FCC Part 15C
Measurement and Test Report

For

JALA ASIA LTD.

SUITE 1004, 10TH FLOOR, BANK OF AMERICA TOWER, 12

HARCOURT ROAD, CENTRAL, HONGKONG

FCC ID: 2AFYR-ENTELE5

FCC Rule(s):	FCC Part 15C
Product Description:	Smart phone
Tested Model:	Entel E5
Report No.:	STR15098139I-5
Tested Date:	2015-09-19 to 2015-10-19
Issued Date:	2015-10-20
Tested By:	Seven Song/ Engineer
Reviewed By:	Silin Chen / EMC Manager
Approved & Authorized By:	Jandy So / PSQ Manager

Prepared By:

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	JALA ASIA LTD.
Address of applicant:	SUITE 1004, 10TH FLOOR, BANK OF AMERICA TOWER, 12 HARCOURT ROAD, CENTRAL, HONGKONG
Manufacturer:	JALA ASIA LTD.
Address of manufacturer:	SUITE 1004, 10TH FLOOR, BANK OF AMERICA TOWER, 12 HARCOURT ROAD, CENTRAL, HONGKONG

General Description of EUT	
Product Name:	Smart phone
Brand Name:	entel
Model No.:	Entel E5
Adapter Model:	entel
	INPUT:100-240V,50/60Hz,0.5A; OUTPUT:5V,1A/2.1A
Hardware version:	N316B-13
Software version:	V158.100YP.1.10092015
Rated Voltage:	DC 3.8V Li-ion Battery
Battery Capacity:	2200mAh
Device Category:	Portable Device
The EUT Main board support GSM850/900/DCS1800/PCS1900, WCDMA Band 4, LTE Band 4 function. It is intended for speech, Multimedia Message Service (MMS) transmission and Entel E5. It is equipped with GPRS/EDGE class 12 for GSM850/900/DCS1800/PCS1900, GPS, FM, Bluetooth and Wi-Fi functions. For more information see the following datasheet	
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 for 11b/g/n(HT20) 2422-2452MHz for 11n(HT40)
RF Output Power:	15.53dBm (Conducted)
Type of Modulation:	CCK, OFDM, QPSK, BPSK, 16QAM, 64QAM
Data Rate:	1-11Mbps, 6-54Mbps, up to 150Mbps
Quantity of Channels:	11/7
Channel Separation:	5MHz
Type of Antenna:	Integral Antenna
Antenna Gain:	0.98dBi
Lowest Internal frequency of EUT:	32.768kHz

1.2 Test Standards

The following report is prepared on behalf of the JALA ASIA 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 V03r03 for digital transmission systems shall be performed also.

1.4 Test Facility

FCC – Registration No.: 934118

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 and the Registration is 934118.

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.

CNAS Registration No.: L4062

Shenzhen SEM.Test Technology Co., Ltd. is a testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L4062. All measurement facilities used to collect the measurement data are located at 1/F, Building A, Hongwei Industrial Park, Liuxian 2nd Road, Bao'an District, Shenzhen, P.R.C (518101).

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, 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

EUT Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
USB Cable	1.5	Shielded	Without Ferrite
OTG Cable	0.15	Unshielded	Without Ferrite
Earphone	1.1	Unshielded	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 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal Date	Due Date
Spectrum Analyzer	Agilent	E4407B	MY41440400	2015-06-17	2016-06-16
Spectrum Analyzer	Agilent	N9020A	US47140102	2015-06-17	2016-06-16
Spectrum Analyzer	Rohde & Schwarz	FSP	836079/035	2015-06-17	2016-06-16
EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2015-06-17	2016-06-16
Amplifier	Agilent	8447F	3113A06717	2015-06-17	2016-06-16
Amplifier	C&D	PAP-1G18	2002	2015-06-17	2016-06-16
Broadband Antenna	Schwarz beck	VULB9163	9163-333	2015-06-17	2016-06-16
Horn Antenna	ETS	3117	00086197	2015-06-17	2016-06-16
Horn Antenna	ETS	3116B	00088203	2015-06-17	2016-06-16
Loop Antenna	Schwarz beck	FMZB 1516	9773	2015-06-17	2016-06-16
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2015-06-17	2016-06-16
L.I.S.N	Schwarz beck	NSLK8126	8126-224	2015-06-17	2016-06-16
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2015-06-17	2016-06-16

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
§ 15.207(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 SAR 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 V03r03, 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

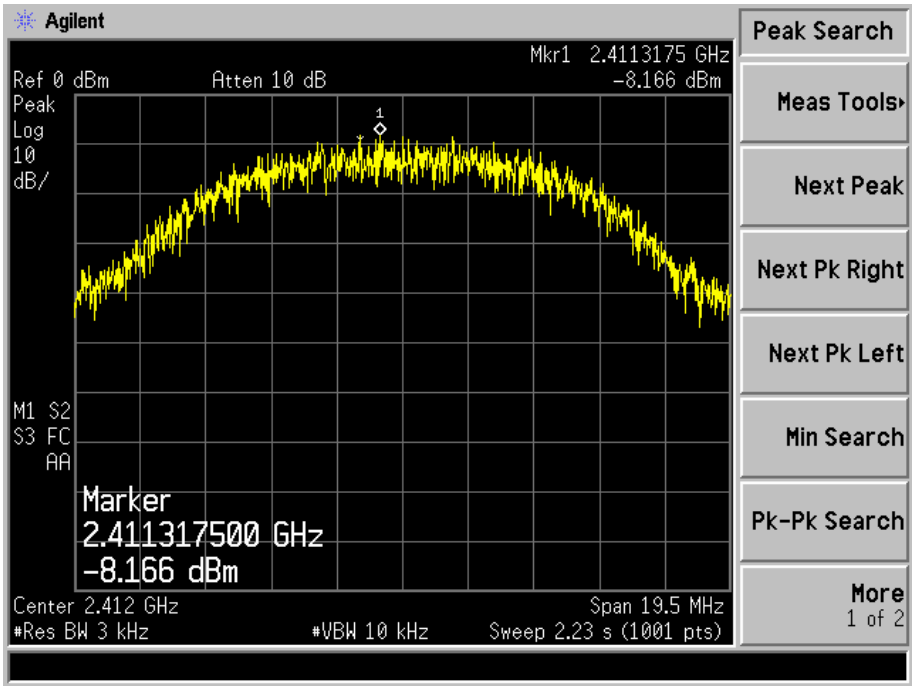
Temperature:	26° C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

5.4 Summary of Test Results/Plots

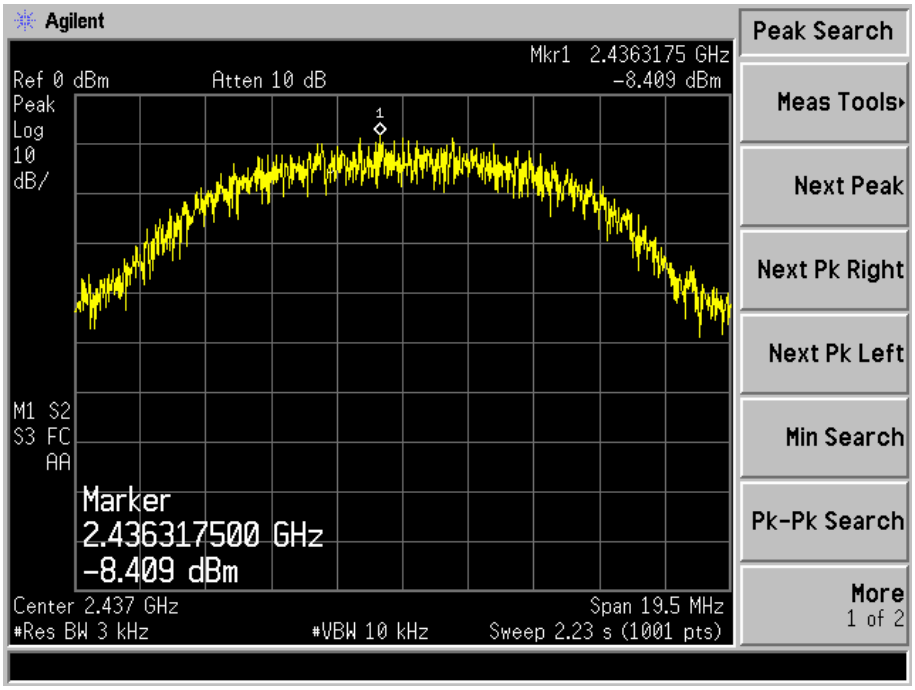
Test Mode	Test Channel MHz	Power Spectral Density dBm/3kHz	Limit dBm/3kHz
802.11b	2412	-8.166	8
	2437	-8.409	8
	2462	-8.806	8
802.11g	2412	-11.15	8
	2437	-11.99	8
	2462	-12.63	8
802.11n HT20	2412	-14.42	8
	2437	-14.42	8
	2462	-15.24	8
802.11n HT40	2422	-16.12	8
	2437	-16.56	8
	2452	-16.60	8

Please refer to the following test plots:

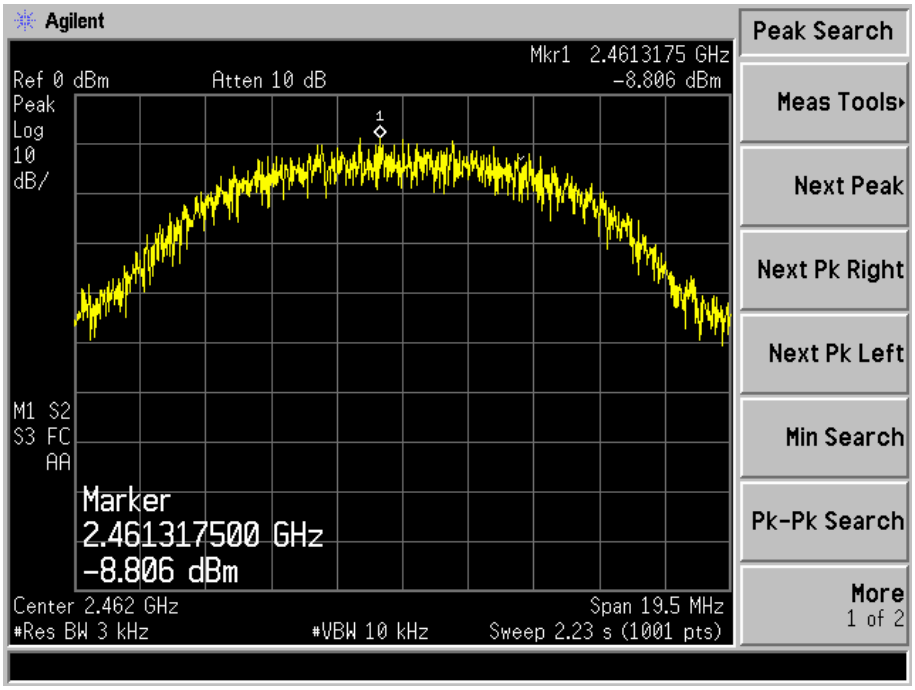
802.11b-Low Channel



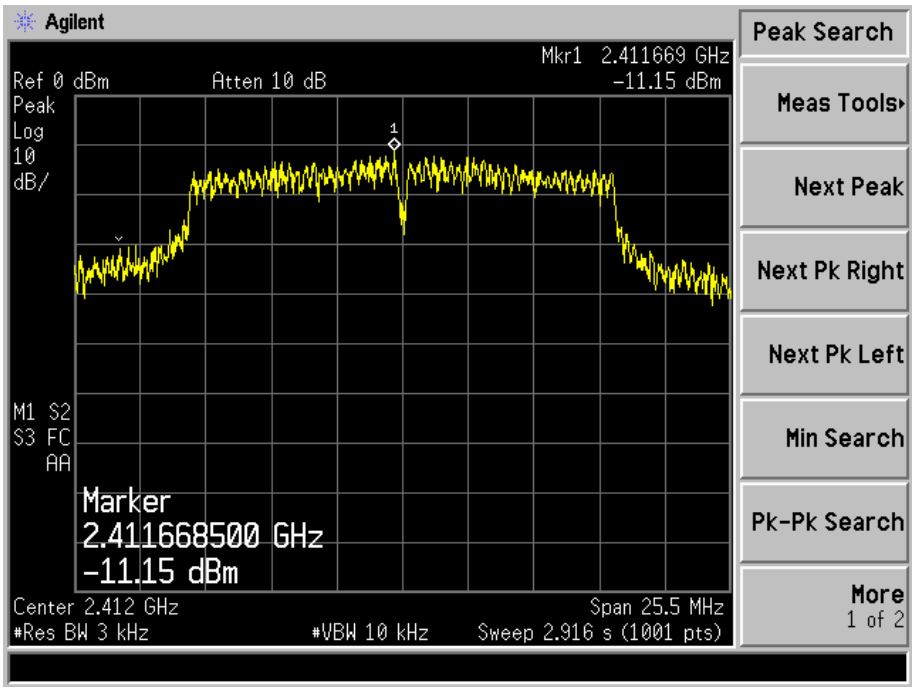
802.11b-Middle Channel



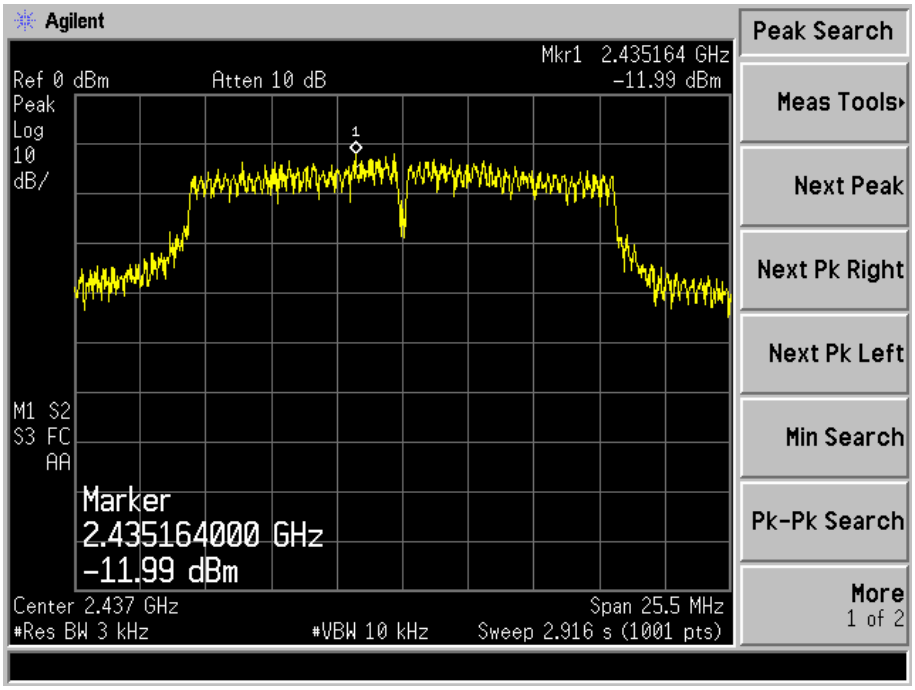
802.11b-High Channel



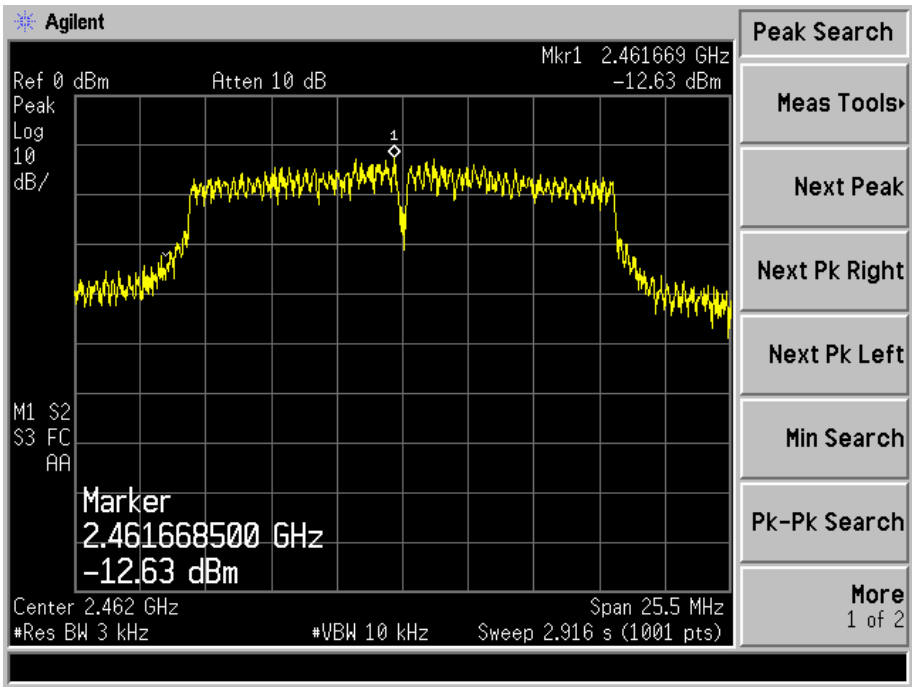
802.11g-Low Channel



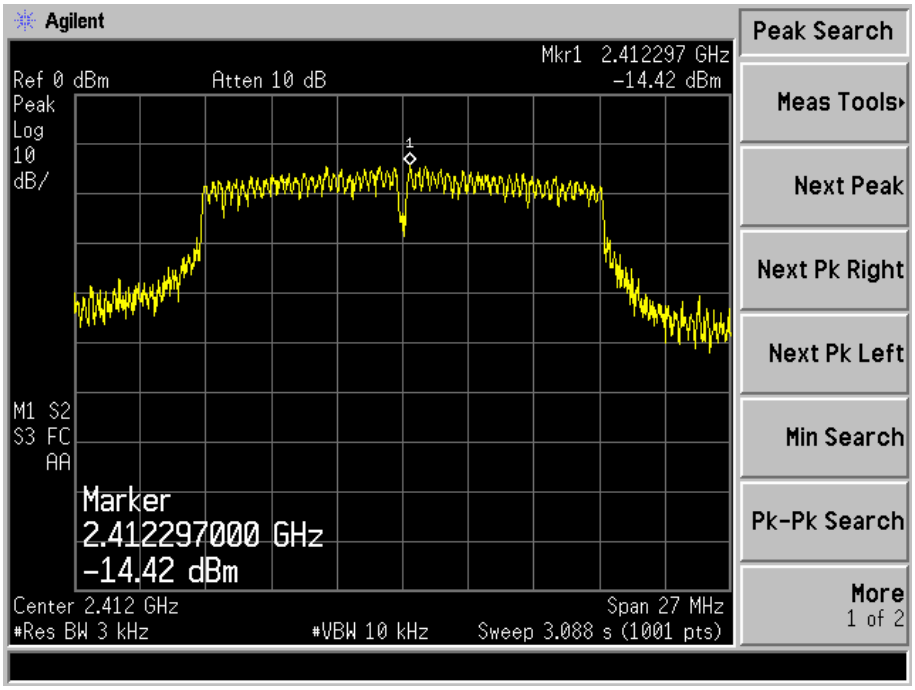
802.11g-Middle Channel



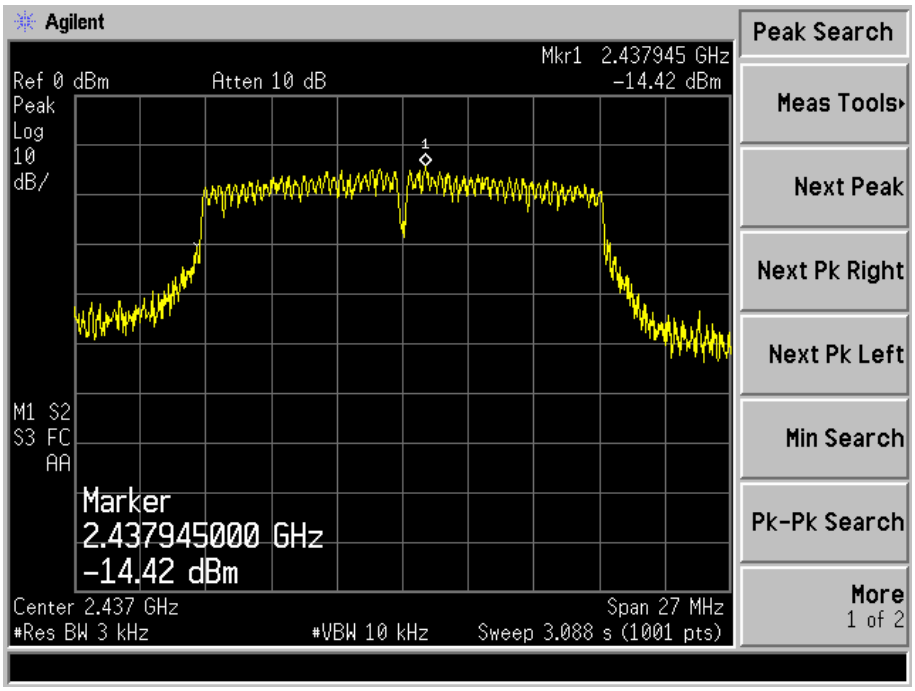
802.11g-High Channel



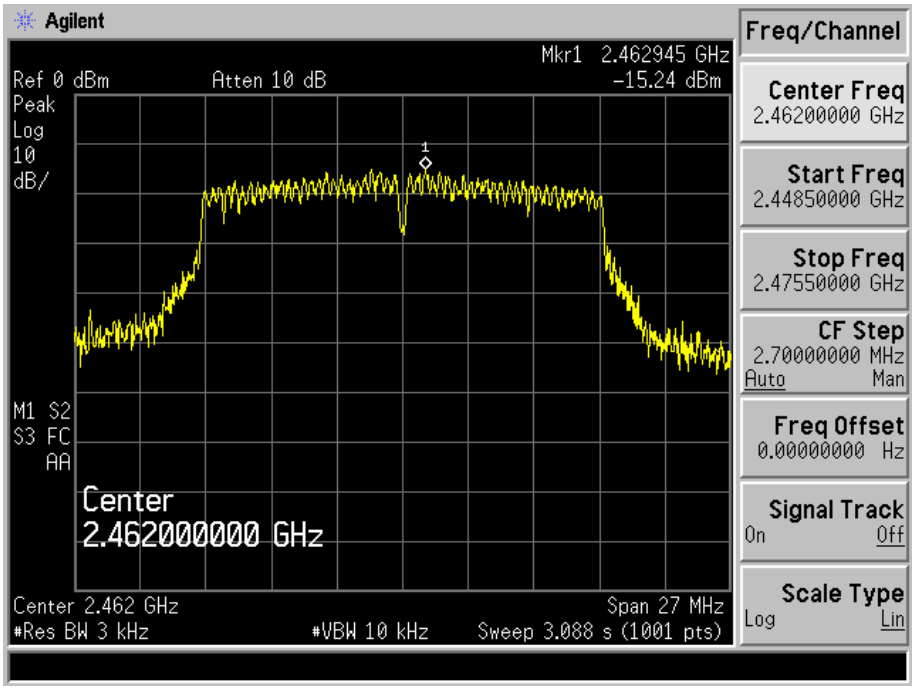
802.11n-HT20-Low Channel



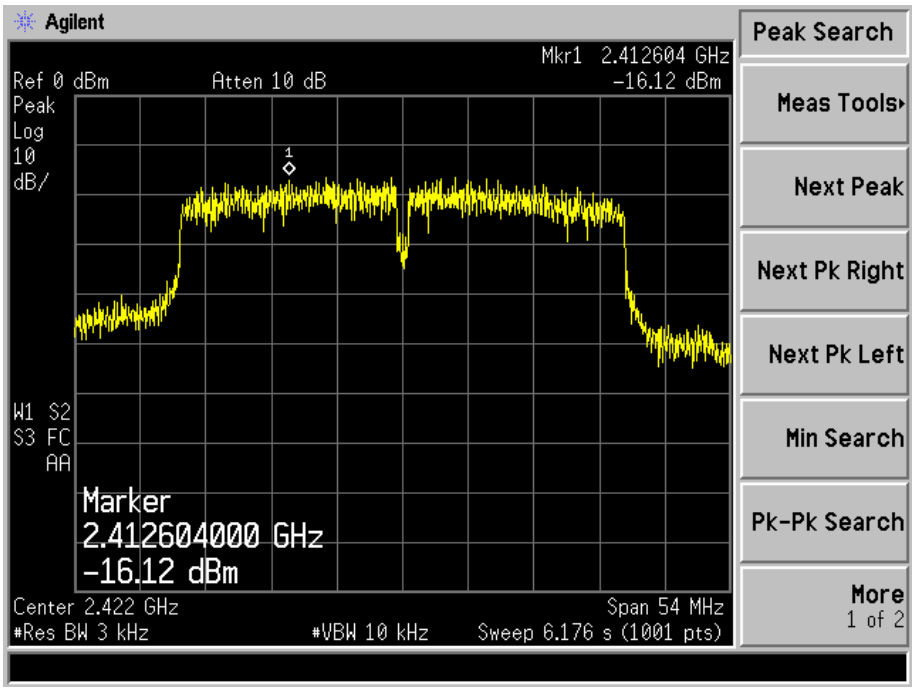
802.11n-HT20-Middle Channel



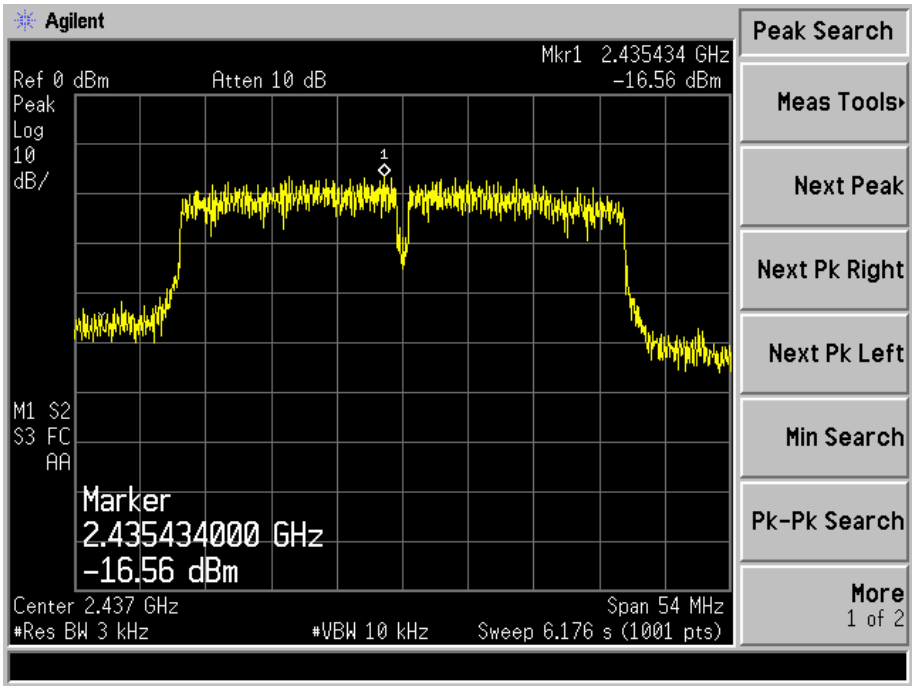
802.11n-HT20-High Channel



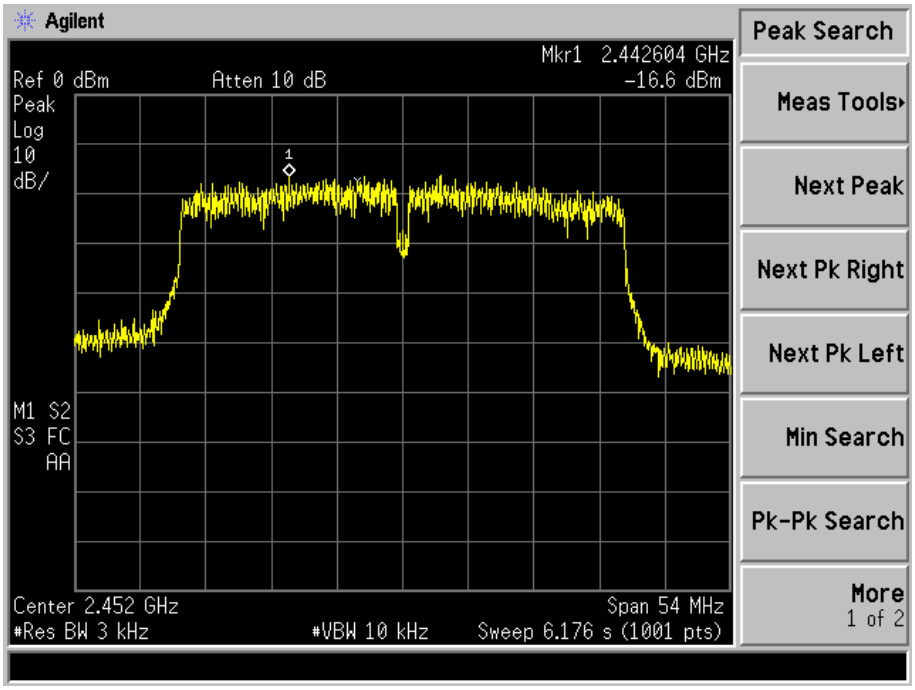
802.11n-HT40-Low Channel



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

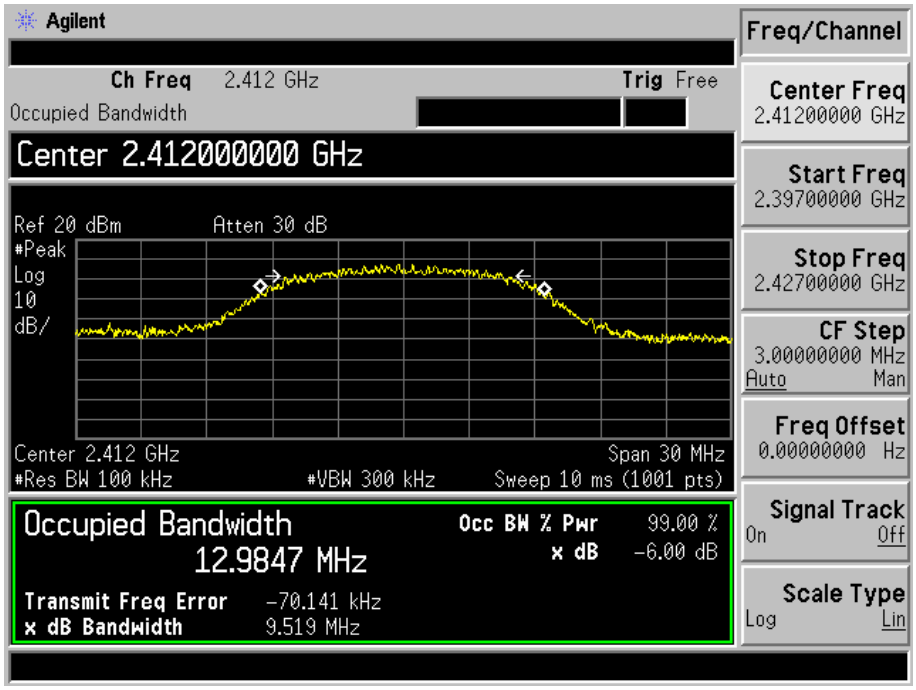
Temperature:	25° C
Relative Humidity:	53%
ATM Pressure:	1018 mbar

6.4 Summary of Test Results/Plots

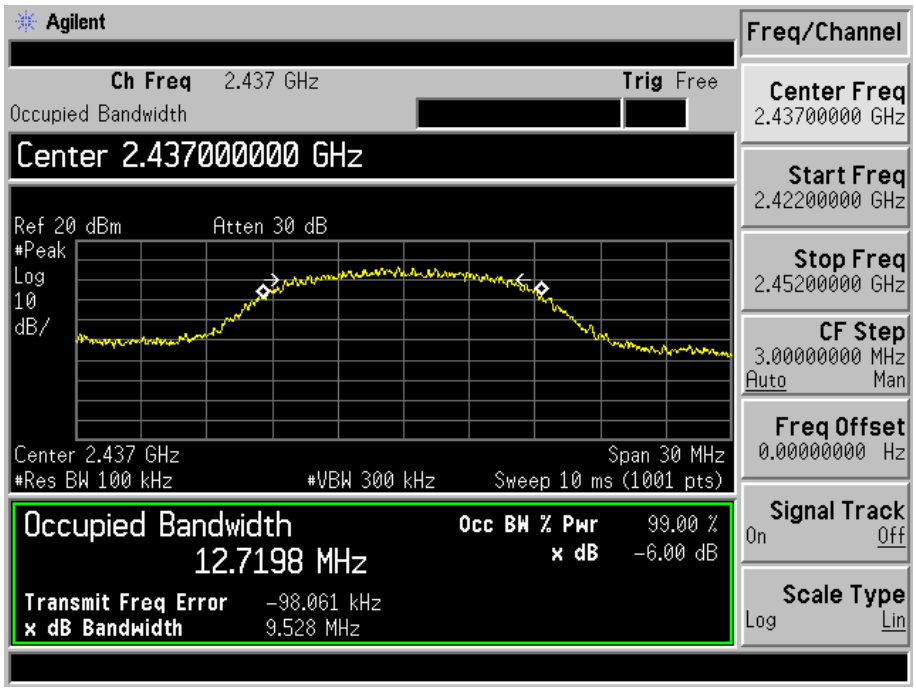
Test Mode	Test Channel MHz	6 dB Bandwidth kHz	99% Bandwidth kHz	Limit kHz
802.11b	2412	9519	12984.7	≥500
	2437	9528	12719.8	≥500
	2462	9514	12604.7	≥500
802.11g	2412	16464	16413.2	≥500
	2437	16471	16408.6	≥500
	2462	16485	16407.7	≥500
802.11n-HT20	2412	17629	17556.0	≥500
	2437	17595	17539.3	≥500
	2462	17579	17537.0	≥500
802.11n-HT20	2422	36053	35841.6	≥500
	2437	36113	35862.6	≥500
	2452	36105	35892.5	≥500

Please refer to the following test plots:

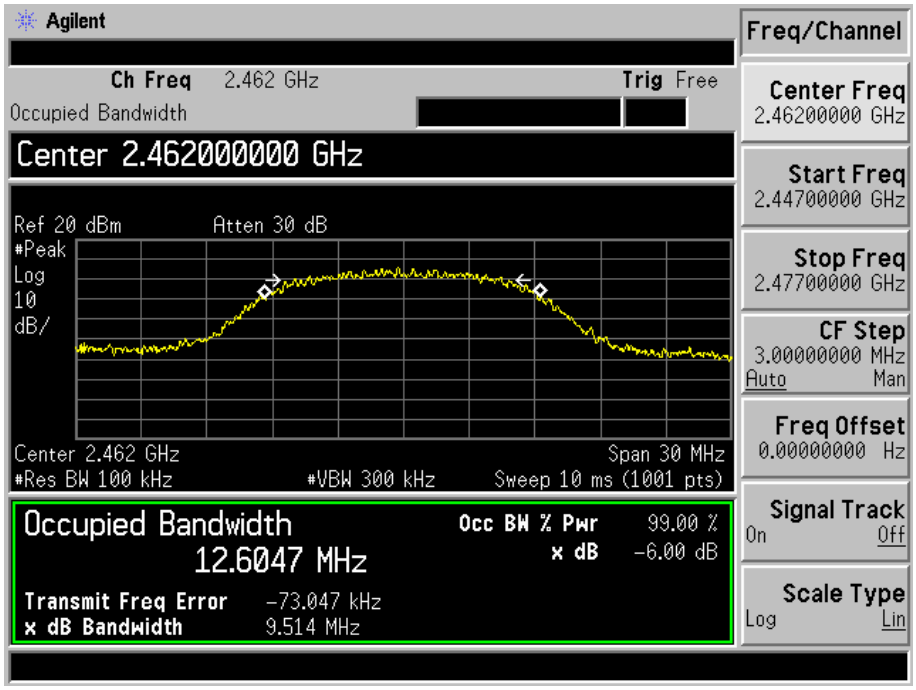
802.11b-Low Channel



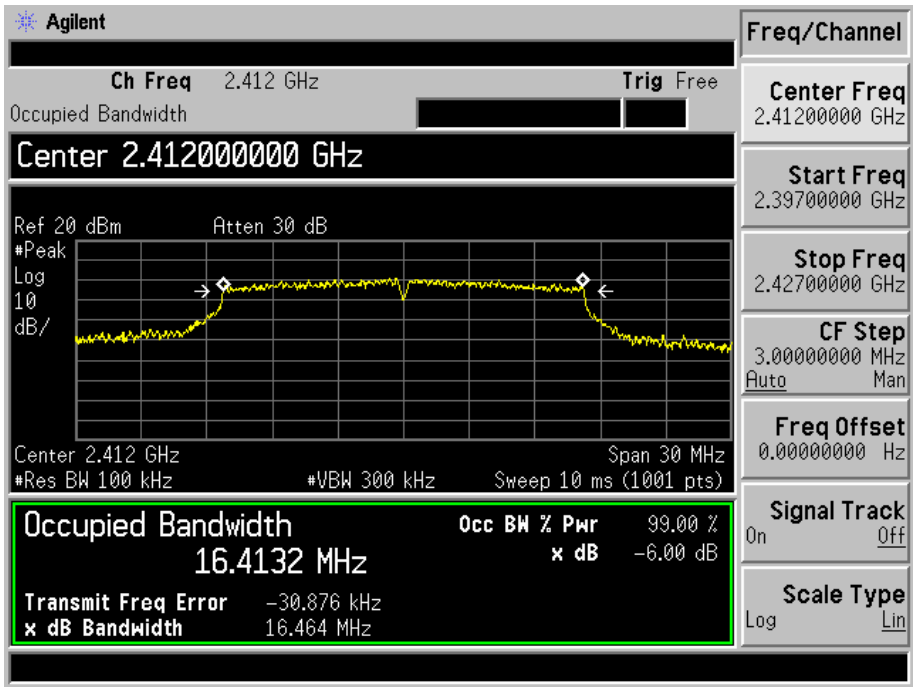
802.11b-Middle Channel



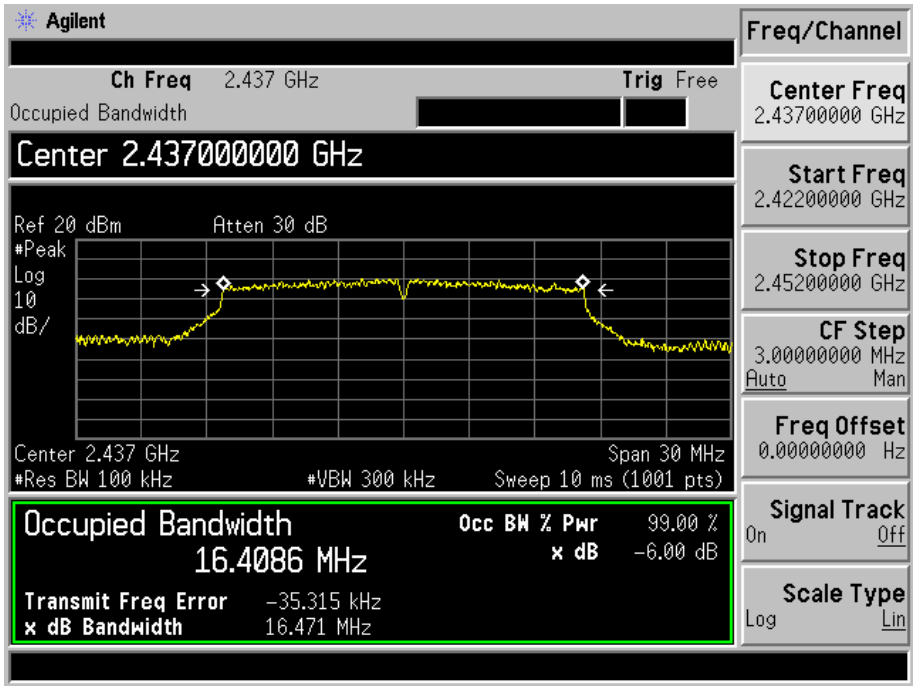
802.11b-High Channel



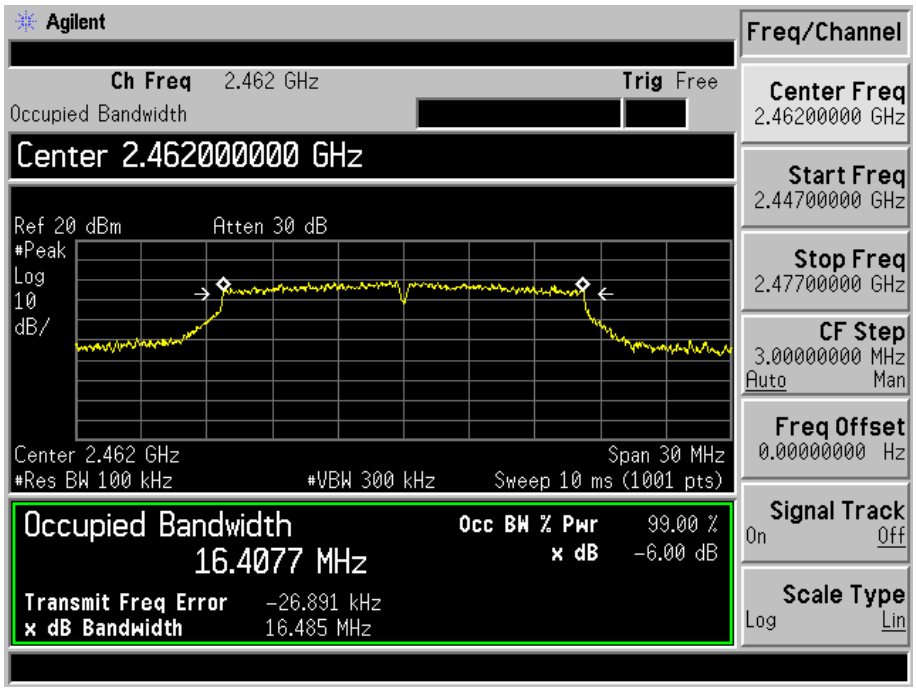
802.11g-Low Channel



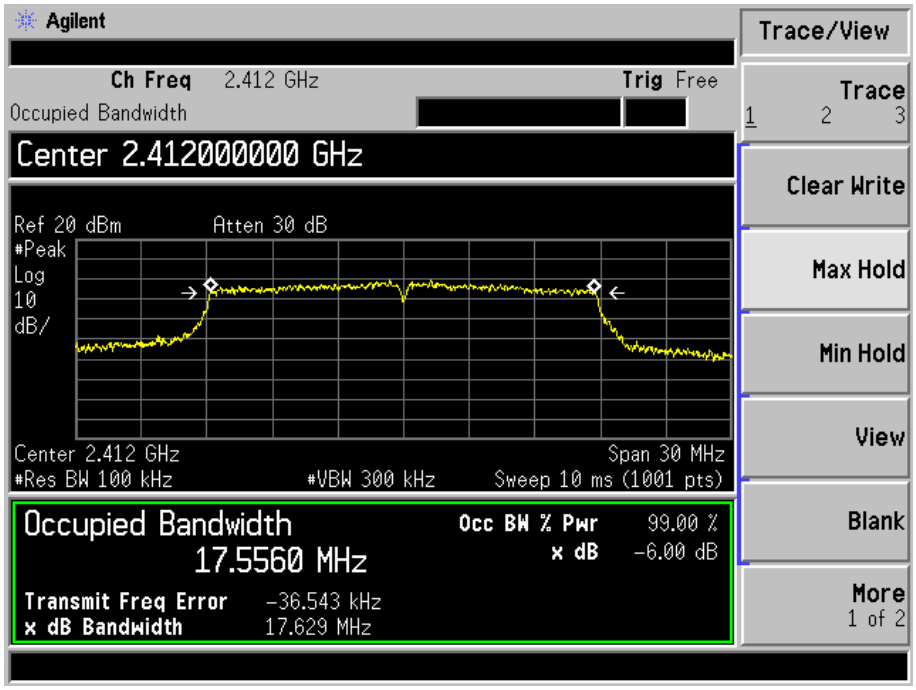
802.11g-Middle Channel



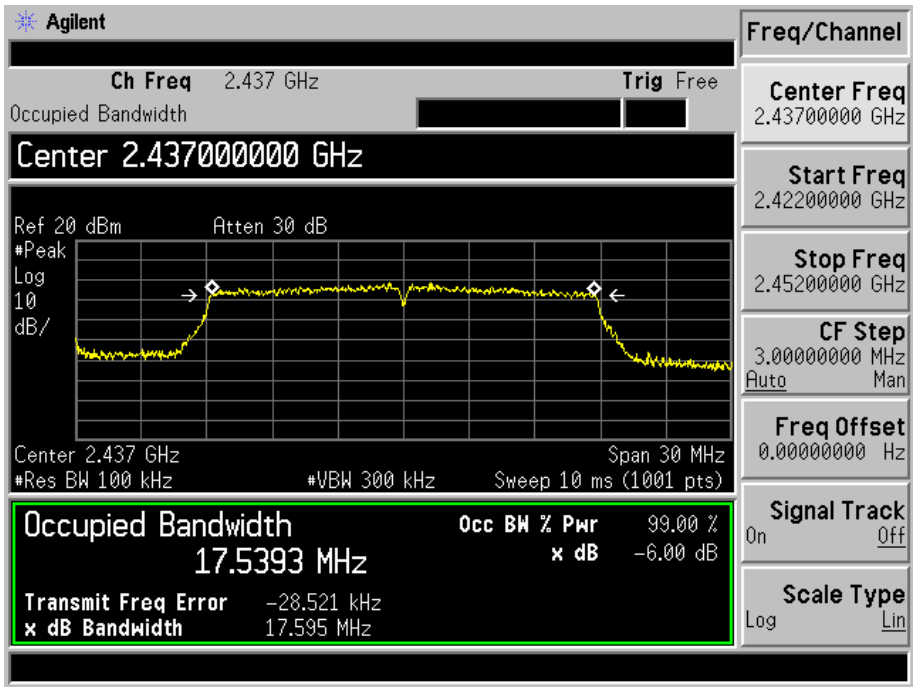
802.11g-High Channel



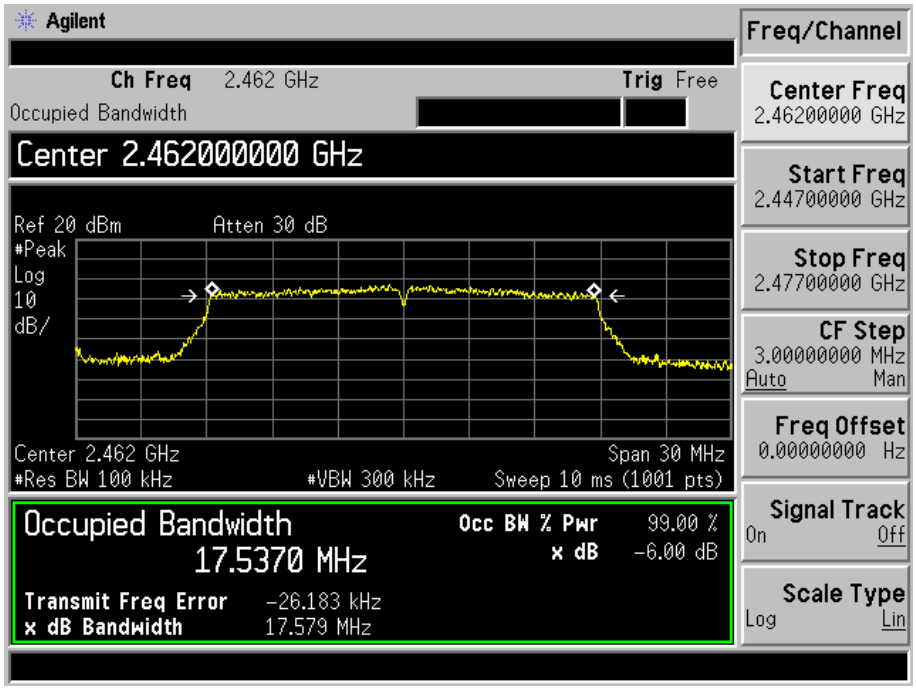
802.11n-HT20-Low Channel



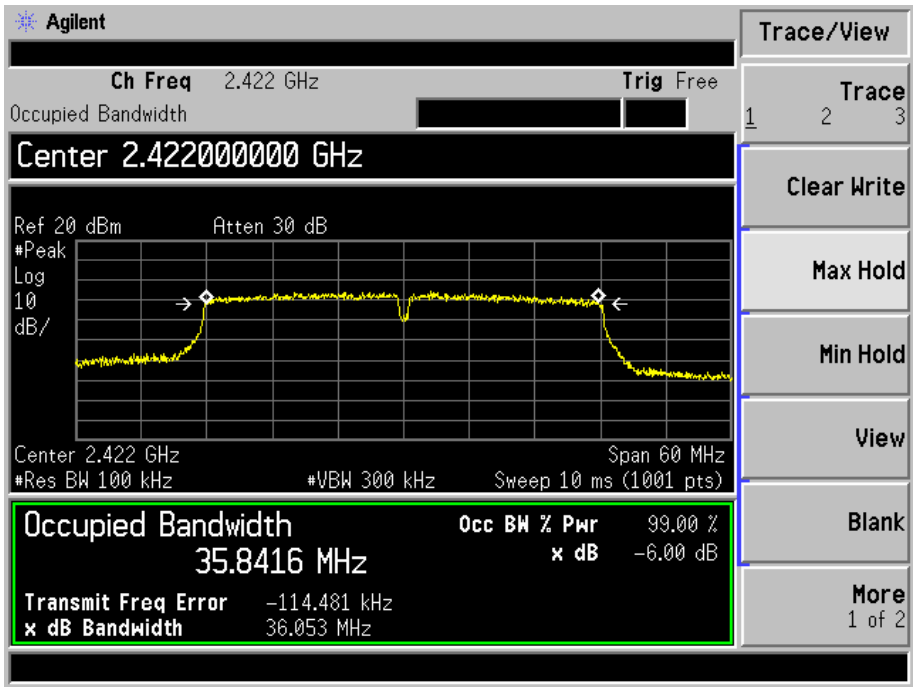
802.11n-HT20-Middle Channel



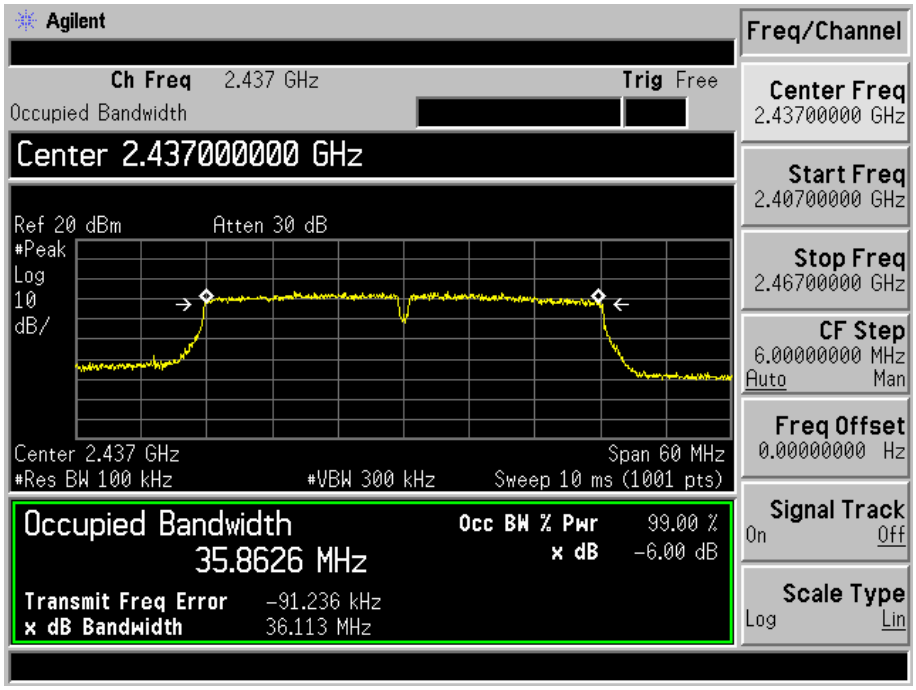
802.11n-HT20-High Channel



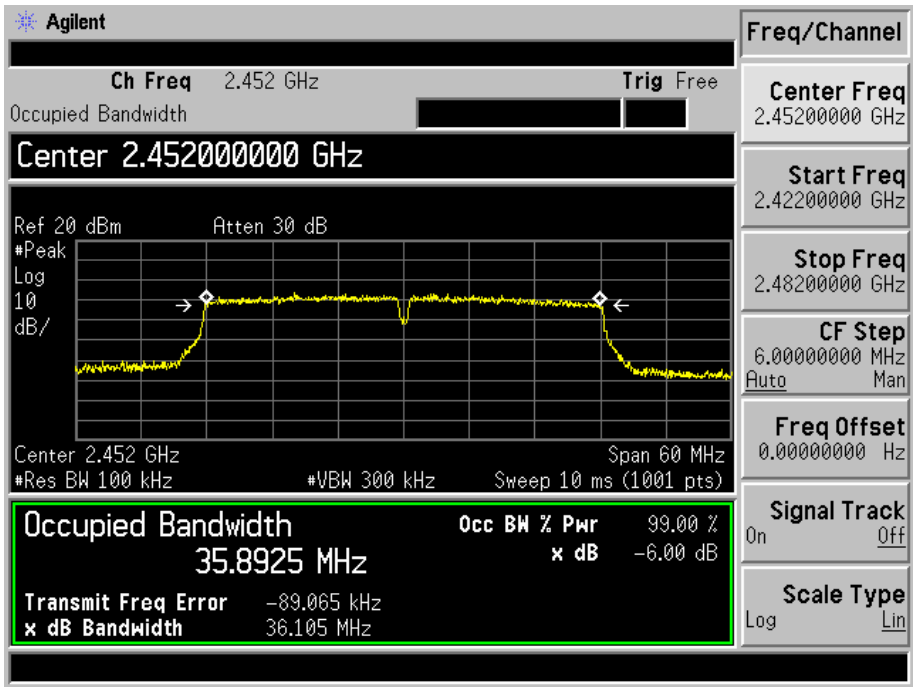
802.11n-HT40-Low Channel



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

According to section 15.247(b)-power output of the KDB-558074 D01 V03r03, 9.2.2.2 (channel integration method) 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 ≥ 3 x RBW.
d) Number of points in sweep ≥ 2 × span / RBW. (This gives bin-to-bin spacing ≤ 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 ≥ 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 Environmental Conditions

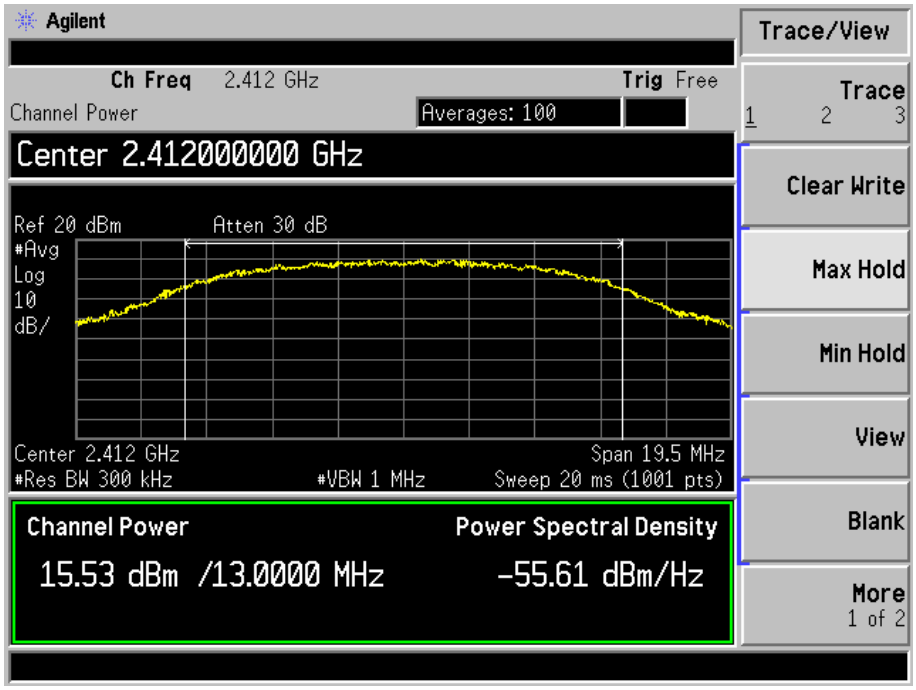
Temperature:	26° C
Relative Humidity:	57%
ATM Pressure:	1011 mbar

7.4 Summary of Test Results/Plots

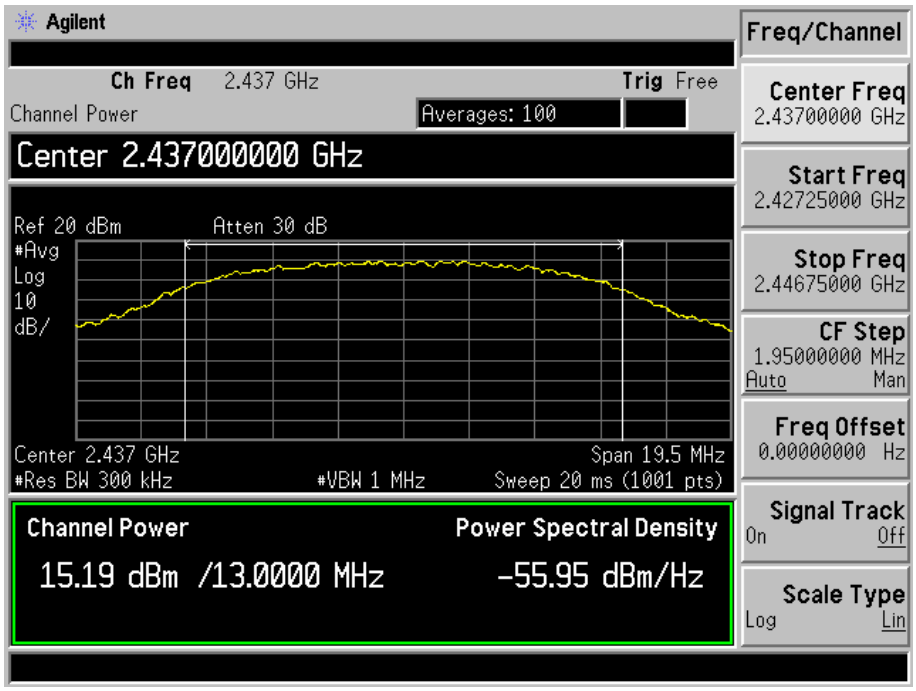
Test Mode	Frequency MHz	Reading dBm	Output Power mW	Limit mW
802.11b _ 11Mbps	2412	15.53	35.73	1000
	2437	15.19	33.04	1000
	2462	14.48	28.05	1000
802.11g_54Mbps	2412	13.95	24.83	1000
	2437	13.62	23.01	1000
	2462	12.49	17.74	1000
802.11n HT20_MCS7	2412	12.18	16.52	1000
	2437	11.59	14.42	1000
	2462	10.66	11.64	1000
802.11n HT40_MCS7	2422	11.50	14.13	1000
	2437	10.95	12.45	1000
	2452	10.69	11.72	1000

Please refer to the following test plots:

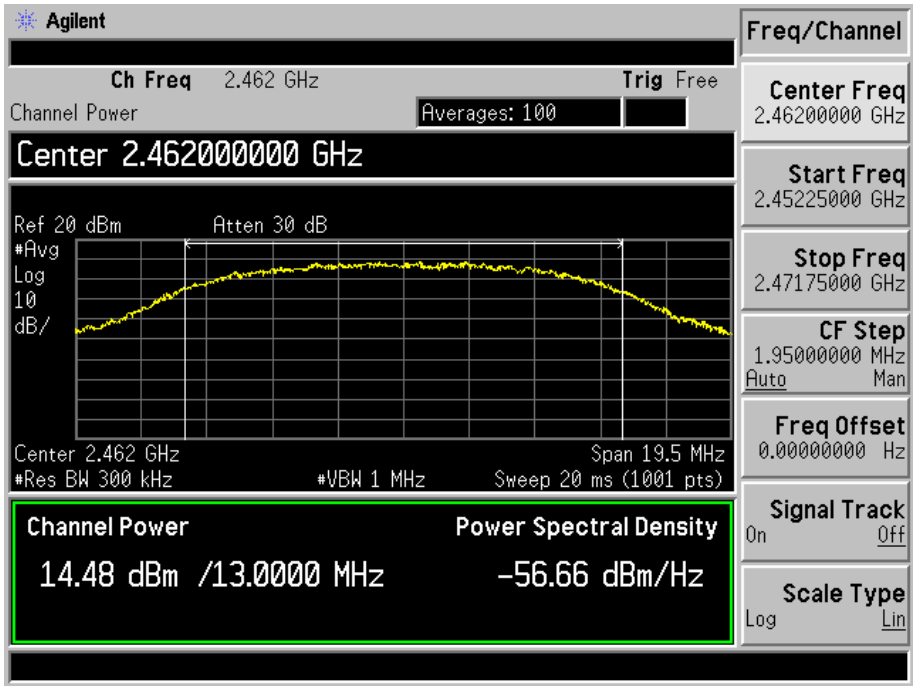
802.11b-11Mbps-Low Channel



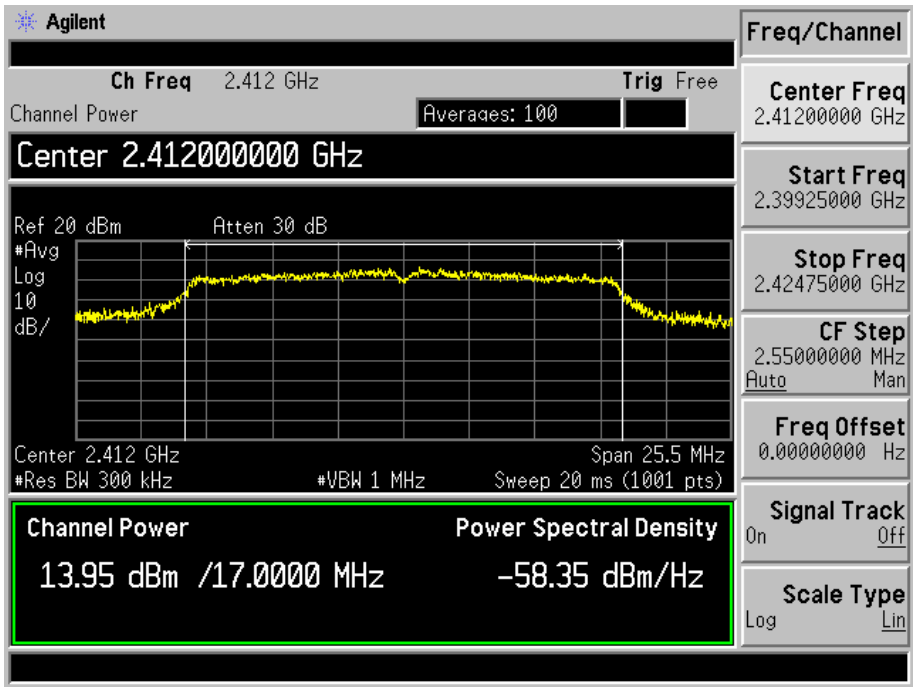
802.11b -11Mbps-Middle Channel



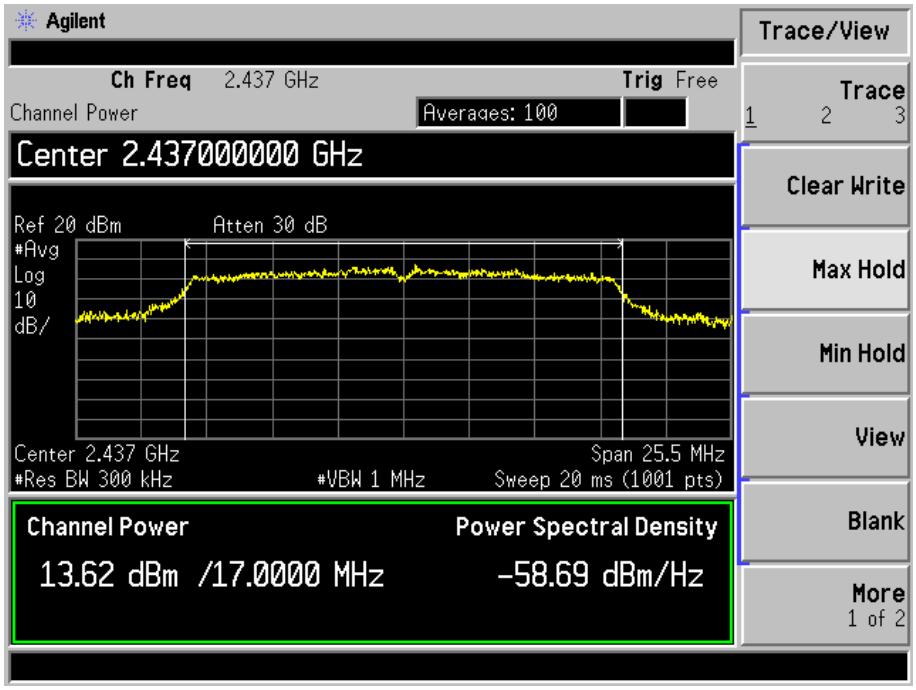
802.11b -11Mpbs-High Channel



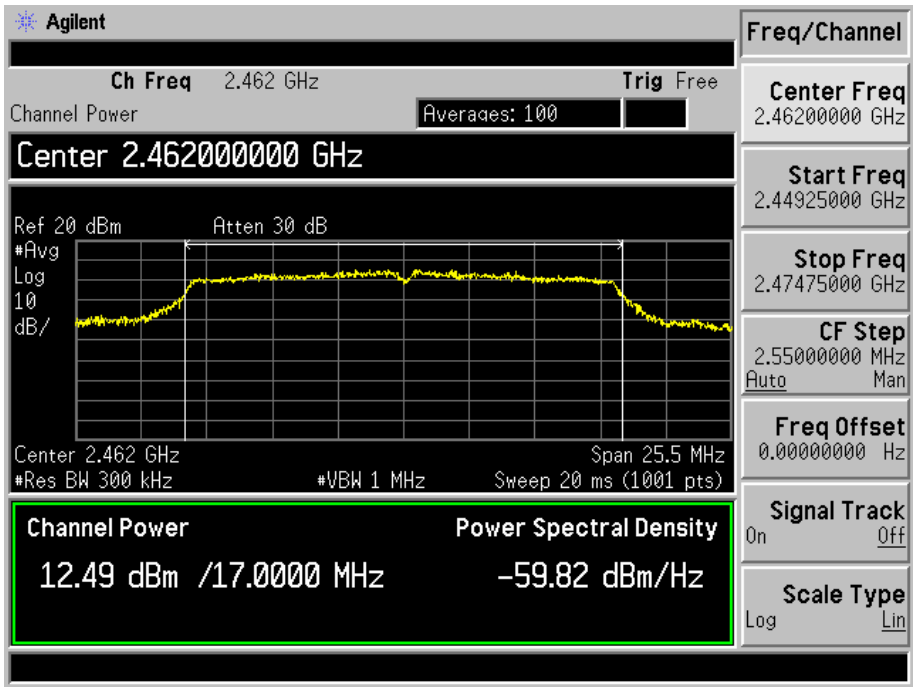
802.11g-54Mbps-Low Channel



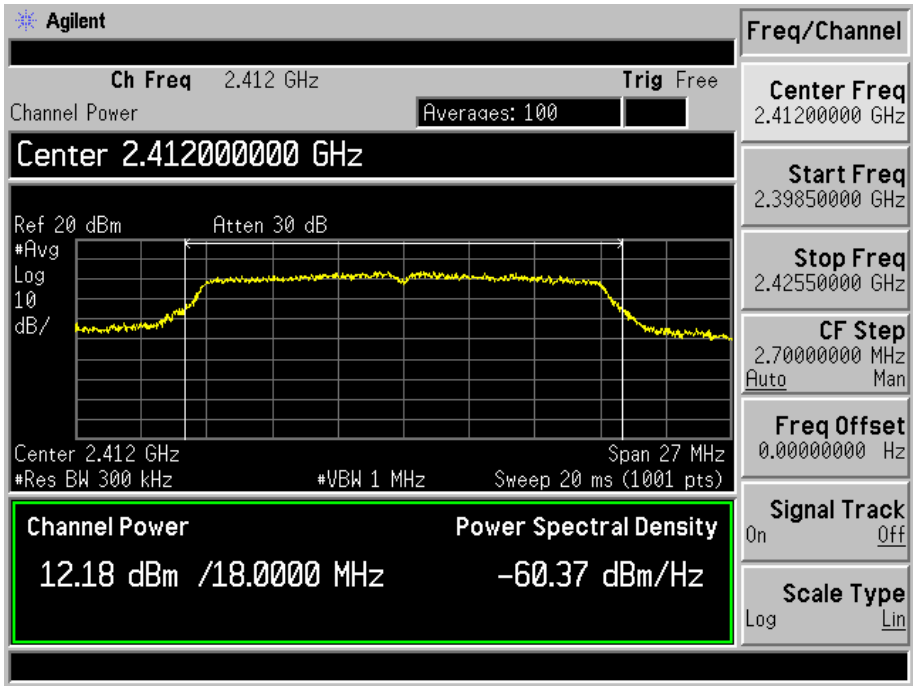
802.11g-54Mbps-Middle Channel



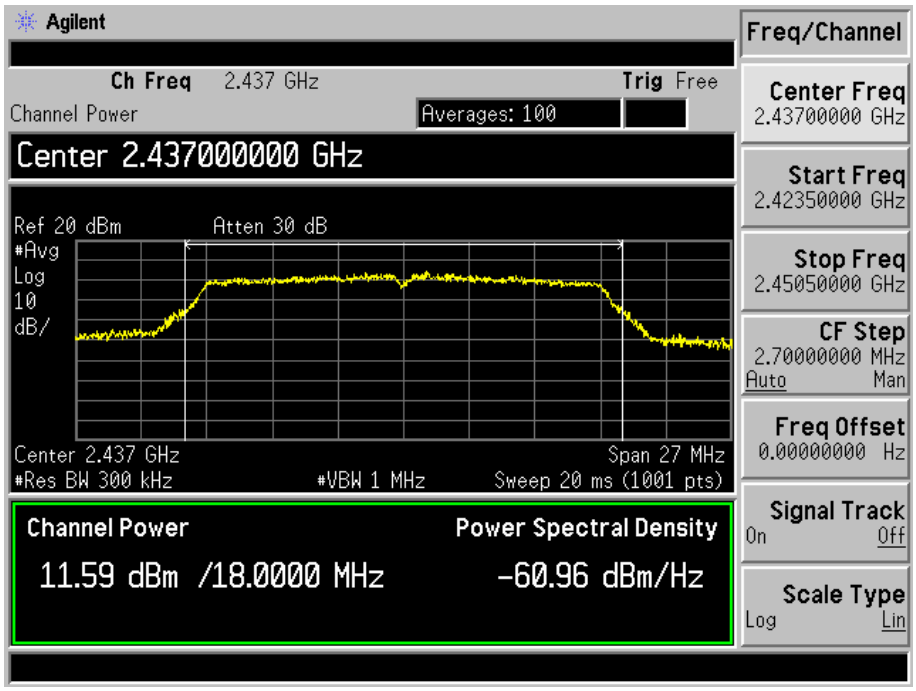
802.11g-54Mpbs-High Channel



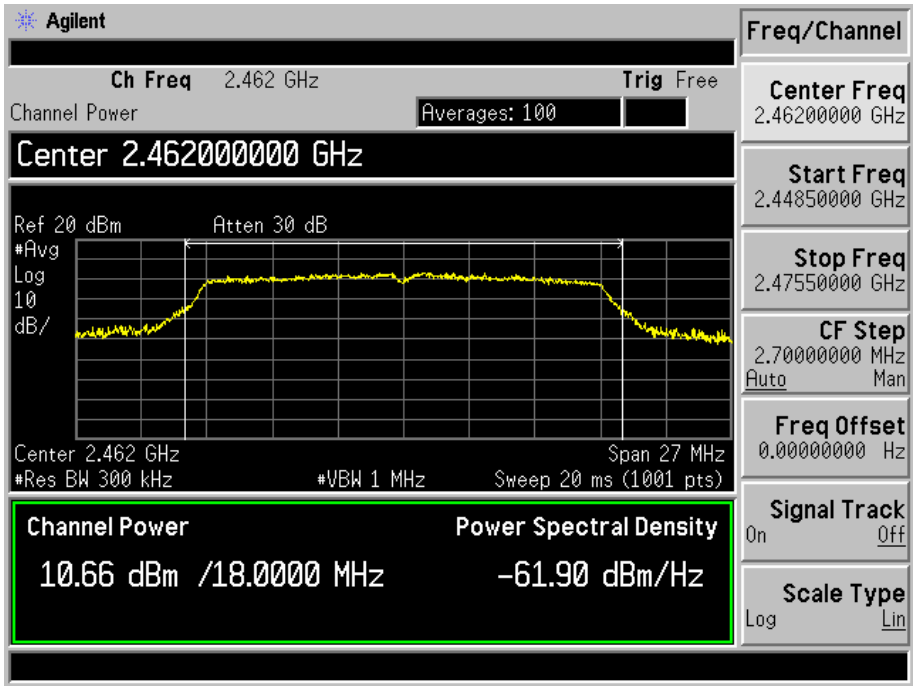
802.11n-HT20-MCS7-Low Channel



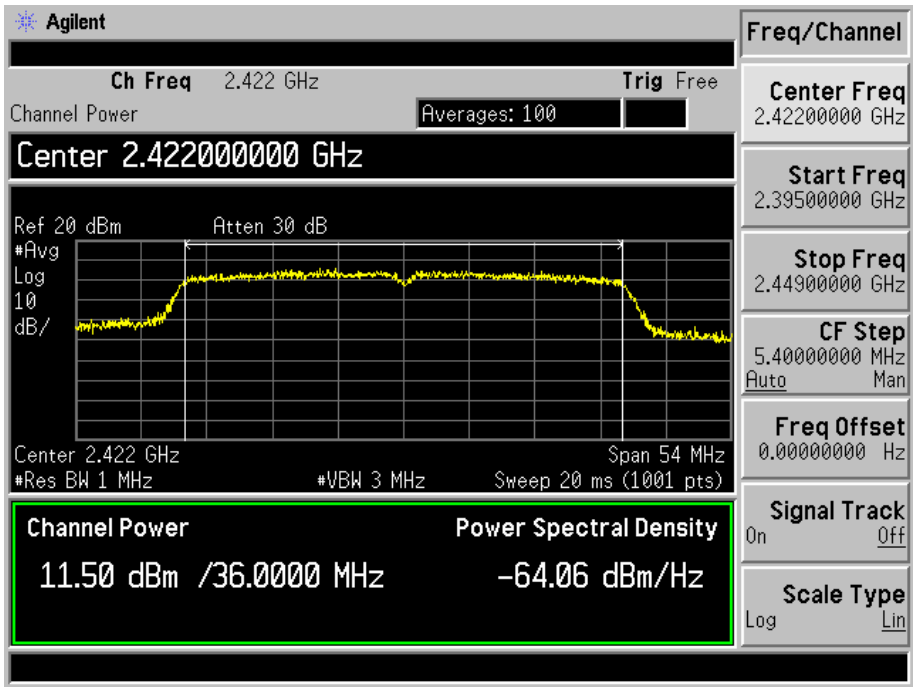
802.11n-HT20-MCS7-Middle Channel



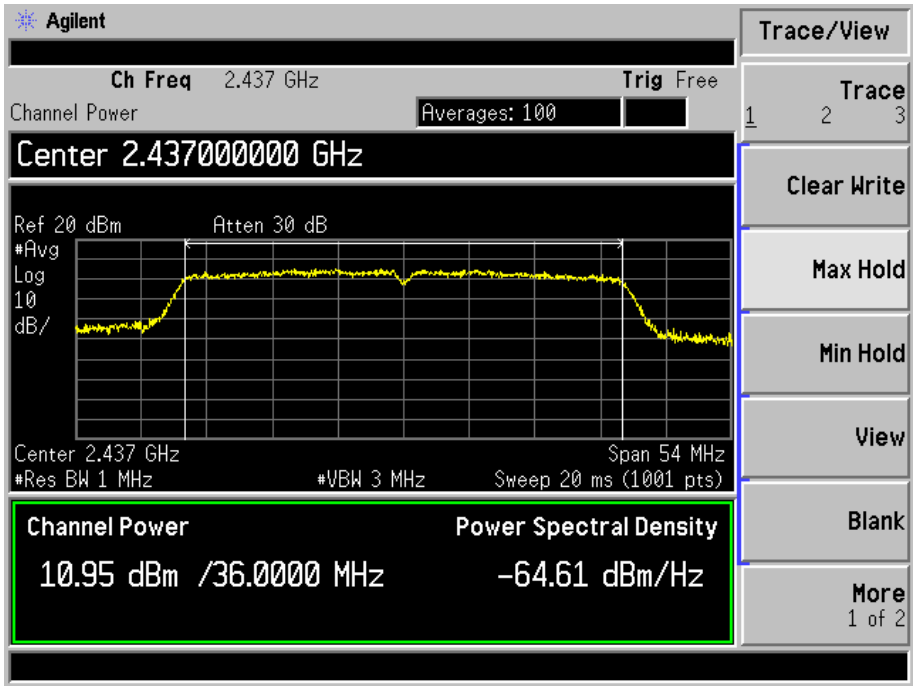
802.11n-HT20-MCS7-High Channel



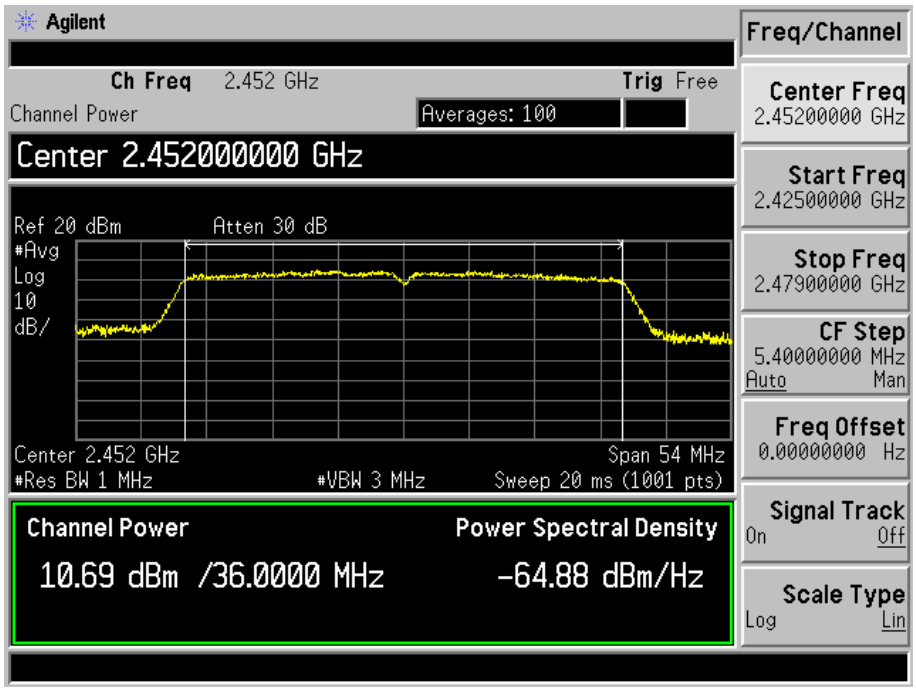
802.11n-HT40-MCS7-Low Channel



802.11n-HT40-MCS7-Middle Channel



802.11n-HT40-MCS7-High Channel



8. Field Strength of Spurious Emissions

8.1 Measurement Uncertainty

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement is ±5.10 dB.

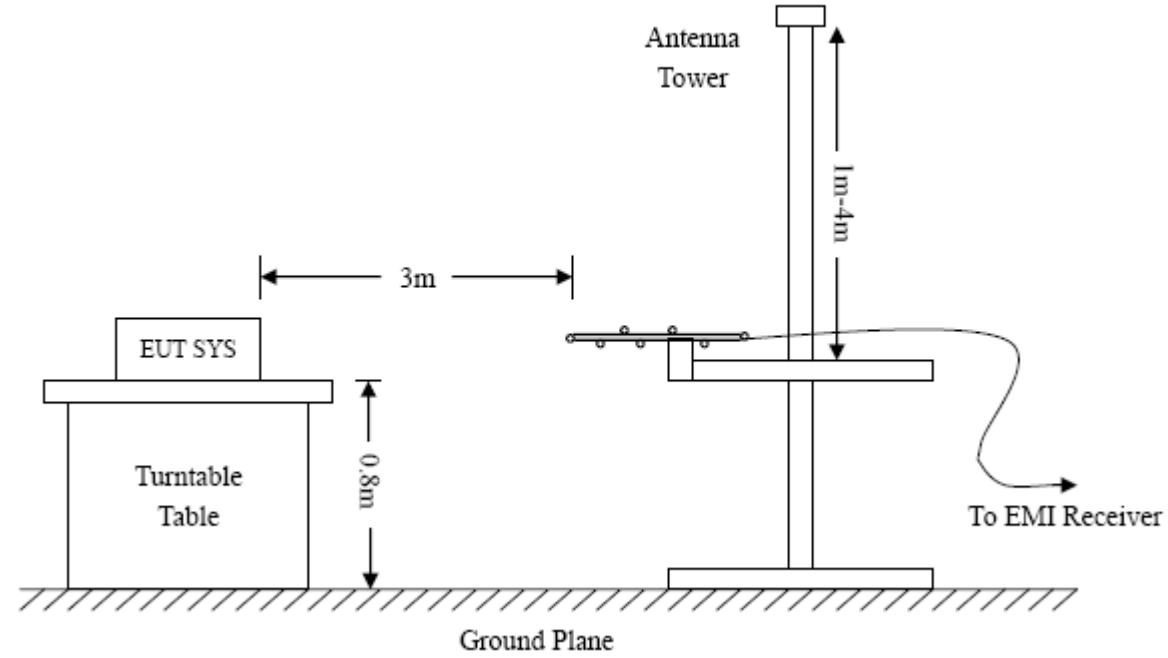
8.2 Standard Applicable

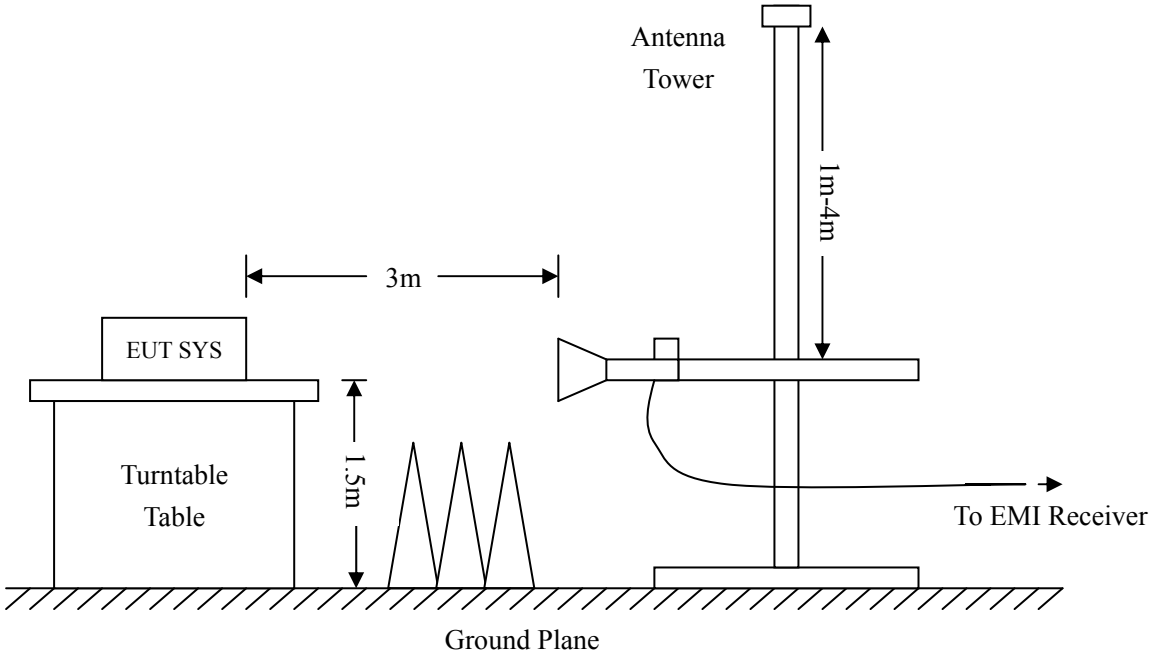
According to §15.247(d), in any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within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

8.3 Test Procedure

The setup of EUT is according with per ANSI C63.4-2014 measurement procedure. The specification used was with the FCC Part 15.205 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

8.4 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 for Class B. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – FCC Part 15 Limit

8.5 Environmental Conditions

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

8.6 Summary of Test Results/Plots

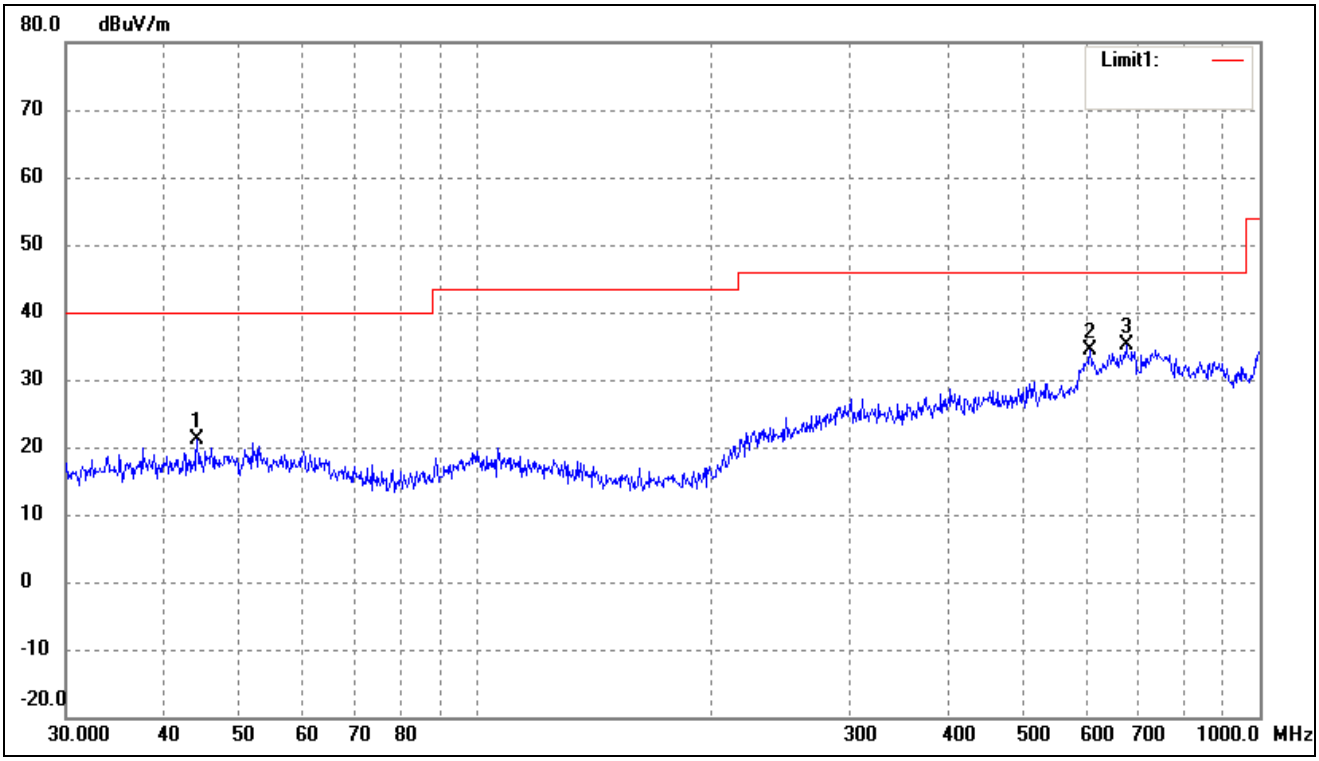
According to the data below, the FCC Part 15.205, 15.209 and 15.247 standards, and had the worst cases:

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

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

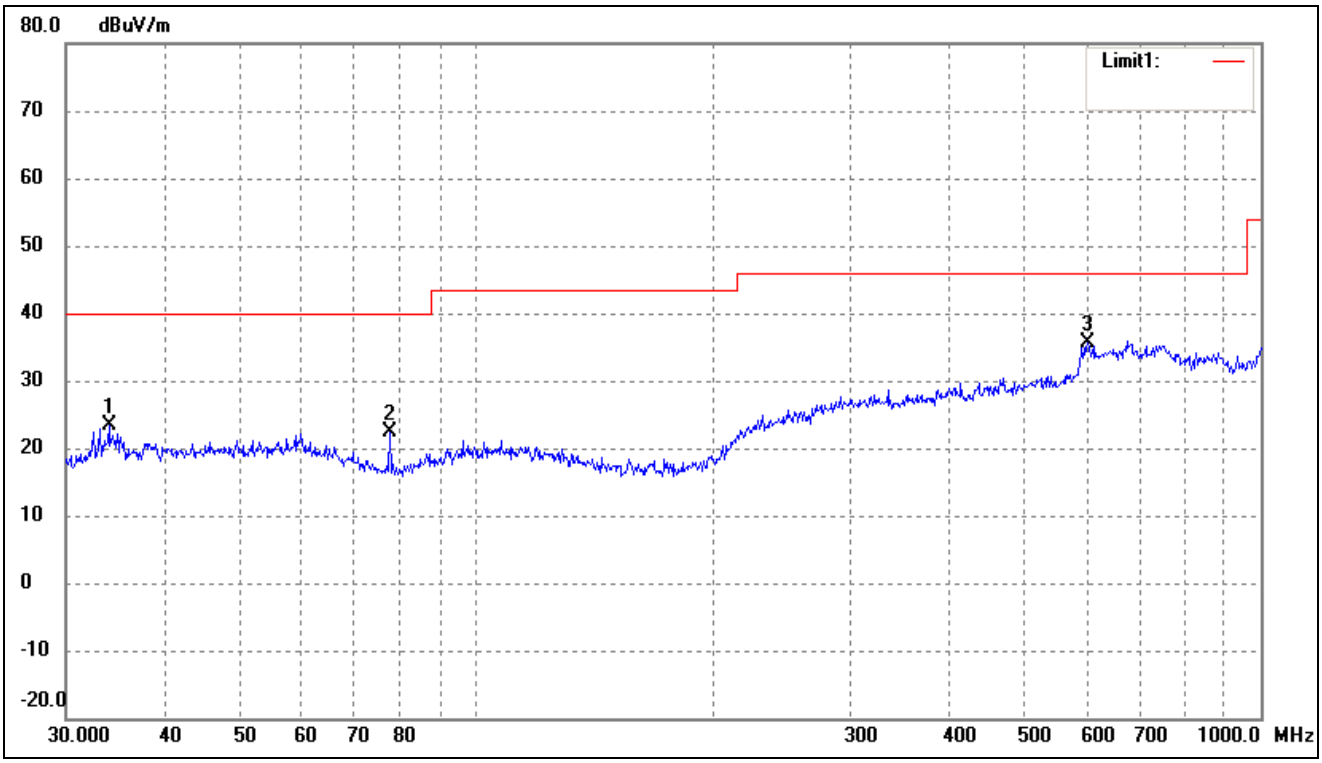
EUT: *Smart Phone*
Tested Model: *Entel E5*
Operating Condition: *802.11b Transmitting Low Channel-2412MHz*
Comment: *Battery: DC3.8V*

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	44.1202	15.99	5.26	21.25	40.00	-18.75	105	100	QP
2	607.7867	15.57	18.77	34.34	46.00	-11.66	160	100	QP
3	675.2080	16.07	18.99	35.06	46.00	-10.94	180	100	QP

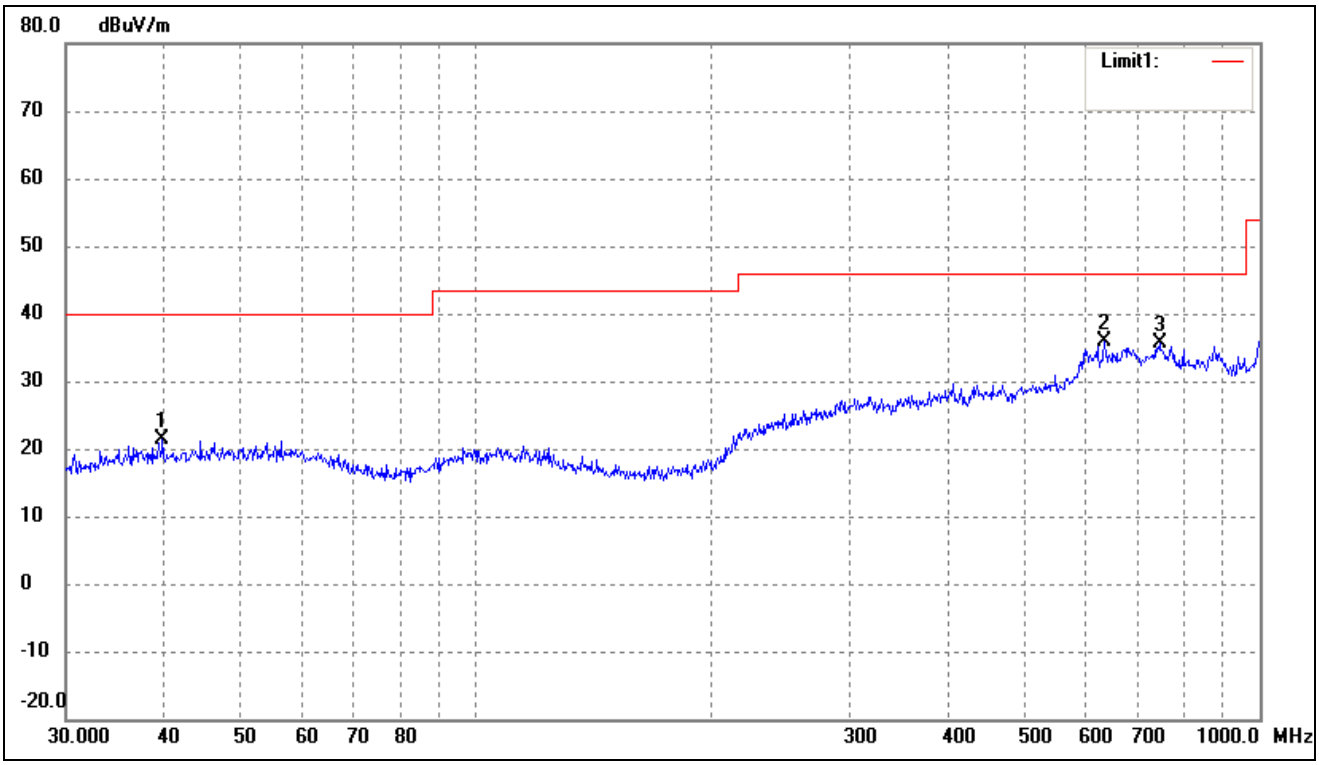
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	34.0365	19.05	4.25	23.30	40.00	-16.70	140	100	QP
2	77.5928	19.99	2.29	22.28	40.00	-17.72	250	100	QP
3	601.4265	16.32	19.22	35.54	46.00	-10.46	120	100	QP

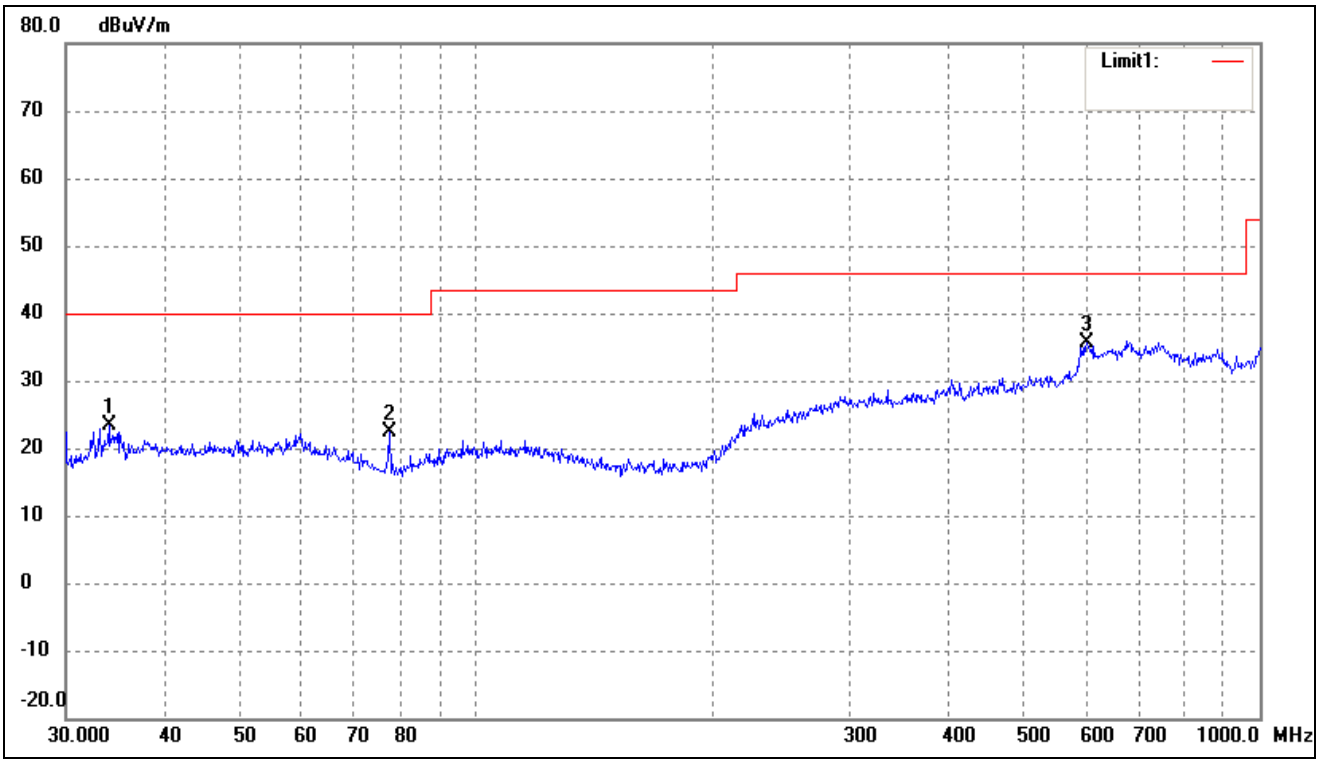
Operating Condition: *802.11b Transmitting Middle Channel-2437MHz*
Comment: *Battery: DC3.8V*

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	39.8542	16.17	5.23	21.40	40.00	-18.60	145	100	QP
2	633.9073	17.56	18.41	35.97	46.00	-10.03	120	100	QP
3	744.8661	16.35	19.33	35.68	46.00	-10.32	108	100	QP

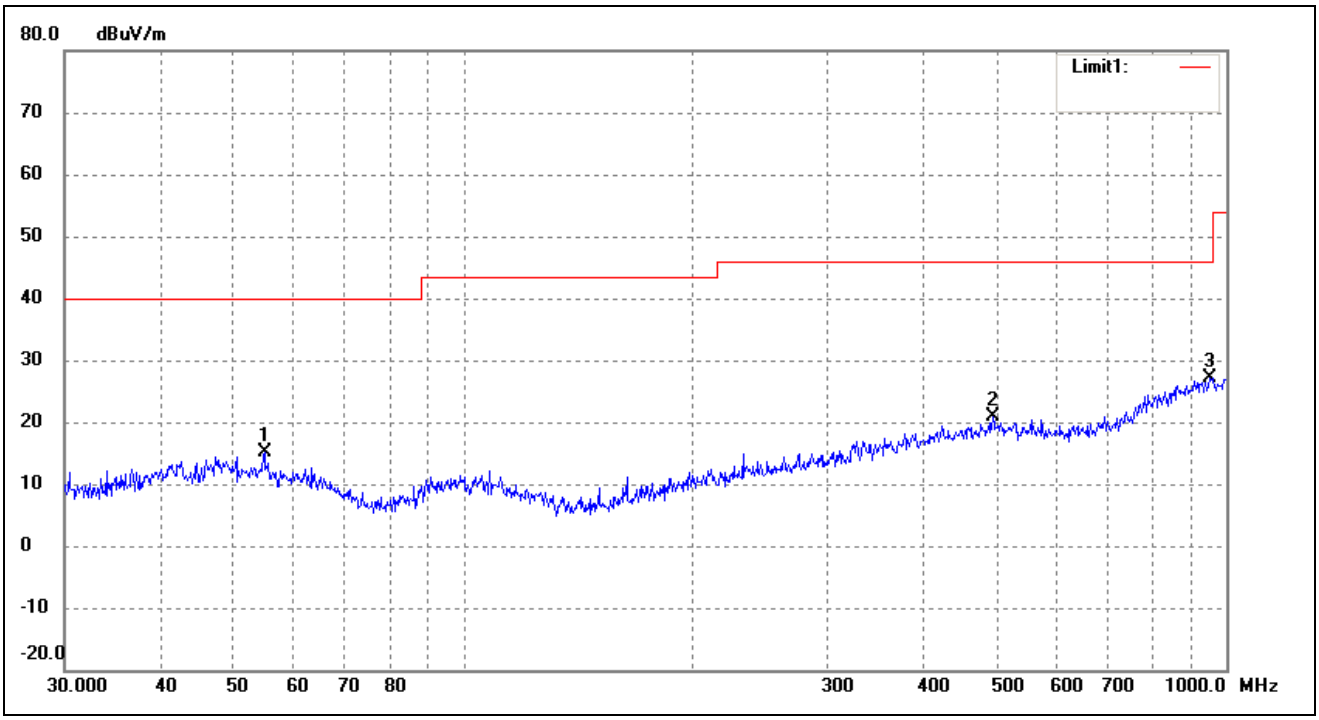
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	34.0365	19.05	4.25	23.30	40.00	-16.70	120	100	QP
2	77.5928	19.99	2.29	22.28	40.00	-17.72	113	100	QP
3	601.4265	16.32	19.22	35.54	46.00	-10.46	157	100	QP

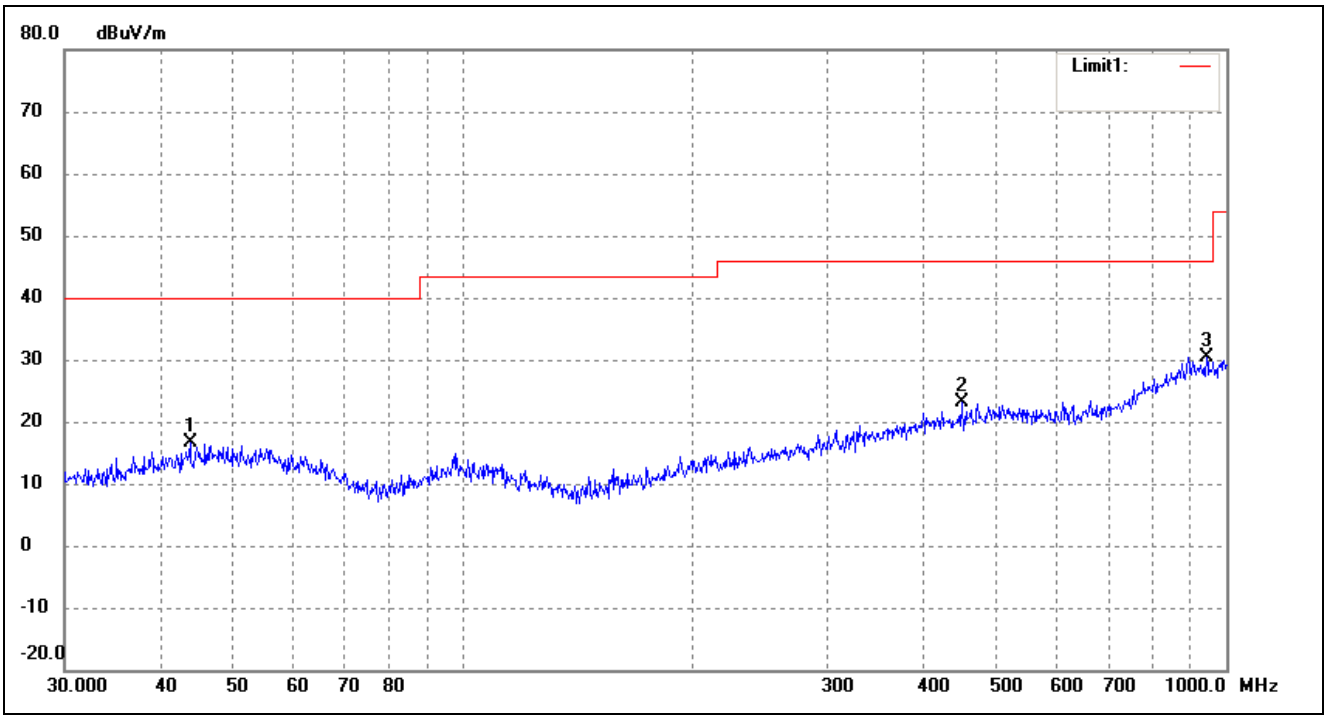
Operating Condition: *802.11b Transmitting High Channel-2462MHz*
Comment: *Battery: DC3.8V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(。)	(cm)	
1	54.8348	23.04	-7.93	15.11	40.00	-24.89	148	100	QP
2	494.1984	22.02	-1.26	20.76	46.00	-25.24	152	100	QP
3	952.0937	21.23	5.96	27.19	46.00	-18.81	136	100	QP

Test Specification: *Vertical*

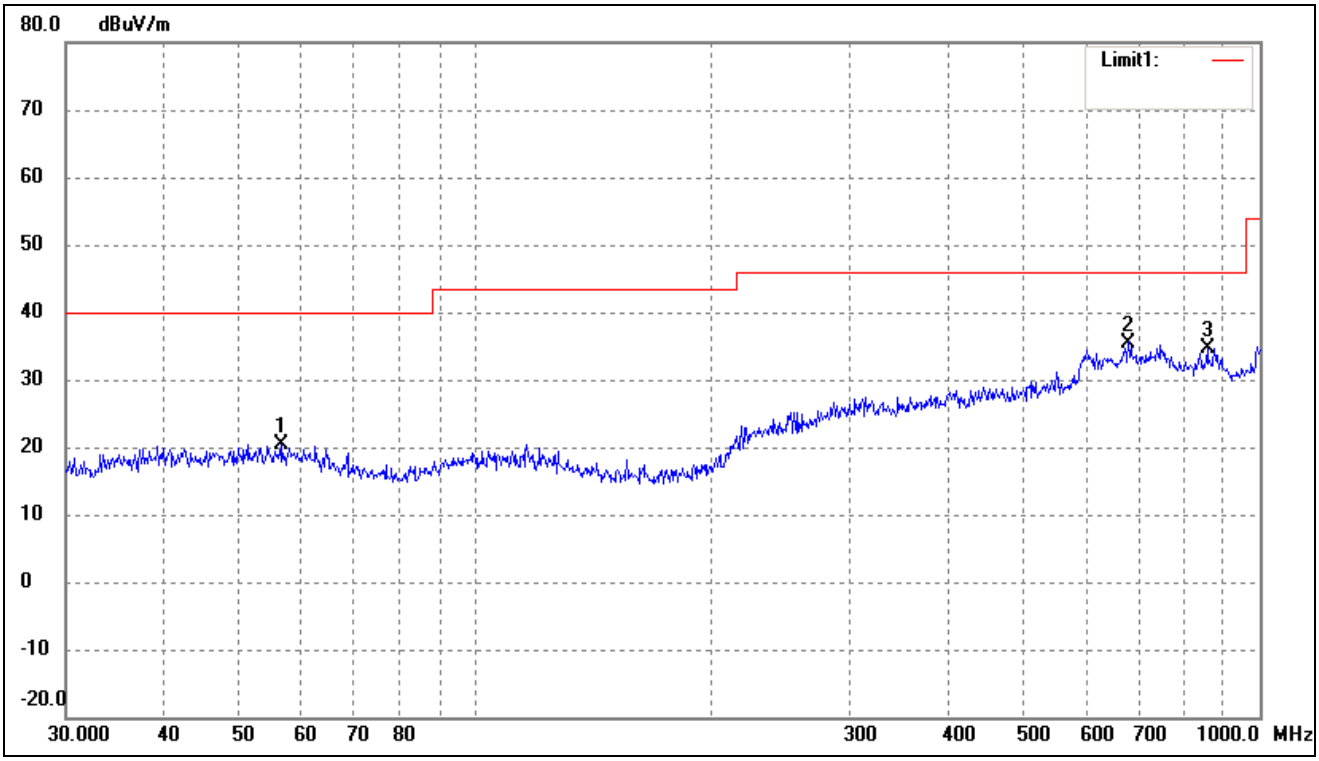


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(。)	(cm)	
1	43.8119	24.38	-7.71	16.67	40.00	-23.33	168	100	QP
2	449.5558	25.41	-2.17	23.24	46.00	-22.76	152	100	QP
3	942.1305	24.54	5.84	30.38	46.00	-15.62	178	100	QP

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

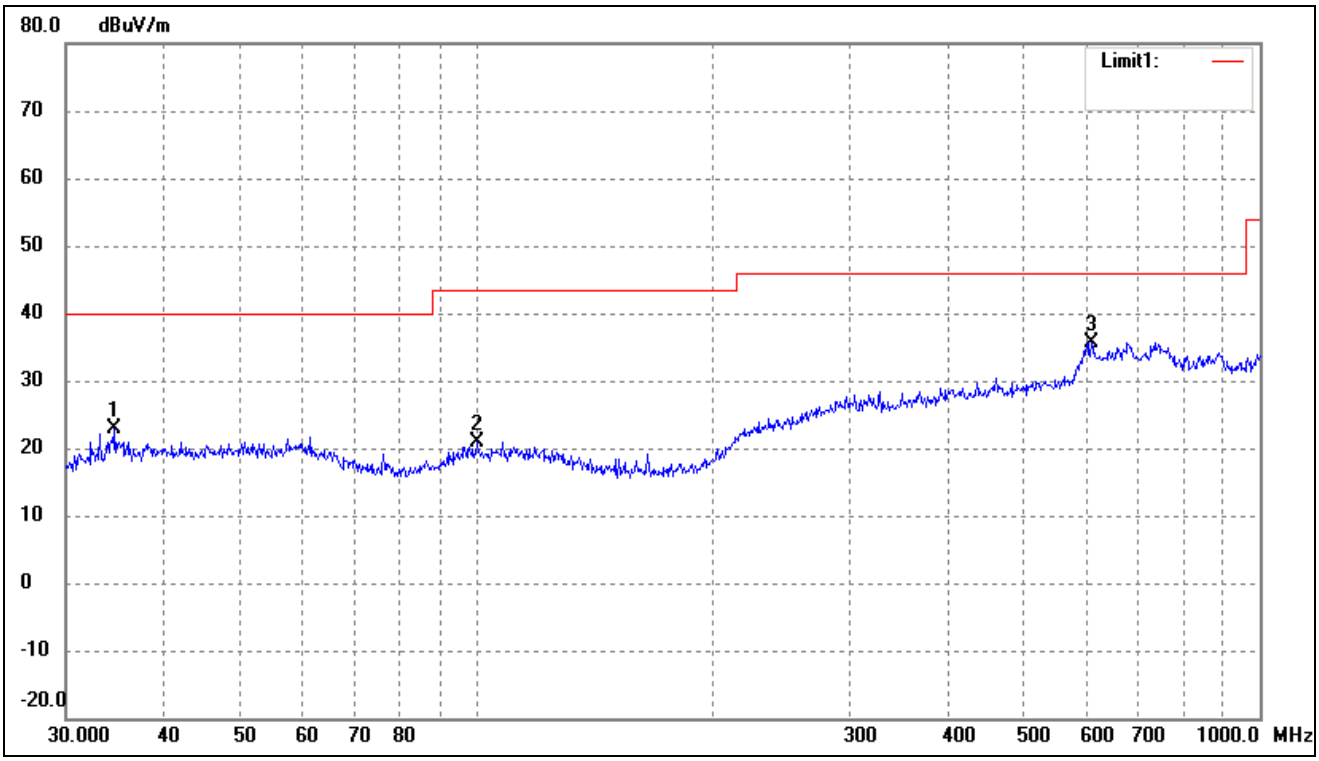
EUT: *Smart Phone*
Tested Model: *ENTEL E5*
Operating Condition: *802.11g Transmitting Low Channel-2412MHz*
Comment: *Battery: DC3.8V*

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	56.5929	14.94	5.34	20.28	40.00	-19.72	170	100	QP
2	679.9600	16.24	19.26	35.50	46.00	-10.50	20	100	QP
3	857.0247	17.37	17.32	34.69	46.00	-11.31	320	100	QP

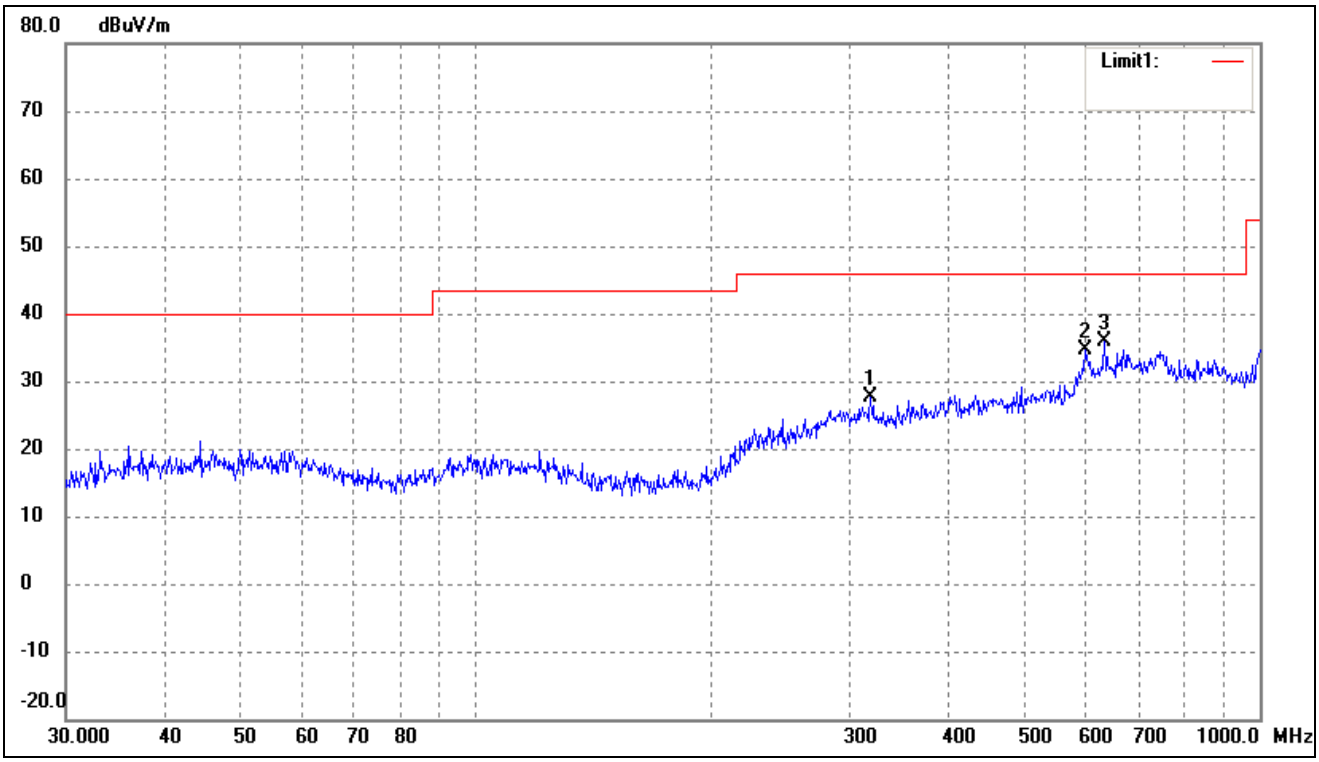
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	34.6385	18.57	4.34	22.91	40.00	-17.09	270	100	QP
2	100.2286	15.75	5.13	20.88	43.50	-22.62	190	100	QP
3	609.9217	17.12	18.63	35.75	46.00	-10.25	360	100	QP

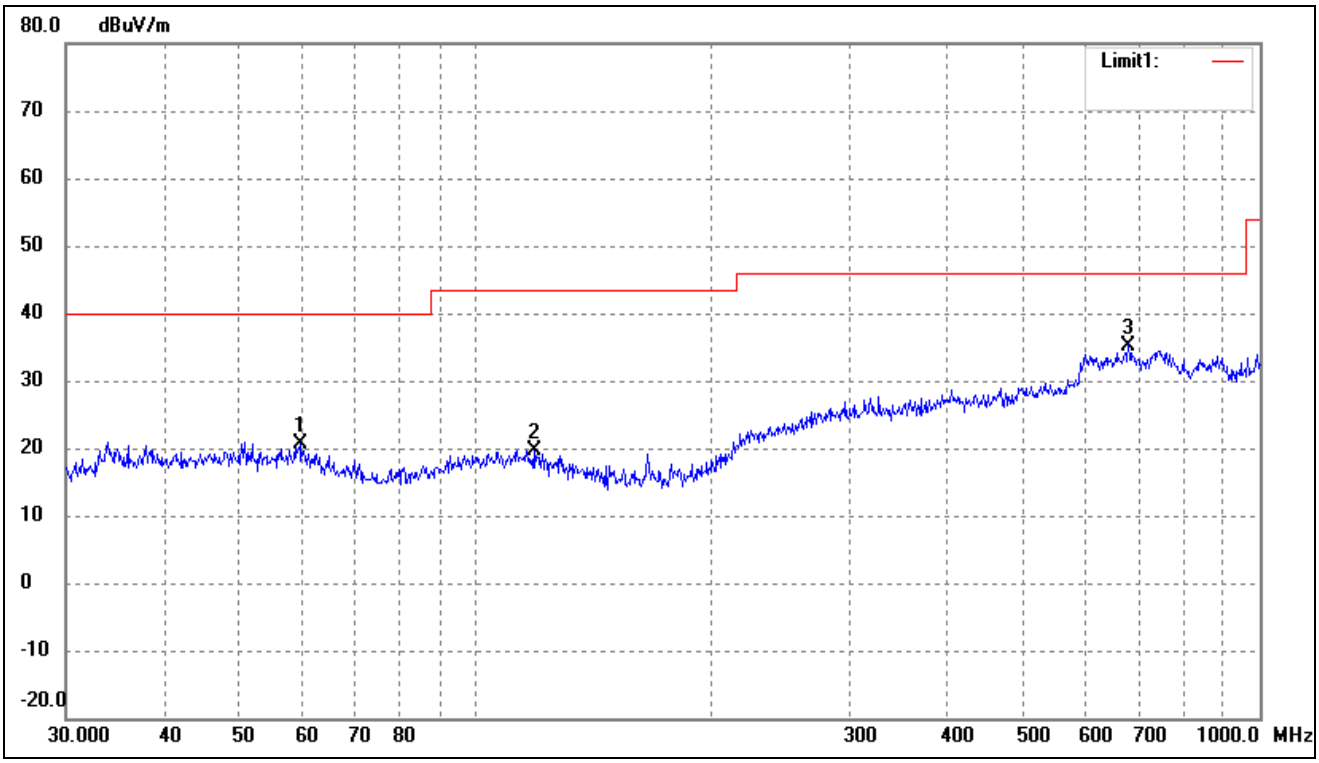
Operating Condition: *802.11g Transmitting Middle Channel-2437MHz*
Comment: *Battery: DC3.8V*

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	318.8170	15.36	12.28	27.64	46.00	-18.36	270	100	QP
2	599.3213	15.42	19.19	34.61	46.00	-11.39	160	100	QP
3	633.9073	17.56	18.41	35.97	46.00	-10.03	228	200	QP

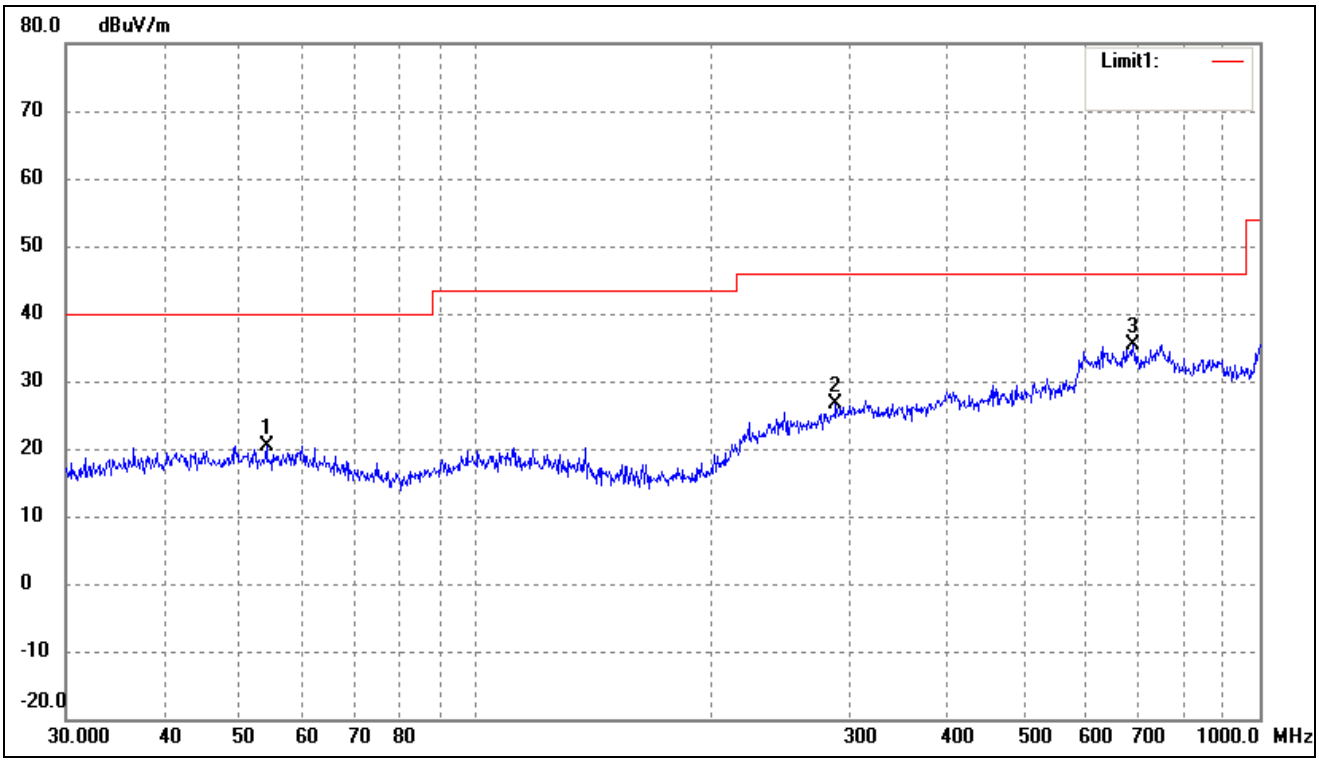
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	59.6493	15.24	5.38	20.62	40.00	-19.38	360	100	QP
2	118.6014	14.70	5.03	19.73	43.50	-23.77	120	100	QP
3	679.9600	15.99	19.26	35.25	46.00	-10.75	270	100	QP

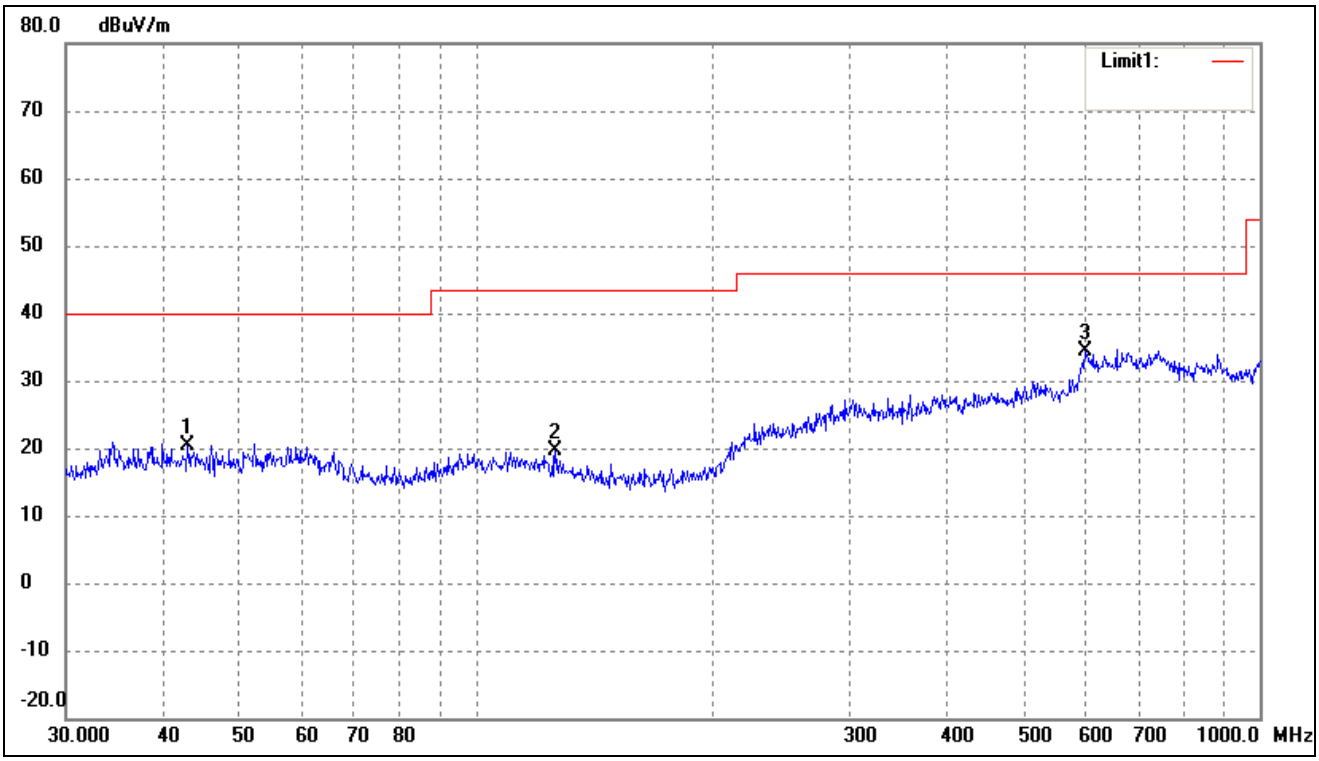
Operating Condition: *802.11g Transmitting High Channel-2462MHz*
Comment: *Battery: DC3.8V*

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	54.0711	15.14	5.31	20.45	40.00	-19.55	270	100	QP
2	287.9904	15.01	11.71	26.72	46.00	-19.28	150	100	QP
3	689.5644	16.88	18.55	35.43	46.00	-10.57	360	100	QP

Test Specification: *Vertical*

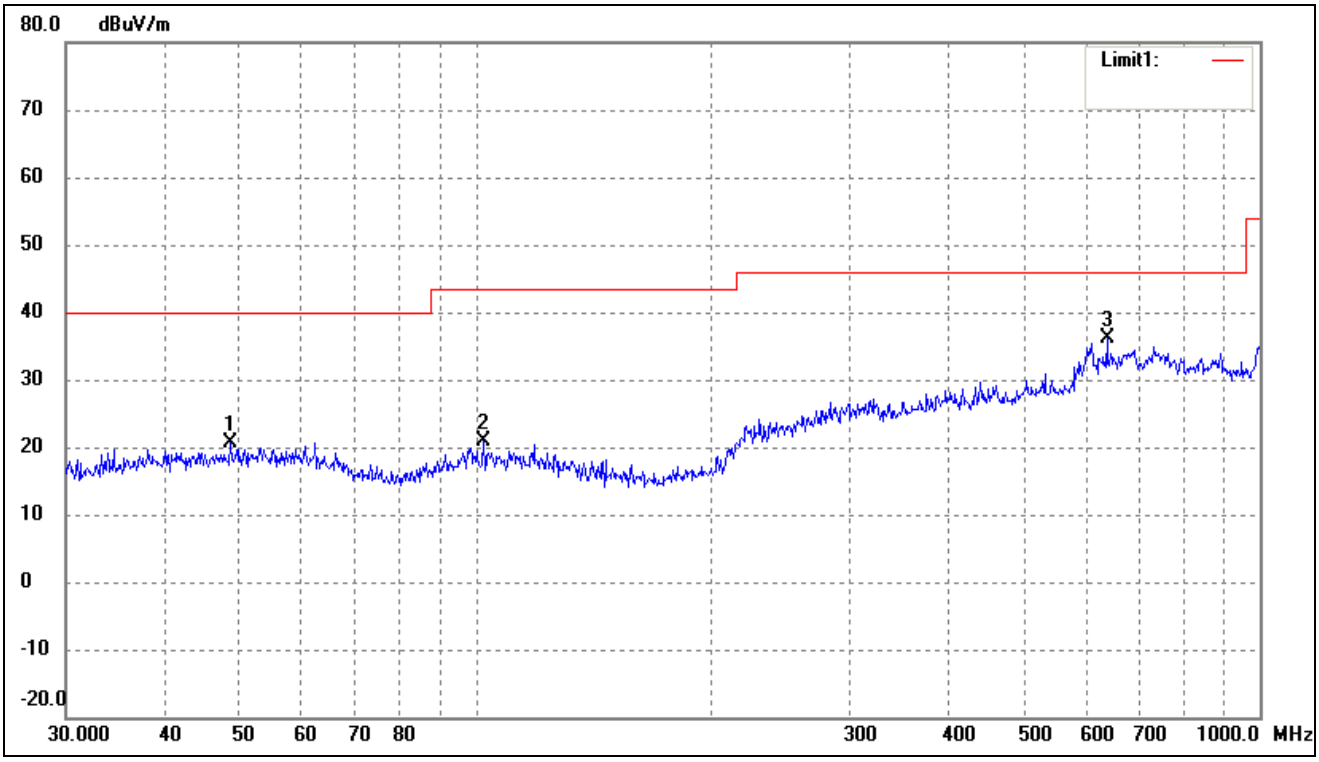


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	42.8998	15.16	5.25	20.41	40.00	-19.59	360	100	QP
2	126.3286	15.11	4.50	19.61	43.50	-23.89	180	100	QP
3	599.3212	15.08	19.19	34.27	46.00	-11.73	120	100	QP

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

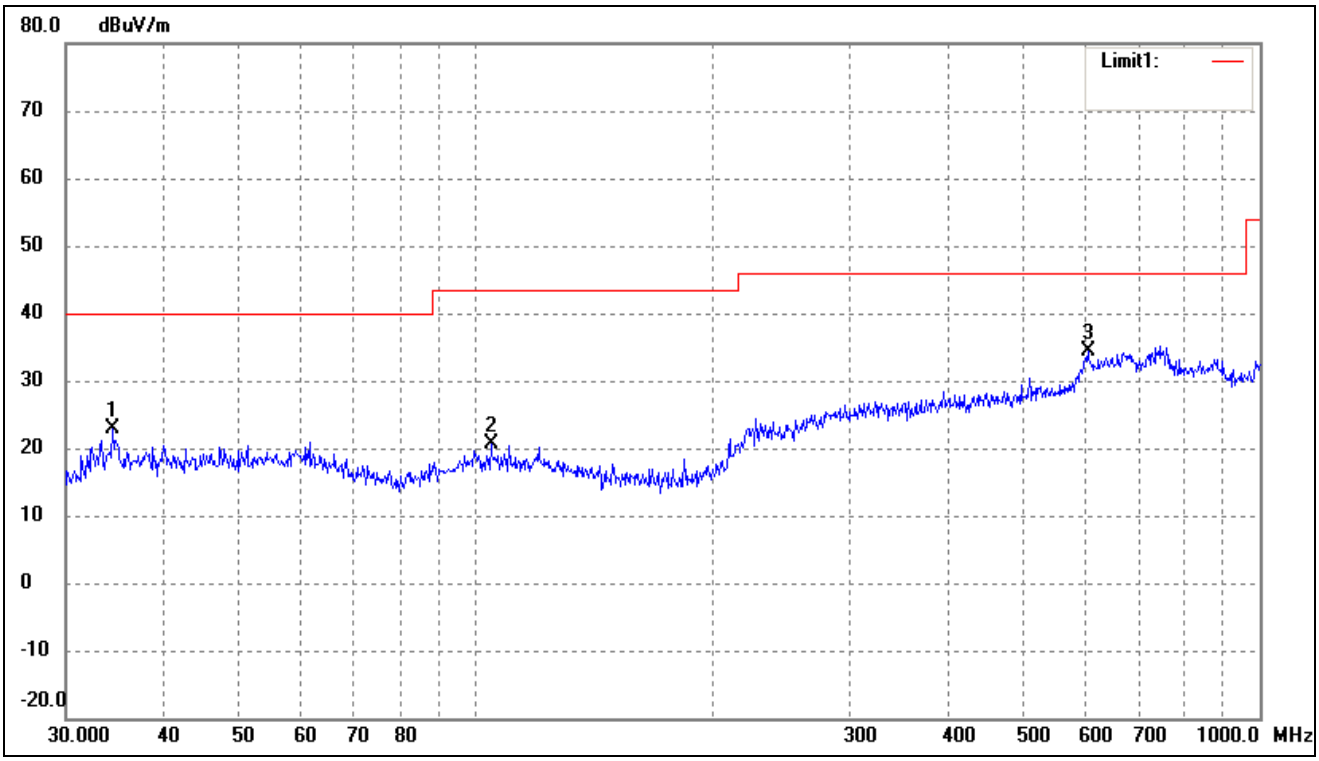
EUT: *Smart Phone*
Tested Model: *ENTEL E5*
Operating Condition: *802.11n-HT20 Transmitting Low Channel-2412MHz*
Comment: *Battery: DC3.8V*

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	48.6719	15.33	5.26	20.59	40.00	-19.41	260	100	QP
2	102.3597	15.80	5.12	20.92	43.50	-22.58	120	200	QP
3	638.3686	17.57	18.56	36.13	46.00	-9.87	289	200	QP

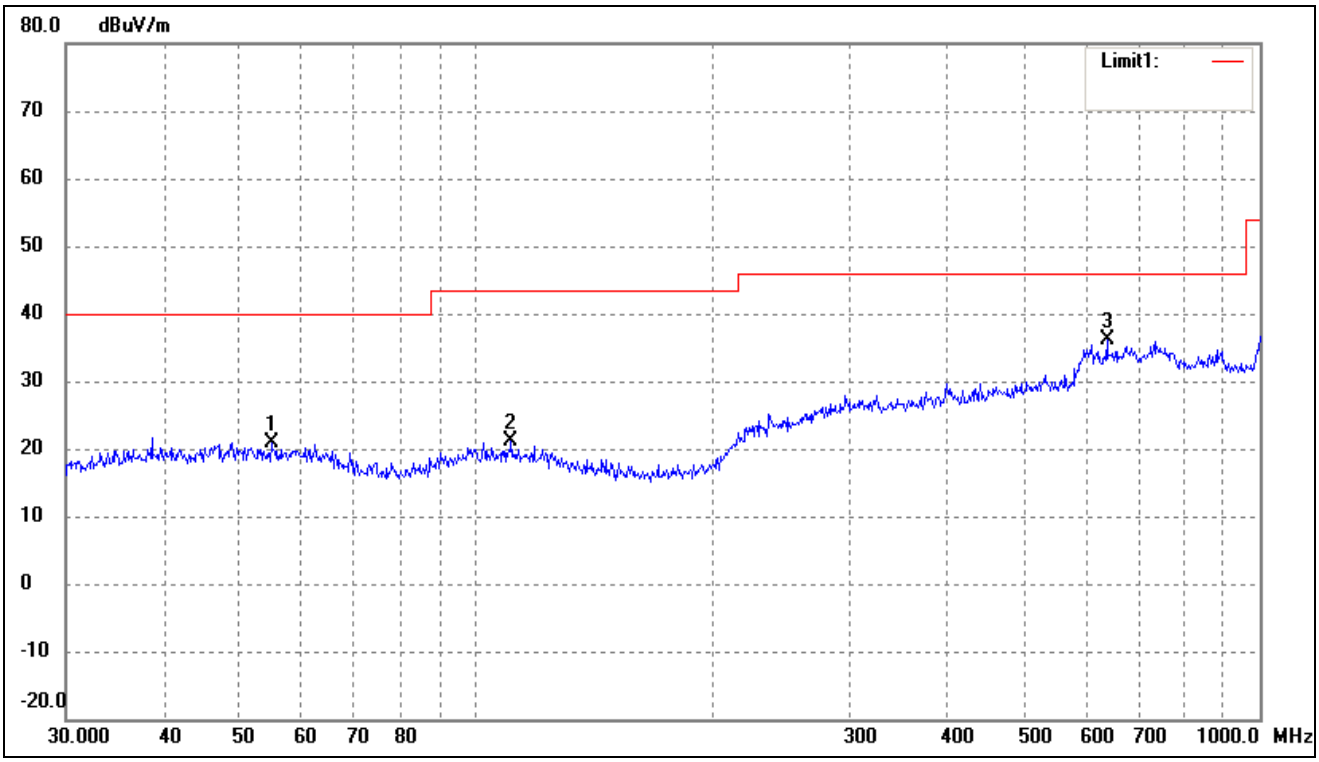
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	34.3964	18.51	4.30	22.81	40.00	-17.19	130	100	QP
2	104.5361	15.42	5.10	20.52	43.50	-22.98	120	100	QP
3	603.5392	15.21	19.06	34.27	46.00	-11.73	360	100	QP

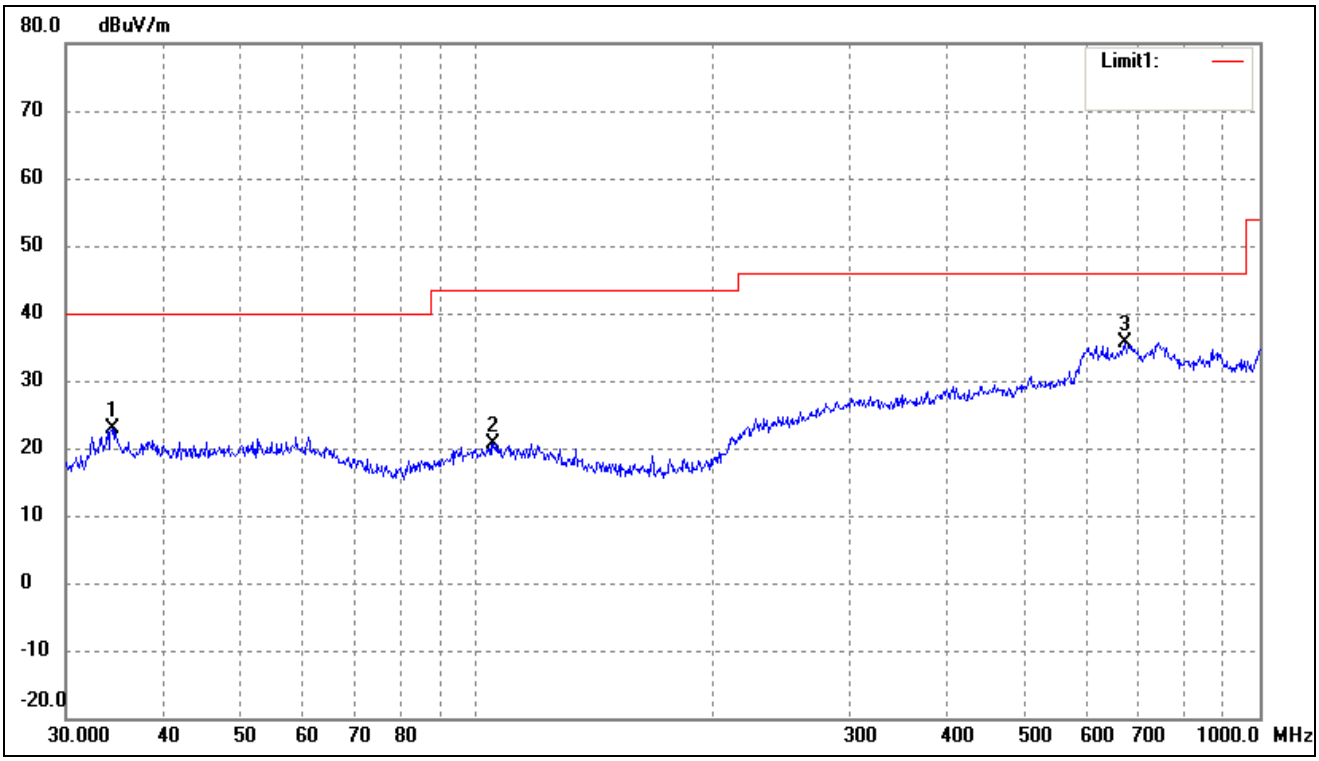
Operating Condition: *802.11n-HT20 Transmitting Middle Channel-2437MHz*
Comment: *Battery: DC3.8V*

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	54.8348	15.66	5.32	20.98	40.00	-19.02	274	100	QP
2	110.9571	15.96	5.07	21.03	43.50	-22.47	130	100	QP
3	638.3686	17.57	18.56	36.13	46.00	-9.87	120	100	QP

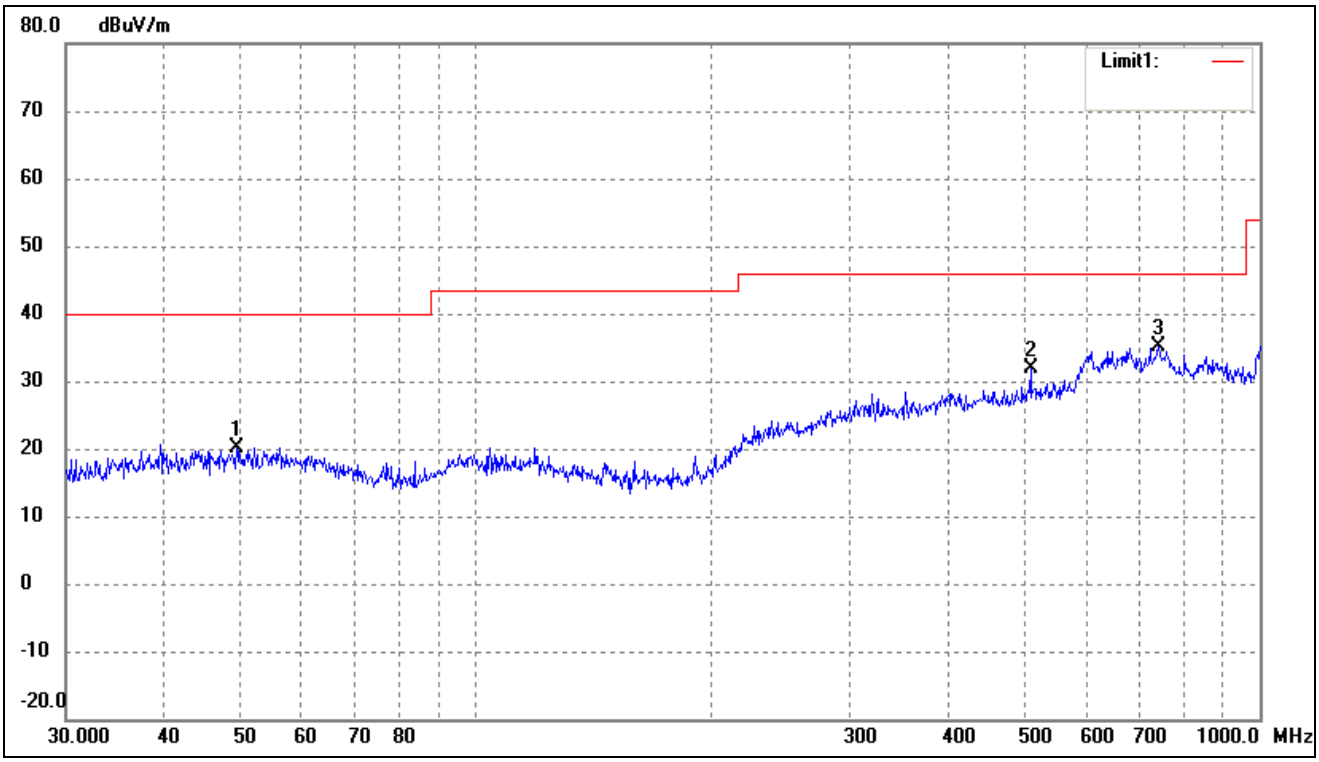
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	34.3964	18.59	4.30	22.89	40.00	-17.11	360	100	QP
2	105.2718	15.50	5.10	20.60	43.50	-22.90	110	100	QP
3	672.8444	16.73	18.87	35.60	46.00	-10.40	120	100	QP

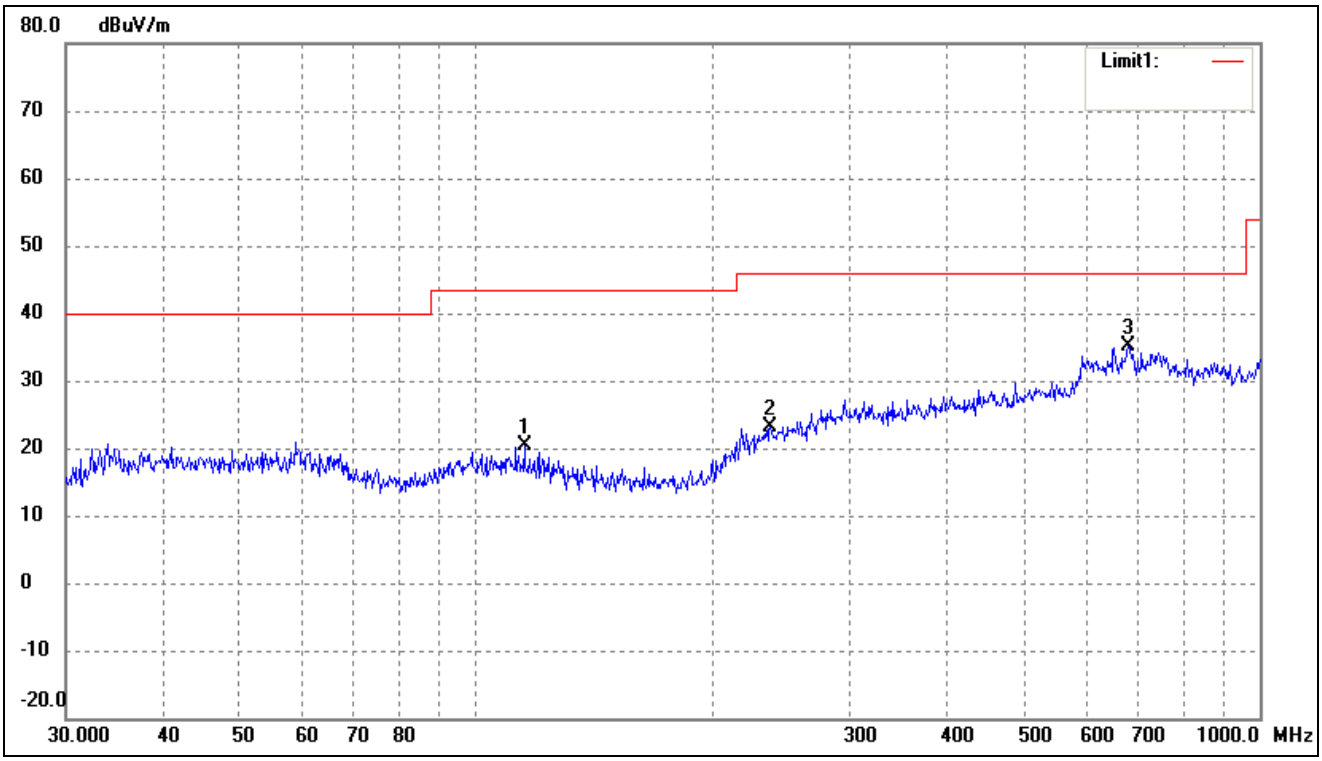
Operating Condition: *802.11n-HT20 Transmitting High Channel-2462MHz*
Comment: *Battery: DC3.8V*

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	49.5328	14.99	5.26	20.25	40.00	-19.75	360	100	QP
2	510.0436	17.71	14.11	31.82	46.00	-14.18	138	100	QP
3	742.2587	15.56	19.45	35.01	46.00	-10.99	180	200	QP

Test Specification: *Vertical*

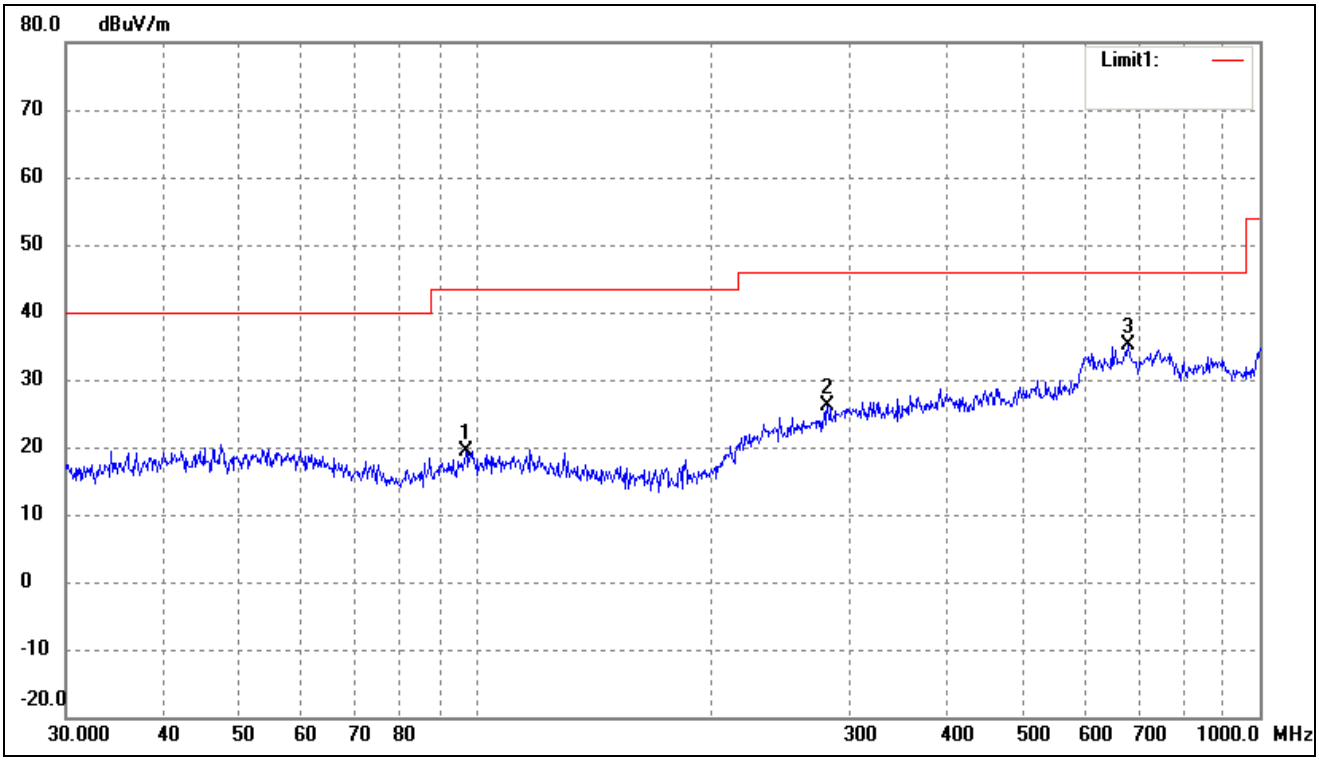


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	115.3205	15.22	5.05	20.27	43.50	-23.23	270	100	QP
2	237.4760	14.05	9.18	23.23	46.00	-22.77	120	100	QP
3	679.9600	15.76	19.26	35.02	46.00	-10.98	360	100	QP

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

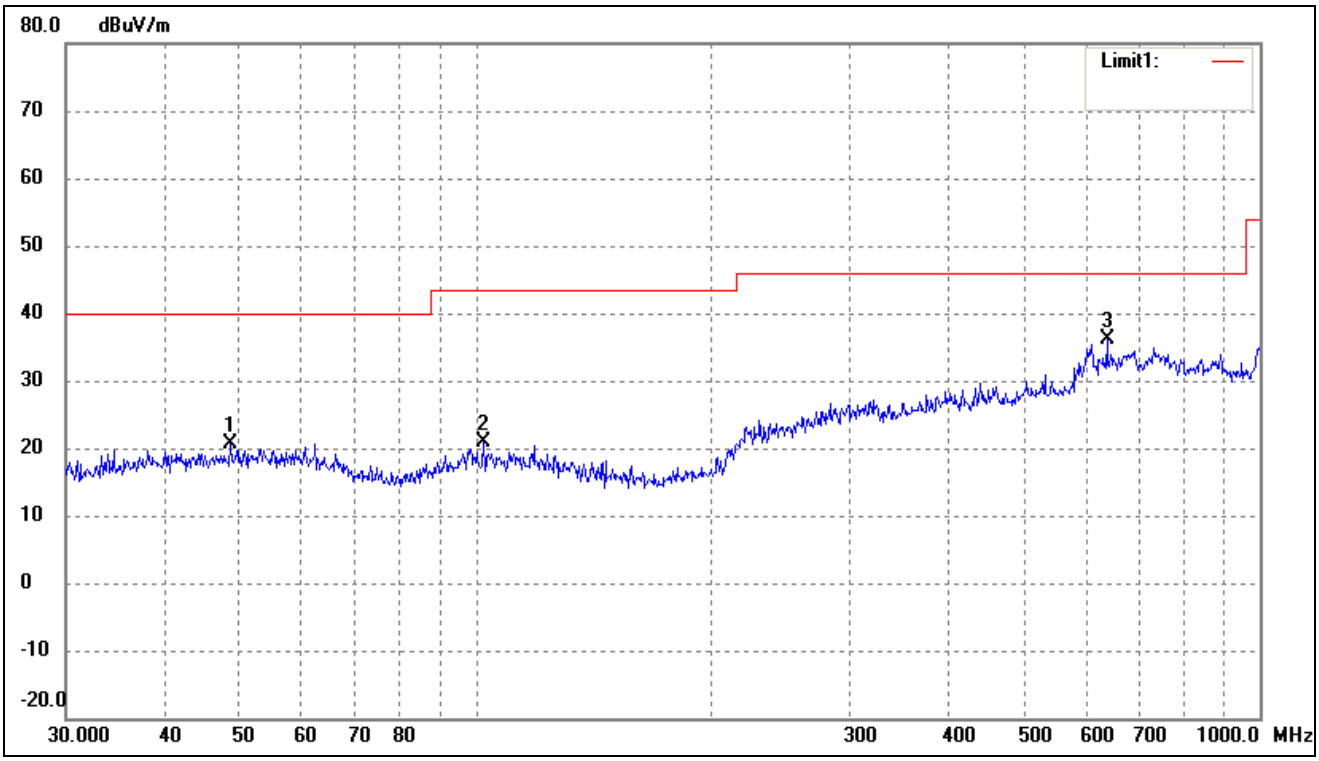
EUT: *Smart Phone*
Tested Model: *ENTEL E5*
Operating Condition: *802.11n-HT40 Transmitting Low Channel-2422MHz*
Comment: *Battery: DC3.8V*

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	97.1148	14.72	4.70	19.42	43.50	-24.08	260	100	QP
2	281.0075	14.63	11.44	26.07	46.00	-19.93	120	200	QP
3	679.9600	15.85	19.26	35.11	46.00	-10.89	289	200	QP

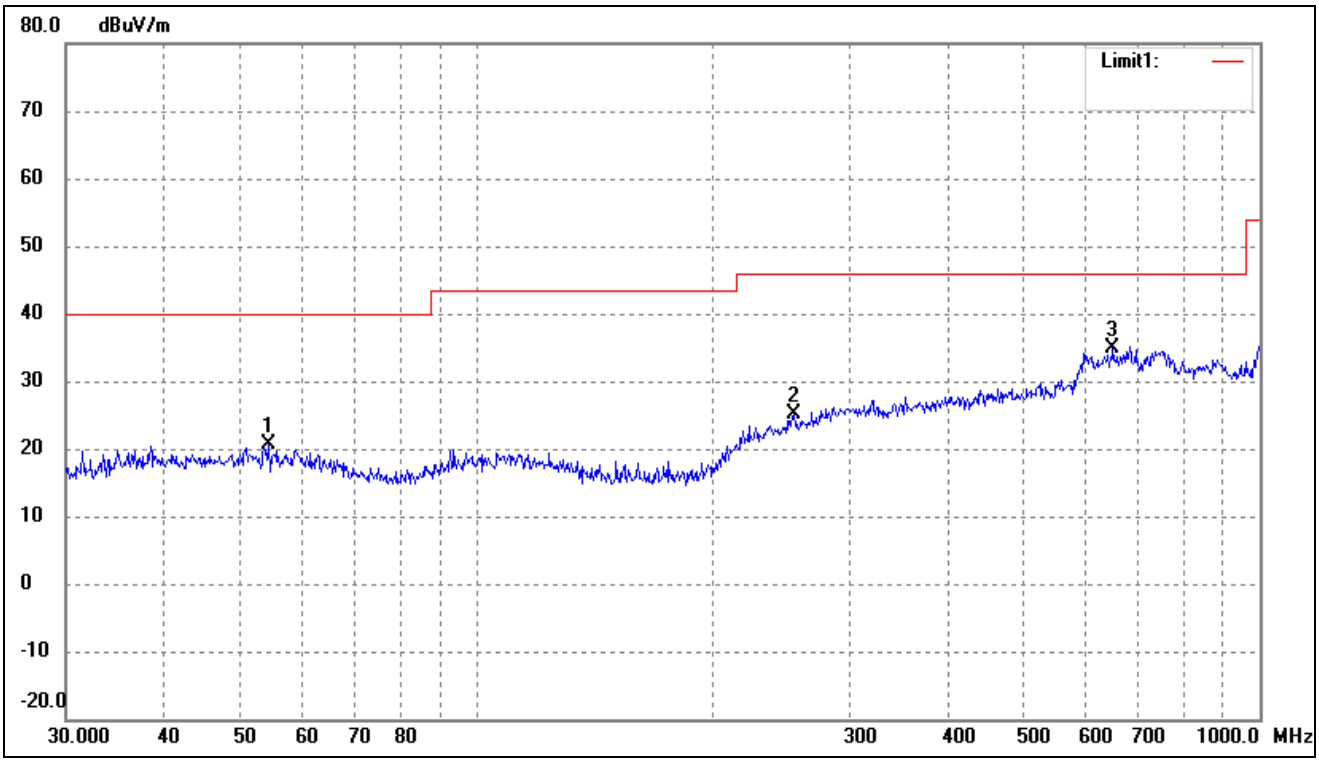
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	48.6719	15.33	5.26	20.59	40.00	-19.41	130	100	QP
2	102.3597	15.80	5.12	20.92	43.50	-22.58	120	100	QP
3	638.3686	17.57	18.56	36.13	46.00	-9.87	360	100	QP

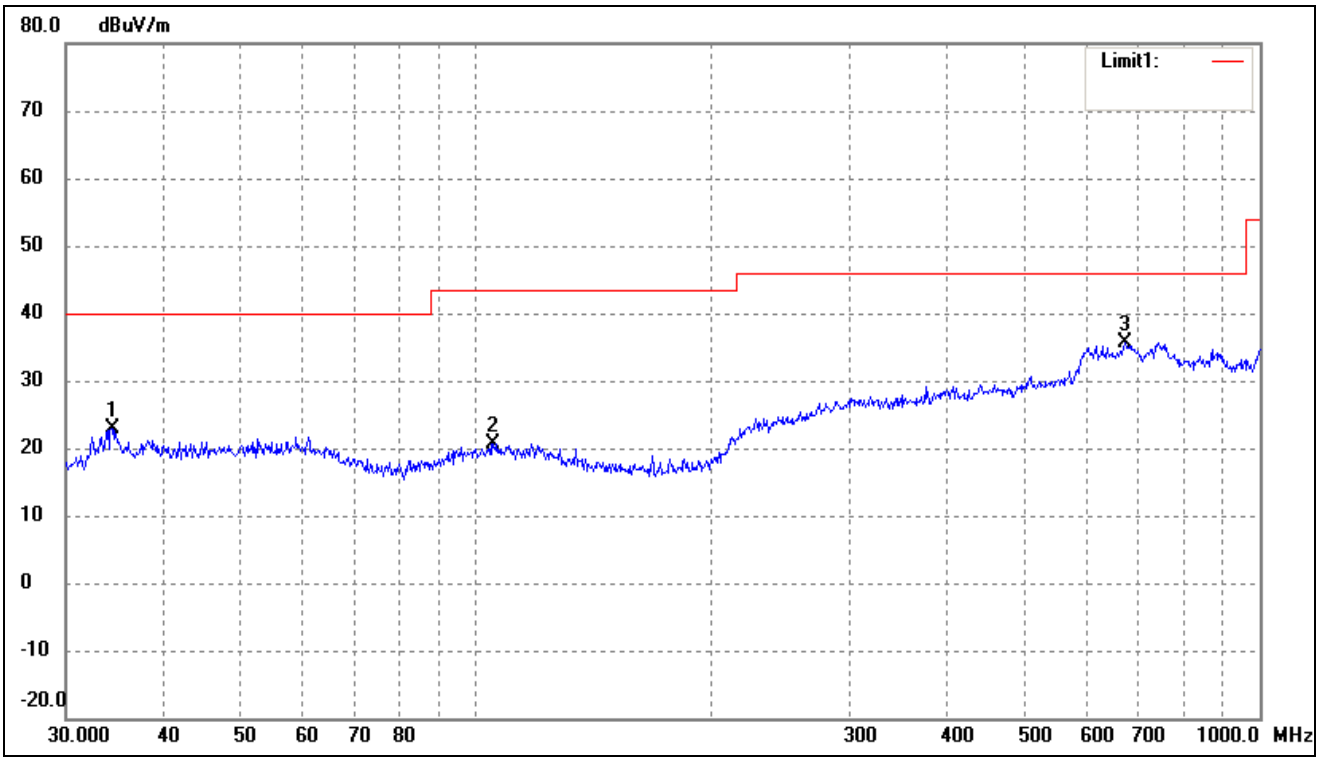
Operating Condition: *802.11n-HT40 Transmitting Middle Channel-2437MHz*
Comment: *Battery: DC3.8V*

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	54.4516	15.21	5.31	20.52	40.00	-19.48	274	100	QP
2	254.7284	15.23	9.85	25.08	46.00	-20.92	130	100	QP
3	649.6597	16.51	18.39	34.90	46.00	-11.10	120	100	QP

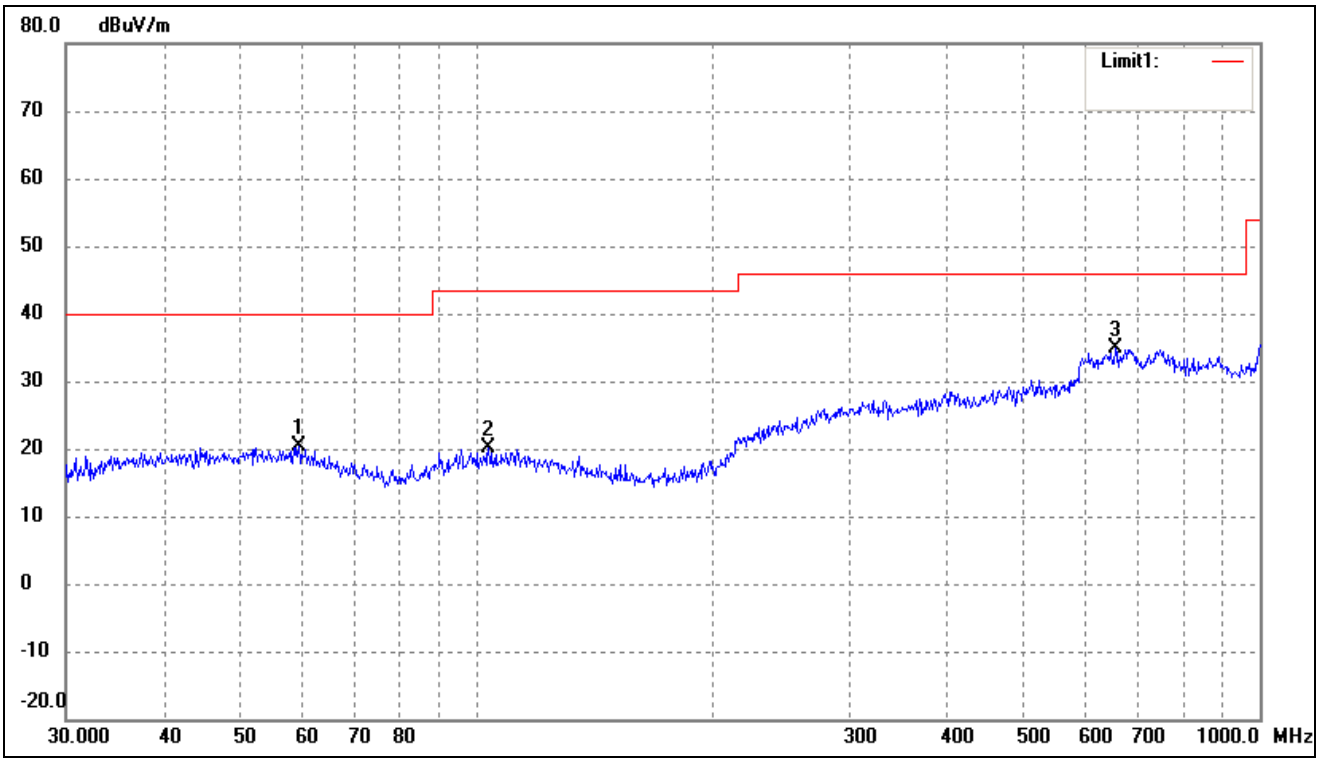
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	34.3964	18.59	4.30	22.89	40.00	-17.11	360	100	QP
2	105.2718	15.50	5.10	20.60	43.50	-22.90	110	100	QP
3	672.8444	16.73	18.87	35.60	46.00	-10.40	120	100	QP

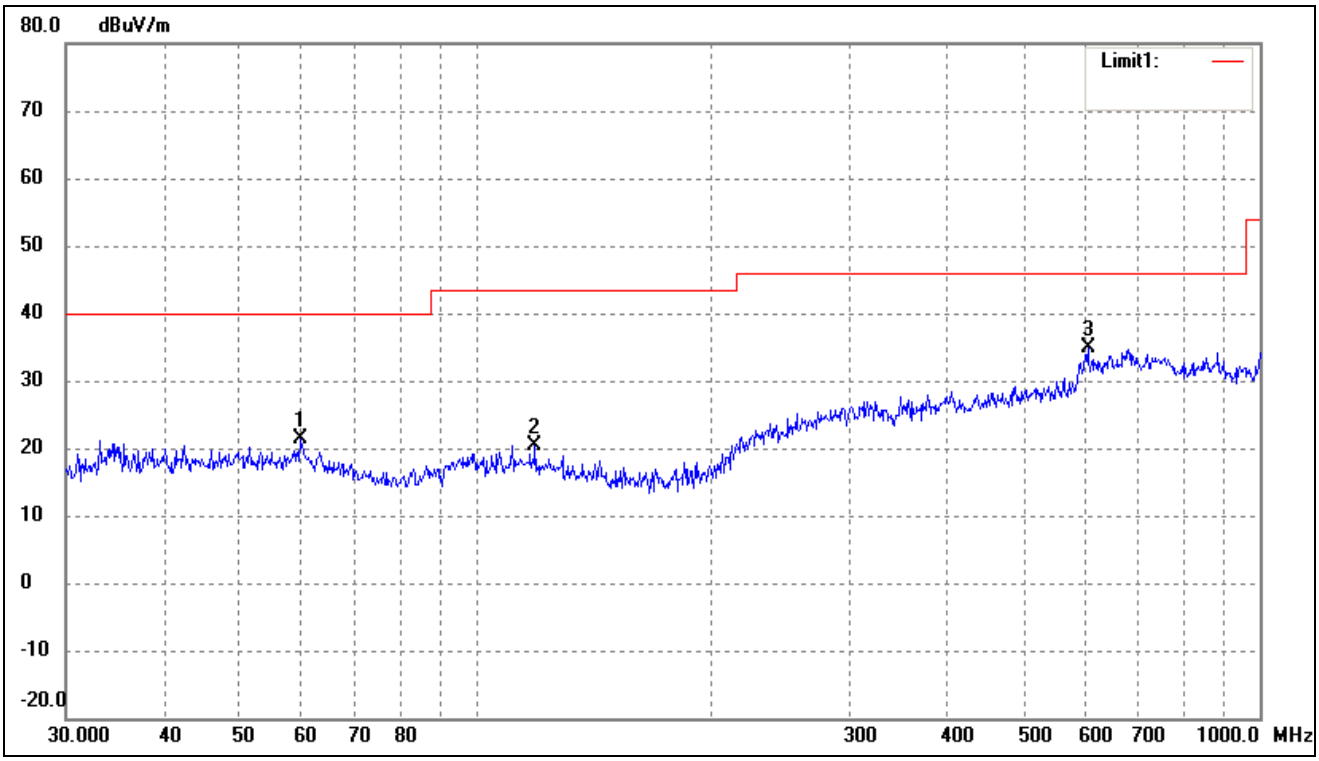
Operating Condition: *802.11n-HT40 Transmitting High Channel-2452MHz*
Comment: *Battery: DC3.8V*

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	59.4405	15.12	5.37	20.49	40.00	-19.51	360	100	QP
2	103.8055	15.11	5.11	20.22	43.50	-23.28	138	100	QP
3	654.2318	16.50	18.27	34.77	46.00	-11.23	180	200	QP

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	59.6493	15.98	5.38	21.36	40.00	-18.64	270	100	QP
2	119.0180	15.25	5.03	20.28	43.50	-23.22	120	100	QP
3	603.5392	15.75	19.06	34.81	46.00	-11.19	360	100	QP

Spurious Emissions Above 1GHz

Test Mode: 802.11b

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	59.24	0.57	59.81	74.00	-14.19	H	PK
4824.000	44.84	0.57	45.41	54.00	-8.59	H	AV
7236.000	35.01	3.69	38.70	74.00	-35.30	H	PK
7236.000	23.58	3.69	27.27	54.00	-26.73	H	AV
4824.000	50.85	0.57	51.42	74.00	-22.58	V	PK
4824.000	37.17	0.57	37.74	54.00	-16.26	V	AV
7236.000	34.80	3.69	38.49	74.00	-35.51	V	PK
7236.000	23.41	3.69	27.10	54.00	-26.90	V	AV
Middle Channel-2437MHz							
4874.000	57.35	0.66	58.01	74.00	-15.99	H	PK
4874.000	42.77	0.66	43.43	54.00	-10.57	H	AV
7311.000	37.61	3.76	41.37	74.00	-32.63	H	PK
7311.000	25.87	3.76	29.63	54.00	-24.37	H	AV
4874.000	51.19	0.66	51.85	74.00	-22.15	V	PK
4874.000	37.61	0.66	38.27	54.00	-15.73	V	AV
7311.000	38.83	3.76	42.59	74.00	-31.41	V	PK
7311.000	25.84	3.76	29.60	54.00	-24.40	V	AV
High Channel-2462MHz							
4924.000	56.32	0.74	57.06	74.00	-16.94	H	PK
4924.000	42.94	0.74	43.68	54.00	-10.32	H	AV
7386.000	37.91	3.83	41.74	74.00	-32.26	H	PK
7386.000	27.26	3.83	31.09	54.00	-22.91	H	AV
4924.000	53.07	0.74	53.81	74.00	-20.19	V	PK
4924.000	39.42	0.74	40.16	54.00	-13.84	V	AV
7386.000	38.69	3.83	42.52	74.00	-31.48	V	PK
7386.000	27.20	3.83	31.03	54.00	-22.97	V	AV

Test Mode: 802.11g

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	54.00	0.57	54.57	74.00	-19.43	H	PK
4824.000	47.78	0.57	48.35	54.00	-5.65	H	AV
7236.000	35.17	3.69	38.86	74.00	-35.14	H	PK
7236.000	23.82	3.69	27.51	54.00	-26.49	H	AV
4824.000	42.22	0.57	42.79	74.00	-31.21	V	PK
4824.000	33.11	0.57	33.68	54.00	-20.32	V	AV
7236.000	35.08	3.69	38.77	74.00	-35.23	V	PK
7236.000	23.89	3.69	27.58	54.00	-26.42	V	AV
Middle Channel-2437MHz							
4874.000	53.19	0.66	53.85	74.00	-20.15	H	PK
4874.000	46.35	0.66	47.01	54.00	-6.99	H	AV
7311.000	37.62	3.76	41.38	74.00	-32.62	H	PK
7311.000	26.04	3.76	29.80	54.00	-24.20	H	AV
4874.000	43.36	0.66	44.02	74.00	-29.98	V	PK
4874.000	32.19	0.66	32.85	54.00	-21.15	V	AV
7311.000	37.03	3.76	40.79	74.00	-33.21	V	PK
7311.000	26.65	3.76	30.41	54.00	-23.59	V	AV
High Channel-2462MHz							
4924.000	55.79	0.74	56.53	74.00	-17.47	H	PK
4924.000	33.00	0.74	33.74	54.00	-20.26	H	AV
7386.000	37.86	3.83	41.69	74.00	-32.31	H	PK
7386.000	27.21	3.83	31.04	54.00	-22.96	H	AV
4924.000	45.15	0.74	45.89	74.00	-28.11	V	PK
4924.000	33.60	0.74	34.34	54.00	-19.66	V	AV
7386.000	38.93	3.83	42.76	74.00	-31.24	V	PK
7386.000	27.12	3.83	30.95	54.00	-23.05	V	AV

Test Mode: 802.11n-HT20

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	55.85	0.57	56.42	74.00	-17.58	H	PK
4824.000	32.67	0.57	33.24	54.00	-20.76	H	AV
7236.000	34.49	3.69	38.18	74.00	-35.82	H	PK
7236.000	23.28	3.69	26.97	54.00	-27.03	H	AV
4824.000	43.03	0.57	43.60	74.00	-30.40	V	PK
4824.000	31.74	0.57	32.31	54.00	-21.69	V	AV
7236.000	34.59	3.69	38.28	74.00	-35.72	V	PK
7236.000	23.31	3.69	27.00	54.00	-27.00	V	AV
Middle Channel-2437MHz							
4874.000	53.08	0.66	53.74	74.00	-20.26	H	PK
4874.000	31.66	0.66	32.32	54.00	-21.68	H	AV
7311.000	36.80	3.76	40.56	74.00	-33.44	H	PK
7311.000	26.16	3.76	29.92	54.00	-24.08	H	AV
4874.000	44.14	0.66	44.80	74.00	-29.20	V	PK
4874.000	32.41	0.66	33.07	54.00	-20.93	V	AV
7311.000	37.59	3.76	41.35	74.00	-32.65	V	PK
7311.000	25.48	3.76	29.24	54.00	-24.76	V	AV
High Channel-2462MHz							
4924.000	53.25	0.74	53.99	74.00	-20.01	H	PK
4924.000	31.69	0.74	32.43	54.00	-21.57	H	AV
7386.000	38.35	3.83	42.18	74.00	-31.82	H	PK
7386.000	27.19	3.83	31.02	54.00	-22.98	H	AV
4924.000	43.52	0.74	44.26	74.00	-29.74	V	PK
4924.000	31.12	0.74	31.86	54.00	-22.14	V	AV
7386.000	38.66	3.83	42.49	74.00	-31.51	V	PK
7386.000	26.99	3.83	30.82	54.00	-23.18	V	AV

Test Mode: 802.11n-HT40

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	0.60	53.85	74.00	-20.15	H	PK
4824.000	38.25	0.60	38.85	54.00	-15.15	H	AV
7266.000	46.48	3.72	50.20	74.00	-23.80	H	PK
7266.000	32.56	3.72	36.28	54.00	-17.72	H	AV
4844.000	54.22	0.60	54.82	74.00	-19.18	V	PK
4824.000	39.42	0.60	40.02	54.00	-13.98	V	AV
7266.000	48.81	3.72	52.53	74.00	-21.47	V	PK
7266.000	34.78	3.72	38.50	54.00	-15.50	V	AV
Middle Channel-2437MHz							
4874.000	52.53	0.66	53.19	74.00	-20.81	H	PK
4874.000	37.88	0.66	38.54	54.00	-15.46	H	AV
7311.000	44.88	3.76	48.64	74.00	-25.36	H	PK
7311.000	32.03	3.76	35.79	54.00	-18.21	H	AV
4874.000	53.74	0.66	54.40	74.00	-19.60	V	PK
4874.000	39.95	0.66	40.61	54.00	-13.39	V	AV
7311.000	45.78	3.76	49.54	74.00	-24.46	V	PK
7311.000	34.00	3.76	37.76	54.00	-16.24	V	AV
High Channel-2452MHz							
4904.000	52.65	0.72	53.37	74.00	-20.63	H	PK
4904.000	39.37	0.72	40.09	54.00	-13.91	H	AV
7356.000	45.63	3.81	49.44	74.00	-24.56	H	PK
7356.000	30.73	3.81	34.54	54.00	-19.46	H	AV
4904.000	54.84	0.72	55.56	74.00	-18.44	V	PK
4904.000	40.83	0.72	41.55	54.00	-12.45	V	AV
7356.000	48.18	3.81	51.99	74.00	-22.01	V	PK
7356.000	35.12	3.81	38.93	54.00	-15.07	V	AV

Note: Testing is carried out with frequency rang 9kHz to the tenth harmonics, which above 3^{th} Harmonics are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
The measurements greater than 20dB below the limit from 9kHz to 30MHz.

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 v03r03, 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 V03r03, 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

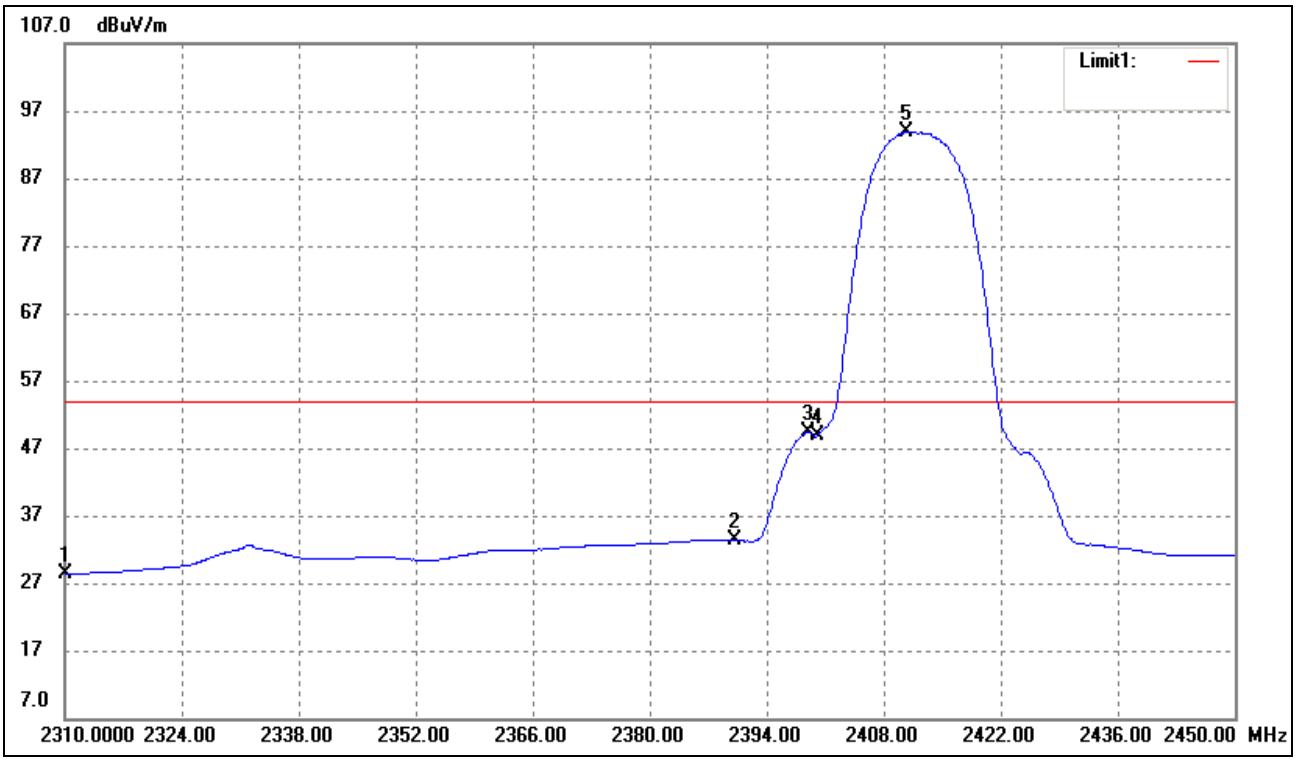
Temperature:	23°C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

9.4 Summary of Test Results/Plots

Please refer to the test plots as below.

802.11b-Lowest Bandedge

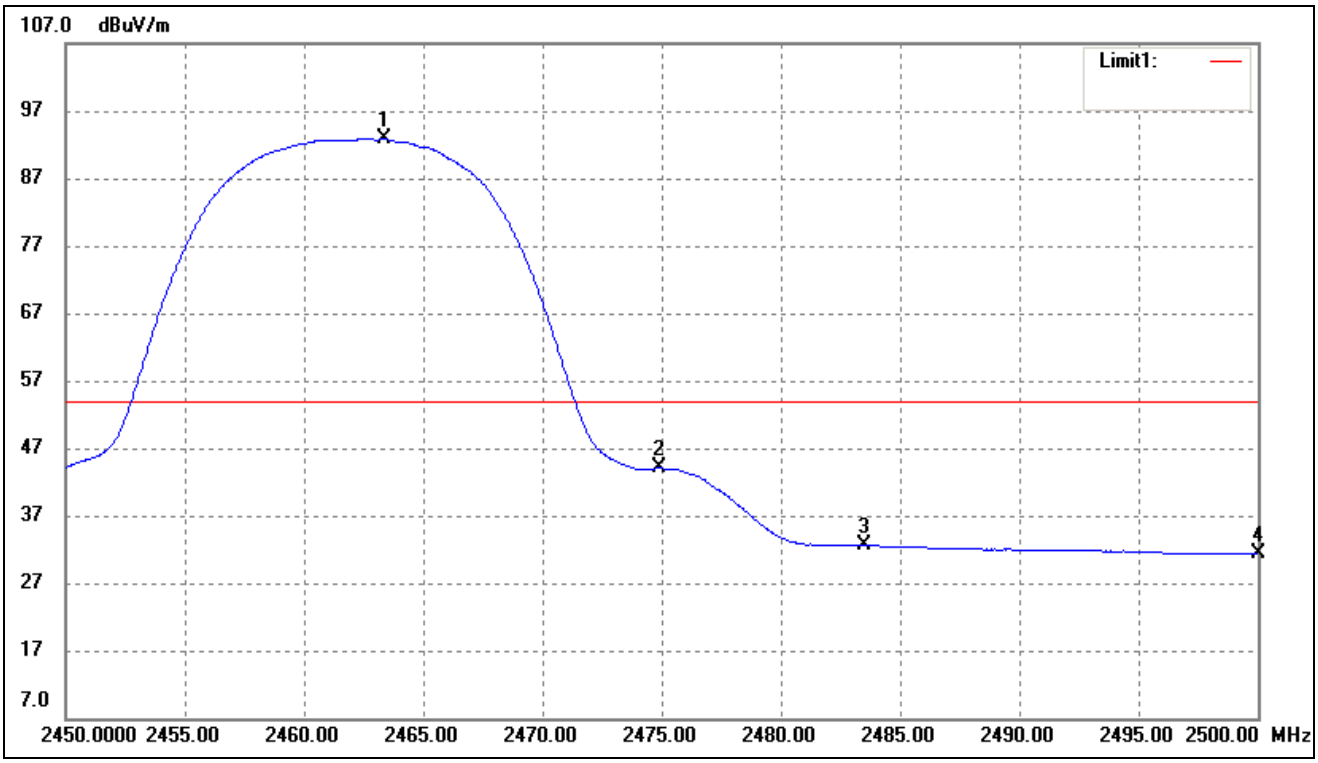
Vertical (Worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.000	32.00	-3.71	28.29	54.00	-25.71	Average Detector
	2310.000	44.68	-3.71	40.97	74.00	-33.03	Peak Detector
2	2390.000	37.01	-3.54	33.47	54.00	-20.53	Average Detector
	2390.000	49.35	-3.54	45.81	74.00	-28.19	Peak Detector
3	2398.900	52.85	-3.51	49.34	54.00	-4.66	Average Detector
	2398.900	62.87	-3.51	59.36	74.00	-14.64	Peak Detector
4	2400.000	52.32	-3.51	48.81	Delta =45.04dBc		Average Detector
5	2410.660	97.33	-3.48	93.85			Average Detector

802.11b-Highest Bandedge

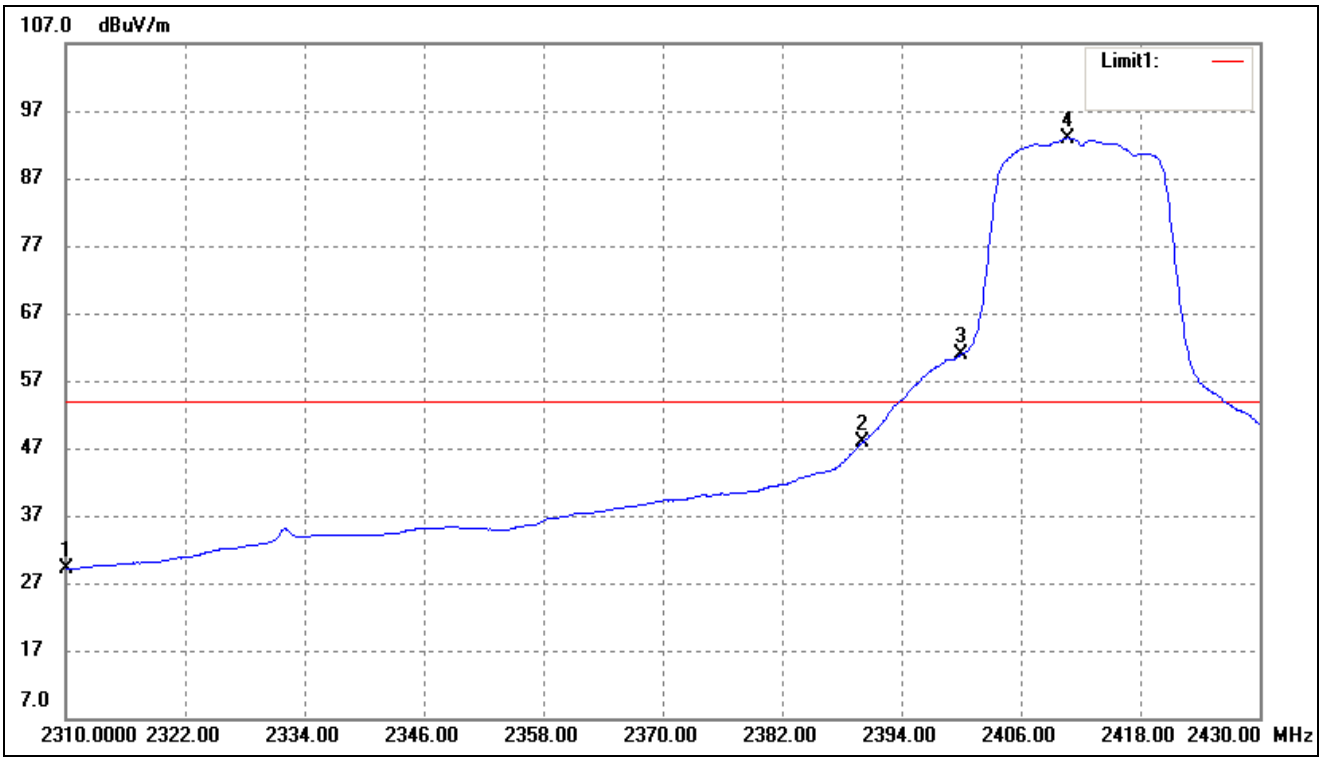
Vertical (Worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	
1	2463.350	96.21	-3.36	92.85	/	/	Average Detector
	2463.300	104.80	-3.36	101.44	/	/	Peak Detector
2	2474.900	47.38	-3.33	44.05	54.00	-9.95	Average Detector
	2474.800	58.85	-3.33	55.52	74.00	-18.48	Peak Detector
3	2483.500	35.96	-3.33	32.63	54.00	-21.37	Average Detector
	2483.500	47.98	-3.33	44.65	74.00	-29.35	Peak Detector
4	2500.000	34.61	-3.28	31.33	54.00	-22.67	Average Detector
	2500.000	46.84	-3.28	43.56	74.00	-30.44	Peak Detector

802.11g-Lowest Bandedge

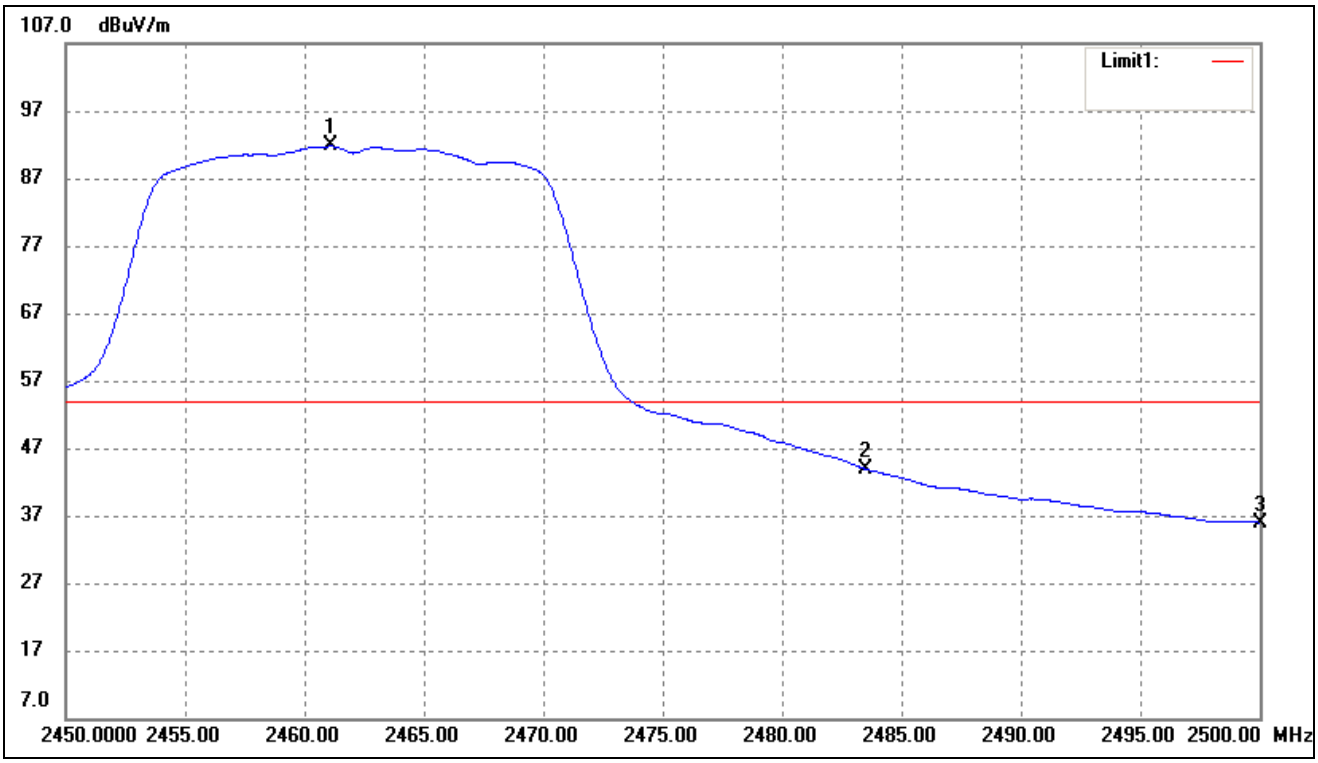
Vertical (Worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.000	32.78	-3.71	29.07	54.00	-24.93	Average Detector
	2310.000	45.98	-3.71	42.27	74.00	-31.73	Peak Detector
2	2390.000	51.37	-3.54	47.83	54.00	-6.17	Average Detector
	2390.000	69.12	-3.54	65.58	74.00	-8.42	Peak Detector
3	2400.000	64.41	-3.51	60.90	Delta =33.10dBc		Average Detector
4	2410.680	96.48	-3.48	93.00			Average Detector

802.11g-Highest Bandedge

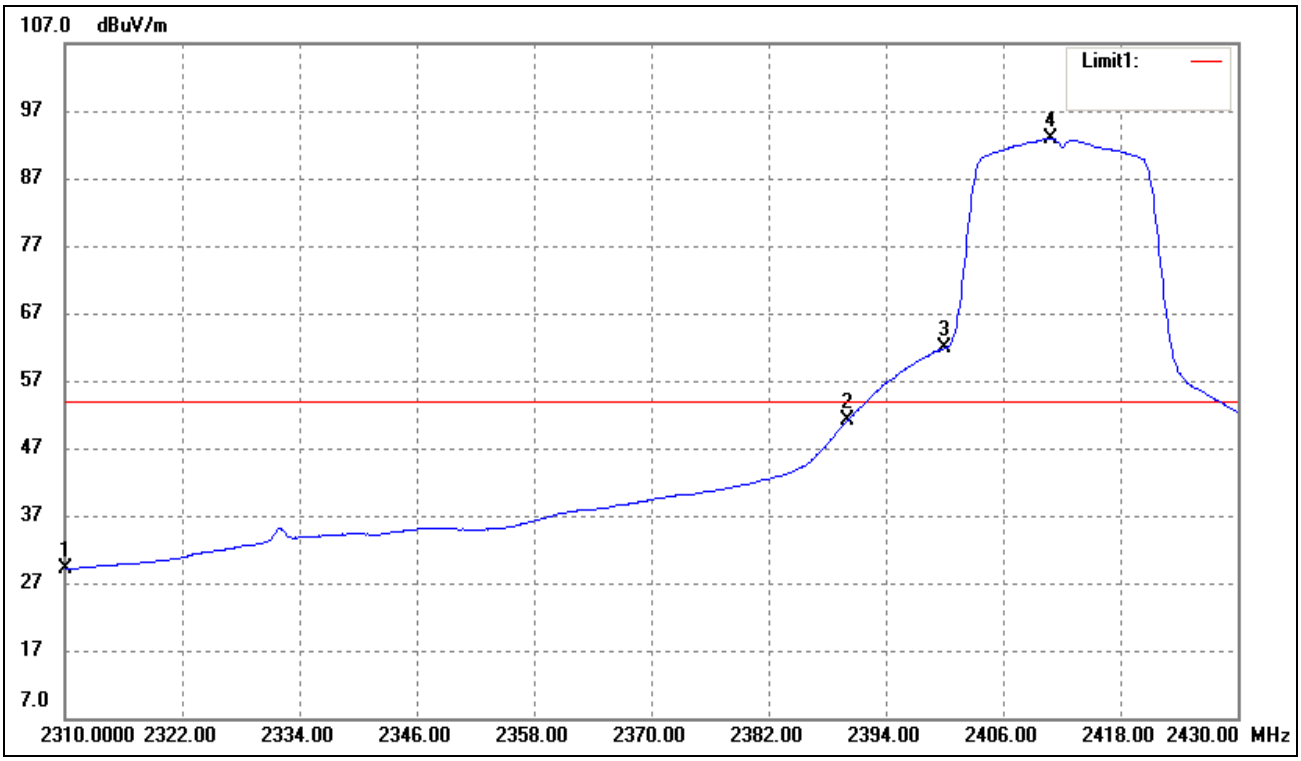
Vertical (Worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2461.100	95.13	-3.37	91.76	/	/	Average Detector
	2463.750	107.16	-3.36	103.80	/	/	Peak Detector
2	2483.500	47.27	-3.33	43.94	54.00	-10.06	Average Detector
	2483.500	68.14	-3.33	64.81	74.00	-9.19	Peak Detector
3	2500.000	39.25	-3.28	35.97	54.00	-18.03	Average Detector
	2500.000	53.89	-3.28	50.61	74.00	-23.39	Peak Detector

802.11n-HT20-Lowest Bandedge

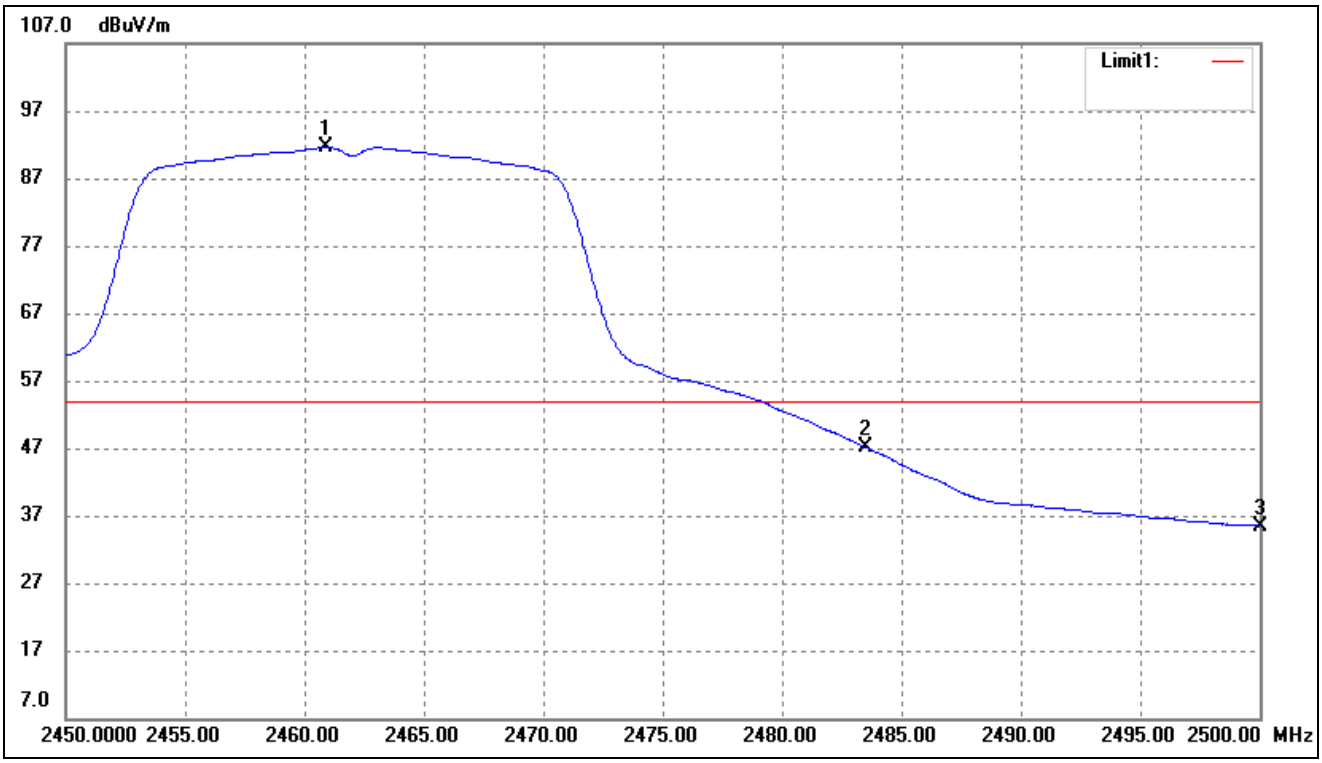
Vertical (Worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.000	32.76	-3.71	29.05	54.00	-24.95	Average Detector
	2310.000	45.71	-3.71	42.00	74.00	-32.00	Peak Detector
2	2390.000	54.55	-3.54	51.01	54.00	-2.99	Average Detector
	2390.000	72.98	-3.54	69.44	74.00	-4.56	Peak Detector
3	2400.000	65.28	-3.51	61.77	Delta =31.22dBc		Average Detector
4	2410.800	96.47	-3.48	92.99			Average Detector

802.11n-HT20-Highest Bandedge

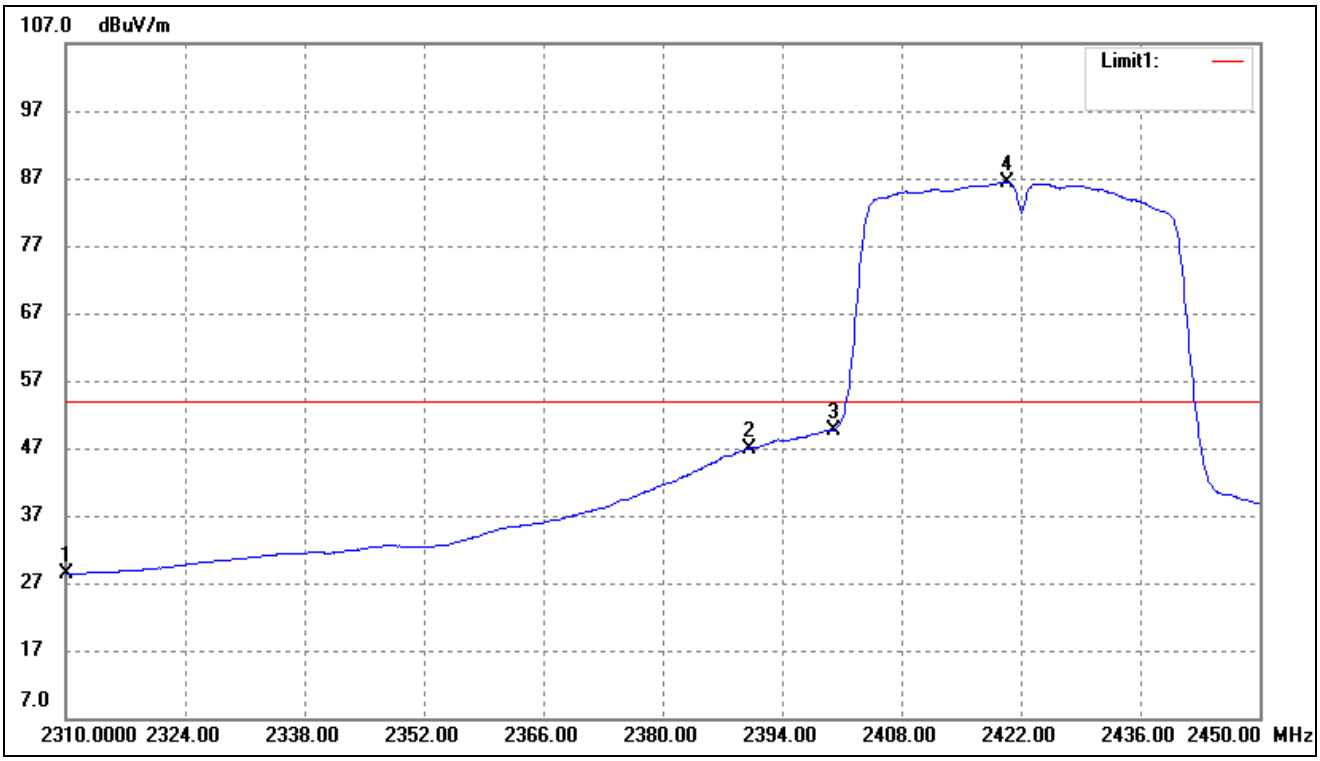
Vertical (Worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2460.900	94.97	-3.37	91.60	/	/	Average Detector
	2461.400	106.90	-3.37	103.53	/	/	Peak Detector
2	2483.500	50.40	-3.33	47.07	54.00	-6.93	Average Detector
	2483.500	68.86	-3.33	65.53	74.00	-8.47	Peak Detector
3	2500.000	38.74	-3.28	35.46	54.00	-18.54	Average Detector
	2500.000	51.67	-3.28	48.39	74.00	-25.61	Peak Detector

802.11n-HT40-Lowest Bandedge

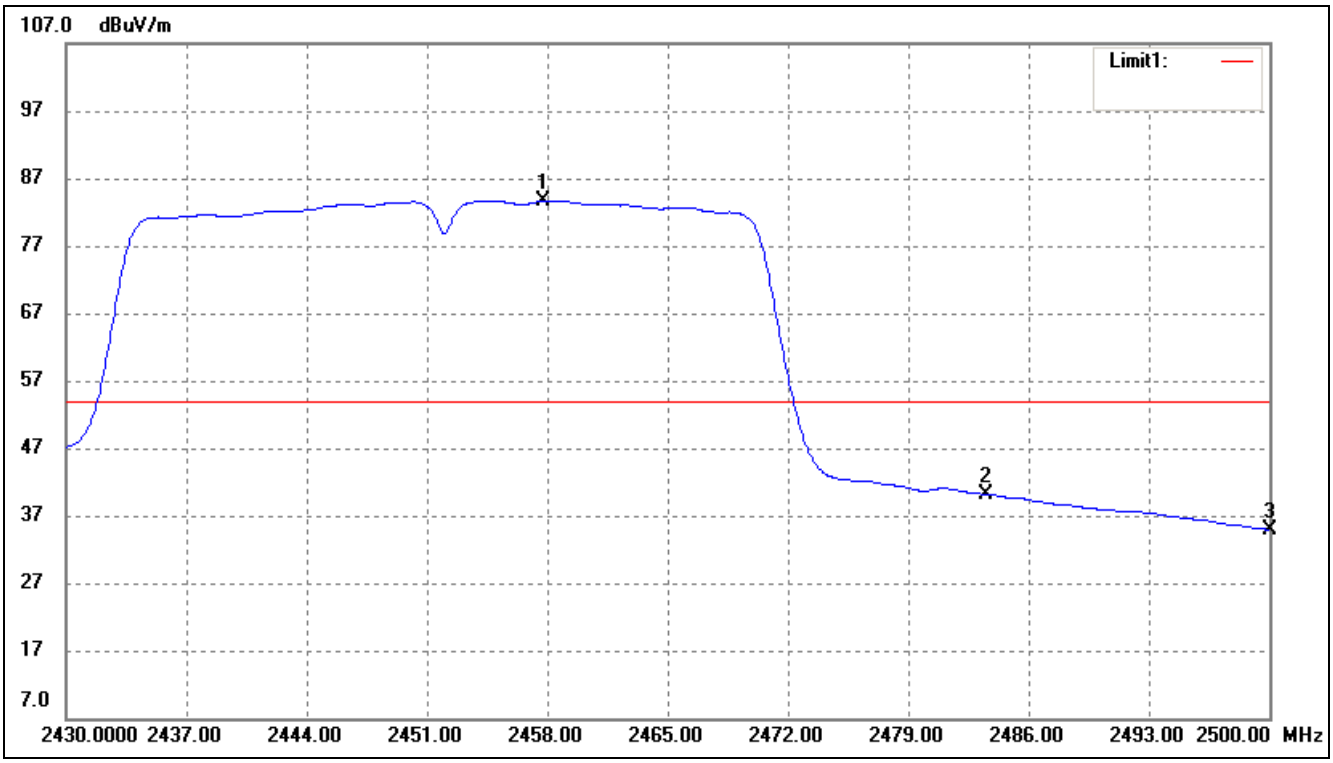
Vertical (Worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.000	31.98	-3.71	28.27	54.00	-25.73	Average Detector
	2310.000	44.31	-3.71	40.60	74.00	-33.40	Peak Detector
2	2390.000	50.54	-3.54	47.00	54.00	-7.00	Average Detector
	2390.000	65.03	-3.54	61.49	74.00	-12.51	Peak Detector
3	2400.000	53.25	-3.51	49.74	Delta =36.74dBc		Average Detector
4	2420.320	89.94	-3.46	86.48			Average Detector

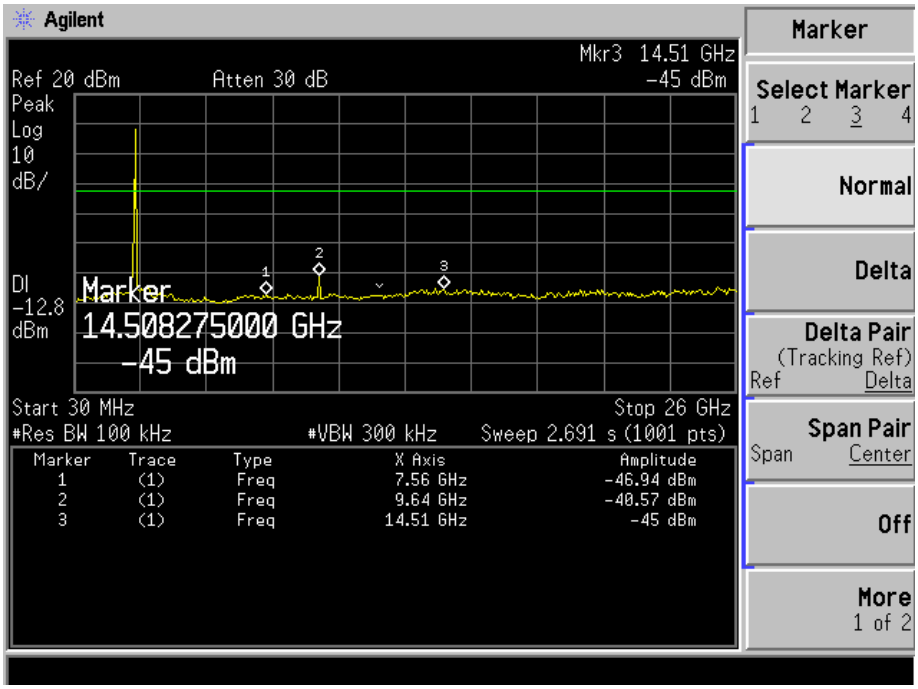
802.11n-HT40-Highest Bandedge

Vertical (Worst case)

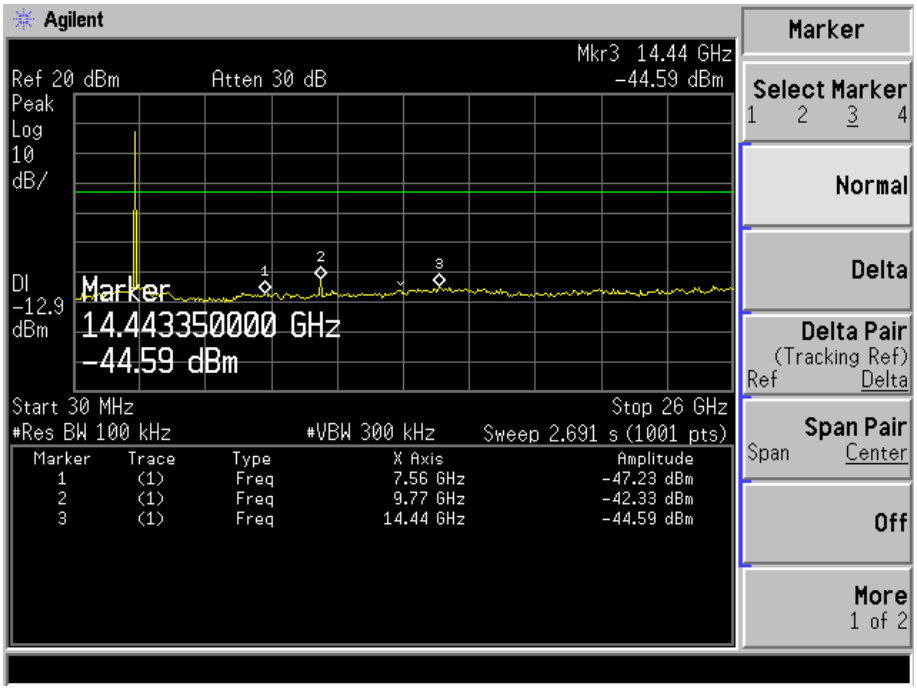


No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2457.790	87.06	-3.38	83.68	/	/	Average Detector
	2454.990	99.24	-3.38	95.86	/	/	Peak Detector
2	2483.500	43.53	-3.33	40.20	54.00	-13.80	Average Detector
	2483.500	62.09	-3.33	58.76	74.00	-15.24	Peak Detector
3	2500.000	38.23	-3.28	34.95	54.00	-19.05	Average Detector
	2500.000	54.09	-3.28	50.81	74.00	-23.19	Peak Detector

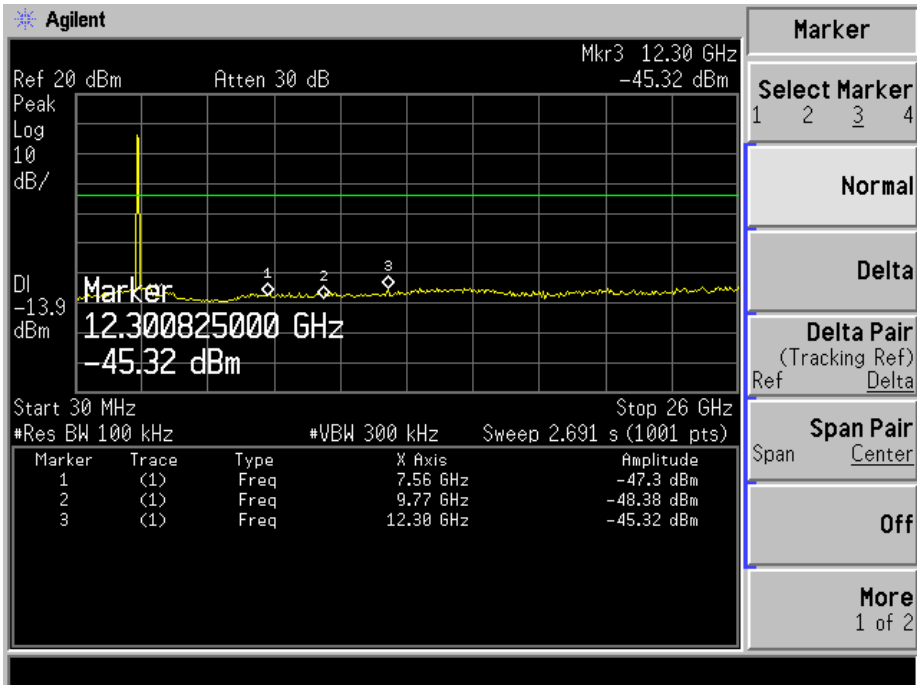
802.11b Bandedge (Conducted)
Low Channel



Middle Channel

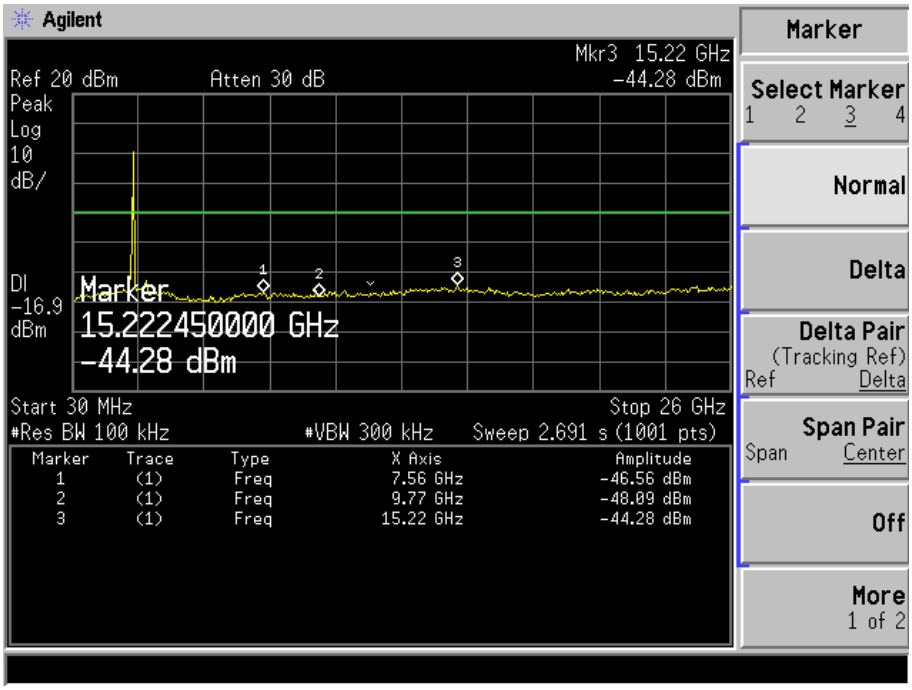


High Channel

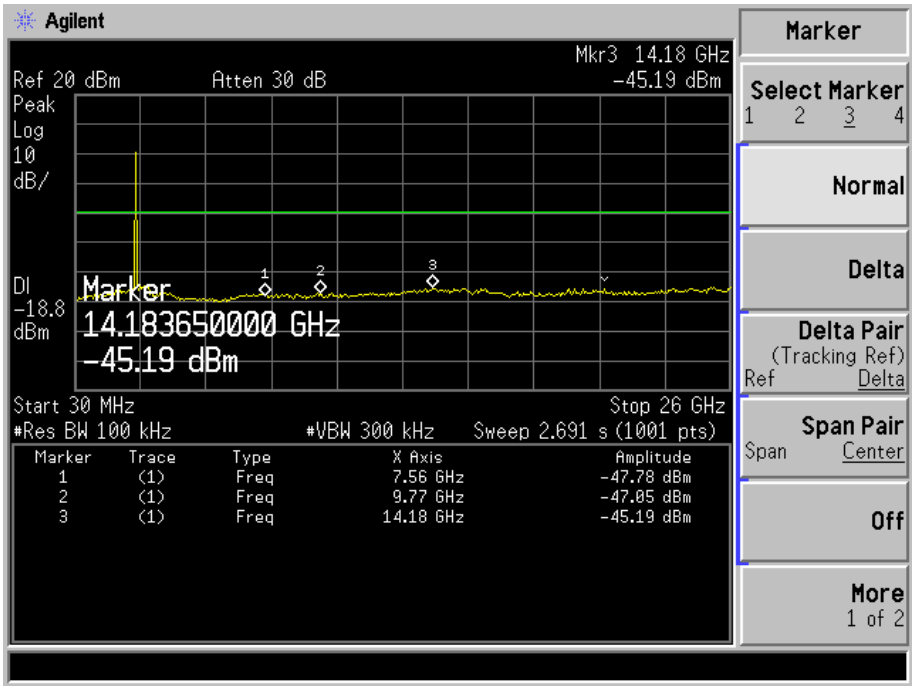


802.11g Bandedge (Conducted)

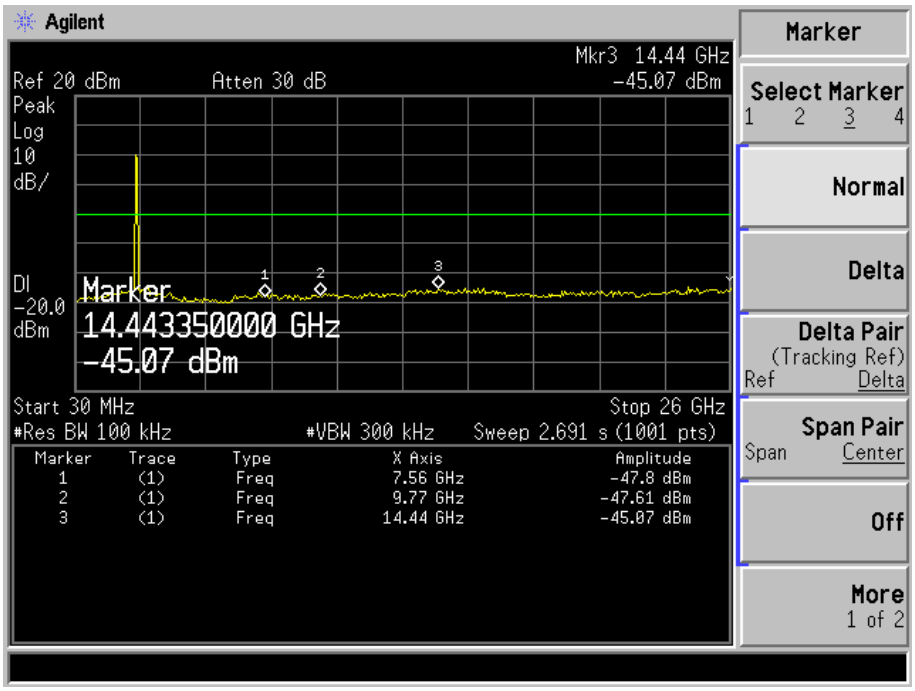
Low Channel



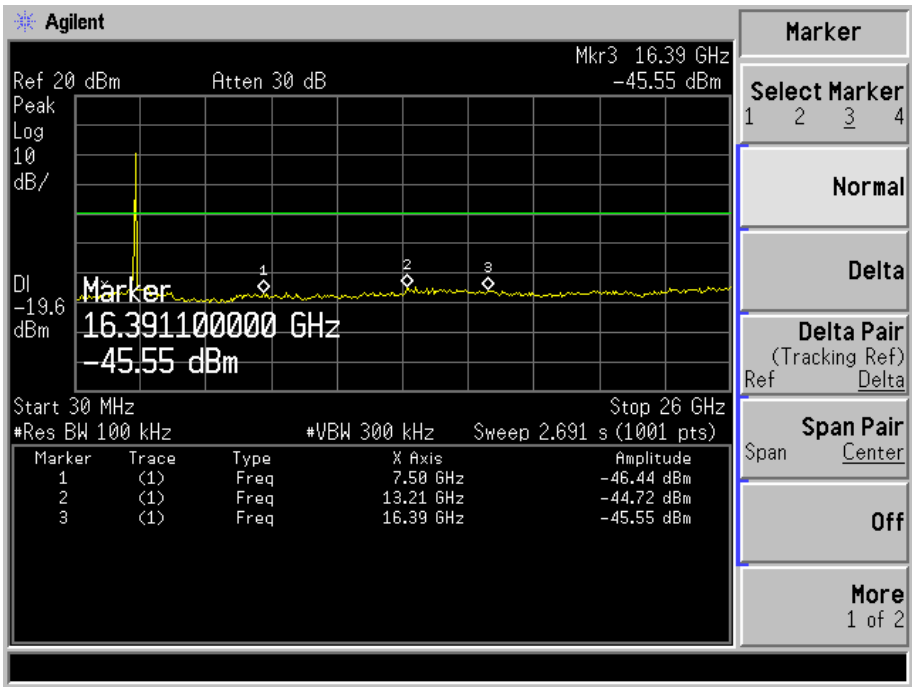
Middle Channel



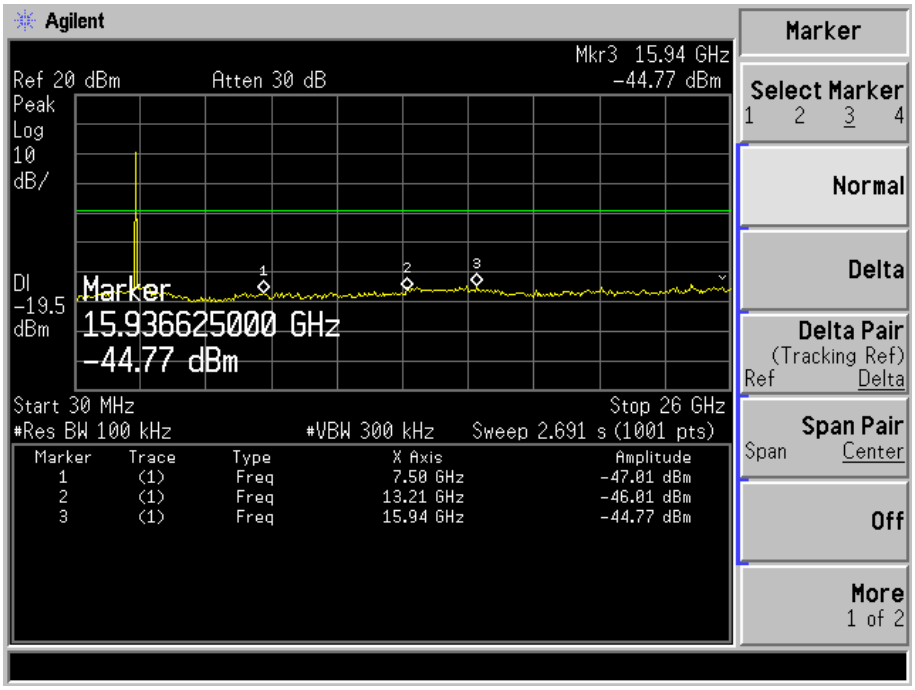
High Channel



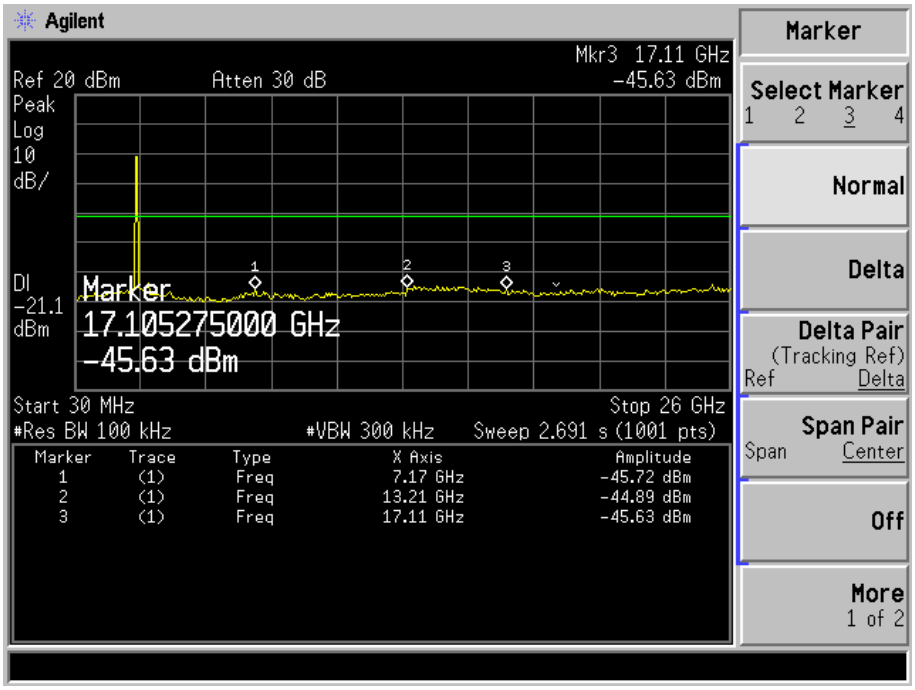
802.11n-HT20 Bandedge (Conducted)
Low Channel



Middle Channel

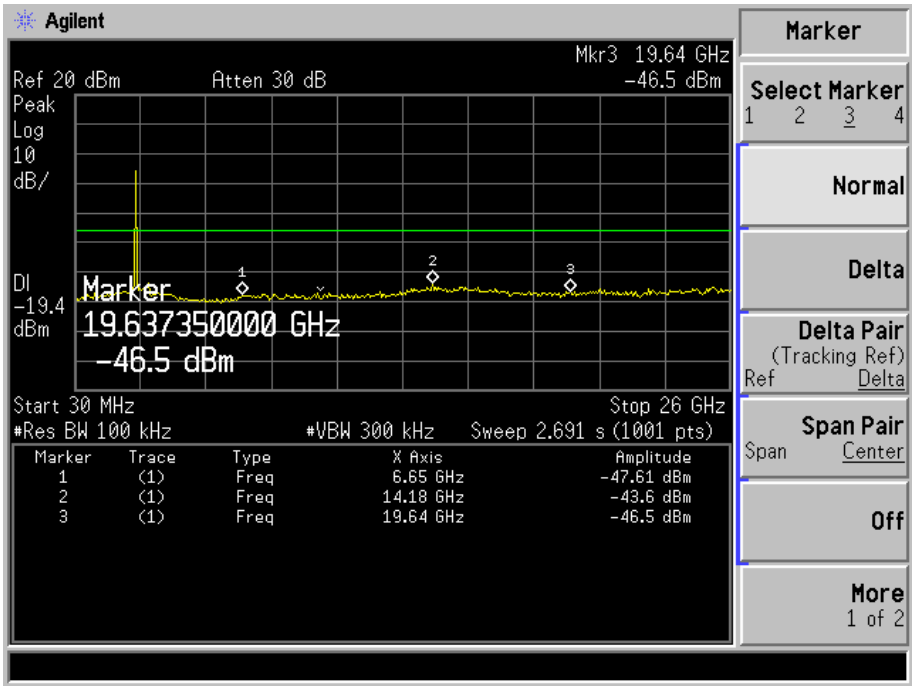


High Channel

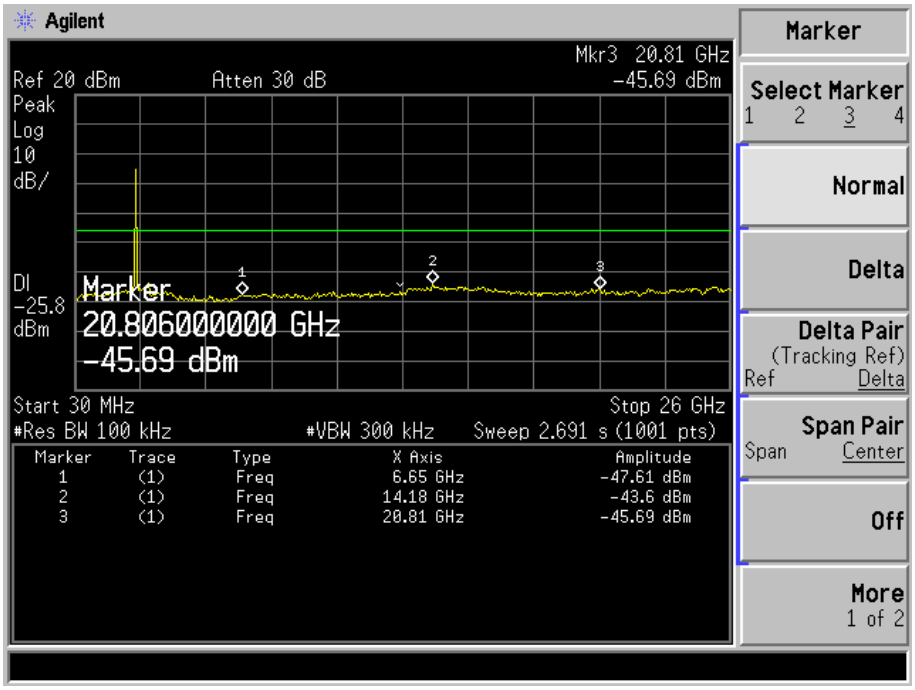


802.11n-HT40 Bandedge (Conducted)

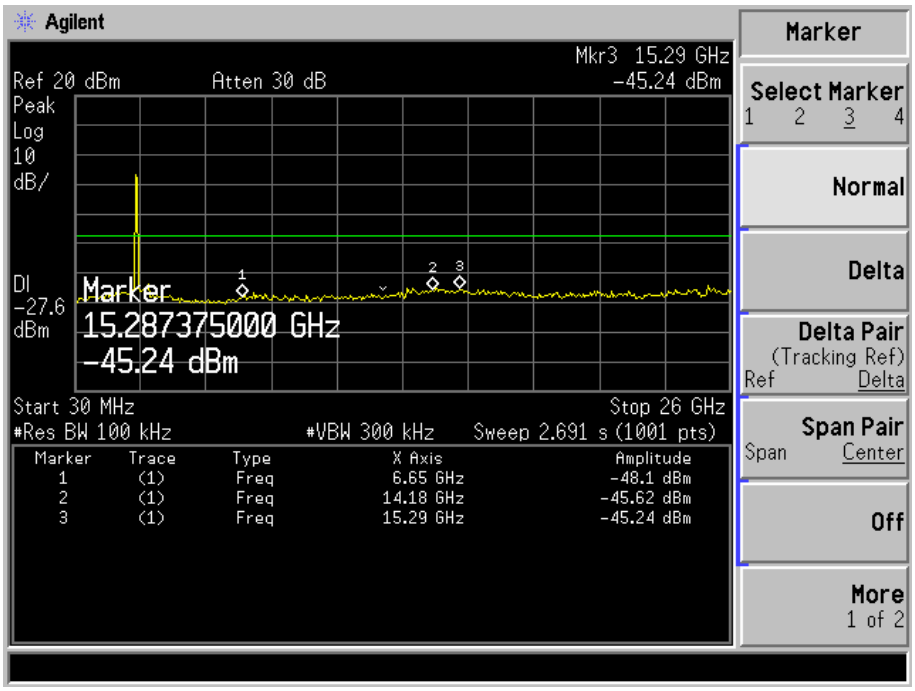
Low Channel



Middle Channel



High Channel



10. Conducted Emissions

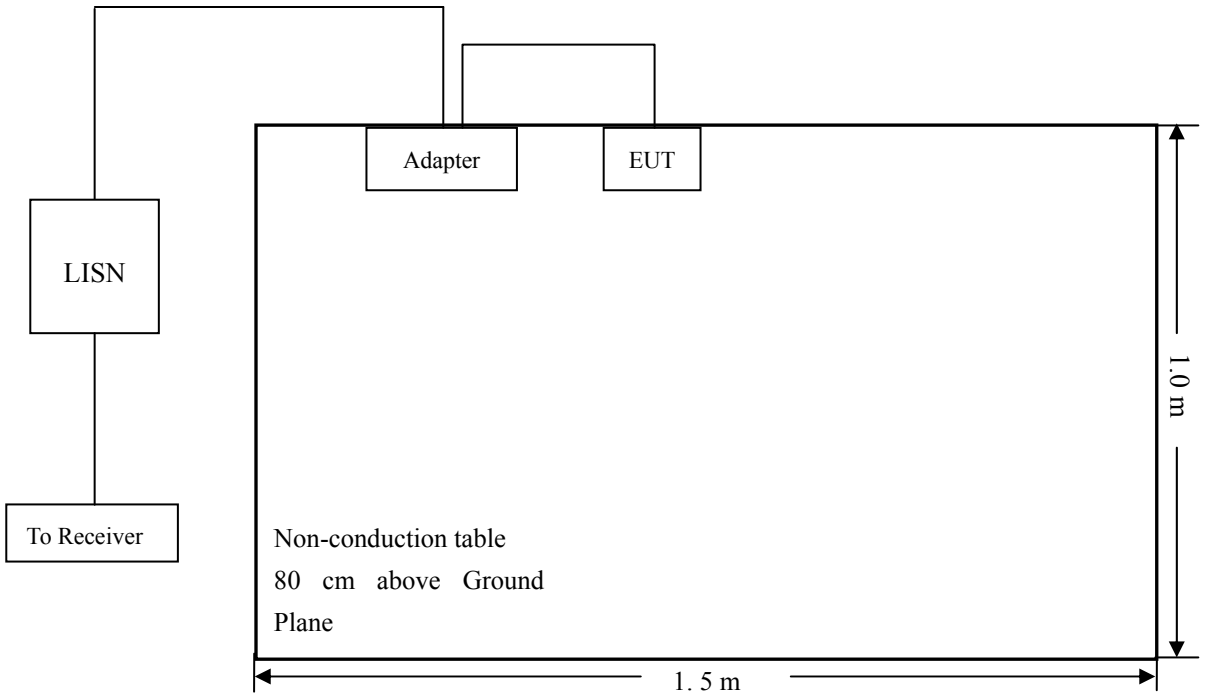
10.1 Measurement Uncertainty

Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement is ± 2.88 dB.

10.2 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.

10.3 Basic Test Setup Block Diagram



10.4 Environmental Conditions

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

10.5 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

10.6 Summary of Test Results/Plots

According to the data in section 10.7, the EUT complied with the FCC Part 15.207 Conducted margin for this device, with the *worst* margin reading of:

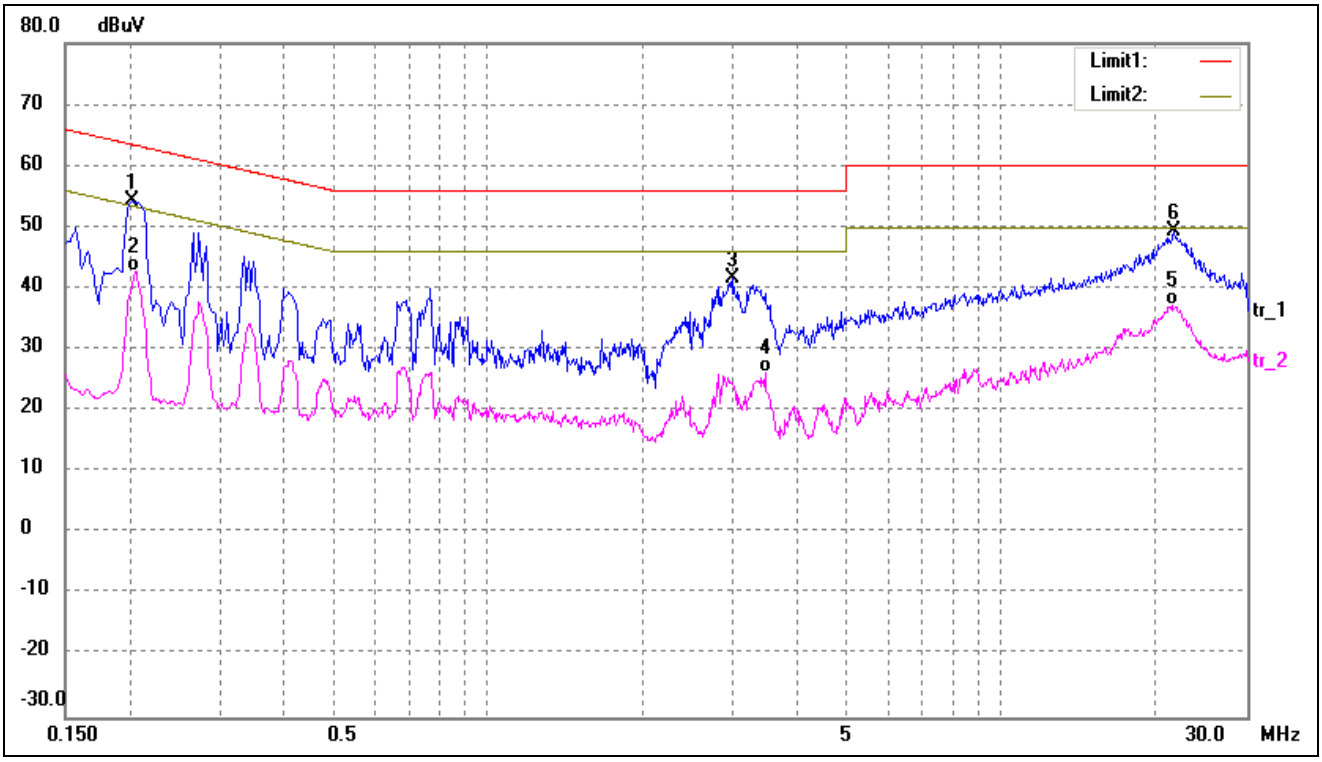
-9.27 dB at **0.2020 MHz** in the **Neutral, Peak** detector, 0.15-30MHz

10.7 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

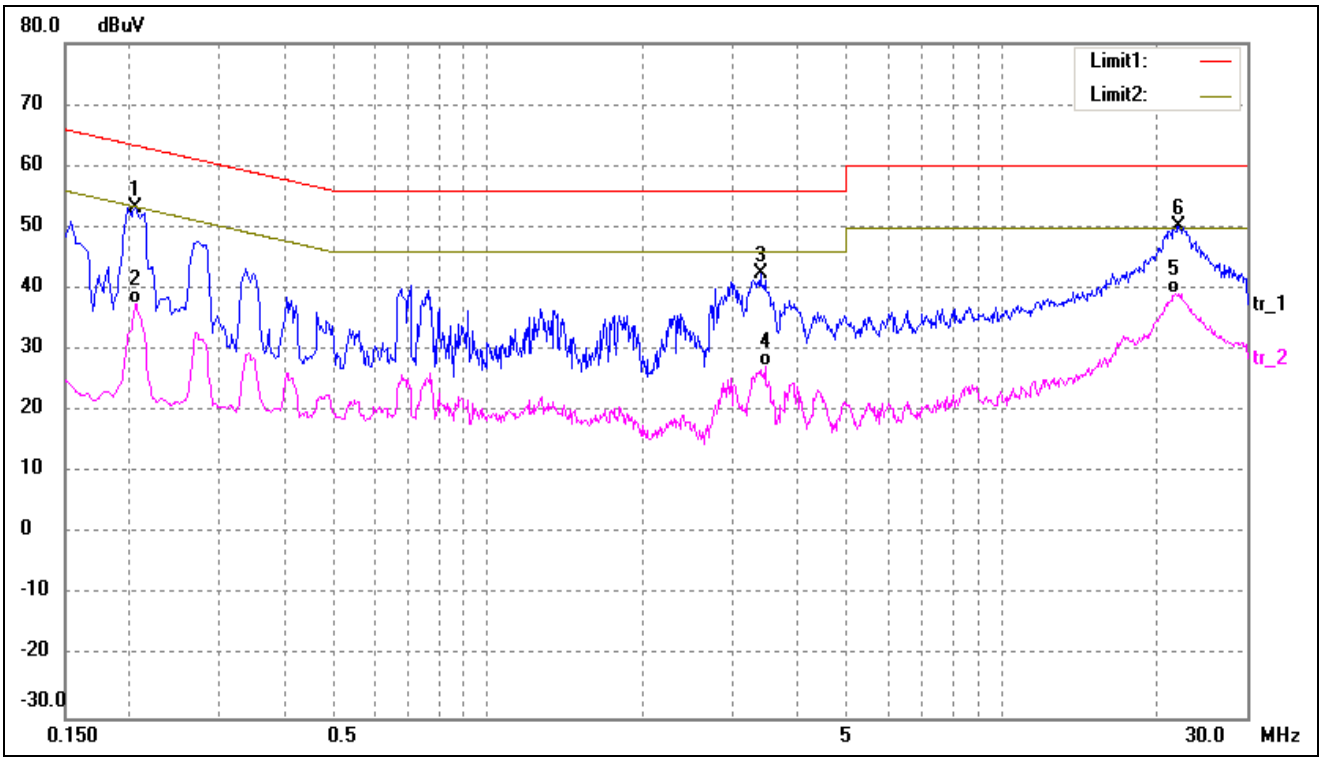
EUT: *Smart Phone*
Tested Model: *Entel E5*
Operating Condition: *(WIFI)Transmitting*
Comment: *AC 120V/60Hz; Adapter DC 5V*

Test Specification: *Neutral*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1*	0.2020	44.76	9.50	54.26	63.53	-9.27	peak
2	0.2060	33.27	9.50	42.77	53.37	-10.60	AVG
3	2.9980	31.51	10.00	41.51	56.00	-14.49	peak
4	3.4540	16.21	10.00	26.21	46.00	-19.79	AVG
5	21.5580	25.17	12.00	37.17	50.00	-12.83	AVG
6	21.7100	37.38	12.00	49.38	60.00	-10.62	peak

Test Specification: *Line*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.2060	43.73	9.50	53.23	63.37	-10.14	peak
2	0.2060	27.94	9.50	37.44	53.37	-15.93	AVG
3	3.3860	32.38	10.00	42.38	56.00	-13.62	peak
4	3.4620	17.43	10.00	27.43	46.00	-18.57	AVG
5	21.7980	27.26	12.00	39.26	50.00	-10.74	AVG
6*	22.0660	38.11	12.02	50.13	60.00	-9.87	peak

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