Test Report AIR-CAP1532E-A-K9

> FCC ID: LDK102089P IC: 2461B-102089P

> > Also Covers:

AIR-CAP1532E-D-K9

AIR-CAP1532E-N-K9

AIR-CAP1532E-T-K9

AIR-CAP1532E-Z-K9

5250-5350 MHz

Antenna Gain = 7 dBi

Against the following Specifications: CFR47 Part 15.407 RSS210 LP0002

> **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.

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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:

Temperature15°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%)

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2.2 Date of testing

31-October-2013 2.3 Report Issue Date

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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

Bud Chiller

2.5 Equipment Assessed (EUT) AIR-CAP1532E-A-K9

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2.6 EUT Description

The AIR-CAP1532 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

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

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

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

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

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

The following antennas are supported by this product series.

The data included in this report represent the worst case data for 7 dBi antennas.

Frequency	Part Number	Antenna Type	Antenna Gain (dBi)
5 GHz	AIR-ANT5180V-N	Single Band Omni	8
D G I Z	AIR-ANT5114P2M-N	Single Band, Directional Patch	14
AIR-ANT2547V-N= Dual-band Omni		4/7	
2.4/5 GHz	AIR-ANT2547VG-N=	Dual-band Omni, Gray	4/7
	AIR-ANT2588P3M-N=	Dual-band/Dual Polarized Directional, Patch	8/8

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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-CAP1532E-A-K9		Cisco Systems	NA	NA	NA	
S02	AIR-PWR-B	341-0306-01	Cisco Systems	NA	NA	NA	

4.2 System Details

System #	Description	Samples		
1	EUT	S01, S02,		

4.3 Mode of Operation Details

Mode#	Description	Comments
1	Continuous Transmitting	Continuous Transmitting

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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.

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	Maximum Channel Power (dBm)		
	Frequen	cy (MHz)	
Operating Mode	5280	5320	
Non HT-20, 6 to 54 Mbps	17	20	
HT-20, M0 to M15	20	20	
HT-20 STBC, M0 to M7	20	20	
	5310		
Non HT-40, 6 to 54 Mbps	18		
HT-40, M0 to M15	18		
HT-40 STBC, M0 to M7	18		

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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).

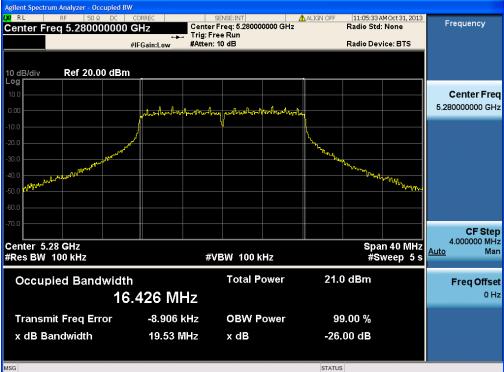
Center Frequency:	Frequency from table below
Span:	2 x Nominal Bandwidth (e.g. 40MHz for a 20MHz channel)
Reference Level:	20 dBm
Attenuation:	10 dB
Sweep Time:	5 s
Resolution Bandwidth:	1%-3% of 26 dB Bandwidth
Video Bandwidth:	≥Resolution Bandwidth
X dB Bandwidth:	26 dB
Detector:	Peak
Trace:	Single

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

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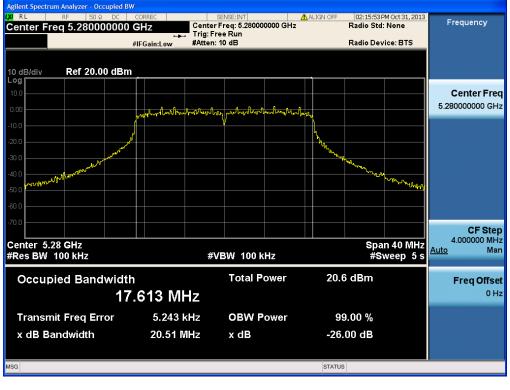
Frequency (MHz)	Mode	Data Rate (Mbps)	26dB BW (MHz)	99% BW (MHz)
F 290	Non HT-20, 6 to 54 Mbps	6	19.5	16.4
5280 HT-20, M0 to M15		m0	20.5	17.6
5210	Non HT-40, 6 to 54 Mbps	6	39.9	36.1
5310	HT-40, M0 to M23	m0	40	36.1
5220	Non HT-20, 6 to 54 Mbps	6	19.4	16.4
5320	HT-20, M0 to M15	m0	20.6	17.6

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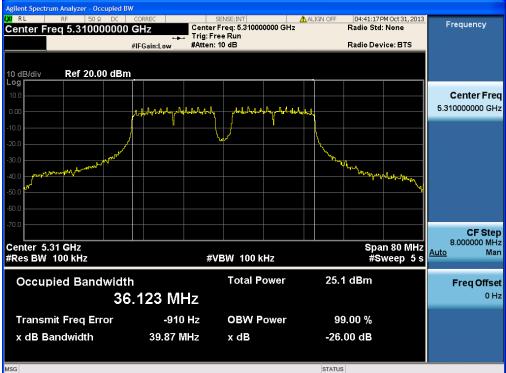


26dB / 99% Bandwidth, 5280 MHz, Non HT-20, 6 to 54 Mbps

26dB / 99% Bandwidth, 5280 MHz, HT-20, M0 to M15

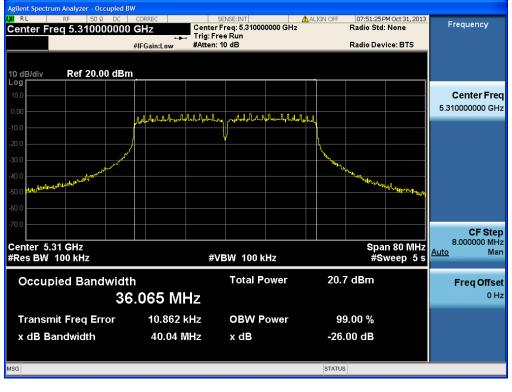


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26dB / 99% Bandwidth, 5310 MHz, Non HT-40, 6 to 54 Mbps

26dB / 99% Bandwidth, 5310 MHz, HT-40, M0 to M23

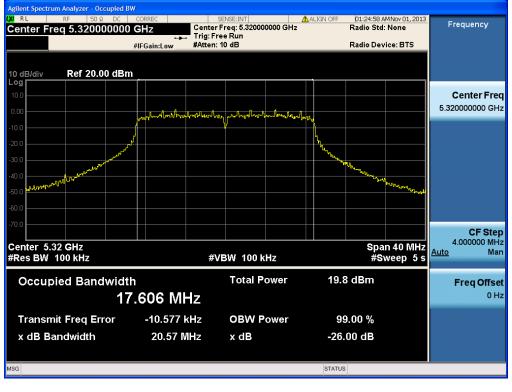


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26dB / 99% Bandwidth, 5320 MHz, Non HT-20, 6 to 54 Mbps

26dB / 99% Bandwidth, 5320 MHz, HT-20, M0 to M15



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Peak Output Power

15.407: For the bands 5.25-5.35 and 5.47-5.725 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 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 20.4 MHz. The maximum conducted output power is calculated as 11dBm+10*log(20.4MHz) = 24dBm

This report covers antennas with 7 dBi gain. 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 bands 5.25-5.35 and 5.47-5.725 GHz, the peak power spectral density shall not exceed 11 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

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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.

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Frequency (MHz)	Mode	Tx Paths	Correlated Antenna Gain (dBi)	Tx 1 Max Power (dBm)	Tx 2 Max Power (dBm)	Total Tx Channel Power (dBm)	Limit (dBm)	Margin (dB)
	Non HT-20, 6 to 54 Mbps	1	7	17.2		17.2	23	5.8
	Non HT-20, 6 to 54 Mbps	2	7	14.3	14.6	17.5	23	5.5
5280	HT-20, M0 to M7	1	7	17.9		17.9	23	5.1
52	HT-20, M0 to M7	2	7	14.0	14.5	17.3	23	5.7
	HT-20, M8 to M15	2	7	16.9	17.4	20.2	23	2.8
	HT-20 STBC, M0 to M7	2	7	16.9	17.4	20.2	23	2.8
	Non HT-40, 6 to 54 Mbps	1	7	18.5	Ē.	18.5	23	4.5
	Non HT-40, 6 to 54 Mbps	2	7	14.6	15.3	18.0	23	5.0
5310	HT-40, M0 to M7	1	7	16.2		16.2	23	6.8
53	HT-40, M0 to M7	2	7	14.1	15.0	17.6	23	5.4
	HT-40, M8 to M15	2	7	14.1	15.0	17.6	23	5.4
	HT-40 STBC, M0 to M7	2	7	14.1	15.0	17.6	23	5.4
			_			-	_	
	Non HT-20, 6 to 54 Mbps	1	7	19.6		19.6	23	3.4
	Non HT-20, 6 to 54 Mbps	2	7	13.5	14.3	16.9	23	6.1
5320	HT-20, M0 to M7	1	7	19.3		19.3	23	3.7
53	HT-20, M0 to M7	2	7	13.3	14.0	16.7	23	6.3
	HT-20, M8 to M15	2	7	16.3	17.2	19.8	23	3.2
	HT-20 STBC, M0 to M7	2	7	16.3	17.2	19.8	23	3.2

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Frequency (MHz)	Mode	Tx Paths	Correlated Antenna Gain (dBi)	Tx 1 PSD (dBm/MHz)	Tx 2 PSD (dBm/MHz)	Total PSD (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)
5280	Non HT-20, 6 to 54 Mbps	1	7	9.8		9.8	10.0	0.2
	Non HT-20, 6 to 54 Mbps	2	10	3.8	4.1	7.0	7.0	0.0
	HT-20, M0 to M7	1	7	9.3		9.3	10.0	0.7
	HT-20, M0 to M7	2	10	3.5	3.9	6.7	7.0	0.3
	HT-20, M8 to M15	2	7	6.2	7.2	9.7	10.0	0.3
	HT-20 STBC, M0 to M7	2	7	6.2	7.2	9.7	10.0	0.3
5310	Non HT-40, 6 to 54 Mbps	1	7	6.8		6.8	10.0	3.2
	Non HT-40, 6 to 54 Mbps	2	10	3.0	4.1	6.6	7.0	0.4
	HT-40, M0 to M7	1	7	6.0		6.0	10.0	4.0
	HT-40, M0 to M7	2	10	3.6	4.0	6.8	7.0	0.2
	HT-40, M8 to M15	2	7	3.6	4.0	6.8	10.0	3.2
	HT-40 STBC, M0 to M7	2	7	3.6	4.0	6.8	10.0	3.2
5320	Non HT-20, 6 to 54 Mbps	1	7	9.1		9.1	10.0	0.9
	Non HT-20, 6 to 54 Mbps	2	10	2.8	4.3	6.6	7.0	0.4
	HT-20, M0 to M7	1	7	8.6		8.6	10.0	1.4
	HT-20, M0 to M7	2	10	2.8	3.5	6.2	7.0	0.8
	HT-20, M8 to M15	2	7	5.8	6.3	9.1	10.0	0.9
	HT-20 STBC, M0 to M7	2	7	5.8	6.3	9.1	10.0	0.9

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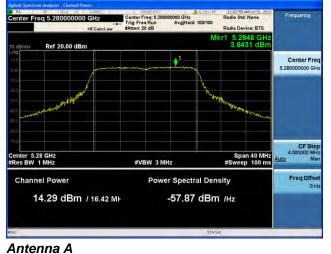
10:35:42 AMOct 3 Radio Std: None Frequency O GH: eq 5.28 Radio Device: BTS 5.2836 GH 6.7218 dB Ref 20.00 dBm Center Free 5.28000000 GH CFS 4.0000 Center 5.28 GHz #Res BW 1 MHz Span 40 MHz #Sweep 100 ms #VBW 3 MHz Channel Power FreqOff Power Spectral Density 17.18 dBm / 16.42 MF -54.98 dBm /Hz

Peak Output Power / PSD, 5280 MHz, Non HT-20, 6 to 54 Mbps

Antenna A

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Peak Output Power / PSD, 5280 MHz, Non HT-20, 6 to 54 Mbps



Antenna B

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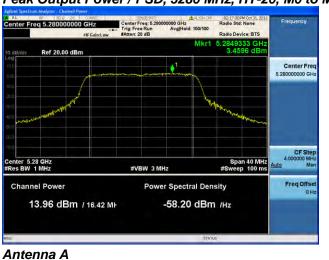
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Peak Output Power / PSD, 5280 MHz, HT-20, M0 to M7

Antenna A

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Peak Output Power / PSD, 5280 MHz, HT-20, M0 to M7



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Antenna B

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Peak Output Power / PSD, 5280 MHz, HT-20, M8 to M15

Center 5.28 GHz RRes BW 1 MHz T7.47 dBm / 16.42 MH Status

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Fredu

Center Free 5.280000000 GH

CFS

Freq Offs

01:55:45PM Oct 31 Radio Std: None

Radio Device: BTS

5.2850667 GI 7.1620 dB

000 GHz Avg|Hold: 100/100

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Antenna A

Antenna B

Ref 20.00 dBm

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01:55:45PM Oct 31 Radio Std: None Fredu 000 GHz AvgiHold: 100/100 Radio Device: BTS 5.2850667 GI 7.1620 dB Ref 20.00 dBm • Center Fre 5.280000000 GH CFS Center 5.28 GHz #Res BW 1 MHz Span 40 MHz #Sweep 100 ms #VBW 3 MHz Channel Power Power Spectral Density Freq Offs 17.47 dBm / 16.42 MF -54.69 dBm /Hz

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Antenna B

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Peak Output Power / PSD, 5280 MHz, HT-20 STBC, M0 to M7



100 GHz 04:42:54PM Oct 31 Radio Std: None Frequency Radio Device: BTS 5.3209333 G 4.8358 dE Ref 20.00 dBn Center Free 5.310000000 GH CFS Center 5.31 GHz #Res BW 1 MHz Span 80 MHz #Sweep 100 ms #VBW 3 MHz Channel Power FreqOff Power Spectral Density 18.52 dBm / 36.14 MF -57.06 dBm /Hz

Antenna A

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Peak Output Power / PSD, 5310 MHz, Non HT-40, 6 to 54 Mbps

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Peak Output Power / PSD, 5310 MHz, Non HT-40, 6 to 54 Mbps



Antenna B

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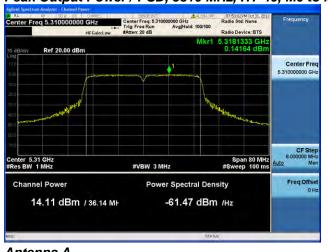
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Peak Output Power / PSD, 5310 MHz, HT-40, M0 to M7

Antenna A

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07:56:37 PM Oct 31 Radio Std: None Fredu Avg|Hold: er Freg 5.310 100/100 Radio Device: BTS 5.2953333 G 1.2859 dE Ref 20.00 dBm Center Free 5.310000000 GH **1** CFS Center 5.31 GHz #Res BW 1 MHz Span 80 MHz #Sweep 100 ms #VBW 3 MHz Channel Power Power Spectral Density Freq Offs 15.03 dBm / 36.14 MF -60.55 dBm /Hz

Antenna B

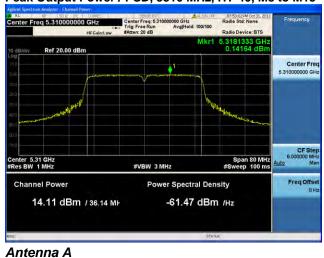
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Peak Output Power / PSD, 5310 MHz, HT-40, M0 to M7

Antenna A





Peak Output Power / PSD, 5310 MHz, HT-40, M8 to M15



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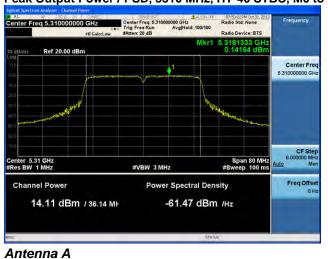
Fredu

07:56:37 PM Oct 31 Radio Std: None

0000 GHz AvgiHold: 100/100

Antenna B

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Peak Output Power / PSD, 5310 MHz, HT-40 STBC, M0 to M7



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Antenna B

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09:51:39PM Oct 31 Radio Std: None Frequency OGH: Radio Device: BTS 5.3156 GH 9.0733 dB Ref 20.00 dBm Center Free 5.320000000 GH CFS 4.0000 Center 5.32 GHz #Res BW 1 MHz Span 40 MHz #Sweep 100 ms #VBW 3 MHz Channel Power FreqOff Power Spectral Density 19.63 dBm / 16.41 MF -52.52 dBm /Hz

Peak Output Power / PSD, 5320 MHz, Non HT-20, 6 to 54 Mbps

Antenna A

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Antenna A

Antenna B

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Peak Output Power / PSD, 5320 MHz, HT-20, M0 to M7

Antenna A

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Peak Output Power / PSD, 5320 MHz, HT-20, M0 to M7



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Antenna B

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Peak Output Power / PSD, 5320 MHz, HT-20, M8 to M15

Mkr1 5.3151333 GHz 6.2948 dBm Center Fre S.3200000 CH State Center 5.32 GHz #Res BW 1 MHz 17.10 dBm / 16.41 MH State Sta

000 GHz AvgiHold uluilu cisco

Frequ

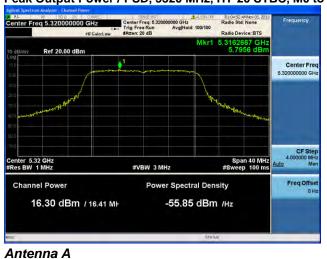
01:08:29 AMNov 01 Radio Std: None

Radio Device: BTS

Antenna A

Antenna B

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Peak Output Power / PSD, 5320 MHz, HT-20 STBC, M0 to M7



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Antenna B

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Peak Excursion

15.407: The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the maximum conducted output power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

Set the spectrum analyzer span to view the entire emission bandwidth. The largest difference between the following two traces must be <= 13 dB for all frequencies across the emission bandwidth.

Set the spectrum analyzer span to view the entire emission bandwidth. The largest difference between the following two traces must be <= 13 dB for all frequencies across the emission bandwidth.

1st Trace: (Peak)

Set Span to encompass the entire emission bandwidth of the signal.

RBW = 1 MHz, VBW = 3 MHz

Detector = Peak

Sweep = Auto Trace 1 = Max-hold

Ref Level Offset = correct for attenuator and cable loss

Ref Level = 20dBm

Atten = 10dBm

2nd Trace: (Average)

```
Trace 2 = clear right
Detector = Sample
Avg/VBW type = Pwr(RMS)
Average = 100
Sweep = single
```

Set marker Deltas

Trace 1 & Peak search

Marker Delta

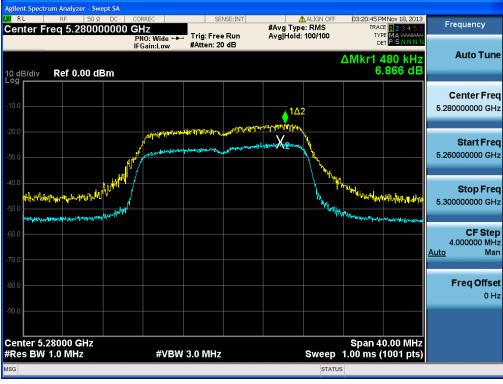
Trace 2 & Peak search

Record the difference between the Peak and Average Markers

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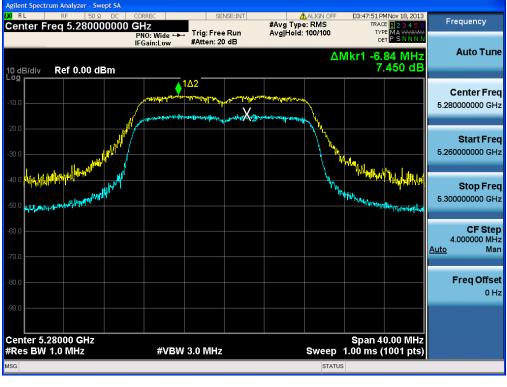
Frequency (MHz)	Mode	Data Rate (Mbps)	Peak Excursion (dB)	Limit (dBm/MHz)	Margin (dB)
5280	Non HT-20, 6 to 54 Mbps	6	6.7	13	6.3
5280	HT-20, M0 to M15	m0	7.3	13	5.7
5210	Non HT-40, 6 to 54 Mbps	6	7.2	13	5.8
5310	HT-40, M0 to M23	m0	7.5	13	5.5
5220	Non HT-20, 6 to 54 Mbps	6	7.4	13	5.6
5320	HT-20, M0 to M15	m0	7	13	6.0

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Peak Excursion, 5280 MHz, Non HT-20, 6 to 54 Mbps





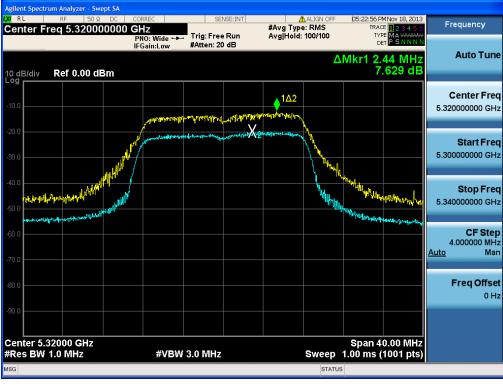
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Peak Excursion, 5310 MHz, Non HT-40, 6 to 54 Mbps







Peak Excursion, 5320 MHz, Non HT-20, 6 to 54 Mbps





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Conducted Spurious Emissions

15.407: For transmitters operating in the 5.25-5.35 and 5.47-5.725 GHz band: all emissions outside of the 5.25-5.35 and 5.47-5.725 GHz bands shall not exceed an EIRP of -27dBm/MHz.

Connect the antenna port(s) to the spectrum analyzer input. Place the radio in continuous transmit mode. Configure the spectrum analyzer as shown below (be sure to enter all losses between the transmitter output and the spectrum analyzer).

Span:	30 MHz-40 GHz
Reference Level:	20 dBm
Attenuation:	10 dB
Sweep Time:	10 s
Resolution Bandwidth:	1 MHz
Video Bandwidth:	3 MHz
Detector:	Peak
Trace:	Single
Marker:	Peak

Record the marker waveform peak to spur difference

Page No: 40 of 119

Frequency (MHz)	Mode	Tx Paths	Correlated Antenna Gain (dBi)	Tx 1 Spur Power (dBm)	Tx 2 Spur Power (dBm)	Total Conducted Spur (dBm)	Limit (dBm)	Margin (dB)
	Non HT-20, 6 to 54 Mbps	1	7	-74.8		-67.8	-41.25	26.6
	Non HT-20, 6 to 54 Mbps	2	7	-74.8	-74.9	-64.8	-41.25	23.6
5280	HT-20, M0 to M7	1	7	-74.7		-67.7	-41.25	26.5
52	HT-20, M0 to M7	2	7	-75.0	-74.8	-64.9	-41.25	23.6
	HT-20, M8 to M15	2	7	-74.9	-74.8	-64.8	-41.25	23.6
	HT-20 STBC, M0 to M7	2	7	-74.9	-74.8	-64.8	-41.25	23.6
	Non HT-40, 6 to 54 Mbps	1	7	-75.1		-68.1	-41.25	26.9
	Non HT-40, 6 to 54 Mbps	2	7	-74.9	-74.8	-64.8	-41.25	23.6
5310	HT-40, M0 to M7	1	7	-75.0		-68.0	-41.25	26.8
53	HT-40, M0 to M7	2	7	-74.8	-74.8	-64.8	-41.25	23.5
	HT-40, M8 to M15	2	7	-74.8	-74.8	-64.8	-41.25	23.5
	HT-40 STBC, M0 to M7	2	7	-74.8	-74.8	-64.8	-41.25	23.5
	Non HT-20, 6 to 54 Mbps	1	7	-74.6		-67.6	-41.25	26.4
5320	Non HT-20, 6 to 54 Mbps	2	7	-74.8	-74.7	-64.7	-41.25	23.5
	HT-20, M0 to M7	1	7	-74.6		-67.6	-41.25	26.4
53	HT-20, M0 to M7	2	7	-74.8	-74.8	-64.8	-41.25	23.5
	HT-20, M8 to M15	2	7	-75.0	-74.7	-64.8	-41.25	23.6
	HT-20 STBC, M0 to M7	2	7	-75.0	-74.7	-64.8	-41.25	23.6

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Frequency (MHz)	Mode	Tx Paths	Correlated Antenna Gain (dBi)	Tx 1 Spur Power (dBm)	Tx 2 Spur Power (dBm)	Total Conducted Spur (dBm)	Limit (dBm)	Margin (dB)
	Non HT-20, 6 to 54 Mbps	1	7	-79.5		-72.5	-27	45.5
	Non HT-20, 6 to 54 Mbps	2	7	-78.4	-77.5	-67.9	-27	40.9
5280	HT-20, M0 to M7	1	7	-78.2		-71.2	-27	44.2
52	HT-20, M0 to M7	2	7	-78.0	-79.4	-68.6	-27	41.6
	HT-20, M8 to M15	2	7	-79.8	-77.3	-68.4	-27	41.4
	HT-20 STBC, M0 to M7	2	7	-79.8	-77.3	-68.4	-27	41.4
	_							
	Non HT-40, 6 to 54 Mbps	1	7	-77.6		-70.6	-27	43.6
	Non HT-40, 6 to 54 Mbps	2	7	-78.9	-79.0	-68.9	-27	41.9
5310	HT-40, M0 to M7	1	7	-77.9		-70.9	-27	43.9
53	HT-40, M0 to M7	2	7	-76.7	-76.9	-66.8	-27	39.8
	HT-40, M8 to M15	2	7	-76.7	-76.9	-66.8	-27	39.8
	HT-40 STBC, M0 to M7	2	7	-76.7	-76.9	-66.8	-27	39.8
	Non HT-20, 6 to 54 Mbps	1	7	-79.3		-72.3	-27	45.3
20	Non HT-20, 6 to 54 Mbps	2	7	-77.4	-79.6	-68.4	-27	41.4
	HT-20, M0 to M7	1	7	-78.1		-71.1	-27	44.1
5320	HT-20, M0 to M7	2	7	-79.5	-79.1	-69.3	-27	42.3
	HT-20, M8 to M15	2	7	-78.1	-78.5	-68.3	-27	41.3
	HT-20 STBC, M0 to M7	2	7	-78.1	-78.5	-68.3	-27	41.3

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enter Fre	RF 50Ω DC q 29.0000000	PNO: Fast ↔	SENSE:	Avg	ALIGN OFF	08:49:26 PMNov 19, 2013 TRACE 1 2 3 4 5 6 TYPE WWWWWW DET P N N N N	Frequency
10 dB/div	Ref -20.00 dBm	IFGain:High	#Atten: 0 dB			DEI	Auto Tune
40.0							Center Fred 29.000000000 GH
	Habuaryuqa ^m lornhurlhur	÷raphipatatajikhte-a≌ ¹⁰ it	territion and the second s	ะ ⁴ ไปละไขใจใจที่สุดจูสะบากอุบัท	vuller markelind y can be for	-58,00 dBm Lange ^{dragen} ler ^k likend ^{igen} ligt i	Start Free 18.000000000 GH
90.0 -100 -110							Stop Fre 40.000000000 GH
tart 18.00 (Res BW 1.	0 MHz	#VBV	/ 3.0 MHz	, ,		Stop 40.00 GHz 36.7 ms (1001 pts)	2.20000000 GH
MKR MODE TRC 1	SCL X		Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	Auto Ma Freq Offse 0 H
6 7 8 9 10 11 12							
G					STATUS		

Conducted Spurs, All Antennas

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Avg Type: Log-P requency 0 GHz Trig: Free Run Auto Tun 74.81 dl Ref -20.00 dBm Center Fre 9.015000000 GH 125 2 2 1 1 2 2 Start Fre Stop Fre Stop 18.000 GHz Sweep 14.0 s (1001 pts) tart 30 MHz Res BW 1.0 MHz #VBW 1.0 kHz CFSt 1.79700 5.280 GHz 10.560 GHz 15.840 GHz -57.95 dBm -75.31 dBm -74.81 dBm Freq Offs

Conducted Spurs Average, 5280 MHz, Non HT-20, 6 to 54 Mbps

Antenna A

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Conducted Spurs Average, 5280 MHz, Non HT-20, 6 to 54 Mbps





Antenna A

Antenna B

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Avg Type: Log-P requency eq 9.015 00 GHz Trig: Free Run Auto Tun 74.6 Ref -20.00 dBm Center Free 9.015000000 GH 126 2 2 1 1 2 2 Start Fre Stop Fre Stop 18.000 GHz Sweep 14.0 s (1001 pts) tart 30 MHz Res BW 1.0 MHz #VBW 1.0 kHz CFSt 1.79700 5.280 GHz 10.560 GHz 15.840 GHz -57.04 dBm -75.57 dBm -74.65 dBm Freq Offs

Conducted Spurs Average, 5280 MHz, HT-20, M0 to M7

Antenna A

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Conducted Spurs Average, 5280 MHz, HT-20, M0 to M7 Avg Type: Log requency eq 9.015 0 GHz Trig: Free Run Auto Tun 75.04 0 Ref -20.00 dBm Center Fred 9.015000000 GHa Start Free 30.000000 MH Stop Fre Stop 18.000 GHz Sweep 14.0 s (1001 pts) CF Ster Res BW 1.0 MHz #VBW 1.0 kHz 1.797000 5.280 GHz 10.560 GHz 15.840 GHz -60.98 dBm -75.62 dBm -75.04 dBm Freq Offse



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Antenna B

Antenna A

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Conducted Spurs Average, 5280 MHz, HT-20, M8 to M15



- Trig: Free Run #Atten: 0 dB

: Fast

Avg Type: Log-Pw

Antenna A

Antenna B

enter Freq 9.015000000 GHz

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Conducted Spurs Average, 5280 MHz, HT-20 STBC, M0 to M7





Antenna B

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Avg Type: Log-P Freq 9.0150 equency 00 GHz Trig: Free Run Auto Tun -75.10 di Ref -20.00 dBm Center Fre 9.015000000 GH Start Fre Stop Fre Stop 18.000 GHz Sweep 14.0 s (1001 pts) tart 30 MHz Res BW 1.0 MHz #VBW 1.0 kHz CFSt 1.79700 5.310 GHz 10.600 GHz 15.900 GHz -62.97 dBm -75.46 dBm -75.10 dBm Freq Offs

Conducted Spurs Average, 5310 MHz, Non HT-40, 6 to 54 Mbps

Antenna A

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Conducted Spurs Average, 5310 MHz, Non HT-40, 6 to 54 Mbps





Antenna A

Antenna B

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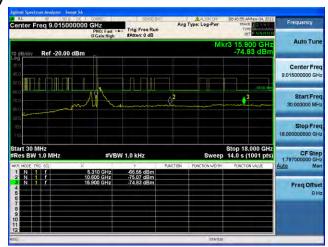
Avg Type: Log-P req 9.0150 00 GHz requency Trig: Free Run Auto Tun 74 97 Ref -20.00 dBm Center Free 9.015000000 GH Start Fre Stop Fre Stop 18.000 GHz Sweep 14.0 s (1001 pts) tart 30 MHz Res BW 1.0 MHz #VBW 1.0 kHz CFSt 1.79700 -65.76 dBm -75.11 dBm -74.97 dBm 5.310 GHz 10.600 GHz 15.900 GHz Freq Offs

Conducted Spurs Average, 5310 MHz, HT-40, M0 to M7

Antenna A

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Conducted Spurs Average, 5310 MHz, HT-40, M0 to M7 Avg Type: Log-P equency eq 9.015 00 GHz Trig: Free Run Auto Tun 74 80 Ref -20.00 dBm Center Fred 9.015000000 GHa Start Free 30.000000 MH Stop Fre Stop 18.000 GHz Sweep 14.0 s (1001 pts) CF Ster tart 30 MHz Res BW 1.0 MHz #VBW 1.0 kHz 1.797000 5.310 GHz 10.600 GHz 15.900 GHz -67.61 dBm -75.25 dBm -74.80 dBm Freq Offse



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Antenna A

Antenna B

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Conducted Spurs Average, 5310 MHz, HT-40, M8 to M15



Trig: Free Run #Atten: 0 dB

: Fast

Avg Type: Log-Pw

Antenna A

Antenna B

enter Freq 9.015000000 GHz

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Conducted Spurs Average, 5310 MHz, HT-40 STBC, M0 to M7





Antenna B

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Avg Type: Log-P Freq 9.0150 00 GHz requency Trig: Free Run Auto Tun -74.59 Ref -20.00 dBm Center Free 9.015000000 GH Start Fre Stop Fre Stop 18.000 GHz Sweep 14.0 s (1001 pts) tart 30 MHz Res BW 1.0 MHz #VBW 1.0 kHz CFSt 1.79700 5.320 GHz 10.640 GHz 15.960 GHz -60.17 dBm -75.21 dBm -74.59 dBm Freq Offs

Conducted Spurs Average, 5320 MHz, Non HT-20, 6 to 54 Mbps

Antenna A

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Conducted Spurs Average, 5320 MHz, Non HT-20, 6 to 54 Mbps





Antenna B

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Avg Type: Log-P Freq 9.0150 00 GHz requency Trig: Free Run Auto Tun -74.57 di Ref -20.00 dBm Center Free 9.015000000 GH Start Fre Stop Fre Stop 18.000 GHz Sweep 14.0 s (1001 pts) tart 30 MHz Res BW 1.0 MHz #VBW 1.0 kHz CF Ste 1.79700 5.320 GHz 10.640 GHz 15.960 GHz -60.13 dBm -74.98 dBm -74.57 dBm Freq Offs

Conducted Spurs Average, 5320 MHz, HT-20, M0 to M7

Antenna A

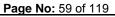
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Conducted Spurs Average, 5320 MHz, HT-20, M0 to M7 Avg Type: Lo equency eg 9.015 00 GHz Trig: Free Run Auto Tun -74 83 Ref -20.00 dBm Center Fred 9.015000000 GHa Start Free 30.000000 MH Stop Fre Stop 18.000 GHz Sweep 14.0 s (1001 pts) CF Ster 000000 GH Me tart 30 MHz Res BW 1.0 MHz #VBW 1.0 kHz 1.797000 5.320 GHz 10.640 GHz 15.960 GHz -65.88 dBm -75.18 dBm -74.83 dBm Freq Offse



Antenna B





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Avg Type: Lo requency eq 9.015 00 GHz Trig: Free Run Auto Tun 75.03 Ref -20.00 dBm Center Fred 9.015000000 GHa Start Free Stop Fre Stop 18.000 GHz Sweep 14.0 s (1001 pts) CF Ster tart 30 MHz Res BW 1.0 MHz #VBW 1.0 kHz 1.797000 5.320 GHz 10.640 GHz 15.960 GHz -75.16 dBm -75.03 dBm Freq Offse



Antenna B

Antenna A

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Conducted Spurs Average, 5320 MHz, HT-20, M8 to M15

Conducted Spurs Average, 5320 MHz, HT-20 STBC, M0 to M7





Antenna A

Antenna B

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Conducted Spurs Peak, 5280 MHz, Non HT-20, 6 to 54 Mbps

Antenna A

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Conducted Spurs Peak, 5280 MHz, Non HT-20, 6 to 54 Mbps





Antenna A

Antenna B

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Conducted Spurs Peak, 5280 MHz, HT-20, M0 to M7



Antenna A

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Avg Type: Lo eg 9.015 Trig: Free Run Auto Tun Ref -20.00 dBm Center Free 9.015000000 GHa Start Free 30.000000 MH Stop Fre CF Ster 000000 GH Ma Stop 18.000 GHz Sweep 30.0 ms (1001 pts) tart 30 MHz Res BW 1.0 MHz #VBW 3.0 MHz 1.797000 5.280 GHz 10.560 GHz 15.840 GHz -65.59 dBm -80.86 dBm -77.97 dBm Freq Offse

Antenna A



Antenna B

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Auto Tur

Center Fre 9.015000000 GH

Start Fre

Stop Fre

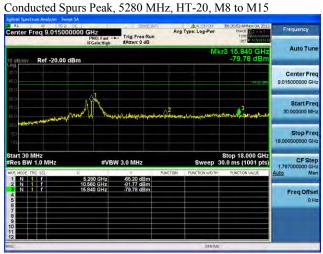
CF Ste

Freq Offse

1.797000

Avg Type: Log-Pw

Stop 18.000 GHz Sweep 30.0 ms (1001 pts)





Antenna B

Res BW 1.0 MHz

0000 GHz

Fast --- Trig: Free Run #Atten: 0 dB

#VBW 3.0 MHz

-63.72 dB -77.34 dB -80.20 dB

5.280 GHz 10.560 GHz 15.840 GHz

Freq 9.015

Ref -20.00 dBm

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Auto Tur

Center Fre 9.015000000 GH

Start Fre

Stop Fre

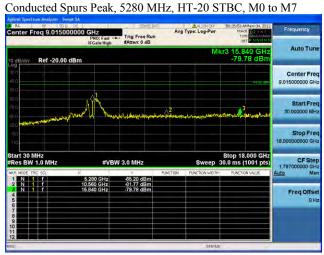
CF Ste

Freq Offse

1.797000

Avg Type: Log-Pw

Stop 18.000 GHz Sweep 30.0 ms (1001 pts)





Antenna B

Res BW 1.0 MHz

0000 GHz

Fast --- Trig: Free Run #Atten: 0 dB

#VBW 3.0 MHz

-63.72 dB -77.34 dB -80.20 dB

5.280 GHz 10.560 GHz 15.840 GHz

r Freq 9.015

Ref -20.00 dBm

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Conducted Spurs Peak, 5310 MHz, Non HT-40, 6 to 54 Mbps

Antenna A

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Conducted Spurs Peak, 5310 MHz, Non HT-40, 6 to 54 Mbps





Antenna A

Antenna B

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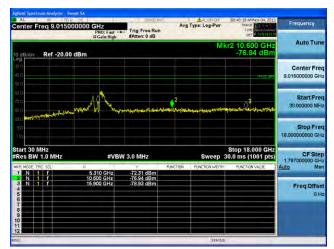
Conducted Spurs Peak, 5310 MHz, HT-40, M0 to M7



Antenna A

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Avg Type: Log a 9.015 Trig: Free Run Auto Tun Ref -20.00 dBm Center Fred 9.015000000 GHa Start Free Stop Fre CF Ster 000000 GH Mr Stop 18.000 GHz Sweep 30.0 ms (1001 pts) tart 30 MHz Res BW 1.0 MH #VBW 3.0 MHz 1.797000 5.310 GHz 10.600 GHz 15.900 GHz -76.69 dBn -78.80 dBn Freq Offse



Antenna B

Antenna A

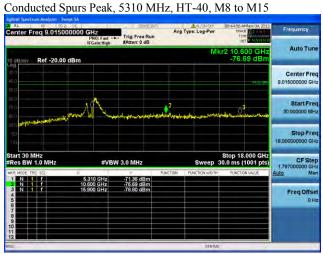
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Conducted Spurs Peak, 5310 MHz, HT-40, M0 to M7

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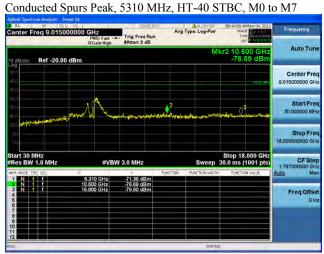


Antenna B

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Antenna B

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Conducted Spurs Peak, 5320 MHz, Non HT-20, 6 to 54 Mbps

Antenna A

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Conducted Spurs Peak, 5320 MHz, Non HT-20, 6 to 54 Mbps





Antenna B

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Freq Offs

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Conducted Spurs Peak, 5320 MHz, HT-20, M0 to M7

-66.51 dBm -80.57 dBm -78.07 dBm



tart 30 MHz Res BW 1.0 MHz

RL 18 30.0 DC Center Freq 9.015000000 GHz

Ref -20.00 dBm

5.320 GHz 10.640 GHz 15.960 GHz

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Conducted Spurs Peak, 5320 MHz, HT-20, M0 to M7 er Freg 9.015 Avg Type: L Trig: Free Run Auto Tun Ref -20.00 dBm Center Fred 9.015000000 GHa Start Free Stop Fre CF Ster Stop 18.000 GHz Sweep 30.0 ms (1001 pts) tart 30 MHz Res BW 1.0 MHz #VBW 3.0 MHz 1.797000 5.320 GHz 10.640 GHz 15.960 GHz -74.51 dBm -79.52 dBm -79.65 dBm Freq Offse



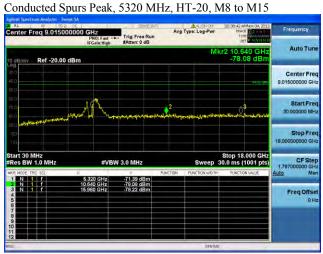
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Antenna A

Antenna B

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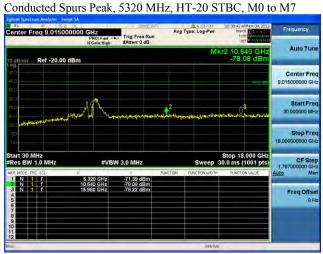


Antenna B

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Antenna B

Conducted Bandedge

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

Use the procedures in 718828 D01 DTS Meas Guidance v01 to substitute conducted measurements in place of radiated measurements.

Connect the antenna port(s) to the spectrum analyzer input. Place the radio in continuous transmit mode. Be sure to enter all losses between the transmitter output and the spectrum analyzer.

Reference Level:	10 dBm
Attenuation:	4 dB
Sweep Time:	Coupled
Resolution Bandwidth:	1MHz
Video Bandwidth:	1 MHz for peak, 100 Hz for average
Detector:	Peak

Save 2 plots: 1) Average Plot (Vertical and Horizontal), Limit= -41.25 dBm eirp (54dBuV @3m) 2) Peak plot (Vertical and Horizontal), Limit = -21.25 dBm eirp (74dBuV @3m)

Place a marker at the end of the restricted band closest to the transmit frequency to show compliance. Also measure any emissions in the restricted bands.

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.

This report represents the worst case data for all supported operating modes and antennas.

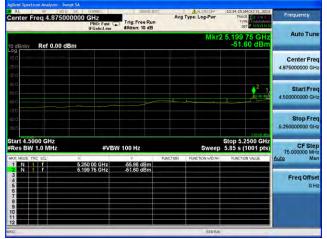
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Frequency (MHz)	Mode	Tx Paths	Correlated Antenna Gain (dBi)	Tx 1 Bandedge Level (dBm)	Tx 2 Bandedge Level (dBm)	Total Tx Bandedge Level (dBm)	Limit (dBm)	Margin (dB)
	Non HT-20, 6 to 54 Mbps	1	7	-51.6		-44.6	-41.25	3.4
	Non HT-20, 6 to 54 Mbps	2	7	-52.3	-56.5	-43.9	-41.25	2.7
5280	HT-20, M0 to M7	1	7	-48.3		-41.3	-41.25	0.1
52	HT-20, M0 to M7	2	7	-52.5	-56.2	-44.0	-41.25	2.7
	HT-20, M8 to M15	2	7	-52.2	-55.6	-43.4	-41.25	2.3
	HT-20 STBC, M0 to M7	2	7	-52.2	-55.6	-43.4	-41.25	2.3
	Non HT-40, 6 to 54 Mbps	1	7	-49.0		-42.0	-41.25	0.8
	Non HT-40, 6 to 54 Mbps	2	7	-52.9	-50.5	-41.5	-41.25	0.3
10	HT-40, M0 to M7	1	7	-49.5		-42.5	-41.25	1.3
5310	HT-40, M0 to M7	2	7	-52.9	-50.3	-41.4	-41.25	0.1
	HT-40, M8 to M15	2	7	-52.9	-50.3	-41.4	-41.25	0.1
	HT-40 STBC, M0 to M7	2	7	-52.9	-50.3	-41.4	-41.25	0.1
		<u>.</u>		_				
	Non HT-20, 6 to 54 Mbps	1	7	-49.9		-42.9	-41.25	1.7
	Non HT-20, 6 to 54 Mbps	2	7	-55.0	-56.9	-45.8	-41.25	4.6
20	HT-20, M0 to M7	1	7	-49.6		-42.6	-41.25	1.4
5320	HT-20, M0 to M7	2	7	-55.1	-56.9	-45.9	-41.25	4.6
	HT-20, M8 to M15	2	7	-54.8	-55.7	-45.2	-41.25	4.0
	HT-20 STBC, M0 to M7	2	7	-54.8	-55.7	-45.2	-41.25	4.0

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Frequency (MHz)	Mode	Tx Paths	Correlated Antenna Gain (dBi)	Tx 1 Bandedge Level (dBm)	Tx 2 Bandedge Level (dBm)	Total Tx Bandedge Level (dBm)	Limit (dBm)	Margin (dB)
	Non HT-20, 6 to 54 Mbps	1	7	-43.8		-36.8	-21.25	15.6
	Non HT-20, 6 to 54 Mbps	2	7	-44.8	-45.8	-35.3	-21.25	14.0
5280	HT-20, M0 to M7	1	7	-41.3		-34.3	-21.25	13.1
52	HT-20, M0 to M7	2	7	-46.2	-44.9	-35.5	-21.25	14.2
	HT-20, M8 to M15	2	7	-43.5	-44.1	-33.8	-21.25	12.5
	HT-20 STBC, M0 to M7	2	7	-43.5	-44.1	-33.8	-21.25	12.5
	Non HT-40, 6 to 54 Mbps	1	7	-34.3	-	-27.3	-21.25	6.1
	Non HT-40, 6 to 54 Mbps	2	7	-38.0	-34.9	-26.2	-21.25	4.9
10	HT-40, M0 to M7	1	7	-38.9		-31.9	-21.25	10.7
5310	HT-40, M0 to M7	2	7	-42.4	-37.8	-29.5	-21.25	8.3
	HT-40, M8 to M15	2	7	-42.4	-37.8	-29.5	-21.25	8.3
	HT-40 STBC, M0 to M7	2	7	-42.4	-37.8	-29.5	-21.25	8.3
		-			_	_		
	Non HT-20, 6 to 54 Mbps	1	7	-38.7		-31.7	-21.25	10.5
	Non HT-20, 6 to 54 Mbps	2	7	-42.9	-43.3	-33.1	-21.25	11.8
20	HT-20, M0 to M7	1	7	-39.4		-32.4	-21.25	11.2
5320	HT-20, M0 to M7	2	7	-44.1	-42.8	-33.4	-21.25	12.1
	HT-20, M8 to M15	2	7	-43.3	-43.5	-33.4	-21.25	12.1
	HT-20 STBC, M0 to M7	2	7	-43.3	-43.5	-33.4	-21.25	12.1

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Conducted Bandedge Average, 5280 MHz, Non HT-20, 6 to 54 Mbps

Antenna A

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Frequency

Auto Tun

Center Fre

Start Fre

4.875000000 G

Stop Fre 5.25000000 GH CF Ste 75.000000

Freq Offs

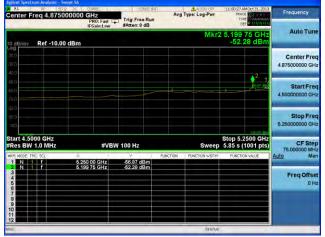
01

46

Stop 5.2500 GHz Sweep 5.85 s (1001 pts)

Avg Type: Log-P

Conducted Bandedge Average, 5280 MHz, Non HT-20, 6 to 54 Mbps



Antenna A

Antenna B

tart 4.5000 GHz Res BW 1.0 MH

N 1 F

er Freg 4.87500

Ref -10.00 dBm

0000 GHz

Trig: Free Run #Atten: 8 dB

#VBW 100 Hz

5.250 00 GHz 5.008 50 GHz -56.51 dB -58.79 dB

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Conducted Bandedge Average, 5280 MHz, HT-20, M0 to M7



Antenna A

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Conducted Bandedge Average, 5280 MHz, HT-20, M0 to M7



enter Freq 4.875000000 GHz Avg Type: Log-Pu Frequency Trig: Free Run #Atten: 8 dB Auto Tun Ref -10.00 dBm Center Fre 4.875000000 G Start Fre 45 Stop Fre 5.2500000 00 G CF St. 75.000000 tart 4.5000 GHz Res BW 1.0 MH Stop 5.2500 GHz Sweep 5.85 s (1001 pts) #VBW 100 Hz -56.17 dB -58.67 dB N 1 F 5.250 00 GHz 5.006 25 GHz Freq Offs 01

Antenna A

Antenna B

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Conducted Bandedge Average, 5280 MHz, HT-20, M8 to M15



Antenna A

Antenna B

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Frequency r Freq 4.875 Ava Tu 0 GHz Trig: Free Run Auto Tun Ref 0.00 dBm Center Free 4.875000000 G ð Start Fre 000000 G Stop Fre 5.250000 0 G CF Ste rt 4.5000 GHz es BW 1.0 MH Stop 5.2500 GHz Sweep 5.85 s (1001 pts) #VBW 100 Hz -55.76 dBr -52.20 dBr N 1 F 5.250 00 GHz 5.199 75 GHz Freq Offs 01

Conducted Bandedge Average, 5280 MHz, HT-20 STBC, M0 to M7 enter Freq 4.875000000 GHz Avg Type: Log-Pu Frequency ast C Trig: Free Run Auto Tun Ref 0.00 dBm Center Fre 4.875000000 G Start Fre 46 Stop Fre CF St. 75.000000 tart 4.5000 GHz Res BW 1.0 MH Stop 5.2500 GHz Sweep 5.85 s (1001 pts) #VBW 100 Hz -55.61 dB -58.29 dB N 1 F 5.250 00 GHz 5.007 00 GHz Freq Offs 01

Antenna A

Antenna B

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Conducted Bandedge Average, 5310 MHz, Non HT-40, 6 to 54 Mbps



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Frequency

Auto Tun

Center Fre

Start Fre

Stop Fre 5.4600000 00 GI CF St

Freq Offs

01

uto

5.405000000 G

Avg Type: Log-P

Stop 5.46000 GHz Sweep 858 ms (1001 pts)

Conducted Bandedge Average, 5310 MHz, Non HT-40, 6 to 54 Mbps



Antenna A

Antenna B

tart 5.35000 GHz Res BW 1.0 MHz

er Freq 5.4050

Ref -10.00 dBm

000 GHz

5.350 00 G

ast C Trig: Free Run #Atten: 2 dB

#VBW 100 Hz

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Conducted Bandedge Average, 5310 MHz, HT-40, M0 to M7

Center Fre		0 DC CORREC 000000 GHz PN0: Fast IFGain:Low	Trig: Free Run #Atten: 2 dB	Avg	Type: Log-Pwr	TR	6 PM Oct 31, 2013 VACE 2 2 4 4 VPE PUBLICATION	Frequency
10 dB/div	Ref -10.0	0 dBm			Mkr		9 98 GHz .46 dBm	Auto Tune
-20 () -30 ()								Center Free 5.405000000 GH
40.0 41 50.0 60.0 70.0						\$ ²	.1314.en	Start Free 5.350000000 GH
80 0 90 0							A5010 dim	Stop Fre 5.460000000 GH
Start 5.350 #Res BW 1	.0 MHz		BW 100 Hz		Sweep	858 ms	46000 GHz (1001 pts)	CF Ste 11.000000 MH
MKR MODE TRC 1 N 1 2 N 1	1	× 5,350 00 GHz 5,439 98 GHz	-49.54 dBm -55.46 dBm	FUNCTION	FUNCTION WIDTH	FUNC	TION WALUE	<u>Auto</u> Ma
3456								Freq Offse 0 H
7 8 9 10								
12 12 10 10 10 10 10 10 10 10 10 10 10 10 10	-	-			STÁTU			

Antenna A

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Conducted Bandedge Average, 5310 MHz, HT-40, M0 to M7



RL RF 900 DC CORREL anter Freq 5.405000000 GHz PR0: Fast Trig: Free Run Freight dw #Atten: 2 dB Avg Type: Log-Pu Frequency Auto Tun Ref -10.00 dBm Center Fre 5.405000000 G Start Fre Stop Fre 5.4600000 00 GI CF St 11.0000004 tart 5.35000 GHz Res BW 1.0 MHz Stop 5.46000 GHz Sweep 858 ms (1001 pts) #VBW 100 Hz ute 5.350 00 G Freq Offs 01

Antenna A

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Conducted Bandedge Average, 5310 MHz, HT-40, M8 to M15



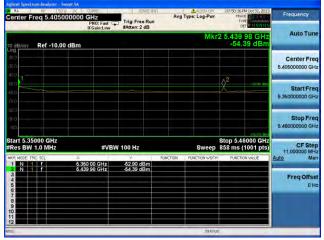
Antenna A

Antenna B

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Conducted Bandedge Average, 5310 MHz, HT-40 STBC, M0 to M7

Antenna A



Antenna B

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Conducted Bandedge Average, 5320 MHz, Non HT-20, 6 to 54 Mbps



Antenna A

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Conducted Bandedge Average, 5320 MHz, Non HT-20, 6 to 54 Mbps



DOOD GHZ PNO: Fast It Gain: Low #Atten: 2 dB er Freq 5.40500 Avg Type: Log-P Frequency Auto Tun Ref -10.00 dBm Center Fre 5.405000000 G Start Fre Stop Fre CF St. tart 5.35000 GHz Res BW 1.0 MHz Stop 5.46000 GHz Sweep 858 ms (1001 pts) #VBW 100 Hz uto 5.350 00 G Freq Offs 01

Antenna A

Antenna B

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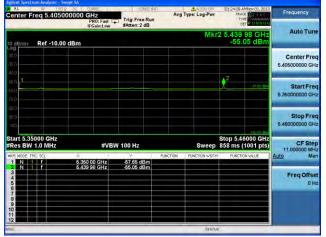
Conducted Bandedge Average, 5320 MHz, HT-20, M0 to M7



Antenna A

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Conducted Bandedge Average, 5320 MHz, HT-20, M0 to M7



RL AP 2002 DC COMPC anter Freq 5.405000000 GHz PN0: Fast Trig: Free Run FGaint.ow #Atten: 2 dB Avg Type: Log-Pu Frequency Auto Tun Ref -10.00 dBm Center Fre 5.405000000 G Start Fre Stop Fre 5.4600000 00 GI CF St 11.0000004 tart 5.35000 GHz Res BW 1.0 MHz Stop 5.46000 GHz Sweep 858 ms (1001 pts) #VBW 100 Hz ute 5.350 00 G Freq Offs 01

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Conducted Bandedge Average, 5320 MHz, HT-20, M8 to M15



Antenna A



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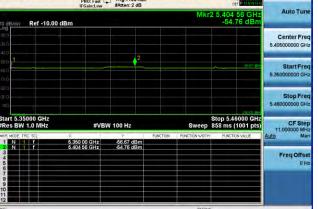
Frequency r Freg 5.405 Ava T 0 GHz Trig: Free Run #Atten: 2 dB Auto Tun 404 56 G -54.76 d Ref -10.00 dBm Center Free 5.40500000 G Start Fre Stop Free 5.46000000 GH es BW 1.0 MHz Stop 5.46000 GHz Sweep 858 ms (1001 pts) CF Ste 11.000000 MH #VBW 100 Hz M uto -56.67 dBn -54.76 dBn N 1 F 5.350 00 GHz 5.404 56 GHz Freq Offs ...

Conducted Bandedge Average, 5320 MHz, HT-20 STBC, M0 to M7 RL AP 2002 DC COMPC anter Freq 5.405000000 GHz PN0: Fast Trig: Free Run FGaint.ow #Atten: 2 dB Avg Type: Log-Pu Frequency Auto Tun Ref -10.00 dBm Center Fre 5.405000000 G Start Fre Stop Fre CF St 11.0000004 tart 5.35000 GHz Res BW 1.0 MHz Stop 5.46000 GHz Sweep 858 ms (1001 pts) #VBW 100 Hz uto 5.350 00 G Freq Offs 01

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Conducted Bandedge Peak, 5280 MHz, Non HT-20, 6 to 54 Mbps

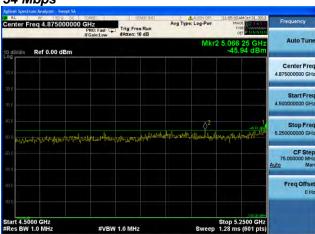
Antenna A

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Conducted Bandedge Peak, 5280 MHz, Non HT-20, 6 to 54 Mbps





Antenna B

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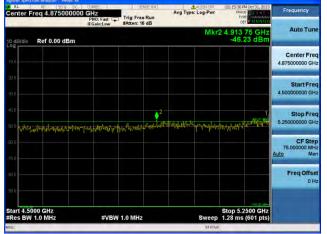
Avg Type: Log-Pw Auto Tu 4.683 75 Ref 0.00 dBm Center Fre 4.875000000 GH Start Fre 4 5000000 Stop Fre ¢² nbba CFS 75.0 Freq Offs 0 Stop 5.2500 GHz Sweep 1.28 ms (601 pts) 00 GHz 1.0 MH #VBW 1.0 MHz

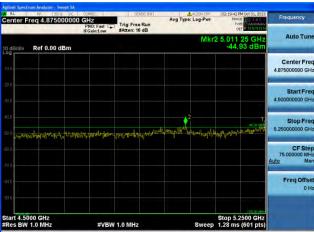
Conducted Bandedge Peak, 5280 MHz, HT-20, M0 to M7

Antenna A

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Conducted Bandedge Peak, 5280 MHz, HT-20, M0 to M7





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Antenna A



Frequency

Ref Sectors and Confectors and Confe Avg Type: Log-Pw Frequency Auto Tu -44 08 Ref 0.00 dBm Center Fre 4.875000000 GH Start Fre 4.50000000 G ¢²-Stop Fre Lorophile Houldens CF St 75.00 Freq Offse Stop 5.2500 GHz Sweep 1.28 ms (601 pts) 00 GHz 1.0 MH #VBW 1.0 MHz

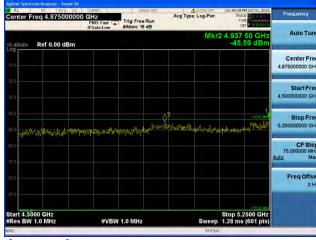
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Conducted Bandedge Peak, 5280 MHz, HT-20, M8 to M15

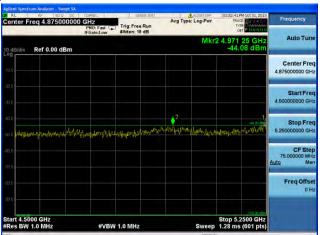
Antenna A



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Sten Settime New Soc SC 20085 R = 10 State Stat Avg Type: Log-Pt Frequency Auto Tur 4.937 50 Ref 0.00 dBm Center Free 4.875000000 G Start Fre Stop Fre oudfa CF St 75.0 Freq Offse Stop 5.2500 GHz Sweep 1.28 ms (601 pts) 00 GHz 1.0 MH #VBW 1.0 MHz



Antenna B

Antenna A

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Conducted Bandedge Peak, 5280 MHz, HT-20 STBC, M0 to M7

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Conducted Bandedge Peak, 5310 MHz, Non HT-40, 6 to 54 Mbps



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Frequency

Center Free 5.405000000 GH

Auto Tur

Start Fre

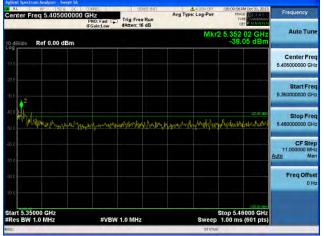
Stop Fre

CF Ster 11.000000 MH Ma

Freq Offs

Stop 5.46000 GHz Sweep 1.00 ms (601 pts 00 GI

Conducted Bandedge Peak, 5310 MHz, Non HT-40, 6 to 54 Mbps





35000 GH N 1.0 MHz

er Freq 5.405000000 GH2 PRO: Fast IFGaint.tow #Atten: 16 dB

Ref 0.00 dBm

Avg Type: Log-P

the proving provided and a provided the second and the provided and the second second second second second second

#VBW 1.0 MHz

Antenna A

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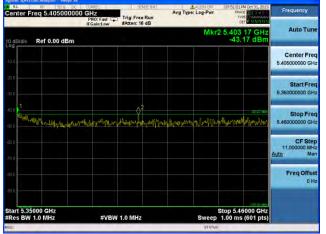
RL AP SOO DC COREC RL AP SOO DC COREC Center Freq 5.405000000 GHz PR0: Fast Core Social tay Social tay Avg Type: Log-Pt Auto Tu 354 40 Ref 0.00 dBm Center Fre 405000 00 G Start Fr Stop Fr ehulla CFS 11.00 Freq Off 0 Stop 5.46000 GHz Sweep 1.00 ms (601 pts) 000 GHz 1.0 MHz #VBW 1.0 MHz

Conducted Bandedge Peak, 5310 MHz, HT-40, M0 to M7

Antenna A

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Conducted Bandedge Peak, 5310 MHz, HT-40, M0 to M7



RL RF 500 bC COME anter Freq 5.405000000 CH2 PR0: Fast Trig: Free Run IFGaint.tww #Atten: 16 dB Avg Type: Log-P Frequency Auto Tur Ref 0.00 dBm Center Free 5.405000000 GH Start Fre Stop Fre MARA and a stranger and a 00 GI CF Ster 11.000000 MH Ma Freq Offs 01 Stop 5.46000 GH: Sweep 1.00 ms (601 pts 33000 GH N 1.0 MH #VBW 1.0 MHz

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Antenna B



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Avg Type: Log-Pu

403 17

Stop 5.46000 GHz

Auto Tu

Center Fre 405000000 GH Start Fre

Stop Fr

CFS

Freq Off

RL RP 500 DC enter Freq 5.405000000	GRAEC GHZ PN0: Fast () IFGain:Low	SENSE INT Trig: Free Run #Atten: 16 dB	Avg Type: Log-Pwr	07:54:36 PM Oct 31, 2013 TRACE 2 3:4 E TYPE OET P N N N N	Frequency
D dB/div Ref 0.00 dBm			Mkr	2 5.354 77 GHz -37.78 dBm	Auto Tune
10.0					Center Freq 5.405000000 GHz
no 1 2					Start Freq 5.350000000 GHz
100					
Multiple produced at the	managaaling	Churcherchurch	handhanan	AUTO COM	
ar o 20.0	พันษาประเทศ เ	United for the second	hennetternetternette	no politic politica p	5.46000000 GH2 CF Step 11.000000 MH2
500 500 500 500 500 500 500 500	ฟลา ประเทศ เ	Unstrated	hensettiknen ktesten eine	no politic politica p	Stop Freq 5.46000000 GHz 11.000000 MHz <u>Auto</u> Man Freq Offset 0 Hz

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Conducted Bandedge Peak, 5310 MHz, HT-40, M8 to M15

Wheels the alle

#VBW 1.0 MHz

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000 GHz 1.0 MHz

RL AP SOURCE THE THE SOURCE SOURCE

Ref 0.00 dBm



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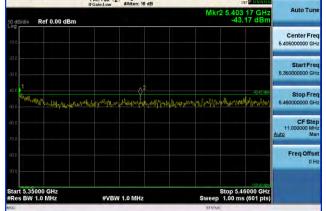
Sten Section March 1990 52 00085 Rt 1997 54050000000 GHz PNR Freq 5.405000000 GHz PNR for Section 16 dB ≪Concerver Avg Type: Log-P Frequency Auto Tu .403 17 (-43.17 c Ref 0.00 dBm Center Fre 40500000 G Start Fr Stop Fre all particultures the n loufs CF St Freq Offse Stop 5.46000 GHz 1.00 ms (601 pts) 000 GHz 1.0 MHz #VBW 1.0 MHz

Conducted Bandedge Peak, 5310 MHz, HT-40 STBC, M0 to M7 Alter State Free Run RL Ne Soo DC Street Enter Freq 5.405000000 GHz PROFERSTOR Avg Type: Log-Pw Frequency Auto Tu Ref 0.00 dBm Center Fre 5.40500000 G Start Fr ۲ Stop Fre aller de fan de minister fan in ster fan it ster fan it ster fan de fan it in ster fan it ster fan it ster fan it ster CF St Freq Offse 5000 GHz 1.0 MHz Stop 5.46000 GHz 1.00 ms (601 pts) #VBW 1.0 MHz

Antenna B

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Antenna A

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alent Seattrange Rt. | n = | 1900 pc | Content Rt. | n = | 1900 pc | Content PNO: Traintow #Rteintow Avg Type: Log-Pt Frequency Auto Tu 5.394 37 -38.68 Ref 0.00 dBm Center Fre 5.40500000 G Start Fr 6 35 all All Burlash hard Stop Fre CFS 11.00 Freq Off 0 Stop 5.46000 GHz 000 GHz 1.0 MHz #VBW 1.0 MHz SW

Conducted Bandedge Peak, 5320 MHz, Non HT-20, 6 to 54 Mbps

Antenna A

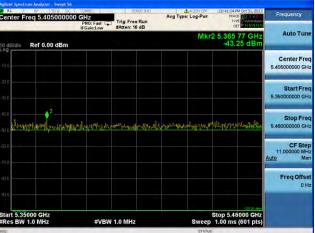
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Conducted Bandedge Peak, 5320 MHz, Non HT-20, 6 to 54 Mbps



Antenna A



Antenna B

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Rten Settlestream Rt | n = 1900 pc | Context Center Freq 5,405000000 GHz PN0c Freq 5,405000000 GHz Avg Type: Log-Pw Auto Tu 5.439 28 Ref 0.00 dBm Center Fre 4050000 000 G Start Fr (Stop Fre CFS 11.00 Freq Off 0 Stop 5.46000 GHz ep 1.00 ms (601 pts) 000 GHz #VBW 1.0 MHz

Conducted Bandedge Peak, 5320 MHz, HT-20, M0 to M7

Antenna A

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Conducted Bandedge Peak, 5320 MHz, HT-20, M0 to M7



RL AF 500 DC 10080 CH2 enter Freq 5.405000000 CH2 PR0: Fast Trig: Free Run IFGaint.ow #Atten: 16 dB Avg Type: Log-Pu Frequency Auto Tur Ref 0.00 dBm Center Fre 5.405000000 GI Start Fre 000000 G ٢ Stop Fre under margine replaces AL. Laborer 00 GI CF St. ME Freq Offs 01 Stop 5.46000 GH: Sweep 1.00 ms (601 pts V 1.0 MH #VBW 1.0 MHz

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Antenna B

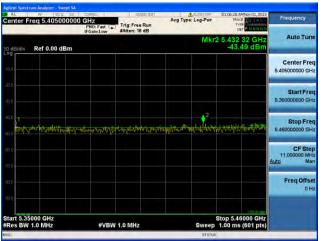


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Conducted Bandedge Peak, 5320 MHz, HT-20, M8 to M15

Antenna A



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Antenna B

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Sten Section March 1999 52 00085 Rt 1997 54 1999 52 000000 GHz PNR Freq 5.4050000000 GHz PNR Freq 5.405000000 GHz PNR for the transform #Atten: 16 dB Avg Type: Log-P Frequency Auto Tur 406 28 Ref 0.00 dBm Center Fre 40500000 G Start Fr Stop Fre CF St Freq Offse Stop 5.46000 GHz 000 GHz 1.0 MHz #VBW 1.0 MHz

Ann Settor Fourier Rt. 04 1900 DC 00085: Center Freq 5.405000000 GHz PROFERSTOR TO FGaint ov FGaint ov Avg Type: Log-Pw Frequency Auto Tu Ref 0.00 dBm Center Fre 405000000 G Start Fr •² Stop Fre analah CF St 11.000 Freq Offse Stop 5.46000 GHz 5000 GHz #VBW 1.0 MHz

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Antenna B

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Conducted Bandedge Peak, 5320 MHz, HT-20 STBC, M0 to M7

Antenna A