



FCC 47 CFR PART 15 SUBPART E

UNII

CERTIFICATION TEST REPORT

FOR

GSM/WCDMA/LTE Phone + BT/BLE, DTS/UNII a/b/g/n/ac , ANT+ and NFC

MODEL NUMBER : SM-C900F/DS

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Prepared for
SAMSUNG ELECTRONICS CO., LTD.
129 SAMSUNG-RO, YEONGTONG-GU, SUWON-SI,
GYEONGGI-DO, 16677, KOREA

Prepared by
UL Korea, Ltd. Suwon Laboratory
218 Maeyeong-ro, Yeongtong-gu,
Suwon-si, Gyeonggi-do, 16675, Korea
TEL: (031) 337-9902
FAX: (031) 213-5433



Revision History

Rev.	Issue Date	Revisions	Revised By
V1	01/06/17	Initial issue	Junwhan Lee
V2	01/11/17	Revised middle channel frequency of UNII-2C HT40	Junwhan Lee

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SAMSUNG ELECTRONICS CO., LTD.

EUT DESCRIPTION: GSM/WCDMA/LTE Phone + BT/BLE, DTS/UNII a/b/g/n/ac , ANT+ and NFC

MODEL NUMBER: SM-C900F/DS

SERIAL NUMBER: R38HC075C7W, 2651b8f6 (RADIATED);
R38HC075DFM (CONDUCTED)

DATE TESTED: DEC 19, 2016 - JAN 06, 2017

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart E	Pass

UL Korea, Ltd. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Korea, Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Korea, Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Korea, Ltd. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by IAS, any agency of the Federal Government, or any agency of any government.

Approved & Released For
UL Korea, Ltd. By:



CY Choi
Suwon Lab Engineer
UL Korea, Ltd.

Tested By:



Junwhan Lee
Suwon Lab Engineer
UL Korea, Ltd.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, FCC 06-96, FCC KDB 789033 D02 v01r03, ANSI C63.10-2013.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea. Line conducted emissions are measured only at the 218 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

218 Maeyeong-ro	
☒	Chamber 1
☒	Chamber 2

UL Korea, Ltd. is accredited by IAS, Laboratory Code TL-637. The full scope of accreditation can be viewed at <http://www.iasonline.org/PDF/TL/TL-637.pdf>.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

$$\begin{aligned}\text{Field Strength (dBuV/m)} &= \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \\ &\text{Cable Loss (dB)} - \text{Preamp Gain (dB)} \\ 36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} &= 28.9 \text{ dBuV/m}\end{aligned}$$

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	2.32 dB
Radiated Disturbance, Below 1GHz	4.14 dB
Radiated Disturbance, Above 1 GHz	5.97 dB

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a GSM/WCDMA/LTE Phone + BT/BLE, DTS/UNII a/b/g/n/ac , ANT+ and NFC.
This test report addresses the NII (UNII) operational mode.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum total conducted average output power as follows:

Frequency Range [MHz]	Mode	Output Power [dBm]	Output Power [mW]
5180 - 5240	802.11a	13.462	22.19
	802.11n HT20	12.465	17.64
	802.11ac VHT20	13.458	22.17
5190 - 5230	802.11n HT40	12.346	17.16
5210	802.11ac VHT80	12.125	16.31
5260 - 5320	802.11a	13.474	22.25
	802.11n HT20	12.446	17.56
	802.11ac VHT20	13.361	21.68
5270 - 5310	802.11n HT40	12.053	16.04
5290	802.11ac VHT80	12.294	16.96
5500 - 5700	802.11a	13.482	22.29
	802.11n HT20	12.487	17.73
	802.11ac VHT20	13.042	20.15
5510 - 5670	802.11n HT40	12.459	17.62
5530 - 5610	802.11ac VHT80	11.974	15.75
5745 - 5825	802.11a	12.917	19.57
	802.11n HT20	11.678	14.72
	802.11ac VHT20	12.770	18.92
5755 - 5795	802.11n HT40	12.371	17.26
5775	802.11ac VHT80	11.438	13.93

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an FPCB antenna, with a maximum gain of:

Frequency Range [MHz]	Antenna Gain [dBi]
UNII 1 5150 – 5250	2.87
UNII 2A 5250 – 5350	2.83
UNII 2C 5470 – 5725	2.72
UNII 3 5725 – 5850	1.69

5.4. WORST-CASE CONFIGURATION AND MODE

Radiated emission below 1GHz and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

Radiated emission above 1GHz was performed with the EUT set to transmit low/mid/high channels.

The fundamental of the EUT was investigated in three orthogonal orientations X,Y,Z, it was determined that the X orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in the X orientation.

Based on the baseline scan, the worst-case data rates were:

802.11a mode: 6 Mbps
802.11n HT20 mode: MCS0
802.11ac VHT20 mode: MCS0
802.11n HT40 mode: MCS0
802.11ac VHT80 mode: MCS0

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Charger	SAMSUNG	EP-TA20IWE	R37FC5T1661SE3	N/A
Data Cable	SAMSUNG	DP-DN930CWE	N/A	N/A
Earphone	SAMSUNG	EHS64AVFWE	N/A	N/A

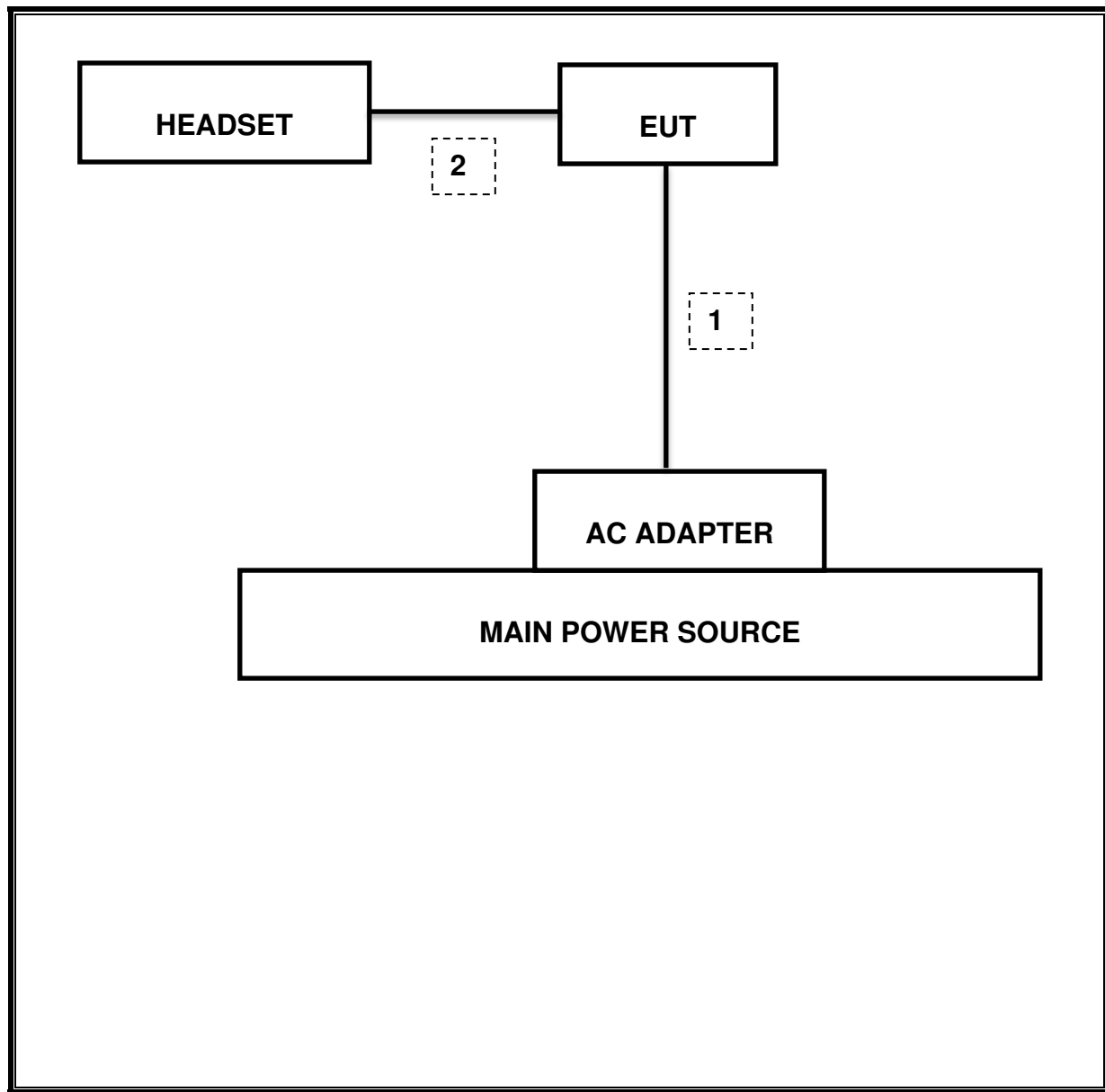
I/O CABLES

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	DC Power	1	Mini-USB	Shielded	0.8m	N/A
2	Audio	2	Mini-Jack	Unshielded	1.0m	N/A

TEST SETUP

The EUT is a stand-alone unit during the tests.
Test software in hidden menu exercised the EUT to enable NII mode.

SETUP DIAGRAM FOR TESTS



6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Test Equipment List				
Description	Manufacturer	Model	S/N	Cal Due
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	750	10-14-18
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	749	04-25-17
Antenna, Horn, 18 GHz	ETS	3115	00167211	10-14-18
Antenna, Horn, 18 GHz	ETS	3115	00161451	05-17-17
Antenna, Horn, 18 GHz	ETS	3117	00168724	06-17-17
Antenna, Horn, 18 GHz	ETS	3117	00168717	06-17-17
Antenna, Horn, 40 GHz	ETS	3116C	00166155	11-30-17
Antenna, Horn, 40 GHz	ETS	3116C-PA	00168841	12-15-17
Preamplifier, 1000 MHz	Sonoma	310N	341282	08-17-17
Preamplifier, 1000 MHz	Sonoma	310N	351741	08-16-17
Preamplifier	ETS	3115-PA	00167475	08-17-17
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1896138	08-16-17
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54170614	08-17-17
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54490312	08-16-17
Antenna, Loop, 9kHz-30MHz	R&S	HFH2-Z2	100418	11-25-17
Average Power Sensor	R&S	NRP-Z91	102681	08-16-17
Average Power Sensor	Agilent / HP	U2000	MY54270007	08-17-17
EMI Test Receive, 40 GHz	R&S	ESU40	100439	08-17-17
EMI Test Receive, 40 GHz	R&S	ESU40	100457	08-16-17
EMI Test Receive, 3 GHz	R&S	ESR3	101832	08-16-17
Attenuator / Switch driver	HP	11713A	3748A04272	N/A
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	009	08-17-17
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	015	08-16-17
High Pass Filter 3GHz	Micro-Tronics	HPM17543	010	08-17-17
High Pass Filter 3GHz	Micro-Tronics	HPM17543	015	08-16-17
High Pass Filter 6GHz	Micro-Tronics	HPM17542	009	08-17-17
High Pass Filter 6GHz	Micro-Tronics	HPM17542	016	08-16-17
LISN	R&S	ENV-216	101836	08-16-17
LISN	R&S	ENV-216	101837	08-16-17
Attenuator	PASTERNAK	PE7087-10	A009	08-16-17

7. SUMMARY TABLE

FCC Part Section	Test Description	Test Limit	Test Condition	Test Result
15.407 (a)	Occupied Band width (26dB)	N/A	Conducted	84.67MHz
15.407	6dB Band width (5.8Ghz)	500KHz		16.343MHz
15.407 (a)(2)	TX Cond. Power 5.15-2.25, 5.25-5.35 & 5.47-5.725	<24dBm or 11+10Log(OBW)		13.482 dBm
15.407 (a)(3)	TX Cond. Power 5.725-5.825	< 30dBm or 17+10Log(OBW)		12.917dBm
15.407 (a)(5)	PSD (5.2,5.3,5.5GHz)	<11dBm		2.908 dBm
15.407 (a)(5)	PSD (5.8GHz)	30dBm per 500kHz		-0.968 dBm
15.207 (a)	AC Power Line conducted emissions	Section 10	Radiated	45.62 dBuV (Qp)
15.407 (b) & 15.209	Radiated Spurious Emission	< 54dBuV/m		46.81 dBuV/m (Av)
15.407 (h)(2)	Dynamic Frequency Selection	N/A	Condcuted	Pass

8. ON TIME, DUTY CYCLE AND MEASUREMENT METHODS

LIMITS

None; for reporting purposes only.

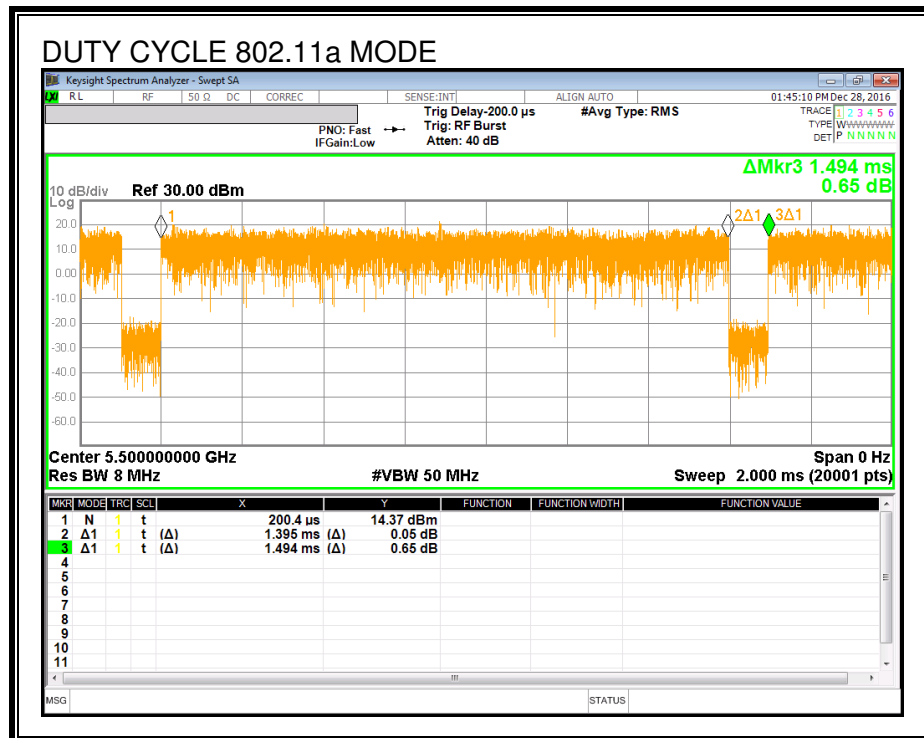
PROCEDURE

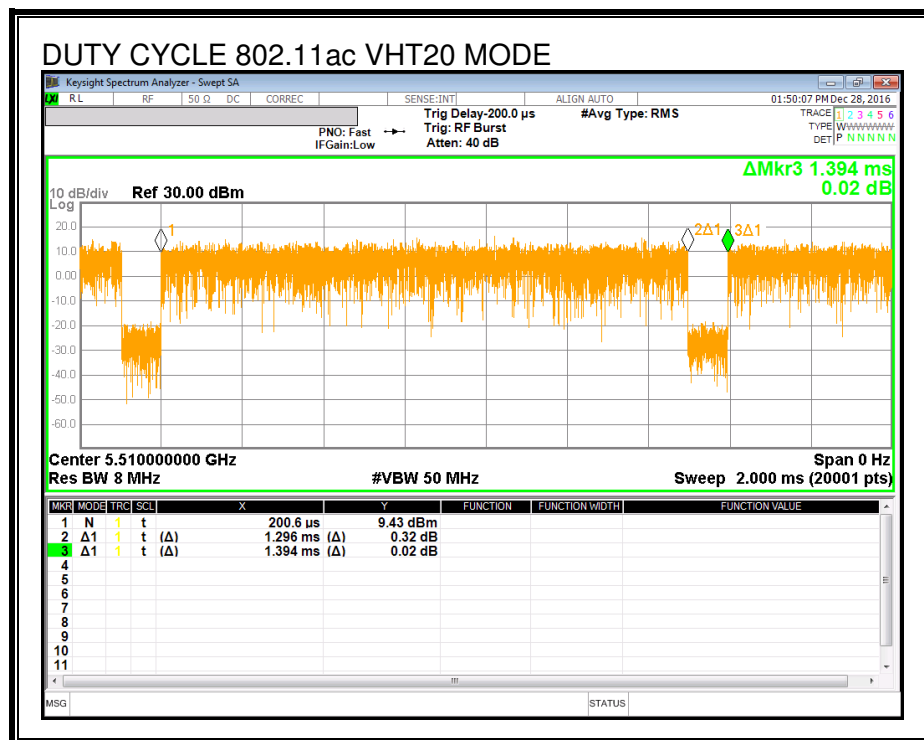
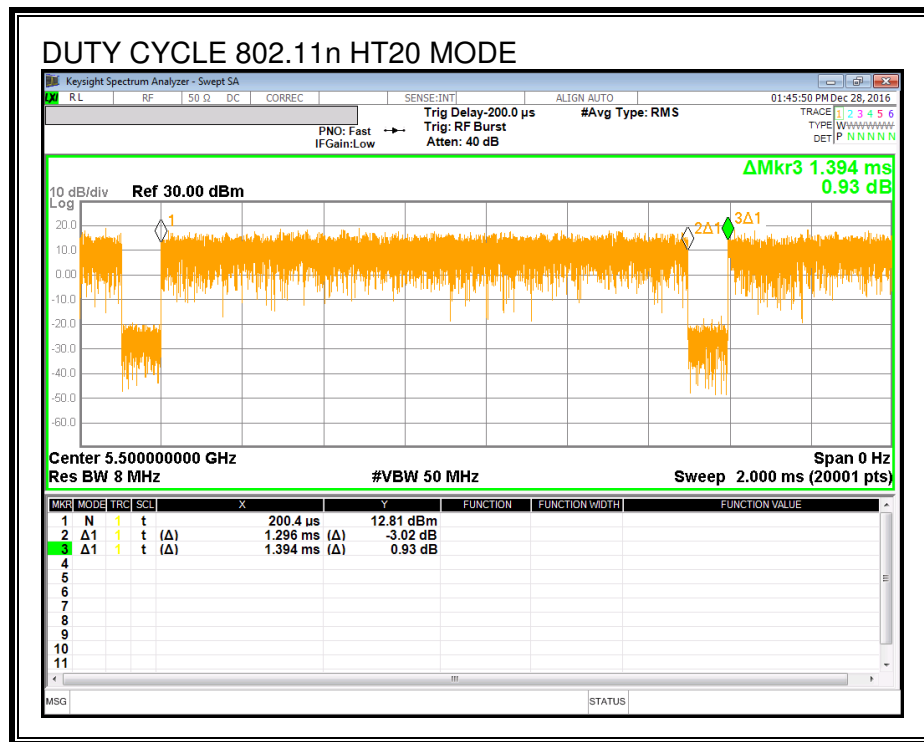
KDB 789033 D02 v01r03 Zero-Span Spectrum Analyzer Method.

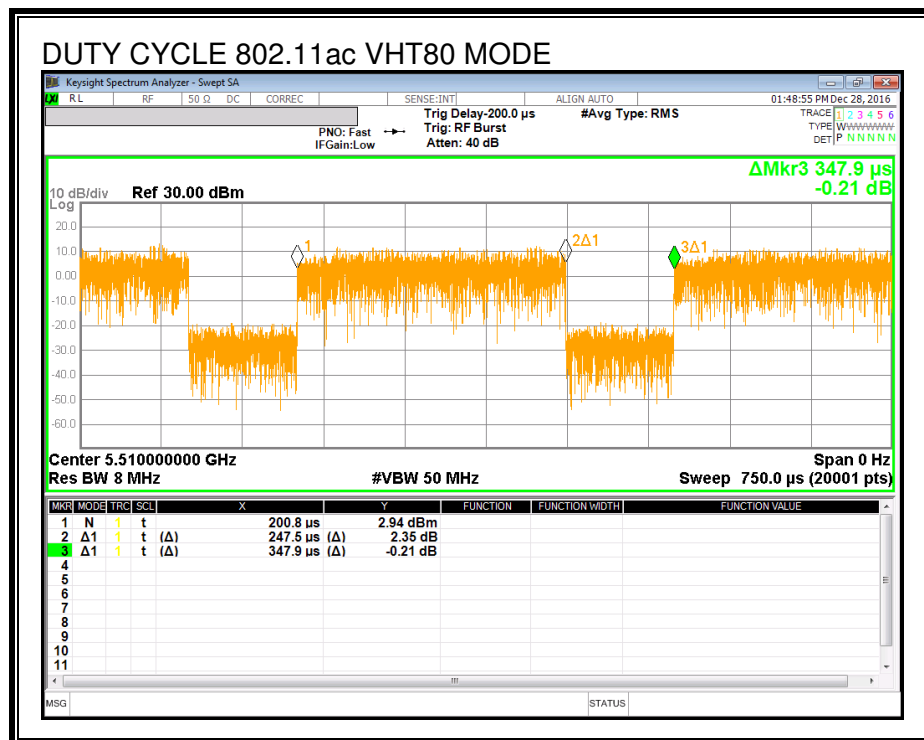
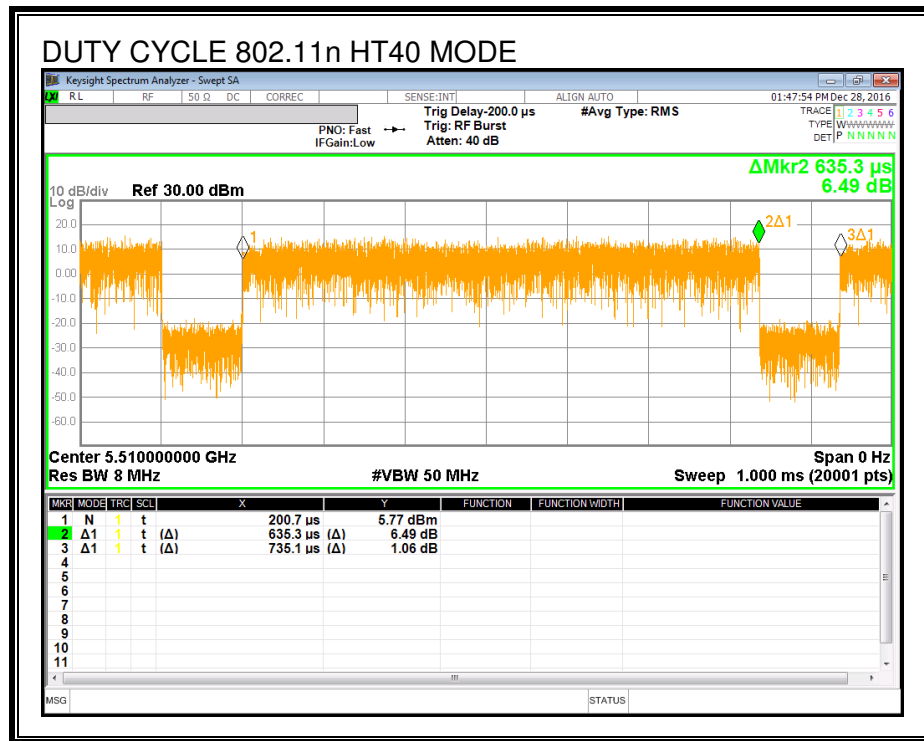
8.1. ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B [msec]	Period [msec]	Duty Cycle x [linear]	Duty Cycle [%]	Duty Cycle Correction Factor [dB]	1/T Minimum VBW [kHz]
802.11a	1.395	1.494	0.934	93.4%	0.30	0.717
802.11n HT20	1.296	1.394	0.930	93.0%	0.32	0.772
802.11ac VHT20	1.296	1.394	0.930	93.0%	0.32	0.772
802.11n HT40	0.635	0.735	0.864	86.4%	0.63	1.574
802.11ac VHT80	0.248	0.348	0.711	71.1%	1.48	4.040

8.2. DUTY CYCLE PLOTS







9. MEASUREMENT METHOD

KDB 789033 D02 General UNII Test Procedures New Rules v01r03
KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02
KDB 905462 D03 UNII Clients Without Radar Detection New Rules v01r02

The Duty Cycle is less than 98% and consistent therefore KDB 789033 Method SA-2 is used for power and PPSD

The Duty Cycle is less than 98% and consistent, KDB 789033 Method AD with Power RMS Averaging and duty cycle correction is used.

10. ANTENNA PORT TEST RESULTS

10.1. 6 dB BANDWIDTH

LIMITS

FCC §15.407

The minimum 6 dB bandwidth shall be at least 500 kHz.

TEST PROCEDURE

Reference to 789033 D02 General UNII Test Procedures New Rules v01r03: The transmitter output is connected to a spectrum analyzer with the RBW set to 100KHz, the VBW $\geq 3 \times$ RBW, peak detector and max hold.

RESULTS

10.1.1. 802.11a MODE IN THE 5.8 GHz BAND

Channel	Frequency [MHz]	6 dB Bandwidth [MHz]	Minimum Limit [MHz]
Low	5745	16.343	0.5
Mid	5785	16.350	0.5
High	5825	16.358	0.5
Worst		16.343	

10.1.2. 802.11n HT20 MODE IN THE 5.8 GHz BAND

Channel	Frequency [MHz]	6 dB Bandwidth [MHz]	Minimum Limit [MHz]
Low	5745	17.581	0.5
Mid	5785	17.575	0.5
High	5825	17.575	0.5
Worst		17.575	

10.1.3. 802.11ac VHT20 MODE IN THE 5.8 GHz BAND

Channel	Frequency [MHz]	6 dB Bandwidth [MHz]	Minimum Limit [MHz]
Low	5745	17.585	0.5
Mid	5785	17.579	0.5
High	5825	17.574	0.5
Worst		17.574	

10.1.4. 802.11n HT40 MODE IN THE 5.8 GHz BAND

Channel	Frequency [MHz]	6 dB Bandwidth [MHz]	Minimum Limit [MHz]
Low	5755	35.063	0.5
High	5795	34.568	0.5
Worst		34.568	

10.1.5. 802.11n VHT80 MODE IN THE 5.8 GHz BAND

Channel	Frequency [MHz]	6 dB Bandwidth [MHz]	Minimum Limit [MHz]
Middle	5775	73.855	0.5
Worst		73.855	

10.1.6. 6 dB BANDWIDTH PLOTS

IEEE 802.11a mode

11a Mode Low Channel



11a Mode Middle Channel

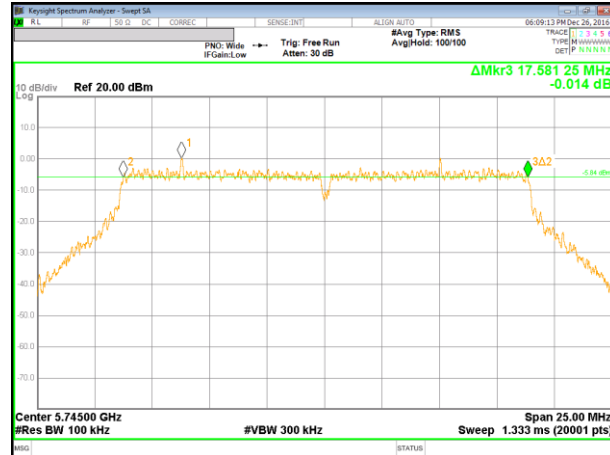


11a Mode High Channel



IEEE 802.11n HT20 mode

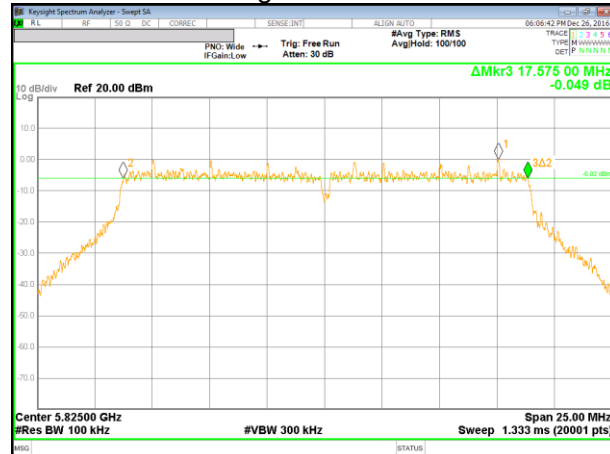
11n HT20 Mode Low Channel



11n HT20 Mode Middle Channel

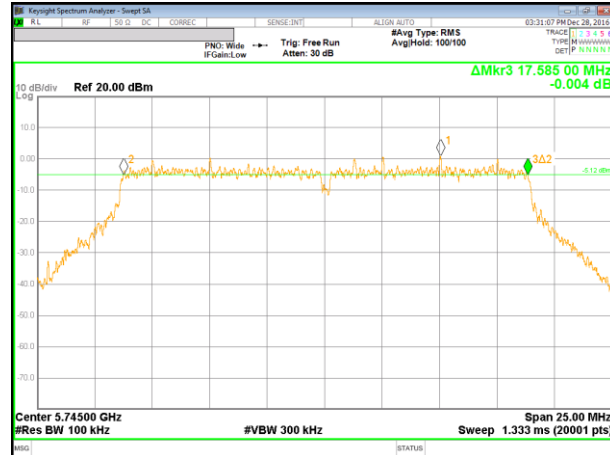


11n HT20 Mode High Channel



IEEE 802.11ac VHT20 mode

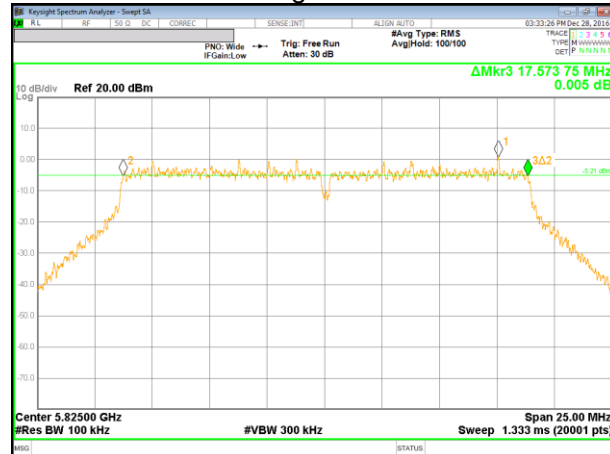
11ac VHT20 Mode Low Channel



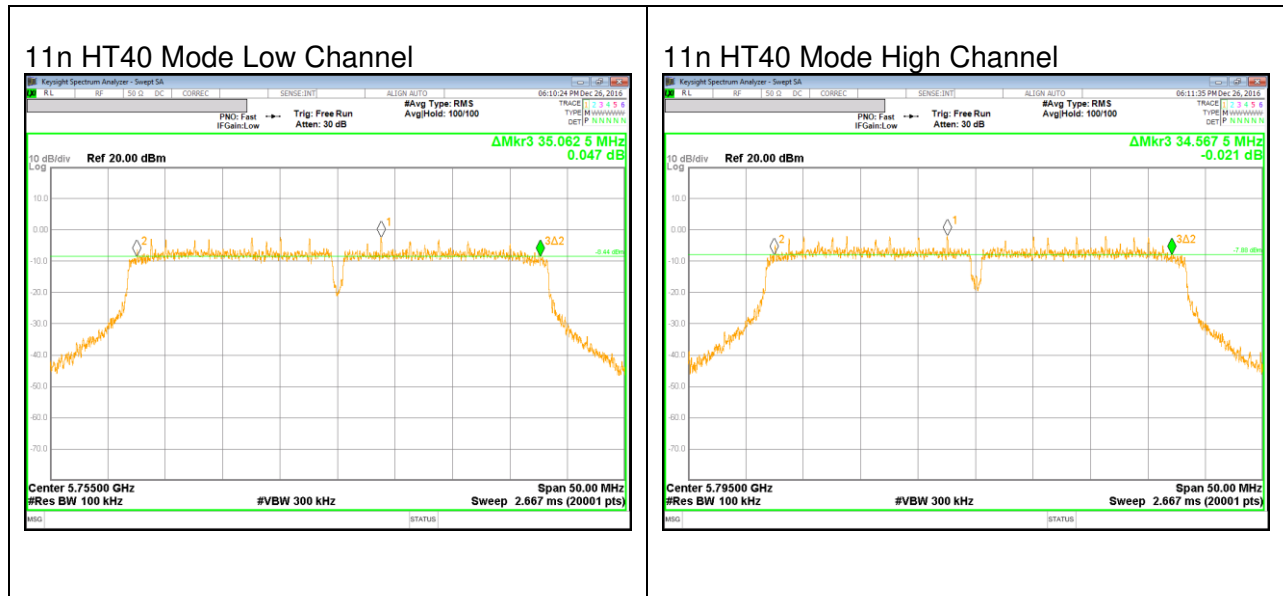
11ac VHT20 Mode Middle Channel



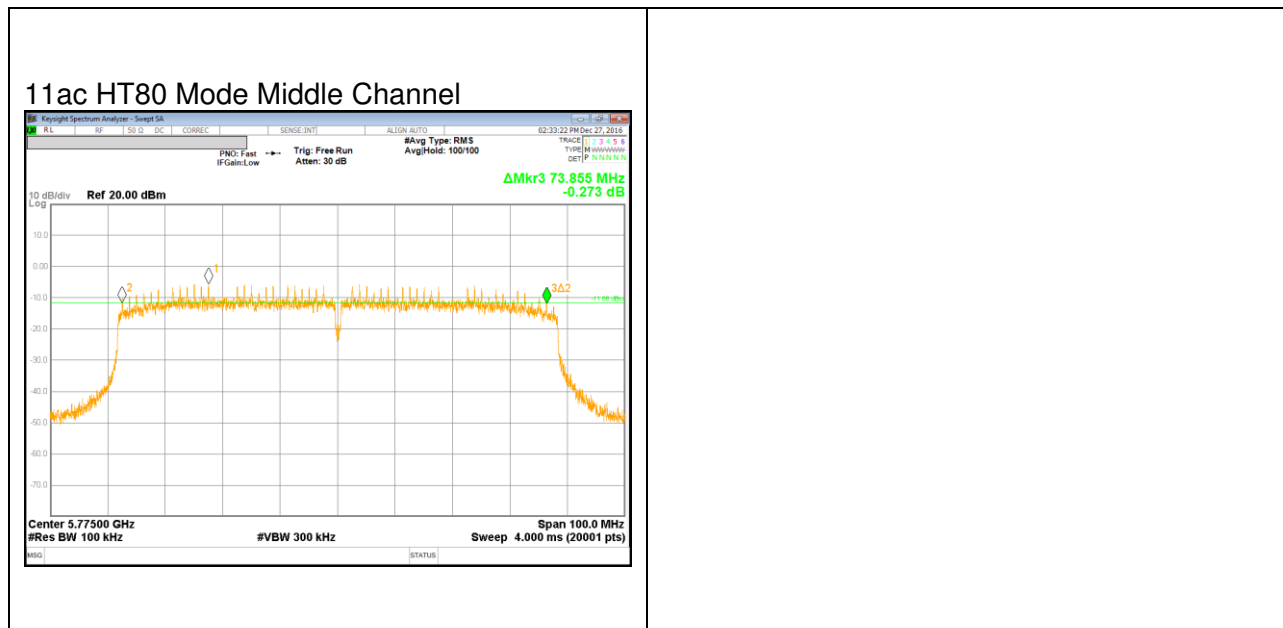
11ac VHT20 Mode High Channel



IEEE 802.11n HT40 mode



IEEE 802.11ac VHT80 mode



10.2. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

10.2.1. 802.11a MODE IN THE 5.2 GHz BAND

Channel	Frequency [MHz]	26 dB Bandwidth [MHz]
Low	5180	21.19
Mid	5200	21.43
High	5240	21.75
Worst		21.75

10.2.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

Channel	Frequency [MHz]	26 dB Bandwidth [MHz]
Low	5180	21.97
Mid	5200	21.65
High	5240	22.02
Worst		22.02

10.2.3. 802.11ac VHT20 MODE IN THE 5.2 GHz BAND

Channel	Frequency [MHz]	26 dB Bandwidth [MHz]
Low	5180	21.88
Mid	5200	21.67
High	5240	21.81
Worst		21.88

10.2.4. 802.11n HT40 MODE IN THE 5.2 GHz BAND

Channel	Frequency [MHz]	26 dB Bandwidth [MHz]
Low	5190	42.42
High	5230	43.31
Worst		43.31

10.2.5. 802.11n VHT80 MODE IN THE 5.2 GHz BAND

Channel	Frequency [MHz]	26 dB Bandwidth [MHz]
Mid	5210	83.53
Worst		83.53

10.2.6. 802.11a MODE IN THE 5.3 GHz BAND

Channel	Frequency [MHz]	26 dB Bandwidth [MHz]
Low	5260	21.64
Mid	5300	21.31
High	5320	21.69
Worst		21.69

10.2.7. 802.11n HT20 MODE IN THE 5.3 GHz BAND

Channel	Frequency [MHz]	26 dB Bandwidth [MHz]
Low	5260	21.86
Mid	5300	21.69
High	5320	22.15
Worst		22.15

10.2.8. 802.11ac VHT20 MODE IN THE 5.3 GHz BAND

Channel	Frequency [MHz]	26 dB Bandwidth [MHz]
Low	5260	21.74
Mid	5300	21.99
High	5320	21.77
Worst		21.99

10.2.9. 802.11n HT40 MODE IN THE 5.3 GHz BAND

Channel	Frequency [MHz]	26 dB Bandwidth [MHz]
Low	5270	42.17
High	5310	43.03
Worst		43.03

10.2.10. 802.11ac VHT80 MODE IN THE 5.3 GHz BAND

Channel	Frequency [MHz]	26 dB Bandwidth [MHz]
Middle	5290	83.99
Worst		83.99

10.2.11. 802.11a MODE IN THE 5.5 GHz BAND

Channel	Frequency [MHz]	26 dB Bandwidth [MHz]
Low	5500	21.20
Mid	5580	21.45
High	5700	21.47
Worst		21.47

10.2.12. 802.11n HT20 MODE IN THE 5.5 GHz BAND

Channel	Frequency [MHz]	26 dB Bandwidth [MHz]
Low	5500	21.71
Mid	5580	22.01
High	5700	21.73
Worst		22.01

10.2.13. 802.11ac VHT20 MODE IN THE 5.5 GHz BAND

Channel	Frequency [MHz]	26 dB Bandwidth [MHz]
Low	5500	22.17
Mid	5580	21.59
High	5700	21.69
Worst		22.17

10.2.14. 802.11n HT40 MODE IN THE 5.5 GHz BAND

Channel	Frequency [MHz]	26 dB Bandwidth [MHz]
Low	5510	43.58
Mid	5590	43.45
High	5670	42.77
Worst		43.58

10.2.15. 802.11ac VHT80 MODE IN THE 5.5 GHz BAND

Channel	Frequency [MHz]	26 dB Bandwidth [MHz]
Low	5530	84.67
High	5610	83.99
Worst		84.67

10.2.16. 802.11a MODE IN THE 5.8 GHz BAND

Channel	Frequency [MHz]	26 dB Bandwidth [MHz]
Low	5745	21.29
Mid	5785	21.17
High	5825	21.74
Worst		21.74

10.2.17. 802.11n HT20 MODE IN THE 5.8 GHz BAND

Channel	Frequency [MHz]	26 dB Bandwidth [MHz]
Low	5745	22.00
Mid	5785	21.79
High	5825	21.95
Worst		22.00

10.2.18. 802.11ac VHT20 MODE IN THE 5.8 GHz BAND

Channel	Frequency [MHz]	26 dB Bandwidth [MHz]
Low	5745	21.97
Mid	5785	21.73
High	5825	22.06
Worst		22.06

10.2.19. 802.11n HT40 MODE IN THE 5.8 GHz BAND

Channel	Frequency [MHz]	26 dB Bandwidth [MHz]
Low	5755	43.00
High	5795	42.71
Worst		43.00

10.2.20. 802.11ac VHT80 MODE IN THE 5.8 GHz BAND

Channel	Frequency [MHz]	26 dB Bandwidth [MHz]
Middle	5775	83.11
Worst		83.11

10.2.21. 26 dB BANDWIDTH PLOTS

UNII 5.2 GHz IEEE 802.11a mode

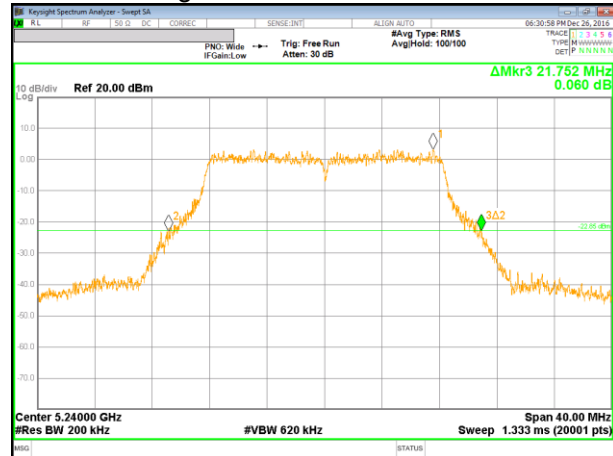
11a Mode Low Channel



11a Mode Middle Channel

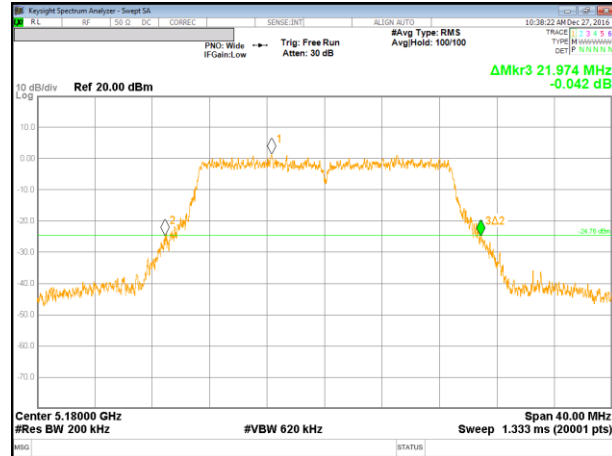


11a Mode High Channel



UNII 5.2 GHz IEEE 802.11n HT20 mode

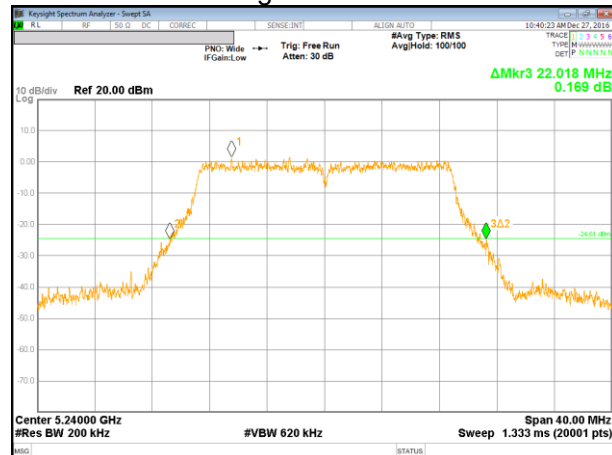
11n HT20 Mode Low Channel



11n HT20 Mode Middle Channel

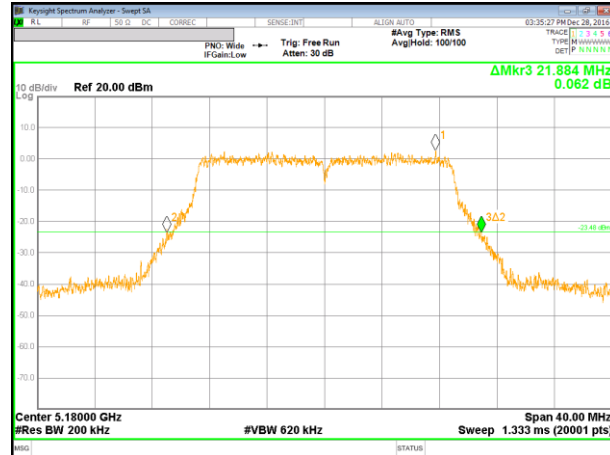


11n HT20 Mode High Channel



UNII 5.2 GHz IEEE 802.11ac VHT20 mode

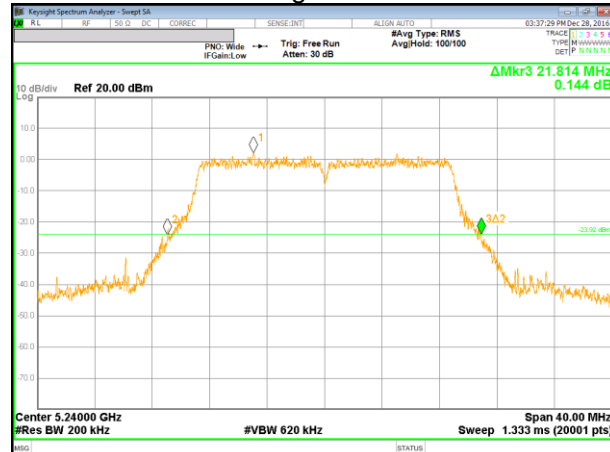
11ac VHT20 Mode Low Channel



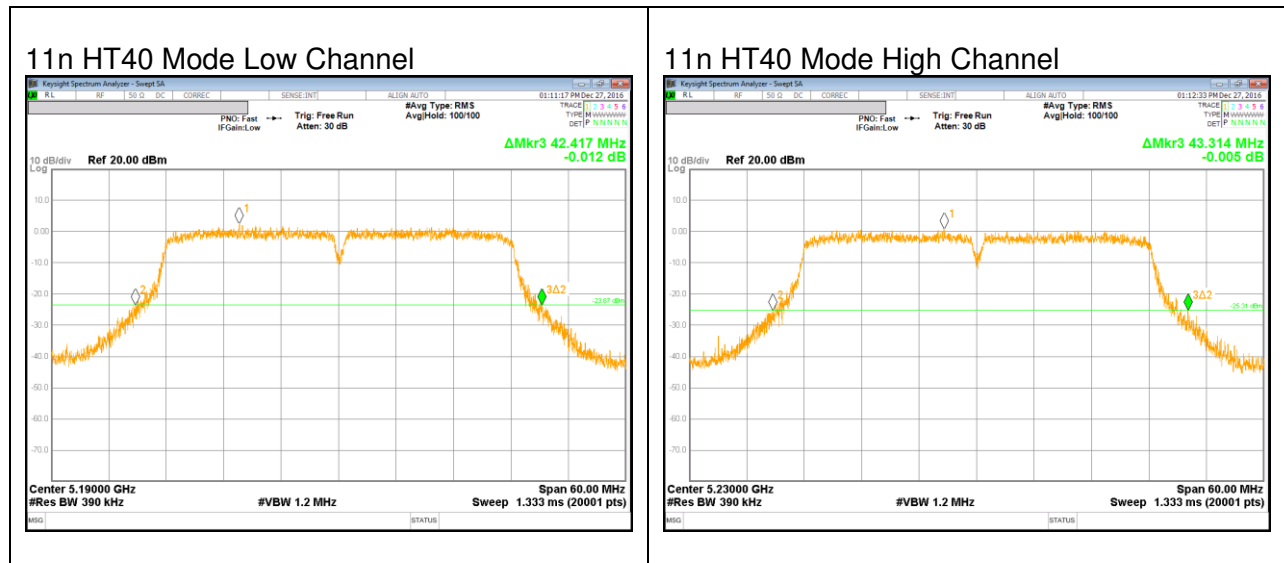
11ac VHT20 Mode Middle Channel



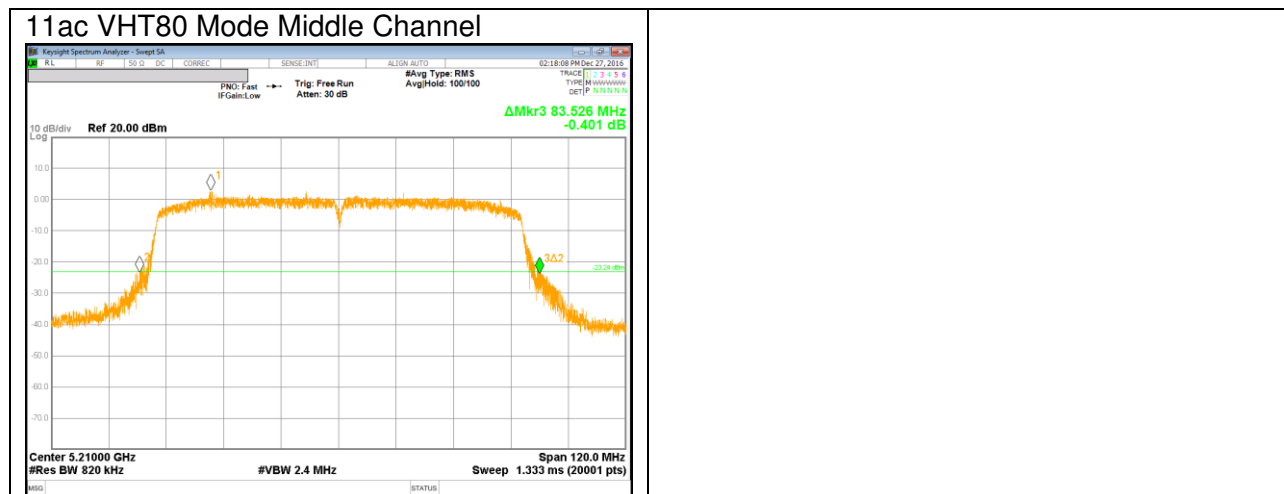
11ac VHT20 Mode High Channel



UNII 5.2 GHz IEEE 802.11n HT40 mode



UNII 5.2 GHz IEEE 802.11ac VHT80 mode



UNII 5.3 GHz IEEE 802.11a mode



UNII 5.3 GHz IEEE 802.11ac VHT20 mode

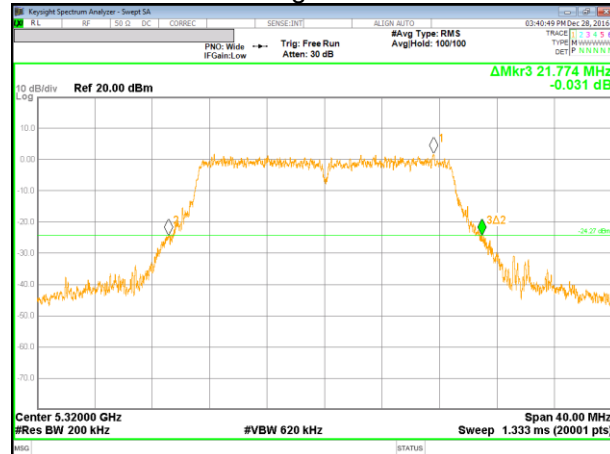
11ac VHT20 Mode Low Channel



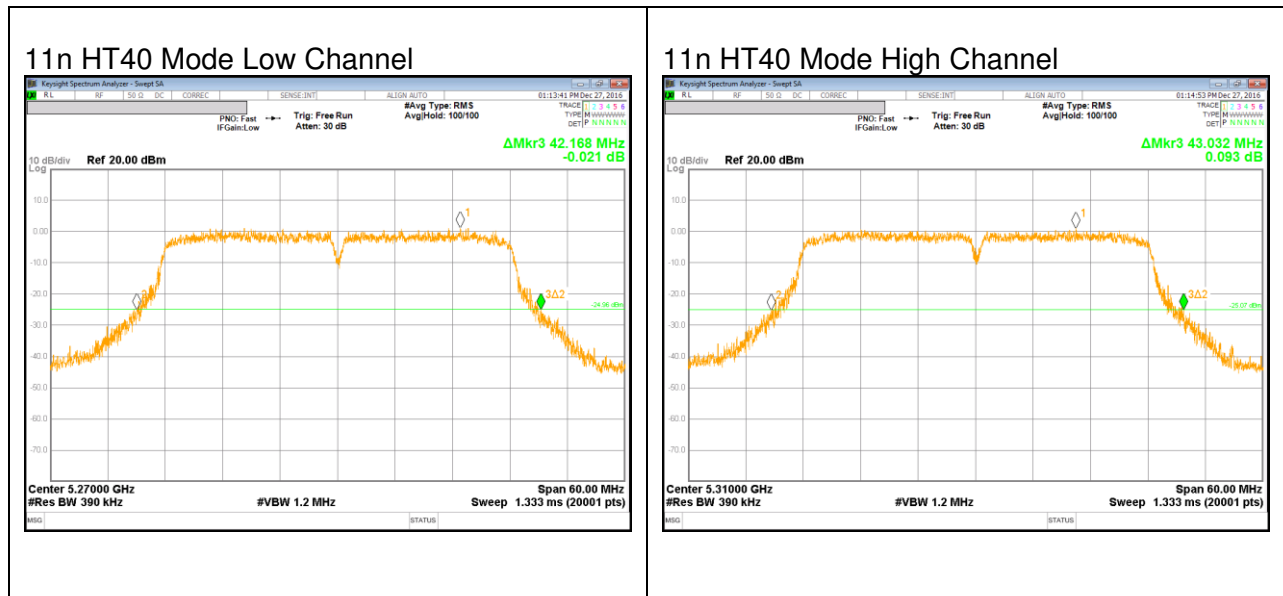
11ac VHT20 Mode Middle Channel



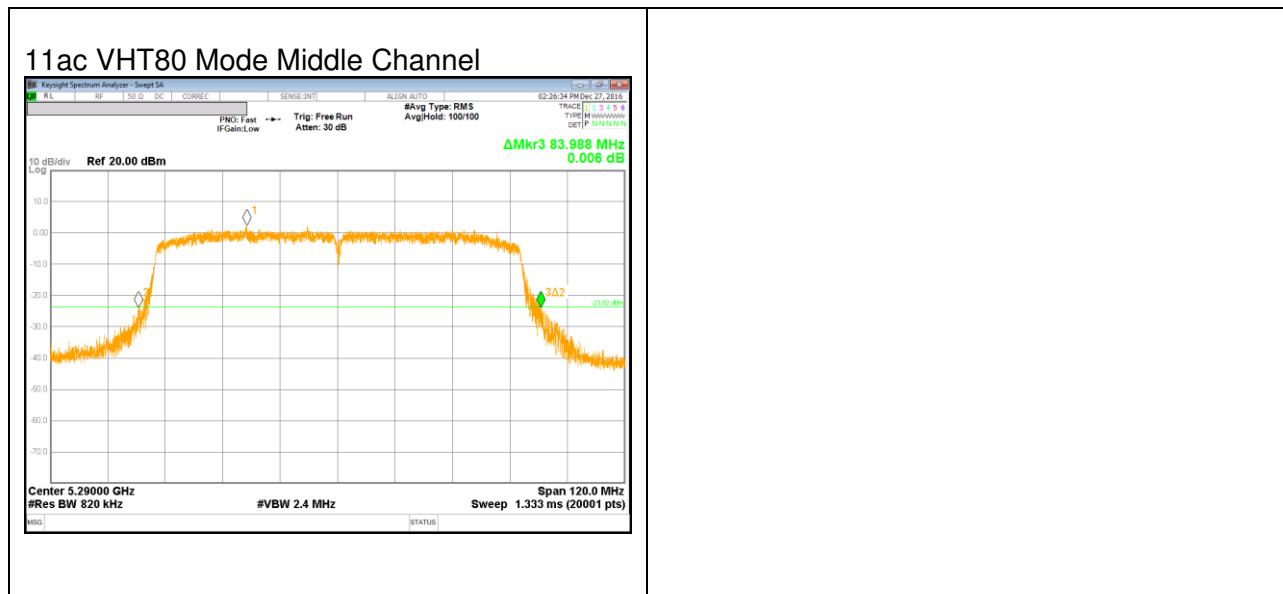
11ac VHT20 Mode High Channel



UNII 5.3 GHz IEEE 802.11n HT40 mode

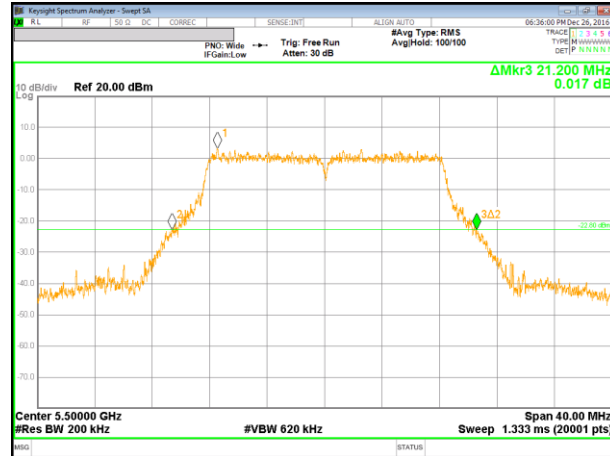


UNII 5.3 GHz IEEE 802.11ac VHT80 mode

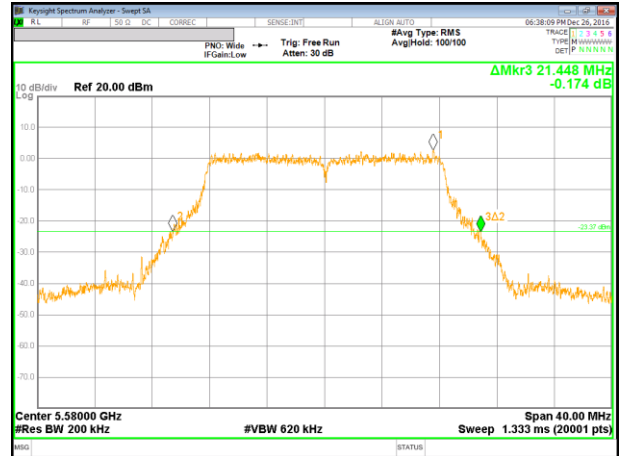


UNII 5.5 GHz IEEE 802.11a mode

11a Mode Low Channel



11a Mode Middle Channel

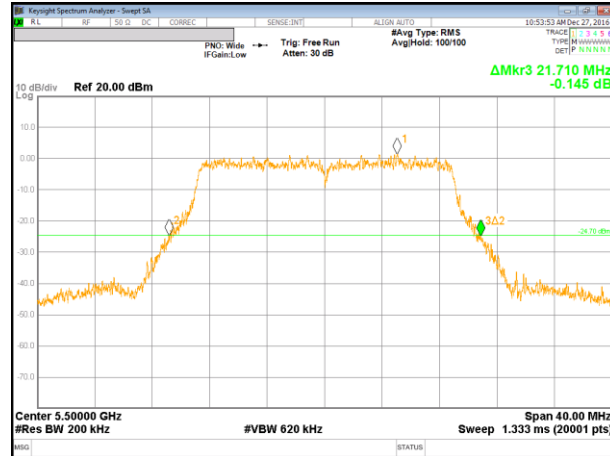


11a Mode High Channel



UNII 5.5 GHz IEEE 802.11n HT20 mode

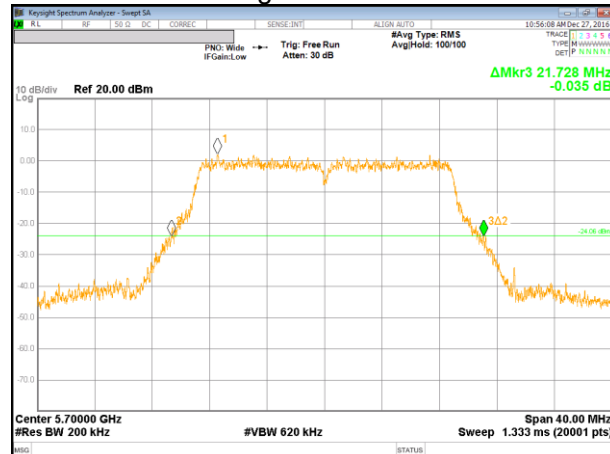
11n HT20 Mode Low Channel



11n HT20 Mode Middle Channel

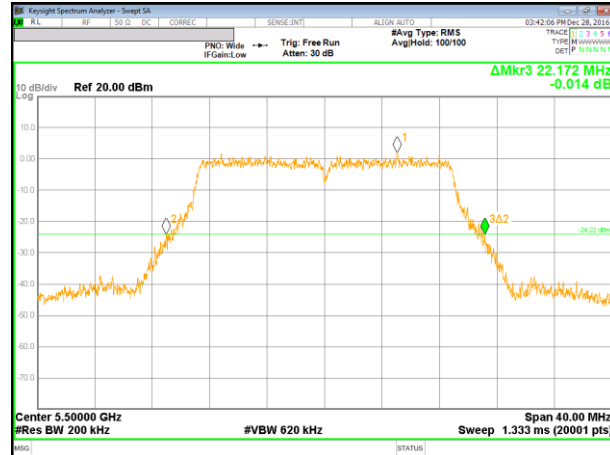


11n HT20 Mode High Channel



UNII 5.5 GHz IEEE 802.11ac VHT20 mode

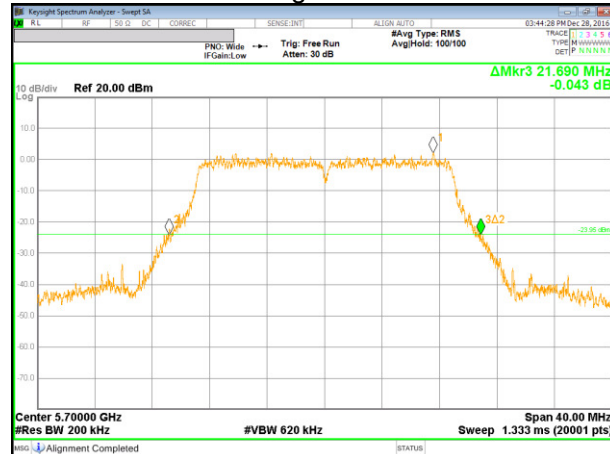
11ac VHT20 Mode Low Channel



11ac VHT20 Mode Middle Channel

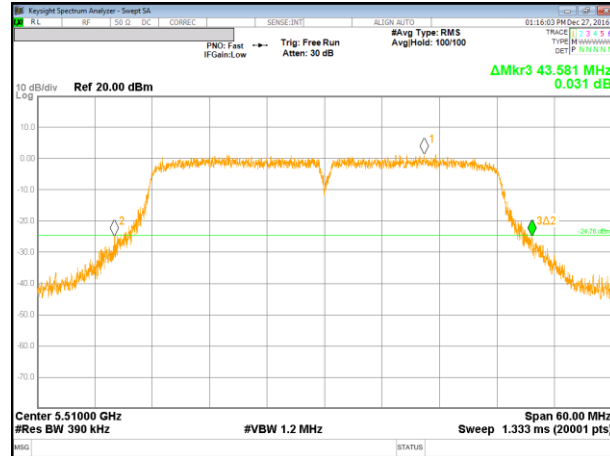


11ac VHT20 Mode High Channel

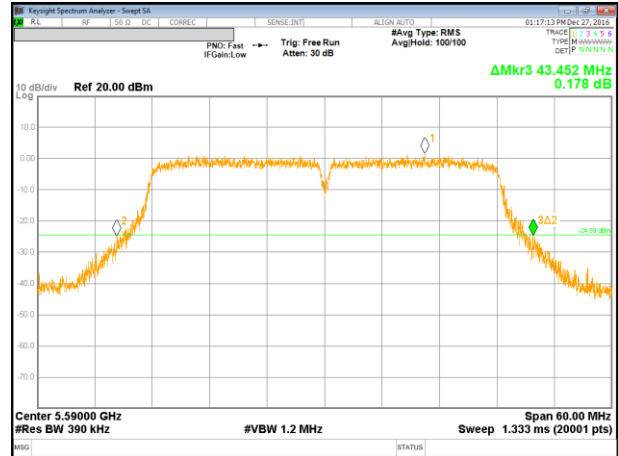


UNII 5.5 GHz IEEE 802.11n HT40 mode

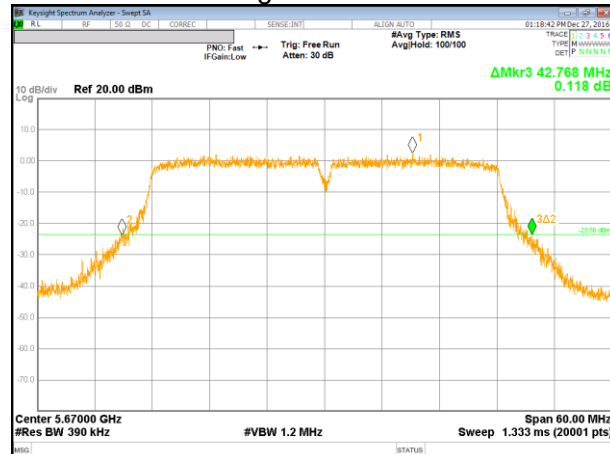
11n HT40 Mode Low Channel



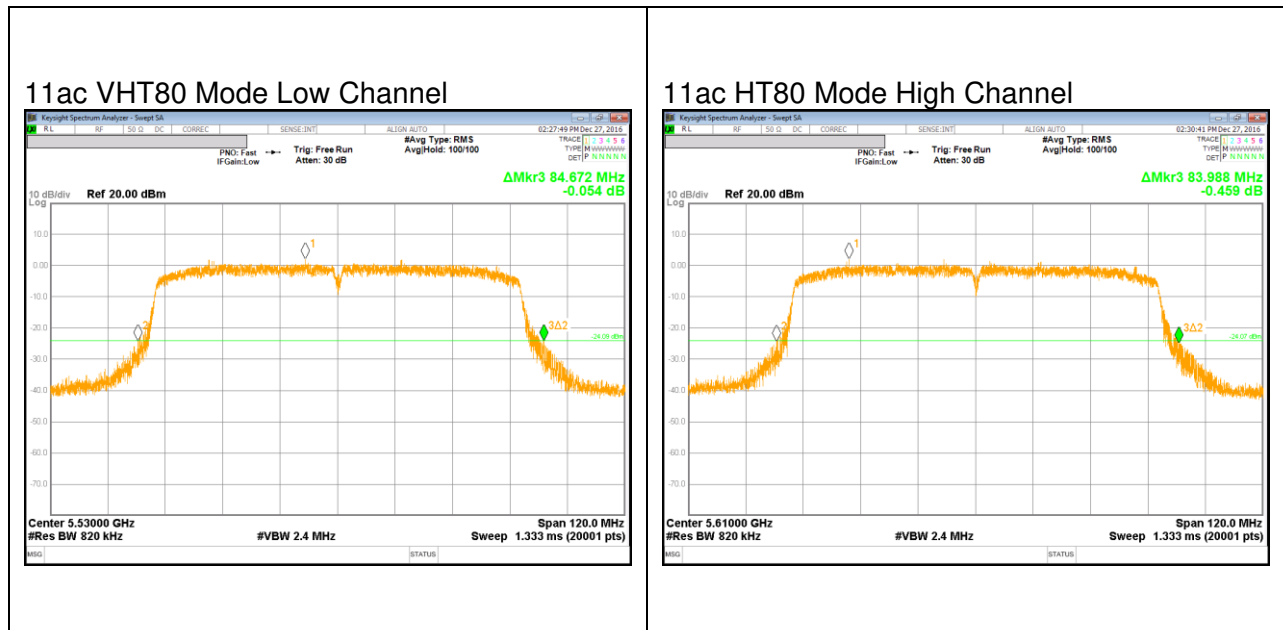
11n HT40 Mode Middle Channel



11n HT40 Mode High Channel



UNII 5.5 GHz IEEE 802.11ac VHT80 mode

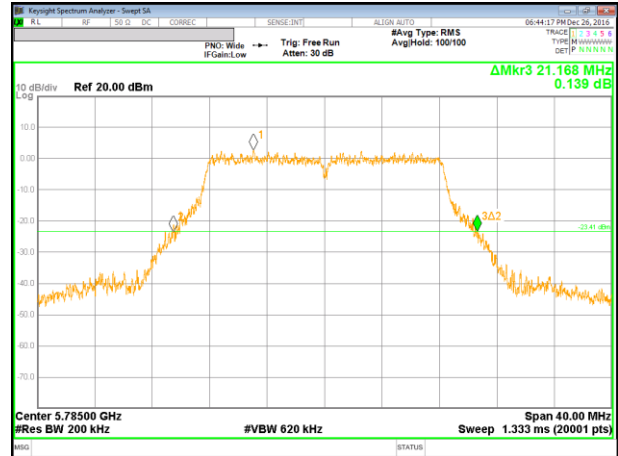


UNII 5.8 GHz IEEE 802.11a mode

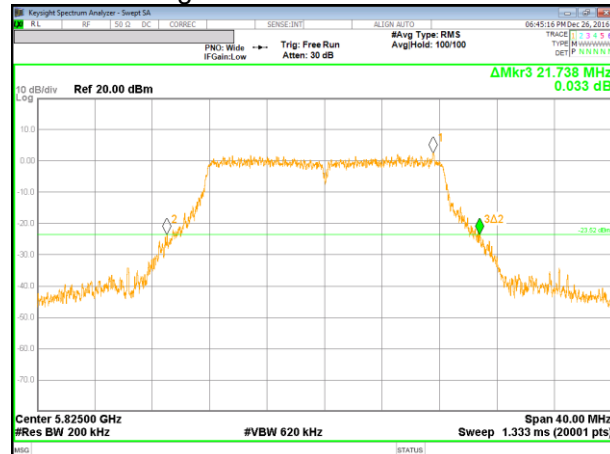
11a Mode Low Channel



11a Mode Middle Channel

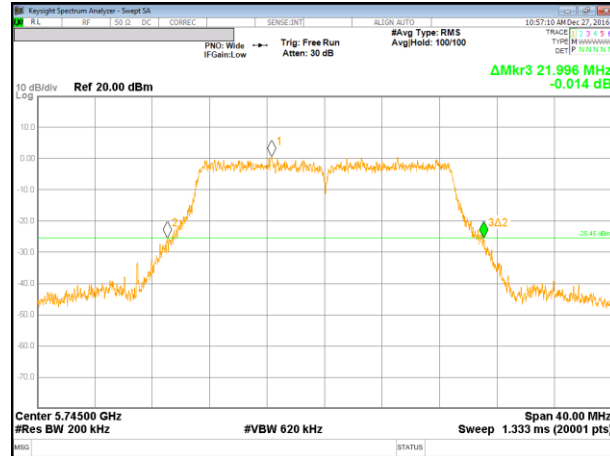


11a Mode High Channel

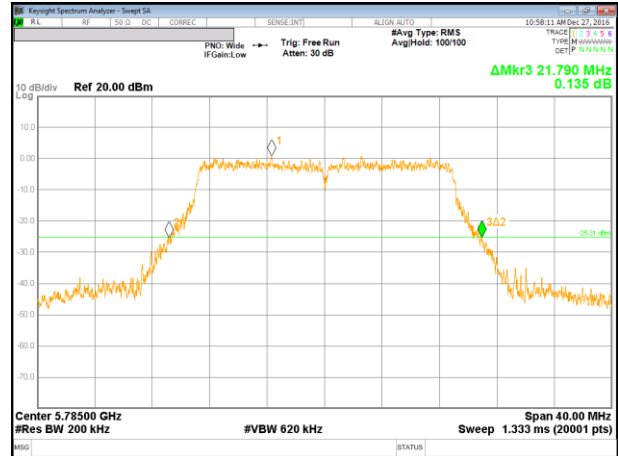


UNII 5.8 GHz IEEE 802.11n HT20 mode

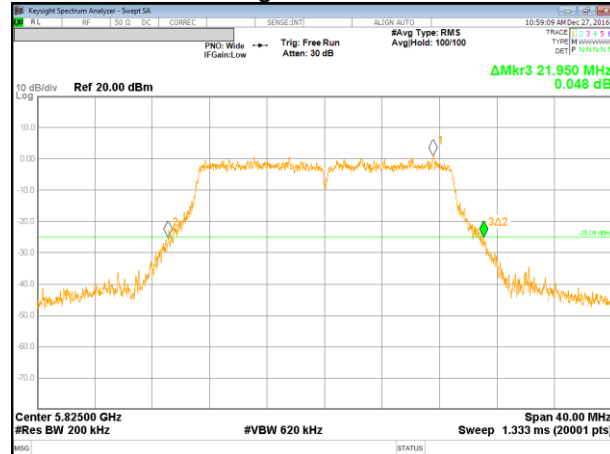
11n HT20 Mode Low Channel



11n HT20 Mode Middle Channel



11n HT20 Mode High Channel



UNII 5.8 GHz IEEE 802.11ac VHT20 mode

11ac VHT20 Mode Low Channel



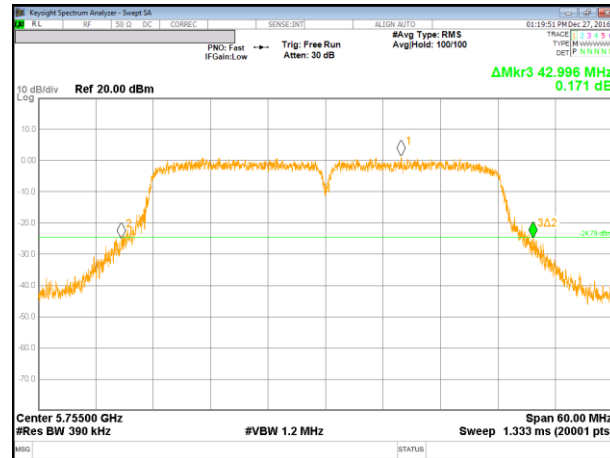
11ac VHT20 Mode Middle Channel



11ac VHT20 Mode High Channel



11n HT40 Mode Low Channel



Keysight Spectrum Analyzer - Sample File

RL RF SUI DC CORREC SENSE UNIT ALIGN AUTO AVERG

01:20:54 PM Dec 27, 2018

Trace 1: 1 2 3 4 5 6

TYPE: IF (ANALYSIS)

DET: P

PNO: Fast Trg: Free Run Avg Type: RMS

IF Gain: Low Atten: 30 dB Avg Hold: 100/100

$\Delta Mkr3$ 42.711 MHz 0.013 dB

Ref 20.00 dBm

10.0 dBm

0.00

-10.0

-20.0

-30.0

-40.0

-50.0

-60.0

-70.0

1.98

25.96 dBm

Center 5.79500 GHz

#Res BW 390 kHz

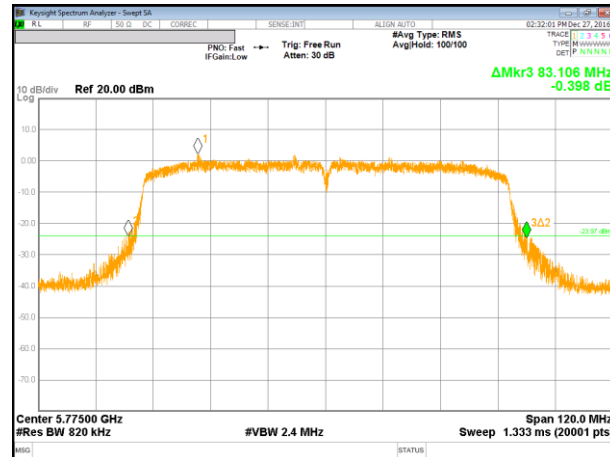
#VBW 1.2 MHz

Span 60.00 MHz

Sweep 1.333 ms (20001 pts)

MSG STATUS

11ac VHT80 Mode Middle Channel



10.3. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

10.3.1. 802.11a MODE IN THE 5.2 GHz BAND

Channel	Frequency [MHz]	99% Bandwidth [MHz]
Low	5180	16.554
Mid	5200	16.570
High	5240	16.567
Worst		16.570

10.3.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

Channel	Frequency [MHz]	99% Bandwidth [MHz]
Low	5180	17.729
Mid	5200	17.756
High	5240	17.766
Worst		17.766

10.3.3. 802.11ac VHT20 MODE IN THE 5.2 GHz BAND

Channel	Frequency [MHz]	99% Bandwidth [MHz]
Low	5180	17.741
Mid	5200	17.777
High	5240	17.725
Worst		17.777

10.3.4. 802.11n HT40 MODE IN THE 5.2 GHz BAND

Channel	Frequency [MHz]	99% Bandwidth [MHz]
Low	5190	36.114
High	5230	36.113
Worst		36.114

10.3.5. 802.11ac VHT80 MODE IN THE 5.2 GHz BAND

Channel	Frequency [MHz]	99% Bandwidth [MHz]
Middle	5210	74.913
Worst		74.913

10.3.6. 802.11a MODE IN THE 5.3 GHz BAND

Channel	Frequency [MHz]	99% Bandwidth [MHz]
Low	5260	16.571
Mid	5300	16.560
High	5320	16.573
Worst		16.573

10.3.7. 802.11n HT20 MODE IN THE 5.3 GHz BAND

Channel	Frequency [MHz]	99% Bandwidth [MHz]
Low	5260	17.743
Mid	5300	17.743
High	5320	17.769
Worst		17.769

10.3.8. 802.11ac VHT20 MODE IN THE 5.3 GHz BAND

Channel	Frequency [MHz]	99% Bandwidth [MHz]
Low	5260	17.762
Mid	5300	17.743
High	5320	17.742
Worst		17.762

10.3.9. 802.11n HT40 MODE IN THE 5.3 GHz BAND

Channel	Frequency [MHz]	99% Bandwidth [MHz]
Low	5270	36.086
High	5310	36.016
Worst		36.086

10.3.10. 802.11ac VHT80 MODE IN THE 5.3 GHz BAND

Channel	Frequency [MHz]	99% Bandwidth [MHz]
Middle	5290	75.027
Worst		75.027

10.3.11. 802.11a MODE IN THE 5.5 GHz BAND

Channel	Frequency [MHz]	99% Bandwidth [MHz]
Low	5500	16.576
Mid	5580	16.563
High	5700	16.571
Worst		16.576

10.3.12. 802.11n HT20 MODE IN THE 5.5 GHz BAND

Channel	Frequency [MHz]	99% Bandwidth [MHz]
Low	5500	17.767
Mid	5580	17.764
High	5700	17.733
Worst		17.767

10.3.13. 802.11ac VHT20 MODE IN THE 5.5 GHz BAND

Channel	Frequency [MHz]	99% Bandwidth [MHz]
Low	5500	17.769
Mid	5580	17.768
High	5700	17.742
Worst		17.769

10.3.14. 802.11n HT40 MODE IN THE 5.5 GHz BAND

Channel	Frequency [MHz]	99% Bandwidth [MHz]
Low	5510	36.123
Mid	5590	36.079
High	5670	36.062
Worst		36.123

10.3.15. 802.11ac VHT80 MODE IN THE 5.5 GHz BAND

Channel	Frequency [MHz]	99% Bandwidth [MHz]
Low	5530	75.061
High	5610	75.069
Worst		75.069

10.3.16. 802.11a MODE IN THE 5.8 GHz BAND

Channel	Frequency [MHz]	99% Bandwidth [MHz]
Low	5745	16.579
Mid	5785	16.566
High	5825	16.577
Worst		16.579

10.3.17. 802.11n HT20 MODE IN THE 5.8 GHz BAND

Channel	Frequency [MHz]	99% Bandwidth [MHz]
Low	5745	17.755
Mid	5785	17.753
High	5825	17.771
Worst		17.771

10.3.18. 802.11n HT20 MODE IN THE 5.8 GHz BAND

Channel	Frequency [MHz]	99% Bandwidth [MHz]
Low	5745	17.770
Mid	5785	17.742
High	5825	17.749
Worst		17.770

10.3.19. 802.11n HT40 MODE IN THE 5.8 GHz BAND

Channel	Frequency [MHz]	99% Bandwidth [MHz]
Low	5755	36.128
High	5795	36.118
Worst		36.128

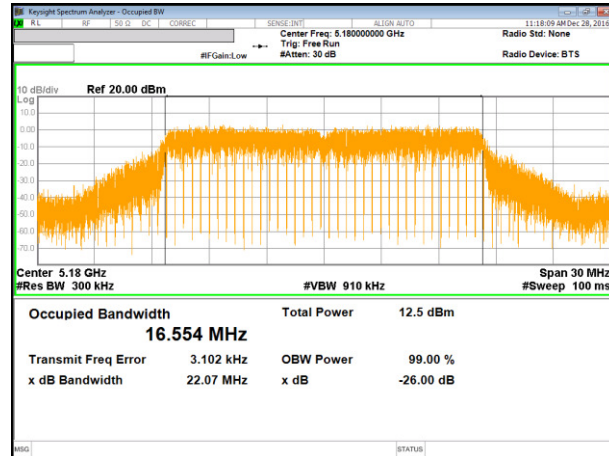
10.3.20. 802.11ac VHT80 MODE IN THE 5.8 GHz BAND

Channel	Frequency [MHz]	99% Bandwidth [MHz]
Middle	5775	75.081
Worst		75.081

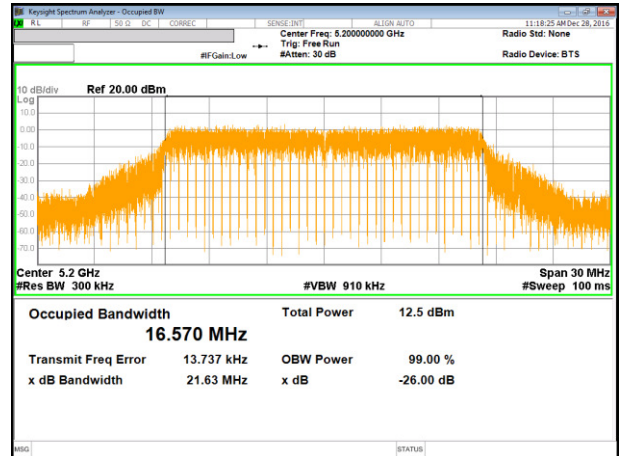
10.3.21. 99% BANDWIDTH PLOTS

UNII 5.2 GHz IEEE 802.11a mode

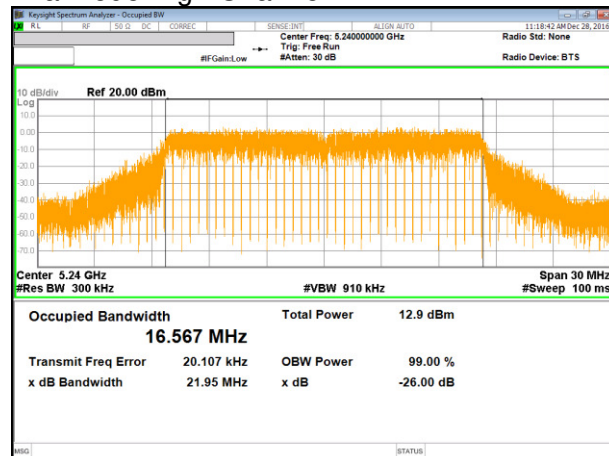
11a Mode Low Channel



11a Mode Middle Channel

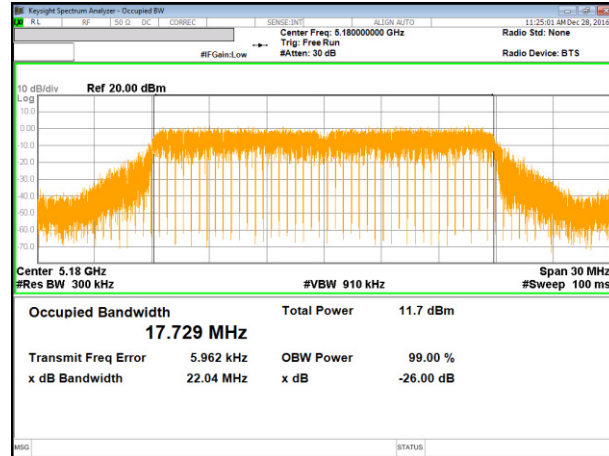


11a Mode High Channel

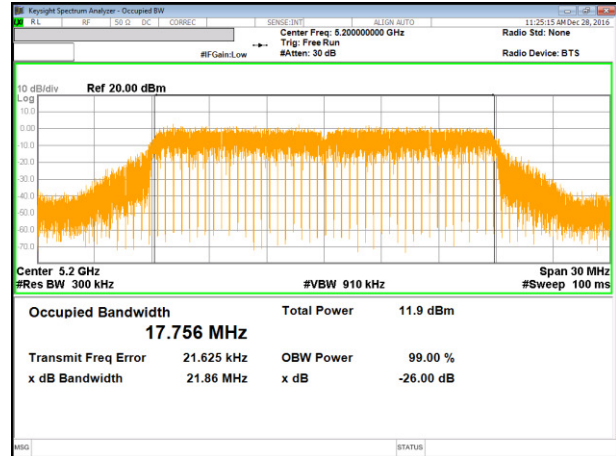


UNII 5.2 GHz IEEE 802.11n HT20 mode

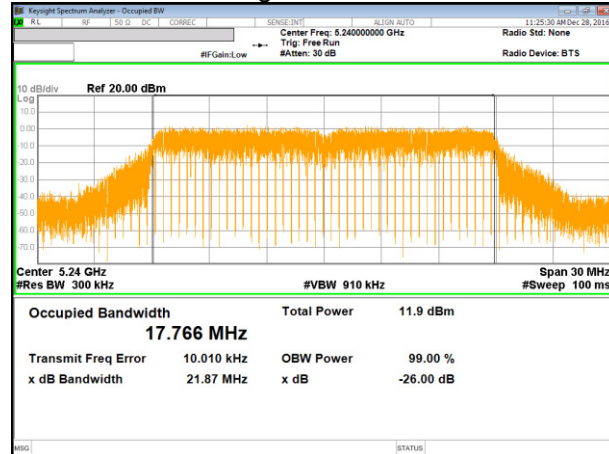
11n HT20 Mode Low Channel



11n HT20 Mode Middle Channel

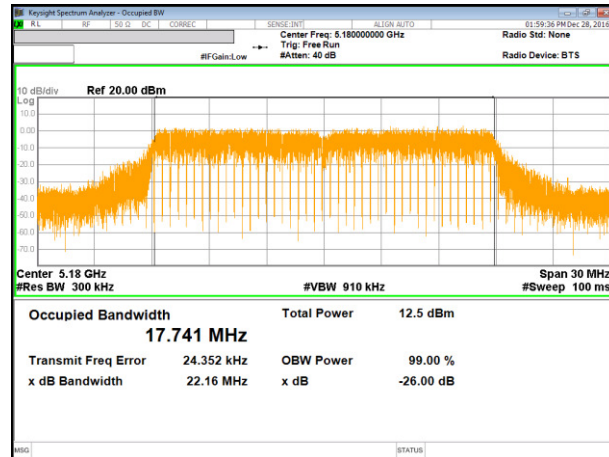


11n HT20 Mode High Channel

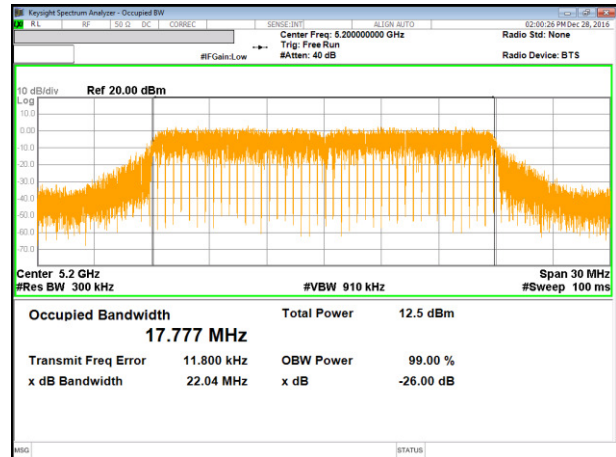


UNII 5.2 GHz IEEE 802.11ac VHT20 mode

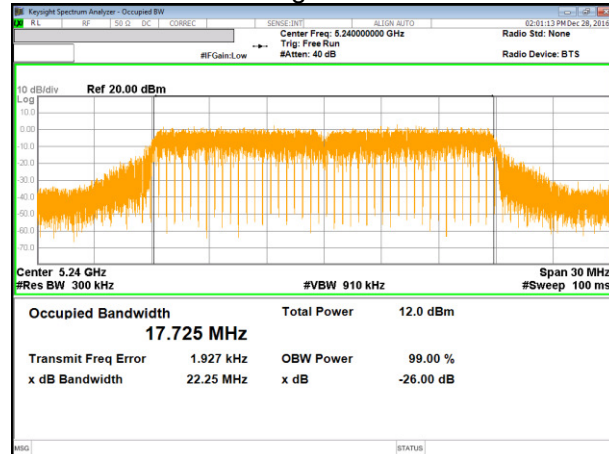
11ac VHT20 Mode Low Channel



11ac VHT20 Mode Middle Channel

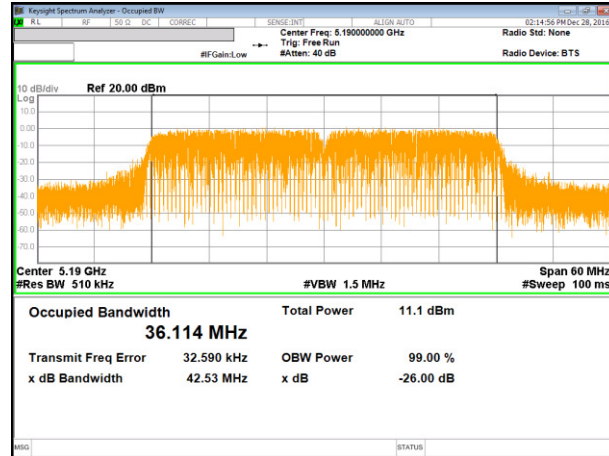


11ac VHT20 Mode High Channel

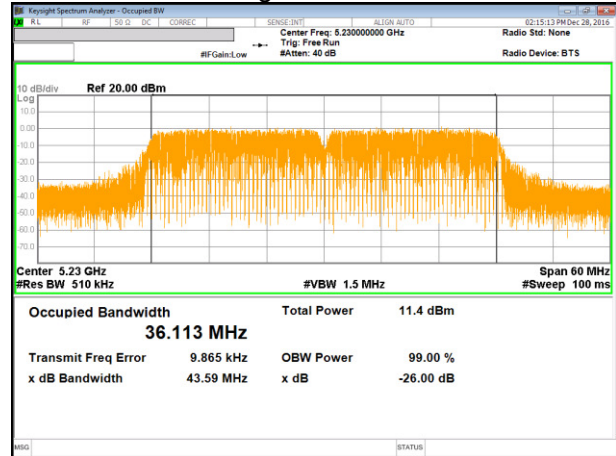


UNII 5.2 GHz IEEE 802.11n HT40 mode

11n HT40 Mode Low Channel



11n HT40 Mode High Channel



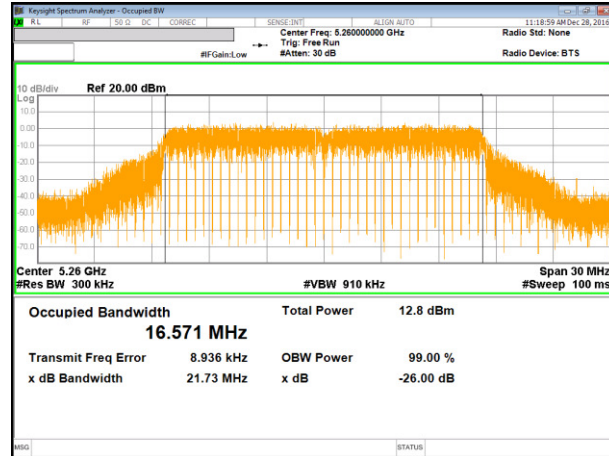
UNII 5.2 GHz IEEE 802.11ac VHT80 mode

11ac HT80 Mode Middle Channel

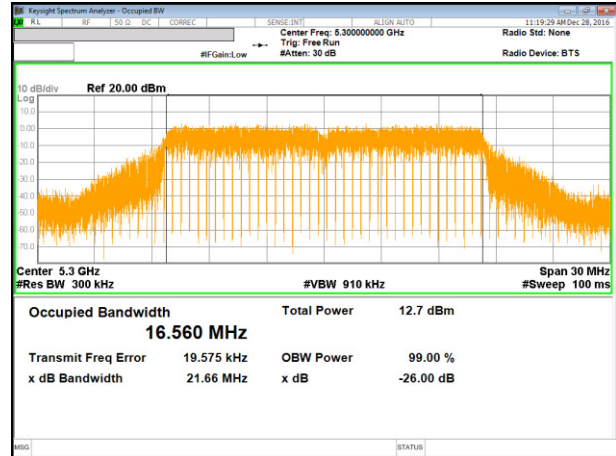


UNII 5.3 GHz IEEE 802.11a mode

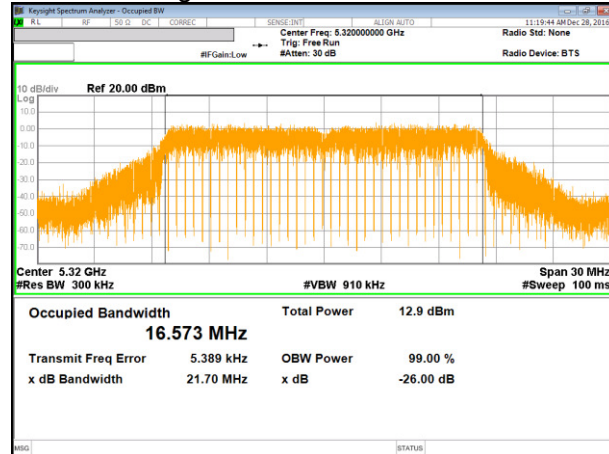
11a Mode Low Channel



11a Mode Middle Channel

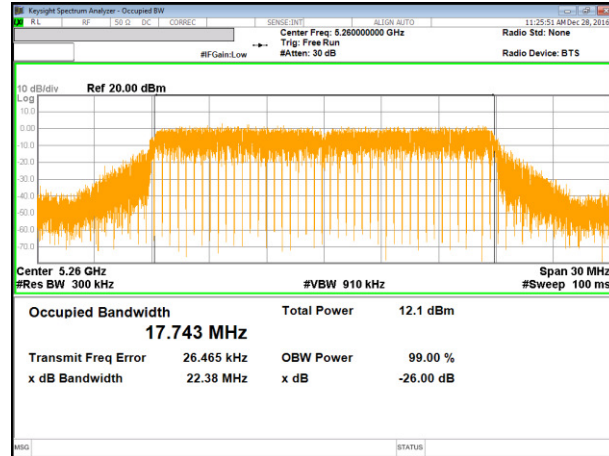


11a Mode High Channel

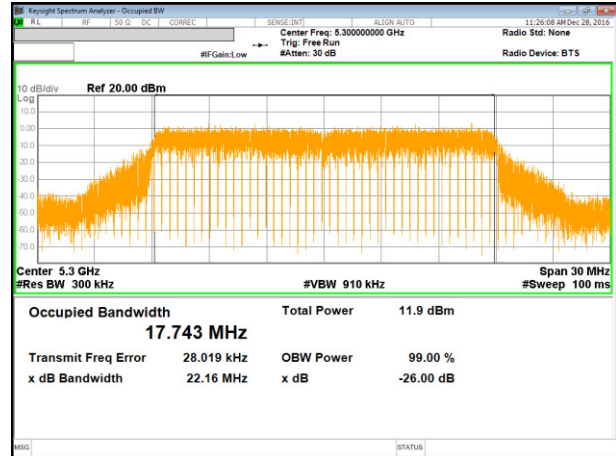


UNII 5.3 GHz IEEE 802.11n HT20 mode

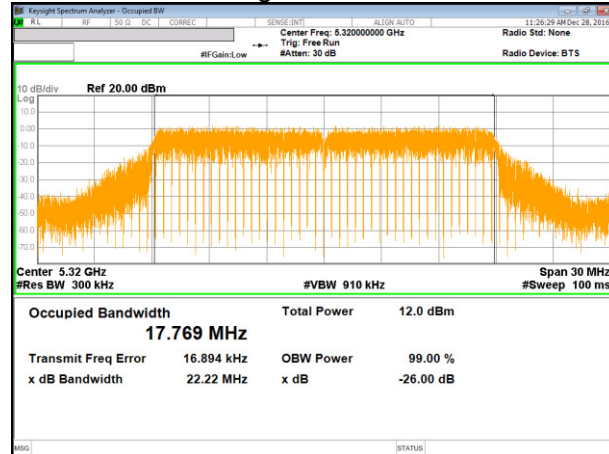
11n HT20 Mode Low Channel



11n HT20 Mode Middle Channel

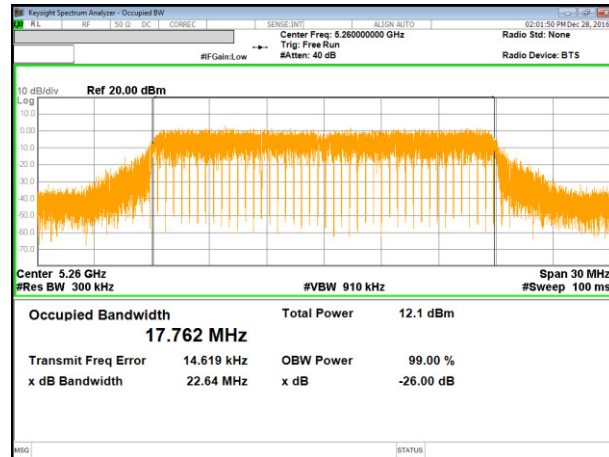


11n HT20 Mode High Channel

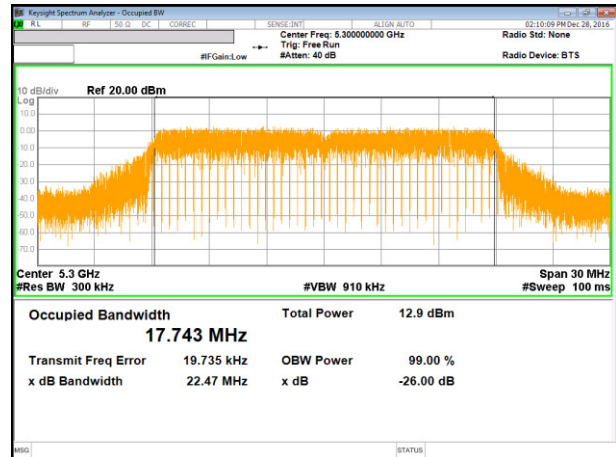


UNII 5.3 GHz IEEE 802.11ac VHT20 mode

11ac VHT20 Mode Low Channel



11ac VHT20 Mode Middle Channel



11ac VHT20 Mode High Channel

