



**FCC 47 CFR PART 15 SUBPART E**

**UNII**

**CERTIFICATION TEST REPORT**

**FOR**

**GSM/WCDMA/LTE Tablet + Bluetooth/BLE, DTS/UNII a/b/g/n/ac and ANT+**

**MODEL NUMBER : SM-T825C**

**FCC ID: A3LSMT825C**

**REPORT NUMBER: 4787821324-E4V2**

**ISSUE DATE: MAR 13, 2017**

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Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
V1	02/24/17	Initial issue	Junwhan Lee
V2	03/13/17	Revised section 10	Junwhan Lee

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# 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** SAMSUNG ELECTRONICS CO., LTD.  
**EUT DESCRIPTION:** GSM/WCDMA/LTE Tablet + Bluetooth/BLE, DTS/UNII a/b/g/n/ac and ANT+  
**MODEL NUMBER:** SM-T825C  
**SERIAL NUMBER:** R22HC00979E, R22HC0097EN (RADIATED);  
R22HC00975D, R22HC00QNAA (CONDUCTED)  
**DATE TESTED:** JAN 11, 2017 - FEB 22, 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.

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## 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with following methods.

1. FCC CFR 47 Part 2.
2. FCC CFR 47 Part 15.
3. KDB 789033 D02 General UNII Test Procedures New Rules v01r03
4. KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02
5. KDB 905462 D03 UNII Clients Without Radar Detection New Rules v01r02
6. KDB 662911 D01 v02r01
7. 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	
<input checked="" type="checkbox"/>	Chamber 1
<input type="checkbox"/>	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 Tablet + Bluetooth/BLE, DTS/UNII a/b/g/n/ac and ANT+.  
 This test report addresses the NII (UNII) operational mode.

WiFi MIMO Condition

Frequency	Mode	Antenna 1	Antenna 2
2.4 GHz	802.11b	TX / RX	TX / RX
	802.11g	TX / RX	TX / RX
	802.11g MIMO	TX / RX	TX / RX
	802.11n	TX / RX	TX / RX
	802.11n MIMO	TX / RX	TX / RX
5 GHz	802.11a	TX / RX	TX / RX
	802.11a MIMO	TX / RX	TX / RX
	802.11n	TX / RX	TX / RX
	802.11n MIMO	TX / RX	TX / RX
	802.11ac	TX / RX	TX / RX
	802.11ac MIMO	TX / RX	TX / RX

## 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]	
		Antenna1	Antenna2	Antenna1	Antenna2
5180 - 5240	802.11a SISO	10.22	10.22	10.52	10.52
	802.11a MIMO	13.23		21.04	
	802.11n HT20 SISO	10.06	10.88	10.14	12.25
	802.11n HT20 MIMO	13.50		22.39	
5190 - 5230	802.11n HT40 SISO	10.64	10.62	11.59	11.53
	802.11n HT40 MIMO	13.64		23.12	
5210	802.11ac VHT80 SISO	10.35	10.28	10.85	10.68
	802.11ac VHT80 MIMO	13.33		21.53	
5260 - 5320	802.11a SISO	10.28	10.38	10.67	10.91
	802.11a MIMO	13.34		21.58	
	802.11n HT20 SISO	10.95	10.94	12.46	12.43
	802.11n HT20 MIMO	13.96		24.89	
5270 - 5310	802.11n HT40 SISO	10.62	10.72	11.53	11.80
	802.11n HT40 MIMO	13.68		23.33	
5290	802.11ac VHT80 SISO	10.20	10.15	10.48	10.36
	802.11ac VHT80 MIMO	13.19		20.84	
5500 - 5700	802.11a SISO	10.38	10.51	10.92	11.26
	802.11a MIMO	13.46		22.18	
	802.11n HT20 SISO	10.89	10.94	12.27	12.42
	802.11n HT20 MIMO	13.89		24.49	
5510 - 5670	802.11n HT40 SISO	10.79	10.92	12.01	12.37
	802.11n HT40 MIMO	13.87		24.38	
5530	802.11ac VHT80 SISO	10.79	10.31	12.00	10.75
	802.11ac VHT80 MIMO	13.57		22.75	
5745 - 5825	802.11a SISO	10.90	10.56	12.30	11.38
	802.11a MIMO	13.63		23.07	
	802.11n HT20 SISO	10.66	10.82	11.64	12.08
	802.11n HT20 MIMO	13.75		23.71	
5755 - 5795	802.11n HT40 SISO	10.96	10.96	12.47	12.47
	802.11n HT40 MIMO	13.97		24.95	
5775	802.11ac VHT80 SISO	10.69	10.75	11.72	11.88
	802.11ac VHT80 MIMO	13.73		23.60	

### 5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a internal antenna, with a maximum gain of:

Frequency Range [MHz]	Antenna Gain [dBi]	
	Antenna 1	Antenna 2
UNII 1 5150 – 5250	-1.86	-1.69
UNII 2A 5250 – 5350	-2.43	-1.84
UNII 2C 5470 – 5725	-2.18	-2.67
UNII 3 5725 – 5850	-2.22	-2.72

### 5.4. List of test reduction and modes covering other modes:

The output power on covered modes is equal to or less than one referenced.

#### UNII 1

5150 - 5250 MHz Authorized Frequency Band (Radiated Testing)		
Frequency Range [MHz]	Mode	Covered by
5180 - 5240	802.11a legacy 1TX/CDD 2TX	802.11a 2TX CDD
5180 - 5240	802.11HT20 1TX	802.11n HT20 2TX CDD
5180 - 5240	802.11HT20 2TX SDM/CDD	802.11n HT20 2TX CDD
5180 - 5240	802.11ac VHT20 1TX	802.11n HT20 2TX CDD
5180 - 5240	802.11ac VHT20 2TX SDM/CDD	802.11n HT20 2TX CDD
5190 - 5230	802.11n HT40 1TX	802.11n HT40 2TX CDD
5190 - 5230	802.11n HT40 2TX SDM/CDD	802.11n HT40 2TX CDD
5190 - 5230	802.11ac VHT40 1TX	802.11n HT40 2TX CDD
5190 - 5230	802.11ac VHT40 2TX SDM/CDD	802.11n HT40 2TX CDD
5210	802.11ac VHT80 1TX	802.11ac VHT80 2TX CDD
5210	802.11ac VHT80 2TX SDM/CDD	802.11ac VHT80 2TX CDD

**UNII 2A**

<b>5250 - 5350 MHz Authorized Frequency Band (Radiated Testing)</b>		
<b>Frequency Range [MHz]</b>	<b>Mode</b>	<b>Covered by</b>
5260 - 5320	802.11a legacy 1TX/CDD 2TX	802.11a 2TX CDD
5260 - 5320	802.11HT20 1TX	802.11n HT20 2TX CDD
5260 - 5320	802.11HT20 2TX SDM/CDD	802.11n HT20 2TX CDD
5260 - 5320	802.11ac VHT20 1TX	802.11n HT20 2TX CDD
5260 - 5320	802.11ac VHT20 2TX SDM/CDD	802.11n HT20 2TX CDD
5270 - 5310	802.11n HT40 1TX	802.11n HT40 2TX CDD
5270 - 5310	802.11n HT40 2TX SDM/CDD	802.11n HT40 2TX CDD
5270 - 5310	802.11ac VHT40 1TX	802.11n HT40 2TX CDD
5270 - 5310	802.11ac VHT40 2TX SDM/CDD	802.11n HT40 2TX CDD
5290	802.11ac VHT80 1TX	802.11ac VHT80 2TX CDD
5290	802.11ac VHT80 2TX SDM/CDD	802.11ac VHT80 2TX CDD

**UNII 2C**

<b>5470 - 5725 MHz Authorized Frequency Band (Radiated Testing)</b>		
<b>Frequency Range [MHz]</b>	<b>Mode</b>	<b>Covered by</b>
5500 - 5700	802.11a legacy 1TX/CDD 2TX	802.11a 2TX CDD
5500 - 5700	802.11HT20 1TX	802.11n HT20 2TX CDD
5500 - 5700	802.11HT20 2TX SDM/CDD	802.11n HT20 2TX CDD
5500 - 5700	802.11ac VHT20 1TX	802.11n HT20 2TX CDD
5500 - 5700	802.11ac VHT20 2TX SDM/CDD	802.11n HT20 2TX CDD
5510 - 5670	802.11n HT40 1TX	802.11n HT40 2TX CDD
5510 - 5670	802.11n HT40 2TX SDM/CDD	802.11n HT40 2TX CDD
5510 - 5670	802.11ac VHT40 1TX	802.11n HT40 2TX CDD
5510 - 5670	802.11ac VHT40 2TX SDM/CDD	802.11n HT40 2TX CDD
5530	802.11ac VHT80 1TX	802.11ac VHT80 2TX CDD
5530	802.11ac VHT80 2TX SDM/CDD	802.11ac VHT80 2TX CDD

**UNII 3**

5725 - 5850 MHz Authorized Frequency Band (Radiated Testing)		
Frequency Range [MHz]	Mode	Covered by
5745 - 5825	802.11a legacy 1TX/CDD 2TX	802.11a 2TX CDD
5745 - 5825	802.11HT20 1TX	802.11n HT20 2TX CDD
5745 - 5825	802.11HT20 2TX SDM/CDD	802.11n HT20 2TX CDD
5745 - 5825	802.11ac VHT20 1TX	802.11n HT20 2TX CDD
5745 - 5825	802.11ac VHT20 2TX SDM/CDD	802.11n HT20 2TX CDD
5755 - 5795	802.11n HT40 1TX	802.11n HT40 2TX CDD
5755 - 5795	802.11n HT40 2TX SDM/CDD	802.11n HT40 2TX CDD
5755 - 5795	802.11ac VHT40 1TX	802.11n HT40 2TX CDD
5755 - 5795	802.11ac VHT40 2TX SDM/CDD	802.11n HT40 2TX CDD
5775	802.11ac VHT80 1TX	802.11ac VHT80 2TX CDD
5775	802.11ac VHT80 2TX SDM/CDD	802.11ac VHT80 2TX CDD

**5.5. 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 (2Tx CDD)
- 802.11n HT20mode: MCS0 (2Tx CDD)
- 802.11n HT40mode: MCS0 (2Tx CDD)
- 802.11ac VHT80mode: MCS0 (2Tx CDD)

## 5.6. DESCRIPTION OF TEST SETUP

### SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Adapter	SAMSUNG	EP-TA200	R37HB5B0CH1SE3	N/A
Data Cable	SAMSUNG	EP-DN930CWE	N/A	N/A
Earphone	SAMSUNG	EO-EG920BW	N/A	N/A

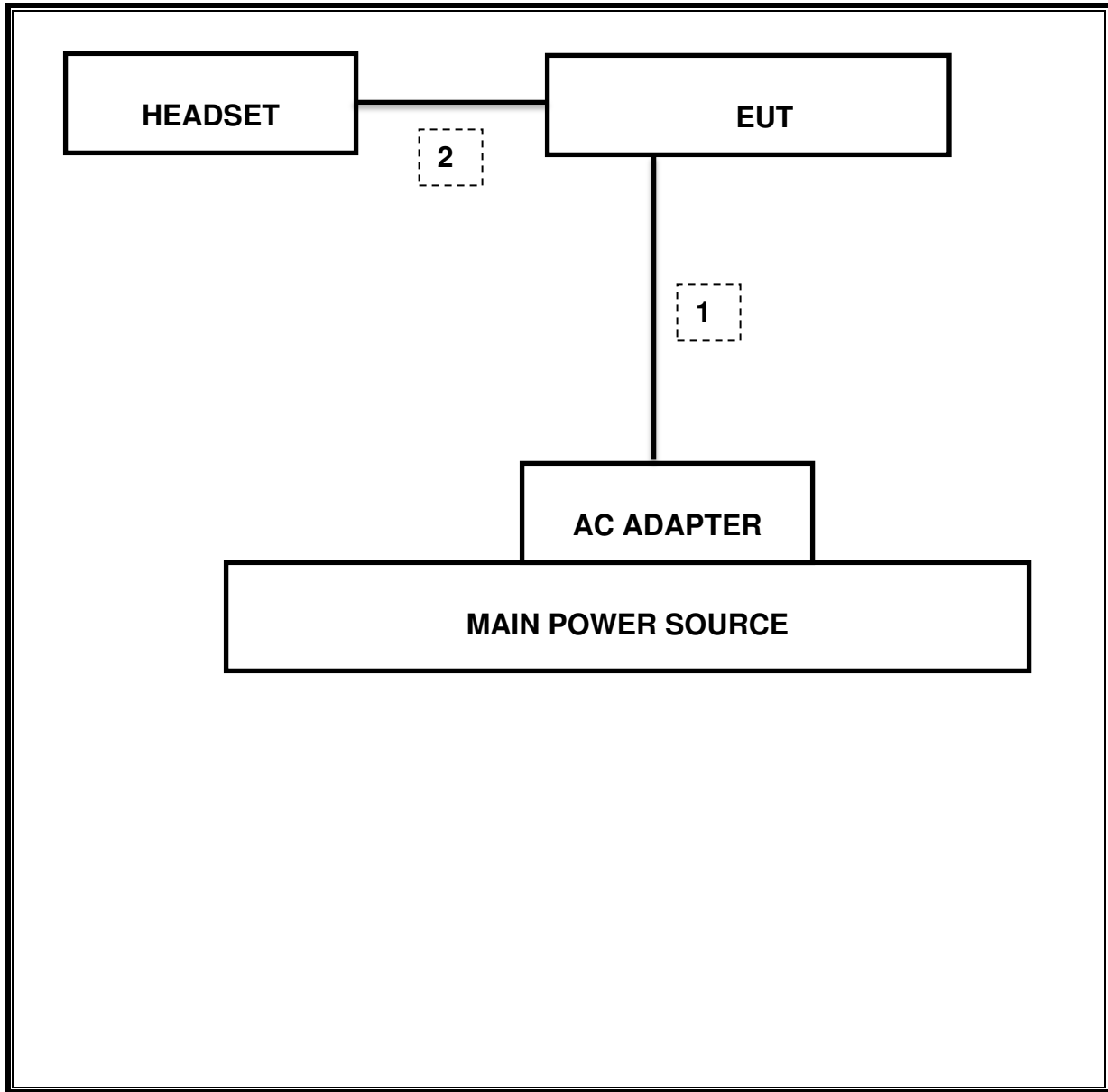
### I/O CABLES

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	DC Power	1	C Type USB	Shielded	1.2m	N/A
2	Audio	2	Mini-Jack	Unshielded	1.1m	N/A

### TEST SETUP

The EUT is a stand-alone unit during the tests.  
 Test software in hidden 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	03-17-17
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
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
UL Software				
Description	Manufacturer	Model	Version	
Radiated software	UL	UL EMC	Ver 9.5	
AC Line Conducted software	UL	UL EMC	Ver 9.5	

## 7. SUMMARY TABLE

FCC Part Section	Test Description	Test Limit	Test Condition	Test Result	Worst Case
15.407 (e)	6dB Band width (5.8Ghz)	> 500KHz		Pass	14.84 MHz
15.407 (a)(1)(2)	TX Cond. Power 5.15-2.25, 5.25-5.35 & 5.47-5.725	<24dBm or 11+10Log(OBW)		Pass	13.96 dBm
15.407 (a)(3)	TX Cond. Power 5.725-5.825	< 30dBm		Pass	13.97 dBm
15.407 (a)(5)	PSD (5.2,5.3,5.5GHz)	<11dBm		Pass	3.49 dBm
15.407 (a)(5)	PSD (5.8GHz)	30dBm per 500kHz		Pass	0.36 dBm
15.207 (a)	AC Power Line conducted emissions	Section 10		Radiated	Pass
15.407 (b) & 15.209	Radiated Spurious Emission	< 54 dBuV/m	Pass		47.26 dBuV/m (Av)
15.407 (h)(2)	Dynamic Frequency Selection	N/A	Radiated / Condcuted	Pass	N/A

## 8. REFERENCE MEASUREMENTS RESULTS

### 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	1.432	1.530	0.936	93.6%	0.29	0.698
802.11n HT20	1.340	1.437	0.932	93.2%	0.30	0.746
802.11n HT40	0.664	0.761	0.872	87.2%	0.59	1.506
802.11ac VHT80	0.332	0.429	0.773	77.3%	1.12	3.016

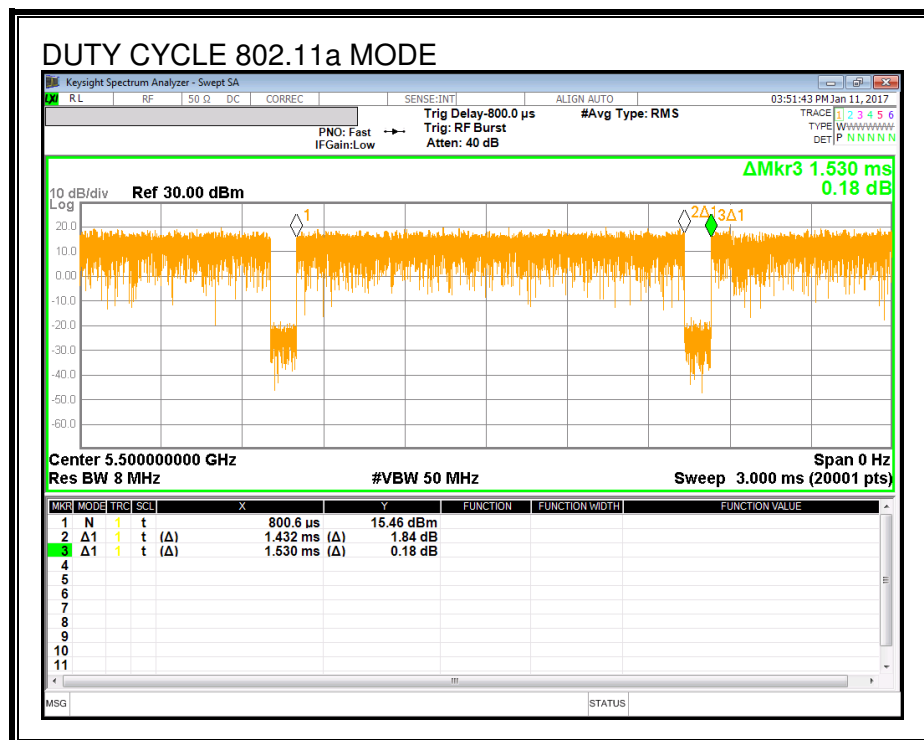
#### LIMITS

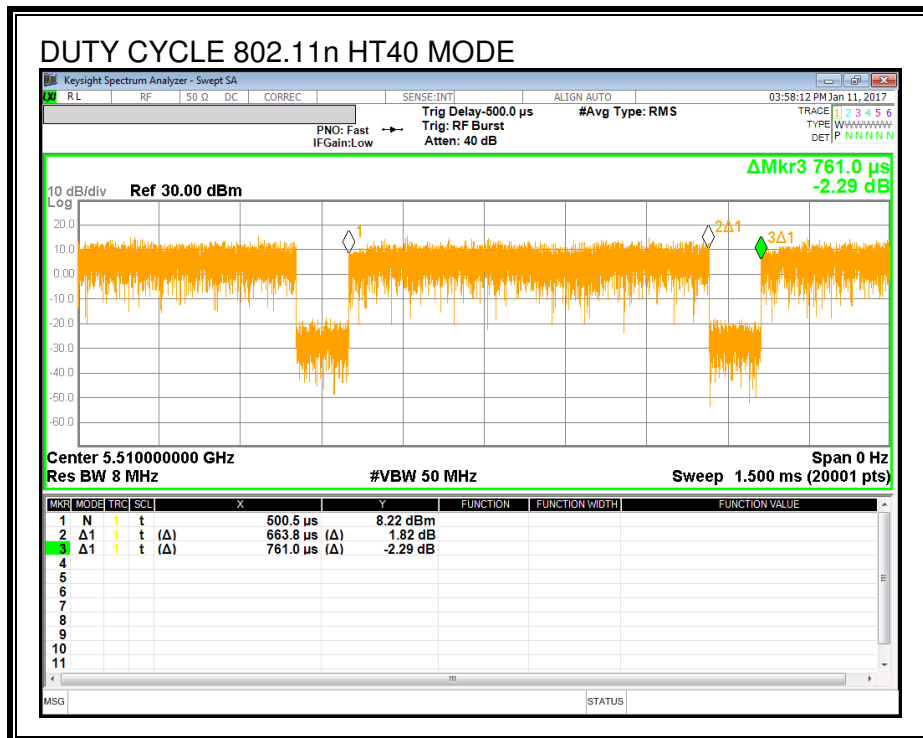
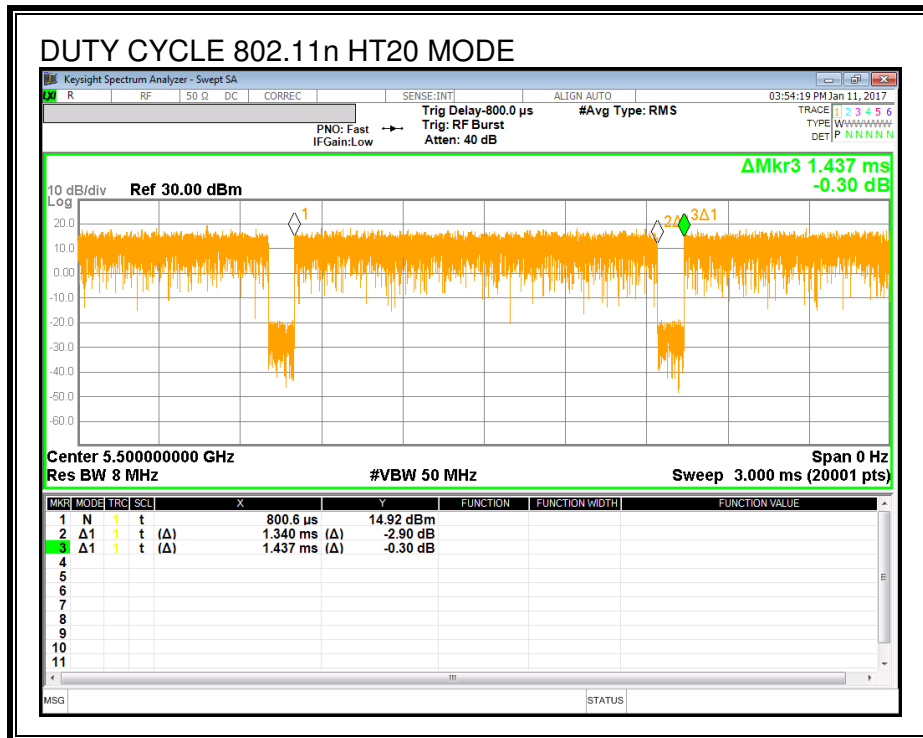
None; for reporting purposes only.

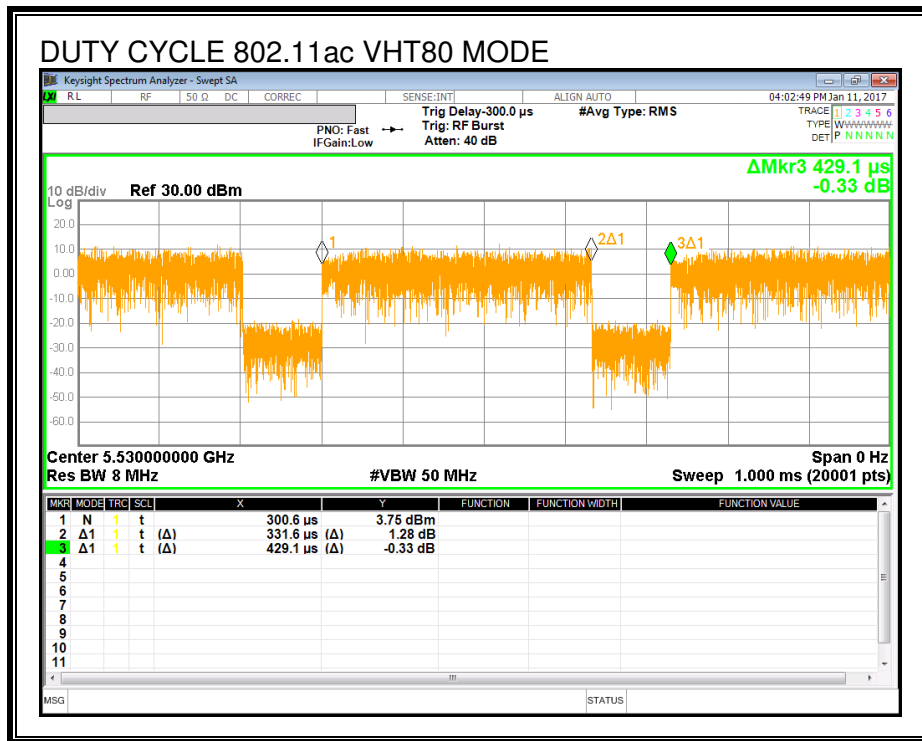
#### PROCEDURE

KDB 789033 D02 v01r03 Zero-Span Spectrum Analyzer Method.

### 8.2. DUTY CYCLE PLOTS







### 8.3. 26 dB BANDWIDTH

#### LIMITS

None; for reporting purposes only.

#### 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 approximately 1% of EBW, the VBW > RBW, peak detector and max hold.

#### RESULTS

##### 8.3.1.802.11a MODE IN THE 5.2 GHz BAND

Channel	Frequency [MHz]	26 dB Bandwidth [MHz]	
		Primary	Secondary
Low	5180	18.65	18.96
Mid	5200	18.78	18.80
High	5240	18.81	18.60
Worst		18.96	

##### 8.3.2.802.11n HT20 MODE IN THE 5.2 GHz BAND

Channel	Frequency [MHz]	26 dB Bandwidth [MHz]	
		Chain 0	Chain 1
Low	5180	19.70	19.48
Mid	5200	19.65	19.63
High	5240	19.46	19.46
Worst		19.70	

##### 8.3.3.802.11n HT40 MODE IN THE 5.2 GHz BAND

Channel	Frequency [MHz]	26 dB Bandwidth [MHz]	
		Chain 0	Chain 1
Low	5190	40.28	40.12
High	5230	40.00	40.04
Worst		40.28	

**8.3.4. 802.11ac VHT80 MODE IN THE 5.2 GHz BAND**

Channel	Frequency [MHz]	26 dB Bandwidth [MHz]	
		Chain 0	Chain 1
Middle	5210	82.66	81.55
Worst		82.66	

**8.3.5.802.11a MODE IN THE 5.3 GHz BAND**

Channel	Frequency [MHz]	26 dB Bandwidth [MHz]	
		Primary	Secondary
Low	5260	18.63	18.72
Mid	5300	18.82	18.93
High	5320	18.67	18.76
Worst		18.93	

**8.3.6.802.11n HT20 MODE IN THE 5.3 GHz BAND**

Channel	Frequency [MHz]	26 dB Bandwidth [MHz]	
		Chain 0	Chain 1
Low	5260	19.53	19.70
Mid	5300	19.53	19.60
High	5320	19.44	19.50
Worst		19.70	

**8.3.7.802.11n HT40 MODE IN THE 5.3 GHz BAND**

Channel	Frequency [MHz]	26 dB Bandwidth [MHz]	
		Chain 0	Chain 1
Low	5270	40.22	39.80
High	5310	40.16	39.50
Worst		40.22	

**8.3.8. 802.11ac VHT80 MODE IN THE 5.3 GHz BAND**

Channel	Frequency [MHz]	26 dB Bandwidth [MHz]	
		Chain 0	Chain 1
Middle	5290	81.50	81.33
Worst		81.50	

**8.3.1. 802.11a MODE IN THE 5.5 GHz BAND**

Channel	Frequency [MHz]	26 dB Bandwidth [MHz]	
		Primary	Secondary
Low	5500	19.42	18.98
Mid	5580	18.77	18.95
High	5700	18.68	18.56
Worst		19.42	

**8.3.2.802.11n HT20 MODE IN THE 5.5 GHz BAND**

Channel	Frequency [MHz]	26 dB Bandwidth [MHz]	
		Chain 0	Chain 1
Low	5500	19.49	19.67
Mid	5580	19.54	19.82
High	5700	19.52	19.68
Worst		19.82	

**8.3.3.802.11n HT40 MODE IN THE 5.5 GHz BAND**

Channel	Frequency [MHz]	26 dB Bandwidth [MHz]	
		Chain 0	Chain 1
Low	5510	40.14	39.49
Mid	5550	40.06	39.61
High	5670	39.49	40.01
Worst		40.14	

**8.3.4. 802.11ac VHT80 MODE IN THE 5.5 GHz BAND**

Channel	Frequency [MHz]	26 dB Bandwidth [MHz]	
		Chain 0	Chain 1
Low	5530	81.76	80.96
Worst		81.76	

**8.3.5.802.11a MODE IN THE 5.8 GHz BAND**

Channel	Frequency [MHz]	26 dB Bandwidth [MHz]	
		Primary	Secondary
Low	5745	18.64	18.88
Mid	5785	18.64	18.44
High	5825	19.12	18.74
Worst		19.12	

**8.3.6.802.11n HT20 MODE IN THE 5.8 GHz BAND**

Channel	Frequency [MHz]	26 dB Bandwidth [MHz]	
		Chain 0	Chain 1
Low	5745	19.85	19.72
Mid	5785	19.67	19.72
High	5825	19.68	19.54
Worst		19.85	

**8.3.7.802.11n HT40 MODE IN THE 5.8 GHz BAND**

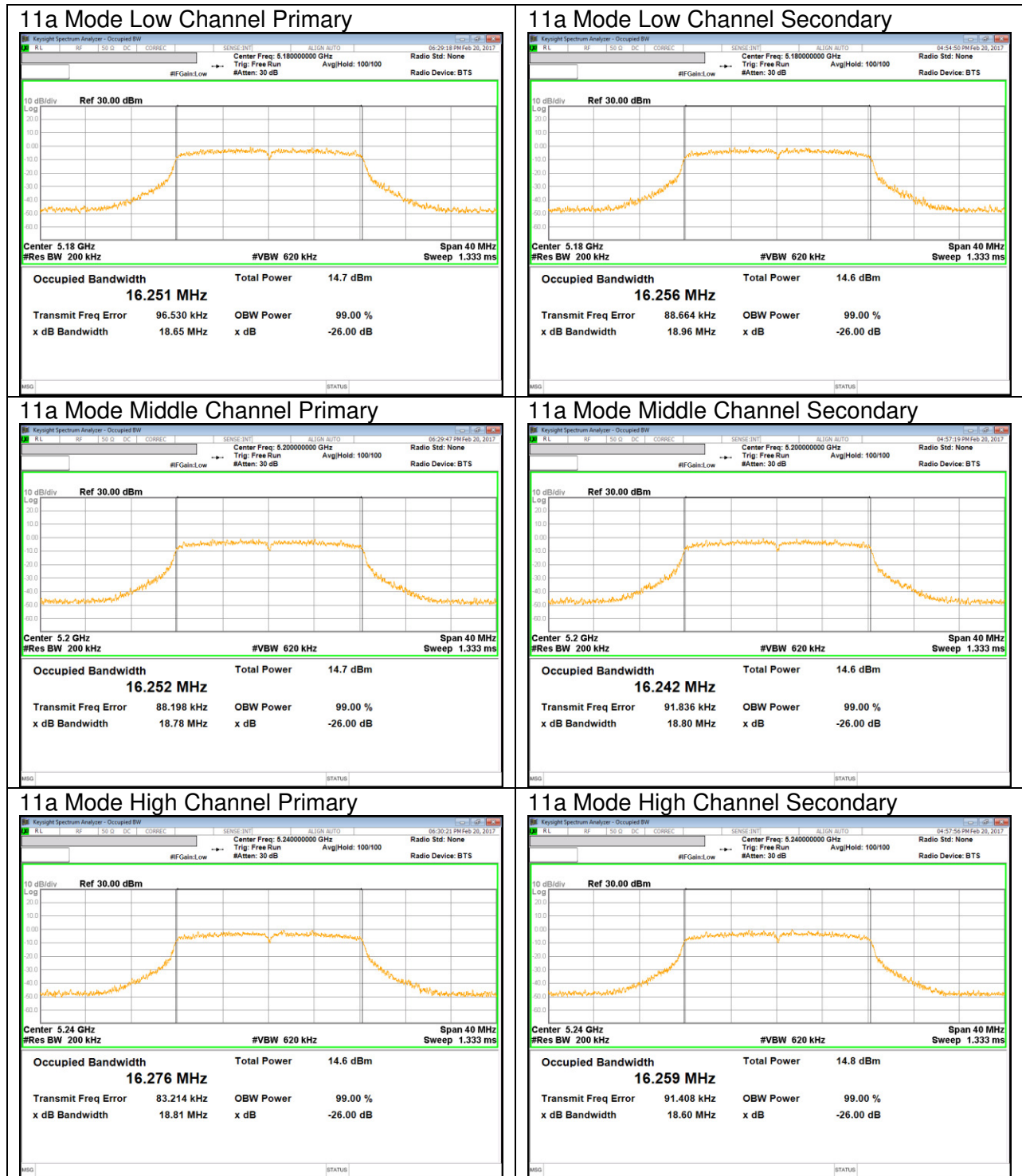
Channel	Frequency [MHz]	26 dB Bandwidth [MHz]	
		Chain 0	Chain 1
Low	5755	39.97	39.82
High	5795	40.24	39.20
Worst		40.24	

**8.3.8. 802.11ac VHT80 MODE IN THE 5.8 GHz BAND**

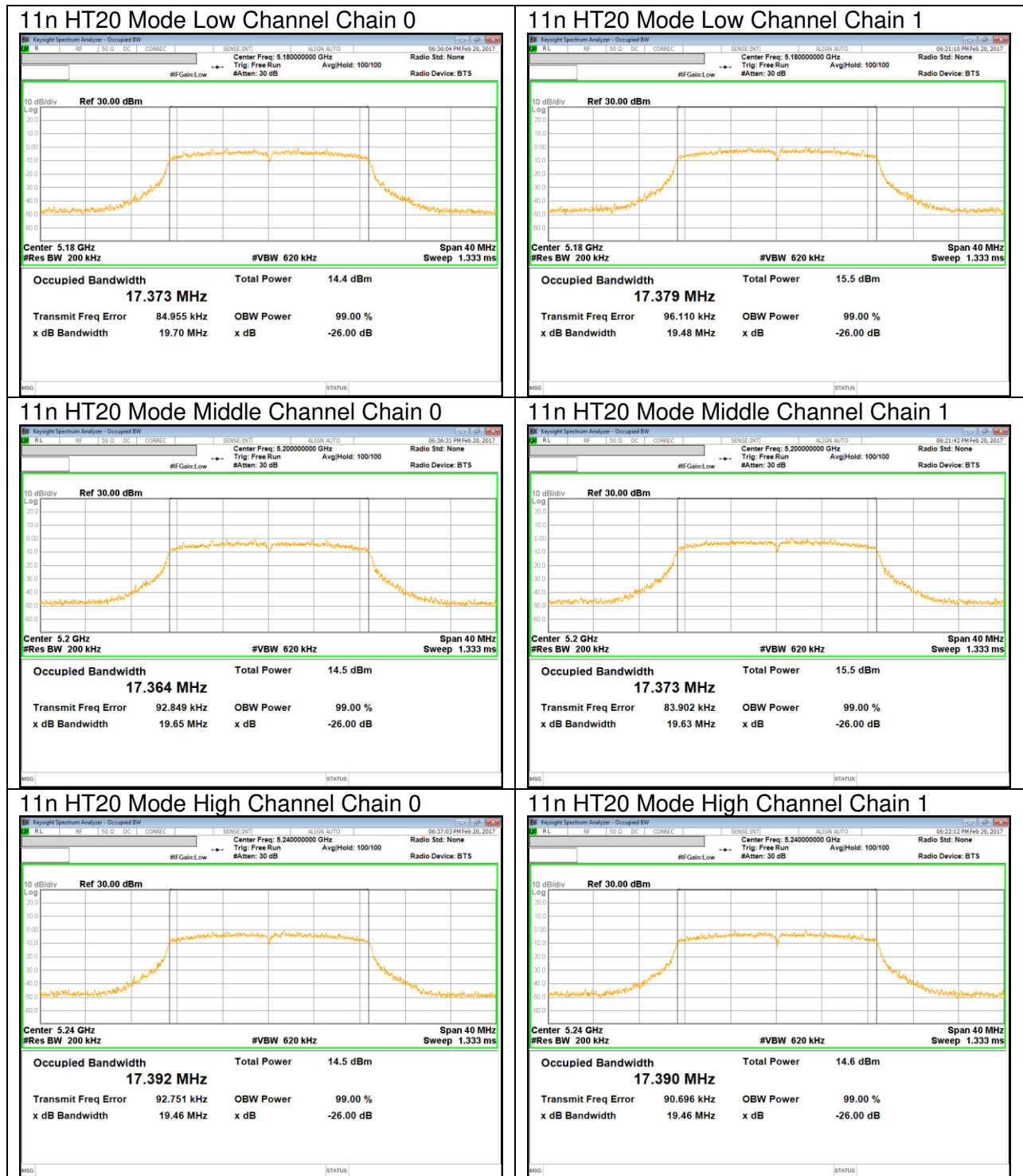
Channel	Frequency [MHz]	26 dB Bandwidth [MHz]	
		Chain 0	Chain 1
Middle	5775	82.49	81.68
Worst		82.49	

### 8.3.9.26 dB BANDWIDTH PLOTS

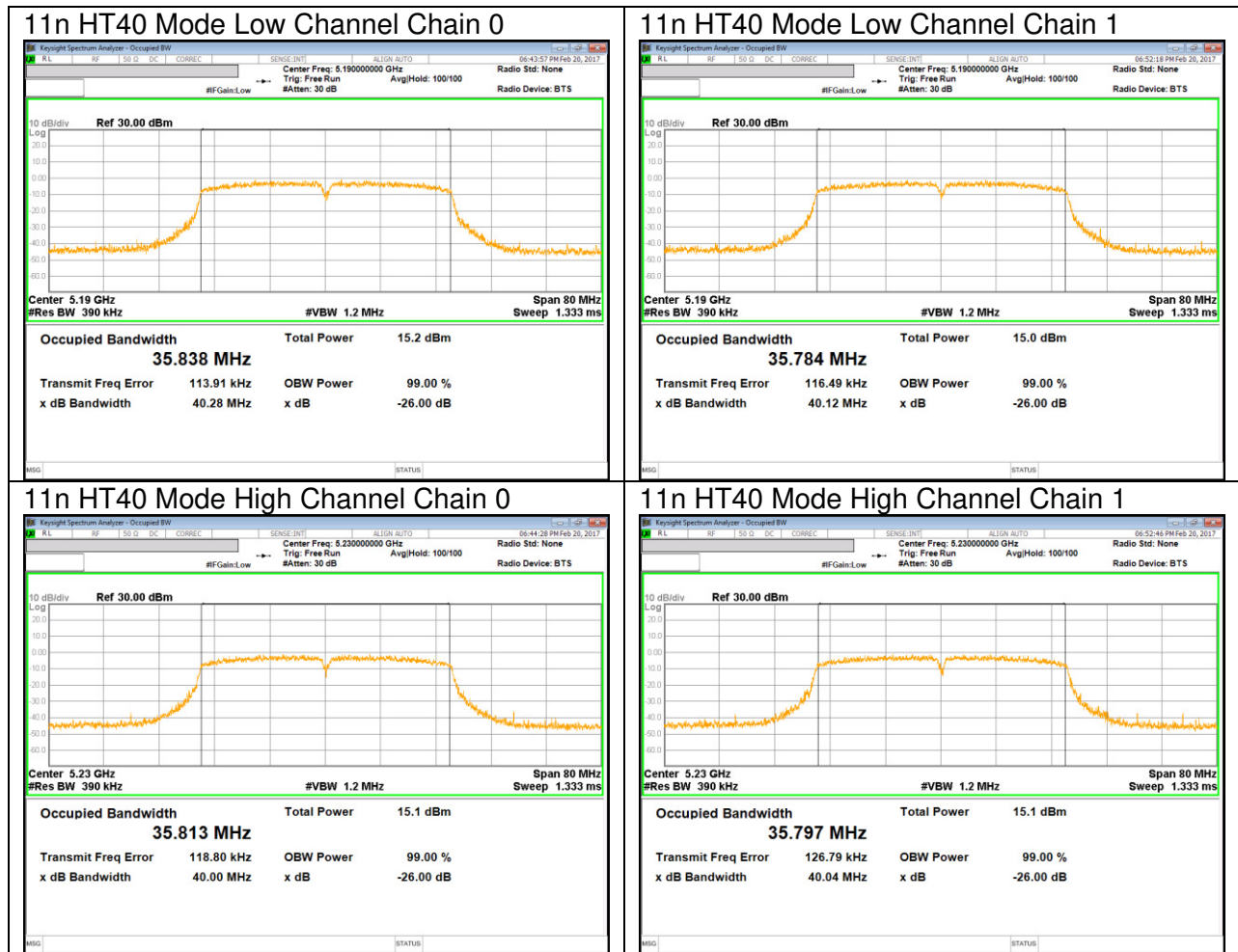
#### UNII 5.2 GHz IEEE 802.11a mode



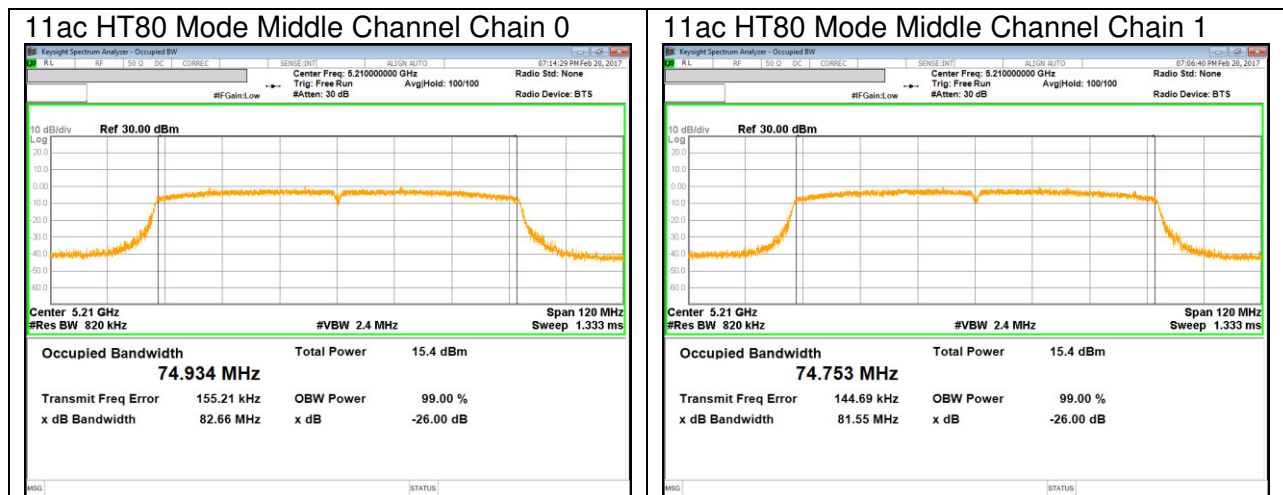
**UNII 5.2 GHz IEEE 802.11n HT20 mode**



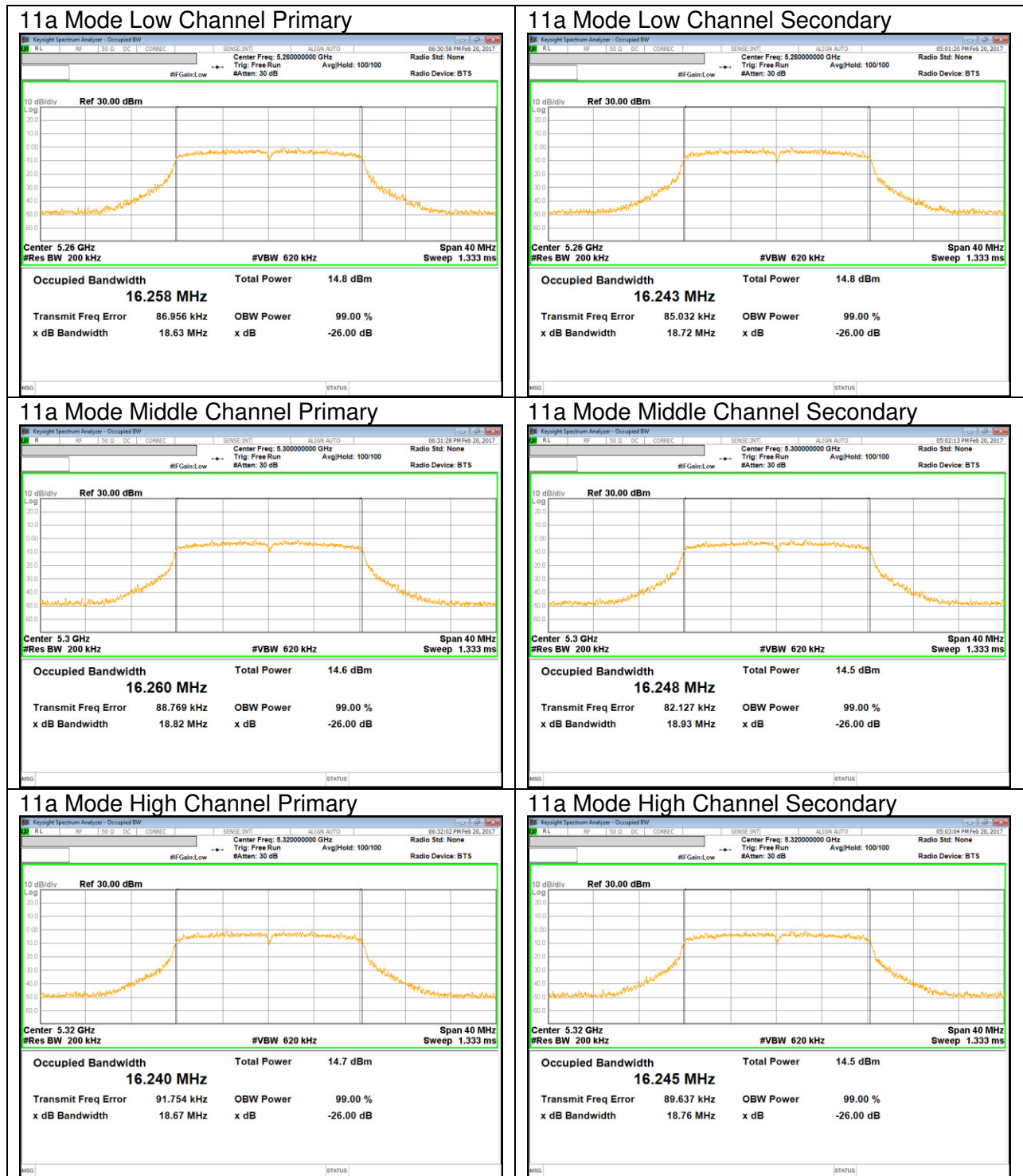
**UNII 5.2 GHz IEEE 802.11n HT40 mode**



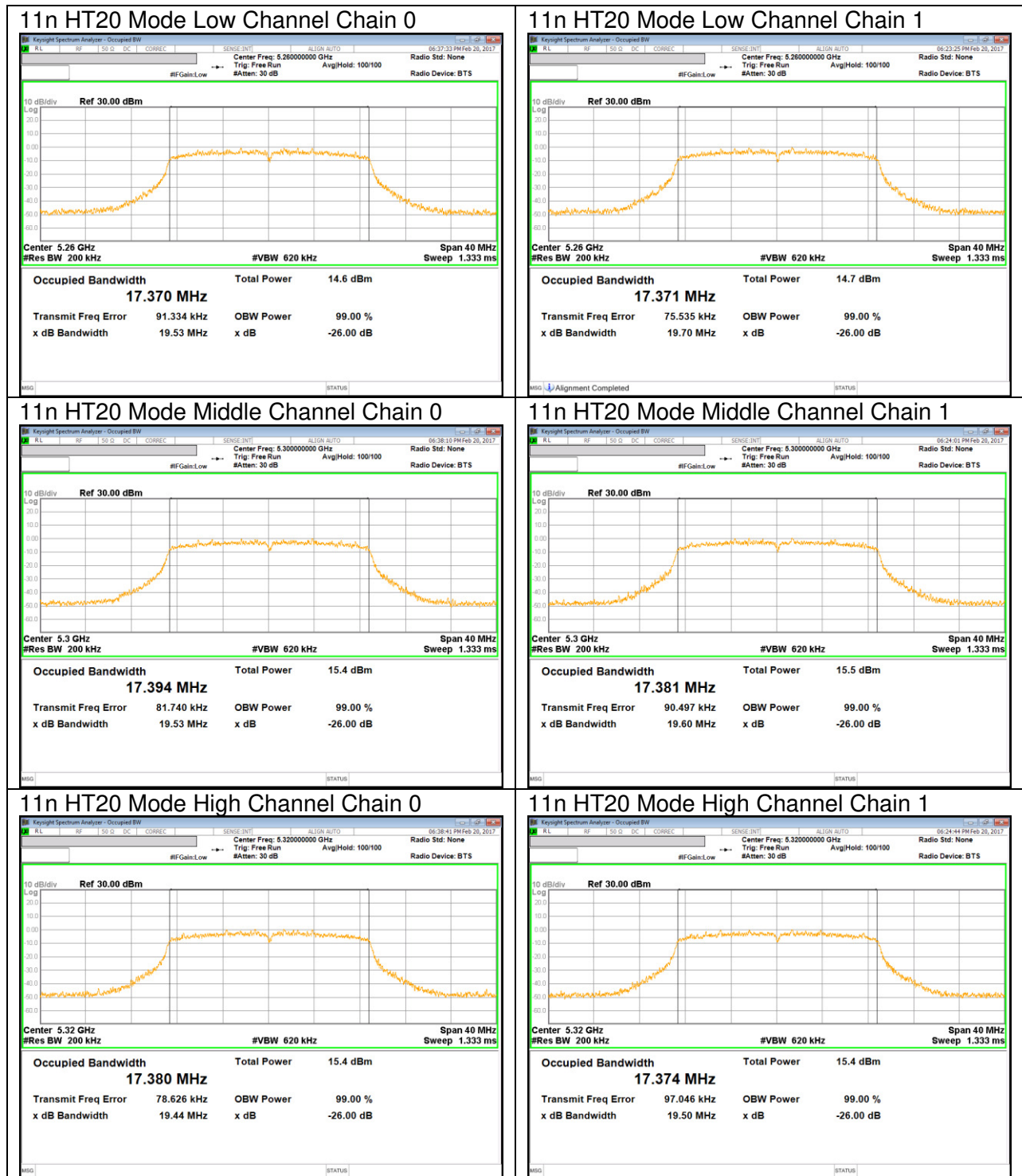
**UNII 5.2 GHz IEEE 802.11ac VHT80 mode**



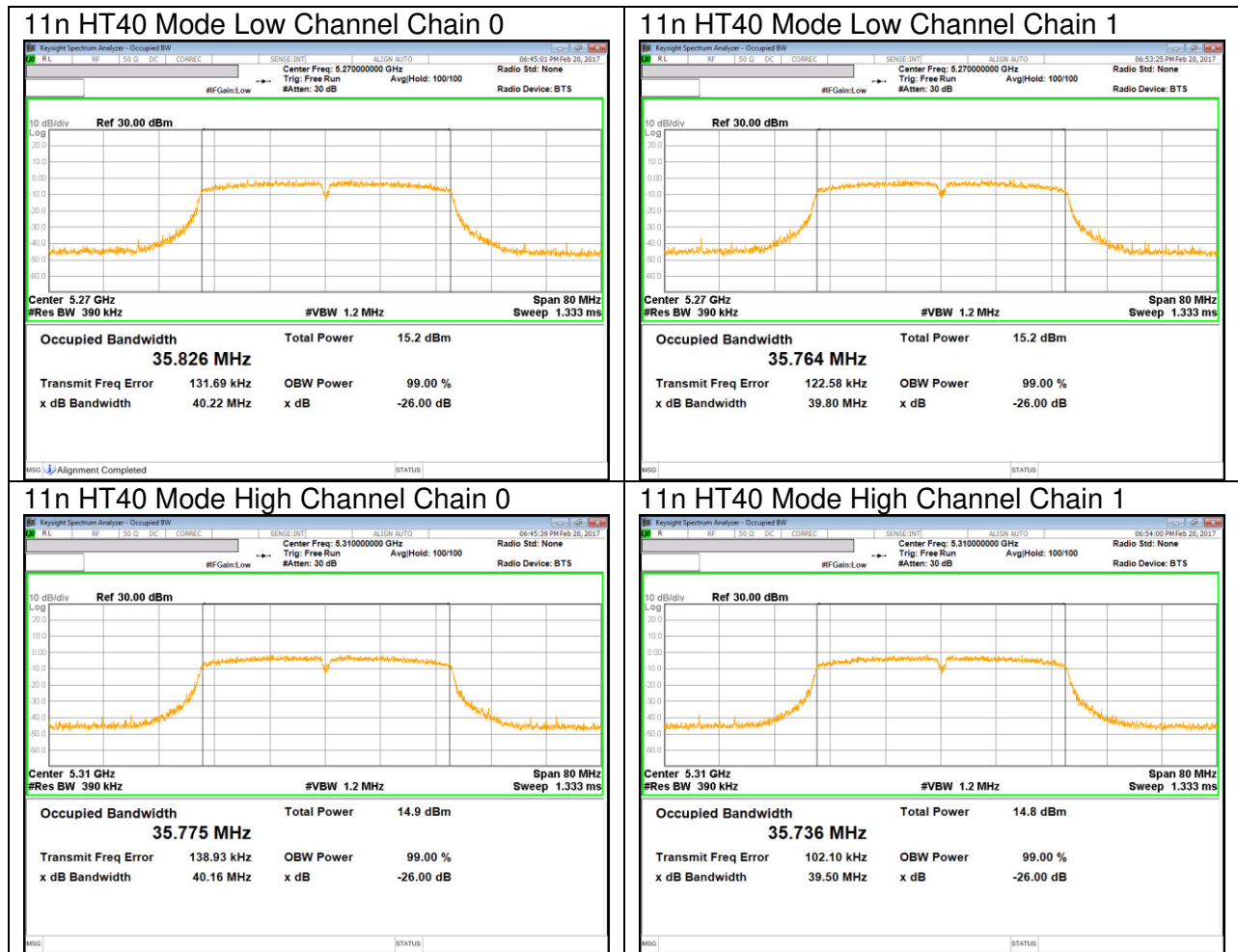
**UNII 5.3 GHz IEEE 802.11a mode**



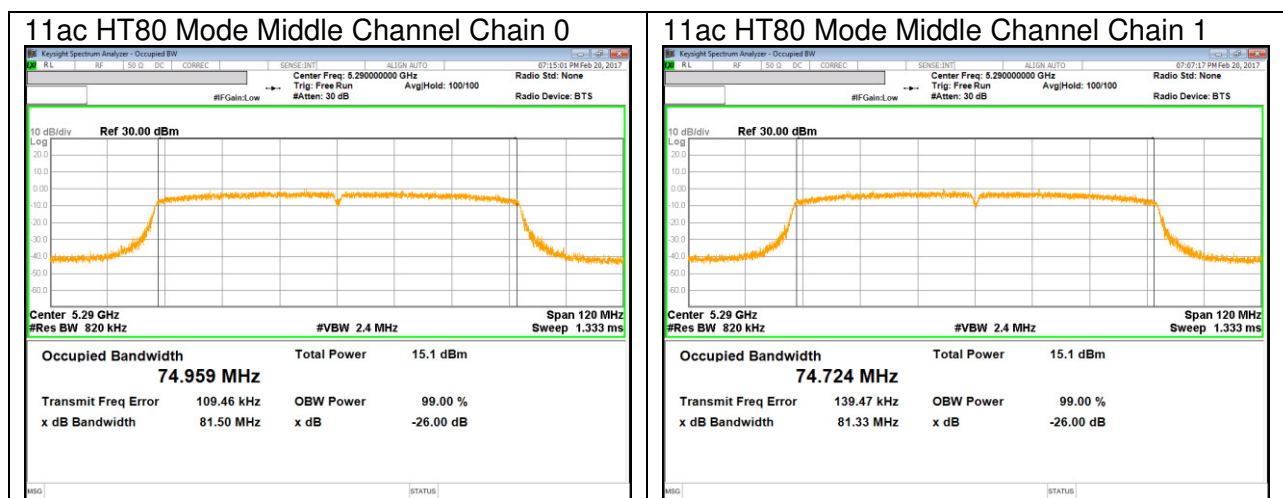
**UNII 5.3 GHz IEEE 802.11n HT20 mode**



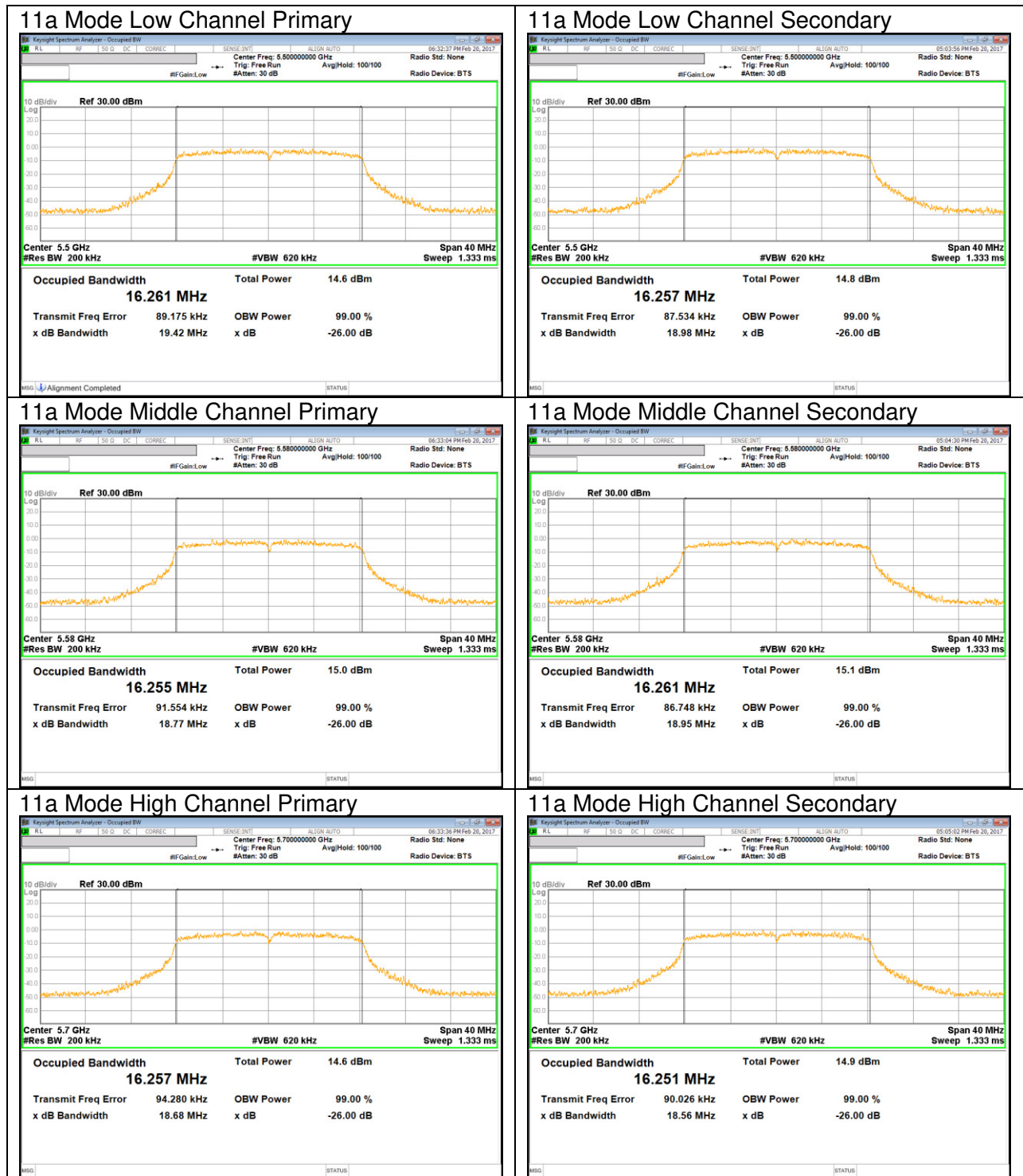
**UNII 5.3 GHz IEEE 802.11n HT40 mode**



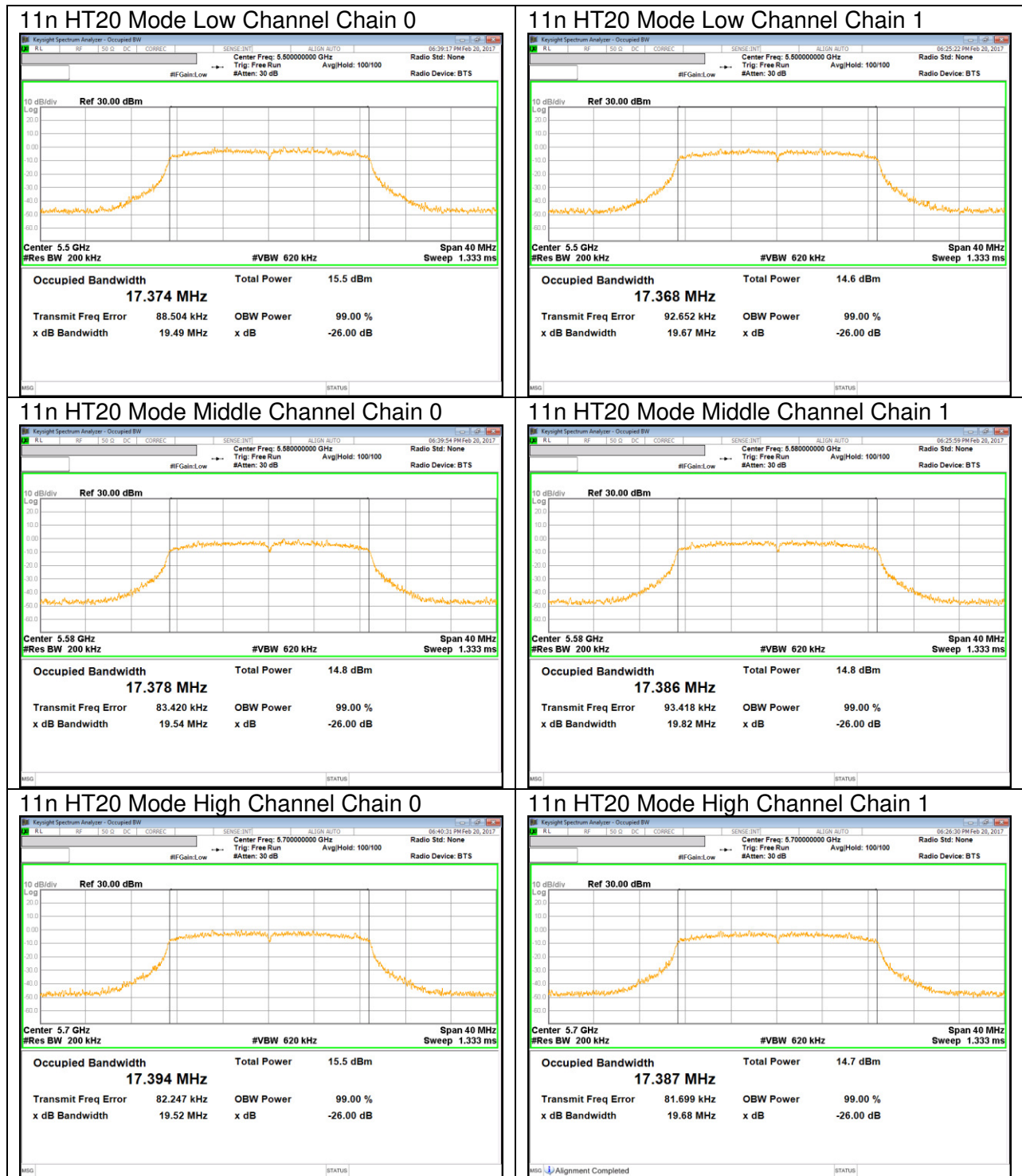
**UNII 5.3 GHz IEEE 802.11ac VHT80 mode**



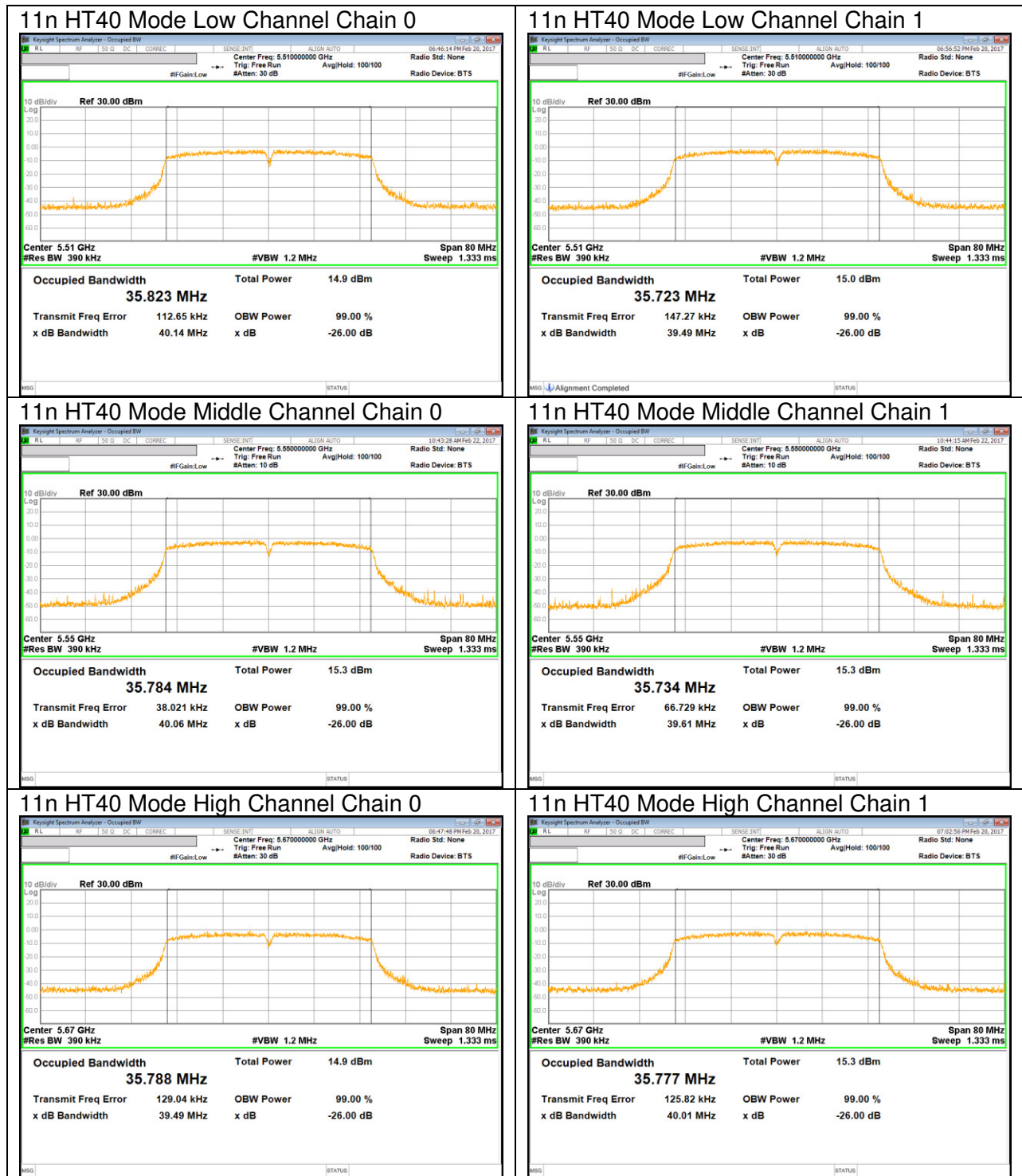
**UNII 5.5 GHz IEEE 802.11a mode**



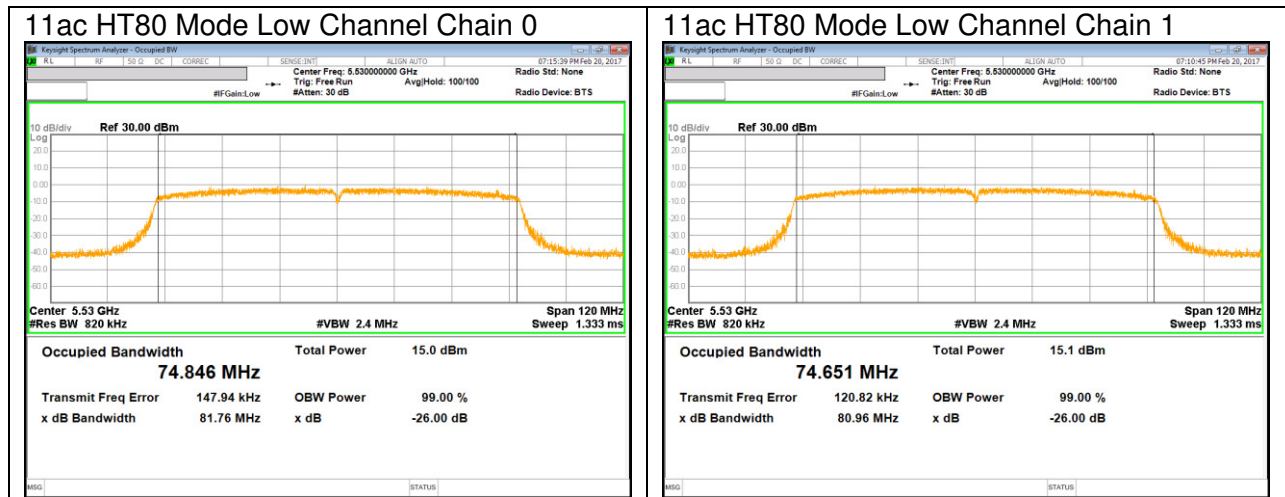
**UNII 5.5 GHz IEEE 802.11n HT20 mode**



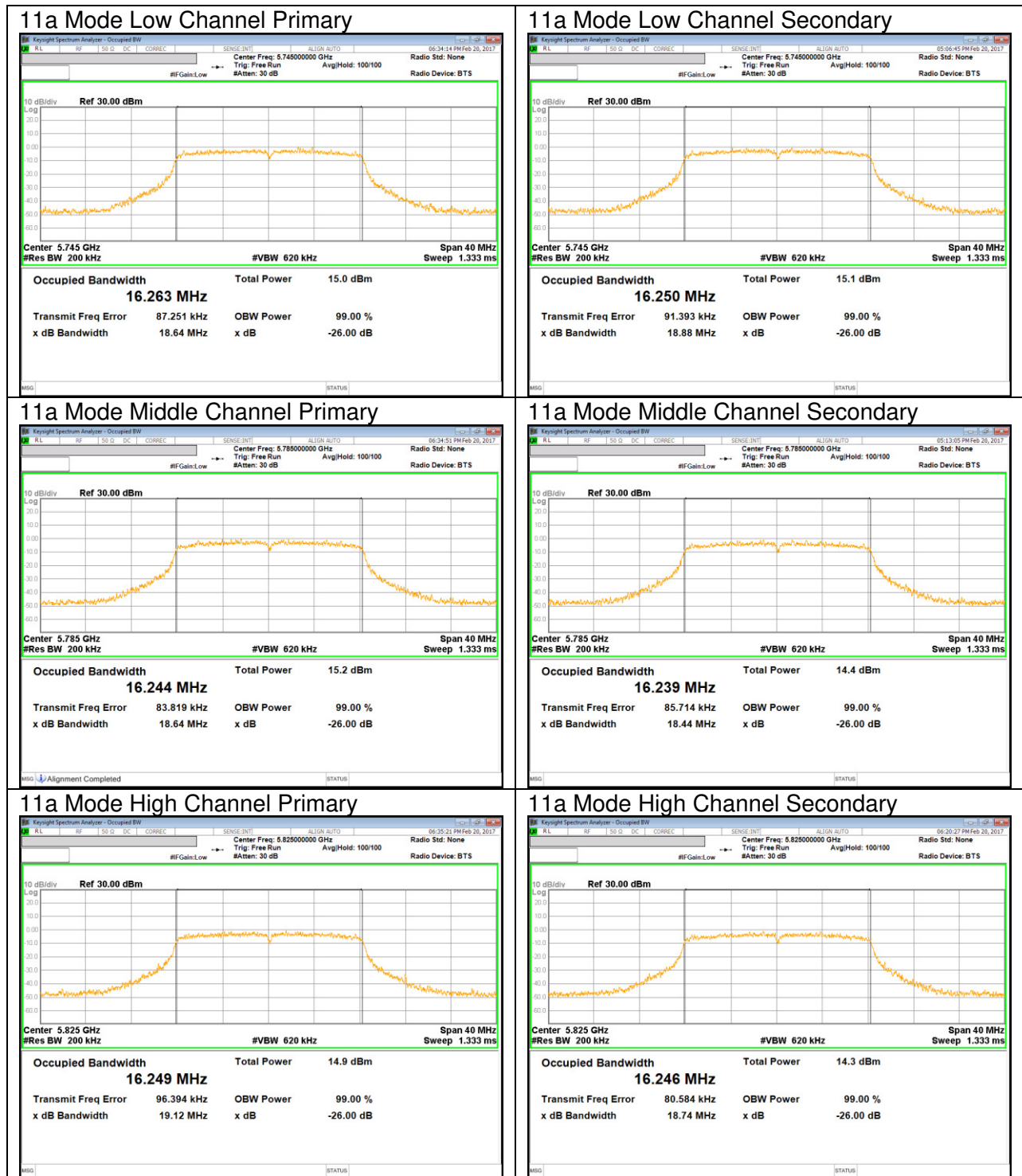
**UNII 5.5 GHz IEEE 802.11n HT40 mode**



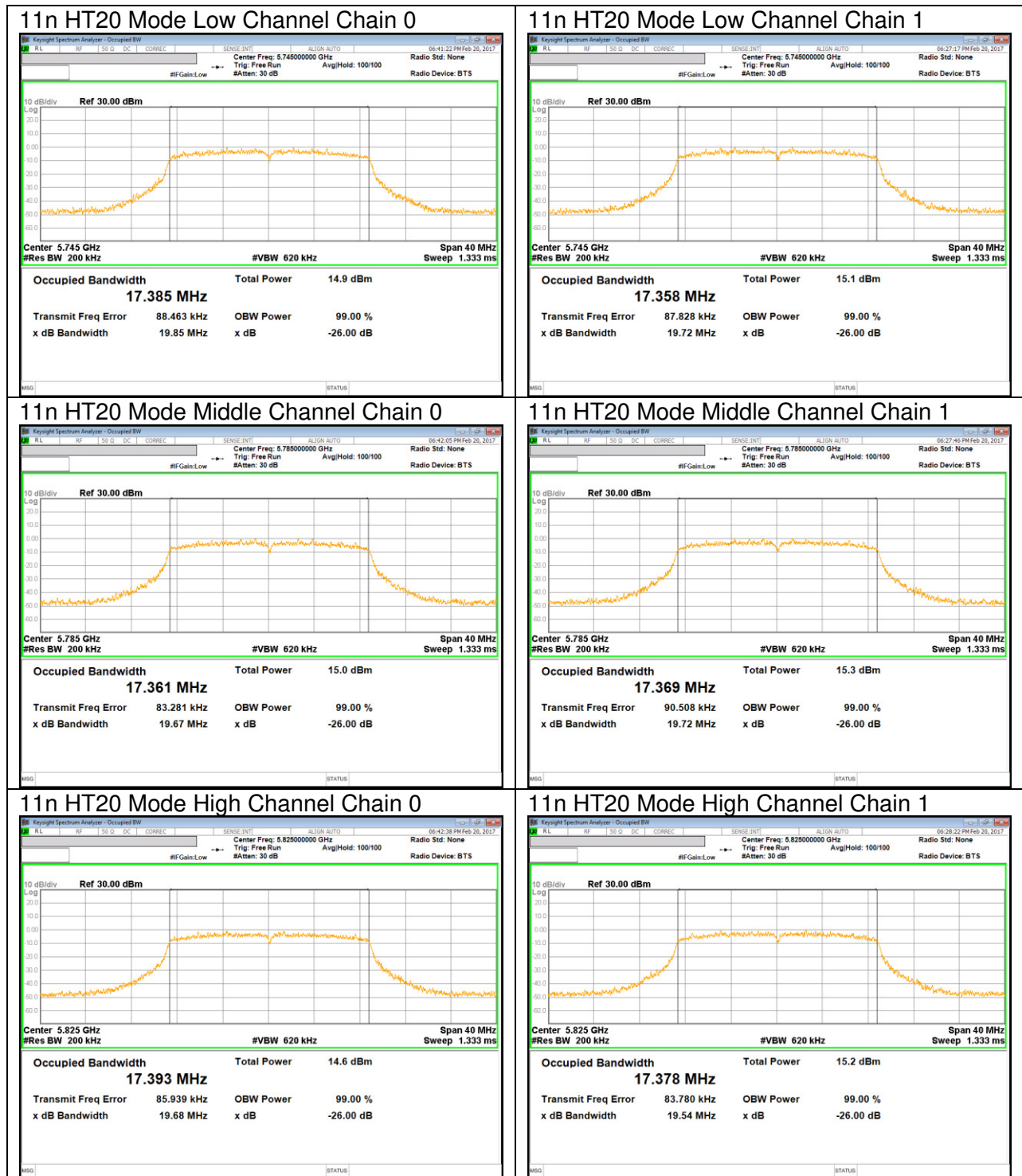
**UNII 5.5 GHz IEEE 802.11ac VHT80 mode**



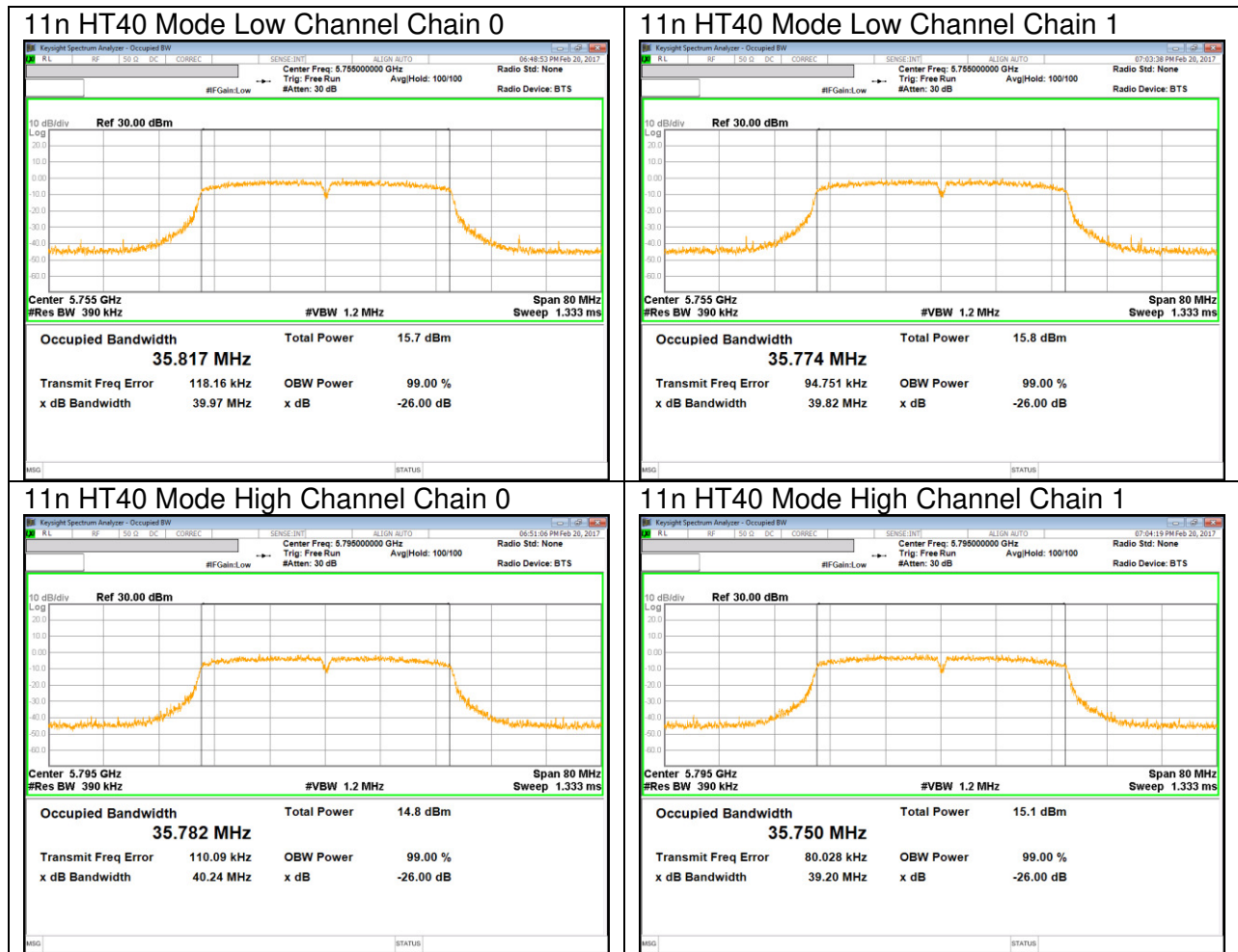
**UNII 5.8 GHz IEEE 802.11a mode**



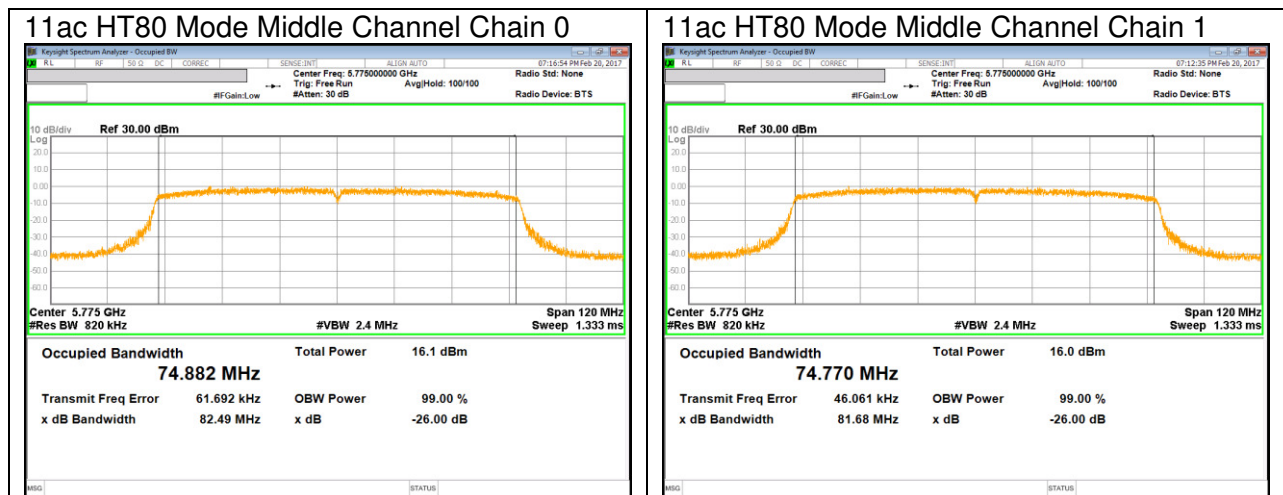
**UNII 5.8 GHz IEEE 802.11n HT20 mode**



**UNII 5.8 GHz IEEE 802.11n HT40 mode**



**UNII 5.8 GHz IEEE 802.11ac VHT80 mode**



## 9. ANTENNA PORT TEST RESULTS

### 9.1. 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

**9.1.1.802.11a MODE IN THE 5.8 GHz BAND**

Channel	Frequency [MHz]	6 dB Bandwidth [MHz]		Minimum Limit [MHz]
		Primary	Secondary	
Low	5745	14.840	15.120	0.5
Mid	5785	15.080	15.320	0.5
High	5825	15.040	15.320	0.5
Worst		14.840		

**9.1.2.802.11n HT20 MODE IN THE 5.8 GHz BAND**

Channel	Frequency [MHz]	6 dB Bandwidth [MHz]		Minimum Limit [MHz]
		Chain 0	Chain 1	
Low	5745	15.090	15.120	0.5
Mid	5785	15.390	15.110	0.5
High	5825	15.040	15.130	0.5
Worst		15.040		

**9.1.3.802.11n HT40 MODE IN THE 5.8 GHz BAND**

Channel	Frequency [MHz]	6 dB Bandwidth [MHz]		Minimum Limit [MHz]
		Chain 0	Chain 1	
Low	5765	35.080	35.100	0.5
High	5795	35.090	35.090	0.5
Worst		35.080		

**9.1.4. 802.11n VHT80 MODE IN THE 5.8 GHz BAND**

Channel	Frequency [MHz]	6 dB Bandwidth [MHz]		Minimum Limit [MHz]
		Chain 0	Chain 1	
Middle	5775	75.050	75.070	0.5
Worst		75.050		

### 9.1.5.6 dB BANDWIDTH PLOTS

#### IEEE 802.11a mode

