



**FCC 47 CFR PART 15 SUBPART C  
Industry Canada RSS-210  
Test Report**

For

**Product Name: High Power MiniPCI 5.8GHz**

**Brand Name: Microhard**

**Model No.: XA58-26**

**Series Model: N/A**

**Test Report Number:  
KS120327A03-RPB**

Issued for

**Microhard Systems Inc.**

**150 Country Hills Landing NW Calgary Alberta Canada T3K 5P3**

Issued by

**Compliance Certification Services Inc.**

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TESTING CERT #2541.01

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# Compliance Certification Services Inc.

FCC ID: NS912XA58-26

Report No: KS120327A03-RPB

IC: 3143A-12XA58-26

Date of Issue :2012-4-17

## 1 TEST RESULT CERTIFICATION

<b>Product Name:</b>	High Power MiniPCI 5.8GHz
<b>Trade Name:</b>	Microhard
<b>Model Name.:</b>	XA58-26
<b>Series Model:</b>	N/A
<b>Applicant Discrepancy:</b>	Initial
<b>Device Category:</b>	MOBILE DEVICES
<b>Exposure Category:</b>	GENERAL POPULATION/UNCONTROLLED EXPOSURE
<b>Date of Test:</b>	2012-4-2~2012-4-14
<b>Applicant:</b>	<b>Microhard Systems Inc.</b> 150 Country Hills Landing NW Calgary Alberta Canada T3K 5P3
<b>Manufacturer:</b>	<b>Microhard Systems Inc.</b> 150 Country Hills Landing NW Calgary Alberta Canada T3K 5P3
<b>Application Type:</b>	Certification

### APPLICABLE STANDARDS

STANDARD	TEST RESULT
FCC 47 CFR Part 15 Subpart C IC RSS-210 Issue 8 with December 2010 C63.4: 2009	No non-compliance noted

The above equipment was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4: 2009 and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules Part 15.207, 15.209, 15.247 and RSSS-210,RSSS-Gen.

#### We hereby certify that:

Compliance Certification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

The test results of this report relate only to the tested sample identified in this report.

Tested by: Sean Yu

Sean.Yu

Revised by: Rose Wang

Rose.Wang

Approved by: Hadiif Hoo

Manager: Hadiif Hoo



## 2 EUT DESCRIPTION

<b>Product Name</b>	High Power MiniPCI 5.8GHz
<b>Trade Name</b>	Microhard
<b>Model No.</b>	XA58-26
<b>Model Discrepancy</b>	N/A
<b>Working Voltage</b>	3.3VDC
<b>Frequency Range</b>	IEEE802.11a: 5725-5850MHz
<b>Transmit Power</b>	IEEE802.11a mode: Peak Power:0.42W Average Power:0.30W IEEE802.11a super mode: Peak Power: 0.41W Average Power:0.27W
<b>Channel Number</b>	IEEE 802.11a mode (5725-5850 MHz) = 5 IEEE 802.11a super mode (5725-5850 MHz) = 5
<b>Type of Modulation</b>	OFDM: BPSK, QPSK, 16 QAM, 64QAM
<b>Data Rate</b>	IEEE 802.11a: 6/9/12/18/24/36/48/54/ Mbps IEEE 802.11a: 6/12/18/24/36/48/54/72/96/108 Mbps
<b>Antenna Gain</b>	2.00 dBi gain (Max) for test
<b>Antenna requirement</b>	Non-standard joint 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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this FCC CFR 47 2,Part 15.203.
<b>Number of External Test Ports Exercised</b>	Dipole Antenna: Model:C0053-ANG0003 Connector: RP SMA Plug, 1 Antenna Port

### Remark:

- 1.This submittal(s) (test report) is intended for **FCC ID: NS912XA58-26** to comply with Section 15.207, 15.209 and 15.247 of the FCC Part 15, Subpart C Rules.
- 2.This submittal(s) (test report) is intended for **IC: 3143A-12XA58-26** to comply with IC RSS-210,IC RSS-Gen Rules.



## 3 TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4 and FCC CFR 47 2,Part 15.247 and RSS-210 issue 8,RSS-Gen issue 3

### 3.1. DESCRIPTION OF TEST MODES

The EUT had been tested under operating condition.

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, which worst case was in normal link mode only.

IEEE802.11a: Channel 149 (5745MHz), Channel 157(5785MHz) and Channel 165 (5825MHz) with preliminary test 6/9/12/18/24/36/48/54, After the preliminary scan, the following test mode 6Mbps highest data rate (the worst case) are chosen for the final testing.

IEEE802.11a super mode: Channel 149 (5745MHz), Channel 157(5785MHz) and Channel 165 (5825MHz) with preliminary test 6/12/18/24/36/48/54/72/96/108, After the preliminary scan, the following test mode 108Mbps highest data rate (the worst case) are chosen for the final testing.

### 3.2. EUT EXERCISE

The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements.

According to its specifications, the EUT must comply with the requirements of the Part 15 under the FCC Rules Part 15 Subpart C and RSS-Gen issue 3

### 3.3. GENERAL TEST PROCEDURES

#### Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

#### Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.4.



### 3.4. RESTRICTED BANDS OF OPERATIONS

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
0.495 - 0.505 <sup>(1)</sup>	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5 <sup>(2)</sup>
12.57675 - 12.57725	322 - 335.4	3600 - 4400	
13.36 - 13.41			

<sup>1</sup> Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

<sup>2</sup> Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

### 3.5. SETUP CONFIGURATION OF EUT

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

### 3.6. SUPPORT EQUIPMENT

No.	Equipment	Model No.	Serial No.	FCC ID	Trade Name	Data Cable	Power Cord
1	Notebook	X20	N/A	N/A	IBM	N/A	N/A

#### Remark:

- All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
- Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.



## 4 INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

### 4.1. MEASUREMENT EQUIPMENT USED

Conducted Emissions Test Site				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY44020154	2012-5-13
DETECTOR NEGATIVE	Agilent	8473B	MY42240176	2012-5-13
OSCILLOSCOPE	Agilent	DSO6104A	MY44002585	2013-3-25
Peak and Avg Power Sensor	Agilent	E9327A	US40441788	2013-3-25
EPM-P Series Power Meter	Agilent	E4416A	GB41292714	2012-5-13
Power SPLITTER	Mini-Circuits	ZN2PD-9G	SF078500430	2012-5-13
DC POWER SUPPLY	GW instek	GPS-3303C	E903131	2012-5-13
Temp. / Humidity Chamber	Kingson	THS-M1	242	2013-3-13
Test Software	EZ-EMC			

977 Chamber				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY44020154	2012-5-13
EMI Test Receiver	R&S	ESPI3	101026	2013-3-15
Pre-Amplifier	MINI	ZFL-1000VH2	d041703	2012-6-30
Pre-Amplifier	Miteq	NSP4000-NF	870629	2012-6-30
Bilog Antenna	Sunol	JB1	A110204-2	2012-6-24
Horn-antenna	SCHWARZBECK	BBHA9120D	D:266	2012-5-13
Turn Table	CT	CT123	4165	N.C.R
Antenna Tower	CT	CTERG23	3256	N.C.R
Controller	CT	CT100	95637	N.C.R
Test Software	EZ-EMC			



Conducted Emission				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI TEST RECEIVER	R&S	ESCI3	100781	2013-3-15
V (V-LISN)	Schwarzbeck	NNLK 8129	8129-143	2013-3-15
LISN (EUT)	FCC	FCC-LISN-50/250-50-2-02	SN:05012	2013-3-15
TRANSIENT LIMITER	SCHAFFNER	CFL9206	1710	2013-4-9
Test Software	EZ-EMC			

**Remark:** Each piece of equipment is scheduled for calibration once a year.

## 4.2. MEASUREMENT UNCERTAINTY

For the test methods, according to the present document, the measurement uncertainty figures shall be calculated in accordance with TR 100 028-1 [2] and shall correspond to an expansion factor (coverage factor)  $k = 1,96$  or  $k = 2$  (which provide confidence levels of respectively 95 % and 95,45 % in the case where the distributions characterizing the actual measurement uncertainties are normal (Gaussian)).

Table 6 is based on such expansion factors.

**Table 6: Maximum measurement uncertainty**

Parameter	Uncertainty
Radio frequency	$\pm 0.8 \times 10^{-7}$
RF power, conducted	0.2054
Maximum frequency deviation:	
-within 300 Hz and 6 kHz of audio frequency	1.3%
-within 6 kHz and 25 kHz of audio frequency	0.65 dB
Adjacent channel power	0.2054
Conducted spurious emission of transmitter, valid up to 6 GHz	0.2892
Conducted emission of receivers	+1.2/-1.1 dB
Radiated emission of transmitter, valid up to 6 GHz	$\pm 3.94$ dB
Radiated emission of receiver, valid up to 6 GHz	$\pm 3.94$ dB
RF level uncertainty for a given BER	$\pm 0.3$ dB
Temperature	0.1979
Humidity	$\pm 1$ %





## 5 FACILITIES AND ACCREDITATIONS

### 5.1. FACILITIES

All measurement facilities used to collect the measurement data are located at

**No.10Weiye Rd., Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China.**

The sites are constructed in conformance with the requirements of ANSI C63.4:2003 and CISPR Publication 22. All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

### 5.2. EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with preselectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

### 5.3. TABLE OF ACCREDITATIONS AND LISTINGS

Our laboratories are accredited and approved by the following accreditation body according to ISO/IEC 17025.

<b>USA</b>	A2LA
<b>China</b>	CNAS

The measuring facility of laboratories has been authorized or registered by the following approval agencies.

<b>Canada</b>	Industry Canada
<b>Japan</b>	VCCI
<b>Taiwan</b>	BSMI
<b>USA</b>	FCC

#### DETAILS OF ACCREDITATION STATUS

<b>FCC filed test laboratory Reg. No</b>	238958
<b>Industry Canada filed test laboratory Reg. No</b>	2324E-2

Copies of granted accreditation certificates are available for downloading from our web site, <http://www.ccsrf.com>.



## 6 REQUIREMENTS

### 6.1. 6dB BANDWIDTH MEASUREMENT

#### 6.1.1. LIMITS

According to §15.247(a)(2) and RSS-210 §A8.2(1) systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz, and 5725 - 5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

#### 6.1.2. TEST PROCEDURES (please refer to measurement standard)

1. Place the EUT on the table and set it in the transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as RBW = 100kHz, VBW = 300kHz, Span = 20MHz, Sweep = auto.
4. Mark the peak frequency and -6dB (upper and lower) frequency.
5. Repeat until all the rest channels are investigated.

#### 6.1.3. TEST SETUP



#### 6.1.4. TEST RESULTS

*No non-compliance noted*

##### Test Data

Test mode: IEEE 802.11a

Channel	Frequency (MHz)	-6dB Bandwidth (kHz)	Limit (kHz)	Test Result
149	5745	16372	>500	PASS
157	5785	16344		PASS
165	5825	16337		PASS

Test mode: IEEE 802.11a Super mode

Channel	Frequency (MHz)	-6dB Bandwidth (kHz)	Limit (kHz)	Test Result
149	5745	33041.6	>500	PASS
157	5785	33375.2		PASS
165	5825	34897.7		PASS



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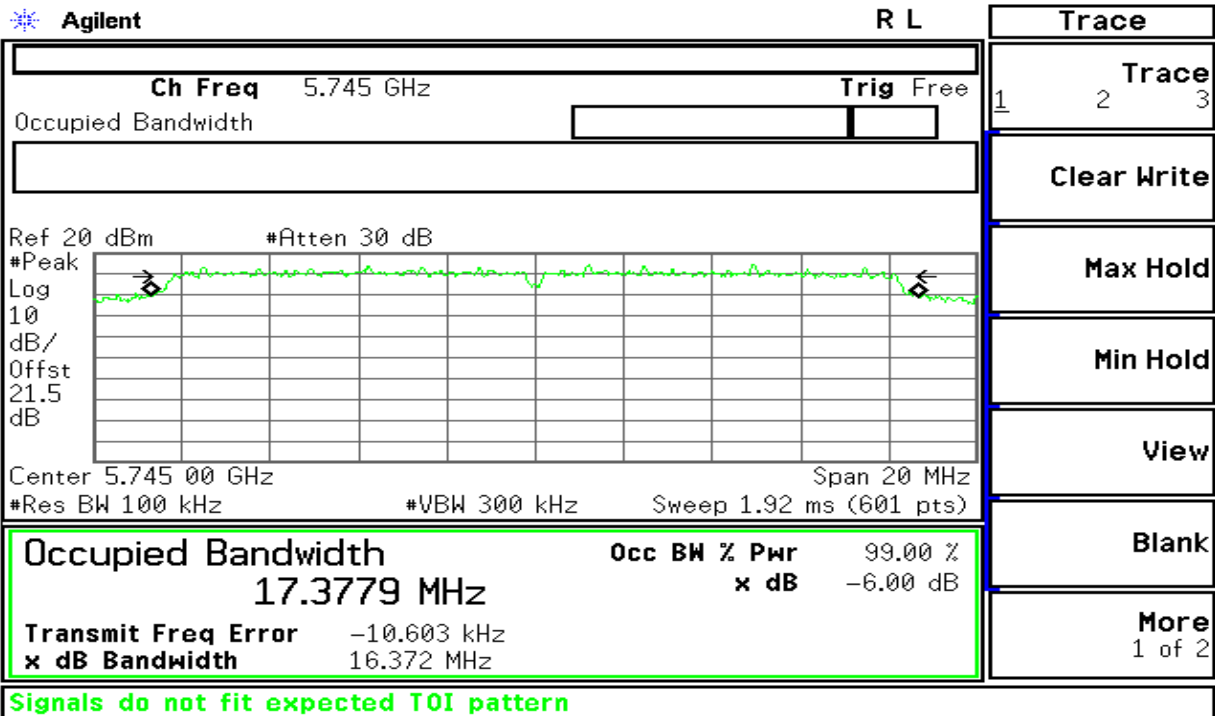
Report No: KS120327A03-RPB

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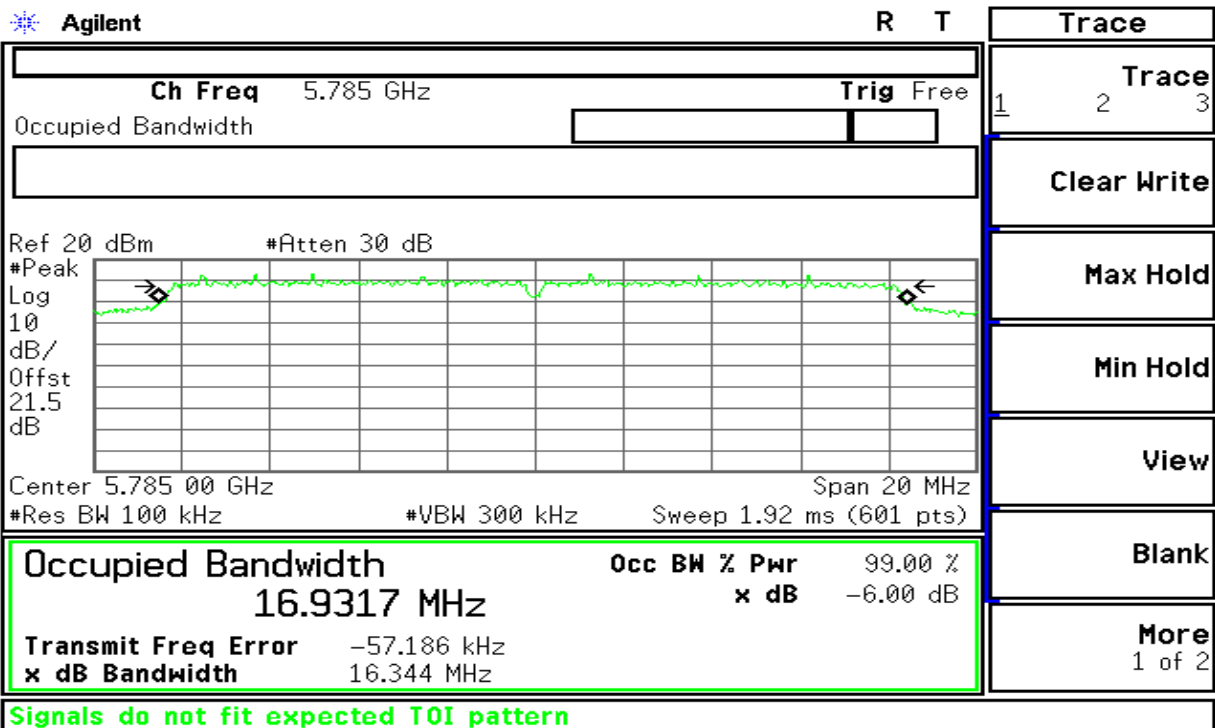
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## Test Plot (IEEE 802.11a mode)

### -6dB Bandwidth (Channel 149)



### -6dB Bandwidth (Channel 157)





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## -6dB Bandwidth (Channel 165)

Agilent R L

<b>Ch Freq</b> 5.825 GHz <span style="float: right;"><b>Trig</b> Free</span>	<b>Trace</b>
Occupied Bandwidth	1 2 3
	<b>Clear Write</b>
	<b>Max Hold</b>
	<b>Min Hold</b>
	<b>View</b>
	<b>Blank</b>
	<b>More</b> 1 of 2

Ref 20 dBm #Atten 30 dB

#Peak  
Log  
10  
dB/  
Offst  
21.5  
dB

Center 5.825 00 GHz Span 20 MHz  
#Res BW 100 kHz #VBW 300 kHz Sweep 1.92 ms (601 pts)

<b>Occupied Bandwidth</b>	<b>Occ BW % Pwr</b>	99.00 %
16.7020 MHz	<b>x dB</b>	-6.00 dB
<b>Transmit Freq Error</b>		-86.225 kHz
<b>x dB Bandwidth</b>		16.337 MHz

Signals do not fit expected T01 pattern

Test mode: IEEE 802.11a Super mode

## -6dB Bandwidth (Channel 149)

Agilent R L

<b>Ch Freq</b> 5.745 GHz <span style="float: right;"><b>Trig</b> Free</span>	<b>Freq/Channel</b>
Occupied Bandwidth	<b>Center Freq</b> 5.74500000 GHz
	<b>Start Freq</b> 5.72000000 GHz
	<b>Stop Freq</b> 5.77000000 GHz
	<b>CF Step</b> 5.00000000 MHz Auto Man
	<b>Freq Offset</b> 0.00000000 Hz
	<b>Signal Track</b> On Off

Ref 130 dBμV #Atten 30 dB

#Peak  
Log  
10  
dB/  
Offst  
21.5  
dB

Center 5.745 00 GHz Span 50 MHz  
#Res BW 100 kHz #VBW 300 kHz Sweep 4.8 ms (601 pts)

<b>Occupied Bandwidth</b>	<b>Occ BW % Pwr</b>	99.00 %
33.0416 MHz	<b>x dB</b>	-6.00 dB
<b>Transmit Freq Error</b>		-105.260 kHz
<b>x dB Bandwidth</b>		30.299 MHz

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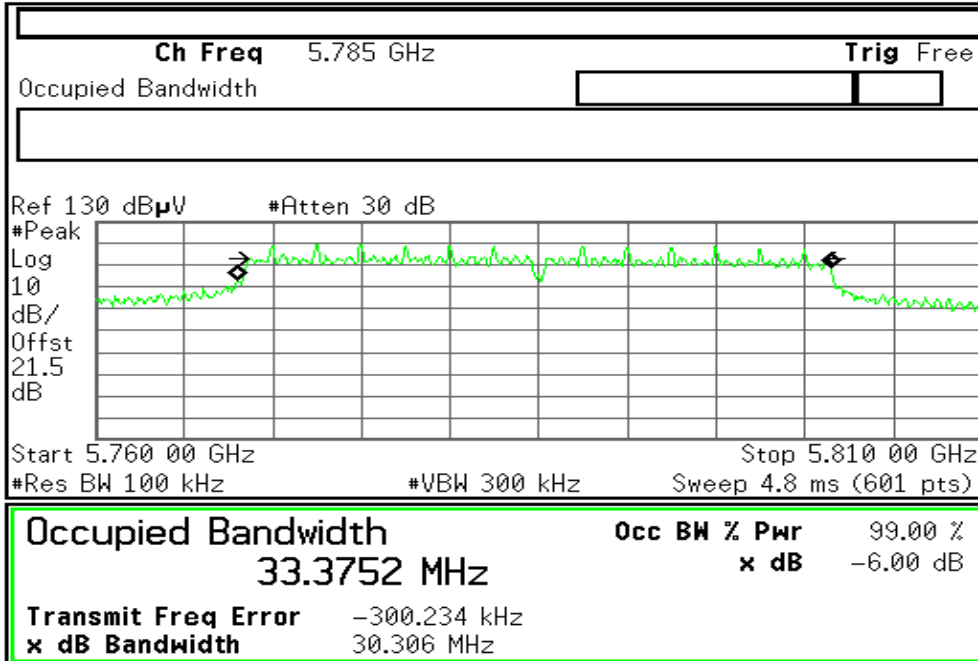
IC: 3143A-12XA58-26

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## -6dB Bandwidth (Channel 157)

Agilent

R T



Freq/Channel

Center Freq 5.78500000 GHz

Start Freq 5.76000000 GHz

Stop Freq 5.81000000 GHz

CF Step 5.00000000 MHz  
Auto Man

Freq Offset 0.00000000 Hz

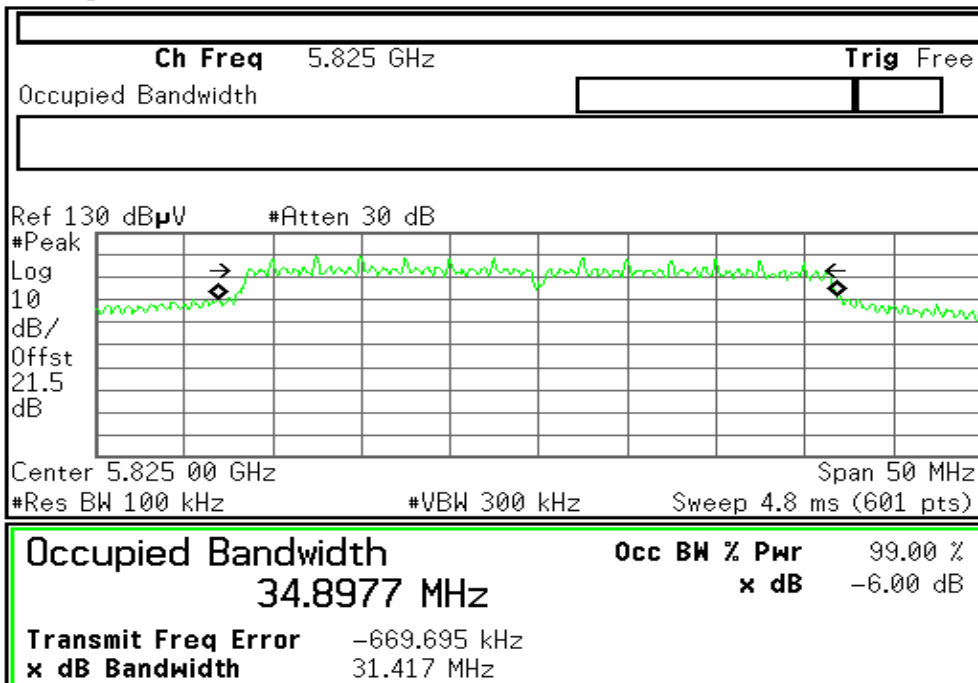
Signal Track On Off

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## -6dB Bandwidth (Channel 165)

Agilent

R L



Freq/Channel

Center Freq 5.82500000 GHz

Start Freq 5.80000000 GHz

Stop Freq 5.85000000 GHz

CF Step 5.00000000 MHz  
Auto Man

Freq Offset 0.00000000 Hz

Signal Track On Off

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## 6.2. 99% BANDWIDTH MEASUREMENT

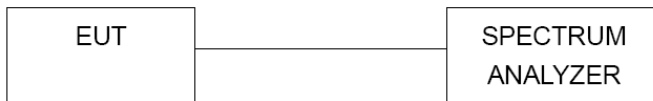
### 6.2.1. LIMITS

According to §15.247(a)(2) and RSS-210 §A8.2(1) systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz, and 5725 - 5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

### 6.2.2. TEST PROCEDURES (please refer to measurement standard)

1. Place the EUT on the table and set it in the transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as RBW = 1% of the Span, VBW  $\geq$  3 RBW , Sweep = auto.
4. Mark the peak frequency and 99% (upper and lower) frequency.
5. Repeat until all the rest channels are investigated.

### 6.2.3. TEST SETUP



### 6.2.4. TEST RESULTS

*No non-compliance noted*

#### Test Data

Test mode: IEEE 802.11a

Channel	Frequency (MHz)	99% Bandwidth (MHz)	Limit (kHz)	Test Result
149	5745	17.1799	>500	PASS
157	5785	16.3317		PASS
165	5825	16.6021		PASS

Test mode: IEEE 802.11a Super mode

Channel	Frequency (MHz)	99% Bandwidth (MHz)	Limit (kHz)	Test Result
149	5745	31.0106	>500	PASS
157	5785	31.0151		PASS
165	5825	30.8779		PASS



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## Test Plot (IEEE 802.11a mode)

### 99% Bandwidth (Channel 149)

		R L	Trace
<b>Ch Freq</b> 5.745 GHz		<b>Trig</b> Free	1 Trace 2 3
Occupied Bandwidth		<input type="text"/>	<b>Clear Write</b>
Ref 20 dBm #Atten 30 dB			<b>Max Hold</b>
#Peak Log 10 dB/Offst 21.5 dB		Center 5.745 00 GHz Span 20 MHz #Res BW 200 kHz #VBW 600 kHz Sweep 1.92 ms (601 pts)	<b>Min Hold</b>
<b>Occupied Bandwidth</b>		<b>Occ BW % Pwr</b> 99.00 %	<b>View</b>
17.1799 MHz		x dB -6.00 dB	<b>Blank</b>
<b>Transmit Freq Error</b> -10.303 kHz			<b>More</b> 1 of 2
<b>x dB Bandwidth</b> 16.072 MHz			
<b>Signals do not fit expected TOI pattern</b>			

### 99% Bandwidth (Channel 157)

		R T	Trace
<b>Ch Freq</b> 5.785 GHz		<b>Trig</b> Free	1 Trace 2 3
Occupied Bandwidth		<input type="text"/>	<b>Clear Write</b>
Ref 20 dBm #Atten 30 dB			<b>Max Hold</b>
#Peak Log 10 dB/Offst 21.5 dB		Center 5.785 00 GHz Span 20 MHz #Res BW 200 kHz #VBW 600 kHz Sweep 1.92 ms (601 pts)	<b>Min Hold</b>
<b>Occupied Bandwidth</b>		<b>Occ BW % Pwr</b> 99.00 %	<b>View</b>
16.3317 MHz		x dB -6.00 dB	<b>Blank</b>
<b>Transmit Freq Error</b> -57.687 kHz			<b>More</b> 1 of 2
<b>x dB Bandwidth</b> 16.040 MHz			
<b>Signals do not fit expected TOI pattern</b>			





## 99% Bandwidth (Channel 165)

<b>Agilent</b> <span style="float: right;">R L</span>		<b>Trace</b>	
<b>Ch Freq</b> 5.825 GHz <span style="float: right;"><b>Trig</b> Free</span>		1 <b>Trace</b> 2 3	
Occupied Bandwidth <span style="float: right;">[ ] [ ]</span>		<b>Clear Write</b>	
Ref 20 dBm <span style="float: right;">#Atten 30 dB</span>		<b>Max Hold</b>	
#Peak Log 10 dB/ Offst 21.5 dB		<b>Min Hold</b>	
		<b>View</b>	
Center 5.825 00 GHz <span style="float: right;">Span 20 MHz</span> #Res BW 200 kHz <span style="float: right;">#VBW 600 kHz Sweep 1.92 ms (601 pts)</span>		<b>Blank</b>	
<b>Occupied Bandwidth</b> <span style="float: right;"><b>Occ BW % Pwr</b> 99.00 %</span> 16.6021 MHz <span style="float: right;"><b>x dB</b> -6.00 dB</span>		<b>More</b> 1 of 2	
<b>Transmit Freq Error</b> -85.525 kHz <b>x dB Bandwidth</b> 16.236 MHz			
<b>Signals do not fit expected TOI pattern</b>			

Test mode: IEEE 802.11a Super mode

## 99% Bandwidth (Channel 149)

<b>Agilent</b> <span style="float: right;">R L</span>		<b>Freq/Channel</b>	
<b>Ch Freq</b> 5.745 GHz <span style="float: right;"><b>Trig</b> Free</span>		<b>Center Freq</b> 5.74500000 GHz	
Occupied Bandwidth <span style="float: right;">[ ] [ ]</span>		<b>Start Freq</b> 5.72000000 GHz	
Ref 130 dBμV <span style="float: right;">#Atten 30 dB</span>		<b>Stop Freq</b> 5.77000000 GHz	
#Peak Log 10 dB/ Offst 21.5 dB		<b>CF Step</b> 5.00000000 MHz Auto Man	
		<b>Freq Offset</b> 0.00000000 Hz	
Center 5.745 00 GHz <span style="float: right;">Span 50 MHz</span> #Res BW 500 kHz <span style="float: right;">#VBW 2 MHz Sweep 4.8 ms (601 pts)</span>		<b>Signal Track</b> On Off	
<b>Occupied Bandwidth</b> <span style="float: right;"><b>Occ BW % Pwr</b> 99.00 %</span> 31.0106 MHz <span style="float: right;"><b>x dB</b> -6.00 dB</span>			
<b>Transmit Freq Error</b> -103.203 kHz <b>x dB Bandwidth</b> 30.109 MHz			
<b>Copyright 2000-2008 Agilent Technologies</b>			





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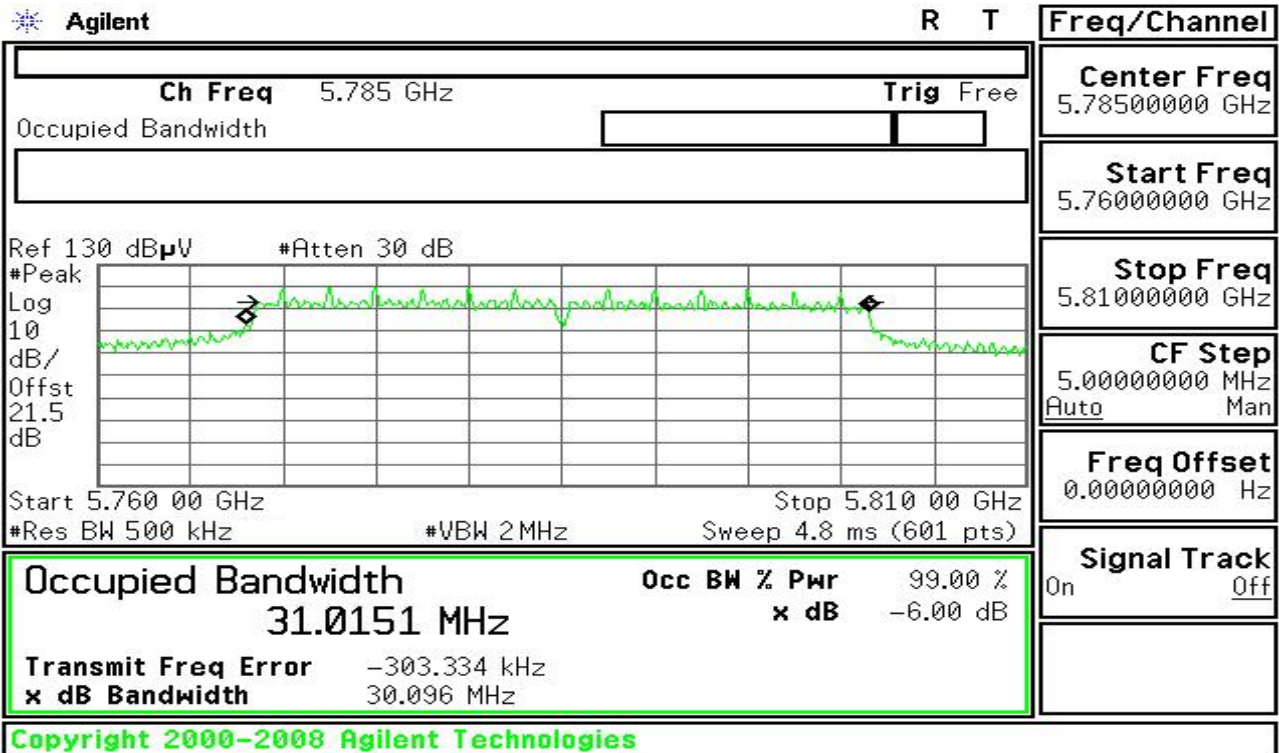
FCC ID: NS912XA58-26

Report No: KS120327A03-RPB

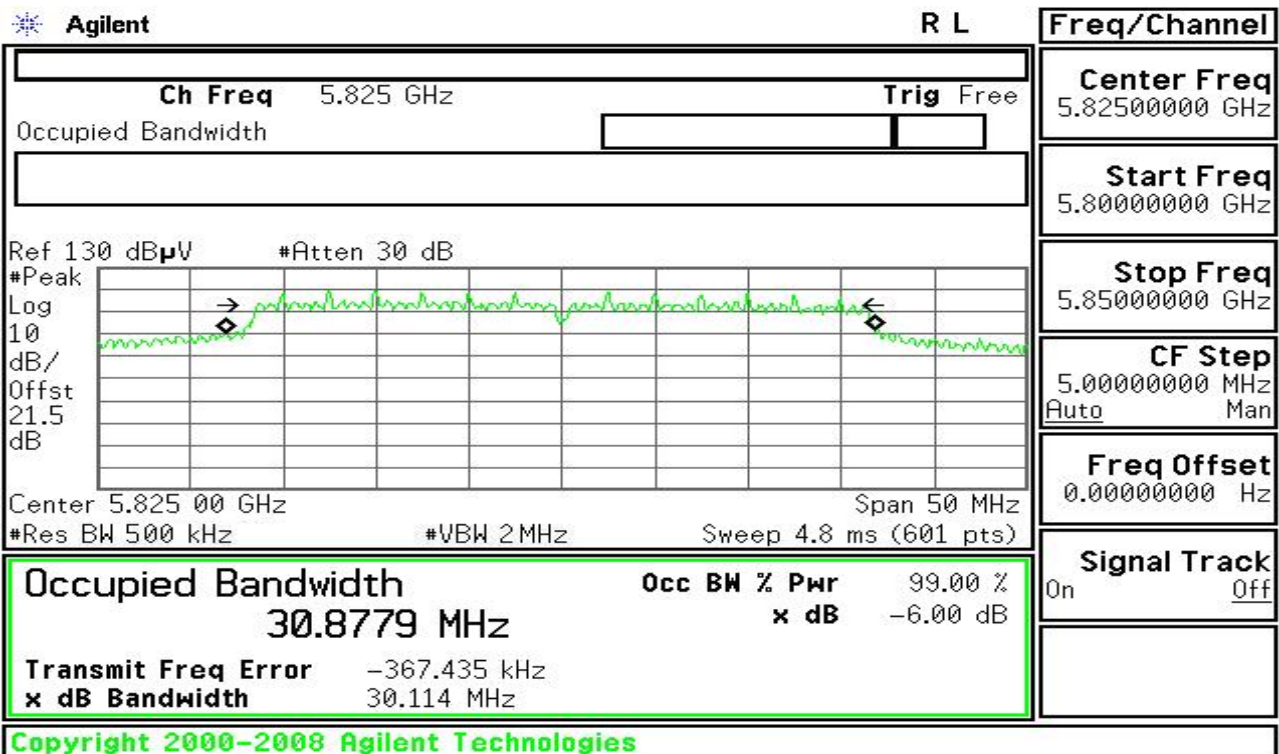
IC: 3143A-12XA58-26

Date of Issue :2012-4-17

## 99% Bandwidth (Channel 157)



## 99% Bandwidth (Channel 165)





## 6.3. PEAK OUTPUT POWER

### 6.3.1. LIMITS

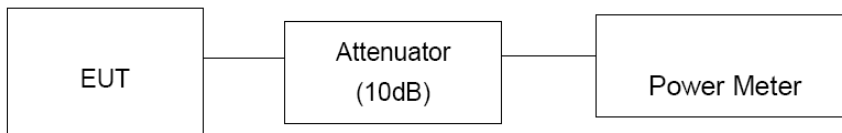
The maximum peak output power of the intentional radiator shall not exceed the following:

1. According to §15.247(b)(3) and According to RSS-210 §A8.4(4), for systems using digital modulation in the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz: 1 Watt.
2. According to §15.247(b)(4), the conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### 6.3.2. TEST PROCEDURES (please refer to measurement standard)

1. The transmitter output was connected to the power meter through an attenuator; the bandwidth of the fundamental frequency was measured with the power meter.
2. Record the power level.

### 6.3.3. TEST SETUP



### 6.3.4. TEST RESULTS

*No non-compliance noted*

#### Test Data

Test mode: IEEE 802.11a

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
149	5745	26.19	0.41591	1	Pass
157	5785	24.86	0.30620		Pass
165	5825	23.66	0.23227		Pass

Test mode: IEEE 802.11a Super mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
149	5745	26.11	0.40832	1	Pass
157	5785	24.61	0.28907		Pass
165	5825	23.46	0.22182		Pass



## 6.4. AVERAGE POWER

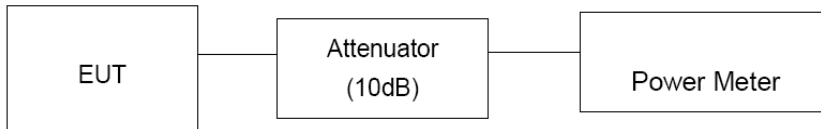
### 6.4.1. LIMITS

None; for reporting purposes only

### 6.4.2. TEST PROCEDURES (please refer to measurement standard)

1. The transmitter output was connected to the power meter through an attenuator; the bandwidth of the fundamental frequency was measured with the power meter.
2. Record the power level.

### 6.4.3. TEST SETUP



### 6.4.4. TEST RESULTS

*No non-compliance noted*

#### Test Data

Test mode: IEEE 802.11a

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
149	5745	24.77	0.29992	1	Pass
157	5785	23.46	0.22182		Pass
165	5825	22.93	0.19634		Pass

Test mode: IEEE 802.11a Super mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
149	5745	24.26	0.26669	1	Pass
157	5785	22.98	0.19861		Pass
165	5825	22.47	0.17660		Pass



## 6.5. PEAK POWER SPECTRAL DENSITY MEASUREMENT

### 6.5.1. LIMITS

1. According to §15.247(e) and RSS-210 §A8.2(b), for digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.
2. According to §15.247(f), the digital modulation operation of the hybrid system, with the frequency hopping turned off, shall comply with the power density requirements of paragraph (d) of this section.

### 6.5.2. TEST PROCEDURES (please refer to measurement standard)

1. Place the EUT on the table and set it in transmitting mode.  
Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
2. Set the spectrum analyzer as RBW = 3kHz, VBW = 10kHz, Span = 300kHz, Sweep=100s
3. Record the max. reading.
4. Repeat the above procedure until the measurements for all frequencies are completed.

### 6.5.3. TEST SETUP



### 6.5.4. TEST RESULTS

No non-compliance noted

#### Test Data

Test mode: IEEE 802.11a

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Test Result
149	5745	-5.86	8.00	PASS
157	5785	-9.01		PASS
165	5825	-7.37		PASS

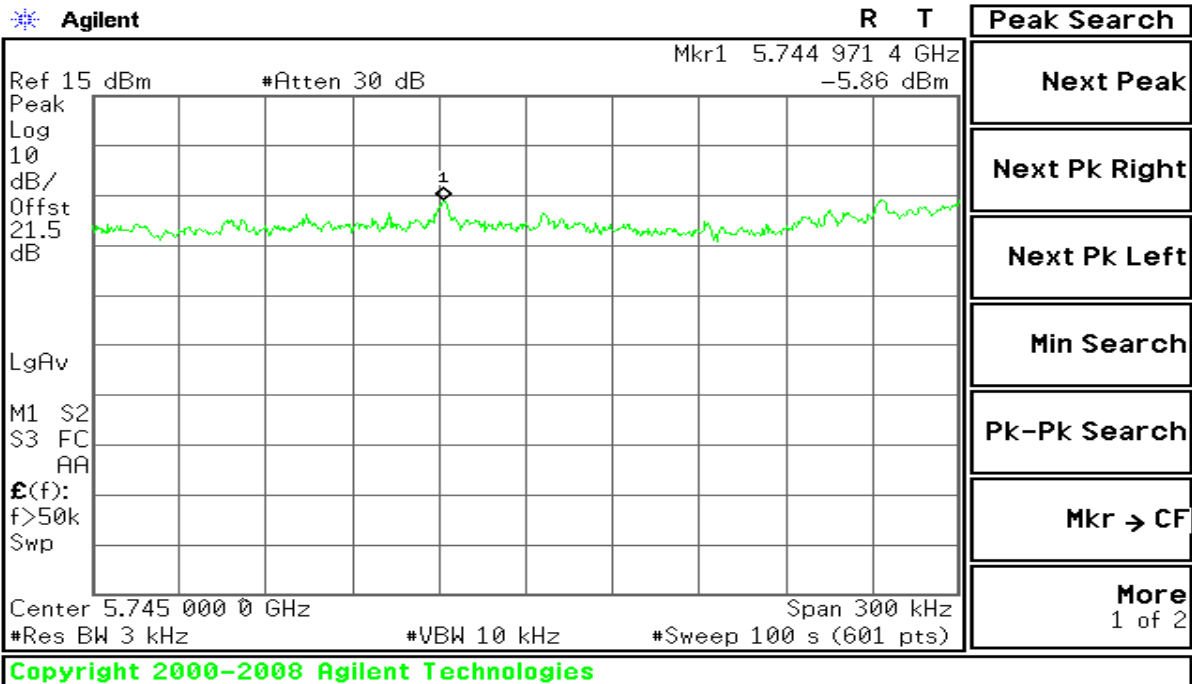
Test mode: IEEE 802.11a Super mode

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Test Result
149	5745	-5.84	8.00	PASS
157	5785	-9.05		PASS
165	5825	-7.27		PASS

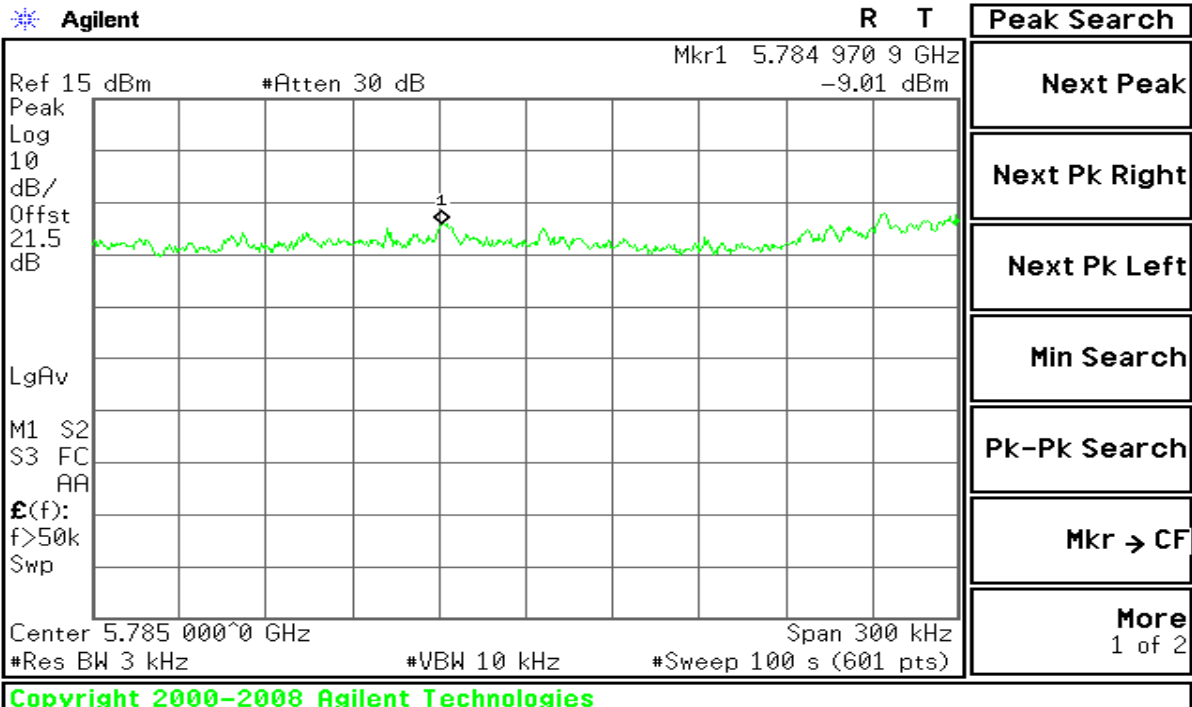


### Test Plot (IEEE 802.11a mode)

### PPSD (CH Low)



### PPSD (CH Mid)





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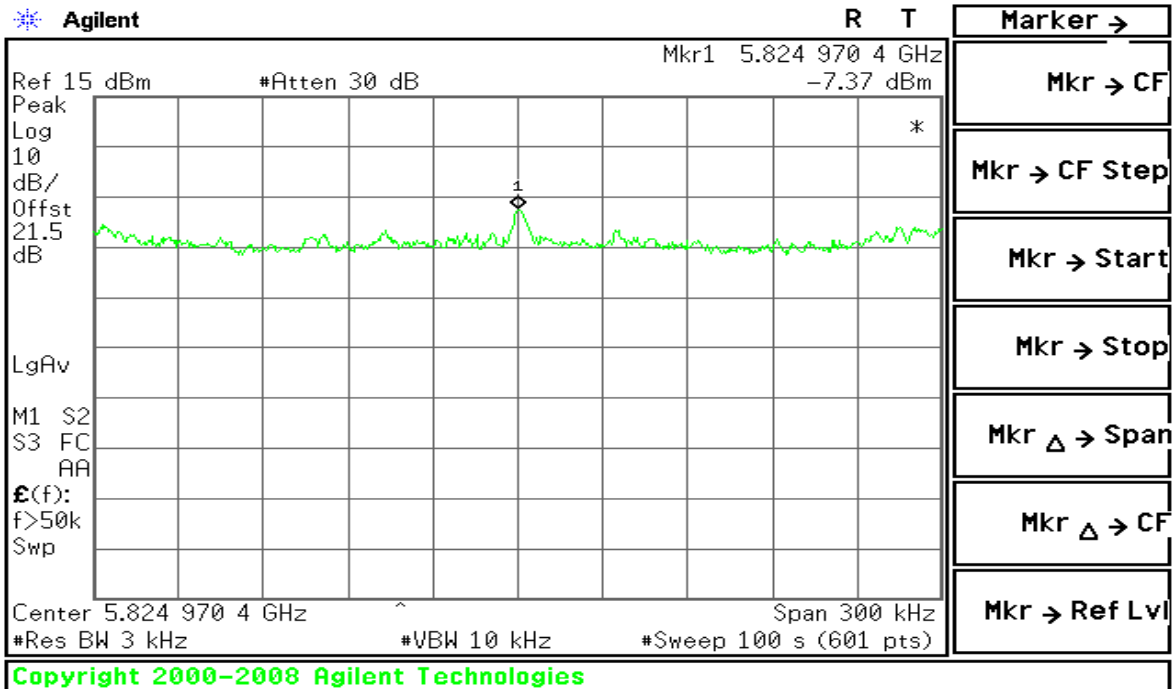
FCC ID: NS912XA58-26

Report No: KS120327A03-RPB

IC: 3143A-12XA58-26

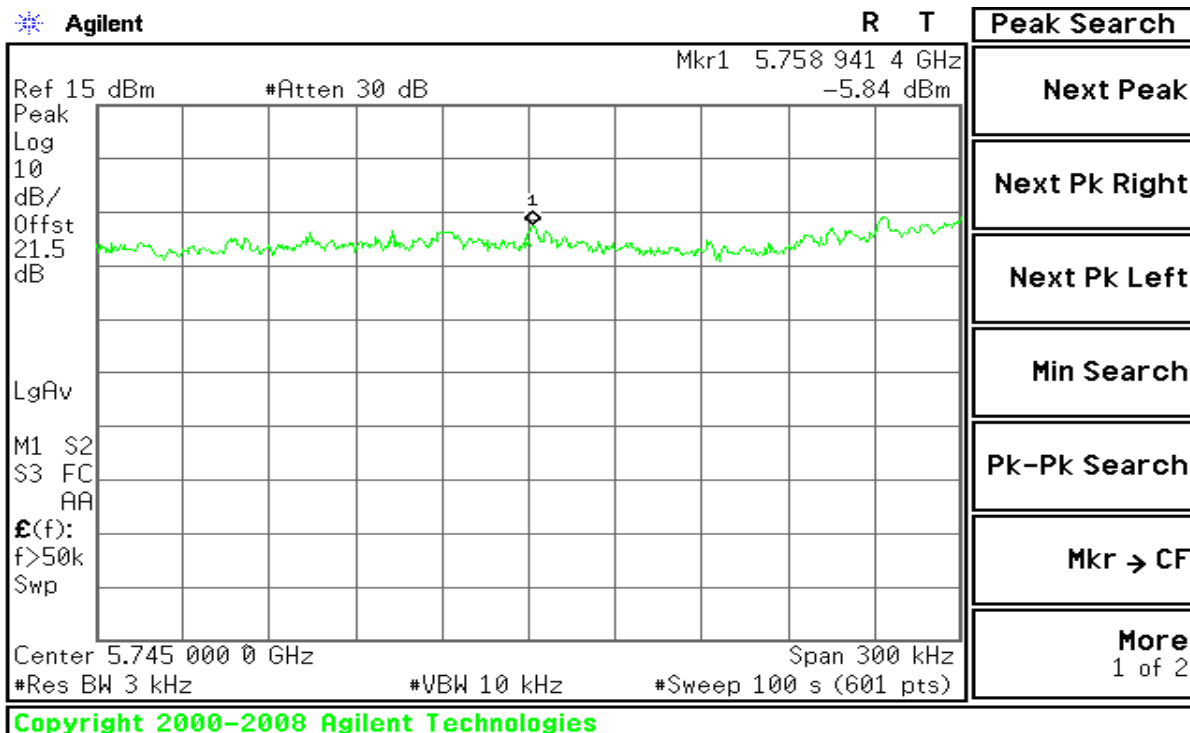
Date of Issue :2012-4-17

## PPSD (CH High)



## Test mode: IEEE 802.11a Super mode

## PPSD (CH Low)





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FCC ID: NS912XA58-26

Report No: KS120327A03-RPB

IC: 3143A-12XA58-26

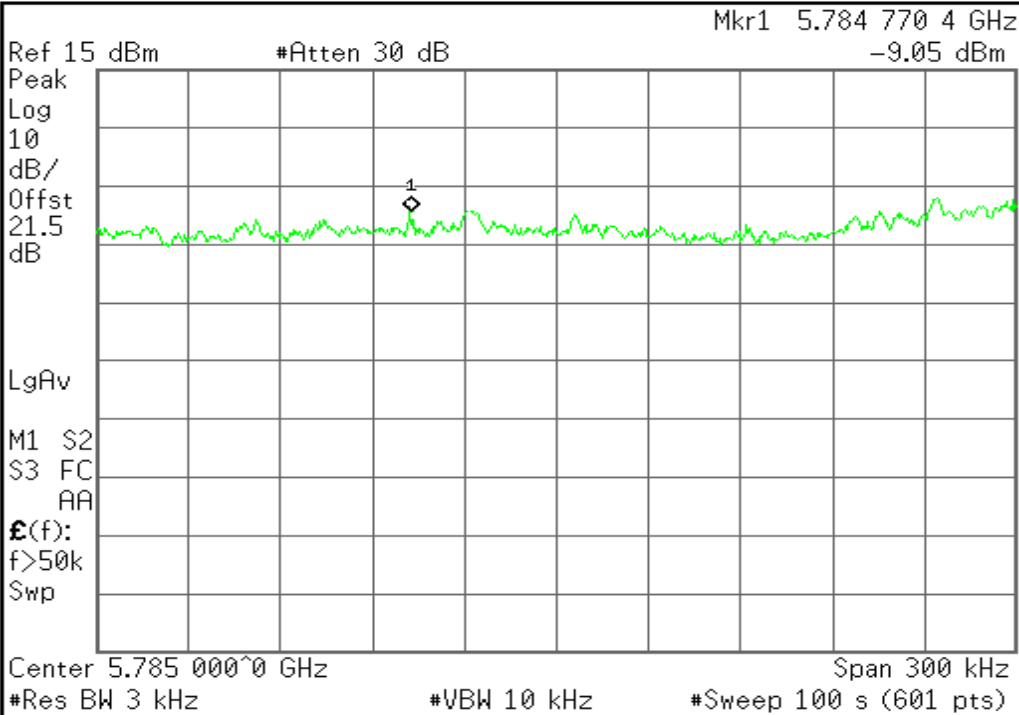
Date of Issue :2012-4-17

## PPSD (CH Mid)

Agilent

R T

Peak Search



- Next Peak
- Next Pk Right
- Next Pk Left
- Min Search
- Pk-Pk Search
- Mkr → CF
- More 1 of 2

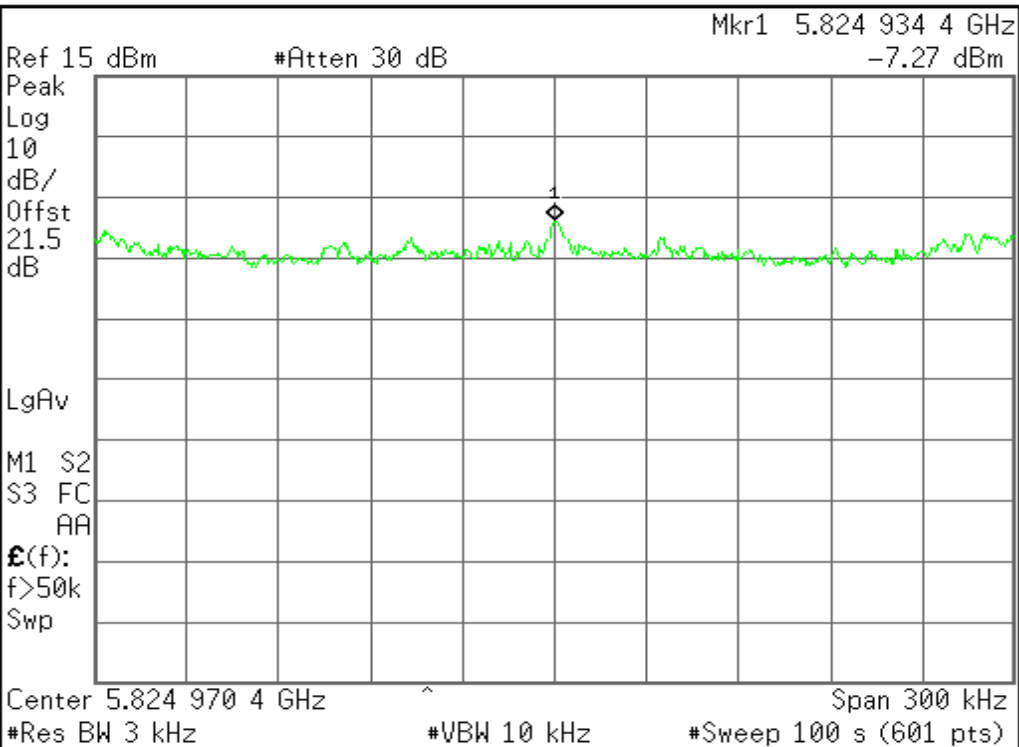
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## PPSD (CH High)

Agilent

R T

Marker →



- Mkr → CF
- Mkr → CF Step
- Mkr → Start
- Mkr → Stop
- Mkr Δ → Span
- Mkr Δ → CF
- Mkr → Ref Lvl

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## 6.6. CONDUCTED SPURIOUS MEASUREMENT

### 6.6.1. LIMITS OF CONDUCTED EMISSIONS MEASUREMENT

According to §15.247(d) and RSS-210 §A8.5, in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in 15.209(a) (see Section 15.205(c)).

### 6.6.2. TEST PROCEDURE (please refer to measurement standard)

Conducted RF measurements of the transmitter output were made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 100 kHz.

Measurements are made over the 30MHz to 40GHz range with the transmitter set to the lowest, middle, and highest channels.

### 6.6.3. TEST RESULTS





# Compliance Certification Services Inc.

FCC ID: NS912XA58-26

Report No: KS120327A03-RPB

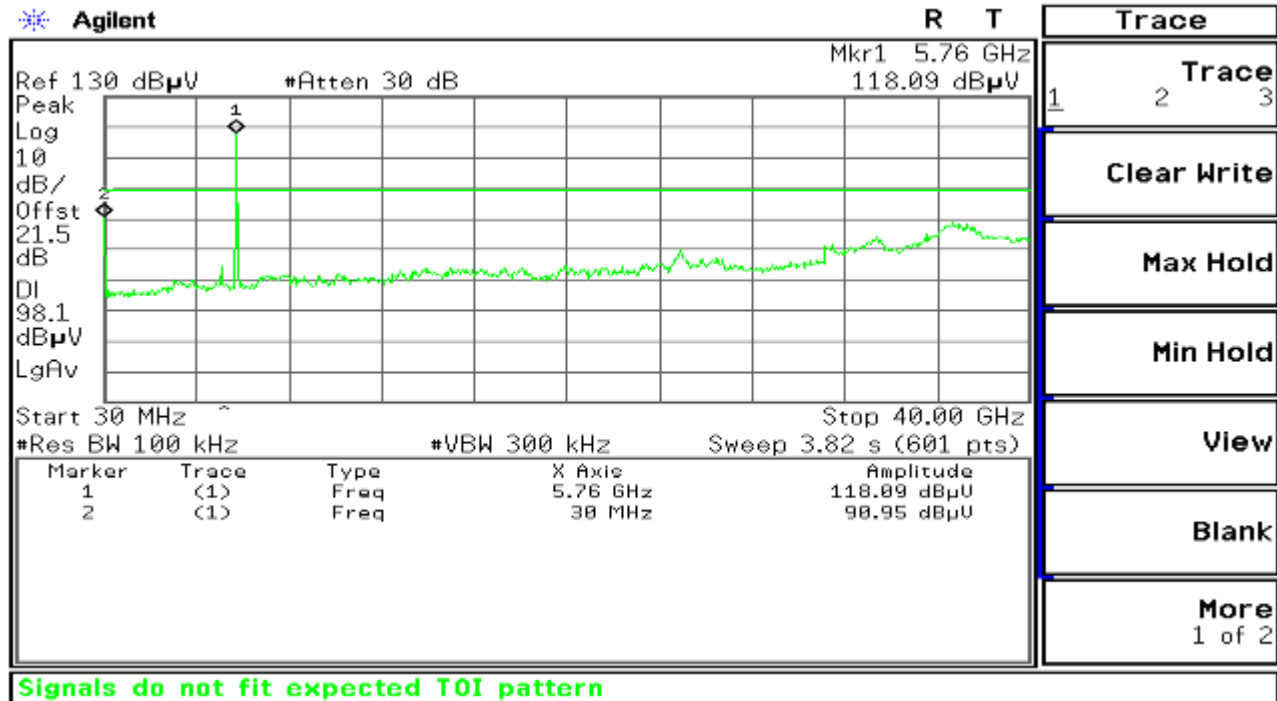
IC: 3143A-12XA58-26

Date of Issue :2012-4-17

**Test Mode:IEEE 802.11a mode**

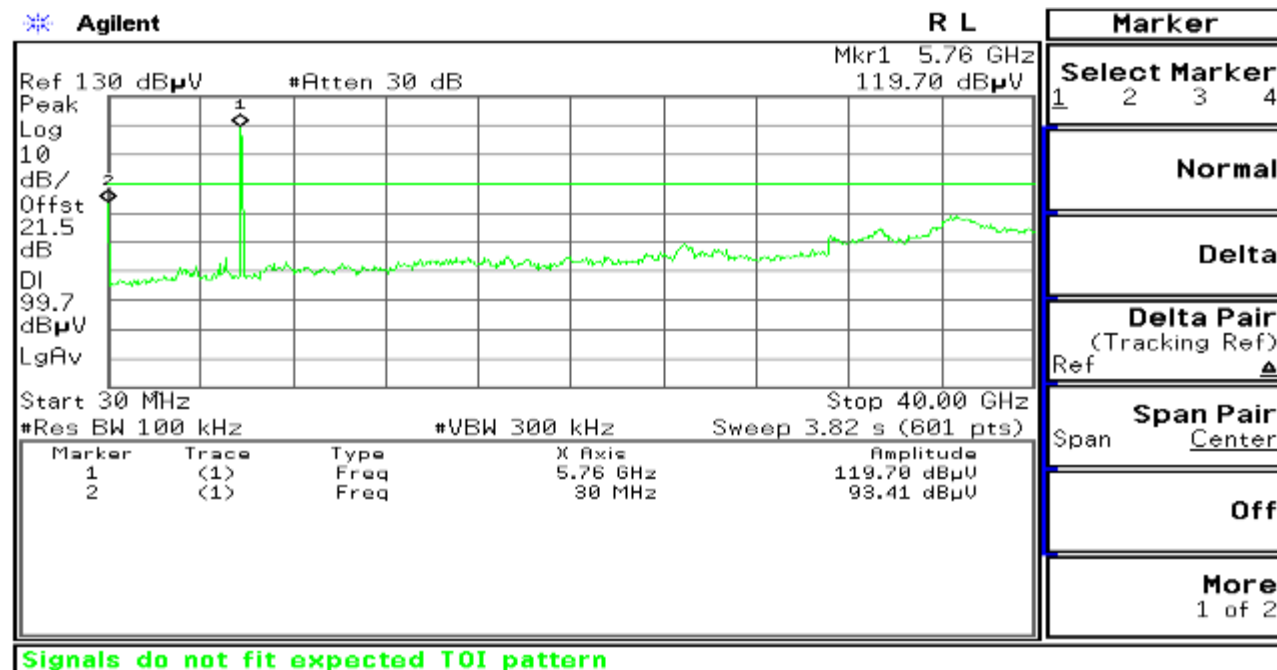
**Channel 149**

**30MHz ~ 40GHz**



**Channel 157**

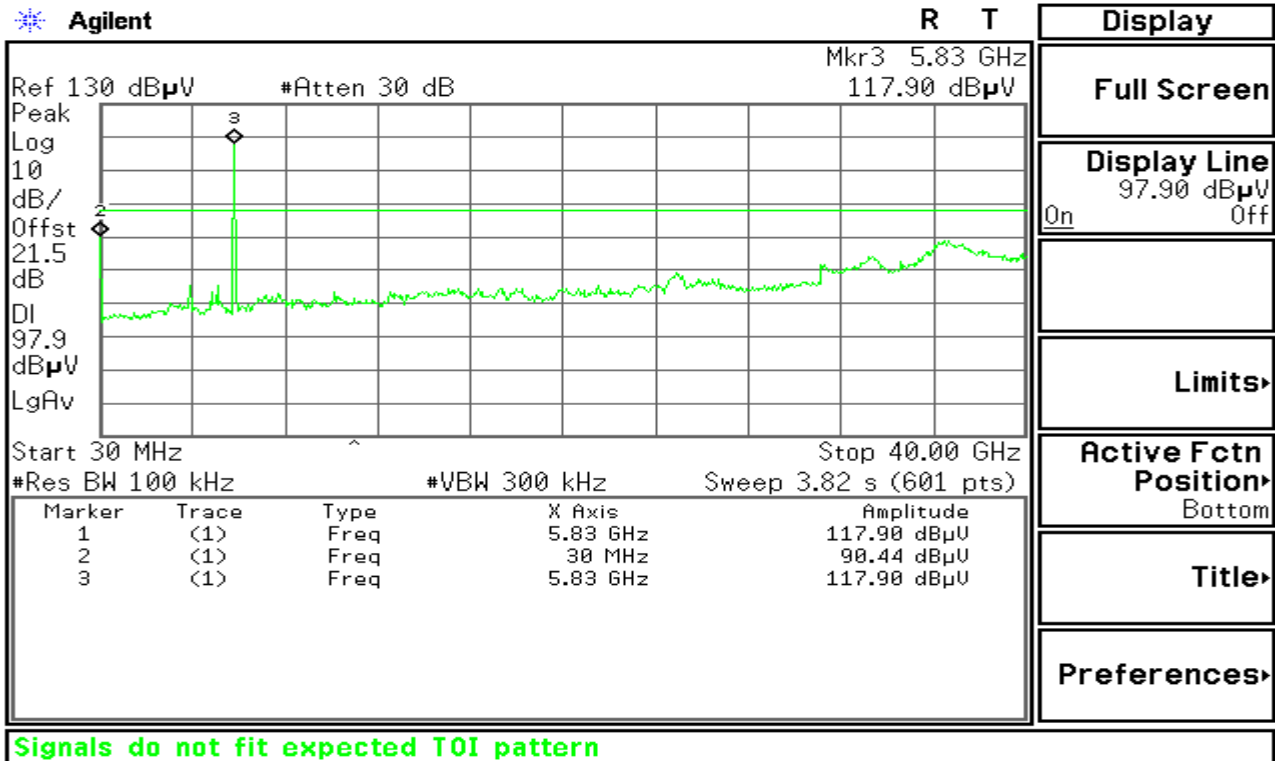
**30MHz ~ 40GHz**





## Channel 165

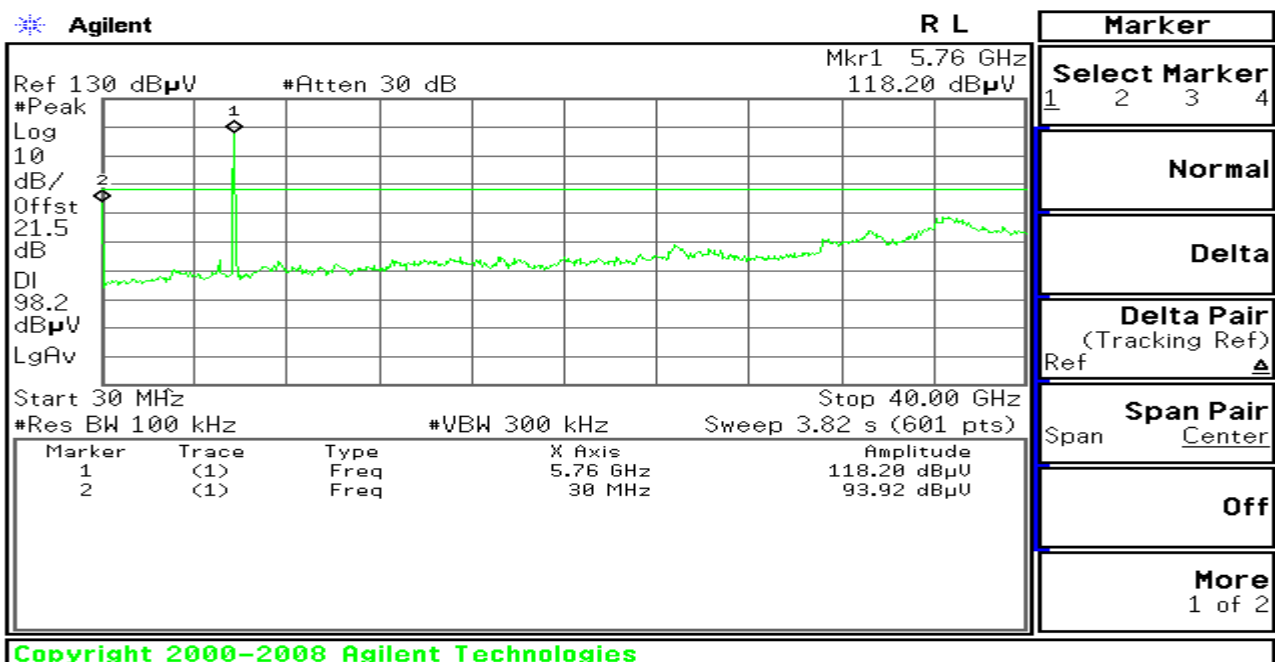
30MHz ~ 40GHz



Test mode: IEEE 802.11a Super mode

## Channel 149

30MHz ~ 40GHz





# Compliance Certification Services Inc.

FCC ID: NS912XA58-26

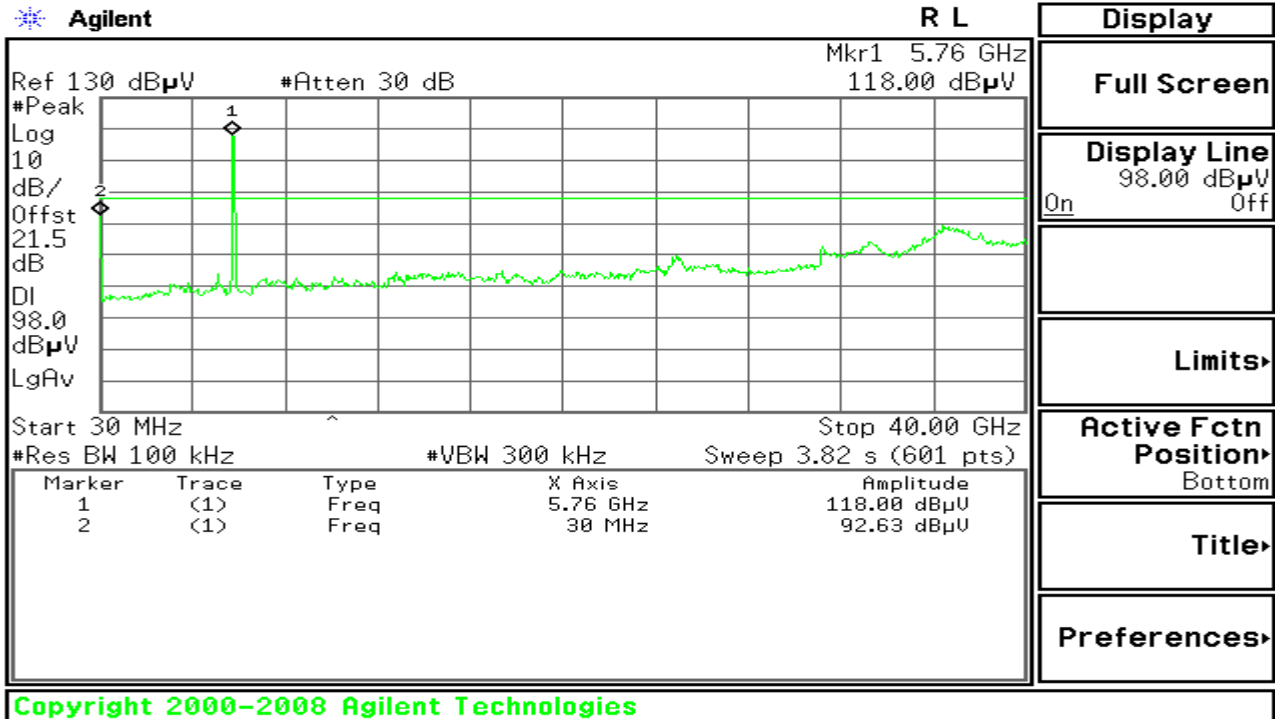
Report No: KS120327A03-RPB

IC: 3143A-12XA58-26

Date of Issue :2012-4-17

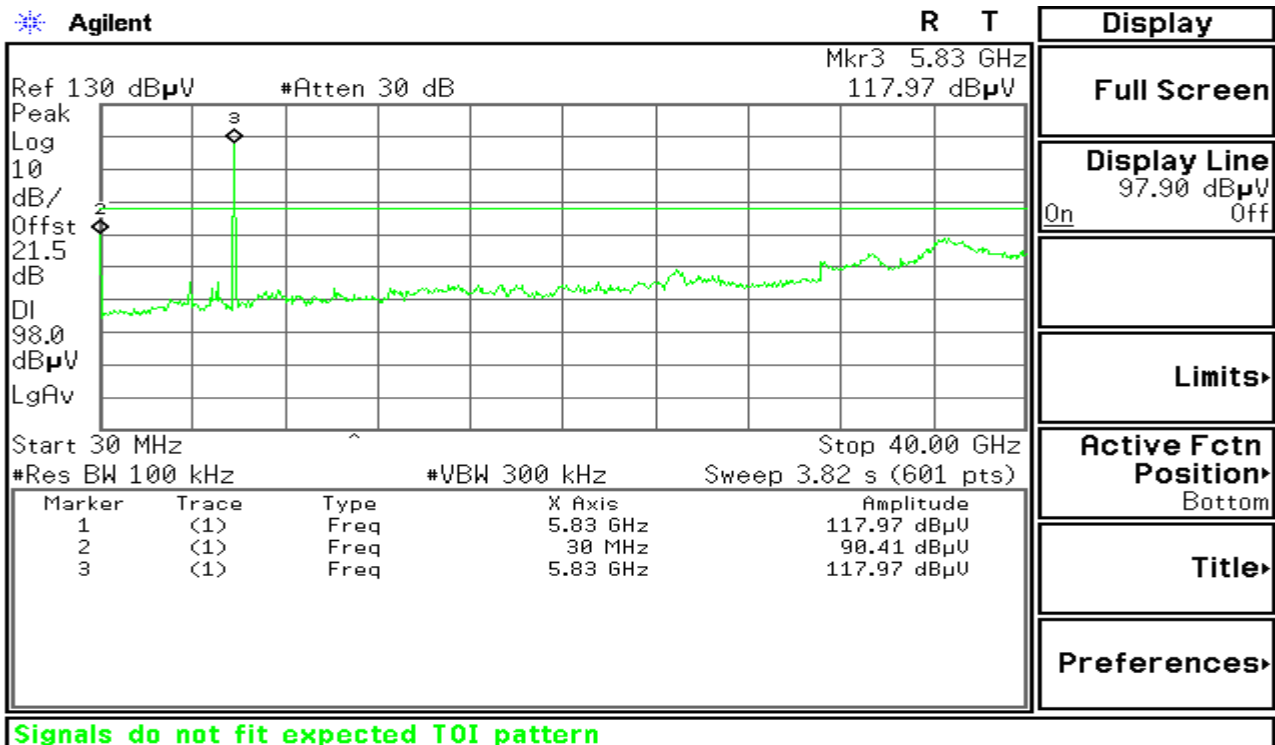
## Channel 157

30MHz ~ 40GHz



## Channel 165

30MHz ~ 40GHz





## 6.7. RADIATED EMISSIONS

### 6.7.1. LIMITS OF RADIATED EMISSIONS MEASUREMENT

1. According to §15.209(a) and RSS-Gen Table 2 and Table 5, except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength ( $\mu\text{V}/\text{m}$ )	Measurement Distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30-88	100*	3
88-216	150*	3
216-960	200*	3
Above 960	500	3

**Remark:** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

2. In the emission table above, the tighter limit applies at the band edges.

Frequency (MHz)	Field Strength ( $\mu\text{V}/\text{m}$ at 3-meter)	Field Strength (dB $\mu\text{V}/\text{m}$ at 3-meter)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

**NOTE:** (1) The lower limit shall apply at the transition frequencies.  
 (2) Emission level (dB $\mu\text{V}/\text{m}$ ) = 20 log Emission level ( $\mu\text{V}/\text{m}$ ).

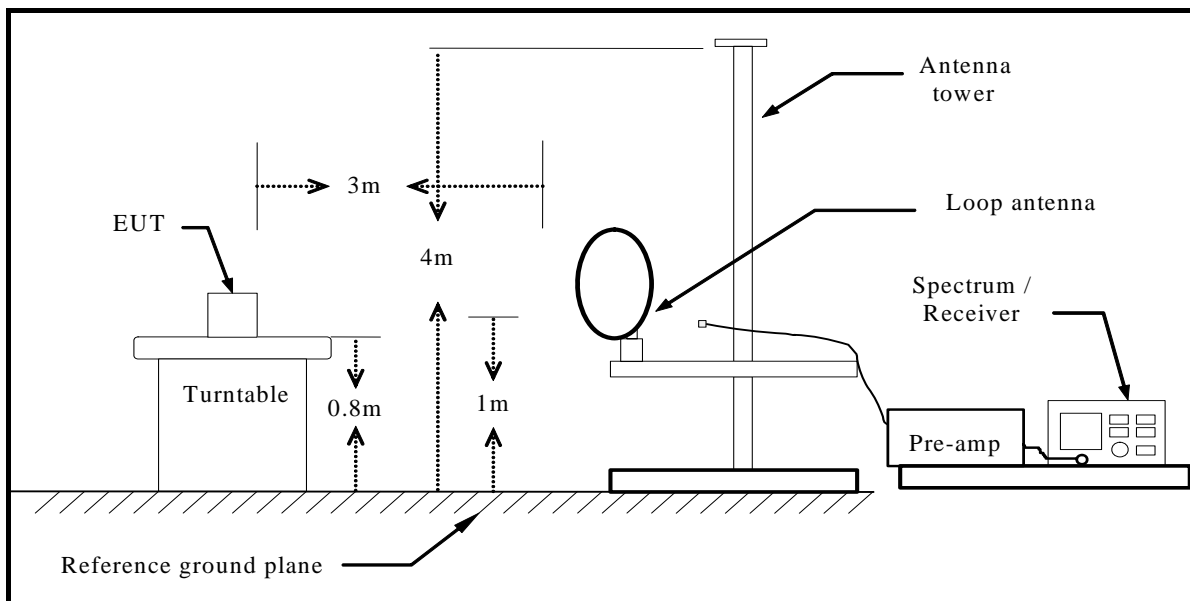


## 6.7.2. TEST PROCEDURE (please refer to measurement standard)

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Set the spectrum analyzer in the following setting as:  
Below 1GHz:  
RBW=100kHz / VBW=300kHz / Sweep=AUTO  
Above 1GHz:  
(a) PEAK: RBW=VBW=1MHz / Sweep=AUTO  
(b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO
7. Repeat above procedures until the measurements for all frequencies are complete.

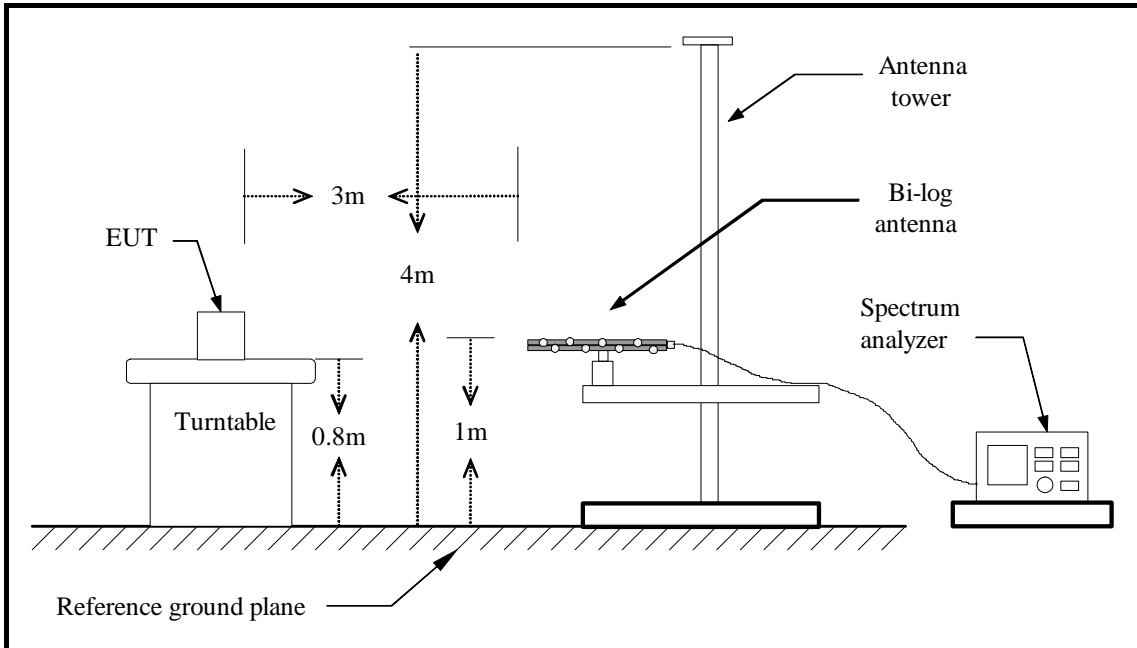
## 6.7.3. TEST SETUP

### Below 30MHz

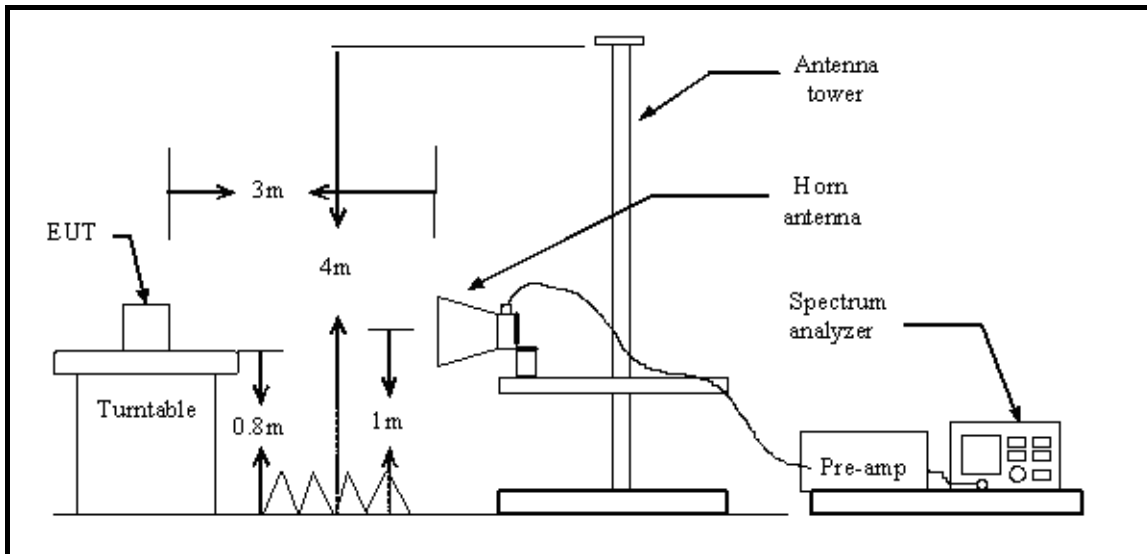




## Below 1 GHz



## Above 1 GHz





## 6.7.4. DATA SAMPLE:

### Below 1 GHz

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Remark) (dBuV)	Correction Factor (dB/m)	Result (Remark) (dBuV/m)	Limit (Peak) (dBuV/m)	Margin (dB)	Remark
xxx	V	12.12	10.21	22.33	37.00	-14.67	Peak

### Above 1 GHz

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
xxx	V	65.45	63.00	-11.12	54.33	51.88	74.00	54.00	-2.12	AVG

Frequency (MHz) = Emission frequency in MHz  
 Ant.Pol. (H/V) = Antenna polarization  
 Reading (dBuV) = Uncorrected Analyzer / Receiver reading  
 Correction Factor (dB/m) = Antenna factor + Cable loss – Amplifier gain  
 Result (dBuV/m) = Reading (dBuV) + Correction Factor (dB/m)  
 Limit (dBuV/m) = Limit stated in standard  
 Margin (dB) = Remark Result (dBuV/m) – Limit (dBuV/m)  
 Peak = Peak Reading  
 QP = Quasi-peak Reading  
 AVG = Average Reading

### 6.7.4.1. TEST RESULTS



# Compliance Certification Services Inc.

FCC ID: NS912XA58-26

Report No: KS120327A03-RPB

IC: 3143A-12XA58-26

Date of Issue :2012-4-17

## Below 1 GHz

<b>Operation Mode:</b>	Normal Link(IEEE 802.11a)	<b>Test Date:</b>	2012-4-2
<b>Temperature:</b>	25°C	<b>Tested by:</b>	Sean
<b>Humidity:</b>	51 % RH	<b>Polarity:</b>	Ver. / Hor.

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit 3m (dBuV/m)	Safe Margin (dB)
36.49	V	Peak	38.86	-3.01	35.85	40.0	-4.15
200.44	V	Peak	33.77	-5.28	28.49	43.5	-15.01
347.69	V	Peak	34.82	-2.19	32.63	46.0	-13.37
590.38	V	Peak	30.63	3.24	33.87	46.0	-12.13
747.49	V	Peak	33.57	6.09	39.66	46.0	-6.34
854.11	V	Peak	33.44	7.29	40.73	46.0	-5.27
31.08	H	Peak	30.75	0.97	31.72	40.0	-8.28
213.42	H	Peak	42.43	-6.83	35.6	43.5	-7.90
322.44	H	Peak	40.57	-3.09	37.48	46.0	-8.52
744.68	H	Peak	33.59	6.08	39.67	46.0	-6.33
834.46	H	Peak	32.82	7.21	40.03	46.0	-5.97
854.11	H	Peak	36.26	7.29	43.55	46.0	-2.45

### Remark:

1. Measuring frequencies from 9 KHz to the 1GHz, No emission found between lowest internal used/generated frequency to 30 MHz.
2. Radiated emissions measured in frequency range from 9 KHz to 1000MHz were made with an instrument using Peak detector mode.
3. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
4. The IF bandwidth of SPA between 30MHz to 1GHz was 100kHz.





# Compliance Certification Services Inc.

FCC ID: NS912XA58-26

Report No: KS120327A03-RPB

IC: 3143A-12XA58-26

Date of Issue :2012-4-17

Operation Mode:	Normal Link(IEEE 802.11a Super mode)	Test Date:	2012-4-2
Temperature:	25°C	Tested by:	Sean
Humidity:	51 % RH	Polarity:	Ver. / Hor.

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit 3m (dBuV/m)	Safe Margin (dB)
36.44	V	Peak	37.22	-3.01	34.21	40.0	-5.79
201.23	V	Peak	34.13	-5.28	28.85	43.5	-14.65
351.22	V	Peak	33.25	-2.19	31.06	46.0	-14.94
590.22	V	Peak	31.14	3.24	34.38	46.0	-11.62
749.33	V	Peak	34.26	6.09	40.35	46.0	-5.65
854.11	V	Peak	33.55	7.29	40.84	46.0	-5.16
30.22	H	Peak	31.26	0.97	32.23	40.0	-7.77
222.15	H	Peak	43.26	-6.83	36.43	43.5	-7.07
350.26	H	Peak	41.12	-3.09	38.03	46.0	-7.97
748.55	H	Peak	34.25	6.08	40.33	46.0	-5.67
835.66	H	Peak	33.29	7.21	40.5	46.0	-5.5
854.12	H	Peak	35.12	7.29	42.41	46.0	-3.59

**Remark:**

1. Measuring frequencies from 9 KHz to the 1GHz, No emission found between lowest internal used/generated frequency to 30 MHz.
2. Radiated emissions measured in frequency range from 9 KHz to 1000MHz were made with an instrument using Peak detector mode.
3. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
4. The IF bandwidth of SPA between 30MHz to 1GHz was 100kHz.



# Compliance Certification Services Inc.

FCC ID: NS912XA58-26

Report No: KS120327A03-RPB

IC: 3143A-12XA58-26

Date of Issue :2012-4-17

## Above 1 GHz

Operation Mode:	TX / IEEE 802.11a / CH Low	Test Date:	2012-4-2
Temperature:	25°C	Tested by:	Sean
Humidity:	51% RH	Polarity:	Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
1333.01	V	60.2	32.03	0.53	60.73	32.56	74.00	54.00	-21.44	average
3858.33	V	50.18	40.18	-4.69	45.49	35.49	74.00	54.00	-18.51	average
11490.33	V	21.97	11.8	9.25	31.22	21.05	74.00	54.00	-32.95	average
1330.00	H	57.23	35.08	0.53	57.76	35.61	74.00	54.00	-18.39	average
3858.33	H	46.23	38.32	-4.69	41.54	33.63	74.00	54.00	-20.37	average
11490.33	H	21.29	11.19	9.25	30.54	20.44	74.00	54.00	-33.56	average

### Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



# Compliance Certification Services Inc.

FCC ID: NS912XA58-26

Report No: KS120327A03-RPB

IC: 3143A-12XA58-26

Date of Issue :2012-4-17

<b>Operation Mode:</b>	TX / IEEE 802.11a / CH Mid	<b>Test Date:</b>	2012-4-2
<b>Temperature:</b>	25°C	<b>Tested by:</b>	Sean
<b>Humidity:</b>	51% RH	<b>Polarity:</b>	Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
1860.00	V	53.89	29.63	1.84	55.73	31.47	74.00	54.00	-22.53	average
3858.11	V	45.66	35.65	-4.07	41.59	31.58	74.00	54.00	-22.42	average
11570.66	V	23.81	13.23	9.21	33.02	22.44	74.00	54.00	-31.56	average
1596.67	H	47.28	34.44	0.76	48.04	35.2	74.00	54.00	-18.80	average
3858.44	H	45.62	35.64	-4.07	41.55	31.57	74.00	54.00	-22.43	average
11570.66	H	22.05	11.33	9.21	31.26	20.54	74.00	54.00	-33.46	average

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



# Compliance Certification Services Inc.

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IC: 3143A-12XA58-26

Date of Issue :2012-4-17

<b>Operation Mode:</b>	TX / IEEE 802.11a / CH High	<b>Test Date:</b>	2012-4-2
<b>Temperature:</b>	25°C	<b>Tested by:</b>	Sean
<b>Humidity:</b>	51 % RH	<b>Polarity:</b>	Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
1330.00	V	59.29	33.63	0.53	59.82	34.16	74.00	54.00	-19.84	average
3858.66	V	46.13	36.26	-4.07	42.06	32.19	74.00	54.00	-21.81	average
11650.00	V	26.1	16.28	9.19	35.29	25.47	74.00	54.00	-28.53	average
1326.67	H	56.37	35.59	0.52	56.89	36.11	74.00	54.00	-17.89	average
3858.44	H	46.32	36.25	-4.07	42.25	32.18	74.00	54.00	-21.82	average
11650.00	H	25.03	13.37	9.19	34.22	22.56	74.00	54.00	-31.44	average

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



# Compliance Certification Services Inc.

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Date of Issue :2012-4-17

## Above 1 GHz

<b>Operation Mode:</b>	TX / IEEE 802.11a Super mode / CH Low	<b>Test Date:</b>	2012-4-2
<b>Temperature:</b>	25°C	<b>Tested by:</b>	Sean
<b>Humidity:</b>	51% RH	<b>Polarity:</b>	Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
1333.01	V	58.83	32.72	0.53	59.36	33.25	74.00	54.00	-20.75	average
3858.33	V	48.82	40.92	-4.69	44.13	36.23	74.00	54.00	-17.77	average
11490.33	V	21	10.89	9.25	30.25	20.14	74.00	54.00	-33.86	average
1330.00	H	55.73	34.03	0.53	56.26	34.56	74.00	54.00	-19.44	average
3858.33	H	44.8	37.95	-4.69	40.11	33.26	74.00	54.00	-20.74	average
11490.33	H	22.01	11.92	9.25	31.26	21.17	74.00	54.00	-32.83	average

**Remark:**

7. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
8. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
9. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
10. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
11. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
12. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



# Compliance Certification Services Inc.

FCC ID: NS912XA58-26

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Date of Issue :2012-4-17

<b>Operation Mode:</b>	TX / IEEE 802.11a Super mode / CH Low	<b>Test Date:</b>	2012-4-2
<b>Temperature:</b>	25°C	<b>Tested by:</b>	Sean
<b>Humidity:</b>	51% RH	<b>Polarity:</b>	Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
1861.23	V	52.42	30.31	1.84	54.26	32.15	74.00	54.00	-21.85	average
3859.55	V	44.23	34.33	-4.07	40.16	30.26	74.00	54.00	-23.74	average
11572.23	V	22.85	13.94	9.21	32.06	23.15	74.00	54.00	-30.85	average
1599.36	H	48.47	35.5	0.76	49.23	36.26	74.00	54.00	-17.74	average
3858.23	H	44.23	34.23	-4.07	40.16	30.16	74.00	54.00	-23.84	average
11571.23	H	21.08	11.96	9.21	30.29	21.17	74.00	54.00	-32.83	average

**Remark:**

7. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
8. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
9. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
10. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
11. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
12. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



# Compliance Certification Services Inc.

FCC ID: NS912XA58-26

Report No: KS120327A03-RPB

IC: 3143A-12XA58-26

Date of Issue :2012-4-17

<b>Operation Mode:</b>	TX / IEEE 802.11a / CH High	<b>Test Date:</b>	2012-4-2
<b>Temperature:</b>	25°C	<b>Tested by:</b>	Sean
<b>Humidity:</b>	51 % RH	<b>Polarity:</b>	Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
1333.23	V	57.73	34.73	0.53	58.26	35.26	74.00	54.00	-18.74	average
3858.56	V	45.23	37.35	-4.07	41.16	33.28	74.00	54.00	-20.72	average
11651.26	V	27.04	16.95	9.19	36.23	26.14	74.00	54.00	-27.86	average
1325.14	H	54.65	34.97	0.52	55.17	35.49	74.00	54.00	-18.51	average
3858.29	H	45.16	37.61	-4.07	41.09	33.54	74.00	54.00	-20.46	average
11650.47	H	26.07	13.9	9.19	35.26	23.09	74.00	54.00	-30.91	average

**Remark:**

7. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
8. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
9. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
10. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
11. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
12. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



## 6.8. POWER LINE CONDUCTED MEASUREMENT

### 6.8.1. LIMITS OF CONDUCTED EMISSIONS MEASUREMENT

According to §15.207(a) and RSS-Gen 7.2.4, except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50  $\mu$ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency Range (MHz)	Limits (dB $\mu$ V)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56*	56 to 46*
0.50 to 5	56	46
5 to 30	60	50

#### NOTE:

- (1) The lower limit shall apply at the transition frequencies.
- (2) The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.
- (3) All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

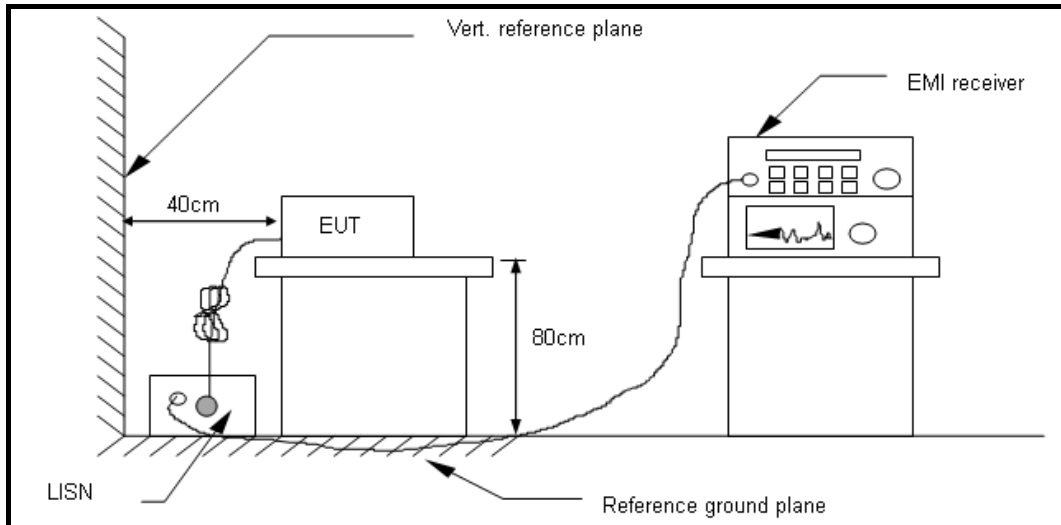
### 6.8.2. TEST PROCEDURES (please refer to measurement standard)

- The EUT and Support equipment, if needed, was placed on a non-conducted table, which is 0.8m above the ground plane and 0.4m away from the conducted wall.
- The test equipment EUT installed received AC main power, through a Line Impedance Stabilization Network (LISN), which supplied power source and was grounded to the ground plane. All support equipment power received from a second LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- The EUT test program was started. Emissions were measured on each current carrying line of the EUT using an EMI Test Receiver connected to the LISN powering the EUT.
- The frequency range from 150 kHz to 30 MHz was searched. The test data of the worst-case condition(s) was recorded. Emission levels under limit 20dB were not recorded.





## 6.8.3. TEST SETUP



- For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

## 6.8.4. DATA SAMPLE:

Freq. (KHz)	Peak Amptd (dBuV)	QP Amptd (dBuV)	Avg Amptd (dBuV)	Q.P. Limit (dBuV)	Average Limit (dBuV)	QP Margin (dB)	AVG Margin (dB)	Factor (dB)
x.xx	50.65	47.84	35.08	56.00	46.00	-8.16	-10.92	10.15

Remark:

1. The measuring frequencies range between 0.15 MHz and 30 MHz.
2. The emissions measured in the frequency range between 0.15 MHz and 30MHz were made with an instrument using Quasi-peak detector and Average detector.
3. “—” denotes the emission level was or more than 2dB below the Average limit, and no re-check was made.
4. The IF bandwidth of SPA between 0.15MHz and 30MHz was 10KHz. The IF bandwidth of Test Receiver between 0.15MHz and 30MHz was 9kHz.

Freq. = Emission frequency in KHz

Factor (dB) = cable loss + Insertion loss of LISN+ Insertion loss of TRANSIENT LIMITER (The TRANSIENT LIMITER included 10 dB ATTENUATION)

Amptd dBuV = Uncorrected Analyzer/Receiver reading + cable loss + Insertion loss of LISN+ Insertion loss of TRANSIENT LIMITER, if it > 0.5 dB

Limit dBuV = Limit stated in standard

Margin dB = Reading in reference to limit

Q.P.: =Quasi-Peak

Calculation Formula

Margin (dB) = Amptd (dBuV) – Limit (dBuV)

## 6.8.5. TEST RESULTS

No non-compliance noted

(this test item is not required)

**END OF REPORT**