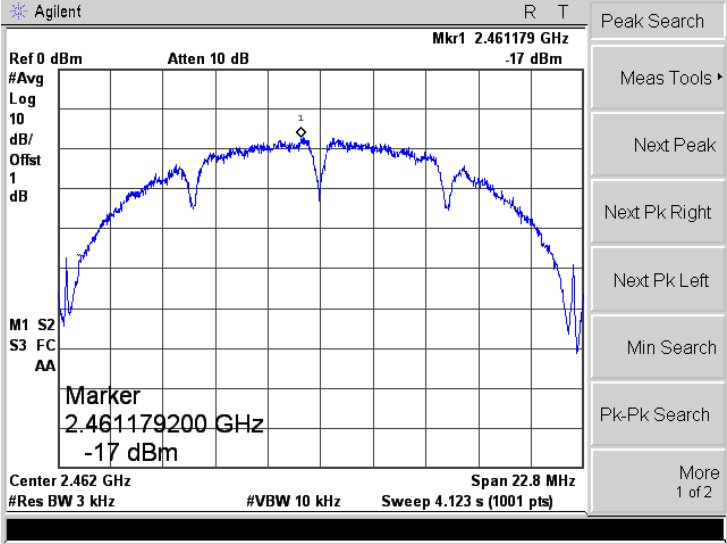
According to the KDB 558074 D01 v04, such specifications require that the same method as used to determine the conducted output power shall also be used to determine the power spectral density. The test method of power spectral density as below:

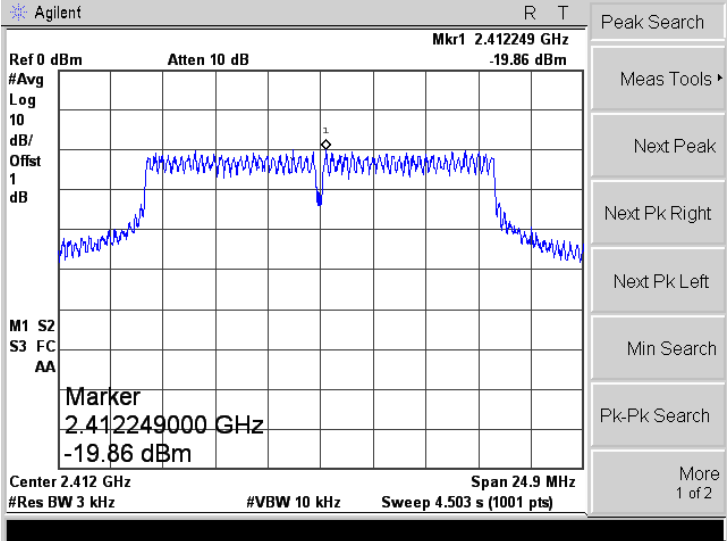
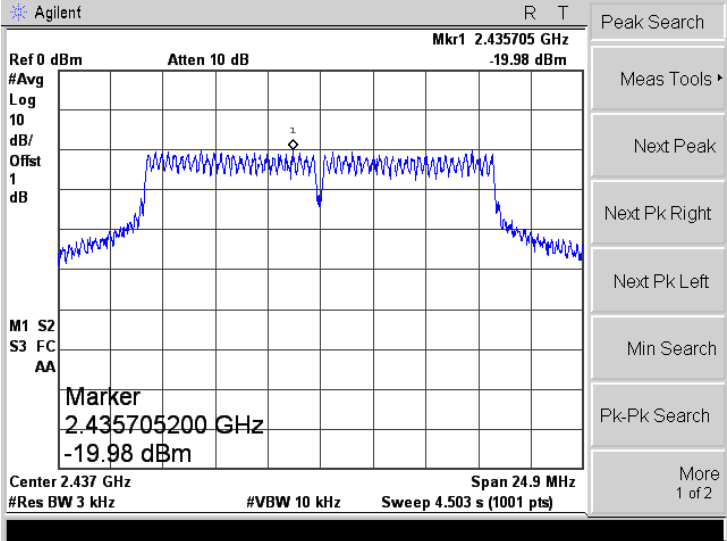
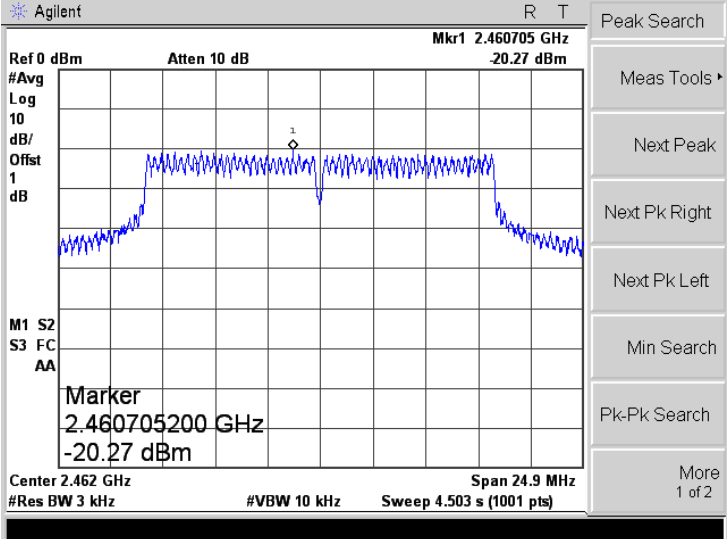
- a) Set instrument center frequency to DTS channel center frequency.
- b) Set span to at least 1.5 times the OBW.
- c) Set RBW to:  $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$ .
- d) Set VBW  $\geq 3 \times \text{RBW}$ .
- e) Detector = power averaging (RMS) or sample detector (when RMS not available).
- f) Ensure that the number of measurement points in the sweep  $\geq 2 \times \text{span}/\text{RBW}$ .
- g) Sweep time = auto couple.
- h) Employ trace averaging (RMS) mode over a minimum of 100 traces.
- i) Use the peak marker function to determine the maximum amplitude level.
- j) If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat (note that this may require zooming in on the emission of interest and reducing the span in order to meet the minimum measurement point requirement as the RBW is reduced).

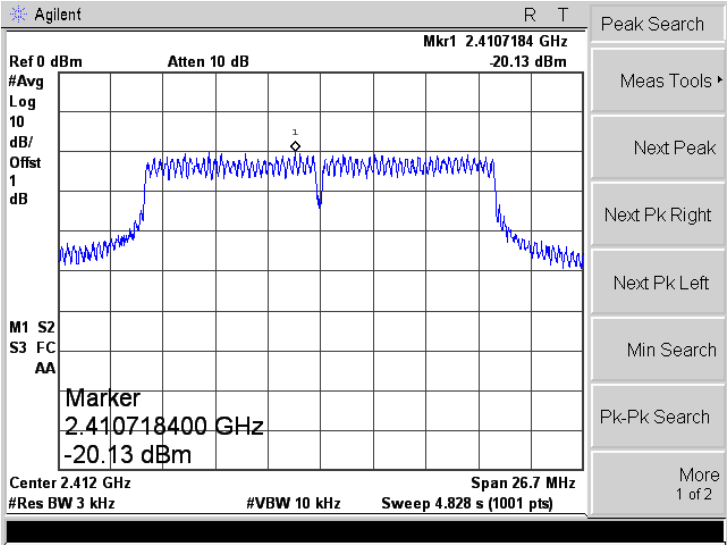
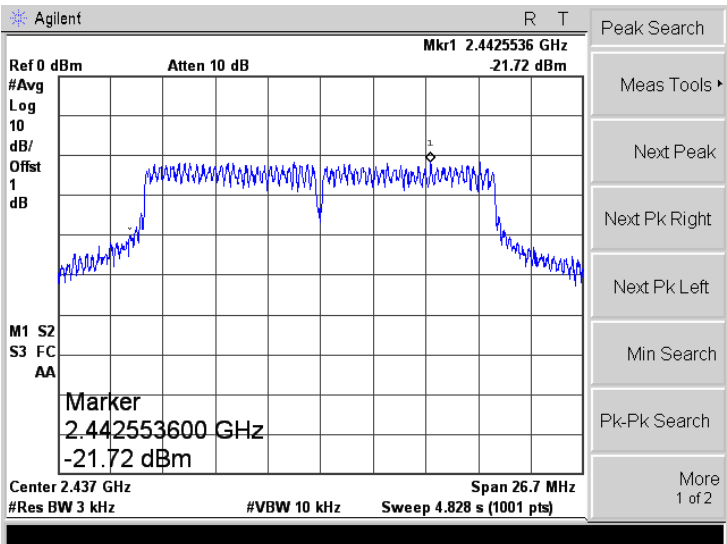
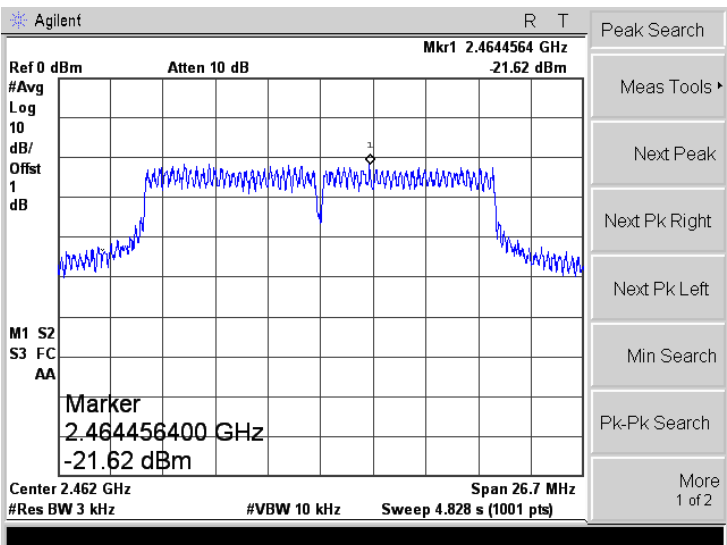
### 5.4 Summary of Test Results/Plots

Test Mode	Test Channel MHz	Power Spectral Density dBm/3kHz	Limit dBm/3kHz
802.11b	2412	-16.10	8
	2437	-16.44	8
	2462	-17.00	8
802.11g	2412	-19.86	8
	2437	-19.98	8
	2462	-20.27	8
802.11n-HT20	2412	-20.13	8
	2437	-21.72	8
	2462	-21.62	8

Please refer to the following test plots:

<p>802.11b-Low</p>	
<p>802.11b-Middle</p>	
<p>802.11b-High</p>	

<p>802.11g-Low</p>	
<p>802.11g-Middle</p>	
<p>802.11g-High</p>	

<p>802.11n-HT20-Low</p>	
<p>802.11n-HT20-Middle</p>	
<p>802.11n-HT20-High</p>	

## 6. 6dB 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

- 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 Environmental Conditions

Temperature:	25° C
Relative Humidity:	53%
ATM Pressure:	1018 mbar

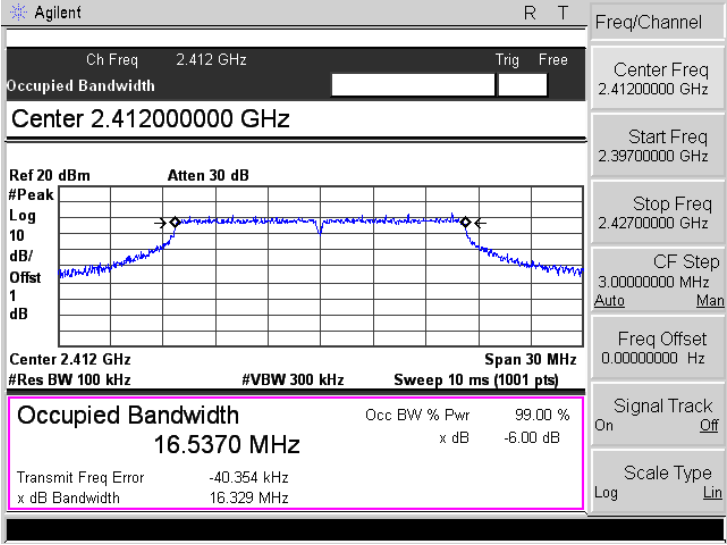
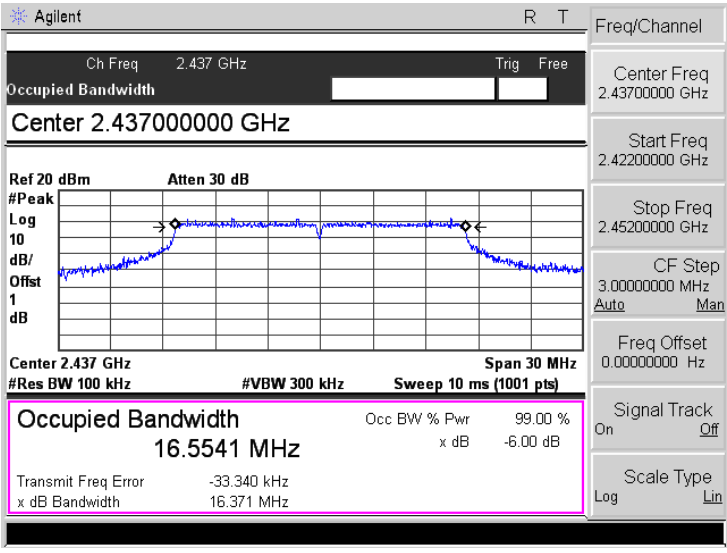
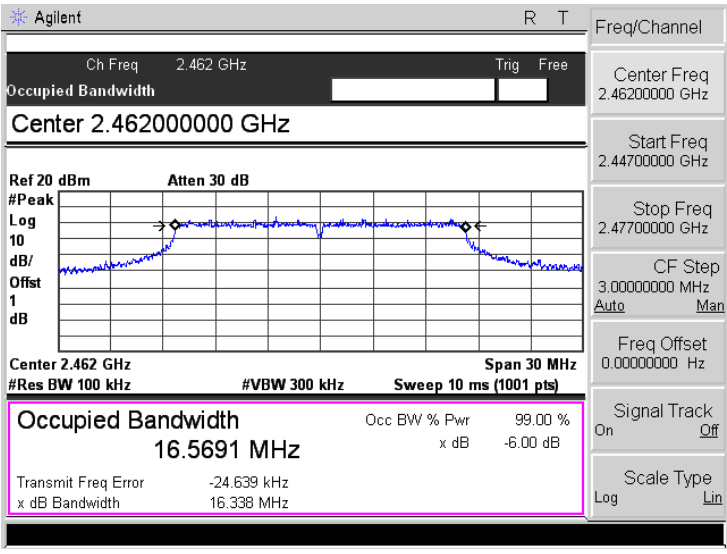
### 6.4 Summary of Test Results/Plots

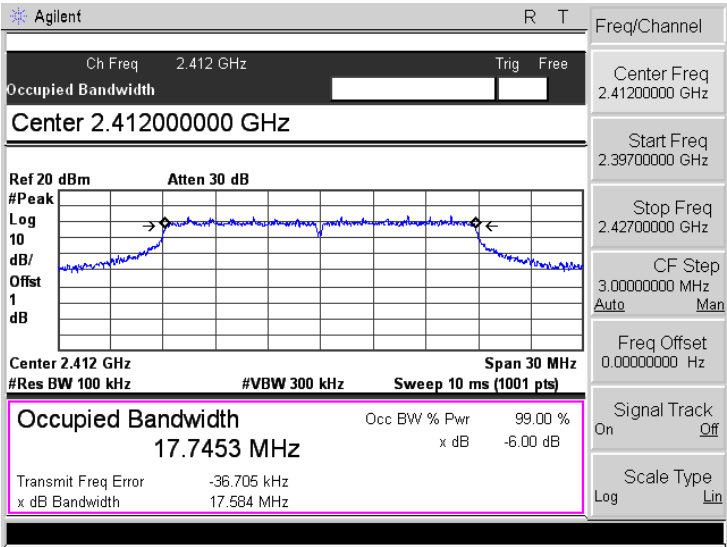
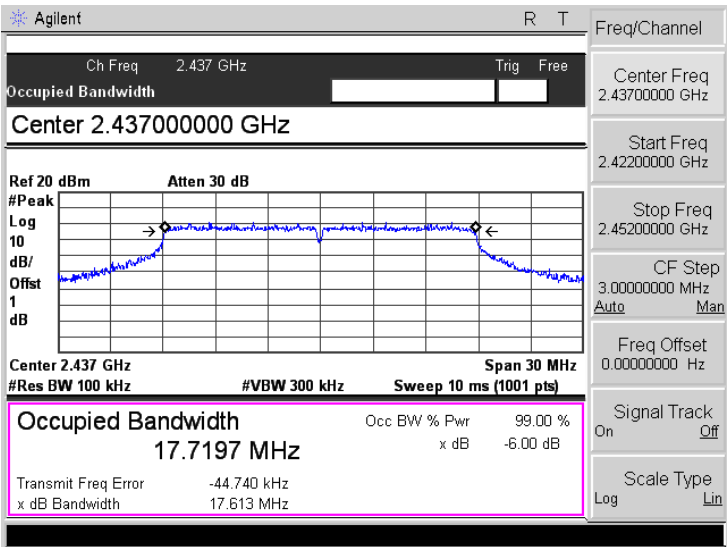
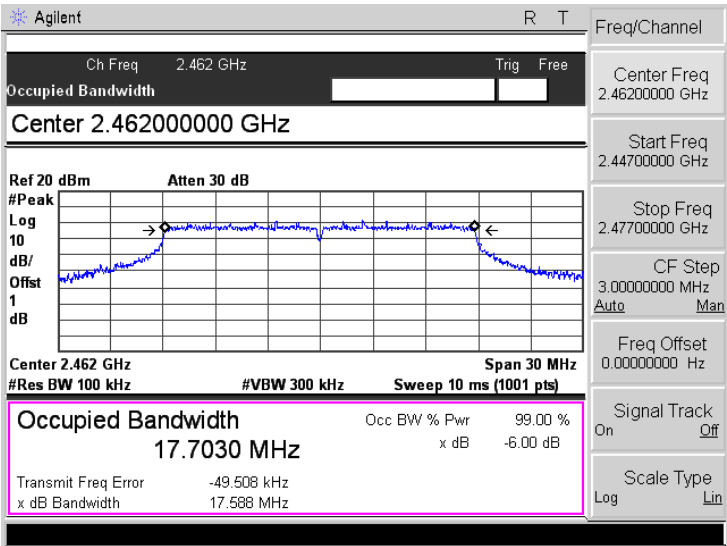
6. 6dB Bandwidth				
Test Mode	Test Channel MHz	6 dB Bandwidth MHz	99% Bandwidth MHz	Limit kHz
802.11b	2412	10.056	15.1234	$\geq 500$
	2437	10.056	15.1184	$\geq 500$
	2462	9.606	15.1029	$\geq 500$
802.11g	2412	16.329	16.5370	$\geq 500$
	2437	16.371	16.5541	$\geq 500$
	2462	16.338	16.5691	$\geq 500$
802.11n-HT20	2412	17.584	17.7453	$\geq 500$
	2437	17.613	17.7197	$\geq 500$
	2462	17.588	17.7030	$\geq 500$

Please refer to the following test plots:

802.11b-Low	<p>Agilent R T</p> <p>Ch Freq 2.412 GHz Trig Free</p> <p>Occupied Bandwidth</p> <p><b>Center 2.41200000 GHz</b></p> <p>Ref 20 dBm Atten 30 dB</p> <p>#Peak</p> <p>Log 10</p> <p>dB/</p> <p>Offset 1</p> <p>dB</p> <p>Center 2.412 GHz Span 30 MHz</p> <p>#Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts)</p> <p><b>Occupied Bandwidth</b> Occ BW % Pwr 99.00 %</p> <p><b>15.1234 MHz</b> x dB -6.00 dB</p> <p>Transmit Freq Error -32.171 kHz</p> <p>x dB Bandwidth 10.056 MHz</p> <p>Freq/Channel</p> <p>Center Freq 2.41200000 GHz</p> <p>Start Freq 2.39700000 GHz</p> <p>Stop Freq 2.42700000 GHz</p> <p>CF Step 3.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Scale Type Log Lin</p>
802.11b-Middle	<p>Agilent R T</p> <p>Ch Freq 2.437 GHz Trig Free</p> <p>Occupied Bandwidth</p> <p><b>Center 2.43700000 GHz</b></p> <p>Ref 20 dBm Atten 30 dB</p> <p>#Peak</p> <p>Log 10</p> <p>dB/</p> <p>Offset 1</p> <p>dB</p> <p>Center 2.437 GHz Span 30 MHz</p> <p>#Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts)</p> <p><b>Occupied Bandwidth</b> Occ BW % Pwr 99.00 %</p> <p><b>15.1184 MHz</b> x dB -6.00 dB</p> <p>Transmit Freq Error -91.185 kHz</p> <p>x dB Bandwidth 10.056 MHz</p> <p>Freq/Channel</p> <p>Center Freq 2.43700000 GHz</p> <p>Start Freq 2.42200000 GHz</p> <p>Stop Freq 2.45200000 GHz</p> <p>CF Step 3.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Scale Type Log Lin</p>
802.11b-High	<p>Agilent R T</p> <p>Ch Freq 2.462 GHz Trig Free</p> <p>Occupied Bandwidth</p> <p><b>Center 2.46200000 GHz</b></p> <p>Ref 20 dBm Atten 30 dB</p> <p>#Peak</p> <p>Log 10</p> <p>dB/</p> <p>Offset 1</p> <p>dB</p> <p>Center 2.462 GHz Span 30 MHz</p> <p>#Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts)</p> <p><b>Occupied Bandwidth</b> Occ BW % Pwr 99.00 %</p> <p><b>15.1029 MHz</b> x dB -6.00 dB</p> <p>Transmit Freq Error -58.291 kHz</p> <p>x dB Bandwidth 9.606 MHz</p> <p>Freq/Channel</p> <p>Center Freq 2.46200000 GHz</p> <p>Start Freq 2.44700000 GHz</p> <p>Stop Freq 2.47700000 GHz</p> <p>CF Step 3.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Scale Type Log Lin</p>



<p>802.11g-Low</p>	 <p>Agilent R T</p> <p>Ch Freq 2.412 GHz Trig Free</p> <p>Center 2.41200000 GHz</p> <p>Ref 20 dBm Atten 30 dB</p> <p>Center 2.412 GHz Span 30 MHz</p> <p>Occupied Bandwidth 16.5370 MHz</p> <p>Occ BW % Pwr 99.00 % x dB -6.00 dB</p> <p>Transmit Freq Error -40.354 kHz x dB Bandwidth 16.329 MHz</p>
<p>802.11g-Middle</p>	 <p>Agilent R T</p> <p>Ch Freq 2.437 GHz Trig Free</p> <p>Center 2.43700000 GHz</p> <p>Ref 20 dBm Atten 30 dB</p> <p>Center 2.437 GHz Span 30 MHz</p> <p>Occupied Bandwidth 16.5541 MHz</p> <p>Occ BW % Pwr 99.00 % x dB -6.00 dB</p> <p>Transmit Freq Error -33.340 kHz x dB Bandwidth 16.371 MHz</p>
<p>802.11g-High</p>	 <p>Agilent R T</p> <p>Ch Freq 2.462 GHz Trig Free</p> <p>Center 2.46200000 GHz</p> <p>Ref 20 dBm Atten 30 dB</p> <p>Center 2.462 GHz Span 30 MHz</p> <p>Occupied Bandwidth 16.5691 MHz</p> <p>Occ BW % Pwr 99.00 % x dB -6.00 dB</p> <p>Transmit Freq Error -24.639 kHz x dB Bandwidth 16.338 MHz</p>

<p>802.11n-HT20-Low</p>	 <p>Agilent R T</p> <p>Ch Freq 2.412 GHz Trig Free</p> <p>Occupied Bandwidth</p> <p><b>Center 2.41200000 GHz</b></p> <p>Ref 20 dBm Atten 30 dB</p> <p>#Peak Log 10 dB/Offset 1 dB</p> <p>Center 2.412 GHz Span 30 MHz</p> <p>#Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts)</p> <p><b>Occupied Bandwidth 17.7453 MHz</b></p> <p>Occ BW % Pwr 99.00 % x dB -6.00 dB</p> <p>Transmit Freq Error -36.705 kHz x dB Bandwidth 17.584 MHz</p> <p>Freq/Channel</p> <p>Center Freq 2.41200000 GHz</p> <p>Start Freq 2.39700000 GHz</p> <p>Stop Freq 2.42700000 GHz</p> <p>CF Step 3.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Scale Type Log Lin</p>
<p>802.11n-HT20-Middle</p>	 <p>Agilent R T</p> <p>Ch Freq 2.437 GHz Trig Free</p> <p>Occupied Bandwidth</p> <p><b>Center 2.43700000 GHz</b></p> <p>Ref 20 dBm Atten 30 dB</p> <p>#Peak Log 10 dB/Offset 1 dB</p> <p>Center 2.437 GHz Span 30 MHz</p> <p>#Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts)</p> <p><b>Occupied Bandwidth 17.7197 MHz</b></p> <p>Occ BW % Pwr 99.00 % x dB -6.00 dB</p> <p>Transmit Freq Error -44.740 kHz x dB Bandwidth 17.613 MHz</p> <p>Freq/Channel</p> <p>Center Freq 2.43700000 GHz</p> <p>Start Freq 2.42200000 GHz</p> <p>Stop Freq 2.45200000 GHz</p> <p>CF Step 3.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Scale Type Log Lin</p>
<p>802.11n-HT20-High</p>	 <p>Agilent R T</p> <p>Ch Freq 2.462 GHz Trig Free</p> <p>Occupied Bandwidth</p> <p><b>Center 2.46200000 GHz</b></p> <p>Ref 20 dBm Atten 30 dB</p> <p>#Peak Log 10 dB/Offset 1 dB</p> <p>Center 2.462 GHz Span 30 MHz</p> <p>#Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts)</p> <p><b>Occupied Bandwidth 17.7030 MHz</b></p> <p>Occ BW % Pwr 99.00 % x dB -6.00 dB</p> <p>Transmit Freq Error -49.508 kHz x dB Bandwidth 17.588 MHz</p> <p>Freq/Channel</p> <p>Center Freq 2.46200000 GHz</p> <p>Start Freq 2.44700000 GHz</p> <p>Stop Freq 2.47700000 GHz</p> <p>CF Step 3.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Scale Type Log Lin</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

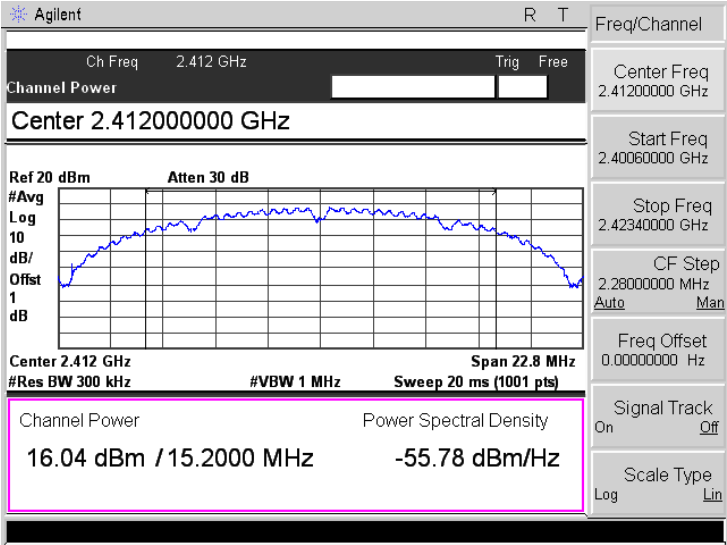
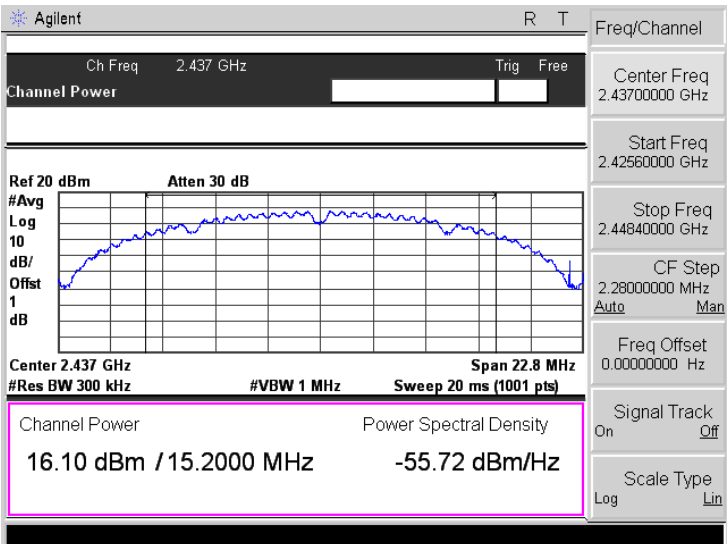
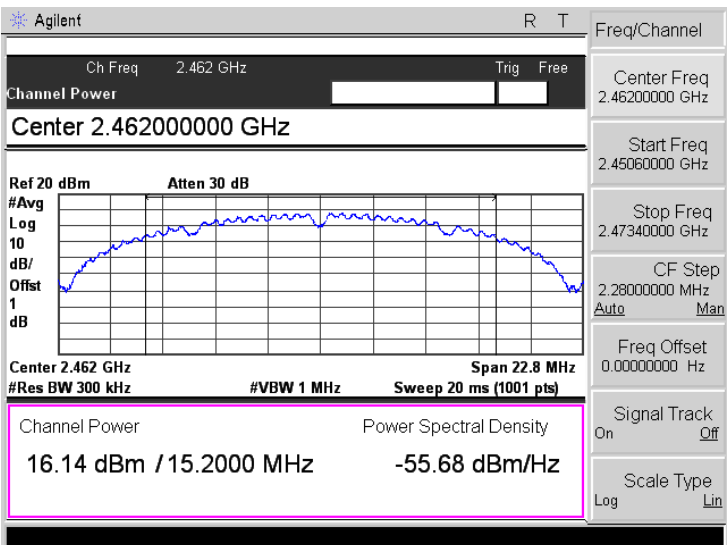
According to the KDB-558074 D01 v04, 9.2.2.2, when this option is exercised, the measured power is to be referenced to the OBW rather than the DTS bandwidth

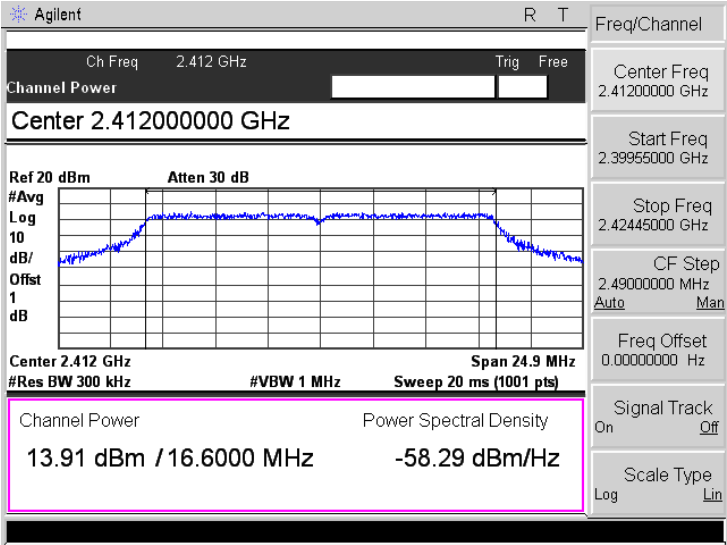
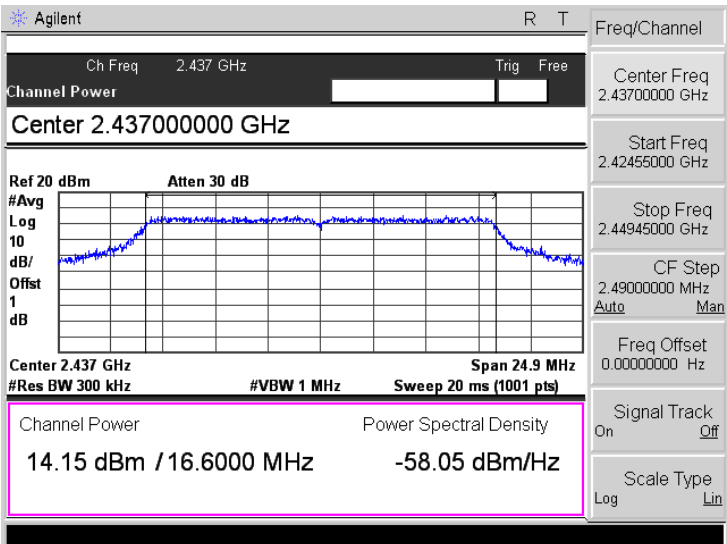
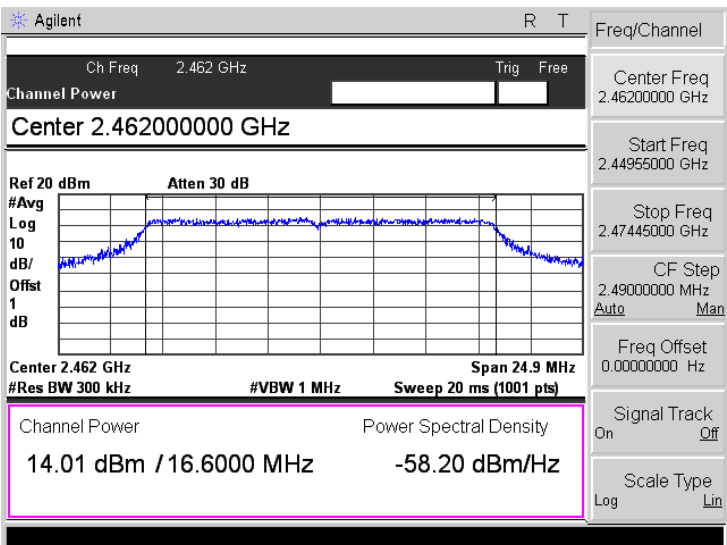
- a) Set span to at least 1.5 times the OBW.
- b) Set RBW = 1-5% of the OBW, not to exceed 1 MHz.
- c) Set VBW  $\geq 3 \times$  RBW.
- d) Number of points in sweep  $\geq 2 \times$  span / RBW. (This gives bin-to-bin spacing  $\leq$  RBW/2, so that narrowband signals are not lost between frequency bins.)
- e) Sweep time = auto.
- f) Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.
- g) If transmit duty cycle < 98 %, use a sweep trigger with the level set to enable triggering only on full power pulses. The transmitter shall operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no off intervals) or at duty cycle  $\geq 98$  %, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to “free run” .
- h) Trace average at least 100 traces in power averaging (i.e., RMS) mode.
- i) Compute power by integrating the spectrum across the OBW of the signal using the instrument’s band power measurement function, with band limits set equal to the OBW band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.

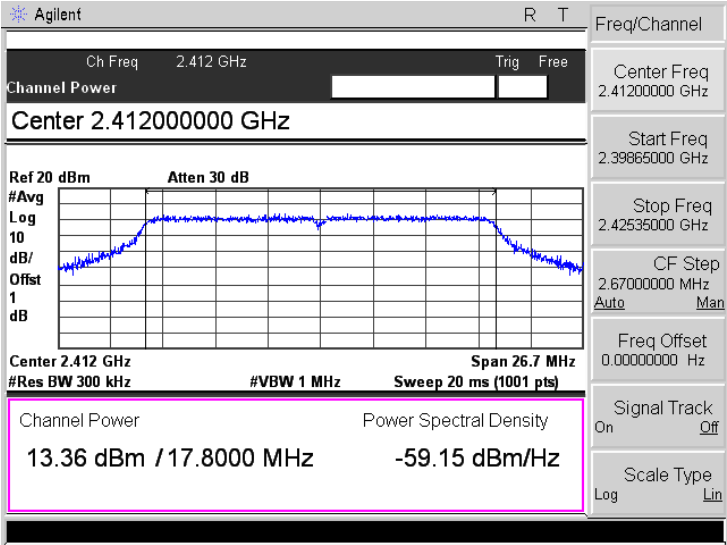
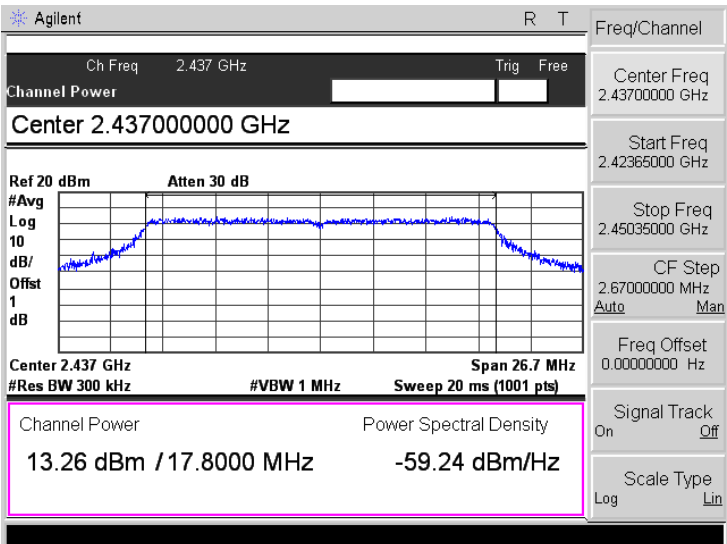
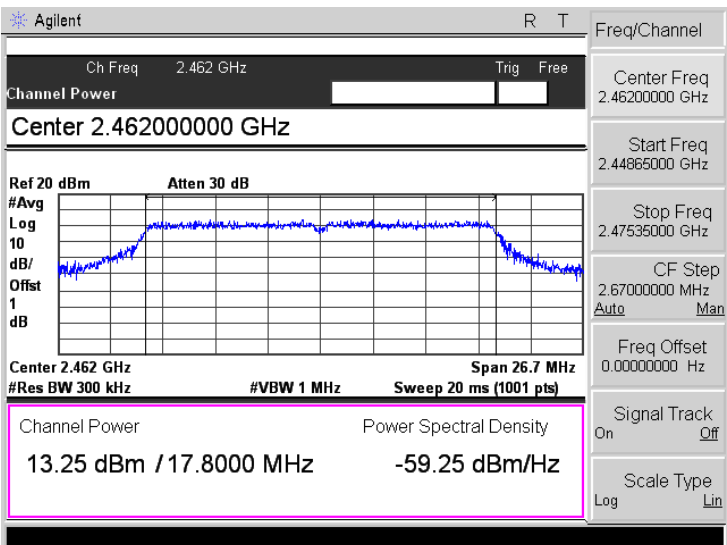
### 7.3 Summary of Test Results/Plots

Test Mode	Frequency MHz	Reading dBm	Output Power mW	Limit mW
802.11b_11Mbps	2412	16.04	40.18	1000
	2437	16.10	40.74	1000
	2462	16.14	41.11	1000
802.11g_54Mbps	2412	13.91	24.60	1000
	2437	14.15	26.00	1000
	2462	14.01	25.18	1000
802.11n HT20_MCS7	2412	13.36	21.68	1000
	2437	13.26	21.18	1000
	2462	13.25	21.13	1000

Please refer to the following test plots:

<p>802.11b-Low 11Mbps</p>	 <p>Agilent R T</p> <p>Ch Freq 2.412 GHz Trig Free</p> <p>Channel Power</p> <p><b>Center 2.41200000 GHz</b></p> <p>Ref 20 dBm Atten 30 dB</p> <p>#Avg Log 10 dB/ Offst 1 dB</p> <p>Center 2.412 GHz Span 22.8 MHz</p> <p>#Res BW 300 kHz #VBW 1 MHz Sweep 20 ms (1001 pts)</p> <p>Channel Power Power Spectral Density</p> <p><b>16.04 dBm / 15.2000 MHz -55.78 dBm/Hz</b></p> <p>Freq/Channel</p> <p>Center Freq 2.41200000 GHz</p> <p>Start Freq 2.40060000 GHz</p> <p>Stop Freq 2.42340000 GHz</p> <p>CF Step 2.28000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Scale Type Log Lin</p>
<p>802.11b-Middle 11Mbps</p>	 <p>Agilent R T</p> <p>Ch Freq 2.437 GHz Trig Free</p> <p>Channel Power</p> <p><b>Center 2.437 GHz</b></p> <p>Ref 20 dBm Atten 30 dB</p> <p>#Avg Log 10 dB/ Offst 1 dB</p> <p>Center 2.437 GHz Span 22.8 MHz</p> <p>#Res BW 300 kHz #VBW 1 MHz Sweep 20 ms (1001 pts)</p> <p>Channel Power Power Spectral Density</p> <p><b>16.10 dBm / 15.2000 MHz -55.72 dBm/Hz</b></p> <p>Freq/Channel</p> <p>Center Freq 2.43700000 GHz</p> <p>Start Freq 2.42560000 GHz</p> <p>Stop Freq 2.44840000 GHz</p> <p>CF Step 2.28000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Scale Type Log Lin</p>
<p>802.11b-High 11Mbps</p>	 <p>Agilent R T</p> <p>Ch Freq 2.462 GHz Trig Free</p> <p>Channel Power</p> <p><b>Center 2.46200000 GHz</b></p> <p>Ref 20 dBm Atten 30 dB</p> <p>#Avg Log 10 dB/ Offst 1 dB</p> <p>Center 2.462 GHz Span 22.8 MHz</p> <p>#Res BW 300 kHz #VBW 1 MHz Sweep 20 ms (1001 pts)</p> <p>Channel Power Power Spectral Density</p> <p><b>16.14 dBm / 15.2000 MHz -55.68 dBm/Hz</b></p> <p>Freq/Channel</p> <p>Center Freq 2.46200000 GHz</p> <p>Start Freq 2.45060000 GHz</p> <p>Stop Freq 2.47340000 GHz</p> <p>CF Step 2.28000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Scale Type Log Lin</p>

<p>802.11g-Low 54Mbps</p>	 <p>Agilent R T</p> <p>Ch Freq 2.412 GHz Trig Free</p> <p>Channel Power</p> <p><b>Center 2.41200000 GHz</b></p> <p>Ref 20 dBm Atten 30 dB</p> <p>#Avg Log 10 dB/ Offst 1 dB</p> <p>Center 2.412 GHz Span 24.9 MHz #Res BW 300 kHz #VBW 1 MHz Sweep 20 ms (1001 pts)</p> <p>Channel Power Power Spectral Density <b>13.91 dBm / 16.6000 MHz -58.29 dBm/Hz</b></p> <p>Freq/Channel</p> <p>Center Freq 2.41200000 GHz</p> <p>Start Freq 2.39955000 GHz</p> <p>Stop Freq 2.42445000 GHz</p> <p>CF Step 2.49000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Scale Type Log Lin</p>
<p>802.11g-Middle 54Mbps</p>	 <p>Agilent R T</p> <p>Ch Freq 2.437 GHz Trig Free</p> <p>Channel Power</p> <p><b>Center 2.43700000 GHz</b></p> <p>Ref 20 dBm Atten 30 dB</p> <p>#Avg Log 10 dB/ Offst 1 dB</p> <p>Center 2.437 GHz Span 24.9 MHz #Res BW 300 kHz #VBW 1 MHz Sweep 20 ms (1001 pts)</p> <p>Channel Power Power Spectral Density <b>14.15 dBm / 16.6000 MHz -58.05 dBm/Hz</b></p> <p>Freq/Channel</p> <p>Center Freq 2.43700000 GHz</p> <p>Start Freq 2.42455000 GHz</p> <p>Stop Freq 2.44945000 GHz</p> <p>CF Step 2.49000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Scale Type Log Lin</p>
<p>802.11g-High 54Mbps</p>	 <p>Agilent R T</p> <p>Ch Freq 2.462 GHz Trig Free</p> <p>Channel Power</p> <p><b>Center 2.46200000 GHz</b></p> <p>Ref 20 dBm Atten 30 dB</p> <p>#Avg Log 10 dB/ Offst 1 dB</p> <p>Center 2.462 GHz Span 24.9 MHz #Res BW 300 kHz #VBW 1 MHz Sweep 20 ms (1001 pts)</p> <p>Channel Power Power Spectral Density <b>14.01 dBm / 16.6000 MHz -58.20 dBm/Hz</b></p> <p>Freq/Channel</p> <p>Center Freq 2.46200000 GHz</p> <p>Start Freq 2.44955000 GHz</p> <p>Stop Freq 2.47445000 GHz</p> <p>CF Step 2.49000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Scale Type Log Lin</p>

<p>802.11n-HT20-Low MCS7</p>	 <p>Agilent R T</p> <p>Ch Freq 2.412 GHz Trig Free</p> <p>Channel Power</p> <p><b>Center 2.41200000 GHz</b></p> <p>Ref 20 dBm Atten 30 dB</p> <p>#Avg Log 10 dB/ Offst 1 dB</p> <p>Center 2.412 GHz Span 26.7 MHz</p> <p>#Res BW 300 kHz #VBW 1 MHz Sweep 20 ms (1001 pts)</p> <p>Channel Power Power Spectral Density</p> <p><b>13.36 dBm / 17.8000 MHz -59.15 dBm/Hz</b></p> <p>Freq/Channel</p> <p>Center Freq 2.41200000 GHz</p> <p>Start Freq 2.39865000 GHz</p> <p>Stop Freq 2.42535000 GHz</p> <p>CF Step 2.67000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Scale Type Log Lin</p>
<p>802.11n-HT20-Middle MCS7</p>	 <p>Agilent R T</p> <p>Ch Freq 2.437 GHz Trig Free</p> <p>Channel Power</p> <p><b>Center 2.43700000 GHz</b></p> <p>Ref 20 dBm Atten 30 dB</p> <p>#Avg Log 10 dB/ Offst 1 dB</p> <p>Center 2.437 GHz Span 26.7 MHz</p> <p>#Res BW 300 kHz #VBW 1 MHz Sweep 20 ms (1001 pts)</p> <p>Channel Power Power Spectral Density</p> <p><b>13.26 dBm / 17.8000 MHz -59.24 dBm/Hz</b></p> <p>Freq/Channel</p> <p>Center Freq 2.43700000 GHz</p> <p>Start Freq 2.42365000 GHz</p> <p>Stop Freq 2.45035000 GHz</p> <p>CF Step 2.67000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Scale Type Log Lin</p>
<p>802.11n-HT20-High MCS7</p>	 <p>Agilent R T</p> <p>Ch Freq 2.462 GHz Trig Free</p> <p>Channel Power</p> <p><b>Center 2.46200000 GHz</b></p> <p>Ref 20 dBm Atten 30 dB</p> <p>#Avg Log 10 dB/ Offst 1 dB</p> <p>Center 2.462 GHz Span 26.7 MHz</p> <p>#Res BW 300 kHz #VBW 1 MHz Sweep 20 ms (1001 pts)</p> <p>Channel Power Power Spectral Density</p> <p><b>13.25 dBm / 17.8000 MHz -59.25 dBm/Hz</b></p> <p>Freq/Channel</p> <p>Center Freq 2.46200000 GHz</p> <p>Start Freq 2.44865000 GHz</p> <p>Stop Freq 2.47535000 GHz</p> <p>CF Step 2.67000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Scale Type Log Lin</p>

## 8. Field Strength of Spurious Emissions

### 8.1 Standard Applicable

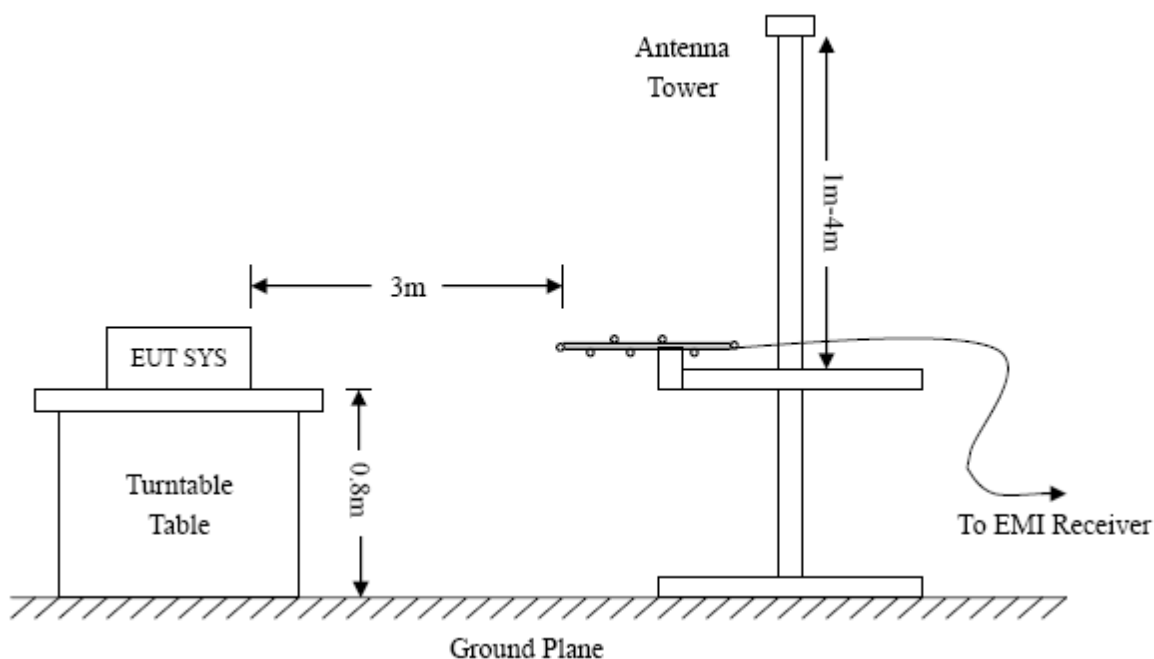
According to §15.247(d), in any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within 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.

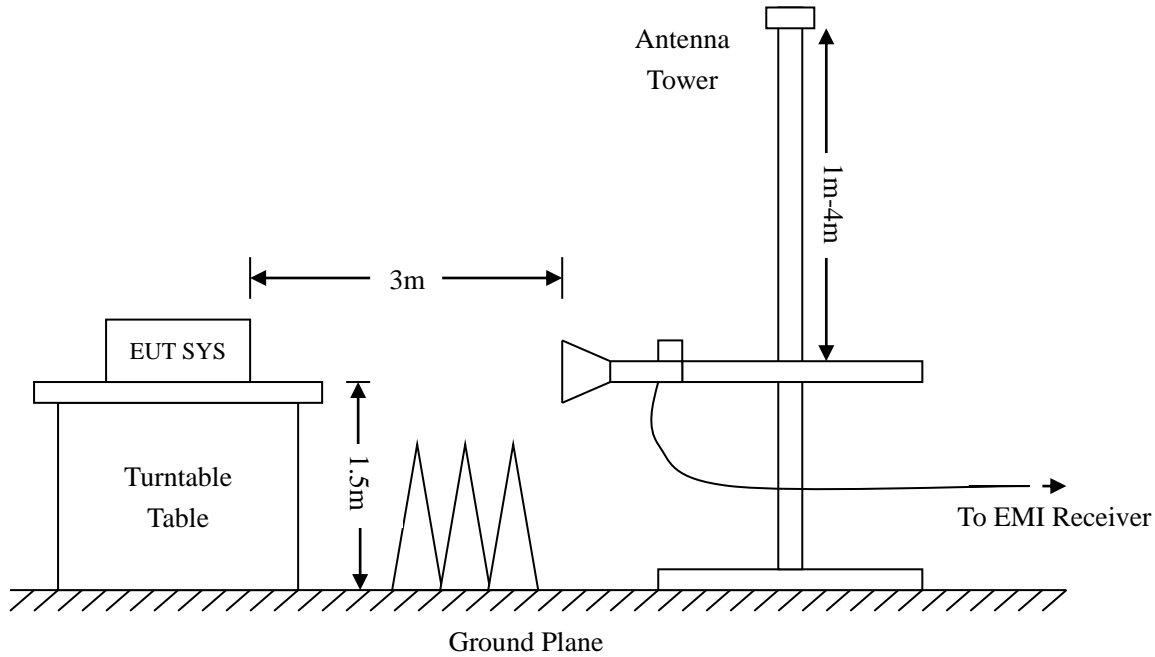
### 8.2 Test Procedure

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=360KHz  
 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 -6dB $\mu$ V means the emission is 6dB $\mu$ V below the maximum limit. The equation for margin calculation is as follows:

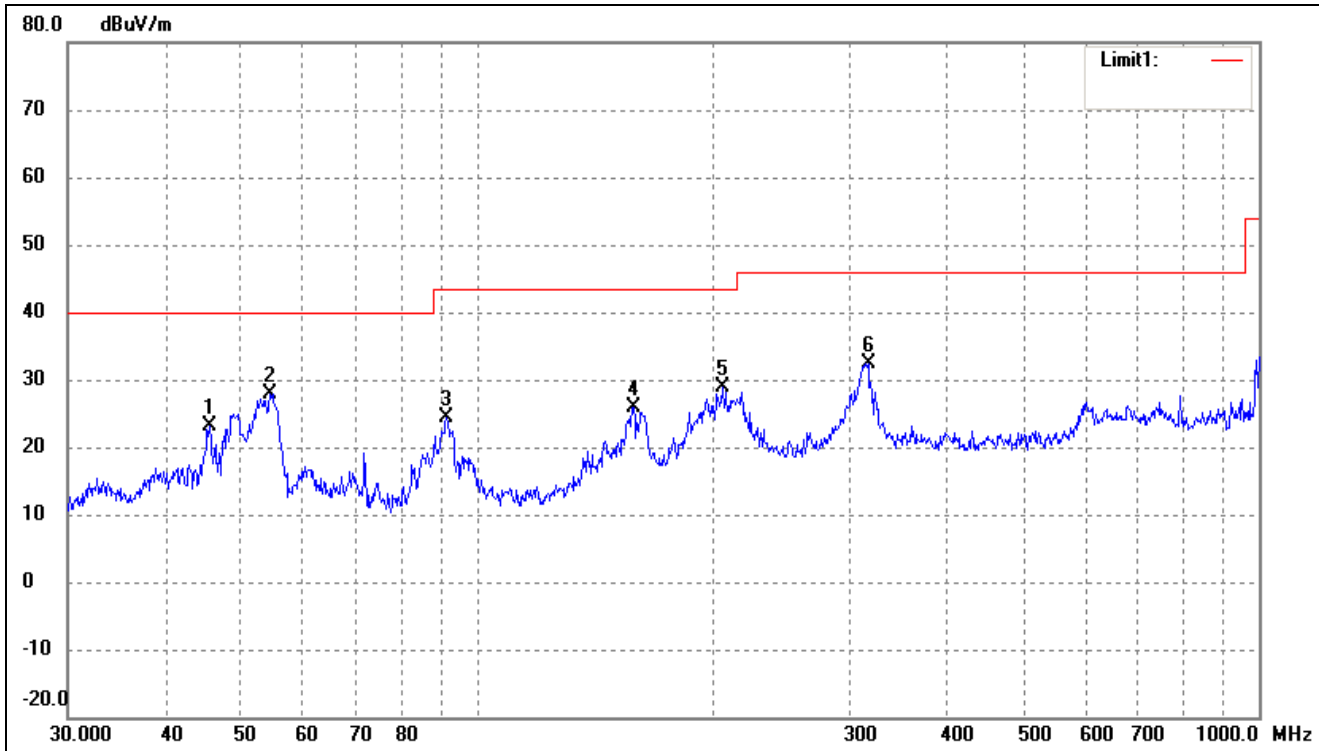
$$\text{Margin} = \text{Corr. Ampl.} - \text{FCC Part 15 Limit}$$

### 8.5 Summary of Test Results/Plots

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

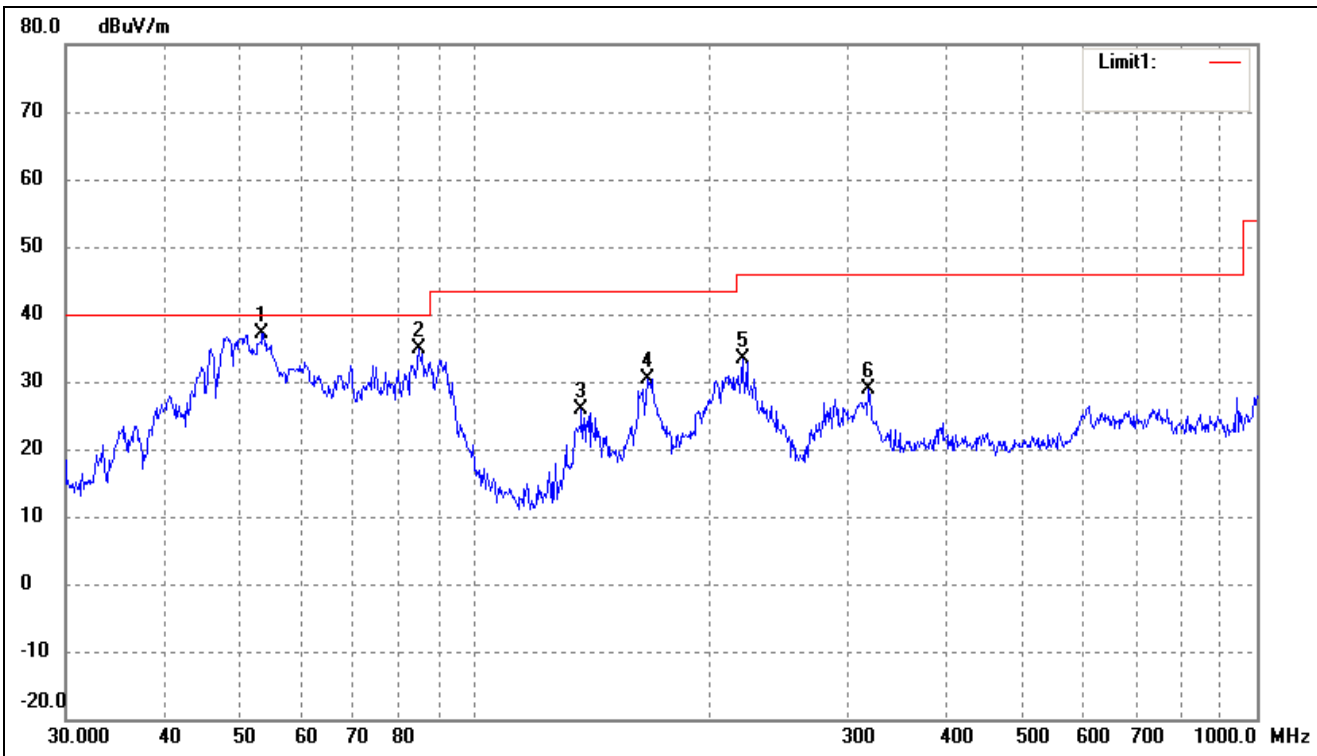
## ➤ Spurious Emissions Below 1GHz

802.11b			
Test Channel	Low	Polarity:	Horizontal



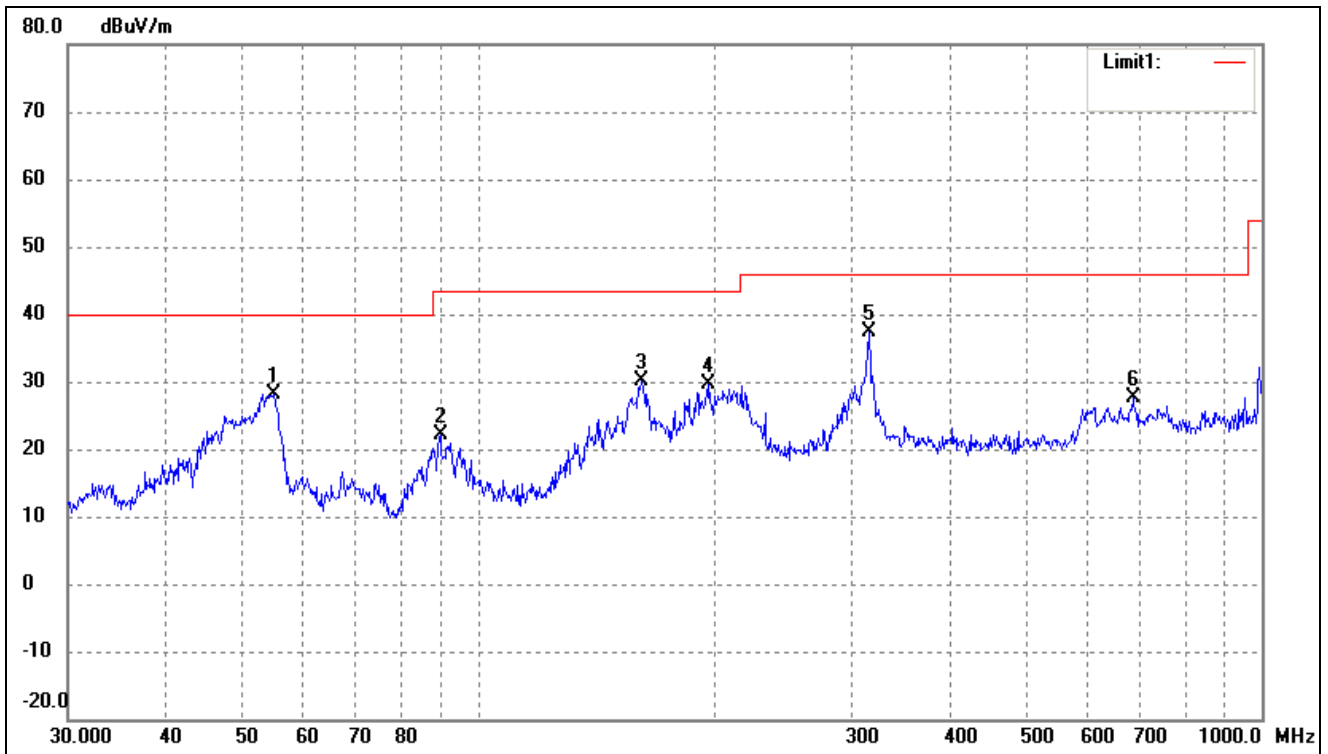
No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	45.5348	41.72	-18.57	23.15	40.00	-16.85	272	100	peak
2	54.4516	46.24	-18.43	27.81	40.00	-12.19	93	100	peak
3	91.4949	43.95	-19.51	24.44	43.50	-19.06	281	100	peak
4	158.6677	45.63	-19.70	25.93	43.50	-17.57	92	100	peak
5	206.3976	45.84	-17.08	28.76	43.50	-14.74	208	100	peak
6	316.5890	40.33	-7.92	32.41	46.00	-13.59	213	100	peak

802.11b			
Test Channel	Low	Polarity:	Vertical



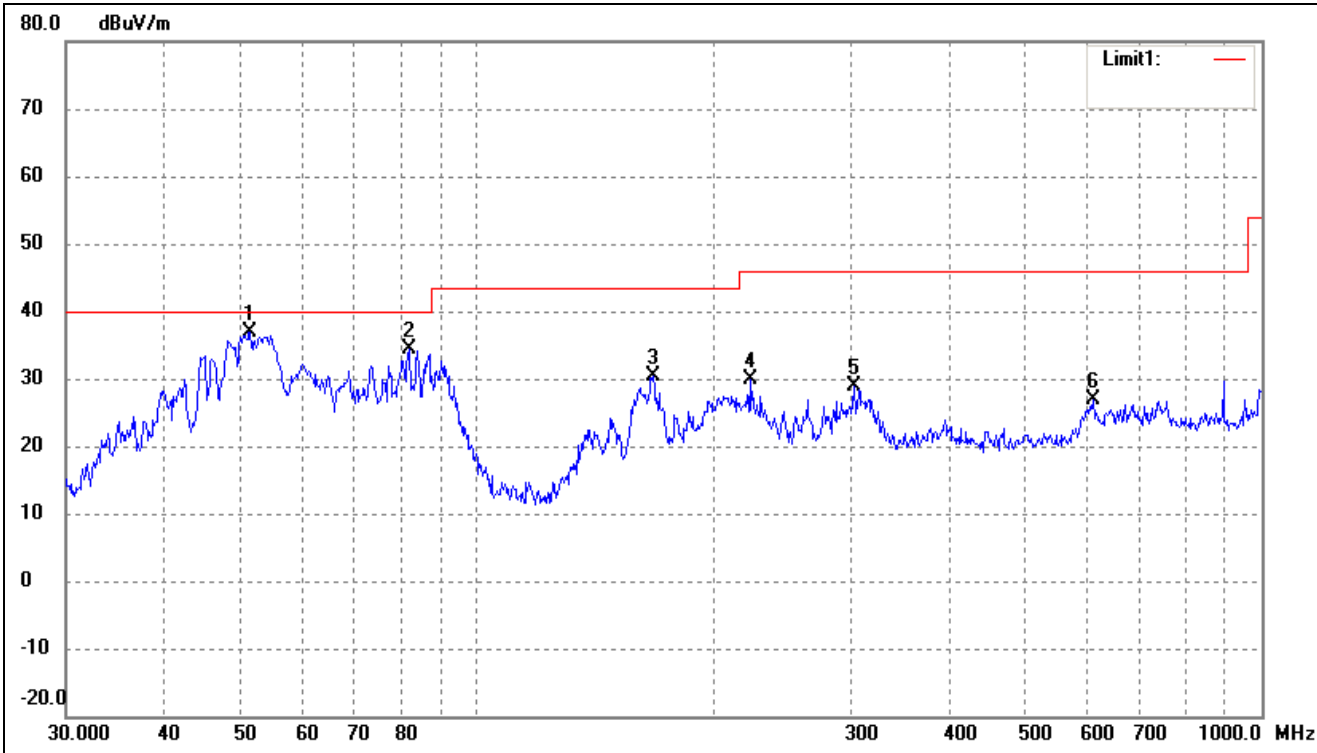
No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	53.5052	55.69	-18.46	37.23	40.00	-2.77	244	100	peak
2	84.7019	55.67	-20.76	34.91	40.00	-5.09	95	100	peak
3	136.9391	44.81	-18.94	25.87	43.50	-17.63	163	100	peak
4	166.0680	50.03	-19.70	30.33	43.50	-13.17	101	100	peak
5	219.8449	47.15	-13.73	33.42	46.00	-12.58	305	100	peak
6	318.8170	36.70	-7.93	28.77	46.00	-17.23	252	100	peak

802.11b			
Test Channel	Middle	Polarity:	Horizontal



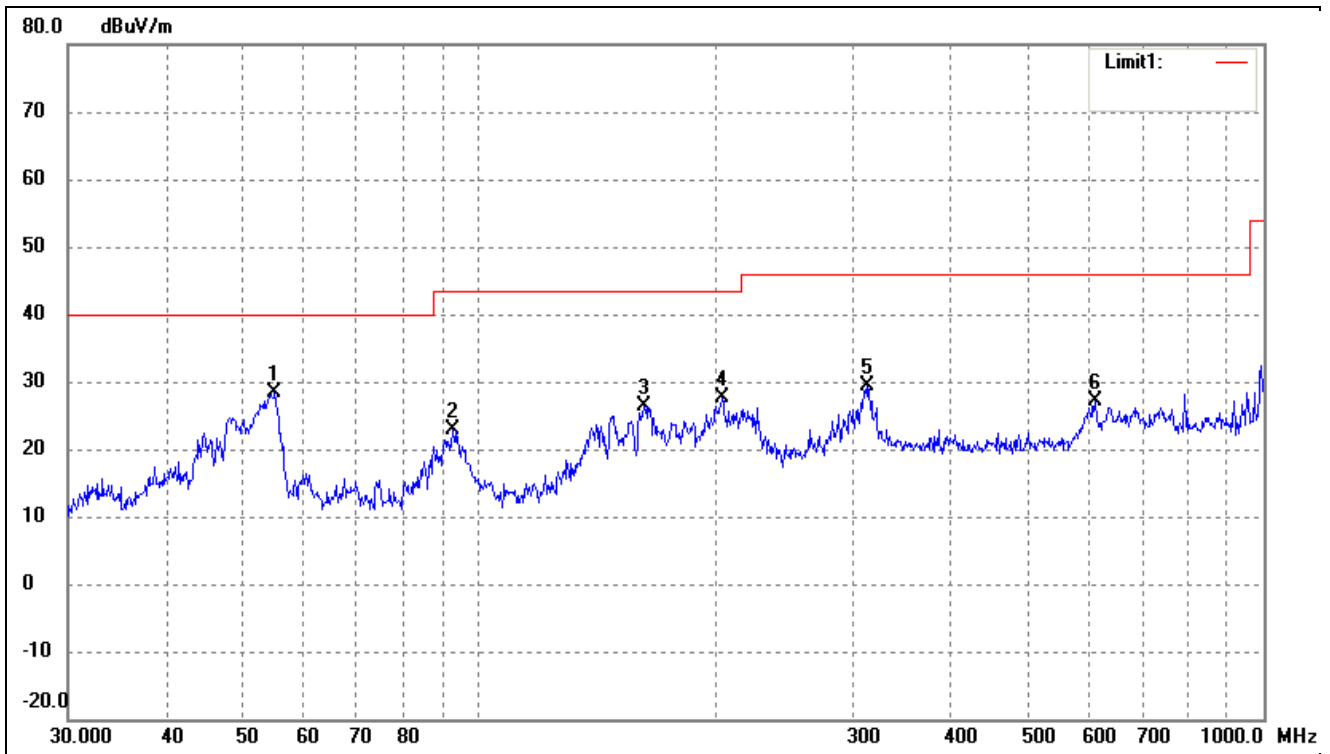
No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	55.0274	46.61	-18.40	28.21	40.00	-11.79	59	100	peak
2	89.5899	41.97	-19.83	22.14	43.50	-21.36	293	100	peak
3	161.4742	49.89	-19.74	30.15	43.50	-13.35	84	100	peak
4	197.2001	48.42	-18.80	29.62	43.50	-13.88	299	100	peak
5	315.4808	45.37	-7.92	37.45	46.00	-8.55	285	100	peak
6	684.7454	30.58	-3.01	27.57	46.00	-18.43	329	100	peak

802.11b			
Test Channel	Middle	Polarity:	Vertical



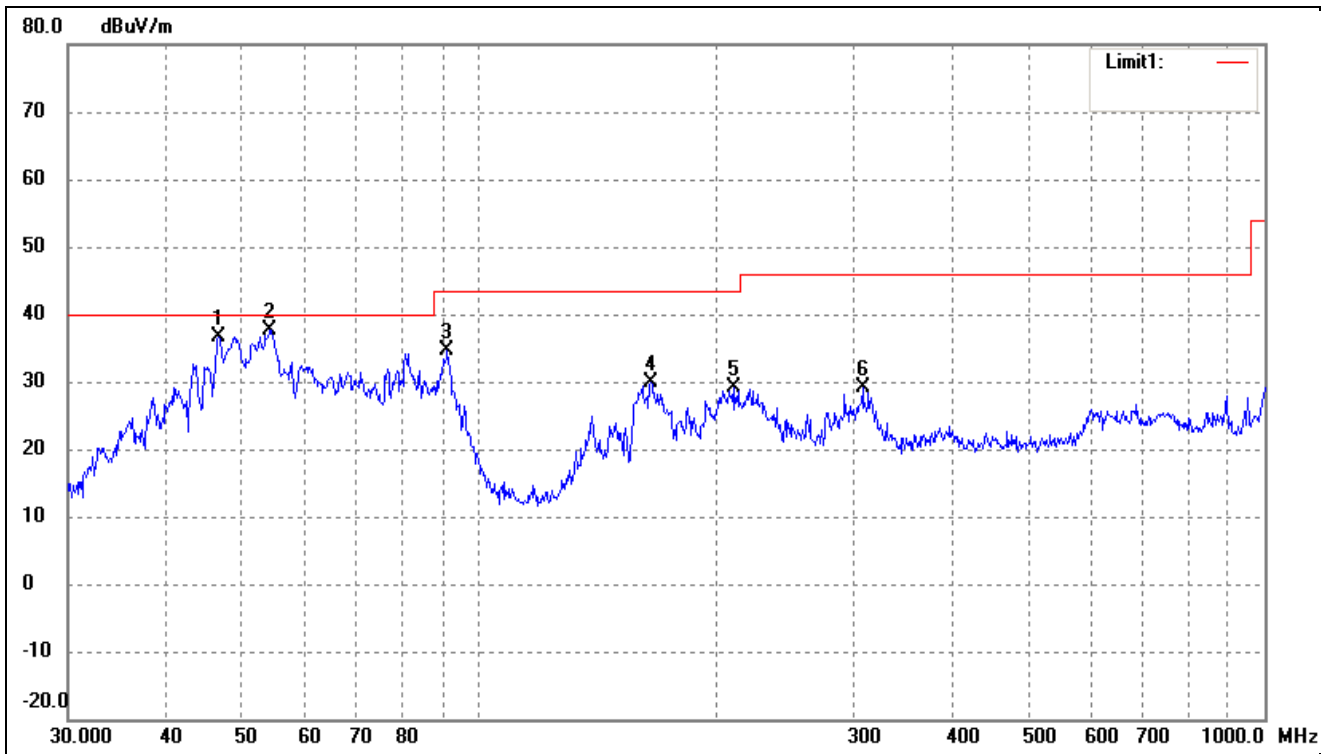
No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	51.4807	55.44	-18.55	36.89	40.00	-3.11	293	100	peak
2	82.0706	55.56	-21.26	34.30	40.00	-5.70	252	100	peak
3	167.8243	50.10	-19.69	30.41	43.50	-13.09	66	100	peak
4	222.9502	43.23	-13.44	29.79	46.00	-16.21	347	100	peak
5	302.4812	36.67	-7.91	28.76	46.00	-17.24	151	100	peak
6	609.9217	30.03	-3.25	26.78	46.00	-19.22	235	100	peak

802.11b			
Test Channel	High	Polarity:	Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	55.0274	46.72	-18.40	28.32	40.00	-11.68	169	100	peak
2	92.7871	42.15	-19.29	22.86	43.50	-20.64	102	100	peak
3	162.6106	46.12	-19.74	26.38	43.50	-17.12	98	100	peak
4	204.2377	45.14	-17.62	27.52	43.50	-15.98	114	100	peak
5	313.2760	37.34	-7.92	29.42	46.00	-16.58	251	100	peak
6	609.9217	30.41	-3.25	27.16	46.00	-18.84	115	100	peak

802.11b			
Test Channel	High	Polarity:	Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	46.6664	55.10	-18.58	36.52	40.00	-3.48	73	100	peak
2	54.2610	56.04	-18.44	37.60	40.00	-2.40	112	100	peak
3	91.1746	54.25	-19.55	34.70	43.50	-8.80	73	100	peak
4	165.4866	49.51	-19.71	29.80	43.50	-13.70	138	100	peak
5	210.7860	45.01	-15.99	29.02	43.50	-14.48	258	100	peak
6	307.8313	37.11	-7.91	29.20	46.00	-16.80	148	100	peak

## ➤ Spurious Emissions Below 1GHz

## ➤ Test Mode: 802.11b (worst case)

Frequency (MHz)	Reading (dBuV/m)	Correct dB	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Polar H/V	Detector
Low Channel-2412MHz							
4824	59.47	-3.87	55.6	74	-18.4	H	Peak
4824	42.42	-3.87	38.55	54	-15.45	H	AV
7236	52.15	1.14	53.29	74	-20.71	H	Peak
7236	38.36	1.19	39.55	54	-14.45	H	AV
4824	59.14	-3.86	55.28	74	-18.72	V	Peak
4824	43.9	-3.86	40.04	54	-13.96	V	AV
7236	53.7	1.1	54.8	74	-19.2	V	Peak
7236	39.95	1.1	41.05	54	-12.95	V	AV
Middle Channel-2437MHz							
4874	59.54	-3.74	55.8	74	-18.2	H	Peak
4874	41.3	-3.74	37.56	54	-16.44	H	AV
7311	53.34	1.47	54.81	74	-19.19	H	Peak
7311	38.14	1.47	39.61	54	-14.39	H	AV
4874	59.05	-3.74	55.31	74	-18.69	V	Peak
4874	43.58	-3.74	39.84	54	-14.16	V	AV
7311	55.68	1.47	57.15	74	-16.85	V	Peak
7311	39.69	1.47	41.16	54	-12.84	V	AV
High Channel-2462MHz							
4924	59.4	-3.59	55.81	74	-18.19	H	Peak
4924	43.67	-3.59	40.08	54	-13.92	H	AV
7386	55.98	1.79	57.77	74	-16.23	H	Peak
7386	40.81	1.79	42.6	54	-11.4	H	AV
4924	58.44	-3.59	54.85	74	-19.15	V	Peak
4924	42.05	-3.59	38.46	54	-15.54	V	AV
7386	55.85	1.79	57.64	74	-16.36	V	Peak
7386	38.33	1.79	40.12	54	-13.88	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 v04, the band-edge radiated test method as follows:

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.

According to the KDB 558074 D01 v04, the conducted spurious emissions test method as follows:

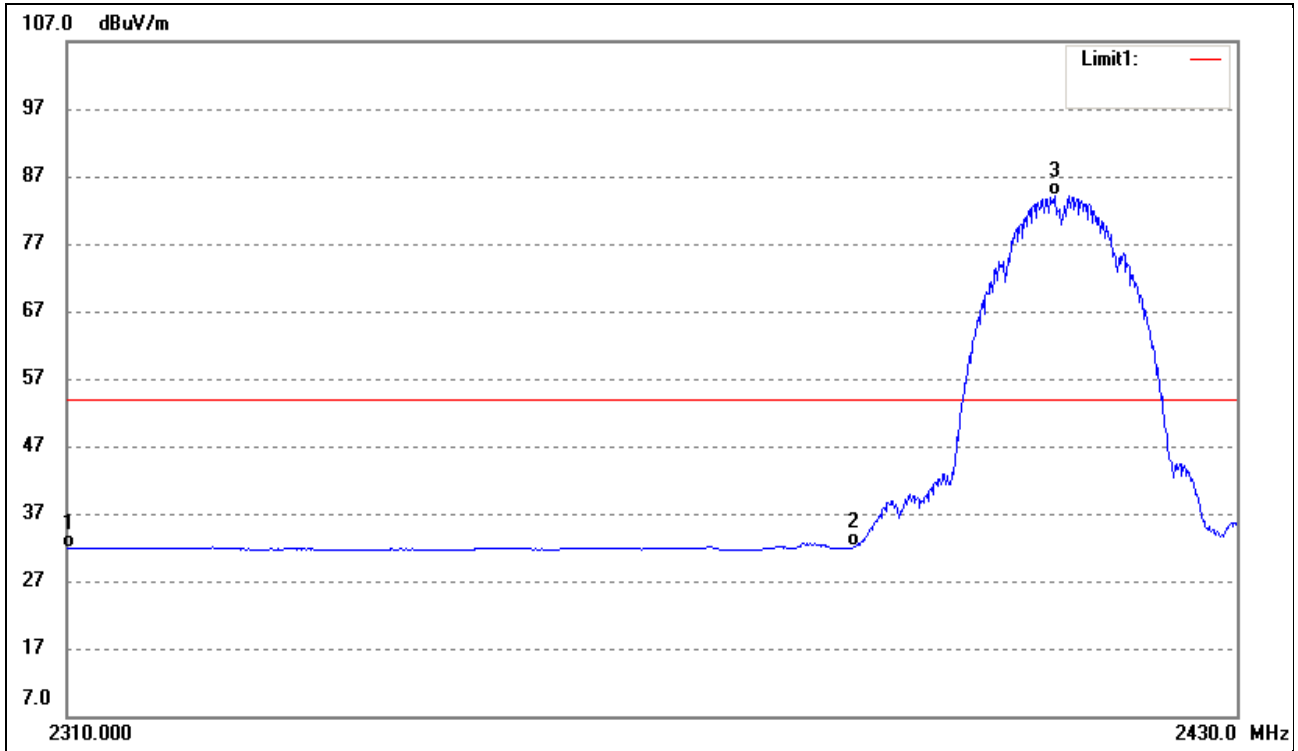
1. Set start frequency to DTS channel edge frequency.
2. Set stop frequency so as to encompass the spectrum to be examined.
3. Set RBW = 100 kHz.
4. Set VBW  $\geq$  300 kHz.
5. Detector = peak.
6. Trace Mode = max hold.
7. Sweep = auto couple.
8. Allow the trace to stabilize (this may take some time, depending on the extent of the span).
9. Use peak marker function to determine maximum amplitude of all unwanted emissions within any 100 kHz bandwidth.

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

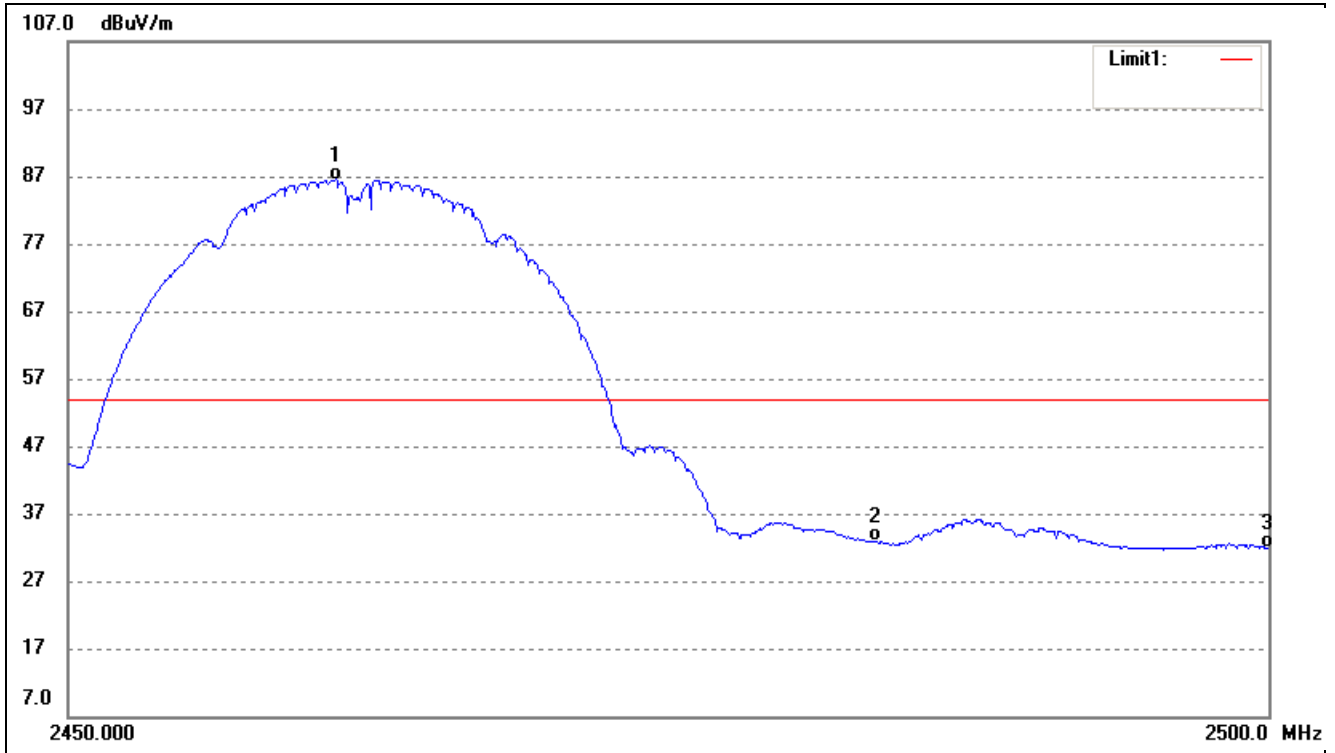
➤ Radiated test

802.11b			
Test Channel	Low	Polarity:	Vertical(worst case)



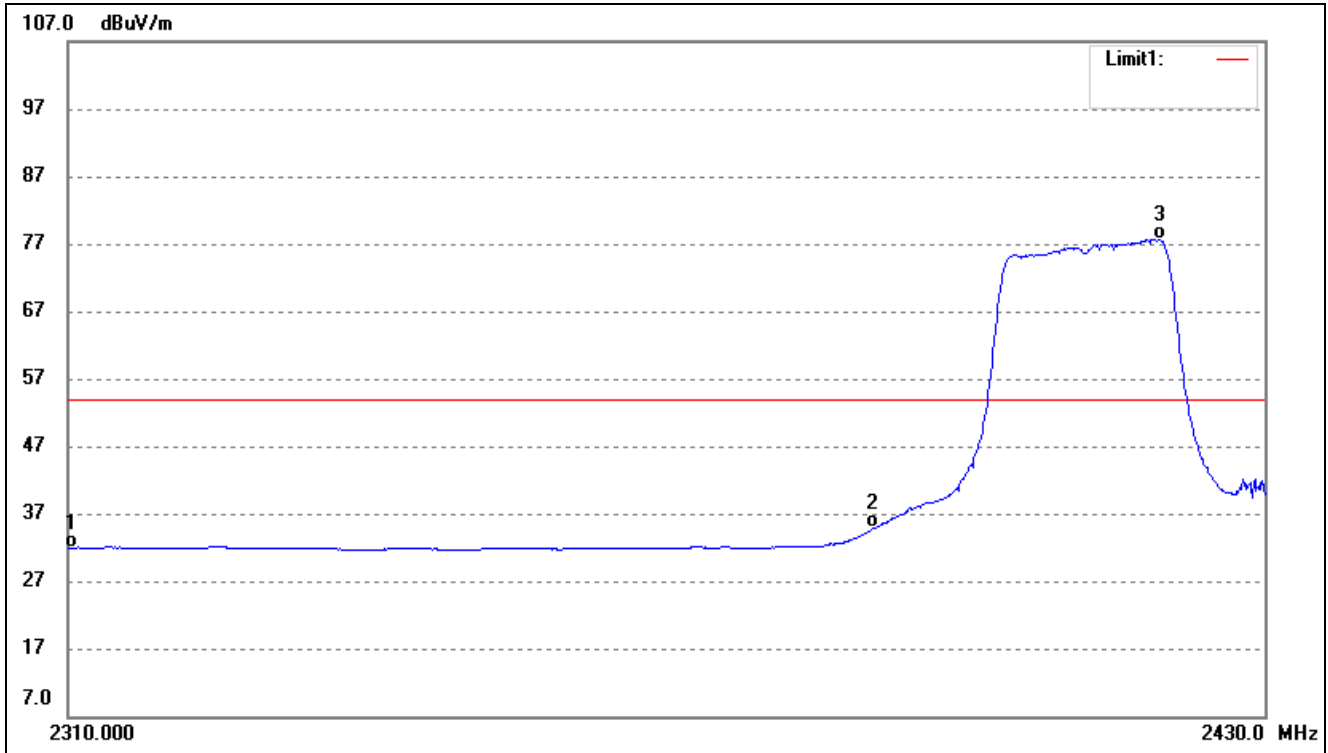
No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2310.000	38.22	-6.29	31.93	54.00	-22.07	Average Detector
	2310.000	50.68	-6.29	44.39	74.00	-29.61	Peak Detector
2	2390.000	38.92	-6.72	32.20	54.00	-21.80	Average Detector
	2390.000	60.68	-6.72	53.96	74.00	-20.04	Peak Detector
3	2410.878	90.86	-6.83	84.03	/	/	Average Detector
	2410.633	97.75	-6.82	90.93	/	/	Peak Detector

802.11b			
Test Channel	High	Polarity:	Vertical(worst case)



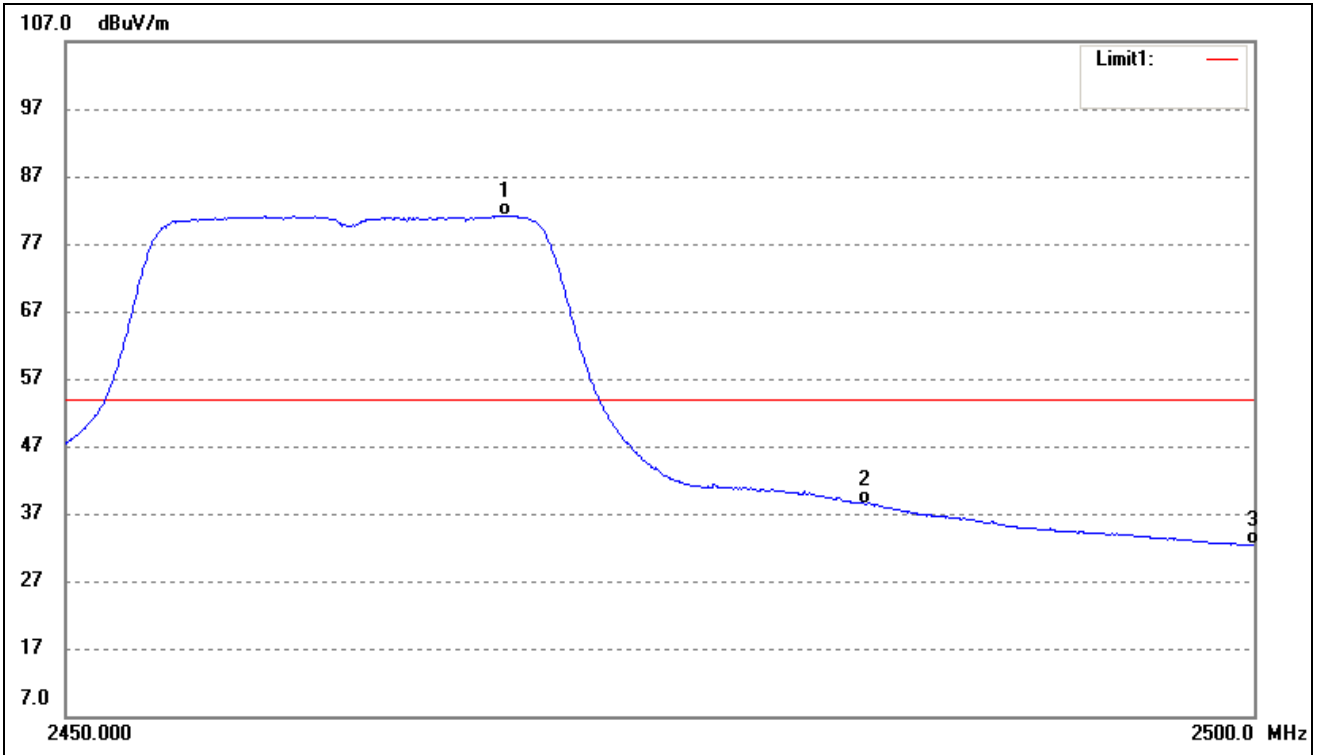
No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2461.063	93.59	-7.09	86.50	/	/	Average Detector
	2462.604	99.99	-7.10	92.89	/	/	Peak Detector
2	2483.500	40.03	-7.22	32.81	54.00	-21.19	Average Detector
	2483.500	58.86	-7.22	51.64	74.00	-22.36	Peak Detector
3	2500.000	39.06	-7.30	31.76	54.00	-22.24	Average Detector
	2500.000	66.61	-7.30	59.31	74.00	-14.69	Peak Detector

802.11g			
Test Channel	Low	Polarity:	Vertical(worst case)



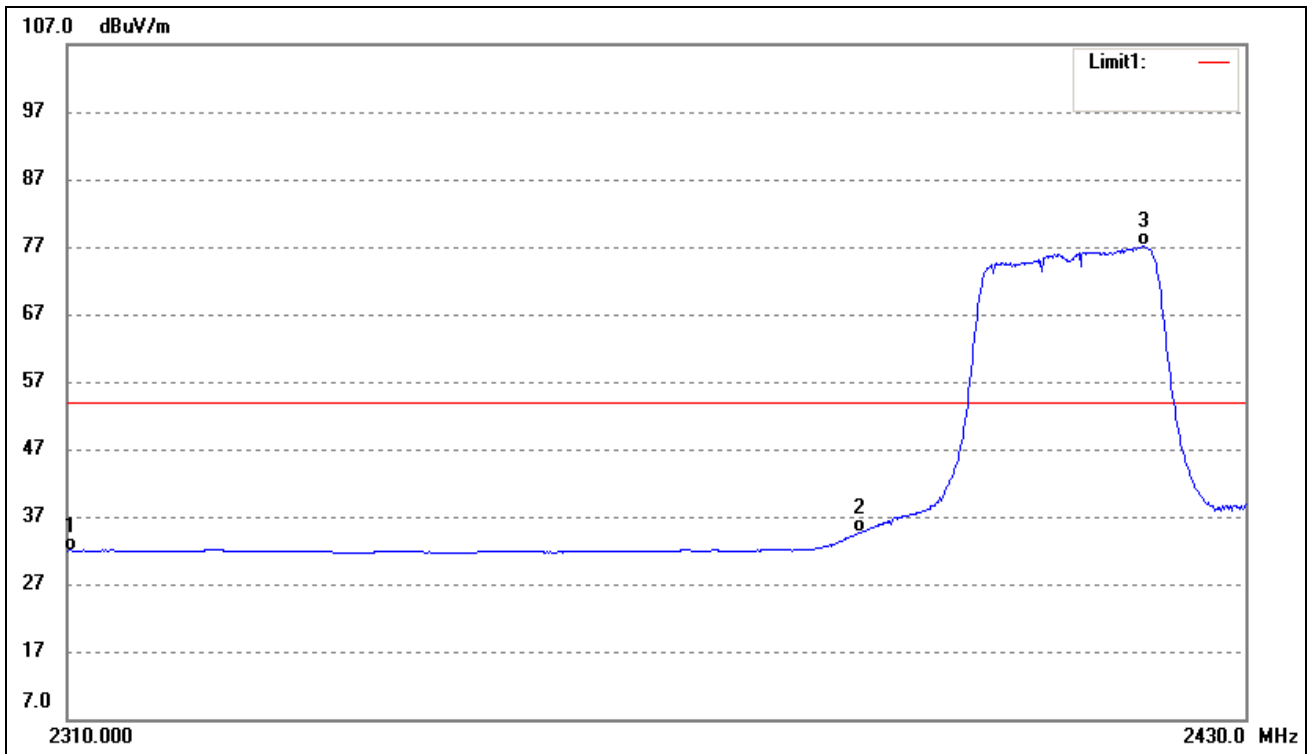
No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2310.000	38.28	-6.29	31.99	54.00	-22.01	Average Detector
	2310.000	49.72	-6.29	43.43	74.00	-30.57	Peak Detector
2	2390.000	41.51	-6.72	34.79	54.00	-19.21	Average Detector
	2390.000	57.38	-6.72	50.66	74.00	-23.34	Peak Detector
3	2419.194	84.50	-6.87	77.63	/	/	Average Detector
	2417.602	95.29	-6.86	88.43	/	/	Peak Detector

802.11g			
Test Channel	High	Polarity:	Vertical(worst case)



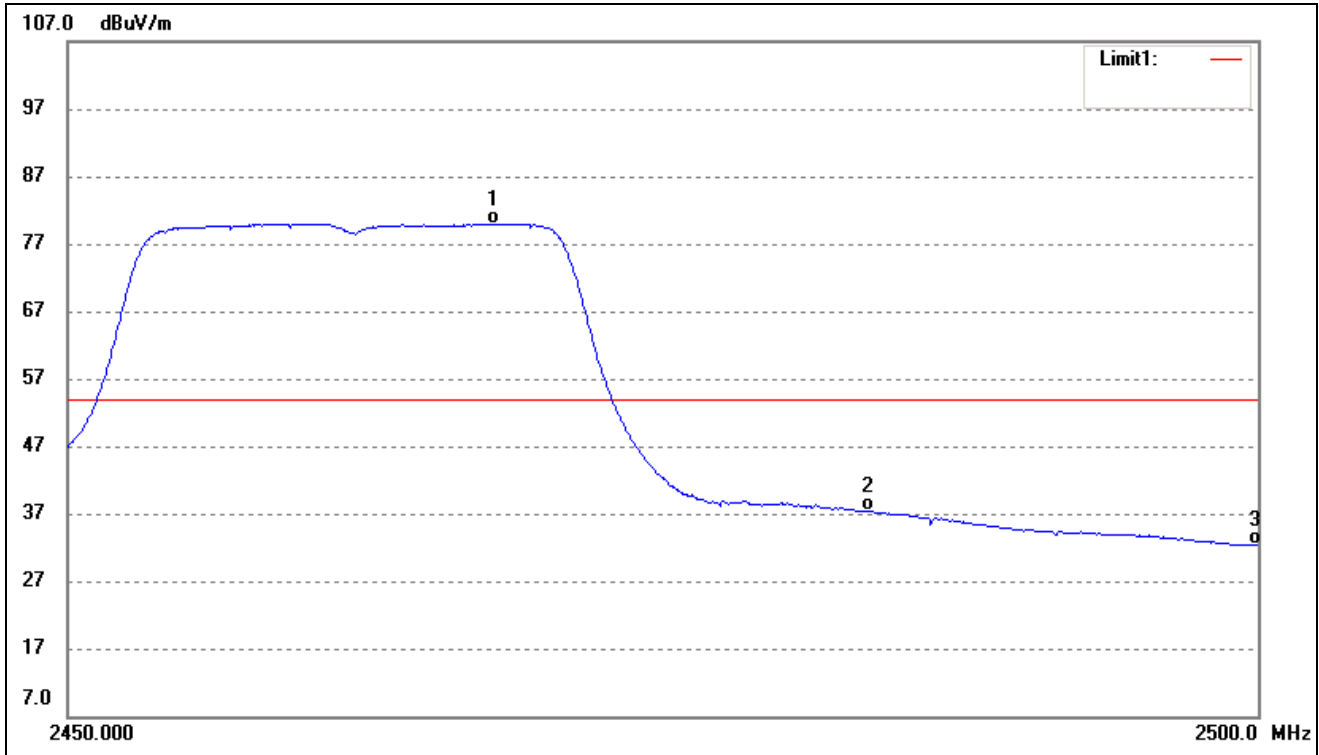
No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2468.382	88.29	-7.13	81.16	/	/	Average Detector
	2468.682	99.03	-7.13	91.90	/	/	Peak Detector
2	2483.500	45.61	-7.22	38.39	54.00	-15.61	Average Detector
	2483.500	65.09	-7.22	57.87	74.00	-16.13	Peak Detector
3	2500.000	39.68	-7.30	32.38	54.00	-21.62	Average Detector
	2500.000	52.11	-7.30	44.81	74.00	-29.19	Peak Detector

802.11n-HT20			
Test Channel	Low	Polarity:	Vertical(worst case)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2310.000	38.28	-6.29	31.99	54.00	-22.01	Average Detector
	2310.000	50.21	-6.29	43.92	74.00	-30.08	Peak Detector
2	2390.000	41.28	-6.72	34.56	54.00	-19.44	Average Detector
	2390.000	58.01	-6.72	51.29	74.00	-22.71	Peak Detector
3	2419.439	83.94	-6.87	77.07	/	/	Average Detector
	2418.337	94.70	-6.86	87.84	/	/	Peak Detector

802.11n-HT20			
Test Channel	High	Polarity:	Vertical(worst case)

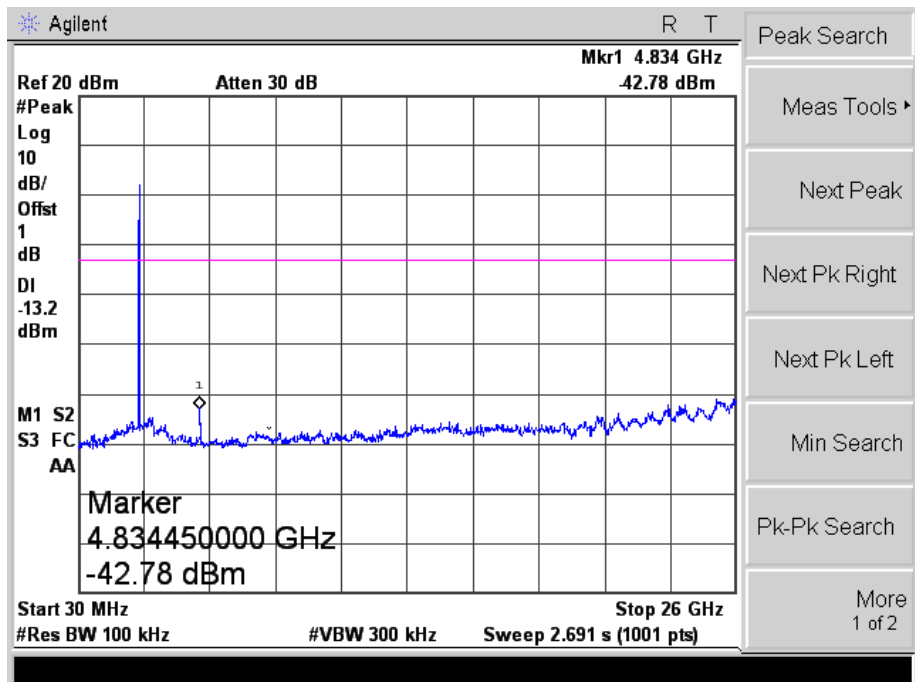
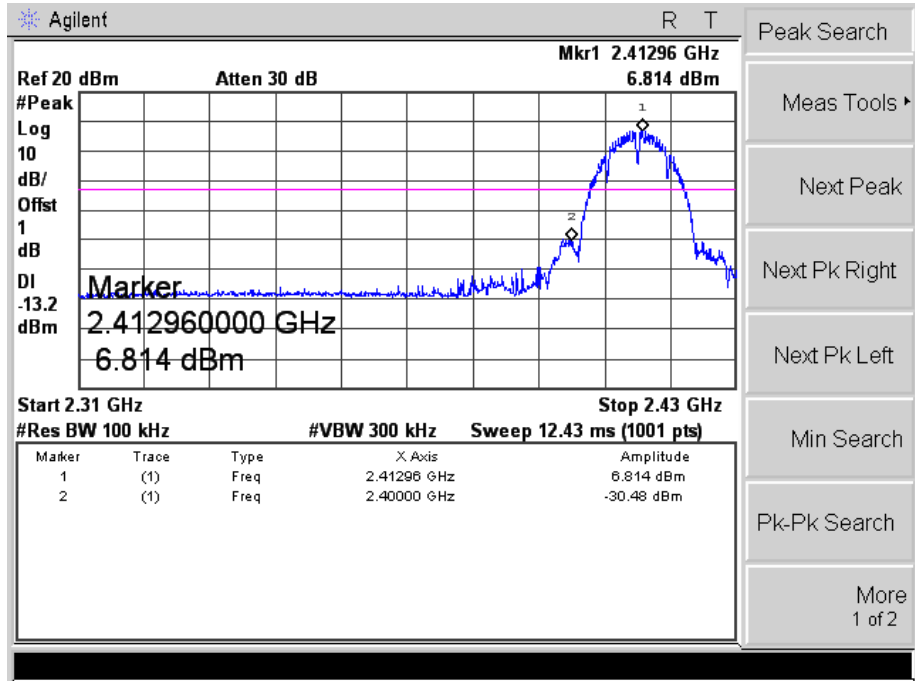


No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2467.784	87.11	-7.13	79.98	/	/	Average Detector
	2456.642	98.35	-7.07	91.28	/	/	Peak Detector
2	2483.500	44.55	-7.22	37.33	54.00	-16.67	Average Detector
	2483.500	64.42	-7.22	57.20	74.00	-16.80	Peak Detector
3	2500.000	39.59	-7.30	32.29	54.00	-21.71	Average Detector
	2500.000	52.22	-7.30	44.92	74.00	-29.08	Peak Detector

➤ Conducted test

802.11b

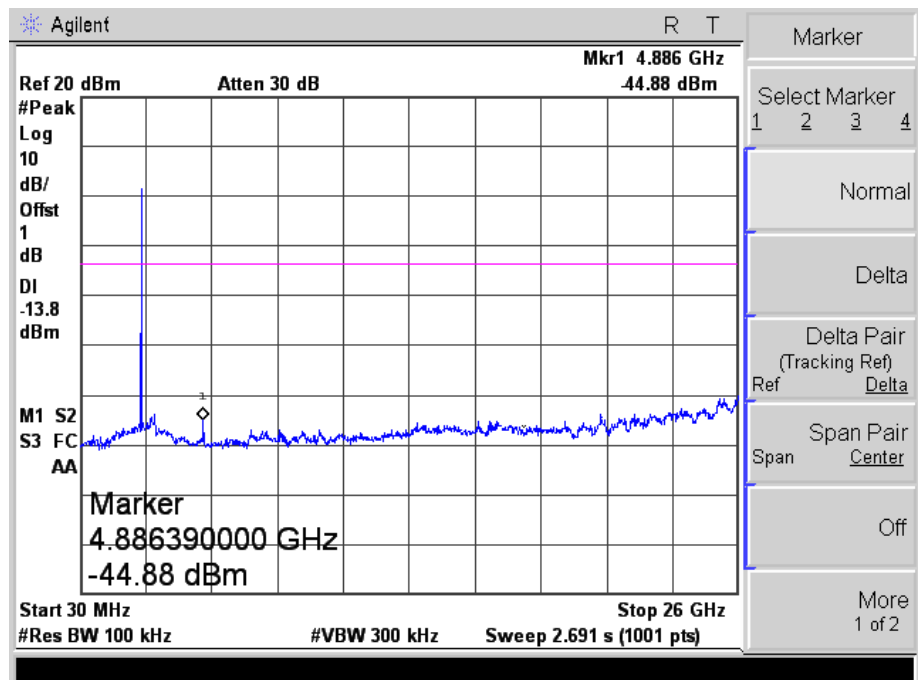
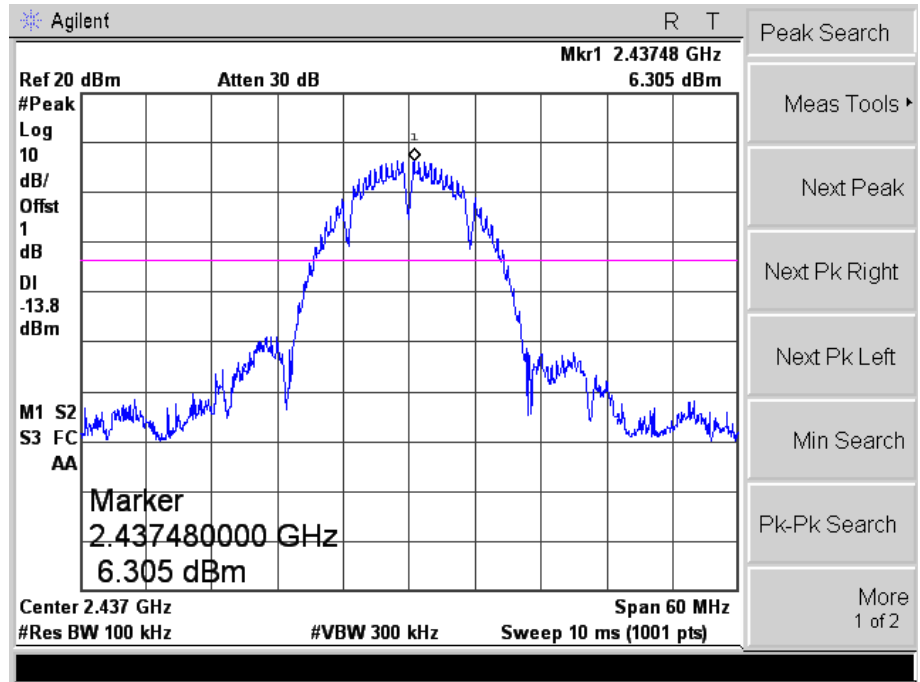
Low





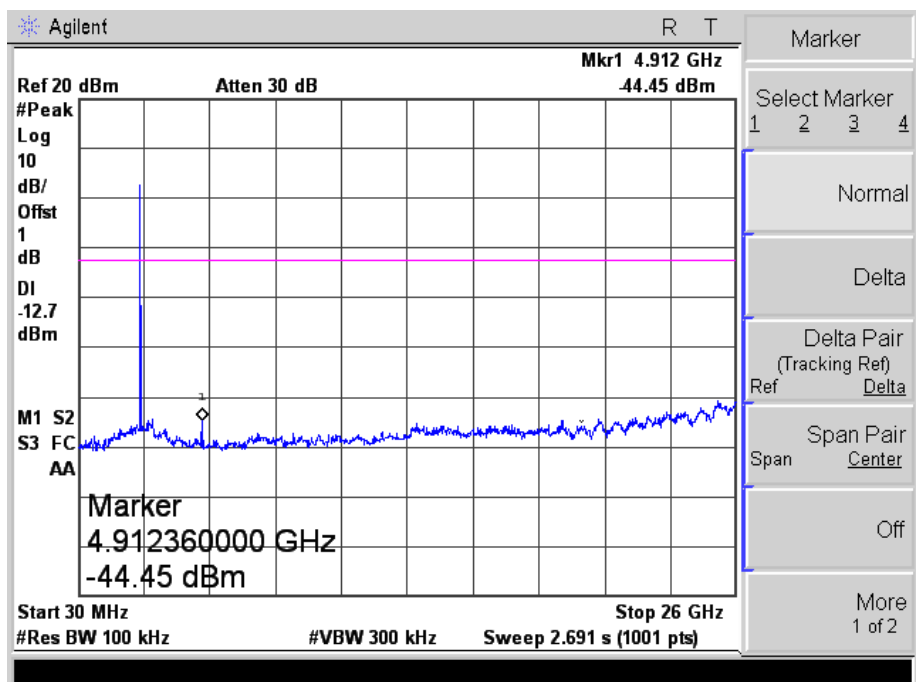
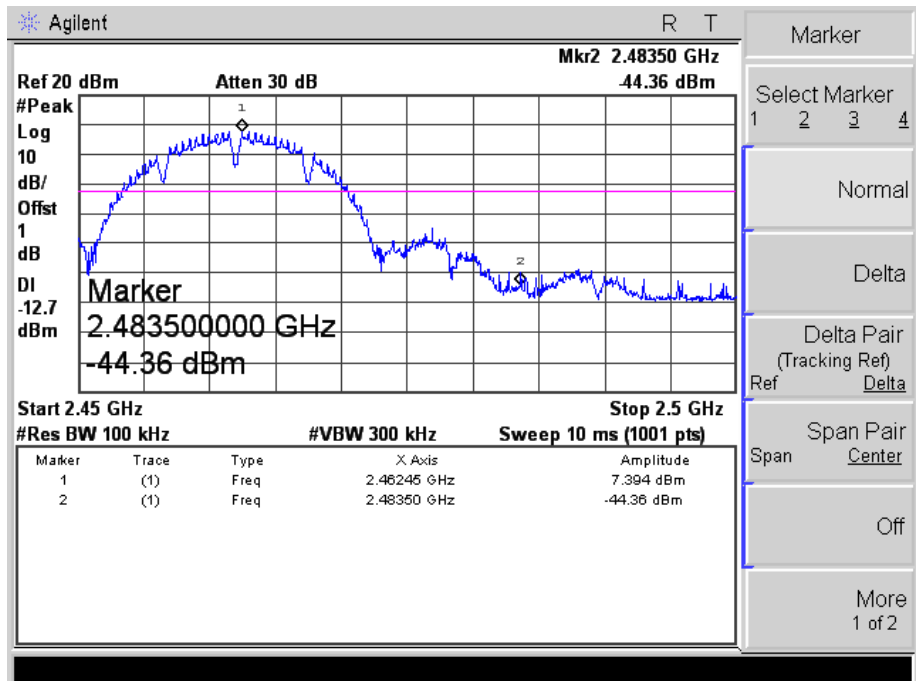
802.11b

Middle



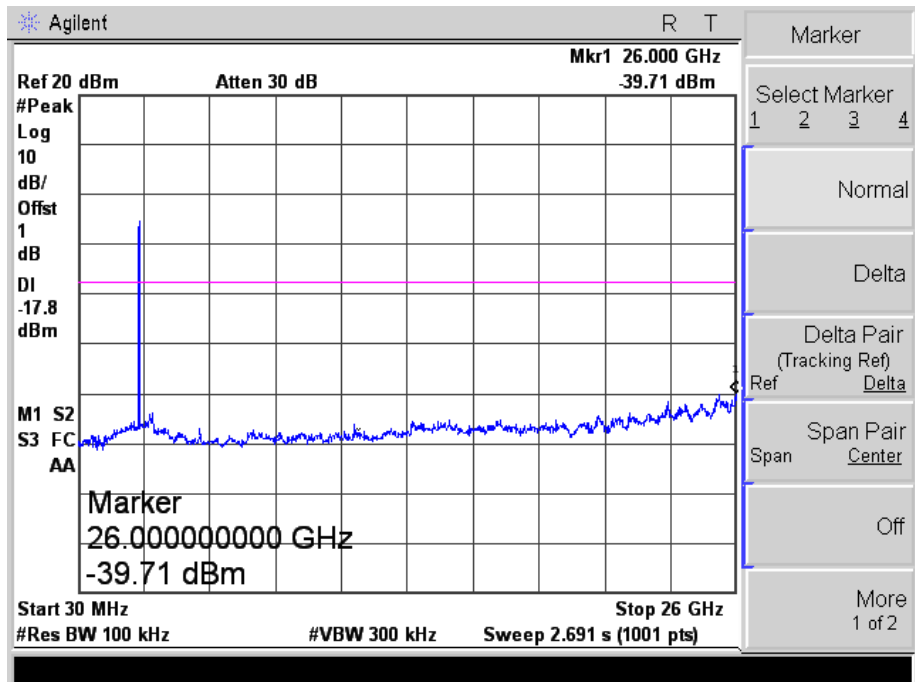
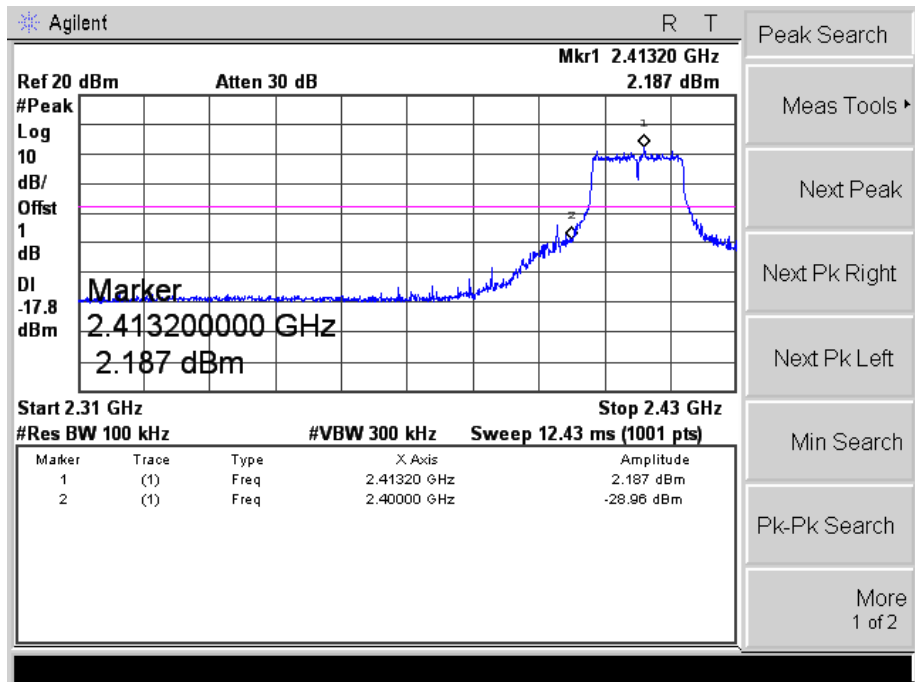
802.11b

High



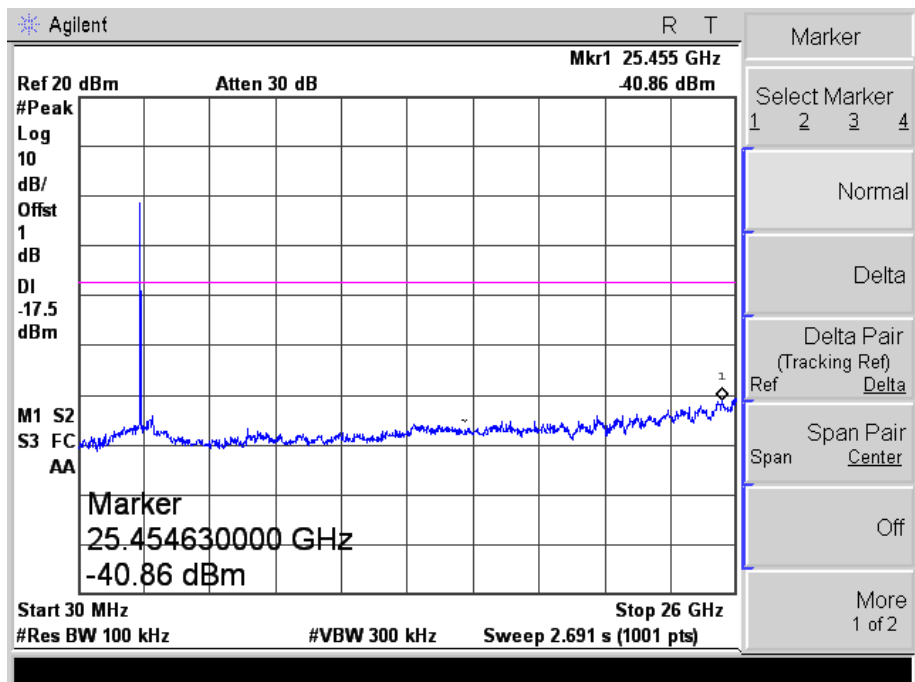
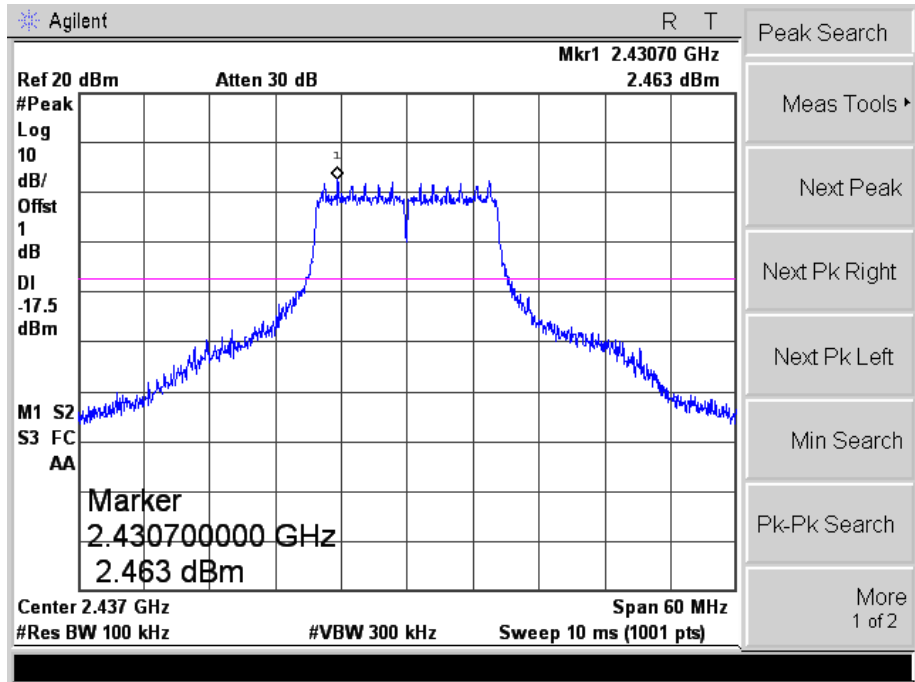
802.11g

Low



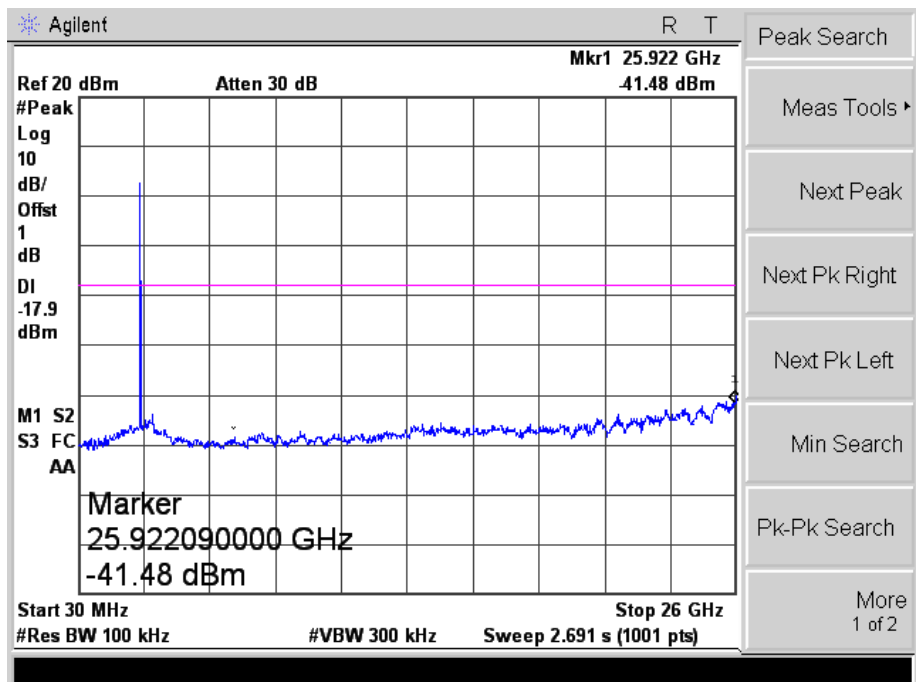
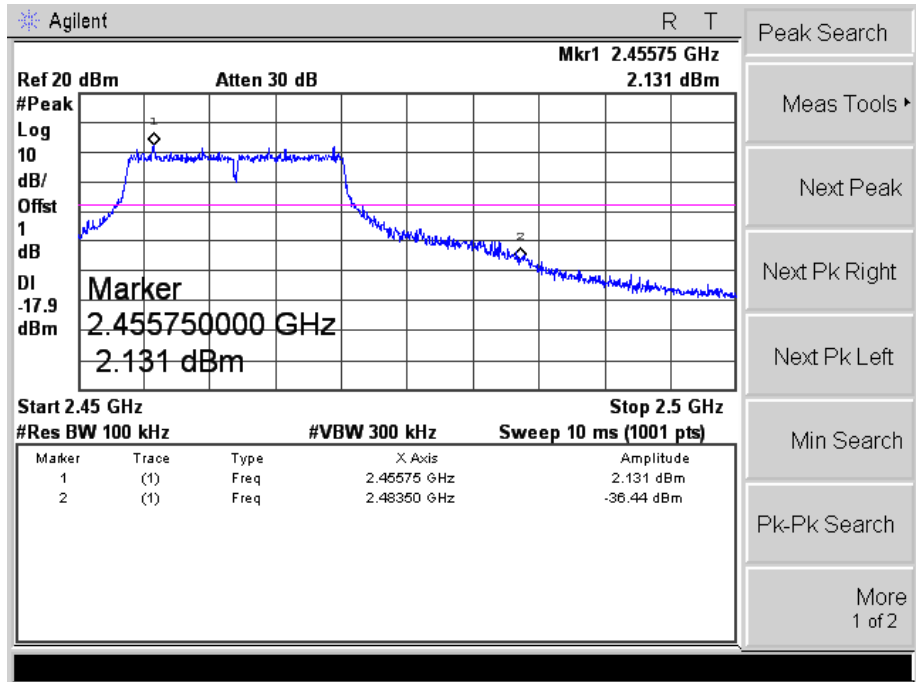
802.11g

Middle



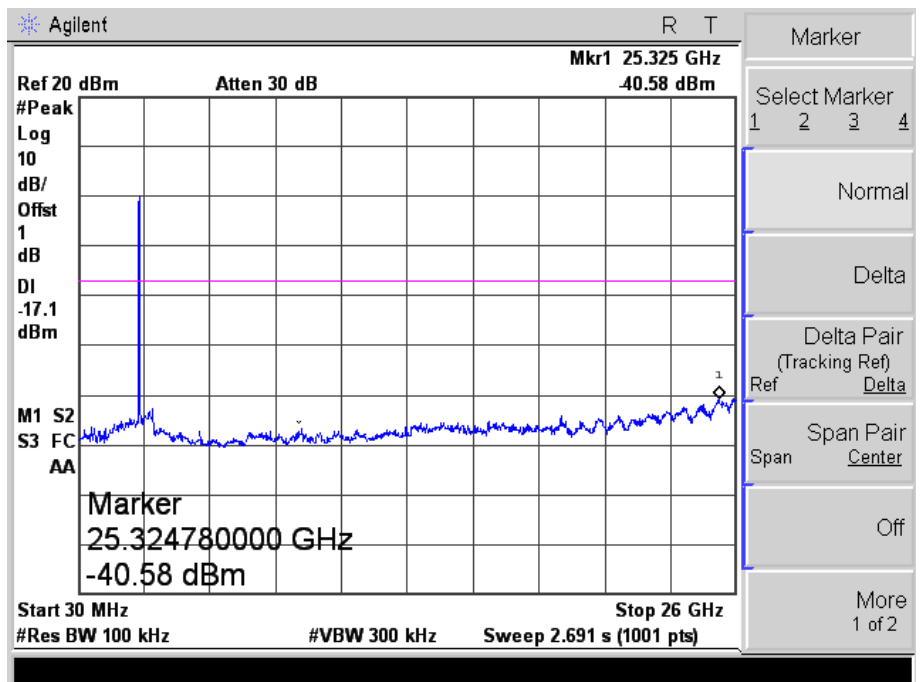
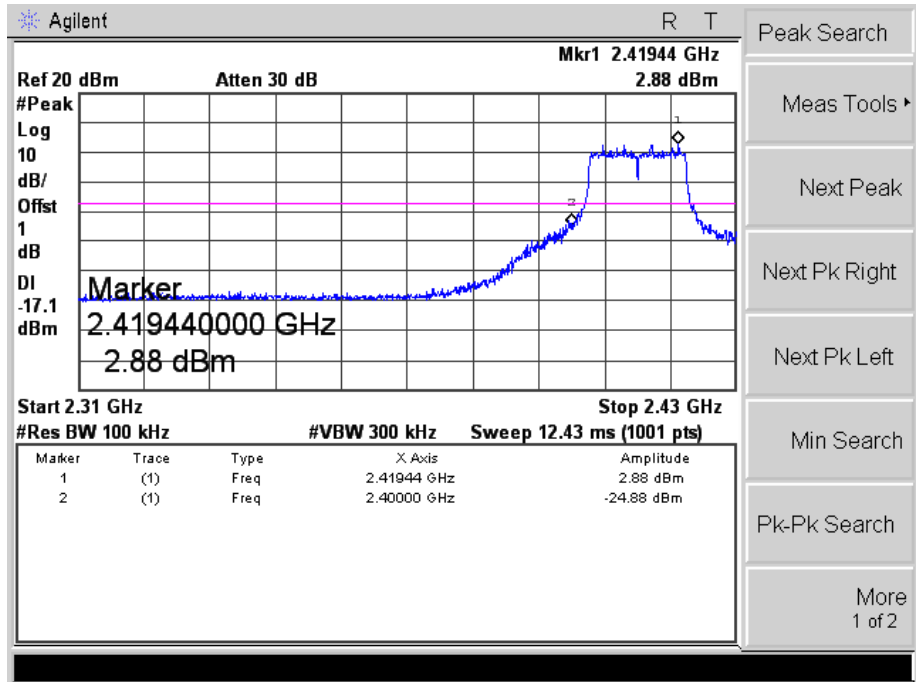
802.11g

High



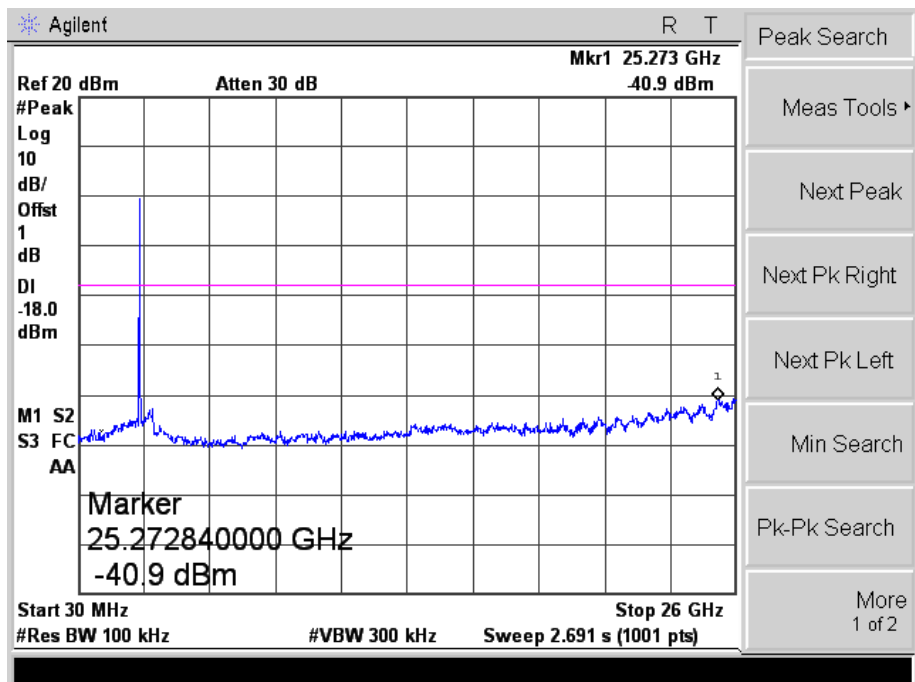
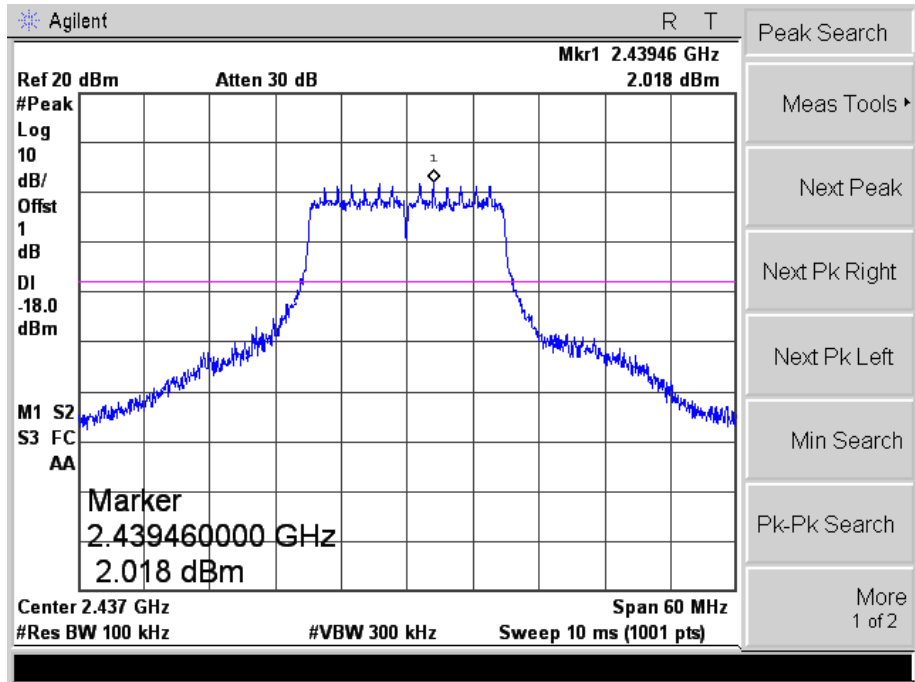
802.11n-HT20

Low



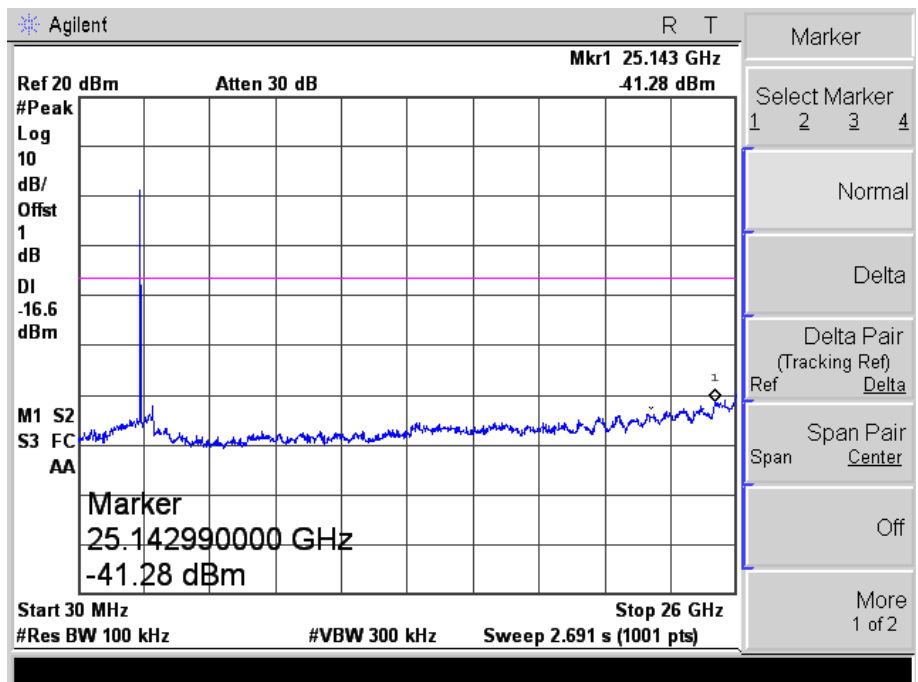
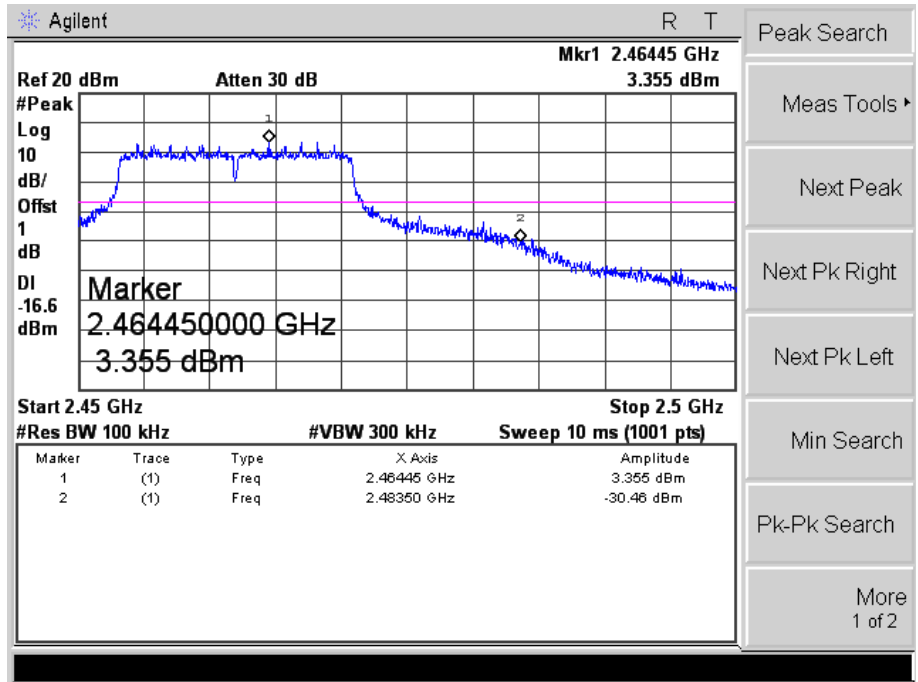
802.11n-HT20

Middle



802.11n-HT20

High





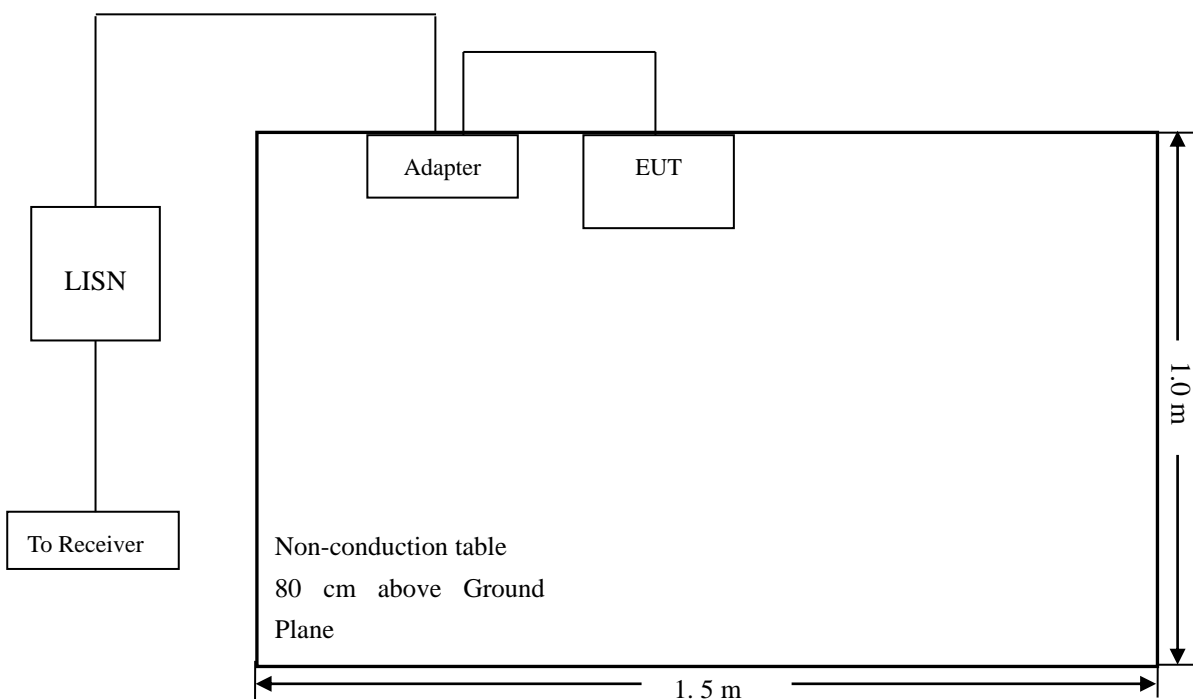
## 10. Conducted Emissions

### 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



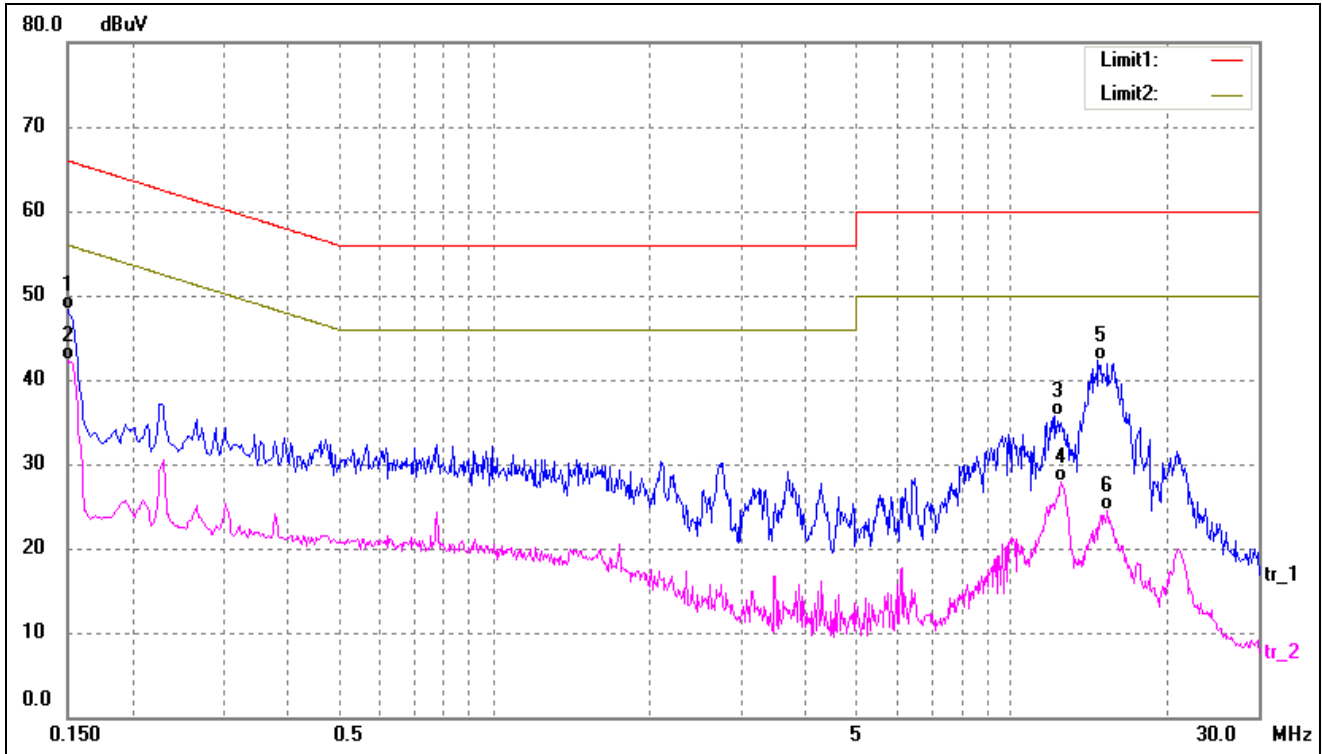
### 10.3 Test Receiver Setup

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

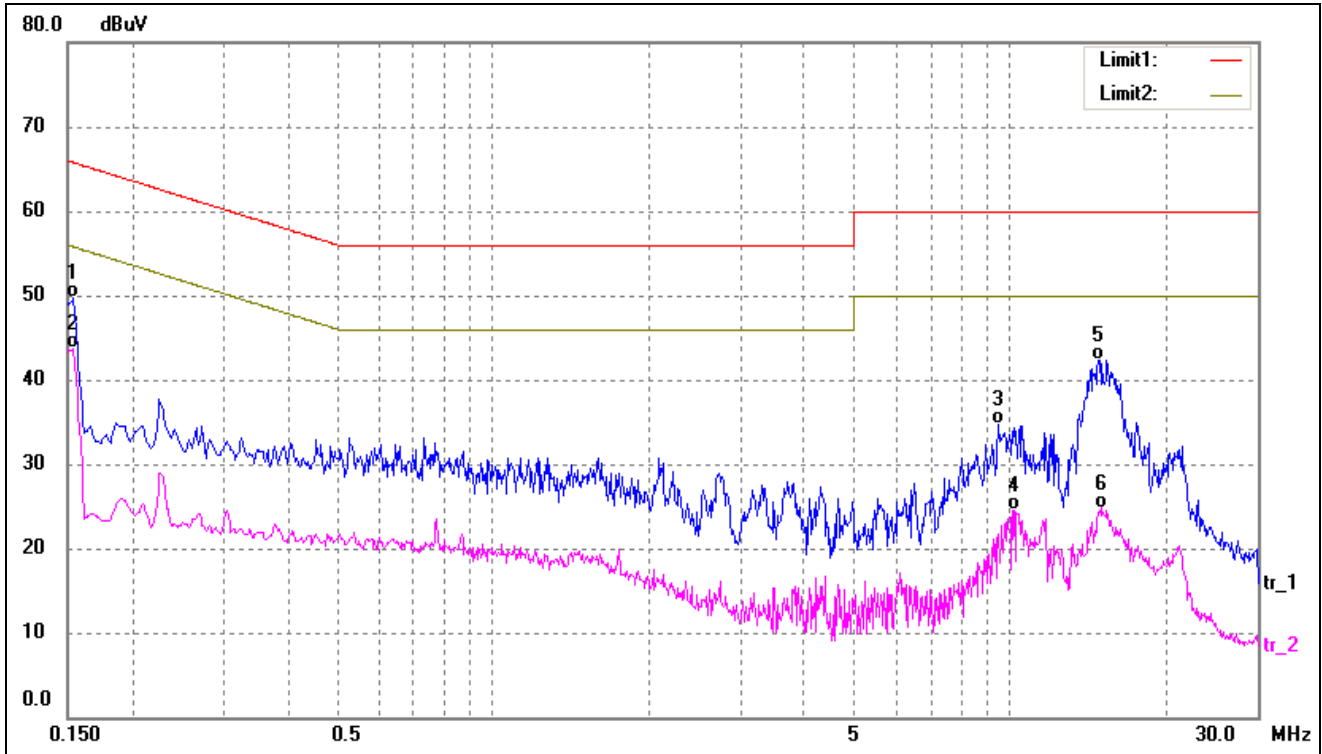
### 10.4 Summary of Test Results/Plots

Test Mode	Communication	AC120V 60Hz	Polarity:	Neutral
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No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1500	38.39	9.85	48.24	66.00	-17.76	QP
2*	0.1500	32.37	9.85	42.22	56.00	-13.78	AVG
3	12.1620	26.21	9.56	35.77	60.00	-24.23	QP
4	12.4660	18.27	9.56	27.83	50.00	-22.17	AVG
5	14.7260	32.72	9.61	42.33	60.00	-17.67	QP
6	15.3420	14.80	9.61	24.41	50.00	-25.59	AVG

Test Mode	Communication	AC120V 60Hz	Polarity:	Line
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No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1540	39.86	9.85	49.71	65.78	-16.07	QP
2*	0.1540	33.80	9.85	43.65	55.78	-12.13	AVG
3	9.4820	25.23	9.53	34.76	60.00	-25.24	QP
4	10.1700	15.03	9.52	24.55	50.00	-25.45	AVG
5	14.7980	32.72	9.61	42.33	60.00	-17.67	QP
6	15.0140	15.19	9.61	24.80	50.00	-25.20	AVG

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