TEST REPORT

Report Number: 102241369MPK-013D
Project Number: G102241369
February 04, 2016

Testing performed on the
WiFi/BT Module Card
Model Number: 576253
FCC ID: 2AHLA-576253
IC: 4811A-576253

to
FCC Part 15, Subpart E
RSS-247 Issue 1

For

Bosch Automotive Service Solutions LLC

Test Performed by:	Test Authorized by:
Intertek	Bosch Automotive Service Solutions LLC
1365 Adams Court	655 Eisenhower Dr.
Menlo Park, CA 94025 USA	Owatonna, MN 55060 USA

Prepared by: _____ **Date:** February 04, 2016
Anderson Soungpanya

Reviewed by: _____ **Date:** February 04, 2016
Krishna K Vemuri

VERIFICATION OF COMPLIANCE
Report No. 102241369MPK-013D

Verification is hereby issued to the named APPLICANT and is VALID ONLY for the equipment identified hereon for use under the rules and regulations listed below.

Equipment Under Test:	WiFi/BT Module Card
Trade Name:	Bosch Automotive Service Solutions LLC
Model No.:	576253
Serial No.:	MPK1511100953-001
Applicant:	Bosch Automotive Service Solutions LLC
Contact:	Eric Vande Zande
Address:	655 Eisenhower Dr. Owatonna, MN 55060
Country	USA
Tel. Number:	(507) 455-4437
Email:	eric.vandezande@us.bosch.com
Applicable Regulation:	FCC Part 15, Subpart E RSS-247 Issue 1
Date of Test:	November 03, 2015 to January 13, 2016

We attest to the accuracy of this report:

Anderson Soungpanya
EMC Project Engineer

Krishna K Vemuri
EMC Senior Staff Engineer

TABLE OF CONTENTS

1.0 Introduction

1.1 Summary of Tests

Test	Reference FCC	Reference RSS-247	Result
26 dB Emission Band width, 6dB Bandwidth and 99% Occupied Bandwidth	15.407(a)(1)(2)(3)	RSS-247, 6.2.1	Complies
Conducted Output Power	15.407(a)(1)(2)(3)	RSS-247, 6.2.1	Complies
Peak Power Spectral Density	15.407(a)(1)(2)(3)	RSS-247, 6.2.1	Complies
Undesirable Emissions	15.407(b)(1-8)	RSS-247, 6.2.1	Complies
Transmitter Radiated Emissions	15.407(b)(1-8) 15.209, 15.205	RSS-247, 6.2.1	Complies
Frequency stability	15.407(g)	RSS-Gen	Complies
Antenna Requirement	15.203	RSS-Gen	Complies. The EUT uses internal antenna and a unique connector

EUT receive date: October 19, 2015
EUT receive condition: The pre-production version of the EUT was received in good condition with no apparent damage. As declared by the Applicant, it is identical to the production units.
Test start date: November 03, 2015
Test completion date: January 13, 2016
The test results in this report pertain only to the item tested.

2.0 General Description

2.1 Product Description

Bosch Automotive Service Solutions LLC supplied the following description of the EUT:

This WiFi/BT Card is utilized in various automotive diagnostic equipment. One main function is for WiFi connections of the diagnostic equipment to WiFi Access Points. It may also be used to connect two diagnostic devices together in WiFi Direct mode. The BT is used to pair with Multi-Media equipment in vehicles for diagnostic purposes. It may also be used to pair with other BT devices as required.

The information about the 5GHz radio, installed in the model 576253, is presented below.

Applicant	Bosch Automotive Service Solutions LLC
Model No.	576253
FCC ID	2AHLA-576253
IC	4811A-576253
Use of Product	WIFI Module (Client without radar detection)
Rated RF Output	16.94 dBm
Frequency Range	5725 – 5850 MHz
Type of modulation	OFDM
Antenna(s) & Gain	YAGEO - ANTX150P111B24553; Internal Antenna, 3.4 dBi peak gain Taoglas Antenna Solution - FXP.840.07.0055B; Internal Antenna, 2.5 dBi peak gain
Manufacturer Name & Address	Bosch Automotive Service Solutions LLC 655 Eisenhower Dr. Owatonna, MN 55060 USA

The EUT supports the following configurations:

Number	Frequency, MHz	802.11a/n/ac 20MHz Channels		802.11a/n 40MHz Channels		802.11ac 80MHz Channels	
149	5745	√	X				
151	5755			√	X		
153	5765	√					
155	5775					√	X
157	5785	√	X				
159	5795			√	X		
161	5805	√					
165	5825	√	X				

List of channels:
√ - available
X - tested

2.2 Related Submittal(s) Grants

None.

2.3 Test Methodology

Antenna conducted measurements were performed according to the FCC documents “Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part 15, Subpart E” (789033 D02 General U-NII Test Procedures New Rules v01r01).

Both AC mains line-conducted and radiated emissions measurements were performed according to the procedures in ANSI C63.4. Radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the **"Data Sheet"** of this Application.

All other measurements were made in accordance with the procedures in part 2 of CFR 47.

2.4 Test Facility

The test site used to collect the radiated data is site 1 (10-m semi-anechoic chamber). This test facility and site measurement data have been fully placed on file with the FCC, IC and A2LA accredited.

2.5 Measurement Uncertainty

Compliance with the limits was based on the results of the measurements and doesn’t take into account the measurement uncertainty.

Estimated Measurement Uncertainty

Measurement	Expanded Uncertainty (k=2)		
	0.15 MHz – 1 GHz	1 GHz – 6 GHz	> 6 GHz
RF Power and Power Density – antenna conducted	1.1 dB	1.5 dB	–
Unwanted emissions - antenna conducted	1.2 dB	1.7 dB	2.0 dB
Bandwidth – antenna conducted	50 Hz	100 Hz	–
Radiated emissions	4.2 dB	5.4 dB	
AC mains conducted emissions	2.4 dB	-	-

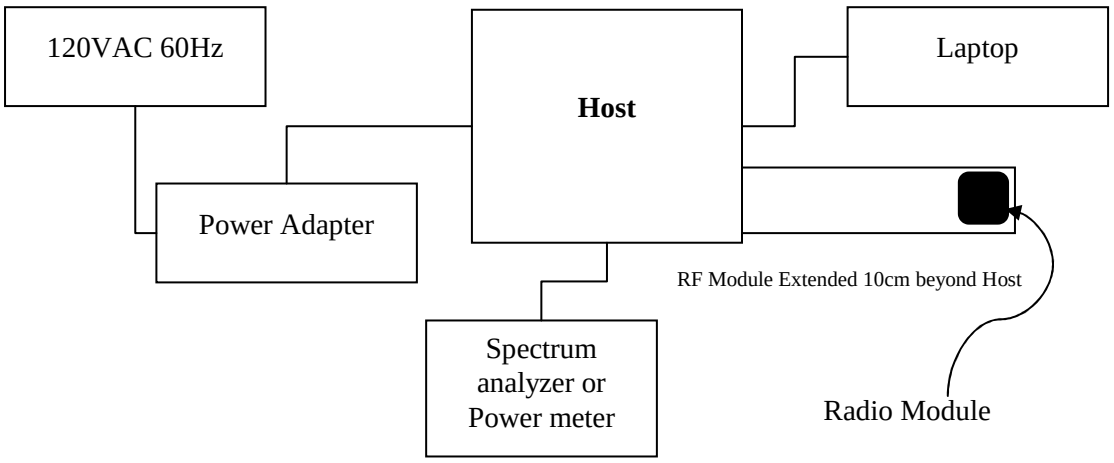
3.0 System Test Configuration

3.1 Support Equipment

Description	Manufacturer	Model No./ Part No.
Power Adapter	I.T.E Power Supply	PW172KB1500B02
Laptop	Acer	Aspire E1-571-6811

3.2 Block Diagram of Test Setup

Antenna was removed and co-axial connector with a cable was installed for Conducted Measurements. 50Ohm Load was used for Radiated Measurements.



S = Shielded	**F** = With Ferrite
U = Unshielded	**m** = Meter

3.3 Justification

Preliminary testing was performed for all modulation/data rate modes. The following modes, in which the highest power was detected, were selected for final measurements:

OFDM, 6MB/s – for 802.11a
OFDM, MCS0 – for 802.11n/ac 20MHz
OFDM, MCS0 – for 802.11n/ac 40MHz
OFDM, MCS0 – for 802.11ac 80MHz

3.4 Mode of Operation During Test

During transmitter testing, the transmitter was setup to transmit continuously using the RF power setting below. Their corresponding output power in dBm can be found in section 4.2 of this report.

Ch.	Freq.	802.11a	802.11n 20	802.11n 40	802.11ac 80
	MHz	Settings	Settings	Settings	Settings
149	5745	17	17	--	---
151	5755	--	--	16	---
155	5775	---	---	---	15
157	5785	18	18	---	---
159	5795	---	---	18	---
165	5825	18	18	---	---

3.5 Modifications required for Compliance

Intertek installed no modifications during compliance testing in order to bring the product into compliance.

3.6 Additions, deviations and exclusions from standards

No additions, deviations or exclusion have been made from standard.

4.0 Measurement Results

4.1 Emission Bandwidth, 6 dB Bandwidth and 99% Occupied Bandwidth

15.407(a)(1)(2)

4.1.1 Procedure

The Procedure, described in the FCC Publication 789033 D02 General U-NII Test Procedures New Rules v01r01, was used. Specifically Section C for Emission Bandwidth and Minimum Emission Bandwidth for the band 5.725-5.850 GHz. Section D was used for 99% Occupied Bandwidth.

The antenna port of the EUT was connected to the input of a spectrum analyzer (SA). For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier.

The Occupied bandwidth was measured using the build-in spectrum analyzer facility for 99% power bandwidth measurement.

Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

Tested By:	Anderson Soungpanya
Test Date:	November 9, 2015 & December 8, 2015

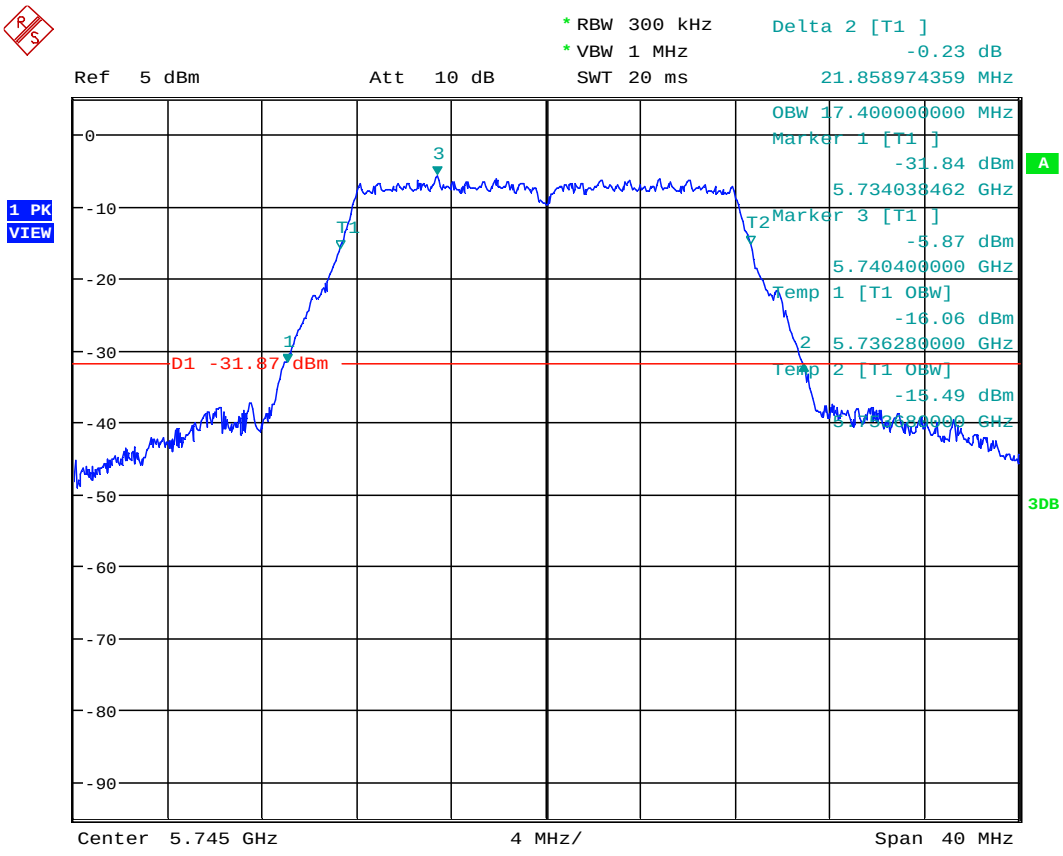
4.1.2 Test Result

Refer to the following plots for the test result:

Mode	Channel	Frequency, MHz	26-dB Bandwidth, MHz	99% Occupied Bandwidth, MHz	Plot #	6-dB Bandwidth, MHz	Plot #
802.11a	149	5745	21.859	17.400	1.1	16.434	1.10
	157	5785	21.923	17.400	1.2	16.490	1.11
	165	5825	21.859	17.400	1.3	16.378	1.12
802.11n 20MHz	149	5745	22.115	18.420	1.4	17.612	1.13
	157	5785	22.226	18.420	1.5	17.444	1.14
	165	5825	22.372	18.480	1.6	17.668	1.15
802.11n 40MHz	151	5755	40.497	36.575	1.7	36.538	1.16
	159	5795	39.984	36.540	1.8	36.538	1.17
802.11ac 80MHz	155	5775	82.532	75.950	1.9	76.026	1.18

Plot 1. 1

802.11a 5745MHz



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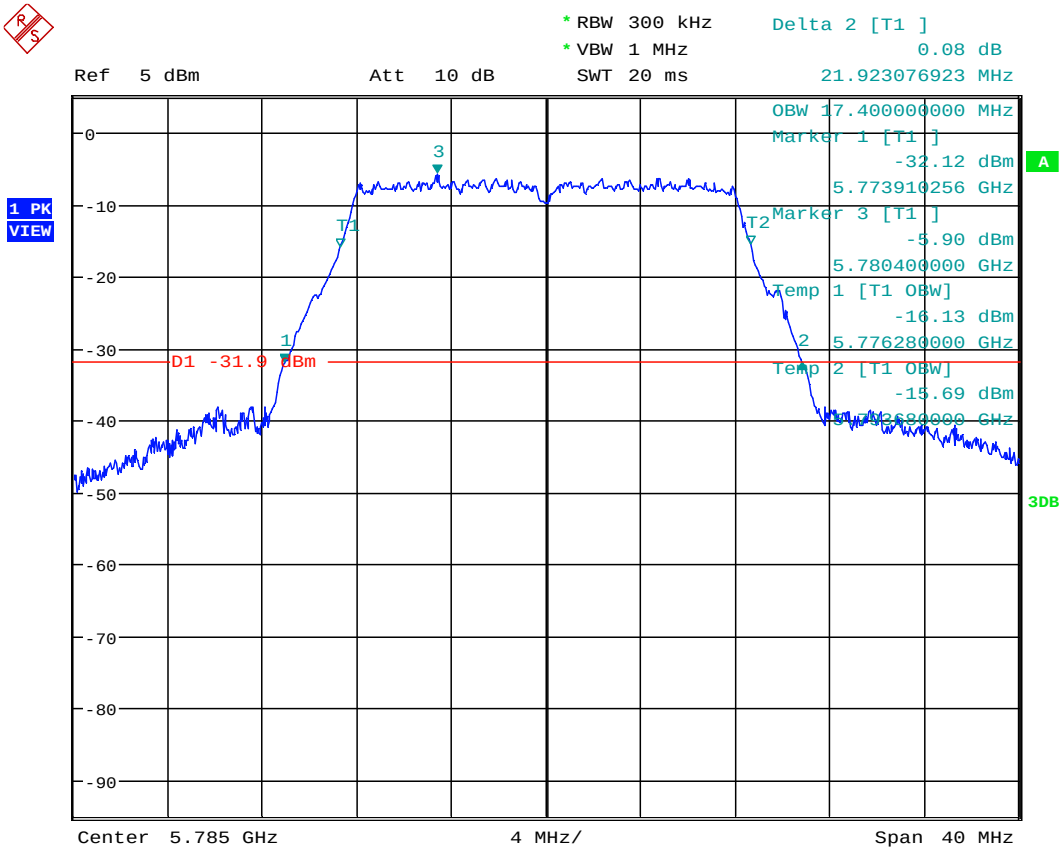
Plot 1. 2

802.11a 5785MHz



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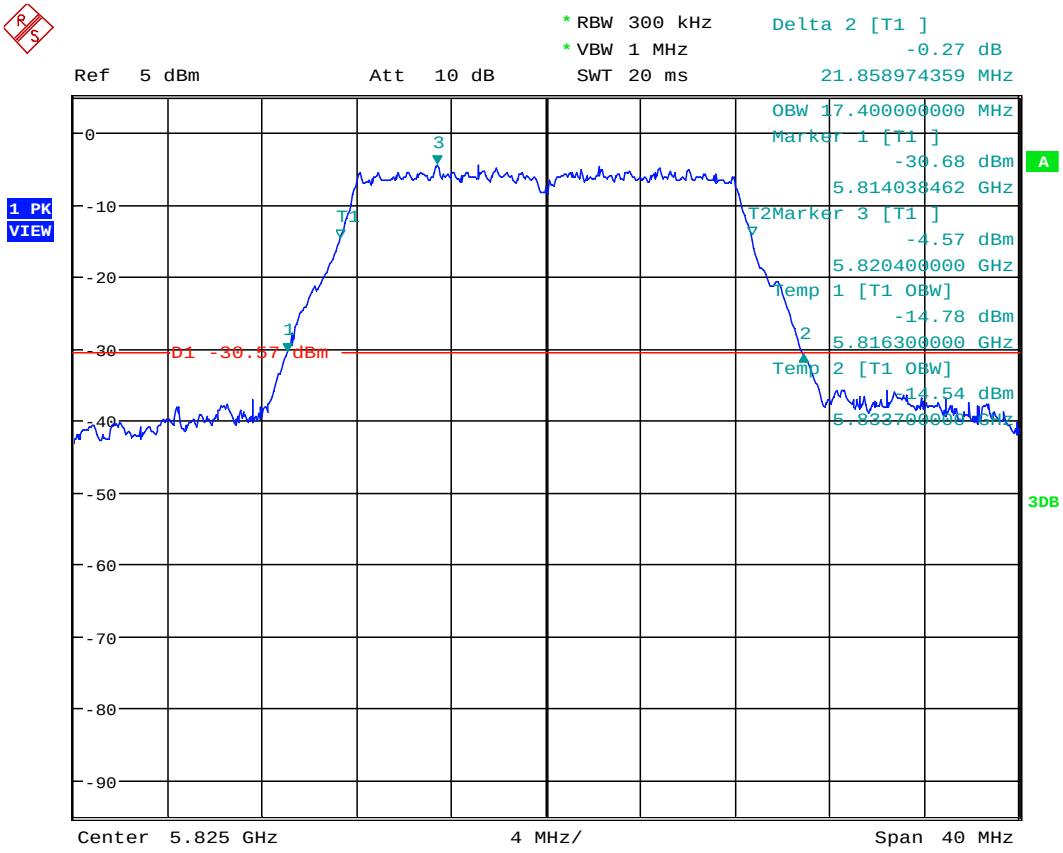
Plot 1. 3

802.11a 5825MHz



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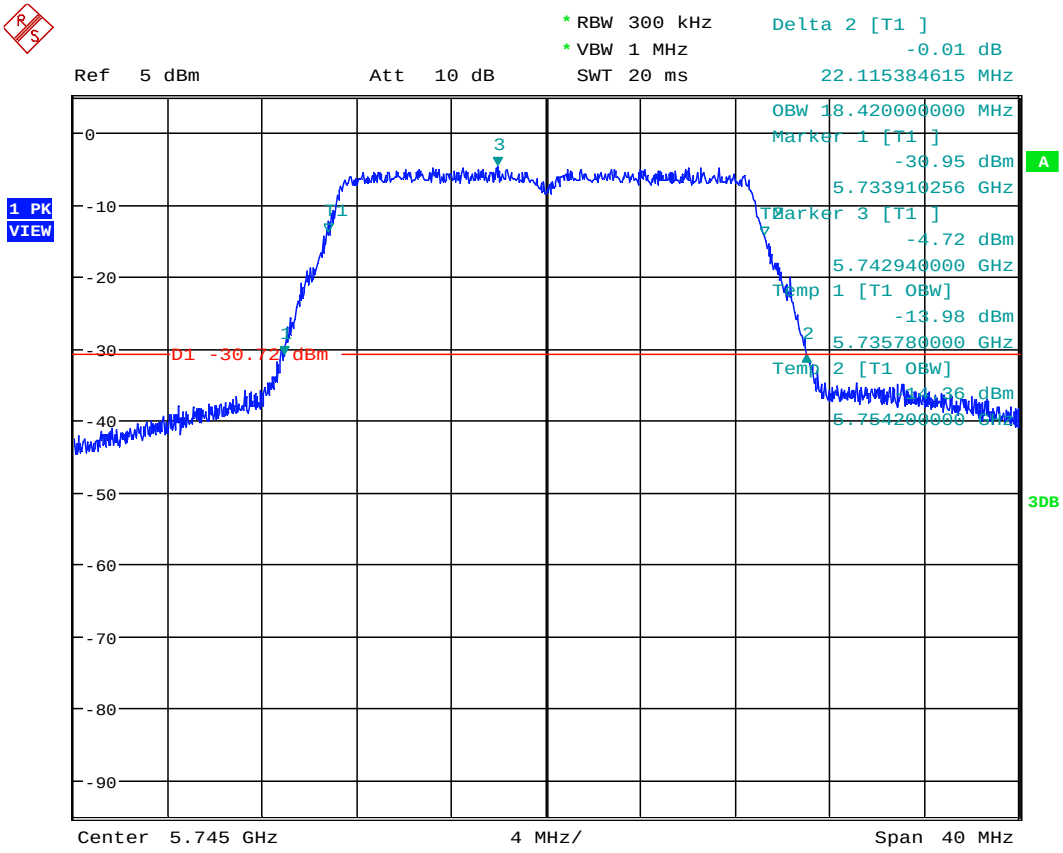
Plot 1. 4

802.11n 20MHz, 5745MHz



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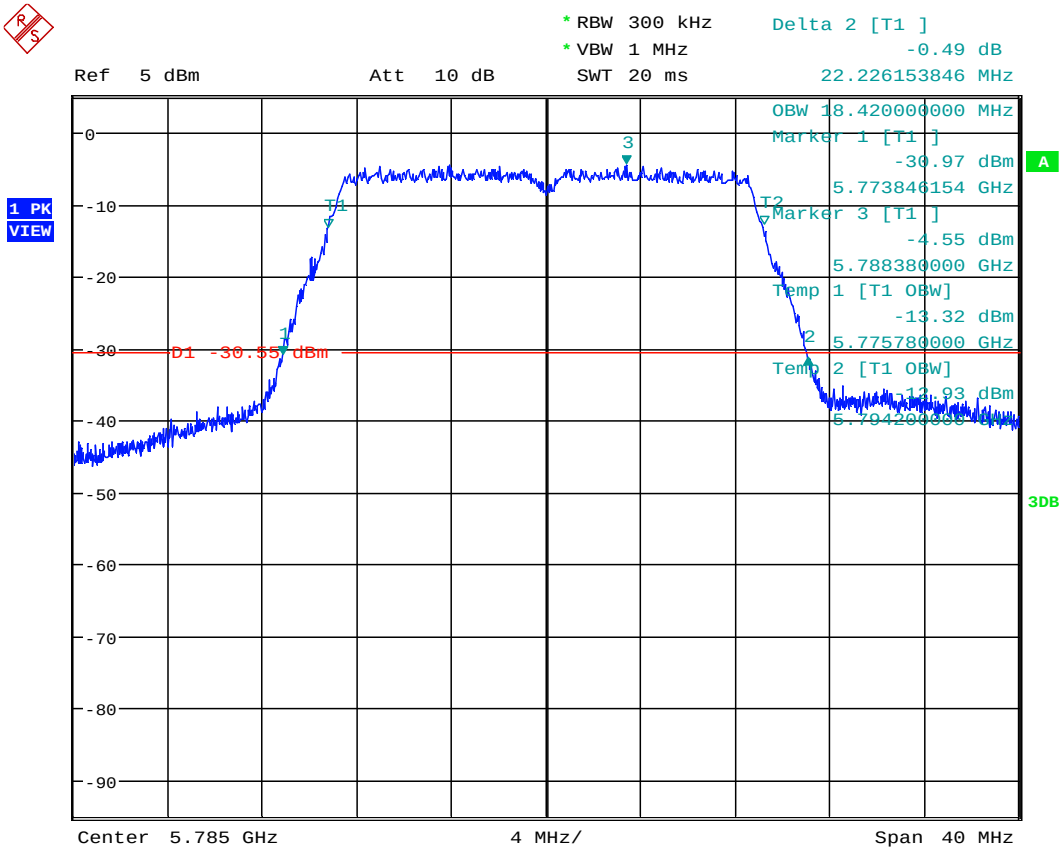
Plot 1. 5

802.11n 20MHz, 5785MHz



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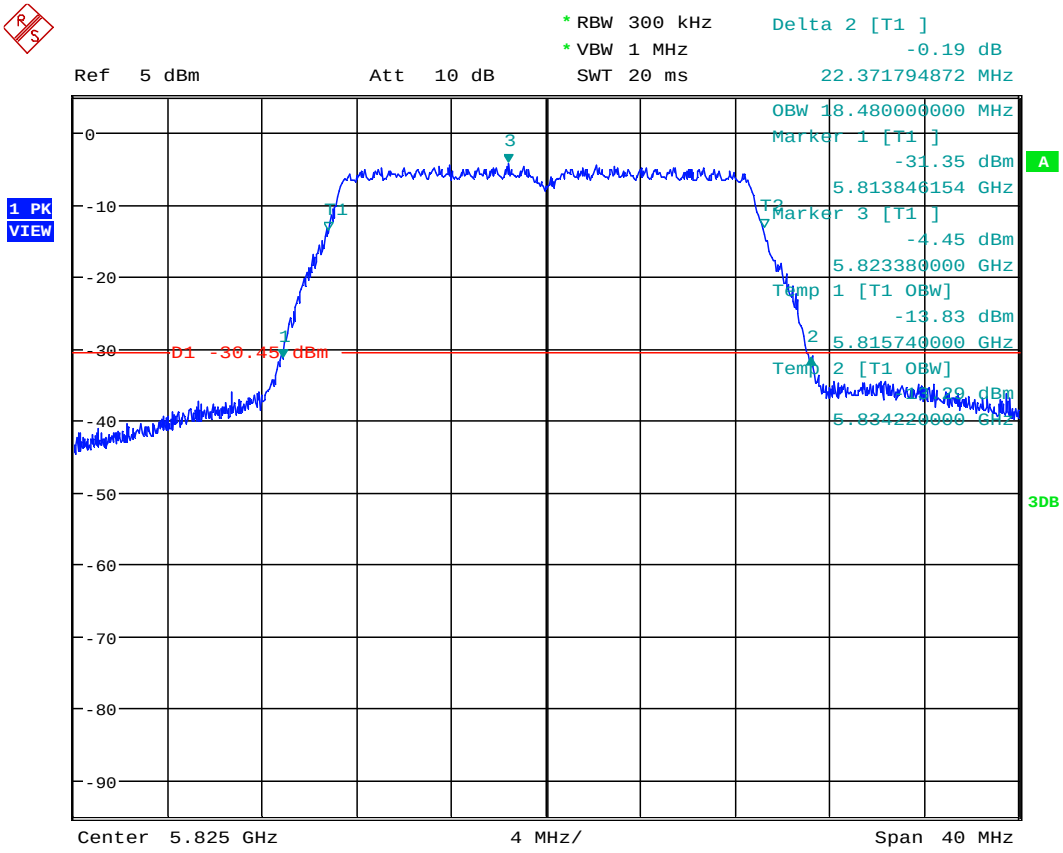
Plot 1. 6

802.11n 20MHz, 5825MHz



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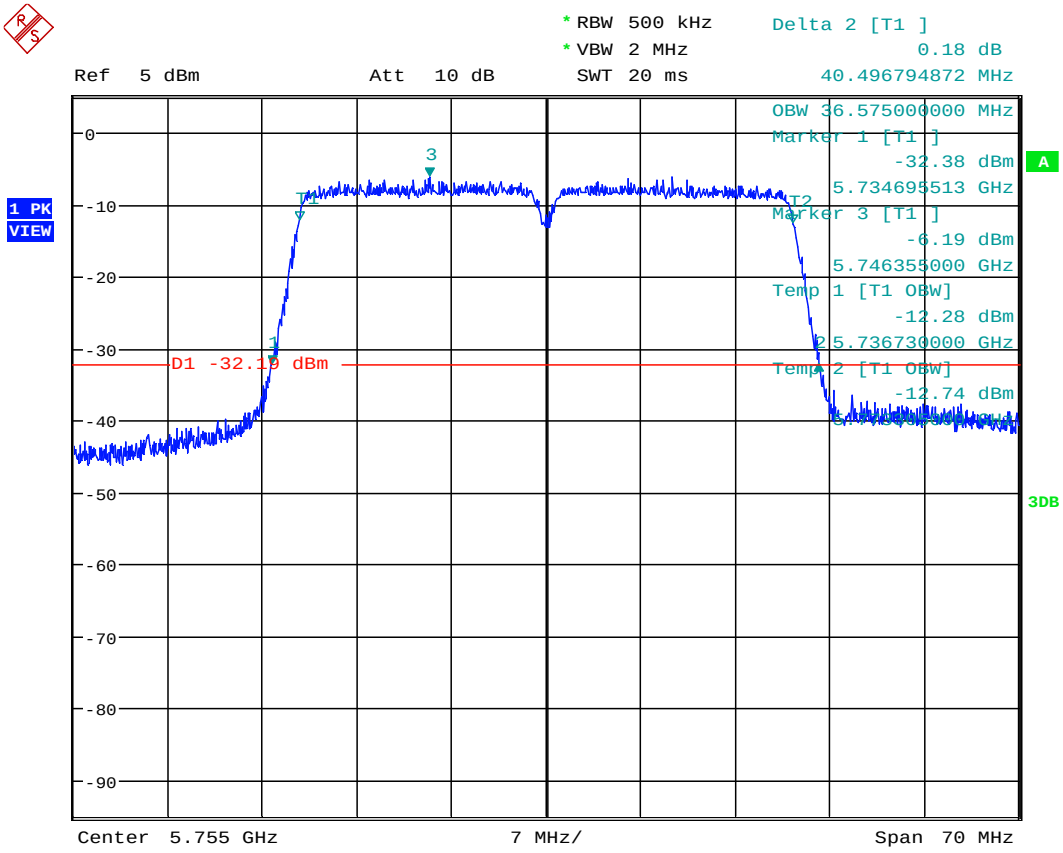
Plot 1. 7

802.11n 40MHz, 5755MHz



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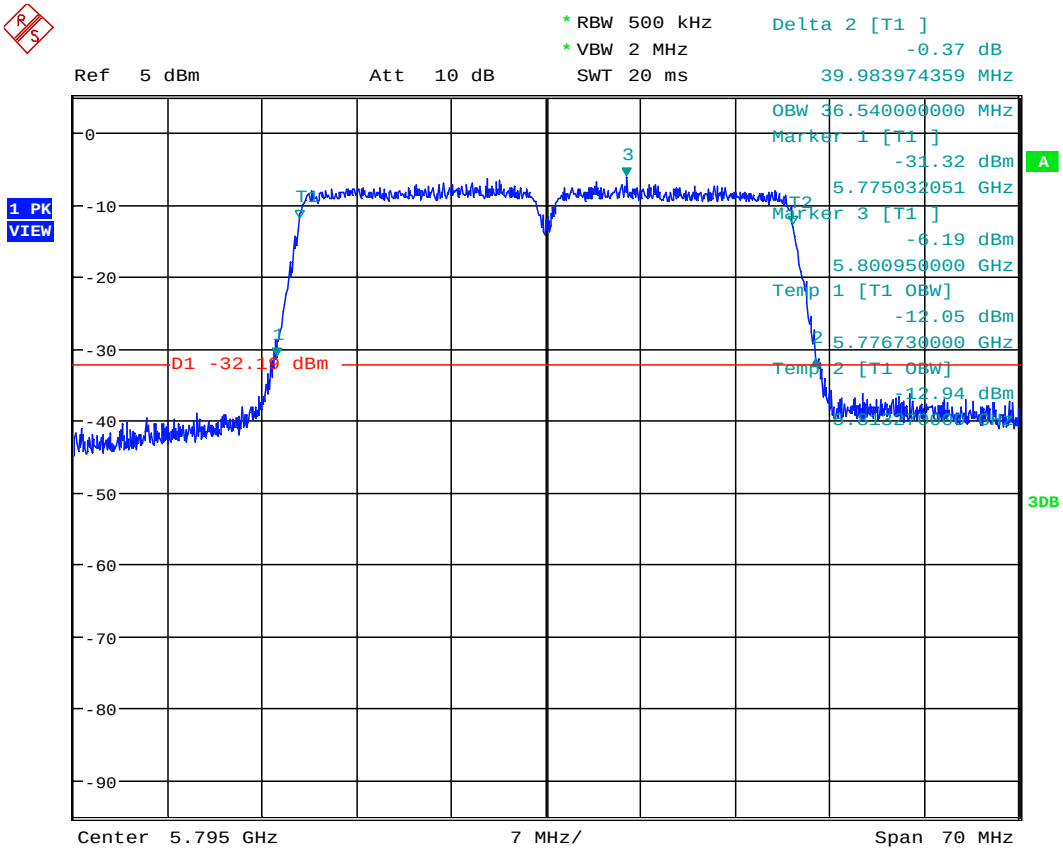
Plot 1. 8

802.11n 40MHz, 5795MHz



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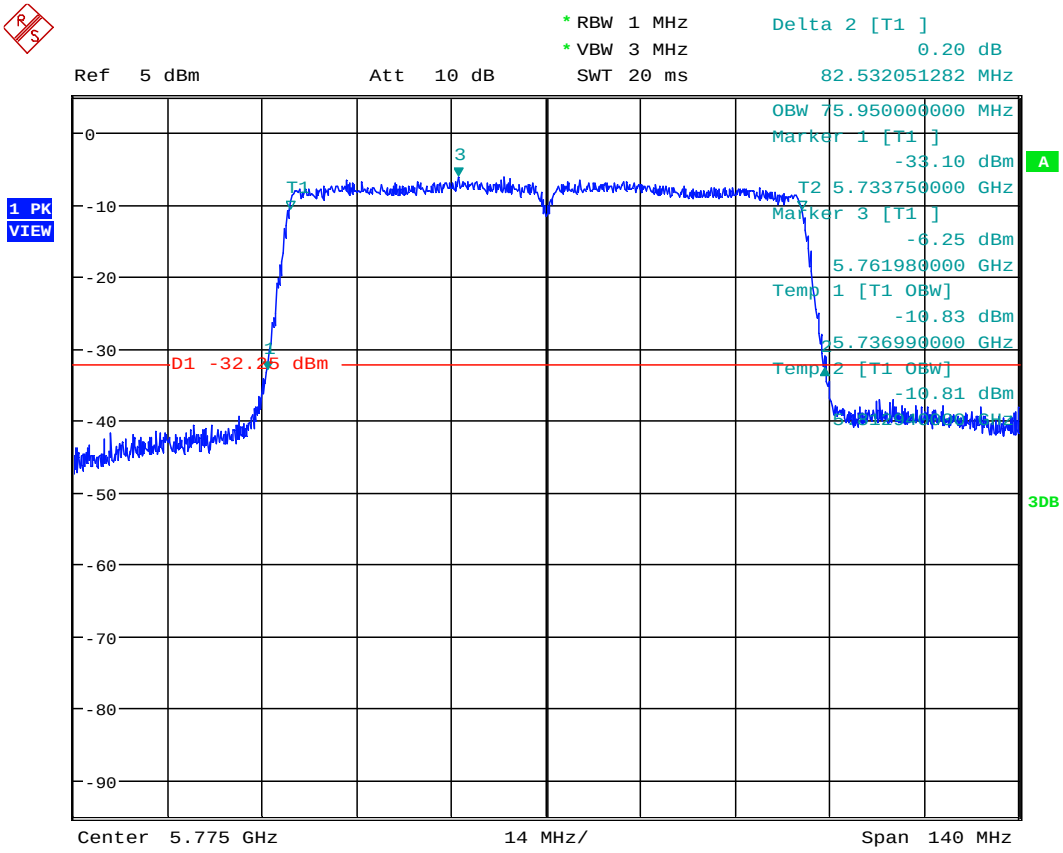
Plot 1. 9

802.11ac 80MHz, 5775MHz



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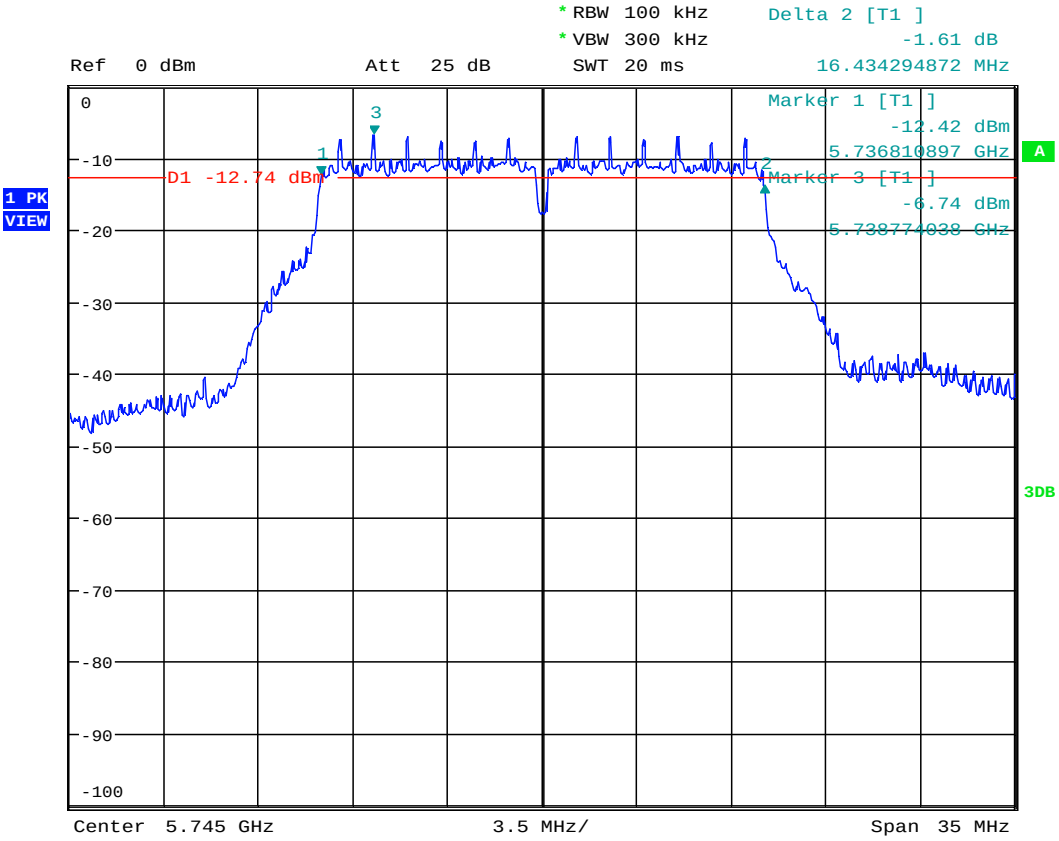
Plot 1. 100

802.11a 5745MHz



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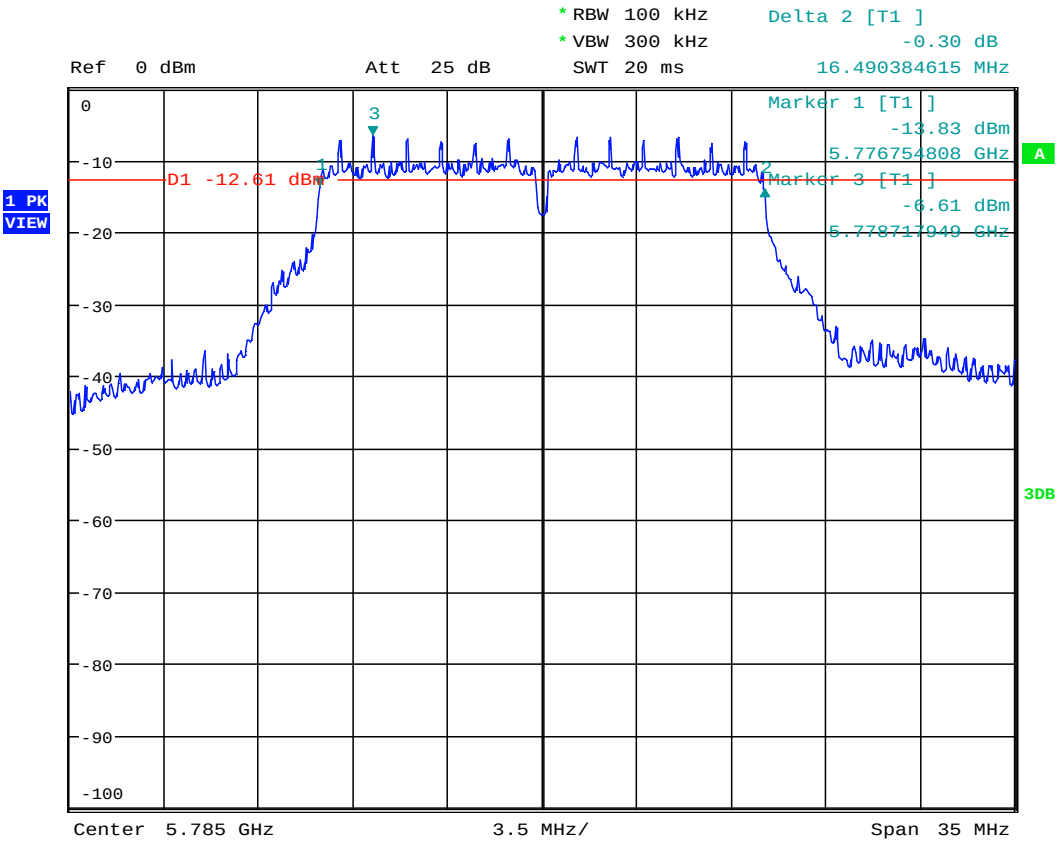
Plot 1. 11

802.11a 5785MHz



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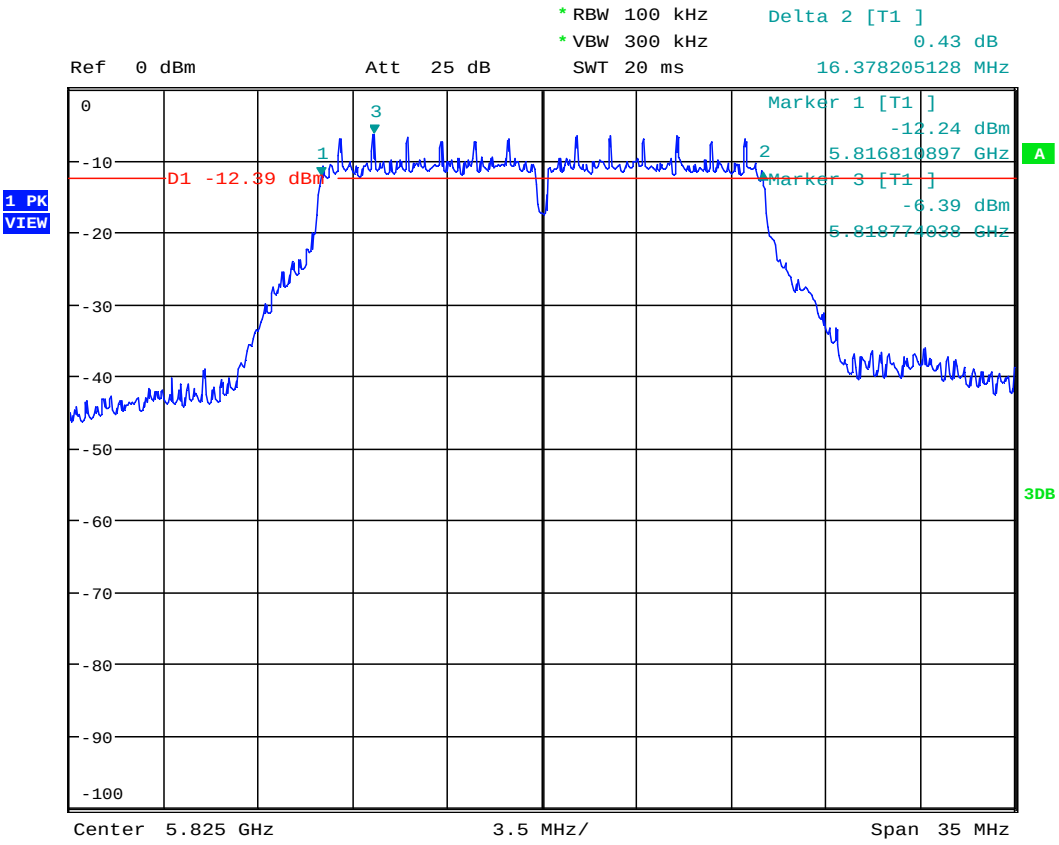
Plot 1. 12

802.11a 5825MHz



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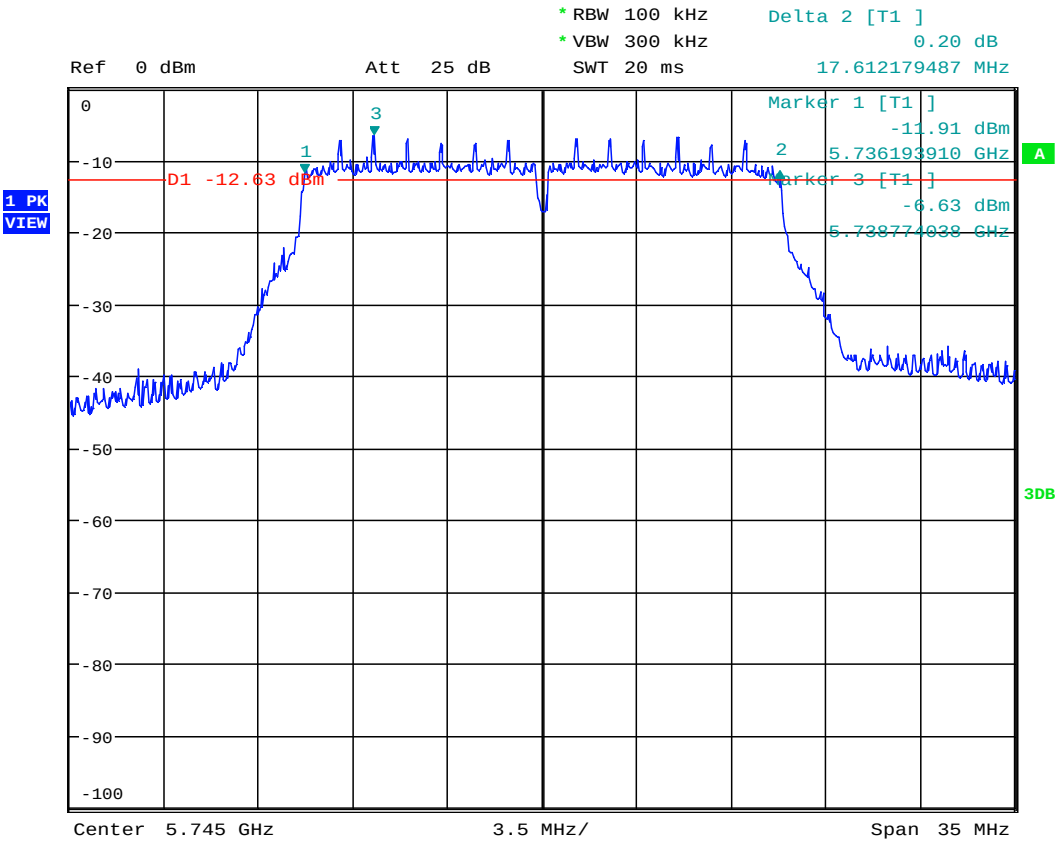
Plot 1. 13

802.11n 20MHz, 5745MHz



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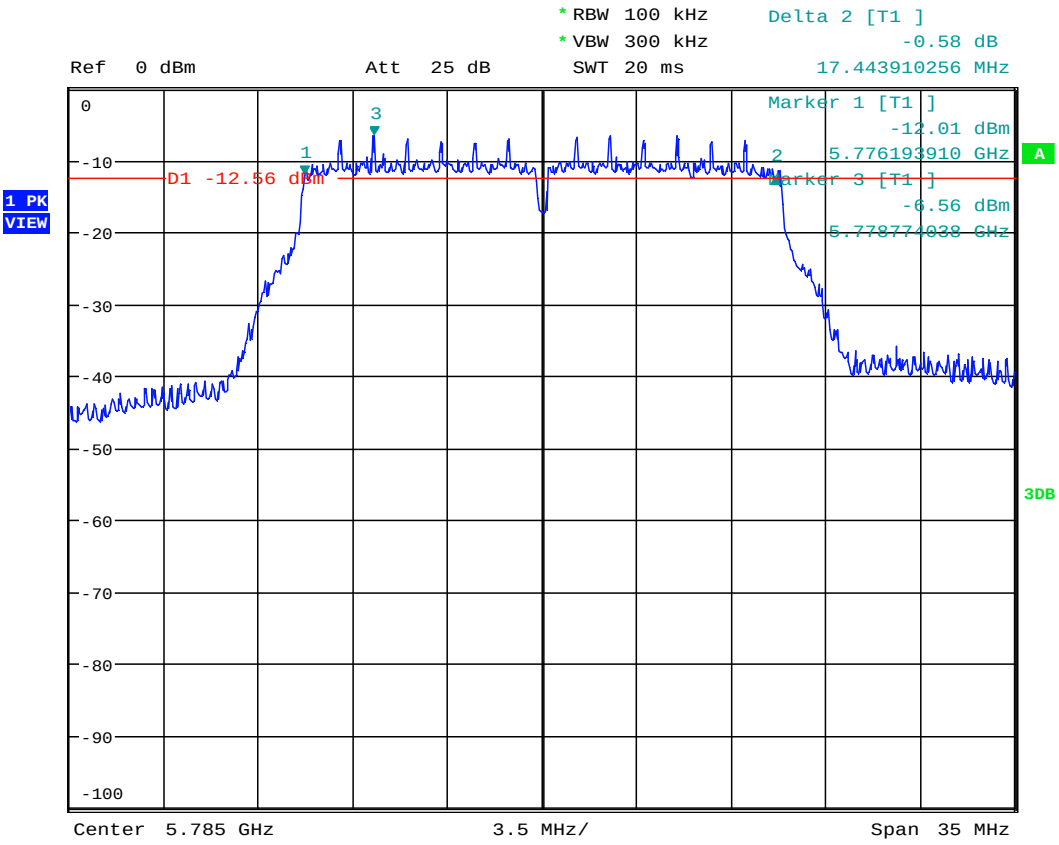
Plot 1. 14

802.11n 20MHz, 5785MHz



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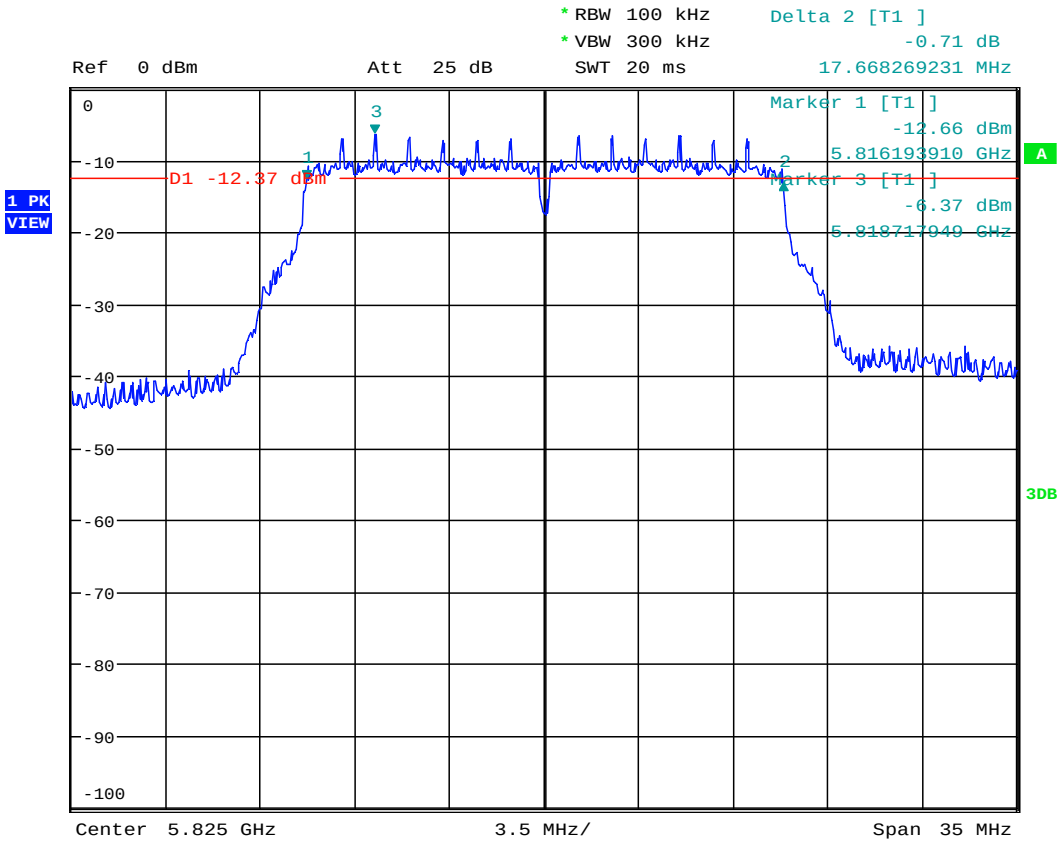
Plot 1. 15

802.11n 20MHz, 5825MHz



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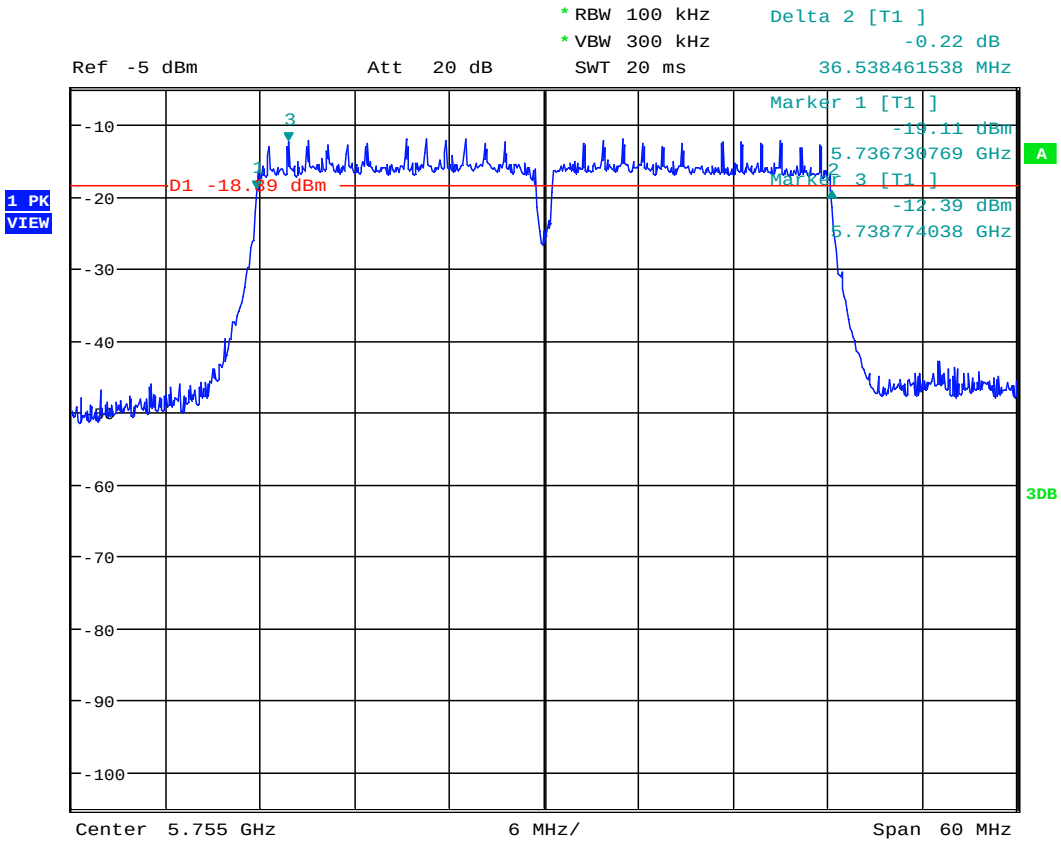
Plot 1. 16

802.11n 40MHz, 5755MHz



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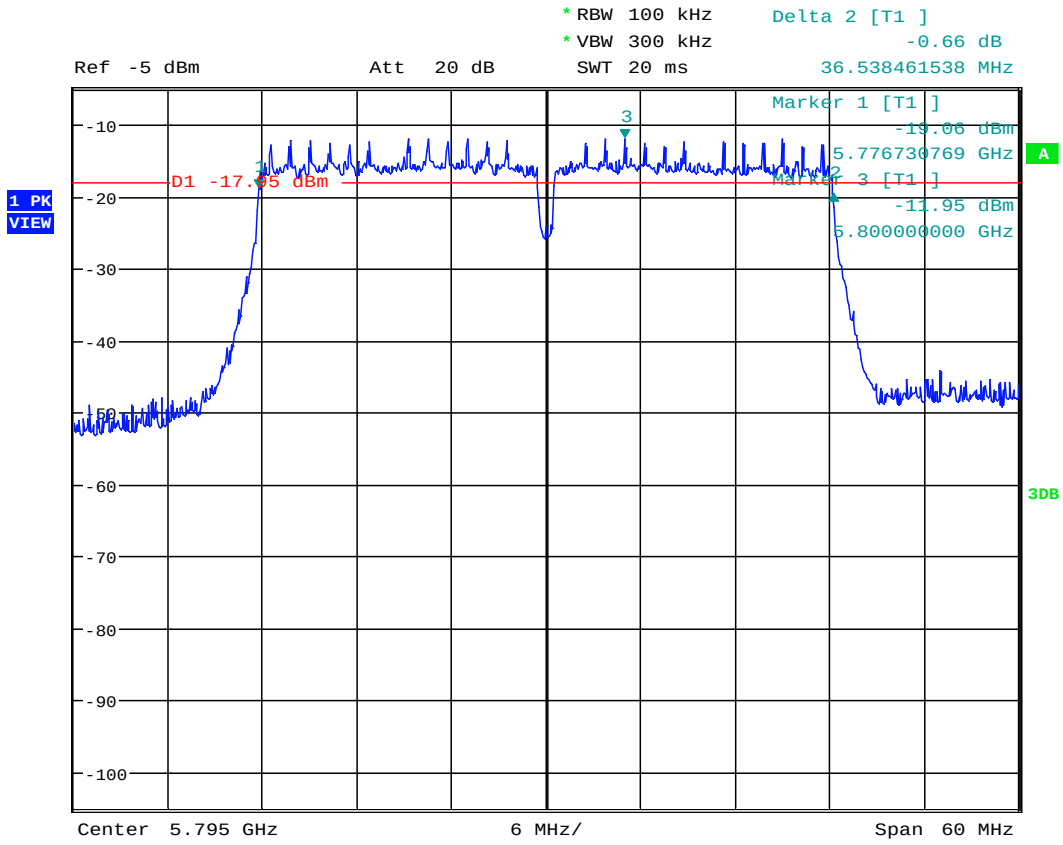
Plot 1. 17

802.11n 40MHz, 5795MHz



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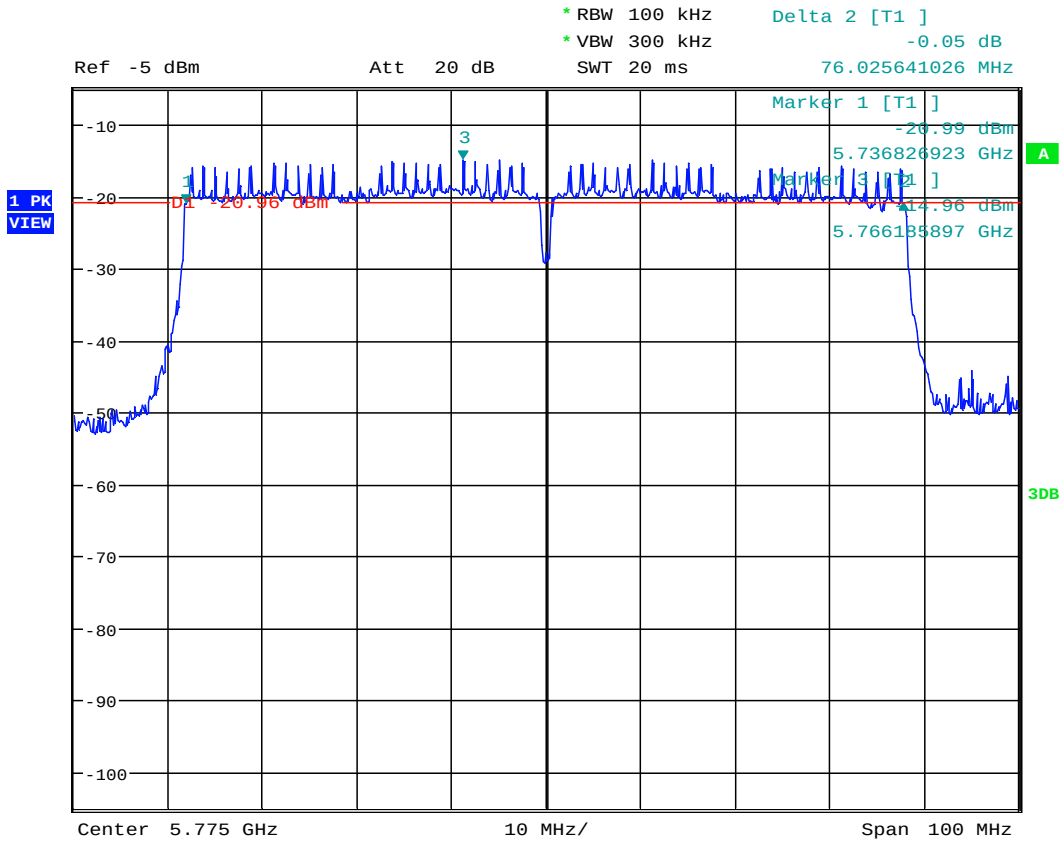
Plot 1. 18

802.11ac 80MHz, 5775MHz



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4.2 Maximum Conducted Output Power
FCC Rule 15.407(a)(1)(iv)

4.2.1 Requirement

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

4.2.2 Procedure

The Procedure, described in the FCC Publication 789033 D02 General U-NII Test Procedures New Rules v01r01, was used. Specifically Section E (2) (c) Method SA-1 Alternative for Maximum Conducted Output Power

The antenna port output of the EUT was connected to the input of a spectrum analyzer to measure the Maximum Conducted Transmitter Output Power.

Tested By:	Anderson Soungpanya
Test Date:	December 4-7, 2015

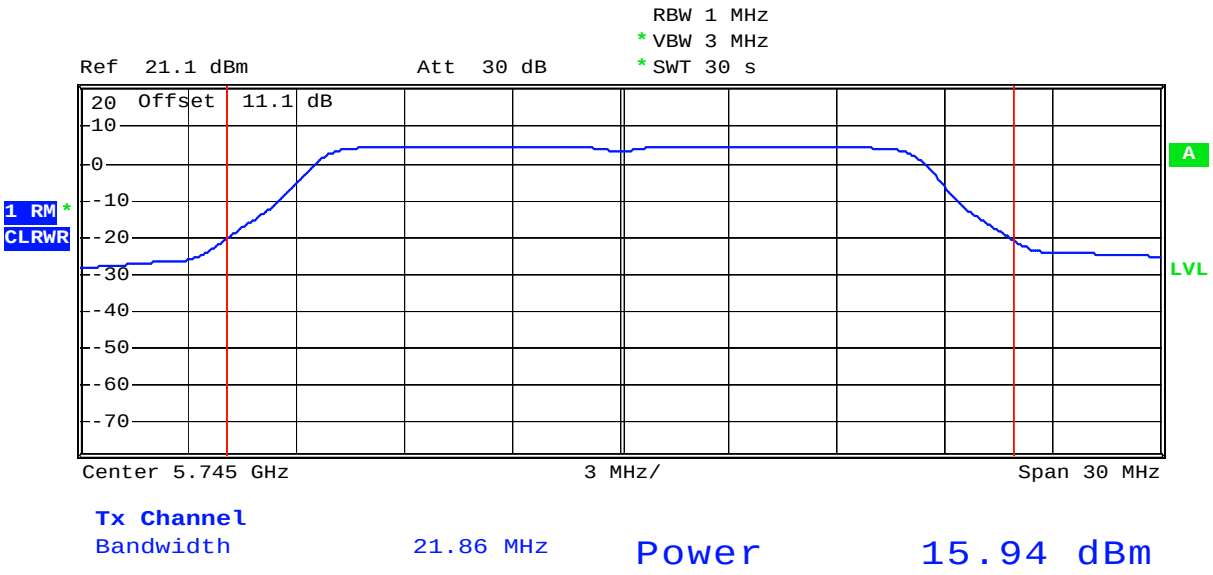
4.2.3 Test Results

Refer to the following plots for the test result:

Mode	Channel	Frequency, MHz	Conducted power (average) dBm	Conducted power Limit dBm	Plot #
802.11a	149	5745	15.94	30	2.1
	157	5785	15.83	30	2.2
	165	5825	15.93	30	2.3
802.11n 20MHz	149	5745	15.92	30	2.4
	157	5785	16.83	30	2.5
	165	5825	16.94	30	2.6
802.11n 40MHz	151	5755	14.76	30	2.7
	159	5795	15.61	30	2.8
802.11ac 80MHz	155	5775	12.81	30	2.9

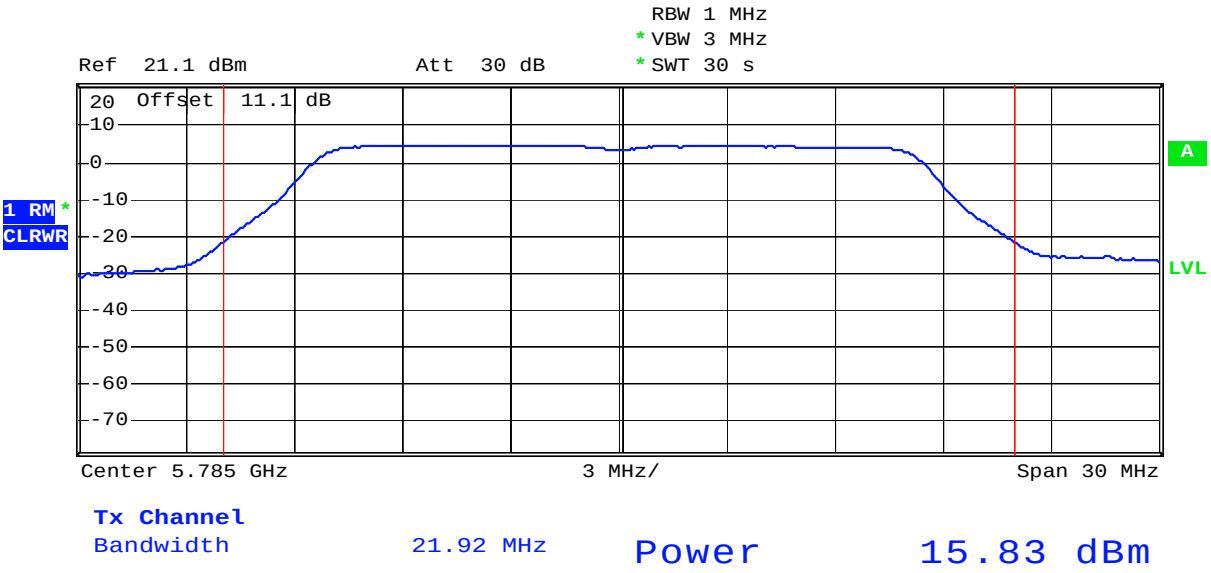
Plot 2. 1

802.11a, 5745MHz



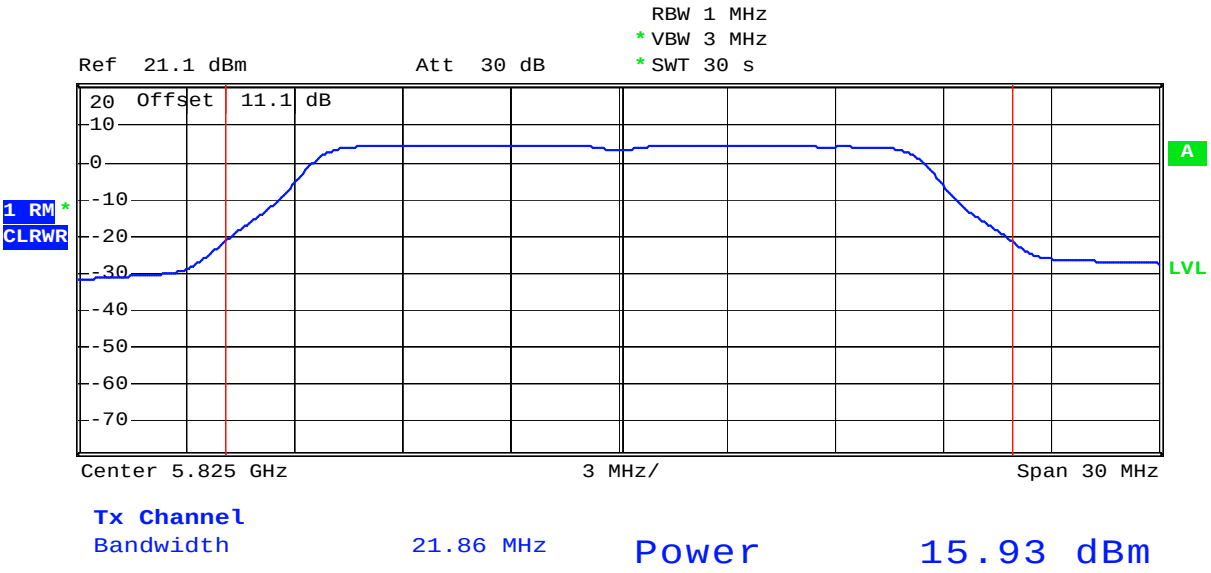
Plot 2. 2

802.11a, 5785MHz



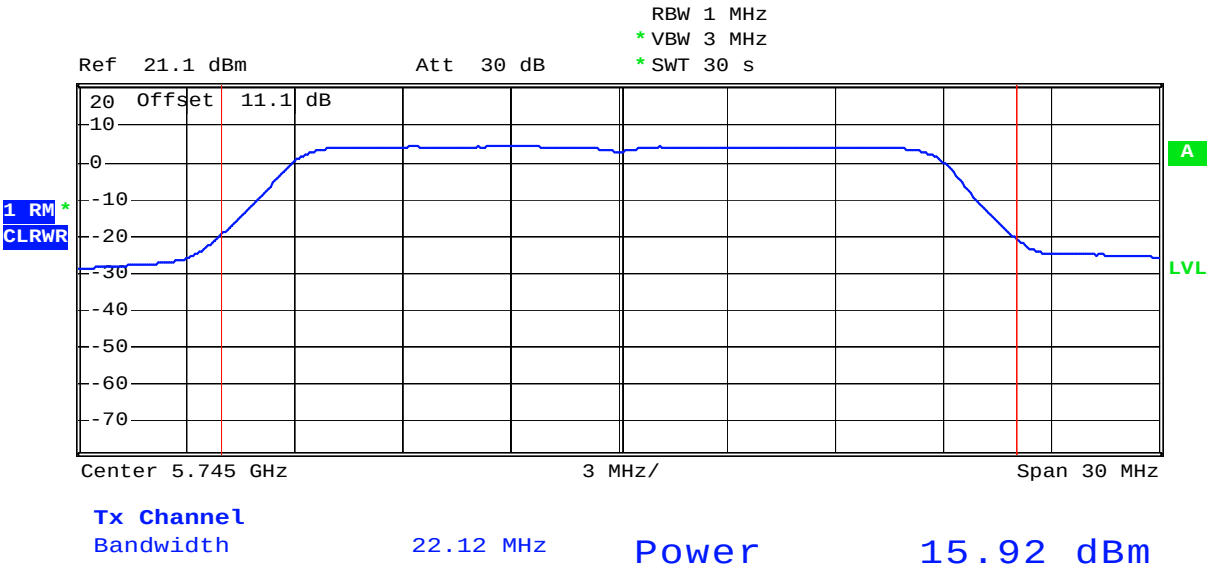
Plot 2. 3

802.11a, 5825MHz



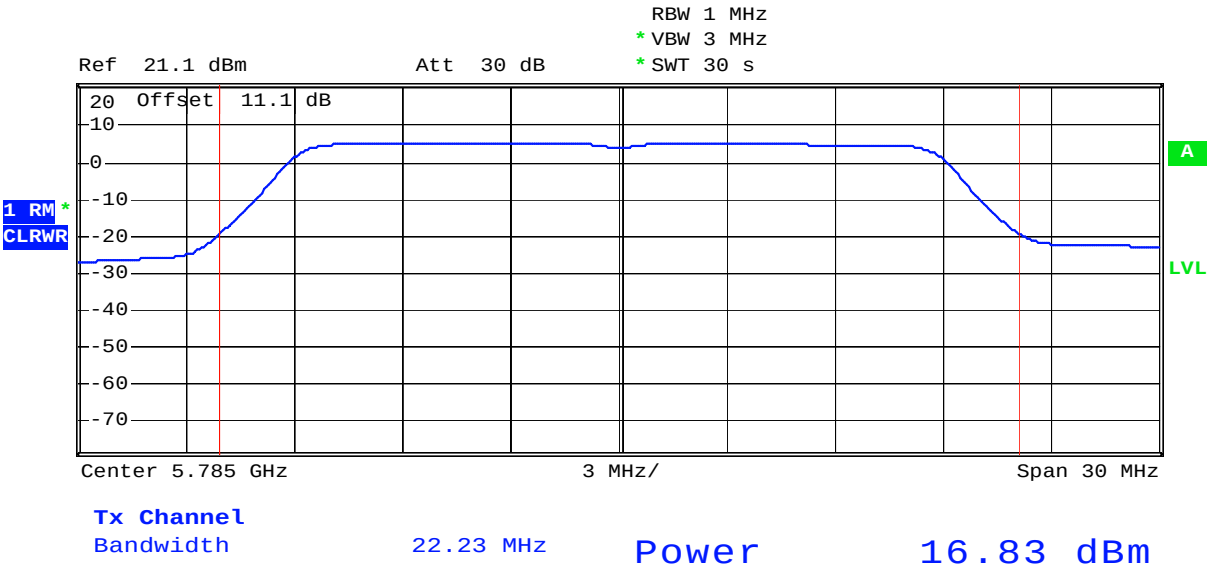
Plot 2. 4

802.11n 20MHz, 5745MHz



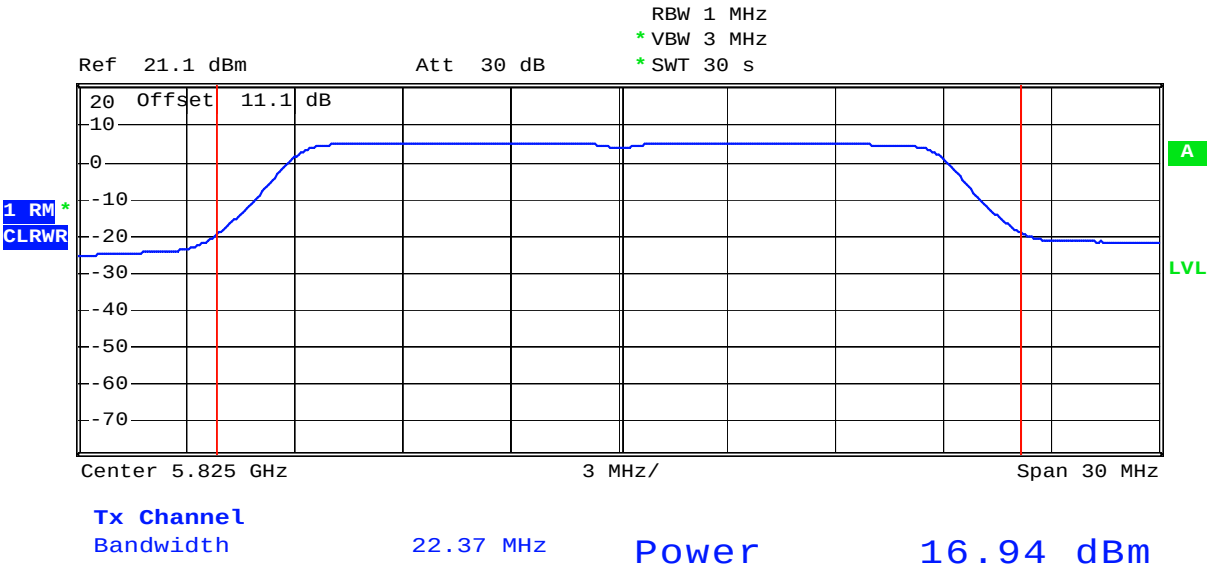
Plot 2. 5

H802.11n 20MHz, 5785MHz



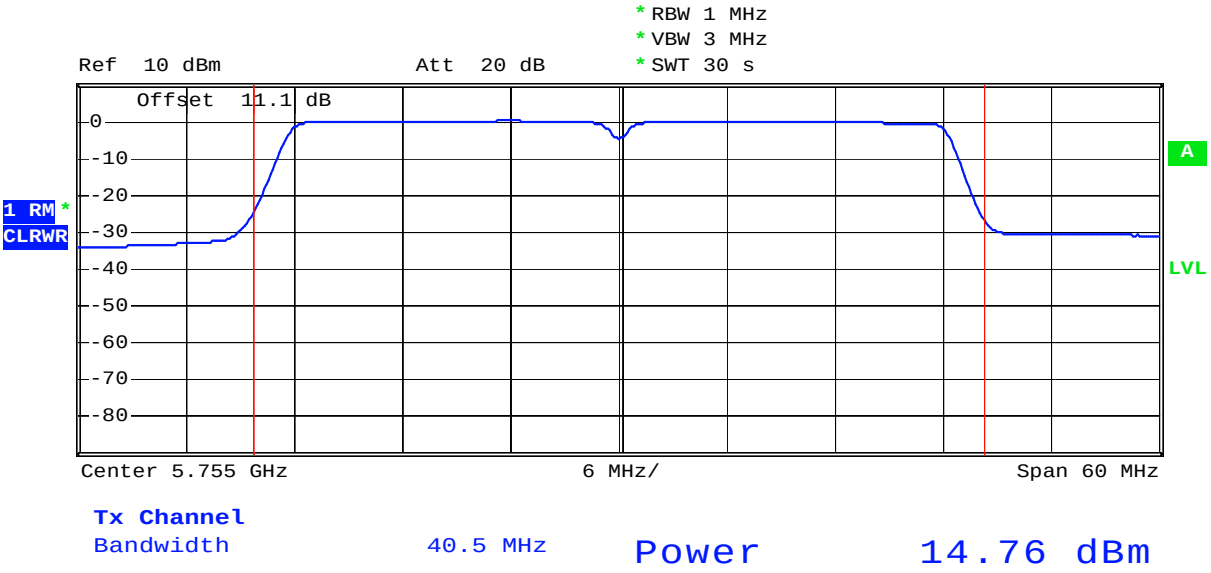
Plot 2. 6

802.11n 20MHz, 5825MHz



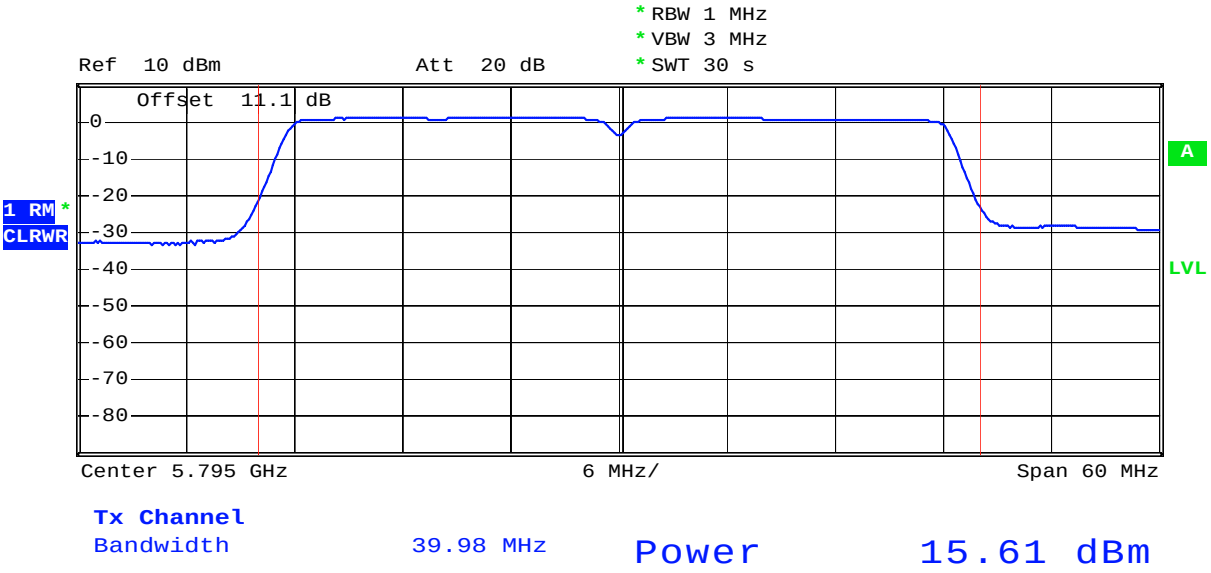
Plot 2. 7

802.11n 40MHz, 5755MHz



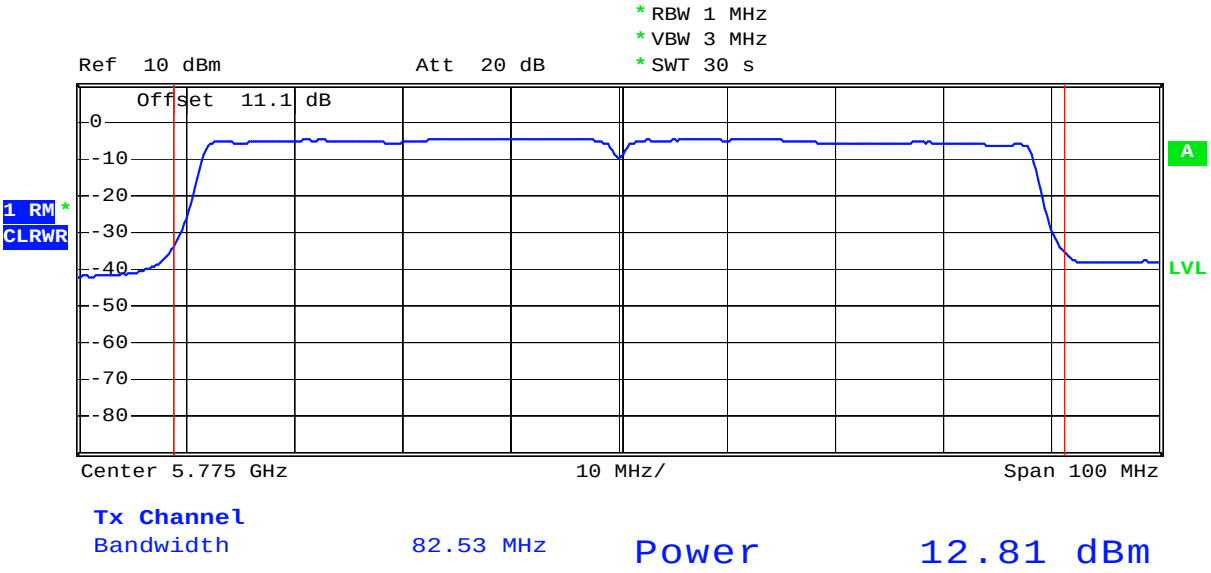
Plot 2. 8

802.11n 40MHz, 5795MHz



Plot 2. 9

802.11ac 80MHz, 5775MHz



4.3 Peak Power Spectral Density
FCC Rule 15.407(a)(1)(iv)

4.3.1 Requirement

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

4.3.2 Procedure

Each antenna port of the EUT was connected to the input of a spectrum analyzer to measure the Peak Power Spectral Density (PPSD) and recorded.

The Procedure, described in the FCC Publication 789033 D02 General U-NII Test Procedures New Rules v01r01, was used. Specifically procedure from Section F was utilized for Maximum Power Spectral Density (PSD).

Tested By:	Anderson Soungpanya
Test Date:	December 8, 2015

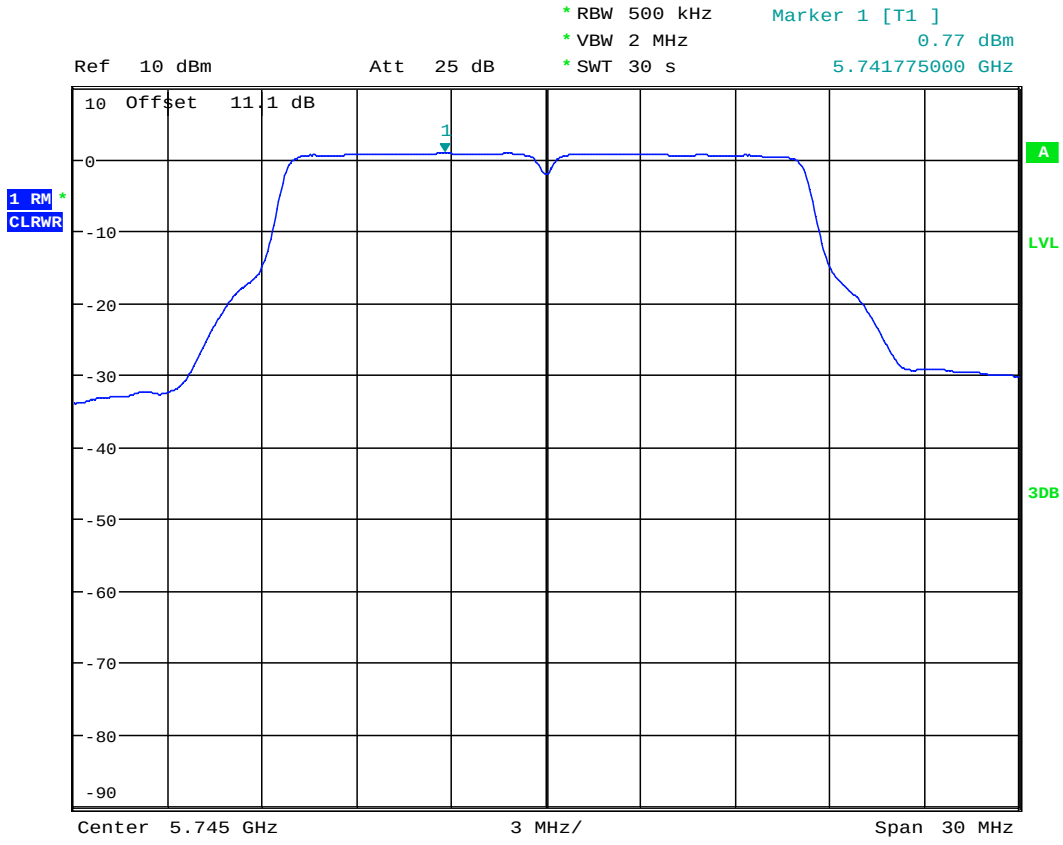
4.3.3 Test Result

Refer to the following plots for the test result:

Mode	Channel	Frequency, MHz	PSD(Peak) dBm	PSD Limit dBm	Plot #
802.11a	149	5745	0.77	30	3.1
	157	5785	0.93	30	3.2
	165	5825	0.95	30	3.3
802.11n 20MHz	149	5745	0.48	30	3.4
	157	5785	0.31	30	3.5
	165	5825	0.43	30	3.6
802.11n 40MHz	151	5755	-2.69	30	3.7
	159	5795	-2.73	30	3.8
802.11ac 80MHz	155	5775	-7.42	30	3.9

Plot 3. 10

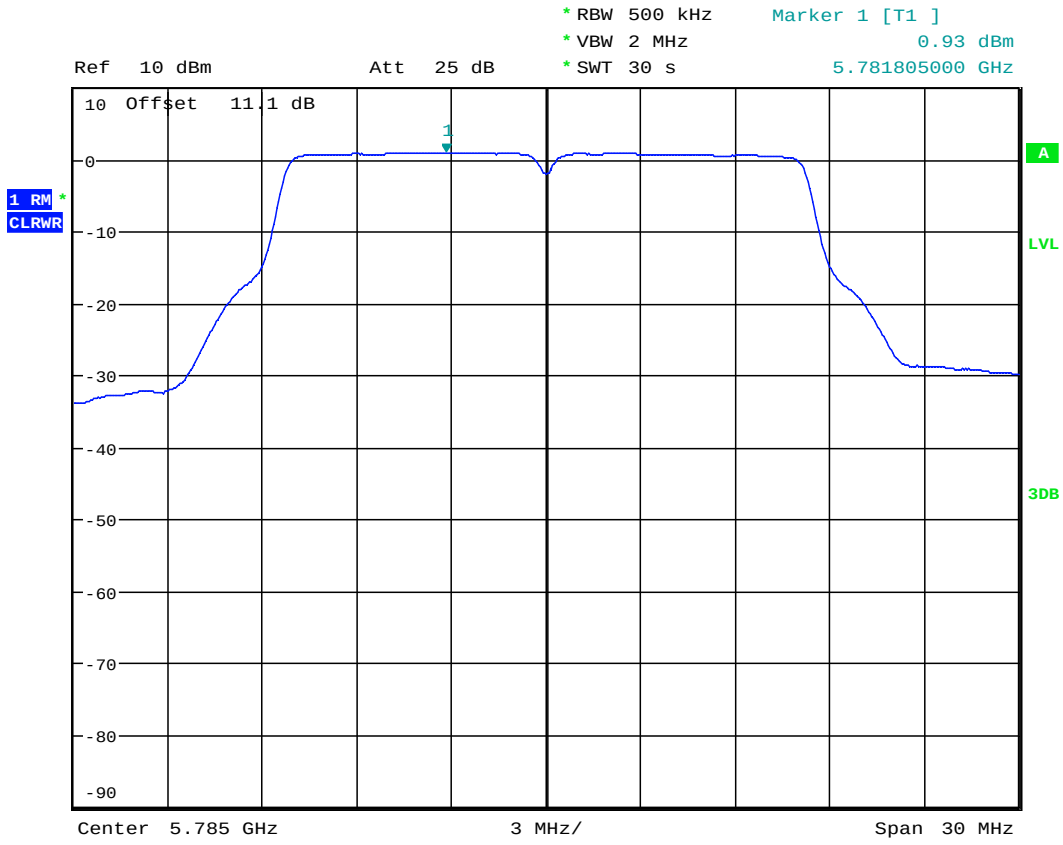
802.11a, 5745MHz



Date: 8.DEC.2015 09:21:48

Plot 3. 11

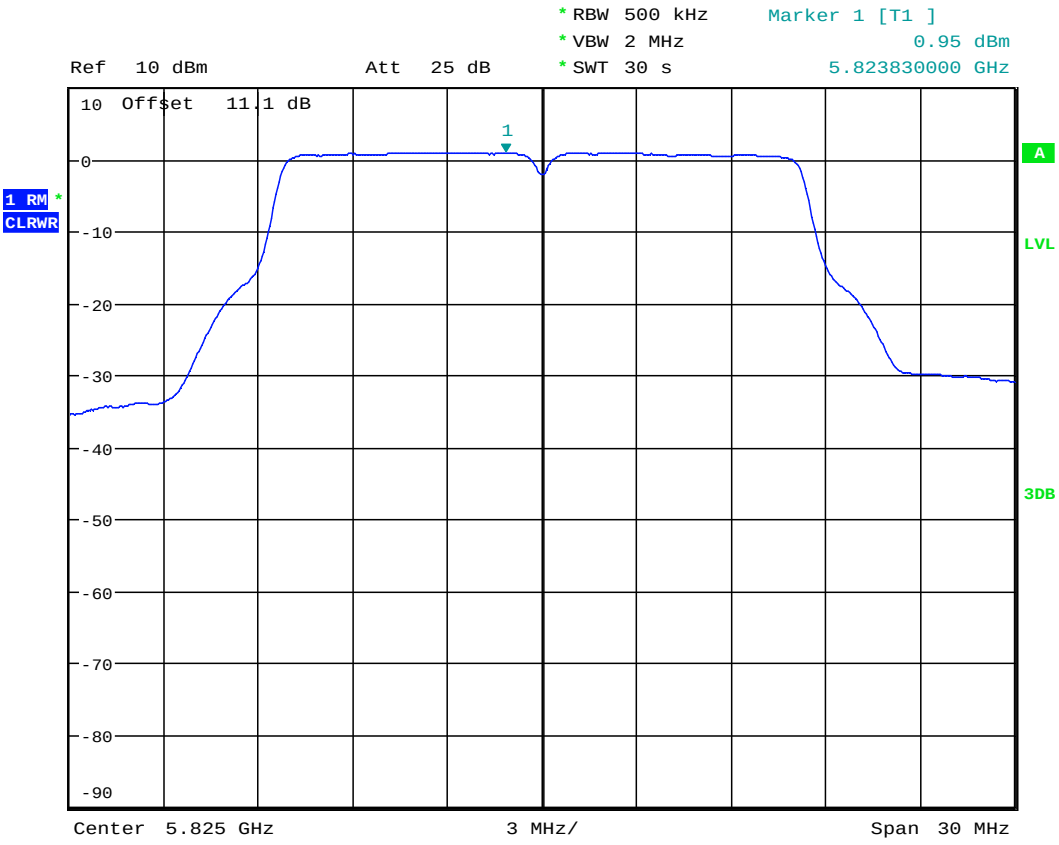
802.11a, 5785MHz



Date: 8.DEC.2015 09:24:03

Plot 3. 12

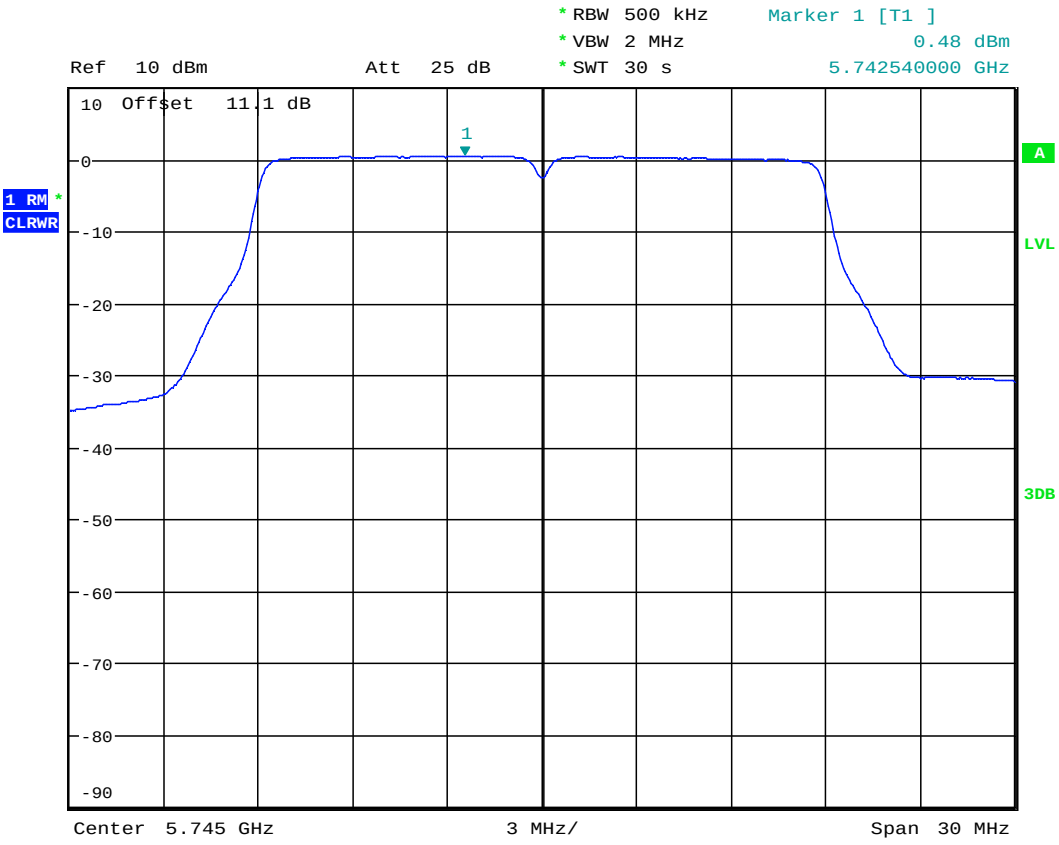
802.11a, 5825MHz



Date: 8.DEC.2015 09:25:17

Plot 3. 13

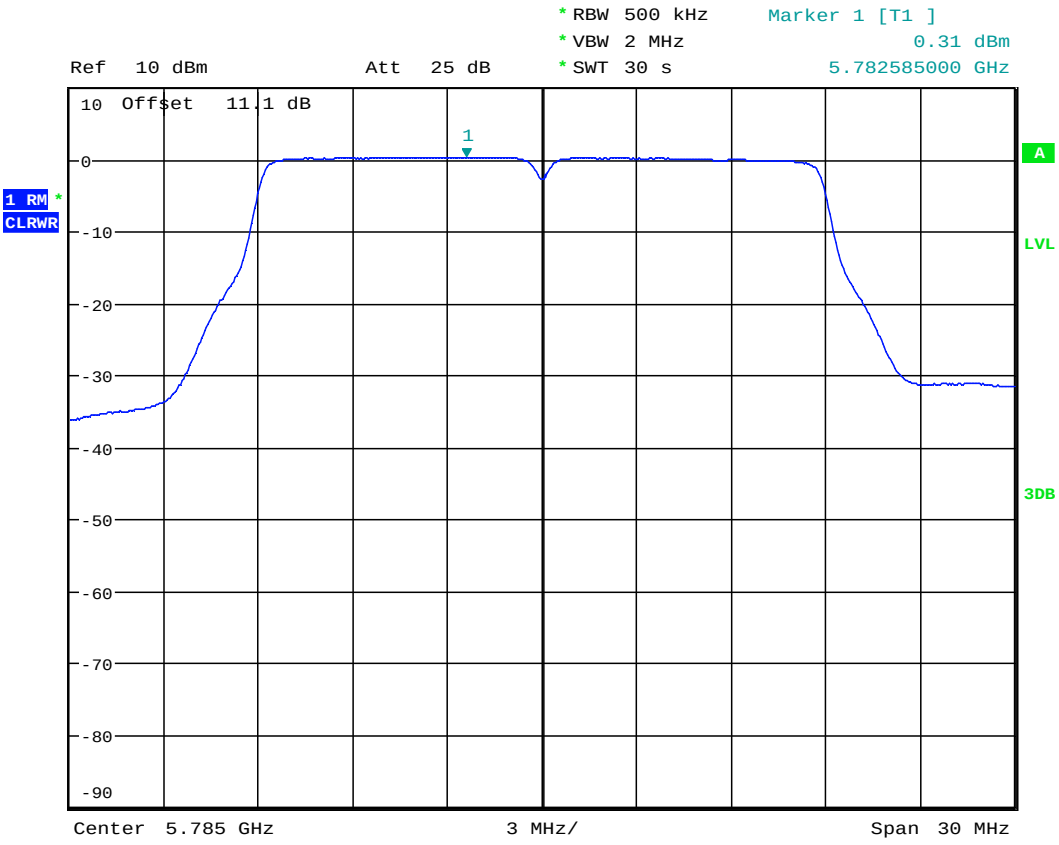
802.11n 20MHz, 5745MHz



Date: 8.DEC.2015 09:35:10

Plot 3. 14

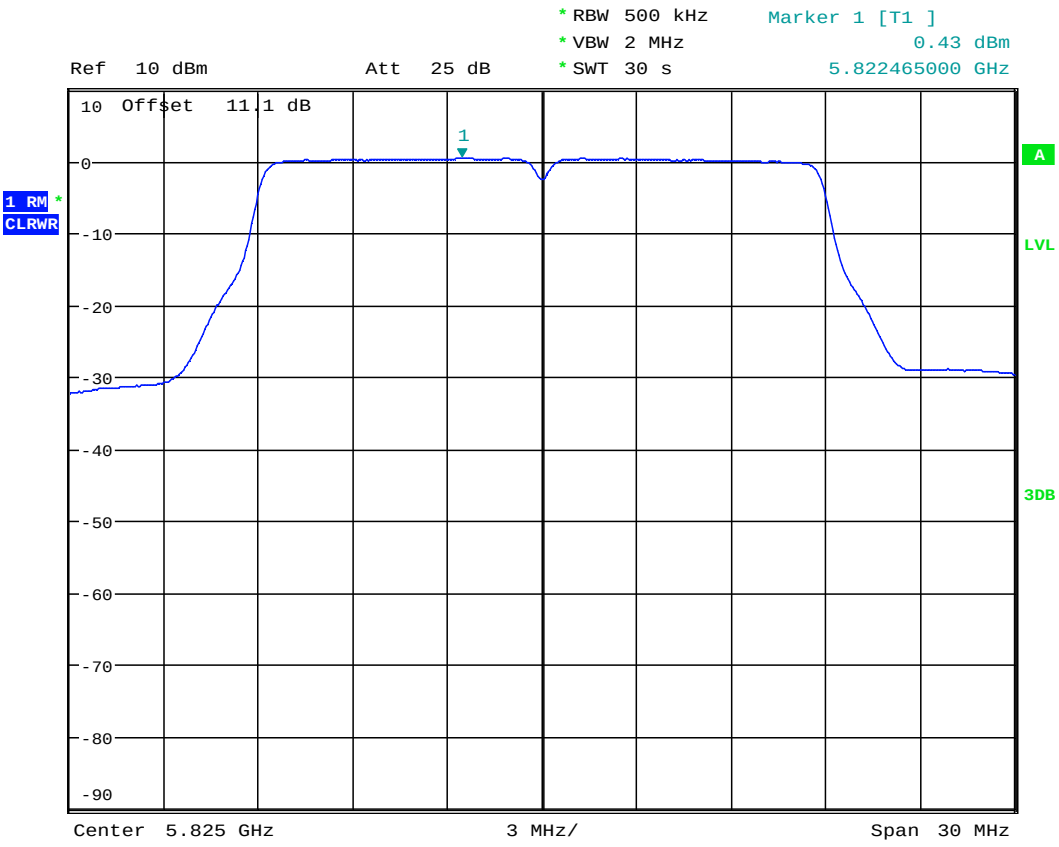
H802.11n 20MHz, 5785MHz



Date: 8.DEC.2015 09:30:14

Plot 3. 15

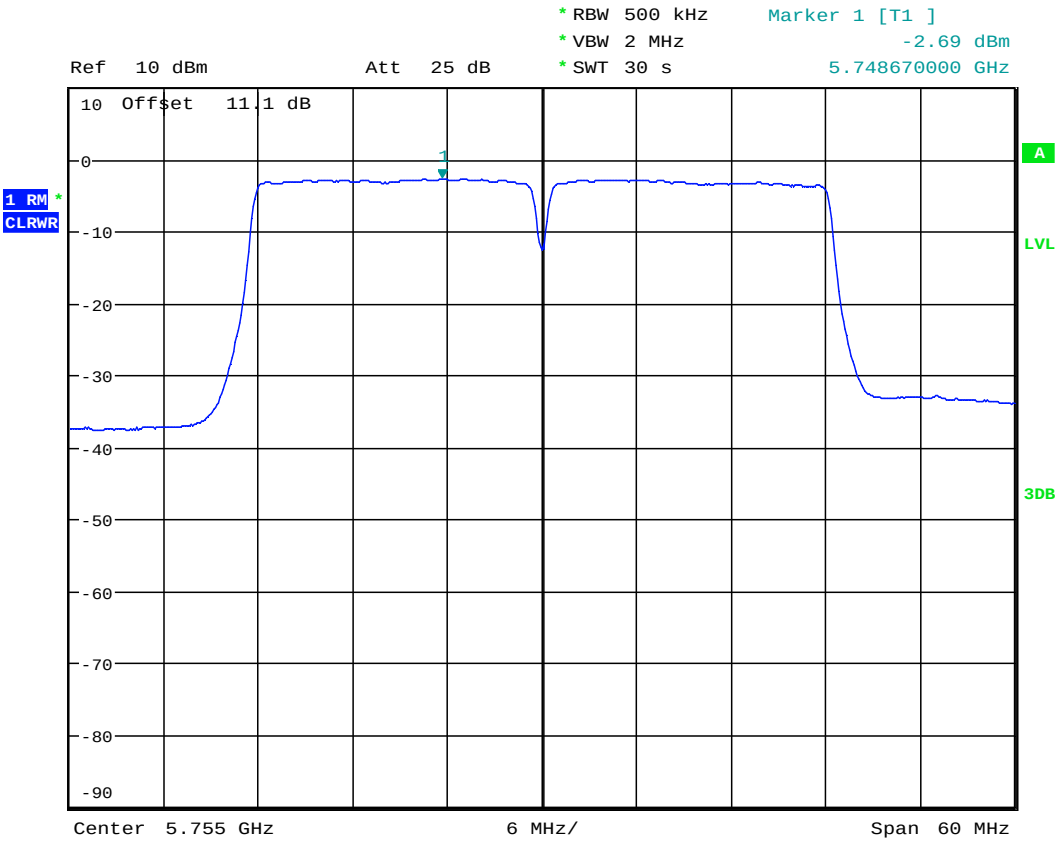
802.11n 20MHz, 5825MHz



Date: 8.DEC.2015 09:28:19

Plot 3. 16

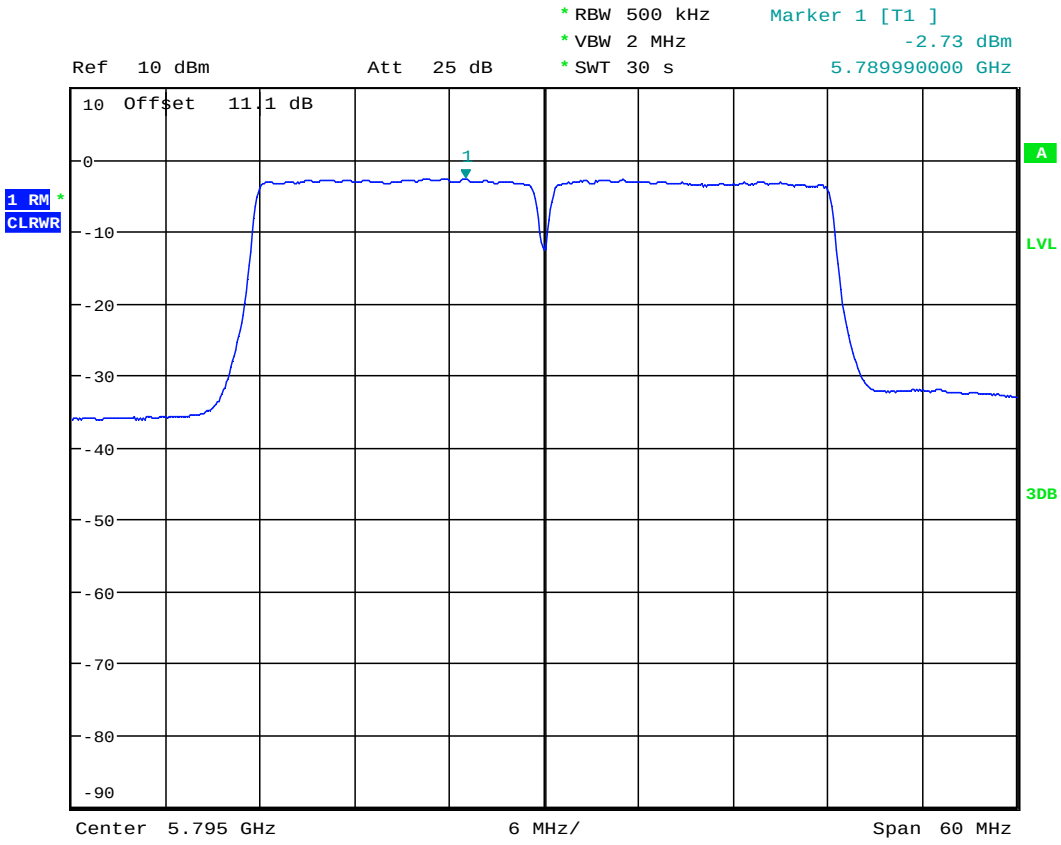
802.11n 40MHz, 5755MHz



Date: 8.DEC.2015 09:47:11

Plot 3. 17

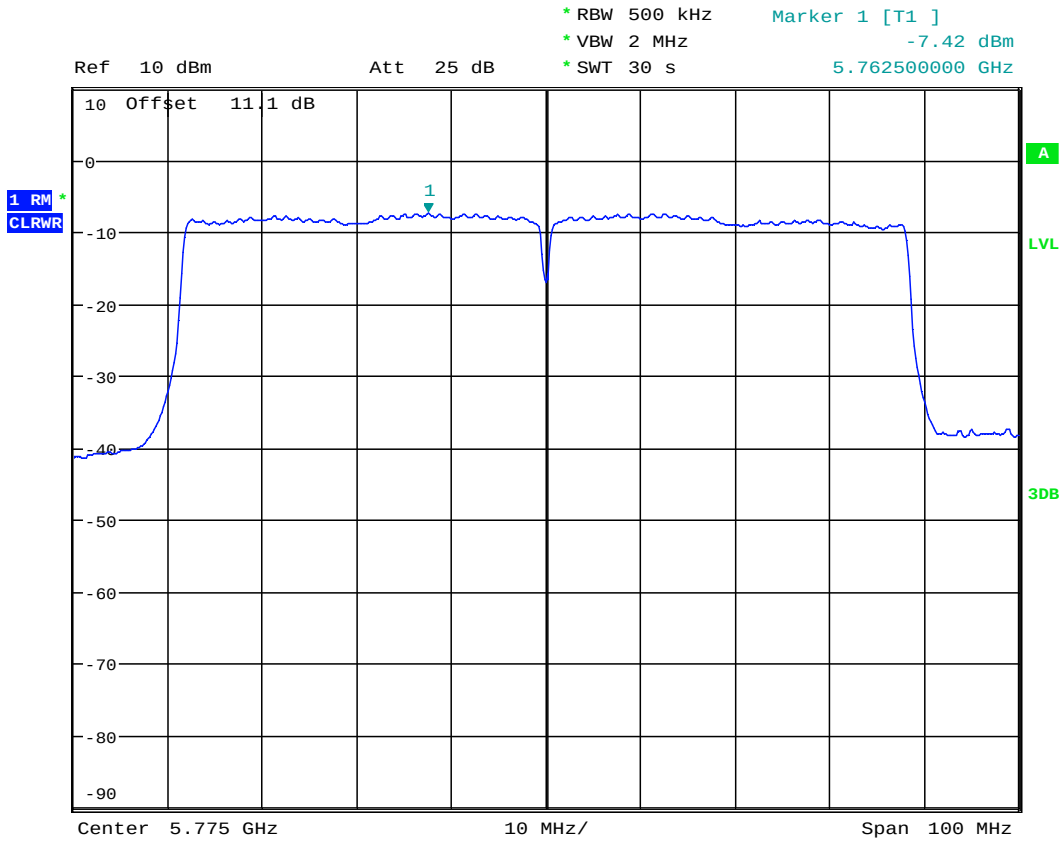
802.11n 40MHz, 5795MHz



Date: 8.DEC.2015 09:44:48

Plot 3. 18

802.11ac 80MHz, 5775MHz



Date: 8.DEC.2015 09:49:19

4.4 Frequency stability
FCC 15.407(g)

4.4.1 Requirement

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

4.4.2 Procedure

The EUT was placed in a temperature chamber and setup to transmit. Procedures for frequency stability in ANSIC63.10:2013 section 6.8 was utilized.

The carrier frequency was measured with the spectrum analyzer with resolution bandwidth of 1 kHz. The temperature was varied from 0^0C to 50^0C, as stated in the user manual.

The radio module in this report is powered by 5.0VDC which was varied to 85% and 115% for testing. Testing was performed at a temperature of 20^0 C.

After the temperature stabilized for approximately 20 minutes, the transmitting frequency was measured.

Tested By:	Anderson Soungpanya
Test Date:	December 29, 2015

4.4.3 Result

Temperature, ^{0}C	Frequency at nominal voltage, (GHz)	Maximum deviation from frequency at 20°C, ppm
Nominal Frequency: 5745MHz		
50	5745.009921	1.372
40	5745.007120	0.884
30	5745.003581	0.268
20	5745.002041	0.000
10	5745.002015	0.005
0	5745.001993	0.008
Voltage at 20^{0}C	**Frequency at nominal voltage, (GHz)**	**Maximum deviation from frequency at 20°C, ppm**
5V – 15%	5745.003014	0.169
5V + 15%	5745.003008	0.168

Temperature, ^{0}C	Frequency at nominal voltage, (GHz)	Maximum deviation from frequency at 20°C, ppm
Nominal Frequency: 5825MHz		
50	5825.009971	1.326
40	5825.007510	0.903
30	5825.003481	0.212
20	5825.002249	0.000
10	5825.002149	0.017
0	5825.002013	0.040
Voltage at 20^{0}C	**Frequency at nominal voltage, (GHz)**	**Maximum deviation from frequency at 20°C, ppm**
5V – 15%	5825.002317	0.012
5V + 15%	5825.002318	0.012

4.5 Transmitter Radiated Emissions
FCC Rule 15.407(b) (1-8) 15.209, 15.205

4.5.1 Requirement

(b) Undesirable emission limits. Except as shown in paragraph (b) (7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(4) For transmitters operating in the 5.725-5.85 GHz band: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of −17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of −27 dBm/MHz.

(5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.

(6) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in §15.207.

(7) The provisions of §15.205 apply to intentional radiators operating under this section.

(8) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency band edges as the design of the equipment permits.

Emissions which fall in the restricted bands, as defined in §15.205(a), must comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

For transmitters operating in the 5.15–5.25 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of –27 dBm/MHz.

Note: This corresponds to the field strength level of 68.3 dB(μV/m) at 3 m distance when measure with 1 MHz resolution bandwidth.

4.5.2 Procedure

Radiated emission measurements were performed from 30 MHz to 40 GHz according to the procedure described in ANSI C64.10. Spectrum Analyzer Resolution Bandwidth is 100 kHz or greater for frequencies 30 MHz to 1000 MHz, 1 MHz for frequencies above 1000 MHz. Above 1000 MHz Peak and Average measurements were performed.

The EUT is placed on a plastic turntable that is 80 cm in height for below 1000MHz and 1.5m in height for above 1GHz. If the EUT attaches to peripherals, they are connected and operational (as typical as possible). During testing, all cables were manipulated to produce worst-case emissions. The signal is maximized through rotation. The antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters.

Radiated emissions are taken at 3 meters for frequencies above 1 GHz and at 10 meters for frequencies below 1 GHz.

Measurements made from 30 MHz to 40 GHz were measured with 50 ohm terminator on the output of the EUT RF port. A preamp was used from 30MHz to 40GHz.

All measurements were made with a Peak Detector and compared to QP limits for 30MHz – 1GHz and Average limits for 1GHz – 40 GHz.

Data is included of the worst-case configuration (the configuration which resulted in the highest emission levels).

4.5.3 Field Strength Calculation

Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CF – AG; if measurement is performed at a distance other than specified in the rule, a Distance Correction Factor (DCF) shall be added.

Where FS = Field Strength in dB(μV/m)
RA = Receiver Amplitude (including preamplifier) in dB(μV); AF = Antenna Factor in dB(1/m)
CF = Cable Attenuation Factor in dB; AG = Amplifier Gain in dB

Assume a receiver reading of 52.0 dB(μV) is obtained. The antennas factor of 7.4 dB(1/m) and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted, giving field strength of 32 dB(μV/m). This value in dB(μV/m) was converted to its corresponding level in μV/m.
RA = 52.0 dB(μV)
AF = 7.4 dB(1/m)
CF = 1.6 dB
AG = 29.0 dB
FS = 52.0+7.4+1.6-29.0 = 32 dB(μV/m).
Level in μV/m = Common Antilogarithm [(32 dBμV/m)/20] = 39.8 μV/m.

4.5.4 Antenna-port conducted measurements

Antenna-port conducted measurements may also be used as an alternative to radiated measurements for demonstrating compliance in the restricted frequency bands. If conducted measurements are performed, then proper impedance matching must be ensured and an additional radiated test for cabinet/case spurious emissions is required.

4.5.6 General Procedure for conducted measurements in restricted bands

a) Measure the conducted output power (in dBm) using the detector specified for determining quasi-peak, peak, and average conducted output power, respectively.

b) Add the maximum transmit antenna gain (in dBi) to the measured output power level to determine the EIRP level (see 12.2.5 for guidance on determining the applicable antenna gain)

c) Add the appropriate maximum ground reflection factor to the EIRP level (6 dB for frequencies ≤ 30 MHz, 4.7 dB for frequencies between 30 MHz and 1000 MHz, inclusive and 0 dB for frequencies > 1000 MHz).

d) For devices with multiple antenna-ports, measure the power of each individual chain and sum the EIRP of all chains in linear terms (*e.g.*, Watts, mW).

e) Convert the resultant EIRP level to an equivalent electric field strength using the following relationship:
E = EIRP – 20log D + 104.8
where:
E = electric field strength in dBμV/m,
EIRP = equivalent isotropic radiated power in dBm
D = specified measurement distance in meters.
f) Compare the resultant electric field strength level to the applicable limit.
g) Perform radiated spurious emission test

4.5.7 Test Results

The data on the following pages list the significant emission frequencies, the limit and the margin of compliance where emissions are within 3dB of the limit.

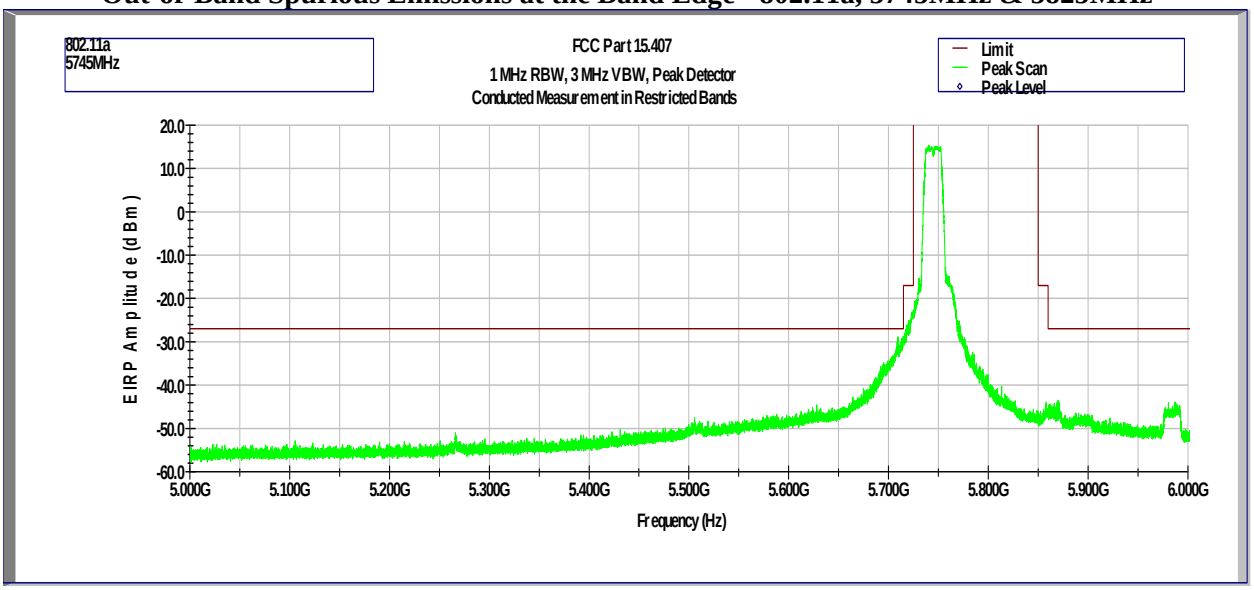
All conducted antenna port plots are corrected with the consideration of a 3.4 dBi Antenna Gain.

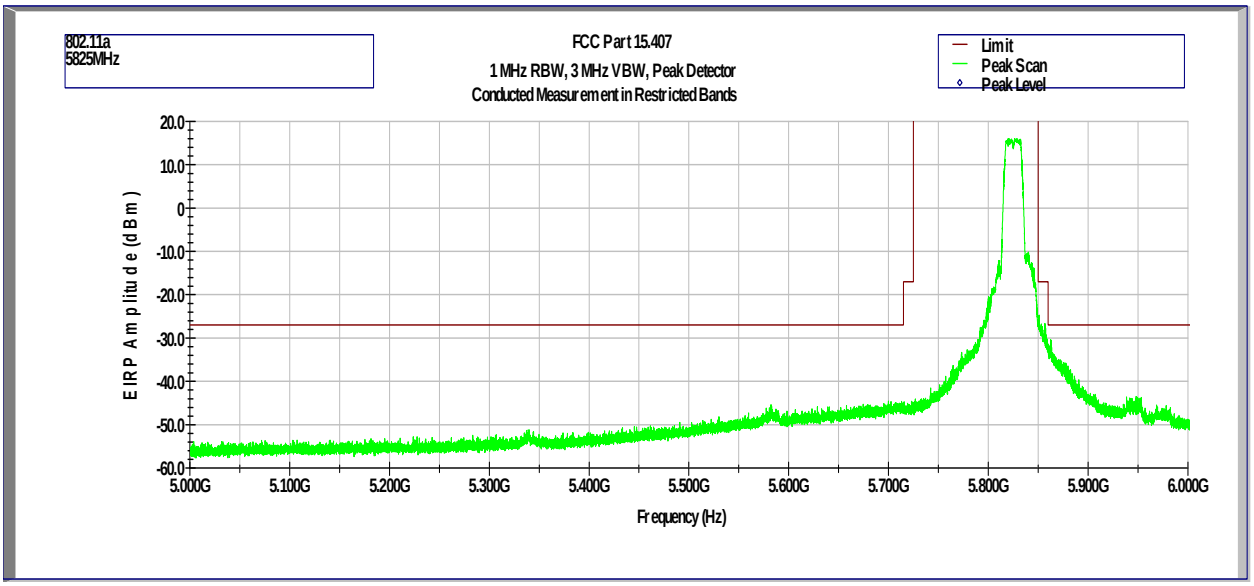
Radiated emission measurements were performed up to 40GHz. No Emissions were identified when scanned from 18-40 GHz.

15.209/15.205 Restricted Band Emissions at Antenna Port

Tested By:	Anderson Soungpanya
Test Date:	December 1-3, 2015

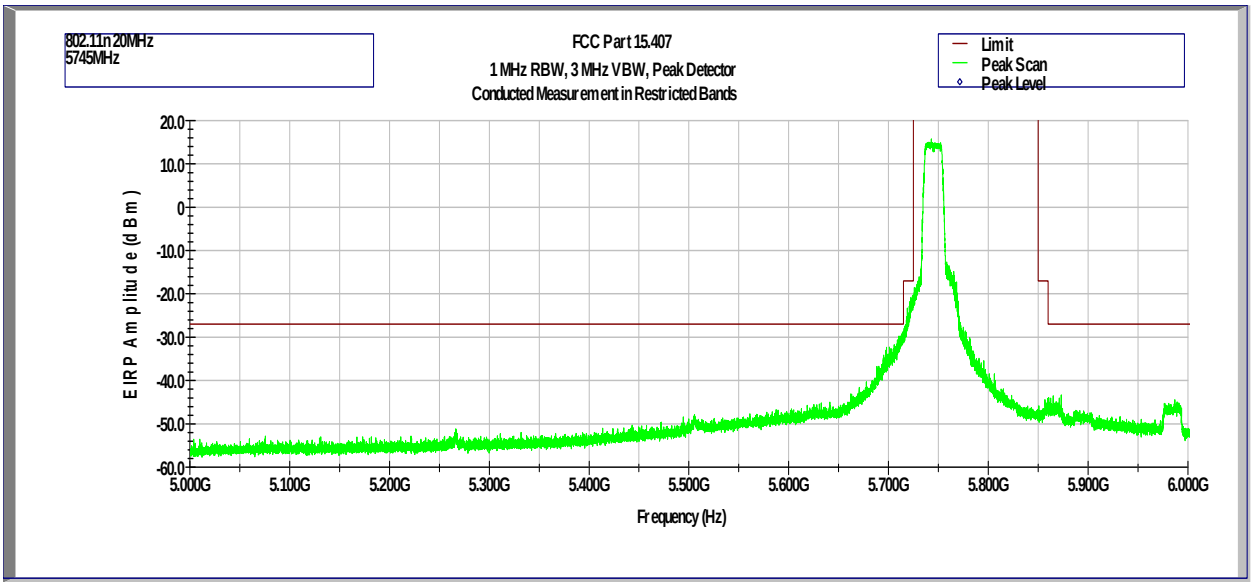
Out-of-Band Spurious Emissions at the Band Edge - 802.11a, 5745MHz & 5825MHz

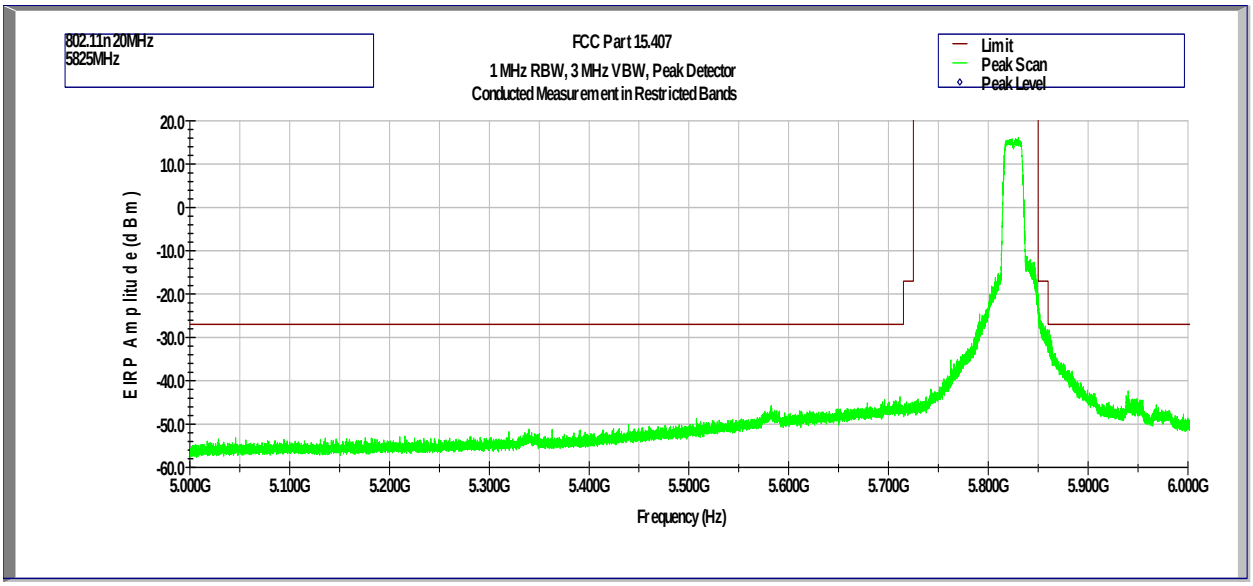




Frequency	Corrected Amplitude	Limit	Margin	Detector	Results
GHz	dBm	dBm	dB		
5.150	-28.8	-27	-1.8	Peak	Pass
5.250	-23.1	-17	-6.1	Peak	Pass
5.850	-24.8	-17	-7.8	Peak	Pass
5.860	-30.4	-27	-3.4	Peak	Pass

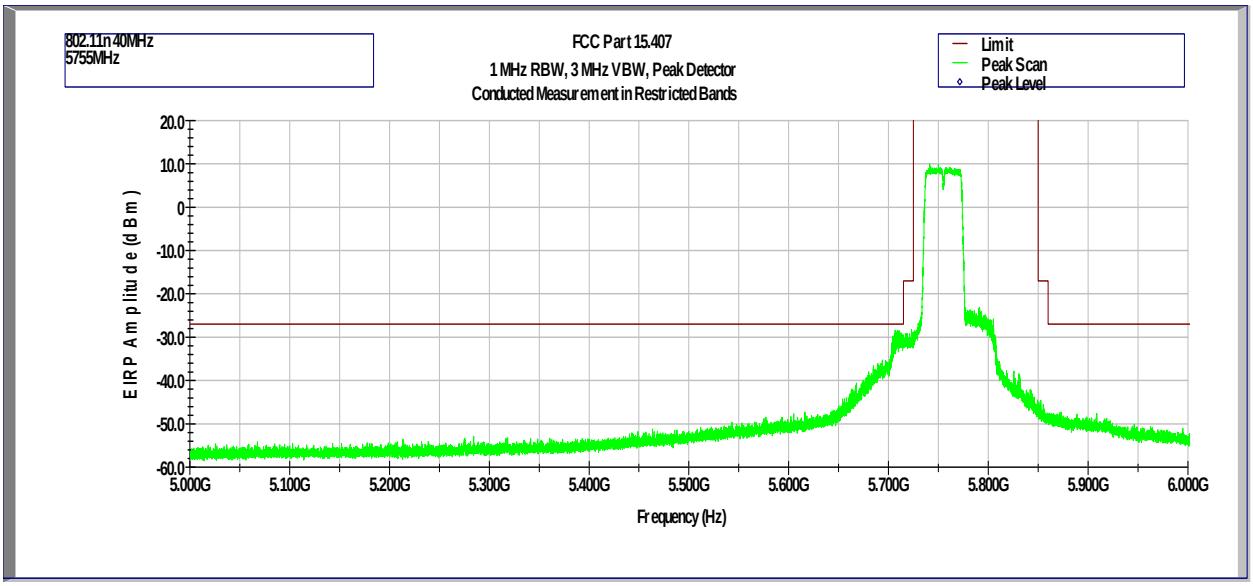
Out-of-Band Spurious Emissions at the Band Edge - 802.11n 20MHz, 5745MHz & 5825MHz

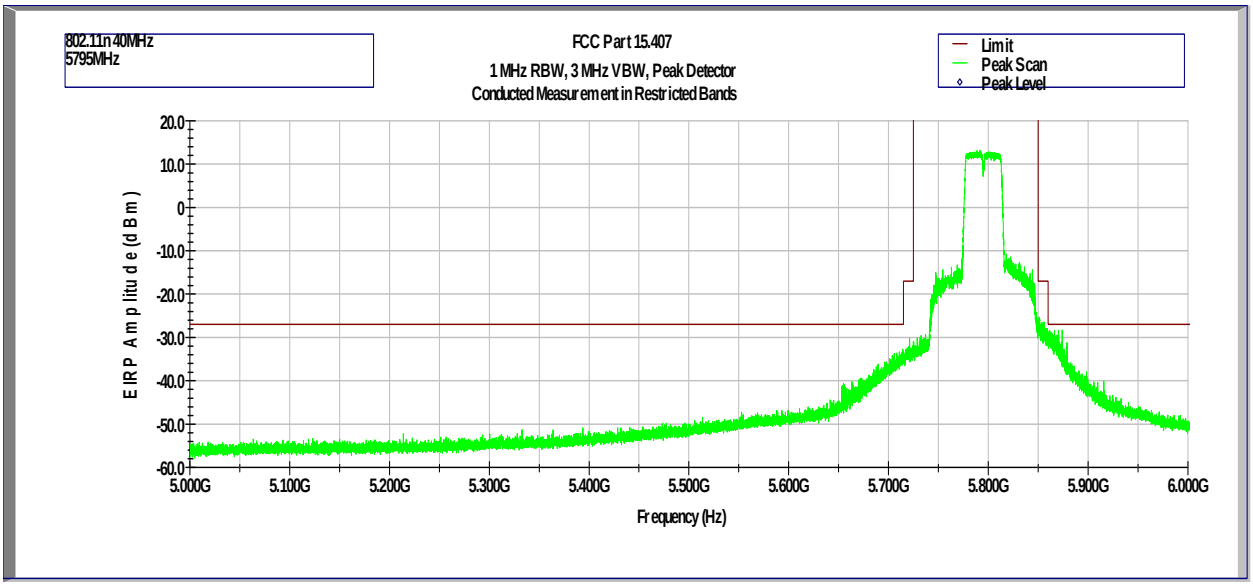




Frequency	Corrected Amplitude	Limit	Margin	Detector	Results
GHz	dBm	dBm	dB		
5.150	-28.8	-27	-1.8	Peak	Pass
5.250	-20.3	-17	-3.3	Peak	Pass
5.850	-21.8	-17	-4.8	Peak	Pass
5.860	-28.3	-27	-1.3	Peak	Pass

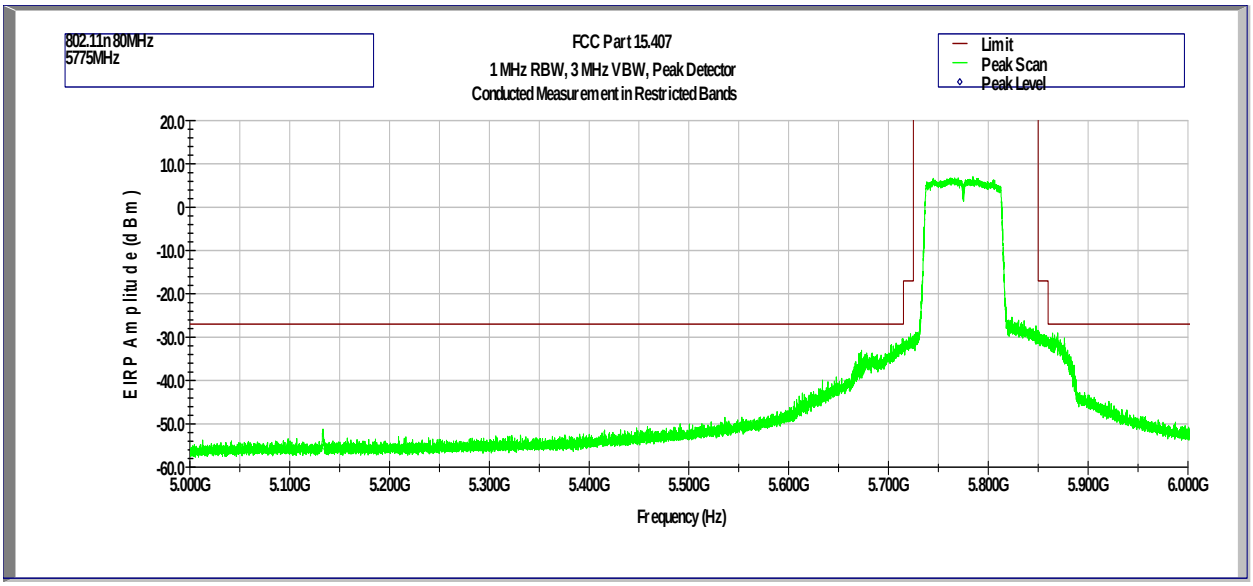
Out-of-Band Spurious Emissions at the Band Edge - 802.11n 40MHz, 5755MHz & 5795MHz





Frequency	Corrected Amplitude	Limit	Margin	Detector	Results
GHz	dBm	dBm	dB		
5.150	-28.5	-27	-1.5	Peak	Pass
5.250	-28.3	-17	-11.3	Peak	Pass
5.850	-25.3	-17	-8.3	Peak	Pass
5.860	-28.4	-27	-1.4	Peak	Pass

Out-of-Band Spurious Emissions at the Band Edge - 802.11ac 80MHz, 5775MHz

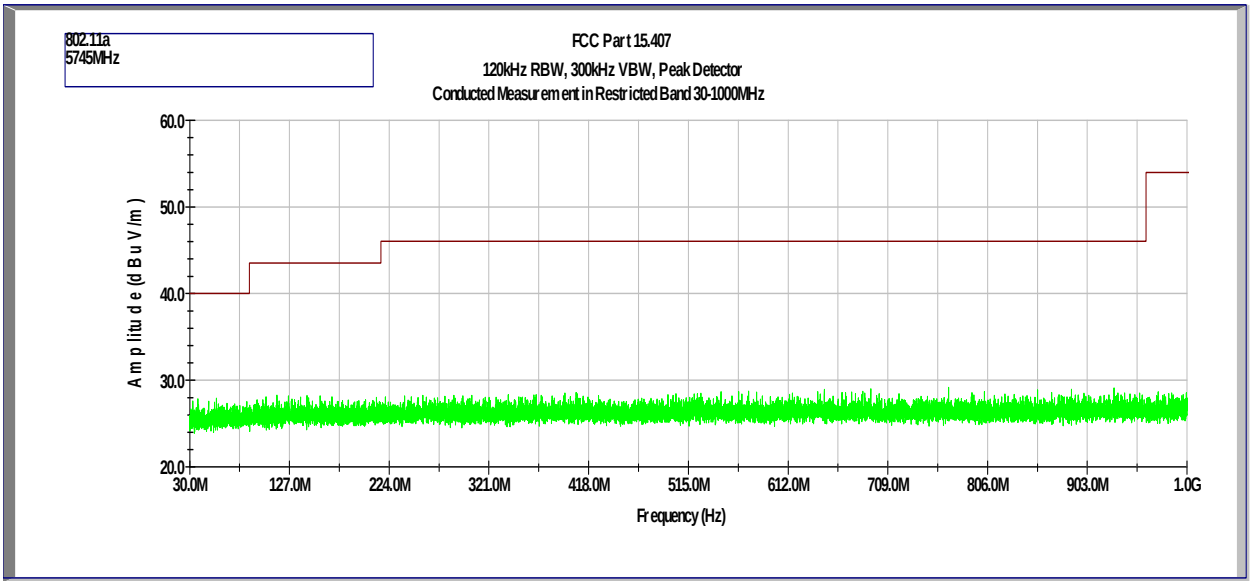


Frequency	Corrected Amplitude	Limit	Margin	Detector	Results
GHz	dBm	dBm	dB		
5.150	-30.4	-27	-3.4	Peak	Pass
5.250	-29.3	-17	-12.3	Peak	Pass
5.850	-28.6	-17	-11.6	Peak	Pass
5.860	-29.0	-27	-2.0	Peak	Pass

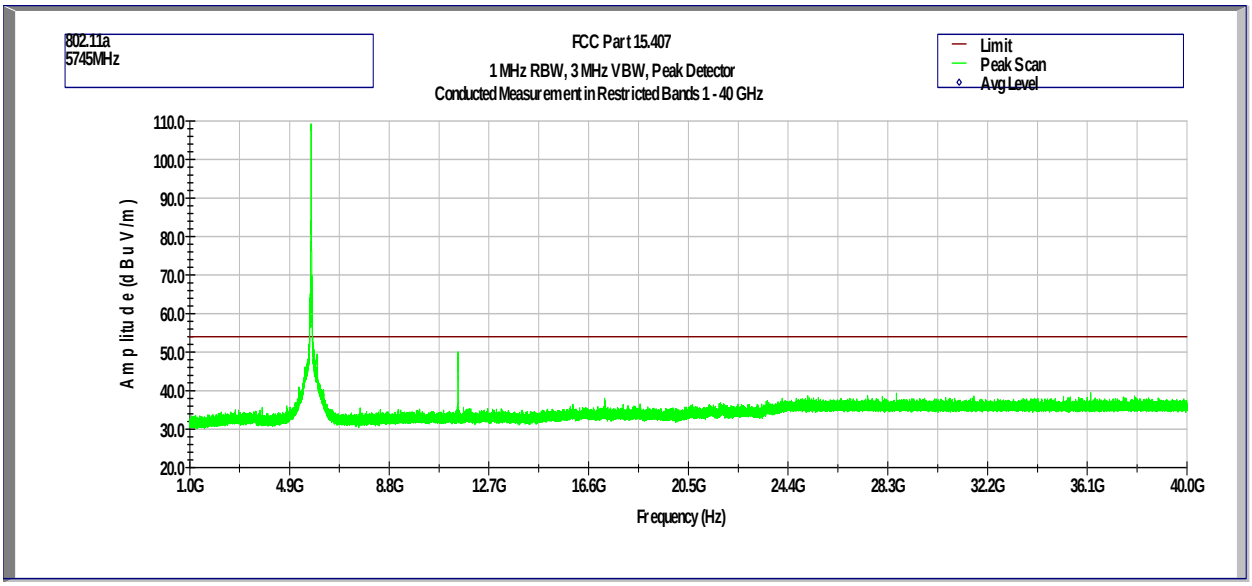
Out-of-Band Conducted Spurious Emissions (at Antenna Port)

Tx @ 5745MHz 802.11a

Out-of-Band Spurious Emissions at Antenna Port - 30 MHz to 1 GHz

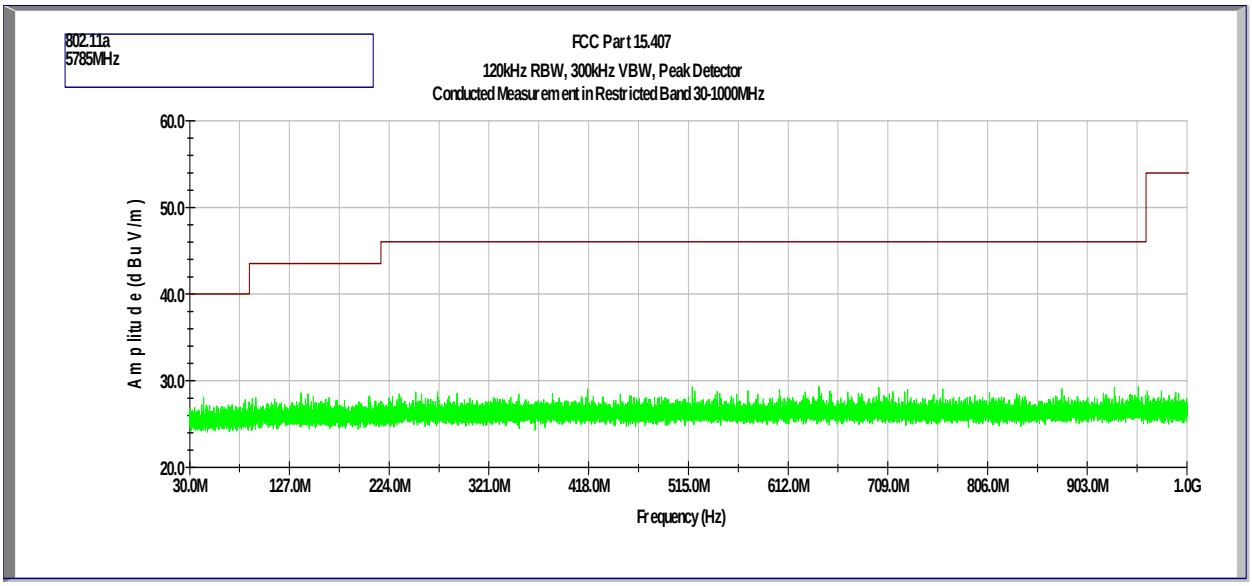


Out-of-Band Spurious Emissions at Antenna Port - 1 GHz to 40 GHz

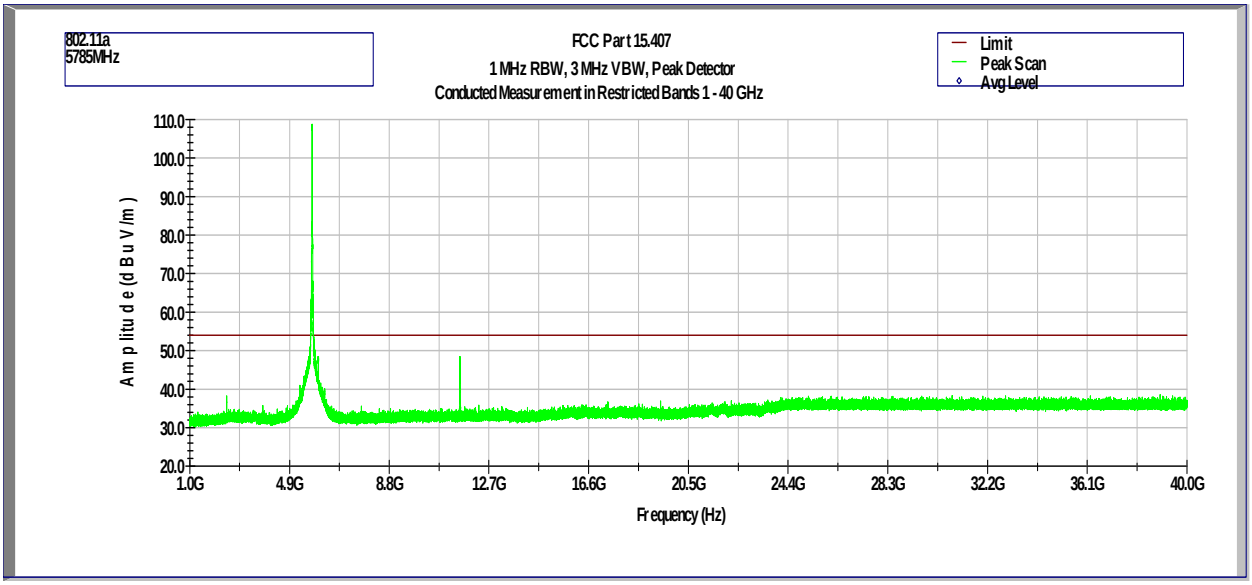


Tx @ 5785MHz 802.11a

Out-of-Band Spurious Emissions at Antenna Port - 30 MHz to 1 GHz

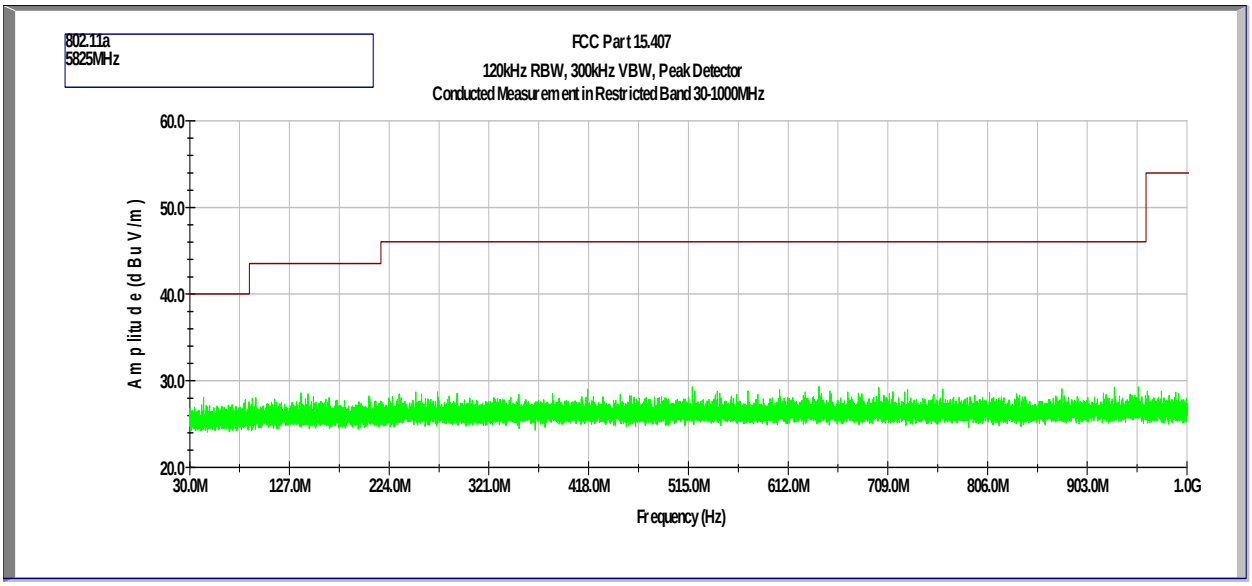


Out-of-Band Spurious Emissions at Antenna Port - 1 GHz to 40 GHz

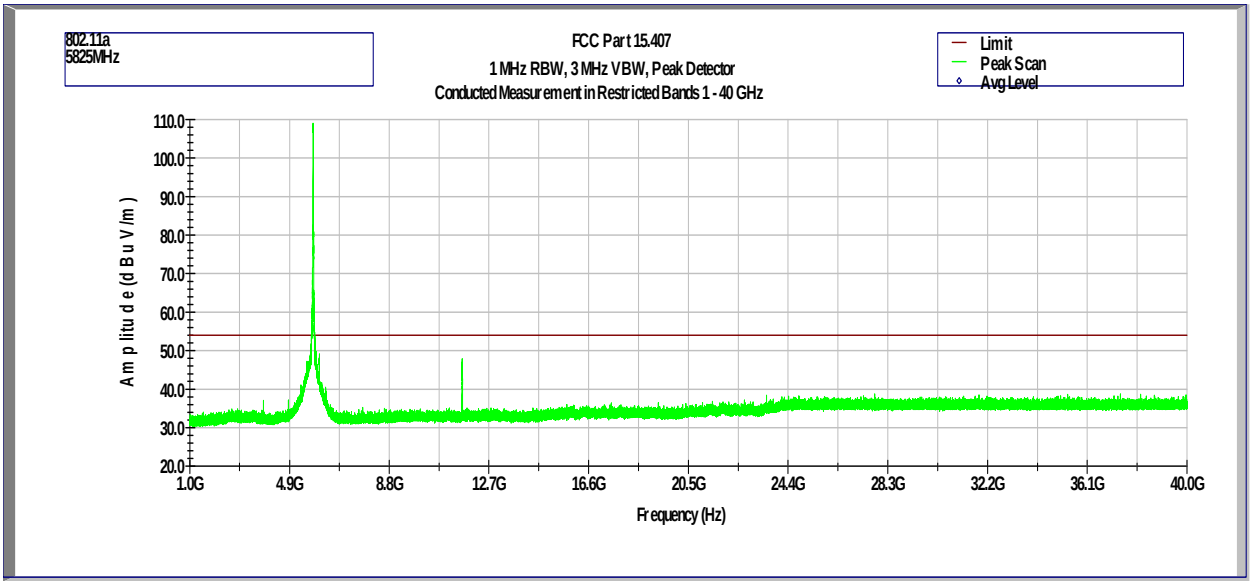


Tx @ 5825MHz 802.11a

Out-of-Band Spurious Emissions at Antenna Port - 30 MHz to 1 GHz

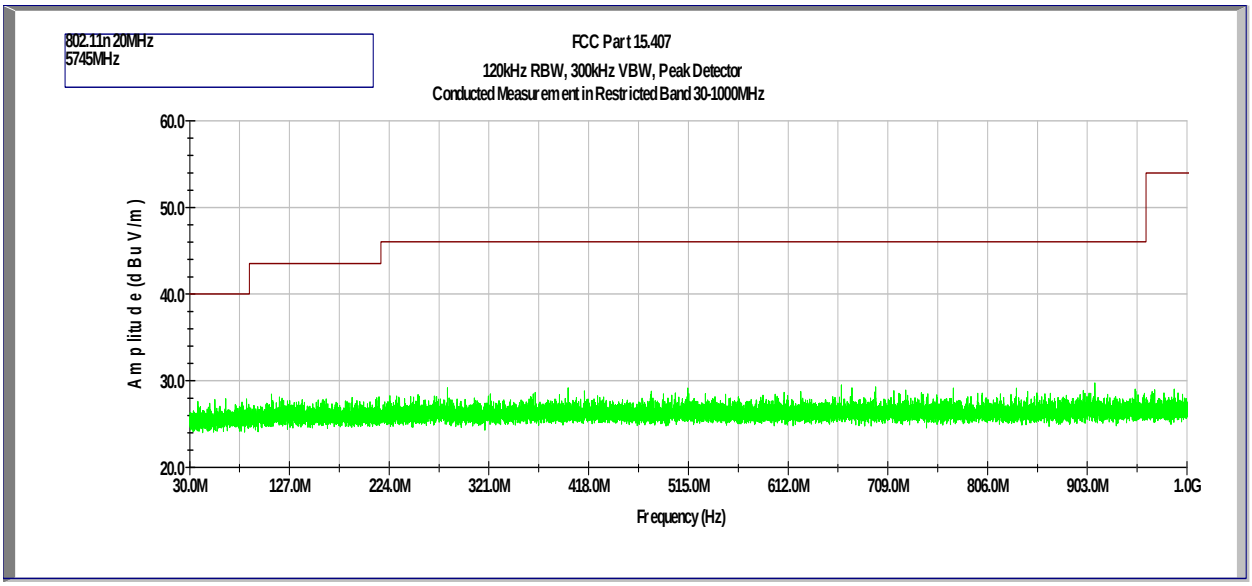


Out-of-Band Spurious Emissions at Antenna Port - 1 GHz to 40 GHz

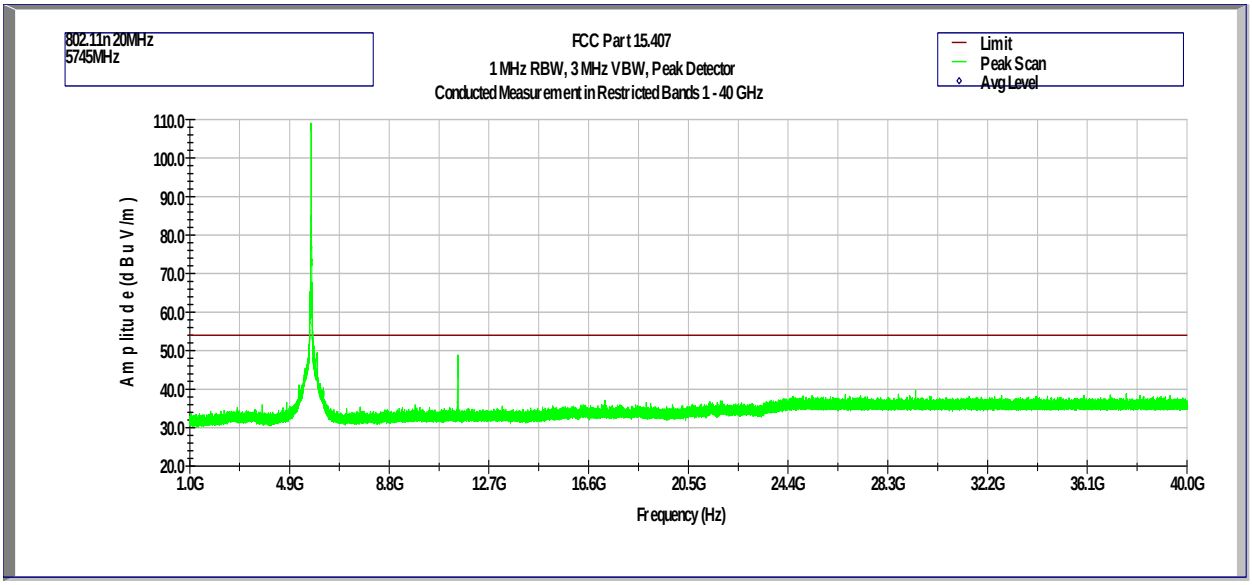


Tx @ 5745MHz 802.11n 20MHz

Out-of-Band Spurious Emissions at Antenna Port - 30 MHz to 1 GHz

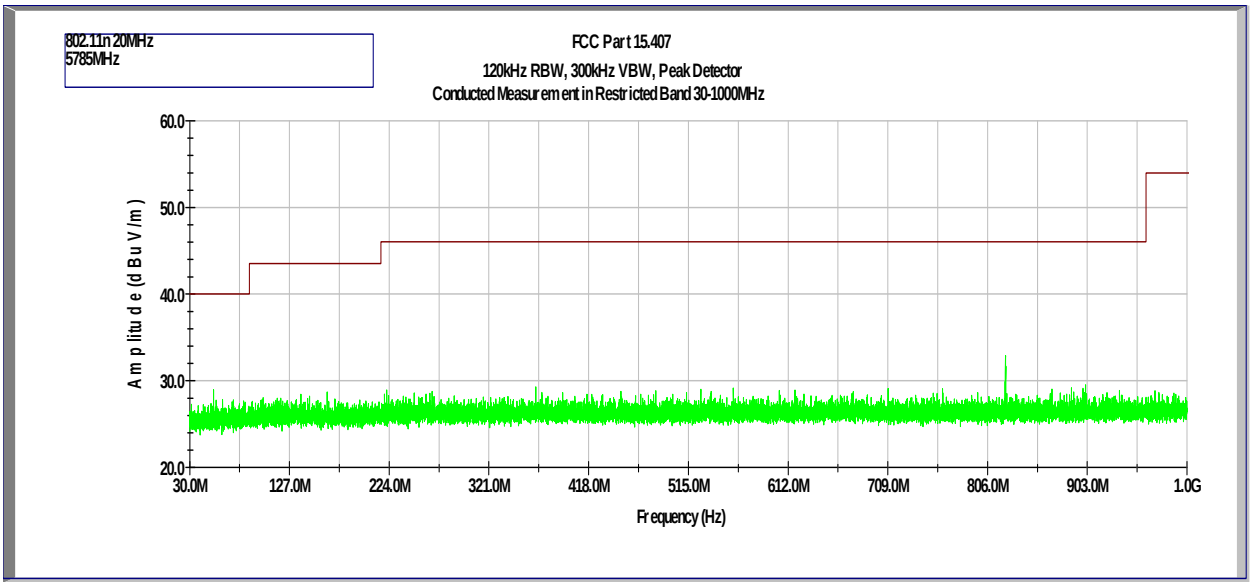


Out-of-Band Spurious Emissions at Antenna Port - 1 GHz to 40 GHz

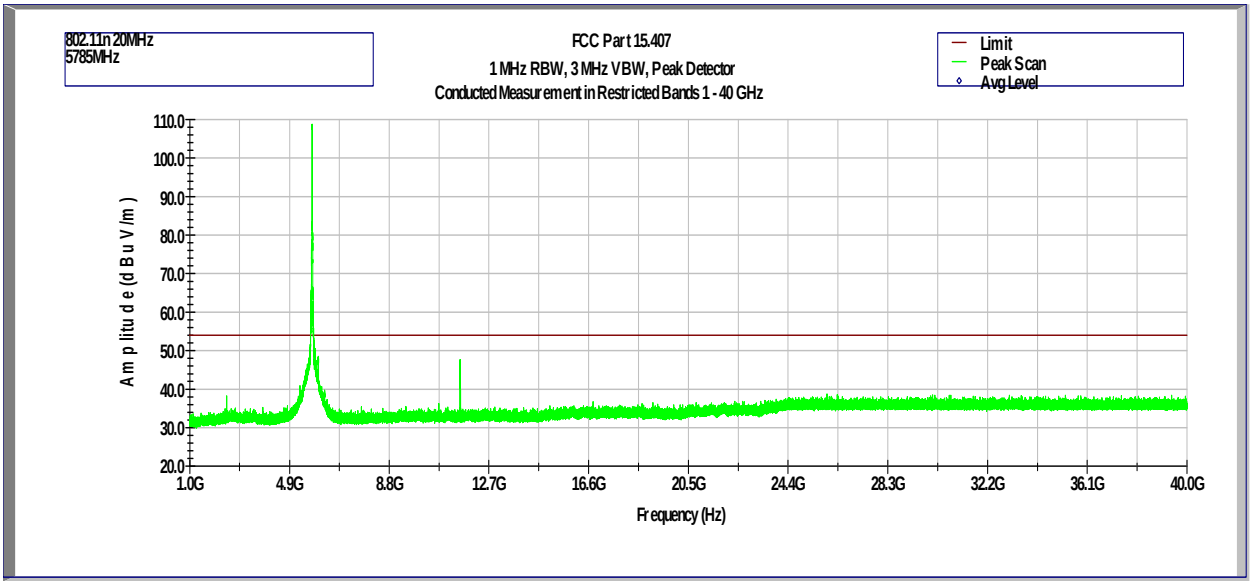


Tx @ 5785MHz 802.11n 20MHz

Out-of-Band Spurious Emissions at Antenna Port - 30 MHz to 1 GHz

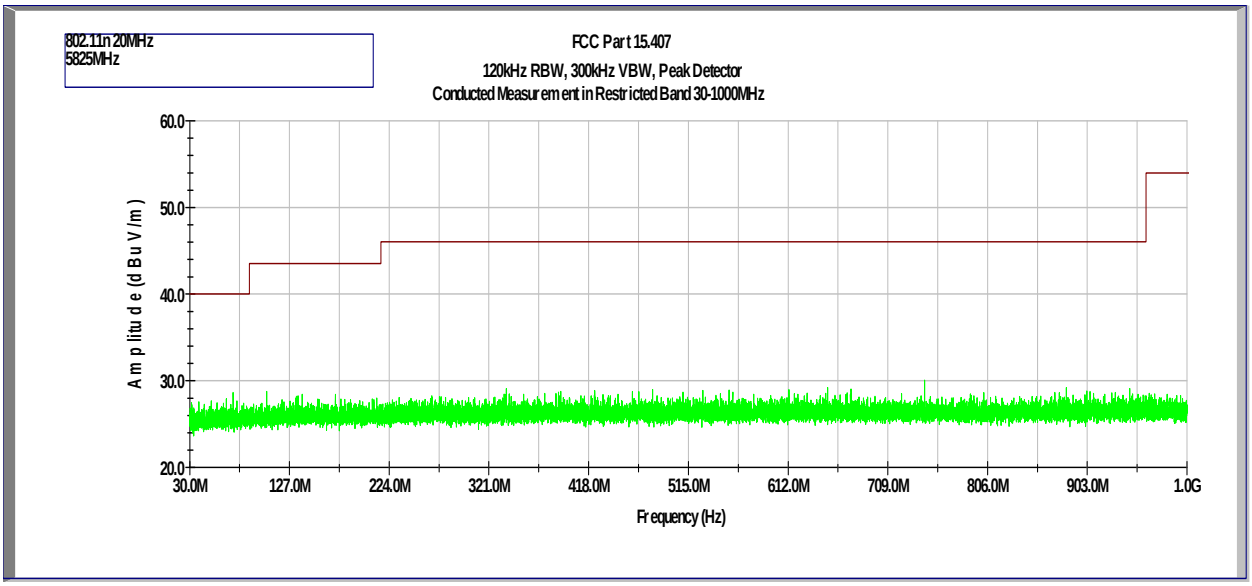


Out-of-Band Spurious Emissions at Antenna Port - 1 GHz to 40 GHz

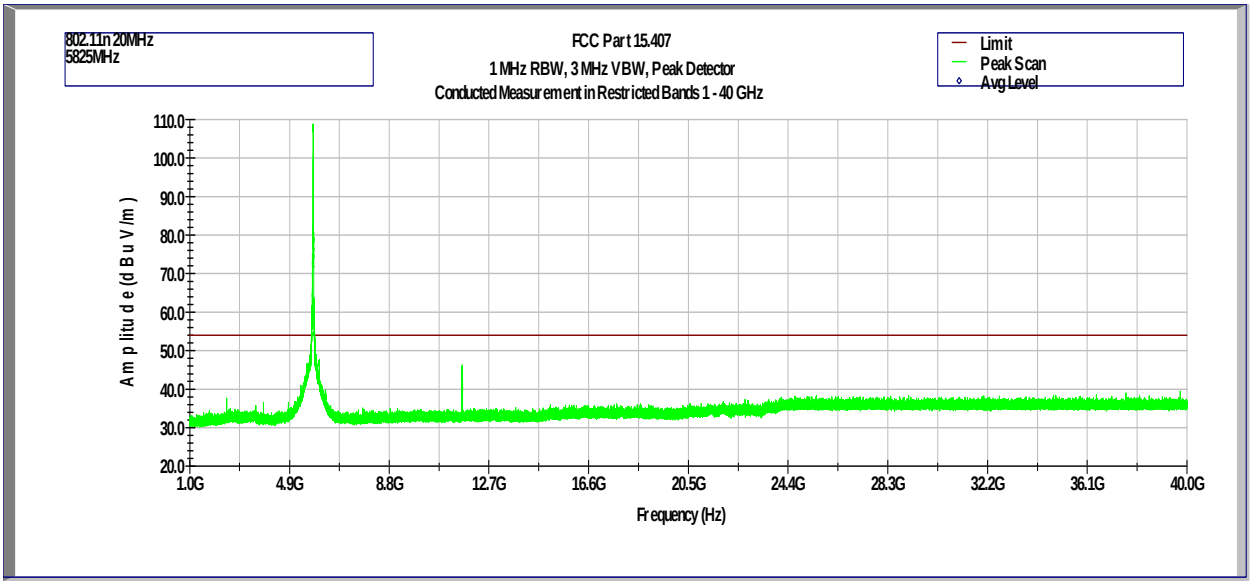


Tx @ 5825MHz 802.11n 20MHz

Out-of-Band Spurious Emissions at Antenna Port - 30 MHz to 1 GHz

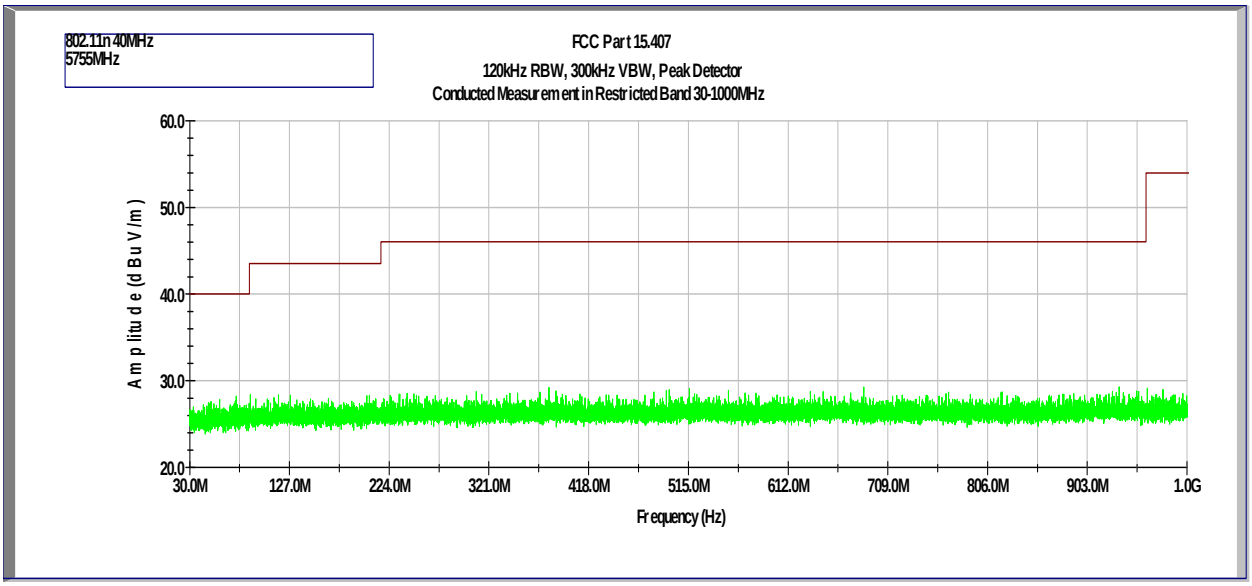


Out-of-Band Spurious Emissions at Antenna Port - 1 GHz to 40 GHz

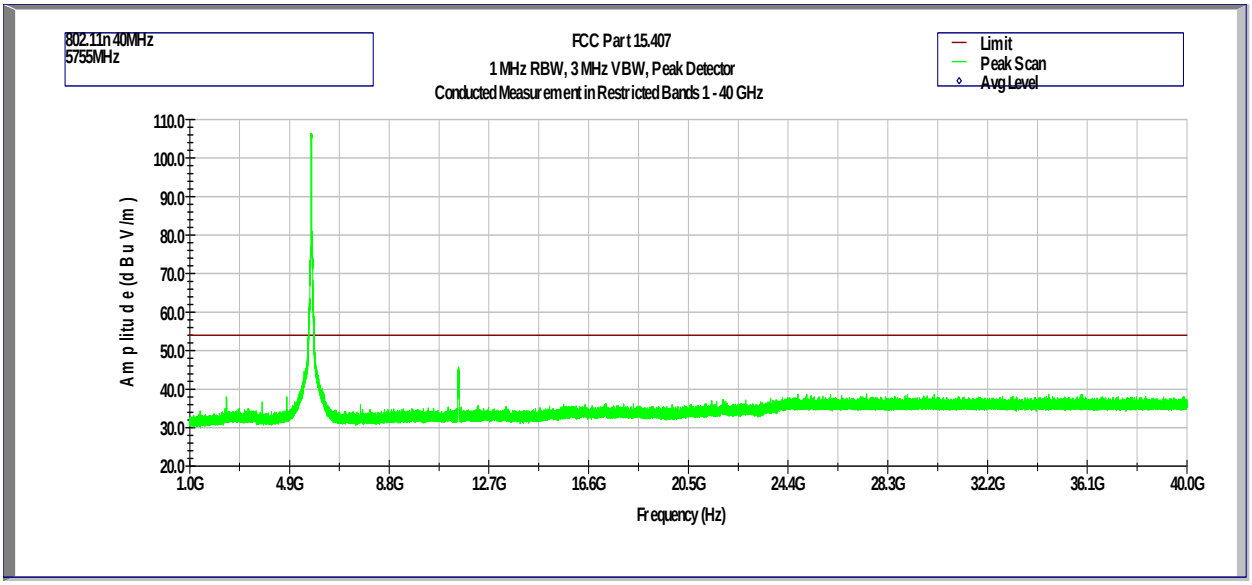


Tx @ 5755MHz 802.11n 40MHz

Out-of-Band Spurious Emissions at Antenna Port - 30 MHz to 1 GHz

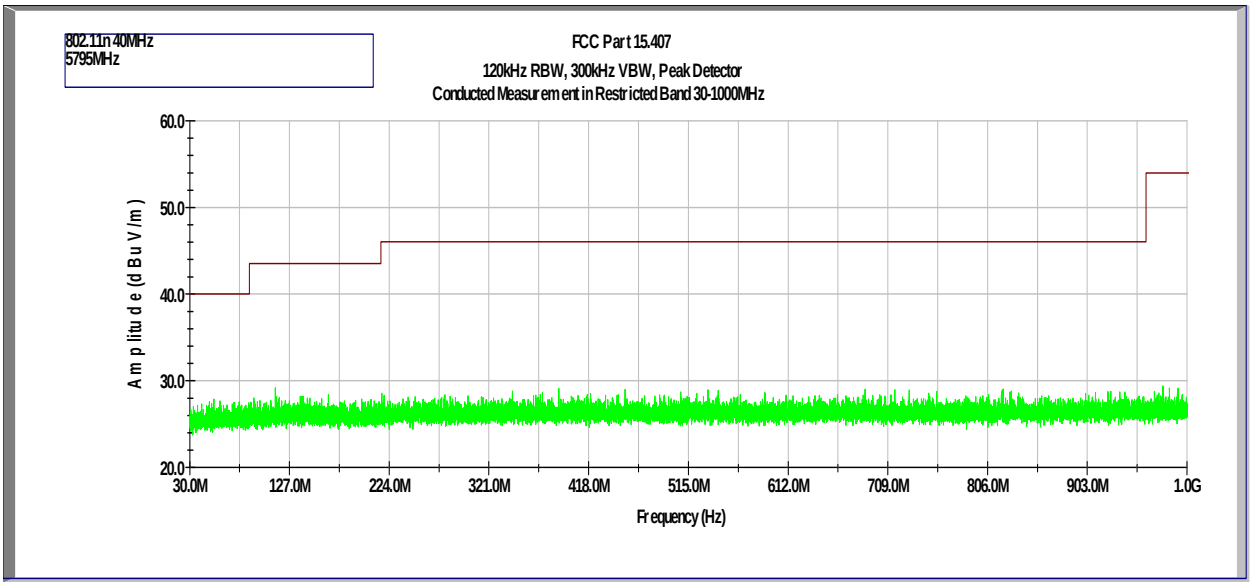


Out-of-Band Spurious Emissions at Antenna Port - 1 GHz to 40 GHz

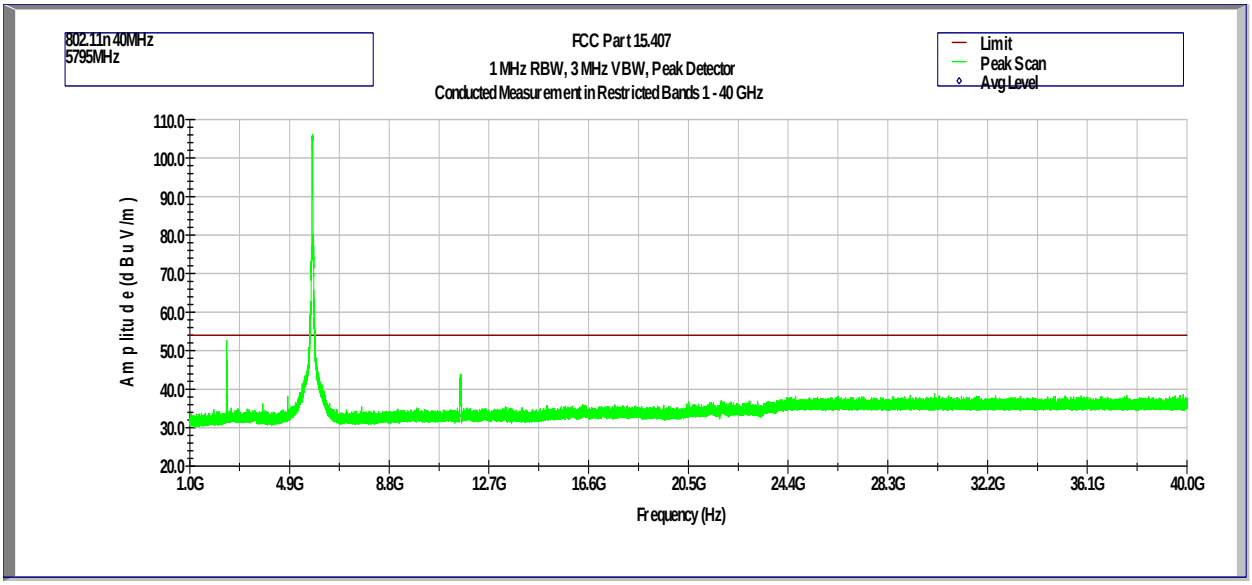


Tx @ 5795MHz 802.11n 40MHz

Out-of-Band Spurious Emissions at Antenna Port - 30 MHz to 1 GHz

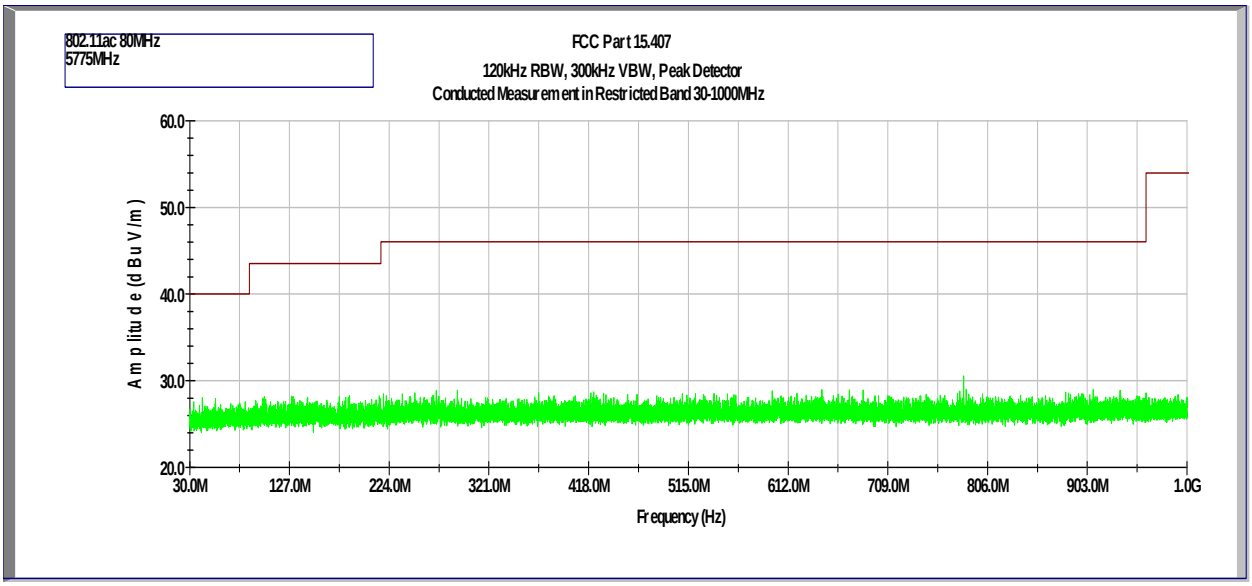


Out-of-Band Spurious Emissions at Antenna Port - 1 GHz to 40 GHz

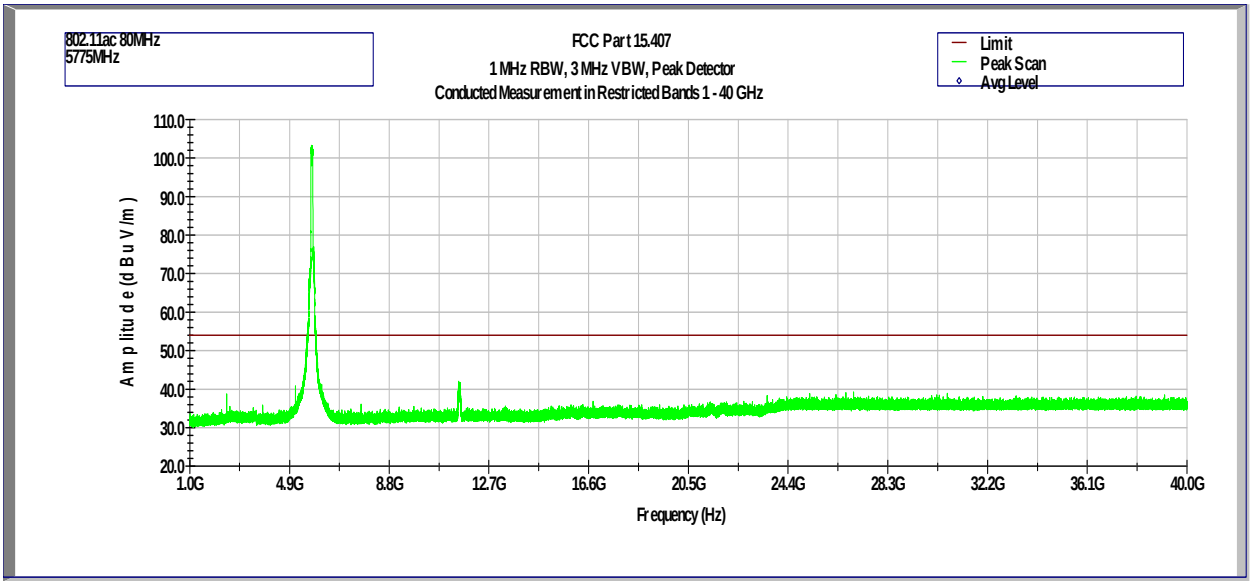


Tx @ 5775MHz 802.11ac 80MHz

Out-of-Band Spurious Emissions at Antenna Port - 30 MHz to 1 GHz



Out-of-Band Spurious Emissions at Antenna Port - 1 GHz to 40 GHz



Out-of-Band Radiated Spurious Emissions (Cabinet Radiation)

Tested By:	Anderson Soungpanya
Test Date:	December 8-18, 2015

Test Results: 15.209 Radiated Spurious Emissions Low Channel, Tx at 802.11a 5745MHz

Radiated Spurious Emissions 30 MHz - 1000 MHz (Horizontal)

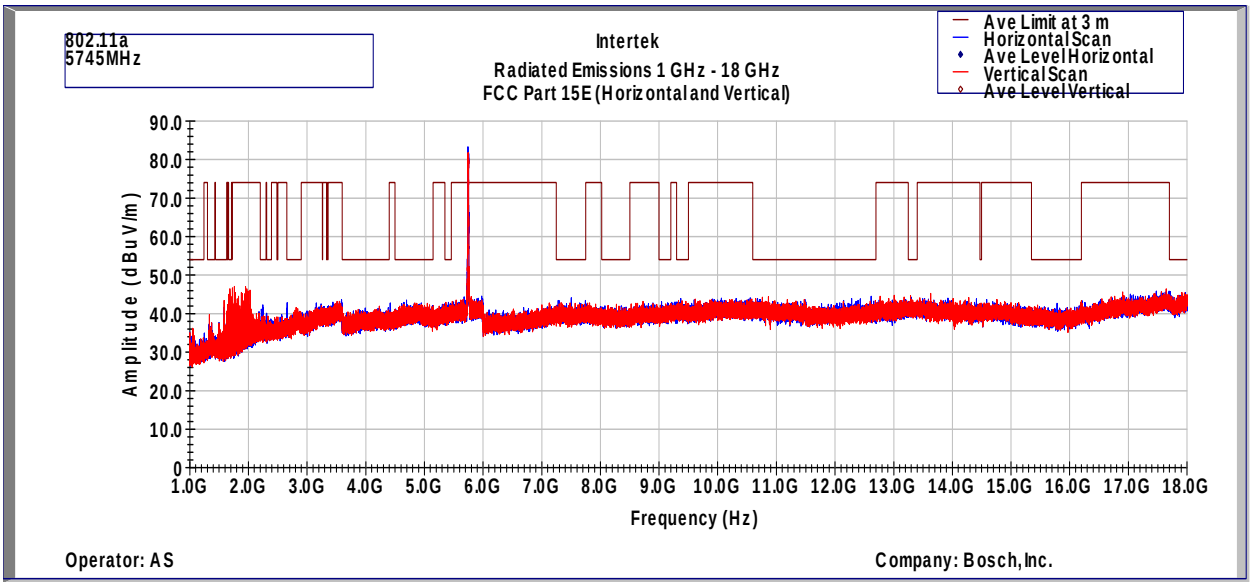
Frequency	Peak FS	Limit@3m	Margin	RA	CF	AG	DCF	AF
MHz	dB(uV/m)	dB(uV/m)	dB	dB(uV)	dB	dB	dB	dB(1/m)
170.747	35.8	43.5	-7.7	46.4	1.4	32.0	10.5	9.4
191.990	36.2	43.5	-7.3	46.8	1.5	32.0	10.5	9.5
193.995	35.2	43.5	-8.3	45.7	1.5	32.0	10.5	9.5
204.471	33.5	43.5	-10.0	43.6	1.6	32.0	10.5	9.8
216.014	39.3	46.0	-6.7	48.5	1.7	32.0	10.5	10.6
250.028	40.9	46.0	-5.1	48.6	1.9	32.0	10.5	11.8
300.016	36.4	46.0	-9.6	42.2	2.3	32.0	10.5	13.3
311.979	36.8	46.0	-9.2	42.4	2.3	32.0	10.5	13.6
323.296	38.0	46.0	-8.0	43.2	2.4	32.0	10.5	13.9
338.007	34.1	46.0	-11.9	38.8	2.4	32.0	10.5	14.4
387.898	33.6	46.0	-12.4	37.1	2.5	32.0	10.5	15.5
389.999	34.5	46.0	-11.5	38.0	2.5	32.0	10.5	15.5
420.005	36.5	46.0	-9.5	38.9	2.6	32.0	10.5	16.5
452.564	35.7	46.0	-10.3	37.5	2.7	32.0	10.5	17.0
480.015	37.2	46.0	-8.8	39.0	2.8	32.1	10.5	16.9
493.983	33.4	46.0	-12.6	34.9	2.9	32.1	10.5	17.2
527.998	39.6	46.0	-6.4	40.2	3.0	32.1	10.5	18.0
539.994	38.7	46.0	-7.3	39.5	3.0	32.1	10.5	17.9
550.017	35.7	46.0	-10.3	36.7	3.0	32.1	10.5	17.7
600.004	39.2	46.0	-6.8	39.6	3.1	32.2	10.5	18.3
605.986	34.6	46.0	-11.4	34.8	3.1	32.2	10.5	18.4
623.996	36.6	46.0	-9.4	36.3	3.2	32.2	10.5	18.9
644.010	37.0	46.0	-9.0	36.2	3.3	32.2	10.5	19.3
648.019	35.1	46.0	-10.9	34.2	3.3	32.3	10.5	19.3
659.983	34.6	46.0	-11.4	33.7	3.4	32.3	10.5	19.3
672.011	34.6	46.0	-11.4	33.8	3.4	32.3	10.5	19.2
711.134	37.6	46.0	-8.4	35.7	3.6	32.3	10.5	20.1
720.026	34.0	46.0	-12.0	31.9	3.6	32.3	10.5	20.2
731.019	36.1	46.0	-9.9	33.9	3.7	32.2	10.5	20.2
768.978	35.8	46.0	-10.2	33.4	3.8	32.2	10.5	20.3
801.958	35.5	46.0	-10.5	32.1	3.8	32.1	10.5	21.1

1000.000	40.2	54.0	-13.8	33.5	4.2	30.8	10.5	22.8

Radiated Spurious Emissions 30 MHz - 1000 MHz (Vertical)

Frequency	Peak FS	Limit@3m	Margin	RA	CF	AG	DCF	AF
MHz	dB(uV/m)	dB(uV/m)	dB	dB(uV)	dB	dB	dB	dB(1/m)
123.767	34.3	43.5	-9.2	42.8	1.2	32.0	10.5	11.9
124.995	36.7	43.5	-6.8	45.2	1.2	32.0	10.5	11.8
125.771	35.3	43.5	-8.2	43.8	1.2	32.0	10.5	11.8
164.798	34.3	43.5	-9.2	45.7	1.4	32.0	10.5	8.7
167.772	36.0	43.5	-7.5	47.0	1.4	32.0	10.5	9.1
169.712	36.7	43.5	-6.8	47.4	1.4	32.0	10.5	9.4
170.747	36.8	43.5	-6.7	47.5	1.4	32.0	10.5	9.4
191.990	37.9	43.5	-5.6	48.4	1.5	32.0	10.5	9.5
201.852	34.6	43.5	-8.9	45.0	1.6	32.0	10.5	9.6
203.210	34.1	43.5	-9.4	44.4	1.6	32.0	10.5	9.7
204.471	35.5	43.5	-8.0	45.6	1.6	32.0	10.5	9.8
207.090	35.5	43.5	-8.0	45.4	1.6	32.0	10.5	10.0
209.515	35.2	43.5	-8.3	44.9	1.6	32.0	10.5	10.2
210.937	35.8	43.5	-7.7	45.4	1.7	32.0	10.5	10.2
212.134	35.6	43.5	-7.9	45.1	1.7	32.0	10.5	10.3
213.427	34.8	43.5	-8.7	44.3	1.7	32.0	10.5	10.4
214.688	35.0	43.5	-8.5	44.3	1.7	32.0	10.5	10.5
217.275	36.2	46.0	-9.8	45.4	1.7	32.0	10.5	10.7
219.829	35.1	46.0	-10.9	44.0	1.7	32.0	10.5	10.8
222.351	35.5	46.0	-10.5	44.2	1.7	32.0	10.5	11.1
224.905	34.5	46.0	-11.5	43.0	1.8	32.0	10.5	11.3
226.231	34.4	46.0	-11.6	42.7	1.8	32.0	10.5	11.5
227.460	34.8	46.0	-11.2	43.0	1.8	32.0	10.5	11.6
228.721	34.3	46.0	-11.7	42.3	1.8	32.0	10.5	11.7
230.014	34.3	46.0	-11.7	42.2	1.8	32.0	10.5	11.8
240.005	39.1	46.0	-6.9	46.7	1.9	32.0	10.5	12.0
499.997	35.9	46.0	-10.1	37.3	2.9	32.1	10.5	17.3
527.998	35.6	46.0	-10.4	36.2	3.0	32.1	10.5	18.0
552.022	35.1	46.0	-10.9	36.0	3.0	32.1	10.5	17.8
801.958	36.5	46.0	-9.5	33.2	3.8	32.1	10.5	21.1
908.949	37.3	46.0	-8.7	32.1	4.0	31.5	10.5	22.3
971.708	38.0	54.0	-16.0	31.8	4.1	31.0	10.5	22.6

Out-of-Band Radiated Spurious Emissions (Cabinet Radiation) - 1 GHz to 18 GHz



Note: Radiated emission measurements were performed up to 40GHz. No Emissions were identified when scanned from 18-40 GHz

Note: FS@3m = RA + AF + CF - Preamp, (Peak)

Corrected Peak Scans are under the Average Limit of 54.

Test Results: 15.209 Radiated Spurious Emissions Low Channel, Tx at 802.11a 5785MHz

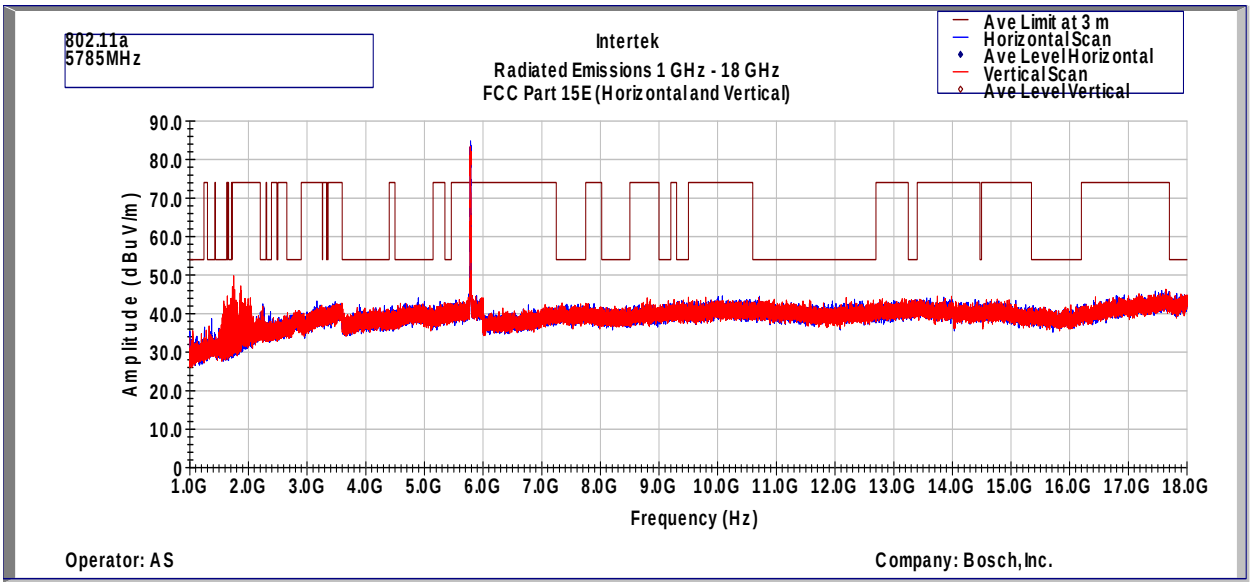
Radiated Spurious Emissions 30 MHz - 1000 MHz (Horizontal)

Frequency	Peak FS	Limit@3m	Margin	RA	CF	AG	DCF	AF
MHz	dB(uV/m)	dB(uV/m)	dB	dB(uV)	dB	dB	dB	dB(1/m)
171.685	36.2	43.5	-7.3	46.9	1.4	32.0	10.5	9.4
191.990	35.5	43.5	-8.0	46.0	1.5	32.0	10.5	9.5
193.962	35.1	43.5	-8.4	45.6	1.5	32.0	10.5	9.5
203.242	34.5	43.5	-9.0	44.7	1.6	32.0	10.5	9.7
216.014	38.9	46.0	-7.1	48.1	1.7	32.0	10.5	10.6
249.996	40.5	46.0	-5.5	48.2	1.9	32.0	10.5	11.8
300.016	36.8	46.0	-9.2	42.6	2.3	32.0	10.5	13.3
312.011	37.0	46.0	-9.0	42.6	2.3	32.0	10.5	13.6
323.296	36.9	46.0	-9.1	42.1	2.4	32.0	10.5	13.9
338.007	34.9	46.0	-11.1	39.6	2.4	32.0	10.5	14.4
387.898	36.3	46.0	-9.7	39.7	2.5	32.0	10.5	15.5
389.967	34.3	46.0	-11.7	37.7	2.5	32.0	10.5	15.5
420.005	35.7	46.0	-10.3	38.1	2.6	32.0	10.5	16.5
452.564	34.8	46.0	-11.2	36.6	2.7	32.0	10.5	17.0
480.015	37.4	46.0	-8.6	39.2	2.8	32.1	10.5	16.9
494.016	34.3	46.0	-11.7	35.8	2.9	32.1	10.5	17.2
527.998	40.1	46.0	-5.9	40.7	3.0	32.1	10.5	18.0
539.994	38.4	46.0	-7.6	39.2	3.0	32.1	10.5	17.9
550.017	36.6	46.0	-9.4	37.5	3.0	32.1	10.5	17.7
600.037	39.0	46.0	-7.0	39.3	3.1	32.2	10.5	18.3
605.986	34.9	46.0	-11.1	35.1	3.1	32.2	10.5	18.4
644.010	37.0	46.0	-9.0	36.2	3.3	32.2	10.5	19.3
647.987	35.2	46.0	-10.8	34.3	3.3	32.3	10.5	19.3
660.015	34.4	46.0	-11.6	33.4	3.4	32.3	10.5	19.3
672.011	35.7	46.0	-10.3	34.8	3.4	32.3	10.5	19.2
711.199	37.7	46.0	-8.3	35.8	3.6	32.3	10.5	20.1
730.987	37.0	46.0	-9.0	34.8	3.7	32.2	10.5	20.2
768.978	37.2	46.0	-8.8	34.8	3.8	32.2	10.5	20.3
780.004	35.1	46.0	-10.9	32.4	3.8	32.1	10.5	20.5
801.926	35.4	46.0	-10.6	32.1	3.8	32.1	10.5	21.1
984.060	38.4	54.0	-15.6	31.9	4.1	30.9	10.5	22.8
1000.000	42.6	54.0	-11.4	35.9	4.2	30.8	10.5	22.8

Radiated Spurious Emissions 30 MHz - 1000 MHz (Vertical)

Frequency	Peak FS	Limit@3m	Margin	RA	CF	AG	DCF	AF
MHz	dB(uV/m)	dB(uV/m)	dB	dB(uV)	dB	dB	dB	dB(1/m)
122.926	34.7	43.5	-8.8	43.1	1.2	32.0	10.5	11.9
123.928	35.3	43.5	-8.2	43.8	1.2	32.0	10.5	11.9
124.995	38.5	43.5	-5.0	47.0	1.2	32.0	10.5	11.8
125.804	35.2	43.5	-8.3	43.8	1.2	32.0	10.5	11.8
163.860	34.5	43.5	-9.0	46.1	1.4	32.0	10.5	8.6
171.685	37.3	43.5	-6.2	48.0	1.4	32.0	10.5	9.4
191.990	38.3	43.5	-5.2	48.8	1.5	32.0	10.5	9.5
201.981	34.9	43.5	-8.6	45.3	1.6	32.0	10.5	9.6
203.242	35.1	43.5	-8.4	45.3	1.6	32.0	10.5	9.7
204.438	35.3	43.5	-8.2	45.4	1.6	32.0	10.5	9.8
205.732	34.8	43.5	-8.7	44.8	1.6	32.0	10.5	9.9
207.057	35.0	43.5	-8.5	44.9	1.6	32.0	10.5	10.0
209.612	35.0	43.5	-8.5	44.7	1.6	32.0	10.5	10.2
210.937	34.8	43.5	-8.7	44.4	1.7	32.0	10.5	10.2
212.231	35.2	43.5	-8.3	44.7	1.7	32.0	10.5	10.3
213.459	35.1	43.5	-8.4	44.5	1.7	32.0	10.5	10.4
214.720	35.8	43.5	-7.7	45.1	1.7	32.0	10.5	10.5
217.210	35.3	46.0	-10.7	44.4	1.7	32.0	10.5	10.7
222.351	35.6	46.0	-10.4	44.3	1.7	32.0	10.5	11.1
225.002	34.5	46.0	-11.5	42.9	1.8	32.0	10.5	11.3
227.524	34.7	46.0	-11.3	42.9	1.8	32.0	10.5	11.6
228.850	34.5	46.0	-11.5	42.5	1.8	32.0	10.5	11.7
240.005	38.8	46.0	-7.2	46.4	1.9	32.0	10.5	12.0
500.030	36.9	46.0	-9.1	38.2	2.9	32.1	10.5	17.3
527.998	35.6	46.0	-10.4	36.3	3.0	32.1	10.5	18.0
551.989	35.4	46.0	-10.6	36.3	3.0	32.1	10.5	17.8
775.801	34.5	46.0	-11.5	31.9	3.8	32.2	10.5	20.4
801.926	37.1	46.0	-8.9	33.7	3.8	32.1	10.5	21.1
871.152	35.4	46.0	-10.6	31.2	3.9	31.8	10.5	21.5
886.219	36.5	46.0	-9.5	32.0	4.0	31.7	10.5	21.8
923.726	37.2	46.0	-8.8	31.6	4.0	31.4	10.5	22.5
930.386	37.7	46.0	-8.3	31.9	4.0	31.4	10.5	22.6

Out-of-Band Radiated Spurious Emissions (Cabinet Radiation) - 1 GHz to 18 GHz



Note: Radiated emission measurements were performed up to 40GHz. No Emissions were identified when scanned from 18-40 GHz

Note: FS@3m = RA + AF + CF - Preamp, (Peak)

Corrected Peak Scans are under the Average Limit of 54.

Test Results: 15.209 Radiated Spurious Emissions Low Channel, Tx at 802.11a 5825MHz

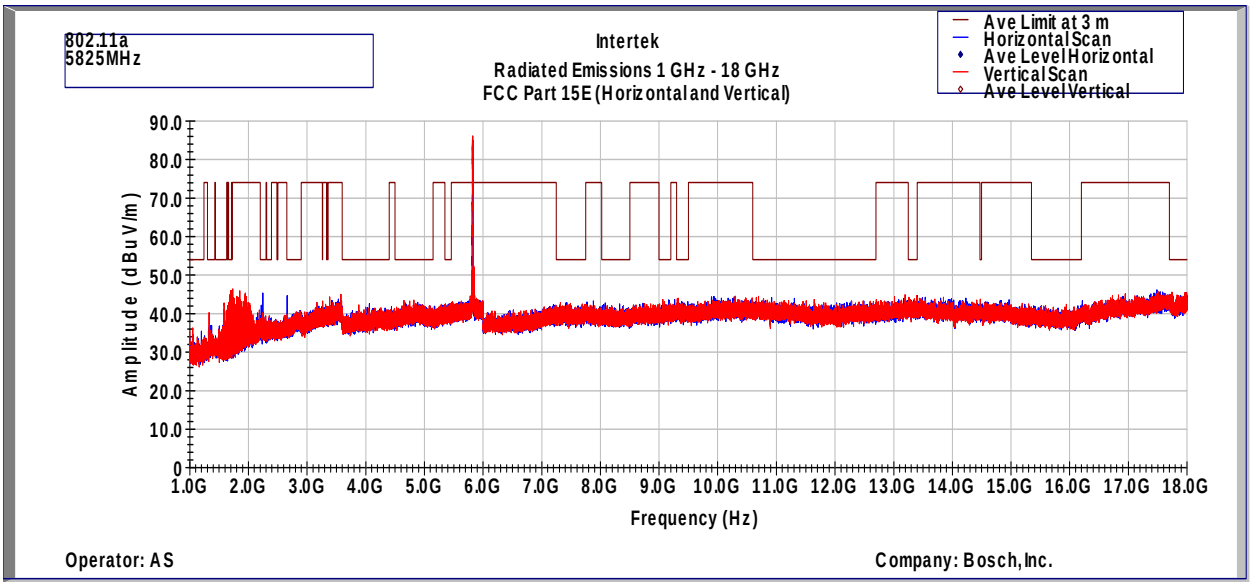
Radiated Spurious Emissions 30 MHz - 1000 MHz (Horizontal)

Frequency	Peak FS	Limit@3m	Margin	RA	CF	AG	DCF	AF
MHz	dB(uV/m)	dB(uV/m)	dB	dB(uV)	dB	dB	dB	dB(1/m)
167.999	37.1	43.5	-6.4	48.0	1.4	32.0	10.5	9.2
171.620	35.7	43.5	-7.8	46.4	1.4	32.0	10.5	9.4
191.990	36.0	43.5	-7.5	46.5	1.5	32.0	10.5	9.5
193.962	36.4	43.5	-7.1	46.9	1.5	32.0	10.5	9.5
216.014	39.5	46.0	-6.5	48.7	1.7	32.0	10.5	10.6
300.048	36.6	46.0	-9.4	42.4	2.3	32.0	10.5	13.3
312.044	37.0	46.0	-9.0	42.5	2.3	32.0	10.5	13.6
323.296	36.4	46.0	-9.6	41.6	2.4	32.0	10.5	13.9
387.930	33.9	46.0	-12.1	37.3	2.5	32.0	10.5	15.5
389.999	34.0	46.0	-12.0	37.4	2.5	32.0	10.5	15.5
420.005	36.0	46.0	-10.0	38.4	2.6	32.0	10.5	16.5
452.597	34.9	46.0	-11.1	36.7	2.7	32.0	10.5	17.0
479.983	36.8	46.0	-9.2	38.6	2.8	32.1	10.5	16.9
494.016	34.1	46.0	-11.9	35.6	2.9	32.1	10.5	17.2
527.998	39.1	46.0	-6.9	39.8	3.0	32.1	10.5	18.0
539.994	38.4	46.0	-7.6	39.2	3.0	32.1	10.5	17.9
550.017	35.1	46.0	-10.9	36.1	3.0	32.1	10.5	17.7
600.037	38.8	46.0	-7.2	39.2	3.1	32.2	10.5	18.3
606.018	34.9	46.0	-11.1	35.1	3.1	32.2	10.5	18.4
624.028	33.9	46.0	-12.1	33.5	3.2	32.2	10.5	18.9
644.010	37.0	46.0	-9.0	36.1	3.3	32.2	10.5	19.3
648.019	35.2	46.0	-10.8	34.3	3.3	32.3	10.5	19.3
660.047	34.0	46.0	-12.0	33.0	3.4	32.3	10.5	19.3
711.199	37.8	46.0	-8.2	35.9	3.6	32.3	10.5	20.1
719.993	35.6	46.0	-10.4	33.5	3.6	32.3	10.5	20.2
731.019	38.0	46.0	-8.0	35.8	3.7	32.2	10.5	20.2
752.036	35.0	46.0	-11.0	33.1	3.7	32.2	10.5	19.9
769.011	37.2	46.0	-8.8	34.8	3.8	32.2	10.5	20.3
780.004	35.8	46.0	-10.2	33.2	3.8	32.1	10.5	20.5
900.058	37.4	46.0	-8.6	32.6	4.0	31.6	10.5	21.9
1000.000	41.3	54.0	-12.7	34.6	4.2	30.8	10.5	22.8

Radiated Spurious Emissions 30 MHz - 1000 MHz (Vertical)

Frequency	Peak FS	Limit@3m	Margin	RA	CF	AG	DCF	AF
MHz	dB(uV/m)	dB(uV/m)	dB	dB(uV)	dB	dB	dB	dB(1/m)
92.468	34.0	43.5	-9.5	45.8	1.0	32.1	10.5	8.7
122.894	34.1	43.5	-9.4	42.5	1.2	32.0	10.5	11.9
123.831	34.5	43.5	-9.0	42.9	1.2	32.0	10.5	11.9
124.995	38.1	43.5	-5.4	46.7	1.2	32.0	10.5	11.8
163.892	33.9	43.5	-9.6	45.4	1.4	32.0	10.5	8.6
166.835	35.0	43.5	-8.5	46.1	1.4	32.0	10.5	9.0
167.772	36.1	43.5	-7.4	47.1	1.4	32.0	10.5	9.1
168.775	36.2	43.5	-7.3	47.0	1.4	32.0	10.5	9.3
186.041	38.3	43.5	-5.2	48.9	1.5	32.0	10.5	9.3
193.930	36.1	43.5	-7.4	46.6	1.5	32.0	10.5	9.5
204.535	35.2	43.5	-8.3	45.3	1.6	32.0	10.5	9.8
207.057	34.5	43.5	-9.0	44.4	1.6	32.0	10.5	10.0
208.318	34.1	43.5	-9.4	43.9	1.6	32.0	10.5	10.1
209.579	35.1	43.5	-8.4	44.8	1.6	32.0	10.5	10.2
210.937	34.7	43.5	-8.8	44.3	1.7	32.0	10.5	10.2
212.069	35.7	43.5	-7.8	45.2	1.7	32.0	10.5	10.3
213.427	35.2	43.5	-8.3	44.6	1.7	32.0	10.5	10.4
214.688	35.2	43.5	-8.3	44.5	1.7	32.0	10.5	10.5
217.275	34.9	46.0	-11.1	44.0	1.7	32.0	10.5	10.7
219.829	34.0	46.0	-12.0	42.9	1.7	32.0	10.5	10.8
222.351	35.4	46.0	-10.6	44.1	1.7	32.0	10.5	11.1
224.905	34.0	46.0	-12.0	42.4	1.8	32.0	10.5	11.3
226.263	35.2	46.0	-10.8	43.4	1.8	32.0	10.5	11.5
227.427	34.9	46.0	-11.1	43.0	1.8	32.0	10.5	11.6
230.046	34.5	46.0	-11.5	42.4	1.8	32.0	10.5	11.8
232.665	34.6	46.0	-11.4	42.3	1.8	32.0	10.5	11.9
240.005	39.1	46.0	-6.9	46.7	1.9	32.0	10.5	12.0
499.997	36.0	46.0	-10.0	37.4	2.9	32.1	10.5	17.3
527.998	34.6	46.0	-11.4	35.2	3.0	32.1	10.5	18.0
551.989	36.1	46.0	-9.9	37.0	3.0	32.1	10.5	17.8
801.926	36.8	46.0	-9.2	33.5	3.8	32.1	10.5	21.1
815.118	35.3	46.0	-10.7	31.8	3.9	32.0	10.5	21.2
982.863	37.7	54.0	-16.3	31.2	4.1	30.9	10.5	22.8

Out-of-Band Radiated Spurious Emissions (Cabinet Radiation) - 1 GHz to 18 GHz



Note: Radiated emission measurements were performed up to 40GHz. No Emissions were identified when scanned from 18-40 GHz

Note: FS@3m = RA + AF + CF - Preamp, (Peak)

Corrected Peak Scans are under the Average Limit of 54.

Test Results: 15.209 Radiated Spurious Emissions Low Channel, Tx at 802.11n 20MHz 5745MHz

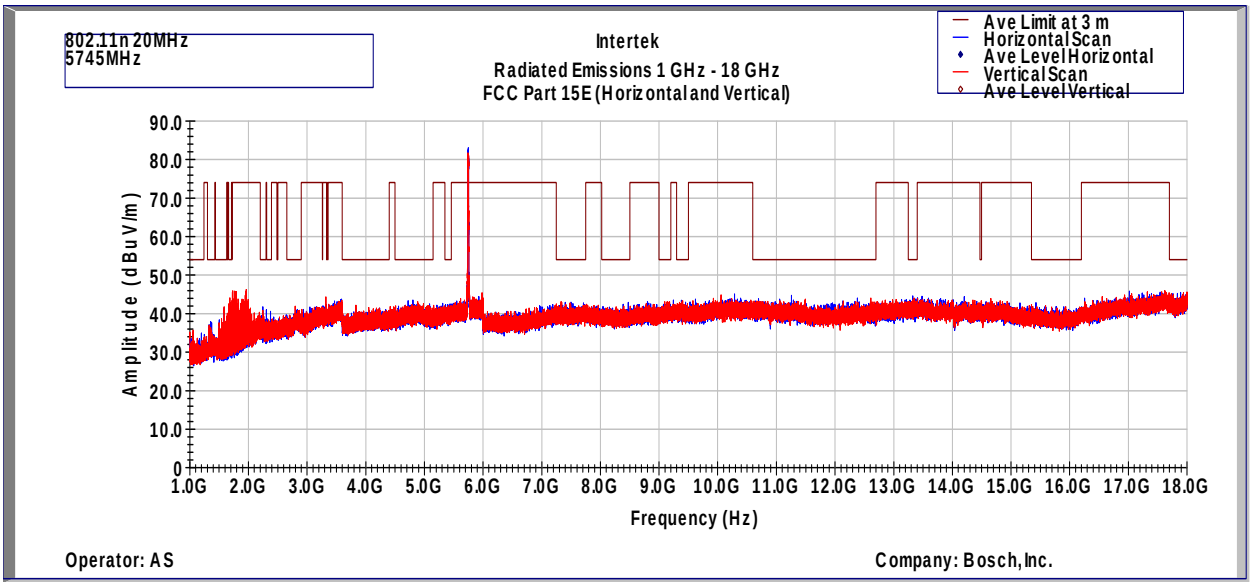
Radiated Spurious Emissions 30 MHz - 1000 MHz (Horizontal)

Frequency	Peak FS	Limit@3m	Margin	RA	CF	AG	DCF	AF
MHz	dB(uV/m)	dB(uV/m)	dB	dB(uV)	dB	dB	dB	dB(1/m)
174.724	36.0	43.5	-7.5	46.8	1.5	32.0	10.5	9.3
192.022	34.7	43.5	-8.8	45.2	1.5	32.0	10.5	9.5
193.962	35.2	43.5	-8.3	45.7	1.5	32.0	10.5	9.5
216.014	39.2	46.0	-6.8	48.4	1.7	32.0	10.5	10.6
249.996	40.7	46.0	-5.3	48.4	1.9	32.0	10.5	11.8
300.016	35.6	46.0	-10.4	41.4	2.3	32.0	10.5	13.3
312.044	37.2	46.0	-8.8	42.7	2.3	32.0	10.5	13.6
323.263	36.9	46.0	-9.1	42.1	2.4	32.0	10.5	13.9
338.007	34.4	46.0	-11.6	39.1	2.4	32.0	10.5	14.4
387.898	35.5	46.0	-10.5	39.0	2.5	32.0	10.5	15.5
390.032	34.5	46.0	-11.5	37.9	2.5	32.0	10.5	15.5
420.005	35.6	46.0	-10.4	38.0	2.6	32.0	10.5	16.5
452.564	34.4	46.0	-11.6	36.2	2.7	32.0	10.5	17.0
479.983	35.9	46.0	-10.1	37.7	2.8	32.1	10.5	16.9
527.998	40.9	46.0	-5.1	41.6	3.0	32.1	10.5	18.0
539.994	38.5	46.0	-7.5	39.3	3.0	32.1	10.5	17.9
550.017	36.1	46.0	-9.9	37.1	3.0	32.1	10.5	17.7
600.004	39.3	46.0	-6.7	39.7	3.1	32.2	10.5	18.3
624.028	35.6	46.0	-10.4	35.3	3.2	32.2	10.5	18.9
644.010	36.5	46.0	-9.5	35.7	3.3	32.2	10.5	19.3
648.019	35.9	46.0	-10.1	35.1	3.3	32.3	10.5	19.3
659.983	34.7	46.0	-11.3	33.7	3.4	32.3	10.5	19.3
672.011	34.9	46.0	-11.1	34.0	3.4	32.3	10.5	19.2
711.166	36.3	46.0	-9.7	34.4	3.6	32.3	10.5	20.1
713.203	39.2	46.0	-6.8	37.2	3.6	32.3	10.5	20.1
716.954	34.3	46.0	-11.7	32.2	3.6	32.3	10.5	20.2
719.993	34.9	46.0	-11.1	32.8	3.6	32.3	10.5	20.2
731.019	36.9	46.0	-9.1	34.7	3.7	32.2	10.5	20.2
759.763	34.3	46.0	-11.7	32.2	3.7	32.2	10.5	20.1
769.011	38.1	46.0	-7.9	35.7	3.8	32.2	10.5	20.3
775.865	38.3	46.0	-7.7	35.8	3.8	32.2	10.5	20.4
828.536	35.5	46.0	-10.5	32.0	3.9	32.0	10.5	21.1
1000.000	43.4	54.0	-10.6	36.8	4.2	30.8	10.5	22.8

Radiated Spurious Emissions 30 MHz - 1000 MHz (Vertical)

Frequency	Peak FS	Limit@3m	Margin	RA	CF	AG	DCF	AF
MHz	dB(uV/m)	dB(uV/m)	dB	dB(uV)	dB	dB	dB	dB(1/m)
125.771	35.3	43.5	-8.2	43.8	1.2	32.0	10.5	11.8
126.547	34.9	43.5	-8.6	43.5	1.2	32.0	10.5	11.8
128.552	35.0	43.5	-8.5	43.7	1.2	32.0	10.5	11.7
164.798	34.9	43.5	-8.6	46.3	1.4	32.0	10.5	8.7
168.742	36.8	43.5	-6.7	47.6	1.4	32.0	10.5	9.3
170.682	36.9	43.5	-6.6	47.6	1.4	32.0	10.5	9.4
181.417	38.5	43.5	-5.0	49.4	1.5	32.0	10.5	9.2
204.471	35.1	43.5	-8.4	45.2	1.6	32.0	10.5	9.8
205.764	34.7	43.5	-8.8	44.7	1.6	32.0	10.5	9.9
209.547	35.5	43.5	-8.0	45.2	1.6	32.0	10.5	10.2
212.134	35.2	43.5	-8.3	44.7	1.7	32.0	10.5	10.3
213.395	35.2	43.5	-8.3	44.6	1.7	32.0	10.5	10.4
214.656	35.6	43.5	-7.9	44.9	1.7	32.0	10.5	10.5
217.275	35.2	46.0	-10.8	44.3	1.7	32.0	10.5	10.7
221.058	35.0	46.0	-11.0	43.8	1.7	32.0	10.5	10.9
222.351	35.3	46.0	-10.7	44.0	1.7	32.0	10.5	11.1
227.460	34.7	46.0	-11.3	42.8	1.8	32.0	10.5	11.6
238.970	34.7	46.0	-11.3	42.3	1.9	32.0	10.5	12.0
240.005	38.9	46.0	-7.1	46.5	1.9	32.0	10.5	12.0
499.997	35.3	46.0	-10.7	36.6	2.9	32.1	10.5	17.3
527.998	35.4	46.0	-10.6	36.1	3.0	32.1	10.5	18.0
552.022	35.3	46.0	-10.7	36.2	3.0	32.1	10.5	17.8
708.224	35.3	46.0	-10.7	33.5	3.6	32.3	10.5	20.0
708.483	38.0	46.0	-8.0	36.2	3.6	32.3	10.5	20.0
708.644	39.2	46.0	-6.8	37.4	3.6	32.3	10.5	20.0
759.796	34.6	46.0	-11.4	32.5	3.7	32.2	10.5	20.1
801.926	36.4	46.0	-9.6	33.1	3.8	32.1	10.5	21.1
941.541	37.7	46.0	-8.3	31.9	4.0	31.3	10.5	22.5
996.152	37.8	54.0	-16.2	31.1	4.2	30.8	10.5	22.8

Out-of-Band Radiated Spurious Emissions (Cabinet Radiation) - 1 GHz to 18 GHz



Note: Radiated emission measurements were performed up to 40GHz. No Emissions were identified when scanned from 18-40 GHz

Note: FS@3m = RA + AF + CF - Preamp, (Peak)

Corrected Peak Scans are under the Average Limit of 54.

Test Results: 15.209 Radiated Spurious Emissions Low Channel, Tx at 802.11n 20MHz 5785MHz

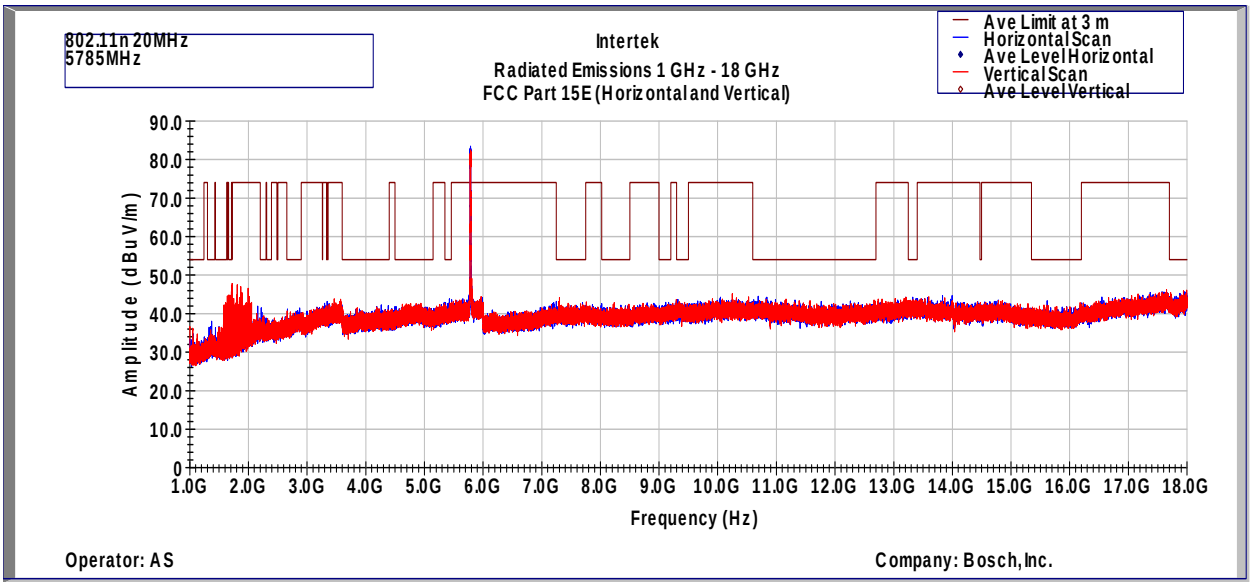
Radiated Spurious Emissions 30 MHz - 1000 MHz (Horizontal)

Frequency	Peak FS	Limit@3m	Margin	RA	CF	AG	DCF	AF
MHz	dB(uV/m)	dB(uV/m)	dB	dB(uV)	dB	dB	dB	dB(1/m)
171.879	36.1	43.5	-7.4	46.8	1.4	32.0	10.5	9.4
191.990	36.1	43.5	-7.4	46.6	1.5	32.0	10.5	9.5
193.962	36.4	43.5	-7.1	46.9	1.5	32.0	10.5	9.5
216.014	40.0	46.0	-6.0	49.2	1.7	32.0	10.5	10.6
249.996	40.9	46.0	-5.1	48.6	1.9	32.0	10.5	11.8
300.016	36.3	46.0	-9.7	42.1	2.3	32.0	10.5	13.3
312.011	36.8	46.0	-9.2	42.3	2.3	32.0	10.5	13.6
323.296	36.9	46.0	-9.1	42.1	2.4	32.0	10.5	13.9
338.007	34.8	46.0	-11.2	39.5	2.4	32.0	10.5	14.4
387.898	35.6	46.0	-10.4	39.0	2.5	32.0	10.5	15.5
389.967	34.4	46.0	-11.6	37.8	2.5	32.0	10.5	15.5
420.005	35.5	46.0	-10.5	37.9	2.6	32.0	10.5	16.5
452.564	34.4	46.0	-11.6	36.2	2.7	32.0	10.5	17.0
479.983	37.2	46.0	-8.8	38.9	2.8	32.1	10.5	16.9
527.998	40.1	46.0	-5.9	40.7	3.0	32.1	10.5	18.0
540.026	38.8	46.0	-7.2	39.6	3.0	32.1	10.5	17.8
550.017	35.7	46.0	-10.3	36.7	3.0	32.1	10.5	17.7
600.037	38.8	46.0	-7.2	39.2	3.1	32.2	10.5	18.3
606.018	34.5	46.0	-11.5	34.7	3.1	32.2	10.5	18.4
624.028	34.5	46.0	-11.5	34.2	3.2	32.2	10.5	18.9
644.010	36.7	46.0	-9.3	35.8	3.3	32.2	10.5	19.3
648.019	34.9	46.0	-11.1	34.0	3.3	32.3	10.5	19.3
672.011	35.5	46.0	-10.5	34.6	3.4	32.3	10.5	19.2
711.134	37.3	46.0	-8.7	35.4	3.6	32.3	10.5	20.1
713.430	36.1	46.0	-9.9	34.1	3.6	32.3	10.5	20.1
720.026	34.5	46.0	-11.5	32.4	3.6	32.3	10.5	20.2
731.019	37.0	46.0	-9.0	34.9	3.7	32.2	10.5	20.2
769.011	36.7	46.0	-9.3	34.4	3.8	32.2	10.5	20.3
780.004	35.4	46.0	-10.6	32.8	3.8	32.1	10.5	20.5
801.894	35.9	46.0	-10.1	32.6	3.8	32.1	10.5	21.1
981.020	37.6	54.0	-16.4	31.1	4.1	31.0	10.5	22.8
1000.000	40.9	54.0	-13.1	34.2	4.2	30.8	10.5	22.8

Radiated Spurious Emissions 30 MHz - 1000 MHz (Vertical)

Frequency	Peak FS	Limit@3m	Margin	RA	CF	AG	DCF	AF
MHz	dB(uV/m)	dB(uV/m)	dB	dB(uV)	dB	dB	dB	dB(1/m)
122.861	35.6	43.5	-7.9	44.0	1.2	32.0	10.5	11.9
123.831	34.7	43.5	-8.8	43.2	1.2	32.0	10.5	11.9
124.995	38.2	43.5	-5.3	46.7	1.2	32.0	10.5	11.8
129.296	35.7	43.5	-7.8	44.4	1.2	32.0	10.5	11.6
167.805	36.8	43.5	-6.7	47.7	1.4	32.0	10.5	9.1
169.777	36.3	43.5	-7.2	47.0	1.4	32.0	10.5	9.4
186.558	38.4	43.5	-5.1	49.0	1.5	32.0	10.5	9.3
192.022	37.1	43.5	-6.4	47.6	1.5	32.0	10.5	9.5
203.242	33.9	43.5	-9.6	44.1	1.6	32.0	10.5	9.7
204.471	35.7	43.5	-7.8	45.8	1.6	32.0	10.5	9.8
206.928	35.0	43.5	-8.5	44.9	1.6	32.0	10.5	10.0
208.286	35.0	43.5	-8.5	44.8	1.6	32.0	10.5	10.1
209.515	34.0	43.5	-9.5	43.7	1.6	32.0	10.5	10.2
210.970	34.4	43.5	-9.1	44.0	1.7	32.0	10.5	10.3
212.166	35.9	43.5	-7.6	45.4	1.7	32.0	10.5	10.3
213.427	34.1	43.5	-9.4	43.5	1.7	32.0	10.5	10.4
214.688	35.3	43.5	-8.2	44.6	1.7	32.0	10.5	10.5
217.210	35.0	46.0	-11.0	44.1	1.7	32.0	10.5	10.7
221.090	34.2	46.0	-11.8	43.1	1.7	32.0	10.5	10.9
222.383	36.3	46.0	-9.7	45.0	1.7	32.0	10.5	11.1
224.970	34.2	46.0	-11.8	42.6	1.8	32.0	10.5	11.3
226.263	34.8	46.0	-11.2	43.1	1.8	32.0	10.5	11.5
227.460	34.6	46.0	-11.4	42.7	1.8	32.0	10.5	11.6
230.046	34.6	46.0	-11.4	42.5	1.8	32.0	10.5	11.8
231.340	34.1	46.0	-11.9	42.0	1.8	32.0	10.5	11.9
240.005	38.8	46.0	-7.2	46.4	1.9	32.0	10.5	12.0
255.590	33.8	46.0	-12.2	40.9	2.0	32.0	10.5	12.4
265.936	33.9	46.0	-12.1	40.5	2.1	32.0	10.5	12.9
499.997	36.4	46.0	-9.6	37.7	2.9	32.1	10.5	17.3
527.998	36.3	46.0	-9.7	36.9	3.0	32.1	10.5	18.0
551.989	35.5	46.0	-10.5	36.4	3.0	32.1	10.5	17.8
801.926	37.1	46.0	-8.9	33.7	3.8	32.1	10.5	21.1
985.159	37.2	54.0	-16.8	30.7	4.1	30.9	10.5	22.8

Out-of-Band Radiated Spurious Emissions (Cabinet Radiation) - 1 GHz to 18 GHz



Note: Radiated emission measurements were performed up to 40GHz. No Emissions were identified when scanned from 18-40 GHz

Note: FS@3m = RA + AF + CF - Preamp, (Peak)

Corrected Peak Scans are under the Average Limit of 54.

Test Results: 15.209 Radiated Spurious Emissions Low Channel, Tx at 802.11n 20MHz 5825MHz

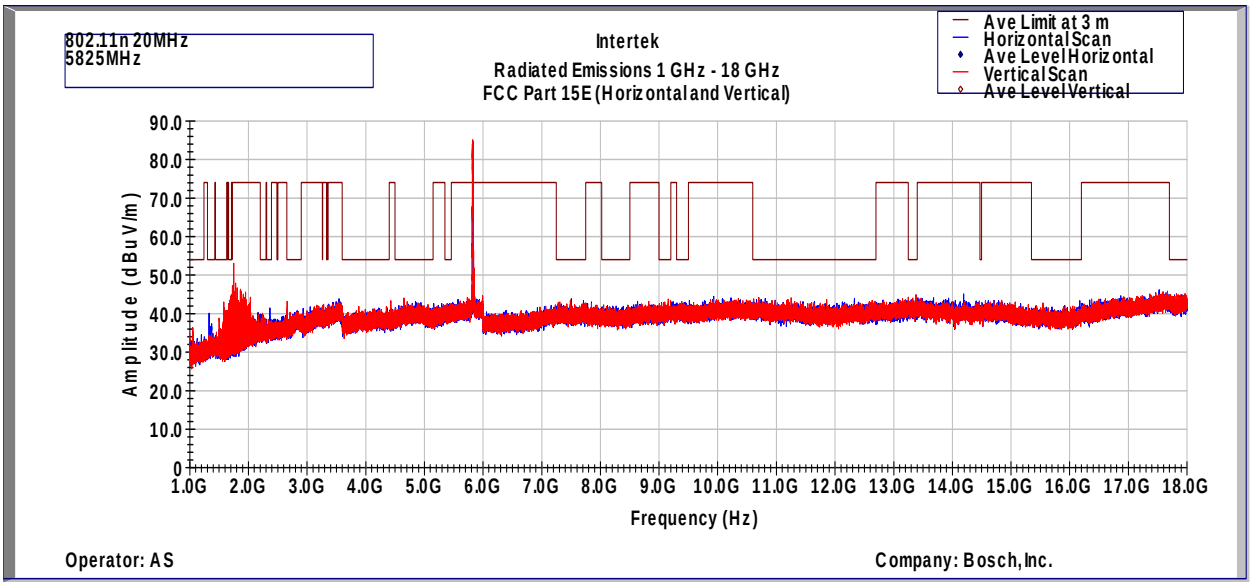
Radiated Spurious Emissions 30 MHz - 1000 MHz (Horizontal)

Frequency	Peak FS	Limit@3m	Margin	RA	CF	AG	DCF	AF
MHz	dB(uV/m)	dB(uV/m)	dB	dB(uV)	dB	dB	dB	dB(1/m)
167.966	36.2	43.5	-7.3	47.1	1.4	32.0	10.5	9.2
171.749	35.6	43.5	-7.9	46.3	1.4	32.0	10.5	9.4
191.990	34.8	43.5	-8.7	45.3	1.5	32.0	10.5	9.5
193.962	35.2	43.5	-8.3	45.7	1.5	32.0	10.5	9.5
216.014	40.0	46.0	-6.0	49.2	1.7	32.0	10.5	10.6
249.996	40.8	46.0	-5.2	48.5	1.9	32.0	10.5	11.8
300.016	36.3	46.0	-9.7	42.1	2.3	32.0	10.5	13.3
304.057	33.7	46.0	-12.3	39.5	2.3	32.0	10.5	13.4
312.044	36.7	46.0	-9.3	42.2	2.3	32.0	10.5	13.6
323.296	38.1	46.0	-7.9	43.2	2.4	32.0	10.5	13.9
387.898	35.5	46.0	-10.5	38.9	2.5	32.0	10.5	15.5
389.999	34.0	46.0	-12.0	37.4	2.5	32.0	10.5	15.5
419.972	36.0	46.0	-10.0	38.4	2.6	32.0	10.5	16.5
452.564	34.6	46.0	-11.4	36.4	2.7	32.0	10.5	17.0
479.983	37.0	46.0	-9.0	38.8	2.8	32.1	10.5	16.9
528.030	40.1	46.0	-5.9	40.8	3.0	32.1	10.5	18.0
539.994	38.9	46.0	-7.1	39.7	3.0	32.1	10.5	17.9
550.017	36.0	46.0	-10.0	36.9	3.0	32.1	10.5	17.7
600.004	39.0	46.0	-7.0	39.4	3.1	32.2	10.5	18.3
606.018	35.4	46.0	-10.6	35.6	3.1	32.2	10.5	18.4
623.996	34.7	46.0	-11.3	34.4	3.2	32.2	10.5	18.9
644.010	37.3	46.0	-8.7	36.4	3.3	32.2	10.5	19.3
646.564	33.9	46.0	-12.1	33.0	3.3	32.3	10.5	19.3
648.052	35.3	46.0	-10.7	34.5	3.3	32.3	10.5	19.3
672.011	35.2	46.0	-10.8	34.4	3.4	32.3	10.5	19.2
709.614	41.0	46.0	-5.0	39.1	3.6	32.3	10.5	20.0
711.166	38.2	46.0	-7.8	36.3	3.6	32.3	10.5	20.1
730.987	36.8	46.0	-9.2	34.7	3.7	32.2	10.5	20.2
769.011	36.4	46.0	-9.6	34.0	3.8	32.2	10.5	20.3
801.926	35.8	46.0	-10.2	32.5	3.8	32.1	10.5	21.1
839.271	35.6	46.0	-10.4	32.1	3.9	31.9	10.5	21.0
1000.000	41.8	54.0	-12.2	35.2	4.2	30.8	10.5	22.8

Radiated Spurious Emissions 30 MHz - 1000 MHz (Vertical)

Frequency	Peak FS	Limit@3m	Margin	RA	CF	AG	DCF	AF
MHz	dB(uV/m)	dB(uV/m)	dB	dB(uV)	dB	dB	dB	dB(1/m)
123.896	35.1	43.5	-8.4	43.6	1.2	32.0	10.5	11.9
124.995	38.4	43.5	-5.1	47.0	1.2	32.0	10.5	11.8
125.804	35.8	43.5	-7.7	44.3	1.2	32.0	10.5	11.8
126.806	36.0	43.5	-7.5	44.6	1.2	32.0	10.5	11.7
129.328	34.3	43.5	-9.2	43.0	1.2	32.0	10.5	11.6
167.837	37.2	43.5	-6.3	48.1	1.4	32.0	10.5	9.2
168.807	36.9	43.5	-6.6	47.7	1.4	32.0	10.5	9.3
170.747	37.2	43.5	-6.3	47.9	1.4	32.0	10.5	9.4
172.655	36.3	43.5	-7.2	47.0	1.4	32.0	10.5	9.4
183.260	38.0	43.5	-5.5	48.8	1.5	32.0	10.5	9.2
192.022	37.7	43.5	-5.8	48.2	1.5	32.0	10.5	9.5
207.057	36.2	43.5	-7.3	46.1	1.6	32.0	10.5	10.0
209.482	34.9	43.5	-8.6	44.6	1.6	32.0	10.5	10.2
210.937	35.3	43.5	-8.2	44.9	1.7	32.0	10.5	10.2
212.134	35.1	43.5	-8.4	44.6	1.7	32.0	10.5	10.3
213.330	34.9	43.5	-8.6	44.3	1.7	32.0	10.5	10.4
214.623	35.6	43.5	-7.9	44.9	1.7	32.0	10.5	10.5
217.275	35.1	46.0	-10.9	44.2	1.7	32.0	10.5	10.7
222.351	36.0	46.0	-10.0	44.7	1.7	32.0	10.5	11.1
223.612	35.1	46.0	-10.9	43.6	1.7	32.0	10.5	11.2
224.841	35.1	46.0	-10.9	43.6	1.8	32.0	10.5	11.3
226.231	34.7	46.0	-11.3	43.0	1.8	32.0	10.5	11.5
227.492	34.5	46.0	-11.5	42.7	1.8	32.0	10.5	11.6
228.753	34.2	46.0	-11.8	42.2	1.8	32.0	10.5	11.7
240.005	38.8	46.0	-7.2	46.3	1.9	32.0	10.5	12.0
256.851	34.5	46.0	-11.5	41.5	2.0	32.0	10.5	12.5
258.079	36.1	46.0	-9.9	42.9	2.0	32.0	10.5	12.6
264.514	34.5	46.0	-11.5	41.1	2.0	32.0	10.5	12.8
499.997	36.1	46.0	-9.9	37.4	2.9	32.1	10.5	17.3
528.030	36.3	46.0	-9.7	36.9	3.0	32.1	10.5	18.0
552.022	36.4	46.0	-9.6	37.3	3.0	32.1	10.5	17.8
801.894	36.7	46.0	-9.3	33.3	3.8	32.1	10.5	21.1
976.332	37.6	54.0	-16.4	31.3	4.1	31.0	10.5	22.7

Out-of-Band Radiated Spurious Emissions (Cabinet Radiation) - 1 GHz to 18 GHz



Note: Radiated emission measurements were performed up to 40GHz. No Emissions were identified when scanned from 18-40 GHz

Note: FS@3m = RA + AF + CF - Preamp, (Peak)

Corrected Peak Scans are under the Average Limit of 54.

Test Results: 15.209 Radiated Spurious Emissions Low Channel, Tx at 802.11n 40MHz 5755MHz

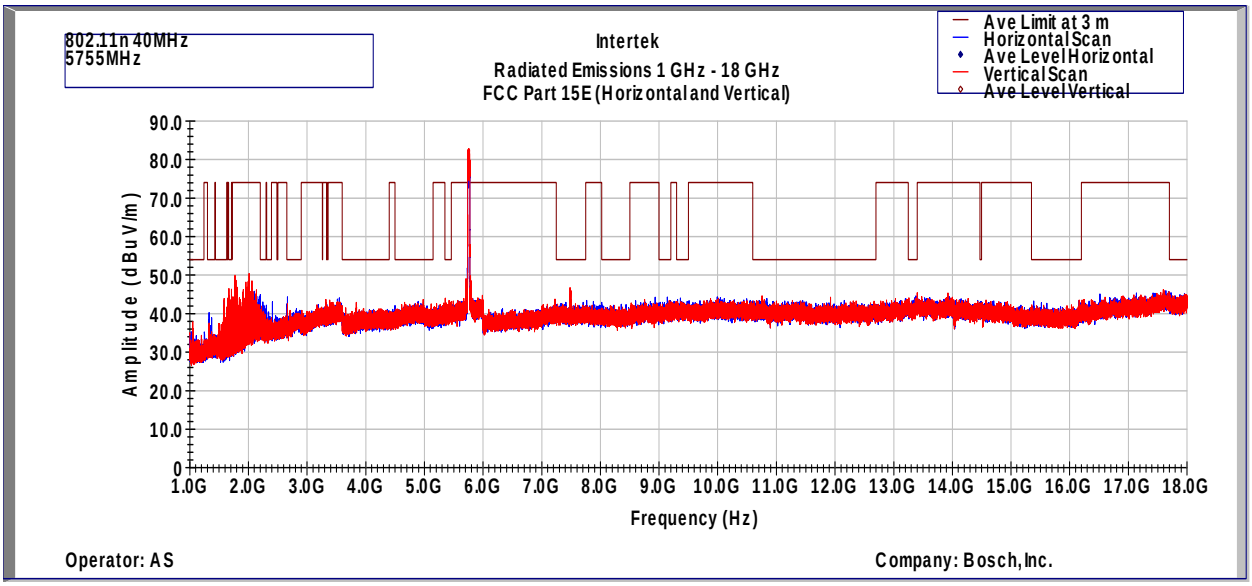
Radiated Spurious Emissions 30 MHz - 1000 MHz (Horizontal)

Frequency	Peak FS	Limit@3m	Margin	RA	CF	AG	DCF	AF
MHz	dB(uV/m)	dB(uV/m)	dB	dB(uV)	dB	dB	dB	dB(1/m)
168.031	36.3	43.5	-7.2	47.2	1.4	32.0	10.5	9.2
191.990	34.8	43.5	-8.7	45.3	1.5	32.0	10.5	9.5
193.930	35.2	43.5	-8.3	45.7	1.5	32.0	10.5	9.5
205.764	32.9	43.5	-10.6	42.9	1.6	32.0	10.5	9.9
263.964	33.5	46.0	-12.5	40.1	2.0	32.0	10.5	12.8
299.951	35.8	46.0	-10.2	41.6	2.3	32.0	10.5	13.3
311.979	36.6	46.0	-9.4	42.1	2.3	32.0	10.5	13.6
323.231	36.4	46.0	-9.6	41.6	2.4	32.0	10.5	13.9
337.975	33.9	46.0	-12.1	38.6	2.4	32.0	10.5	14.4
387.930	33.2	46.0	-12.8	36.6	2.5	32.0	10.5	15.5
389.967	33.6	46.0	-12.4	37.0	2.5	32.0	10.5	15.5
393.944	33.3	46.0	-12.7	36.6	2.6	32.0	10.5	15.7
420.037	35.4	46.0	-10.6	37.9	2.6	32.0	10.5	16.5
452.532	34.8	46.0	-11.2	36.6	2.7	32.0	10.5	17.0
479.983	36.1	46.0	-9.9	37.9	2.8	32.1	10.5	16.9
527.998	40.7	46.0	-5.3	41.4	3.0	32.1	10.5	18.0
540.026	38.5	46.0	-7.5	39.4	3.0	32.1	10.5	17.8
550.017	35.6	46.0	-10.4	36.6	3.0	32.1	10.5	17.7
551.181	33.8	46.0	-12.2	34.8	3.0	32.1	10.5	17.7
600.069	38.1	46.0	-7.9	38.5	3.1	32.2	10.5	18.3
606.083	34.4	46.0	-11.6	34.6	3.1	32.2	10.5	18.4
624.028	36.0	46.0	-10.0	35.6	3.2	32.2	10.5	18.9
644.010	35.0	46.0	-11.0	34.1	3.3	32.2	10.5	19.3
647.987	36.0	46.0	-10.0	35.2	3.3	32.3	10.5	19.3
672.043	34.5	46.0	-11.5	33.6	3.4	32.3	10.5	19.2
711.231	37.3	46.0	-8.7	35.4	3.6	32.3	10.5	20.1
731.019	36.4	46.0	-9.6	34.3	3.7	32.2	10.5	20.2
769.043	36.3	46.0	-9.7	33.9	3.8	32.2	10.5	20.3
899.993	37.6	46.0	-8.4	32.8	4.0	31.6	10.5	21.9
1000.000	40.6	54.0	-13.4	33.9	4.2	30.8	10.5	22.8

Radiated Spurious Emissions 30 MHz - 1000 MHz (Vertical)

Frequency	Peak FS	Limit@3m	Margin	RA	CF	AG	DCF	AF
MHz	dB(uV/m)	dB(uV/m)	dB	dB(uV)	dB	dB	dB	dB(1/m)
92.468	34.2	43.5	-9.3	46.0	1.0	32.1	10.5	8.7
124.963	38.3	43.5	-5.2	46.8	1.2	32.0	10.5	11.8
125.836	36.0	43.5	-7.5	44.6	1.2	32.0	10.5	11.8
171.620	37.2	43.5	-6.3	47.9	1.4	32.0	10.5	9.4
204.406	34.8	43.5	-8.7	44.9	1.6	32.0	10.5	9.8
205.764	34.3	43.5	-9.2	44.3	1.6	32.0	10.5	9.9
207.025	34.4	43.5	-9.1	44.3	1.6	32.0	10.5	10.0
208.286	33.5	43.5	-10.0	43.3	1.6	32.0	10.5	10.1
209.547	35.2	43.5	-8.3	44.9	1.6	32.0	10.5	10.2
210.808	33.9	43.5	-9.6	43.5	1.7	32.0	10.5	10.2
212.069	34.5	43.5	-9.0	44.0	1.7	32.0	10.5	10.3
213.427	34.2	43.5	-9.3	43.7	1.7	32.0	10.5	10.4
214.688	34.9	43.5	-8.6	44.3	1.7	32.0	10.5	10.5
217.307	34.0	46.0	-12.0	43.1	1.7	32.0	10.5	10.7
219.829	34.0	46.0	-12.0	43.0	1.7	32.0	10.5	10.8
221.090	33.5	46.0	-12.5	42.4	1.7	32.0	10.5	10.9
222.351	35.9	46.0	-10.1	44.5	1.7	32.0	10.5	11.1
224.873	34.1	46.0	-11.9	42.5	1.8	32.0	10.5	11.3
226.231	34.9	46.0	-11.1	43.2	1.8	32.0	10.5	11.5
227.492	34.6	46.0	-11.4	42.7	1.8	32.0	10.5	11.6
228.850	34.0	46.0	-12.0	42.0	1.8	32.0	10.5	11.7
230.014	34.6	46.0	-11.4	42.5	1.8	32.0	10.5	11.8
232.633	34.0	46.0	-12.0	41.7	1.8	32.0	10.5	11.9
240.005	38.4	46.0	-7.6	45.9	1.9	32.0	10.5	12.0
255.622	33.6	46.0	-12.4	40.7	2.0	32.0	10.5	12.4
499.965	36.2	46.0	-9.8	37.5	2.9	32.1	10.5	17.3
527.998	35.9	46.0	-10.1	36.5	3.0	32.1	10.5	18.0
552.054	35.3	46.0	-10.7	36.2	3.0	32.1	10.5	17.8
704.926	35.8	46.0	-10.2	34.1	3.6	32.3	10.5	19.9
708.903	40.4	46.0	-5.6	38.6	3.6	32.3	10.5	20.0
802.023	36.0	46.0	-10.0	32.6	3.8	32.1	10.5	21.1
994.083	37.6	54.0	-16.4	31.0	4.1	30.8	10.5	22.9

Out-of-Band Radiated Spurious Emissions (Cabinet Radiation) - 1 GHz to 18 GHz



Note: Radiated emission measurements were performed up to 40GHz. No Emissions were identified when scanned from 18-40 GHz

Note: FS@3m = RA + AF + CF - Preamp, (Peak)

Corrected Peak Scans are under the Average Limit of 54.

Test Results: 15.209 Radiated Spurious Emissions Low Channel, Tx at 802.11n 40MHz 5795MHz

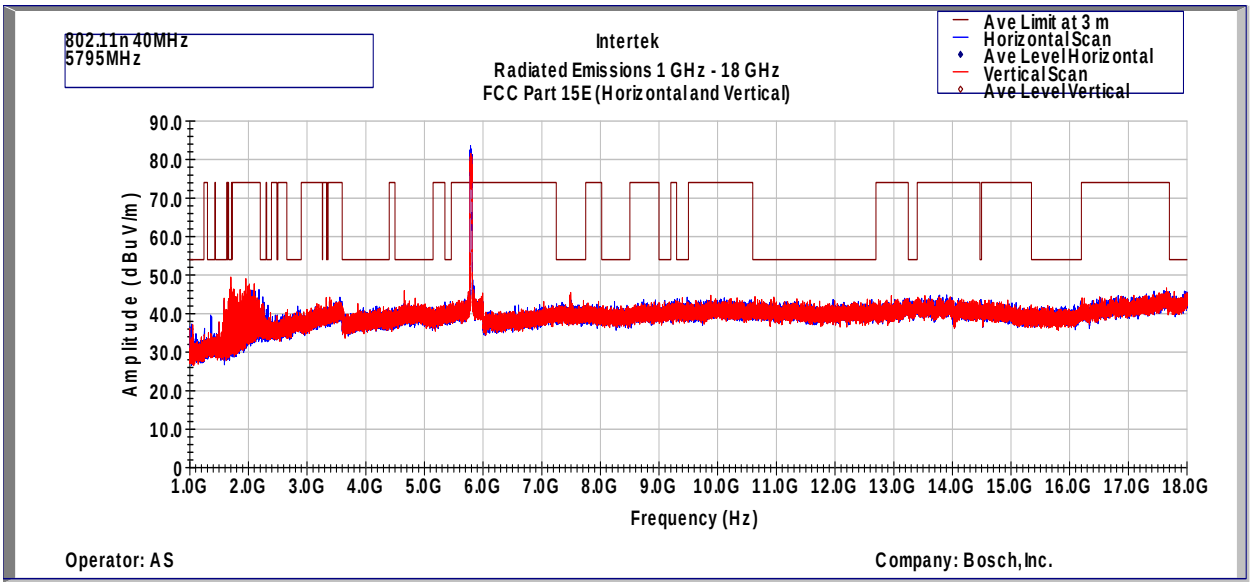
Radiated Spurious Emissions 30 MHz - 1000 MHz (Horizontal)

Frequency	Peak FS	Limit@3m	Margin	RA	CF	AG	DCF	AF
MHz	dB(uV/m)	dB(uV/m)	dB	dB(uV)	dB	dB	dB	dB(1/m)
167.934	36.6	43.5	-6.9	47.6	1.4	32.0	10.5	9.2
172.784	36.1	43.5	-7.4	46.8	1.4	32.0	10.5	9.4
191.990	35.3	43.5	-8.2	45.8	1.5	32.0	10.5	9.5
193.930	35.3	43.5	-8.2	45.8	1.5	32.0	10.5	9.5
199.265	33.9	43.5	-9.6	44.4	1.6	32.0	10.5	9.4
249.996	40.5	46.0	-5.5	48.3	1.9	32.0	10.5	11.8
299.951	36.0	46.0	-10.0	41.8	2.3	32.0	10.5	13.3
302.764	33.5	46.0	-12.5	39.3	2.3	32.0	10.5	13.4
311.979	36.6	46.0	-9.4	42.2	2.3	32.0	10.5	13.6
323.231	36.6	46.0	-9.4	41.8	2.4	32.0	10.5	13.9
337.975	34.8	46.0	-11.2	39.4	2.4	32.0	10.5	14.4
387.930	35.1	46.0	-10.9	38.6	2.5	32.0	10.5	15.5
389.967	34.7	46.0	-11.3	38.1	2.5	32.0	10.5	15.5
420.037	35.7	46.0	-10.3	38.1	2.6	32.0	10.5	16.5
452.532	34.8	46.0	-11.2	36.7	2.7	32.0	10.5	17.0
479.983	35.6	46.0	-10.4	37.4	2.8	32.1	10.5	16.9
527.998	39.5	46.0	-6.5	40.2	3.0	32.1	10.5	18.0
540.026	38.2	46.0	-7.8	39.1	3.0	32.1	10.5	17.8
550.017	35.9	46.0	-10.1	36.8	3.0	32.1	10.5	17.7
599.972	38.1	46.0	-7.9	38.4	3.1	32.2	10.5	18.3
605.986	35.0	46.0	-11.0	35.2	3.1	32.2	10.5	18.4
624.028	35.6	46.0	-10.4	35.3	3.2	32.2	10.5	18.9
644.010	35.4	46.0	-10.6	34.6	3.3	32.2	10.5	19.3
647.987	34.7	46.0	-11.3	33.8	3.3	32.3	10.5	19.3
660.015	34.4	46.0	-11.6	33.4	3.4	32.3	10.5	19.3
672.043	34.5	46.0	-11.5	33.6	3.4	32.3	10.5	19.2
711.231	38.2	46.0	-7.8	36.3	3.6	32.3	10.5	20.1
720.058	35.1	46.0	-10.9	33.0	3.6	32.3	10.5	20.2
731.019	35.4	46.0	-10.6	33.3	3.7	32.2	10.5	20.2
769.043	36.5	46.0	-9.5	34.1	3.8	32.2	10.5	20.3
1000.000	42.8	54.0	-11.2	36.1	4.2	30.8	10.5	22.8

Radiated Spurious Emissions 30 MHz - 1000 MHz (Vertical)

Frequency	Peak FS	Limit@3m	Margin	RA	CF	AG	DCF	AF
MHz	dB(uV/m)	dB(uV/m)	dB	dB(uV)	dB	dB	dB	dB(1/m)
124.963	38.2	43.5	-5.3	46.7	1.2	32.0	10.5	11.8
182.775	38.4	43.5	-5.1	49.2	1.5	32.0	10.5	9.2
204.503	33.9	43.5	-9.6	44.0	1.6	32.0	10.5	9.8
207.025	34.8	43.5	-8.7	44.7	1.6	32.0	10.5	10.0
209.644	34.8	43.5	-8.7	44.5	1.6	32.0	10.5	10.2
210.808	34.7	43.5	-8.8	44.3	1.7	32.0	10.5	10.2
212.069	34.4	43.5	-9.1	44.0	1.7	32.0	10.5	10.3
213.427	34.8	43.5	-8.7	44.2	1.7	32.0	10.5	10.4
214.688	34.6	43.5	-8.9	43.9	1.7	32.0	10.5	10.5
217.210	35.7	46.0	-10.3	44.8	1.7	32.0	10.5	10.7
218.471	33.7	46.0	-12.3	42.8	1.7	32.0	10.5	10.7
219.829	34.1	46.0	-11.9	43.0	1.7	32.0	10.5	10.8
220.993	33.7	46.0	-12.3	42.5	1.7	32.0	10.5	10.9
222.351	34.4	46.0	-11.6	43.1	1.7	32.0	10.5	11.1
223.612	33.3	46.0	-12.7	41.8	1.7	32.0	10.5	11.2
224.873	34.0	46.0	-12.0	42.4	1.8	32.0	10.5	11.3
226.134	33.9	46.0	-12.1	42.2	1.8	32.0	10.5	11.4
227.395	34.3	46.0	-11.7	42.5	1.8	32.0	10.5	11.6
228.753	33.6	46.0	-12.4	41.6	1.8	32.0	10.5	11.7
230.014	34.3	46.0	-11.7	42.2	1.8	32.0	10.5	11.8
237.677	33.2	46.0	-12.8	40.9	1.8	32.0	10.5	12.0
238.938	33.1	46.0	-12.9	40.7	1.9	32.0	10.5	12.0
240.005	39.2	46.0	-6.8	46.8	1.9	32.0	10.5	12.0
246.698	33.1	46.0	-12.9	40.8	1.9	32.0	10.5	11.9
247.862	33.4	46.0	-12.6	41.1	1.9	32.0	10.5	11.9
255.525	33.2	46.0	-12.8	40.3	2.0	32.0	10.5	12.4
264.449	33.0	46.0	-13.0	39.6	2.0	32.0	10.5	12.8
499.965	36.2	46.0	-9.8	37.5	2.9	32.1	10.5	17.3
527.998	36.5	46.0	-9.5	37.2	3.0	32.1	10.5	18.0
551.957	34.2	46.0	-11.8	35.1	3.0	32.1	10.5	17.8
708.903	37.7	46.0	-8.3	35.9	3.6	32.3	10.5	20.0
802.023	36.8	46.0	-9.2	33.5	3.8	32.1	10.5	21.1
986.517	37.6	54.0	-16.4	31.0	4.1	30.9	10.5	22.8

Out-of-Band Radiated Spurious Emissions (Cabinet Radiation) - 1 GHz to 18 GHz



Note: Radiated emission measurements were performed up to 40GHz. No Emissions were identified when scanned from 18-40 GHz

Note: FS@3m = RA + AF + CF - Preamp, (Peak)

Corrected Peak Scans are under the Average Limit of 54.

Test Results: 15.209 Radiated Spurious Emissions Low Channel, Tx at 802.11ac 80MHz 5775MHz

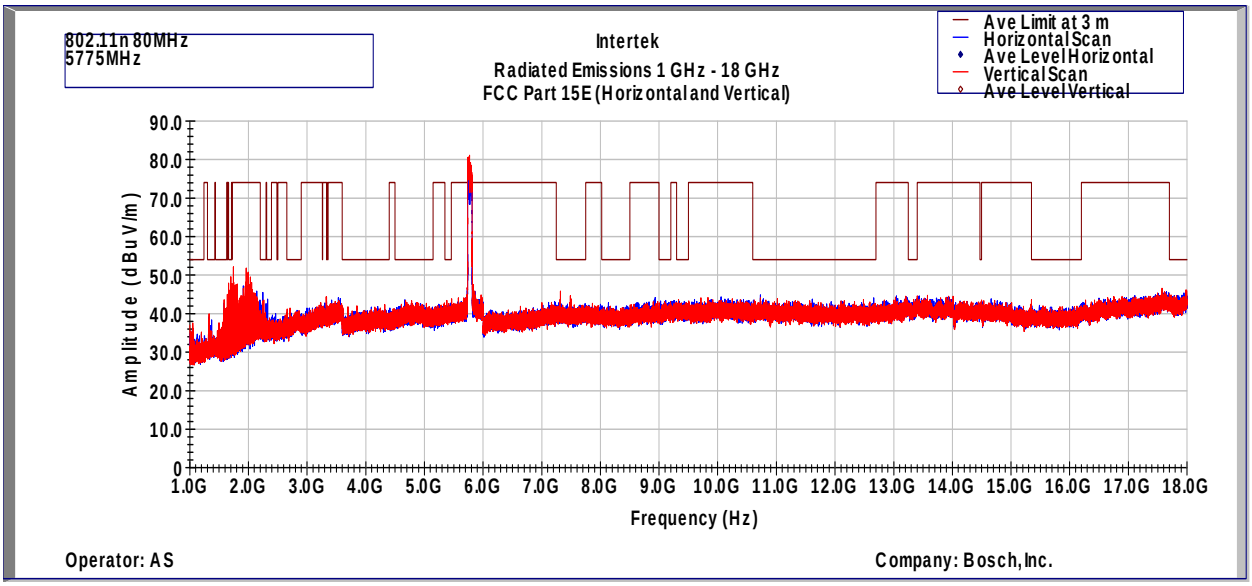
Radiated Spurious Emissions 30 MHz - 1000 MHz (Horizontal)

Frequency	Peak FS	Limit@3m	Margin	RA	CF	AG	DCF	AF
MHz	dB(uV/m)	dB(uV/m)	dB	dB(uV)	dB	dB	dB	dB(1/m)
170.844	35.6	43.5	-7.9	46.2	1.4	32.0	10.5	9.4
191.990	34.1	43.5	-9.4	44.6	1.5	32.0	10.5	9.5
193.930	34.1	43.5	-9.4	44.6	1.5	32.0	10.5	9.5
198.101	33.6	43.5	-9.9	44.1	1.6	32.0	10.5	9.4
203.145	34.2	43.5	-9.3	44.4	1.6	32.0	10.5	9.7
207.025	33.9	43.5	-9.6	43.8	1.6	32.0	10.5	10.0
249.996	40.4	46.0	-5.6	48.1	1.9	32.0	10.5	11.8
300.048	35.6	46.0	-10.4	41.5	2.3	32.0	10.5	13.3
311.979	36.7	46.0	-9.3	42.2	2.3	32.0	10.5	13.6
323.231	37.3	46.0	-8.7	42.5	2.4	32.0	10.5	13.9
337.975	33.9	46.0	-12.1	38.6	2.4	32.0	10.5	14.4
389.967	34.4	46.0	-11.6	37.9	2.5	32.0	10.5	15.5
394.041	33.5	46.0	-12.5	36.8	2.6	32.0	10.5	15.7
420.037	35.7	46.0	-10.3	38.1	2.6	32.0	10.5	16.5
452.532	33.5	46.0	-12.5	35.3	2.7	32.0	10.5	17.0
479.983	36.7	46.0	-9.3	38.4	2.8	32.1	10.5	16.9
527.998	38.9	46.0	-7.1	39.6	3.0	32.1	10.5	18.0
540.026	38.7	46.0	-7.3	39.5	3.0	32.1	10.5	17.8
550.017	34.4	46.0	-11.6	35.3	3.0	32.1	10.5	17.7
599.972	38.4	46.0	-7.6	38.7	3.1	32.2	10.5	18.3
605.986	35.0	46.0	-11.0	35.2	3.1	32.2	10.5	18.4
624.028	34.4	46.0	-11.6	34.1	3.2	32.2	10.5	18.9
644.010	35.9	46.0	-10.1	35.1	3.3	32.2	10.5	19.3
647.987	35.1	46.0	-10.9	34.3	3.3	32.3	10.5	19.3
672.043	33.8	46.0	-12.2	33.0	3.4	32.3	10.5	19.2
711.134	36.5	46.0	-9.5	34.5	3.6	32.3	10.5	20.1
731.019	36.6	46.0	-9.4	34.5	3.7	32.2	10.5	20.2
769.043	35.6	46.0	-10.4	33.2	3.8	32.2	10.5	20.3
802.023	35.5	46.0	-10.5	32.1	3.8	32.1	10.5	21.1
981.085	38.1	54.0	-15.9	31.7	4.1	31.0	10.5	22.8
1000.000	42.8	54.0	-11.2	36.1	4.2	30.8	10.5	22.8

Radiated Spurious Emissions 30 MHz - 1000 MHz (Vertical)

Frequency	Peak FS	Limit@3m	Margin	RA	CF	AG	DCF	AF
MHz	dB(uV/m)	dB(uV/m)	dB	dB(uV)	dB	dB	dB	dB(1/m)
123.896	34.7	43.5	-8.8	43.1	1.2	32.0	10.5	11.9
124.963	37.5	43.5	-6.0	46.1	1.2	32.0	10.5	11.8
125.545	34.2	43.5	-9.3	42.8	1.2	32.0	10.5	11.8
167.740	36.1	43.5	-7.4	47.0	1.4	32.0	10.5	9.1
172.590	36.2	43.5	-7.3	46.9	1.4	32.0	10.5	9.4
185.297	37.1	43.5	-6.4	47.8	1.5	32.0	10.5	9.3
191.990	38.0	43.5	-5.5	48.5	1.5	32.0	10.5	9.5
205.764	35.1	43.5	-8.4	45.1	1.6	32.0	10.5	9.9
206.928	34.9	43.5	-8.6	44.8	1.6	32.0	10.5	10.0
208.383	34.1	43.5	-9.4	43.9	1.6	32.0	10.5	10.1
209.547	34.6	43.5	-8.9	44.3	1.6	32.0	10.5	10.2
210.905	34.7	43.5	-8.8	44.2	1.7	32.0	10.5	10.2
212.166	34.7	43.5	-8.8	44.2	1.7	32.0	10.5	10.3
213.427	34.5	43.5	-9.0	43.9	1.7	32.0	10.5	10.4
214.688	35.1	43.5	-8.4	44.4	1.7	32.0	10.5	10.5
217.210	35.1	46.0	-10.9	44.3	1.7	32.0	10.5	10.7
219.732	34.4	46.0	-11.6	43.3	1.7	32.0	10.5	10.8
220.993	35.1	46.0	-10.9	43.9	1.7	32.0	10.5	10.9
222.351	35.0	46.0	-11.0	43.7	1.7	32.0	10.5	11.1
224.873	34.3	46.0	-11.7	42.7	1.8	32.0	10.5	11.3
226.231	34.4	46.0	-11.6	42.7	1.8	32.0	10.5	11.5
227.395	35.0	46.0	-11.0	43.1	1.8	32.0	10.5	11.6
230.014	34.2	46.0	-11.8	42.1	1.8	32.0	10.5	11.8
231.275	33.6	46.0	-12.4	41.4	1.8	32.0	10.5	11.9
233.797	33.6	46.0	-12.4	41.3	1.8	32.0	10.5	11.9
240.005	38.7	46.0	-7.3	46.3	1.9	32.0	10.5	12.0
255.622	33.3	46.0	-12.7	40.5	2.0	32.0	10.5	12.4
499.965	35.5	46.0	-10.5	36.9	2.9	32.1	10.5	17.3
527.998	35.8	46.0	-10.2	36.5	3.0	32.1	10.5	18.0
539.929	33.5	46.0	-12.5	34.4	3.0	32.1	10.5	17.9
552.054	36.1	46.0	-9.9	37.0	3.0	32.1	10.5	17.8
802.023	37.2	46.0	-8.8	33.9	3.8	32.1	10.5	21.1
993.695	37.6	54.0	-16.4	31.0	4.1	30.9	10.5	22.9

Out-of-Band Radiated Spurious Emissions (Cabinet Radiation) - 1 GHz to 18 GHz



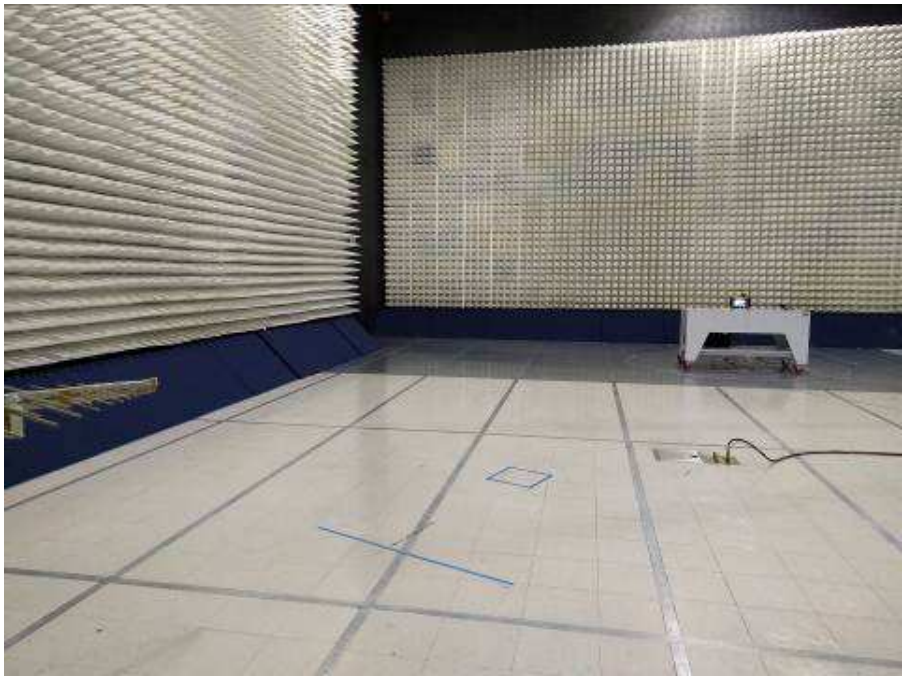
Note: Radiated emission measurements were performed up to 40GHz. No Emissions were identified when scanned from 18-40 GHz

Note: FS@3m = RA + AF + CF - Preamp, (Peak)

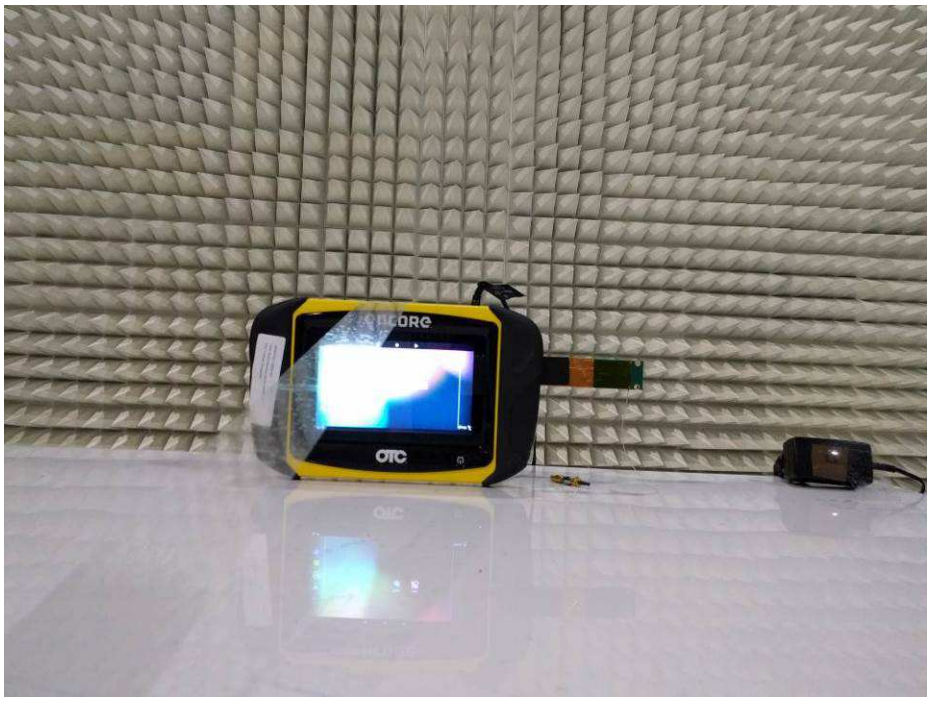
Corrected Peak Scans are under the Average Limit of 54.

4.5.8 Test setup photographs

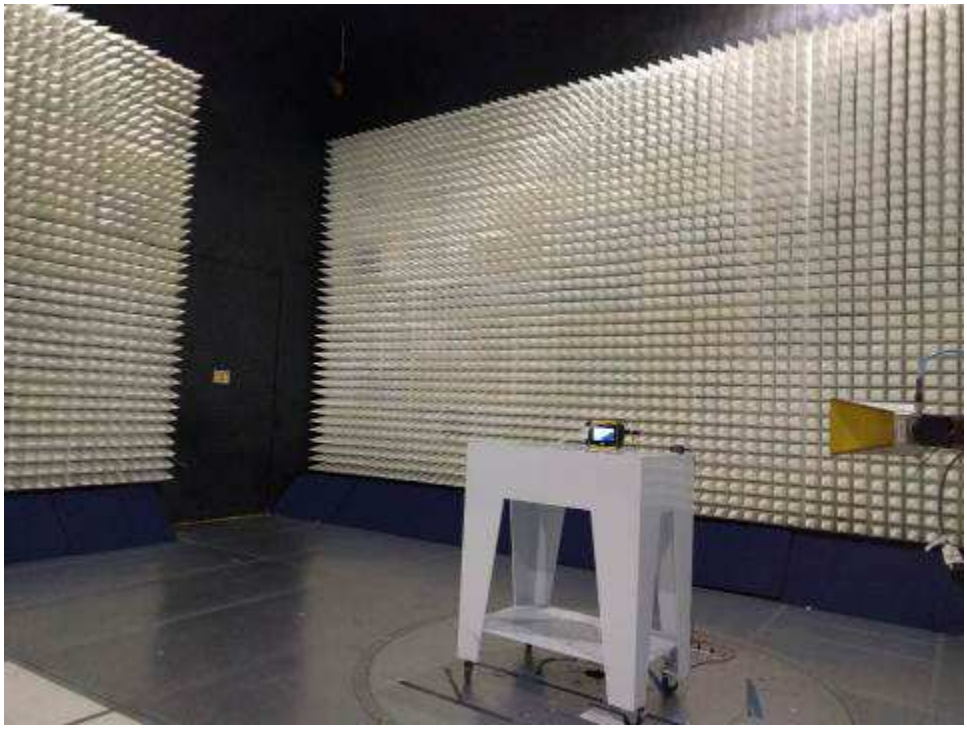
The following photographs show the testing configurations used.



4.5.8 Test Setup Photographs



4.5.8 Test Setup Photographs



5.0 List of Test Equipment

Measurement equipment used for emission compliance testing utilized the equipment on the following list:

Equipment	Manufacturer	Model/Type	Asset #	Cal Int	Cal Due
EMI Receiver	Rohde and Schwarz	ESU	ITS 00961	12	06/02/16
Spectrum Analyzer	Rohde and Schwarz	FSP	ITS 01200	12	02/09/16
BI-Log Antenna	Antenna Research	LPB-2513	ITS 00355	12	08/11/16
Pyramidal Horn Antenna	EMCO	3160-09	ITS 00571	#	#
Pyramidal Horn Antenna	EMCO	3160-10	ITS 00572	#	#
Pre-Amplifier	Sonoma Instrument	310	ITS 00942	12	01/15/16
Pre-Amplifier (1-18GHz)	Miteq	AMF-4D-001180-24-10P	ITS 00526	12	10/06/16
Pre-Amplifier (18-40GHz)	Miteq	JSD44-18004000-305P	ITS 00921	12	06/18/16
Horn Antenna	EMCO	3115	ITS 01595	12	01/14/16

No Calibration required

6.0 Document History

Revision/ Job Number	Writer Initials	Reviewer Initials	Date	Change
1.0 / G102241369	AS	KV	February 04, 2016	Original document