STC Test Report

DAkkS Deutsche Akkreditierungsstelle D-PL-12121-01-00

Date: 2015-07-16
No.: DM119852

Applicant:	Intracom Asia Co., Ltd. 4F., No.77, Sec. 1, Xintai 5th Rd., Xizhi Dist., New Taipei City 221, Taiwan
Manufacturer:	Intracom Asia Co., Ltd. 4F., No.77, Sec. 1, Xintai 5th Rd., Xizhi Dist., New Taipei City 221, Taiwan
Description of Sample(s):	Submitted sample(s) said to be Product: 300N High-Power PoE Access Point Brand Name: Intellinet Model Number: 525800 FCC ID: 2ADQY525800
Date Sample(s) Received:	2015-06-09
Date Tested:	2015-06-12 to 2015-07-16
Investigation Requested:	Perform ElectroMagnetic Interference measurement in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15: 2014 and ANSI C63.10:2013 for FCC Certification.
Conclusion(s):	The submitted product COMPLIED with the requirements of Federal Communications Commission [FCC] Rules and Regulations Part 15. The tests were performed in accordance with the standards described above and on Section 2.2 in this Test Report.
Remark(s):	---

LONG Yun Jian, Along
Authorized Signatory
ElectroMagnetic Compatibility Department
For and on behalf of
STC (Dongguan) Company Limited

STC Test Report

CONTENT:

STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770)
Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org

1.0 General Details

1.1 Test Laboratory

STC (Dongguan) Company Limited
EMC Laboratory
68 Fumin Nan Road, Dalang, Dongguan, Guangdong, China

Telephone: (86 769) 81119888
Fax: (86 769) 81116222

1.2 Equipment Under Test [EUT]
Description of Sample(s)

Product:	300N High-Power PoE Access Point
Manufacturer:	Intracom Asia Co., Ltd. 4F., No.77, Sec. 1, Xintai 5th Rd., Xizhi Dist., New Taipei City 221, Taiwan
Brand Name:	Intellinet
Model Number:	525800
Rating:	Input: 100-240Va.c. 50/60Hz 0.5A; Output: 12Vd.c. 1.0A.

The AC/DC adaptor was provided by the applicant with following details:
Brand name: AMIGO; Model no.: AMS9-1201000FU2

1.2.1 Description of EUT Operation

The Equipment Under Test (EUT) is a High-Power Ceiling Mount Wireless 300N PoE Access of Intracom Asia Co., Ltd., the transmission signal is digital modulated with channel frequency range 2412-2462MHz..
Transmit continuously with 100% duty cycle.

1.3 Date of Order

2015-06-09

1.4 Submitted Sample(s):

1 Sample

1.5 Test Duration

2015-06-12 to 2015-07-15

1.6 Country of Origin

China

2.0 Technical Details

2.1 Investigations Requested

Perform Electromagnetic Interference measurements in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15: 2014 Regulations and ANSI C63.10:2013 for FCC Certification.

2.2 Test Standards and Results Summary Tables

EMISSION
Results Summary

Test Condition	Test Requirement	Test Method	Class / Severity	Test Result		
				Pass	Fail	N/A
Output Power of Fundamental Emissions	FCC 47CFR 15.247(b)(3)	ANSI C63.10:2013	N/A	☒	☐	☐
Radiated Emissions	FCC 47CFR 15.209	ANSI C63.10:2013	N/A	☒	☐	☐
Conducted Emissions	FCC 47CFR 15.207	ANSI C63.10:2013	N/A	☒	☐	☐
Power Spectral Density	FCC 47CFR 15.247(e)	N/A	N/A	☒	☐	☐
6dB Bandwidth	FCC 47CFR 15.247(a)(2)	N/A	N/A	☒	☐	☐
Band Edge Emissions	FCC 47CFR 15.247(d)	N/A	N/A	☒	☐	☐
RF Exposure	FCC 47CFR 15.247(i)	N/A	N/A	☒	☐	☐

Note: N/A - Not Applicable

3.0 Test Results

3.1 Emission

3.1.1 Maximum Peak Output Power

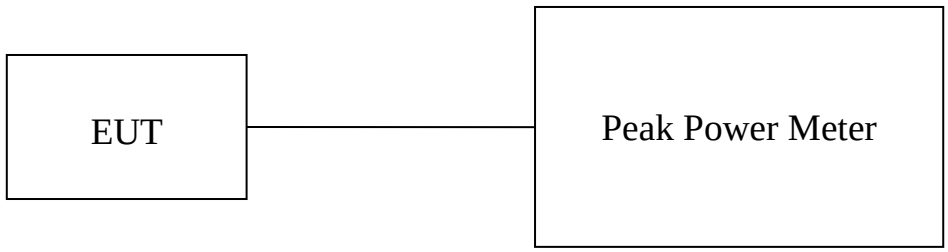
Test Requirement:	FCC 47CFR 15.247(b)(3)
Test Method:	N/A
Test Date:	2015-07-15
Mode of Operation:	WiFi mode

Test Method:

The RF output of the EUT was connected to the peak power meter. All the attenuation or cable loss will be added to the measured maximum output power. The results are recorded in mW.
The testing follows the Measurement Procedure of FCC KDB 558074 DTS D01 Meas. Guidance v03r02.
For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
802.11N transmit signals are correlated with each other.
Directional gain =Antenna Gain + beamforming Gain

Description		
802.11b	☒With Beamforming	☐Without Beamforming
802.11g	☒With Beamforming	☐Without Beamforming
802.11n	☒With Beamforming	☐Without Beamforming

Test Setup:



Limits for Peak Output Power of Fundamental & Harmonics Emissions [FCC 47CFR 15.247]:

For Digital Transmission systems in 2400-2483.5 MHz Band: 1 Watt (30dBm)

Results of WiFi Tx Mode 802.11 b, (2412MHz to 2462MHz) : Pass (TX Unit) （EIRP Values） Maximum conducted output power (Antenna A)

Channel	Frequency (MHz)	Result (dBm)	Antenna Gain (dBi)	Output Power (dBm)	Output Power (Watt)
Low	2412	14.151	3	17.151	0.051892
Middle	2437	14.389		17.389	0.054815
High	2462	14.596		17.596	0.057491

Results of WiFi Tx Mode 802.11 b, (2412MHz to 2462MHz) : Pass (TX Unit) （EIRP Values） Maximum conducted output power (Antenna B)

Channel	Frequency (MHz)	Result (dBm)	Antenna Gain (dBi)	Output Power (dBm)	Output Power (Watt)
Low	2412	15.368	3	18.368	0.068675
Middle	2437	15.584		18.584	0.072177
High	2462	15.711		18.711	0.074319

Results of WiFi Tx Mode 802.11 g, (2412MHz to 2462MHz) : Pass (TX Unit) （EIRP Values） Maximum conducted output power (Antenna A)

Channel	Frequency (MHz)	Result (dBm)	Antenna Gain (dBi)	Output Power (dBm)	Output Power (Watt)
Low	2412	11.537	3	14.537	0.028425
Middle	2437	11.618		14.618	0.028960
High	2462	11.812		14.812	0.030283

Results of WiFi Tx Mode 802.11 g, (2412MHz to 2462MHz) : Pass (TX Unit) （EIRP Values） Maximum conducted output power (Antenna B)

Channel	Frequency (MHz)	Result (dBm)	Antenna Gain (dBi)	Output Power (dBm)	Output Power (Watt)
Low	2412	12.027	3	15.027	0.031820
Middle	2437	12.169		15.169	0.032878
High	2462	12.312		15.312	0.033978

Limits for Peak Output Power of Fundamental & Harmonics Emissions [FCC 47CFR 15.247]:

For Digital Transmission systems in 2400-2483.5 MHz Band: 1 Watt (30dBm)

Results of WiFi Tx Mode 802.11 N20, (2412MHz to 2462MHz) : Pass (TX Unit) （EIRP Values）
Maximum conducted output power (Antenna A)

Channel	Frequency (MHz)	Result (dBm)	Antenna Gain (dBi)	Output Power (dBm)	Output Power (Watt)
Low	2412	9.576	3	12.576	0.018097
Middle	2437	9.719		12.719	0.018703
High	2462	9.902		12.902	0.019507

Results of WiFi Tx Mode 802.11 N20, (2412MHz to 2462MHz) : Pass (TX Unit) （EIRP Values）
Maximum conducted output power (Antenna B)

Channel	Frequency (MHz)	Result (dBm)	Antenna Gain (dBi)	Output Power (dBm)	Output Power (Watt)
Low	2412	10.025	3	13.025	0.020068
Middle	2437	10.219		13.219	0.020985
High	2462	10.367		13.367	0.021712

Results of WiFi Tx Mode 802.11 N40, (2422MHz to 2452MHz) : Pass (TX Unit) （EIRP Values）
Maximum conducted output power (Antenna A)

Channel	Frequency (MHz)	Result (dBm)	Antenna Gain (dBi)	Output Power (dBm)	Output Power (Watt)
Low	2422	9.391	3	12.391	0.017342
Middle	2437	9.458		12.458	0.017612
High	2452	9.573		12.573	0.018084

Results of WiFi Tx Mode 802.11 N40, (2422MHz to 2452MHz) : Pass (TX Unit) （EIRP Values）
Maximum conducted output power (Antenna B)

Channel	Frequency (MHz)	Result (dBm)	Antenna Gain (dBi)	Output Power (dBm)	Output Power (Watt)
Low	2422	10.216	3	13.216	0.020970
Middle	2437	10.310		13.310	0.021429
High	2452	10.582		13.582	0.022814

Limits for Peak Output Power of Fundamental & Harmonics Emissions [FCC 47CFR 15.247]:
For Digital Transmission systems in 2400-2483.5 MHz Band: 1 Watt (30dBm)

Results of WiFi Tx Mode 802.11b, (2412MHz to 2462MHz) : Pass (TX Unit) （EIRP Values） (Max conduct peak output power) Antenna A+B						
Channel	**Freq.(MHz)**	**Result (dBm)**	**Antenna Gain (dBi)**	**Beamforming Gain (dBi)**	**Output Power (dBm)**	**Output Power (Watt)**
Low	2412	17.812	3	3	23.812	0.240547
Middle	2437	18.038			24.038	0.253396
High	2462	18.199			24.199	0.262966

Results of WiFi Tx Mode 802.11g, (2412MHz to 2462MHz) : Pass (TX Unit) （EIRP Values） (Max conduct peak output power) Antenna A+B						
Channel	**Freq.(MHz)**	**Result (dBm)**	**Antenna Gain (dBi)**	**Beamforming Gain (dBi)**	**Output Power (dBm)**	**Output Power (Watt)**
Low	2422	14.799	3	3	20.799	0.120199
Middle	2437	14.913			20.913	0.123396
High	2452	15.079			21.079	0.128204

Results of WiFi Tx Mode 802.11 n20, (2412MHz to 2462MHz) : Pass (TX Unit) （EIRP Values） Maximum conducted output power (Antenna A+B) (MIMO)						
Channel	**Frequency (MHz)**	**Result (dBm) Ouput A + B**	**Antenna Gain (dBi)**	**Beamforming Gain (dB)**	**Output Power (dBm)**	**Output Power (Watt)**
Low	2412	12.817	3	3	18.817	0.076155
Middle	2437	12.986			18.986	0.079177
High	2462	13.151			19.151	0.082243

Results of WiFi Tx Mode 802.11 n40, (2422MHz to 2452MHz) : Pass (TX Unit) （EIRP Values） Maximum conducted output power (Antenna A+B) (MIMO)						
Channel	**Frequency (MHz)**	**Result (dBm) Ouput A + B**	**Antenna Gain (dBi)**	**Beamforming Gain (dB)**	**Output Power (dBm)**	**Output Power (Watt)**
Low	2422	12.833	3	3	18.833	0.076436
Middle	2437	12.915			18.915	0.077893
High	2452	13.117			19.117	0.081602

Beamforming Gain = 10 log(N_{ANT}) dB,
Directional gain=6 dBi=Antnena Gain+Beamforming Gain
where N_{ANT} = number of transmit antennas.
Calculated measurement uncertainty : 30MHz to 1GHz 1.7dB
1GHz to 26GHz 1.7dB

3.1.2 Radiated Emissions

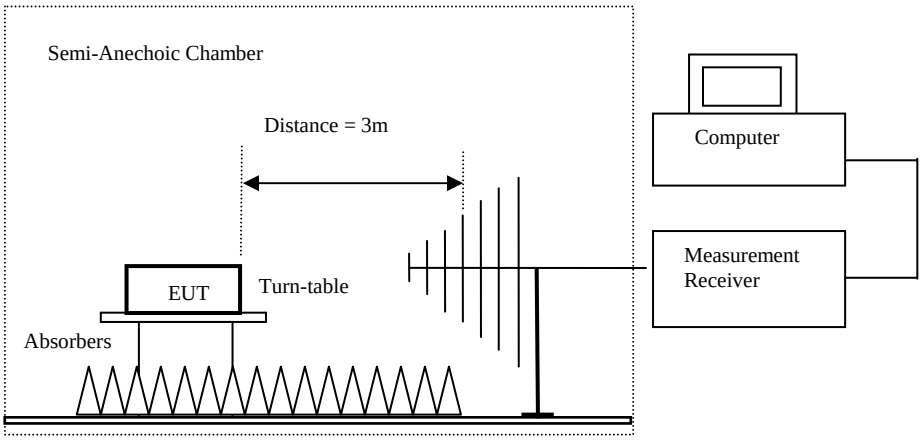
Test Requirement:	FCC 47CFR 15.209
Test Method:	ANSI C63.10:2013
Test Date:	2015-07-10 to 2015-07-15
Mode of Operation:	Tx mode / WiFi mode

Test Method:

For emission measurements at or below 1 GHz, the sample was placed 0.8m above the ground plane of semi-anechoic Chamber*. For emission measurements above 1 GHz, the sample was placed 1.5m above the ground plane of semi-anechoic Chamber*. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.

* Semi-anechoic chamber located on the G/F of "STC (Dongguan) Company Limited" with a metal ground plane filed with the FCC pursuant to section 2.948 of the FCC rules, with Registration Number: 629686.

Test Setup:



Ground Plane

Absorbers placed on top of the ground plane are for measurements above 1000MHz only.

Limits for Radiated Emissions [FCC 47 CFR 15.247 Class B]:

Frequency Range [MHz]	Quasi-Peak Limits [μV/m]
0.009-0.490	2400/F (kHz)
0.490-1.705	24000/F (kHz)
1.705-30	30
30-88	100
88-216	150
216-960	200
Above960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Result of Tx mode (2412.0 MHz) (802.11b) (9kHz – 30MHz): Pass

Field Strength of Spurious Emissions Average Value						
Frequency MHz	Measured Level dBμV	Correction Factor dB/m	Field Strength dBμV/m	Field Strength dBμV/m	Limit dBμV/m	E-Field Polarity
Emissions detected are more than 20 dB below the FCC Limits						

Results of Tx mode (2412.0 MHz) (802.11b) (30MHz – 1000MHz): PASS

Field Strength of Spurious Emissions Quasi-Peak Value						
Frequency MHz	Measured Level dBμV	Correction Factor dB/m	Field Strength dBμV/m	Field Strength dBμV/m	Limit dBμV/m	E-Field Polarity
Emissions detected are more than 20 dB below the FCC Limits						

Result of Tx mode (2412.0 MHz) (802.11b) (Above 1GHz): Pass

Field Strength of Spurious Emissions Peak Value						
Frequency MHz	Measured Level @3m dBμV	Correction Factor dB/m	Field Strength dBμV/m	Limit @3m dBμV/m	Margin dBμV/m	E-Field Polarity
4824.0	13.0	41.5	54.5	74.0	19.5	Vertical
4824.0	14.5	42.4	56.9	74.0	17.1	Horizontal
7236.0	10.5	45.1	55.6	74.0	18.4	Vertical
7236.0	9.5	46.2	55.7	74.0	18.3	Horizontal
9648.0	7.4	48	55.4	74.0	18.6	Vertical
9648.0	6.1	48.8	54.9	74.0	19.1	Horizontal
12060.0	4.0	51.5	55.5	74.0	18.5	Vertical
12060.0	3.1	52.4	55.5	74.0	18.5	Horizontal

Result of Tx mode (2412.0 MHz) (802.11b) (Above 1GHz): Pass

Field Strength of Spurious Emissions Average Value						
Frequency MHz	Measured Level @3m dBuV	Correction Factor dB/m	Field Strength dBuV/m	Limit @3m dBuV/m	Margin dBuV/m	E-Field Polarity
4824.0	5.3	41.5	46.8	54.0	7.2	Vertical
4824.0	2.3	42.4	44.7	54.0	9.3	Horizontal
7236.0	-2.7	45.1	42.4	54.0	11.6	Vertical
7236.0	-4.0	46.2	42.2	54.0	11.8	Horizontal
9648.0	-5.9	48	42.1	54.0	11.9	Vertical
9648.0	-7.0	48.8	41.8	54.0	12.2	Horizontal
12060.0	-10.1	51.5	41.4	54.0	12.6	Vertical
12060.0	-10.3	52.4	42.1	54.0	11.9	Horizontal

Result of Tx mode (2437.0 MHz) (802.11b) (9kHz – 30MHz): Pass

Field Strength of Spurious Emissions Average Value						
Frequency MHz	Measured Level dBµV	Correction Factor dB/m	Field Strength dBµV/m	Field Strength dBµV/m	Limit dBµV/m	E-Field Polarity
Emissions detected are more than 20 dB below the FCC Limits						

Results of Tx mode (2437.0 MHz) (802.11b) (30MHz – 1000MHz): PASS

Field Strength of Spurious Emissions Quasi-Peak Value						
Frequency MHz	Measured Level dBµV	Correction Factor dB/m	Field Strength dBµV/m	Field Strength dBµV/m	Limit dBµV/m	E-Field Polarity
Emissions detected are more than 20 dB below the FCC Limits						

Result of Tx mode (2437.0 MHz) (802.11b) (Above 1GHz): Pass

Field Strength of Spurious Emissions Peak Value						
Frequency MHz	Measured Level @3m dBµV	Correction Factor dB/m	Field Strength dBµV/m	Limit @3m dBµV/m	Margin dBµV/m	E-Field Polarity
4874.0	16.5	41.6	58.1	74.0	15.9	Vertical
4874.0	15.4	42.5	57.9	74.0	16.1	Horizontal
7311.0	10.7	45.2	55.9	74.0	18.1	Vertical
7311.0	9.8	46.3	56.1	74.0	17.9	Horizontal
9748.0	7.4	48.1	55.5	74.0	18.5	Vertical
9748.0	7.5	48.9	56.4	74.0	17.6	Horizontal
12185.0	4.3	51.6	55.9	74.0	18.1	Vertical
12185.0	3.5	52.5	56.0	74.0	18.0	Horizontal

Result of Tx mode (2437.0 MHz) (802.11b) (Above 1GHz): Pass

Field Strength of Spurious Emissions Average Value						
Frequency MHz	Measured Level @3m dBuV	Correction Factor dB/m	Field Strength dBuV/m	Limit @3m dBuV/m	Margin dBuV/m	E-Field Polarity
4874.0	6.6	41.6	48.2	54.0	5.8	Vertical
4874.0	5.0	42.5	47.5	54.0	6.5	Horizontal
7311.0	-2.4	45.2	42.8	54.0	11.2	Vertical
7311.0	-2.8	46.3	43.5	54.0	10.5	Horizontal
9748.0	-5.5	48.1	42.6	54.0	11.4	Vertical
9748.0	-6.7	48.9	42.2	54.0	11.8	Horizontal
12185.0	-9.8	51.6	41.8	54.0	12.2	Vertical
12185.0	-9.6	52.5	42.9	54.0	11.1	Horizontal

Result of Tx mode (2462.0 MHz) (802.11b) (9kHz – 30MHz): Pass

Field Strength of Spurious Emissions Average Value						
Frequency MHz	Measured Level dBµV	Correction Factor dB/m	Field Strength dBµV/m	Field Strength dBµV/m	Limit dBµV/m	E-Field Polarity
Emissions detected are more than 20 dB below the FCC Limits						

Results of Tx mode (2462.0 MHz) (802.11b) (30MHz – 1000MHz): PASS

Field Strength of Spurious Emissions Quasi-Peak Value						
Frequency MHz	Measured Level dBµV	Correction Factor dB/m	Field Strength dBµV/m	Field Strength dBµV/m	Limit dBµV/m	E-Field Polarity
Emissions detected are more than 20 dB below the FCC Limits						

Result of Tx mode (2462.0 MHz) (802.11b) (Above 1GHz): Pass

Field Strength of Spurious Emissions Peak Value						
Frequency MHz	Measured Level @3m dBµV	Correction Factor dB/m	Field Strength dBµV/m	Limit @3m dBµV/m	Margin dBµV/m	E-Field Polarity
4924.0	17.2	41.4	58.6	74.0	15.4	Vertical
4924.0	15.1	42.7	57.8	74.0	16.2	Horizontal
7386.0	10.2	45.6	55.8	74.0	18.2	Vertical
7386.0	8.9	46.5	55.4	74.0	18.6	Horizontal
9848.0	7.1	48.6	55.7	74.0	18.3	Vertical
9848.0	5.5	49.7	55.2	74.0	18.8	Horizontal
12310.0	4.2	51.7	55.9	74.0	18.1	Vertical
12310.0	3.5	52.7	56.2	74.0	17.8	Horizontal

Result of Tx mode (2462.0 MHz) (802.11b) (Above 1GHz): Pass

Field Strength of Spurious Emissions Average Value						
Frequency MHz	Measured Level @3m dBuV	Correction Factor dB/m	Field Strength dBuV/m	Limit @3m dBuV/m	Margin dBuV/m	E-Field Polarity
4924.0	6.5	41.4	47.9	54.0	6.1	Vertical
4924.0	4.7	42.7	47.4	54.0	6.6	Horizontal
7386.0	-3.3	45.6	42.3	54.0	11.7	Vertical
7386.0	-3.9	46.5	42.6	54.0	11.4	Horizontal
9848.0	-6.3	48.6	42.3	54.0	11.7	Vertical
9848.0	-7.9	49.7	41.8	54.0	12.2	Horizontal
12310.0	-9.3	51.7	42.4	54.0	11.6	Vertical
12310.0	-9.7	52.7	43.0	54.0	11.0	Horizontal

Result of Tx mode (2412.0 MHz) (802.11g) (9kHz – 30MHz): Pass

Field Strength of Spurious Emissions Average Value						
Frequency MHz	Measured Level dBµV	Correction Factor dB/m	Field Strength dBµV/m	Field Strength dBµV/m	Limit dBµV/m	E-Field Polarity
Emissions detected are more than 20 dB below the FCC Limits						

Results of Tx mode (2412.0 MHz) (802.11g) (30MHz – 1000MHz): PASS

Field Strength of Spurious Emissions Quasi-Peak Value						
Frequency MHz	Measured Level dBµV	Correction Factor dB/m	Field Strength dBµV/m	Field Strength dBµV/m	Limit dBµV/m	E-Field Polarity
Emissions detected are more than 20 dB below the FCC Limits						

Result of Tx mode (2412.0 MHz) (802.11g) (Above 1GHz): Pass

Field Strength of Spurious Emissions Peak Value						
Frequency MHz	Measured Level @3m dBµV	Correction Factor dB/m	Field Strength dBµV/m	Limit @3m dBµV/m	Margin dBµV/m	E-Field Polarity
4824.0	16.9	41.5	58.4	74.0	15.6	Vertical
4824.0	15.7	42.4	58.1	74.0	15.9	Horizontal
7236.0	11.3	45.1	56.4	74.0	17.6	Vertical
7236.0	9.9	46.2	56.1	74.0	17.9	Horizontal
9648.0	7.9	48	55.9	74.0	18.1	Vertical
9648.0	6.5	48.8	55.3	74.0	18.7	Horizontal
12060.0	3.9	51.5	55.4	74.0	18.6	Vertical
12060.0	3.2	52.4	55.6	74.0	18.4	Horizontal

Result of Tx mode (2412.0 MHz) (802.11g) (Above 1GHz): Pass

Field Strength of Spurious Emissions Average Value						
Frequency MHz	Measured Level @3m dBuV	Correction Factor dB/m	Field Strength dBuV/m	Limit @3m dBuV/m	Margin dBuV/m	E-Field Polarity
4824.0	6.4	41.5	47.9	54.0	6.1	Vertical
4824.0	5.8	42.4	48.2	54.0	5.8	Horizontal
7236.0	-2.0	45.1	43.1	54.0	10.9	Vertical
7236.0	-3.3	46.2	42.9	54.0	11.1	Horizontal
9648.0	-5.8	48	42.2	54.0	11.8	Vertical
9648.0	-7.0	48.8	41.8	54.0	12.2	Horizontal
12060.0	-9.5	51.5	42.0	54.0	12.0	Vertical
12060.0	-9.9	52.4	42.5	54.0	11.5	Horizontal

Result of Tx mode (2437.0 MHz) (802.11g) (9kHz – 30MHz): Pass

Field Strength of Spurious Emissions Average Value						
Frequency MHz	Measured Level dBµV	Correction Factor dB/m	Field Strength dBµV/m	Field Strength dBµV/m	Limit dBµV/m	E-Field Polarity
Emissions detected are more than 20 dB below the FCC Limits						

Results of Tx mode (2437.0 MHz) (802.11g) (30MHz – 1000MHz): PASS

Field Strength of Spurious Emissions Quasi-Peak Value						
Frequency MHz	Measured Level dBµV	Correction Factor dB/m	Field Strength dBµV/m	Field Strength dBµV/m	Limit dBµV/m	E-Field Polarity
Emissions detected are more than 20 dB below the FCC Limits						

Result of Tx mode (2437.0 MHz) (802.11g) (Above 1GHz): Pass

Field Strength of Spurious Emissions Peak Value						
Frequency MHz	Measured Level @3m dBuV	Correction Factor dB/m	Field Strength dBuV/m	Limit @3m dBuV/m	Margin dBuV/m	E-Field Polarity
4874.0	17.0	41.6	58.6	74.0	15.4	Vertical
4874.0	15.2	42.5	57.7	74.0	16.3	Horizontal
7311.0	10.8	45.2	56.0	74.0	18.0	Vertical
7311.0	9.5	46.3	55.8	74.0	18.2	Horizontal
9748.0	7.7	48.1	55.8	74.0	18.2	Vertical
9748.0	6.7	48.9	55.6	74.0	18.4	Horizontal
12185.0	4.1	51.6	55.7	74.0	18.3	Vertical
12185.0	3.7	52.5	56.2	74.0	17.8	Horizontal

Result of Tx mode (2437.0 MHz) (802.11g) (Above 1GHz): Pass

Field Strength of Spurious Emissions Average Value						
Frequency MHz	Measured Level @3m dBuV	Correction Factor dB/m	Field Strength dBuV/m	Limit @3m dBuV/m	Margin dBuV/m	E-Field Polarity
4874.0	6.9	41.6	48.5	54.0	5.5	Vertical
4874.0	5.0	42.5	47.5	54.0	6.5	Horizontal
7311.0	-2.5	45.2	42.7	54.0	11.3	Vertical
7311.0	-3.9	46.3	42.4	54.0	11.6	Horizontal
9748.0	-6.2	48.1	41.9	54.0	12.1	Vertical
9748.0	-6.8	48.9	42.1	54.0	11.9	Horizontal
12185.0	-9.4	51.6	42.2	54.0	11.8	Vertical
12185.0	-9.6	52.5	42.9	54.0	11.1	Horizontal

Result of Tx mode (2462.0 MHz) (802.11g) (9kHz – 30MHz): Pass

Field Strength of Spurious Emissions Average Value						
Frequency MHz	Measured Level dBµV	Correction Factor dB/m	Field Strength dBµV/m	Field Strength dBµV/m	Limit dBµV/m	E-Field Polarity
Emissions detected are more than 20 dB below the FCC Limits						

Results of Tx mode (2462.0 MHz) (802.11g) (30MHz – 1000MHz): PASS

Field Strength of Spurious Emissions Quasi-Peak Value						
Frequency MHz	Measured Level dBµV	Correction Factor dB/m	Field Strength dBµV/m	Field Strength dBµV/m	Limit dBµV/m	E-Field Polarity
Emissions detected are more than 20 dB below the FCC Limits						

Result of Tx mode (2462.0 MHz) (802.11g) (Above 1GHz): Pass

Field Strength of Spurious Emissions Peak Value						
Frequency MHz	Measured Level @3m dBµV	Correction Factor dB/m	Field Strength dBµV/m	Limit @3m dBµV/m	Margin dBµV/m	E-Field Polarity
4924.0	16.9	41.4	58.3	74.0	15.7	Vertical
4924.0	14.9	42.7	57.6	74.0	16.4	Horizontal
7386.0	10.3	45.6	55.9	74.0	18.1	Vertical
7386.0	9.5	46.5	56.0	74.0	18.0	Horizontal
9848.0	7.4	48.6	56.0	74.0	18.0	Vertical
9848.0	5.7	49.7	55.4	74.0	18.6	Horizontal
12310.0	4.2	51.7	55.9	74.0	18.1	Vertical
12310.0	2.9	52.7	55.6	74.0	18.4	Horizontal

Result of Tx mode (2462.0 MHz) (802.11g) (Above 1GHz): Pass

Field Strength of Spurious Emissions Average Value						
Frequency MHz	Measured Level @3m dBuV	Correction Factor dB/m	Field Strength dBuV/m	Limit @3m dBuV/m	Margin dBuV/m	E-Field Polarity
4924.0	7.0	41.4	48.4	54.0	5.6	Vertical
4924.0	4.7	42.7	47.4	54.0	6.6	Horizontal
7386.0	-2.1	45.6	43.5	54.0	10.5	Vertical
7386.0	-3.9	46.5	42.6	54.0	11.4	Horizontal
9848.0	-6.1	48.6	42.5	54.0	11.5	Vertical
9848.0	-7.8	49.7	41.9	54.0	12.1	Horizontal
12310.0	-9.5	51.7	42.2	54.0	11.8	Vertical
12310.0	-11.0	52.7	41.7	54.0	12.3	Horizontal

Result of Tx mode (2412.0 MHz) (802.11n20) (9kHz – 30MHz): Pass

Field Strength of Spurious Emissions Average Value						
Frequency MHz	Measured Level dBµV	Correction Factor dB/m	Field Strength dBµV/m	Field Strength dBµV/m	Limit dBµV/m	E-Field Polarity
Emissions detected are more than 20 dB below the FCC Limits						

Results of Tx mode (2412.0 MHz) (802.11n20) (30MHz – 1000MHz): PASS

Field Strength of Spurious Emissions Quasi-Peak Value						
Frequency MHz	Measured Level dBµV	Correction Factor dB/m	Field Strength dBµV/m	Field Strength dBµV/m	Limit dBµV/m	E-Field Polarity
Emissions detected are more than 20 dB below the FCC Limits						

Result of Tx mode (2412.0 MHz) (802.11n20) (Above 1GHz): Pass

Field Strength of Spurious Emissions Peak Value						
Frequency MHz	Measured Level @3m dBµV	Correction Factor dB/m	Field Strength dBµV/m	Limit @3m dBµV/m	Margin dBµV/m	E-Field Polarity
4824.0	16.5	41.5	58.0	74.0	16.0	Vertical
4824.0	14.8	42.4	57.2	74.0	16.8	Horizontal
7236.0	10.9	45.1	56.0	74.0	18.0	Vertical
7236.0	9.5	46.2	55.7	74.0	18.3	Horizontal
9648.0	7.7	48	55.7	74.0	18.3	Vertical
9648.0	6.0	48.8	54.8	74.0	19.2	Horizontal
12060.0	4.7	51.5	56.2	74.0	17.8	Vertical
12060.0	3.5	52.4	55.9	74.0	18.1	Horizontal

Result of Tx mode (2412.0 MHz) (802.11n20) (Above 1GHz): Pass

Field Strength of Spurious Emissions Average Value						
Frequency MHz	Measured Level @3m dBuV	Correction Factor dB/m	Field Strength dBuV/m	Limit @3m dBuV/m	Margin dBuV/m	E-Field Polarity
4824.0	6.2	41.5	47.7	54.0	6.3	Vertical
4824.0	4.6	42.4	47.0	54.0	7.0	Horizontal
7236.0	-0.3	45.1	44.8	54.0	9.2	Vertical
7236.0	-3.0	46.2	43.2	54.0	10.8	Horizontal
9648.0	-5.4	48	42.6	54.0	11.4	Vertical
9648.0	-7.1	48.8	41.7	54.0	12.3	Horizontal
12060.0	-8.8	51.5	42.7	54.0	11.3	Vertical
12060.0	-10.0	52.4	42.4	54.0	11.6	Horizontal

Result of Tx mode (2437.0 MHz) (802.11n20) (9kHz – 30MHz): Pass

Field Strength of Spurious Emissions Average Value						
Frequency MHz	Measured Level dBµV	Correction Factor dB/m	Field Strength dBµV/m	Field Strength dBµV/m	Limit dBµV/m	E-Field Polarity
Emissions detected are more than 20 dB below the FCC Limits						

Results of Tx mode (2437.0 MHz) (802.11n20) (30MHz – 1000MHz): PASS

Field Strength of Spurious Emissions Quasi-Peak Value						
Frequency MHz	Measured Level dBµV	Correction Factor dB/m	Field Strength dBµV/m	Field Strength dBµV/m	Limit dBµV/m	E-Field Polarity
Emissions detected are more than 20 dB below the FCC Limits						

Result of Tx mode (2437.0 MHz) (802.11n20) (Above 1GHz): Pass

Field Strength of Spurious Emissions Peak Value						
Frequency MHz	Measured Level @3m dBµV	Correction Factor dB/m	Field Strength dBµV/m	Limit @3m dBµV/m	Margin dBµV/m	E-Field Polarity
4874.0	16.3	41.6	57.9	74.0	16.1	Vertical
4874.0	14.8	42.5	57.3	74.0	16.7	Horizontal
7311.0	10.6	45.2	55.8	74.0	18.2	Vertical
7311.0	9.3	46.3	55.6	74.0	18.4	Horizontal
9748.0	8.0	48.1	56.1	74.0	17.9	Vertical
9748.0	7.0	48.9	55.9	74.0	18.1	Horizontal
12185.0	4.7	51.6	56.3	74.0	17.7	Vertical
12185.0	3.9	52.5	56.4	74.0	17.6	Horizontal

Result of Tx mode (2437.0 MHz) (802.11n20) (Above 1GHz): Pass

Field Strength of Spurious Emissions Average Value						
Frequency MHz	Measured Level @3m dBuV	Correction Factor dB/m	Field Strength dBuV/m	Limit @3m dBuV/m	Margin dBuV/m	E-Field Polarity
4874.0	5.9	41.6	47.5	54.0	6.5	Vertical
4874.0	4.9	42.5	47.4	54.0	6.6	Horizontal
7311.0	-2.7	45.2	42.5	54.0	11.5	Vertical
7311.0	-3.9	46.3	42.4	54.0	11.6	Horizontal
9748.0	-5.5	48.1	42.6	54.0	11.4	Vertical
9748.0	-6.5	48.9	42.4	54.0	11.6	Horizontal
12185.0	-8.9	51.6	42.7	54.0	11.3	Vertical
12185.0	-9.6	52.5	42.9	54.0	11.1	Horizontal

Result of Tx mode (2462.0 MHz) (802.11n20) (9kHz – 30MHz): Pass

Field Strength of Spurious Emissions Average Value						
Frequency MHz	Measured Level dBµV	Correction Factor dB/m	Field Strength dBµV/m	Field Strength dBµV/m	Limit dBµV/m	E-Field Polarity
Emissions detected are more than 20 dB below the FCC Limits						

Results of Tx mode (2462.0 MHz) (802.11n20) (30MHz – 1000MHz): PASS

Field Strength of Spurious Emissions Quasi-Peak Value						
Frequency MHz	Measured Level dBµV	Correction Factor dB/m	Field Strength dBµV/m	Field Strength dBµV/m	Limit dBµV/m	E-Field Polarity
Emissions detected are more than 20 dB below the FCC Limits						

Result of Tx mode (2462.0 MHz) (802.11n20) (Above 1GHz): Pass

Field Strength of Spurious Emissions Peak Value						
Frequency MHz	Measured Level @3m dBµV	Correction Factor dB/m	Field Strength dBµV/m	Limit @3m dBµV/m	Margin dBµV/m	E-Field Polarity
4924.0	16.7	41.4	58.1	74.0	15.9	Vertical
4924.0	14.9	42.7	57.6	74.0	16.4	Horizontal
7386.0	10.5	45.6	56.1	74.0	17.9	Vertical
7386.0	9.4	46.5	55.9	74.0	18.1	Horizontal
9848.0	7.0	48.6	55.6	74.0	18.4	Vertical
9848.0	5.5	49.7	55.2	74.0	18.8	Horizontal
12310.0	4.1	51.7	55.8	74.0	18.2	Vertical
12310.0	3.4	52.7	56.1	74.0	17.9	Horizontal

Result of Tx mode (2462.0 MHz) (802.11n20) (Above 1GHz): Pass

Field Strength of Spurious Emissions Average Value						
Frequency MHz	Measured Level @3m dBuV	Correction Factor dB/m	Field Strength dBuV/m	Limit @3m dBuV/m	Margin dBuV/m	E-Field Polarity
4924.0	6.8	41.4	48.2	54.0	5.8	Vertical
4924.0	5.1	42.7	47.8	54.0	6.2	Horizontal
7386.0	-3.2	45.6	42.4	54.0	11.6	Vertical
7386.0	-3.8	46.5	42.7	54.0	11.3	Horizontal
9848.0	-6.2	48.6	42.4	54.0	11.6	Vertical
9848.0	-7.7	49.7	42.0	54.0	12.0	Horizontal
12310.0	-9.5	51.7	42.2	54.0	11.8	Vertical
12310.0	-10.3	52.7	42.4	54.0	11.6	Horizontal

Result of Tx mode (2422.0 MHz) (802.11n40) (9kHz – 30MHz): Pass

Field Strength of Spurious Emissions Average Value						
Frequency MHz	Measured Level dBµV	Correction Factor dB/m	Field Strength dBµV/m	Field Strength dBµV/m	Limit dBµV/m	E-Field Polarity
Emissions detected are more than 20 dB below the FCC Limits						

Results of Tx mode (2422.0 MHz) (802.11n40) (30MHz – 1000MHz): PASS

Field Strength of Spurious Emissions Quasi-Peak Value						
Frequency MHz	Measured Level dBµV	Correction Factor dB/m	Field Strength dBµV/m	Field Strength dBµV/m	Limit dBµV/m	E-Field Polarity
Emissions detected are more than 20 dB below the FCC Limits						

Result of Tx mode (2422.0 MHz) (802.11n40) (Above 1GHz): Pass

Field Strength of Spurious Emissions Peak Value						
Frequency MHz	Measured Level @3m dBµV	Correction Factor dB/m	Field Strength dBµV/m	Limit @3m dBµV/m	Margin dBµV/m	E-Field Polarity
4844.0	16.0	41.5	57.5	74.0	16.5	Vertical
4844.0	14.6	42.4	57.0	74.0	17.0	Horizontal
7266.0	10.7	45.1	55.8	74.0	18.2	Vertical
7266.0	9.4	46.2	55.6	74.0	18.4	Horizontal
9688.0	7.6	48	55.6	74.0	18.4	Vertical
9688.0	6.9	48.8	55.7	74.0	18.3	Horizontal
12110.0	4.7	51.5	56.2	74.0	17.8	Vertical
12110.0	3.6	52.4	56.0	74.0	18.0	Horizontal

Result of Tx mode (2422.0 MHz) (802.11n40) (Above 1GHz): Pass

Field Strength of Spurious Emissions Average Value						
Frequency MHz	Measured Level @3m dBuV	Correction Factor dB/m	Field Strength dBuV/m	Limit @3m dBuV/m	Margin dBuV/m	E-Field Polarity
4844.0	5.9	41.5	47.4	54.0	6.6	Vertical
4844.0	4.5	42.4	46.9	54.0	7.1	Horizontal
7266.0	-3.1	45.1	42.0	54.0	12.0	Vertical
7266.0	-4.4	46.2	41.8	54.0	12.2	Horizontal
9688.0	-5.8	48	42.2	54.0	11.8	Vertical
9688.0	-6.4	48.8	42.4	54.0	11.6	Horizontal
12110.0	-8.5	51.5	43.0	54.0	11.0	Vertical
12110.0	-10.1	52.4	42.3	54.0	11.7	Horizontal

Result of Tx mode (2437.0 MHz) (802.11n40) (9kHz – 30MHz): Pass

Field Strength of Spurious Emissions Average Value						
Frequency MHz	Measured Level dBµV	Correction Factor dB/m	Field Strength dBµV/m	Field Strength dBµV/m	Limit dBµV/m	E-Field Polarity
Emissions detected are more than 20 dB below the FCC Limits						

Results of Tx mode (2437.0 MHz) (802.11n40) (30MHz – 1000MHz): PASS

Field Strength of Spurious Emissions Quasi-Peak Value						
Frequency MHz	Measured Level dBµV	Correction Factor dB/m	Field Strength dBµV/m	Field Strength dBµV/m	Limit dBµV/m	E-Field Polarity
Emissions detected are more than 20 dB below the FCC Limits						

Result of Tx mode (2437.0 MHz) (802.11n40) (Above 1GHz): Pass

Field Strength of Spurious Emissions Peak Value						
Frequency MHz	Measured Level @3m dBµV	Correction Factor dB/m	Field Strength dBµV/m	Limit @3m dBµV/m	Margin dBµV/m	E-Field Polarity
4874.0	15.8	41.6	57.4	74.0	16.6	Vertical
4874.0	14.5	42.5	57.0	74.0	17.0	Horizontal
7311.0	10.7	45.2	55.9	74.0	18.1	Vertical
7311.0	9.4	46.3	55.7	74.0	18.3	Horizontal
9748.0	8.0	48.1	56.1	74.0	17.9	Vertical
9748.0	7.1	48.9	56.0	74.0	18.0	Horizontal
12185.0	4.7	51.6	56.3	74.0	17.7	Vertical
12185.0	3.7	52.5	56.2	74.0	17.8	Horizontal

Result of Tx mode (2437.0 MHz) (802.11n40) (Above 1GHz): Pass

Field Strength of Spurious Emissions Average Value						
Frequency MHz	Measured Level @3m dBuV	Correction Factor dB/m	Field Strength dBuV/m	Limit @3m dBuV/m	Margin dBuV/m	E-Field Polarity
4874.0	5.9	41.6	47.5	54.0	6.5	Vertical
4874.0	4.3	42.5	46.8	54.0	7.2	Horizontal
7311.0	-1.8	45.2	43.4	54.0	10.6	Vertical
7311.0	-3.4	46.3	42.9	54.0	11.1	Horizontal
9748.0	-5.2	48.1	42.9	54.0	11.1	Vertical
9748.0	-6.2	48.9	42.7	54.0	11.3	Horizontal
12185.0	-8.1	51.6	43.5	54.0	10.5	Vertical
12185.0	-9.2	52.5	43.3	54.0	10.7	Horizontal

Result of Tx mode (2452.0 MHz) (802.11n40) (9kHz – 30MHz): Pass

Field Strength of Spurious Emissions Average Value						
Frequency MHz	Measured Level dBµV	Correction Factor dB/m	Field Strength dBµV/m	Field Strength dBµV/m	Limit dBµV/m	E-Field Polarity
Emissions detected are more than 20 dB below the FCC Limits						

Results of Tx mode (2452.0 MHz) (802.11n40) (30MHz – 1000MHz): PASS

Field Strength of Spurious Emissions Quasi-Peak Value						
Frequency MHz	Measured Level dBµV	Correction Factor dB/m	Field Strength dBµV/m	Field Strength dBµV/m	Limit dBµV/m	E-Field Polarity
Emissions detected are more than 20 dB below the FCC Limits						

Result of Tx mode (2452.0 MHz) (802.11n40) (Above 1GHz): Pass

Field Strength of Spurious Emissions Peak Value						
Frequency MHz	Measured Level @3m dBµV	Correction Factor dB/m	Field Strength dBµV/m	Limit @3m dBµV/m	Margin dBµV/m	E-Field Polarity
4904.0	16.2	41.4	57.6	74.0	16.4	Vertical
4904.0	14.3	42.7	57.0	74.0	17.0	Horizontal
7356.0	10.0	45.6	55.6	74.0	18.4	Vertical
7356.0	9.5	46.5	56.0	74.0	18.0	Horizontal
9808.0	7.6	48.6	56.2	74.0	17.8	Vertical
9808.0	6.0	49.7	55.7	74.0	18.3	Horizontal
12260.0	4.4	51.7	56.1	74.0	17.9	Vertical
12260.0	3.6	52.7	56.3	74.0	17.7	Horizontal

Result of Tx mode (2452.0 MHz) (802.11n40) (Above 1GHz): Pass

Field Strength of Spurious Emissions Average Value						
Frequency MHz	Measured Level @3m dBuV	Correction Factor dB/m	Field Strength dBuV/m	Limit @3m dBuV/m	Margin dBuV/m	E-Field Polarity
4904.0	6.4	41.4	47.8	54.0	6.2	Vertical
4904.0	4.2	42.7	46.9	54.0	7.1	Horizontal
7356.0	-2.8	45.6	42.8	54.0	11.2	Vertical
7356.0	-3.4	46.5	43.1	54.0	10.9	Horizontal
9808.0	-5.8	48.6	42.8	54.0	11.2	Vertical
9808.0	-6.7	49.7	43.0	54.0	11.0	Horizontal
12260.0	-8.7	51.7	43.0	54.0	11.0	Vertical
12260.0	-9.3	52.7	43.4	54.0	10.6	Horizontal

Remarks:
No additional spurious emissions found between lowest internal used/generated frequency and 30 MHz

* Denotes restricted band of operation.
Measurements were made using a peak detector. Any emission less than 1000MHz and falling within the restricted bands of FCC Rules Part 15 Section 15.205 and the limits of FCC Rules Part 15 Section 15.209 were applied.

Correction Factor included Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty : 9kHz-30MHz 3.3dB
30MHz -1GHz 4.6dB
1GHz -26GHz 4.4dB

Emissions in the vertical and horizontal polarizations have been investigated and the worst-case test results are recorded in this report.

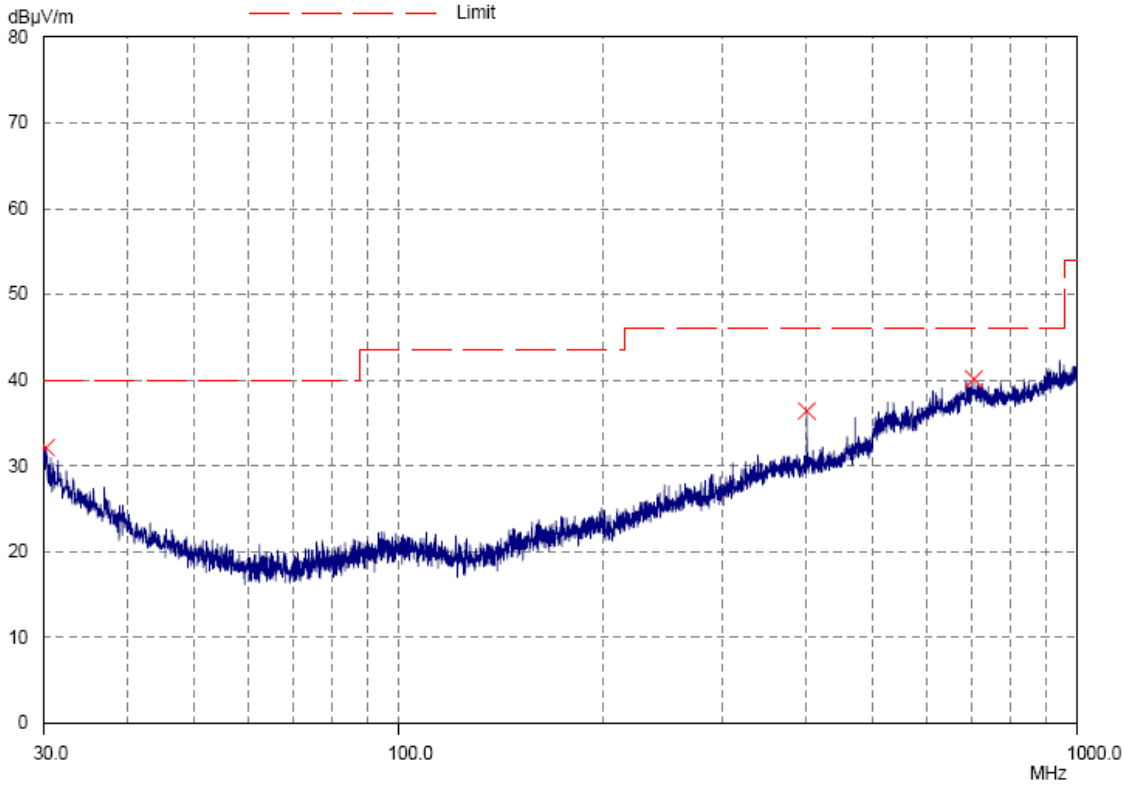
Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

Frequency Range	Quasi-Peak Limits
[MHz]	[μV/m]
0.009-0.490	2400/F (kHz)
0.490-1.705	24000/F (kHz)
1.705-30	30
30-88	100
88-216	150
216-960	200
Above960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Result of WiFi mode (30MHz – 1GHz): Pass
Please refer to the following table for result details

Horizontal



Result of WiFi mode (30MHz – 1GHz): Pass

Radiated Emissions Quasi-Peak					
Emission Frequency MHz	E-Field Polarity	Level @3m dBµV/m	Limit @3m dBµV/m	Level @3m dBµV/m	Limit @3m dBµV/m
30.3	Horizontal	30.0	40.0	31.6	100
400.0	Horizontal	36.2	46.0	64.6	200
705.7	Horizontal	37.7	46.0	76.7	200

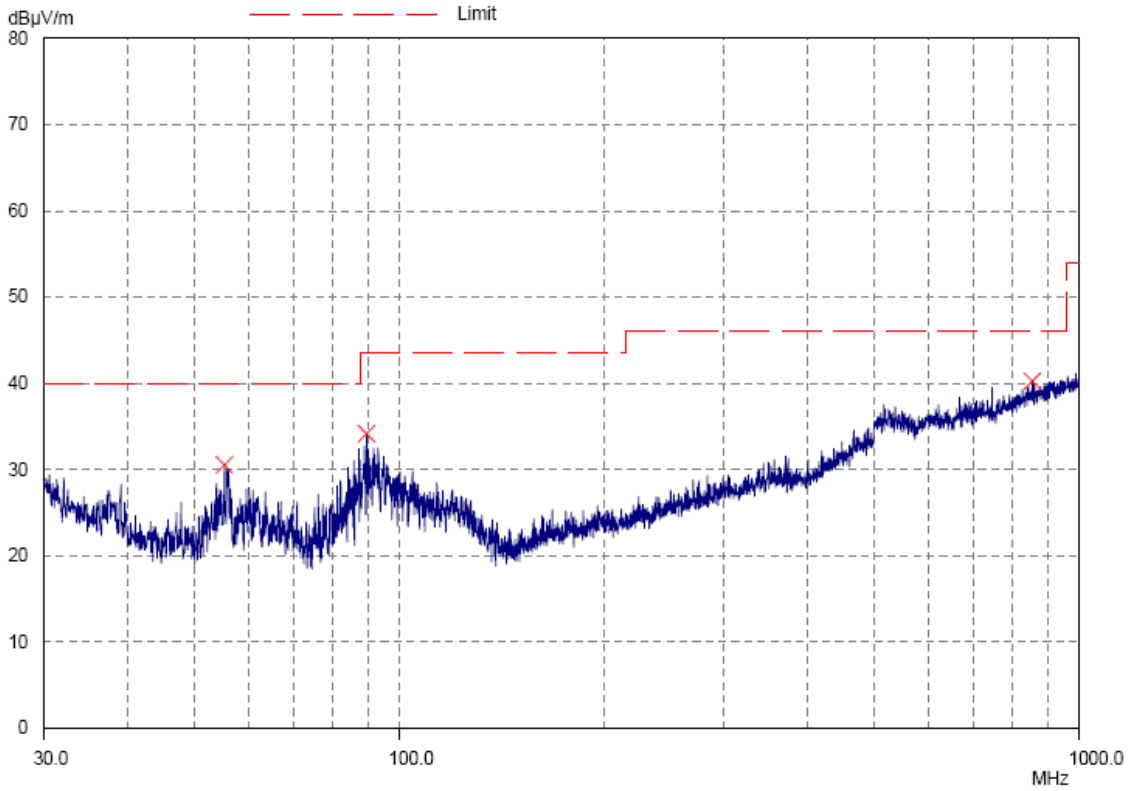
Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

Frequency Range	Quasi-Peak Limits
[MHz]	[μV/m]
0.009-0.490	2400/F (kHz)
0.490-1.705	24000/F (kHz)
1.705-30	30
30-88	100
88-216	150
216-960	200
Above960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Result of WiFi mode (30MHz – 1GHz): Pass
Please refer to the following table for result details

Vertical



Result of WiFi mode (30MHz – 1GHz): Pass

Radiated Emissions Quasi-Peak					
Emission Frequency MHz	E-Field Polarity	Level @3m dBµV/m	Limit @3m dBµV/m	Level @3m dBµV/m	Limit @3m dBµV/m
55.4	Vertical	30.1	40.0	32.0	100
89.6	Vertical	34.0	43.5	50.1	150
854.8	Vertical	38.2	46.0	81.3	200

Remarks:
Calculated measurement uncertainty (30MHz – 1GHz): 4.6dB
Emissions in the vertical and horizontal polarizations have been investigated and the worst-case test results are recorded in this report.

3.1.3 Power Spectral Density

Test Requirement:	FCC 47CFR 15.247(e)
Test Method:	ANSI C63.10:2013
Test Date:	2015-07-08
Mode of Operation:	WiFi mode

Test Method:

The RF output of the EUT was connected to the spectrum analyzer. Set the fundamental frequency as the center frequency of the spectral analyzer. Use RBW=3kHz , VBW= 10KHz , Set the span to 1.5 times the DTS channel bandwidth. Detector = peak, Sweep time = auto couple , Trace mode = max hold. Measure the Power Spectral Density (PSD) and record the results in dBm.

Test Setup:

As Test Setup of clause 3.1.1 in this test report.

Test Limit:
The maximum power spectral density (PSD) shall not exceeded 8dBm in any 3kHz band.

Results of WiFi Mode 802.11 b (Tx:2412MHz to 2462MHz) : Pass (TX Unit)
Maximum power spectral density (Antenna A)

Transmitter Frequency (MHz)	Maximum Power spectral density level / 3kHz band (dBm)	Maximum Power spectral density / 3kHz band limit
2412.0	-11.20	**8dBm**
2437.0	-10.53	**8dBm**
2462.0	-10.94	**8dBm**

Results of WiFi Mode 802.11 g (Tx:2412MHz to 2462MHz) : Pass (TX Unit)
Maximum power spectral density (Antenna A)

Transmitter Frequency (MHz)	Maximum Power spectral density level / 3kHz band (dBm)	Maximum Power spectral density / 3kHz band limit
2412.0	-15.05	**8dBm**
2437.0	-15.41	**8dBm**
2462.0	-15.53	**8dBm**

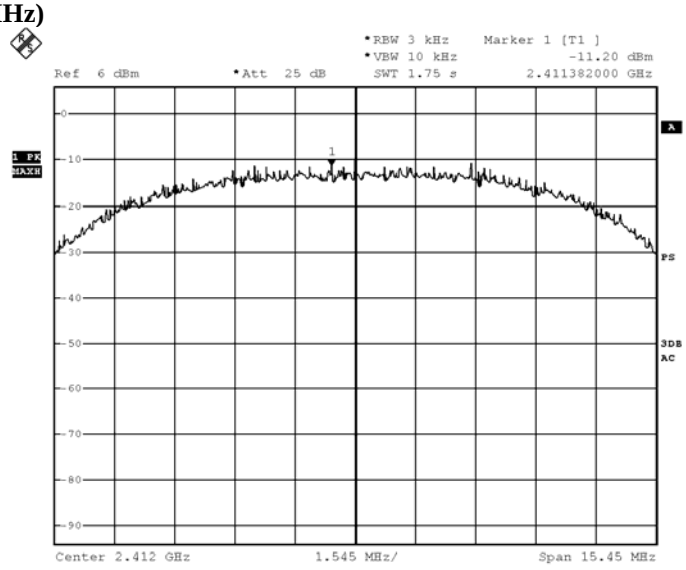
Results of WiFi Mode 802.11 n20 (Tx:2412MHz to 2462MHz) : Pass (TX Unit)
Maximum power spectral density (Antenna A)

Transmitter Frequency (MHz)	Maximum Power spectral density level / 3kHz band (dBm)	Maximum Power spectral density / 3kHz band limit
2412.0	-20.61	**8dBm**
2437.0	-20.47	**8dBm**
2462.0	-19.68	**8dBm**

Results of WiFi Mode 802.11 n40 (Tx:2422MHz to 2452MHz) : Pass (TX Unit)
Maximum power spectral density (Antenna A)

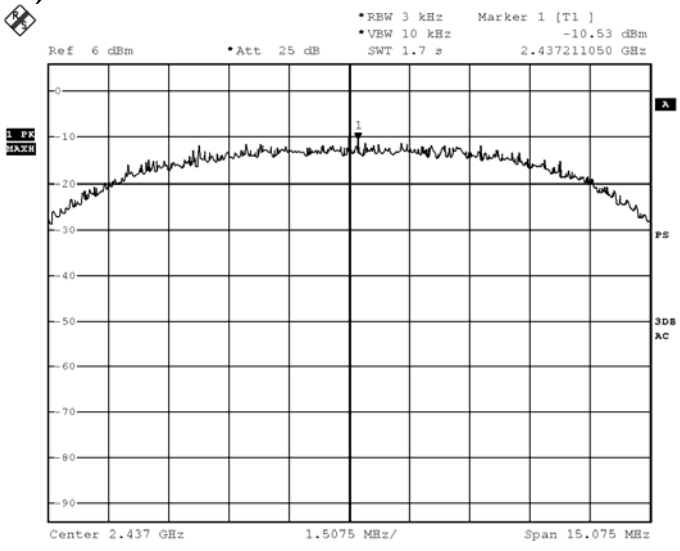
Transmitter Frequency (MHz)	Maximum Power spectral density level / 3kHz band (dBm)	Maximum Power spectral density / 3kHz band limit
2422.0	-23.62	**8dBm**
2437.0	-22.42	**8dBm**
2452.0	-22.77	**8dBm**

WiFi mode 802.11 b, (Tx:2412MHz to 2462MHz) (Antenna A)
Ch 1 (2412.0 MHz)



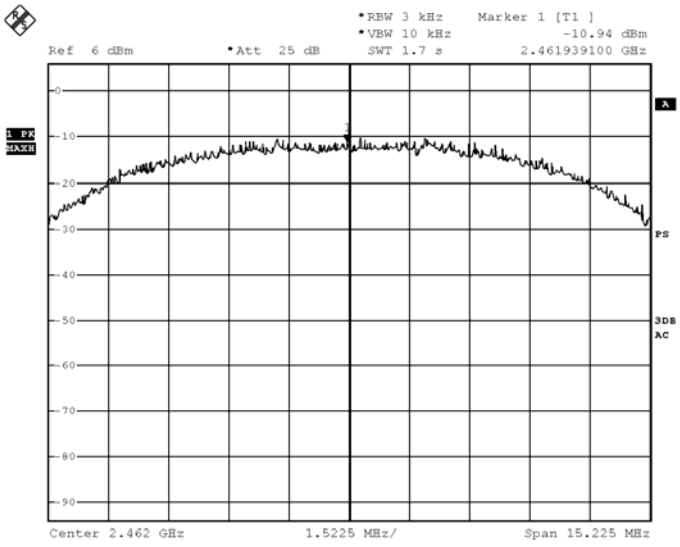
BMP
Date: 8.JUL.2015 19:18:10

CH 6 (2437.0 MHz)



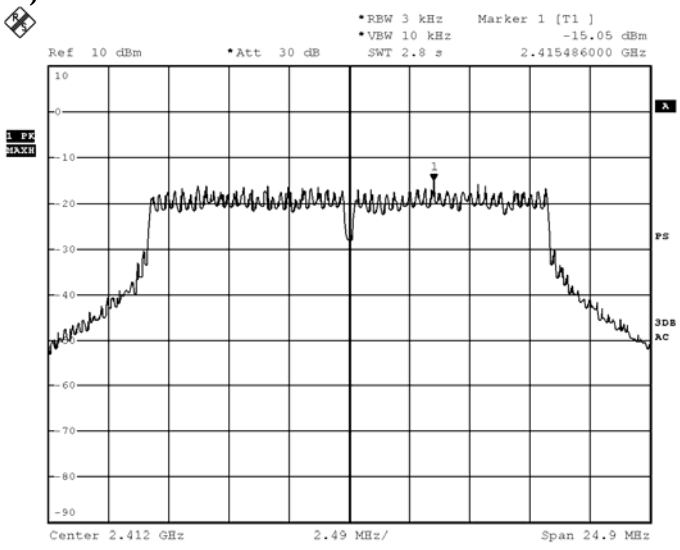
BMP
Date: 8.JUL.2015 19:21:52

CH 11 (2462.0 MHz)



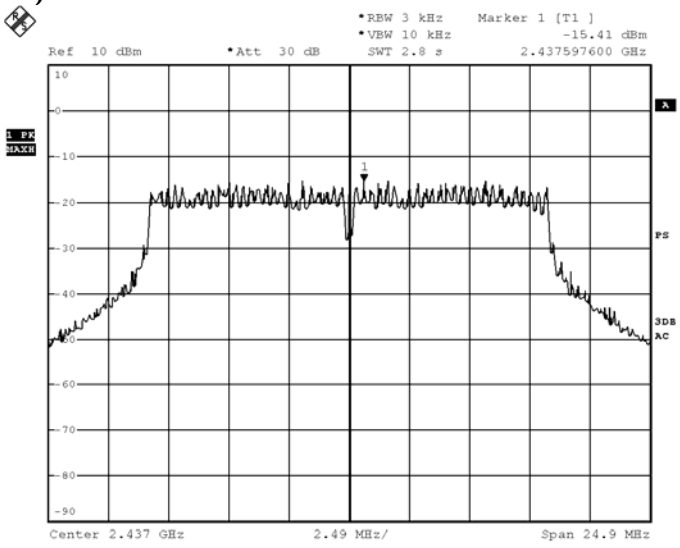
BMP
Date: 8.JUL.2015 19:23:26

WiFi mode 802.11 g, (Tx:2412MHz to 2462MHz) (Antenna A)
Ch 1 (2412.0 MHz)



BMP
Date: 8.JUL.2015 19:27:49

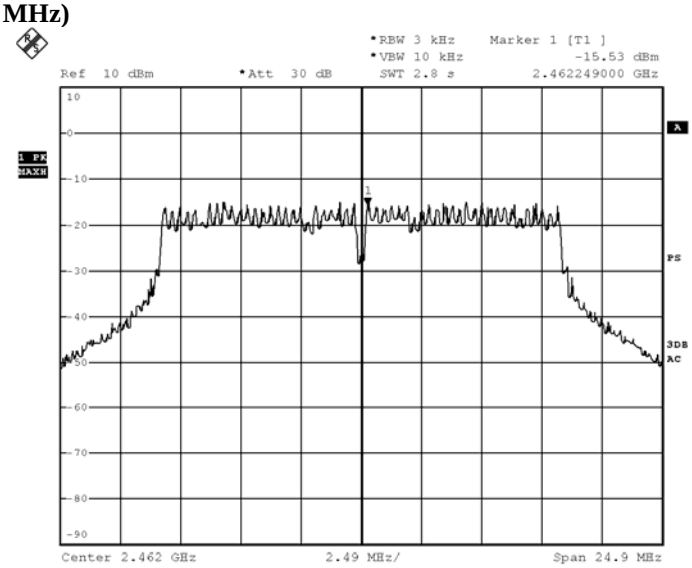
CH 6 (2437.0 MHz)



BMP

Date: 8.JUL.2015 19:28:50

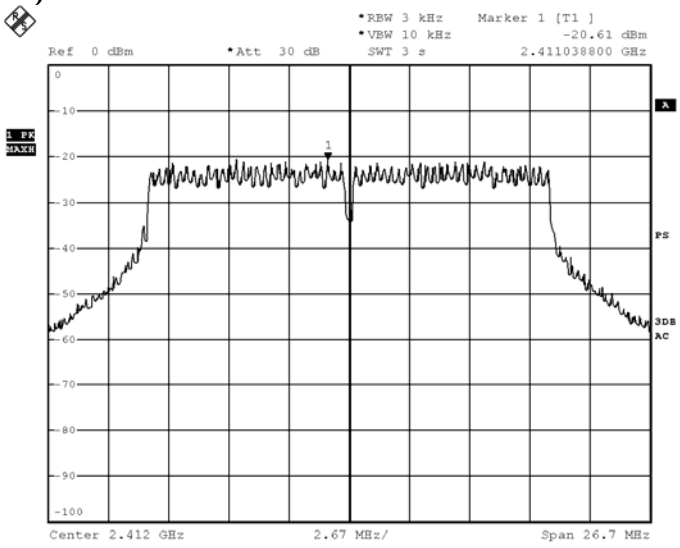
CH 11 (2462.0 MHz)



BMP

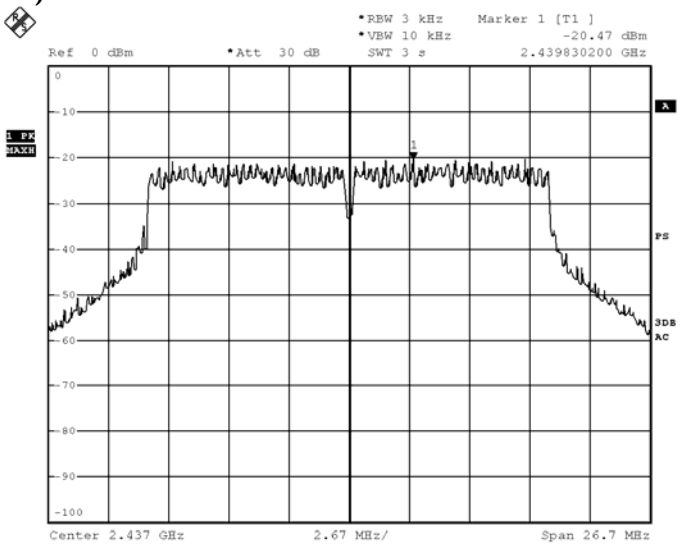
Date: 8.JUL.2015 19:33:11

WiFi mode 802.11 n20, (Tx: 2412MHz to 2462MHz) (Antenna A)
CH 1 (2412.0 MHz)



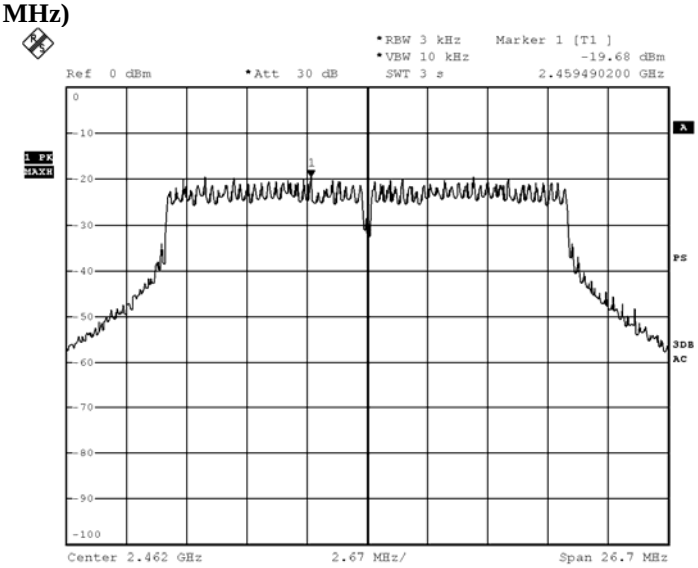
BMP
Date: 8.JUL.2015 19:35:07

CH 6 (2437.0 MHz)



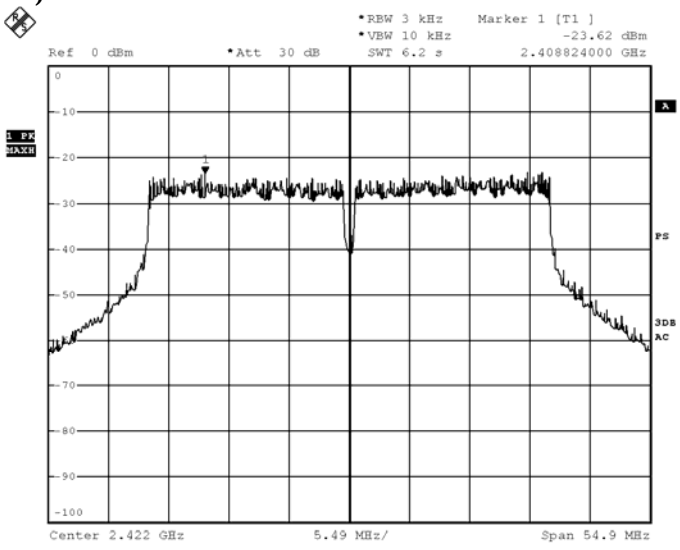
BMP
Date: 8.JUL.2015 19:37:58

Ch 11 (2462.0 MHz)



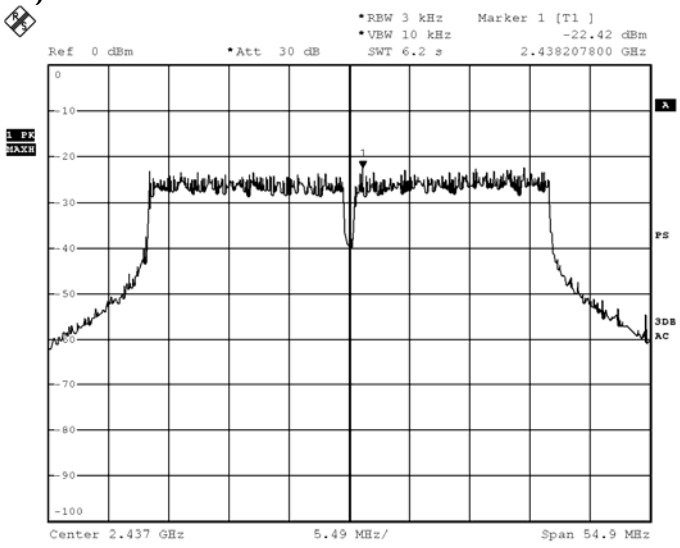
BMP
Date: 8.JUL.2015 19:39:03

WiFi mode 802.11 n40, (Tx: 2422MHz to 2452MHz) (Antenna A)
CH 1 (2422.0 MHz)



BMP
Date: 8.JUL.2015 19:44:28

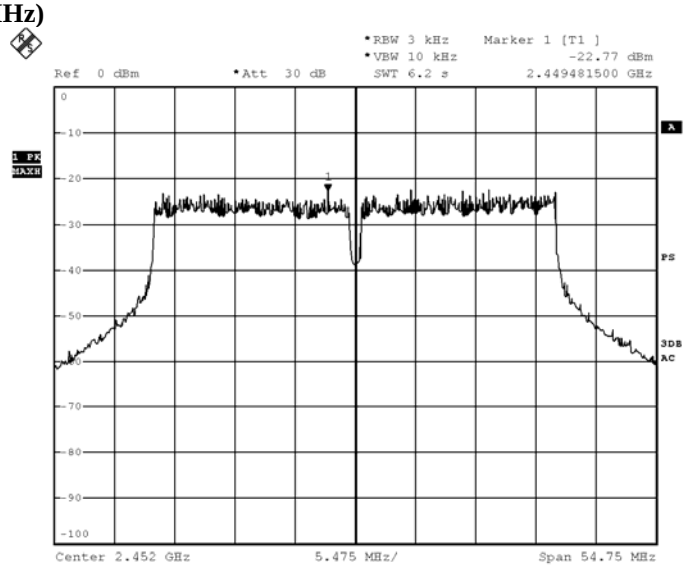
CH 6 (2437.0 MHz)



BMP

Date: 8.JUL.2015 19:46:42

Ch 9 (2452.0 MHz)



BMP

Date: 8.JUL.2015 19:52:32

Results of WiFi Mode 802.11 b (Tx:2412MHz to 2462MHz) : Pass (TX Unit)
Maximum power spectral density (Antenna B)

Transmitter Frequency (MHz)	Maximum Power spectral density level / 3kHz band (dBm)	Maximum Power spectral density / 3kHz band limit
2412.0	-10.54	**8dBm**
2437.0	-9.86	**8dBm**
2462.0	-10.03	**8dBm**

Results of WiFi Mode 802.11 g (Tx:2412MHz to 2462MHz) : Pass (TX Unit)
Maximum power spectral density (Antenna B)

Transmitter Frequency (MHz)	Maximum Power spectral density level / 3kHz band (dBm)	Maximum Power spectral density / 3kHz band limit
2412.0	-14.72	**8dBm**
2437.0	-14.22	**8dBm**
2462.0	-13.43	**8dBm**

Results of WiFi Mode 802.11 n20 (Tx:2412MHz to 2462MHz) : Pass (TX Unit)
Maximum power spectral density (Antenna B)

Transmitter Frequency (MHz)	Maximum Power spectral density level / 3kHz band (dBm)	Maximum Power spectral density / 3kHz band limit
2412.0	-20.10	**8dBm**
2437.0	-19.38	**8dBm**
2462.0	-18.87	**8dBm**

Results of WiFi Mode 802.11 n40 (Tx:2422MHz to 2452MHz) : Pass (TX Unit)
Maximum power spectral density (Antenna B)

Transmitter Frequency (MHz)	Maximum Power spectral density level / 3kHz band (dBm)	Maximum Power spectral density / 3kHz band limit
2422.0	-22.10	**8dBm**
2437.0	-22.77	**8dBm**
2452.0	-21.01	**8dBm**

Results of WiFi Mode 802.11 b(Tx:2412MHz to 2462MHz) : Pass (TX Unit)
Maximum power spectral density (Antenna A+B)

Transmitter Frequency (MHz)	Maximum Power spectral density level / 3kHz band (dBm)	Maximum Power spectral density / 3kHz band limit
2412.0	-4.847	**8dBm**
2437.0	-4.172	**8dBm**
2462.0	-4.451	**8dBm**

Results of WiFi Mode 802.11 g (Tx:2422MHz to 2462MHz) : Pass (TX Unit)
Maximum power spectral density (Antenna A+B)

Transmitter Frequency (MHz)	Maximum Power spectral density level / 3kHz band (dBm)	Maximum Power spectral density / 3kHz band limit
2422.0	-8.871	**8dBm**
2437.0	-8.767	**8dBm**
2452.0	-8.345	**8dBm**

Results of WiFi Mode 802.11 n20 (Tx:2412MHz to 2462MHz) : Pass (TX Unit)
Maximum power spectral density (MIMO Antenna A+B)

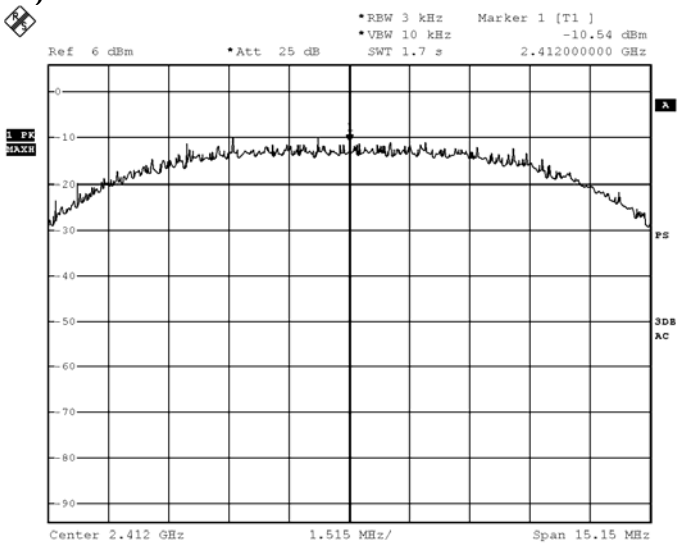
Transmitter Frequency (MHz)	Maximum Power spectral density level / 3kHz band (dBm)	Maximum Power spectral density / 3kHz band limit
2412.0	-14.337	**8dBm**
2437.0	-13.881	**8dBm**
2462.0	-13.247	**8dBm**

Results of WiFi Mode 802.11 n40 (Tx:2422MHz to 2452MHz) : Pass (TX Unit)
Maximum power spectral density (MIMO Antenna A+B)

Transmitter Frequency (MHz)	Maximum Power spectral density level / 3kHz band (dBm)	Maximum Power spectral density / 3kHz band limit
2422.0	-16.786	**8dBm**
2437.0	-16.580	**8dBm**
2452.0	-15.793	**8dBm**

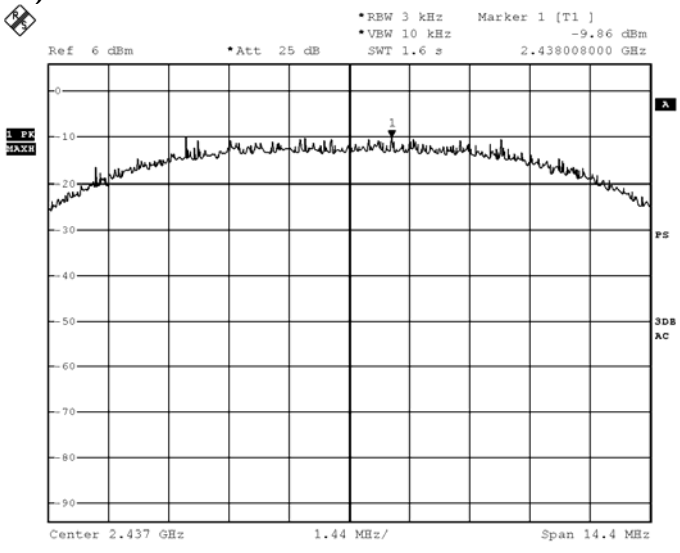
Note: The sum calculation=Antenna A+Antenna B +Beamforming(3dBi)
Result of Anrenna A and Antenna B have included antenna gain(3dBi)

WiFi mode 802.11 b, (Tx: 2412MHz to 2462MHz) (Antenna B)
CH 1 (2412.0 MHz)



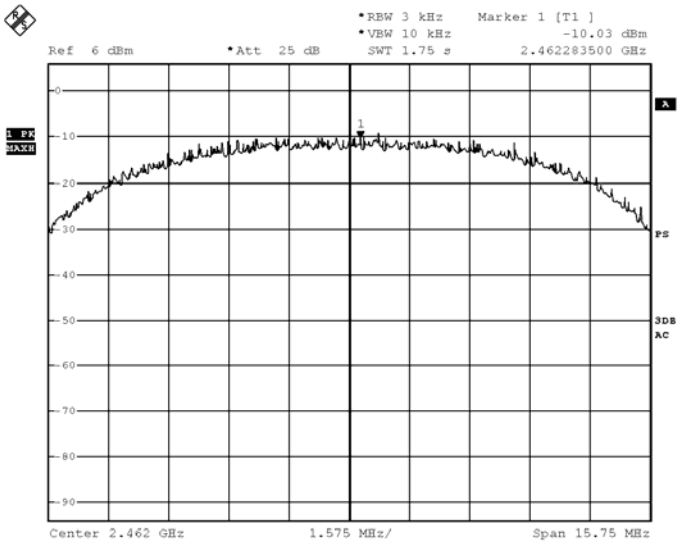
BMP
Date: 8.JUL.2015 19:19:18

CH 6 (2437.0 MHz)



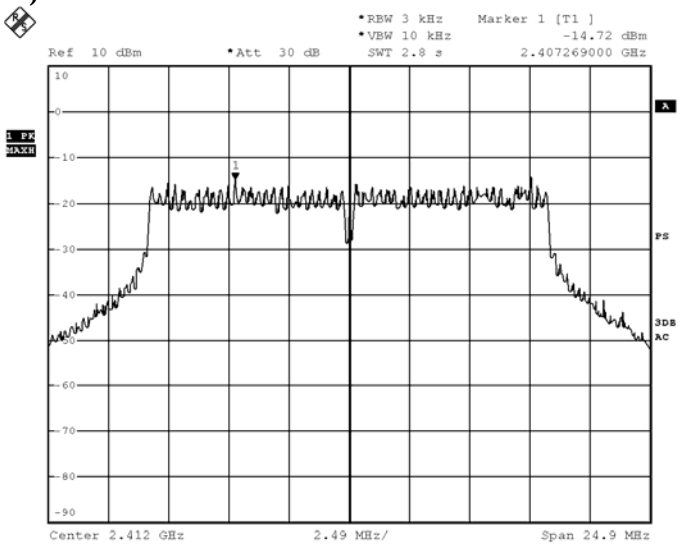
BMP
Date: 8.JUL.2015 19:20:32

CH 11 (2462.0 MHz)



BMP
Date: 8.JUL.2015 19:24:33

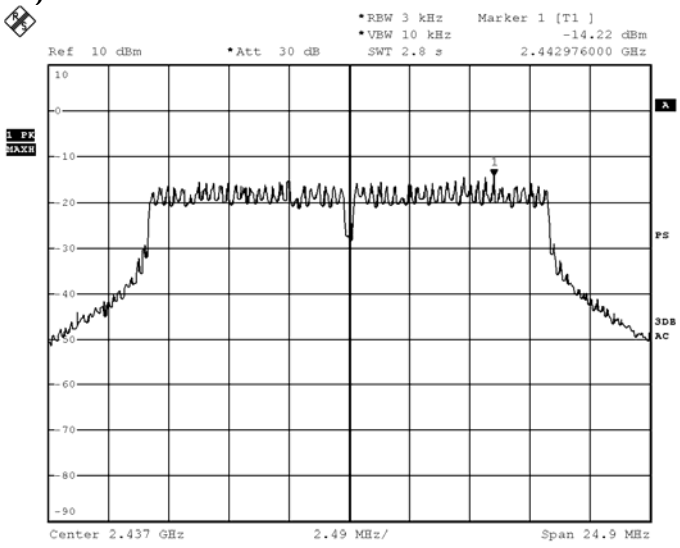
WiFi mode 802.11 g, (Tx:2412MHz to 2462MHz) (Antenna A)
Ch 1 (2412.0 MHz)



BMP
Date: 8.JUL.2015 19:26:55

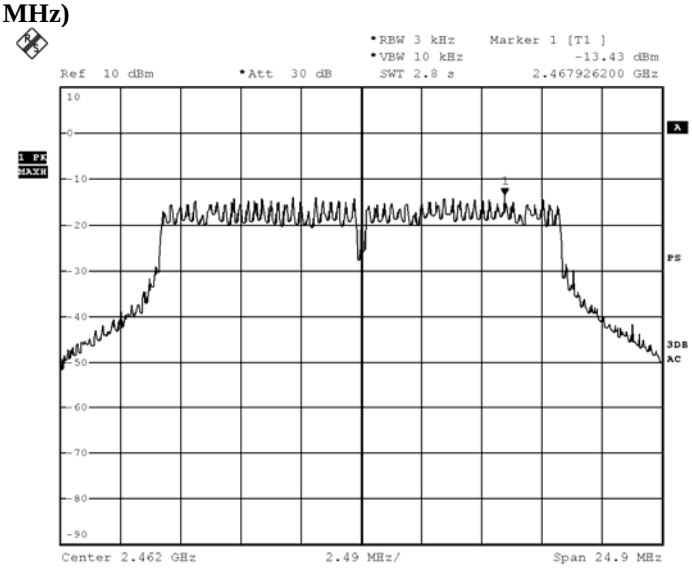
68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770)
Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org

CH 6 (2437.0 MHz)



BMP
Date: 8.JUL.2015 19:29:40

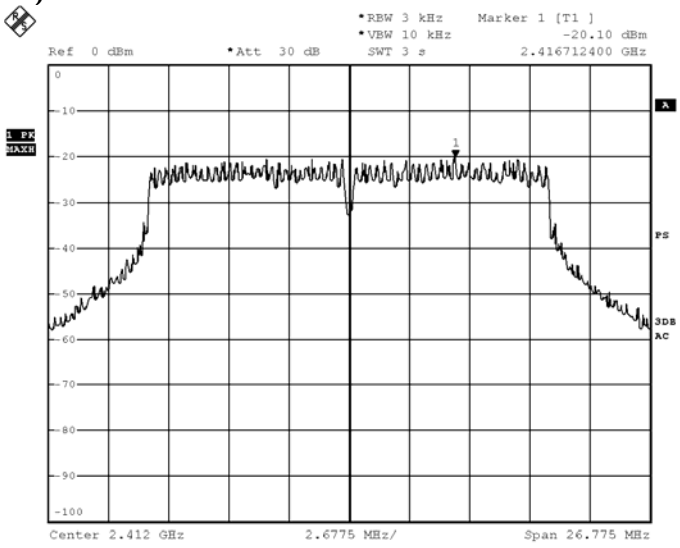
CH 11 (2462.0 MHz)



BMP
Date: 8.JUL.2015 19:31:44

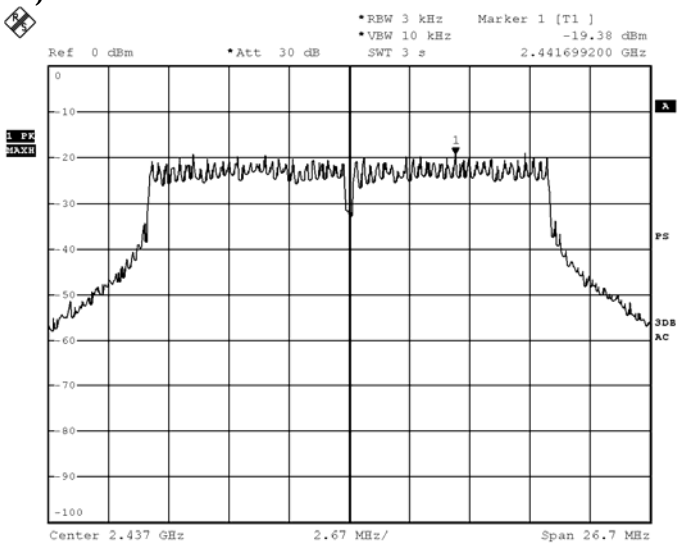
68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770)
Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org

WiFi mode 802.11 n20, (Tx: 2412MHz to 2462MHz) (Antenna A)
CH 1 (2412.0 MHz)



BMP
Date: 8.JUL.2015 19:36:06

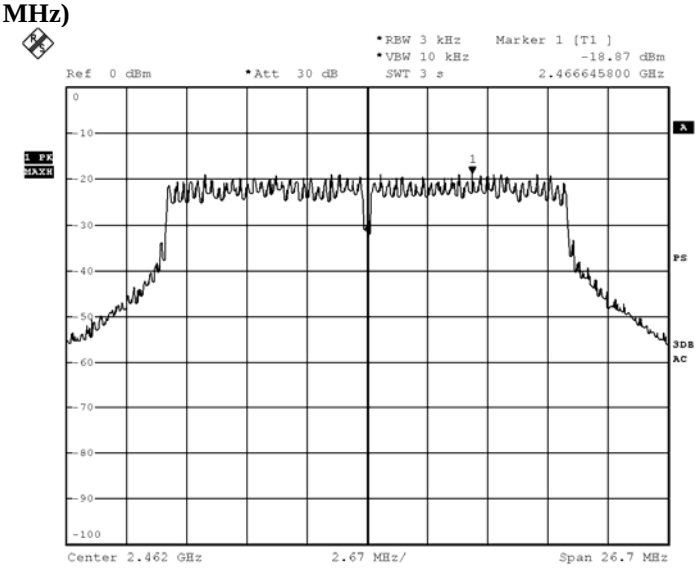
CH 6 (2437.0 MHz)



BMP
Date: 8.JUL.2015 19:37:10

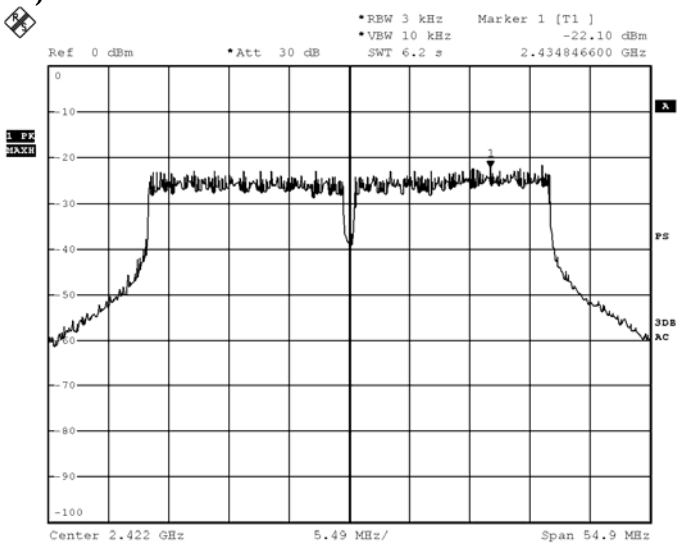
68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770)
Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org

Ch 11 (2462.0 MHz)



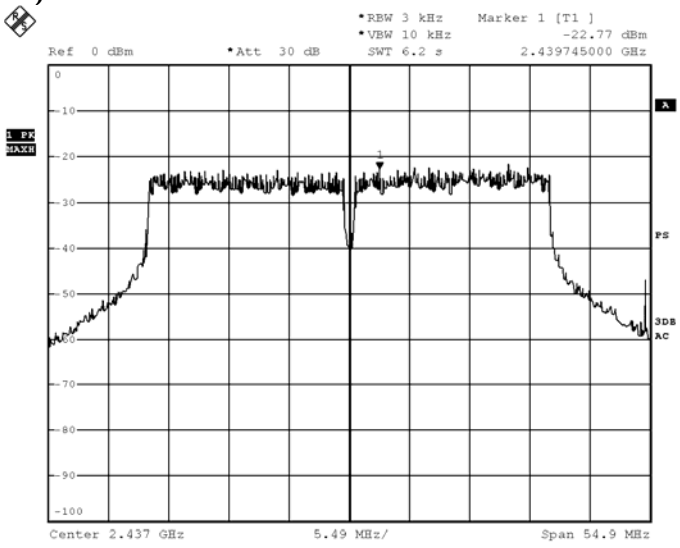
BMP
Date: 8.JUL.2015 19:40:09

WiFi mode 802.11 n40, (Tx: 2422MHz to 2452MHz) (Antenna A)
CH 1 (2422.0 MHz)



BMP
Date: 8.JUL.2015 19:43:04

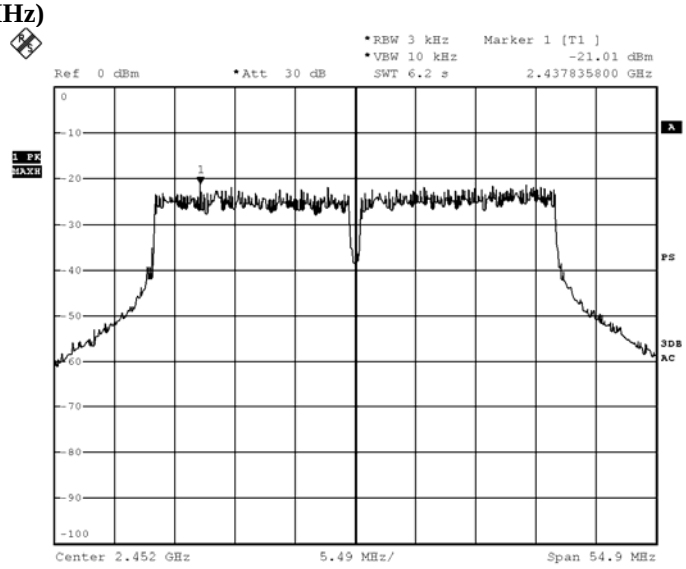
CH 6 (2437.0 MHz)



BMP

Date: 8.JUL.2015 19:48:30

Ch 9 (2452.0 MHz)



BMP

Date: 8.JUL.2015 19:50:45

3.1.4 6dB Spectrum Bandwidth Measurement

Test Requirement:	FCC 47CFR 15.247(a)(2)
Test Method:	ANSI C63.10:2013
Test Date:	2015-07-08
Mode of Operation:	WiFi mode

Test Method:

The bandwidth is measured at an amplitude level reduced from the reference level by a specified ratio. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst-case (i.e. the widest) bandwidth.

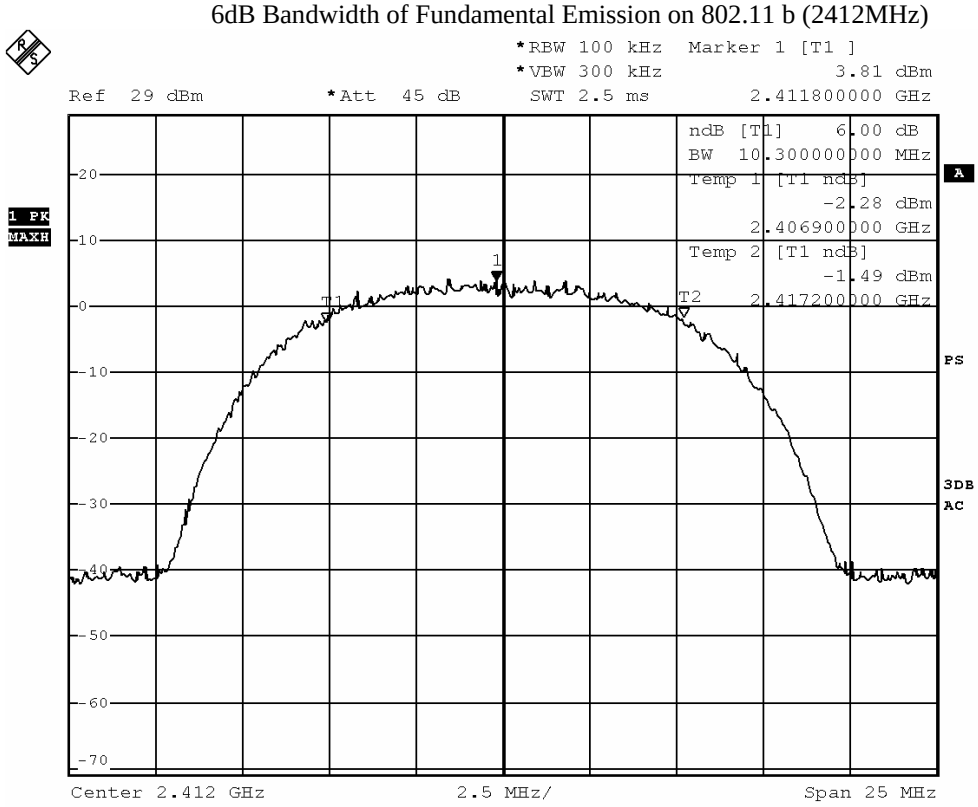
Test Setup:

As Test Setup of clause 3.1.1 in this test report.

Limits for 6dB Spectrum Bandwidth Measurement (antenna A):

Center Frequency [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2412.0	10.30	> 500

6dB Bandwidth of Fundamental Emission on 802.11 b (2412MHz)



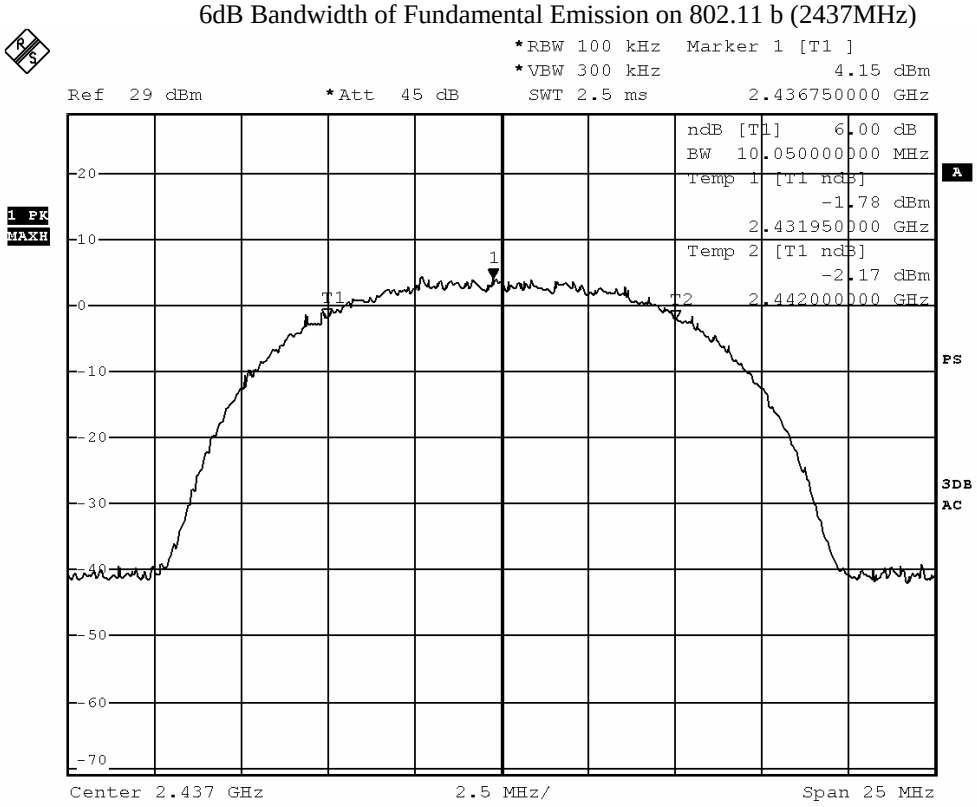
BMP

Date: 8.JUL.2015 14:40:59

Limits for 6dB Spectrum Bandwidth Measurement (antenna A):

Frequency Range [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2437.0	10.05	> 500

6dB Bandwidth of Fundamental Emission on 802.11 b (2437MHz)



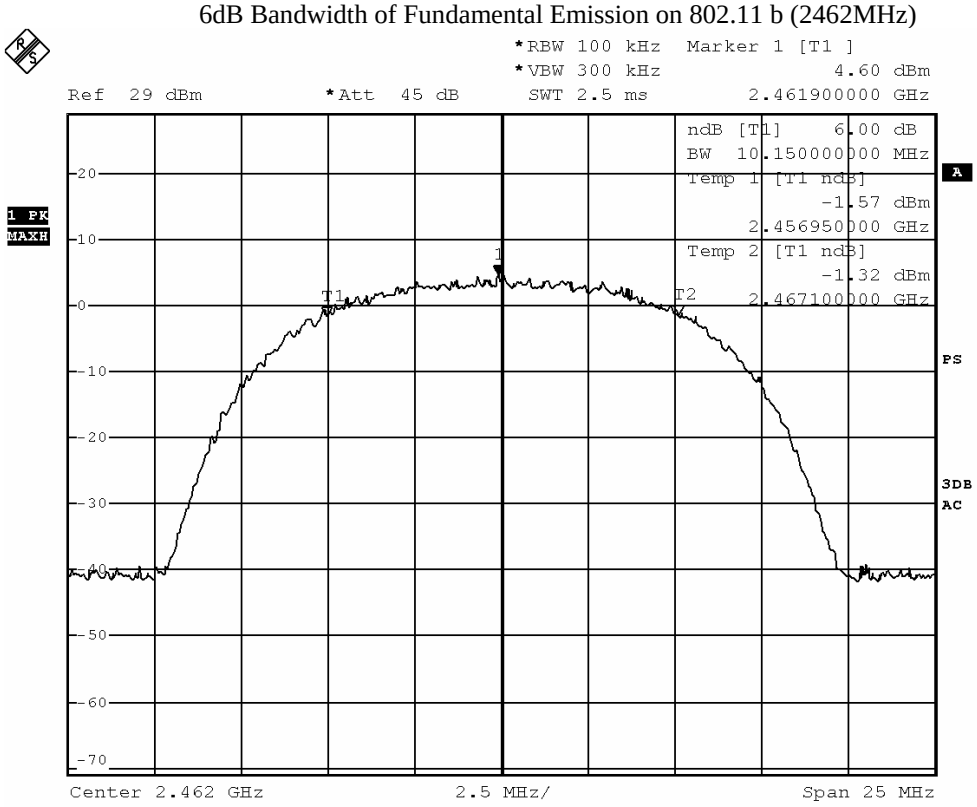
BMP

Date: 8.JUL.2015 14:41:50

Limits for 6dB Spectrum Bandwidth Measurement (antenna A):

Frequency Range [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2462.0	10.15	> 500

6dB Bandwidth of Fundamental Emission on 802.11 b (2462MHz)



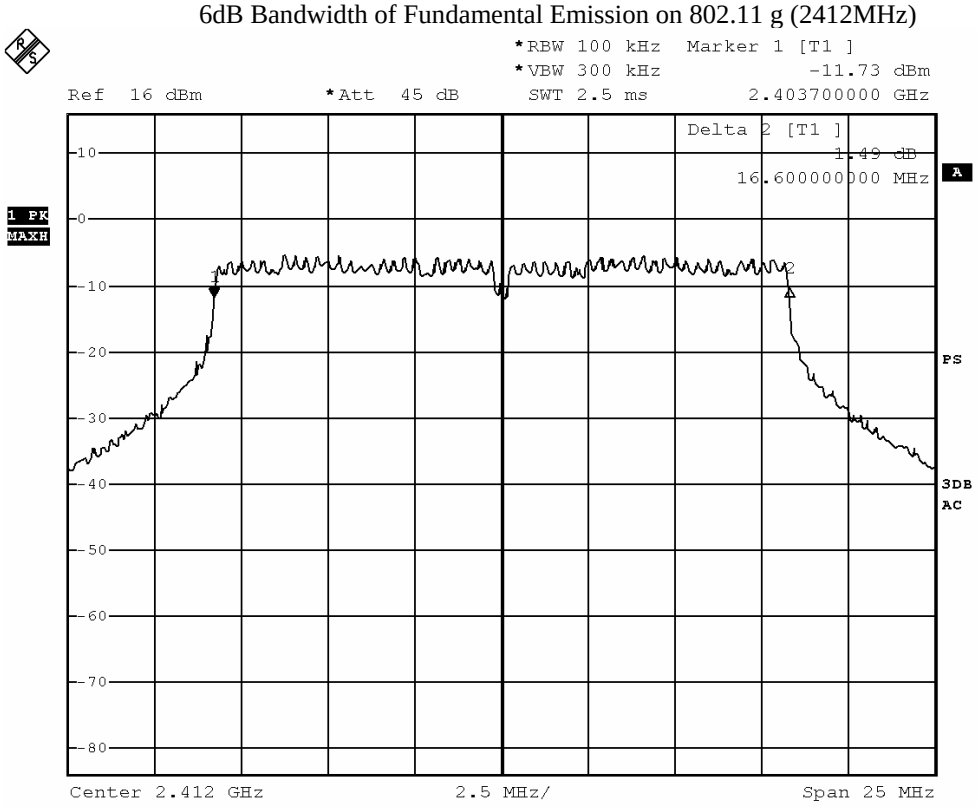
BMP

Date: 8.JUL.2015 14:51:08

Limits for 6dB Spectrum Bandwidth Measurement (antenna A):

Center Frequency [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2412.0	16.60	> 500

6dB Bandwidth of Fundamental Emission on 802.11 g (2412MHz)



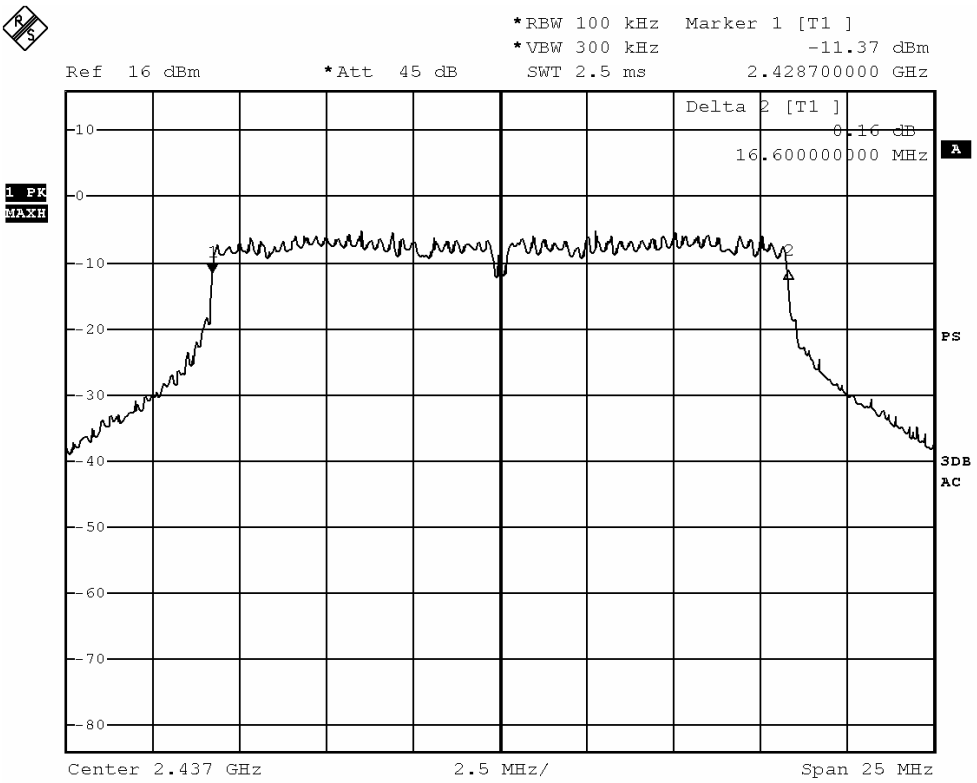
BMP

Date: 8.JUL.2015 14:56:28

Limits for 6dB Spectrum Bandwidth Measurement (antenna A):

Frequency Range [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2437.0	16.60	> 500

6dB Bandwidth of Fundamental Emission on 802.11 g (2437MHz)



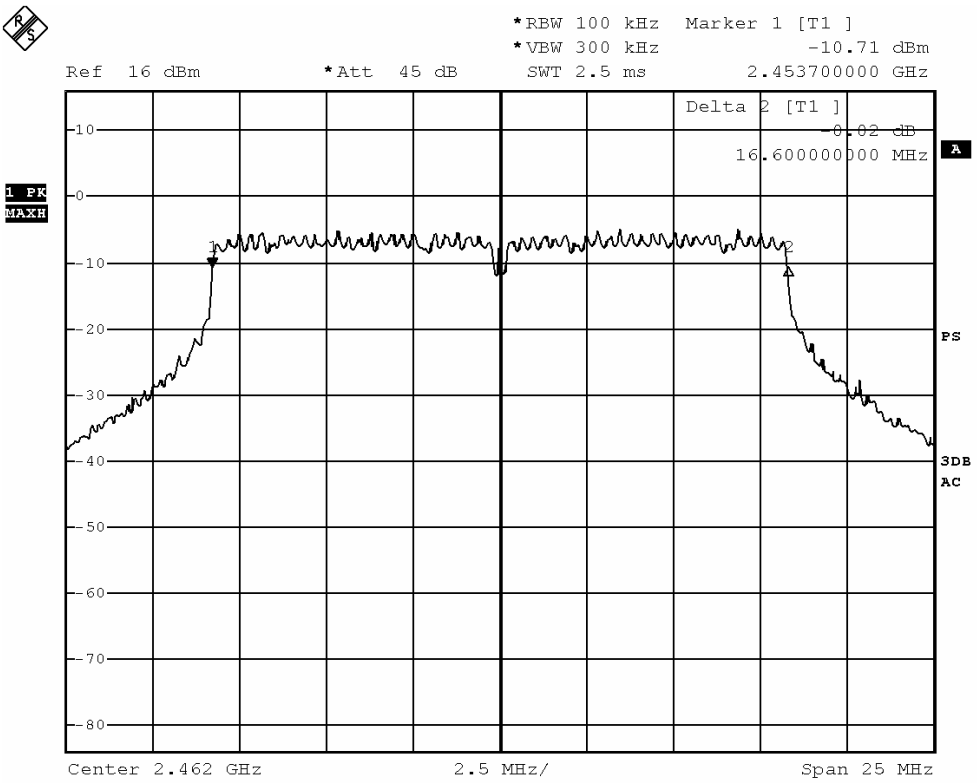
BMP

Date: 8.JUL.2015 15:01:14

Limits for 6dB Spectrum Bandwidth Measurement (antenna A):

Frequency Range [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2462.0	16.60	> 500

6dB Bandwidth of Fundamental Emission on 802.11 g (2462MHz)



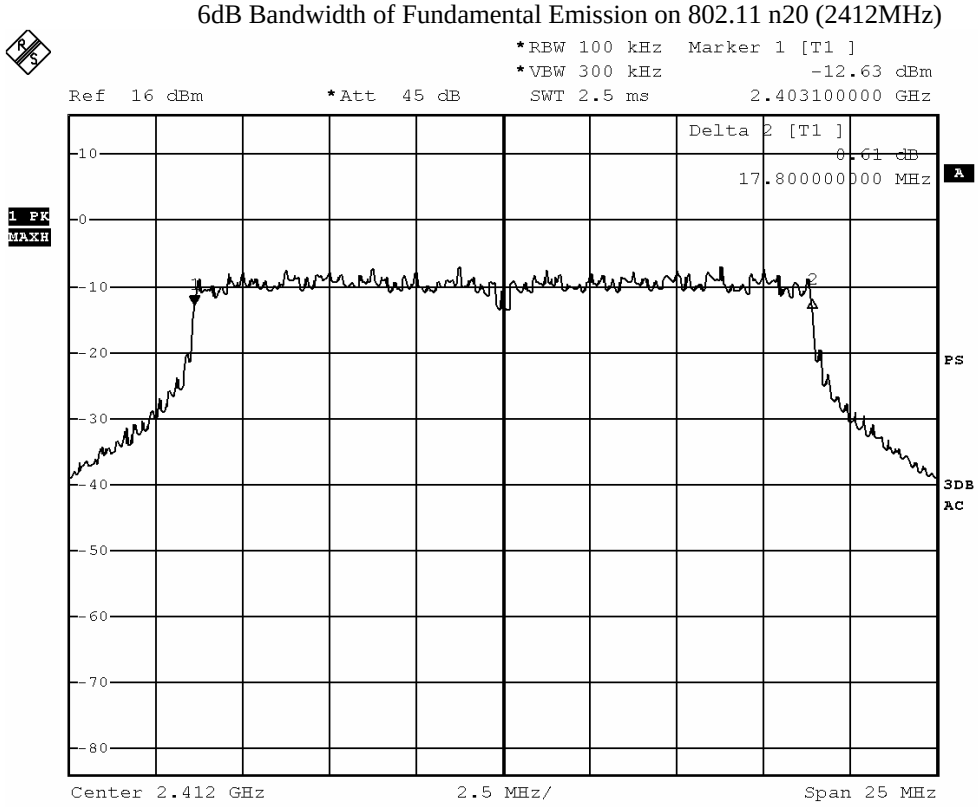
BMP

Date: 8.JUL.2015 15:03:07

Limits for 6dB Spectrum Bandwidth Measurement (antenna A):

Center Frequency [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2412.0	17.80	> 500

6dB Bandwidth of Fundamental Emission on 802.11 n20 (2412MHz)



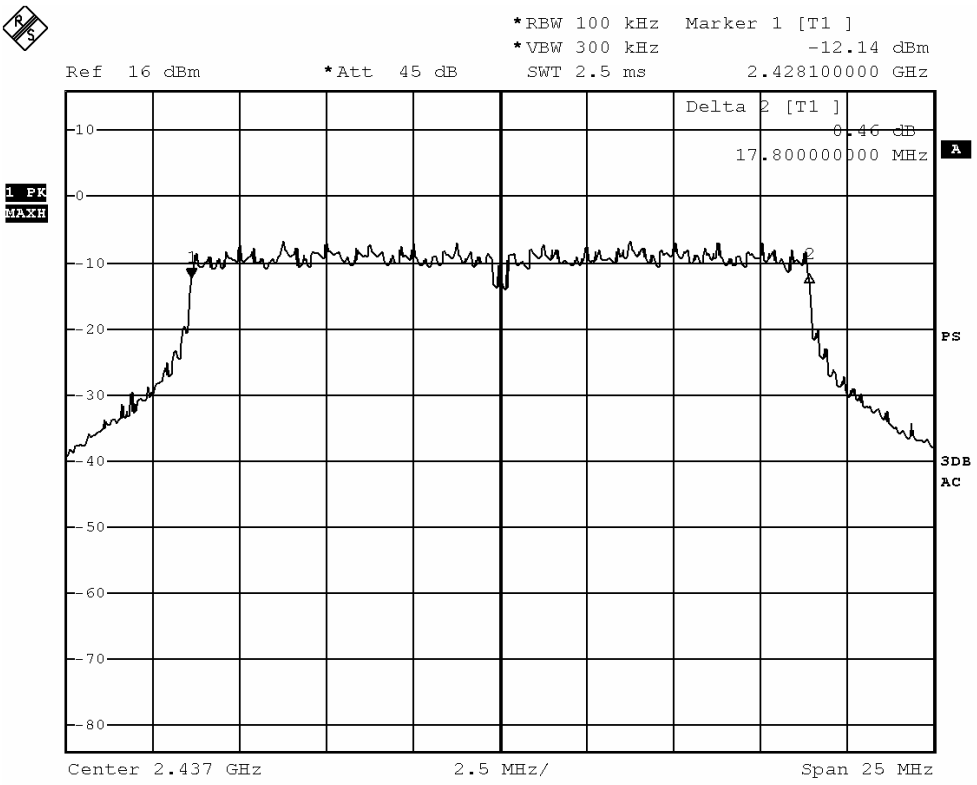
BMP

Date: 8.JUL.2015 15:08:47

Limits for 6dB Spectrum Bandwidth Measurement (antenna A):

Frequency Range [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2437.0	17.80	> 500

6dB Bandwidth of Fundamental Emission on 802.11 n20 (2437MHz)



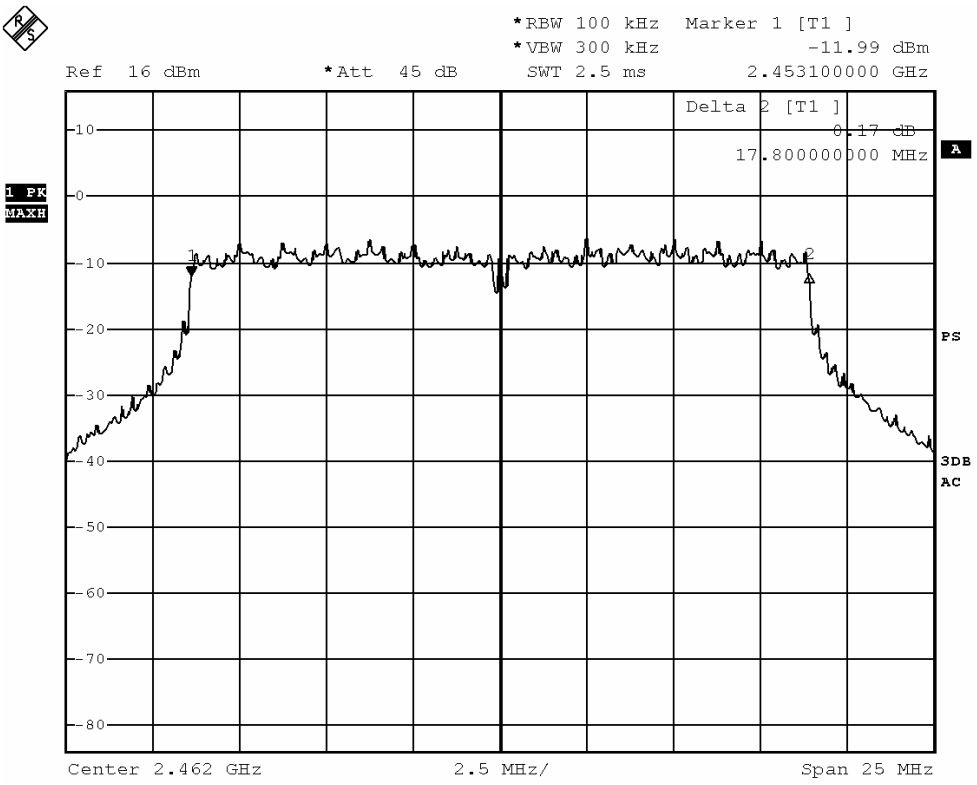
BMP

Date: 8.JUL.2015 15:10:15

Limits for 6dB Spectrum Bandwidth Measurement (antenna A):

Frequency Range [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2462.0	17.80	> 500

6dB Bandwidth of Fundamental Emission on 802.11 n20 (2462MHz)



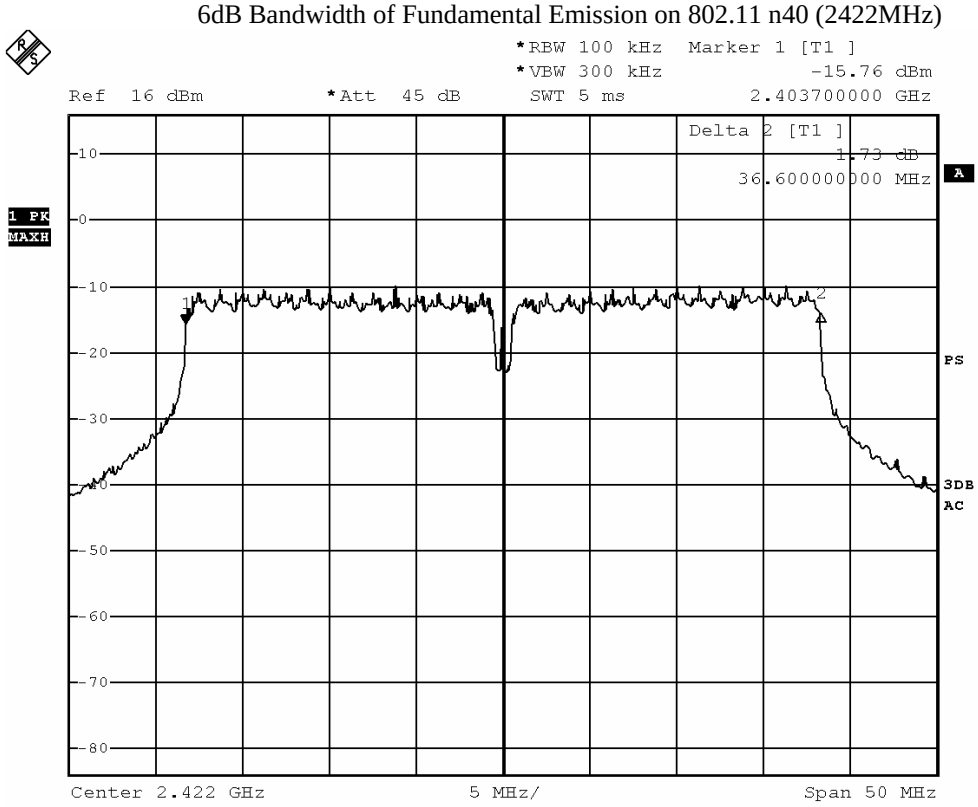
BMP

Date: 8.JUL.2015 15:15:21

Limits for 6dB Spectrum Bandwidth Measurement (antenna A):

Center Frequency [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2422.0	36.60	> 500

6dB Bandwidth of Fundamental Emission on 802.11 n40 (2422MHz)



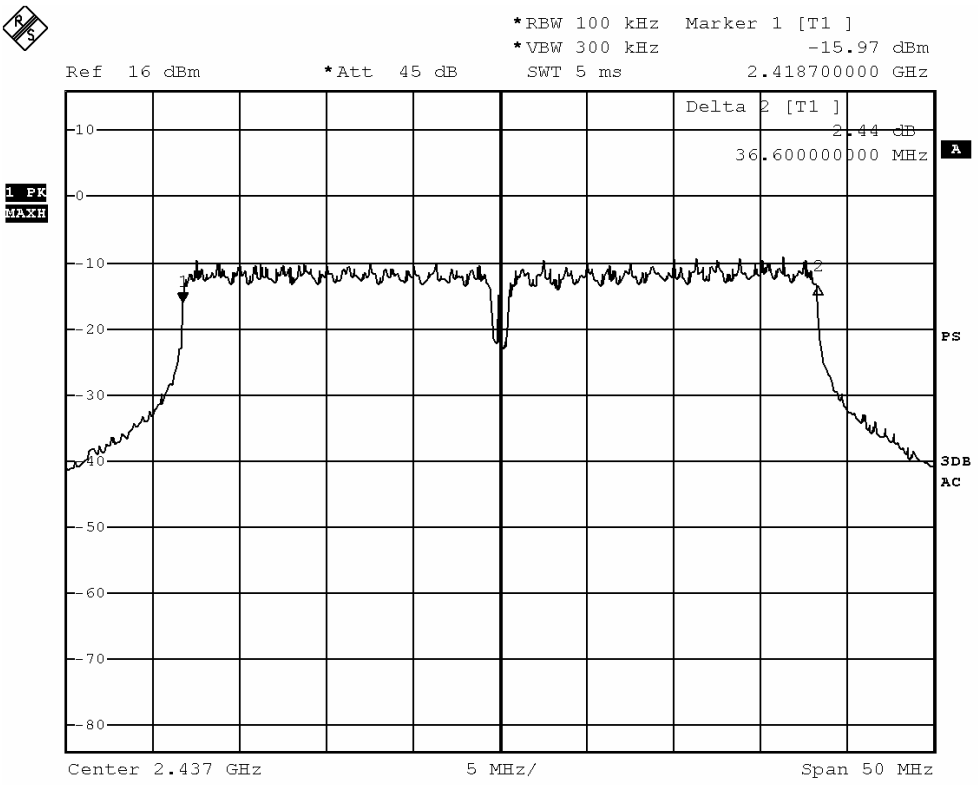
BMP

Date: 8.JUL.2015 15:25:44

Limits for 6dB Spectrum Bandwidth Measurement (antenna A):

Frequency Range [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2437.0	36.60	> 500

6dB Bandwidth of Fundamental Emission on 802.11 n40 (2437MHz)



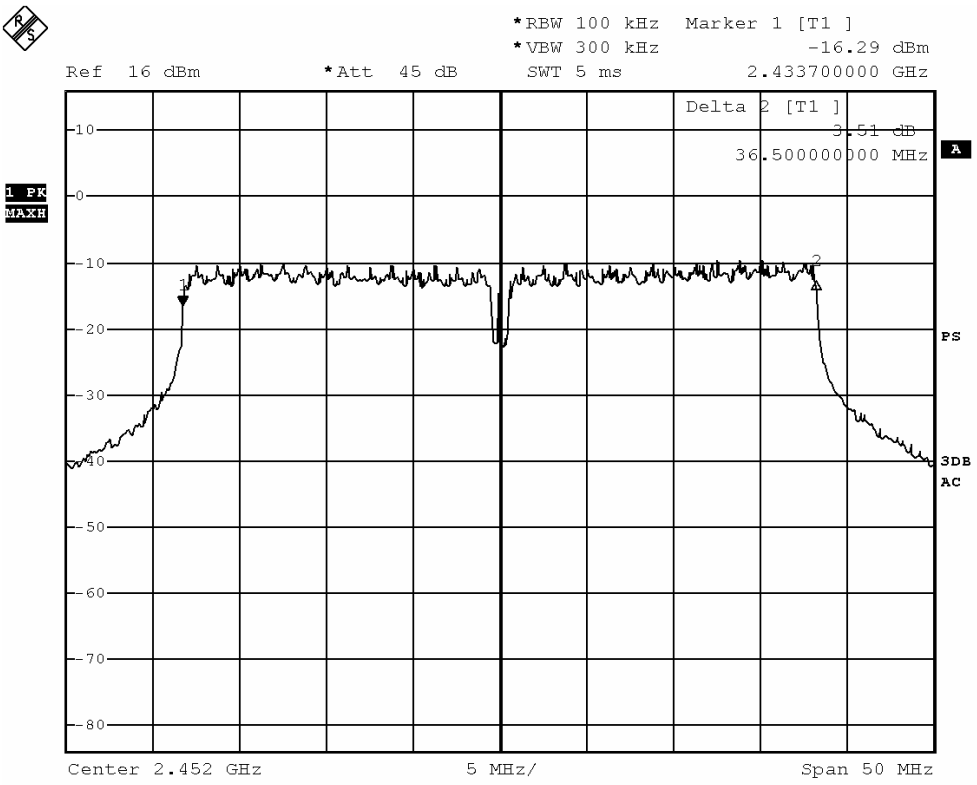
BMP

Date: 8.JUL.2015 15:28:46

Limits for 6dB Spectrum Bandwidth Measurement (antenna A):

Frequency Range [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2452.0	36.500	> 500

6dB Bandwidth of Fundamental Emission on 802.11 n40 (2452MHz)



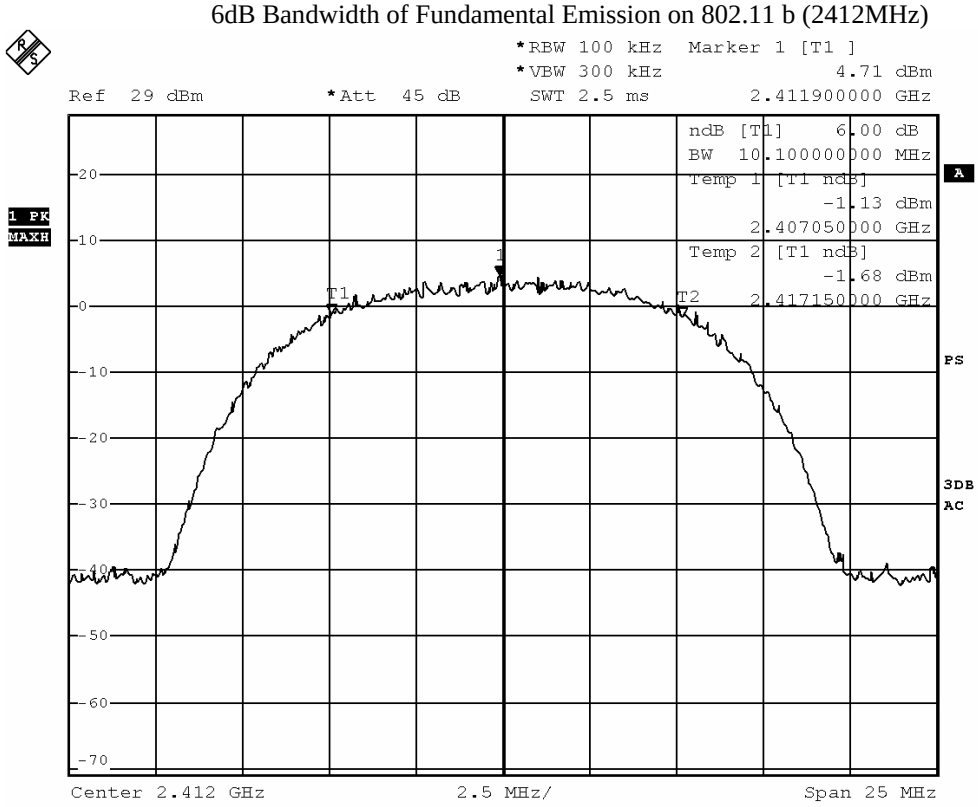
BMP

Date: 8.JUL.2015 15:35:55

Limits for 6dB Spectrum Bandwidth Measurement (antenna B):

Center Frequency [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2412.0	10.10	> 500

6dB Bandwidth of Fundamental Emission on 802.11 b (2412MHz)



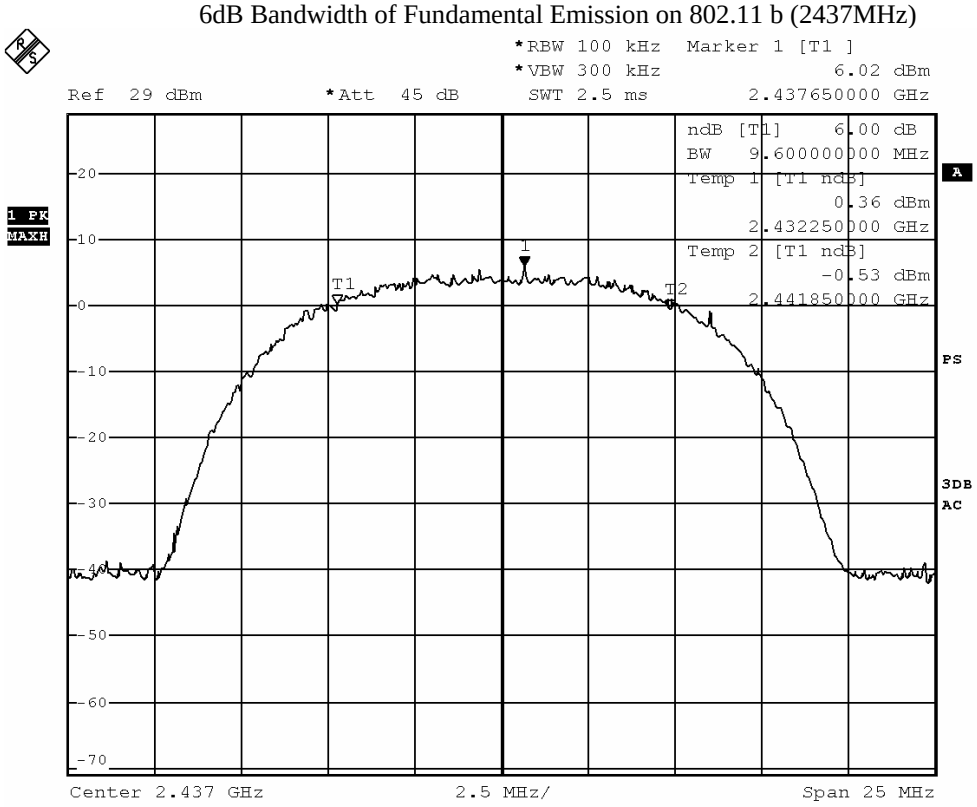
BMP

Date: 8.JUL.2015 14:39:58

Limits for 6dB Spectrum Bandwidth Measurement (antenna B):

Frequency Range [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2437.0	9.60	> 500

6dB Bandwidth of Fundamental Emission on 802.11 b (2437MHz)



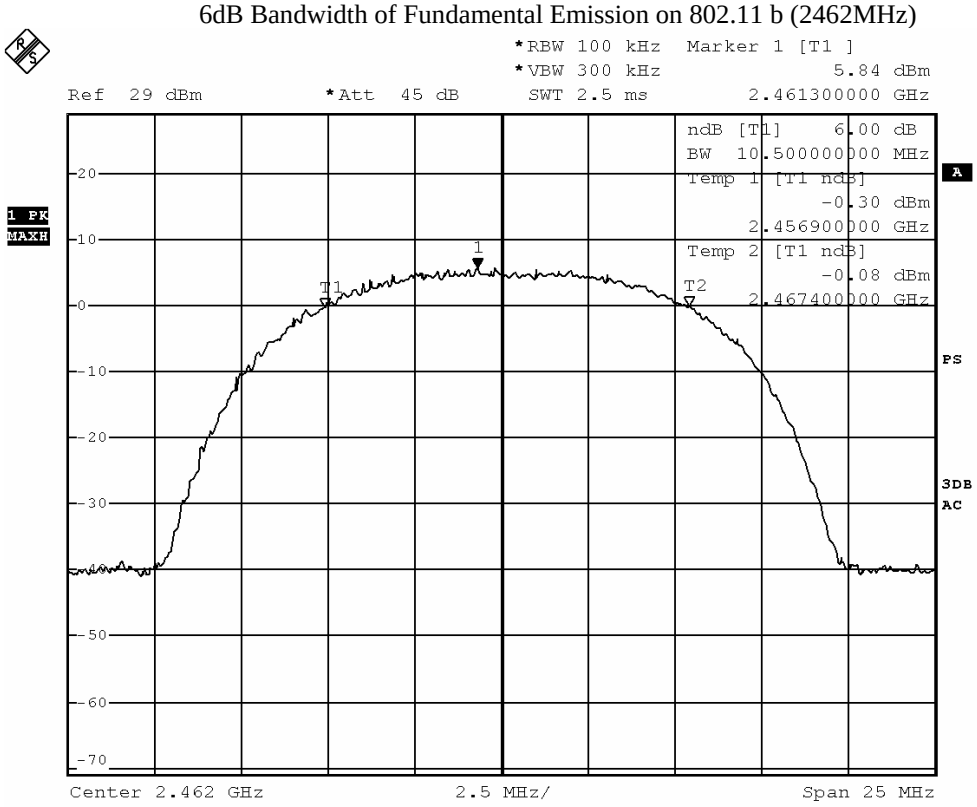
BMP

Date: 8.JUL.2015 14:43:43

Limits for 6dB Spectrum Bandwidth Measurement (antenna B):

Frequency Range [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2462.0	10.50	> 500

6dB Bandwidth of Fundamental Emission on 802.11 b (2462MHz)



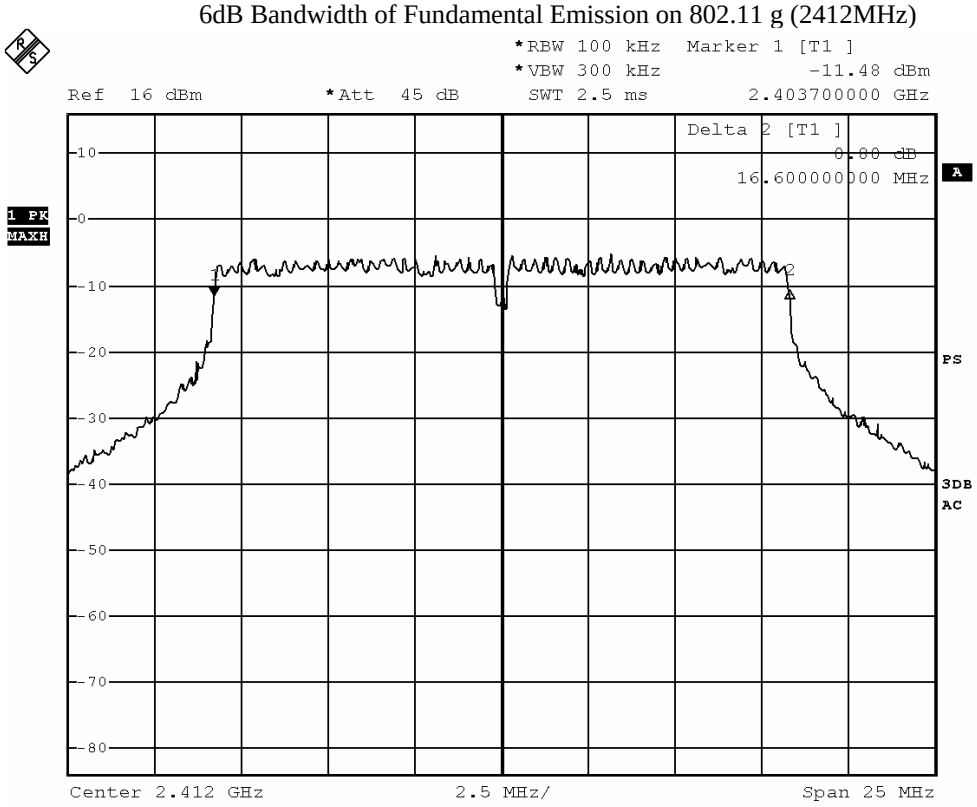
BMP

Date: 8.JUL.2015 14:50:08

Limits for 6dB Spectrum Bandwidth Measurement (antenna B):

Center Frequency [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2412.0	16.60	> 500

6dB Bandwidth of Fundamental Emission on 802.11 g (2412MHz)



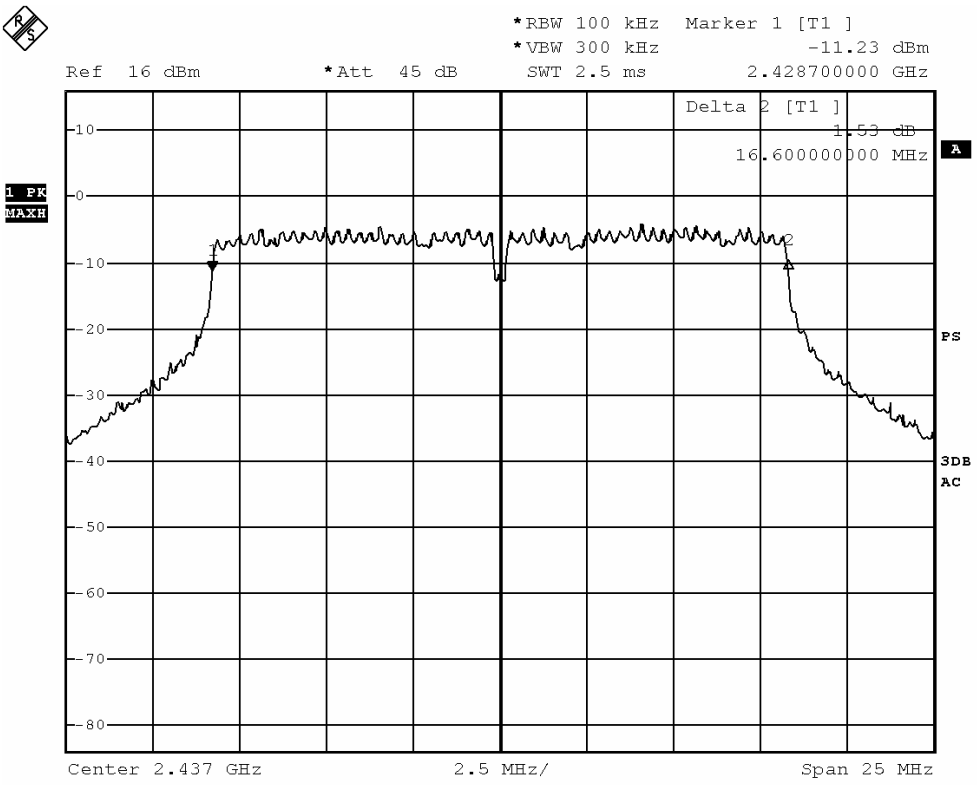
BMP

Date: 8.JUL.2015 14:57:48

Limits for 6dB Spectrum Bandwidth Measurement (antenna B):

Frequency Range [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2437.0	16.60	> 500

6dB Bandwidth of Fundamental Emission on 802.11 g (2437MHz)



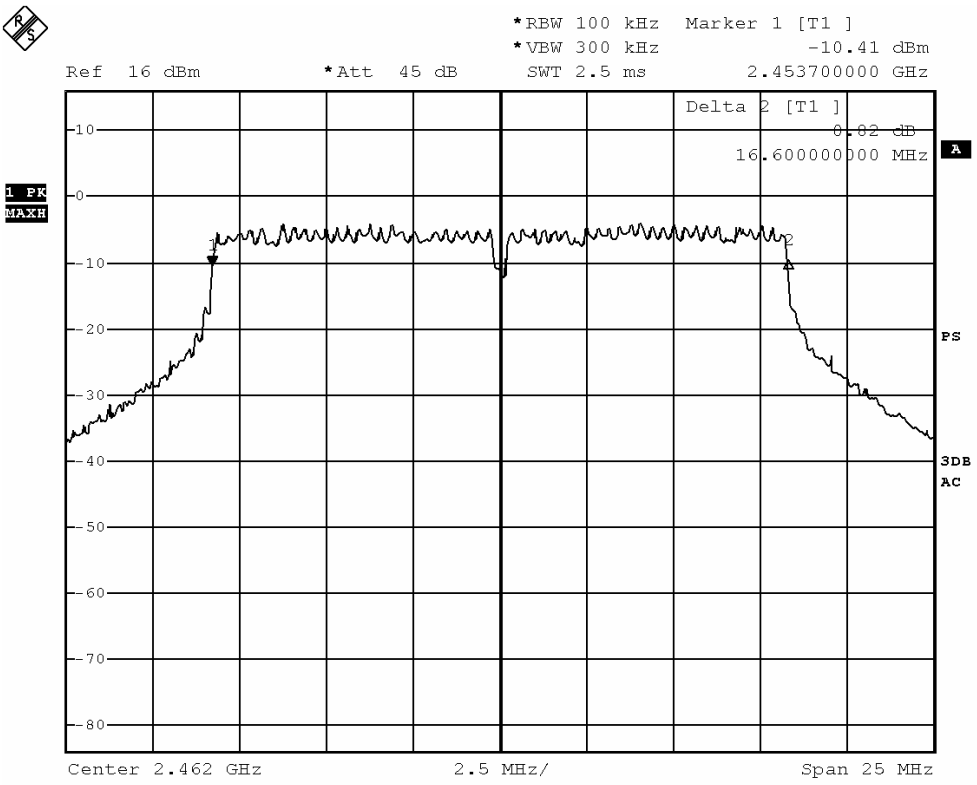
BMP

Date: 8.JUL.2015 15:00:00

Limits for 6dB Spectrum Bandwidth Measurement (antenna B):

Frequency Range [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2462.0	16.60	> 500

6dB Bandwidth of Fundamental Emission on 802.11 g (2462MHz)



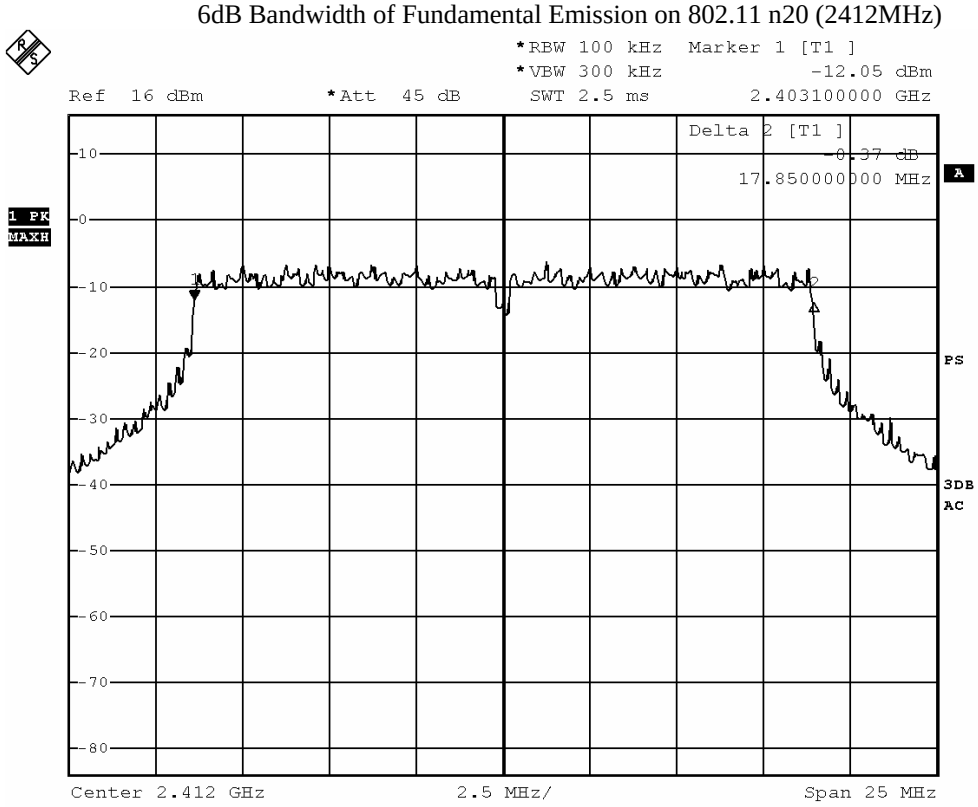
BMP

Date: 8.JUL.2015 15:04:30

Limits for 6dB Spectrum Bandwidth Measurement (antenna B):

Center Frequency [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2412.0	17.85	> 500

6dB Bandwidth of Fundamental Emission on 802.11 n20 (2412MHz)



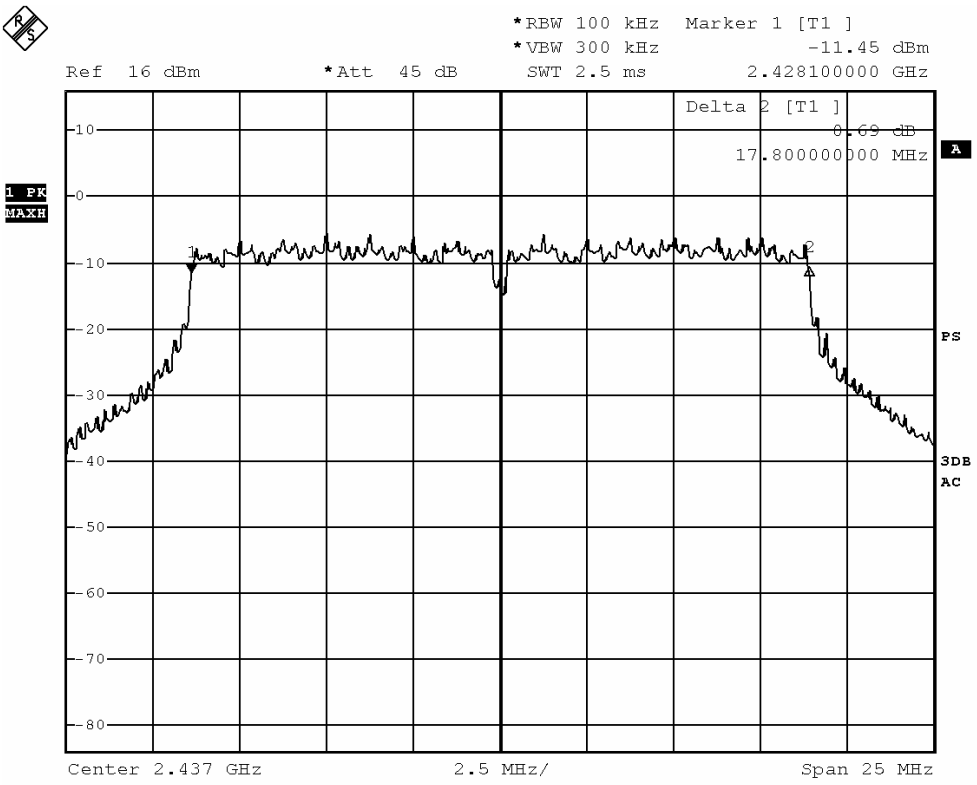
BMP

Date: 8.JUL.2015 15:07:09

Limits for 6dB Spectrum Bandwidth Measurement (antenna B):

Frequency Range [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2437.0	17.80	> 500

6dB Bandwidth of Fundamental Emission on 802.11 n20 (2437MHz)



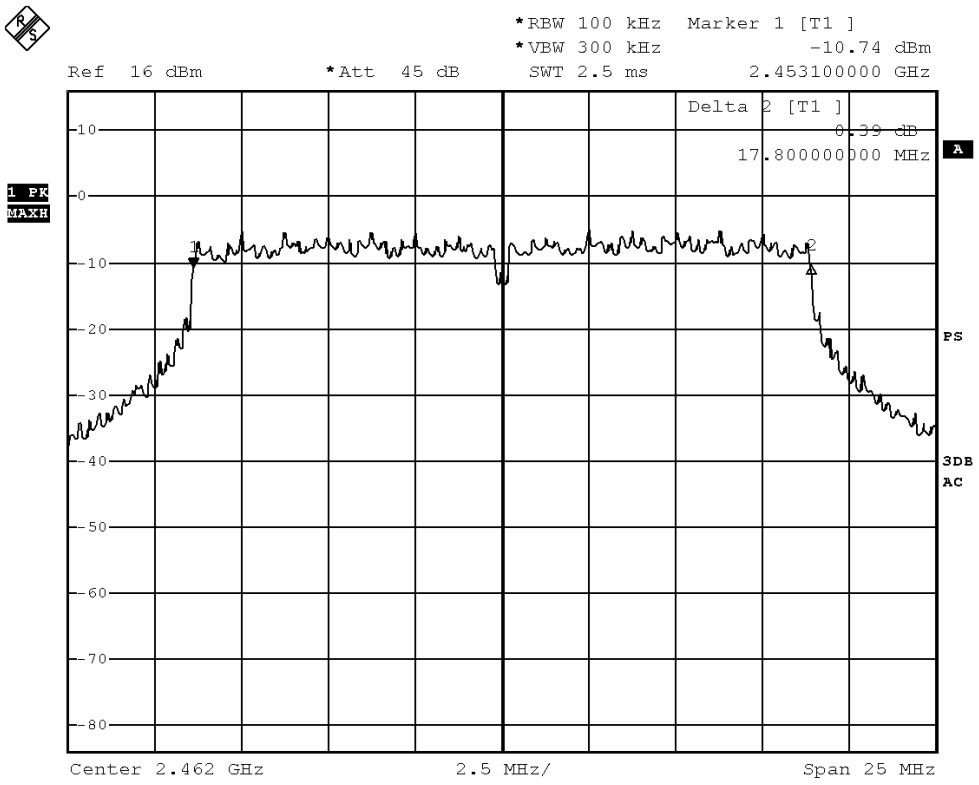
BMP

Date: 8.JUL.2015 15:12:06

Limits for 6dB Spectrum Bandwidth Measurement (antenna B):

Frequency Range [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2462.0	17.80	> 500

6dB Bandwidth of Fundamental Emission on 802.11 n20 (2462MHz)



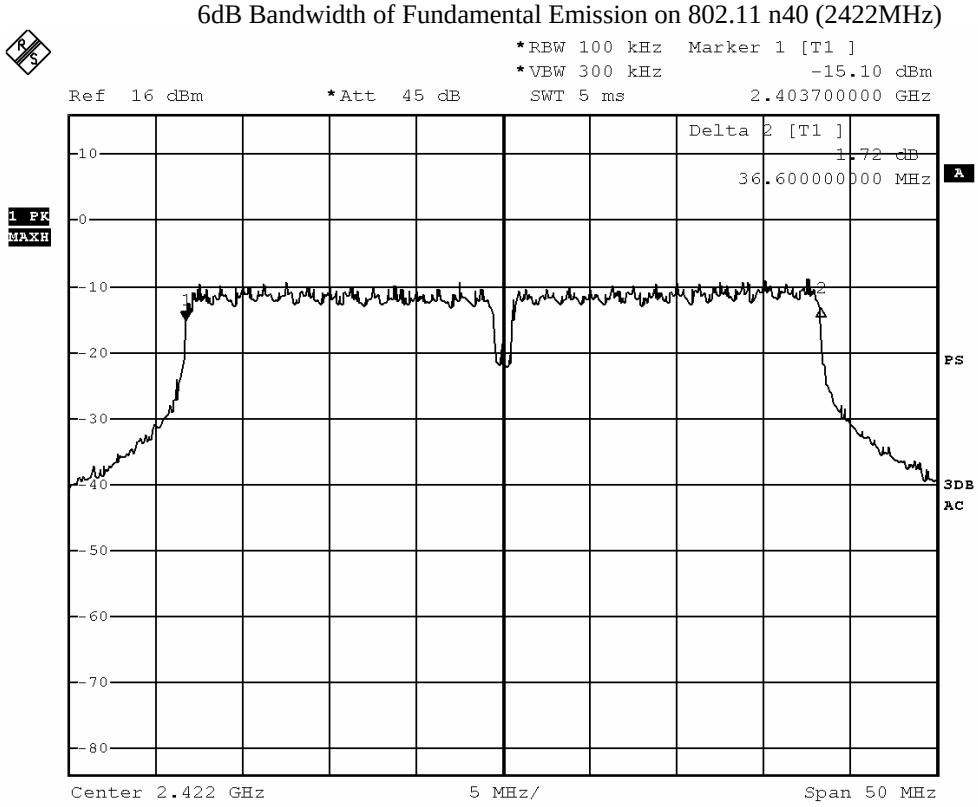
BMP

Date: 8.JUL.2015 15:13:50

Limits for 6dB Spectrum Bandwidth Measurement (antenna B):

Center Frequency [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2422.0	36.60	> 500

6dB Bandwidth of Fundamental Emission on 802.11 n40 (2422MHz)



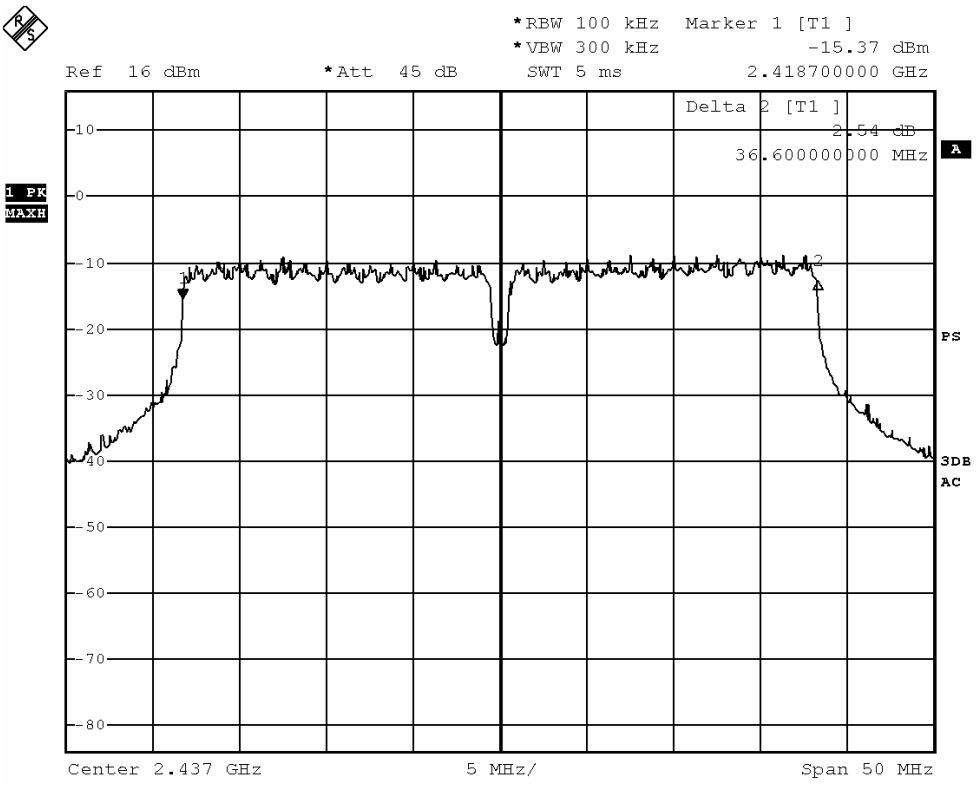
BMP

Date: 8.JUL.2015 15:23:03

Limits for 6dB Spectrum Bandwidth Measurement (antenna B):

Frequency Range [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2437.0	36.60	> 500

6dB Bandwidth of Fundamental Emission on 802.11 n40 (2437MHz)



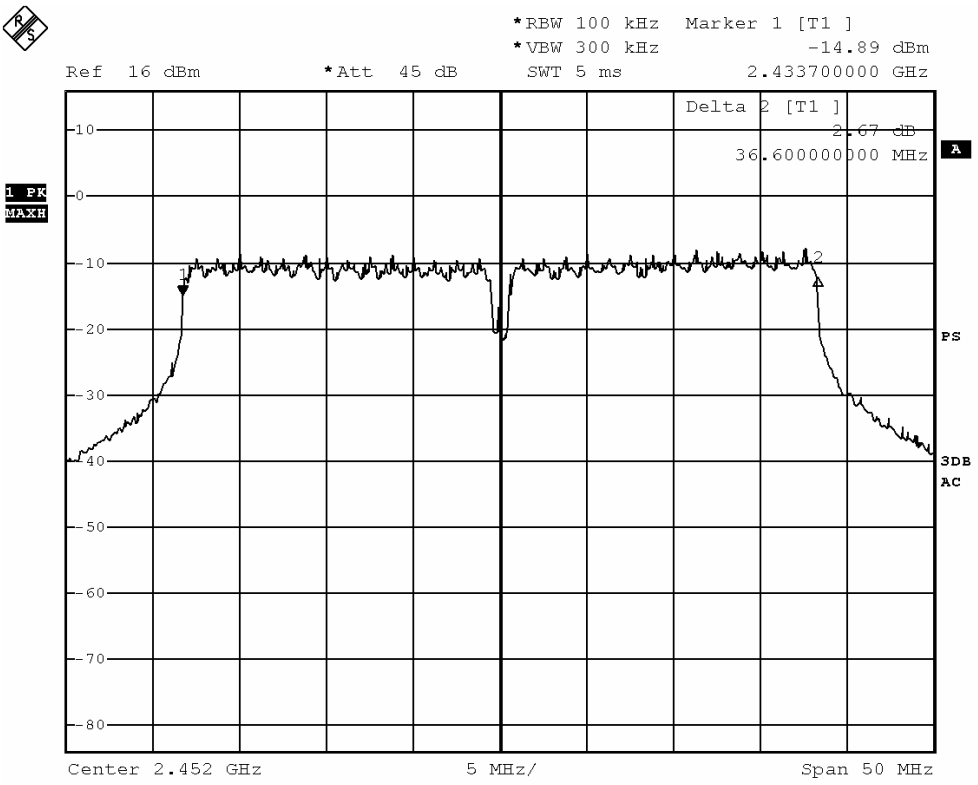
BMP

Date: 8.JUL.2015 15:30:22

Limits for 6dB Spectrum Bandwidth Measurement (antenna B):

Frequency Range [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2452.0	36.60	> 500

6dB Bandwidth of Fundamental Emission on 802.11 n40 (2452MHz)



BMP

Date: 8.JUL.2015 15:33:48

3.1.5 Band Edges Measurement

Test Requirement:	FCC 47CFR 15.247
Test Method:	ANSI C63.10:2013
Test Date:	2015-07-08
Mode of Operation:	WiFi mode

Test Method:

The band edge is measured at an amplitude level reduced from the reference level by a specified ratio. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. The RBW and VBW are set to 100kHz for this measurement.

Test Setup:

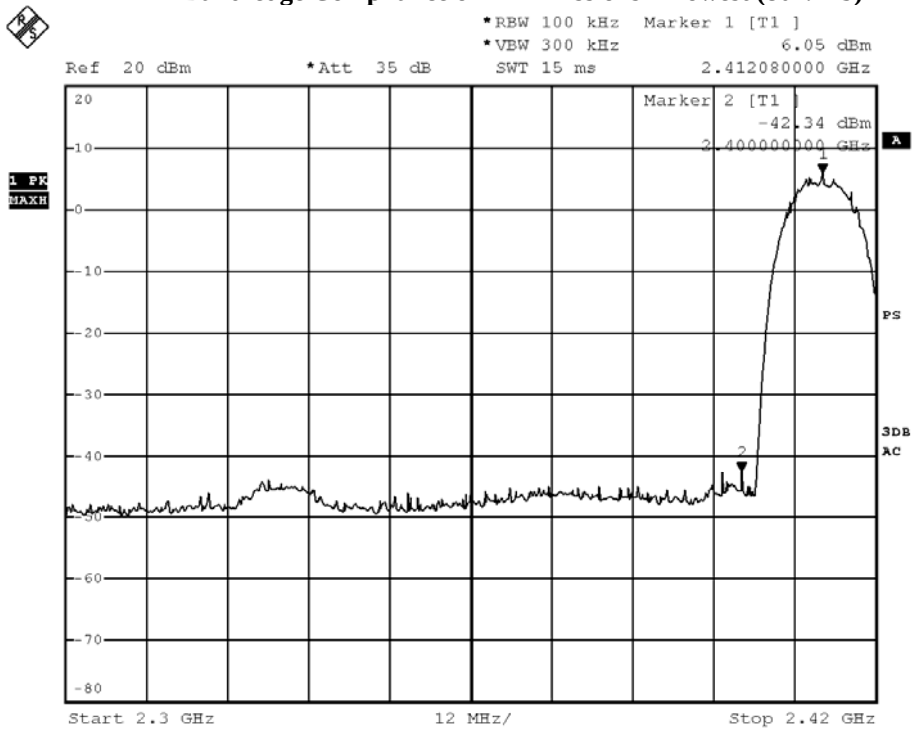
As Test Setup of clause 3.1.2 in this test report.

Band-edge Compliance of RF Conducted Emissions Measurement (antenna A):

Limit：
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. Attenuation below the general limits specified in Section 15.209(a) is not required.

Frequency Range [MHz]	Radiated Emission Attenuated below the Fundamental [dB]
2400 – Lowest Fundamental (2412)	48.39

Band-edge Compliance of RF Emissions – Lowest (802.11b)

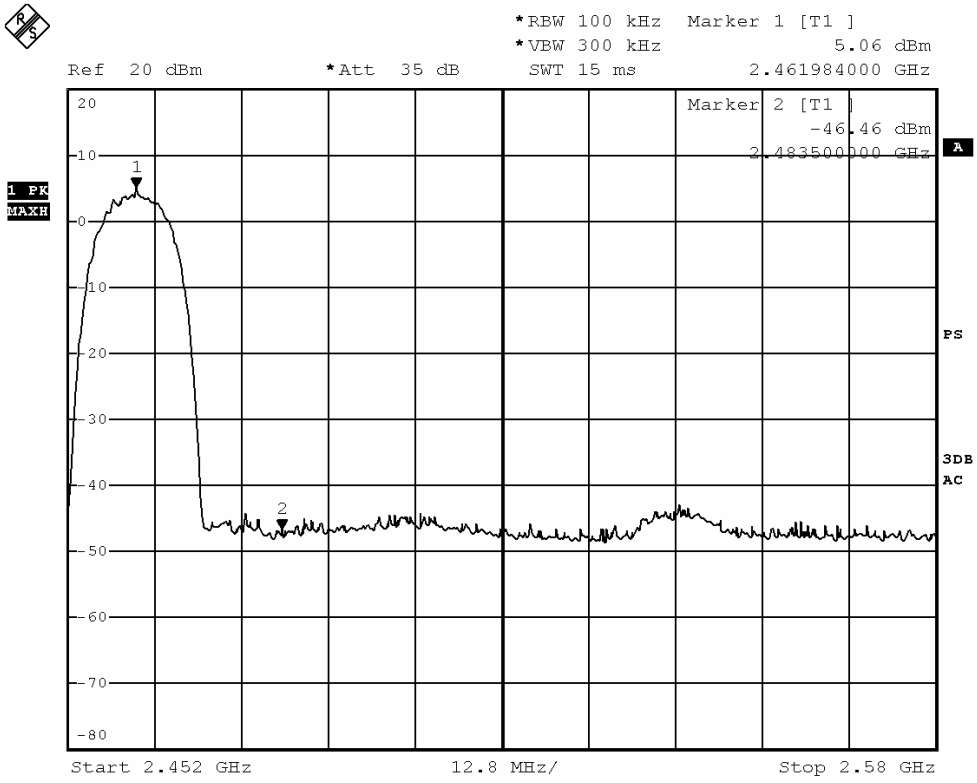


BMP
Date: 8.JUL.2015 16:25:52

Band-edge Compliance of RF Conducted Emissions Measurement (antenna A):

Frequency Range [MHz]	Radiated Emission Attenuated below the Fundamental [dB]
2483.5 - Highest Fundamental (2462)	51.52

Band-edge Compliance of RF Emissions – Highest (802.11b)



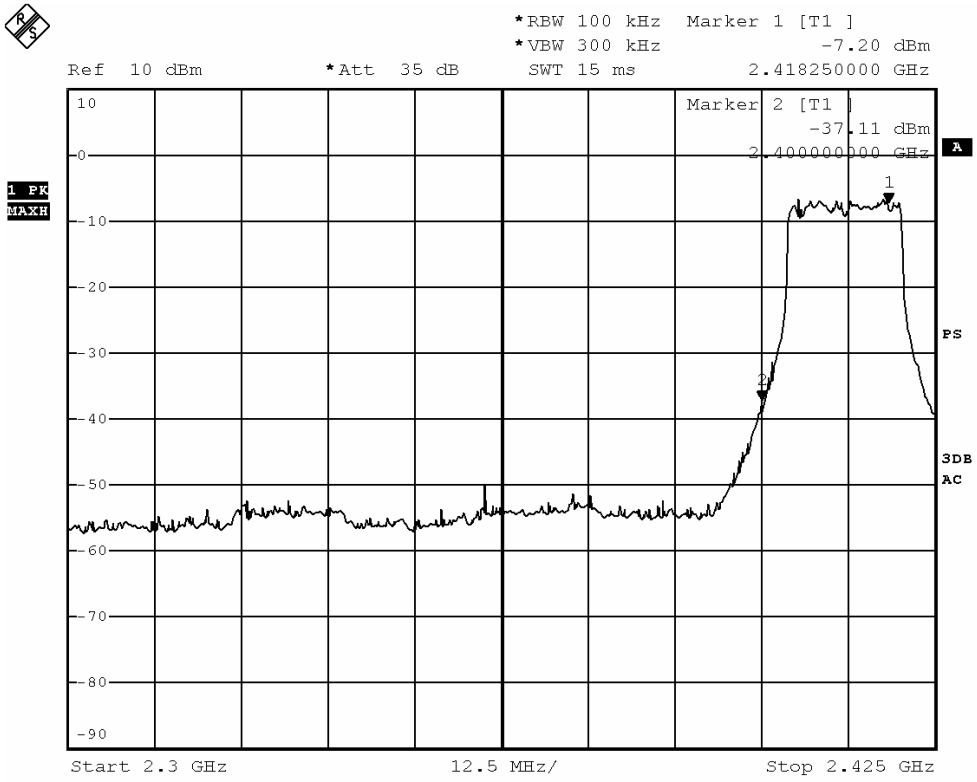
BMP

Date: 8.JUL.2015 16:29:39

Band-edge Compliance of RF Conducted Emissions Measurement (antenna A):

Frequency Range [MHz]	Radiated Emission Attenuated below the Fundamental [dB]
2400 – Lowest Fundamental (2412)	29.91

Band-edge Compliance of RF Emissions – Lowest (802.11g)



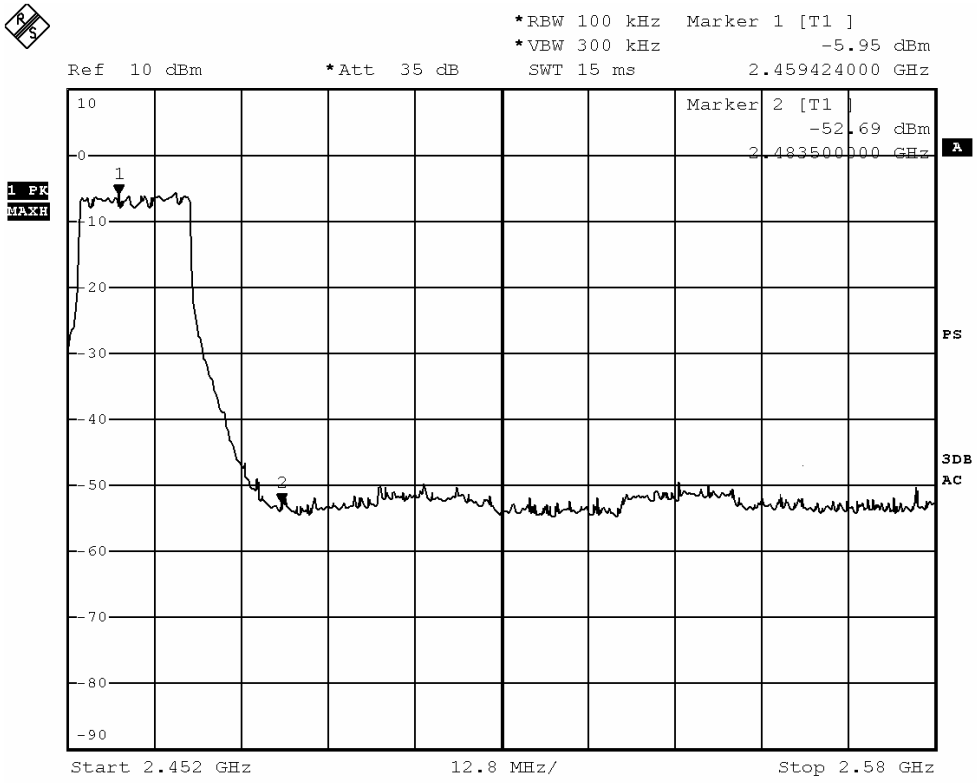
BMP

Date: 8.JUL.2015 15:54:10

Band-edge Compliance of RF Conducted Emissions Measurement (antenna A):

Frequency Range [MHz]	Radiated Emission Attenuated below the Fundamental [dB]
2483.5 - Highest Fundamental (2462)	46.74

Band-edge Compliance of RF Emissions – Highest (802.11g)



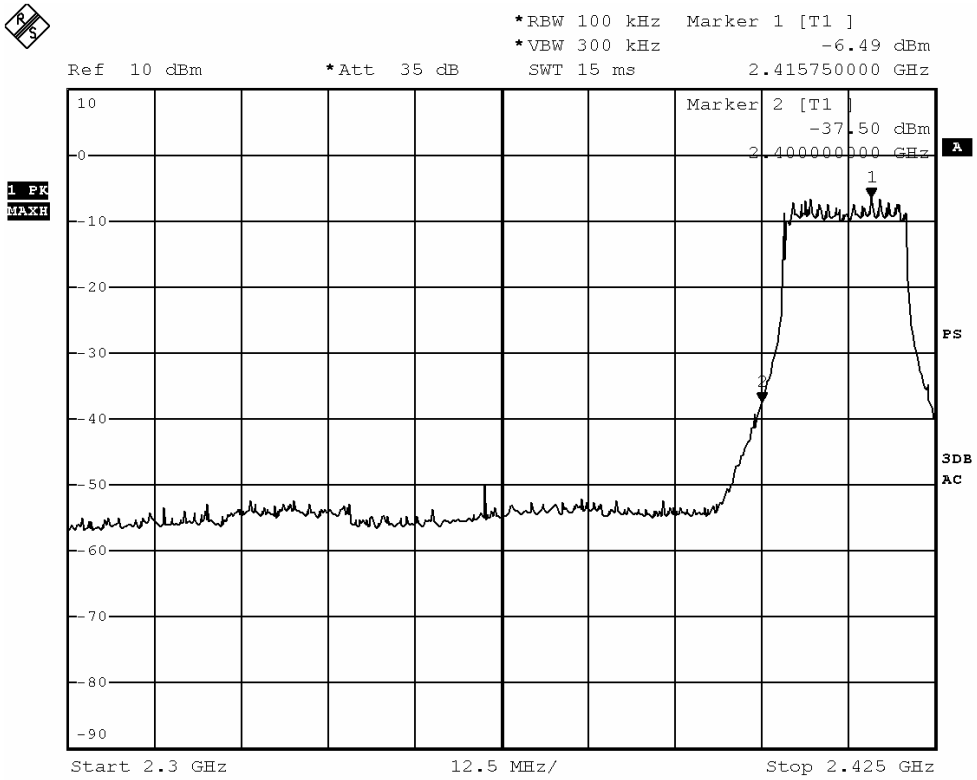
BMP

Date: 8.JUL.2015 15:58:46

Band-edge Compliance of RF Conducted Emissions Measurement (antenna A):

Frequency Range [MHz]	Radiated Emission Attenuated below the Fundamental [dB]
2400 – Lowest Fundamental (2412)	31.01

Band-edge Compliance of RF Emissions – Lowest (802.11n20)



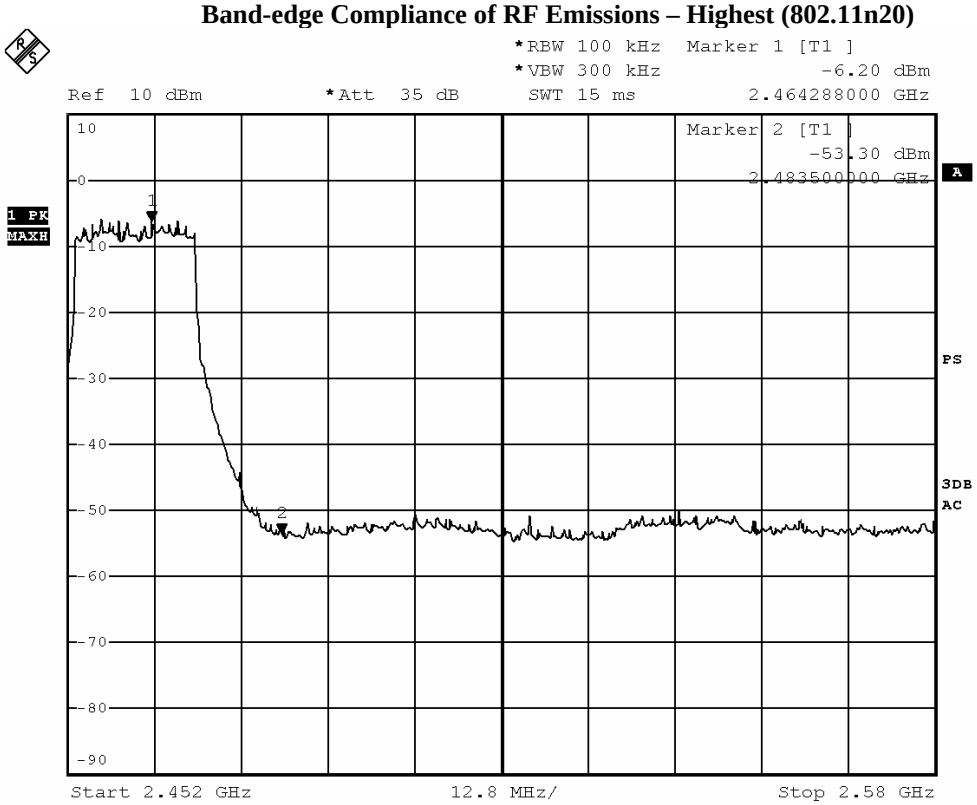
BMP

Date: 8.JUL.2015 16:03:02

Band-edge Compliance of RF Conducted Emissions Measurement (antenna A):

Frequency Range [MHz]	Radiated Emission Attenuated below the Fundamental [dB]
2483.5 - Highest Fundamental (2462)	47.1

Band-edge Compliance of RF Emissions – Highest (802.11n20)



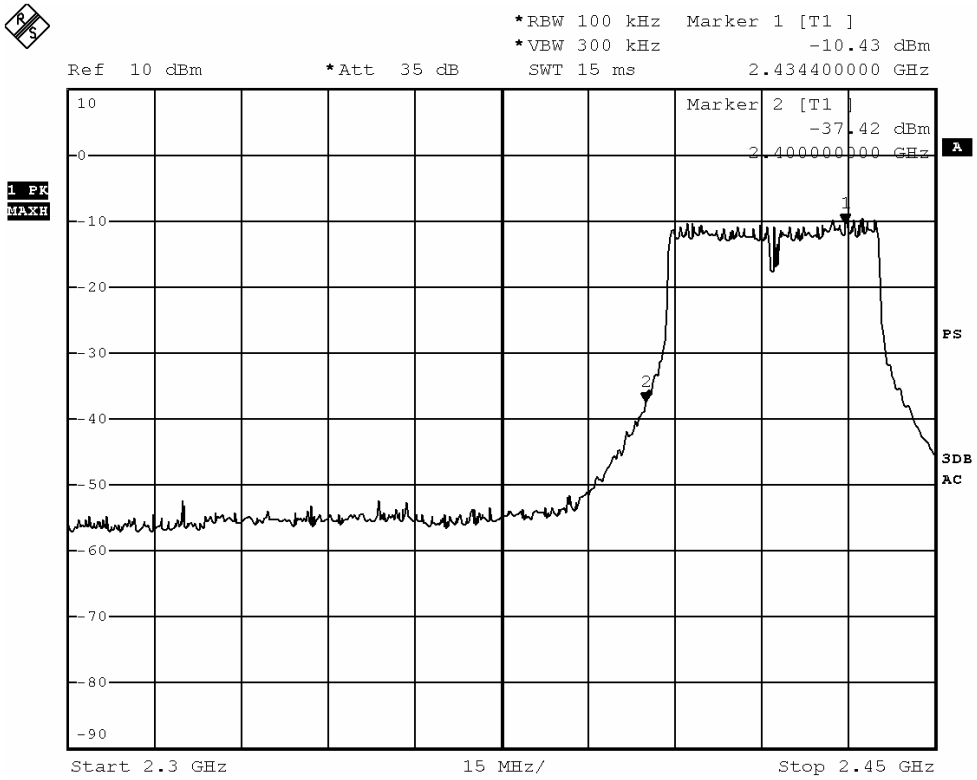
BMP

Date: 8.JUL.2015 16:06:55

Band-edge Compliance of RF Conducted Emissions Measurement (antenna A):

Frequency Range [MHz]	Radiated Emission Attenuated below the Fundamental [dB]
2400 – Lowest Fundamental (2422)	26.99

Band-edge Compliance of RF Emissions – Lowest (802.11n40)



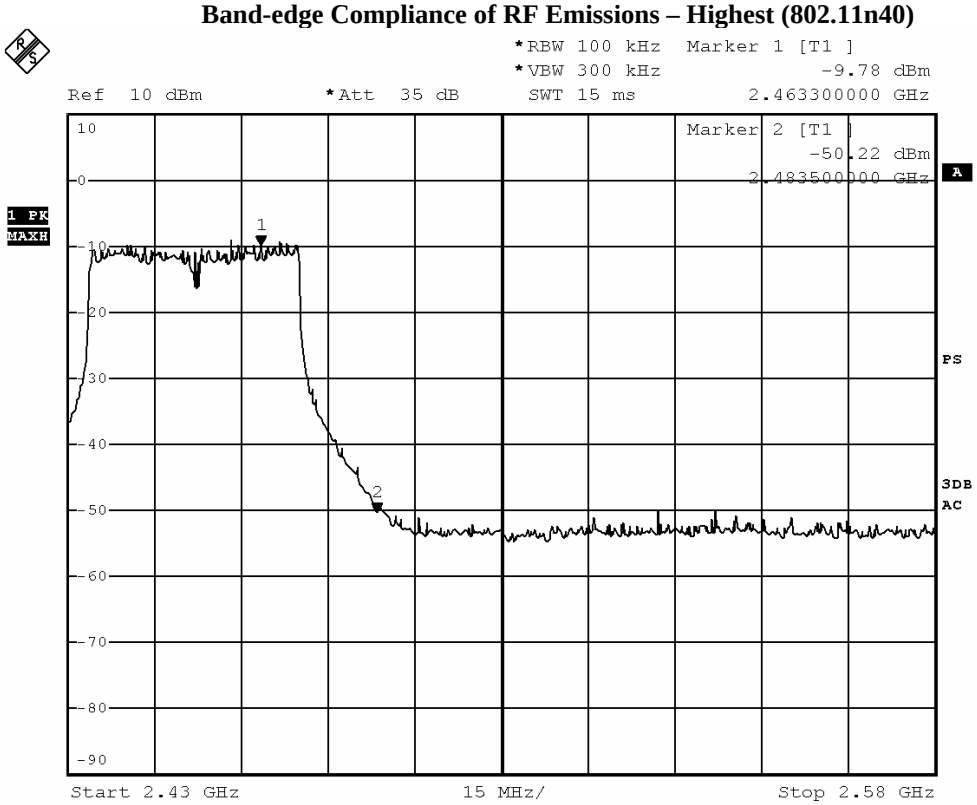
BMP

Date: 8.JUL.2015 16:09:06

Band-edge Compliance of RF Conducted Emissions Measurement (antenna A):

Frequency Range [MHz]	Radiated Emission Attenuated below the Fundamental [dB]
2483.5 - Highest Fundamental (2452)	40.44

Band-edge Compliance of RF Emissions – Highest (802.11n40)



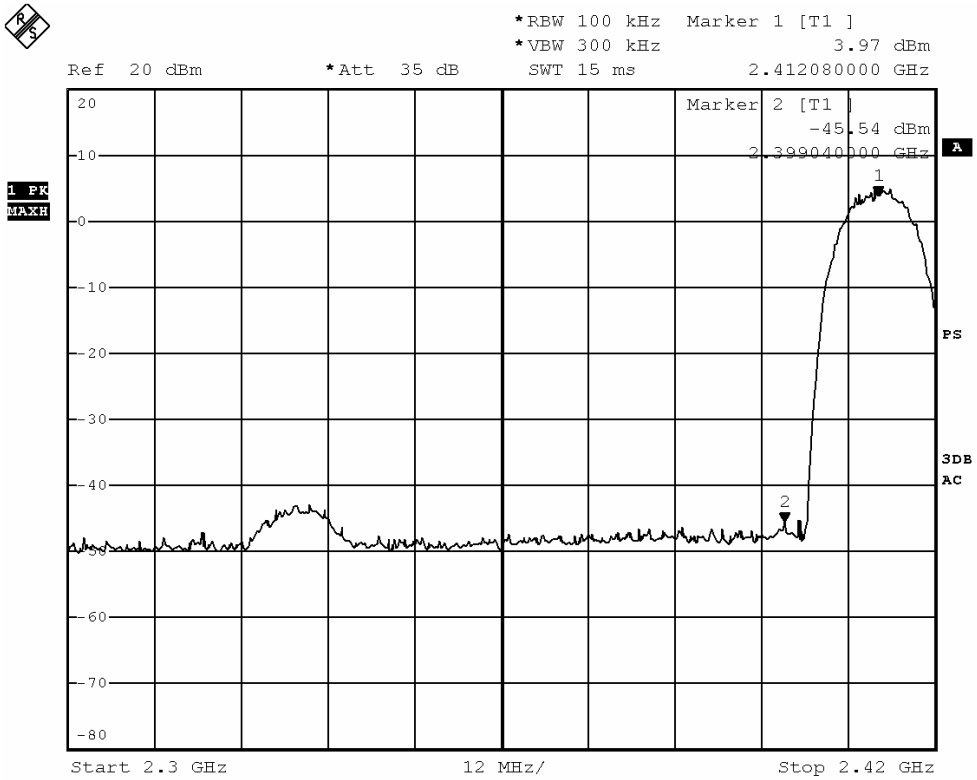
BMP

Date: 8.JUL.2015 16:12:11

Band-edge Compliance of RF Conducted Emissions Measurement (antenna B):

Frequency Range [MHz]	Radiated Emission Attenuated below the Fundamental [dB]
2400 – Lowest Fundamental (2412)	49.51

Band-edge Compliance of RF Emissions – Lowest (802.11b)



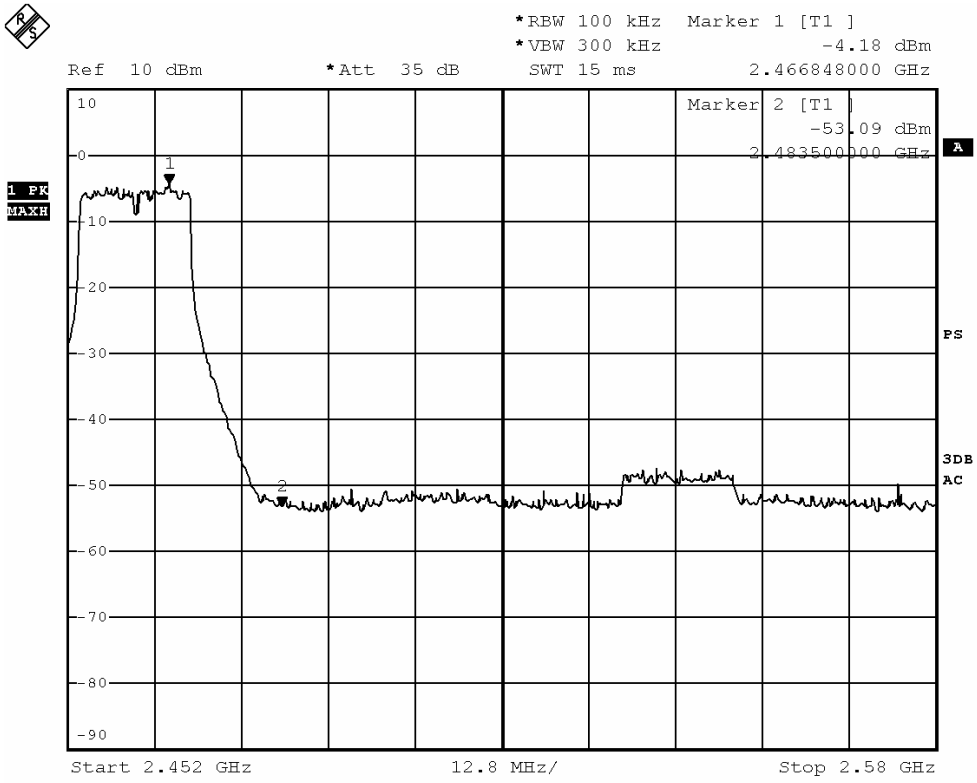
BMP

Date: 8.JUL.2015 16:26:50

Band-edge Compliance of RF Conducted Emissions Measurement (antenna B):

Frequency Range [MHz]	Radiated Emission Attenuated below the Fundamental [dB]
2483.5 - Highest Fundamental (2462)	48.91

Band-edge Compliance of RF Emissions – Highest (802.11b)



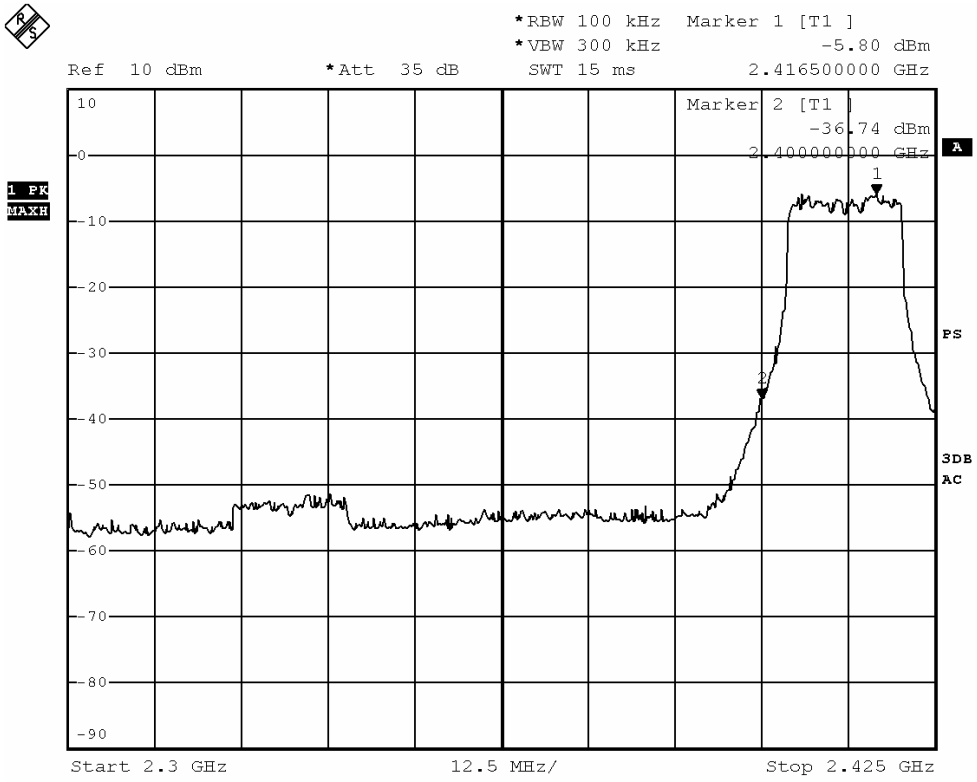
BMP

Date: 8.JUL.2015 15:57:17

Band-edge Compliance of RF Conducted Emissions Measurement (antenna B):

Frequency Range [MHz]	Radiated Emission Attenuated below the Fundamental [dB]
2400 – Lowest Fundamental (2412)	30.94

Band-edge Compliance of RF Emissions – Lowest (802.11g)



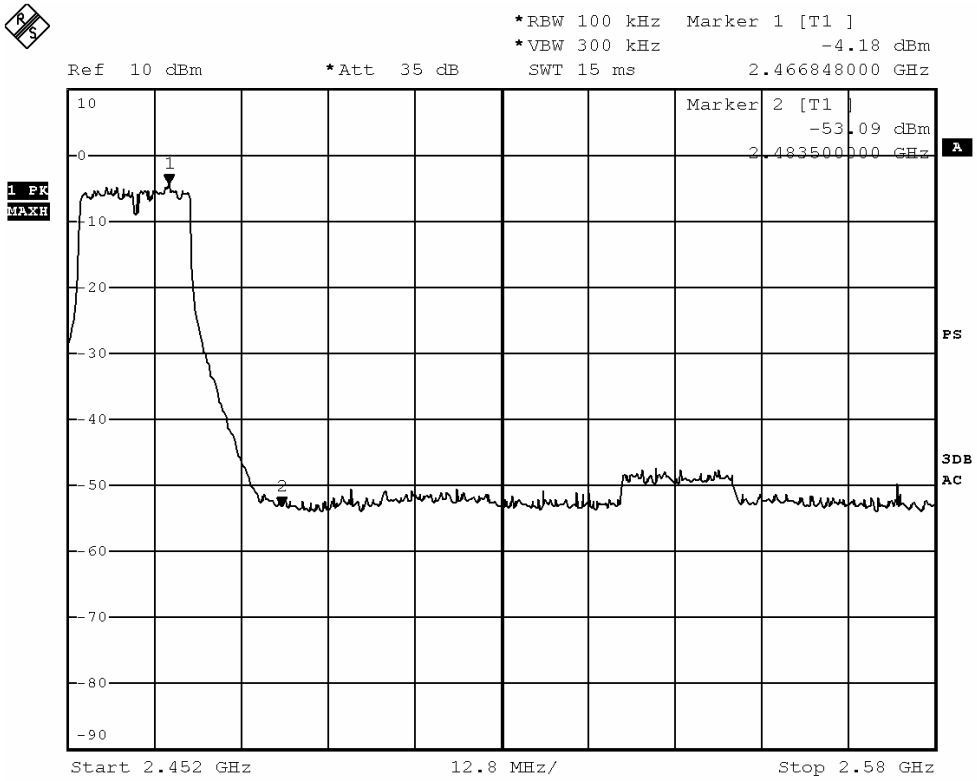
BMP

Date: 8.JUL.2015 15:55:29

Band-edge Compliance of RF Conducted Emissions Measurement (antenna B):

Frequency Range [MHz]	Radiated Emission Attenuated below the Fundamental [dB]
2483.5 - Highest Fundamental (2462)	48.91

Band-edge Compliance of RF Emissions – Highest (802.11g)



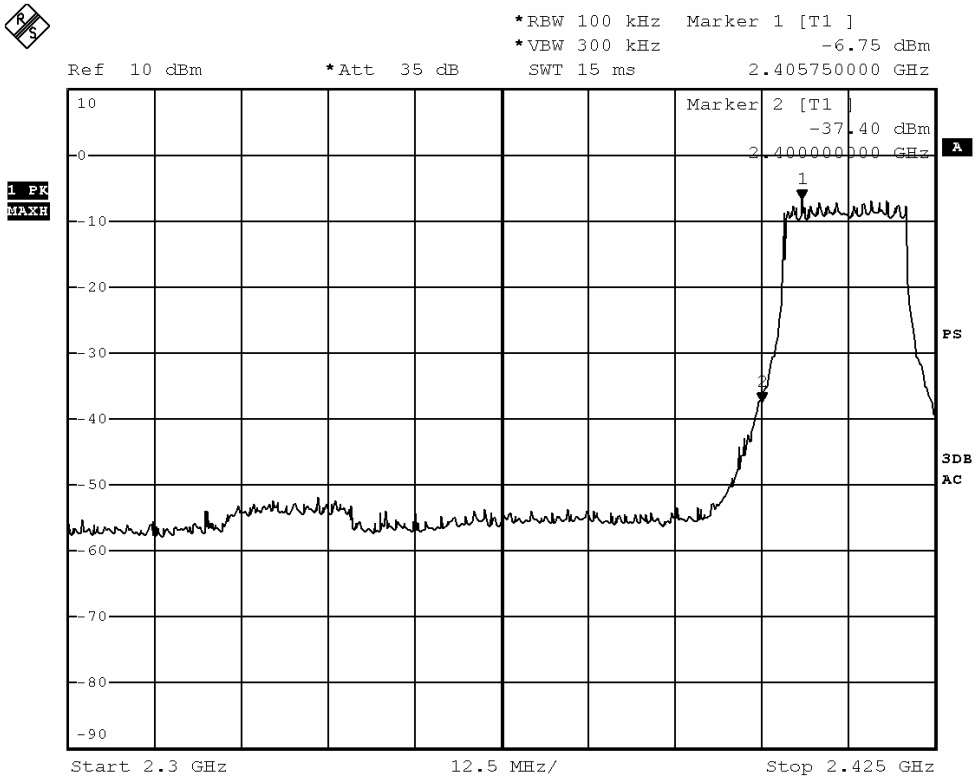
BMP

Date: 8.JUL.2015 15:57:17

Band-edge Compliance of RF Conducted Emissions Measurement (antenna B):

Frequency Range [MHz]	Radiated Emission Attenuated below the Fundamental [dB]
2400 – Lowest Fundamental (2412)	30.65

Band-edge Compliance of RF Emissions – Lowest (802.11n20)



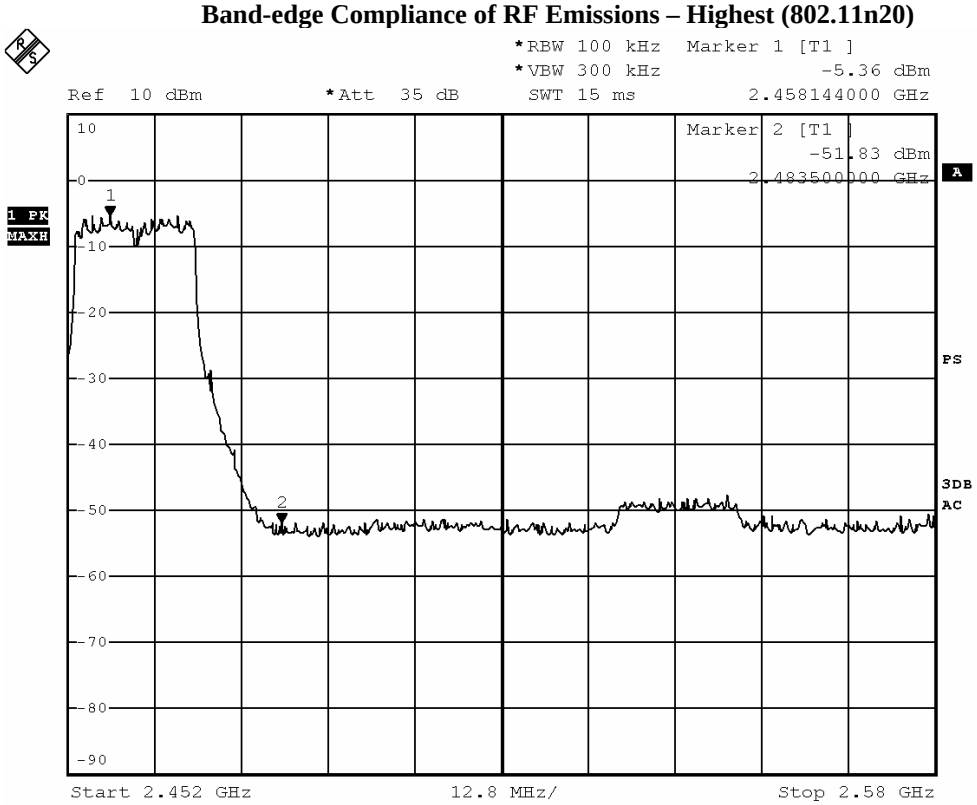
BMP

Date: 8.JUL.2015 16:04:12

Band-edge Compliance of RF Conducted Emissions Measurement (antenna B):

Frequency Range [MHz]	Radiated Emission Attenuated below the Fundamental [dB]
2483.5 - Highest Fundamental (2462)	46.47

Band-edge Compliance of RF Emissions – Highest (802.11n20)



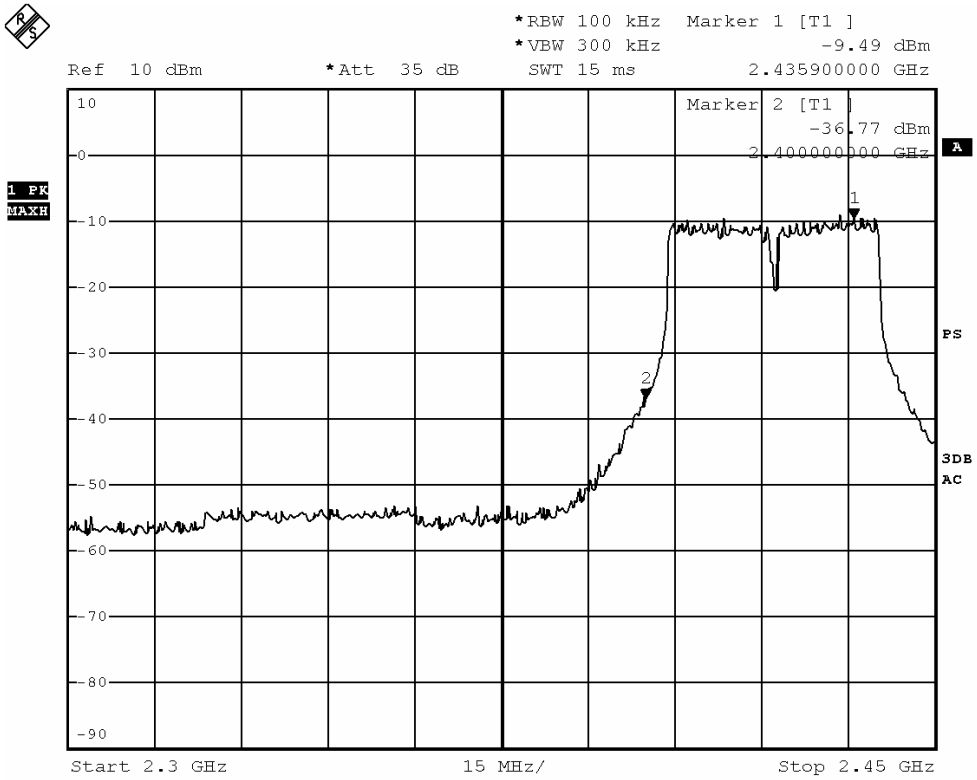
BMP

Date: 8.JUL.2015 16:05:26

Band-edge Compliance of RF Conducted Emissions Measurement (antenna B):

Frequency Range [MHz]	Radiated Emission Attenuated below the Fundamental [dB]
2400 – Lowest Fundamental (2422)	27.28

Band-edge Compliance of RF Emissions – Lowest (802.11n40)



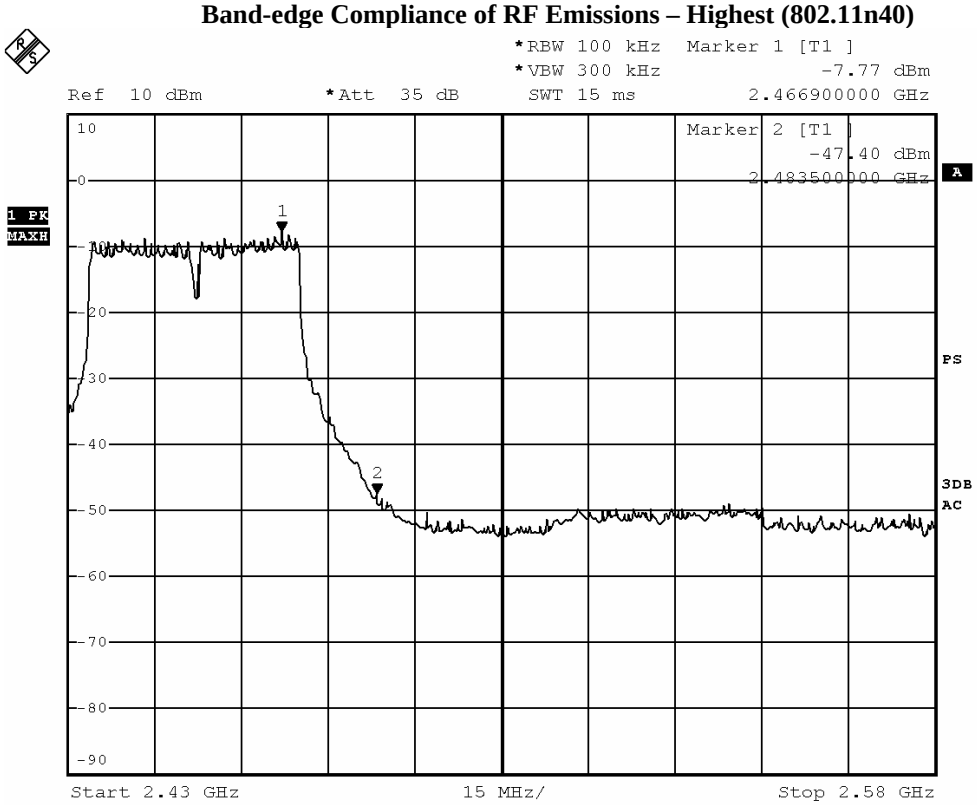
BMP

Date: 8.JUL.2015 16:10:05

Band-edge Compliance of RF Conducted Emissions Measurement (antenna B):

Frequency Range [MHz]	Radiated Emission Attenuated below the Fundamental [dB]
2483.5 - Highest Fundamental (2452)	39.63

Band-edge Compliance of RF Emissions – Highest (802.11n40)



BMP

Date: 8.JUL.2015 16:11:22

Band-edge Compliance of RF Radiated Emissions Measurement:

Limit：
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. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 5.205(c)).

Result：Band-edge Compliance of RF Radiated Emissions (Lowest)-802.11b

Field Strength of Band-edge Compliance Peak Value						
Frequency MHz	Measured Level @3m dBµV	Correction Factor dB/m	Field Strength dBµV/m	Limit @3m dBµV/m	Margin dBµV/m	E-Field Polarity
2390.0	19.4	36.8	56.2	74.0	17.8	Vertical

Field Strength of Band-edge Compliance Average Value						
Frequency MHz	Measured Level @3m dBµV	Correction Factor dB/m	Field Strength dBµV/m	Limit @3m dBµV/m	Margin dBµV/m	E-Field Polarity
2390.0	10.3	36.8	47.1	54.0	6.9	Vertical

Result：Band-edge Compliance of RF Radiated Emissions (Highest) -802.11b

Field Strength of Band-edge Compliance Peak Value						
Frequency MHz	Measured Level @3m dBµV	Correction Factor dB/m	Field Strength dBµV/m	Limit @3m dBµV/m	Margin dBµV/m	E-Field Polarity
2483.5	24.6	36.4	61.0	74.0	13.0	Horizontal

Field Strength of Band-edge Compliance Average Value						
Frequency MHz	Measured Level @3m dBµV	Correction Factor dB/m	Field Strength dBµV/m	Limit @3m dBµV/m	Margin dBµV/m	E-Field Polarity
2483.5	4.8	36.4	41.2	54.0	12.8	Horizontal

Result：Band-edge Compliance of RF Radiated Emissions (Lowest)-802.11g

Field Strength of Band-edge Compliance Peak Value						
Frequency MHz	Measured Level @3m dBµV	Correction Factor dB/m	Field Strength dBµV/m	Limit @3m dBµV/m	Margin dBµV/m	E-Field Polarity
2390.0	22.2	36.8	59.0	74.0	15.0	Vertical

Field Strength of Band-edge Compliance Average Value						
Frequency MHz	Measured Level @3m dBµV	Correction Factor dB/m	Field Strength dBµV/m	Limit @3m dBµV/m	Margin dBµV/m	E-Field Polarity
2390.0	13.8	36.8	50.6	54.0	3.4	Vertical

Result：Band-edge Compliance of RF Radiated Emissions (Highest) -802.11g

Field Strength of Band-edge Compliance Peak Value						
Frequency MHz	Measured Level @3m dBµV	Correction Factor dB/m	Field Strength dBµV/m	Limit @3m dBµV/m	Margin dBµV/m	E-Field Polarity
2483.5	24.3	36.4	60.7	74.0	13.3	Horizontal

Field Strength of Band-edge Compliance Average Value						
Frequency MHz	Measured Level @3m dBµV	Correction Factor dB/m	Field Strength dBµV/m	Limit @3m dBµV/m	Margin dBµV/m	E-Field Polarity
2483.5	13.9	36.4	50.3	54.0	3.7	Horizontal

Result：Band-edge Compliance of RF Radiated Emissions (Lowest)-802.11n20

Field Strength of Band-edge Compliance Peak Value						
Frequency MHz	Measured Level @3m dBµV	Correction Factor dB/m	Field Strength dBµV/m	Limit @3m dBµV/m	Margin dBµV/m	E-Field Polarity
2390.0	22.0	36.8	58.8	74.0	15.2	Vertical

Field Strength of Band-edge Compliance Average Value						
Frequency MHz	Measured Level @3m dBµV	Correction Factor dB/m	Field Strength dBµV/m	Limit @3m dBµV/m	Margin dBµV/m	E-Field Polarity
2390.0	11.7	36.8	48.5	54.0	5.5	Vertical

Result：Band-edge Compliance of RF Radiated Emissions (Highest) -802.11n20

Field Strength of Band-edge Compliance Peak Value						
Frequency MHz	Measured Level @3m dBµV	Correction Factor dB/m	Field Strength dBµV/m	Limit @3m dBµV/m	Margin dBµV/m	E-Field Polarity
2483.5	24.9	36.4	61.3	74.0	12.7	Horizontal

Field Strength of Band-edge Compliance Average Value						
Frequency MHz	Measured Level @3m dBµV	Correction Factor dB/m	Field Strength dBµV/m	Limit @3m dBµV/m	Margin dBµV/m	E-Field Polarity
2483.5	14.6	36.4	51.0	54.0	3.0	Horizontal

Result：Band-edge Compliance of RF Radiated Emissions (Lowest)-802.11n40

Field Strength of Band-edge Compliance Peak Value						
Frequency MHz	Measured Level @3m dBµV	Correction Factor dB/m	Field Strength dBµV/m	Limit @3m dBµV/m	Margin dBµV/m	E-Field Polarity
2390.0	21.2	36.8	58.0	74.0	16.0	Vertical

Field Strength of Band-edge Compliance Average Value						
Frequency MHz	Measured Level @3m dBµV	Correction Factor dB/m	Field Strength dBµV/m	Limit @3m dBµV/m	Margin dBµV/m	E-Field Polarity
2390.0	12.3	36.8	49.1	54.0	4.9	Vertical

Result：Band-edge Compliance of RF Radiated Emissions (Highest) -802.11n20

Field Strength of Band-edge Compliance Peak Value						
Frequency MHz	Measured Level @3m dBµV	Correction Factor dB/m	Field Strength dBµV/m	Limit @3m dBµV/m	Margin dBµV/m	E-Field Polarity
2483.5	24.3	36.4	60.7	74.0	13.3	Horizontal

Field Strength of Band-edge Compliance Average Value						
Frequency MHz	Measured Level @3m dBµV	Correction Factor dB/m	Field Strength dBµV/m	Limit @3m dBµV/m	Margin dBµV/m	E-Field Polarity
2483.5	13.9	36.4	50.3	54.0	3.7	Horizontal

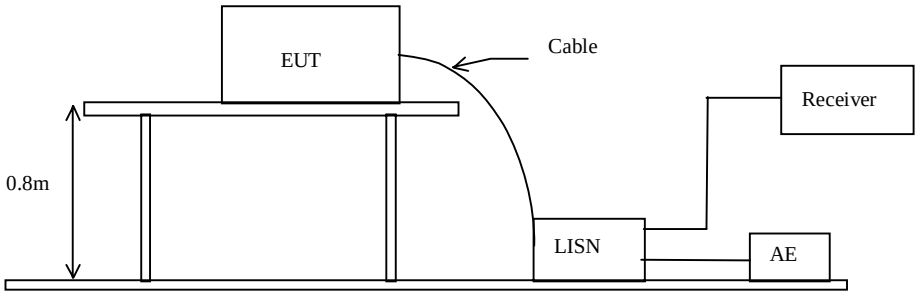
3.1.6 Conducted Emissions (0.15MHz to 30MHz)

Test Requirement:	FCC 47CFR 15.207
Test Method:	ANSI C63.10:2013
Test Date:	2015-06-12
Mode of Operation:	WiFi mode

Test Method:

The test was performed in accordance with ANSI C63.10:2013, with the following: an initial measurement was performed in peak and average detection mode on the live line, any emissions recorded within 30dB of the relevant limit line were re-measured using quasi-peak and average detection on the live and neutral lines with the worst case recorded in the table of results.

Test Setup:



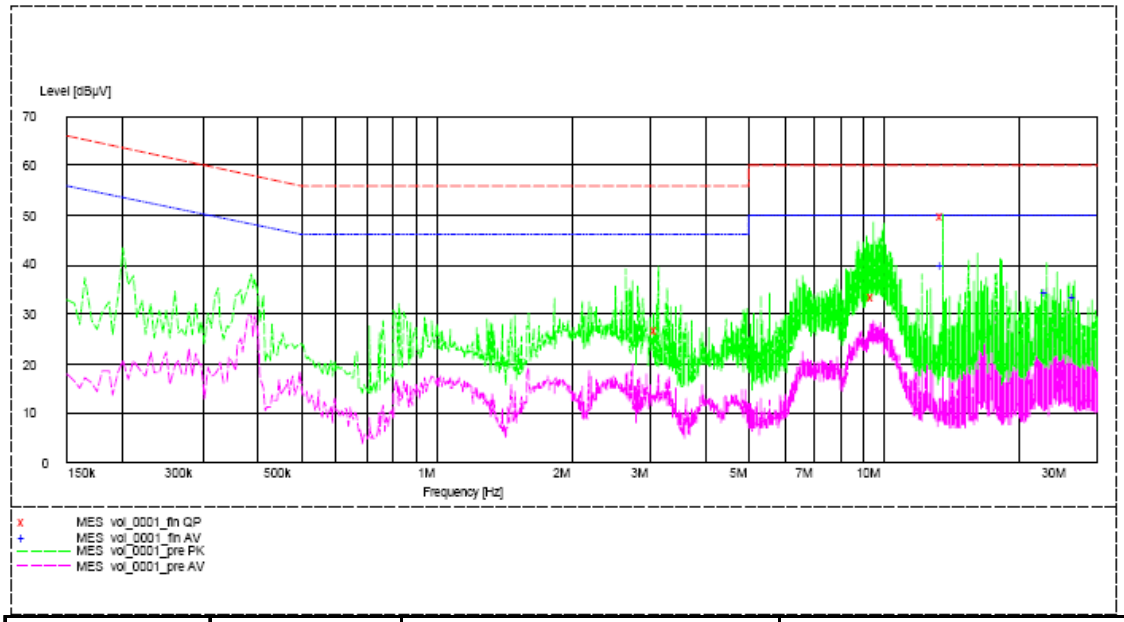
Limit for Conducted Emissions (FCC 47 CFR 15.207):

Frequency Range [MHz]	Quasi-Peak Limits [dBµV]	Average [dBµV]
0.15-0.5	66 to 56*	56 to 46*
0.5-5.0	56	46
5.0-30.0	60	50

* Decreases with the logarithm of the frequency.

Limits for Conducted Emissions Test, please refer to limit lines (Quasi-Peak and Average) in the following diagram.

Results of WiFi mode (L): PASS
Please refer to the following diagram for individual results.



Conductor Live or Neutral	Frequency MHz	Quasi-peak		Average	
		Level dBµV	Limit dBµV	Level dBµV	Limit dBµV
Live	3.125	26.8	56.0	-*-	-*-
Live	9.525	33.6	60.0	-*-	-*-
Live	13.120	49.8	60.0	-*-	-*-
Live	13.125	-*-	-*-	39.7	50.0
Live	23.130	-*-	-*-	34.7	50.0
Live	26.610	-*-	-*-	33.5	50.0

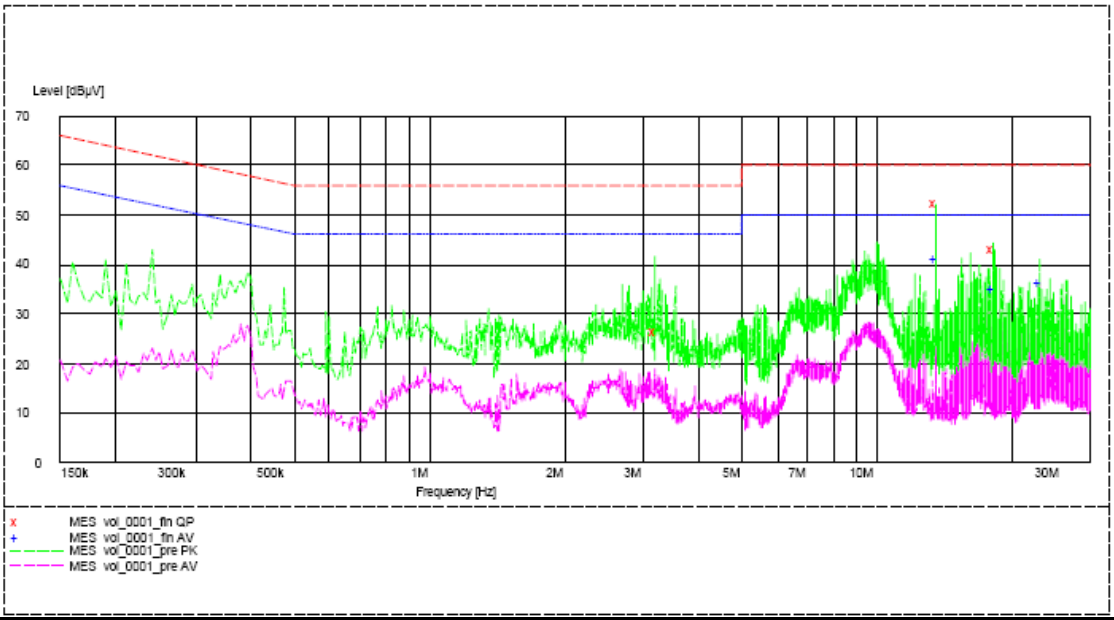
Limit for Conducted Emissions (FCC 47 CFR 15.207):

Frequency Range [MHz]	Quasi-Peak Limits [dBµV]	Average [dBµV]
0.15-0.5	66 to 56*	56 to 46*
0.5-5.0	56	46
5.0-30.0	60	50

* Decreases with the logarithm of the frequency.

Limits for Conducted Emissions Test, please refer to limit lines (Quasi-Peak and Average) in the following diagram.

Results of WiFi mode (N): PASS
Please refer to the following diagram for individual results.



Conductor Live or Neutral	Frequency MHz	Quasi-peak Level dBµV	Quasi-peak Limit dBµV	Average Level dBµV	Average Limit dBµV
Neutral	3.190	26.6	56.0	-*-	-*-
Neutral	13.120	52.5	60.0	-*-	-*-
Neutral	18.245	43.2	60.0	-*-	-*-
Neutral	13.125	-*-	-*-	41.1	50.0
Neutral	18.245	-*-	-*-	35.4	50.0
Neutral	23.130	-*-	-*-	36.3	50.0

Remarks:
Calculated measurement uncertainty (0.15MHz - 30MHz): 3.2dB
-*- Emission(s) that is far below the corresponding limit line.

3.1.7 RF Exposure

Test Requirement: FCC 47CFR 15.247(i)
Test Date: 2015-7-16
Mode of Operation: Tx mode

Test Method:

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines.

Test Results:

The EUT complied with the requirement(s) of this section.
EUT meets the requirements of these sections as proven through MPE calculation
The MPE calculation for EUT @ 20cm
Based on the highest P =262.966mW

Pd = PG/ 4pi*R^2 = (262.966 x 3.98)/12.566* $(20)^2$
= (1046.605)/12.566x 400= 9.402 /5026.4
= 0.208mW/cm^2

where:
*Pd = power density in mW/cm2
* DG = (3.98); Log G = g/10 (g = 6dBi).
* P = Conducted RF power to antenna (262.966 mW).
* R = Minimum allowable distance.(20 cm)

*The power density Pd = 0.208 mW/cm^2 is less than 1 mW/cm^2 (listed MPE limit)
*The SAR evaluation is not needed (this is a desk top device, R> 20 cm)
* The EUT(antenna) must be 0.2 meters away from the General Population.

Appendix A

List of Measurement Equipment

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL	DUE CAL
EMD004	LISN	ROHDE & SCHWARZ	ESH3-Z5	100102	2015.3.24	2016.3.24
EMD022	EMI Test Receiver	ROHDE & SCHWARZ	ESCS30	100314	2015.3.24	2016.3.24
EMD035	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	100441	2015.3.24	2016.3.24
EMD036	EMI Test Receiver	ROHDE & SCHWARZ	ESIB 26	100388	2015.3.24	2016.3.24
EMD041	TWO-LINE V-NETWORK	ROHDE & SCHWARZ	ENV216	100261	2015.3.24	2016.3.24
EMD061	Biconilog Antenna	ETS.LINDGREN	3142C	00060439	2014.11.29	2016.11.29
EMD062	Double-Ridged Waveguide (1GHz – 18GHz)	ETS.LINDGREN	3117	00075933	2014.11.15	2015.11.15
EMD084	MULTI-DVICE CONTROLLER	ETS.LINDGREN	2090	00060107	N/A	N/A
EMD088	Video Contol Unit	ETS.LINDGREN	Y21953A	2601073	N/A	N/A
EMD093	Monitor	ViewSonic	VA9036	Q8X064201876	N/A	N/A
EMD102	Intelligent Frequency	Ainuo lnstrument Co., Ltd	AN97005SS	79707454	N/A	N/A
EMD103	Intelligent Frequency	Ainuo lnstrument Co., Ltd	AN97005SS	79707455	N/A	N/A
EMD105	FACT-3 EMC Chamber	ETS.LINDGREN	FACT-3	3803	N/A	N/A
EMD106	Shielding Room #1	ETS.LINDGREN	RFD-100	3802	N/A	N/A
EMD111	Power meter	ROHDE & SCHWARZ	NRVD	102051	2015.3.24	2016.3.24
	100V Insertion Unit	ROHDE & SCHWARZ	URV5-Z4	100464	2015.3.24	2016.3.24
EMD113	Pre-Amplifier	ROHDE & SCHWARZ	N/A	1129588	2015.3.24	2016.3.24
EMD124	Loop Antenna	ETS-Lindgren	6502	00104905	2014.04.28	2016.04.28
EMD131	Standard Gain Horn Antenna (18GHz – 26.5GHz)	Chengdu AINFO lnc.	JXTXLB-42-15-C-KF	J2021100721001	2015.04.09	2017.04.09
RE01	RF cable	N/A	N/A	N/A	2014-9-28	2015-9-27
RE02	RF cable	N/A	N/A	N/A	2014-9-28	2015-9-27

Remarks:-

N/A Not Applicable or Not Available

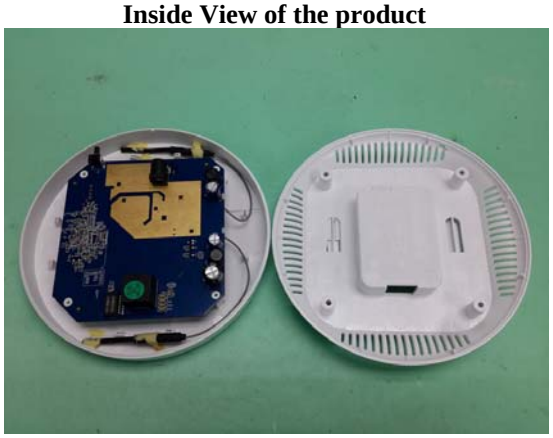
Appendix B

Photographs of EUT

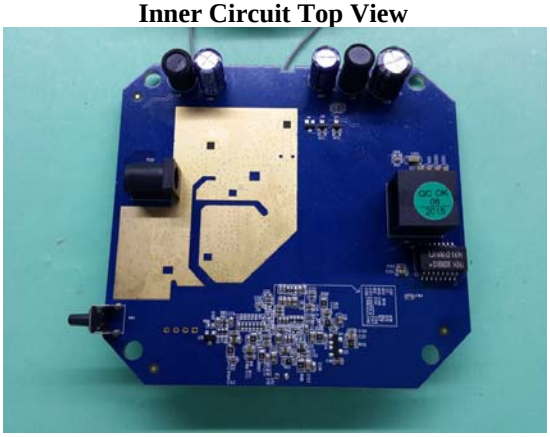
Front View of the product

Rear View of the product

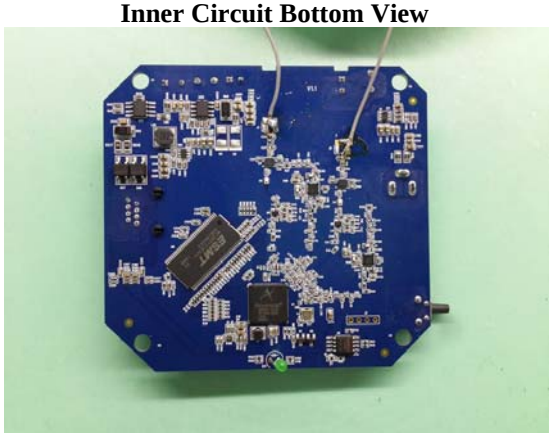
Inside View of the product



Inner Circuit Top View

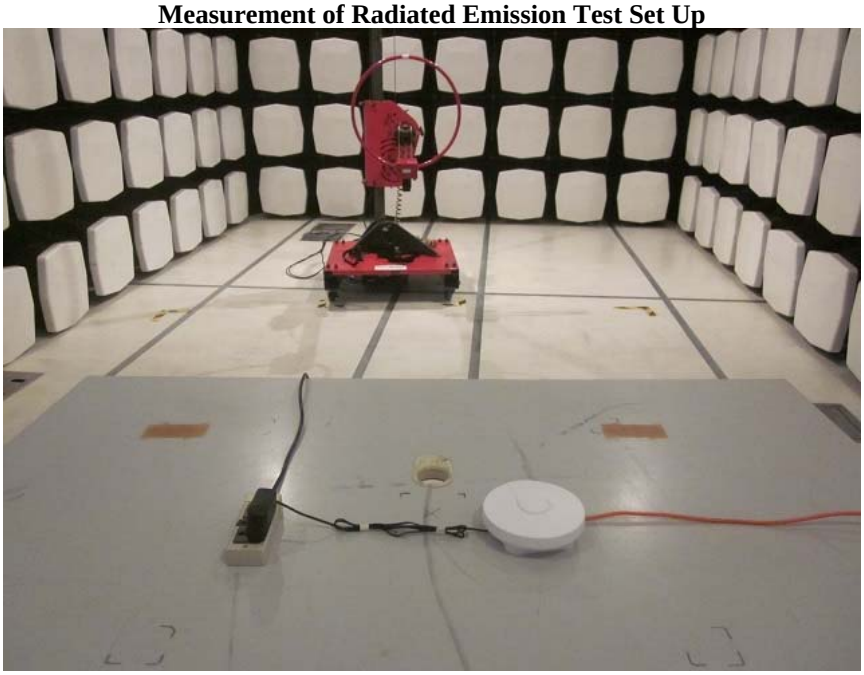


Inner Circuit Bottom View

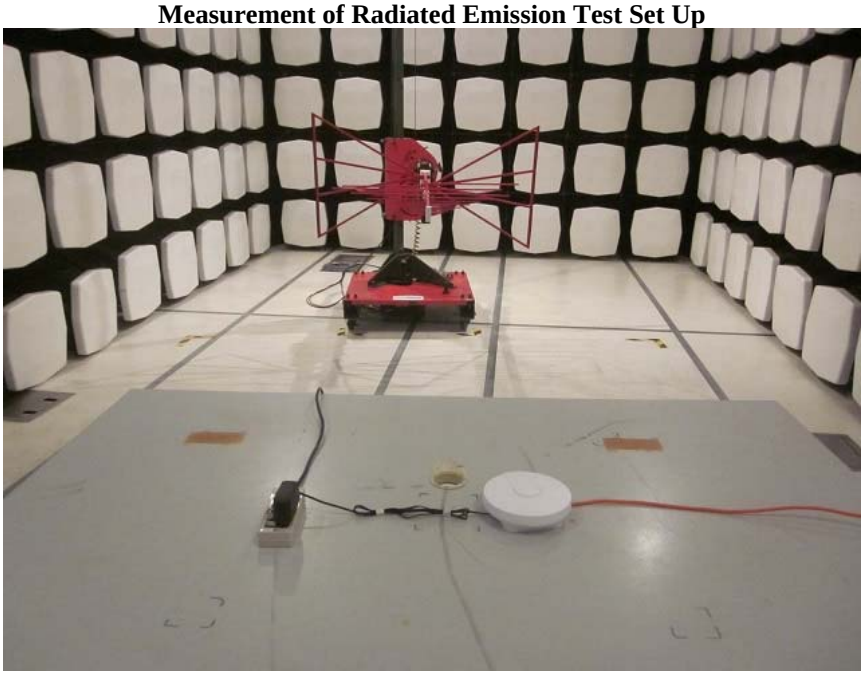


Photographs of EUT

Measurement of Radiated Emission Test Set Up

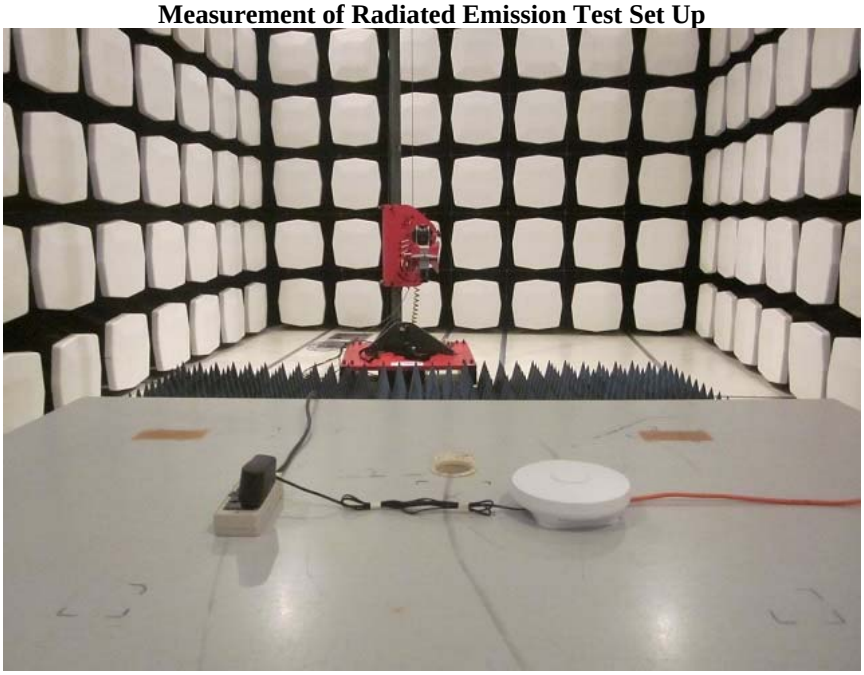


Measurement of Radiated Emission Test Set Up

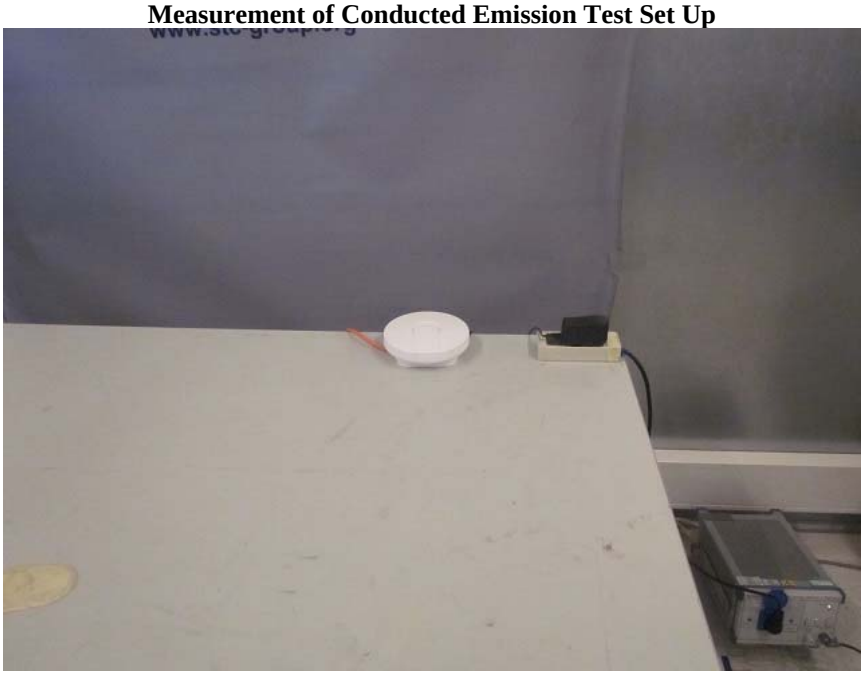


Photographs of EUT

Measurement of Radiated Emission Test Set Up



Measurement of Conducted Emission Test Set Up



******* End of Test Report *******

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