Radio Test Report: EDCS -784430

For

CP-9971-C-K9, CP-9971-CL-K9, CP-9971-W-K9, CP-9971-WL-K9
(5GHz Radio)

Against the following Specifications :

FCC CFR 47 part 15.247

FCC CFR 47 part 15.407

RSS-210

RSS-102

Cisco Systems

EMC Laboratory

170 West Tasman Drive

San Jose, CA 95134

Author: Dean Yarza
Approved By: Craig Mullis
Title: Regulatory Compliance Manager

This report replaces any previously entered test report under EDCS - 705499

This test report has been electronically authorized and archived using the CISCO Engineering Document Control system.

Section 1: Overview

Test Summary

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

Emissions:
CFR47 Part 15.247
CFR47 Part 15.407
RSS-210
RSS-102

Notes:

1) Measurements were made in accordance with FCC docket #: DA-02-2138A1, KDB Publication No. 558074 & measurement method of spurious emission tolerance to the International Telecommunication Union (ITU) Recommendation SM329.

Section 2: Assessment Information

2.1 General

This report must not be used to claim product certification, approval, or endorsement by A2LA, NIST, or any agency of the federal Government.

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 tolerances and measurement uncertainties.

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*%

e) All AC testing was performed at one or more of the following supply voltages:
110V (+/-10%) 60Hz
220V (+/-10%) 50 or 60Hz

f) Cisco Systems, Inc. is accredited by the American Association for Laboratory Accreditation (A2LA). The scope of accreditation, certificate number 1178-01 is referenced in appendix C, along with further details.

2.2 Start Date of Testing

28-April-2009

2.3 Report Issue Date

Cisco Systems, Inc. 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.,
170 West Tasman Drive
San Jose, CA 95134,
USA

Registration Numbers for Industry Canada

Cisco System Site	Site Identifier
Building P, 10m Chamber	Company #: 4624-2
Building P, 5m Chamber	Company #: 4624-1
Building N, 5m Chamber	Company #: 6111
Building I, 5m Chamber	Company #: 6112

Test Engineers

Dean Yarza

2.5 Equipment Assessed (EUT)

CP-9971-C-K9

2.6 EUT Description

CP-9971 is the next generation of desktop phones. It will support the use of 802.11a/b/g in addition to Ethernet as network interface.

The WLAN subsystem of CP-9971 phones will comprise of the MuRata LBEH1WULQC module with support for TNET1253 for WLAN and BRF6350 for Bluetooth support also using WP Wireless dual-band SMD antenna p/n: WPIANTFR4CUS03A20/C

CP-9971-C-K9: Cisco Unified IP Endpoint 9971, Charcoal, Thick Handset

CP-9971-CL-K9: Cisco Unified IP Endpoint 9971, Charcoal, Thin Handset

CP-9971-W-K9: Cisco Unified IP Endpoint 9971, White, Thick Handset

CP-9971-WL-K9: Cisco Unified IP Endpoint 9971, White, Thin Handset

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2.7 Scope of Assessment

Tests have been performed in accordance with the relevant Test and Assessment Plan (TAP), a copy of which is contained in Appendix F of this report, and the relevant Cisco Systems, Inc. radio test procedures (EDCS-420238). This test report may not cover all of the tests highlighted in the test plan.

2.8 Units of Measurement

The units of measurements defined in the appendices are reported in specific terms, which are test dependent. Where radiated measurements are concerned these are defined at a particular distance. Basic voltage measurements are defined in units of [dBuV]

As an example, the basic calculation for all measurements is as follows:

Emission level [dBuV] = Indicated voltage level [dBuV] + Cable Loss [dB] + Other correction factors [dB]

The combinations of correction factors are dependent upon the exact test configurations [see test equipment lists for further details] and may include:-

Antenna Factors, Pre Amplifier Gain, LISN Loss, Pulse Limiter Loss and Filter Insertion Loss..

Note: to convert the results from dBuV/m to uV/m use the following formula:-

Level in uV/m = Common Antilogarithm [(X dBuV/m)/20] = Y uV/m

2.9 Report Template Control No.

EDCS#: 703457

Section 3: Result Summary

Conducted emissions

Basic Standard	Result
6dB Bandwidth	Pass
99% and 26dB Bandwidth	Pass
Peak Output Power	Pass
Power Spectral Density	Pass
Peak Excursion	Pass
Conducted Spurious Emissions	Pass

Radiated emissions

Basic Standard	Result
Radiated Spurious and Harmonic Emissions	Pass
Co-Locator Radiated Spurious Emissions	Pass
Restricted Band Edge Measurements	Pass

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. During preliminary testing all three planes (X,Y & Z) were evaluated to determine “Worst Case”. The orientation used for this report was demind “Worst Case”.

4.1 Sample Details

Sample Number	Equipment Details	Serial Number	Part Number
S01	CP-9971G	IAC1232A00M	74-5464-01

The following antennas were evaluated as part of this testing process. The antennas listed reflect the maximum gain allowed for each family type of antenna:

Fixed internal Antenna at 5GHz, Gain = 3.01dBi (no external antenna can be used.)

4.2 System Details

System #	Description	Samples
1	Radio Test Sample	S01

4.3 Mode of Operation Details

Mode#	Description	Comments
1	802.11A Test Mode	System is placed in a continuous Tx State at various channels per Test Requirements. 802.11A running at 6Mbps
2	Co-locator Test Mode	System is connected to the MT8852B Bluetooth Tester and placed in a continuous Tx Mode with Hopping Turned ON or OFF per test requirement while Wi-fi is also placed in a continuous Tx state.

Section 5: Modifications

5.1 Sample Modifications Performed During Assessment

No modifications were performed during assessment.

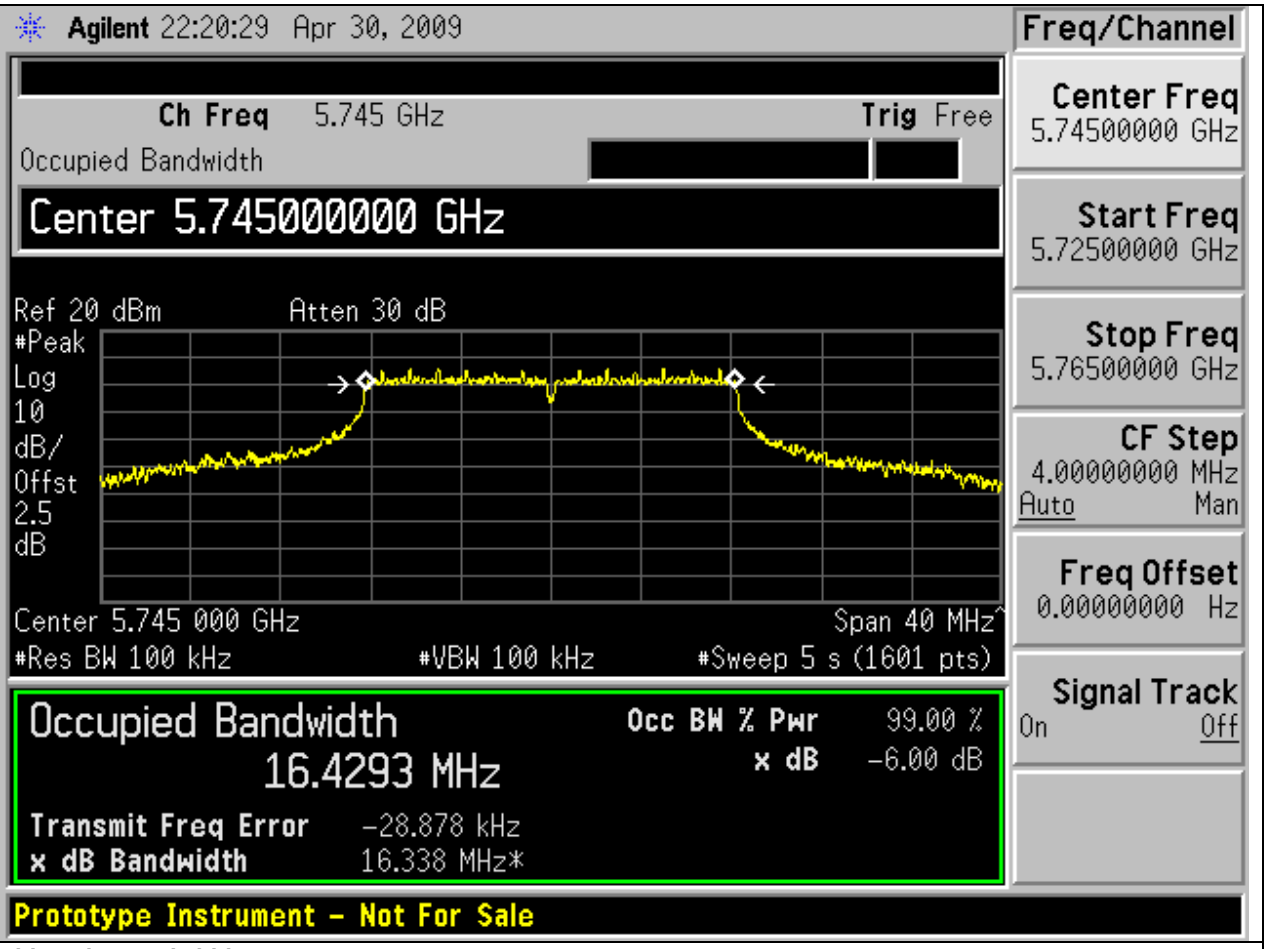
Appendix A: Formal Test Results

6dB & 99% Bandwidth

15.247 & RSS-210(A8.2) Systems using digital modulation techniques may operate in the 5725-5850MHz band. The minimum 6 dB bandwidth shall be at least 500 kHz.

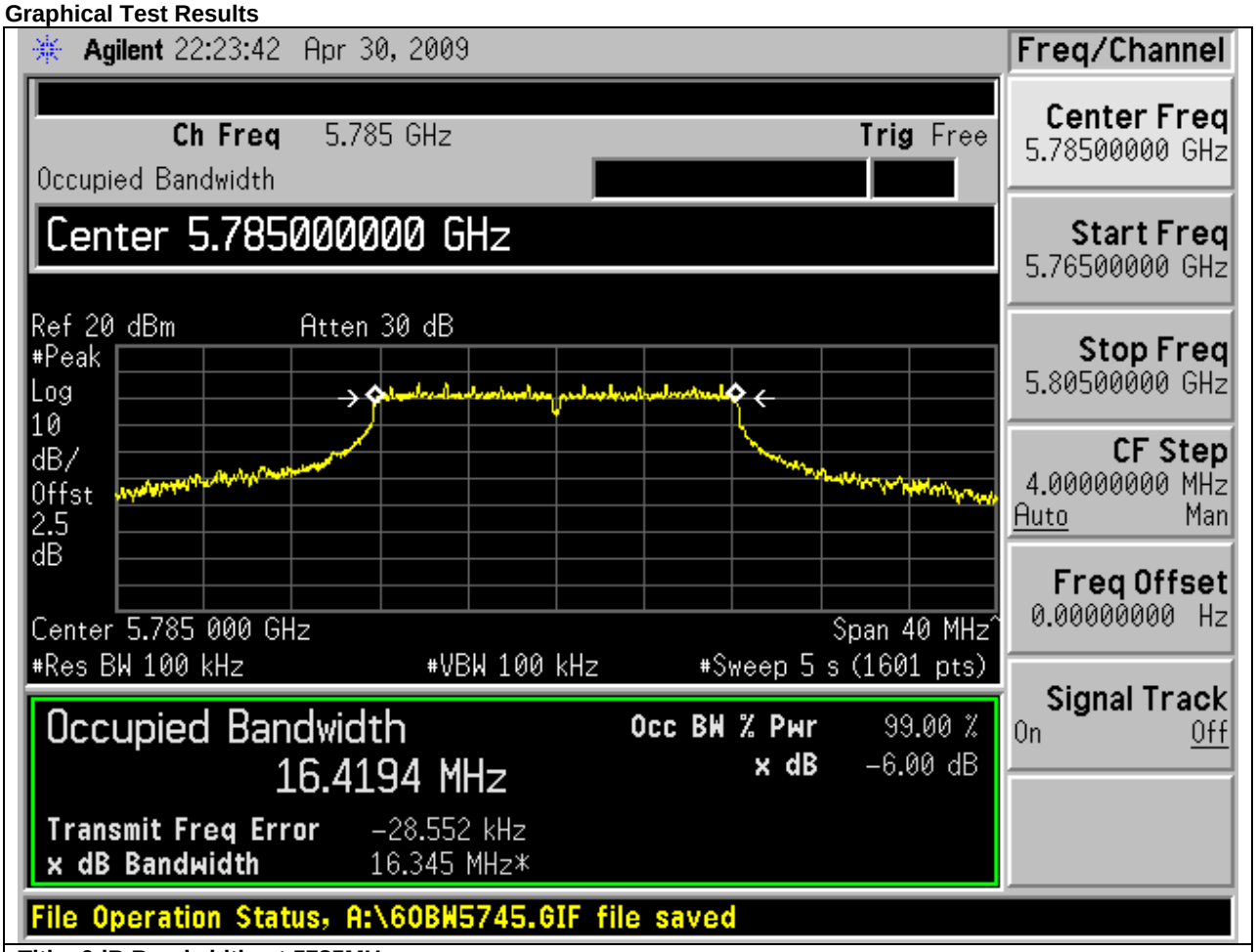
Frequency (MHz)	Data Rate (Mbps)	6dB Bandwidth (kHz)	Limit (kHz)	Margin (kHz)
5745	6	16428	500	-15928
5785	6	16419	500	-15919
5805	6	16429	500	-15929

Frequency (MHz)	Data Rate (Mbps)	99% Bandwidth (kHz)
5745	6	16338
5785	6	16345
5805	6	16348

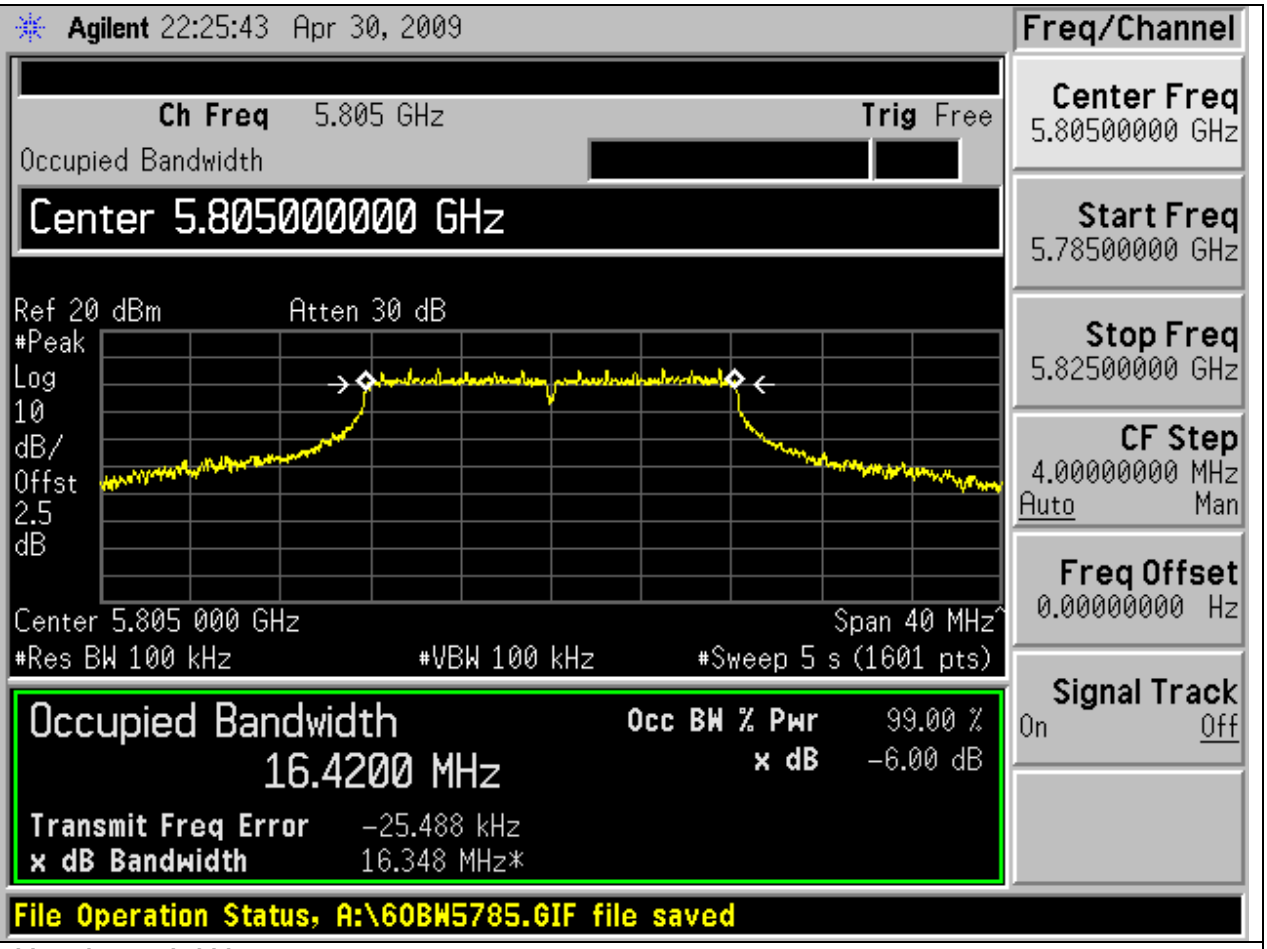


Title: 6dB Bandwidth at 5745MHz

Graphical Test Results



Title: 6dB Bandwidth at 5785MHz

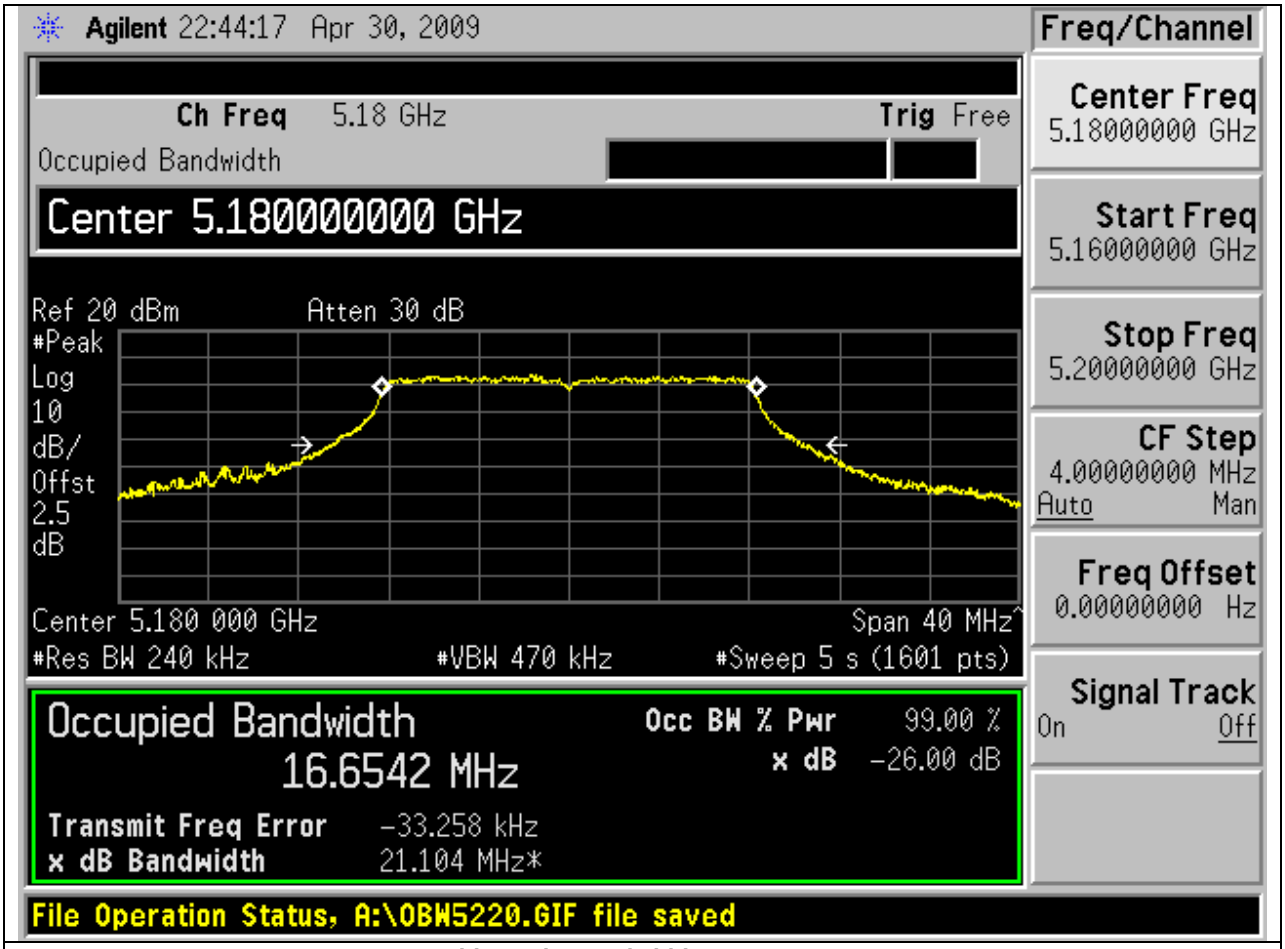


Title: 6dB Bandwidth at 5805MHz

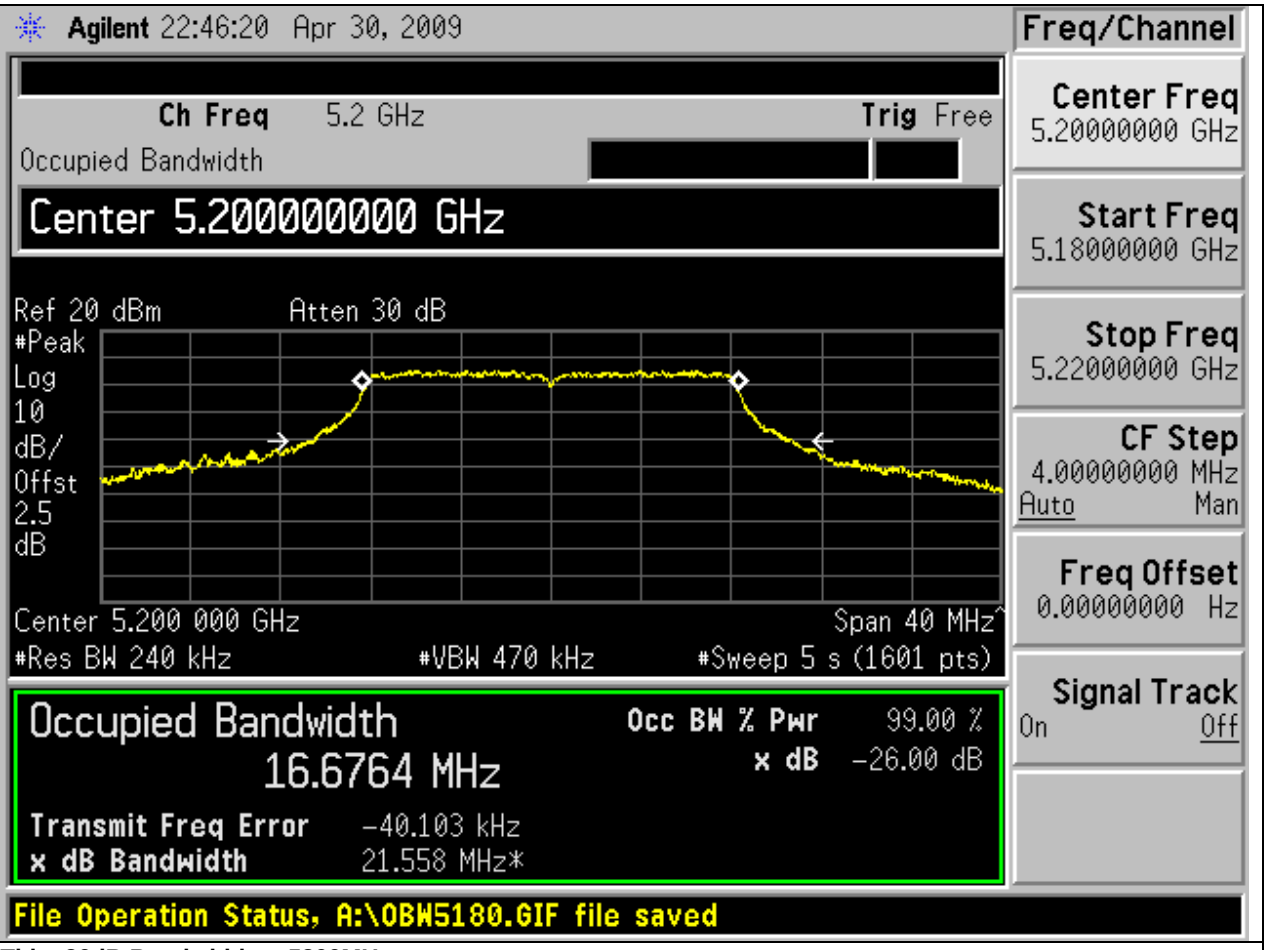
99% and 26dB Bandwidth

Frequency (MHz)	Data Rate (Mbps)	99% Bandwidth (MHz)	26dB Bandwidth (MHz)
5180	6	21.104	16.6542
5200	6	21.558	16.6764
5240	6	21.369	16.6653
5260	6	21.431	16.6778
5280	6	21.394	16.6655
5320	6	21.342	16.6576
5500	6	21.335	16.6486
5600	6	21.542	16.6793

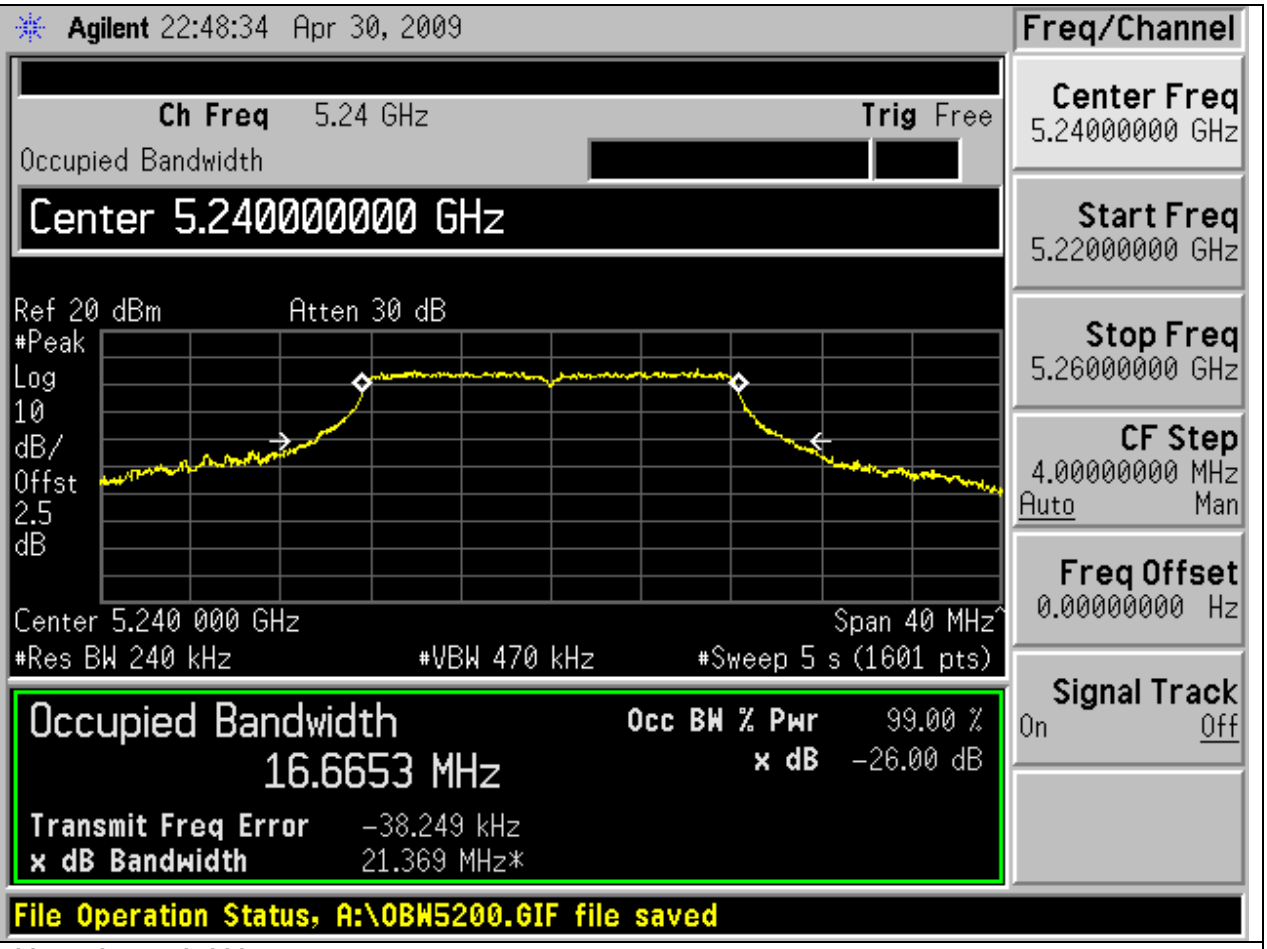
Graphical Test Results



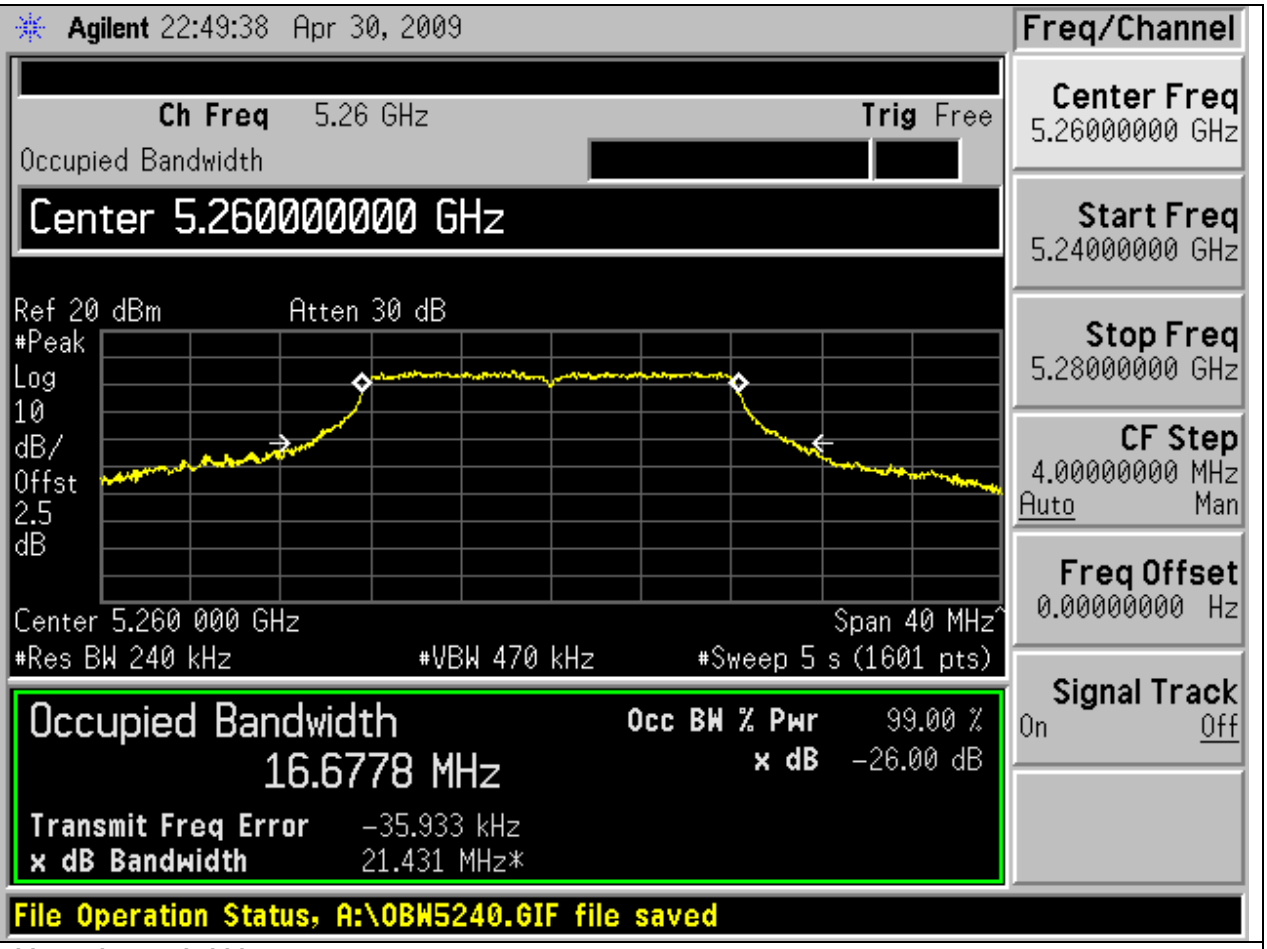
Title: 26dB Bandwidth at 5180MHz,



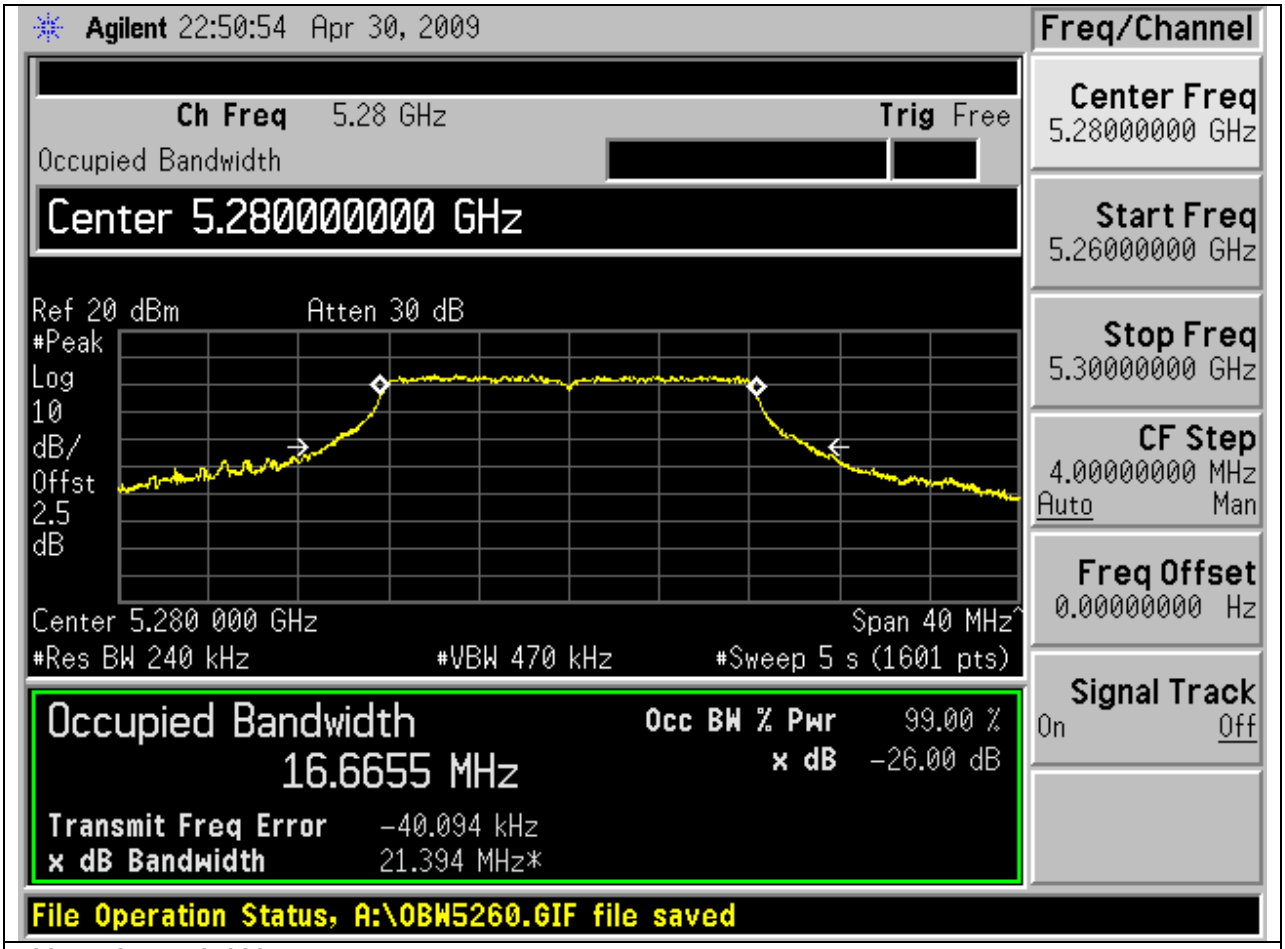
Title: 26dB Bandwidth at 5200MHz



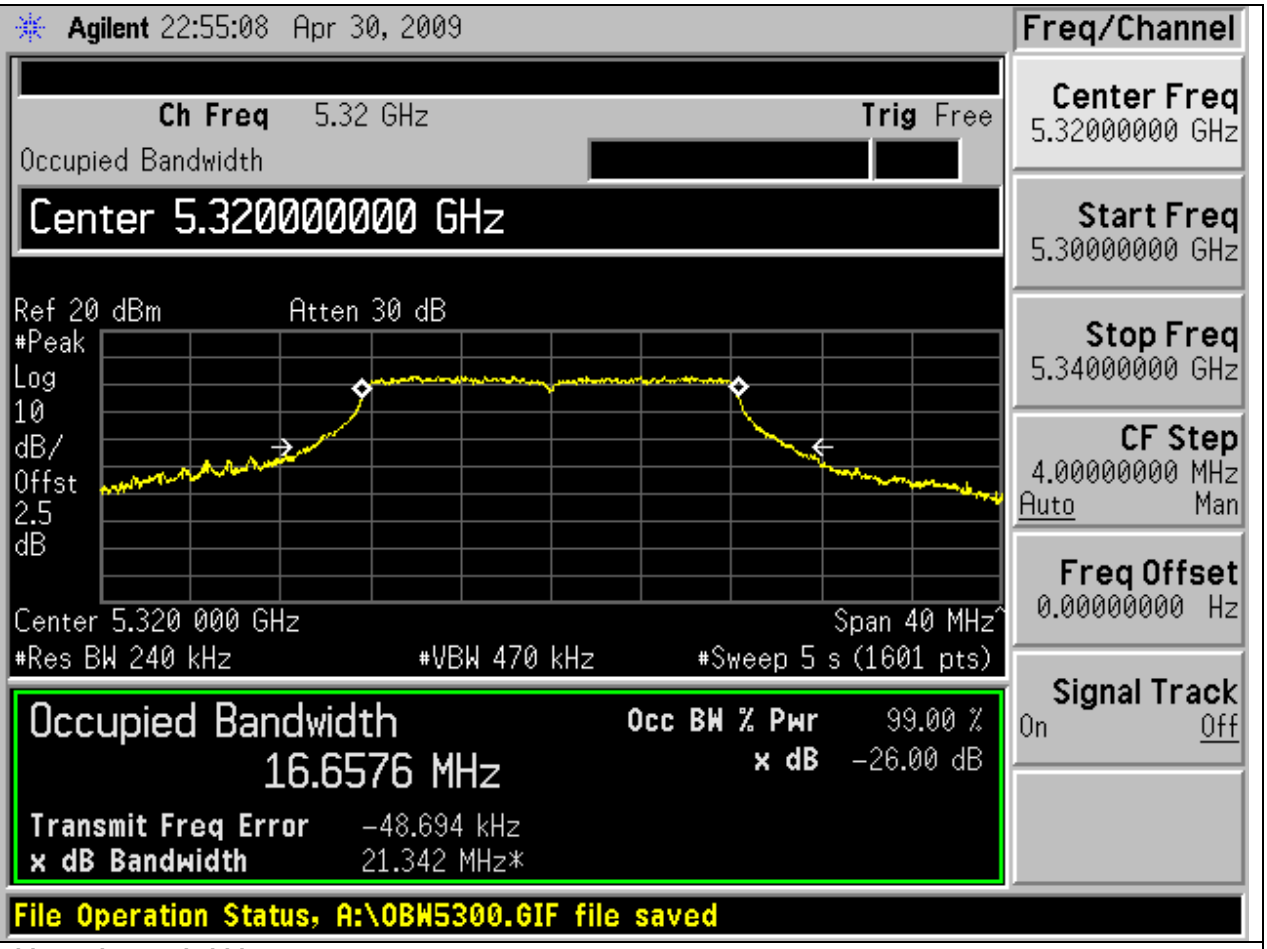
Title: 26dB Bandwidth at 5240MHz



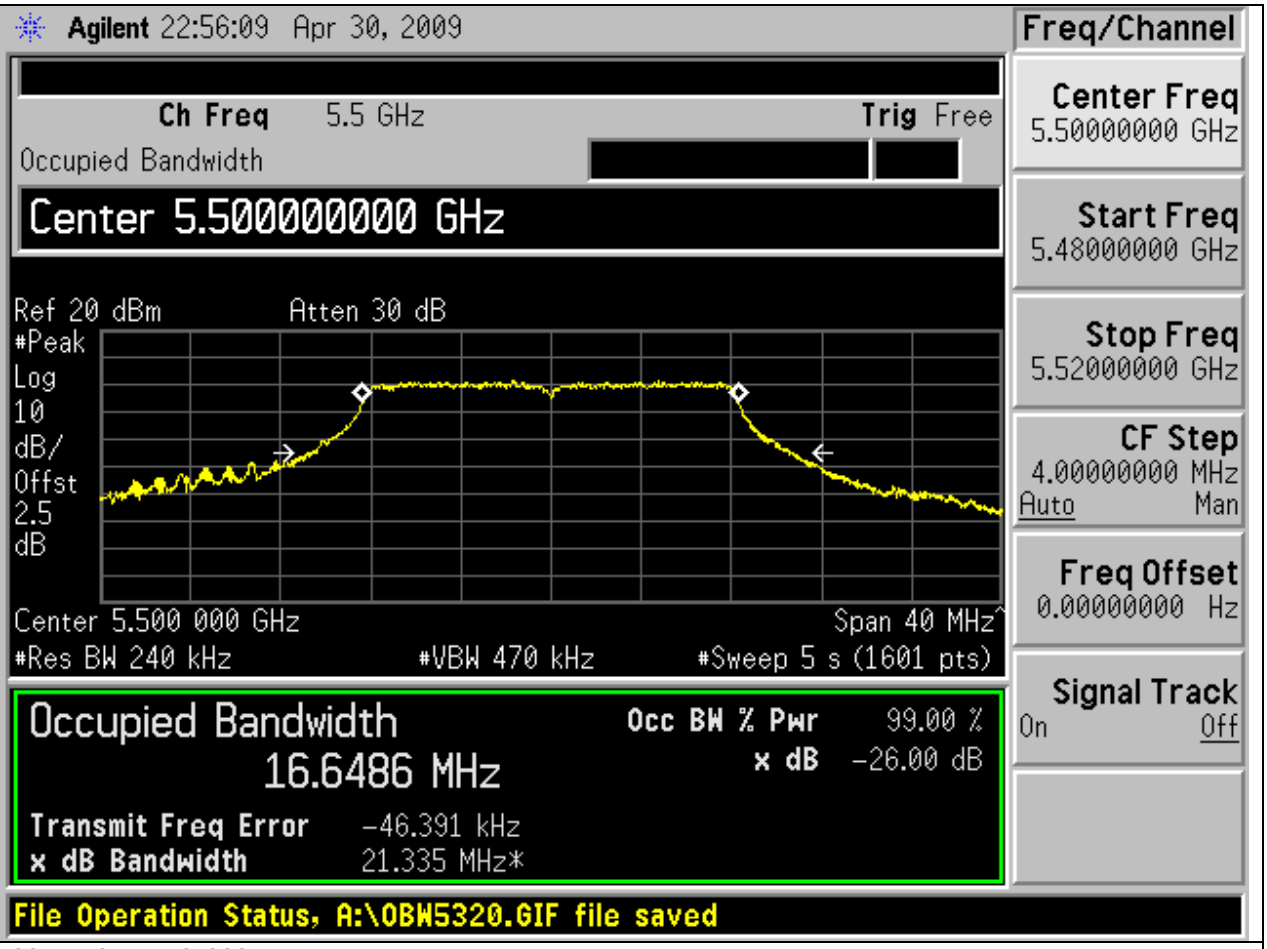
Title: 26dB Bandwidth at 5260MHz



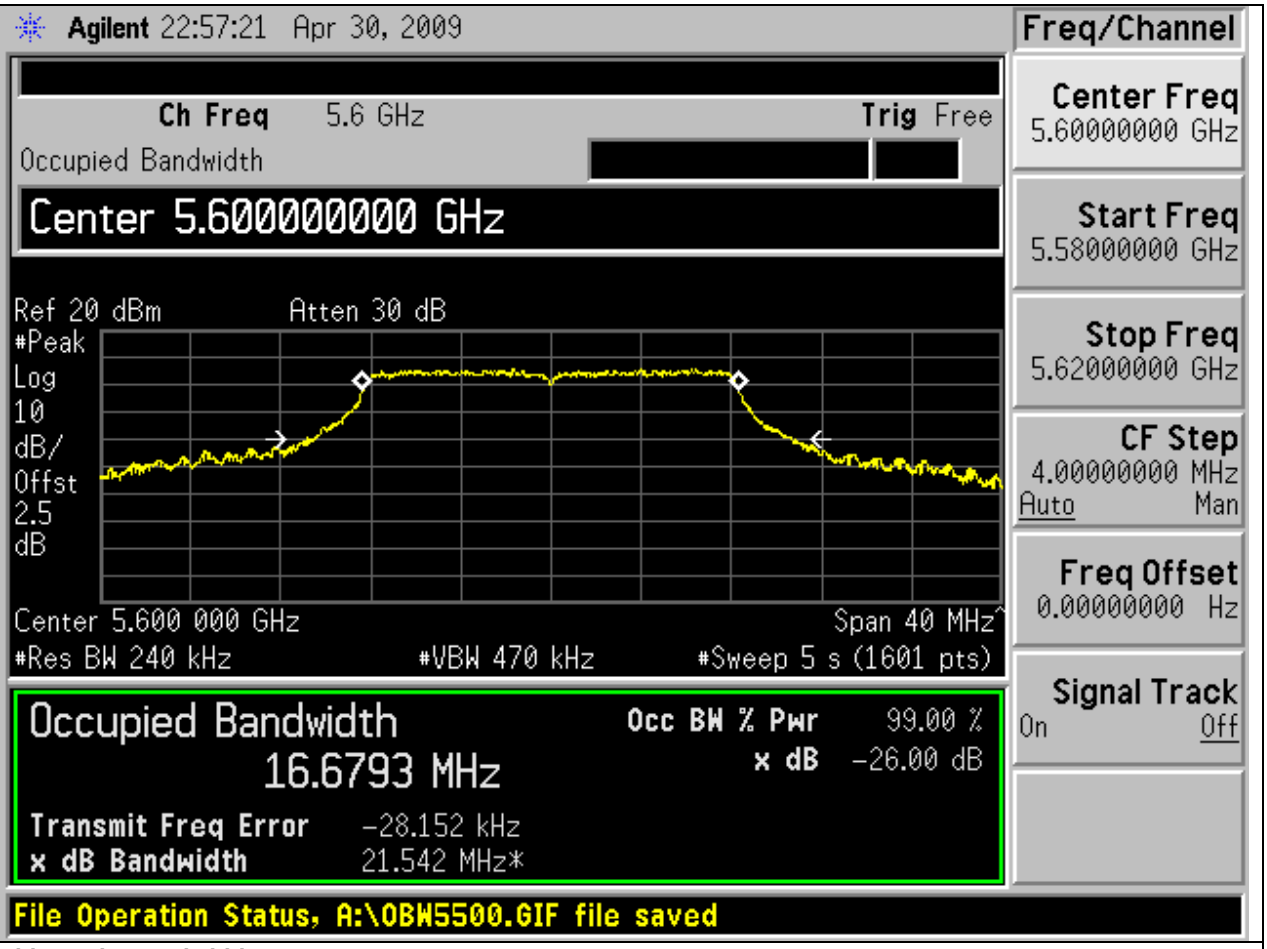
Title: 26dB Bandwidth at 5280MHz



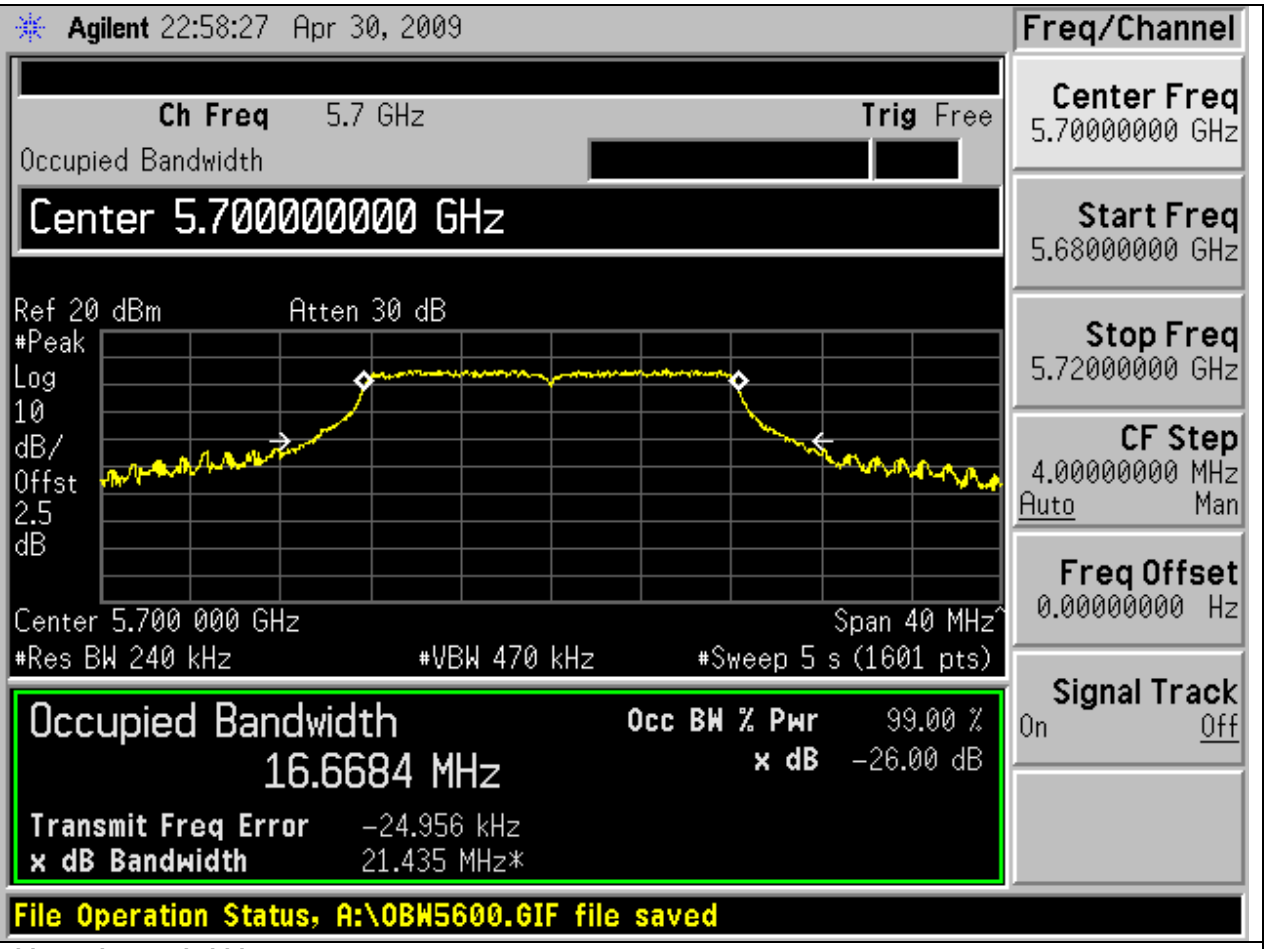
Title: 26dB Bandwidth at 5320MHz



Title: 26dB Bandwidth at 5500MHz



Title: 26dB Bandwidth at 5600MHz



Title: 26dB Bandwidth at 5700MHz

Peak Output Power

15.407 & RSS-210(A9.2):

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 21.104MHz. The maximum conducted output power is calculated as 4dBm+10*log(21.104MHz) = 17.24dBm. Which is greater than 50mW

the frequency bands of operation shall For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. 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 21.335 MHz. The maximum conducted output power is calculated as 11dBm+10*log(21.335MHz) = 24.29dBm. Which is greater than 250mW.

15.247 & RSS-210(A8.4):

The maximum conducted output power of the intentional radiator for systems using digital modulation in the 5725-5850MHz band shall not exceed 1 Watt (30dBm). 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.

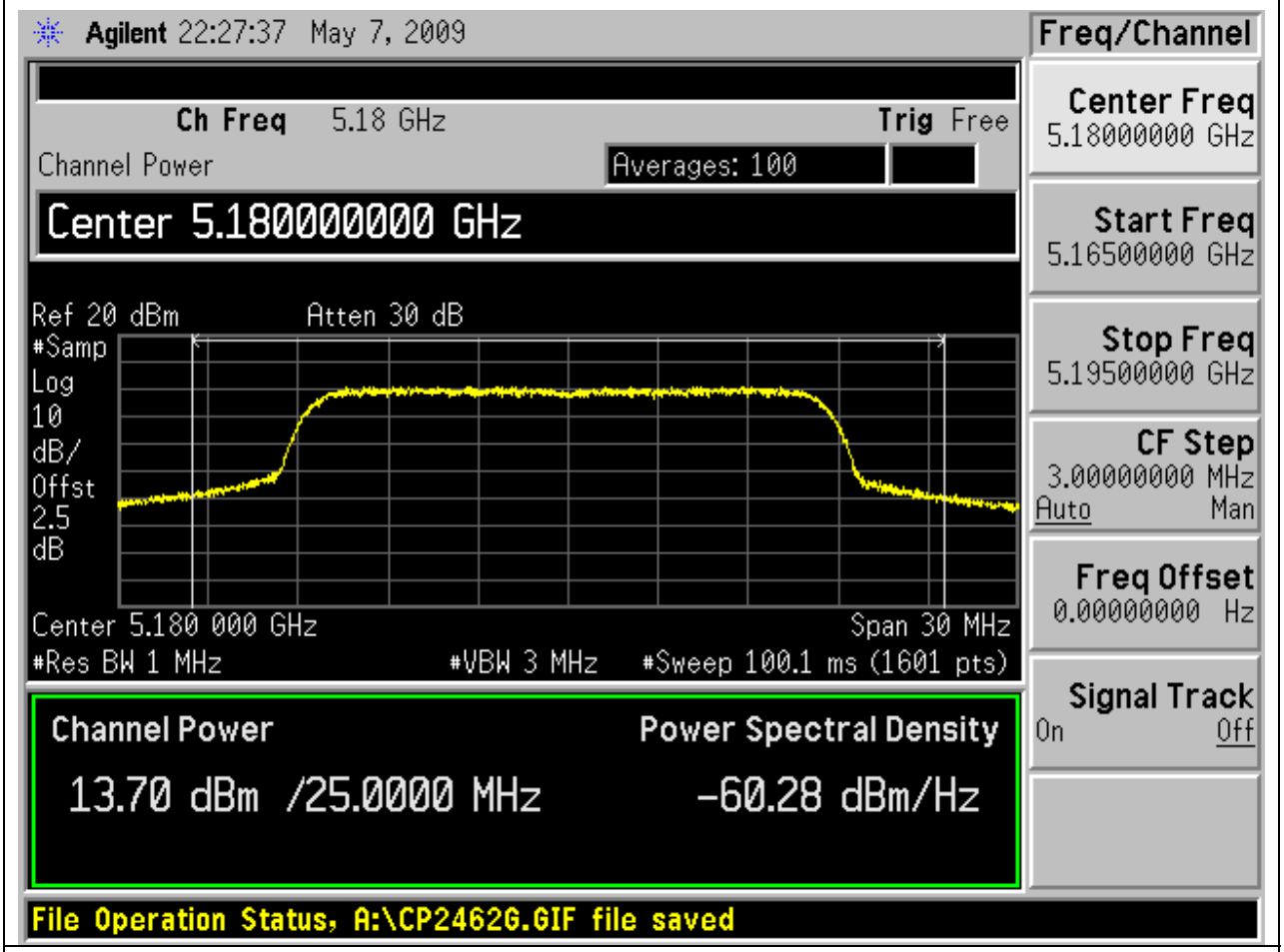
Frequency (MHz)	Data Rate (Mbps)	Peak Output Power (dBm)	Limit (dBm)	Margin (dB)
5180	6	13.70	17	-3.30
5200	6	15.56	17	-1.44
5240	6	15.27	17	-1.73
5260	6	15.13	24	-8.87
5280	6	13.95	24	-10.05
5320	6	13.86	24	-10.14
5500	6	11.37	24	-12.63
5600	6	15.42	24	-8.58

(Measurement made using FCC Public Notice DA 02-2138, August 30, 2002)

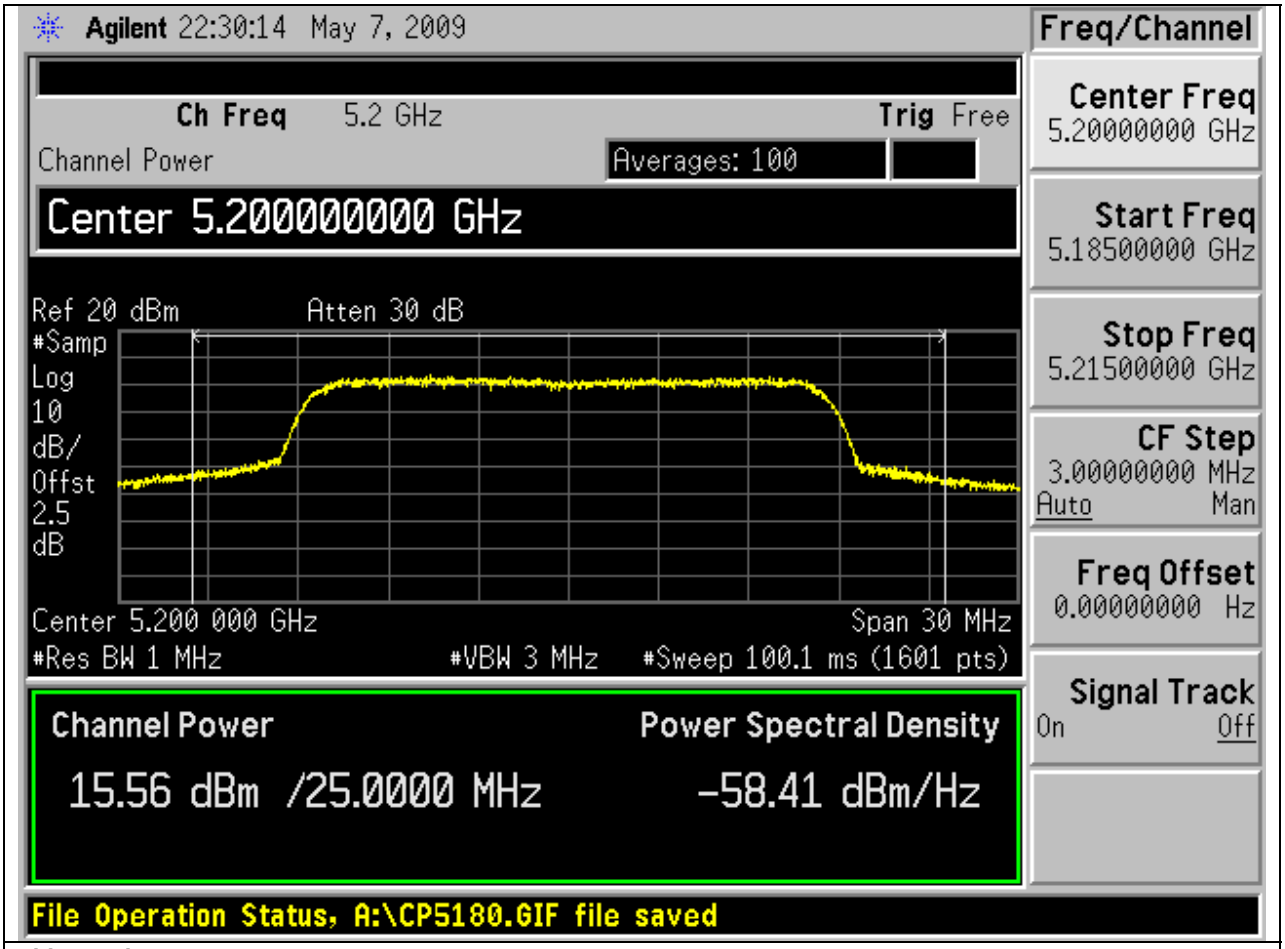
Frequency (MHz)	Data Rate (Mbps)	Peak Output Power (dBm)	Limit (dBm)	Margin (dB)
5745	6	17.36	30	-12.64
5785	6	17.78	30	-12.22
5805	6	17.76	30	-12.24

(Measurement made using KDB Publication No. 558074 power option 1, peak power meter)

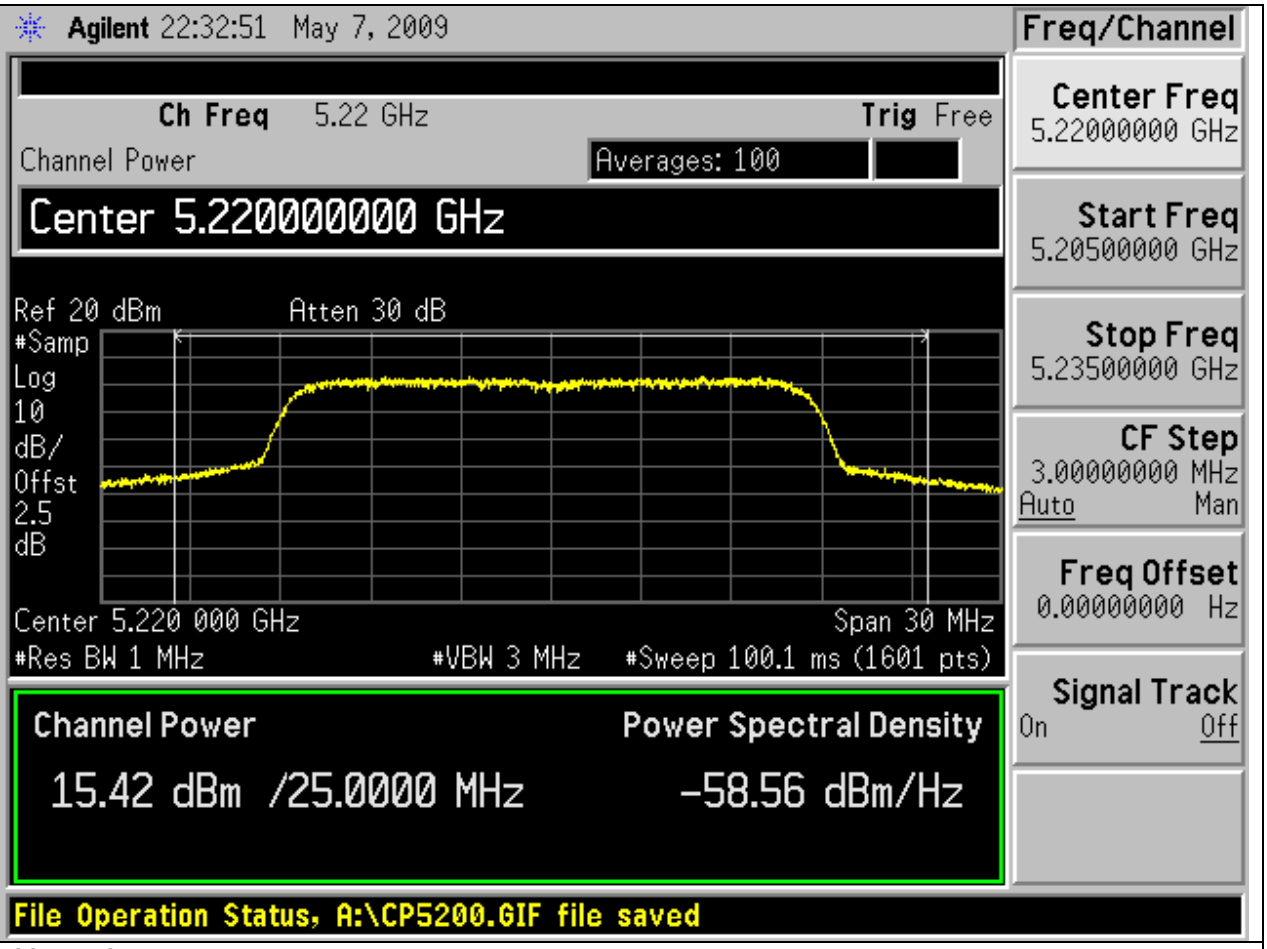
Graphical Test Results



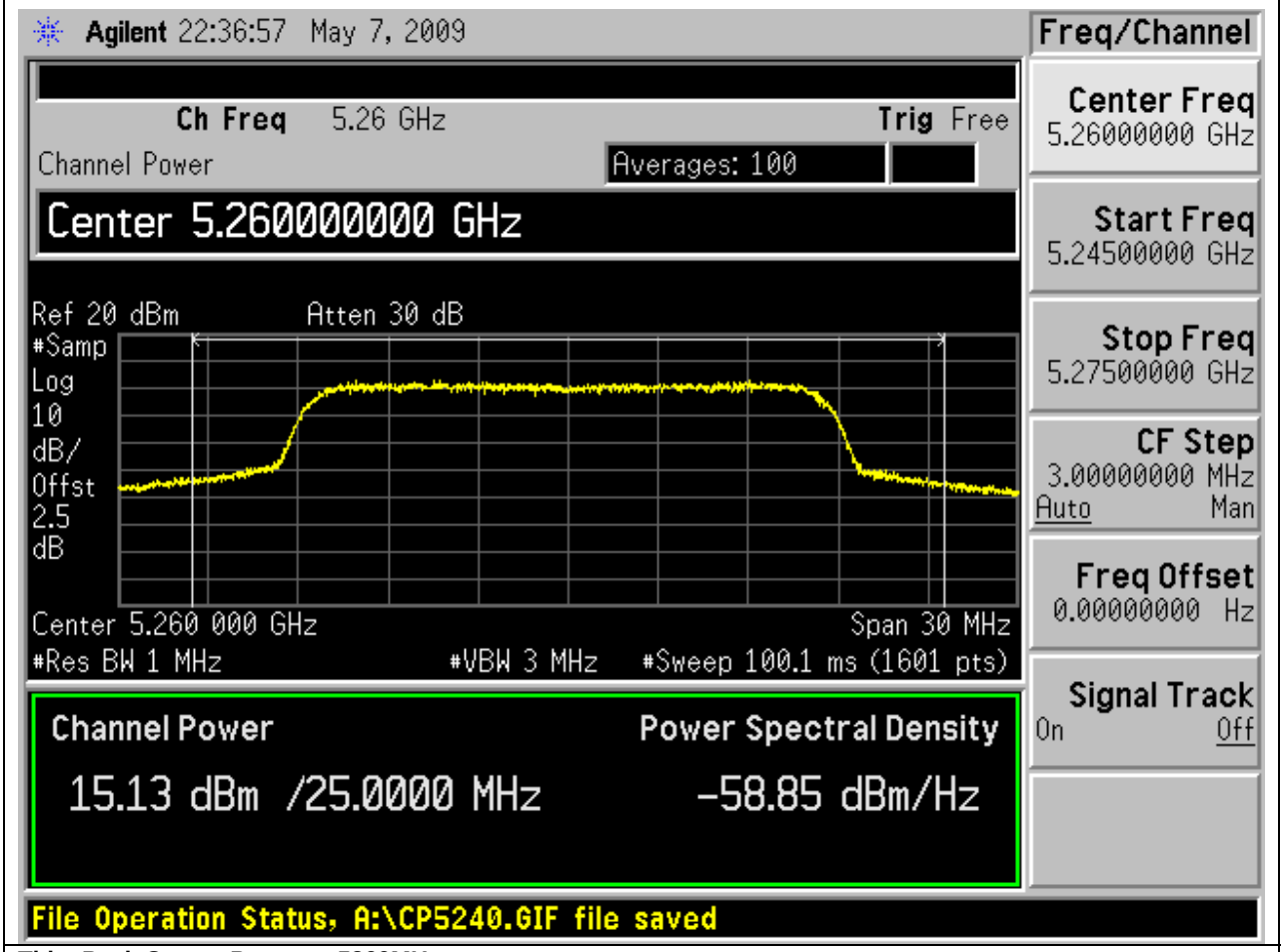
Title: Peak Output Power at 5180MHz



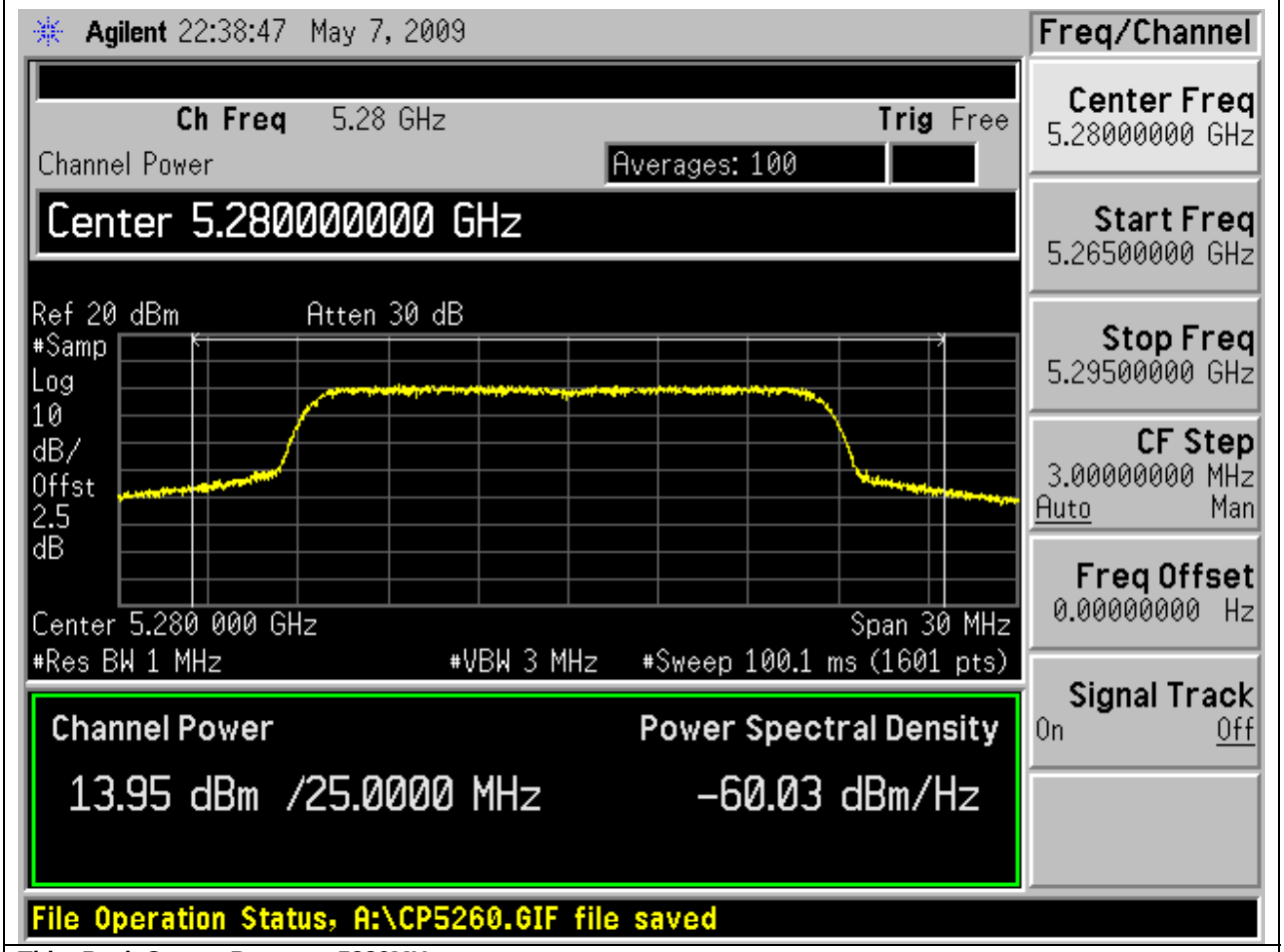
Title: Peak Output Power at 5200MHz



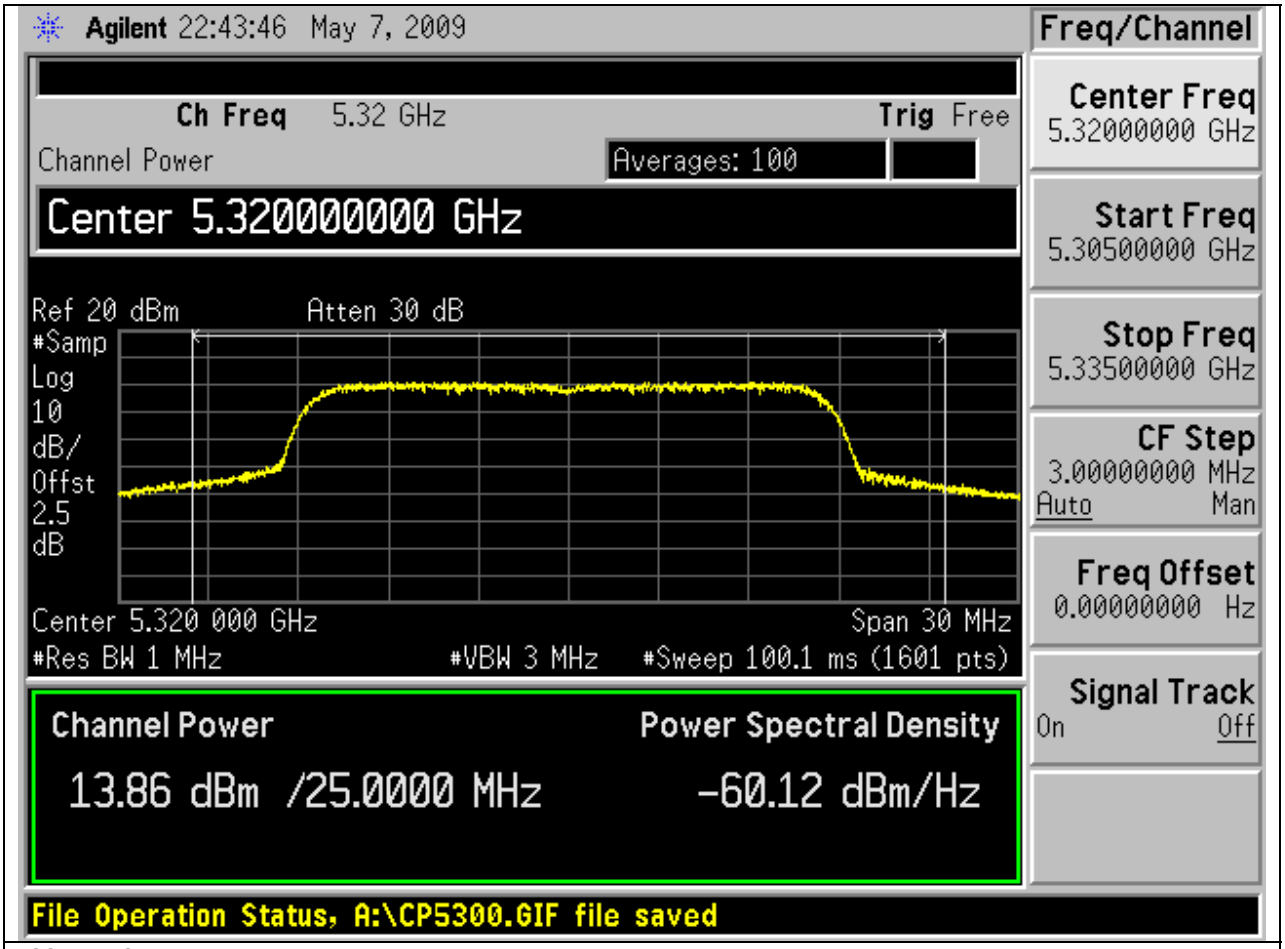
Title: Peak Output Power at 5240MHz



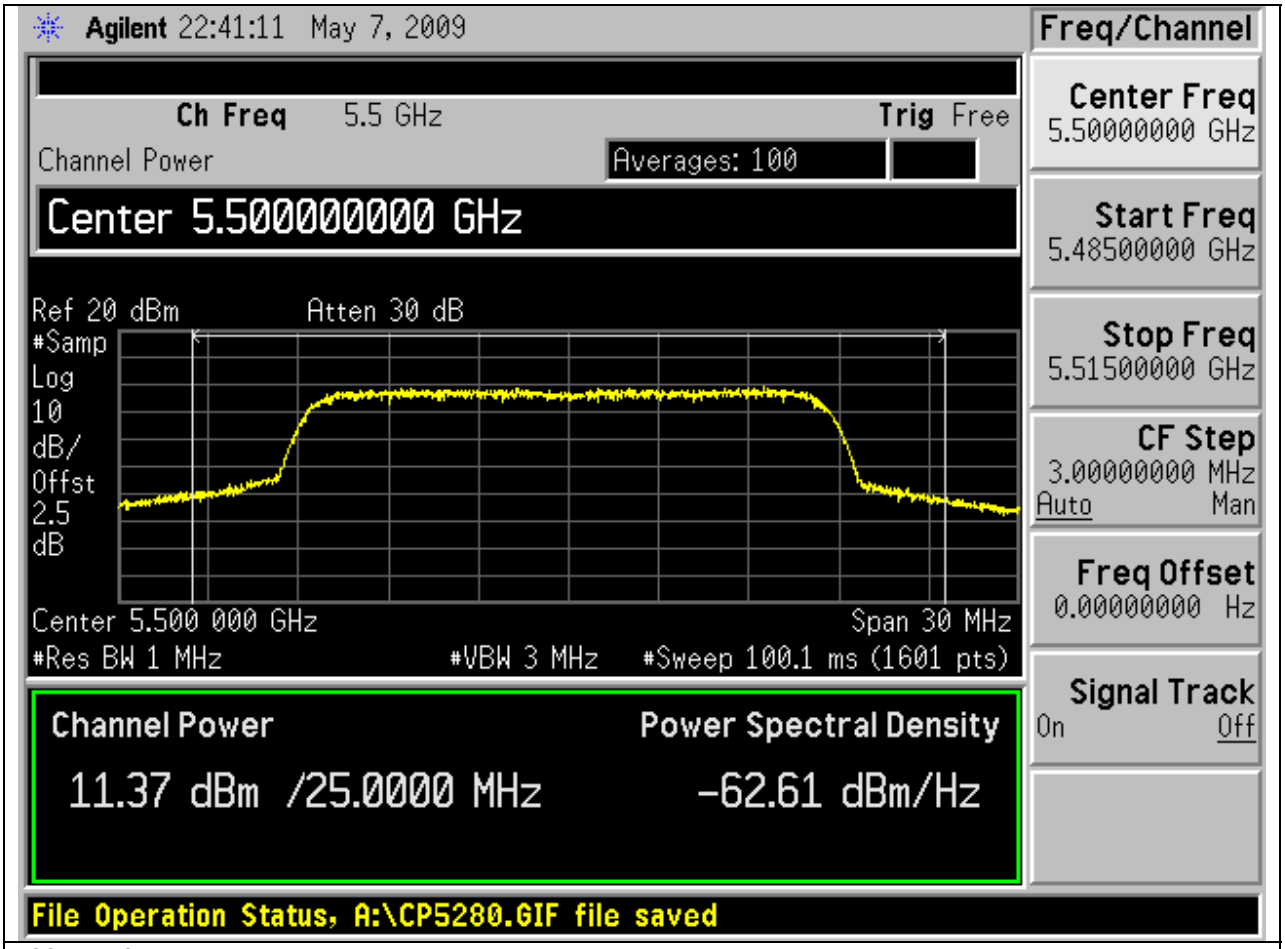
Title: Peak Output Power at 5260MHz



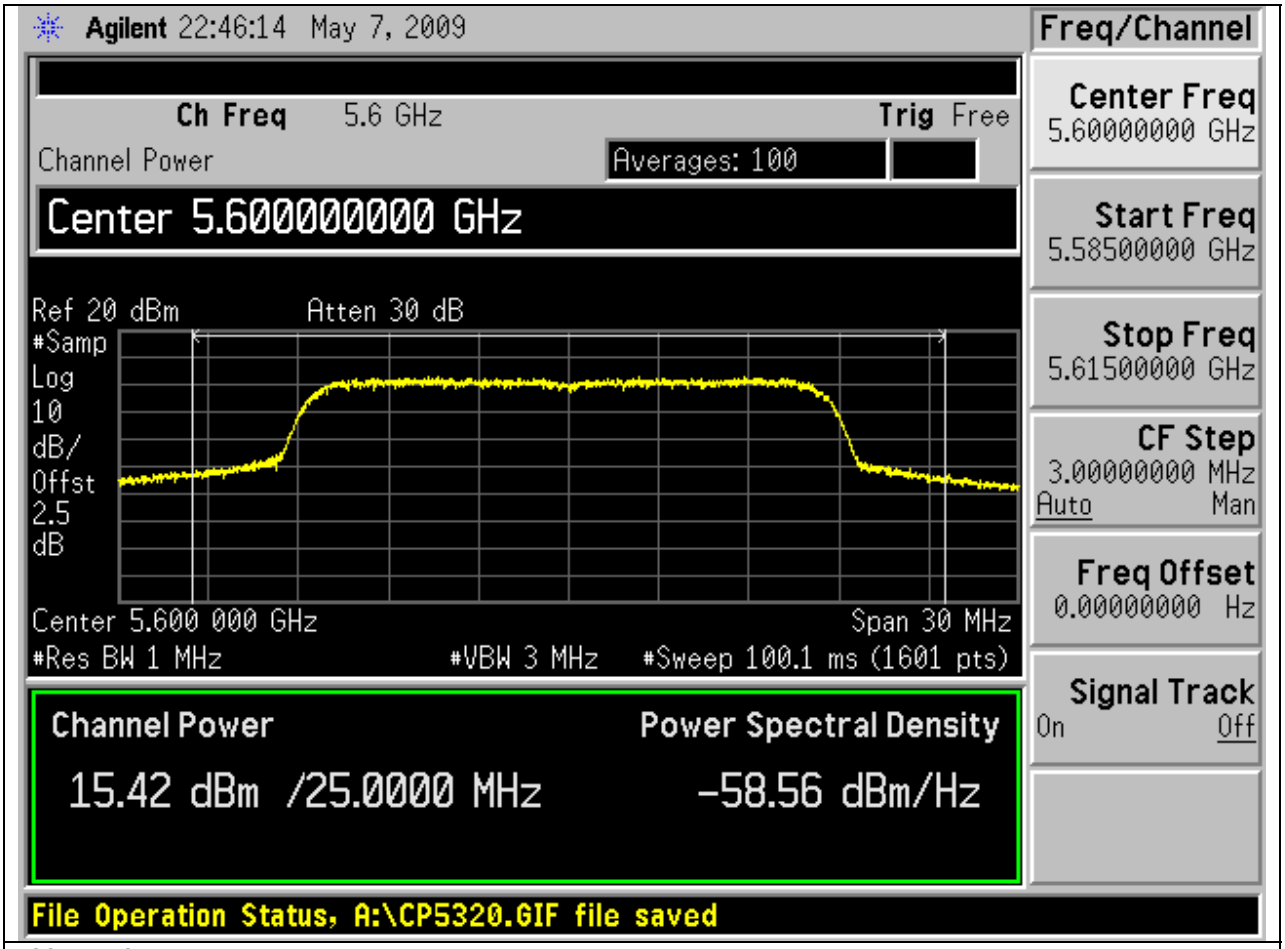
Title: Peak Output Power at 5280MHz



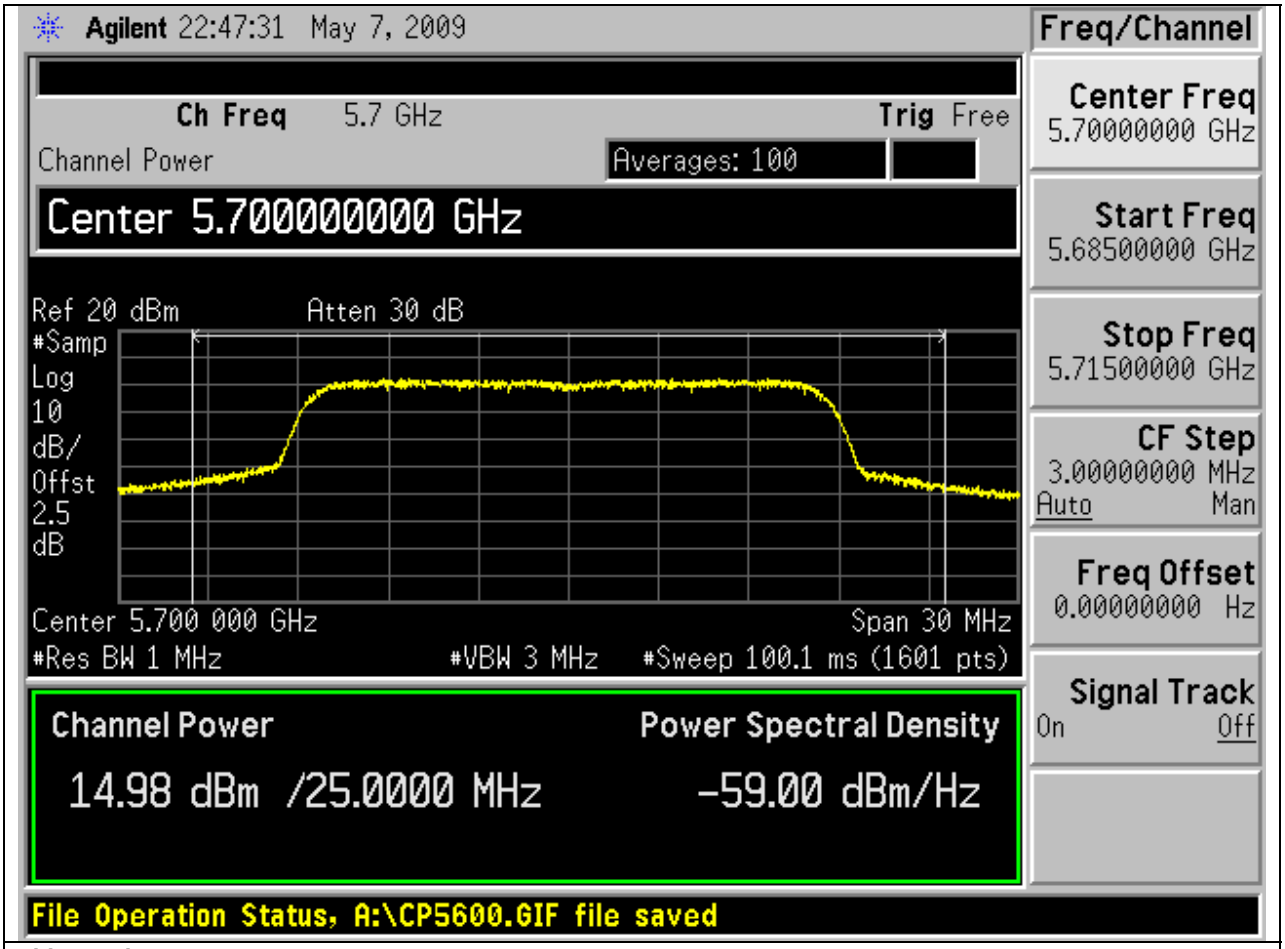
Title: Peak Output Power at 5320MHz



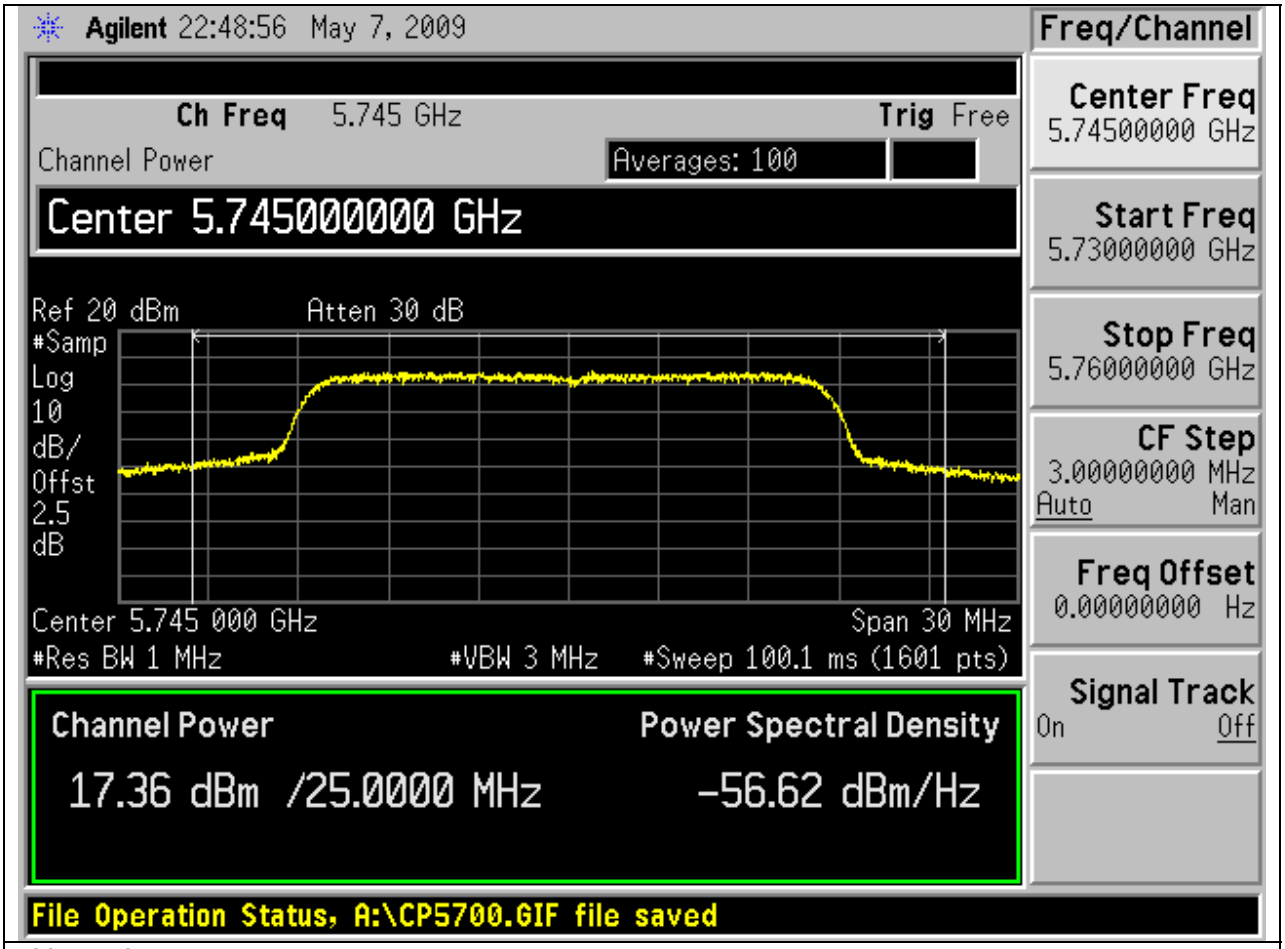
Title: Peak Output Power at 5500MHz



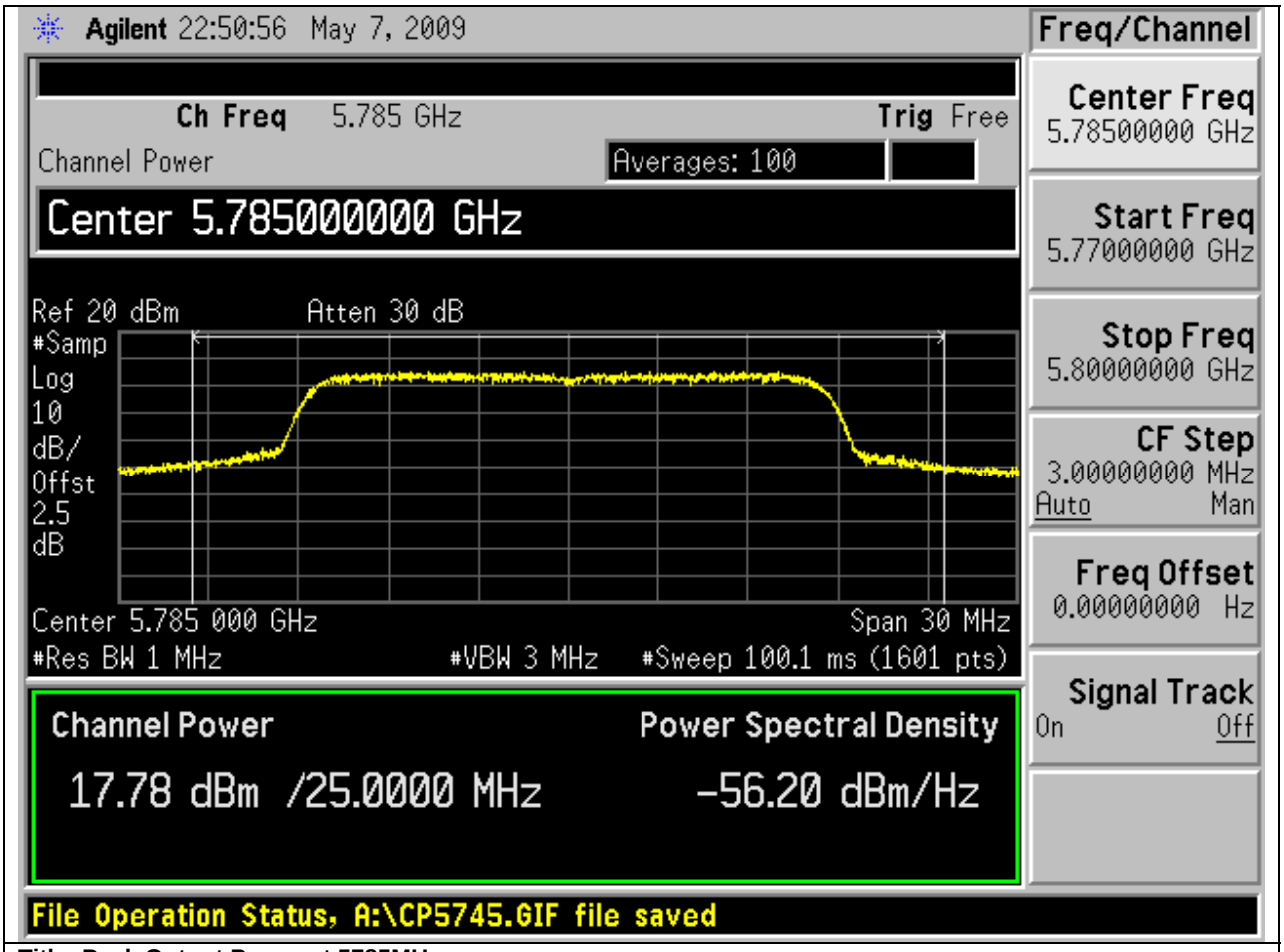
Title: Peak Output Power at 5600MHz



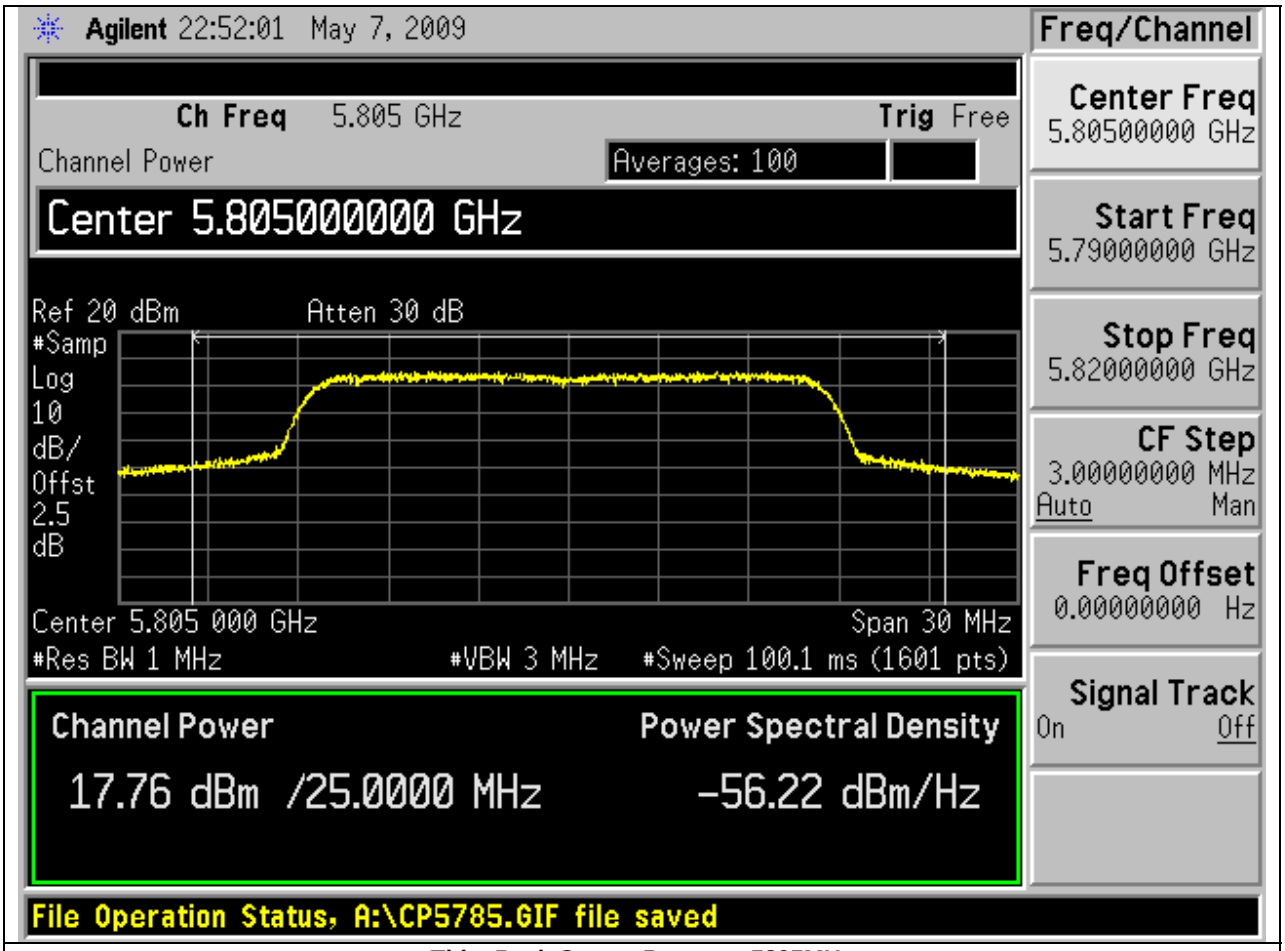
Title: Peak Output Power at 5700MHz



Title: Peak Output Power at 5745MHz



Title: Peak Output Power at 5785MHz



Title: Peak Output Power at 5805MHz

Power Spectral Density

15.407 & RSS-210(A9.2):

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.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the peak power spectral density shall not exceed 11 dBm in any 1 megahertz 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.

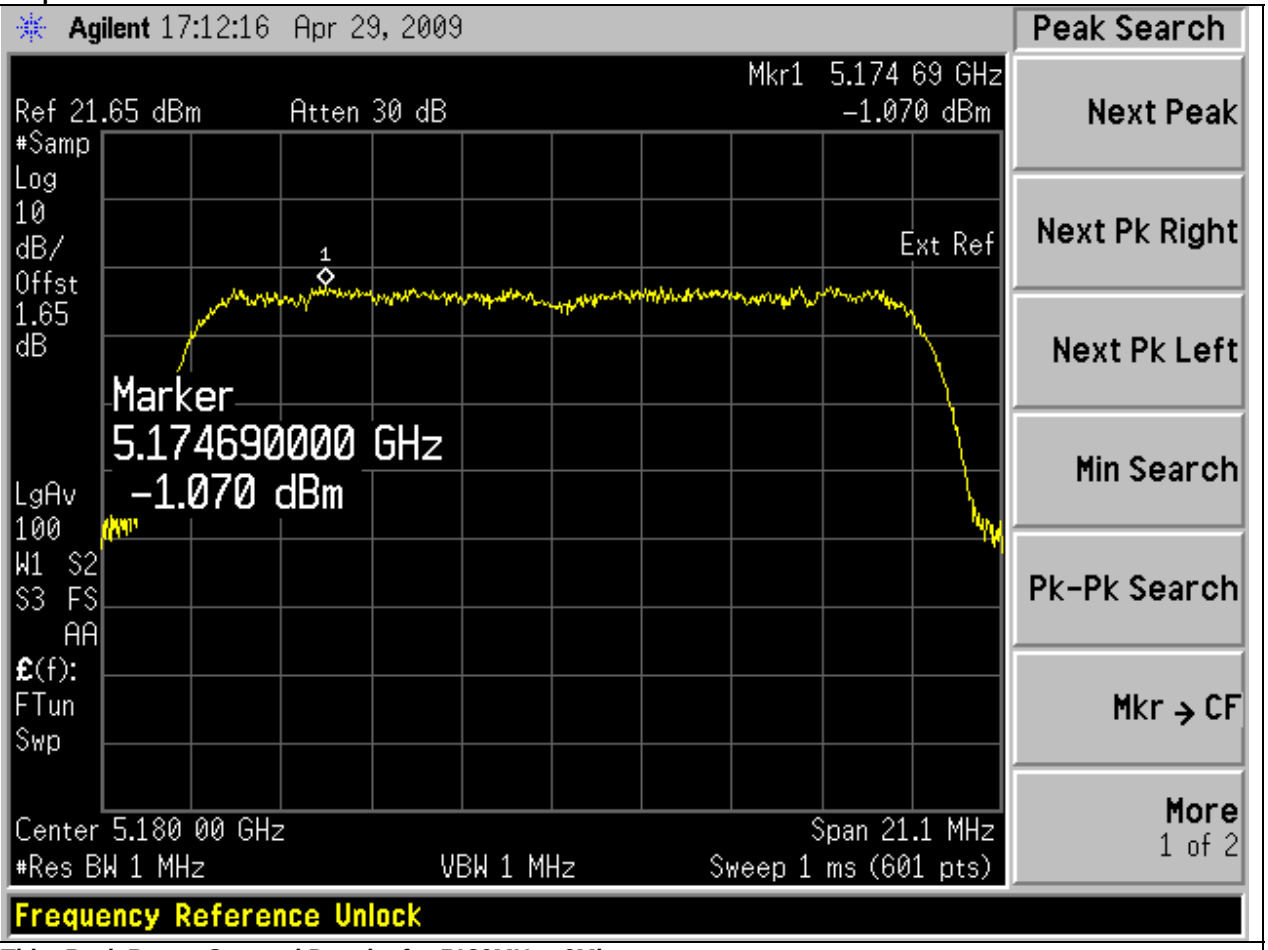
15.247 & RSS-210(A8.2):

For digitally modulated systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

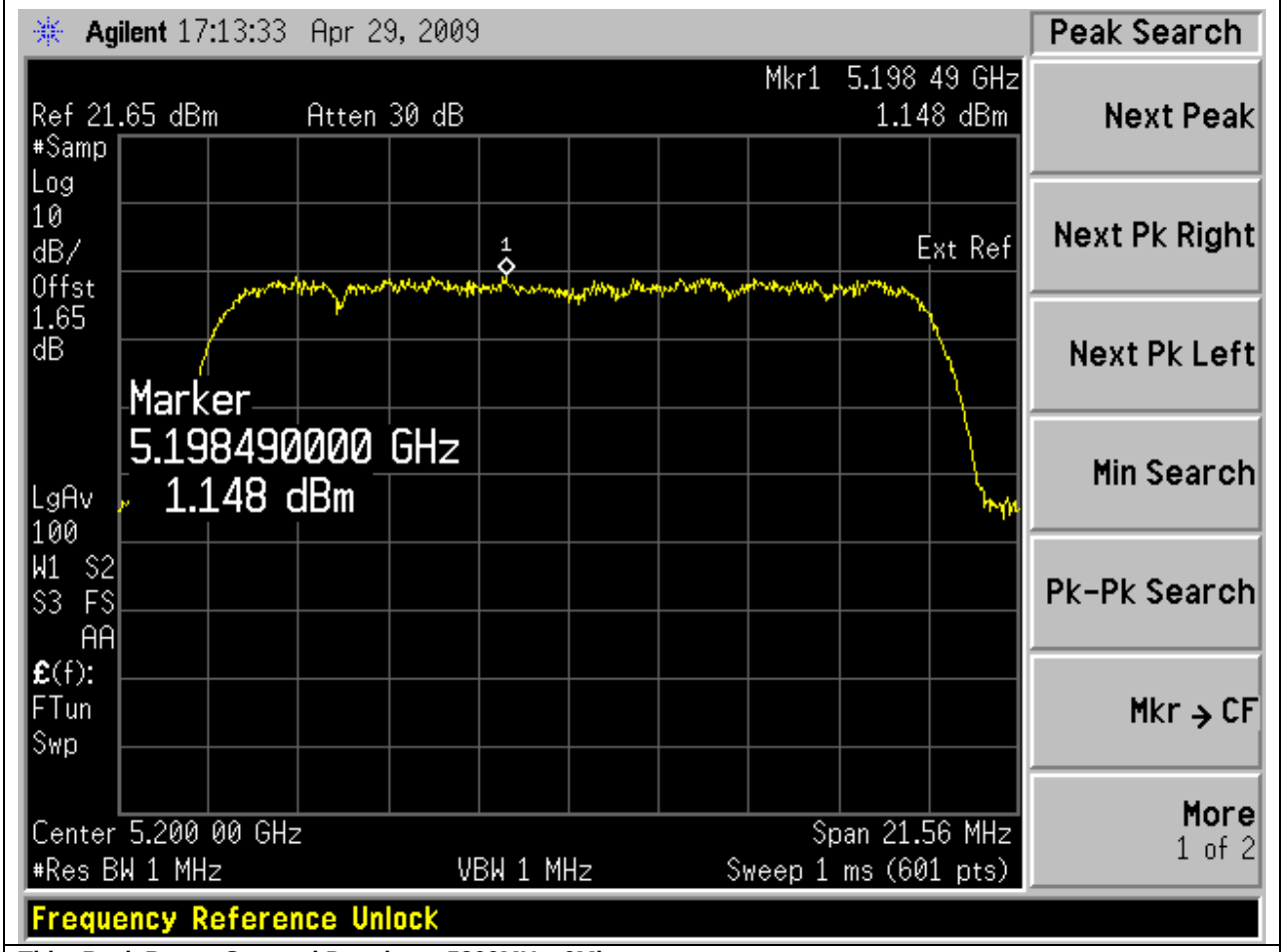
Frequency (MHz)	Data Rate (Mbps)	Peak Power Spectral Density (dBm/MHz)	Limit (dBm)	Margin (dB)
5180	6	-1.07	4	-5.07
5200	6	1.148	4	-2.852
5240	6	0.705	4	-3.295
5260	6	-0.045	11	-11.045
5280	6	-1.182	11	-12.182
5320	6	-0.892	11	-11.892
5500	6	-2.381	11	-13.381
5600	6	1.13	11	-9.87
5700	6	1.433	11	-9.567

Frequency (MHz)	Data Rate (Mbps)	Peak Power Spectral Density (dBm/3kHz)	Limit (dBm)	Margin (dB)
5745	6	-11.75	8	-19.75
5785	6	-11.65	8	-19.65
5805	6	-11.4	8	-19.4

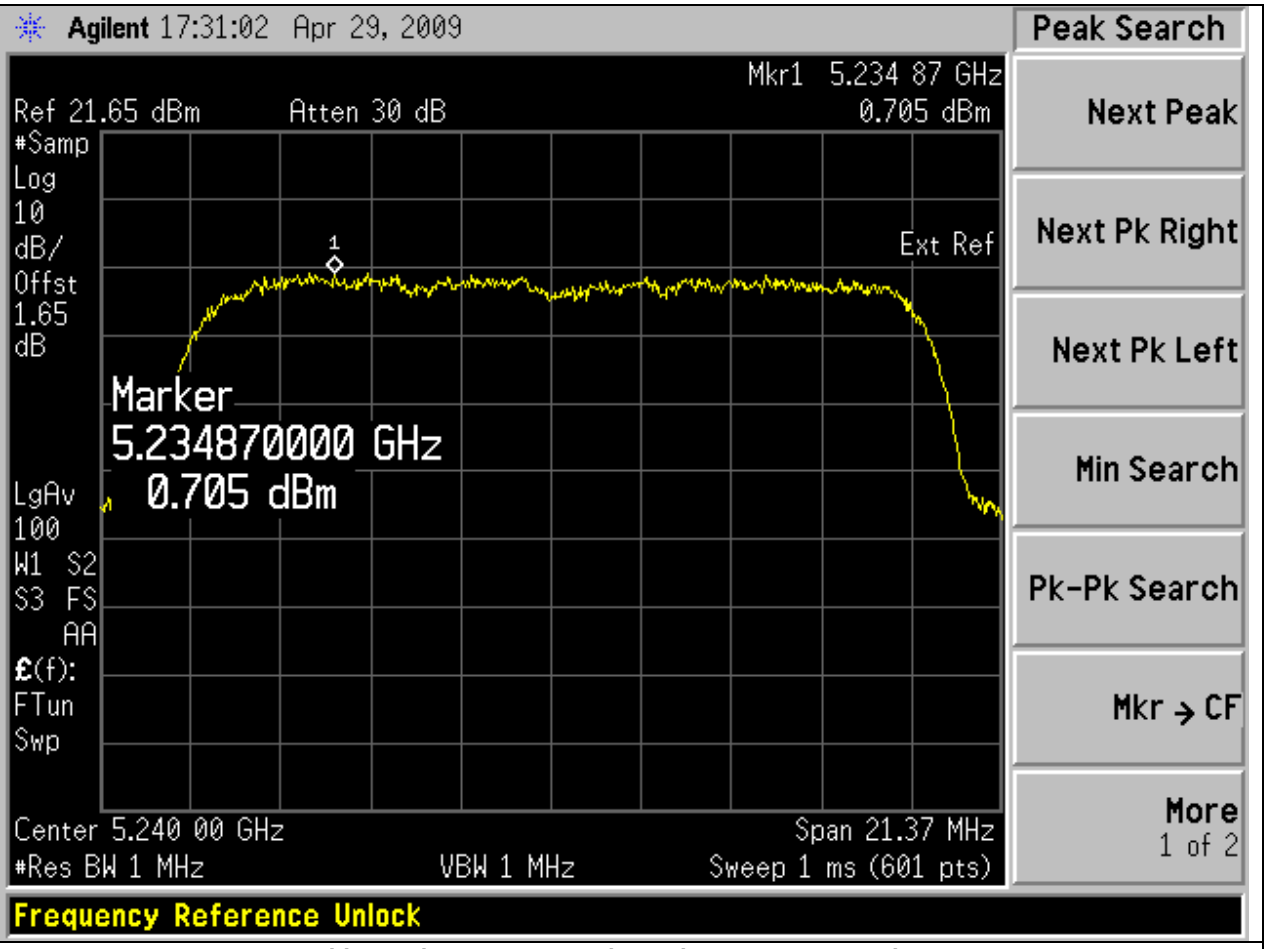
Graphical Test Results



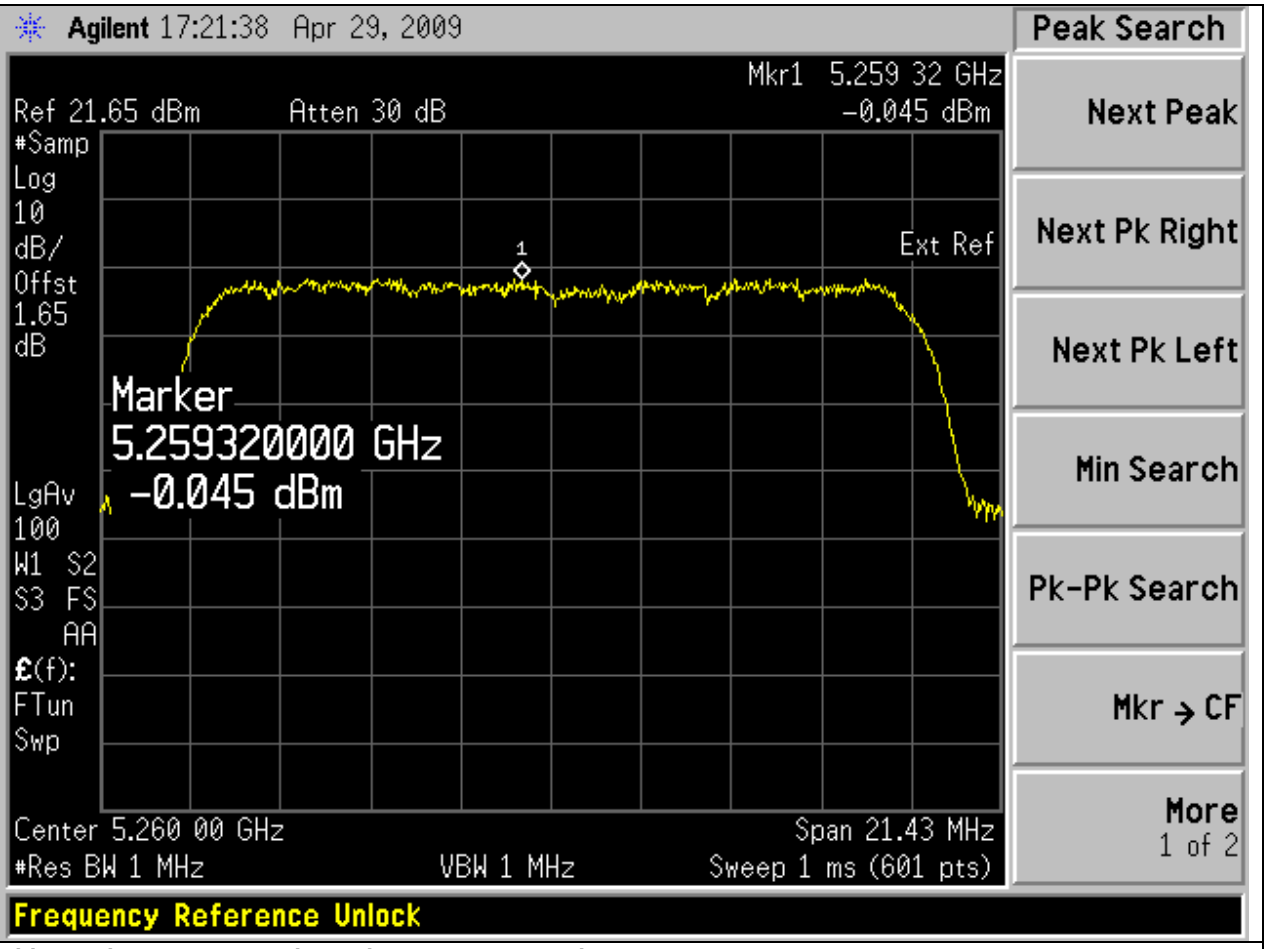
Title: Peak Power Spectral Density for 5180MHz , 6Mbps



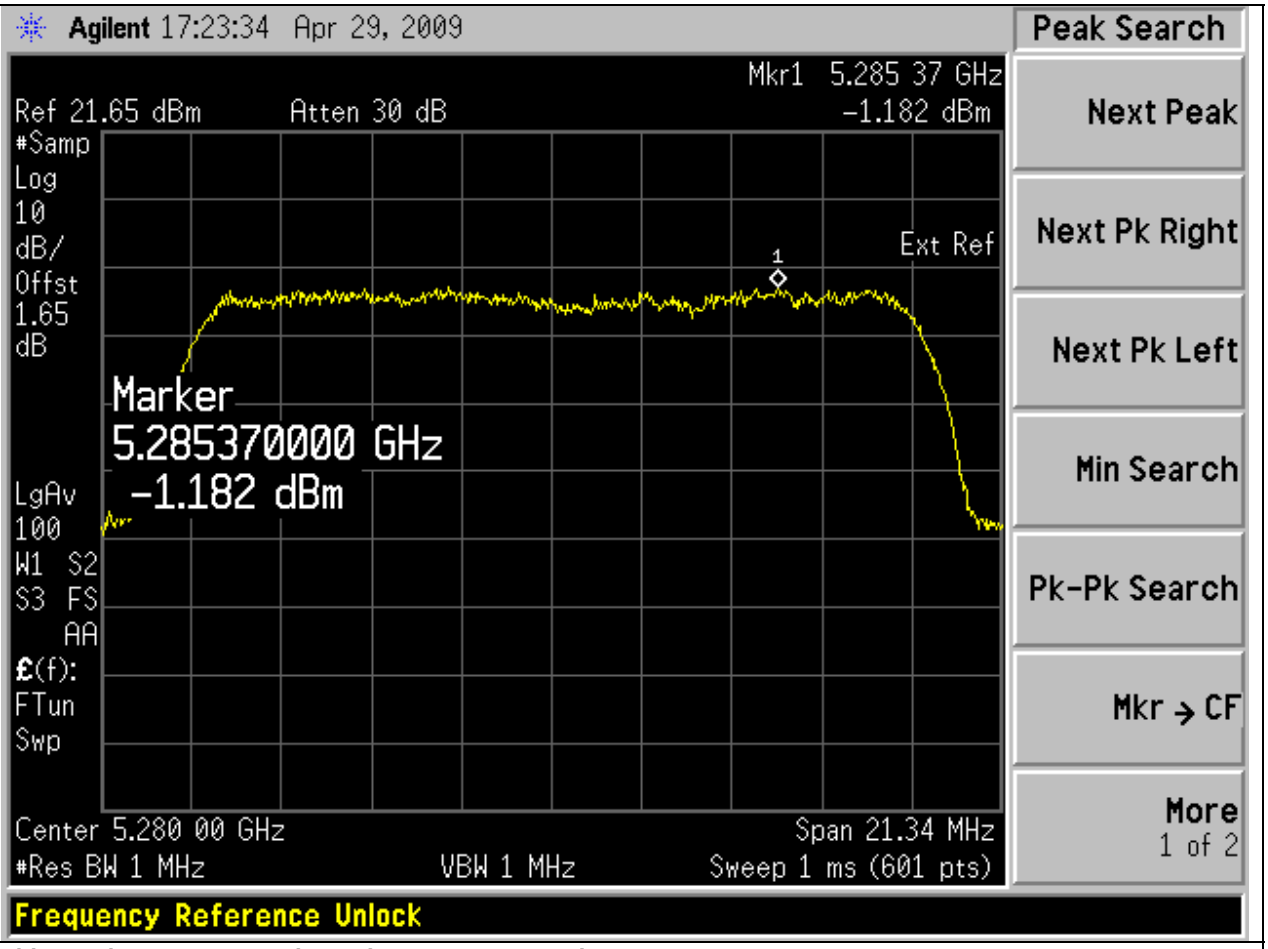
Title: Peak Power Spectral Density at 5200MHz, 6Mbps



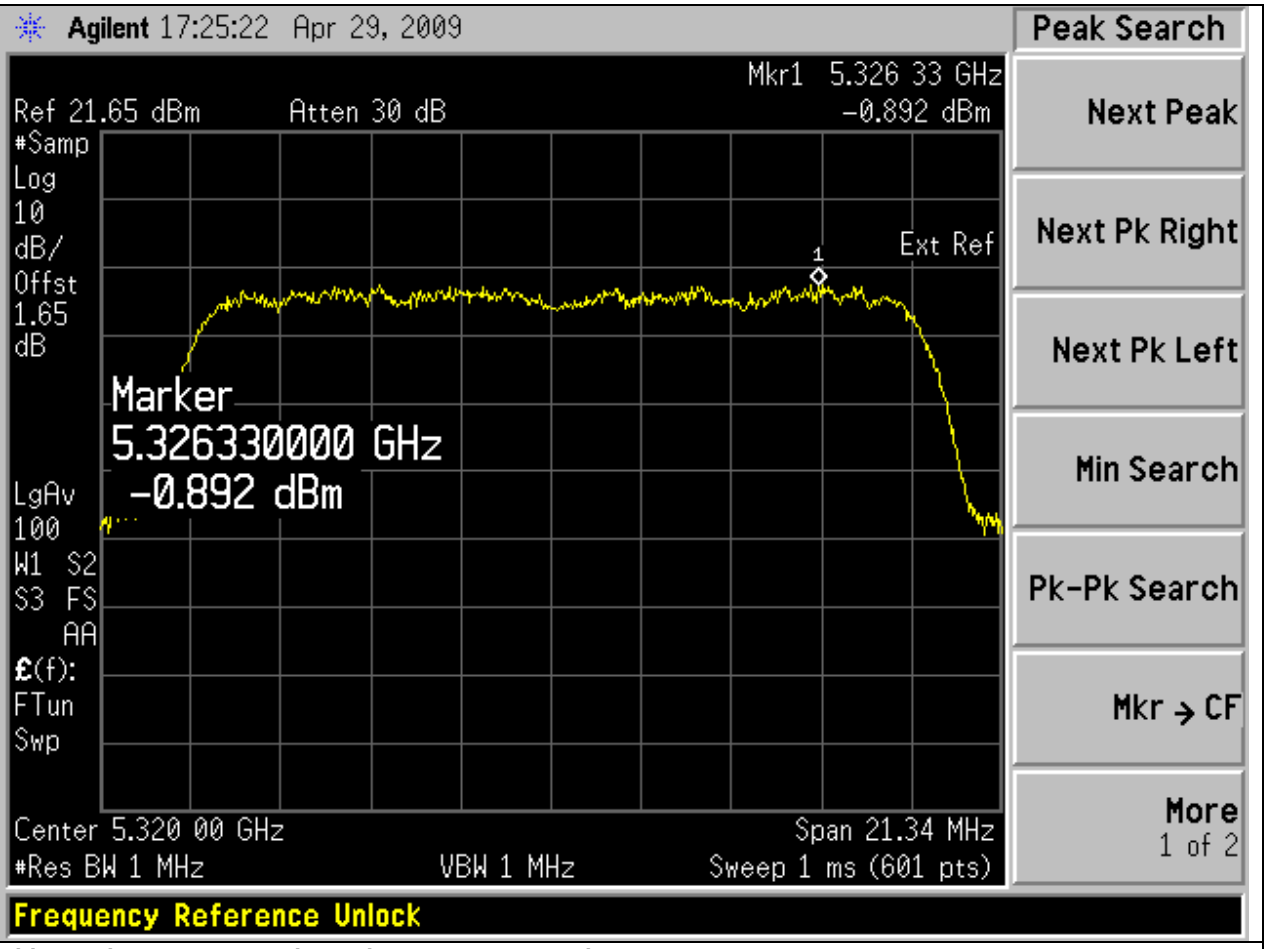
Title: Peak Power Spectral Density at 5240MHz, 6Mbps



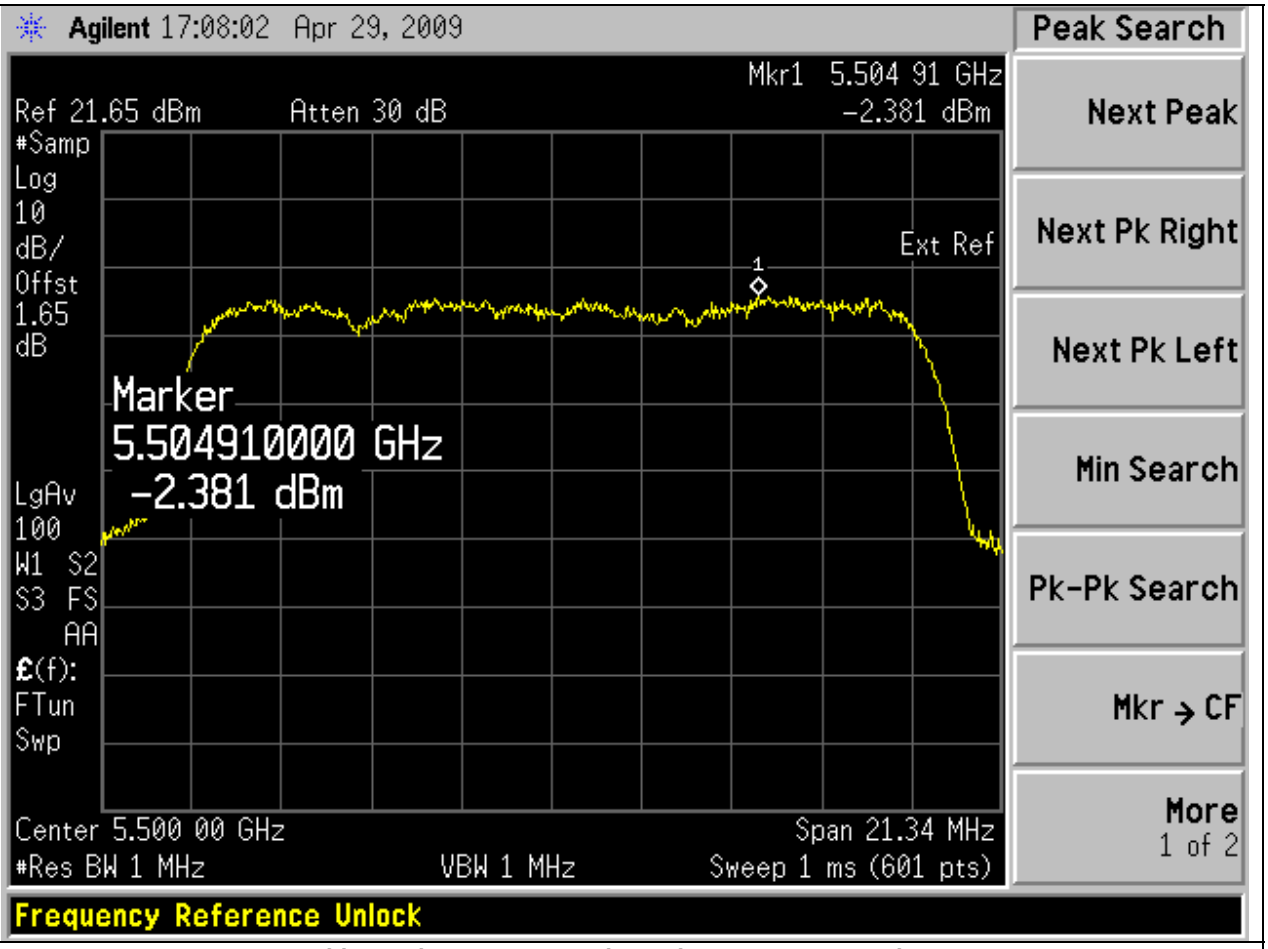
Title: Peak Power Spectral Density at 5260MHz, 6Mbps



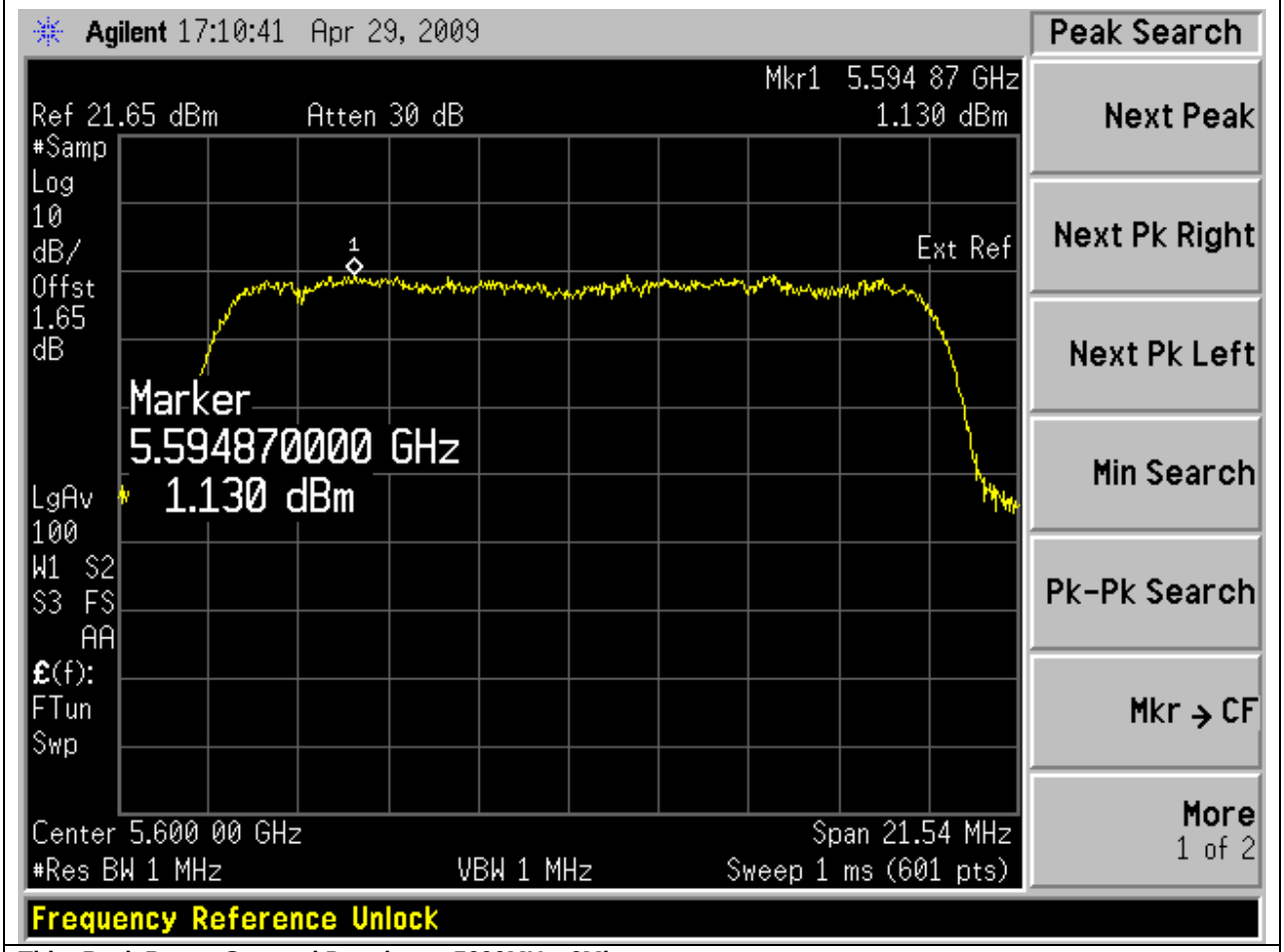
Title: Peak Power Spectral Density at 5280MHz, 6Mbps



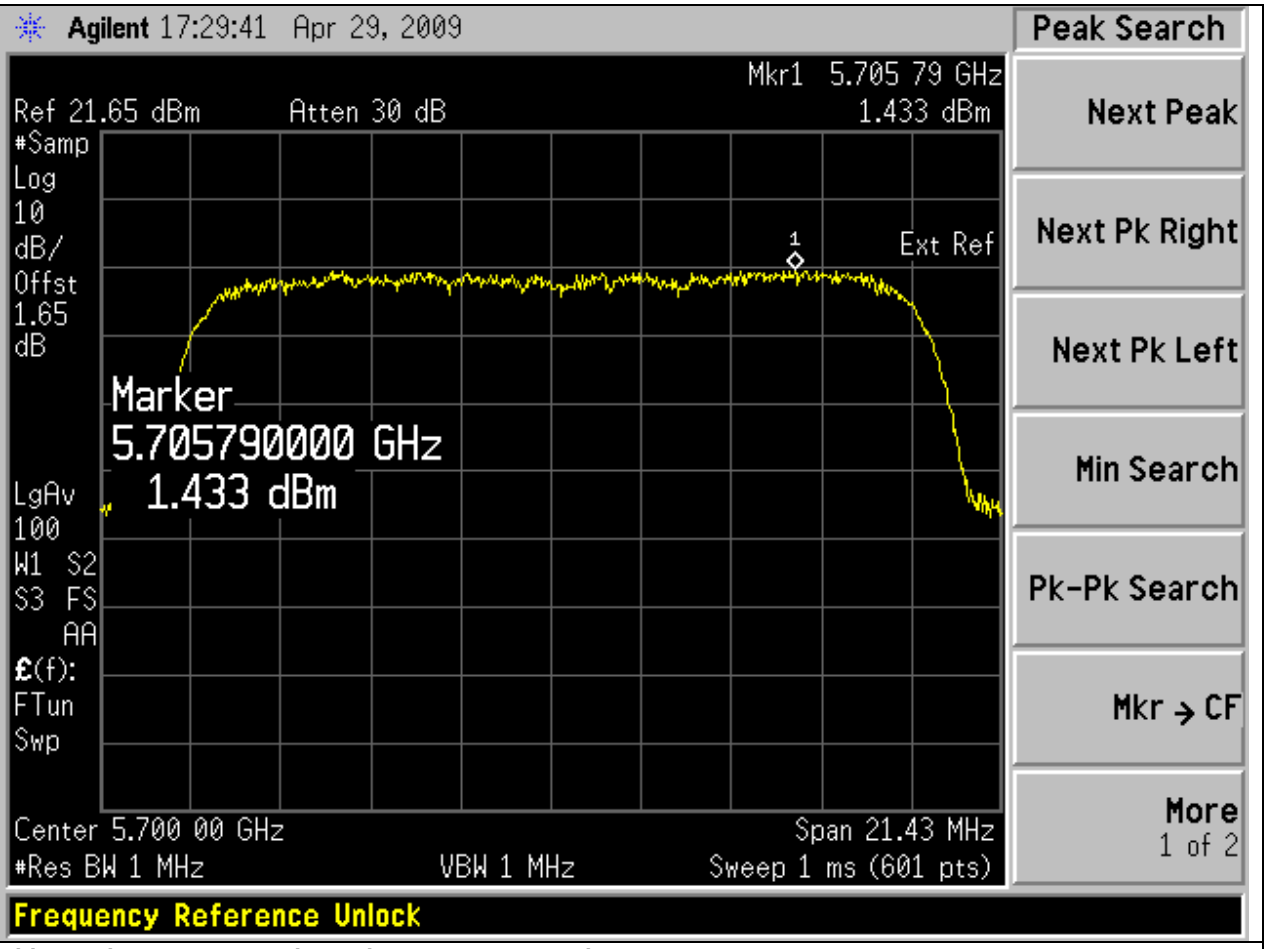
Title: Peak Power Spectral Density at 5320MHz , 6Mbps



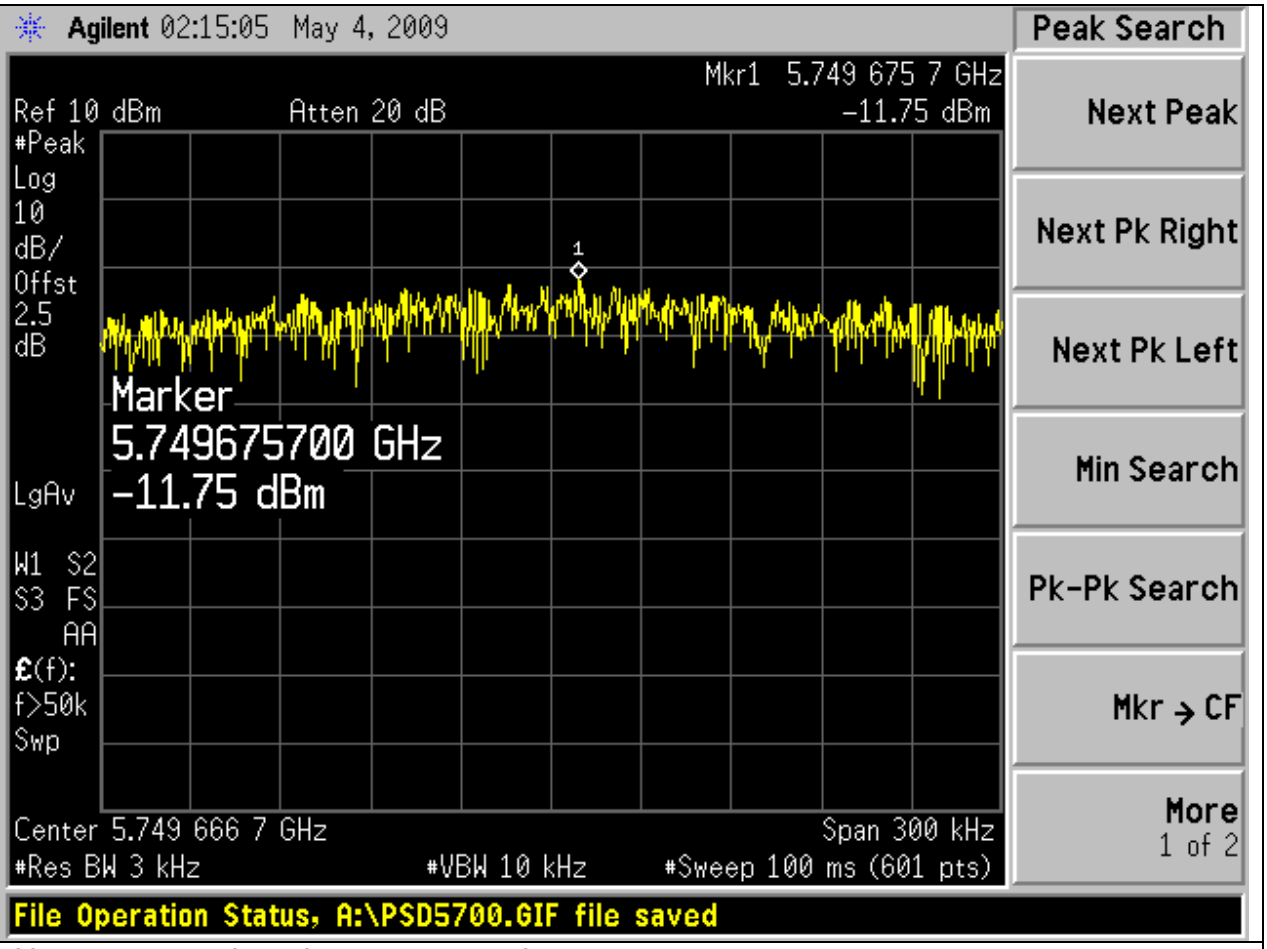
Title: Peak Power Spectral Density at 5500MHz, 6Mbps



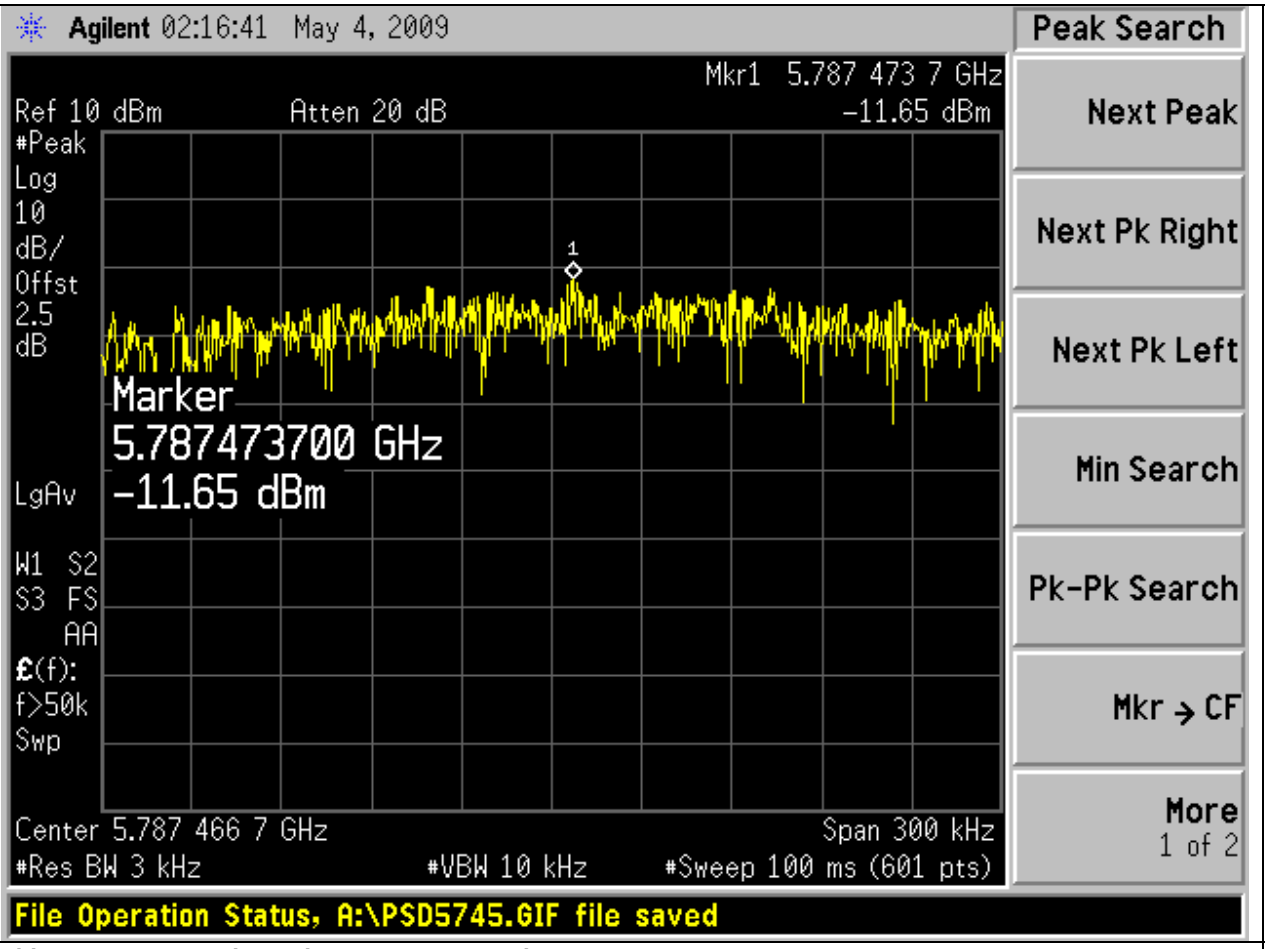
Title: Peak Power Spectral Density at 5600MHz, 6Mbps



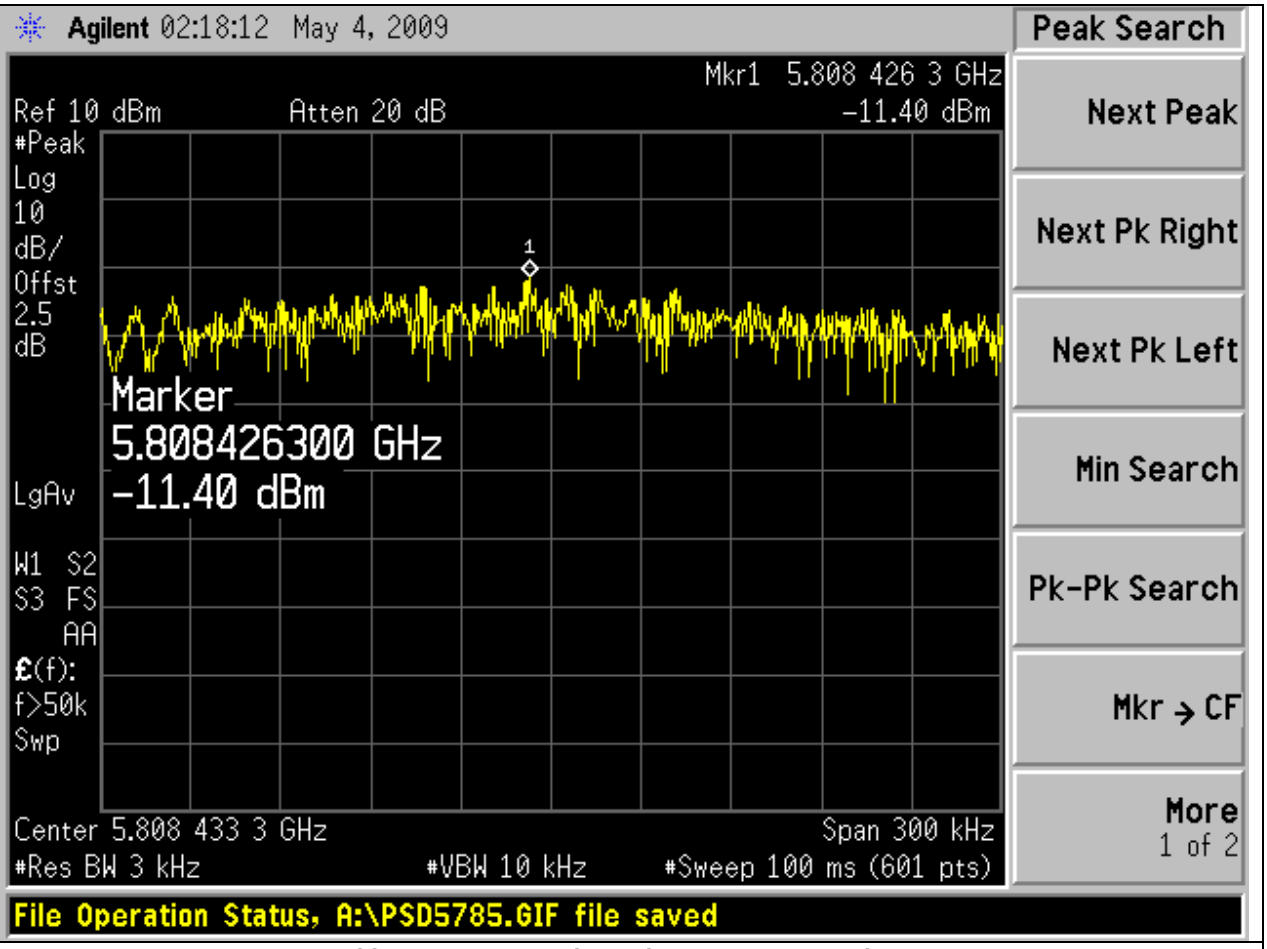
Title: Peak Power Spectral Density at 5700MHz, 6Mbps



Title: Power Spectral Density at 5745MHz, 6Mbps



Title: Power Spectral Density at 5785MHz, 6Mbps



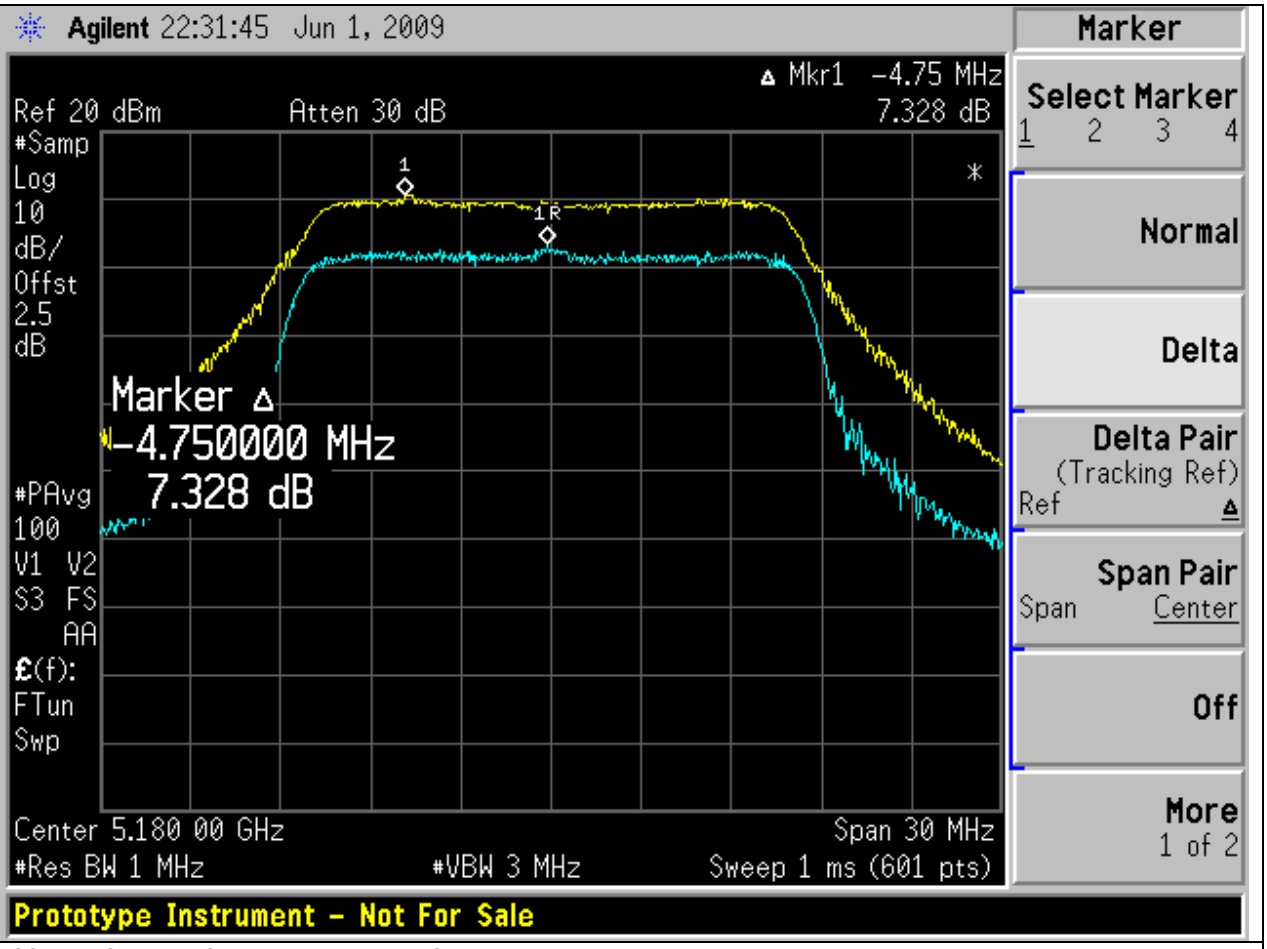
Title: Power Spectral Density at 5805MHz, 6Mbps

Peak Excursion

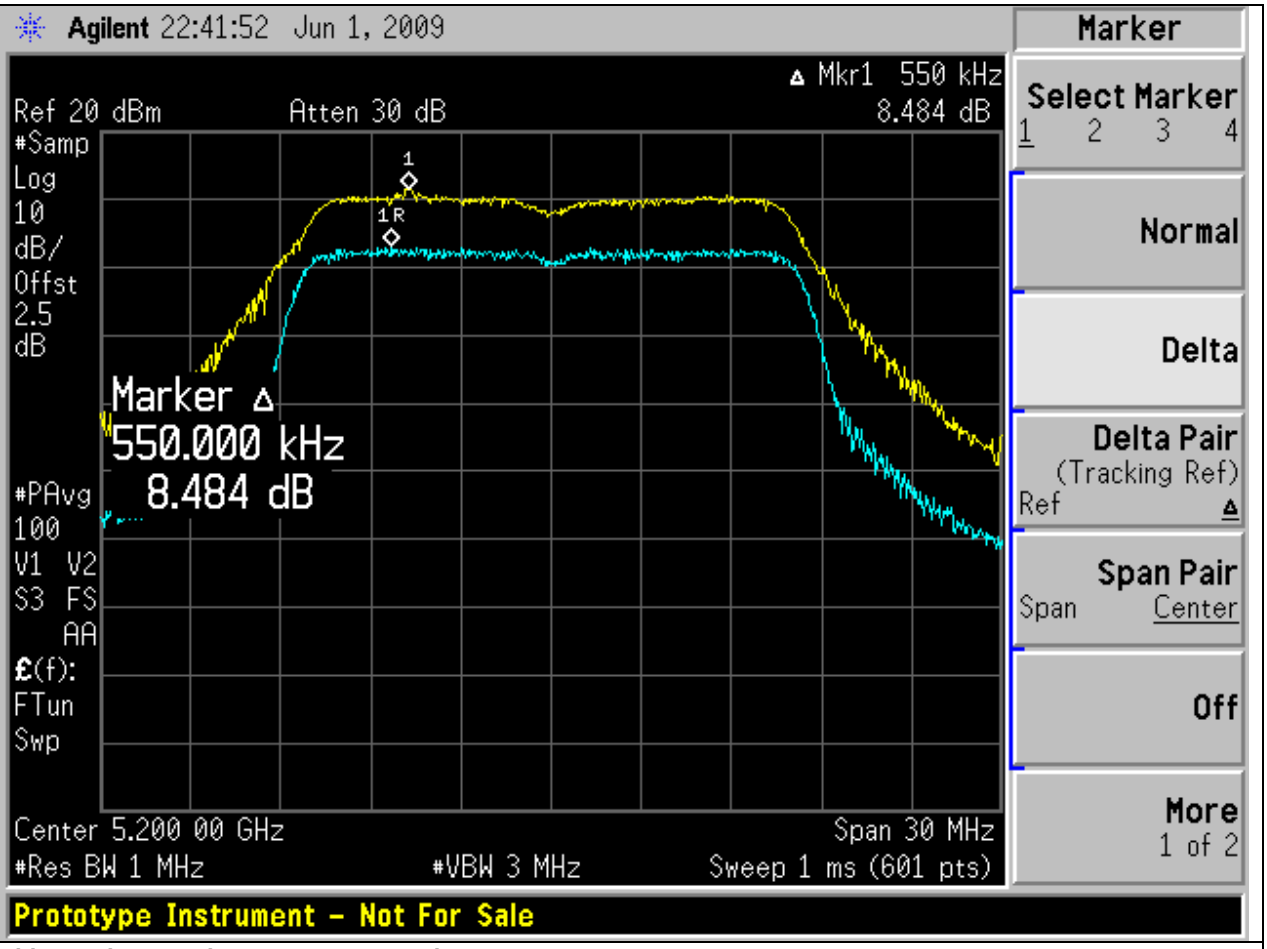
15.407: The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the maximum conducted output power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

Frequency (MHz)	Data Rate (Mbps)	Peak Excursion (dB)	Limit (dBm)	Margin (dB)
5180	6	7.328	13	-5.672
5200	6	8.484	13	-4.516
5240	6	7.871	13	-5.129
5260	6	8.698	13	-4.302
5280	6	8.023	13	-4.977
5320	6	8.978	13	-4.022
5500	6	8.589	13	-4.411
5600	6	8.22	13	-4.78
5700	6	8.025	13	4.975

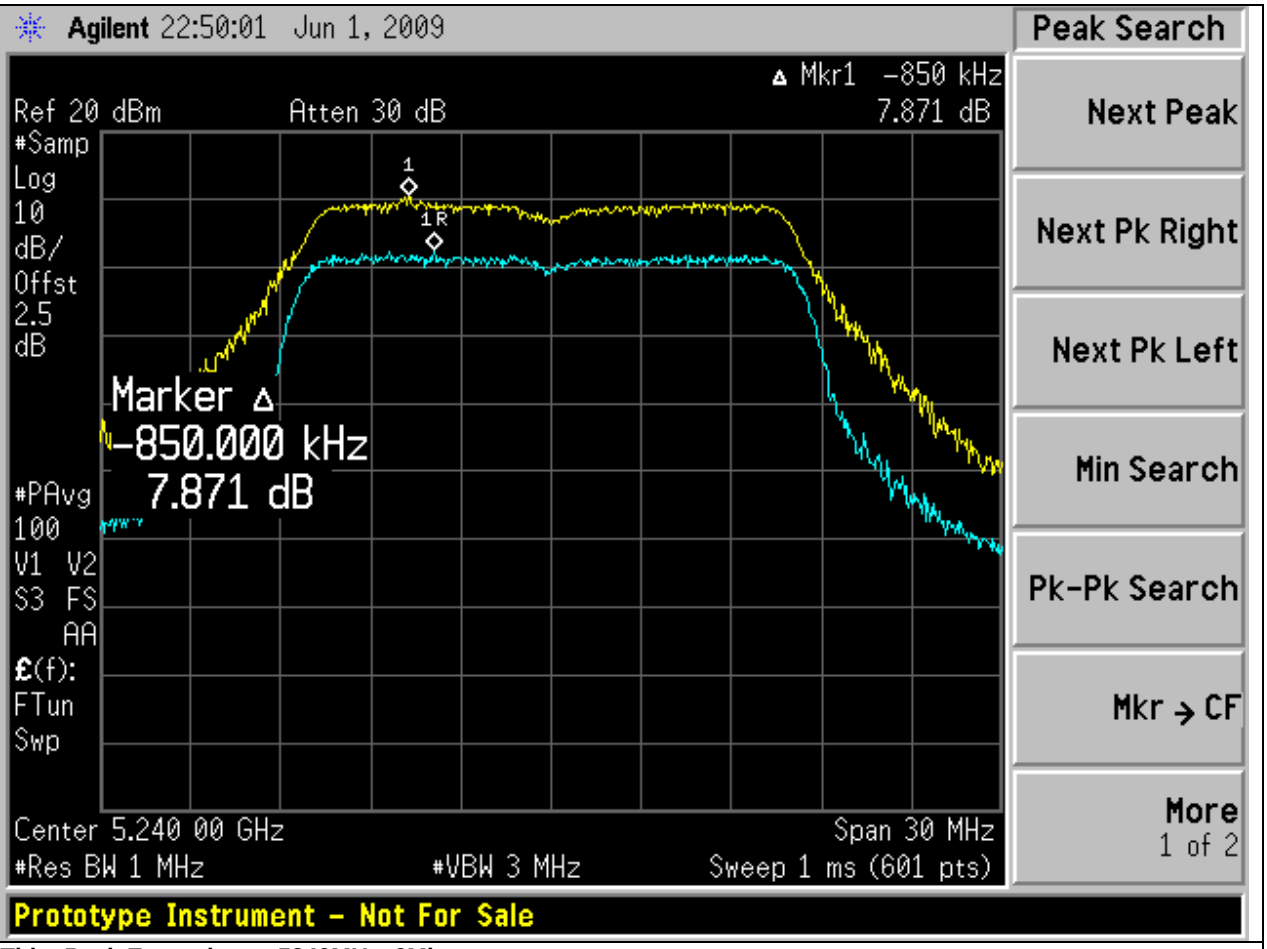
Graphical Test Results



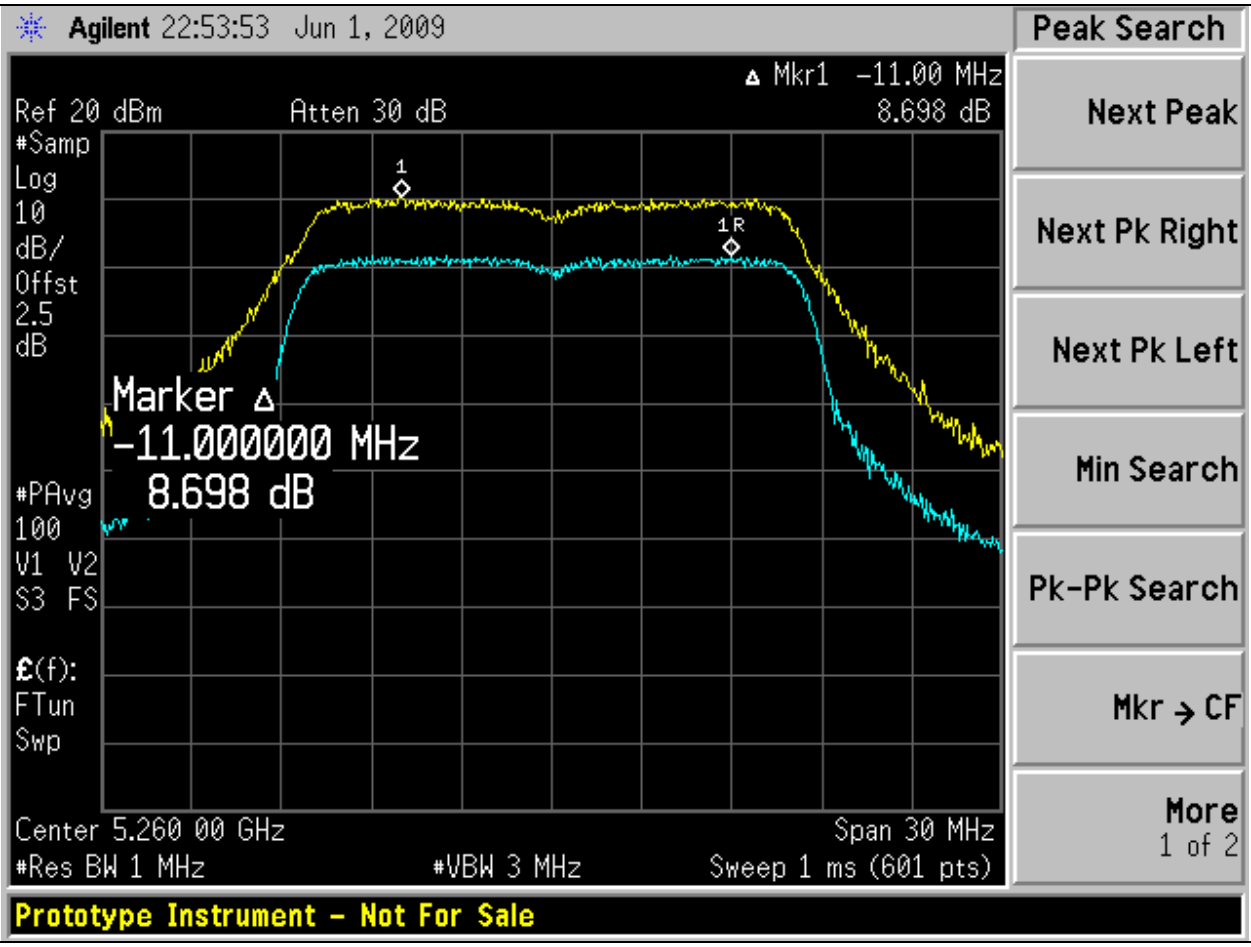
Title: Peak Excursion at 5180MHz, 6Mbps



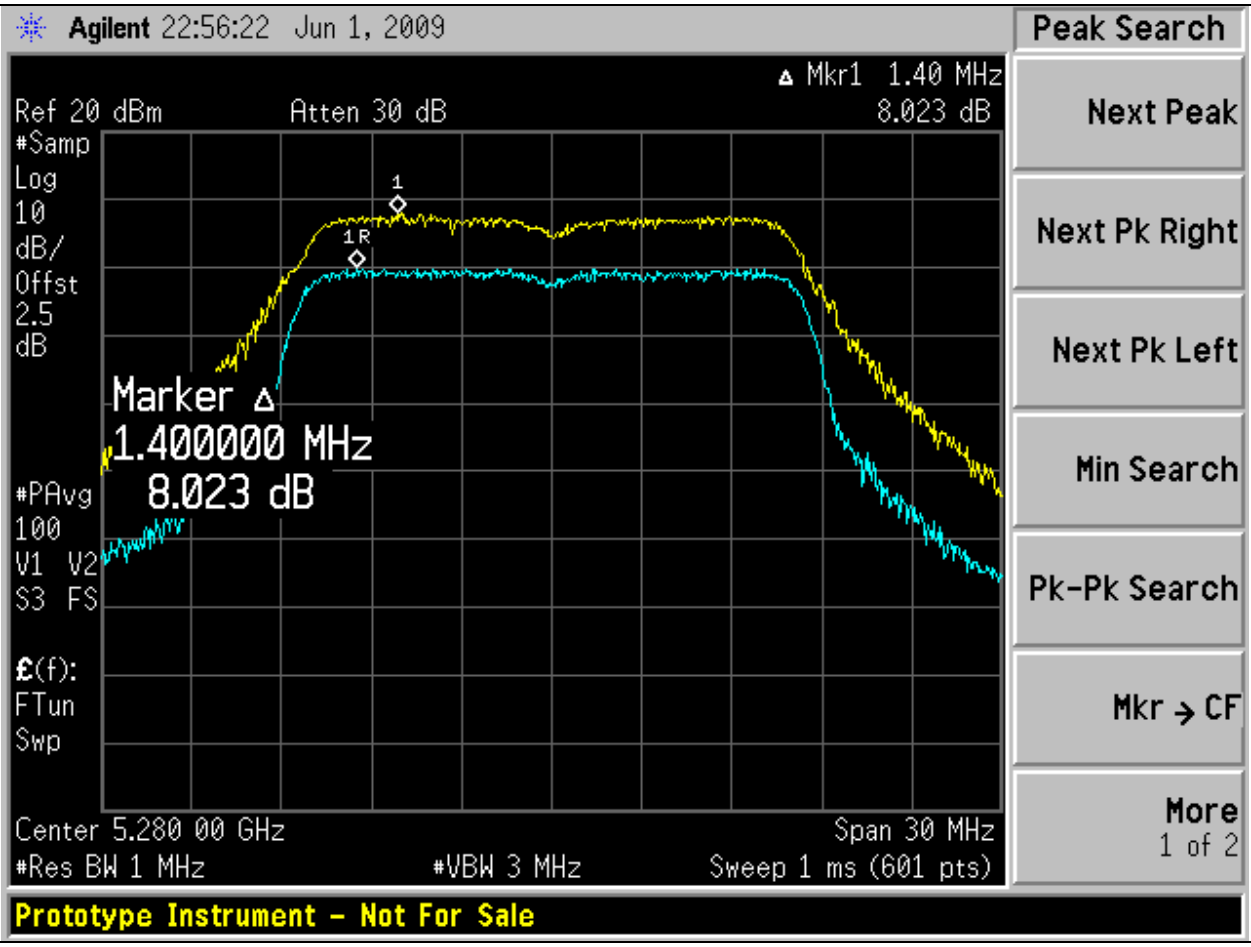
Title: Peak Excursion at 5200MHz, 6Mbps



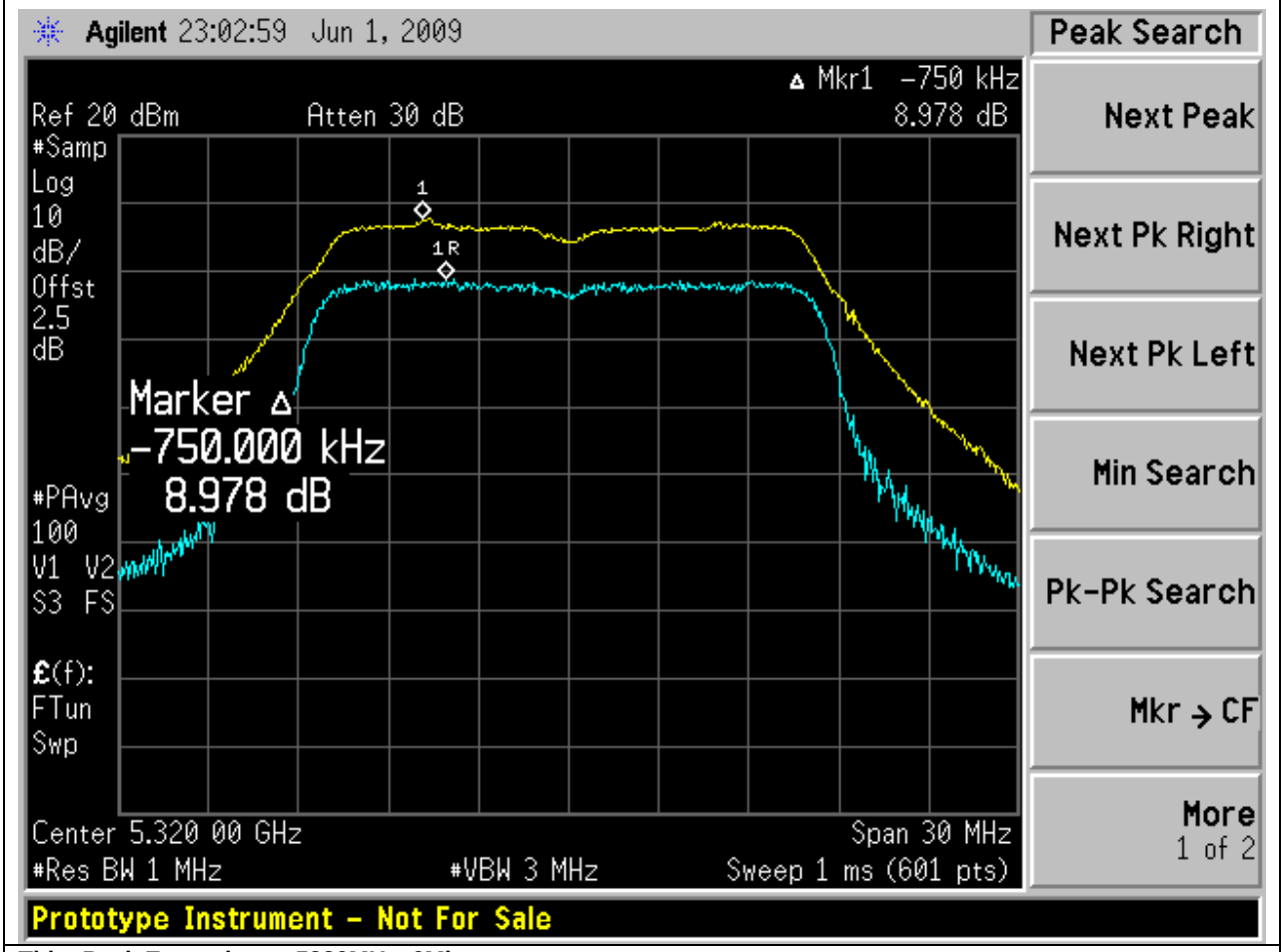
Title: Peak Excursion at 5240MHz, 6Mbps



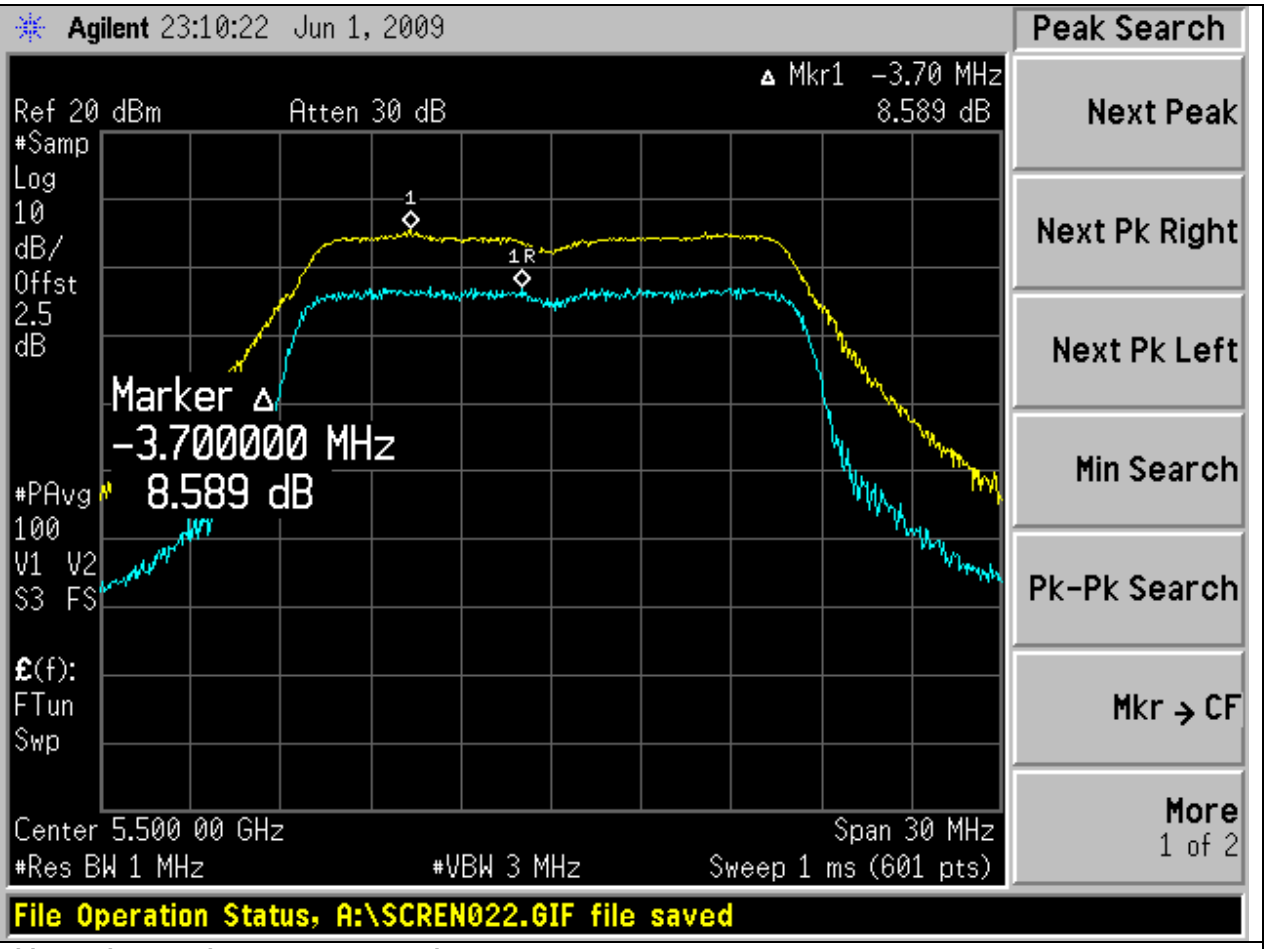
Title: Peak Excursion at 5260MHz, 6Mbps



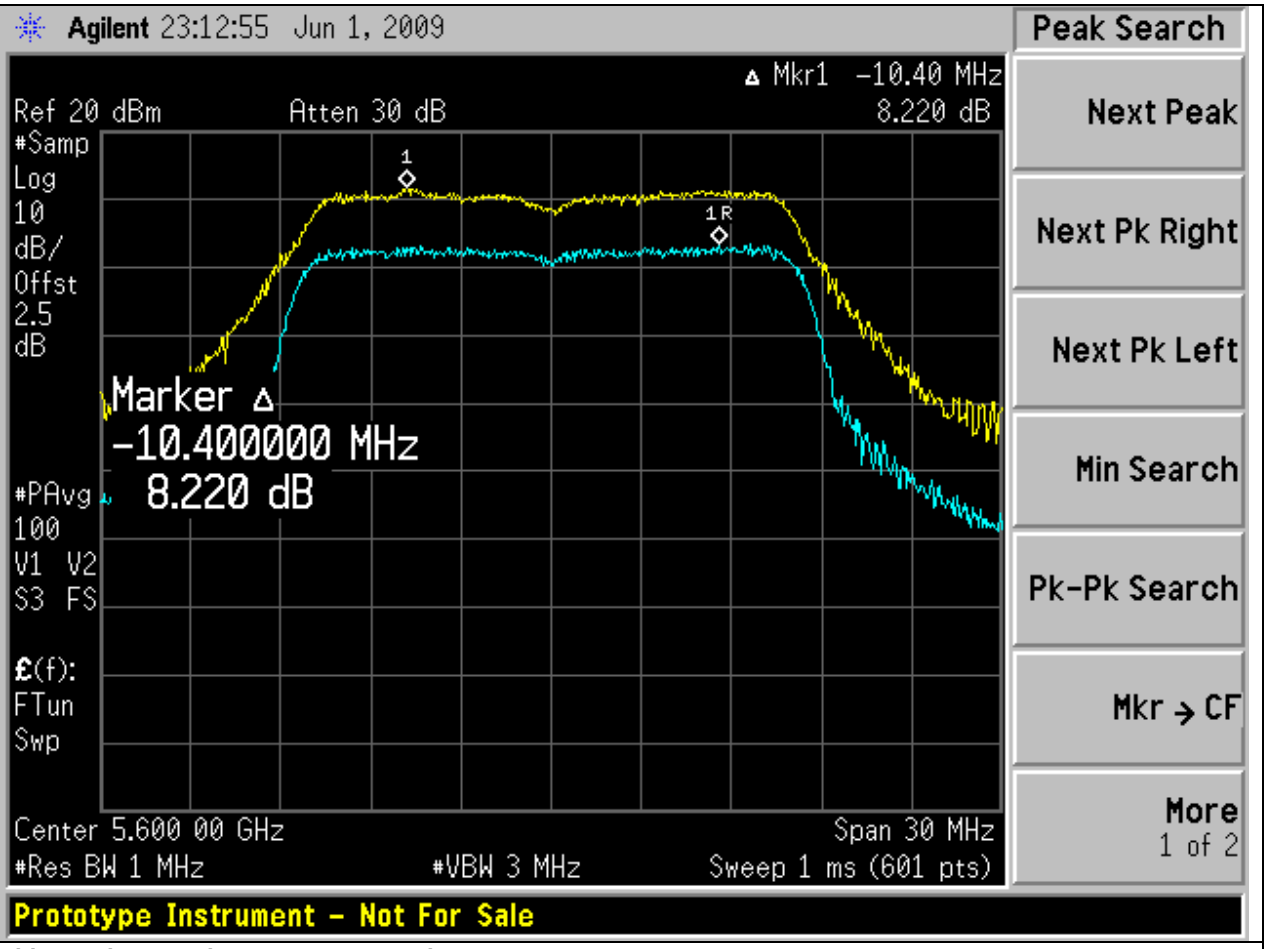
Title: Peak Excursion at 5280MHz, 6Mbps



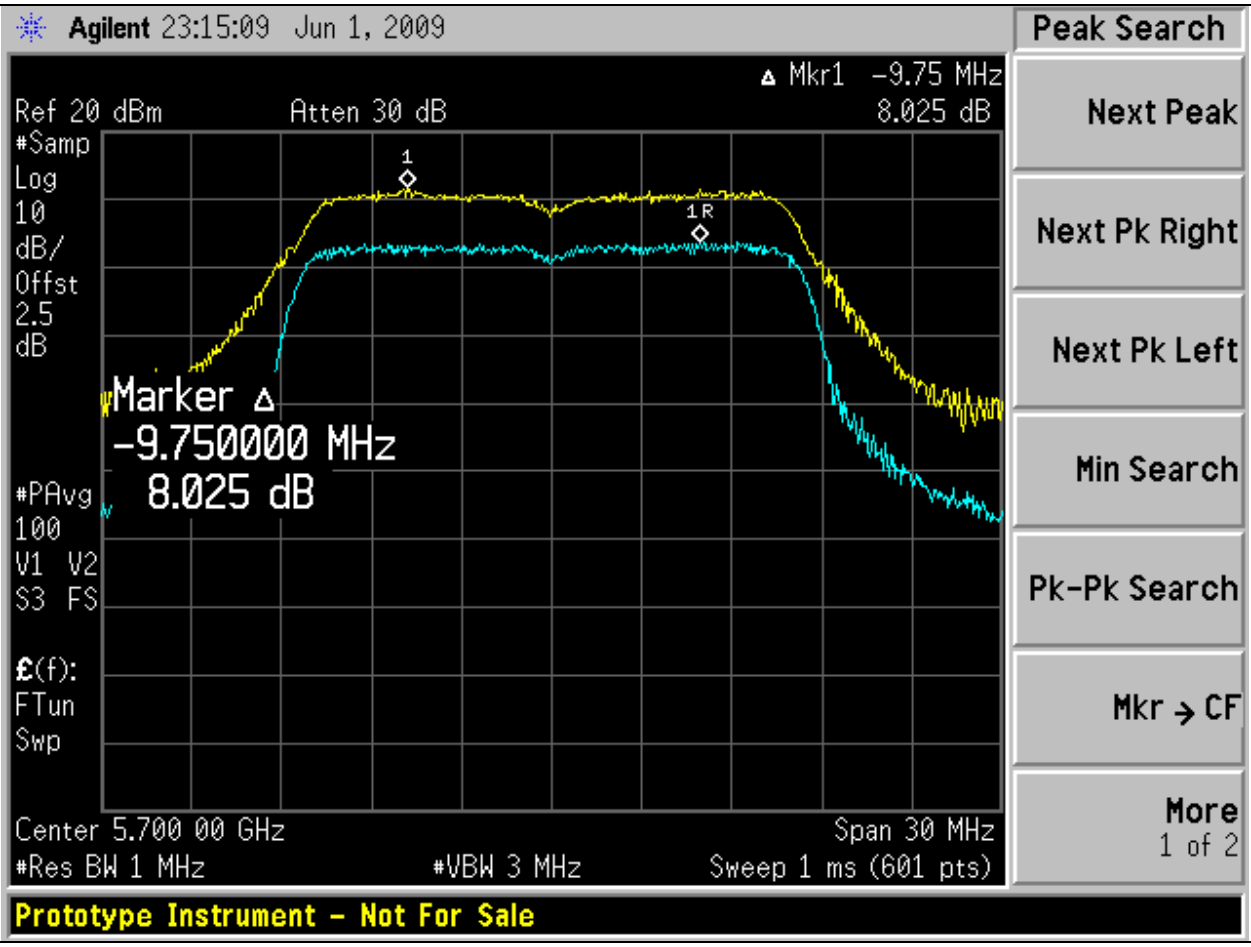
Title: Peak Excursion at 5320MHz, 6Mbps



Title: Peak Excursion at 5500MHz, 6Mbps



Title: Peak Excursion at 5600MHz, 6Mbps



Title: Peak Excursion at 5700MHz, 6Mbps

Conducted Spurious Emissions

15.247 & RSS-210(A8.5):

In any 100 kHz bandwidth outside the frequency band in which the digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 30 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

Test Number: 36176 **Spec ID:** 652				
Basic Standard	**Applied to**	**Class**	**Freq Range**	**Test Details / Comments**
Conducted Spurious Emissions	RF Ports	N/A	30MHz - xGHz	Also complies with RSS 210, LP0002, HKTA1039
Operating Mode	**Mode :** 1, 802.11A Test Mode			
Power Input	48, DC (+/-20%)			
Overall Result	Pass			
Comments	No further comments			
Deviation	There were no deviations from the specification			

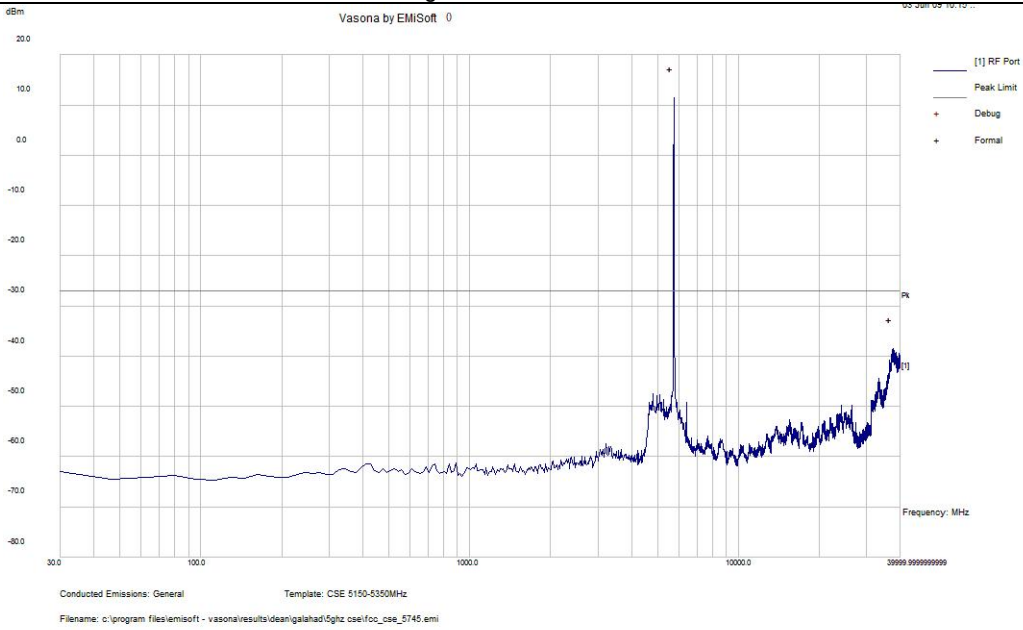
System Number	**Description**	**Samples**	**System under test**	**Support equipment**
1	WiFi Radio test sample	S01	☑	☐

Subtest Number: 36176 - 1		**Subtest Date:** 05-Jun-2009	
Engineer	Dean Yarza		
Lab Information	Building B, Shield Room		
Subtest Results			
Line Under Test	[A] Antenna Port		
Transducer	Direct		
Subtest Result	Pass		
Highest Frequency	40000.0		
Lowest Frequency	30.0		
Comments on the above Test Results	No further comments		
Environmental Conditions:			
Temperature: within range of 54 to 95 F:	Yes		
Humidity: between 10 and 75%:	Yes		
Comments:			
Equipment used:			
Equipment No	Manufacturer	Model	Description

CIS002396	Omega	CT485B	Temp/Humidity Recorder
CIS025716	HP	11500E	Radio testing cable 3.5mm
CIS025717	HP	11500E	Radio testing cable 3.5mm
CIS005972	HP	83712B	Synthesized CW Generator
CIS033988	Agilent	E4446A	PSA Spectrum Analyzer
CIS034974	Midwest Microwave	ATT-0640-20-29M-02	Attenuator, 20dB, DC-40GHz
CIS041985	Murata Electronics	MXGS83RK3000	Special Radio Test Adaptor Cable
CIS041987	Murata Electronics	MXGS83RK3000	Special Radio Test Adaptor Cable

Graphical Test Results

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



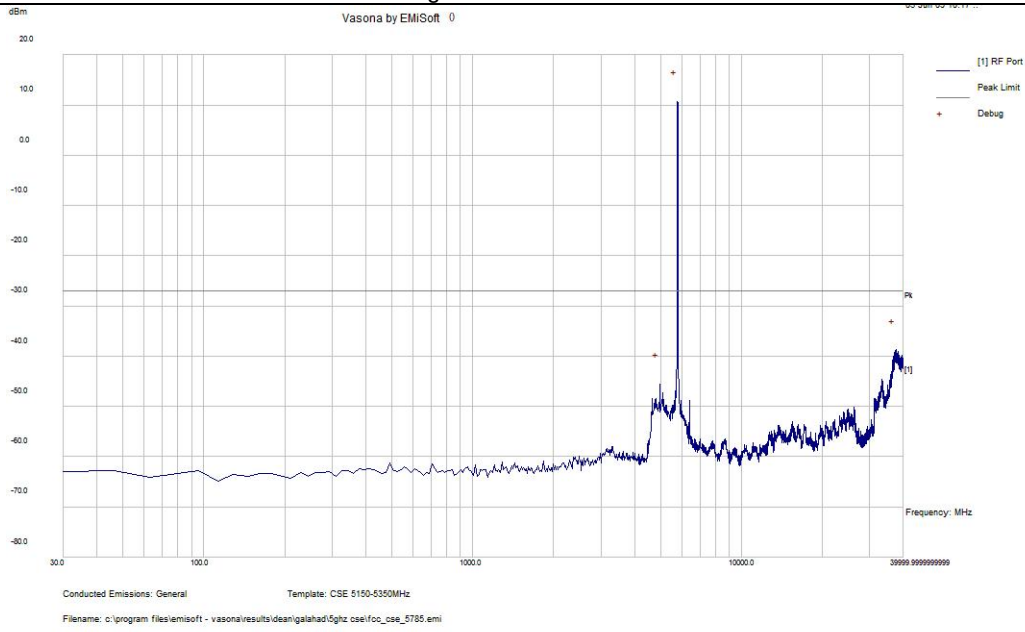
Title: Conducted Spurious Emissions: 802.11A 5745MHz

Test Results Table

Frequency MHz	Raw dBm	Cable Loss	Factors dB	Level dBm	Measurement Type	Line	Limit dBm	Margin dB	Pass /Fail	Comments
5743.425	-10.7	2.1	19.9	11.4	NA	RF	-27	38.4	Fail	Fundamental
37574.548	-59.1	0	20.6	-38.5	NA	RF	-27	-11.5	Pass	Noise Floor

Subtest Number: 36176 - 2		**Subtest Date:** 05-Jun-2009
Engineer	Dean Yarza	
Lab Information	Building B, Shield Room	
Subtest Results		
Line Under Test	[A] Antenna Port	
Transducer	Direct	
Subtest Result	Pass	
Highest Frequency	40000.0	
Lowest Frequency	30.0	
Comments on the above Test Results	No further comments	
Environmental Conditions:		
Temperature: within range of 54 to 95 F:	Yes	
Humidity: between 10 and 75%:	Yes	

Graphical Test Results
Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



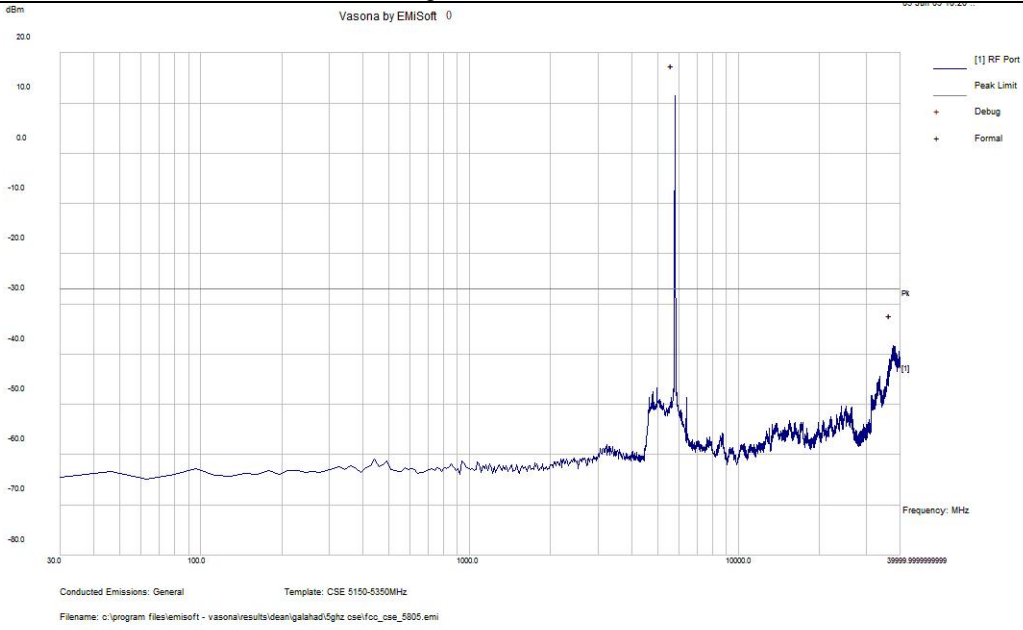
Title: Conducted Spurious Emissions: 802.11A 5785MHz

Test Results Table

Frequency MHz	Raw dBm	Cable Loss	Factors dB	Level dBm	Measurement Type	Line	Limit dBm	Margin dB	Pass /Fail	Comments
5776.45	-11.3	2.1	19.9	10.7	NA	RF	-27	37.7	Fail	Fundamental
37540.861	-59.3	0	20.6	-38.7	NA	RF	-27	-11.7	Pass	Noise Floor

Subtest Number: 36176 - 3		**Subtest Date:** 05-Jun-2009
Engineer	Dean Yarza	
Lab Information	Building B, Shield Room	
Subtest Results		
Line Under Test	[A] Antenna Port	
Transducer	Direct	
Subtest Result	Pass	
Highest Frequency	40000.0	
Lowest Frequency	30.0	
Comments on the above Test Results	No further comments	
Environmental Conditions:		
Temperature: within range of 54 to 95 F:	Yes	
Humidity: between 10 and 75%:	Yes	

Graphical Test Results
Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



Title: Conducted Spurious Emissions: 802.11A 5805MHz

Test Results Table

Frequency MHz	Raw dBm	Cable Loss	Factors dB	Level dBm	Measurement Type	Line	Limit dBm	Margin dB	Pass /Fail	Comments
5792.963	-10.5	2.1	19.9	11.5	NA	RF	-27	38.5	Fail	Fundamental
37549.283	-58.8	0	20.6	-38.2	NA	RF	-27	-11.2	Pass	Noise Floor

Conducted Spurious Emissions

15.407 & RSS-210(A9.3):

For transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27dBm/MHz.

For transmitters operating in the 5.25-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27dBm/MHz. Devices operating in the 5.25-5.35 GHz band that generate emissions in the 5.15-5.25 GHz band must meet all applicable technical requirements for operation in the 5.15-5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5.15-5.25 GHz band.

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

Test Number: 36172 **Spec ID:** 652				
Basic Standard	**Applied to**	**Class**	**Freq Range**	**Test Details / Comments**
Conducted Spurious Emissions	RF Ports	N/A	30MHz - xGHz	Also complies with RSS 210, LP0002, HKTA1039
Operating Mode	**Mode :** 1, 802.11A Test Mode			
Power Input	48, DC (+/-20%)			
Overall Result	Pass			
Comments	No further comments			
Deviation	There were no deviations from the specification			

System Number	Description	Samples	System under test	Support equipment
1	WiFi Radio test sample	S01	☑	☐

Subtest Number: 36172 - 1	**Subtest Date:** 05-Jun-2009
Engineer	Dean Yarza
Lab Information	Building B, Shield Room
Subtest Results	
Line Under Test	[A] Antenna Port
Transducer	Direct
Subtest Result	Pass
Highest Frequency	40000.0
Lowest Frequency	30.0
Comments on the above Test Results	No further comments

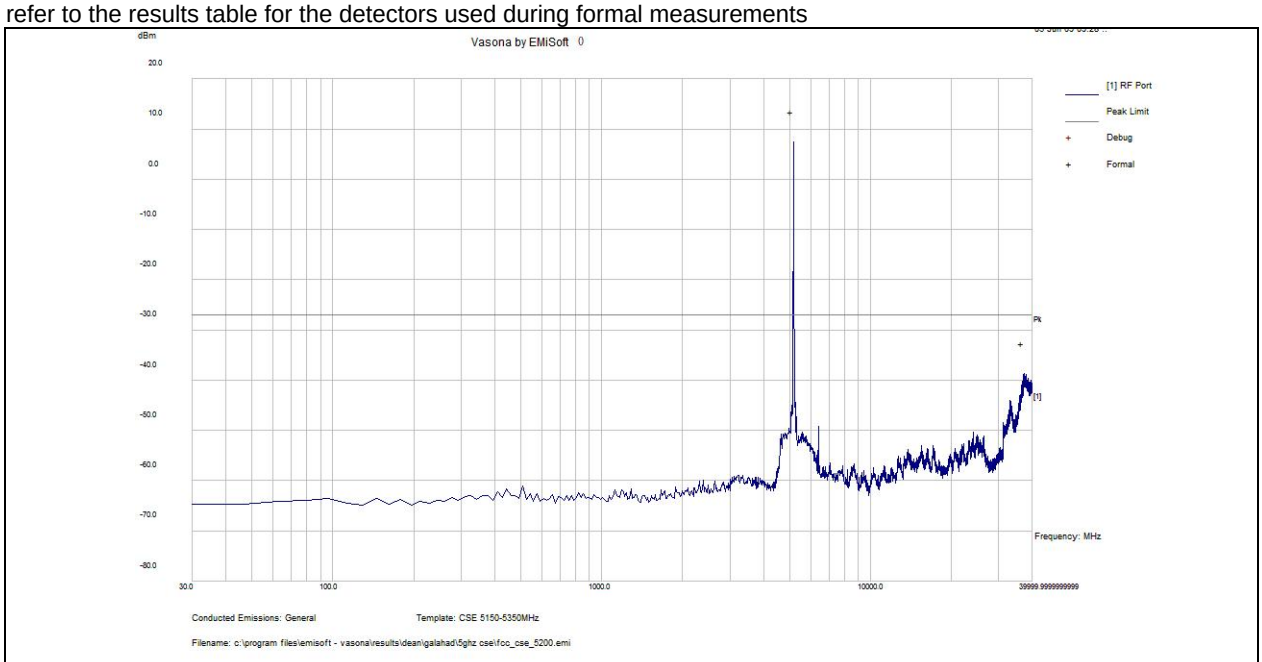
Environmental Conditions:	
Temperature: within range of 54 to 95 F:	Yes
Humidity: between 10 and 75%:	Yes
Comments:	

Equipment used:

Equipment No	Manufacturer	Model	Description
CIS002396	Omega	CT485B	Temp/Humidity Recorder
CIS025716	HP	11500E	Radio testing cable 3.5mm
CIS025717	HP	11500E	Radio testing cable 3.5mm
CIS005972	HP	83712B	Synthesized CW Generator
CIS033988	Agilent	E4446A	PSA Spectrum Analyzer
CIS034974	Midwest Microwave	ATT-0640-20-29M-02	Attenuator, 20dB, DC-40GHz
CIS041985	Murata Electronics	MXGS83RK3000	Special Radio Test Adaptor Cable
CIS041987	Murata Electronics	MXGS83RK3000	Special Radio Test Adaptor Cable

Graphical Test Results

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



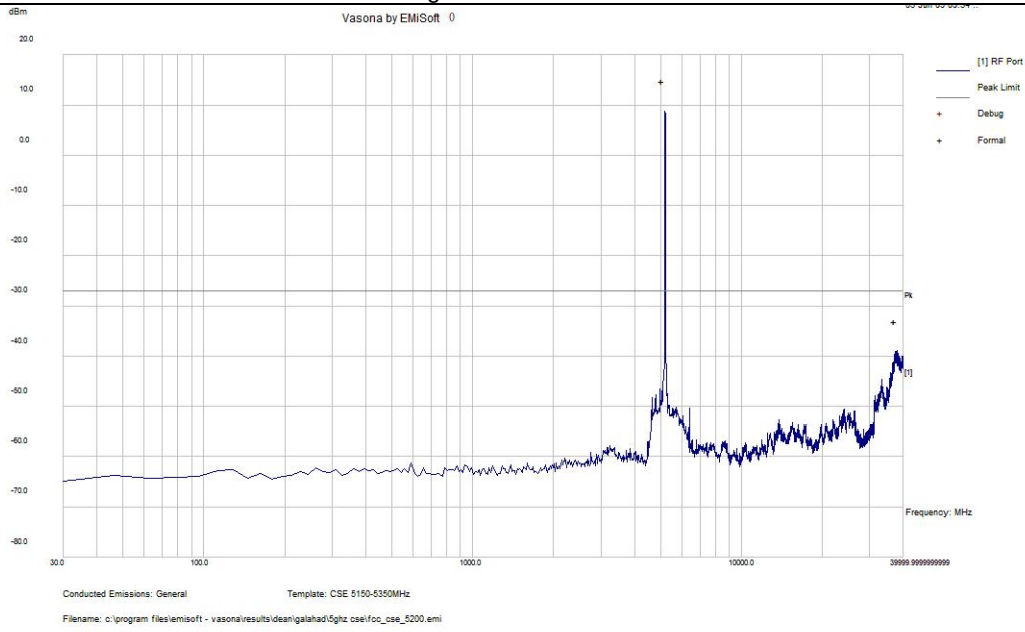
Title: Conducted Spurious Emissions: 802.11A 5180MHz

Test Results Table

Frequency MHz	Raw dBm	Cable Loss	Factors dB	Level dBm	Measurement Type	Line	Limit dBm	Margin dB	Pass /Fail	Comments
5181.99	-14.2	1.9	19.9	7.5	NA	RF	-27	34.5	Fail	Fundamental
37414.535	-59.2	0	20.6	-38.6	NA	RF	-27	-11.6	Pass	Noise Floor

Subtest Number: 36172 - 2		**Subtest Date:** 05-Jun-2009
Engineer	Dean Yarza	
Lab Information	Building B, Shield Room	
Subtest Results		
Line Under Test	[A] Antenna Port	
Transducer	Direct	
Subtest Result	Pass	
Highest Frequency	40000.0	
Lowest Frequency	30.0	
Comments on the above Test Results	No further comments	
Environmental Conditions:		
Temperature: within range of 54 to 95 F:	Yes	
Humidity: between 10 and 75%:	Yes	

Graphical Test Results
Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



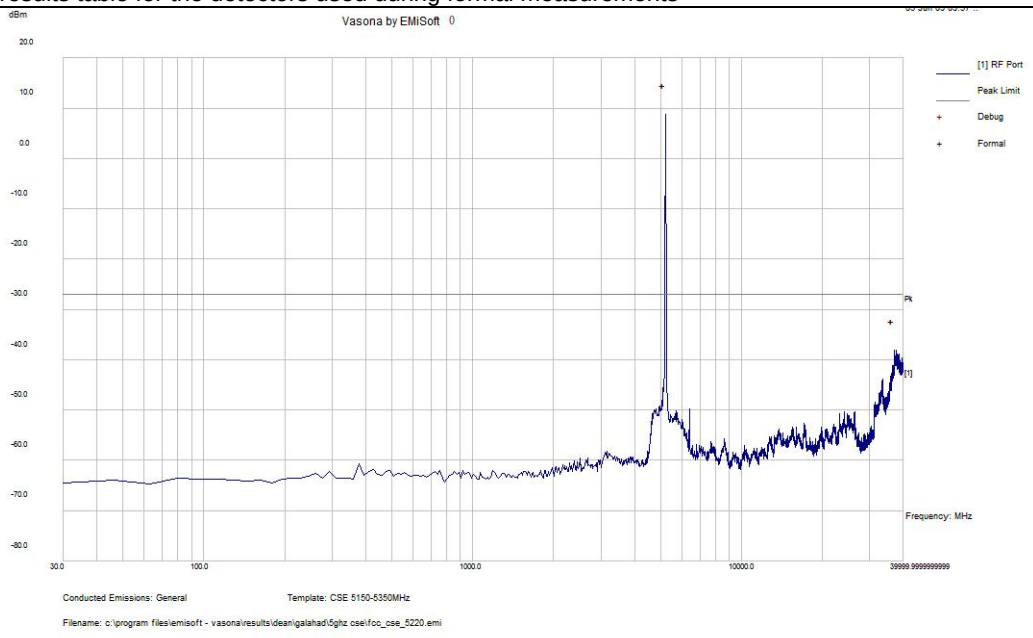
Title: Conducted Spurious Emissions: 802.11A 5200MHz

Test Results Table

Frequency MHz	Raw dBm	Cable Loss	Factors dB	Level dBm	Measurement Type	Line	Limit dBm	Margin dB	Pass /Fail	Comments
5198.503	-13	1.9	19.9	8.8	NA	RF	-27	35.8	Fail	Fundamental
37961.946	-59.5	0	20.6	-39	NA	RF	-27	-12	Pass	Noise Floor

Subtest Number: 36172 - 3		**Subtest Date:** 05-Jun-2009
Engineer	Dean Yarza	
Lab Information	Building B, Shield Room	
Subtest Results		
Line Under Test	[A] Antenna Port	
Transducer	Direct	
Subtest Result	Pass	
Highest Frequency	40000.0	
Lowest Frequency	30.0	
Comments on the above Test Results	No further comments	
Environmental Conditions:		
Temperature: within range of 54 to 95 F:	Yes	
Humidity: between 10 and 75%:	Yes	
Comments:		

Graphical Test Results
Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



Title: Conducted Spurious Emissions: 802.11A 5220MHz

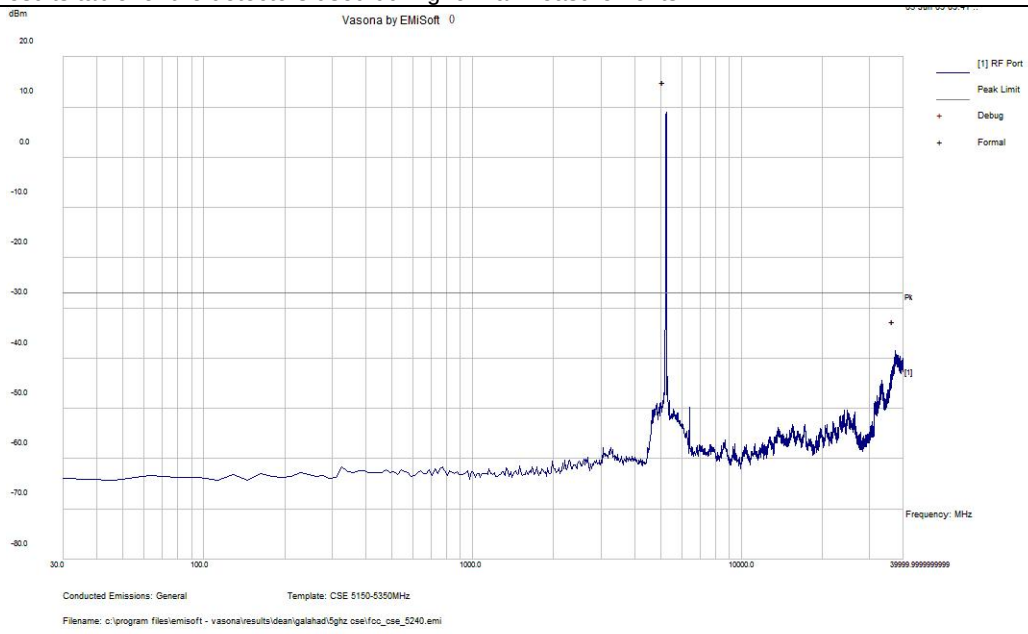
Test Results Table

Frequency MHz	Raw dBm	Cable Loss	Factors dB	Level dBm	Measurement Type	Line	Limit dBm	Margin dB	Pass /Fail	Comments
5231.528	-13.1	1.9	19.9	8.7	NA	RF	-27	35.7	Fail	Fundamental

Frequency MHz	Raw dBm	Cable Loss	Factors dB	Level dBm	Measurement Type	Line	Limit dBm	Margin dB	Pass /Fail	Comments
37136.619	-58.7	0	20.6	-38.1	NA	RF	-27	-11.1	Pass	Noise Floor

Subtest Number: 36172 - 4	**Subtest Date:** 05-Jun-2009	
Engineer	Dean Yarza	
Lab Information	Building B, Shield Room	
Subtest Results		
Line Under Test	[A] Antenna Port	
Transducer	Direct	
Subtest Result	Pass	
Highest Frequency	40000.0	
Lowest Frequency	30.0	
Comments on the above Test Results	No further comments	
Environmental Conditions:		
Temperature: within range of 54 to 95 F:	Yes	
Humidity: between 10 and 75%:	Yes	

Graphical Test Results
Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



Title: Conducted Spurious Emissions: 802.11A 5240MHz

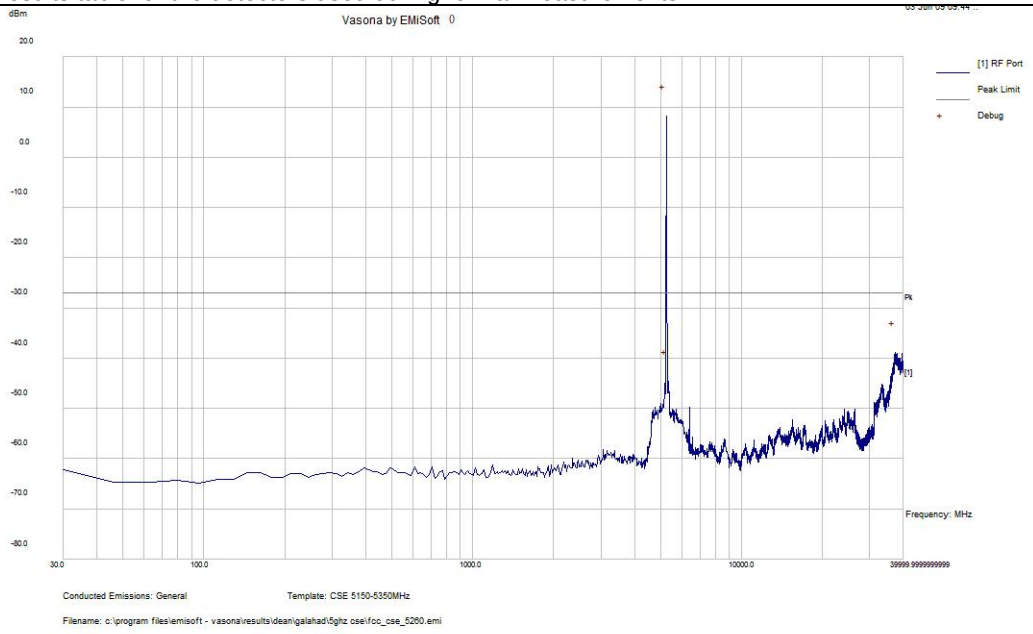
Test Results Table

Frequency MHz	Raw dBm	Cable Loss	Factors dB	Level dBm	Measurement Type	Line	Limit dBm	Margin dB	Pass /Fail	Comments
5248.041	-12.8	1.9	19.9	9	NA	RF	-27	36	Fail	Fundamental
37406.114	-59.1	0	20.6	-38.5	NA	RF	-27	-11.5	Pass	Noise Floor

Subtest Number: 36172 - 5	**Subtest Date:** 05-Jun-2009	
Engineer	Dean Yarza	
Lab Information	Building B, Shield Room	
Subtest Results		
Line Under Test	[A] Antenna Port	
Transducer	Direct	
Subtest Result	Pass	
Highest Frequency	40000.0	
Lowest Frequency	30.0	
Comments on the above Test Results	No further comments	
Environmental Conditions:		
Temperature: within range of 54 to 95 F:	Yes	
Humidity: between 10 and 75%:	Yes	

Graphical Test Results

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



Title: Conducted Spurious Emissions: 802.11A 5260MHz

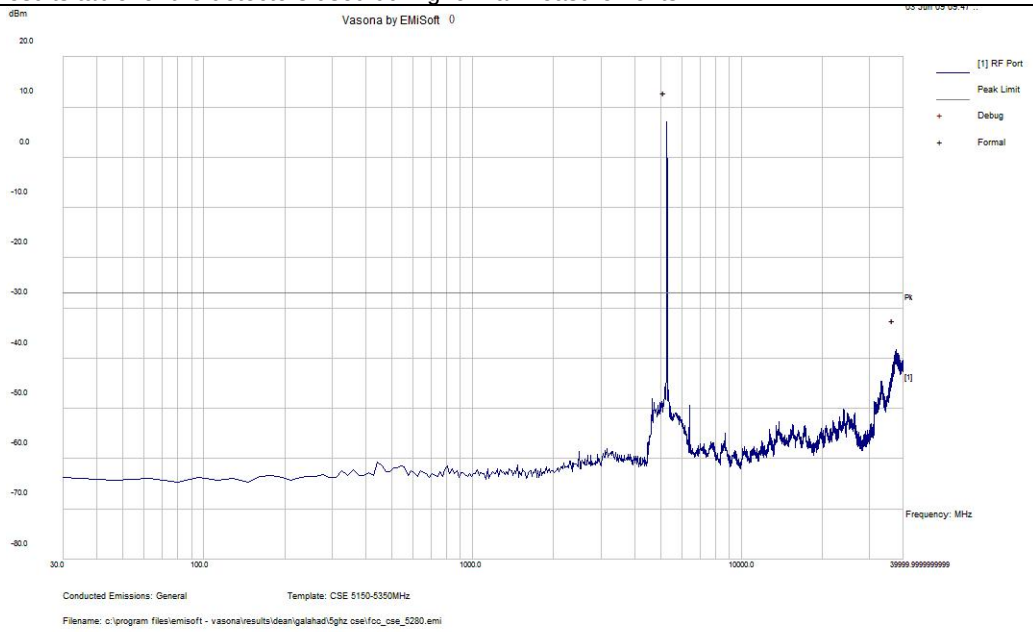
Test Results Table

Frequency MHz	Raw dBm	Cable Loss	Factors dB	Level dBm	Measurement Type	Line	Limit dBm	Margin dB	Pass /Fail	Comments
5248.041	-13.6	1.9	19.9	8.2	NA	RF	-27	35.2	Fail	Fundamental
37347.162	-59.4	0	20.6	-38.8	NA	RF	-27	-11.8	Pass	Noise Floor

Subtest Number: 36172 - 6	**Subtest Date:** 05-Jun-2009	
Engineer	Dean Yarza	
Lab Information	Building B, Shield Room	
Subtest Results		
Line Under Test	[A] Antenna Port	
Transducer	Direct	
Subtest Result	Pass	
Highest Frequency	40000.0	
Lowest Frequency	30.0	
Comments on the above Test Results	No further comments	
Environmental Conditions:		
Temperature: within range of 54 to 95 F:	Yes	
Humidity: between 10 and 75%:	Yes	

Graphical Test Results

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



Title: Conducted Spurious Emissions: 802.11A 5280MHz

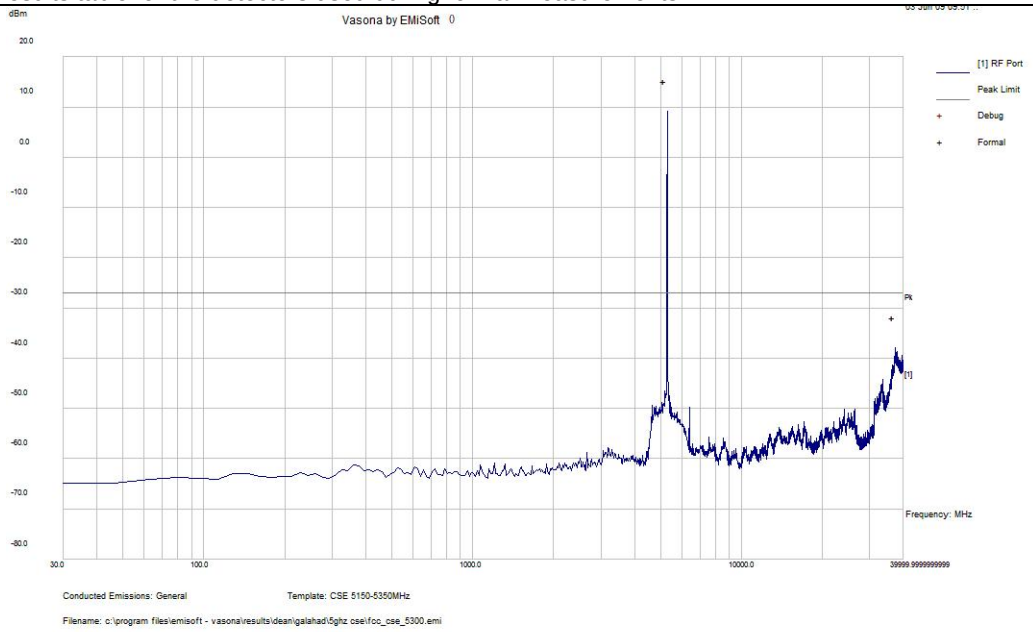
Test Results Table

Frequency MHz	Raw dBm	Cable Loss	Factors dB	Level dBm	Measurement Type	Line	Limit dBm	Margin dB	Pass /Fail	Comments
5281.067	-14.9	2	19.9	7	NA	RF	-27	34	Fail	Fundamental
37490.331	-58.9	0	20.6	-38.4	NA	RF	-27	-11.4	Pass	Noise Floor

Subtest Number: 36172 - 7	**Subtest Date:** 05-Jun-2009	
Engineer	Dean Yarza	
Lab Information	Building B, Shield Room	
Subtest Results		
Line Under Test	[A] Antenna Port	
Transducer	Direct	
Subtest Result	Pass	
Highest Frequency	40000.0	
Lowest Frequency	30.0	
Comments on the above Test Results	No further comments	
Environmental Conditions:		
Temperature: within range of 54 to 95 F:	Yes	
Humidity: between 10 and 75%:	Yes	

Graphical Test Results

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



Title: Conducted Spurious Emissions: 802.11A 5300MHz

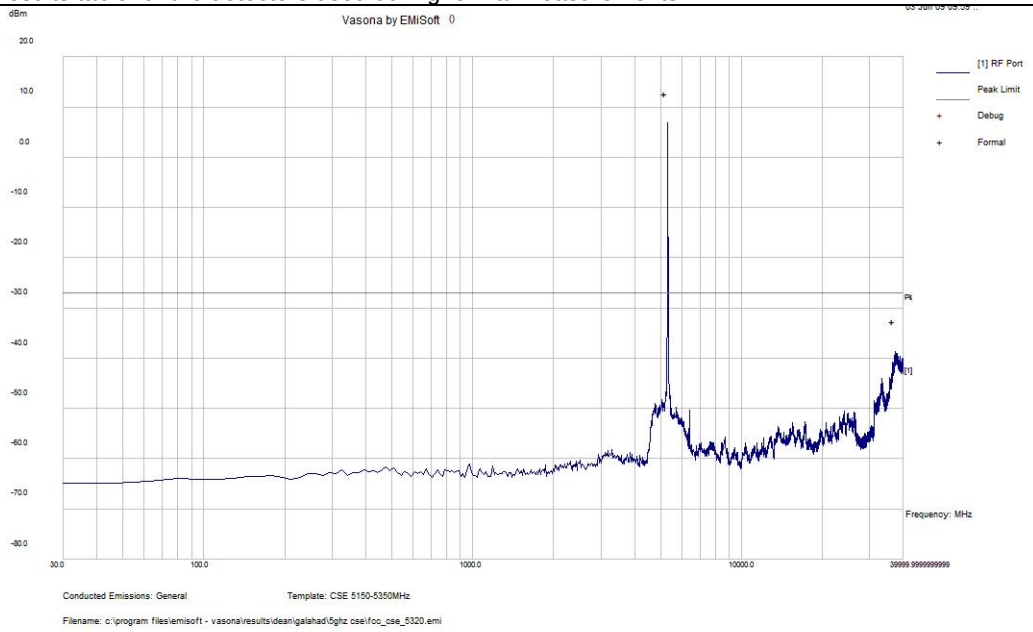
Test Results Table

Frequency MHz	Raw dBm	Cable Loss	Factors dB	Level dBm	Measurement Type	Line	Limit dBm	Margin dB	Pass /Fail	Comments
5297.58	-12.7	2	19.9	9.2	NA	RF	-27	36.2	Fail	Fundamental
37473.487	-58.5	0	20.6	-37.9	NA	RF	-27	-10.9	Pass	Noise Floor

Subtest Number: 36172 - 8	**Subtest Date:** 05-Jun-2009	
Engineer	Dean Yarza	
Lab Information	Building B, Shield Room	
Subtest Results		
Line Under Test	[A] Antenna Port	
Transducer	Direct	
Subtest Result	Pass	
Highest Frequency	40000.0	
Lowest Frequency	30.0	
Comments on the above Test Results	No further comments	
Environmental Conditions:		
Temperature: within range of 54 to 95 F:	Yes	
Humidity: between 10 and 75%:	Yes	

Graphical Test Results

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



Title: Conducted Spurious Emissions: 802.11A 5320MHz

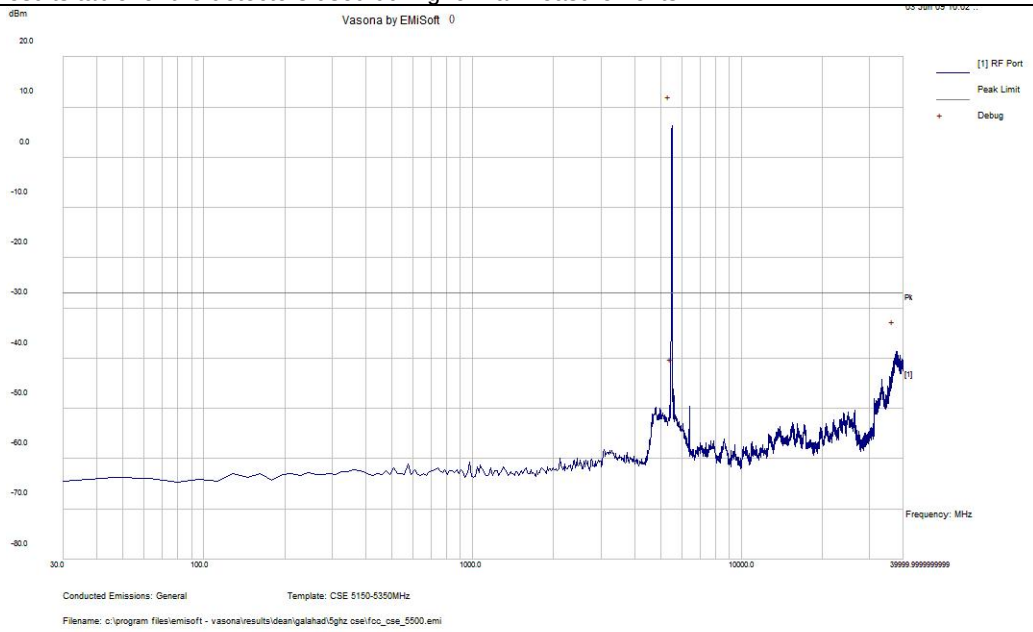
Test Results Table

Frequency MHz	Raw dBm	Cable Loss	Factors dB	Level dBm	Measurement Type	Line	Limit dBm	Margin dB	Pass /Fail	Comments
5330.605	-15	2	19.9	6.8	NA	RF	-27	33.8	Fail	Fundamental
37380.848	-59.2	0	20.6	-38.6	NA	RF	-27	-11.6	Pass	Noise Floor

Subtest Number: 36172 - 9	**Subtest Date:** 05-Jun-2009	
Engineer	Dean Yarza	
Lab Information	Building B, Shield Room	
Subtest Results		
Line Under Test	[A] Antenna Port	
Transducer	Direct	
Subtest Result	Pass	
Highest Frequency	40000.0	
Lowest Frequency	30.0	
Comments on the above Test Results	No further comments	
Environmental Conditions:		
Temperature: within range of 54 to 95 F:	Yes	
Humidity: between 10 and 75%:	Yes	

Graphical Test Results

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



Title: Conducted Spurious Emissions: 802.11A 5500MHz

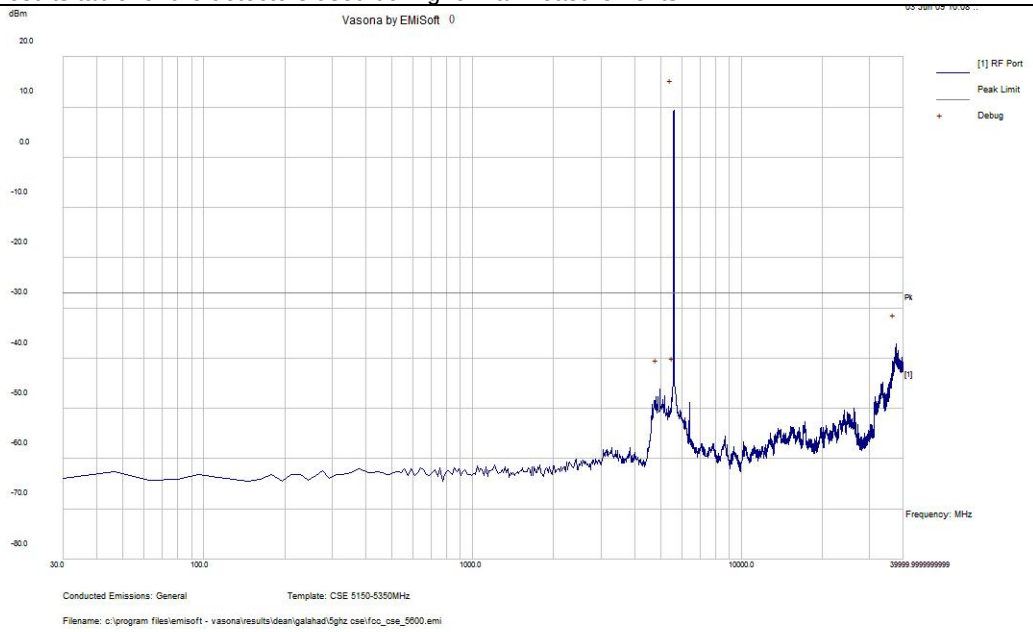
Test Results Table

Frequency MHz	Raw dBm	Cable Loss	Factors dB	Level dBm	Measurement Type	Line	Limit dBm	Margin dB	Pass /Fail	Comments
5512.246	-15.6	2	19.9	6.2	NA	RF	-27	33.2	Fail	Fundamental
37490.331	-59.2	0	20.6	-38.6	NA	RF	-27	-11.6	Pass	Noise Floor

Subtest Number: 36172 - 10	**Subtest Date:** 05-Jun-2009	
Engineer	Dean Yarza	
Lab Information	Building B, Shield Room	
Subtest Results		
Line Under Test	[A] Antenna Port	
Transducer	Direct	
Subtest Result	Pass	
Highest Frequency	40000.0	
Lowest Frequency	30.0	
Comments on the above Test Results	No further comments	
Environmental Conditions:		
Temperature: within range of 54 to 95 F:	Yes	
Humidity: between 10 and 75%:	Yes	

Graphical Test Results

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



Title: Conducted Spurious Emissions: 802.11A 5600MHz

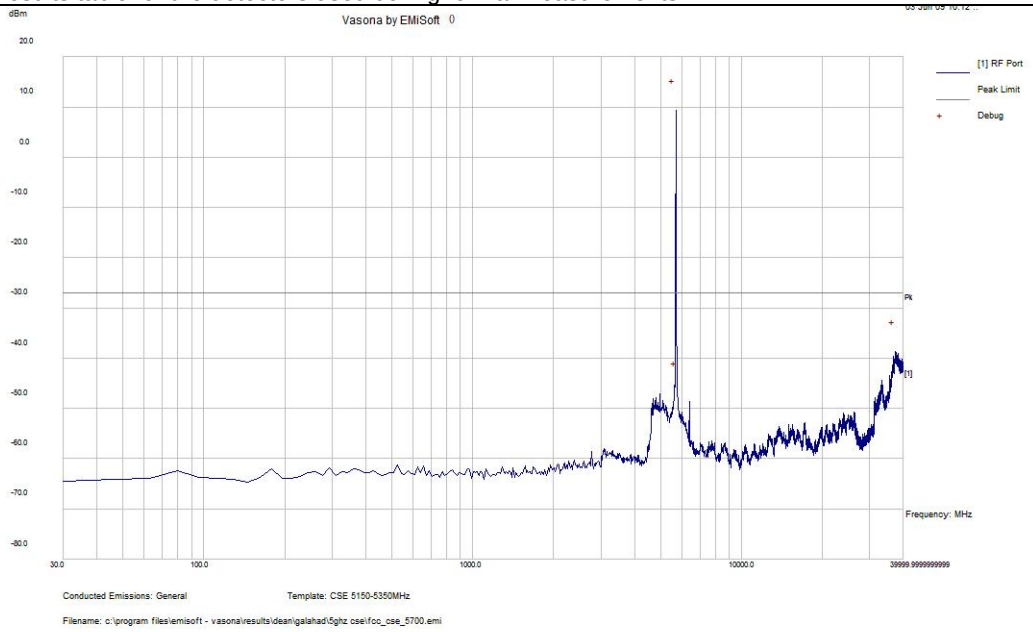
Test Results Table

Frequency MHz	Raw dBm	Cable Loss	Factors dB	Level dBm	Measurement Type	Line	Limit dBm	Margin dB	Pass /Fail	Comments
5611.323	-12.7	2.2	19.9	9.4	NA	RF	-27	36.4	Fail	Fundamental
37684.03	-57.8	0	20.6	-37.2	NA	RF	-27	-10.2	Pass	Noise Floor

Subtest Number: 36172 - 11	**Subtest Date:** 05-Jun-2009	
Engineer	Dean Yarza	
Lab Information	Building B, Shield Room	
Subtest Results		
Line Under Test	[A] Antenna Port	
Transducer	Direct	
Subtest Result	Pass	
Highest Frequency	40000.0	
Lowest Frequency	30.0	
Comments on the above Test Results	No further comments	
Environmental Conditions:		
Temperature: within range of 54 to 95 F:	Yes	
Humidity: between 10 and 75%:	Yes	

Graphical Test Results

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements

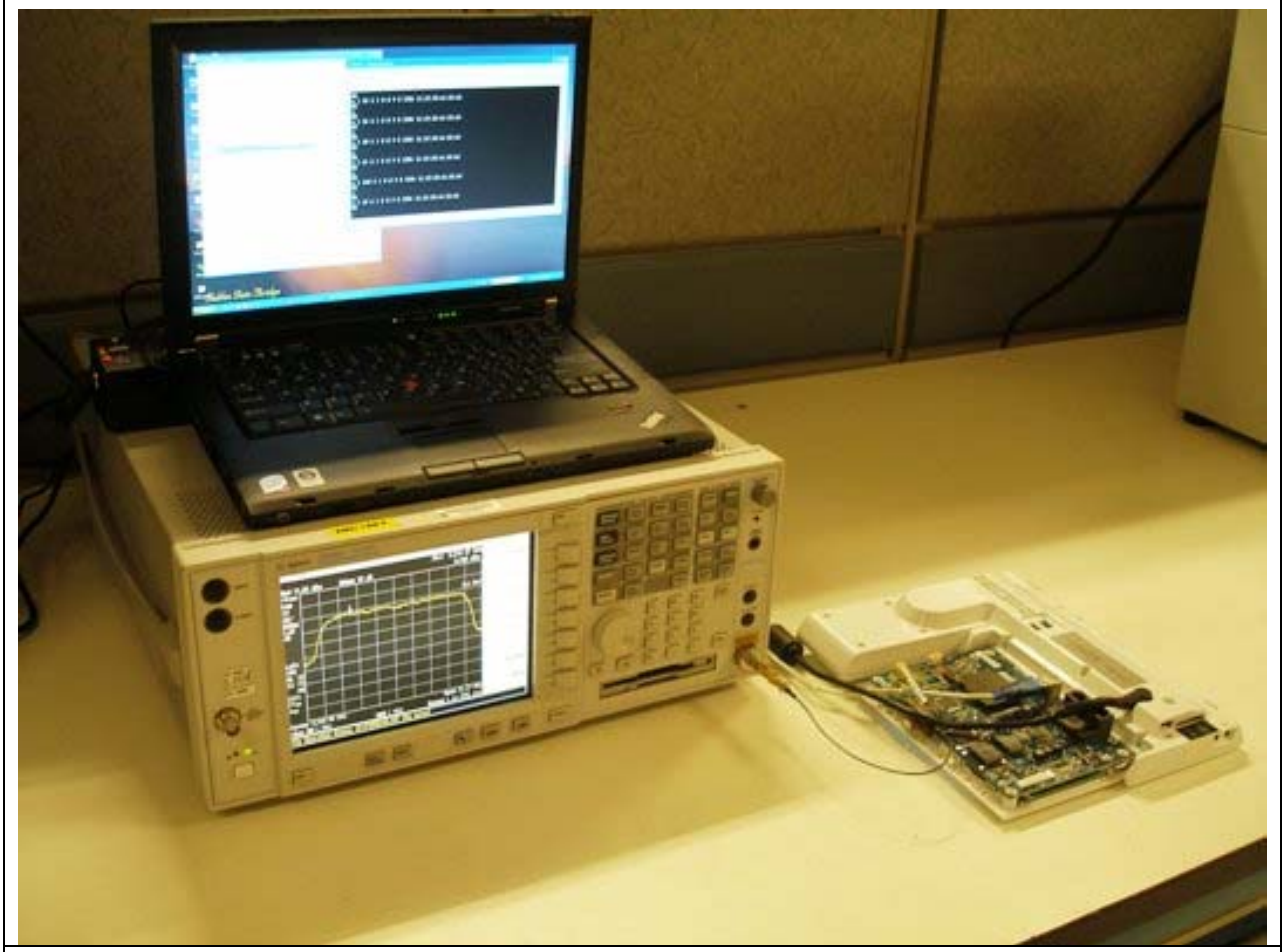


Title: Conducted Spurious Emissions: 802.11A 5700MHz

Test Results Table

Frequency MHz	Raw dBm	Cable Loss	Factors dB	Level dBm	Measurement Type	Line	Limit dBm	Margin dB	Pass /Fail	Comments
5710.399	-12.8	2.2	19.9	9.3	NA	RF	-27	36.3	Fail	Fundamental
37456.644	-59.2	0	20.6	-38.6	NA	RF	-27	-11.6	Pass	Noise Floor

Physical Test arrangement Photograph:



Title: Conducted Spurious Emissions Test Configuration

Comments on the above Photograph:

No further comments

Radiated Transmitter Spurious Emissions

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

RSS-210
Radiated emissions which fall in the restricted bands, as defined in Sec. 2.7-Table 1 must also comply with the radiated emission limits specified in Sec. 2.7-Table 2.

Test Results

Test Number: 36012 **Spec ID:** 966				
Basic Standard	**Applied to**	**Class**	**Freq Range**	**Test Details / Comments**
Radiated Spurious Emissions	Enclosure	N/A	30MHz - 40GHz	CFR47 Part 15.109, CFR47 Part 15.407, RSS-210, LP0002 HKTA1039
Operating Mode	**Mode :** 1, 802.11A Test Mode			
Power Input	48, DC (+/-20%)			
Overall Result	Pass			
Comments	No further comments			
Deviation	There were no deviations from the specification			

System Number	**Description**	**Samples**	**System under test**	**Support equipment**
1	WiFi Radio test sample	S01	☑	☐

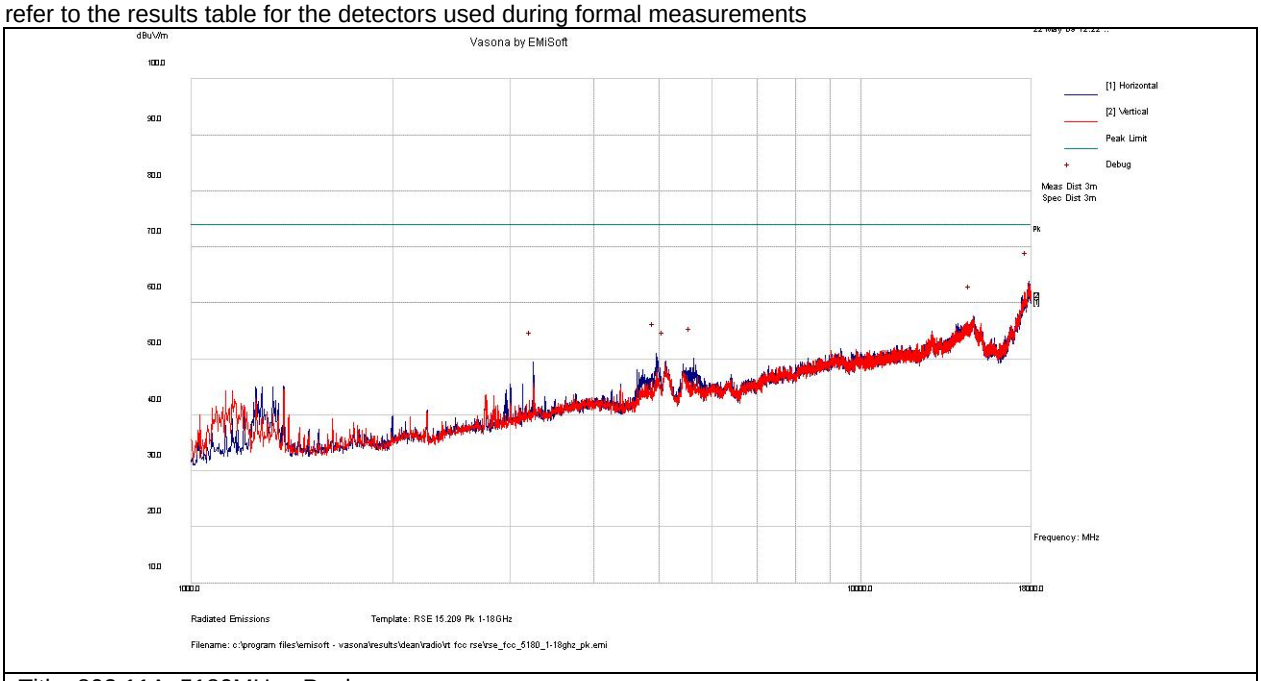
Subtest Number: 36012 - 1	**Subtest Date:** 28-May-2009
Engineer	Dean Yarza
Lab Information	Building I, 5m Anechoic
Subtest Results	
Subtest Title	Radiated Spurious Emissions, 1-18GHz
Subtest Result	Pass
Highest Frequency	18000.0
Lowest Frequency	1000.0
Comments on the above Test Results	No further comments
Environmental Conditions:	
Temperature: within range of 54 to 95 F:	Yes
Humidity: between 10 and 75%:	Yes
Comments:	

Equipment used:			
Equipment No	Manufacturer	Model	Description
CIS001937	Cisco	NSA 5m Chamber	NSA 5m Chamber
CIS002395	Omega	CT485B	Temp/Humidity Recorder
CIS002119	EMC Test Systems	3115	Double Ridged Guide Horn Antenna
CIS002383	Omega	CT485B	Temp/Humidity Recorder
CIS008022	Huber + Suhner	SF106A	1 meter Sucoflex cable
CIS008024	Huber + Suhner	SF106A	3 meter Sucoflex cable
CIS008103	Cisco	Unifield 5m Chamber	Unifield 5m Chamber
CIS005691	Miteq	NSP1800-25-S1	Broadband Preamplifier (1-18GHz)
CIS018314	EMC Test Systems	3115	Double Ridged Guide Horn Antenna
CIS024201	Rohde & Schwarz	FSEK30	Spectrum Analyzer 20Hz - 40GHz
CIS027235	York	CNE V	Comparison Noise Emitter
CIS028072	Cisco	1840	18-40GHz EMI Test Head/Verification Fixture
CIS030443	Micro-Coax	UFB311A-0-1560-520520	RF Coaxial Cable, to 18GHz, 156 In.
CIS031995	HP	83712B	Synthesized CW Signal Generator
CIS033602	Midwest Microwave	CSY-NMNM-80-273001	RF Coaxial Cable, 27ft. to 18GHz
CIS034074	Schaffner	RSG 2000	Reference Spectrum Generator, 1-18GHz
CIS035608	Micro-Tronics	BRC50703-02	Notch Filter, SB:5.150-5.350GHz, to 11GHz
CIS037023	Panashield	5m Chamber	5m Anechoic Chamber
CIS037235	JFW	50CB-015	Control Box, GPIB
CIS039114	Sunol Sciences	JB1	Combination Antenna
CIS039130	Cisco	TH0118-PS	Power Supply for TH0118 1-18GHz Preamplifier
CIS040523	Rohde & Schwarz	ESCI	EMI Test Receiver
CIS041991	Cisco	TH0118	Mast Mount Preamplifier Array, 1-18GHz
CIS042000	Agilent	E4440A	Spectrum Analyzer
CIS001937	Cisco	NSA 5m Chamber	NSA 5m Chamber
CIS002395	Omega	CT485B	Temp/Humidity Recorder
CIS002119	EMC Test Systems	3115	Double Ridged Guide Horn Antenna
CIS002383	Omega	CT485B	Temp/Humidity Recorder
CIS008022	Huber + Suhner	SF106A	1 meter Sucoflex cable
CIS008024	Huber + Suhner	SF106A	3 meter Sucoflex cable
CIS008103	Cisco	Unifield 5m Chamber	Unifield 5m Chamber
CIS005691	Miteq	NSP1800-25-S1	Broadband Preamplifier (1-18GHz)
CIS018314	EMC Test Systems	3115	Double Ridged Guide Horn Antenna
CIS024201	Rohde & Schwarz	FSEK30	Spectrum Analyzer 20Hz - 40GHz
CIS027235	York	CNE V	Comparison Noise Emitter
CIS028072	Cisco	1840	18-40GHz EMI Test Head/Verification Fixture

CIS030443	Micro-Coax	UFB311A-0-1560-520520	RF Coaxial Cable, to 18GHz, 156 In.
CIS031995	HP	83712B	Synthesized CW Signal Generator
CIS033602	Midwest Microwave	CSY-NMNM-80-273001	RF Coaxial Cable, 27ft. to 18GHz
CIS034074	Schaffner	RSG 2000	Reference Spectrum Generator, 1-18GHz
CIS037023	Panashield	5m Chamber	5m Anechoic Chamber
CIS037235	JFW	50CB-015	Control Box, GPIB
CIS039114	Sunol Sciences	JB1	Combination Antenna
CIS039130	Cisco	TH0118-PS	Power Supply for TH0118 1-18GHz Preamplifier
CIS040523	Rohde & Schwarz	ESCI	EMI Test Receiver
CIS041991	Cisco	TH0118	Mast Mount Preamplifier Array, 1-18GHz
CIS042000	Agilent	E4440A	Spectrum Analyzer

Graphical Test Results

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



Title: 802.11A, 5180MHz: Peak

Test Results Table

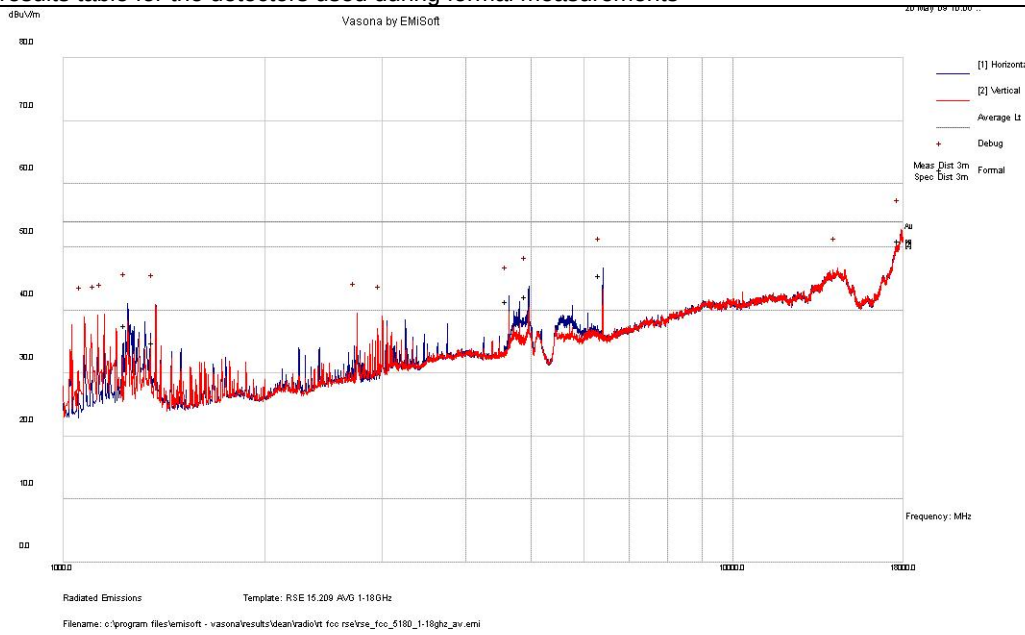
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
17870.087	37.9	14.3	11.6	63.8	NA	H	100	0	74	-10.2	Pass	Noise Floor
4958.359	47.8	7.3	-4.1	51	NA	H	125	0	74	-23	Pass	

Subtest Number: 36012 - 2	**Subtest Date:** 28-May-2009
Engineer	Dean Yarza

Lab Information	Building I, 5m Anechoic
Subtest Results	
Subtest Title	Radiated Spurious Emissions, 1-18GHz
Subtest Result	Pass
Highest Frequency	18000.0
Lowest Frequency	1000.0
Comments on the above Test Results	No further comments
Environmental Conditions:	
Temperature: within range of 54 to 95 F:	Yes
Humidity: between 10 and 75%:	Yes

Graphical Test Results

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



Title: 802.11A, 5180MHz: Average

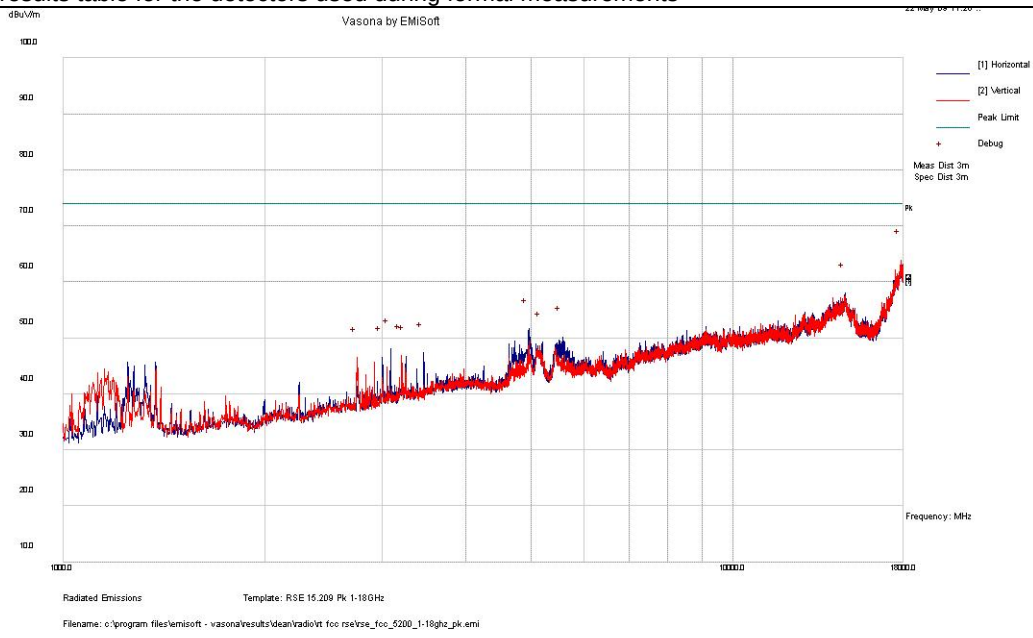
Test Results Table

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
17875.748	27.1	12.3	11.6	51	Av	V	159	159	54	-3	Pass	Noise Floor
6400.041	41.6	7.2	-3.3	45.4	Av	H	136	219	54	-8.6	Pass	
4960.116	39.9	6.3	-4.1	42.1	Av	H	99	208	54	-11.9	Pass	
4640.078	39.5	6.1	-4.2	41.3	Av	H	129	355	54	-12.7	Pass	
1249.925	42.5	3	-8	37.6	Av	H	147	229	54	-16.4	Pass	
1375.299	39.4	3.2	-7.8	34.8	Av	V	191	149	54	-19.2	Pass	

Subtest Number: 36012 - 3		**Subtest Date:** 28-May-2009
Engineer	Dean Yarza	
Lab Information	Building I, 5m Anechoic	
Subtest Results		
Subtest Title	Radiated Spurious Emissions, 1-18GHz	
Subtest Result	Pass	
Highest Frequency	18000.0	
Lowest Frequency	1000.0	
Comments on the above Test Results	No further comments	
Environmental Conditions:		
Temperature: within range of 54 to 95 F:	Yes	
Humidity: between 10 and 75%:	Yes	

Graphical Test Results

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



Title: 802.11A, 5200MHz: Peak

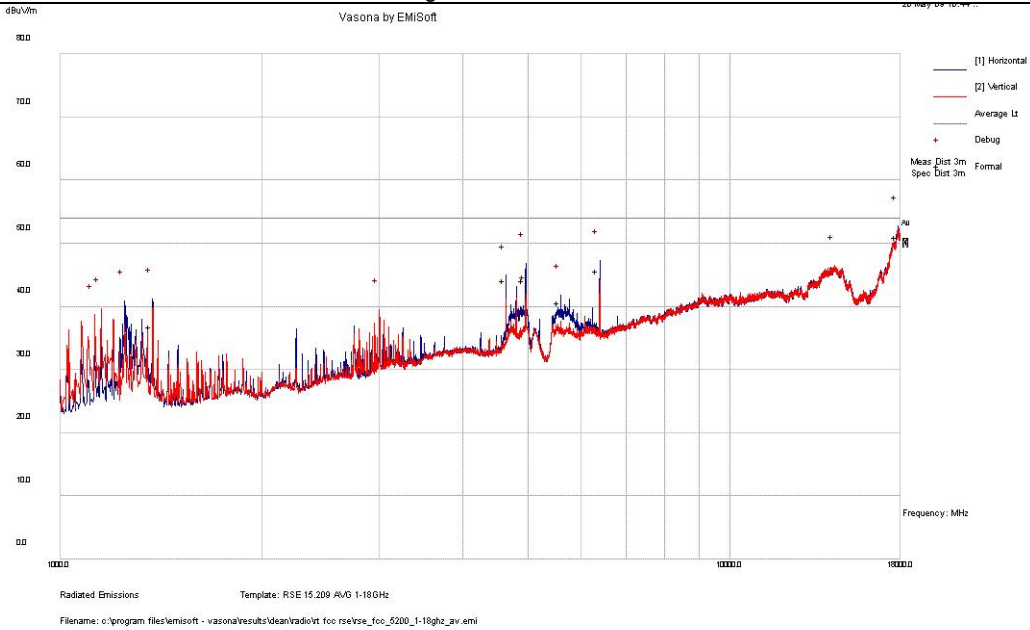
Test Results Table

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
17872.739	38	14.3	11.6	63.9	NA	V	100	0	74	-10.1	Pass	Noise Floor
4961.011	48.4	7.3	-4.1	51.6	NA	H	100	0	74	-22.4	Pass	

Subtest Number: 36012 - 4		**Subtest Date:** 28-May-2009
Engineer	Dean Yarza	
Lab Information	Building I, 5m Anechoic	
Subtest Results		
Subtest Title	Radiated Spurious Emissions, 1-18GHz	
Subtest Result	Pass	
Highest Frequency	18000.0	
Lowest Frequency	1000.0	
Comments on the above Test Results	No further comments	
Environmental Conditions:		
Temperature: within range of 54 to 95 F:	Yes	
Humidity: between 10 and 75%:	Yes	

Graphical Test Results

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



Title: 802.11A, 5200MHz: Average

Test Results Table

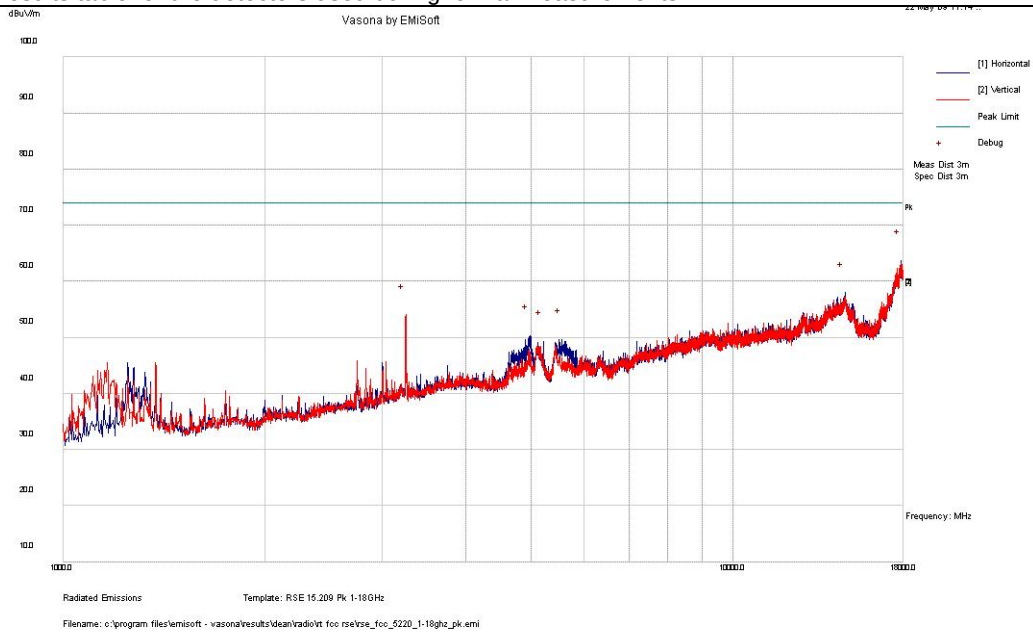
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
17883.697	27.1	12.4	11.6	51	Av	H	157	125	54	-3	Pass	Noise Floor
6400.058	41.8	7.2	-3.3	45.6	Av	H	99	211	54	-8.4	Pass	
4640.119	42.2	6.1	-4.2	44.1	Av	H	136	353	54	-9.9	Pass	
4959.883	41.8	6.3	-4.1	44	Av	H	132	361	54	-10	Pass	

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
5599.958	37.9	6.7	-4	40.6	Av	H	133	212	54	-13.4	Pass	
1375.266	41.4	3.2	-7.8	36.8	Av	H	122	246	54	-17.2	Pass	

Subtest Number: 36012 - 5	**Subtest Date:** 28-May-2009
Engineer	Dean Yarza
Lab Information	Building I, 5m Anechoic
Subtest Results	
Subtest Title	Radiated Spurious Emissions, 1-18GHz
Subtest Result	Pass
Highest Frequency	18000.0
Lowest Frequency	1000.0
Comments on the above Test Results	No further comments
Environmental Conditions:	
Temperature: within range of 54 to 95 F:	Yes
Humidity: between 10 and 75%:	Yes

Graphical Test Results

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



Title: 802.11A, 5220MHz: Peak

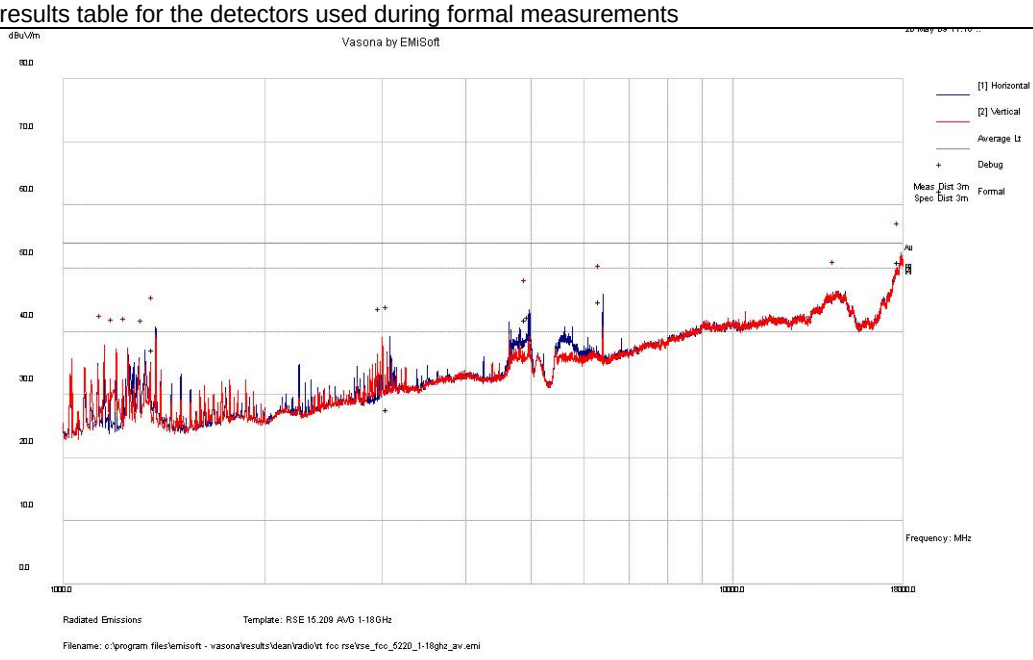
Test Results Table

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
17883.344	37.7	14.3	11.6	63.7	NA	H	100	0	74	-10.3	Pass	Noise Floor
3253.587	53.1	5.2	-4.2	54	NA	V	100	0	74	-20	Pass	

Subtest Number: 36012 - 6	**Subtest Date:** 28-May-2009
Engineer	Dean Yarza
Lab Information	Building I, 5m Anechoic
Subtest Results	
Subtest Title	Radiated Spurious Emissions, 1-18GHz
Subtest Result	Pass
Highest Frequency	18000.0
Lowest Frequency	1000.0
Comments on the above Test Results	No further comments
Environmental Conditions:	
Temperature: within range of 54 to 95 F:	Yes
Humidity: between 10 and 75%:	Yes

Graphical Test Results

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



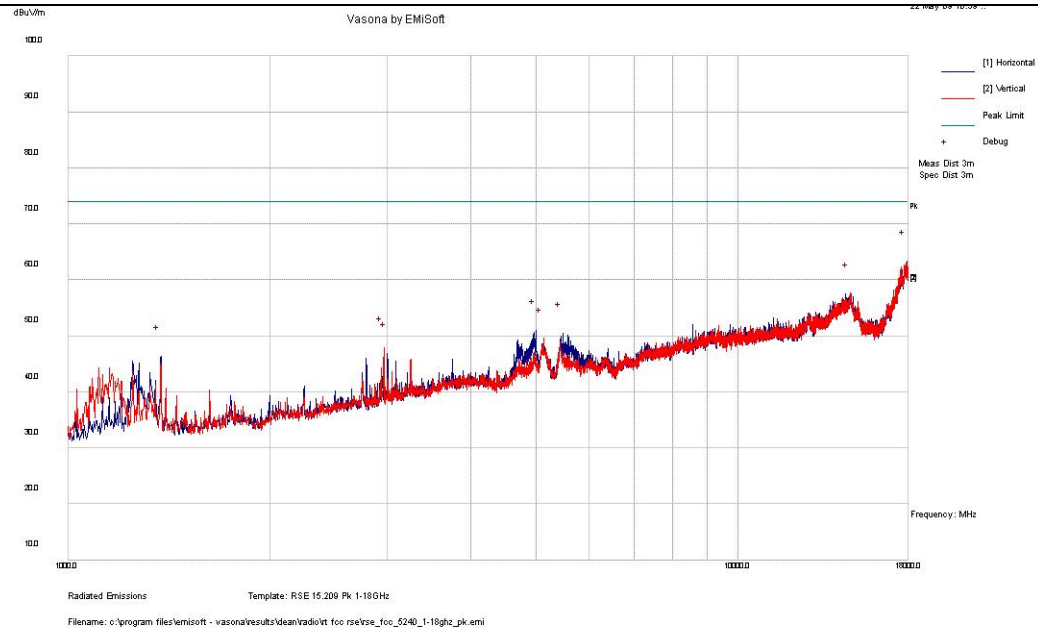
Title: 802.11A, 5220MHz: Average

Test Results Table

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
17887.279	27	12.4	11.6	51.1	Av	V	145	119	54	-2.9	Pass	Noise Floor
6400.047	41	7.2	-3.3	44.8	Av	H	101	214	54	-9.2	Pass	
4959.947	39.7	6.3	-4.1	41.9	Av	H	132	355	54	-12.1	Pass	
1374.801	41.7	3.2	-7.8	37	Av	H	127	237	54	-17	Pass	
3000.69	29.3	4.8	-4.7	29.5	Av	V	114	202	54	-24.5	Pass	
3079.354	27.4	4.9	-4.6	27.7	Av	H	113	258	54	-26.3	Pass	

Subtest Number: 36012 - 7	**Subtest Date:** 28-May-2009
Engineer	Dean Yarza
Lab Information	Building I, 5m Anechoic
Subtest Results	
Subtest Title	Radiated Spurious Emissions, 1-18GHz
Subtest Result	Pass
Highest Frequency	18000.0
Lowest Frequency	1000.0
Comments on the above Test Results	No further comments
Environmental Conditions:	
Temperature: within range of 54 to 95 F:	Yes
Humidity: between 10 and 75%:	Yes

Graphical Test Results
Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



Title: 802.11A, 5240MHz: Peak

Test Results Table

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
17909.857	37.2	14.4	11.7	63.3	NA	H	100	0	74	-10.7	Pass	
5000.78	47	8.1	-4.1	51	NA	H	100	0	74	-23	Pass	

Subtest Number: 36012 - 8	**Subtest Date:** 28-May-2009
Engineer	Dean Yarza
Lab Information	Building I, 5m Anechoic
Subtest Results	
Subtest Title	Radiated Spurious Emissions, 1-18GHz
Subtest Result	Pass
Highest Frequency	18000.0
Lowest Frequency	1000.0
Comments on the above Test Results	No further comments
Environmental Conditions:	
Temperature: within range of 54 to 95 F:	Yes
Humidity: between 10 and 75%:	Yes

Graphical Test Results
Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements