

## FCC 47 CFR PART 15 SUBPART E

Product Type : Thin Client Terminal  
Applicant : Dell Inc.  
Address : One Dell Way, Round Rock, Texas USA 78682  
Trade Name : Dell  
Model Number : CSxyyyy(x and y= 0-9, A-Z, a-z or blank), CSx  
Test Specification : FCC 47 CFR PART 15 SUBPART E: Oct., 2012  
ANSI C63.4-2009  
Application Purpose : Original  
Receive Date : Jul. 09, 2013  
Test Period : Jul. 22 ~ 25, 2013  
Issue Date : Aug. 12, 2013

### Issue by

A Test Lab Techno Corp.  
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Taiwan Accreditation Foundation accreditation number: 1330

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**Revision History**

Rev.	Issue Date	Revisions	Revised By
00	Aug. 02, 2013	Initial Issue	
01	Aug. 12, 2013	Change Antenna type	Gili Huang

## Verification of Compliance

Issued Date: 08/12/2013

Product Type : Thin Client Terminal  
Applicant : Dell Inc.  
Address : One Dell Way, Round Rock, Texas USA 78682  
Trade Name : Dell  
Model Number : CSxyyyy(x and y= 0-9, A-Z, a-z or blank), CSx  
FCC ID : E2KCS1A13  
EUT Rated Voltage : DC 5.0V, 0.5A  
Test Voltage : 120 Vac / 60 Hz  
Applicable Standard : FCC 47 CFR PART 15 SUBPART E: Oct., 2012  
Canada RSS-210 ISSUE 8: Dec., 2010  
Canada RSS-Gen ISSUE 3: Dec., 2010  
ANSI C63.10-2009  
ANSI C63.4-2009

Test Result : Complied

Application Purpose : Original

Performing Lab. : A Test Lab Techno Corp.

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<http://www.atl-lab.com.tw/e-index.htm>



A Test Lab Techno Corp. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by A Test Lab Techno Corp. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Approved By : 

(Manager)

(Murphy Wang)

Reviewed By : 

(Testing Engineer)

(Fly Lu)

## TABLE OF CONTENTS

<b>1</b>	<b>General Information.....</b>	<b>6</b>
	1.1. Summary of Test Result .....	6
	1.2. Measurement Uncertainty .....	6
<b>2</b>	<b>EUT Description.....</b>	<b>7</b>
<b>3</b>	<b>Test Methodology .....</b>	<b>8</b>
	3.1. Mode of Operation .....	8
	3.2. EUT Exercise Software .....	9
	3.3. Configuration of Test System Details .....	9
	3.4. Test Site Environment .....	9
<b>4</b>	<b>AC Power Conducted Emission Measurement .....</b>	<b>10</b>
	4.1. Limit .....	10
	4.2. Test Instruments.....	10
	4.3. Test Setup .....	10
	4.4. Test Procedure .....	11
	4.5. Test Result .....	11
<b>5</b>	<b>Radiated Emission Measurement.....</b>	<b>12</b>
	5.1. Limit .....	12
	5.2. Test Instruments.....	12
	5.3. Setup.....	13
	5.4. Test Procedure .....	15
	5.5. Test Result .....	16
<b>6</b>	<b>Maximum Conducted Output Power Measurement .....</b>	<b>48</b>
	6.1. Limit .....	48
	6.2. Test Setup .....	48
	6.3. Test Instruments.....	48
	6.4. Test Procedure .....	48
	6.5. Test Result .....	49
<b>7</b>	<b>26dB RF Bandwidth Measurement .....</b>	<b>52</b>
	7.1. Limit .....	52
	7.2. Test Setup .....	52
	7.3. Test Instruments.....	52
	7.4. Test Procedure .....	52
	7.5. Test Result .....	53
	7.6. Test Graphs.....	55

<b>8</b>	<b>Peak Excursion Ratio Measurement .....</b>	<b>64</b>
8.1.	Limit .....	64
8.2.	Test Setup .....	64
8.3.	Test Instruments.....	64
8.4.	Test Procedure .....	64
8.5.	Test Result .....	65
8.6.	Test Graphs.....	67
<b>9</b>	<b>Peak Power Spectral Density Measurement.....</b>	<b>76</b>
9.1.	Limit .....	76
9.2.	Test Setup .....	76
9.3.	Test Instruments.....	76
9.4.	Test Procedure .....	76
9.5.	Test Result .....	77
9.6.	Test Graphs.....	79
<b>10</b>	<b>Frequency Stability Measurement.....</b>	<b>88</b>
10.1.	Limit .....	88
10.2.	Test Setup .....	88
10.3.	Test Instruments.....	88
10.4.	Test Procedure .....	89
10.5.	Test Result .....	89
<b>11</b>	<b>Antenna Requirement .....</b>	<b>97</b>
11.1.	Limit .....	97
11.2.	Antenna Connector Construction .....	97

## 1 General Information

### 1.1. Summary of Test Result

Standard		Item	Result	Remark
FCC	IC			
15.407(b)(6) 15.207	RSS-Gen 7.2.4	AC Power Conducted Emission	N/A	This device's power is supplied by DC source.
15.407(b) 15.205 / 15.209	RSS-210 A9.2	Radiated Emission	PASS	---
15.407(a)	RSS-210 A9.2	Maximum Conducted Output Power	PASS	---
15.407(a)	RSS-210 A9.2	26dB RF Bandwidth	Reference	---
15.407(a)(6)	RSS-210 A9.3	Peak Excursion Ratio	PASS	---
15.407(a)	RSS-210 A9.2	Peak Power Spectral Density	PASS	---
15.407(g)	RSS-210 A9.5	Frequency Stability	PASS	---
15.407(a) 15.203	RSS-210 A9.2	Antenna Requirement	PASS	---

The test results of this report relate only to the tested sample(s) identified in this report. Manufacturer or whom it may concern should recognize the pass or fail of the test result.

### 1.2. Measurement Uncertainty

Measurement Item	Frequency Range		Uncertainty (dB)
Conducted Emission	9kHz ~ 30MHz		± 2.020
Radiated Emission	30MHz ~ 1000MHz	Horizontal	± 3.960
		Vertical	± 3.570
	1000MHz ~ 18000MHz	Horizontal	± 3.072
		Vertical	± 3.028
	18000MHz ~ 40000MHz	Horizontal	± 3.622
		Vertical	± 3.506

## 2 EUT Description

Product Type	Thin Client Terminal			
Trade Name	Dell			
Model No.	CSxyyyy(x and y= 0-9, A-Z, a-z or blank), CSx (Those model numbers differ from each other in selling regions.)			
Applicant	Dell Inc. One Dell Way, Round Rock, Texas USA 78682			
Manufacturer	Wyse Technology LLC 5455 Great America Parkway, Santa Clara, CA 95054			
FCC ID	E2KCS1A13			
Frequency Range	Band	Mode	Frequency Range (MHz)	Number of Channels
	U-NII Band I	IEEE 802.11a	5180 – 5240	4 Channels
		IEEE 802.11n 20 MHz	5180 – 5240	4 Channels
		IEEE 802.11n 40 MHz	5190 – 5230	2 Channels
	U-NII Band II	IEEE 802.11a	5260 – 5320	4 Channels
		IEEE 802.11n 20 MHz	5260 – 5320	4 Channels
		IEEE 802.11n 40 MHz	5270 – 5310	2 Channels
	U-NII Band III	IEEE 802.11a	5500 – 5700	11 Channels
		IEEE 802.11n 20 MHz	5500 – 5700	11 Channels
		IEEE 802.11n 40 MHz	5510 – 5670	5 Channels
Modulation Type	OFDM			
Antenna Type	Chip Antenna			
Antenna Gain	0.9 dBi			
Antenna Delivery	1TX + 1RX			
RF Output Power	IEEE 802.11a U-NII Band I : 0.041 W / 16.09 dBm IEEE 802.11a U-NII Band II : 0.038 W / 15.85 dBm IEEE 802.11a U-NII Band III : 0.038 W / 15.80 dBm IEEE 802.11n 20MHz U-NII Band I: 0.032 W / 15.00 dBm IEEE 802.11n 20MHz U-NII Band II: 0.031 W / 14.86 dBm IEEE 802.11n 20MHz U-NII Band III: 0.029 W / 14.69 dBm IEEE 802.11n 40MHz U-NII Band I: 0.022 W / 13.38 dBm IEEE 802.11n 40MHz U-NII Band II: 0.021 W / 13.14 dBm IEEE 802.11n 40MHz U-NII Band III: 0.022 W / 13.45 dBm			

### 3 Test Methodology

#### 3.1. Mode of Operation

Decision of Test ATL has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Test Mode
Mode 1: Normal Operation Mode
Mode 2: IEEE 802.11a Link Mode
Mode 3: IEEE 802.11n 20MHz Link Mode
Mode 4: IEEE 802.11n 40MHz Link Mode

Software used to control the EUT for staying in continuous transmitting mode was programmed.

After verification, all tests were carried out with the worst case test modes as shown below except radiated spurious emission below 1GHz and power line conducted emissions below 30MHz, which worst case was in normal link mode only.

**IEEE 802.11a mode / 5180 ~ 5240MHz:**

Channel Low (5180MHz), Channel Mid (5220MHz) and Channel High (5240MHz) with 6Mbps data rate were chosen for full testing.

**IEEE 802.11a mode / 5260 ~ 5320MHz:**

Channel Low (5260MHz), Channel Mid (5280MHz) and Channel High (5320MHz) with 6Mbps data rate were chosen for full testing.

**IEEE 802.11a mode / 5500 ~ 5700MHz:**

Channel Low (5500MHz), Channel Mid (5580MHz) and Channel High (5700MHz) with 54Mbps data rate were chosen for full testing.

**IEEE 802.11n 20 MHz Channel mode / 5180 ~ 5240MHz:**

Channel Low (5180MHz), Channel Mid (5220MHz) and Channel High (5240MHz) with 6.5Mbps data rate were chosen for full testing.

**IEEE 802.11n 20 MHz Channel mode / 5260 ~ 5320MHz:**

Channel Low (5260MHz), Channel Mid (5280MHz) and Channel High (5320MHz) with 6.5Mbps data rate were chosen for full testing.

**IEEE 802.11n 20 MHz Channel mode / 5500 ~ 5700MHz:**

Channel Low (5500MHz), Channel Mid (5580MHz) and Channel High (5700MHz) with 65Mbps data rate were chosen for full testing.

**IEEE 802.11n 40 MHz Channel mode / 5190 ~ 5230MHz:**

Channel Low (5190MHz) and Channel High (5230MHz) with 6.5Mbps data rate were chosen for full testing.

**IEEE 802.11n 40 MHz Channel mode / 5270 ~ 5310MHz:**

Channel Low (5270MHz) and Channel High (5310MHz) with 65Mbps data rate were chosen for full testing.

**IEEE 802.11n 40 MHz Channel mode / 5510 ~ 5670MHz:**

Channel Low (5510MHz), Channel Mid (5590MHz) and Channel High (5670MHz) with 6.5Mbps data rate were chosen for full testing.



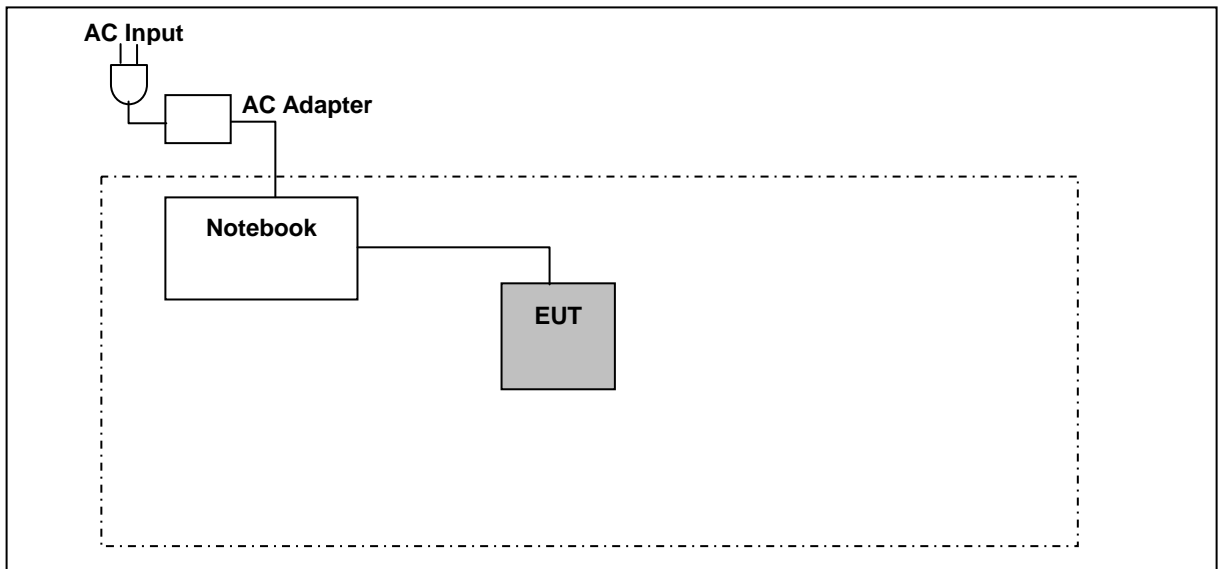
### 3.2. EUT Exercise Software

The EUT is operated in the engineering mode to fix the TX frequency for the purposes of measurement.

According to its specifications, the EUT must comply with the requirements of Section 15.407 under the FCC Rules Part 15 Subpart E.

1.	Setup the EUT shown on 3.3.
2.	Turn on the power of all equipment.
3.	Turn on Wi-Fi function link to Notebook.
4.	EUT run test program.

### 3.3. Configuration of Test System Details



### 3.4. Test Site Environment

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	26
Humidity (%RH)	25-75	60
Barometric pressure (mbar)	860-1060	950

## 4 AC Power Conducted Emission Measurement

### 4.1. Limit

Frequency (MHz)	Quasi-peak	Average
0.15 - 0.5	66 to 56	56 to 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

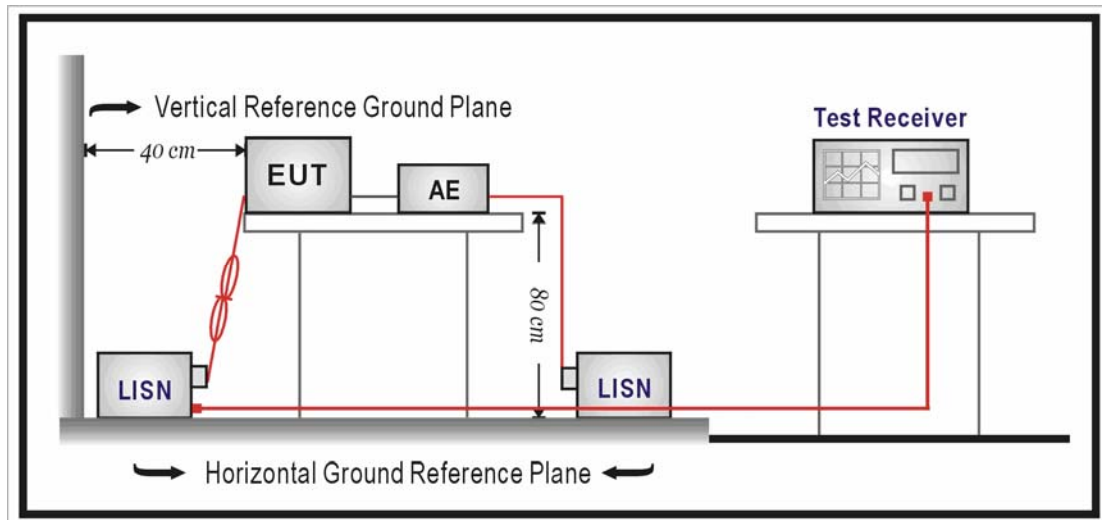
### 4.2. Test Instruments

Describe	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Test Receiver	R&S	ESCI	100367	06/06/2013	(1)
LISN	R&S	ENV216	101040	03/04/2013	(1)
LISN	R&S	ENV216	101041	03/04/2013	(1)
Test Site	ATL	TE05	TE05	N.C.R.	-----

Remark: (1) Calibration period 1 year. (2) Calibration period 2 years.

Note: N.C.R. = No Calibration Request.

### 4.3. Test Setup



#### **4.4. Test Procedure**

The power line conducted emission measurements were performed in a shielded enclosure. The EUT was assembled on a wooden table which is 80 centimeters high, was placed 40 centimeters from the back wall and at least 1 meter from the sidewall.

Power was fed to the EUT from the public utility power grid through a line filter and EMCO Model 3162/2 SH Line Impedance Stabilization Networks (LISN). The LISN housing, measuring instrumentation case, ground plane, etc., were electrically bonded together at the same RF potential. The Spectrum analyzer was connected to the AC line through an isolation transformer. The 50-ohm output of the LISN was connected to the spectrum analyzer directly. Conducted emission levels were in the CISPR quasi-peak detection mode. The analyzer's 6 dB bandwidth was set to 9 KHz. No post-detector video filter was used.

The spectrum was scanned from 150 KHz to 30 MHz. The physical arrangement of the test system and associated cabling was varied (within the scope of arrangements likely to be encountered in actual use) to determine the effect on the unit's emanations in amplitude and frequency. All spurious emission frequencies were observed. The highest emission amplitudes relative to the appropriate limit were measured and have been recorded in paragraph 4.1.

#### **4.5. Test Result**

Not applicable, this device's power is supplied by DC source.

## 5 Radiated Emission Measurement

### 5.1. Limit

Limits of Radiated Emission Measurement

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

Frequency Range (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	10	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

Note: 1. The lower limit shall apply at the transition frequencies.

2. Emission level (dBuV/m) = 20 log Emission level (uV/m).

3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

### 5.2. Test Instruments

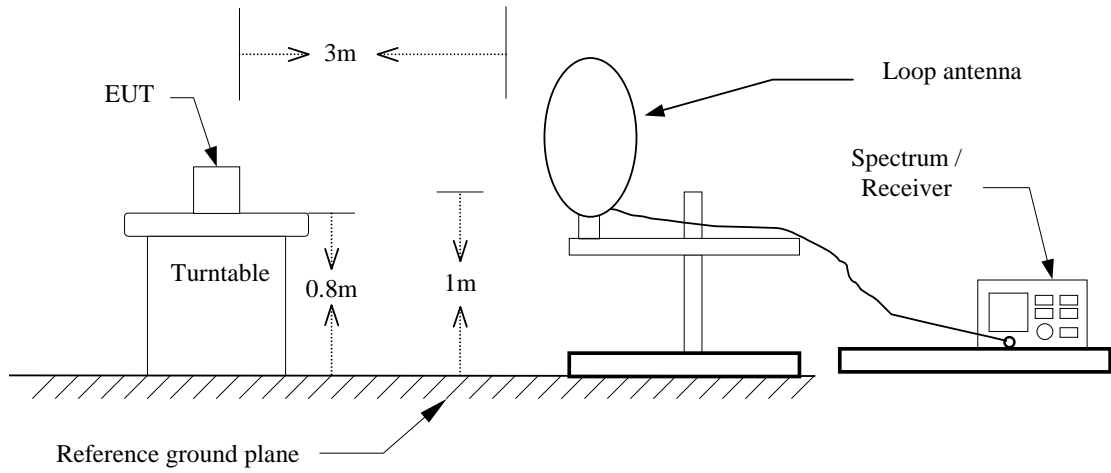
3 Meter Chamber					
Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
RF Pre-selector	Agilent	N9039A	MY46520256	01/21/2013	(1)
Spectrum Analyzer	Agilent	E4446A	MY46180578	01/21/2013	(1)
Pre Amplifier	Agilent	8449B	3008A02237	02/21/2013	(1)
Pre Amplifier	Agilent	8447D	2944A10961	02/21/2013	(1)
Broadband Antenna (30MHz~1GHz)	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	9163-270	07/16/2013	(1)
Horn Antenna (1~18GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	9120D-550	06/10/2013	(1)
Horn Antenna (18~40GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9170	9170-320	06/13/2013	(1)
Test Site	ATL	TE01	888001	08/28/2012	(1)

Remark: (1) Calibration period 1 year. (2) Calibration period 2 years.

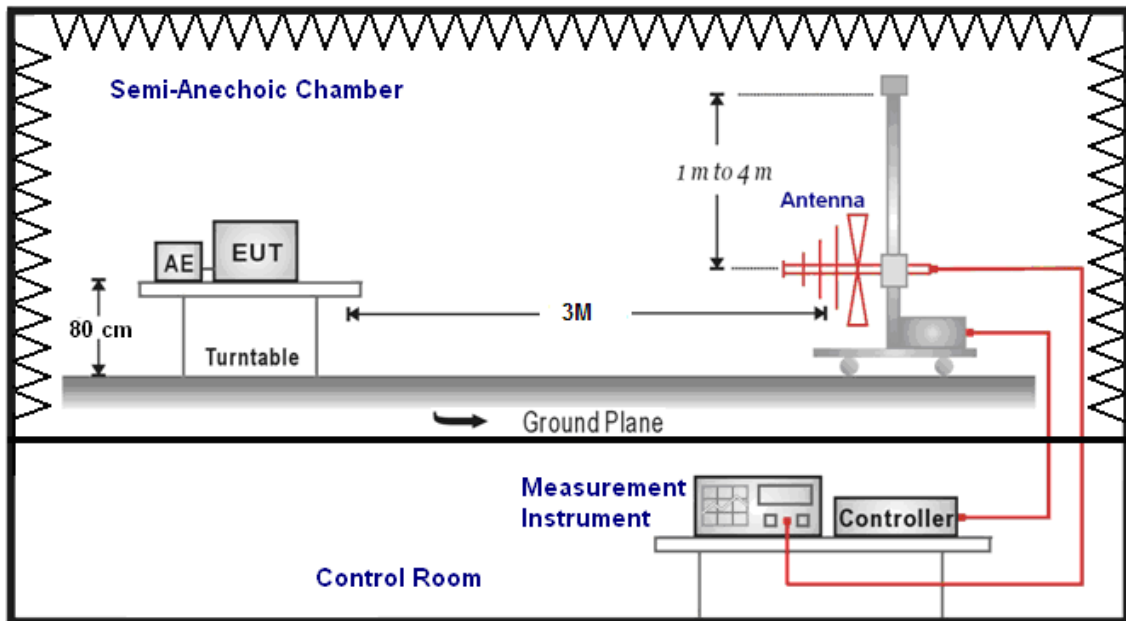
Note: N.C.R. = No Calibration Request.

### 5.3. Setup

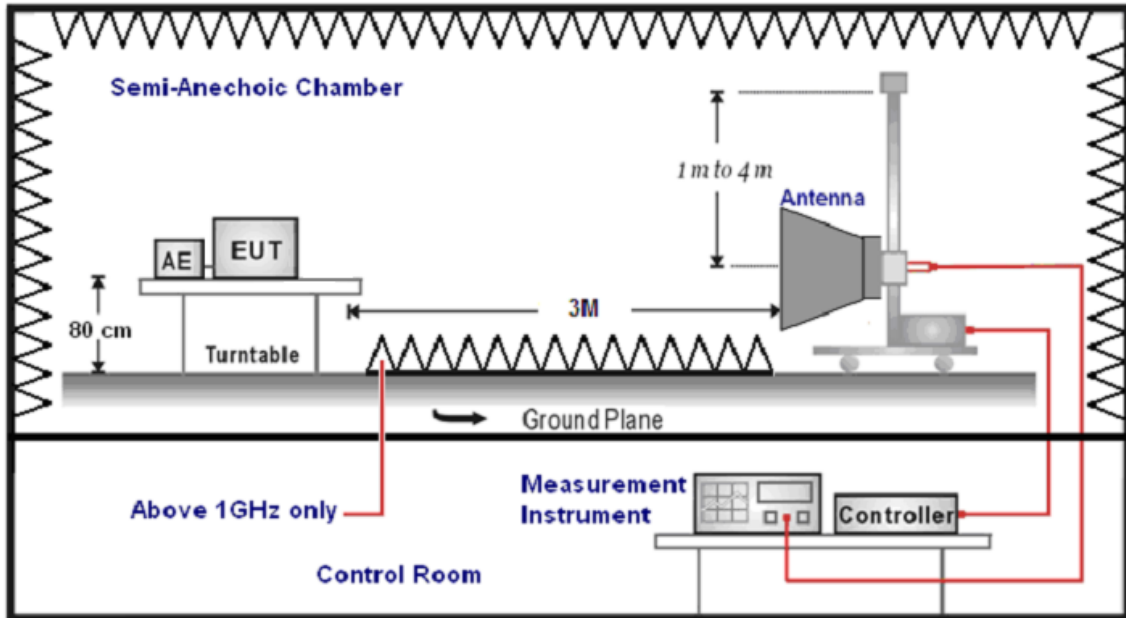
9kHz ~ 30MHz



30MHz ~ 1GHz



Above 1GHz



## 5.4. Test Procedure

Final radiation measurements were made on a three-meter, Semi Anechoic Chamber. The EUT system was placed on a nonconductive turntable which is 0.8 meters height, top surface 1.0 x 1.5 meter. The spectrum was examined from 250 MHz to 2.5 GHz in order to cover the whole spectrum below 10th harmonic which could generate from the EUT. During the test, EUT was set to transmit continuously & Measurements spectrum range from 9 kHz to 40 GHz is investigated.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, and then the video bandwidth is set to 3 MHz for peak measurements and 3 MHz for average measurements.

A nonconductive material surrounded the EUT to supporting the EUT for standing on three orthogonal planes. At each condition, the EUT was rotated 360 degrees, and the antenna was raised and lowered from one to four meters to find the maximum emission levels. Measurements were taken using both horizontal and vertical antenna polarization.

SCHWARZBECK MESS-ELEKTRONIK Trilog-Broadband Antenna (mode SB AC VULB) at 3 Meter and the ETS-Lindgren Double-Ridged Waveguide Horn antenna (model 3117) Schwarzbeck Mess-Elektronik Broadband Horn Antenna (BBHA 9170) was used in frequencies 1 – 40 GHz at a distance of 1 meter. All test results were extrapolated to equivalent signal at 3 meters utilizing an inverse linear distance extrapolation Factor (20dB/decade). For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

Appropriate preamplifiers were used for improving sensitivity and precautions were taken to avoid overloading or desensitizing the spectrum analyzer. No post – detector video filters were used in the test.

The spectrum analyzer's 6 dB bandwidth was set to 1 MHz, and the analyzer was operated in the peak detection mode, for frequencies both below and up 1 GHz. The average levels were obtained by subtracting the duty cycle correction factor from the peak readings.

The following procedures were used to convert the emission levels measured in decibels referenced to 1 microvolt (dBuV) into field intensity in micro volts per meter (uV/m).

The actual field intensity in decibels referenced to 1 microvolt in to field intensity in micro volts per meter (dBuV/m).

The actual field intensity in decibels referenced to 1 microvolt per meter (dBuV/m) is determined by algebraically adding the measured reading in dBuV, the antenna factor (dB), and cable loss (dB) and Subtracting the gain of preamplifier (dB) is auto calculate in spectrum analyzer.

(1) Amplitude (dBuV/m) = FI (dBuV) +AF (dBuV) +CL (dBuV)-Gain (dB)

FI= Reading of the field intensity.

AF= Antenna factor.

CL= Cable loss.

P.S Amplitude is auto calculate in spectrum analyzer.

(2) Actual Amplitude (dBuV/m) = Amplitude (dBuV)-Dis(dB)

The FCC specified emission limits were calculated according the EUT operating frequency and by following linear interpolation equations:

(a) For fundamental frequency : Transmitter Output < +30dBm

(b) For spurious frequency : Spurious emission limits = fundamental emission limit /10

## 5.5. Test Result

Below 1GHz

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	CS1A13	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 1	Date:	07/25/2013
	Vertical	Test By:	Fly Lu

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
168.0000	34.28	-11.84	22.44	43.50	-21.06	QP	H
240.5000	41.02	-12.24	28.78	46.00	-17.22	QP	H
360.0000	37.49	-8.97	28.52	46.00	-17.48	QP	H
530.0000	32.77	-5.66	27.11	46.00	-18.89	QP	H
644.5000	31.94	-3.14	28.80	46.00	-17.20	QP	H
899.0000	29.34	1.89	31.23	46.00	-14.77	QP	H
98.0000	43.60	-17.23	26.37	43.50	-17.13	QP	V
272.0000	36.55	-11.02	25.53	46.00	-20.47	QP	V
444.0000	38.00	-7.25	30.75	46.00	-15.25	QP	V
558.5000	40.64	-5.06	35.58	46.00	-10.42	QP	V
730.0000	28.61	-1.60	27.01	46.00	-18.99	QP	V
933.5000	29.55	2.49	32.04	46.00	-13.96	QP	V

Note: No emission found between lowest internal used/generated frequency to 30MHz (9kHz~30MHz).



## Above 1GHz

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	CS1A13	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Test Mode:	Mode 2	Date:	07/24/2013
Frequency:	5180MHz	Test By:	Fly Lu

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2750.000	32.54	5.27	37.81	74.00	-36.19	peak	H
4598.000	30.36	11.14	41.50	74.00	-32.50	peak	H
7587.000	27.88	20.85	48.73	74.00	-25.27	peak	H
2729.000	30.19	5.21	35.40	74.00	-38.60	peak	V
4598.000	29.80	11.14	40.94	74.00	-33.06	peak	V
7531.000	27.39	20.82	48.21	74.00	-25.79	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	CS1A13	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Test Mode:	Mode 2	Date:	07/24/2013
Frequency:	5220MHz	Test By:	Fly Lu

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2771.000	34.18	5.32	39.50	74.00	-34.50	peak	H
4598.000	31.71	11.14	42.85	74.00	-31.15	peak	H
7531.000	27.22	20.82	48.04	74.00	-25.96	peak	H
2771.000	34.38	5.32	39.70	74.00	-34.30	peak	V
4598.000	31.09	11.14	42.23	74.00	-31.77	peak	V
7538.000	27.58	20.83	48.41	74.00	-25.59	peak	V

Standard:	FCC Part 15E			Test Distance:	3m		
Test item:	Radiated Emission			Power:	AC 120V/60Hz		
Model Number:	CS1A13			Temp.(°C)/Hum.(%RH):	26(°C)/60%RH		
Test Mode:	Mode 2			Date:	07/24/2013		
Frequency:	5240MHz			Test By:	Fly Lu		
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2743.000	33.74	5.25	38.99	74.00	-35.01	peak	H
4647.000	31.52	11.25	42.77	74.00	-31.23	peak	H
7559.000	26.46	20.84	47.30	74.00	-26.70	peak	H
2855.000	32.26	5.54	37.80	74.00	-36.20	peak	V
4654.000	31.66	11.27	42.93	74.00	-31.07	peak	V
7538.000	29.74	20.83	50.57	74.00	-23.43	peak	V

Standard:	FCC Part 15E			Test Distance:	3m		
Test item:	Radiated Emission			Power:	AC 120V/60Hz		
Model Number:	CS1A13			Temp.(°C)/Hum.(%RH):	26(°C)/60%RH		
Test Mode:	Mode 2			Date:	07/24/2013		
Frequency:	5260MHz			Test By:	Fly Lu		
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2743.000	31.32	5.25	36.57	74.00	-37.43	peak	H
4605.000	31.23	11.15	42.38	74.00	-31.62	peak	H
7461.000	28.02	20.73	48.75	74.00	-25.25	peak	H
2750.000	32.74	5.27	38.01	74.00	-35.99	peak	V
4633.000	31.17	11.22	42.39	74.00	-31.61	peak	V
7517.000	27.66	20.82	48.48	74.00	-25.52	peak	V

Standard:	FCC Part 15E			Test Distance:	3m		
Test item:	Radiated Emission			Power:	AC 120V/60Hz		
Model Number:	CS1A13			Temp.(°C)/Hum.(%RH):	26(°C)/60%RH		
Test Mode:	Mode 2			Date:	07/24/2013		
Frequency:	5280MHz			Test By:	Fly Lu		
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2722.000	32.08	5.19	37.27	74.00	-36.73	peak	H
4668.000	30.38	11.32	41.70	74.00	-32.30	peak	H
7482.000	29.38	20.78	50.16	74.00	-23.84	peak	H
2743.000	32.96	5.25	38.21	74.00	-35.79	peak	V
4647.000	30.56	11.25	41.81	74.00	-32.19	peak	V
7475.000	28.12	20.76	48.88	74.00	-25.12	peak	V

Standard:	FCC Part 15E			Test Distance:	3m		
Test item:	Radiated Emission			Power:	AC 120V/60Hz		
Model Number:	CS1A13			Temp.(°C)/Hum.(%RH):	26(°C)/60%RH		
Test Mode:	Mode 2			Date:	07/24/2013		
Frequency:	5320MHz			Test By:	Fly Lu		
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2729.000	33.46	5.21	38.67	74.00	-35.33	peak	H
4598.000	31.94	11.14	43.08	74.00	-30.92	peak	H
7489.000	28.42	20.79	49.21	74.00	-24.79	peak	H
2736.000	34.22	5.22	39.44	74.00	-34.56	peak	V
4598.000	31.94	11.14	43.08	74.00	-30.92	peak	V
7580.000	28.57	20.85	49.42	74.00	-24.58	peak	V

Standard:	FCC Part 15E			Test Distance:	3m		
Test item:	Radiated Emission			Power:	AC 120V/60Hz		
Model Number:	CS1A13			Temp.(°C)/Hum.(%RH):	26(°C)/60%RH		
Test Mode:	Mode 2			Date:	07/24/2013		
Frequency:	5500MHz			Test By:	Fly Lu		
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2743.000	32.01	5.25	37.26	74.00	-36.74	peak	H
4605.000	31.23	11.15	42.38	74.00	-31.62	peak	H
7580.000	28.43	20.85	49.28	74.00	-24.72	peak	H
2771.000	32.12	5.32	37.44	74.00	-36.56	peak	V
4675.000	30.80	11.33	42.13	74.00	-31.87	peak	V
7475.000	29.39	20.76	50.15	74.00	-23.85	peak	V

Standard:	FCC Part 15E			Test Distance:	3m		
Test item:	Radiated Emission			Power:	AC 120V/60Hz		
Model Number:	CS1A13			Temp.(°C)/Hum.(%RH):	26(°C)/60%RH		
Test Mode:	Mode 2			Date:	07/24/2013		
Frequency:	5580MHz			Test By:	Fly Lu		
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2750.000	33.02	5.27	38.29	74.00	-35.71	peak	H
4647.000	30.59	11.25	41.84	74.00	-32.16	peak	H
7482.000	29.10	20.78	49.88	74.00	-24.12	peak	H
2771.000	33.99	5.32	39.31	74.00	-34.69	peak	V
4605.000	31.34	11.15	42.49	74.00	-31.51	peak	V
7594.000	27.45	20.85	48.30	74.00	-25.70	peak	V

Standard:	FCC Part 15E			Test Distance:	3m		
Test item:	Radiated Emission			Power:	AC 120V/60Hz		
Model Number:	CS1A13			Temp.(°C)/Hum.(%RH):	26(°C)/60%RH		
Test Mode:	Mode 2			Date:	07/24/2013		
Frequency:	5700MHz			Test By:	Fly Lu		
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2715.000	32.51	5.17	37.68	74.00	-36.32	peak	H
4647.000	30.31	11.25	41.56	74.00	-32.44	peak	H
7510.000	27.84	20.82	48.66	74.00	-25.34	peak	H
2743.000	32.69	5.25	37.94	74.00	-36.06	peak	V
4633.000	30.90	11.22	42.12	74.00	-31.88	peak	V
7559.000	27.88	20.84	48.72	74.00	-25.28	peak	V

Standard:	FCC Part 15E			Test Distance:	3m		
Test item:	Radiated Emission			Power:	AC 120V/60Hz		
Model Number:	CS1A13			Temp.(°C)/Hum.(%RH):	26(°C)/60%RH		
Test Mode:	Mode 3			Date:	07/24/2013		
Frequency:	5180MHz			Test By:	Fly Lu		
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2729.000	32.86	5.21	38.07	74.00	-35.93	peak	H
4577.000	30.37	11.07	41.44	74.00	-32.56	peak	H
7517.000	28.74	20.82	49.56	74.00	-24.44	peak	H
2750.000	34.49	5.27	39.76	74.00	-34.24	peak	V
4626.000	31.61	11.20	42.81	74.00	-31.19	peak	V
7629.000	28.02	20.87	48.89	74.00	-25.11	peak	V

Standard:	FCC Part 15E			Test Distance:	3m		
Test item:	Radiated Emission			Power:	AC 120V/60Hz		
Model Number:	CS1A13			Temp.(°C)/Hum.(%RH):	26(°C)/60%RH		
Test Mode:	Mode 3			Date:	07/24/2013		
Frequency:	5220MHz			Test By:	Fly Lu		
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2757.000	32.50	5.28	37.78	74.00	-36.22	peak	H
4633.000	30.95	11.22	42.17	74.00	-31.83	peak	H
7503.000	28.14	20.81	48.95	74.00	-25.05	peak	H
2771.000	31.69	5.32	37.01	74.00	-36.99	peak	V
4598.000	31.07	11.14	42.21	74.00	-31.79	peak	V
7517.000	28.45	20.82	49.27	74.00	-24.73	peak	V

Standard:	FCC Part 15E			Test Distance:	3m		
Test item:	Radiated Emission			Power:	AC 120V/60Hz		
Model Number:	CS1A13			Temp.(°C)/Hum.(%RH):	26(°C)/60%RH		
Test Mode:	Mode 3			Date:	07/24/2013		
Frequency:	5240MHz			Test By:	Fly Lu		
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2757.000	33.17	5.28	38.45	74.00	-35.55	peak	H
4633.000	30.99	11.22	42.21	74.00	-31.79	peak	H
7538.000	27.94	20.83	48.77	74.00	-25.23	peak	H
2729.000	31.88	5.21	37.09	74.00	-36.91	peak	V
4626.000	30.15	11.20	41.35	74.00	-32.65	peak	V
7545.000	29.02	20.84	49.86	74.00	-24.14	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	CS1A13	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Test Mode:	Mode 3	Date:	07/24/2013
Frequency:	5260MHz	Test By:	Fly Lu

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2743.000	30.94	5.25	36.19	74.00	-37.81	peak	H
4675.000	29.22	11.33	40.55	74.00	-33.45	peak	H
7622.000	28.87	20.86	49.73	74.00	-24.27	peak	H
2736.000	33.75	5.22	38.97	74.00	-35.03	peak	V
4661.000	31.52	11.29	42.81	74.00	-31.19	peak	V
7440.000	28.94	20.70	49.64	74.00	-24.36	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	CS1A13	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Test Mode:	Mode 3	Date:	07/24/2013
Frequency:	5280MHz	Test By:	Fly Lu

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2715.000	32.93	5.17	38.10	74.00	-35.90	peak	H
4661.000	30.90	11.29	42.19	74.00	-31.81	peak	H
7517.000	29.73	20.82	50.55	74.00	-23.45	peak	H
2715.000	31.95	5.17	37.12	74.00	-36.88	peak	V
4605.000	30.44	11.15	41.59	74.00	-32.41	peak	V
7482.000	27.97	20.78	48.75	74.00	-25.25	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	CS1A13	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Test Mode:	Mode 3	Date:	07/24/2013
Frequency:	5320MHz	Test By:	Fly Lu

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2743.000	33.45	5.25	38.70	74.00	-35.30	peak	H
4633.000	31.18	11.22	42.40	74.00	-31.60	peak	H
7482.000	28.18	20.78	48.96	74.00	-25.04	peak	H
2750.000	32.82	5.27	38.09	74.00	-35.91	peak	V
4619.000	31.67	11.19	42.86	74.00	-31.14	peak	V
7566.000	28.91	20.85	49.76	74.00	-24.24	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	CS1A13	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Test Mode:	Mode 3	Date:	07/24/2013
Frequency:	5500MHz	Test By:	Fly Lu

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2743.000	31.74	5.25	36.99	74.00	-37.01	peak	H
4633.000	30.24	11.22	41.46	74.00	-32.54	peak	H
7503.000	27.11	20.81	47.92	74.00	-26.08	peak	H
2729.000	31.79	5.21	37.00	74.00	-37.00	peak	V
4633.000	30.66	11.22	41.88	74.00	-32.12	peak	V
7538.000	27.80	20.83	48.63	74.00	-25.37	peak	V



Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	CS1A13	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Test Mode:	Mode 3	Date:	07/24/2013
Frequency:	5580MHz	Test By:	Fly Lu

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2750.000	32.88	5.27	38.15	74.00	-35.85	peak	H
4654.000	30.56	11.27	41.83	74.00	-32.17	peak	H
7517.000	28.49	20.82	49.31	74.00	-24.69	peak	H
2757.000	32.19	5.28	37.47	74.00	-36.53	peak	V
4605.000	31.04	11.15	42.19	74.00	-31.81	peak	V
7489.000	28.28	20.79	49.07	74.00	-24.93	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	CS1A13	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Test Mode:	Mode 3	Date:	07/24/2013
Frequency:	5700MHz	Test By:	Fly Lu

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2750.000	32.81	5.27	38.08	74.00	-35.92	peak	H
4626.000	30.61	11.20	41.81	74.00	-32.19	peak	H
7559.000	28.08	20.84	48.92	74.00	-25.08	peak	H
2750.000	34.05	5.27	39.32	74.00	-34.68	peak	V
4549.000	31.61	11.01	42.62	74.00	-31.38	peak	V
7496.000	28.84	20.80	49.64	74.00	-24.36	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	CS1A13	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Test Mode:	Mode 4	Date:	07/24/2013
Frequency:	5190MHz	Test By:	Fly Lu

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2722.000	32.91	5.19	38.10	74.00	-35.90	peak	H
4661.000	30.37	11.29	41.66	74.00	-32.34	peak	H
7559.000	27.70	20.84	48.54	74.00	-25.46	peak	H
2743.000	33.93	5.25	39.18	74.00	-34.82	peak	V
4577.000	33.33	11.07	44.40	74.00	-29.60	peak	V
7517.000	28.65	20.82	49.47	74.00	-24.53	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	CS1A13	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Test Mode:	Mode 4	Date:	07/24/2013
Frequency:	5230MHz	Test By:	Fly Lu

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2722.000	33.05	5.19	38.24	74.00	-35.76	peak	H
4605.000	31.51	11.15	42.66	74.00	-31.34	peak	H
7517.000	28.45	20.82	49.27	74.00	-24.73	peak	H
2708.000	34.08	5.15	39.23	74.00	-34.77	peak	V
4675.000	32.54	11.33	43.87	74.00	-30.13	peak	V
7496.000	28.75	20.80	49.55	74.00	-24.45	peak	V

Standard:	FCC Part 15E			Test Distance:	3m		
Test item:	Radiated Emission			Power:	AC 120V/60Hz		
Model Number:	CS1A13			Temp.(°C)/Hum.(%RH):	26(°C)/60%RH		
Test Mode:	Mode 4			Date:	07/24/2013		
Frequency:	5270MHz			Test By:	Fly Lu		
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2757.000	33.81	5.28	39.09	74.00	-34.91	peak	H
4633.000	30.66	11.22	41.88	74.00	-32.12	peak	H
7475.000	27.47	20.76	48.23	74.00	-25.77	peak	H
2722.000	33.97	5.19	39.16	74.00	-34.84	peak	V
4661.000	31.85	11.29	43.14	74.00	-30.86	peak	V
7468.000	27.88	20.75	48.63	74.00	-25.37	peak	V

Standard:	FCC Part 15E			Test Distance:	3m		
Test item:	Radiated Emission			Power:	AC 120V/60Hz		
Model Number:	CS1A13			Temp.(°C)/Hum.(%RH):	26(°C)/60%RH		
Test Mode:	Mode 4			Date:	07/24/2013		
Frequency:	5310MHz			Test By:	Fly Lu		
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2715.000	32.67	5.17	37.84	74.00	-36.16	peak	H
4626.000	31.18	11.20	42.38	74.00	-31.62	peak	H
7489.000	28.99	20.79	49.78	74.00	-24.22	peak	H
2757.000	33.13	5.28	38.41	74.00	-35.59	peak	V
4591.000	30.90	11.11	42.01	74.00	-31.99	peak	V
7503.000	29.82	20.81	50.63	74.00	-23.37	peak	V

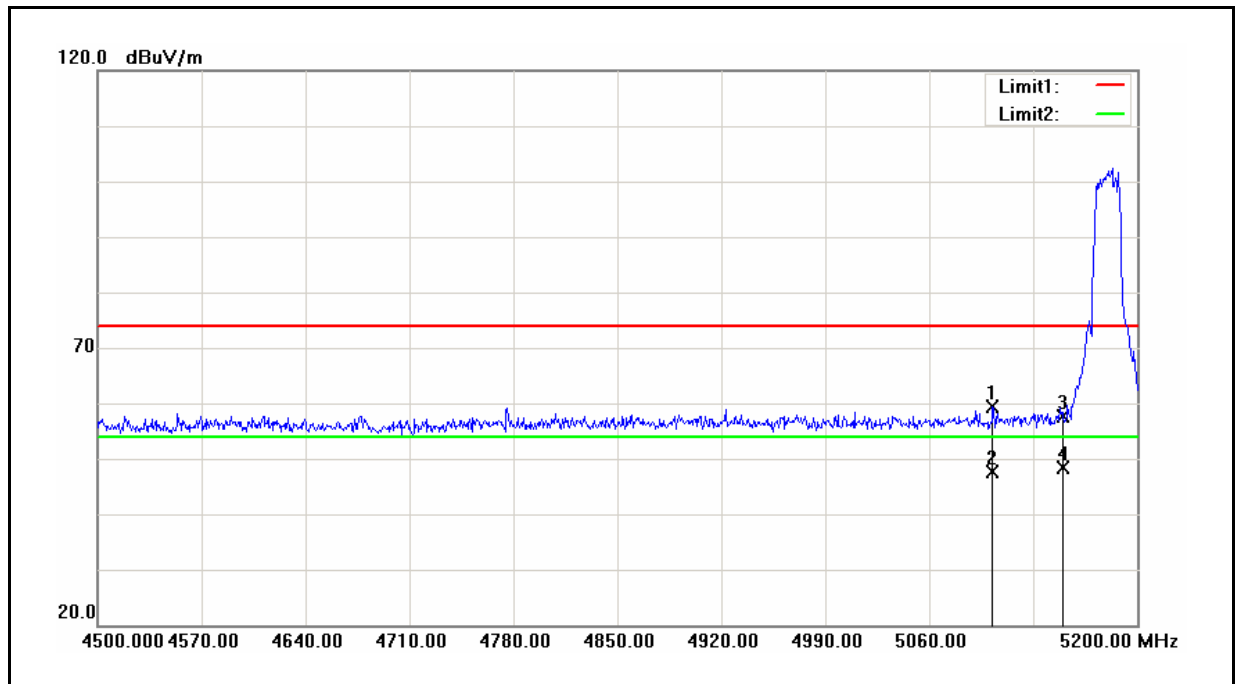
Standard:	FCC Part 15E			Test Distance:	3m		
Test item:	Radiated Emission			Power:	AC 120V/60Hz		
Model Number:	CS1A13			Temp.(°C)/Hum.(%RH):	26(°C)/60%RH		
Test Mode:	Mode 4			Date:	07/24/2013		
Frequency:	5510MHz			Test By:	Fly Lu		
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2701.000	32.21	5.13	37.34	74.00	-36.66	peak	H
4647.000	31.27	11.25	42.52	74.00	-31.48	peak	H
7531.000	28.80	20.82	49.62	74.00	-24.38	peak	H
2729.000	32.18	5.21	37.39	74.00	-36.61	peak	V
4619.000	30.80	11.19	41.99	74.00	-32.01	peak	V
7559.000	29.09	20.84	49.93	74.00	-24.07	peak	V

Standard:	FCC Part 15E			Test Distance:	3m		
Test item:	Radiated Emission			Power:	AC 120V/60Hz		
Model Number:	CS1A13			Temp.(°C)/Hum.(%RH):	26(°C)/60%RH		
Test Mode:	Mode 4			Date:	07/24/2013		
Frequency:	5590MHz			Test By:	Fly Lu		
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2757.000	33.54	5.28	38.82	74.00	-35.18	peak	H
4640.000	32.23	11.24	43.47	74.00	-30.53	peak	H
7510.000	29.09	20.82	49.91	74.00	-24.09	peak	H
2687.000	33.13	5.11	38.24	68.20	-29.96	peak	V
4619.000	30.68	11.19	41.87	74.00	-32.13	peak	V
7622.000	28.95	20.86	49.81	74.00	-24.19	peak	V

Standard:	FCC Part 15E	Test Distance:	3m				
Test item:	Radiated Emission	Power:	AC 120V/60Hz				
Model Number:	CS1A13	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH				
Test Mode:	Mode 4	Date:	07/24/2013				
Frequency:	5670MHz	Test By:	Fly Lu				
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2701.000	33.03	5.13	38.16	74.00	-35.84	peak	H
4661.000	30.69	11.29	41.98	74.00	-32.02	peak	H
7482.000	28.55	20.78	49.33	74.00	-24.67	peak	H
2729.000	33.50	5.21	38.71	74.00	-35.29	peak	V
4633.000	31.49	11.22	42.71	74.00	-31.29	peak	V
7566.000	27.56	20.85	48.41	74.00	-25.59	peak	V

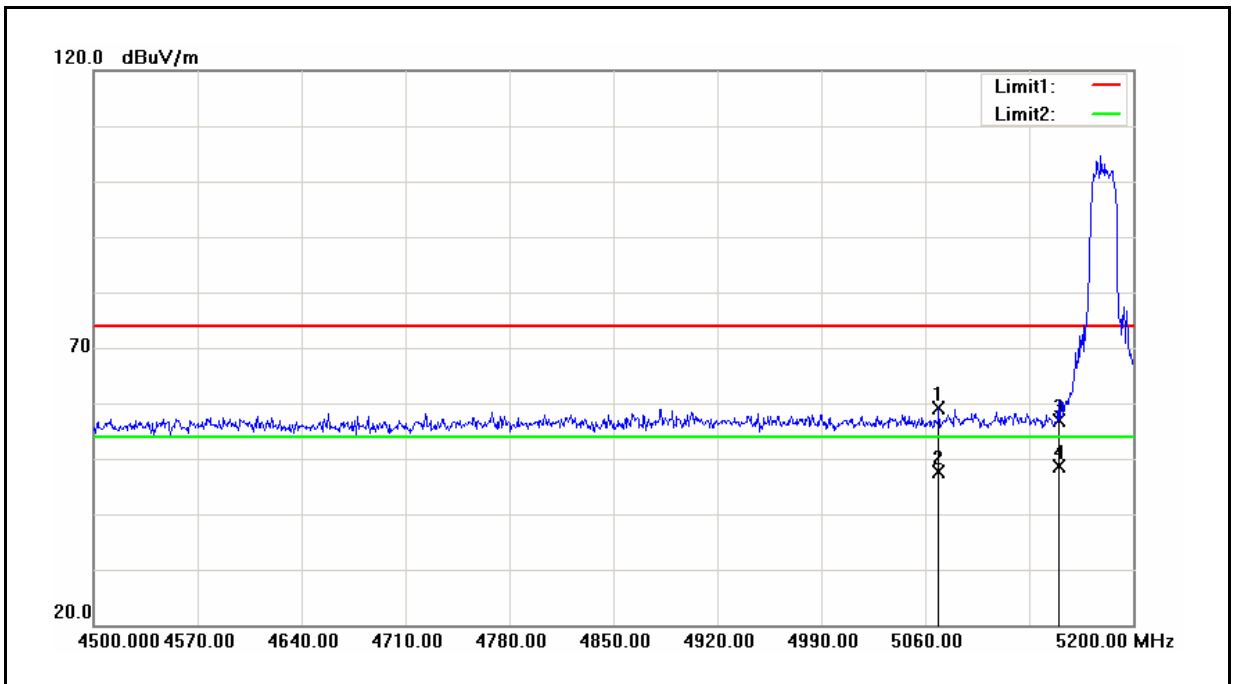
**Band Edge**

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	CS1A13	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Test Mode:	Mode 2	Date:	07/23/2013
Frequency:	5180 MHz	Test By:	Fly Lu
Ant.Polar.:	Horizontal		



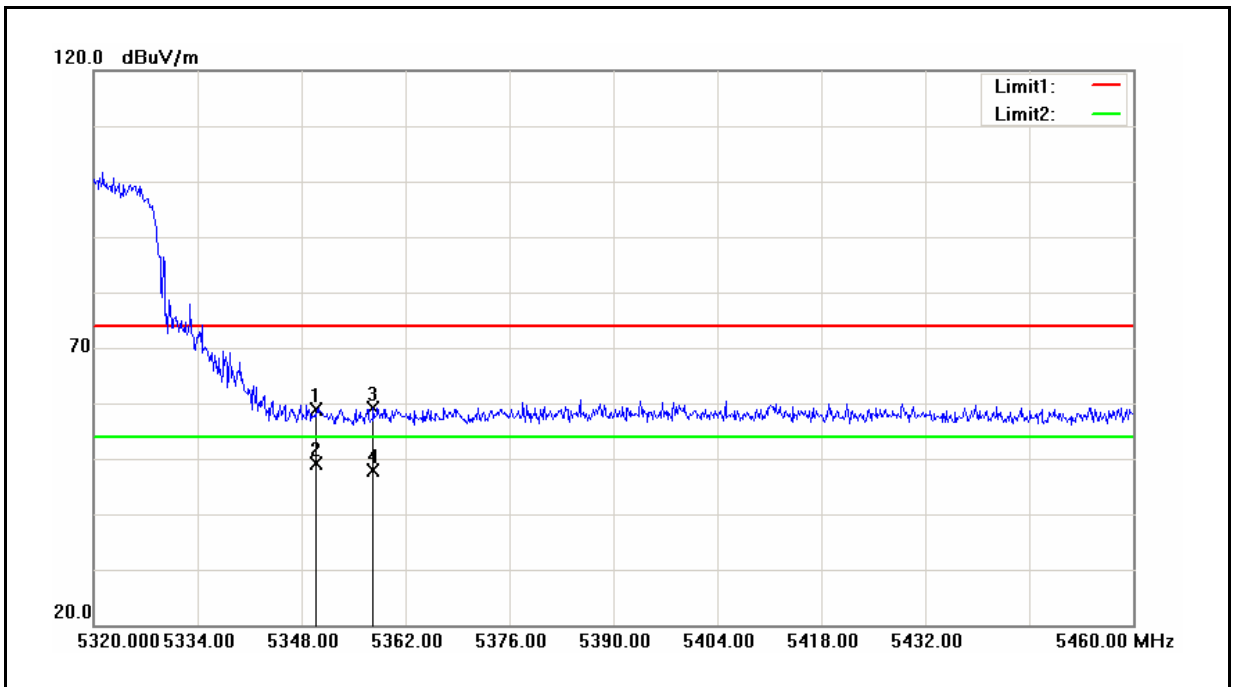
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5102.700	46.66	12.60	59.26	74.00	-14.74	peak
2	5102.700	35.11	12.60	47.71	54.00	-6.29	AVG
3	5150.000	44.79	12.81	57.60	74.00	-16.40	peak
4	5150.000	35.56	12.81	48.37	54.00	-5.63	AVG

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	CS1A13	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Test Mode:	Mode 2	Date:	07/23/2013
Frequency:	5180 MHz	Test By:	Fly Lu
Ant.Polar.:	Vertical		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5069.100	46.67	12.46	59.13	74.00	-14.87	peak
2	5069.100	35.19	12.46	47.65	54.00	-6.35	AVG
3	5150.000	44.17	12.81	56.98	74.00	-17.02	peak
4	5150.000	35.93	12.81	48.74	54.00	-5.26	AVG

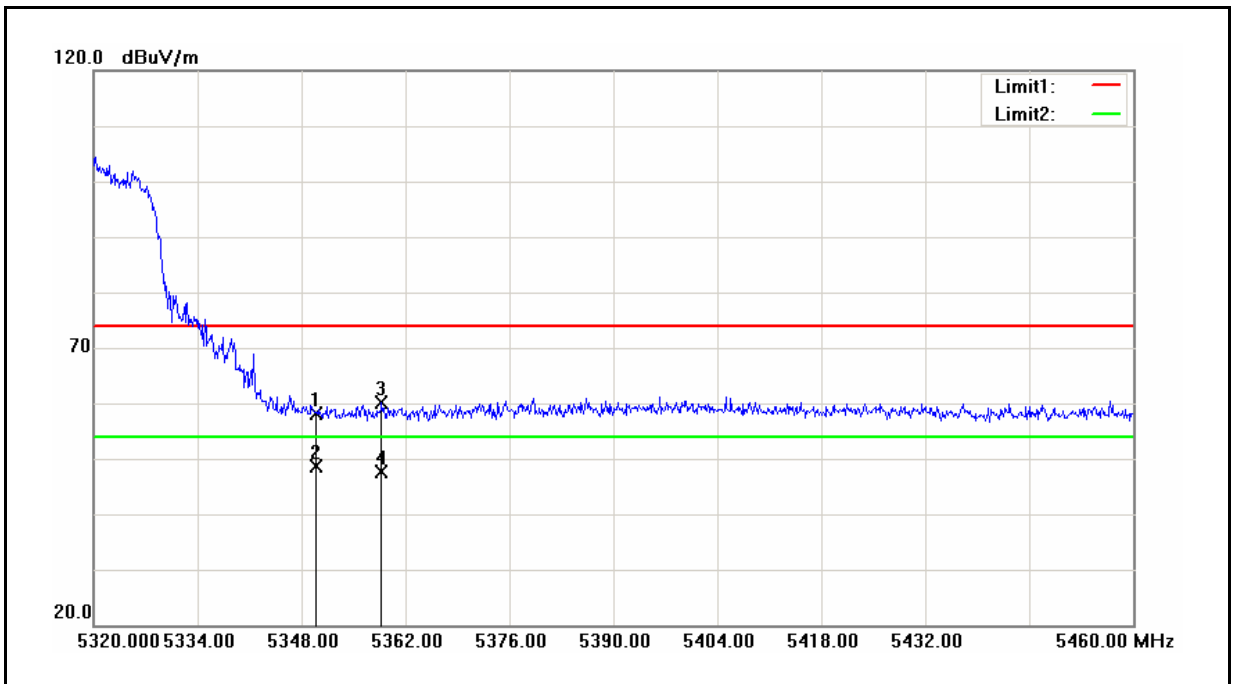
Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	CS1A13	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Test Mode:	Mode 2	Date:	07/23/2013
Frequency:	5320 MHz	Test By:	Fly Lu
Ant.Polar.:	Horizontal		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	45.21	13.70	58.91	74.00	-15.09	peak
2	5350.000	35.36	13.70	49.06	54.00	-4.94	AVG
3	5357.660	45.47	13.73	59.20	74.00	-14.80	peak
4	5357.660	34.10	13.73	47.83	54.00	-6.17	AVG

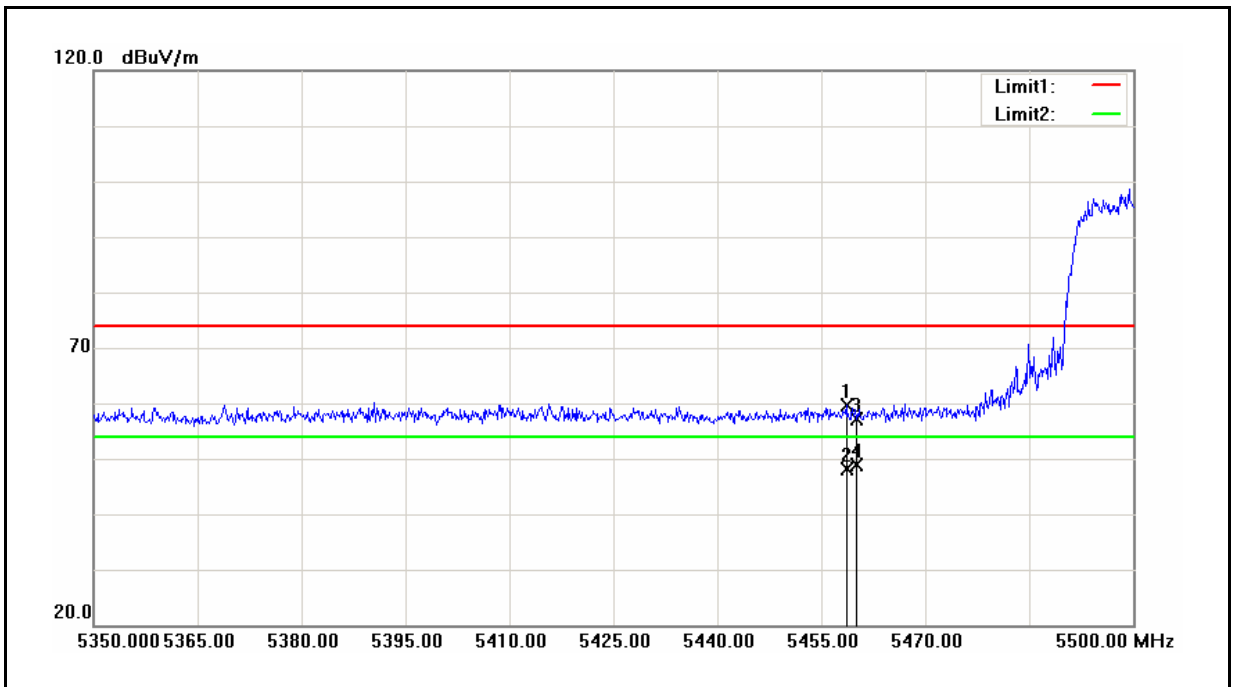


Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	CS1A13	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Test Mode:	Mode 2	Date:	07/23/2013
Frequency:	5320 MHz	Test By:	Fly Lu
Ant.Polar.:	Vertical		



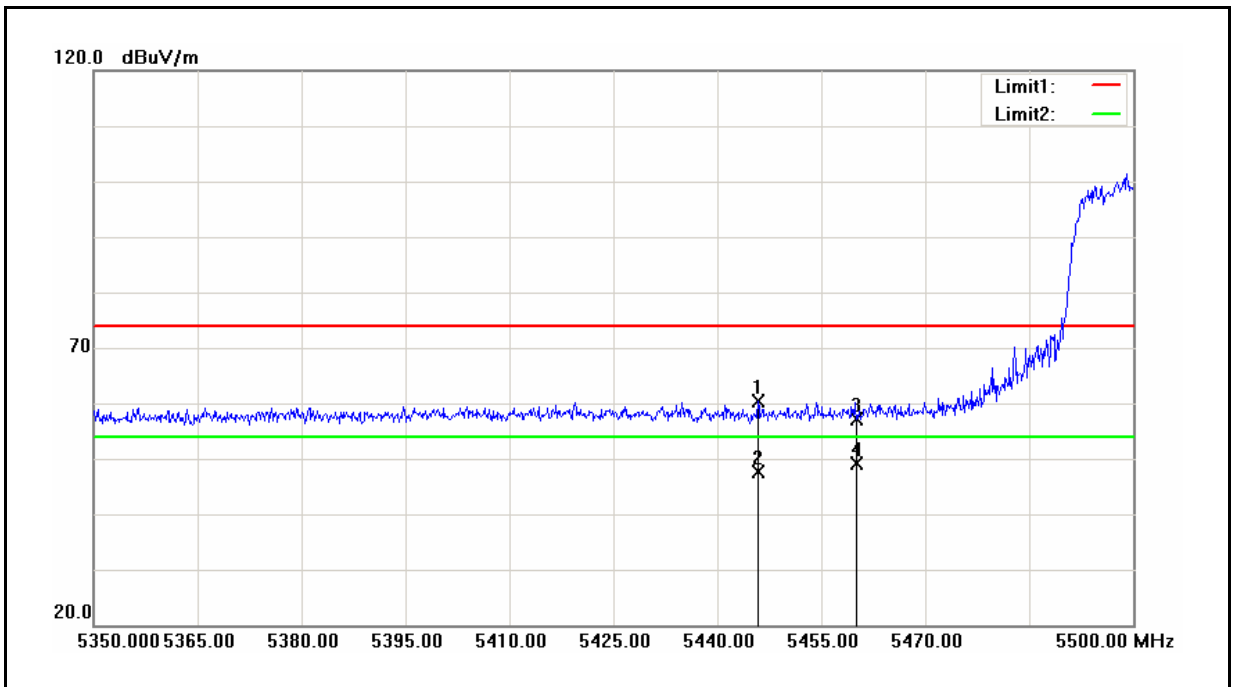
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	44.34	13.70	58.04	74.00	-15.96	peak
2	5350.000	35.00	13.70	48.70	54.00	-5.30	AVG
3	5358.780	46.29	13.73	60.02	74.00	-13.98	peak
4	5358.780	33.92	13.73	47.65	54.00	-6.35	AVG

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	CS1A13	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Test Mode:	Mode 2	Date:	07/23/2013
Frequency:	5500 MHz	Test By:	Fly Lu
Ant.Polar.:	Horizontal		



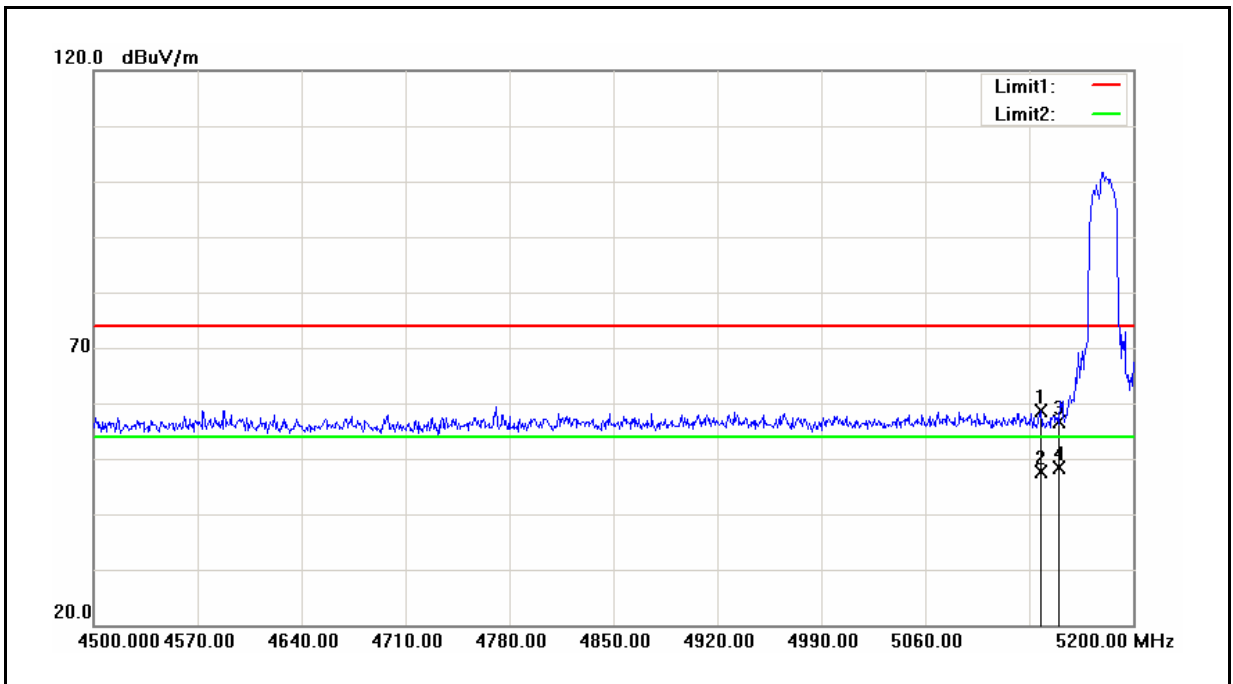
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5458.600	45.56	14.17	59.73	74.00	-14.27	peak
2	5458.600	33.96	14.17	48.13	54.00	-5.87	AVG
3	5460.000	42.86	14.18	57.04	74.00	-16.96	peak
4	5460.000	34.60	14.18	48.78	54.00	-5.22	AVG

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	CS1A13	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Test Mode:	Mode 2	Date:	07/23/2013
Frequency:	5500 MHz	Test By:	Fly Lu
Ant.Polar.:	Vertical		



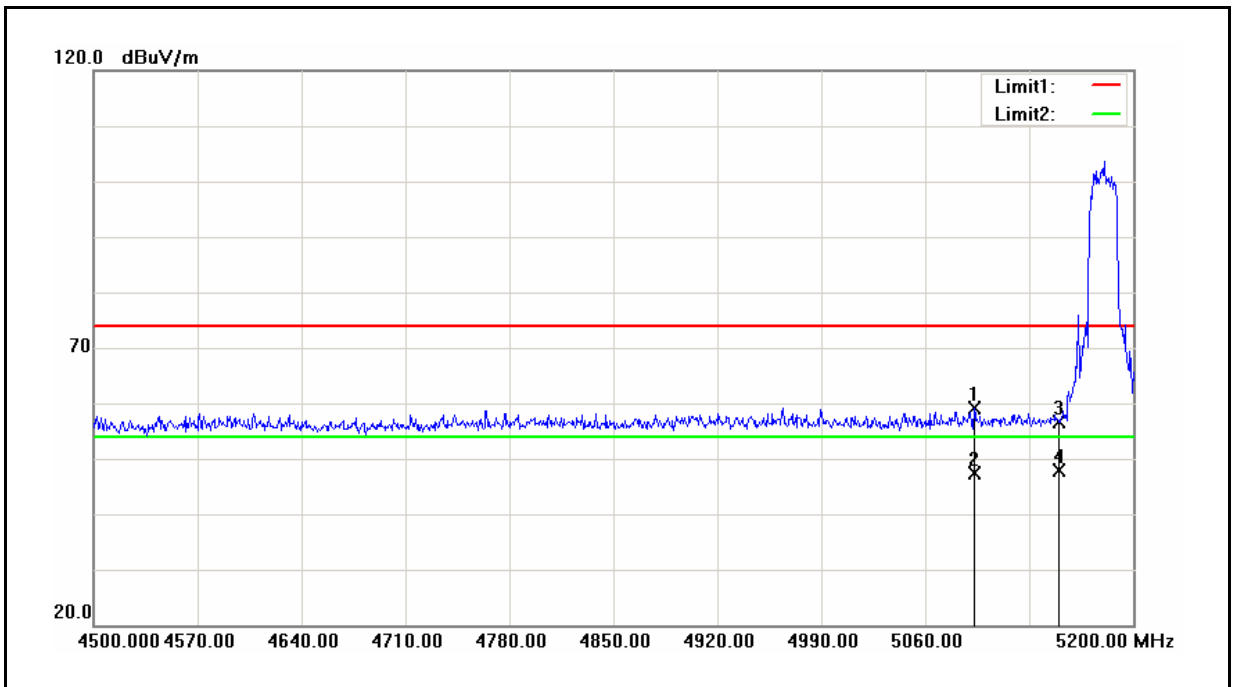
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5445.850	46.27	14.12	60.39	74.00	-13.61	peak
2	5445.850	33.42	14.12	47.54	54.00	-6.46	AVG
3	5460.000	42.98	14.18	57.16	74.00	-16.84	peak
4	5460.000	35.04	14.18	49.22	54.00	-4.78	AVG

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	CS1A13	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Test Mode:	Mode 3	Date:	07/23/2013
Frequency:	5180 MHz	Test By:	Fly Lu
Ant.Polar.:	Horizontal		



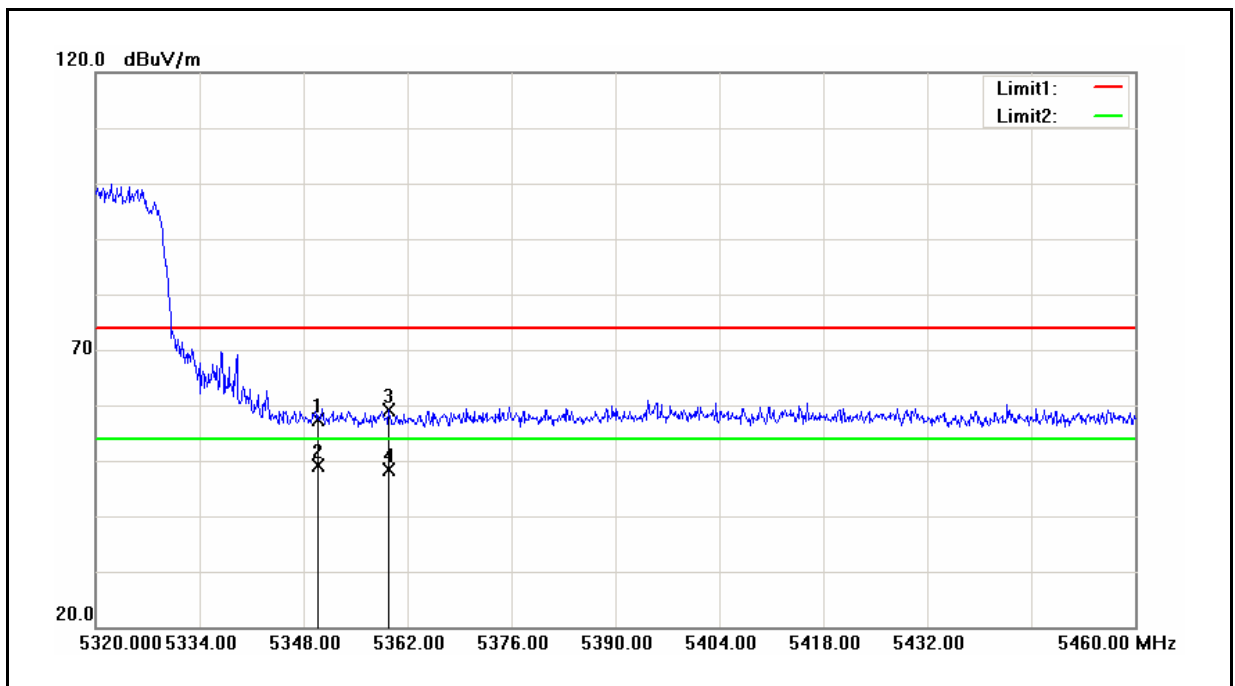
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5137.700	45.76	12.77	58.53	74.00	-15.47	peak
2	5137.700	34.96	12.77	47.73	54.00	-6.27	AVG
3	5150.000	43.92	12.81	56.73	74.00	-17.27	peak
4	5150.000	35.54	12.81	48.35	54.00	-5.65	AVG

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	CS1A13	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Test Mode:	Mode 3	Date:	07/23/2013
Frequency:	5180 MHz	Test By:	Fly Lu
Ant.Polar.:	Vertical		



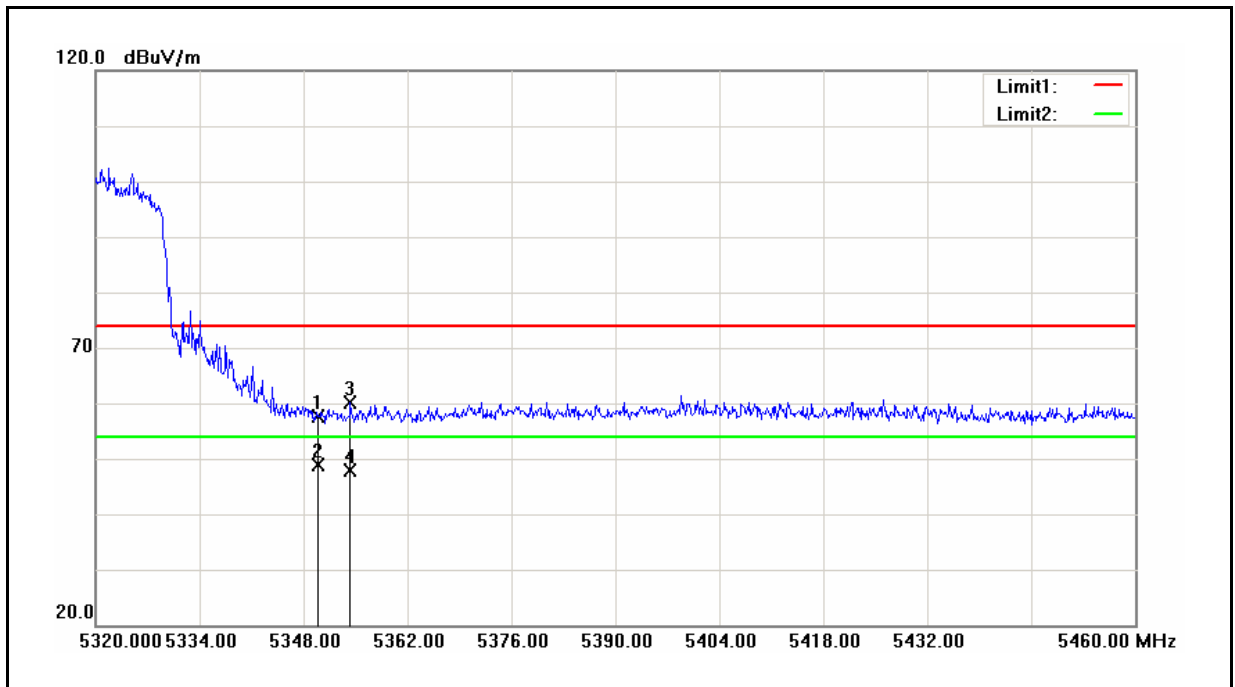
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5092.900	46.50	12.56	59.06	74.00	-14.94	peak
2	5092.900	34.70	12.56	47.26	54.00	-6.74	AVG
3	5150.000	43.71	12.81	56.52	74.00	-17.48	peak
4	5150.000	35.12	12.81	47.93	54.00	-6.07	AVG

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	CS1A13	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Test Mode:	Mode 3	Date:	07/23/2013
Frequency:	5320 MHz	Test By:	Fly Lu
Ant.Polar.:	Horizontal		



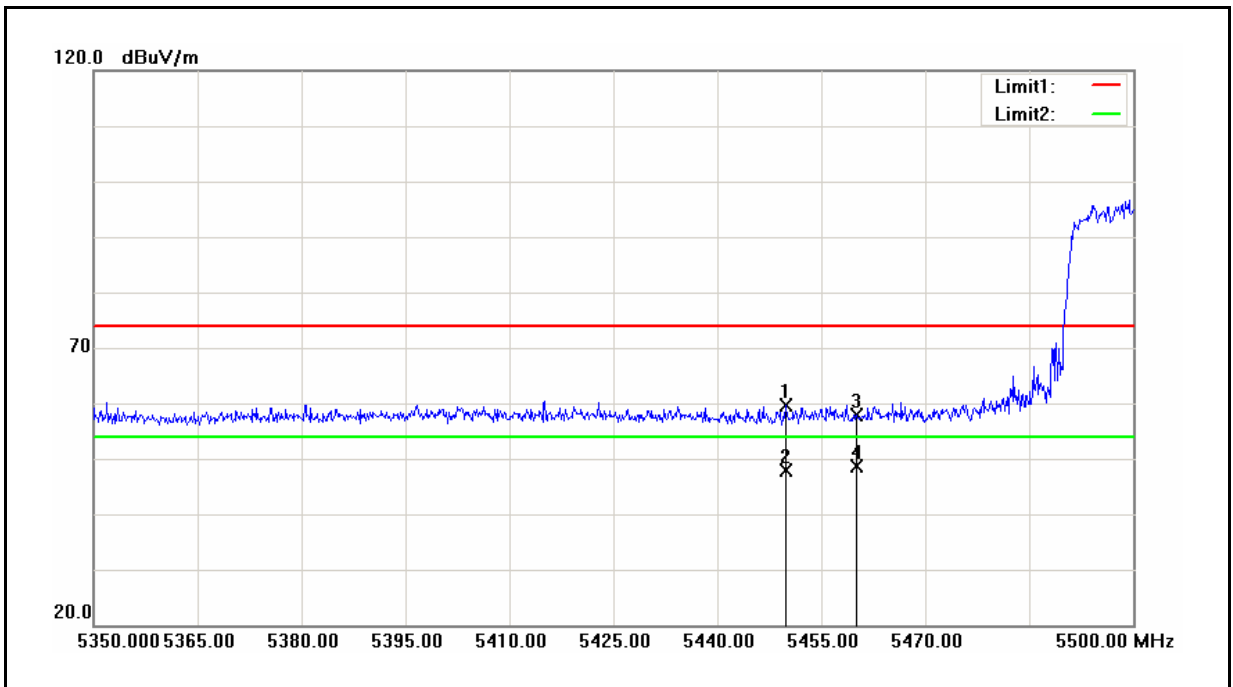
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	43.65	13.70	57.35	74.00	-16.65	peak
2	5350.000	35.47	13.70	49.17	54.00	-4.83	AVG
3	5359.480	45.44	13.73	59.17	74.00	-14.83	peak
4	5359.480	34.57	13.73	48.30	54.00	-5.70	AVG

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	CS1A13	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Test Mode:	Mode 3	Date:	07/23/2013
Frequency:	5320 MHz	Test By:	Fly Lu
Ant.Polar.:	Vertical		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	43.81	13.70	57.51	74.00	-16.49	peak
2	5350.000	35.16	13.70	48.86	54.00	-5.14	AVG
3	5354.300	46.52	13.71	60.23	74.00	-13.77	peak
4	5354.300	34.28	13.71	47.99	54.00	-6.01	AVG

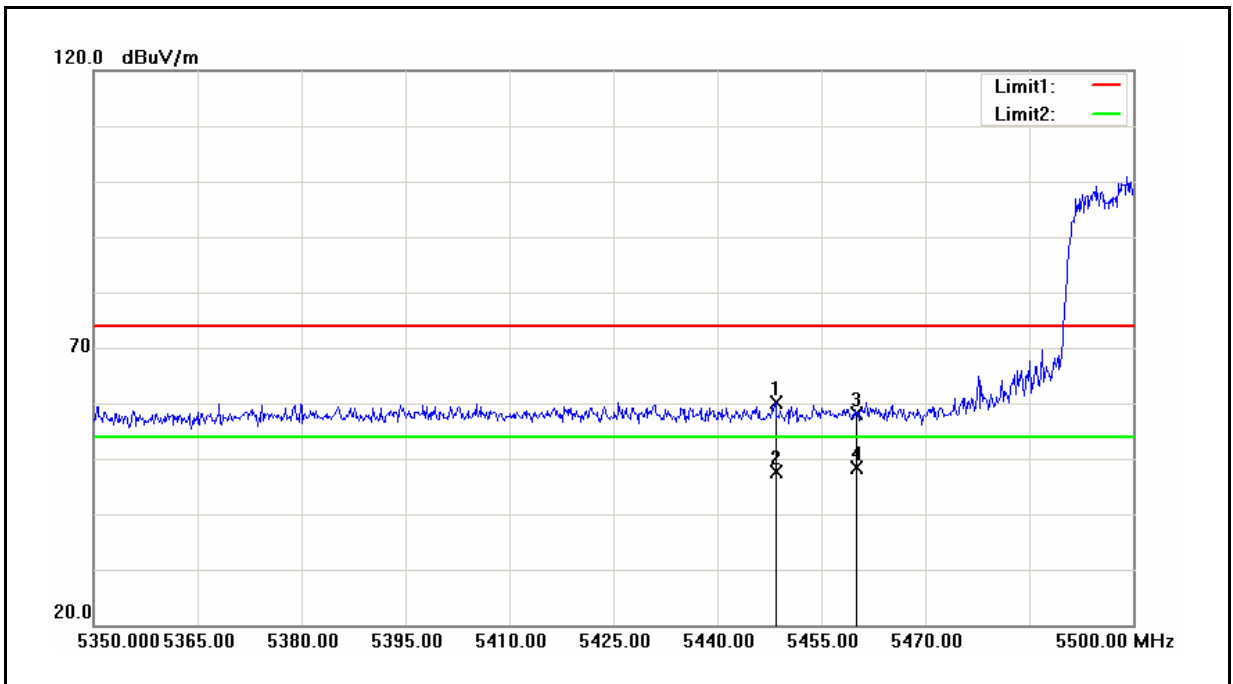
Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	CS1A13	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Test Mode:	Mode 3	Date:	07/23/2013
Frequency:	5500 MHz	Test By:	Fly Lu
Ant.Polar.:	Horizontal		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5449.900	45.45	14.13	59.58	74.00	-14.42	peak
2	5449.900	33.64	14.13	47.77	54.00	-6.23	AVG
3	5460.000	43.77	14.18	57.95	74.00	-16.05	peak
4	5460.000	34.46	14.18	48.64	54.00	-5.36	AVG

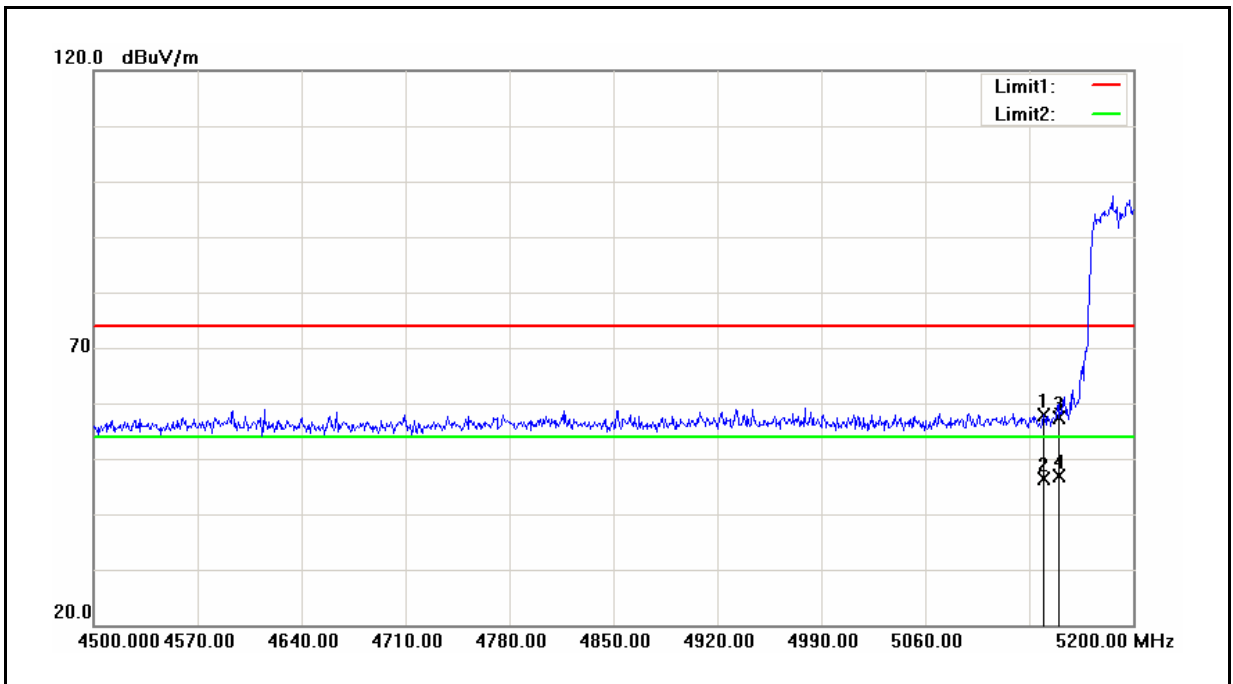


Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	CS1A13	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Test Mode:	Mode 3	Date:	07/23/2013
Frequency:	5500 MHz	Test By:	Fly Lu
Ant.Polar.:	Vertical		



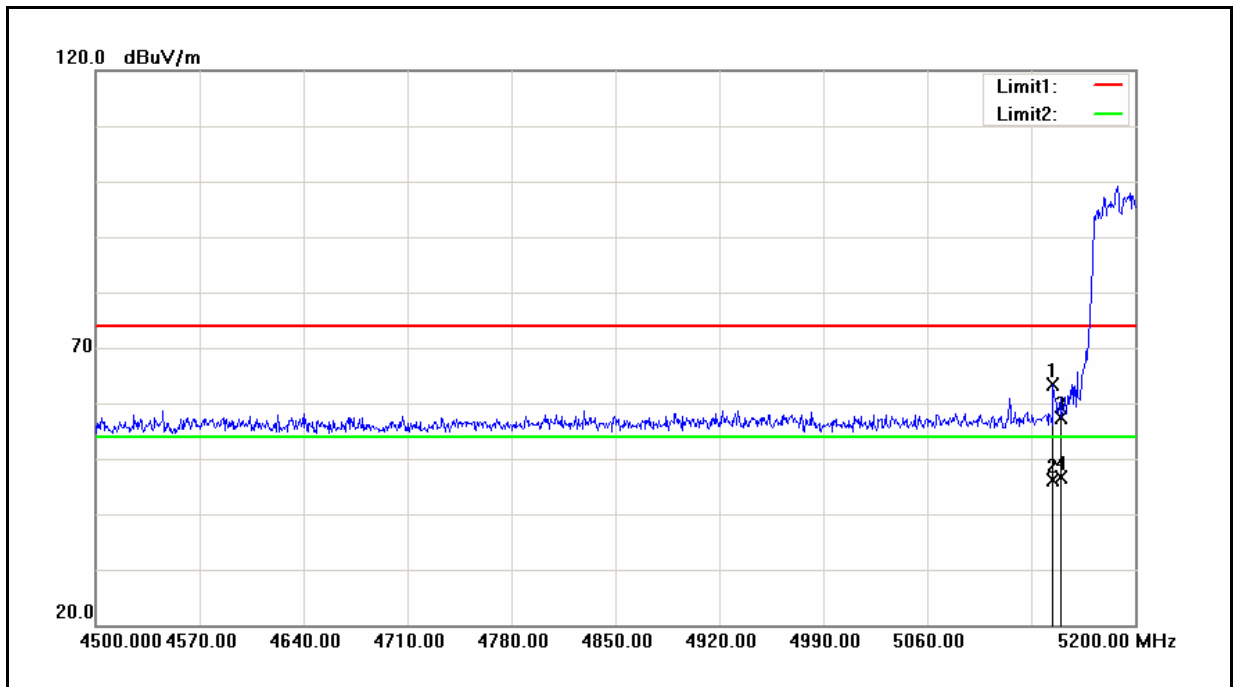
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5448.400	45.96	14.13	60.09	74.00	-13.91	peak
2	5448.400	33.61	14.13	47.74	54.00	-6.26	AVG
3	5460.000	43.95	14.18	58.13	74.00	-15.87	peak
4	5460.000	34.15	14.18	48.33	54.00	-5.67	AVG

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	CS1A13	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Test Mode:	Mode 4	Date:	07/23/2013
Frequency:	5190 MHz	Test By:	Fly Lu
Ant.Polar.:	Horizontal		



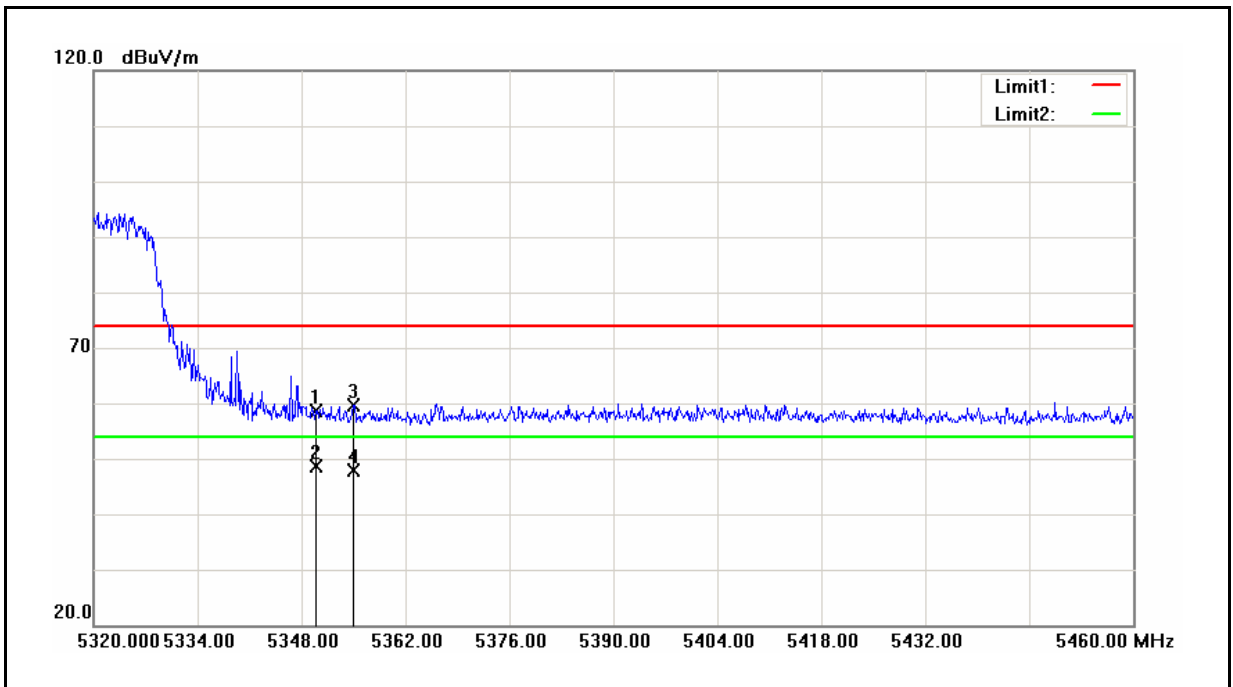
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5139.800	45.17	12.77	57.94	74.00	-16.06	peak
2	5139.800	33.49	12.77	46.26	54.00	-7.74	AVG
3	5150.000	44.50	12.81	57.31	74.00	-16.69	peak
4	5150.000	34.13	12.81	46.94	54.00	-7.06	AVG

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	CS1A13	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Test Mode:	Mode 4	Date:	07/23/2013
Frequency:	5190 MHz	Test By:	Fly Lu
Ant.Polar.:	Vertical		



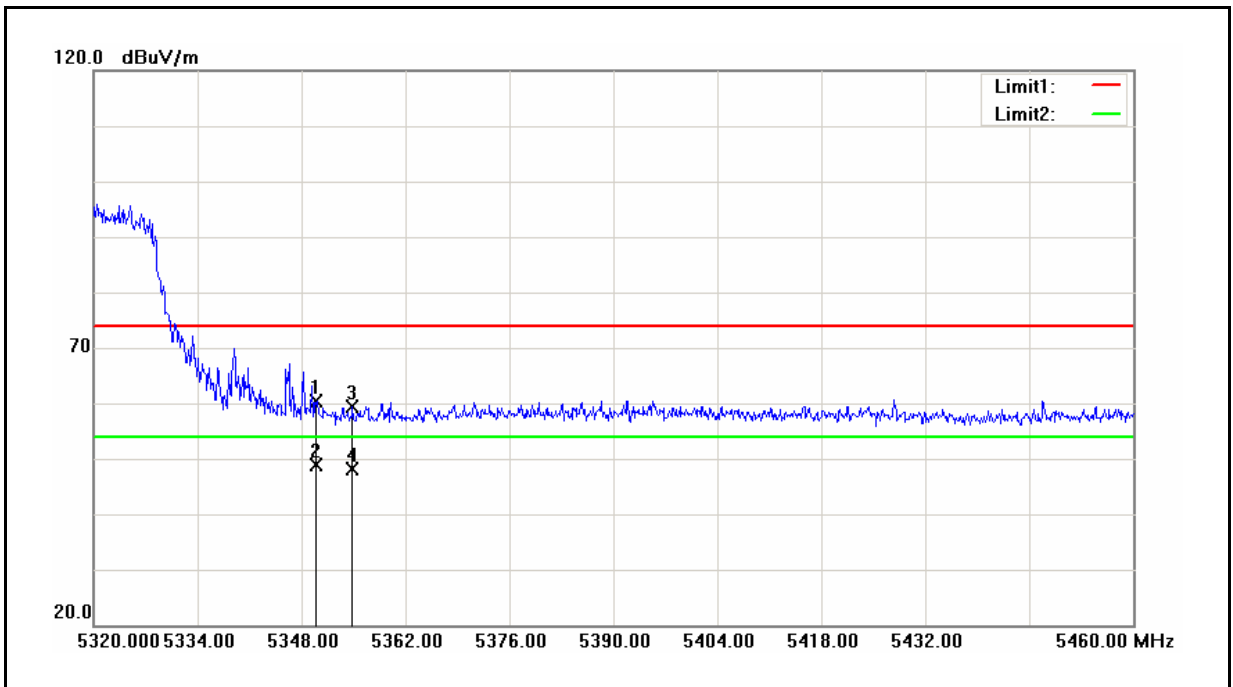
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5144.700	50.69	12.80	63.49	74.00	-10.51	peak
2	5144.700	33.33	12.80	46.13	54.00	-7.87	AVG
3	5150.000	44.62	12.81	57.43	74.00	-16.57	peak
4	5150.000	33.94	12.81	46.75	54.00	-7.25	AVG

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	CS1A13	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Test Mode:	Mode 4	Date:	07/23/2013
Frequency:	5310 MHz	Test By:	Fly Lu
Ant.Polar.:	Horizontal		



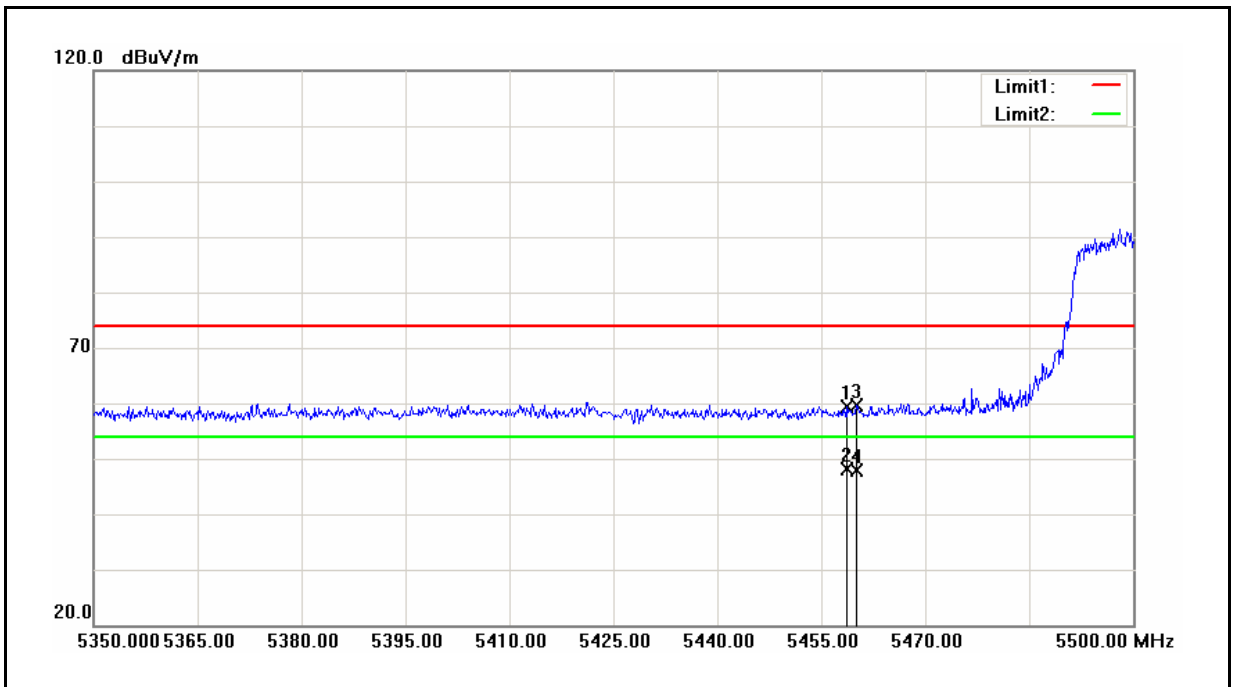
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	44.92	13.70	58.62	74.00	-15.38	peak
2	5350.000	34.87	13.70	48.57	54.00	-5.43	AVG
3	5355.000	45.98	13.71	59.69	74.00	-14.31	peak
4	5355.000	34.09	13.71	47.80	54.00	-6.20	AVG

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	CS1A13	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Test Mode:	Mode 4	Date:	07/23/2013
Frequency:	5310 MHz	Test By:	Fly Lu
Ant.Polar.:	Vertical		



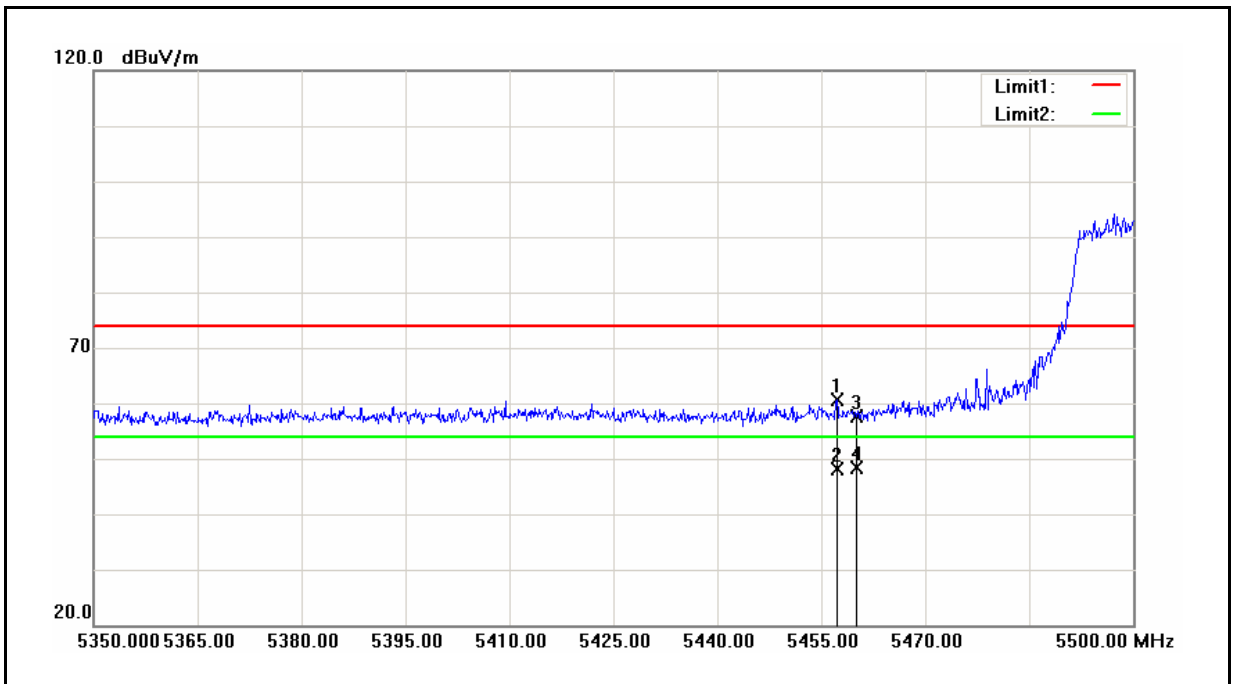
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	46.67	13.70	60.37	74.00	-13.63	peak
2	5350.000	35.17	13.70	48.87	54.00	-5.13	AVG
3	5354.860	45.73	13.71	59.44	74.00	-14.56	peak
4	5354.860	34.43	13.71	48.14	54.00	-5.86	AVG

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	CS1A13	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Test Mode:	Mode 4	Date:	07/23/2013
Frequency:	5510 MHz	Test By:	Fly Lu
Ant.Polar.:	Horizontal		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5458.600	45.28	14.17	59.45	74.00	-14.55	peak
2	5458.600	33.85	14.17	48.02	54.00	-5.98	AVG
3	5460.000	45.44	14.18	59.62	74.00	-14.38	peak
4	5460.000	33.72	14.18	47.90	54.00	-6.10	AVG

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	CS1A13	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Test Mode:	Mode 4	Date:	07/23/2013
Frequency:	5510 MHz	Test By:	Fly Lu
Ant.Polar.:	Vertical		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5457.250	46.58	14.16	60.74	74.00	-13.26	peak
2	5457.250	33.90	14.16	48.06	54.00	-5.94	AVG
3	5460.000	43.43	14.18	57.61	74.00	-16.39	peak
4	5460.000	34.27	14.18	48.45	54.00	-5.55	AVG

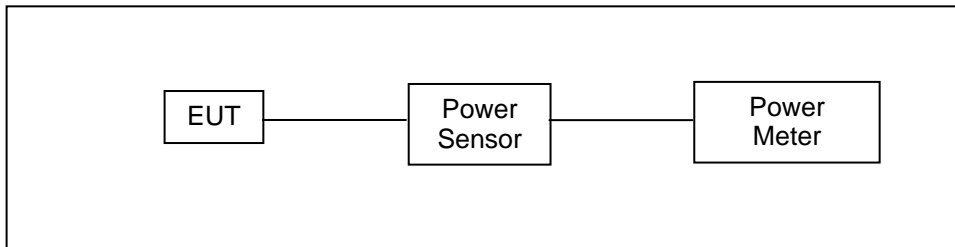
## 6 Maximum Conducted Output Power Measurement

### 6.1. Limit

Frequency Range (MHz)	Limit
5.150 ~ 5.250 GHz	The lesser of 50mW (17dBm) or 4dBm + 10logB
5.250 ~ 5.350 GHz	The lesser of 250mW (24dBm) or 11dBm + 10logB
5.470 ~ 5.725 GHz	The lesser of 250mW (24dBm) or 11dBm + 10logB

Note: Where B is the 26dB emission bandwidth in MHz.

### 6.2. Test Setup



### 6.3. Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Power Sensor	Anritsu	MA2411B	1126022	08/14/2012	(1)
Power Meter	Anritsu	ML2495A	1135009	08/14/2012	(1)
Test Site	ATL	TE02	TE02	N.C.R.	-----

Remark: (1) Calibration period 1 year. (2) Calibration period 2 years.

Note: N.C.R. = No Calibration Request.

### 6.4. Test Procedure

The test is performed in accordance with KDB789033: D01 General UNII Test Procedures v01r01, Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E.



**6.5. Test Result**

Model Number	CS1A13			
Test Item	Maximum Conducted Output Power			
Test Mode	Mode 2: IEEE 802.11a Link Mode			
Date of Test	07/22/2013	Test Site	TE02	
Frequency (MHz)	Data Rate	Average Power		Limit (dBm)
		(dBm)	(W)	
5180.0	6M	16.05	0.040	< 17
5200.0		16.07	0.040	
5220.0		16.02	0.040	
5240.0		16.09	0.041	
5260.0		15.77	0.038	< 24
5280.0		15.85	0.038	
5300.0		15.79	0.038	
5320.0		15.83	0.038	
5500.0		15.51	0.036	
5520.0		15.59	0.036	
5540.0		15.54	0.036	
5560.0		15.64	0.037	
5580.0		15.50	0.035	
5600.0		15.59	0.036	
5620.0		15.55	0.036	
5640.0		15.51	0.036	
5660.0		15.57	0.036	
5680.0		15.69	0.037	
5700.0		15.80	0.038	
5180.0		54M	16.02	
5200.0	16.04		0.040	
5220.0	15.96		0.039	
5240.0	15.83		0.038	
5260.0	15.82		0.038	< 24
5280.0	15.81		0.038	
5300.0	15.79		0.038	
5320.0	15.77		0.038	
5500.0	15.49		0.035	
5520.0	15.50		0.035	
5540.0	15.46		0.035	
5560.0	15.42		0.035	
5580.0	15.34		0.034	
5600.0	15.31		0.034	
5620.0	15.39		0.035	
5640.0	15.42		0.035	
5660.0	15.45	0.035		
5680.0	15.55	0.036		
5700.0	15.57	0.036		

Model Number	CS1A13			
Test Item	Maximum Conducted Output Power			
Test Mode	Mode 3: IEEE 802.11n 20MHz Link Mode			
Date of Test	07/22/2013	Test Site	TE02	
Frequency (MHz)	Data Rate	Average Power		Limit (dBm)
		(dBm)	(W)	
5180.0	6.5M	14.98	0.031	< 17
5200.0		14.86	0.031	
5220.0		14.84	0.030	
5240.0		15.00	0.032	
5260.0		14.85	0.031	< 24
5280.0		14.69	0.029	
5300.0		14.61	0.029	
5320.0		14.68	0.029	
5500.0		14.44	0.028	
5520.0		14.38	0.027	
5540.0		14.36	0.027	
5560.0		14.33	0.027	
5580.0		14.32	0.027	
5600.0		14.36	0.027	
5620.0		14.34	0.027	
5640.0		14.32	0.027	
5660.0		14.36	0.027	
5680.0		14.42	0.028	
5700.0		14.52	0.028	
5180.0		65M	14.96	
5200.0	14.93		0.031	
5220.0	14.97		0.031	
5240.0	14.87		0.031	
5260.0	14.73		0.030	< 24
5280.0	14.86		0.031	
5300.0	14.68		0.029	
5320.0	14.80		0.030	
5500.0	14.63		0.029	
5520.0	14.58		0.029	
5540.0	14.66		0.029	
5560.0	14.57		0.029	
5580.0	14.53		0.028	
5600.0	14.50		0.028	
5620.0	14.49		0.028	
5640.0	14.52		0.028	
5660.0	14.55	0.029		
5680.0	14.66	0.029		
5700.0	14.69	0.029		

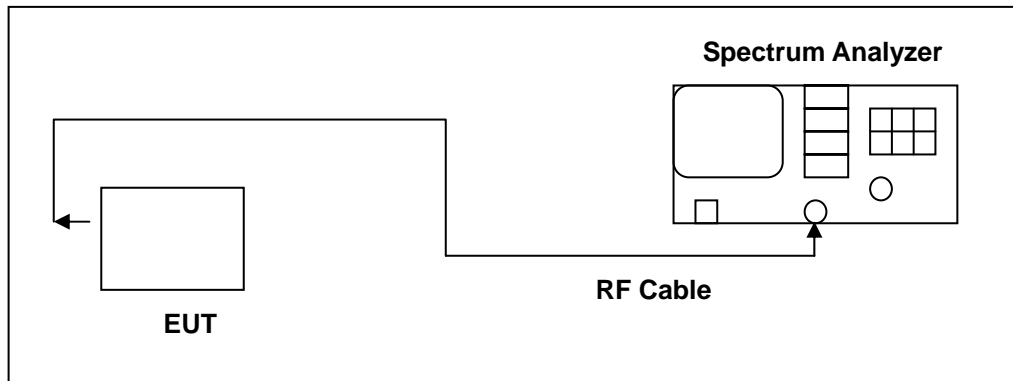
Model Number	CS1A13			
Test Item	Maximum Conducted Output Power			
Test Mode	Mode 4: IEEE 802.11n 40MHz Link Mode			
Date of Test	07/22/2013	Test Site	TE02	
Frequency (MHz)	Data Rate	Average Power		Limit (dBm)
		(dBm)	(W)	
5190.0	6M	13.38	0.022	< 17
5230.0		13.36	0.022	
5270.0		13.05	0.020	
5310.0		13.14	0.021	< 24
5510.0		13.42	0.022	
5550.0		13.45	0.022	
5590.0		13.18	0.021	
5630.0		13.11	0.020	
5670.0		13.23	0.021	
5190.0		54M	12.90	
5230.0	12.61		0.018	
5270.0	12.32		0.017	
5310.0	12.27		0.017	< 24
5510.0	12.72		0.019	
5550.0	12.66		0.018	
5590.0	12.57		0.018	
5630.0	12.71		0.019	
5670.0	12.58		0.018	

## 7 26dB RF Bandwidth Measurement

### 7.1. Limit

N/A

### 7.2. Test Setup



### 7.3. Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4445A	MY45300744	12/19/2012	(1)
Test Site	ATL	TE02	TE02	N.C.R.	-----

Remark: (1) Calibration period 1 year. (2) Calibration period 2 years.

Note: N.C.R. = No Calibration Request.

### 7.4. Test Procedure

The test is performed in accordance with KDB789033: D01 General UNII Test Procedures v01r01, Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E.

**7.5. Test Result**

Model Number	CS1A13		
Test Item	26dB RF Bandwidth		
Test Mode	Mode 2: IEEE 802.11a Link Mode		
Date of Test	07/22/2013	Test Site	TE02
	Frequency (MHz)	Measurement (MHz)	
	5180	27.075	
	5220	29.054	
	5240	27.363	
	5260	27.962	
	5280	27.922	
	5320	25.479	
	5500	22.607	
	5580	21.460	
	5700	20.926	

Model Number	CS1A13		
Test Item	26dB RF Bandwidth		
Test Mode	Mode 3: IEEE 802.11n 20MHz Link Mode		
Date of Test	07/22/2013	Test Site	TE02
	Frequency (MHz)	Measurement (MHz)	
	5180	27.568	
	5220	26.712	
	5240	24.158	
	5260	24.781	
	5280	22.711	
	5320	25.069	
	5500	21.394	
	5580	21.809	
	5700	21.392	

Model Number	CS1A13		
Test Item	26dB RF Bandwidth		
Test Mode	Mode 4: IEEE 802.11n 40MHz Link Mode		
Date of Test	07/22/2013	Test Site	TE06
Frequency (MHz)	Measurement (MHz)		
5190	47.178		
5230	46.429		
5270	46.019		
5310	45.672		
5510	46.354		
5590	46.265		
5670	46.117		

**7.6. Test Graphs**

Mode 2: IEEE 802.11a Link Mode	
5180	<p>Agilent R T</p> <p>Ch Freq 5.18 GHz Trng Free</p> <p>Occupied Bandwidth</p> <p>Ref 20 dBm #Atten 20 dB</p> <p>#Peak Log 10 dB/Offset 11.5 dB</p> <p>Center 5.18 GHz Span 50 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts)</p> <p><b>Occupied Bandwidth 17.7406 MHz</b></p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error 46.055 kHz x dB Bandwidth 27.075 MHz</p> <p>Freq/Channel: Center Freq 5.18000000 GHz, Start Freq 5.15500000 GHz, Stop Freq 5.20500000 GHz, CF Step 5.00000000 MHz, Freq Offset 0.00000000 Hz, Signal Track On</p>
5220	<p>Agilent R T</p> <p>Ch Freq 5.22 GHz Trng Free</p> <p>Occupied Bandwidth</p> <p>Ref 20 dBm #Atten 20 dB</p> <p>#Peak Log 10 dB/Offset 11.5 dB</p> <p>Center 5.22 GHz Span 50 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts)</p> <p><b>Occupied Bandwidth 17.6980 MHz</b></p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error 6.276 kHz x dB Bandwidth 29.054 MHz</p> <p>Freq/Channel: Center Freq 5.22000000 GHz, Start Freq 5.19500000 GHz, Stop Freq 5.24500000 GHz, CF Step 5.00000000 MHz, Freq Offset 0.00000000 Hz, Signal Track On</p>
5240	<p>Agilent R T</p> <p>Ch Freq 5.24 GHz Trng Free</p> <p>Occupied Bandwidth</p> <p>Ref 20 dBm #Atten 20 dB</p> <p>#Peak Log 10 dB/Offset 11.5 dB</p> <p>Center 5.24 GHz Span 50 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts)</p> <p><b>Occupied Bandwidth 17.6983 MHz</b></p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error 20.660 kHz x dB Bandwidth 27.363 MHz</p> <p>Freq/Channel: Center Freq 5.24000000 GHz, Start Freq 5.21500000 GHz, Stop Freq 5.26500000 GHz, CF Step 5.00000000 MHz, Freq Offset 0.00000000 Hz, Signal Track On</p>

Mode 2: IEEE 802.11a Link Mode	
5260	<p>Agilent R T</p> <p>Ch Freq 5.26 GHz Trng Free</p> <p>Occupied Bandwidth</p> <p>Ref 20 dBm #Atten 20 dB</p> <p>#Peak Log 10 dB/Offset 11.5 dB</p> <p>Center 5.26 GHz Span 50 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts)</p> <p><b>Occupied Bandwidth</b> Occ BW % Pwr 99.00 % 17.4870 MHz x dB -26.00 dB</p> <p>Transmit Freq Error 7.429 kHz x dB Bandwidth 27.962 MHz</p> <p>Freq/Channel: Center Freq 5.26000000 GHz, Start Freq 5.23500000 GHz, Stop Freq 5.28500000 GHz, CF Step 5.00000000 MHz, Freq Offset 0.00000000 Hz, Signal Track On/Off</p>
5280	<p>Agilent R T</p> <p>Ch Freq 5.28 GHz Trng Free</p> <p>Occupied Bandwidth</p> <p>Ref 20 dBm #Atten 20 dB</p> <p>#Peak Log 10 dB/Offset 11.5 dB</p> <p>Center 5.28 GHz Span 50 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts)</p> <p><b>Occupied Bandwidth</b> Occ BW % Pwr 99.00 % 17.6113 MHz x dB -26.00 dB</p> <p>Transmit Freq Error 4.070 kHz x dB Bandwidth 27.922 MHz</p> <p>Freq/Channel: Center Freq 5.28000000 GHz, Start Freq 5.25500000 GHz, Stop Freq 5.30500000 GHz, CF Step 5.00000000 MHz, Freq Offset 0.00000000 Hz, Signal Track On/Off</p>
5320	<p>Agilent R T</p> <p>Ch Freq 5.32 GHz Trng Free</p> <p>Occupied Bandwidth</p> <p>Ref 20 dBm #Atten 20 dB</p> <p>#Peak Log 10 dB/Offset 11.5 dB</p> <p>Center 5.32 GHz Span 50 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts)</p> <p><b>Occupied Bandwidth</b> Occ BW % Pwr 99.00 % 17.5010 MHz x dB -26.00 dB</p> <p>Transmit Freq Error 18.539 kHz x dB Bandwidth 25.479 MHz</p> <p>Freq/Channel: Center Freq 5.32000000 GHz, Start Freq 5.29500000 GHz, Stop Freq 5.34500000 GHz, CF Step 5.00000000 MHz, Freq Offset 0.00000000 Hz, Signal Track On/Off</p>



Mode 2: IEEE 802.11a Link Mode	
5500	<p>Agilent R T</p> <p>Ch Freq 5.5 GHz Trng Free</p> <p>Occupied Bandwidth</p> <p>Ref 20 dBm #Atten 20 dB</p> <p>#Peak Log 10 dB/Offset 11.5 dB</p> <p>Center 5.5 GHz Span 50 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts)</p> <p><b>Occupied Bandwidth 17.4992 MHz</b></p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -154.117 Hz x dB Bandwidth 22.607 MHz</p> <p>Freq/Channel</p> <p>Center Freq 5.50000000 GHz</p> <p>Start Freq 5.47500000 GHz</p> <p>Stop Freq 5.52500000 GHz</p> <p>CF Step 5.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p>
5580	<p>Agilent R T</p> <p>Ch Freq 5.58 GHz Trng Free</p> <p>Occupied Bandwidth</p> <p>Ref 20 dBm #Atten 20 dB</p> <p>#Peak Log 10 dB/Offset 11.5 dB</p> <p>Center 5.58 GHz Span 50 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts)</p> <p><b>Occupied Bandwidth 17.3493 MHz</b></p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -6.634 kHz x dB Bandwidth 21.460 MHz</p> <p>Freq/Channel</p> <p>Center Freq 5.58000000 GHz</p> <p>Start Freq 5.55500000 GHz</p> <p>Stop Freq 5.60500000 GHz</p> <p>CF Step 5.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p>
5700	<p>Agilent R T</p> <p>Ch Freq 5.7 GHz Trng Free</p> <p>Occupied Bandwidth</p> <p>Ref 20 dBm #Atten 20 dB</p> <p>#Peak Log 10 dB/Offset 11.5 dB</p> <p>Center 5.7 GHz Span 50 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts)</p> <p><b>Occupied Bandwidth 17.2733 MHz</b></p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -21.981 kHz x dB Bandwidth 20.926 MHz</p> <p>Freq/Channel</p> <p>Center Freq 5.70000000 GHz</p> <p>Start Freq 5.67500000 GHz</p> <p>Stop Freq 5.72500000 GHz</p> <p>CF Step 5.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p>

Mode 3: IEEE 802.11n 20MHz Link Mode	
5180	<p>Agilent R T</p> <p>Ch Freq 5.18 GHz Trng Free</p> <p>Occupied Bandwidth</p> <p>Ref 20 dBm #Atten 20 dB</p> <p>#Peak Log 10 dB/Offset 11.5 dB</p> <p>Center 5.18 GHz Span 50 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts)</p> <p><b>Occupied Bandwidth 18.1567 MHz</b></p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error 38.255 kHz x dB Bandwidth 27.568 MHz</p> <p>Freq/Channel</p> <p>Center Freq 5.18000000 GHz</p> <p>Start Freq 5.15500000 GHz</p> <p>Stop Freq 5.20500000 GHz</p> <p>CF Step 5.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p>
5220	<p>Agilent R T</p> <p>Ch Freq 5.22 GHz Trng Free</p> <p>Occupied Bandwidth</p> <p>Ref 20 dBm #Atten 20 dB</p> <p>#Peak Log 10 dB/Offset 11.5 dB</p> <p>Center 5.22 GHz Span 50 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts)</p> <p><b>Occupied Bandwidth 18.2376 MHz</b></p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error 41.794 kHz x dB Bandwidth 26.712 MHz</p> <p>Freq/Channel</p> <p>Center Freq 5.22000000 GHz</p> <p>Start Freq 5.19500000 GHz</p> <p>Stop Freq 5.24500000 GHz</p> <p>CF Step 5.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p>
5240	<p>Agilent R T</p> <p>Ch Freq 5.24 GHz Trng Free</p> <p>Occupied Bandwidth</p> <p>Ref 20 dBm #Atten 20 dB</p> <p>#Peak Log 10 dB/Offset 11.5 dB</p> <p>Center 5.24 GHz Span 50 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts)</p> <p><b>Occupied Bandwidth 18.1594 MHz</b></p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error 17.802 kHz x dB Bandwidth 24.158 MHz</p> <p>Freq/Channel</p> <p>Center Freq 5.24000000 GHz</p> <p>Start Freq 5.21500000 GHz</p> <p>Stop Freq 5.26500000 GHz</p> <p>CF Step 5.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p>

Mode 3: IEEE 802.11n 20MHz Link Mode	
5260	<p>Agilent R T</p> <p>Ch Freq 5.26 GHz Trng Free</p> <p>Occupied Bandwidth</p> <p>Ref 20 dBm #Atten 20 dB</p> <p>#Peak Log 10 dB/Offset 11.5 dB</p> <p>Center 5.26 GHz Span 50 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts)</p> <p><b>Occupied Bandwidth 18.0858 MHz</b></p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error 13.582 kHz x dB Bandwidth 24.781 MHz</p> <p>Freq/Channel: Center Freq 5.26000000 GHz, Start Freq 5.23500000 GHz, Stop Freq 5.28500000 GHz, CF Step 5.00000000 MHz, Freq Offset 0.00000000 Hz, Signal Track On/Off</p>
5280	<p>Agilent R T</p> <p>Ch Freq 5.28 GHz Trng Free</p> <p>Occupied Bandwidth</p> <p>Ref 20 dBm #Atten 20 dB</p> <p>#Peak Log 10 dB/Offset 11.5 dB</p> <p>Center 5.28 GHz Span 50 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts)</p> <p><b>Occupied Bandwidth 18.0827 MHz</b></p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error 13.418 kHz x dB Bandwidth 22.711 MHz</p> <p>Freq/Channel: Center Freq 5.28000000 GHz, Start Freq 5.25500000 GHz, Stop Freq 5.30500000 GHz, CF Step 5.00000000 MHz, Freq Offset 0.00000000 Hz, Signal Track On/Off</p>
5320	<p>Agilent R T</p> <p>Ch Freq 5.32 GHz Trng Free</p> <p>Occupied Bandwidth</p> <p>Ref 20 dBm #Atten 20 dB</p> <p>#Peak Log 10 dB/Offset 11.5 dB</p> <p>Center 5.32 GHz Span 50 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts)</p> <p><b>Occupied Bandwidth 18.1193 MHz</b></p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error 3.866 kHz x dB Bandwidth 25.069 MHz</p> <p>Freq/Channel: Center Freq 5.32000000 GHz, Start Freq 5.29500000 GHz, Stop Freq 5.34500000 GHz, CF Step 5.00000000 MHz, Freq Offset 0.00000000 Hz, Signal Track On/Off</p>

Mode 3: IEEE 802.11n 20MHz Link Mode	
5500	<p>Agilent R T</p> <p>Ch Freq 5.5 GHz Trng Free</p> <p>Occupied Bandwidth</p> <p>Ref 20 dBm #Atten 20 dB</p> <p>#Peak Log 10 dB/Offst 11.5 dB</p> <p>Center 5.5 GHz Span 50 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts)</p> <p><b>Occupied Bandwidth 18.0372 MHz</b></p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error 27.236 kHz x dB Bandwidth 21.394 MHz</p> <p>Freq/Channel</p> <p>Center Freq 5.5000000 GHz</p> <p>Start Freq 5.4750000 GHz</p> <p>Stop Freq 5.5250000 GHz</p> <p>CF Step 5.0000000 MHz Auto Man</p> <p>Freq Offset 0.0000000 Hz</p> <p>Signal Track On Off</p>
5580	<p>Agilent R T</p> <p>Ch Freq 5.58 GHz Trng Free</p> <p>Occupied Bandwidth</p> <p>Ref 20 dBm #Atten 20 dB</p> <p>#Peak Log 10 dB/Offst 11.5 dB</p> <p>Center 5.58 GHz Span 50 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts)</p> <p><b>Occupied Bandwidth 18.0483 MHz</b></p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error 10.262 kHz x dB Bandwidth 21.809 MHz</p> <p>Freq/Channel</p> <p>Center Freq 5.5800000 GHz</p> <p>Start Freq 5.5550000 GHz</p> <p>Stop Freq 5.6050000 GHz</p> <p>CF Step 5.0000000 MHz Auto Man</p> <p>Freq Offset 0.0000000 Hz</p> <p>Signal Track On Off</p>
5700	<p>Agilent R T</p> <p>Ch Freq 5.7 GHz Trng Free</p> <p>Occupied Bandwidth</p> <p>Ref 20 dBm #Atten 20 dB</p> <p>#Peak Log 10 dB/Offst 11.5 dB</p> <p>Center 5.7 GHz Span 50 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts)</p> <p><b>Occupied Bandwidth 18.0591 MHz</b></p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -24.309 kHz x dB Bandwidth 21.392 MHz</p> <p>Freq/Channel</p> <p>Center Freq 5.7000000 GHz</p> <p>Start Freq 5.6750000 GHz</p> <p>Stop Freq 5.7250000 GHz</p> <p>CF Step 5.0000000 MHz Auto Man</p> <p>Freq Offset 0.0000000 Hz</p> <p>Signal Track On Off</p>

Mode 4: IEEE 802.11n 40MHz Link Mode	
5190	<p>Agilent R T</p> <p>Ch Freq 5.19 GHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Ref 20 dBm #Atten 20 dB</p> <p>#Peak Log 10 dB/Offst 11.5 dB</p> <p>Center 5.19 GHz Span 100 MHz</p> <p>#Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts)</p> <p><b>Occupied Bandwidth</b> Occ BW % Pwr 99.00 %</p> <p><b>36.7040 MHz</b> x dB -26.00 dB</p> <p>Transmit Freq Error 50.104 kHz</p> <p>x dB Bandwidth 47.178 MHz</p> <p>Freq/Channel</p> <p>Center Freq 5.19000000 GHz</p> <p>Start Freq 5.14000000 GHz</p> <p>Stop Freq 5.24000000 GHz</p> <p>CF Step 10.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p>
5230	<p>Agilent R T</p> <p>Ch Freq 5.23 GHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Ref 20 dBm #Atten 20 dB</p> <p>#Peak Log 10 dB/Offst 11.5 dB</p> <p>Center 5.23 GHz Span 100 MHz</p> <p>#Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts)</p> <p><b>Occupied Bandwidth</b> Occ BW % Pwr 99.00 %</p> <p><b>36.6081 MHz</b> x dB -26.00 dB</p> <p>Transmit Freq Error 73.801 kHz</p> <p>x dB Bandwidth 46.429 MHz</p> <p>Freq/Channel</p> <p>Center Freq 5.23000000 GHz</p> <p>Start Freq 5.18000000 GHz</p> <p>Stop Freq 5.28000000 GHz</p> <p>CF Step 10.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p>

Mode 4: IEEE 802.11n 40MHz Link Mode	
5270	<p>Agilent R T</p> <p>Ch Freq 5.27 GHz Trng Free</p> <p>Occupied Bandwidth</p> <p>Ref 20 dBm #Atten 20 dB</p> <p>#Peak Log 10 dB/Offst 11.5 dB</p> <p>Center 5.27 GHz Span 100 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts)</p> <p><b>Occupied Bandwidth 36.5556 MHz</b></p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error 65.173 kHz x dB Bandwidth 46.019 MHz</p> <p>Freq/Channel</p> <p>Center Freq 5.27000000 GHz</p> <p>Start Freq 5.22000000 GHz</p> <p>Stop Freq 5.32000000 GHz</p> <p>CF Step 10.0000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p>
5310	<p>Agilent R T</p> <p>Ch Freq 5.31 GHz Trng Free</p> <p>Occupied Bandwidth</p> <p>Ref 20 dBm #Atten 20 dB</p> <p>#Peak Log 10 dB/Offst 11.5 dB</p> <p>Center 5.31 GHz Span 100 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts)</p> <p><b>Occupied Bandwidth 36.5272 MHz</b></p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error 93.415 kHz x dB Bandwidth 45.672 MHz</p> <p>Freq/Channel</p> <p>Center Freq 5.31000000 GHz</p> <p>Start Freq 5.26000000 GHz</p> <p>Stop Freq 5.36000000 GHz</p> <p>CF Step 10.0000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p>

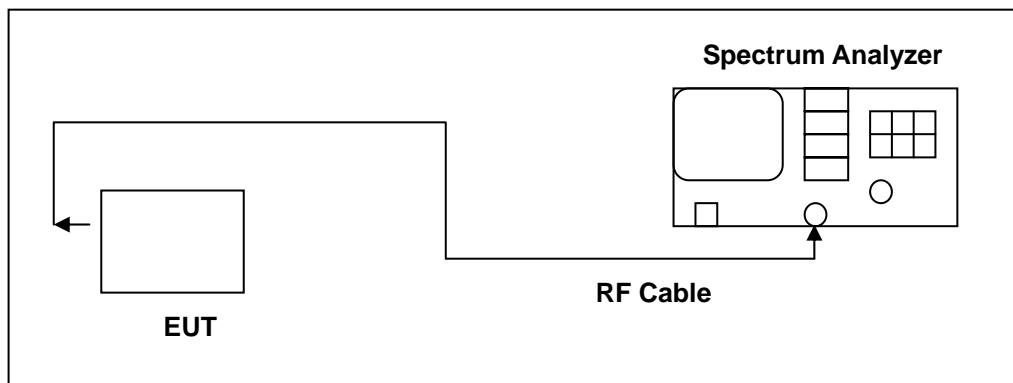
Mode 4: IEEE 802.11n 40MHz Link Mode	
5510	<p>Agilent R T</p> <p>Ch Freq 5.51 GHz Trng Free</p> <p>Occupied Bandwidth</p> <p>Ref 20 dBm #Atten 20 dB</p> <p>#Peak Log 10 dB/Offst 11.5 dB</p> <p>Center 5.51 GHz Span 100 MHz</p> <p>#Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts)</p> <p><b>Occupied Bandwidth 36.7834 MHz</b></p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error 48.518 kHz</p> <p>x dB Bandwidth 46.354 MHz</p> <p>Freq/Channel</p> <p>Center Freq 5.51000000 GHz</p> <p>Start Freq 5.46000000 GHz</p> <p>Stop Freq 5.56000000 GHz</p> <p>CF Step 10.0000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p>
5590	<p>Agilent R T</p> <p>Ch Freq 5.59 GHz Trng Free</p> <p>Occupied Bandwidth</p> <p>Ref 20 dBm #Atten 20 dB</p> <p>#Peak Log 10 dB/Offst 11.5 dB</p> <p>Center 5.59 GHz Span 100 MHz</p> <p>#Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts)</p> <p><b>Occupied Bandwidth 36.6047 MHz</b></p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error 13.968 kHz</p> <p>x dB Bandwidth 46.265 MHz</p> <p>Freq/Channel</p> <p>Center Freq 5.59000000 GHz</p> <p>Start Freq 5.54000000 GHz</p> <p>Stop Freq 5.64000000 GHz</p> <p>CF Step 10.0000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p>
5670	<p>Agilent R T</p> <p>Ch Freq 5.67 GHz Trng Free</p> <p>Occupied Bandwidth</p> <p>Ref 20 dBm #Atten 20 dB</p> <p>#Peak Log 10 dB/Offst 11.5 dB</p> <p>Center 5.67 GHz Span 100 MHz</p> <p>#Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts)</p> <p><b>Occupied Bandwidth 36.5104 MHz</b></p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error 80.629 kHz</p> <p>x dB Bandwidth 46.117 MHz</p> <p>Freq/Channel</p> <p>Center Freq 5.67000000 GHz</p> <p>Start Freq 5.62000000 GHz</p> <p>Stop Freq 5.72000000 GHz</p> <p>CF Step 10.0000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p>

## 8 Peak Excursion Ratio Measurement

### 8.1. Limit

Frequency Range (MHz)	Limit
5.150 ~ 5.250 GHz	13 dB
5.250 ~ 5.350 GHz	13 dB
5.470 ~ 5.725 GHz	13 dB

### 8.2. Test Setup



### 8.3. Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4445A	MY45300744	12/19/2012	(1)
Test Site	ATL	TE02	TE02	N.C.R.	-----

Remark: (1) Calibration period 1 year. (2) Calibration period 2 years.

Note: N.C.R. = No Calibration Request.

### 8.4. Test Procedure

The test is performed in accordance with KDB789033: D01 General UNII Test Procedures v01r01, Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E.



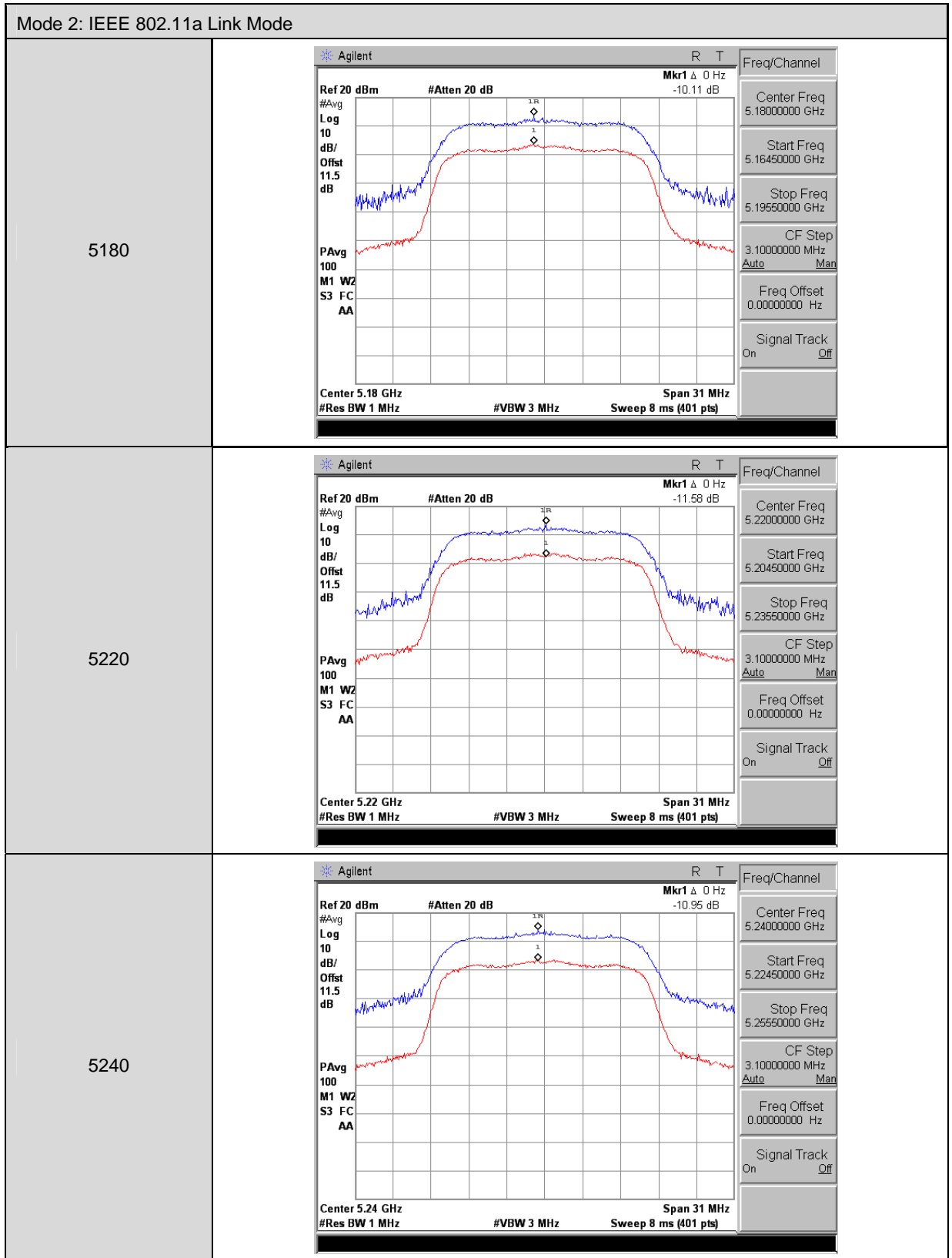
**8.5. Test Result**

Model Number	CS1A13		
Test Item	Peak Excursion Ratio		
Test Mode	Mode 2: IEEE 802.11a Link Mode		
Date of Test	07/22/2013	Test Site	TE02
	Frequency (MHz)	Measurement (dB)	Limit (dB)
	5180	-10.11	< 13
	5220	-11.58	
	5240	-10.95	
	5260	-11.17	
	5280	-10.78	
	5320	-12.24	
	5500	-10.26	
	5580	-10.62	
	5700	-10.84	

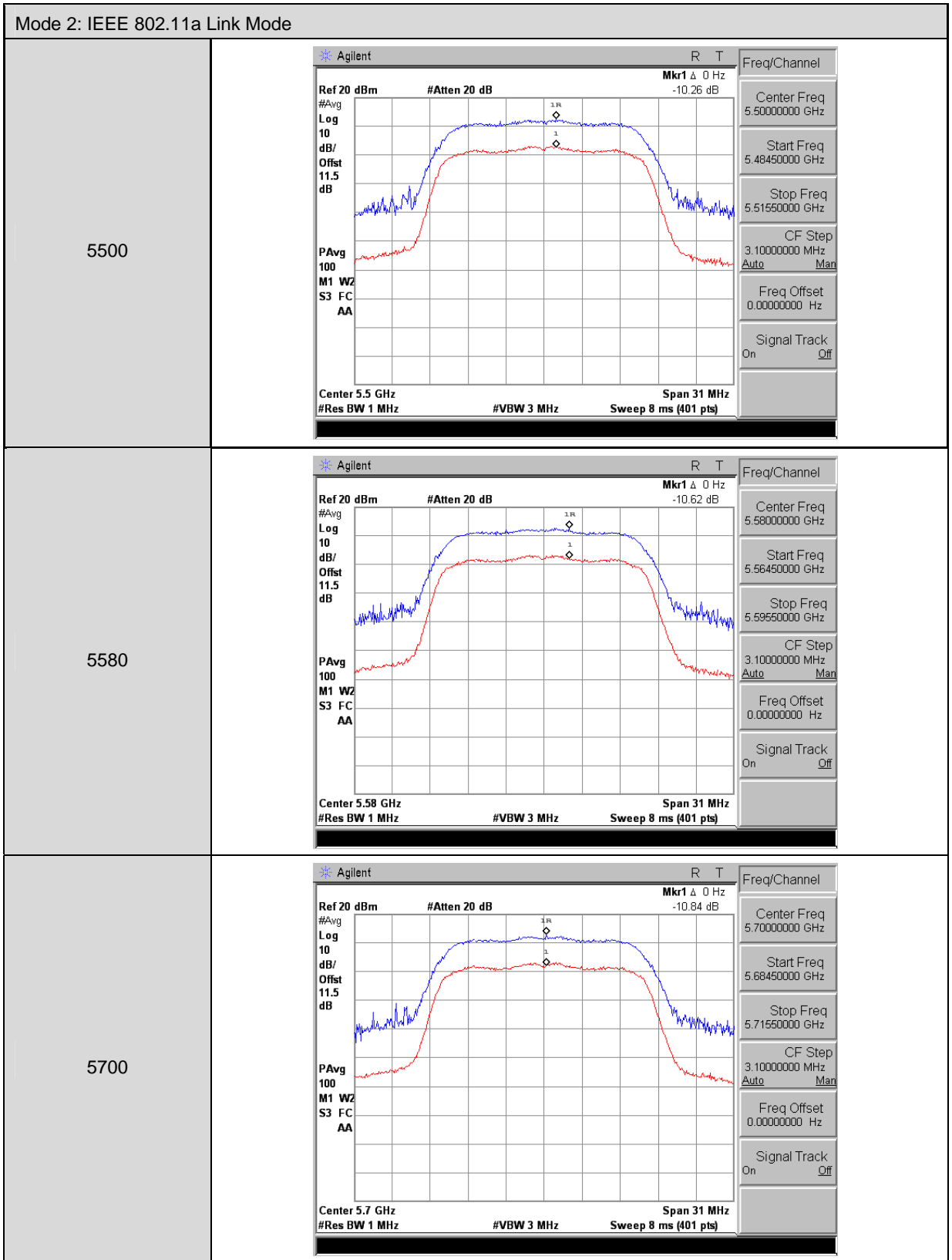
Model Number	CS1A13		
Test Item	Peak Excursion Ratio		
Test Mode	Mode 3: IEEE 802.11n 20MHz Link Mode		
Date of Test	07/22/2013	Test Site	TE02
	Frequency (MHz)	Measurement (dB)	Limit (dB)
	5180	-10.20	< 13
	5220	-10.45	
	5240	-9.45	
	5260	-11.14	
	5280	-10.45	
	5320	-10.62	
	5500	-10.95	
	5580	-9.91	
	5700	-11.41	

Model Number	CS1A13		
Test Item	Peak Excursion Ratio		
Test Mode	Mode 4: IEEE 802.11n 40MHz Link Mode		
Date of Test	07/22/2013	Test Site	TE06
	Frequency (MHz)	Measurement (dB)	Limit (dB)
	5190	-11.12	< 13
	5230	-11.19	
	5270	-9.44	
	5310	-10.78	
	5510	-10.07	
	5590	-10.55	
	5670	-11.01	

**8.6. Test Graphs**

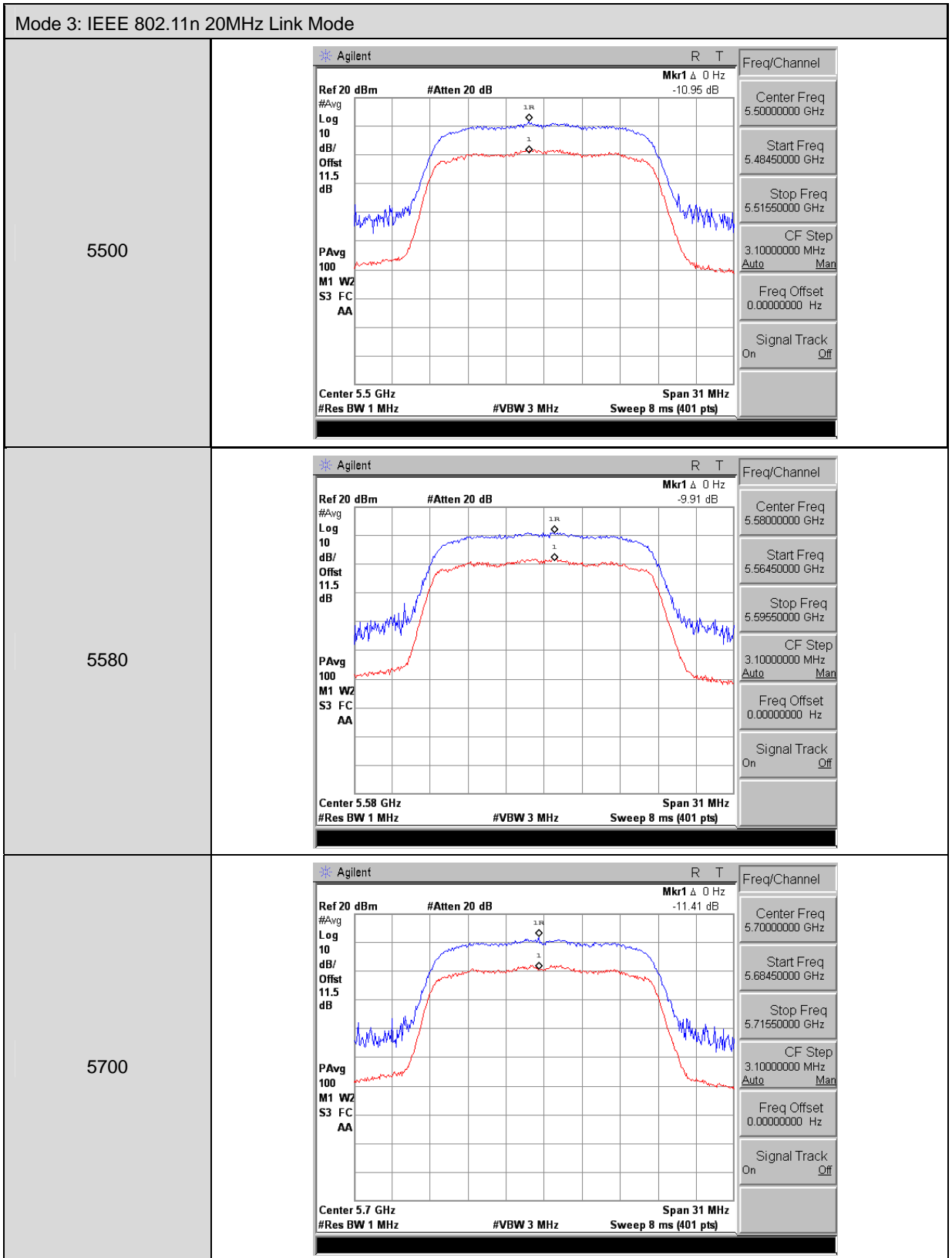


Mode 2: IEEE 802.11a Link Mode	
5260	<p>Agilent R T            Ref 20 dBm #Atten 20 dB Mkr1 Δ 0 Hz -11.17 dB            #Avg Log dB/Offst 11.5 dB            PAvg 100 M1 WZ S3 FC AA            Center 5.26 GHz Span 31 MHz            #Res BW 1 MHz #VBW 3 MHz Sweep 8 ms (401 pts)</p> <p>Freq/Channel            Center Freq 5.26000000 GHz            Start Freq 5.24450000 GHz            Stop Freq 5.27550000 GHz            CF Step 3.10000000 MHz Auto Man            Freq Offset 0.00000000 Hz            Signal Track On Off</p>
5280	<p>Agilent R T            Ref 20 dBm #Atten 20 dB Mkr1 Δ 0 Hz -10.78 dB            #Avg Log dB/Offst 11.5 dB            PAvg 100 M1 WZ S3 FC AA            Center 5.28 GHz Span 31 MHz            #Res BW 1 MHz #VBW 3 MHz Sweep 8 ms (401 pts)</p> <p>Freq/Channel            Center Freq 5.28000000 GHz            Start Freq 5.26450000 GHz            Stop Freq 5.29550000 GHz            CF Step 3.10000000 MHz Auto Man            Freq Offset 0.00000000 Hz            Signal Track On Off</p>
5320	<p>Agilent R T            Ref 20 dBm #Atten 20 dB Mkr1 Δ 0 Hz -12.24 dB            #Avg Log dB/Offst 11.5 dB            PAvg 100 M1 WZ S3 FC AA            Center 5.32 GHz Span 31 MHz            #Res BW 1 MHz #VBW 3 MHz Sweep 8 ms (401 pts)</p> <p>Freq/Channel            Center Freq 5.32000000 GHz            Start Freq 5.30450000 GHz            Stop Freq 5.33550000 GHz            CF Step 3.10000000 MHz Auto Man            Freq Offset 0.00000000 Hz            Signal Track On Off</p>

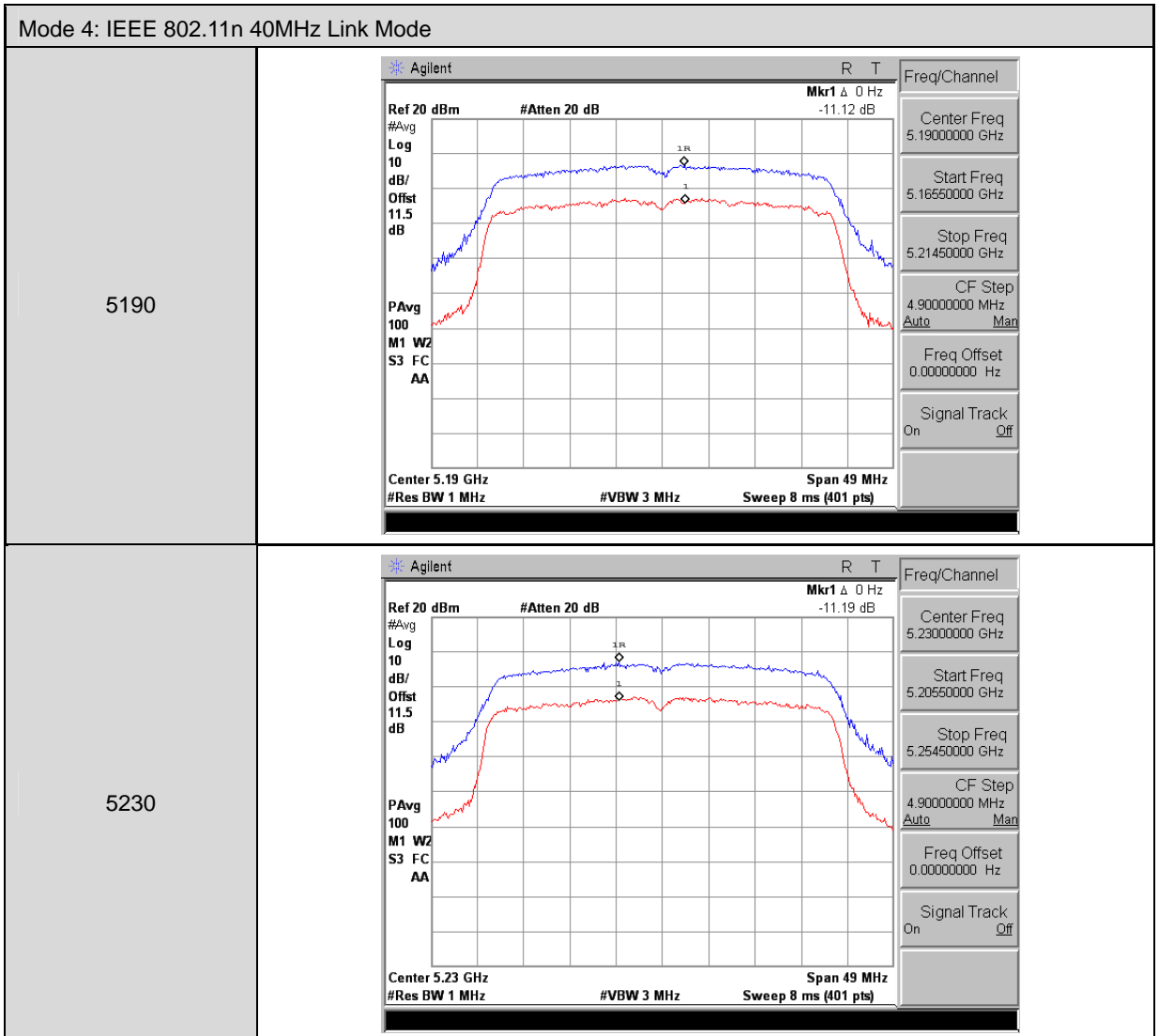


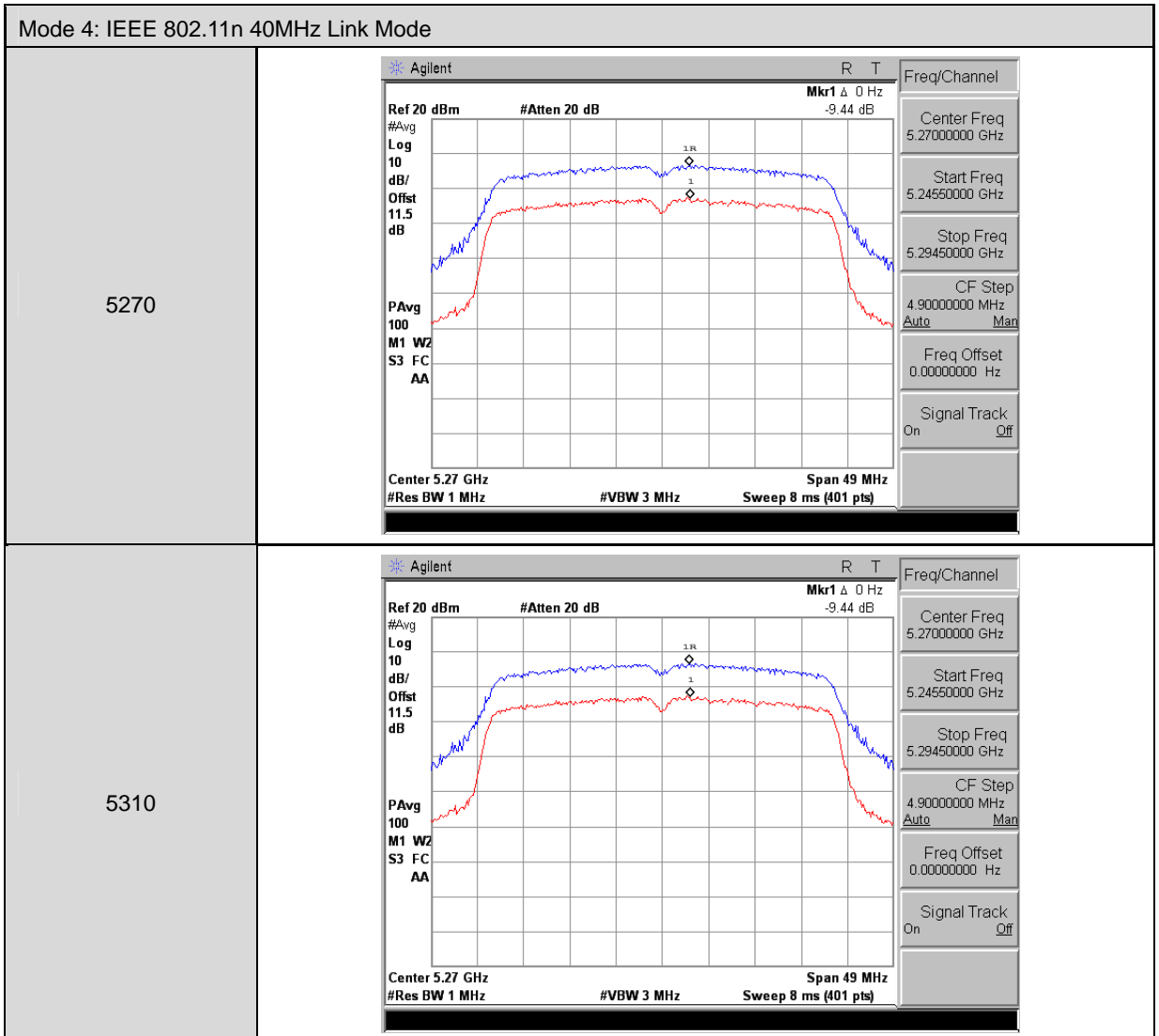
Mode 3: IEEE 802.11n 20MHz Link Mode	
5180	<p>Agilent R T          Ref 20 dBm #Atten 20 dB Mkr1 Δ 0 Hz -10.2 dB          #Avg 10          Log dB/Offst 11.5 dB          PAvg 100          M1 WZ          S3 FC          AA          Center 5.18 GHz Span 31 MHz          #Res BW 1 MHz #VBW 3 MHz Sweep 8 ms (401 pts)</p> <p>Freq/Channel          Center Freq 5.1800000 GHz          Start Freq 5.1645000 GHz          Stop Freq 5.1955000 GHz          CF Step 3.1000000 MHz Auto Man          Freq Offset 0.0000000 Hz          Signal Track On Off</p>
5220	<p>Agilent R T          Ref 20 dBm #Atten 20 dB Mkr1 Δ 0 Hz -10.45 dB          #Avg 10          Log dB/Offst 11.5 dB          PAvg 100          M1 WZ          S3 FC          AA          Center 5.22 GHz Span 31 MHz          #Res BW 1 MHz #VBW 3 MHz Sweep 8 ms (401 pts)</p> <p>Freq/Channel          Center Freq 5.2200000 GHz          Start Freq 5.2045000 GHz          Stop Freq 5.2355000 GHz          CF Step 3.1000000 MHz Auto Man          Freq Offset 0.0000000 Hz          Signal Track On Off</p>
5240	<p>Agilent R T          Ref 20 dBm #Atten 20 dB Mkr1 Δ 0 Hz -9.446 dB          #Avg 10          Log dB/Offst 11.5 dB          PAvg 100          M1 WZ          S3 FC          AA          Center 5.24 GHz Span 31 MHz          #Res BW 1 MHz #VBW 3 MHz Sweep 8 ms (401 pts)</p> <p>Freq/Channel          Center Freq 5.2400000 GHz          Start Freq 5.2245000 GHz          Stop Freq 5.2555000 GHz          CF Step 3.1000000 MHz Auto Man          Freq Offset 0.0000000 Hz          Signal Track On Off</p>

Mode 3: IEEE 802.11n 20MHz Link Mode	
5260	<p>Agilent R T</p> <p>Ref 20 dBm #Atten 20 dB Mkr1 Δ 0 Hz -11.14 dB</p> <p>#Avg 10 Log dB/Offst 11.5 dB</p> <p>PAvg 100 M1 WZ S3 FC AA</p> <p>Center 5.26 GHz Span 31 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 8 ms (401 pts)</p> <p>Freq/Channel</p> <p>Center Freq 5.26000000 GHz</p> <p>Start Freq 5.24450000 GHz</p> <p>Stop Freq 5.27550000 GHz</p> <p>CF Step 3.10000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p>
5280	<p>Agilent R T</p> <p>Ref 20 dBm #Atten 20 dB Mkr1 Δ 0 Hz -10.45 dB</p> <p>#Avg 10 Log dB/Offst 11.5 dB</p> <p>PAvg 100 M1 WZ S3 FC AA</p> <p>Center 5.28 GHz Span 31 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 8 ms (401 pts)</p> <p>Freq/Channel</p> <p>Center Freq 5.28000000 GHz</p> <p>Start Freq 5.26450000 GHz</p> <p>Stop Freq 5.29550000 GHz</p> <p>CF Step 3.10000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p>
5320	<p>Agilent R T</p> <p>Ref 20 dBm #Atten 20 dB Mkr1 Δ 0 Hz -10.62 dB</p> <p>#Avg 10 Log dB/Offst 11.5 dB</p> <p>PAvg 100 M1 WZ S3 FC AA</p> <p>Center 5.32 GHz Span 31 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 8 ms (401 pts)</p> <p>Freq/Channel</p> <p>Center Freq 5.32000000 GHz</p> <p>Start Freq 5.30450000 GHz</p> <p>Stop Freq 5.33550000 GHz</p> <p>CF Step 3.10000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p>









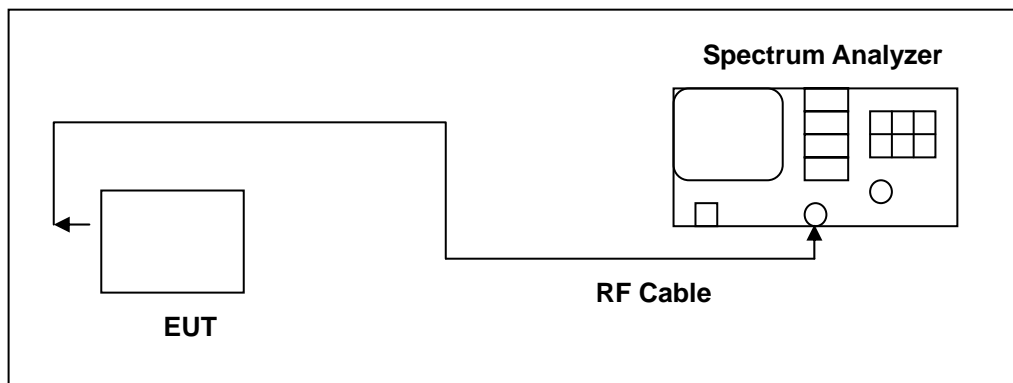
Mode 4: IEEE 802.11n 40MHz Link Mode	
5510	<p>Agilent R T          Ref 20 dBm #Atten 20 dB Mkr1 Δ 0 Hz          #Avg 10 Log dB/Offst 11.5 dB          PAvg 100 M1 WZ S3 FC AA          Center 5.51 GHz Span 49 MHz          #Res BW 1 MHz #VBW 3 MHz Sweep 8 ms (401 pts)</p> <p>Freq/Channel          Center Freq 5.51000000 GHz          Start Freq 5.48500000 GHz          Stop Freq 5.53450000 GHz          CF Step 4.90000000 MHz          Auto Man          Freq Offset 0.00000000 Hz          Signal Track On Off</p>
5590	<p>Agilent R T          Ref 20 dBm #Atten 20 dB Mkr1 Δ 0 Hz          #Avg 10 Log dB/Offst 11.5 dB          PAvg 100 M1 WZ S3 FC AA          Center 5.59 GHz Span 49 MHz          #Res BW 1 MHz #VBW 3 MHz Sweep 8 ms (401 pts)</p> <p>Freq/Channel          Center Freq 5.59000000 GHz          Start Freq 5.56500000 GHz          Stop Freq 5.61450000 GHz          CF Step 4.90000000 MHz          Auto Man          Freq Offset 0.00000000 Hz          Signal Track On Off</p>
5670	<p>Agilent R T          Ref 20 dBm #Atten 20 dB Mkr1 Δ 0 Hz          #Avg 10 Log dB/Offst 11.5 dB          PAvg 100 M1 WZ S3 FC AA          Center 5.67 GHz Span 49 MHz          #Res BW 1 MHz #VBW 3 MHz Sweep 8 ms (401 pts)</p> <p>Freq/Channel          Center Freq 5.67000000 GHz          Start Freq 5.64500000 GHz          Stop Freq 5.69450000 GHz          CF Step 4.90000000 MHz          Auto Man          Freq Offset 0.00000000 Hz          Signal Track On Off</p>

## 9 Peak Power Spectral Density Measurement

### 9.1. Limit

Frequency Range (MHz)	Limit
5.150 ~ 5.250 GHz	4 dB
5.250 ~ 5.350 GHz	11 dB
5.470 ~ 5.725 GHz	11 dB

### 9.2. Test Setup



### 9.3. Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4445A	MY45300744	12/19/2012	(1)
Test Site	ATL	TE02	TE02	N.C.R.	-----

Remark: (1) Calibration period 1 year. (2) Calibration period 2 years.

Note: N.C.R. = No Calibration Request.

### 9.4. Test Procedure

The test is performed in accordance with KDB789033: D01 General UNII Test Procedures v01r01, Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E.

**9.5. Test Result**

Model Number	CS1A13		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 2: IEEE 802.11a Link Mode		
Date of Test	07/22/2013	Test Site	TE02
Frequency (MHz)	Measurement (dBm)	Limit (dBm)	
5180	3.624	< 4	
5220	3.499		
5240	3.674		
5260	3.636	< 11	
5280	3.687		
5320	3.785		
5500	3.785		
5580	3.732		
5700	3.585		

Model Number	CS1A13		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 3: IEEE 802.11n 20MHz Link Mode		
Date of Test	07/22/2013	Test Site	TE02
Frequency (MHz)	Measurement (dBm)	Limit (dBm)	
5180	2.531	< 4	
5220	2.530		
5240	2.466		
5260	2.299	< 11	
5280	2.321		
5320	2.646		
5500	2.297		
5580	2.569		
5700	2.388		

Model Number	CS1A13		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 4: IEEE 802.11n 40MHz Link Mode		
Date of Test	07/22/2013	Test Site	TE02
	Frequency (MHz)	Measurement (dBm)	Limit (dBm)
	5190	-2.512	< 4
	5230	-2.893	
	5270	-2.211	< 11
	5310	-2.746	
	5510	-2.178	
	5590	-2.691	
	5670	-2.526	

**9.6. Test Graphs**

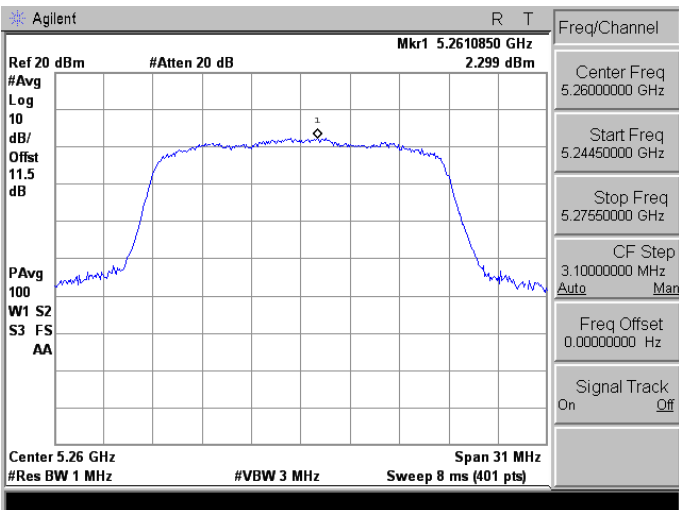
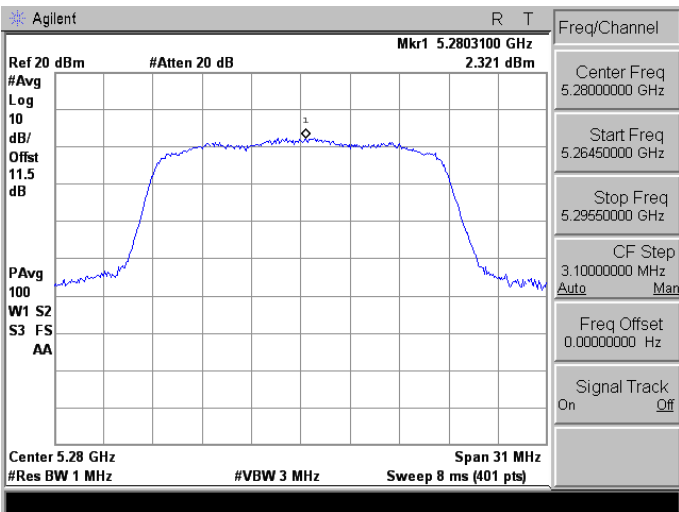
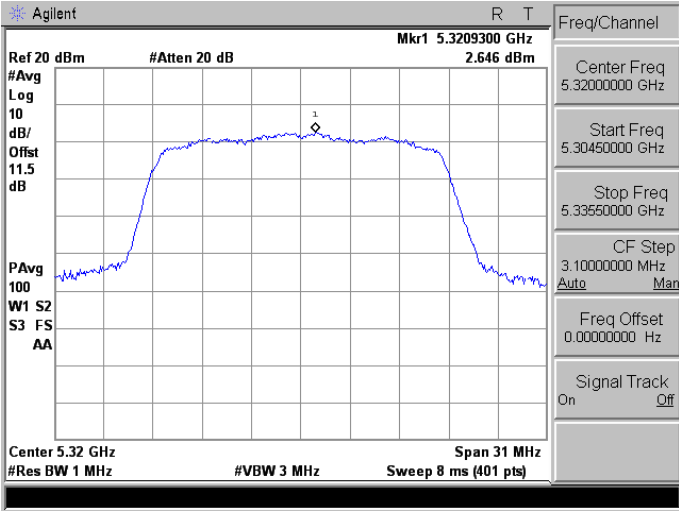
Mode 2: IEEE 802.11a Link Mode	
5180	<p>Agilent R T            Ref 20 dBm #Atten 20 dB Mkr1 5.1797675 GHz 3.624 dBm            #Avg 10            Log 10            dB/Offst 11.5 dB            PAvg 100            W1 S2            S3 FS            AA            Center 5.18 GHz Span 31 MHz            #Res BW 1 MHz #VBW 3 MHz Sweep 8 ms (401 pts)</p> <p>Freq/Channel            Center Freq 5.18000000 GHz            Start Freq 5.16450000 GHz            Stop Freq 5.19550000 GHz            CF Step 3.10000000 MHz            Auto Man            Freq Offset 0.00000000 Hz            Signal Track On Off</p>
5220	<p>Agilent R T            Ref 20 dBm #Atten 20 dB Mkr1 5.2210075 GHz 3.499 dBm            #Avg 10            Log 10            dB/Offst 11.5 dB            PAvg 100            W1 S2            S3 FS            AA            Center 5.22 GHz Span 31 MHz            #Res BW 1 MHz #VBW 3 MHz Sweep 8 ms (401 pts)</p> <p>Freq/Channel            Center Freq 5.22000000 GHz            Start Freq 5.20450000 GHz            Stop Freq 5.23550000 GHz            CF Step 3.10000000 MHz            Auto Man            Freq Offset 0.00000000 Hz            Signal Track On Off</p>
5240	<p>Agilent R T            Ref 20 dBm #Atten 20 dB Mkr1 5.2405425 GHz 3.674 dBm            #Avg 10            Log 10            dB/Offst 11.5 dB            PAvg 100            W1 S2            S3 FS            AA            Center 5.24 GHz Span 31 MHz            #Res BW 1 MHz #VBW 3 MHz Sweep 8 ms (401 pts)</p> <p>Freq/Channel            Center Freq 5.24000000 GHz            Start Freq 5.22450000 GHz            Stop Freq 5.25550000 GHz            CF Step 3.10000000 MHz            Auto Man            Freq Offset 0.00000000 Hz            Signal Track On Off</p>

Mode 2: IEEE 802.11a Link Mode	
5260	<p>Agilent R T            Ref 20 dBm #Atten 20 dB Mkr1 5.2608525 GHz 3.636 dBm            #Avg Log 10 dB/Offst 11.5 dB            PAVg 100 W1 S2 S3 FS AA            Center 5.26 GHz Span 31 MHz            #Res BW 1 MHz #VBW 3 MHz Sweep 8 ms (401 pts)</p> <p>Freq/Channel            Center Freq 5.26000000 GHz            Start Freq 5.24450000 GHz            Stop Freq 5.27550000 GHz            CF Step 3.10000000 MHz Auto Man            Freq Offset 0.00000000 Hz            Signal Track On Off</p>
5280	<p>Agilent R T            Ref 20 dBm #Atten 20 dB Mkr1 5.2794575 GHz 3.687 dBm            #Avg Log 10 dB/Offst 11.5 dB            PAVg 100 W1 S2 S3 FS AA            Center 5.28 GHz Span 31 MHz            #Res BW 1 MHz #VBW 3 MHz Sweep 8 ms (401 pts)</p> <p>Freq/Channel            Center Freq 5.28000000 GHz            Start Freq 5.26450000 GHz            Stop Freq 5.29550000 GHz            CF Step 3.10000000 MHz Auto Man            Freq Offset 0.00000000 Hz            Signal Track On Off</p>
5320	<p>Agilent R T            Ref 20 dBm #Atten 20 dB Mkr1 5.3190700 GHz 3.785 dBm            #Avg Log 10 dB/Offst 11.5 dB            PAVg 100 W1 S2 S3 FS AA            Center 5.32 GHz Span 31 MHz            #Res BW 1 MHz #VBW 3 MHz Sweep 8 ms (401 pts)</p> <p>Freq/Channel            Center Freq 5.32000000 GHz            Start Freq 5.30450000 GHz            Stop Freq 5.33550000 GHz            CF Step 3.10000000 MHz Auto Man            Freq Offset 0.00000000 Hz            Signal Track On Off</p>

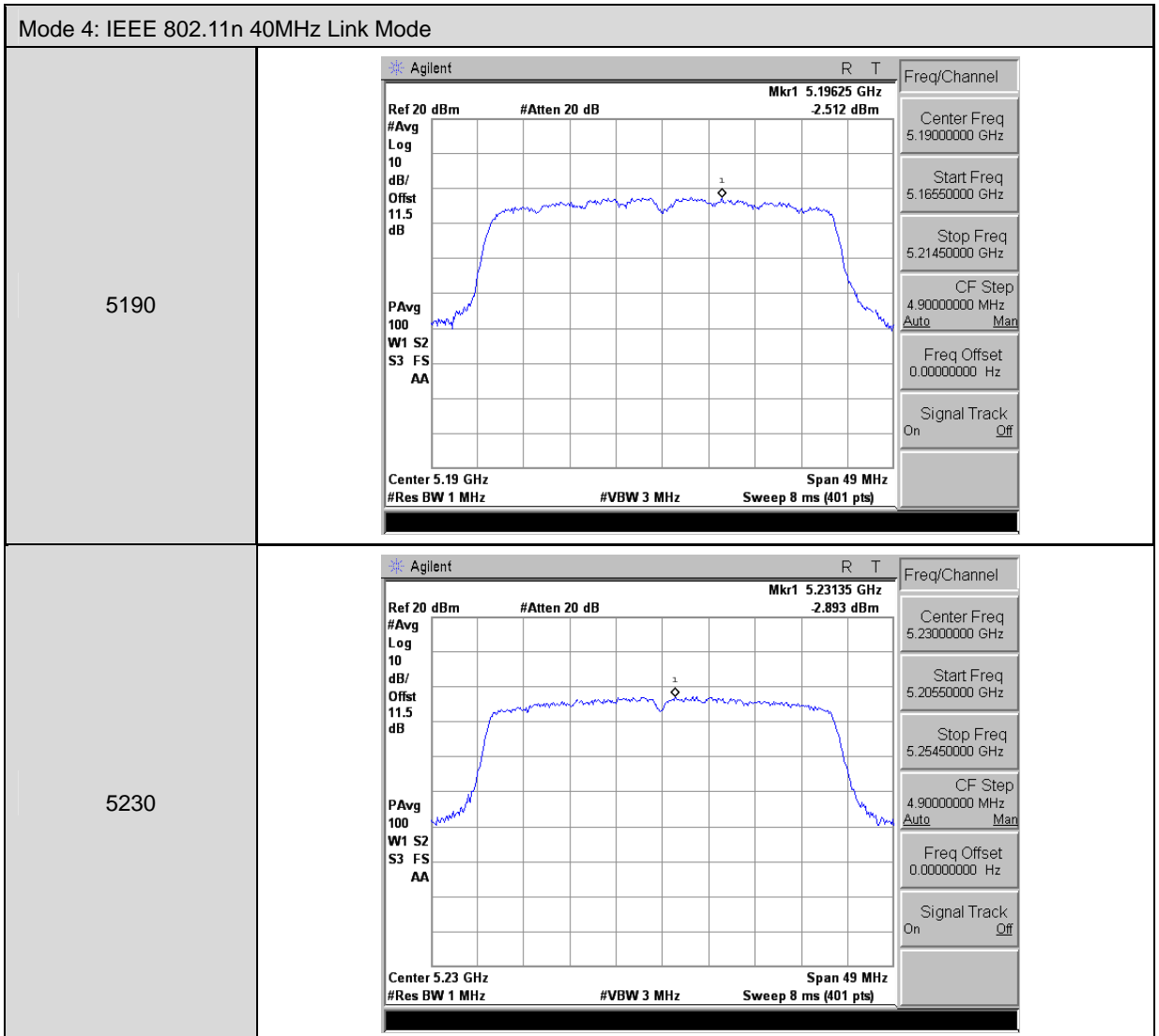


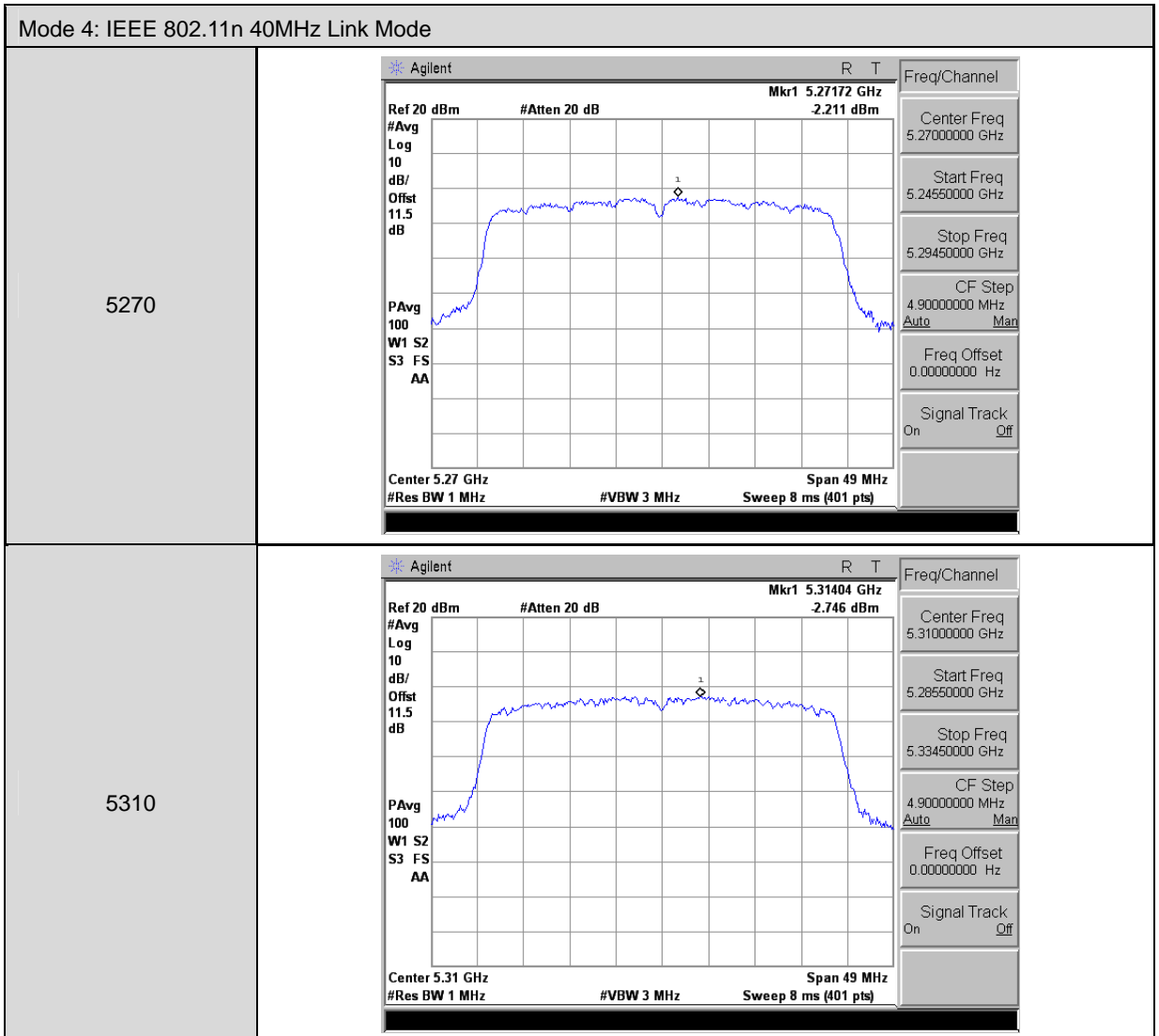
Mode 2: IEEE 802.11a Link Mode	
5500	<p>Agilent R T            Ref 20 dBm #Atten 20 dB Mkr1 5.4991475 GHz 3.785 dBm            #Avg Log            10            dB/ Offst            11.5 dB            PAvg 100            W1 S2            S3 FS            AA            Center 5.5 GHz Span 31 MHz            #Res BW 1 MHz #VBW 3 MHz Sweep 8 ms (401 pts)</p> <p>Freq/Channel            Center Freq 5.5000000 GHz            Start Freq 5.4845000 GHz            Stop Freq 5.5155000 GHz            CF Step 3.1000000 MHz            Auto Man            Freq Offset 0.0000000 Hz            Signal Track On Off</p>
5580	<p>Agilent R T            Ref 20 dBm #Atten 20 dB Mkr1 5.5788375 GHz 3.732 dBm            #Avg Log            10            dB/ Offst            11.5 dB            PAvg 100            W1 S2            S3 FS            AA            Center 5.58 GHz Span 31 MHz            #Res BW 1 MHz #VBW 3 MHz Sweep 8 ms (401 pts)</p> <p>Freq/Channel            Center Freq 5.5800000 GHz            Start Freq 5.5645000 GHz            Stop Freq 5.5955000 GHz            CF Step 3.1000000 MHz            Auto Man            Freq Offset 0.0000000 Hz            Signal Track On Off</p>
5700	<p>Agilent R T            Ref 20 dBm #Atten 20 dB Mkr1 5.7008525 GHz 3.585 dBm            #Avg Log            10            dB/ Offst            11.5 dB            PAvg 100            W1 S2            S3 FS            AA            Center 5.7 GHz Span 31 MHz            #Res BW 1 MHz #VBW 3 MHz Sweep 8 ms (401 pts)</p> <p>Freq/Channel            Center Freq 5.7000000 GHz            Start Freq 5.6845000 GHz            Stop Freq 5.7155000 GHz            CF Step 3.1000000 MHz            Auto Man            Freq Offset 0.0000000 Hz            Signal Track On Off</p>

Mode 3: IEEE 802.11n 20MHz Link Mode	
5180	
5220	
5240	

Mode 3: IEEE 802.11n 20MHz Link Mode	
5260	
5280	
5320	

Mode 3: IEEE 802.11n 20MHz Link Mode	
5500	<p>Agilent R T            Ref 20 dBm #Atten 20 dB Mkr1 5.4992250 GHz 2.297 dBm            #Avg 10            Log            dB/Offst 11.5 dB            PAvg 100            W1 S2            S3 FS            AA            Center 5.5 GHz Span 31 MHz            #Res BW 1 MHz #VBW 3 MHz Sweep 8 ms (401 pts)</p> <p>Freq/Channel            Center Freq 5.5000000 GHz            Start Freq 5.48450000 GHz            Stop Freq 5.51550000 GHz            CF Step 3.1000000 MHz            Auto Man            Freq Offset 0.0000000 Hz            Signal Track On Off</p>
5580	<p>Agilent R T            Ref 20 dBm #Atten 20 dB Mkr1 5.5788375 GHz 2.569 dBm            #Avg 10            Log            dB/Offst 11.5 dB            PAvg 100            W1 S2            S3 FS            AA            Center 5.58 GHz Span 31 MHz            #Res BW 1 MHz #VBW 3 MHz Sweep 8 ms (401 pts)</p> <p>Freq/Channel            Center Freq 5.5800000 GHz            Start Freq 5.56450000 GHz            Stop Freq 5.59550000 GHz            CF Step 3.1000000 MHz            Auto Man            Freq Offset 0.0000000 Hz            Signal Track On Off</p>
5700	<p>Agilent R T            Ref 20 dBm #Atten 20 dB Mkr1 5.6991475 GHz 2.388 dBm            #Avg 10            Log            dB/Offst 11.5 dB            PAvg 100            W1 S2            S3 FS            AA            Center 5.7 GHz Span 31 MHz            #Res BW 1 MHz #VBW 3 MHz Sweep 8 ms (401 pts)</p> <p>Freq/Channel            Center Freq 5.7000000 GHz            Start Freq 5.68450000 GHz            Stop Freq 5.71550000 GHz            CF Step 3.1000000 MHz            Auto Man            Freq Offset 0.0000000 Hz            Signal Track On Off</p>





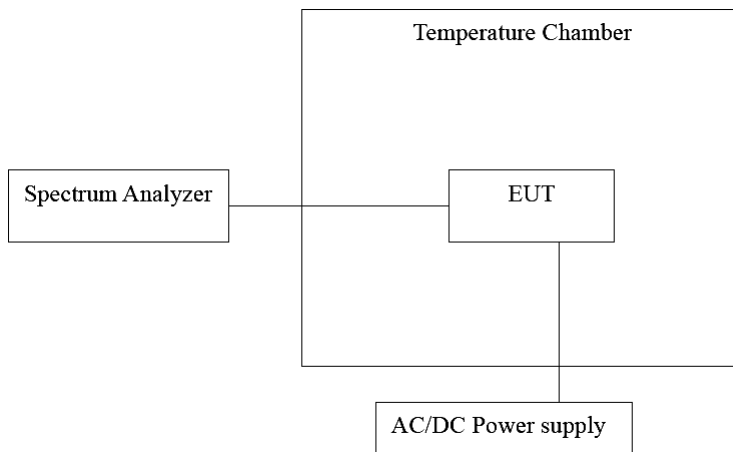
Mode 4: IEEE 802.11n 40MHz Link Mode	
5510	<p>Agilent R T            Ref 20 dBm #Atten 20 dB Mkr1 5.51208 GHz            -2.178 dBm            #Avg 10            Log 10            dB/Offst 11.5 dB            PAvg 100            W1 S2            S3 FS            AA            Center 5.51 GHz Span 49 MHz            #Res BW 1 MHz #VBW 3 MHz Sweep 8 ms (401 pts)</p> <p>Freq/Channel            Center Freq 5.51000000 GHz            Start Freq 5.48550000 GHz            Stop Freq 5.53450000 GHz            CF Step 4.90000000 MHz            Auto Man            Freq Offset 0.00000000 Hz            Signal Track On Off</p>
5590	<p>Agilent R T            Ref 20 dBm #Atten 20 dB Mkr1 5.59245 GHz            -2.691 dBm            #Avg 10            Log 10            dB/Offst 11.5 dB            PAvg 100            W1 S2            S3 FS            AA            Center 5.59 GHz Span 49 MHz            #Res BW 1 MHz #VBW 3 MHz Sweep 8 ms (401 pts)</p> <p>Freq/Channel            Center Freq 5.59000000 GHz            Start Freq 5.56550000 GHz            Stop Freq 5.61450000 GHz            CF Step 4.90000000 MHz            Auto Man            Freq Offset 0.00000000 Hz            Signal Track On Off</p>
5670	<p>Agilent R T            Ref 20 dBm #Atten 20 dB Mkr1 5.66755 GHz            -2.526 dBm            #Avg 10            Log 10            dB/Offst 11.5 dB            PAvg 100            W1 S2            S3 FS            AA            Center 5.67 GHz Span 49 MHz            #Res BW 1 MHz #VBW 3 MHz Sweep 8 ms (401 pts)</p> <p>Freq/Channel            Center Freq 5.67000000 GHz            Start Freq 5.64550000 GHz            Stop Freq 5.69450000 GHz            CF Step 4.90000000 MHz            Auto Man            Freq Offset 0.00000000 Hz            Signal Track On Off</p>

## 10 Frequency Stability Measurement

### 10.1. Limit

The frequency tolerance of the carrier signal shall be maintained within the band of operation frequency over a temperature variation of  $-30$  degrees to  $50$  degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of  $20$  degrees C.

### 10.2. Test Setup



### 10.3. Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4408B	MY45107753	07/11/2013	(1)
Temperature & Humidity Chamber	TAICHY	MHU-225LA	980729	08/07/2012	(1)
Test Site	ATL	TE02	TE02	N.C.R.	-----

Remark: (1) Calibration period 1 year. (2) Calibration period 2 years.

Note: N.C.R. = No Calibration Request.



## 10.4. Test Procedure

1. The EUT was placed inside the environmental test chamber and powered by nominal DC voltage.
2. Turn the EUT on and couple its output to a spectrum analyzer.
3. Turn the EUT off and set the chamber to the highest temperature specified.
4. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize.
5. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
6. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

## 10.5. Test Result

### Temperature Variations

Model Number	CS1A13				
Test Mode	Mode 2				
Frequency	5220 MHz				
Date of Test	07/22/2013			Test Site	TE02
Temp. (°C)	Voltage (VDC)	Measured Frequency (MHz)	Delta Frequency (Hz)	Tolerance (ppm)	Result (Pass/Fail)
-30	5	5220.0254	25400	-4.866	Pass
-20		5219.9514	-48600	9.310	Pass
-10		5220.0332	33200	-6.360	Pass
0		5219.9594	-40600	7.778	Pass
10		5220.0296	29600	-5.670	Pass
20		5220.0369	36900	-7.069	Pass
30		5219.9649	-35100	6.724	Pass
40		5219.9591	-40900	7.835	Pass
50		5220.0472	47200	-9.042	Pass

Model Number	CS1A13				
Test Mode	Mode 2				
Frequency	5280 MHz				
Date of Test	07/22/2013			Test Site	TE02
Temp. (°C)	Voltage (VDC)	Measured Frequency (MHz)	Delta Frequency (Hz)	Tolerance (ppm)	Result (Pass/Fail)
-30	5	5279.9546	-45400	8.598	Pass
-20		5279.9694	-30600	5.795	Pass
-10		5279.9432	-56800	10.758	Pass
0		5280.0331	33100	-6.269	Pass
10		5279.9762	-23800	4.508	Pass
20		5280.0275	27500	-5.208	Pass
30		5279.9413	-58700	11.117	Pass
40		5279.9692	-30800	5.833	Pass
50		5280.0364	36400	-6.894	Pass

Model Number	CS1A13				
Test Mode	Mode 2				
Frequency	5580 MHz				
Date of Test	07/22/2013			Test Site	TE02
Temp. (°C)	Voltage (VDC)	Measured Frequency (MHz)	Delta Frequency (Hz)	Tolerance (ppm)	Result (Pass/Fail)
-30	5	5579.9643	-35700	6.398	Pass
-20		5579.9751	-24900	4.462	Pass
-10		5580.0634	63400	-11.362	Pass
0		5580.0298	29800	-5.341	Pass
10		5579.9672	-32800	5.878	Pass
20		5580.0496	49600	-8.889	Pass
30		5580.0225	22500	-4.032	Pass
40		5579.9673	-32700	5.860	Pass
50		5580.0352	35200	-6.308	Pass

Model Number	CS1A13				
Test Mode	Mode 3				
Frequency	5220 MHz				
Date of Test	07/22/2013			Test Site	TE02
Temp. (°C)	Voltage (VDC)	Measured Frequency (MHz)	Delta Frequency (Hz)	Tolerance (ppm)	Result (Pass/Fail)
-30	5	5219.9653	-34700	6.648	Pass
-20		5220.0269	26900	-5.153	Pass
-10		5219.9497	-50300	9.636	Pass
0		5220.0139	13900	-2.663	Pass
10		5220.0271	27100	-5.192	Pass
20		5220.0194	19400	-3.716	Pass
30		5219.9578	-42200	8.084	Pass
40		5220.0298	29800	-5.709	Pass
50		5220.0682	68200	-13.065	Pass

Model Number	CS1A13				
Test Mode	Mode 3				
Frequency	5280 MHz				
Date of Test	07/22/2013			Test Site	TE02
Temp. (°C)	Voltage (VDC)	Measured Frequency (MHz)	Delta Frequency (Hz)	Tolerance (ppm)	Result (Pass/Fail)
-30	5	5280.0154	15400	-2.917	Pass
-20		5280.0339	33900	-6.420	Pass
-10		5279.9428	-57200	10.833	Pass
0		5280.0258	25800	-4.886	Pass
10		5279.9659	-34100	6.458	Pass
20		5280.0326	32600	-6.174	Pass
30		5280.0149	14900	-2.822	Pass
40		5279.9486	-51400	9.735	Pass
50		5280.0169	16900	-3.201	Pass

Model Number	CS1A13				
Test Mode	Mode 3				
Frequency	5580 MHz				
Date of Test	07/22/2013			Test Site	TE02
Temp. (°C)	Voltage (VDC)	Measured Frequency (MHz)	Delta Frequency (Hz)	Tolerance (ppm)	Result (Pass/Fail)
-30	5	5580.0196	19600	-3.513	Pass
-20		5579.9578	-42200	7.563	Pass
-10		5579.9632	-36800	6.595	Pass
0		5580.0229	22900	-4.104	Pass
10		5579.9672	-32800	5.878	Pass
20		5580.0206	20600	-3.692	Pass
30		5579.9582	-41800	7.491	Pass
40		5580.0217	21700	-3.889	Pass
50		5579.9545	-45500	8.154	Pass

Model Number	CS1A13				
Test Mode	Mode 4				
Frequency	5190 MHz				
Date of Test	07/22/2013			Test Site	TE02
Temp. (°C)	Voltage (VDC)	Measured Frequency (MHz)	Delta Frequency (Hz)	Tolerance (ppm)	Result (Pass/Fail)
-30	5	5189.9645	-35500	6.840	Pass
-20		5190.0196	19600	-3.776	Pass
-10		5189.9623	-37700	7.264	Pass
0		5190.0221	22100	-4.258	Pass
10		5190.0395	39500	-7.611	Pass
20		5189.9756	-24400	4.701	Pass
30		5190.0134	13400	-2.582	Pass
40		5190.0569	56900	-10.963	Pass
50		5190.0336	33600	-6.474	Pass

Model Number	CS1A13				
Test Mode	Mode 4				
Frequency	5270 MHz				
Date of Test	07/22/2013			Test Site	TE02
Temp. (°C)	Voltage (VDC)	Measured Frequency (MHz)	Delta Frequency (Hz)	Tolerance (ppm)	Result (Pass/Fail)
-30	5	5270.0265	26500	-5.028	Pass
-20		5270.0421	42100	-7.989	Pass
-10		5269.9756	-24400	4.630	Pass
0		5269.9695	-30500	5.787	Pass
10		5270.0632	63200	-11.992	Pass
20		5269.9471	-52900	10.038	Pass
30		5270.0243	24300	-4.611	Pass
40		5269.9523	-47700	9.051	Pass
50		5270.0327	32700	-6.205	Pass

Model Number	CS1A13				
Test Mode	Mode 4				
Frequency	5590 MHz				
Date of Test	07/22/2013			Test Site	TE02
Temp. (°C)	Voltage (VDC)	Measured Frequency (MHz)	Delta Frequency (Hz)	Tolerance (ppm)	Result (Pass/Fail)
-30	5	5589.9623	-37700	6.744	Pass
-20		5590.0178	17800	-3.184	Pass
-10		5590.0332	33200	-5.939	Pass
0		5589.9457	-54300	9.714	Pass
10		5589.9781	-21900	3.918	Pass
20		5590.0237	23700	-4.240	Pass
30		5590.0125	12500	-2.236	Pass
40		5590.0567	56700	-10.143	Pass
50		5590.0365	36500	-6.530	Pass

**Voltage Variations**

Model Number	CS1A13				
Test Mode	Mode 2				
Frequency	5220 MHz				
Date of Test	07/22/2013			Test Site	TE02
Temp. (°C)	Voltage (VDC)	Measured Frequency (MHz)	Delta Frequency (Hz)	Tolerance (ppm)	Result (Pass/Fail)
20	5.50	5219.9647	-35300	6.762	Pass
	5.00	5220.0426	42600	-8.161	Pass
	4.50	5219.9755	-24500	4.693	Pass

Model Number	CS1A13				
Test Mode	Mode 2				
Frequency	5280 MHz				
Date of Test	07/22/2013			Test Site	TE02
Temp. (°C)	Voltage (VDC)	Measured Frequency (MHz)	Delta Frequency (Hz)	Tolerance (ppm)	Result (Pass/Fail)
20	5.50	5279.9749	-25100	4.754	Pass
	5.00	5280.0279	27900	-5.284	Pass
	4.50	5279.9623	-37700	7.140	Pass

Model Number	CS1A13				
Test Mode	Mode 2				
Frequency	5580 MHz				
Date of Test	07/22/2013			Test Site	TE02
Temp. (°C)	Voltage (VDC)	Measured Frequency (MHz)	Delta Frequency (Hz)	Tolerance (ppm)	Result (Pass/Fail)
20	5.50	5579.9632	-36800	6.595	Pass
	5.00	5579.9747	-25300	4.534	Pass
	4.50	5580.0269	26900	-4.821	Pass

Model Number	CS1A13				
Test Mode	Mode 3				
Frequency	5220 MHz				
Date of Test	07/22/2013			Test Site	TE02
Temp. (°C)	Voltage (VDC)	Measured Frequency (MHz)	Delta Frequency (Hz)	Tolerance (ppm)	Result (Pass/Fail)
20	5.50	5220.0267	26700	-5.115	Pass
	5.00	5220.0379	37900	-7.261	Pass
	4.50	5220.0517	51700	-9.904	Pass

Model Number	CS1A13				
Test Mode	Mode 3				
Frequency	5280 MHz				
Date of Test	07/22/2013			Test Site	TE02
Temp. (°C)	Voltage (VDC)	Measured Frequency (MHz)	Delta Frequency (Hz)	Tolerance (ppm)	Result (Pass/Fail)
20	5.50	5279.9482	-51800	9.811	Pass
	5.00	5280.0571	57100	-10.814	Pass
	4.50	5280.0457	45700	-8.655	Pass

Model Number	CS1A13				
Test Mode	Mode 3				
Frequency	5580 MHz				
Date of Test	07/22/2013			Test Site	TE02
Temp. (°C)	Voltage (VDC)	Measured Frequency (MHz)	Delta Frequency (Hz)	Tolerance (ppm)	Result (Pass/Fail)
20	5.50	5580.0256	25600	-4.588	Pass
	5.00	5580.0575	57500	-10.305	Pass
	4.50	5579.9418	-58200	10.430	Pass

Model Number	CS1A13				
Test Mode	Mode 4				
Frequency	5190 MHz				
Date of Test	07/22/2013			Test Site	TE02
Temp. (°C)	Voltage (VDC)	Measured Frequency (MHz)	Delta Frequency (Hz)	Tolerance (ppm)	Result (Pass/Fail)
20	5.50	5189.9703	-29700	5.723	Pass
	5.00	5189.9542	-45800	8.825	Pass
	4.50	5189.9749	-25100	4.836	Pass

Model Number	CS1A13				
Test Mode	Mode 4				
Frequency	5270 MHz				
Date of Test	07/22/2013			Test Site	TE02
Temp. (°C)	Voltage (VDC)	Measured Frequency (MHz)	Delta Frequency (Hz)	Tolerance (ppm)	Result (Pass/Fail)
20	5.50	5270.0127	12700	-2.410	Pass
	5.00	5269.9758	-24200	4.592	Pass
	4.50	5270.0328	32800	-6.224	Pass

Model Number	CS1A13				
Test Mode	Mode 4				
Frequency	5590 MHz				
Date of Test	07/22/2013			Test Site	TE02
Temp. (°C)	Voltage (VDC)	Measured Frequency (MHz)	Delta Frequency (Hz)	Tolerance (ppm)	Result (Pass/Fail)
20	5.50	5589.9845	-15500	2.773	Pass
	5.00	5590.0632	63200	-11.306	Pass
	4.50	5590.0775	77500	-13.864	Pass



## **11 Antenna Requirement**

### **11.1. Limit**

For intentional device, according to 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And According to 15.407 (a), if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

### **11.2. Antenna Connector Construction**

The antenna used in this product is Chip Antenna. And the maximum Gain of this antenna is only 0.9 dBi.