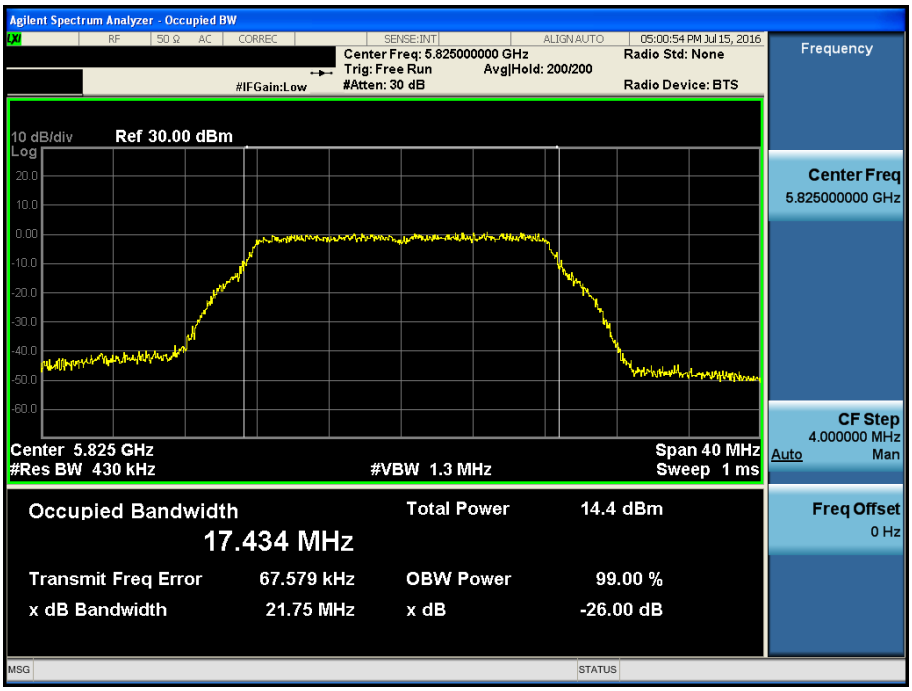
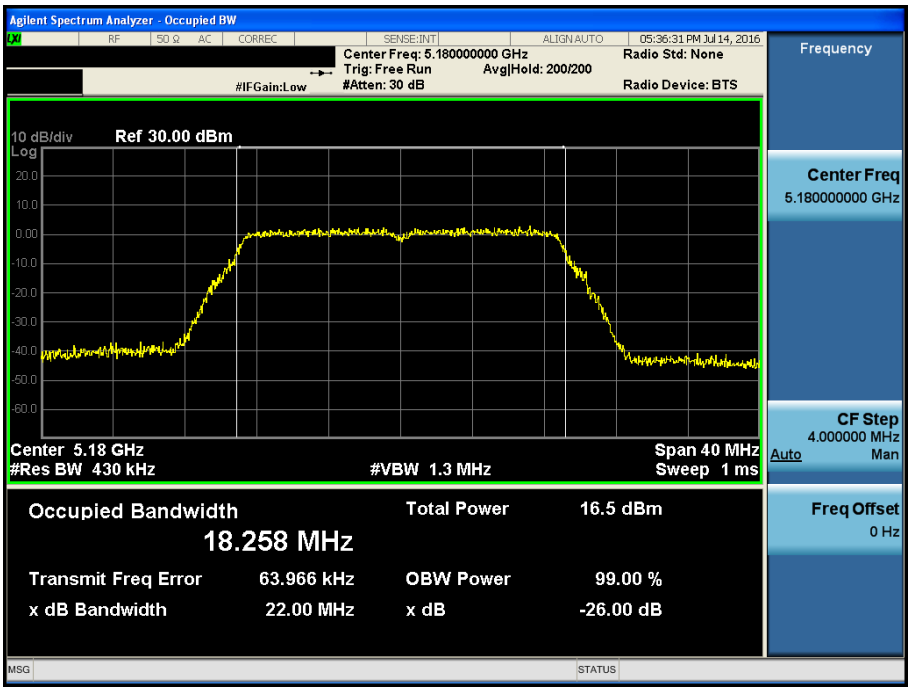
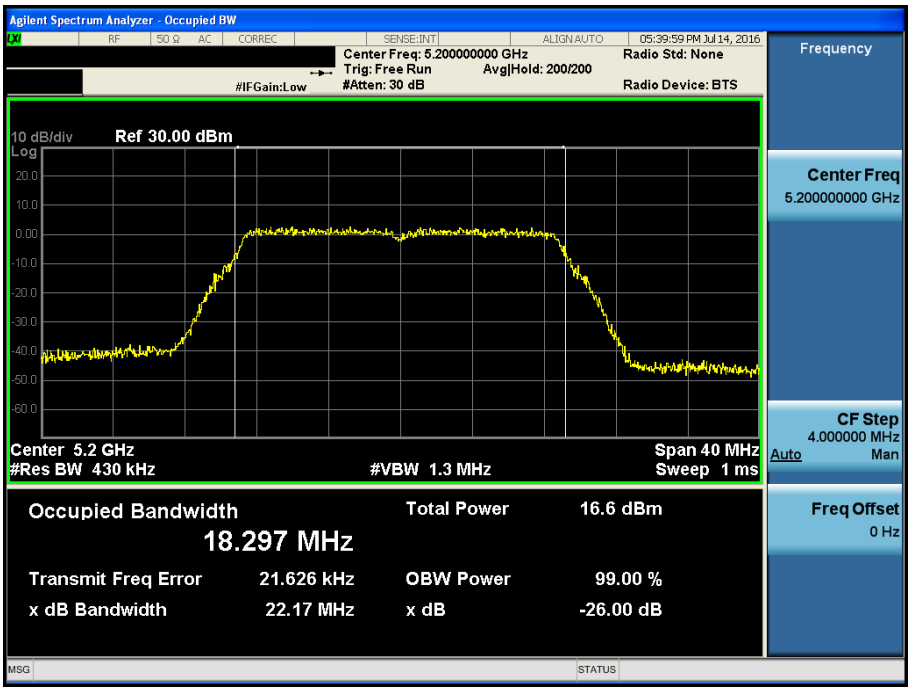
Occupied Bandwidth 99% Test Mode: 802.11a & ANT 1 & Ch.165



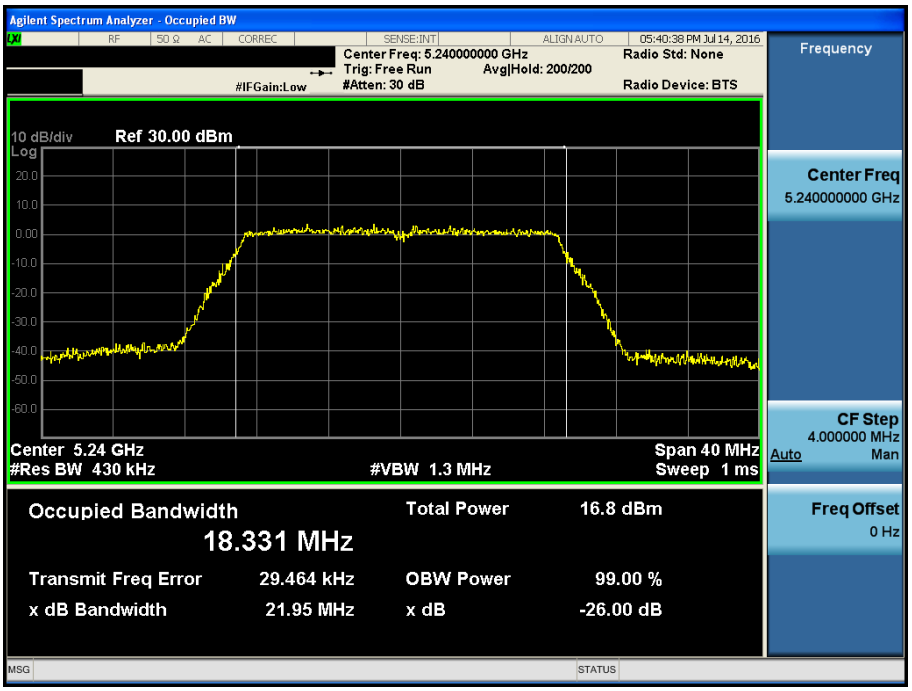
Occupied Bandwidth 99% Test Mode: 802.11n HT20 & ANT 1 & Ch.36



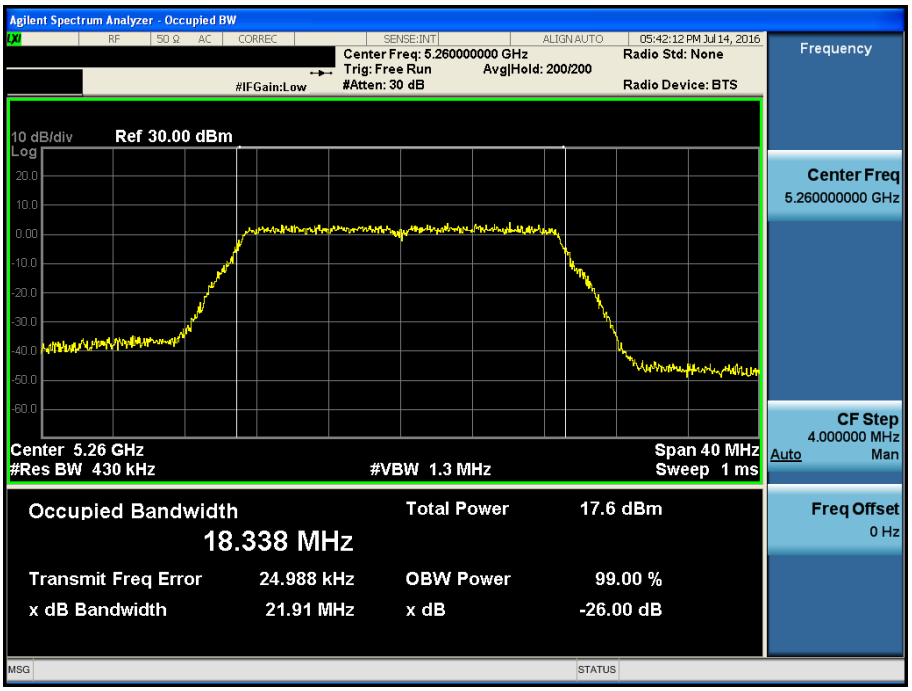
Occupied Bandwidth 99% Test Mode: 802.11n HT20 & ANT 1 & Ch.40



Occupied Bandwidth 99% Test Mode: 802.11n HT20 & ANT 1 & Ch.48



Occupied Bandwidth 99% Test Mode: 802.11n HT20 & ANT 1 & Ch.52



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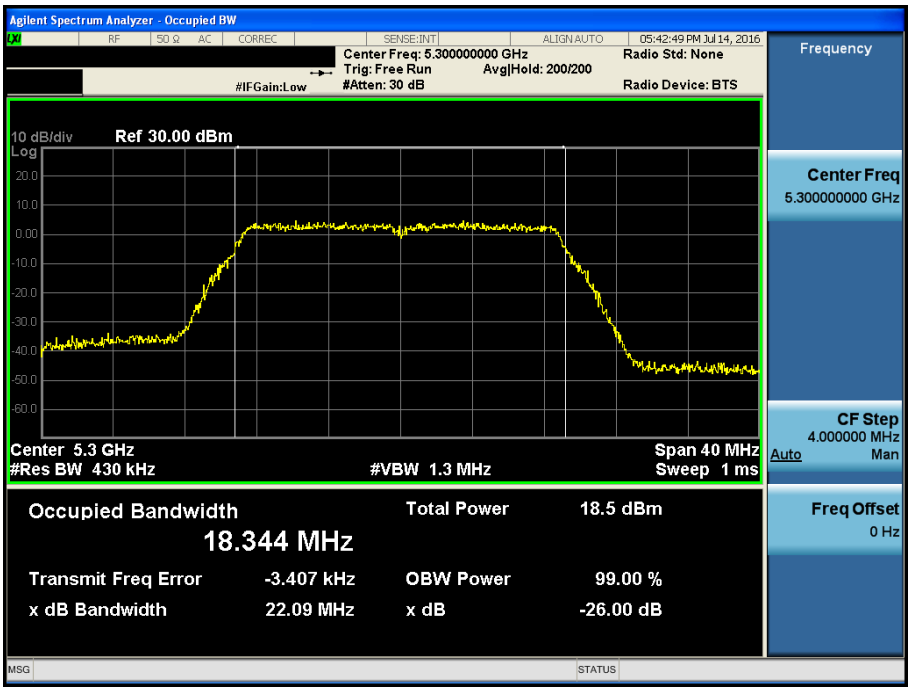

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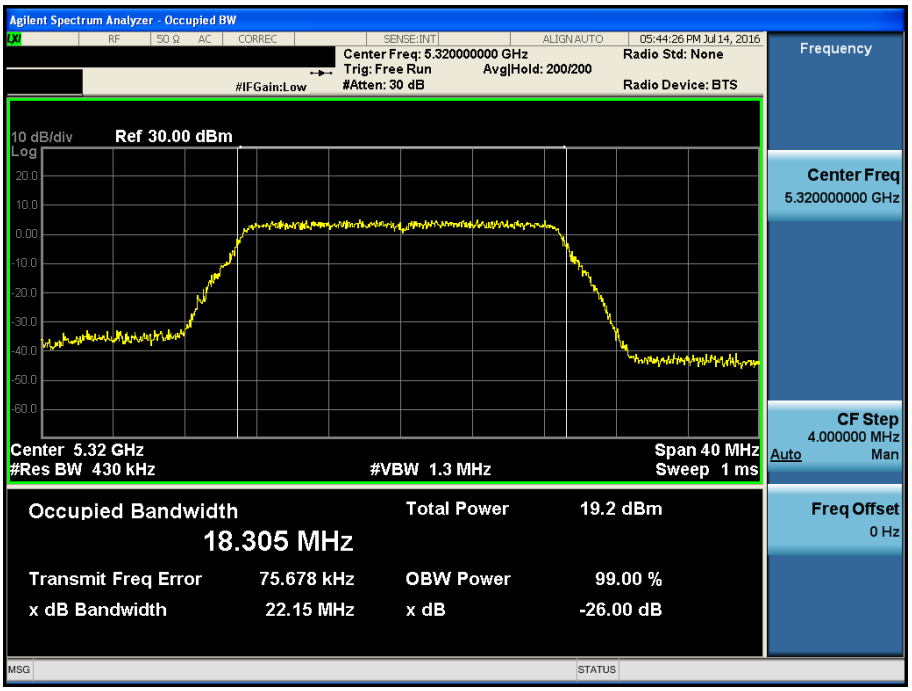

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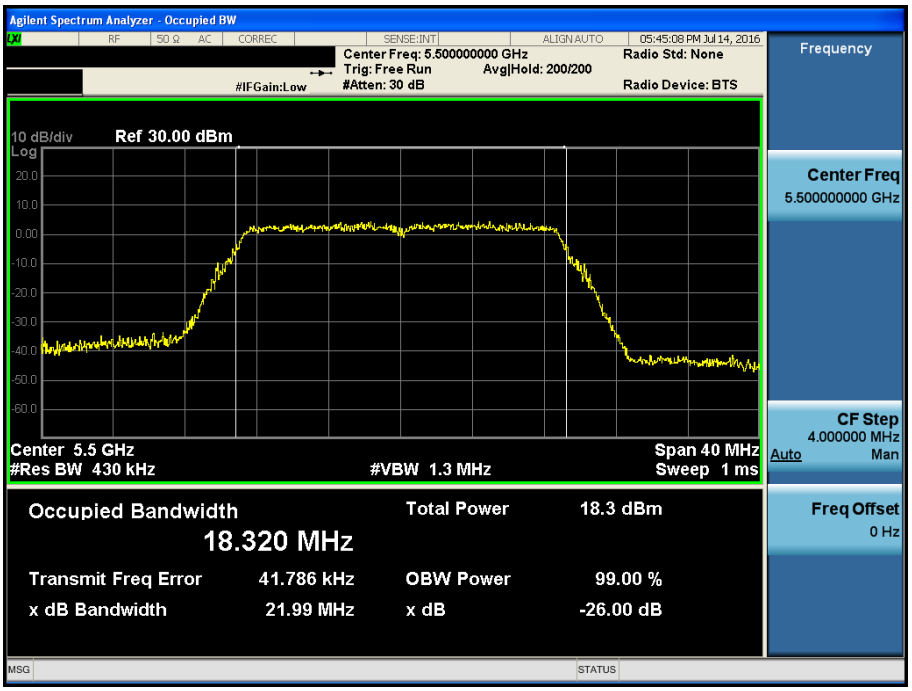
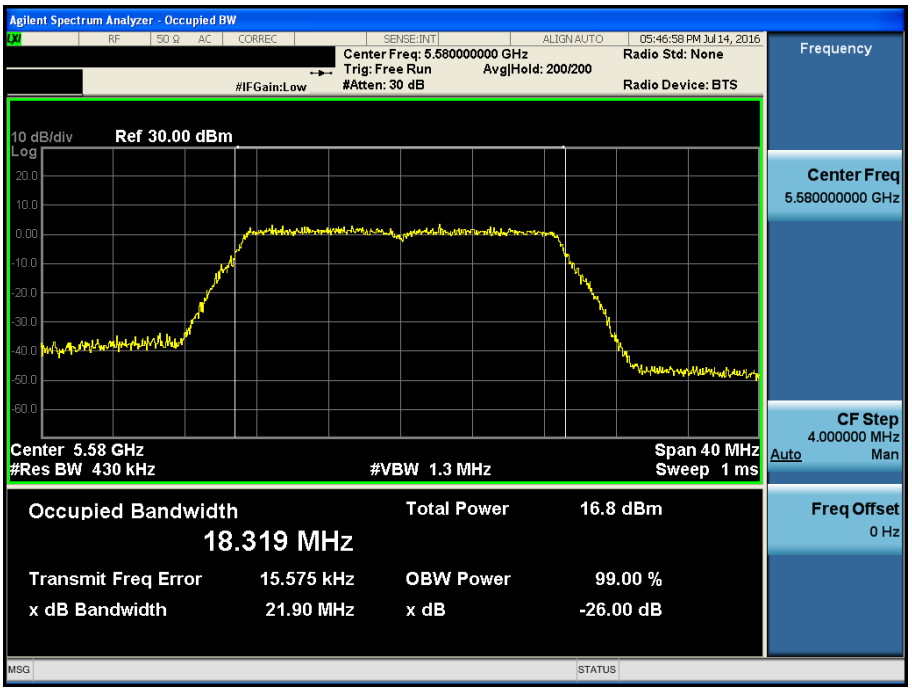
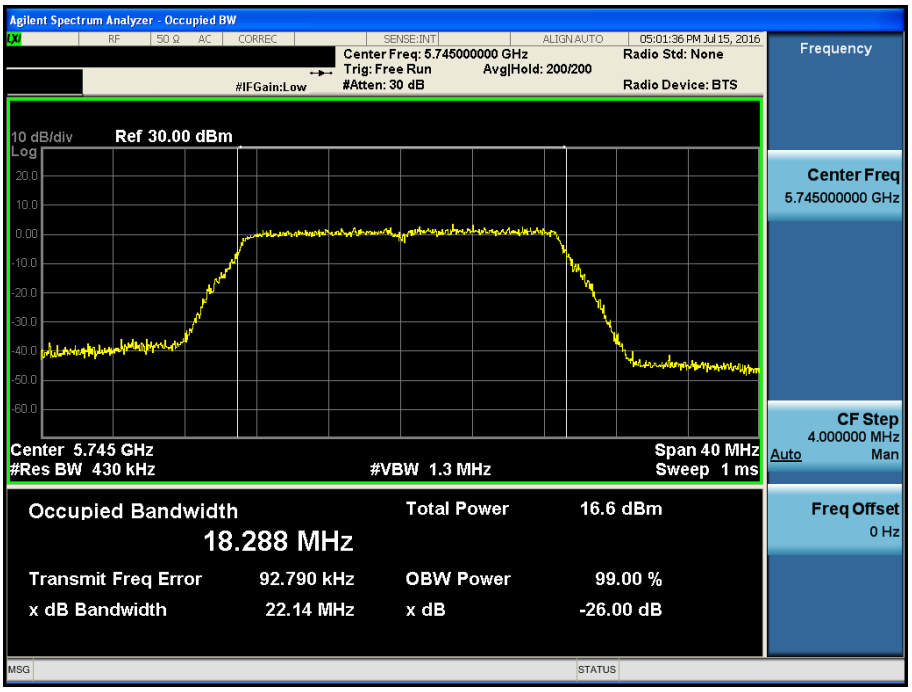


Occupied Bandwidth 99% Test Mode: 802.11n HT20 & ANT 1 & Ch.116



Occupied Bandwidth 99% Test Mode: 802.11n HT20 & ANT 1 & Ch.149



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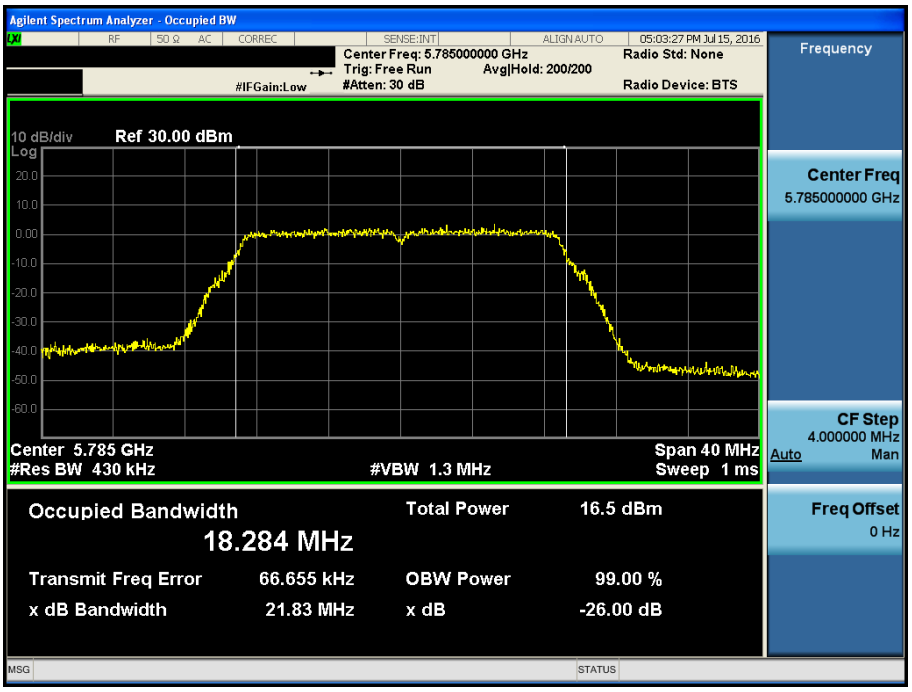
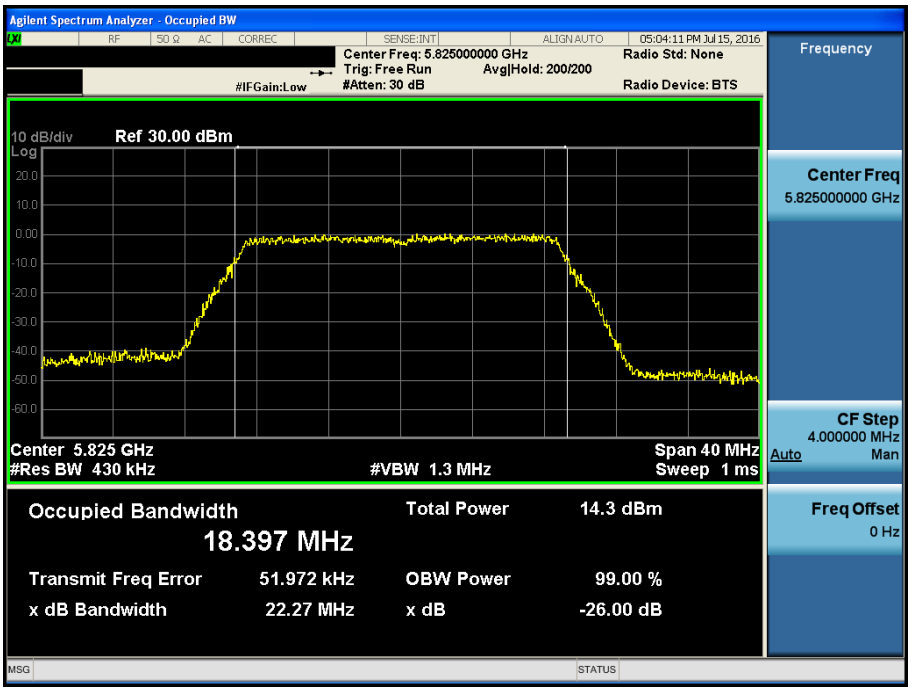
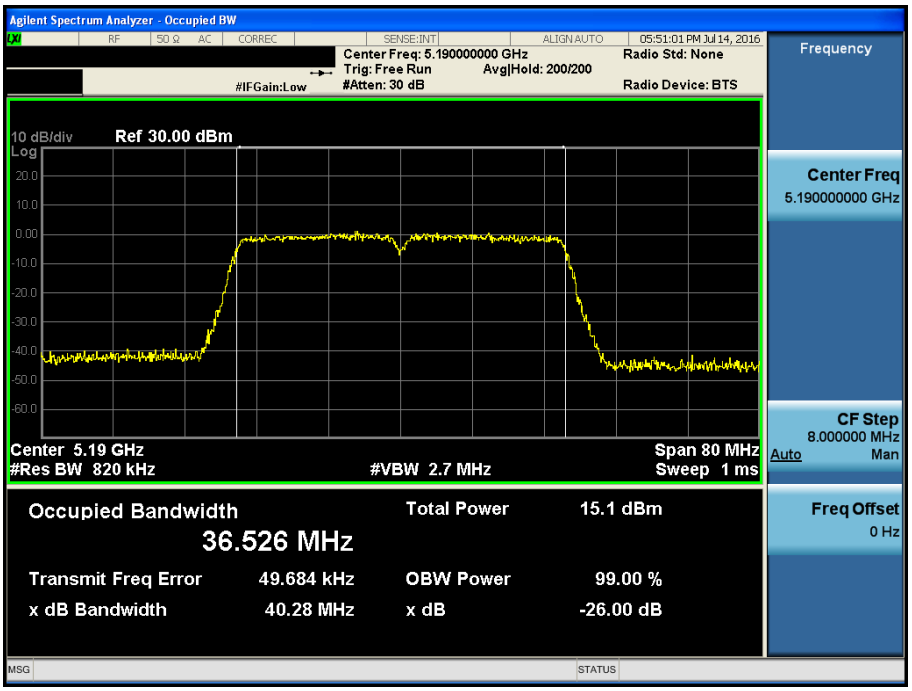


Occupied Bandwidth 99% Test Mode: 802.11n HT20 & ANT 1 & Ch.165



Occupied Bandwidth 99% Test Mode: 802.11ac VHT40 & ANT 1 & Ch.38



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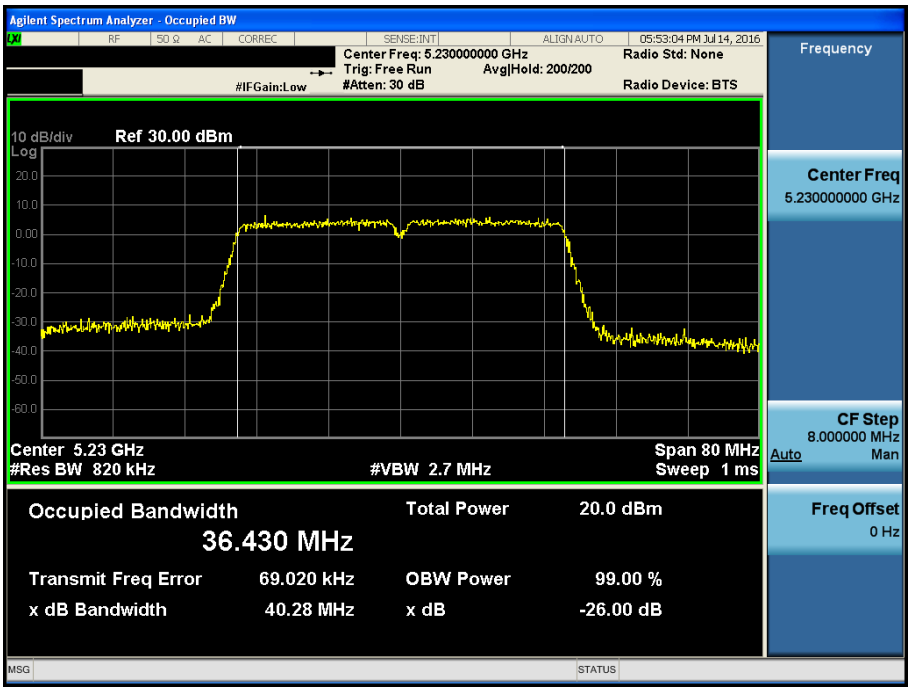

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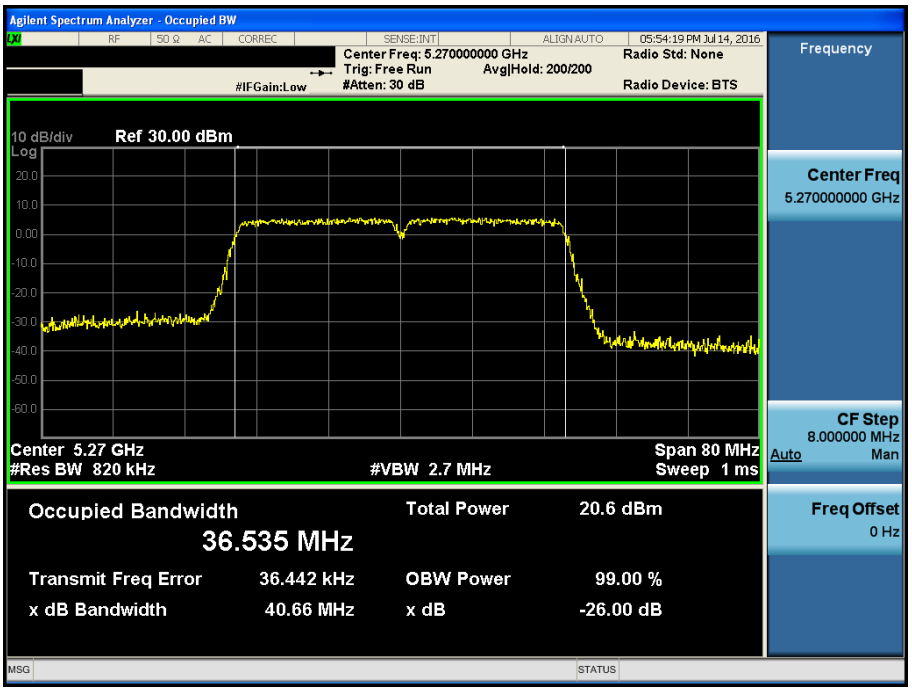

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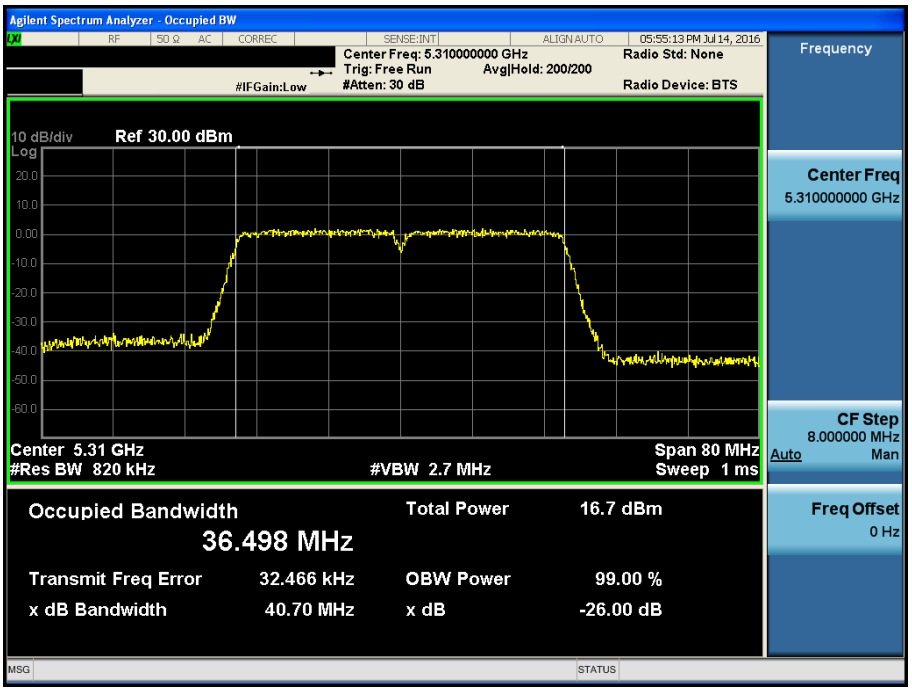
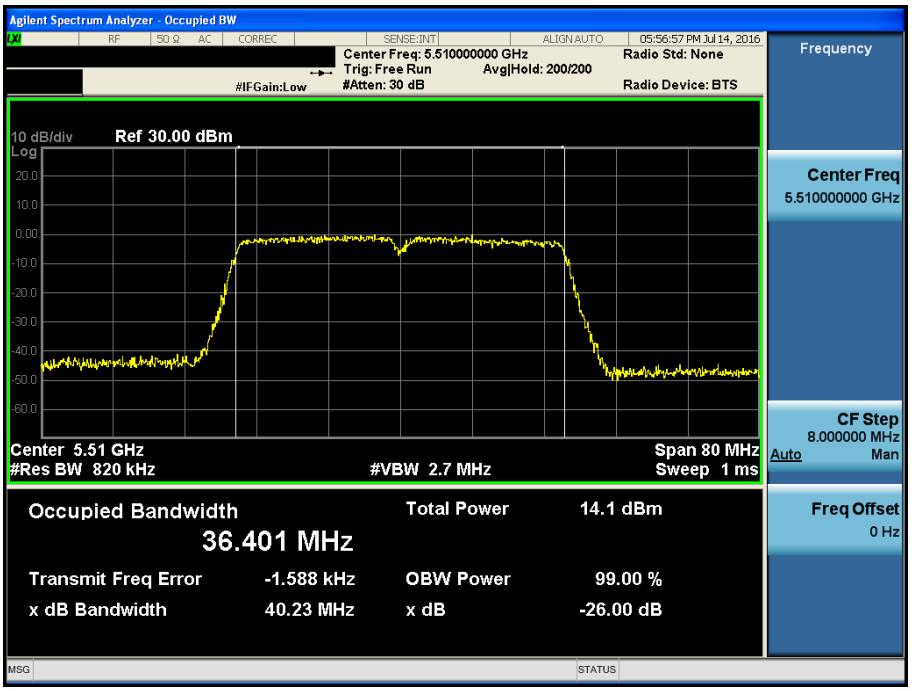


Occupied Bandwidth 99% Test Mode: 802.11ac VHT40 & ANT 1 & Ch.102



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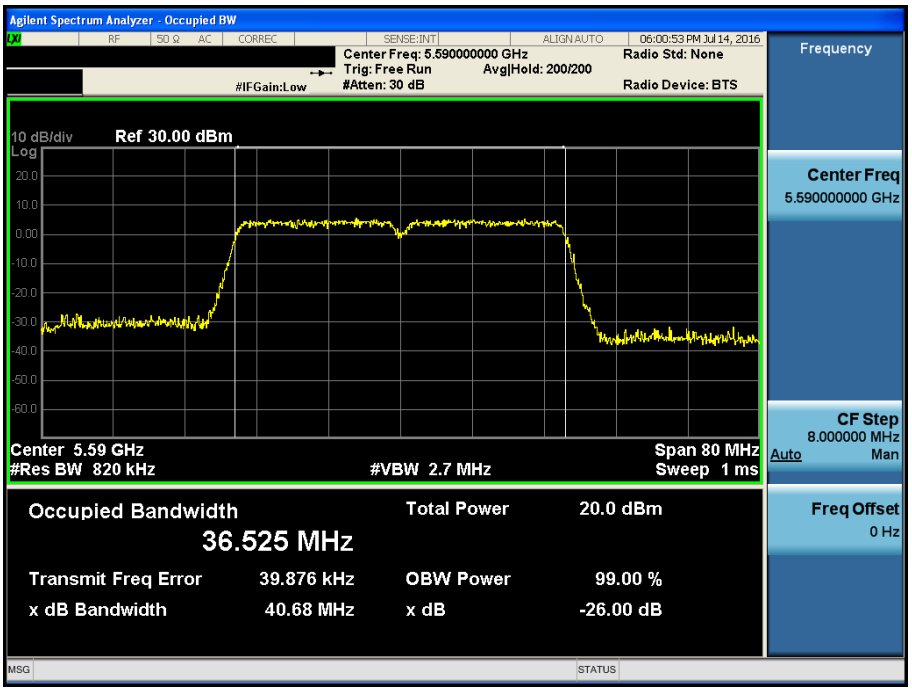

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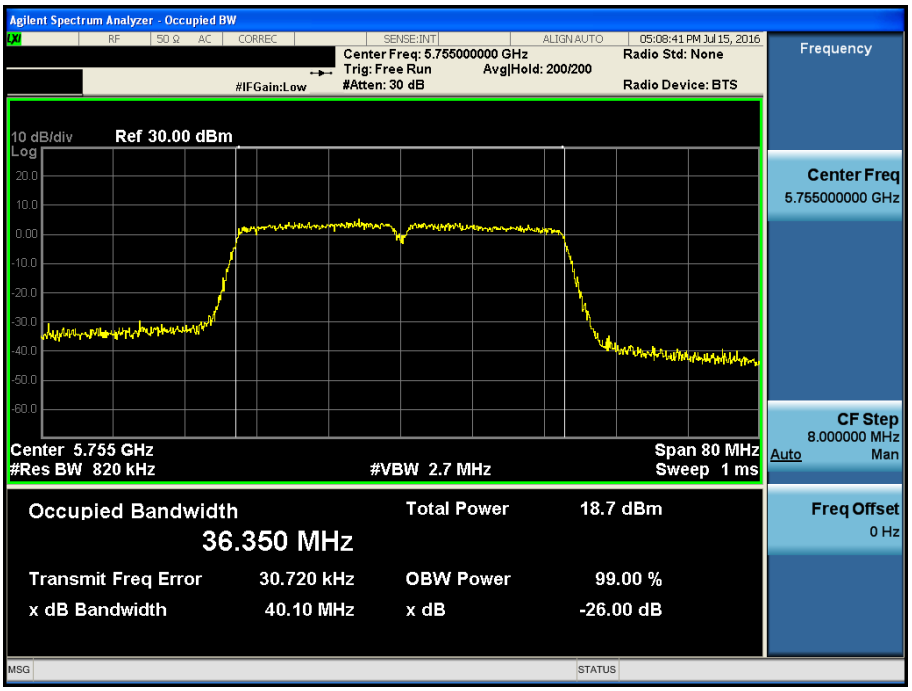

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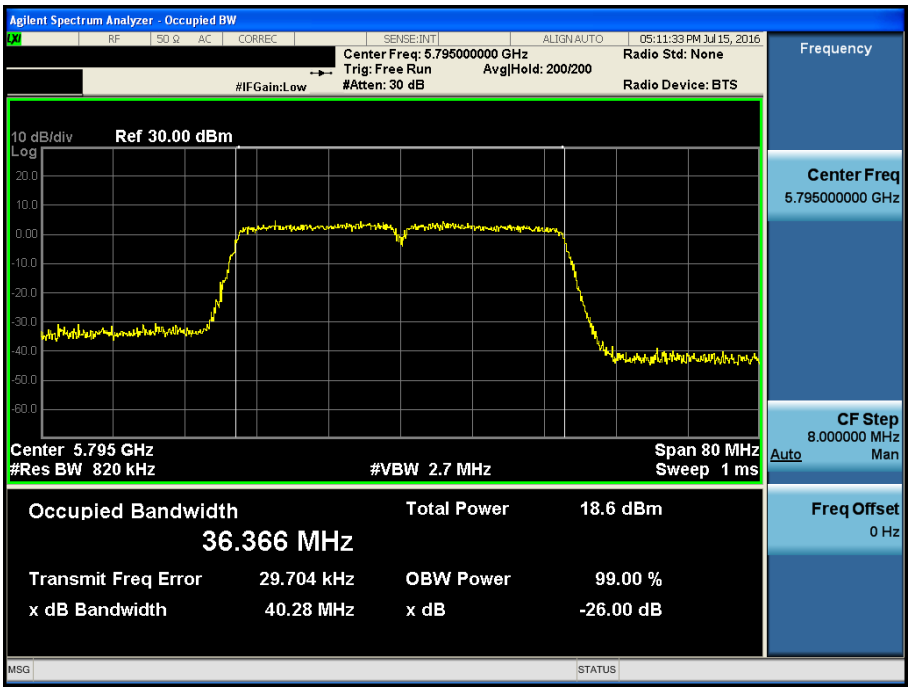

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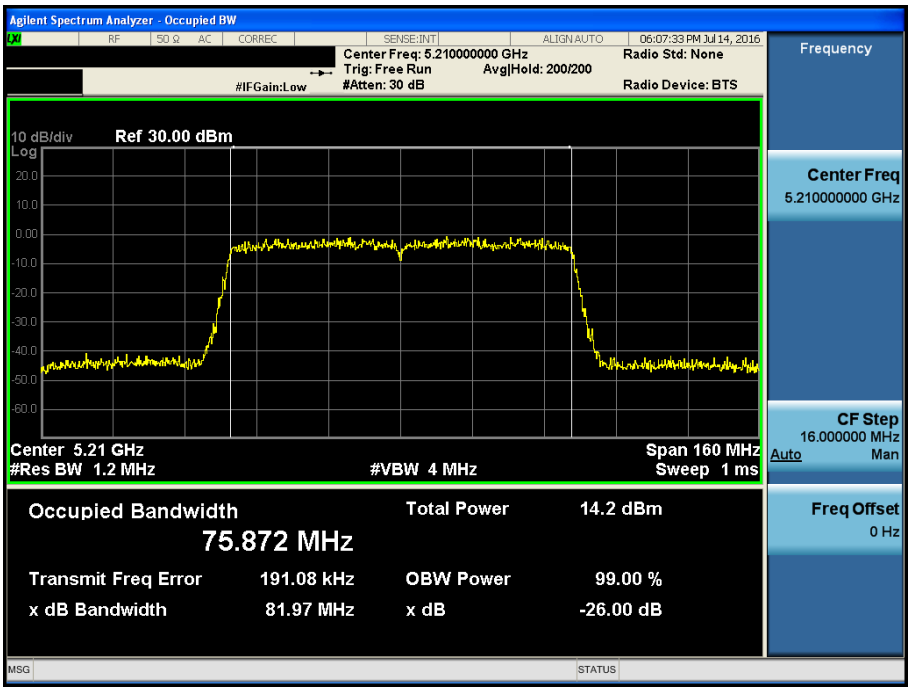

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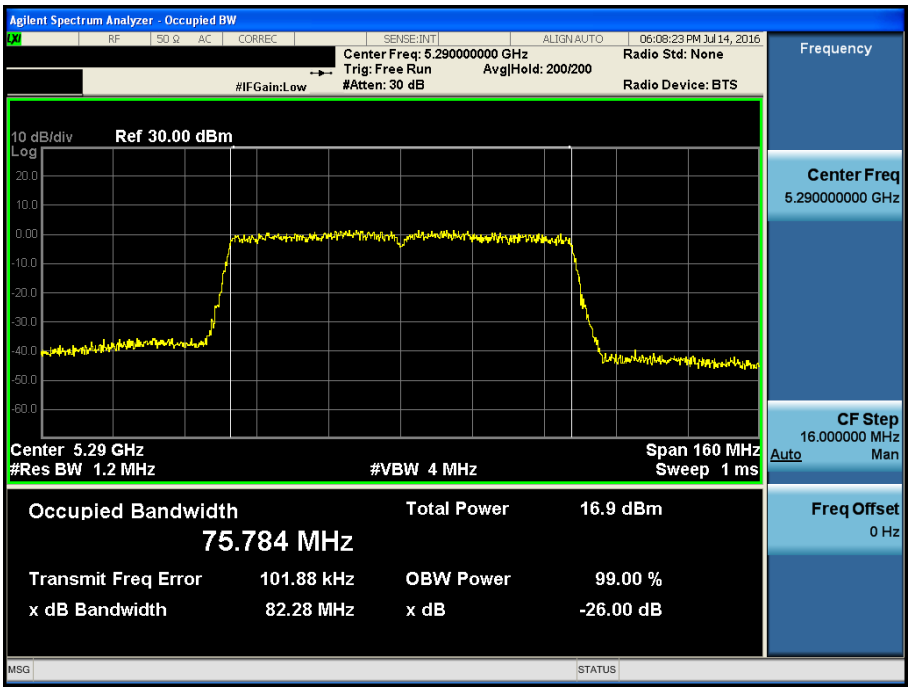

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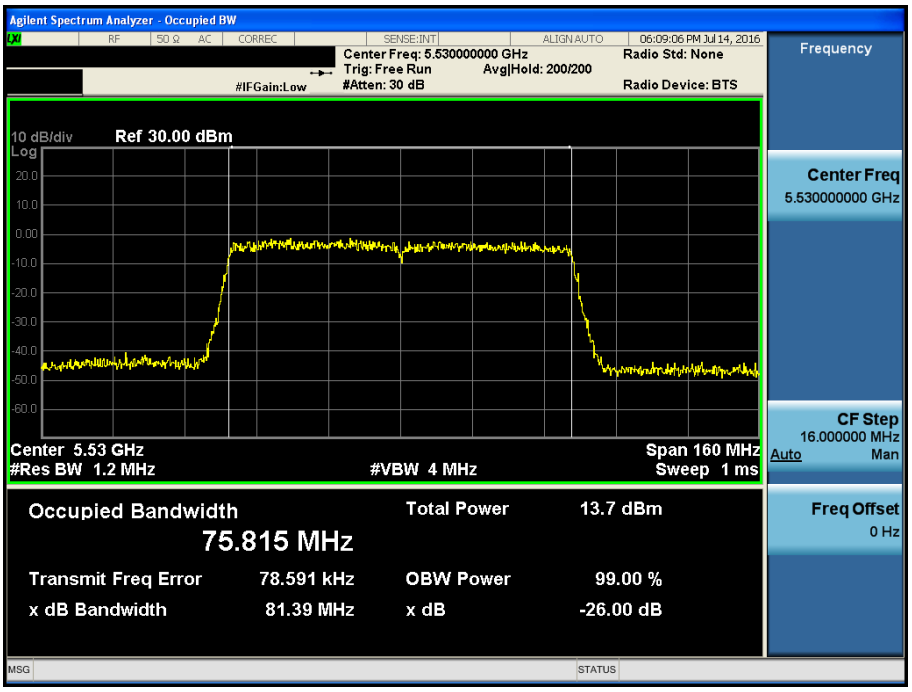

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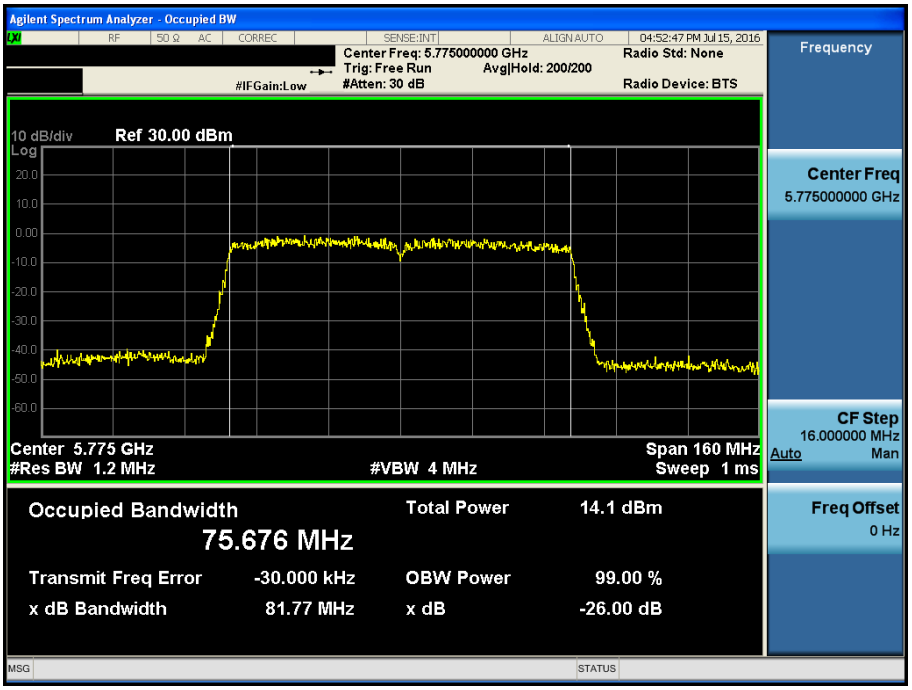
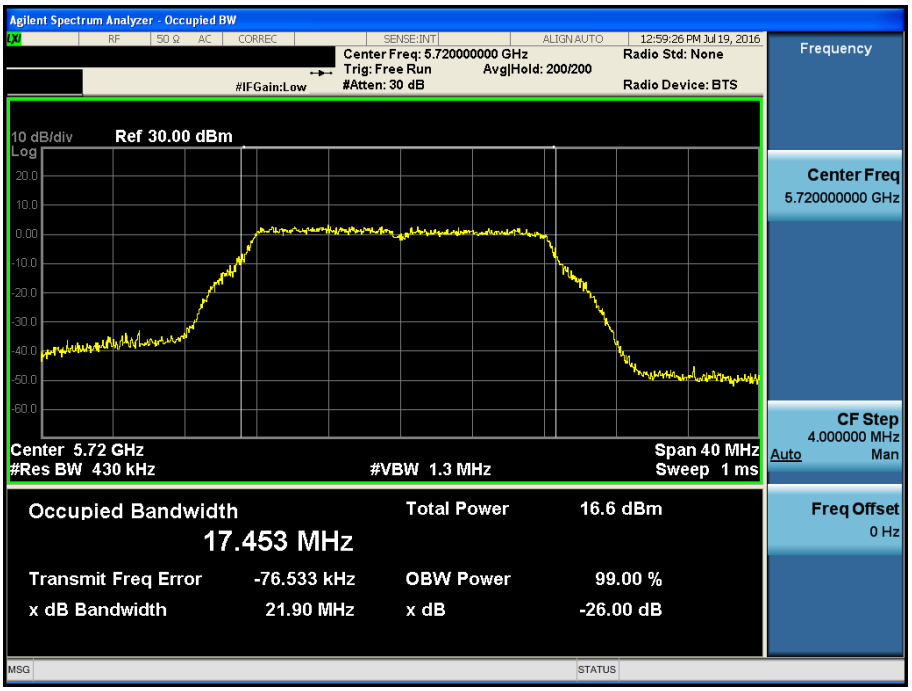


Occupied Bandwidth 99% Test Mode: 802.11a & ANT 1 & Ch.144



Occupied Bandwidth 99% Test Mode: 802.11ac VHT20 & ANT 1 & Ch.144

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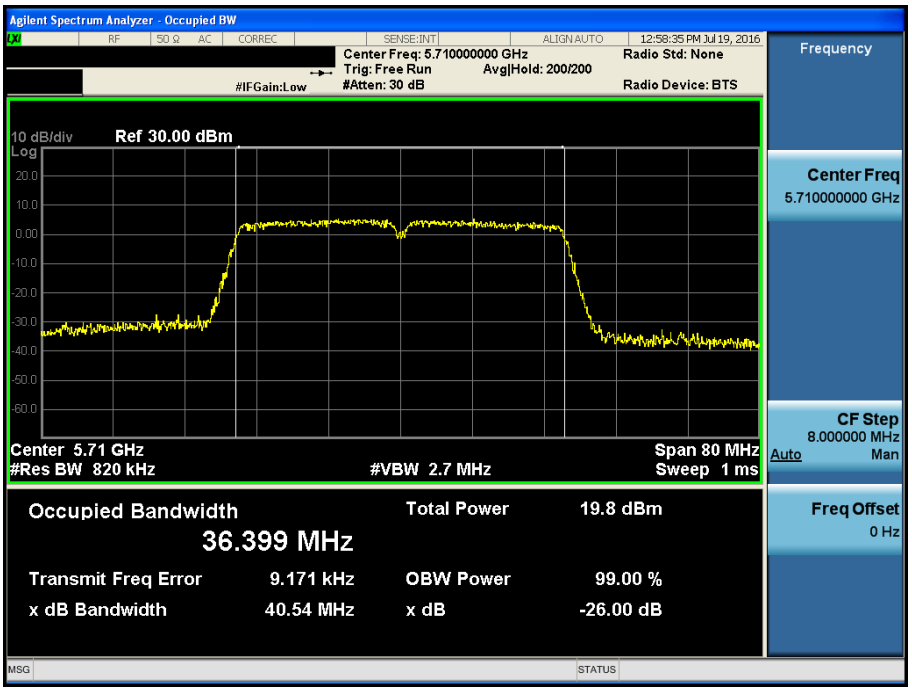

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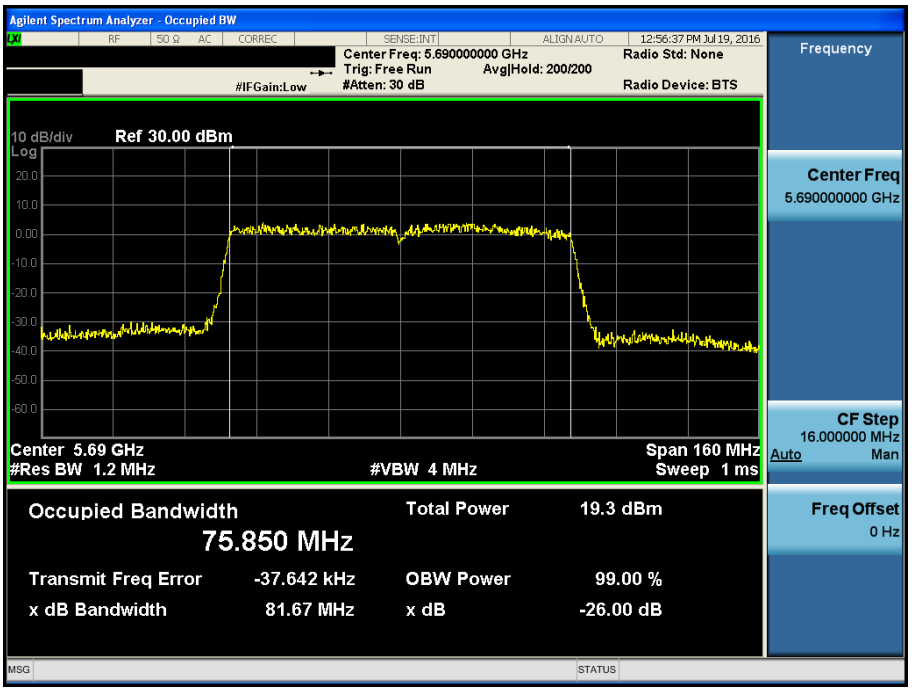
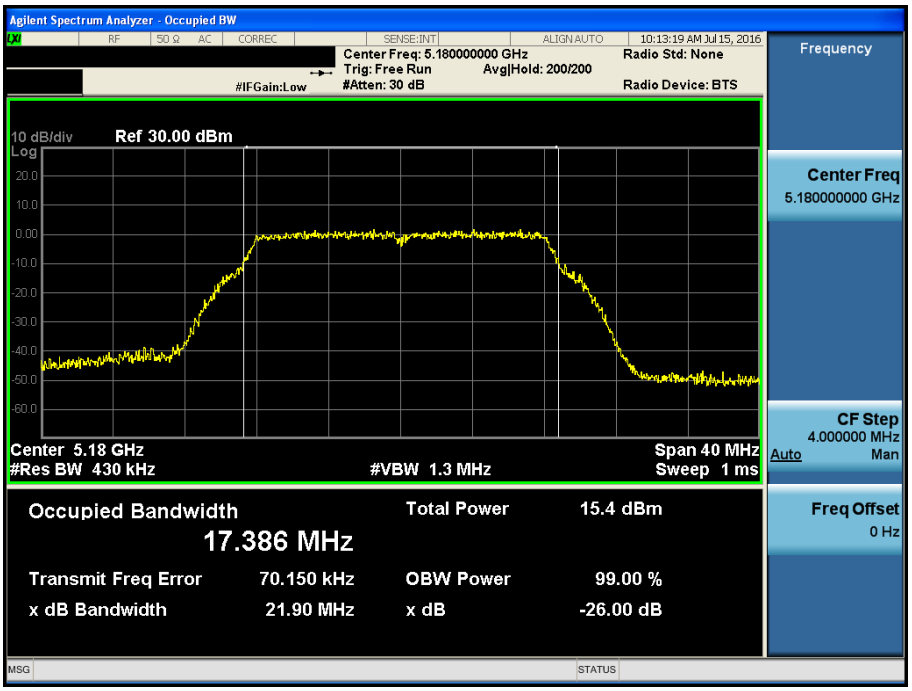
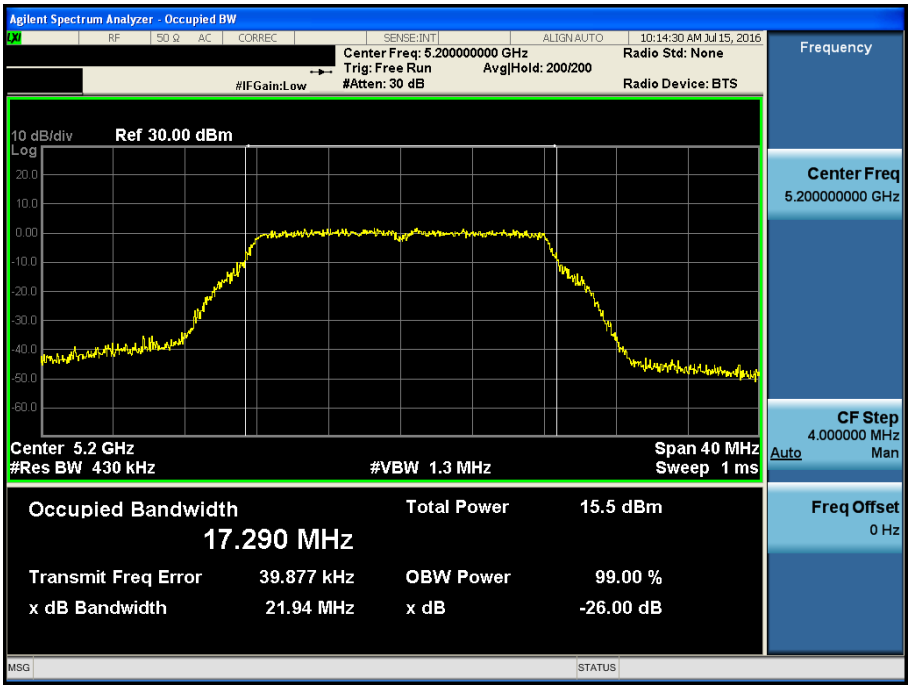


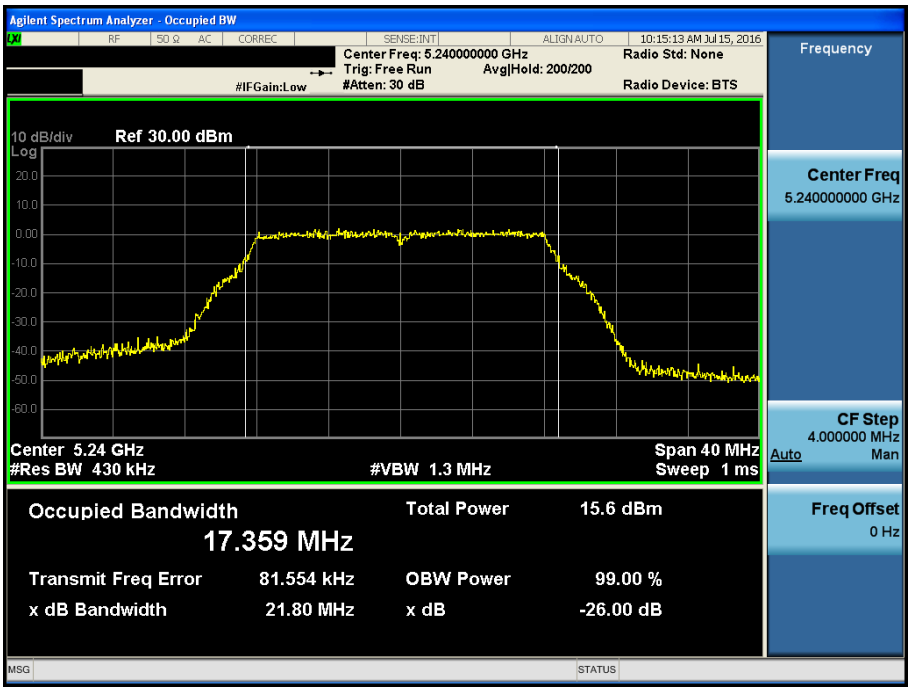
Occupied Bandwidth 99% Test Mode: 802.11a & ANT 2 & Ch.36



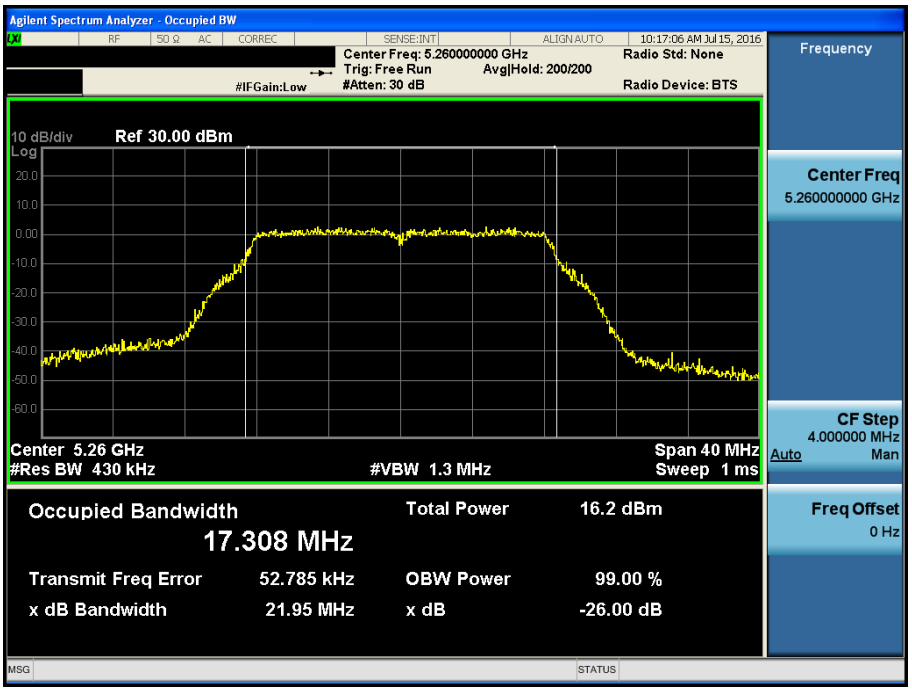
Occupied Bandwidth 99% Test Mode: 802.11a & ANT 2 & Ch.40



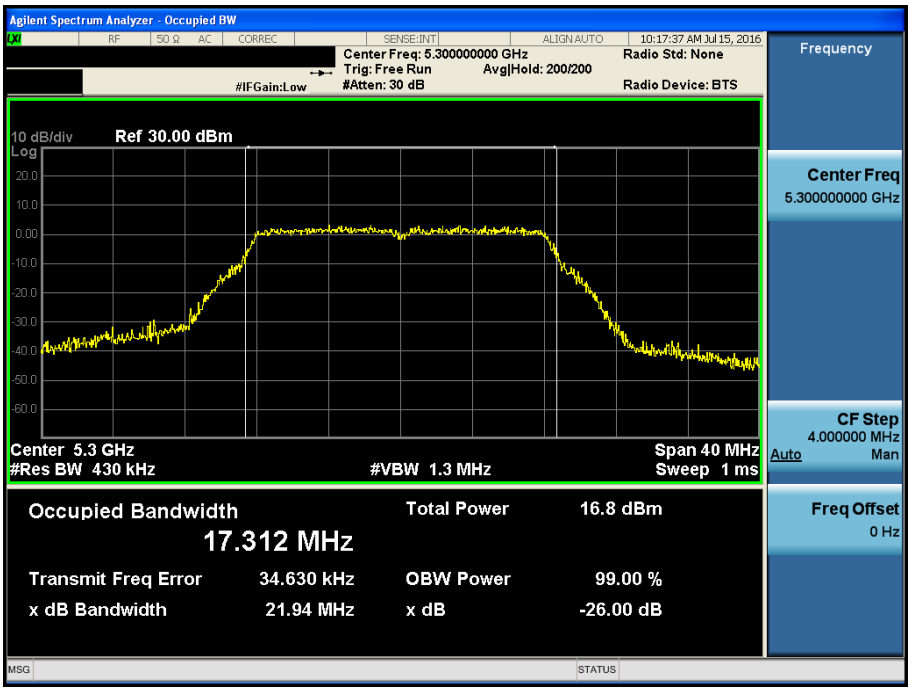
Occupied Bandwidth 99% Test Mode: 802.11a & ANT 2 & Ch.48



Occupied Bandwidth 99% Test Mode: 802.11a & ANT 2 & Ch.52



Occupied Bandwidth 99% Test Mode: 802.11a & ANT 2 & Ch.60



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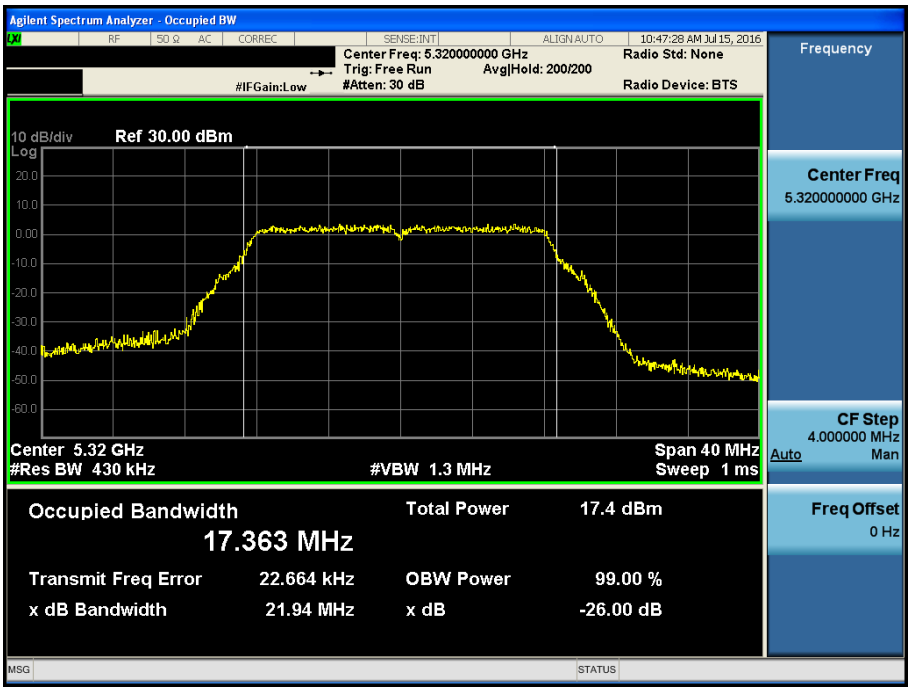

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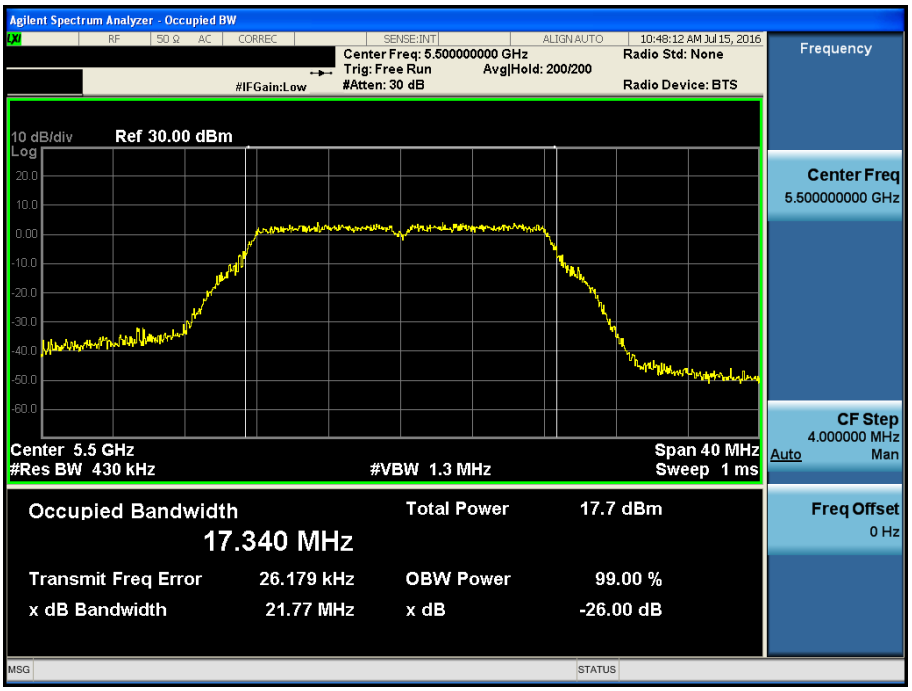

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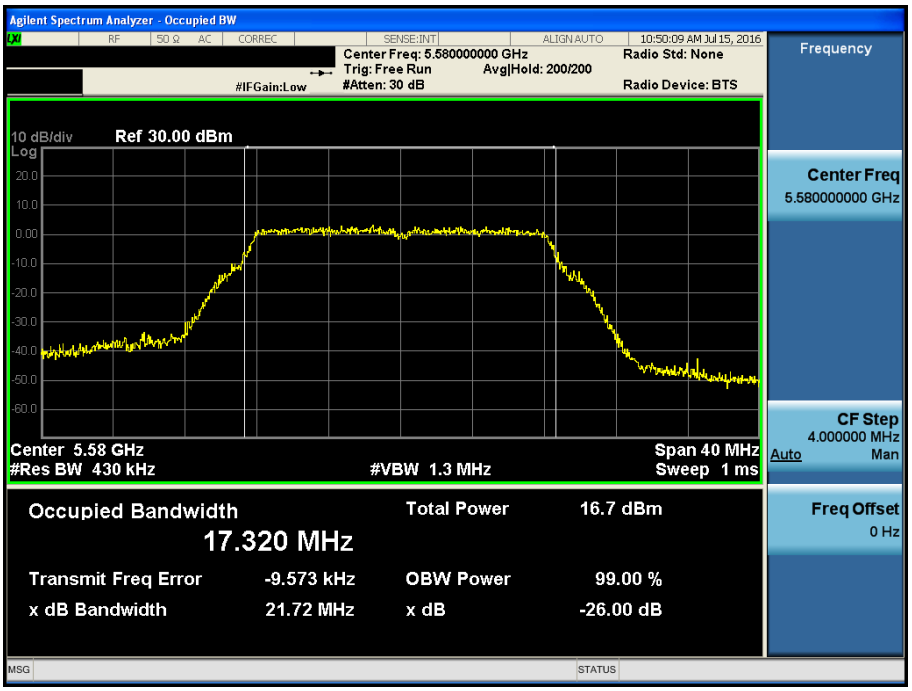

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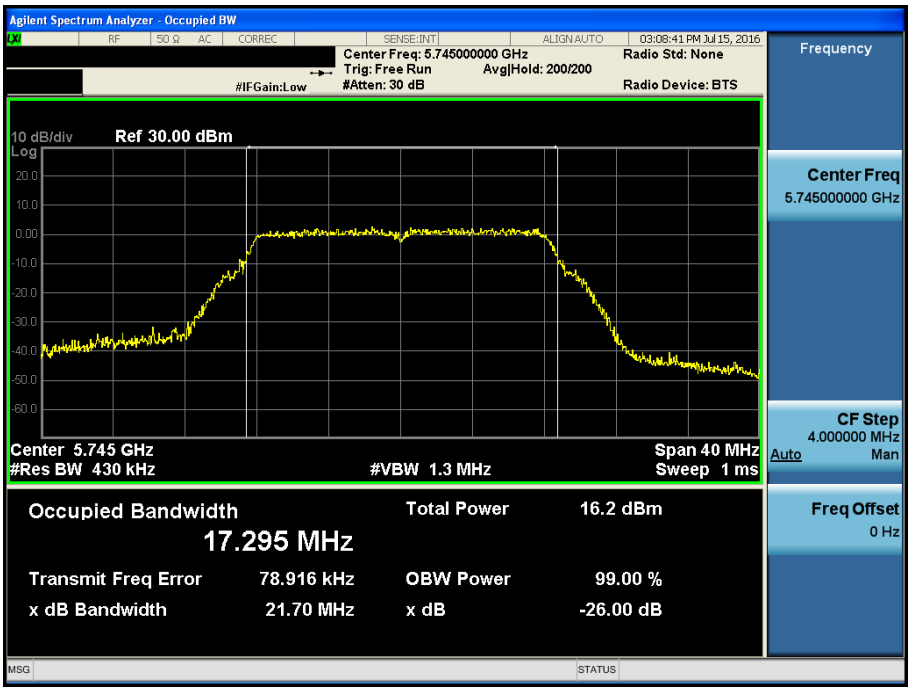

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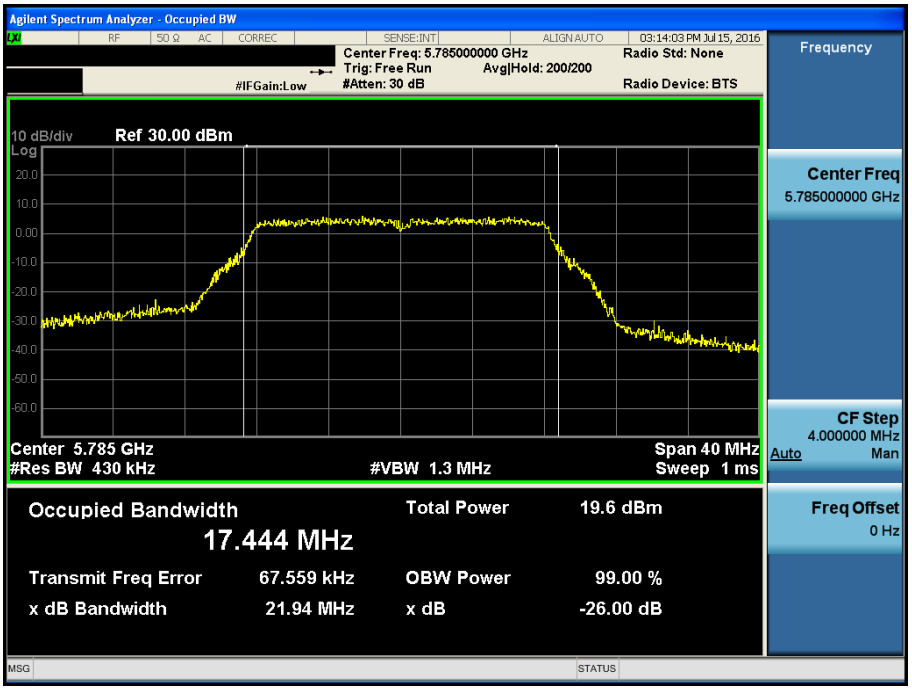

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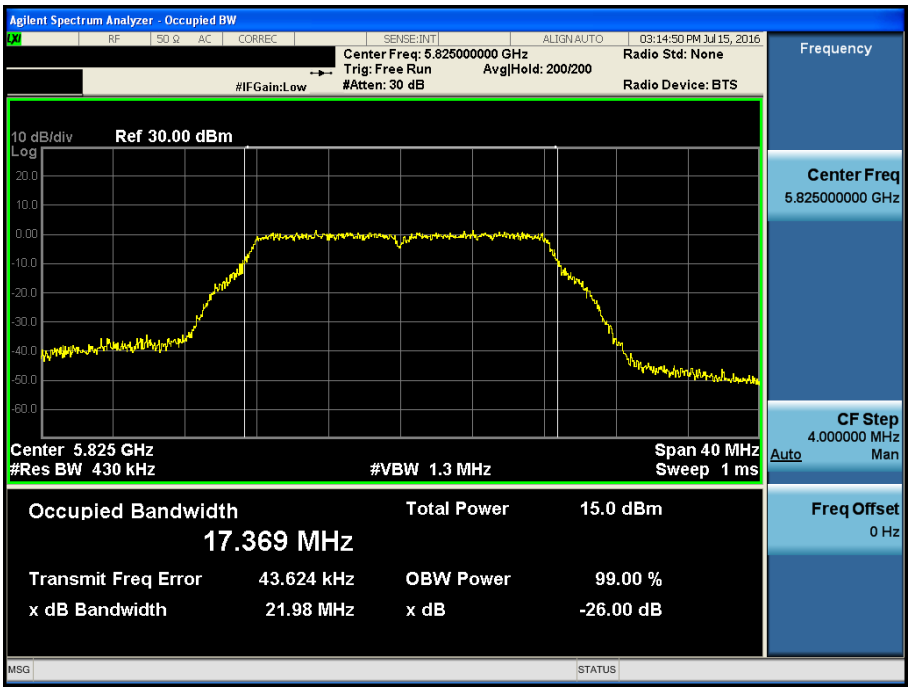

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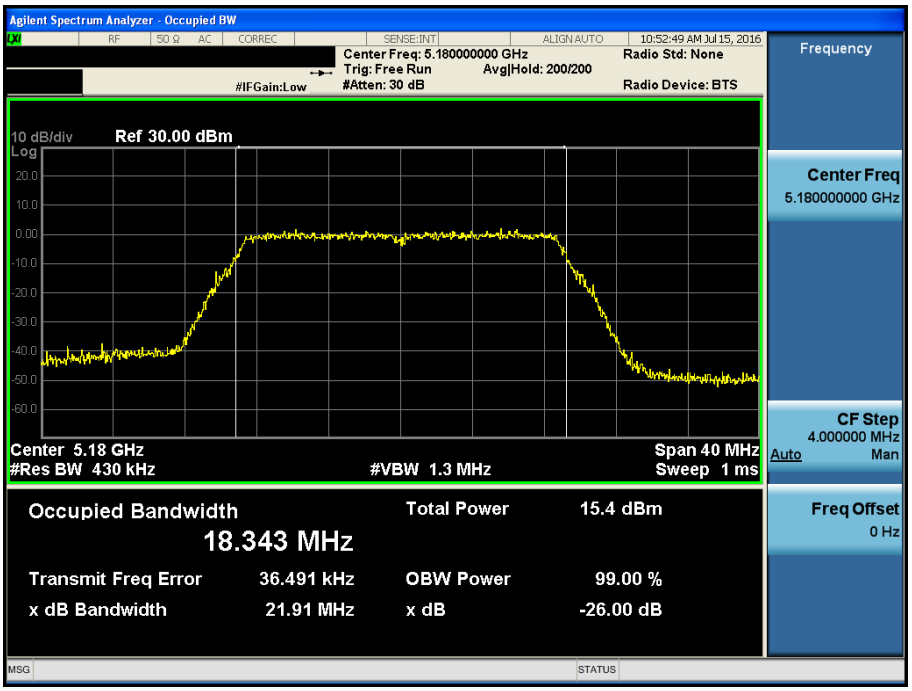

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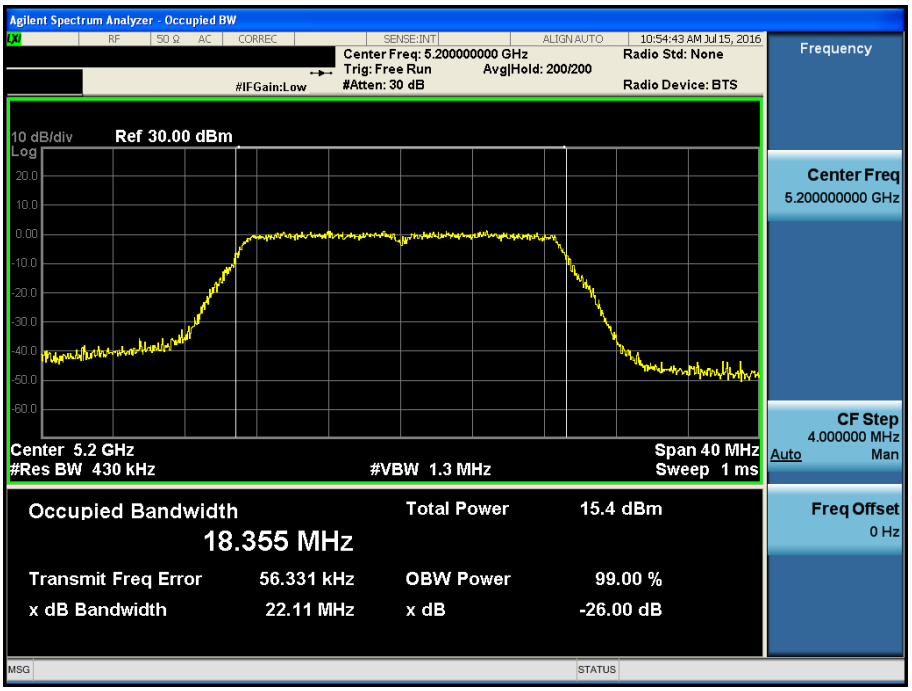

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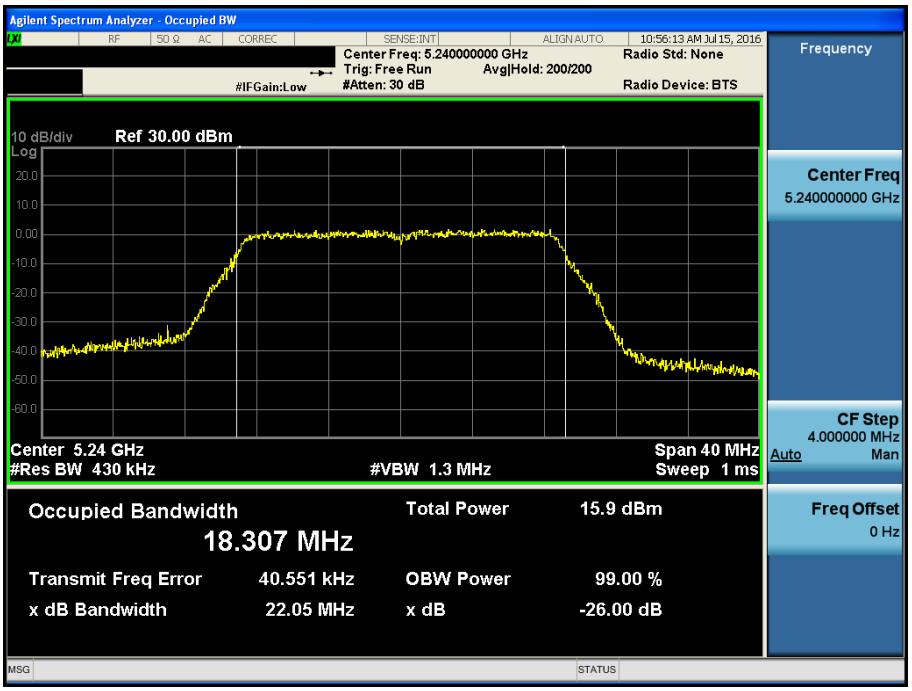

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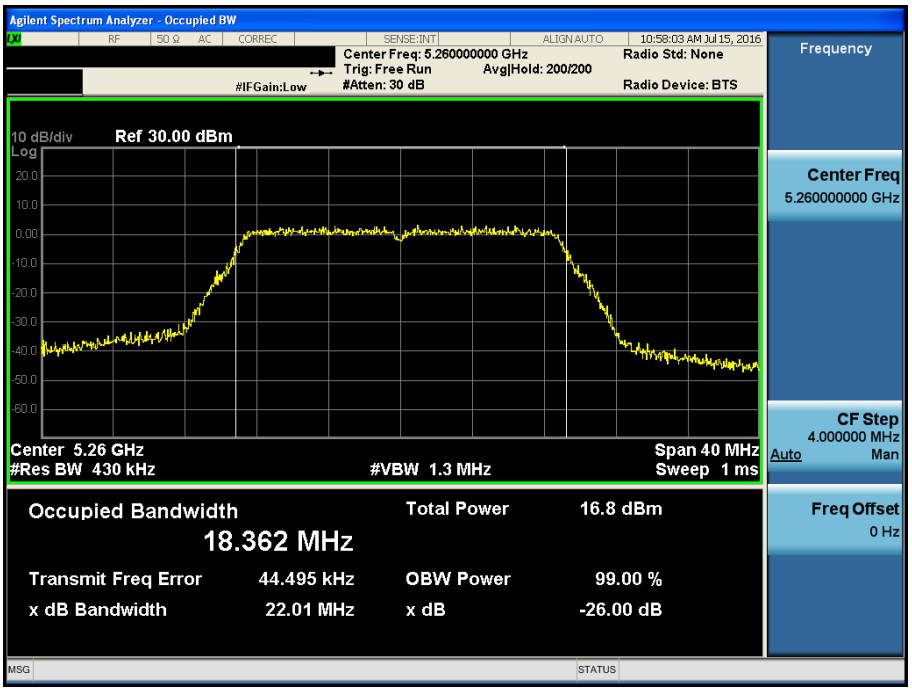

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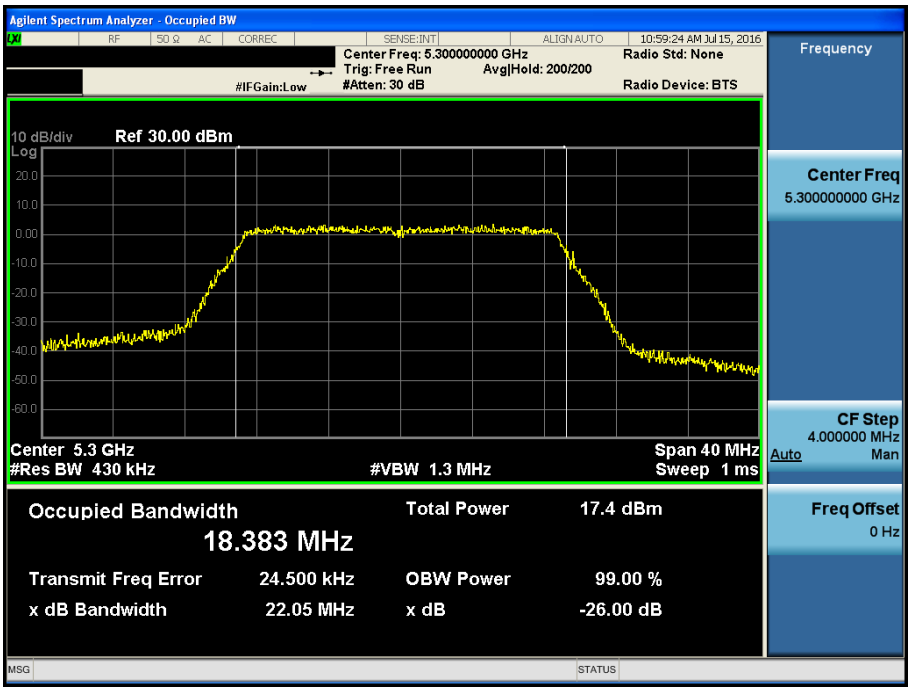

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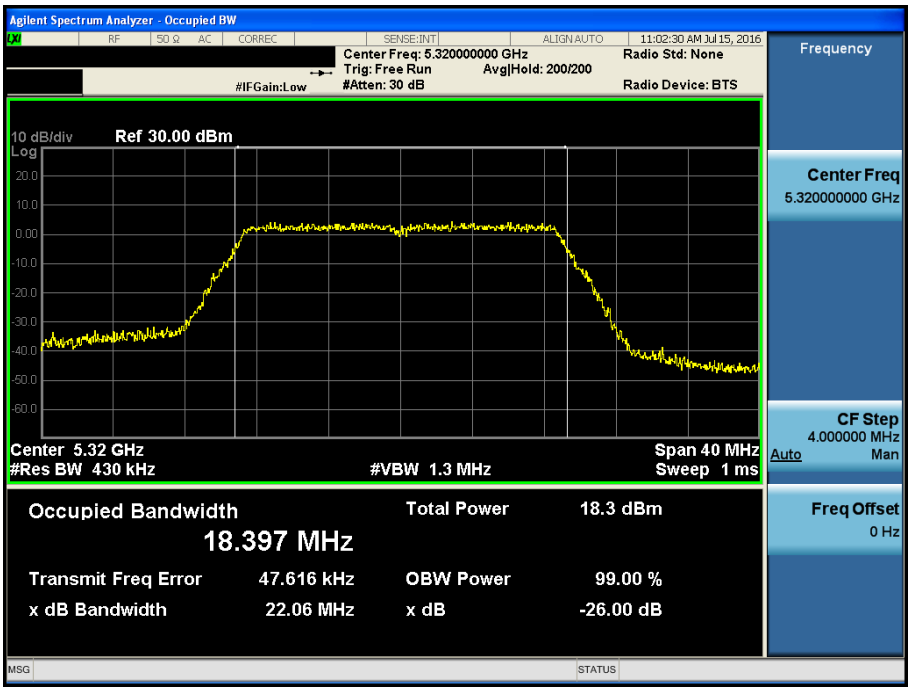

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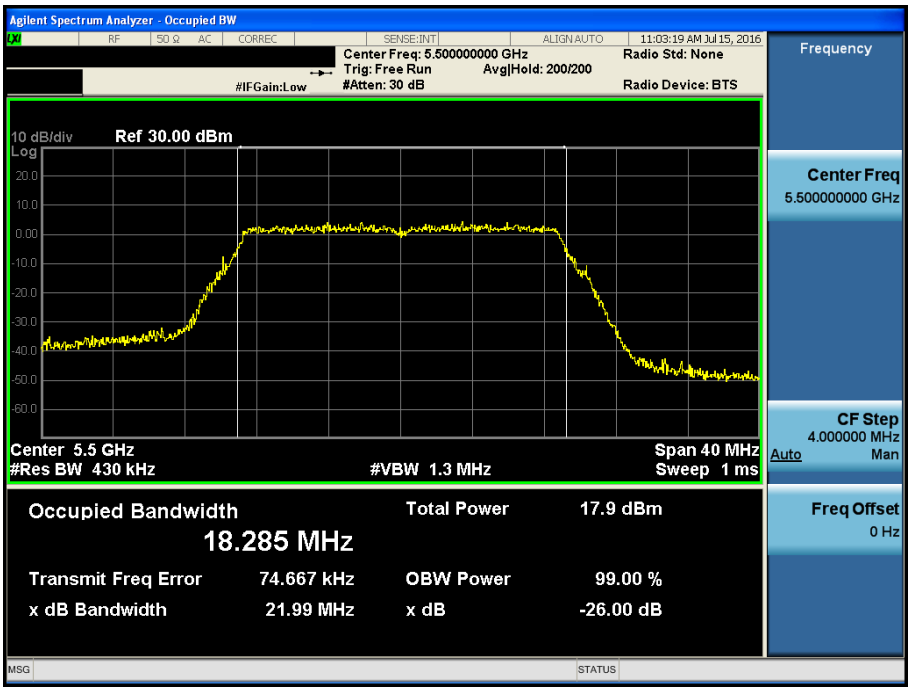

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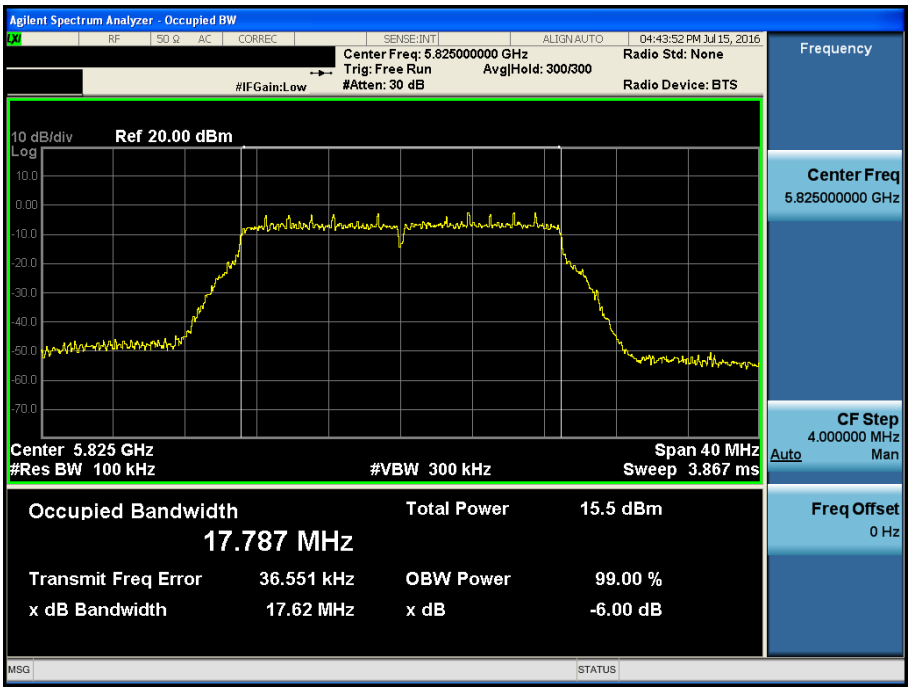

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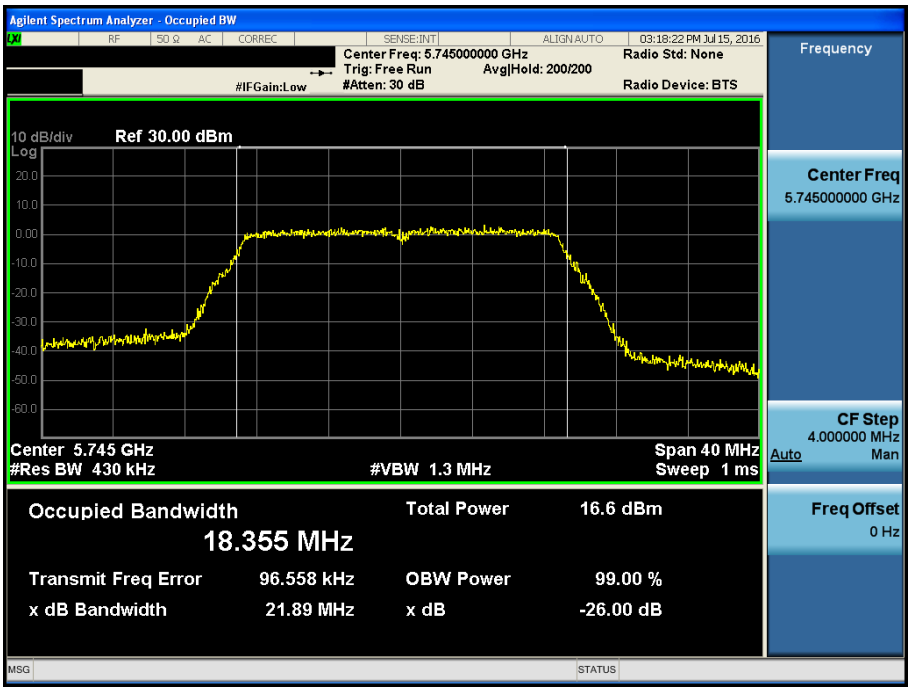

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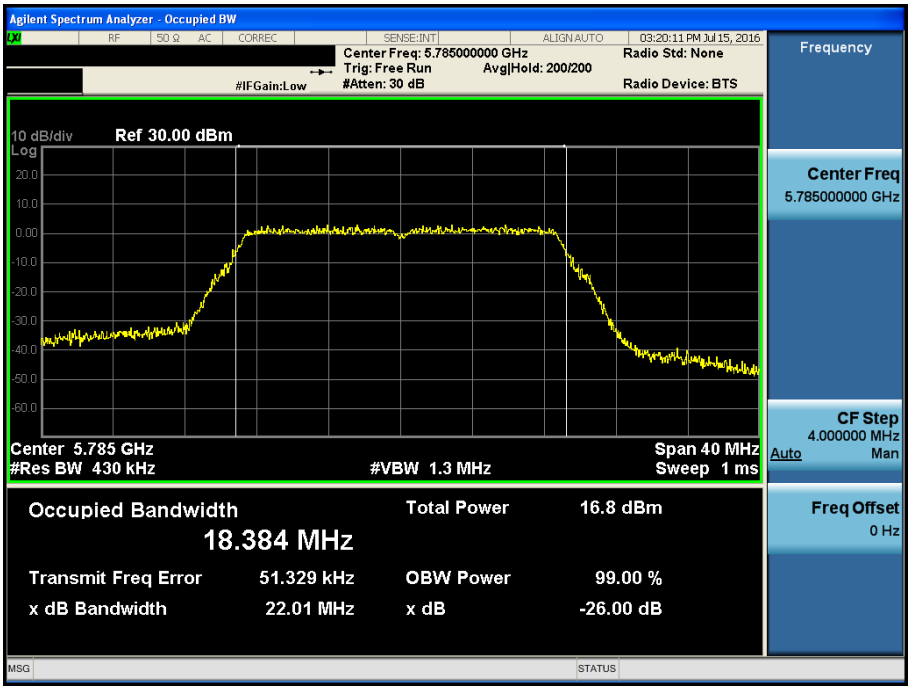
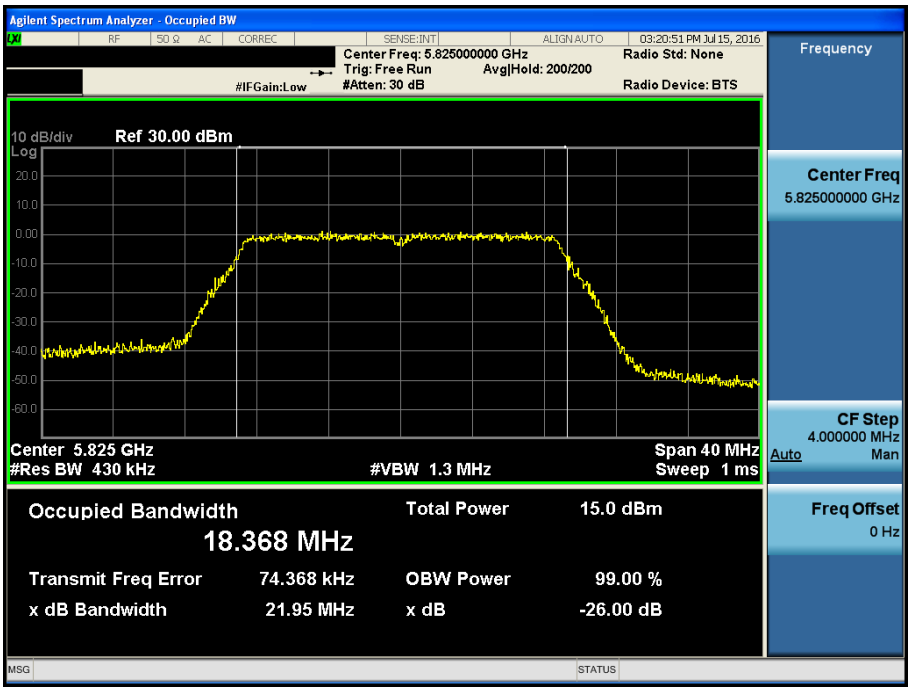
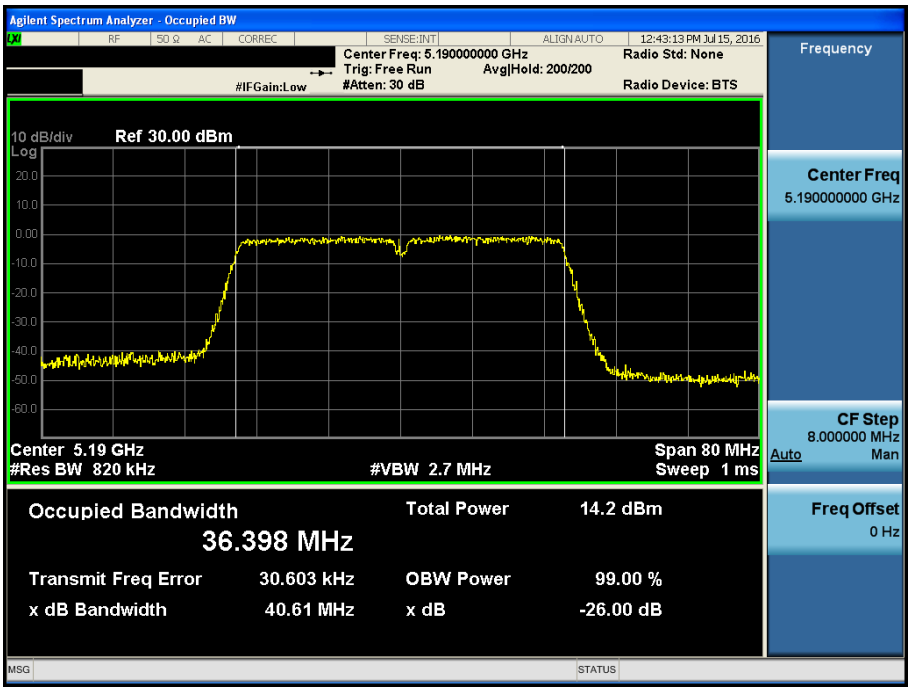


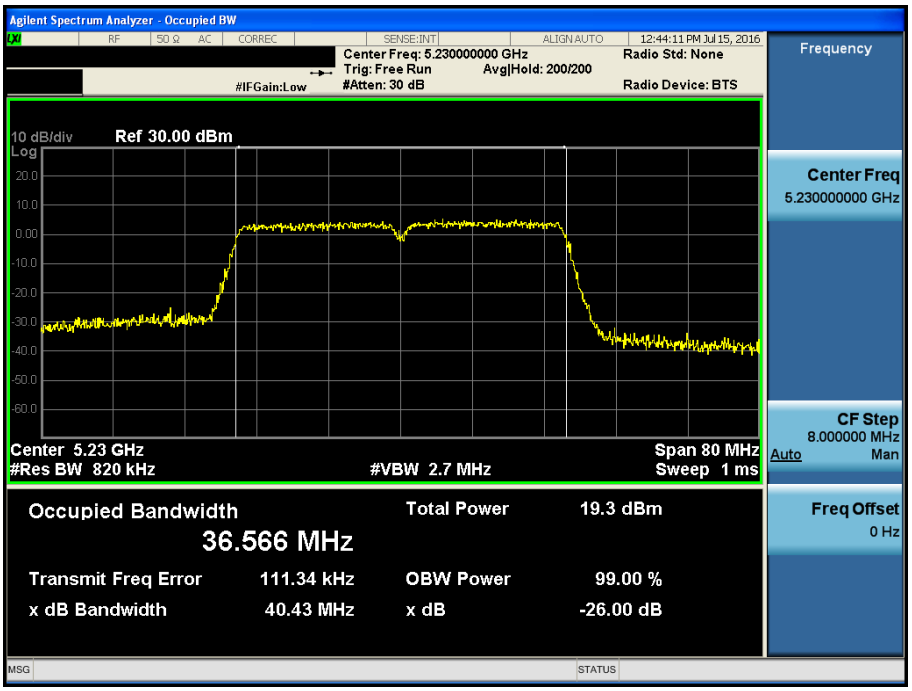
Occupied Bandwidth 99% Test Mode: 802.11n HT20 & ANT 2 & Ch.165



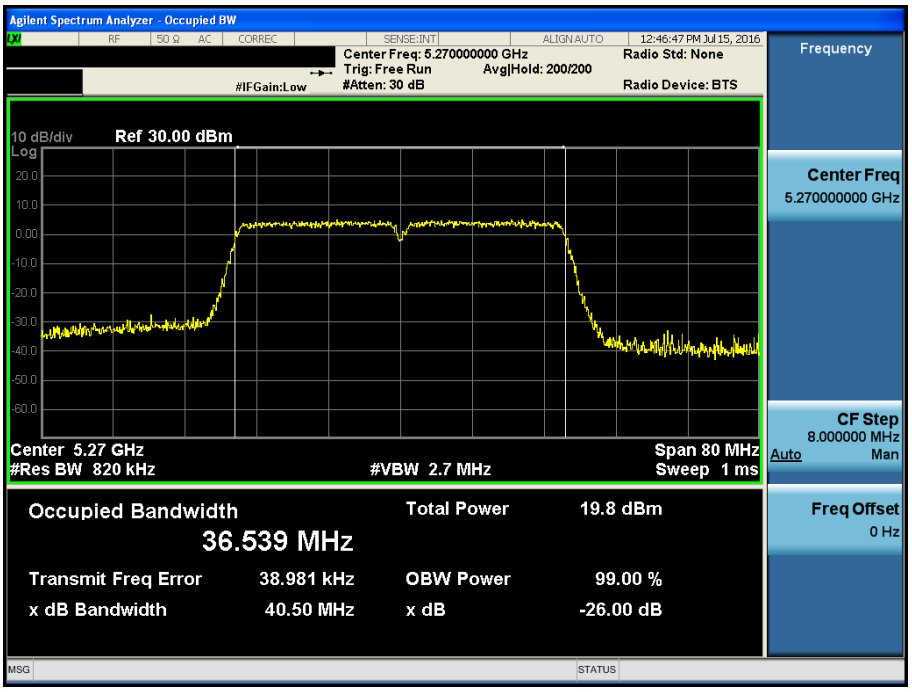
Occupied Bandwidth 99% Test Mode: 802.11ac VHT40 & ANT 2 & Ch.38



Occupied Bandwidth 99% Test Mode: 802.11ac VHT40 & ANT 2 & Ch.46



Occupied Bandwidth 99% Test Mode: 802.11ac VHT40 & ANT 2 & Ch.54



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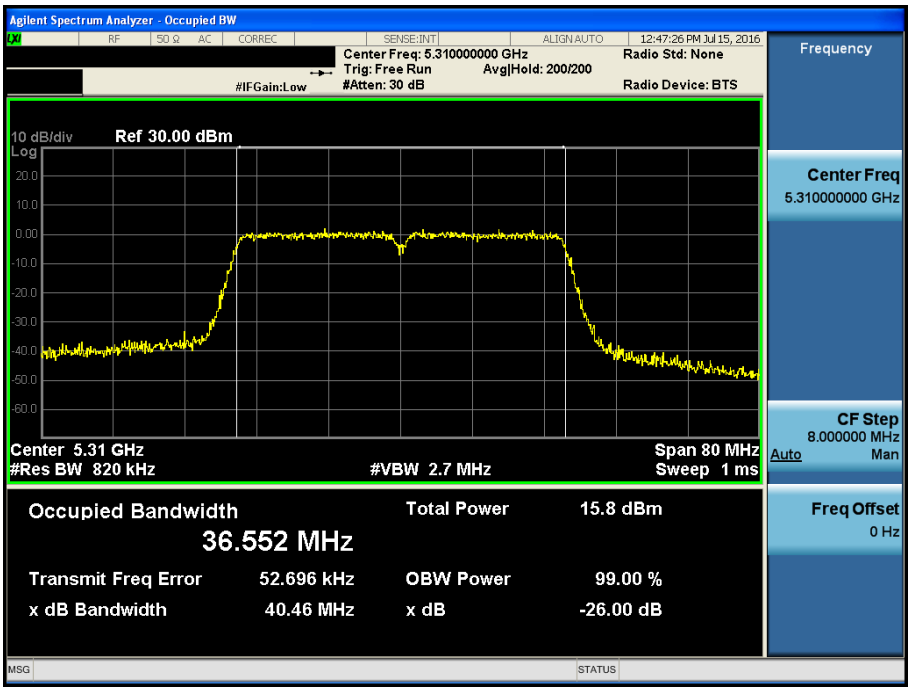

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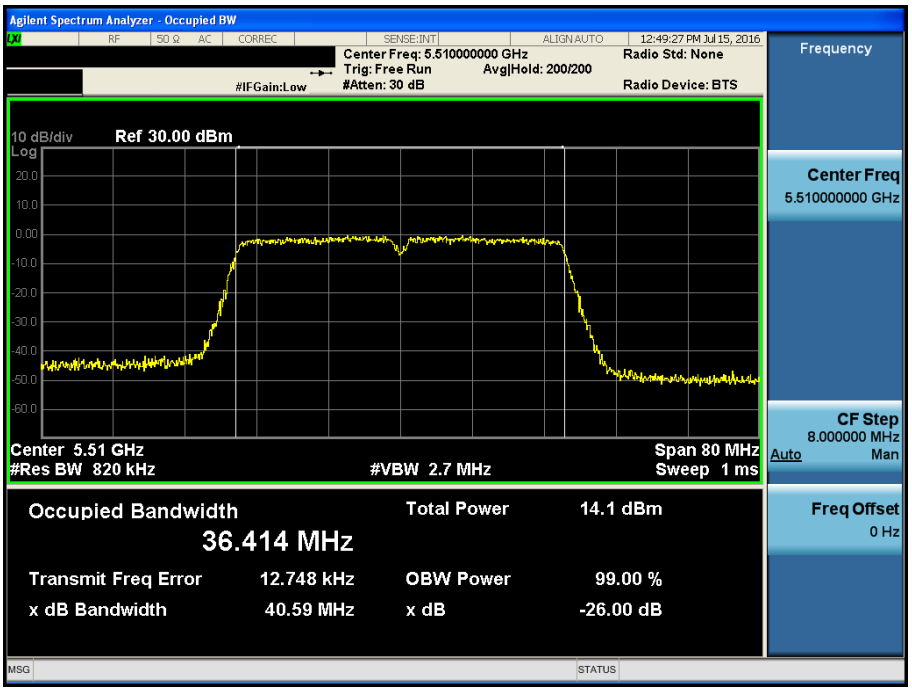
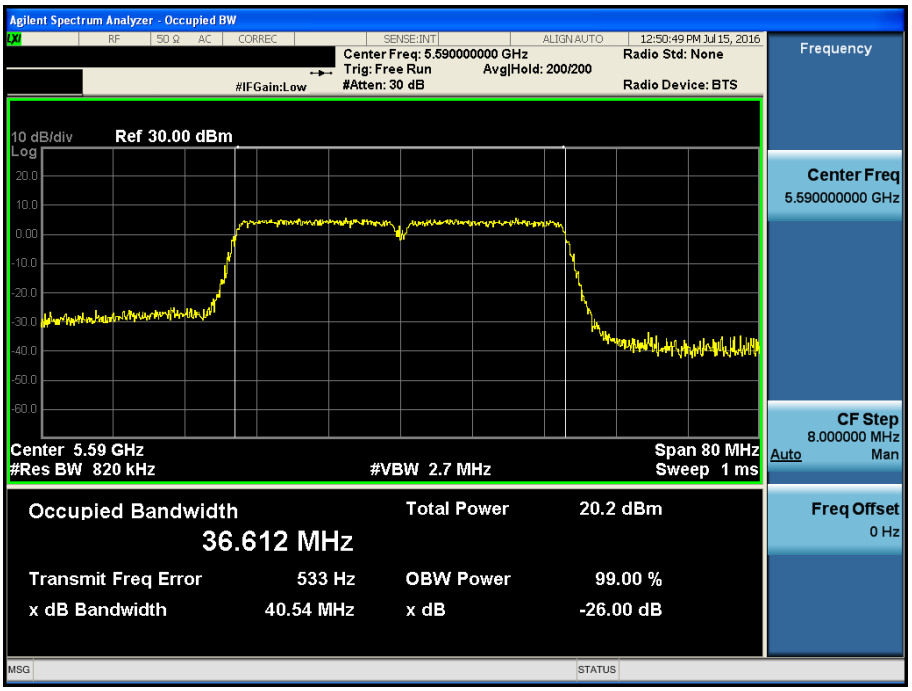
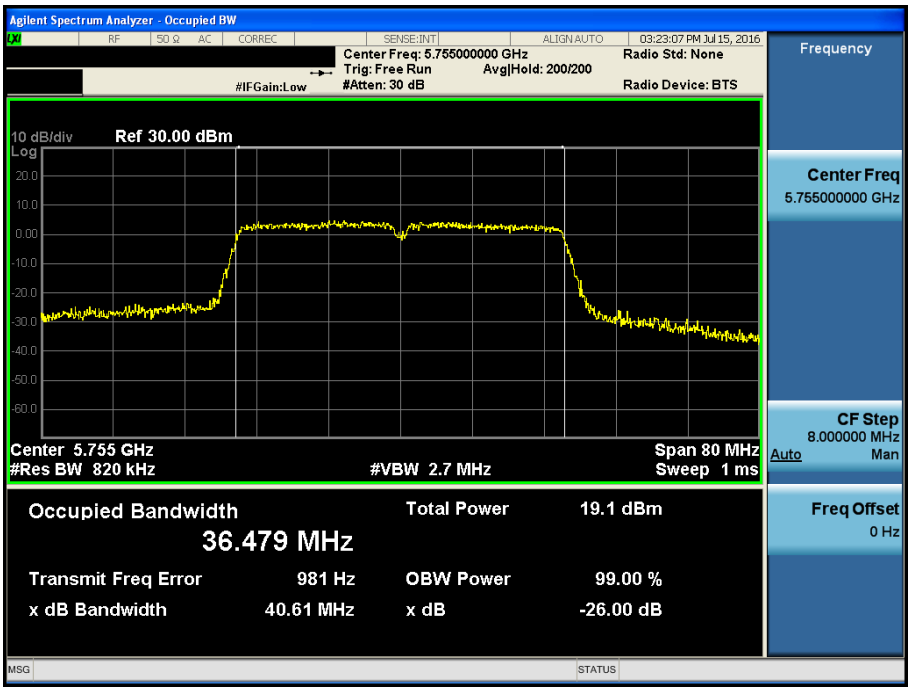


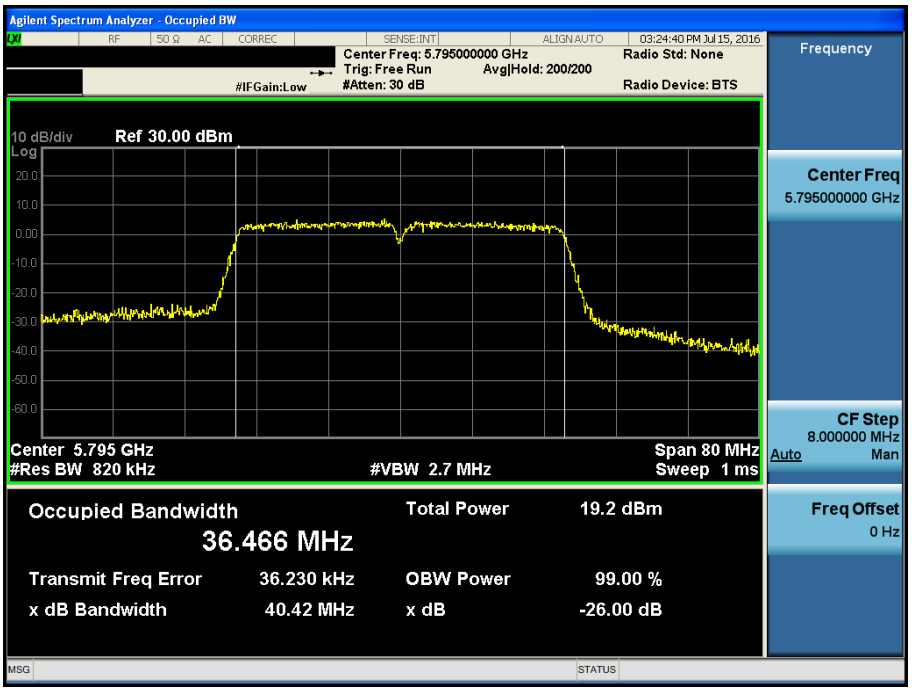
Occupied Bandwidth 99% Test Mode: 802.11ac VHT40 & ANT 2 & Ch.118



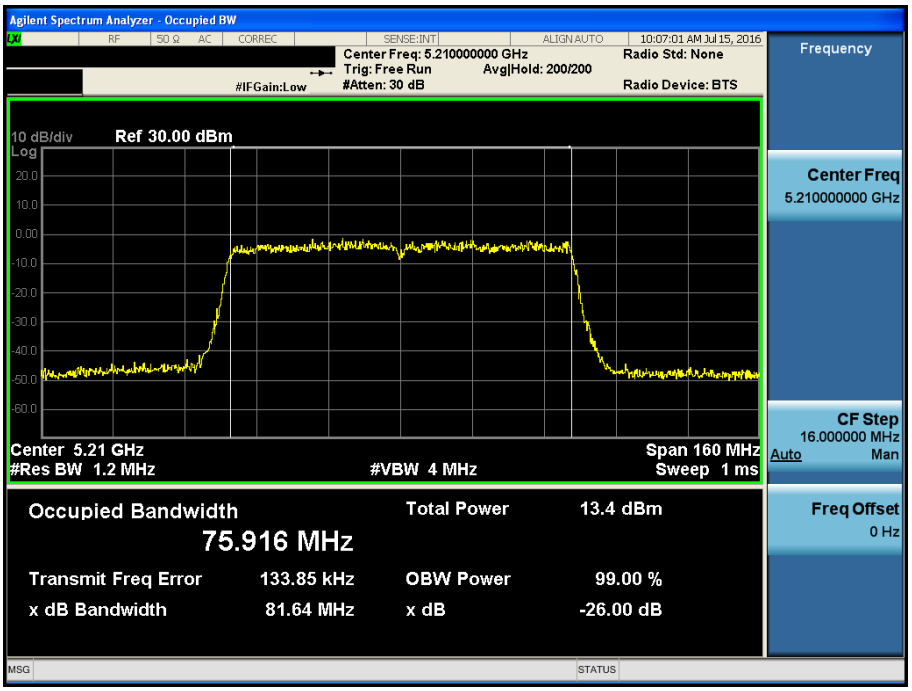
Occupied Bandwidth 99% Test Mode: 802.11ac VHT40 & ANT 2 & Ch.151



Occupied Bandwidth 99% Test Mode: 802.11ac VHT40 & ANT 2 & Ch.159



Occupied Bandwidth 99% Test Mode: 802.11ac VHT80 & ANT 2 & Ch.42



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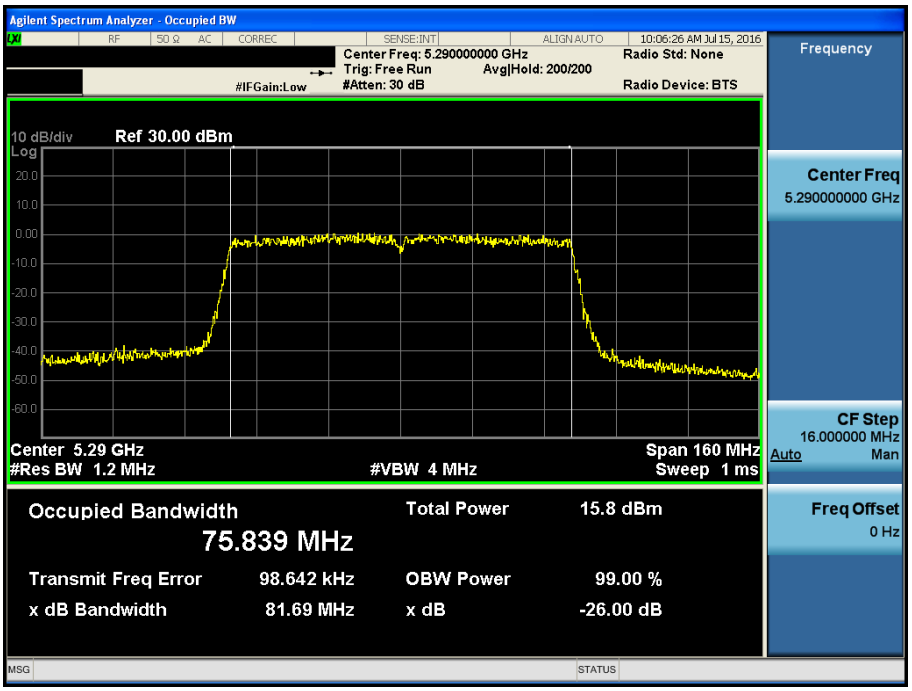

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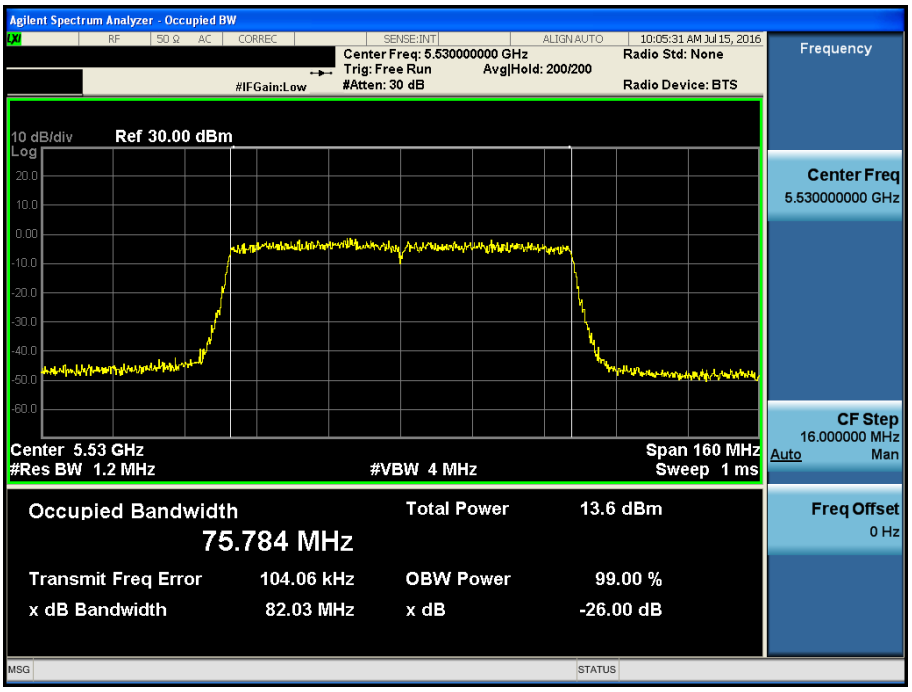
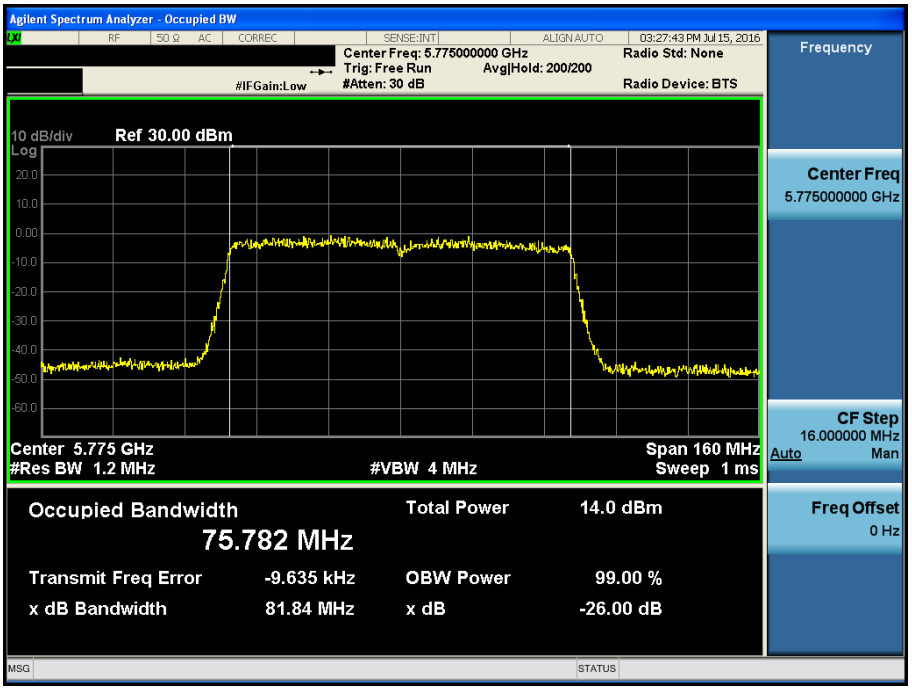
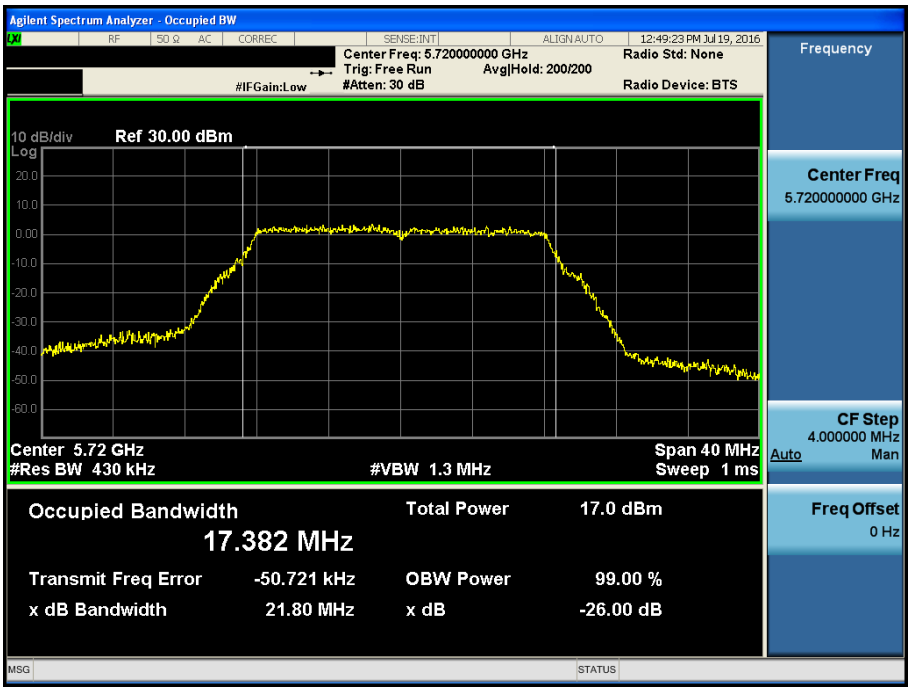


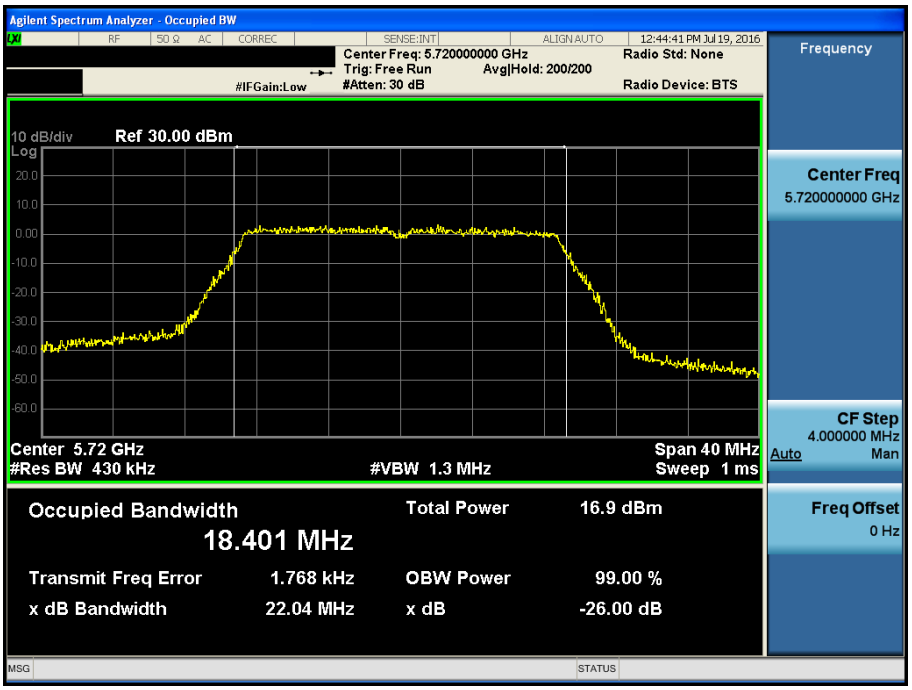
Occupied Bandwidth 99% Test Mode: 802.11ac VHT80 & ANT 2 & Ch.155



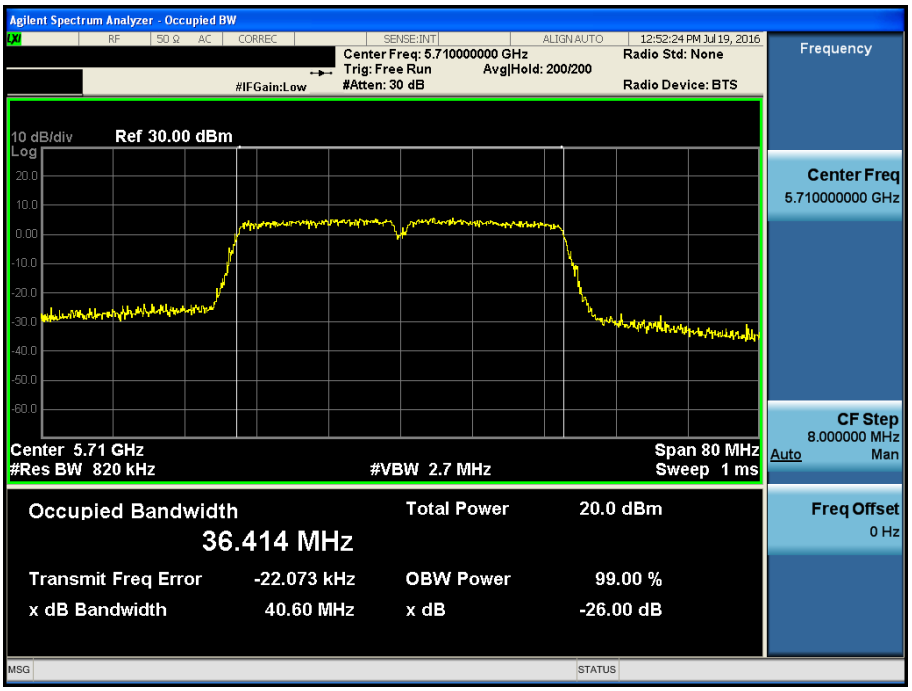
Occupied Bandwidth 99% Test Mode: 802.11a & ANT 2 & Ch.144



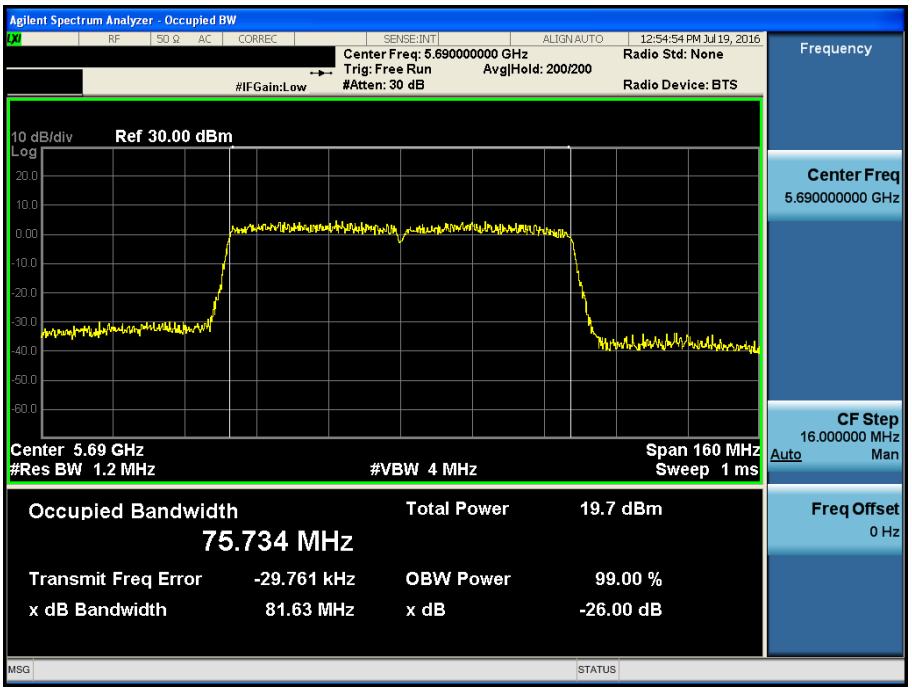
Occupied Bandwidth 99% Test Mode: 802.11ac VHT20 & ANT 2 & Ch.144



Occupied Bandwidth 99% Test Mode: 802.11ac VHT40 & ANT 2 & Ch.142



Occupied Bandwidth 99% Test Mode: 802.11ac VHT80 & ANT 2 & Ch.138



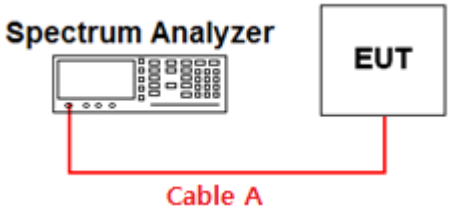
9. LIST OF TEST EQUIPMENT

Type	Manufacturer	Model	Cal.Date (yy/mm/dd)	Next.Cal.Date (yy/mm/dd)	S/N
MXA Signal Analyzer	Agilent	N9020A	15/09/14	16/09/14	MY50200834
PXA Signal Analyzer	Agilent Technologies	N9030A	15/10/19	16/10/19	MY53310140
DIGITAL MULTIMETER	Agilent	34401A	16/01/05	17/01/05	US36099541
Dynamic Measurement DC Source	Agilent	66332A	15/09/23	16/09/23	US37473305
Vector Signal Generator	Rohde Schwarz	SMBV100A	16/01/05	17/01/05	255571
Signal Generator	Rohde Schwarz	SMF100A	15/06/29	16/06/29	102341
			16/06/23	17/06/23	
Thermohygrometer	BODYCOM	BJ5478	16/04/22	17/04/22	120612-2
Loop Antenna	Schwarzbeck	FMZB1513	16/04/22	18/04/22	1513-128
TRILOG Broadband Test-Antenna	SCHWARZBECK	VULB 9160	16/05/13	18/05/13	3357
Horn Antenna	ETS-LINDGREN	3115	15/02/09	17/02/09	9202-3820
Horn Antenna	A.H.Systems Inc.	SAS-574	15/09/03	17/09/03	155
PreAmplifier	Agilent	8449B	16/02/24	17/02/24	3008A00370
Low Noise Pre Amplifier	tsj	MLA-010K01-B01-27	16/03/10	17/03/10	1844539
PreAmplifier(18~40GHz)	A.H. SYSTEMS	PAM-1840VH	15/12/03	16/12/03	163
EMI TEST RECEIVER	ROHDE&SCHWARZ	ESR7	16/02/25	17/02/25	101061
EMI TEST RECEIVER	R&S	ESCI	16/02/25	17/02/25	100364
Highpass Filter	Wainwright Instruments	WHKX12-2580-3000-18000-80SS	15/09/23	16/09/23	3
Highpass Filter	Wainwright Instruments	WHNX6-6320-8000-26500-40CC	15/09/23	16/09/23	1
Temp & Humi Test Chamber	SJ Science	SJ-TH-S50	15/09/10	16/09/10	U5542113
Power Meter & Wide Bandwidth Sensor	Anritsu	ML2495A	16/05/02	17/05/02	1306007
Power Meter & Wide Bandwidth Sensor	Anritsu	MA2490A	16/05/02	17/05/02	1249001
ARTIFICIAL MAINS NETWORK	Narda S.T.S. / PMM	PMM L2-16B	16/06/22	17/06/22	000WX20305
SINGLE-PHASE MASTER	NF	4420	15/09/09	16/09/09	3049354420023

APPENDIX I

Conducted Test set up Diagram

- **Conducted Measurement**



APPENDIX II

Duty Cycle Information

▣ **Test Procedure**

Duty Cycle [X = On Time / (On + Off time)] is measured using Measurement Procedure **of KDB789033 D02**

1. Set the center frequency of the spectrum analyzer to the center frequency of the transmission.
2. Set RBW ≥ EBW if possible; otherwise, set RBW to the largest available value.
3. Set VBW ≥ RBW. Set detector = peak.
4. Note : The zero-span measurement method shall not be used unless both **RBW and VBW are > 50/*T***, where *T* is defined in section II.B.1.a), and **the number of sweep points across duration *T* exceeds 100**. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring duty cycle shall not be used if *T* ≤ 16.7 microseconds.)

   T : The minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.
   (***T* = On time** of the above table since the EUT operates with above fixed Duty Cycle and it is the minimum On time)

▣ Test Results:

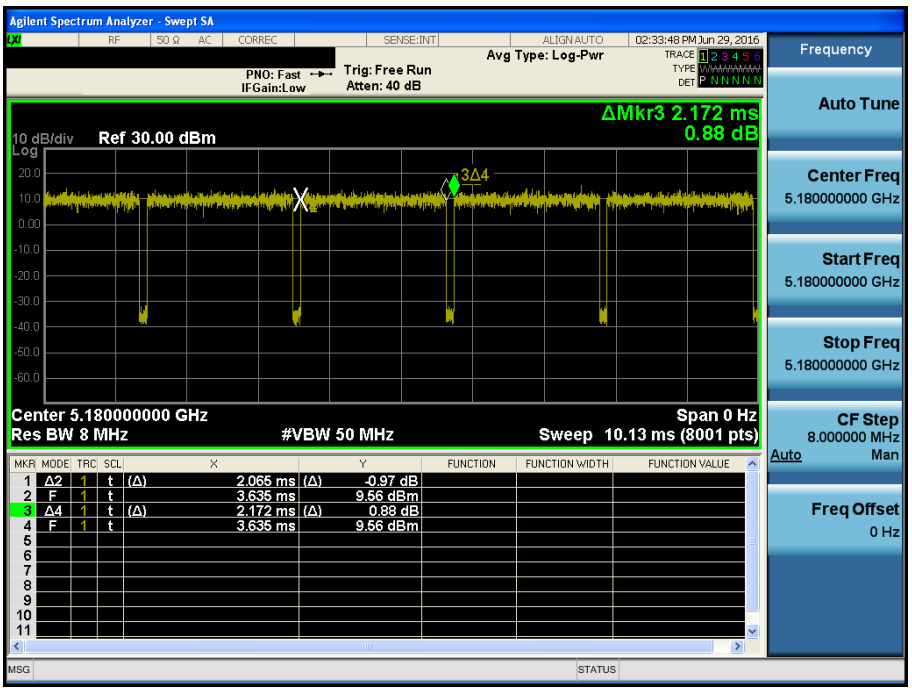
Multiple Transmit

Mode	Channel	Tested Frequency [MHz]	Maximum Achievable Duty Cycle (*x*) = On / (On+Off)			Duty Cycle Correction Factor [dB]	50/*T* [kHz]
			On Time [ms]	On+OffTime [ms]	*x*		
802.11a	36	5180	2.07	2.17	95.07	0.22	2.07
802.11n (HT20)	36	5180	0.98	1.08	90.75	0.43	0.98
802.11ac (VHT40)	38	5190	0.50	0.53	94.33	0.26	0.50
802.11ac (VHT80)	42	5210	0.26	0.29	89.67	0.48	0.26

Multiple Transmit

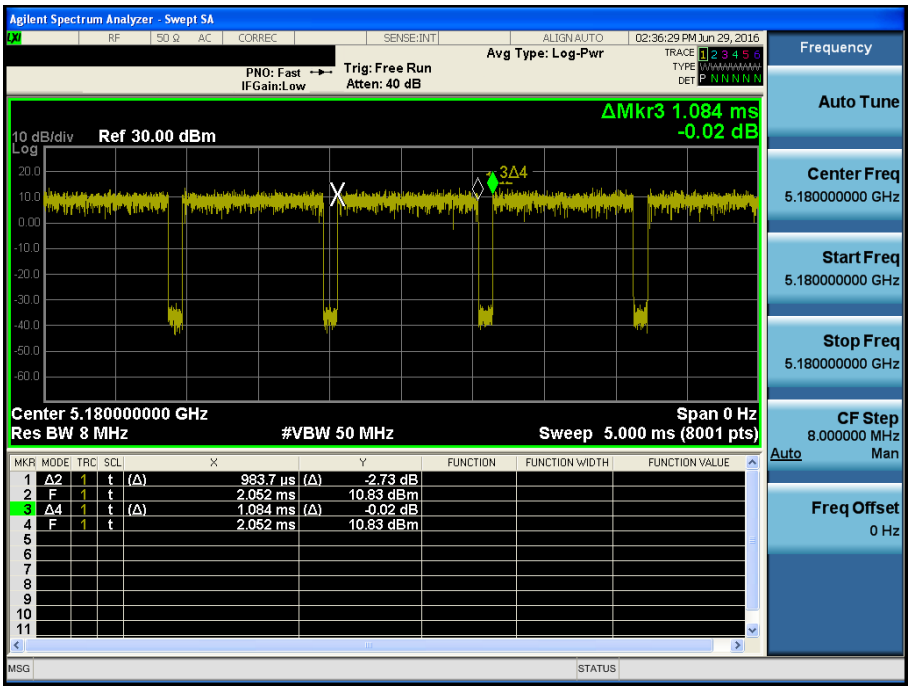
Duty Cycle

Test Mode: 802.11a & Ch.36

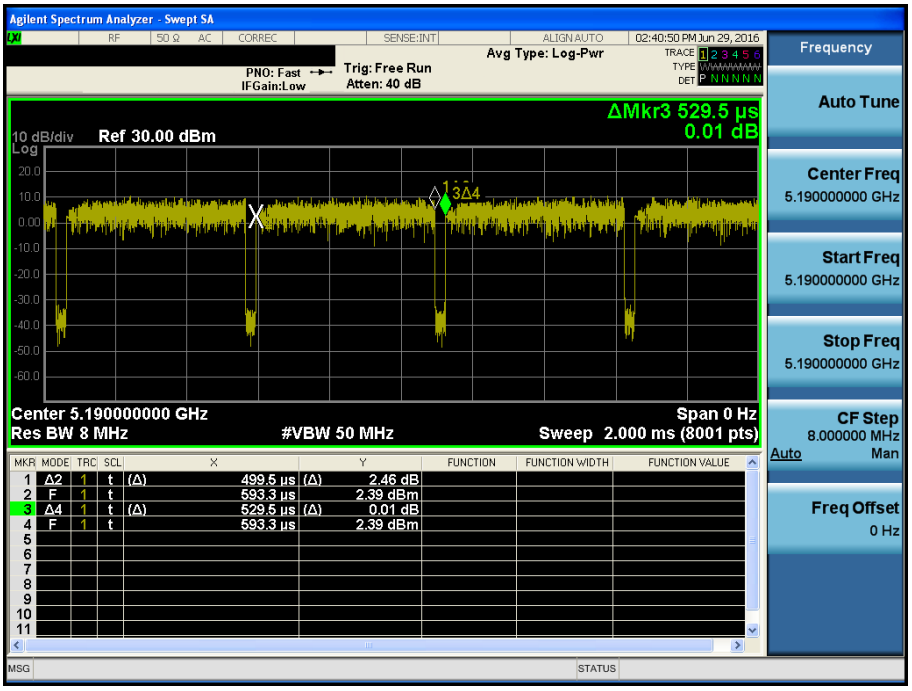


Duty Cycle

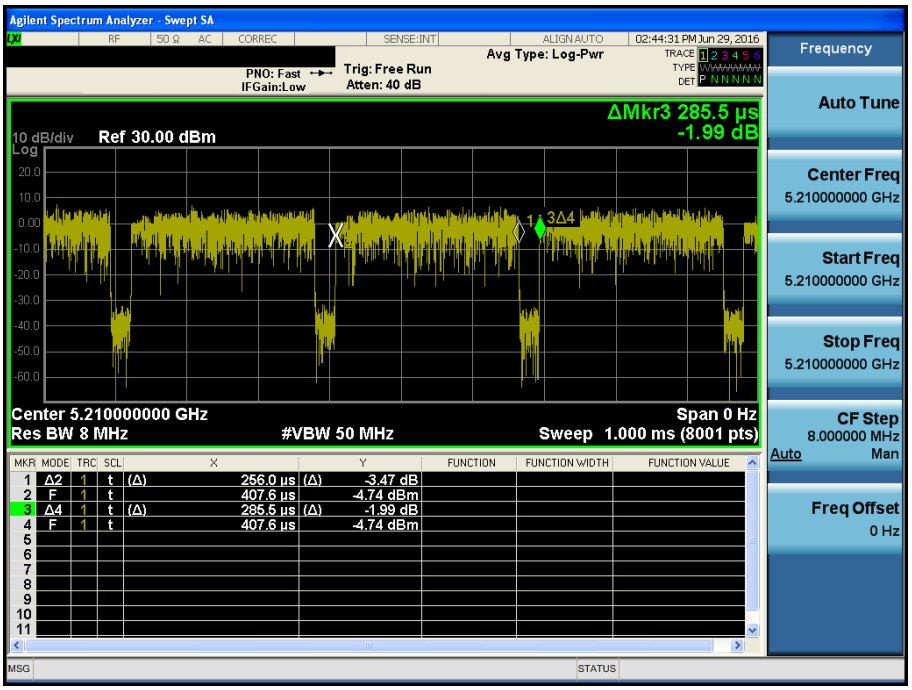
Test Mode: 802.11n HT20 & Ch.36



Duty Cycle Test Mode: 802.11ac VHT40 & Ch.38



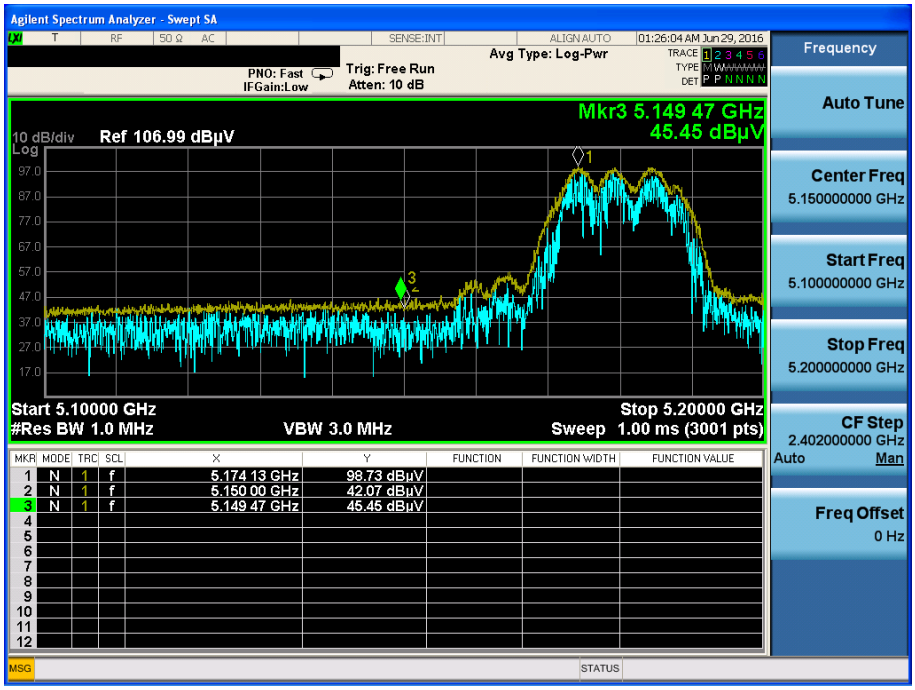
Duty Cycle Test Mode: 802.11ac VHT80 & Ch.42



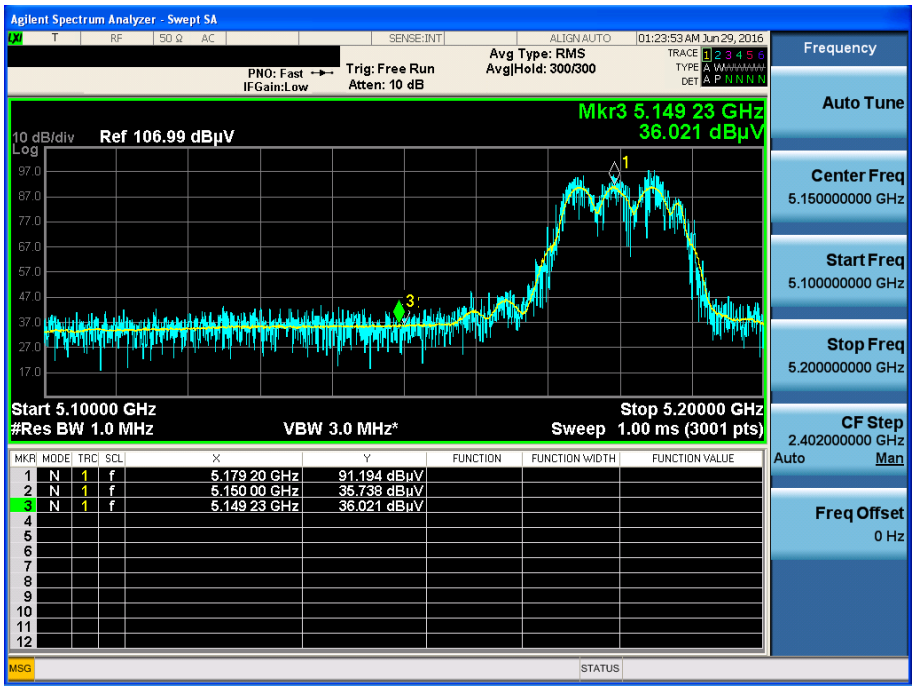
APPENDIX III

Unwanted Emissions (Radiated) Test Plot _ Multiple Transmit

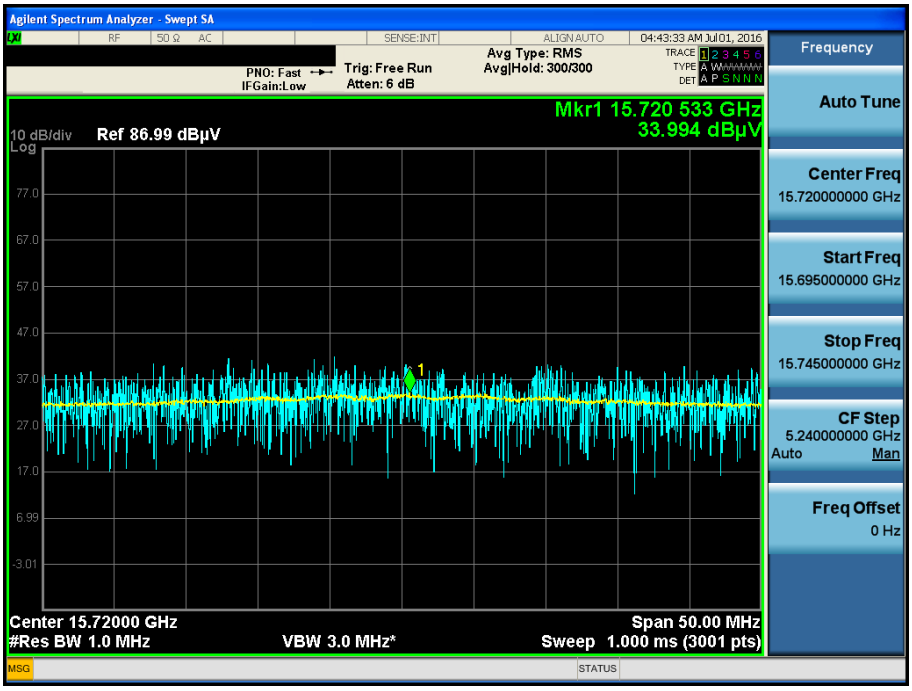
802.11a & U-NII 1 & Ch.36 & X axis & Hor **Detector Mode : PK**



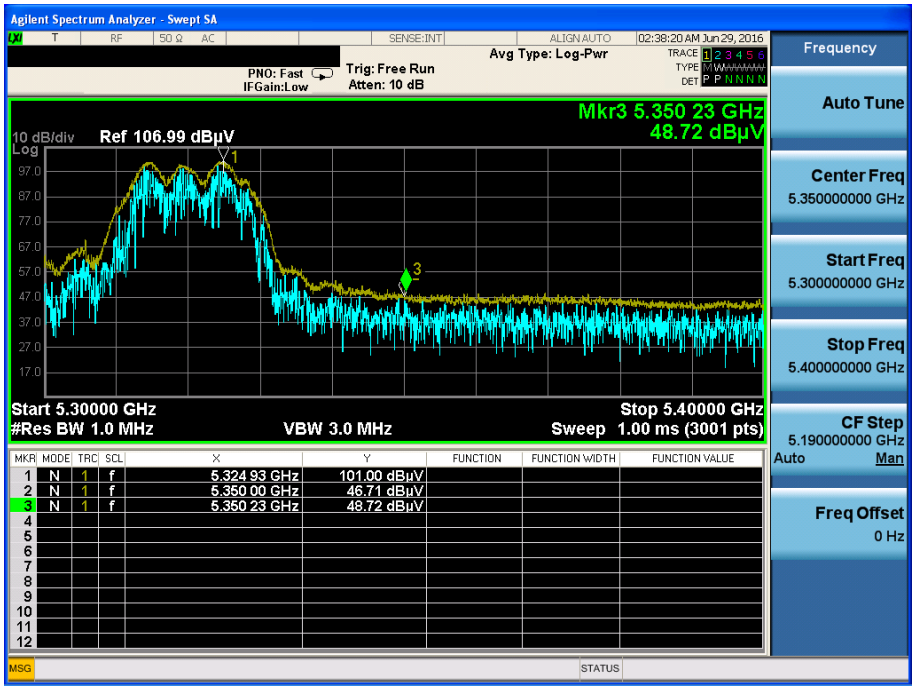
802.11a & U-NII 1 & Ch.36 & X axis & Hor **Detector Mode : AV**



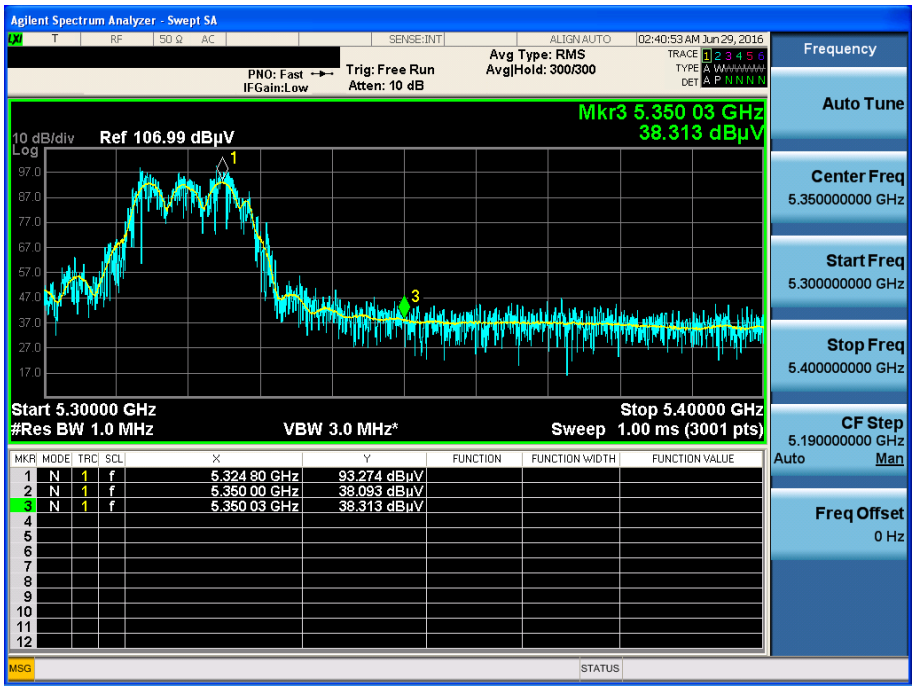
802.11a & U-NII 1 & Ch.48 & X axis & Ver **Detector Mode : AV**



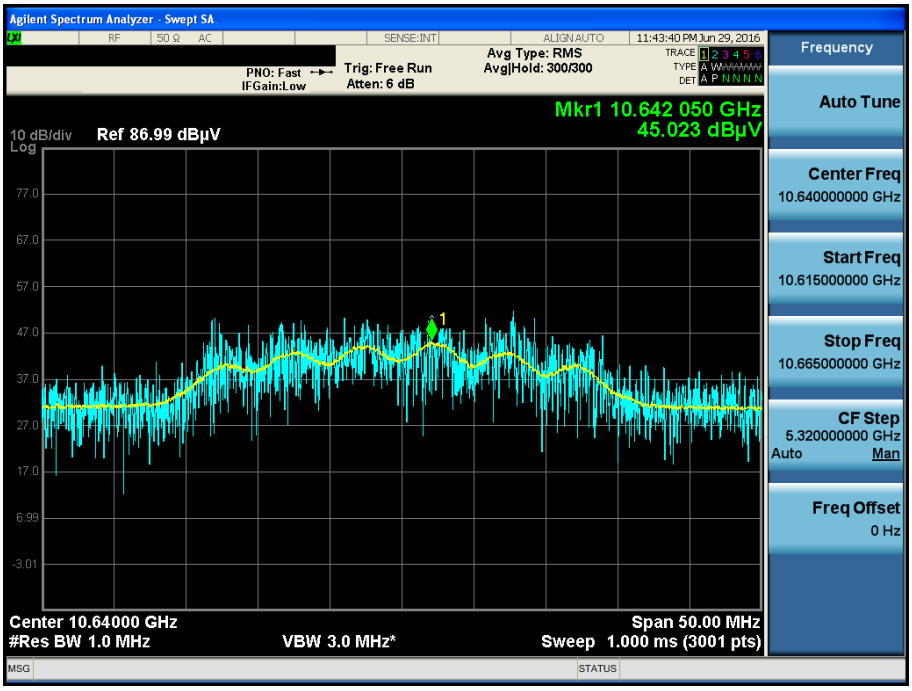
802.11a & U-NII 2A & Ch.52 & X axis & Hor **Detector Mode : PK**



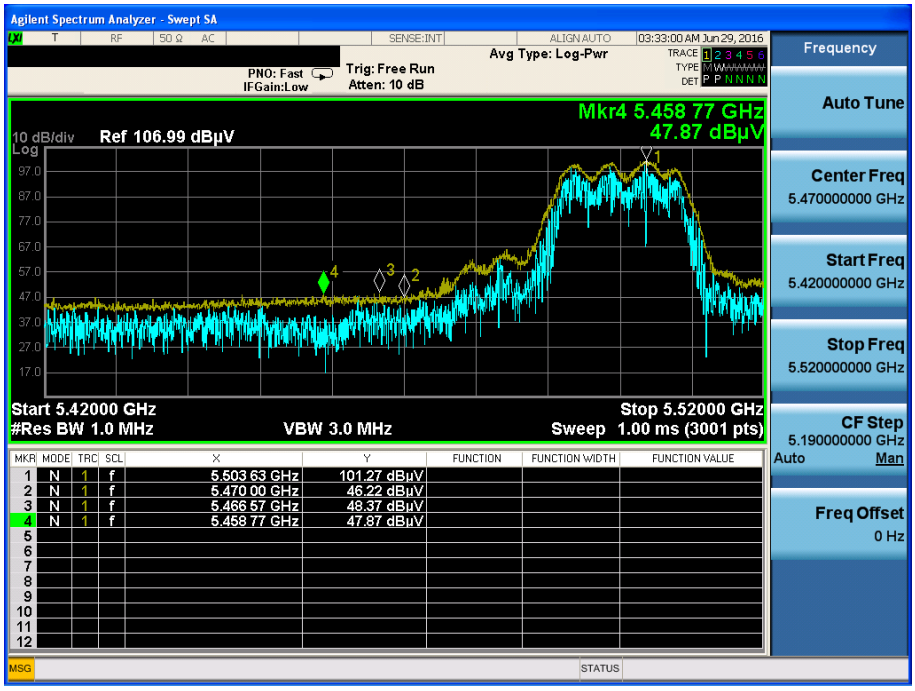
802.11a & U-NII 2A & Ch.52 & X axis & Hor **Detector Mode : AV**



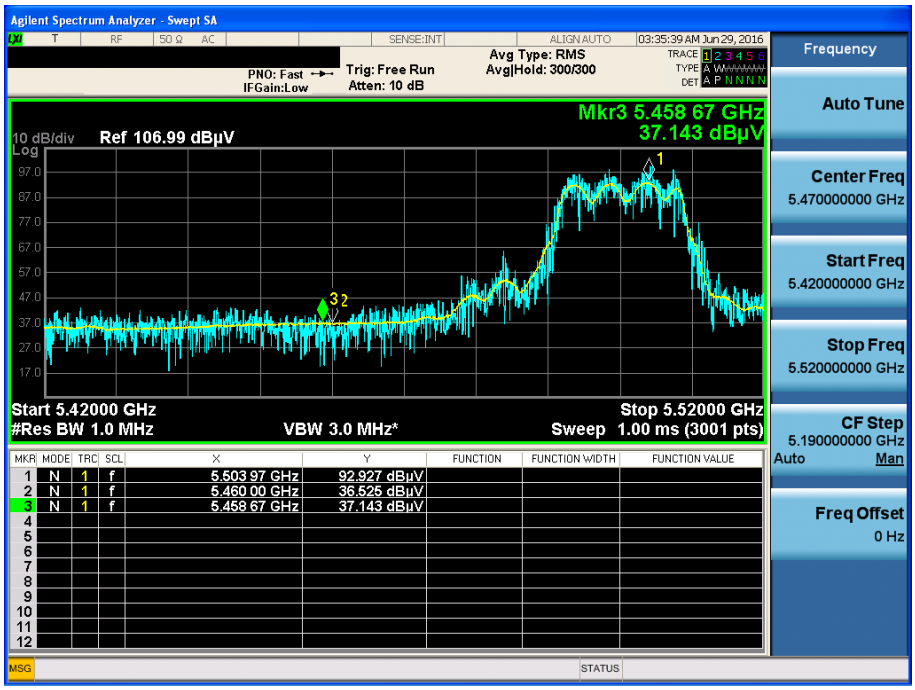
802.11a & U-NII 2A & Ch.64 & Z axis & Ver **Detector Mode : AV**



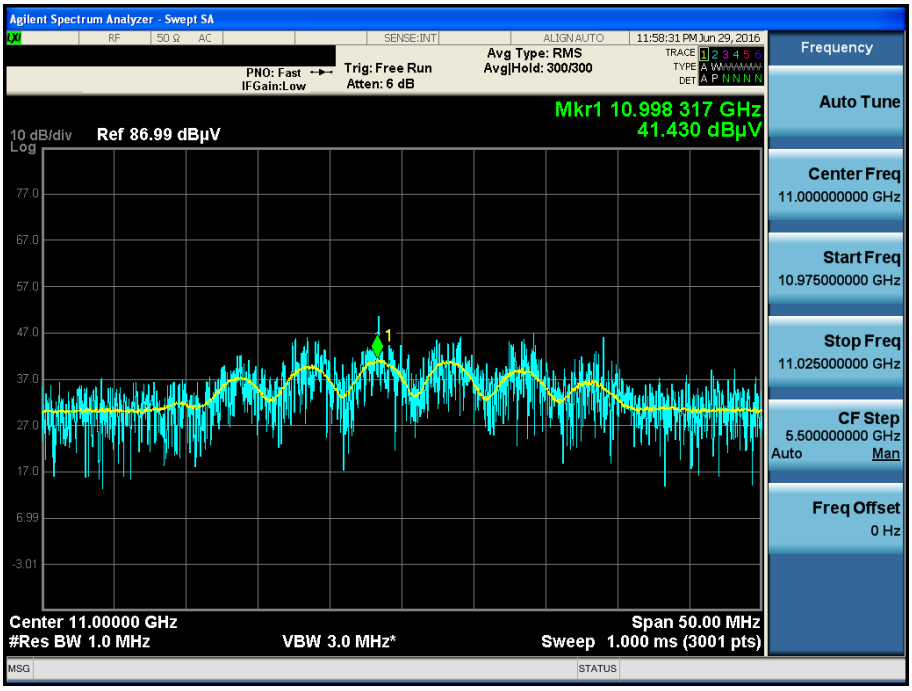
802.11a & U-NII 2C & Ch.100 & X axis & Hor **Detector Mode : PK**



802.11a & U-NII 2C & Ch.100 & X axis & Hor **Detector Mode : AV**

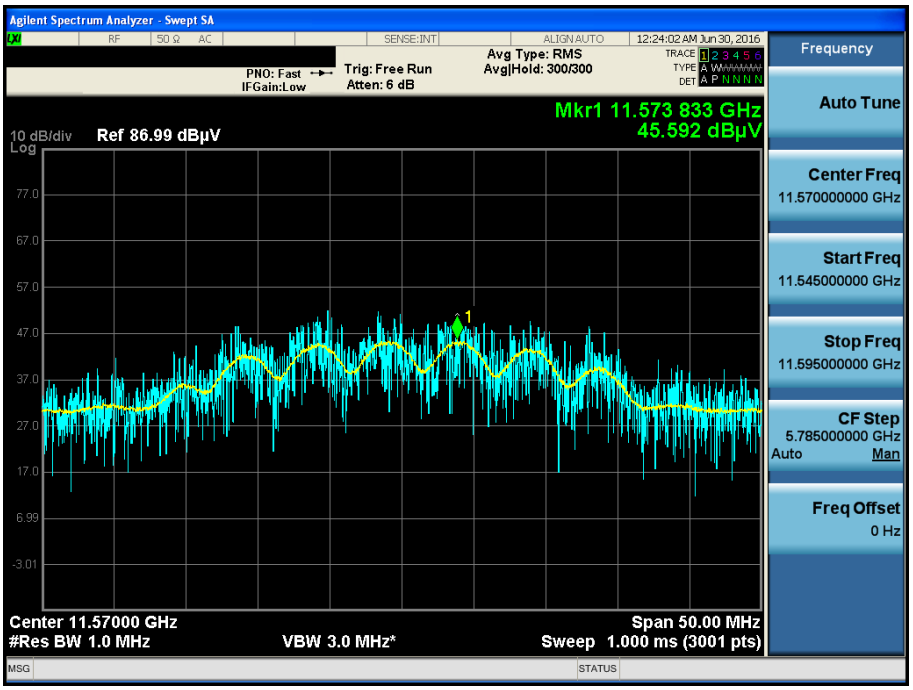


802.11a & U-NII 2C & Ch.100 & Z axis & Ver **Detector Mode : AV**

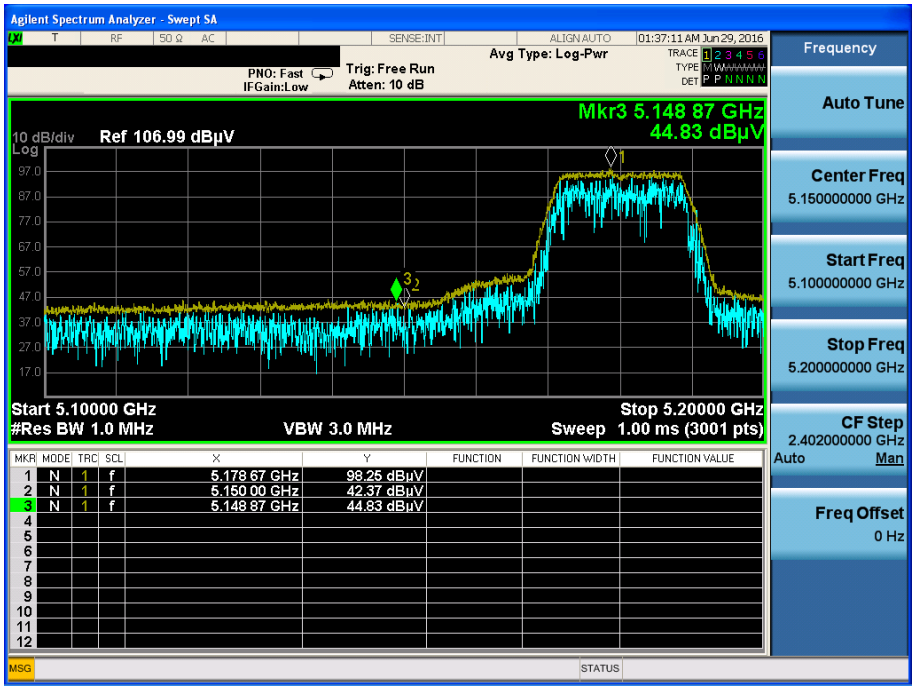


802.11a & U-NII 3 & Ch.149 & X axis & Hor **Detector Mode : PK**

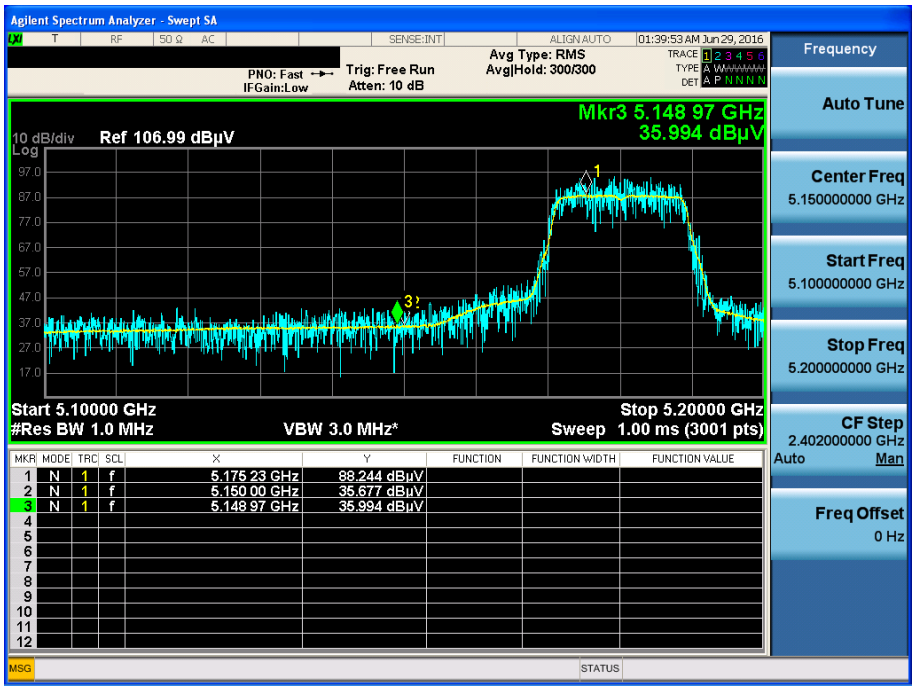
802.11a & U-NII 3 & Ch.157 & Z axis & Ver **Detector Mode : AV**



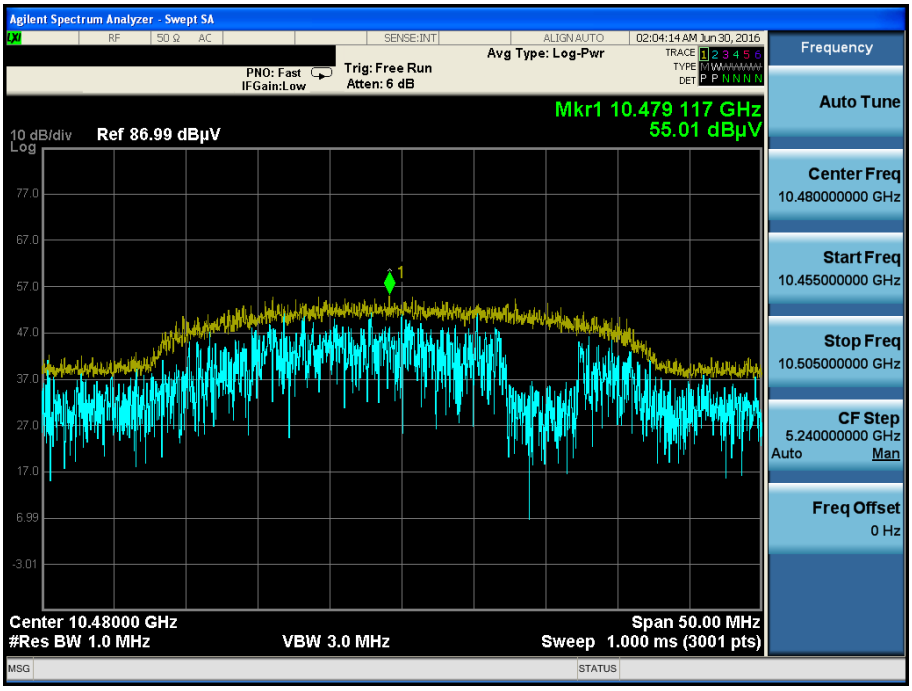
802.11n(HT20) & U-NII 1 & Ch.36 & X axis & Hor **Detector Mode : PK**



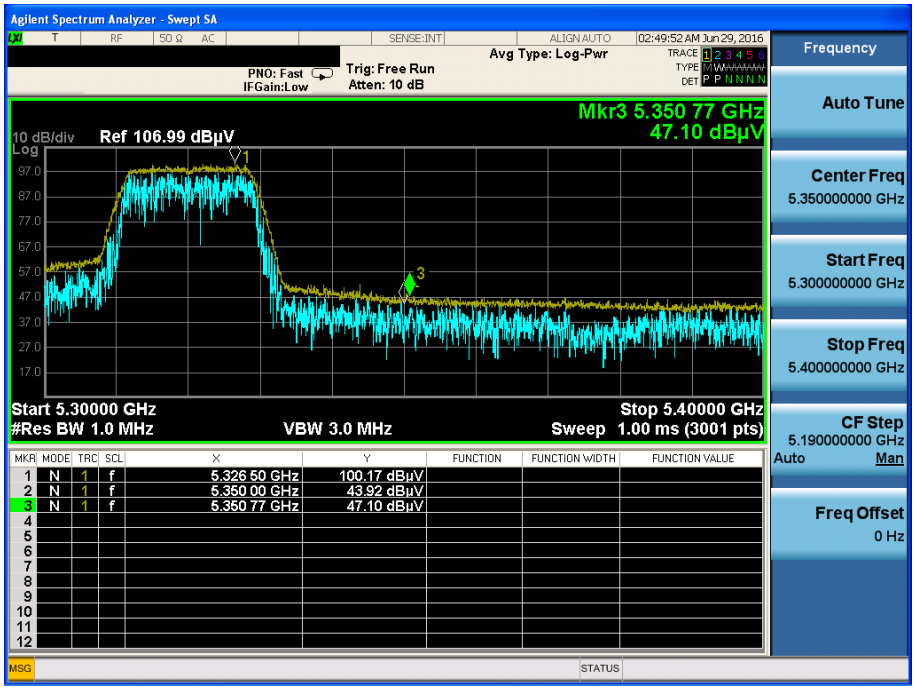
802.11n(HT20) & U-NII 1 & Ch.36 & X axis & Hor **Detector Mode : AV**



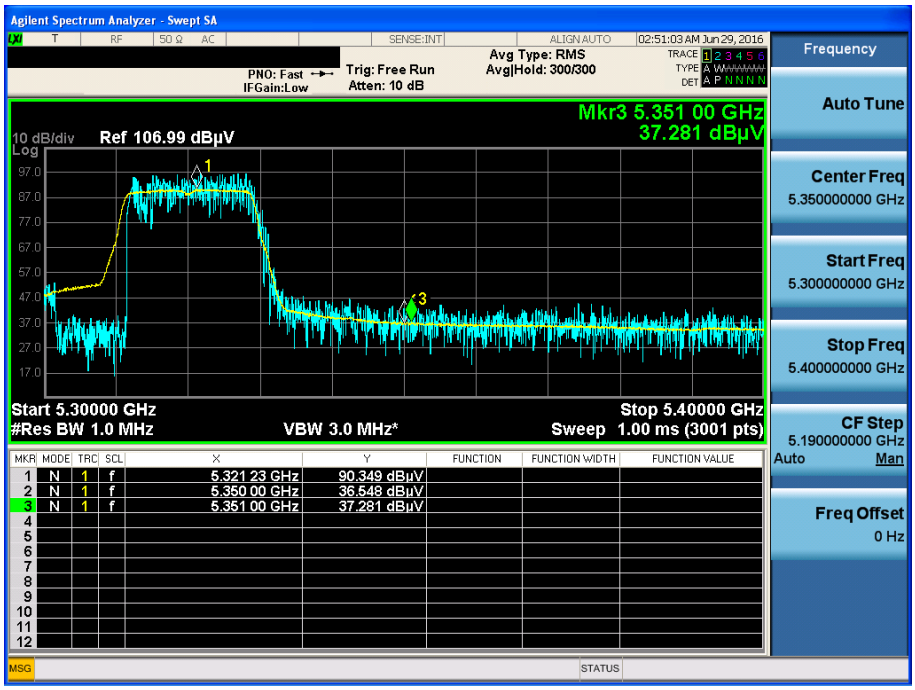
802.11n(HT20) & U-NII 1 & Ch.48 & Z axis & Ver **Detector Mode : PK**



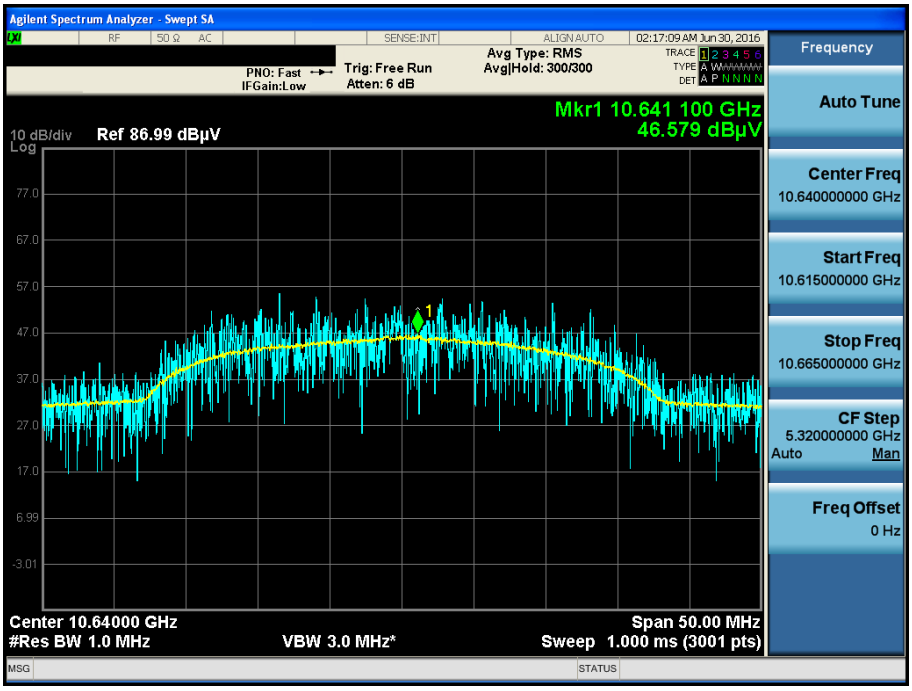
802.11n(HT20) & U-NII 2A & Ch.64 & X axis & Hor **Detector Mode : PK**



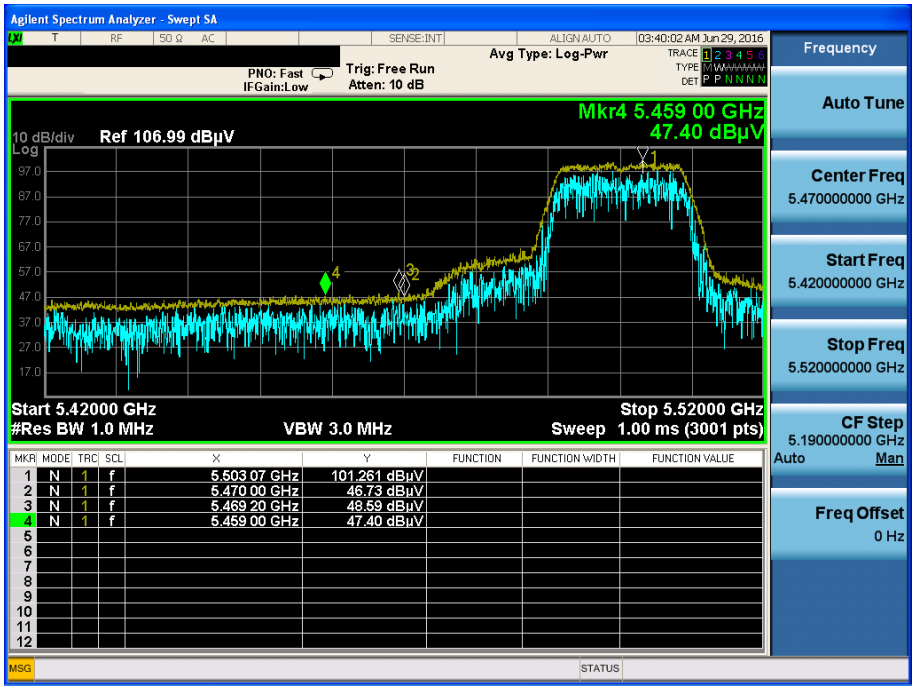
802.11n(HT20) & U-NII 2A & Ch.64 & X axis & Hor **Detector Mode : AV**



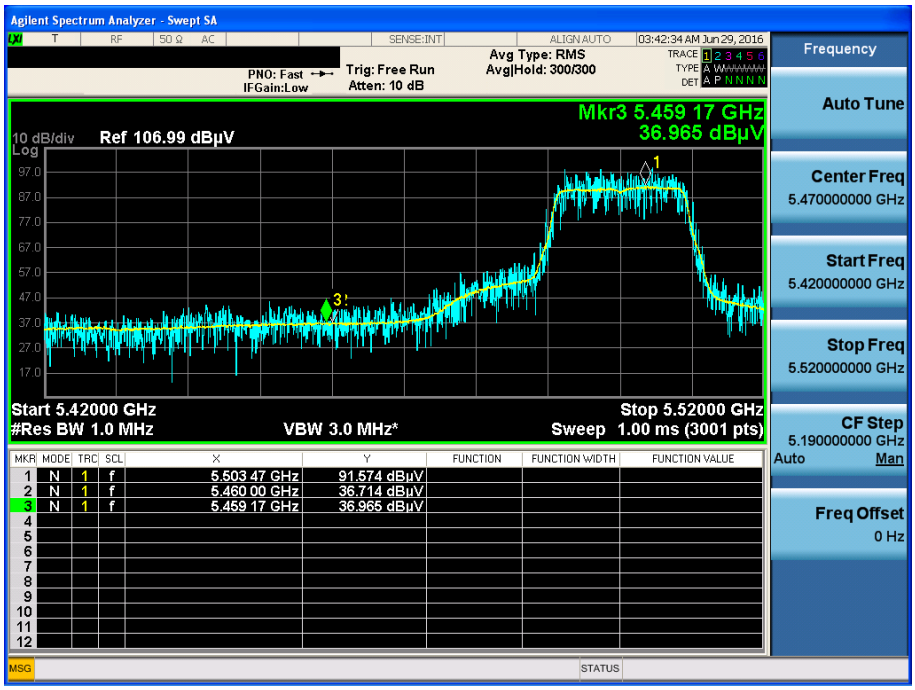
802.11n(HT20) & U-NII 2A & Ch.64 & Z axis & Ver Detector Mode : AV



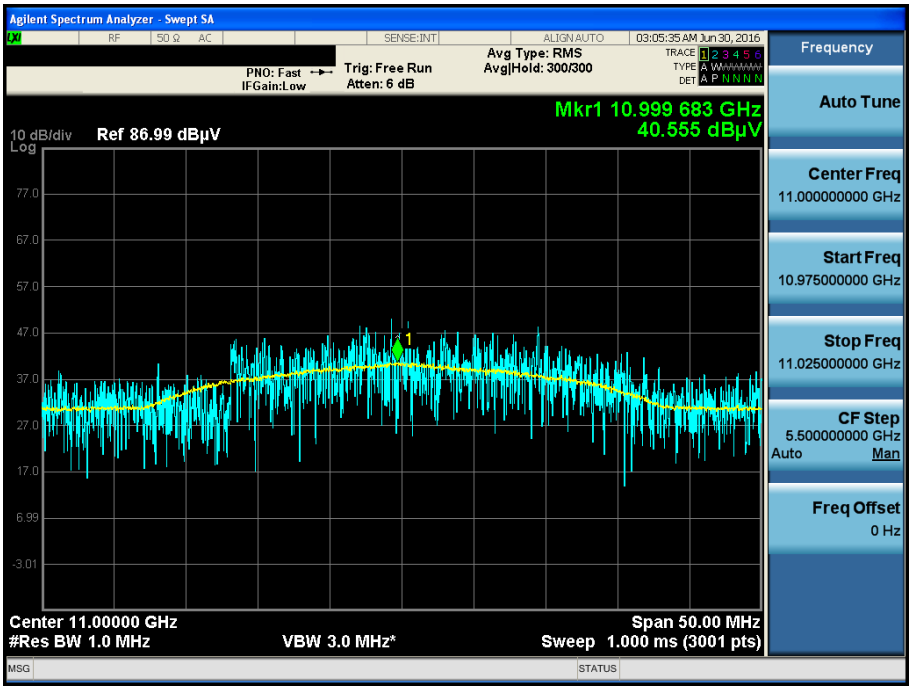
802.11n(HT20) & U-NII 2C & Ch.100 & X axis & Hor **Detector Mode : PK**



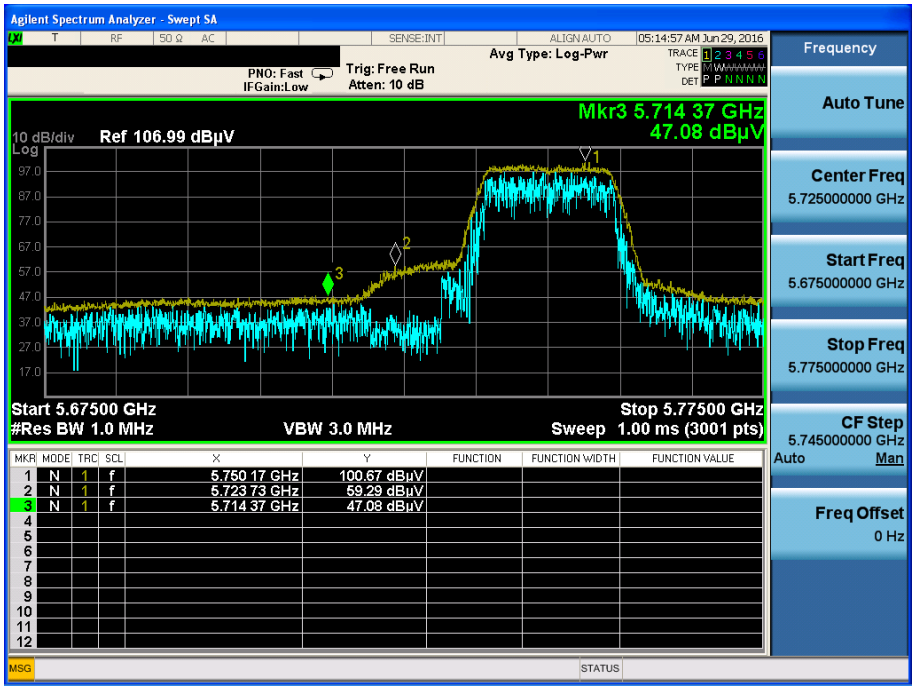
802.11n(HT20) & U-NII 2C & Ch.100 & X axis & Hor **Detector Mode : AV**



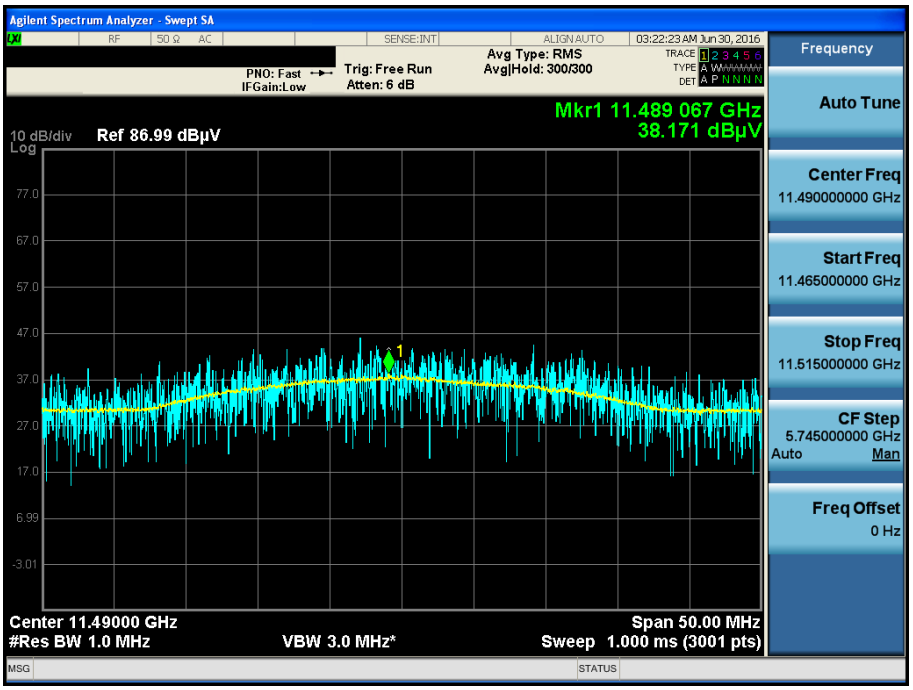
802.11n(HT20) & U-NII 2C & Ch.100 & Z axis & Ver Detector Mode : AV



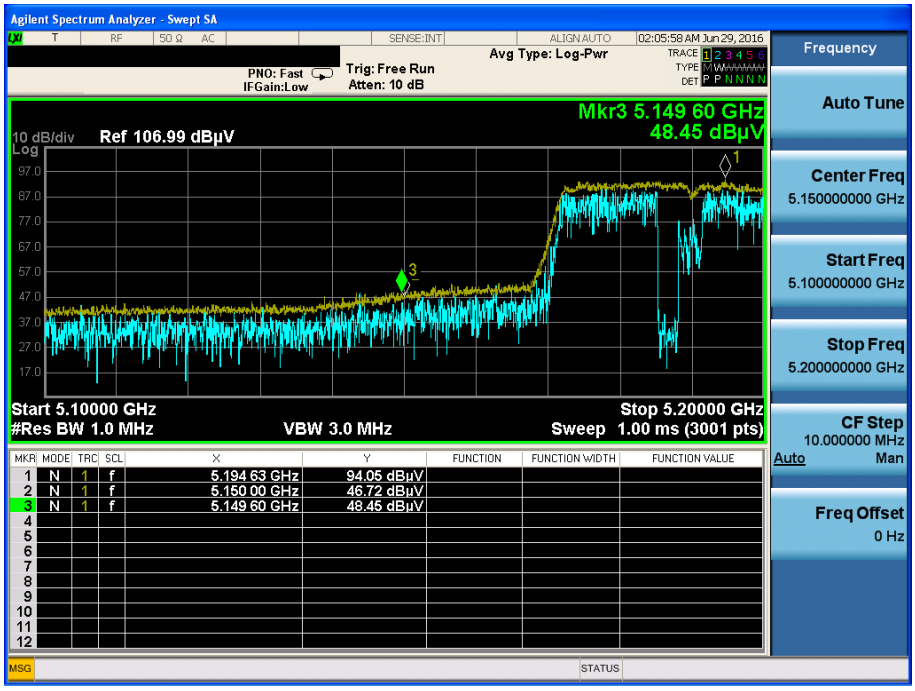
802.11n(HT20) & U-NII 3 & Ch.149 & X axis & Hor **Detector Mode : PK**



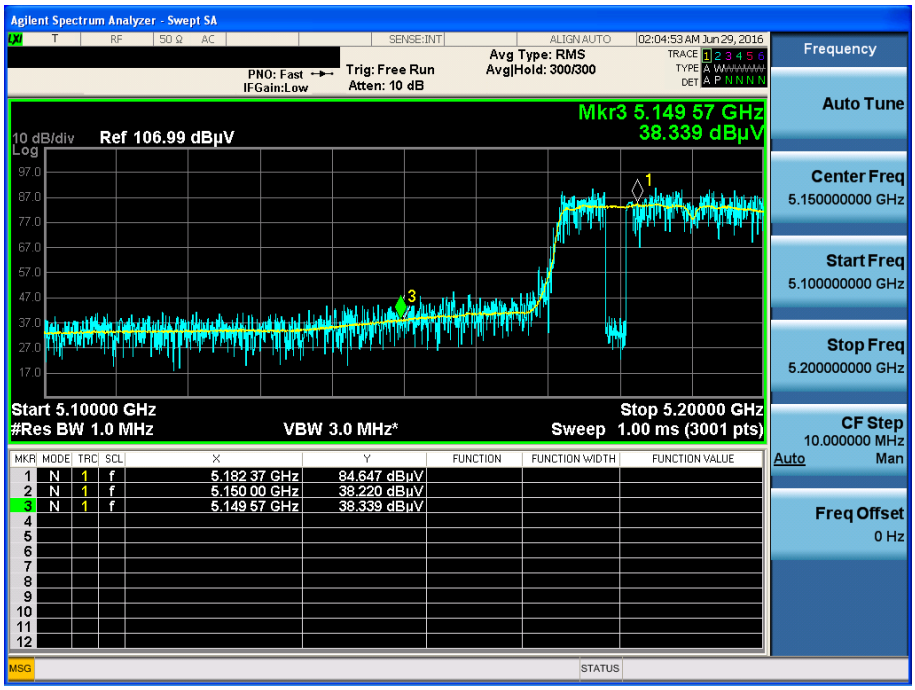
802.11n(HT20) & U-NII 3 & Ch.149 & Z axis & Ver **Detector Mode : AV**



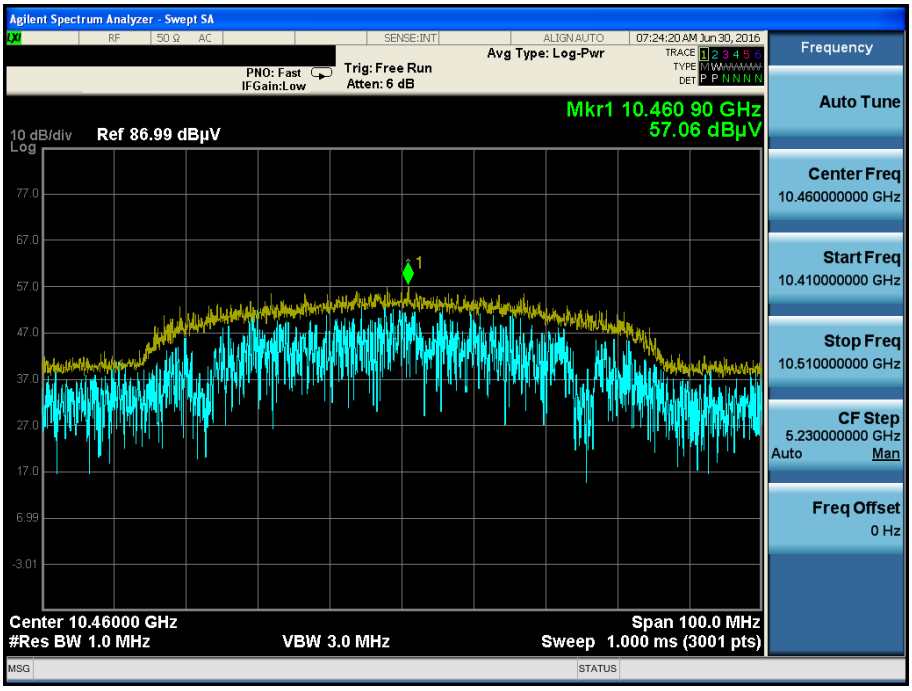
802.11ac(VHT40) & U-NII 1 & Ch.38 & X axis & Hor **Detector Mode : PK**



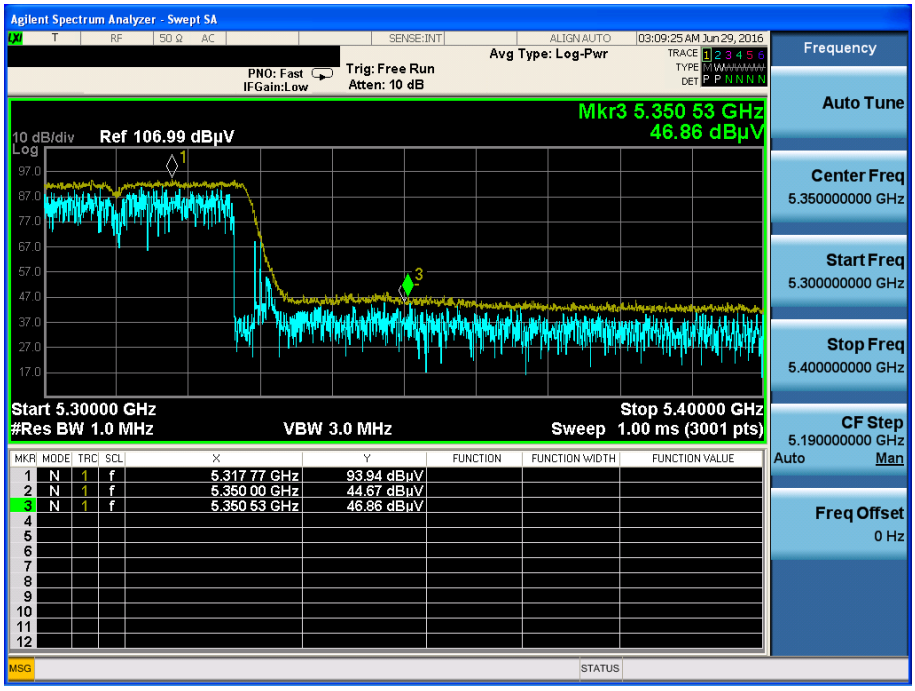
802.11ac(VHT40) & U-NII 1 & Ch.38 & X axis & Hor **Detector Mode : AV**



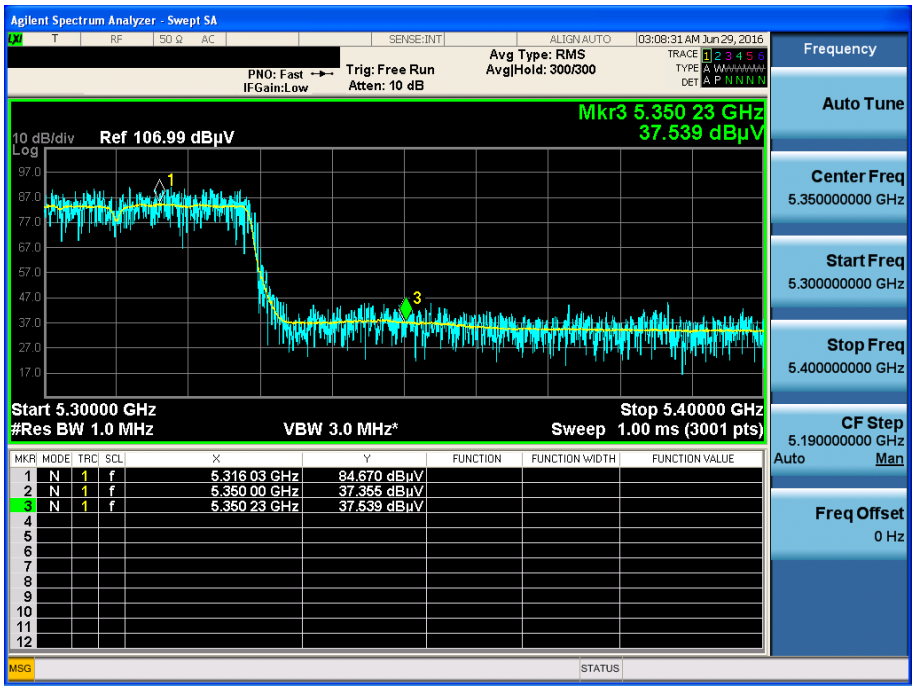
802.11ac(VHT40) & U-NII 1 & Ch.46 & Z axis & Ver Detector Mode : PK



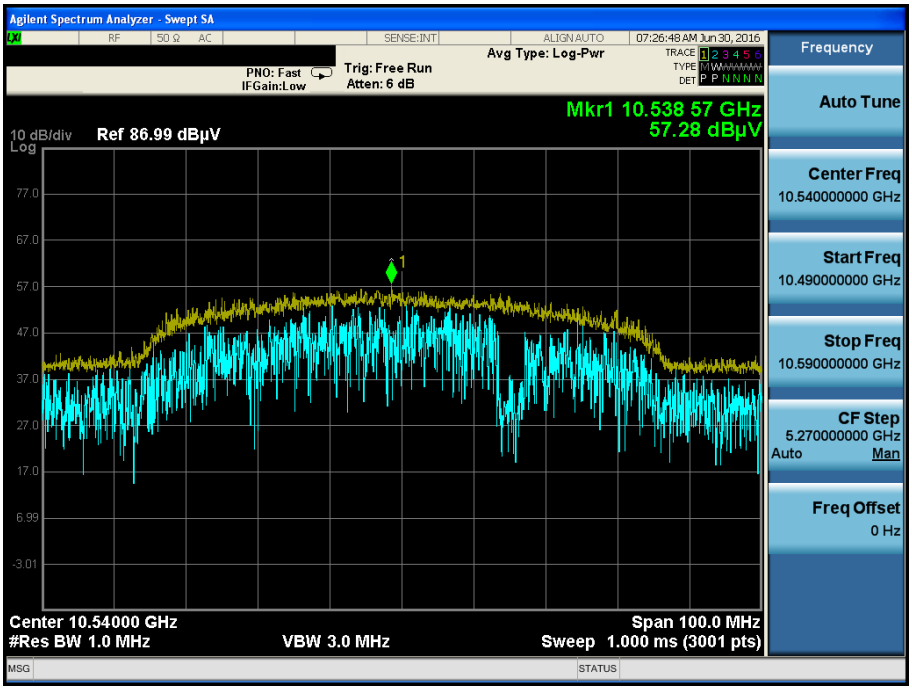
802.11ac(VHT40) & U-NII 2A & Ch.62 & X axis & Hor Detector Mode : PK



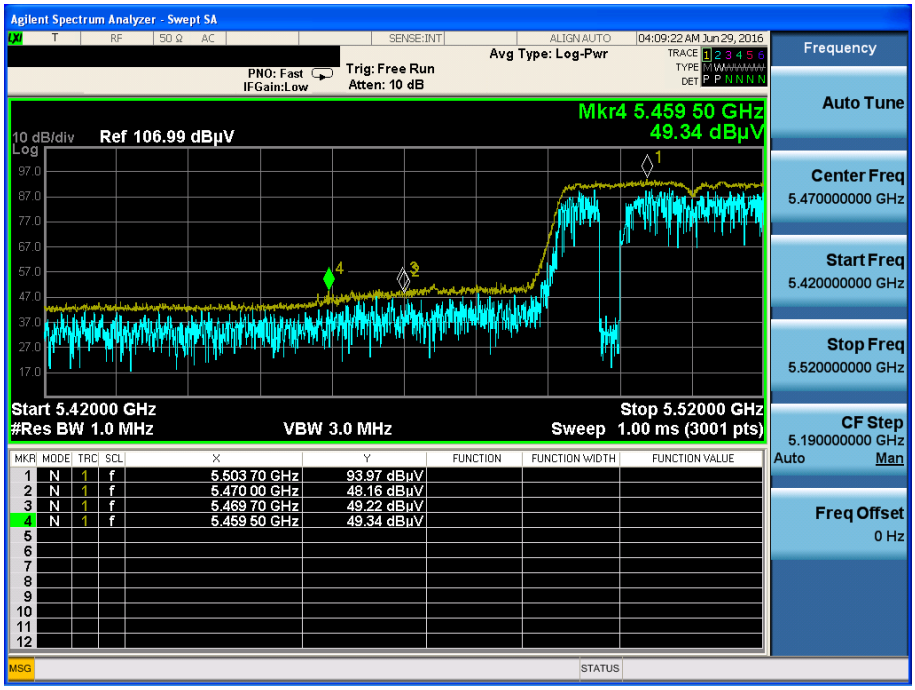
802.11ac(VHT40) & U-NII 2A & Ch.62 & X axis & Hor Detector Mode : AV



802.11ac(VHT40) & U-NII 2A & Ch.54 & Z axis & Ver Detector Mode : PK



802.11ac(VHT40) & U-NII 2C & Ch.102 & X axis & Hor Detector Mode : PK



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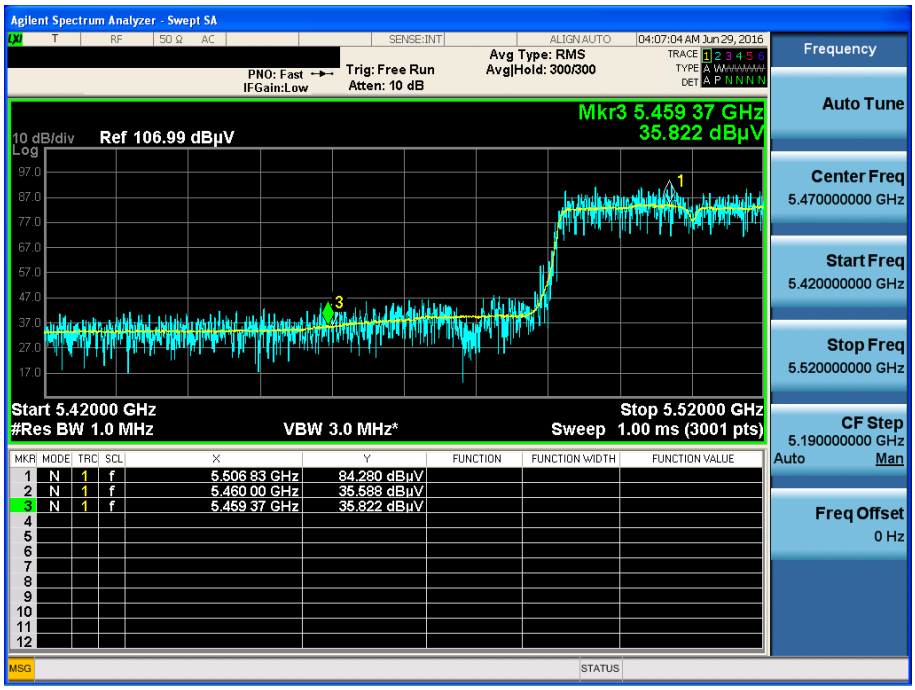
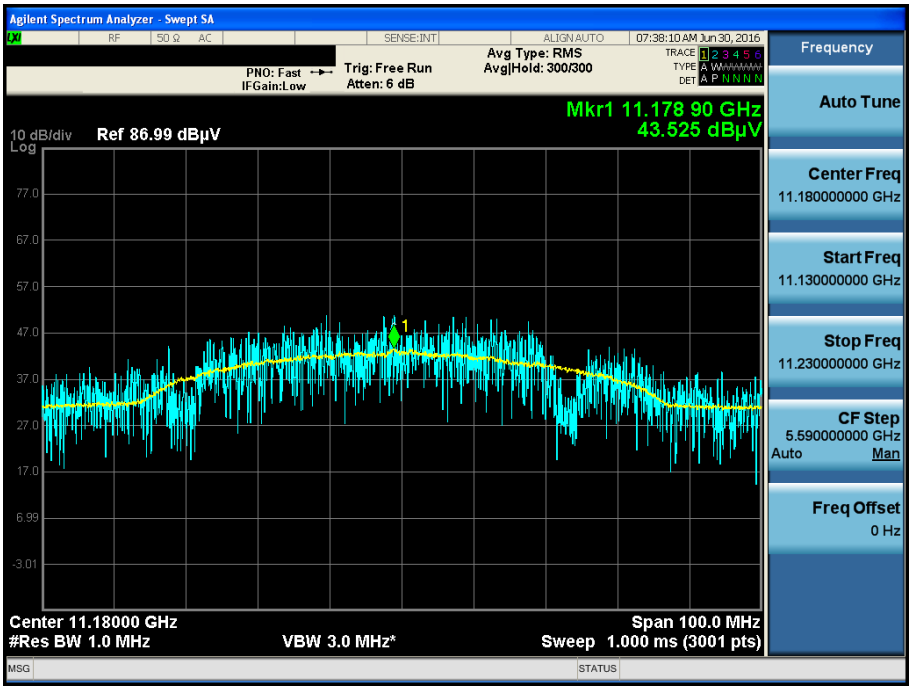
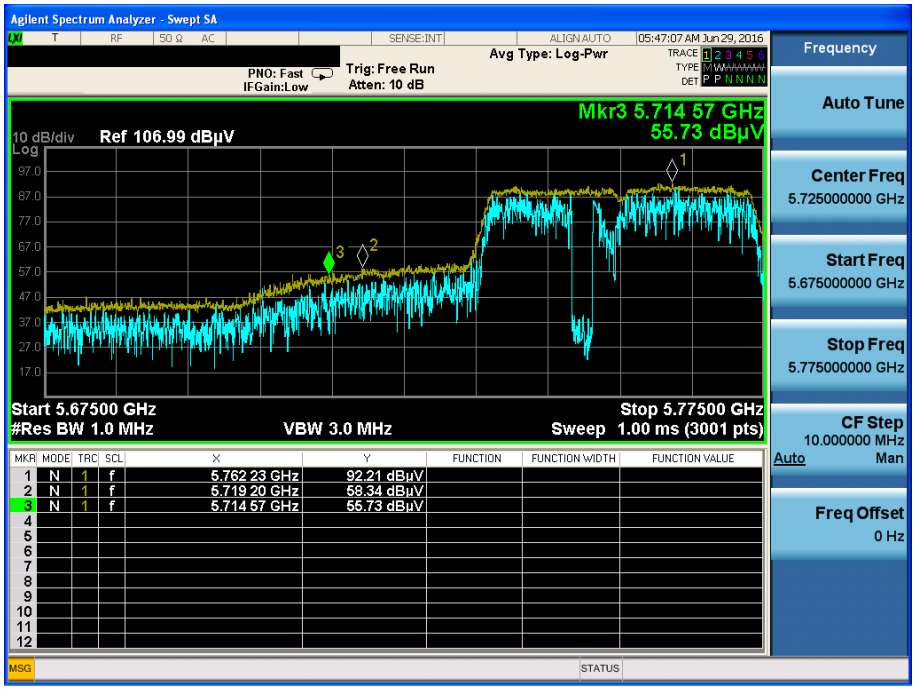


802.11ac(VHT40) & U-NII 2C & Ch.118 & Z axis & Ver Detector Mode : AV



802.11ac(VHT40) & U-NII 3 & Ch.151 & X axis & Hor Detector Mode : PK



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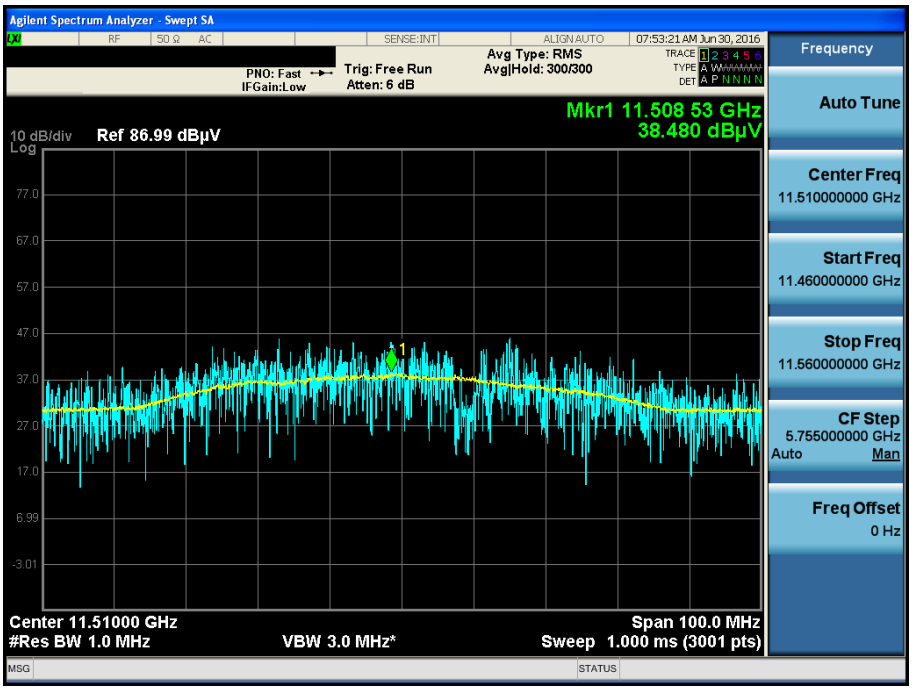
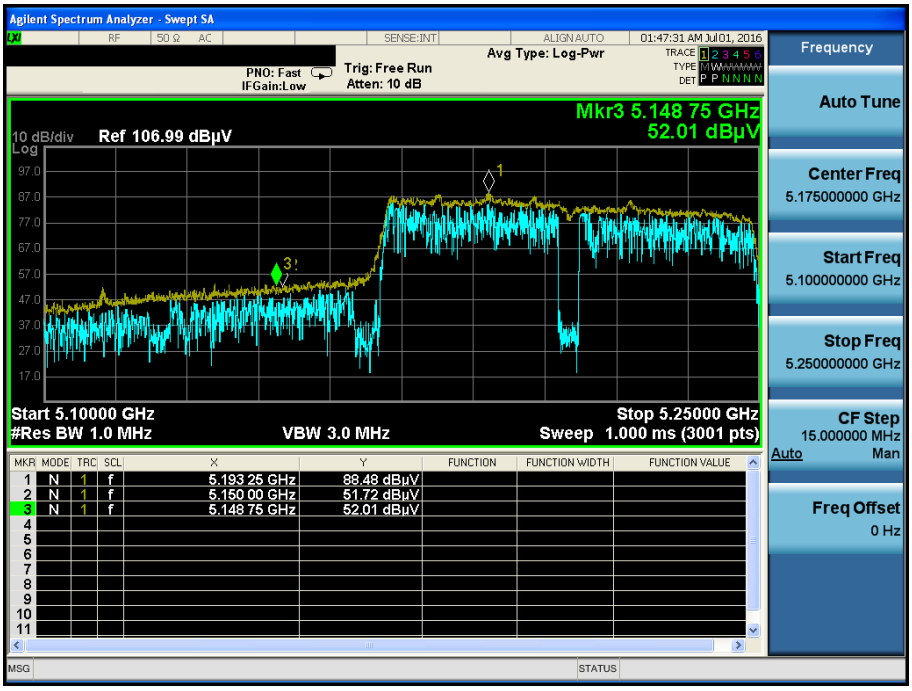


802.11ac(VHT80) & U-NII 1 & Ch.42 & X axis & Hor **Detector Mode : PK**



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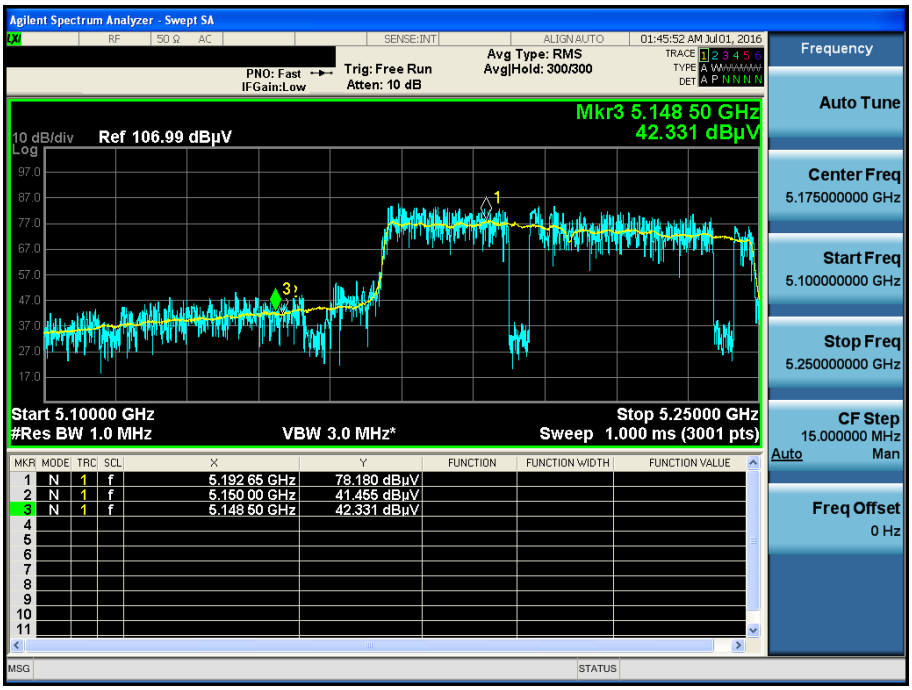
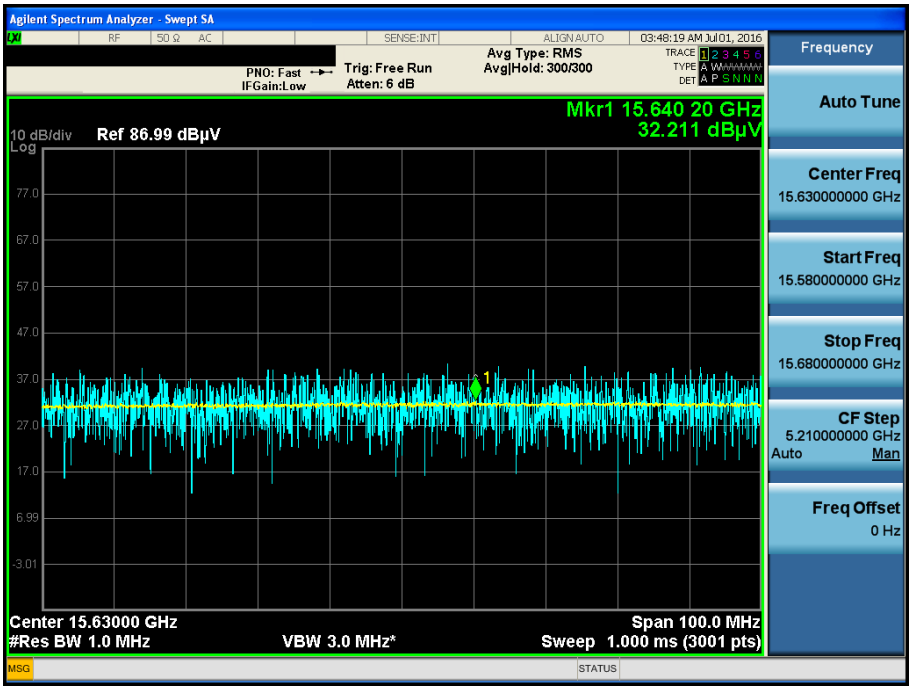
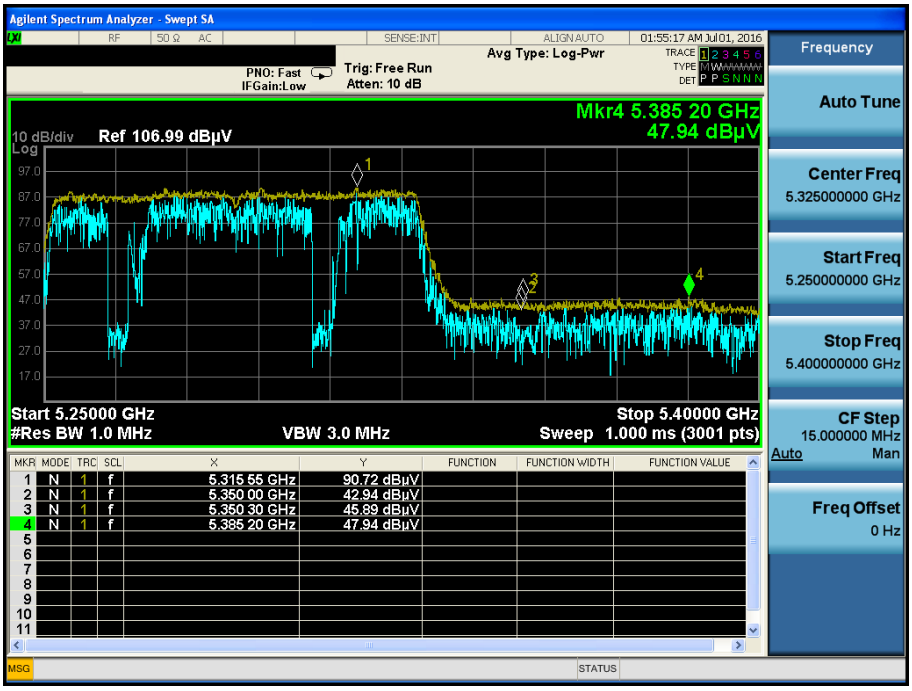


802.11ac(VHT80) & U-NII 1 & Ch.42 & X axis & Ver Detector Mode : AV



802.11ac(VHT80) & U-NII 2A & Ch.58 & X axis & Hor Detector Mode : PK



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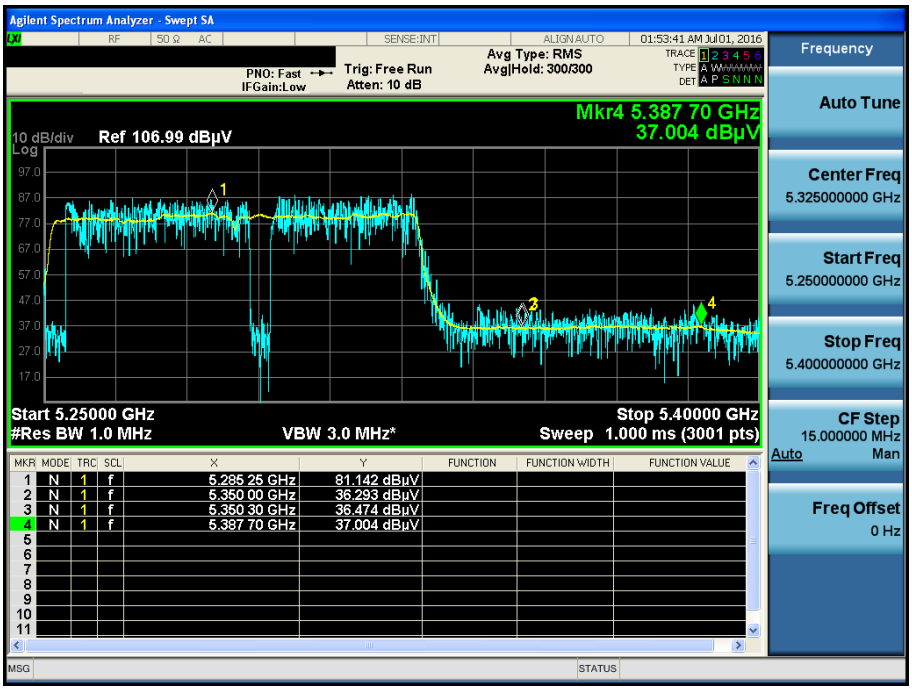

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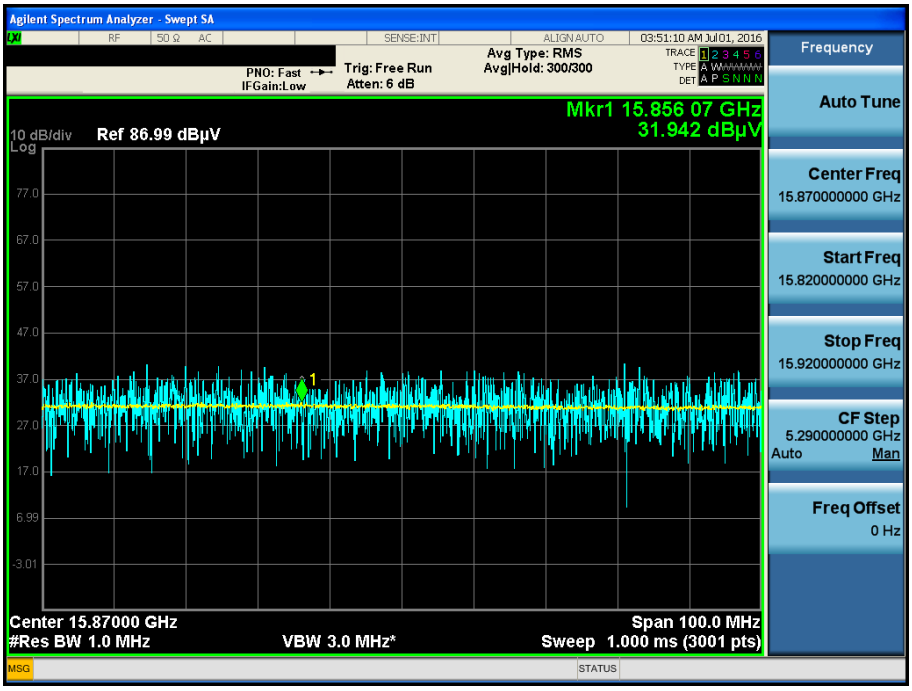
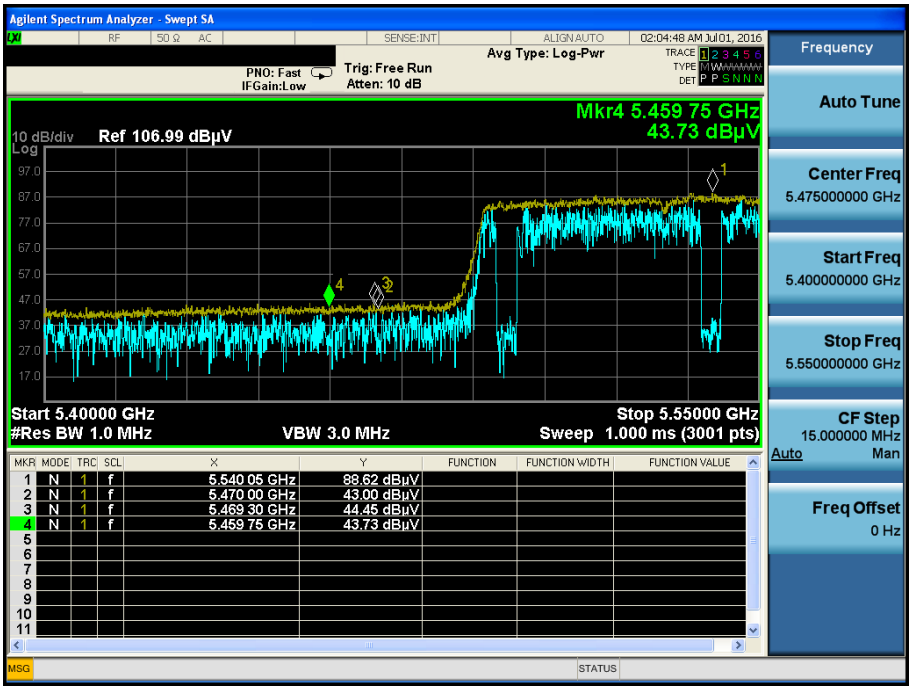


802.11ac(VHT80) & U-NII 2A & Ch.106 & X axis & Hor Detector Mode : PK



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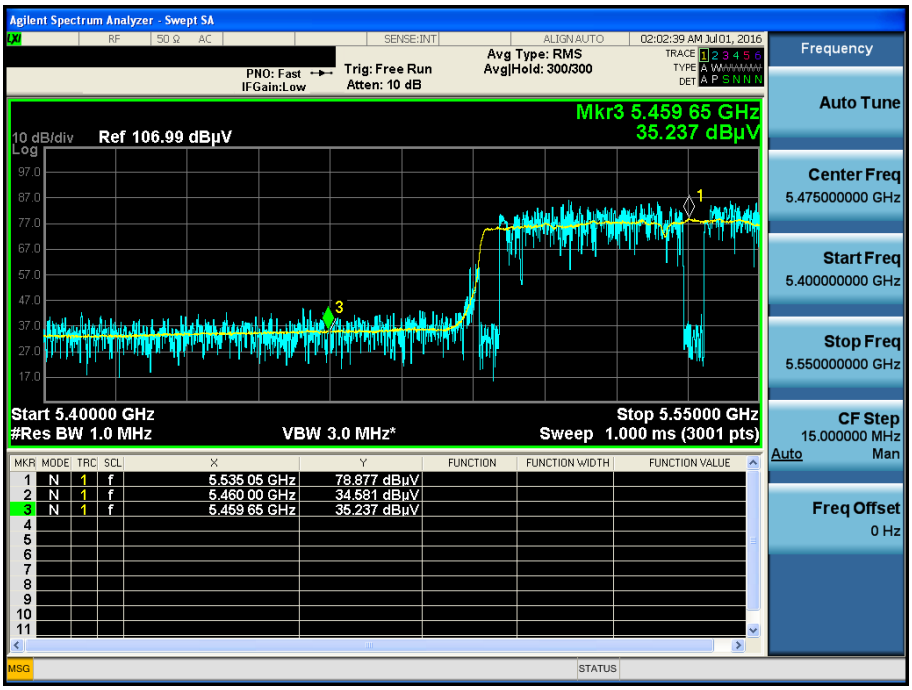

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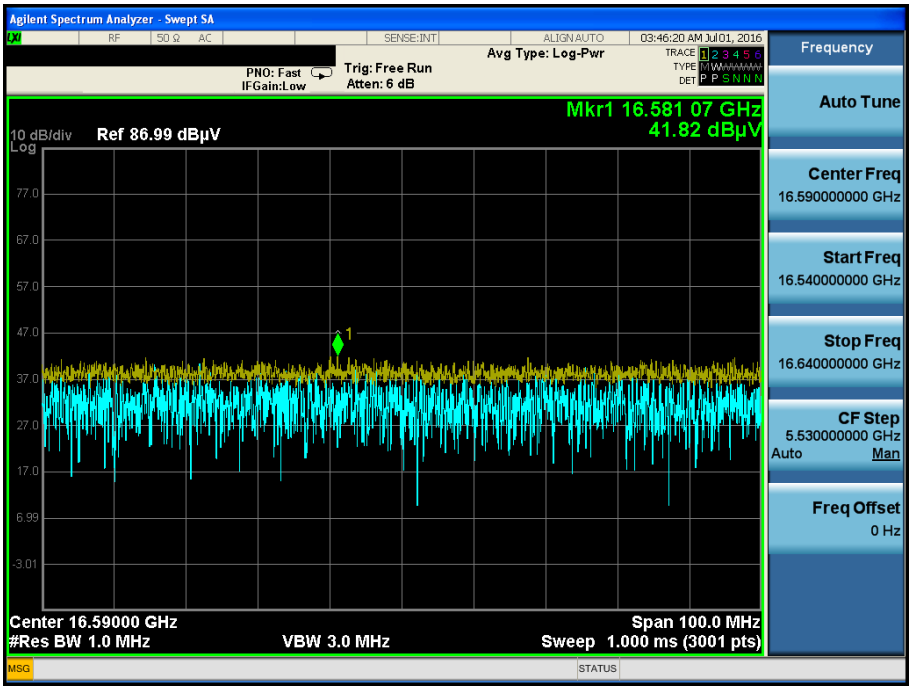
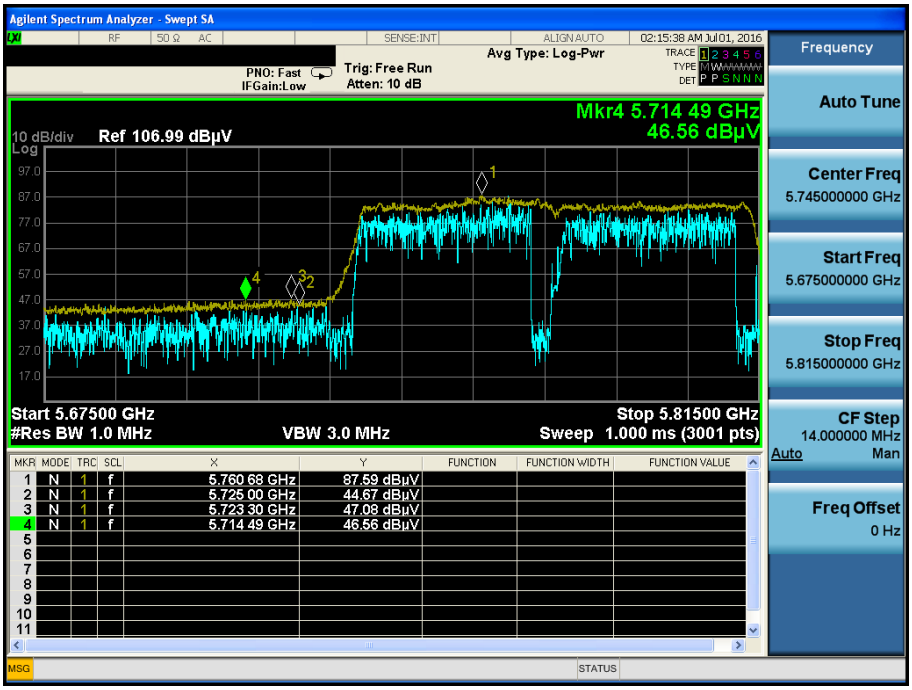
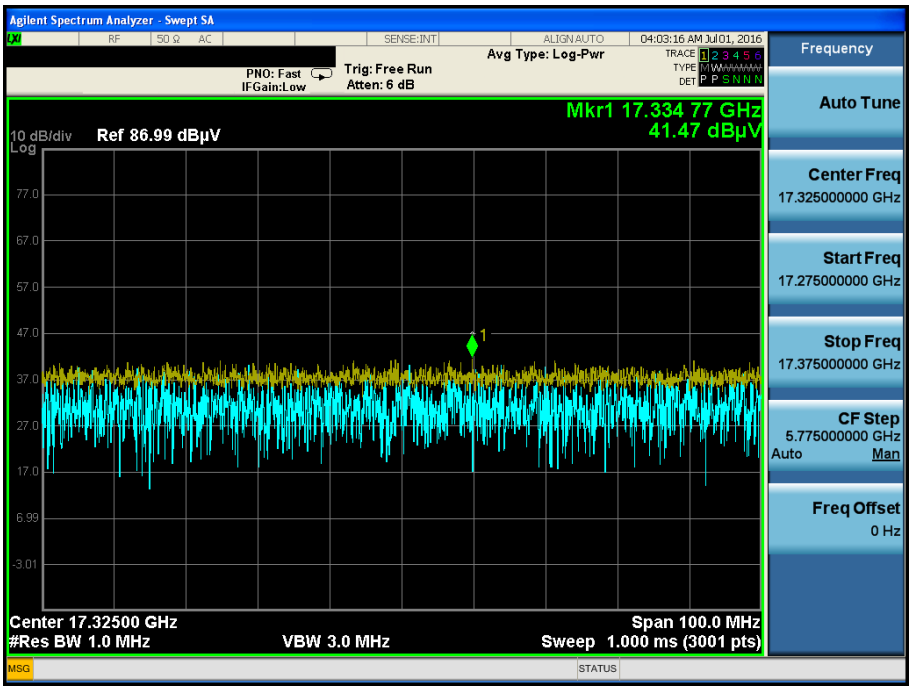


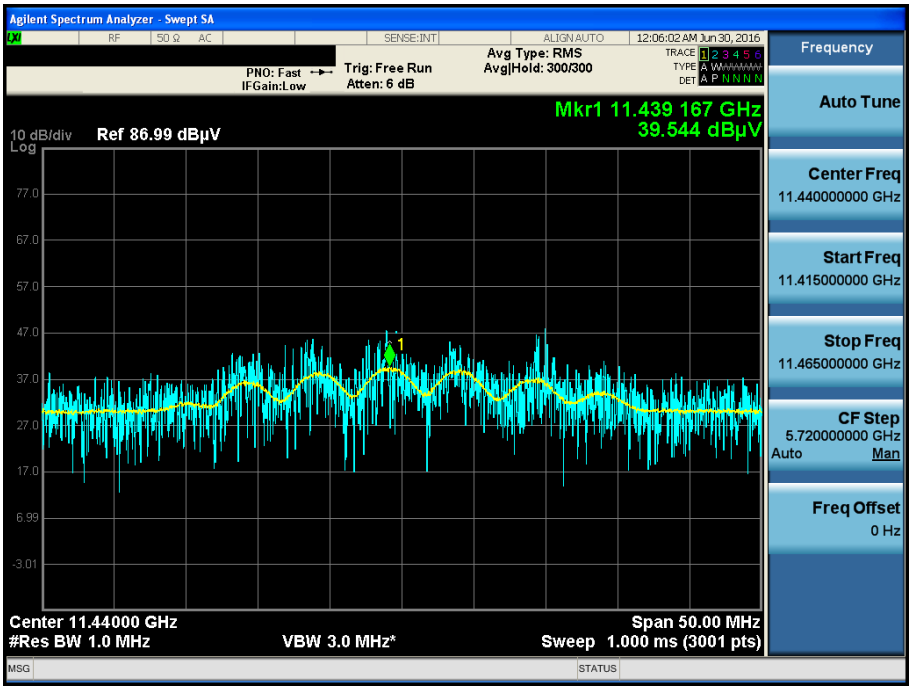
802.11ac(VHT80) & U-NII 3 & Ch.155 & X axis & Hor Detector Mode : PK



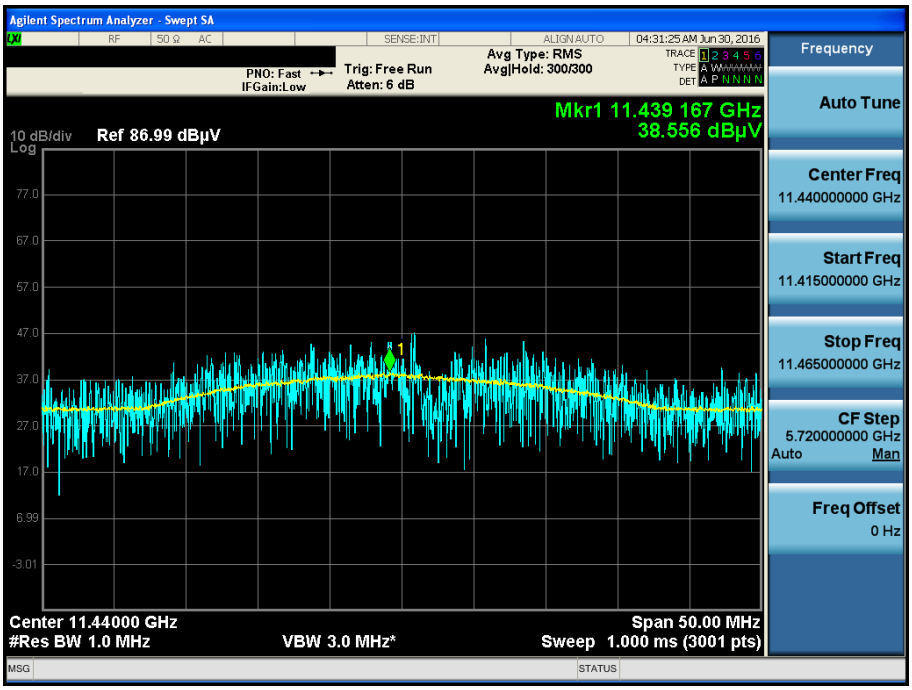
802.11ac(VHT80) & U-NII 3 & Ch.155 & X axis & Ver Detector Mode : PK



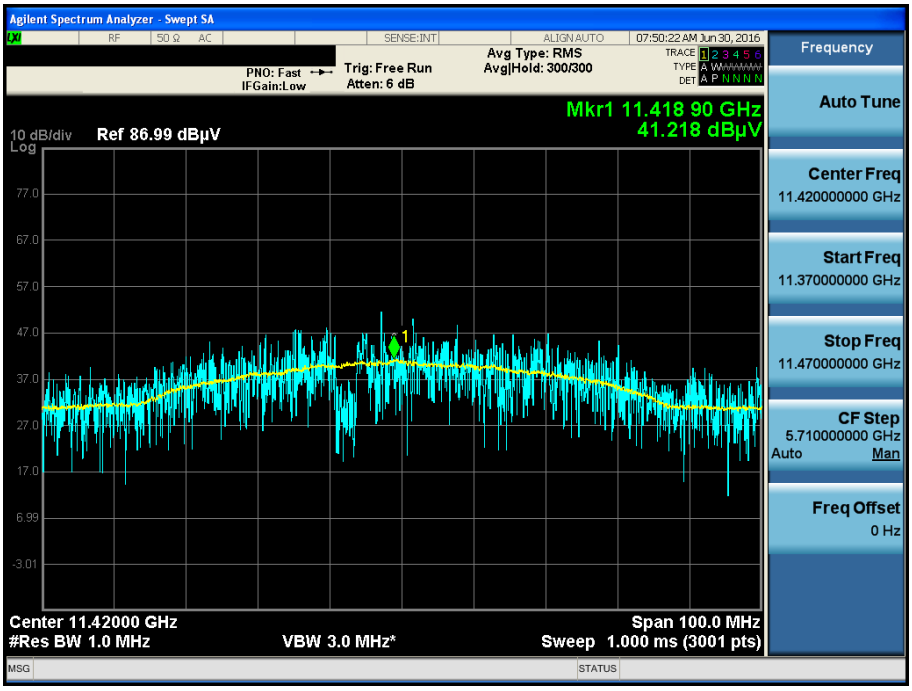
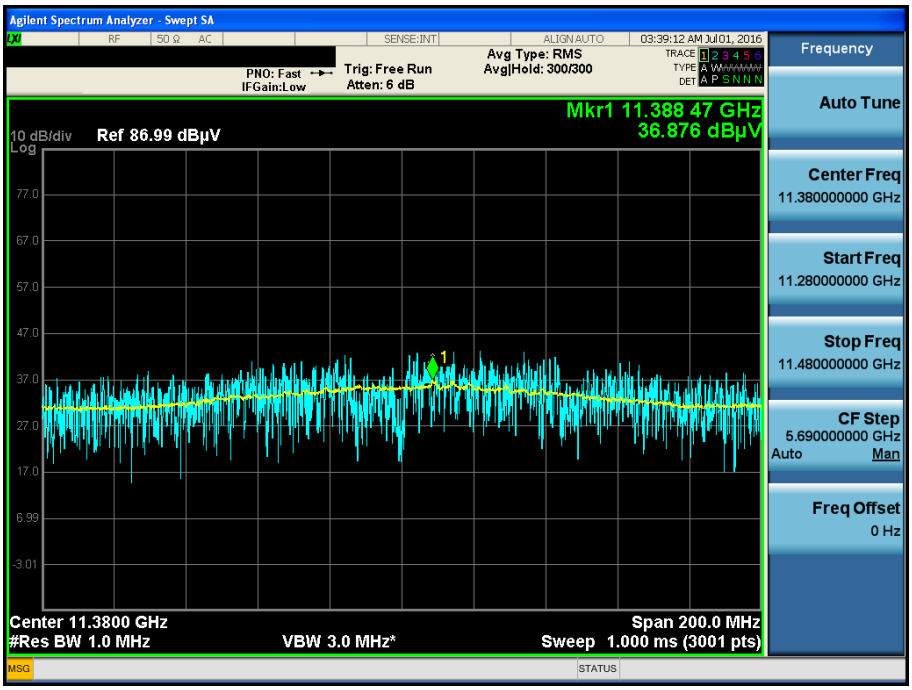
802.11a & Cross & Ch.144 & Z axis & Ver **Detector Mode : AV**



802.11ac(VHT20) & Cross & Ch.144 & Z axis & Ver **Detector Mode : AV**



802.11ac(VHT40) & Cross & Ch.142 & Z axis & Ver Detector Mode : AV



802.11ac(VHT80) & Cross & Ch.138 & Z axis & Ver Detector Mode : AV