

# Datel Design & Development, Inc

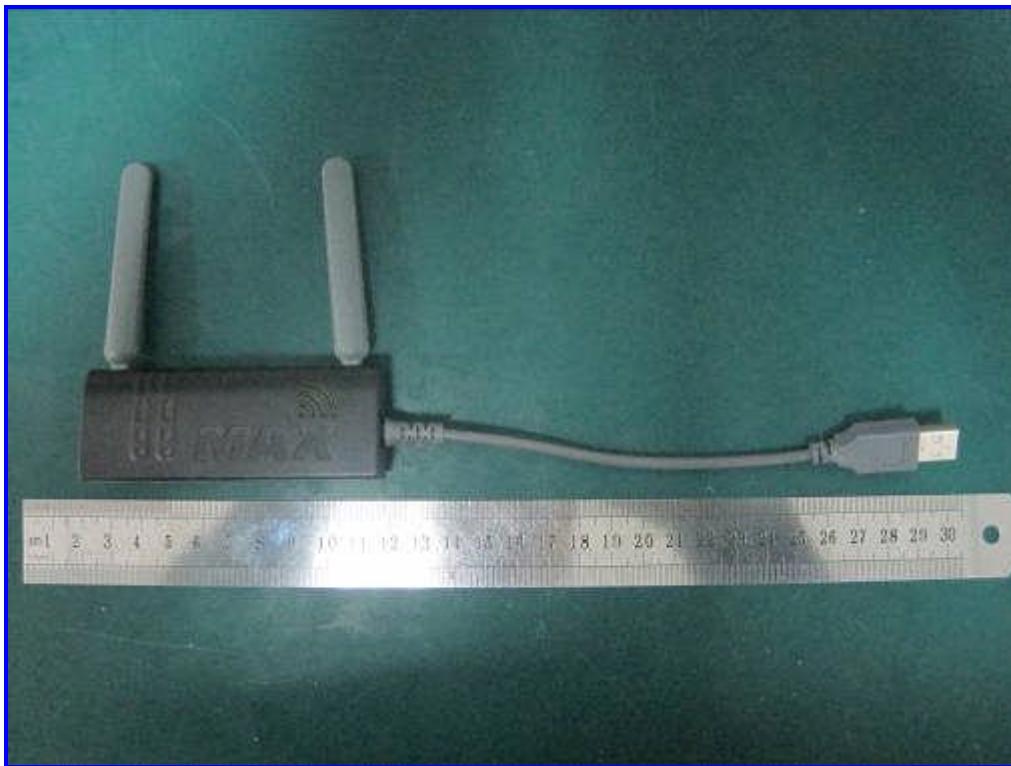
Wireless 'N' Networking Adapter™ For Xbox 360

Model: AS159

26 November 2010

Report No.: 1005020-FCC 15.407

(This report supersedes NONE)



Modifications made to the product : None

This Test Report is Issued Under the Authority of:

Peter Cai  
Test Engineer

Will yang  
Technical Manager

This test report may be reproduced in full only.  
Test result presented in this test report is applicable to the representative sample only.

RF Test Report

TO: FCC 15.407:2010

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## Laboratory Introduction

SIEMIC, headquartered in the heart of Silicon Valley, with superior facilities in US and Asia, is one of the leading independent testing and certification facilities providing customers with one-stop shop services for Compliance Testing and Global Certifications.



In addition to [testing](#) and [certification](#), SIEMIC provides initial design reviews and [compliance management](#) through out a project. Our extensive experience with [China](#), [Asia Pacific](#), [North America](#), [European](#), and [international](#) compliance requirements, assures the fastest, most cost effective way to attain regulatory compliance for the [global markets](#).

### Accreditations for Conformity Assessment

Country/Region	Accreditation Body	Scope
USA	FCC, A2LA	EMC , RF/Wireless , Telecom
Canada	IC, A2LA, NIST	EMC, RF/Wireless , Telecom
Taiwan	BSMI , NCC , NIST	EMC, RF, Telecom , Safety
Hong Kong	OFTA , NIST	RF/Wireless , Telecom
Australia	NATA, NIST	EMC, RF, Telecom , Safety
Korea	KCC/RRA, NIST	EMI, EMS, RF , Telecom, Safety
Japan	VCCI, JATE, TELEC, RFT	EMI, RF/Wireless, Telecom
Mexico	NOM, COFETEL, Caniety	Safety, EMC , RF/Wireless, Telecom
Europe	A2LA, NIST	EMC, RF, Telecom , Safety

### Accreditations for Product Certifications

Country	Accreditation Body	Scope
USA	FCC TCB, NIST	EMC , RF , Telecom
Canada	IC FCB , NIST	EMC , RF , Telecom
Singapore	iDA, NIST	EMC , RF , Telecom
EU	NB	EMC & R&TTE Directive



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## **1 Executive Summary & EUT information**

The purpose of this test programme was to demonstrate compliance of the Datel Design & Development, Inc Wireless 'N' Networking AdapterTM For Xbox 360, and model AS159 against the current Stipulated Standards. The Wireless 'N' Networking AdapterTM For Xbox 360 has demonstrated compliance with the FCC 15.407:2010.

### **EUT Information**

EUT : Wireless 'N' Networking AdapterTM For Xbox 360  
Description : AS159 (Note)  
Model No : N/A  
Serial No :  
Input Power : 5Vdc, 500mA  
Classification :  
Per Stipulated : Spread Spectrum System/Device  
Test Standard :

Note: Other model AS161, color of model AS159 is black while model AS161 is white.



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## 2 TECHNICAL DETAILS

Purpose	Compliance testing of Wireless 'N' Networking AdapterTM For Xbox 360 with stipulated standard
Applicant / Client	Datel Design & Development,Inc 33 N. Garden Avenue, Suite 900, Clearwater, FL 33755
Manufacturer	Datel Design & Development,Inc Stafford Road, Stone, Staffordshire, UK, ST15 0DG
Laboratory performing the tests	SIEMIC Nanjing (China) Laboratories NO.2-1,Longcang Dadao, Yuhua Economic Development Zone, Nanjing, China Tel:+86(25)86730128/86730129 Fax:+86(25)86730127 Email: <a href="mailto:info@siemic.com">info@siemic.com</a>
Test report reference number	1005020-FCC 15.407
Date EUT received	10 November 2010
Standard applied	FCC 15.407:2010
Dates of test (from – to)	19 November ~26 November 2010
No of Units:	#1
Equipment Category:	DTS
Trade Name:	Datel
Model :	AS159
RF Operating Frequency (ies)	802.11a/n: 5180MHz-5240MHz
Number of Channels :	802.11a/n-20MHz: 4ch, 802.11n-40MHz: 3ch
Modulation :	DSSS/OFDM
FCC ID:	WLEXA10009



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### **3 MODIFICATION**

**NONE**



## 4 TEST SUMMARY

The product was tested in accordance with the following specifications.  
All testing has been performed according to below product classification:

Spread Spectrum System/Device

### Test Results Summary

Test Standard	Description	Pass / Fail
CFR 47 Part 15 Subpart E: 2010		
15.203	Antenna Requirement	Pass
15.205	Restricted Band of Operation	Pass
15.209	Radiated Spurious Emissions	Pass
15.407(a)(2)	Occupied Bandwidth	Pass
15.407(a)(2)	Peak Output Power	Pass
15.407(a)(2)	Peak Power Spectral Density	Pass
15.407(a)(2)	Power Reduction (antenna gain > 6dBi)	N/A
15.407(a)(6)	Peak Excursion Ratio	Pass
15.407(b)(6)	AC Conducted Emissions	Pass
15.407(b)(2)	Radiated Spurious Emissions > 1GHz	Pass
15.407(b)(6)	Radiated Spurious Emissions < 1GHz	Pass
15.407(f)	RF Exposure	Pass
15.407(g)	Frequency Stability	N/A
ANSI C63.4: 2009		
PS: All measurement uncertainties are not taken into consideration for all presented test result.		



## 5 MEASUREMENTS, EXAMINATION AND DERIVED RESULTS

### 5.1 Antenna Requirement

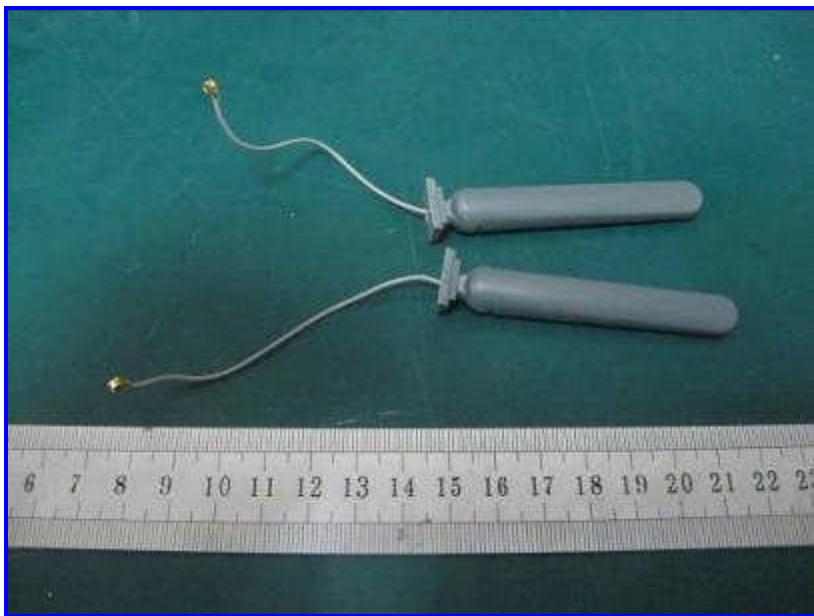
**Requirement(s):** 47 CFR §15.203

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.

Antenna requirement must meet at least one of the following:

- a) Antenna must be permanently attached to the device.
- b) Antenna must use a unique type of connector to attach to the device.
- c) Device must be professionally installed. Installer shall be responsible for ensuring that the correct antenna is employed with the device.

The EUT antenna is using a unique type of connector. Antenna maximum gain is 2dBi.





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## **5.2 AC Conducted Emissions**

Requirement:

<b>Frequency of emission (MHz)</b>	<b>Conducted limit (dB<math>\mu</math>V)</b>	
	<b>Quasi-peak</b>	<b>Average</b>
0.15–0.5	66 to 56*	56 to 46*
0.5–5	56	46
5–30	60	50

\*Decreases with the logarithm of the frequency.

### **Procedures:**

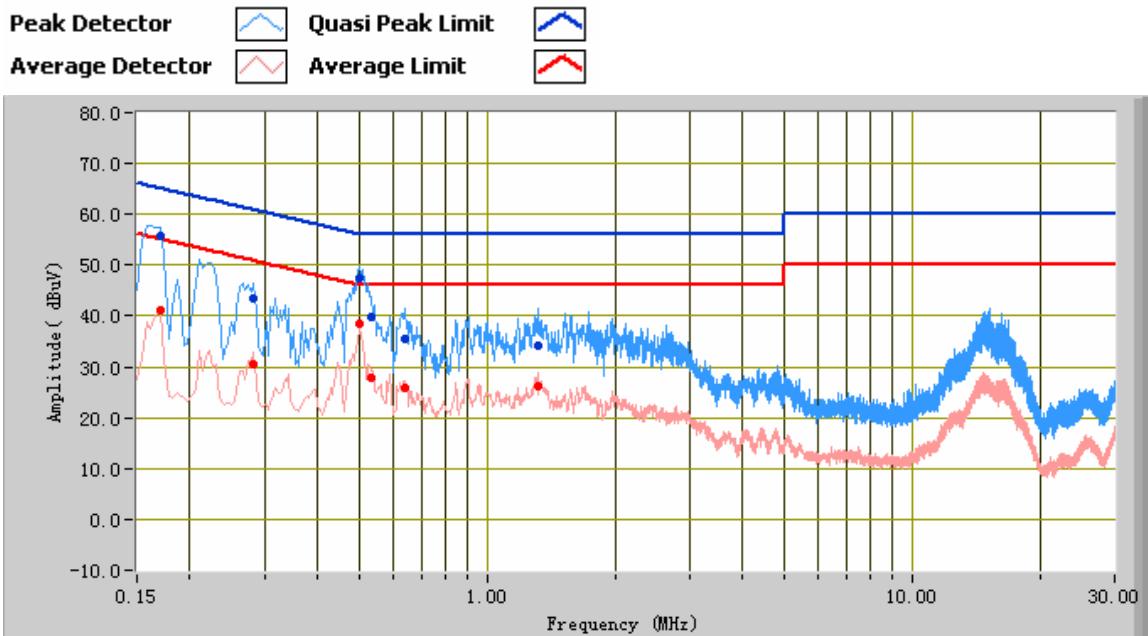
1. All possible modes of operation were investigated. Only the 6 worst case emissions measured, using the correct CISPR and Average detectors, are reported. All other emissions were relatively insignificant.
2. A "-ve" margin indicates a PASS as it refers to the margin present below the limit line at the particular frequency.
3. Conducted Emissions Measurement Uncertainty  
All test measurements carried out are traceable to national standards. The uncertainty of the measurement at a confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2, in the range 9kHz – 30MHz (Average & Quasi-peak) is  $\pm 3.5$ dB.
4. Environmental Conditions      Temperature       $16^{\circ}\text{C}$   
    Relative Humidity      50%  
    Atmospheric Pressure      1019mbar
5. Test date : 19 November ~26 November 2010  
Tested By : Peter Cai

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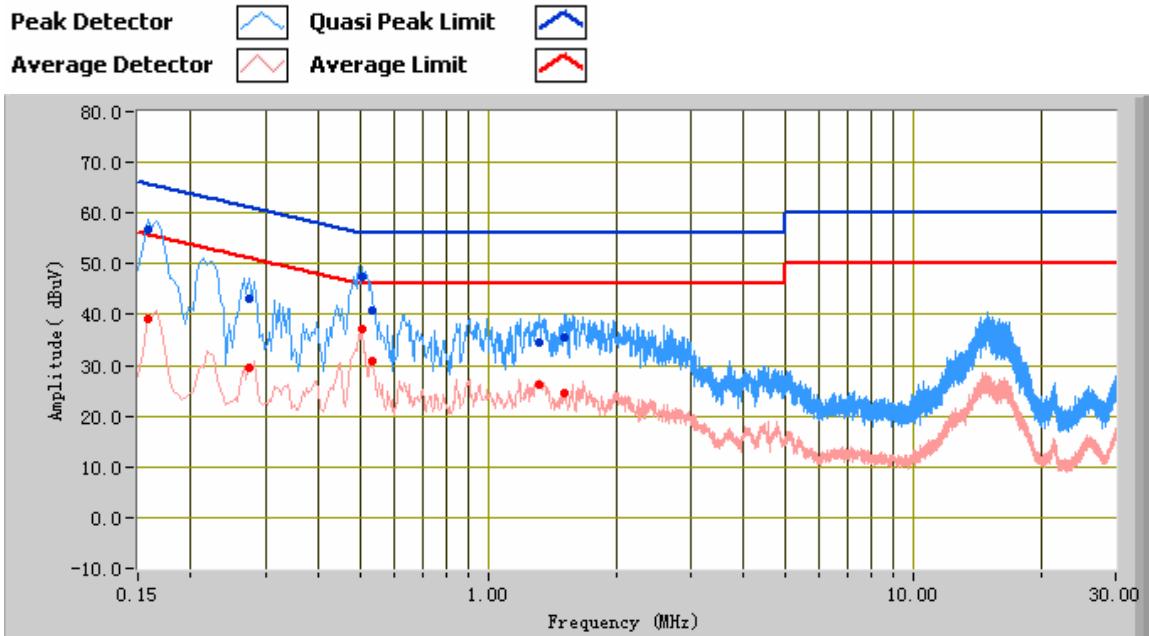
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### Test Data

#### Line

Frequency (MHz)	Quasi Peak (dBuV)	Limit (dBuV)	Margin (dB)	Average (dBuV)	Limit (dBuV)	Margin (dB)	Factors (dB)
0.50	47.29	56.00	-8.71	38.53	46.00	-7.47	10.17
0.17	55.86	65.13	-9.26	41.06	55.13	-14.07	10.36
0.53	39.68	56.00	-16.32	27.92	46.00	-18.08	10.16
0.28	43.53	60.84	-17.32	30.65	50.84	-20.19	10.21
0.64	35.39	56.00	-20.61	25.87	46.00	-20.13	10.14
1.32	34.15	56.00	-21.85	26.25	46.00	-19.75	10.17



### Test Data

#### Neutral

Frequency (MHz)	Quasi Peak (dBuV)	Limit (dBuV)	Margin (dB)	Average (dBuV)	Limit (dBuV)	Margin (dB)	Factors (dB)
0.51	47.38	56.00	-8.62	37.17	46.00	-8.83	10.17
0.16	56.79	65.75	-8.96	39.18	55.75	-16.57	10.38
0.53	40.72	56.00	-15.28	30.72	46.00	-15.28	10.16
0.27	42.97	61.09	-18.11	29.40	51.09	-21.69	10.22
1.52	35.62	56.00	-20.38	24.48	46.00	-21.52	10.18
1.31	34.63	56.00	-21.37	26.13	46.00	-19.87	10.17



## 5.3 Occupied Bandwidth

1. Conducted Measurement  
EUT was set for low, mid, high channel with modulated mode and highest RF output power.  
The spectrum analyzer was connected to the antenna terminal.
  2. Conducted Emissions Measurement Uncertainty  
All test measurements carried out are traceable to national standards. The uncertainty of the measurement at a confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2, in the range 30MHz – 40GHz is  $\pm 1.5\text{dB}$ .
  3. Environmental Conditions      Temperature       $16^\circ\text{C}$   
    Relative Humidity      50%  
    Atmospheric Pressure      1019mbar
  4. Test Date : 19 November ~26 November 2010  
Tested By : Peter Cai

**Requirement(s):** The 26dB bandwidths were measured at the antenna terminal using a spectrum analyzer. 26 dB BW spectrum analyzer setting: RBW = approximately 1% of the emission BW and VBW = approximately 3 times RBW.

## Test Result:

Protocol	Channel	Channel Frequency (MHz)	26dB Channel Bandwidth (MHz)
802.11a	Low	5180	30.75
	Mid	5200	30.75
	High	5240	30.58
802.11n-20MHz	Low	5180	28.67
	Mid	5200	28.00
	High	5240	27.83
802.11n-40MHz	Low	5190	76.00
	Mid	5210	77.30
	High	5230	76.70



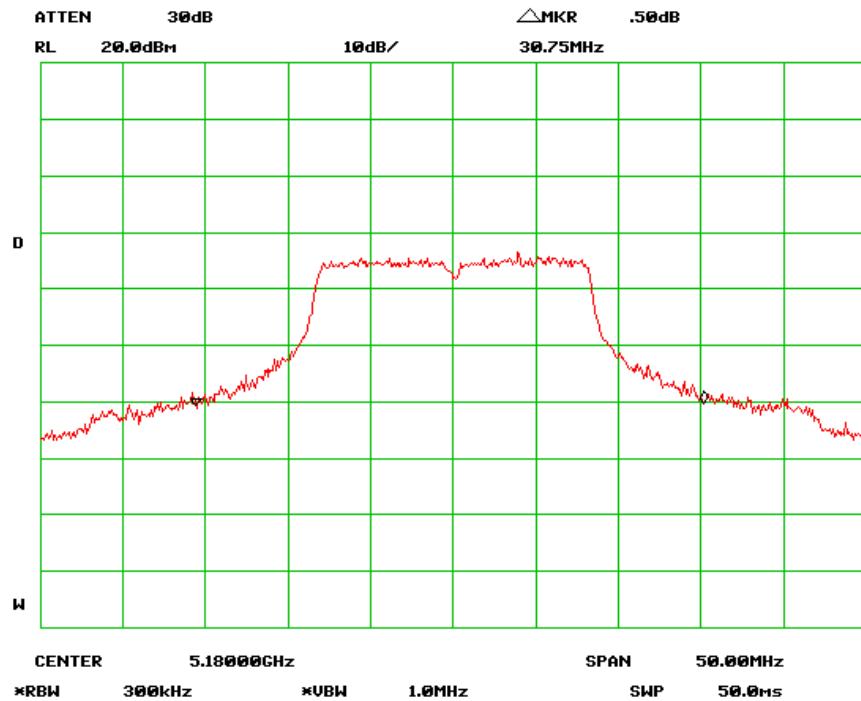
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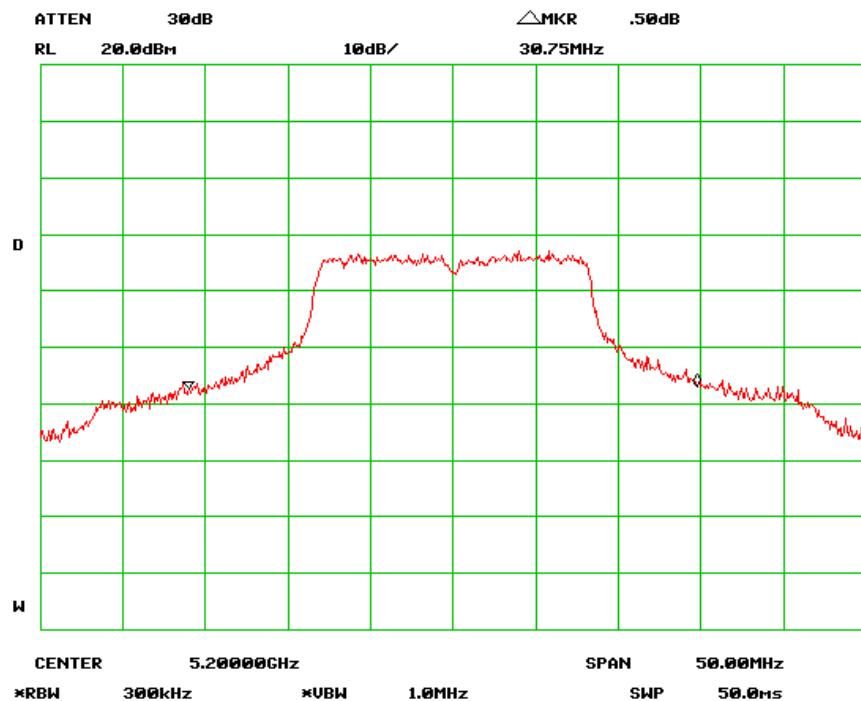
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Refer to the attached plots.



**26 dB Bandwidth - Low Channel (802.11a)**



**26 dB Bandwidth - Mid Channel (802.11a)**

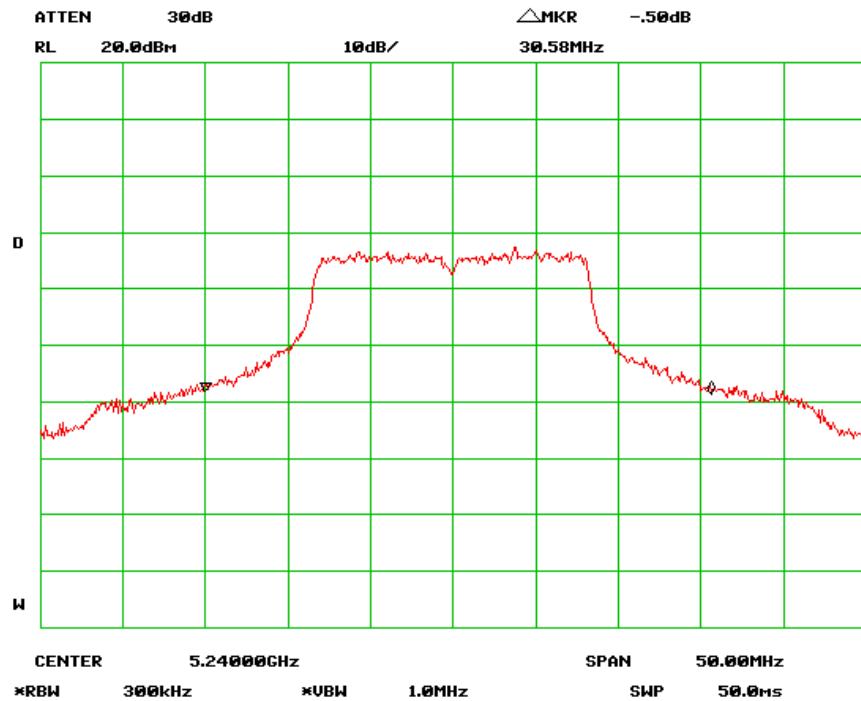


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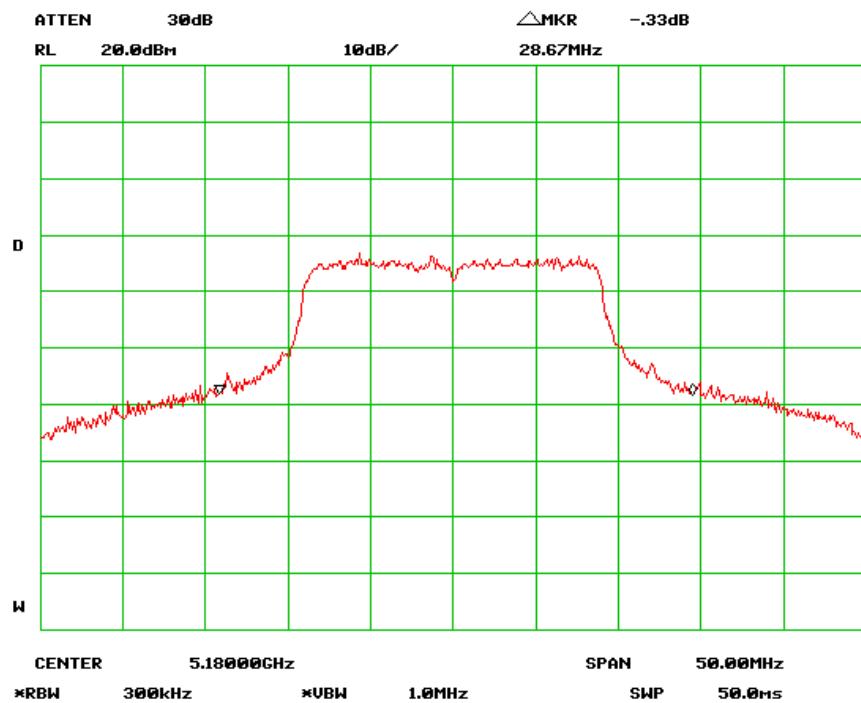
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### 26 dB Bandwidth - High Channel (802.11a)



### 26 dB Bandwidth - Low Channel (802.11n-20MHz)

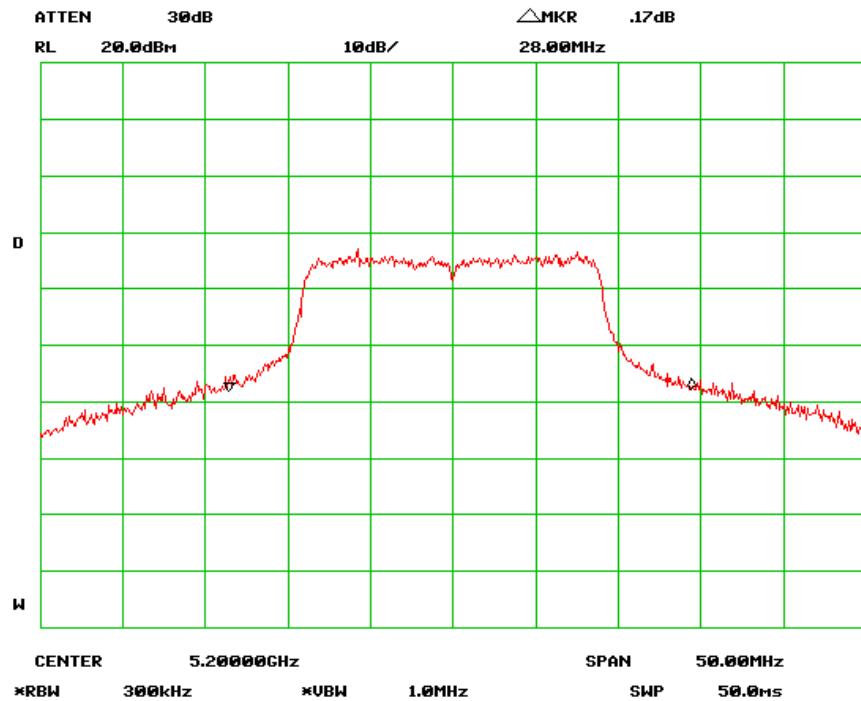


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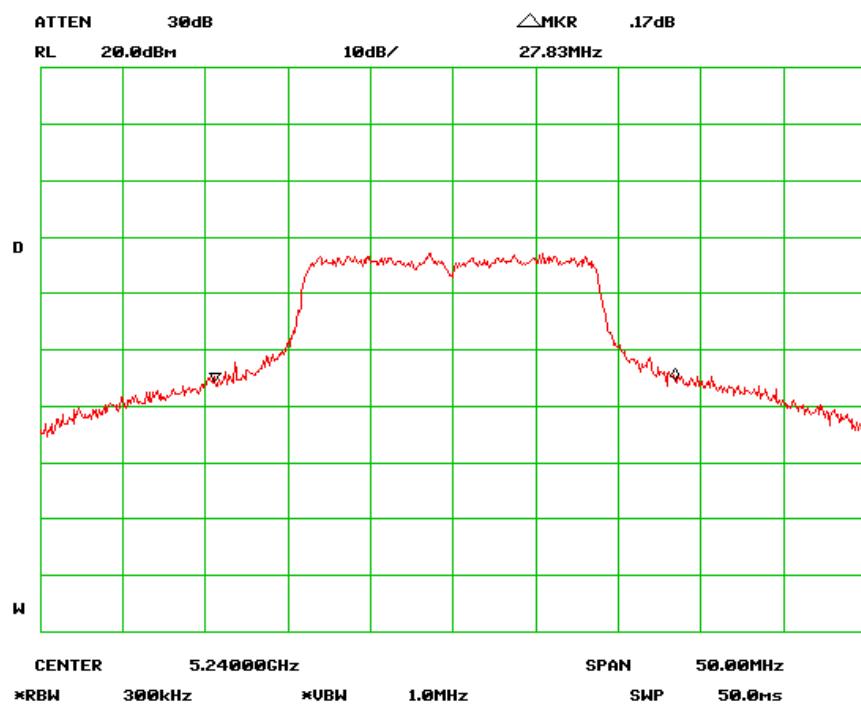
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**26 dB Bandwidth - Mid Channel (802.11n-20MHz)**



**26 dB Bandwidth - High Channel (802.11n-20MHz)**

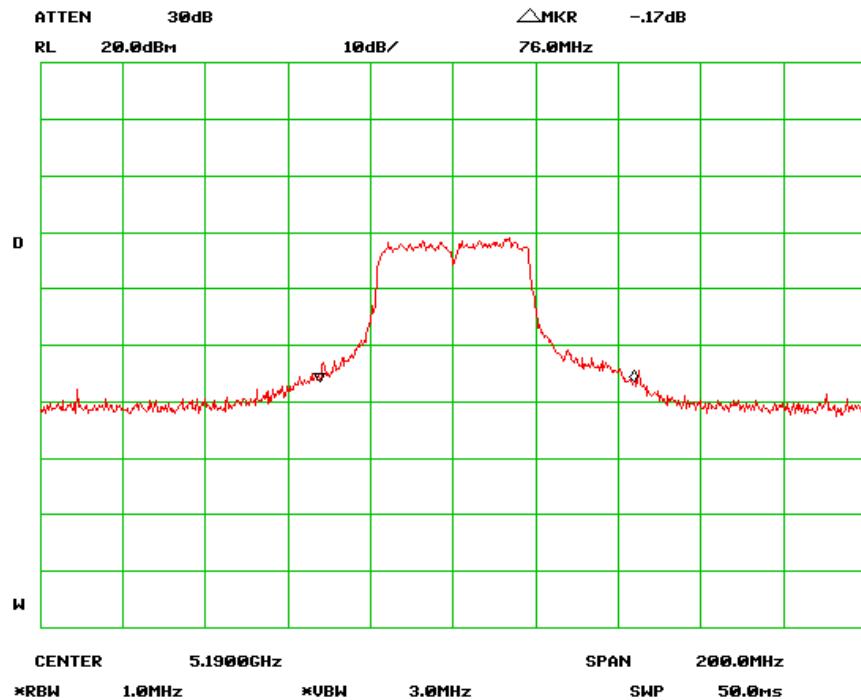


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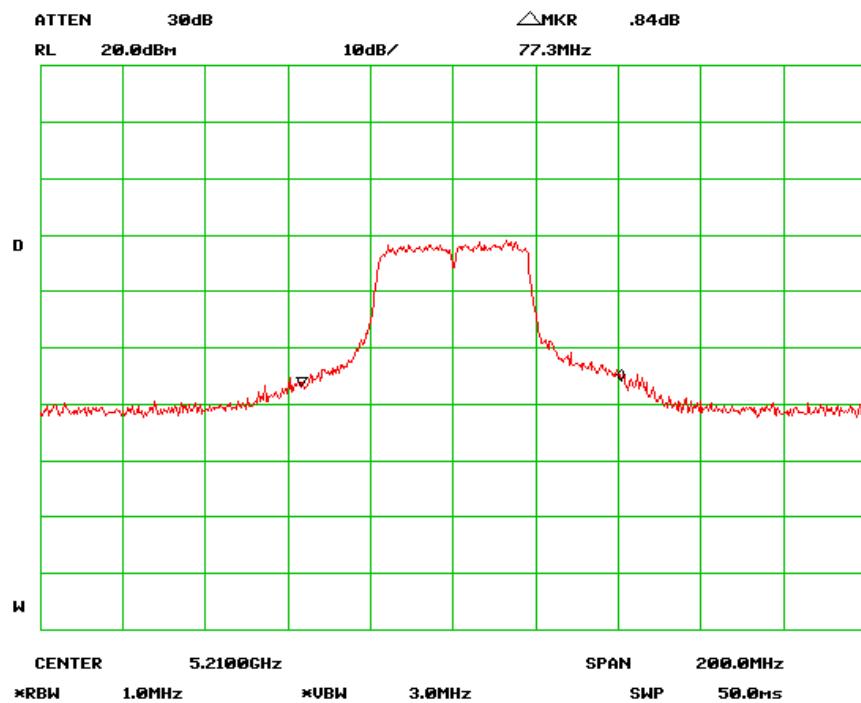
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### 26 dB Bandwidth - Low Channel (802.11n-40MHz)



### 26 dB Bandwidth - Mid Channel (802.11n-40MHz)

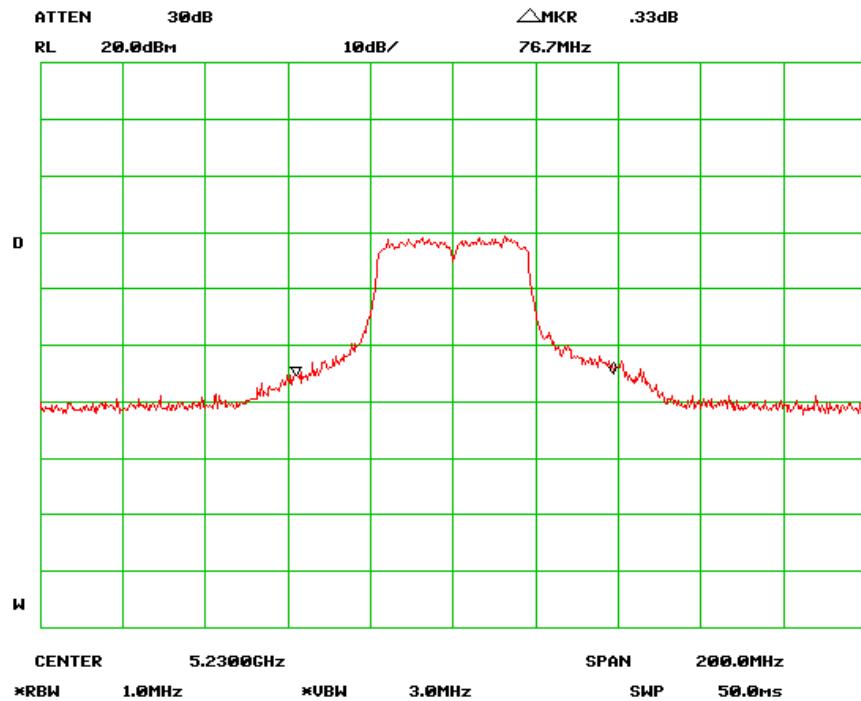


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**26 dB Bandwidth - High Channel (802.11n-40MHz)**



## 5.4 Peak Power Spectral Density

1. Conducted Measurement  
EUT was set for low, mid, high channel with modulated mode and highest RF output power.  
The spectrum analyzer was connected to the antenna terminal.
2. Conducted Emissions Measurement Uncertainty  
All test measurements carried out are traceable to national standards. The uncertainty of the measurement at a confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2, in the range 30MHz – 40GHz is  $\pm 1.5\text{dB}$ .
3. Environmental Conditions  
Temperature  $16^{\circ}\text{C}$   
Relative Humidity 50%  
Atmospheric Pressure 1019mbar
4. Test Date : 19 November ~26 November 2010  
Tested By : Peter Cai

**Requirement(s):** 47 CFR §15.407(a)(2)

**Procedures:** The peak power spectral density measured at the antenna terminal using a spectrum analyzer. RBW=1MHz, VBW=3MHz, sample Detector with power averaging. Peak power spectral density limit is 4 dBm in any 1 MHz band.

### Test Result:

Protocol	Channel	Channel Frequency (MHz)	Peak Spectral Density Limit (dBm/MHz)	Peak Spectral Density (dBm/MHz)
802.11a	Low	5180	4	-14.00
802.11a	Mid	5200	4	-13.00
802.11a	High	5240	4	-12.00
802.11n-20MHz	Low	5180	4	-11.40
802.11n-20MHz	Mid	5200	4	-11.61
802.11n-20MHz	High	5240	4	-11.05
802.11n-40MHz	Low	5190	4	-13.77
802.11n-40MHz	Mid	5210	4	-14.81
802.11n-40MHz	High	5230	4	-13.77

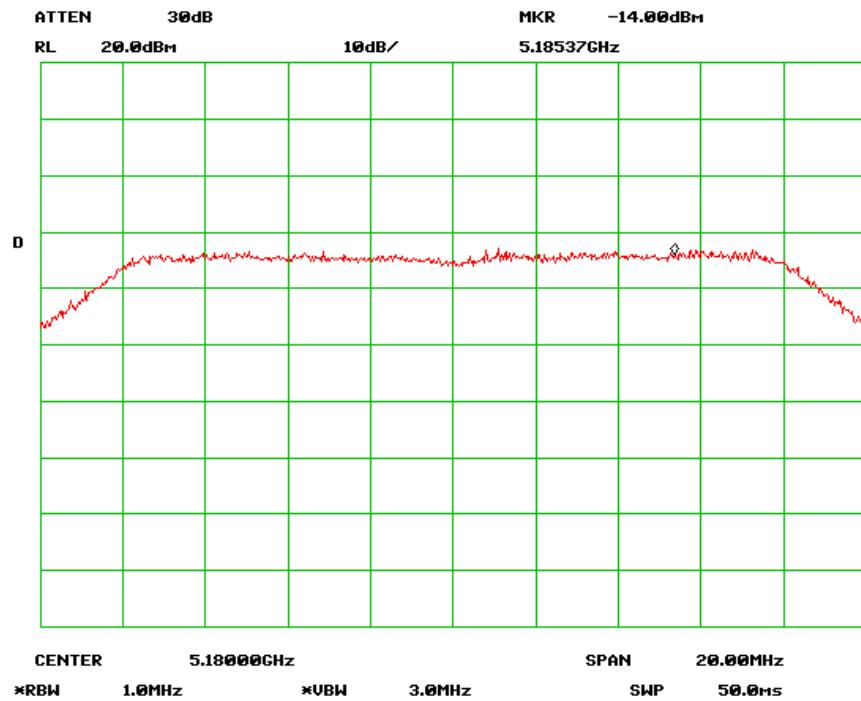


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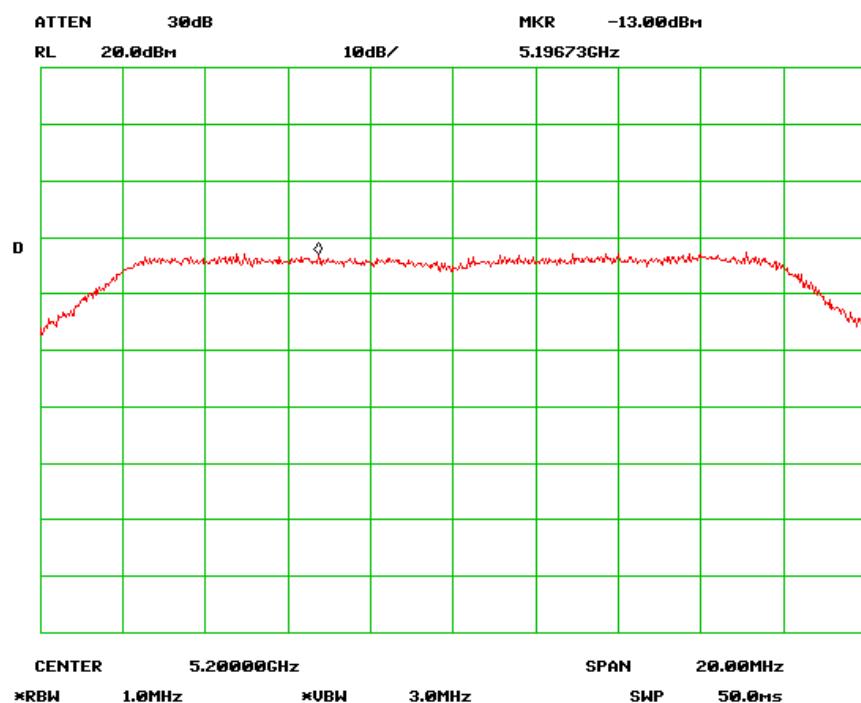
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PSD Low Channel (802.11a)



PSD Mid Channel (802.11a)

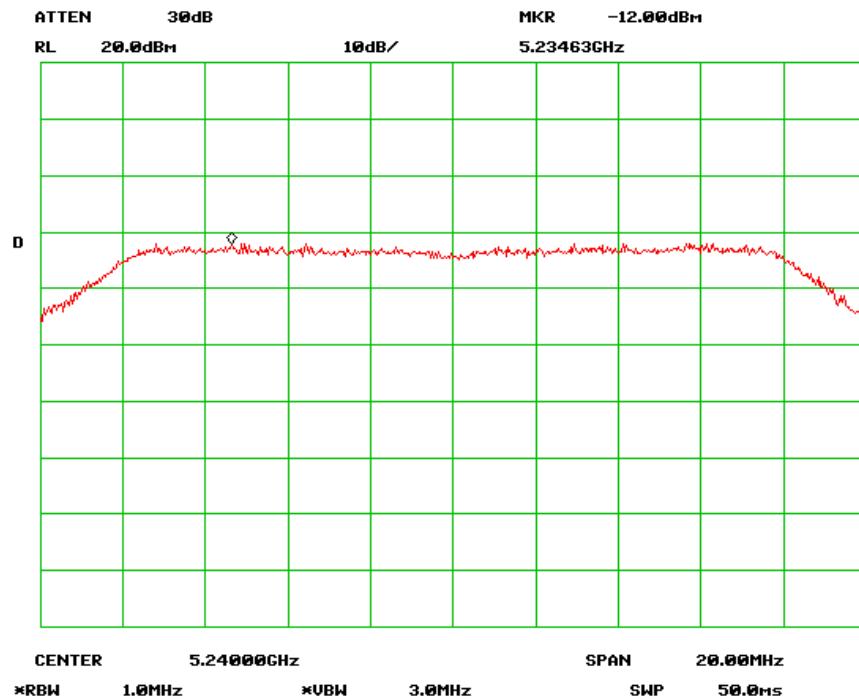


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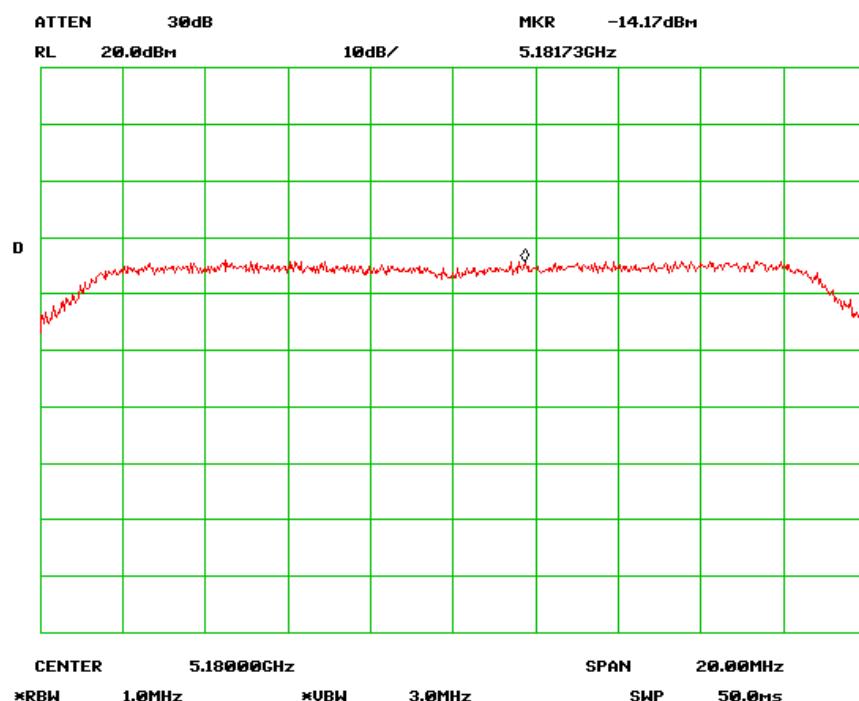
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PSD High Channel (802.11a)



PSD Low Channel (802.11n-20MHz) chain 0

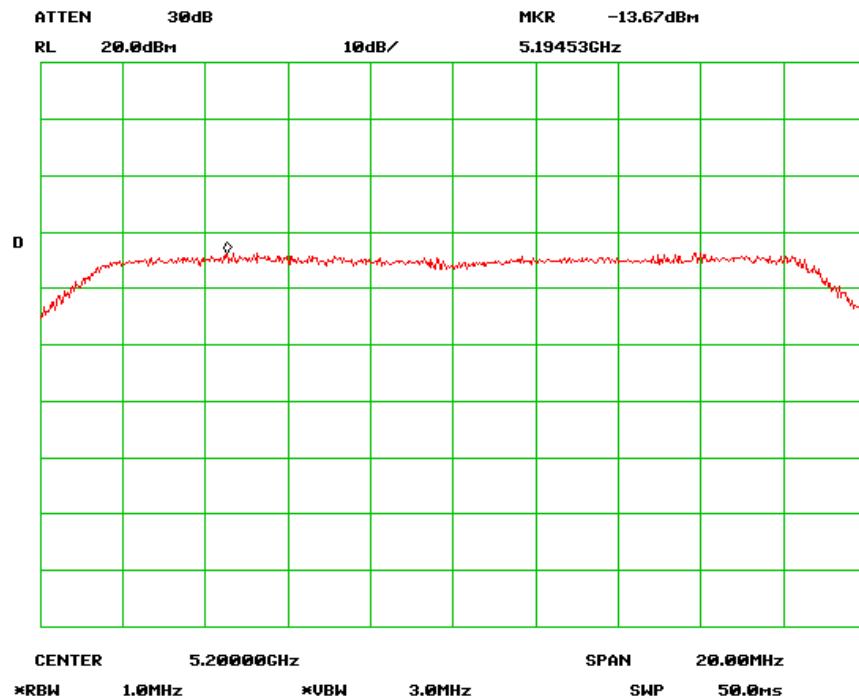


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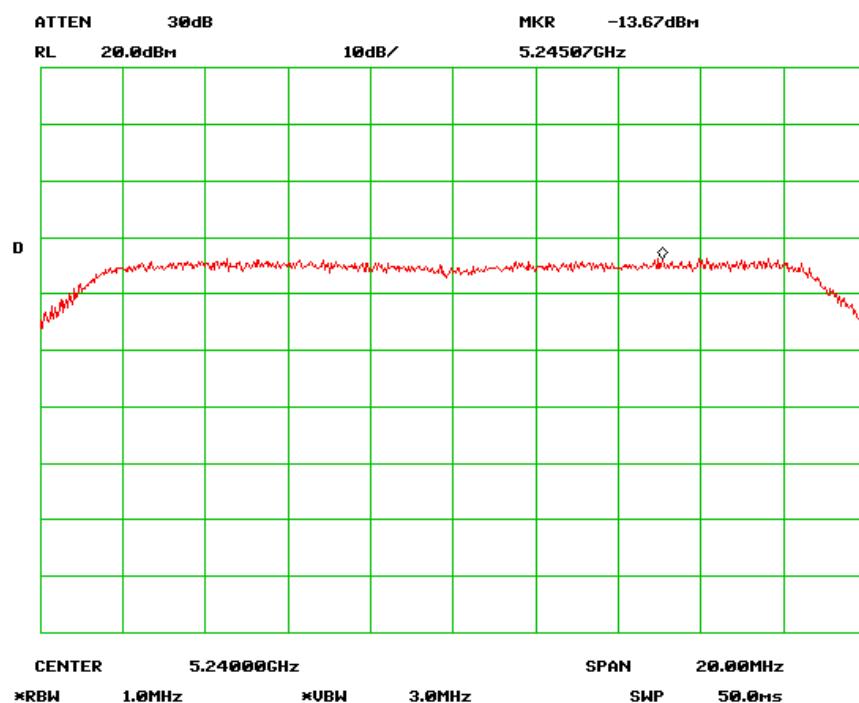
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PSD Mid Channel (802.11n-20MHz) chain 0



PSD High Channel (802.11n-20MHz) chain 0

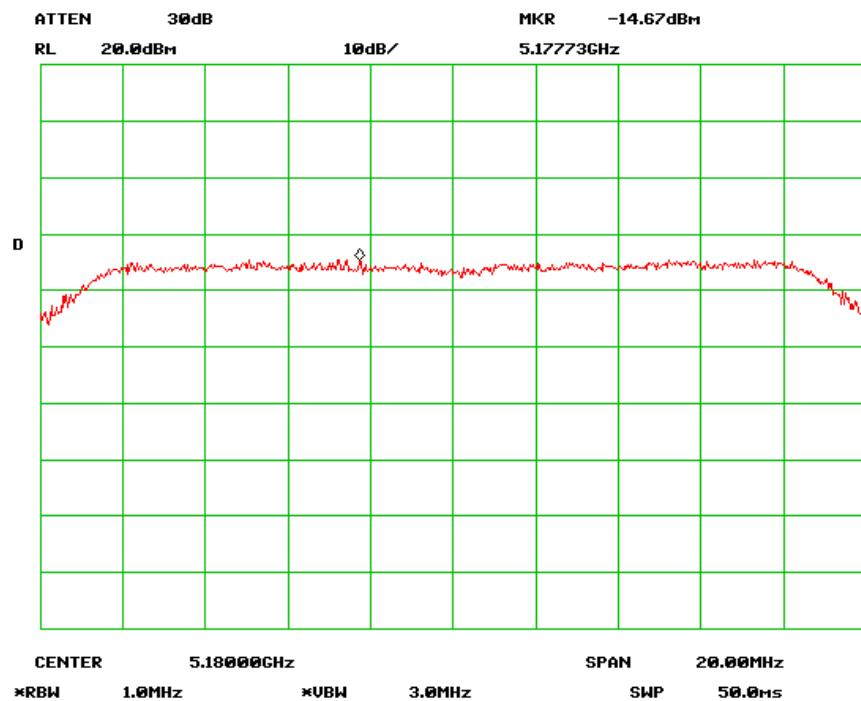


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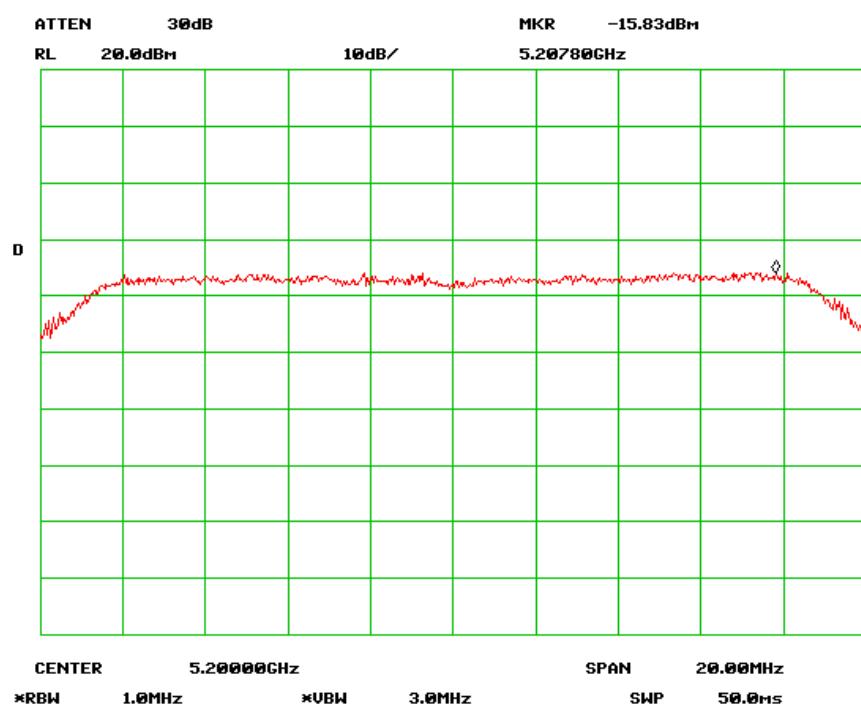
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PSD Low Channel (802.11n-20MHz) chain 1



PSD Mid Channel (802.11n-20MHz) chain 1

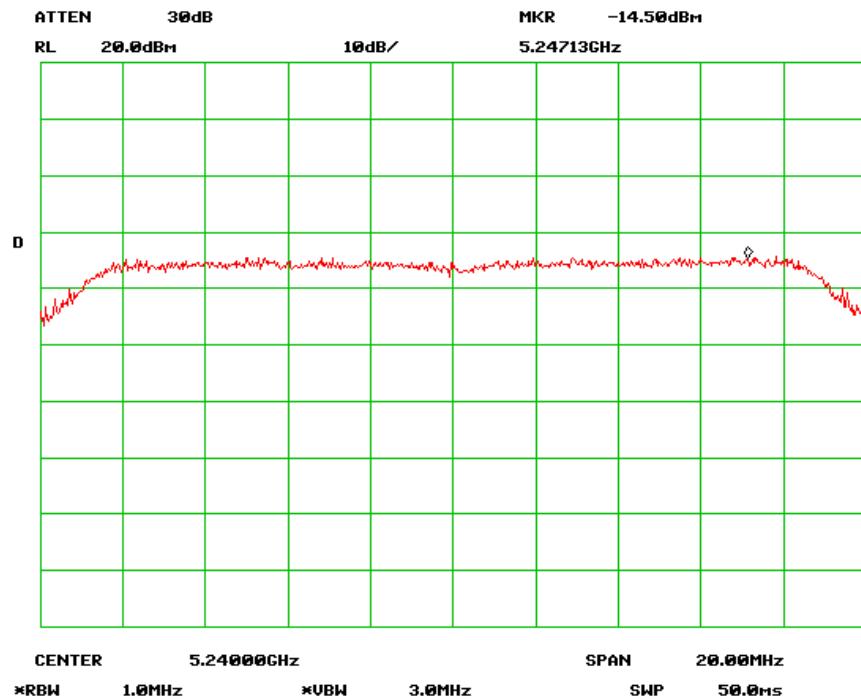


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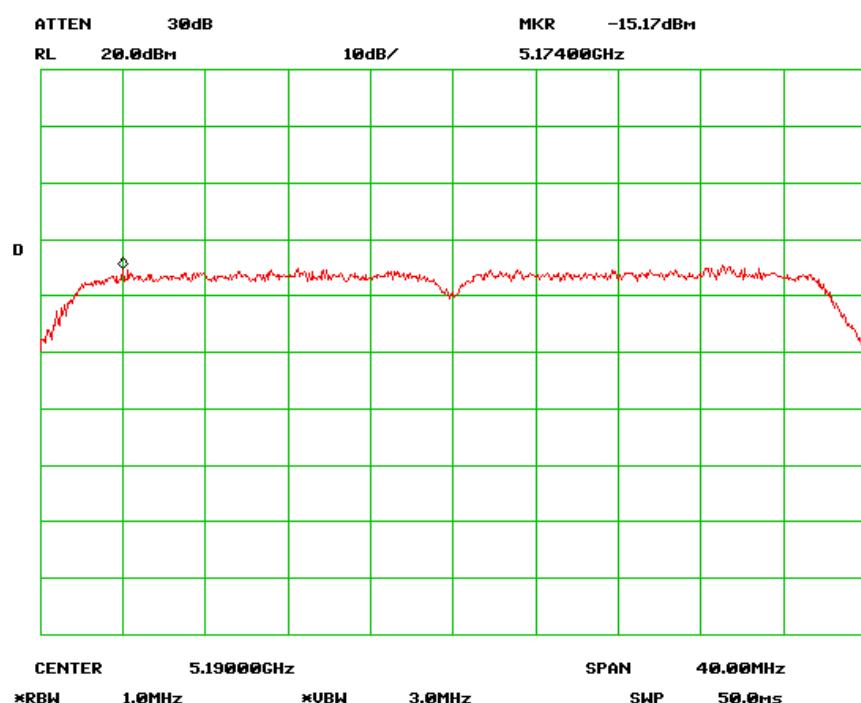
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PSD High Channel (802.11n-20MHz) chain 1



PSD Low Channel (802.11n-40MHz) chain 0

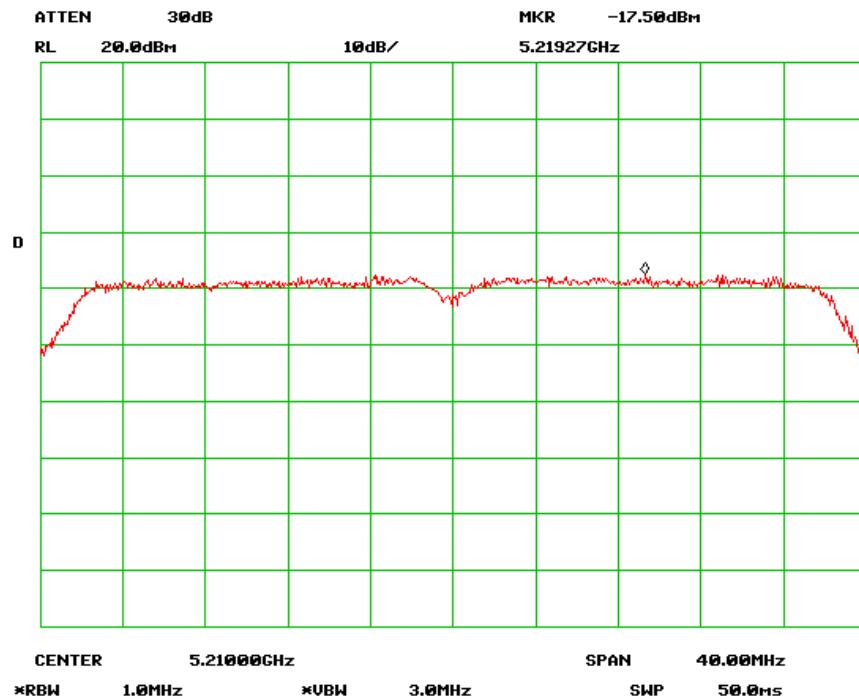


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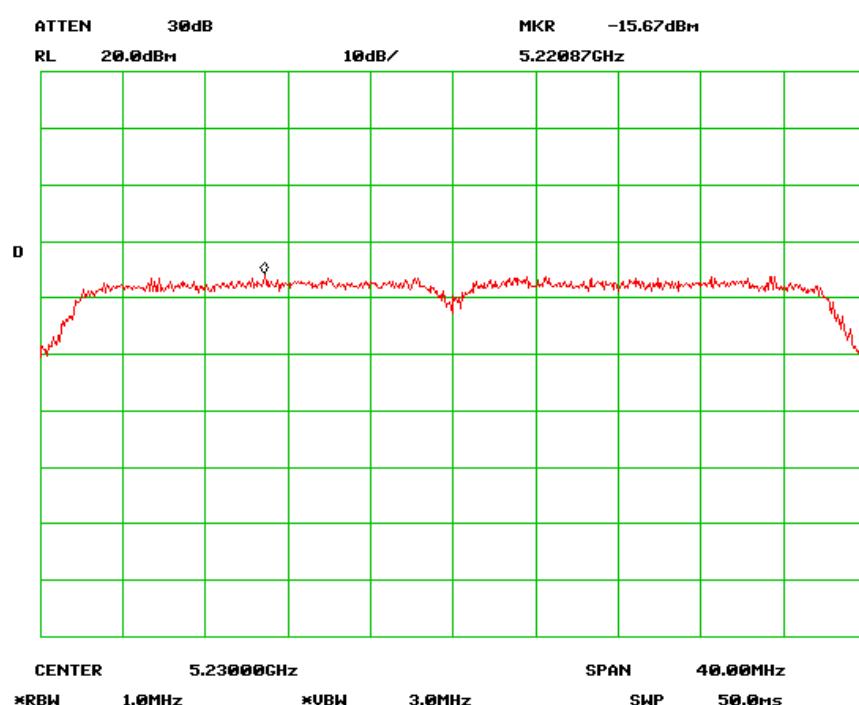
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PSD Mid Channel (802.11n-40MHz) chain 0



PSD High Channel (802.11n-40MHz) chain 0

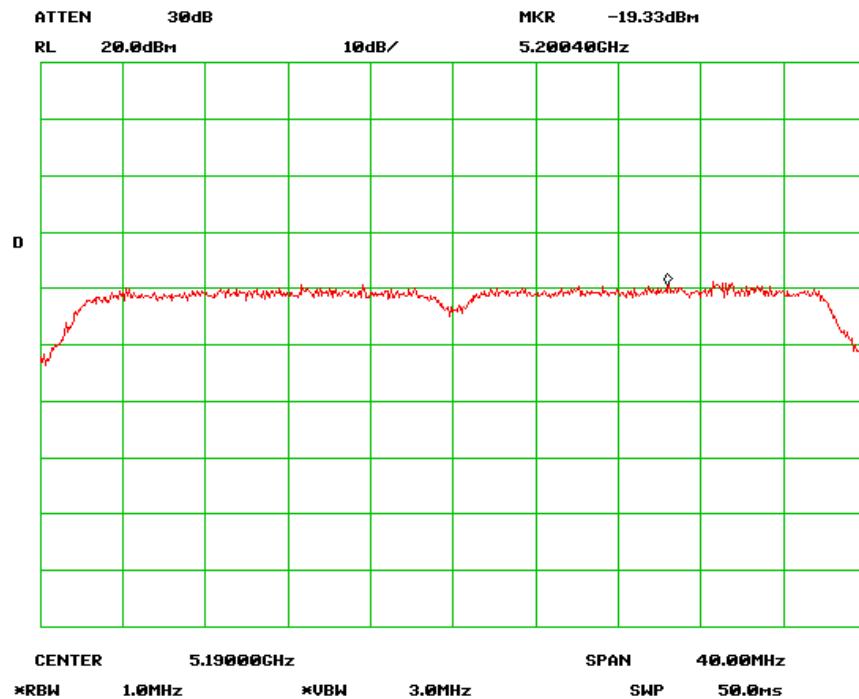


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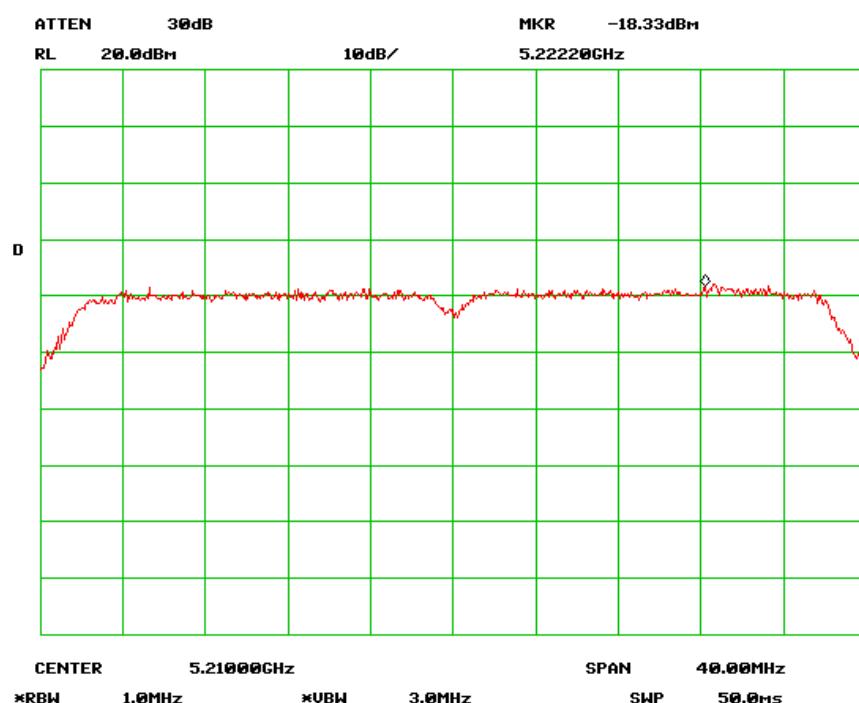
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Title: RF Test Report for Wireless 'N' Networking AdapterTM For Xbox 360  
Model: AS159  
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PSD Low Channel (802.11n-40MHz) chain 1



PSD Mid Channel (802.11n-40MHz) chain 1

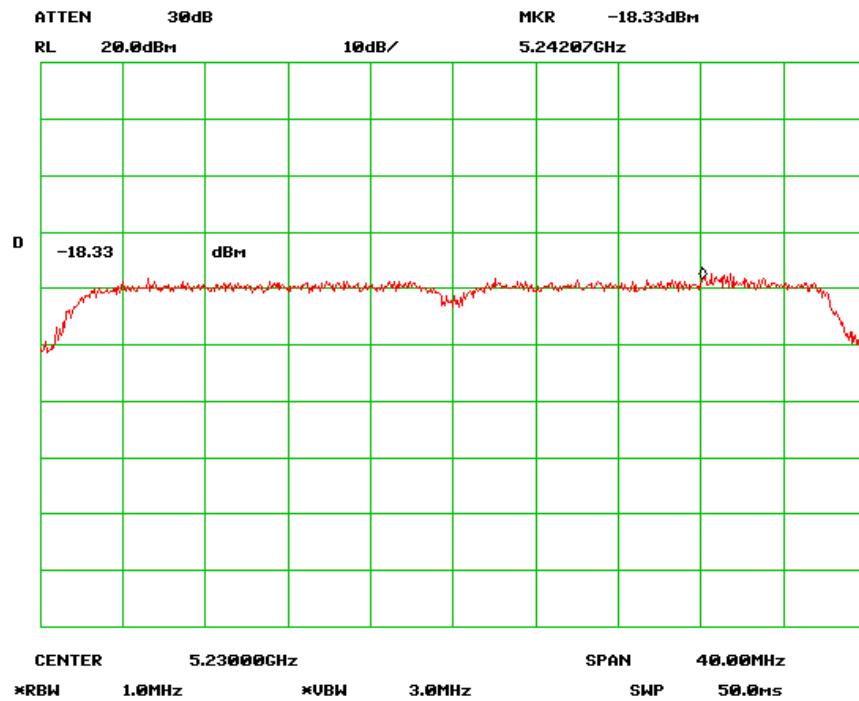


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Title: RF Test Report for Wireless 'N' Networking AdapterTM For Xbox 360  
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PSD High Channel (802.11n-40MHz) chain 1



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## 5.5 Peak Output Power

1. Conducted Measurement  
EUT was set for low, mid, high channel with modulated mode and highest RF output power.  
The spectrum analyzer was connected to the antenna terminal.
2. Conducted Emissions Measurement Uncertainty  
All test measurements carried out are traceable to national standards. The uncertainty of the measurement at a confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2, in the range 30MHz – 40GHz is  $\pm 1.5\text{dB}$ .
3. Environmental Conditions  
Temperature  $16^{\circ}\text{C}$   
Relative Humidity 50%  
Atmospheric Pressure 1019mbar
4. Test Date : 19 November ~26 November 2010  
Tested By : Peter Cai

**Requirement(s):** 47 CFR §15.407(a)(2)

**Procedures:** The peak output power was measured at the antenna terminal using Acceptable Procedures:  
Peak conducted transmit output power outlined in FCC DA 02-2138 Appendix A. 100KHz VBW was determined, where  $T = \infty \mu\text{sec}$ .  
Conducted Peak Power Limit is 50mW (17 dBm).

### **Test Result:**

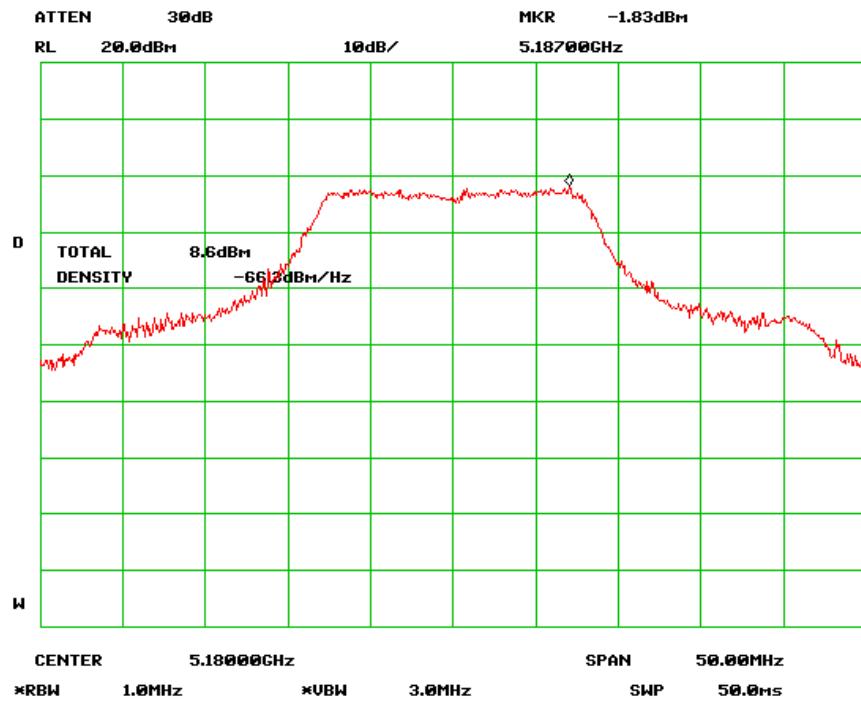
Protocol	Channel	Channel Frequency (MHz)	Peak Output Power Limit (dBm)	Measured Output Power(dBm)
802.11a	Low	5180	17	8.6
802.11a	Mid	5200	17	9.1
802.11a	High	5240	17	9.9
802.11n-20MHz	Low	5180	17	7.2
802.11n-20MHz	Mid	5200	17	7.4
802.11n-20MHz	High	5240	17	8.0
802.11n-40MHz	Low	5190	17	6.9
802.11n-40MHz	Mid	5210	17	7.4
802.11n-40MHz	High	5230	17	7.7



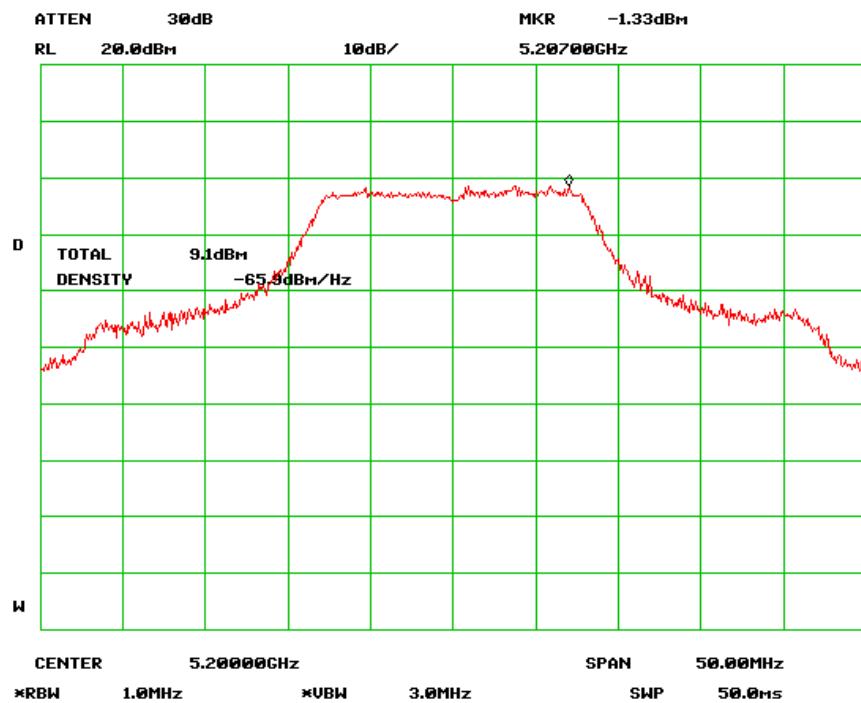
**SIEMIC, INC.**  
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Output Power Low Channel (802.11a)



Output Power Mid Channel (802.11a)

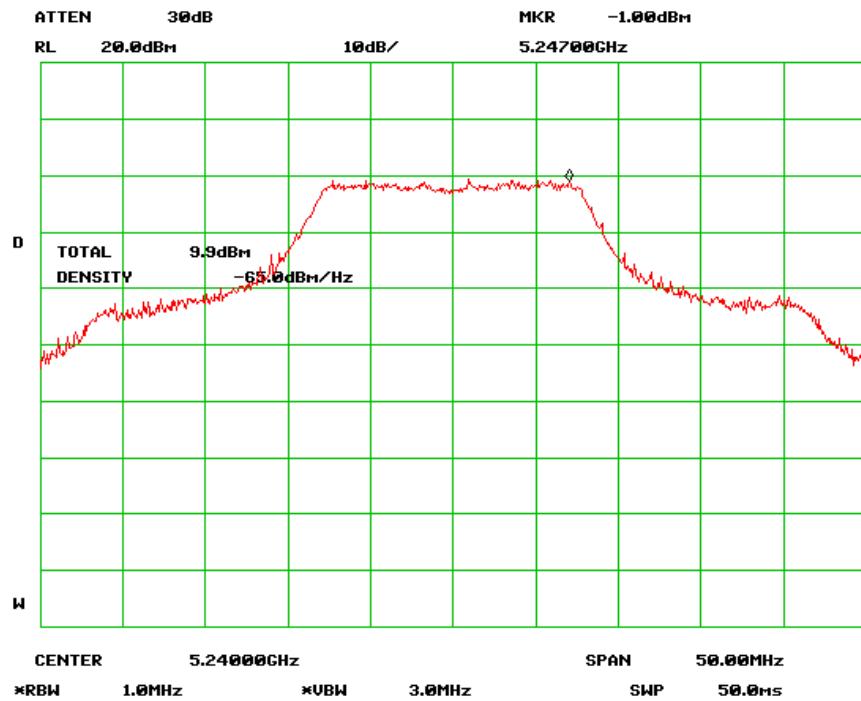


**SIEMIC, INC.**

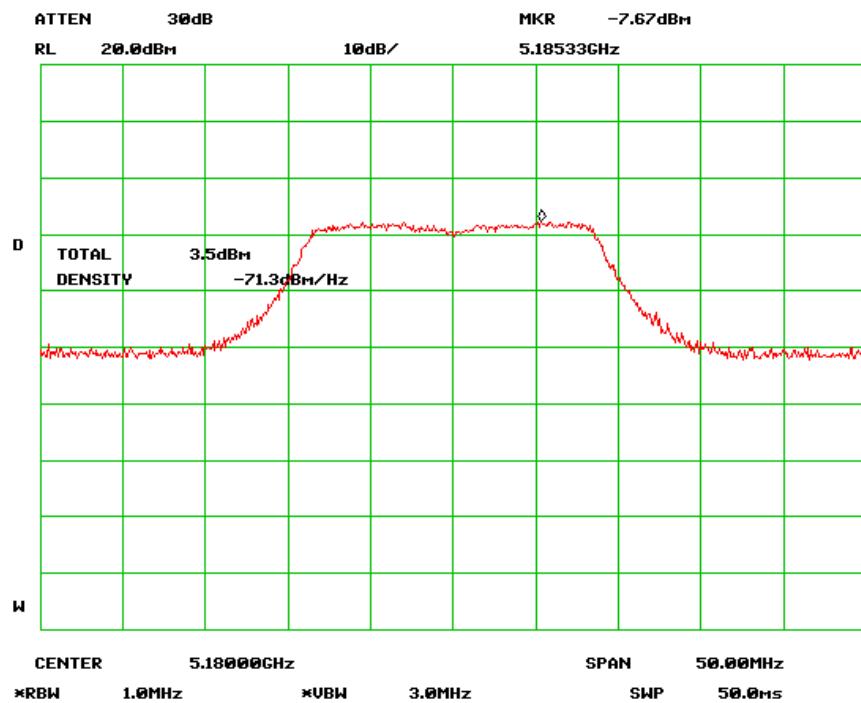
Accessing global markets

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Output Power High Channel (802.11a)



Output Power Low Channel (802.11n-20MHz) channel 0

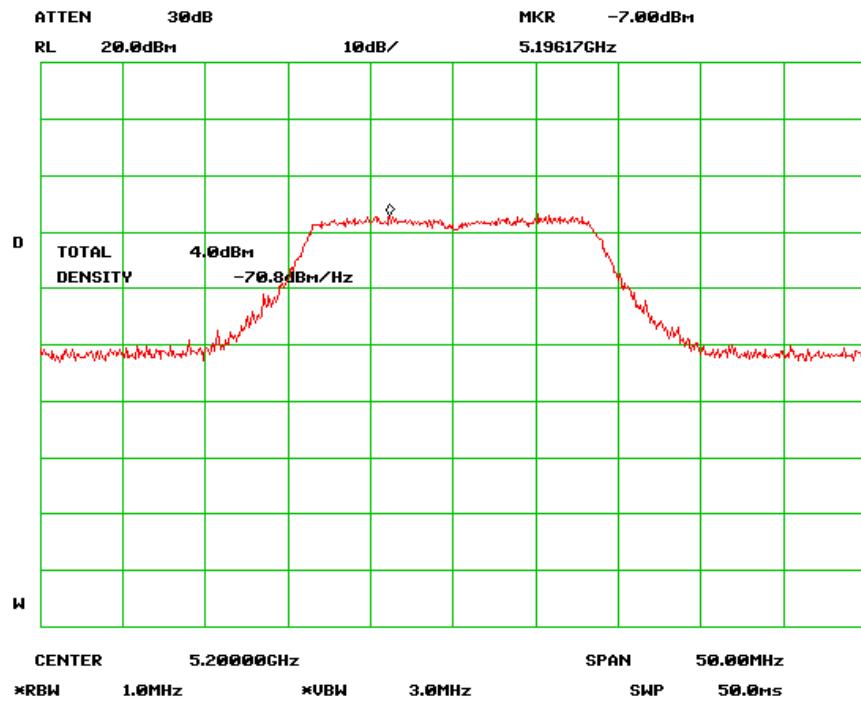


**SIEMIC, INC.**

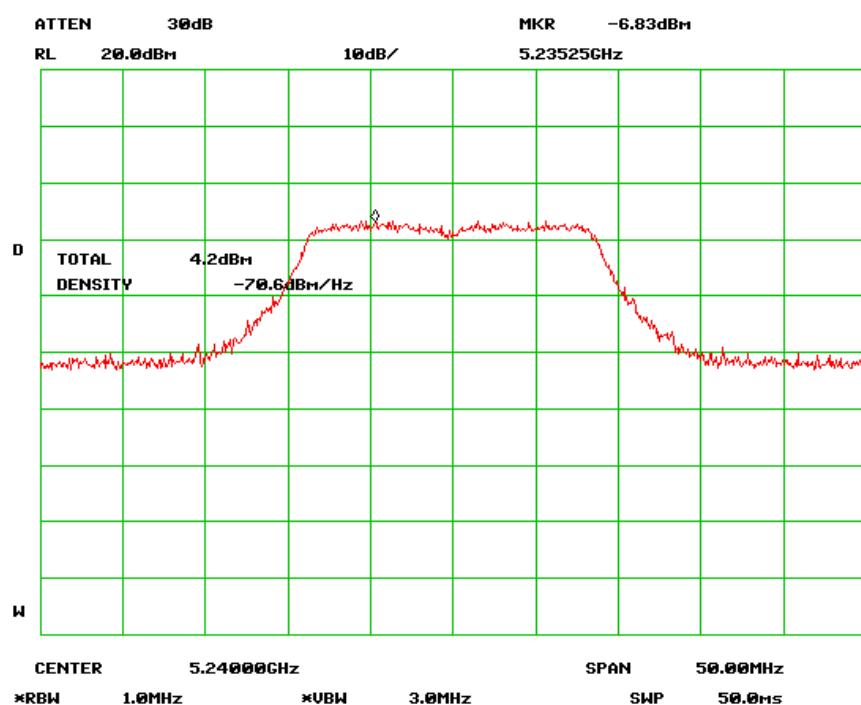
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Title: RF Test Report for Wireless 'N' Networking AdapterTM For Xbox 360  
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Output Power Mid Channel (802.11n-20MHz) channel 0



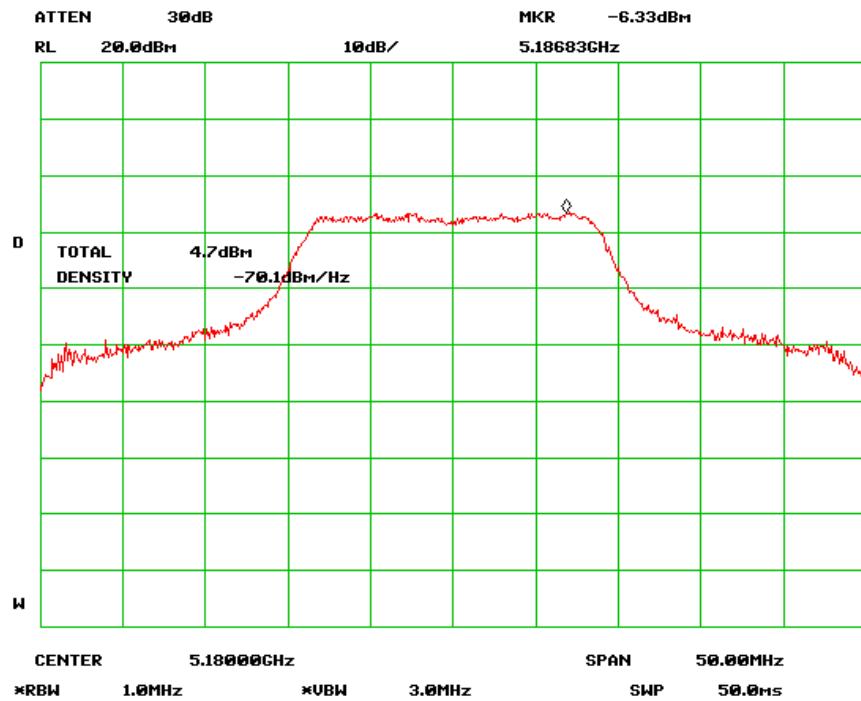
Output Power High Channel (802.11n-20MHz) channel 0



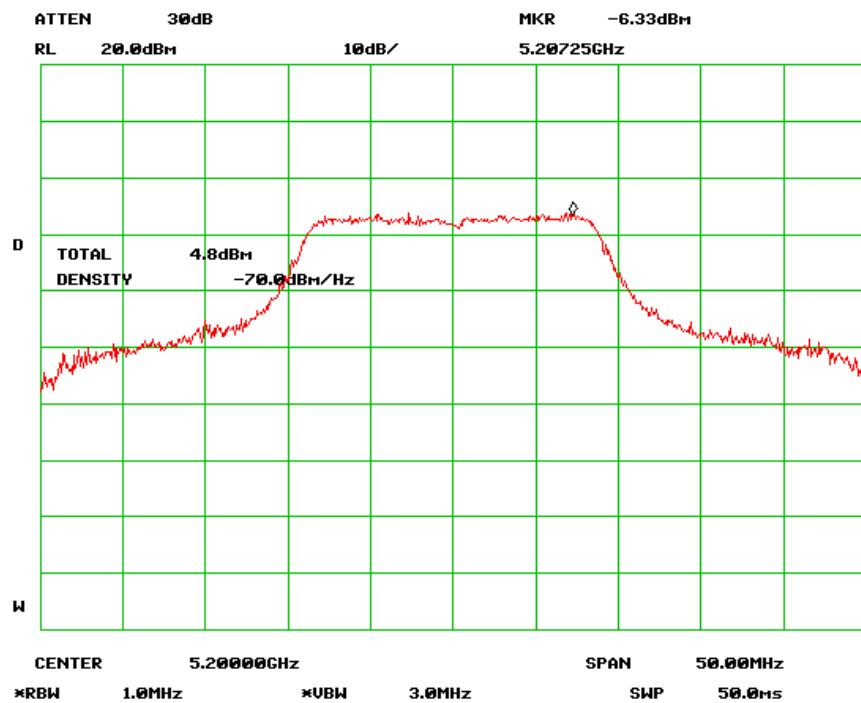
**SIEMIC, INC.**  
Accessing global markets

Title: RF Test Report for Wireless 'N' Networking AdapterTM For Xbox 360  
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Output Power Low Channel (802.11n-20MHz) channel 1



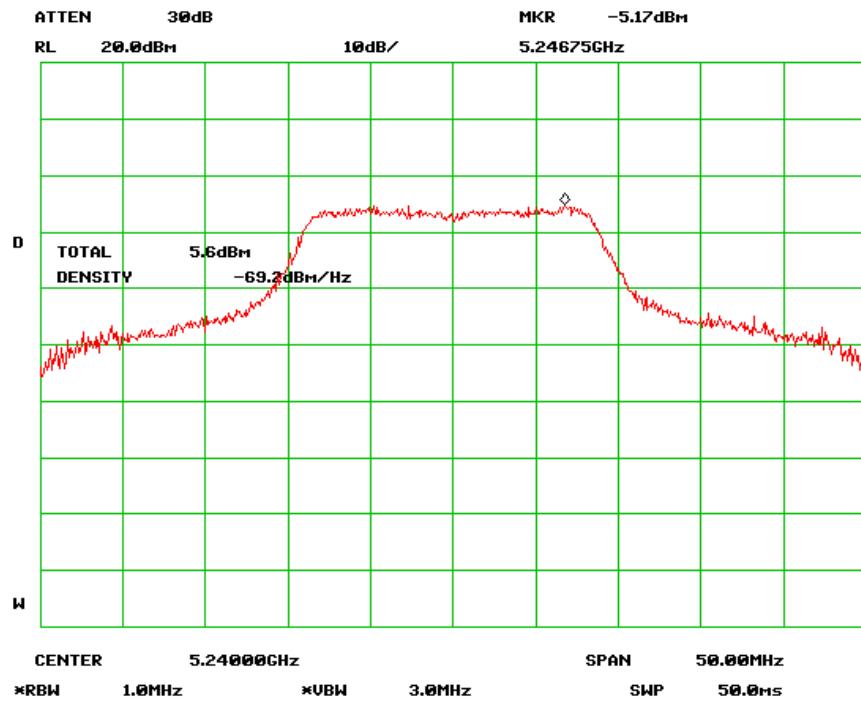
Output Power Mid Channel (802.11n-20MHz) channel 1



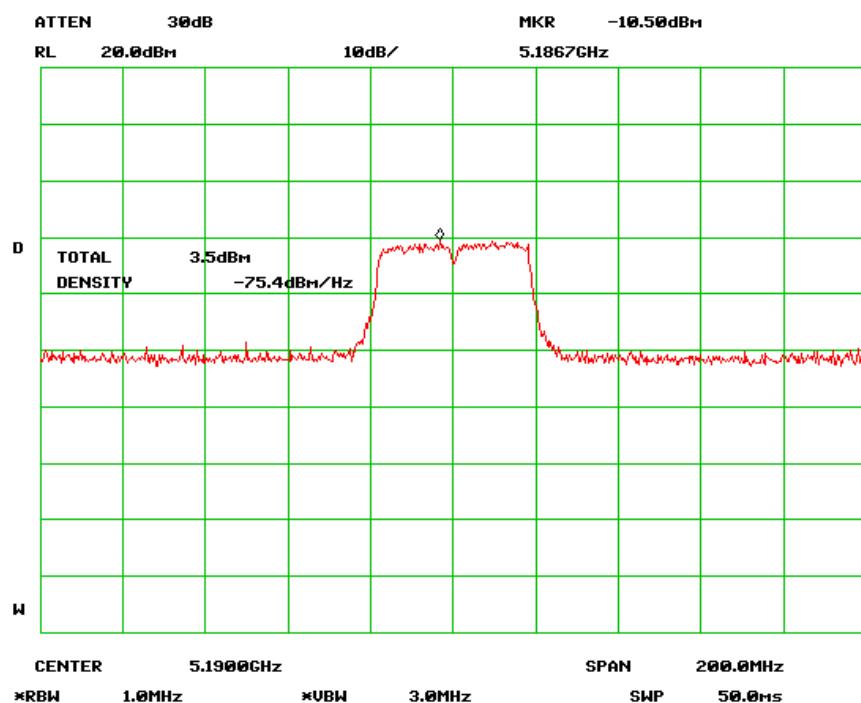
**SIEMIC, INC.**  
Accessing global markets

Title: RF Test Report for Wireless 'N' Networking AdapterTM For Xbox 360  
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Output Power High Channel (802.11n-20MHz) channel 1



Output Power Low Channel (802.11n-40MHz) channel 0

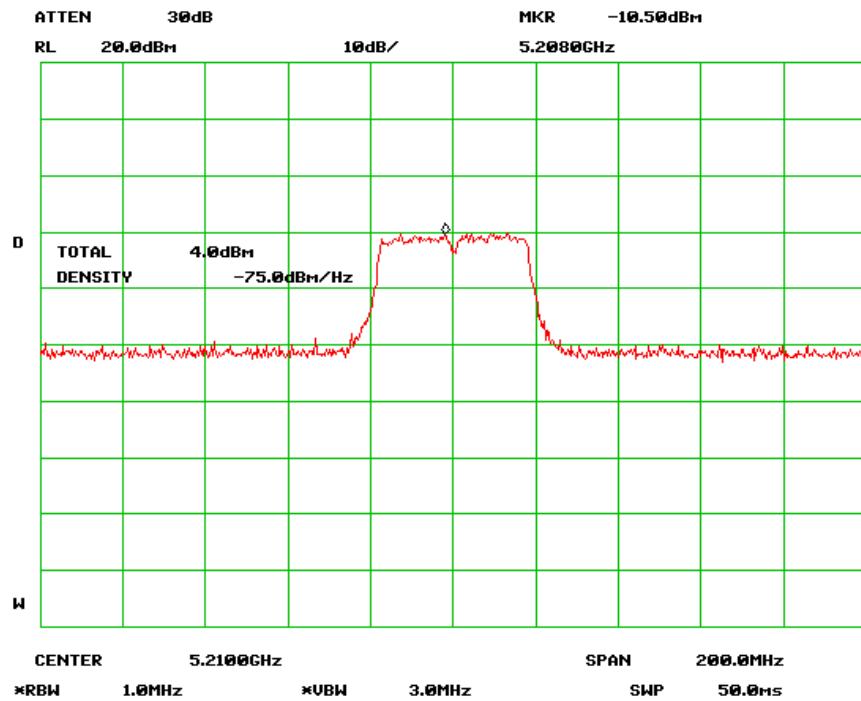


**SIEMIC, INC.**

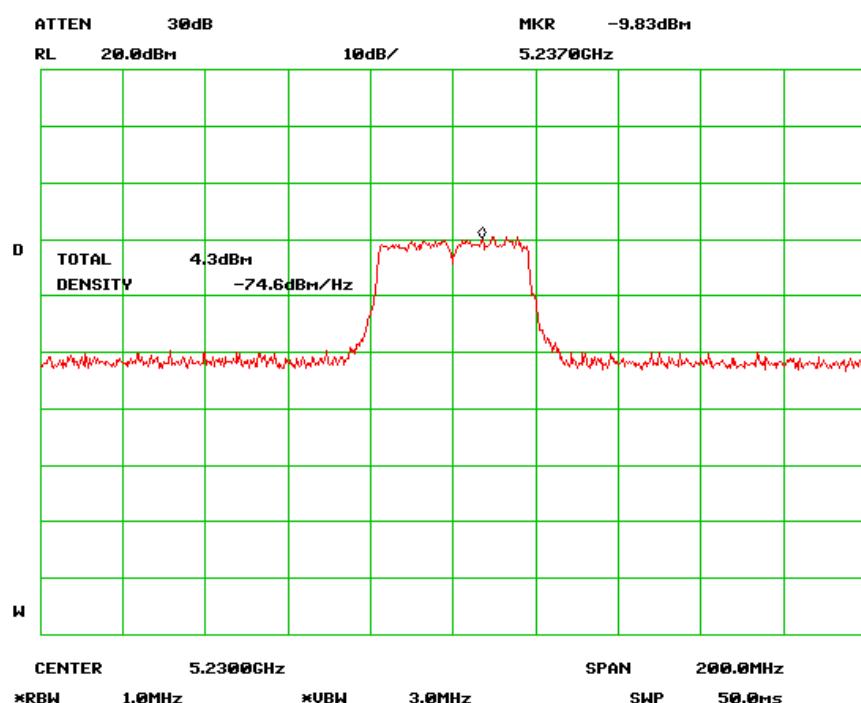
Accessing global markets

Title: RF Test Report for Wireless 'N' Networking AdapterTM For Xbox 360  
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Output Power Mid Channel (802.11n-40MHz) channel 0



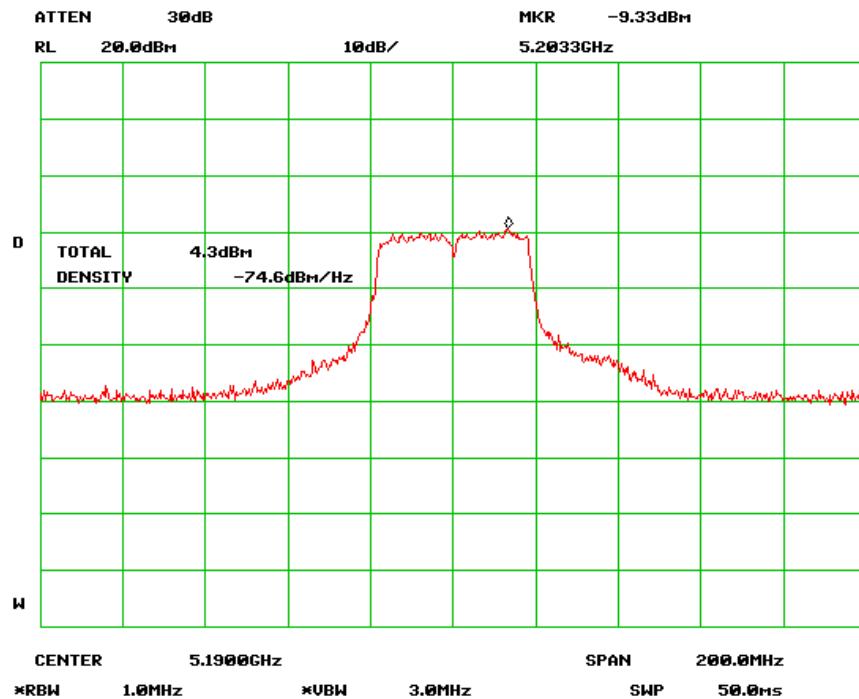
Output Power High Channel (802.11n-40MHz) channel 0

**SIEMIC, INC.**

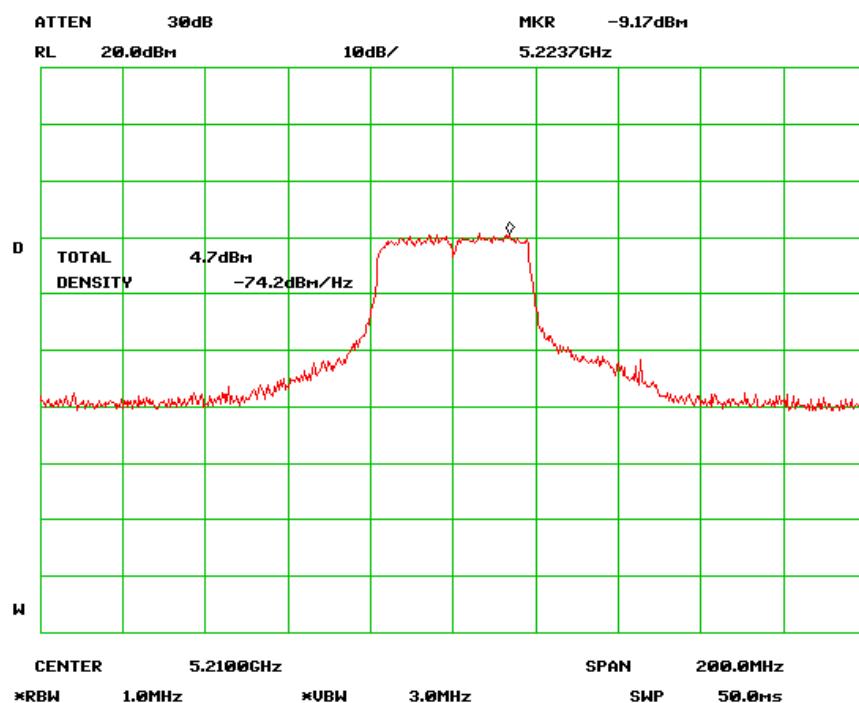
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Output Power Low Channel (802.11n-40MHz) channel 1



Output Power Mid Channel (802.11n-40MHz) channel 1

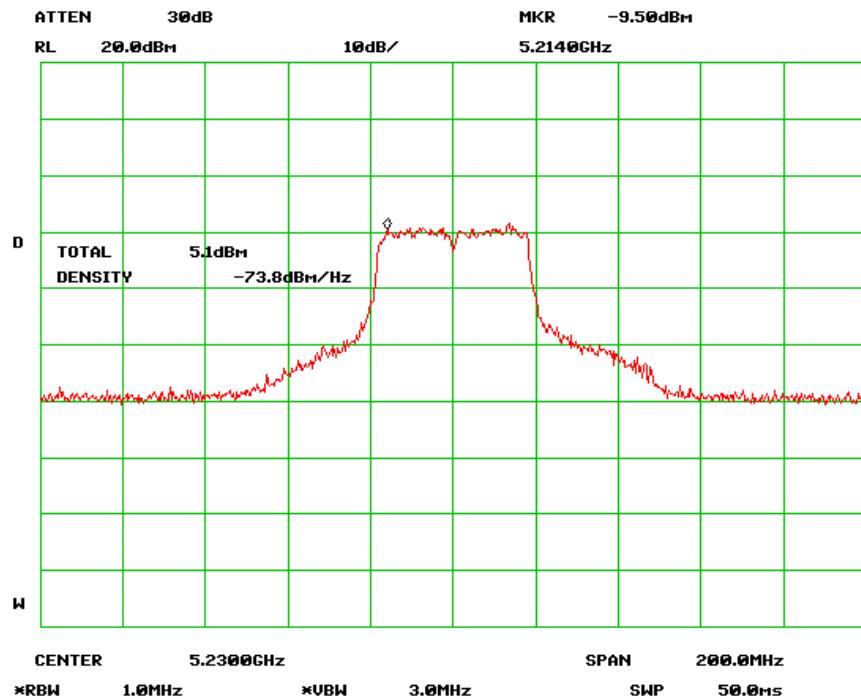


**SIEMIC, INC.**

Accessing global markets

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Output Power High Channel (802.11n-40MHz) channel 1



## 5.6 Band Edge & Antenna Port Emission

1. Conducted Measurement  
EUT was set for low, mid, high channel with modulated mode and highest RF output power.  
The spectrum analyzer was connected to the antenna terminal.
2. Conducted Emissions Measurement Uncertainty  
All test measurements carried out are traceable to national standards. The uncertainty of the measurement at a confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2, in the range 30MHz – 40GHz is ±1.5dB.
3. Environmental Conditions      Temperature      16°C  
    Relative Humidity      50%  
    Atmospheric Pressure      1019mbar
4. Test Date : 19 November ~26 November 2010  
Tested By : Peter Cai

**Requirement(s):** 47 CFR §15.407(b)(2)

**Procedures:** The spurious emissions was measured at the antenna terminal using a spectrum analyzer. bandwidths at hi and low channels with the highest output power.

Out of Band Emission Limit: -27 dBm / MHz (EIRP)

**Test Result:**

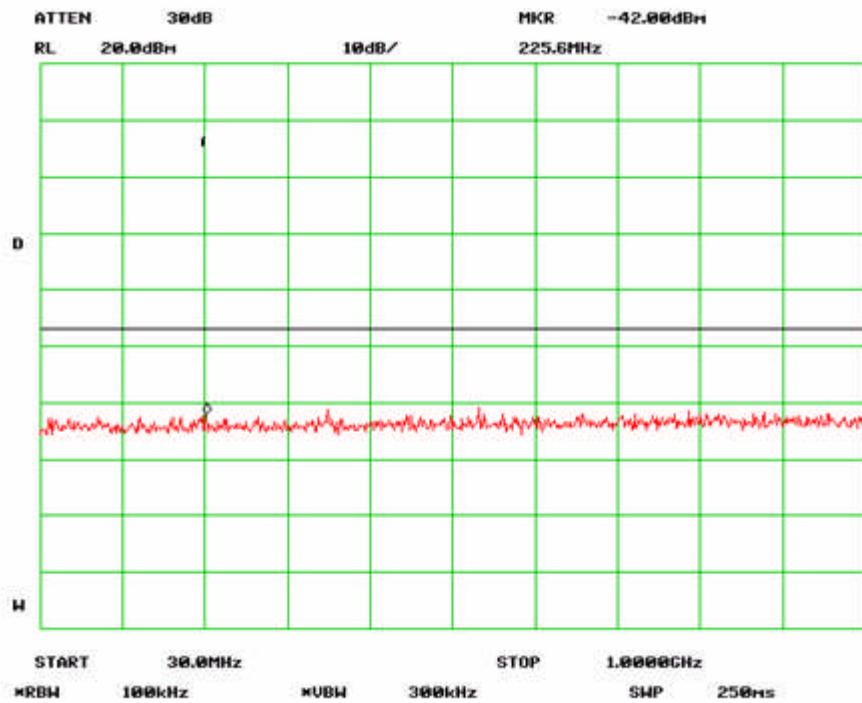


**SIEMIC, INC.**

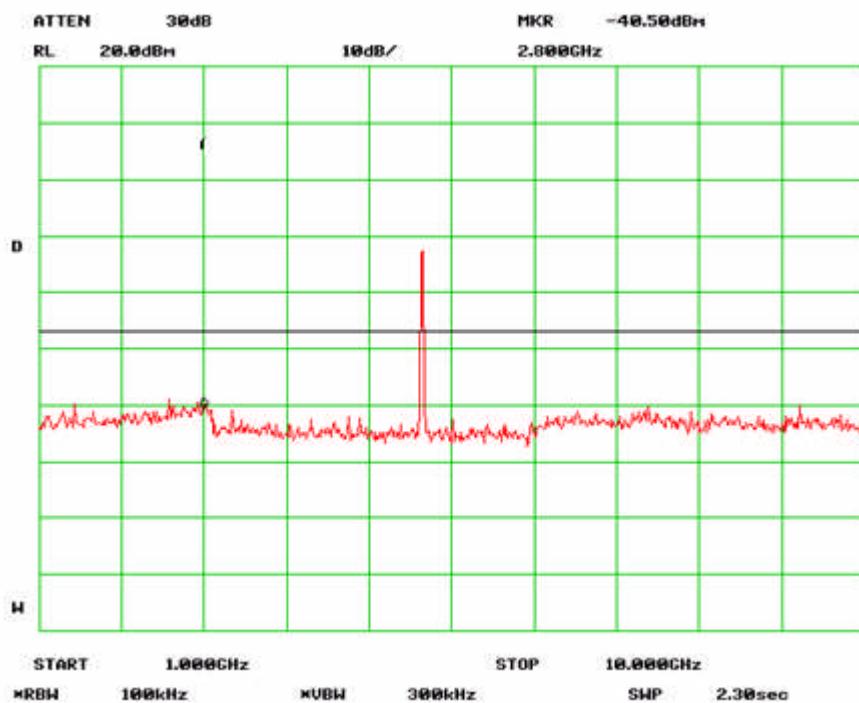
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### 802.11a Low Channel -1



### 802.11a Low Channel -2

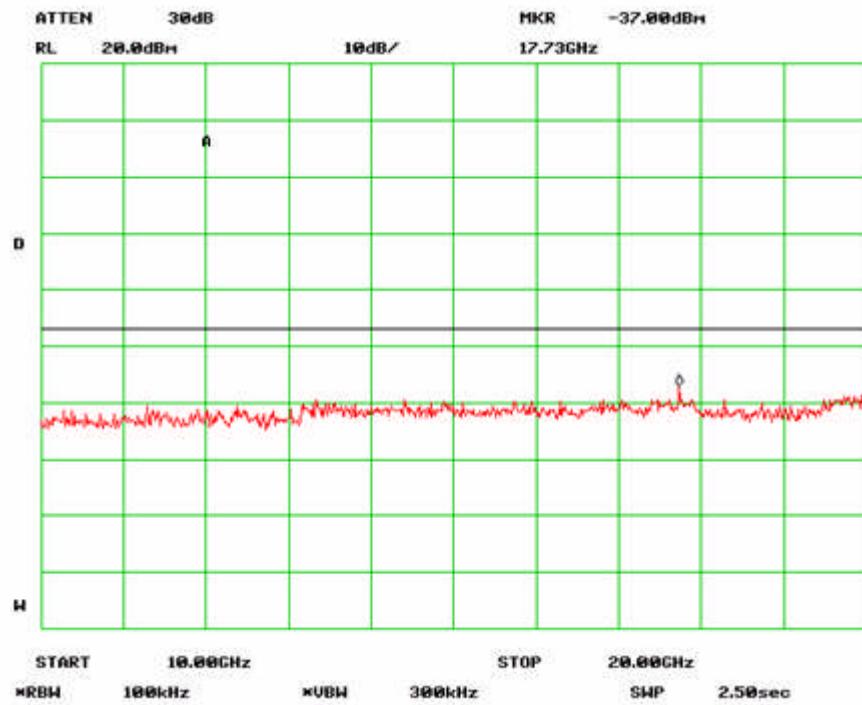


**SIEMIC, INC.**

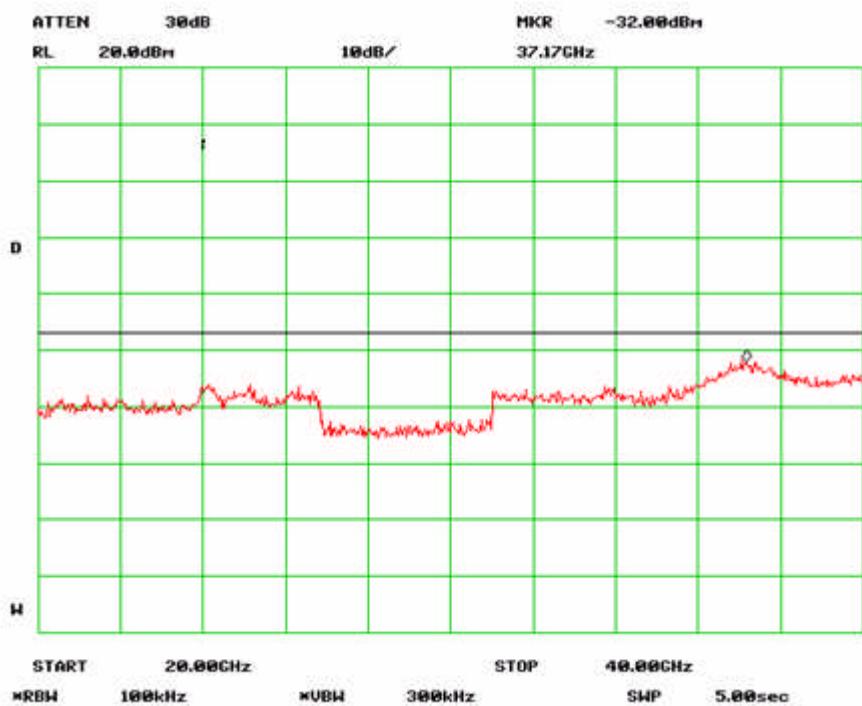
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802.11a Low Channel -3



802.11a Low Channel -4

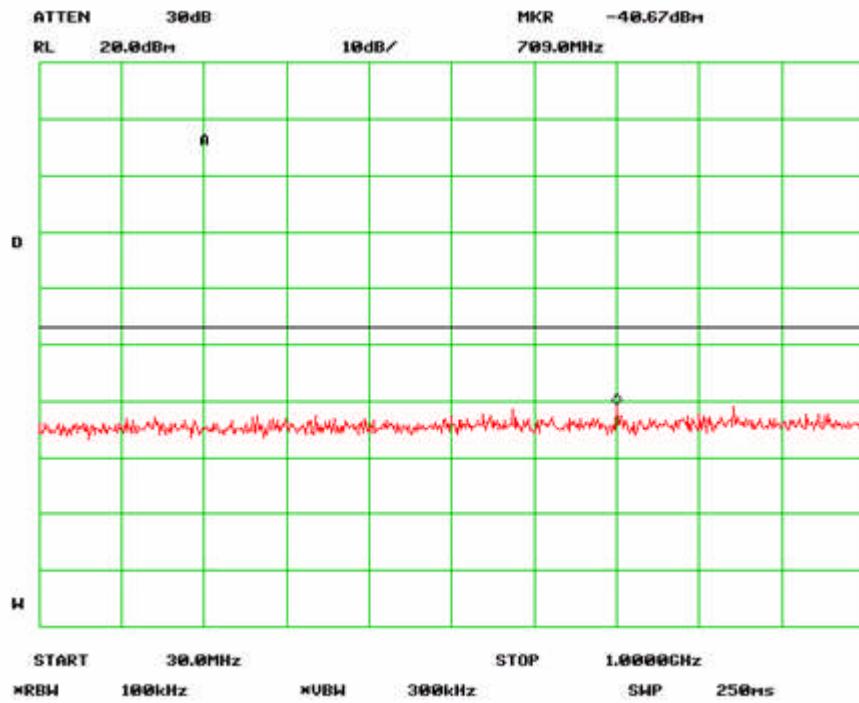


**SIEMIC, INC.**

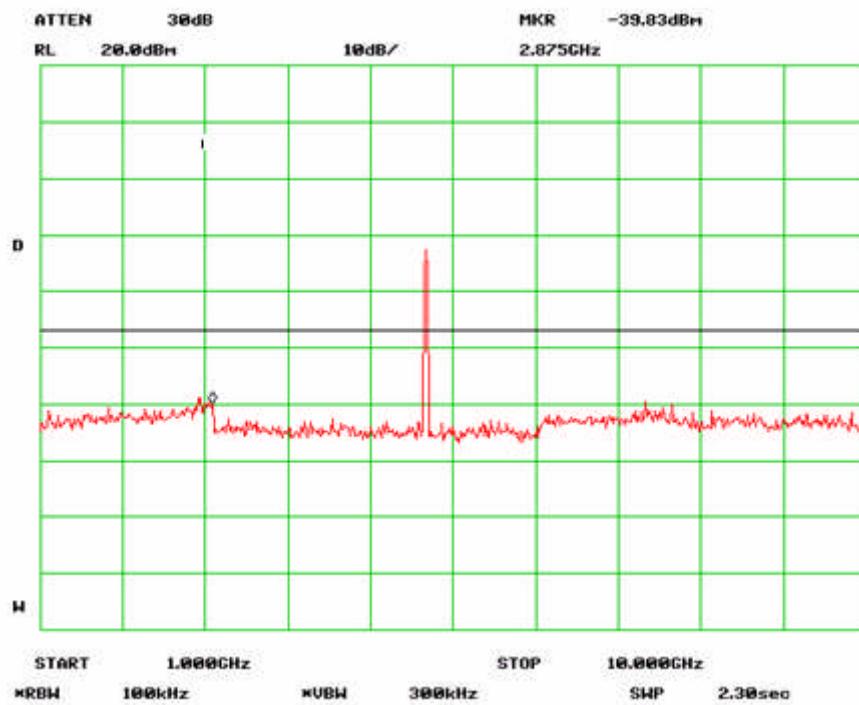
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### 802.11a Mid Channel -1



### 802.11a Mid Channel -2

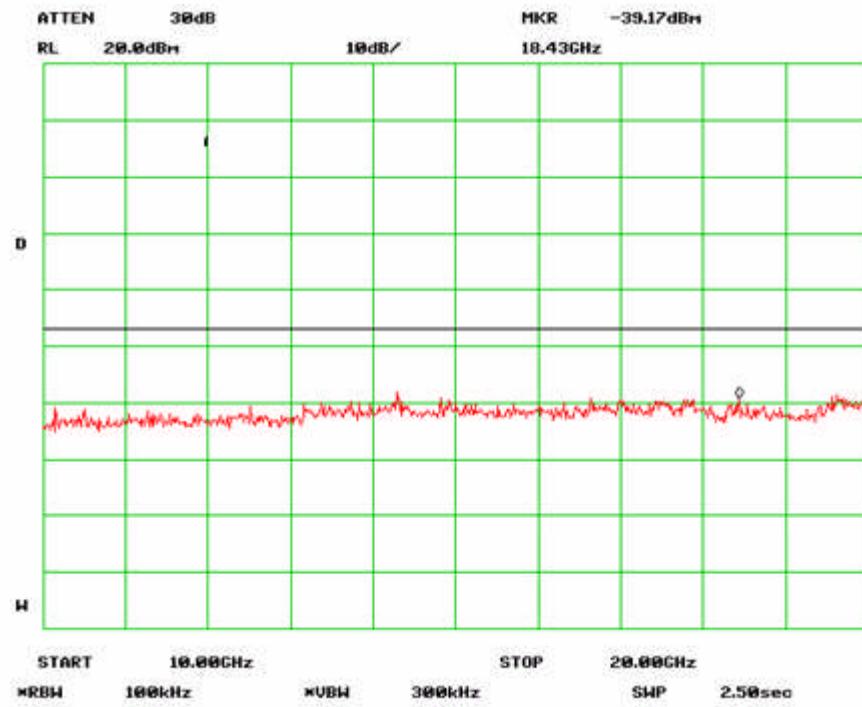


**SIEMIC, INC.**

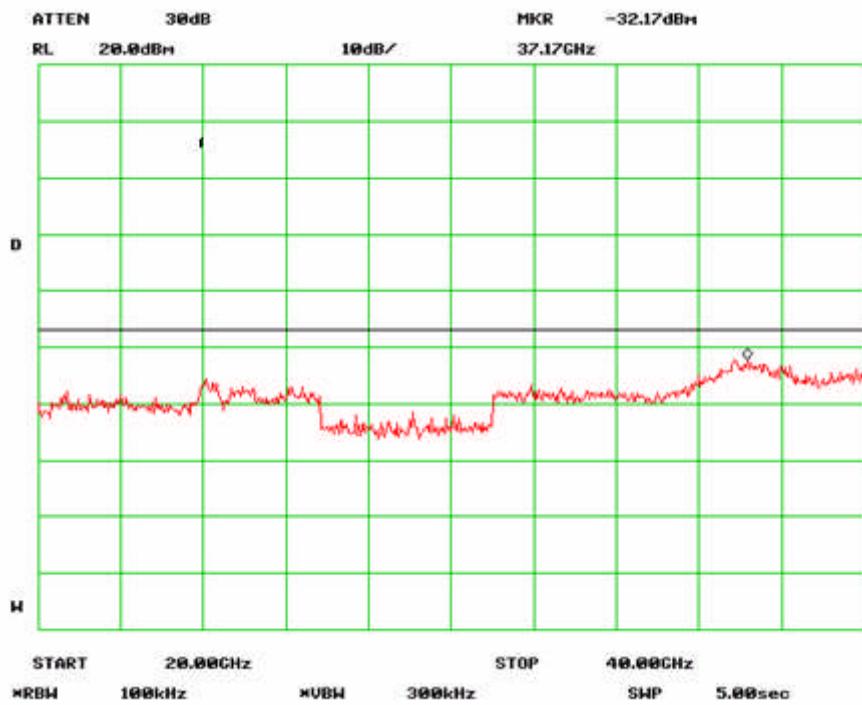
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### 802.11a Mid Channel -3



### 802.11a Mid Channel -4

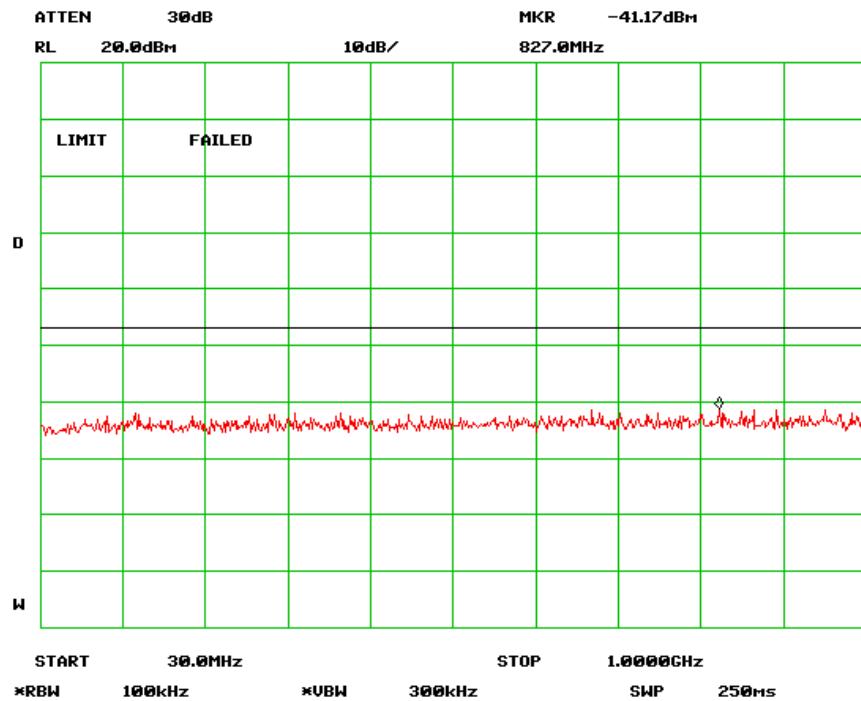


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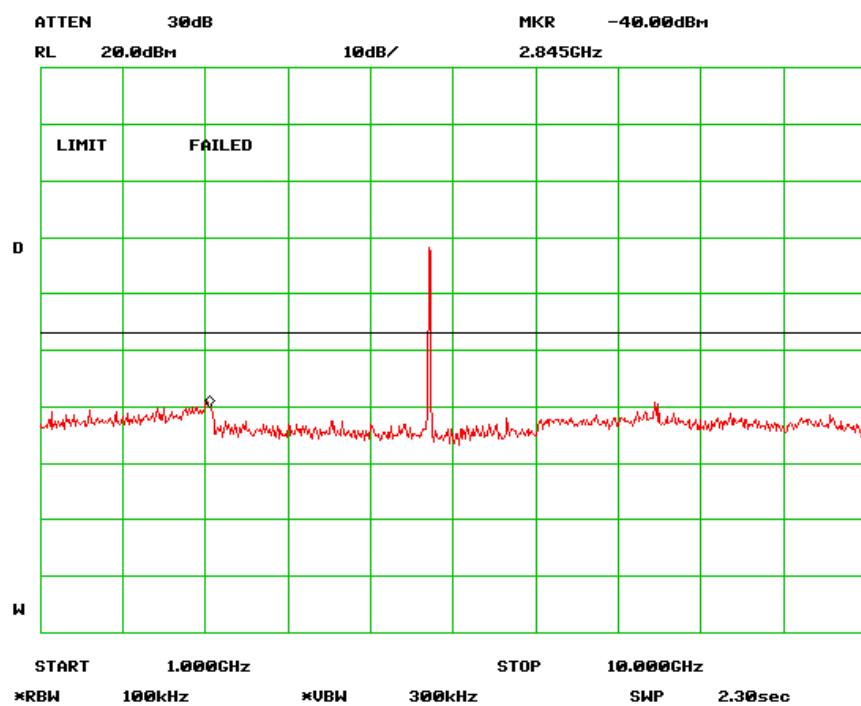
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### 802.11a High Channel -1



### 802.11a High Channel -2

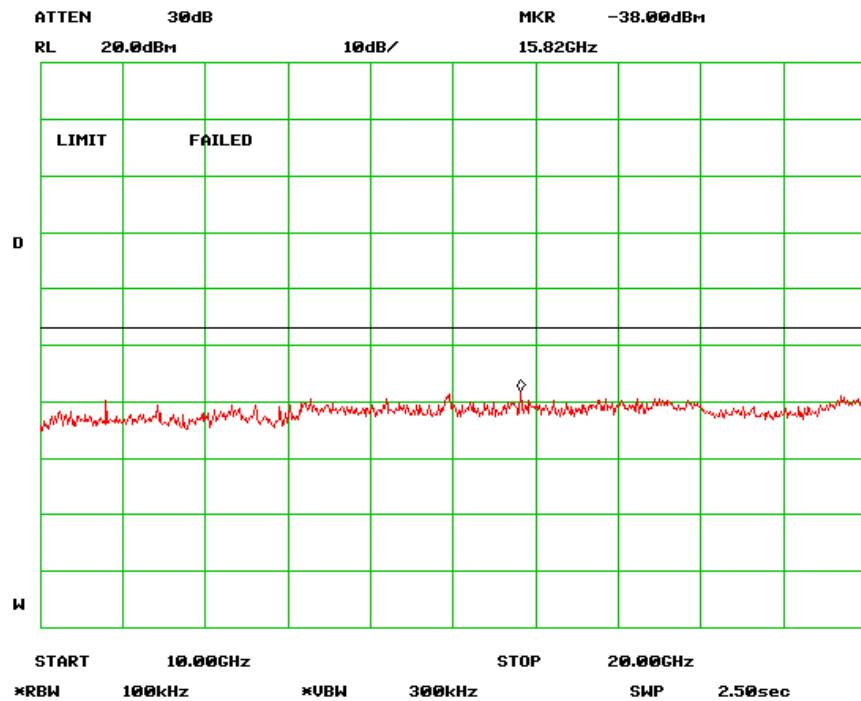


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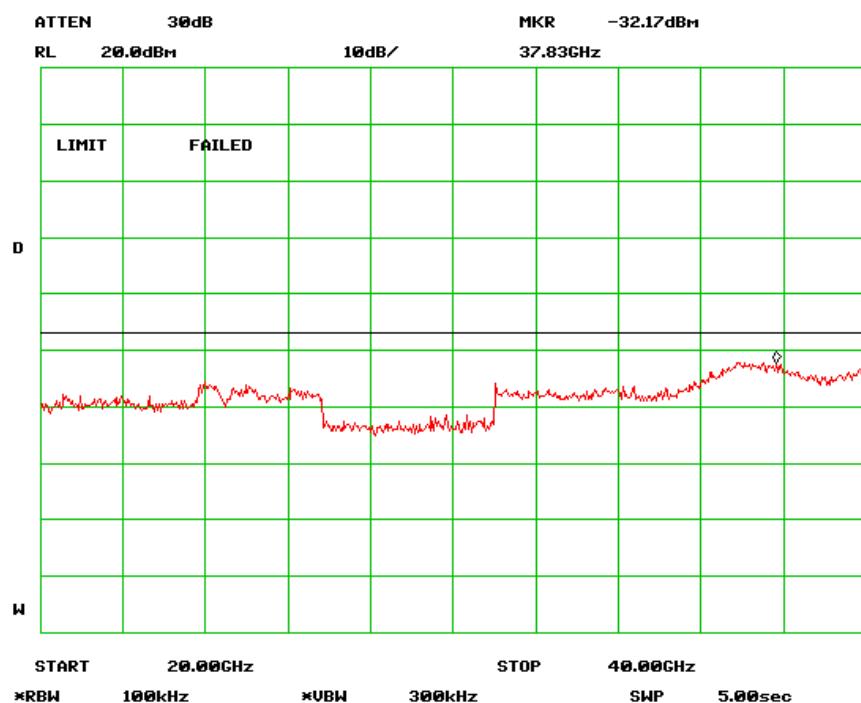
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### 802.11a High Channel -3



### 802.11a High Channel -4

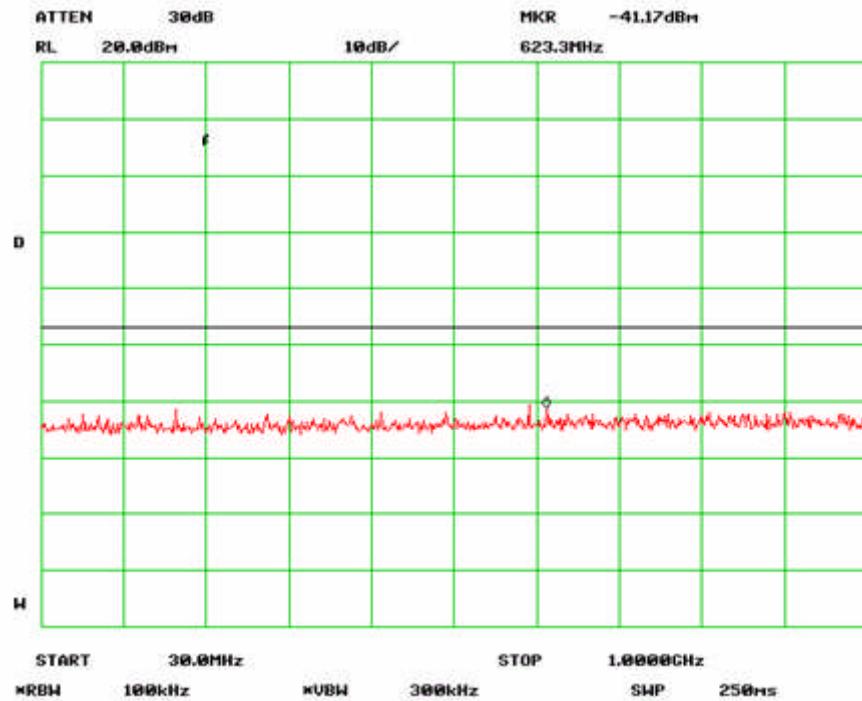


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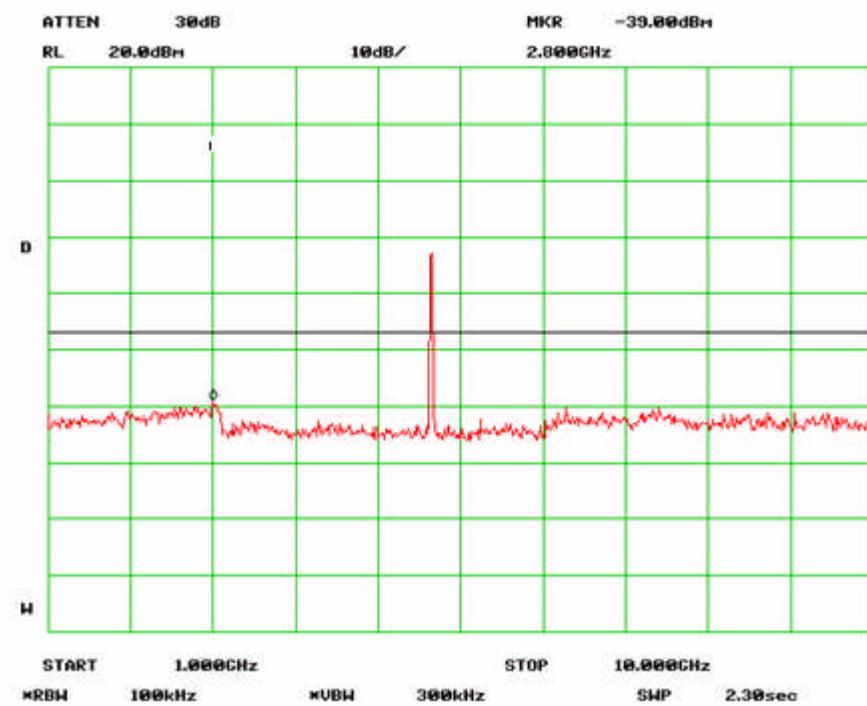
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### 802.11n-20MHz Low Channel -1



### 802.11n-20MHz Low Channel -2

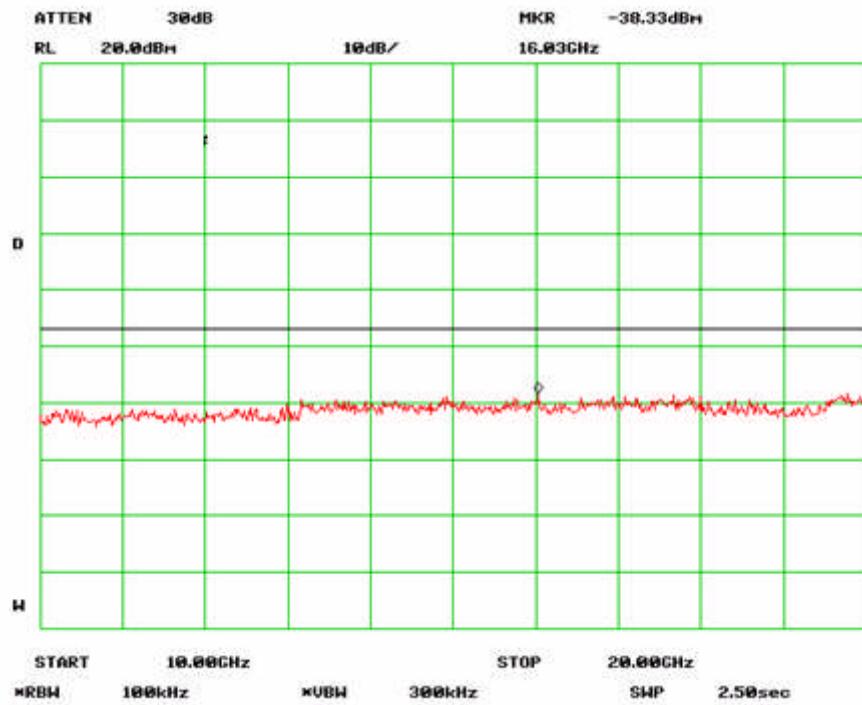


**SIEMIC, INC.**

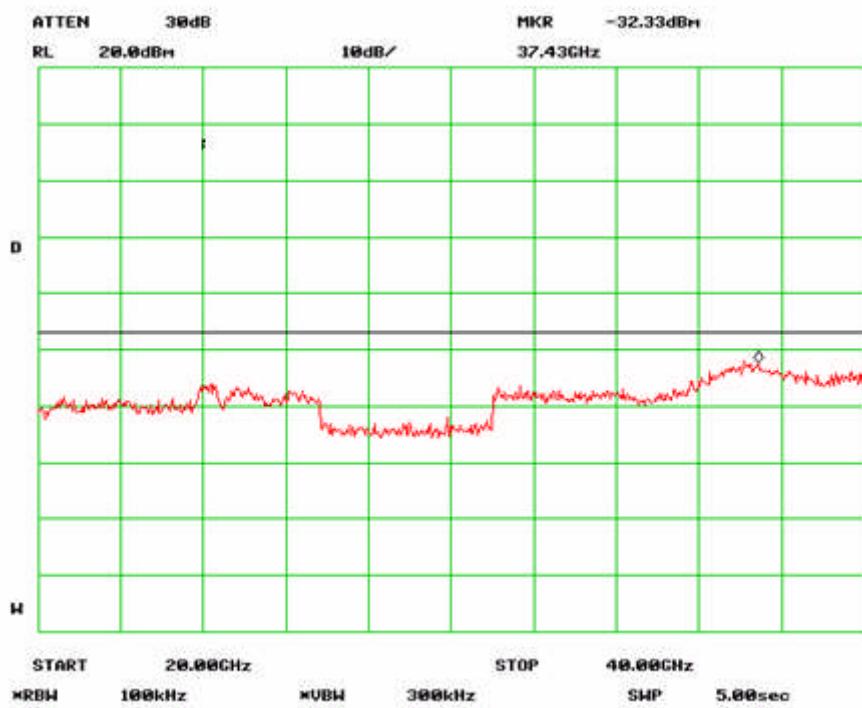
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802.11n-20MHz Low Channel -3



802.11n-20MHz Low Channel -4

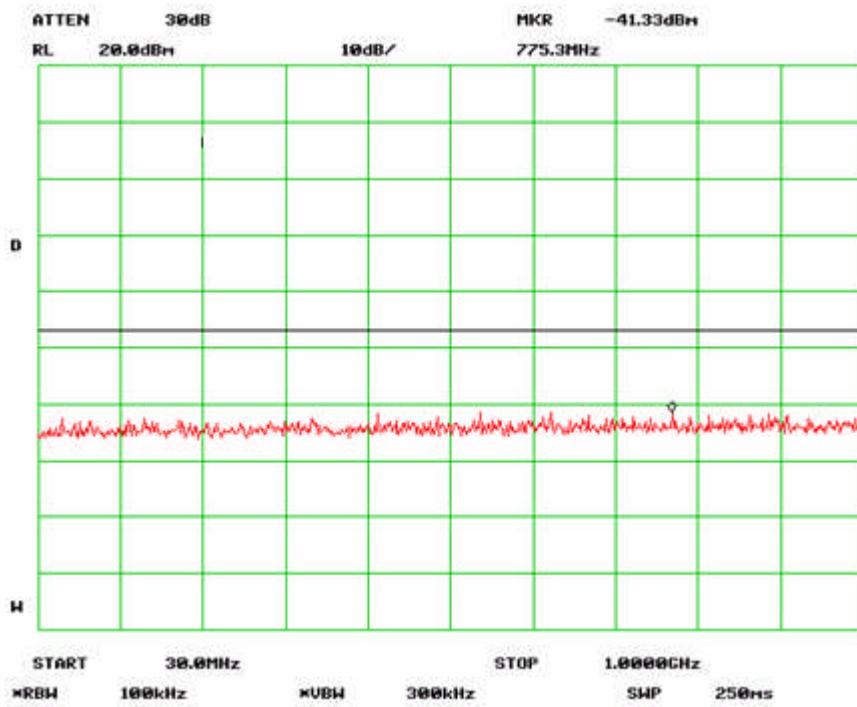


**SIEMIC, INC.**

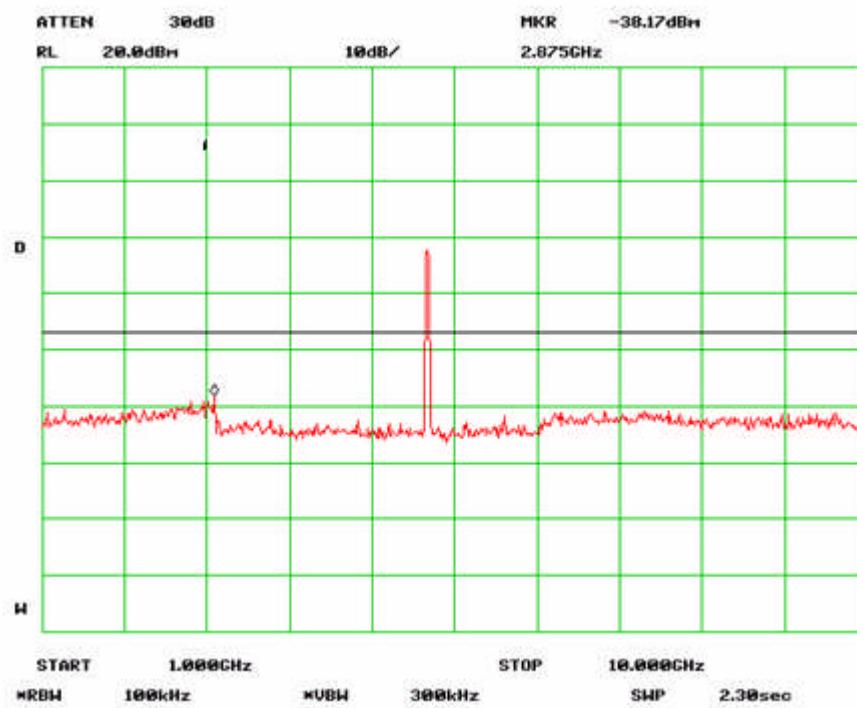
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802.11n-20MHz Mid Channel -1



802.11n-20MHz Mid Channel -2

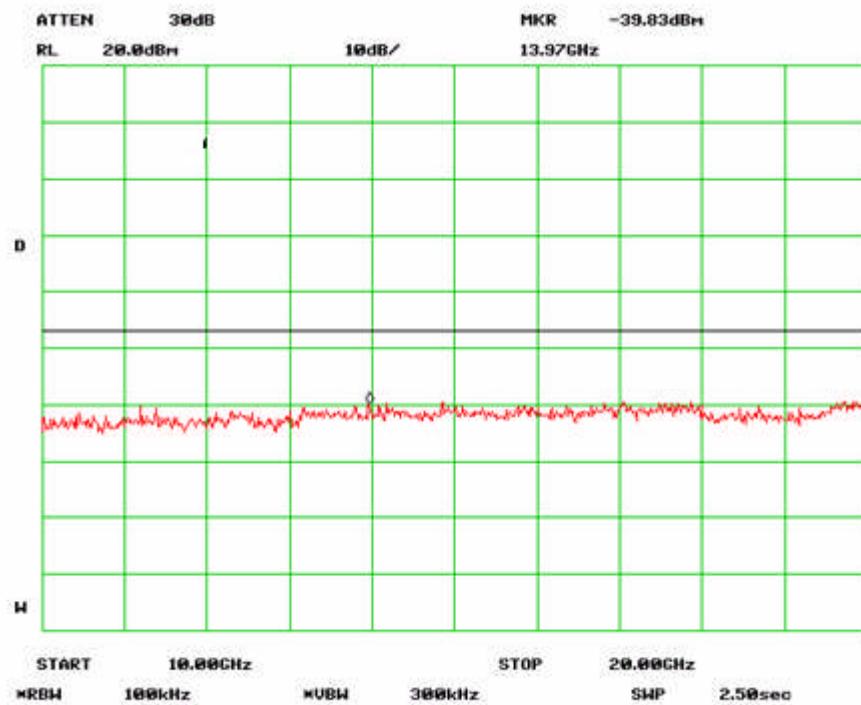


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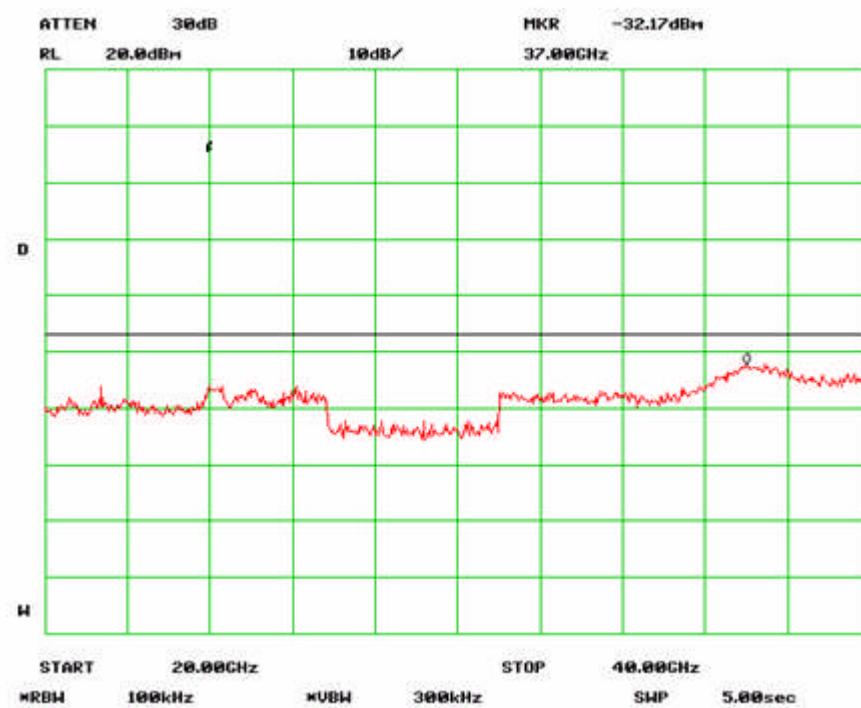
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### 802.11n-20MHz Mid Channel -3



### 802.11n-20MHz Mid Channel -4

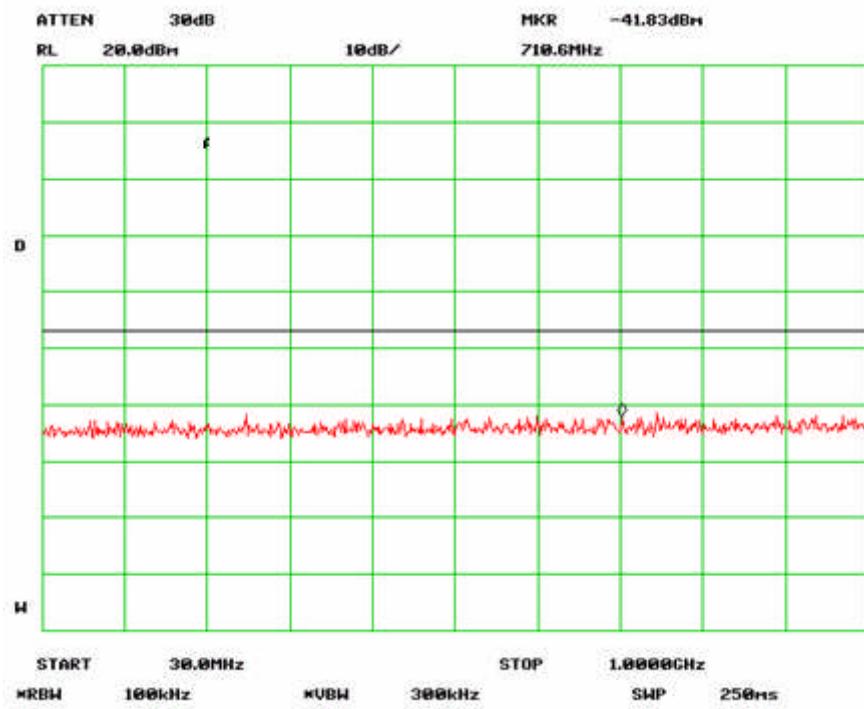


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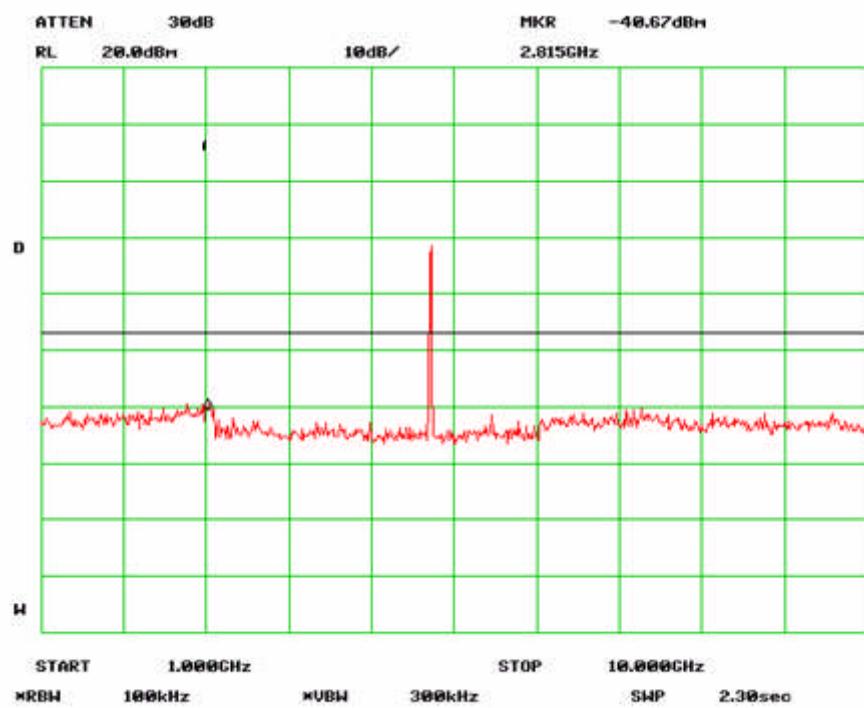
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802.11n-20MHz High Channel -1



802.11n-20MHz High Channel -2

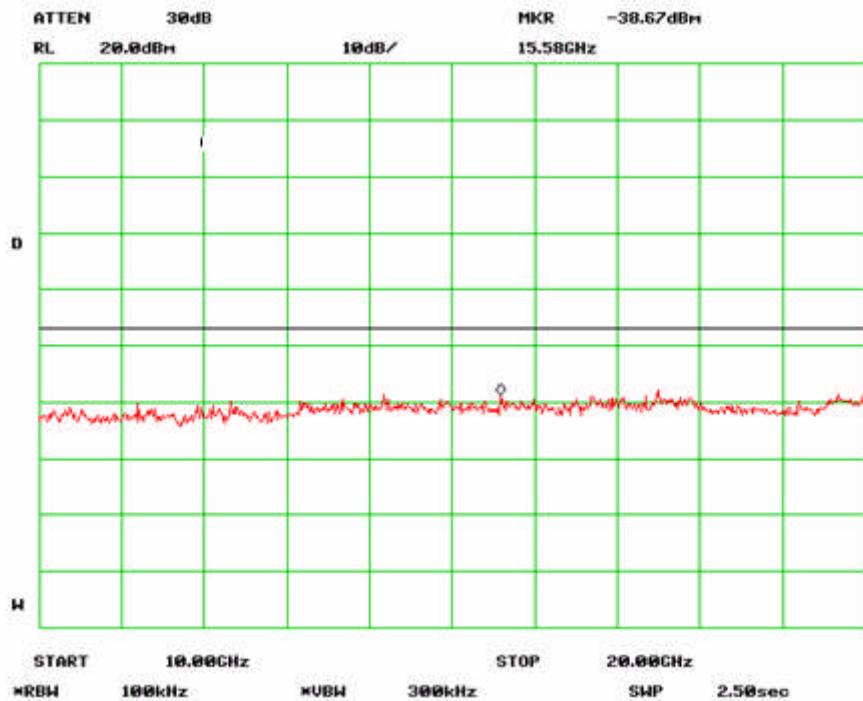


**SIEMIC, INC.**

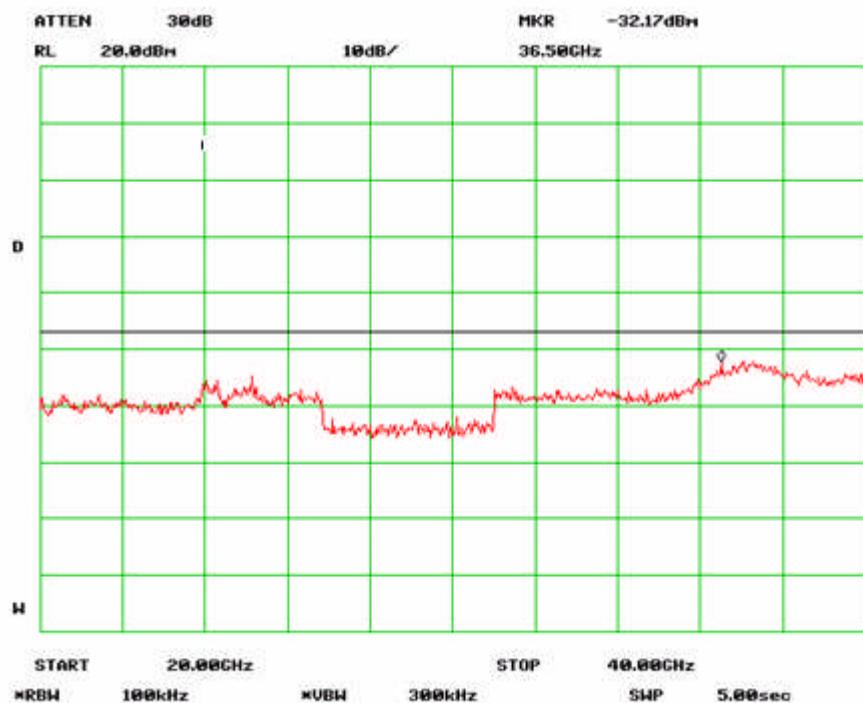
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802.11n-20MHz High Channel -3



802.11n-20MHz High Channel -4

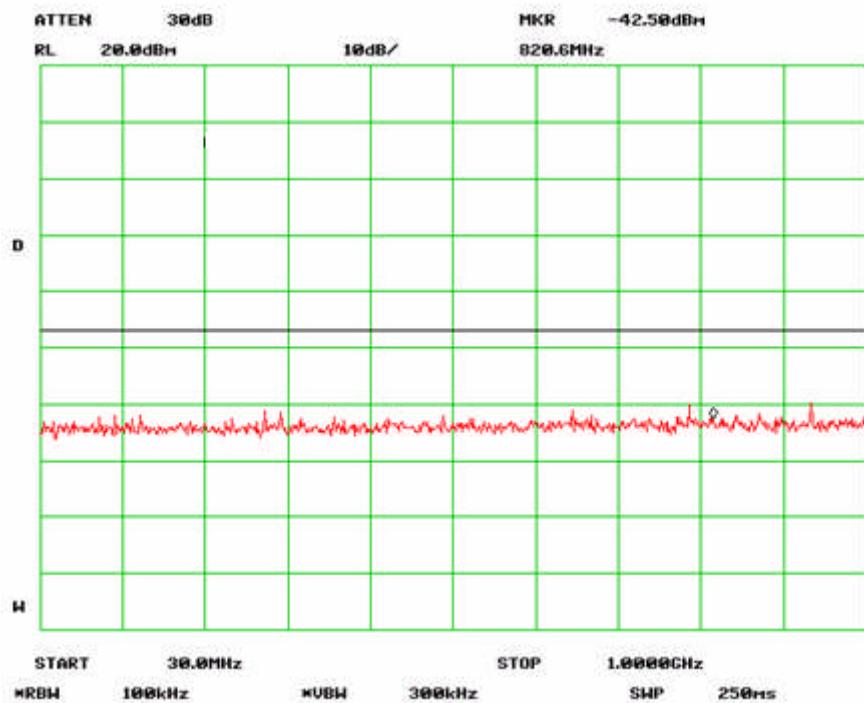


**SIEMIC, INC.**

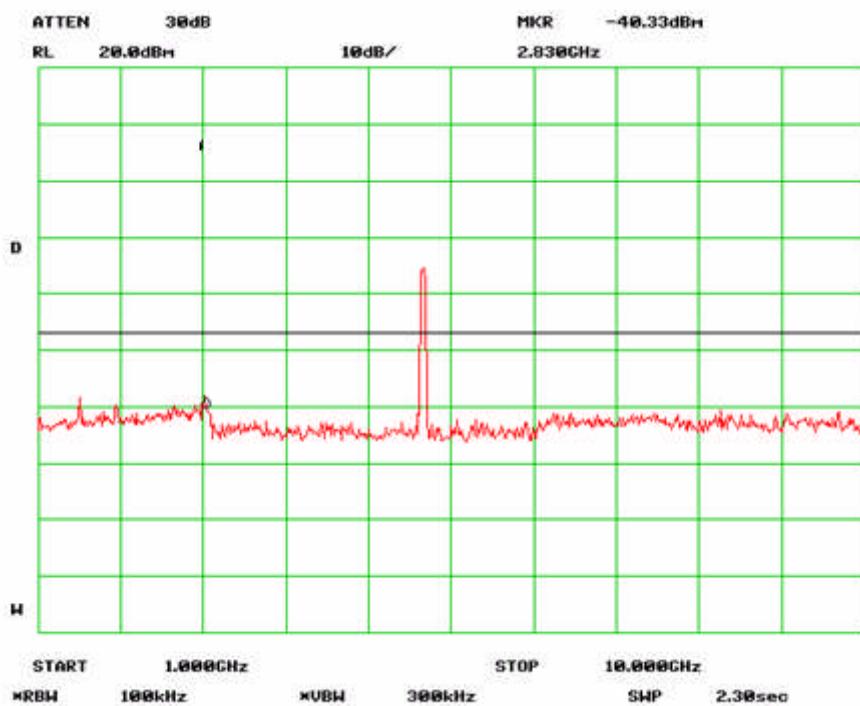
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#### 802.11n-40MHz Low Channel -1



#### 802.11n-40MHz Low Channel -2

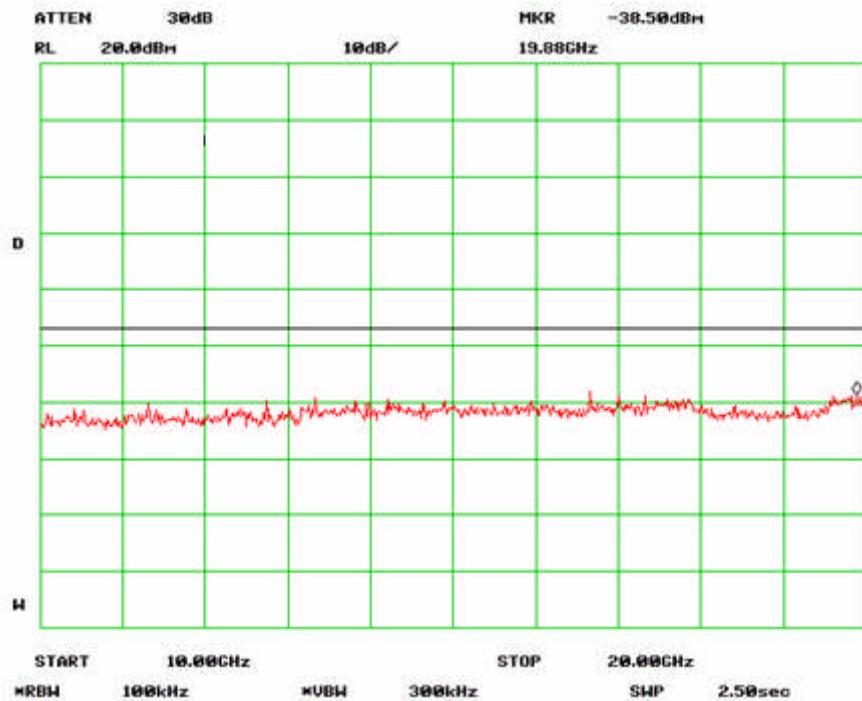


**SIEMIC, INC.**

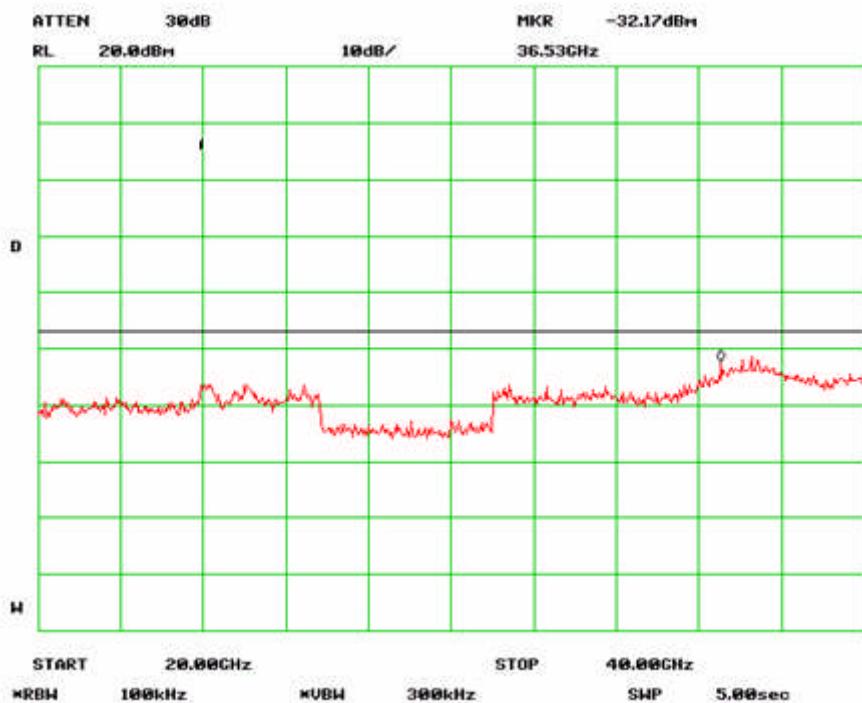
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### 802.11n-40MHz Low Channel -3



### 802.11n-40MHz Low Channel -4

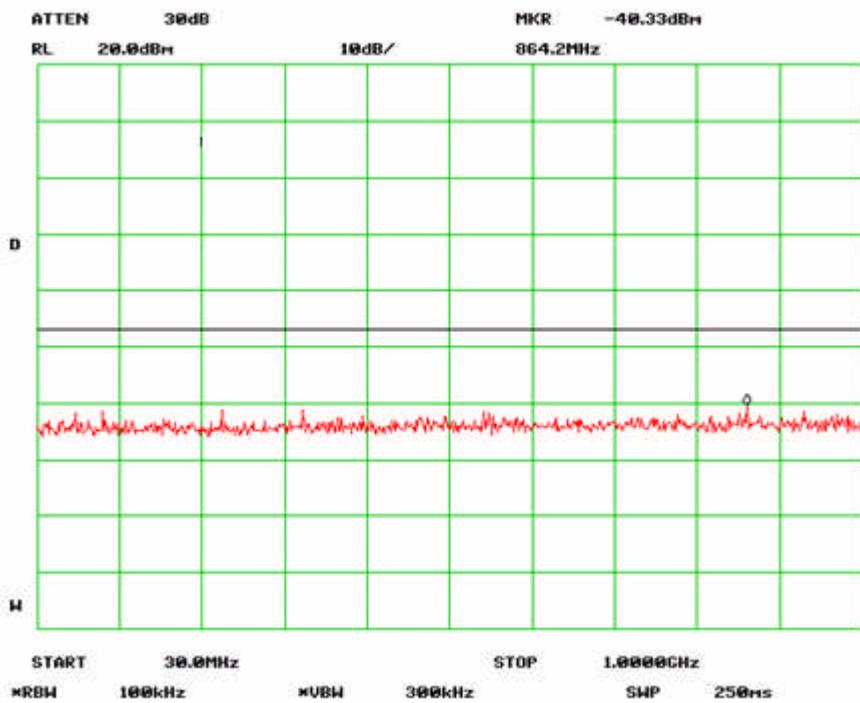


**SIEMIC, INC.**

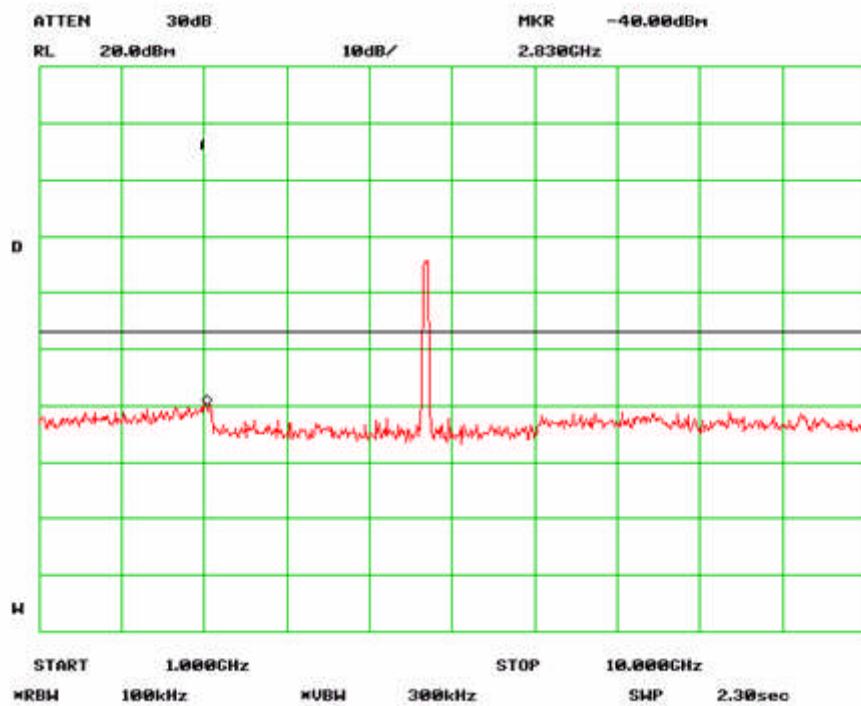
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802.11n-40MHz Mid Channel -1



802.11n-40MHz Mid Channel -2

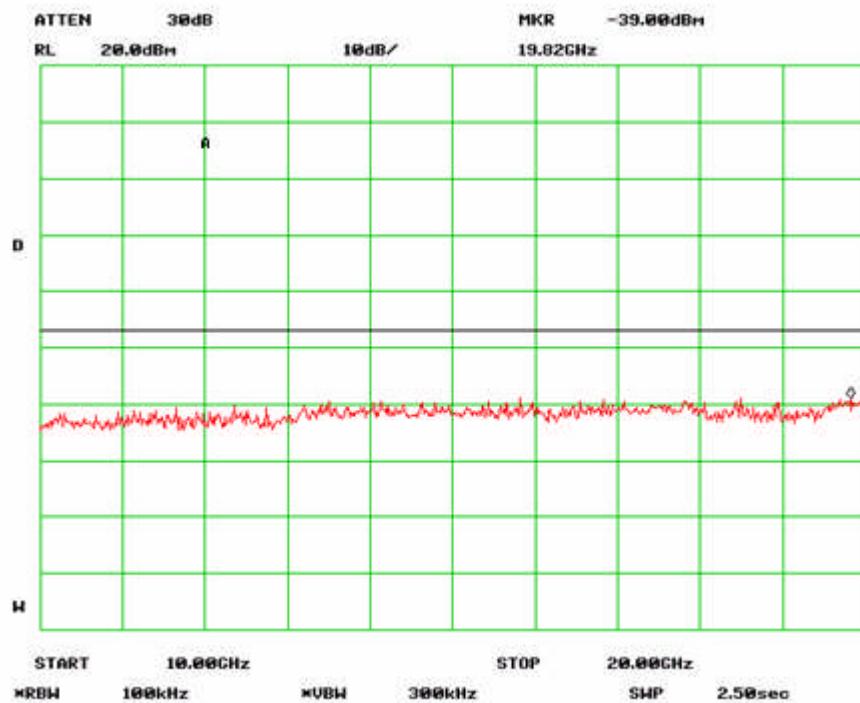


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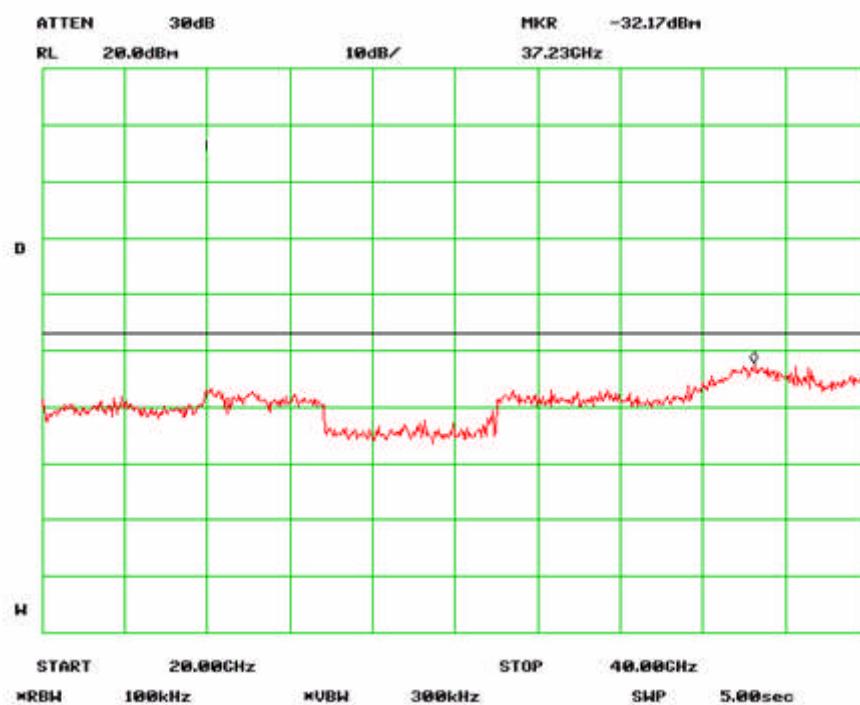
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802.11n-40MHz Mid Channel -3



802.11n-40MHz Mid Channel -4

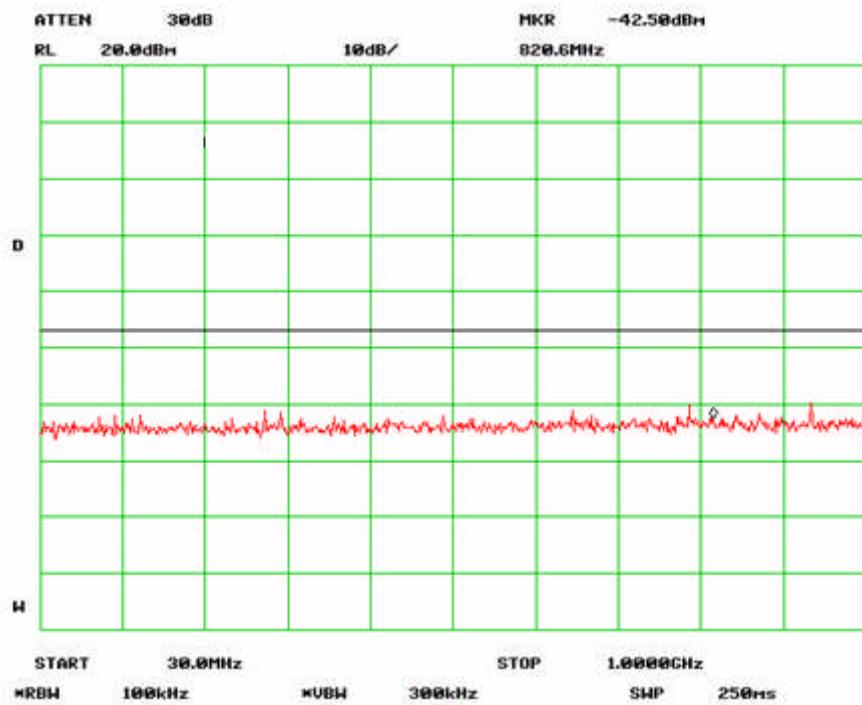


**SIEMIC, INC.**

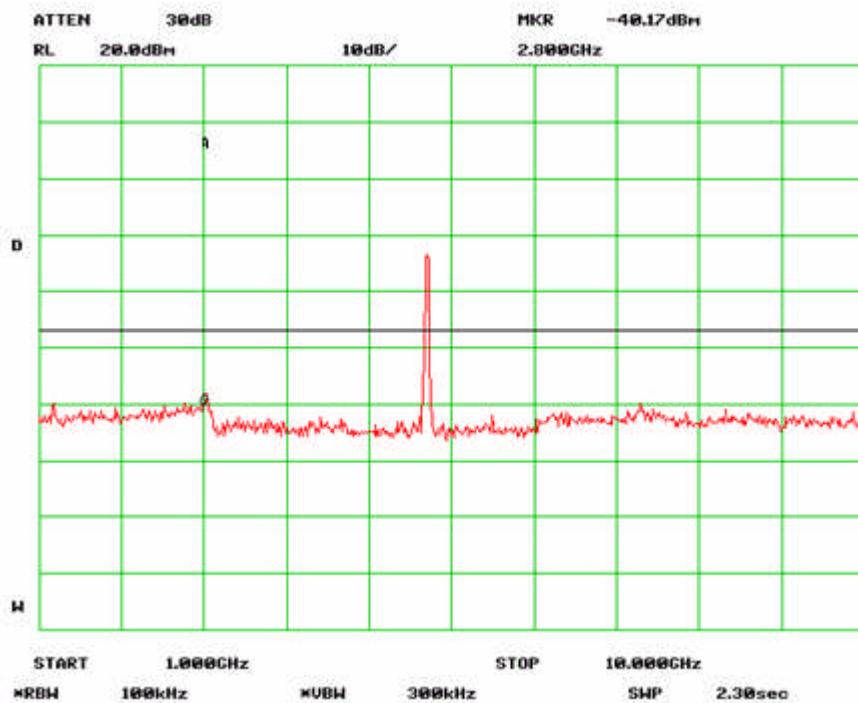
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### 802.11n-40MHz High Channel -1



### 802.11n-40MHz High Channel -2

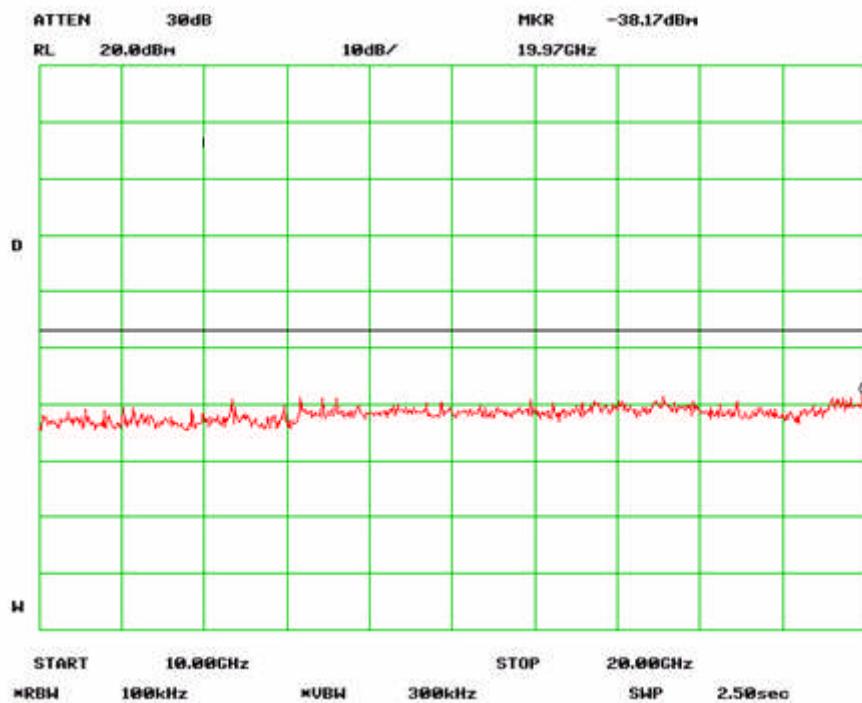


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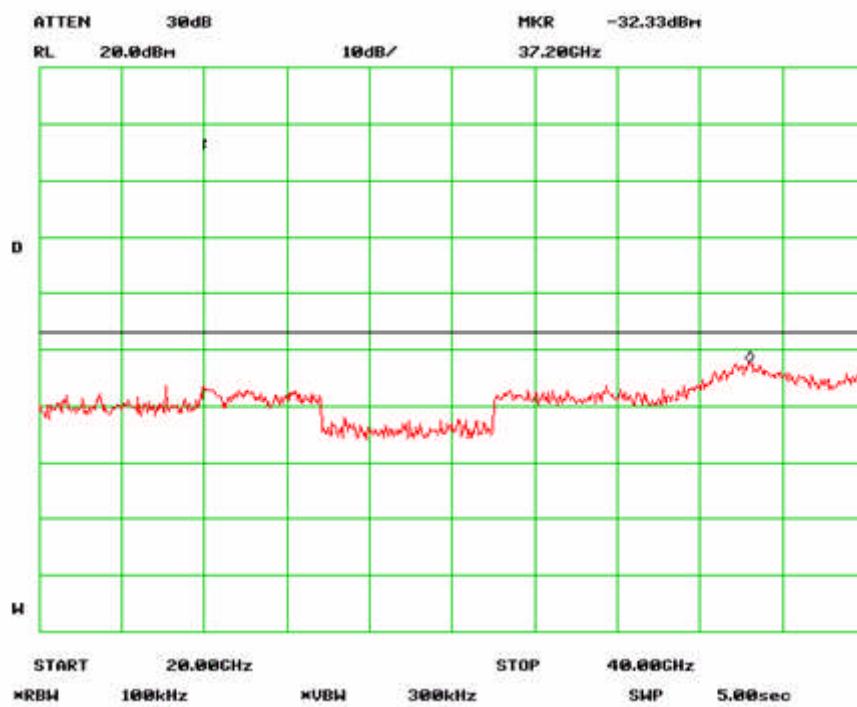
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### 802.11n-40MHz High Channel -3



### 802.11n-40MHz High Channel -4



## Band edge

### Mode: 802.11a

Frequency	Direction	Height	Polar	Cable loss	Amplifier	Corrected Reading	15.247/15.209	15.247/15.209	
GHz	Degree	Meter	H / V	(dB)	(dB)	(dBuV/m)	Limit (dBuV/m)	Margin	Comments
5.15	22	1.00	v	7.22	55.00	62.1	74.00	-11.9	Peak
5.25	5	1.15	h	7.22	55.00	58.4	74.00	-15.6	Peak
5.15	22	1.00	v	7.22	55.00	49.2	54.00	-4.8	Ave
5.25	5	1.15	h	7.22	55.00	48.8	54.00	-5.2	Ave

### Mode: 802.11n-20MHz

Frequency	Direction	Height	Polar	Cable loss	Amplifier	Corrected Reading	15.247/15.209	15.247/15.209	
GHz	Degree	Meter	H / V	(dB)	(dB)	(dBuV/m)	Limit (dBuV/m)	Margin	Comments
5.15	5	1.08	v	7.22	55.00	56.8	74.00	-17.2	Peak
5.25	16	1.11	h	7.22	55.00	55.9	74.00	-18.1	Peak
5.15	5	1.08	v	7.22	55.00	48.7	54.00	-5.3	Ave
5.25	16	1.11	h	7.22	55.00	48.6	54.00	-5.4	Ave

### Mode: 802.11n-40MHz

Frequency	Direction	Height	Polar	Cable loss	Amplifier	Corrected Reading	15.247/15.209	15.247/15.209	
GHz	Degree	Meter	H / V	(dB)	(dB)	(dBuV/m)	Limit (dBuV/m)	Margin	Comments
5.15	0	1.00	v	7.22	55.00	58.0	74.00	-16.0	Peak
5.25	0	1.00	h	7.22	55.00	57.9	74.00	-16.1	Peak
5.15	2	1.21	v	7.22	55.00	48.9	54.00	-5.1	Ave
5.25	2	1.21	h	7.22	55.00	46.6	54.00	-7.4	Ave



## 5.7 Radiated Spurious Emission < 1GHz

1. All possible modes of operation were investigated. Only the 6 worst case emissions measured, using the correct CISPR detectors, are reported. All other emissions were relatively insignificant.
2. A "-ve" margin indicates a PASS as it refers to the margin present below the limit line at the particular frequency.
3. Radiated Emissions Measurement Uncertainty  
All test measurements carried out are traceable to national standards. The uncertainty of the measurement at a confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2, in the range 30MHz – 1GHz (QP only @ 3m & 10m) is +5.6dB/-4.5dB (for EUTs < 0.5m X 0.5m X 0.5m).
4. Environmental Conditions      Temperature      16°C  
    Relative Humidity      50%  
    Atmospheric Pressure      1019mbar

Test date : 19 November ~26 November 2010

Tested By : Peter Cai

**Requirement(s):** 47 CFR §15.407(b)(6)/15.209

**Procedures:** Radiated emissions were measured according to ANSI C63.4. Equipment was tested at low, mid and hi channel with different channel bandwidth and reported the worse case.

Sample Calculation: Corrected Amplitude = Raw Amplitude + Antenna Factor + Cable Loss

**Test Result:**



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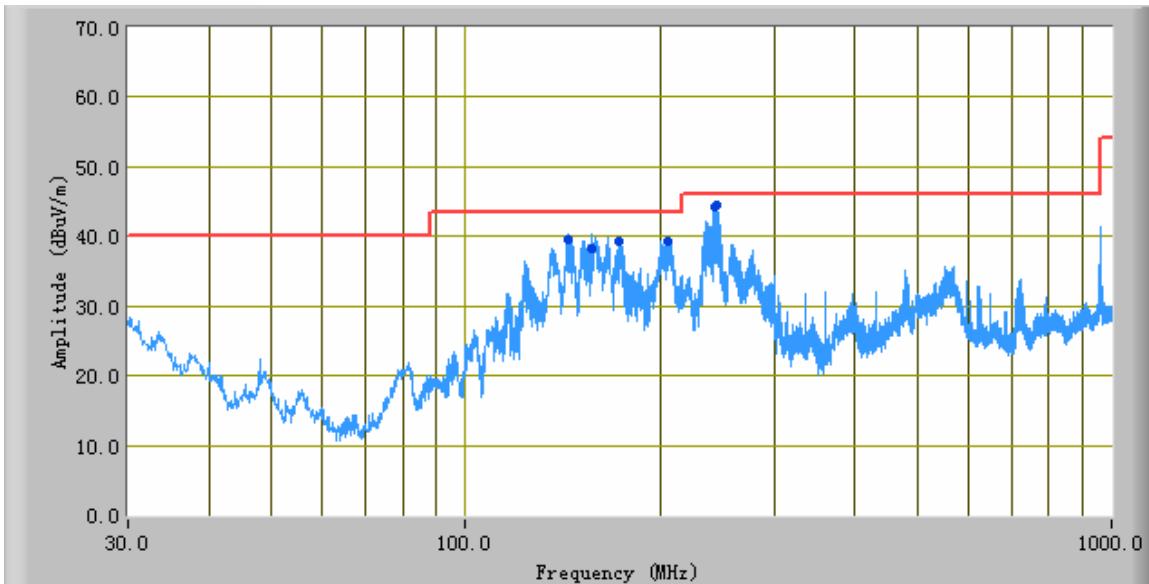
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## Mode: 802.11a

### Radiated Emission Plot

Peak Detector

Quasi Peak Limit



### Test Data

Frequency (MHz)	Quasi Peak (dBuV/m)	Azimuth	Polarity(H /V)	Height (cm)	Factors (dB)	Limit (dBuV/m)	Margin (dB)
245.31	44.46	338.00	H	108.00	-32.75	46.00	-1.54
243.03	44.27	347.00	H	109.00	-33.60	46.00	-1.73
157.20	38.20	358.00	H	162.00	-32.18	43.50	-5.30
144.32	39.47	7.00	V	194.00	-32.48	43.50	-4.03
174.29	39.75	350.00	H	131.00	-33.78	43.50	-3.75
205.10	39.04	330.00	H	145.00	-32.94	43.50	-4.46



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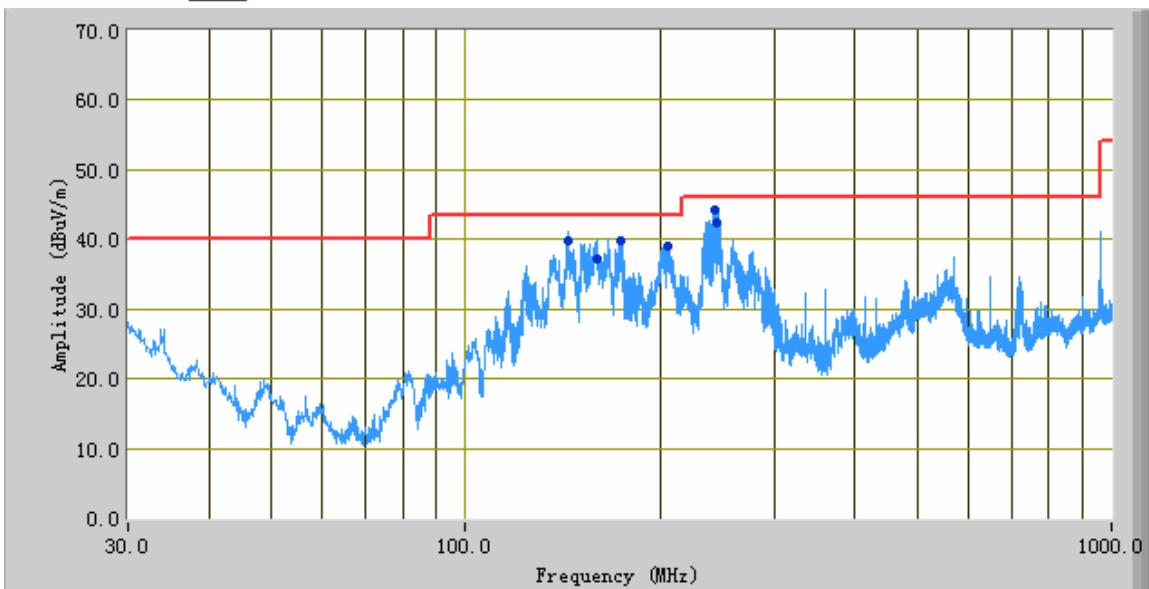
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## Mode: 802.11n

### Radiated Emission Plot

Peak Detector   
Quasi Peak Limit 



### Test Data

Frequency (MHz)	Quasi Peak (dBuV/m)	Azimuth	Polarity(H /V)	Height (cm)	Factors (dB)	Limit (dBuV/m)	Margin (dB)
244.93	42.54	223.00	H	119.00	-32.88	46.00	-3.46
242.64	44.15	345.00	H	120.00	-33.73	46.00	-1.85
143.99	39.73	359.00	V	282.00	-32.49	43.50	-3.77
173.92	39.87	7.00	H	137.00	-33.70	43.50	-3.63
159.39	37.34	1.00	H	260.00	-32.16	43.50	-6.16
206.20	38.93	357.00	H	162.00	-33.12	43.50	-4.57



## **5.8 Radiated Spurious Emissions > 1GHz**



Test date : 19 November ~26 November 2010

Test Date : 15-Nov-2011

**Requirement(s):** 47 CFR §15.407(b)(2)

**Procedures:** Equipment was setup in a semi-anechoic chamber. For measurements above 1 GHz an average measurement was taken with a 1MHz resolution bandwidth and a 10Hz video bandwidth was used. The EUT was tested at low and high with the highest output power. Emissions were investigated up to 40 GHz.

- 27 dBm = 68.2 dBuV/m at 3 meter distance.

Sample Calculation: EUT Field Strength = Raw Amplitude – Amplifier Gain + Antenna Factor + Cable Loss + Filter Attenuation (if used)

## Test Result:



### Mode: 802.11a

#### 802.11a @ 5180MHz @ 3 Meter

Frequency	Direction	Height	Polar	Cable loss	Amplifier	Corrected Reading	Limit @3m	Margin	Detector
GHz	Degree	Meter	H / V	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Comments
1.19	2	1.03	v	5.2	55.00	45.3	68.20	-22.9	Peak
1.19	0	1.06	h	5.2	55.00	46.2	68.20	-22.0	Peak
10.360	16	1.00	v	10.2	55.00	53.6	68.20	-14.6	Peak
10.360	0	1.16	h	10.2	55.00	52.7	68.20	-15.5	Peak

Emission was scanned up to 40GHz.

#### 802.11a @ 5200MHz @ 3 Meter

Frequency	Direction	Height	Polar	Cable loss	Amplifier	Corrected Reading	Limit @3m	Margin	Detector
GHz	Degree	Meter	H / V	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Comments
1.19	0	1.00	v	5.2	55.00	46.2	68.20	-22.0	Peak
1.19	0	1.00	h	5.2	55.00	44.6	68.20	-23.6	Peak
10.400	5	1.08	v	10.2	55.00	49.6	68.20	-18.6	Peak
10.400	5	1.02	h	10.2	55.00	48.5	68.20	-19.7	Peak

Emission was scanned up to 40GHz.

#### 802.11a @ 5240MHz @ 3 Meter

Frequency	Direction	Height	Polar	Cable loss	Amplifier	Corrected Reading	Limit @3m	Margin	Detector
GHz	Degree	Meter	H / V	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Comments
1.19	11	1.22	v	5.2	55.00	48.5	68.20	-19.7	Peak
1.19	11	1.06	h	5.2	55.00	46.3	68.20	-21.9	Peak
11.480	16	1.05	v	10.2	55.00	53.5	68.20	-14.7	Peak
11.480	0	1.00	h	10.2	55.00	50.2	68.20	-18.0	Peak

Emission was scanned up to 40GHz.



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### Mode: 802.11n-20MHz

#### 802.11n-20MHz @ 5180MHz @ 3 Meter

Frequency	Direction	Height	Polar	Cable loss	Amplifier	Corrected Reading	Limit @3m	Margin	Detector
GHz	Degree	Meter	H / V	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Comments
1.19	0	1.00	v	5.2	55.00	48.8	68.20	-19.4	Peak
1.19	5	1.02	h	5.2	55.00	47.0	68.20	-21.2	Peak
10.360	11	1.00	v	10.2	55.00	52.1	68.20	-16.1	Peak
10.360	0	1.00	h	10.2	55.00	54.2	68.20	-14.0	Peak

Emission was scanned up to 40GHz.

#### 802.11n-20MHz @ 5200MHz @ 3 Meter

Frequency	Direction	Height	Polar	Cable loss	Amplifier	Corrected Reading	Limit @3m	Margin	Detector
GHz	Degree	Meter	H / V	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Comments
1.19	0	1.04	v	5.2	55.00	43.2	68.20	-25.0	Peak
1.19	33	1.00	h	5.2	55.00	42.5	68.20	-25.7	Peak
10.400	16	1.00	v	10.2	55.00	52.4	68.20	-15.8	Peak
10.400	0	1.06	h	10.2	55.00	55.2	68.20	-13.0	Peak

Emission was scanned up to 40GHz.

#### 802.11n-20MHz @ 5240MHz @ 3 Meter

Frequency	Direction	Height	Polar	Cable loss	Amplifier	Corrected Reading	Limit @3m	Margin	Detector
GHz	Degree	Meter	H / V	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Comments
1.19	4	1.05	v	5.2	55.00	42.5	68.20	-25.7	Peak
1.19	33	1.11	h	5.2	55.00	41.4	68.20	-26.8	Peak
10.480	3	1.00	v	10.2	55.00	53.5	68.20	-14.7	Peak
10.480	0	1.42	h	10.2	55.00	56.3	68.20	-11.9	Peak

Emission was scanned up to 40GHz.

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**802.11n-40MHz @ 5190MHz @ 3 Meter**

Frequency	Direction	Height	Polar	Cable loss	Amplifier	Corrected Reading	Limit @3m	Margin	Detector
GHz	Degree	Meter	H / V	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Comments
1.19	0	1.33	v	5.2	55.00	43.2	68.20	-25.0	Peak
1.19	0	1.02	h	5.2	55.00	46.2	68.20	-22.0	Peak
10.380	16	1.20	v	10.2	55.00	54.7	68.20	-13.5	Peak
10.380	0	1.11	h	10.2	55.00	55.0	68.20	-13.2	Peak

Emission was scanned up to 40GHz.

**802.11n-40MHz @ 5210MHz @ 3 Meter**

Frequency	Direction	Height	Polar	Cable loss	Amplifier	Corrected Reading	Limit @3m	Margin	Detector
GHz	Degree	Meter	H / V	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Comments
1.19	5	1.21	v	5.2	55.00	43.2	68.20	-25.0	Peak
1.19	10	1.03	h	5.2	55.00	41.6	68.20	-26.6	Peak
10.420	3	1.20	v	10.2	55.00	56.4	68.20	-11.8	Peak
10.420	5	1.13	h	10.2	55.00	54.8	68.20	-13.4	Peak

Emission was scanned up to 40GHz.

**802.11n-40MHz @ 5230MHz @ 3 Meter**

Frequency	Direction	Height	Polar	Cable loss	Amplifier	Corrected Reading	Limit @3m	Margin	Detector
GHz	Degree	Meter	H / V	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Comments
1.19	2	1.00	v	5.2	55.00	44.2	68.20	-24.0	Peak
1.19	11	1.26	h	5.2	55.00	42.4	68.20	-25.8	Peak
10.460	0	1.03	v	10.2	55.00	54.2	68.20	-14.0	Peak
10.460	6	1.22	h	10.2	55.00	55.1	68.20	-13.1	Peak

Emission was scanned up to 40GHz.



## 5.9 Peak Excursion Ratio

1. Conducted Measurement  
EUT was set for low, mid, high channel with modulated mode and highest RF output power.  
The spectrum analyzer was connected to the antenna terminal.
2. Conducted Emissions Measurement Uncertainty  
All test measurements carried out are traceable to national standards. The uncertainty of the measurement at a confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2, in the range 30MHz – 40GHz is  $\pm 1.5\text{dB}$ .
3. Environmental Conditions  
Temperature  $16^{\circ}\text{C}$   
Relative Humidity 50%  
Atmospheric Pressure 1019mbar
4. Test Date : 19 November ~26 November 2010  
Tested By : Peter Cai

**Requirement(s):** 47 CFR §15.407(a)(6)

**Procedures:** The peak excursion ratio was measured at the antenna terminal using a spectrum analyzer.  
Trace A setting: RBW = VBW = 1 MHz (peak detector). Trace B setting: RBW = 1 MHz and  
VBW = 1MHz (sample detector).

### **Test Result:**

Protocol	Channel	Channel Frequency (MHz)	Peak Excursion Ratio Limit (dB)	Measured Peak Excursion ratio (dB)
802.11a	Low	5180	13	11.50
	Mid	5200	13	9.30
	High	5240	13	9.33
802.11n-20MHz	Low	5180	13	11.50
	Mid	5200	13	9.30
	High	5240	13	9.33
802.11n-40MHz	Low	5190	13	11.50
	Mid	5210	13	9.30
	High	5230	13	9.33

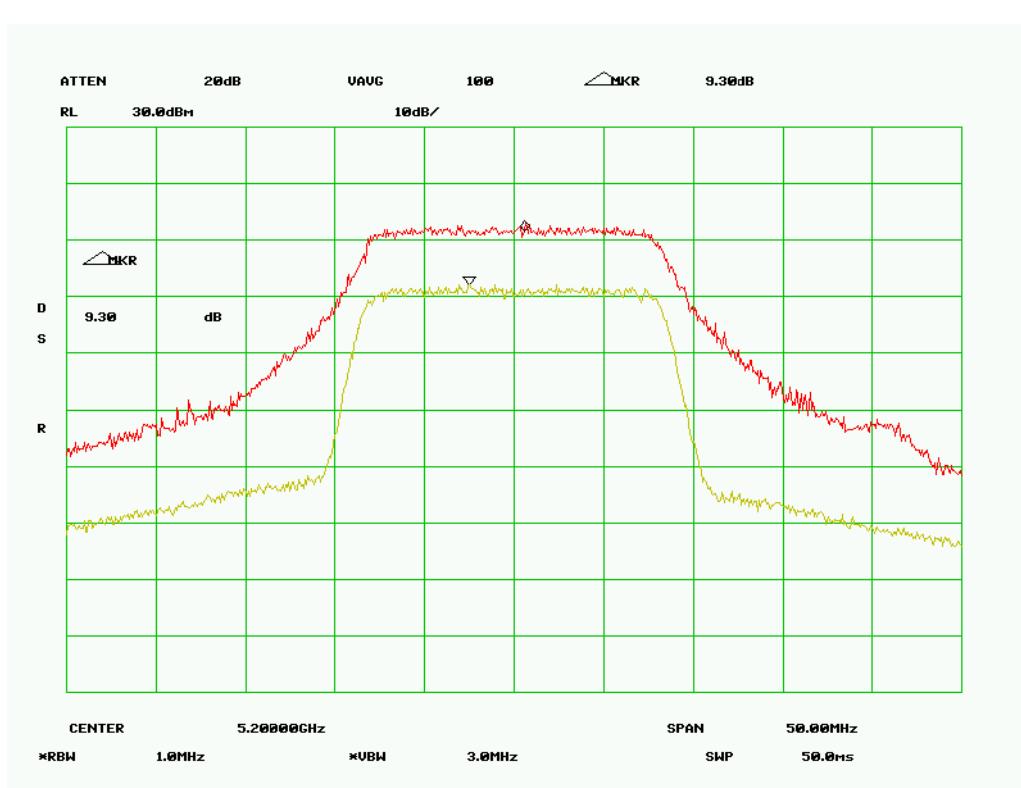
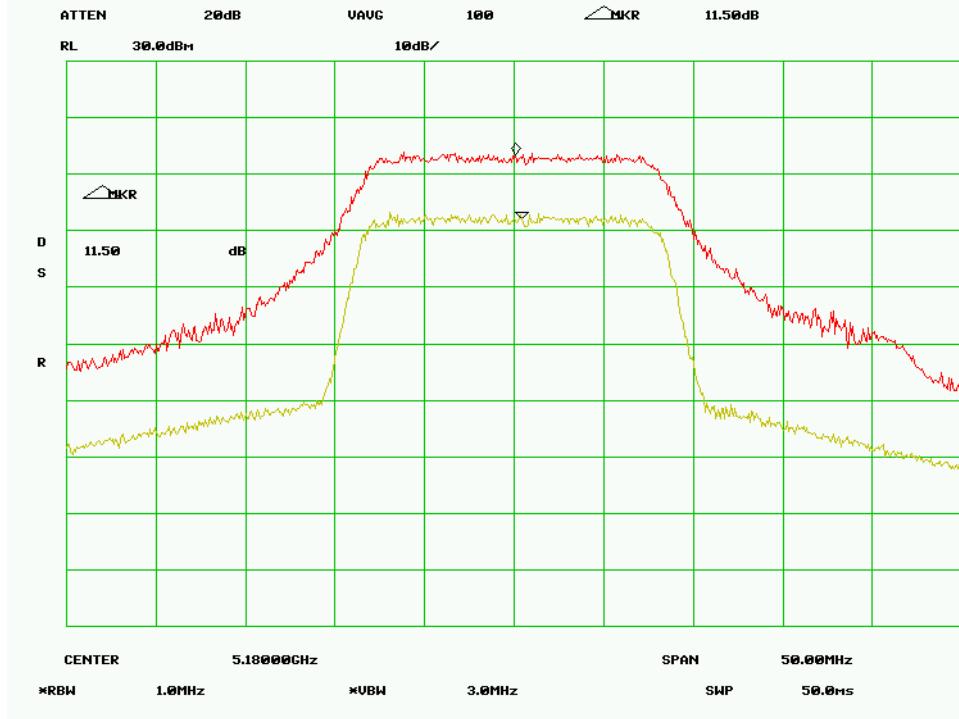


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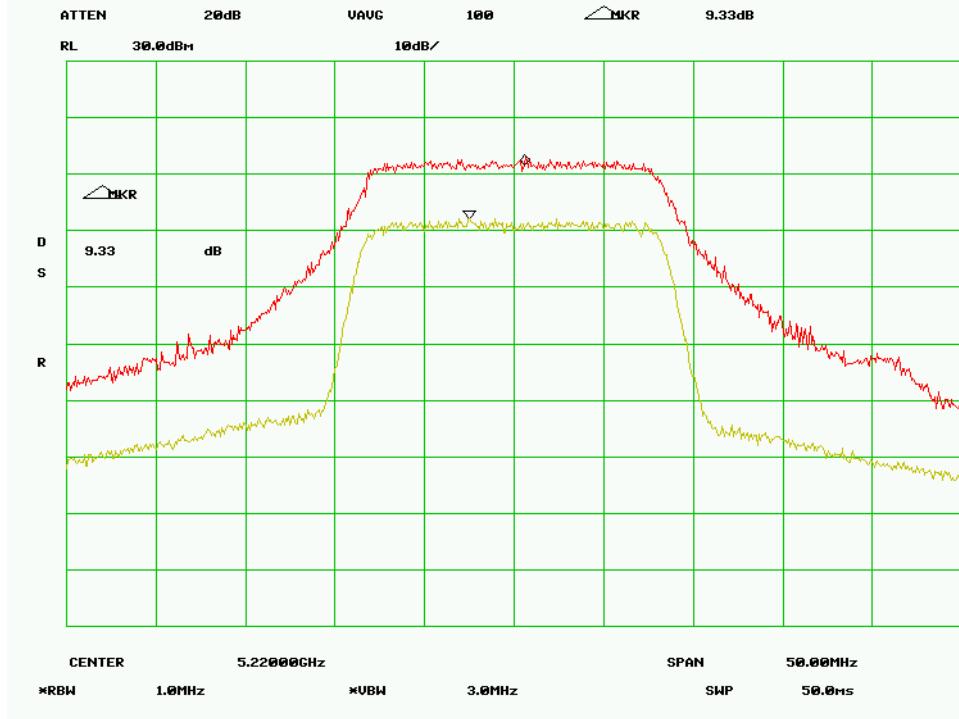


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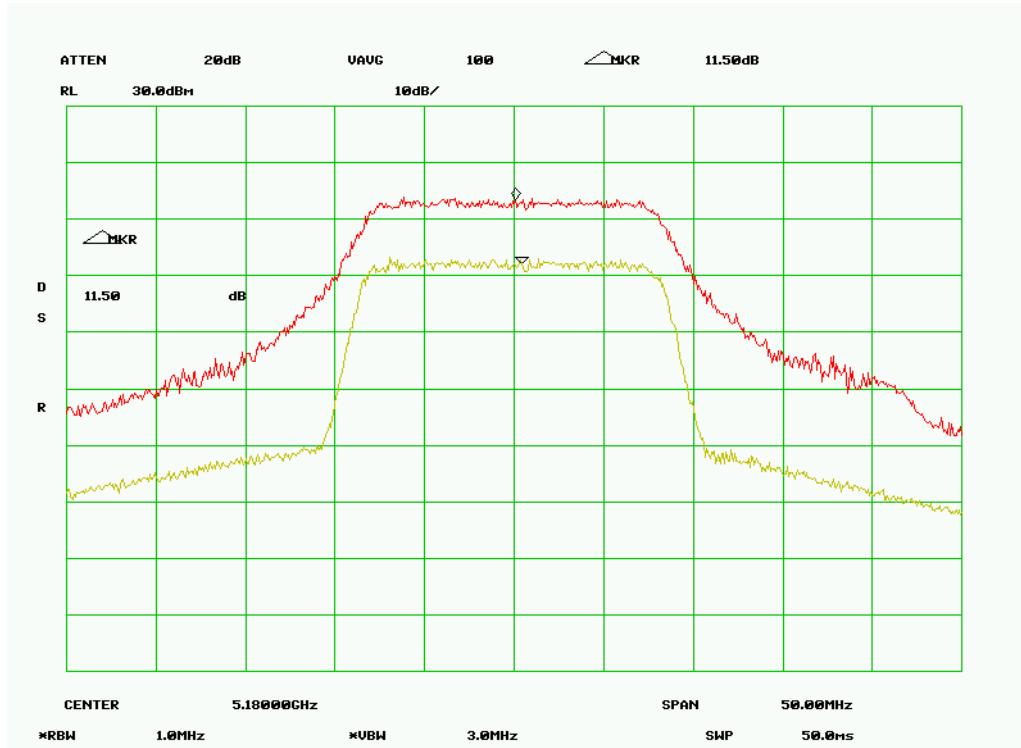
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Peak Excursion ratio, 802.11a High Channel



Peak Excursion ratio, 802.11n-20MHz Low Channel

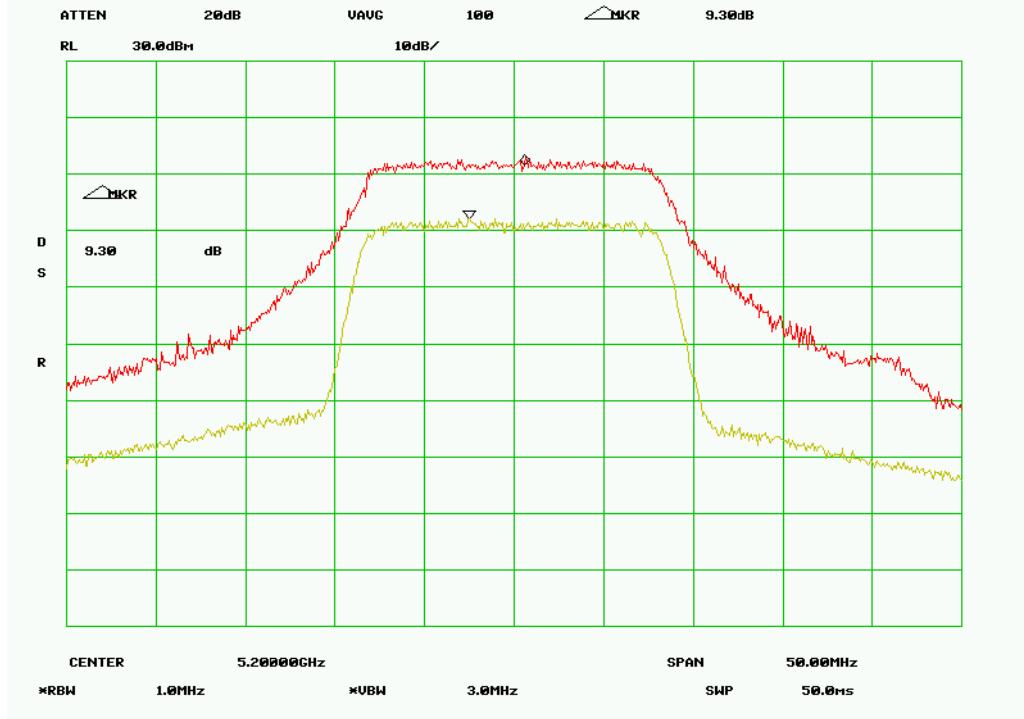


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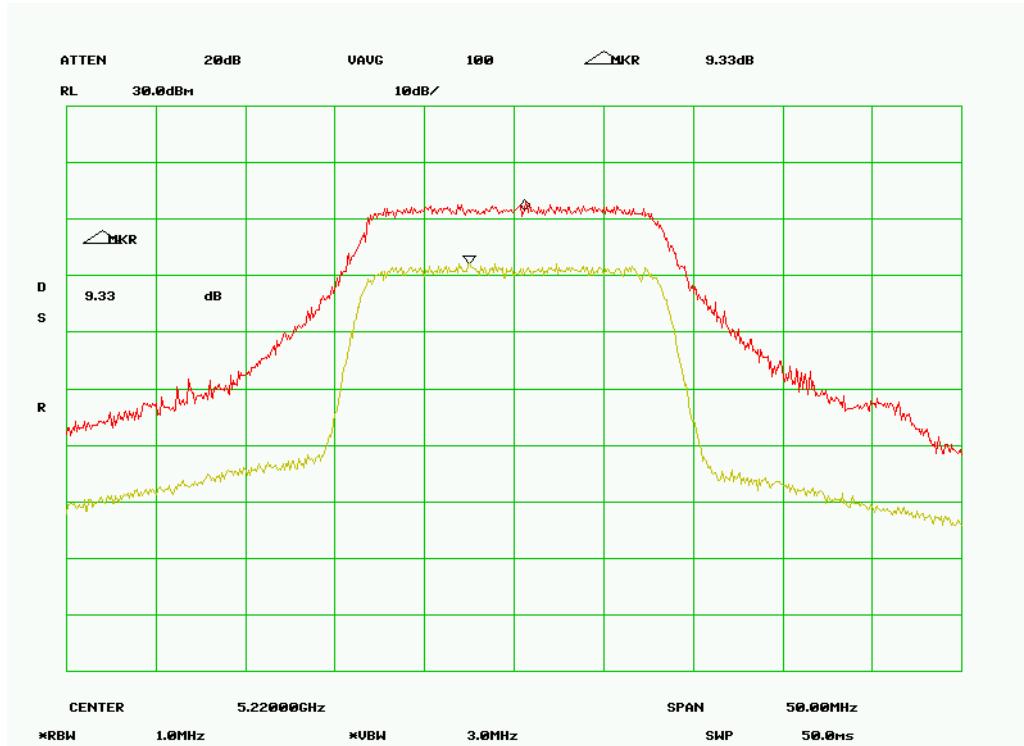
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Peak Excursion ratio, 802.11n-20MHz Mid Channel



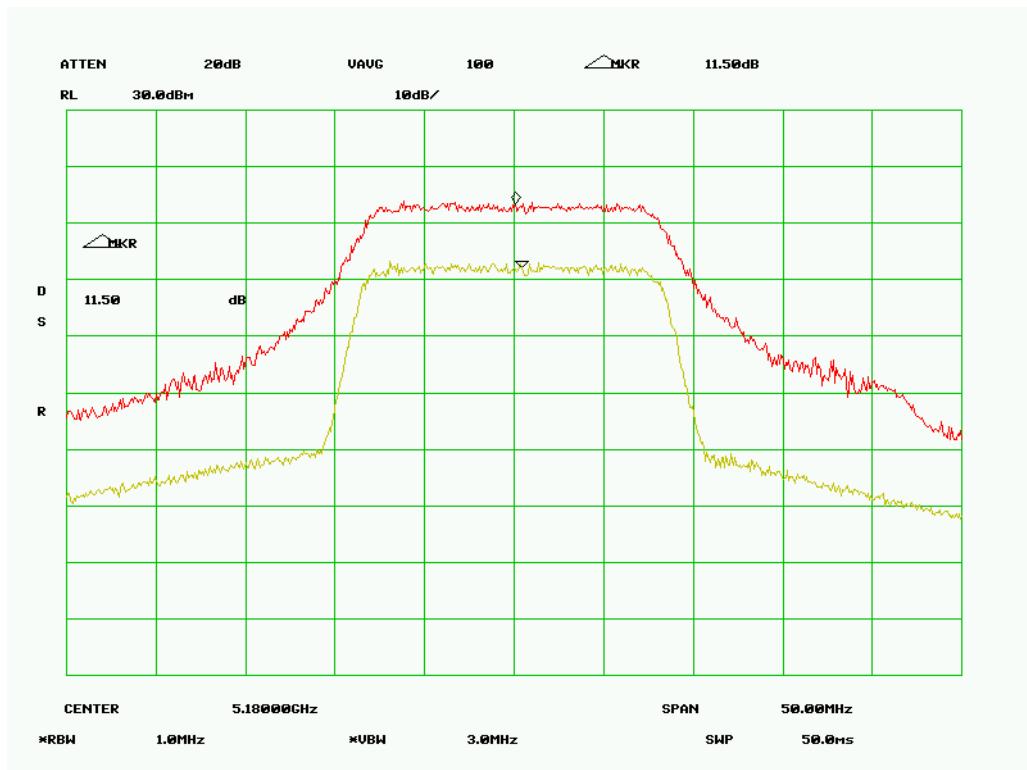
Peak Excursion ratio, 802.11n-20MHz High Channel



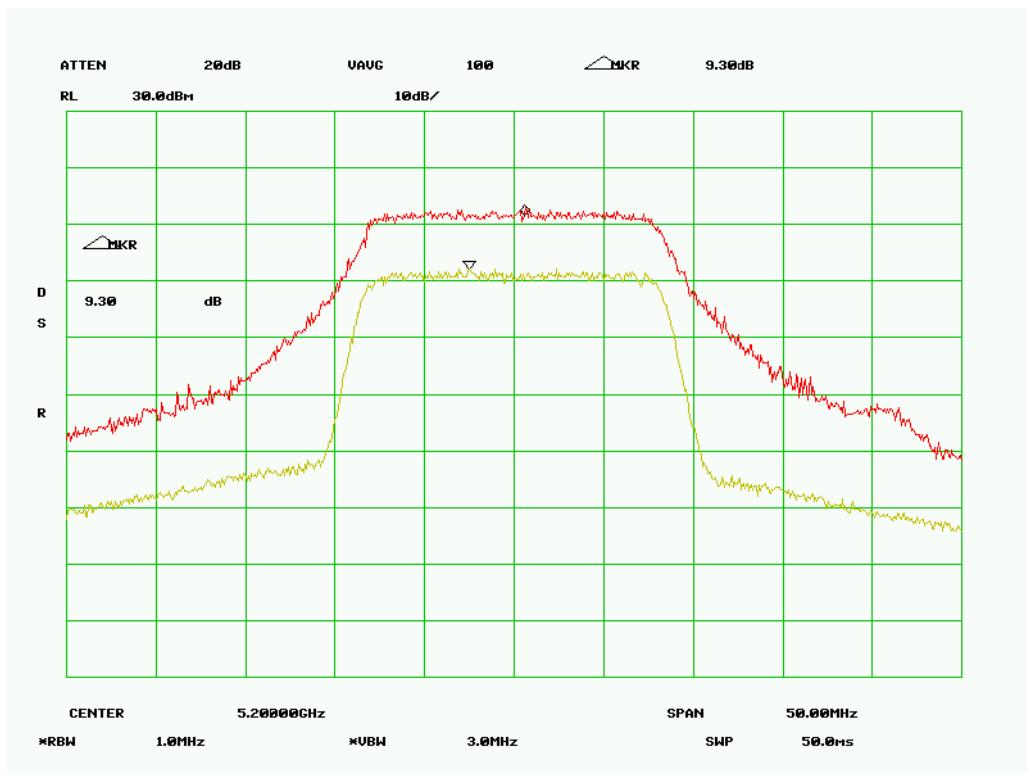
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Peak Excursion ratio, 802.11n-40MHz Low Channel



Peak Excursion ratio, 802.11n-40MHz Mid Channel

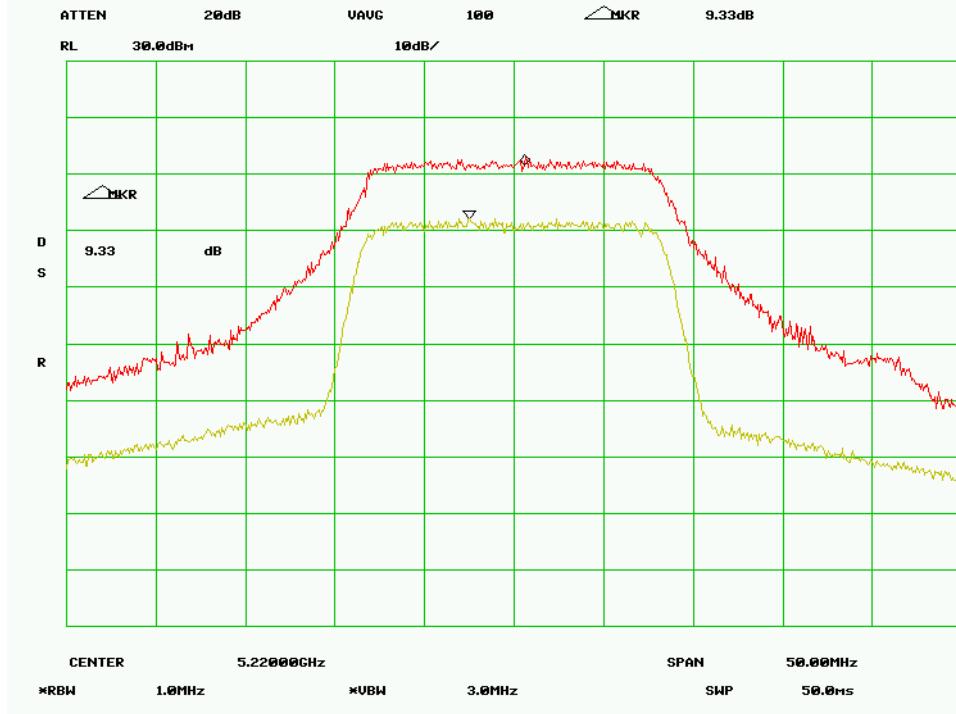


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Peak Excursion ratio, 802.11n-40MHz High Channel



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## **Annex A. TEST INSTRUMENT & METHOD**

### **Annex A.i. TEST INSTRUMENTATION & GENERAL PROCEDURES**

<b>Instrument</b>	<b>Manufacturer</b>	<b>Model</b>	<b>CAL Due Date</b>
Spectrum Analyzer	HP	8564 E	2011.05.25
EMI Receiver	Rohde & Schwarz	ESPI 3	2011.05.25
Antenna (30MHz~2GHz)	Sunol Sciences	JB1	2011.10.04
Horn Antenna (1~18GHz)	A-INFOMW	JXTXLB-10180	2011.06.24
Horn Antenna (1~18GHz)	ETS-Lindgren	3115	2011.06.24
Pre-Amplifier(0.01 ~ 1.3GHz)	HP	8447F	2011.05.25
Pre-Amplifier(0.1 ~ 18GHz)	MITEQ	AMF-7D-00101800-30- 10P	2011.05.25
Horn Antenna (18~40GHz)	Com Power	AH-840	2011.05.21
Microwave Pre-Amp (18~40GHz)	Com Power	PA-840	2011.05.21
LISN	Com-Power	LI 115	2011.05.25
LISN	Com-Power	LI 115	2011.05.25
LIMITER	Com-Power	LIT-153	2011.05.25



## **Annex A.ii. CONDUCTED EMISSIONS TEST DESCRIPTION**

### **Test Set-up**

1. The EUT and supporting equipment were set up in accordance with the requirements of the standard on top of a 1.5m x 1m x 0.8m high, non-metallic table, as shown in Annex B.
2. The power supply for the EUT was fed through a  $50\Omega/50\mu\text{H}$  EUT LISN, connected to filtered mains.
3. The RF OUT of the EUT LISN was connected to the EMI test receiver via a low-loss coaxial cable.
4. All other supporting equipments were powered separately from another main supply.

### **Test Method**

1. The EUT was switched on and allowed to warm up to its normal operating condition.
2. A scan was made on the NEUTRAL line (for AC mains) or Earth line (for DC power) over the required frequency range using an EMI test receiver.
3. High peaks, relative to the limit line, were then selected.
4. The EMI test receiver was then tuned to the selected frequencies and the necessary measurements made with a receiver bandwidth setting of 10 KHz. For FCC tests, only Quasi-peak measurements were made; while for CISPR/EN tests, both Quasi-peak and Average measurements were made.
5. Steps 2 to 4 were then repeated for the LIVE line (for AC mains) or DC line (for DC power).

### **Sample Calculation Example**

At 20 MHz

limit =  $250 \mu\text{V} = 47.96 \text{ dB}\mu\text{V}$

Transducer factor of LISN, pulse limiter & cable loss at 20 MHz = 11.20 dB

Q-P reading obtained directly from EMI Receiver =  $40.00 \text{ dB}\mu\text{V}$   
(Calibrated for system losses)

Therefore, Q-P margin =  $47.96 - 40.00 = 7.96$

i.e. **7.96 dB below limit**



## Annex A. iii RADIATED EMISSIONS TEST DESCRIPTION

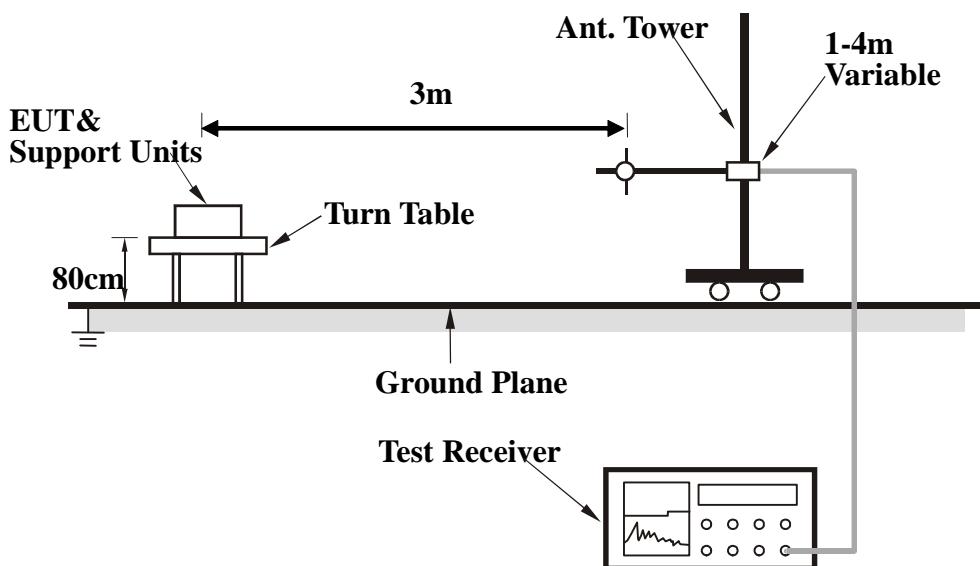
### EUT Characterisation

EUT characterisation, over the frequency range from 30MHz to 10<sup>th</sup> Harmonic , was done in order to minimise radiated emissions testing time while still maintaining high confidence in the test results.

The EUT was placed in the chamber, at a height of about 0.8m on a turntable. Its radiated emissions frequency profile was observed, using a spectrum analyzer /receiver with the appropriate broadband antenna placed 3m away from the EUT. Radiated emissions from the EUT were maximised by rotating the turntable manually, changing the antenna polarisation and manipulating the EUT cables while observing the frequency profile on the spectrum analyzer / receiver. Frequency points at which maximum emissions occurred, clock frequencies and operating frequencies were then noted for the formal radiated emissions test at the Open Area Test Site (OATS).

### Test Set-up

1. The EUT and supporting equipment were set up in accordance with the requirements of the standard on top of a 1.5m X 1.0m X 0.8m high, non-metallic table.
2. The filtered power supply for the EUT and supporting equipment were tapped from the appropriate power sockets located on the turntable.
3. The relevant broadband antenna was set at the required test distance away from the EUT and supporting equipment boundary.





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Accessing global markets

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## **Test Method**

The following procedure was performed to determine the maximum emission axis of EUT:

1. With the receiving antenna is H polarization, rotate the EUT in turns with three orthogonal axes to determine the axis of maximum emission.
2. With the receiving antenna is V polarization, rotate the EUT in turns with three orthogonal axes to determine the axis of maximum emission.
3. Compare the results derived from above two steps. So, the axis of maximum emission from EUT was determined and the configuration was used to perform the final measurement.

### Final Radiated Emission Measurement

1. Setup the configuration according to figure 1. Turn on EUT and make sure that it is in normal function.
2. For emission frequencies measured below 1 GHz, a pre-scan is performed in a shielded chamber to determine the accurate frequencies of higher emissions will be checked on a open test site. As the same purpose, for emission frequencies measured above 1 GHz, a pre-scan also be performed with a 1 meter measuring distance before final test.
3. For emission frequencies measured below and above 1 GHz, set the spectrum analyzer on a 100 kHz and 1 MHz resolution bandwidth respectively for each frequency measured in step 2.
4. The search antenna is to be raised and lowered over a range from 1 to 4 meters in horizontally polarized orientation. Position the highness when the highest value is indicated on spectrum analyzer, then change the orientation of EUT on test table over a range from 0 ° to 360 ° with a speed as slow as possible, and keep the azimuth that highest emission is indicated on the spectrum analyzer. Vary the antenna position again and record the highest value as a final reading.
5. Repeat step 4 until all frequencies need to be measured were complete.
6. Repeat step 5 with search antenna in vertical polarized orientations.

During the radiated emission test, the Spectrum Analyzer was set with the following configurations:

Frequency Band (MHz)	Function	Resolution bandwidth	Video Bandwidth
30 to 1000	Peak	100 kHz	100 kHz
Above 1000	Peak	1 MHz	1 MHz
	Average	1 MHz	10 Hz

## **Sample Calculation Example**

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. For the limit is employed average value, therefore the peak value can be transferred to average value by subtracting the duty factor. The basic equation with a sample calculation is as follows:

$$\text{Peak} = \text{Reading} + \text{Corrected Factor}$$

where

Corr. Factor = Antenna Factor + Cable Factor - Amplifier Gain (if any)

And the average value is

$$\begin{aligned}\text{Average} &= \text{Peak Value} + \text{Duty Factor or} \\ &\text{Set RBW} = 1\text{MHz}, \text{VBW} = 10\text{Hz}.\end{aligned}$$

Note :

If the measured frequencies are fall in the restricted frequency band, the limit employed must be quasi peak value when frequencies are below or equal to 1 GHz. And the measuring instrument is set to quasi peak detector function.



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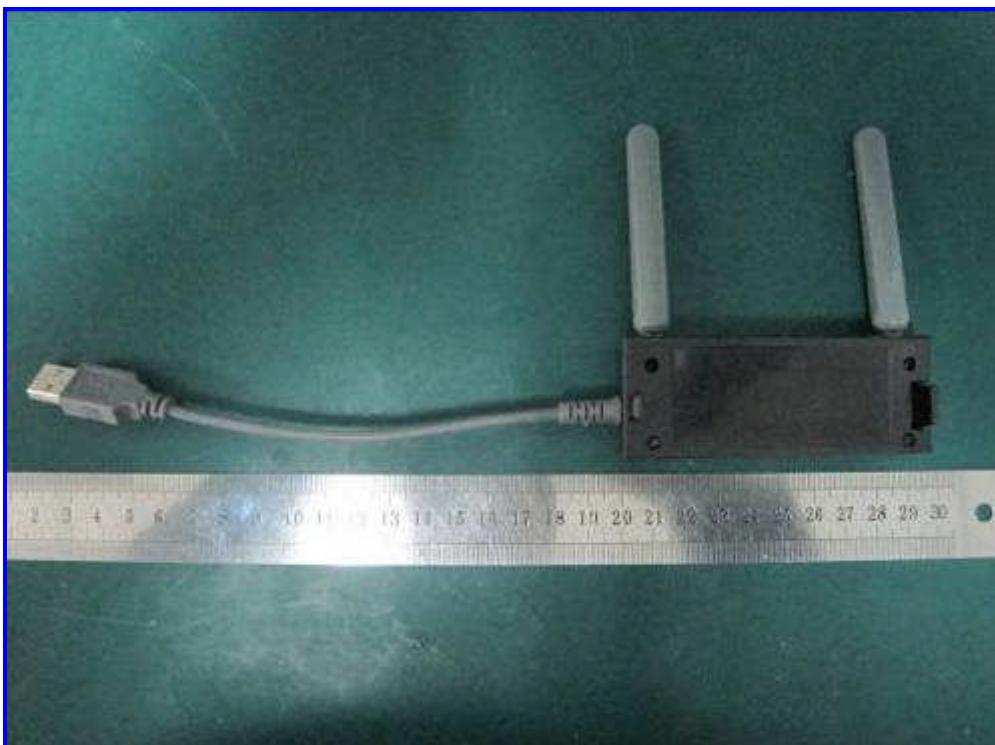
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## Annex B. EUT AND TEST SETUP PHOTOGRAPHS

### Annex B.i. Photograph 1: EUT External Photo



Front View of EUT



Rear View of EUT



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Top View of EUT



Bottom View of EUT



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Left View of EUT



Right View of EUT



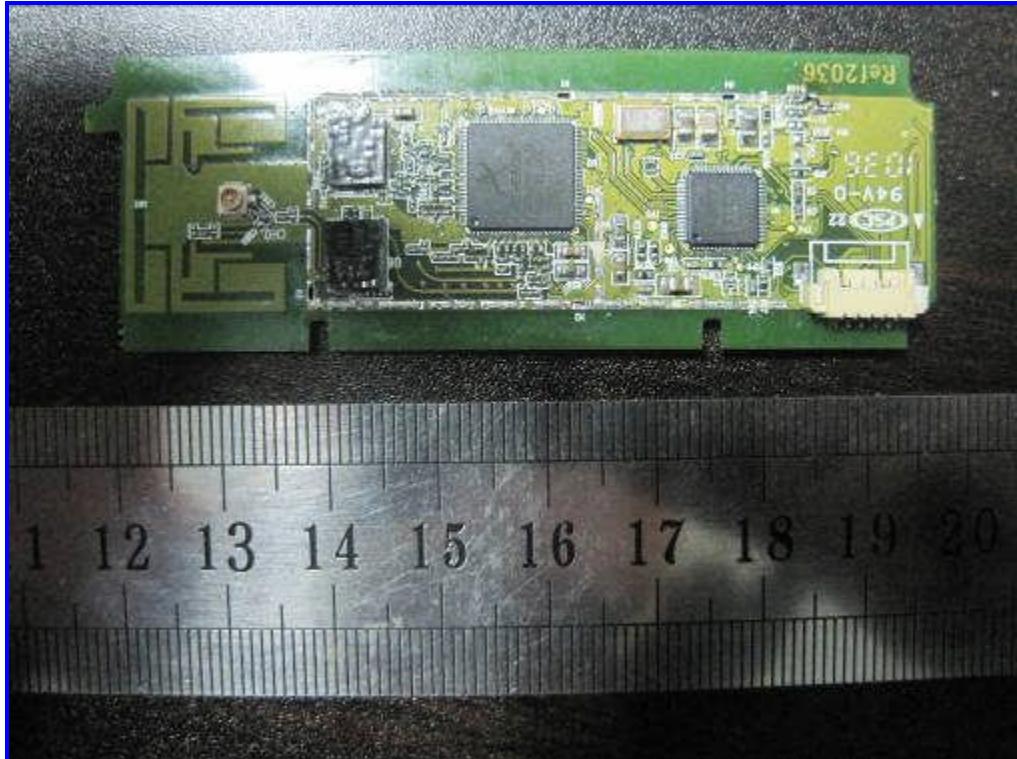
**SIEMIC, INC.**

Accessing global markets

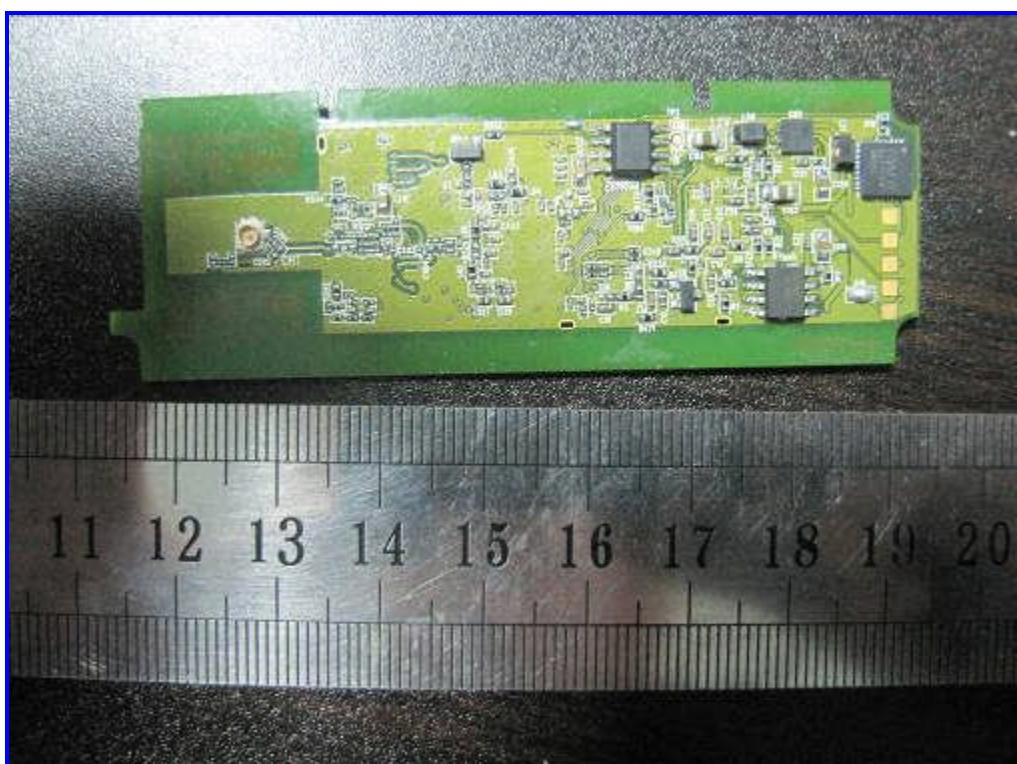
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### **Annex B.ii. Photograph 2: EUT Internal Photo**



Front View of Mainboard PCB



Rear View of Mainboard PCB



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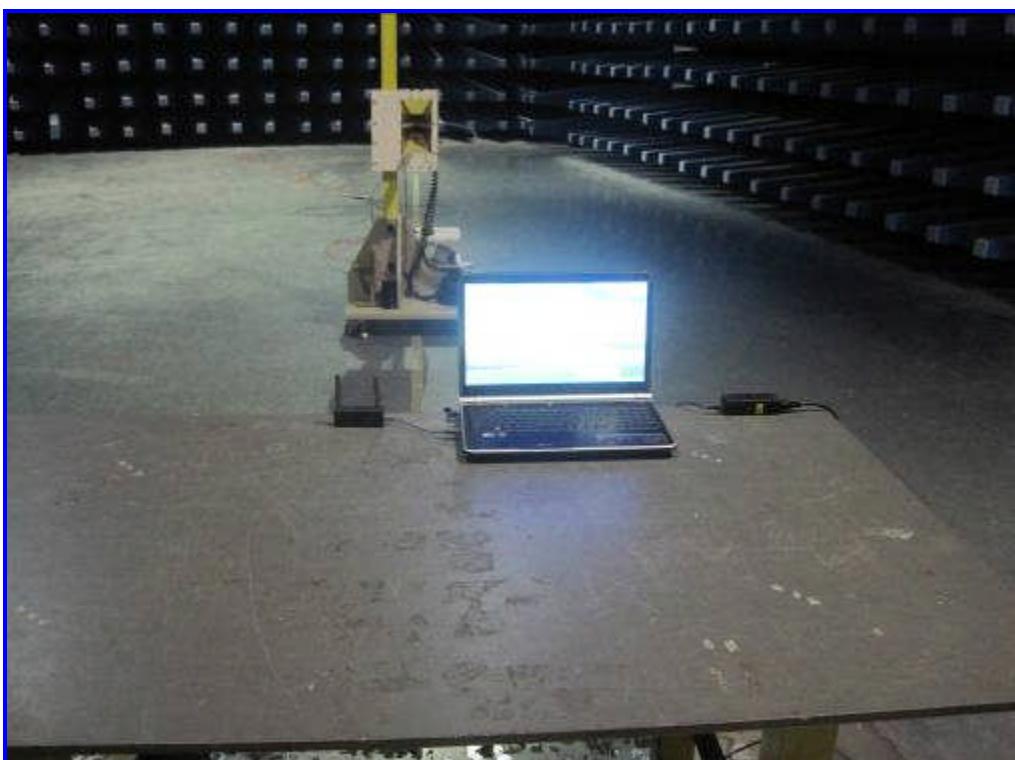
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### Annex B.iii. Photograph 3: Test Setup Photo



Conducted Emission Test Setup Front View



Conducted Emission Test Setup Side View



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Radiated Emission Test Setup Front View below 1GHz



Radiated Emission Test Setup Front View above 1GHz



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## **Annex C. TEST SETUP AND SUPPORTING EQUIPMENT**

### **EUT TEST CONDITIONS**

#### **Annex C. i. SUPPORTING EQUIPMENT DESCRIPTION**

The following is a description of supporting equipment and details of cables used with the EUT.

Equipment Description (Including Brand Name)	Model & Serial Number	Cable Description (List Length, Type & Purpose)
Gateway Laptop	MS2288 & LXWHF02013951C3CA92200	N/A



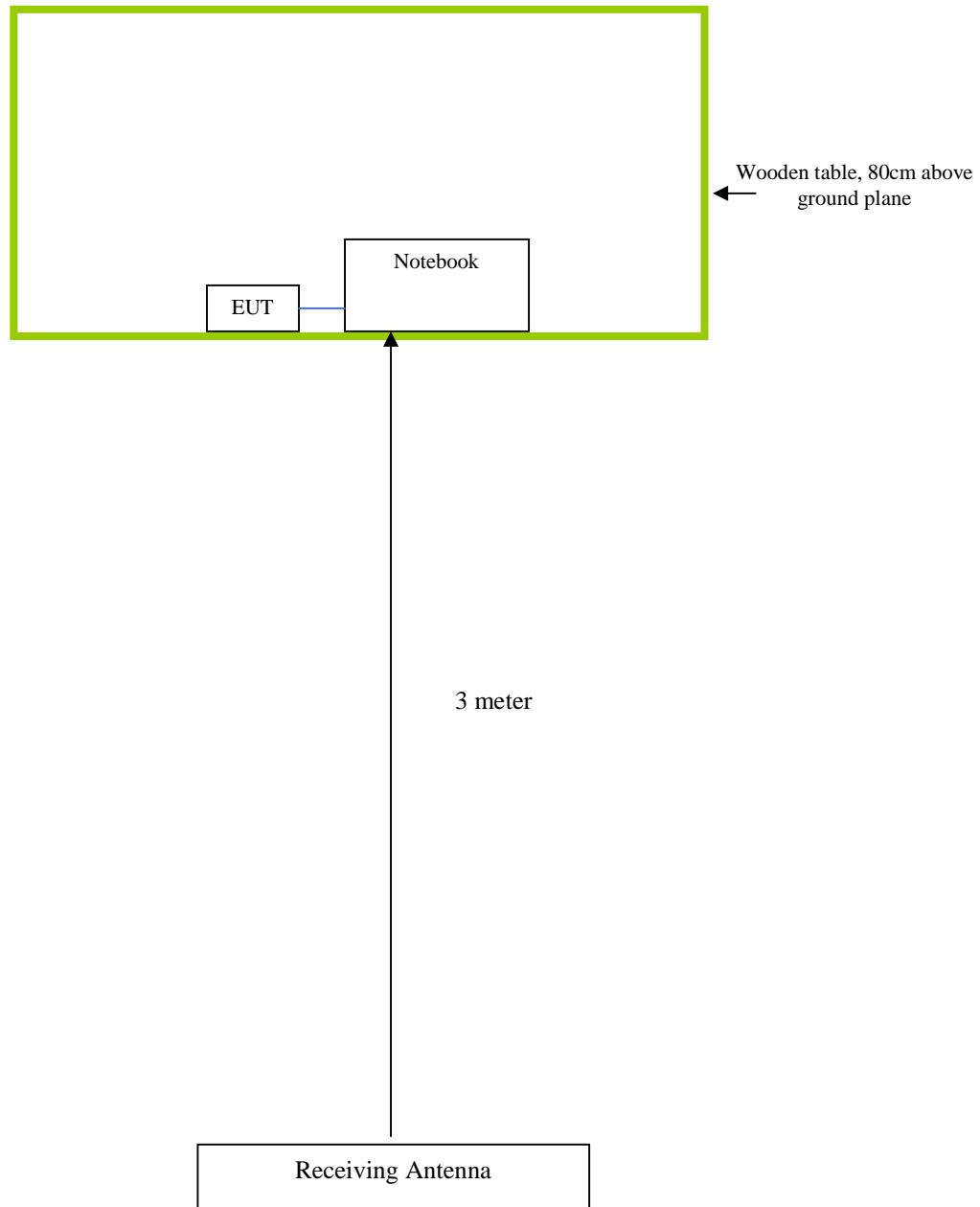
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## Block Configuration Diagram for Radiated Emission





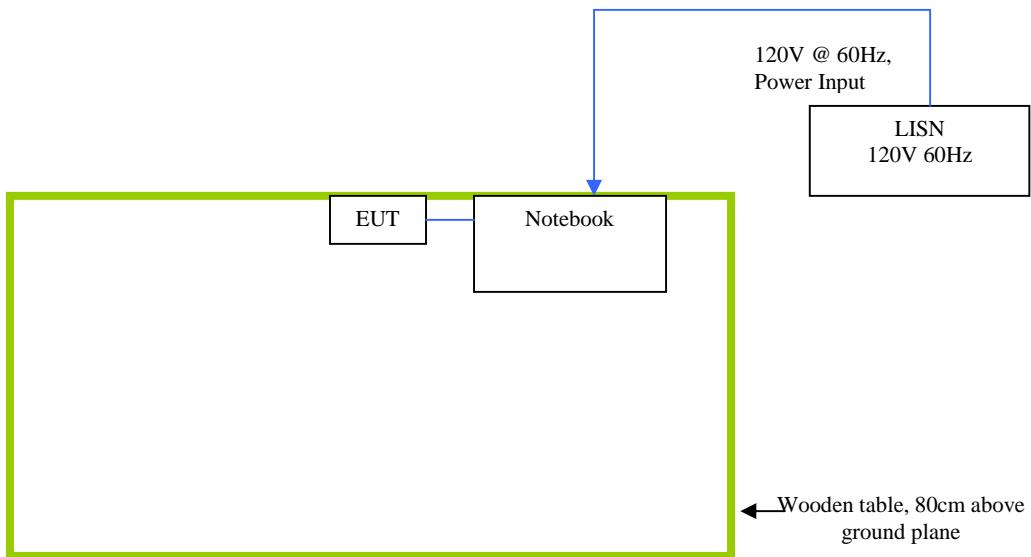
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## Block Configuration Diagram for Conducted Emission





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## **Annex C.ii. EUT OPERATING CONDITIONS**

The following is the description of how the EUT is exercised during testing.

Test	Description Of Operation
Emissions	The EUT was continuously transmitting to stimulate the worst case.



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## **Annex D. USER MANUAL / BLOCK DIAGRAM / SCHEMATICS / PART LIST**

**Please see attachment**



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## Annex E. SIEMIC ACCREDITATION CERTIFICATES

### SIEMIC ACCREDITATION DETAILS: A2LA Certificate Number: 2742.01



The American Association for Laboratory Accreditation

### *Accredited Laboratory*

A2LA has accredited

### **SIEMIC LABORATORIES**

*San Jose, CA*

for technical competence in the field of:

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General Requirements for the Competence of Testing and Calibration Laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-SAF Communiqué dated 8 January 2009).

Presented this 23rd day of November 2010.



  
Pete Ahoy  
President & CEO  
For the Accreditation Council  
Certificate Number 2742.01  
Valid to September 30, 2012

*For the tests or types of tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.*



The American Association for Laboratory Accreditation

### *Accredited Product Certification Body*

A2LA has accredited

### **SIEMIC LABORATORIES**

*San Jose, CA*

for technical competence as a

Product Certification Body

This product certification body is accredited in accordance with the recognized International Standard ISO/IEC Guide 65:1996 *General requirements for bodies operating product certification systems*. This accreditation demonstrates technical competence for a defined scope and the operation of a quality management system for a Telecommunications Certification Body (TCB) meeting FCC (U.S.), IDA (Singapore), IC (Canada) and OFTA Hong Kong requirements.

Presented this 23rd day of November 2010.



  
Pete Ahoy  
President & CEO  
For the Accreditation Council  
Certificate Number 2742.01  
Valid to September 30, 2012

*For the product certification schemes to which this accreditation applies, please refer to the organization's Product Certification Scope of Accreditation.*

**SIEMIC ACCREDITATION DETAILS: FCC Registration NO:986914**

**LABORATORY RECOGNITION**



**SIEMIC, INC.**  
Accessing global markets

**Presented To:**

**SIEMIC (NANJING) INFOTECH CO. LTD.**  
**Nanjing Laboratories**

2-1 Longcang Avenue, Yuhua Economic Development Zone  
Nanjing, Jiangsu Province, People's Republic of China

**This is to certify that SIEMIC Nanjing Laboratories has  
been assessed per ISO 17025 and listed as  
SIEMIC Recognized Laboratory for acceptance of Test  
Reports for TCB Certifications for  
the following scopes:**

FCC Unlicensed Scope A1, A2, A3, A4  
FCC Licensed Scope B1, B2, B3

Leslie Bai  
Director of Certification

This certificate of recognition is valid through December 31, 2010

2206 Ringwood Avenue, San Jose, California 95131 U.S.A.

Tel: (408) 530-0845 Fax: (408) 530-0846 E-mail: [info@siemic.com](mailto:info@siemic.com)



**SIEMIC, INC.**

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## SIEMIC ACCREDITATION DETAILS: FCC Listing, Registration NO:986914

### FEDERAL COMMUNICATIONS COMMISSION

Laboratory Division  
7435 Oakland Mills Road  
Columbia, MD 21046

April 25, 2008

Registration Number: 986914

SIEMIC Nanjing (China) Laboratories  
2-1 Longcang Avenue,  
Yuhua Economic and Technology Development Park,  
Nanjing, 210039  
China

Attention: Leslie Bai

Re: Measurement facility located at 2-1 Longcang Avenue, Nanjing, China  
Anechoic chamber (3 meters) and 3&10 meter OATS  
Date of Listing: April 25, 2008

Dear Sir or Madam:

Your request for registration of the subject measurement facility has been reviewed and found to be in compliance with the requirements of Section 2.948 of the FCC rules. The information has, therefore, been placed on file and the name of your organization added to the list of facilities whose measurement data will be accepted in conjunction with applications for Certification under Parts 15 or 18 of the Commission's Rules. Please note that the file must be updated for any changes made to the facility and the registration must be renewed at least every three years.

Measurement facilities that have indicated that they are available to the public to perform measurement services on a fee basis may be found on the FCC website [www.fcc.gov](http://www.fcc.gov) under E-Filing, OET Equipment Authorization Electronic Filing, Test Firms.

Sincerely,

Katie Hawkins  
Electronics Engineer



**SIEMIC, INC.**

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## SIEMIC ACCREDITATION DETAILS: Industry of Canada Registration No. 4842



February 19, 2009

OUR FILE: 46405-4842  
Submission No: 131645

### SIEMIC NANJING (CHINA) LABORATORIES

2-1 Longcang Avenue  
Yuhua Economic & Technology Dev. Park  
Nanjing  
China

*Attention:* Leslie Bai

Dear Sir/Madame:

The Bureau has received your application for the registration of a 3m/10m alternative test site. Be advised that the information received was satisfactory to Industry Canada. The following number(s) is now associated to the site(s) for which registration / renewal was sought ( 4842B-1 ). Please reference the appropriate site number in the body of test reports containing measurements performed on the site. In addition, please keep for your records the following information;

- Your primary code is: 4842
- The company number associated to the site(s) located at the above address is: 4842B

Furthermore, to obtain or renew a unique site number, the applicant shall demonstrate that the site has been accredited to ANSI C63.4-2003 or later. A scope of accreditation indicating the accreditation by a recognized accreditation body to ANSI C63.4-2003 shall be accepted. Please indicate in a letter the previous assigned site number if applicable and the type of site (example: 3 meter OATS or 3 meter chamber). If the test facility is not accredited to ANSI C63.4-2003 or later, the test facility shall submit test data demonstrating full compliance with the ANSI standard. The Bureau will evaluate the filing to determine if recognition shall be granted.

The frequency for re-validation of the test site and the information that is required to be filed or retained by the testing party shall comply with the requirements established by the accrediting organization. However, in all cases, test site re-validation shall occur on an interval not to exceed two years. There is no fee or form associated with an OATS filing. OATS submissions are encouraged to be submitted electronically to the Bureau using the following URL;  
[http://strategis.ic.gc.ca/epic/internet/inceb-bhst.nsf/en/h\\_tt00052e.html](http://strategis.ic.gc.ca/epic/internet/inceb-bhst.nsf/en/h_tt00052e.html).

If you have any questions, you may contact the Bureau by e-mail at [certification.bureau@ic.gc.ca](mailto:certification.bureau@ic.gc.ca). Please reference our file and submission number above for all correspondence.

Yours sincerely,

Joshua Lavoie  
For: Wireless Laboratory Manager  
Certification and Engineering Bureau  
3701 Carling Ave., Building 94  
P.O. Box 11490, Station "H"  
Ottawa, Ontario K2B 8S2  
Email: [joshua.lavoie@ic.gc.ca](mailto:joshua.lavoie@ic.gc.ca)  
Tel. No. (613) 990-2681  
Fax. No. (613) 990-4752



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## SIEMIC ACCREDITATION DETAILS: Korea CAB from NIST: US0160



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Institute of Standards and Technology**  
Gaithersburg, Maryland 20899

October 1, 2008

Mr. Leslie Bai  
SIEMIC, Inc.  
2206 Ringwood Avenue  
San Jose, CA 95131

Dear Mr. Bai:

NIST is pleased to inform you that your laboratory has been recognized by the Radio Research Agency (RRA) Korea Communications Commission (KCC) under the Asia Pacific Economic Cooperation for Telecommunications Equipment Mutual Recognition Arrangement (APEC Tel MRA). Your laboratory is now designated to act as a Conformity Assessment Body (CAB) under Appendix B, **Phase I** Procedures, of the APEC Tel MRA. The pertinent information about your laboratory's designation is as follows:

CAB Name: SIEMIC, Inc.  
Physical Location: 2206 Ringwood Avenue, San Jose, CA 95131  
Identification No.: US0160  
Recognized Scope: **EMI:** KCC Notice 2008-39, RRL Notice 2008-3: CA Procedures for EMI  
KN22: Test Method for EMI  
**EMS:** KCC Notice 2008-38, RRL Notice 2008-4: CA Procedures for EMS  
KN24, KN-61000-4-2, -4-3, -4-4, -4-5, -4-6, -4-8, -4-11: Test Method for EMS  
**Wireless:** RRL Notice 2008-26, RRL Notice 2008-2, RRL Notice 2008-10,  
RRL Notice 2007-49, RRL Notice 2007-20, RRL Notice 2007-21,  
RRL Notice 2007-80, RRL Notice 2004-68  
**Wired:** President Notice 20664, RRL Notice 2007-30,  
RRL Notice 2008-7 with attachments 1, 3, 5, 6  
President Notice 20664, RRL Notice 2008-7 with attachment 4

You may submit test data to RRA/KCC to verify that the equipment to be imported into Korea satisfies the applicable requirements. The designation of your organization will remain in force as long as its accreditation for the designated scope remains valid and comply with the designation requirements.

Recognized CABs are listed on the NIST website at <http://ts.nist.gov/mra>. If you have any questions please contact Ramona Saar at (301) 975-5521 or [ramona.saar@nist.gov](mailto:ramona.saar@nist.gov).

Sincerely,

David F. Alderman  
Group Leader, Standards Coordination and Conformity Group  
Standards Services Division

Enclosure

cc: Ramona Saar



**SIEMIC, INC.**

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**SIEMIC ACCREDITATION DETAILS: Taiwan BSMI CAB Accreditation No. SL2-IN-E-1130R**



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Institute of Standards and Technology**  
Gaithersburg, Maryland 20899

May 3, 2006

Mr. Leslie Bai  
SIEMIC Laboratories  
2206 Ringwood Avenue  
San Jose, CA 95131

Dear Mr. Bai:

I am pleased to inform you that your laboratory has been recognized by the Chinese Taipei's Bureau of Standards, Metrology, and Inspection (BSMI) under the Asia Pacific Economic Cooperation (APEC) Mutual Recognition Arrangement (MRA). Your laboratory is now designated to act as a Conformity Assessment Body (CAB) under Appendix B, **Phase I** Procedures, of the APEC Tel MRA. You may submit test data to BSMI to verify that the equipment to be imported into Chinese Taipei satisfies the applicable requirements. The designation of your organization will remain in force as long as its accreditation for the designated scope remains valid and comply with the designation requirements. The pertinent designation information is as follows:

- BSMI number: **SL2-IN-E-1130R** (Must be applied to the test reports)
- U.S Identification No: **US0160**
- Scope of Designation: **CNS 13438**
- Authorized signatory: **Mr. Leslie Bai**

The names of all recognized CABs will be posted on the NIST website at <http://ts.nist.gov/mra>. If you have any questions, please contact Mr. Dhillon at 301-975-5521. We appreciate your continued interest in our international conformity assessment activities.

Sincerely,

David F. Alderman  
Group Leader, Standards Coordination and Conformity Group

cc: Jogindar Dhillon

**NIST**



**SIEMIC, INC.**

Accessing global markets

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## SIEMIC ACCREDITATION DETAILS: Taiwan NCC CAB ID: US0160



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Institute of Standards and Technology**  
Gaithersburg, Maryland 20899

March 16, 2009

Mr. LeslieBai  
SIEMIC, Inc.  
2206 Ringwood Avenue  
San Jose, CA 95131

Dear Mr. Bai:

NIST is pleased to inform you that your laboratory has been recognized by the National Communications Commission (NCC) for the requested scope expansion under the Asia Pacific Economic Cooperation for Telecommunications Equipment Mutual Recognition Arrangement (APEC Tel MRA). Your laboratory is designated to act as a Conformity Assessment Body (CAB) under Appendix B, **Phase I** Procedures, of the APEC Tel MRA. The pertinent information about your laboratory's designation is as follows:

CAB Name: SIEMIC, Inc.  
Physical Location: 2206 Ringwood Avenue, San Jose, CA 95131  
Identification No.: US0160  
Current Scope: LP0002, PSTN01, ADSL01, ID0002, IS6100 and CNS 14336  
Additional Scope: PLMN07

You may submit test data to NCC to verify that the equipment to be imported into China satisfies the applicable requirements. The designation of your organization will remain in force as long as its accreditation for the designated scope remains valid and comply with the designation requirements.

Recognized CABs are listed on the NIST website at <http://ts.nist.gov/mra>. If you have any questions please contact Ramona Saar at (301) 975-5521 or [ramona.saar@nist.gov](mailto:ramona.saar@nist.gov).

Sincerely,

David F. Alderman  
Group Leader, Standards Coordination and Conformity Group  
Standards Services Division

Enclosure

cc: Ramona Saar

**NIST**



**SIEMIC, INC.**

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## SIEMIC ACCREDITATION DETAILS: Mexico NOM Recognition



CAMARA NACIONAL  
DE LA INDUSTRIA  
ELECTRONICA DE  
TELECOMUNICACIONES  
E INFORMATICA

### Laboratorio Valentín V. Rivero

México D.F. a 16 de octubre de 2009.

LESLIE BAI  
DIRECTOR OF CERTIFICATION  
SIEMIC LABORATORIES, INC.  
ACCESSING GLOBAL MARKETS  
P R E S E N T E

En contestación a su escrito de fecha 5 de septiembre del año en curso, le comento que estamos muy interesados en su intención de firmar un Acuerdo de Reconocimiento Mutuo, para lo cual adjunto a este escrito encontrarás el Acuerdo en idioma inglés y español preliminar de los cuales le pido sea revisado y en su caso corregido, para que si está de acuerdo poder firmarlo para mandarlo con las autoridades Mexicanas para su visto bueno y así poder ejercer dicho acuerdo.

Aprovecho este escrito para mencionarle que nuestro intermedio gestor será la empresa Isotel de México, S.A. de C.V., empresa que ha colaborado durante mucho tiempo con nosotros en lo relacionado a la evaluación de la conformidad y que cuenta con amplia experiencia en la gestión de la certificación de cumplimiento con Normas Oficiales Mexicanas de producto en México.

Me dirijo de usted enviándole un cordial saludo y esperando sus comentarios al Acuerdo que nos ocupa.

Atentamente:

Ing. Faustino Pérez González  
Gerente Técnico del Laboratorio de  
CANIETI

Callejas 77  
Hacienda Condesa  
Coyoacán, D.F.  
Tel: 5284-6000 con 12 líneas  
Fax: 5284-0442  
[www.canieti.org](http://www.canieti.org)



**SIEMIC, INC.**

Accessing global markets

Title: RF Test Report for Wireless 'N' Networking AdapterTM For Xbox 360  
Model: AS159  
To: FCC 15.407:2010

Serial#: 1005020-FCC 15.407  
Issue Date: 26 November 2010  
Page: 93 of 95  
[www.siemic.com.cn](http://www.siemic.com.cn)

## SIEMIC ACCREDITATION DETAILS: Hong Kong OFTA Recognition No. D23/16V



Your Ref 來函檔號 : D23/16 V

Our Ref 本局檔號 :

Telephone 電話 : (852) 2961 6320  
Fax No 圖文傳真 : (852) 2838 5004  
E-mail 電郵地址 : 20 July 2005

Mr. Leslie Bai  
Director of Certification,  
SIEMIC Laboratories  
2206 Ringwood Avenue  
San Jose, California 95131  
USA

Dear Mr. Bai,

### Application of Recognised Testing Agency (RTA)

Referring your submission of 28 June 2005 in relation to the application of RTA, I am pleased to inform you that OFTA has appointed SIEMIC Laboratories (SIEMIC) as a Recognised Testing Agency (RTA) :

Please note that, under the Hong Kong Telecommunications Equipment Evaluation and Certification (HKTEC) Scheme, SIEMIC is authorized to conduct evaluation tests on telecommunications equipment against the following HKTA specifications :

#### Scope of recognition (HKTA Specifications) :

1001, 1002, 1004, 1006, 1007, 1008  
1010, 1015, 1016  
1022, 1026, 1027, 1029  
1030, 1031, 1032, 1033, 1034, 1035, 1039  
1041, 1042, 1043, 1045, 1047, 1048  
2001

You are requested to refer to and comply with the code of practice and guidelines for RTA as given in the Information Note OFTA I 411 "Recognised Testing Agency (RTA) for Conducting Evaluation Test of Telecommunications Equipment", which can be downloaded from OFTA's homepage at <http://www.ofta.gov.hk/tec/information-notes.html>.

If you have any queries, please do not hesitate to contact me.

Yours sincerely,

(K K Sin)  
for Director-General  
of Telecommunications

Office of the Telecommunications Authority  
29/F Wu Chung House 213 Queen's Road East Wan Chai Hong Kong  
電訊管理局  
香港灣仔皇后大道東 213 號胡忠大廈 29 字樓

<http://www.ofta.gov.hk>



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## SIEMIC ACCREDITATION DETAILS: OFTA CAB from NIST: US0160



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Institute of Standards and Technology**  
Gaithersburg, Maryland 20899

December 8, 2008

Mr. Leslie Bai  
SIEMIC, Inc.  
2206 Ringwood Avenue  
San Jose, CA 95131

Dear Mr. Bai:

NIST is pleased to inform you that your laboratory has been recognized by the Office of the Telecommunications Authority (OFTA) under the Asia Pacific Economic Cooperation for Telecommunications Equipment Mutual Recognition Arrangement (APEC Tel MRA). Your laboratory is now designated to act as a Conformity Assessment Body (CAB) under Appendix B, **Phase I** Procedures, of the APEC Tel MRA. The pertinent information about your laboratory's designation is as follows:

CAB Name: SIEMIC, Inc.  
Physical Location: 2206 Ringwood Avenue, San Jose, California 95131 USA  
Identification No.: US0160  
Recognized Scope: **Radio:** HKTA 1002, 1007, 1008, 1010, 1015, 1016, 1020, 1022, 1026, 1027, 1029, 1030, 1031, 1032, 1033, 1034, 1035, 1036, 1037, 1039, 1041, 1042, 1043, 1044, 1046, 1047, 1048, 1049, 1051  
**Telecom:** HKTA 2011, 2012, 2013, 2014, 2017, 2018, 2022, 2024, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033

You may submit test data to OFTA to verify that the equipment to be imported into Hong Kong satisfies the applicable requirements. The designation of your organization will remain in force as long as its accreditation for the designated scope remains valid and comply with the designation requirements.

Recognized CABs are listed on the NIST website at <http://ts.nist.gov/mra>. If you have any questions please contact Ramona Saar at (301) 975-5521 or [ramona.saar@nist.gov](mailto:ramona.saar@nist.gov).

Sincerely,

David F. Alderman  
Group Leader, Standards Coordination and Conformity Group  
Standards Services Division

Enclosure

cc: Ramona Saar



**SIEMIC, INC.**

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## SIEMIC ACCREDITATION DETAILS: Australia NATA Recognition



Leslie Bai  
SIEMIC, Inc.  
2208 Ringwood Avenue  
San Jose, CA 95131

November 4, 2008

Under Australian government legislation, the Australian Communications and Media Authority (ACMA) has determined the National Association of Testing Authorities, Australia (NATA) as an accreditation body as per Section 409(1) of the Telecommunications Act 1997 (Cth). Pursuant to Section 409(2) of the Telecommunications Act 1997 (Cth), I am pleased to advise that your laboratory has been determined as a Recognised Testing Authority (RTA).

This determination has been made on the basis of your accreditation by A2LA accreditation no. 2742.01 and the Mutual Recognition Agreement between NATA and A2LA. It is effective from 11 July 2008. RTA status applies only to the following standards and is contingent upon their continued inclusion in your laboratory's scope of accreditation.

AS/ACIF S002, AS/ACIF S003, AS/ACIF S004,  
AS/ACIF S006, AS/ACIF S016, AS/ACIF S031,  
AS/ACIF S038, AS/ACIF S041 and  
AS/ACIF S043.2

As an RTA, your laboratory has the following obligations:

1. the laboratory shall continue to meet all of the accreditation criteria of A2LA;
2. the authorised representative of the laboratory shall notify NATA of changes to the staff or operations of the laboratory which would affect the performance of the tests for which the laboratory has been determined;
3. compliance of equipment shall be reported on test reports bearing the A2LA logo/endorsement.

Current information on the Australian Communications and Media Authority and regulatory requirements for telecommunications products within Australia can be obtained from the ACMA's web-site at "<http://www.acma.gov.au>". Further information about NATA may be gained by visiting "<http://www.nata.asn.au>" .

Please note that AS/ACIF S040 and New Zealand standards do not form part of the RTA scheme.

Your RTA listing will appear on the NATA website shortly.

Kind Regards

Chris Norton,  
Senior Scientific Officer  
Measurement Science and Technology  
National Association of Testing Authorities (NATA)  
71-73 Flemington Road  
North Melbourne Vic 3051  
Australia  
Ph: +61 3 9329 1633 Fx: +61 3 9326 5148  
E-Mail: [Christopher.Norton@nata.asn.au](mailto:Christopher.Norton@nata.asn.au)  
Internet: [www.nata.asn.au](http://www.nata.asn.au)