FCC / IC Test Report

FOR:

Bot Home Automation

Model Name:

Chime

Product Description:

Wi-Fi Enabled Doorbell

FCC ID: 2AEUPBHACM001
IC ID: 20271- BHACM001

47 CFR Part 15.247
RSS-247 Issue 1 & RSS-Gen Issue 4

TEST REPORT #: EMC_BOTHO-003-15001_15.247_DTS_WLAN
DATE: 2015-07-16

IC recognized # 3462B-1

***CETECOM* Inc.**
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1 Assessment

The following device was evaluated against the applicable criteria specified in FCC rules Parts 15.247 of Title 47 of the Code of Federal Regulations and the relevant IC standard RSS-247 issue 1. No deviations were ascertained.

Company	Product Description	Model #
Bot Home Automation	Wi-Fi Enabled Doorbell	Chime

Responsible for Testing Laboratory:

Date	Section	Name	Signature
2015-07-19	Compliance	Franz Engert (Compliance Manager)	Digitally signed by Franz Engert DN: cn=Franz Engert, c=US, o=CETECOM, ou=Complience, email=franz.engert@cetecom.com Date: 2015.07.19 12:12:12 -07'00'

Responsible for the Report:

Date	Section	Name	Signature
2015-07-19	Compliance	Franz Engert (Compliance Manager)	Digitally signed by Franz Engert DN: cn=Franz Engert, c=US, o=CETECOM, ou=Complience, email=franz.engert@cetecom.com Date: 2015.07.19 12:13:16 -07'00'

2 Administrative Data

2.1 Identification of the Testing Laboratory Issuing the Test Report

Company Name:	CETECOM Inc.
Department:	Compliance
Address:	411 Dixon Landing Road Milpitas, CA 95035 U.S.A.
Telephone:	+1 (408) 586 6200
Fax:	+1 (408) 586 6299
Compliance Manager:	Franz Engert
Responsible Project Leader:	Yu-Chien Ho

2.2 Identification of the Client

Client Firm/Name:	Ring
Street Address:	1523 26th Street
City/Zip Code	Santa Monica, CA 90404
Country	USA
Contact Person:	Tim Simons
Phone No.	310-227-2217
e-mail:	tim@ring.com

2.3 Identification of the Manufacturer

Manufacturer's Name:	Ennoconn
Manufacturers Address:	3F, Number A03 Building, A District
City/Zip Code	Longxi Town, Bolou County, Huizhou City, Guangdong
Country	China

3 Equipment under Test (EUT)

3.1 Specification of the Equipment under Test

Marketing Name / Model No:	Ring / Chime
HW Version :	V1
FCC-ID :	2AEUPBHACM001
IC-ID:	20271- BHACM001
Product Description:	Wi-Fi Enabled Doorbell
Technology/ Type(s) of Modulation:	802.11b/g/n with CCK, DQPSK, DBPSK + DSSS QBSK, BPSK, 16 QAM, 64 QAM + OFDM
Modes of Operation	802.11b/g/n (Client)
Channel Bandwidths	Up to 20 MHz
Operating Frequency Ranges (MHz)/ Channels:	Nominal band: 2400 – 2483.5 MHz; 2412 MHz (Ch. 1) – 2462 (Ch.11), 11 channels
Antenna info:	PCB - Inverted F 2.4 GHz: 2.0 dBi
Maximum Output Powers:	Conducted: 18.18 dBm (65.76 mW) for 802.11b Conducted: 19.96 dBm (99.08 mW) for 802.11g Conducted: 19.32 dBm (85.51 mW) for 802.11n
Power Supply/ Rated Operating Voltage Range:	Input:110-240V~50-60 Hz, 2.0-1.0 A
operating temperature range	Tlow: 0° C/ Tnom: 25° C/ Tmax: 40° C
Prototype / Production unit	Production

3.2 Identification of the Equipment Under Test (EUT)

EUT #	Serial Number	HW Version	SW Version	Notes/Comments
1	UH81517014585BUB2C	01	V1	Radiated Sample
2	UH81517014604BUB2O	01	V1	Conducted Sample

3.3 Identification of Accessory equipment

AE #	Type	Manufacturer	Model	Serial Number
1	N/A			

3.4 Environmental conditions during Test:

The following environmental conditions were maintained during the course of testing:
Ambient Temperature: 20-25°C
Relative humidity: 40-60%

3.5 Dates of Testing:

2015/05/15 – 2015/05/25

3.6 Testing Notes:

The EUT was set in WLAN Test mode using Radio Tool GUI.

3.7 Test mode of operation:

Mode	Data rate (Mbps)	Modulation scheme
802.11b	11	CCK
802.11g	6	BPSK+DSSS
802.11n (HT20)	6.5 (MCS0)	BPSK+OFDM

The Device was set to continuous framed Tx (burst) mode per test SW. When 98% duty cycle cannot be achieved, duty cycle correction factor shall be added to the measurement results.

For radiated spurious emissions, the EUT was tested on low, mid and high channels (2.4GHz) in 802.11g mode only since it produced the highest output power test results.

4 Subject of Investigation

The objective of the evaluation documented in this report was to assess if the performance of the EUT meets the relevant requirements specified in FCC rules Part 15.247 of Title 47 of the Code of Federal Regulations and Radio Standard Specification RSS-247 issue 1 of Industry Canada.

This test report is to support a request for new equipment authorization under the FCC ID: **2AEUPBHACM001** and IC ID: **20271- BHACM001.**

All testing was performed on the product referred to in Section 3 as EUT.

The EUT was tested with the transmitter sets on low, mid and high channels. For radiated measurements, all data in this report shows the worst case between horizontal and vertical antenna polarizations and for all orientations of the EUT.

5 Summary of Measurement Results

Test Specification	Test Case	Temperature and Voltage Conditions	Mode	Pass	Fail	NA	NP	Result
§15.247(e) RSS-247 5.2(2)	Power Spectral Density	Nominal	802.11b 802.11g 802.11n20	■	☐	☐	☐	Complies
§15.247(a)(1) RSS-247 5.2(1)	Emission Bandwidth	Nominal	802.11b 802.11g 802.11n20	■	☐	☐	☐	Complies
§15.247(b)(1) RSS-247 5.4(4)	Maximum Conducted Output Power and EIRP	Nominal	802.11b 802.11g 802.11n20	■	☐	☐	☐	Complies
§15.247(d) §15.247(a) RSS-247 5.5 RSS Gen 8.10	Band edge & Restricted Band Edge compliance	Nominal	802.11b 802.11g 802.11n20	■	☐	☐	☐	Complies
§15.247(d) §15.209(a) RSS-Gen 6.13	TX Spurious emissions-Radiated	Nominal	802.11g	■	☐	☐	☐	Complies
§15.207(a) RSS-Gen 8.8	AC Conducted Emissions	Nominal	802.11g	■	☐	☐	☐	Complies

Note: NA= Not Applicable; NP= Not Performed.

6 Measurements

6.1 Radiated Measurement Procedure
Ref: ANSI C63.10 (2013)

Section 5.4: Measurements around the EUT
Measurements shall be made at a test site that incorporates a turntable allowing EUT rotation of 0° through 360°, except where the EUT is so large that a suitable turntable is not readily available. A remotely controlled turntable shall be installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission frequency. Continuous azimuth searches shall be made. The maximum field strength at the frequency being measured shall be reported in the test report.32 See ANSI C63.4 for details of the test site, turntable, and antenna positioner. Where a continuous azimuth search cannot be made, as is the case for example where the EUT is so large that a suitable turntable is not readily available, frequency scans of the EUT field strength with both polarizations of the measuring antenna shall be made, starting with a minimum of 16 azimuth angles around the EUT, nominally spaced by 22.5°, in characterizing the EUT radio-noise profile. If directional EUT radiation patterns are suspected, especially above 1 GHz then additional and smaller azimuth angles shall be examined.

Section 5.3.2: Test distance for frequencies below 30 MHz
Radiated emissions limits are usually defined at a specific distance from the EUT. Where possible, measurements shall be made at the distance specified in the limits. This might not be possible in all cases, however, due to the physical limitations of the test facility, physical access problems at the required distance (especially for measurements that must be made in situ or on-site), or levels of ambient noise or other radiated signals present at the time and location where measurements are made. See 6.4.3 for more information about antenna selection, location, and test distance. If measurements cannot practically be made at the EUT limit distance, then they may be made at a different distance (usually closer) and extrapolated to the limit distance using one of the procedures described in 6.4.4, 6.4.5, or 7.7, depending on the EUT source and size.31 The test report shall specify the extrapolation method used to determine compliance of the EUT.

Section 5.3.3: Test distance for frequencies at or above 30 MHz
Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment (see 4.3.4). Measurements shall not be performed at a distance greater than 30 m for frequencies above 30 MHz, unless it can be further demonstrated that measurements at a distance of 30 m or less are impractical. Measurements from 18 GHz to 40 GHz are typically made at distances significantly less than 3 m from the EUT. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade of distance (inverse of linear distance for field-strength measurements or inverse of linear distance-squared for power-density measurements).

ANSI C63.10 (2013)

Section 6.6.4.2: Exploratory radiated emissions measurements

Exploratory radiated measurements shall be performed at the measurement distance or at a closer distance than that specified for compliance to determine the emission characteristics of the EUT and, if applicable, the EUT configuration that produces the maximum level of emissions. The frequencies of maximum emission may be determined by manually positioning the antenna close to the EUT, and then moving the antenna over all sides of the EUT while observing a spectral display. It is advantageous to have prior knowledge of the frequencies of emissions, although this may be determined from such a near-field scan. The near-field scan shall only be used to determine the frequency but not the amplitude of the emissions. Where exploratory measurements are not adequate to determine the worst-case operating modes and are used only to identify the frequencies of the highest emissions, additional preliminary tests can be required.

Preliminary tests shall be performed following the procedures in 6.3 on a site meeting the requirements of 5.2. For emissions from the EUT, the maximum level shall be determined by rotating the EUT and its antenna through 0° to 360°. For each mode of operation required to be tested, the frequency spectrum (based on findings from exploratory measurements) shall be monitored.

Section 6.6.4.3: Final radiated emissions measurements

The final measurements are performed on a site meeting the requirements of 5.2. Using the orientation and equipment arrangement of the EUT based on the measurement results found during the preliminary (exploratory) measurements per 6.6.4.2, the EUT arrangement, appropriate modulation, and modes of operation that produce the emissions that have the highest amplitude relative to the limit shall be selected for the final measurement. The final measurement shall follow all the procedures in 6.3 with the EUT operating on frequencies per 5.6. For each mode selected, record the frequency and amplitude of the highest fundamental emission (if applicable), as well as the frequency and amplitude of the six highest spurious emissions relative to the limit. Emissions more than 20 dB below the limit do not need to be reported.

Measurements are performed with the EUT rotated from 0° to 360°. the antenna height scanned in accordance with 6.6.3.1, 6.6.3.2, or 6.6.3.3, as appropriate; and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations. Variations in cable or wire placement shall be explored to maximize the measured emissions.

NOTES

1— Where limits are specified by agencies for both average and peak (or quasi-peak) detection, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement.

2—Use of waveguide and flexible waveguide may be necessary at frequencies above 10 GHz to achieve usable signal-to noise ratios at required measurement distances. If so, it may be necessary to restrict the height search of the antenna, and special care should be taken to ensure that maximum emissions are correctly measured.

3—All presently known devices causing emissions above 10 GHz are physically small compared with the beam-widths of typical horn antennas used for EMC measurements. For such EUTs and frequencies, it may be preferable to vary the height and polarization of the EUT instead of the receiving antenna to maximize the measured emissions.

6.2 Sample Calculations for Radiated Measurements

6.2.1 Field Strength Measurements:

Measurements from the Spectrum Analyzer/ Receiver are used to calculate the Field Strength, taking into account the following parameters:

1. Measured reading in dBµV
2. Cable Loss between the receiving antenna and SA in dB and
3. Antenna Factor in dB/m

FS (dBµV/m) = Measured Value on SA (dBµV)+ Cable Loss (dB)+ Antenna Factor (dB/m)
Eg:

Frequency (MHz)	Measured SA (dBµV)	Cable Loss (dB)	Antenna Factor Correction (dB)	Field Strength Result (dBµV/m)
1000	80.5	3.5	14	98.0

All radiated measurement plots in this report are taken from a test SW that calculates the Field Strength based on the above equation.

6.2.2 Measurement Uncertainty

	Uncertainty in dB radiated <30MHz	**Uncertainty in in dB radiated 30MHz - 1GHz**	**Uncertainty in dB radiated > 1GHz**	**Uncertainty in dB Conducted measurement**
standard deviation k=1	2.48	1.93	2.16	0.63
95% confidence interval in dB	4.86	3.79	4.23	1.24
95% confidence interval in dB in delta to Result	+-2.5 dB	+-2.0 dB	+- 2.3dB	+-0.7dB

6.3 Conducted Emissions Procedure
Ref: ANSI C63.10 (2013)

Section 6.2: Standard test method for ac power-line conducted emissions from unlicensed wireless devices

Section 6.2.1: General considerations
AC power-line conducted emission measurements shall be made, unless otherwise specified, over the frequency range from 150 kHz to 30 MHz, to determine the line-to-ground radio-noise voltage that is conducted from all of the EUT current-carrying power input terminals that are directly (or indirectly via separate transformers or power supplies) connected to a public power network. These measurements may also be required between 9 kHz and 150 kHz.

If the EUT normally receives power from another device that in turn connects to the public utility ac power lines, measurements shall be made on that device with the EUT in operation to demonstrate that the device continues to comply with the appropriate limits while providing the EUT with power. If the EUT is operated only from internal or dedicated batteries, with no provisions for connection to the public utility ac power lines (600 VAC or less) to operate the EUT (such as an adapter), then ac power-line conducted measurements are not required.

For direct current (dc) powered devices where the ac power adapter is not supplied with the device, an "off-the-shelf" unmodified ac power adapter shall be used. If the device is supposed to be installed in a host (e.g., the device is a module or PC card), then it is tested in a typical compliant host (see also 5.10.3).

Section 6.2.2: Measurement requirements
The LISN housing, measuring instrument case, reference ground plane, vertical conducting plane, if used, shall be bonded together.

Measured levels of ac power-line conducted emission shall be the emission voltages from the voltage probe, where permitted, or across the 50 Ω LISN port (to which the EUT is connected), where permitted, terminated into a 50 Ω measuring instrument. All emission voltage and current measurements shall be made on each current-carrying conductor at the plug end of the EUT power cord by the use of mating plugs and receptacles on the LISN, if used. Equipment shall be tested with power cords that are normally supplied or recommended by the manufacturer and that have electrical and shielding characteristics that are the same as those cords normally supplied or recommended by the manufacturer. For those measurements using a LISN, the 50 Ω measuring port is terminated by a measuring instrument having 50 Ω input impedance. All other ports are terminated in 50 Ω loads.

ANSI C63.10 (2013)

Section 6.2.4: Exploratory ac power-line conducted emission measurements
Exploratory tests shall be run with the modulating signal(s) specified in 5.12 applied to the EUT. Antenna(s) can be integral or detachable. If detachable, the antenna(s) shall be attached during the test. On any one convenient frequency specified in 5.5 and 5.6, exploratory measurements shall be used to identify the frequency of the emission that has the highest amplitude relative to the limit by operating the EUT in a range of typical modes of operation, cable positions, and with a typical system equipment configuration and arrangement. For each mode of operation and for each ac power current-carrying conductor, cable manipulation shall be performed within the range of likely configurations. For this measurement or series of measurements, the frequency spectrum of interest shall be monitored looking for the emission that has the highest amplitude relative to the limit. Once that emission is found for each current-carrying conductor of each power cord associated with the EUT (but not the cords associated with non-EUT equipment in the overall system), the one configuration and arrangement and mode of operation that produces the emission closest to the limit over all of the measured conductors shall be recorded.

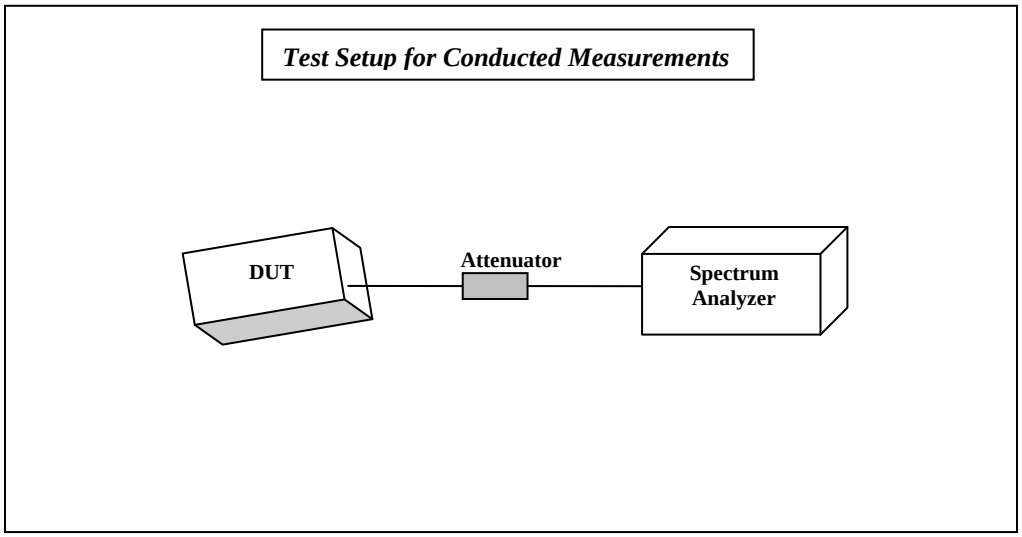
Section 6.2.5: Final ac power-line conducted emission measurements
Based on the exploratory tests of the EUT performed in 6.2.4, the one EUT cable configuration and arrangement and mode of operation that produced the emission with the highest amplitude relative to the limit is selected for the final measurement, while applying the appropriate modulating signal to the EUT. If the EUT is relocated from an exploratory test site to a final test site, the highest emissions shall be remaximized at the final test location before final ac power-line conducted emission measurements are performed. The final test on all current-carrying conductors of all of the power cords to the equipment that comprises the EUT (but not the cords associated with other non-EUT equipment in the system) is then performed for the full frequency range for which the EUT is being tested for compliance without further variation of the EUT arrangement, cable positions, or EUT mode of operation. If the EUT is composed of equipment units that have their own separate ac power connections (e.g., floor-standing equipment with independent power cords for each shelf that are able to connect directly to the ac power network), then each current-carrying conductor of one unit is measured while the other units are connected to a second (or more) LISN(s). All units shall be measured separately. If a power strip is provided by the manufacturer, to supply all of the units making up the EUT, only the conductors in the power cord of the power strip shall be measured.

If the EUT operates above 30 MHz and uses a detachable antenna, then these measurements shall be made with a representative antenna connected to the antenna output terminals. These tests shall be made with the antenna connected and, if adjustable, fully extended.

Record the six highest EUT emissions relative to the limit of each of the current-carrying conductors of the power cords of the equipment that comprises the EUT over the frequency range specified by the procuring or regulatory agency.

6.4 RF Conducted Measurement Procedure

Reference: FCC KDB 558074 D01 DTS Meas Guidance v03r0
(Guidance for Performing Compliance Measurements on Digital Transmission System (DTS) Operating Under §15.247)



1. Connect the equipment as shown in the above diagram.
2. Adjust the settings of the SA (Rohde-Schwarz Spectrum Analyzer) to connect the EUT at the required mode of test.
3. Measurements are to be performed with the EUT set to the low, middle and high channels and for CCK, BPSK, and QAM modulation schemes.

7 Maximum Peak Conducted Output Power

7.1 Limits:

FCC §15.247 (b) (3): 1W (30 dBm)
RSS-247 issue 1, section 5.4 (4): 1W (30 dBm)
EIRP:
FCC §15.247 (b) (3): 6W (36 dBm)
RSS-247 issue 1, section 5.4 (4): 4W (36 dBm)

7.2 Test Conditions:

Tnom: 22°C; Vnom: 120 VAC

7.3 Test Procedure:

Measurement according to FCC KDB 558074 D01 DTS Measure Guidance v03r03 section 9.1.1

Maximum peak conducted output power

Spectrum Analyzer settings:

Centre Frequency	The center frequency of the channel under test.
RBW	≥ DTS bandwidth
VBW	≥ 3 x RBW
Span	≥ 3 x RBW
Detector	peak
Sweep time	auto
Trace	Max hold

- Allow trace to fully stabilize
- Use peak marker function to determine the peak amplitude level.

7.4 Test Results:

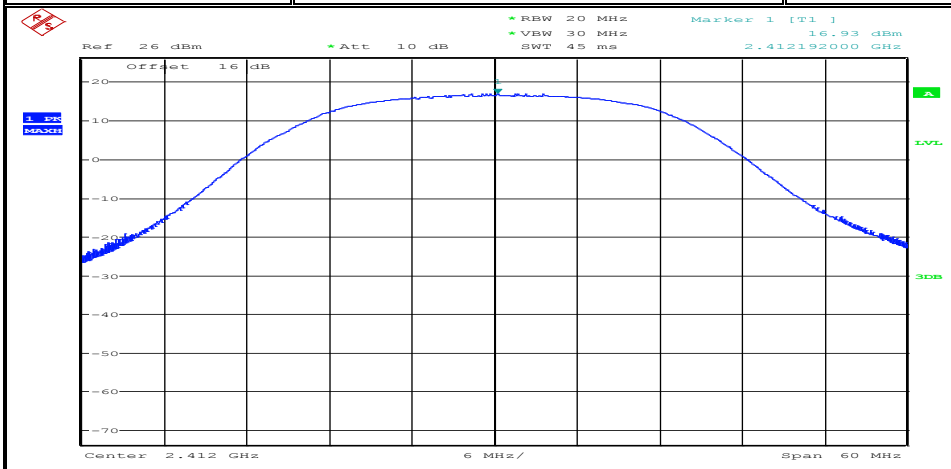
Maximum Peak Conducted Output Power & EIRP (dBm)							
Conducted Power **FCC Limit = 30 dBm** **RSS Limit = 30 dBm** **EIRP** **FCC Limit = 36 dBm** **RSS Limit = 36 dBm**		**Frequency (MHz)**					
		2412 Channel 1		**2437 Channel 6**		**2462 Channel 11**	
Mode	**Data Rate (Mbps)**	Conducted Power	EIRP	Conducted Power	EIRP	Conducted Power	EIRP
802.11b	**11**	16.93	18.93	18.18	20.18	17.86	19.86
802.11g	**6**	18.57	20.57	19.96	21.96	19.26	21.26
802.11n	**6.5 (MCS0)**	18.35	20.35	19.32	21.32	19.14	21.14
Antenna Gain = 2.0 dBi							

7.5 Measurement Verdict:

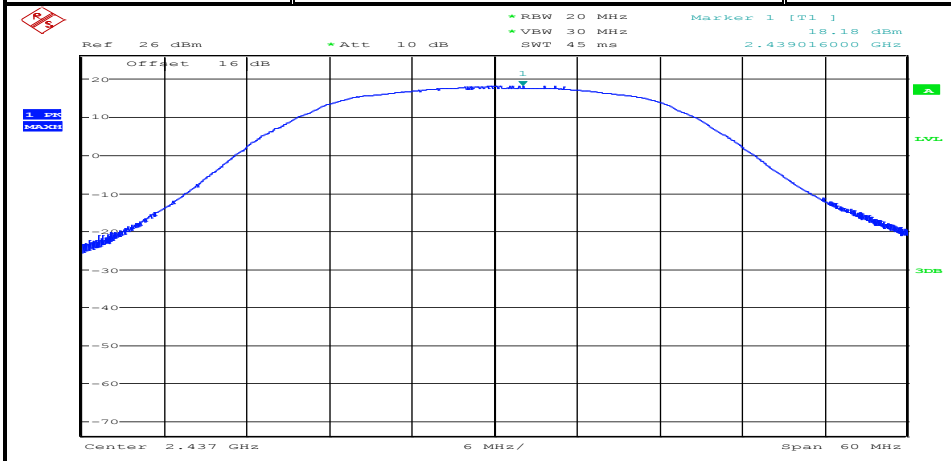
Pass

7.6 Measurement Plots:

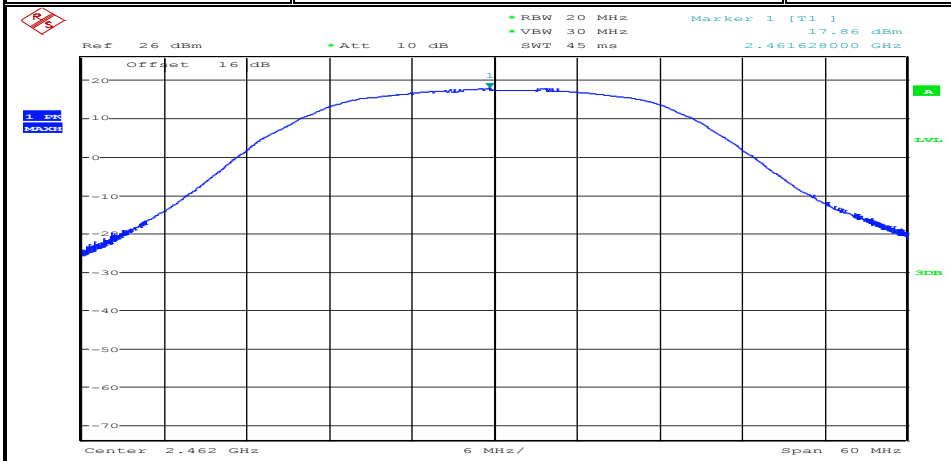
Maximum Peak Conducted Output Power		
Ch.1 / 2412 MHz	**Mode: 802.11b**	**Data Rate: 11 Mbps**



Ch.6 / 2437 MHz	**Mode: 802.11b**	**Data Rate: 11 Mbps**

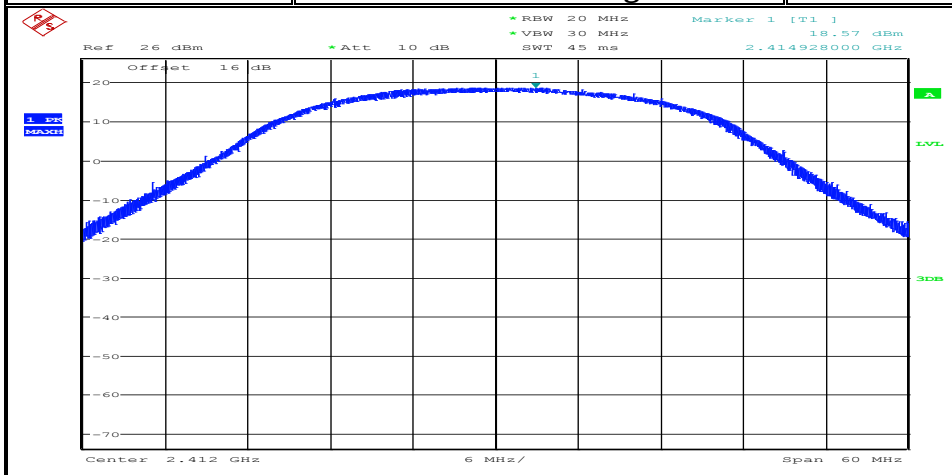


Ch.11 / 2462 MHz	**Mode: 802.11b**	**Data Rate: 11 Mbps**

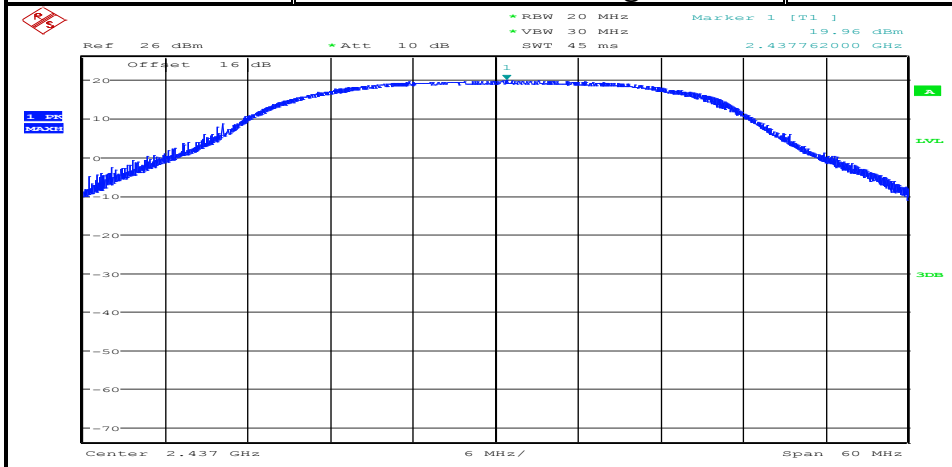


Maximum Peak Conducted Output Power

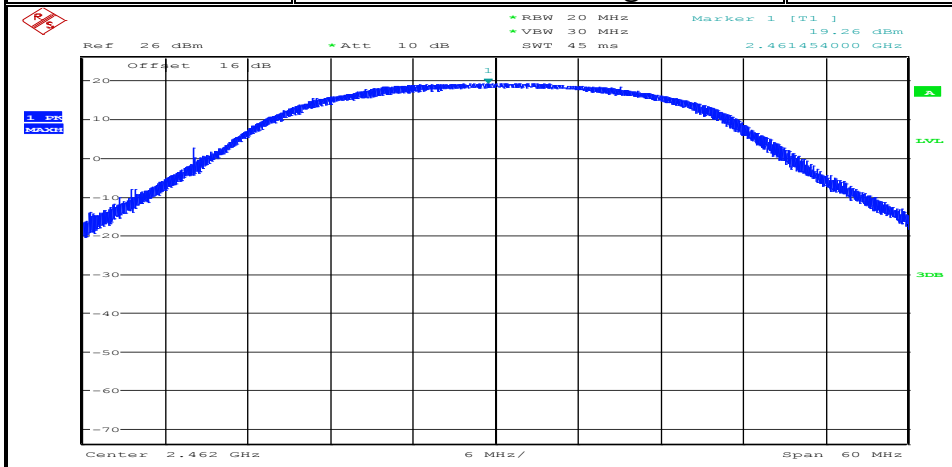
Ch.1 / 2412 MHz	Mode: 802.11g	Data Rate: 6 Mbps



Ch.6 / 2437 MHz	Mode: 802.11g	Data Rate: 6 Mbps

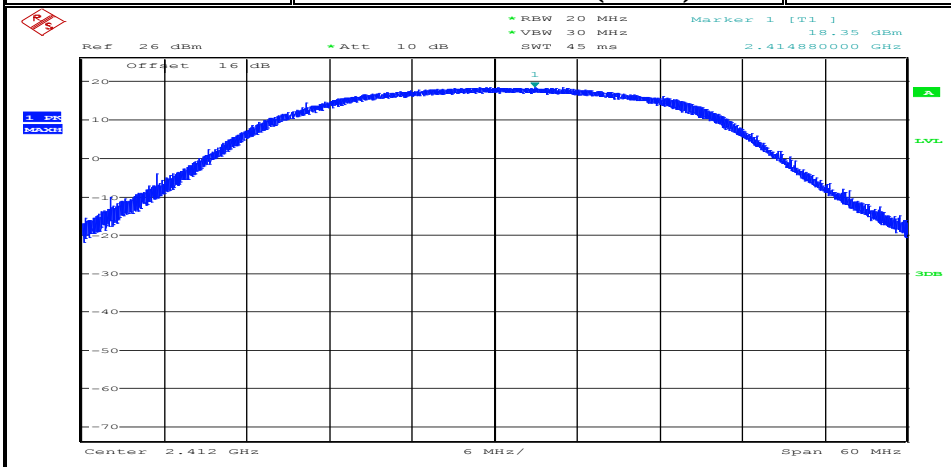


Ch.11 / 2462 MHz	Mode: 802.11g	Data Rate: 6 Mbps

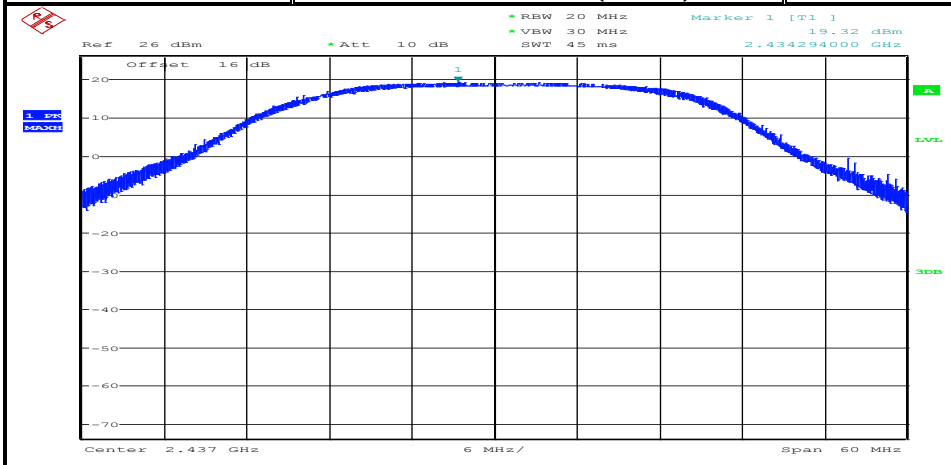


Maximum Peak Conducted Output Power

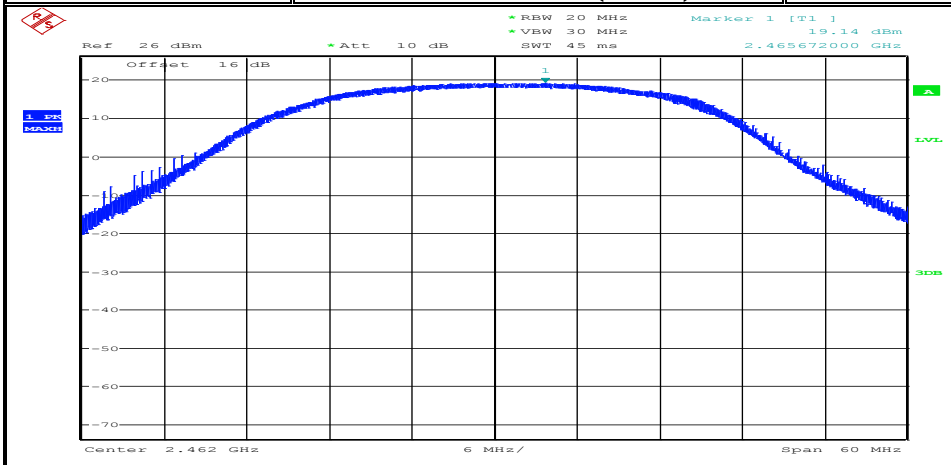
Ch.1 / 2412 MHz	Mode: 802.11n (HT20)	Data Rate: MCS0



Ch.6 / 2437 MHz	Mode: 802.11n (HT20)	Data Rate: MCS0



Ch.11 / 2462 MHz	Mode: 802.11n (HT20)	Data Rate: MCS0



8 Power Spectral Density

8.1 Limits:

FCC §15.247 (e)
RSS-247 issue 1, section 5.2 (2)

For digitally modulated systems, the power spectral density conducted from the transmitter to the antenna shall not be greater the 8 dBm in any 3 kHz band during any time interval of continuous transmission.

8.2 Test Conditions:

Tnom: 21°C; Vnom: 120 VAC

8.3 Test Procedure:

Measurement according to FCC KDB 558074 D01 DTS Measure Guidance v03r03 section 10.2

Peak Power Spectral Density

Spectrum Analyzer settings:

Centre Frequency	The center frequency of the channel under test.
RBW	≥ 3 kHz
VBW	≥ 3 x RBW
Span	≥ 1.5 times the OBW
Sweep time	Auto
Detector	Peak
Trace	Max hold

- Allow trace to fully stabilize
- Use peak marker function to determine the peak amplitude level.
- If measured value exceeds limit, reduce RBW (no less than 3kHz) and repeat.

8.4 Test Result:

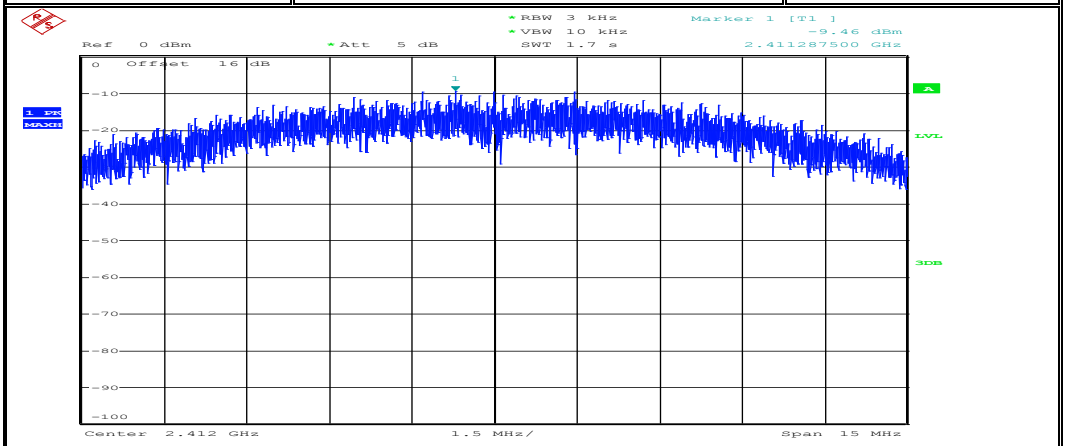
Power Spectral Density (dBm)				
FCC Limit = 8 dBm IC Limit = 8 dBm		Frequency (MHz)		
		2412 Channel 1	2437 Channel 6	2462 Channel 11
Operating Mode	**Data Rate (Mbps)**	Measured	Measured	Measured
802.11b	**11**	-9.46	-8.18	-8.17
802.11g	**6**	-14.43	-11.89	-14.12
802.11n (HT20)	**6.5 (MCS0)**	-14.69	-12.26	-13.46

8.5 Measurement Verdict:

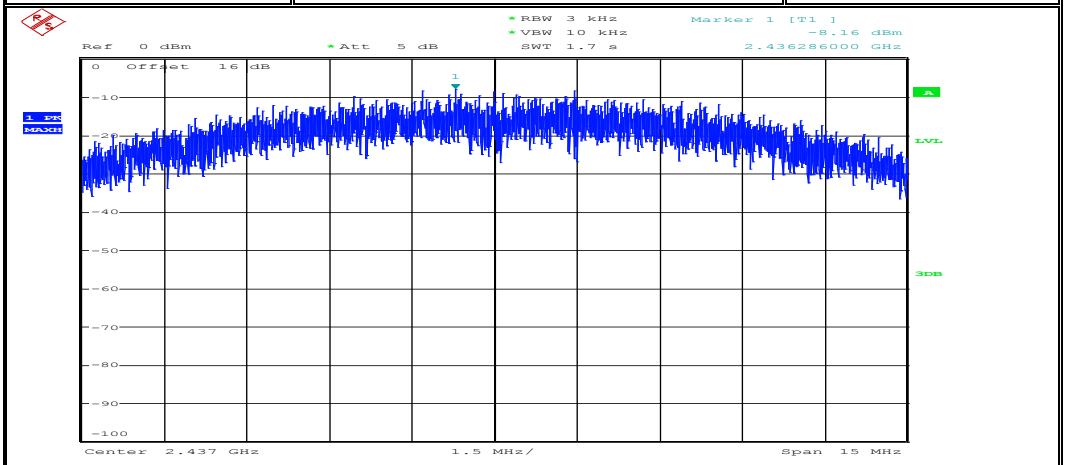
Pass

8.6 Measurement Plots:

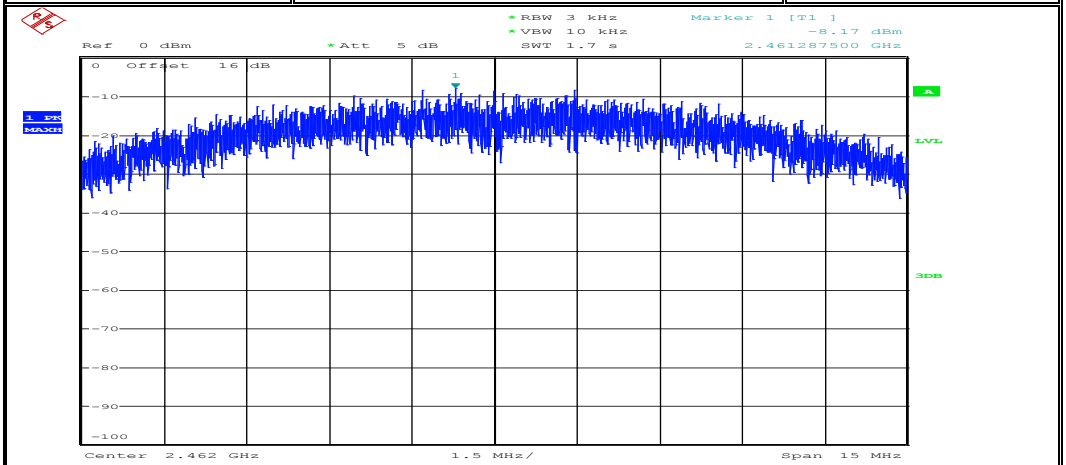
Power Spectral Density		
Ch.1 / 2412 MHz	Mode: 802.11b	Data Rate: 11 Mbps



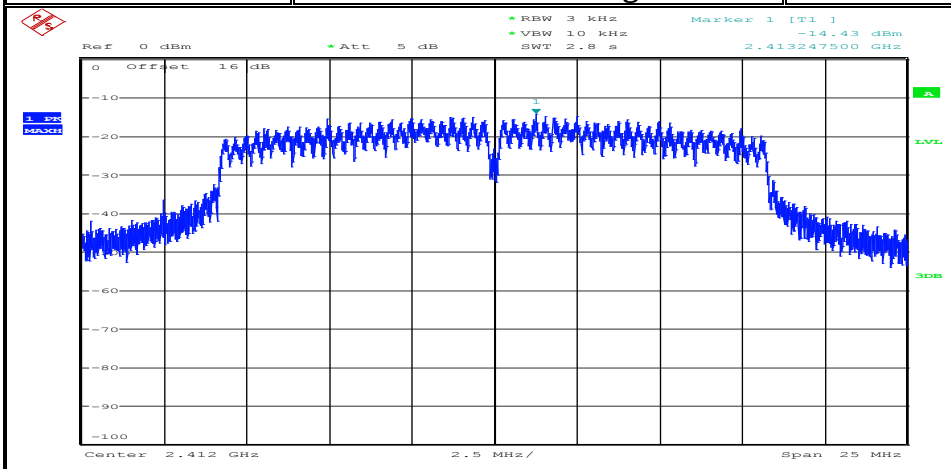
Ch.6 / 2437 MHz	Mode: 802.11b	Data Rate: 11 Mbps



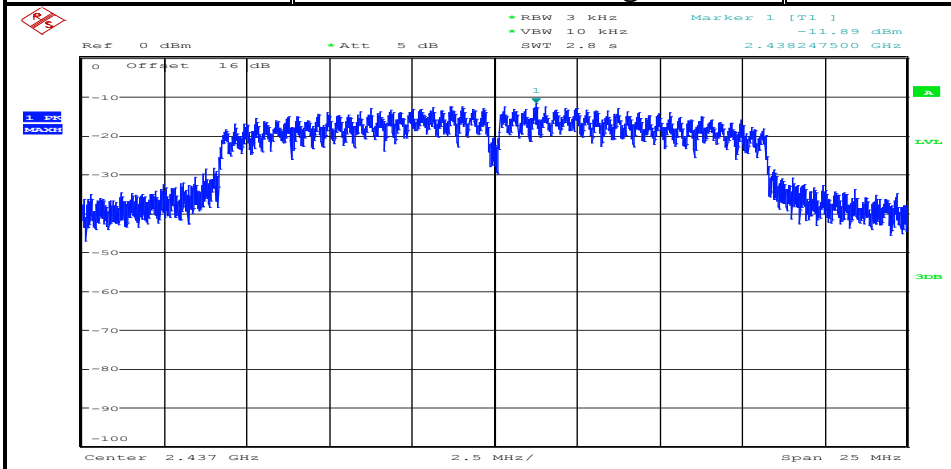
Ch.11 / 2462 MHz	Mode: 802.11b	Data Rate: 11 Mbps



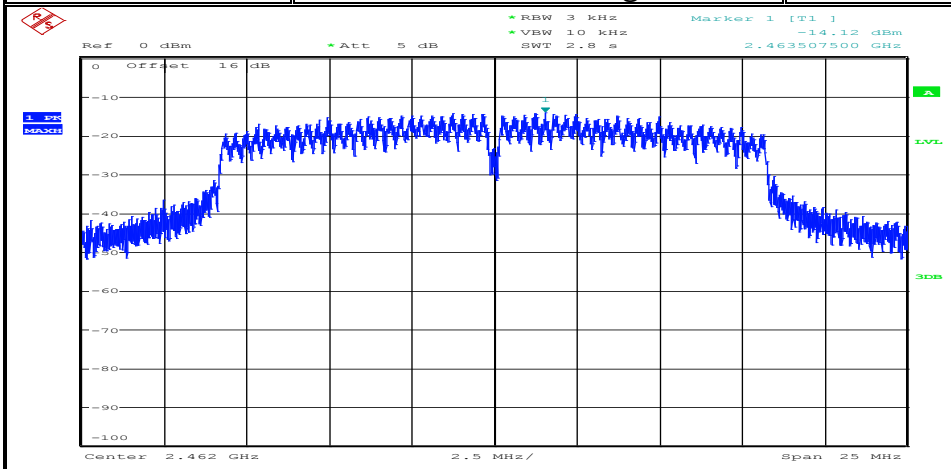
Power Spectral Density		
Ch.1 / 2412 MHz	**Mode: 802.11g**	**Data Rate: 6 Mbps**



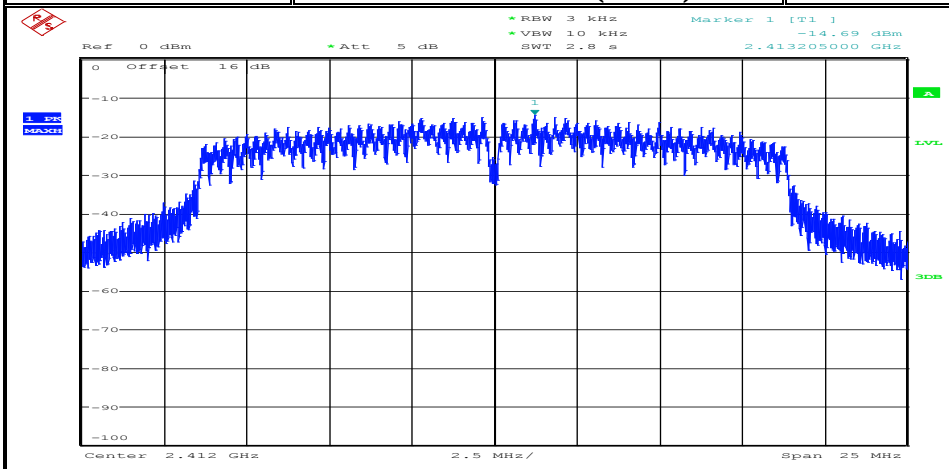
Ch.6 / 2437 MHz	**Mode: 802.11g**	**Data Rate: 6 Mbps**



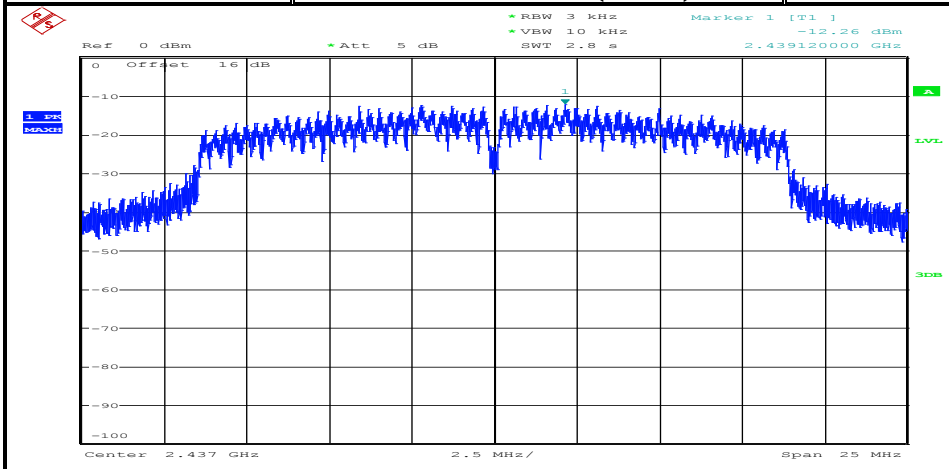
Ch.11 / 2462 MHz	**Mode: 802.11g**	**Data Rate: 6 Mbps**



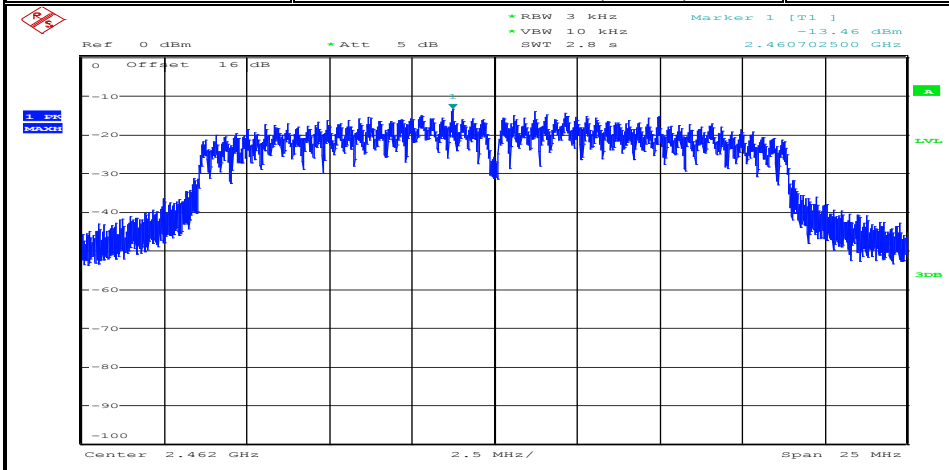
Power Spectral Density		
Ch.1 / 2412 MHz	**Mode: 802.11n (HT20)**	**Data Rate: MCS0**



Ch.6 / 2437 MHz	**Mode: 802.11n (HT20)**	**Data Rate: MCS0**



Ch.11 / 2462 MHz	**Mode: 802.11n (HT20)**	**Data Rate: MCS0**



9 Band Edge Compliance & Restricted and Non-restricted Band Edge

9.1 Limits:

§15.209/15.205 & RSS-GEN issue 4. Sections 8.9 and 8.10

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	([2])
13.36 - 13.41			

FCC15.247 (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) (see §15.205(c)).

RSS-247 5.5
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.

9.2 Test Conditions

Tnom: 20^{o}C; Vnom: 120 VAC

9.3 Test Procedure

FCC KDB 558074 D01 v03r03 section 11.2, 11.3 (Non restricted Band Edge)
FCC KDB 558074 D01 v03r03 section 12.2 (Restricted Bands)

Spectrum Analyzer settings for non-Restricted band edge:
Reference level measurement:

Centre Frequency	DTS channel center frequency
Span	≥ 1.5 times the DTS bandwidth or encompass frequency range to be measured.
RBW	= 100 kHz
VBW	≥ 3 x RBW
Sweep time	Auto
Detector	Peak
Trace Mode	Max hold

- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum PSD level.
- Note that the channel found to contain the maximum PSD level can be used to establish the reference level.

Emission level measurement:

Span	frequency range to be measured.
RBW	= 100 kHz
VBW	≥ 3 x RBW
Sweep time	Auto
Detector	Peak
Trace Mode	Max hold

-Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum PSD level.
- Ensure that the band edge and the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) are attenuated by least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power and at least 30 dB if measurement based on the use of RMS averaging.

For Restricted Bands measurement

*PEAK LIMIT= 74dBµV/m @ 3m (-21.2 dBm)
*AVG. LIMIT = 54dBµV/m @ 3m (-41.2 dBm)

Peak Measurement	
Start frequency	The beginning of the restricted band
Stop frequency	The end of the restricted band
RBW	= 1 MHz
VBW	≥ 3 x RBW
Sweep time	Auto
Detector	Peak
Trace Mode	Max hold

- Allow sweeps to continue until the trace stabilizes.
- Use the peak marker function to determine the maximum amplitude level.
- Add the specified antenna gain to the peak readings.
- Compare to the peak limit (-21.2 dBm) specified above.

Average Measurement	
Start frequency	The beginning of the restricted band
Stop frequency	The end of the restricted band
RBW	= 1 MHz
VBW	≥ 3 x RBW
Sweep time	Auto
Detector	power averaging (RMS) or sample detector (when RMS not available)
Trace Mode	averaging (RMS) mode over a minimum of 100 traces

- Use the peak marker function to determine the maximum amplitude level.
- Add the duty cycle correction factor and the specified antenna gain to the maximum readings.
- Compare to the average limit (-41.2 dBm) specified above.

9.4 Test Data:

Lower Band Edge (non-restricted band)					
Mode: 802.11b					
Measured Frequency (MHz)	**Emission Level (dBm) Pk**	**Highest level inband (dBm) Pk**	**Calculated Delta in dBc**	**Limit (dBc)**	**Margin (dB)**
2399	-44.00	2.86	-46.86	-20	26.86
Mode: 802.11g					
2398	-25.40	-1.56	-23.84	-20	3.84
Mode: 802.11n					
2487.5	-24.00	-1.64	-22.63	-20	2.63

Duty Cycle Correction Factor Calculation for RMS measurements					
Mode	TXon (ms)	Period = TXon+TXoff (ms)	DC = TXon / TXon + TXoff	DC% = DC x 100	DCCF = 10 log (1/DC) (dB)
802.11b	0.256	0.578	0.444	44%	3.53
802.11g	0.159	0.393	0.405	40%	3.93
802.11n20	0.162	0.335	0.483	48%	3.15

Mode: 802.11b						
Lower Restricted Band / Frequency Range: 2310 MHz – 2390 MHz						
Measured Frequency (MHz)	**Emission Level (dBm)**	**Duty Cycle CF (dB)**	**Antenna Gain (dBi)**	**Calculated Emission Level (dBm)**	**Limit (dBm)**	**Margin (dB)**
2328.2	-39.82 Pk	N/A	2.0	-37.82	-21.2 Pk	16.62
2326.2	-54.96 Av	3.53	2.0	-49.43	-41.2 Av	8.23
Upper Restricted Band / Frequency Range: 2483.5 MHz – 2500 MHz						
2489.7	-40.17 Pk	N/A	2.0	-38.17	-21.2 Pk	16.97
2499.8	-53.84 Av	3.53	2.0	-48.31	-41.2 Av	7.11

Mode: 802.11g						
Lower Restricted Band / Frequency Range: 2310 MHz – 2390 MHz						
Measured Frequency (MHz)	**Emission Level (dBm)**	**Duty Cycle CF (dB)**	**Antenna Gain (dBi)**	**Calculated Emission Level (dBm)**	**Limit (dBm)**	**Margin (dB)**
2389.8	-31.09 Pk	N/A	2.0	-29.09	-21.2 Pk	7.89
2389.8	-61.25 Av	3.93	2.0	-55.32	-41.2 Av	14.12
Upper Restricted Band / Frequency Range: 2483.5 MHz – 2500 MHz						
2483.5	-33.14 Pk	N/A	2.0	-31.14	-21.2 Pk	9.94
2483.9	-58.94 Av	3.93	2.0	-53.01	-41.2 Av	11.81

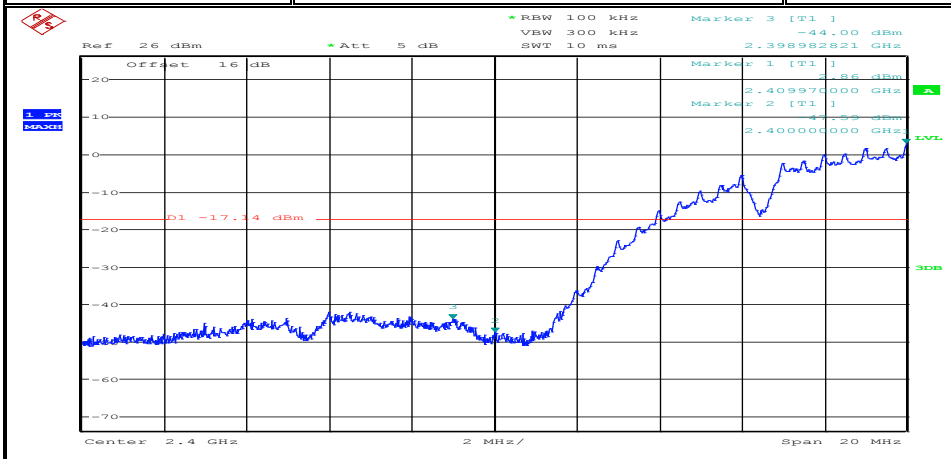
Mode: 802.11n (HT20)						
Lower Restricted Band / Frequency Range: 2310 MHz – 2390 MHz						
Measured Frequency (MHz)	**Emission Level (dBm)**	**Duty Cycle CF (dB)**	**Antenna Gain (dBi)**	**Calculated Emission Level (dBm)**	**Limit (dBm)**	**Margin (dB)**
2389.4	-31.68 Pk	N/A	2.0	-29.68	-21.2 Pk	8.48
2389.3	-61.38 Av	3.15	2.0	-56.23	-41.2 Av	15.03
Upper Restricted Band / Frequency Range: 2483.5 MHz – 2500 MHz						
2484.8	-31.51 Pk	N/A	2.0	-29.51	-21.2 Pk	8.31
2483.9	-59.07 Av	3.15	2.0	-53.92	-41.2 Av	12.72

9.5 Measurement Verdict:

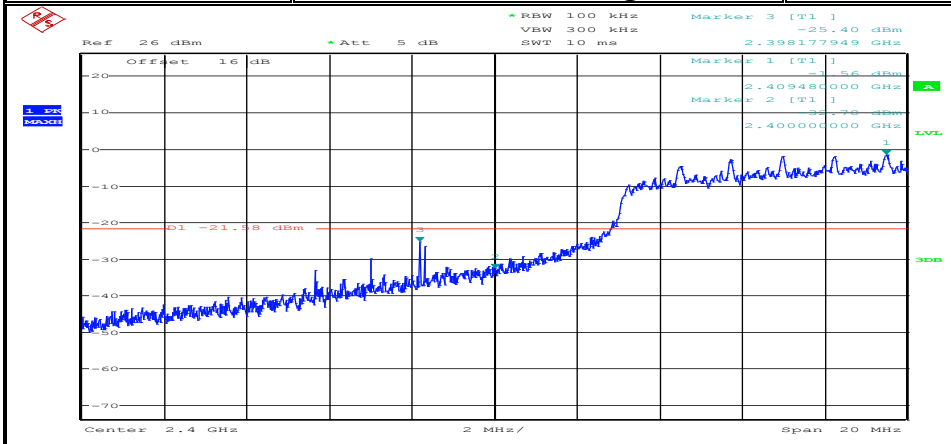
Pass

9.6 Measurement Plots:

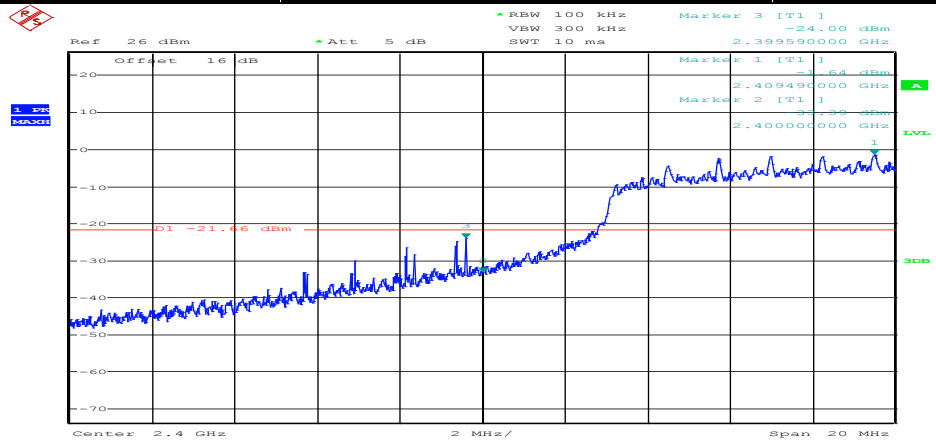
Lower Band Edge (non-restricted band)		
Ch.1 / 2412 MHz	Mode: 802.11b	Data Rate: 11 Mbps



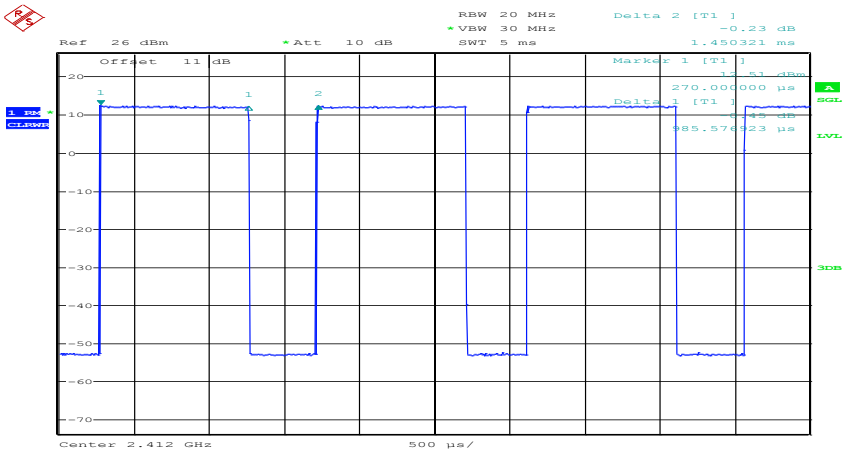
Ch.1 / 2412 MHz	Mode: 802.11g	Data Rate: 6 Mbps



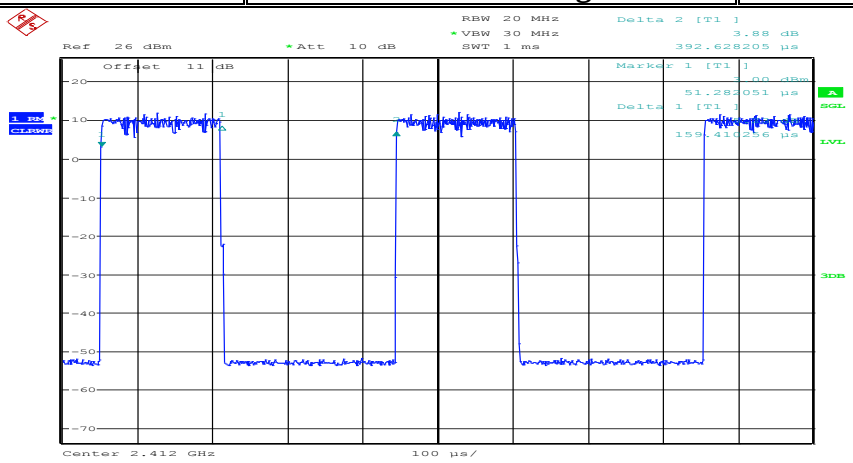
Ch.1 / 2412 MHz	Mode: 802.11n (HT20)	Data Rate: MCS0



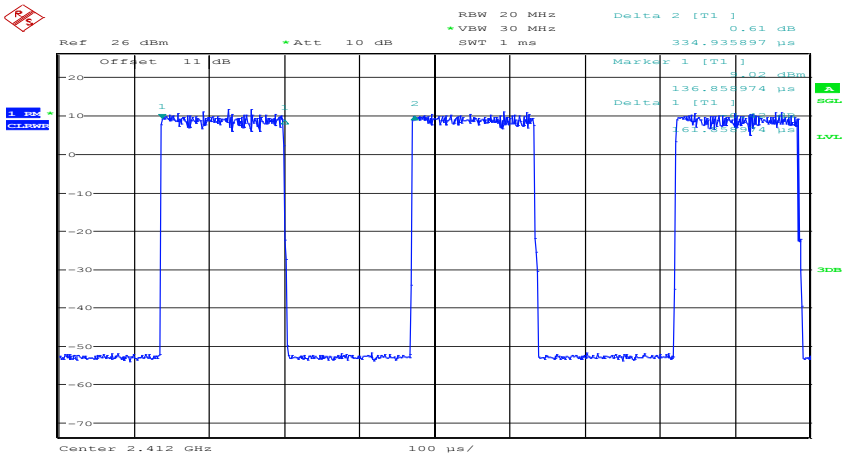
Duty Cycle		
Ch.6 / 2437 MHz	**Mode: 802.11b**	**Data Rate: 11 Mbps**



Ch.6 / 2437 MHz	**Mode: 802.11g**	**Data Rate: 6 Mbps**

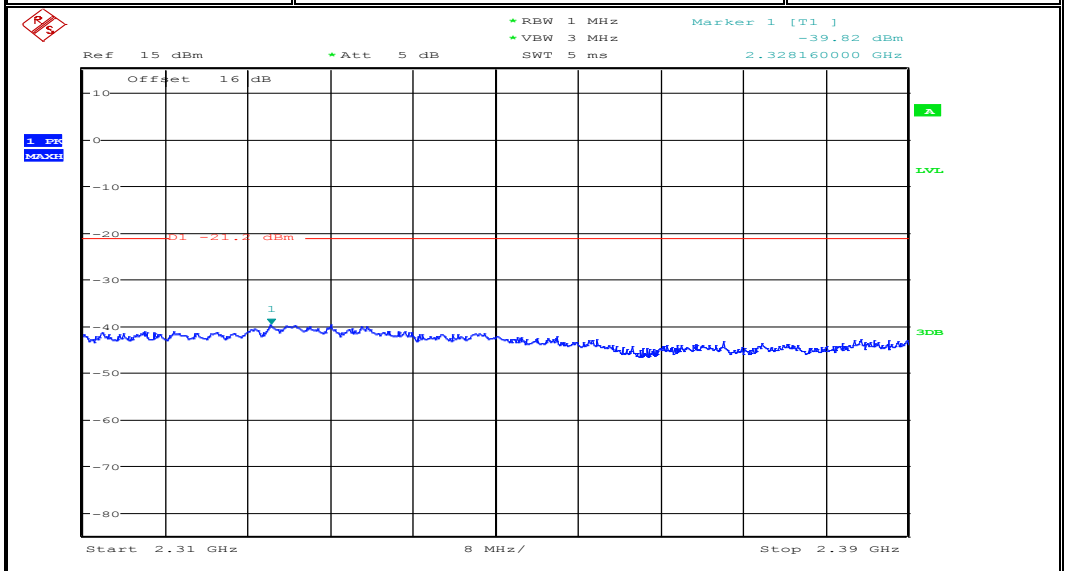


Ch.6 / 2437 MHz	**Mode: 802.11n**	**Data Rate: MCS0**

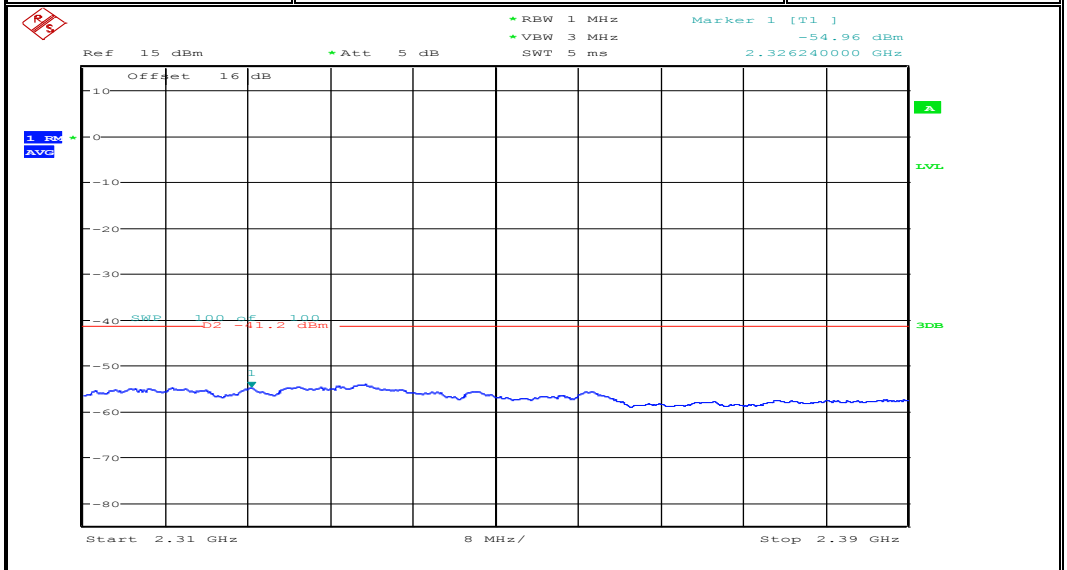


Lower Restricted Band Edge

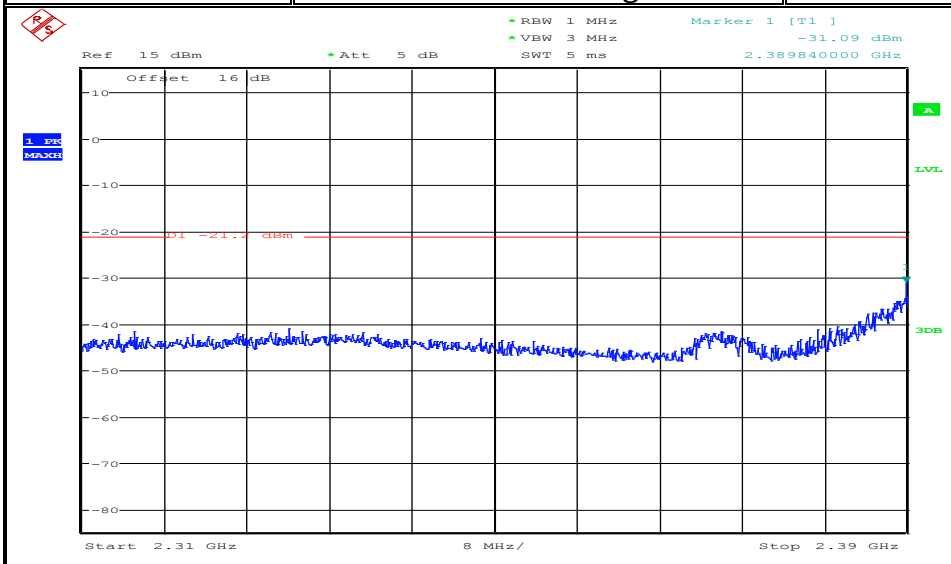
Lower Restricted Band (Peak)		
Ch.1 / 2412 MHz	**Mode: 802.11b**	**Data Rate: 11 Mbps**



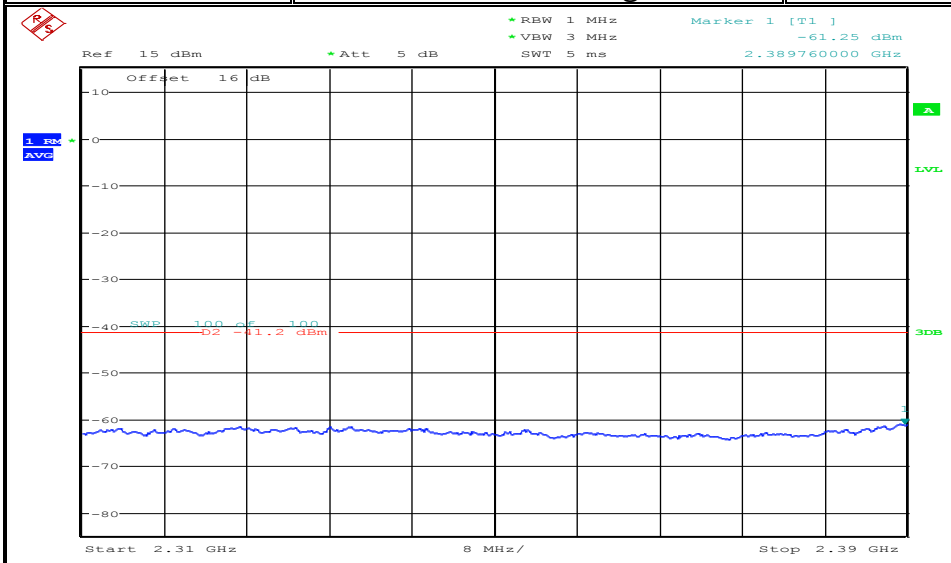
Lower Restricted Band (Average)		
Ch.1 / 2412 MHz	**Mode: 802.11b**	**Data Rate: 11 Mbps**



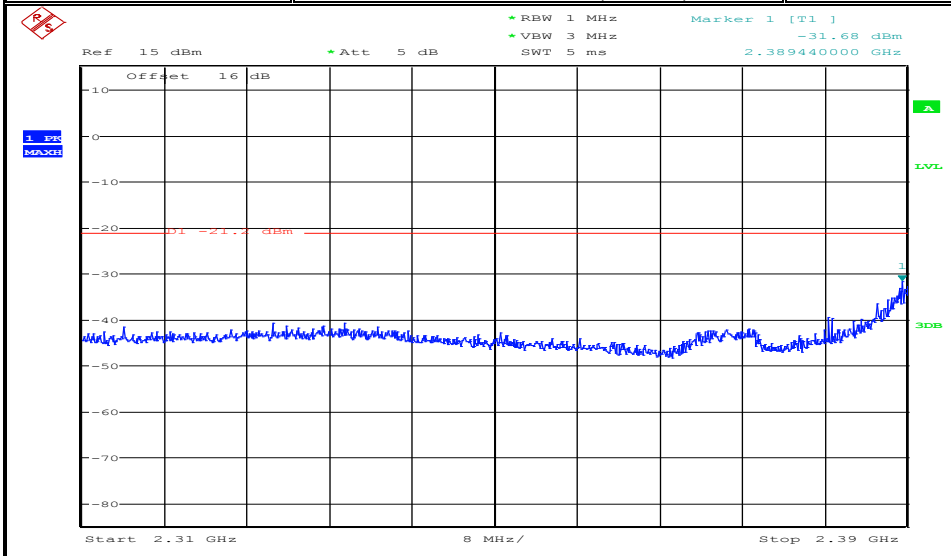
Lower Restricted Band (Peak)		
Ch.1 / 2412 MHz	**Mode: 802.11g**	**Data Rate: 6 Mbps**



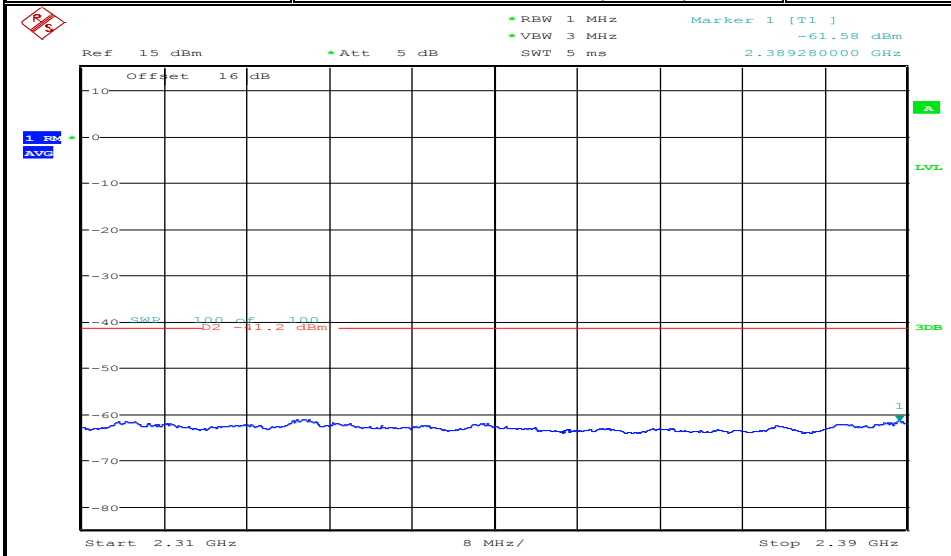
Lower Restricted Band (Average)		
Ch.1 / 2412 MHz	**Mode: 802.11g**	**Data Rate: 6 Mbps**



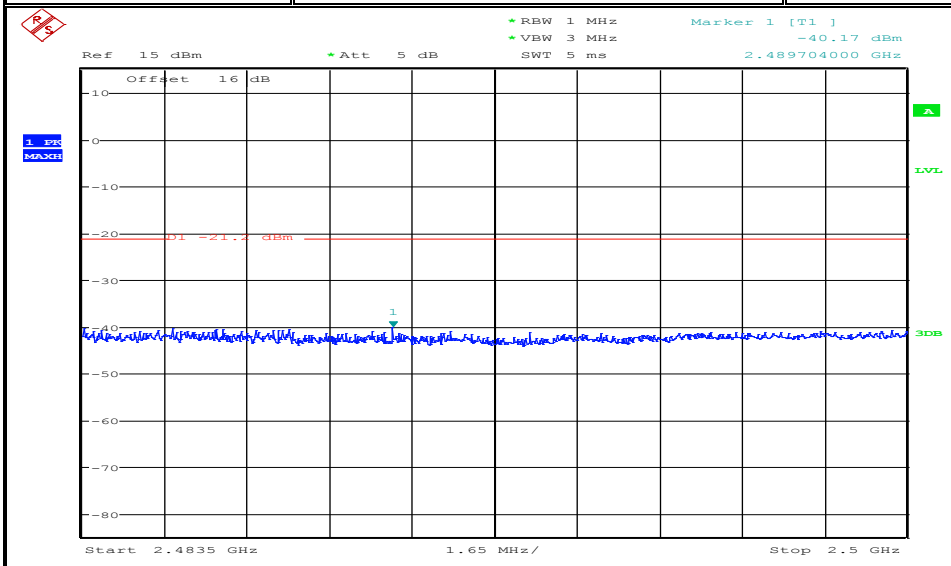
Lower Restricted Band (Peak)		
Ch.1 / 2412 MHz	**Mode: 802.11n (HT20)**	**Data Rate: MCS0**



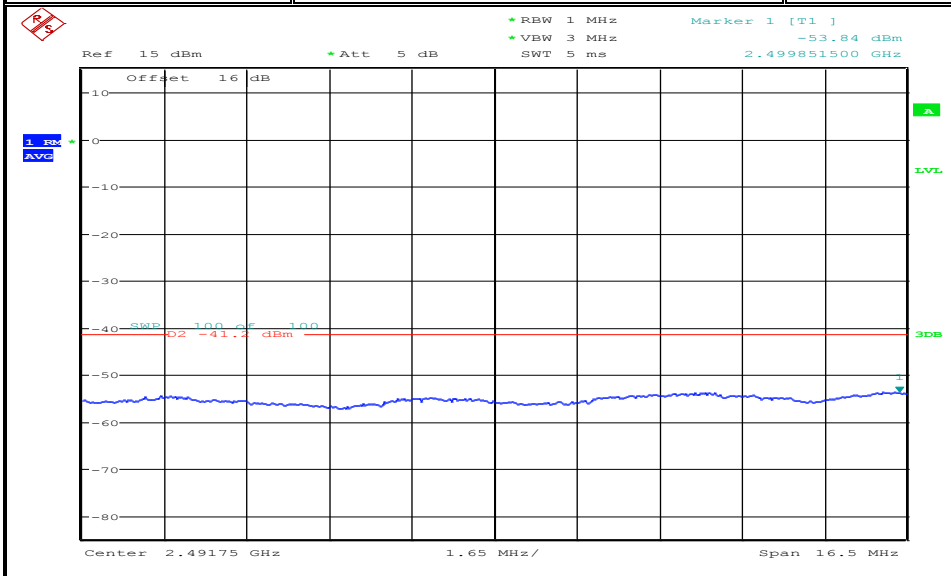
Lower Restricted Band (Average)		
Ch.1 / 2412 MHz	**Mode: 802.11n (HT20)**	**Data Rate: MCS0**



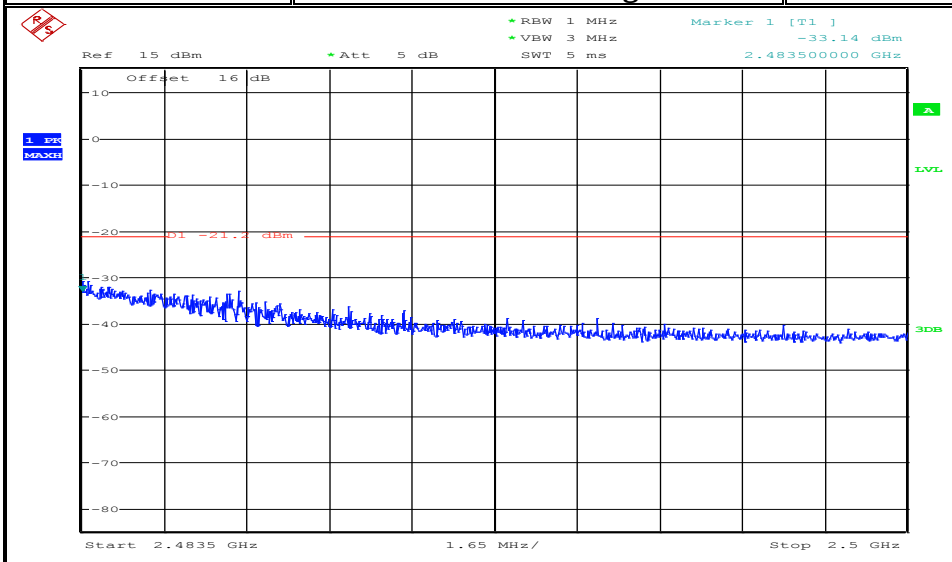
Upper Restricted Band (Peak)		
Ch.11 / 2462 MHz	**Mode: 802.11b**	**Data Rate: 11 Mbps**



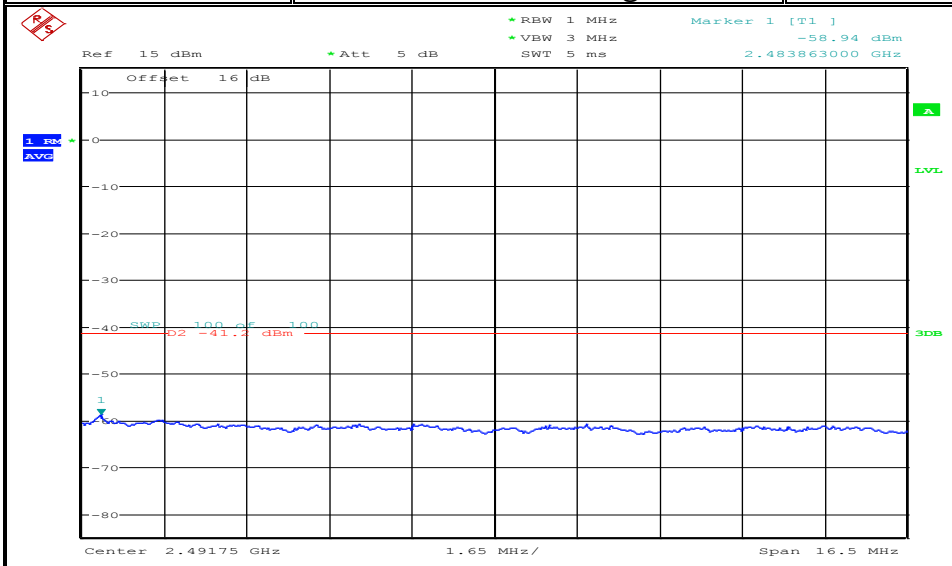
Upper Restricted Band (Average)		
Ch.11 / 2462 MHz	**Mode: 802.11b**	**Data Rate: 11 Mbps**



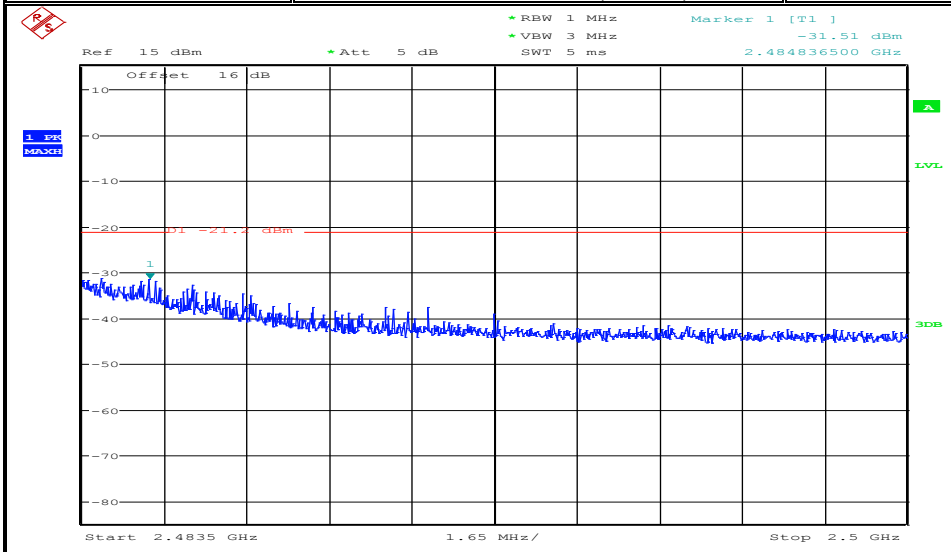
Upper Restricted Band (Peak)		
Ch.11 / 2462 MHz	**Mode: 802.11g**	**Data Rate: 6 Mbps**



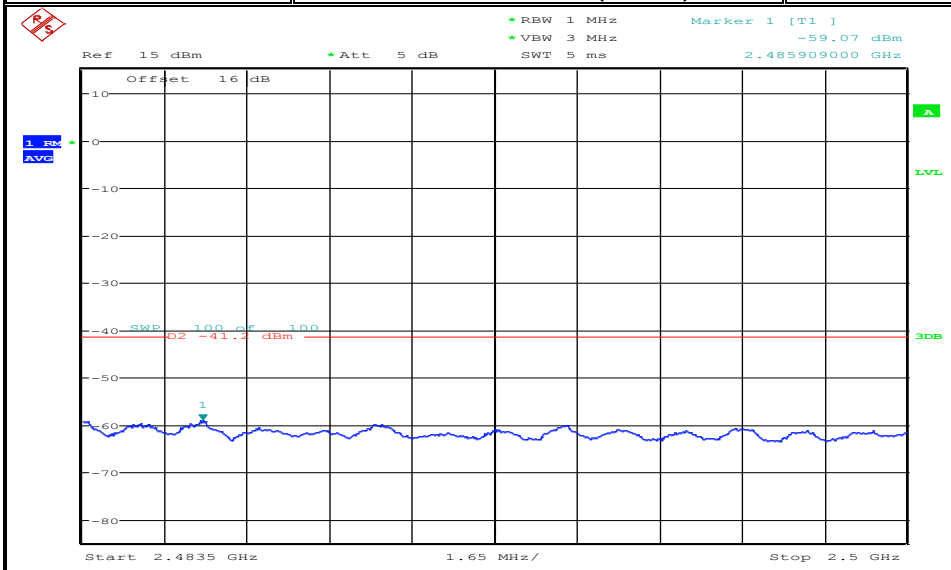
Upper Restricted Band (Average)		
Ch.11 / 2462 MHz	**Mode: 802.11g**	**Data Rate: 6 Mbps**



Upper Restricted Band (Peak)		
Ch.11 / 2462 MHz	**Mode: 802.11n (HT20)**	**Data Rate: MCS0**



Upper Restricted Band (Average)		
Ch.11 / 2462 MHz	**Mode: 802.11n (HT20)**	**Data Rate: MCS0**



10 Occupied Bandwidth (6dB Bandwidth / 99% Bandwidth)

10.1 Limits:

§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.

10.2 Test Conditions:

Tnom: 21°C; Vnom: 120 VAC

10.3 Test Procedure

Measurement according to FCC KDB 558074 D01 v03r03 section 8.1

For 6dB bandwidth:
Spectrum Analyzer settings:

Centre Frequency	The centre frequency of the channel under test
Span	Wide enough to capture the entire emission bandwidth
RBW	100 KHz
VBW	≥ 3xRBW
Sweep time	Auto
Detector	Peak
Trace Mode	Max hold

- 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 peak level measured in the fundamental emission.

For 99% bandwidth:
- Use the occupied bandwidth in the measurement function of the spectrum analyzer with power bandwidth setting at 99%

10.4 Test Results:

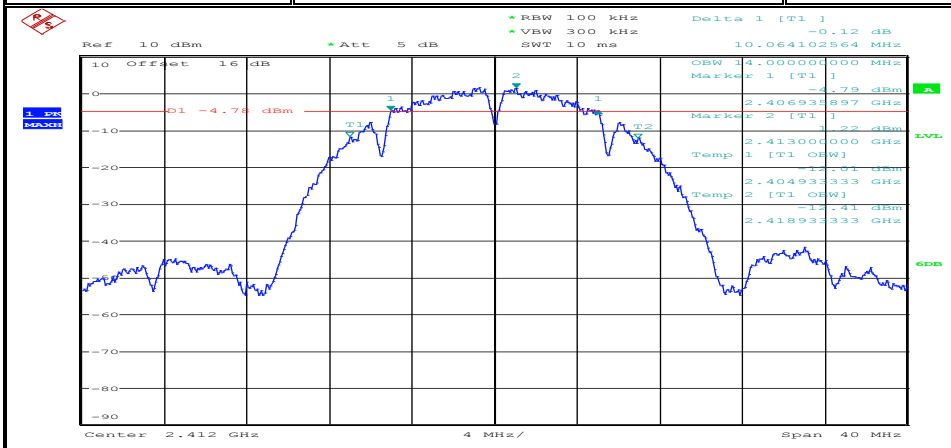
6dB Bandwidth / 99% Bandwidth						
Mode	**Channel 1 (2412MHz)**		**Channel 6 (2437MHz)**		**Channel 11 (2462MHz)**	
	6dB	**99%**	**6dB**	**99%**	**6dB**	**99%**
802.11b	10.06	14.00	9.99	14.07	10.19	14.44
802.11g	15.19	16.33	15.13	16.66	15.13	16.33
802.11n	15.19	17.47	15.13	17.60	15.13	17.47

10.5 Measurement Verdict:

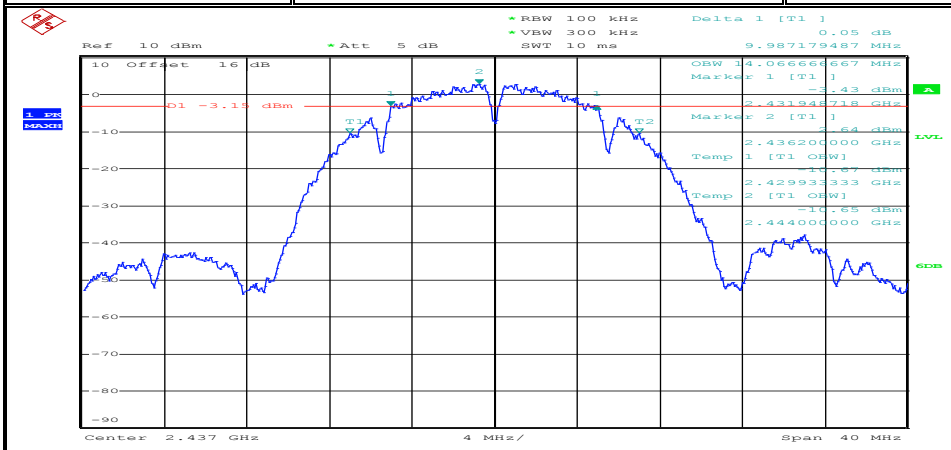
Pass

10.6 Measurement Plots:

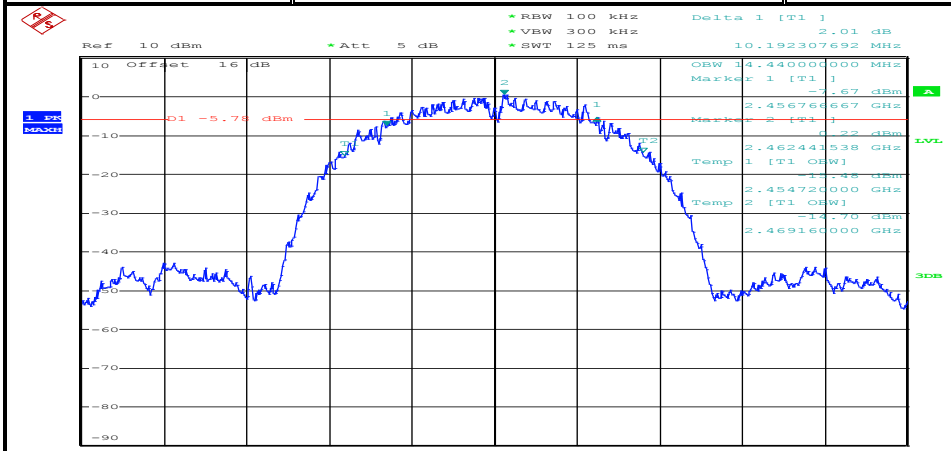
99% Occupied Bandwidth & 6 dB Bandwidth		
Ch.1 / 2412 MHz	Mode: 802.11b	Data Rate: 11 Mbps



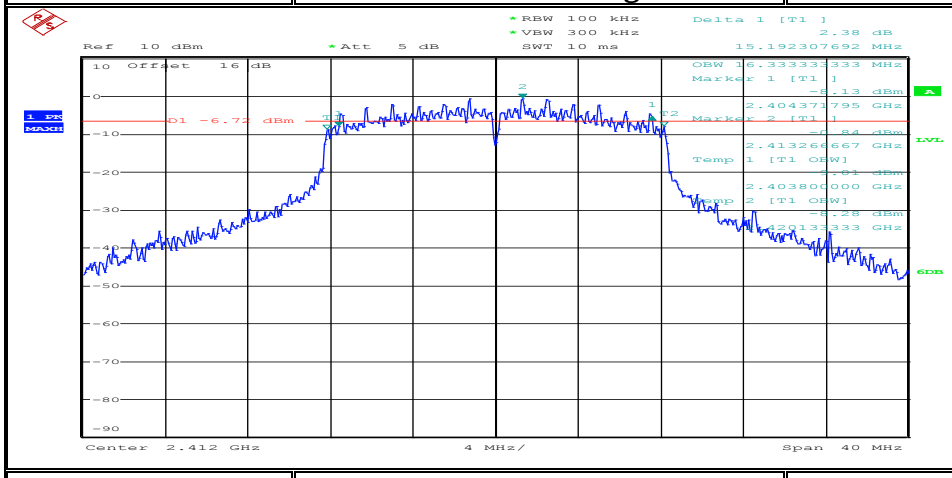
Ch.6 / 2437 MHz	Mode: 802.11b	Data Rate: 11 Mbps



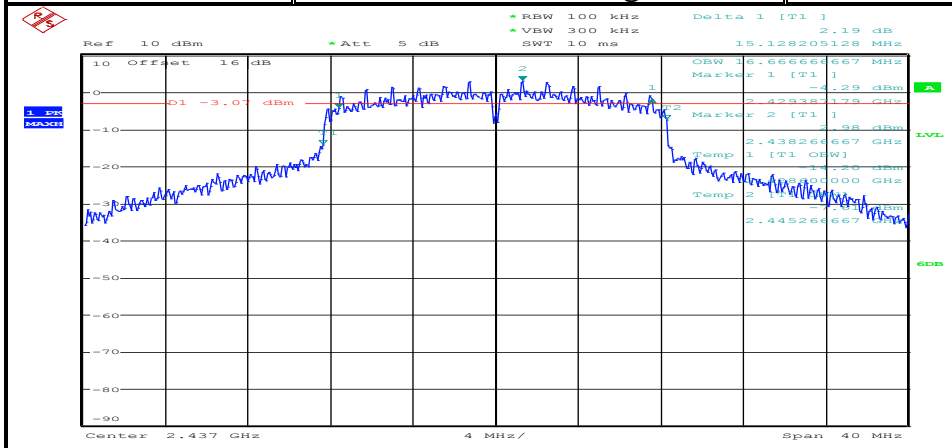
Ch.11 / 2462 MHz	Mode: 802.11b	Data Rate: 11 Mbps



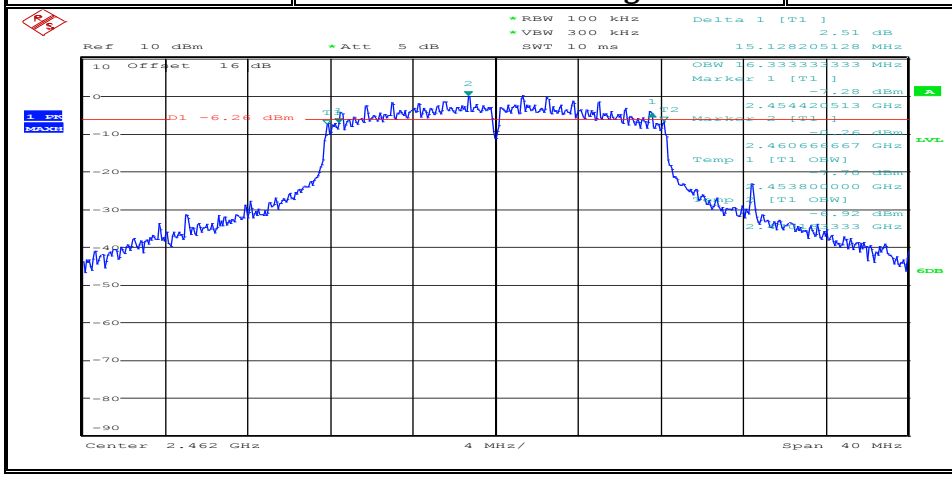
99% Occupied Bandwidth & 6 dB Bandwidth		
Ch.1 / 2412 MHz	**Mode: 802.11g**	**Data Rate: 6 Mbps**



Ch.6 / 2437 MHz	**Mode: 802.11g**	**Data Rate: 6 Mbps**

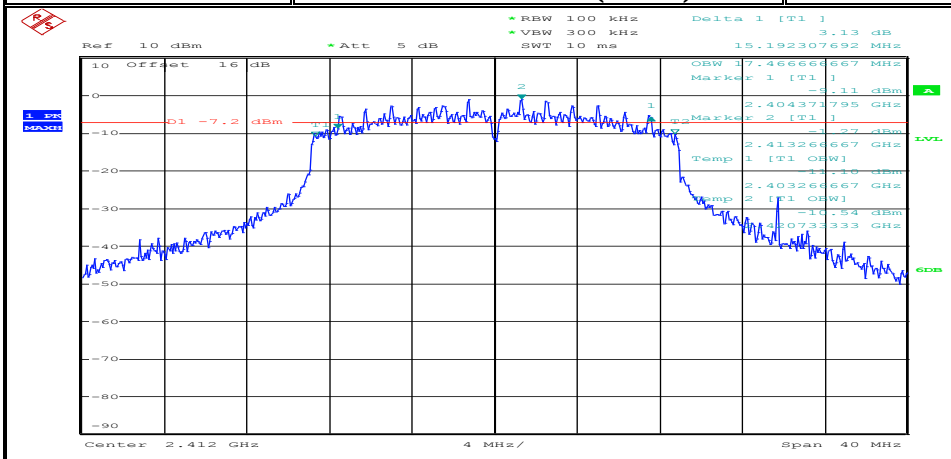


Ch.11 / 2462 MHz	**Mode: 802.11g**	**Data Rate: 6 Mbps**

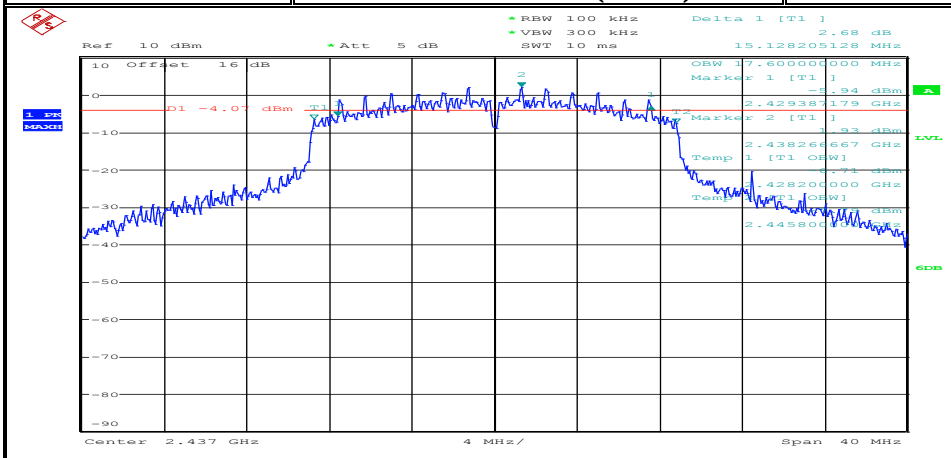


99% Occupied Bandwidth & 6 dB Bandwidth

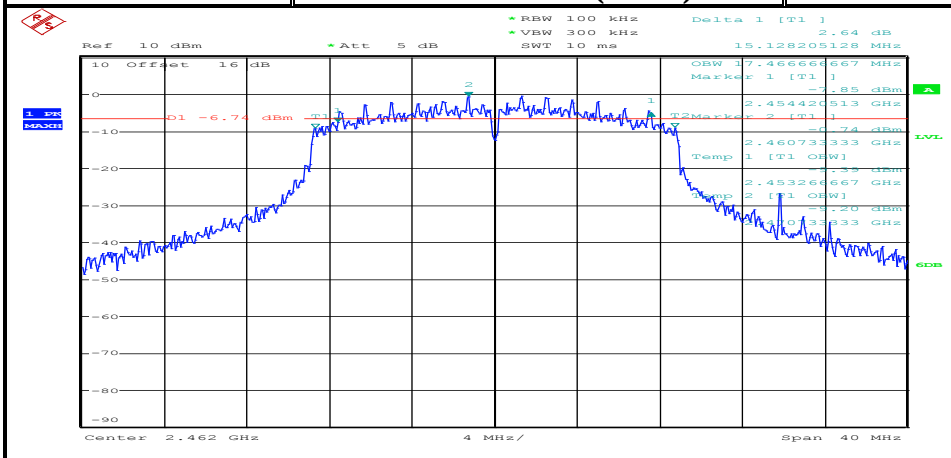
Ch.1 / 2412 MHz	Mode: 802.11n (HT20)	Data Rate: MCS0



Ch.6 / 2437 MHz	Mode: 802.11n (HT20)	Data Rate: MCS0



Ch.11 / 2462 MHz	Mode: 802.11n (HT20)	Data Rate: MCS0



11 Transmitter Spurious Emissions & Restricted Bands- Radiated

11.1 Limits:

§15.247/15.205/15.209 / RSS-Gen 8.9/ 8.10
(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	([2])
13.36 - 13.41			

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) (see §15.205(c)).

*PEAK LIMIT= 74dBµV/m
*AVG. LIMIT= 54dBµV/m

Table 1:

Frequency of emission (MHz)	Field strength @ 3m (µV/m)	Field strength @ 3m (dBµV/m)
30–88	100	40dBµV/m
88–216	150	43.5 dBµV/m
216–960	200	46 dBµV/m
Above 960	500	54 dBµV/m

Table 2:

Frequency of emission (MHz)	Field strength (µV/m) / (dBuV/m)	Measurement Distance (m)
0.009–0.490	2400/F(kHz) / ---------	300
0.490–1.705	24000/F(kHz) / --------	30
1.705–30.0	30 / (29.5)	30

Radiated spurious emissions shall be measured for the transmit frequencies, transmit power, and data rate for the lowest, middle and highest channel in each frequency band of operation and for the highest gain antenna for each antenna type, and using the appropriate parameters and test requirements described in 5.4.
The highest (or worst-case) data rate shall be recorded for each measurement.

11.2 Test Conditions

Tnom: 23^{o}C; Vnom: 120 VAC

11.3 Test Procedure:

Measurement according to ANSI C63.10:2013 (also refer to section 6.1 in this test report)

Analyzer Settings:
From 9 KHz – 30 MHz
RBW = 9 KHz
Detector: Peak

From 30 MHz – 1 GHz
Detector = Peak / Quasi-Peak
RBW=120 KHz (<1GHz)

Above 1 GHz
Detector = Peak / Average
RBW= 1MHz

Test mode: 802.11g (OFDM)
Modulation: BPSK @ 6 Mbps- the highest conducted output power.
Plots reported here represent the worst case emissions for horizontal and vertical antenna polarizations and for three orientations of the EUT.

11.4 Test Data

Frequency (MHz)	Max.Peak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarity	Azimuth (deg)	Corr. (dB)	Limit (dBµV/)	Margin (dB)
275.100000	26.7	100.0	120.000	100.0	H	270.0	14.8	46.0	19.4
384.100000	27.4	100.0	120.000	100.0	V	16.0	18.7	46.0	18.7
625.300000	30.5	100.0	120.000	100.0	V	276.0	23.7	46.0	15.5
864.900000	26.6	100.0	120.000	100.0	V	0.0	26.6	46.0	19.4
887.200000	26.6	100.0	120.000	100.0	V	90.0	26.7	46.0	19.4

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarity	Azimuth (deg)	Corr (dB)	Limit (dBµV/m)	Margin (dB)
4071.00000	61.9	100.0	1000.000	150.0	H	4.0	8.9	74.0	12.1
4883.80000	58.9	100.0	1000.000	150.0	V	11.0	11.3	74.0	15.1

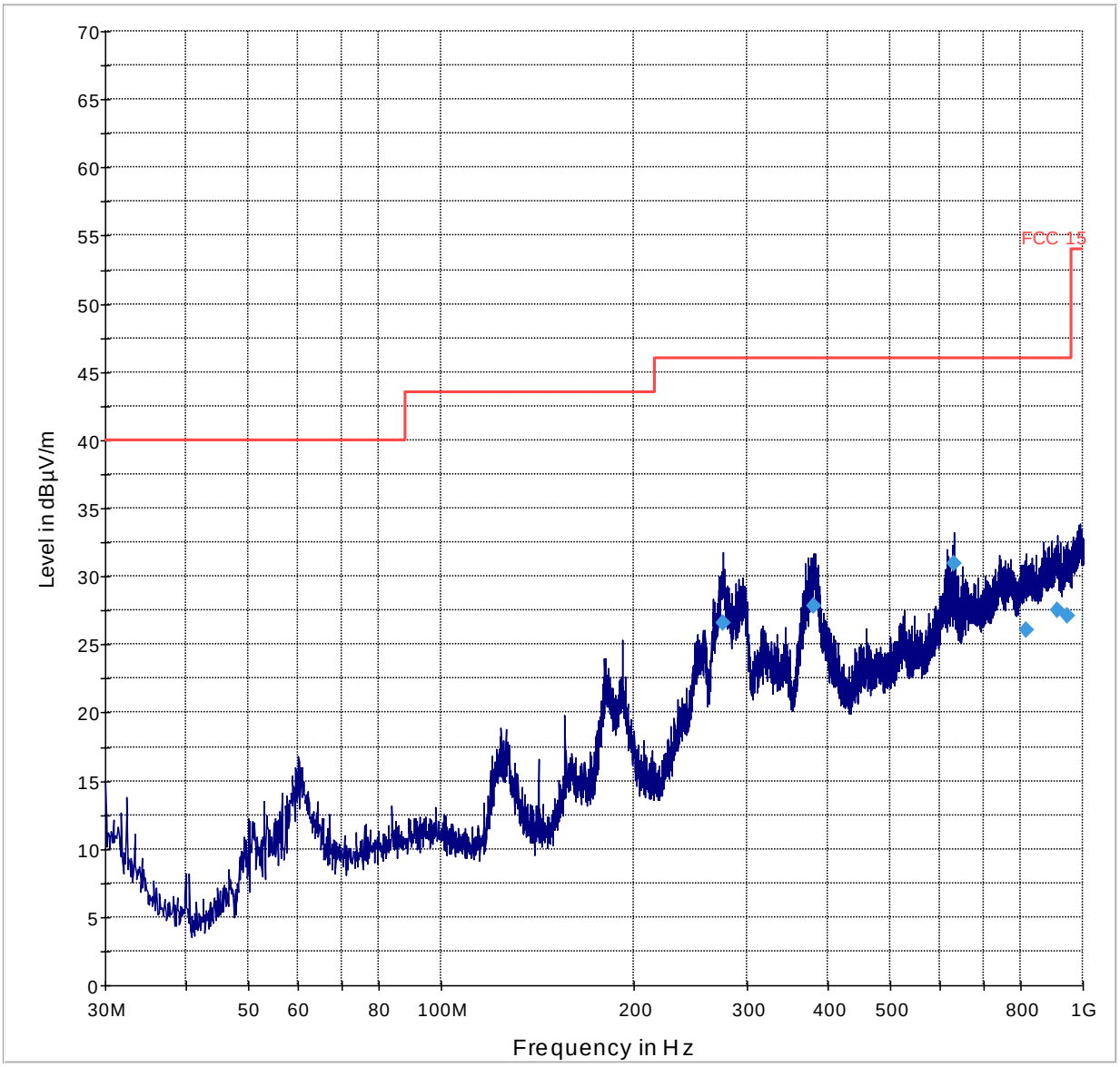
Note: All readings in tables above were corrected. Correction factors in the table were compensated in the software setting.

11.5 Test Verdict:

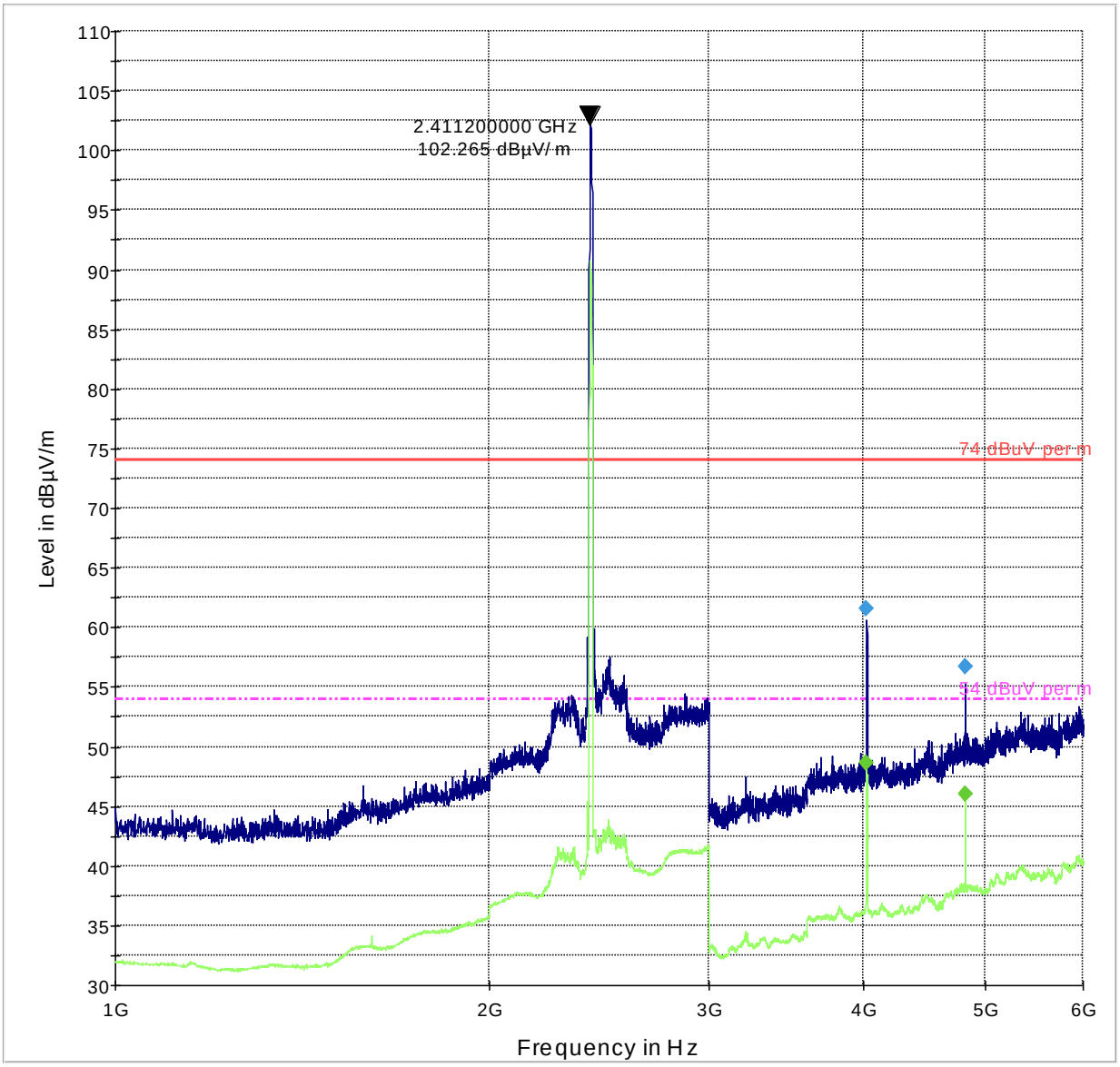
Pass.

11.6 Measurement plots:

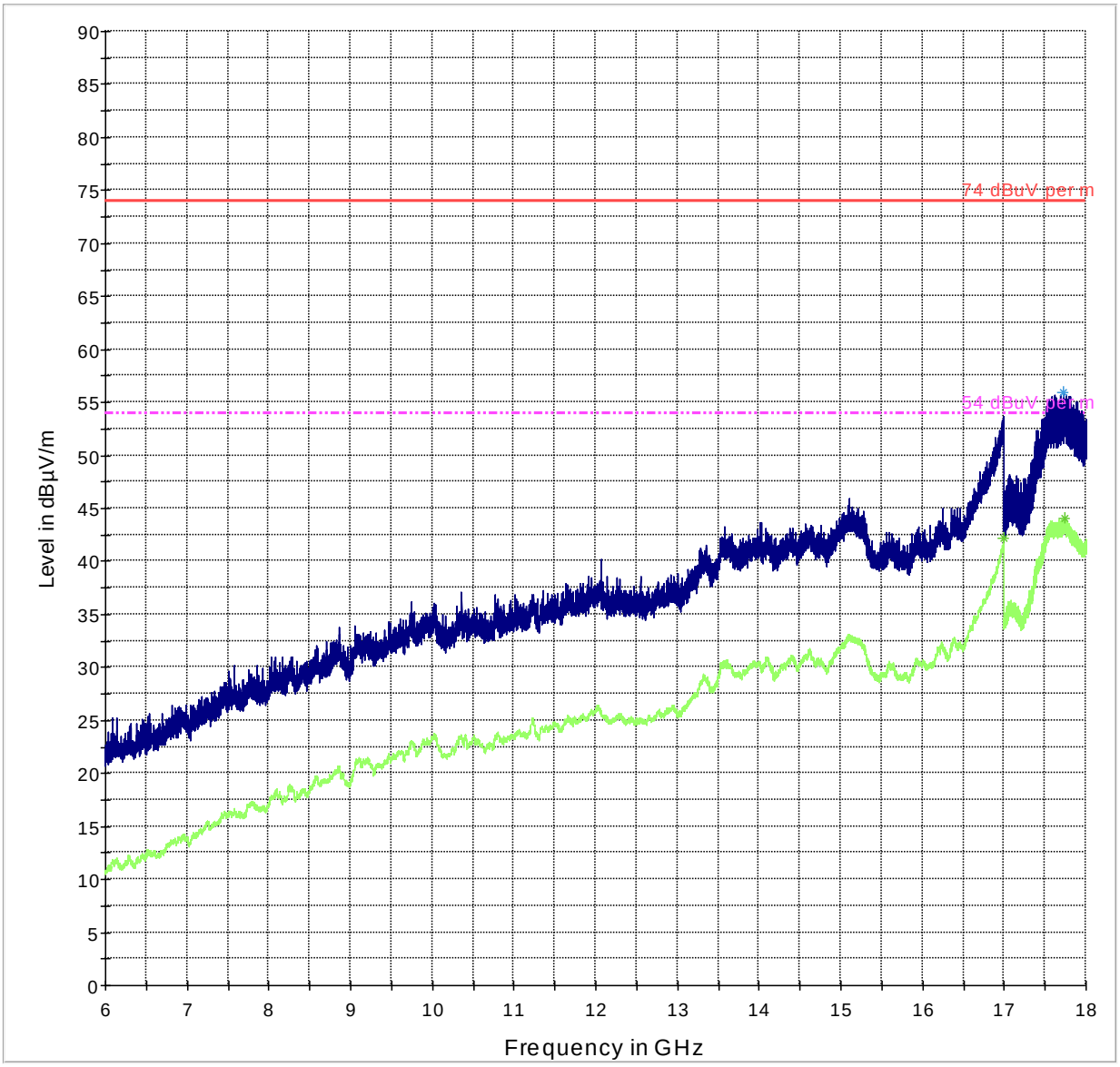
11.6.1 30 MHz – 1 GHz: Ch. 1, 2412 MHz, 802.11g



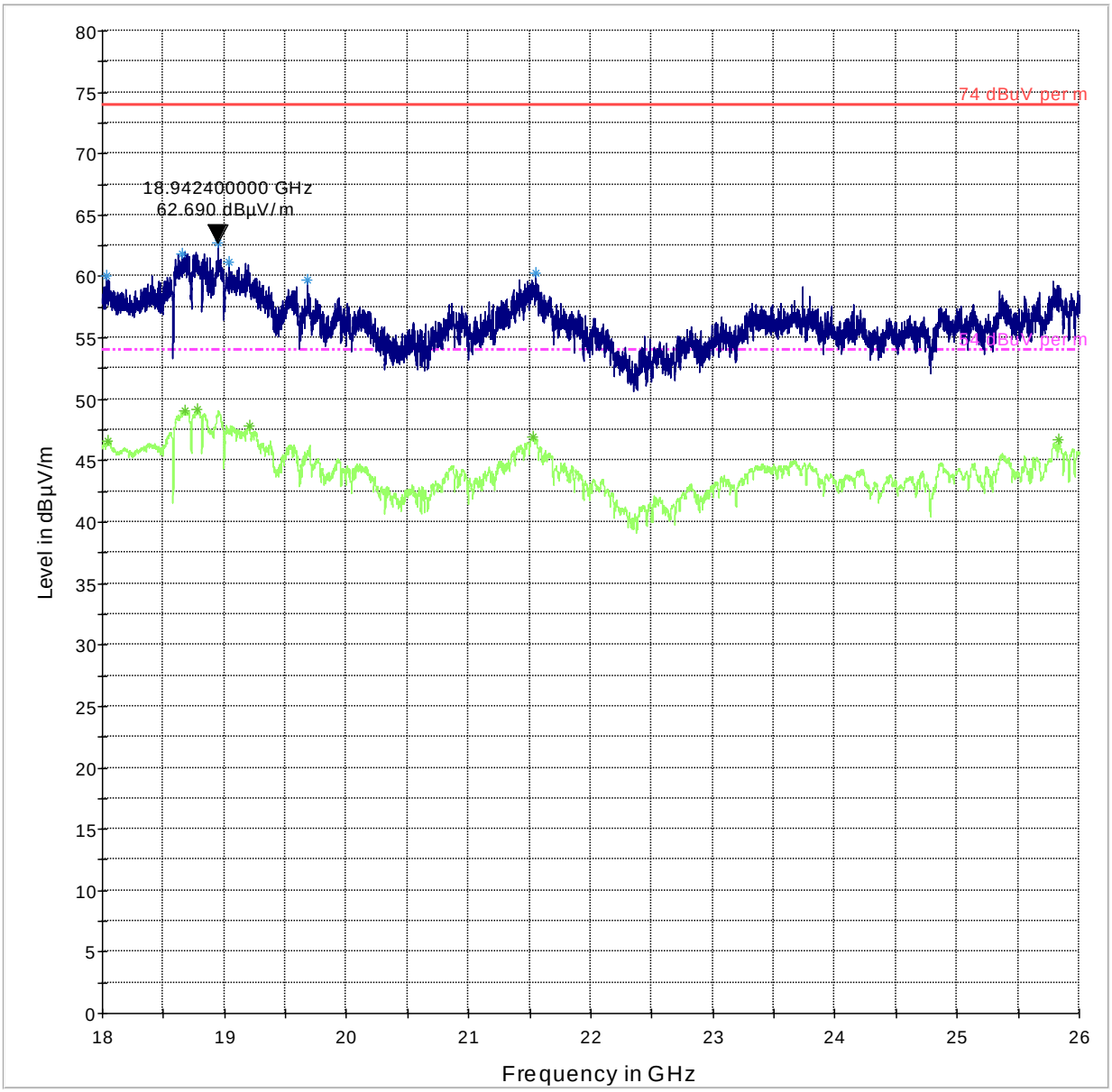
11.6.2 1 GHz – 6 GHz: Ch. 1, 2412 MHz, 802.11g



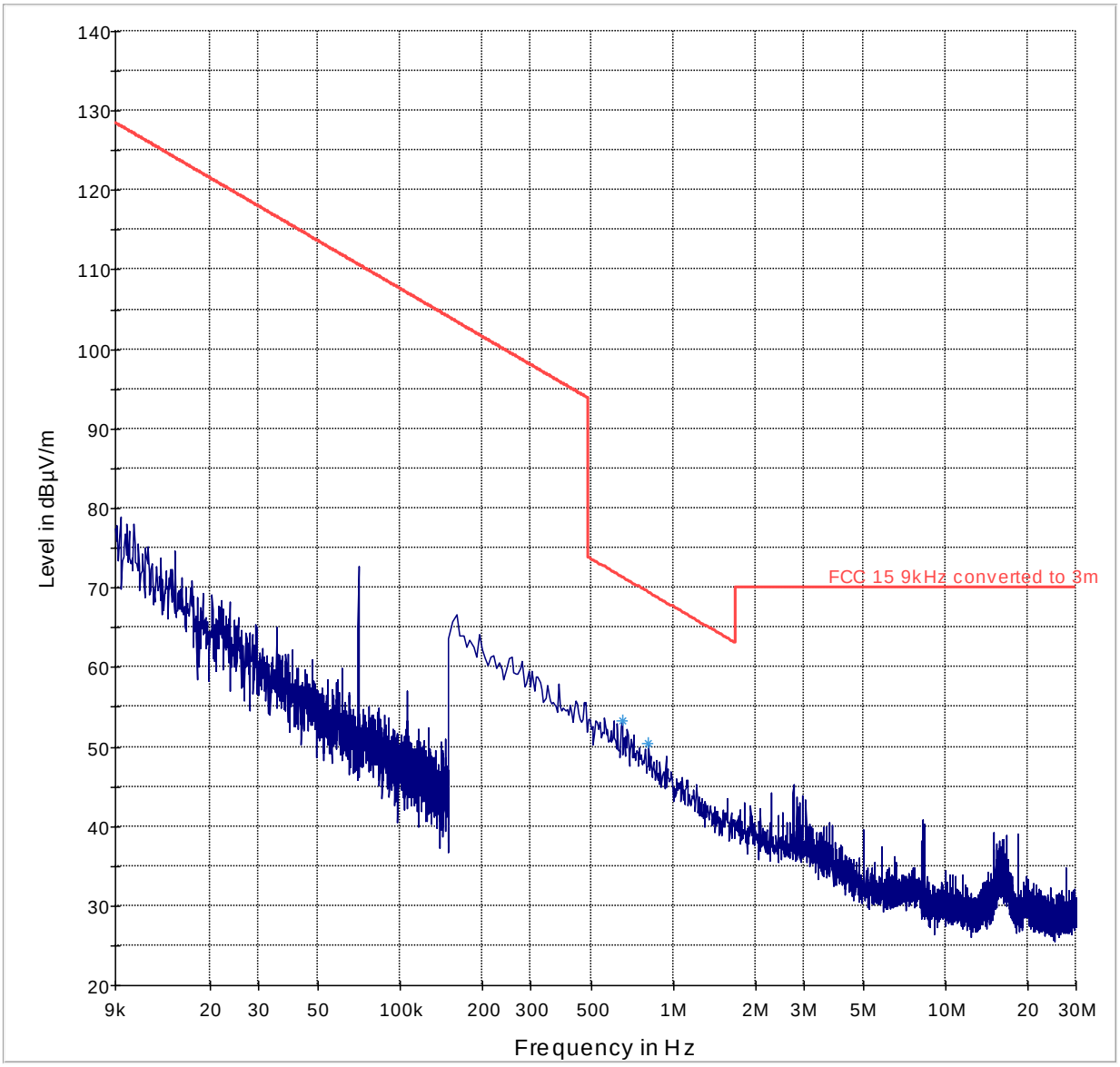
11.6.3 6 GHz – 18 GHz: Ch. 1, 2412 MHz, 802.11g



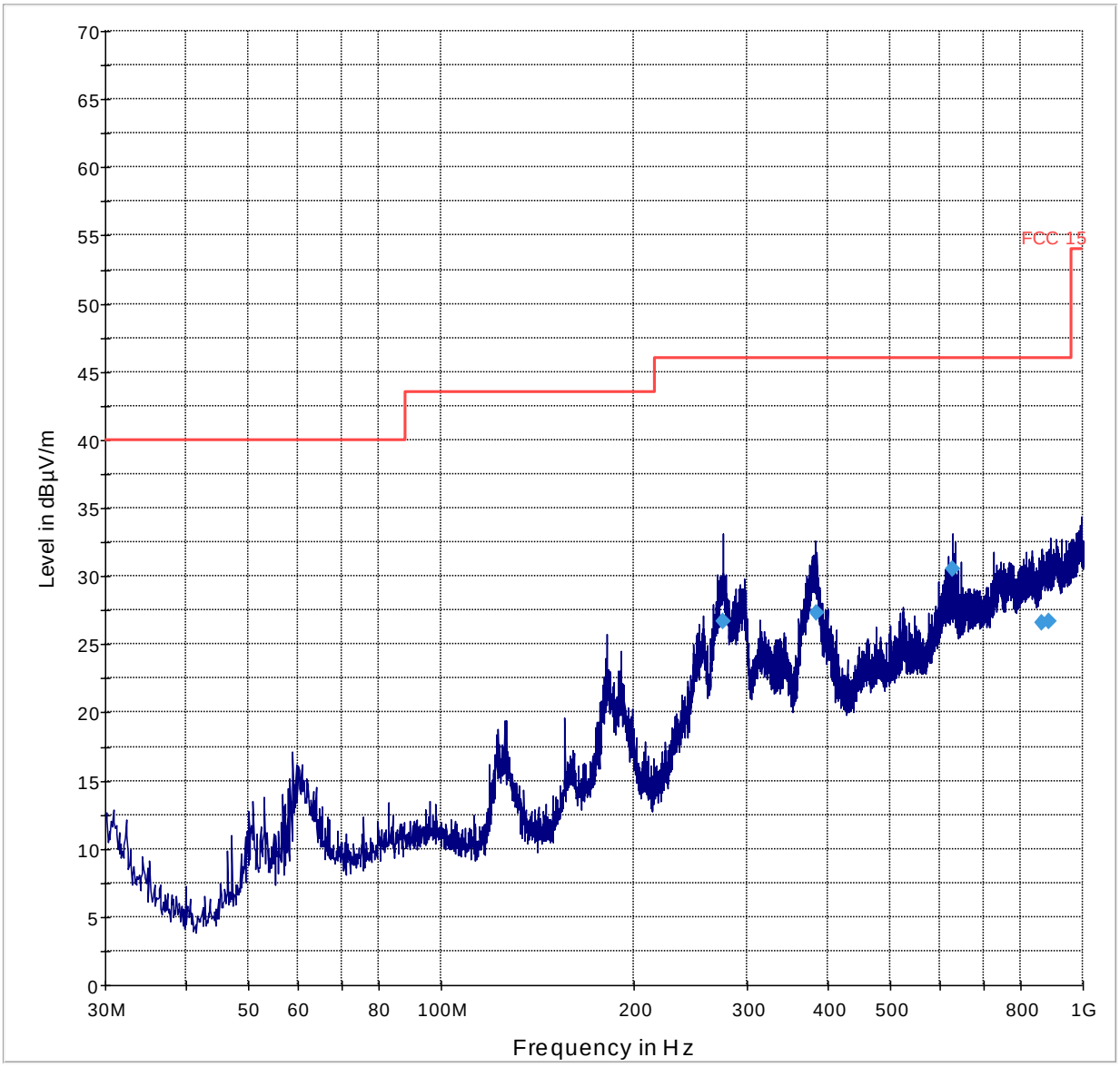
11.6.4 18 GHz – 26 GHz: Ch. 1, 2412 MHz, 802.11g



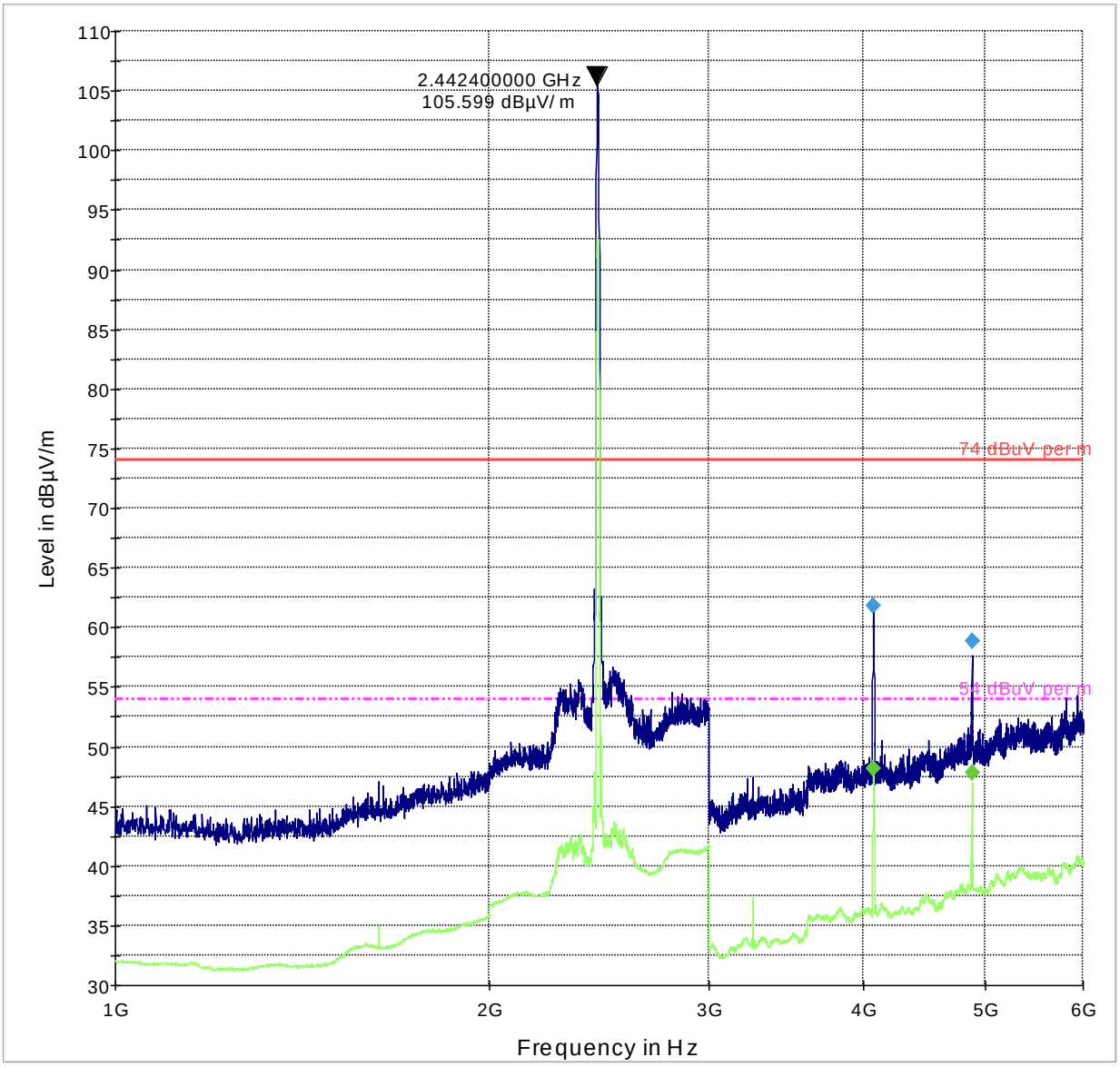
11.6.5 9 KHz – 30 MHz: Ch.7, 2442 MHz, 802.11g



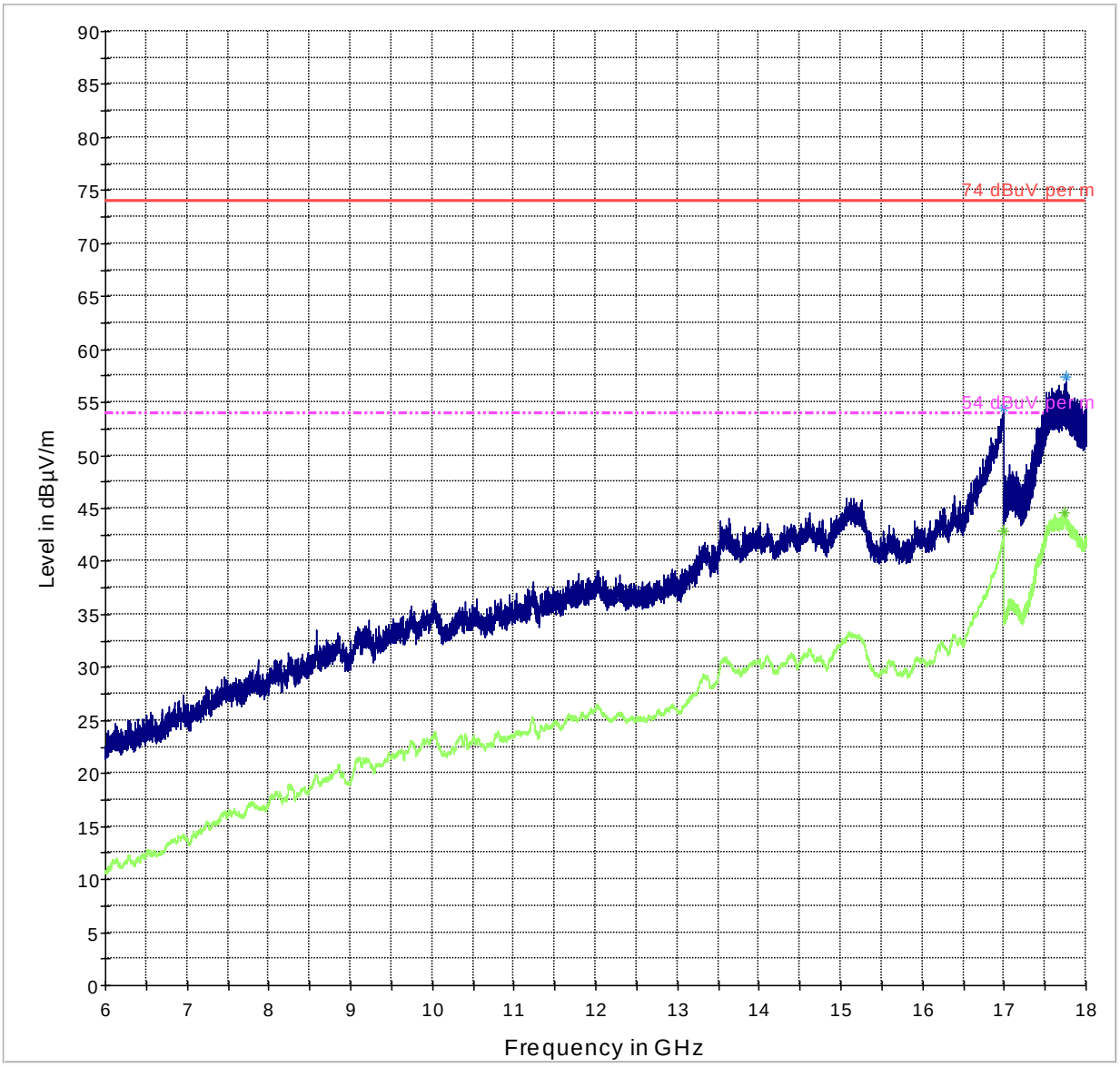
11.6.6 30 MHz – 1 GHz: Ch. 7, 2442 MHz, 802.11g



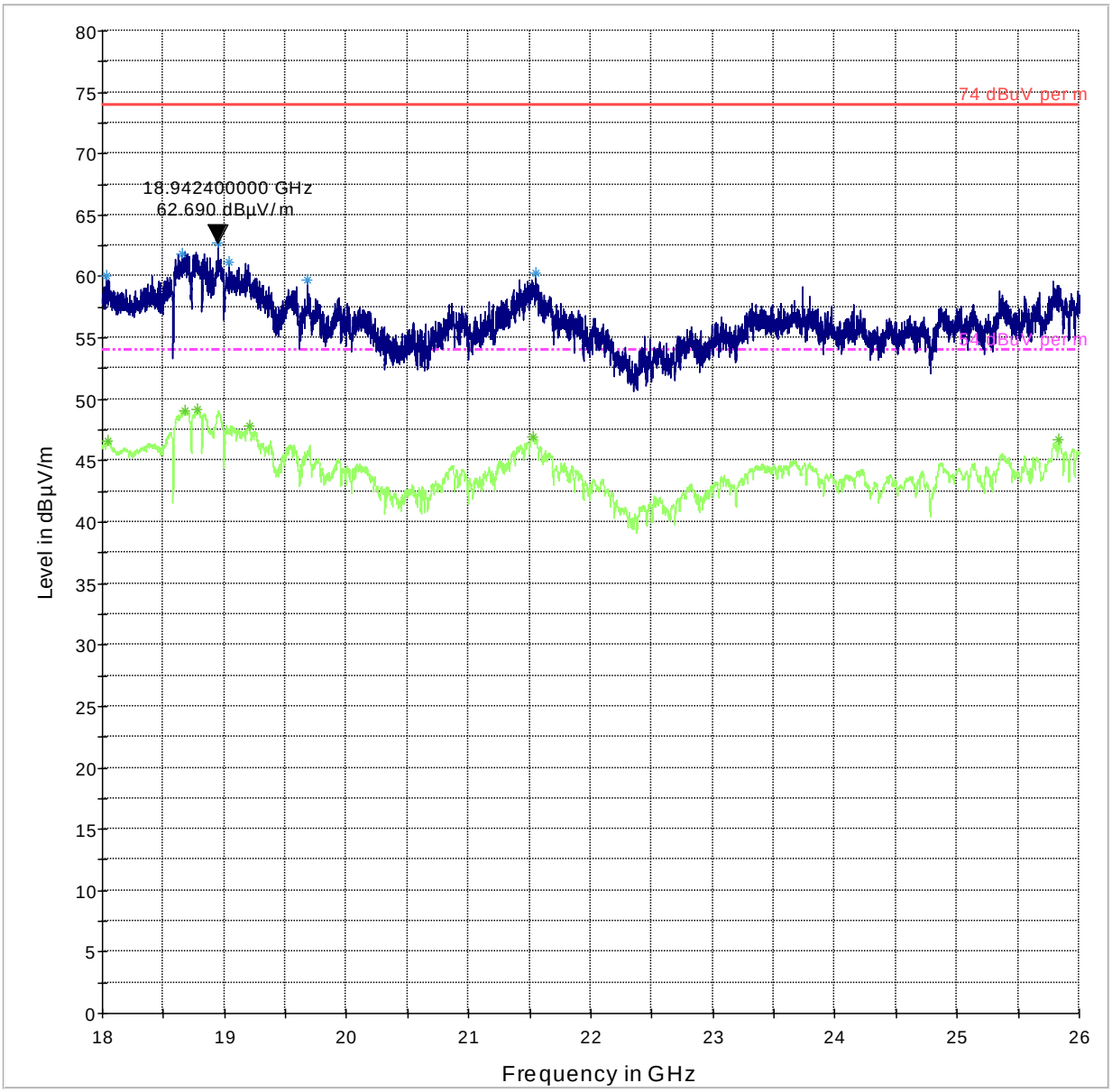
11.6.7 1 GHz – 6 GHz: Ch. 7, 2442 MHz, 802.11g



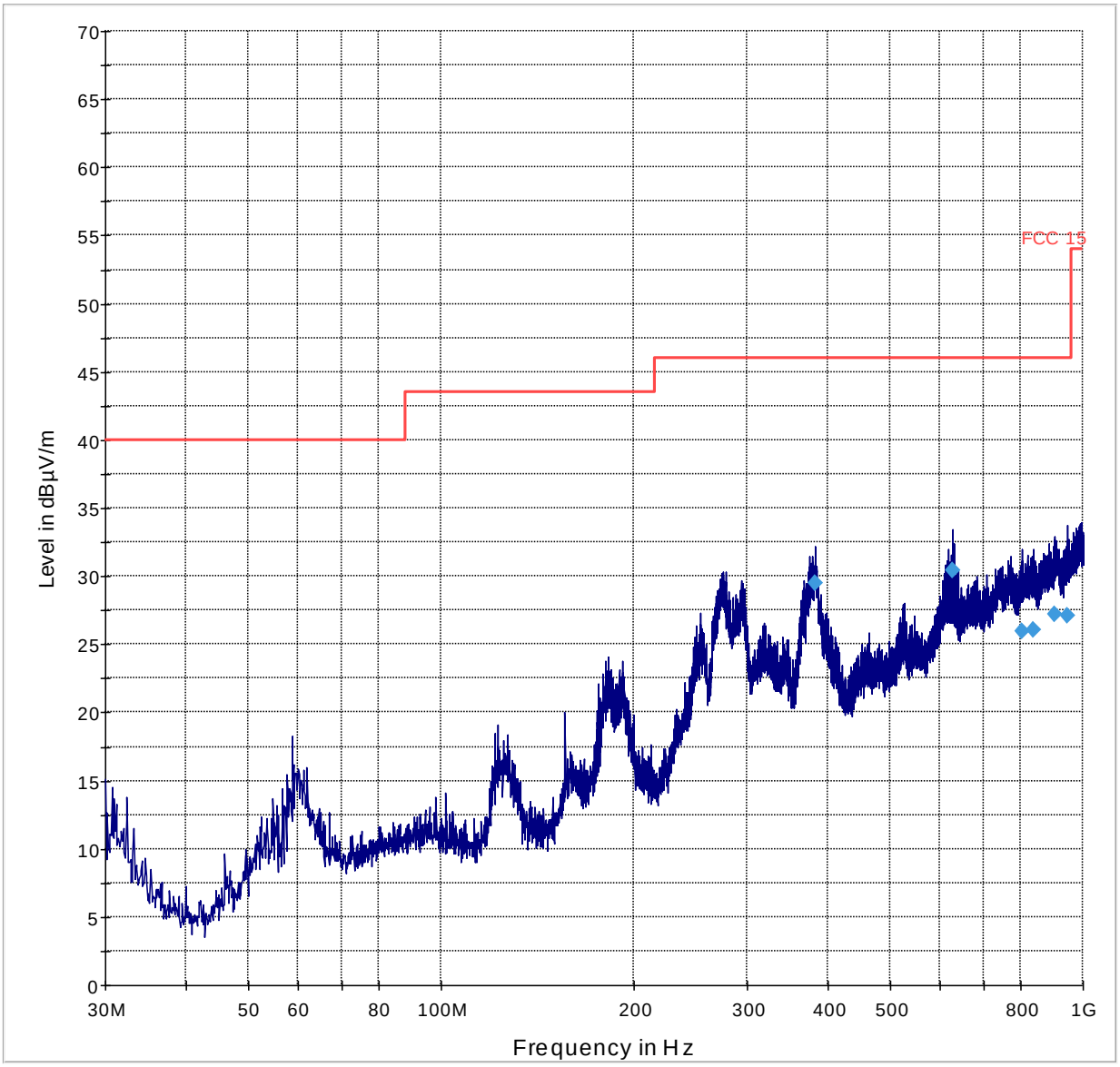
11.6.8 6 GHz – 18 GHz: Ch. 7, 2442 MHz, 802.11g



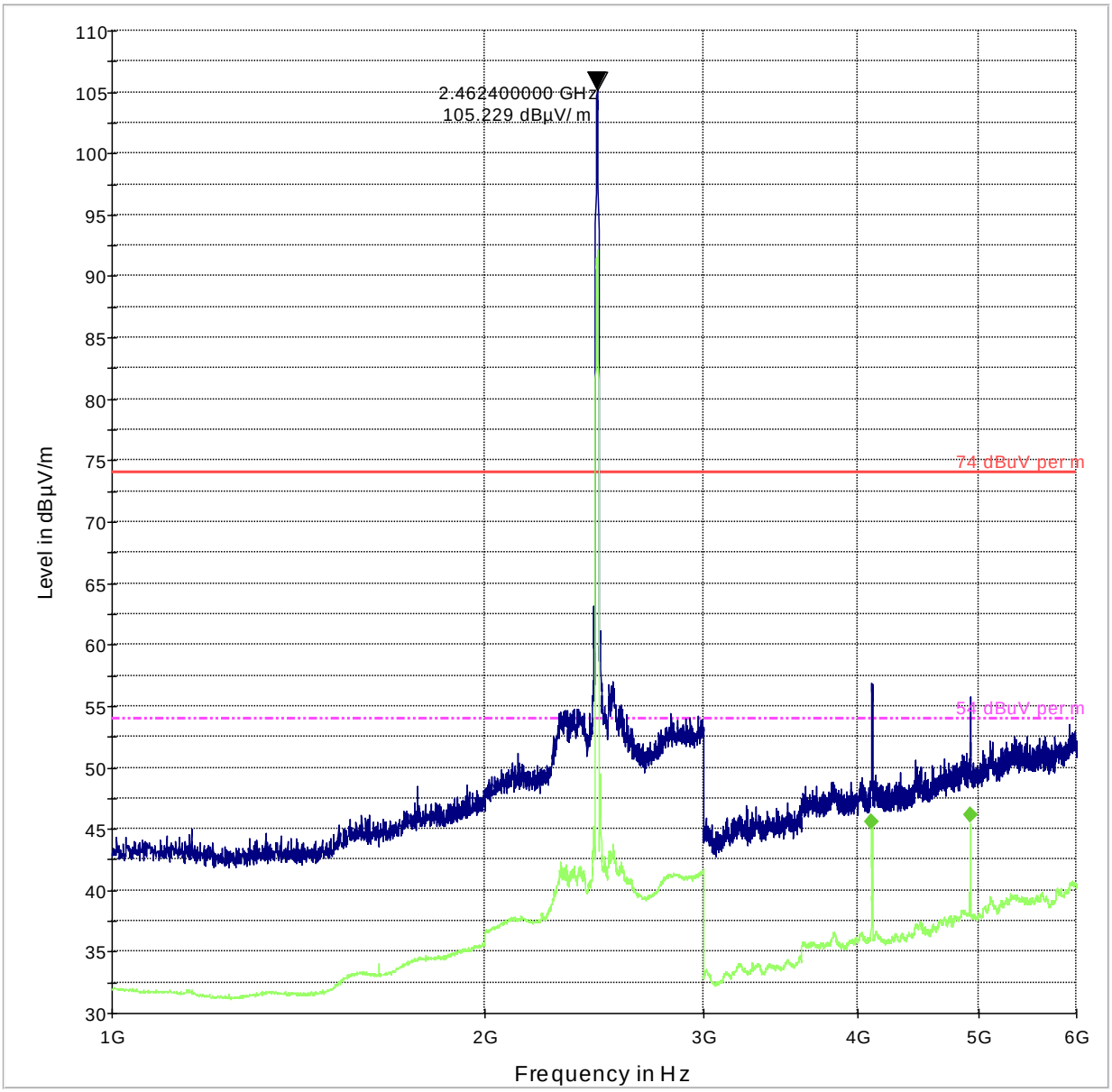
11.6.9 18 GHz – 26 GHz: Ch. 7, 2442 MHz, 802.11g



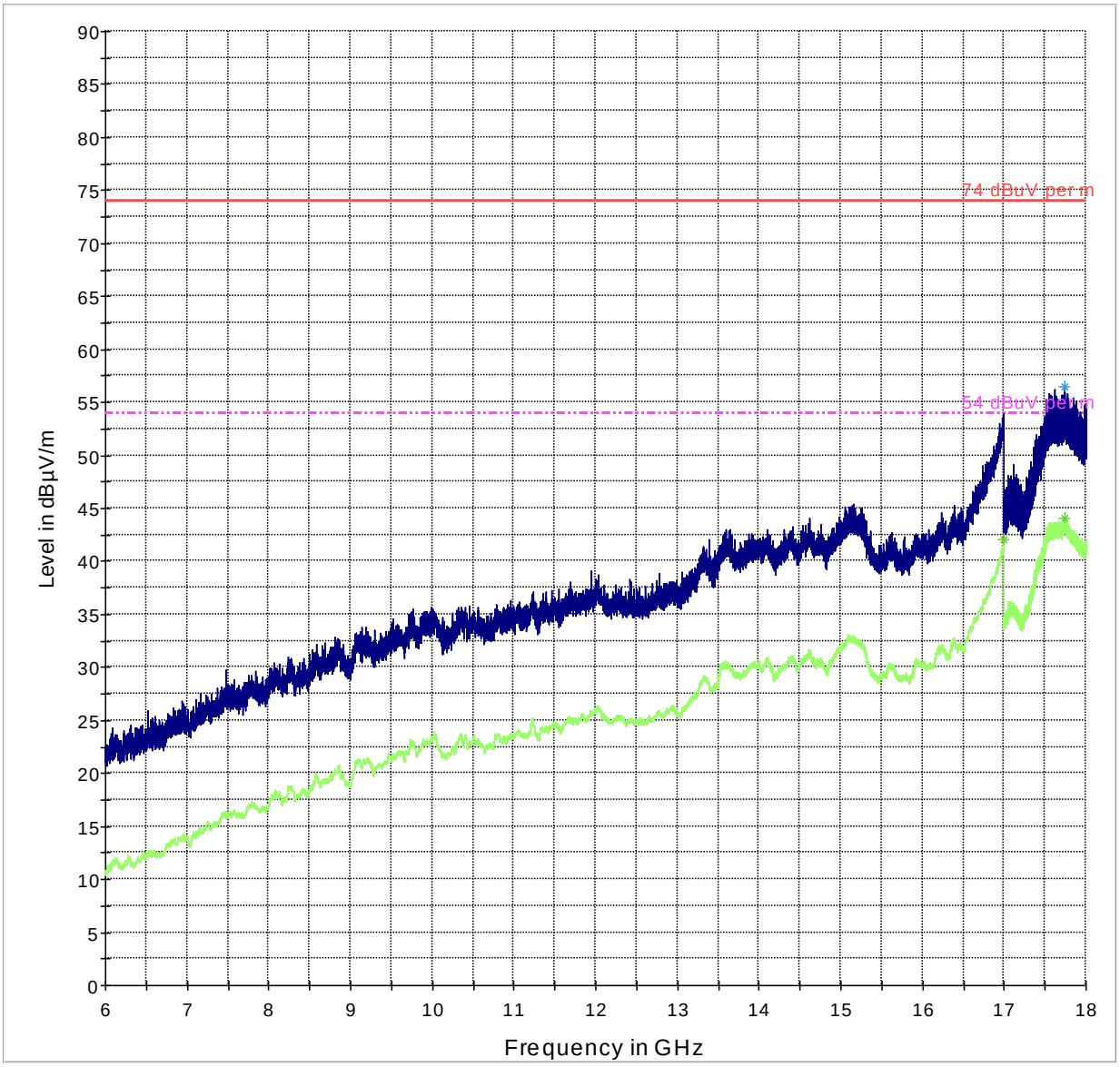
11.6.1030 MHz – 1 GHz: Ch. 11, 2462 MHz, 802.11g



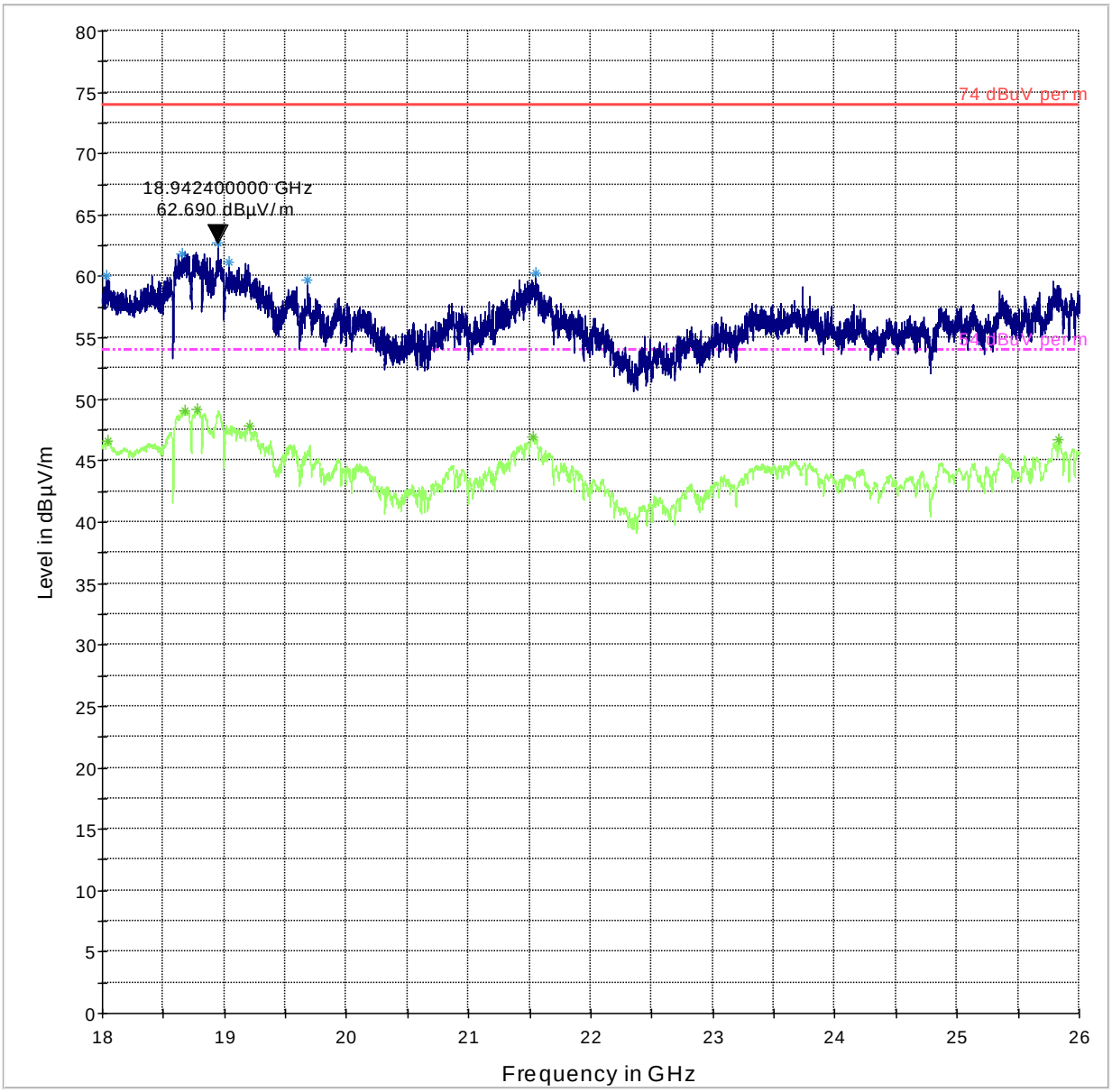
11.6.1 11 GHz – 6 GHz: Ch. 11, 2462 MHz, 802.11g



11.6.126 GHz – 18 GHz: Ch. 11, 2462 MHz, 802.11g



11.6.1318 GHz – 26 GHz: Ch. 11, 2462 MHz, 802.11g



12 AC Power Line Conducted Emissions

The purpose of this test is to measure unwanted radio frequency currents induced in any AC conductor external to the equipment which could conduct interference to other equipment via the AC electrical network.

12.1 Limits:

§15.207 & RSS-Gen 8.8
(a) Except as shown in paragraphs (b) and (c) of this section of the CFR, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table (1), as measured using a 50 μH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Table 1:

Frequency of emission (MHz)	Conducted limit (dBμV)	
	Quasi-peak	Average
0.15–0.5	66 to 56*	56 to 46*
0.5–5	56	46
5–30	60	50

*Decreases with the logarithm of the frequency.

12.2 Test Conditions:

Test mode: 802.11g (OFDM)
Modulation: BPSK @ 6 Mbps- the highest conducted output power.

Tnom: 20°C; Vnom: 120 VAC

12.3 Test Procedure:

Measurement according to ANSI C63.10:2013 section 6.2 and 4.1 (also refer to section 6, 6.3 in this test report)

Analyzer Settings:
RBW = 9 KHz (CISPR Bandwidth)
Detector: Qusi-Peak / Average

12.4 Results

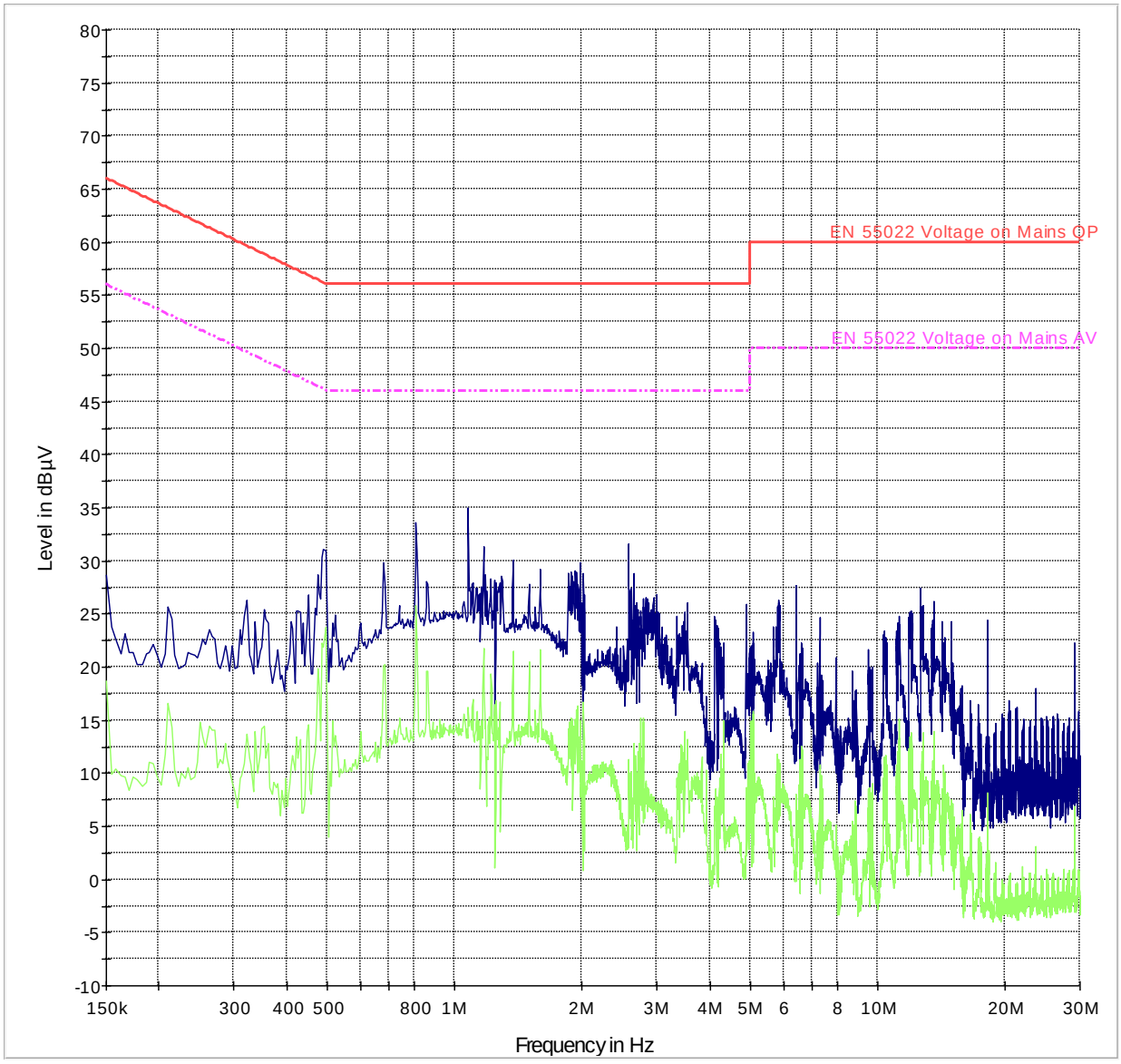
Plots shown here represent the combined worse case emissions for power lines (phases and neutral line).
Pass.

12.5 Test Data

Conducted Emissions: 150 KHz – 30 MHz
Note: All peak levels are below average limit. Final measurements are not required.

12.6 Measurement Plots:

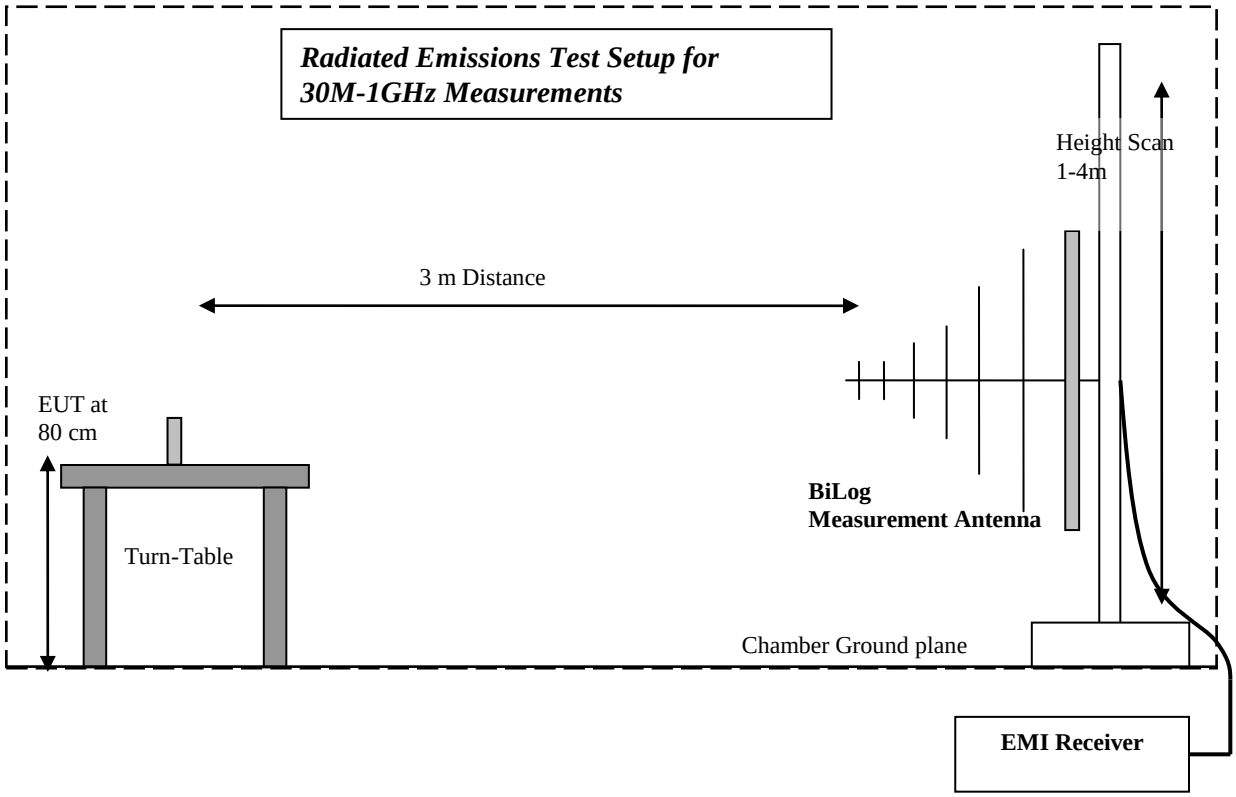
12.6.1 Conducted Emissions: 150 KHz – 30 MHz

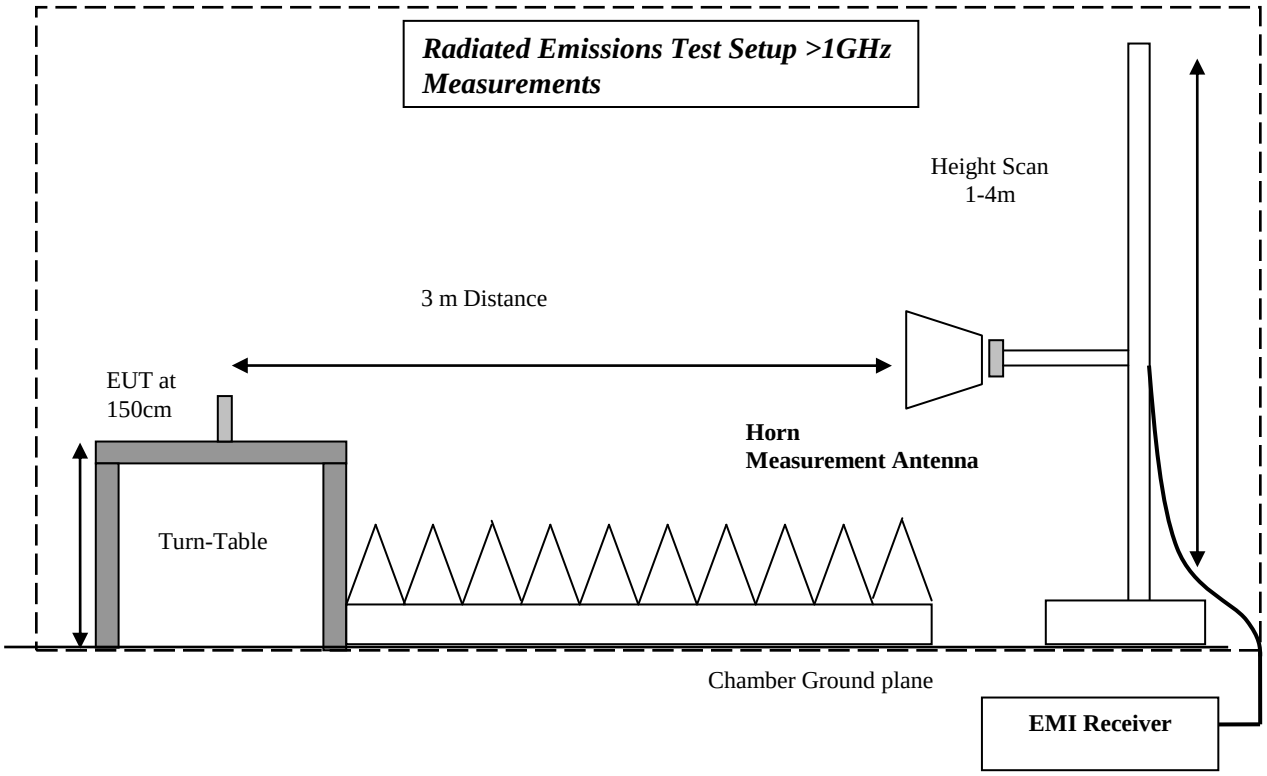


13 Test Equipment and Ancillaries used for tests

No.	Equipment Name	Manufacturer	Type/model	Serial No.	Cal Date	Cal Interval
3m Semi- Anechoic Chamber:						
	Turn table	EMCO	2075	N/A	N/A	N/A
	MAPS Position Controller	ETS Lindgren	2092	0004-1510	N/A	N/A
	Antenna Mast	EMCO	2075	N/A	N/A	N/A
	Relay Switch Unit	Rohde&Schwarz	RSU	338964/001	N/A	N/A
	EMI Receiver/Analyzer	Rohde&Schwarz	ESU 40	100251-kB	Jun 2015	2 Year
	1500MHz HP Filter	Filtek	HP12/1700	14c48	N/A	N/A
	2800 MHZ HP Filter	Filtek	HP12/2800	14C47	N/A	N/A
	Pre-Amplifier	Miteq	JS40010260	340125	N/A	N/A
	Binconilog Antenna	EMCO	3141	0005-1186	Apr 2012	4 Years
	Horn Antenna	EMCO	3115	35114	Mar 2012	4 Years
	LISN	Fischer Custom Comm. Inc	05-25-2-08	08014	Mar 2015	2 years
	Spectrum Analyzer	Rohde&Schwarz	FSU 8	200256	Jul 2015	2 Years

14 Test Setup Diagram:




Radiated Emissions Test Setup >1GHz Measurements
Height Scan
1-4m
3 m Distance
EUT at
150cm
Horn
Measurement Antenna
Turn-Table
Chamber Ground plane
EMI Receiver

15 Revision History

Date	Report Name	Version	Report prepared by
2015-07-16	EMC_BOTHO-003-15001_15.247_DTS_WLAN	initial	Franz Engert