FCC Part 15C
Measurement and Test Report

For

Hui Zhou Gaoshengda Technology Co.,LTD

NO.75 Zhongkai Development Area, Huizhou, Guangdong, China

FCC ID: 2AC23- WC0HR2601

FCC Rule(s):	FCC Part 15C	
Product Description:	WIFI Module	
Tested Model:	WC0HR2601	
Report No.:	FCC-ATL20161220974-1	
Issued Date:	2017-01-03	
Tested By:	Si feifei / Engineer	Sifeifei
Reviewed By:	Xie Lingling / EMC Manager	XieLingling
Approved & Authorized By:	Xu Peng / PSQ Manager	Xu Peng

Prepared By:

Shenzhen ATL Testing Technology Co., Ltd.
F/4, Building 10, Dayuan Industrial Zone, Xili Town, Nanshan District, Shenzhen, China（518055）
Tel.: +86-0755-26909822 Fax.: +86-0755-61605504 Website: www.atllab.org

TABLE OF CONTENTS

1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	Hui Zhou Gaoshengda Technology Co.,LTD
Address of applicant:	NO.75 Zhongkai Development Area, Huizhou, Guangdong, China
Manufacturer:	Hui Zhou Gaoshengda Technology Co.,LTD
Address of manufacturer:	NO.75 Zhongkai Development Area, Huizhou, Guangdong, China

General Description of EUT	
Product Name:	WIFI Module
Trade Name:	GSD
Model No.:	WC0HR2601
Adding Model(s):	/
Power Adapter Model:	/
Hardware version:	V 1.1
Software version:	V 1.1
Note: The test data is gathered from a production sample provided by the manufacturer.	

Technical Characteristics of EUT	
Support Standards:	802.11b, 802.11g, 802.11n
Frequency Range:	2412-2462MHz
RF Output Power:	18.74 dBm (Conducted)
Type of Modulation:	CCK, OFDM, QPSK, BPSK, 16QAM, 64QAM
Data Rate:	1-11Mbps, 6-54Mbps, up to 150Mbps
Quantity of Channels:	11
Channel Separation:	5MHz
Type of Antenna:	PIFA Antenna
Antenna Gain:	3 dBi

1.2 Test Standards

The following report is prepared on behalf of the Hui Zhou Gaoshengda Technology Co.,LTD in accordance with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.207, 15.209 and 15.247 of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.207, 15.209 and 15.247 of the Federal Communication Commissions rules.

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, American National Standard for Testing Unlicensed Wireless Devices, and ANSI C63.4-2014, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz. The measurement guide KDB 558074 D01 v03r05 for digital transmission systems shall be performed also.

1.4 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, and to measure its highest possible emissions level, more detailed description as follows:

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

Accessories Equipment List and Details			
Description	**Manufacturer**	**Model No.**	**Serial Number**
Notebook	Lenovo	T410	/
Accessories Cable List and Details			
Cable Description	**Length (m)**	**Shielded/Unshielded**	**With Core/Without Core**
USB Cable	1.0	Unshielded	Without Ferrite
EUT Cable List and Details			
Cable Description	**Length (m)**	**Shielded/Unshielded**	**With Core/Without Core**
/	/	/	/

1.5 Measurement Uncertainty

Measurement uncertainty		
Parameter	Conditions	Uncertainty
RF Output Power	Conducted	±0.42dB
Occupied Bandwidth	Conducted	±1.5%
Power Spectral Density	Conducted	±1.8dB
Conducted Spurious Emission	Conducted	±2.17dB
Conducted Emissions	Conducted	±2.88dB
Transmitter Spurious Emissions	Radiated	±5.1dB

1.6 Test Equipment List and Details

Description	Manufacturer	Model	Serial No.	Cal Date	Due Date
Spectrum Analyzer	Agilent	E4407B	MY41440400	2016-06-04	2017-06-03
Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/035	2016-06-04	2017-06-03
EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2016-06-04	2017-06-03
Amplifier	Agilent	8447F	3113A06717	2016-06-04	2017-06-03
Amplifier	C&D	PAP-1G18	2002	2016-06-04	2017-06-03
Broadband Antenna	Schwarz beck	VULB9163	9163-333	2016-06-04	2017-06-03
Horn Antenna	ETS	3117	00086197	2016-06-04	2017-06-03
Horn Antenna	ETS	3116B	00088203	2016-06-04	2017-06-03
Loop Antenna	Schwarz beck	FMZB 1516	9773	2016-06-04	2017-06-03
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2016-06-04	2017-06-03
L.I.S.N	Schwarz beck	NSLK8126	8126-224	2016-06-04	2017-06-03
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2016-06-04	2017-06-03
Power Meter	R&S	NRVS	100444	2016-06-18	2017-06-17

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

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

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 v03r05, 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 kHz ≤ RBW ≤ 100 kHz. .
d) Set VBW ≥3 x RBW.
e) Detector = power averaging (RMS) or sample detector (when RMS not available).
f) Ensure that the number of measurement points in the sweep ≥ 2 x span/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).

5.3 Environmental Conditions

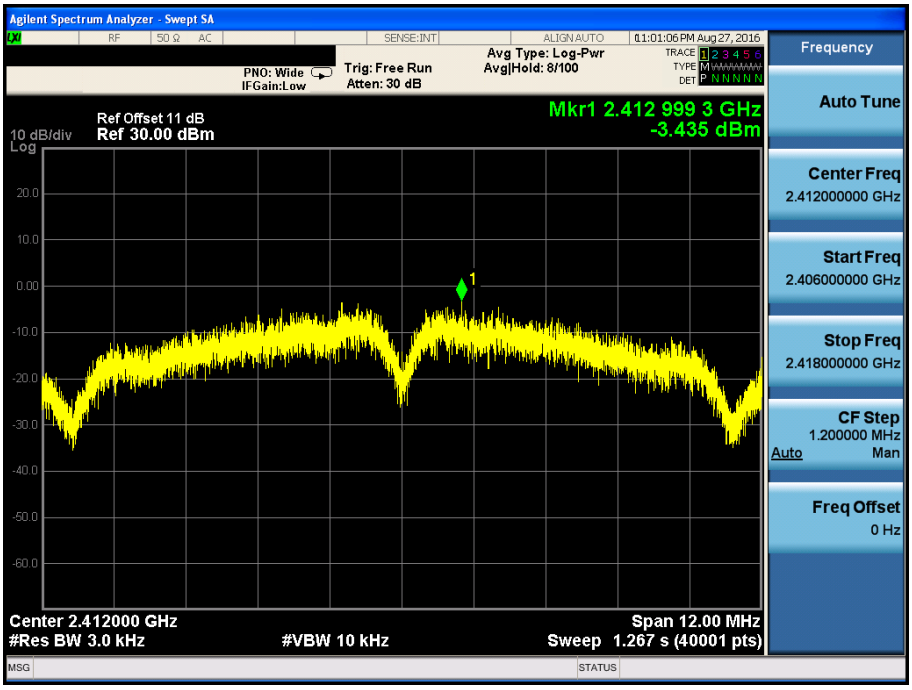
Temperature:	26° C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

5.4 Summary of Test Results/Plots

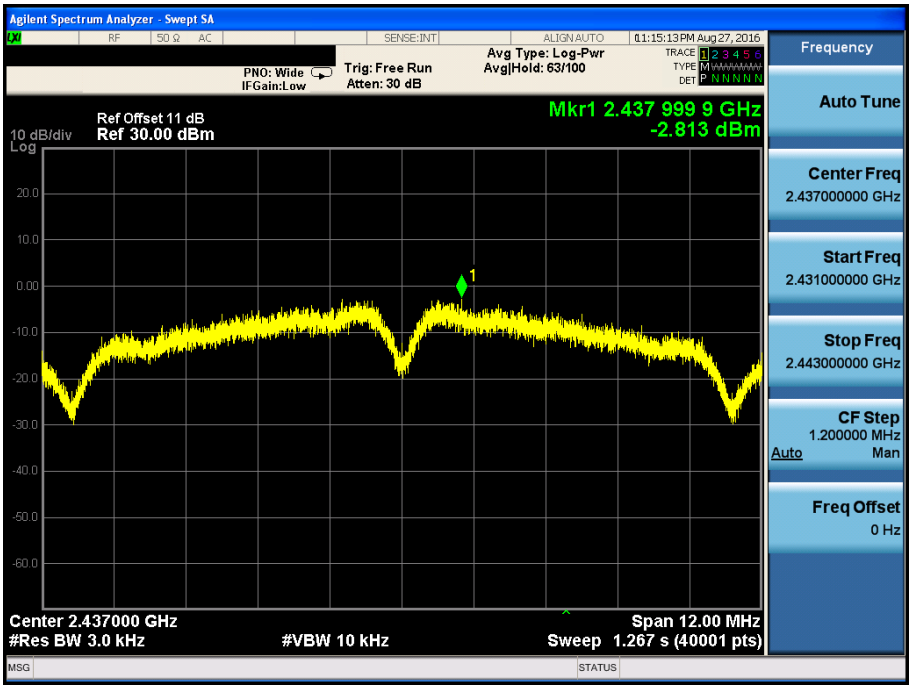
Test Mode	Test Channel MHz	Power Spectral Density dBm/3kHz	Limit dBm/3kHz
802.11b	2412	-3.435	8
	2437	-2.813	8
	2462	-3.382	8
802.11g	2412	-12.749	8
	2437	-3.336	8
	2462	-8.986	8
802.11n HT20	2412	-11.367	8
	2437	-4.505	8
	2462	-10.925	8
802.11n HT40	2422	-17.113	8
	2437	-12.601	8
	2452	-17.290	8

Please refer to the following test plots:

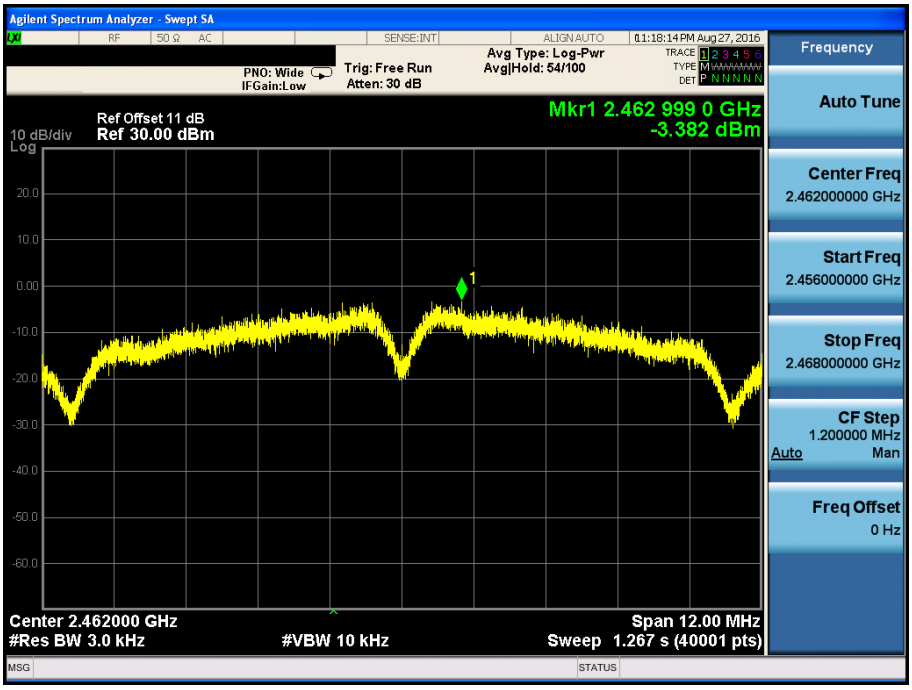
802.11b-Low Channel



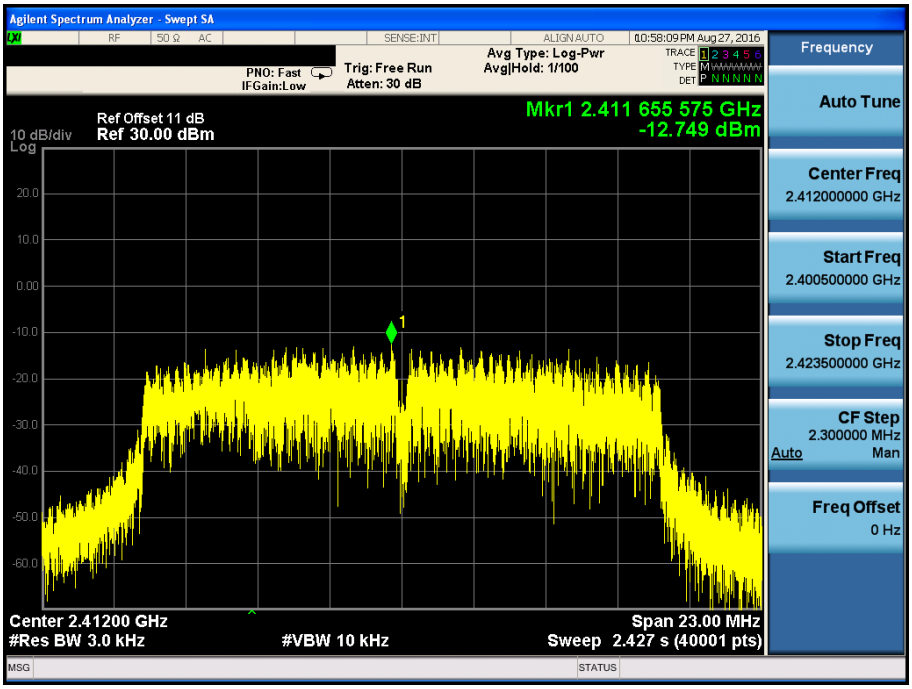
802.11b-Middle Channel



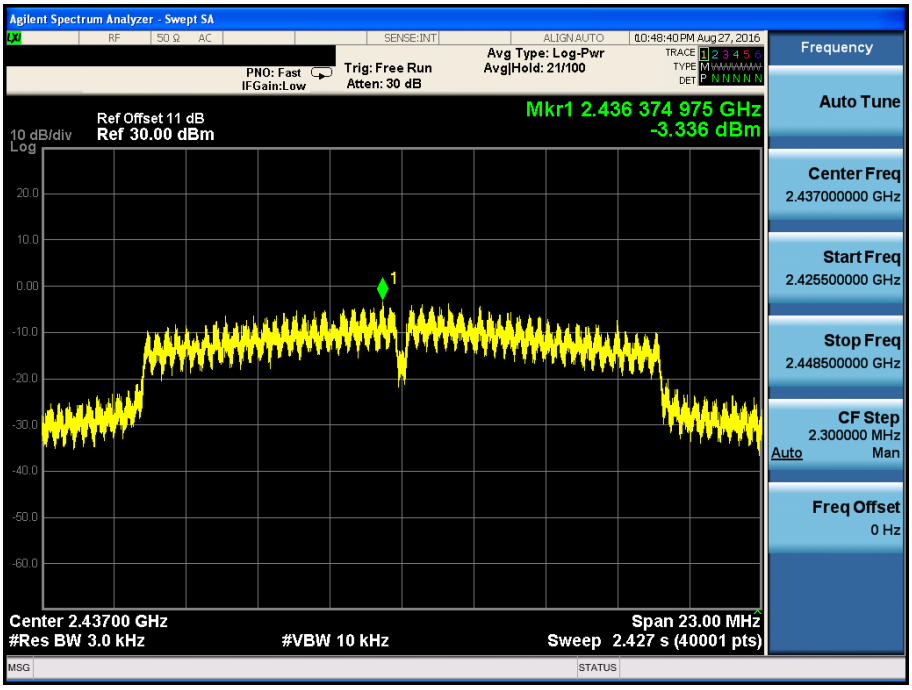
802.11b-High Channel



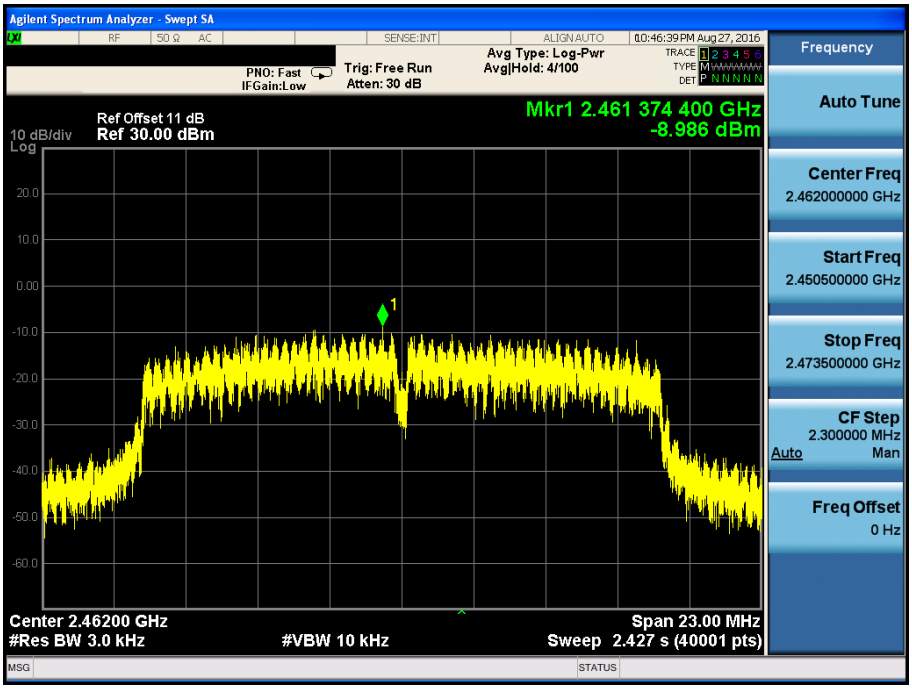
802.11g-Low Channel



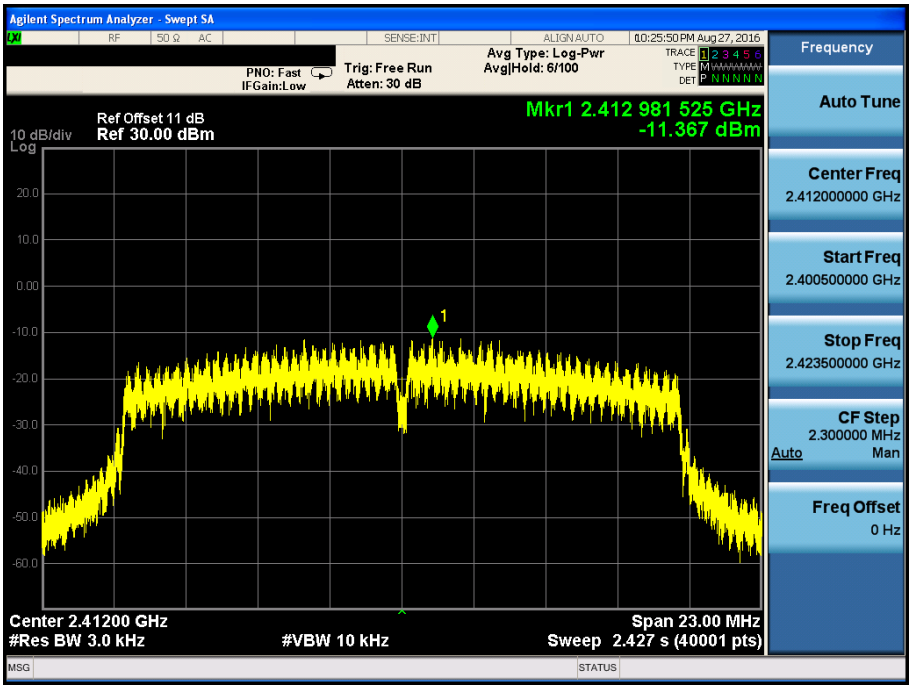
802.11g-Middle Channel



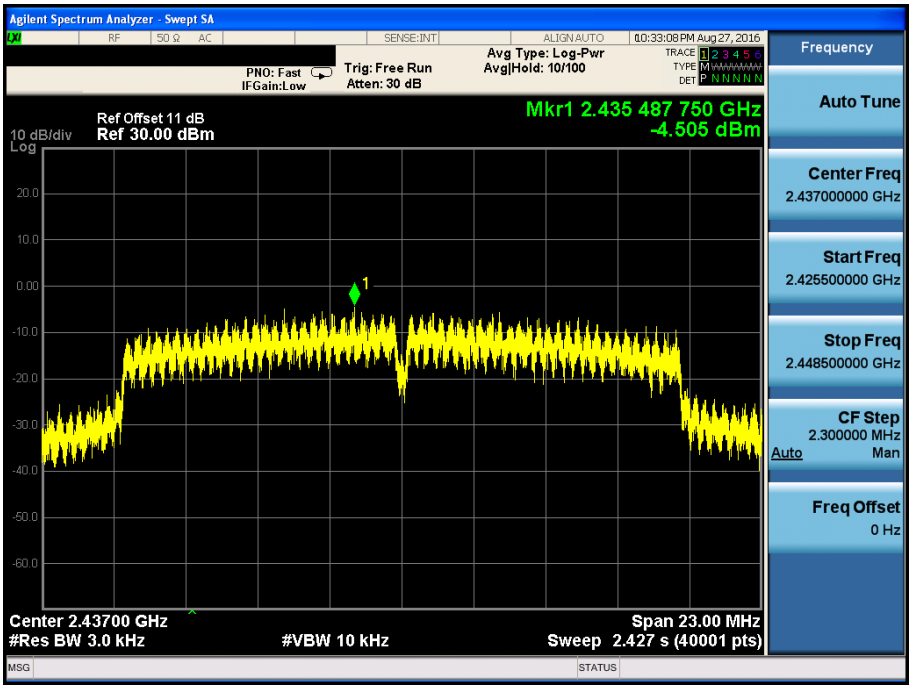
802.11g-High Channel



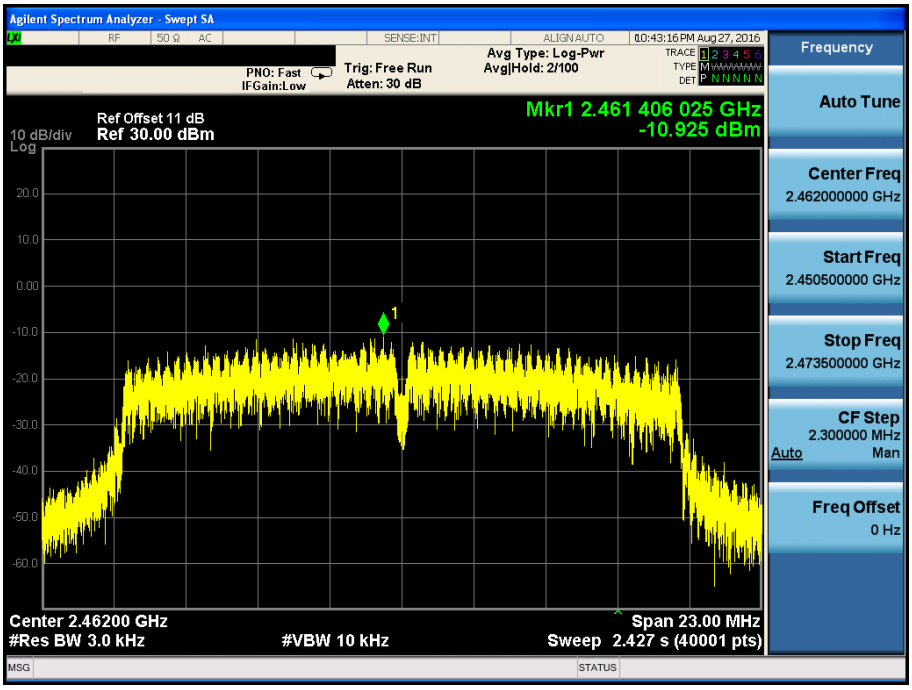
802.11n-HT20-Low Channel



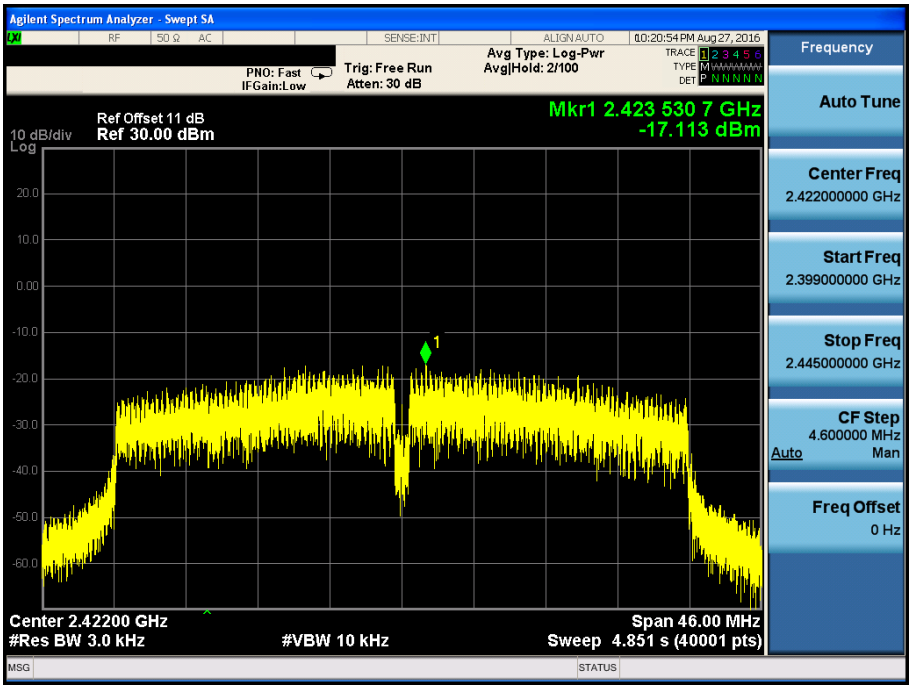
802.11n-HT20-Middle Channel



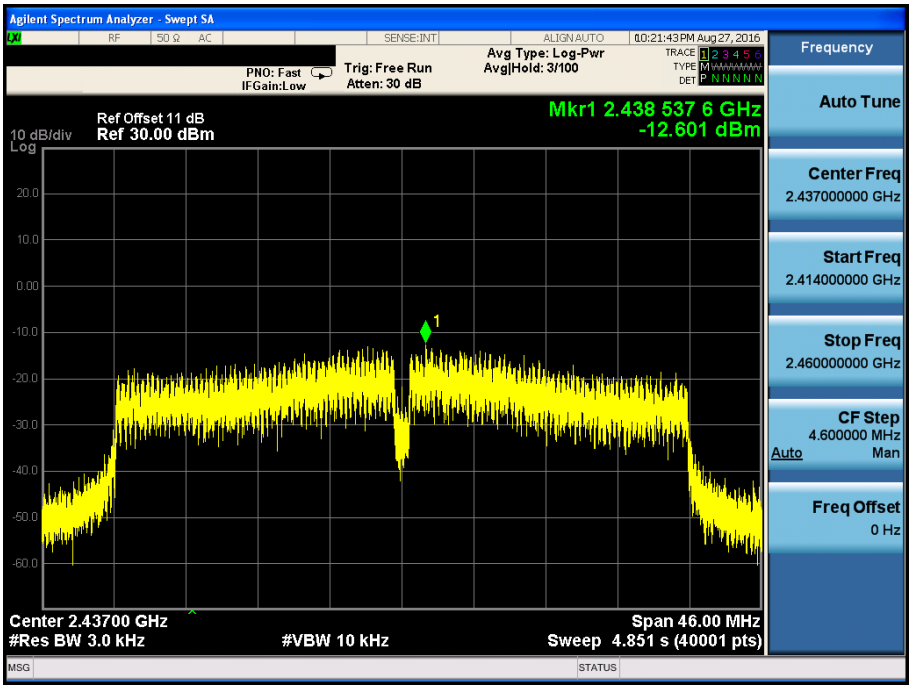
802.11n-HT20-High Channel



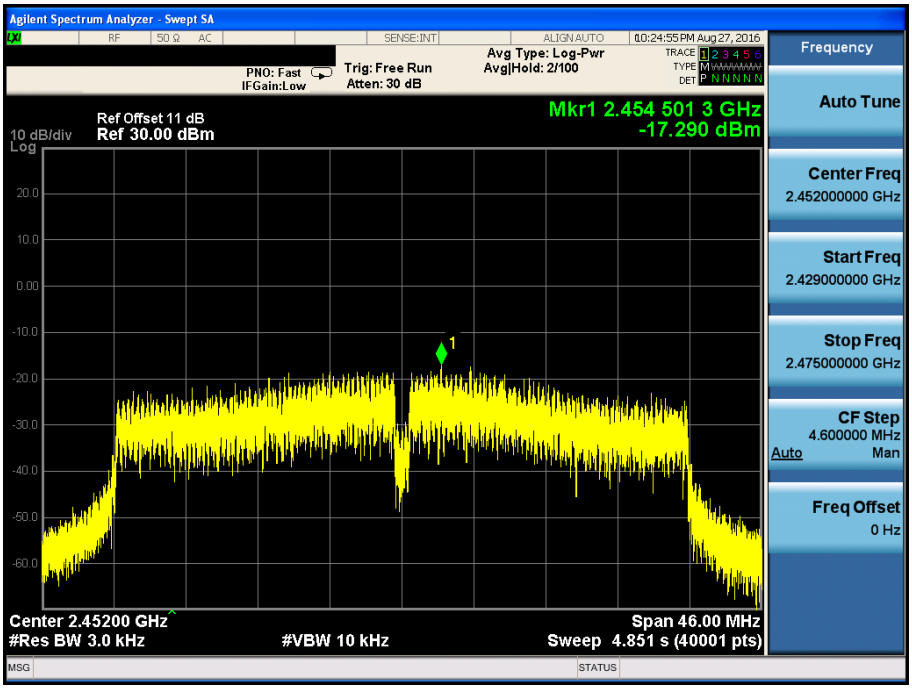
802.11n-HT40-Low Channel



802.11n-HT40-Middle Channel



802.11n-HT40-High Channel



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) ≥ 3 × RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Sweep = auto couple.
f) Allow the trace to stabilize.
g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

6.3 Environmental Conditions

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

6.4 Summary of Test Results/Plots

Test Mode	Test Channel MHz	6 dB Bandwidth kHz	99% Bandwidth kHz	Limit kHz
802.11b	2412	7593	13162	≥500
	2437	7088	12893	≥500
	2462	6136	12927	≥500
802.11g	2412	13520	17371	≥500
	2437	15130	16640	≥500
	2462	15070	16391	≥500
802.11n-HT20	2412	14440	17790	≥500
	2437	15070	17657	≥500
	2462	15060	17673	≥500
802.11n-HT40	2422	30030	36232	≥500
	2437	26370	36018	≥500
	2452	30050	35999	≥500

Please refer to the following test plots:

802.11b-Low Channel

802.11b-Middle Channel

802.11b-High Channel

802.11g-Low Channel

802.11g-Middle Channel

802.11g-High Channel

802.11n-HT20-Low Channel

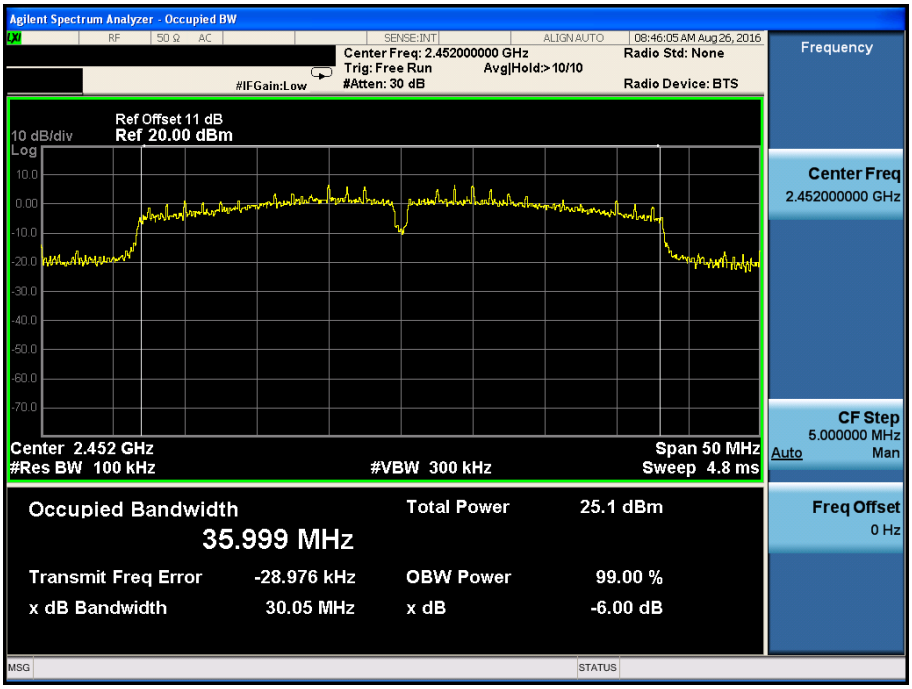
802.11n-HT20-Middle Channel

802.11n-HT20-High Channel

802.11n-HT40-Low Channel

802.11n-HT40-Middle Channel

802.11n-HT40-High Channel



7. RF Output Power

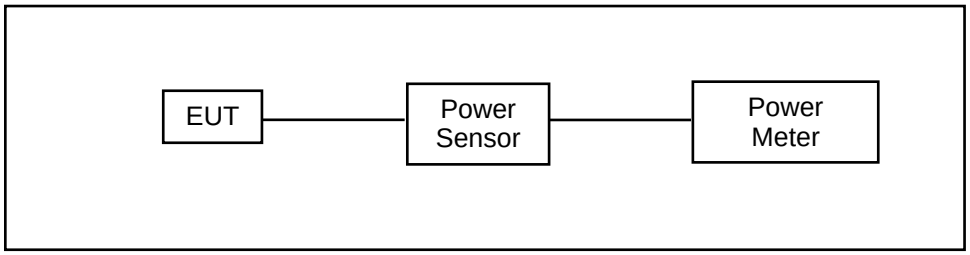
7.1 Standard Applicable

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

The tests below are run with the EUT's transmitter set at high power in TX mode. The EUT is needed to force selection of output power level and channel number. While testing, EUT was set to transmit continuously. Remove the Subjective device's antenna and connect the RF output port to power sensor.

7.3 Test Setup



7.4 Environmental Conditions

Temperature:	26° C
Relative Humidity:	57%
ATM Pressure:	1011 mbar

7.5 Summary of Test Results/Plots

Test Mode	Frequency MHz	Reading dBm	Output Power mW	Limit mW
802.11b _ 11Mbps	2412	18.74	74.82	1000
	2437	18.05	63.83	1000
	2462	18.38	68.87	1000
802.11g_54Mbps	2412	17.63	57.94	1000
	2437	17.05	50.70	1000
	2462	17.57	57.15	1000
802.11n HT20_MCS7	2412	16.37	43.35	1000
	2437	16.01	39.90	1000
	2462	16.22	41.88	1000
802.11n HT40_MCS7	2422	16.39	43.55	1000
	2437	16.07	40.46	1000
	2452	16.53	44.98	1000

8. Field Strength of Spurious Emissions

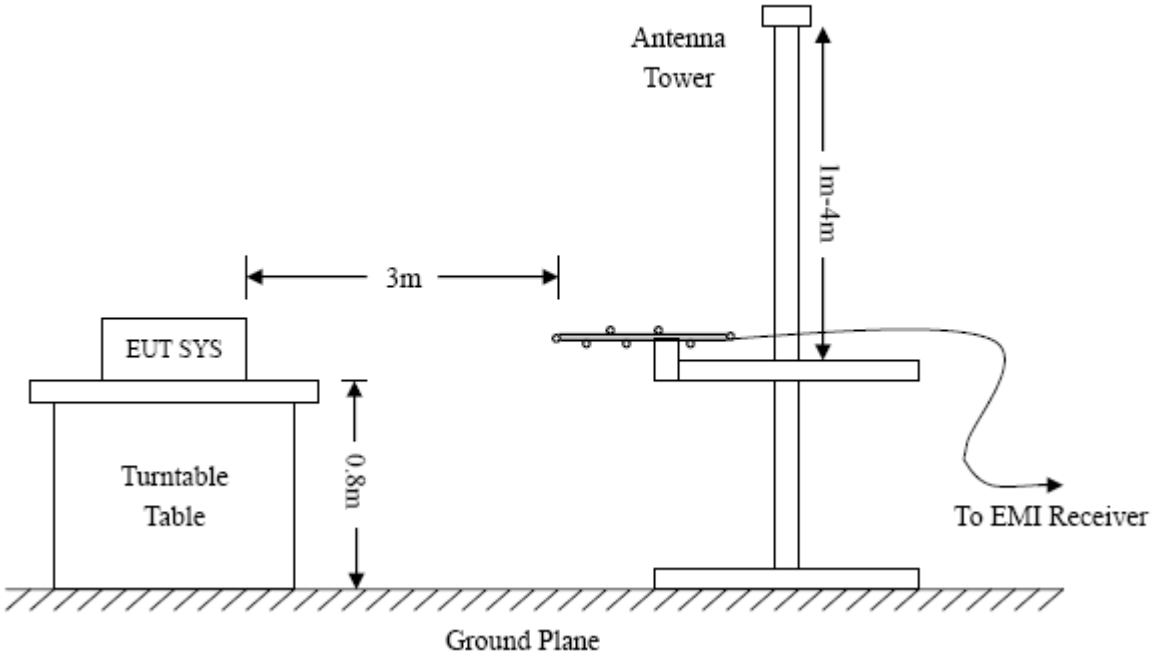
8.1 Standard Applicable

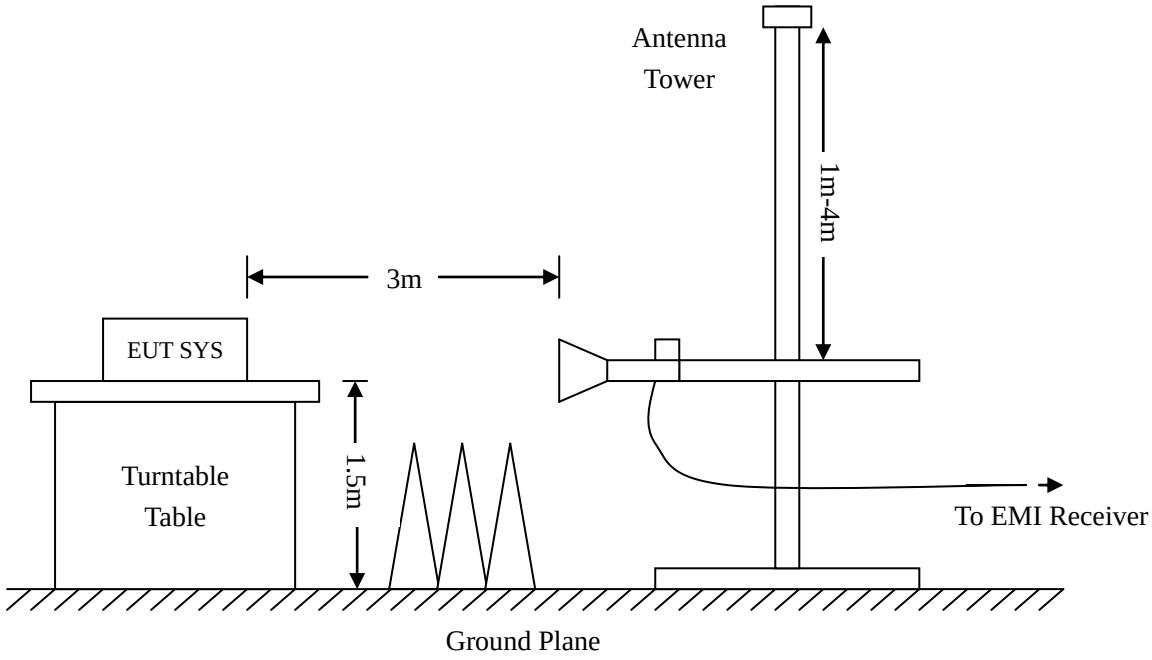
According to §15.247(d), in any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within 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	Frequency :30MHz-1GHz	Frequency :Above 1GHz
RBW=10KHz,	RBW=120KHz,	RBW=1MHz,
VBW =30KHz	VBW=300KHz	VBW=3MHz(Peak), 10Hz(AV)
Sweep time= Auto	Sweep time= Auto	Sweep time= Auto
Trace = max hold	Trace = max hold	Trace = max hold
Detector function = peak	Detector function = peak, QP	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:

Corr. Ampl. = Indicated Reading + Ant. Factor + Cable Loss – Ampl. Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dBμV means the emission is 6dBμV below the maximum limit. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – FCC Part 15 Limit

8.4 Environmental Conditions

Temperature:	25 °C
Relative Humidity:	52%
ATM Pressure:	1012 mbar

8.5 Summary of Test Results/Plots

According to the data below, the FCC Part 15.205, 15.209 and 15.247 standards, and had the worst cases:

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

For (11b/g and 11n-HT20,11n-HT40 is worst case)

Plot of Radiated Emissions Test Data (30MHz to 1GHz)

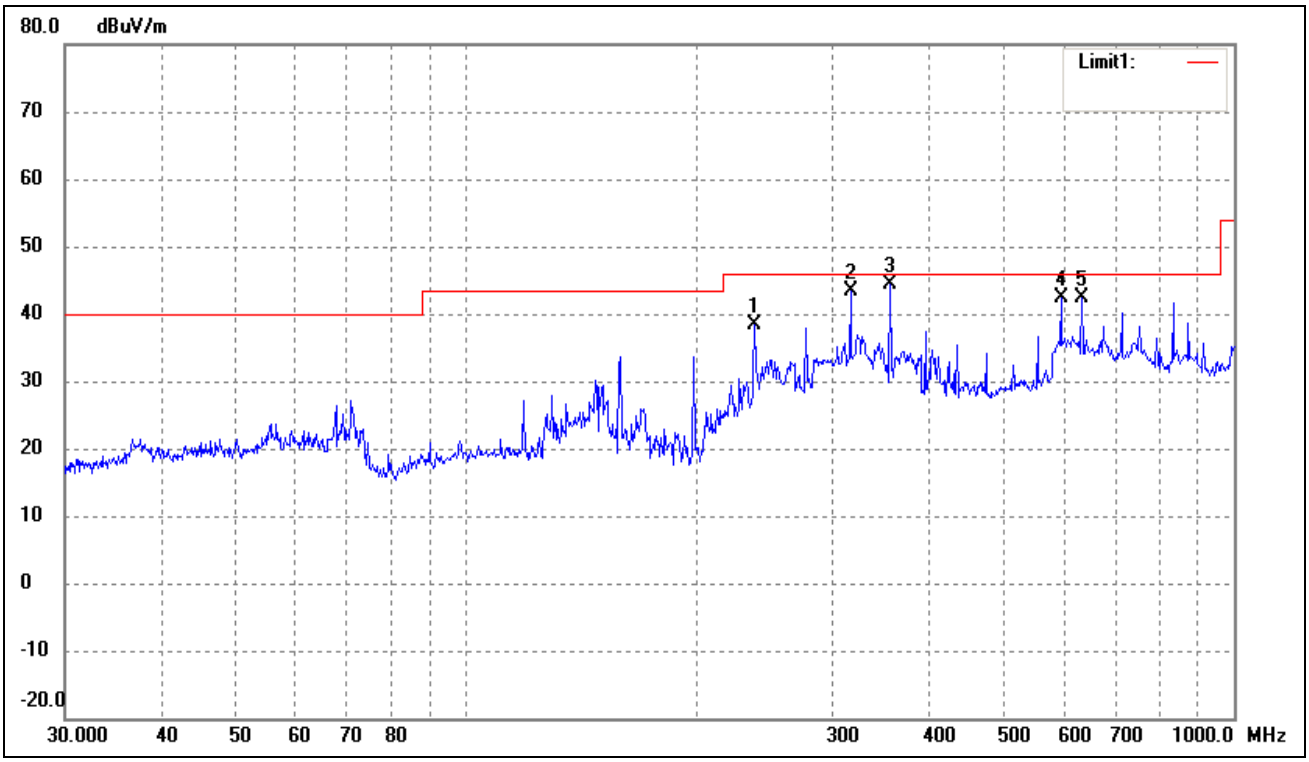
EUT: *WIFI Module*

Tested Model: *WC0HR2601*

Operating Condition: *802.11b Transmitting Low Channel-2412MHz*

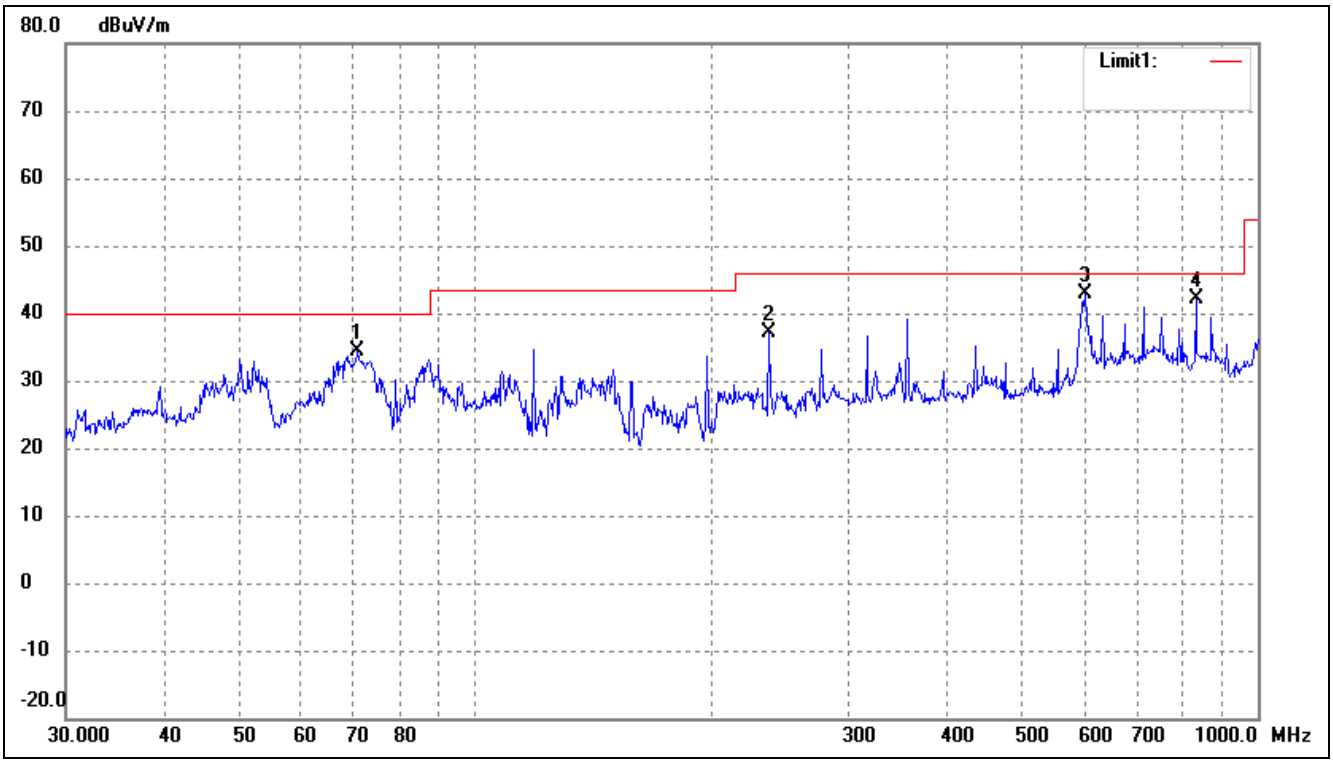
Comment: *AC 120V/60Hz; Connected to PC*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	237.4759	29.32	9.18	38.50	46.00	-7.50	65	100	peak
2	316.5889	31.06	12.28	43.34	46.00	-2.66	133	100	peak
3	356.6757	32.23	12.15	44.38	46.00	-1.62	21	100	peak
4	595.1328	24.03	18.41	42.44	46.00	-3.56	130	100	peak
5	633.9072	24.02	18.41	42.43	46.00	-3.57	65	100	peak

Test Specification: *Vertical*

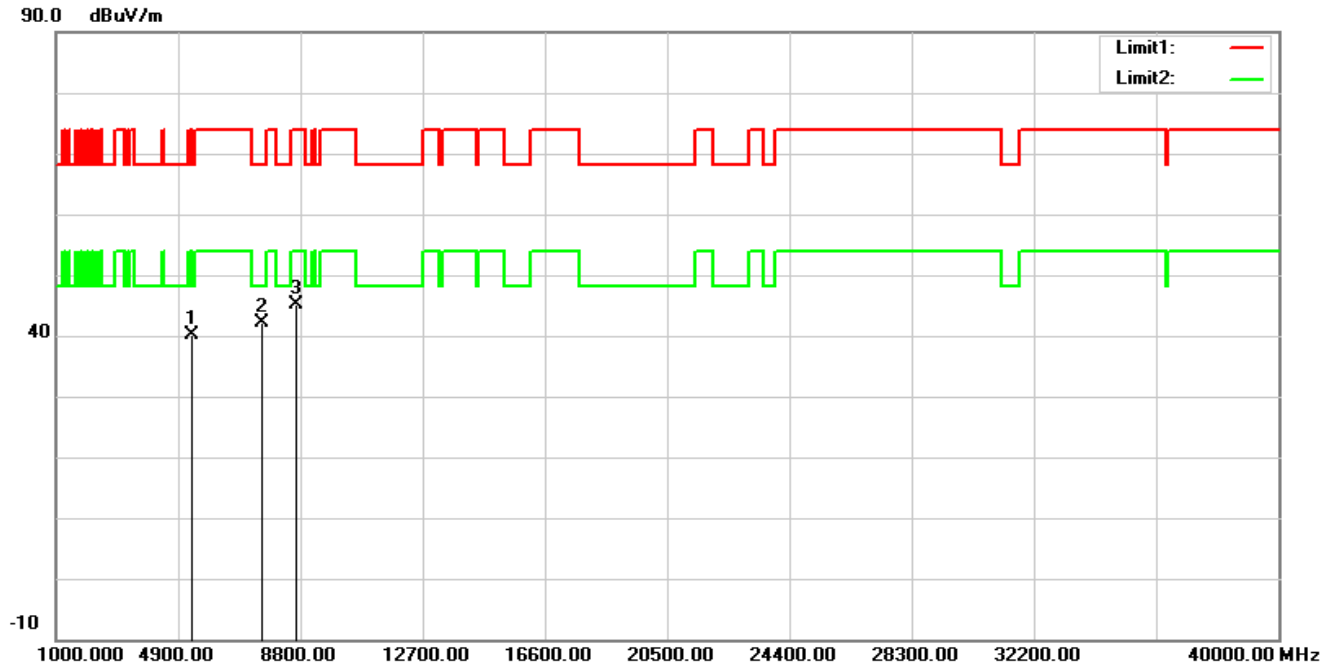


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	70.8315	31.31	3.09	34.40	40.00	-5.60	95	100	peak
2	237.4759	27.91	9.18	37.09	46.00	-8.91	163	100	peak
3	601.4265	23.71	19.22	42.93	46.00	-3.07	325	100	peak
4	833.3170	24.87	17.36	42.23	46.00	-3.77	98	100	peak

Above 1GHz

Worst case

Standard:	FCC(1G-40G)-PEAK	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 110V/60Hz
Model Number:	WCOHR2601	Temp.( )/Hum.(%RH):	( )/%RH
Mode:	Transmitting(Wi-Fi)		
Ant.Polar.:	Horizontal		
Description:			

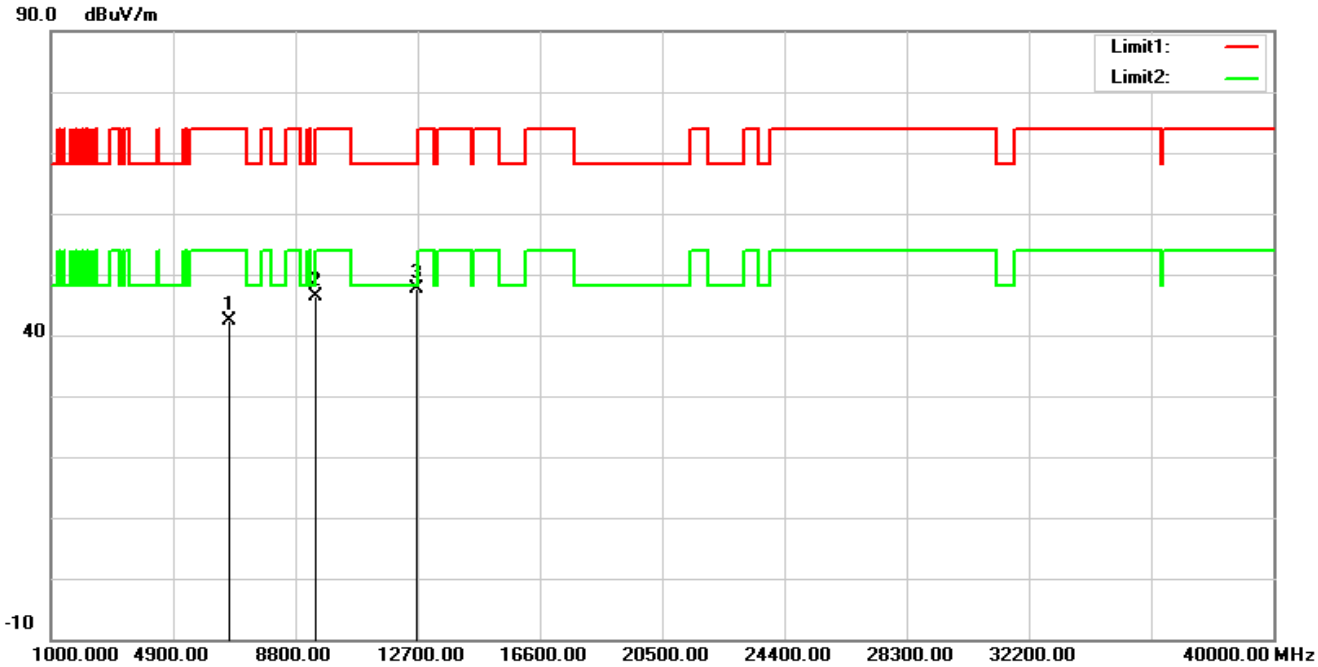


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree ( )	Remark
1	5329.000	43.92	-3.78	40.14	74.00	-33.86			peak
2	7591.000	42.06	0.15	42.21	68.20	-25.99			peak
3	8683.000	42.61	2.46	45.07	74.00	-28.93			peak

Note:1. Result (dBuV) = Correction factor (dB) + Reading(dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) Pre-Amplifier gain (dB).

Standard:	FCC(1G-40G)-PEAK	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 110V/60Hz
Model Number:	WCOHR2601	Temp.( )/Hum.(%RH):	( )/%RH
Mode:	Transmitting(Wi-Fi)		
Ant.Polar.:	Vertical		
Description:			



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree ( )	Remark
1	6694.000	43.95	-1.50	42.45	74.00	-31.55			peak
2	9463.000	42.05	4.40	46.45	68.20	-21.75			peak
3	12661.000	39.87	7.65	47.52	68.20	-20.68			peak

Note:1. Result (dBuV) = Correction factor (dB) + Reading(dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) Pre-Amplifier gain (dB).

For (11b/g and 11n-HT20,11n-HT40 is worst case)

Spurious Emissions harmonic

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	H/V	
Low Channel-2412MHz							
4824.000	54.07	-3.87	50.20	74.00	-23.80	H	PK
4824.000	38.81	-3.87	34.94	54.00	-19.06	H	AV
7236.000	46.32	1.14	47.46	74.00	-26.54	H	PK
7236.000	34.93	1.19	36.12	54.00	-17.88	H	AV
4824.000	57.31	-3.86	53.45	74.00	-20.55	V	PK
4824.000	40.52	-3.86	36.66	54.00	-17.34	V	AV
7236.000	49.11	1.10	50.21	74.00	-23.79	V	PK
7236.000	37.42	1.10	38.52	54.00	-15.48	V	AV
Middle Channel-2437MHz							
4874.000	54.72	-3.74	50.98	74.00	-23.02	H	PK
4874.000	39.91	-3.74	36.17	54.00	-17.83	H	AV
7311.000	47.76	1.47	49.23	74.00	-24.77	H	PK
7311.000	33.11	1.47	34.58	54.00	-19.42	H	AV
4874.000	53.95	-3.74	50.21	74.00	-23.79	V	PK
4874.000	40.89	-3.74	37.15	54.00	-16.85	V	AV
7311.000	47.98	1.47	49.45	74.00	-24.55	V	PK
7311.000	34.07	1.47	35.54	54.00	-18.46	V	AV
High Channel-2462MHz							
4924.000	55.81	-3.59	52.22	74.00	-21.78	H	PK
4924.000	41.72	-3.59	38.13	54.00	-15.87	H	AV
7386.000	46.33	1.79	48.12	74.00	-25.88	H	PK
7386.000	34.86	1.79	36.65	54.00	-17.35	H	AV
4924.000	54.99	-3.59	51.40	74.00	-22.60	V	PK
4924.000	42.08	-3.59	38.49	54.00	-15.51	V	AV
7386.000	47.91	1.79	49.70	74.00	-24.30	V	PK
7386.000	35.11	1.79	36.90	54.00	-17.10	V	AV

9. Out of Band Emissions

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 v03r04, 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 v03r05, 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 ≥ 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.

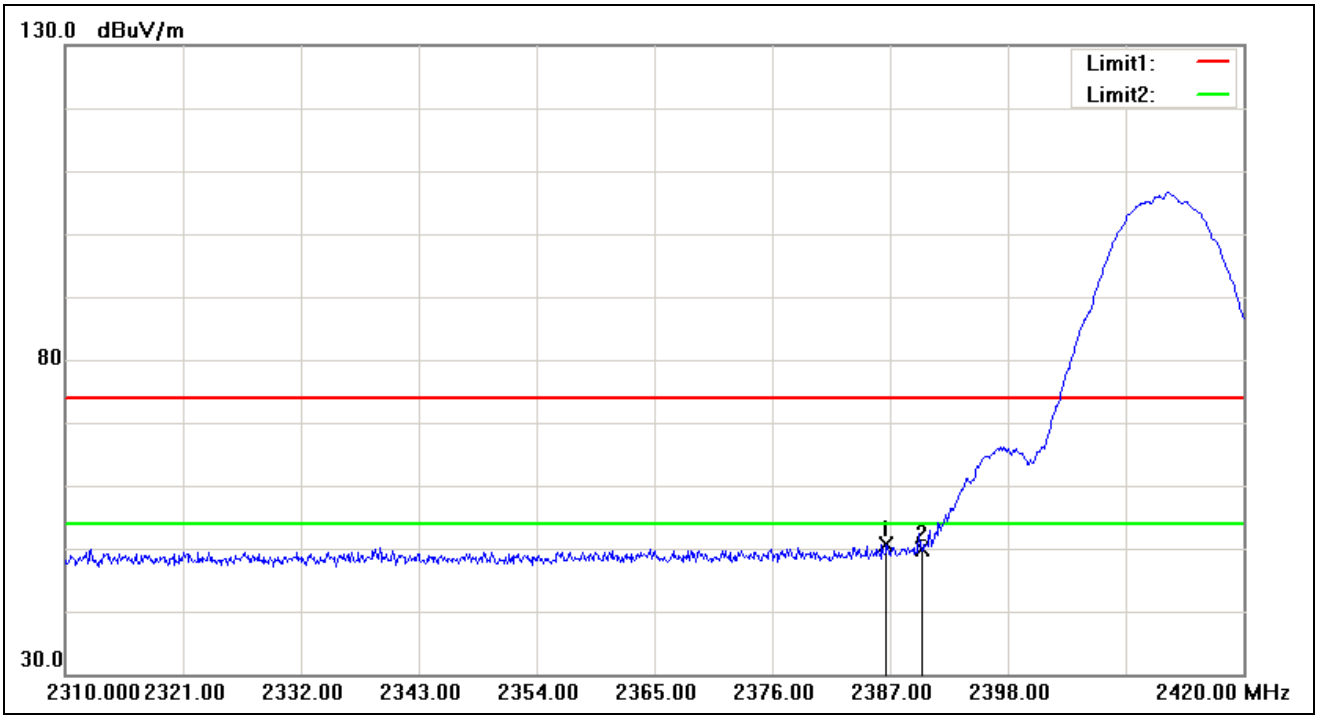
Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) are attenuated by at least the minimum requirements specified in section 8.1. Report the three highest emissions relative to the limit.

9.3 Environmental Conditions

Temperature:	23°C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

9.4 Summary of Test Results/Plots

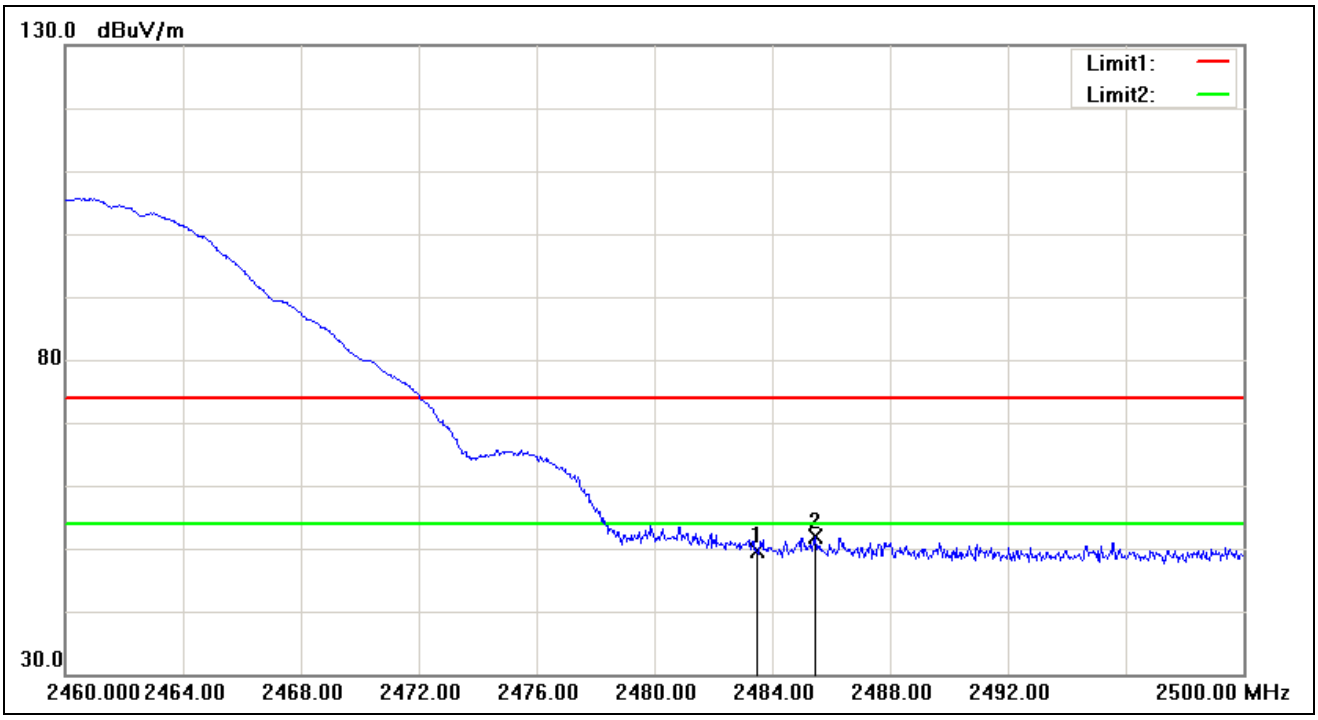
802.11b-Lowest Bandedge
Vertical (Worst case)
802.11b-Lowest Bandedge
Vertical (Worst case)



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
1	2386.670	51.02	-0.36	50.66	74.00	-23.34			peak
2	2390.000	50.34	-0.34	50.00	74.00	-24.00			peak

802.11b-Highest Bandedge

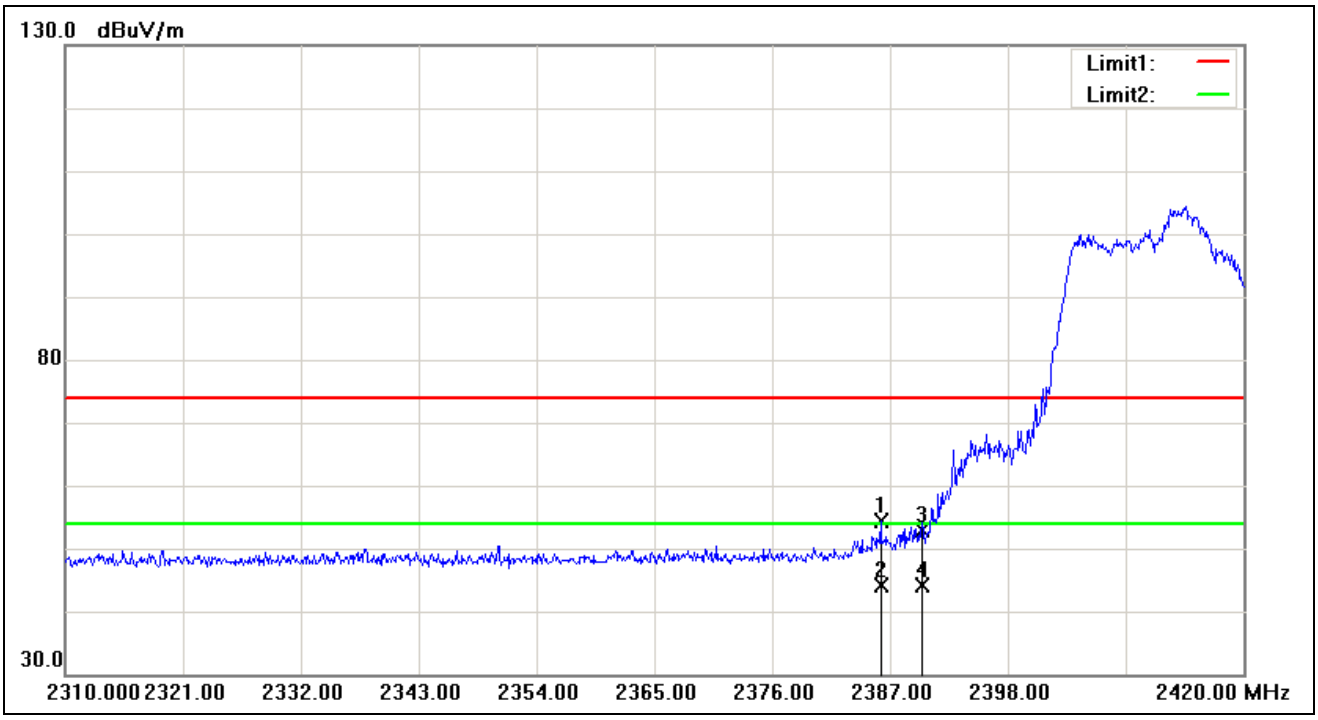
Vertical (Worst case)



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
1	2483.500	49.61	0.03	49.64	74.00	-24.36			peak
2	2485.480	51.77	0.04	51.81	74.00	-22.19			peak

802.11g-Lowest Bandedge

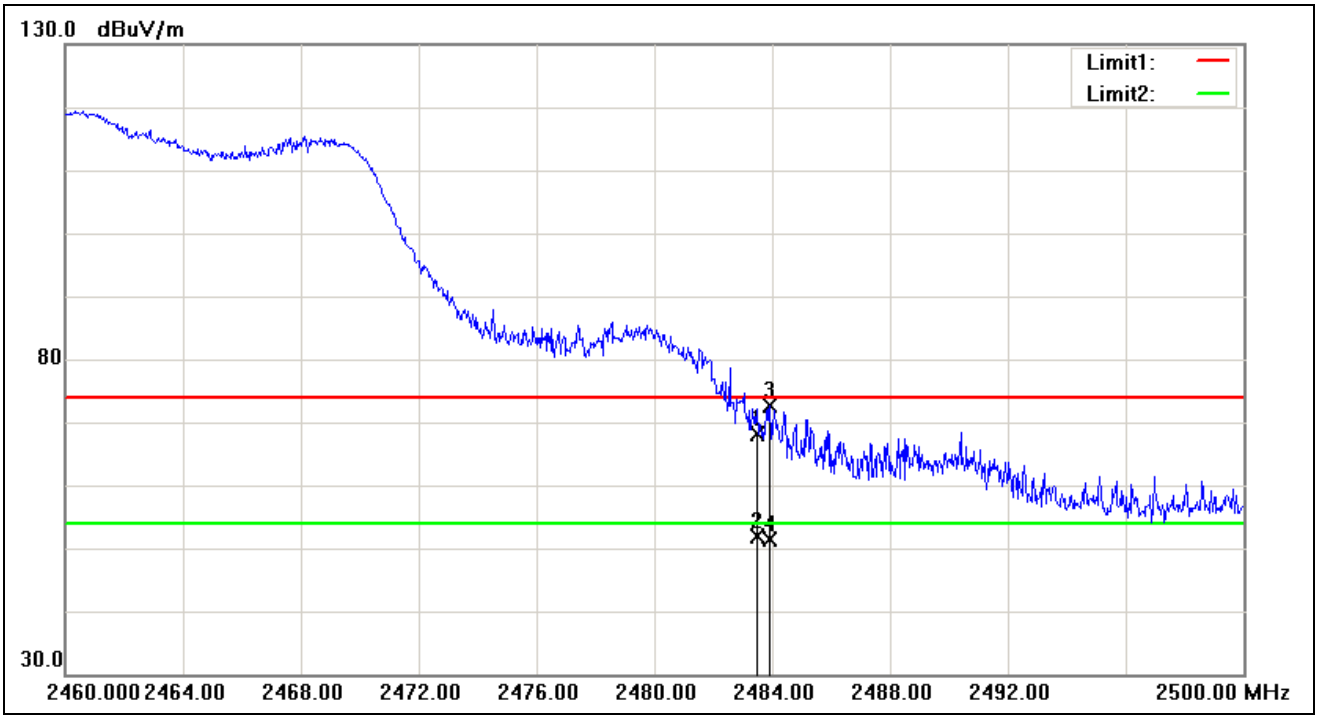
Vertical (Worst case)



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
1	2386.120	54.74	-0.36	54.38	74.00	-19.62			peak
2	2386.120	44.41	-0.36	44.05	54.00	-9.95			AVG
3	2390.000	53.19	-0.34	52.85	74.00	-21.15			peak
4	2390.000	44.57	-0.34	44.23	54.00	-9.77			AVG

802.11g-Highest Bandedge

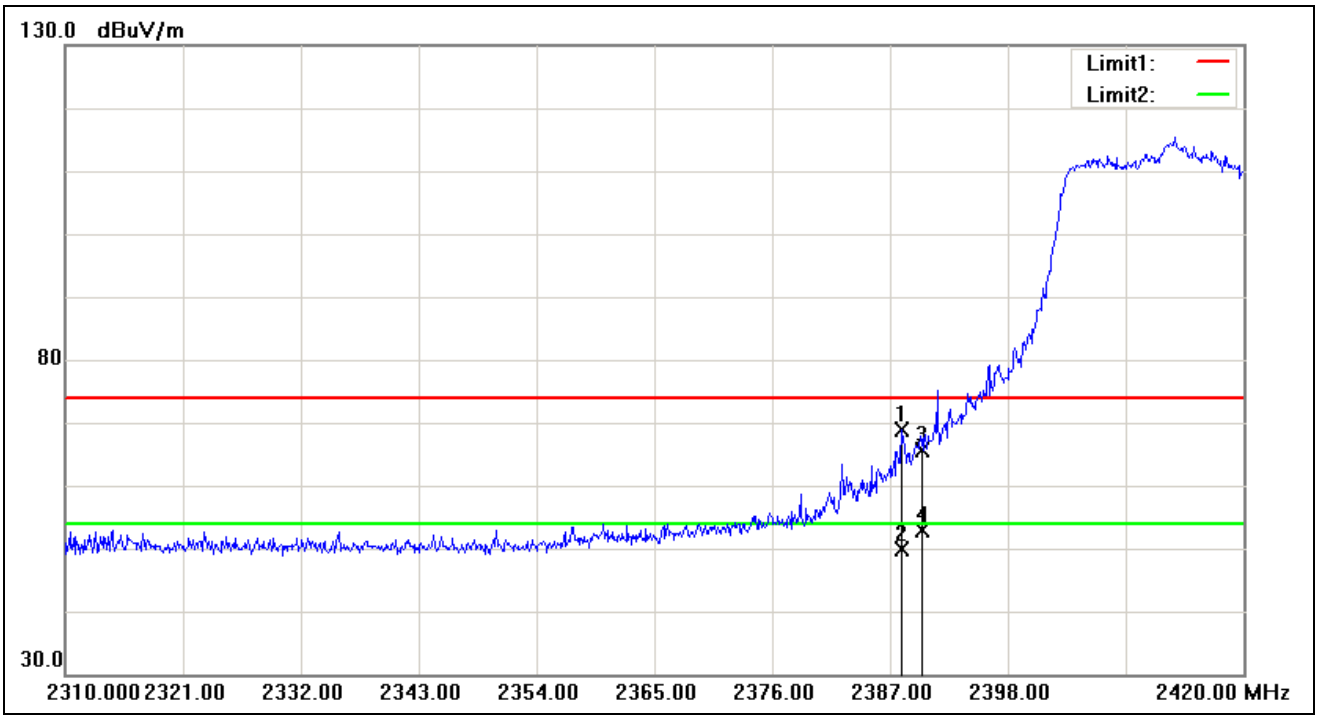
Vertical (Worst case)



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
1	2483.500	68.19	0.03	68.22	74.00	-5.78			peak
2	2483.500	51.83	0.03	51.86	54.00	-2.14			AVG
3	2483.920	72.62	0.03	72.65	74.00	-1.35			peak
4	2483.920	51.39	0.03	51.42	54.00	-2.58			AVG

802.11n-HT20-Lowest Bandedge

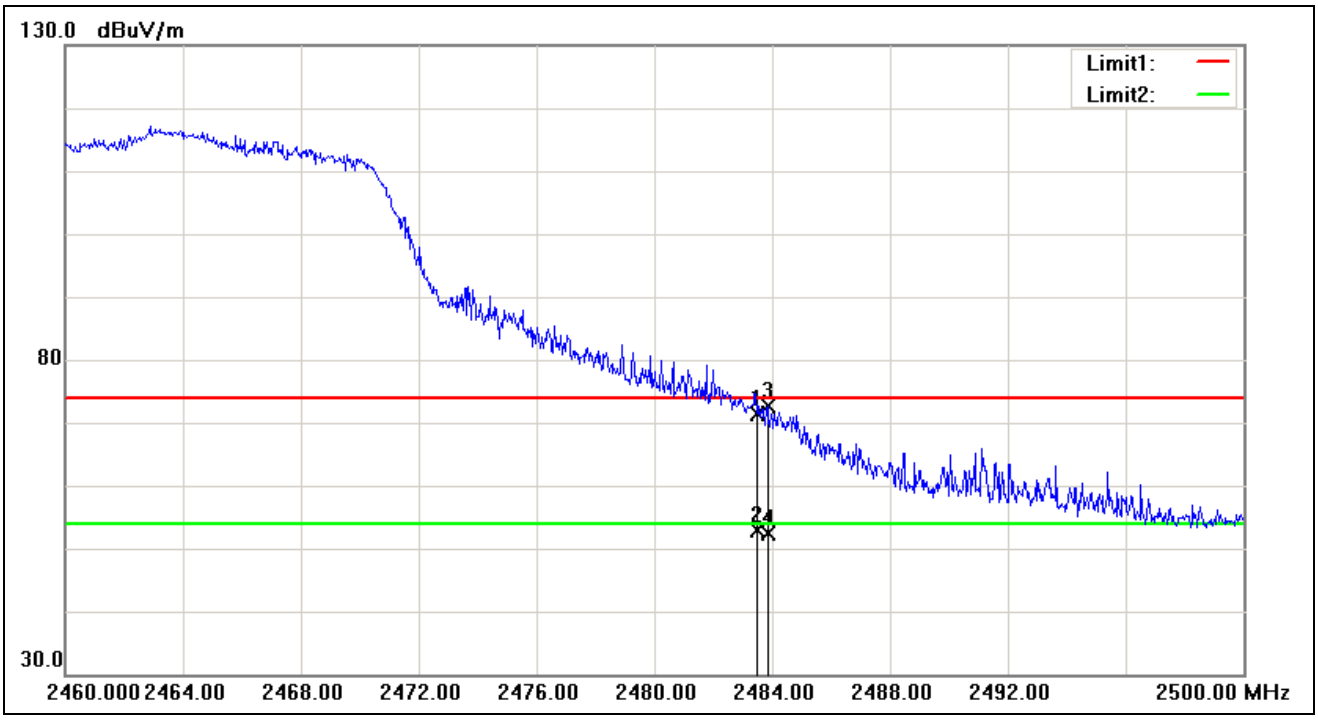
Vertical (Worst case)



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
1	2388.100	69.31	-0.34	68.97	74.00	-5.03			peak
2	2388.100	50.13	-0.34	49.79	54.00	-4.21			AVG
3	2390.000	66.05	-0.34	65.71	74.00	-8.29			peak
4	2390.000	53.20	-0.34	52.86	54.00	-1.14			AVG

802.11n-HT20-Highest Bandedge

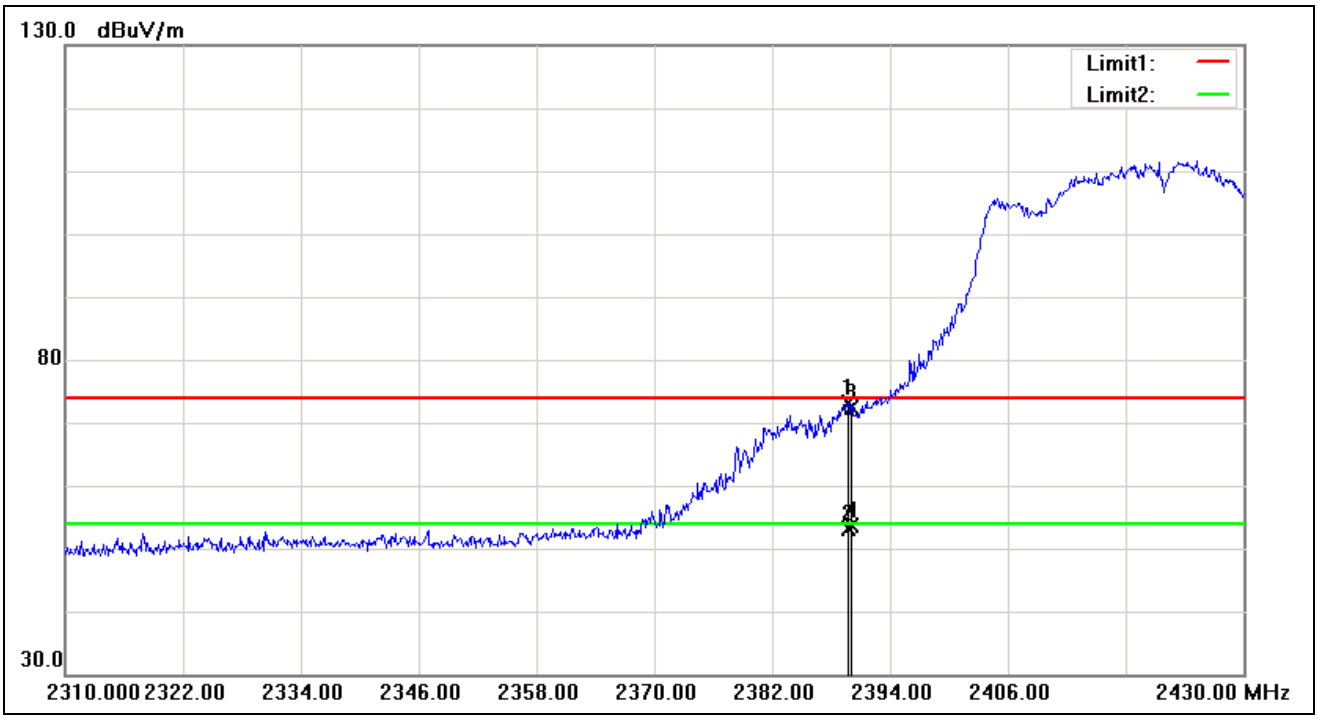
Vertical (Worst case)



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
1	2483.500	71.37	0.03	71.40	74.00	-2.60			peak
2	2483.500	52.97	0.03	53.00	54.00	-1.00			AVG
3	2483.840	72.69	0.03	72.72	74.00	-1.28			peak
4	2483.840	52.24	0.03	52.27	54.00	-1.73			AVG

802.11n-HT40-Lowest Bandedge

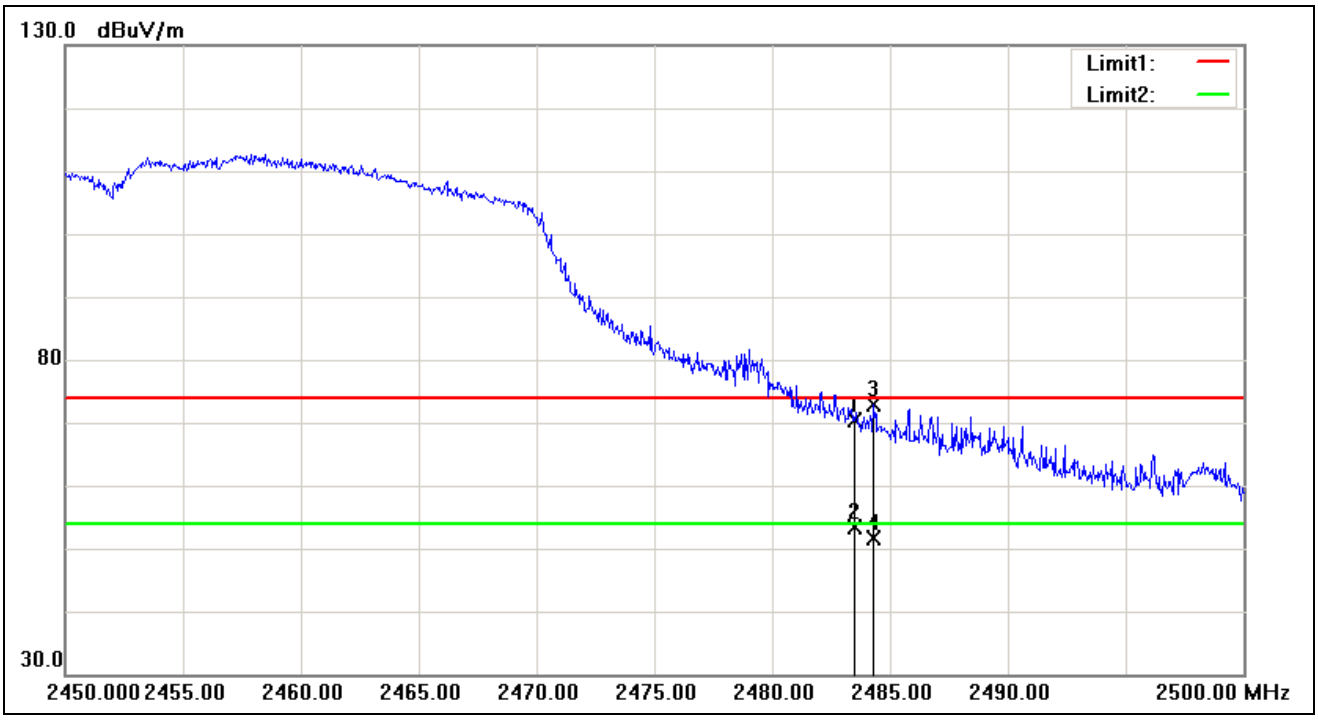
Vertical (Worst case)



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
1	2389.800	73.39	-0.34	73.05	74.00	-0.95			peak
2	2389.800	53.36	-0.34	53.02	54.00	-0.98			AVG
3	2390.000	72.66	-0.34	72.32	74.00	-1.68			peak
4	2390.000	54.00	-0.34	53.66	54.00	-0.34			AVG

802.11n-HT40-Highest Bandedge

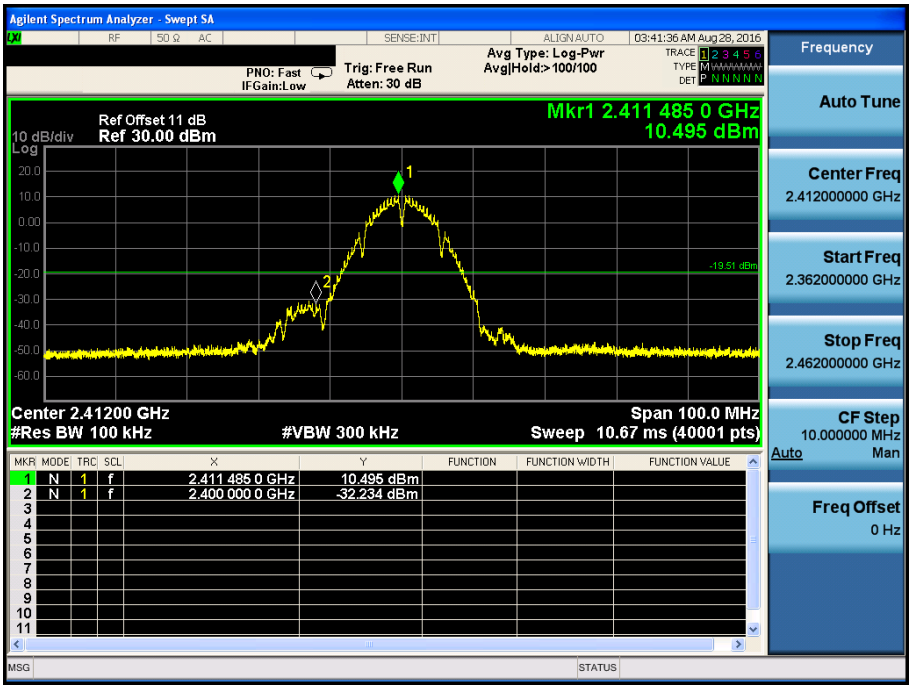
Vertical (Worst case)



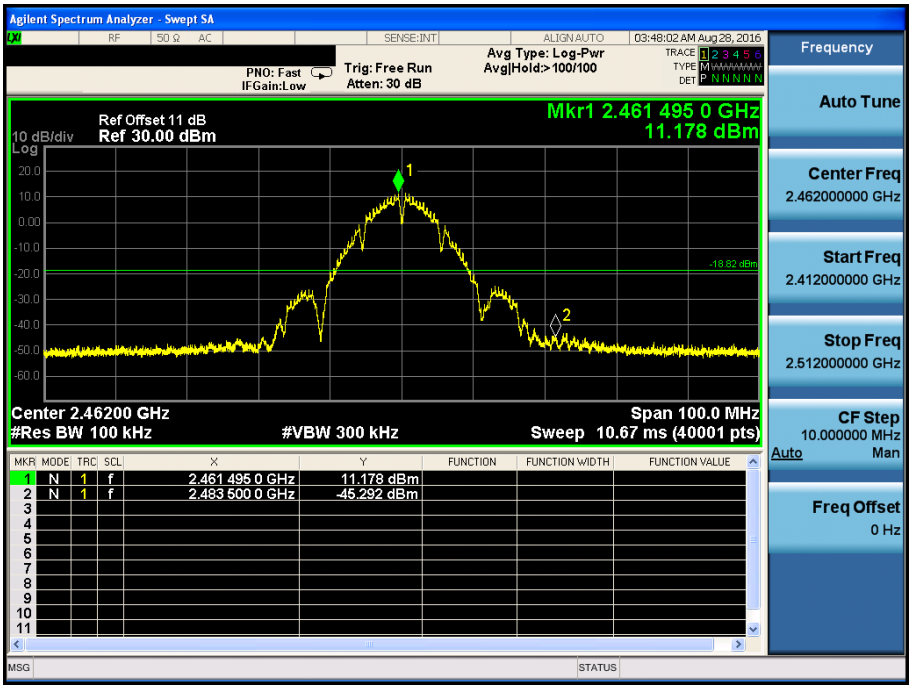
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
1	2483.500	70.32	0.03	70.35	74.00	-3.65			peak
2	2483.500	53.32	0.03	53.35	54.00	-0.65			AVG
3	2484.300	72.96	0.04	73.00	74.00	-1.00			peak
4	2484.300	51.65	0.04	51.69	54.00	-2.31			AVG

Bandedge (Conducted)

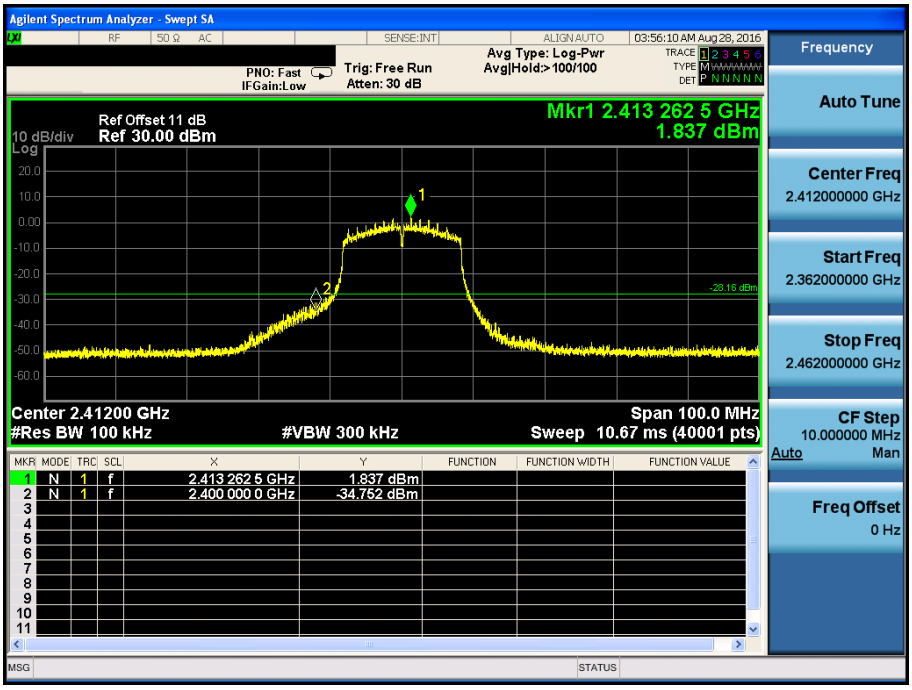
11b- Lowest Bandedge



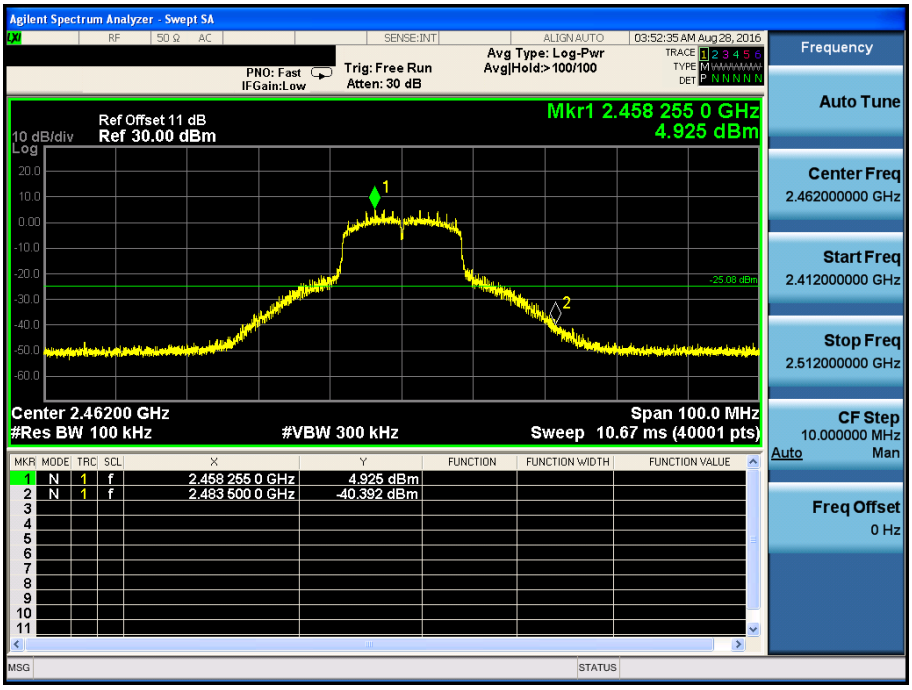
11b- Highest Bandedge



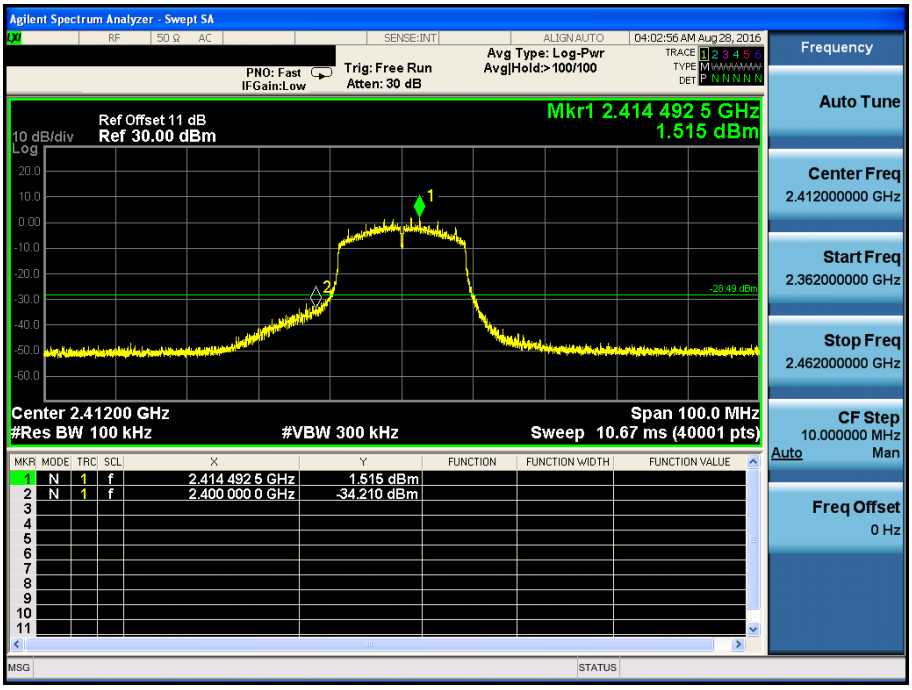
11g- Lowest Bandedge



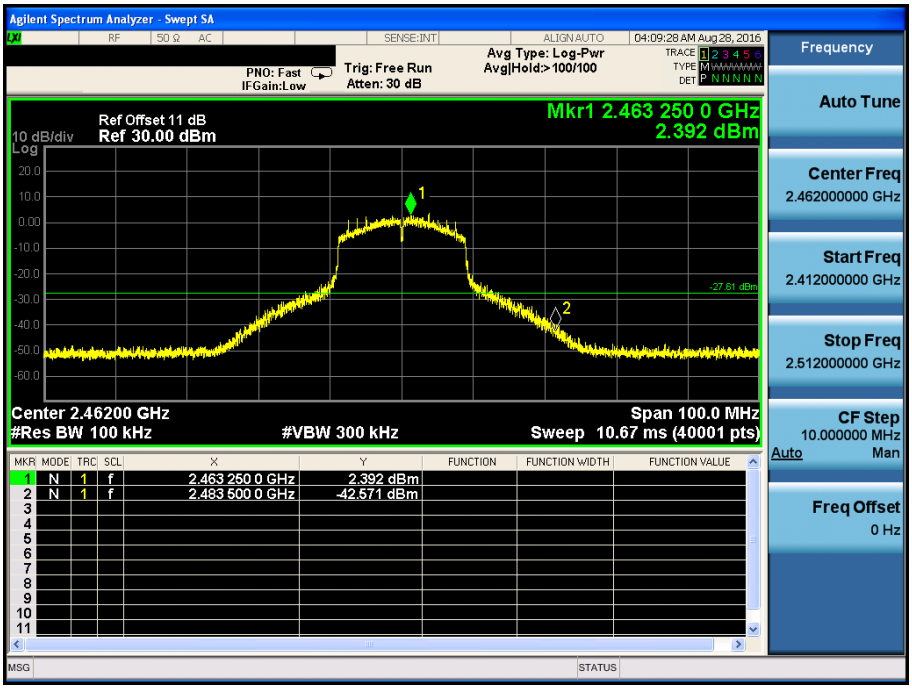
11g- Highest Bandedge



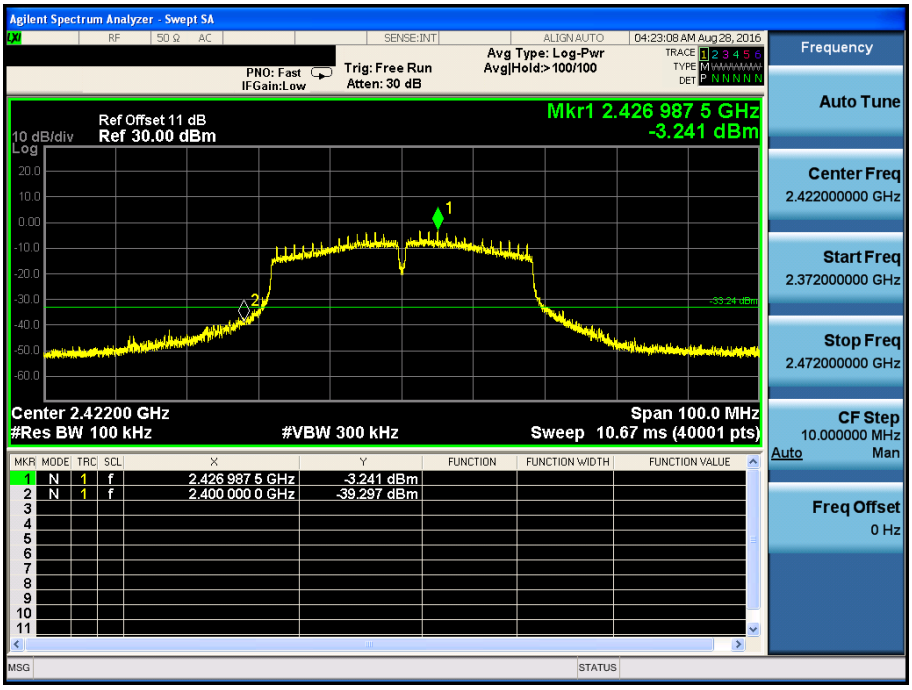
11n_HT20- Lowest Bandedge



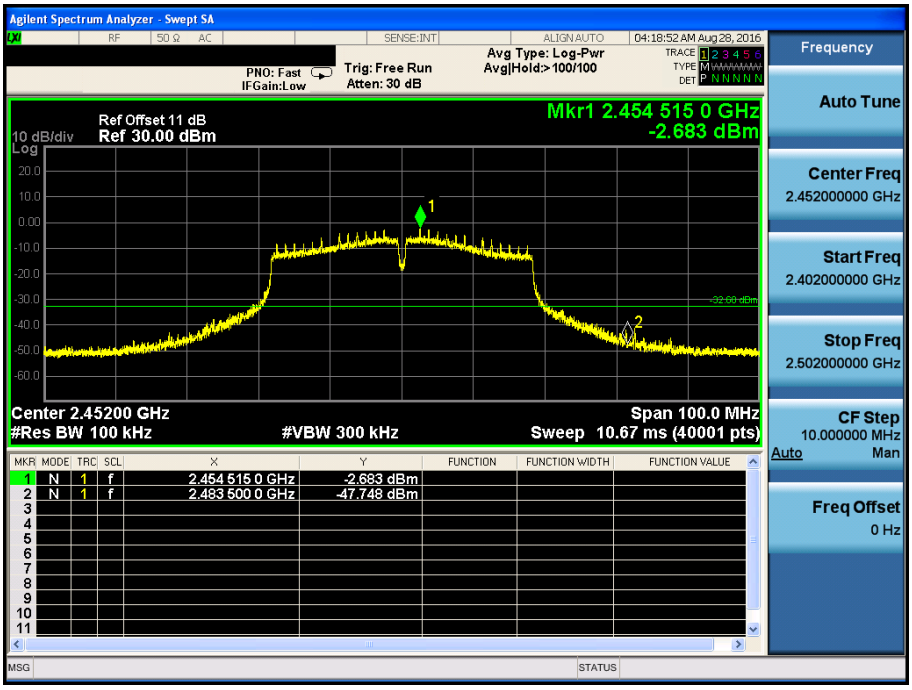
11n_HT20- Highest Bandedge



11n_HT40- Lowest Bandedge



11n_HT40- Highest Bandedge

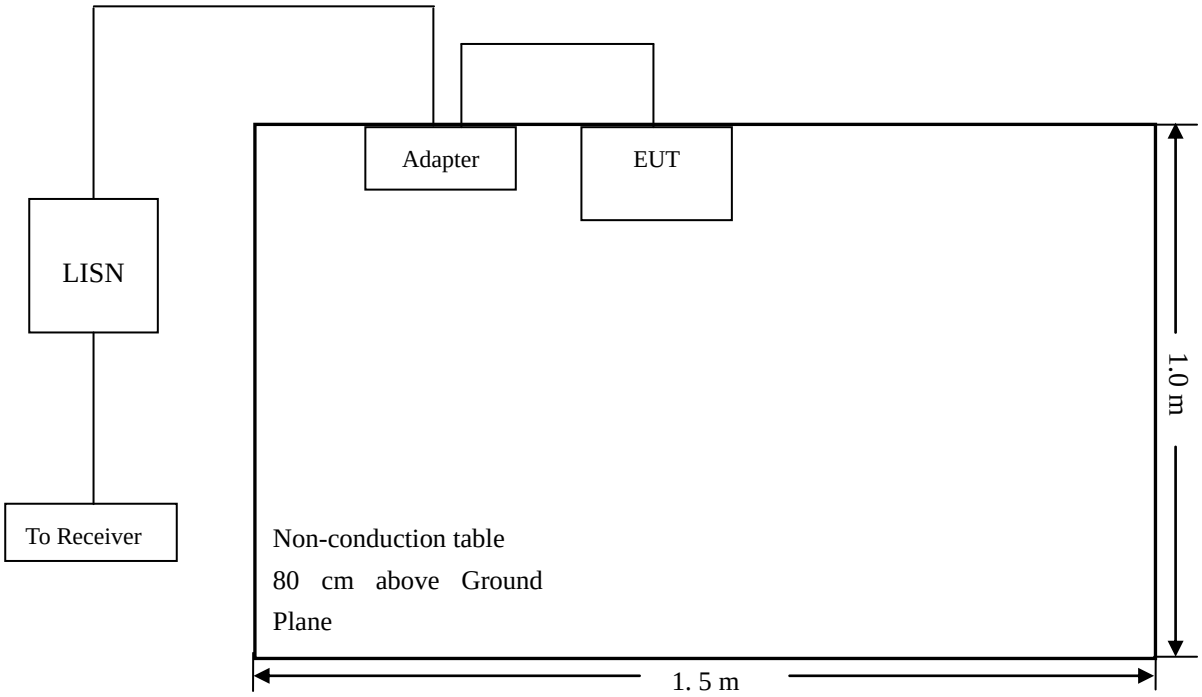


10. Conducted Emissions

10.1 Test Procedure

The setup of EUT is according with per ANSI C63.4-2014 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 Environmental Conditions

Temperature:	25 °C
Relative Humidity:	52%
ATM Pressure:	1012 mbar

10.4 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

10.5 Summary of Test Results/Plots

According to the data in section 10.6, the EUT complied with the FCC Part 15.207 Conducted margin for this device, with the *worst* margin reading of:

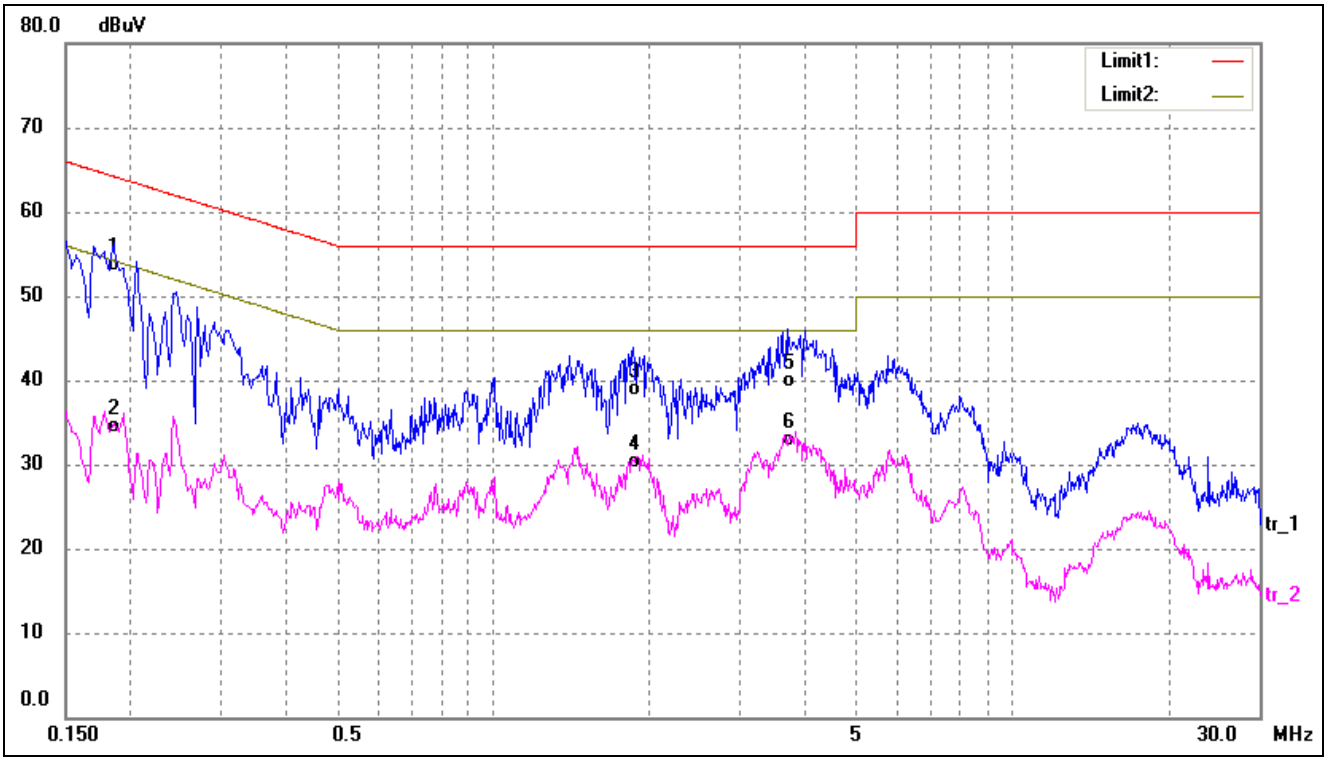
-10.39 dB at **0.1540 MHz** in the **Line** mode, **QP** detector, **0.15-30MHz**

10.6 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

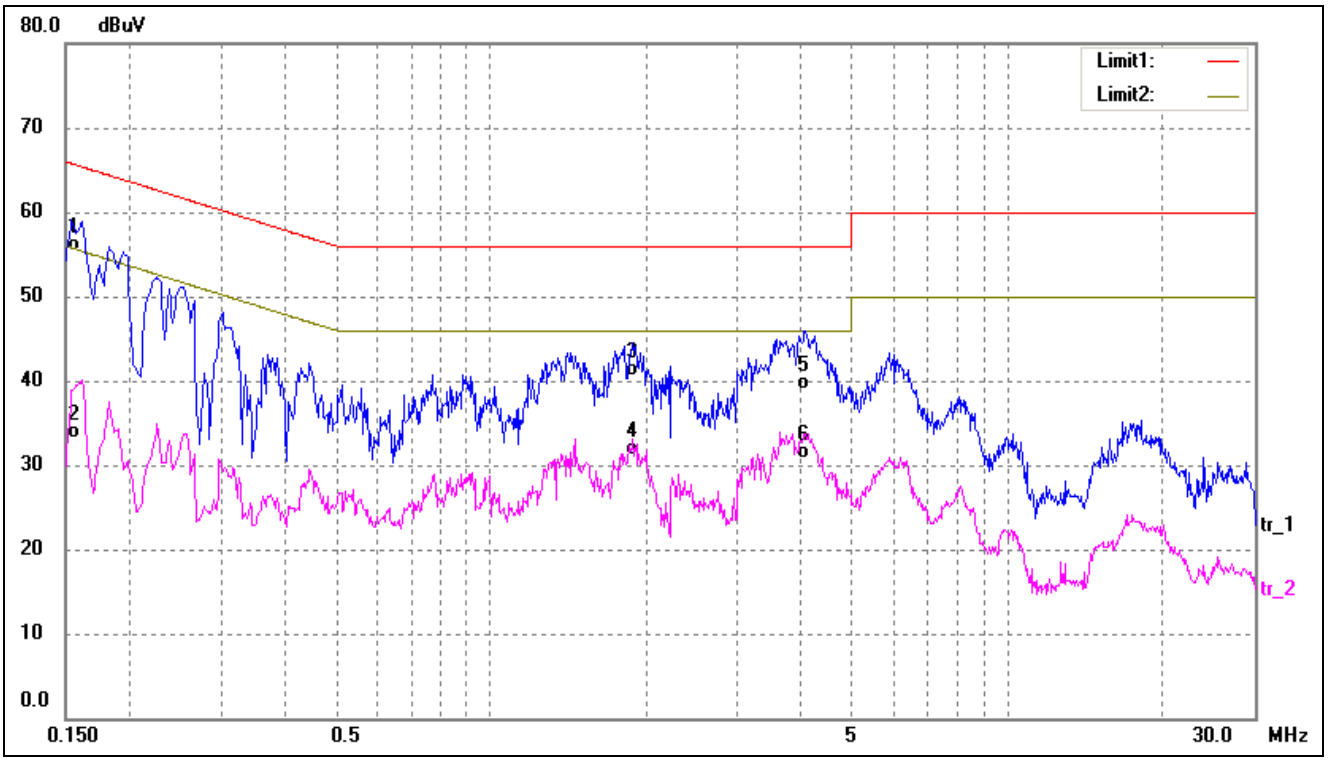
EUT: *WIFI Module*
Tested Model: *WC0HR2601*
Operating Condition: *Transmitting(Wi-Fi)*
Comment: *AC 120V/60Hz; Connected to PC*

Test Specification: *Neutral*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1*	0.1860	40.32	12.50	52.82	64.21	-11.39	QP
2	0.1860	21.28	12.50	33.78	54.21	-20.43	AVG
3	1.8620	25.14	13.00	38.14	56.00	-17.86	QP
4	1.8620	16.50	13.00	29.50	46.00	-16.50	AVG
5	3.7020	26.04	13.00	39.04	56.00	-16.96	QP
6	3.7020	19.18	13.00	32.18	46.00	-13.82	AVG

Test Specification: *Line*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.1540	42.89	12.50	55.39	65.78	-10.39	QP
2	0.1540	20.66	12.50	33.16	55.78	-22.62	AVG
3*	1.8780	27.42	13.00	40.42	56.00	-15.58	QP
4	1.8780	18.01	13.00	31.01	46.00	-14.99	AVG
5	4.0380	25.96	13.00	38.96	56.00	-17.04	QP
6	4.0380	17.73	13.00	30.73	46.00	-15.27	AVG

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