

Test Report # 317347 A

Equipment Under Test:	PHC-11AC1-A
Requirement:	FCC 15.407, ISSED Canada RSS-247 for a 5 GHz WLAN Device
Test Date(s):	8/5/2018 – 3/4/2020
Prepared for:	Mark Nolin Philips North America LLC 3000 Minuteman Road Andover, MA 1810

Report Issued by: Shane Dock, EMC Engineer

Signature:



Date: 4/16/2020

Report Reviewed by: Adam Alger, Quality Manager

Signature: 

Date: 4/16/2020

Report Constructed by: Shane Dock, EMC Engineer

Signature:



Date: 9/19/2019

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Job: C-3013		Serial: Engineering Samples

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Laird Connectivity Test Services in Review

The Laird Connectivity laboratory located at W66 N220 Commerce Court Cedarburg, Wisconsin, 53012 USA is recognized through the following organizations:



A2LA – American Association for Laboratory Accreditation

Accreditation based on ISO/IEC 17025:2017 with Electrical (EMC) Scope

A2LA Certificate Number: 1255.01

Scope of accreditation includes all test methods listed herein unless otherwise noted



Federal Communications Commission (FCC) – USA

Accredited Test Firm Registration Number: 953492

Recognition of two 3 meter Semi-Anechoic Chambers



Innovation, Science and Economic Development Canada

Accredited U.S. Identification Number: US0218

Recognition of two 3 meter Semi-Anechoic Chambers

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1 TEST REPORT SUMMARY

During **8/5/2018 – 3/4/2020** the Equipment Under Test (EUT), **PHC-11AC1-A**, as provided by **Philips North America LLC** was tested to the following requirements:

Operation in the 5.15 – 5.25 GHz band

FCC	ISED Canada	Test Description	Measurement Procedure	Compliant
15.407 (a)(1)(iv)	RSS-247 Section 6.2.1	Power Limits	ANSI C63.10-2013 Section 12.3	Yes
15.407 (a)(1) (iv)	RSS-247 Section 6.2.1	Power Spectral Density	ANSI C63.10-2013 Section 12.5	Yes
15.407 (a)(5)	RSS-247 Section 6.2.1	26dB / 99% Bandwidth	ANSI C63.10-2013 Section 12.4	Yes
15.407 (b)(1)	RSS-247 Section 6.2.1	Undesirable emissions Limit	ANSI C63.10-2013 Section 12.7	Yes
15.407 (b)(6)	RSS-GEN	Spurious Emissions below 1GHz & AC Mains	ANSI C63.10-2013 Section 12.7	Yes
15.407 (b)(7)	RSS-GEN	Restricted Bands	ANSI C63.10-2013 Section 12.7	Yes
15.407 (g)	RSS-GEN	Frequency Stability	ANSI C63.10-2013 Section 6.8	Yes

Operation in the 5.25 – 5.35 GHz and 5.47 – 5.725 GHz bands

FCC	ISED Canada	Test Description	Measurement Procedure	Compliant
15.407 (a)(2)	RSS-247 Section 6.2.2 & 6.2.3	Power Limits	ANSI C63.10-2013 Section 12.3	Yes
15.407 (a)(2)	RSS-247 Section 6.2.2 & 6.2.3	Power Spectral Density	ANSI C63.10-2013 Section 12.5	Yes
15.407 (a)(5)	RSS-247 Section 6.2.2 & 6.2.3	26dB / 99% Bandwidth	ANSI C63.10-2013 Section 12.4	Yes
15.407 (b)(2) & (3)	RSS-247 Section 6.2.2 & 6.2.3	Undesirable emissions Limit	ANSI C63.10-2013 Section 12.7	Yes
15.407 (b)(6)	RSS-GEN	Spurious Emissions below 1GHz & AC Mains	ANSI C63.10-2013 Section 12.7	Yes
15.407 (b)(7)	RSS-GEN	Restricted Bands	ANSI C63.10-2013 Section 12.7	Yes
15.407 (g)	RSS-GEN	Frequency Stability	ANSI C63.10-2013 Section 6.8	Yes

Operation in the 5.725 – 5.85 GHz band

FCC	ISED Canada	Test Description	Measurement Procedure	Compliant
15.407 (a)(3)	RSS-247 Section 6.2.4	Power Limits	ANSI C63.10-2013 Section 12.3	Yes
15.407 (a)(3)	RSS-247 Section 6.2.4	Power Spectral Density	ANSI C63.10-2013 Section 12.5	Yes
15.407 (a)(5)	RSS-247 Section 6.2.4	26dB / 99% Bandwidth	ANSI C63.10-2013 Section 12.4	Yes
15.407 (b)(4)	RSS-247 Section 6.2.4	Undesirable emissions Limit	ANSI C63.10-2013 Section 12.7	Yes
15.407 (b)(6)	RSS-GEN	Spurious Emissions below 1GHz & AC Mains	ANSI C63.10-2013 Section 12.7	Yes
15.407 (b)(7)	RSS-GEN	Restricted Bands	ANSI C63.10-2013 Section 12.7	Yes
15.407 (g)	RSS-GEN	Frequency Stability	ANSI C63.10-2013 Section 6.8	Yes
15.407(e)	RSS-247 Section 6.2.4	Minimum 6dB bandwidth	ANSI C63.10-2013 Section 11.8	Yes

Notice:

The results relate only to the item tested as configured and described in this report. Any additional configurations, modes of operation, or modifications made to the equipment under test after the specified test date(s) are at the decision of the client and may not apply to the data seen in this test report.

2 CLIENT INFORMATION

Company Name	Philips North America LLC
Contact Person	Mark Nolin
Address	3000 Minuteman Road Andover, MA 1810

2.1 Equipment Under Test (EUT) Information

The following information has been supplied by the client

Product Name	PHC-11AC1-A
Model Number	PHC-11AC1-A
Serial Number	Engineering Samples
Additional Information	FCC ID: 2ATC9-PHC-11AC1 IC ID: 25528- PHC11AC1

2.2 Product Description

Combined 802.11 a/b/g/n/ac WLAN and Bluetooth module.

2.3 Modifications Incorporated for Compliance

None noted at time of test

2.4 Deviations and Exclusions from Test Specifications

None noted at time of test

2.5 Additional Information

The EUT was tested in UNII 1, 2A, 2C, 3 bands on all applicable channels (Refer to Section 2.6 for individual channels used for each band). EUT is a module provided with 3.3 VDC and was tested on a Host board with an antenna port termination for radiated emissions testing. The EUT was programmed via the serial connection through a devkit facilitated through a terminal connection program like Putty. The wl command set was used to program the EUT. Firmware version is 7.45.151. The USI part number for this module is 8501-601900-01.

2.6 Additional Information - Modulation

The EUT was tested at 6 MBPS for non-band edge, radiated emissions testing. For band edges and conducted RF testing, 802.11a was tested at 6 and 54 MBPS. 802.11n was tested at MCS0 and

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MCS7 for 20 MHz, and MCS0 and MCS7 for 40 MHz. 802.11n was tested at MCS0 and 8 for 20 MHz, MCS0 and MCS9 for 40 and 80 MHz channels. For modulations and data rates shared between 802.11n and 802.11ac, worst case is reported.

2.7 Channel Plans

Below are the channels used for testing, along with their respective center frequencies and power settings.

UNII 1 Power Settings	20 MHz Channels				40 MHz Channels		80 MHz Channels
Channel	36	40	44	48	38	46	42
Frequency (MHz)	5180	5200	5220	5240	5190	5230	5210
802.11a	13.5	13.5	13.5	13.5	N/A	N/A	N/A
802.11n	14.0	14.0	14.0	14.0	11.5	11.5	N/A
802.11ac	14.0	14.0	14.0	14.0	11.5	11.5	10.5

NOTE: For ISFD, Channel 48 is not used. Channels 36-44 are used in this band.

UNII 2A Power Settings	20 MHz Channels				40 MHz Channels		80 MHz Channels
Channel	52	56	60	64	54	62	58
Frequency (MHz)	5280	5300	5320	5340	5290	5330	5310
802.11a	15.5	15.5	15.5	15.0	N/A	N/A	N/A
802.11n	15.5	15.5	15.5	13.5	14.0	12.5	N/A
802.11ac	15.5	15.5	15.5	13.5	14.0	12.5	12.5

UNII 2C Power Settings	20 MHz Channels				40 MHz Channels		80 MHz Channels
Channel	100	116	140	102	110	134	106
Frequency (MHz)	5500	5580	5700	5510	5550	5670	5530
802.11a	15.5	15.5	15.5	N/A	N/A	N/A	N/A
802.11n	15.5	15.5	15.5	13.5	14.0	14.0	N/A
802.11ac	15.5	15.5	15.5	13.5	14.0	14.0	11.5

UNII 3 Power Settings	20 MHz Channels			40 MHz Channels		80 MHz Channels
Channel	149	157	165	151	159	155
Frequency (MHz)	5745	5785	5825	5755	5795	5775
802.11a	16.0	16.0	16.0	N/A	N/A	N/A
802.11n	16.0	16.0	16.0	14.0	14.0	N/A
802.11ac	16.0	16.0	16.0	14.0	14.0	14.0

2.8 Emissions Requirements

The Conducted Tx Spurious Emissions were tested with a maximum peak gain of 5 dBi added to the measured results to simulate the maximum antenna gain of the EUT. Radiated Tx Emissions were measured with a 50-ohm termination in the antenna port using the cabinet radiation methodology.

3 REFERENCES

Publication	Edition	Date
47 CFR, Parts 0-15 (FCC)		2020
RSS 247	2	2017
RSS GEN	5	2018
ANSI C63.10		2013

4 UNCERTAINTY SUMMARY

Using the guidance of the following publications the calculated measurement uncertainty represents an expanded uncertainty expressed at approximately the 95 % confidence level, using a coverage factor of $k = 2$.

References	Version / Date
CISPR 16-4-1	Ed. 2 (2009-02)
CISPR 16-4-2	Ed. 2 (2011-06)
CISPR 32	Ed. 1 (2012-01)
ANSI C63.23	2012
A2LA P103	February 4, 2016
A2LA P103c	August 10, 2015
ETSI TR 100-028	V1.3.1 (2001-03)

Measurement Type	Configuration	Uncertainty $\pm$
Radiated Emissions	Biconical Antenna	5.0 dB
Radiated Emissions	Log Periodic Antenna	5.3 dB
Radiated Emissions	Horn Antenna	4.7 dB
AC Line Conducted Emissions	Artificial Mains Network	3.4 dB
Telecom Conducted Emissions	Asymmetric Artificial Network	4.9 dB
Disturbance Power Emissions	Absorbing Clamp	4.1 dB
Radiated Immunity	3 Volts/meter	2.2 dB
Conducted Immunity	CDN/EM/BCI	2.4/3.5/3.4 dB
EFT Burst/Surge	Peak pulse voltage	164 volts
ESD Immunity	15 kV level	1377 Volts

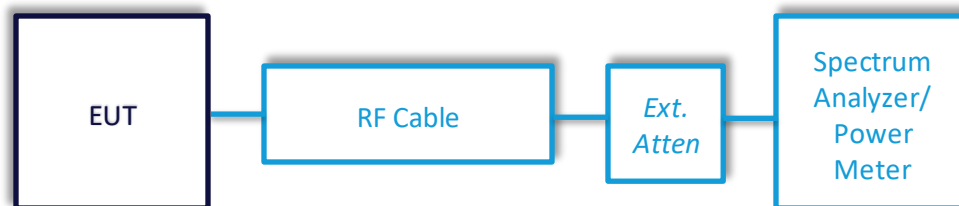
Parameter	ETSI U.C. $\pm$	U.C. $\pm$
Radio Frequency, from F0	1×10^{-7}	0.55×10^{-7}
Occupied Channel Bandwidth	5 %	2 %
RF conducted Power (Power Meter)	1.5 dB	1.2 dB
RF conducted emissions (Spectrum Analyzer)	3.0 dB	1.7 dB
All emissions, radiated	6.0 dB	5.3 dB
Temperature	1° C	0.65° C
Humidity	5 %	2.9 %
Supply voltages	3 %	1 %

5 TEST DATA

5.1 Antenna Port Conducted Emissions

Description of Measurement	The direct measurement of emissions at the antenna port of the EUT is achieved by use of a RF connection to a spectrum analyzer or power meter. The cable and attenuator factors are loaded into the analyzer or power meter allowing for direct measurement readings without the need for further corrections.
Example Calculations	Measurement (dBm) + Cable factor (dB) + External Attenuator (dB) = Corrected Reading (dBm) Margin (dB) = Limit (dBm) – Corrected Reading (dBm) Duty Cycle = 100% * (On Time/Burst Time)

Block Diagram



5.1.1 Antenna Port Conducted Emissions

Operator	Shane Dock, Zach Wilson, Aidi Zainal		
Temperature	23.1 degrees C	R.H. %	33.9% RH
Test Date	8/15/2018 –3/4/2020	Location	Conducted Radio Bench
Requirement	FCC Part 15.407, 2.1055 (d) ISED RSS-247, RSS-GEN	Method	ANSI C63.10 Section 6.8, 6.9.3, 12.3.2.4, 12.4, 12.5, 12.7

Limits:

Test	Limit A	Limit B	Limit C	Limit D
UNII 1 Power	23.0 dBm	-	-	-
UNII 2A Power	24.0 dBm	-	-	-
UNII 2C Power	24.0 dBm	-	-	-
UNII 3 Power	30.0 dBm	-	-	-
UNII 1 PPSD	10.0 dBm/MHz	-	-	-
UNII 2A PPSD	10.0 dBm/MHz	-	-	-
UNII 2C PPSD	11.0 dBm/MHz	-	-	-
UNII 3 PPSD	30 dBm/500 kHz	-	-	-
Conducted Spurious	-27 dBm (Peak)	68.2 dBuV/m Outside of spectrum mask (Peak)	See Spectrum Mask Limit, below	---
Conducted Spurious (Restricted Band)	-41.2 dBm (Average)	-21.2 dBm (Peak)	54 dBuV/m (Average)	74 dBuV/m (Peak)

Where Conducted Spurious Limits overlap, the strictest limit applies. For UNII 3 PPSD, the methodology calls for a dBm/MHz measurement. To show compliance, the measurement will be tested against a 30.0 dBm/MHz limit instead (which is stricter).

UNII 3 Spectrum Mask:

Devices operating in the band 5725-5850 MHz shall have e.i.r.p. of unwanted emissions comply with the following:

27 dBm/MHz at frequencies from the band edges decreasing linearly to 15.6 dBm/MHz at 5 MHz above or below the band edges;

15.6 dBm/MHz at 5 MHz above or below the band edges decreasing linearly to 10 dBm/MHz at 25 MHz above or below the band edges;

10 dBm/MHz at 25 MHz above or below the band edges decreasing linearly to -27 dBm/MHz at 75 MHz above or below the band edges; and -27 dBm/MHz at frequencies more than 75 MHz above or below the band edges.

UNII 1 only: Spurious emissions in the 5250-5350 band must be attenuated beneath the channel power by 26 dB.

Test Parameters

Frequency	30 MHz – 40 GHz		
RBW	See Screenshots	VBW	See Screenshots
Detector(s)	Peak, Average	Settings	See Section 2 for Channel plan

Instrumentation



Date : 11-Sep-2018

Test : Conducted Emissions

Job : C-3013

PE : Shane Dock

Customer : Philips Healthcare

Quote : 317347

No.	Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due Date	Equipment Status
1	EE 960087	Analyzer - Spectrum	Agilent	N9010A	MY53400296	4/25/2018	4/25/2019	Active Calibration
2	AA 960143	Cable	Gore	EKD01D01048.0	5546519	11/15/2017	11/15/2018	Active Verification



Date : 12-Apr-2019

Test : Conducted UNII

Job : C-3160

PE : Shane Dock

Customer : Philips Healthcare

Quote : 319013

No.	Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due Date	Equipment Status
1	EE 960087	Analyzer - Spectrum	Agilent	N9010A	MY53400296	4/24/2019	4/24/2020	Active Calibration
2	AA 960143	Cable	Gore	EKD01D01048.0	5546519	11/12/2018	11/12/2019	Active Verification



Date : 11-Sep-2018

Test : Conducted Radio

Job : C-3013

PE : Shane Dock

Customer : Philips Healthcare

Quote : 317347

No.	Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due Date	Equipment Status
1	AA 960173	Cable	A.H. Systems, Inc	SAC-26G-1	388	6/4/2018	6/4/2020	Active Calibration
2	EE 960087	Analyzer - Spectrum	Agilent	N9010A	MY53400296	4/24/2019	4/24/2020	Active Calibration
3	AA 960172	Cable	A.H. Systems, Inc	SAC-26G-1	387	6/4/2018	6/4/2020	Active Verification

EUT Parameters

Input Power	3.3 VDC supplied by 120VAC, 60 Hz Adaptor	Mode	Tx Modulated Test Mode
Frequency	See Section 2 for details	Channel	See Section 2 for details

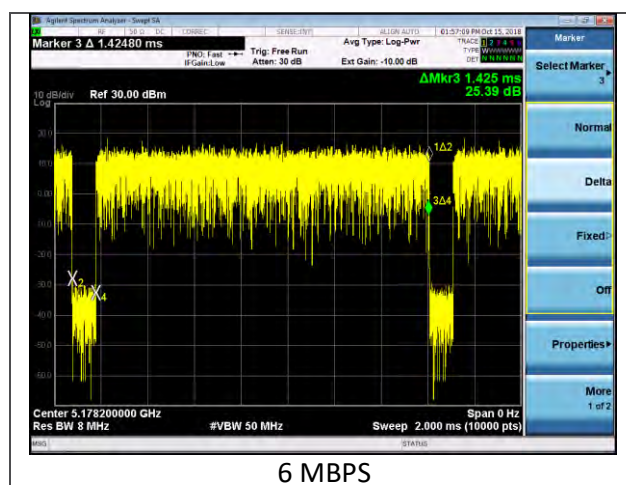
Duty Cycles

20 MHz	6 MBPS		54 MBPS		MCS0		MCS7		MCS8	
Burst Time	1529.0	us	281.6	us	1438.0	us	269.6	us	253.4	us
On Time	1425.0	us	180.2	us	1336.0	us	168.3	us	152.1	us
Duty Cycle	93.2	%	64.0	%	92.9	%	62.4	%	60.0	%
DC Correction	0.3	dB	1.9	dB	0.3	dB	2.1	dB	2.2	dB

40 MHz	MCS0		MCS8		MCS9	
Burst Time	766.7	us	201.7	us	189.4	us
On Time	664.8	us	100.3	us	88.3	us
Duty Cycle	86.7	%	49.7	%	46.6	%
DC Correction	0.6	dB	3.0	dB	3.3	dB

80 MHz	MCS0		MCS9	
Burst Time	433.4	us	164.9	us
On Time	332.3	us	101.0	us
Duty Cycle	76.7	%	61.2	%
DC Correction	1.1	dB	4.0	dB

Sample Duty Cycle Screenshot



Frequency Stability Data

Temperature (°C)	Input Power (VDC)	Frequency (Hz)	Deviation (Hz)
20	3.3	5179983678	0
20	2.8	5179983850	172
20	3.8	5179983719	41

Value at 3.3 VDC is used as a reference.

5.1.2 Antenna Port Conducted Emissions – UNII 1

Data

Tables

Bandwidth

Rate	Channel	26 dB BW (MHz)	99% BW (MHz)
6 Mbps	36	21.0	16.6
6 Mbps	40	20.8	16.6
6 Mbps	48	20.8	16.6
54 Mbps	36	20.2	16.4
54 Mbps	40	20.5	16.5
54 Mbps	48	20.3	16.5
MCS0 - 20 MHz	36	21.4	17.8
MCS0 - 20 MHz	40	21.5	17.8
MCS0 - 20 MHz	48	21.1	17.7
MCS7 - 20 MHz	36	20.4	17.7
MCS7 - 20 MHz	40	20.7	17.7
MCS7 - 20 MHz	48	20.6	17.6
MCS8 - 20 MHz	36	20.9	17.7
MCS8 - 20 MHz	40	20.7	17.7
MCS8 - 20 MHz	48	20.8	17.7
MCS0 - 40 MHz	38	39.3	36.2
MCS0 - 40 MHz	46	39.4	36.2
MCS7 - 40 MHz	38	39.2	36.2
MCS7 - 40 MHz	46	39.2	36.2
MCS9 - 40 MHz	38	39.3	36.2
MCS9 - 40 MHz	46	39.4	36.2
MCS0 - 80 MHz	42	81.0	75.5
MCS9 - 80 MHz	42	81.3	75.6

Conducted Output Power

Data Rate	Channel	Power Setting	Pout (dBm)	Correction Factor (dB)	Corrected Pout (dBm)	Limit (dBm)	Margin (dB)
6 MBPS	36	13.5	11.5	0.3	11.8	24.0	12.2
6 MBPS	40	13.5	11.6	0.3	11.9	24.0	12.1
6 MBPS	48	13.5	11.7	0.3	12.0	24.0	12.0
54 MBPS	36	13.5	9.8	1.9	11.7	24.0	12.3
54 MBPS	40	13.5	9.8	1.9	11.7	24.0	12.3
54 MBPS	48	13.5	9.7	1.9	11.6	24.0	12.4
MCS0 - 20 MHz	36	14.0	11.6	0.3	11.9	24.0	12.1
MCS0 - 20 MHz	40	14.0	11.6	0.3	11.9	24.0	12.1
MCS0 - 20 MHz	48	14.0	11.5	0.3	11.8	24.0	12.2
MCS7 - 20 MHz	36	14.0	9.0	2.1	11.1	24.0	12.9
MCS7 - 20 MHz	40	14.0	8.9	2.1	11.0	24.0	13.0
MCS7 - 20 MHz	48	14.0	9.0	2.1	11.1	24.0	12.9
MCS8 - 20 MHz	36	14.0	9.0	2.2	11.2	24.0	12.8
MCS8 - 20 MHz	40	14.0	9.1	2.2	11.3	24.0	12.7
MCS8 - 20 MHz	48	14.0	8.9	2.2	11.1	24.0	12.9
MCS0 - 40 MHz	38	11.5	9.1	0.6	9.7	24.0	14.3
MCS0 - 40 MHz	46	11.5	8.9	0.6	9.5	24.0	14.5
MCS7 - 40 MHz	38	11.5	6.6	3.0	9.6	24.0	14.4
MCS7 - 40 MHz	46	11.5	6.4	3.0	9.4	24.0	14.6
MCS9 - 40 MHz	38	11.5	6.6	3.3	9.9	24.0	14.1
MCS9 - 40 MHz	46	11.5	6.5	3.3	9.8	24.0	14.2
MCS0 - 80 MHz	42	10.5	7.1	1.2	8.3	24.0	15.7
MCS9 - 80 MHz	42	10.5	4.0	2.1	6.1	24.0	17.9

Peak Power Spectral Density

Rate	Channel	PSD (dBm/MHz)	Duty Cycle Correction (dB)	Corrected PSD (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)
6 Mbps	36	2.0	0.3	2.3	10.0	7.7
6 Mbps	40	2.3	0.3	2.6	10.0	7.4
6 Mbps	48	2.2	0.3	2.5	10.0	7.5
54 Mbps	36	0.8	1.9	2.7	10.0	7.3
54 Mbps	40	1.0	1.9	2.9	10.0	7.1
54 Mbps	48	1.0	1.9	2.9	10.0	7.1
MCS0 - 20 MHz	36	2.1	0.3	2.4	10.0	7.6
MCS0 - 20 MHz	40	2.0	0.3	2.3	10.0	7.7
MCS0 - 20 MHz	48	1.9	0.3	2.2	10.0	7.8
MCS7 - 20 MHz	36	-0.4	2.1	1.7	10.0	8.3
MCS7 - 20 MHz	40	-0.4	2.1	1.7	10.0	8.3
MCS7 - 20 MHz	48	-0.1	2.1	2.0	10.0	8.0
MCS8 - 20 MHz	36	-0.2	2.2	2.0	10.0	8.0
MCS8 - 20 MHz	40	-0.2	2.2	2.0	10.0	8.0
MCS8 - 20 MHz	48	-0.6	2.2	1.6	10.0	8.4
MCS0 - 40 MHz	38	-3.6	0.6	-3.0	10.0	13.0
MCS0 - 40 MHz	46	-3.4	0.6	-2.8	10.0	12.8
MCS7 - 40 MHz	38	-5.9	3.0	-2.9	10.0	12.9
MCS7 - 40 MHz	46	-5.8	3.0	-2.8	10.0	12.8
MCS9 - 40 MHz	38	-7.9	3.3	-4.6	10.0	14.6
MCS9 - 40 MHz	46	-7.1	3.3	-3.8	10.0	13.8
MCS0 - 80 MHz	42	-8.3	1.2	-7.1	10.0	17.1
MCS9 - 80 MHz	42	-10.8	2.1	-8.7	10.0	18.7

Conducted Tx Spurious – All Data Rates

Frequency (MHz)	Channel	Data Rate	Peak Measurement (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
10355.0	36	6 MBPS	-45.0	5.0	-40.0	-21.2	18.8
10406.3	40	6 MBPS	-47.0	5.0	-42.0	-21.2	20.8
10479.0	48	6 MBPS	-44.0	5.0	-39.0	-21.2	17.8
10362.0	36	54 MBPS	-44.9	5.0	-39.9	-21.2	18.7
10400.5	40	54 MBPS	-47.7	5.0	-42.7	-21.2	21.5
10479.0	48	54 MBPS	-45.1	5.0	-40.1	-21.2	18.9
10358.0	36	HT20 MCS0	-44.2	5.0	-39.2	-21.2	18.0
10402.8	40	HT20 MCS0	-50.2	5.0	-45.2	-21.2	24.0
10486.0	48	HT20 MCS0	-40.0	5.0	-35.0	-21.2	13.8
10362.0	36	HT20 MCS7	-44.3	5.0	-39.3	-21.2	18.1
10404.0	40	HT20 MCS7	-47.5	5.0	-42.5	-21.2	21.3
10476.0	48	HT20 MCS7	-41.6	5.0	-36.6	-21.2	15.4
10355.0	36	HT20 MCS8	-44.4	5.0	-39.4	-21.2	18.2
10394.8	40	HT20 MCS8	-48.7	5.0	-43.7	-21.2	22.5
10483.0	48	HT20 MCS8	-45.0	5.0	-40.0	-21.2	18.8

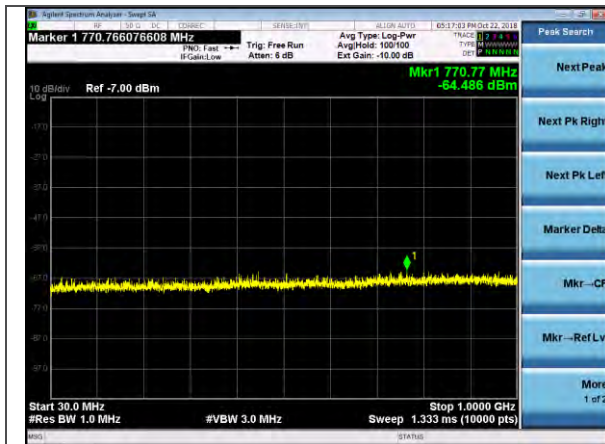
Frequency (MHz)	Channel	Data Rate	Average Measurement (dBm)	Duty Cycle Correction (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
10359.4	36	6 MBPS	-56.1	0.3	5.0	-50.8	-41.2	9.6
10401.8	40	6 MBPS	-55.6	0.3	5.0	-50.3	-41.2	9.1
10480.1	48	6 MBPS	-56.0	0.3	5.0	-50.7	-41.2	9.5
10361.1	36	54 MBPS	-57.7	1.9	5.0	-50.8	-41.2	9.6
10400.4	40	54 MBPS	-55.6	1.9	5.0	-48.7	-41.2	7.5
10480.3	48	54 MBPS	-57.1	1.9	5.0	-50.2	-41.2	9.0
10359.3	36	HT20 MCS0	-56.4	0.3	5.0	-51.1	-41.2	9.9
10401.1	40	HT20 MCS0	-55.6	0.3	5.0	-50.3	-41.2	9.1
10480.0	48	HT20 MCS0	-56.1	0.3	5.0	-50.8	-41.2	9.6
10361.4	36	HT20 MCS7	-58.6	2.1	5.0	-51.5	-41.2	10.3
10401.3	40	HT20 MCS7	-57.7	2.1	5.0	-50.6	-41.2	9.4
10478.8	48	HT20 MCS7	-58.5	2.1	5.0	-51.4	-41.2	10.2

10358.7	36	HT20 MCS8	-58.4	2.2	5.0	-51.2	-41.2	10.0
10399.2	40	HT20 MCS8	-55.6	2.2	5.0	-48.4	-41.2	7.2
10478.9	48	HT20 MCS8	-58.7	2.2	5.0	-51.5	-41.2	10.3

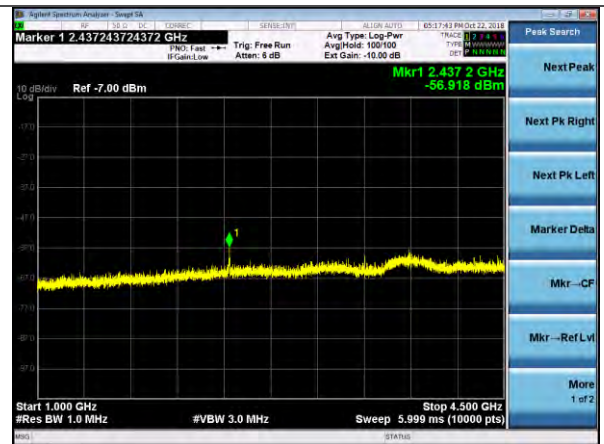
For HT40 and HT80, no emissions were observed within 20 dB of the limit.

Plots

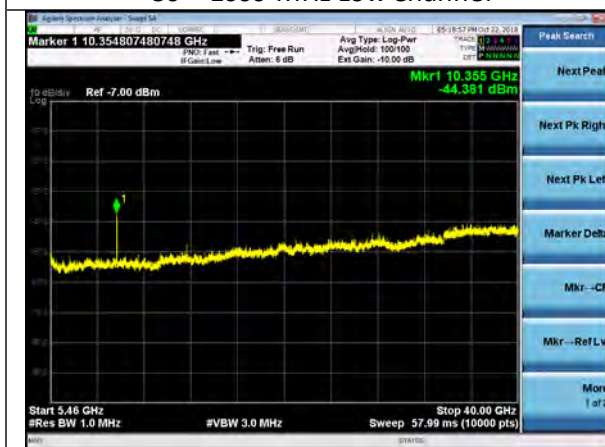
Conducted Tx Spurious (Worst Case – MCS8 – 20 MHz Channels. Refer to tabulated data)



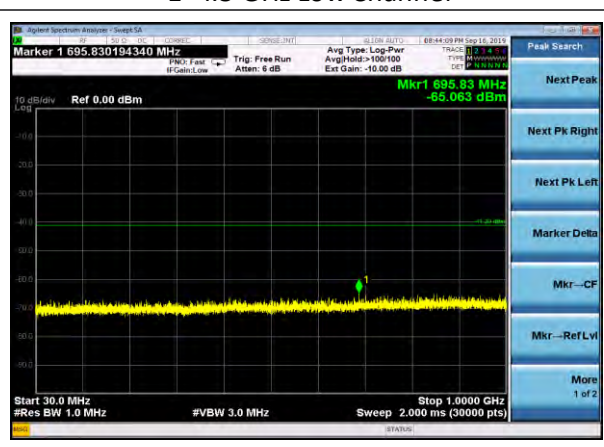
30 – 1000 MHz Low Channel



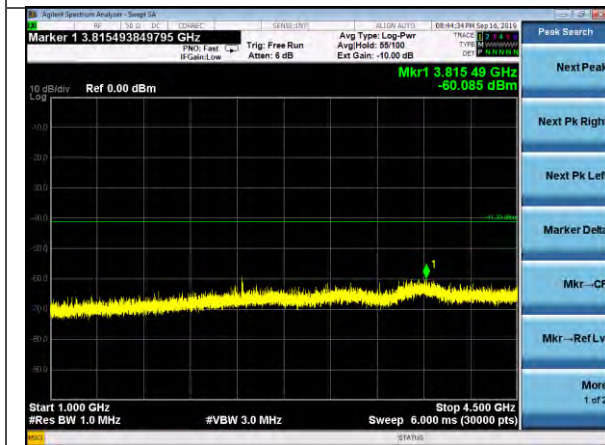
1- 4.5 GHz Low Channel



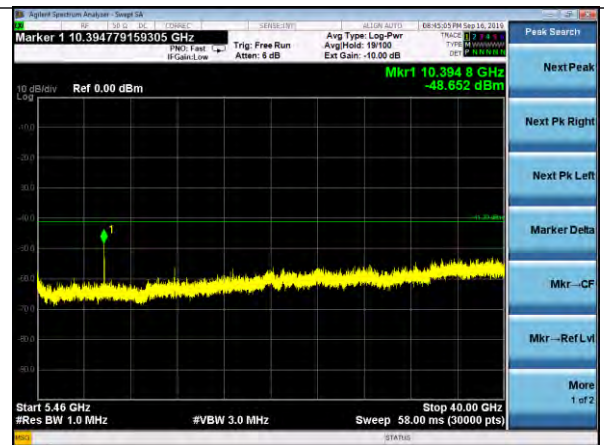
5.46 – 40 GHz Low Channel



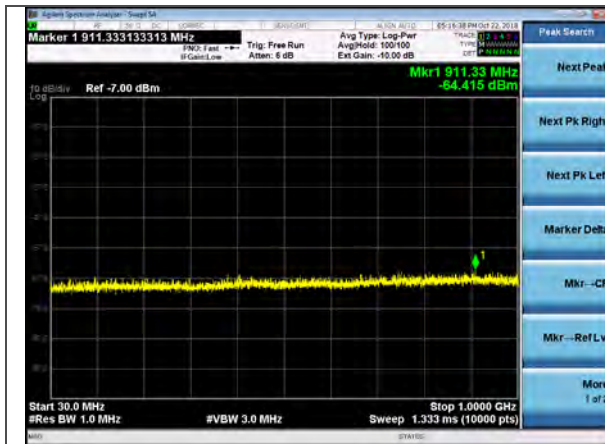
30-1000 MHz Mid Channel



1-4.5 GHz Mid Channel



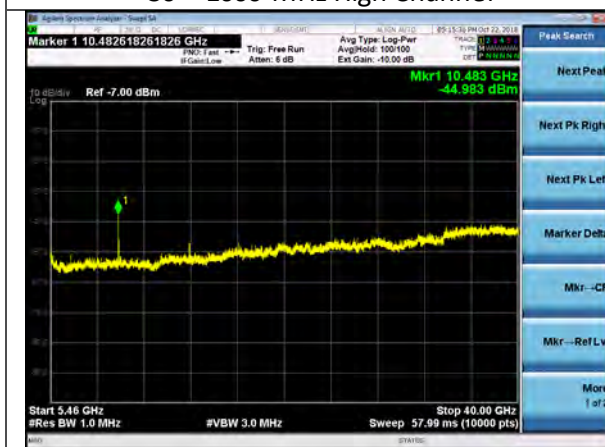
5.46 – 40 GHz Mid Channel



30 – 1000 MHz High Channel



1- 4.5 GHz High Channel

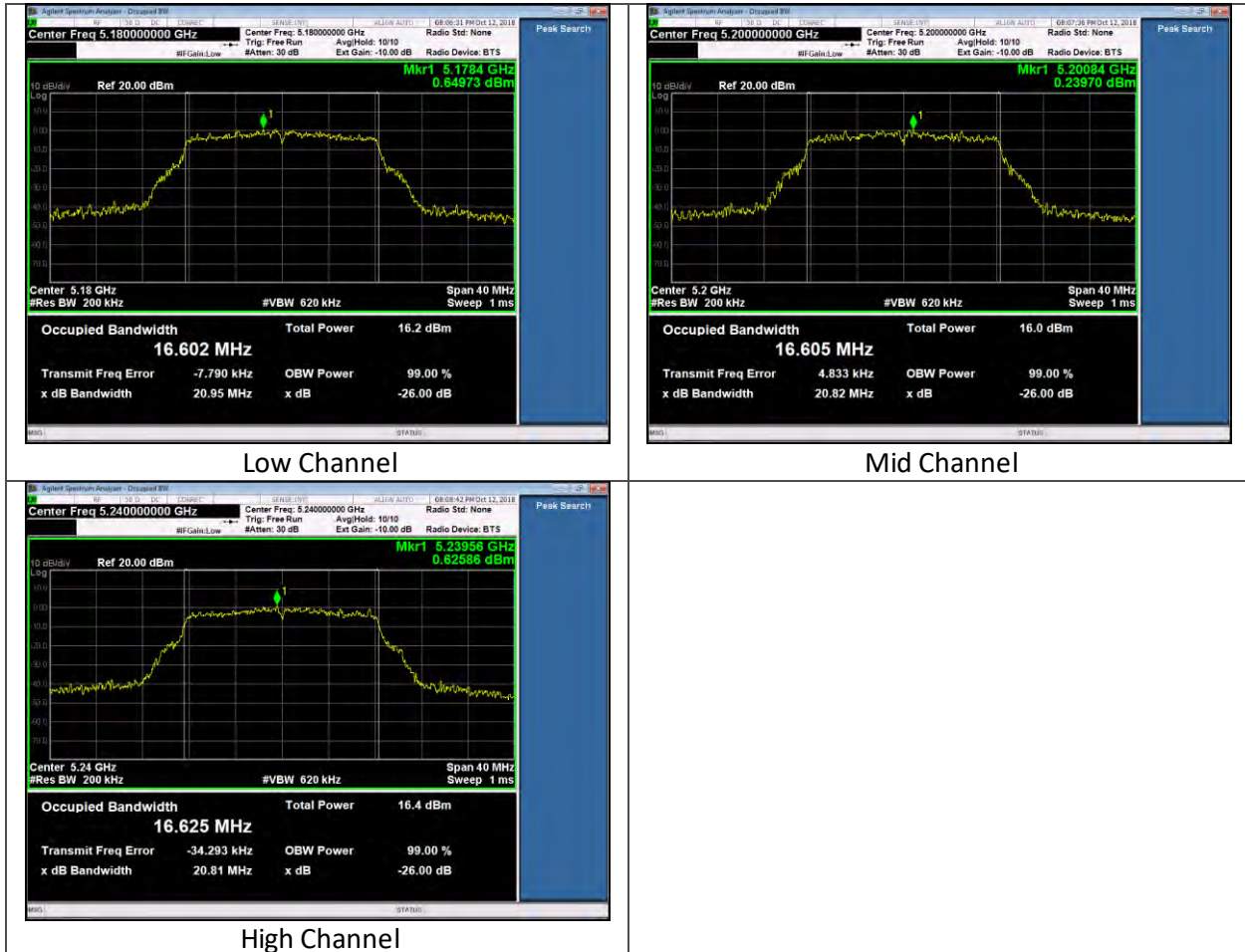


5.46 – 40 GHz High Channel

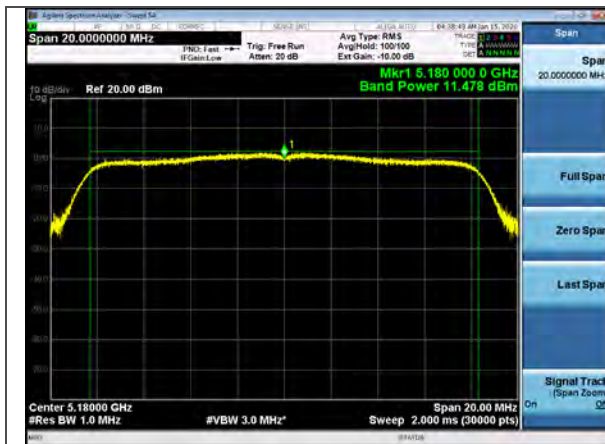
Other Plots

802.11a 6 MBPS - 20 MHz

Bandwidth



Conducted Output Power



Low Channel

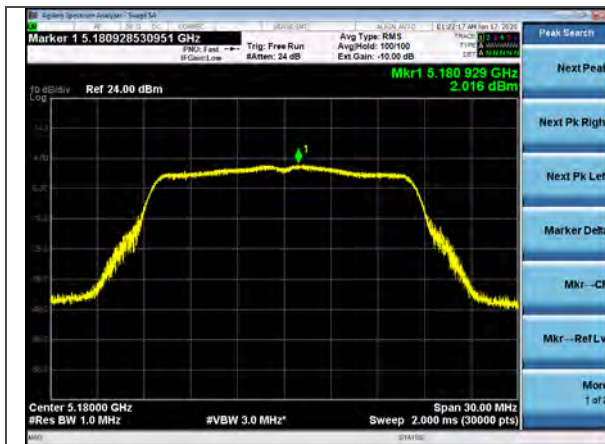


Mid Channel



High Channel

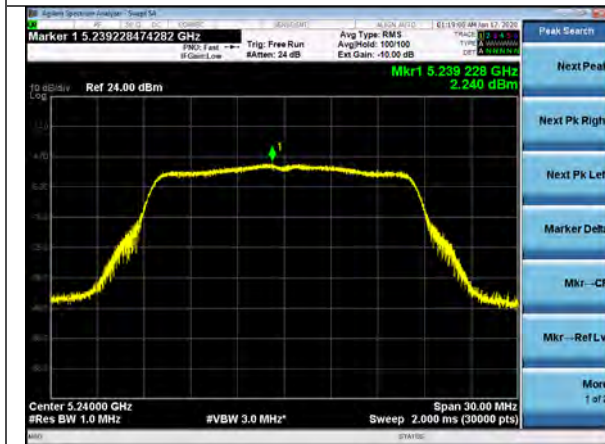
Peak Power Spectral Density



Low Channel



Mid Channel



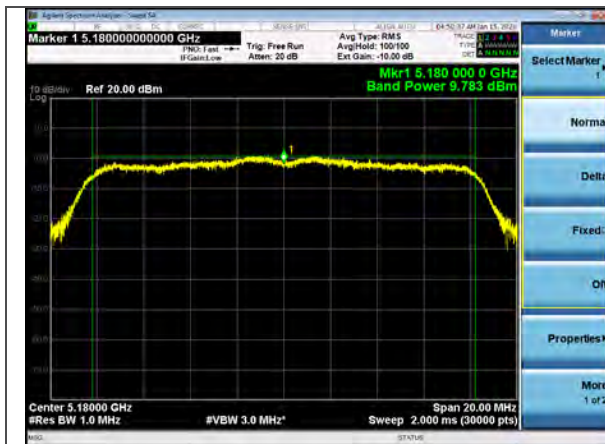
High Channel

802.11a 54 MBPS - 20 MHz

Bandwidth



Conducted Output Power



Low Channel

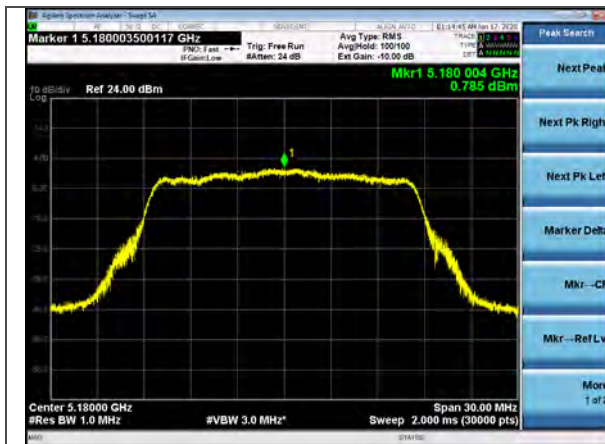


Mid Channel



High Channel

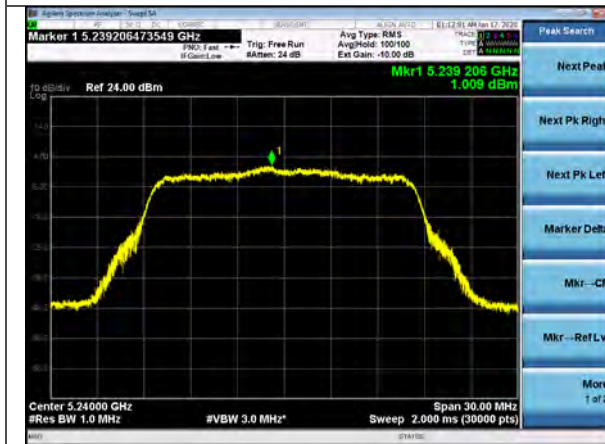
Peak Power Spectral Density



Low Channel



Mid Channel

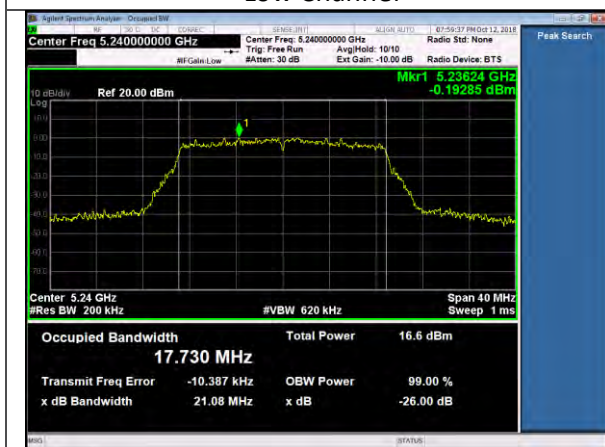
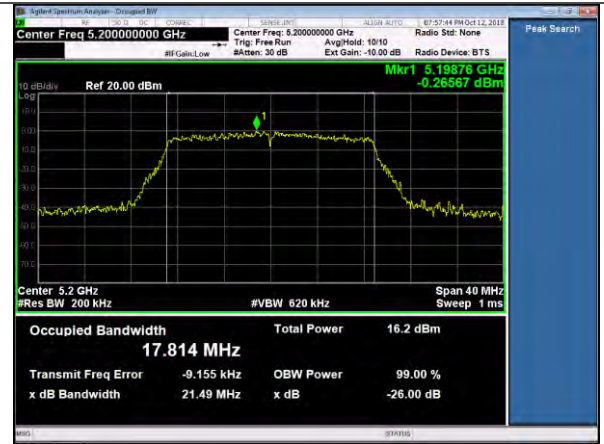
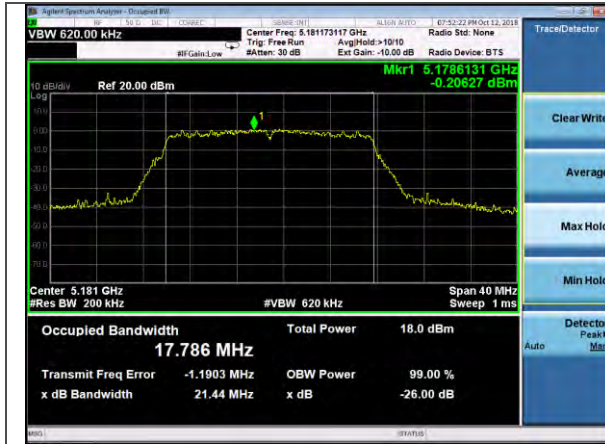


High Channel

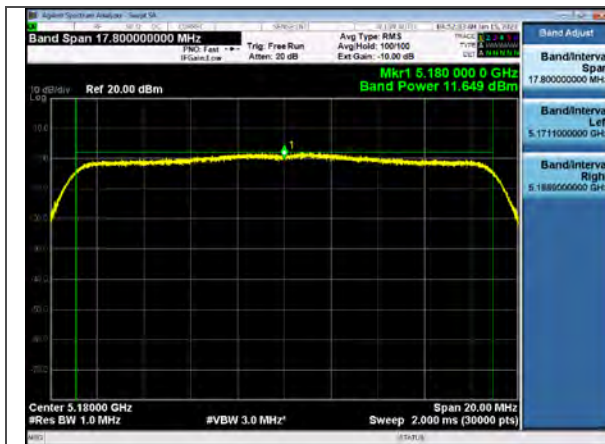
802.11n MCS0 - 20 MHz

Bandwidth

Company: Philips North America LLC	Page 27 of 228	Name: PHC-11AC1-A
Report: 317347A		Model: PHC-11AC1-A
Job: C-3013		Serial: Engineering Samples



Conducted Output Power



Low Channel

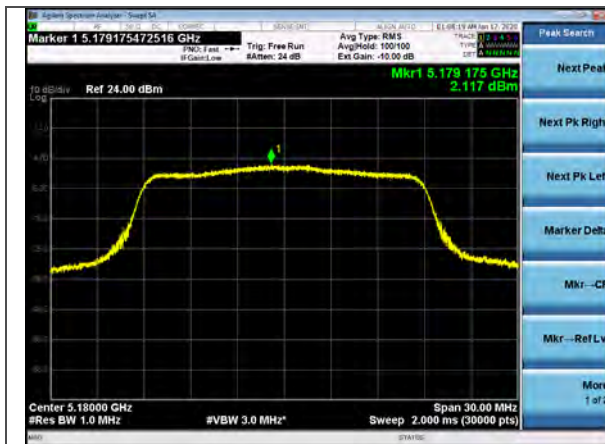


Mid Channel



High Channel

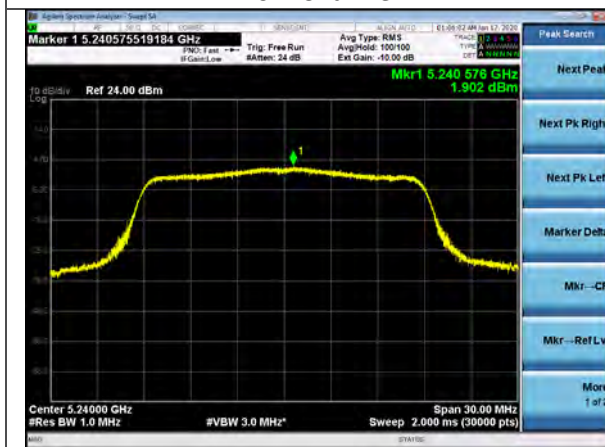
Peak Power Spectral Density



Low Channel



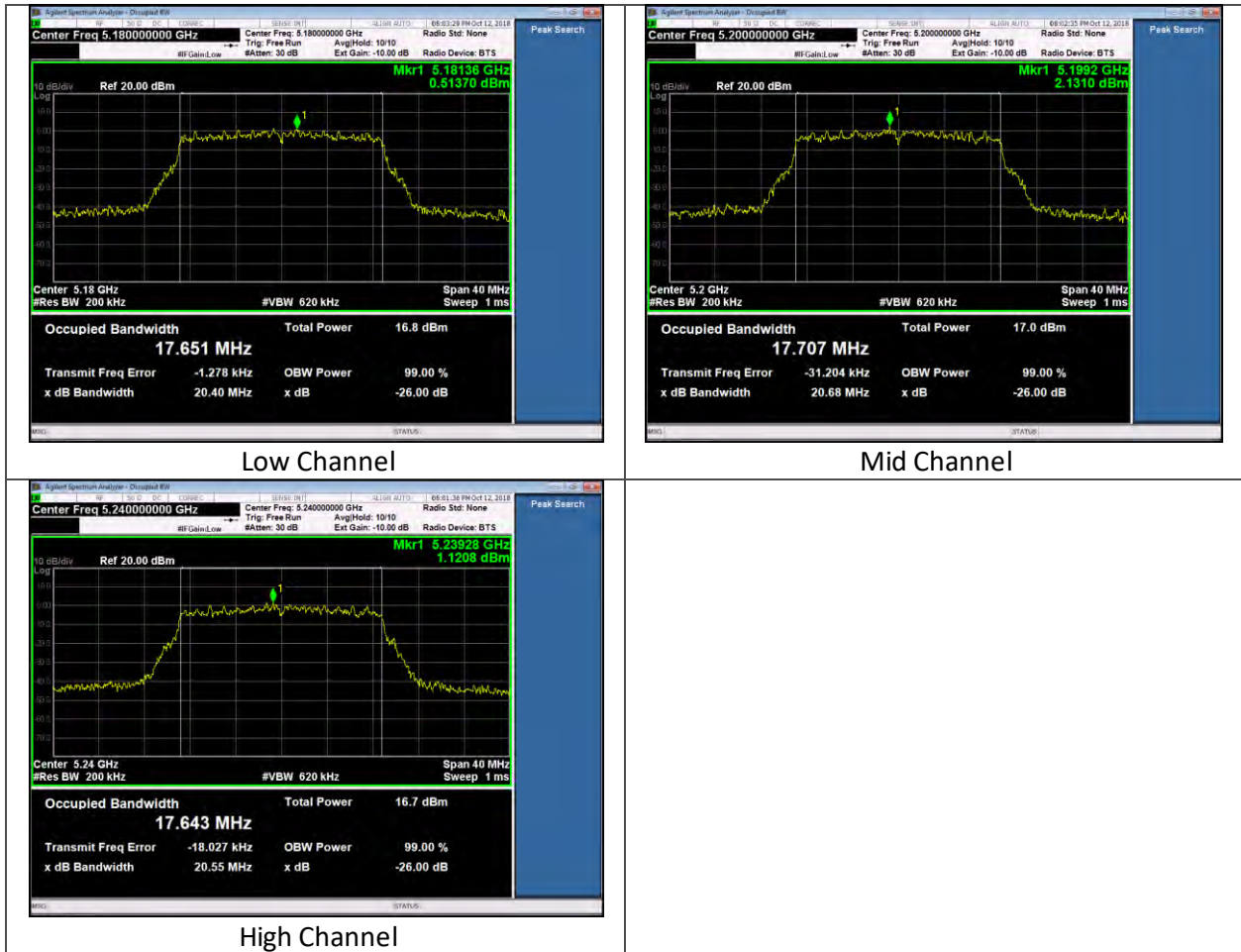
Mid Channel



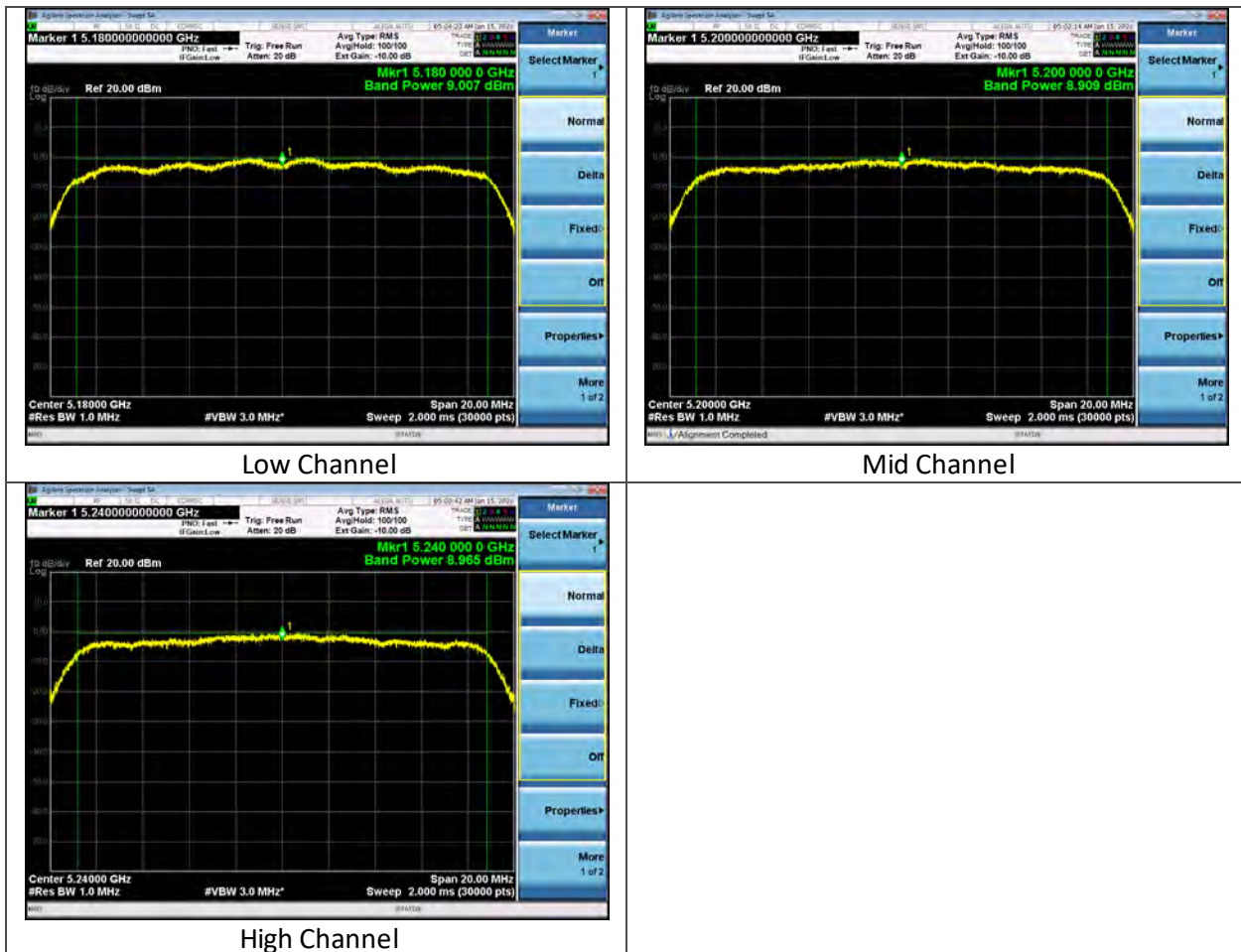
High Channel

802.11n MCS7 - 20 MHz

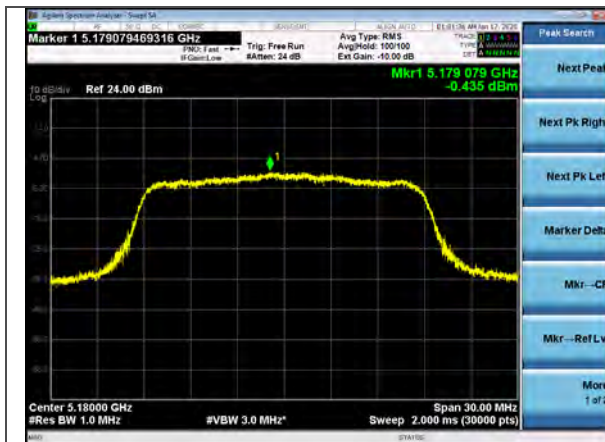
Bandwidth



Conducted Output Power



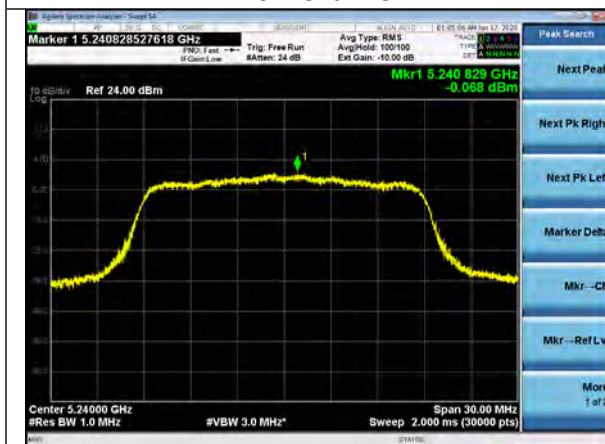
Peak Power Spectral Density



Low Channel



Mid Channel



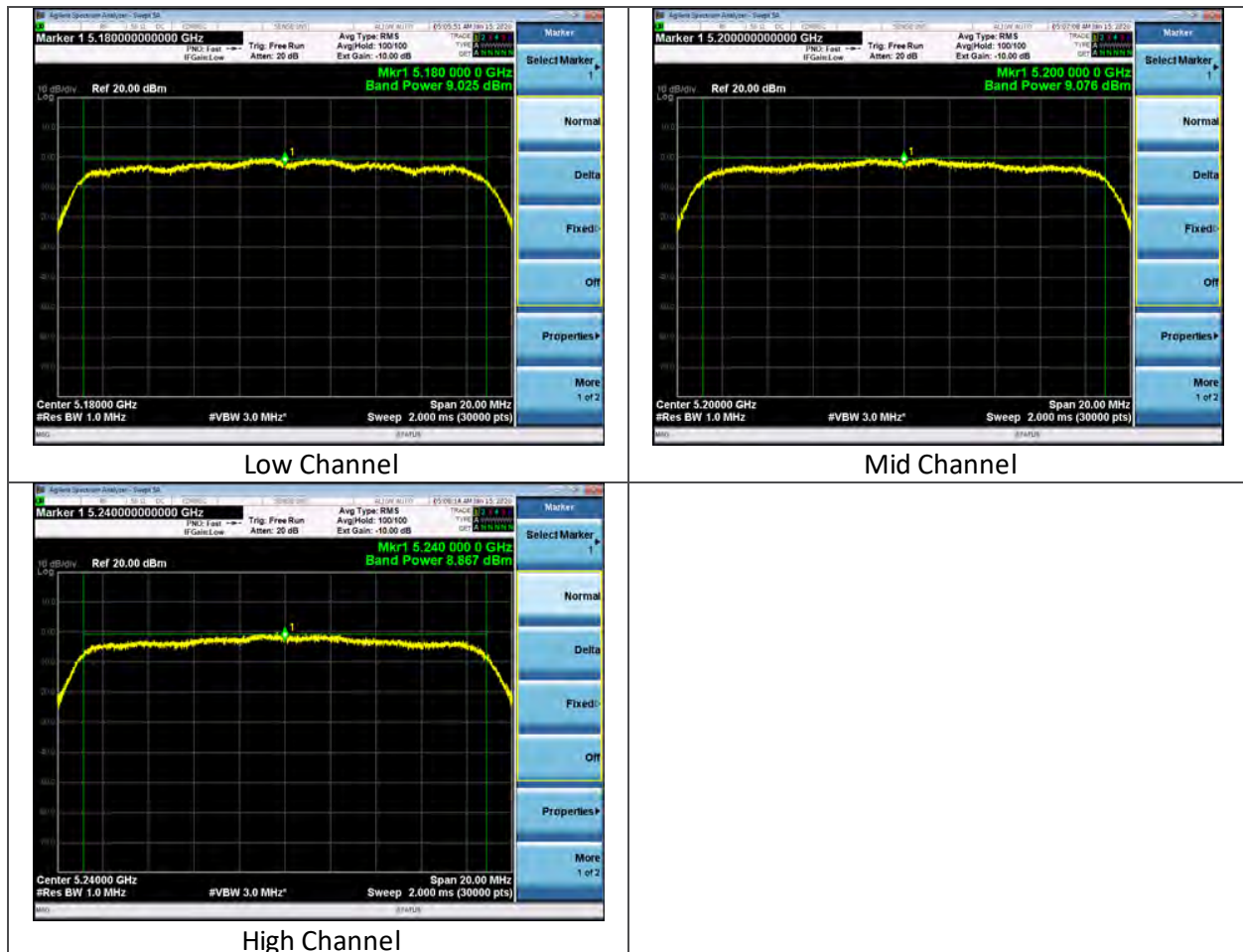
High Channel

802.11ac MCS8 - 20 MHz

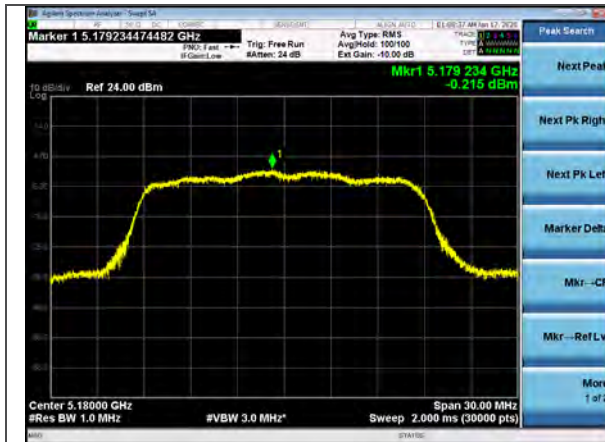
Bandwidth



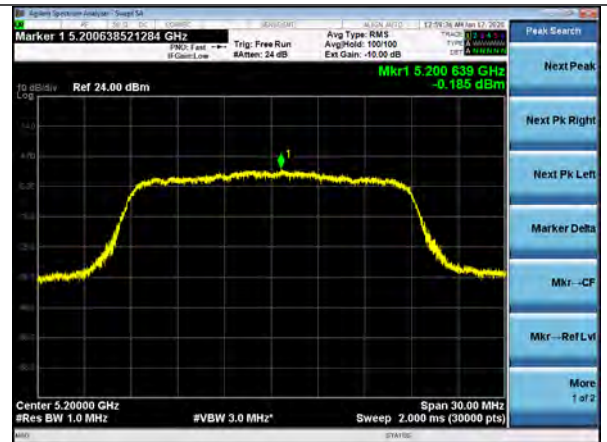
Conducted Output Power



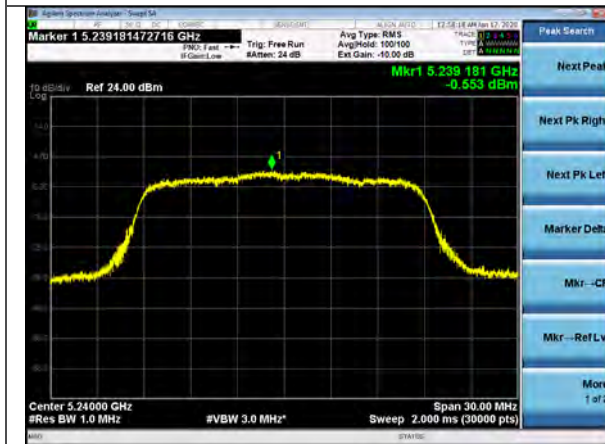
Peak Power Spectral Density



Low Channel



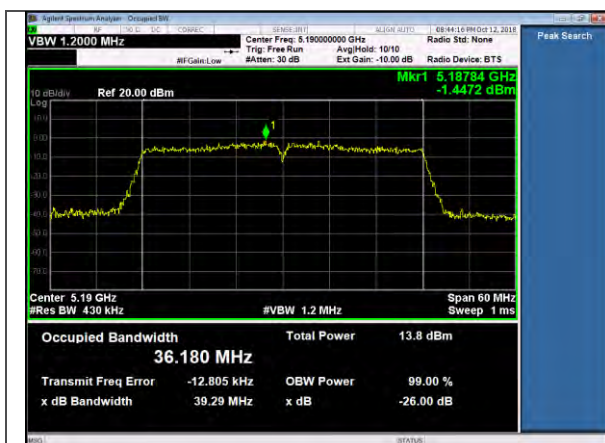
Mid Channel



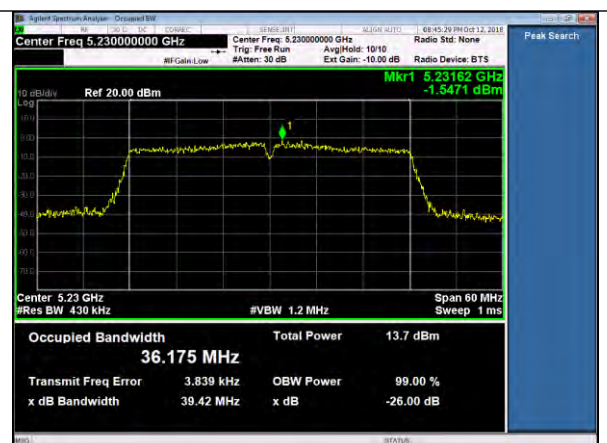
High Channel

802.11ac MCS0 - 40 MHz

Bandwidth

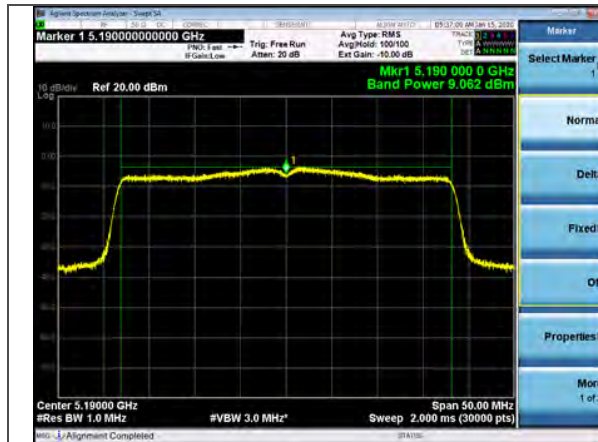


Channel 38



Channel 46

Conducted Output Power



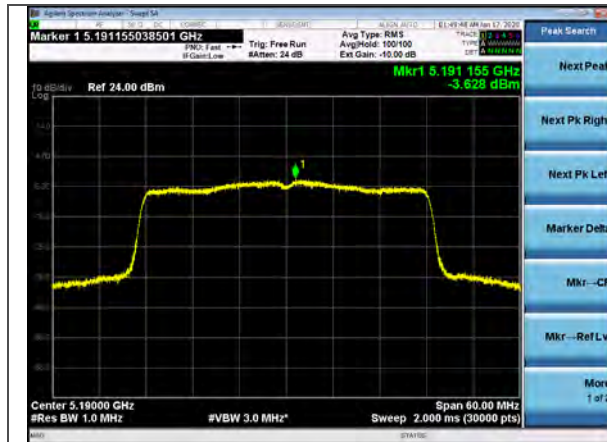
Channel 38



Channel 46

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Job: C-3013		Serial: Engineering Samples

Peak Power Spectral Density



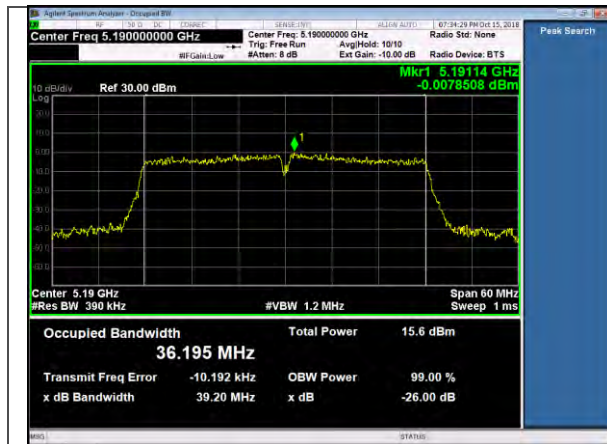
Channel 38



Channel 46

802.11ac MCS7 - 40 MHz

Bandwidth

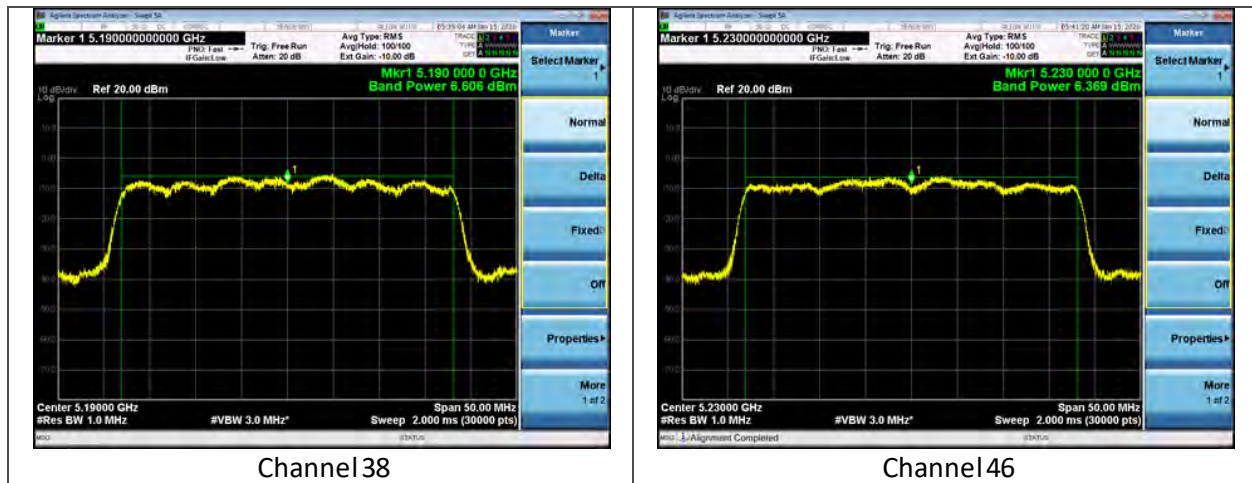


Channel 38

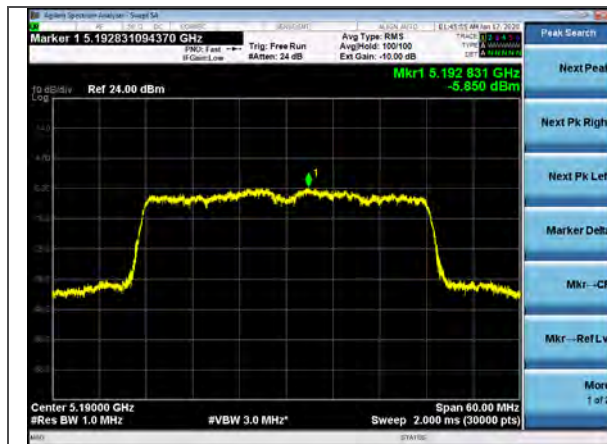


Channel 46

Conducted Output Power



Peak Power Spectral Density



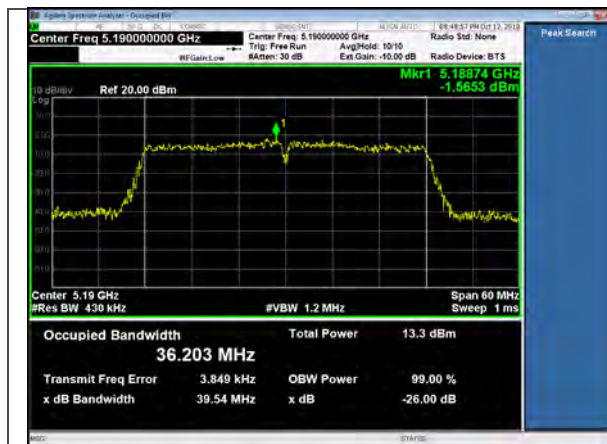
Channel 38



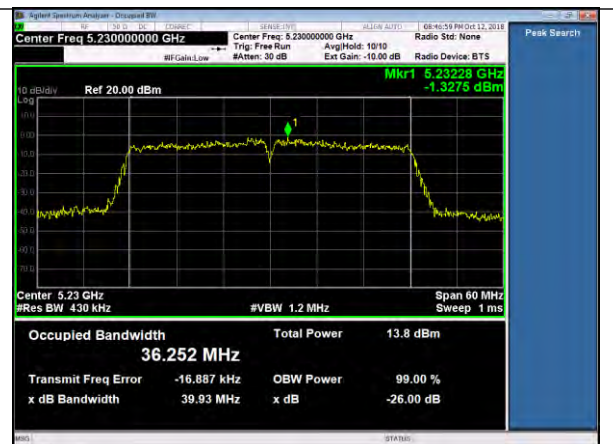
Channel 46

802.11ac MCS9 - 40 MHz

Bandwidth

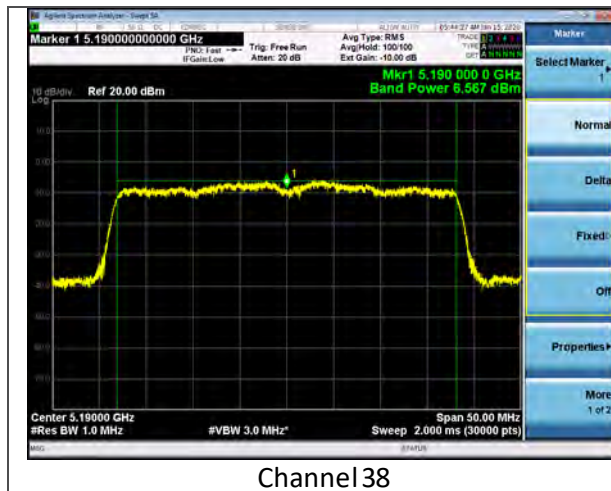


Channel 38

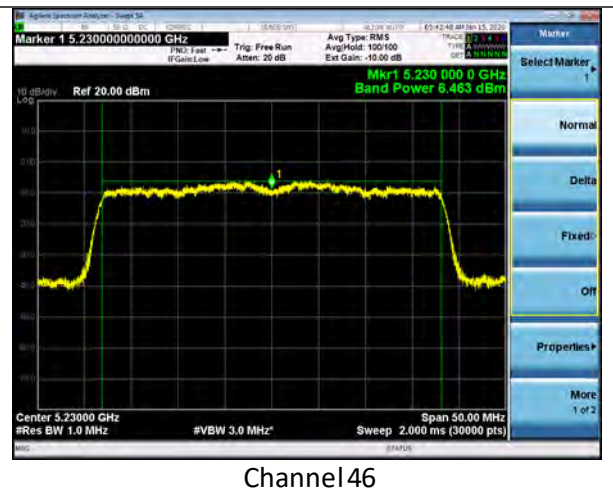


Channel 46

Conducted Output Power

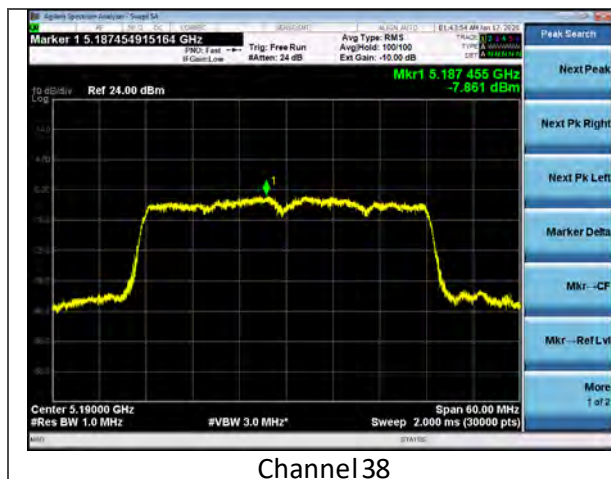


Channel 38

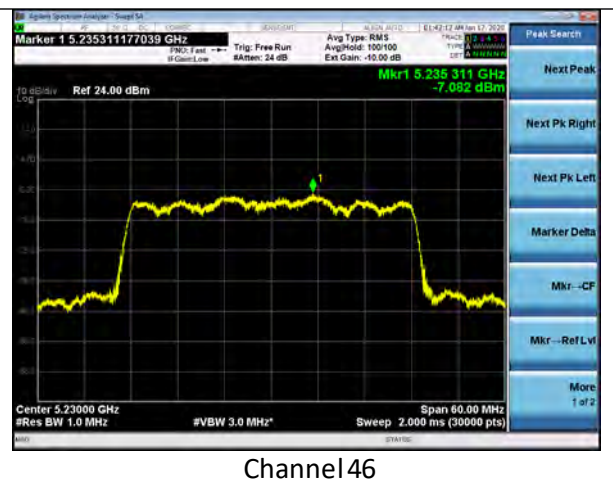


Channel 46

Peak Power Spectral Density



Channel 38

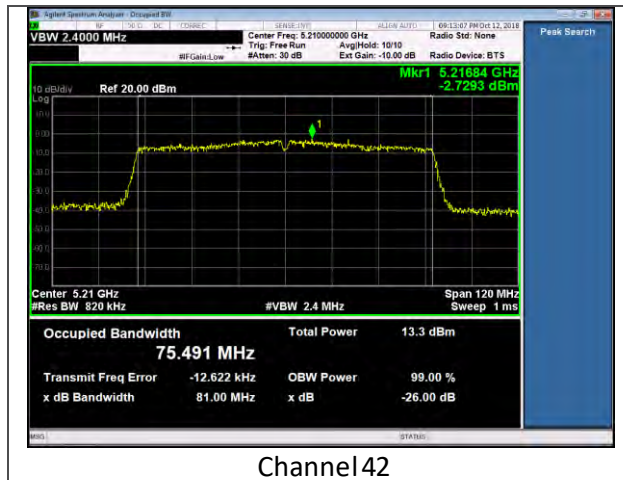


Channel 46

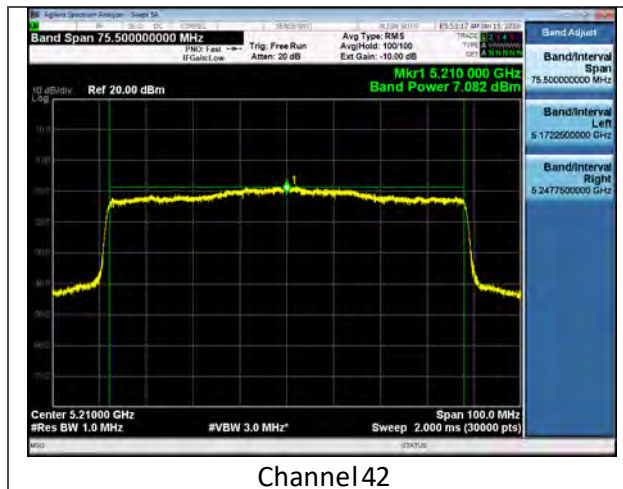
802.11ac MCS0 - 80 MHz

Bandwidth

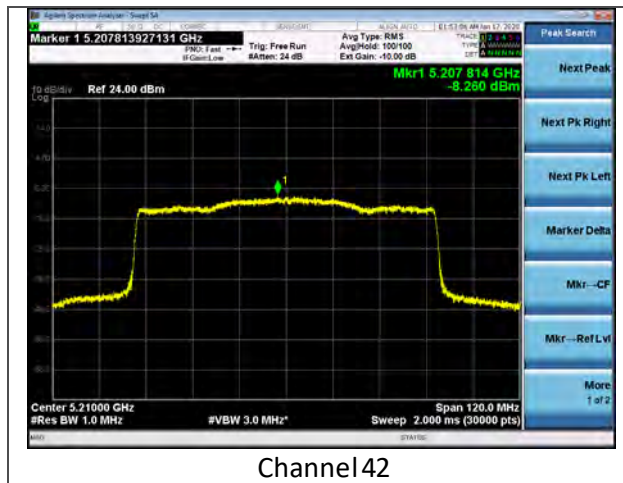
Company: Philips North America LLC	Page 41 of 228	Name: PHC-11AC1-A
Report: 317347A		Model: PHC-11AC1-A
Job: C-3013		Serial: Engineering Samples



Conducted Output Power

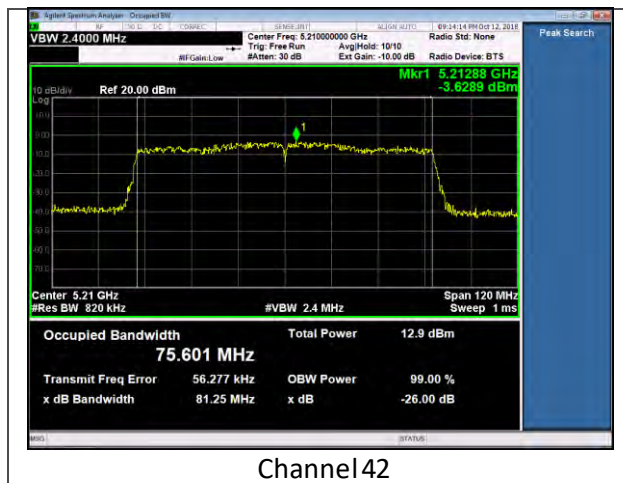


Peak Power Spectral Density

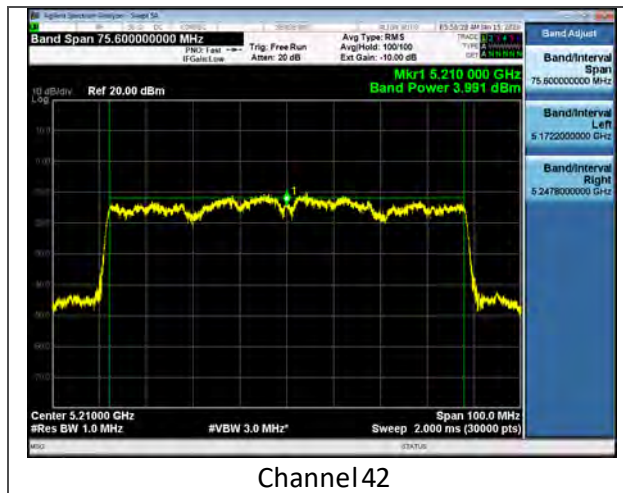


802.11ac MCS9 - 80 MHz

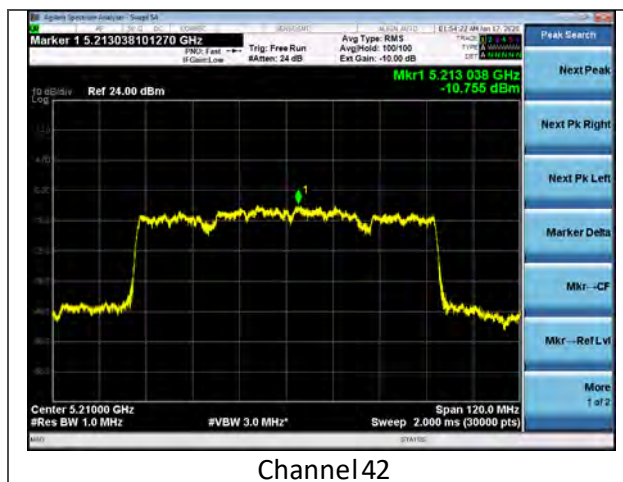
Bandwidth



Conducted Output Power



Peak Power Spectral Density



5.1.3 Antenna Port Conducted Emissions – UNII 2A

Data

Tables

Bandwidth

Rate	Channel	26 dB BW (MHz)	99% BW (MHz)
6 Mbps	52	21.9	17.6
6 Mbps	56	21.7	17.4
6 Mbps	60	21.8	17.2
6 Mbps	64	21.6	17.3
54 Mbps	52	21.0	16.8
54 Mbps	56	21.2	16.8
54 Mbps	60	21.3	16.9
54 Mbps	64	21.2	16.9
MCS0 - 20 MHz	52	21.8	18.3
MCS0 - 20 MHz	56	21.9	18.3
MCS0 - 20 MHz	60	21.9	18.2
MCS0 - 20 MHz	64	21.8	18.2
MCS7 - 20 MHz	52	21.7	18.1
MCS7 - 20 MHz	56	21.7	18.1
MCS7 - 20 MHz	60	21.6	18.2
MCS7 - 20 MHz	64	21.5	18.1
MCS8 - 20 MHz	52	21.5	18.1
MCS8 - 20 MHz	56	21.4	18.0
MCS8 - 20 MHz	60	21.7	18.1
MCS8 - 20 MHz	64	21.6	18.0
MCS0 - 40 MHz	54	39.5	36.2
MCS0 - 40 MHz	62	39.6	36.3
MCS7 - 40 MHz	54	39.2	36.1

MCS7 - 40 MHz	62	39.3	36.1
MCS9 - 40 MHz	54	40.1	36.4
MCS9 - 40 MHz	62	40.2	36.3
MCS0 - 80 MHz	58	81.0	75.6
MCS9 - 80 MHz	58	80.8	75.5

Conducted Output Power

Rate	Channel	Output Power (dBm)	Duty Cycle Correction (dB)	Corrected Pout (dBm)	Limit (dBm)	Margin (dB)
6 Mbps	52	12.1	0.3	12.4	24.0	11.6
6 Mbps	56	12.0	0.3	12.3	24.0	11.7
6 Mbps	60	11.7	0.3	12.0	24.0	12.0
6 Mbps	64	13.0	0.3	13.3	24.0	10.7
54 Mbps	52	10.4	1.9	12.3	24.0	11.7
54 Mbps	56	10.3	1.9	12.2	24.0	11.8
54 Mbps	60	10.2	1.9	12.1	24.0	11.9
54 Mbps	64	11.0	1.9	12.9	24.0	11.1
MCS0 - 20 MHz	52	11.6	0.3	11.9	24.0	12.1
MCS0 - 20 MHz	56	11.5	0.3	11.8	24.0	12.2
MCS0 - 20 MHz	60	11.5	0.3	11.8	24.0	12.2
MCS0 - 20 MHz	64	9.5	0.3	9.8	24.0	14.2
MCS7 - 20 MHz	52	10.0	2.1	12.1	24.0	11.9
MCS7 - 20 MHz	56	9.9	2.1	12.0	24.0	12.0
MCS7 - 20 MHz	60	9.8	2.1	11.9	24.0	12.1
MCS7 - 20 MHz	64	7.9	2.1	10.0	24.0	14.0
MCS8 - 20 MHz	52	9.7	2.2	11.9	24.0	12.1
MCS8 - 20 MHz	56	9.7	2.2	11.9	24.0	12.1
MCS8 - 20 MHz	60	9.6	2.2	11.8	24.0	12.2

MCS8 - 20 MHz	64	7.8	2.2	10.0	24.0	14.0
MCS0 - 40 MHz	54	10.7	0.6	11.3	24.0	12.7
MCS0 - 40 MHz	62	8.8	0.6	9.4	24.0	14.6
MCS7 - 40 MHz	54	8.2	3.0	11.2	24.0	12.8
MCS7 - 40 MHz	62	6.2	3.0	9.2	24.0	14.8
MCS9 - 40 MHz	54	7.9	3.3	11.2	24.0	12.8
MCS9 - 40 MHz	62	5.9	3.3	9.2	24.0	14.8
MCS0 - 80 MHz	58	8.2	1.1	9.3	24.0	14.7
MCS9 - 80 MHz	58	5.3	4.0	9.3	24.0	14.7

Peak Power Spectral Density

Rate	Channel	PSD (dBm/MHz)	Duty Cycle Correction (dB)	Corrected PSD (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)
6 Mbps	52	2.6	0.3	2.9	10.0	7.1
6 Mbps	56	2.5	0.3	2.8	10.0	7.2
6 Mbps	60	2.3	0.3	2.6	10.0	7.4
6 Mbps	64	3.4	0.3	3.7	10.0	6.3
54 Mbps	52	1.8	1.9	3.7	10.0	6.3
54 Mbps	56	1.4	1.9	3.3	10.0	6.7
54 Mbps	60	1.8	1.9	3.7	10.0	6.3
54 Mbps	64	1.8	1.9	3.7	10.0	6.3
MCS0 - 20 MHz	52	1.9	0.3	2.2	10.0	7.8
MCS0 - 20 MHz	56	1.8	0.3	2.1	10.0	7.9
MCS0 - 20 MHz	60	1.6	0.3	1.9	10.0	8.1
MCS0 - 20 MHz	64	-0.2	0.3	0.1	10.0	9.9
MCS7 - 20 MHz	52	0.7	2.1	2.8	10.0	7.2
MCS7 - 20 MHz	56	0.5	2.1	2.6	10.0	7.4
MCS7 - 20 MHz	60	0.7	2.1	2.8	10.0	7.2

MCS7 - 20 MHz	64	-1.1	2.1	1.0	10.0	9.0
MCS8 - 20 MHz	52	0.5	2.2	2.7	10.0	7.3
MCS8 - 20 MHz	56	0.6	2.2	2.8	10.0	7.2
MCS8 - 20 MHz	60	0.2	2.2	2.4	10.0	7.6
MCS8 - 20 MHz	64	-1.6	2.2	0.6	10.0	9.4
MCS0 - 40 MHz	54	-2.0	0.6	-1.4	10.0	11.4
MCS0 - 40 MHz	62	-4.0	0.6	-3.4	10.0	13.4
MCS7 - 40 MHz	54	-3.9	3.0	-0.9	10.0	10.9
MCS7 - 40 MHz	62	-6.3	3.0	-3.3	10.0	13.3
MCS9 - 40 MHz	54	-4.5	3.3	-1.2	10.0	11.2
MCS9 - 40 MHz	62	-6.5	3.3	-3.2	10.0	13.2
MCS0 - 80 MHz	58	-7.5	1.1	-6.4	10.0	16.4
MCS9 - 80 MHz	58	-9.6	4.0	-5.6	10.0	15.6

Conducted Tx Spurious – All Data Rates

Frequency (MHz)	Channel	Data Rate	Peak Measurement (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
10523.4	52	6 MBPS	-43.0	5.0	-38.0	-27.0	11.0
10563.8	56	6 MBPS	-43.0	5.0	-38.0	-27.0	11.0
10602.0	62	6 MBPS	-41.5	5.0	-36.5	-27.0	10.5
10645.8	64	6 MBPS	-43.8	5.0	-38.8	-27.0	11.8
10521.1	52	54 MBPS	-48.1	5.0	-43.1	-27.0	16.1
10560.4	56	54 MBPS	-50.1	5.0	-45.1	-27.0	18.1
10607.7	62	54 MBPS	-46.8	5.0	-41.8	-27.0	14.8
10642.4	64	54 MBPS	-45.9	5.0	-40.9	-27.0	13.9
10563.8	52	MCS0 -20 MHz	-48.3	5.0	-43.3	-27.0	16.3
10559.2	56	MCS0 -20 MHz	-48.1	5.0	-43.1	-27.0	16.1
10597.3	62	MCS0 -20 MHz	-48.2	5.0	-43.2	-27.0	16.2
10642.4	64	MCS0 -20 MHz	-49.2	5.0	-44.2	-27.0	17.4
10522.3	52	MCS7 -20 MHz	-49.7	5.0	-44.7	-27.0	14.7
10554.9	56	MCS7 -20 MHz	-50.9	5.0	-45.9	-27.0	18.9
10595.0	62	MCS7 -20 MHz	-49.8	5.0	-44.8	-27.0	17.8

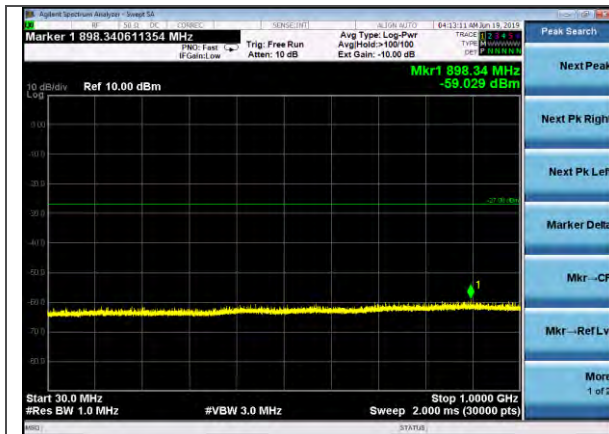
10644.7	64	MCS7 -20 MHz	-51.6	5.0	-46.6	-27.0	19.6
10521.1	52	MCS8	-49.1	5.0	-44.1	-27.0	17.1
10558.1	56	MCS8	-49.5	5.0	-44.5	-27.0	17.5
10599.6	60	MCS8	-49.8	5.0	-44.8	-27.0	17.8
10644.7	64	MCS8	-52.1	5.0	-47.1	-27.0	20.1
10540.7	54	MCS0 -40 MHz	-49.3	5.0	-44.3	-27.0	16.3
10617.0	62	MCS0 -40 MHz	-52.2	5.0	-47.2	-27.0	20.2
10546.5	54	MCS7 -40 MHz	-50.8	5.0	-45.8	-27.0	18.8
10611.2	62	MCS7 -40 MHz	-53.1	5.0	-48.1	-27.0	21.1
10546.5	54	MCS9 -40 MHz	-51.0	5.0	-46.0	-27.0	19.0
10614.7	62	MCS9 -40 MHz	-53.4	5.0	-58.4	-27.0	31.4
10571.9	58	MCS0 -80 MHz	-55.0	5.0	-50.0	-27.0	23.0
10596.2	58	MCS9 -80 MHz	-56.6	5.0	-51.6	-27.0	24.6

Frequency (MHz)	Channel	Data Rate	Average Measurement (dBm)	Duty Cycle Correction (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
10522.98	52	6 MBPS	-50.7	0.3	5.0	-45.4	-41.2	4.2
10561.93	56	6 MBPS	-50.3	0.3	5.0	-45.0	-41.2	3.8
10599.77	60	6 MBPS	-50.4	0.3	5.0	-45.1	-41.2	3.9
10642.04	64	6 MBPS	-50.1	0.3	5.0	-44.8	-41.2	3.6
10520.01	52	54 MBPS	-56.5	1.9	5.0	-49.6	-41.2	9.4
10560.45	56	54 MBPS	-57.6	1.9	5.0	-50.7	-41.2	10.5
10599.96	60	54 MBPS	-53.6	1.9	5.0	-46.7	-41.2	5.5
10639.87	64	54 MBPS	-53.2	1.9	5.0	-46.3	-41.2	5.1
10561.04	52	MCS0 -20 MHz	-55.0	0.3	5.0	-49.7	-41.2	9.5
10561.24	56	MCS0 -20 MHz	-54.8	0.3	5.0	-49.5	-41.2	9.3
10601.01	60	MCS0 -20 MHz	-55.2	0.3	5.0	-49.9	-41.2	9.7
10641.04	64	MCS0 -20 MHz	-58.2	0.3	5.0	-52.9	-41.2	12.7
10519.26	52	MCS7 -20 MHz	-57.1	2.1	5.0	-50.0	-41.2	8.8
10558.52	56	MCS7 -20 MHz	-58.5	2.1	5.0	-51.4	-41.2	10.2
10601.22	60	MCS7 -20 MHz	-58.2	2.1	5.0	-51.1	-41.2	9.9
10638.74	64	MCS7 -20 MHz	-58.9	2.1	5.0	-51.8	-41.2	10.6
10518.65	52	MCS8	-57.3	2.2	5.0	-50.1	-41.2	8.9
10560.21	56	MCS8	-58.0	2.2	5.0	-50.8	-41.2	9.6
10598.55	60	MCS8	-58.5	2.2	5.0	-51.3	-41.2	10.1
10641.13	64	MCS8	-58.8	2.2	5.0	-51.6	-41.2	10.4
10538.31	54	MCS0 -40 MHz	-57.3	0.6	5.0	-51.7	-41.2	10.5

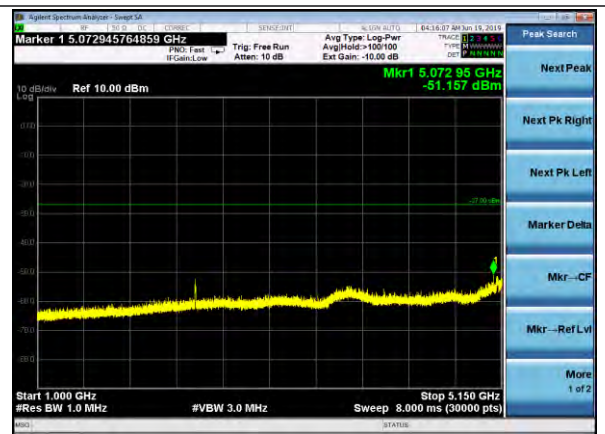
10616.01	62	MCS0 -40 MHz	-61.7	0.6	5.0	-56.1	-41.2	14.9
10533.69	54	MCS7 -40 MHz	-60.1	3.0	5.0	-52.1	-41.2	10.9
10621.48	62	MCS7 -40 MHz	-62.4	3.0	5.0	-54.4	-41.2	13.2
10538.80	54	MCS9 -40 MHz	-60.0	3.3	5.0	-51.7	-41.2	10.5
10619.22	62	MCS9 -40 MHz	-61.9	3.3	5.0	-53.6	-41.2	11.4
10588.07	58	MCS0 -80 MHz	-63.8	1.1	5.0	-57.7	-41.2	16.5
10589.16	58	MCS9 -80 MHz	-67.1	4.0	5.0	-58.1	-41.2	16.9

Plots

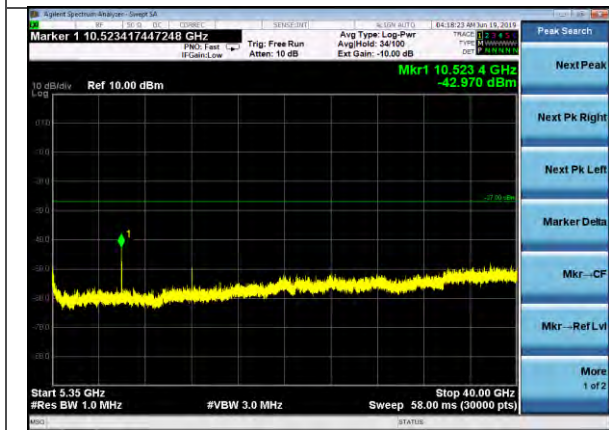
Conducted Tx Spurious (Worst Case – 6 MBPS – 20 MHz Channels)



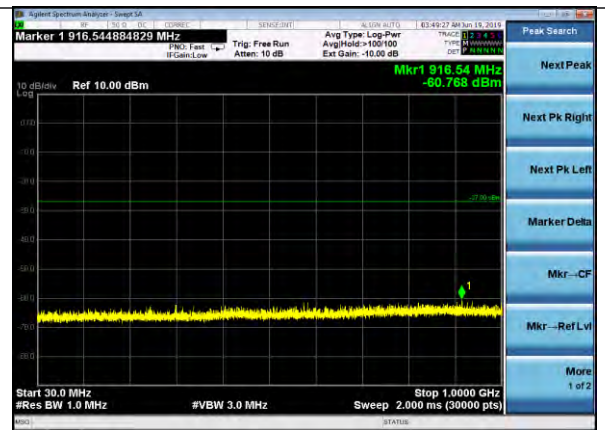
30 – 1000 MHz Channel 52



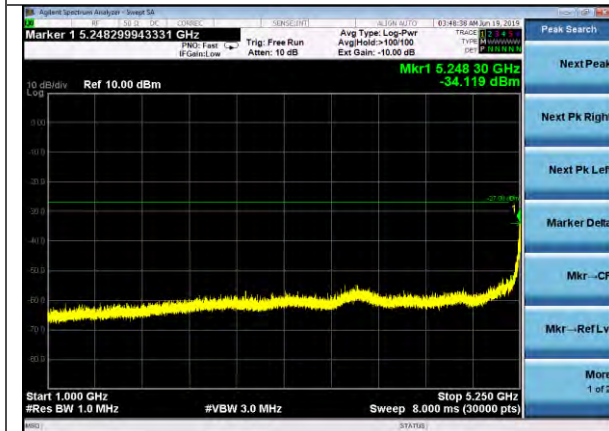
1- 5.15 GHz Channel 52



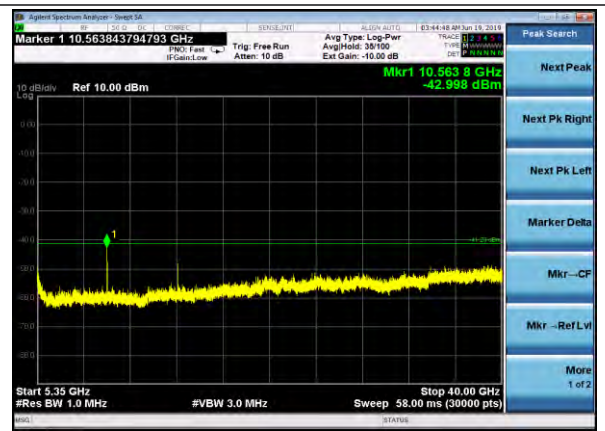
5.35 – 40 GHz Channel 52



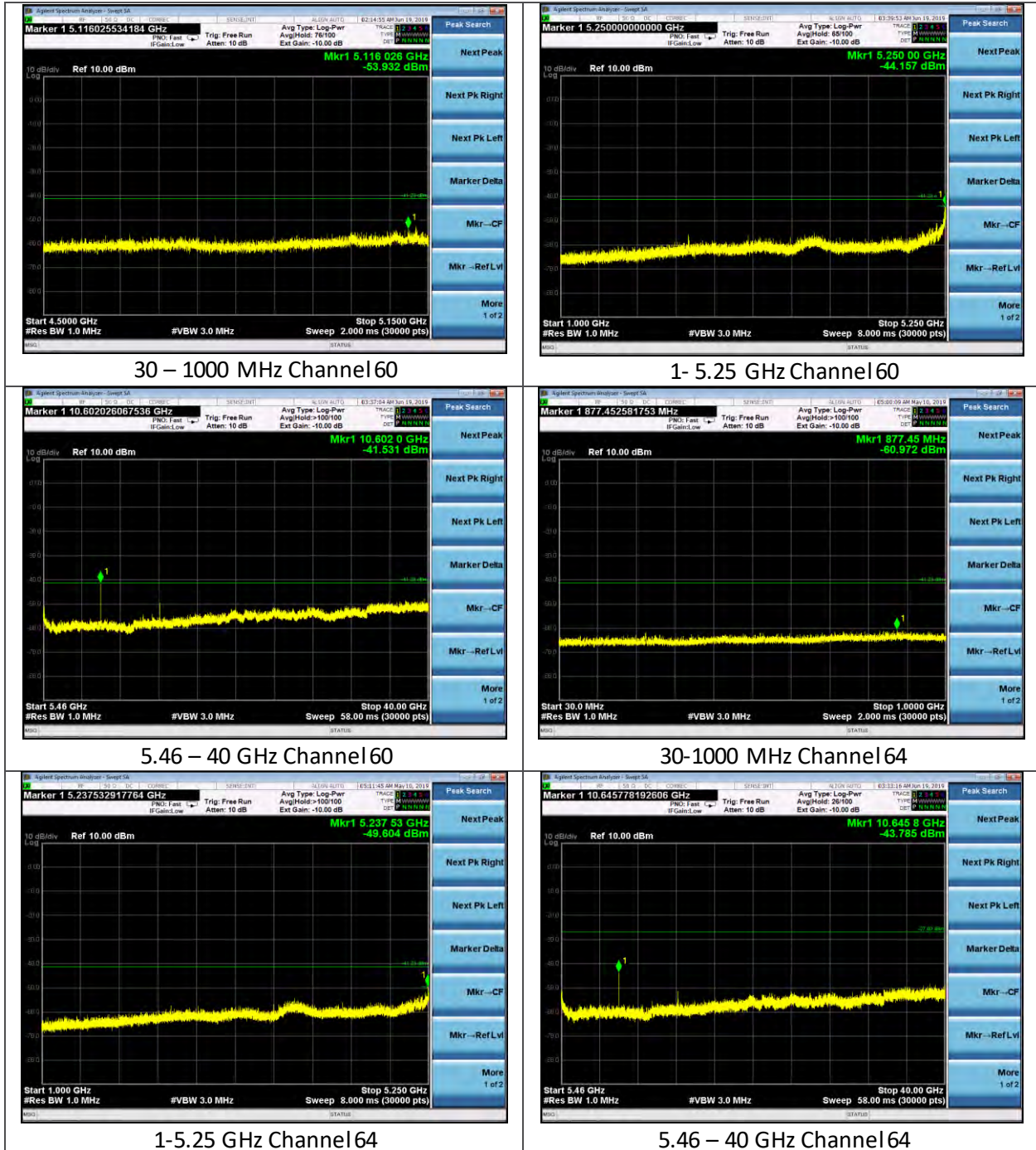
30-1000 MHz Channel 56



1-5.25 GHz Mid Channel 56

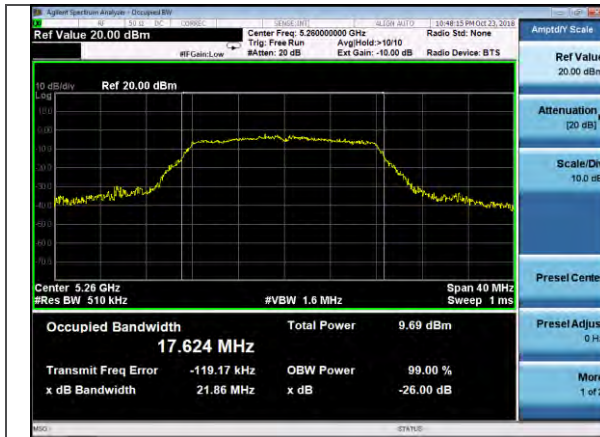


5.35 – 40 GHz Channel 56

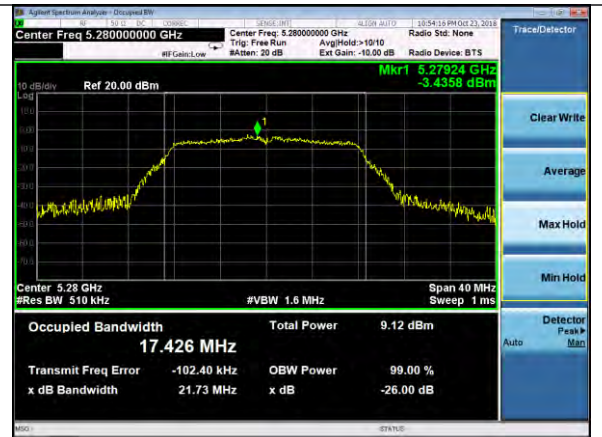


802.11a 6 MBPS - 20 MHz

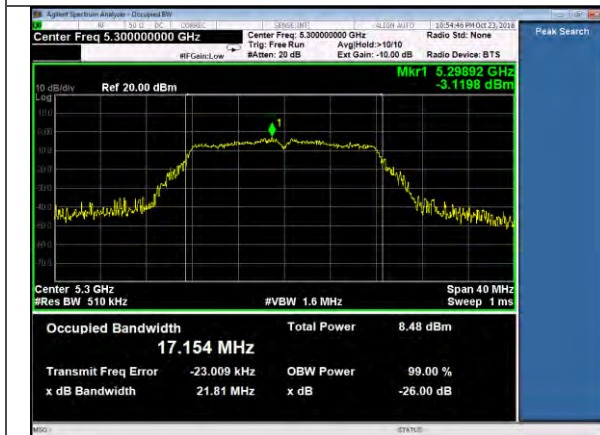
Bandwidth



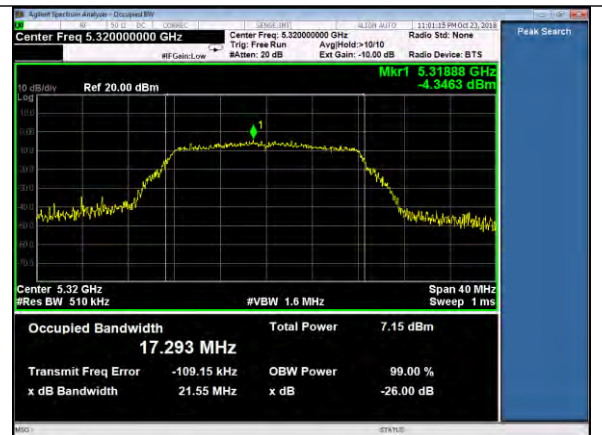
Channel 52



Channel 56



Channel 60



Channel 64

Conducted Output Power



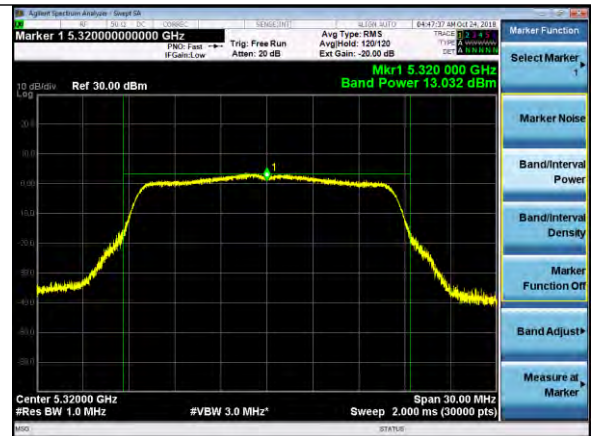
Channel 52



Channel 56

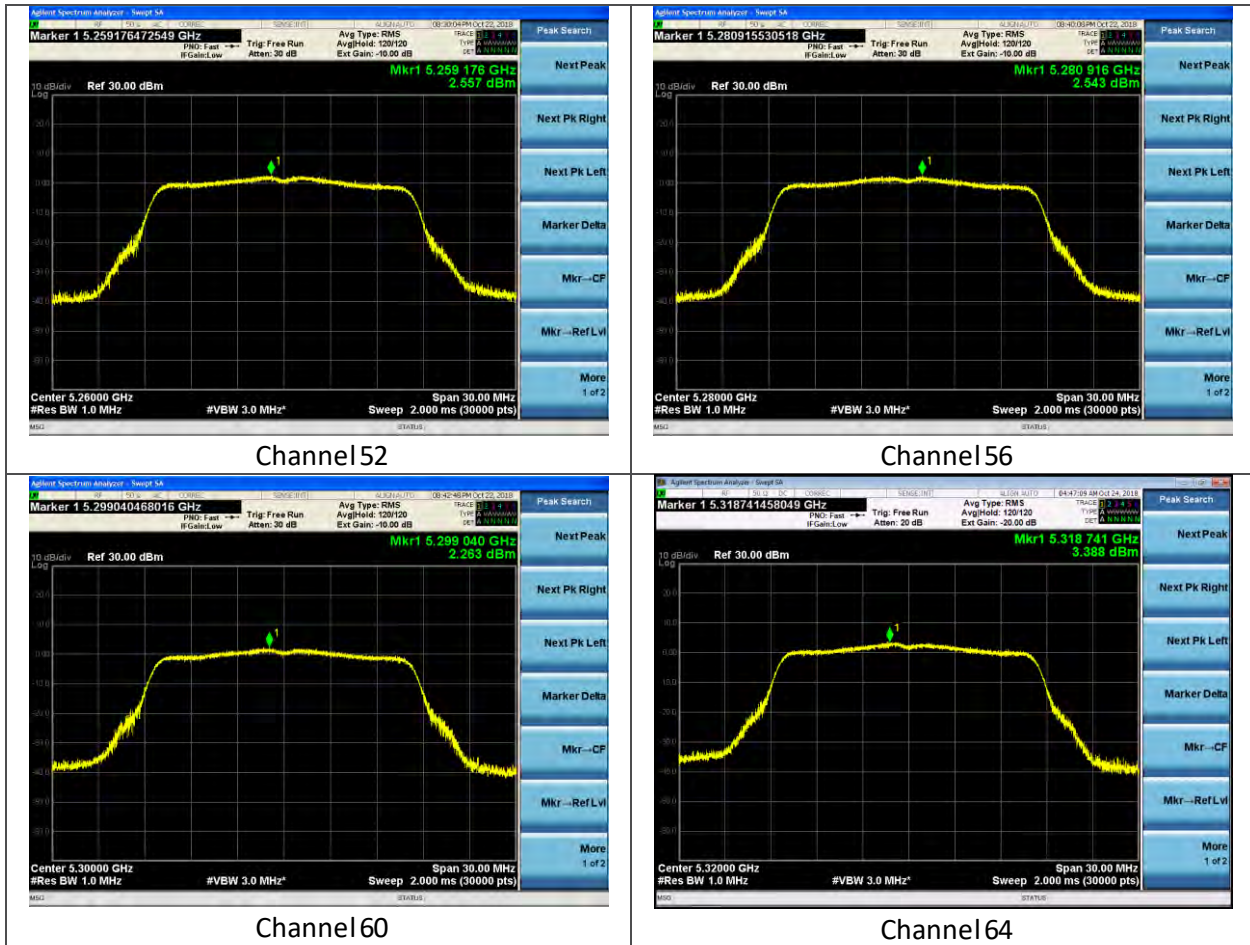


Channel 60



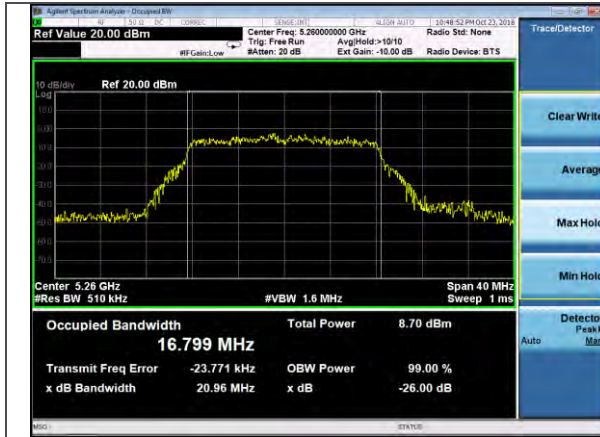
Channel 64

Peak Power Spectral Density



802.11a 54 MBPS - 20 MHz

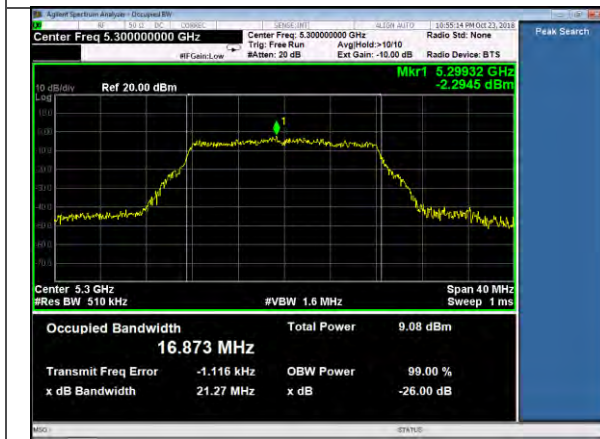
Bandwidth



Channel 52



Channel 56



Channel 60

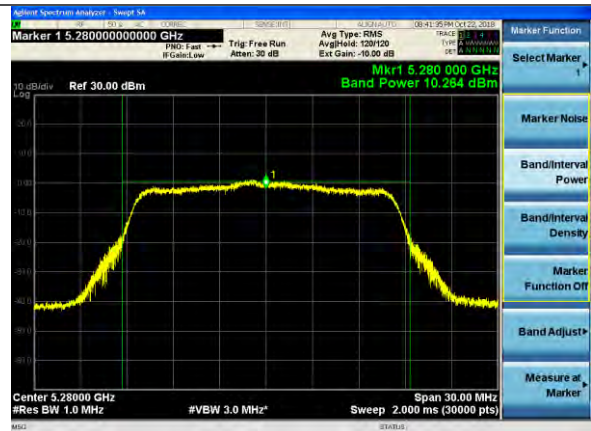


Channel 64

Conducted Output Power



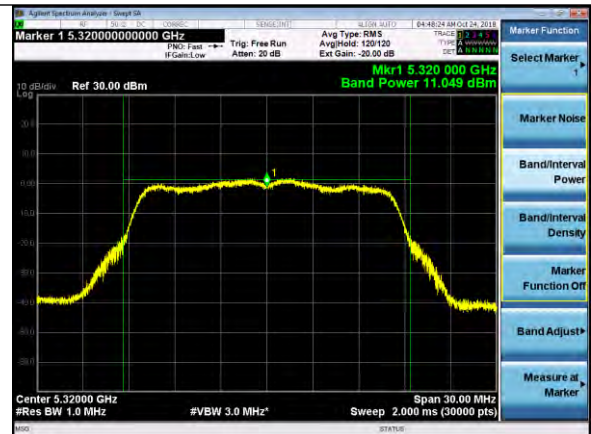
Channel 52



Channel 56

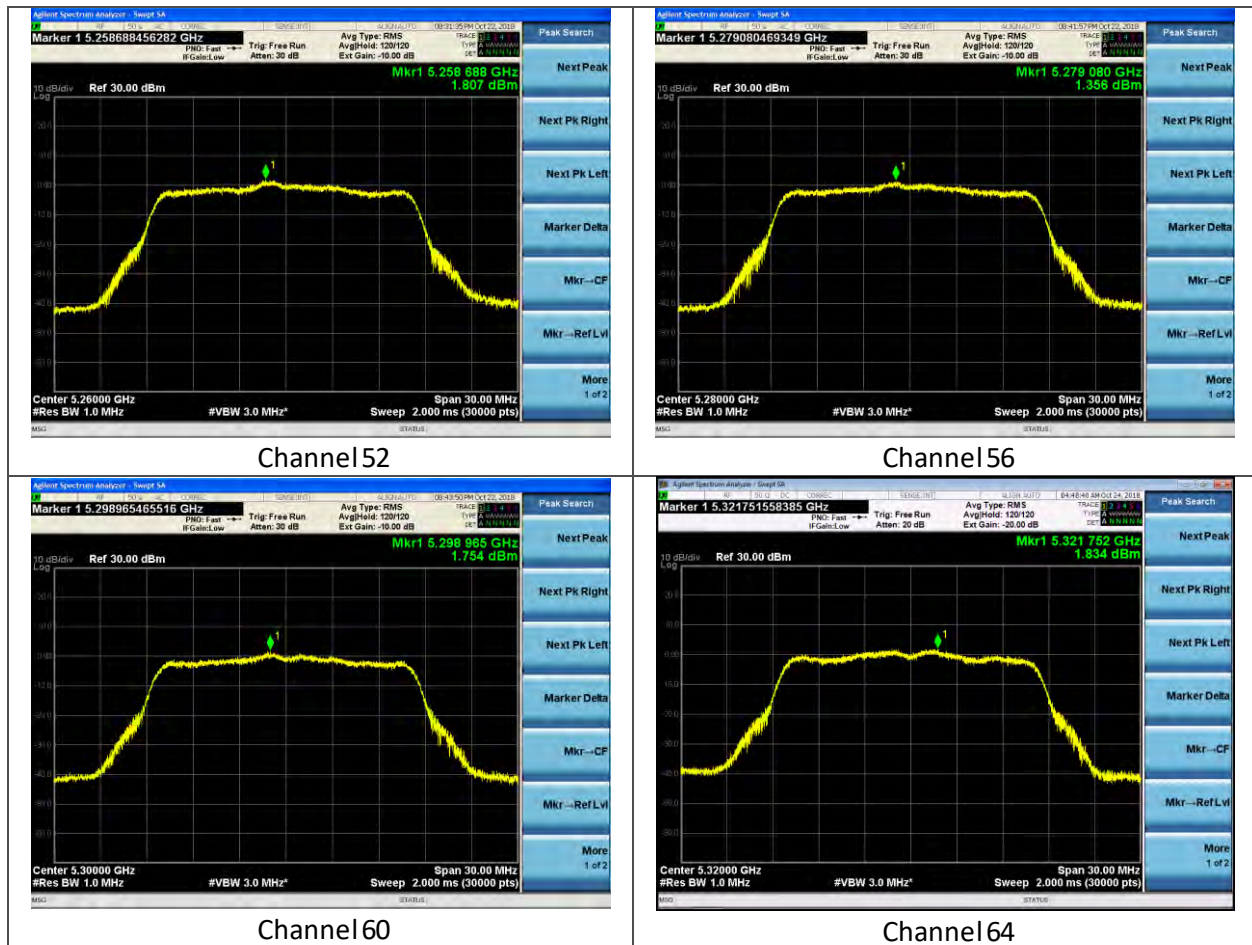


Channel 60



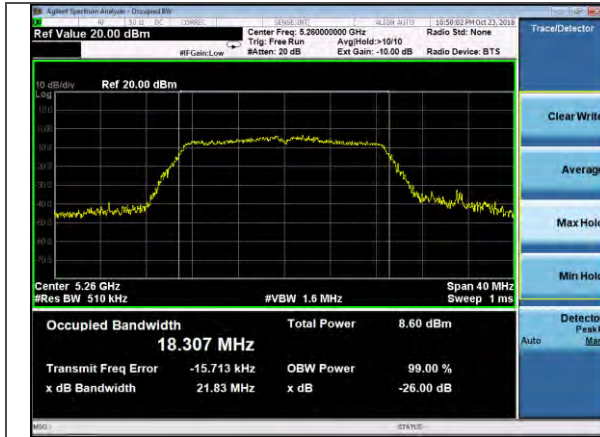
Channel 64

Peak Power Spectral Density

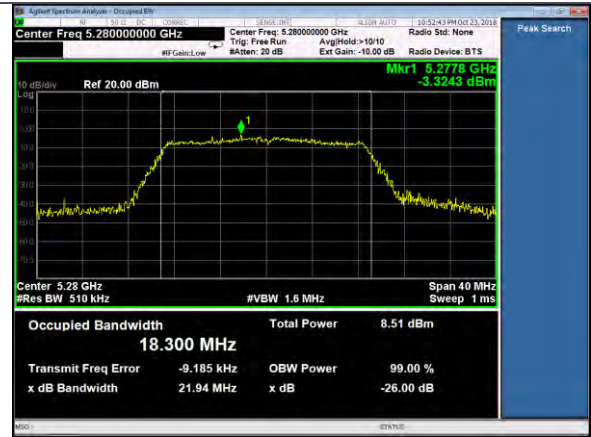


802.11n MCS0 - 20 MHz

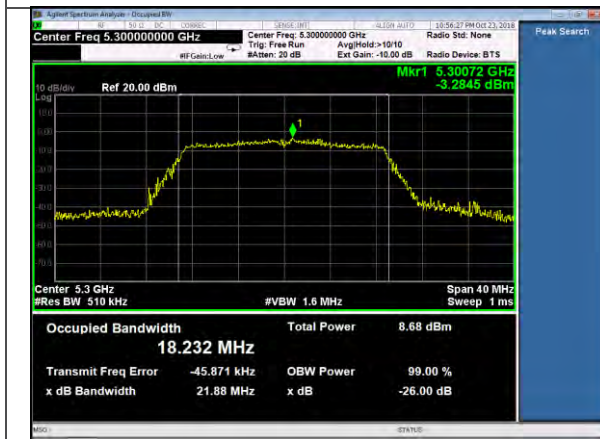
Bandwidth



Channel 52



Channel 56



Channel 60



Channel 64

Conducted Output Power



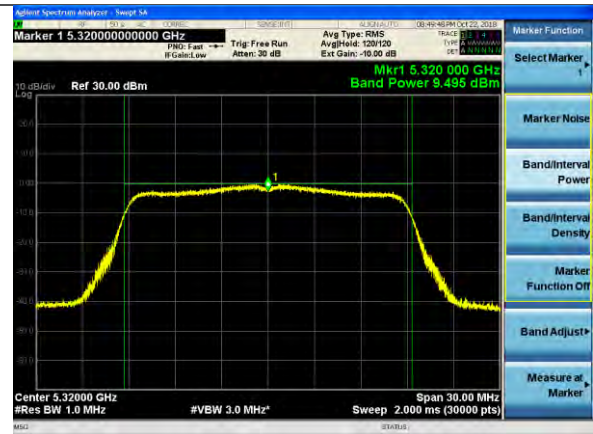
Channel 52



Channel 56

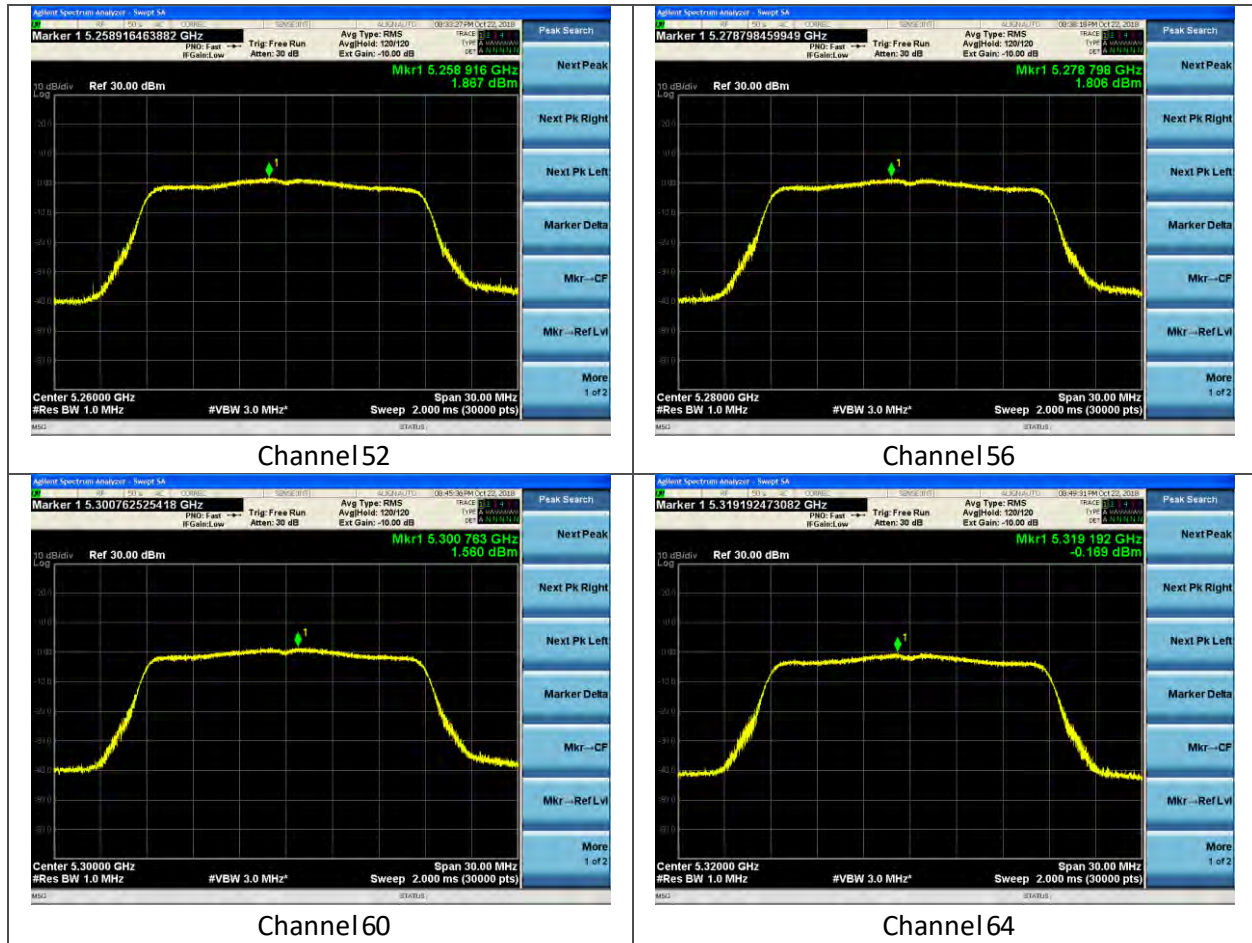


Channel 60



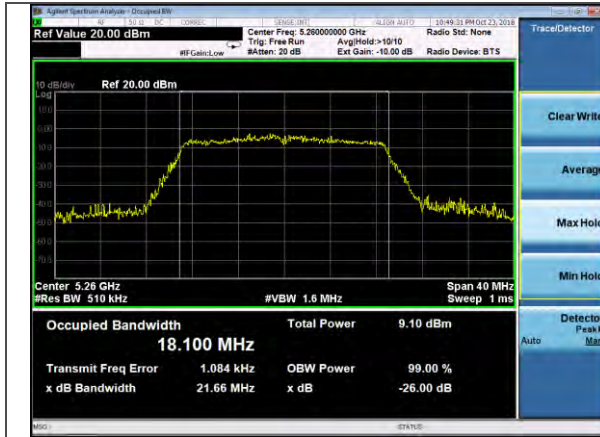
Channel 64

Peak Power Spectral Density

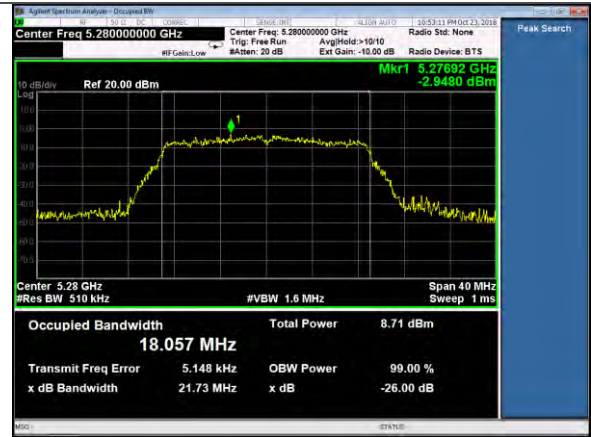


802.11n MCS7 - 20 MHz

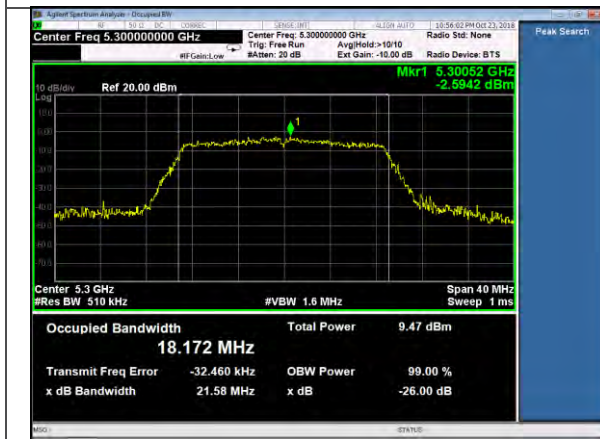
Bandwidth



Channel 52



Channel 56



Channel 60



Channel 64

Conducted Output Power



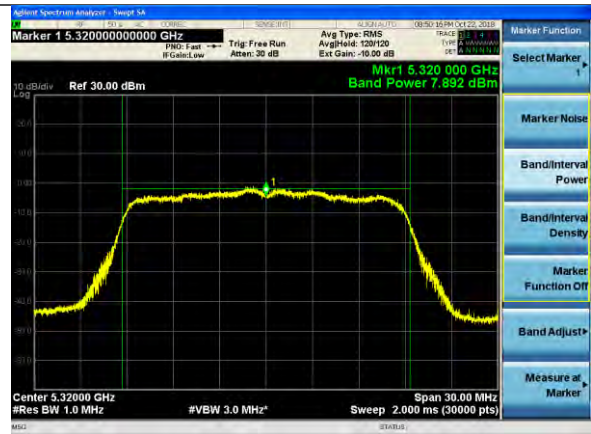
Channel 52



Channel 56

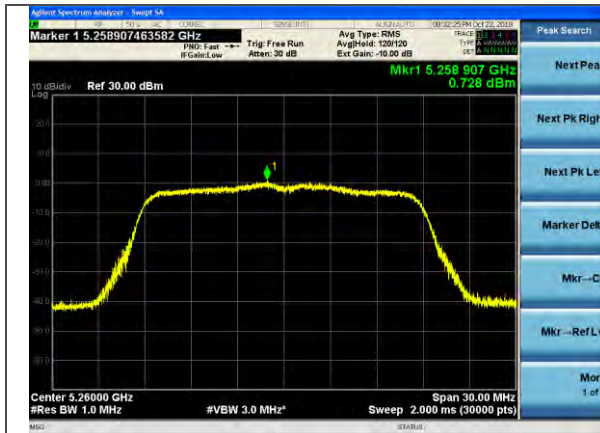


Channel 60



Channel 64

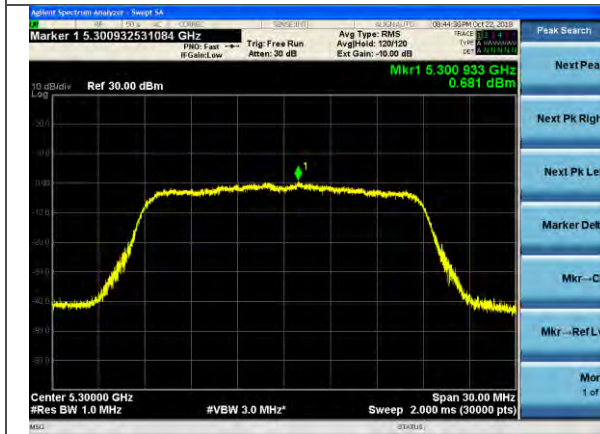
Peak Power Spectral Density



Channel 52



Channel 56



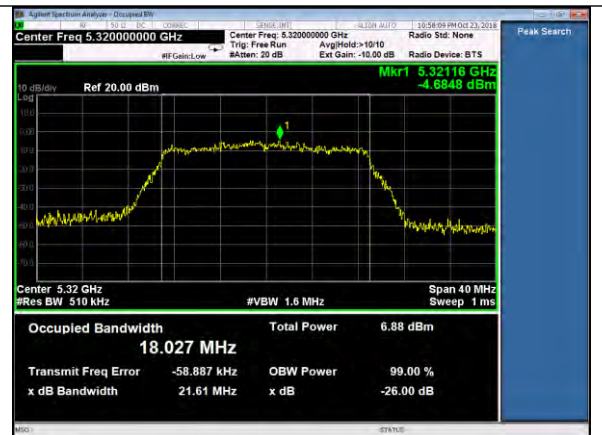
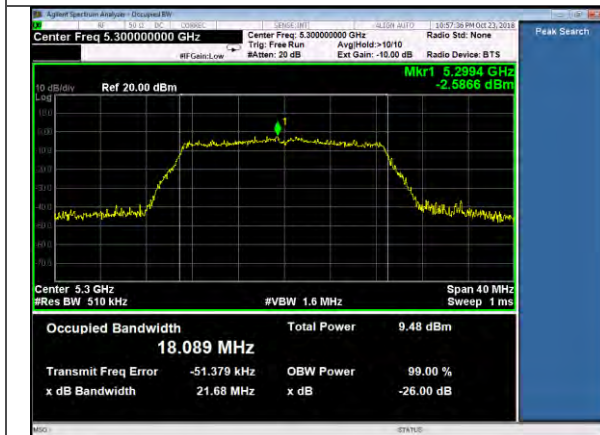
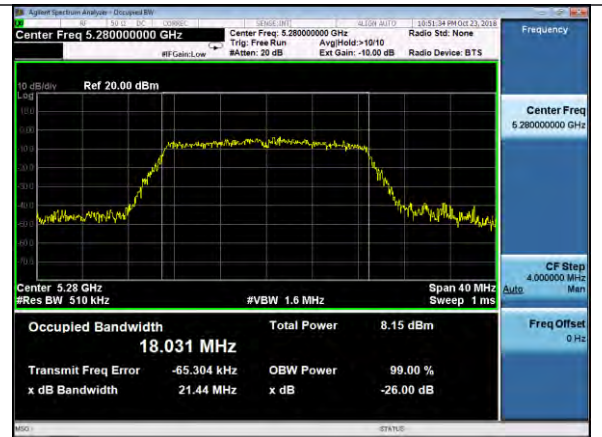
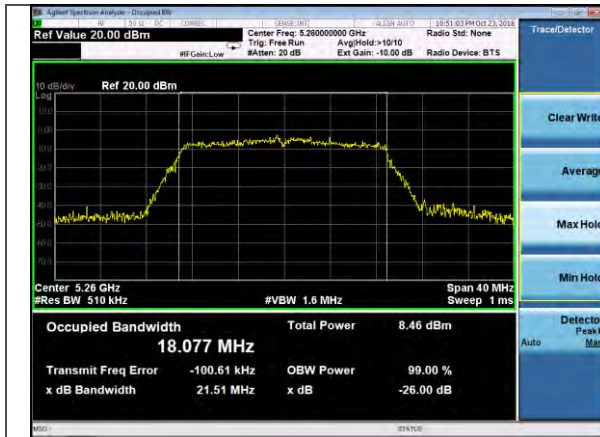
Channel 60



Channel 64

802.11ac MCS8 - 20 MHz

Bandwidth



Conducted Output Power



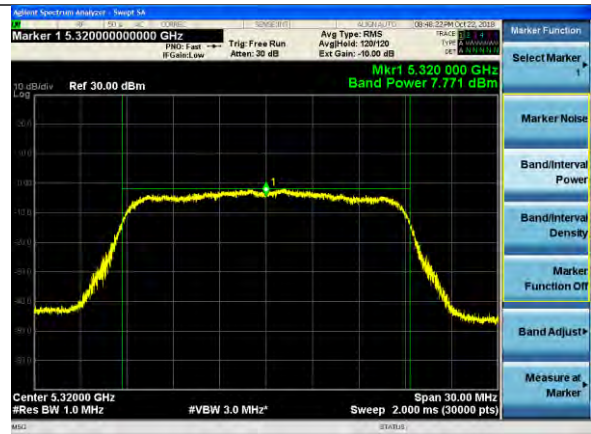
Channel 52



Channel 56



Channel 60

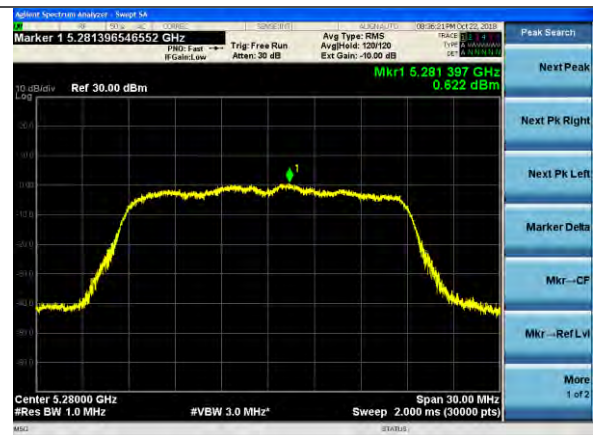


Channel 64

Peak Power Spectral Density



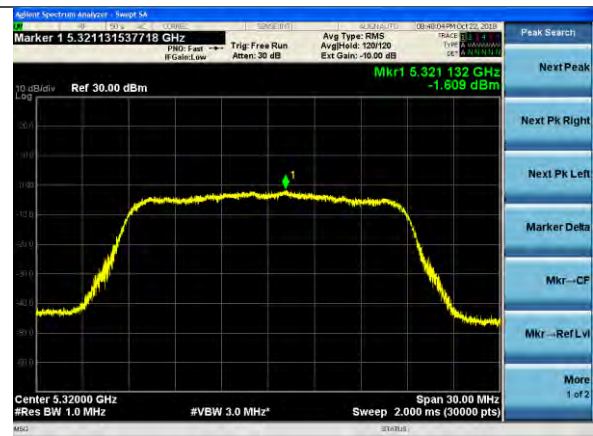
Channel 52



Channel 56



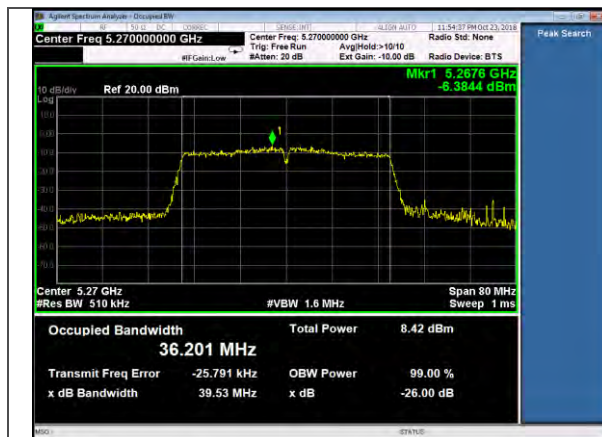
Channel 60



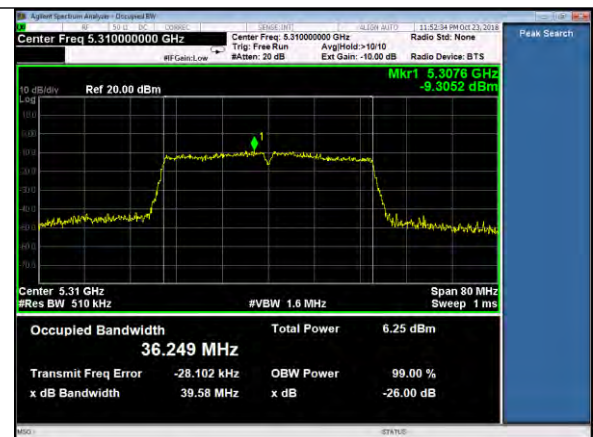
Channel 64

802.11ac MCS0 - 40 MHz

Bandwidth

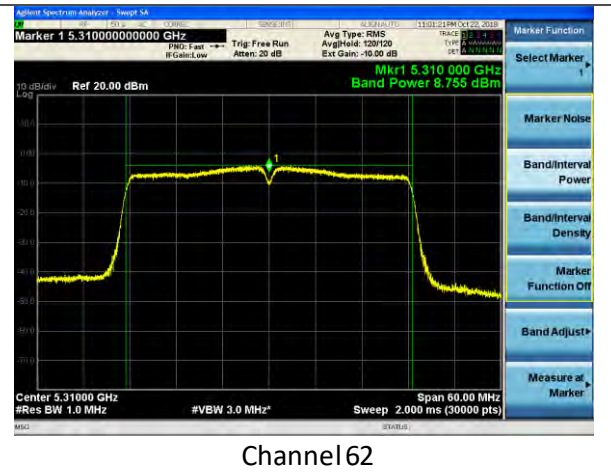
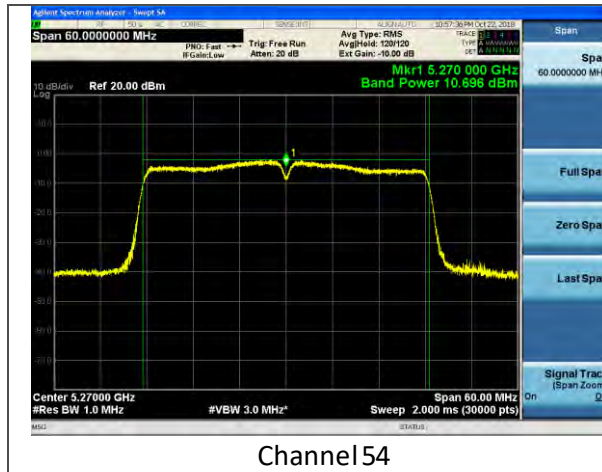


Channel 54

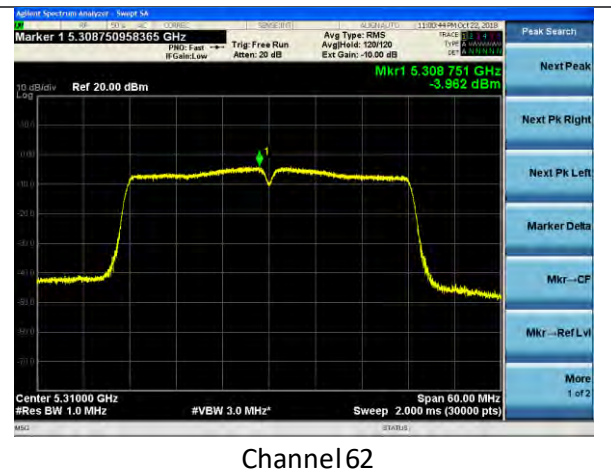
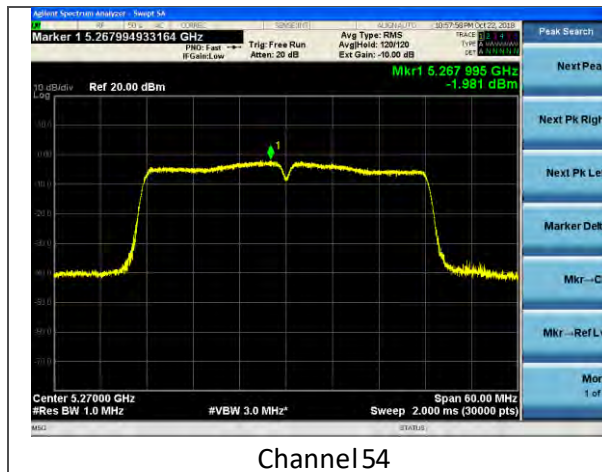


Channel 62

Conducted Output Power

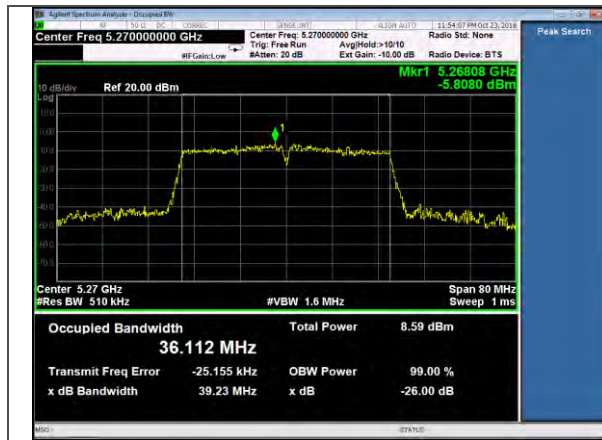


Peak Power Spectral Density

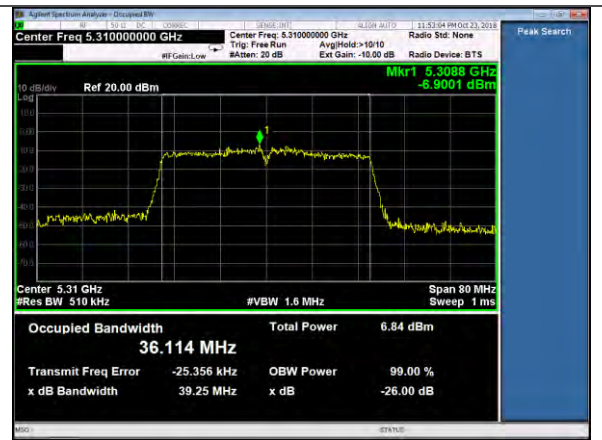


802.11ac MCS7 - 40 MHz

Bandwidth



Channel 54

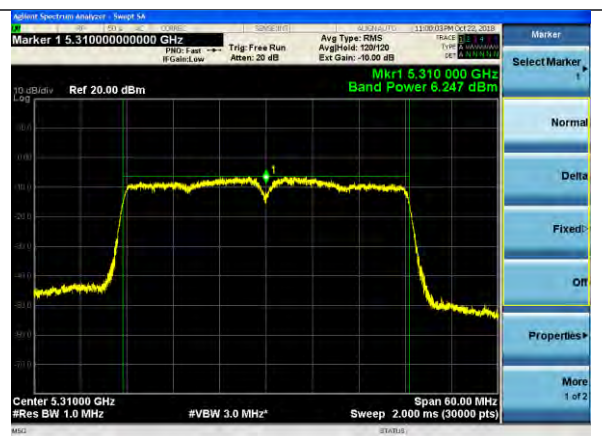


Channel 62

Conducted Output Power

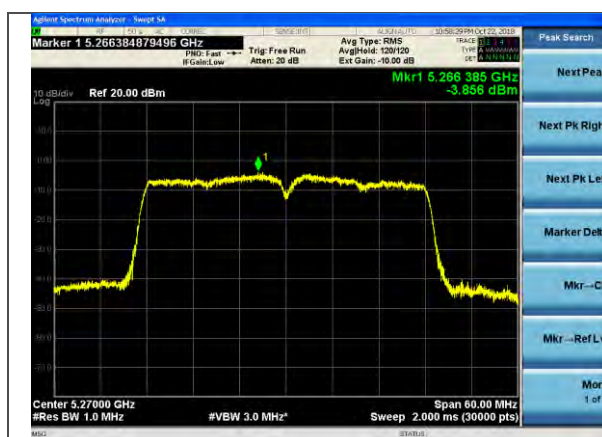


Channel 54

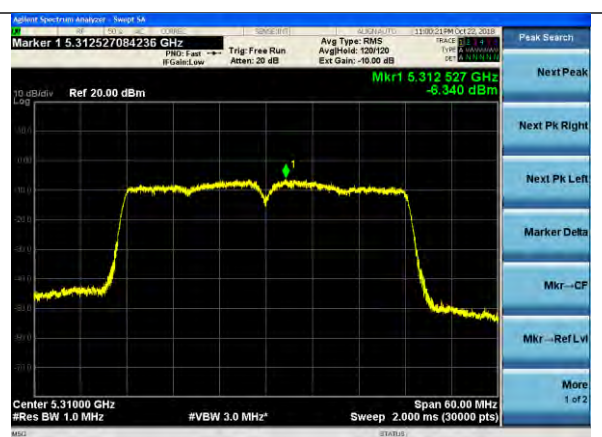


Channel 62

Peak Power Spectral Density



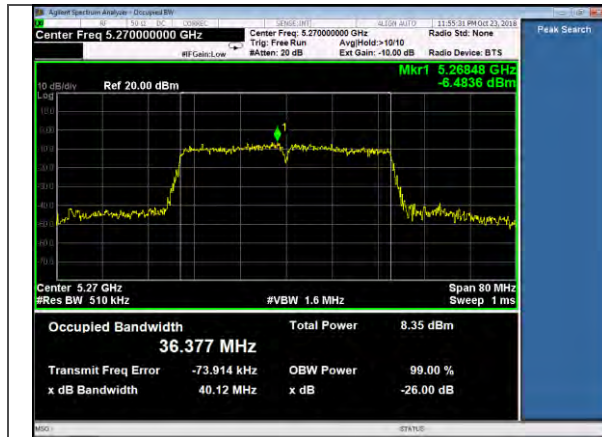
Channel 54



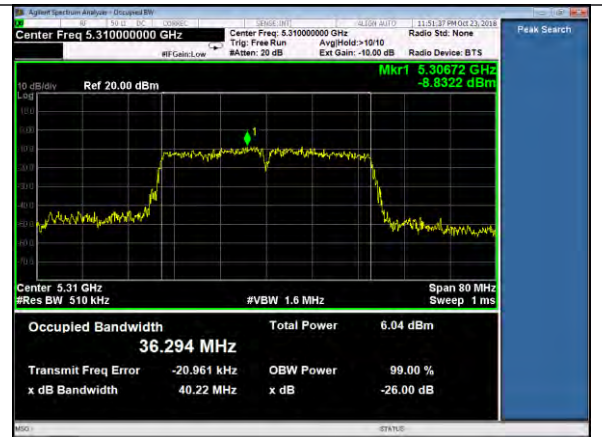
Channel 62

802.11ac MCS9 - 40 MHz

Bandwidth



Channel 54



Channel 62

Conducted Output Power

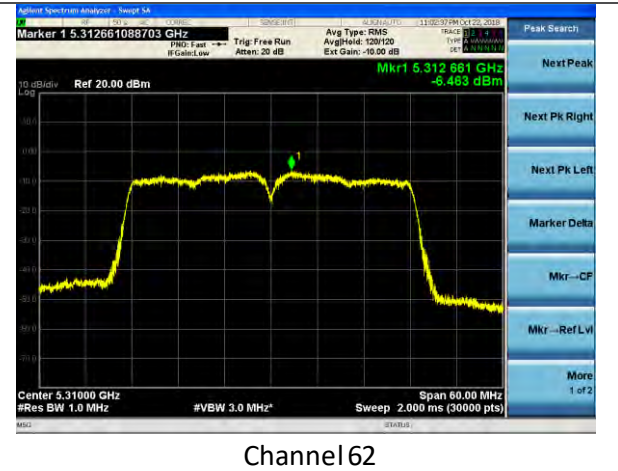
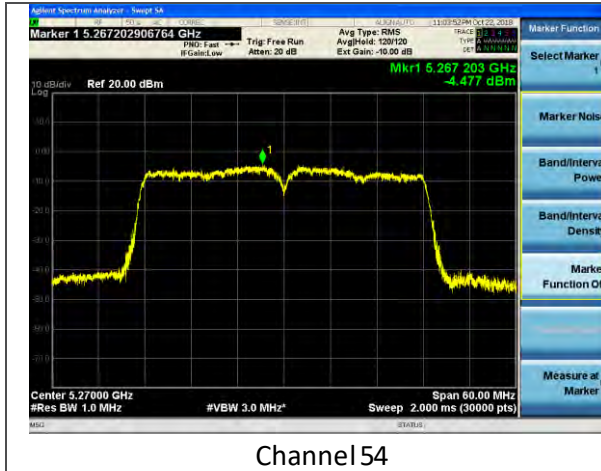


Channel 54



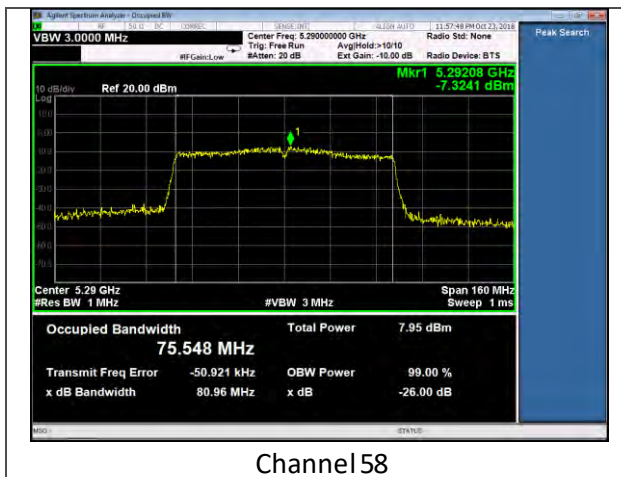
Channel 62

Peak Power Spectral Density

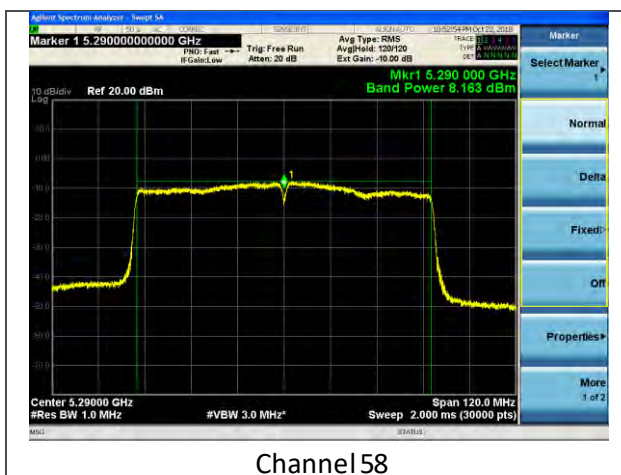


802.11ac MCS0 - 80 MHz

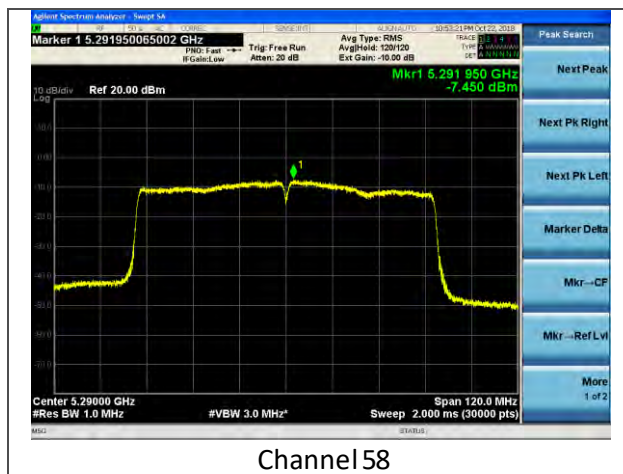
Bandwidth



Conducted Output Power

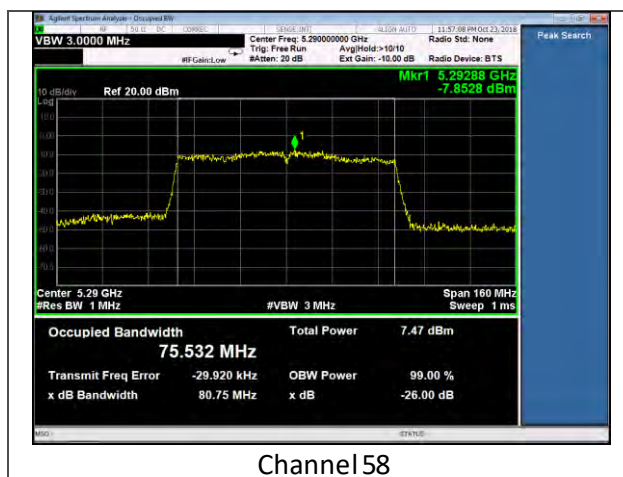


Peak Power Spectral Density

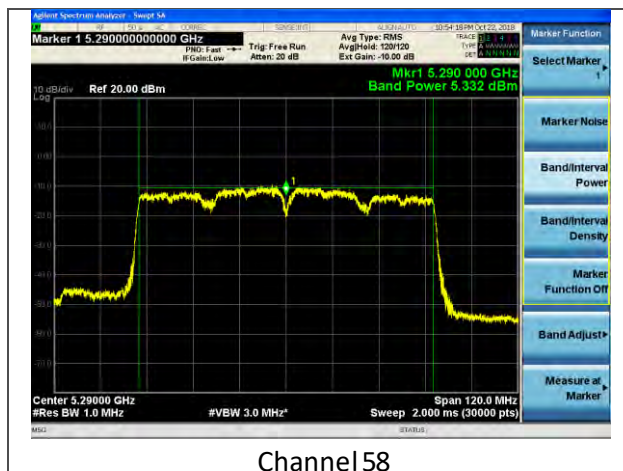


802.11ac MCS9 - 80 MHz

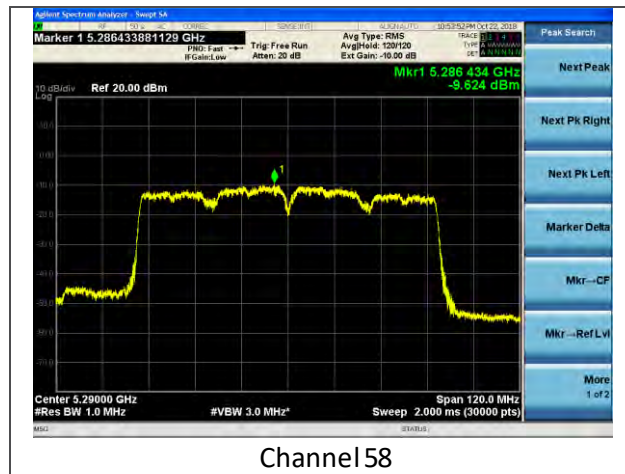
Bandwidth



Conducted Output Power



Peak Power Spectral Density



Company: Philips North America LLC	Page 73 of 228	Name: PHC-11AC1-A
Report: 317347 A		Model: PHC-11AC1-A
Job: C-3013		Serial: Engineering Samples

5.1.4 Antenna Port Conducted Emissions – UNII 2C

Data

Tables

Bandwidth

Rate	Channel	26 dB BW (MHz)	99% BW (MHz)
6 Mbps	100	22.0	17.7
6 Mbps	116	21.9	17.7
6 Mbps	140	21.9	17.6
54 Mbps	100	21.2	16.8
54 Mbps	116	21.3	16.9
54 Mbps	140	21.4	16.9
MCS0 - 20 MHz	100	22.0	18.4
MCS0 - 20 MHz	116	21.9	18.5
MCS0 - 20 MHz	140	22.2	18.5
MCS7 - 20 MHz	100	21.8	18.3
MCS7 - 20 MHz	116	21.5	18.3
MCS7 - 20 MHz	140	21.7	18.1
MCS8 - 20 MHz	100	22.0	18.5
MCS8 - 20 MHz	116	21.8	18.3
MCS8 - 20 MHz	140	21.7	18.2
MCS0 - 40 MHz	102	40.4	36.5
MCS0 - 40 MHz	110	45.7	36.7
MCS0 - 40 MHz	134	45.7	36.7
MCS7 - 40 MHz	102	40.3	36.4
MCS7 - 40 MHz	110	40.2	36.5
MCS7 - 40 MHz	134	40.4	36.5
MCS9 - 40 MHz	102	40.7	36.8
MCS9 - 40 MHz	110	40.9	36.9

MCS9 - 40 MHz	134	41.0	36.8
MCS0 - 80 MHz	106	80.8	75.6
MCS9 - 80 MHz	106	80.6	75.6

Conducted Output Power

Rate	Channel	Output Power (dBm)	Duty Cycle Correction (dB)	Corrected Pout (dBm)	Limit (dBm)	Margin (dB)
6 Mbps	100	10.6	0.3	10.9	24.0	13.1
6 Mbps	116	9.7	0.3	10.0	24.0	14.0
6 Mbps	140	9.6	0.3	9.9	24.0	14.1
54 Mbps	100	8.9	1.9	10.8	24.0	13.2
54 Mbps	116	8.2	1.9	10.1	24.0	13.9
54 Mbps	140	8.0	1.9	9.9	24.0	14.1
MCS0 - 20 MHz	100	10.3	0.3	10.6	24.0	13.4
MCS0 - 20 MHz	116	9.3	0.3	9.6	24.0	14.4
MCS0 - 20 MHz	140	9.4	0.3	9.7	24.0	14.3
MCS7 - 20 MHz	100	8.7	2.1	10.8	24.0	13.2
MCS7 - 20 MHz	116	7.7	2.1	9.8	24.0	14.2
MCS7 - 20 MHz	140	7.6	2.1	9.7	24.0	14.3
MCS8 - 20 MHz	100	8.3	2.2	10.5	24.0	13.5
MCS8 - 20 MHz	116	7.6	2.2	9.8	24.0	14.2
MCS8 - 20 MHz	140	7.6	2.2	9.8	24.0	14.2
MCS0 - 40 MHz	102	8.2	0.6	8.8	24.0	15.2
MCS0 - 40 MHz	110	8.7	0.6	9.3	24.0	14.7
MCS0 - 40 MHz	134	8.7	0.6	9.3	24.0	14.7
MCS7 - 40 MHz	102	5.8	3.0	8.8	24.0	15.2
MCS7 - 40 MHz	110	6.4	3.0	9.4	24.0	14.6
MCS7 - 40 MHz	134	6.2	3.0	9.2	24.0	14.8

MCS9 - 40 MHz	102	5.4	3.3	8.7	24.0	15.3
MCS9 - 40 MHz	110	6.0	3.3	9.3	24.0	14.7
MCS9 - 40 MHz	134	5.9	3.3	9.2	24.0	14.8
MCS0 - 80 MHz	106	5.8	1.1	6.9	24.0	17.1
MCS9 - 80 MHz	106	2.8	4.0	6.8	24.0	17.2

Peak Power Spectral Density

Rate	Channel	PSD (dBm/MHz)	Duty Cycle Correction (dB)	Corrected PSD (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)
6 Mbps	100	1.2	0.3	1.5	11.0	9.5
6 Mbps	116	0.3	0.3	0.6	11.0	10.4
6 Mbps	140	0.3	0.3	0.6	11.0	10.4
54 Mbps	100	-0.2	1.9	1.7	11.0	9.3
54 Mbps	116	-0.5	1.9	1.4	11.0	9.6
54 Mbps	140	-0.7	1.9	1.2	11.0	9.8
MCS0 - 20 MHz	100	0.5	0.3	0.8	11.0	10.2
MCS0 - 20 MHz	116	-0.5	0.3	-0.2	11.0	11.2
MCS0 - 20 MHz	140	-0.4	0.3	-0.1	11.0	11.1
MCS7 - 20 MHz	100	-0.6	2.1	1.5	11.0	9.5
MCS7 - 20 MHz	116	-1.5	2.1	0.6	11.0	10.4
MCS7 - 20 MHz	140	-1.9	2.1	0.2	11.0	10.8
MCS8 - 20 MHz	100	-1.1	2.2	1.1	11.0	9.9
MCS8 - 20 MHz	116	-1.5	2.2	0.7	11.0	10.3
MCS8 - 20 MHz	140	-1.8	2.2	0.4	11.0	10.6
MCS0 - 40 MHz	102	-4.5	0.6	-3.9	11.0	14.9
MCS0 - 40 MHz	110	-4.0	0.6	-3.4	11.0	14.4

MCS0 - 40 MHz	134	-4.0	0.6	-3.4	11.0	14.4
MCS7 - 40 MHz	102	-6.2	3.0	-3.2	11.0	14.2
MCS7 - 40 MHz	110	-6.1	3.0	-3.1	11.0	14.1
MCS7 - 40 MHz	134	-6.0	3.0	-3.0	11.0	14.0
MCS9 - 40 MHz	102	-6.9	3.3	-3.6	11.0	14.6
MCS9 - 40 MHz	110	-6.6	3.3	-3.3	11.0	14.3
MCS9 - 40 MHz	134	-6.5	3.3	-3.2	11.0	14.2
MCS0 - 80 MHz	106	-9.6	1.1	-8.5	11.0	19.5
MCS9 - 80 MHz	106	-11.7	4.0	-7.7	11.0	18.7

Conducted Tx Spurious – All Data Rates

Frequency (MHz)	Channel	Data Rate	Peak Measurement (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
10996.7	100	6 MBPS	-48.9	5.0	-43.9	-27.0	16.9
11158.9	116	6 MBPS	-47.9	5.0	-42.9	-27.0	15.9
3800.40	140	6 MBPS	-52.1	5.0	-47.1	-27.0	20.1
11400.0	140	6 MBPS	-49.2	5.0	-44.2	-27.0	17.2
3666.89	100	54 MBPS	-55.2	5.0	-50.2	-27.0	23.2
11002.4	100	54 MBPS	-51.1	5.0	-46.1	-27.0	19.1
3720.24	116	54 MBPS	-54.1	5.0	-49.1	-27.0	22.1
11165.8	116	54 MBPS	-50.9	5.0	-45.9	-27.0	18.9
3800.10	140	54 MBPS	-52.5	5.0	-47.5	-27.0	19.5
11401.1	140	54 MBPS	-52.0	5.0	-47.0	-27.0	20.0
3666.74	100	MCS0 -20 MHz	-55.0	5.0	-50.0	-27.0	23.0
10994.4	100	MCS0 -20 MHz	-48.7	5.0	-43.7	-27.0	26.7
3720.24	116	MCS0 -20 MHz	-54.5	5.0	-49.5	-27.0	22.5
11160.1	116	MCS0 -20 MHz	-50.7	5.0	-45.7	-27.0	18.7
3800.25	140	MCS0 -20 MHz	-51.9	5.0	-46.9	-27.0	19.9
11394.3	140	MCS0 -20 MHz	-51.7	5.0	-46.7	-27.0	19.9
3666.74	100	MCS7 -20 MHz	-55.9	5.0	-50.9	-27.0	23.9
10999.0	100	MCS7 -20 MHz	-53.1	5.0	-48.1	-27.0	21.1
3720.24	116	MCS7 -20 MHz	-58.8	5.0	-53.8	-27.0	26.8

11161.2	116	MCS7 -20 MHz	-52.1	5.0	-47.1	-27.0	20.1
3800.1	140	MCS7 -20 MHz	-52.2	5.0	-47.2	-27.0	20.2
5725.0	140	MCS7 -20 MHz	-37.2	5.0	-32.2	-27.0	5.2
5470.00	100	MCS8	-43.5	5.0	-38.5	-27.0	11.5
10995.5	100	MCS8	-53.4	5.0	-48.4	-27.0	21.7
3720.24	116	MCS8	-54.4	5.0	-49.4	-27.0	22.4
11162.3	116	MCS8	-52.1	5.0	-47.1	-27.0	20.1
3800.10	140	MCS8	-52.3	5.0	-47.3	-27.0	20.3
5726.1	140	MCS8	-36.5	5.0	-31.5	-27.0	4.5
5464.93	102	MCS0 -40 MHz	-40.8	5.0	-35.8	-27.0	8.8
10999.0	102	MCS0 -40 MHz	-51.8	5.0	-46.8	-27.0	19.8
3700.27	110	MCS0 -40 MHz	-54.0	5.0	-49.0	-27.0	22.0
11094.9	110	MCS0 -40 MHz	-47.1	5.0	-42.1	-27.0	15.1
3780.14	134	MCS0 -40 MHz	-53.2	5.0	-48.2	-27.0	21.2
5725.0	134	MCS0 -40 MHz	-36.1	5.0	-31.1	-27.0	4.1
5469.40	102	MCS7 -40 MHz	-40.5	5.0	-35.5	-27.0	8.5
10997.8	102	MCS7 -40 MHz	-51.5	5.0	-46.5	-27.0	19.5
3699.97	110	MCS7 -40 MHz	-56.0	5.0	-51.0	-27.0	24.0
11100.6	110	MCS7 -40 MHz	-51.4	5.0	-46.4	-27.0	19.4
3779.99	134	MCS7 -40 MHz	-54.3	5.0	-49.3	-27.0	22.3
11333.7	134	MCS7 -40 MHz	-50.7	5.0	-45.7	-27.0	18.7
5470.00	102	MCS9 -40 MHz	-45.1	5.0	-40.1	-27.0	13.1
10996.7	102	MCS9 -40 MHz	-52.2	5.0	-47.2	-27.0	20.2
3700.12	110	MCS9 -40 MHz	-56.1	5.0	-51.1	-27.0	24.1
11098.4	110	MCS9 -40 MHz	-51.6	5.0	-46.6	-27.0	19.6
3780.14	134	MCS9 -40 MHz	-53.9	5.0	-48.9	-27.0	21.9
11346.3	134	MCS9 -40 MHz	-50.3	5.0	-45.3	-27.0	18.3
5735.3	106	MCS0 -80 MHz	-52.0	5.0	-47.0	-27.0	20.0
11049.2	106	MCS9 -80 MHz	-56.0	5.0	-55.0	-27.0	18.0

Frequency (MHz)	Channel	Data Rate	Average Measurement (dBm)	Duty Cycle Correction (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
11001.75	100	6 MBPS	-55.3	0.3	5.0	-50.0	-41.2	8.8
11162.63	116	6 MBPS	-56.2	0.3	5.0	-50.9	-41.2	9.7
3800.06	140	6 MBPS	-55.1	0.3	5.0	-49.8	-41.2	8.6
11401.41	140	6 MBPS	-57.2	0.3	5.0	-51.9	-41.2	10.7
3666.83	100	54 MBPS	-60.1	1.9	5.0	-53.2	-41.2	12.0
11000.23	100	54 MBPS	-59.5	1.9	5.0	-52.6	-41.2	11.4
3719.88	116	54 MBPS	-58.8	1.9	5.0	-51.9	-41.2	10.7

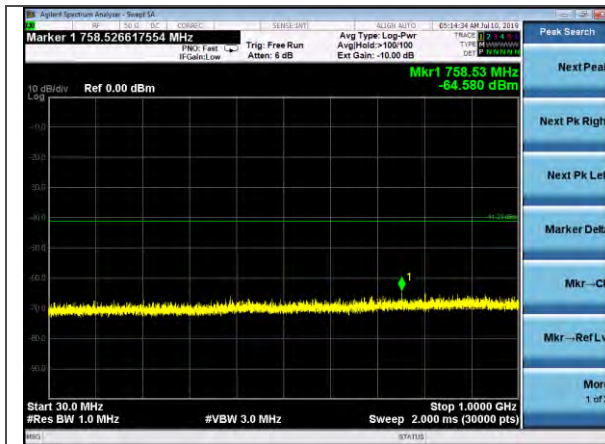
11161.52	116	54 MBPS	-59.5	1.9	5.0	-52.6	-41.2	11.4
3800.00	140	54 MBPS	-56.3	1.9	5.0	-49.6	-41.2	8.4
11399.92	140	54 MBPS	-60.1	1.9	5.0	-53.2	-41.2	12.0
3666.72	100	MCS0 -20 MHz	-59.0	0.3	5.0	-53.7	-41.2	12.5
10998.53	100	MCS0 -20 MHz	-57.8	0.3	5.0	-52.5	-41.2	11.3
3720.07	116	MCS0 -20 MHz	-57.8	0.3	5.0	-52.5	-41.2	11.3
11160.26	116	MCS0 -20 MHz	-58.1	0.3	5.0	-52.8	-41.2	11.6
3800.01	140	MCS0 -20 MHz	-55.2	0.3	5.0	-49.9	-41.2	8.7
11403.18	140	MCS0 -20 MHz	-58.4	0.3	5.0	-53.1	-41.2	11.9
3666.61	100	MCS7 -20 MHz	-59.9	2.1	5.0	-52.8	-41.2	11.6
10998.55	100	MCS7 -20 MHz	-61.4	2.1	5.0	-54.3	-41.2	13.1
3720.13	116	MCS7 -20 MHz	-58.4	2.1	5.0	-51.3	-41.2	10.1
11157.95	116	MCS7 -20 MHz	-60.9	2.1	5.0	-53.8	-41.2	12.6
3800.04	140	MCS7 -20 MHz	-56.2	2.1	5.0	-49.1	-41.2	7.9
11398.57	140	MCS7 -20 MHz	-62.0	2.1	5.0	-54.9	-41.2	13.7
3666.81	100	MCS8	-59.9	2.2	5.0	-52.7	-41.2	11.5
11000.96	100	MCS8	-60.4	2.2	5.0	-53.2	-41.2	12.0
3719.94	116	MCS8	-58.7	2.2	5.0	-51.5	-41.2	10.3
11159.21	116	MCS8	-61.2	2.2	5.0	-54.0	-41.2	12.8
3799.95	140	MCS8	-56.2	2.2	5.0	-49.0	-41.2	7.8
11399.04	140	MCS8	-62.3	2.2	5.0	-50.1	-41.2	8.9
3666.69	102	MCS0 -40 MHz	-58.6	0.6	5.0	-53.0	-41.2	11.8
10998.64	102	MCS0 -40 MHz	-58.9	0.6	5.0	-53.3	-41.2	12.1
3700.00	110	MCS0 -40 MHz	-58.8	0.6	5.0	-53.2	-41.2	12.0
11101.09	110	MCS0 -40 MHz	-56.7	0.6	5.0	-51.1	-41.2	9.9
3779.99	134	MCS0 -40 MHz	-55.8	0.6	5.0	-50.2	-41.2	9.0
11338.47	134	MCS0 -40 MHz	-57.9	0.6	5.0	-52.3	-41.2	11.1
3666.68	102	MCS7 -40 MHz	-60.0	3.0	5.0	-52.0	-41.2	10.8
11000.34	102	MCS7 -40 MHz	-61.2	3.0	5.0	-53.2	-41.2	12.0
3699.94	110	MCS7 -40 MHz	-60.9	3.0	5.0	-52.9	-41.2	11.7
11101.34	110	MCS7 -40 MHz	-58.9	3.0	5.0	-50.9	-41.2	9.7
3780.17	134	MCS7 -40 MHz	-58.5	3.0	5.0	-50.5	-41.2	9.3
11341.08	134	MCS7 -40 MHz	-59.6	3.0	5.0	-51.6	-41.2	10.4
3666.69	102	MCS9 -40 MHz	-59.6	3.3	5.0	-51.3	-41.2	10.1

10998.41	102	MCS9 -40 MHz	-60.7	3.3	5.0	-52.4	-41.2	11.2
3700.04	110	MCS9 -40 MHz	-61.3	3.3	5.0	-53.0	-41.2	11.8
11101.25	110	MCS9 -40 MHz	-59.5	3.3	5.0	-51.2	-41.2	10.0
3779.98	134	MCS9 -40 MHz	-58.1	3.3	5.0	-49.8	-41.2	8.6
11338.59	134	MCS9 -40 MHz	-58.9	3.3	5.0	-50.6	-41.2	9.4
3686.55	106	MCS0 -80 MHz	-57.8	1.1	5.0	-51.7	-41.2	10.4
3686.72	106	MCS9 -80 MHz	-57.7	4.0	5.0	-48.7	-41.2	7.5
11064.52	106	MCS9 -80 MHz	-67.1	4.0	5.0	-58.1	-41.2	16.9

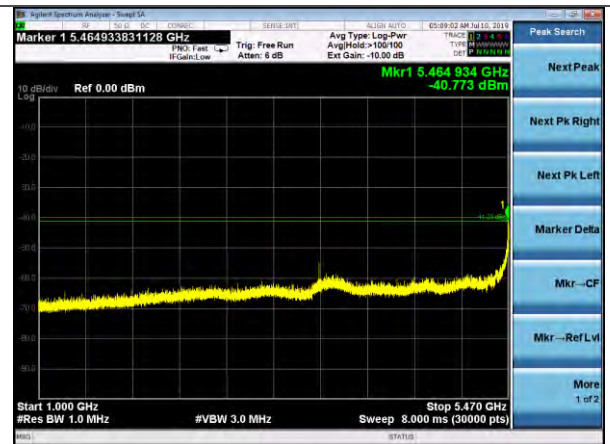
Plots

Conducted Tx Spurious (Worst Case Shown – MCS0 – 40 MHz Channels)

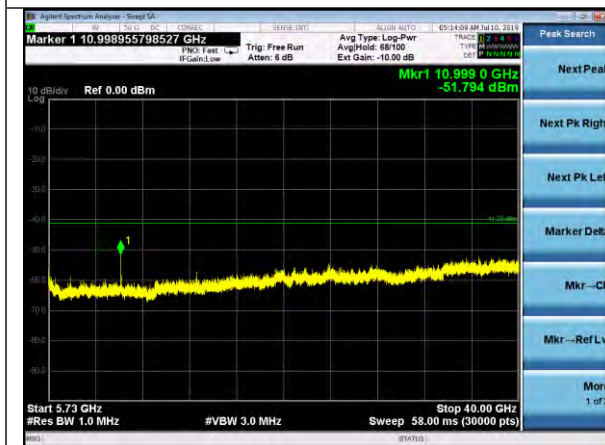
Note: Screenshots showing 5.73 GHz as a start frequency are the result of rounding. These screenshots actually start at 5725 MHz.



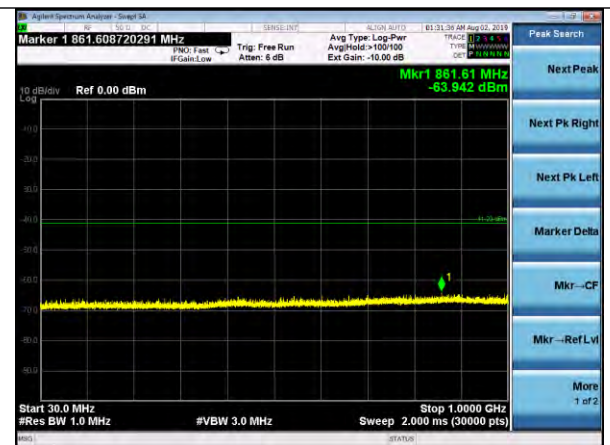
30 – 1000 MHz Low Channel



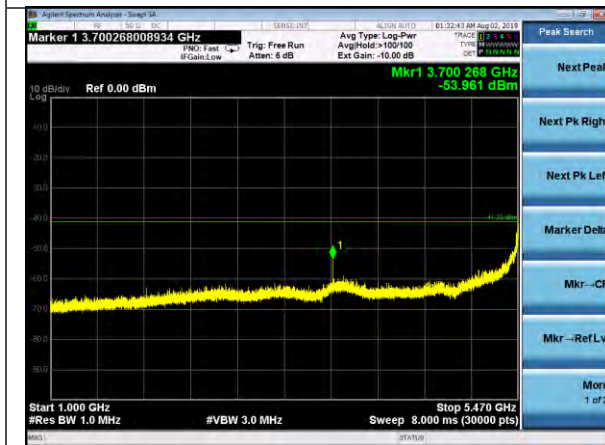
1- 5.47 GHz Low Channel



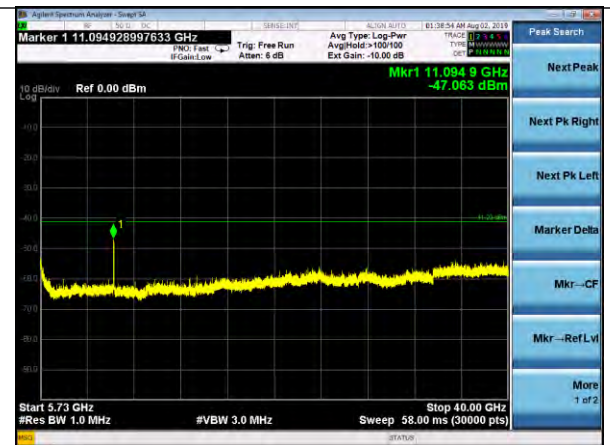
5.725 – 40 GHz Low Channel



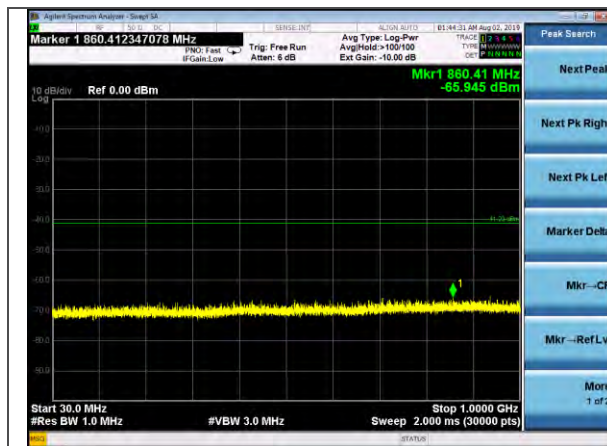
30-1000 MHz Mid Channel



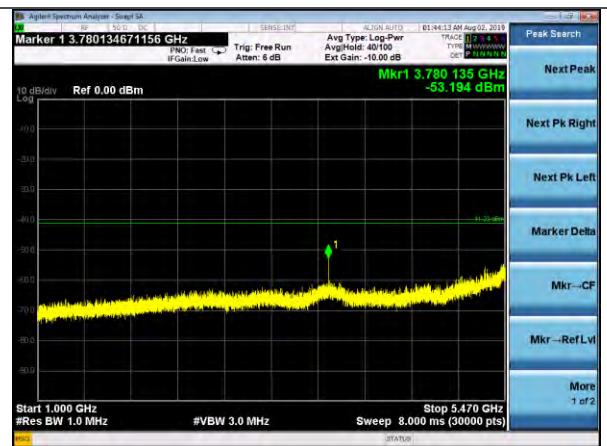
1-5.47 GHz Mid Channel



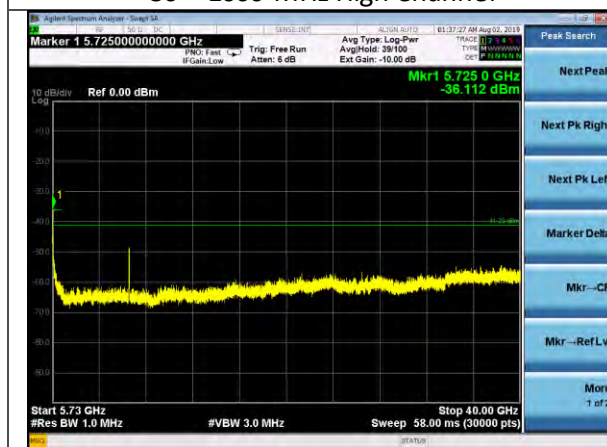
5.725 – 40 GHz Mid Channel



30 – 1000 MHz High Channel



1- 5.47 GHz High Channel



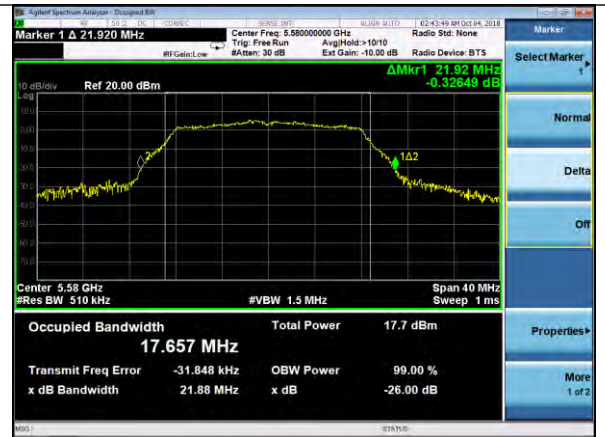
5.725 – 40 GHz High Channel

802.11a 6 MBPS - 20 MHz

Bandwidth



Low Channel

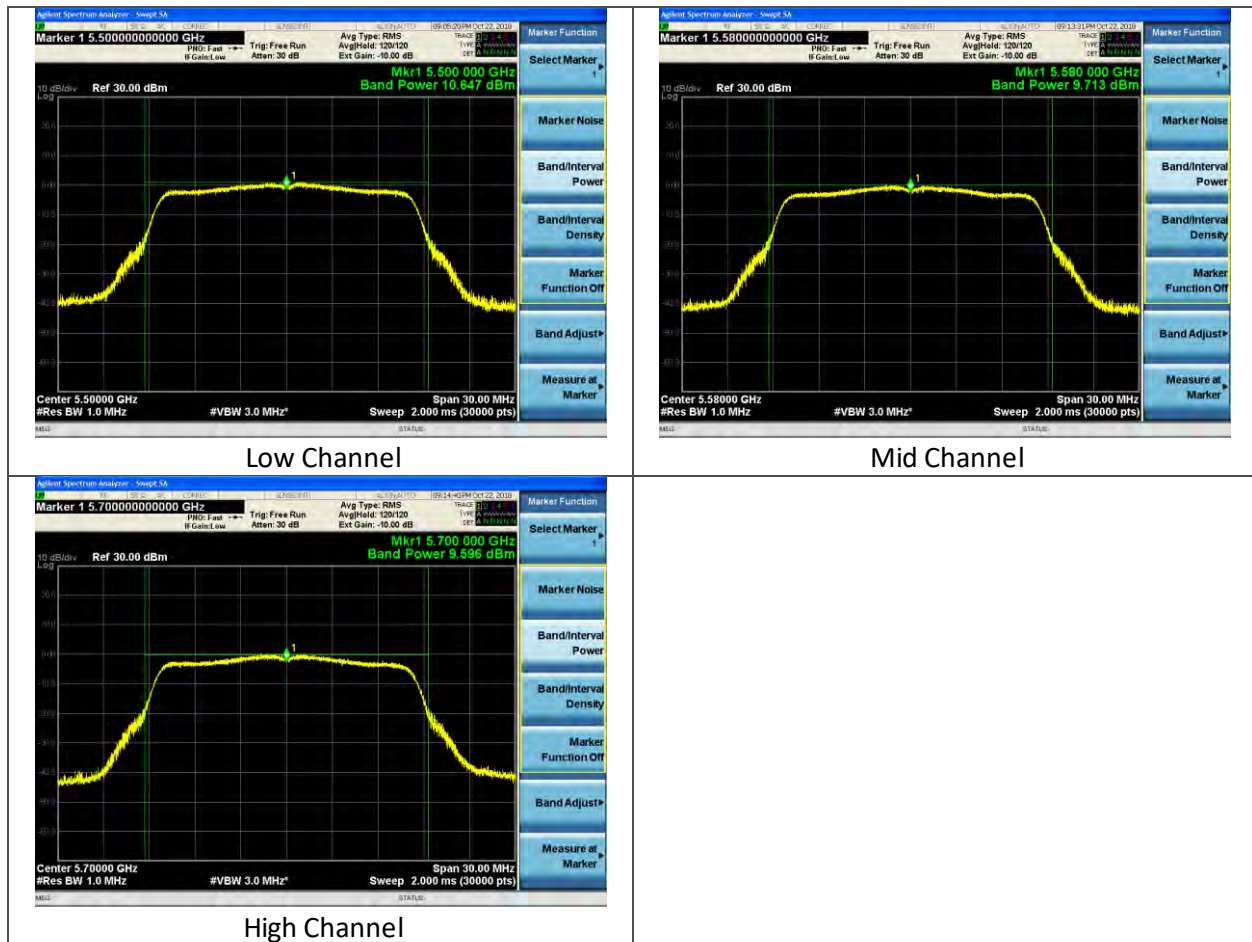


Mid Channel

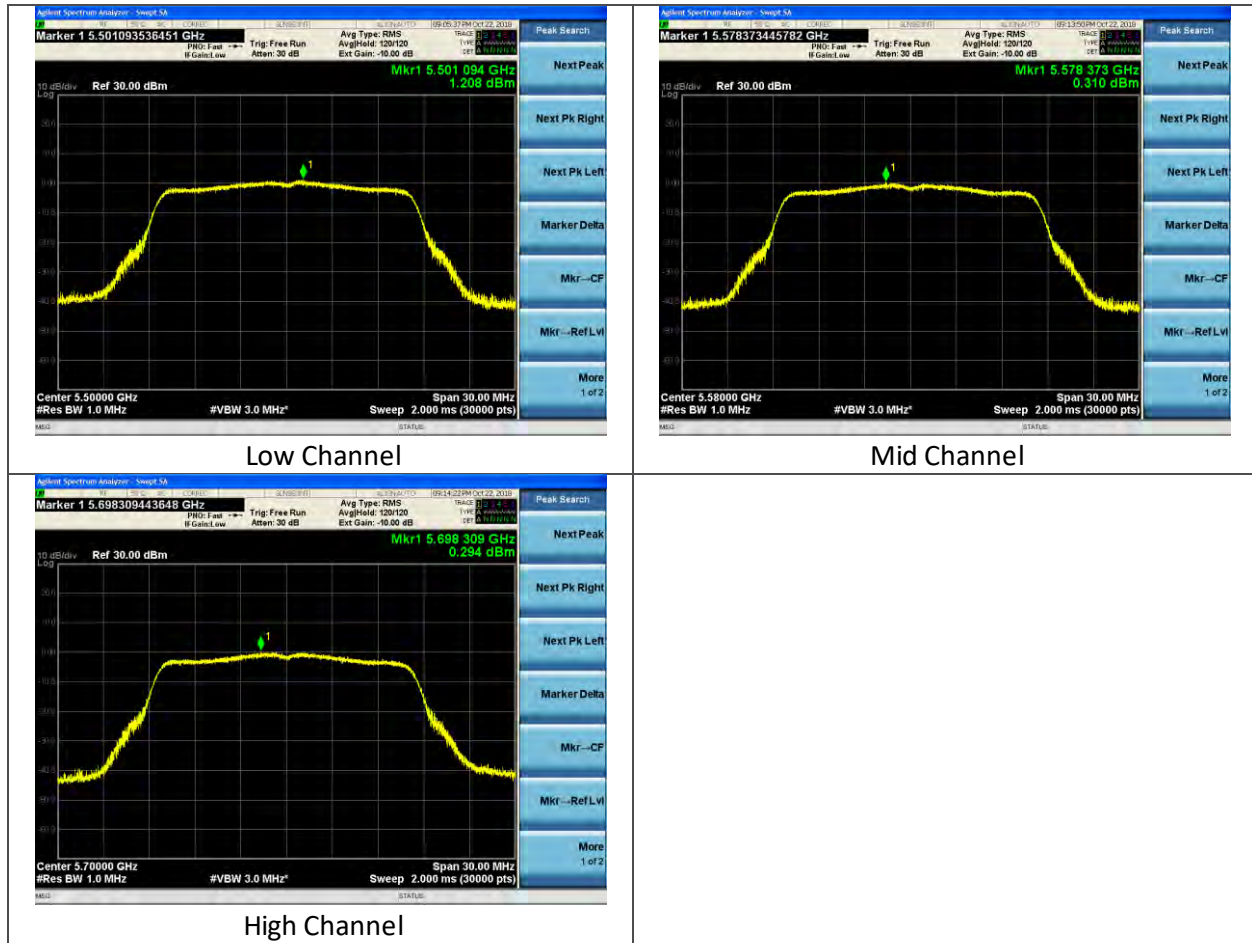


High Channel

Conducted Output Power



Peak Power Spectral Density



802.11a 54 MBPS - 20 MHz

Bandwidth



Conducted Output Power

Company: Philips North America LLC	Page 86 of 228	Name: PHC-11AC1-A
Report: 317347 A		Model: PHC-11AC1-A
Job: C-3013		Serial: Engineering Samples