

FCC Part 15C Measurement and Test Report

For

ELECTRONICS TECHNOLOGY(DONG GUAN) COMPANY LIMITED

No. 161, Xin Min Road, Tong Luo Wei Industrial Zone, Dong Guan

City, China

FCC ID: ZL9-M87GB2

FCC Rule(s): FCC Part 15C

Product Description: Tablet

Tested Model: M87GB2-P(W)

Report No.: STR14128178I-3

Tested Date: 2014-12-18 to 2014-12-29

Issued Date: 2014-12-29

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Note: This test report is limited to the above client company and the product model only. It may not be duplicated without prior permitted by Shenzhen SEM.Test Technology Co., Ltd.

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: ELECTRONICS TECHNOLOGY(DONG GUAN)
COMPANY LIMITED

Address of applicant: No. 161, Xin Min Road, Tong Luo Wei Industrial
Zone, Dong Guan City, China

Manufacturer: ELECTRONICS TECHNOLOGY(DONG GUAN)
COMPANY LIMITED

Address of manufacturer: No. 161, Xin Min Road, Tong Luo Wei Industrial
Zone, Dong Guan City, China

General Description of EUT	
Product Name:	Tablet
Trade Name:	/
Model No.:	M87GB2-P(W)
Adding Model(s):	PAD841W
Rated Voltage:	Battery DC 3.7V, Adapter DC 5V/2A Charging
Battery:	3900mAh
Power Adapter Model:	PGAE0500200U1UL
<i>Note: The test data is gathered from a production sample provided by the manufacturer. The appearance of others models listed in the report is different from main-test model M87GB2-P(W), but the circuit and the electronic construction do not change, declared by the manufacturer.</i>	

Technical Characteristics of EUT	
Support Standards:	802.11b, 802.11g, 802.11n
Frequency Range:	2412-2462MHz, 2422-2452MHz
RF Output Power:	15.45dBm (Conducted)
Type of Modulation:	CCK, OFDM, QPSK, BPSK, 16QAM, 64QAM
Data Rate:	1-11Mbps, 6-54Mbps, up to 150Mbps
Quantity of Channels:	11 for 802.11b/g/n(HT20); 7 for 802.11n(HT40)
Channel Separation:	5MHz
Type of Antenna:	Integral
Antenna Gain:	2.0dBi
Lowest Internal Frequency	32.768KHz

1.2 Test Standards

The following report is prepared on behalf of the ELECTRONICS TECHNOLOGY(DONG GUAN) COMPANY LIMITED 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 C63.4-2003, 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 V03r02 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, 2442MHz, 2462MHz
TM2	802.11g	2412MHz, 2442MHz, 2462MHz
TM3	802.11n-HT20	2412MHz, 2442MHz, 2462MHz
TM4	802.11n-HT40	2422MHz, 2442MHz, 2452MHz

EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
USB Cable	0.8	Unshielded	Without Core

Special Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
USB OTG Cable	0.15	Shielded	Without Core
Earphone Cable	1.2	Unshielded	Without Core

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
TF Card	Kingston	4GB	/
U-Disk	SanDisk	2GB	/

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 Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	Agilent	E4402B	US41192821	2014-05-28	2015-05-27
Attenuator	ATTEN	ATS100-4-20	/	2014-05-28	2015-05-27

5.3 Test Procedure

According to the KDB 558074 D01 V03r02, 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:

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

5.4 Environmental Conditions

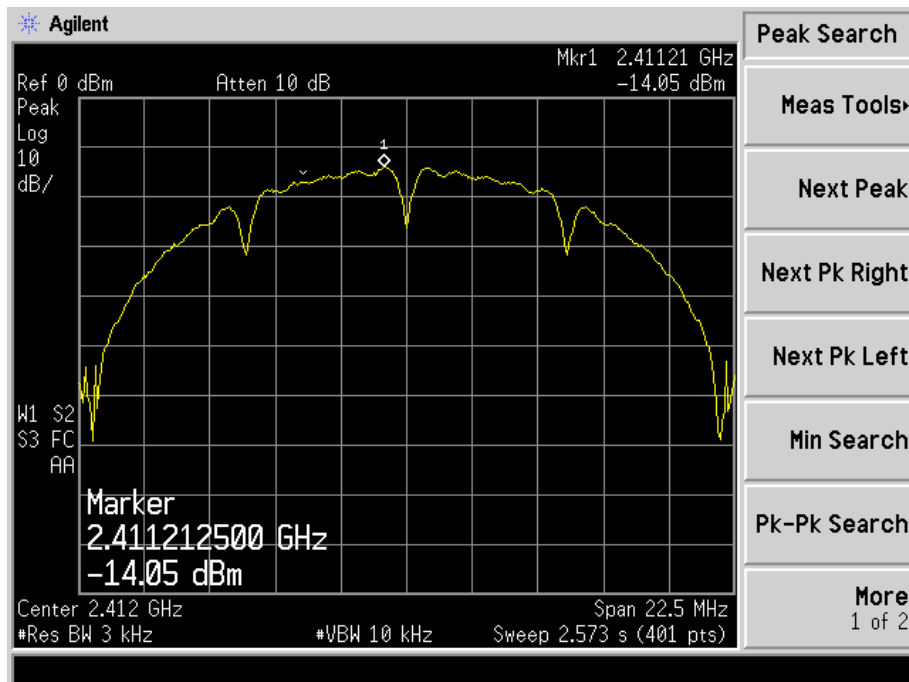
Temperature:	26° C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

5.5 Summary of Test Results/Plots

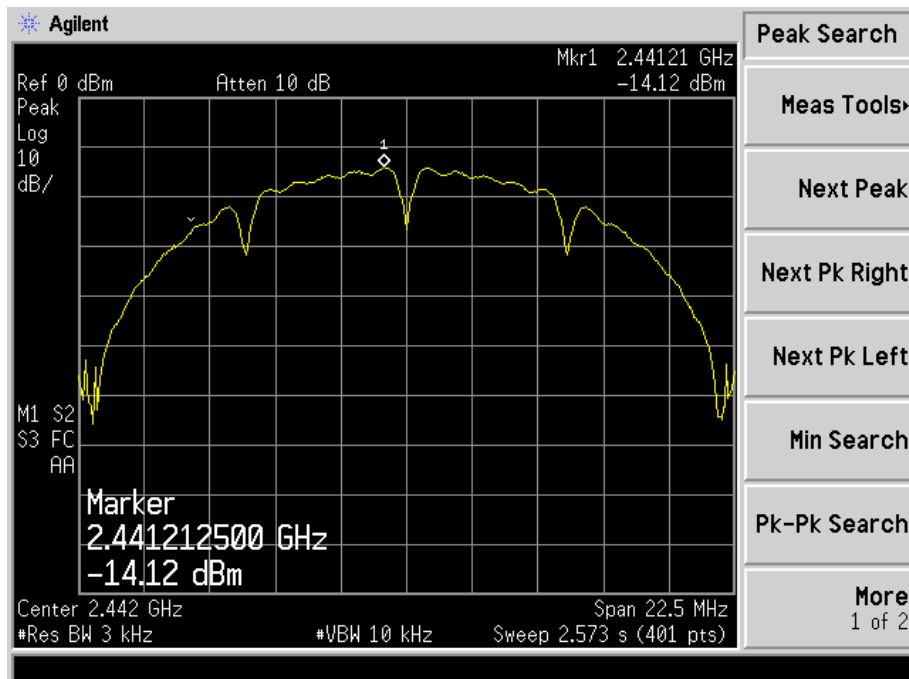
Test Mode	Test Channel MHz	Power Spectral Density dBm/3kHz	Limit dBm/3kHz
802.11b	2412	-14.05	8
	2442	-14.12	8
	2462	-14.08	8
802.11g	2412	-15.49	8
	2442	-15.40	8
	2462	-15.86	8
802.11n HT20	2412	-16.40	8
	2442	-16.58	8
	2462	-16.65	8
802.11n HT40	2422	-19.50	8
	2442	-19.71	8
	2452	-19.49	8

Please refer to the following test plots:

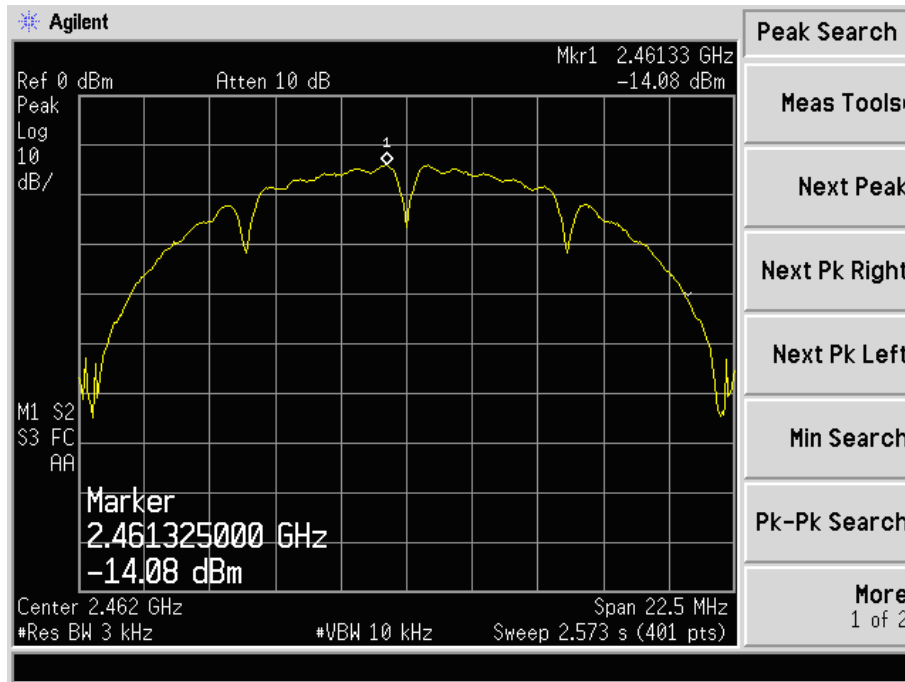
802.11b-Low Channel



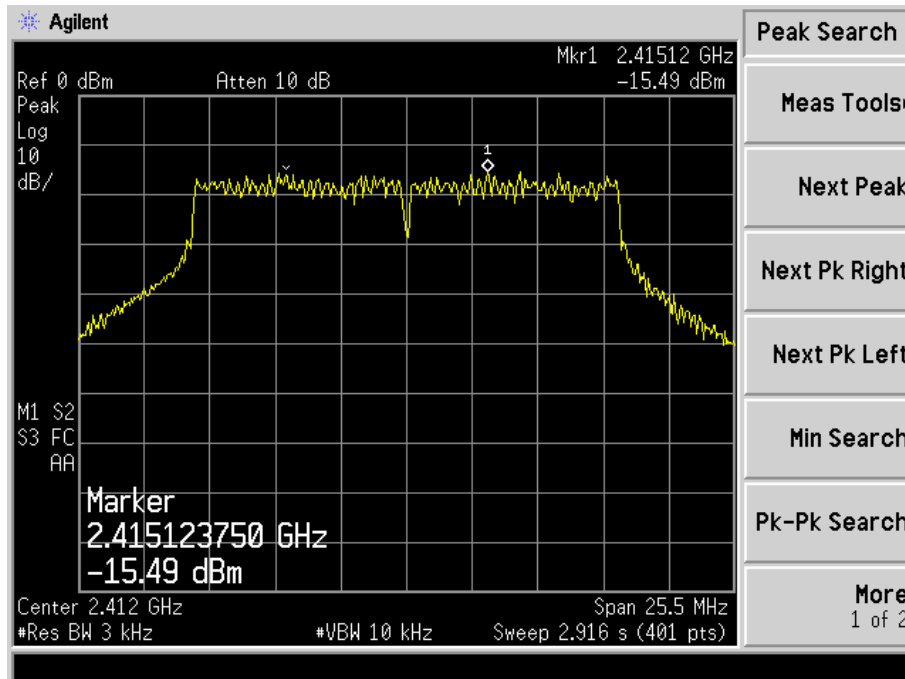
802.11b-Middle Channel



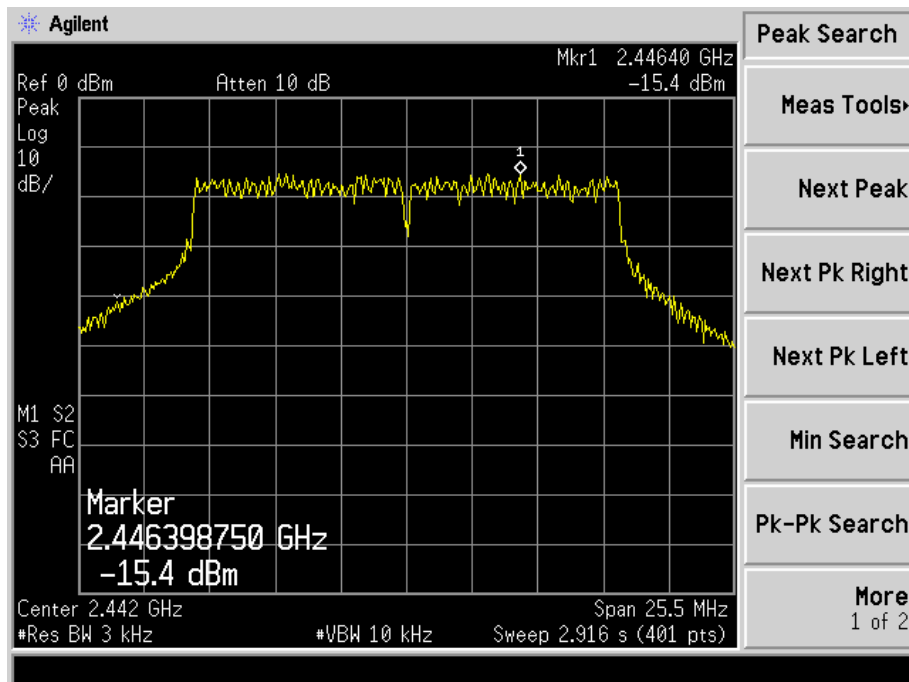
802.11b-High Channel



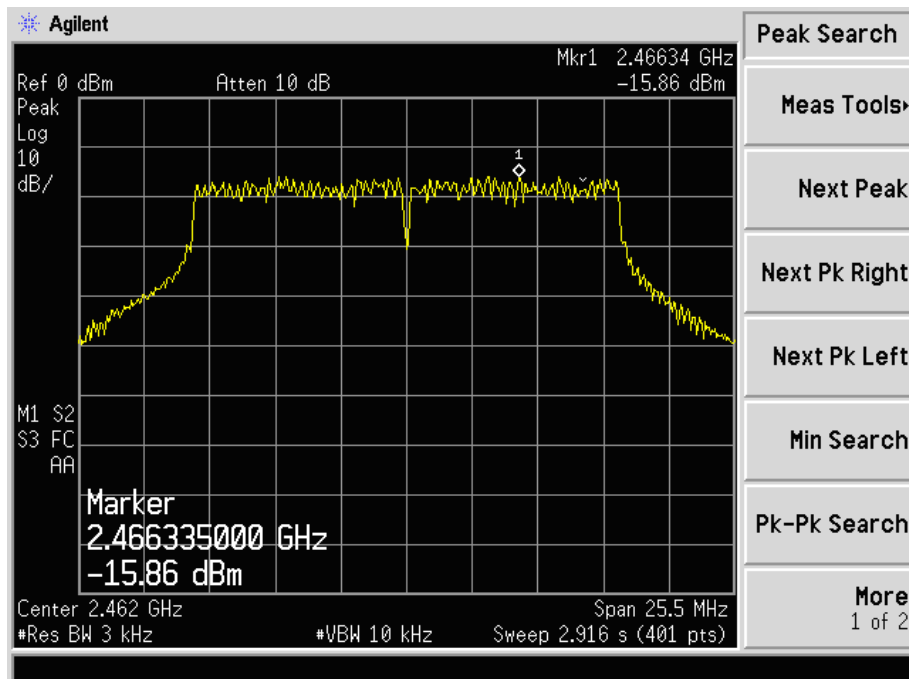
802.11g-Low Channel



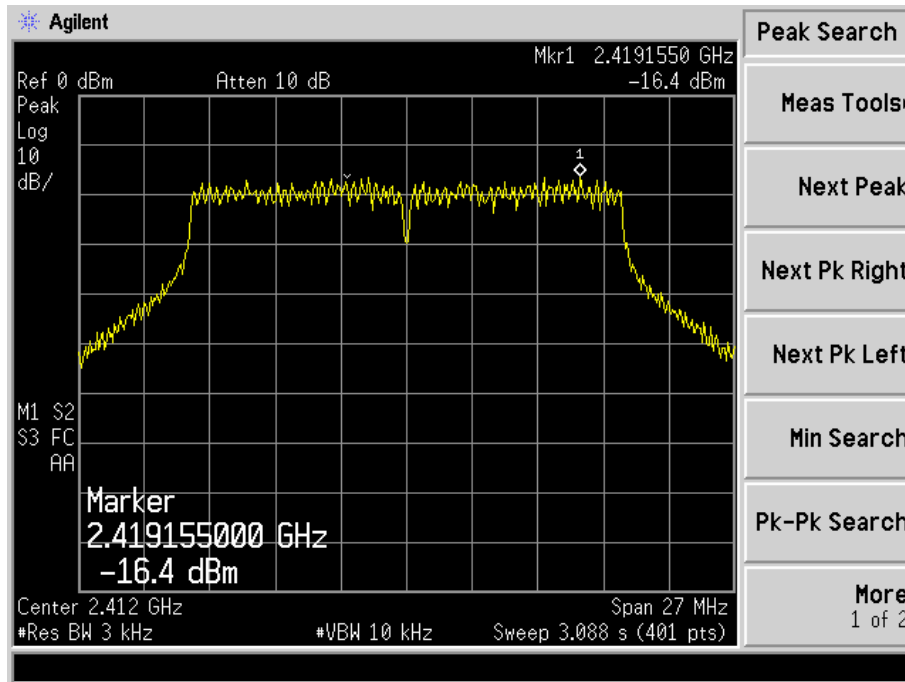
802.11g-Middle Channel



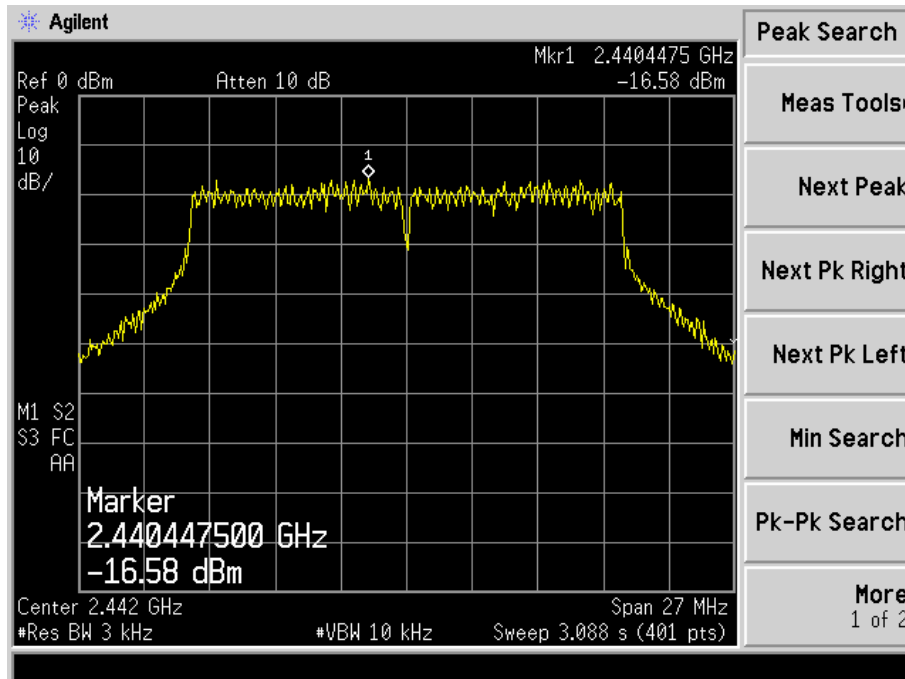
802.11g-High Channel



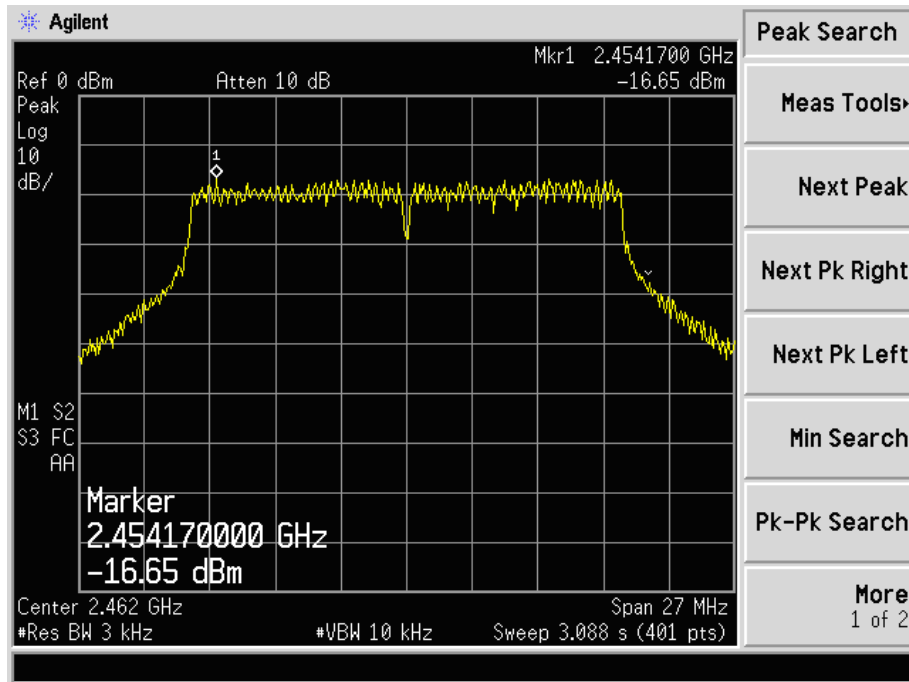
802.11n-HT20-Low Channel



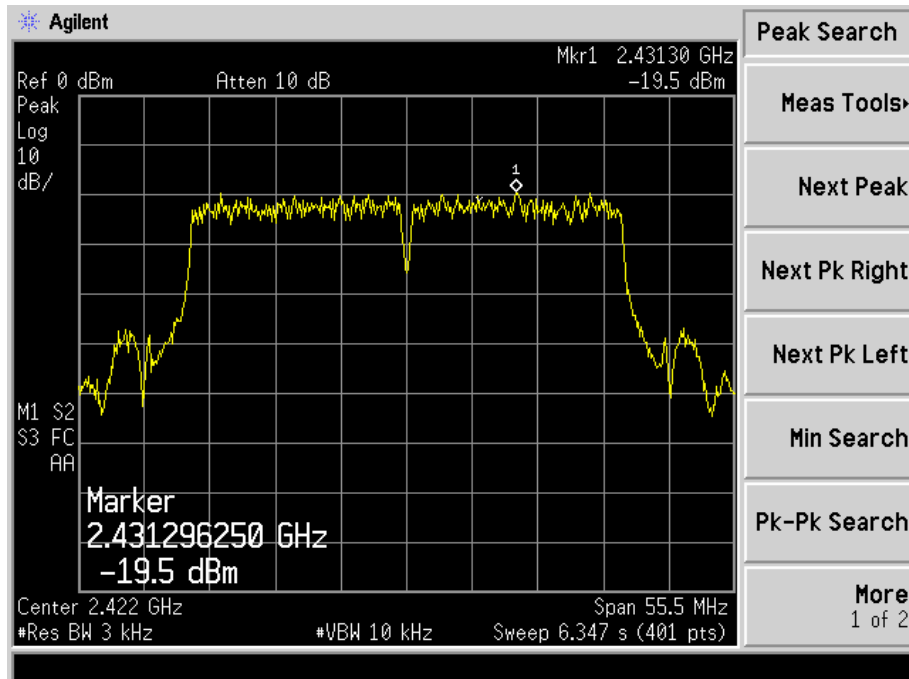
802.11n-HT20-Middle Channel



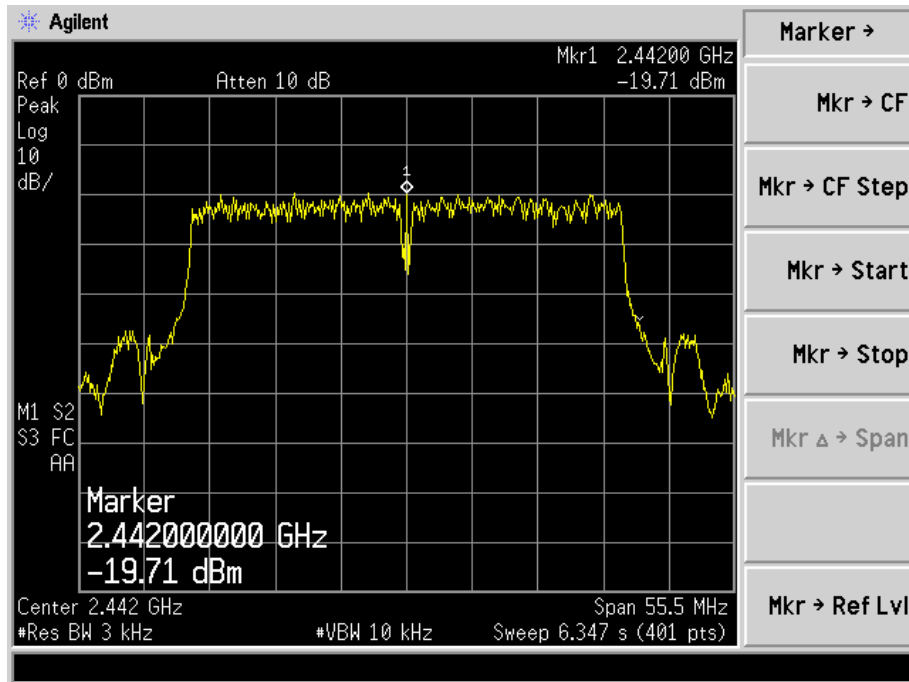
802.11n-HT20-High Channel



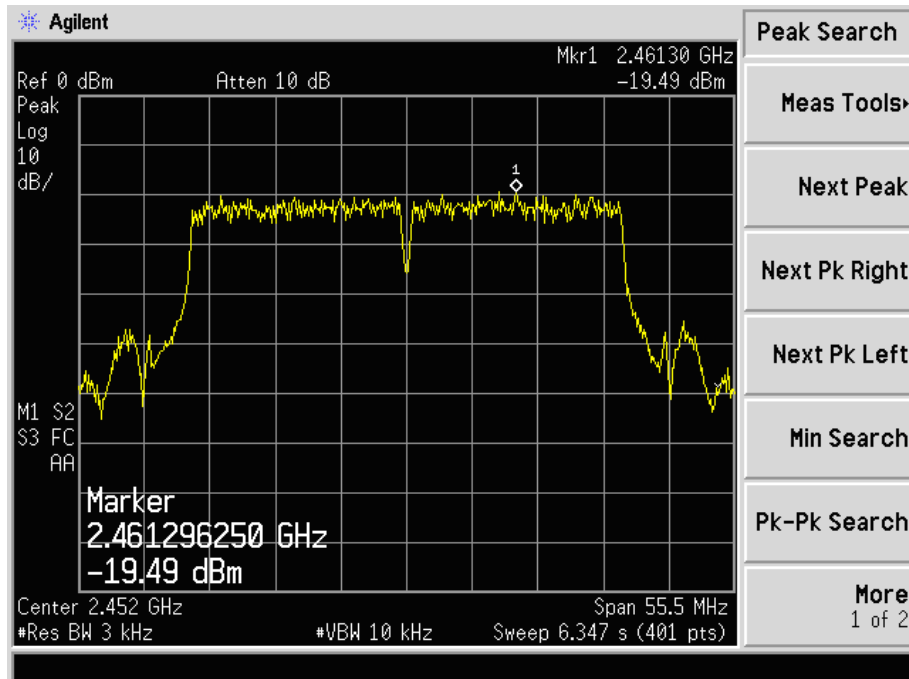
802.11n-HT40-Low Channel



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 Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	Agilent	E4402B	US41192821	2014-05-28	2015-05-27
Attenuator	ATTEN	ATS100-4-20	/	2014-05-28	2015-05-27

6.3 Test Procedure

- Set RBW = 100 kHz.
- Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
- Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- Allow the trace to stabilize.
- 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.

6.4 Environmental Conditions

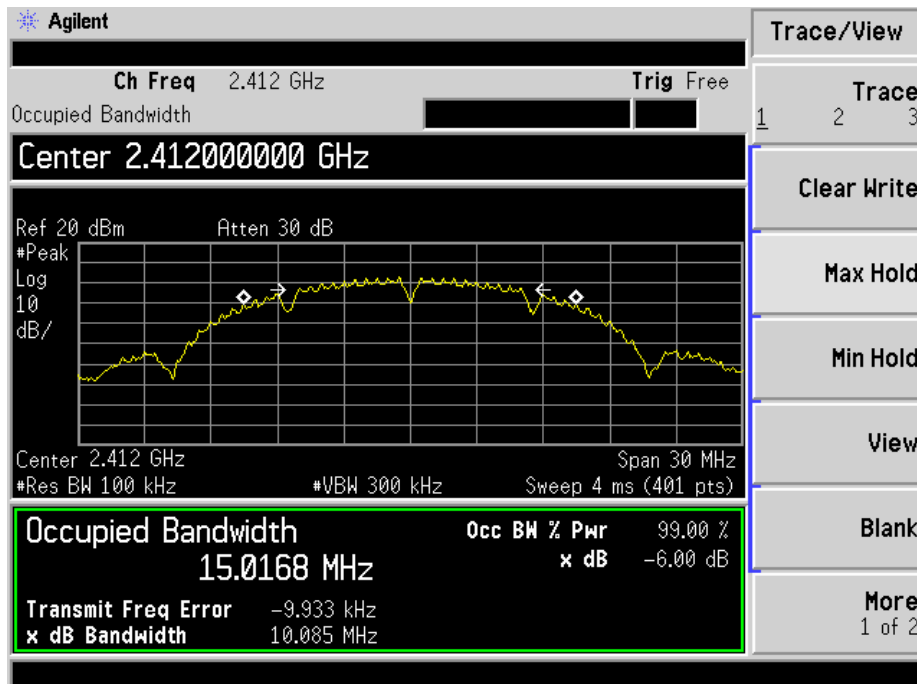
Temperature:	25° C
Relative Humidity:	53%
ATM Pressure:	1018 mbar

6.5 Summary of Test Results/Plots

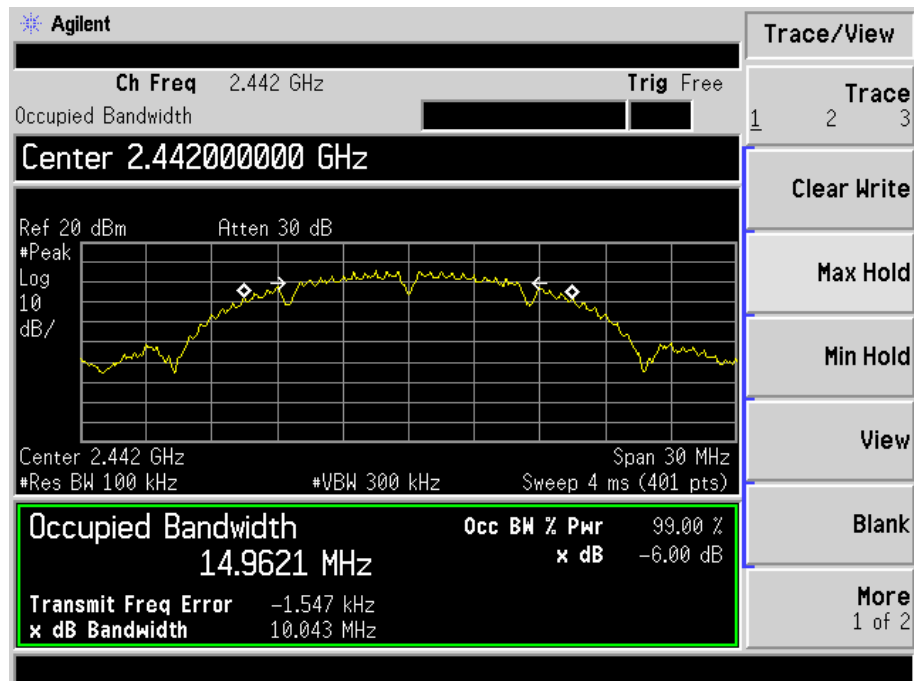
Test Mode	Test Channel MHz	6 dB Bandwidth kHz	99% Bandwidth kHz	Limit kHz
802.11b	2412	10085	15016.8	500
	2442	10043	14962.1	500
	2462	9996	14977.9	500
802.11g	2412	16573	16514.7	500
	2442	16578	16502.7	500
	2462	16558	16471.5	500
802.11n-HT20	2412	17836	17703.7	500
	2442	17807	17693.1	500
	2462	17821	17702.0	500
802.11n-HT40	2422	36486	36109.9	500
	2442	36531	36096.8	500
	2452	36538	36079.6	500

Please refer to the following test plots:

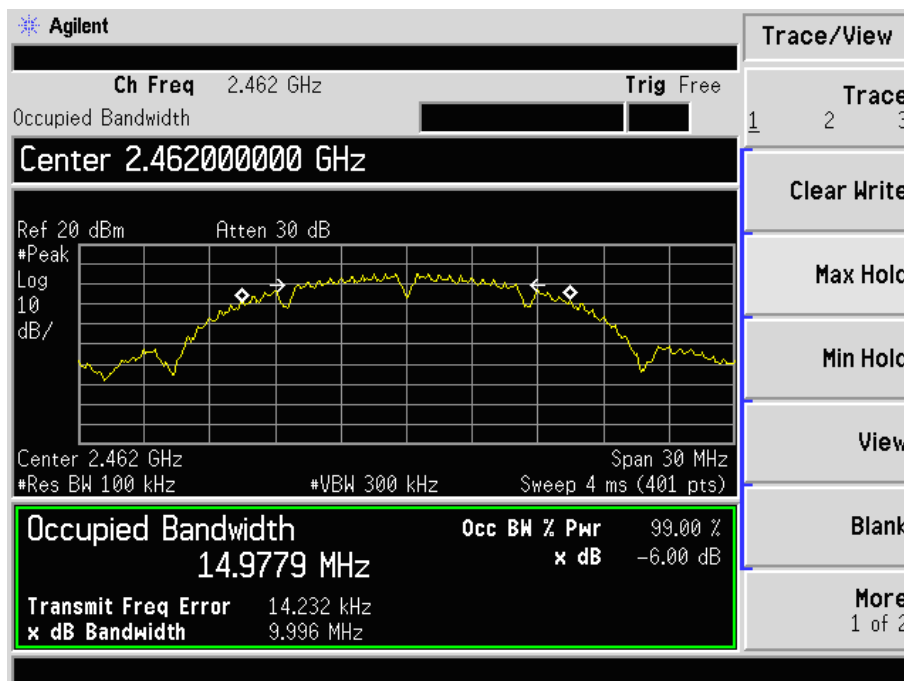
802.11b-Low Channel



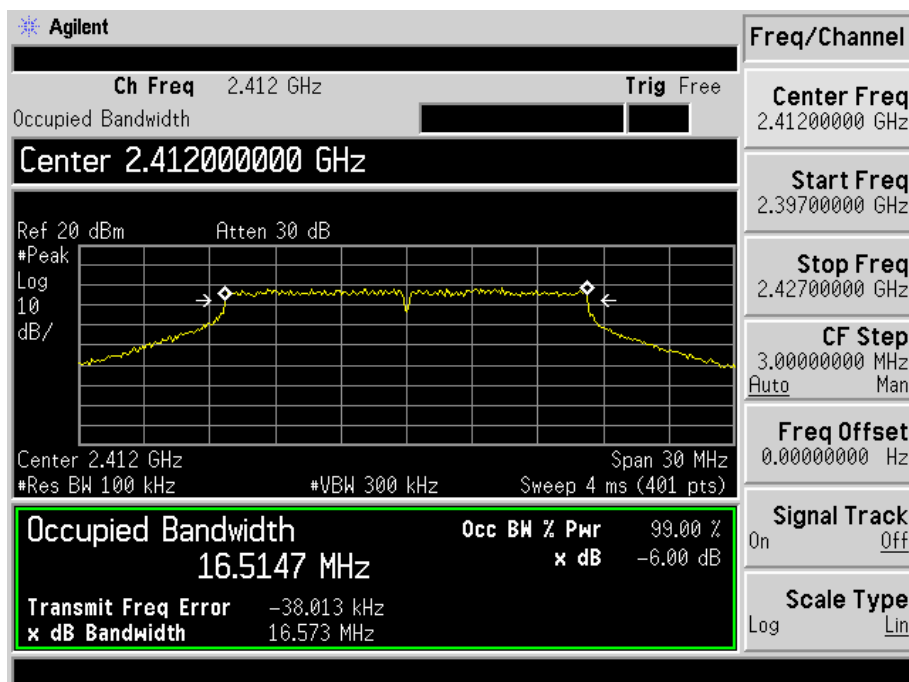
802.11b-Middle Channel



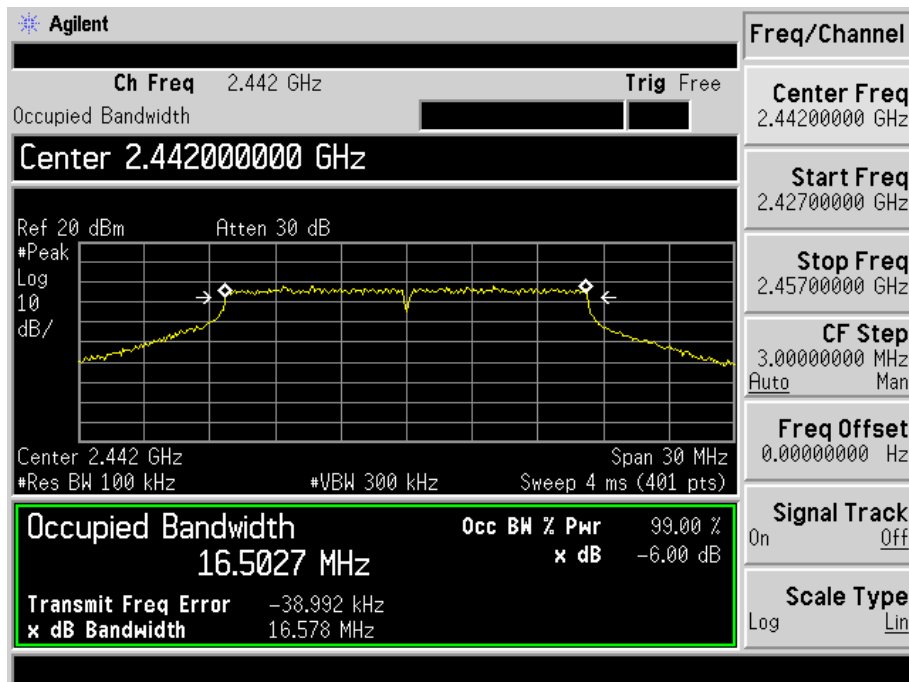
802.11b-High Channel



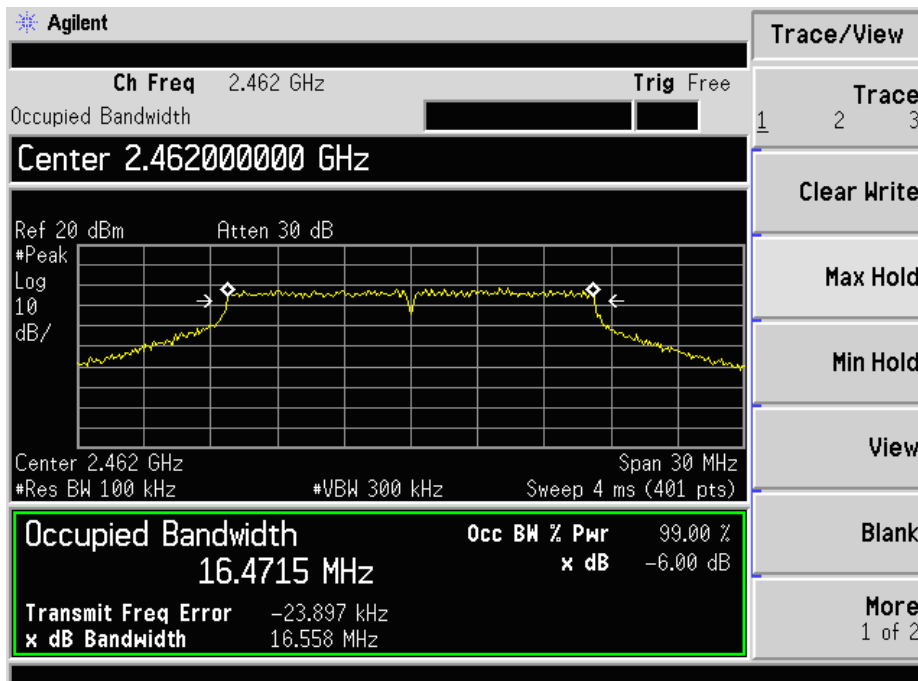
802.11g-Low Channel



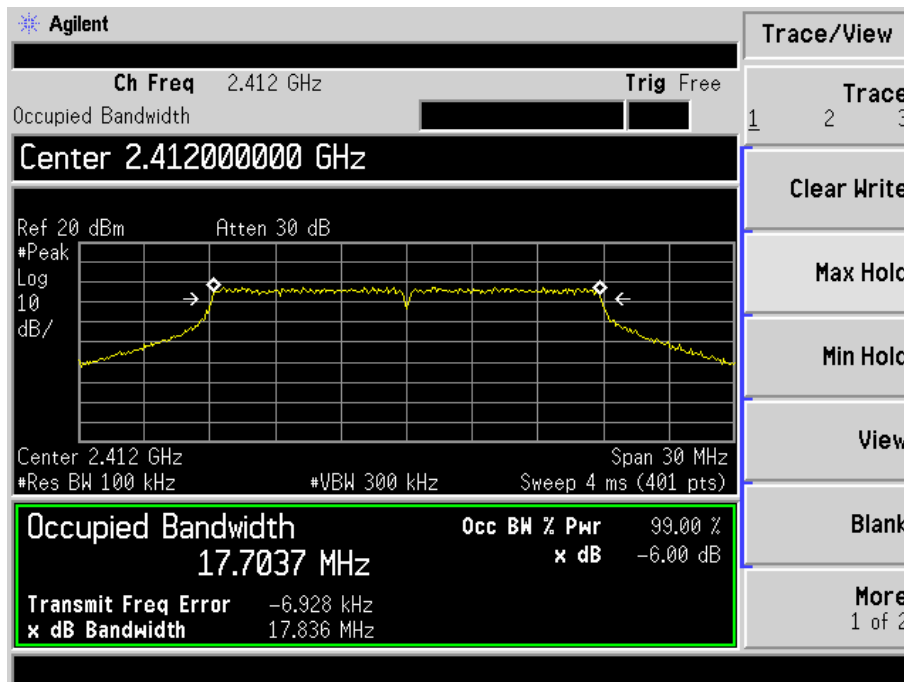
802.11g-Middle Channel



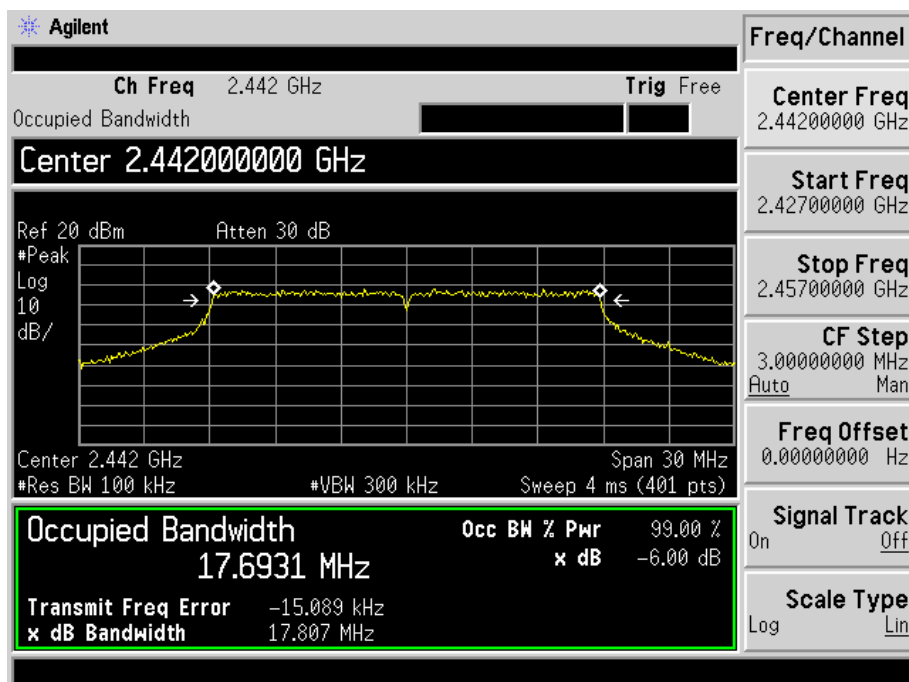
802.11g-High Channel



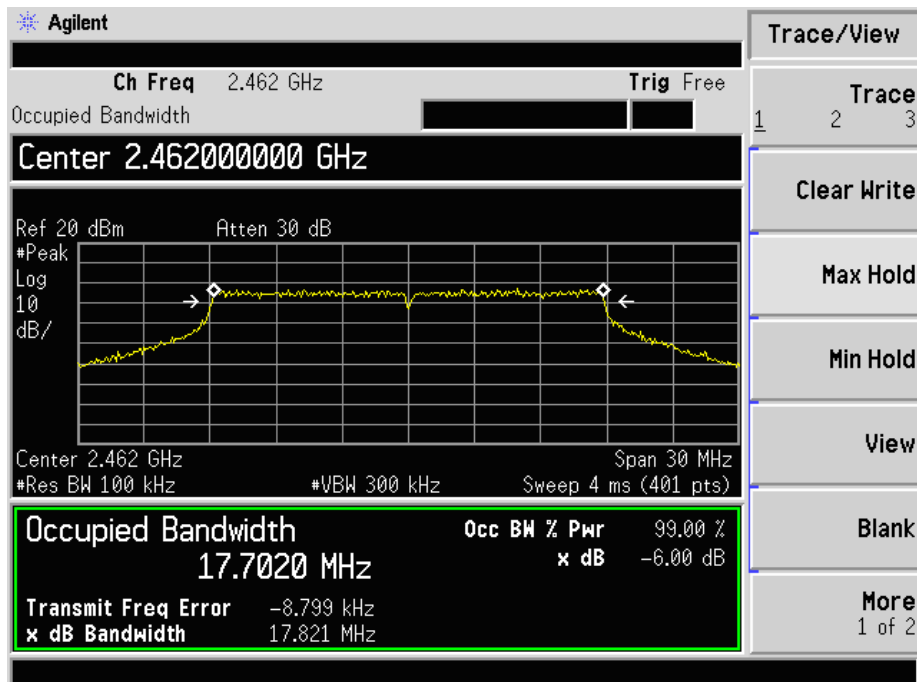
802.11n-HT20-Low Channel



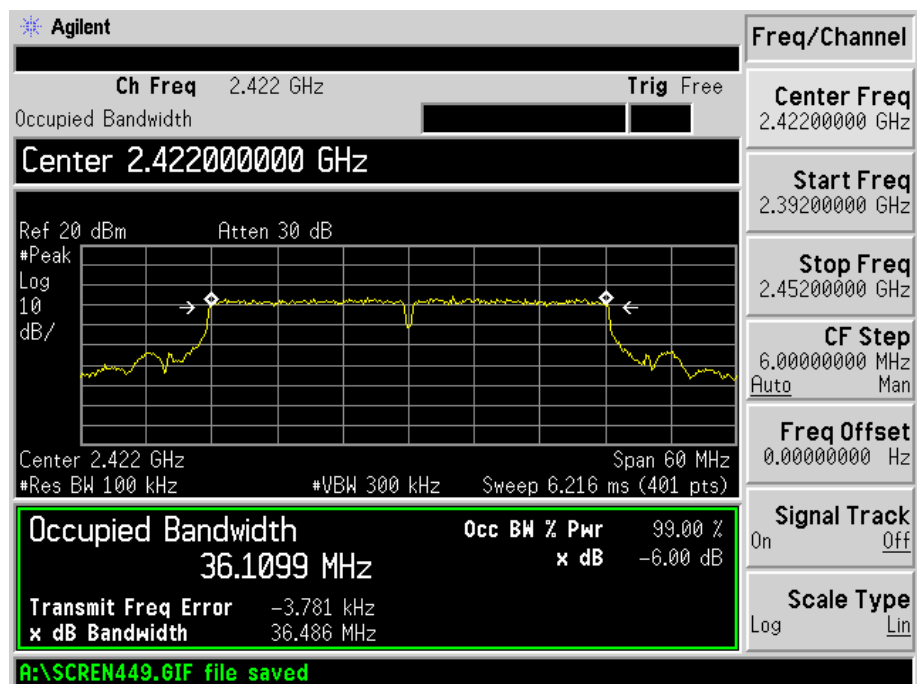
802.11n-HT20-Middle Channel



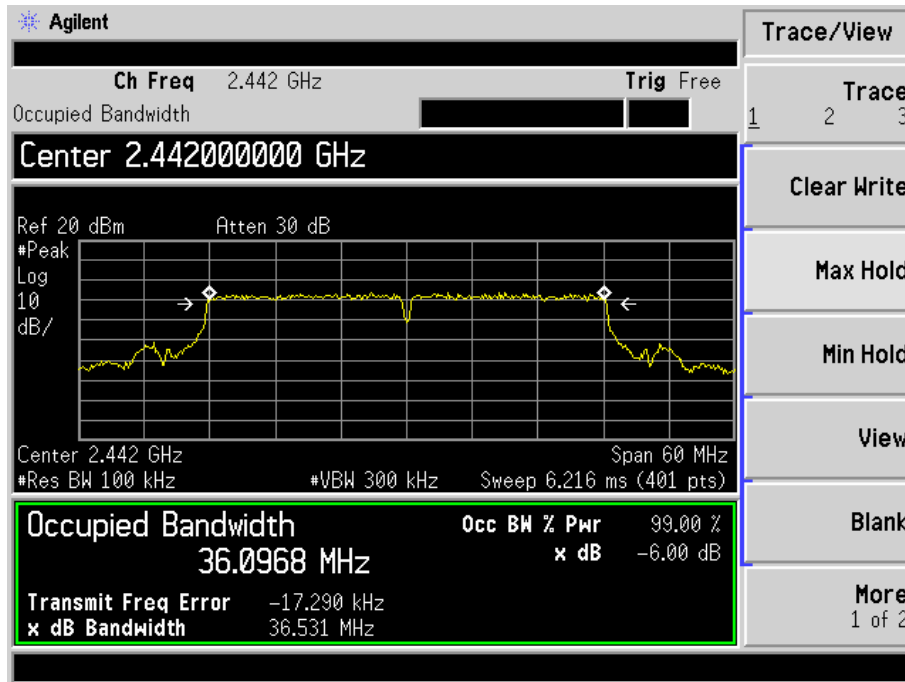
802.11n-HT20-High Channel



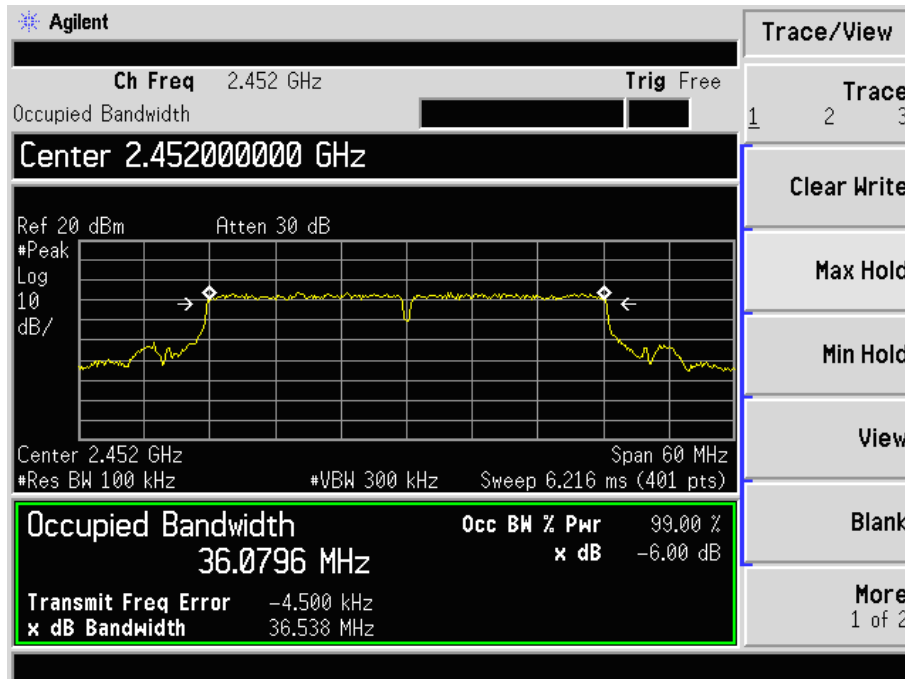
802.11n-HT40-Low Channel



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 Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	Agilent	E4402B	US41192821	2014-05-28	2015-05-27
Attenuator	ATTEN	ATS100-4-20	/	2014-05-28	2015-05-27

7.3 Test Procedure

According to section 15.247(b)-power output of the KDB-558074 D01 V03r02, 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

- Set span to at least 1.5 times the OBW.
- Set RBW = 1-5% of the OBW, not to exceed 1 MHz.
- Set VBW $\geq 3 \times$ RBW.
- Number of points in sweep $\geq 2 \times \text{span} / \text{RBW}$. (This gives bin-to-bin spacing $\leq \text{RBW}/2$, so that narrowband signals are not lost between frequency bins.)
- Sweep time = auto.
- Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.
- 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” .
- Trace average at least 100 traces in power averaging (i.e., RMS) mode.
- 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.

7.4 Environmental Conditions

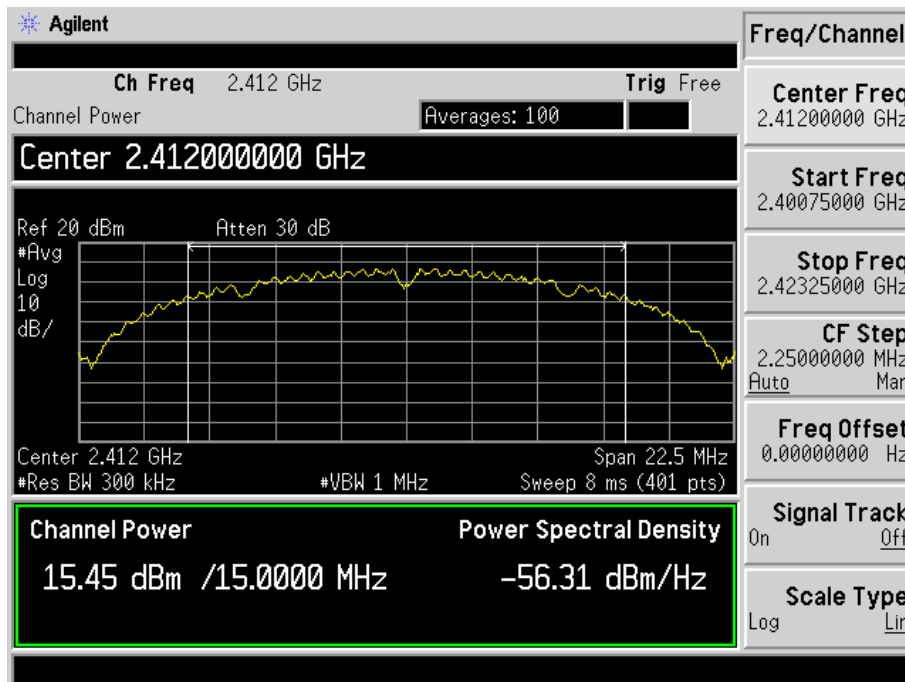
Temperature:	26° C
Relative Humidity:	57%
ATM Pressure:	1011 mbar

7.5 Summary of Test Results/Plots

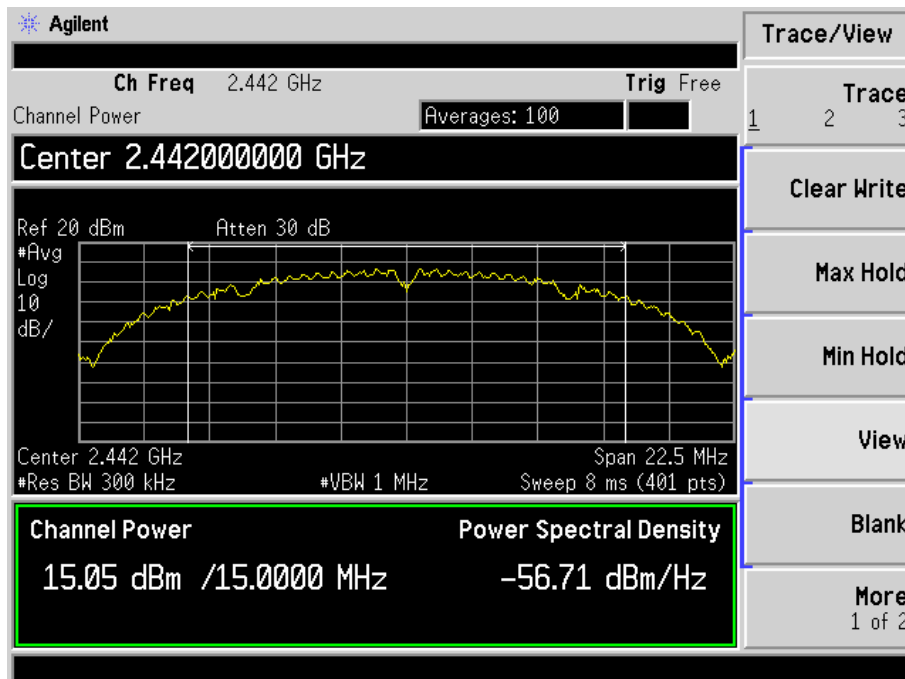
Test Mode	Frequency MHz	Reading dBm	Output Power mW	Limit mW
802.11b_11Mbps	2412	15.45	35.08	1000
	2442	15.05	31.99	1000
	2462	15.08	32.21	1000
802.11g_54Mbps	2412	13.29	21.33	1000
	2442	13.21	20.94	1000
	2462	13.26	21.18	1000
802.11n HT20_MCS7	2412	13.35	21.63	1000
	2442	13.27	21.23	1000
	2462	13.32	21.48	1000
802.11n HT40_MCS7	2422	11.85	15.31	1000
	2442	11.79	15.10	1000
	2452	11.82	15.21	1000

Please refer to the following test plots:

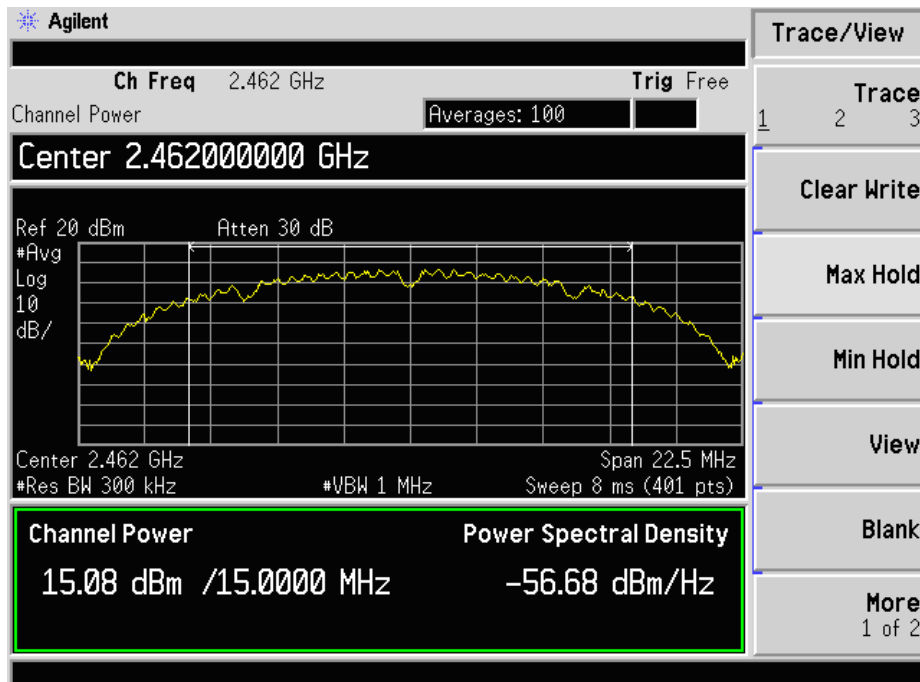
802.11b-Low Channel



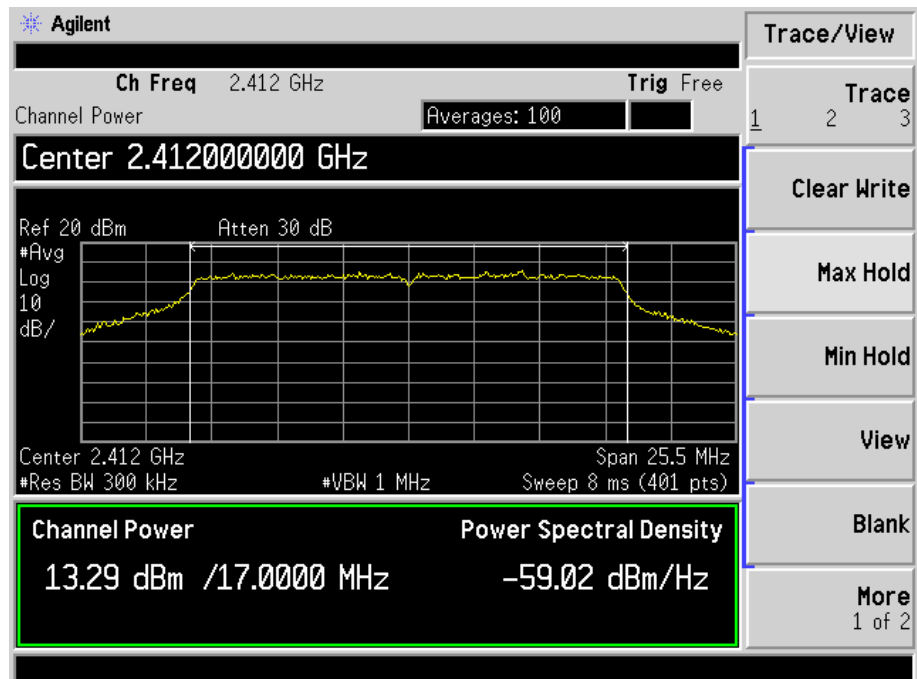
802.11b-Middle Channel



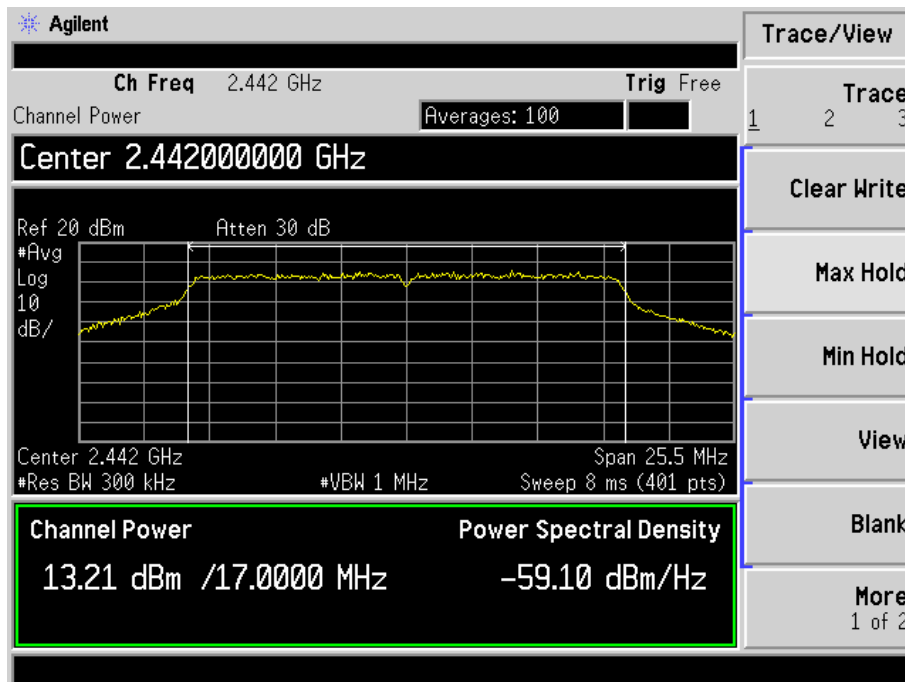
802.11b-High Channel



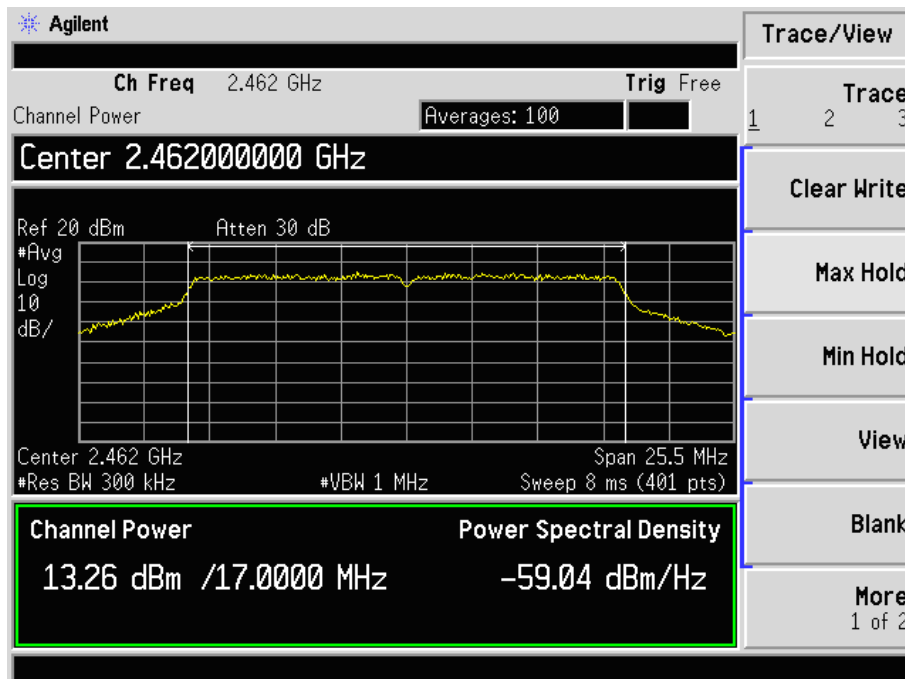
802.11g-Low Channel



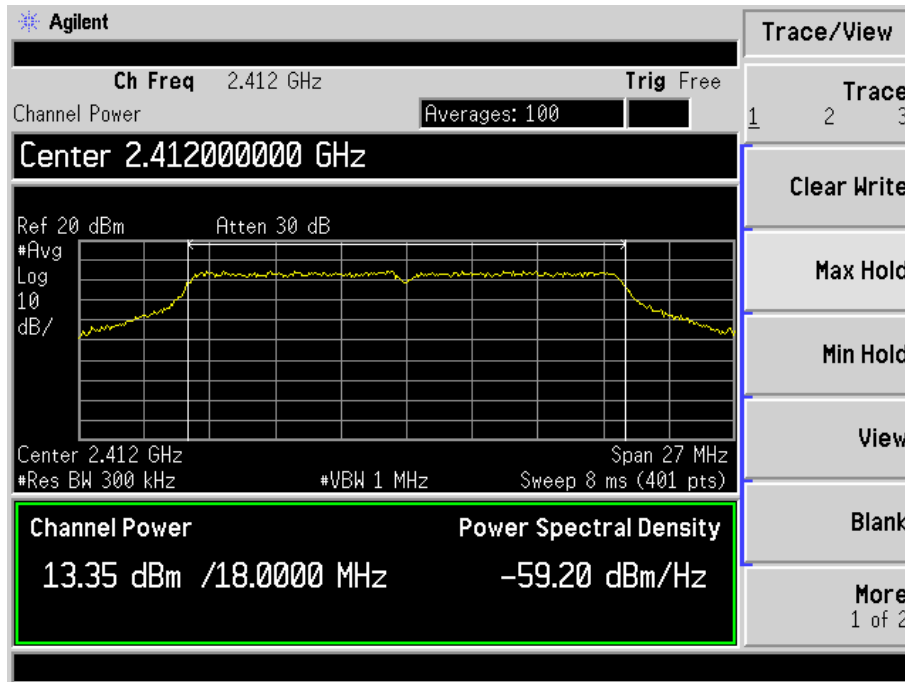
802.11g-Middle Channel



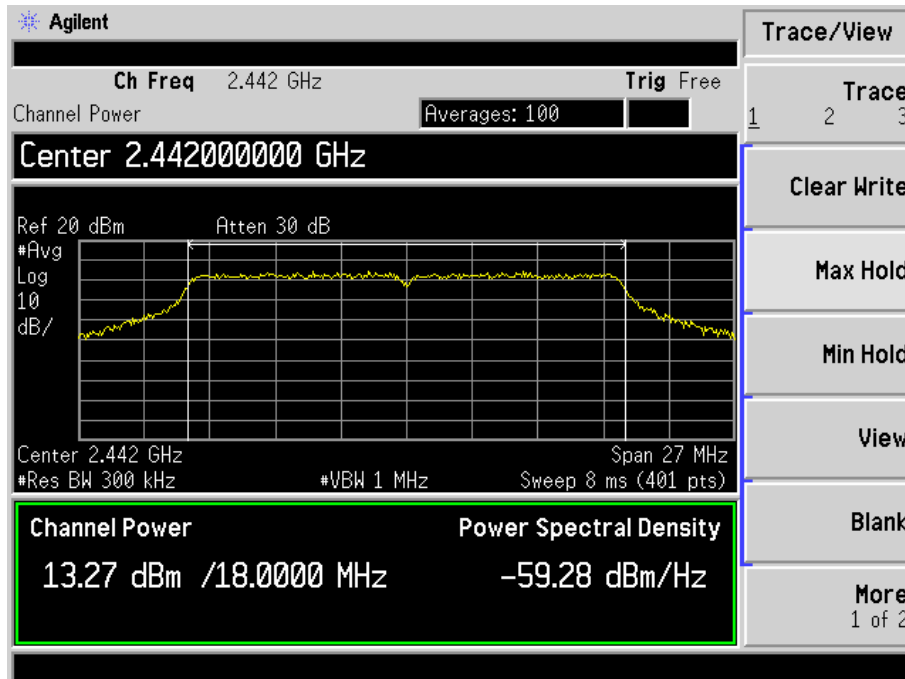
802.11g-High Channel



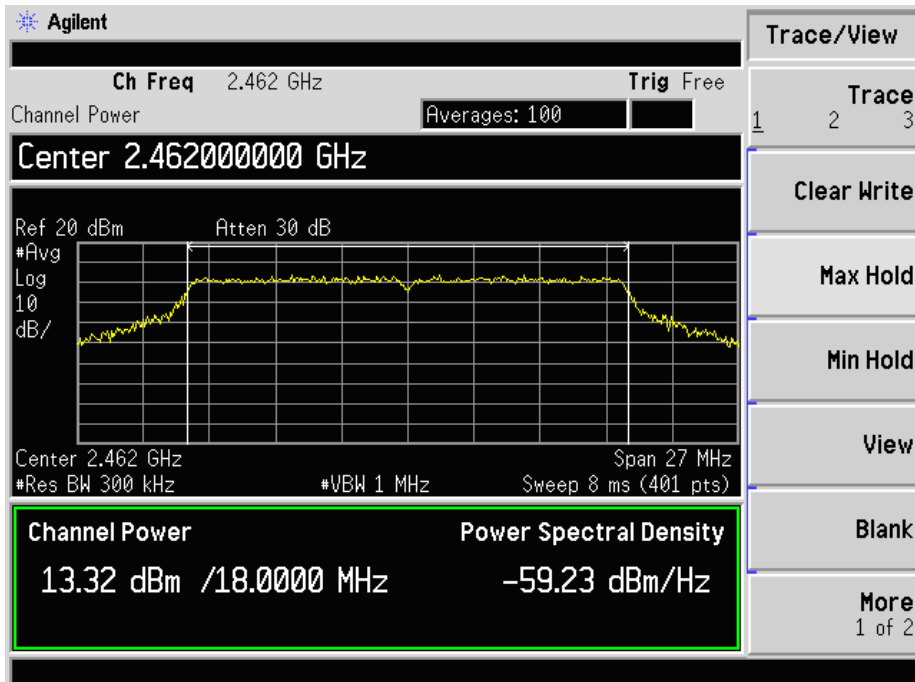
802.11n-HT20-Low Channel



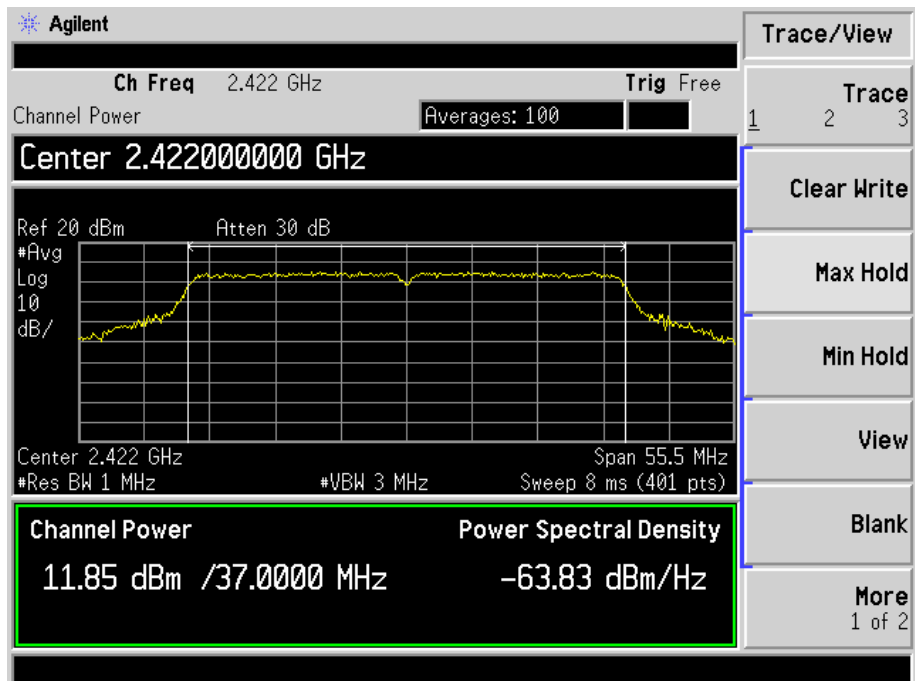
802.11n-HT20-Middle Channel



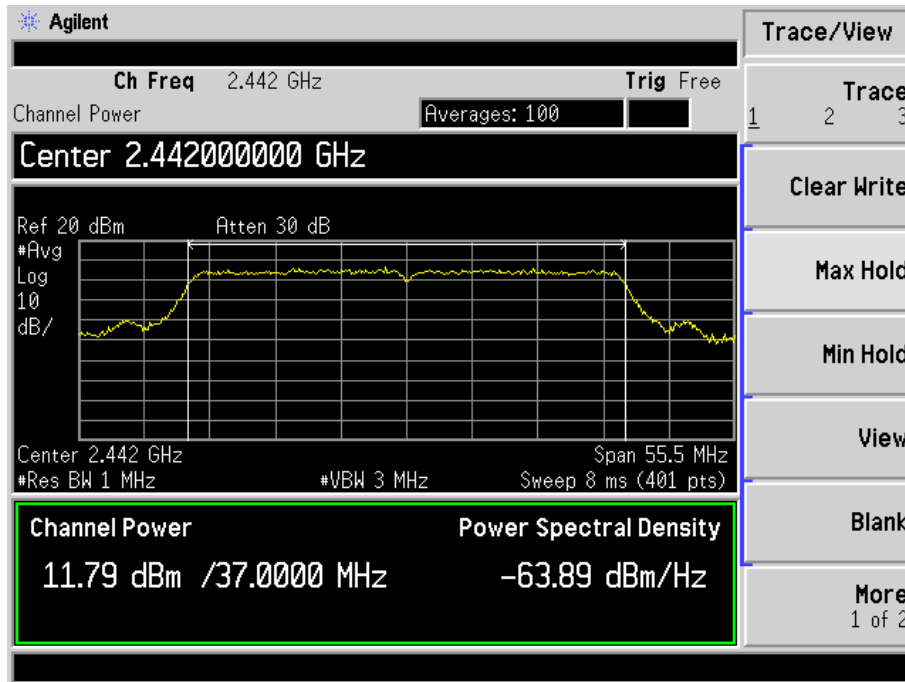
802.11n-HT20-High Channel



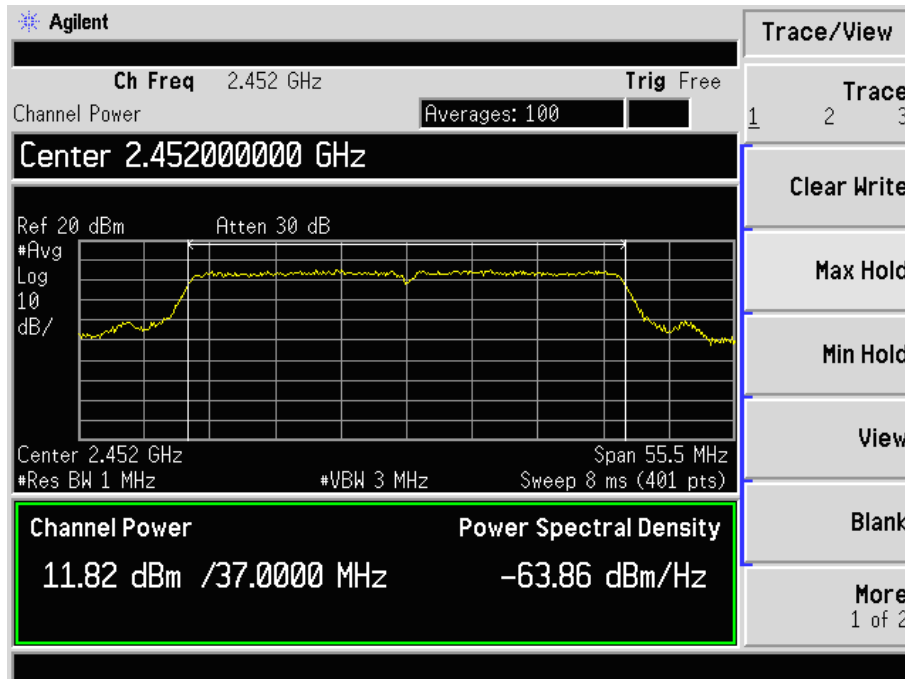
802.11n-HT40-Low Channel



802.11n-HT40-Middle Channel



802.11n-HT40-High Channel



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 Equipment List and Details

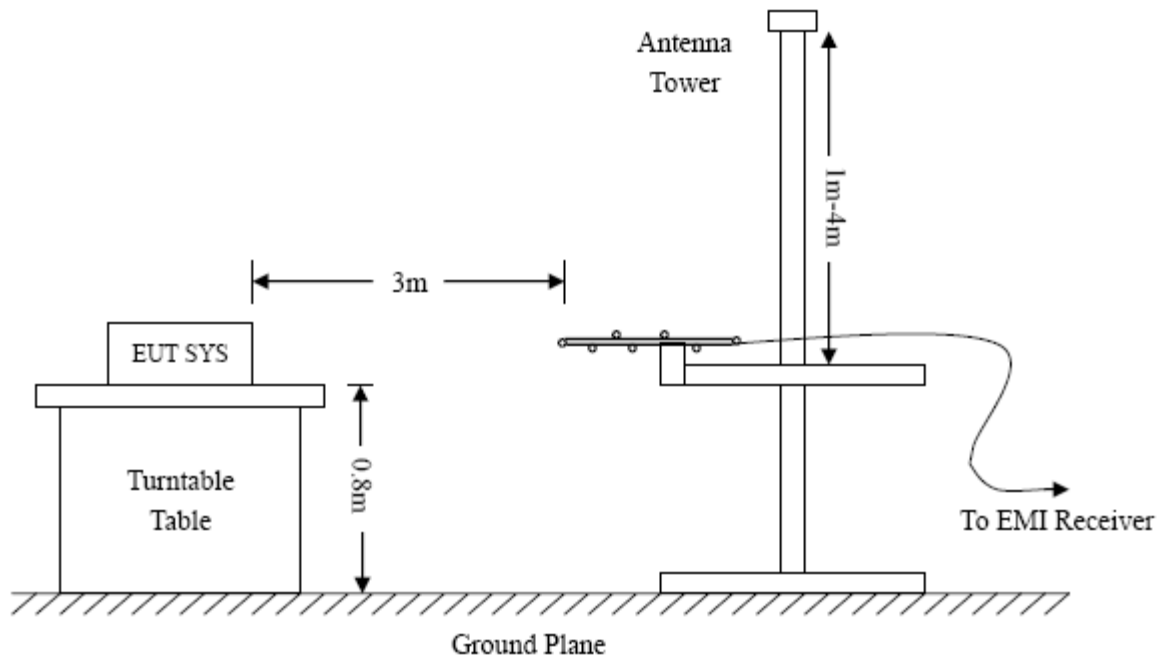
Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	R&S	FSP	836079/035	2014-05-28	2015-05-27
EMI Test Receiver	R&S	ESVB	825471/005	2014-05-28	2015-05-27
Pre-amplifier	Agilent	8447F	3113A06717	2014-05-28	2015-05-27
Pre-amplifier	Compliance Direction	PAP-0118	24002	2014-05-28	2015-05-27
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2014-05-24	2015-05-23
Horn Antenna	ETS	3117	00086197	2014-05-24	2015-05-23
Horn Antenna	ETS	3116B	00088203	2014-05-24	2015-05-23
Loop Antenna	SCHWARZECK	HFRA 5165	9365	2014-05-24	2015-05-23

8.4 Test Procedure

The setup of EUT is according with per ANSI C63.4-2003 measurement procedure. The specification used was with the FCC Part 15.205 15.247(a) and FCC Part 15.209 Limit.

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

The spacing between the peripherals was 10 cm.



Frequency :9kHz-30MHz

RBW=10KHz,

VBW =30KHz

Sweep time= Auto

Trace = max hold

Detector function = peak

Frequency :30MHz-1GHz

RBW=120KHz,

VBW=300KHz

Sweep time= Auto

Trace = max hold

Detector function = peak, QP

Frequency :Above 1GHz

RBW=1MHz,

VBW=3MHz(Peak), 10Hz(AV)

Sweep time= Auto

Trace = max hold

Detector function = peak, AV

8.5 Corrected Amplitude & Margin Calculation

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

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

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

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

8.6 Environmental Conditions

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

8.7 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.

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

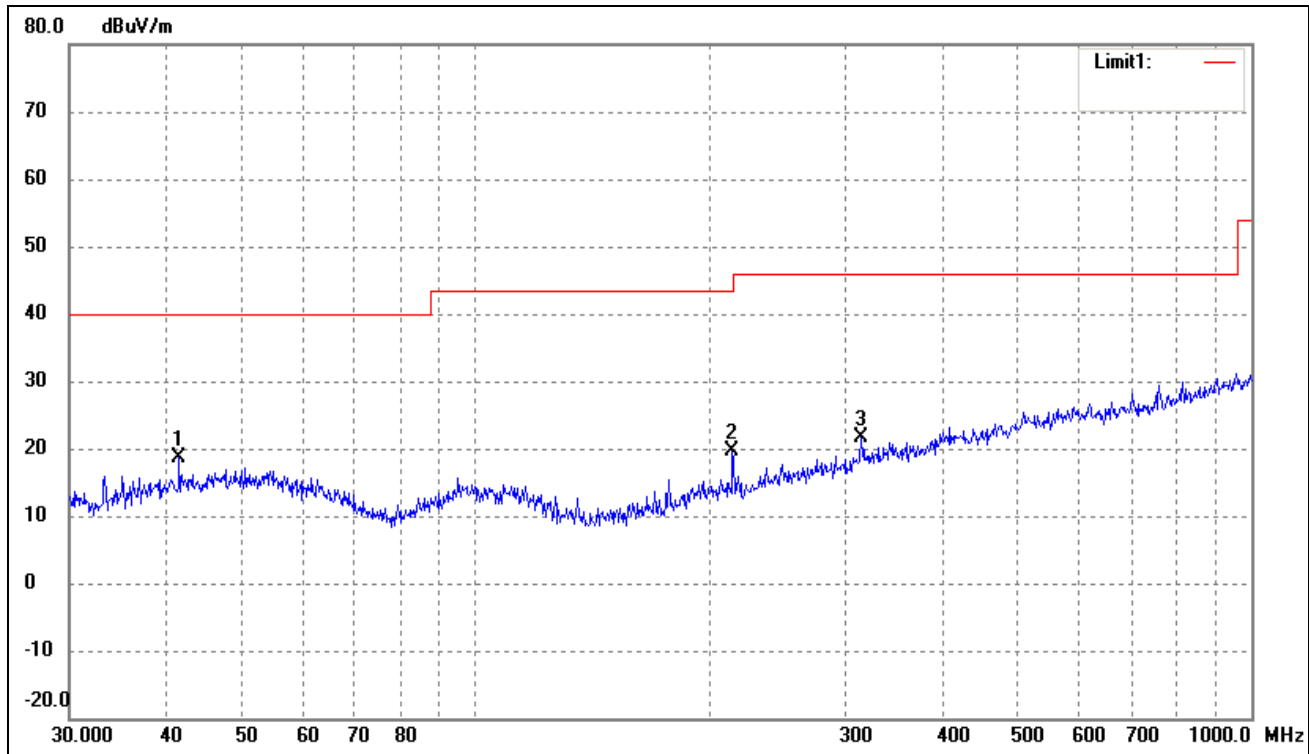
EUT: Tablet

Tested Model: M87GB2-P(W)

Operating Condition: 802.11b Transmitting Low Channel-2412MHz

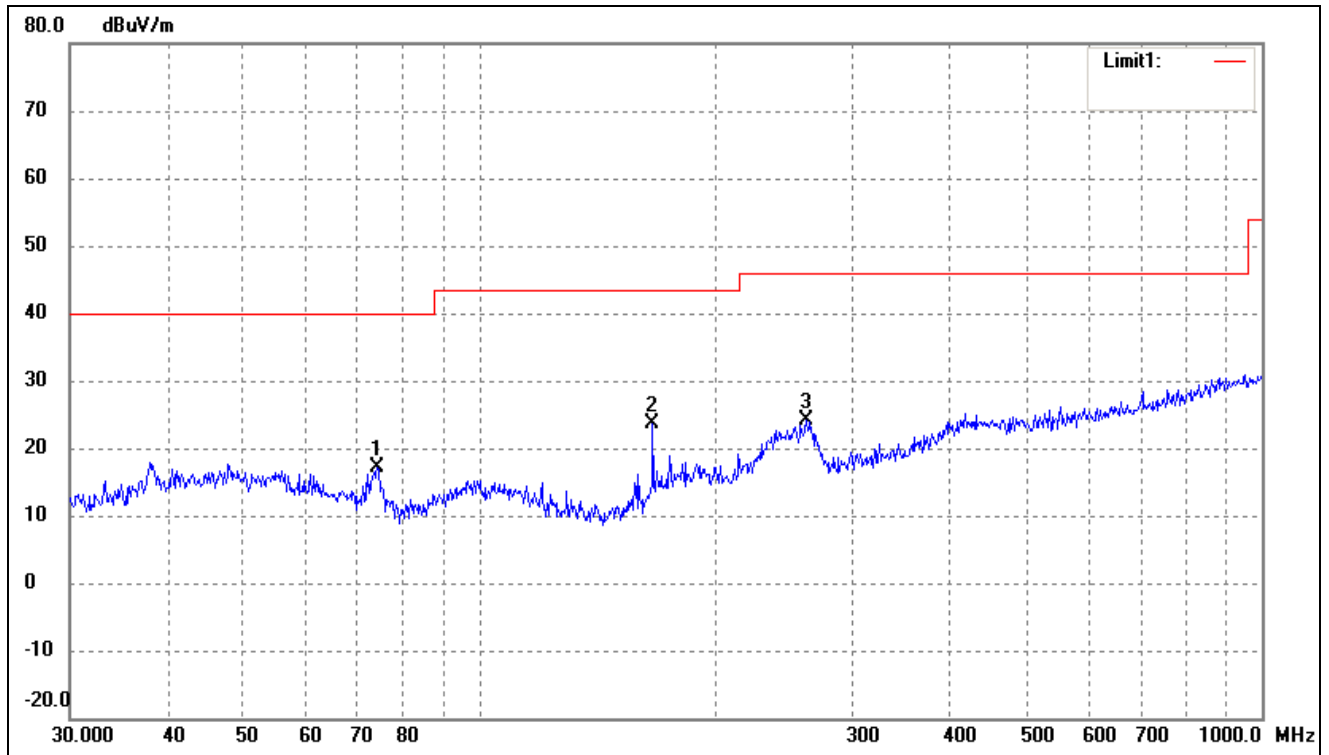
Comment: Battery DC 3.7V

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	41.5670	26.81	-8.14	18.67	40.00	-21.33	254	100	peak
2	214.5143	28.70	-8.96	19.74	43.50	-23.76	113	100	peak
3	314.3765	27.28	-5.71	21.57	46.00	-24.43	284	100	peak

Test Specification: Vertical

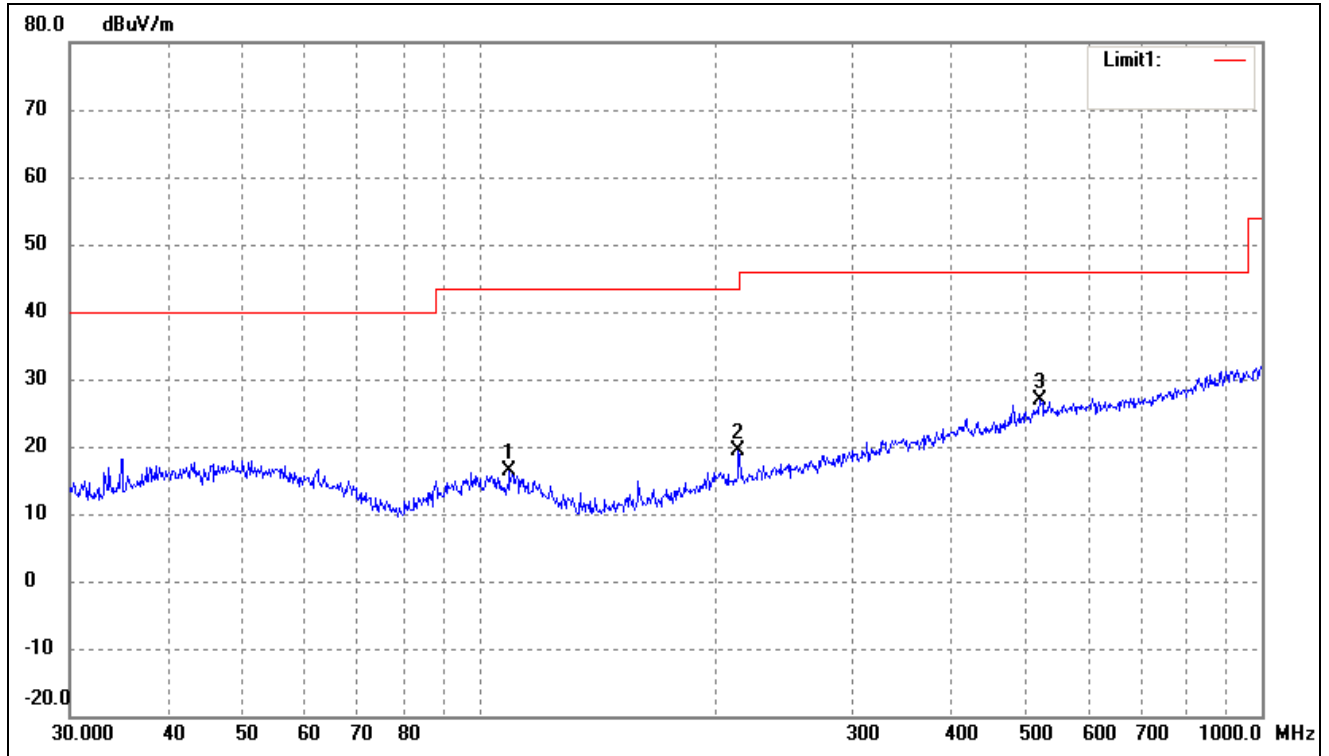


No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	74.1351	30.04	-12.97	17.07	40.00	-22.93	114	100	peak
2	166.6514	35.74	-12.01	23.73	43.50	-19.77	270	100	peak
3	261.9753	31.21	-7.14	24.07	46.00	-21.93	360	100	peak

Operating Condition: 802.11b Transmitting Middle Channel-2442MHz

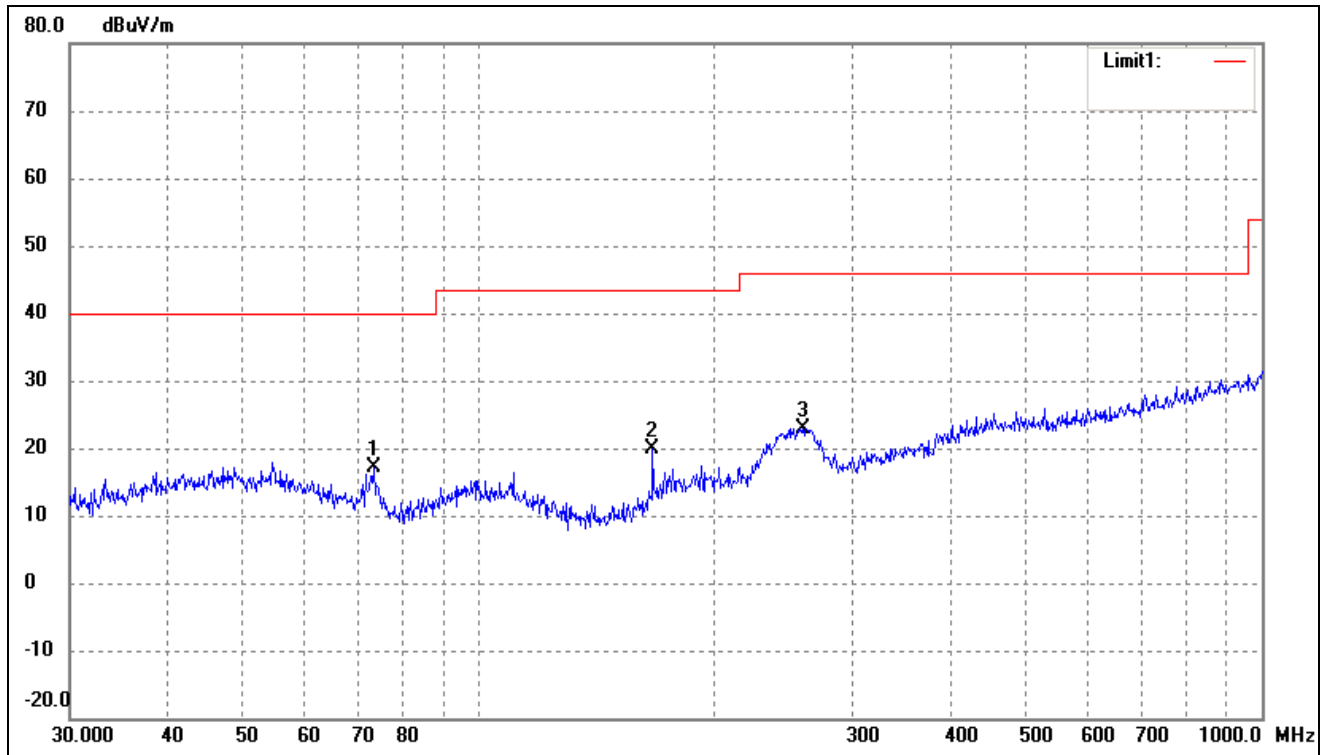
Comment: Battery DC 3.7V

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	109.4116	25.95	-9.59	16.36	43.50	-27.14	178	100	peak
2	214.5143	28.39	-8.96	19.43	43.50	-24.07	224	100	peak
3	520.8882	27.37	-0.60	26.77	46.00	-19.23	160	100	peak

Test Specification: Vertical

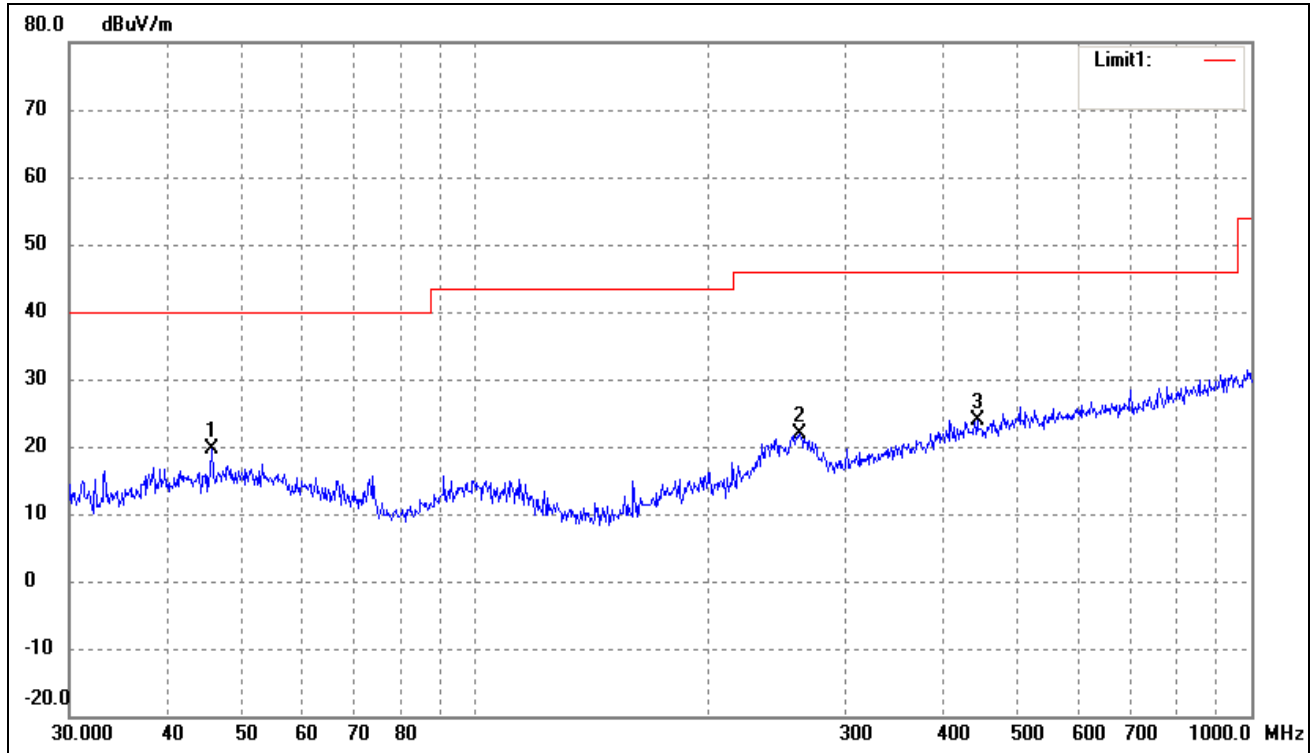


No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	73.3593	29.75	-12.73	17.02	40.00	-22.98	256	100	peak
2	166.6514	31.80	-12.01	19.79	43.50	-23.71	360	100	peak
3	259.2338	30.17	-7.21	22.96	46.00	-23.04	360	100	peak

Operating Condition: 802.11b Transmitting High Channel-2462MHz

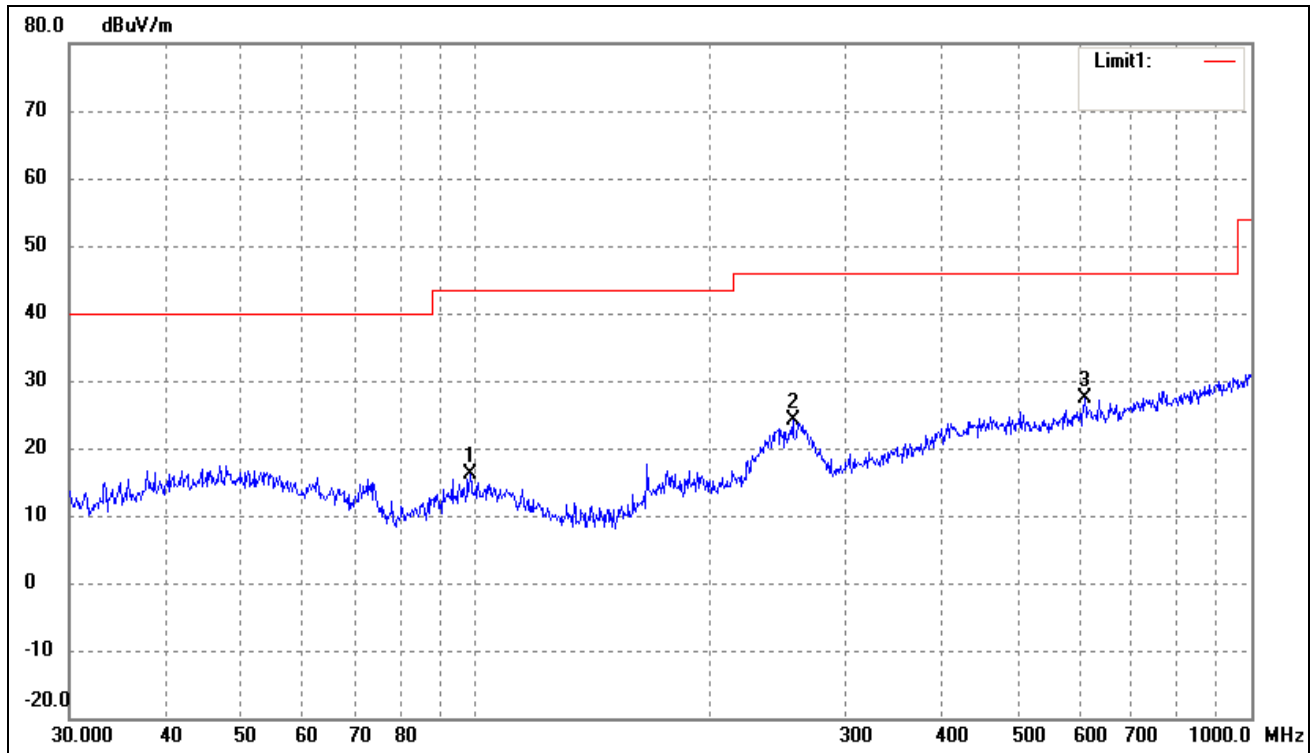
Comment: Battery DC 3.7V

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	45.8553	27.08	-7.47	19.61	40.00	-20.39	176	100	peak
2	261.9753	28.96	-7.14	21.82	46.00	-24.18	255	100	peak
3	443.2943	26.10	-2.23	23.87	46.00	-22.13	360	100	peak

Test Specification: Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	98.4866	25.81	-9.75	16.06	43.50	-27.44	360	100	peak
2	256.5211	31.32	-7.29	24.03	46.00	-21.97	225	100	peak
3	609.9217	26.06	1.28	27.34	46.00	-18.66	160	100	peak

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

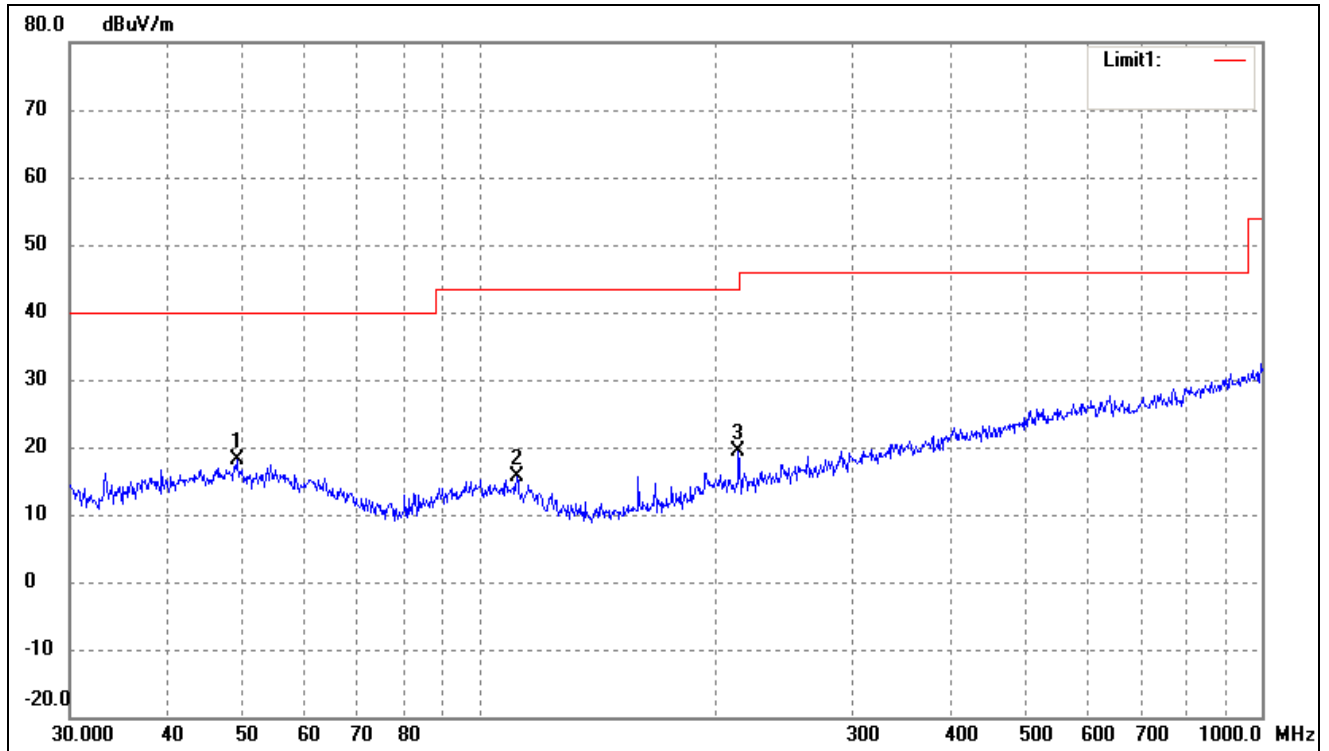
EUT: Tablet

Tested Model: M87GB2-P(W)

Operating Condition: 802.11g Transmitting Low Channel-2412MHz

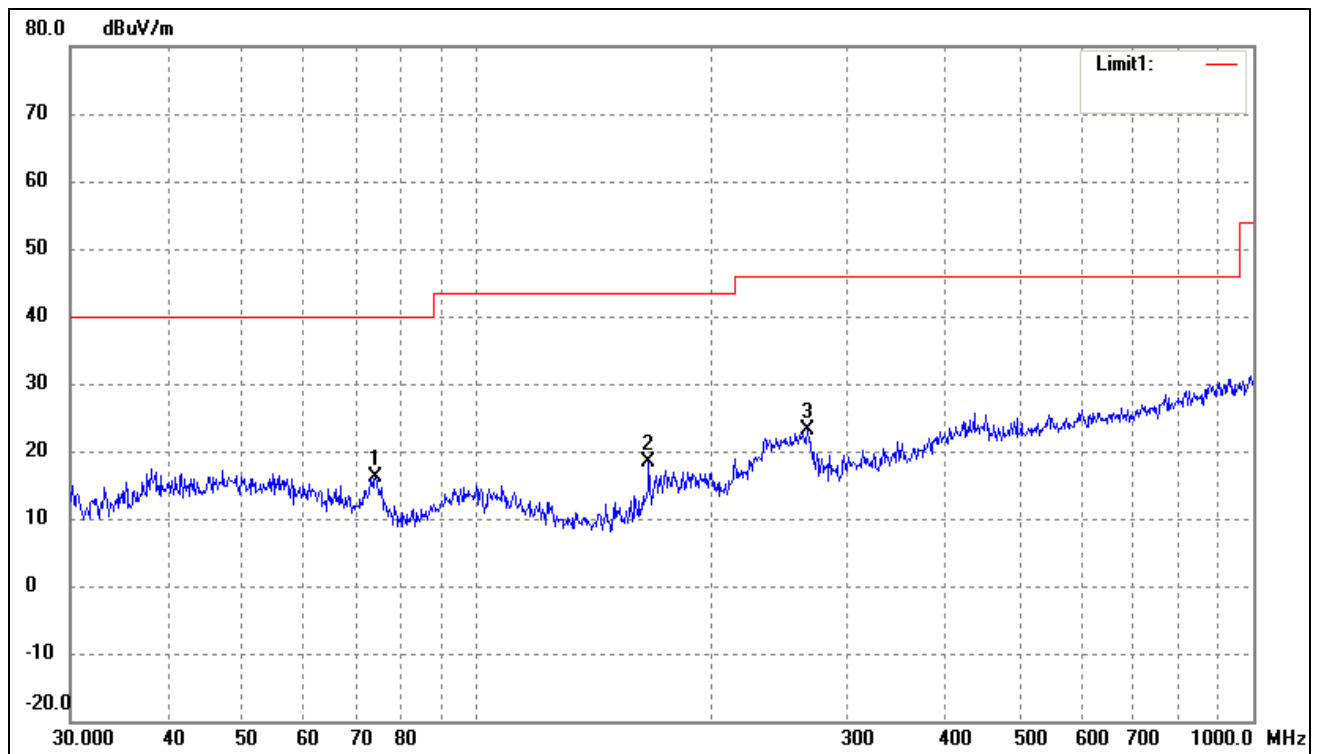
Comment: Battery DC 3.7V

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	49.0145	25.65	-7.44	18.21	40.00	-21.79	174	100	peak
2	111.7380	25.58	-9.89	15.69	43.50	-27.81	160	100	peak
3	214.5143	28.30	-8.96	19.34	43.50	-24.16	320	100	peak

Test Specification: Vertical

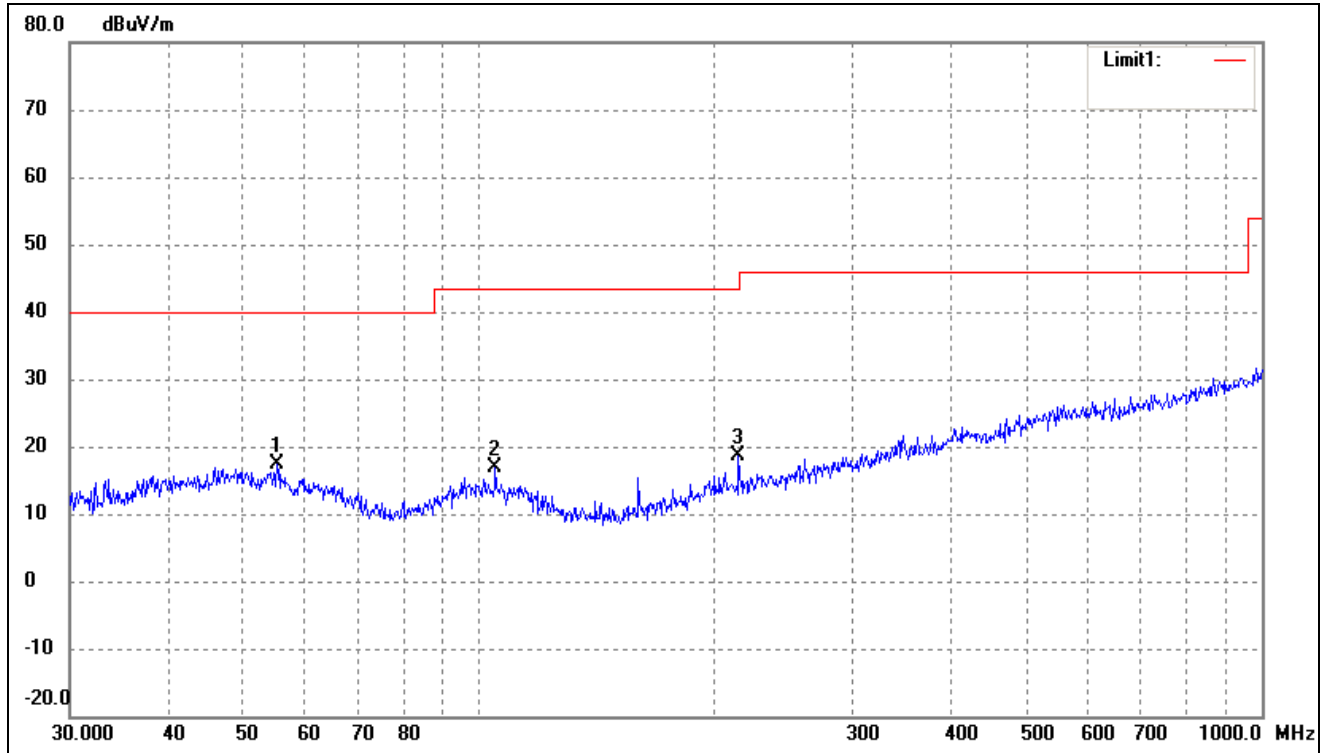


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	74.1351	29.12	-12.97	16.15	40.00	-23.85	177	100	peak
2	166.6514	30.46	-12.01	18.45	43.50	-25.05	90	100	peak
3	266.6089	30.22	-7.03	23.19	46.00	-22.81	336	100	peak

Operating Condition: 802.11g Transmitting Middle Channel-2442MHz

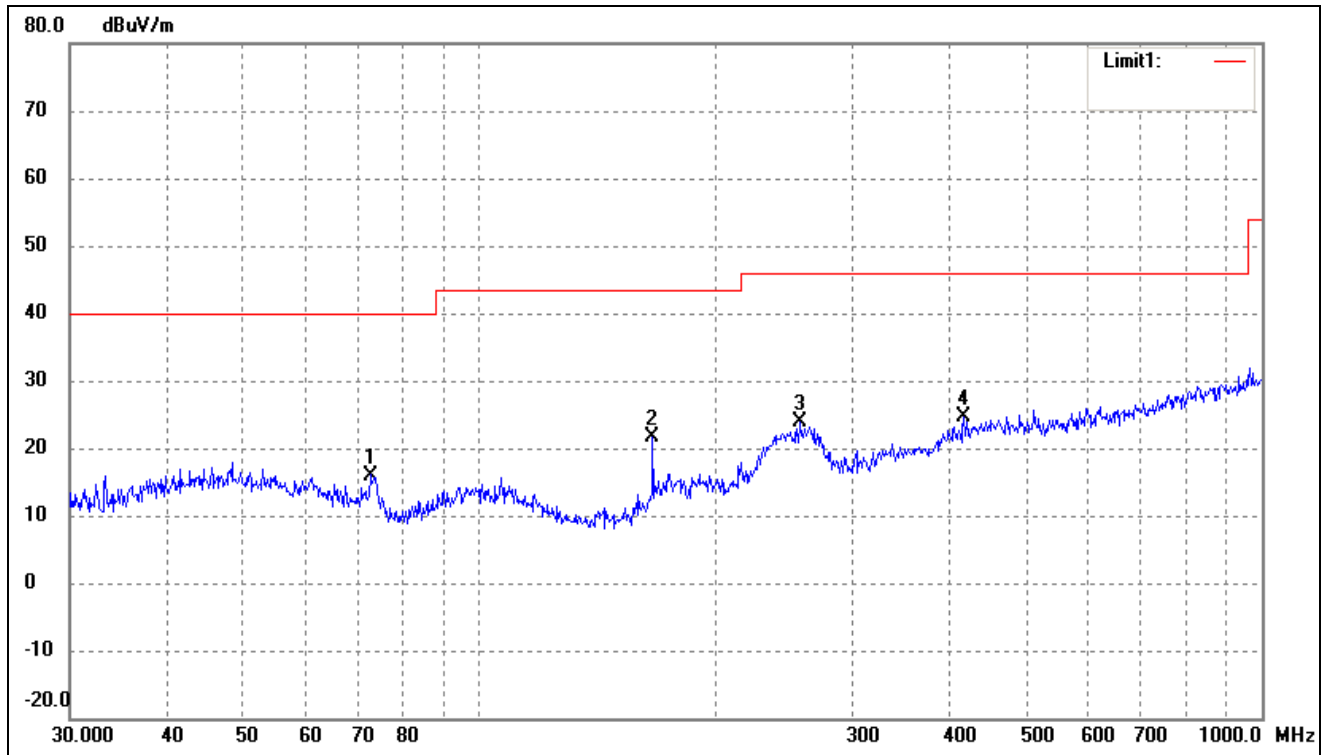
Comment: Battery DC 3.7V

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	55.2207	25.24	-7.97	17.27	40.00	-22.73	270	100	peak
2	104.9033	26.41	-9.58	16.83	43.50	-26.67	164	100	peak
3	214.5143	27.70	-8.96	18.74	43.50	-24.76	228	200	peak

Test Specification: Vertical

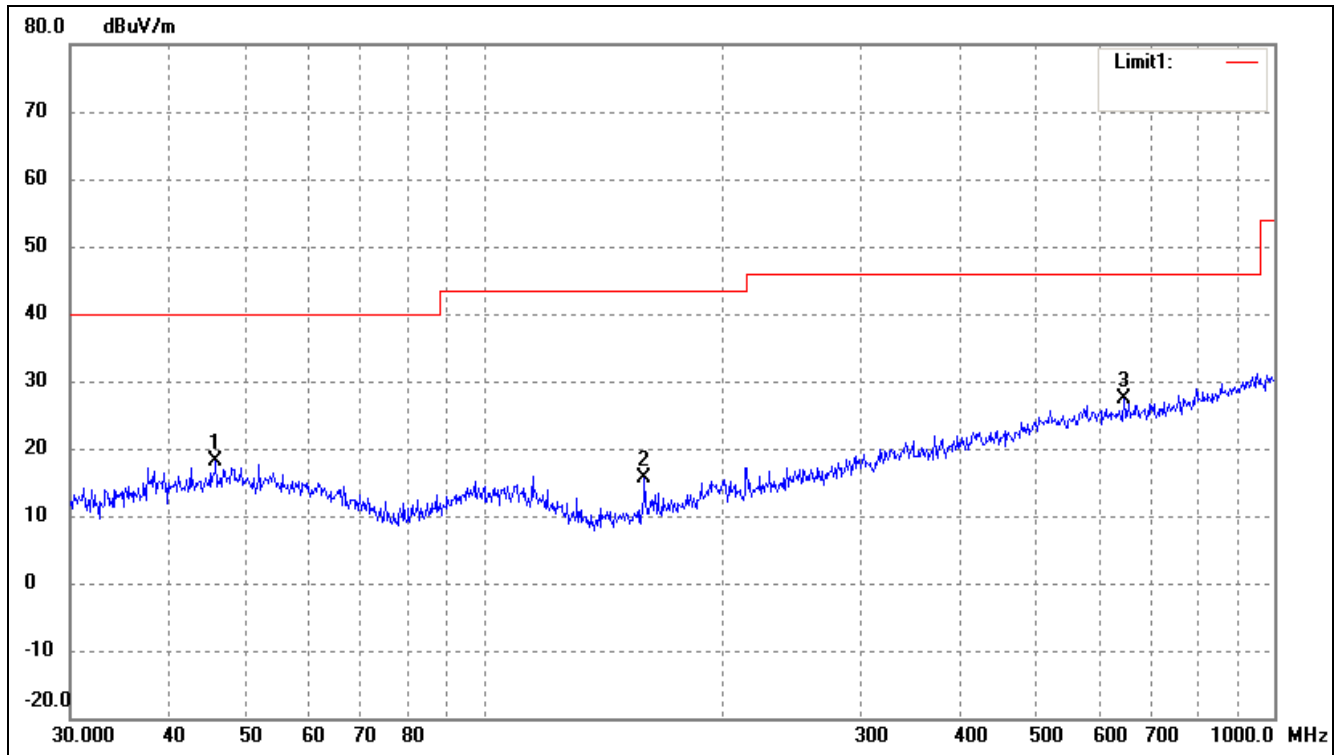


No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	72.5917	28.49	-12.49	16.00	40.00	-24.00	360	100	peak
2	166.6514	33.67	-12.01	21.66	43.50	-21.84	255	100	peak
3	257.4222	31.04	-7.26	23.78	46.00	-22.22	270	100	peak
4	416.1791	27.22	-2.56	24.66	46.00	-21.34	180	100	peak

Operating Condition: 802.11g Transmitting High Channel-2462MHz

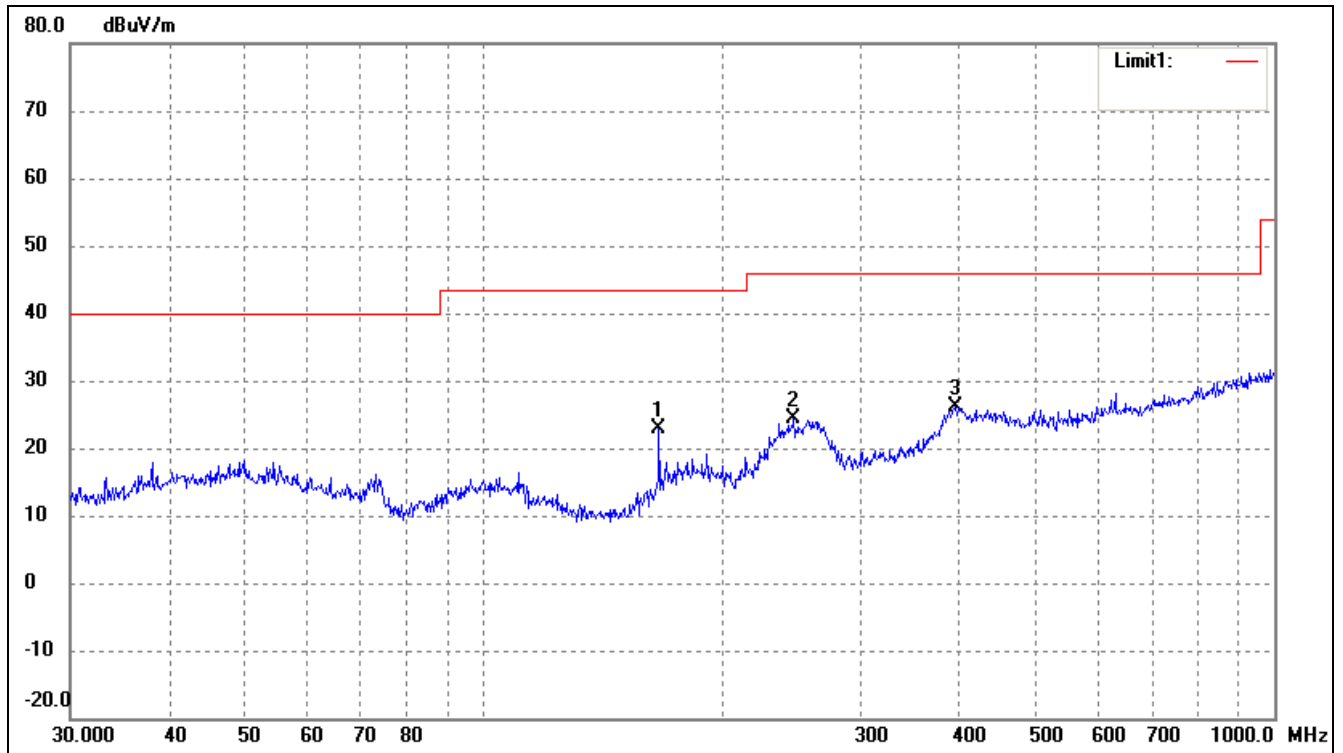
Comment: Battery DC 3.7V

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	45.8553	25.64	-7.47	18.17	40.00	-21.83	270	100	peak
2	159.7844	27.93	-12.35	15.58	43.50	-27.92	51	200	peak
3	645.1195	25.61	1.78	27.39	46.00	-18.61	360	200	peak

Test Specification: Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	166.6514	34.87	-12.01	22.86	43.50	-20.64	360	100	peak
2	246.8149	31.91	-7.59	24.32	46.00	-21.68	180	100	peak
3	394.8545	29.14	-3.10	26.04	46.00	-19.96	225	100	peak

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

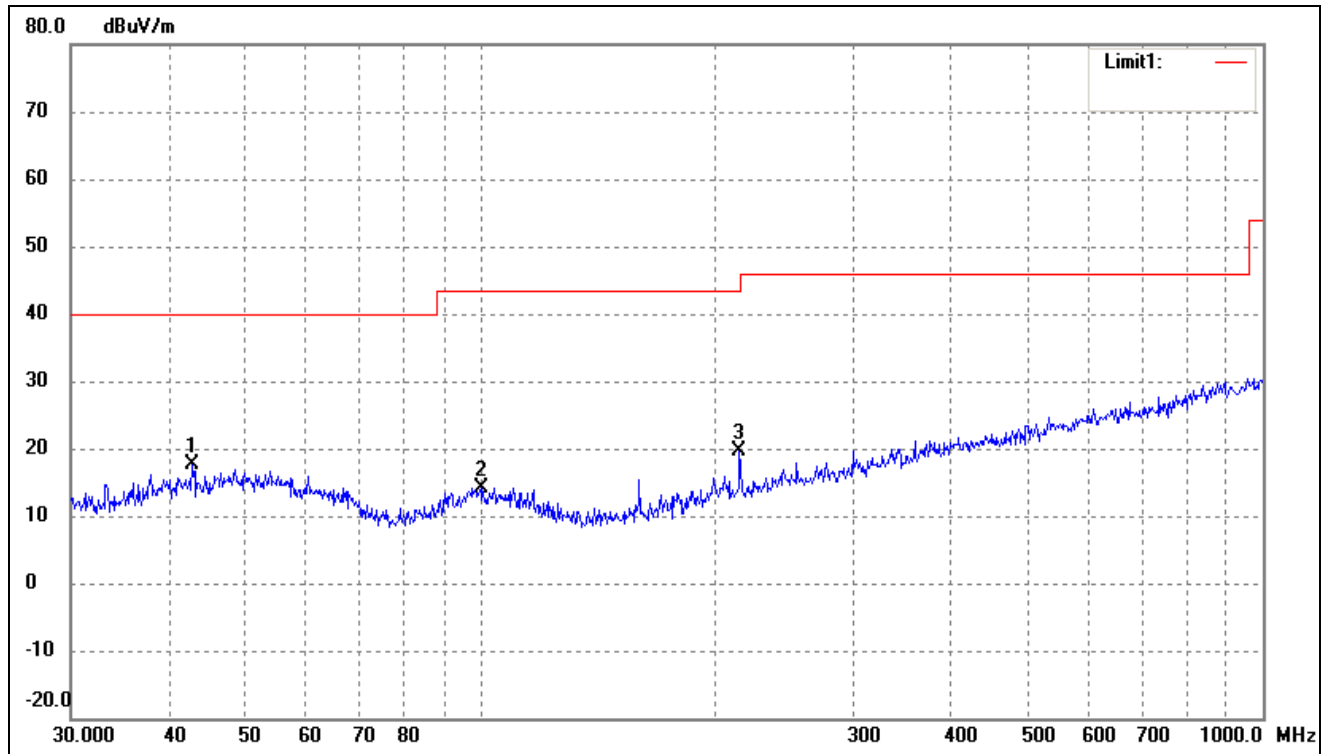
EUT: Tablet

Tested Model: M87GB2-P(W)

Operating Condition: 802.11n-HT20 Transmitting Low Channel-2412MHz

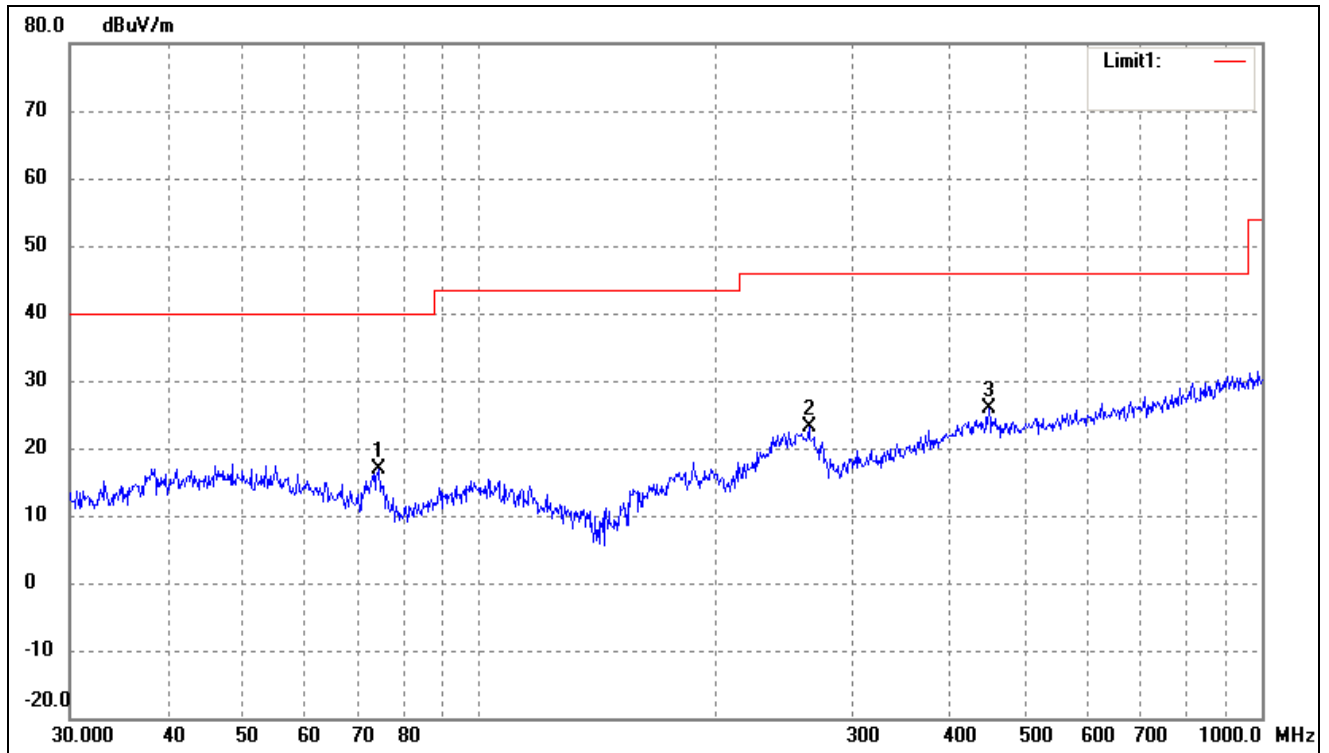
Comment: Battery DC 3.7V

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	42.8998	25.50	-7.87	17.63	40.00	-22.37	260	100	peak
2	100.2286	23.77	-9.56	14.21	43.50	-29.29	131	200	peak
3	214.5143	28.50	-8.96	19.54	43.50	-23.96	285	200	peak

Test Specification: Vertical

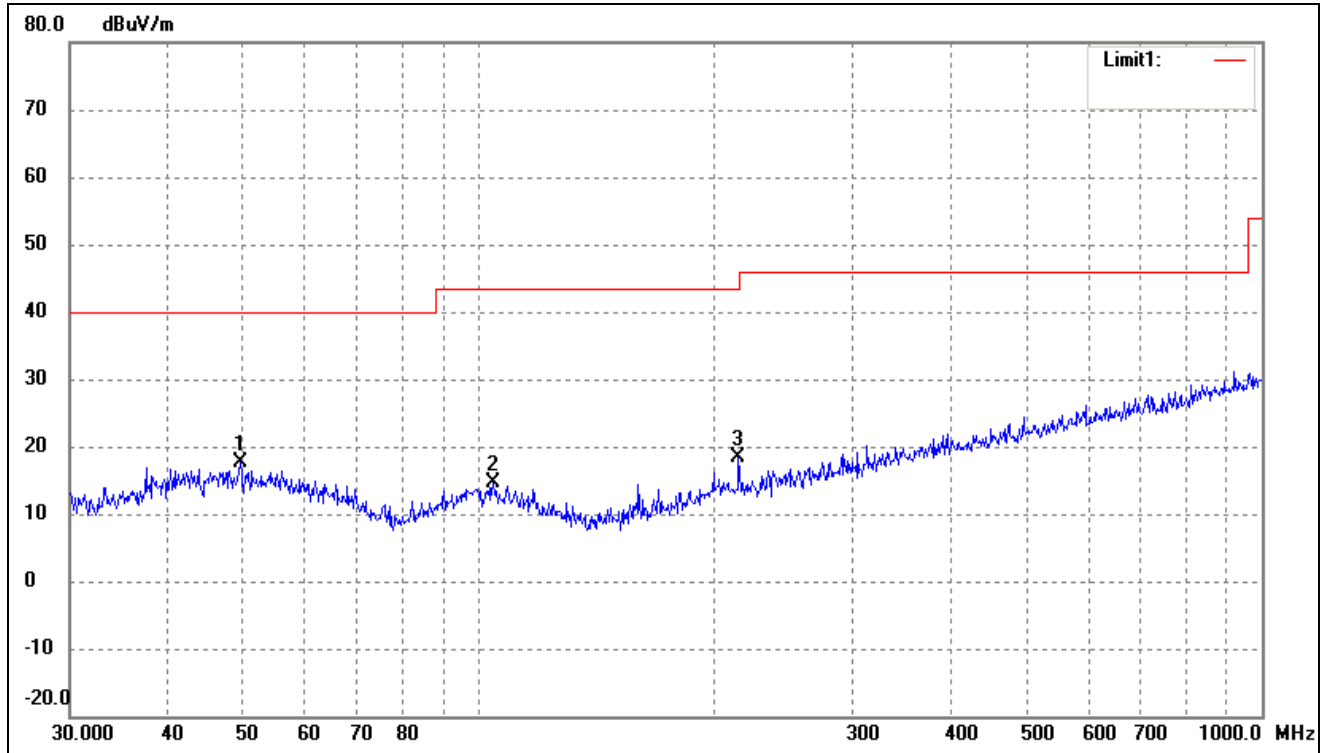


No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	74.3955	30.02	-13.05	16.97	40.00	-23.03	155	100	peak
2	263.8190	30.11	-7.09	23.02	46.00	-22.98	197	100	peak
3	447.9822	28.00	-2.19	25.81	46.00	-20.19	310	100	peak

Operating Condition: 802.11n-HT20 Transmitting Middle Channel-2442MHz

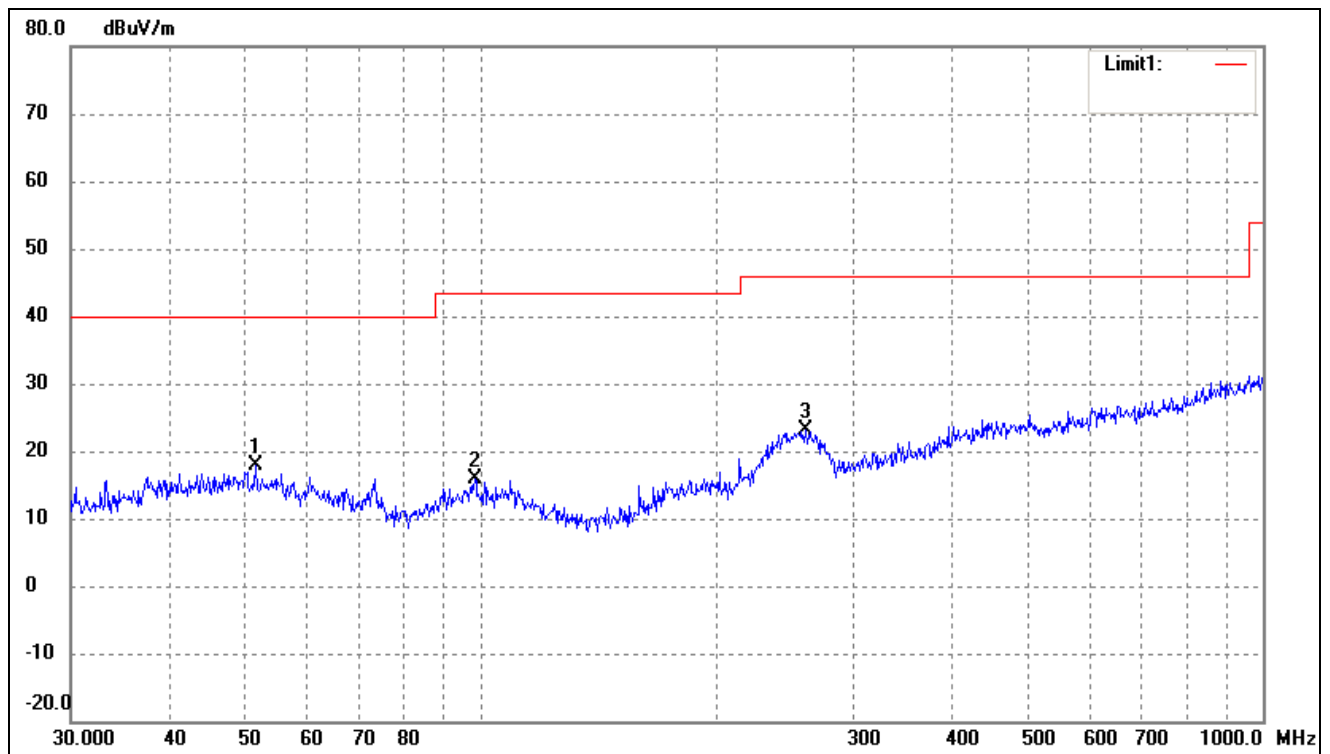
Comment: Battery DC 3.7V

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	49.5328	25.05	-7.45	17.60	40.00	-22.40	274	100	peak
2	104.1701	24.23	-9.58	14.65	43.50	-28.85	116	100	peak
3	214.5143	27.29	-8.96	18.33	43.50	-25.17	82	100	peak

Test Specification: Vertical

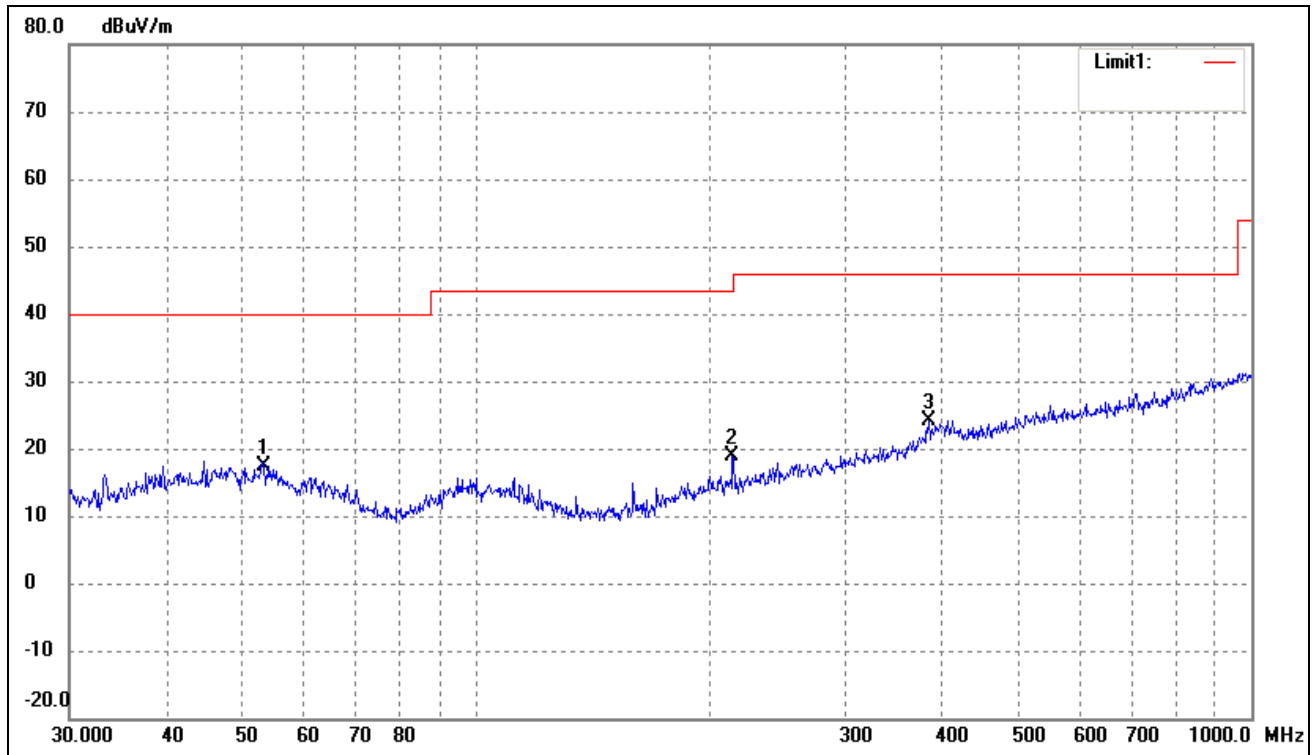


No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	51.6616	25.49	-7.61	17.88	40.00	-22.12	264	100	peak
2	98.4866	25.63	-9.75	15.88	43.50	-27.62	110	100	peak
3	260.1444	30.40	-7.19	23.21	46.00	-22.79	136	100	peak

Operating Condition: 802.11n-HT20 Transmitting High Channel-2462MHz

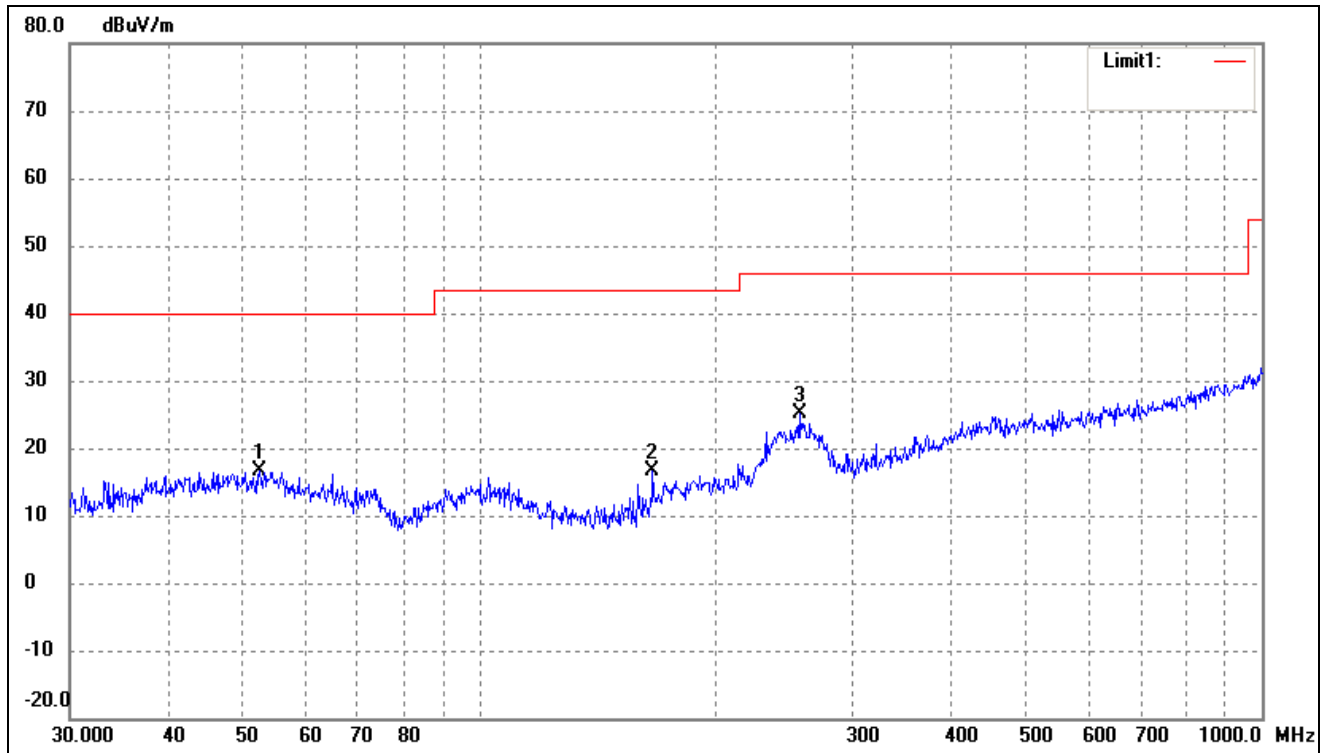
Comment: Battery DC 3.7V

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	53.5052	25.26	-7.80	17.46	40.00	-22.54	360	100	peak
2	214.5143	27.89	-8.96	18.93	43.50	-24.57	112	100	peak
3	383.9318	27.63	-3.46	24.17	46.00	-21.83	180	200	peak

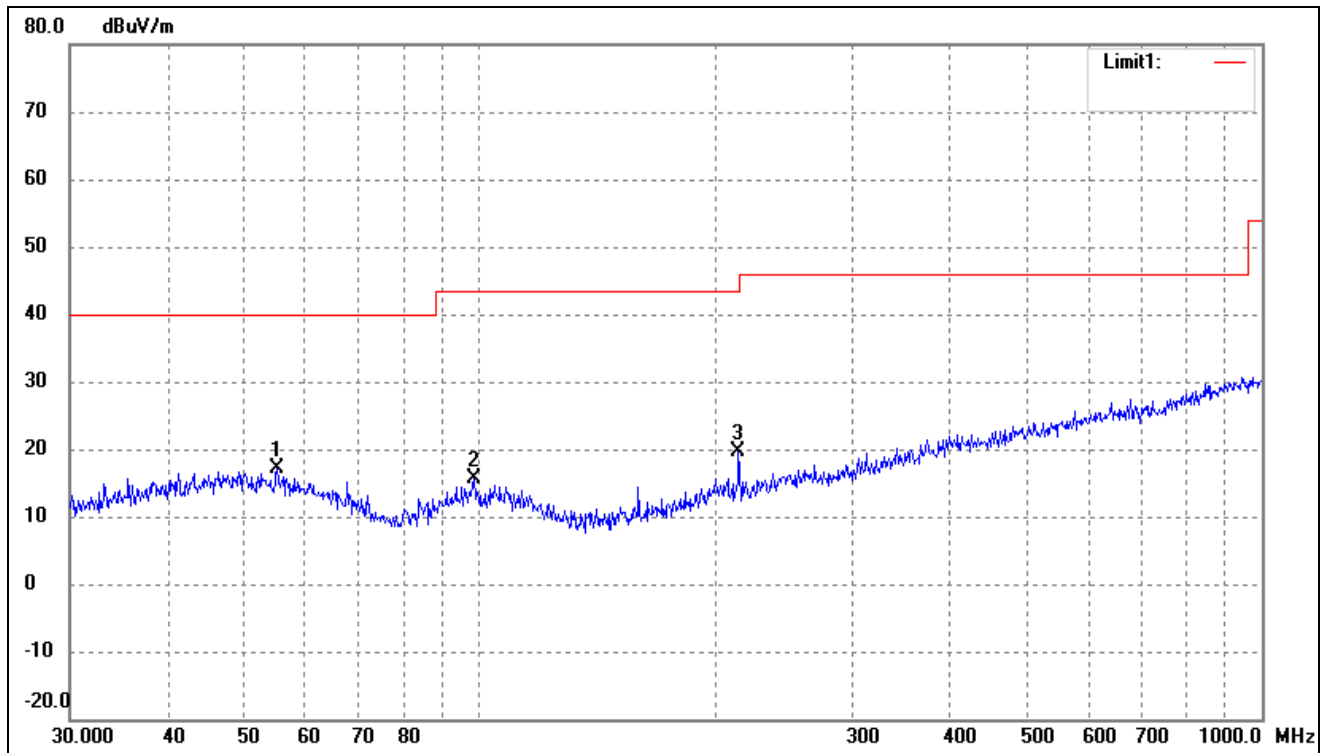
Test Specification: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	52.3913	24.31	-7.68	16.63	40.00	-23.37	267	100	peak
2	166.6514	28.52	-12.01	16.51	43.50	-26.99	116	100	peak
3	256.5211	32.52	-7.29	25.23	46.00	-20.77	360	100	peak

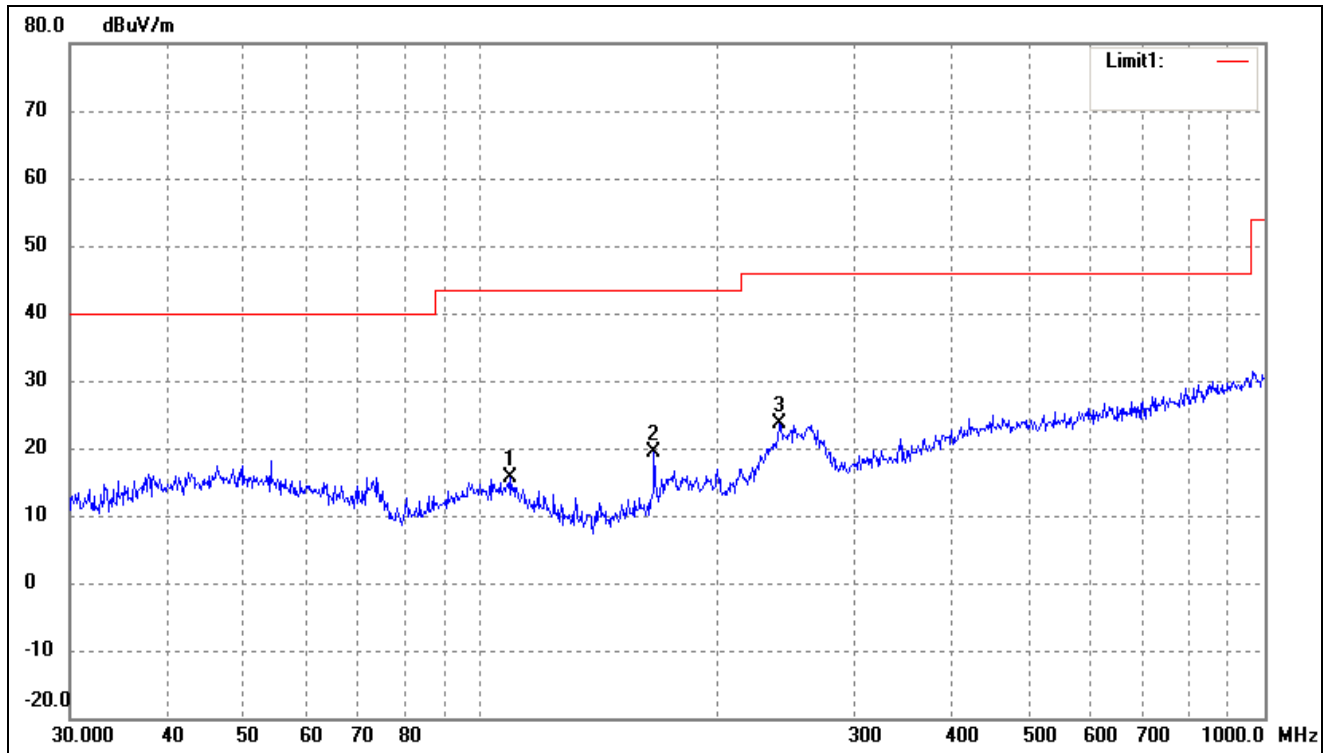
EUT: Tablet
Tested Model: M87GB2-P(W)
Operating Condition: 802.11n-HT40 Transmitting Low Channel-2422MHz
Comment: Battery DC 3.7V

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	55.2207	25.03	-7.97	17.06	40.00	-22.94	267	100	peak
2	98.4866	25.27	-9.75	15.52	43.50	-27.98	114	200	peak
3	214.5143	28.52	-8.96	19.56	43.50	-23.94	35	200	peak

Test Specification: Vertical

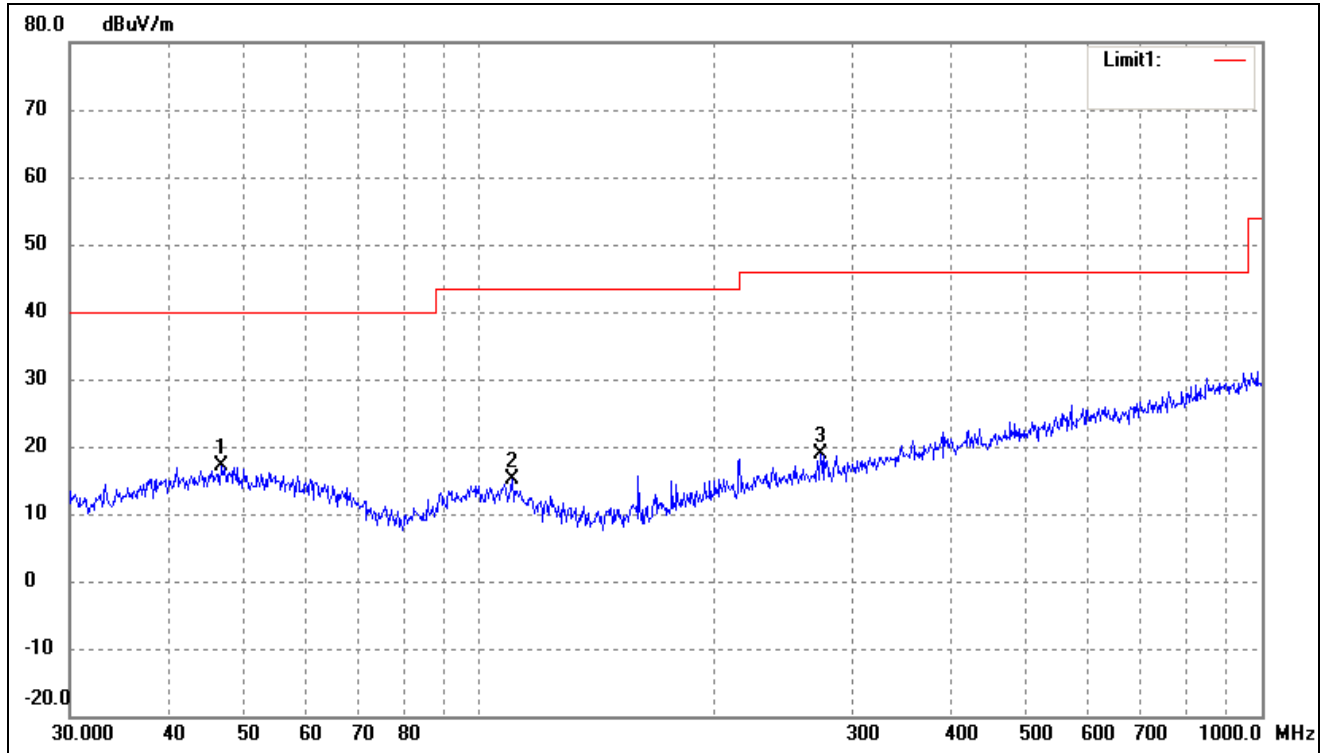


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	109.4116	25.10	-9.59	15.51	43.50	-27.99	360	100	peak
2	166.6514	31.44	-12.01	19.43	43.50	-24.07	258	100	peak
3	240.8304	31.41	-7.75	23.66	46.00	-22.34	347	100	peak

Operating Condition: 802.11n-HT40 Transmitting Middle Channel-2442MHz

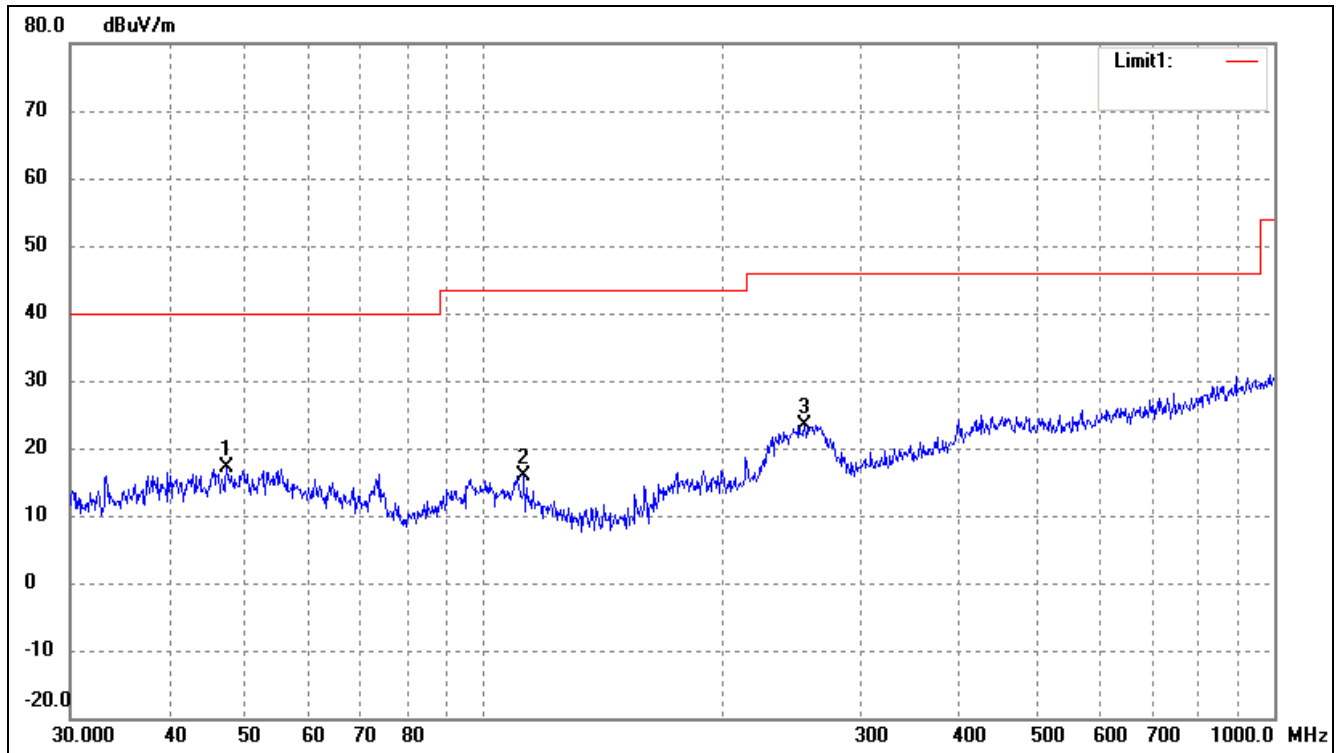
Comment: Battery DC 3.7V

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	46.8303	24.53	-7.45	17.08	40.00	-22.92	251	100	peak
2	110.1816	24.75	-9.63	15.12	43.50	-28.38	167	100	peak
3	273.2341	25.69	-6.87	18.82	46.00	-27.18	44	100	peak

Test Specification: Vertical

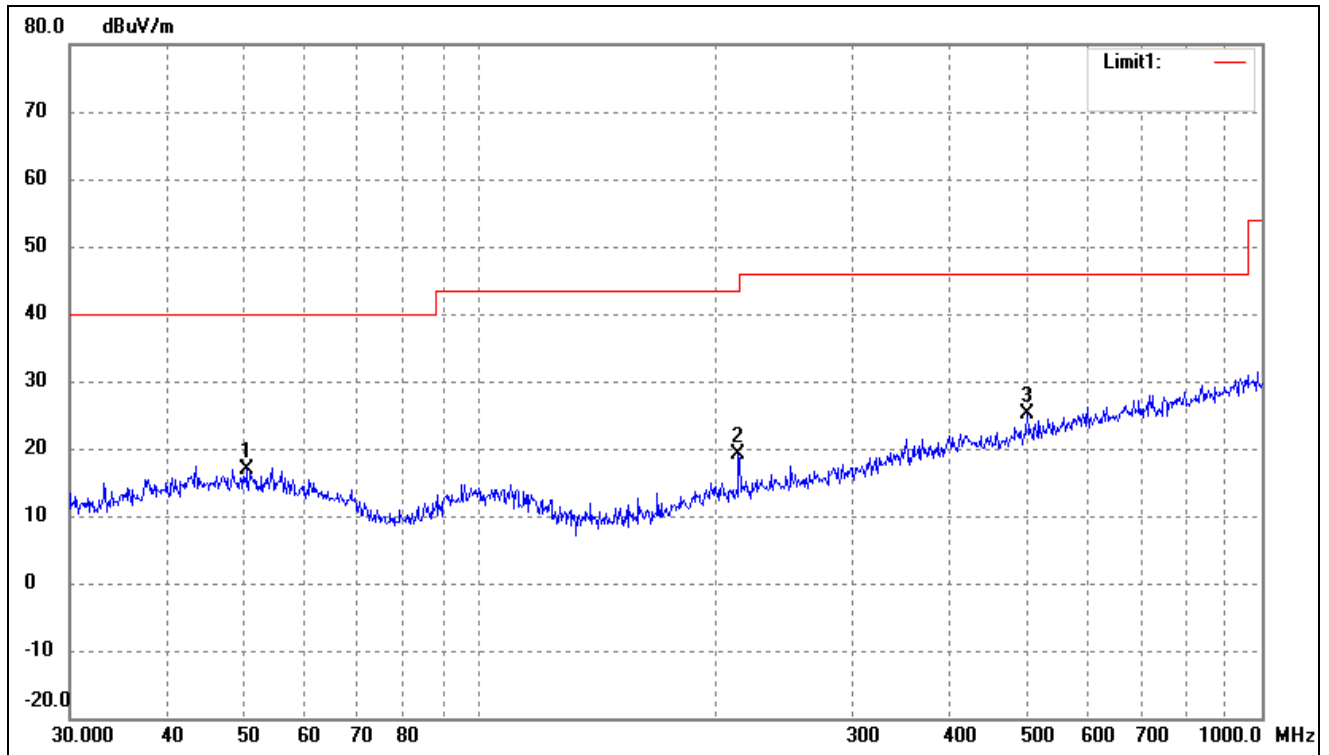


No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	47.3255	24.51	-7.45	17.06	40.00	-22.94	47	100	peak
2	112.5244	26.01	-10.02	15.99	43.50	-27.51	264	100	peak
3	254.7284	30.67	-7.34	23.33	46.00	-22.67	225	100	peak

Operating Condition: 802.11n-HT40 Transmitting High Channel-2452MHz

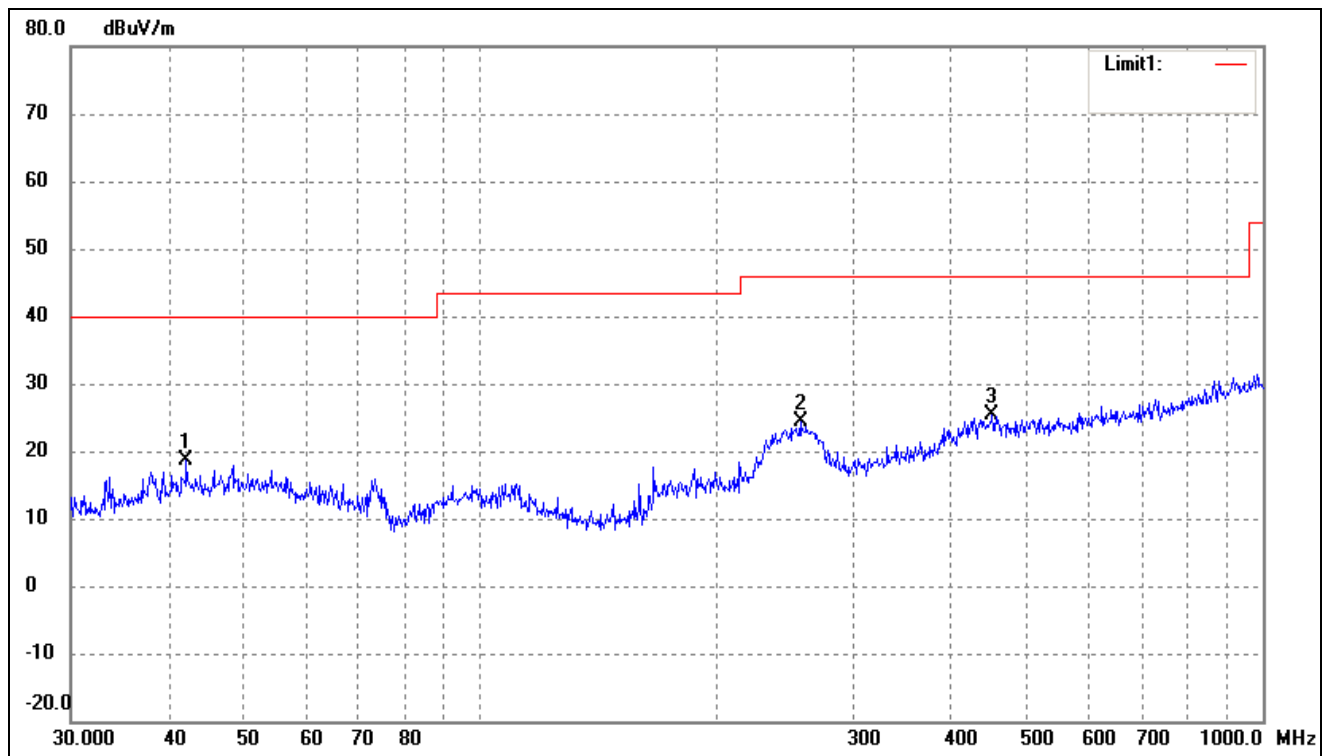
Comment: Battery DC 3.7V

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	50.5860	24.40	-7.50	16.90	40.00	-23.10	360	100	peak
2	214.5143	27.97	-8.96	19.01	43.50	-24.49	287	100	peak
3	501.1790	26.16	-1.10	25.06	46.00	-20.94	168	100	peak

Test Specification: Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	42.1542	26.57	-8.03	18.54	40.00	-21.46	78	100	peak
2	256.5211	31.65	-7.29	24.36	46.00	-21.64	136	100	peak
3	451.1350	27.58	-2.16	25.42	46.00	-20.58	284	100	peak

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	54.09	0.57	54.66	74.00	-19.34	H	PK
4824	38.84	0.57	39.41	54.00	-14.59	H	AV
7236	46.30	3.69	49.99	74.00	-24.01	H	PK
7236	34.98	3.69	38.67	54.00	-15.33	H	AV
4824	57.31	0.57	57.88	74.00	-16.12	V	PK
4824	40.50	0.57	41.07	54.00	-12.93	V	AV
7236	49.11	3.69	52.80	74.00	-21.20	V	PK
7236	37.44	3.69	41.13	54.00	-12.87	V	AV
Middle Channel-2442MHz							
4884	54.74	0.66	55.40	74.00	-18.60	H	PK
4884	39.99	0.66	40.65	54.00	-13.35	H	AV
7326	47.77	3.76	51.53	74.00	-22.47	H	PK
7326	33.10	3.76	36.86	54.00	-17.14	H	AV
4884	53.97	0.66	54.63	74.00	-19.37	V	PK
4884	40.89	0.66	41.55	54.00	-12.45	V	AV
7326	47.98	3.76	51.74	74.00	-22.26	V	PK
7326	34.08	3.76	37.84	54.00	-16.16	V	AV
High Channel-2462MHz							
4924	55.82	0.74	56.56	74.00	-17.44	H	PK
4924	41.76	0.74	42.50	54.00	-11.50	H	AV
7386	46.38	3.83	50.21	74.00	-23.79	H	PK
7386	34.83	3.83	38.66	54.00	-15.34	H	AV
4924	54.94	0.74	55.68	74.00	-18.32	V	PK
4924	42.04	0.74	42.78	54.00	-11.22	V	AV
7386	47.99	3.83	51.82	74.00	-22.18	V	PK
7386	35.18	3.83	39.01	54.00	-14.99	V	AV

Test Mode: 802.11g

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	H/V	
Low Channel-2412MHz							
4824	55.50	0.57	56.07	74.00	-17.93	H	PK
4824	42.23	0.57	42.80	54.00	-11.20	H	AV
7236	48.42	3.69	52.11	74.00	-21.89	H	PK
7236	34.40	3.69	38.09	54.00	-15.91	H	AV
4824	55.99	0.57	56.56	74.00	-17.44	V	PK
4824	42.65	0.57	43.22	54.00	-10.78	V	AV
7236	49.22	3.69	52.91	74.00	-21.09	V	PK
7236	35.54	3.69	39.23	54.00	-14.77	V	AV
Middle Channel-2442MHz							
4884	55.10	0.66	55.76	74.00	-18.24	H	PK
4884	43.28	0.66	43.94	54.00	-10.06	H	AV
7326	47.38	3.76	51.14	74.00	-22.86	H	PK
7326	35.27	3.76	39.03	54.00	-14.97	H	AV
4884	57.07	0.66	57.73	74.00	-16.27	V	PK
4884	43.86	0.66	44.52	54.00	-9.48	V	AV
7326	48.40	3.76	52.16	74.00	-21.84	V	PK
7326	35.33	3.76	39.09	54.00	-14.91	V	AV
High Channel-2462MHz							
4924	54.00	0.74	54.74	74.00	-19.26	H	PK
4924	40.75	0.74	41.49	54.00	-12.51	H	AV
7386	47.18	3.83	51.01	74.00	-22.99	H	PK
7386	34.73	3.83	38.56	54.00	-15.44	H	AV
4924	56.11	0.74	56.85	74.00	-17.15	V	PK
4924	42.69	0.74	43.43	54.00	-10.57	V	AV
7386	48.58	3.83	52.41	74.00	-21.59	V	PK
7386	35.95	3.83	39.78	54.00	-14.22	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	55.60	0.57	56.17	74.00	-17.83	H	PK
4824	40.54	0.57	41.11	54.00	-12.89	H	AV
7236	47.26	3.69	50.95	74.00	-23.05	H	PK
7236	34.44	3.69	38.13	54.00	-15.87	H	AV
4824	56.71	0.57	57.28	74.00	-16.72	V	PK
4824	43.18	0.57	43.75	54.00	-10.25	V	AV
7236	49.21	3.69	52.90	74.00	-21.10	V	PK
7236	35.77	3.69	39.46	54.00	-14.54	V	AV
Middle Channel-2442MHz							
4884	54.16	0.66	54.82	74.00	-19.18	H	PK
4884	42.48	0.66	43.14	54.00	-10.86	H	AV
7326	48.74	3.76	52.50	74.00	-21.50	H	PK
7326	33.10	3.76	36.86	54.00	-17.14	H	AV
4884	54.92	0.66	55.58	74.00	-18.42	V	PK
4884	42.62	0.66	43.28	54.00	-10.72	V	AV
7326	48.49	3.76	52.25	74.00	-21.75	V	PK
7326	35.20	3.76	38.96	54.00	-15.04	V	AV
High Channel-2462MHz							
4924	53.90	0.74	54.64	74.00	-19.36	H	PK
4924	43.23	0.74	43.97	54.00	-10.03	H	AV
7386	48.31	3.83	52.14	74.00	-21.86	H	PK
7386	36.10	3.83	39.93	54.00	-14.07	H	AV
4924	55.70	0.74	56.44	74.00	-17.56	V	PK
4924	41.48	0.74	42.22	54.00	-11.78	V	AV
7386	48.55	3.83	52.38	74.00	-21.62	V	PK
7386	35.36	3.83	39.19	54.00	-14.81	V	AV

Test Mode: 802.11n-HT40

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	H/V	
Low Channel-2422MHz							
4844	53.25	0.60	53.85	74.00	-20.15	H	PK
4844	38.25	0.60	38.85	54.00	-15.15	H	AV
7266	46.48	3.72	50.20	74.00	-23.80	H	PK
7266	32.56	3.72	36.28	54.00	-17.72	H	AV
4844	54.22	0.60	54.82	74.00	-19.18	V	PK
4844	39.42	0.60	40.02	54.00	-13.98	V	AV
7266	48.81	3.72	52.53	74.00	-21.47	V	PK
7266	34.78	3.72	38.50	54.00	-15.50	V	AV
Middle Channel-2442MHz							
4884	52.53	0.66	53.19	74.00	-20.81	H	PK
4884	37.88	0.66	38.54	54.00	-15.46	H	AV
7326	44.88	3.76	48.64	74.00	-25.36	H	PK
7326	32.03	3.76	35.79	54.00	-18.21	H	AV
4884	53.74	0.66	54.40	74.00	-19.60	V	PK
4884	39.95	0.66	40.61	54.00	-13.39	V	AV
7326	45.78	3.76	49.54	74.00	-24.46	V	PK
7326	34.00	3.76	37.76	54.00	-16.24	V	AV
High Channel-2452MHz							
4904	52.65	0.72	53.37	74.00	-20.63	H	PK
4904	39.37	0.72	40.09	54.00	-13.91	H	AV
7356	45.63	3.81	49.44	74.00	-24.56	H	PK
7356	30.73	3.81	34.54	54.00	-19.46	H	AV
4904	54.84	0.72	55.56	74.00	-18.44	V	PK
4904	40.83	0.72	41.55	54.00	-12.45	V	AV
7356	48.18	3.81	51.99	74.00	-22.01	V	PK
7356	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 3th 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 Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	R&S	FSP	836079/035	2014-05-28	2015-05-27
EMI Test Receiver	R&S	ESVB	825471/005	2014-05-28	2015-05-27
Pre-amplifier	Agilent	8447F	3113A06717	2014-05-28	2015-05-27
Pre-amplifier	Compliance Direction	PAP-0118	24002	2014-05-28	2015-05-27
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2014-05-24	2015-05-23
Horn Antenna	ETS	3117	00086197	2014-05-24	2015-05-23

9.3 Test Procedure

According to the KDB 558074D01 v03r02, 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 V03r02, the conducted spurious emissions test method as follows:

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

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

9.4 Environmental Conditions

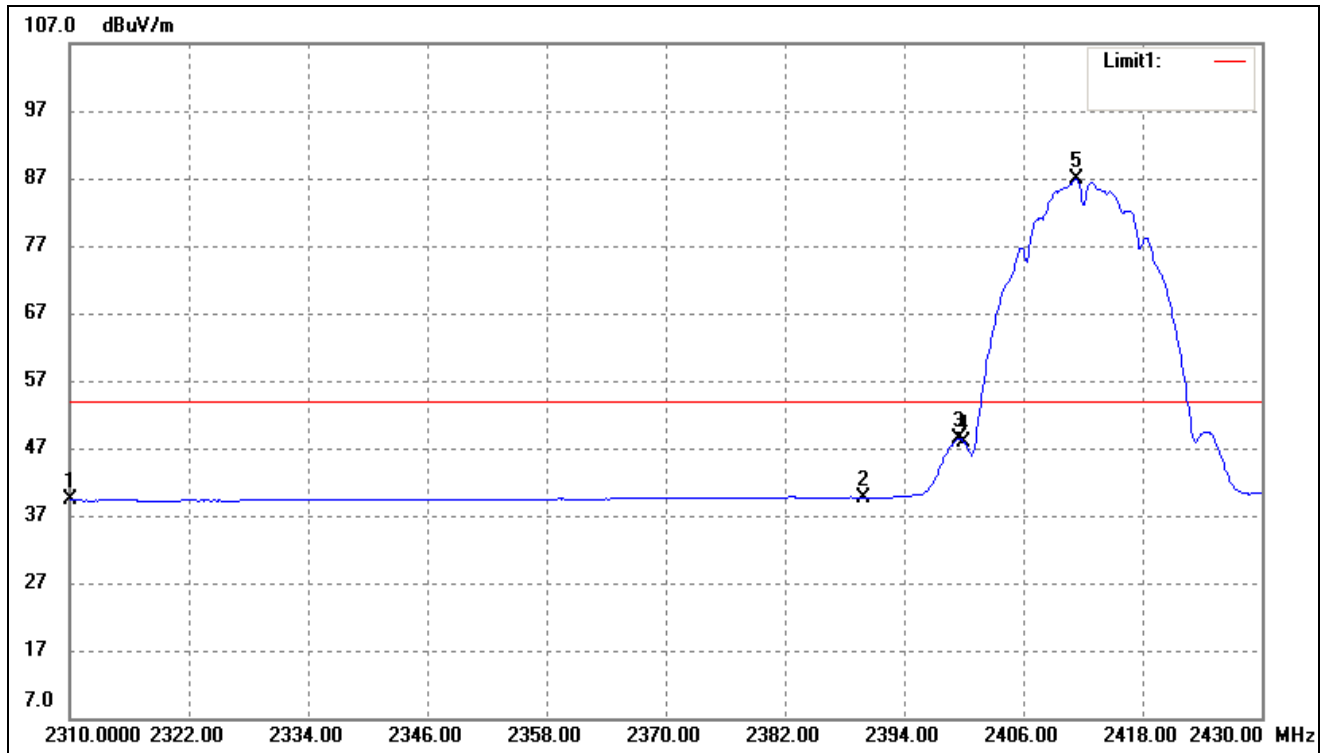
Temperature:	23°C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

9.5 Summary of Test Results/Plots

Please refer to the test plots as below.

802.11b-Lowest Bandedge

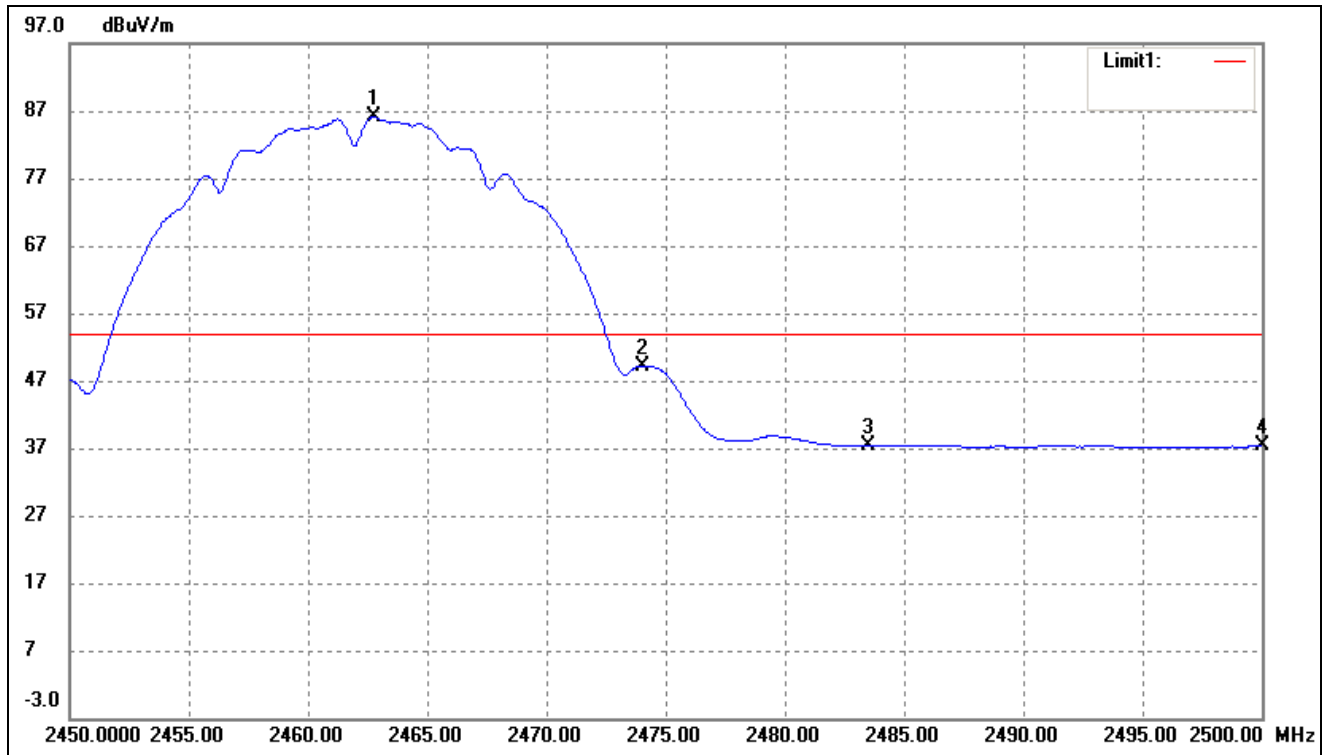
Vertical (Worst case)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2310.000	22.97	16.34	39.31	54.00	-14.69	Average Detector
	2310.000	34.29	16.34	50.63	74.00	-23.37	Peak Detector
2	2390.000	22.65	17.03	39.68	54.00	-14.32	Average Detector
	2390.000	34.96	17.03	51.99	74.00	-22.01	Peak Detector
3	2399.520	31.20	17.11	48.31	54.00	-5.69	Average Detector
4	2400.000	30.86	17.11	47.97	Delta=38.88dBc		Average Detector
5	2411.280	69.66	17.19	86.85			Average Detector

802.11b-Highest Bandedge

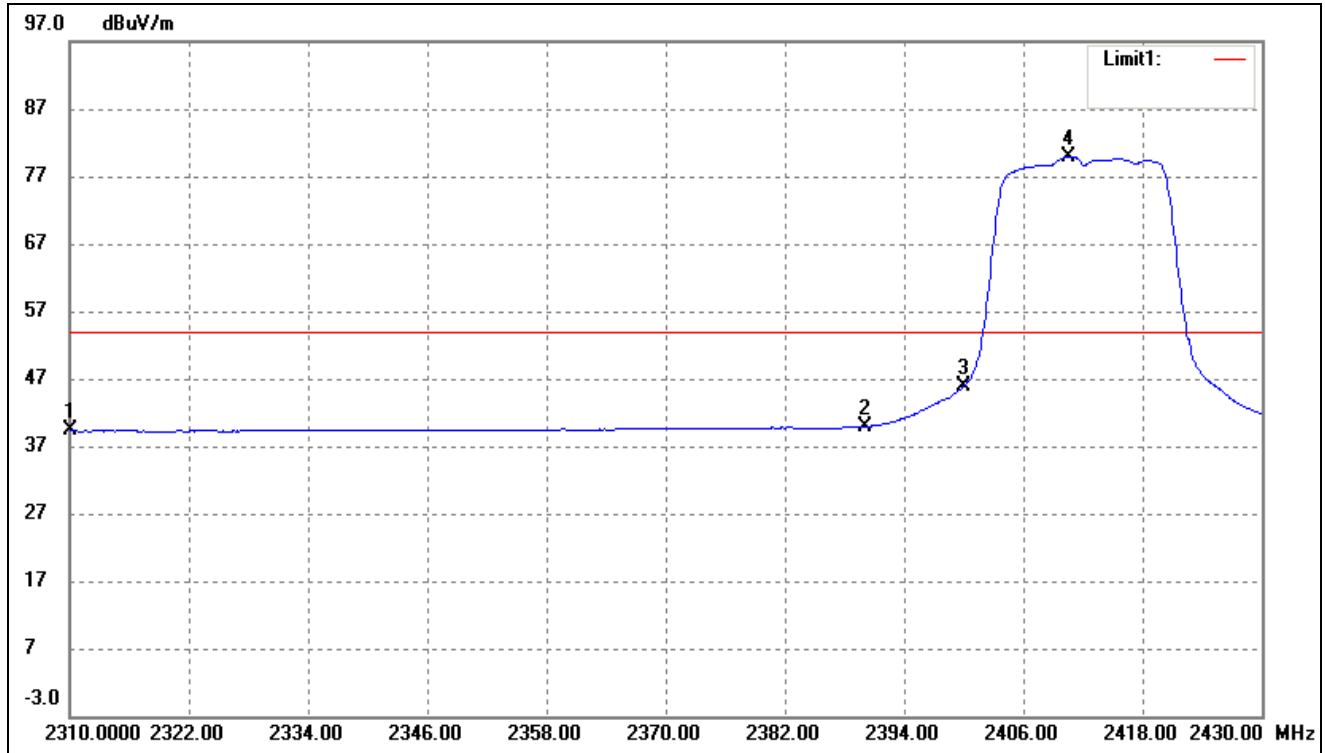
Vertical (Worst case)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2462.750	68.59	17.57	86.16	/	/	Average Detector
	2463.000	73.47	17.58	91.05			Peak Detector
2	2463.000	73.47	17.58	91.05	/	/	Average Detector
3	2483.500	Delta =49.87dBc		36.28	54.00	-17.72	Average Detector
	2483.500			41.18	74.00	-32.82	Peak Detector
4	2500.000	19.47	17.86	37.33	54.00	-16.67	Average Detector
	2500.000	32.47	17.86	50.33	74.00	-23.67	Peak Detector

802.11g-Lowest Bandedge

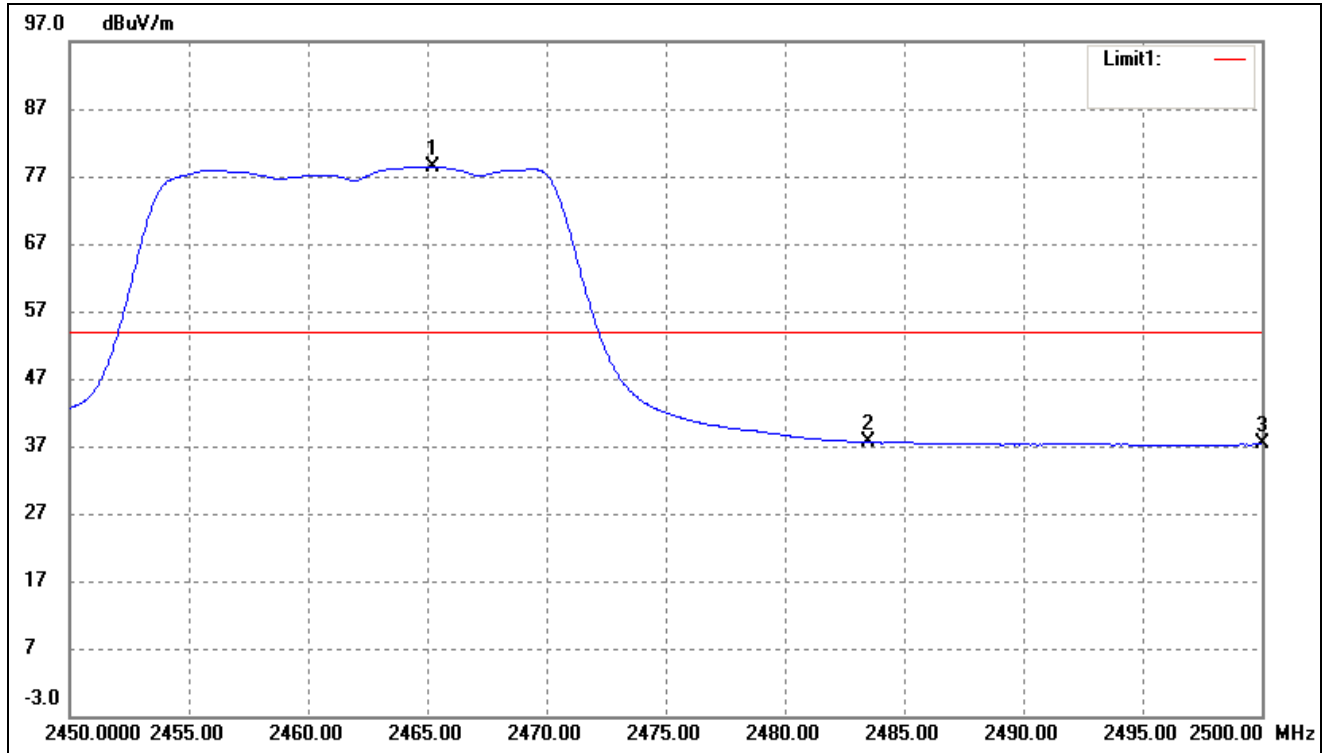
Vertical (Worst case)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2310.000	23.00	16.34	39.34	54.00	-14.66	Average Detector
	2310.000	35.54	16.34	51.88	74.00	-22.12	Peak Detector
2	2390.000	22.92	17.03	39.95	54.00	-14.05	Average Detector
	2390.000	34.72	17.03	51.75	74.00	-22.25	Peak Detector
3	2400.000	28.85	17.11	45.96	Delta=33.95dBc		Average Detector
4	2410.560	62.72	17.19	79.91			Average Detector

802.11g-Highest Bandedge

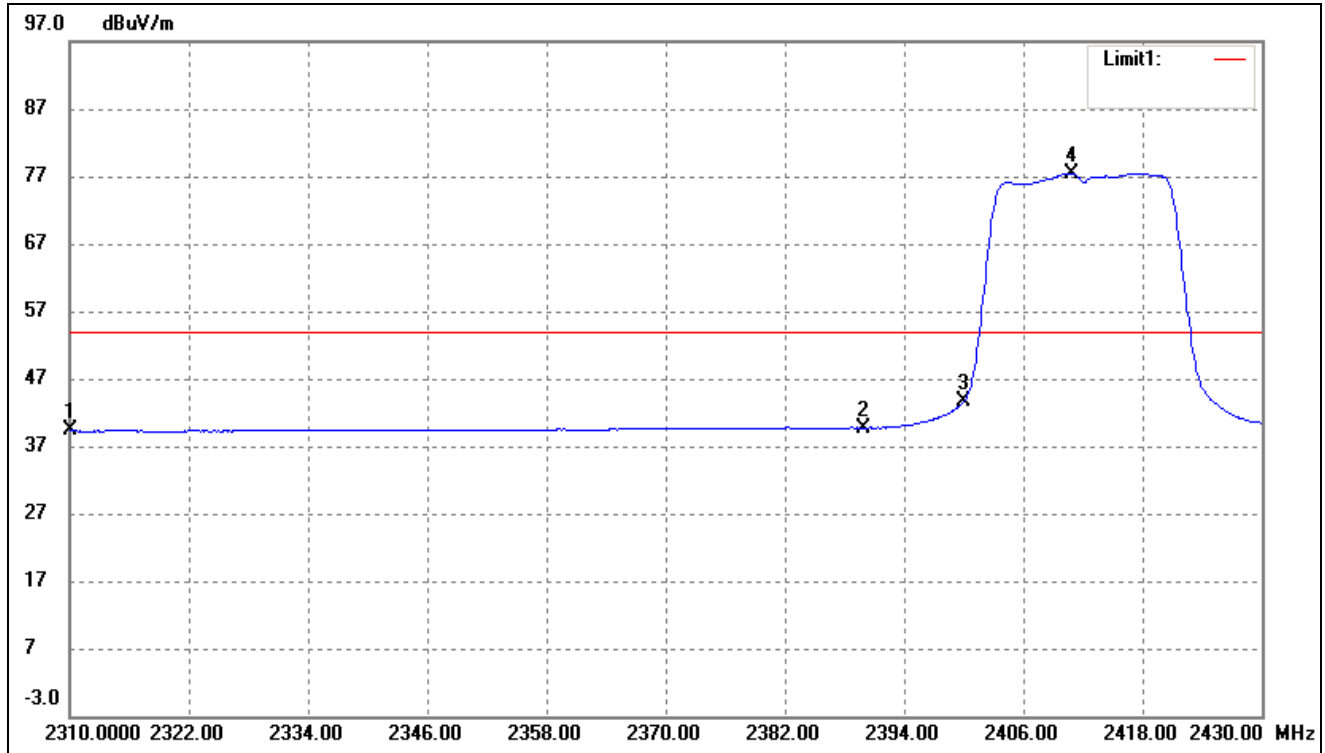
Vertical (Worst case)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2465.200	60.88	17.59	78.47	/	/	Average Detector
	2465.050	72.49	17.59	90.08	/	/	Peak Detector
2	2483.500	Delta =44.63dBc		33.84	54.00	-20.16	Average Detector
	2483.500			45.45	74.00	-28.55	Peak Detector
3	2500.000	19.42	17.86	37.28	54.00	-16.72	Average Detector
	2500.000	31.03	17.86	48.89	74.00	-25.11	Peak Detector

802.11n-HT20-Lowest Bandedge

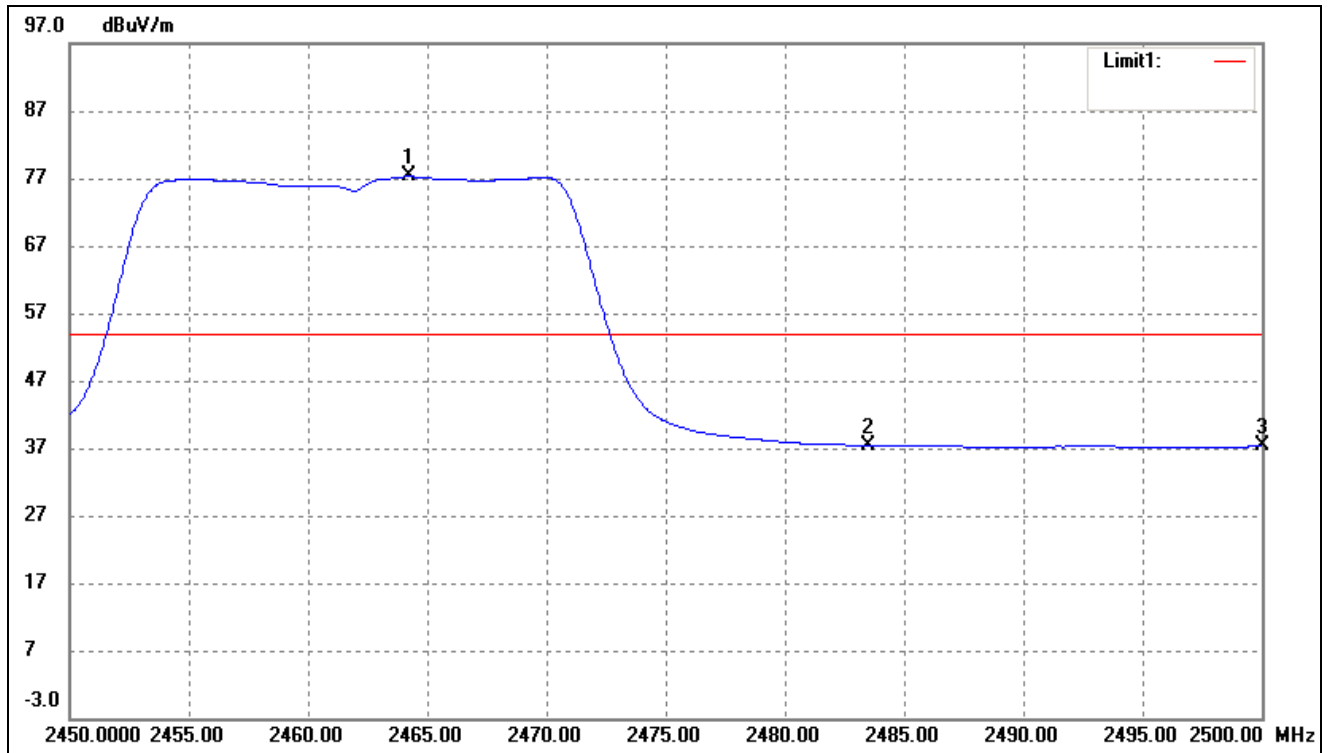
Vertical (Worst case)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2310.000	22.97	16.34	39.31	54.00	-14.69	Average Detector
	2310.000	36.28	16.34	52.62	74.00	-21.38	Peak Detector
2	2390.000	22.67	17.03	39.70	54.00	-14.30	Average Detector
	2390.000	34.65	17.03	51.68	74.00	-22.32	Peak Detector
3	2400.000	26.52	17.11	43.63	Delta=33.79dBc		Average Detector
	2410.800	60.23	17.19	77.42			Average Detector

802.11n-HT20-Highest Bandedge

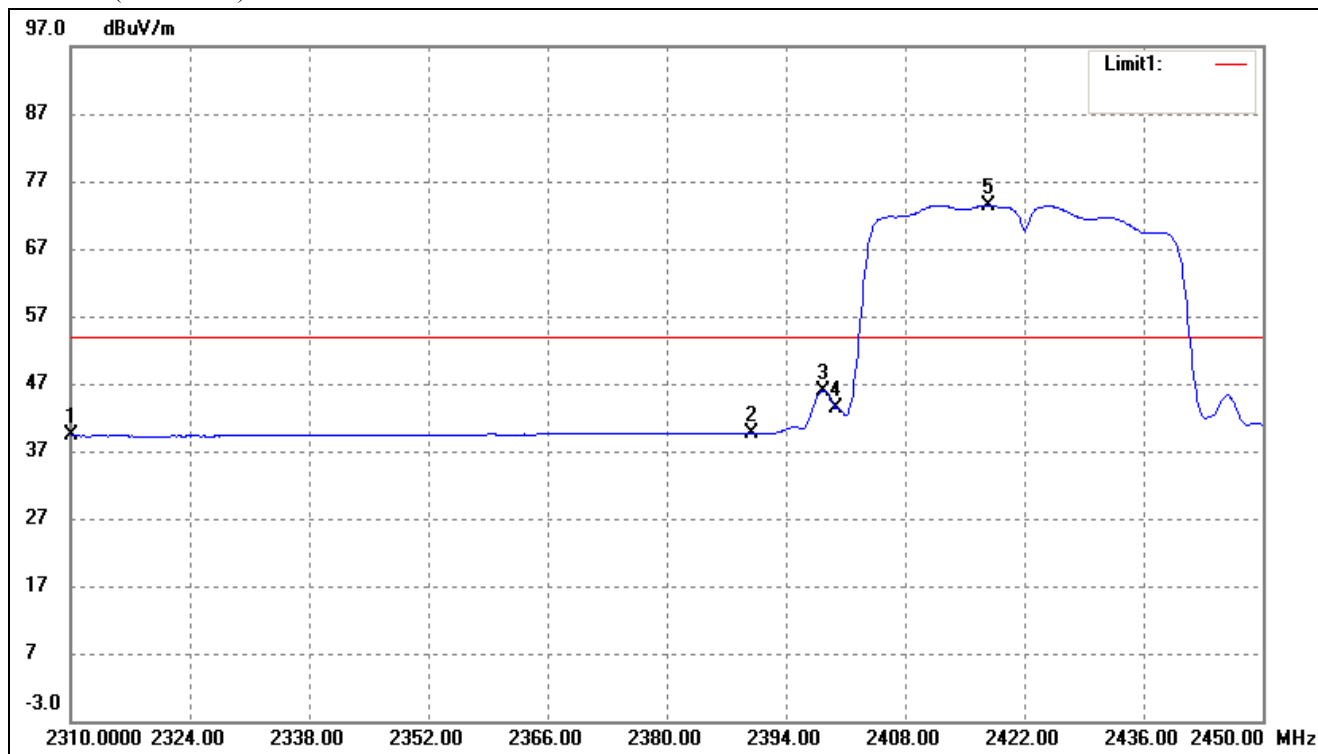
Vertical (Worst case)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2464.200	59.70	17.58	77.28	/	/	Average Detector
	2470.050	70.28	17.63	87.91	/	/	Peak Detector
2	2483.500	Delta =44.06dBc		33.22	54.00	-20.78	Average Detector
	2483.500			43.85	74.00	-30.15	Peak Detector
3	2500.000	19.41	17.86	37.27	54.00	-16.73	Average Detector
	2500.000	32.20	17.86	50.06	74.00	-23.94	Peak Detector

802.11n-HT40-Lowest Bandedge

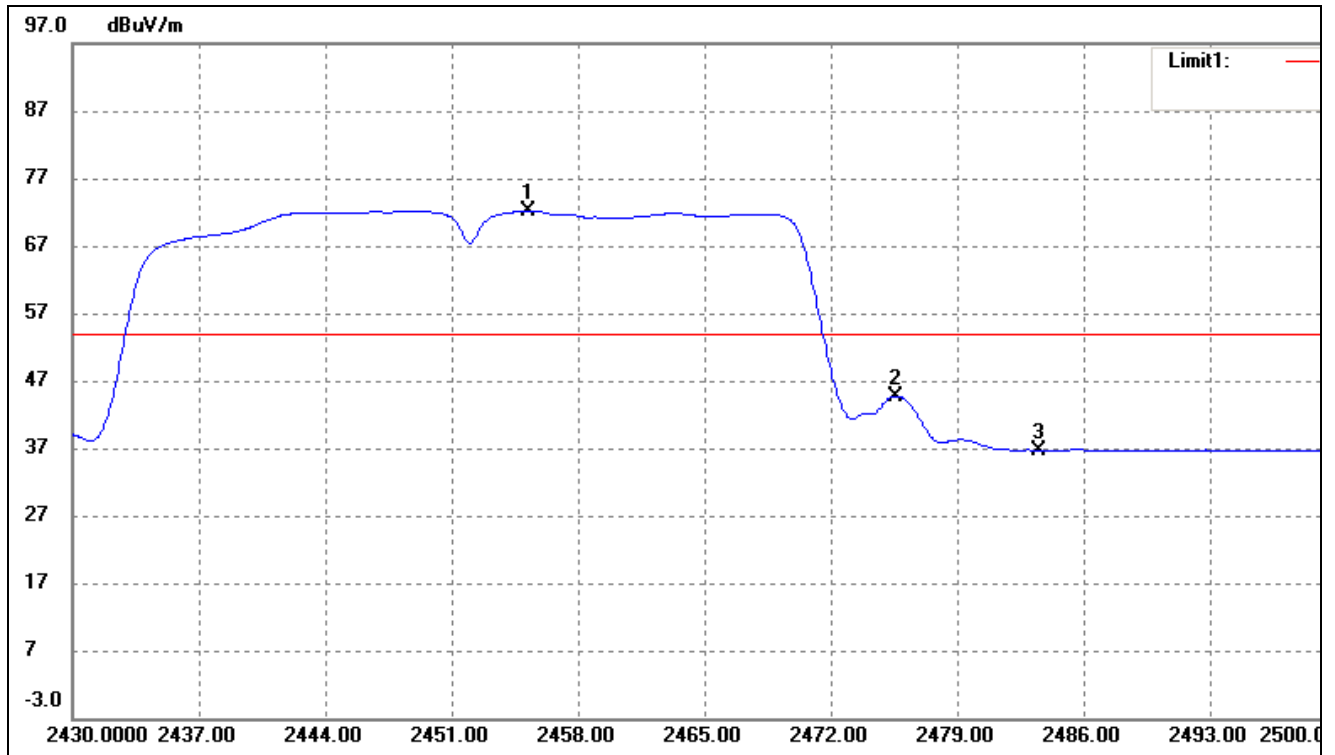
Vertical (Worst case)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2310.000	22.99	16.34	39.33	54.00	-14.67	Average Detector
	2310.000	35.27	16.34	51.61	74.00	-22.39	Peak Detector
2	2390.000	22.65	17.03	39.68	54.00	-14.32	Average Detector
	2390.000	34.08	17.03	51.11	74.00	-22.89	Peak Detector
3	2398.340	28.89	17.10	45.99	54.00	-8.01	Average Detector
4	2400.000	26.23	17.11	43.34	Delta=30.11dBc		Average Detector
5	2417.800	56.21	17.24	73.45			Average Detector

802.11n-HT40-Highest Bandedge

Vertical (Worst case)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2455.200	54.69	17.53	72.22	/	/	Average Detector
	2455.130	65.85	17.53	83.38	/	/	Peak Detector
2	2475.570	27.07	17.68	44.75	54.00	-9.25	Average Detector
3	2483.500	Delta =41.58dBc		30.64	54.00	-23.36	Average Detector
	2483.500			41.80	74.00	-32.20	Peak Detector
4	2500.000	18.79	17.86	36.65	54.00	-17.35	Average Detector
	2500.000	29.95	17.86	47.81	74.00	-26.19	Peak Detector

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 Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2014-05-28	2015-05-27
L.I.S.N	Schwarz beck	NSLK8126	8126-224	2014-05-28	2015-05-27
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2014-05-28	2015-05-27

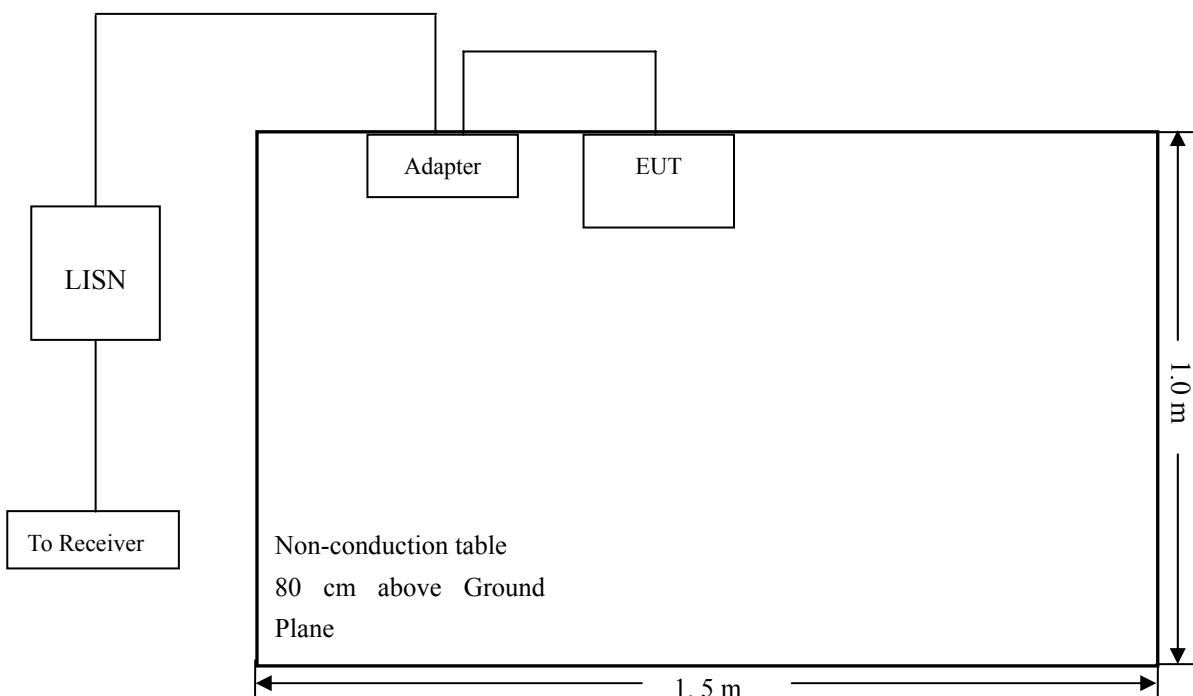
10.3 Test Procedure

The setup of EUT is according with per ANSI C63.4-2003 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.

10.4 Basic Test Setup Block Diagram



10.5 Environmental Conditions

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

10.6 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

10.7 Summary of Test Results/Plots

According to the data in section 9.8, the EUT complied with the FCC Part 15.207 Conducted margin for a Class B device, with the *worst* margin reading of:

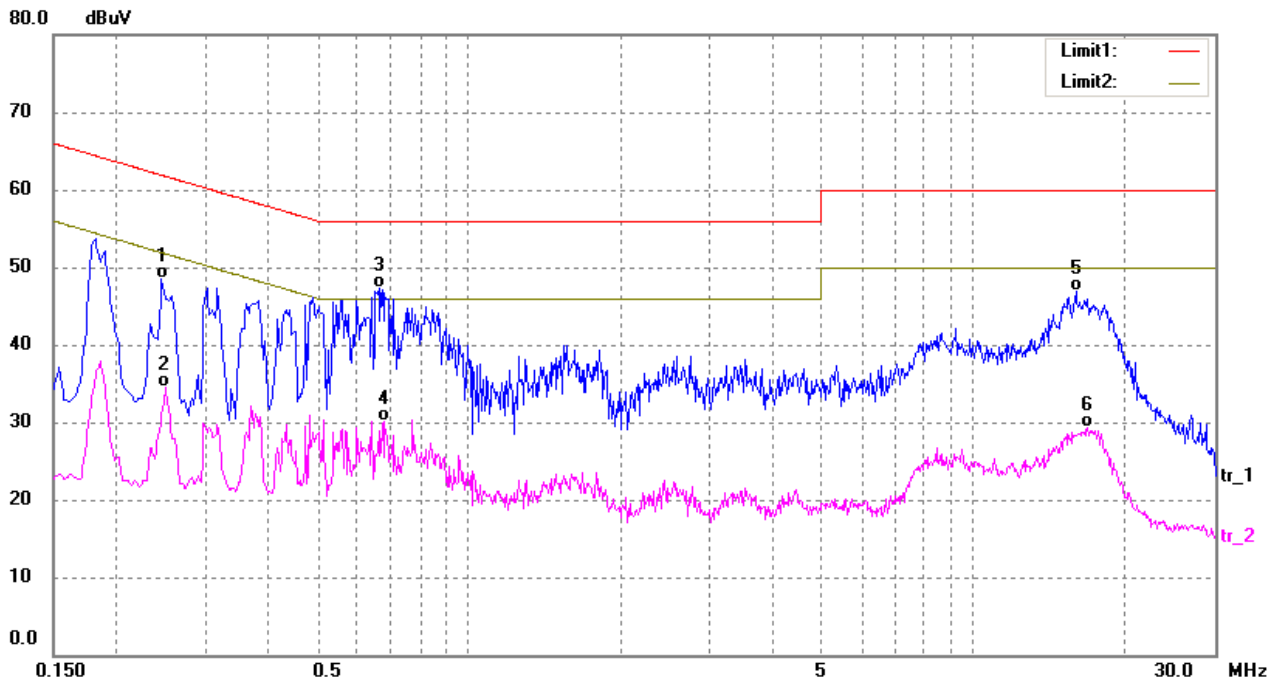
-8.72dB at 0.6620 MHz in the **Neutral, QP** detector, 0.15-30MHz

10.8 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

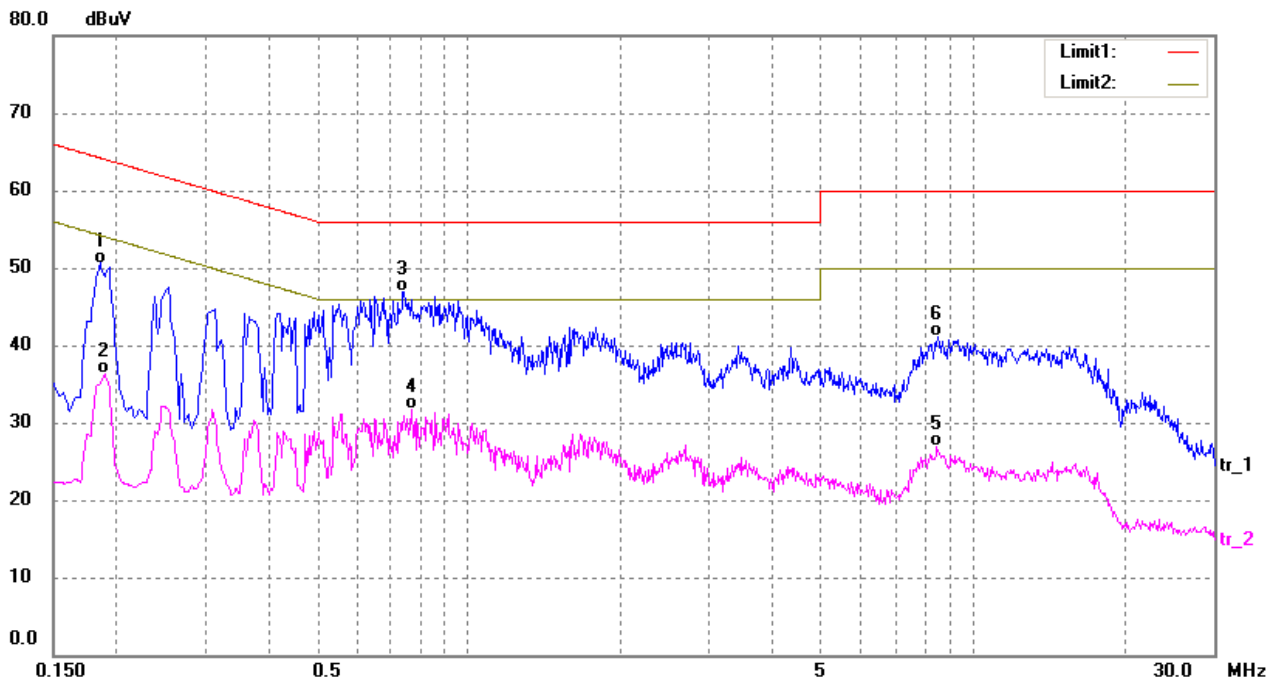
EUT: Tablet
 Tested Model: M87GB2-P(W)
 Operating Condition: Transmitting(Wi-Fi)
 Comment: AC 120V/60Hz; Adapter DC 5V/2A

Test Specification: Neutral



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.2460	39.03	9.50	48.53	61.89	-13.36	QP
2	0.2500	24.92	9.50	34.42	51.76	-17.34	AVG
3	0.6620	37.62	9.66	47.28	56.00	-8.72	QP
4	0.6820	20.44	9.68	30.12	46.00	-15.88	AVG
5	15.9660	35.72	11.19	46.91	60.00	-13.09	QP
6	16.7740	17.92	11.35	29.27	50.00	-20.73	AVG

Test Specification: Line



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1860	41.10	9.50	50.60	64.21	-13.61	QP
2	0.1900	26.87	9.50	36.37	54.04	-17.67	AVG
3	0.7420	37.25	9.74	46.99	56.00	-9.01	QP
4	0.7700	21.88	9.77	31.65	46.00	-14.35	AVG
5	8.4660	16.82	10.00	26.82	50.00	-23.18	AVG
6	8.5420	31.19	10.00	41.19	60.00	-18.81	QP

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