

**Radio Test Report: EDCS -705499**

**For**

**CP-7925G-A-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

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**Title:** Regulatory Compliance Manager

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



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## **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.

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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.

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## 2.2 Start Date of Testing

10-Sep-2008

## 2.3 Report Issue Date

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## 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**

<b>Cisco System Site</b>	<b>Site Identifier</b>
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

Phillip Carranco

## 2.5 Equipment Assessed (EUT)

CP-7925G-A-K9

## 2.6 EUT Description

.The CP-7925G- is the next generation Wireless IP Phone that will be more rugged and more resistant to dust, alcohol-based wipes, and liquid splashes, repeated drops and shocks therefore targeting the following markets: Retail, Warehouse, Distribution Centers, Manufacturing, Healthcare. It will also support Bluetooth as an optional interface for wireless headset.

The CP-7925G- will comprise of the MuRata LBEE1W9GVC module with support for TNET1253 for wlan and BRF6300 for Bluetooth support. The MuRata module will interface to the TNETV1700 host processor via SDIO interface, and it has 2 antenna interfaces, one for 2.4 GHz for both Bluetooth and 802.11b/g support, and an additional antenna for 5 GHz for 802.11a support.

## 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:

$$\text{Emission level [dBuV]} = \text{Indicated voltage level [dBuV]} + \text{Cable Loss [dB]} + \text{Other correction factors [dB]}$$

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:-

$$\text{Level in uV/m} = \text{Common Antilogarithm } [(X \text{ dBuV/m})/20] = Y \text{ uV/m}$$

## 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 deemed "Worst Case".

#### 4.1 Sample Details

Sample Number	Equipment Details	Serial Number	Part Number
S01	CP-7925G-A-K9	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 2.4GHz, Gain = 1.97dBi ( no external antenna can be used. )

Fixed internal Antenna at 5GHz, Gain = 3.11dBi ( 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

### Section 5: Modifications

#### 5.1 Sample Modifications Performed During Assessment

No modifications were performed during assessment.





## Appendix A: Formal Test Results

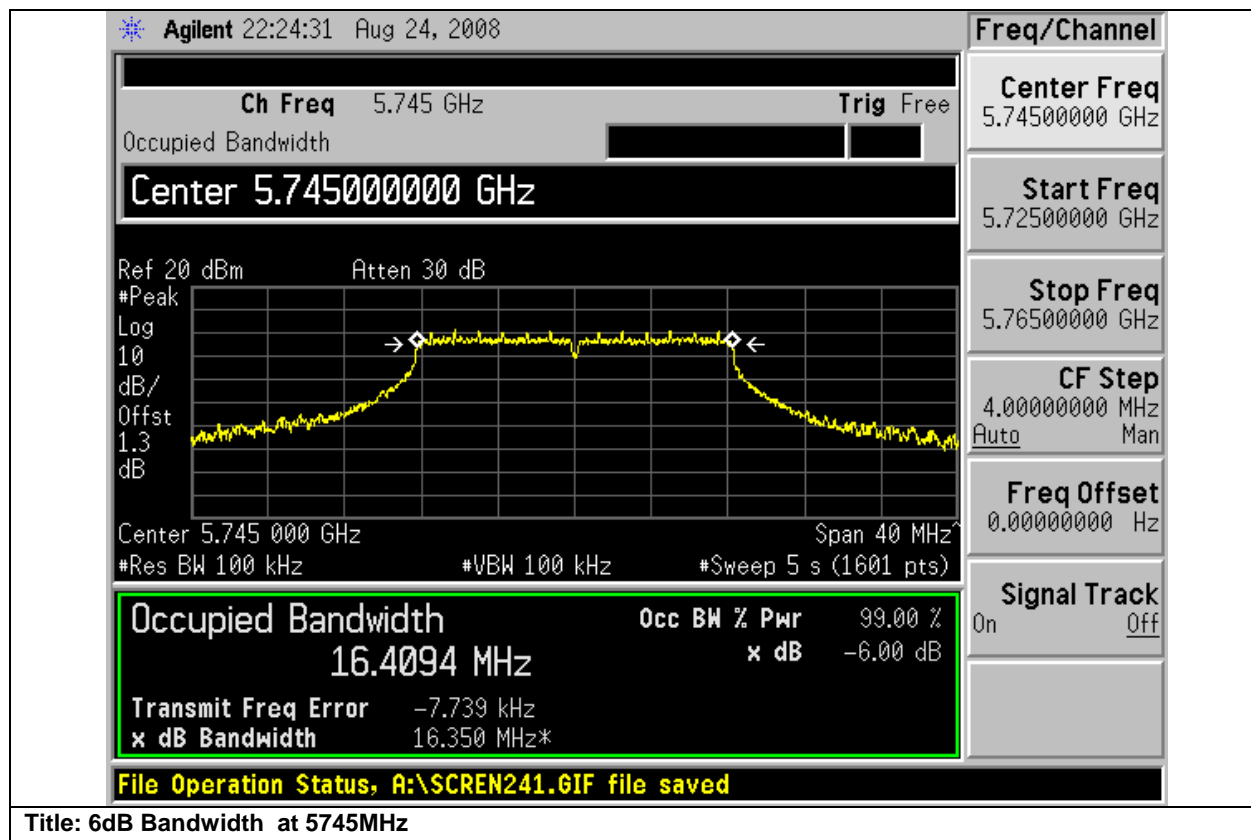
### 6dB & 99% Bandwidth

15.247 & RSS-210(A8.2)

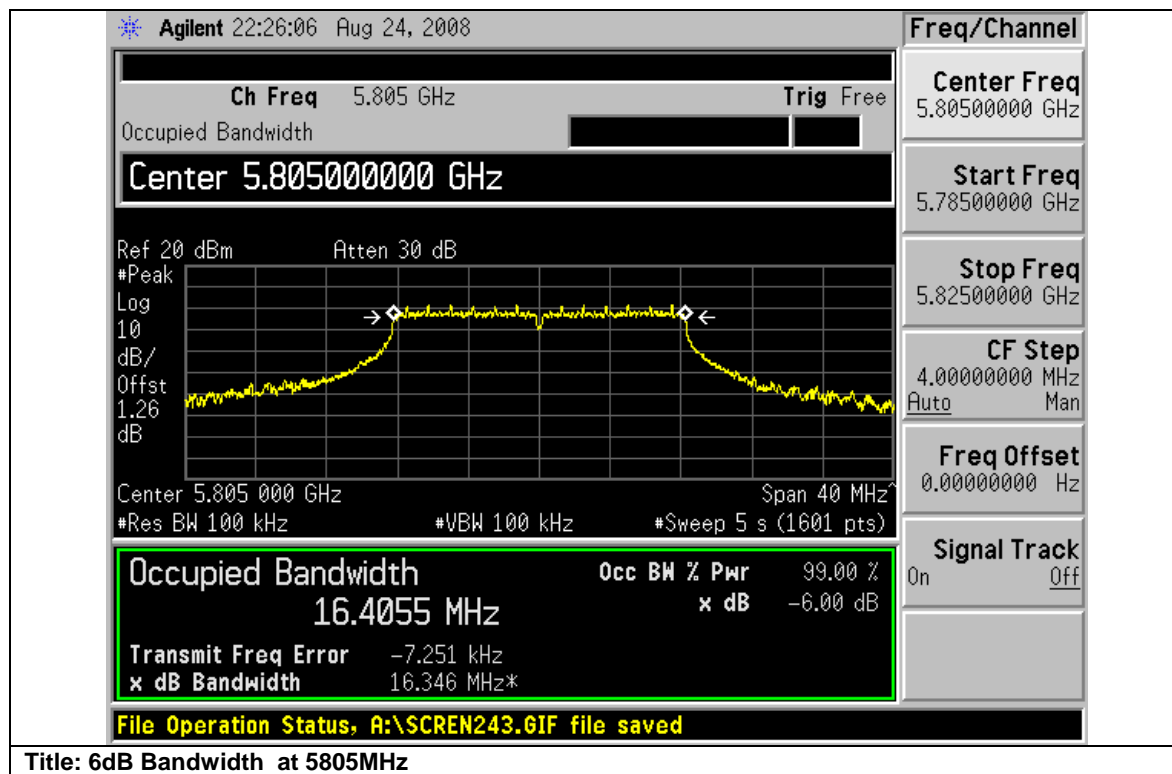
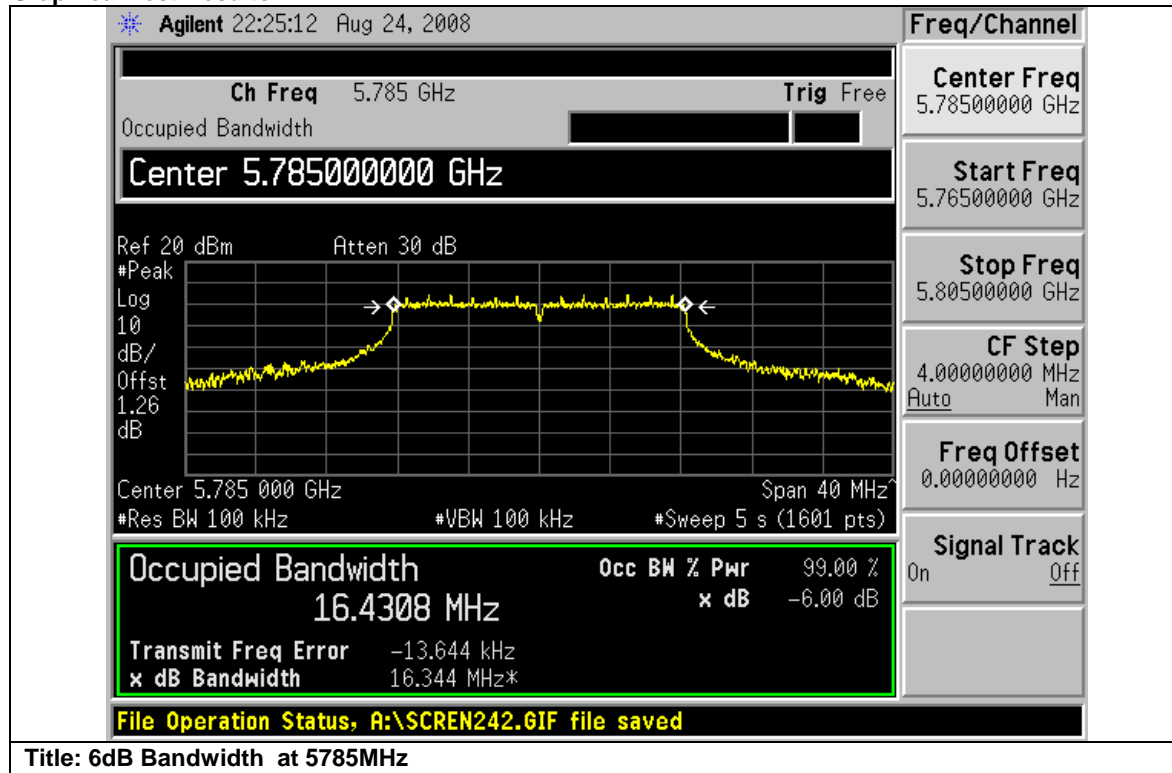
Systems using digital modulation techniques may operate in the 5725-5850MHz band. The minimum 6 dB bandwidth shall be at least 500 kHz.

Frequency (MHz)	Data Rate (Mbps)	6dB Bandwidth (kHz)	Limit (kHz)	Margin (kHz)
5745	6	16350	500	-15850
5785	6	164308	500	-163808
5805	6	16346	500	-15846

Frequency (MHz)	Data Rate (Mbps)	99% Bandwidth (kHz)
5745	6	164094
5785	6	16344
5805	6	164055



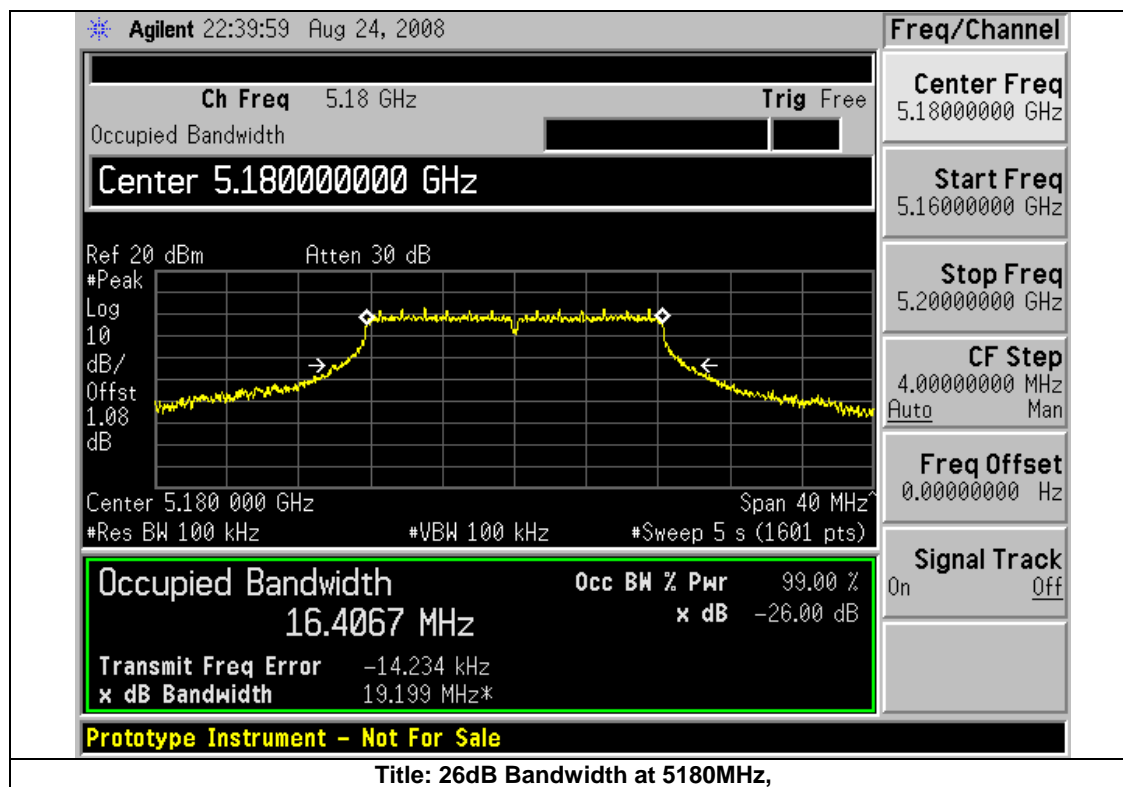
### Graphical Test Results

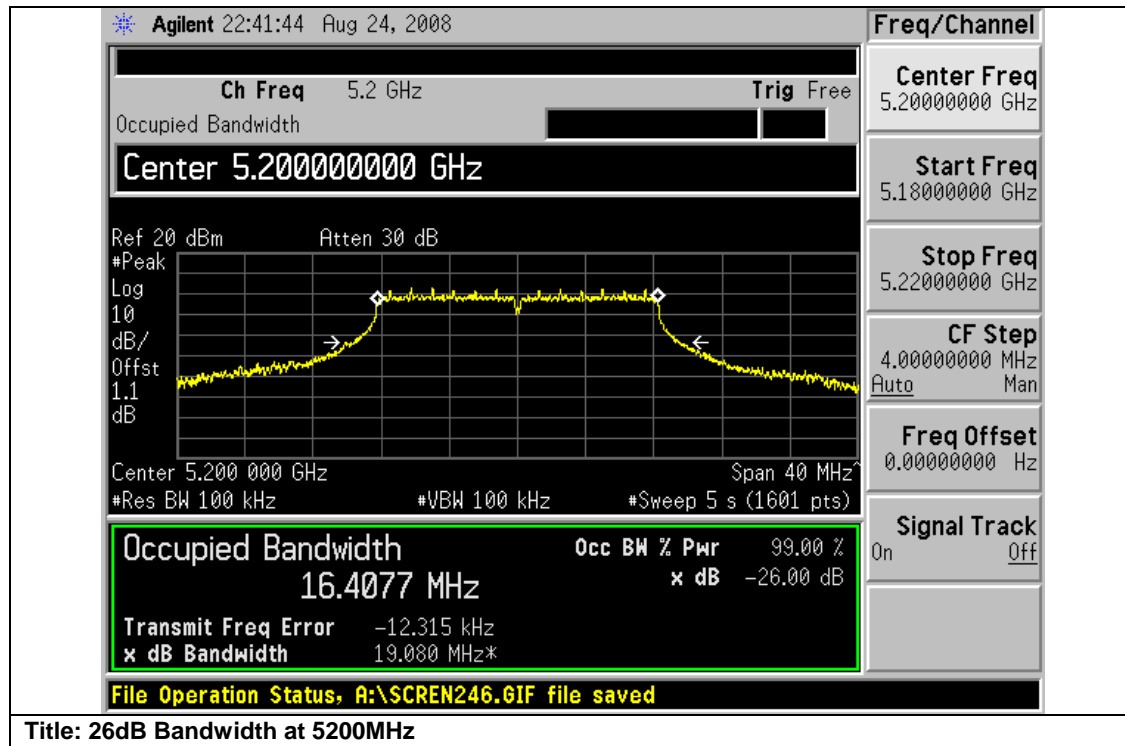


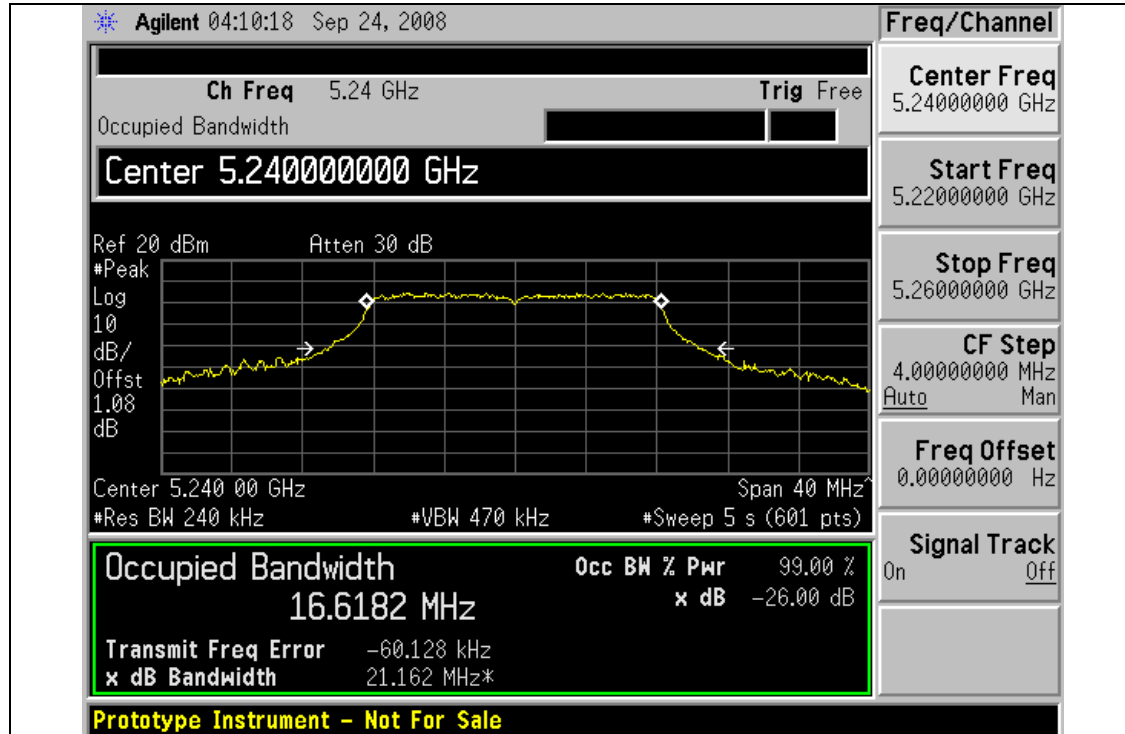
99% and 26dB Bandwidth

Frequency (MHz)	Data Rate (Mbps)	99% Bandwidth (MHz)	26dB Bandwidth (MHz)
5180	6	19.199	16.4067
5200	6	19.080	16.4077
5240	6	21.162	16.6182
5260	6	19.171	16.4088
5280	6	21.473	16.6841
5320	6	19.421	16.412
5500	6	21.539	16.6946
5600	6	17.906	16.5171

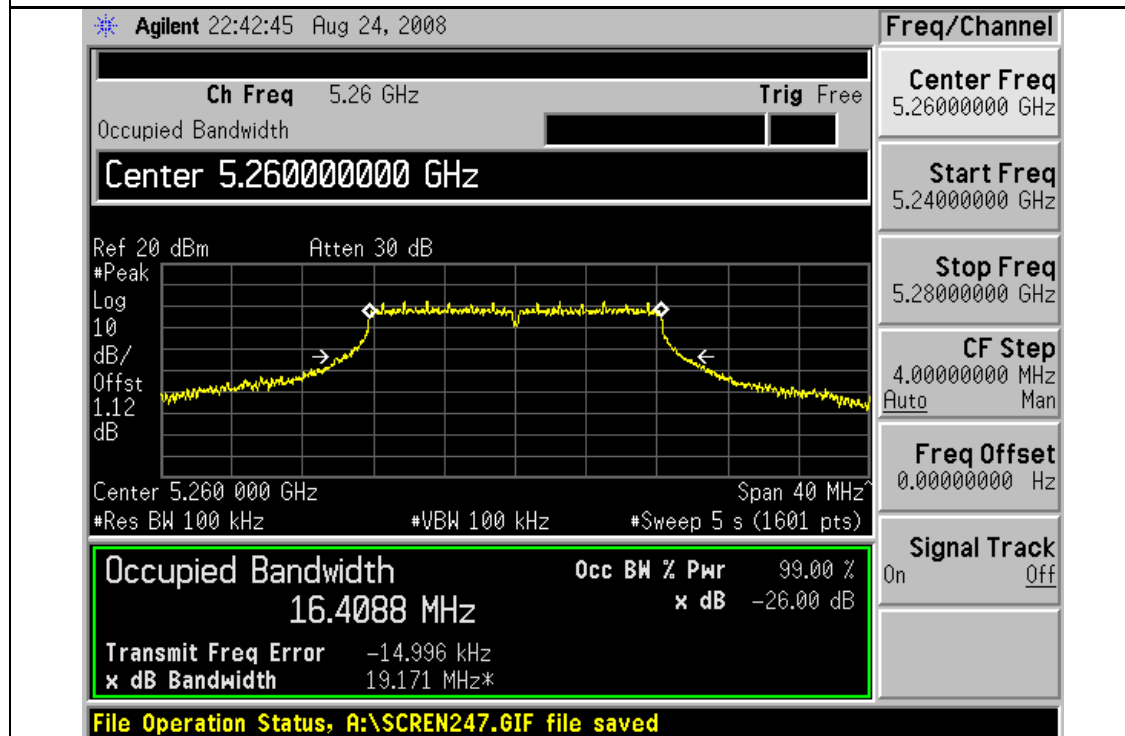
Graphical Test Results



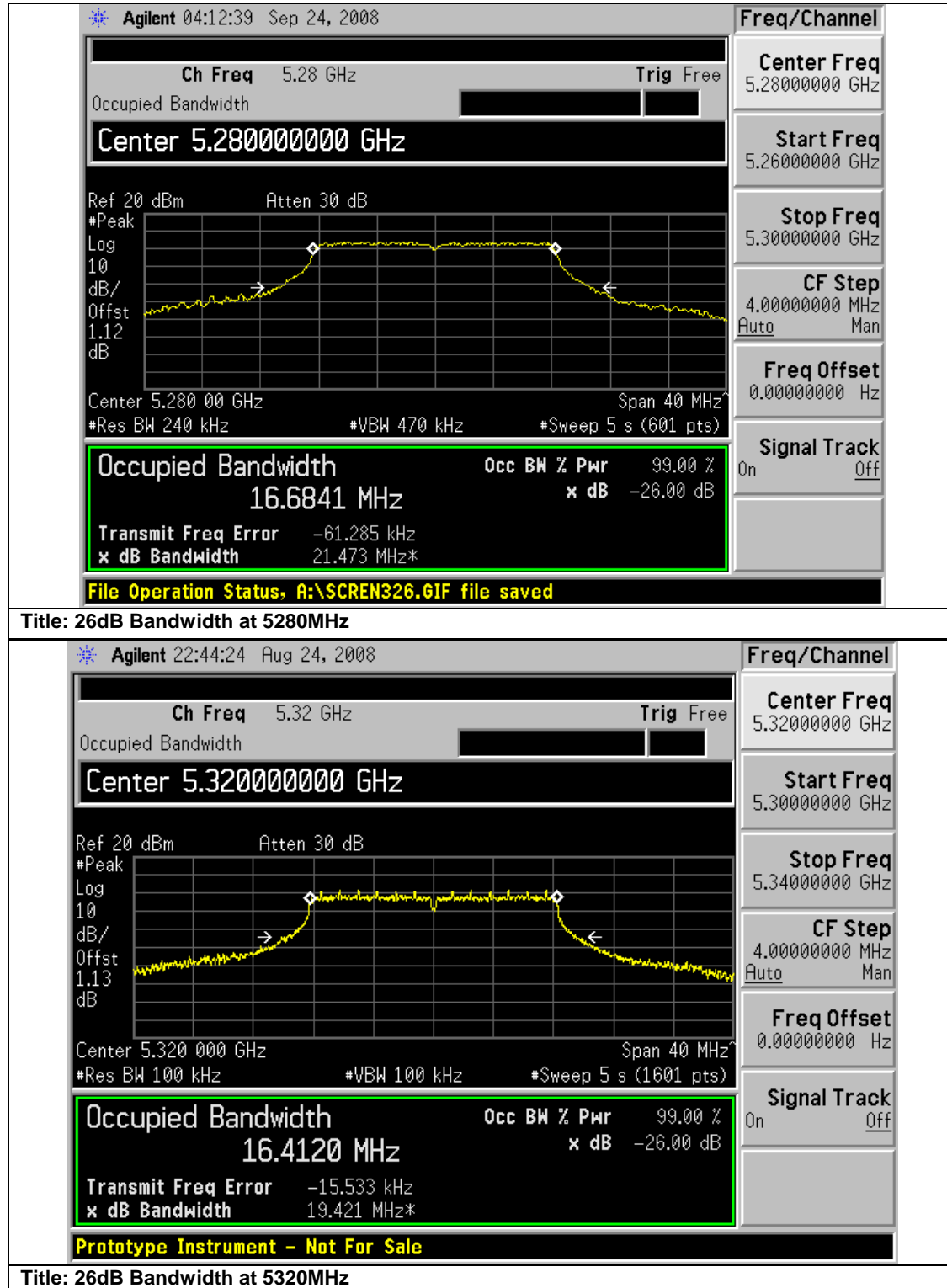


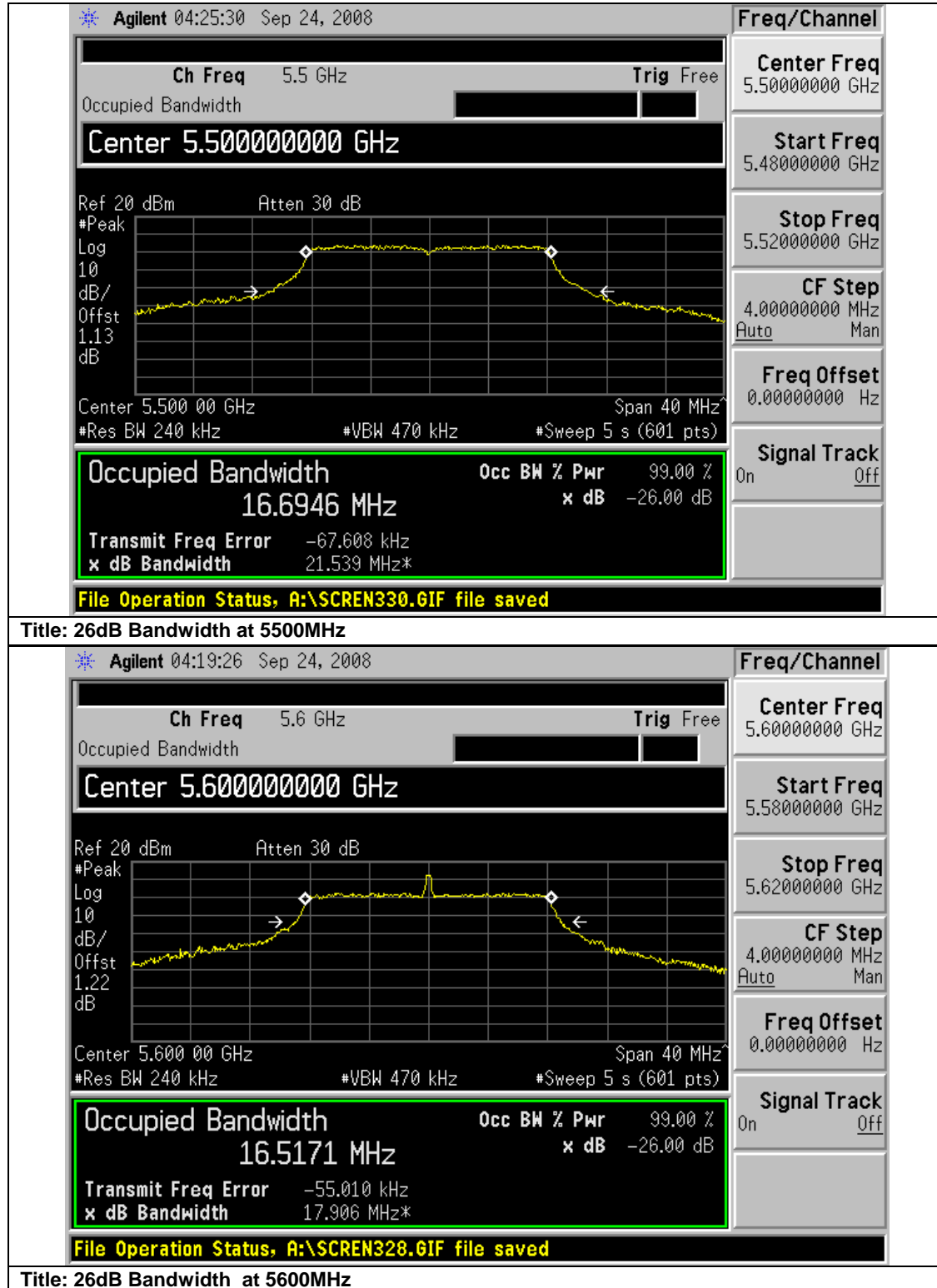


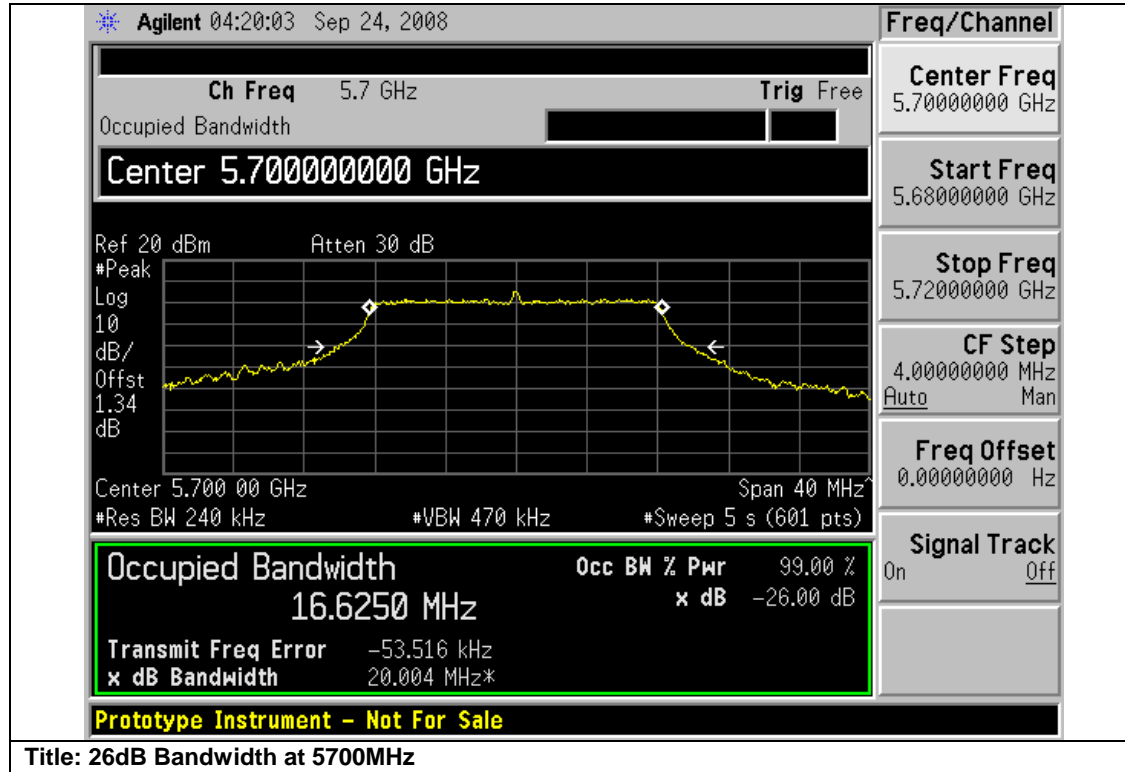
Title: 26dB Bandwidth at 5240MHz



Title: 26dB Bandwidth at 5260MHz









## 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 19.080MHz. The maximum conducted output power is calculated as  $4\text{dBm} + 10 \cdot \log(19.080\text{MHz}) = 16.81\text{dBm}$ . Which is lesser 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 17.906 MHz. The maximum conducted output power is calculated as  $11\text{dBm} + 10 \cdot \log(17.906\text{MHz}) = 23.53\text{dBm}$ . Which is lesser 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.

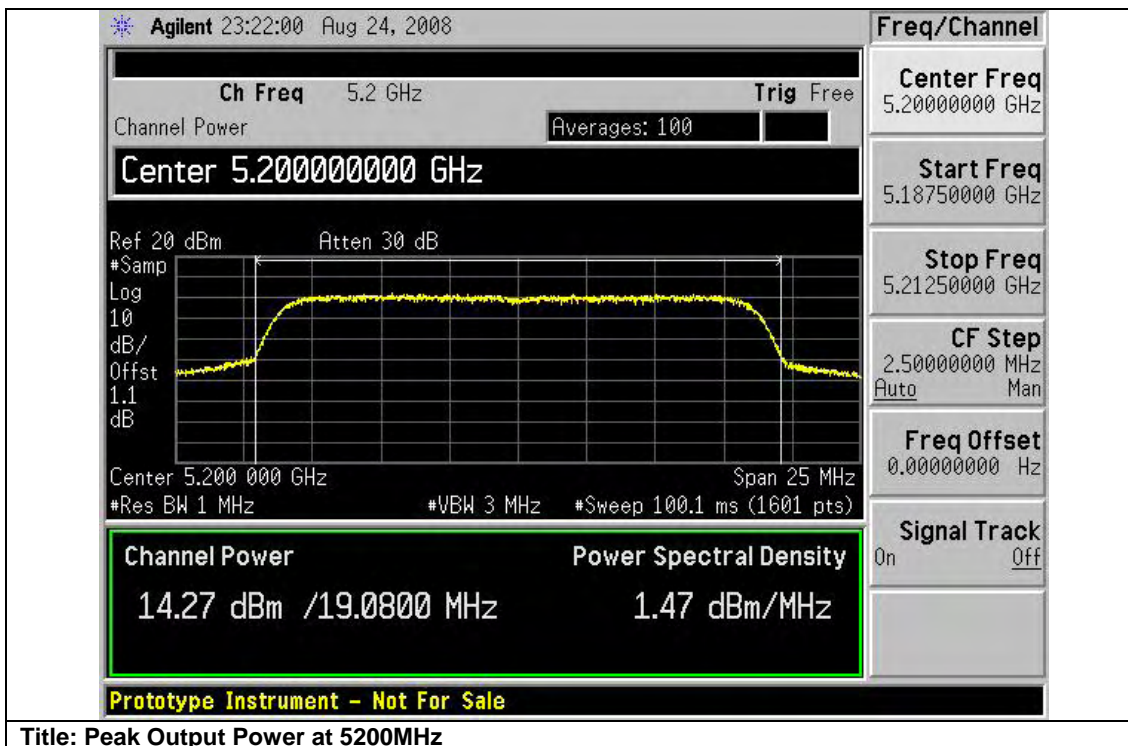
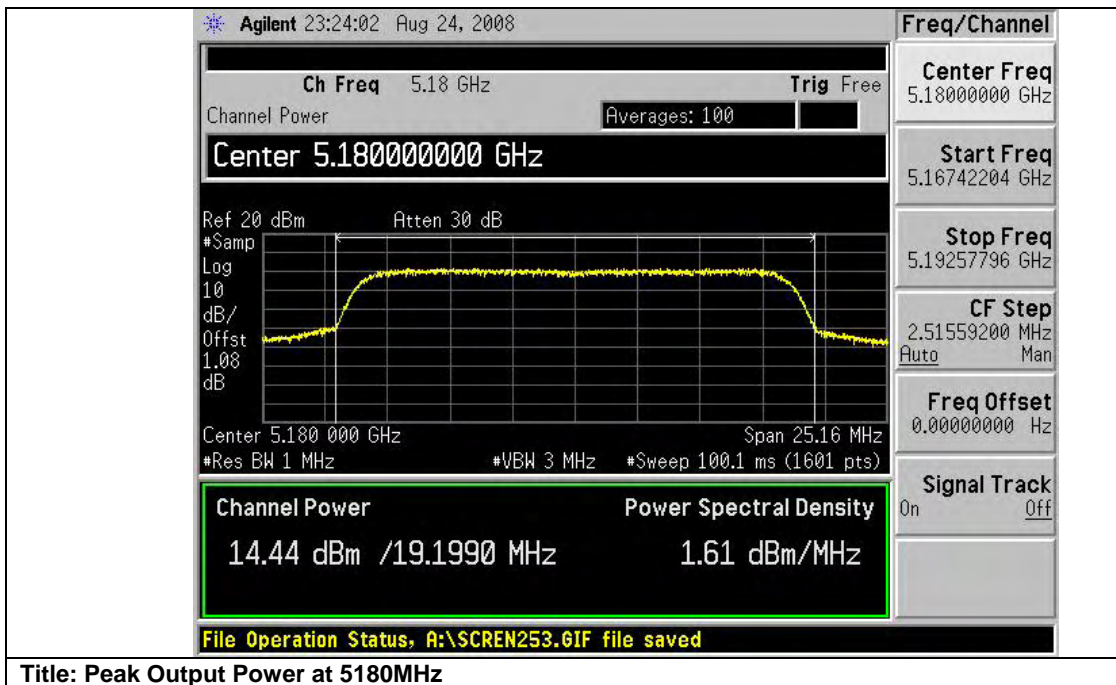
Frequency (MHz)	Data Rate (Mbps)	Peak Output Power (dBm)	Limit (dBm)	Margin (dB)
5180	6	14.44	16.81	-2.37
5200	6	14.27	16.81	-2.54
5240	6	14.33	16.81	-2.48
5260	6	14.01	23.53	-9.52
5280	6	14.20	23.53	-9.33
5320	6	13.53	23.53	-10.00
5500	6	13.78	23.53	-9.75
5600	6	14.17	23.53	-9.36

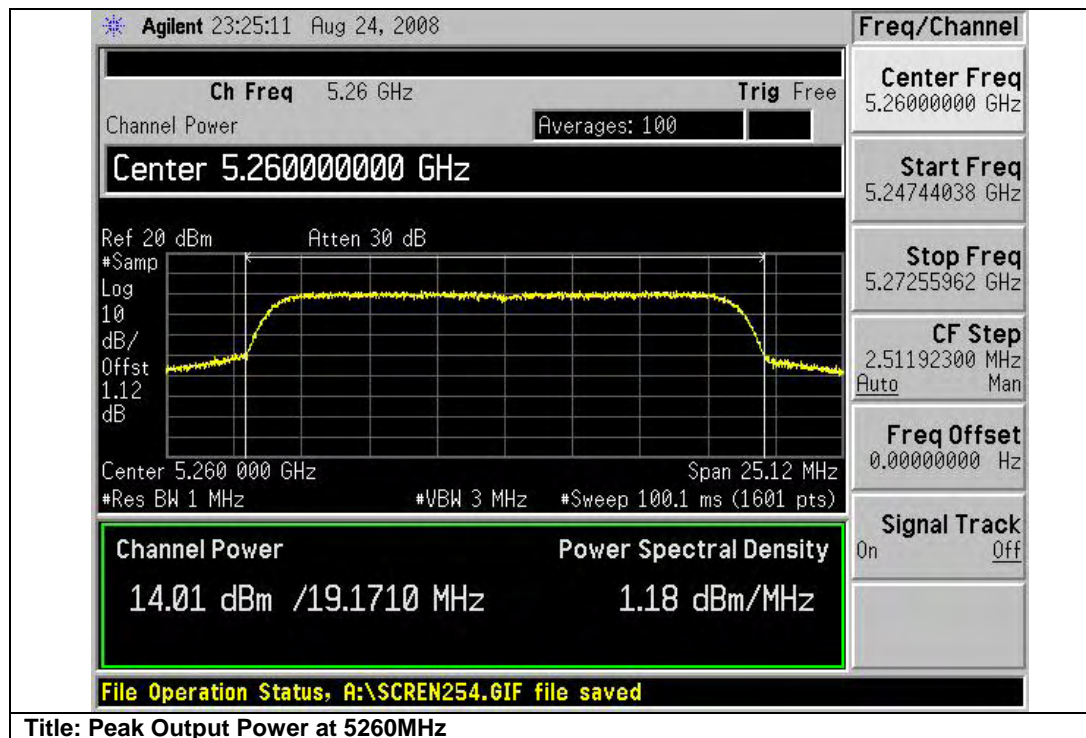
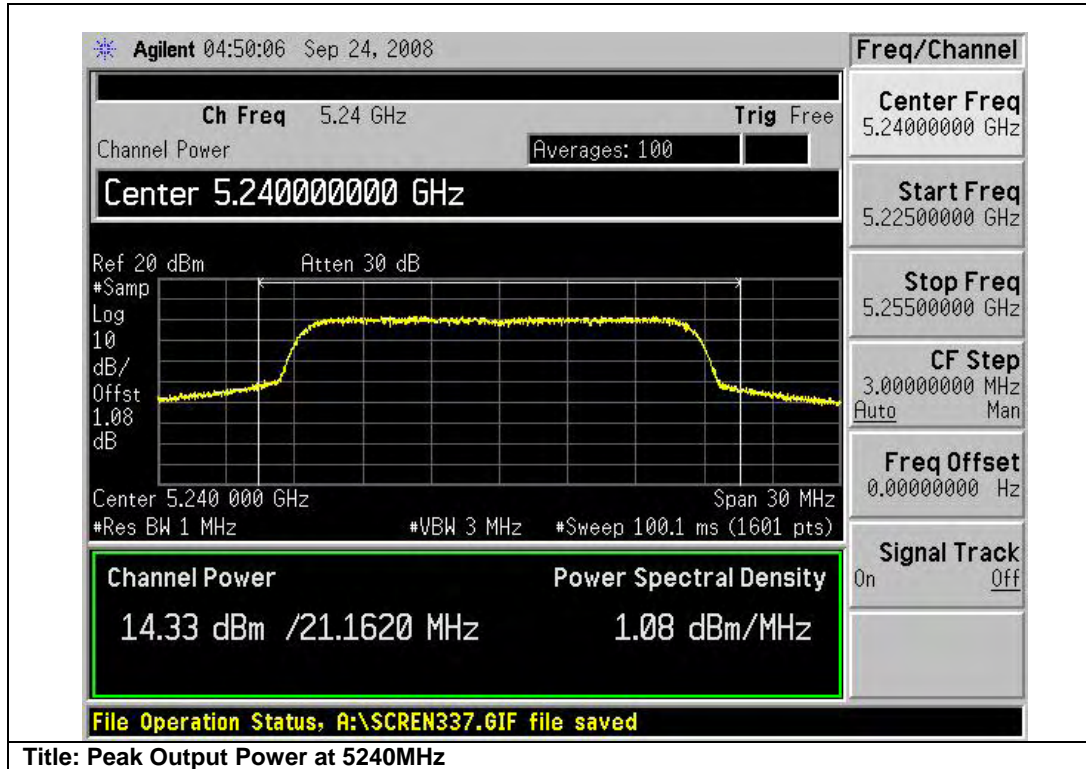
(Measurement made using FCC Public Notice DA 02-2138, August 30, 2002)

Frequency (MHz)	Data Rate (Mbps)	Peak Output Power (dBm)	Limit (dBm)	Margin (dB)
5745	6	11.80	30	-18.20
5785	6	15.03	30	-14.97
5805	6	12.15	30	-17.85

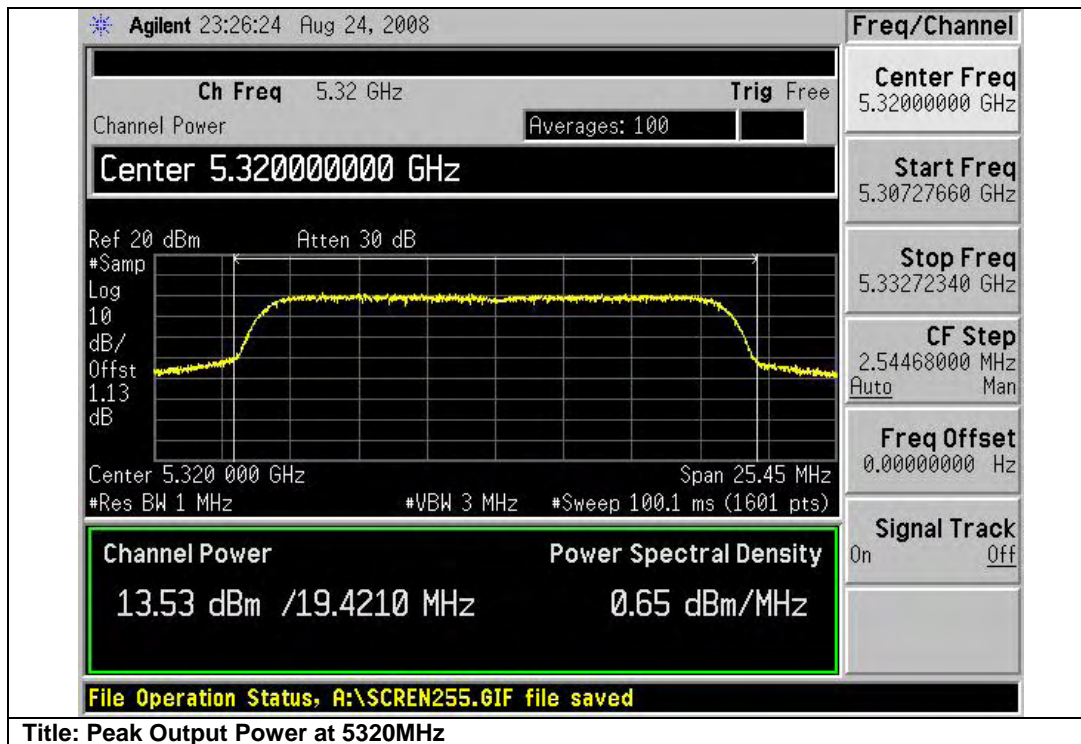
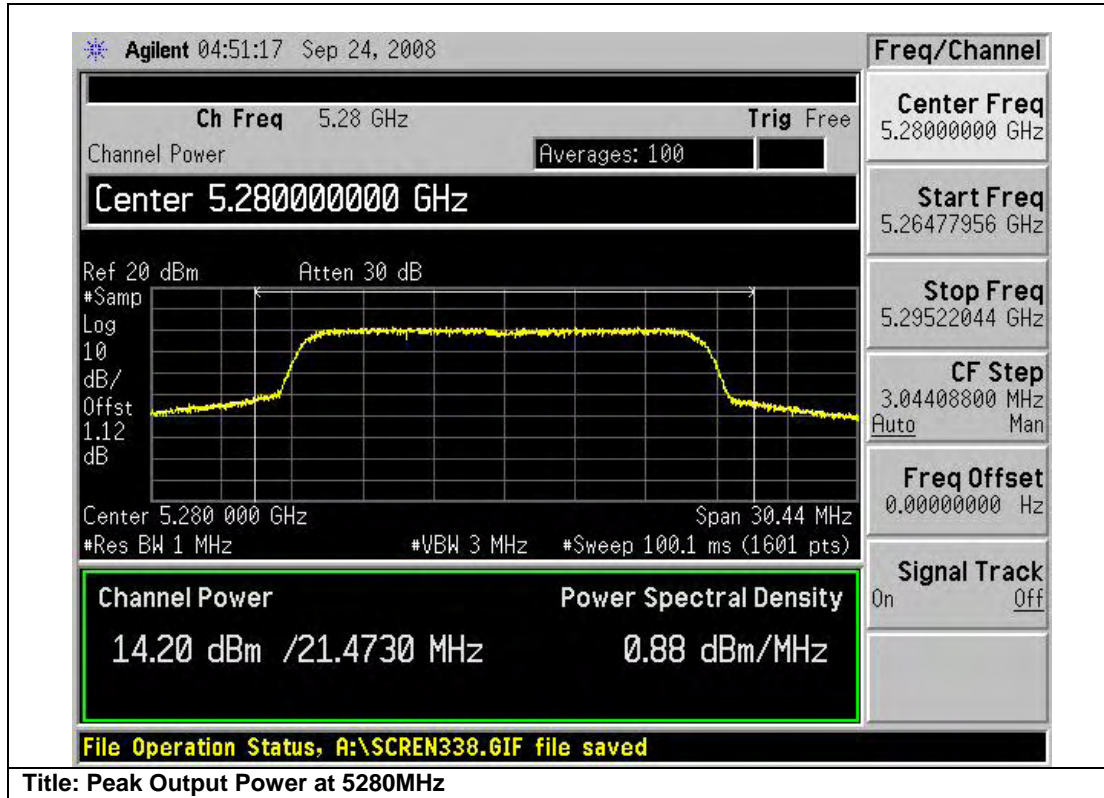
(Measurement made using KDB Publication No. 558074 power option 1, peak power meter)

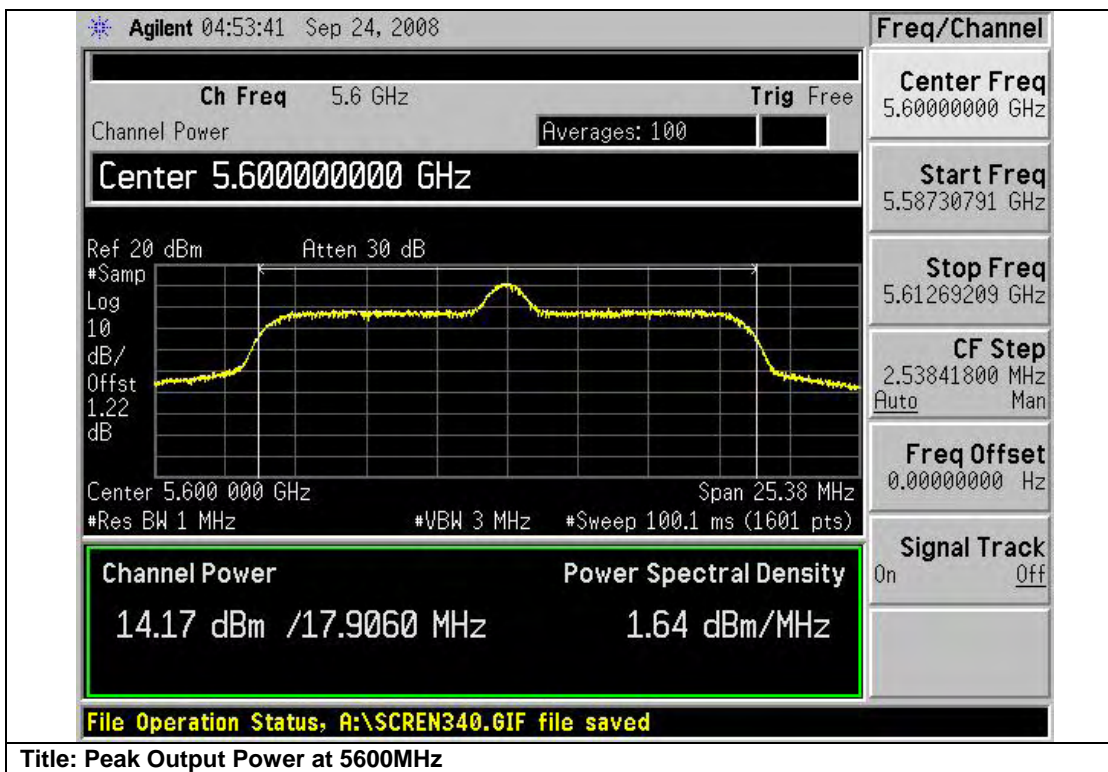
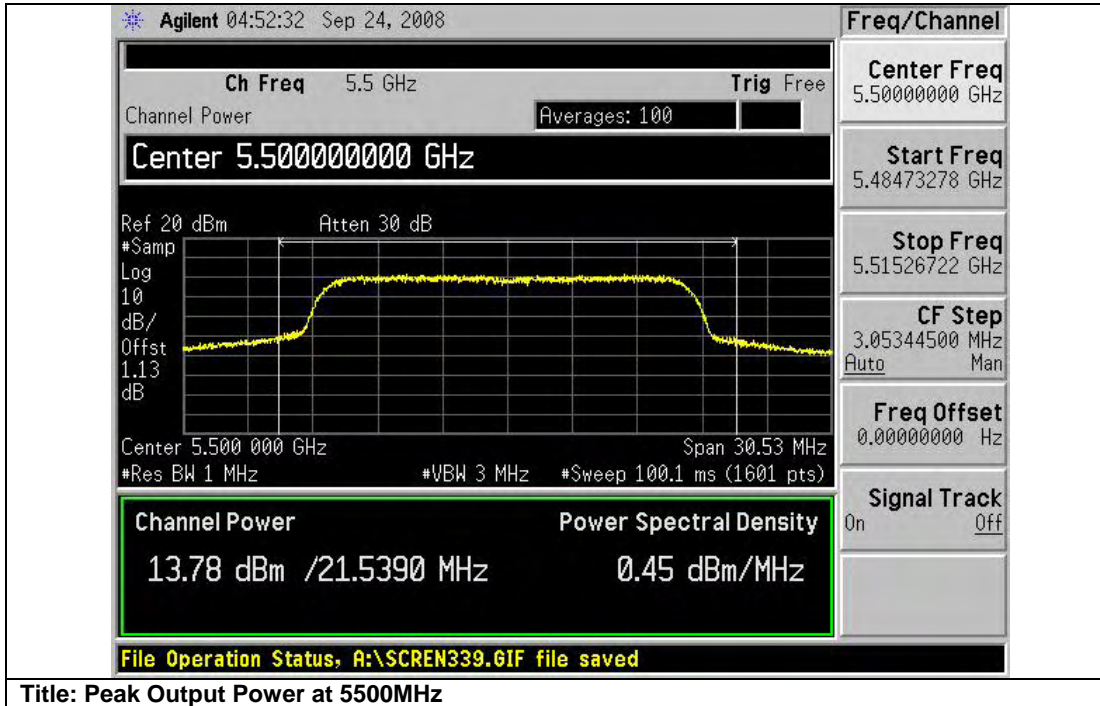
### Graphical Test Results

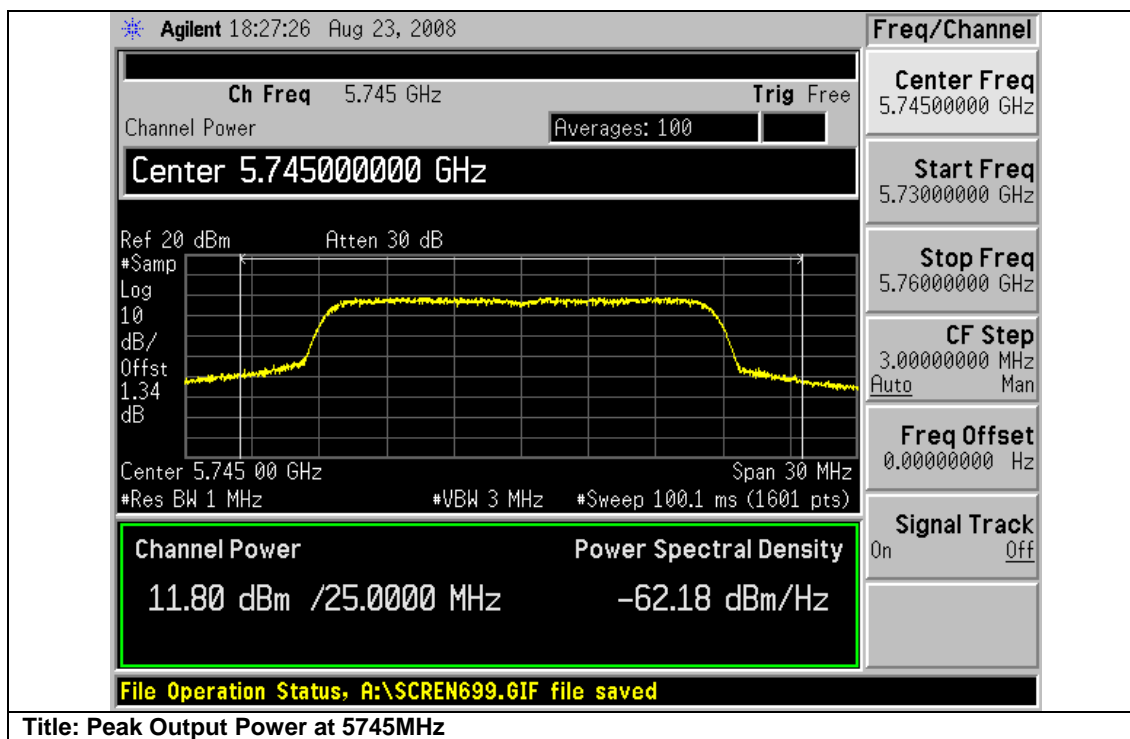
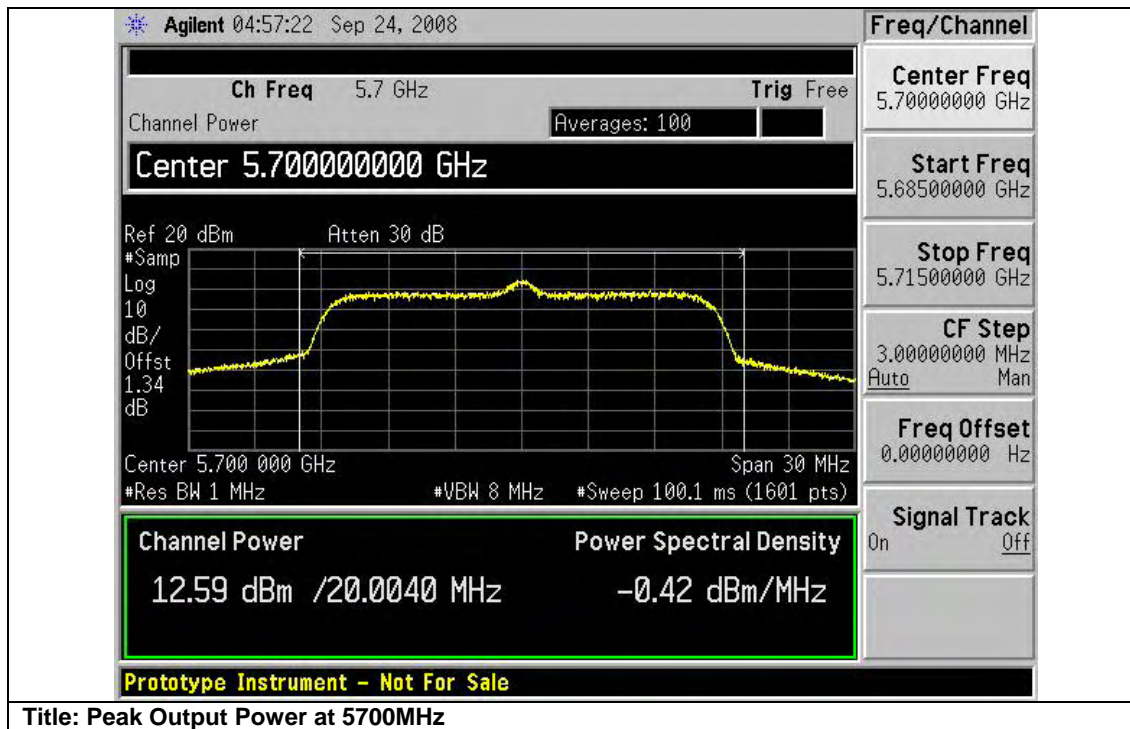


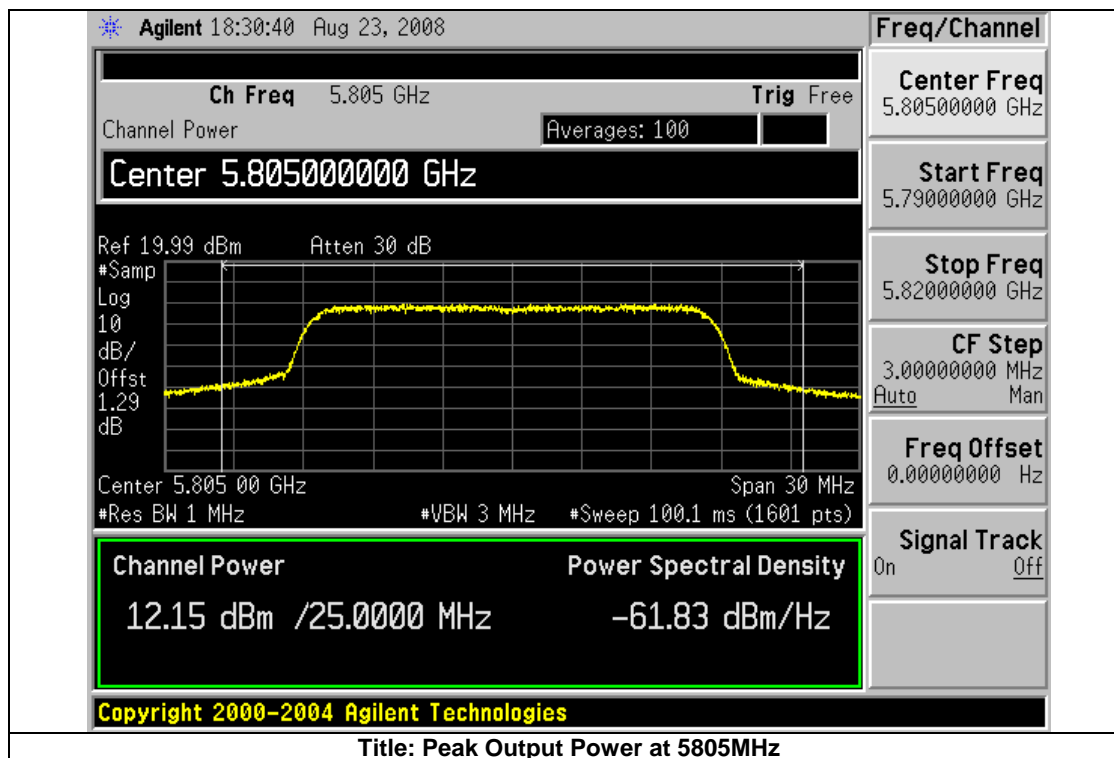
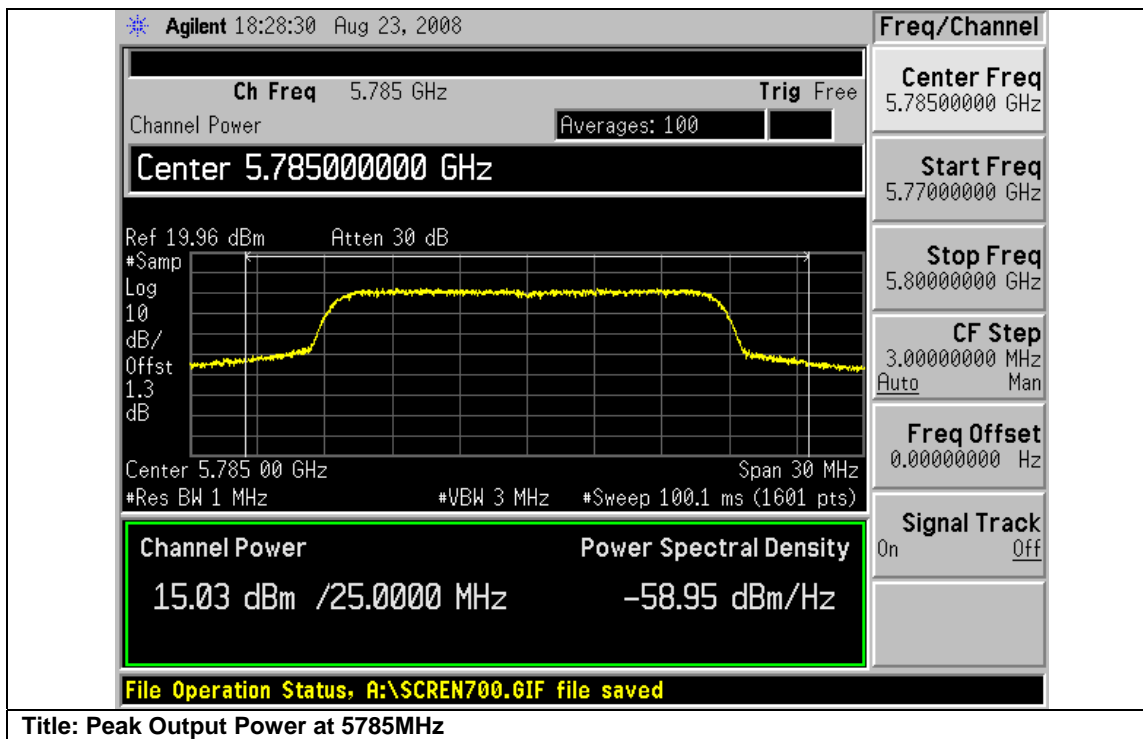














## Power Spectral Density

### 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):

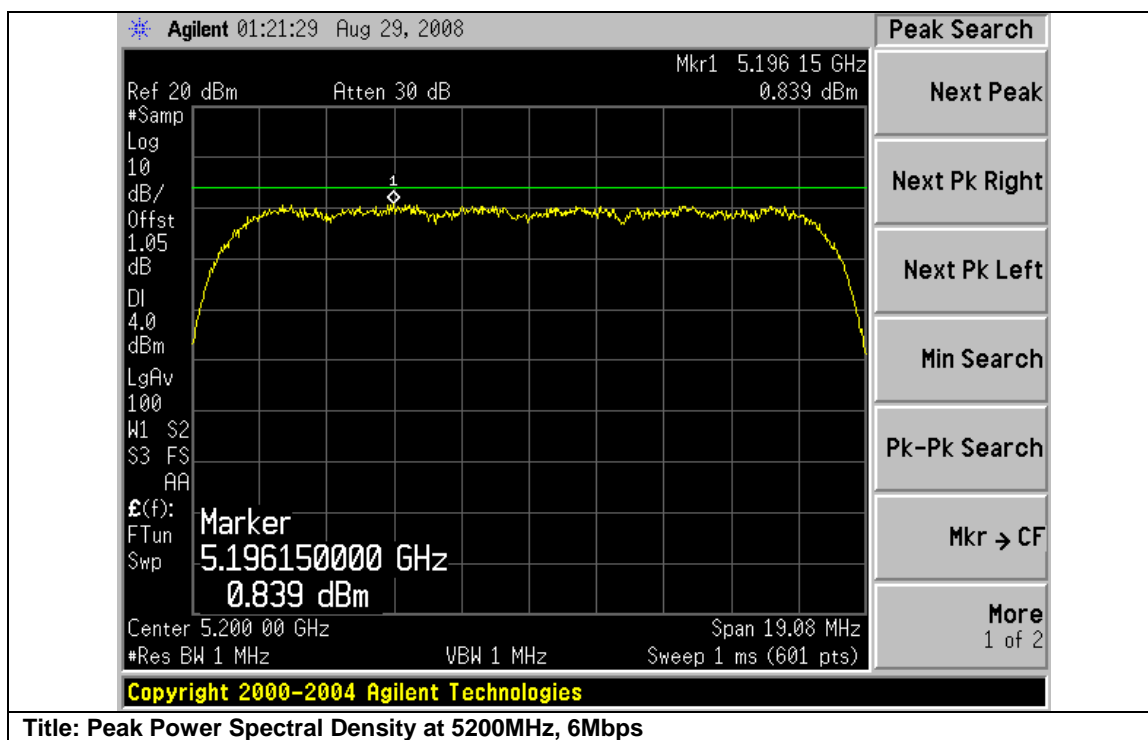
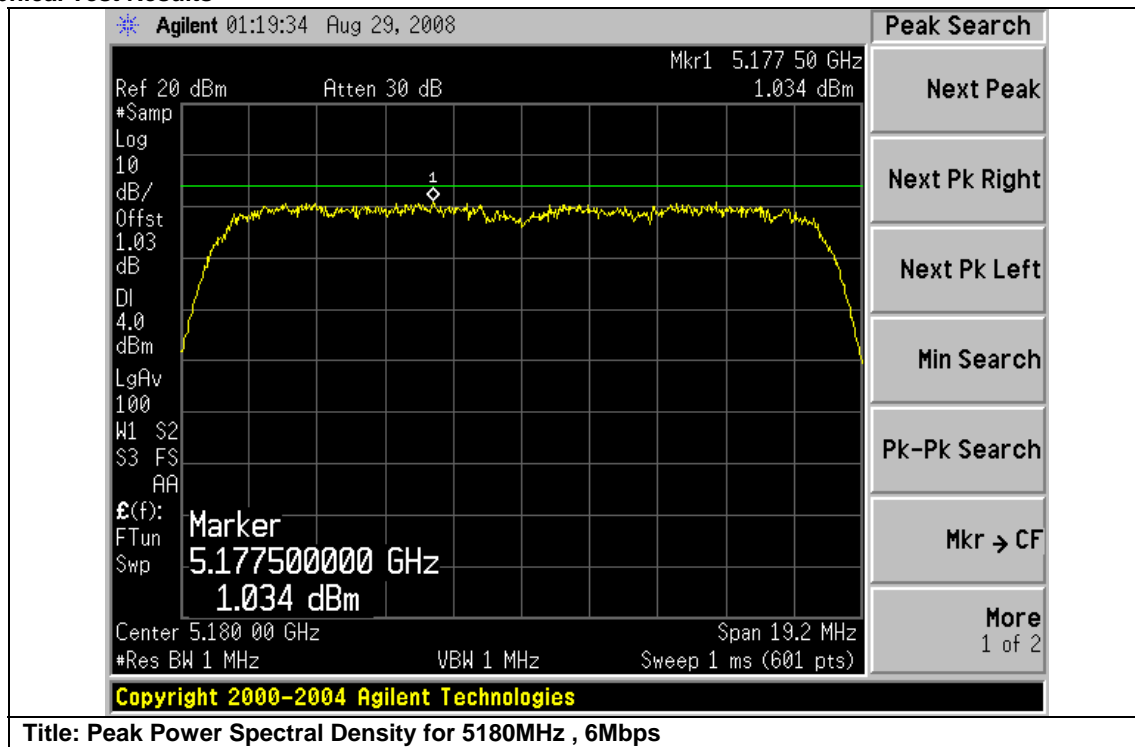
For digitally modulated systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

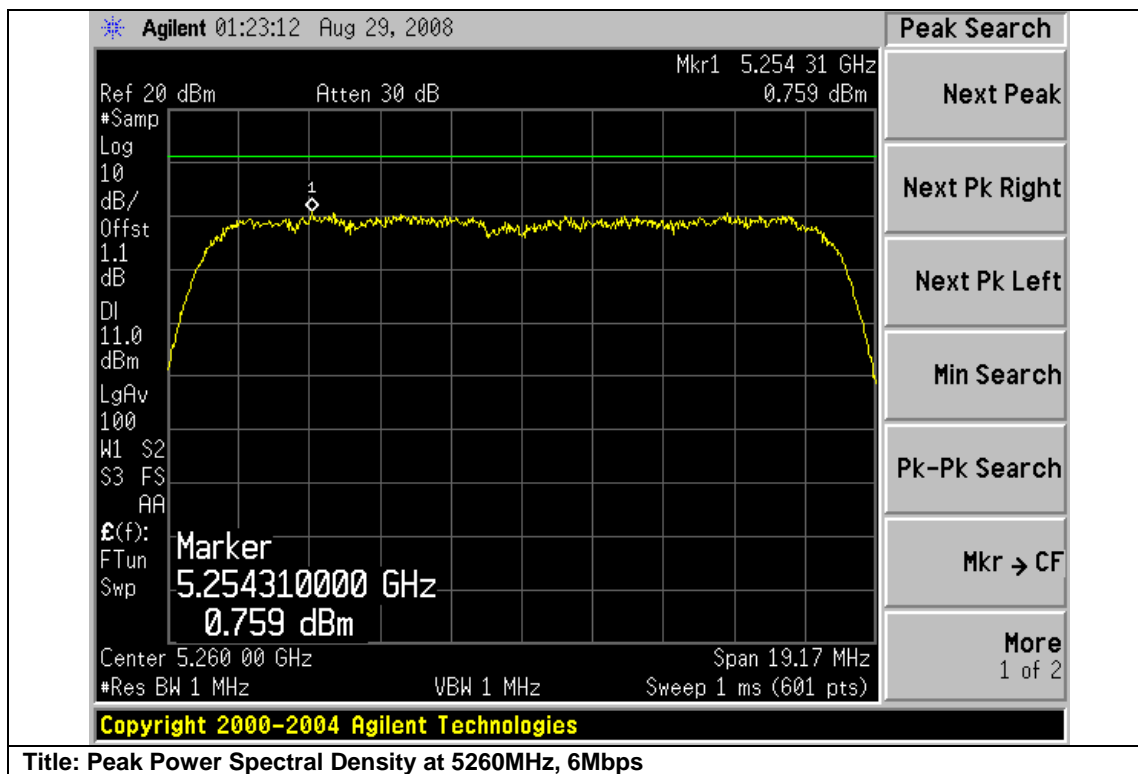
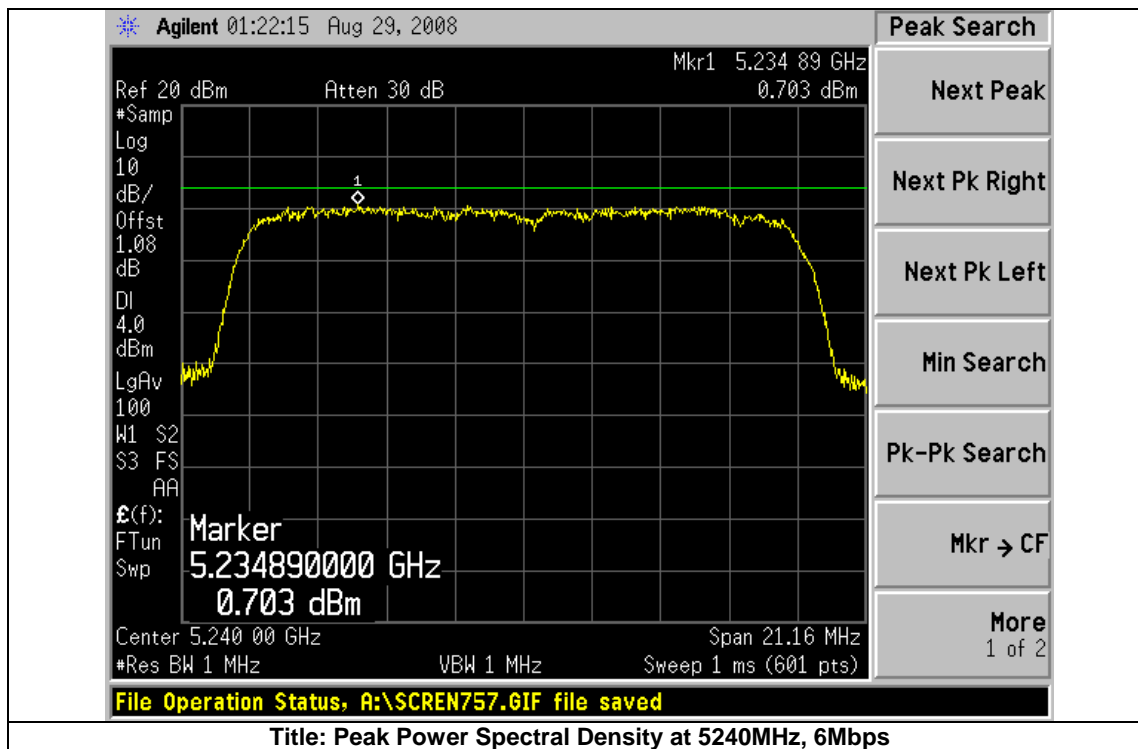
Frequency (MHz)	Data Rate (Mbps)	Peak Power Spectral Density (dBm/MHz)	Limit (dBm)	Margin (dB)
5180	6	1.034	4	-2.966
5200	6	0.839	4	-3.161
5240	6	0.703	4	-3.297
5260	6	0.759	11	-10.241
5280	6	0.226	11	-10.774
5320	6	0.278	11	-10.722
5500	6	0.681	11	-10.319
5600	6	9.275	11	-1.725
5700	6	1.722	11	-9.278

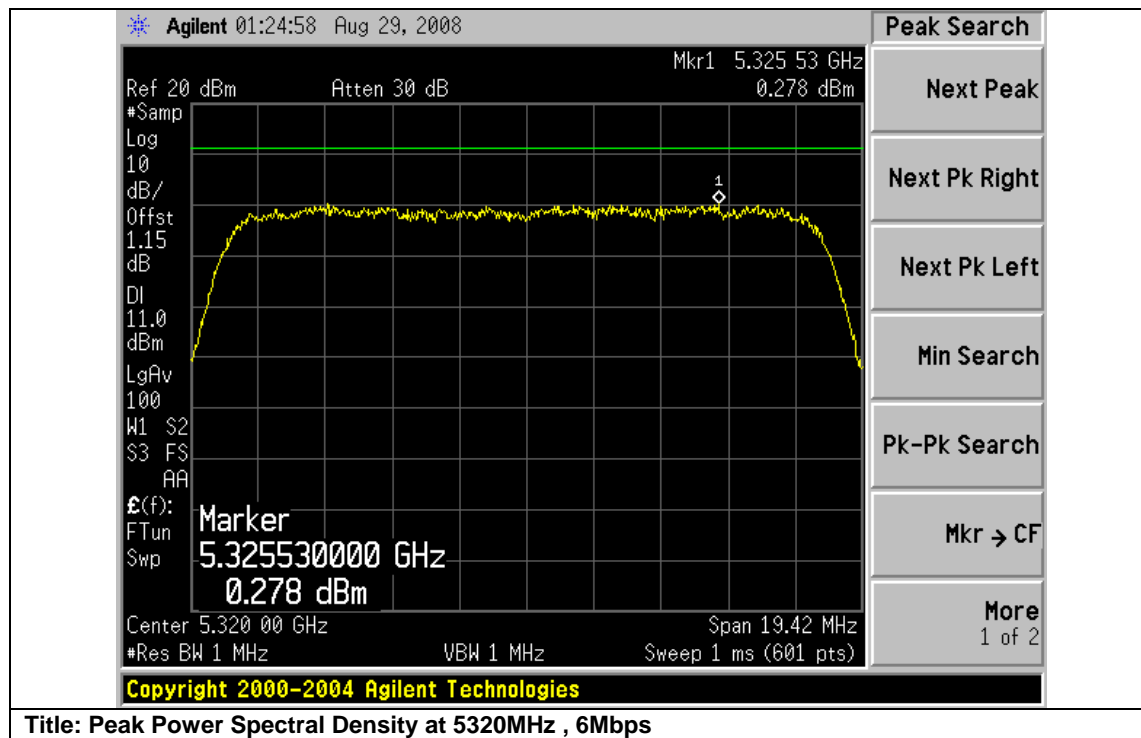
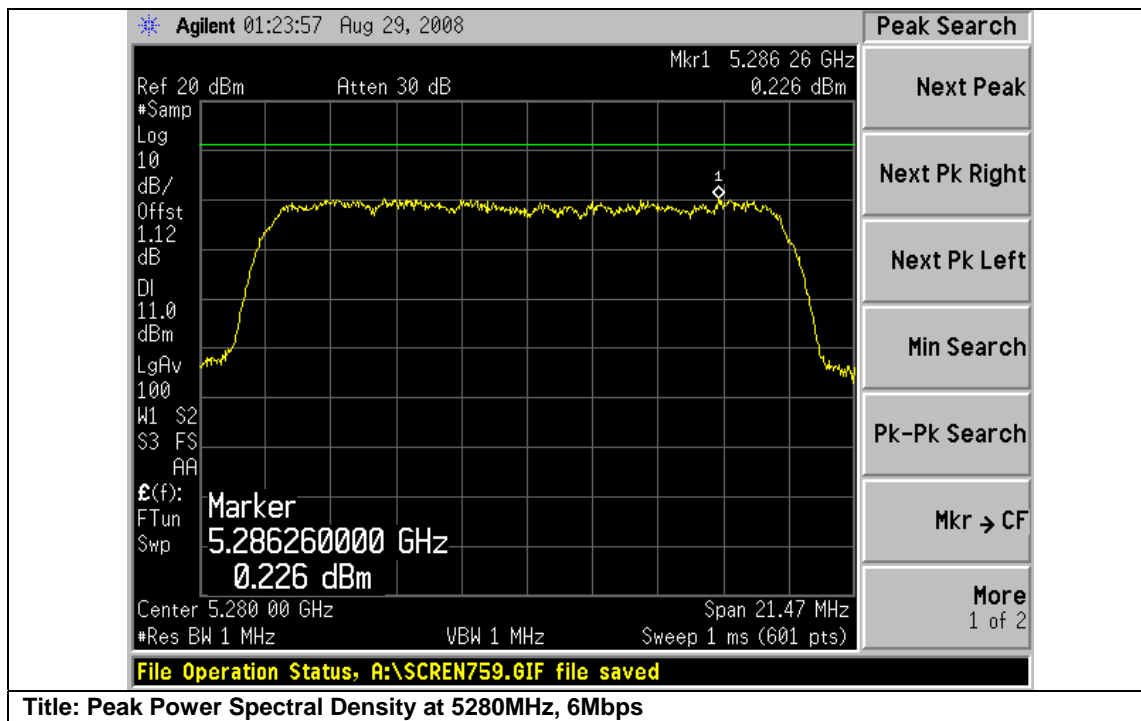
Frequency (MHz)	Data Rate (Mbps)	Peak Power Spectral Density (dBm/3kHz)	Limit (dBm)	Margin (dB)
5745	6	-15.01	8	-23.01
5785	6	-12.05	8	-20.05
5805	6	-13.45	8	-21.45

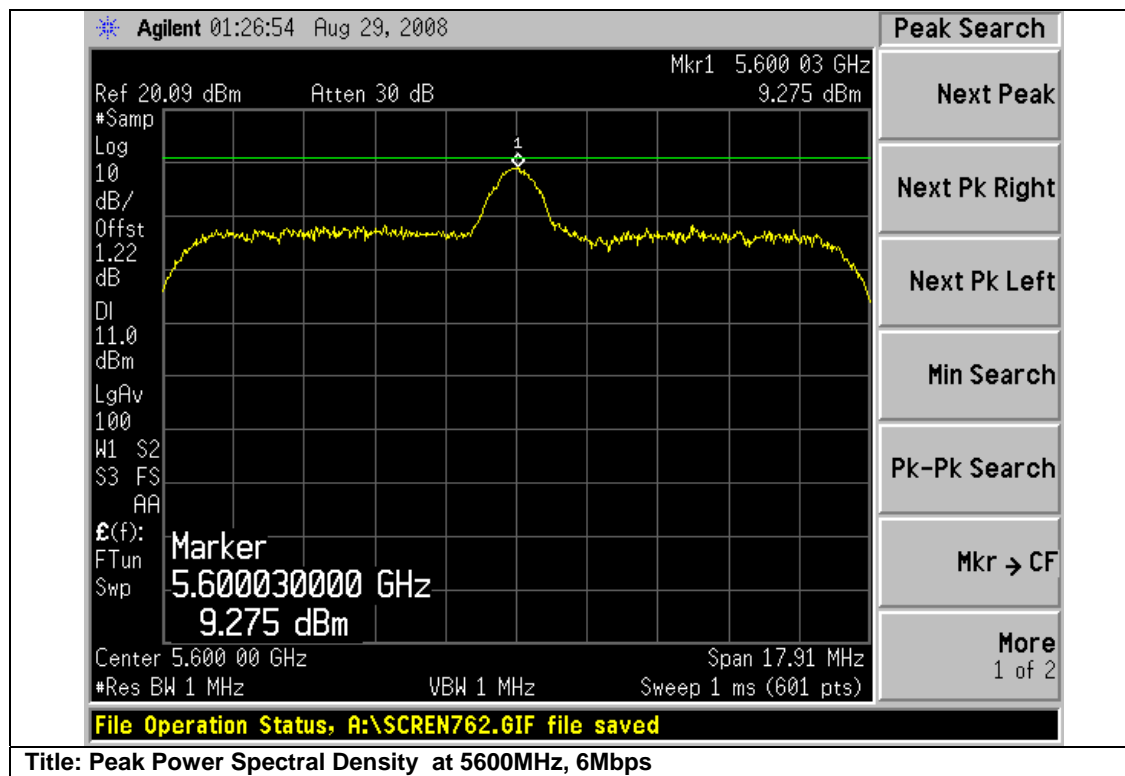
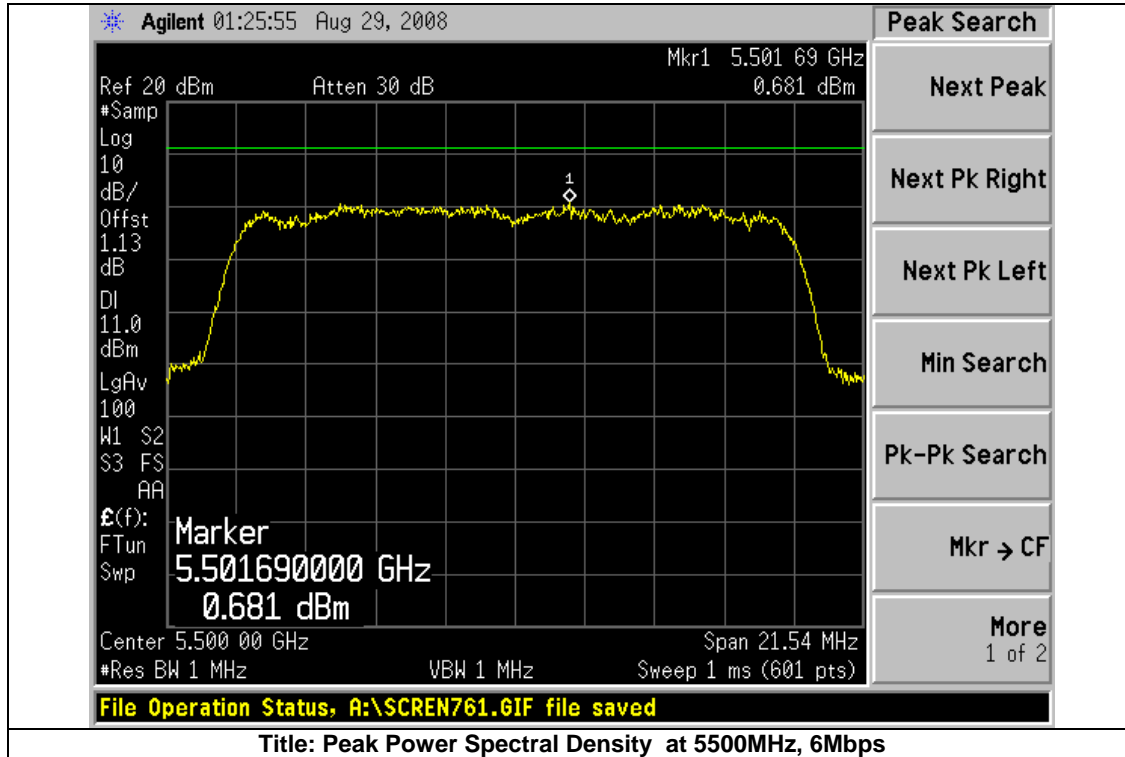


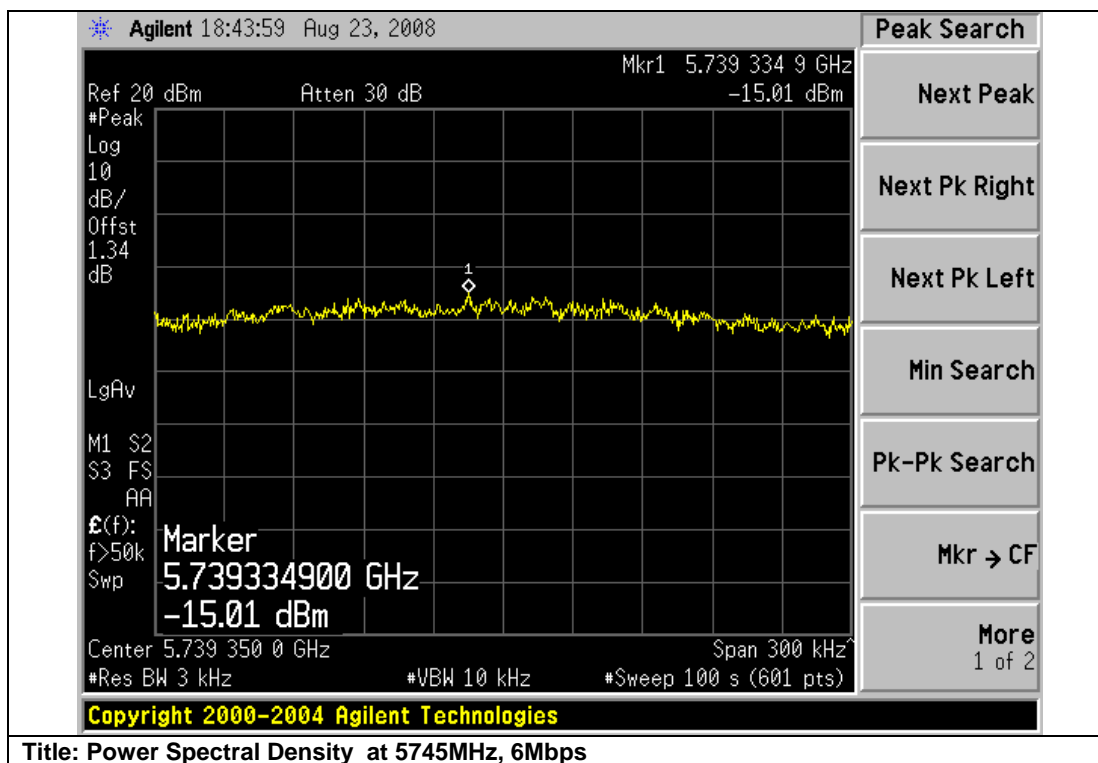
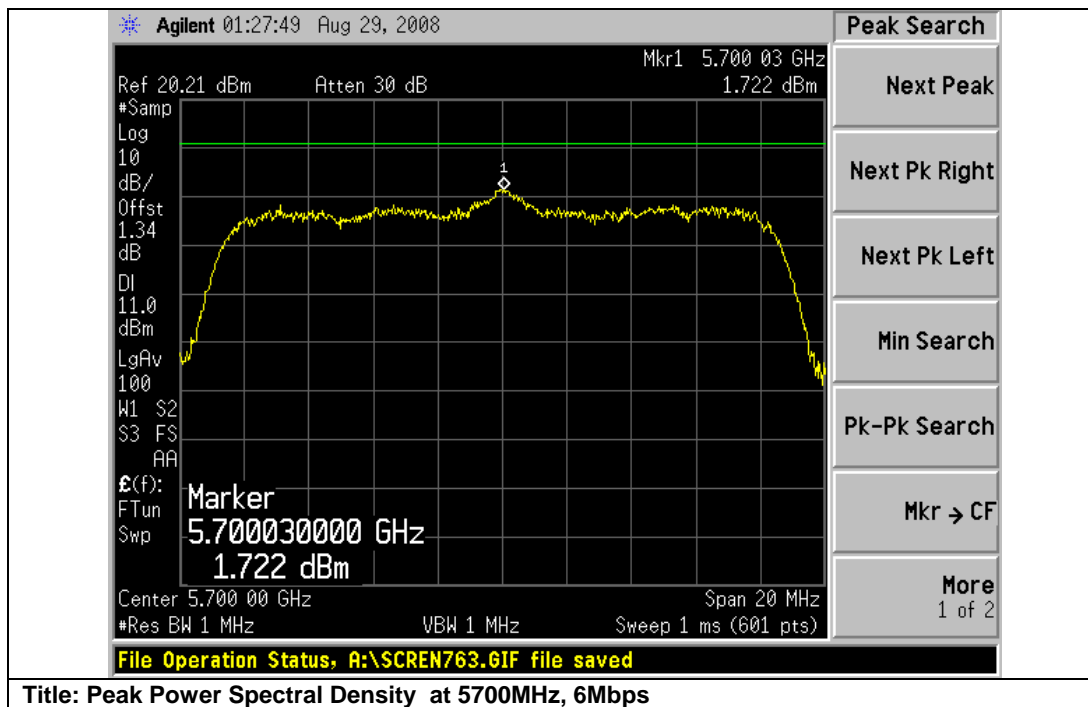
### Graphical Test Results

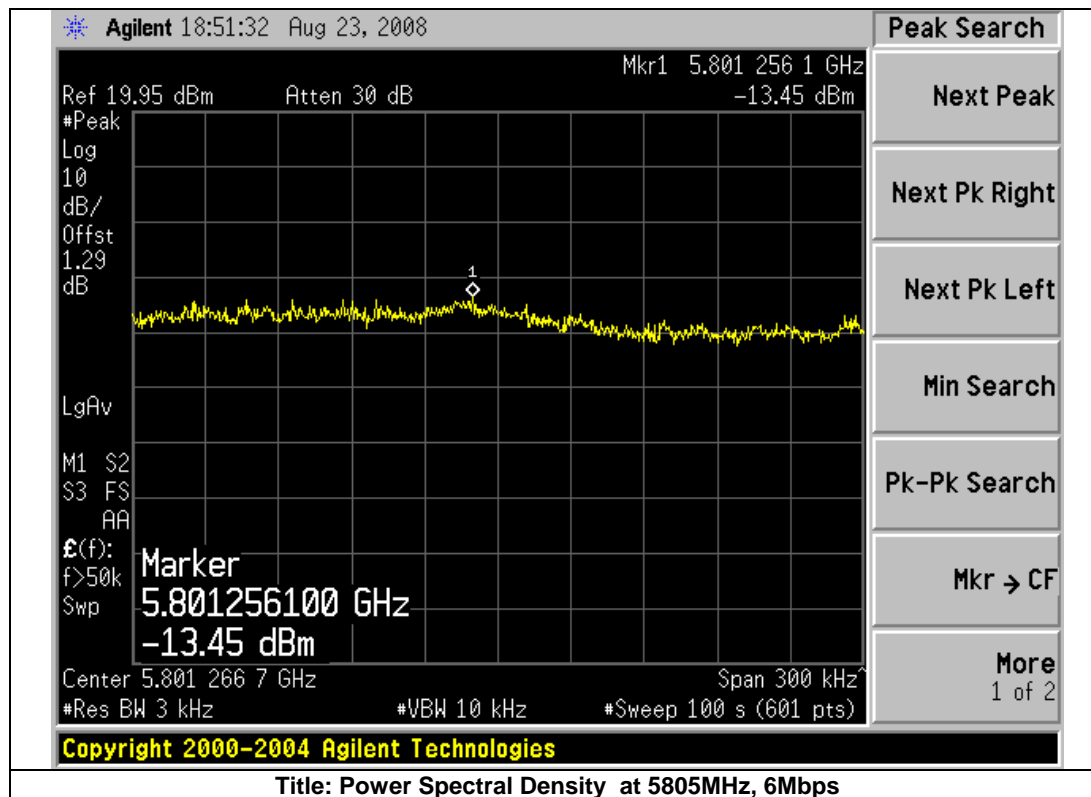
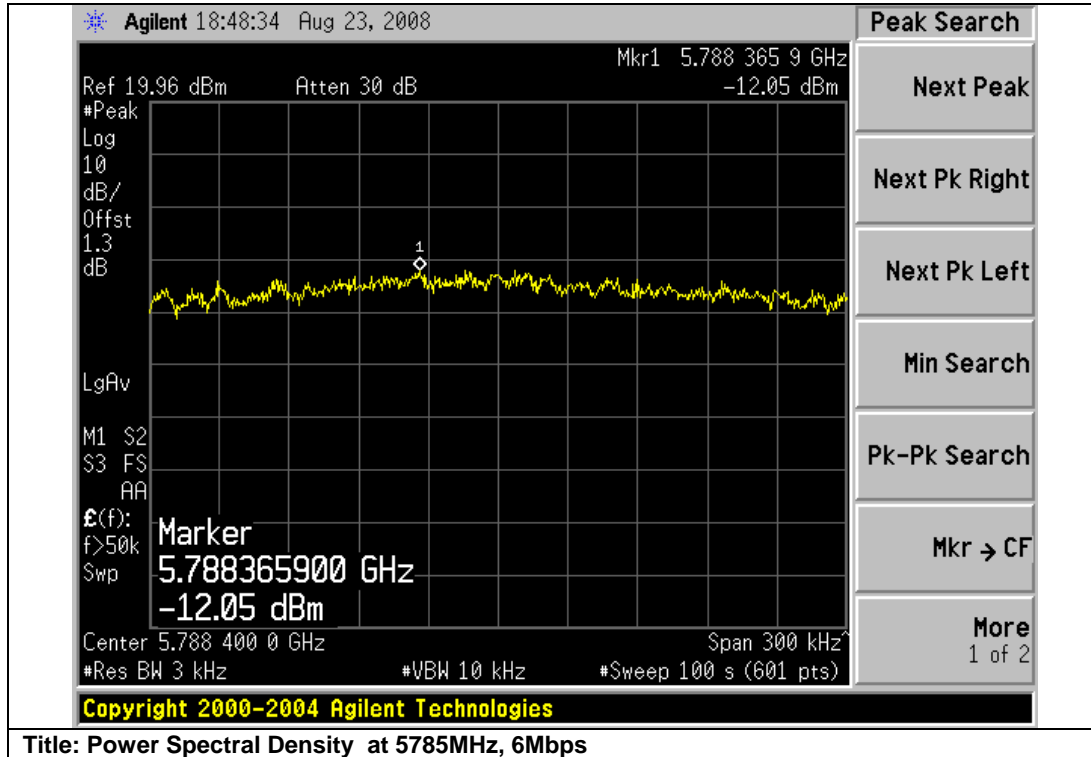










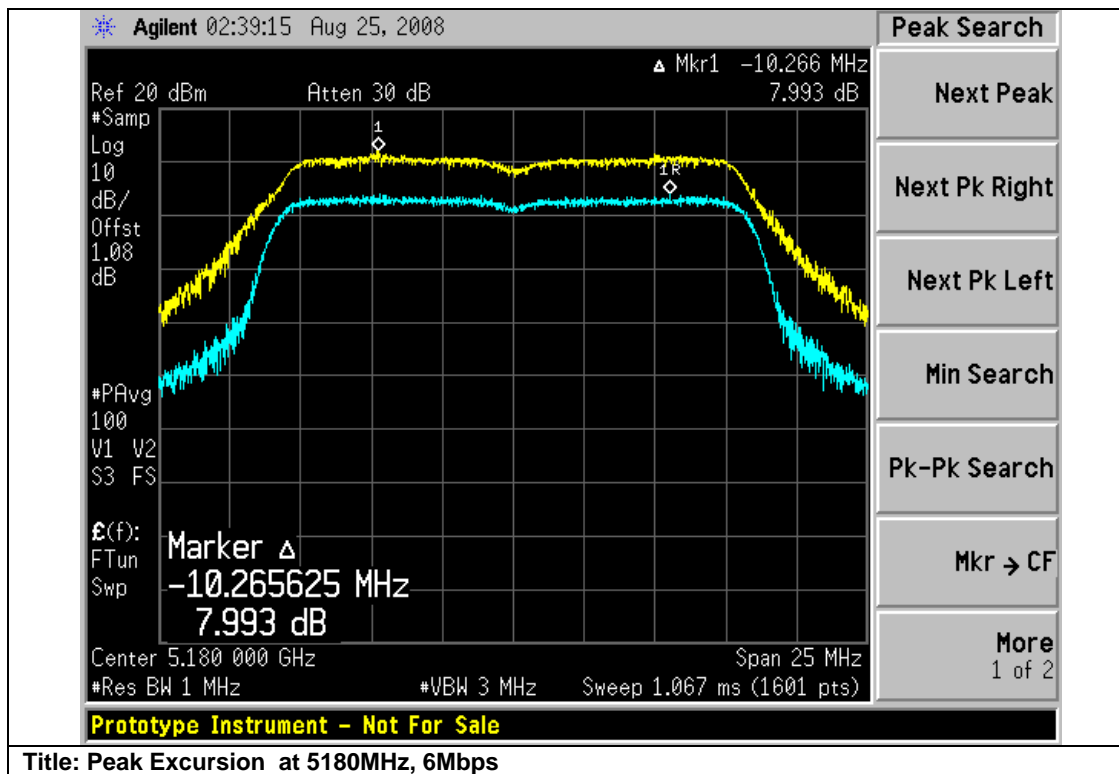


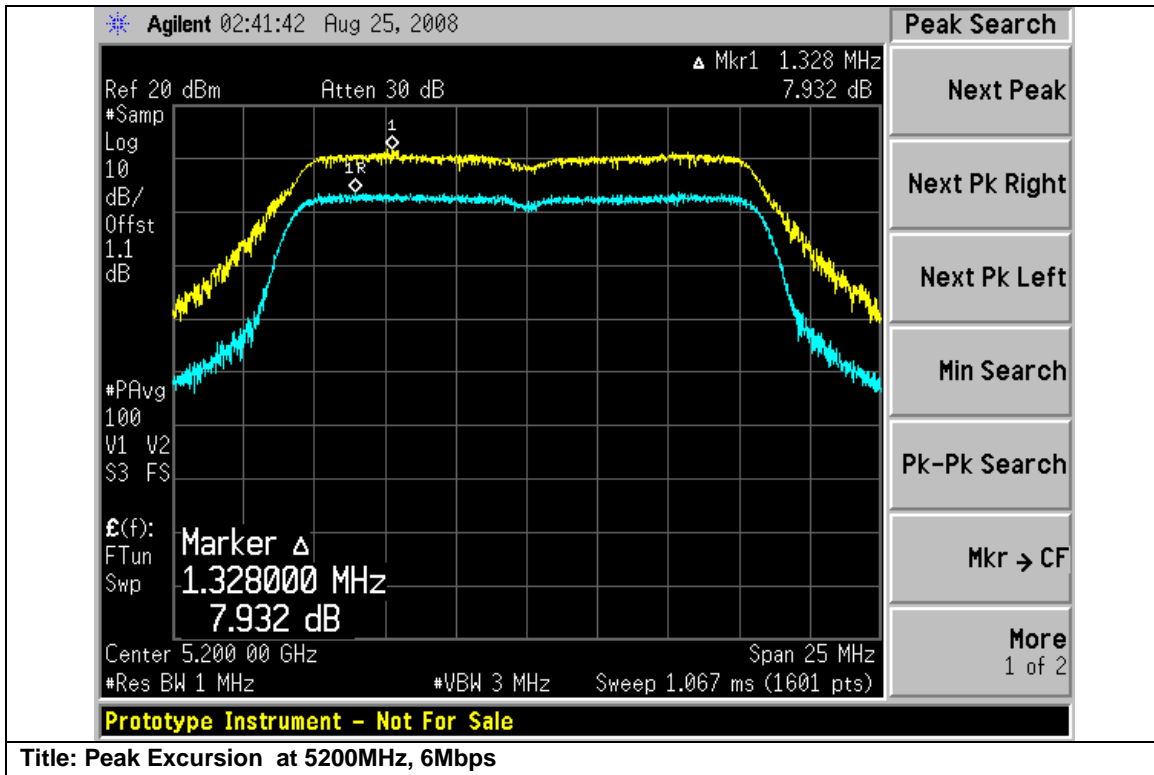
## Peak Excursion

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.

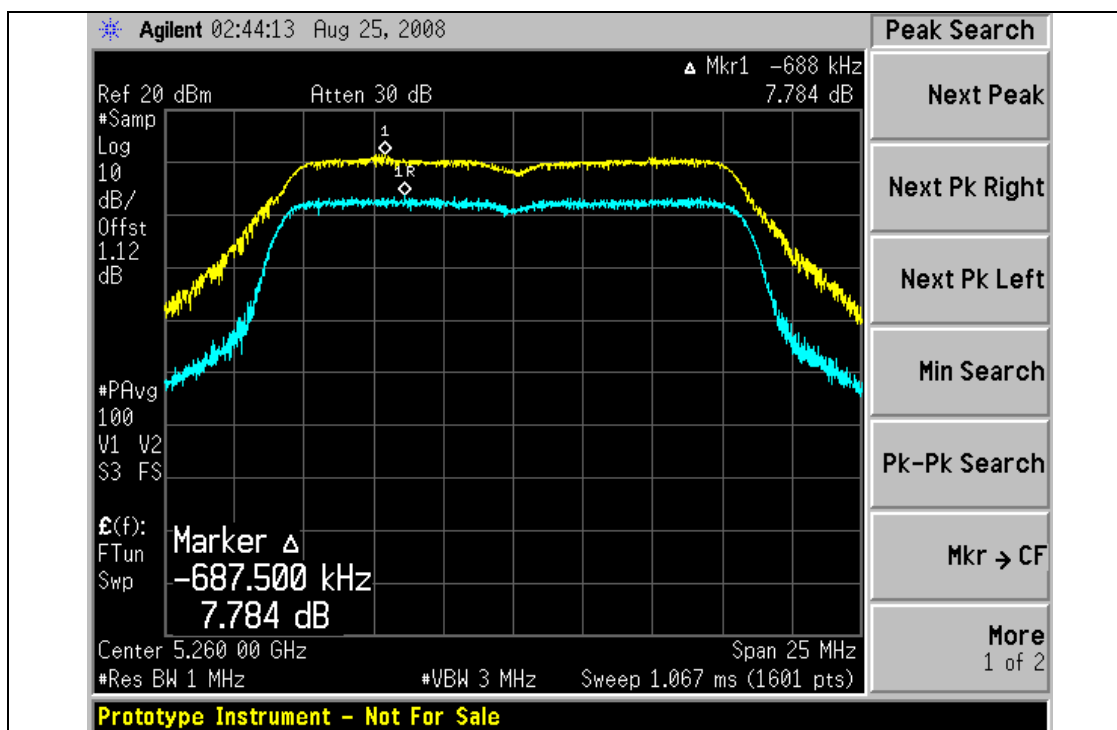
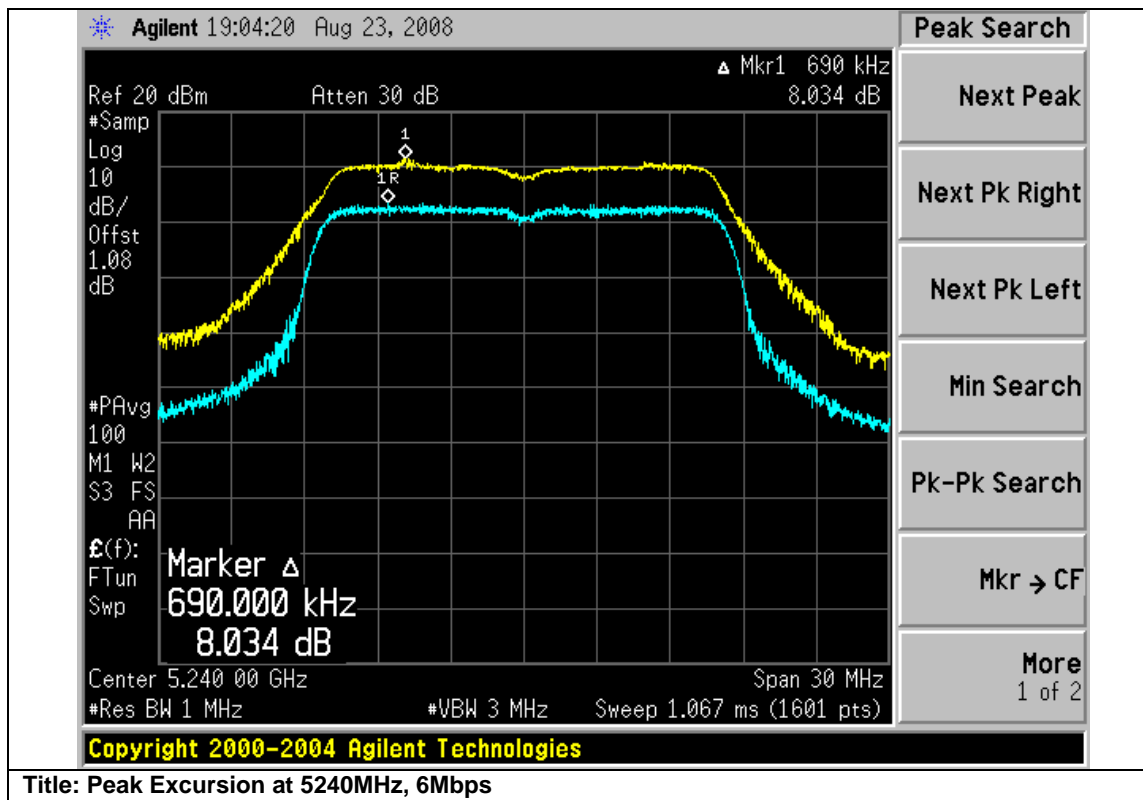
Frequency (MHz)	Data Rate (Mbps)	Peak Excursion (dB)	Limit (dBm)	Margin (dB)
5180	6	7.993	13	-5.007
5200	6	7.932	13	-5.068
5240	6	8.034	13	-4.966
5260	6	7.784	13	-5.216
5280	6	8.287	13	-4.713
5320	6	8.215	13	-4.785
5500	6	8.185	13	-4.815
5600	6	3.183	13	-9.817
5700	6	7.499	13	5.501

## Graphical Test Results

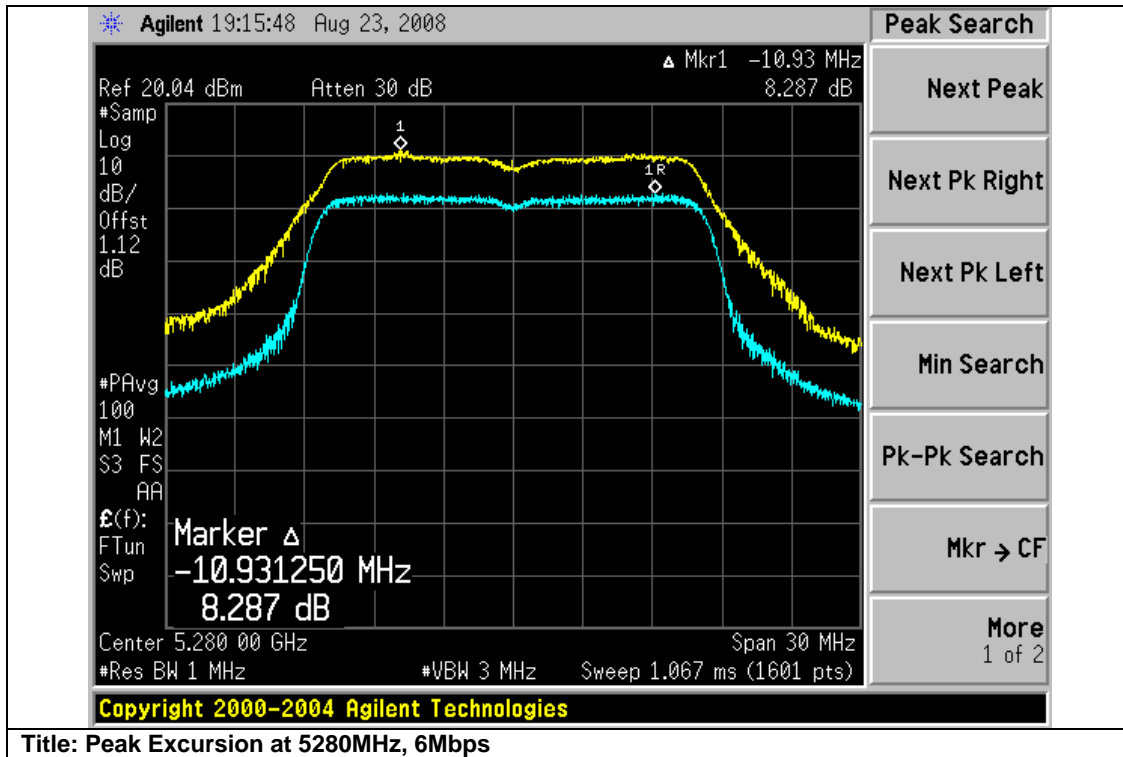




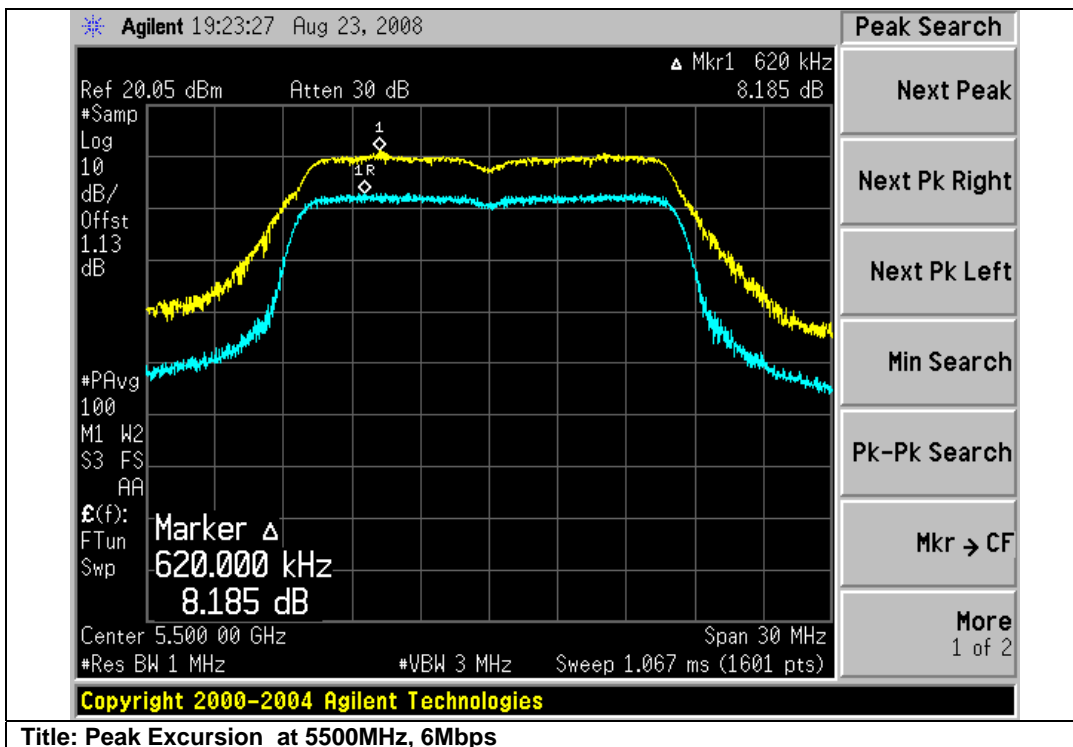
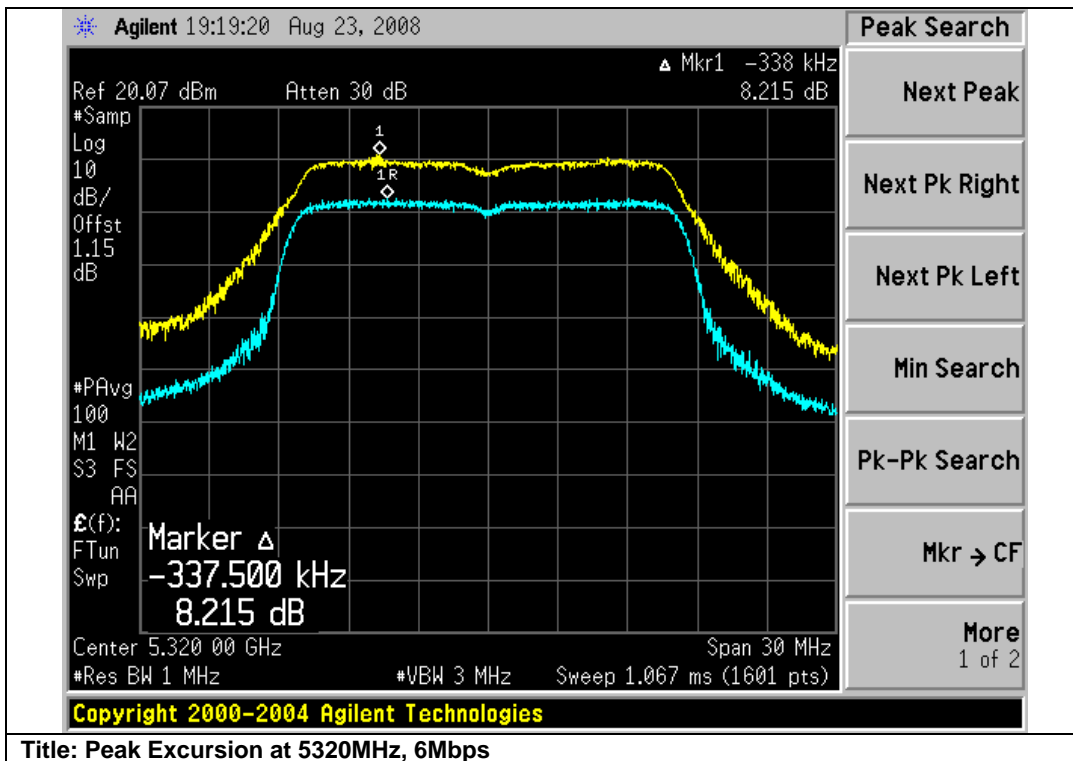


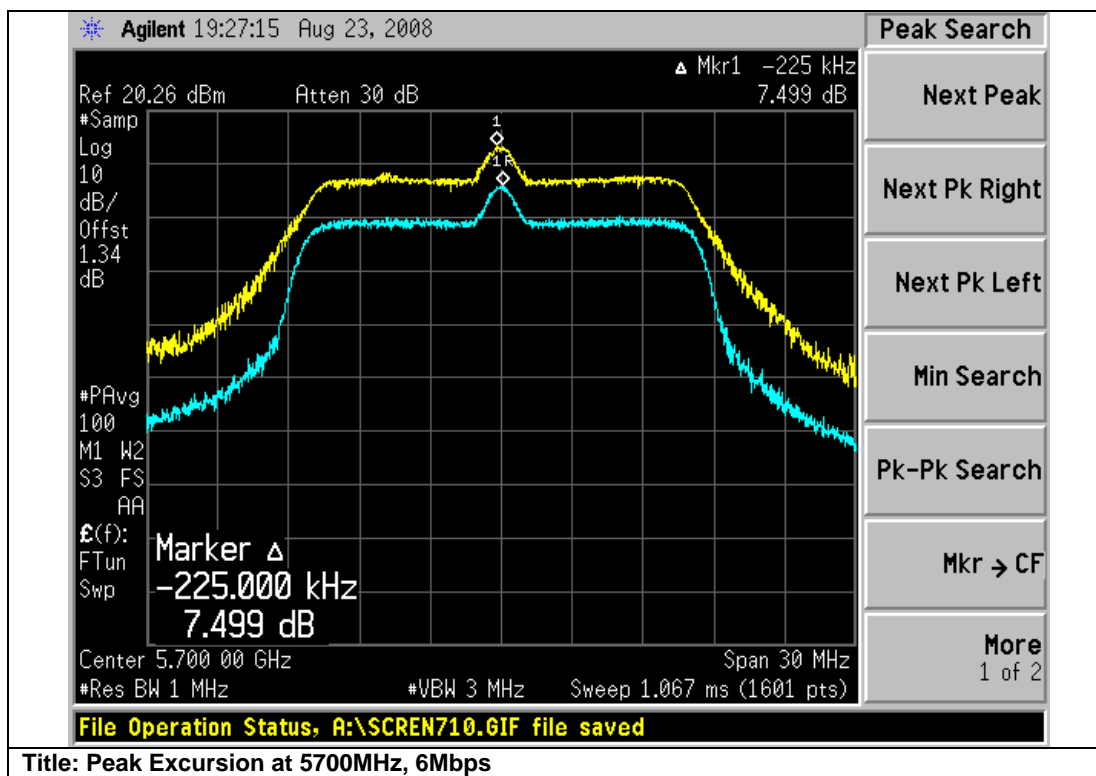
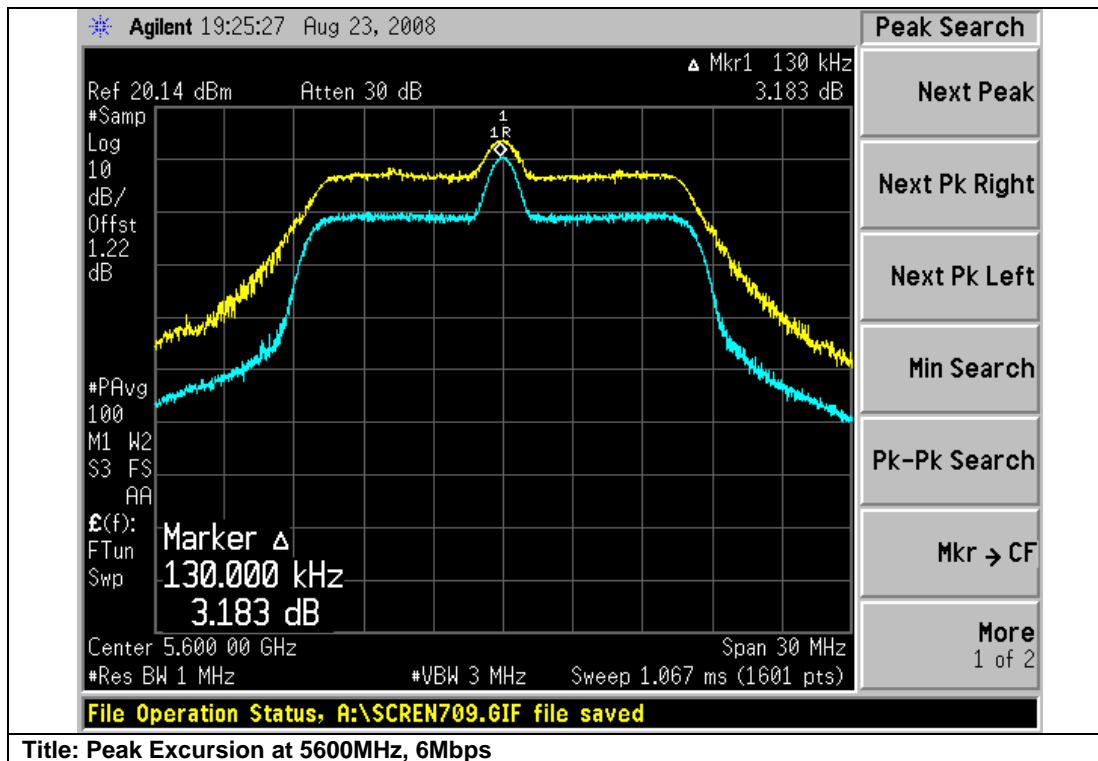


**Title: Peak Excursion at 5260MHz, 6Mbps**



**Title: Peak Excursion at 5280MHz, 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.

<b>Test Number:</b> 33477		<b>Spec ID:</b> 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
<b>Operating Mode</b>	<b>Mode :</b> 1, 802.11A Radio Test			
<b>Power Input</b>	110, 60Hz (+/-20%)			
<b>Overall Result</b>	Pass			

System Number	Description	Samples	System under test	Support equipment
1	5GHz Radio Test Sample	S01	<input checked="" type="checkbox"/>	<input type="checkbox"/>

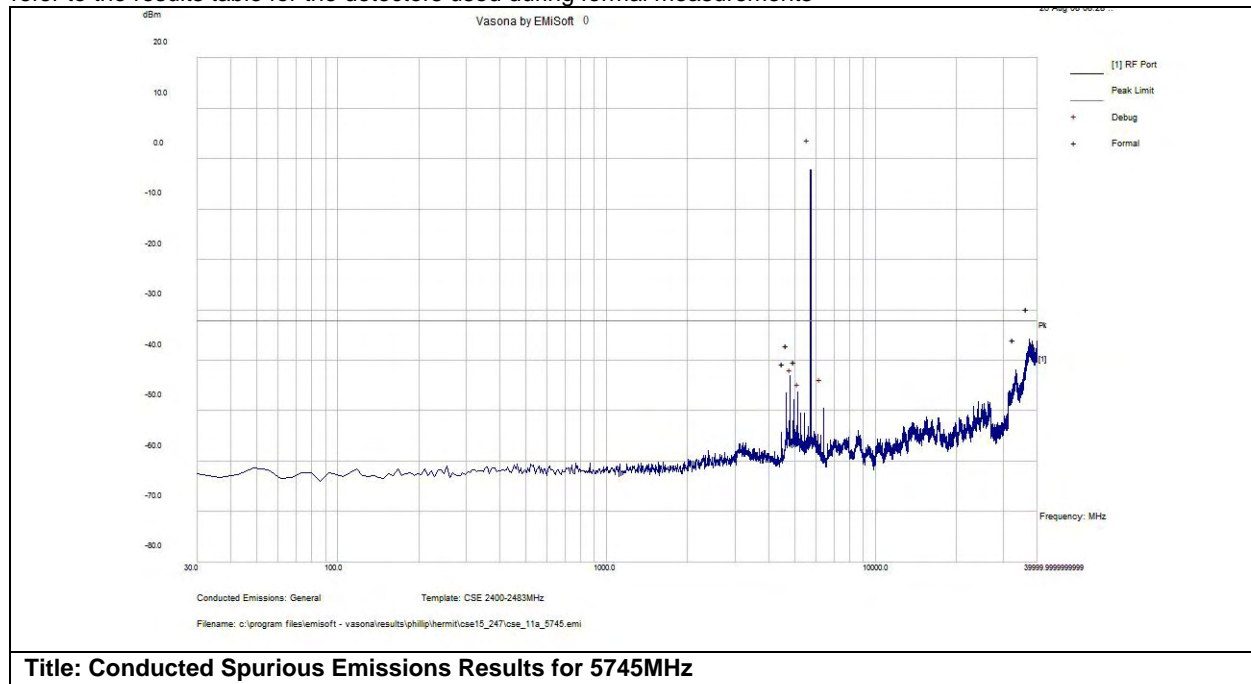
Subtest Number: 33477 - 10		Subtest Date: 25-Sep-2008	
Engineer		Phillip Carranco	
Lab Information		Building B, Shield Room	
Subtest Results			
Line Under Test		[A] Antenna Port	
Transducer		Direct	
Subtest Result		Pass	
Highest Frequency		40000.0	
Lowest Frequency		30.0	
Comments on the above Test Results		No further comments	
Environmental Conditions:			
Temperature: within range of 54 to 95 F:		Yes	
Humidity: between 10 and 75%:		Yes	
Equipment used:			
Equipment No	Manufacturer	Model	Description
CIS025716	HP	11500E	Radio testing cable 3.5mm
CIS033988	Agilent	E4446A	PSA Spectrum Analyzer
CIS034974	Midwest Microwave	ATT-0640-20-29M-02	Attenuator, 20dB, DC-40GHz
CIS041986	Murata Electronics	MXGS83RK3000	Special Radio Test Adaptor Cable
CIS041987	Murata Electronics	MXGS83RK3000	Special Radio Test Adaptor Cable



Confidence Check Details:	
Transducer	Direct
Confidence Check	Pass
Confidence Check Comments	No further 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



### Test Results Table

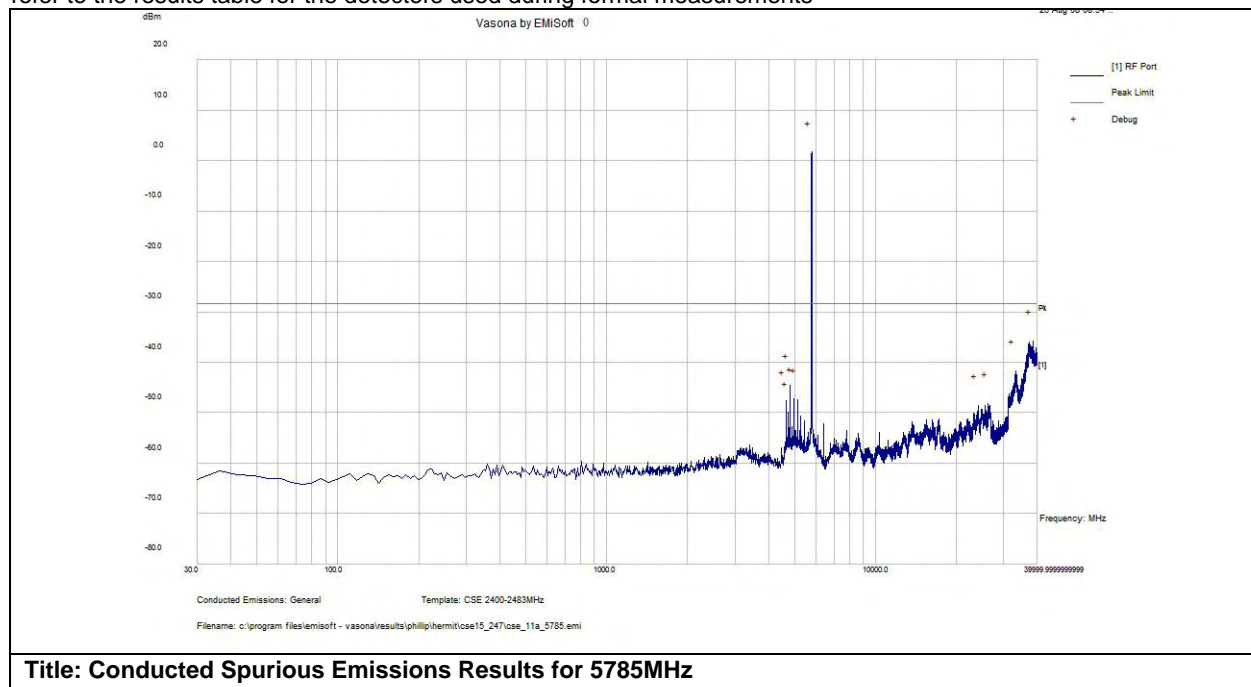
Frequency MHz	Raw dBm	Cable Loss	Factors dB	Level dBm	Measurement Type	Line	Limit dBm	Margin dB	Pass /Fail	Comments
37394.345	-57.6	1.3	20.5	-35.8	Peak(Scan)	RF	-32.2	-3.6	Pass	Noise Floor
33379.891	-63.6	1.2	20.6	-41.9	Peak(Scan)	RF	-32.2	-9.7	Pass	Noise Floor
4798.723	-64.4	1.5	19.8	-43.1	Peak(Scan)	RF	-32.2	-10.9	Pass	
5122.871	-67.6	1.5	19.8	-46.3	Peak(Scan)	RF	-32.2	-14.1	Pass	
4642.882	-67.8	1.4	19.8	-46.5	Peak(Scan)	RF	-32.2	-14.4	Pass	
4960.803	-69.2	1.5	19.8	-47.8	Peak(Scan)	RF	-32.2	-15.7	Pass	
6400.789	-70	0.5	19.8	-49.6	Peak(Scan)	RF	-32.2	-17.5	Pass	



Subtest Number: 33477 - 11		Subtest Date: 25-Sep-2008
Engineer	Phillip Carranco	
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	

### 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



### Test Results Table

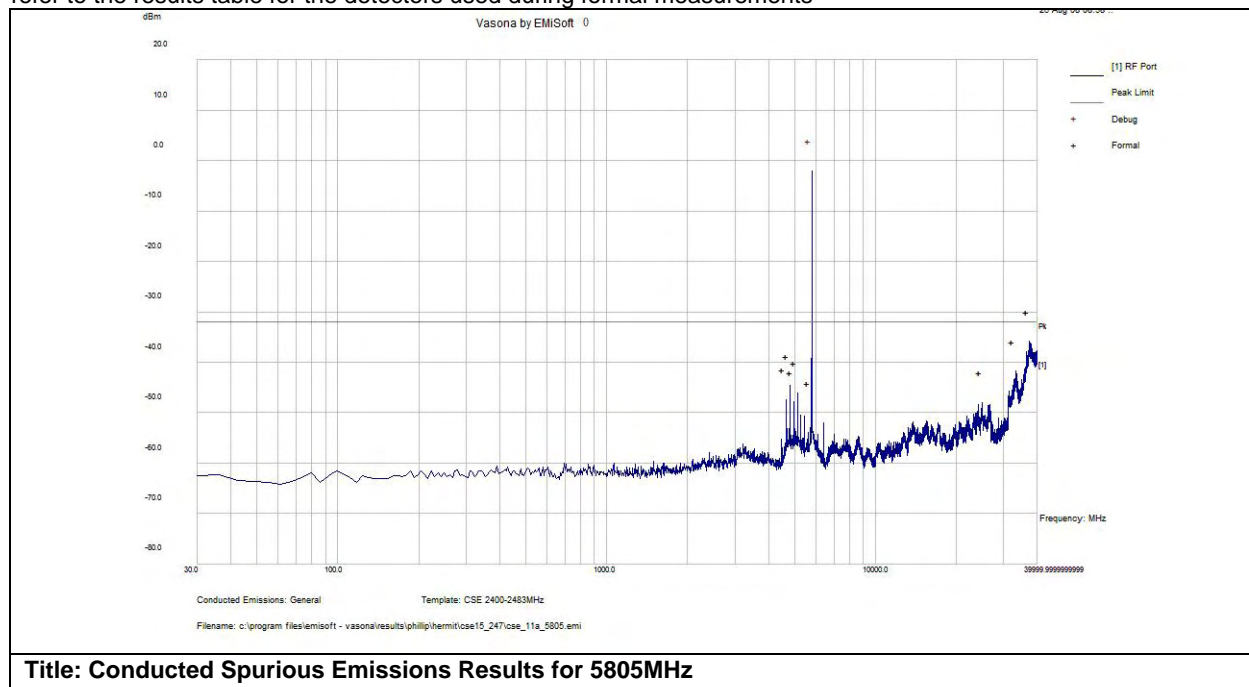
Frequency MHz	Raw dBm	Cable Loss	Factors dB	Level dBm	Measurement Type	Line	Limit dBm	Margin dB	Pass /Fail	Comments
4642.882	-69	1.4	19.8	-47.7	Peak(Scan)	RF	-28.3	-19.4	Pass	
4742.62	-71.2	1.4	19.8	-50	Peak(Scan)	RF	-28.3	-21.7	Pass	
4798.723	-65.8	1.5	19.8	-44.5	Peak(Scan)	RF	-28.3	-16.2	Pass	
4960.797	-68.5	1.5	19.8	-47.2	Peak(Scan)	RF	-28.3	-18.9	Pass	
5122.871	-68.7	1.5	19.8	-47.4	Peak(Scan)	RF	-28.3	-19.1	Pass	
24104.258	-69.8	1	20.3	-48.5	Peak(Scan)	RF	-28.3	-20.2	Pass	Noise Floor



Subtest Number: 33477 - 12		Subtest Date: 25-Sep-2008
Engineer	Phillip Carranco	
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	

### 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



### Test Results Table

Frequency MHz	Raw dBm	Cable Loss	Factors dB	Level dBm	Measurement Type	Line	Limit dBm	Margin dB	Pass /Fail	Comments
4642.882	-68.6	1.4	19.8	-47.4	Peak(Scan)	RF	-32	-15.4	Pass	
4798.723	-66	1.5	19.8	-44.7	Peak(Scan)	RF	-32	-12.7	Pass	
4960.797	-69.2	1.5	19.8	-47.9	Peak(Scan)	RF	-32	-16	Pass	
5122.871	-67.3	1.5	19.8	-46	Peak(Scan)	RF	-32	-14.1	Pass	
5758.714	-71.6	1.7	19.8	-50.1	Peak(Scan)	RF	-32	-18.1	Pass	
24983.199	-69.3	1	20.3	-48	Peak(Scan)	RF	-32	-16	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.

<b>Test Number:</b> 33477 <b>Spec ID:</b> 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
<b>Operating Mode</b>	<b>Mode :</b> 1, 802.11A Radio Test			
<b>Power Input</b>	110, 60Hz (+/-20%)			
<b>Overall Result</b>	Pass			
<b>Comments</b>	No further comments			
<b>Deviation</b>	There were no deviations from the specification			

System Number	Description	Samples	System under test	Support equipment
1	5GHz Radio Test Sample	S01	<input checked="" type="checkbox"/>	<input type="checkbox"/>

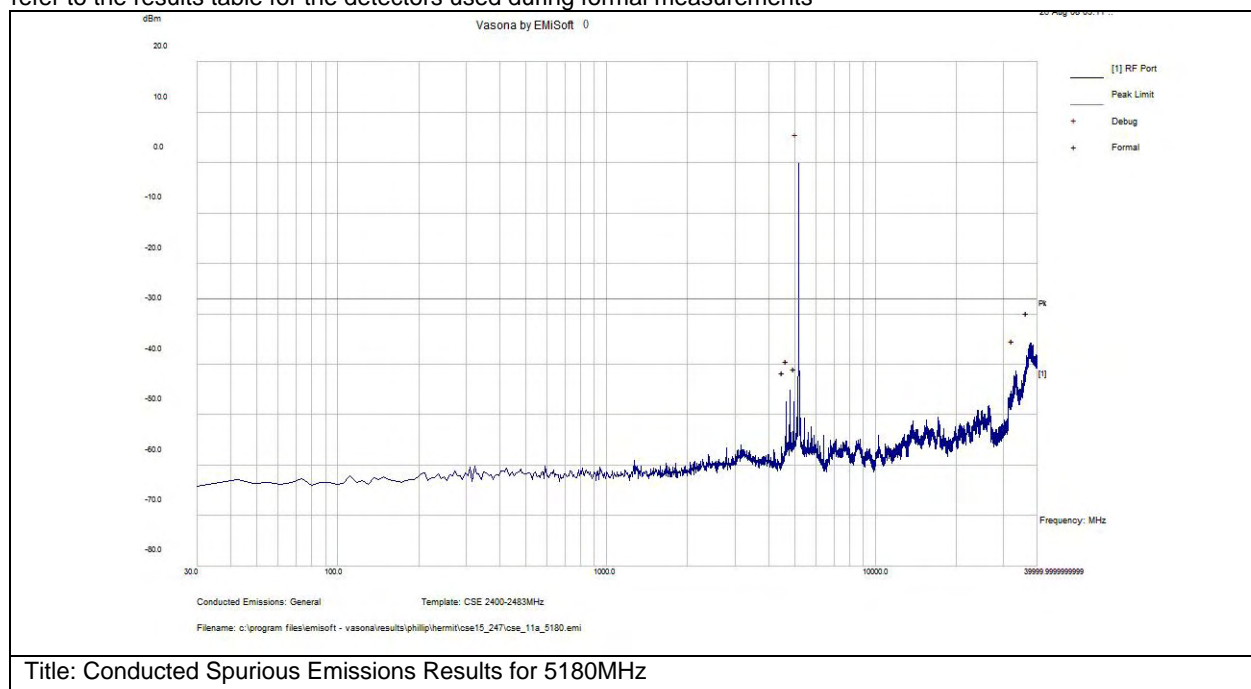
Subtest Number: 33477 - 1		Subtest Date: 25-Sep-2008	
Engineer		Phillip Carranco	
Lab Information		Building B, Shield Room	
Subtest Results			
Line Under Test		[A] Antenna Port	
Transducer		Direct	
Subtest Result		Pass	
Highest Frequency		40000.0	
Lowest Frequency		30.0	
Comments on the above Test Results		No further comments	
Environmental Conditions:			
Temperature: within range of 54 to 95 F:		Yes	



Humidity: between 10 and 75%:		Yes	
Equipment used:			
Equipment No	Manufacturer	Model	Description
CIS025716	HP	11500E	Radio testing cable 3.5mm
CIS033988	Agilent	E4446A	PSA Spectrum Analyzer
CIS034974	Midwest Microwave	ATT-0640-20-29M-02	Attenuator, 20dB, DC-40GHz
CIS041986	Murata Electronics	MXGS83RK3000	Special Radio Test Adaptor Cable
CIS041987	Murata Electronics	MXGS83RK3000	Special Radio Test Adaptor Cable
Confidence Check Details:			
Transducer		Direct	
Confidence Check		Pass	
Confidence Check Comments		No further 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



### Test Results Table

Frequency MHz	Raw dBm	Cable Loss	Factors dB	Level dBm	Measurement Type	Line	Limit dBm	Margin dB	Pass /Fail	Comments
4643.029	-68.9	1.4	19.8	-47.6	Peak(Scan)	RF	-27	-20.6	Pass	
4798.723	-66.5	1.5	19.8	-45.2	Peak(Scan)	RF	-27	-18.2	Pass	
5122.871	-68.1	1.5	19.8	-46.8	Peak(Scan)	RF	-27	-19.8	Pass	
33180.415	-63	1.2	20.5	-41.2	Peak(Scan)	RF	-27	-14.2	Pass	Noise Floor

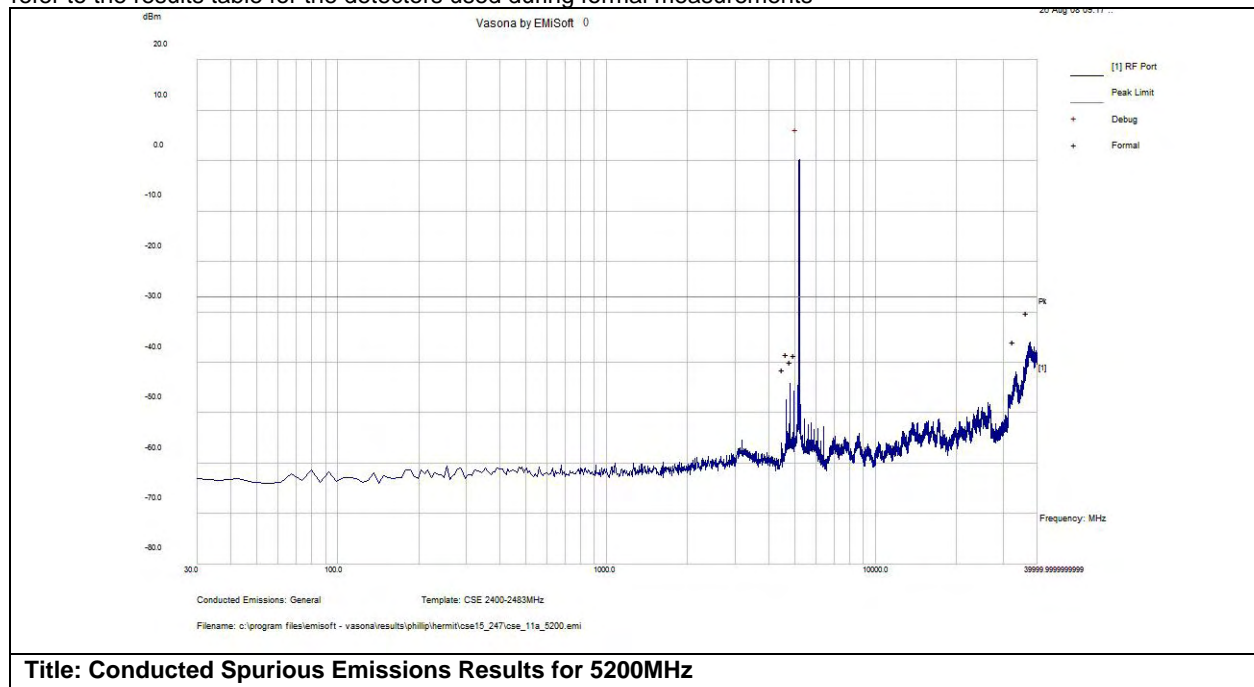


Frequency MHz	Raw dBm	Cable Loss	Factors dB	Level dBm	Measurement Type	Line	Limit dBm	Margin dB	Pass /Fail	Comments
37487.849	-57.5	1.2	20.5	-35.8	Peak(Scan)	RF	-27	-8.8	Pass	Noise Floor

Subtest Number: 33477 - 2		Subtest Date: 25-Sep-2008
Engineer	Phillip Carranco	
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	

### 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



### Test Results Table

Frequency MHz	Raw dBm	Cable Loss	Factors dB	Level dBm	Measurement Type	Line	Limit dBm	Margin dB	Pass /Fail	Comments
4642.883	-68.6	1.4	19.8	-47.4	Peak(Scan)	RF	-27	-20.4	Pass	
4798.723	-65.6	1.5	19.8	-44.3	Peak(Scan)	RF	-27	-17.3	Pass	
4960.797	-67.1	1.5	19.8	-45.8	Peak(Scan)	RF	-27	-18.8	Pass	

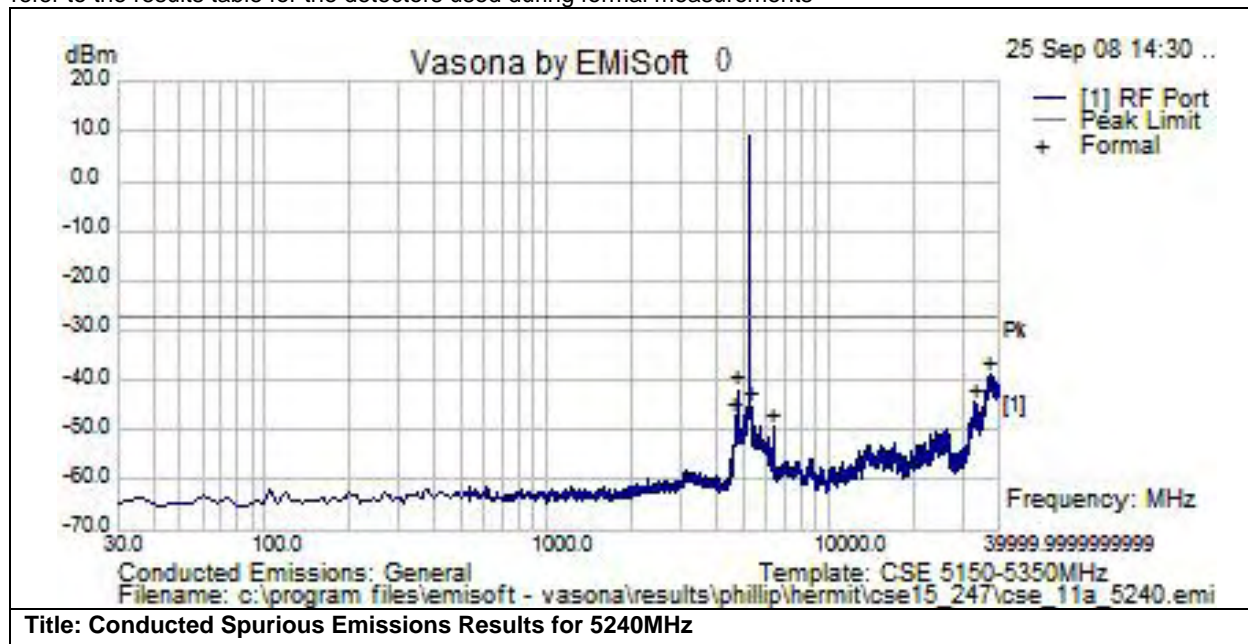


Frequency MHz	Raw dBm	Cable Loss	Factors dB	Level dBm	Measurement Type	Line	Limit dBm	Margin dB	Pass /Fail	Comments
5122.871	-65.8	1.5	19.8	-44.5	Peak(Scan)	RF	-27	-17.5	Pass	
33273.919	-63.6	1.2	20.5	-42	Peak(Scan)	RF	-27	-15	Pass	Noise Floor
37537.718	-57.8	1.2	20.5	-36.1	Peak(Scan)	RF	-27	-9.1	Pass	Noise Floor

Subtest Number: 33477 - 3		Subtest Date: 25-Sep-2008
Engineer	Phillip Carranco	
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	

#### 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



#### Test Results Table

Frequency MHz	Raw dBm	Cable Loss	Factors dB	Level dBm	Measurement Type	Line	Limit dBm	Margin dB	Pass /Fail	Comments
37356.943	-59.4	0	20.5	-38.9	Peak(Scan)	RF	-27	-11.9	Pass	Noise Floor

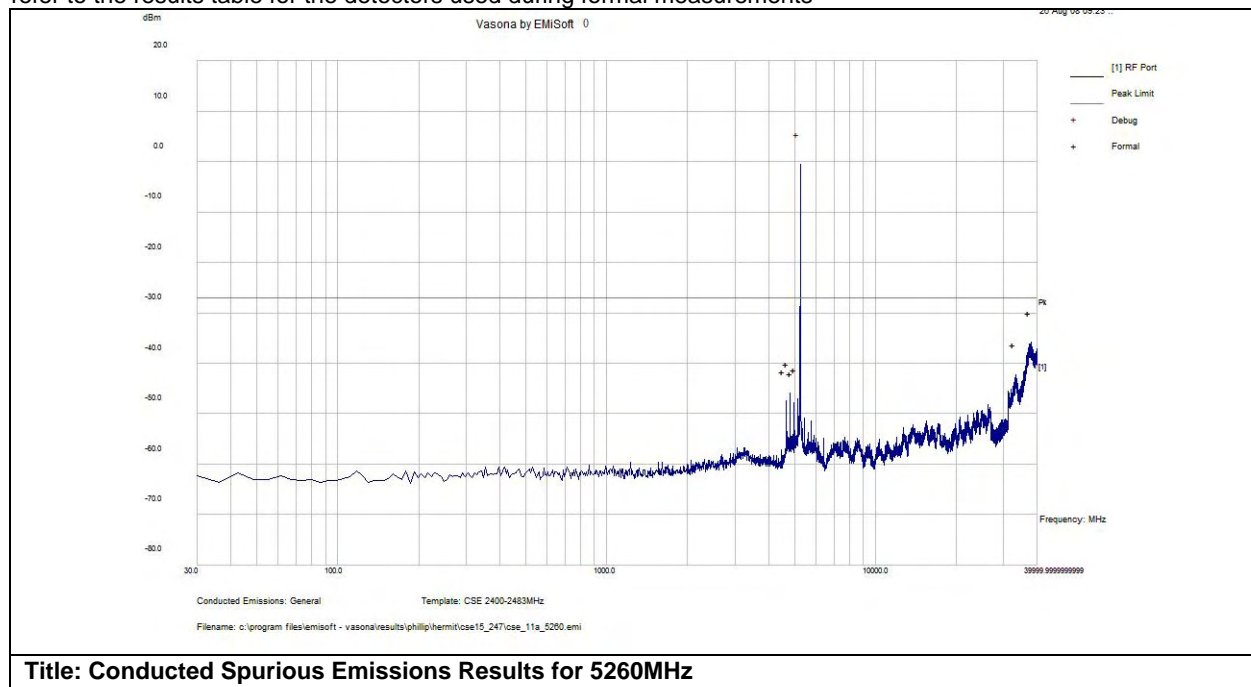


Frequency MHz	Raw dBm	Cable Loss	Factors dB	Level dBm	Measurement Type	Line	Limit dBm	Margin dB	Pass /Fail	Comments
4798.723	-63.3	1.5	19.8	-42	Peak(Scan)	RF	-27	-15	Pass	
33230.284	-65	0	20.5	-44.5	Peak(Scan)	RF	-27	-17.5	Pass	
5303.646	-66.6	1.6	19.8	-45.2	Peak(Scan)	RF	-27	-18.2	Pass	
4642.483	-68.5	1.5	19.8	-47.2	Peak(Scan)	RF	-27	-20.2	Pass	
6400.764	-69.6	0.5	19.8	-49.3	Peak(Scan)	RF	-27	-22.3	Pass	

Subtest Number: 33477 - 4		Subtest Date: 25-Sep-2008
Engineer	Phillip Carranco	
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	

### 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



### Test Results Table

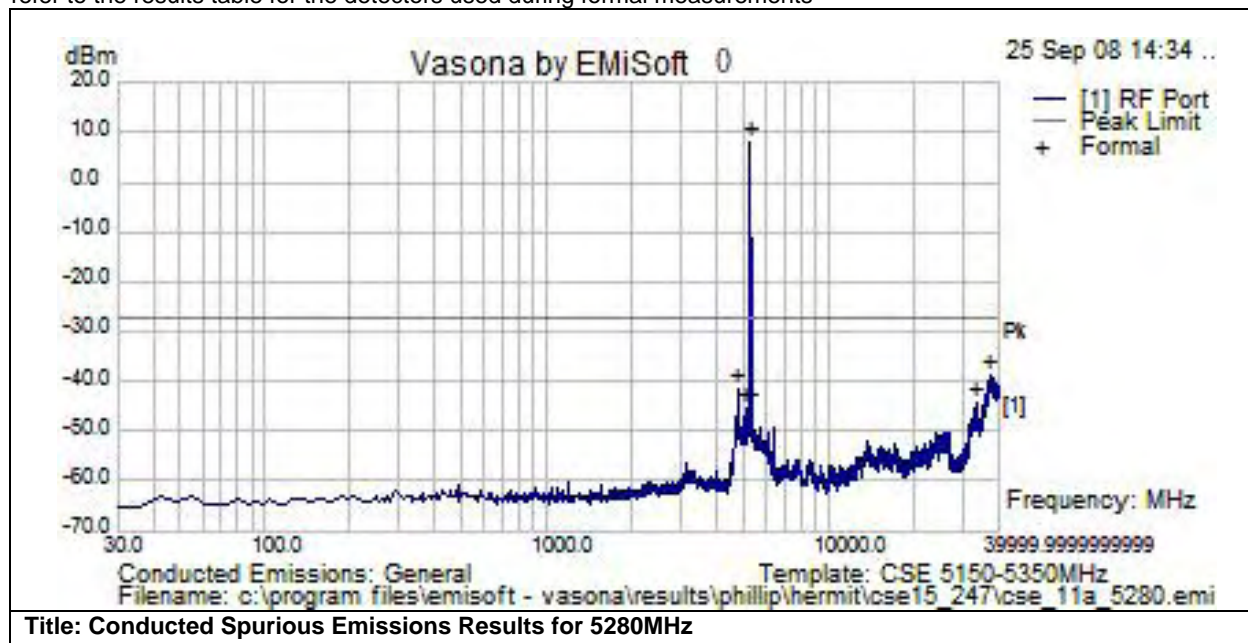


Frequency MHz	Raw dBm	Cable Loss	Factors dB	Level dBm	Measurement Type	Line	Limit dBm	Margin dB	Pass /Fail	Comments
4642.928	-68.8	1.4	19.8	-47.6	Peak(Scan)	RF	-27	-20.6	Pass	
4798.723	-67.2	1.5	19.8	-46	Peak(Scan)	RF	-27	-19	Pass	
4960.756	-69.3	1.5	19.8	-48	Peak(Scan)	RF	-27	-21	Pass	
5122.982	-68.5	1.5	19.8	-47.2	Peak(Scan)	RF	-27	-20.2	Pass	
33292.63	-64	1.2	20.5	-42.2	Peak(Scan)	RF	-27	-15.2	Pass	Noise Floor
38023.941	-57.6	1.3	20.4	-35.9	Peak(Scan)	RF	-27	-8.9	Pass	Noise Floor

Subtest Number: 33477 - 5		Subtest Date: 25-Sep-2008
Engineer	Phillip Carranco	
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	

#### 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



#### Test Results Table



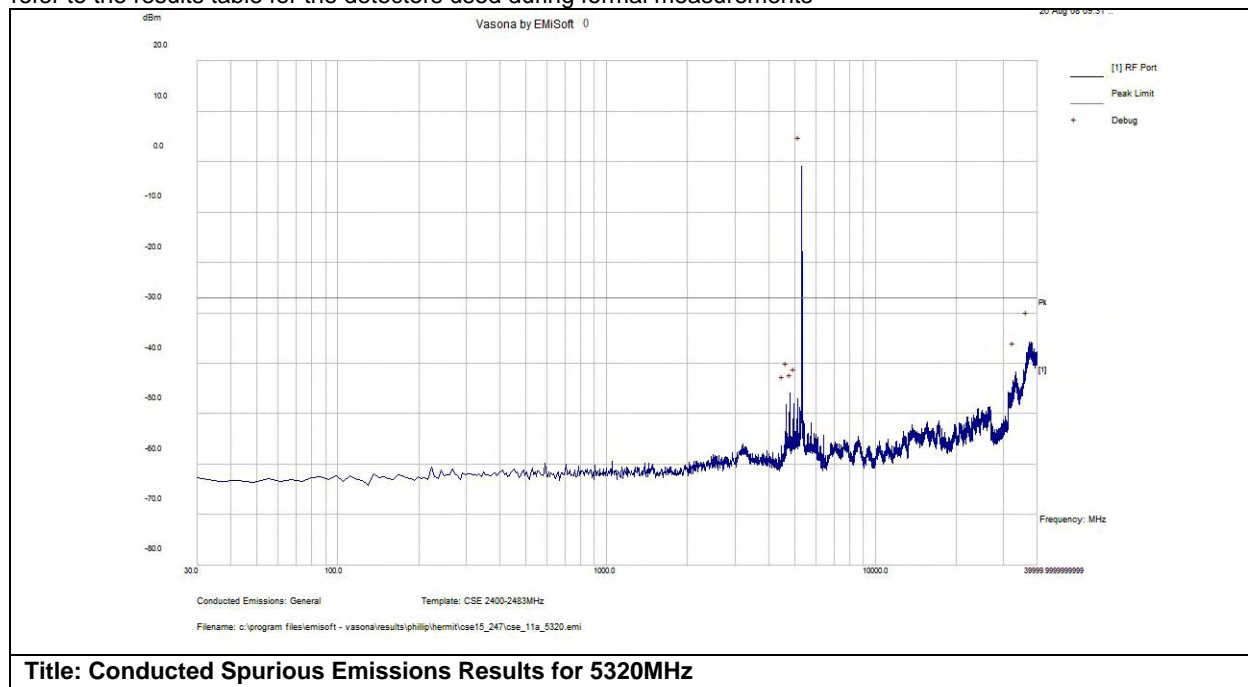


Frequency MHz	Raw dBm	Cable Loss	Factors dB	Level dBm	Measurement Type	Line	Limit dBm	Margin dB	Pass /Fail	Comments
37325.775	-59.2	0	20.5	-38.7	Peak(Scan)	RF	-27	-11.7	Pass	
4798.723	-62.6	1.5	19.8	-41.3	Peak(Scan)	RF	-27	-14.3	Pass	
33411.059	-64.8	0	20.5	-44.3	Peak(Scan)	RF	-27	-17.3	Pass	
5122.871	-66.6	1.5	19.8	-45.4	Peak(Scan)	RF	-27	-18.4	Pass	
5322.347	-66.8	1.6	19.8	-45.4	Peak(Scan)	RF	-27	-18.4	Pass	

Subtest Number: 33477 - 6		Subtest Date: 25-Sep-2008
Engineer	Phillip Carranco	
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	

### 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



### Test Results Table

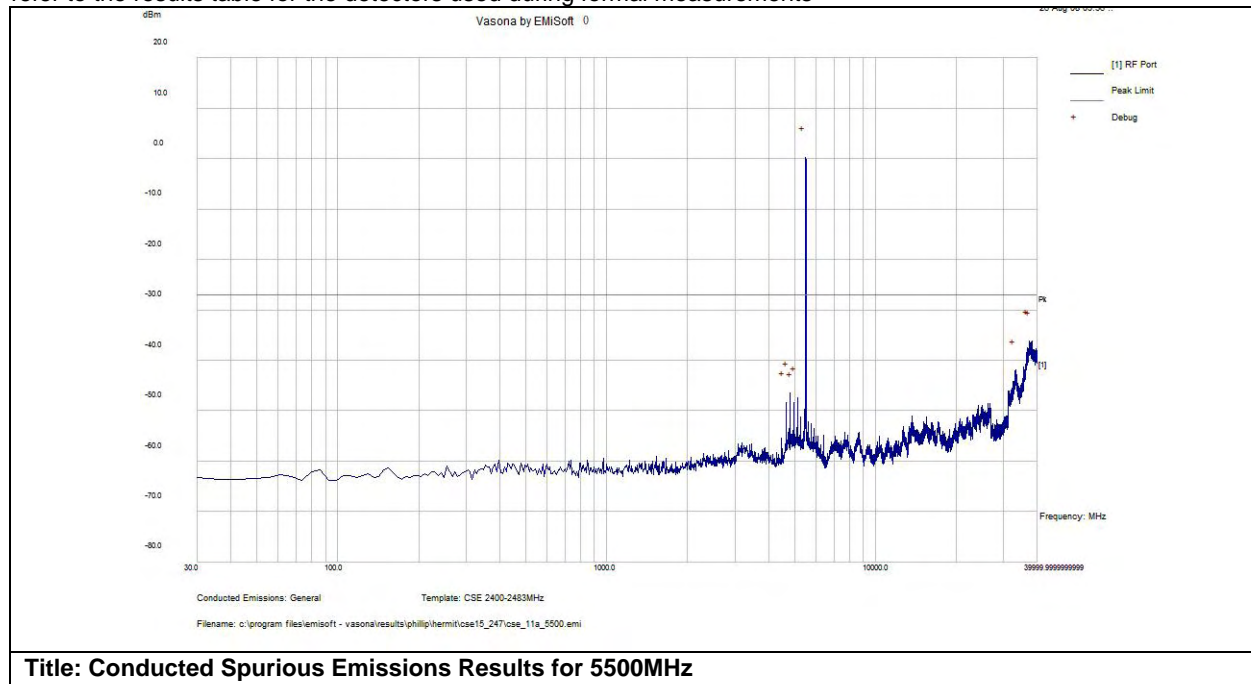


Frequency MHz	Raw dBm	Cable Loss	Factors dB	Level dBm	Measurement Type	Line	Limit dBm	Margin dB	Pass /Fail	Comments
4643.002	-69.7	1.4	19.8	-48.5	Peak(Scan)	RF	-27	-21.5	Pass	
4798.723	-67.1	1.5	19.8	-45.8	Peak(Scan)	RF	-27	-18.8	Pass	
4960.839	-69.4	1.5	19.8	-48.1	Peak(Scan)	RF	-27	-21.1	Pass	
5122.871	-68.3	1.5	19.8	-47	Peak(Scan)	RF	-27	-20	Pass	
33330.022	-63.5	1.2	20.5	-41.8	Peak(Scan)	RF	-27	-14.8	Pass	Noise Floor
37406.812	-57.6	1.3	20.5	-35.8	Peak(Scan)	RF	-27	-8.8	Pass	Noise Floor

Subtest Number: 33477 - 7		Subtest Date: 25-Sep-2008	
Engineer		Phillip Carranco	
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	

### 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



### Test Results Table

Frequency MHz	Raw dBm	Cable Loss	Factors dB	Level dBm	Measurement Type	Line	Limit dBm	Margin dB	Pass /Fail	Comments
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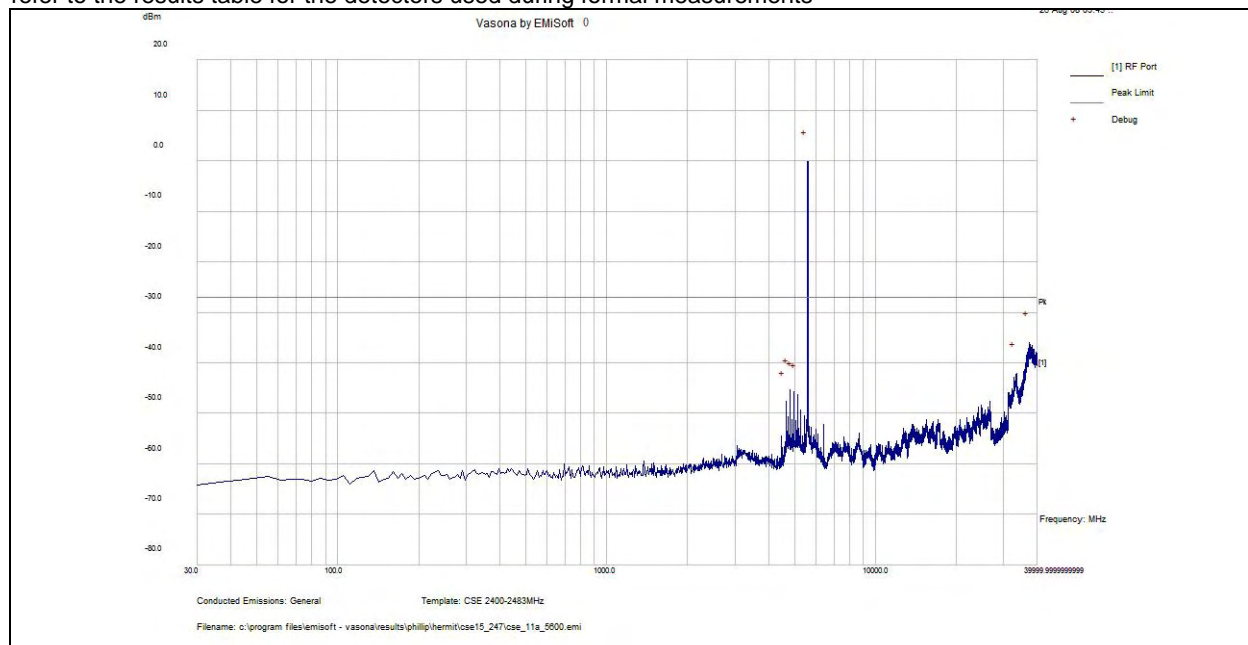


Frequency MHz	Raw dBm	Cable Loss	Factors dB	Level dBm	Measurement Type	Line	Limit dBm	Margin dB	Pass /Fail	Comments
4642.918	-69.6	1.4	19.8	-48.4	Peak(Scan)	RF	-27	-21.4	Pass	
4798.723	-67.7	1.5	19.8	-46.4	Peak(Scan)	RF	-27	-19.4	Pass	
4960.804	-69.8	1.5	19.8	-48.5	Peak(Scan)	RF	-27	-21.5	Pass	
5122.887	-68.8	1.5	19.8	-47.5	Peak(Scan)	RF	-27	-20.5	Pass	
33255.218	-63.7	1.2	20.5	-42	Peak(Scan)	RF	-27	-15	Pass	Noise Floor
37406.812	-58	1.3	20.5	-36.2	Peak(Scan)	RF	-27	-9.2	Pass	Noise Floor
38211.131	-58	1.3	20.4	-36.3	Peak(Scan)	RF	-27	-9.3	Pass	Noise Floor

Subtest Number: 33477 - 8		Subtest Date: 25-Sep-2008
Engineer	Phillip Carranco	
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	

### 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 Results for 5600MHz**

### Test Results Table

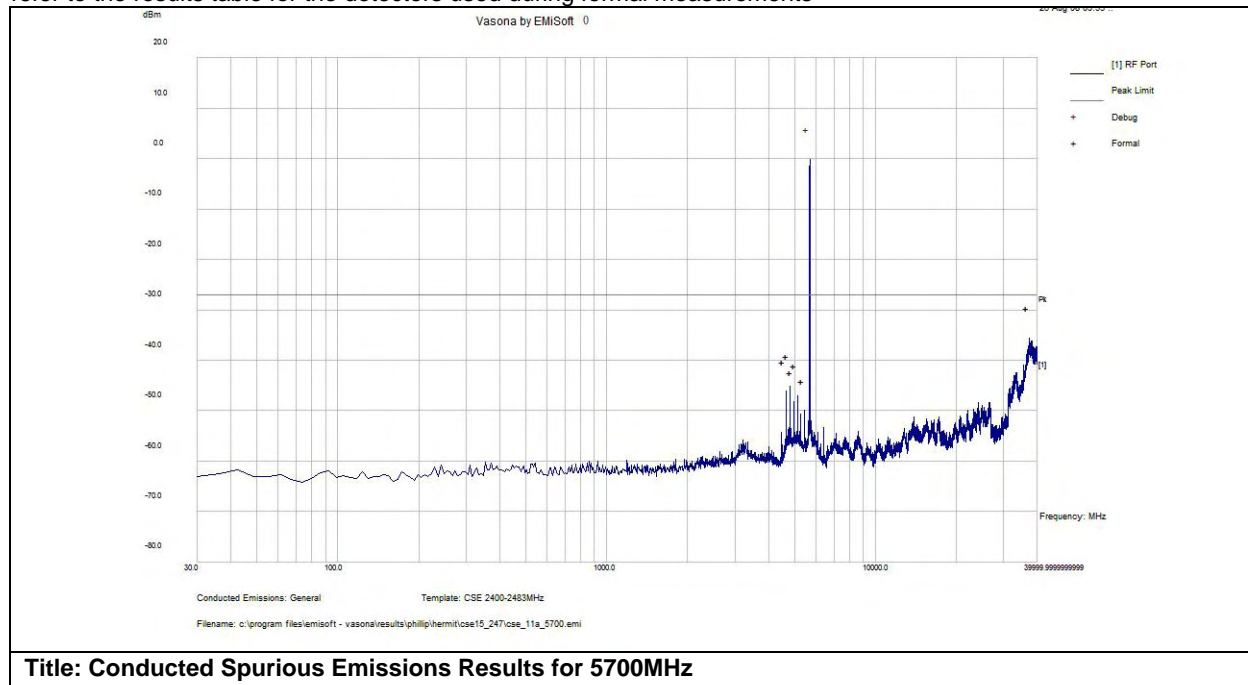


Frequency MHz	Raw dBm	Cable Loss	Factors dB	Level dBm	Measurement Type	Line	Limit dBm	Margin dB	Pass /Fail	Comments
4642.894	-68.9	1.4	19.8	-47.7	Peak(Scan)	RF	-27	-20.7	Pass	
4798.723	-66.6	1.5	19.8	-45.3	Peak(Scan)	RF	-27	-18.3	Pass	
4960.797	-67.1	1.5	19.8	-45.8	Peak(Scan)	RF	-27	-18.8	Pass	
5122.871	-67.6	1.5	19.8	-46.3	Peak(Scan)	RF	-27	-19.3	Pass	
33429.76	-63.8	1.2	20.5	-42.1	Peak(Scan)	RF	-27	-15.1	Pass	Noise Floor
37350.71	-57.8	1.2	20.5	-36	Peak(Scan)	RF	-27	-9	Pass	Noise Floor

Subtest Number: 33477 - 9		Subtest Date: 25-Sep-2008
Engineer	Phillip Carranco	
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	

### Graphical Test Results

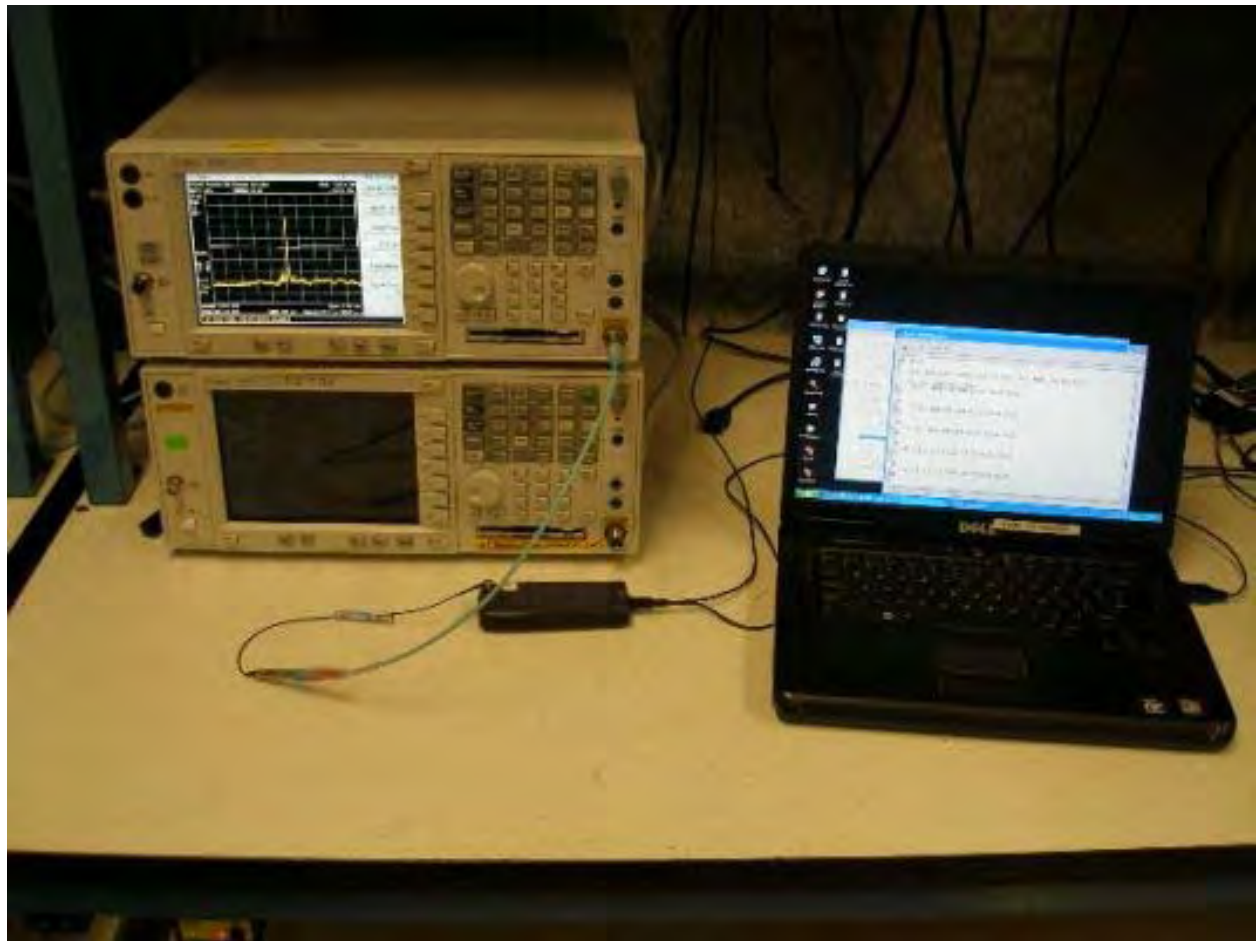
Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



### Test Results Table

Frequency MHz	Raw dBm	Cable Loss	Factors dB	Level dBm	Measurement Type	Line	Limit dBm	Margin dB	Pass /Fail	Comments
4642.882	-67.4	1.4	19.8	-46.2	Peak(Scan)	RF	-27	-19.2	Pass	
4798.723	-66.5	1.5	19.8	-45.2	Peak(Scan)	RF	-27	-18.2	Pass	
4960.787	-69.6	1.5	19.8	-48.3	Peak(Scan)	RF	-27	-21.3	Pass	
5122.871	-68.3	1.5	19.8	-47	Peak(Scan)	RF	-27	-20	Pass	
5440.813	-71.4	1.6	19.8	-50	Peak(Scan)	RF	-27	-23	Pass	
37444.214	-57.3	1.3	20.5	-35.6	Peak(Scan)	RF	-27	-8.6	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

<b>Test Number:</b> 33481 <b>Spec ID:</b> 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
<b>Operating Mode</b>	<b>Mode :</b> 1, 802.11A Radio Test			
<b>Power Input</b>	110, 60Hz (+/-20%)			
<b>Overall Result</b>	Pass			
<b>Comments</b>	No further comments			
<b>Deviation</b>	There were no deviations from the specification			

System Number	Description	Samples	System under test	Support equipment
1	5GHz Radio Test Sample	S01	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Subtest Number: 33481 - 1		Subtest Date: 25-Sep-2008	
Engineer		Phillip Carranco	
Lab Information		Building I, 5m Anechoic	
Subtest Results			
Subtest Title		Radiated Emissions Test Results	
Subtest Result		Pass	
Highest Frequency		1000.0	
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:			

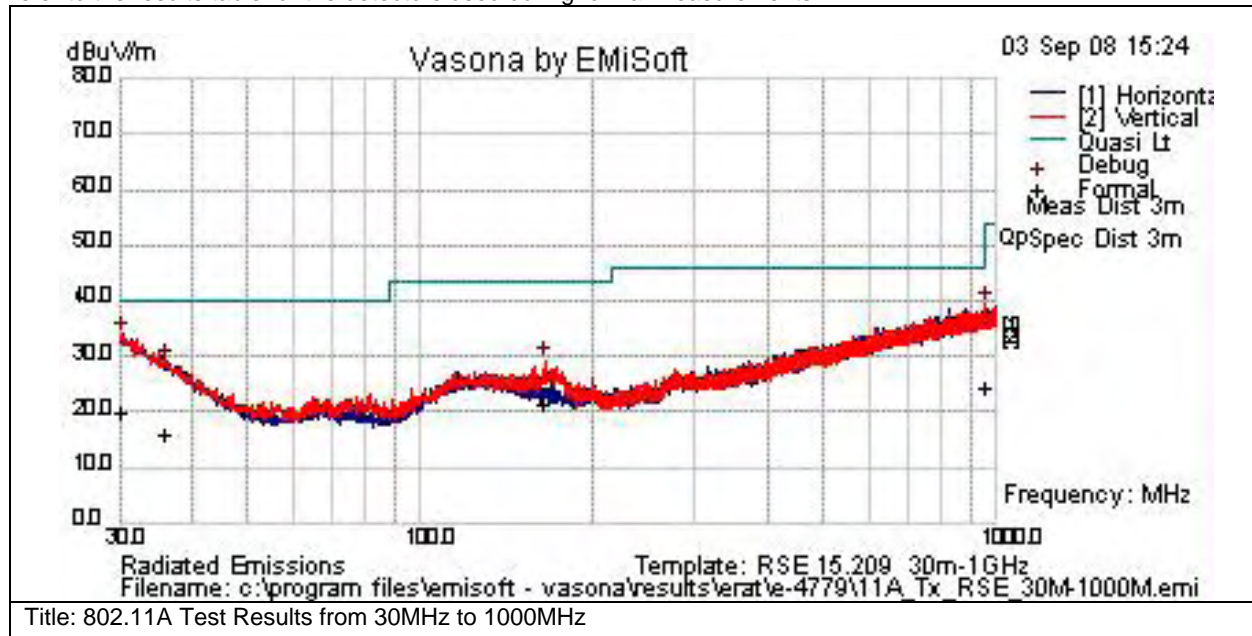


<b>Equipment used:</b>			
Equipment No	Manufacturer	Model	Description
CIS002119	EMC Test Systems	3115	Double Ridged Guide Horn Antenna
CIS008024	Huber + Suhner	SF106A	3 meter Sucoflex cable
CIS008081	Huber + Suhner	SF106A	1m Sucoflex cable
CIS005691	Miteq	NSP1800-25-S1	Broadband Preamplifier (1-18GHz)
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
CIS039114	Sunol Sciences	JB1	Combination Antenna
CIS040523	Rohde & Schwarz	ESCI	EMI Test Receiver
CIS042000	Agilent	E4440A	Spectrum Analyzer
<b>Confidence Check Details:</b>			
Confidence Check		Pass	
Confidence Check Comments		No further 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



## 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
30.24	-3.8	0.5	21.1	17.8	Qp	V	348	186	40	-22.2	Pass	
959.908	-3.3	2.8	22.7	22.3	Qp	H	131	11	46	-23.7	Pass	
164.91	5.9	1.2	11.8	18.9	Qp	V	121	343	43.5	-24.6	Pass	
36.069	-3.7	0.5	16.6	13.4	Qp	V	296	146	40	-26.6	Pass	

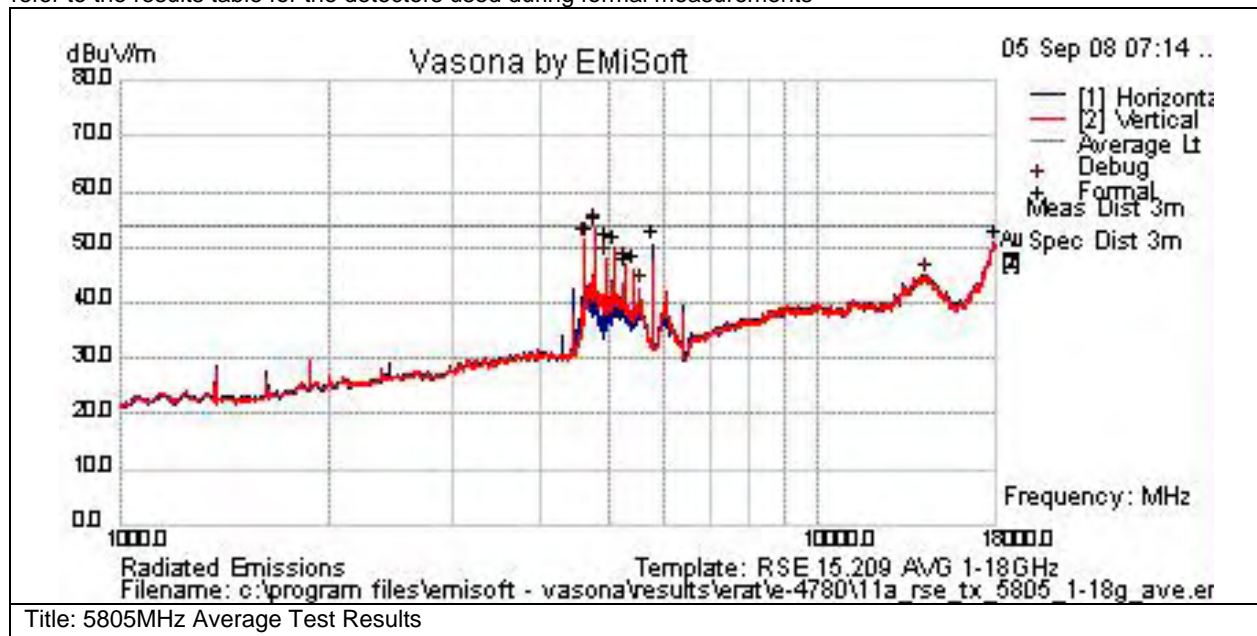




Subtest Number: 33481 - 2		Subtest Date: 25-Sep-2008	
Engineer	Phillip Carranco		
Lab Information	Building I, 5m Anechoic		
Subtest Results			
Subtest Title	Radiated Emissions Test Results from 1 to 18GHz		
Subtest Result	Pass		
Highest Frequency	18000.0		
Lowest Frequency	1000.0		

### 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



### 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
4800.112	50	6.8	-3.9	53	Av	V	128	174	54	-1	Pass	
4640.064	48.8	6.7	-4.1	51.3	Av	V	114	154	54	-2.7	Pass	
17856.831	23.2	16.2	11.3	50.7	Av	V	125	0	54	-3.3	Pass	Noise Floor
5809.42	44.4	10.3	-4.1	50.6	Av	H	100	0	54	-3.4	Pass	Tx Signal - EUT
4960.094	47.2	7	-4.2	50	Av	V	108	161	54	-4	Pass	
5120.029	46.5	7.2	-3.8	49.9	Av	V	112	154	54	-4.1	Pass	
5438.241	42.1	7.5	-3.6	46.1	Av	V	125	0	54	-7.9	Pass	
5280.115	42.3	7.3	-3.8	45.9	Av	V	100	161	54	-8.1	Pass	