

**FCC 47 CFR PART 15 SUBPART E
ISED RSS-247 ISSUE 2**

CERTIFICATION TEST REPORT

For

Huawei STB / Huawei BOX

MODEL NUMBER: Q21F

FCC ID: QIS-Q21F

IC: 6369A-Q21F

REPORT NUMBER: 4788692075.1-4

ISSUE DATE: October 24, 2018

Prepared for

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Revision History

Rev.	Issue Date	Revisions	Revised By
V0	10/24/2018	Initial Issue	



Summary of Test Results			
Clause	Test Items	FCC/IC Rules	Test Results
1	6dB/26dB Bandwidth	FCC 15.407 (a)&(e) RSS-247 Clause 6.2	PASS
2	99% Occupied Bandwidth	RSS-Gen Clause 6.6	PASS
3	Maximum Conducted Output Power	FCC 15.407 (a) RSS-247 Clause 6.2	PASS
4	Power Spectral Density	FCC 15.407 (a) RSS-247 Clause 6.2	PASS
5	Antenna Conducted Spurious Emission	FCC 15.407 (b) RSS-247 Clause 6.2	PASS
6	Radiated Bandedge and Spurious Emission	FCC 15.407 (a) FCC 15.209 FCC 15.205 RSS-247 Clause 6.2 RSS-GEN Clause 8.9	PASS
7	Conducted Emission Test For AC Power Port	FCC 15.207 RSS-GEN Clause 8.8	PASS
8	Antenna Requirement	FCC 15.203 RSS-GEN Clause 8.3	PASS
9	Dynamic Frequency Selection	FCC 15.407 (h) RSS-247 Clause 6.3	PASS



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1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name: HUAWEI TECHNOLOGIES CO., LTD.
Address: Administration Building, Huawei Technologies Co., Ltd. Bantian,
Longgang District, Shenzhen, P.R. China, 518129

Manufacturer Information

Company Name: HUAWEI TECHNOLOGIES CO., LTD.
Address: Administration Building, Huawei Technologies Co., Ltd. Bantian,
Longgang District, Shenzhen, P.R. China, 518129

EUT Description

EUT Name: Huawei STB / Huawei BOX
Model: Q21F
Brand Name: HUAWEI
Sample Status: Normal
Sample Received Date: September 28, 2018
Date of Tested: October 8, 2018 ~ October 17, 2018

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 FCC PART 15 SUBPART E	PASS
ISED RSS-247 Issue 2	PASS
ISED RSS-GEN Issue 5	PASS

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2013, FCC CFR 47 Part 2, FCC CFR 47 Part 15, KDB 789033 D02 v02r01, RSS-GEN Issue 5, RSS-247 Issue 2, KDB414788 D01 Radiated Test Site v01, KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02 and 905462 C Client Without DFS New Rules v01r02.

3. FACILITIES AND ACCREDITATIO

Accreditation Certificate	A2LA (Certificate No.: 4102.01) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with A2LA. FCC (FCC Designation No.: CN1187) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. Has been recognized to perform compliance testing on equipment subject to the Commission's Delcaration of Conformity (DoC) and Certification rules IC(Company No.: 21320) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been registered and fully described in a report filed with Industry Canada. The Company Number is 21320. VCCI (Registration No.: G-20019, R-20004, C-20012 and T-20011) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with VCCI, the Membership No. is 3793. Facility Name: Chamber D, the VCCI registration No. is G-20019 and R-20004 Shielding Room B , the VCCI registration No. is C-20012 and T-20011
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Note 1: All tests measurement facilities use to collect the measurement data are located at Building 10, Innovation Technology Park, Song Shan Lake Hi tech Development Zone, Dongguan, 523808, China

Note 2: For below 30MHz, lab had performed measurements at test anechoic chamber and comparing to measurements obtained on an open field site. And these measurements below 30MHz had been correlated to measurements performed on an OATS.



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 recognize national standards.

4.2. MEASUREMENT UNCERTAINTY

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

Test Item	Uncertainty
Uncertainty for Conduction emission test	3.62dB
Uncertainty for Radiation Emission test(include Fundamental emission) (9KHz-30MHz)	2.2dB
Uncertainty for Radiation Emission test(include Fundamental emission) (30MHz-1GHz)	4.00dB
Uncertainty for Radiation Emission test (1GHz to 40GHz)(include Fundamental emission)	5.78dB(1-18GHz)
	5.23dB (18GHz-26Gz)
	5.64dB (26GHz-40Gz)
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	



5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

EUT Name	Huawei STB / Huawei BOX		
Model	Q21F		
Radio Technology	IEEE802.11a/n HT20/n HT40/802.11ac HT20/802.11ac HT40/ 802.11ac HT80		
Operation frequency	UNII-1/UNII-2A/UNII-2C/UNII-3		
Modulation	OFDM(BPSK,QPSK,16QAM,64QAM)		
Rated Input	DC 12V		
Power Supply	Power Adapter	Input	AC120~240V, 50/60Hz, 0.5A
		Output	DC 12V, 1.0A



5.2. CHANNEL LIST

20 MHz Bandwidth Channel frequencies		
Band	Channel	Frequency (MHz)
UNII-1	36	5180
	40	5200
	44	5220
	48	5240
UNII-2A	52	5260
	56	5280
	60	5300
	64	5320
UNII-2C	100	5500
	104	5520
	108	5540
	112	5560
	116	5580
	120	5600
	124	5620
	128	5640
	132	5660
	136	5680
UNII-3	140	5700
	149	5745
	153	5765
	157	5785
	161	5805
	165	5825



40 MHz Bandwidth Channel frequencies		
Band	Channel	Frequency (MHz)
UNII-1	38	5190
	46	5230
UNII-2	54	5270
	62	5310
UNII-2C	102	5510
	110	5550
	118	5590
	126	5630
	134	5670
UNII-3	151	5755
	159	5795

80 MHz Bandwidth Channel frequencies		
Band	Channel	Frequency (MHz)
UNII-1	42	5210
UNII-2A	58	5290
UNII-2C	106	5530
	122	5610
	134	5670
UNII-3	155	5775



5.3. DESCRIPTION OF AVAILABLE ANTENNAS

Ant.	Frequency (MHz)	Antenna Type	Antenna Gain (dBi)
A	5150-5250	PCB	1.0
	5250-5350	PCB	1.0
	5470-5725	PCB	1.0
	5725-5825	PCB	1.0

Ant.	Frequency (MHz)	Antenna Type	Antenna Gain (dBi)
B	5150-5250	PCB	1.0
	5250-5350	PCB	1.0
	5470-5725	PCB	1.0
	5725-5825	PCB	1.0

Test Mode	Transmit and Receive Mode	Description
802.11a	TX, RX	Antenna A or B can be can be used as transmitting/receiving antenna.
802.11n HT20	2TX, 2RX	Antenna A and B can be can be used as transmitting/receiving antenna.
802.11n HT40	2TX, 2RX	Antenna A and B can be can be used as transmitting/receiving antenna.
802.11ac HT20	2TX, 2RX	Antenna A and B can be can be used as transmitting/receiving antenna.
802.11ac HT40	2TX, 2RX	Antenna A and B can be can be used as transmitting/receiving antenna.
802.11ac HT80	2TX, 2RX	Antenna A and B can be can be used as transmitting/receiving antenna.

Note: 802.11a mode only support SISO mode.



5.4. TEST ENVIRONMENT

Environment Parameter	Selected Values During Tests	
Relative Humidity	35 ~ 75%	
Atmospheric Pressure:	1025Pa	
Temperature	TN	18 ~ 35°C
Voltage :	VL	/
	VN	AC 120V/60Hz
	VH	/

Note: VL= Lower Extreme Test Voltage
VN= Nominal Voltage
VH= Upper Extreme Test Voltage
TN= Normal Temperature



5.5. WORST-CASE CONFIGURATIONS

IEE Std. 802.11	Modulation Technology	Modulation Type	Data Rate (Mbps)	Worst Case (Mbps)
a	OFDM	BPSK,QPSK,16QAM, 64QAM	54/48/36/24/18/12/9/6	6

802.11n HT20/HT40							
Antenna	MCS	Modulation	HT20 Data Rate(Mbps)		HT40 Data Rate(Mbps)		Worst Case (Mbps)
			GI=800ns	GI=400ns	GI=800ns	GI=400ns	
2x2	8	BPSK	13	14.4	27	30	MCS8
	9	QPSK	26	28.9	54	60	MCS8
	10	QPSK	39	43.3	81	90	MCS8
	11	16-QAM	52	57.8	108	120	MCS8
	12	16-QAM	78	86.7	162	180	MCS8
	13	64-QAM	104	115.6	216	240	MCS8
	14	64-QAM	117	130	243	270	MCS8
	15	64-QAM	130	144.4	270	300	MCS8

802.11ac HT20/HT40/HT80									
Antenna	MCS	Modulation	HT20 Data Rate (Mbps)		HT40 Data Rate (Mbps)		HT80 Data Rate (Mbps)		Worst Case (Mbps)
			GI=800ns	GI=400ns	GI=800ns	GI=400ns	GI=800ns	GI=400ns	
2x2	0	BPSK	13	14.4	27	30	58.5	65	MCS0
	1	QPSK	26	28.9	54	60	117	130	MCS0
	2	QPSK	39	43.3	81	90	175.5	195	MCS0
	3	16-QAM	52	57.8	108	120	234	260	MCS0
	4	16-QAM	78	86.7	162	180	351	390	MCS0
	5	64-QAM	104	115.6	216	240	468	520	MCS0
	6	64-QAM	117	130.3	243	270	526.5	585	MCS0
	7	64-QAM	130	144.4	270	300	585	650	MCS0
	8	256-QAM	156	173.3	324	360	702	780	MCS0
	9	256-QAM	N/A	N/A	360	400	780	866.7	MCS0

Remarks: EUT support for SISO and CDD MIMO Transmission, only 802.11n supports CDD MIMO Mode, SISO mode sets the same power level as MIMO mode, so MIMO mode is the WORST-CASE.



5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Item	Equipment	Brand Name	Model Name	P/N
1	Laptop	ThinkPad	T460S	SL10K24796 JS
2	High Pass Filter	Wainwright	WHKX10-5850-6500-1800-40SS	4
3	Band Reject Filter	Wainwright	WRCJV20-5120-5150-5350-5380-60SS	2
4	Band Reject Filter	Wainwright	WRCJV20-5440-5470-5725-5755-60SS	1
5	Band Reject Filter	Wainwright	WRCJV12-5695-5725-5850-5880-40SS	4

I/O CABLES

Item	Port	Connector Type	Cable Type	Cable Length(m)	Remarks
1	USB	USB	Unshielding	0.5	/

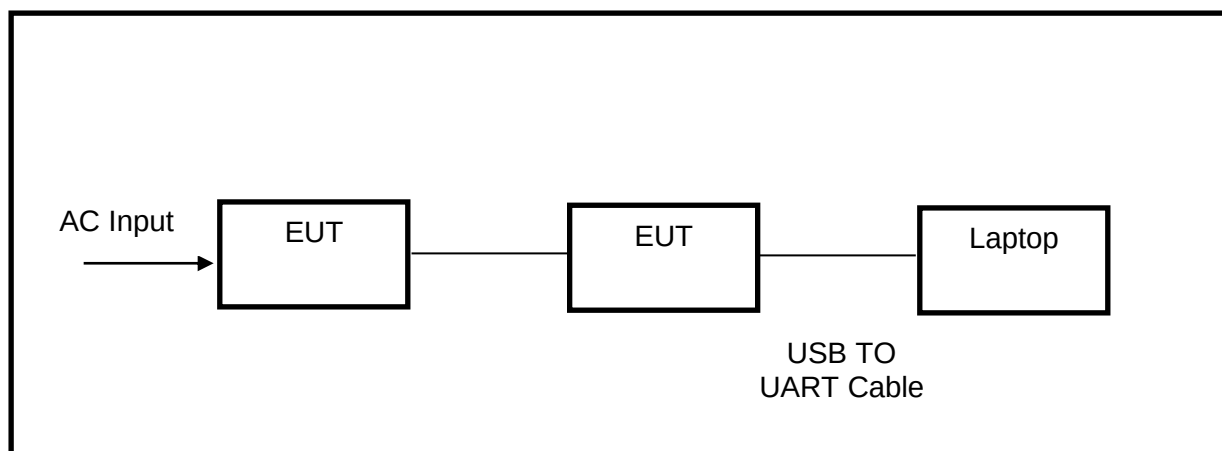
ACCESSORIES

Item	Accessory	Brand Name	Model Name	Description
1	AC ADAPTOR	HUAWEI	HW-120100E0W	Input: 100-240 Vac, 50/60 Hz, 0.5 A Output: 12Vdc, 1A
2	remote control	HUAWEI	/	/

TEST SETUP

The EUT can work in engineering mode with a software through a Laptop.

SETUP DIAGRAM FOR TESTS





5.7. MEASURING INSTRUMENT AND SOFTWARE USED

Conducted Emissions						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
☒	EMI Test Receiver	R&S	ESR3	101961	Dec.12,2017	Dec.11,2018
☒	Two-Line V-Network	R&S	ENV216	101983	Dec.12,2017	Dec.11,2018
Software						
Used	Description		Manufacturer	Name		Version
☒	Test Software for Conducted disturbance		UL	Antenna port		Ver. 7.2
Radiated Emissions						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
☒	MXE EMI Receiver	KESIGHT	N9038A	MY56400036	Dec.12,2017	Dec.11,2018
☒	Hybrid Log Periodic Antenna	TDK	HLP-3003C	130960	Jan.09, 2016	Jan.09, 2019
☒	Preamplifier	HP	8447D	2944A09099	Dec.12,2017	Dec.11,2018
☒	EMI Measurement Receiver	R&S	ESR26	101377	Dec.12,2017	Dec.11,2018
☒	Horn Antenna	TDK	HRN-0118	130939	Jan. 09, 2016	Jan. 09, 2019
☒	High Gain Horn Antenna	Schwarzbeck	BBHA-9170	691	Jan.06, 2016	Jan.06, 2019
☒	Preamplifier	TDK	PA-02-0118	TRS-305-00066	Dec.12,2017	Dec.11,2018
☒	Preamplifier	TDK	PA-02-2	TRS-307-00003	Dec.12,2017	Dec.11,2018
☒	Loop antenna	Schwarzbeck	1519B	00008	Mar. 26, 2016	Mar. 26, 2019
Software						
Used	Description		Manufacturer	Name		Version
☒	Test Software for Radiated disturbance		Farad	EZ-EMC		Ver. UL-3A1
Other instruments						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
☒	Spectrum Analyzer	Keysight	N9030A	MY55410512	Dec.12,2017	Dec.11,2018
☒	Power Sensor	Keysight	U2021XA	MY57030004	Dec.12,2017	Dec.11,2018



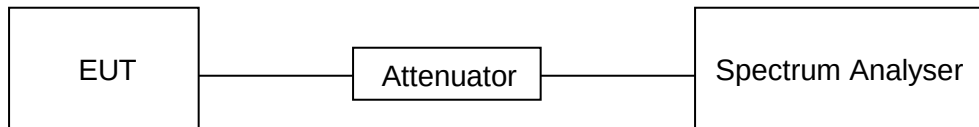
6. ANTENNA PORT TEST RESULTS

6.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

TEST SETUP



TEST ENVIRONMENT

Temperature	24.5°C	Relative Humidity	58%
Atmosphere Pressure	101kPa	Test Voltage	AC120V

RESULTS

ANTENNA B

Mode	On Time (msec)	Period (msec)	Duty Cycle x (Linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/T Minimum VBW (KHz)	Final setting For VBW (KHz)
11a	2.060	2.135	0.9648	96.48	0.16	0.46	1
11n20	1.915	2.027	0.9447	94.47	0.25	0.52	1
11n40	0.937	0.996	0.9408	94.08	0.27	1.07	2
11ac HT20	1.928	2.019	0.9549	95.49	0.20	0.52	1
11ac HT40	0.945	1.041	0.9078	90.78	0.42	1.06	1
11ac HT80	0.454	0.512	0.8867	88.67	0.52	2.20	2

Note:

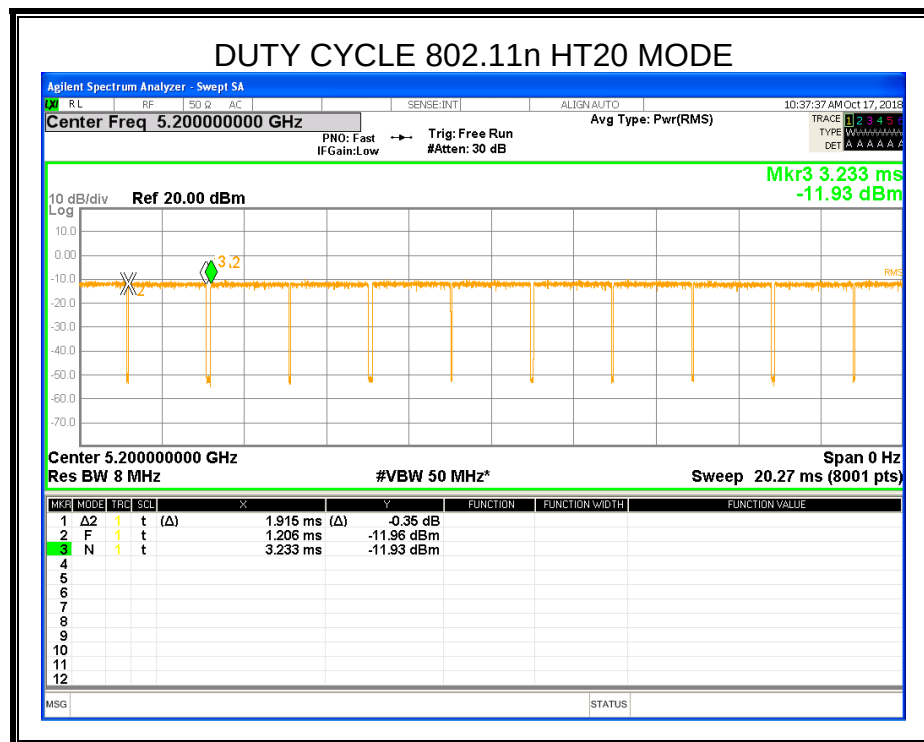
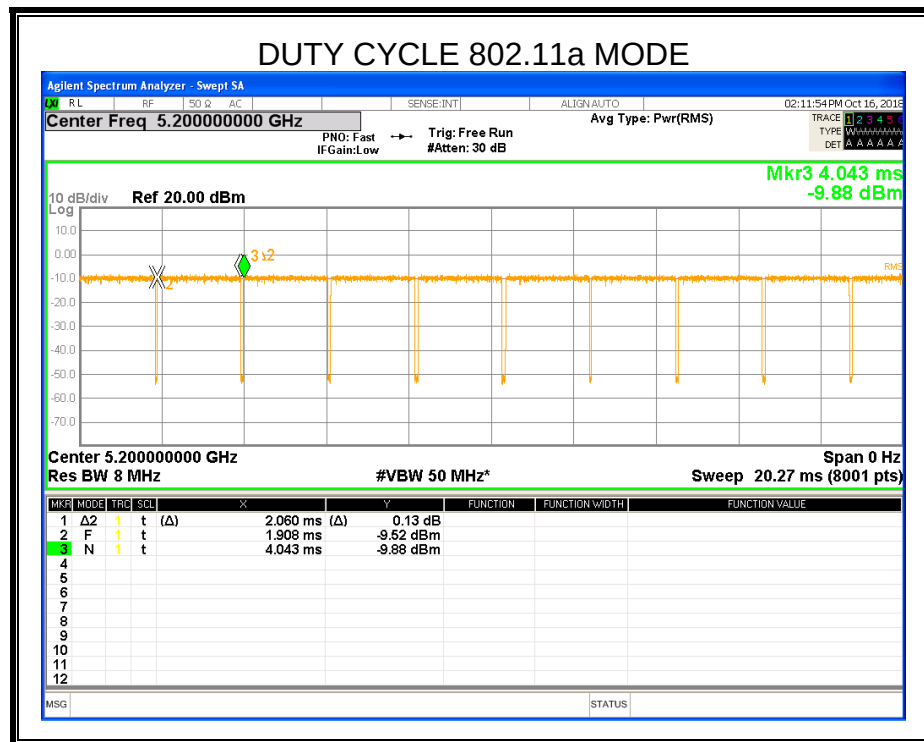
Duty Cycle Correction Factor=10log (1/x).

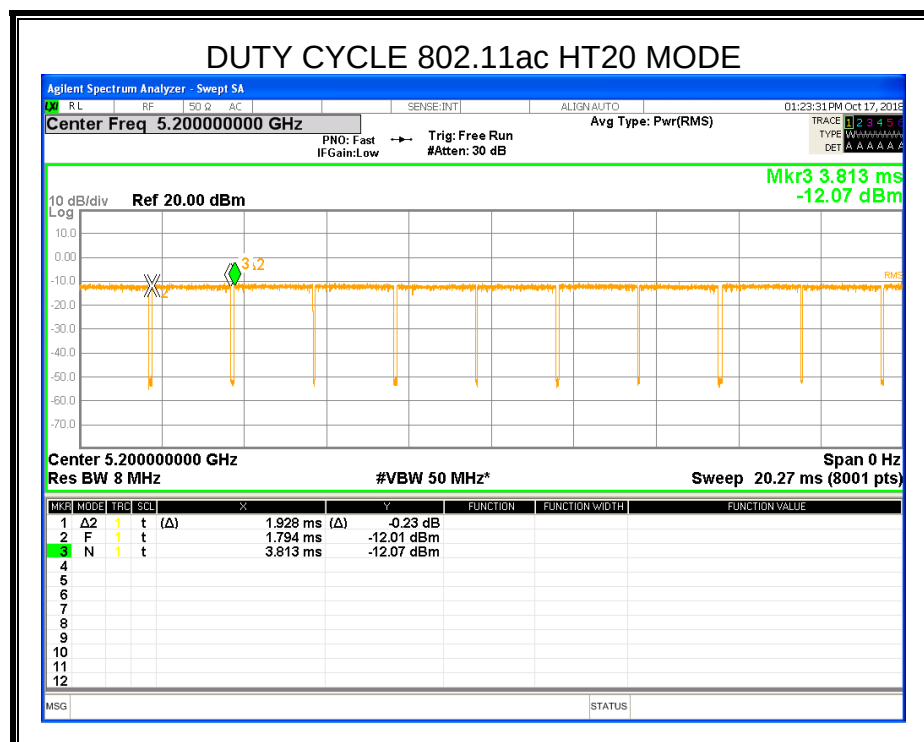
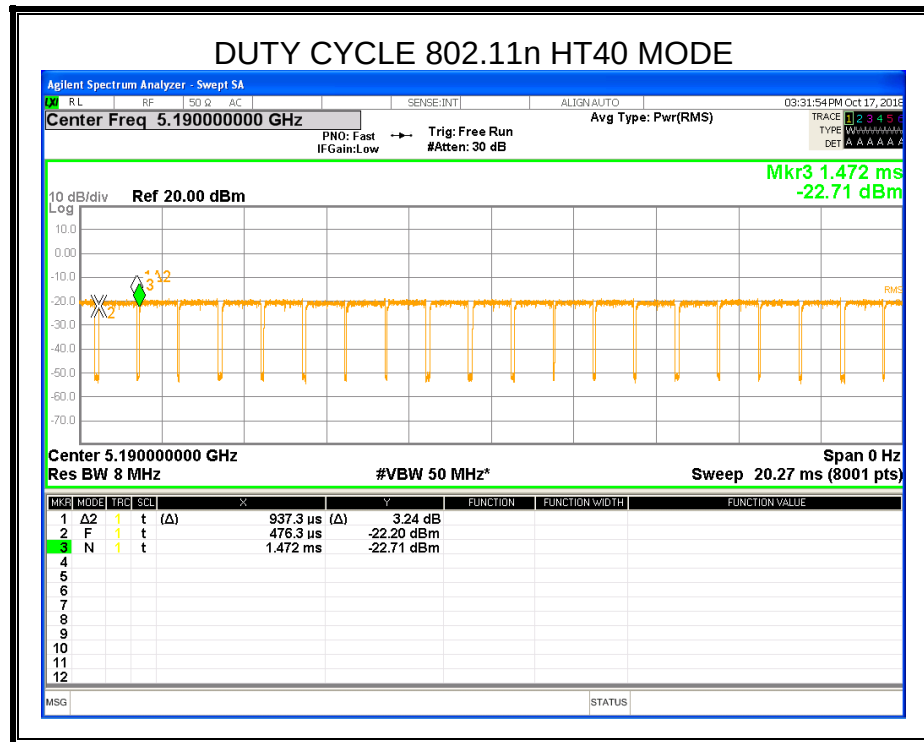
Where: x is Duty Cycle (Linear)

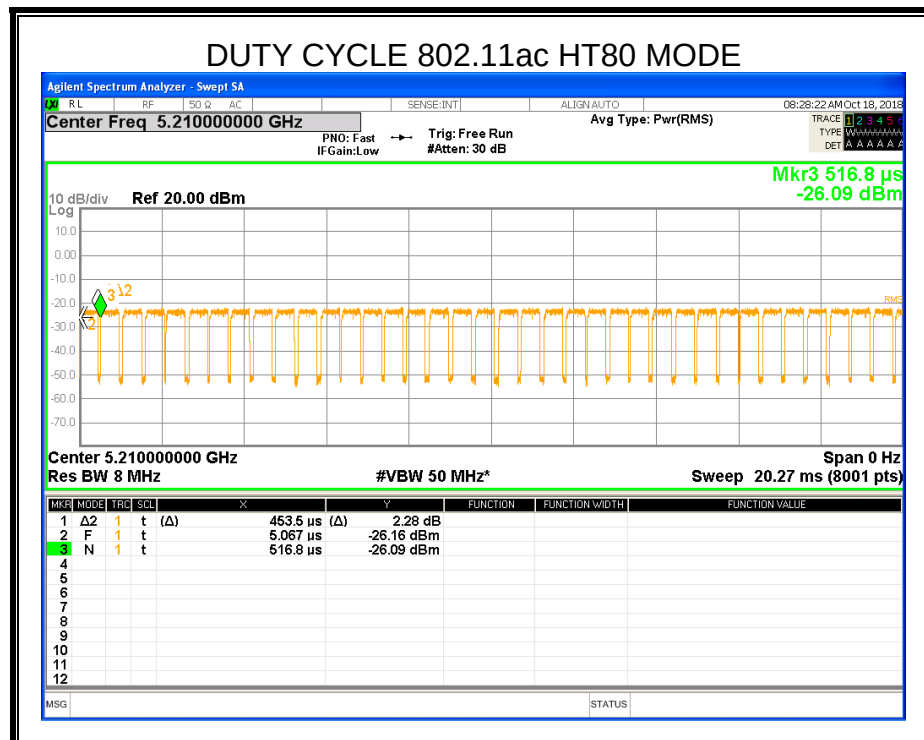
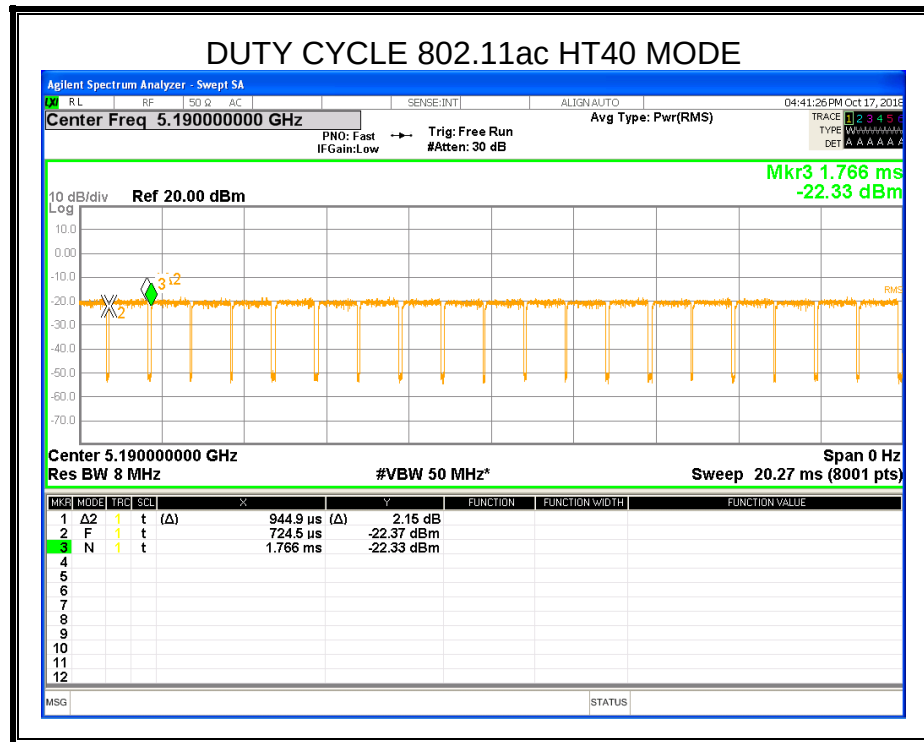
Where: T is On Time

If that calculated VBW is not available on the analyzer then the next higher value should be used.

Antenna A and Antenna B has the same duty cycle, only Antenna B data show here.









6.2. 6dB/26dB/99% dB OCCUPIED BANDWIDTH

LIMITS

CFR 47 FCC Part15, Subpart E ISED RSS-247		
Test Item	Limit	Frequency Range (MHz)
Bandwidth	26 dB Bandwidth	5150-5250
	26 dB Bandwidth	5250-5350
	26 dB Bandwidth	For FCC:5470-5725 For IC:5470-5600 5650-5725
	Minimum 500kHz 6dB Bandwidth	5725-5850

ISED RSS-247 ISSUE 2			
RSS-Gen Clause 6.6	99% Bandwidth	For reporting purposes only.	2400-2483.5

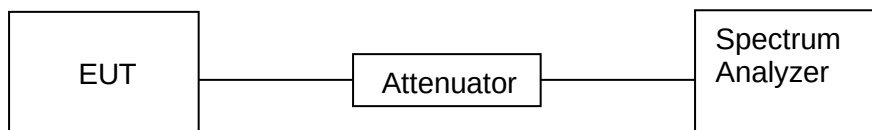
TEST PROCEDUREC

Connect the UUT to the spectrum analyser and use the following settings:

Center Frequency	The center frequency of the channel under test
Detector	Peak
RBW	For 6dB Bandwidth: RBW=100kHz For 26dB Bandwidth: approximately 1% of the emission bandwidth. For 99dB Occupied Bandwidth: approximately 1%~5% of the emission bandwidth.
VBW	For 6dB Bandwidth : VBW=300kHz For 26dB Bandwidth : >3RBW For 99% Occupied Bandwidth: >3RBW
Trace	Max hold
Sweep	Auto couple

Allow the trace to stabilize and measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6/26/&99% Occupied Bandwidth dB relative to the maximum level measured in the fundamental emission.

TEST SETUP





TEST ENVIRONMENT

Temperature	24.5°C	Relative Humidity	58%
Atmosphere Pressure	101kPa	Test Voltage	AC120V

RESULTS

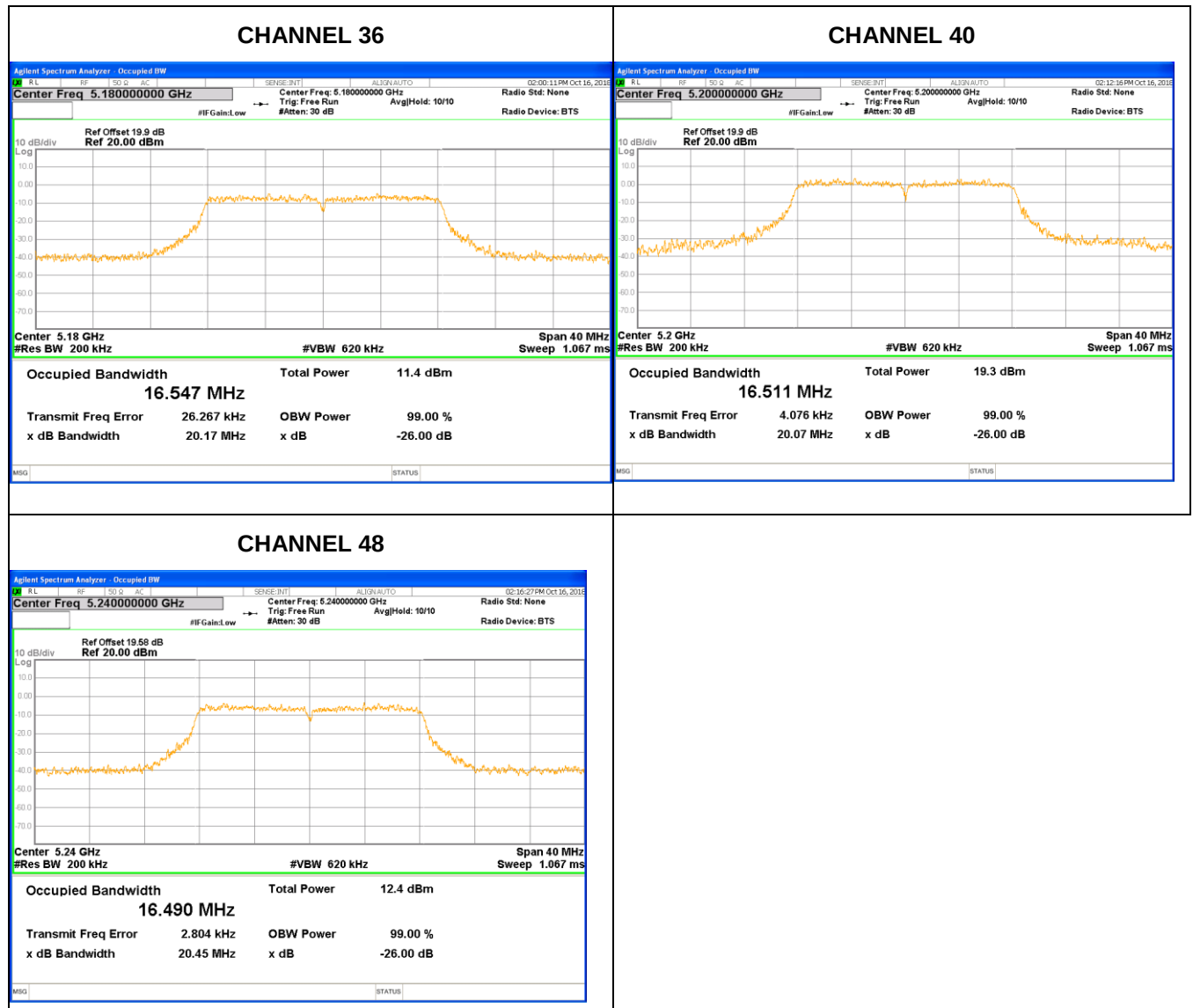
ANTENNA B (WORST-CASE CONFIGURATION)



6.2.1. 802.11a MODE

6.2.1.1. UNII-1 BAND

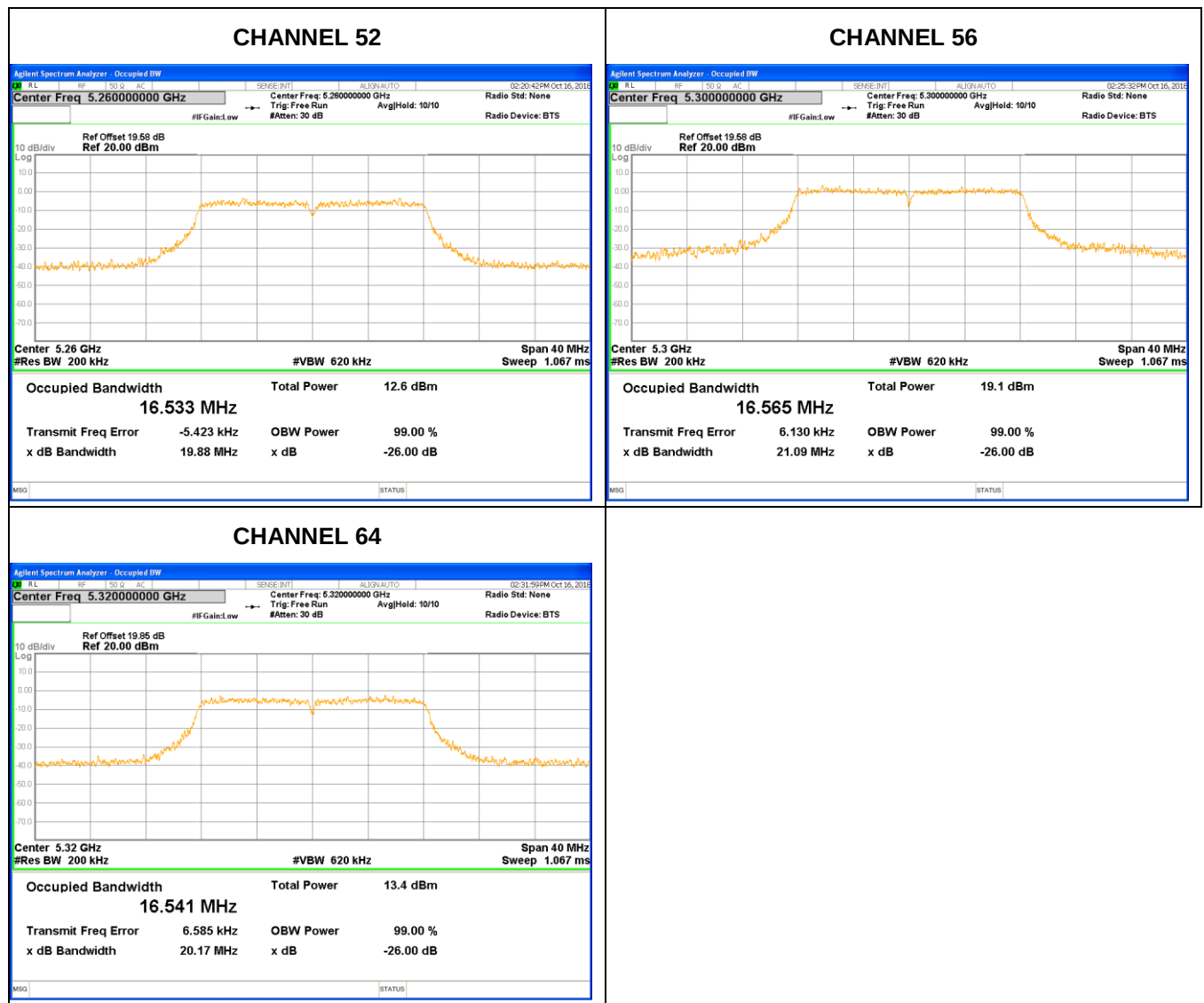
Channel	Frequency (MHz)	26 dB BW (MHz)	99% BW (MHz)
36	5180	20.17	16.547
40	5200	20.07	16.511
48	5240	20.45	16.490





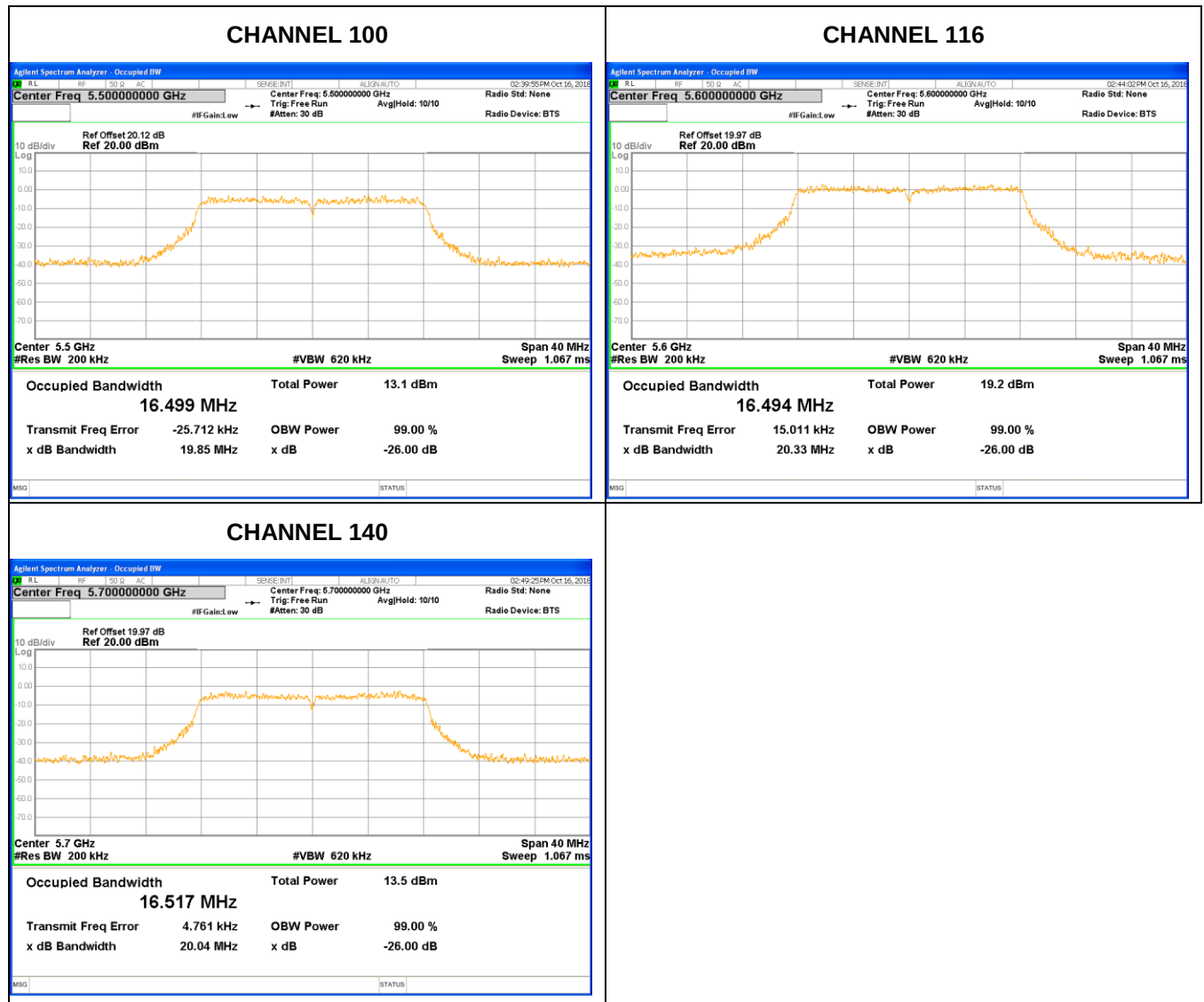
6.2.1.1. UNII-2A BAND

Channel	Frequency (MHz)	26 dB BW (MHz)	99% BW (MHz)
52	5260	19.88	16.533
56	5300	21.09	16.565
64	5320	20.17	16.541



6.2.1.2. UNII-2C BAND

Channel	Frequency (MHz)	26 dB BW (MHz)	99% BW (MHz)
100	5500	19.85	16.499
116	5580	20.33	16.494
140	5700	20.04	16.517



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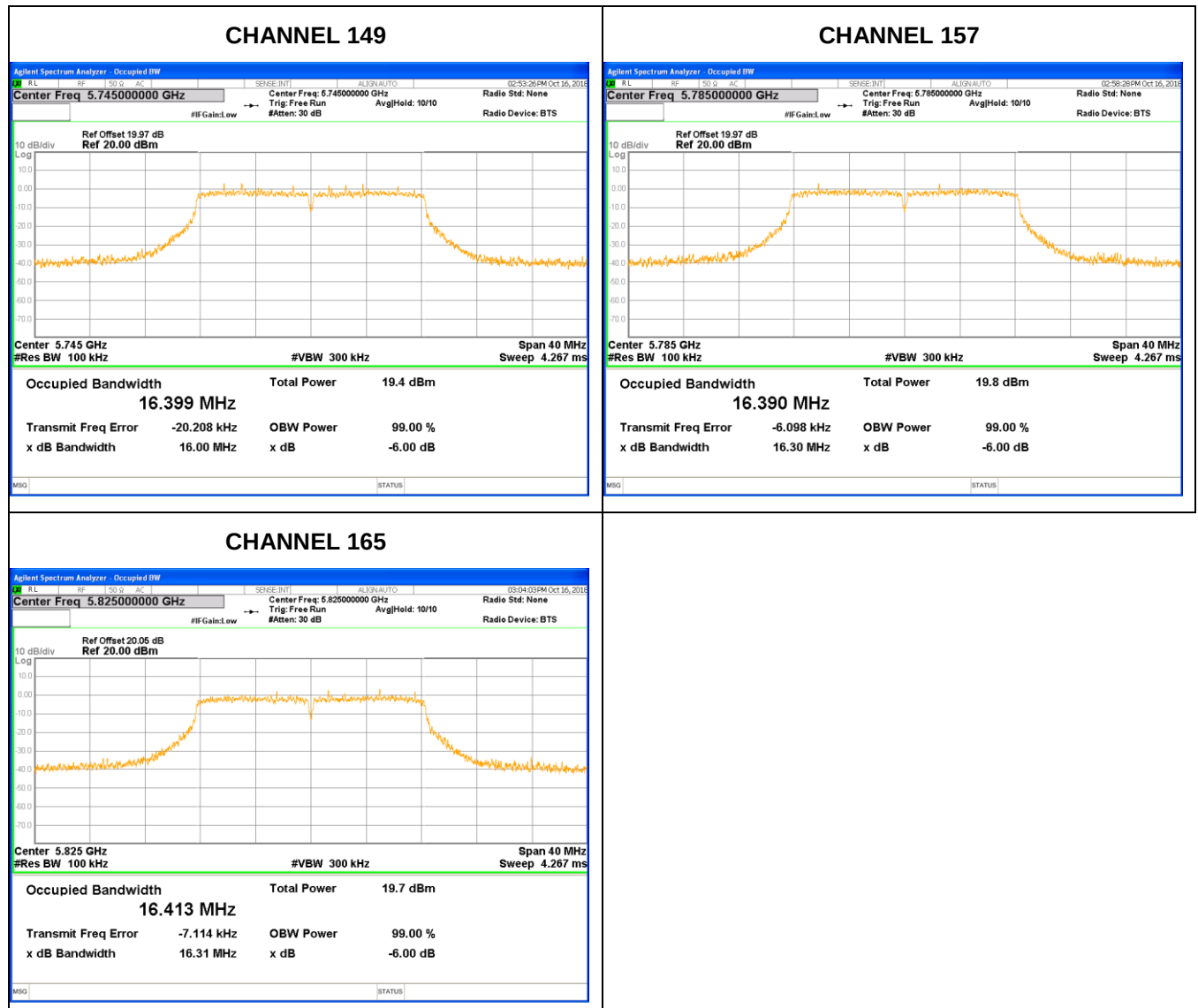
6.2.1.3. UNII-3 BAND

Channel	Frequency (MHz)	6 dB BW (MHz)	Limit (KHz)	Result
149	5745	16.00	500	PASS
157	5785	16.30	500	PASS
165	5825	16.31	500	PASS

Channel	Frequency (MHz)	99% BW (MHz)
149	5745	16.581
157	5785	17.288
165	5825	16.654



6 dB BW





99% BW

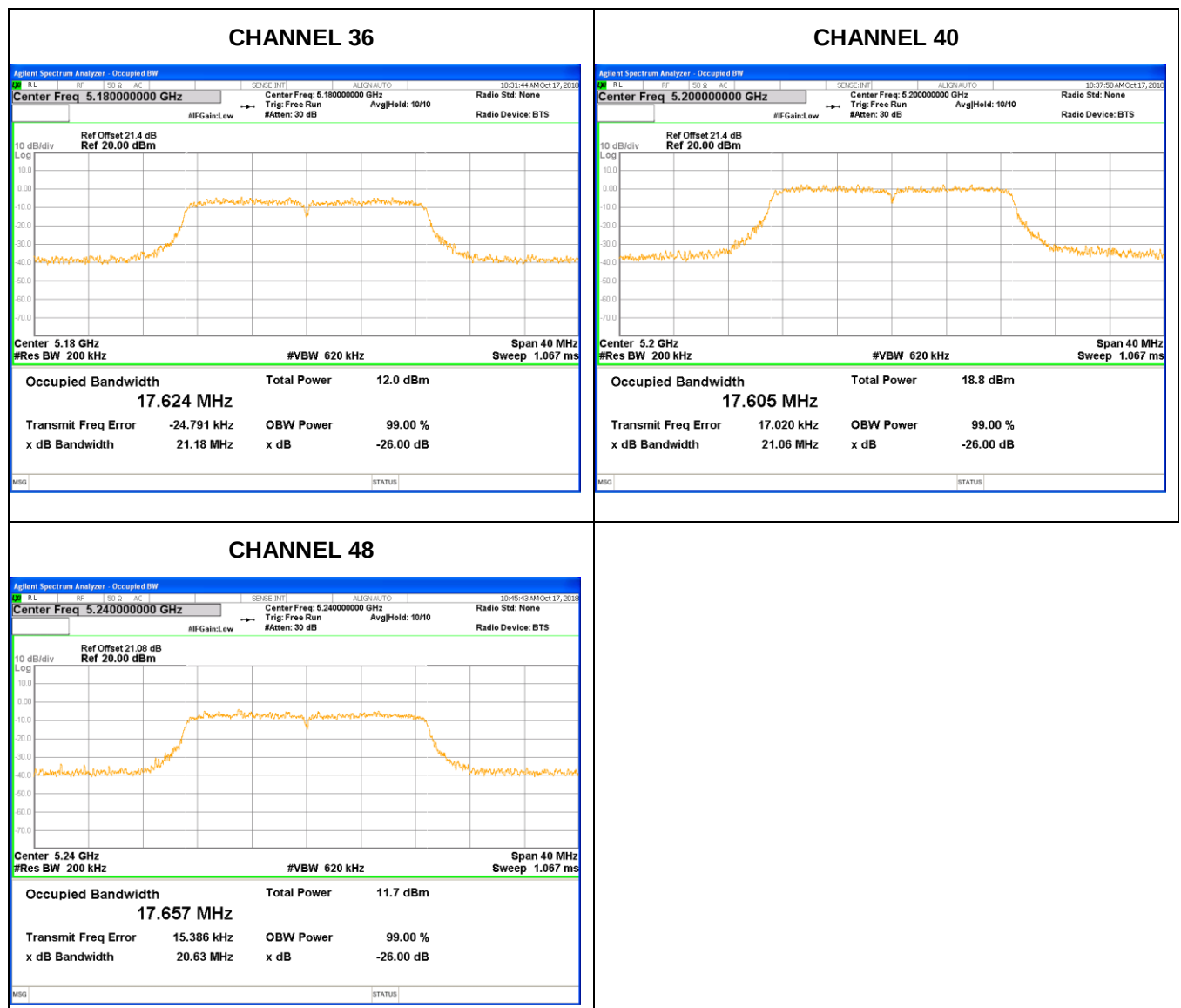




6.2.2. 802.11n HT20 MODE

6.2.2.1. UNII-1 BAND

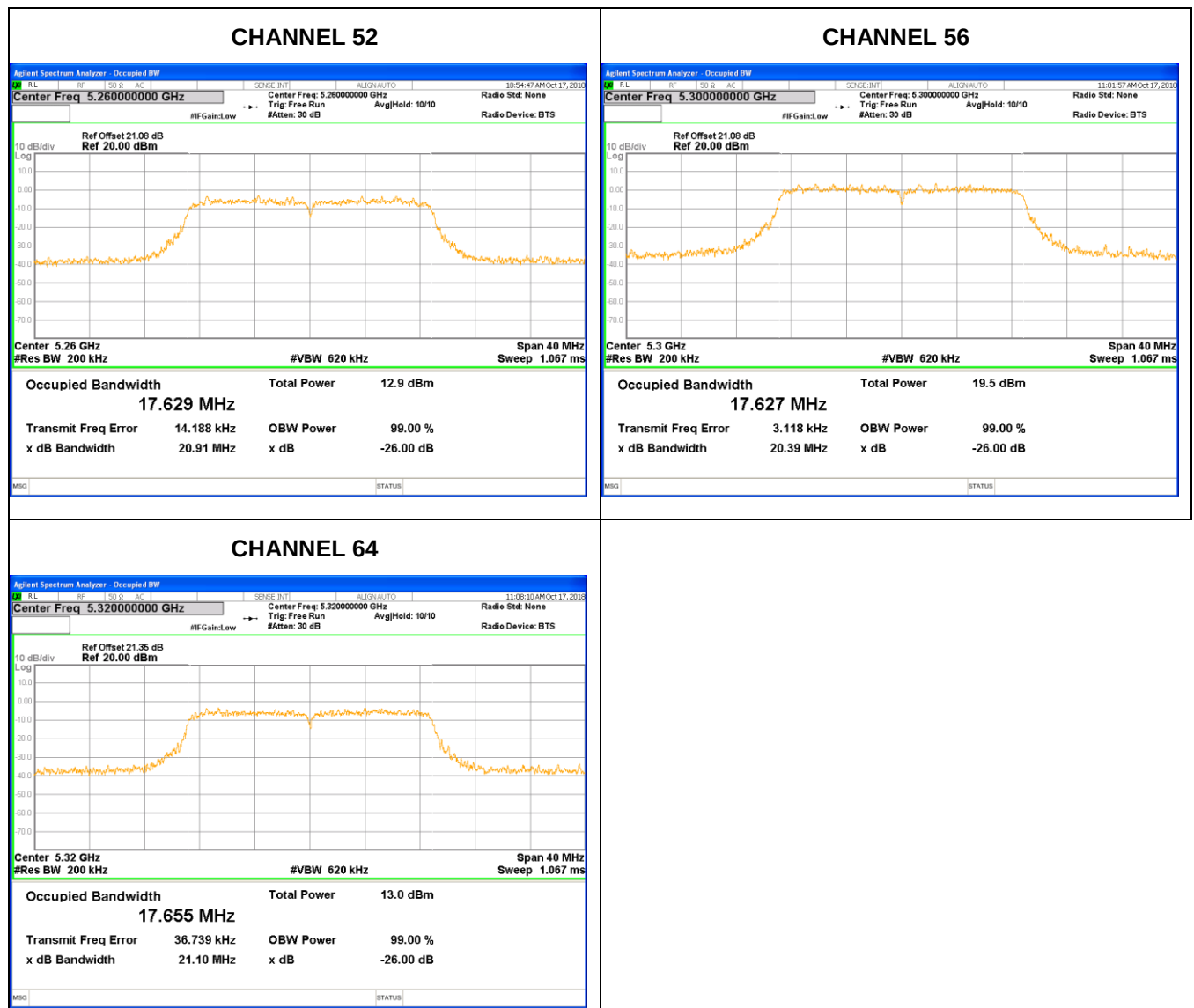
Channel	Frequency (MHz)	26 dB BW (MHz)	99% BW (MHz)
36	5180	21.18	17.624
40	5200	21.06	17.605
48	5240	20.63	17.657





6.2.2.2. UNII-2A BAND

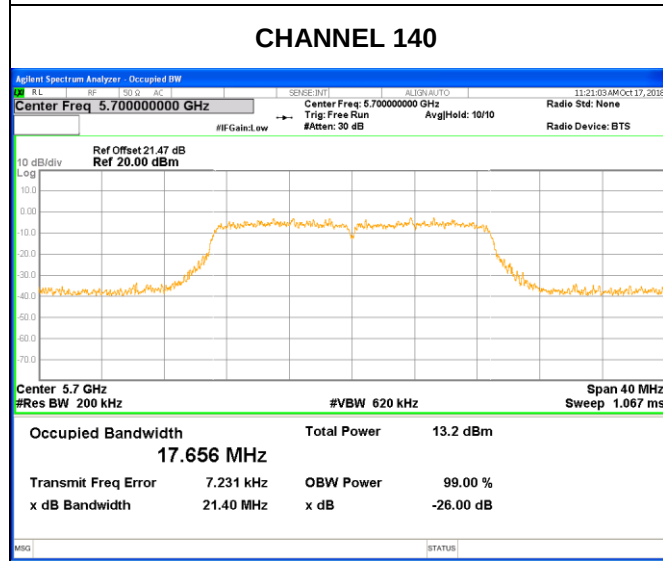
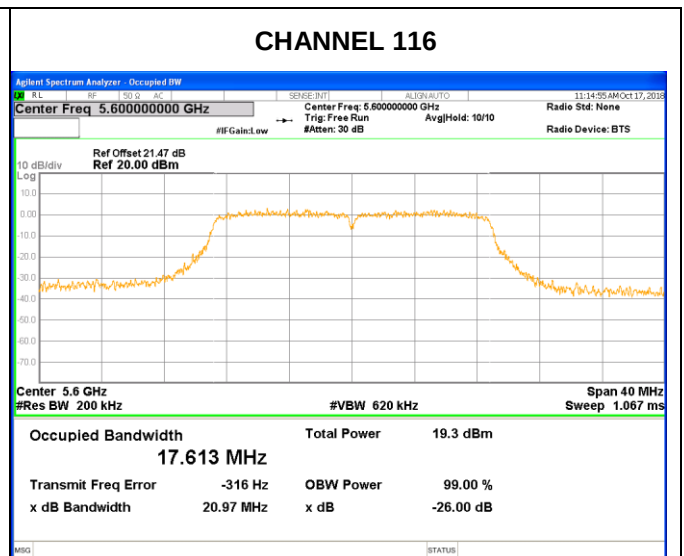
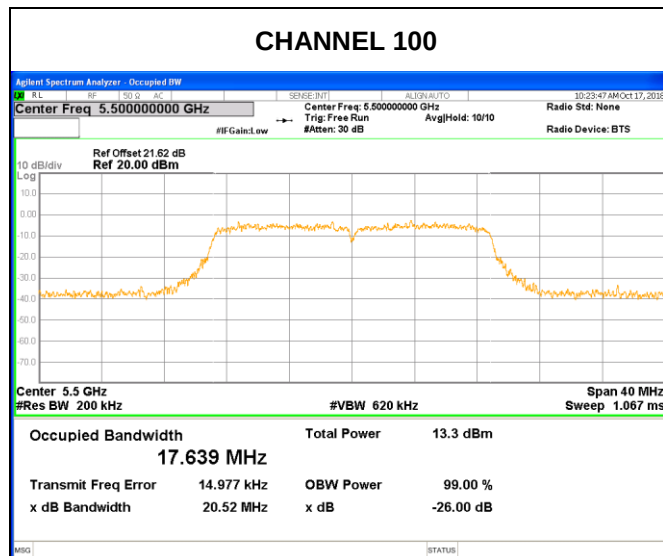
Channel	Frequency (MHz)	26 dB BW (MHz)	99% BW (MHz)
52	5260	20.91	17.629
56	5300	20.39	17.627
64	5320	21.10	17.655





6.2.2.3. UNII-2C BAND

Channel	Frequency (MHz)	26 dB BW (MHz)	99% BW (MHz)
100	5500	20.52	17.639
116	5580	20.97	17.613
140	5700	21.40	17.656



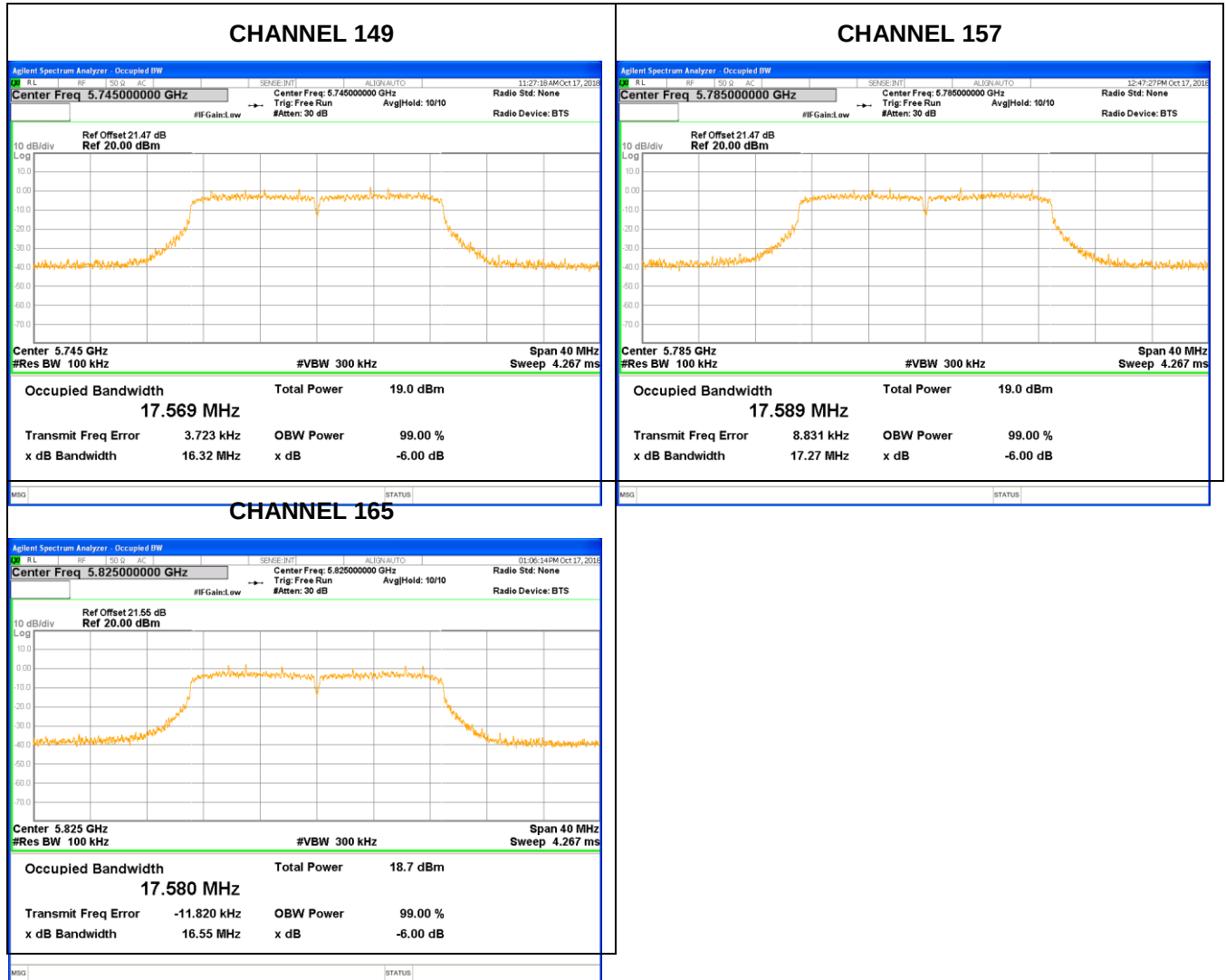


6.2.2.4. UNII-3 BAND

Channel	Frequency (MHz)	6 dB BW (MHz)	Limit (KHz)	Result
149	5745	16.32	500	PASS
157	5785	17.27	500	PASS
165	5825	16.55	500	PASS

Channel	Frequency (MHz)	99% BW (MHz)
149	5745	17.717
157	5785	17.784
165	5825	17.709

6 dB BW

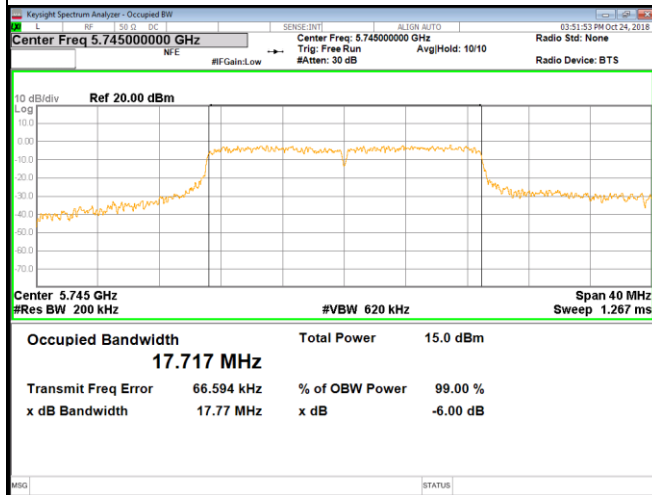


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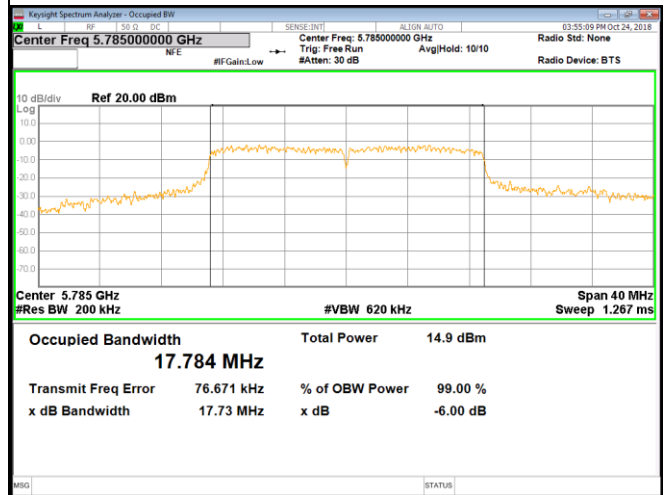


99% BW

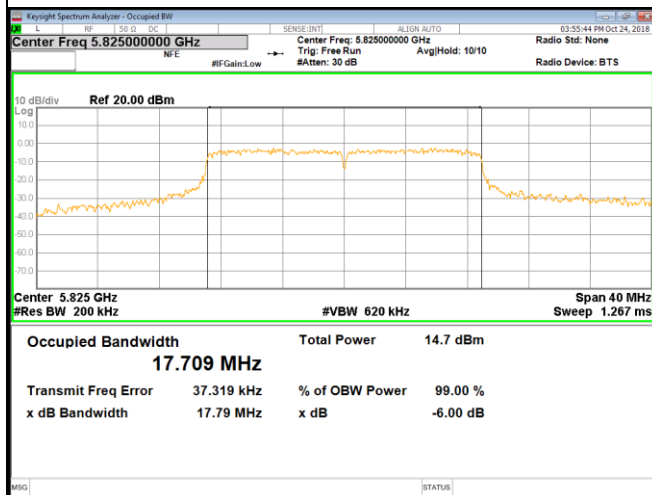
CHANNEL 149



CHANNEL 157



CHANNEL 165

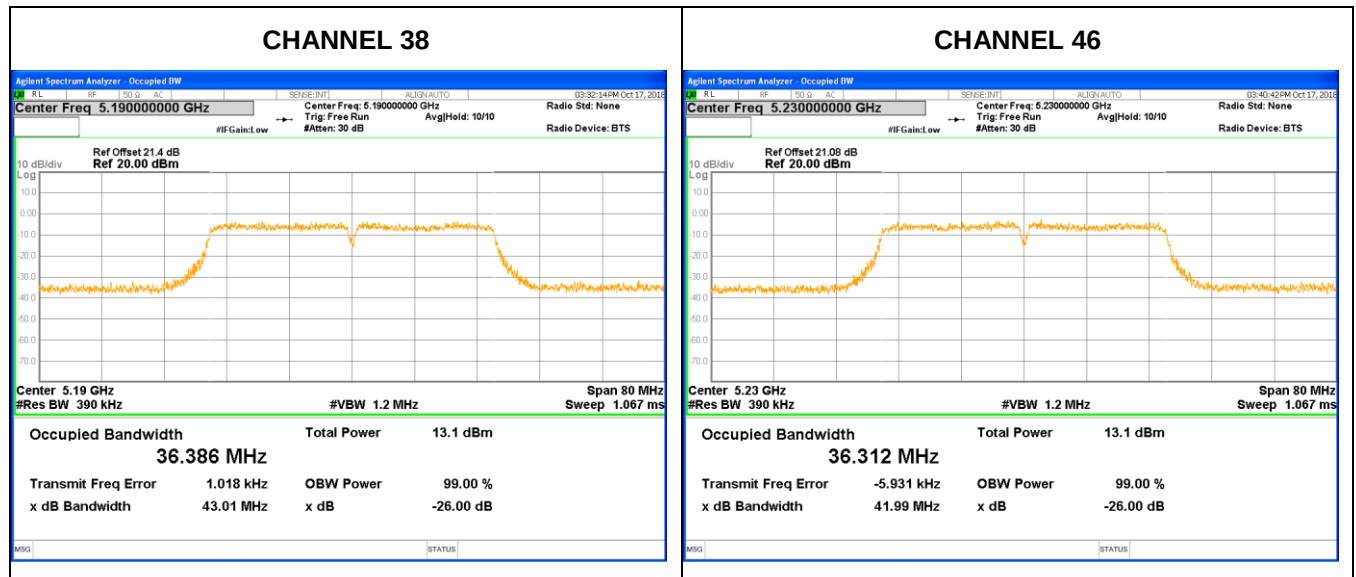




6.2.3. 802.11n HT40 MODE

6.2.3.1. UNII-1 BAND

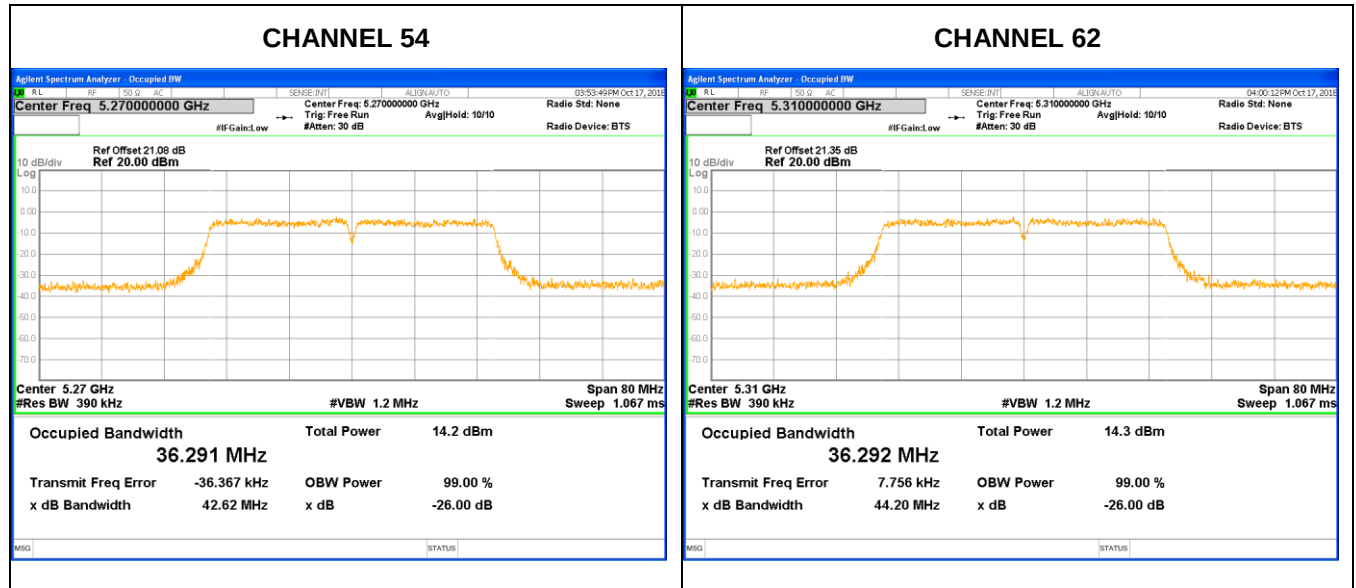
Channel	Frequency (MHz)	26 dB BW (MHz)	99% BW (MHz)
38	5190	43.01	36.386
46	5230	41.99	36.312





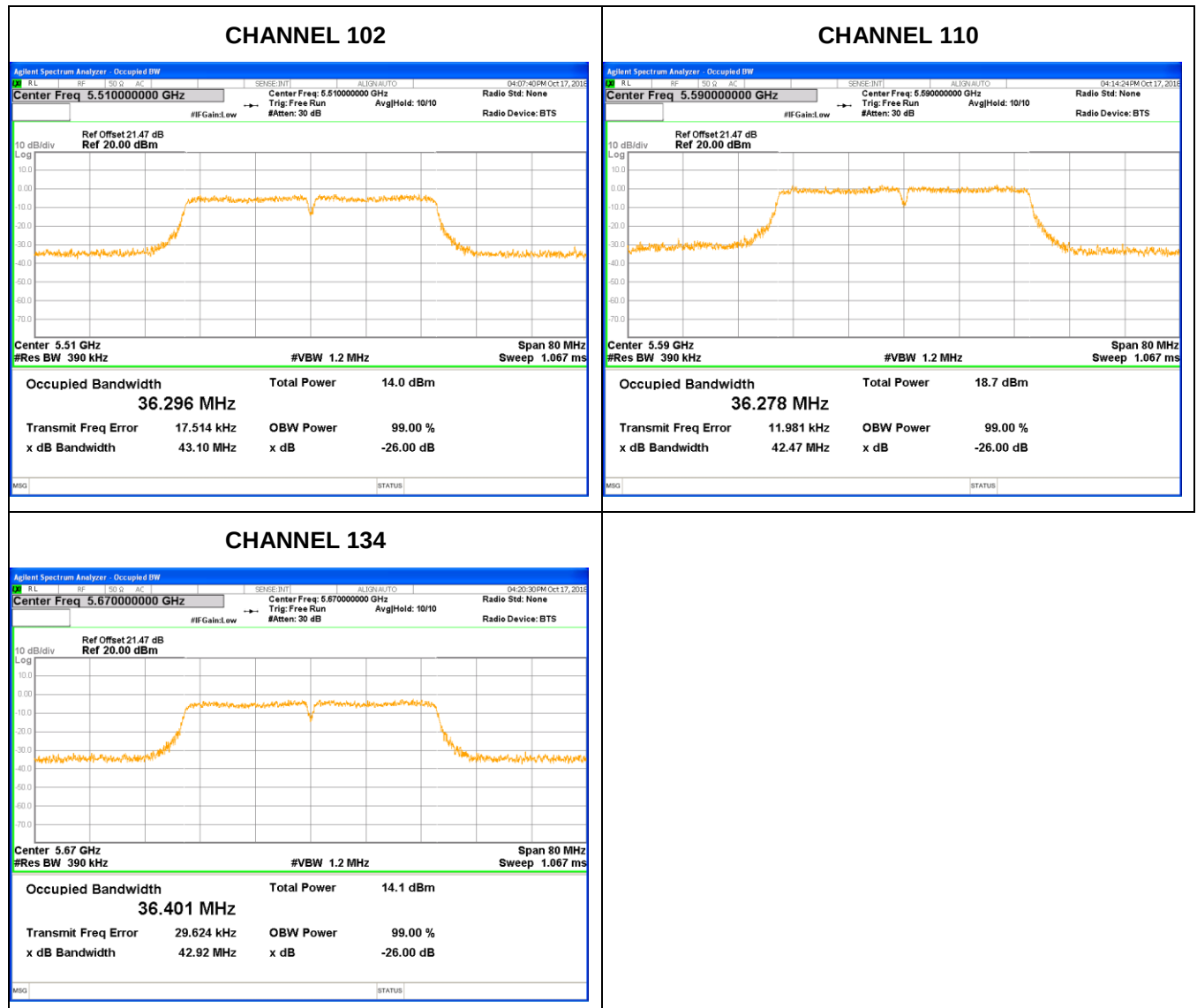
6.2.3.2. UNII-2A BAND

Channel	Frequency (MHz)	26 dB BW (MHz)	99% BW (MHz)
54	5270	42.62	36.291
62	5310	44.20	36.292



6.2.3.3. UNII-2C BAND

Channel	Frequency (MHz)	26 dB BW (MHz)	99% BW (MHz)
102	5510	43.10	36.296
110	5550	42.47	36.278
134	5670	42.92	36.401



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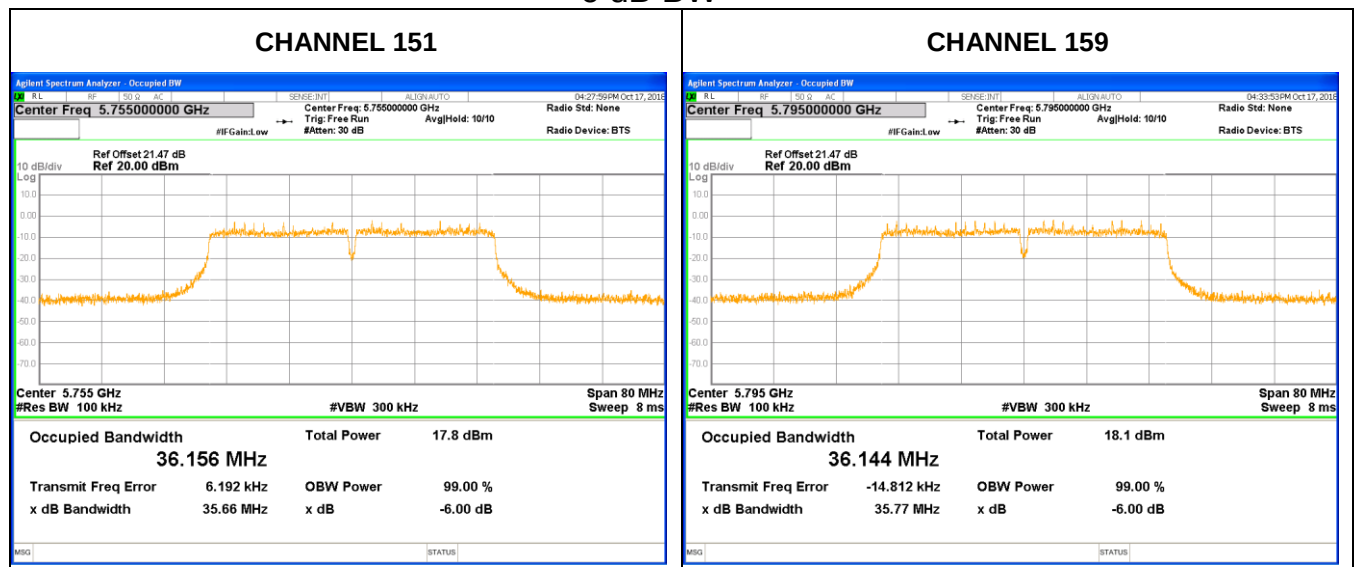


6.2.3.4. UNII-3 BAND

Channel	Frequency (MHz)	6 dB BW (MHz)	Limit (KHz)	Result
151	5755	35.66	500	PASS
159	5795	35.77	500	PASS

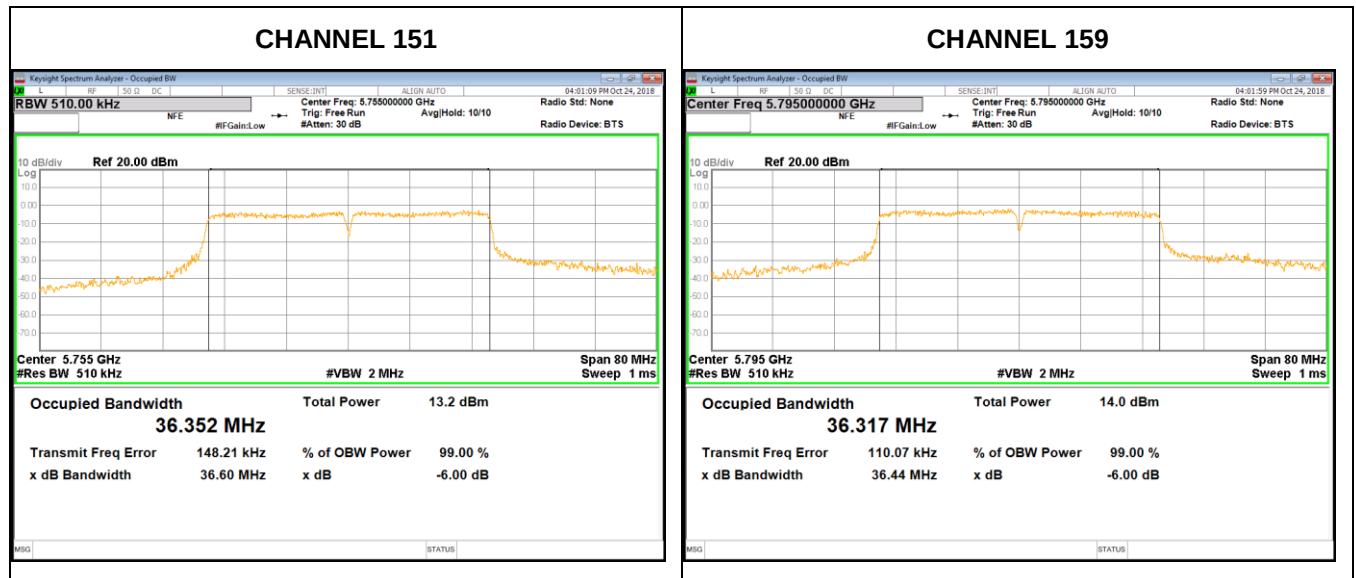
Channel	Frequency (MHz)	99% BW (MHz)
151	5755	36.532
159	5795	36.317

6 dB BW





99% BW

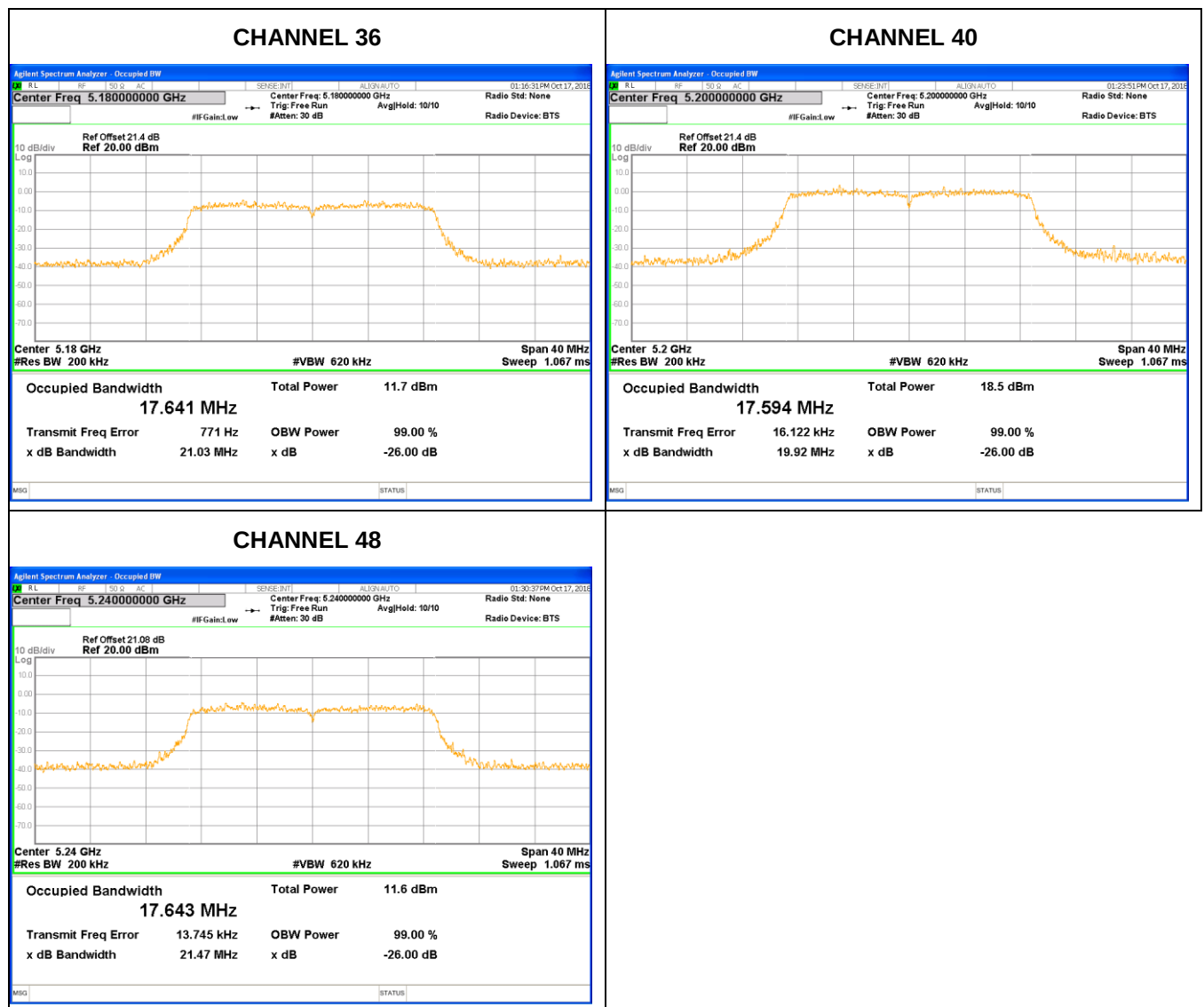




6.2.4. 802.11ac HT20 MODE

6.2.4.1. UNII-1 BAND

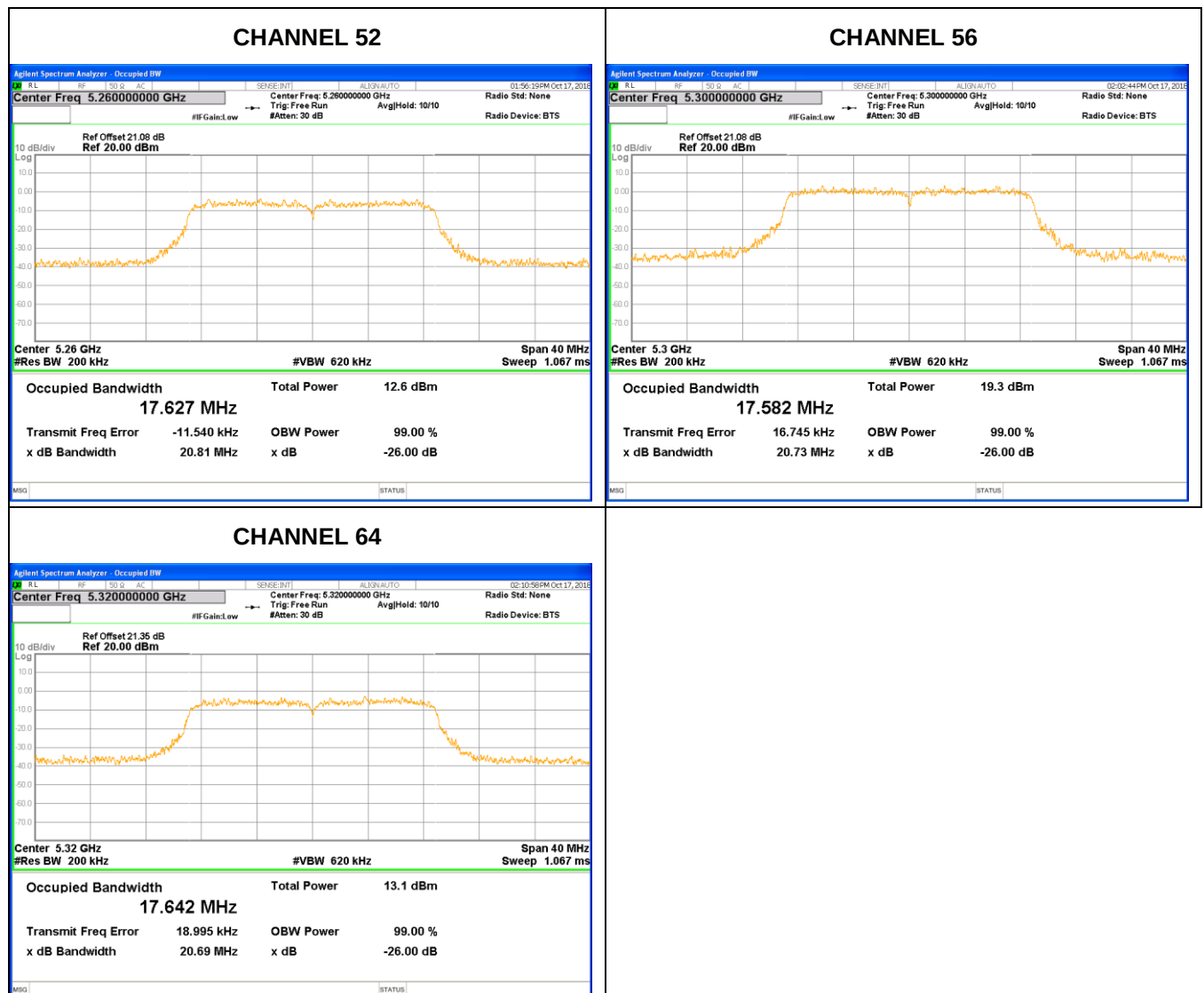
Channel	Frequency (MHz)	26 dB BW (MHz)	99% BW (MHz)
36	5180	21.03	17.641
40	5200	19.92	17.594
48	5240	21.47	17.643





6.2.4.2. UNII-2A BAND

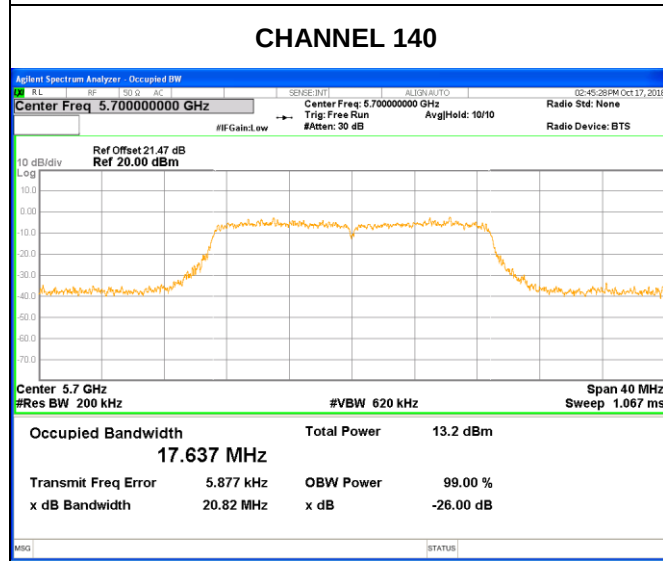
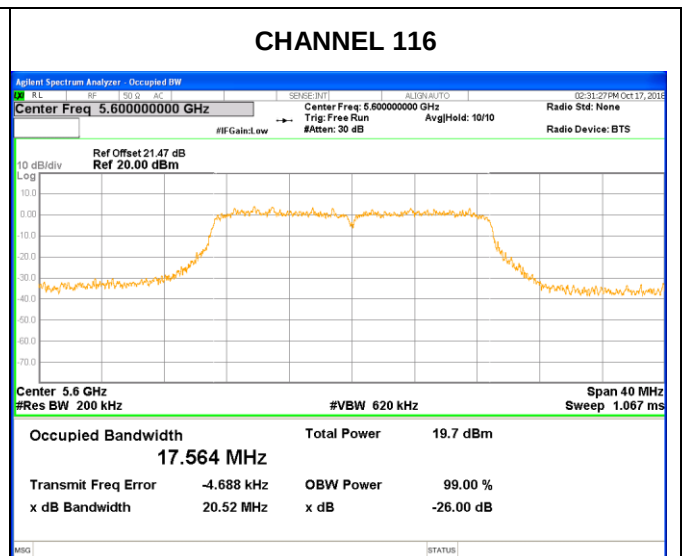
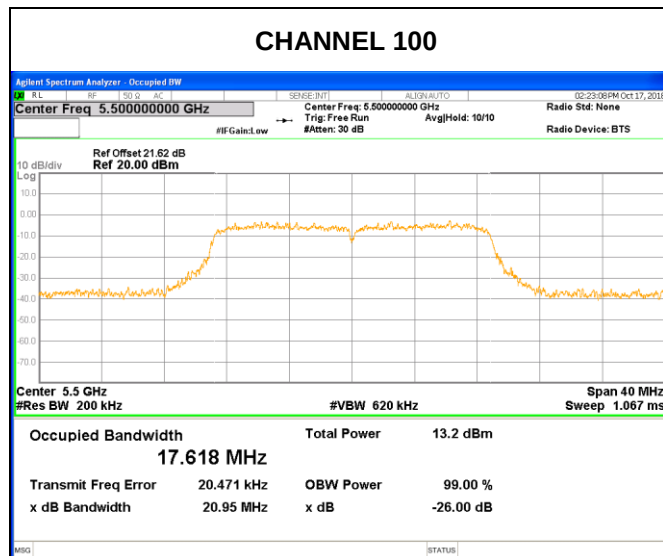
Channel	Frequency (MHz)	26 dB BW (MHz)	99% BW (MHz)
52	5260	20.81	17.627
56	5300	20.73	17.582
64	5320	20.69	17.642





6.2.4.3. UNII-2C BAND

Channel	Frequency (MHz)	26 dB BW (MHz)	99% BW (MHz)
100	5500	20.95	17.618
116	5580	20.52	17.564
140	5700	20.82	17.637



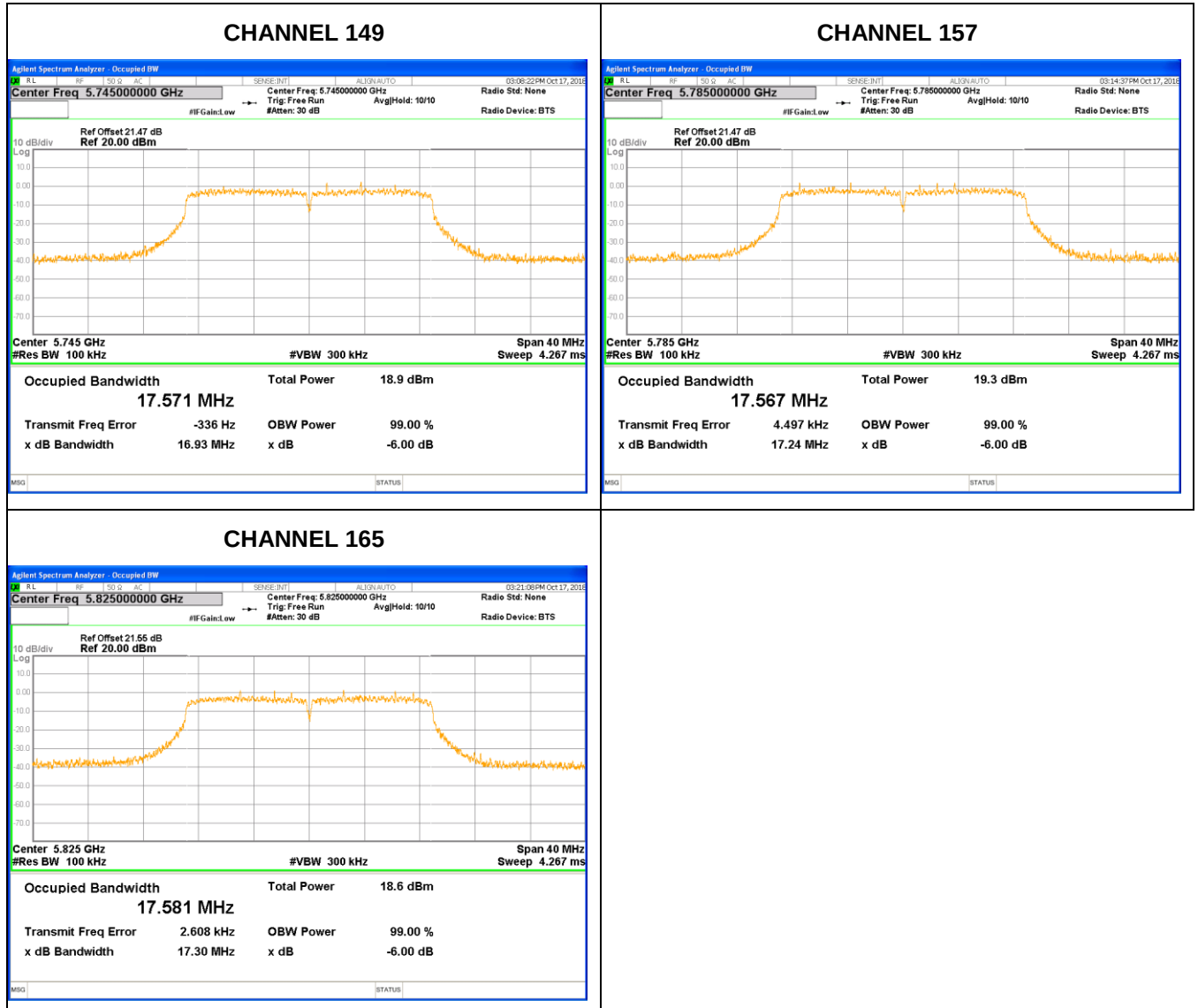


6.2.4.4. UNII-3 BAND

Channel	Frequency (MHz)	6 dB BW (MHz)	Limit (KHz)	Result
149	5745	16.93	500	PASS
157	5785	17.24	500	PASS
165	5825	17.30	500	PASS

Channel	Frequency (MHz)	99% BW (MHz)
149	5745	17.727
157	5785	17.783
165	5825	17.729

6 dB BW

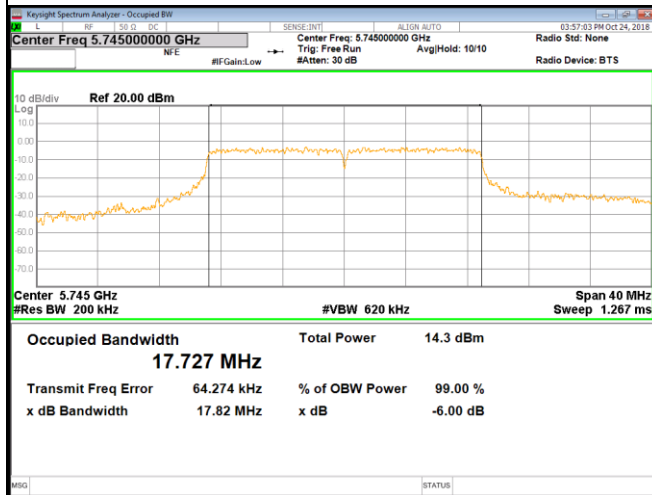


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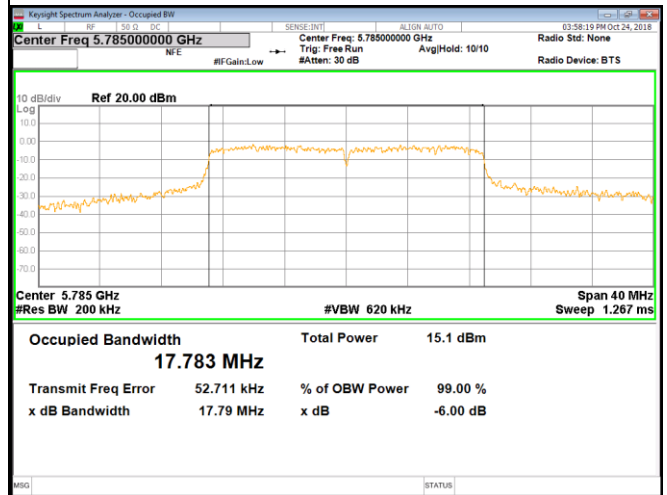


99% BW

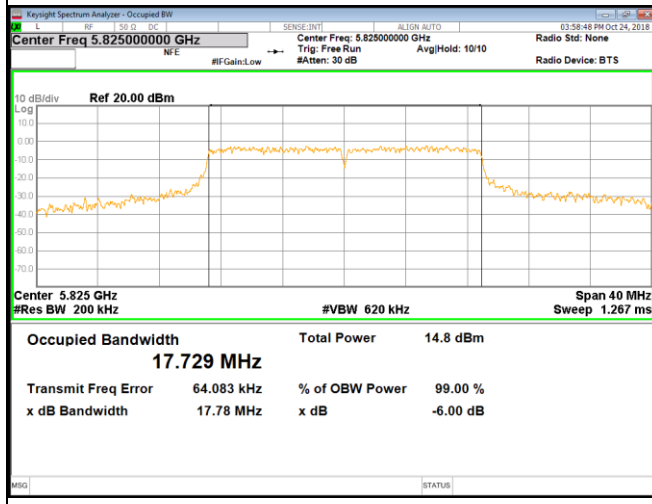
CHANNEL 149



CHANNEL 157



CHANNEL 165

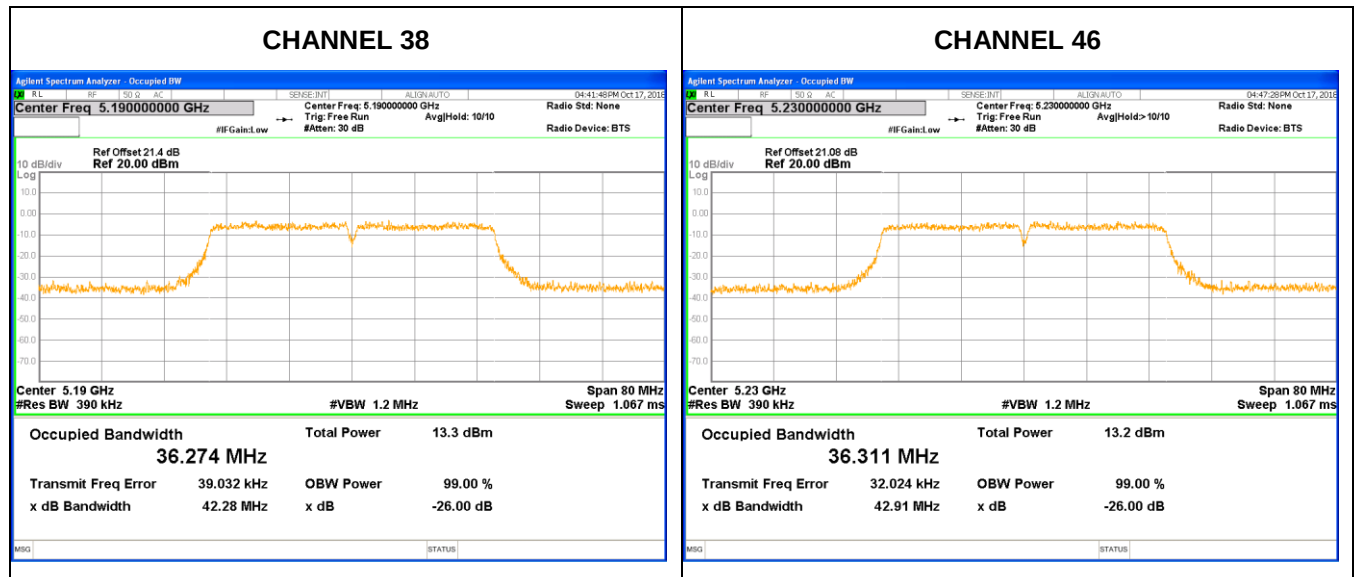




6.2.5. 802.11ac HT40 MODE

6.2.5.1. UNII-1 BAND

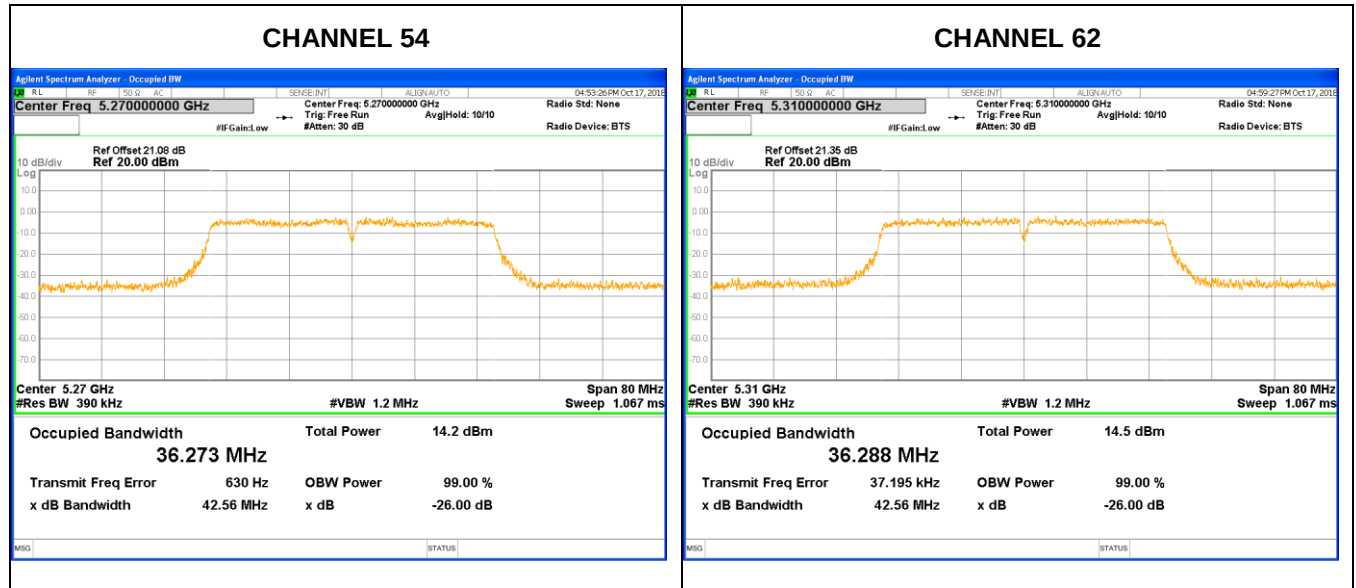
Channel	Frequency (MHz)	26 dB BW (MHz)	99% BW (MHz)
38	5190	42.28	36.274
46	5230	42.91	36.311





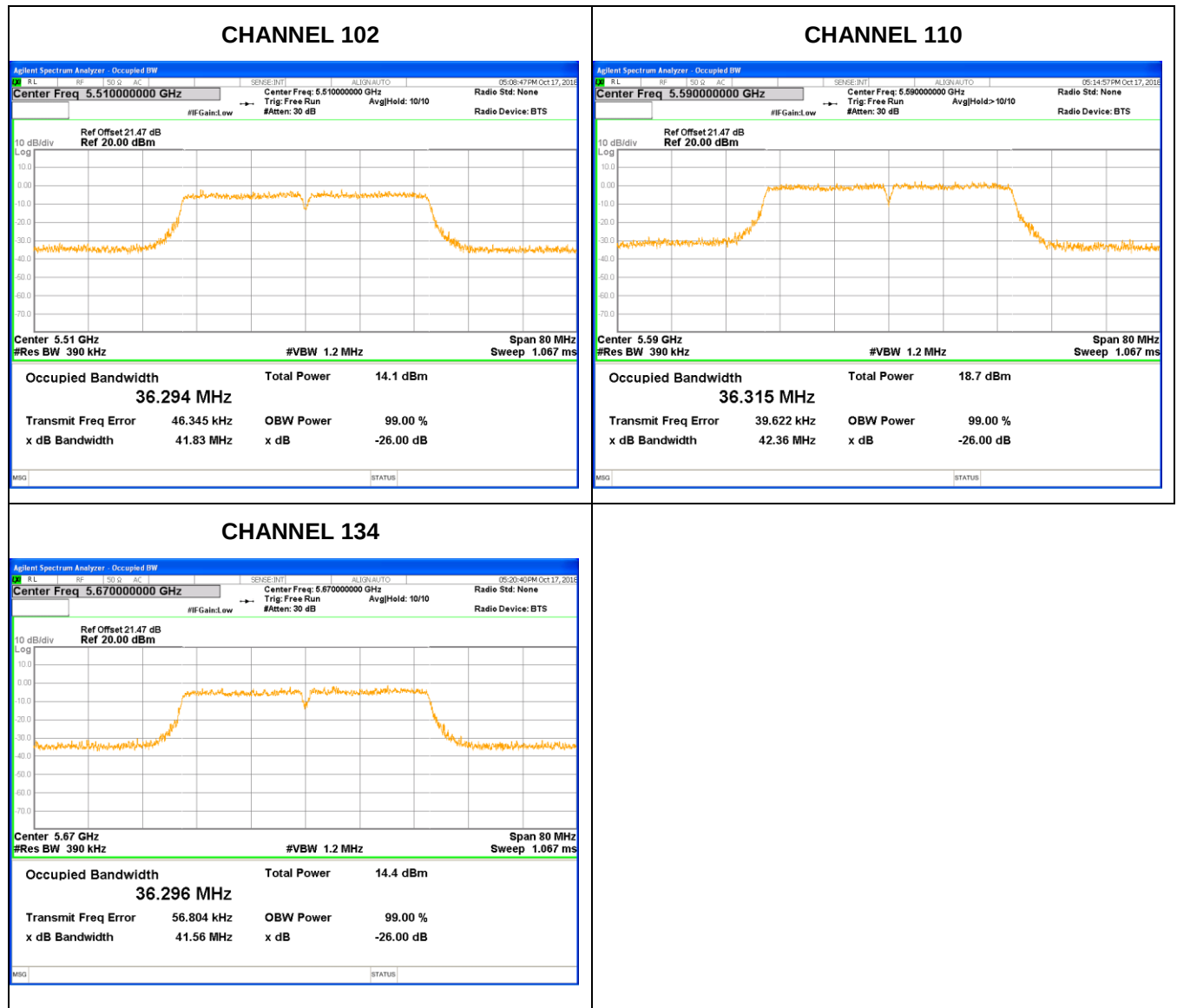
6.2.5.2. UNII-2A BAND

Channel	Frequency (MHz)	26 dB BW (MHz)	99% BW (MHz)
54	5270	42.56	36.273
62	5310	42.56	36.288



6.2.5.3. UNII-2C BAND

Channel	Frequency (MHz)	26 dB BW (MHz)	99% BW (MHz)
102	5510	41.83	36.294
110	5550	42.36	36.315
134	5670	41.56	36.296



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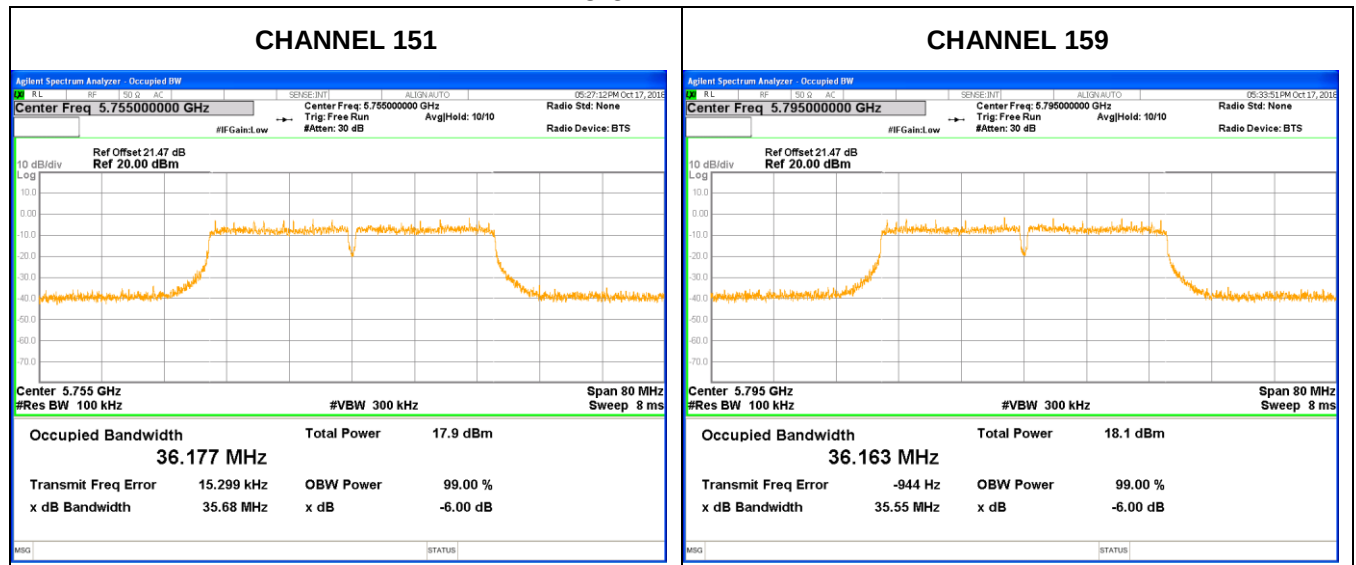


6.2.5.4. UNII-3 BAND

Channel	Frequency (MHz)	6 dB BW (MHz)	Limit (KHz)	Result
151	5755	35.68	500	PASS
159	5795	35.55	500	PASS

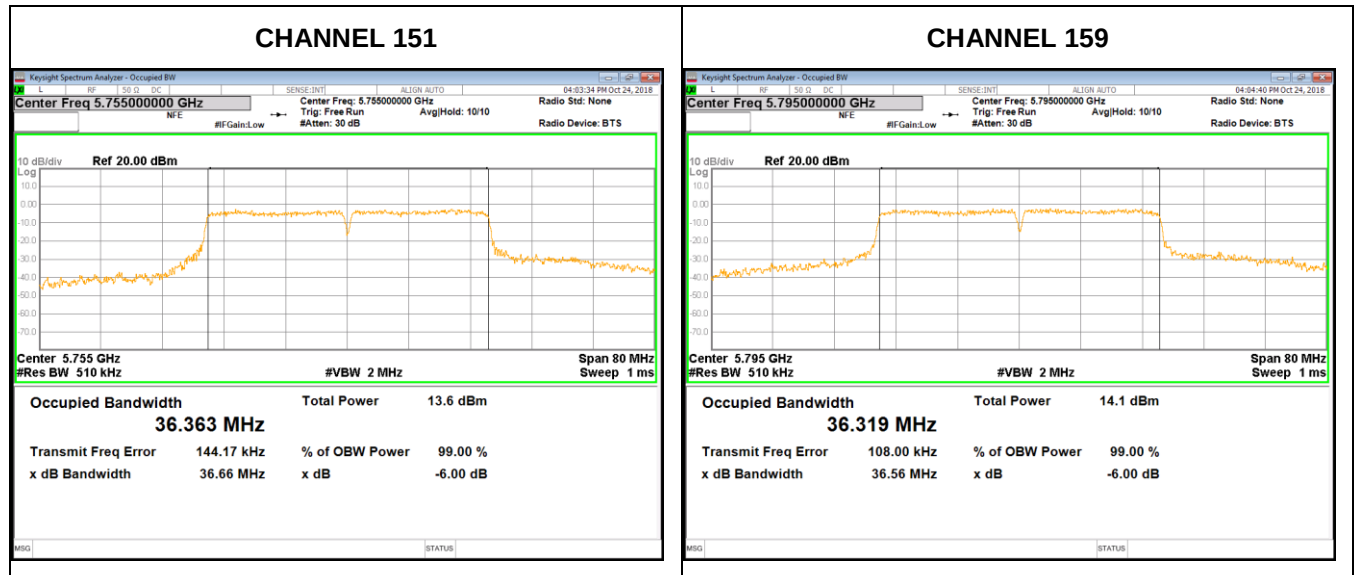
Channel	Frequency (MHz)	99% BW (MHz)
151	5755	36.363
159	5795	36.391

6 dB BW





99% BW

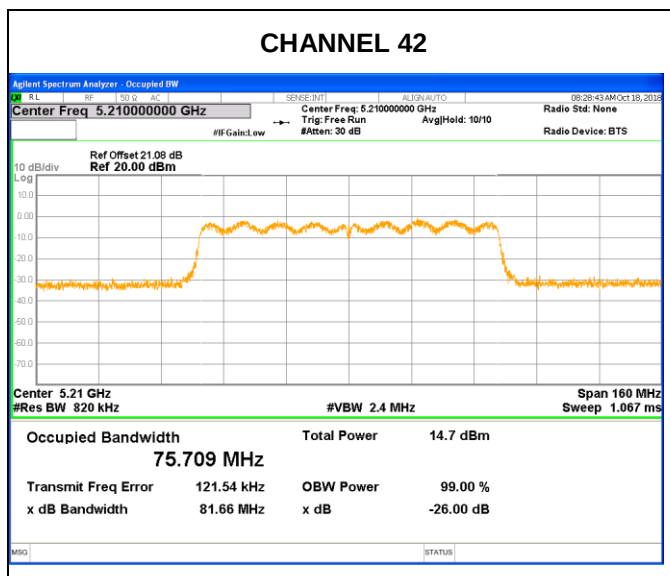




6.2.6. 802.11ac HT80 MODE

6.2.6.1. UNII-1 BAND

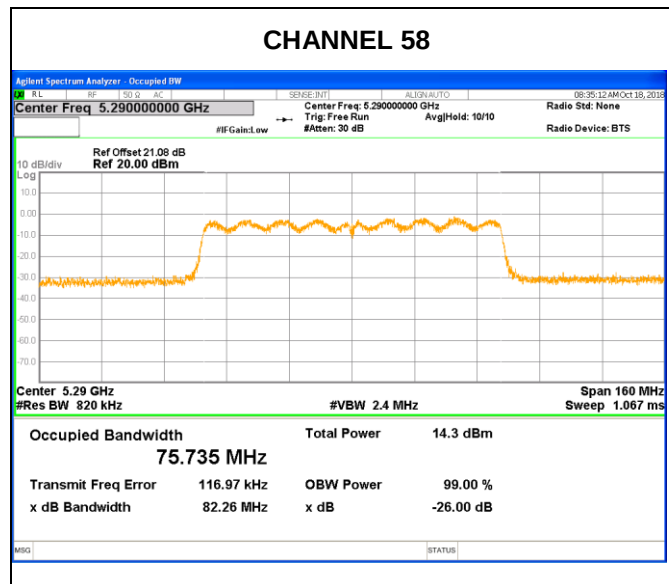
Channel	Frequency (MHz)	26 dB BW (MHz)	99% BW (MHz)
42	5210	81.66	75.709





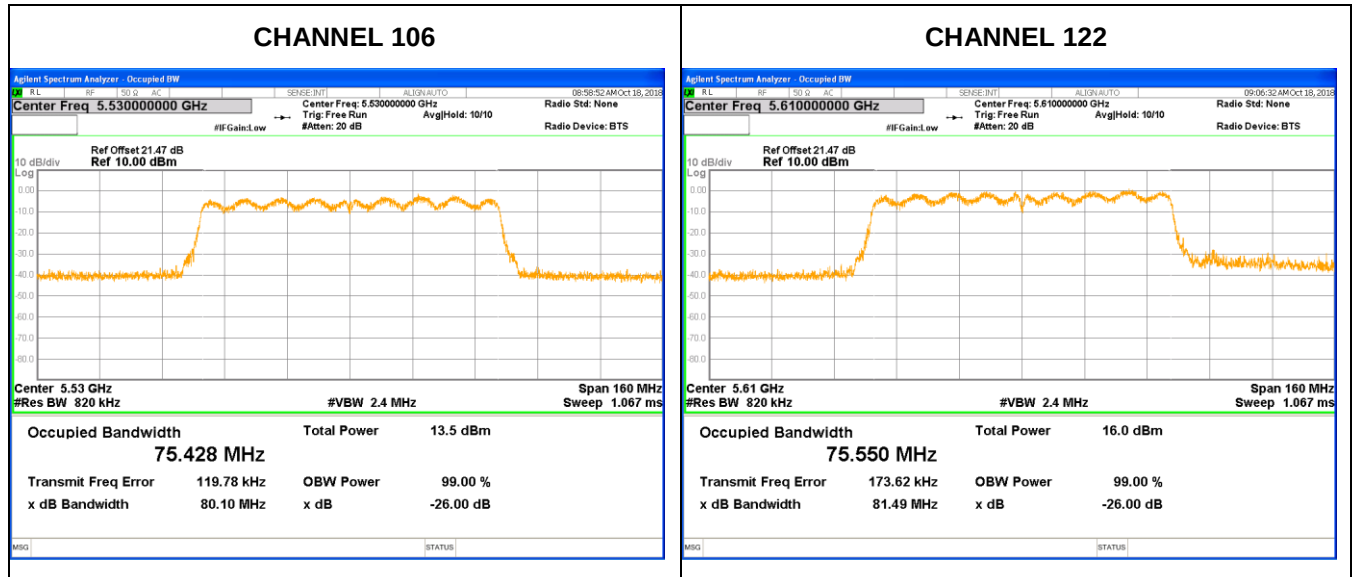
6.2.6.2. UNII-2A BAND

Channel	Frequency (MHz)	26 dB BW (MHz)	99% BW (MHz)
58	5290	82.26	75.735



6.2.6.3. UNII-2C BAND

Channel	Frequency (MHz)	26 dB BW (MHz)	99% BW (MHz)
106	5530	80.10	75.428
122	5610	81.49	75.550

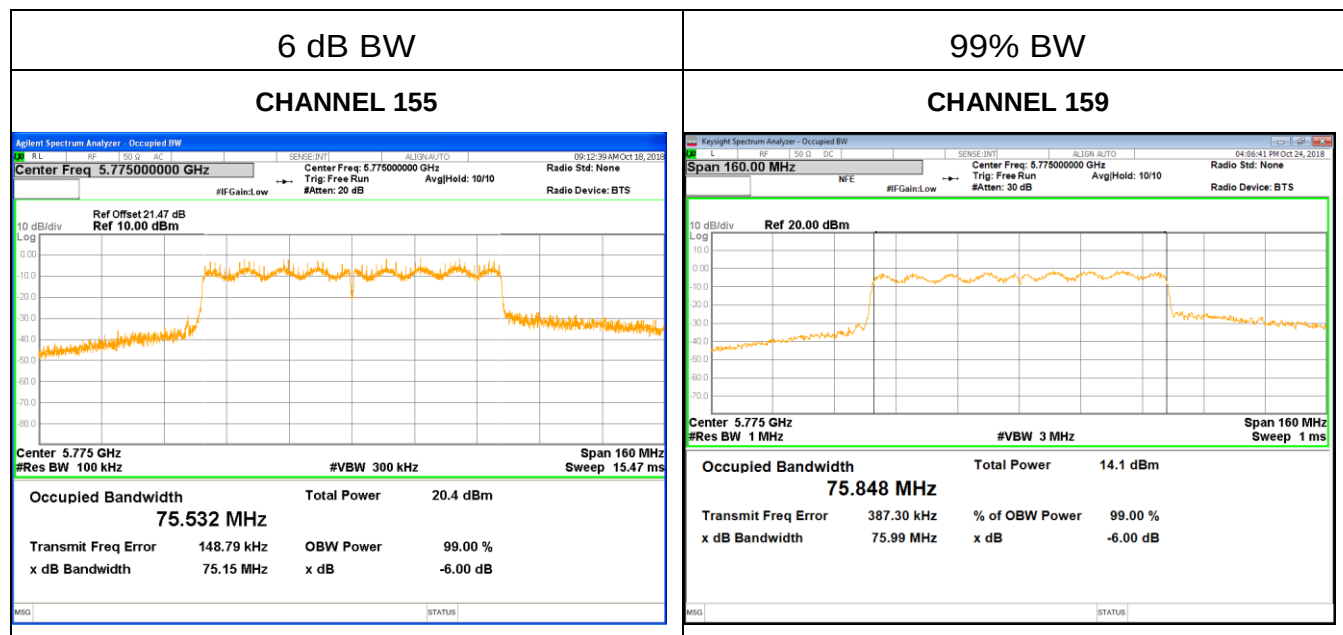




6.2.6.4. UNII-3 BAND

Channel	Frequency (MHz)	6 dB BW (MHz)	Limit (KHz)	Result
155	5775	75.15	500	PASS

Channel	Frequency (MHz)	99% BW (MHz)
155	5775	75.848





6.3. MAXIMUM CONDUCTED AVERAGE OUTPUT POWER

LIMITS

CFR 47 FCC Part15, Subpart E ISED RSS-247		
Test Item	Limit	Frequency Range (MHz)
Conducted Output Power	For FCC client devices :250mW (24dBm)	5150-5250
	For RSS:e.i.r.p. power: not exceed 200 mW(23dBm) or $10 + 10 \log_{10} B$, B is the 99% emission bandwidth in megahertz	
	250mW (24dBm) For RSS: conducted output power: not exceed 250 mW(24dBm) or $11 + 10 \log_{10} B$, B is the 99% emission bandwidth in megahertz	5250-5350
	250mW (24dBm) For RSS: conducted output power: not exceed 250 mW(24dBm) or $11 + 10 \log_{10} B$, B is the 99% emission bandwidth in megahertz	For FCC:5470-5725 For IC:5470-5600 5650-5725
	1 Watt (30dBm)	5725-5850

Note: If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

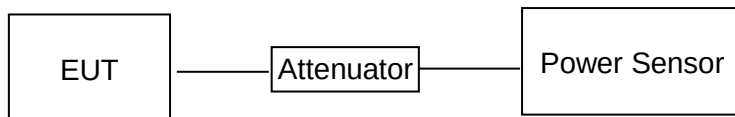
TEST PROCEDURE

Refer to KDB 789033 D02 General UNII Test Procedures New Rules v02r01

Measurement using an RF average power meter.

Connect the EUT to the a broadband peak RF power meter, the power meter shall have a video bandwidth that is greater than or equal to the bandwidth and shall utilize a fast-responding diode detector.

TEST SETUP



TEST ENVIRONMENT

Temperature	24.5°C	Relative Humidity	58%
Atmosphere Pressure	101kPa	Test Voltage	AC120V



RESULTS

6.3.1. UNII-1 BAND

Mode	Frequency (MHz)	Chain	CONDUCTED POWER (dBm)		Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
			Single	Total			
a	5180	A	/		24	\	23
		B	5.84		24	6.84	23
	5200	A	/		24	\	23
		B	13.53		24	14.53	23
	5240	A	/		24	\	23
		B	6.76		24	7.76	23
n HT20	5180	A	6.57	9.48	24	10.48	23
		B	6.36				
	5200	A	13.01	16.06	24	17.06	23
		B	13.09				
	5240	A	6.61	9.34	24	10.34	23
		B	6.04				
ac HT20	5180	A	6.35	9.22	24	10.22	23
		B	6.07				
	5200	A	12.88	15.86	24	16.86	23
		B	12.81				
	5240	A	6.53	9.28	24	10.28	23
		B	5.99				
n HT40	5190	A	7.42	10.51	24	11.51	23
		B	7.58				
	5230	A	7.85	10.82	24	11.82	23
		B	7.77				
ac HT40	5190	A	7.59	10.69	24	11.69	23
		B	7.76				
	5230	A	7.83	10.76	24	11.76	23
		B	7.66				
ac HT80	5210	A	8.42	11.08	24	12.08	23
		B	7.68				

Note: 1. The test results had already included the duty cycle correction factor.

2. The EUT only support SISO mode for a, all the antenna had been tested, but only the worst data recorded in the report.



6.3.2. UNII-2B BAND

Mode	Frequency (MHz)	Chain	CONDUCTED POWER (dBm)		Limit (dBm)	EIPR (dBm)	EIRP Limit (dBm)
			Single	Total			
a	5260	A	\		\	\	\
		B	6.90		24	7.90	23
	5280	A	\		\	\	\
		B	13.59		24	14.59	23
	5320	A	\		\	\	\
		B	13.26		24	14.26	23
n HT20	5260	A	6.35	9.81	24	10.81	23
		B	7.21				
	5300	A	13.47	16.61	24	17.61	23
		B	13.72				
	5320	A	7.46	10.47	24	11.47	23
		B	7.45				
ac HT20	5260	A	6.41	9.60	24	10.60	23
		B	6.77				
	5300	A	13.40	16.48	24	17.48	23
		B	13.54				
	5320	A	7.59	10.49	24	11.49	23
		B	7.37				
n HT40	5270	A	7.85	11.23	24	12.23	23
		B	8.56				
	5310	A	8.31	11.62	24	12.62	23
		B	8.89				
ac HT40	5270	A	7.76	11.36	24	12.36	23
		B	8.87				
	5310	A	8.58	11.88	24	12.88	23
		B	9.15				
ac HT80	5290	A	8.56	11.65	24	12.65	23
		B	8.71				

Note: 1. The test results had already included the duty cycle correction factor.

2. The EUT only support SISO mode for a, all the antenna had been tested, but only the worst data recorded in the report.



6.3.3. UNII-2C BAND

Mode	Frequency (MHz)	Chain	CONDUCTED POWER (dBm)		Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
			Single	Total			
a	5500	A	\		\	\	\
		B	7.51		24	8.51	23
	5600	A	\		\	\	\
		B	13.59		24	14.59	23
	5700	A	\		\	\	\
		B	7.93		24	8.93	23
n HT20	5500	A	6.74	10.15	24	11.15	23
		B	7.50				
	5600	A	13.88	16.77	24	17.77	23
		B	13.64				
	5700	A	8.52	11.09	24	12.09	23
		B	7.58				
ac HT20	5500	A	6.82	10.21	24	11.21	23
		B	7.55				
	5580	A	14.00	17.04	24	18.04	23
		B	14.06				
	5700	A	8.71	11.24	24	12.24	23
		B	7.70				
n HT40	5510	A	7.79	11.18	24	12.18	23
		B	8.51				
	5590	A	13.00	16.13	24	17.13	23
		B	13.24				
	5670	A	9.66	12.22	24	13.22	23
		B	8.71				
ac HT40	5510	A	8.01	11.26	24	12.26	23
		B	8.47				
	5590	A	13.18	16.24	24	17.24	23
		B	13.27				
	5670	A	9.73	12.35	24	13.35	23
		B	8.92				
ac HT80	5530	A	7.23	10.25	24	11.25	23
		B	7.24				
	5610	A	9.92	12.38	24	13.38	23
		B	8.74				

Note: 1. The test results had already included the duty cycle correction factor.

2. The EUT only support SISO mode for a, all the antenna had been tested, but only the worst data recorded in the report.



6.3.1. UNII-3 BAND

Mode	Frequency (MHz)	Chain	CONDUCTED POWER (dBm)		Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
			Single	Total			
a	5745	A	\		\	\	\
		B	13.59		30	14.59	29
	5785	A	\		\	\	\
		B	14.42		30	15.42	29
	5825	A	\		\	\	\
		B	14.06		30	15.06	29
n HT20	5745	A	14.81	17.05	30	18.05	29
		B	13.11				
	5785	A	14.98	17.26	30	18.26	29
		B	13.38				
	5825	A	14.71	16.87	30	17.87	29
		B	12.79				
ac HT20	5745	A	15.00	17.23	30	18.23	29
		B	13.27				
	5785	A	15.23	17.50	30	18.50	29
		B	13.59				
	5825	A	14.82	16.93	30	17.93	29
		B	12.79				
n HT40	5755	A	13.81	15.97	30	16.97	29
		B	11.91				
	5795	A	14.06	16.22	30	17.22	29
		B	12.14				
ac HT40	5755	A	12.01	16.01	30	18.01	29
		B	10.13				
	5795	A	13.91	16.23	30	17.23	29
		B	11.92				
ac HT80	5775	A	14.35	16.34	30	17.34	29
		B	11.99				

Note: 1. The test results had already included the duty cycle correction factor.

2. The EUT only support SISO mode for a, all the antenna had been tested, but only the worst data recorded in the report.