Test Report

AIR-RM3000AC-A-K9

Cisco Aironet 802.11ac Module

FCC ID: LDK102086
IC: 2461B-102086

Also covers:

AIR-RM3000AC-N-K9, AIR-RM3000AC-N-K9

AIR-RM3000AC-Z-K9, AIR-RM3000AC-Z-K9

5150-5250 MHz

Against the following Specifications:

CFR47 Part 15.407

RSS210

Cisco Systems
170 West Tasman Drive
San Jose, CA 95134

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Section 1: Overview

1.1 Test Summary

samples were assessed against the tests detailed in section 3 under the requirements of the following specifications:

Emission	Immunity
CFR47 Part 15.407 RSS210	N/A

The specifications listed above represent actual tests performed to demonstrate compliance against the specifications and basic standards listed on the front cover of this report. This list is not a one to one match to the front cover for one or more of the following reasons.

1. Basic standards call up many different test phenomena specifications such as the 61000-4-X series. The basic standards define which elements and levels shall be applied from these specifications and as such it is not appropriate to list the individual specifications on the front cover.
2. A Standard listed on the front cover may be required in a particular country but is not appropriate for the particular technologies included in the equipment under test. E.g. You cannot test a DC product to the mains Harmonics requirements in EN61000-3-2. See section 3.2.
3. Test results against a particular standard or specification may be included in a different test report. See section 3.2 for an EDCS reference of this data.
4. Where appropriate, Cisco may have substituted a later revision of a basic standard to those referenced in the specification on the front sheet of this test report. This decision was based upon improved test methodology and repeatability and/or where the newer revision represented a more stringent test.
5. Where relevant, testing has been carried out to the requirements of both EN and IEC Specifications. This was possible because of the similarities of the test methods involved and the Cisco EMC test procedures.
6. Testing may have been performed to an equivalent test that satisfies the requirements of the standards and specifications listed on the front cover of the report. See section 3.2.
7. Where radiated emissions testing has been performed to EN55022/CISPR22 the additional requirements of VCCI: V-3/2006.04, EN55022: 1994 +A1/2 and CAN/CSA- CISPR 22-02 have also been evaluated unless otherwise stated.
8. Testing to the requirements of CFR47 Part 15 was performed against the CISPR22 limits. The results are therefore deemed satisfactory evidence of compliance with Industry Canada Interference Causing Equipment Standard ICES-003.
9. Where assessment has been performed to CISPR24, all the applicable test requirements may have not been covered. Refer to the results section for the tests performed.

Notes:

1) Where a specification listed on the front cover of this report has deviations from the basic standards listed above, the additional technical requirements of the specification were also assessed.
2) Where appropriate, Cisco may have substituted a later revision of a basic standard to those referenced in the specification on the front sheet of this test report. This decision was based upon improved test methodology and repeatability and/or where the newer revision represented a more stringent test.
3) Where relevant, testing has been carried out to the requirements of both EN and IEC Specifications. This was possible because of the similarities of the test methods involved and the Cisco EMC test procedures.

Section 2: Assessment Information

2.1 General

This report contains an assessment of an apparatus against Electromagnetic Compatibility Standards based upon tests carried out on the samples submitted. The testing was performed by and for the use of Cisco systems Inc:

With regard to this assessment, the following points should be noted:

a) The results contained in this report relate only to the items tested and were obtained in the period between the date of the initial assessment and the date of issue of the report. Manufactured products will not necessarily give identical results due to production and measurement tolerances.

b) The apparatus was set up and exercised using the configuration and modes of operation defined in this report only.

c) Where relevant, the apparatus was only assessed using the susceptibility criteria defined in this report and the Test Assessment Plan (TAP).

d) All testing was performed under the following environmental conditions:

Temperature	15°C to 35°C (54°F to 95°F)
Atmospheric Pressure	860mbar to 1060mbar (25.4" to 31.3")
Humidity	10% to 75*%

*[Where applicable] For ESD testing the humidity limits used were 30% to 60% and for EFT/B tests the humidity limits used were 25% to 75%.

e) All AC testing was performed at one or more of the following supply voltages:
110V 60 Hz (+/-20%)
220V 50 Hz (+/-20%)

2.2 Date of testing

January 29, 2013

2.3 Report Issue Date

Cisco uses an electronic system to issue, store and control the revision of test reports. This system is called the Engineering Document Control System (EDCS). The actual report issue date is embedded into the original file on EDCS. Any copies of this report, either electronic or paper, that are not on EDCS must be considered uncontrolled

2.4 Testing facilities

This assessment was performed by:

Testing Laboratory

Cisco Systems, Inc.,	Cisco Systems, Inc.
4125 Highlander Parkway	170 West Tasman Drive
Richfield, OH 44286	San Jose, CA 95134
USA	USA

Test Engineers

James Nicholson

2.5 Equipment Assessed (EUT)

AIR-RM3000AC-A-K9 Cisco Aironet 802.11ac Radio Module

2.6 EUT Description

The RM3000 Series Cisco Aironet 802.11ac Radio Modules support the following modes of operation. The modes are further defined in the radio Theory of Operation. The modes included in this report represent the worst case data for all modes.

Non HT/VHT-20, One Antenna, 6 to 54 Mbps
Non HT/VHT-20, Two Antennas, 6 to 54 Mbps
Non HT/VHT-20, Three Antennas, 6 to 54 Mbps

Non HT/VHT-20 Beam Forming, Two Antennas, 6 to 54 Mbps
Non HT/VHT-20 Beam Forming, Three Antennas, 6 to 54 Mbps

HT/VHT-20, One Antenna, M0 to M7
HT/VHT-20, Two Antennas, M0 to M15
HT/VHT-20, Three Antennas, M0 to M23

HT/VHT-20 STBC, Two Antennas, M0 to M7
HT/VHT-20 STBC, Three Antennas, M0 to M7

HT/VHT-20 Beam Forming, Two Antennas, M0 to M15
HT/VHT-20 Beam Forming, Three Antennas, M0 to M23

Non HT/VHT-40 Duplicate, One Antenna, 6-54 Mbps
Non HT/VHT-40 Duplicate, Two Antennas, 6-54 Mbps
Non HT/VHT-40 Duplicate, Three Antennas, 6-54 Mbps

HT/VHT-40, One Antenna, M0 to M7
HT/VHT-40, Two Antennas, M0 to M15
HT/VHT-40, Three Antennas, M0 to M23

HT/VHT-40 STBC, Two Antennas, M0 to M7
HT/VHT-40 STBC, Three Antennas, M0 to M7

HT/VHT-80 Beam Forming, Two Antennas, M0 to M15
HT/VHT-80 Beam Forming, Three Antennas, M0 to M23

Non HT/VHT-80 Duplicate, One Antenna, 6-54 Mbps
Non HT/VHT-80 Duplicate, Two Antennas, 6-54 Mbps
Non HT/VHT-80 Duplicate, Three Antennas, 6-54 Mbps

HT/VHT-80, One Antenna, M0 to M7
HT/VHT-80, Two Antennas, M0 to M15
HT/VHT-80, Three Antennas, M0 to M23

HT/VHT-80 STBC, Two Antennas, M0 to M7
HT/VHT-80 STBC, Three Antennas, M0 to M7

HT/VHT-80 Beam Forming, Two Antennas, M0 to M15
HT/VHT-80 Beam Forming, Three Antennas, M0 to M23

The following antennas are supported by this product series.

The data included in this report represent the worst case data for all antennas.

Frequency	Part Number	Antenna Type	Antenna Gain (dBi)
2.4 / 5 GHz	Internal	Dual-resonant Omni	2 / 5

Section 4: Sample Details

Note: Each sample was evaluated to ensure that its condition was suitable to be used as a test sample prior to the commencement of testing. Please also refer to the "Justification for worst Case test Configuration" section of this report for further details on the selection of EUT samples.

4.1 Sample Details (Photographs of the test samples, where appropriate can be found in appendix H)

Sample No.	Equipment Details	Part Number	Manufacturer	Hardware Rev.	Firmware Rev.	Software Rev.	Serial Number
S01	AIR-CAP3602E-A-K9		Cisco Systems	NA	NA	NA	
S02	AIR-PWR-B	341-0306-01	Cisco Systems	NA	NA	NA	
S03	AIR-RM3000AC-A-K9						

4.2 System Details

System #	Description	Samples
1	EUT	S01, S02, S03

4.3 Mode of Operation Details

Mode#	Description	Comments
1	Continuous Transmitting	Continuous Transmitting

Appendix A: **Emission Test Results**

Testing Laboratory: Cisco Systems, Inc., 4125 Highlander Parkway, Richfield, OH, USA

Target Maximum Channel Power

The following table details the maximum supported Total Channel Power for all operating modes.

	Maximum Channel Power (dBm)	
	Frequency (MHz)	
Operating Mode	5180	5240
Non HT-20, 6 to 54 Mbps	15	15
Non HT-20 Beam Forming, 6 to 54 Mbps	12	12
HT-20, M0 to M23	15	15
HT-20 STBC, M0 to M7	15	15
HT-20 Beam Forming, M0 to M23	15	15
	5180/5200	5220/5240
Non HT-40 Duplicate, 6-54 Mbps	13	17
HT-40, M0 to M23	13	17
HT-40 STBC, M0 to M7	14	17
HT-40 Beam Forming, M0 to M23	13	17

99% and 26dB Bandwidth

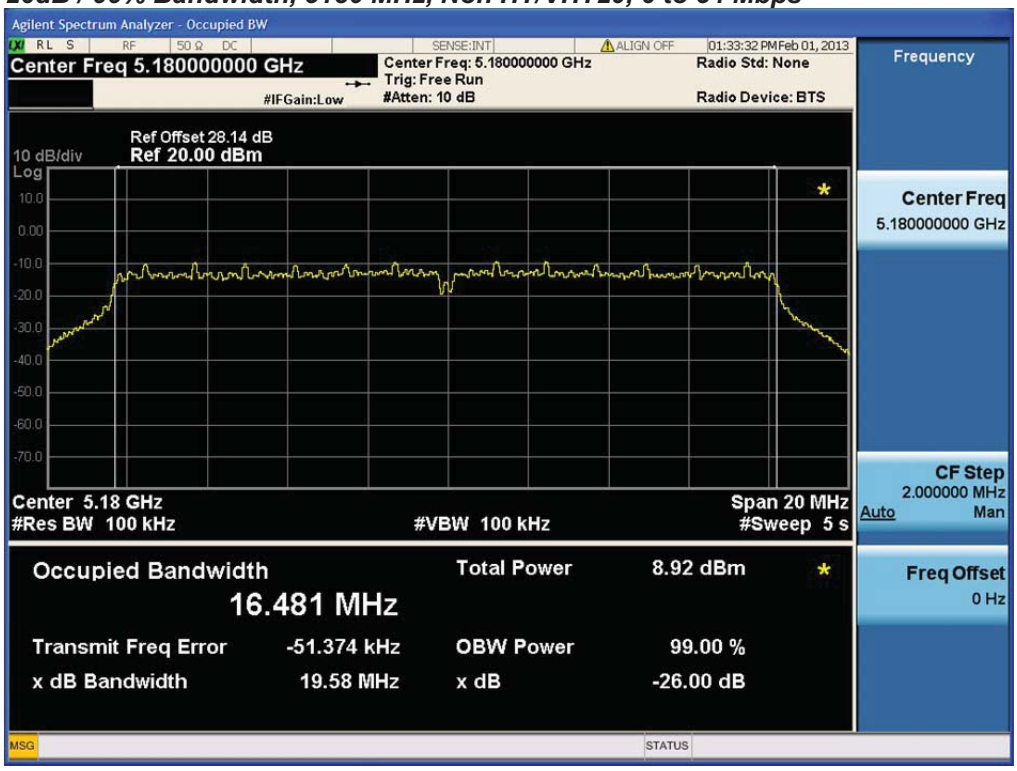
Connect the antenna port(s) to the spectrum analyzer input. Using the spectrum analyzer Channel Bandwidth mode, configure the spectrum analyzer as shown below (enter all losses between the transmitter output and the spectrum analyzer).

Center Frequency:	Frequency from table below
Span:	2 x Nominal Bandwidth (e.g. 40MHz for a 20MHz channel)
Reference Level:	20 dBm
Attenuation:	10 dB
Sweep Time:	5 s
Resolution Bandwidth:	1%-3% of 26 dB Bandwidth
Video Bandwidth:	≥Resolution Bandwidth
X dB Bandwidth:	26 dB
Detector:	Peak
Trace:	Single

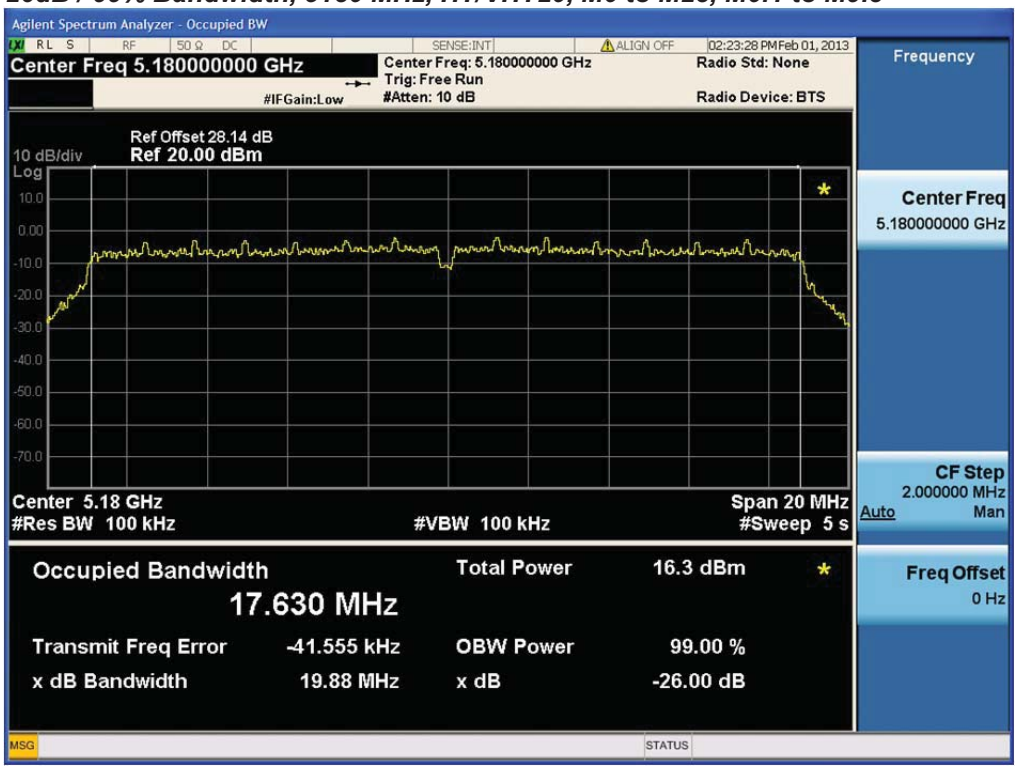
Place the radio in continuous transmit mode. View the transmitter waveform on the spectrum analyzer, and record the pertinent measurements:

Frequency (MHz)	Mode	Data Rate (Mbps)	26dB BW (MHz)	99% BW (MHz)
5180	Non HT/VHT20, 6 to 54 Mbps	6	19.6	16.5
	HT/VHT20, M0 to M23, M0.1 to M9.3	M0.	19.9	17.6
	Non HT/VHT40, 6 to 54 Mbps	6	38.4	36.3
	HT/VHT40, M0 to M23, M0.1 to M9.3	M0.	38.3	36.2
	Non HT/VHT80, 6 to 54 Mbps	6	79.2	75.6
	HT/VHT80, M0 to M23, M0.1 to M9.3	M0x1	78.7	75.4
5220	Non HT/VHT40, 6 to 54 Mbps	6	38.6	36.2
	HT/VHT40, M0 to M23, M0.1 to M9.3	M0.	38.5	36.2
5240	Non HT/VHT20, 6 to 54 Mbps	6	19.5	16.5
	HT/VHT20, M0 to M23, M0.1 to M9.3	M0.	19.9	17.6

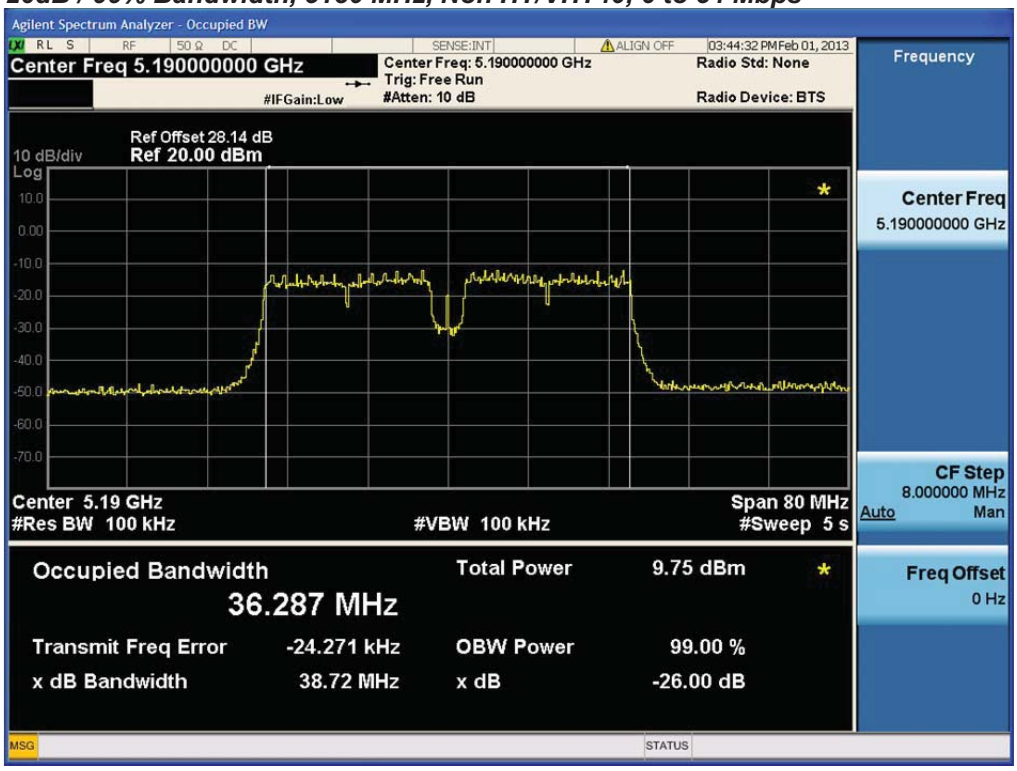
26dB / 99% Bandwidth, 5180 MHz, Non HT/VHT20, 6 to 54 Mbps



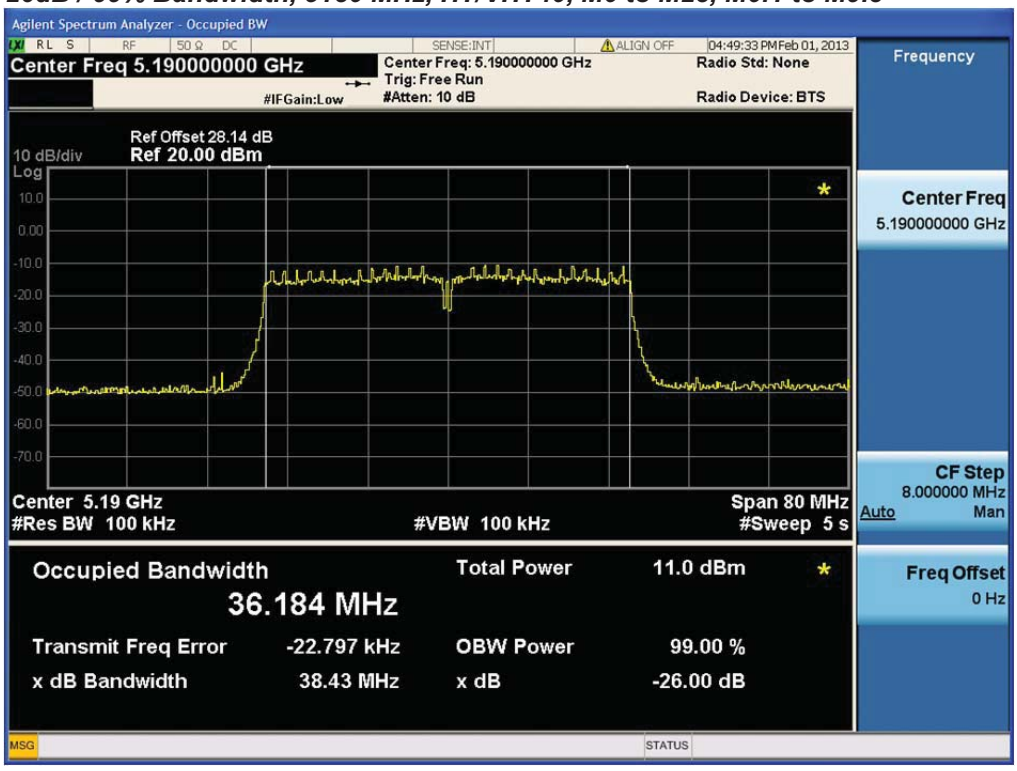
26dB / 99% Bandwidth, 5180 MHz, HT/VHT20, M0 to M23, M0.1 to M9.3



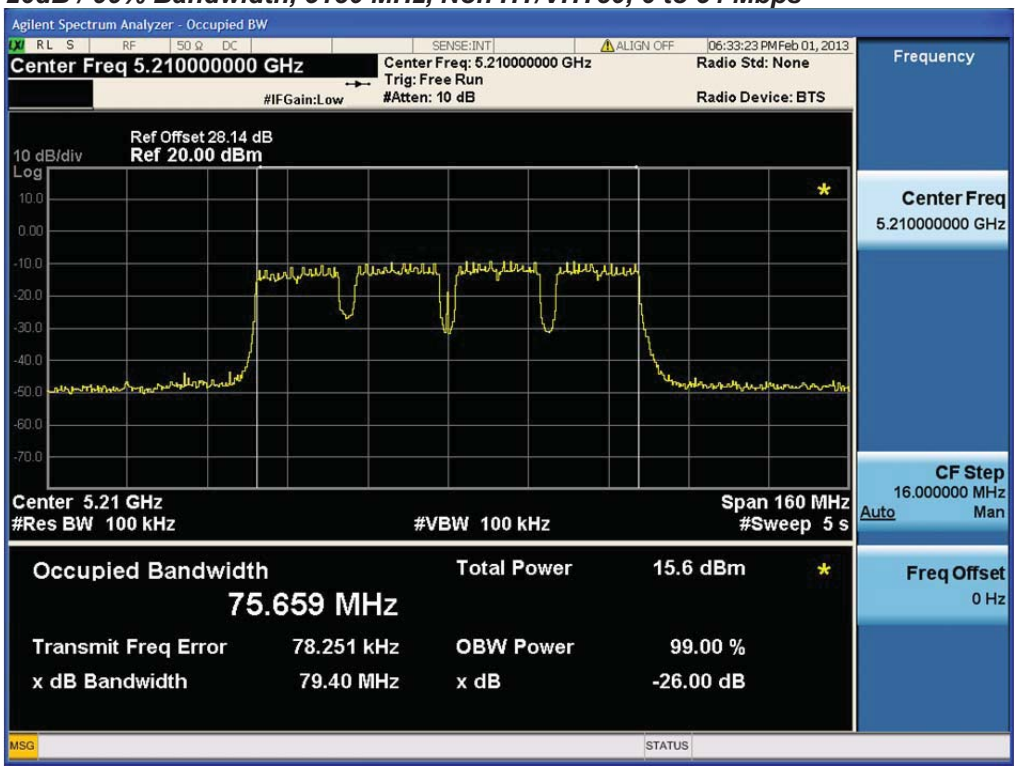
26dB / 99% Bandwidth, 5180 MHz, Non HT/VHT40, 6 to 54 Mbps



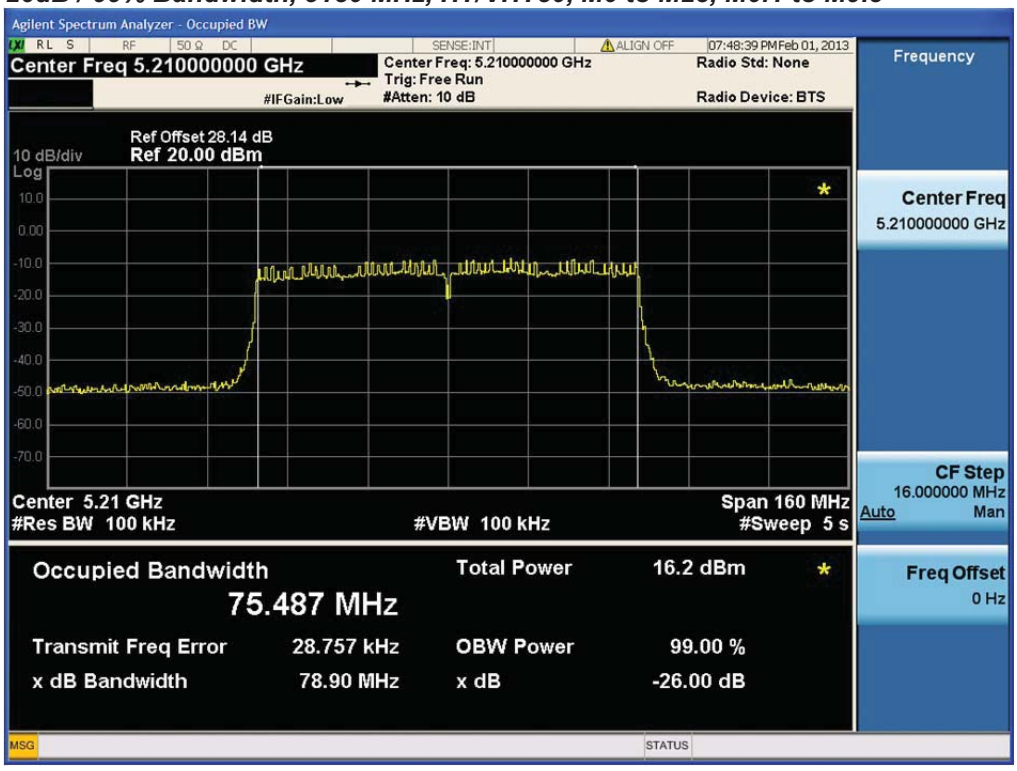
26dB / 99% Bandwidth, 5180 MHz, HT/VHT40, M0 to M23, M0.1 to M9.3



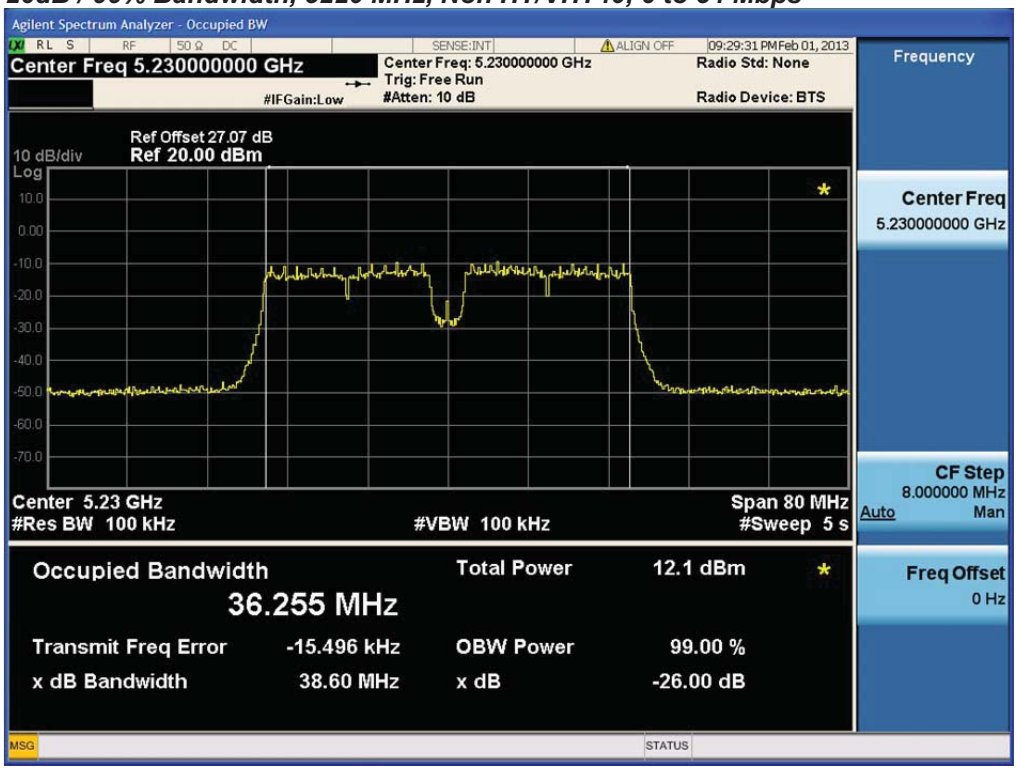
26dB / 99% Bandwidth, 5180 MHz, Non HT/VHT80, 6 to 54 Mbps



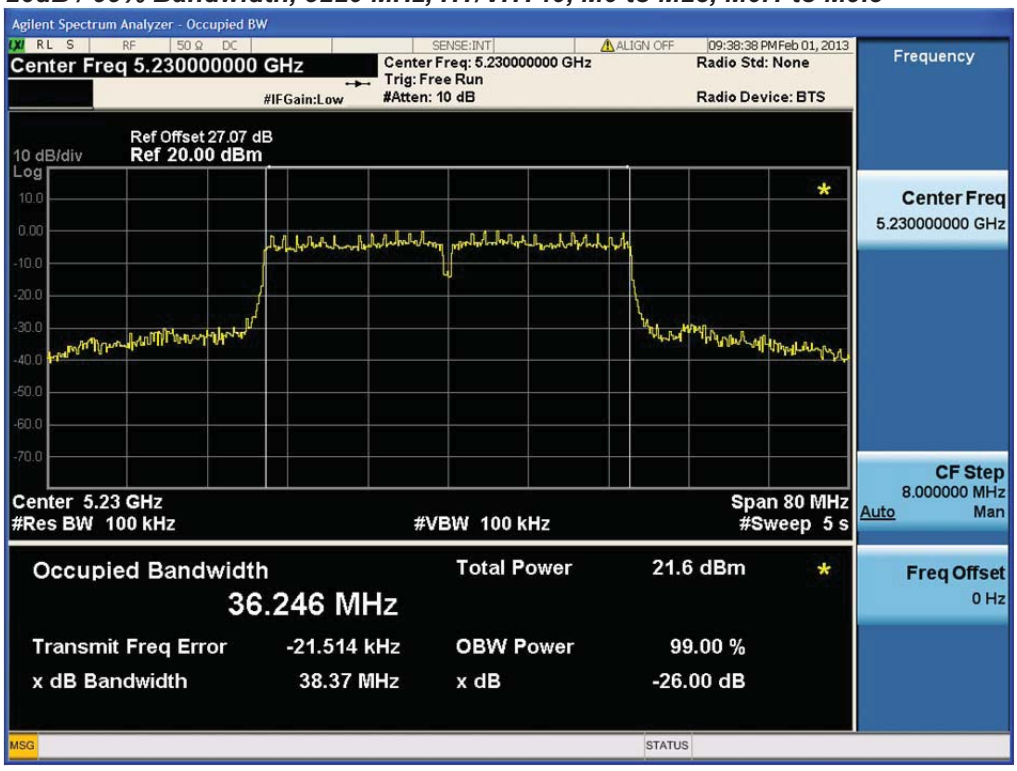
26dB / 99% Bandwidth, 5180 MHz, HT/VHT80, M0 to M23, M0.1 to M9.3



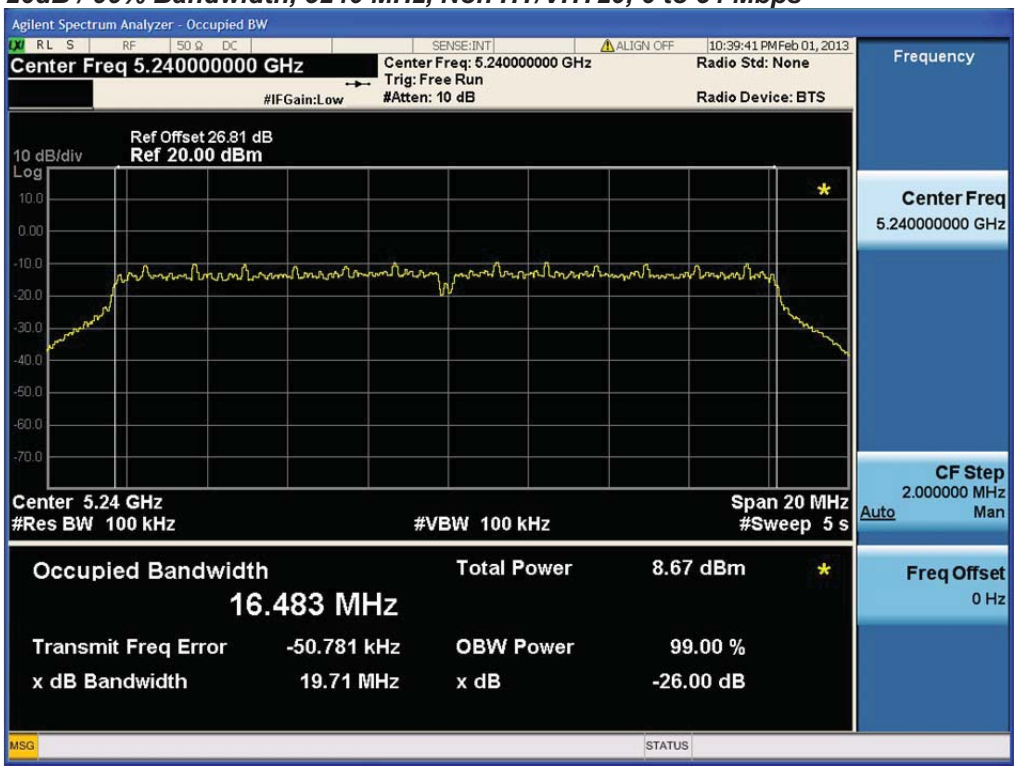
26dB / 99% Bandwidth, 5220 MHz, Non HT/VHT40, 6 to 54 Mbps



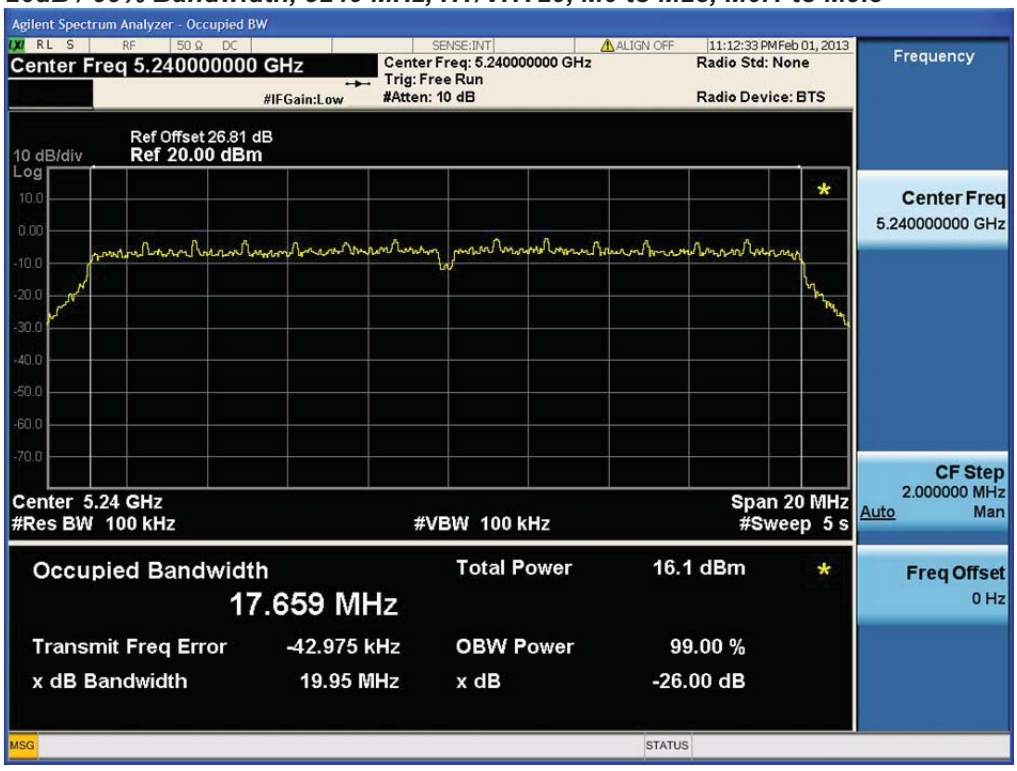
26dB / 99% Bandwidth, 5220 MHz, HT/VHT40, M0 to M23, M0.1 to M9.3



26dB / 99% Bandwidth, 5240 MHz, Non HT/VHT20, 6 to 54 Mbps



26dB / 99% Bandwidth, 5240 MHz, HT/VHT20, M0 to M23, M0.1 to M9.3



Peak Output Power

15.407: For the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26-dB emission bandwidth in MHz. 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 6 dBi.

The smallest 26dB bandwidth for all channels is 20.7 MHz. The maximum conducted output power is calculated as 4dBm+10*log(20.7MHz) = 17dBm

The maximum supported antenna gain is 6dBi. The peak correlated gain for each mode is listed in the table below. See the Theory of Operation for details on the correlated gain for each mode.

The “measure-and-sum technique” is used for measuring in-band transmit power of a device. In the measure-and-sum approach, the conducted emission level is measured at each antenna port. The measured results at the various antenna ports are then summed mathematically to determine the total emission level from the device. Summing is performed in linear power units.

Power Spectral Density

15.407: For the band 5.15-5.25 GHz, the peak power spectral density shall not exceed 4 dBm in any 1-MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

The maximum supported antenna gain is 6dBi. The peak correlated gain for each mode is listed in the table below. See the Theory of Operation for details on the correlated gain for each mode.

The “Measure and add 10 log(N) dB technique”, where N is the number of outputs, is used for measuring in-band Power Spectral Density. With this technique, spectrum measurements are performed at each output of the device, and the quantity 10 log(4) (or 6dB) is added to the worst case spectrum value before comparing to the emission limit.

Connect the antenna port(s) to the spectrum analyzer input. Place the radio in continuous transmit mode. Configure the spectrum analyzer as shown below.

Enable "Channel Power" function of analyzer	
Center Frequency:	Frequency from table below
Span:	20 MHz (must be greater than 26dB bandwidth, adjust as necessary)
Ref Level Offset:	Correct for attenuator and cable loss.
Reference Level:	20 dBm
Attenuation:	20 dB
Sweep Time:	100ms, Single sweep
Resolution Bandwidth:	1 MHz
Video Bandwidth:	3 MHz
Detector:	Sample
Trace:	Trace Average 100 traces in Power Averaging Mode
Integration BW:	=99 % BW from 99% Bandwidth Data

After averaging 100 traces of the transmitter waveform on the spectrum analyzer, record the spectrum analyzer Channel Power. Perform a Marker Peak Search function, and record this value as the Power Spectral Density.

Frequency (MHz)	Mode	Tx Paths	Correlated Antenna Gain (dBi)	Tx 1 Peak Power (dBm)	Tx 2 Peak Power (dBm)	Tx 3 Peak Power (dBm)	Tx 4 Peak Power (dBm)	Total Tx Channel Power (dBm)	Limit (dBm)	Margin (dB)
5180	Non HT/VHT20, 6 to 54 Mbps	1	5	11.671				11.67	17	5.33
	Non HT/VHT20, 6 to 54 Mbps	2	5	6.811	9.646			11.47	17	5.53
	Non HT/VHT20, 6 to 54 Mbps	3	5	2.739	4.376	2.474		8.05	17	8.95
	Non HT/VHT20 Beam Forming, 6 to 54 Mbps	2	8	2.74	4.37			6.64	15	8.36
	Non HT/VHT20 Beam Forming, 6 to 54 Mbps	3	10	2.713	4.371	2.596		8.08	13.2	5.12
	HT/VHT20, M0 to M7, M0.1 to M9.1	1	5	11.376				11.38	17	5.62
	HT/VHT20, M0 to M7, M0.1 to M9.1	2	5	6.7	9.295			11.20	17	5.80
	HT/VHT20, M8 to M15, M0.2 to M9.2	2	5	8.458	11.497			13.25	17	3.75
	HT/VHT20, M0 to M7, M0.1 to M9.1	3	5	2.421	4.015	1.909		7.65	17	9.35
	HT/VHT20, M8 to M15, M0.2 to M9.2	3	5	6.544	9.429	6.9		12.60	17	4.40
	HT/VHT20, M16 to M23, M0.3 to M9.3	3	5	6.53	9.366	6.754		12.52	17	4.48
	HT/VHT20 Beam Forming, M0 to M7, M0.1 to M9.1	2	8	2.528	4.093			6.39	15	8.61
	HT/VHT20 Beam Forming, M8 to M15, M0.2 to M9.2	2	5	8.572	11.423			13.24	17	3.76
	HT/VHT20 Beam Forming, M0 to M7, M0.1 to M9.1	3	10	2.481	4.097	2.376		7.83	13.2	5.37
	HT/VHT20 Beam Forming, M8 to M15, M0.2 to M9.2	3	7	2.521	3.931	2.087		7.69	16.2	8.51
	HT/VHT20 Beam Forming, M16 to M23, M0.3 to M9.3	3	5	6.417	9.402	7.07		12.60	17	4.40
	HT/VHT20 STBC, M0 to M7, M0.1 to M9.1	2	5	8.452	11.548			13.28	17	3.72
	HT/VHT20 STBC, M0 to M7, M0.1 to M9.1	3	5	-0.542	9.408	6.843		11.60	17	5.40
	Non HT/VHT40, 6 to 54 Mbps	1	5	11.503				11.50	17	5.50
	Non HT/VHT40, 6 to 54 Mbps	2	5	3.033	3.749			6.42	17	10.58
	Non HT/VHT40, 6 to 54 Mbps	3	5	2.96	3.987	2.593		7.99	17	9.01
	HT/VHT40, M0 to M7, M0.1 to M9.1	1	5	12.126				12.13	17	4.87

	HT/VHT40, M0 to M7, M0.1 to M9.1	2	5	2.764	3.8			6.32	17	10.68
	HT/VHT40, M8 to M15, M0.2 to M9.2	2	5	2.753	3.796			6.32	17	10.68
	HT/VHT40, M0 to M7, M0.1 to M9.1	3	5	5.315	6.914	5.101		10.63	17	6.37
	HT/VHT40, M8 to M15, M0.2 to M9.2	3	5	2.786	3.798	2.057		7.71	17	9.29
	HT/VHT40, M16 to M23, M0.3 to M9.3	3	5	2.916	3.779	2.327		7.82	17	9.18
	HT/VHT40 Beam Forming, M0 to M7, M0.1 to M9.1	2	8	2.803	4.067			6.49	15	8.51
	HT/VHT40 Beam Forming, M8 to M15, M0.2 to M9.2	2	5	10.062	12.551			14.49	17	2.51
	HT/VHT40 Beam Forming, M0 to M7, M0.1 to M9.1	3	10	2.794	3.822	2.347		7.80	13.2	5.40
	HT/VHT40 Beam Forming, M8 to M15, M0.2 to M9.2	3	7	2.849	3.805	2.344		7.81	16.2	8.39
	HT/VHT40 Beam Forming, M16 to M23, M0.3 to M9.3	3	5	2.934	3.783	2.336		7.83	17	9.17
	HT/VHT40 STBC, M0 to M7, M0.1 to M9.1	2	5	2.776	3.777			6.32	17	10.68
	HT/VHT40 STBC, M0 to M7, M0.1 to M9.1	3	5	2.783	3.833	2.057		7.72	17	9.28
	Non HT/VHT80, 6 to 54 Mbps	1	5	11.719				11.72	17	5.28
	Non HT/VHT80, 6 to 54 Mbps	2	5	3.725	8.554			9.79	17	7.21
	Non HT/VHT80, 6 to 54 Mbps	3	5	3.734	8.597	2.91		10.63	17	6.37
	HT/VHT80, M0 to M7, M0.1 to M9.1	1	5	12.307				12.31	17	4.69
	HT/VHT80, M0 to M7, M0.1 to M9.1	2	5	3.121	8.209			9.38	17	7.62
	HT/VHT80, M8 to M15, M0.2 to M9.2	2	5	3.104	8.297			9.44	17	7.56
	HT/VHT80, M0 to M7, M0.1 to M9.1	3	5	3.197	8.226	2.274		10.18	17	6.82
	HT/VHT80, M8 to M15, M0.2 to M9.2	3	5	-24.3	8.328	2.253		9.29	17	7.71
	HT/VHT80, M16 to M23, M0.3 to M9.3	3	5	3.131	8.316	2.249		10.22	17	6.78
	HT/VHT80 Beam Forming, M0 to M7, M0.1 to M9.1	2	8	3.174	8.328			9.48	15	5.52
	HT/VHT80 Beam Forming, M8 to M15, M0.2 to M9.2	2	5	3.111	8.216			9.38	17	7.62

	HT/VHT80 Beam Forming, M0 to M7, M0.1 to M9.1	3	10	3.112	8.236	2.271		10.17	13.2	3.03
	HT/VHT80 Beam Forming, M8 to M15, M0.2 to M9.2	3	7	3.263	8.226	2.299		10.20	16.2	6.00
	HT/VHT80 Beam Forming, M16 to M23, M0.3 to M9.3	3	5	3.279	8.217	2.242		10.19	17	6.81
	HT/VHT80 STBC, M0 to M7, M0.1 to M9.1	2	5	3.126	8.231			9.40	17	7.60
	HT/VHT80 STBC, M0 to M7, M0.1 to M9.1	3	5	3.144	8.342	2.293		10.25	17	6.75
	Non HT/VHT40, 6 to 54 Mbps	1	5	15.565				15.57	17	1.44
	Non HT/VHT40, 6 to 54 Mbps	2	5	12.75	14.651			16.81	17	0.19
	Non HT/VHT40, 6 to 54 Mbps	3	5	5.533	6.908	5.047		10.67	17	6.33
	HT/VHT40, M0 to M7, M0.1 to M9.1	1	5	15.182				15.18	17	1.82
	HT/VHT40, M0 to M7, M0.1 to M9.1	2	5	12.305	14.477			16.54	17	0.46
	HT/VHT40, M8 to M15, M0.2 to M9.2	2	5	12.317	14.513			16.56	17	0.44
	HT/VHT40, M0 to M7, M0.1 to M9.1	3	5	5.4	6.844	4.603		10.49	17	6.51
	HT/VHT40, M8 to M15, M0.2 to M9.2	3	5	10.214	12.402	10.027		15.79	17	1.21
5220	HT/VHT40, M16 to M23, M0.3 to M9.3	3	5	10.155	12.327	10.008		15.74	17	1.26
	HT/VHT40 Beam Forming, M0 to M7, M0.1 to M9.1	2	8	10.169	12.351			14.41	15	0.59
	HT/VHT40 Beam Forming, M8 to M15, M0.2 to M9.2	2	5	10.245	12.403			14.47	17	2.53
	HT/VHT40 Beam Forming, M0 to M7, M0.1 to M9.1	3	10	5.379	6.826	4.612		10.48	13.2	2.72
	HT/VHT40 Beam Forming, M8 to M15, M0.2 to M9.2	3	7	8.329	10.266	7.968		13.75	16.2	2.45
	HT/VHT40 Beam Forming, M16 to M23, M0.3 to M9.3	3	5	10.161	12.303	9.958		15.71	17	1.29
	HT/VHT40 STBC, M0 to M7, M0.1 to M9.1	2	5	12.312	14.571			16.60	17	0.40
	HT/VHT40 STBC, M0 to M7, M0.1 to M9.1	3	5	10.22	12.405	10.09		15.81	17	1.19
5240	Non HT/VHT20, 6 to 54 Mbps	1	5	11.983				11.98	17	5.02

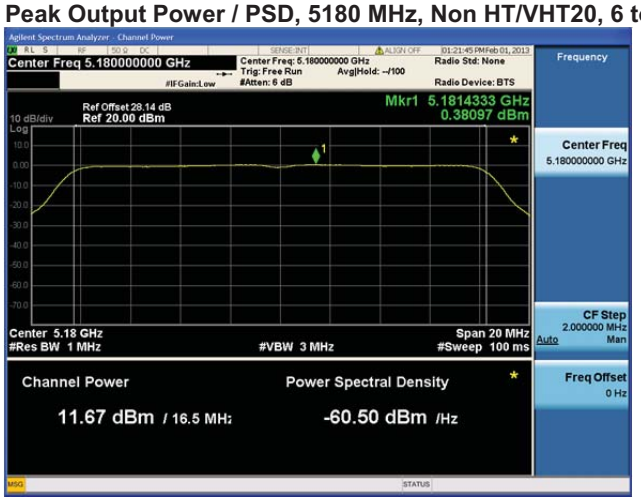
	Non HT/VHT20, 6 to 54 Mbps	2	5	7.16	9.491			11.49	17	5.51
	Non HT/VHT20, 6 to 54 Mbps	3	5	2.798	4.177	2.256		7.93	17	9.07
	Non HT/VHT20 Beam Forming, 6 to 54 Mbps	2	8	7.157	9.452			11.46	15	3.54
	Non HT/VHT20 Beam Forming, 6 to 54 Mbps	3	10	3.039	4.251	2.252		8.03	13.2	5.17
	HT/VHT20, M0 to M7, M0.1 to M9.1	1	5	11.688				11.69	17	5.31
	HT/VHT20, M0 to M7, M0.1 to M9.1	2	5	6.933	9.286			11.28	17	5.72
	HT/VHT20, M8 to M15, M0.2 to M9.2	2	5	8.829	11.452			13.35	17	3.65
	HT/VHT20, M0 to M7, M0.1 to M9.1	3	5	2.64	4.211	1.875		7.79	17	9.21
	HT/VHT20, M8 to M15, M0.2 to M9.2	3	5	7.066	9.482	6.564		12.67	17	4.33
	HT/VHT20, M16 to M23, M0.3 to M9.3	3	5	6.993	9.221	6.493		12.51	17	4.49
	HT/VHT20 Beam Forming, M0 to M7, M0.1 to M9.1	2	8	6.982	9.301			11.30	15	3.70
	HT/VHT20 Beam Forming, M8 to M15, M0.2 to M9.2	2	5	8.92	11.528			13.43	17	3.57
	HT/VHT20 Beam Forming, M0 to M7, M0.1 to M9.1	3	10	2.945	4.018	1.878		7.81	13.2	5.39
	HT/VHT20 Beam Forming, M8 to M15, M0.2 to M9.2	3	7	5.006	7.116	4.606		10.49	16.2	5.71
	HT/VHT20 Beam Forming, M16 to M23, M0.3 to M9.3	3	5	6.994	9.318	6.52		12.56	17	4.44
	HT/VHT20 STBC, M0 to M7, M0.1 to M9.1	2	5	8.862	11.522			13.40	17	3.60
	HT/VHT20 STBC, M0 to M7, M0.1 to M9.1	3	5	7.059	9.367	6.756		12.66	17	4.34

Frequency (MHz)	Mode	Tx Paths	Correlated Antenna Gain (dBi)	PSD / Antenna (dBm/3kHz)	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
5180	Non HT/VHT20, 6 to 54 Mbps	1	10	-8.822	-8.82	0.23	9.05
	Non HT/VHT20 Beam Forming, 6 to 54 Mbps	2	10	-8.626	-5.62	0.23	5.84
	HT/VHT20, M0 to M7, M0.1 to M9.1	1	8	-4.505	-4.51	1.99	6.49
	HT/VHT20, M8 to M15, M0.2 to M9.2	2	5	-2.741	0.27	4.00	3.73
	HT/VHT20, M0 to M7, M0.1 to M9.1	3	10	-9.464	-4.69	0.23	4.92
	HT/VHT20, M8 to M15, M0.2 to M9.2	3	7	-4.669	0.10	3.24	3.14
	HT/VHT20, M16 to M23, M0.3 to M9.3	3	5	-4.646	0.13	4.00	3.87
	HT/VHT20 Beam Forming, M0 to M7, M0.1 to M9.1	2	8	-8.87	-5.86	1.99	7.85
	HT/VHT20 Beam Forming, M8 to M15, M0.2 to M9.2	2	5	-2.616	0.39	4.00	3.61
	HT/VHT20 Beam Forming, M0 to M7, M0.1 to M9.1	3	10	-8.857	-4.09	0.23	4.31
	HT/VHT20 Beam Forming, M8 to M15, M0.2 to M9.2	3	7	-9.172	-4.40	3.24	7.64
	HT/VHT20 Beam Forming, M16 to M23, M0.3 to M9.3	3	5	-4.757	0.01	4.00	3.99
	HT/VHT20 STBC, M0 to M7, M0.1 to M9.1	2	7	-11.957	-8.95	3.24	12.19
	Non HT/VHT40, 6 to 54 Mbps	1	10	-11.442	-11.44	0.23	11.67
	HT/VHT40, M0 to M7, M0.1 to M9.1	1	8	-11.57	-11.57	1.99	13.56
	HT/VHT40, M8 to M15, M0.2 to M9.2	2	5	-11.568	-8.56	4.00	12.56
	HT/VHT40, M0 to M7, M0.1 to M9.1	3	10	-9.268	-4.50	0.23	4.73
	HT/VHT40, M8 to M15, M0.2 to M9.2	3	7	-12.352	-7.58	3.24	10.82
	HT/VHT40, M16 to M23, M0.3 to M9.3	3	5	-12.126	-7.35	4.00	11.35
	HT/VHT40 Beam Forming, M0 to M7, M0.1 to M9.1	2	8	-11.489	-8.48	1.99	10.47
	HT/VHT40 Beam Forming, M8 to M15, M0.2 to M9.2	2	5	-4.195	-1.18	4.00	5.18
	HT/VHT40 Beam Forming, M0 to M7, M0.1 to M9.1	3	10	-12.057	-7.29	0.23	7.51
	HT/VHT40 Beam Forming, M8 to M15, M0.2 to M9.2	3	7	-12.107	-7.34	3.24	10.57
	HT/VHT40 Beam Forming, M16 to M23, M0.3 to M9.3	3	5	-12.021	-7.25	4.00	11.25

	HT/VHT40 STBC, M0 to M7, M0.1 to M9.1	2	7	-12.419	-9.41	3.24	12.65
	Non HT/VHT80, 6 to 54 Mbps	1	10	-14.119	-14.12	0.23	14.35
	HT/VHT80, M0 to M7, M0.1 to M9.1	1	8	-14.068	-14.07	1.99	16.06
	HT/VHT80, M8 to M15, M0.2 to M9.2	2	5	-14.185	-11.17	4.00	15.17
	HT/VHT80, M0 to M7, M0.1 to M9.1	3	10	-15.181	-10.41	0.23	10.64
	HT/VHT80, M8 to M15, M0.2 to M9.2	3	7	-25.099	-20.33	3.24	23.57
	HT/VHT80, M16 to M23, M0.3 to M9.3	3	5	-15.32	-10.55	4.00	14.55
	HT/VHT80 Beam Forming, M0 to M7, M0.1 to M9.1	2	8	-14.058	-11.05	1.99	13.04
	HT/VHT80 Beam Forming, M8 to M15, M0.2 to M9.2	2	5	-14.222	-11.21	4.00	15.21
	HT/VHT80 Beam Forming, M0 to M7, M0.1 to M9.1	3	10	-15.249	-10.48	0.23	10.71
	HT/VHT80 Beam Forming, M8 to M15, M0.2 to M9.2	3	7	-15.208	-10.44	3.24	13.68
	HT/VHT80 Beam Forming, M16 to M23, M0.3 to M9.3	3	5	-15.211	-10.44	4.00	14.44
	HT/VHT80 STBC, M0 to M7, M0.1 to M9.1	2	7	-15.203	-12.19	3.24	15.43
5220	Non HT/VHT40, 6 to 54 Mbps	1	10	-8.947	-8.95	0.23	9.18
	HT/VHT40, M0 to M7, M0.1 to M9.1	1	8	-1.764	-1.76	1.99	3.75
	HT/VHT40, M8 to M15, M0.2 to M9.2	2	5	-1.731	1.28	4.00	2.72
	HT/VHT40, M0 to M7, M0.1 to M9.1	3	10	-9.795	-5.02	0.23	5.25
	HT/VHT40, M8 to M15, M0.2 to M9.2	3	7	-4.379	0.39	3.24	2.85
	HT/VHT40, M16 to M23, M0.3 to M9.3	3	5	-4.357	0.41	4.00	3.59
	HT/VHT40 Beam Forming, M0 to M7, M0.1 to M9.1	2	8	-4.05	-1.04	1.99	3.03
	HT/VHT40 Beam Forming, M8 to M15, M0.2 to M9.2	2	5	-3.919	-0.91	4.00	4.91
	HT/VHT40 Beam Forming, M0 to M7, M0.1 to M9.1	3	10	-9.795	-5.02	0.23	5.25
	HT/VHT40 Beam Forming, M8 to M15, M0.2 to M9.2	3	7	-6.443	-1.67	3.24	4.91
	HT/VHT40 Beam Forming, M16 to M23, M0.3 to M9.3	3	5	-4.43	0.34	4.00	3.66
	HT/VHT40 STBC, M0 to M7, M0.1 to M9.1	2	7	-4.283	-1.27	3.24	4.51

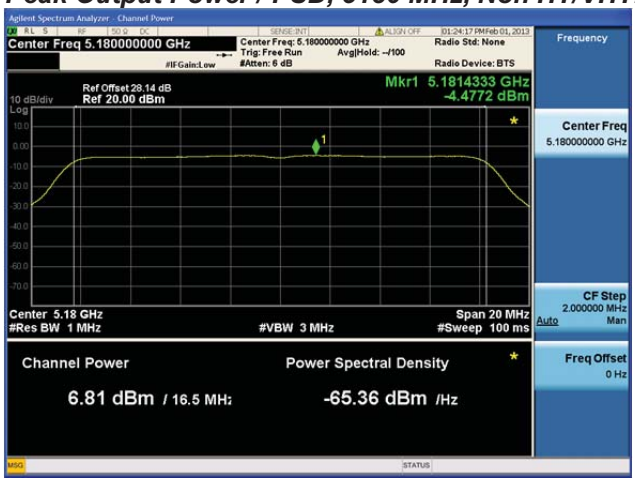
5240	Non HT/VHT20, 6 to 54 Mbps	1	10	-9.052	-9.05	0.23	9.28
	Non HT/VHT20 Beam Forming, 6 to 54 Mbps	2	10	-9.01	-6.00	0.23	6.23
	HT/VHT20, M0 to M7, M0.1 to M9.1	1	8	-4.238	-4.24	1.99	6.23
	HT/VHT20, M8 to M15, M0.2 to M9.2	2	5	-2.327	0.68	4.00	3.32
	HT/VHT20, M0 to M7, M0.1 to M9.1	3	10	-9.349	-4.58	0.23	4.81
	HT/VHT20, M8 to M15, M0.2 to M9.2	3	7	-4.638	0.13	3.24	3.11
	HT/VHT20, M16 to M23, M0.3 to M9.3	3	5	-4.71	0.06	4.00	3.94
	HT/VHT20 Beam Forming, M0 to M7, M0.1 to M9.1	2	8	-4.189	-1.18	1.99	3.17
	HT/VHT20 Beam Forming, M8 to M15, M0.2 to M9.2	2	5	-2.23	0.78	4.00	3.22
	HT/VHT20 Beam Forming, M0 to M7, M0.1 to M9.1	3	10	-9.341	-4.57	0.23	4.80
	HT/VHT20 Beam Forming, M8 to M15, M0.2 to M9.2	3	7	-6.598	-1.83	3.24	5.07
	HT/VHT20 Beam Forming, M16 to M23, M0.3 to M9.3	3	5	-4.809	-0.04	4.00	4.04
	HT/VHT20 STBC, M0 to M7, M0.1 to M9.1	2	7	-4.623	-1.61	3.24	4.85

Peak Output Power / PSD, 5180 MHz, Non HT/VHT20, 6 to 54 Mbps

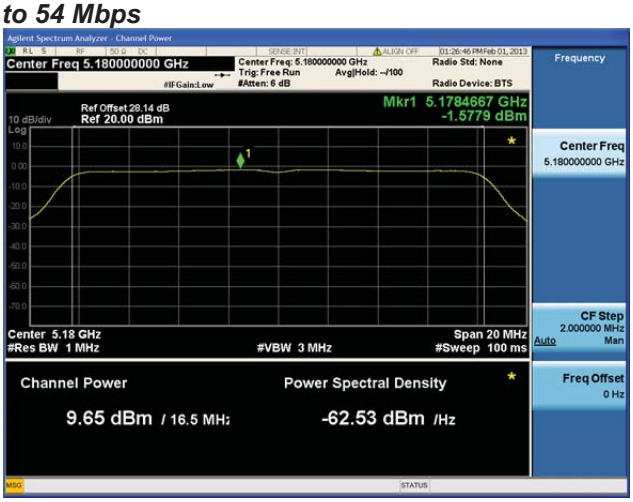


Antenna A

Peak Output Power / PSD, 5180 MHz, Non HT/VHT20, 6 to 54 Mbps

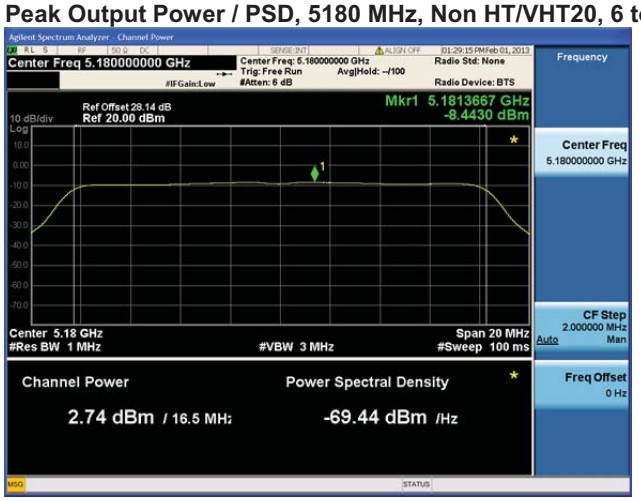


Antenna A



Antenna B

Peak Output Power / PSD, 5180 MHz, Non HT/VHT20, 6 to 54 Mbps

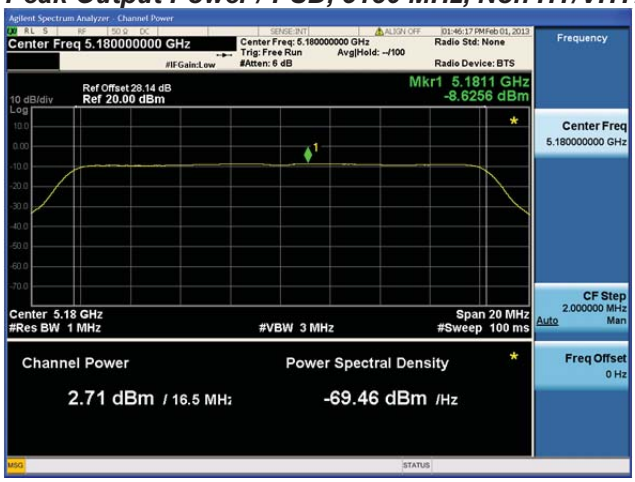


Antenna A

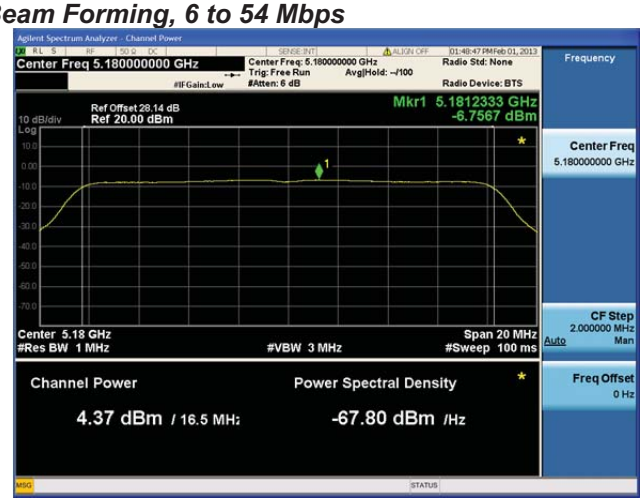
Antenna B

Antenna C

Peak Output Power / PSD, 5180 MHz, Non HT/VHT20 Beam Forming, 6 to 54 Mbps

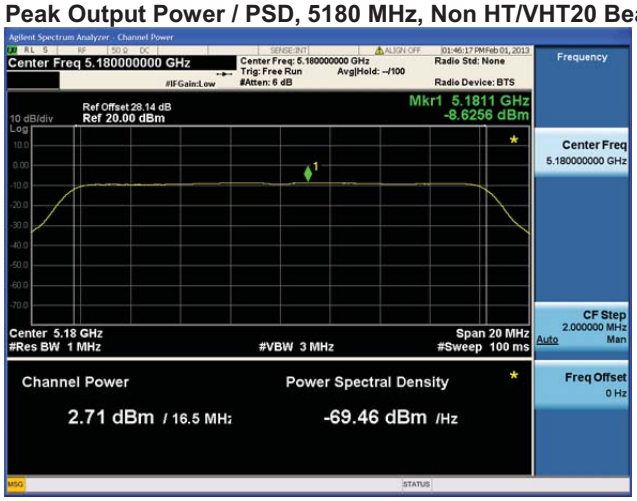


Antenna A

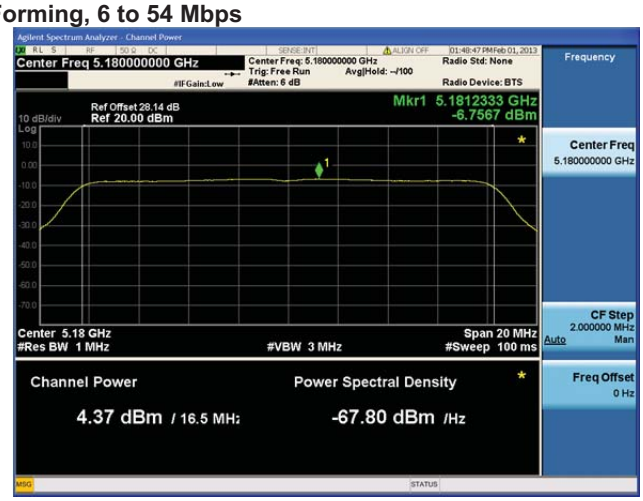


Antenna B

Peak Output Power / PSD, 5180 MHz, Non HT/VHT20 Beam Forming, 6 to 54 Mbps



Antenna A



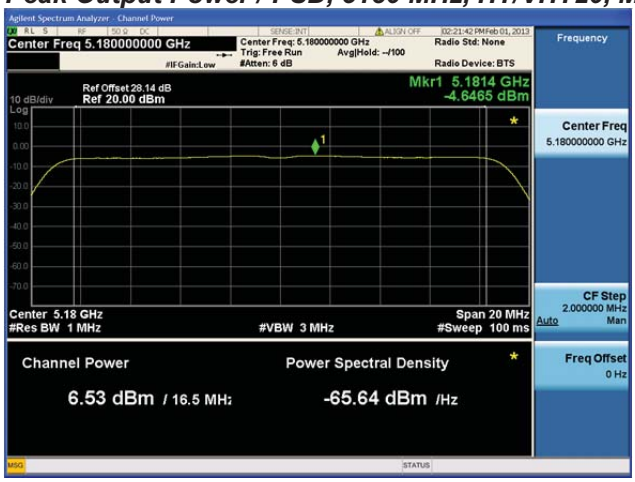
Antenna B

Antenna C

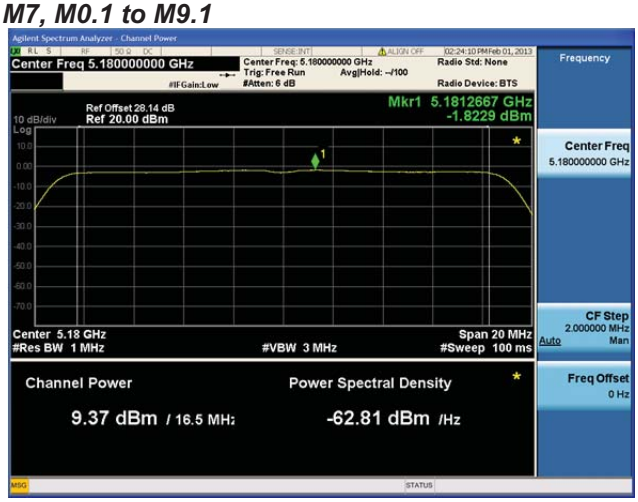
Peak Output Power / PSD, 5180 MHz, HT/VHT20, M0 to M7, M0.1 to M9.1

Antenna A

Peak Output Power / PSD, 5180 MHz, HT/VHT20, M0 to M7, M0.1 to M9.1

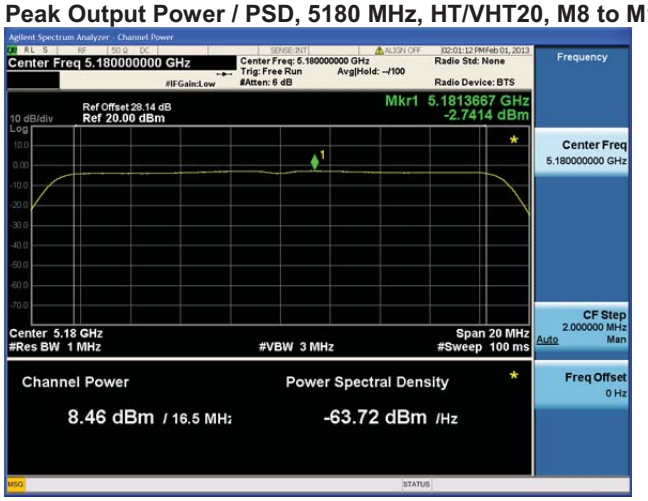


Antenna A



Antenna B

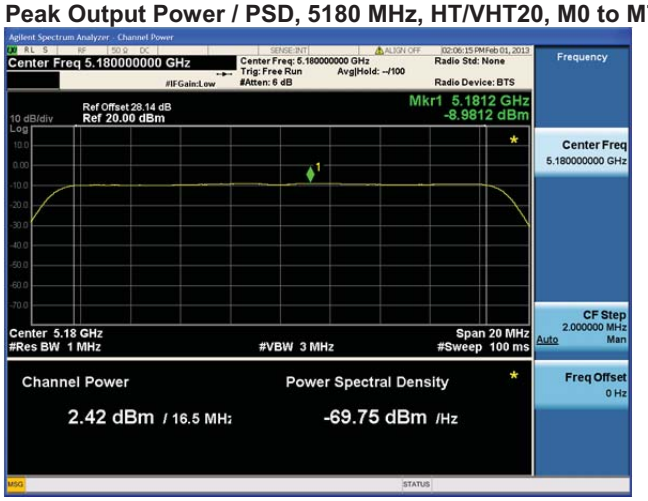
Peak Output Power / PSD, 5180 MHz, HT/VHT20, M8 to M15, M0.2 to M9.2



Antenna A

Antenna B

Peak Output Power / PSD, 5180 MHz, HT/VHT20, M0 to M7, M0.1 to M9.1

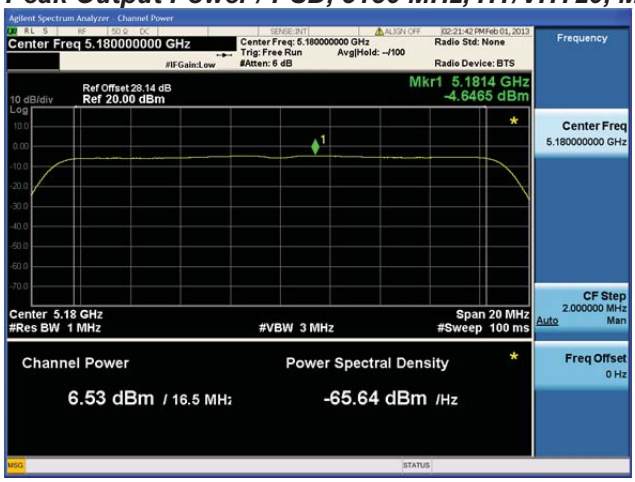


Antenna A

Antenna B

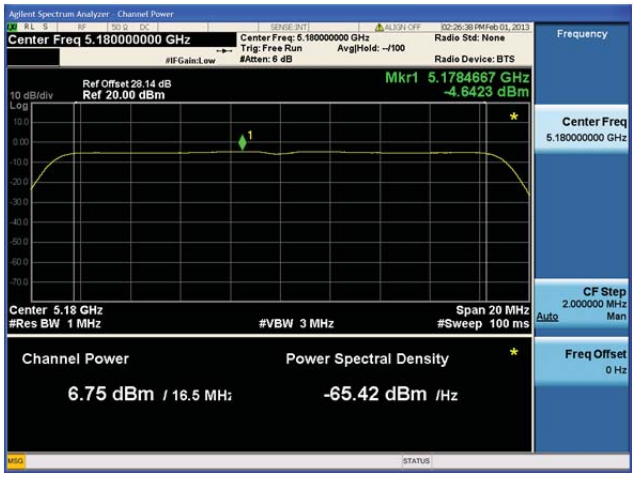
Antenna C

Peak Output Power / PSD, 5180 MHz, HT/VHT20, M8 to M15, M0.2 to M9.2



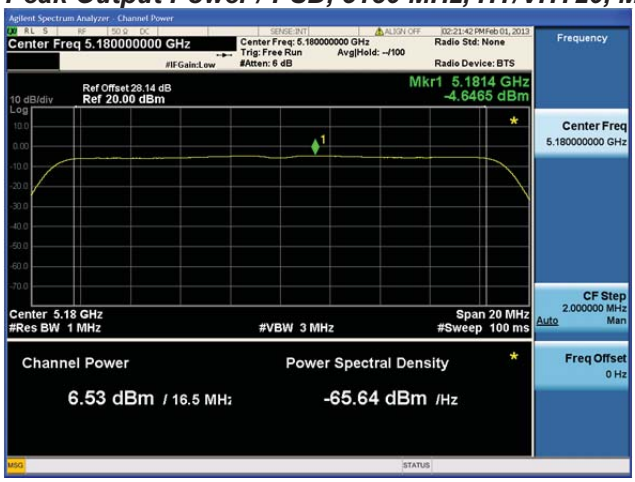
Antenna A

Antenna B



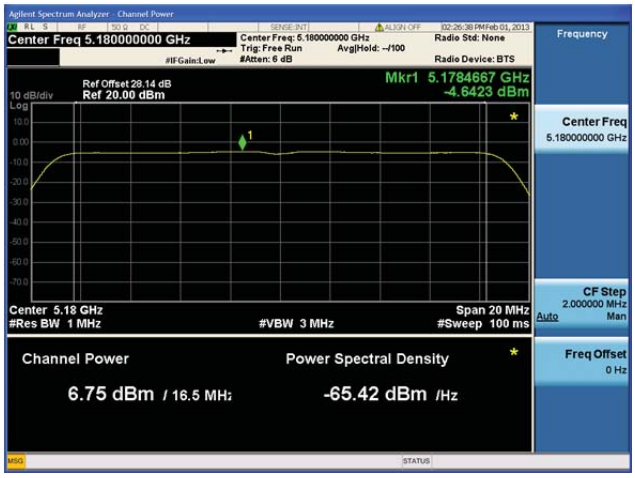
Antenna C

Peak Output Power / PSD, 5180 MHz, HT/VHT20, M16 to M23, M0.3 to M9.3



Antenna A

Antenna B



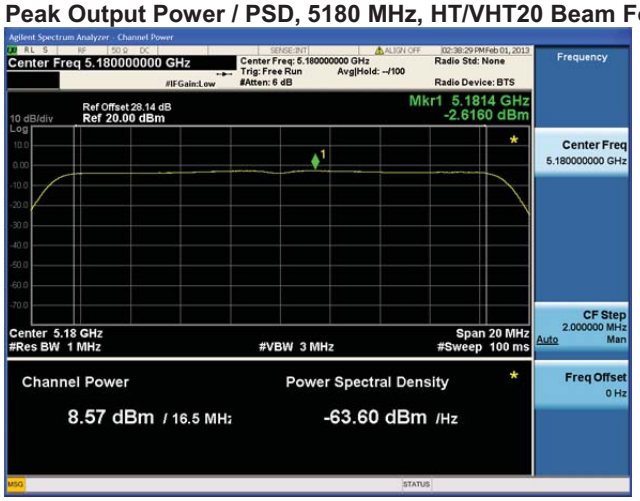
Antenna C

Peak Output Power / PSD, 5180 MHz, HT/VHT20 Beam Forming, M0 to M7, M0.1 to M9.1

Antenna A

Antenna B

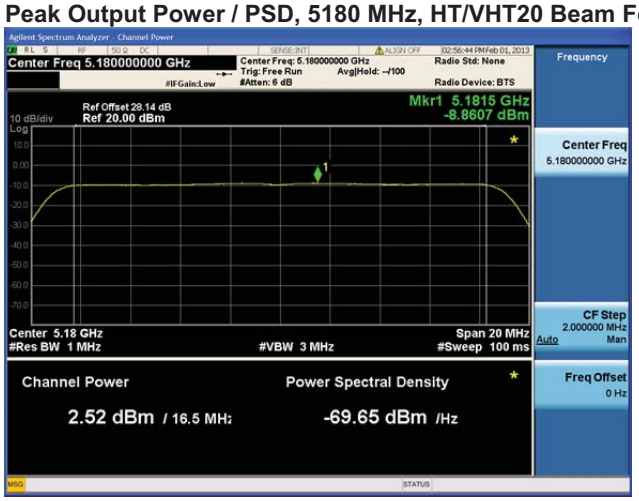
Peak Output Power / PSD, 5180 MHz, HT/VHT20 Beam Forming, M8 to M15, M0.2 to M9.2



Antenna A

Antenna B

Peak Output Power / PSD, 5180 MHz, HT/VHT20 Beam Forming, M0 to M7, M0.1 to M9.1



Antenna A

Antenna B

Antenna C

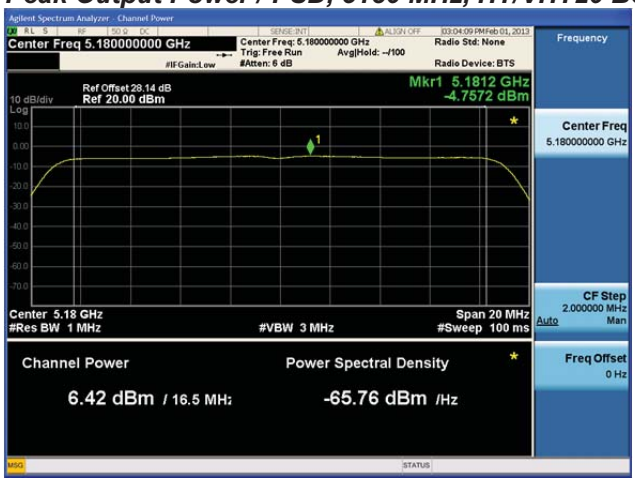
Peak Output Power / PSD, 5180 MHz, HT/VHT20 Beam Forming, M8 to M15, M0.2 to M9.2

Antenna A

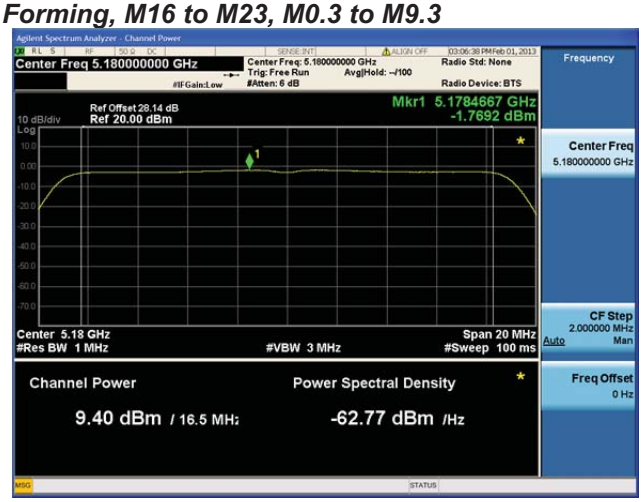
Antenna B

Antenna C

Peak Output Power / PSD, 5180 MHz, HT/VHT20 Beam Forming, M16 to M23, M0.3 to M9.3



Antenna A



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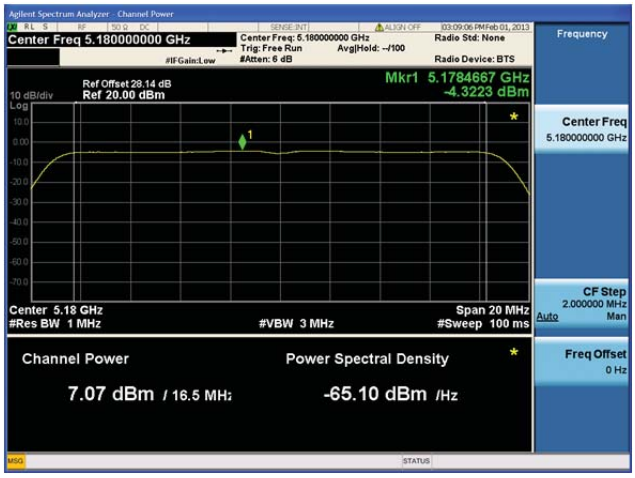
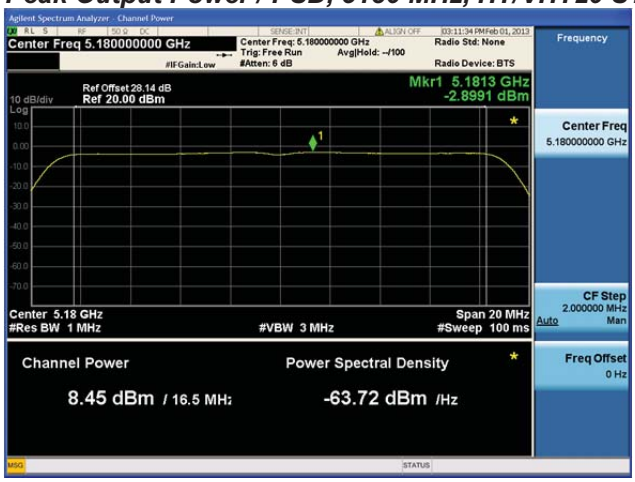
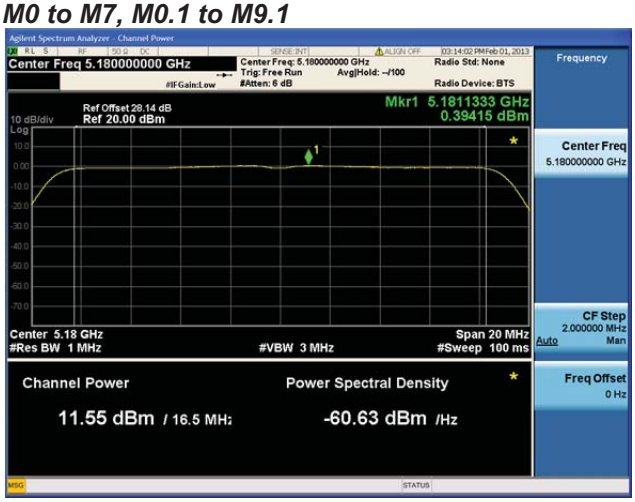


Antenna C

Peak Output Power / PSD, 5180 MHz, HT/VHT20 STBC, M0 to M7, M0.1 to M9.1

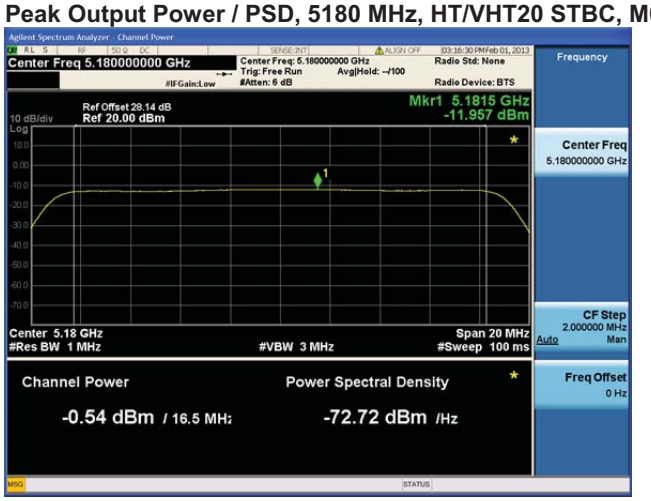


Antenna A

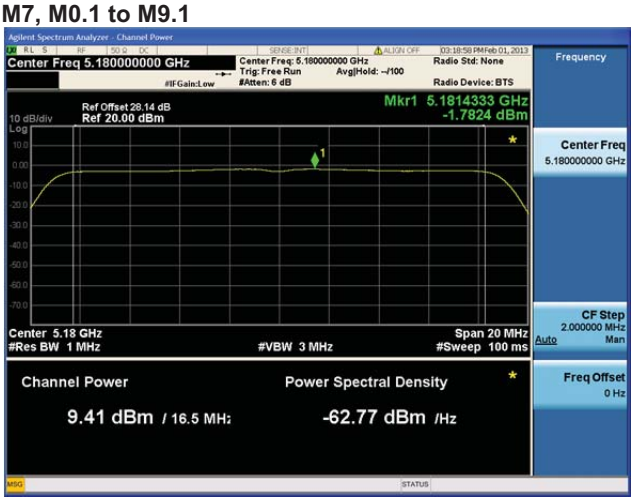


Antenna B

Peak Output Power / PSD, 5180 MHz, HT/VHT20 STBC, M0 to M7, M0.1 to M9.1



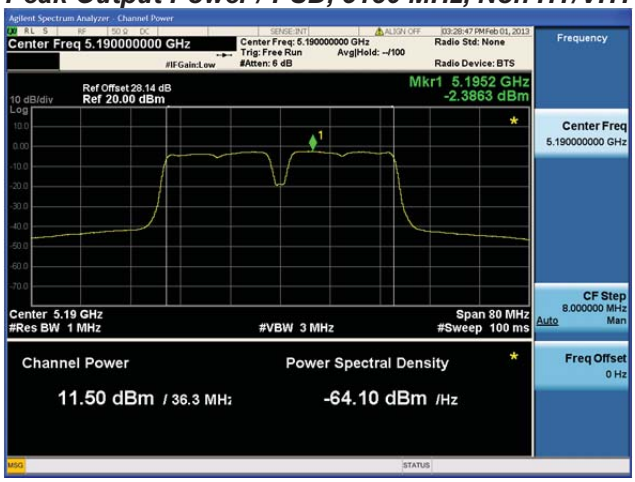
Antenna A



Antenna B

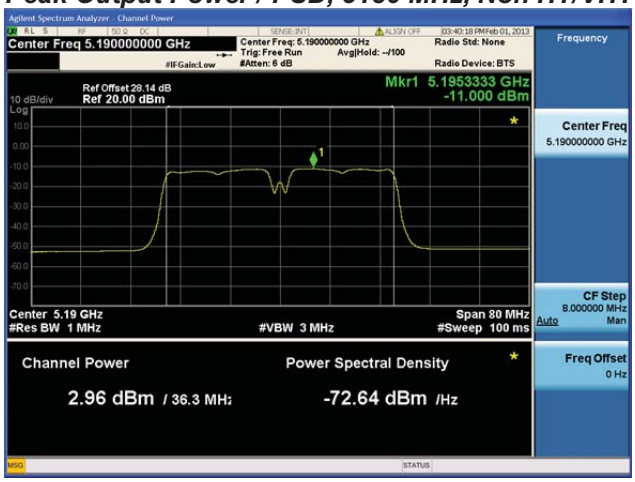
Antenna C

Peak Output Power / PSD, 5180 MHz, Non HT/VHT40, 6 to 54 Mbps

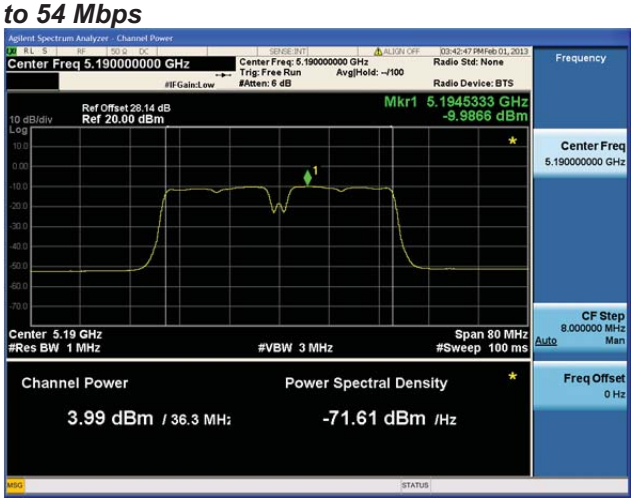


Antenna A

Peak Output Power / PSD, 5180 MHz, Non HT/VHT40, 6 to 54 Mbps

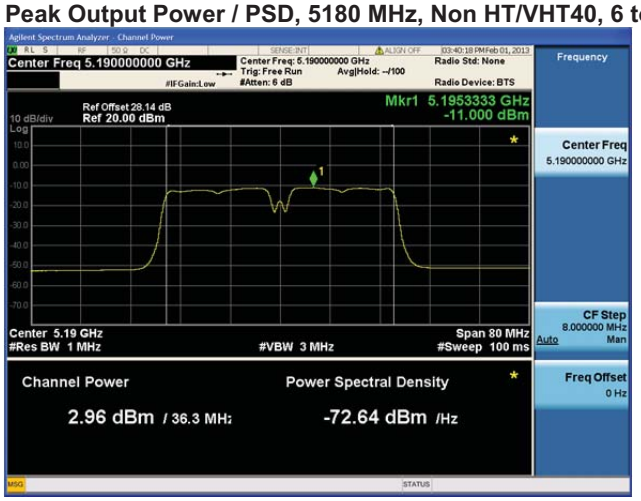


Antenna A



Antenna B

Peak Output Power / PSD, 5180 MHz, Non HT/VHT40, 6 to 54 Mbps

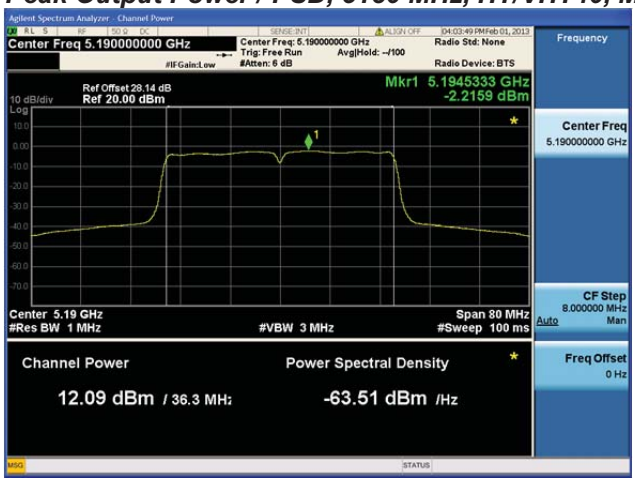


Antenna A

Antenna B

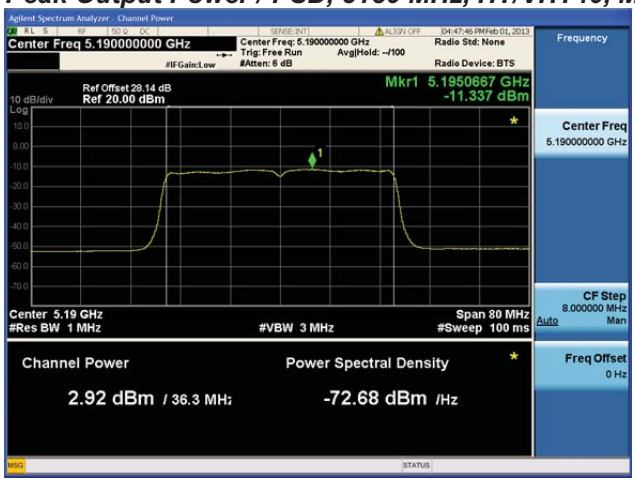
Antenna C

Peak Output Power / PSD, 5180 MHz, HT/VHT40, M0 to M7, M0.1 to M9.1

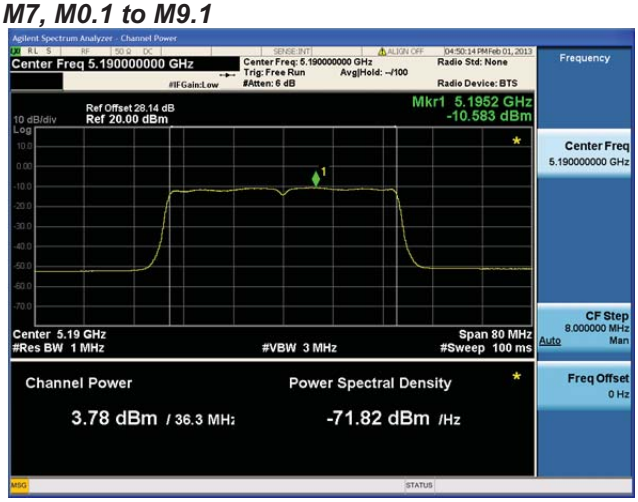


Antenna A

Peak Output Power / PSD, 5180 MHz, HT/VHT40, M0 to M7, M0.1 to M9.1

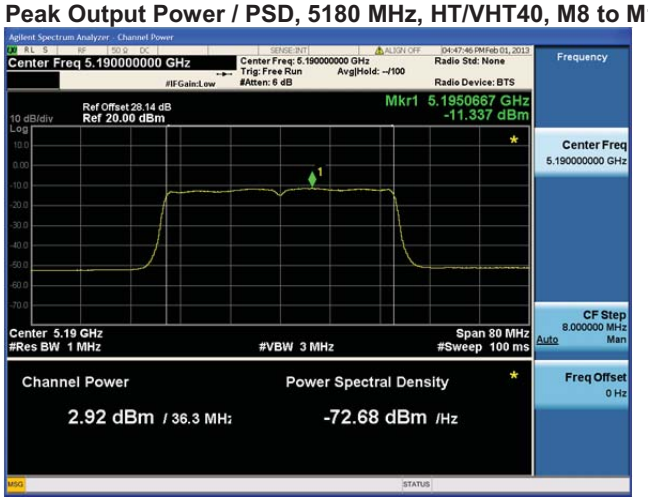


Antenna A



Antenna B

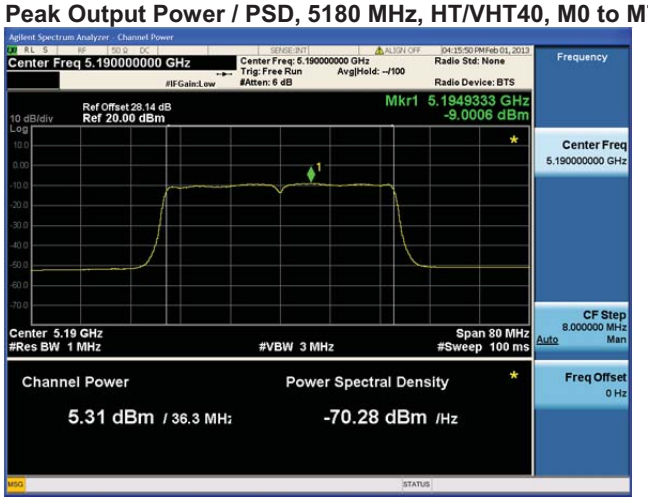
Peak Output Power / PSD, 5180 MHz, HT/VHT40, M8 to M15, M0.2 to M9.2



Antenna A

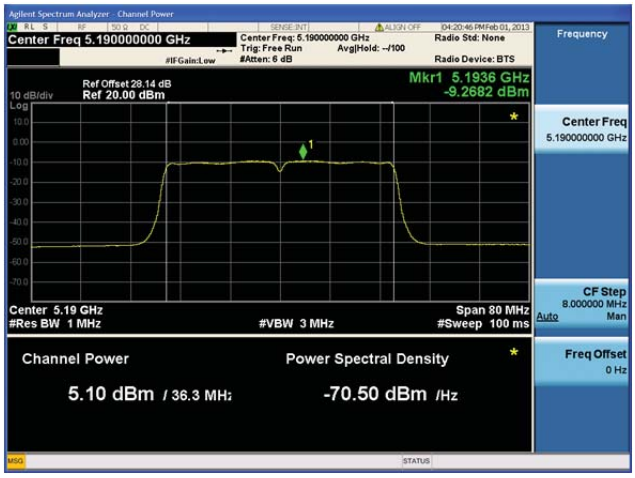
Antenna B

Peak Output Power / PSD, 5180 MHz, HT/VHT40, M0 to M7, M0.1 to M9.1



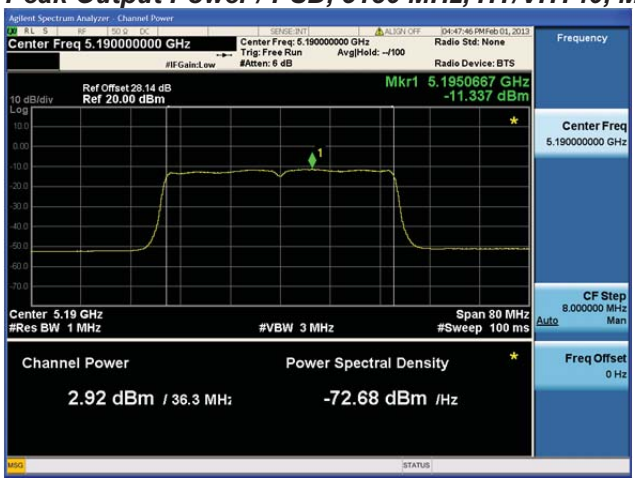
Antenna A

Antenna B

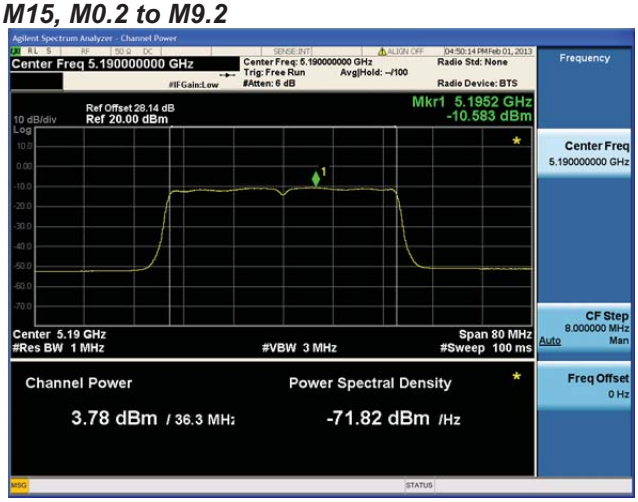


Antenna C

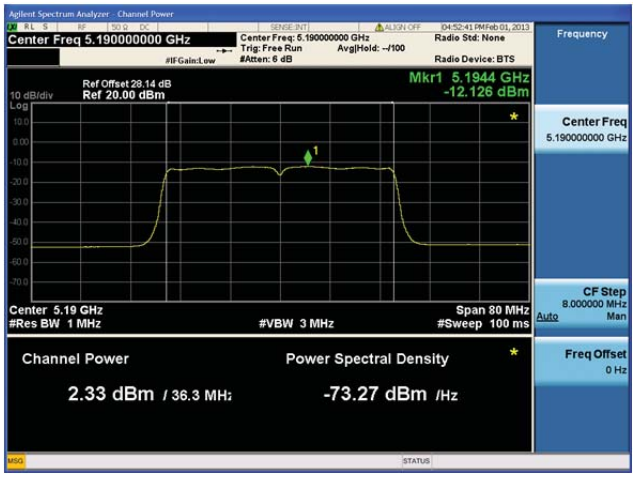
Peak Output Power / PSD, 5180 MHz, HT/VHT40, M8 to M15, M0.2 to M9.2



Antenna A

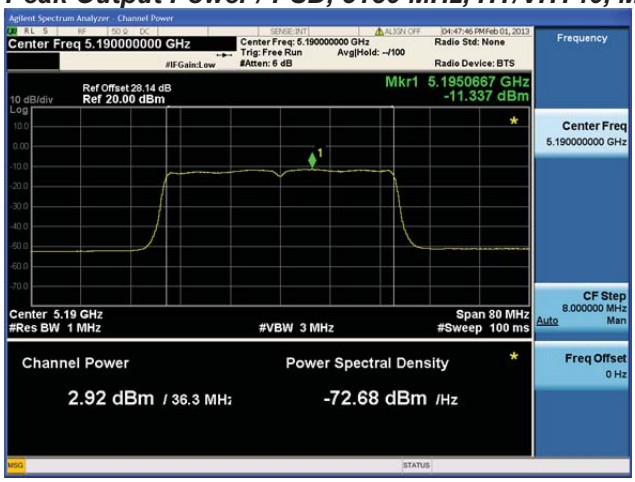


Antenna B

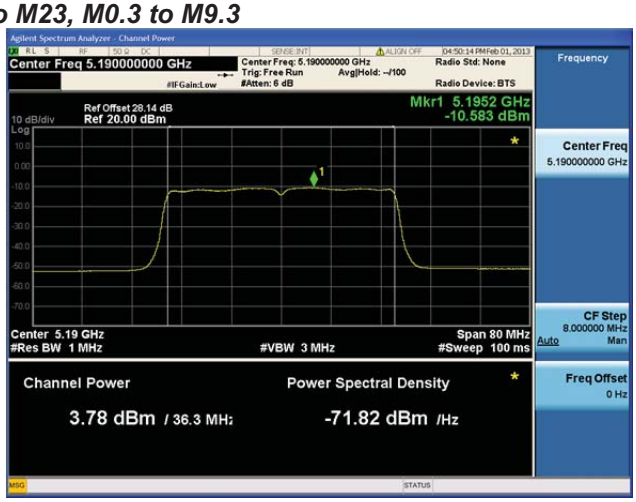


Antenna C

Peak Output Power / PSD, 5180 MHz, HT/VHT40, M16 to M23, M0.3 to M9.3



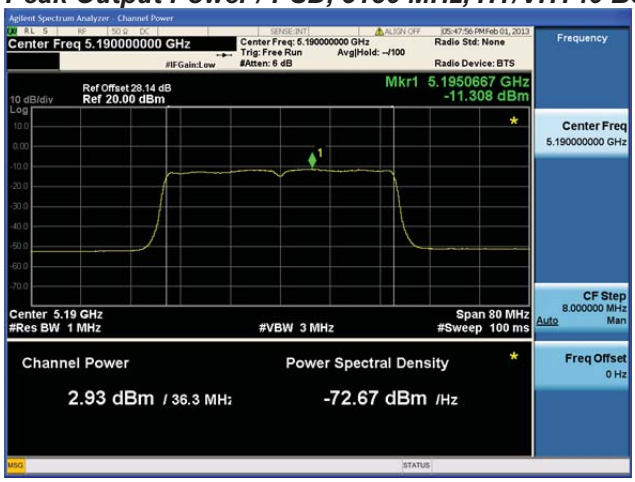
Antenna A



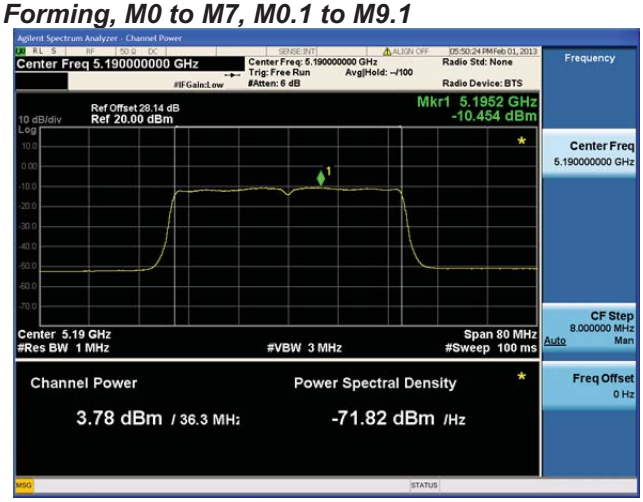
Antenna B

Antenna C

Peak Output Power / PSD, 5180 MHz, HT/VHT40 Beam Forming, M0 to M7, M0.1 to M9.1

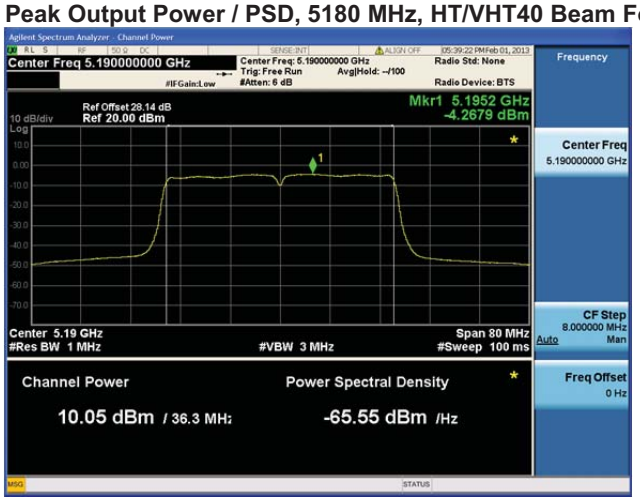


Antenna A

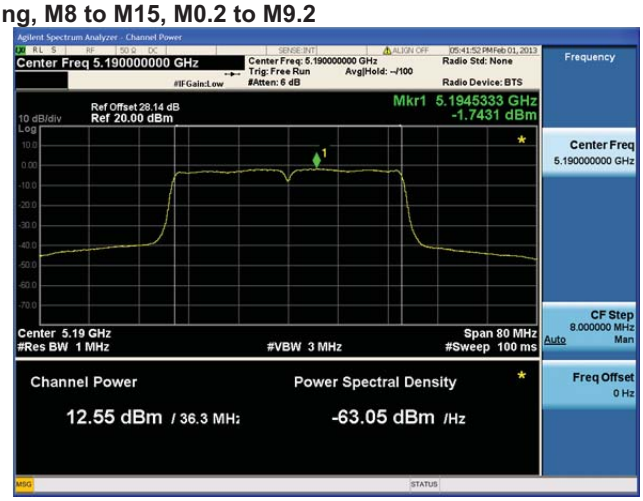


Antenna B

Peak Output Power / PSD, 5180 MHz, HT/VHT40 Beam Forming, M8 to M15, M0.2 to M9.2

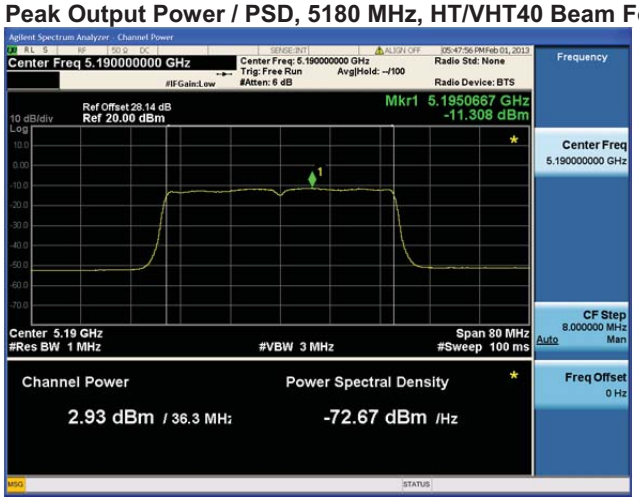


Antenna A

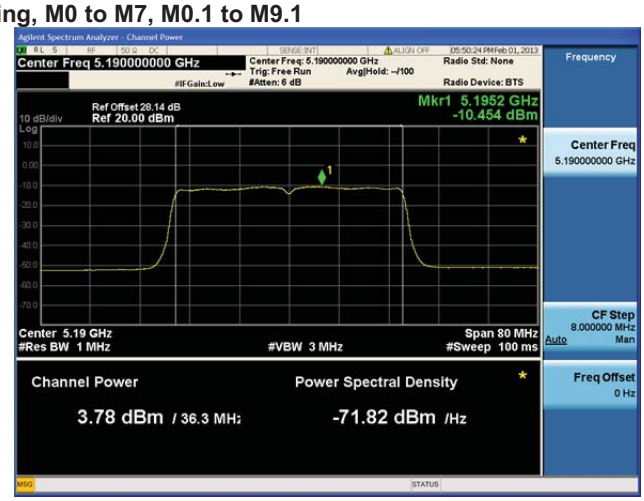


Antenna B

Peak Output Power / PSD, 5180 MHz, HT/VHT40 Beam Forming, M0 to M7, M0.1 to M9.1



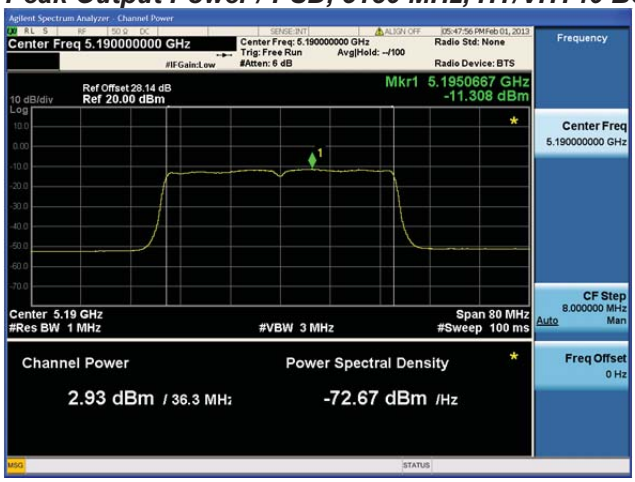
Antenna A



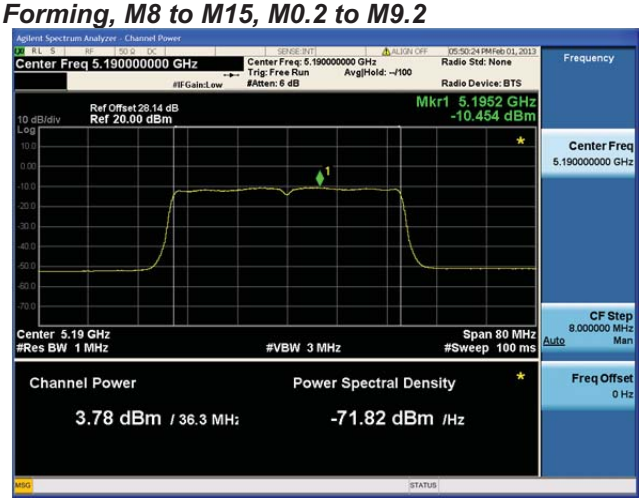
Antenna B

Antenna C

Peak Output Power / PSD, 5180 MHz, HT/VHT40 Beam Forming, M8 to M15, M0.2 to M9.2



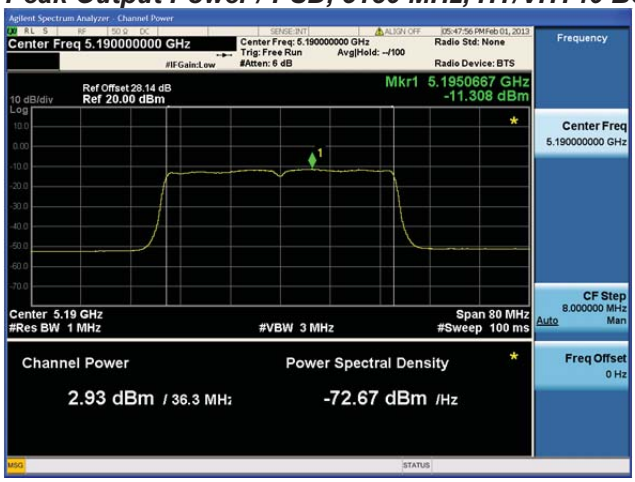
Antenna A



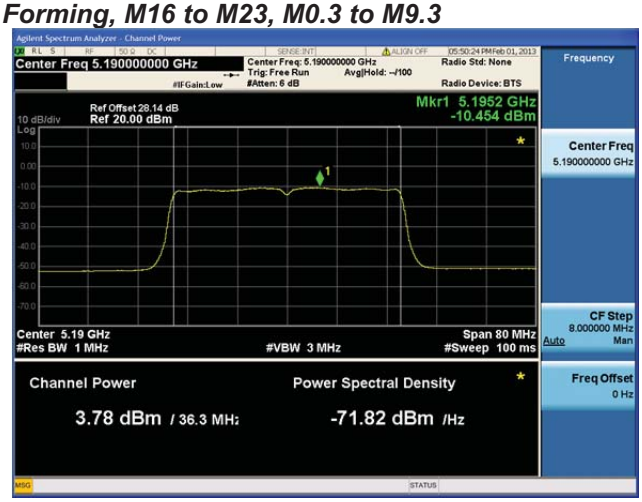
Antenna B

Antenna C

Peak Output Power / PSD, 5180 MHz, HT/VHT40 Beam Forming, M16 to M23, M0.3 to M9.3



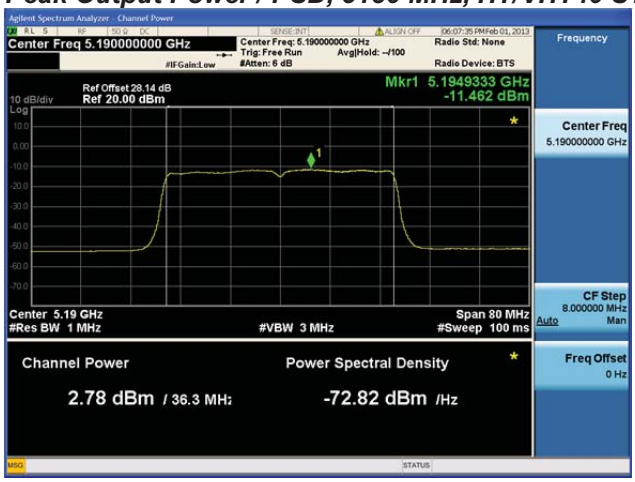
Antenna A



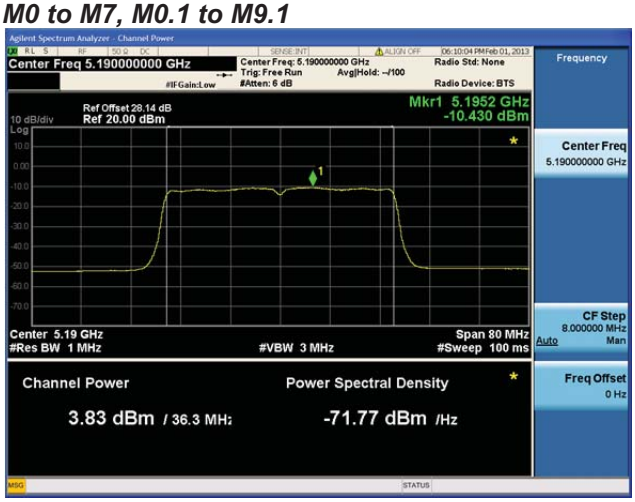
Antenna B

Antenna C

Peak Output Power / PSD, 5180 MHz, HT/VHT40 STBC, M0 to M7, M0.1 to M9.1

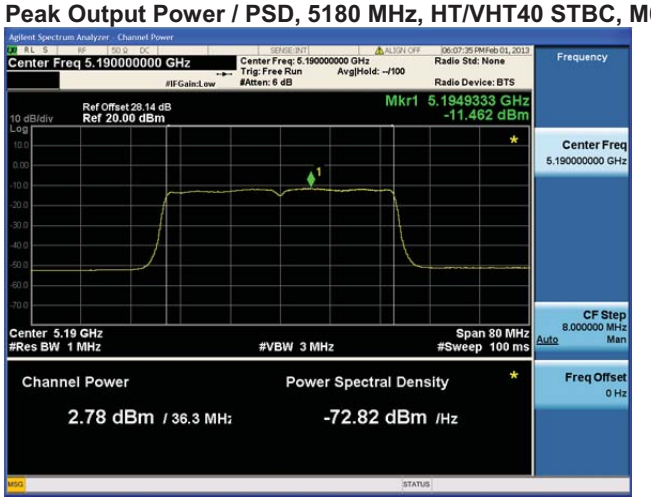


Antenna A

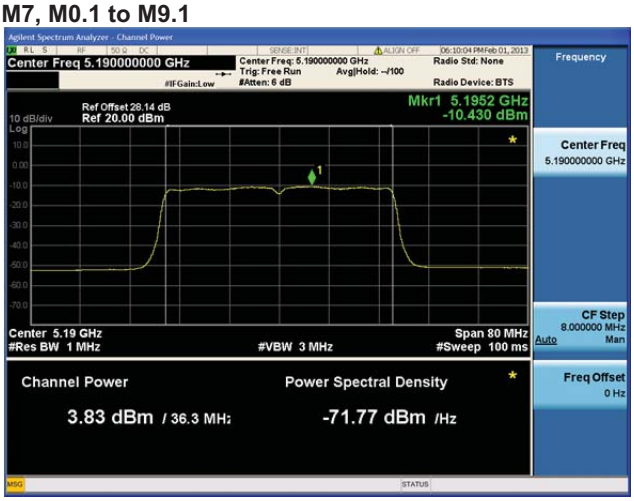


Antenna B

Peak Output Power / PSD, 5180 MHz, HT/VHT40 STBC, M0 to M7, M0.1 to M9.1



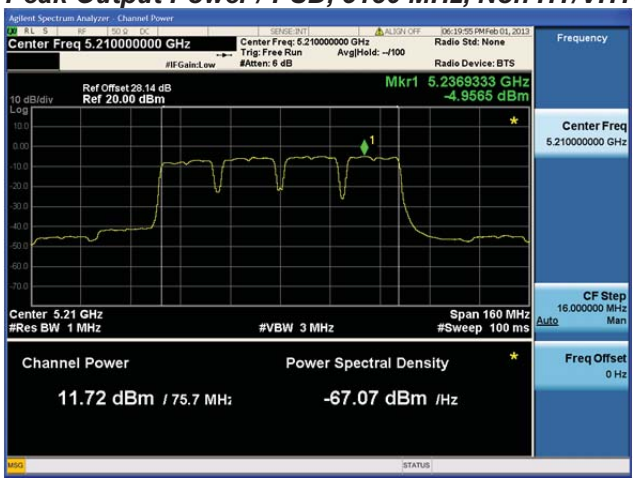
Antenna A



Antenna B

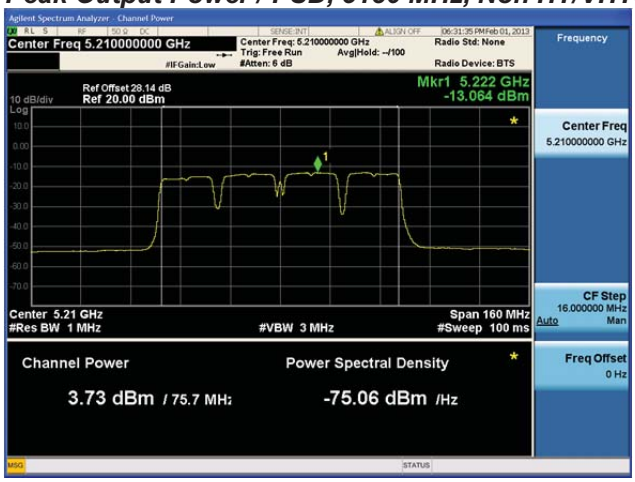
Antenna C

Peak Output Power / PSD, 5180 MHz, Non HT/VHT80, 6 to 54 Mbps

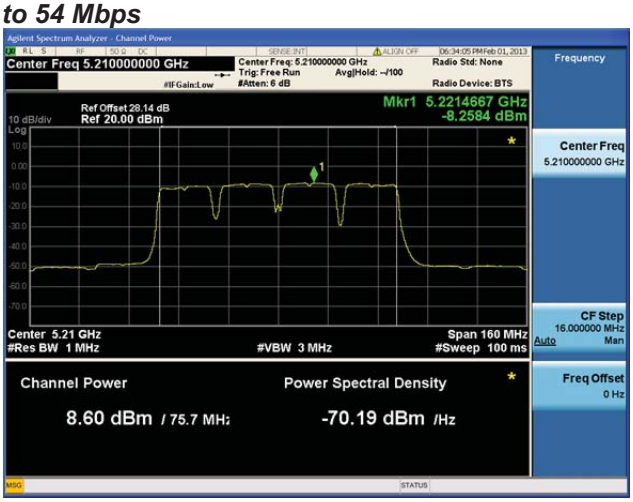


Antenna A

Peak Output Power / PSD, 5180 MHz, Non HT/VHT80, 6 to 54 Mbps

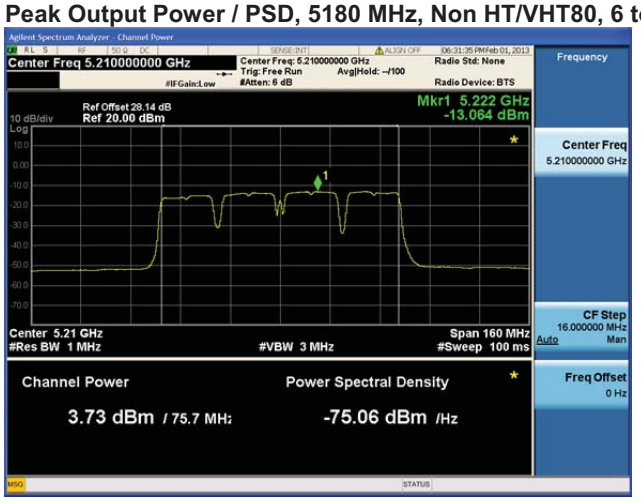


Antenna A



Antenna B

Peak Output Power / PSD, 5180 MHz, Non HT/VHT80, 6 to 54 Mbps

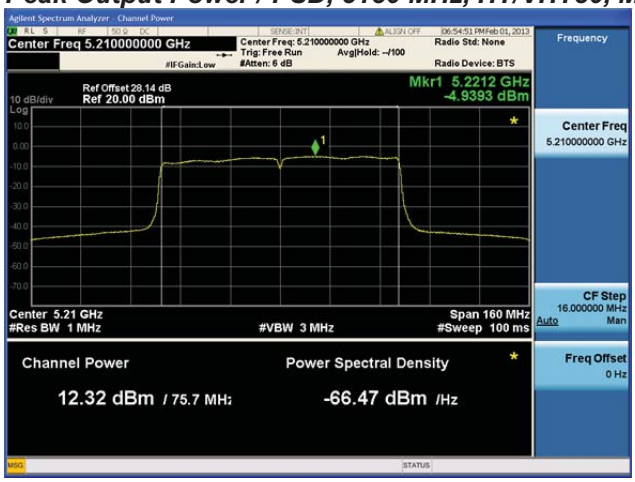


Antenna A

Antenna B

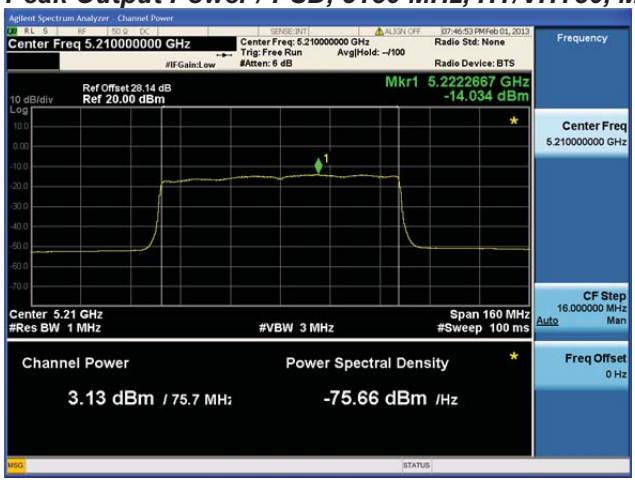
Antenna C

Peak Output Power / PSD, 5180 MHz, HT/VHT80, M0 to M7, M0.1 to M9.1

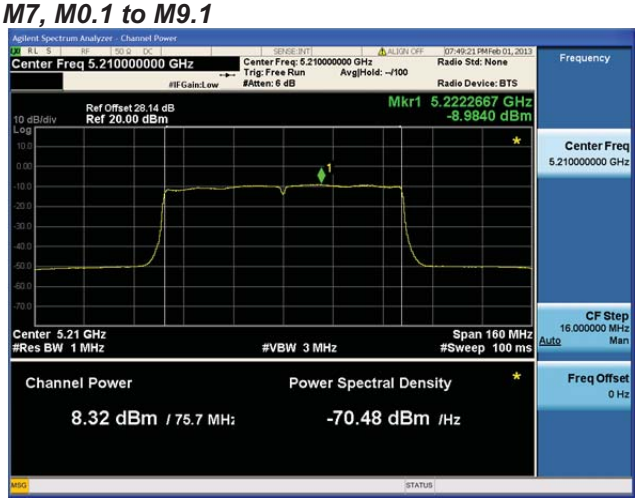


Antenna A

Peak Output Power / PSD, 5180 MHz, HT/VHT80, M0 to M7, M0.1 to M9.1

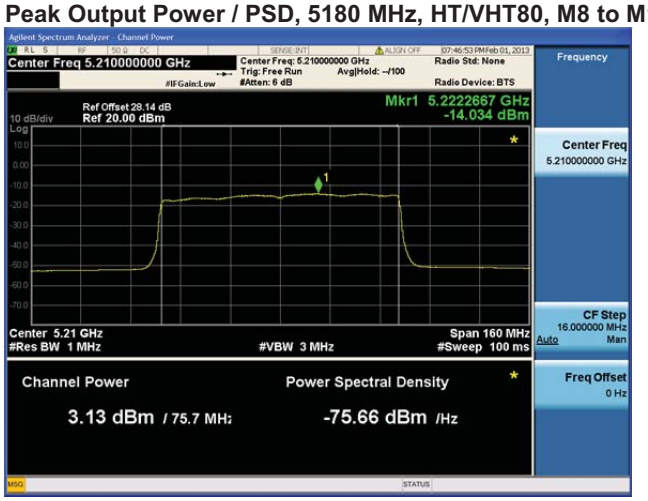


Antenna A



Antenna B

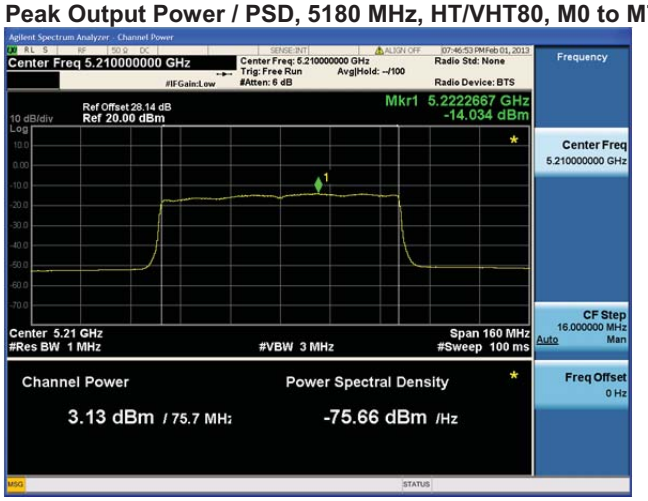
Peak Output Power / PSD, 5180 MHz, HT/VHT80, M8 to M15, M0.2 to M9.2



Antenna A

Antenna B

Peak Output Power / PSD, 5180 MHz, HT/VHT80, M0 to M7, M0.1 to M9.1

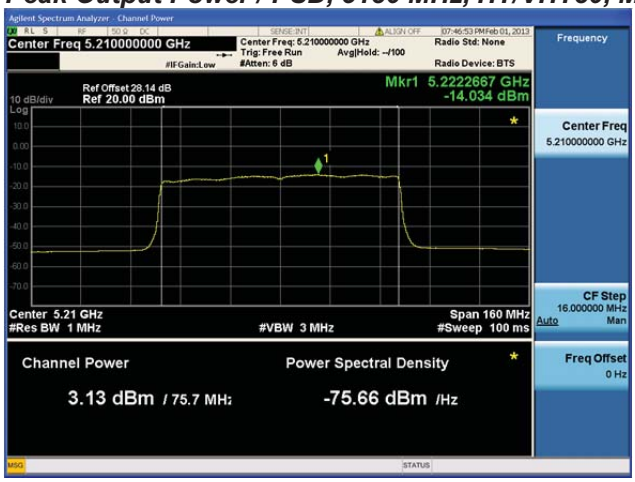


Antenna A

Antenna B

Antenna C

Peak Output Power / PSD, 5180 MHz, HT/VHT80, M8 to M15, M0.2 to M9.2

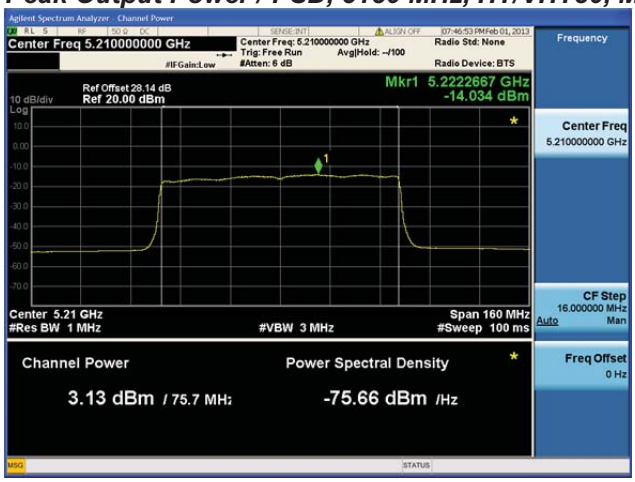


Antenna A

Antenna B

Antenna C

Peak Output Power / PSD, 5180 MHz, HT/VHT80, M16 to M23, M0.3 to M9.3

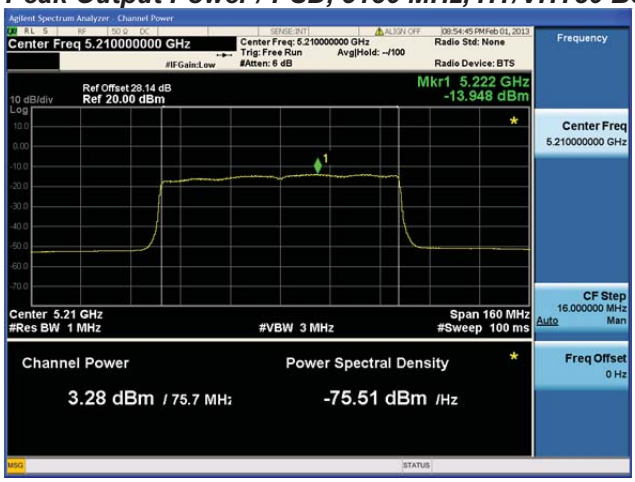


Antenna A

Antenna B

Antenna C

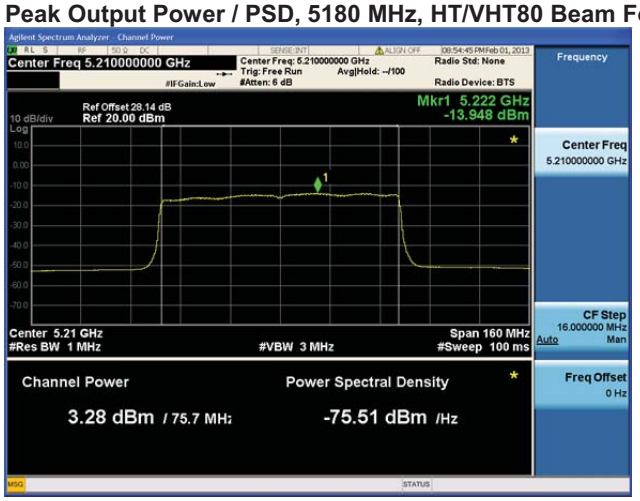
Peak Output Power / PSD, 5180 MHz, HT/VHT80 Beam Forming, M0 to M7, M0.1 to M9.1



Antenna A

Antenna B

Peak Output Power / PSD, 5180 MHz, HT/VHT80 Beam Forming, M8 to M15, M0.2 to M9.2



Antenna A

Antenna B