

RF Test Report

U-NII 802.11a/n/ac

Report No. : RF200511K004-5 R3
Customer : Samsung Electronics Co., Ltd.
Address : 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do,
16677, Korea
Use of Report : Certification
Model Name : SM-T970
FCC ID / IC : A3LSMT970 / 649E-SMT970
Date of Test : 2020.06.01 to 2020.07.15
Test Method Used : FCC 47 CFR PART 15 Subpart E (Section §15.407) /
ISED RSS-247
Testing Environment : Refer to the Test Condition

Test Result : Pass Fail

ISSUED BY: BV CPS ADT Korea Ltd., EMC/RF Laboratory

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2020. 07. 16

BV CPS ADT Korea Ltd.

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RELEASE CONTROL RECORD

REPORT NO.	REASON FOR CHANGE	DATE ISSUED
RF200511K004-5	Original release	2020.07.01
RF200511K004-5 R1	Revised information about test and Changed worst case of U-NII-1 & 2A of 40 MHz BW.	2020.07.08
RF200511K004-5 R2	Corrected the regarding distance extrapolation factor and added statement about using DFS mechanism	2020.07.15
RF200511K004-5 R3	Added data converted to magnetic field strength	2020.07.16

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1 Summary of Test Results

The EUT has been tested according to the following specifications

Applied Standard : FCC Part 15, Subpart E 15.407, RSS-247					
FCC Part Section(s)	RSS Section(s)	Test Description	Limit	Test Result	Reference
N/A	RSS-Gen [6.6]	26 dB Bandwidth	N/A	PASS	Section 2.5
15.407(e)	RSS-Gen [6.6]	6 dB Bandwidth	> 500 kHz (5 725 – 5 850 MHz)	PASS	Section 3.2
-	-	Occupied Bandwidth (99 % Bandwidth)	N/A	PASS	Section 2.5
15.407(a)(1)(iv) 15.407(a)(2) 15.407(a)(3)	RSS-247 [6.2]	Maximum Conducted Output Power	Maximum Conducted power must meet the limits in 15.407(a) (RSS-247 [6.2])	PASS	Section 3.3
15.407(a)(1)(iv) 15.407 (a)(2) 15.407 (a)(3)	RSS-247 [6.2]	Maximum Power Spectral Density	Maximum Conducted power must meet the limits in 15.407(a) (RSS-247 [6.2])	PASS	Section 3.4
15.407(h)	RSS-247 [6.3]	Dynamic Frequency Selection	Refer to the Section 4.	PASS	Section 4
15.407(b)(1), (2),(3),(4)	RSS-247 [6.2]	Undesirable Emissions	Undesirable emissions must meet the limits detailed in 15.407(b) (RSS-247 [6.2])	PASS	Section 3.5
15.205 15.407(b)(1), (4), (5), (6)	RSS-Gen [8.9]	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	Emissions in restricted bands must meet the radiated limits detailed in 15.209 (RSS-Gen [8.9])	PASS	Section 3.5
15.407	RSS-Gen [8.8]	AC Conducted Emissions (150 kHz – 30 MHz)	< FCC 15.207 (RSS-Gen [8.8]) Limits	PASS	Section 3.6

NOTES

- 1) The general test methods used to test on this devices are ANSI C63.10.
- 2) Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

1.1 Introduction of Test Data Reuse

This report referenced from the FCC ID : A3LSMT975 and the applicant takes full responsibility that test data as referenced in this report represent compliance for this FCC ID.

1.2 Difference

The FCC ID : A3LSMT970 shared the same enclosure and circuit board as FCC ID: A3LSMT975. The WLAN/BT antennas and surrounding circuitry and layout are identical between these two units.

After confirming through preliminary radiated emission that the performance of the FCC ID: A3LSMT975 remains representative of FCC ID : A3LSMT970. In addition, FCC ID : A3LSMT970 uses the same DFS mechanism as FCC ID : A3LSMT975. The test data of FCC ID: A3LSMT975 being submitted for this application to cover the feature.

1.3 Spot Check Verification Results

Frequency Band	Test Item	Test Mode	Measured Frequency (MHz)	Original Model	Spot Check Model	Limit [dBuV/m]	Deviation (dB)	Remark
				SM-T975	SM-T970			
				FCC ID :A3LSMT975	FCC ID :A3LSMT970			
UNII WLAN (5 GHz)	Band Edge	MIMO_UNII-1_802.11a_5180	5 180	49.72 dBuV/m	44.29 dBuV/m	54.00	-5.43	
	RSE	MIMO_UNII-1_802.11a_5180	5 180	41.00 dBuV/m	40.25 dBuV/m	74.00	-0.75	2nd Harmonic
	Band Edge	MIMO_UNII-2A_802.11ac(VHT80)_5290	5 290	48.29 dBuV/m	44.17 dBuV/m	54.00	-4.14	
	RSE	MIMO_UNII-2A_802.11ac(VHT80)_5290	5 290	36.83 dBuV/m	37.81 dBuV/m	74.00	0.98	2nd Harmonic
	Band Edge	MIMO_UNII-2C_802.11n(HT40)_5510	5 510	41.92 dBuV/m	38.13 dBuV/m	54.00	-3.89	
	RSE	MIMO_UNII-2C_802.11n(HT40)_5510	5 510	38.35 dBuV/m	38.03 dBuV/m	74.00	-0.32	2nd Harmonic
	Band Edge	MIMO_UNII-3_802.11a_5745	5 745	77.25 dBuV/m	66.76 dBuV/m	74.00	-10.49	
	RSE	MIMO_UNII-3_802.11a_5745	5 745	41.17 dBuV/m	40.18 dBuV/m	74.00	-0.99	2nd Harmonic

Comparison result of two models, upper deviation is within 3 dB and all test results are under FCC Technical Limits.

1.4 Reference Details

Equipment Class	Reference FCC ID (Parent)	Application Type	Reference Test report number	Exhibit Type	Variant Test Report Number	Data Re-used
DTS	A3LSMT975	Original Grant	RF200522K003-2 (802.11b/g/n/ac)	Test Report	RF200511K004-2 (802.11b/g/n/ac)	All
			RF200522K003-3 (802.11ax)	Test Report	RF200511K004-3 (802.11ax)	All
			RF200522K003-1 Bluetooth LE	Test Report	RF200511K004-1 Bluetooth LE	All
DSS	A3LSMT975	Original Grant	RF200522K003 (Bluetooth)	Test Report	RF200511K004 (Bluetooth)	All
NII	A3LSMT975	Original Grant	RF200522K003-6 (802.11a/n/ac)	Test Report	RF200511K004-5 (802.11a/n/ac)	All
			RF200522K003-7 (802.11ax)	Test Report	RF200511K004-6 (802.11ax)	All
DCD	A3LSMT975	Original Grant	RF200522K003-4 (WPT)	Test Report	RF200511K004-4 (WPT)	All

1.5 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2

Measurement Items	Frequency Range	Expanded Uncertainty $U = kU_c (k = 2)$
Conducted Emissions at main ports	150 kHz – 30 MHz	2.62
Radiated Spurious Emissions	9 kHz – 30 MHz	1.97
	30 MHz – 1 GHz	4.04
	1 GHz – 18 GHz	5.38
	18 GHz – 40 GHz	5.18

This uncertainty represents an expanded uncertainty expressed at approximately the 95 % confidence level using a coverage factor of $k = 2$.

2 General Information

2.1 General Description of EUT

Product	Tablet
Brand	Samsung
Model	SM-T970
Identification No. of EUT	-
Series Model	-
Model Difference	-
Power Supply	3.86 V DC By Battery / DC 5/9 V By Adapter
Modulation Type	OFDM
Transfer Rate	6, 9, 12, 18, 24, 36, 48, 54 Mbps (802.11a) MCS0 to MCS7 (802.11n) MCS0 to MCS9 (802.11ac)
Operating Frequency	5 180 to 5 240 MHz (U-NII-1) 5 260 to 5 320 MHz (U-NII-2A) 5 500 to 5 720 MHz (U-NII-2C) 5 745 to 5 825 MHz (U-NII-3)
Number of Channel	4 / 2 / 1 Channels (U-NII-1)_20 / 40 / 80 MHz BW 4 / 2 / 1 Channels (U-NII-2A)_20 / 40 / 80 MHz BW 11 / 7 / 3 Channels (U-NII-2C)_20 / 40 / 80 MHz BW 1 / 1 / 1 Channels (Straddle)_20 / 40 / 80 MHz BW 5 / 2 / 1 Channels (U-NII-3)_20 / 40 / 80 MHz BW
Output Power	20.88 dBm
Antenna Type	Metal Antenna
Antenna Connector	C-Clip
H/W Version	REV0.4
S/W Version	T970.001

NOTES

- 1) The above equipment has been tested by **Bureau Veritas Consumer Products Services ADT Korea**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.
- 2) The EUT incorporates a MIMO function. Physically, the EUT provides 2 completed transmitters and 2 receivers. The modulations and bandwidth are similar for 802.11n mode for 20 MHz / 40 MHz and 802.11ac mode for 20 MHz / 40 MHz, therefore investigated worst case to representative mode in test report.

Frequency Range	Test Mode	Antenna 1	Antenna 2
5 GHz U-NII Band (5 150 to 5 850 MHz)	802.11a_SISO	TX/RX	TX/RX
	802.11n(HT20)_SISO	TX/RX	TX/RX
	802.11n(HT40)_SISO	TX/RX	TX/RX
	802.11ac(VHT20)_SISO	TX/RX	TX/RX
	802.11ac(VHT40)_SISO	TX/RX	TX/RX
	802.11ac(VHT80)_SISO	TX/RX	TX/RX
	802.11a_MIMO	TX/RX	TX/RX
	802.11n(HT20)_MIMO	TX/RX	TX/RX
	802.11n(HT40)_MIMO	TX/RX	TX/RX
	802.11ac(VHT20)_MIMO	TX/RX	TX/RX
	802.11ac(VHT40)_MIMO	TX/RX	TX/RX
	802.11ac(VHT80)_MIMO	TX/RX	TX/RX

3) The following antennas were provided to the EUT

Antenna	Type	Connector	Peak Gain (dBi)				
			2.4 GHz	U-NII-1	U-NII-2A	U-NII-2C	U-NII-3
Antenna 1	Metal Antenna	Internal	-5.71	-8.45	-6.15	-6.05	-8.65
Antenna 2	Metal Antenna	Internal	-6.52	-8.84	-8.46	-8.57	-7.70

4) Spurious emission of the simultaneous operation RSDB mode and the test data please refer to clause 3.5.5.5 in this test report.

5) List of Accessories

Accessories	Brand	Model	Manufacturer	Specification
Ear phone	Samsung	EHS64	Samsung	3.5 mm
S-pen	Samsung	EJ-PT870	Samsung	Bluetooth
Keyboard	Samsung	EF-DT970	Samsung	N/A
TA	Samsung	EP-TA200	Samsung	Input : AC 100-240 V, 50 – 60 Hz, 0.5 A Output : DC 9.0 V, 1.67 A, DC5.0 V, 2.0 A
Cable	Samsung	EP-DG930M	Samsung	A to C type, Shielded, 1.m
Battery	Samsung	EB-BT975ABY	Samsung	Rating: 3.86Vdc, 9800mAh, 37.83Wh

2.2 Description of Test Mode

[Test Channel of EUT]

- 5 GHz 802.11a/n/ac/ax (20 MHz BW)

U-NII-1		U-NII-2A		U-NII-2C		U-NII-3	
Channel	Frequency [MHz]	Channel	Frequency [MHz]	Channel	Frequency [MHz]	Channel	Frequency [MHz]
36	5 180	52	5 260	100	5 500	149	5 745
40	5 200	56	5 280	104	5 520	153	5 765
44	5 220	60	5 300	108	5 540	157	5 785
48	5 240	64	5 320	112	5 560	161	5 805
				116	5 580	165	5 825
				120	5 600		
				124	5 620		
				128	5 640		
				132	5 660		
				136	5 680		
				140	5 700		
				144	5 720		

- 5 GHz 802.11n/ac/ax (40 MHz BW)

U-NII-1		U-NII-2A		U-NII-2C		U-NII-3	
Channel	Frequency [MHz]	Channel	Frequency [MHz]	Channel	Frequency [MHz]	Channel	Frequency [MHz]
38	5 190	54	5 270	102	5 510	151	5 755
46	5 230	62	5 310	110	5 550	159	5 795
				118	5 590		
				126	5 630		
				134	5 670		
				142	5 710		

- 5 GHz 802.11ac/ax (80 MHz BW)

U-NII-1		U-NII-2A		U-NII-2C		U-NII-3	
Channel	Frequency [MHz]	Channel	Frequency [MHz]	Channel	Frequency [MHz]	Channel	Frequency [MHz]
42	5 210	58	5 290	106	5 530	155	5 775
				122	5 610		
				138	5 690		

2.2.1 Test Mode Applicability and Tested Channel Details

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports. The worst case was found when positioned on X axis for radiated emission. Following channel(s) was(were) selected for the final test as listed below :

EUT Configure mode	Applicable to				Description
	RE < 1G	RE ≥ 1G	PLC	APCM	
-	√	√	√	√	-

Where RE ≥ 1 G : Radiated Emission above 1 GHz & Bandedge Measurement

RE < 1 G : Radiated Emission below 1 GHz

PLC : Power Line Conducted Emission

APCM : Antenna Port Conducted Measurement

Radiated Emission Test (Below 1 GHz)

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, XYZ axis, antenna ports (if EUT with antenna diversity architecture) and data rate.
- Following channel(s) was (were) selected for the final test as listed below.

Frequency Band	EUT mode	Available Channel	Tested Channel	Modulation Type	Data Rate
U-NII-1 (5 180 - 5 240)	802.11a	36 to 48	36	OFDM	6 Mbps
U-NII-2A (5 260 - 5 320)	802.11a	52 to 64	64	OFDM	6 Mbps
U-NII-2C (5 500 - 5 700)	802.11a	100 to 140	100	OFDM	6 Mbps
U-NII-3 (5 745 - 5 825)	802.11a	149 to 165	149	OFDM	6 Mbps

Radiated Emission Test (Above 1 GHz)

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, XYZ axis, antenna ports (if EUT with antenna diversity architecture) and data rate.
- Following channel(s) was (were) selected for the final test as listed below.

Frequency Band	EUT mode	Available Channel	Tested Channel	Modulation Type	Data Rate
U-NII-1 (5 180 - 5 240)	802.11a	36 to 48	36, 44, 48	OFDM	6 Mbps
	802.11n(HT20)	36 to 48	36, 44, 48	OFDM	MCS0
	802.11ac(VHT40)	38 to 46	38, 46	OFDM	MCS0
	802.11ac(VHT80)	42	42	OFDM	MCS0
U-NII-2A (5 260 - 5 320)	802.11a	52 to 64	52, 60, 64	OFDM	6 Mbps
	802.11n(HT20)	52 to 64	52, 60, 64	OFDM	MCS0
	802.11ac(VHT40)	54 to 62	54, 62	OFDM	MCS0
	802.11ac(VHT80)	58	58	OFDM	MCS0
U-NII-2C (5 500 - 5 700)	802.11a	100 to 140	100, 120, 140	OFDM	6 Mbps
	802.11n(HT20)	100 to 140	100, 120, 140	OFDM	MCS0
	802.11n(HT40)	102 to 134	102, 118, 134	OFDM	MCS0
	802.11ac(VHT80)	106	106, 122	OFDM	MCS0
Straddle	802.11a	144	144	OFDM	6 Mbps
	802.11n(HT20)	144	144	OFDM	MCS0
	802.11n(HT40)	142	142	OFDM	MCS0
	802.11ac(VHT80)	138	138	OFDM	MCS0
U-NII-3 (5 745 – 5 825)	802.11a	149 to 165	149, 161, 165	OFDM	6 Mbps
	802.11n(HT20)	149 to 165	149, 161, 165	OFDM	MCS0
	802.11n(HT40)	151 to 159	151, 159	OFDM	MCS0
	802.11ac(VHT80)	155	155	OFDM	MCS0

Power line Conducted Emission Test

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, XYZ axis, antenna ports (if EUT with antenna diversity architecture) and data rate.
- Following channel(s) was (were) selected for the final test as listed below.

Frequency Band	EUT mode	Available Channel	Tested Channel	Modulation Type	Data Rate
U-NII-1 (5 180 - 5 240)	802.11a	36 to 48	36, 44, 48	OFDM	6 Mbps

Antenna Port Conducted Measurement

- This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, antenna ports (if EUT with antenna diversity architecture), and data rate.
- Following channel(s) was (were) selected for the final test as listed below.

Frequency Band	EUT mode	Available Channel	Tested Channel	Modulation Type	Data Rate
U-NII-1 (5 180 - 5 240)	802.11a	36 to 48	36, 44, 48	OFDM	6 Mbps
	802.11n(HT20)	36 to 48	36, 44, 48	OFDM	MCS0
	802.11ac(VHT40)	38 to 46	38, 46	OFDM	MCS0
	802.11ac(VHT80)	42	42	OFDM	MCS0
U-NII-2A (5 260 - 5 320)	802.11a	52 to 64	52, 60, 64	OFDM	6 Mbps
	802.11n(HT20)	52 to 64	52, 60, 64	OFDM	MCS0
	802.11ac(VHT40)	54 to 62	54, 62	OFDM	MCS0
	802.11ac(VHT80)	58	58	OFDM	MCS0
U-NII-2C (5 500 - 5 700)	802.11a	100 to 140	100, 120, 140	OFDM	6 Mbps
	802.11n(HT20)	100 to 140	100, 120, 140	OFDM	MCS0
	802.11n(HT40)	102 to 134	102, 118, 134	OFDM	MCS0
	802.11ac(VHT80)	106	106, 122	OFDM	MCS0
Straddle	802.11a	144	144	OFDM	6 Mbps
	802.11n(HT20)	144	144	OFDM	MCS0
	802.11n(HT40)	142	142	OFDM	MCS0
	802.11ac(VHT80)	138	138	OFDM	MCS0
U-NII-3 (5 745 - 5 825)	802.11a	149 to 165	149, 161, 165	OFDM	6 Mbps
	802.11n(HT20)	149 to 165	149, 161, 165	OFDM	MCS0
	802.11n(HT40)	151 to 159	151, 159	OFDM	MCS0
	802.11ac(VHT80)	155	155	OFDM	MCS0

Test Condition

Applicable to	Environmental Conditions	Test Voltage	Tested by
RE < 1G	22 °C, 55 % RH	DC 5/9 V By Adaptor	Sooyeon Kim
RE ≥ 1G	22 °C, 55 % RH	DC 5/9 V By Adaptor	Sooyeon Kim
PLC	23 °C, 49 % RH	DC 5/9 V By Adaptor	Sooyeon Kim
APCM	22 °C, 51 % RH	DC 5/9 V By Adaptor	Sooyeon Kim

2.3 Maximum Output Power

Frequency Range [MHz]	Test Mode	Output Power [dBm]	Output Power [mW]
5 180 - 5 240	802.11a MIMO	20.74	118.51
	802.11n(HT20) MIMO	19.30	85.12
5 190 - 5 230	802.11ac(VHT40) MIMO	17.34	54.20
5 210	802.11ac(VHT80) MIMO	16.27	42.34
5 260 - 5 320	802.11a MIMO	20.88	122.33
	802.11n(HT20) MIMO	19.37	86.40
5 270 - 5 310	802.11ac(VHT40) MIMO	17.58	57.32
5 290	802.11ac(VHT80) MIMO	16.29	42.57
5 500 - 5 720	802.11a MIMO	18.88	77.21
	802.11n(HT20) MIMO	19.53	89.67
5 510 - 5 710	802.11n(HT40) MIMO	19.80	95.52
5 530 - 5 690	802.11ac(VHT80) MIMO	17.03	50.41
5 745 - 5 825	802.11a MIMO	18.79	75.68
	802.11n(HT20) MIMO	19.88	97.17
5 755 - 5 795	802.11n(HT40) MIMO	19.73	93.99
5 775	802.11ac(VHT80) MIMO	16.23	42.02

2.4 Duty Cycle of Test Signal

Antenna	Mode	On Time [msec]	Period [msec]	Duty Cycle X [Linear]	Duty Cycle [%]	DCCF [dB]
SISO	802.11a	1.46	1.48	0.989	98.85	0.00
	802.11n(HT20)	5.43	5.45	0.997	99.67	0.00
	802.11n(HT40)	5.43	5.45	0.997	99.67	0.00
	802.11ac(VHT40)	5.43	5.44	0.997	99.67	0.00
	802.11ac(VHT80)	5.43	5.45	0.996	99.61	0.00
MIMO	802.11a	1.46	1.48	0.989	98.85	0.00
	802.11n(HT20)	5.43	5.45	0.997	99.67	0.00
	802.11n(HT40)	5.43	5.45	0.997	99.67	0.00
	802.11ac(VHT40)	5.43	5.44	0.997	99.67	0.00
	802.11ac(VHT80)	5.43	5.45	0.997	99.67	0.00

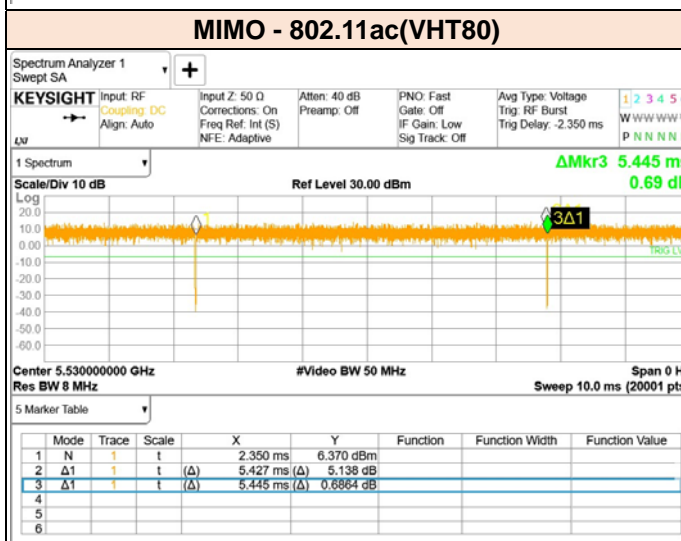
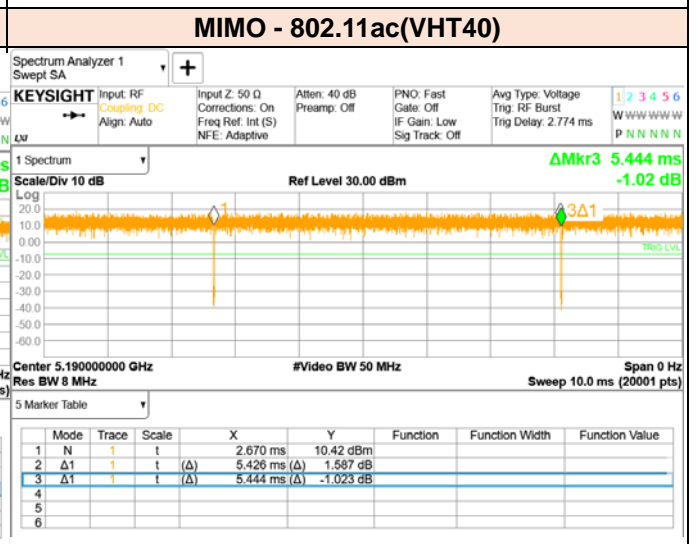
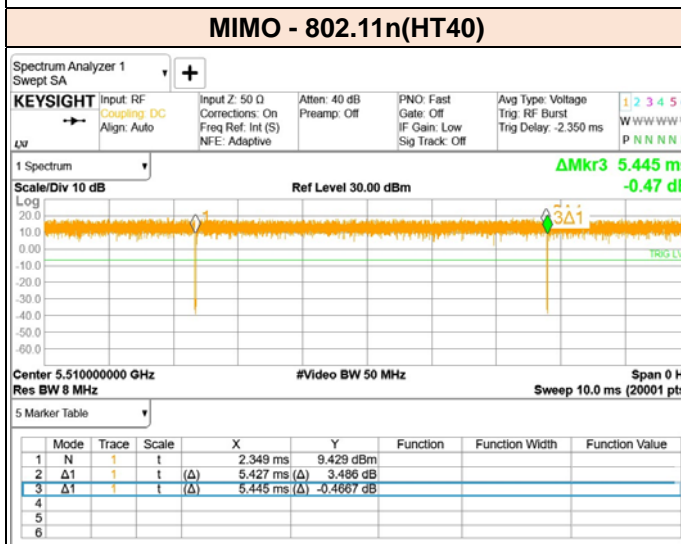
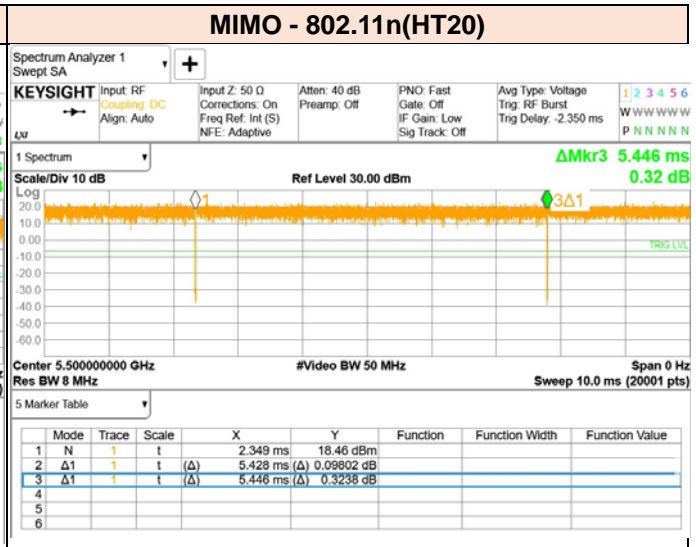
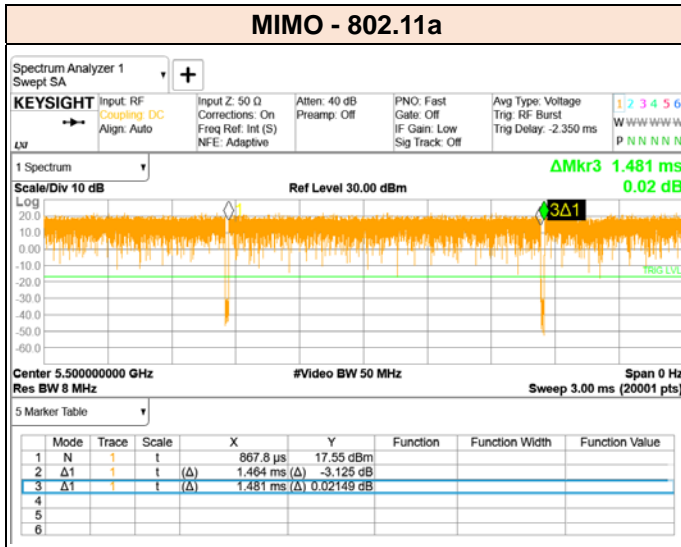


[Test Plot of Duty Cycle]





BUREAU VERITAS



2.5 26 dB and 99 % Bandwidth

[Test Data of 26 dB Bandwidth]

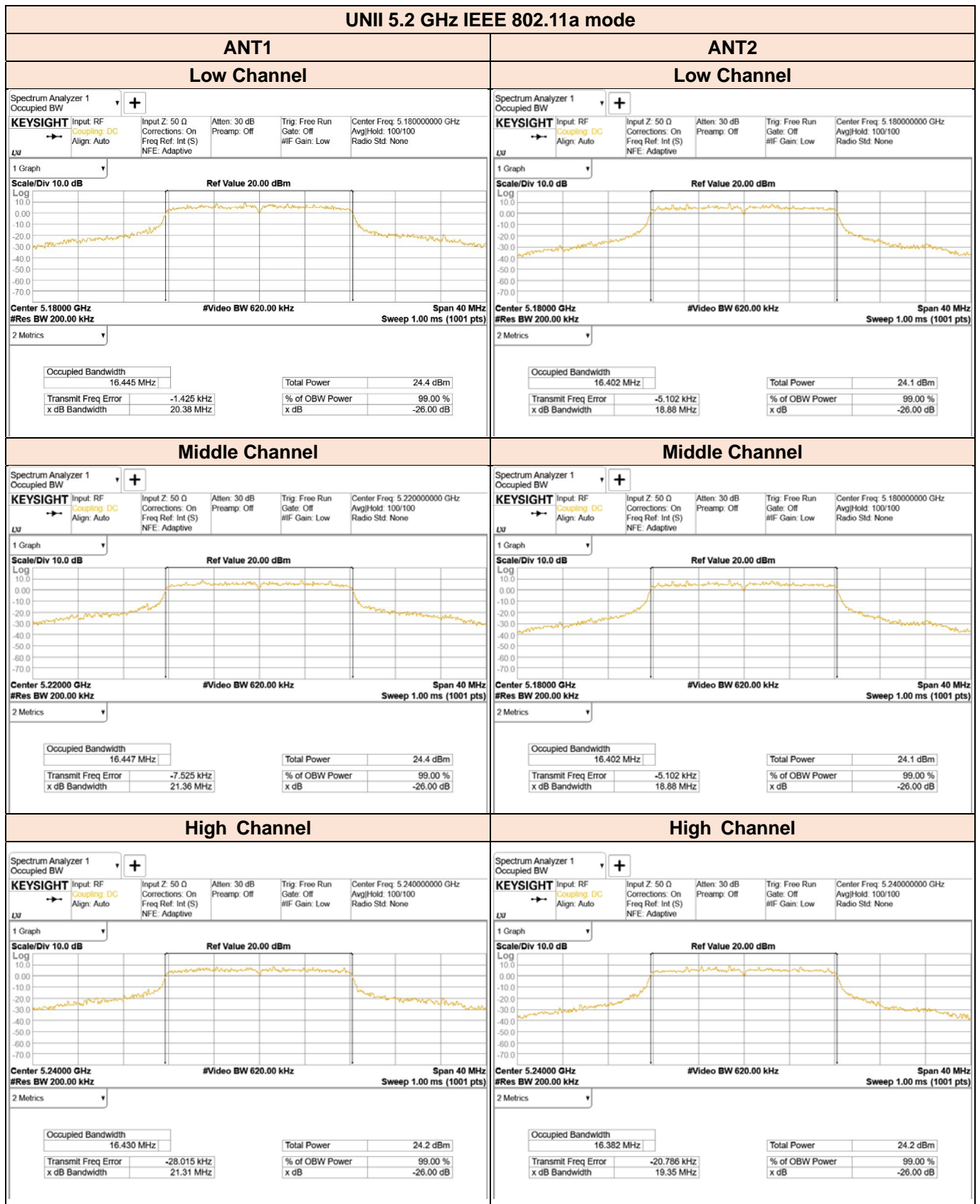
Band	Test Mode	Channel	Frequency [MHz]	26 dB BW [MHz]		Worst Result
				ANT1	ANT2	
U-NII-1	802.11a	Lowest	5 180	20.38	18.88	21.36
		Middle	5 220	21.36	18.85	
		Highest	5 240	21.31	19.35	
	802.11n (HT20)	Lowest	5 180	19.65	19.97	20.66
		Middle	5 220	19.99	19.93	
		Highest	5 240	20.66	20.19	
	802.11ac (VHT40)	Lowest	5 190	38.69	38.98	39.34
		Highest	5 230	39.34	38.77	
	802.11ac (VHT80)	Middle	5 210	81.05	80.53	81.05
	U-NII-2A	802.11a	Lowest	5 260	21.32	19.09
Middle			5 300	20.24	19.10	
Highest			5 320	20.35	19.35	
802.11n (HT20)		Lowest	5 260	19.90	20.28	20.28
		Middle	5 300	19.83	19.87	
		Highest	5 320	19.87	19.72	
802.11ac (VHT40)		Lowest	5 270	39.47	38.58	39.58
		Highest	5 310	39.58	38.76	
802.11ac (VHT80)		Middle	5 290	81.26	80.90	81.26
U-NII-2C		802.11a	Lowest	5 500	19.21	19.10
	Middle		5 600	18.65	19.71	
	Highest		5 700	19.10	19.29	
	802.11n (HT20)	Lowest	5 500	20.79	20.10	20.93
		Middle	5 600	20.93	20.00	
		Highest	5 700	19.97	20.52	
	802.11n (HT40)	Lowest	5 510	39.18	39.57	39.57
		Middle	5 590	39.53	39.02	
		Highest	5 670	39.24	39.15	
	802.11ac (VHT80)	Lowest	5 530	81.75	80.33	81.75
Highest		5 610	81.75	80.48		
U-NII-2C	802.11a	Straddle	5 720	14.39	14.81	-
	802.11n(HT20)	Straddle	5 720	15.00	15.10	-
	802.11n(HT40)	Straddle	5 710	34.72	34.31	-
	802.11ac (VHT80)	Straddle	5 690	75.29	75.01	-
U-NII-3	802.11a	Straddle	5 720	4.09	4.30	-
	802.11n(HT20)	Straddle	5 720	5.12	4.91	-
	802.11n(HT40)	Straddle	5 710	4.38	4.68	-
	802.11ac (VHT80)	Straddle	5 690	5.33	5.10	-

[Test Data of 99 % Bandwidth]

Band	Test Mode	Channel	Frequency [MHz]	99 % BW [MHz]	
				ANT1	ANT2
U-NII-1	802.11a	Lowest	5 180	16.45	16.40
		Middle	5 220	16.45	16.40
		Highest	5 240	16.43	16.38
	802.11n (HT20)	Lowest	5 180	17.57	17.52
		Middle	5 220	17.58	17.56
		Highest	5 240	17.60	17.54
	802.11ac (VHT40)	Lowest	5 190	35.95	36.02
		Highest	5 230	35.93	35.99
	802.11ac (VHT80)	Middle	5 210	75.20	75.22
U-NII-2A	802.11a	Lowest	5 260	16.46	16.38
		Middle	5 300	16.39	16.38
		Highest	5 320	16.38	16.39
	802.11n (HT20)	Lowest	5 260	17.59	17.54
		Middle	5 300	17.60	17.56
		Highest	5 320	17.59	17.55
	802.11ac (VHT40)	Lowest	5 270	35.96	36.02
		Highest	5 310	36.01	35.96
	802.11ac (VHT80)	Middle	5 290	75.30	75.28
U-NII-2C	802.11a	Lowest	5 500	16.32	16.34
		Middle	5 600	16.33	16.35
		Highest	5 700	16.34	16.36
	802.11n (HT20)	Lowest	5 500	17.59	17.59
		Middle	5 600	17.59	17.57
		Highest	5 700	17.55	17.53
	802.11n (HT40)	Lowest	5 510	35.98	36.02
		Middle	5 590	36.02	36.08
		Highest	5 670	35.94	36.00
802.11ac (VHT80)	Lowest	5 530	75.31	75.27	
	Highest	5 610	75.42	75.37	
Straddle	802.11a	Middle	5 720	16.39	16.35
	802.11n(HT20)	Middle	5 720	17.61	17.53
	802.11n(HT40)	Middle	5 710	36.06	36.06
	802.11ac (VHT80)	Middle	5 690	75.39	75.23
U-NII-3	802.11a	Lowest	5 745	16.33	16.34
		Middle	5 805	16.32	16.35
		Highest	5 825	16.33	16.35
	802.11n (HT20)	Lowest	5 745	17.55	17.54
		Middle	5 805	17.56	17.52
		Highest	5 825	17.56	17.51
	802.11n (HT40)	Lowest	5 755	36.02	35.88
		Highest	5 795	35.98	35.98
	802.11ac (VHT80)	Middle	5 775	75.33	75.31

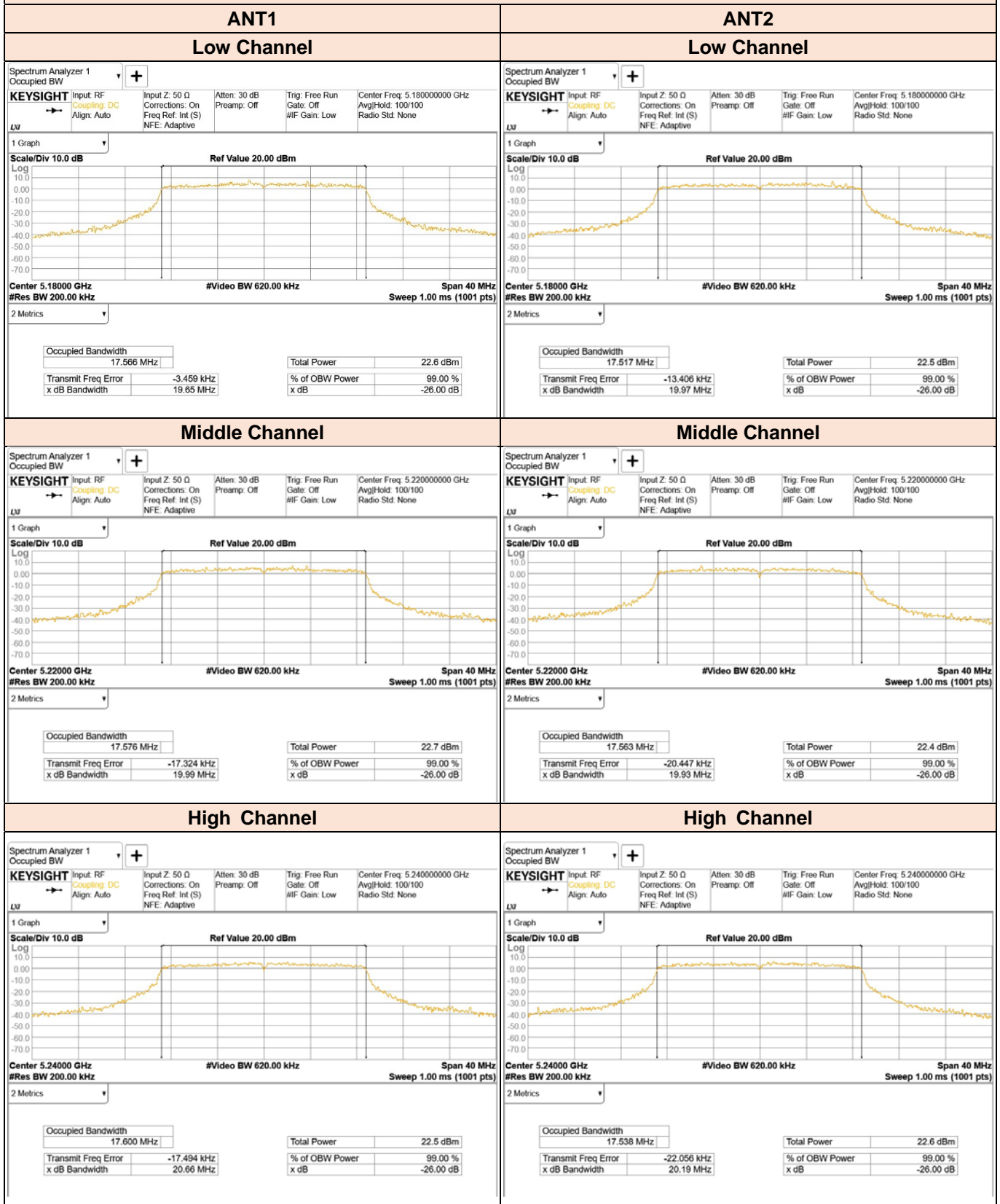


Test Plot of 26 dB & 99 % Bandwidth





UNII 5.2 GHz IEEE 802.11n HT20 mode

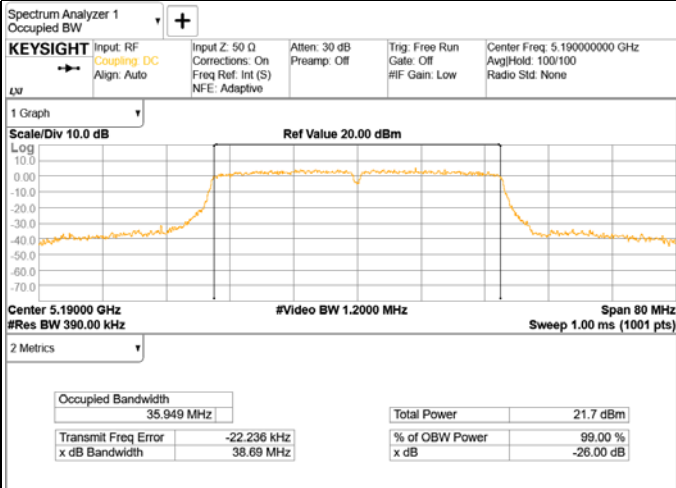




UNII 5.2 GHz IEEE 802.11ac VHT40 mode

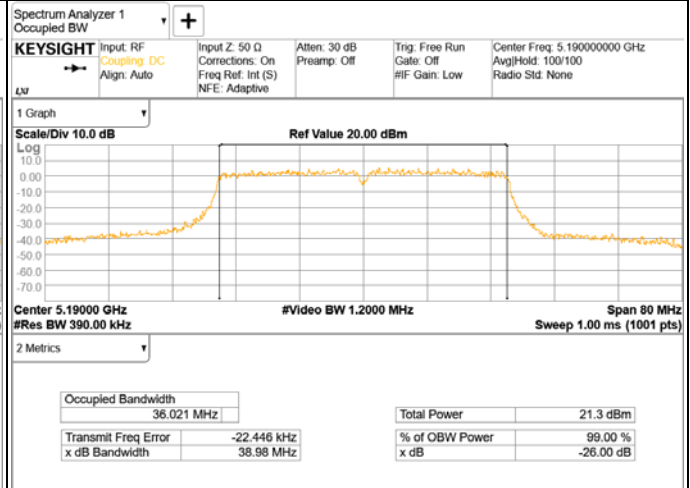
ANT1

Low Channel

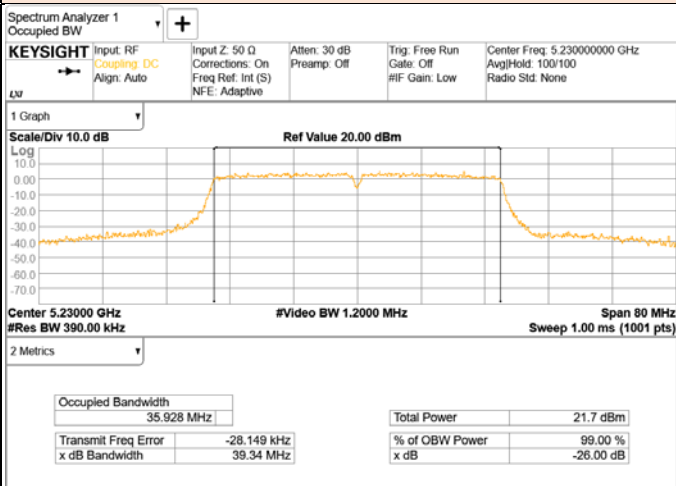


ANT2

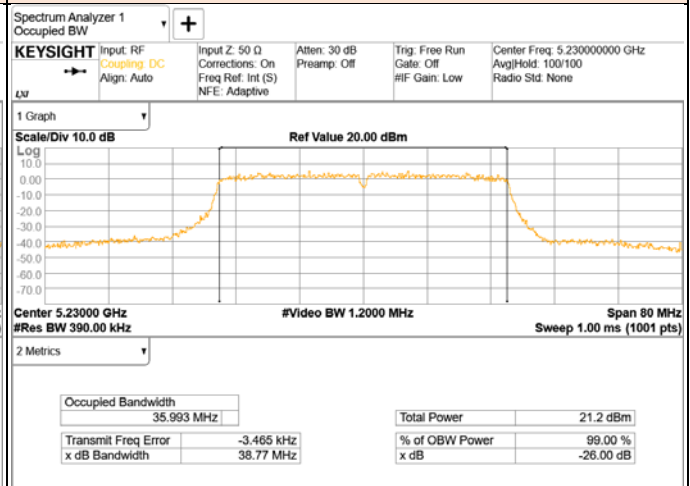
Low Channel



High Channel



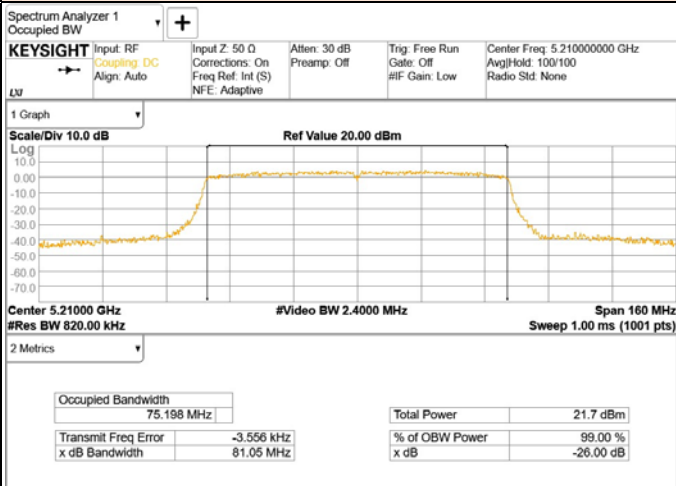
High Channel



UNII 5.2 GHz IEEE 802.11ac VHT80 mode

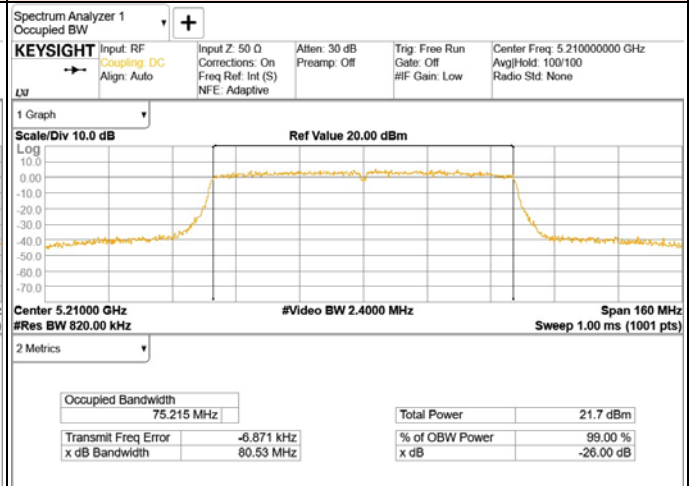
ANT1

Middle Channel



ANT2

Middle Channel

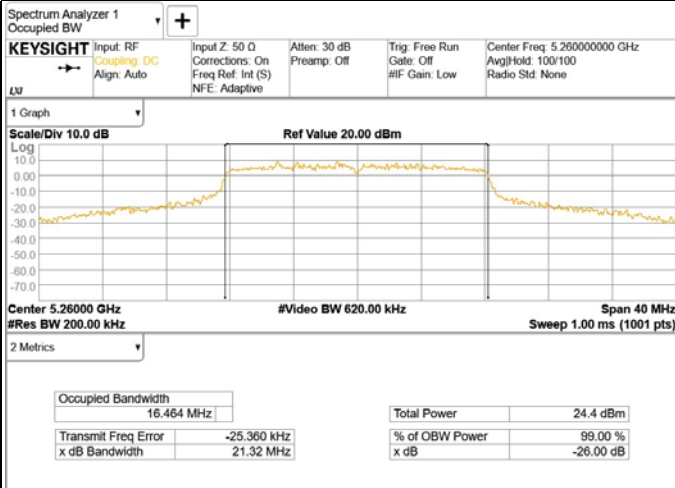




UNII 5.3 GHz IEEE 802.11a mode

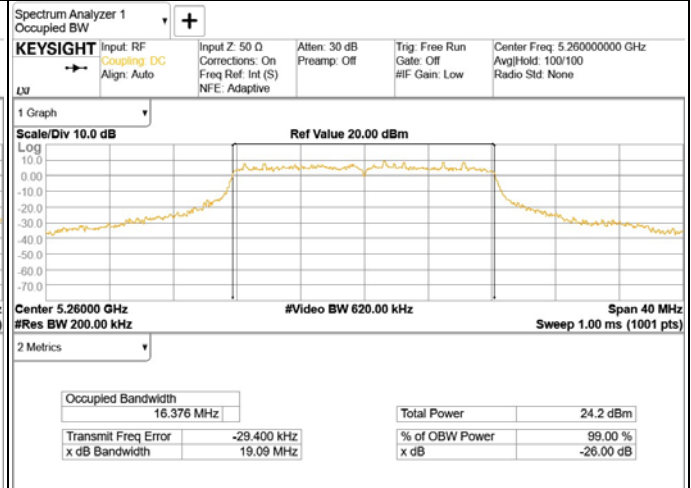
ANT1

Low Channel

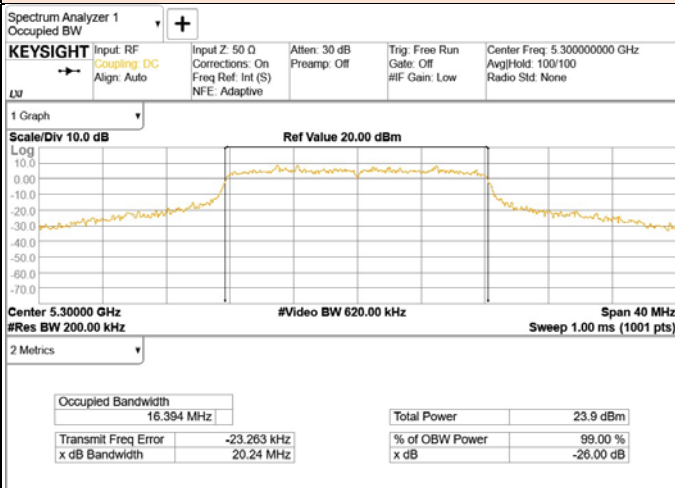


ANT2

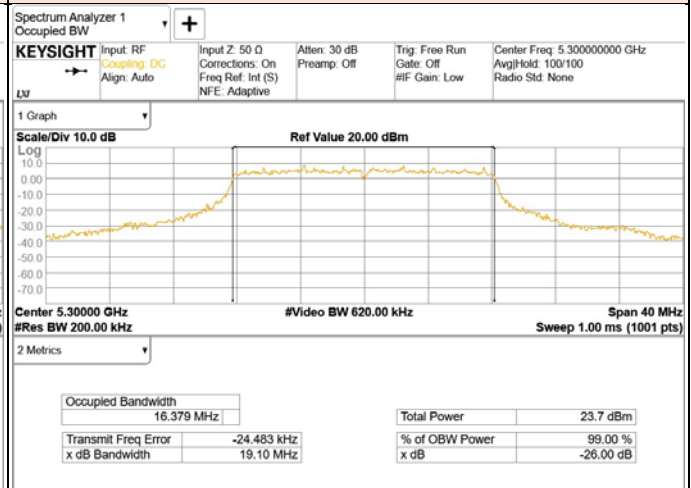
Low Channel



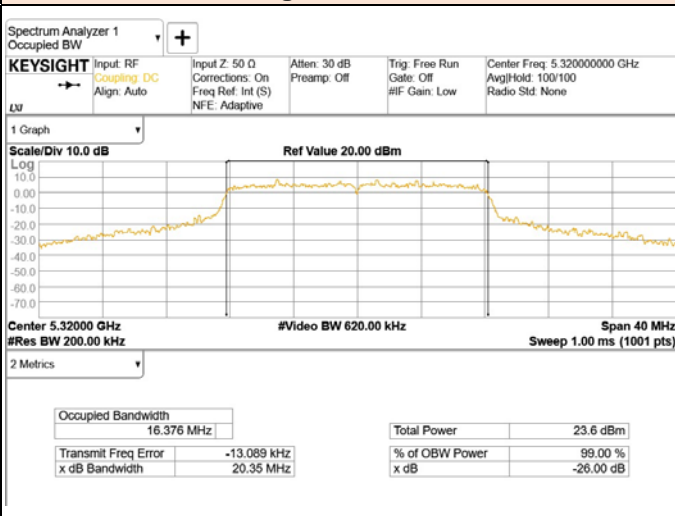
Middle Channel



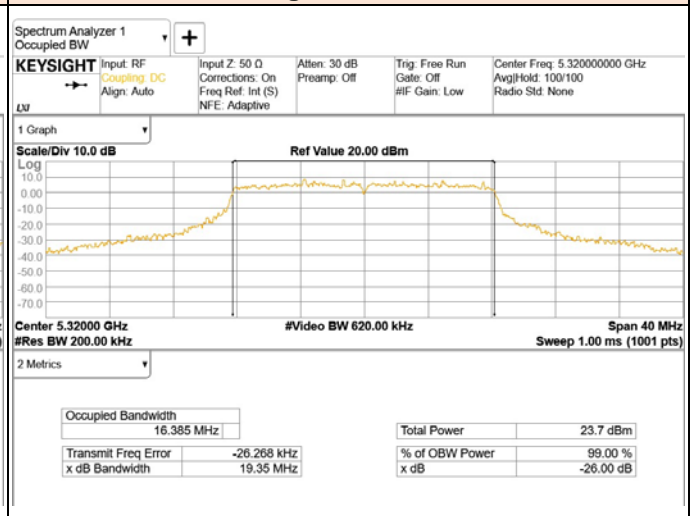
Middle Channel



High Channel

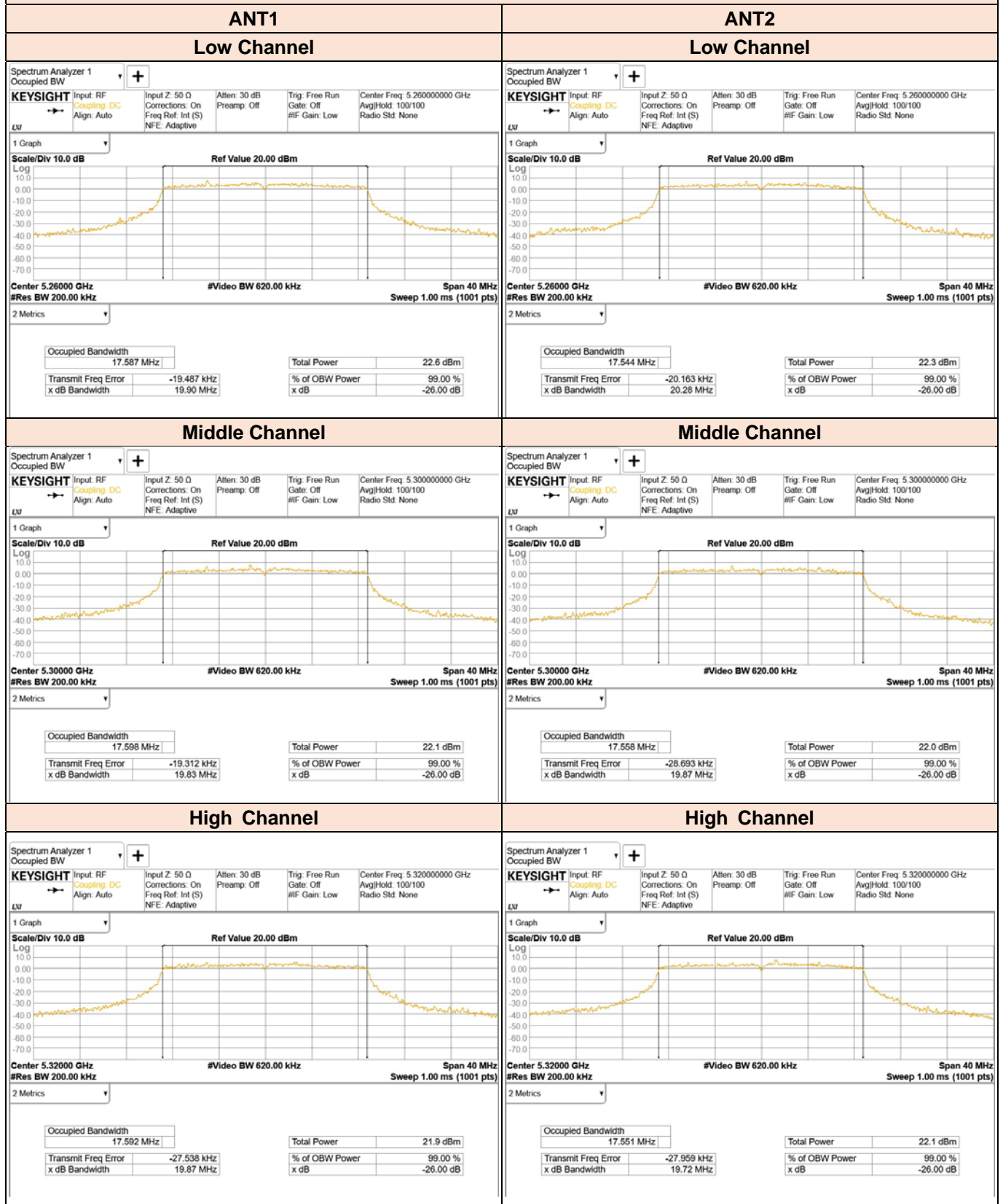


High Channel





UNII 5.3 GHz IEEE 802.11n HT20 mode





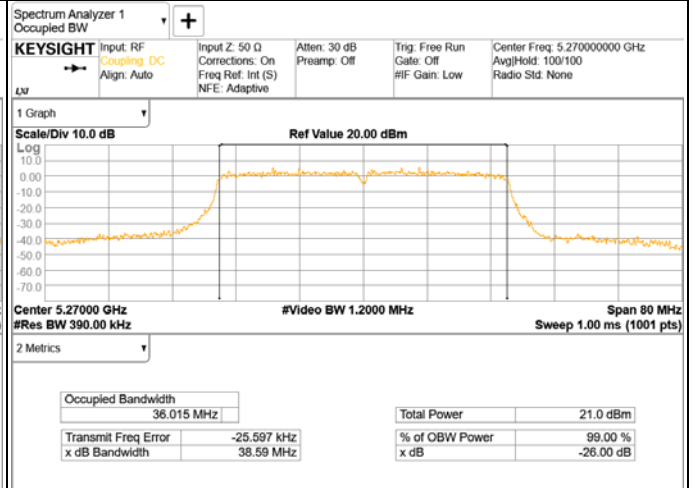
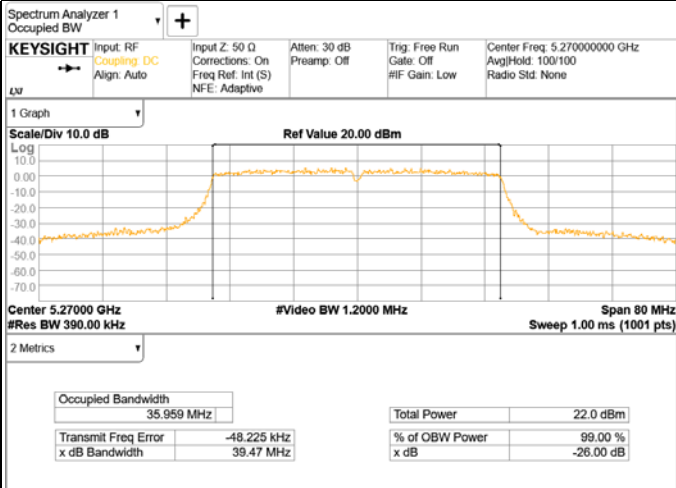
UNII 5.3 GHz IEEE 802.11ac VHT40 mode

ANT1

ANT2

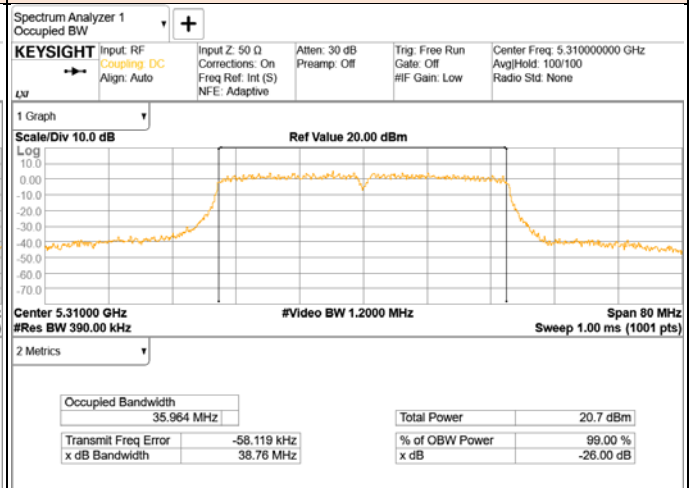
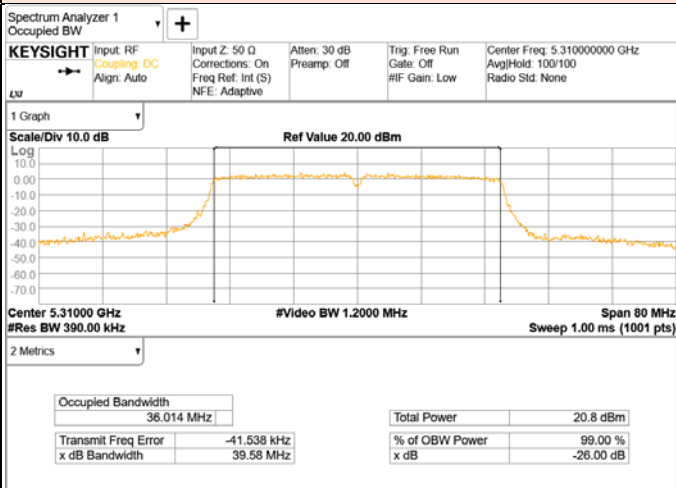
Low Channel

Low Channel



High Channel

High Channel



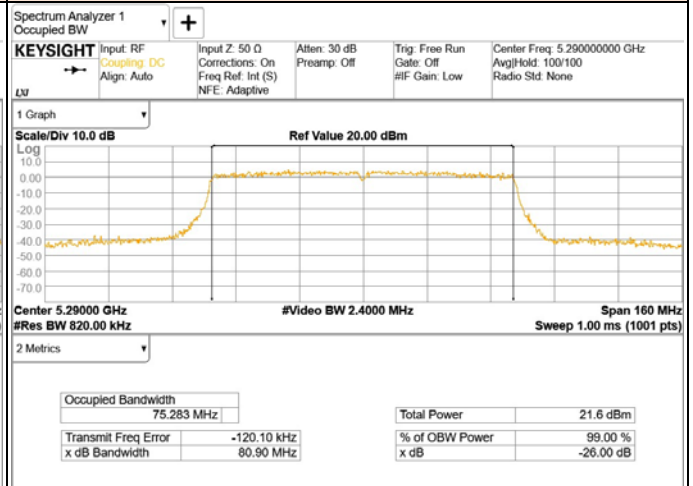
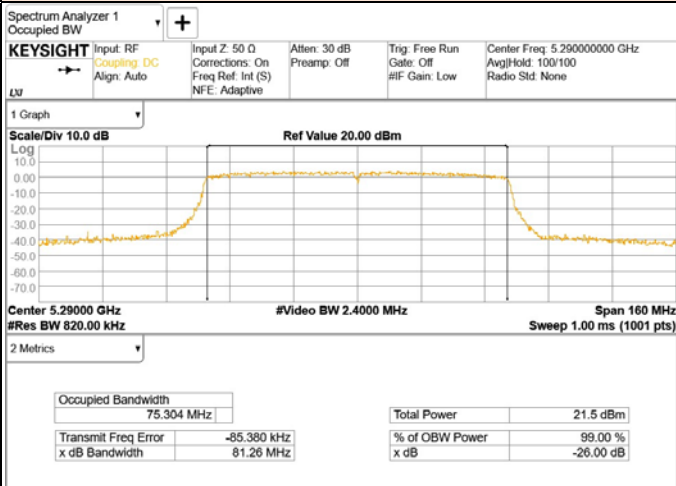
UNII 5.3 GHz IEEE 802.11ac VHT80 mode

ANT1

ANT2

Middle Channel

Middle Channel





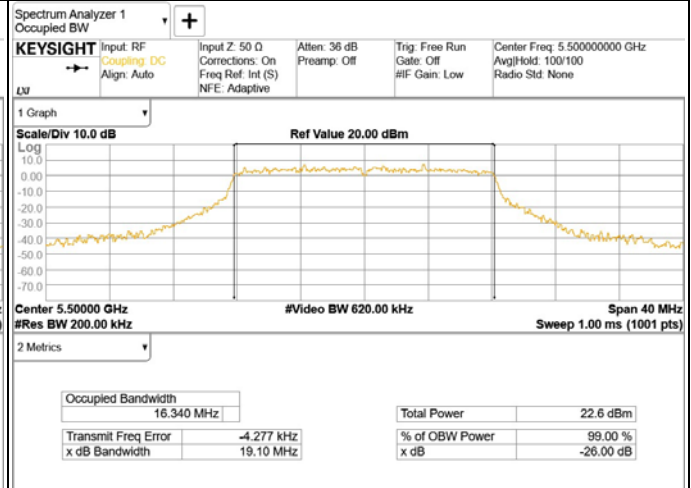
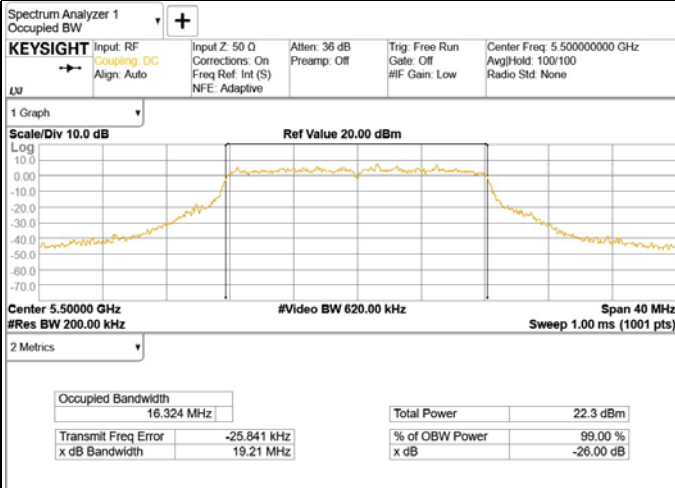
UNII 5.5 GHz IEEE 802.11a mode

ANT1

ANT2

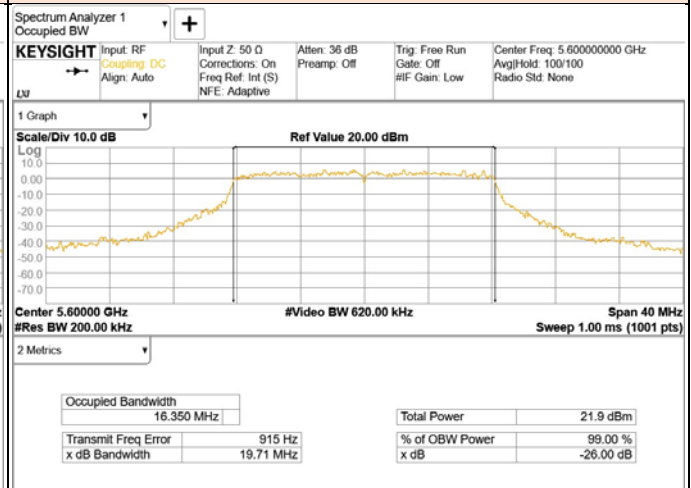
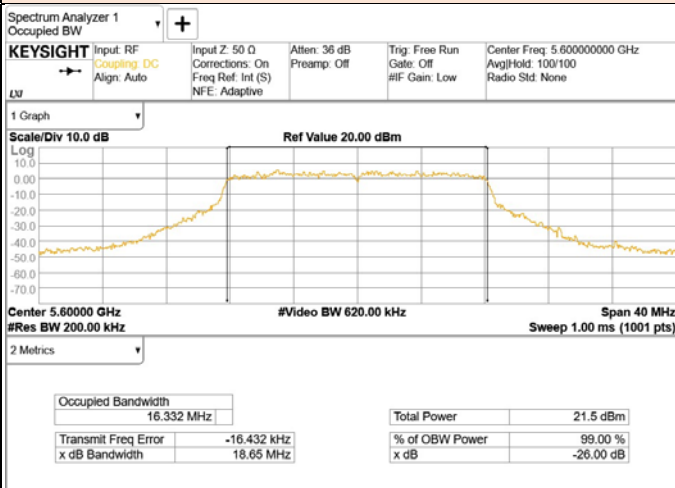
Low Channel

Low Channel



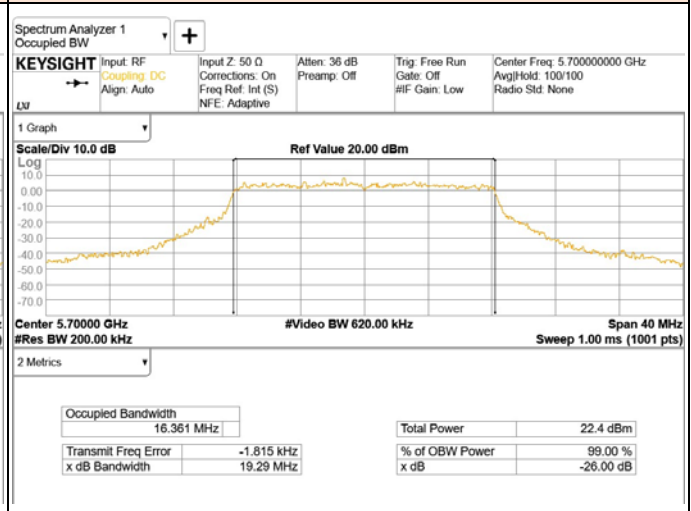
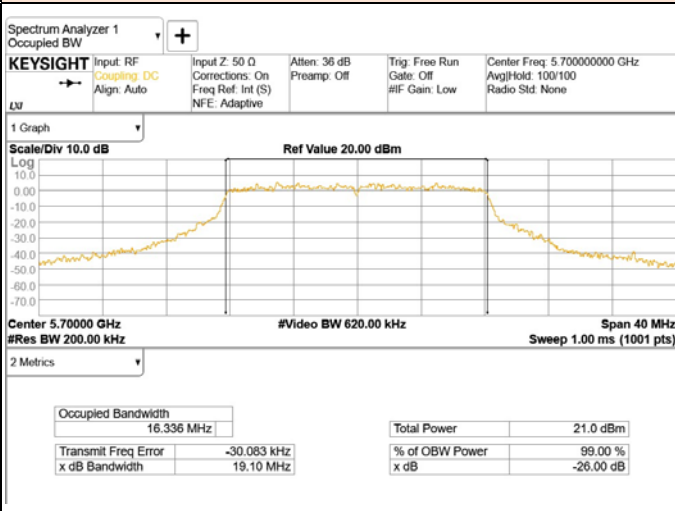
Middle Channel

Middle Channel



High Channel

High Channel

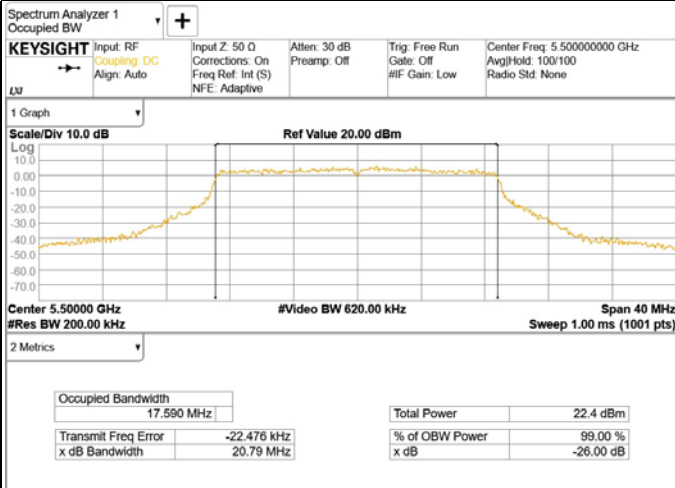




UNII 5.5 GHz IEEE 802.11n HT20 mode

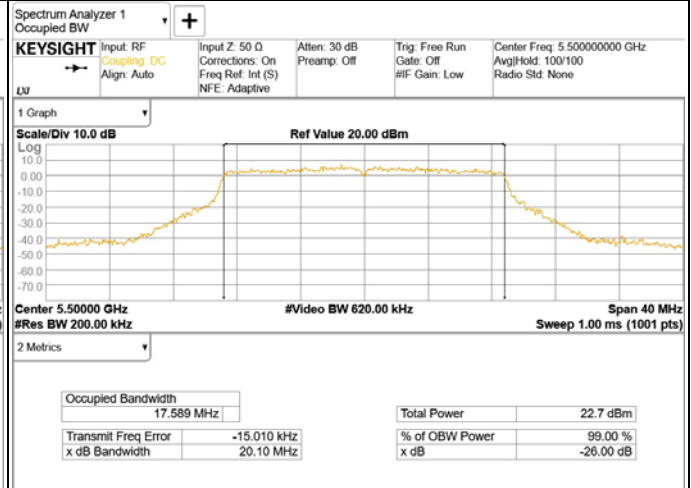
ANT1

Low Channel

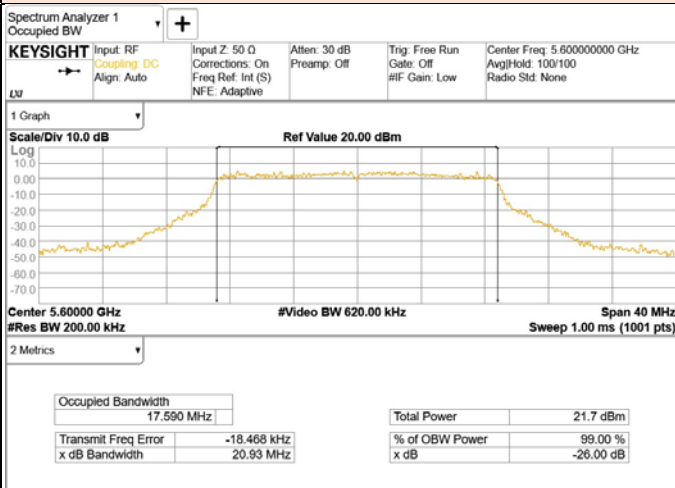


ANT2

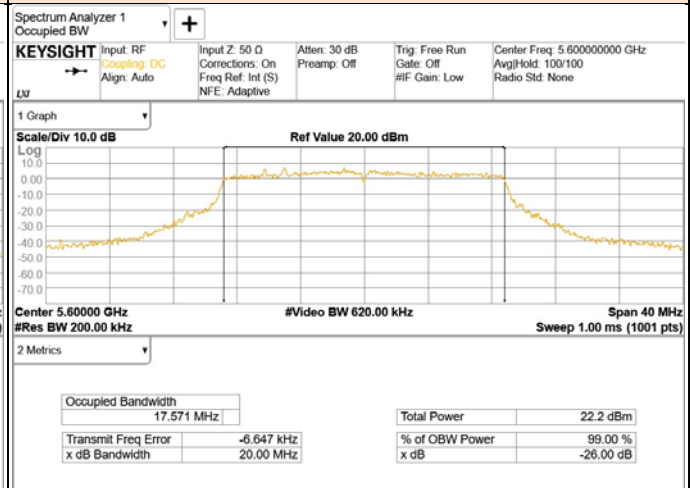
Low Channel



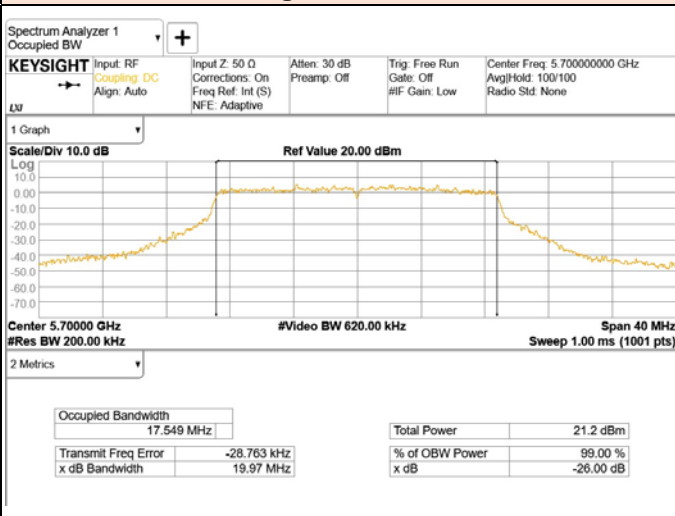
Middle Channel



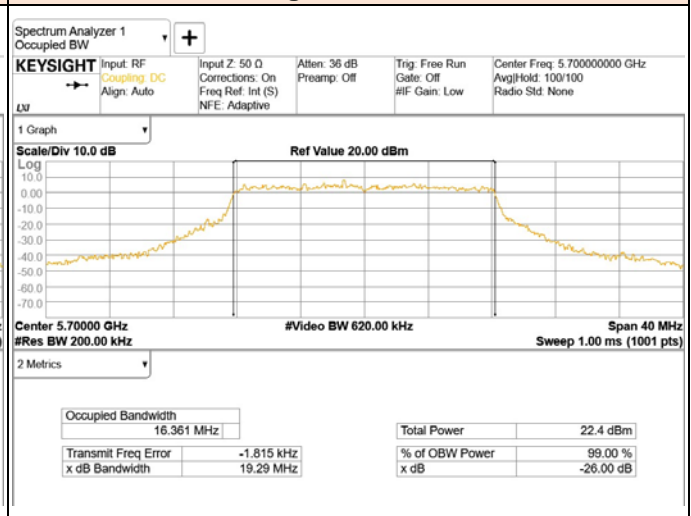
Middle Channel



High Channel



High Channel





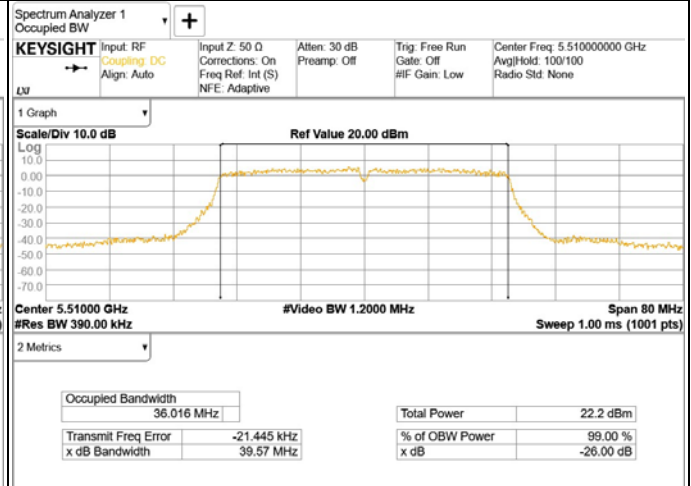
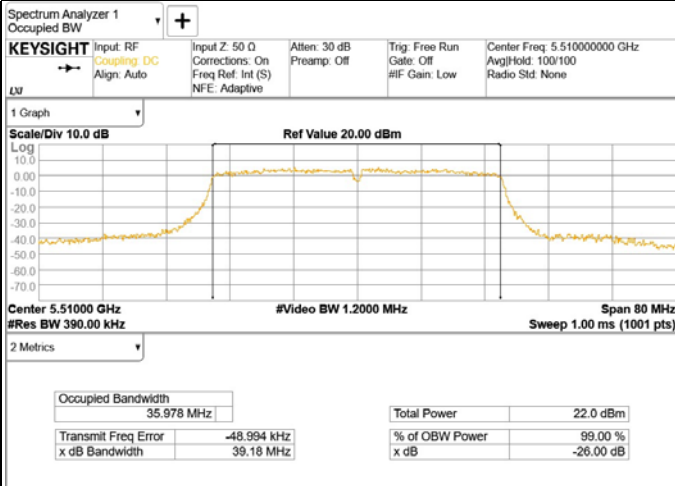
UNII 5.5 GHz IEEE 802.11n HT40 mode

ANT1

ANT2

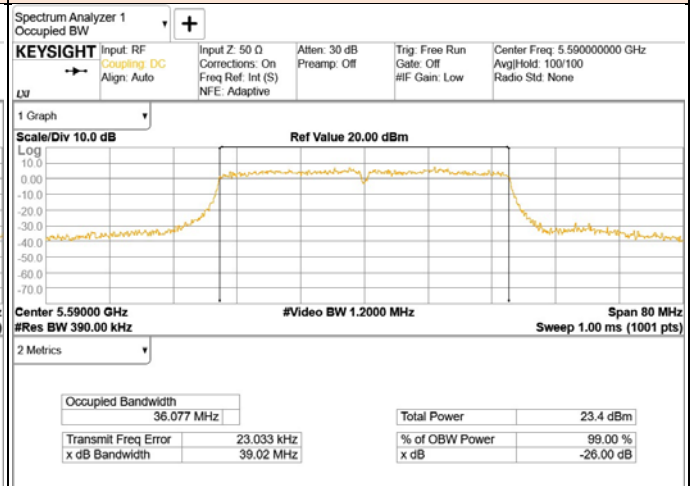
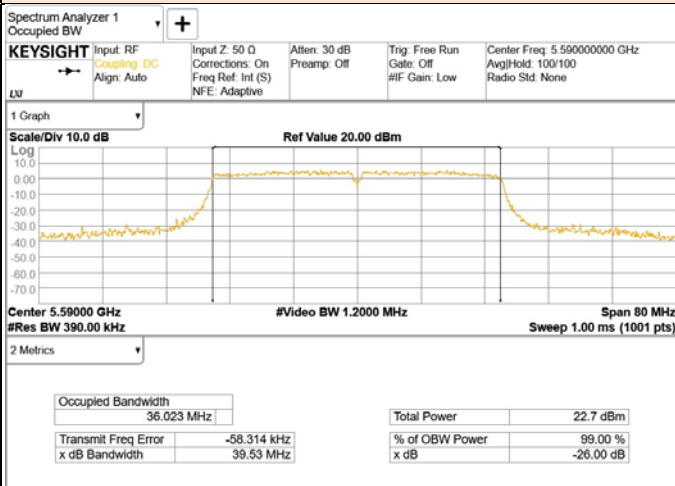
Low Channel

Low Channel



Middle Channel

Middle Channel



High Channel

High Channel

