

# ZEBRA TECHNOLOGIES CORP.

## CARD PRINTER WITH RFID ENCODER

Model: P640I & P630I



Issued Date: 15 December 2009

Report No.: SL08012102-ZBR-007 (15.247) (M5e )  
(This report supersedes NONE)



Modifications made to the product : None

This Test Report is Issued Under the Authority of:

	
<b>Choon Sian Ooi</b> Test Engineer	<b>Leslie Bai</b> Engineering Reviewer

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Test result presented in this test report is applicable to the representative sample only.

# EMC Test Report

To: FCC Part 15.247 & IC RSS210

SIEMIC, INC.  
Accessing global markets



## Laboratory Introduction

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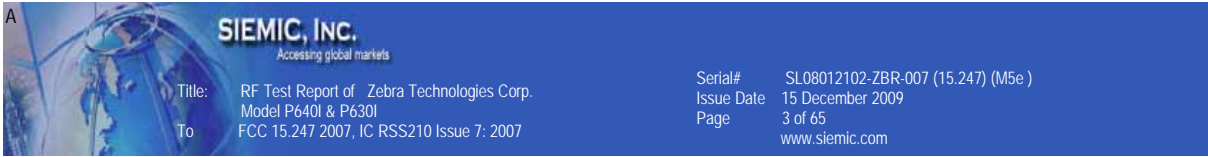
### Accreditations for Conformity Assessment

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

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Title: RF Test Report of Zebra Technologies Corp.  
Model P640I & P630I  
To: FCC 15.247 2007, IC RSS210 Issue 7: 2007

Serial# SL08012102-ZBR-007 (15.247) (M5e )  
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# 1 Executive Summary & EUT information

The purpose of this test programme was to demonstrate compliance of the Zebra Technologies Corp., model:P640i & P630i against the current Stipulated Standards. The RFID Encoder have demonstrated compliance with the FCC 15.247 2007 & IC RSS210 Issue 7: 2007.

## EUT Information

**EUT Description** : For high volume, high security applications, choose the Zebra® P640i dual-sided laminating printer. Zebra's industry-leading security printers are used in over 50 countries to print tens of millions of ID cards annually. The P640i printer's dual-sided printing and "one pass" dual-sided lamination provide the maximum amount of flexibility in protecting driver's licenses, national voter registration cards, and other types of secure IDs. With its high throughput, superior print quality and best total cost of ownership in its class, the P640i is the right choice for issuing durable and highly secure ID cards.

Ribbon recognition and security is maintained through RFID technology within the printer. The RFID board and the contactless smartcards use separate transmitters each operating at a frequency of 13.56 MHz in the ISM band.

The Zebra M5e is a RFID encoder that can read and encode RFID smart tags. Smart tags carry embedded ultra-thin UHF RFID transponders. Transponders contain thin antennas and integrated circuits that can be read, programmed, and reprogrammed using non-contact radio waves. RFID smart tags allow for non-line of sight reading of the data contained in the IC and feature anti collision technology, which allows RFID readers to scan and identify several objects simultaneously, such as totes of supplies.

The RFID subsystem is comprised of a ThingMagic Mercury 5e multi protocol UHF RFID encoder, a coupler/antenna connected to the encoder via a coaxial cable and an adaptor PCB that provides the operating voltage and communications to the RFID encoder.

The RFID encoder powers and communicates with RFID smart cards via the coupler/antenna. The encoder contains a digital processor and analog signal conditioning circuitry. Instructions from the host system to encode/read a smart label are sent to the RFID encoder via a serial communication link. The encoder responds to the host with data read and/or a status message. The UHF RF signals generated by the encoder are turned on only during a host commanded read or encode operation. The RF signal is an amplitude-modulated frequency-hopping carrier operating between 902MHz and 928MHz. The modulation pattern is governed by the selected UHF RFID protocol. The reader supports EPC Class1 Gen 2/ISO18000-6C UHF RFID protocols.

**Model No** : M5e  
**Serial No** : N/A  
**Input Power** : 5 VDC  
**Classification Per Stipulated Test Standard** : Frequency Hopping Spread Spectrum / Device

## 2 TECHNICAL DETAILS

<b>Purpose</b>	Compliance testing of RFID Encoder with stipulated standard
<b>Applicant / Client</b>	ZEBRA TECHNOLOGIES CORP.
<b>Manufacturer</b>	Zebra Technologies Corp. 333 Corporate Woods Parkway Vernon Hills, IL 60061 USA
<b>Laboratory performing the tests</b>	SIEMIC Laboratories
<b>Test report reference number</b>	SL08012102-ZBR-007 (15.247) (M5e )
<b>Date EUT received</b>	28 October 2008
<b>Standard applied</b>	47 CFR §15.247: 2007 & RSS 210 Issue 7: 2007
<b>Dates of test (from – to)</b>	January 01 to January 07, 2009
<b>No of Units:</b>	2
<b>Equipment Category:</b>	DSS
<b>Trade Name:</b>	Zebra Technologies Corp.
<b>Model :</b>	P640I & P630I
<b>RF Operating Frequency (ies)</b>	902 MHz to 928 MHz
<b>Number of Channels :</b>	50
<b>Modulation :</b>	ISO 18000-6C
<b>FCC ID :</b>	I28 -640I-UHF
<b>IC ID :</b>	3798B-P640I

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Title: RF Test Report of Zebra Technologies Corp.  
Model P640I & P630I  
To: FCC 15.247 2007, IC RSS210 Issue 7: 2007

Serial# SL08012102-ZBR-007 (15.247) (M5e)  
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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:

### Frequency Hopping Spread Spectrum / Device

#### Test Results Summary

Test Standard		Description	Pass / Fail
47 CFR Part 15.247: 2007	RSS 210 Issue 7: 2007		
15.203		Antenna Requirement	Pass
15.205	RSS210(A8.5)	Restricted Band of Operation	Pass
15.207(a)	RSS Gen (7.2.2)	AC Line Conducted Emissions Voltage	Pass
15.247(a) (1)	RSS210(A8.1)	Channel Separation	Pass
15.247(a)(1)	RSS210(A8.1)	Occupied Bandwidth	Pass
15.247(a) (2)	RSS210 (A8.2)	6dB Bandwidth	N/A
15.247(a) (1) (i)	RSS210(A8.1)	Number of Hopping Channels	Pass
15.247(a) (1) (i)	RSS210(A8.1)	Time of Occupancy	Pass
15.247(b) (2)	RSS210(A8.4)	Output Power	Pass
15.247(c)	RSS210(A8.4)	Antenna Gain > 6 dBi	Pass
15.247(d)	RSS210(A8.5)	Antenna Port Conducted Spurious Emissions	Pass
15.209; 15.247(d)	RSS210(A8.5)	Radiated Spurious Emissions	Pass
15.247(e)	RSS210(A8.3)	Power Spectral Density	N/A
15.247(f)	RSS210(A8.3)	Hybrid System Requirement	N/A
15.247(g)	RSS210(A8.1)	Hopping Capability	Pass
15.247(h)	RSS210(A8.1)	Hopping Coordination Requirement	Pass
15.247(i) §2.1091& §2.1093	RSSGen(5.5)	Maximum Permissible Exposure	Pass
15.247 (d)		100 kHz Bandwidth of Frequency Band Edge	Pass
	RSSGen(4.8)	Receiver Spurious Emissions	Pass

ANSI C63.4: 2003/ RSS-Gen Issue 2: 2007

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.
- 1) The UHF antenna has a unique connector and installed inside on the chassis with a gain of -20dBi which meets the requirement.

## 5.2 Conducted Emissions Voltage

Requirement:

Frequency of emission (MHz)	Conducted limit (dB $\mu$ V)	
	Quasi-peak	Average
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:

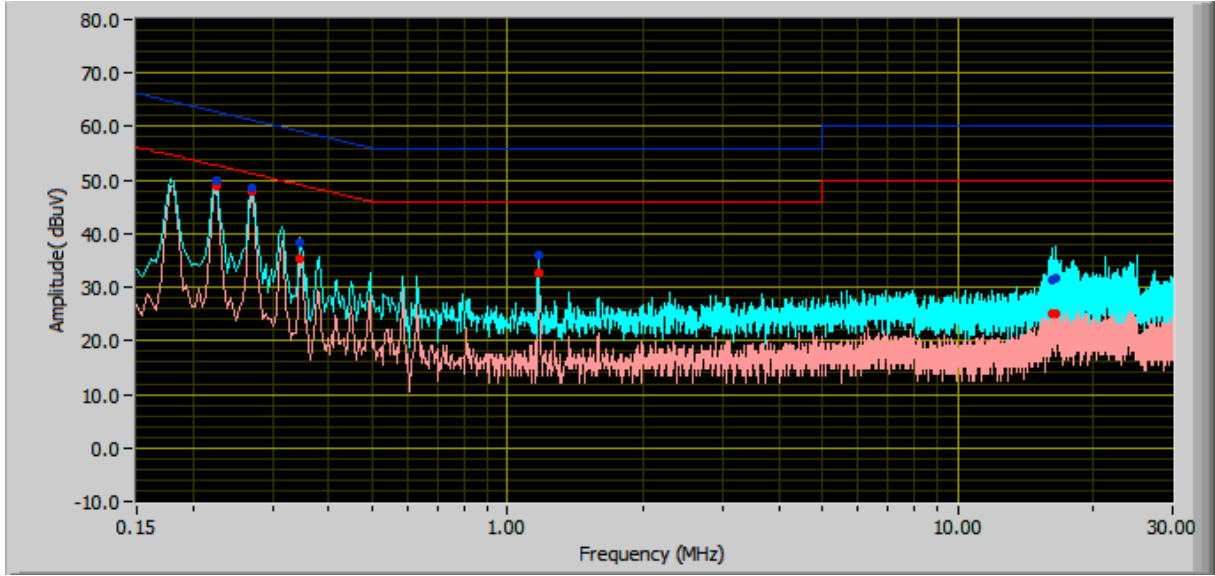
- All possible modes of operation were investigated. Only the 6 worst case emissions measured, using the correct CISPR and Average detectors, are reported. All other emissions were relatively insignificant.
- A "-ve" margin indicates a PASS as it refers to the margin present below the limit line at the particular frequency.
- 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.
- Environmental Conditions

Temperature	23°C - 25°C
Relative Humidity	50%
Atmospheric Pressure	1019mbar

Test Date : January 01 to January 07, 2009

Tested By :Choon Sian Ooi

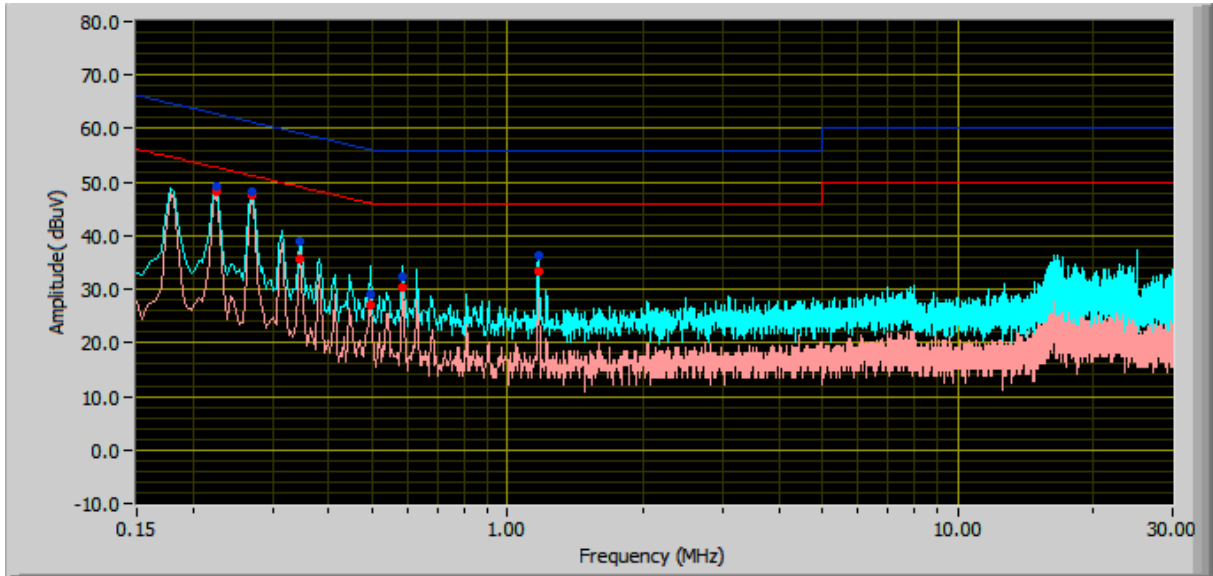
**Results:**      **Note –**      Average Limit      Quasi-Peak Limit



**Phase Line Plot at 120Vac, 60Hz**

Line Under Test	Frequency (MHz)	Corrected Amplitude (dBuV) QP	Limit (dBuV) QP	Margin (dB) QP	Corrected Amplitude (dBuV) AVG	Limit (dBuV) AVG	Margin (dB) AVG
Phase	0.27	48.46	61.21	-12.75	47.81	51.21	-3.41
Phase	0.23	49.83	62.72	-12.88	49.00	52.72	-3.72
Phase	0.35	38.33	59.11	-20.78	35.26	49.11	-13.86
Phase	1.17	35.88	56.00	-20.12	32.55	46.00	-13.45
Phase	16.48	31.58	60.00	-28.42	25.21	50.00	-24.79
Phase	16.21	31.23	60.00	-28.77	25.21	50.00	-24.79

Results:      Note –      Average Limit      Quasi-Peak Limit



**Neutral Line Plot at 120Vac, 60Hz**

Line Under Test	Frequency (MHz)	Corrected Amplitude (dBuV) QP	Limit (dBuV) QP	Margin (dB) QP	Corrected Amplitude (dBuV) AVG	Limit (dBuV) AVG	Margin (dB) AVG
Neutral	0.23	49.28	62.72	-13.44	48.32	52.72	-4.40
Neutral	0.27	48.17	61.21	-13.04	47.52	51.21	-3.69
Neutral	1.17	36.16	56.00	-19.84	33.22	46.00	-12.78
Neutral	0.35	38.81	59.11	-20.30	35.74	49.11	-13.37
Neutral	0.50	29.18	56.03	-26.85	27.14	46.03	-18.89
Neutral	0.59	32.49	56.00	-23.51	30.26	46.00	-15.74

## 5.3 Channel Separation

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. Environmental Conditions
 

Temperature	23°C - 25°C
Relative Humidity	50%
Atmospheric Pressure	1019mbar
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 30MHz – 20GHz is  $\pm 1.5$ dB.
4. Test Date : January 01 to January 07, 2009  
Tested By :Choon Sian Ooi

**Requirement(s):** 47 CFR §15.247(a)(1)(i)

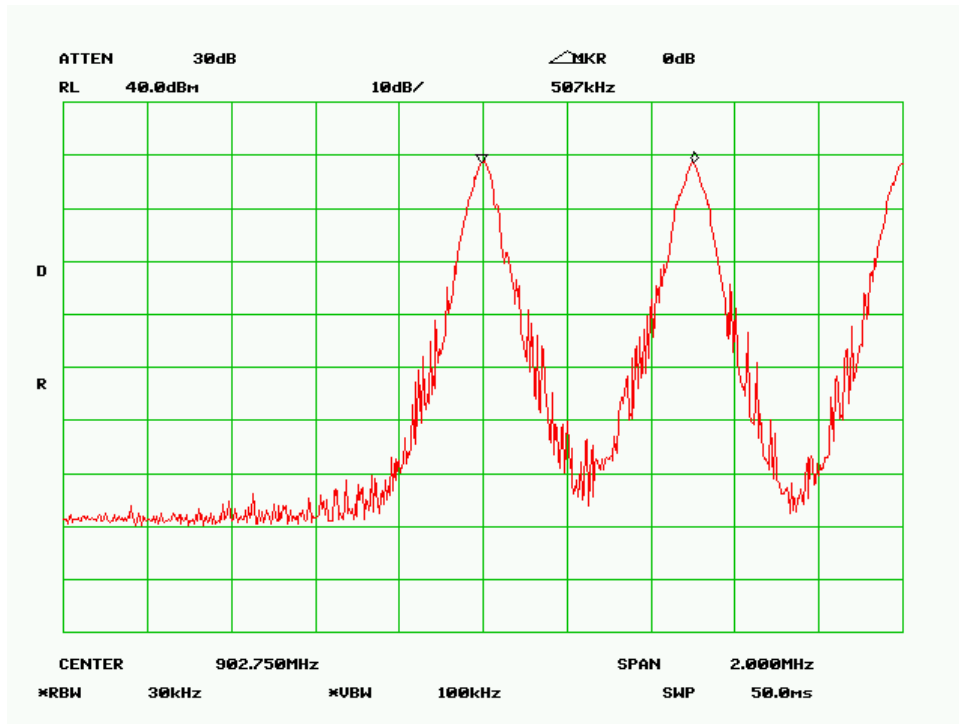
**Procedures:** The Channel Separation was measured conducted using a spectrum analyzer at low, mid, and hi channels.

Frequency hopping systems in the 902-928 MHz shall have, hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudo randomly ordered list of hopping frequencies.

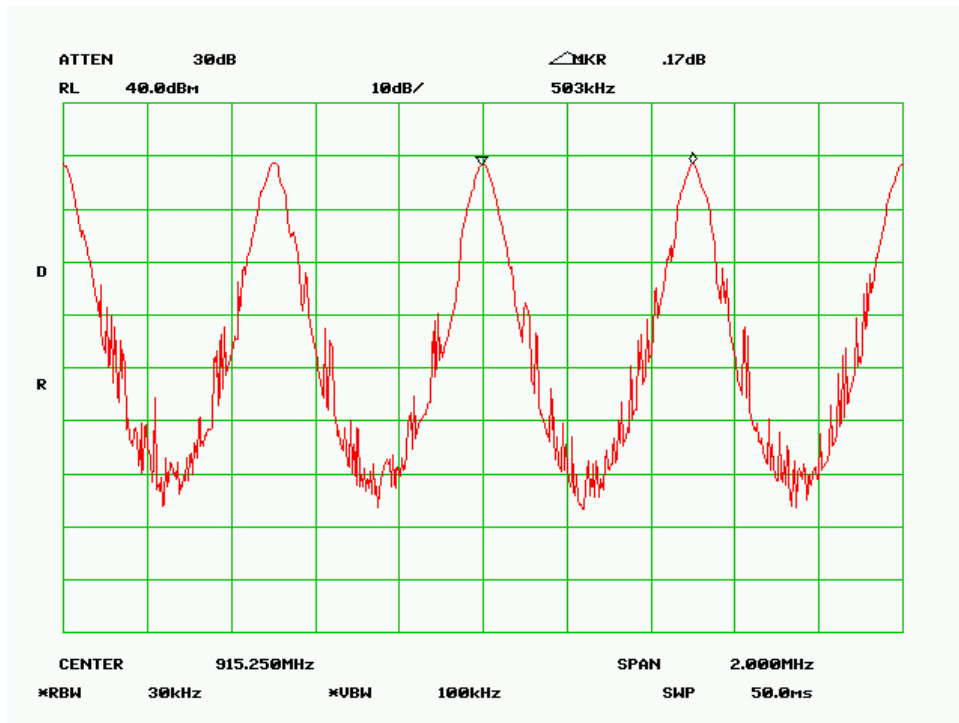
Channel	Channel Frequency (MHz)	Channel Separation (MHz)	20 dB Channel Bandwidth (KHz)
Low	902.750	0.507	76.30
Mid	915.250	0.503	74.50
High	927.250	0.503	73.40

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### Channel Separation - Low Channel

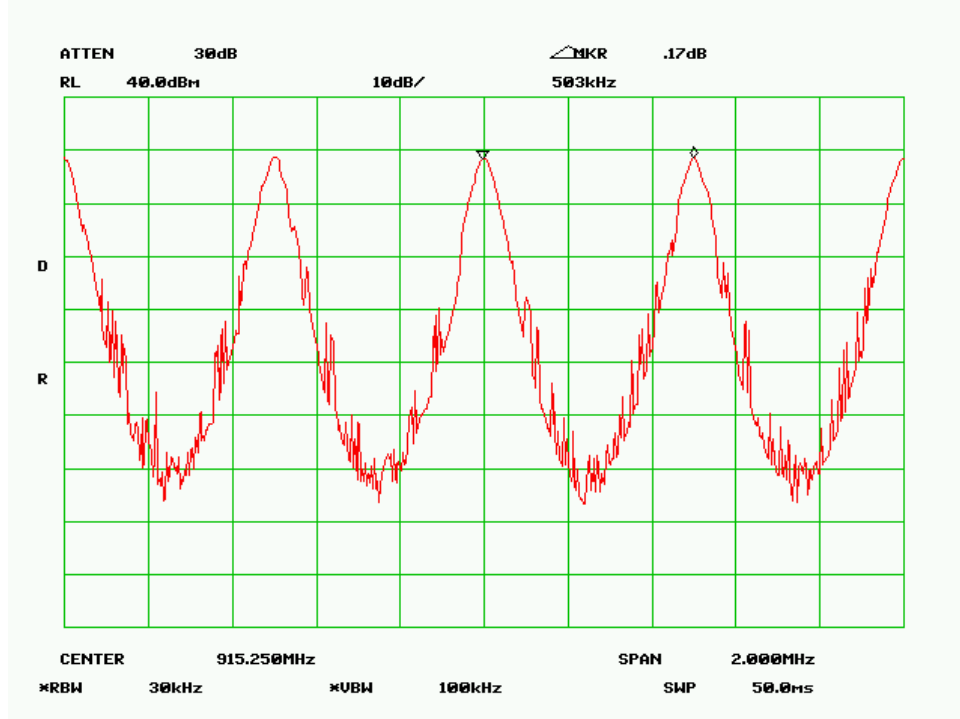


### Channel Separation - Mid Channel



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### Channel Separation – High Channel





## 5.4 20dB 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. Environmental Conditions

Temperature	23°C - 25°C
Relative Humidity	50%
Atmospheric Pressure	1019mbar
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 30MHz – 20GHz is  $\pm 1.5$ dB.
4. Test Date : January 01 to January 07, 2009  
Tested By :Choon Sian Ooi

**Requirement(s):** 47 CFR §15.247(a)(1)(i)

**Procedures:** The 20dB bandwidths were measured conducted using a spectrum analyzer at low, mid, and hi channels.

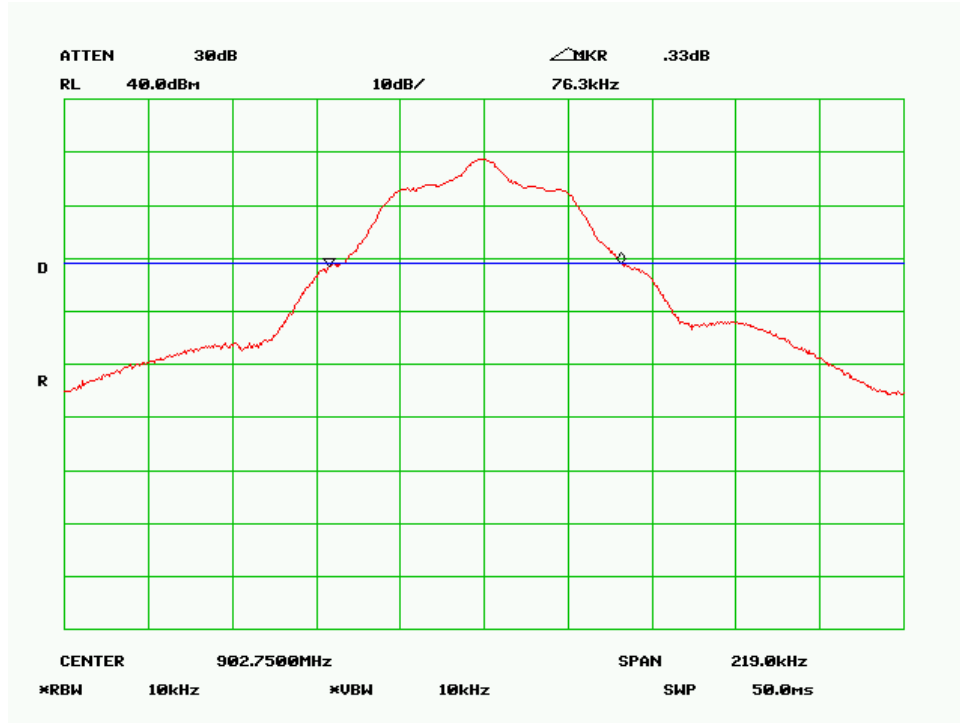
**Note:** The maximum allowed 20 dB bandwidth of the hopping is 500 kHz.

Channel	Channel Frequency (MHz)	20 dB Channel Bandwidth (KHz)	99% Channel Bandwidth (KHz)
Low	902.750	76.30	71.90
Mid	915.250	74.50	71.90
High	927.250	73.40	70.40

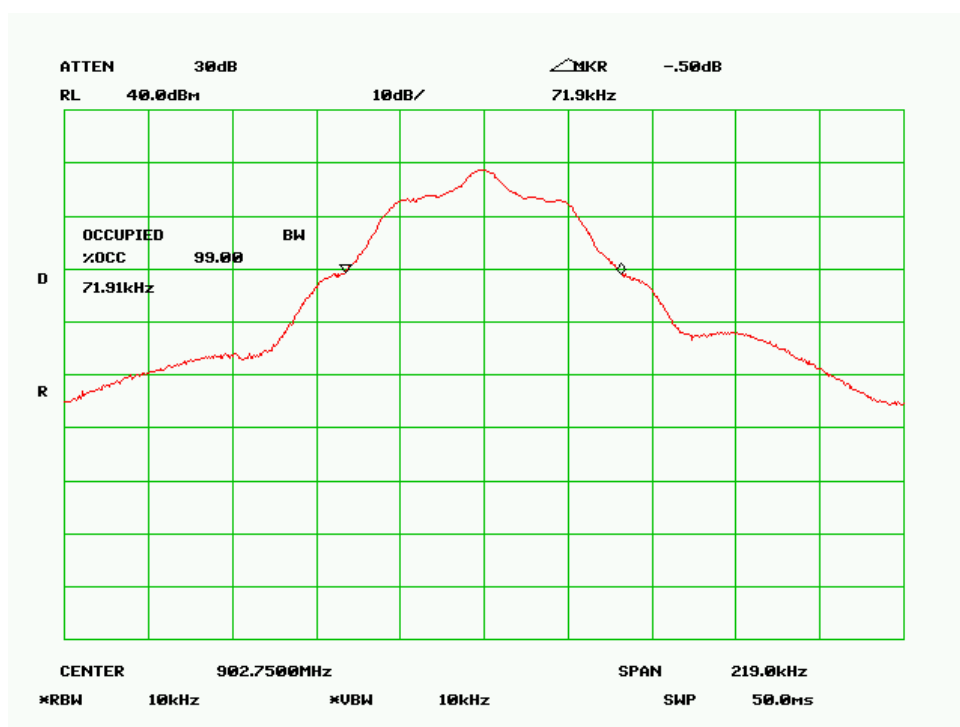
Refer to the attached plots.

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### 20dB Bandwidth - Low Channel

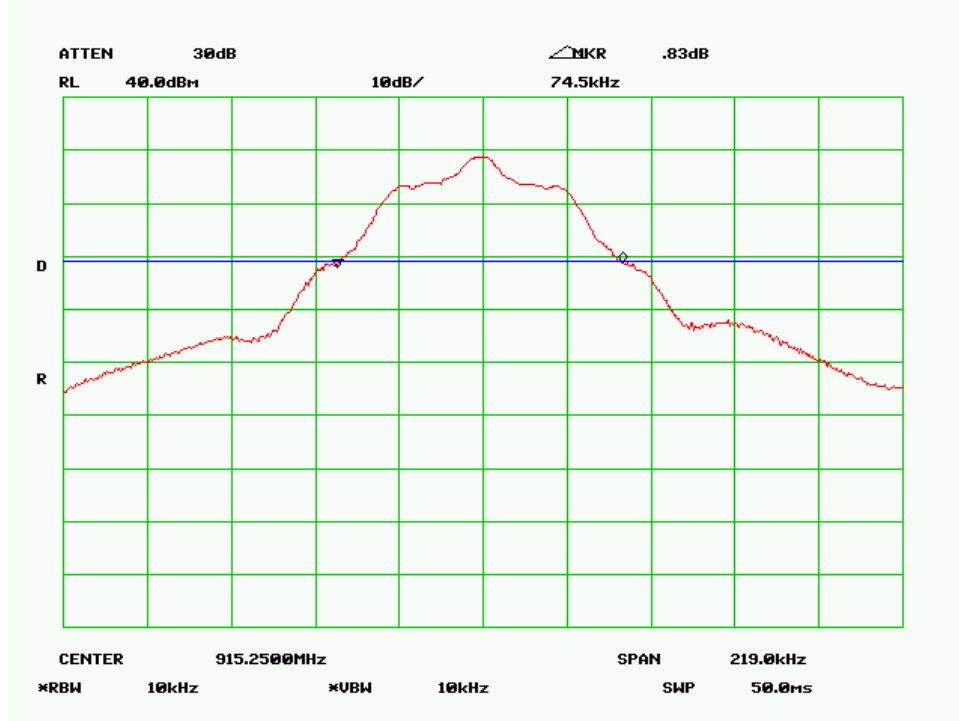


### 99% Bandwidth - Low Channel

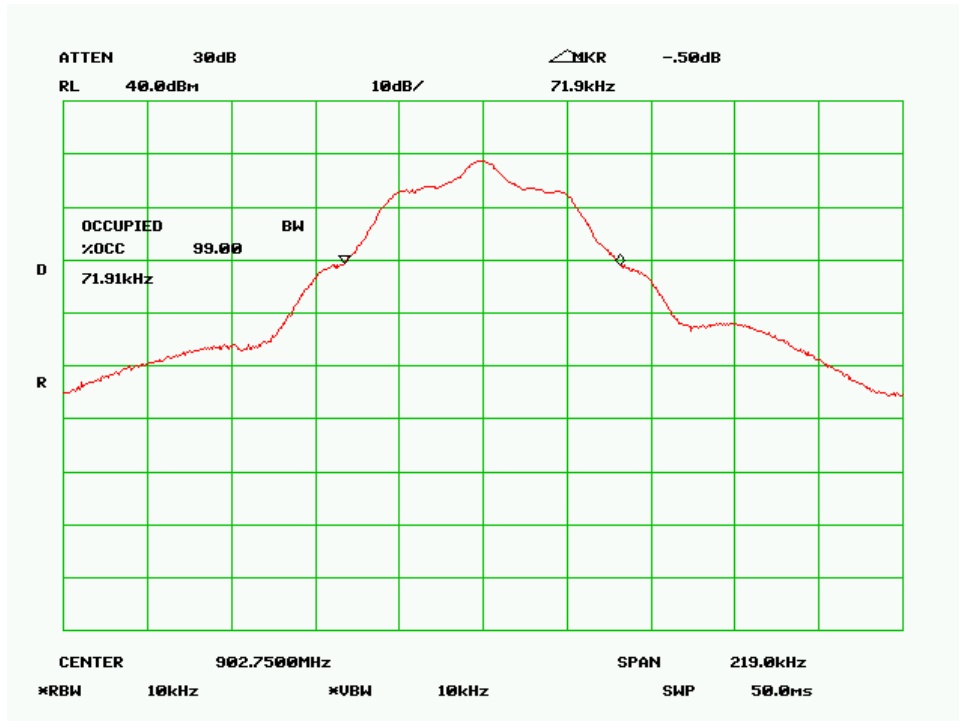


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### 20dB Bandwidth – Mid Channel

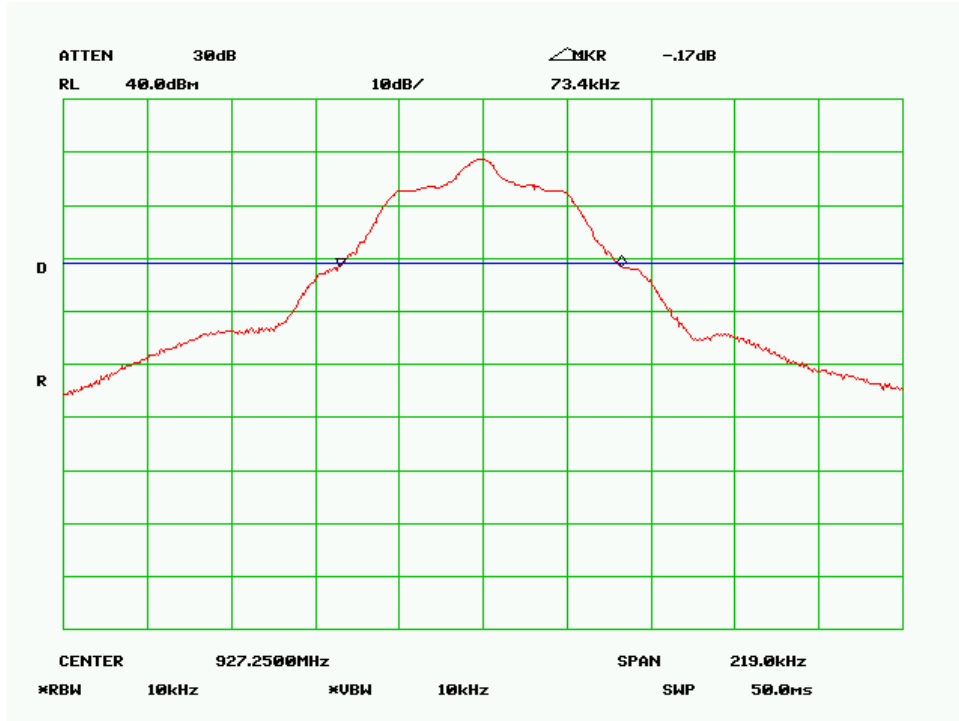


### 99% Bandwidth - Mid Channel

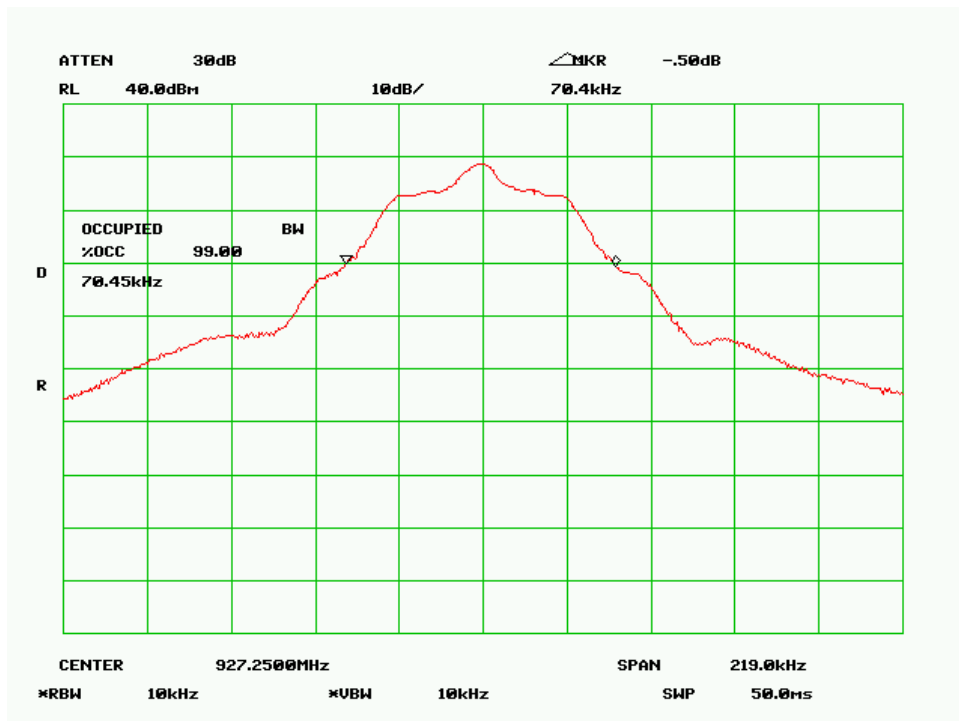


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### 20dB Bandwidth - High Channel



### 99% Bandwidth - High Channel



## 5.5 Number of Hopping Channel

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 – 20GHz is  $\pm 1.5$ dB.
3. Environmental Conditions

Temperature	23°C - 25°C
Relative Humidity	50%
Atmospheric Pressure	1019mbar
4. Test Date : January 01 to January 07, 2009  
Tested By :Choon Sian Ooi

**Standard Requirement:** 47 CFR §15.247(a)(1)(iii)

For frequency hopping systems operating in the 902–928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

**Procedures:** The Number of Hopping Channel measurement was taken conducted using a spectrum analyzer.

RBW=30 KHz, VBW > RBW

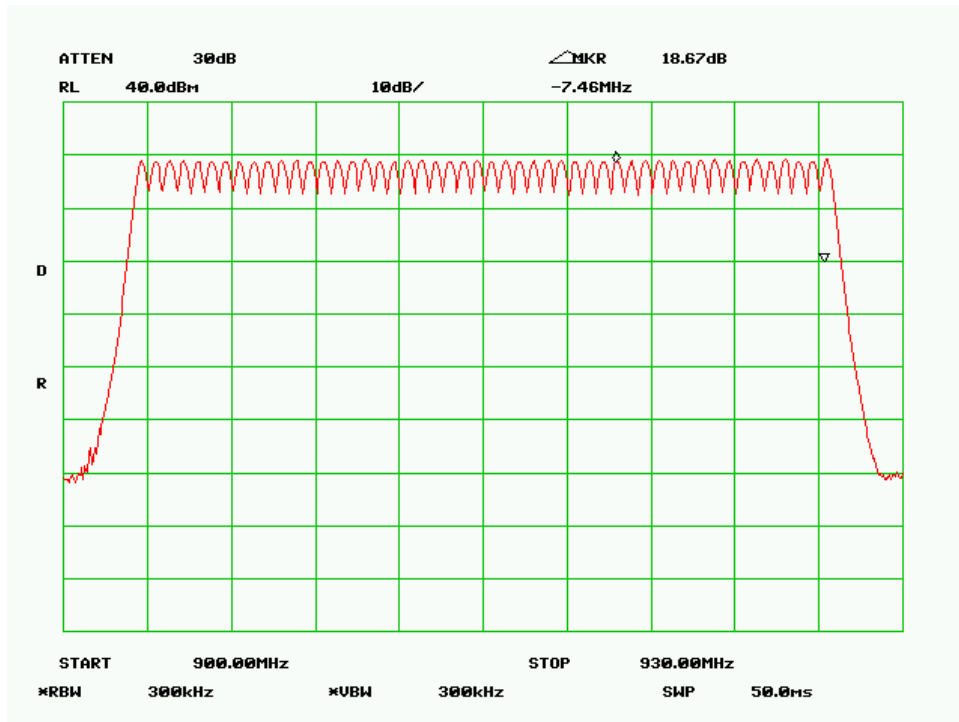
**Test Result:**

Total Channel: 50 Channels

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### Number of Hopping Channel

902 – 928 MHz: 50 Channels



## 5.6 Time of Occupancy

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 – 20GHz is  $\pm 1.5$ dB.
3. Environmental Conditions

Temperature	23°C - 25°C
Relative Humidity	50%
Atmospheric Pressure	1019mbar
4. Test Date : January 01 to January 07, 2009  
Tested By :Choon Sian Ooi

**Standard Requirement:** 47 CFR §15.247(a)(1)

For frequency hopping systems operating in the 902–928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period.

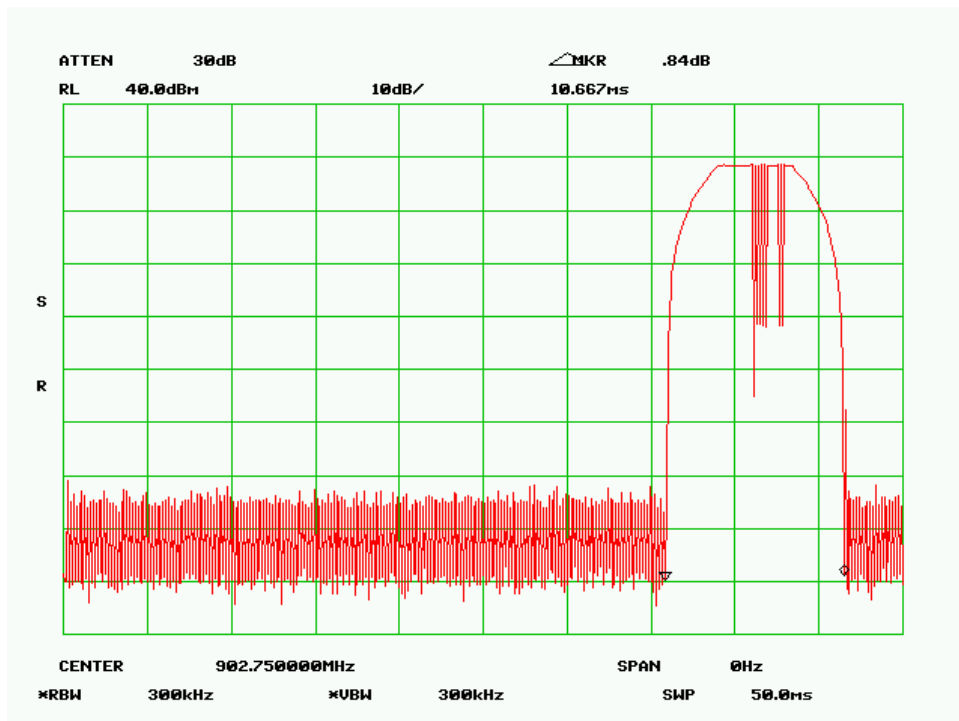
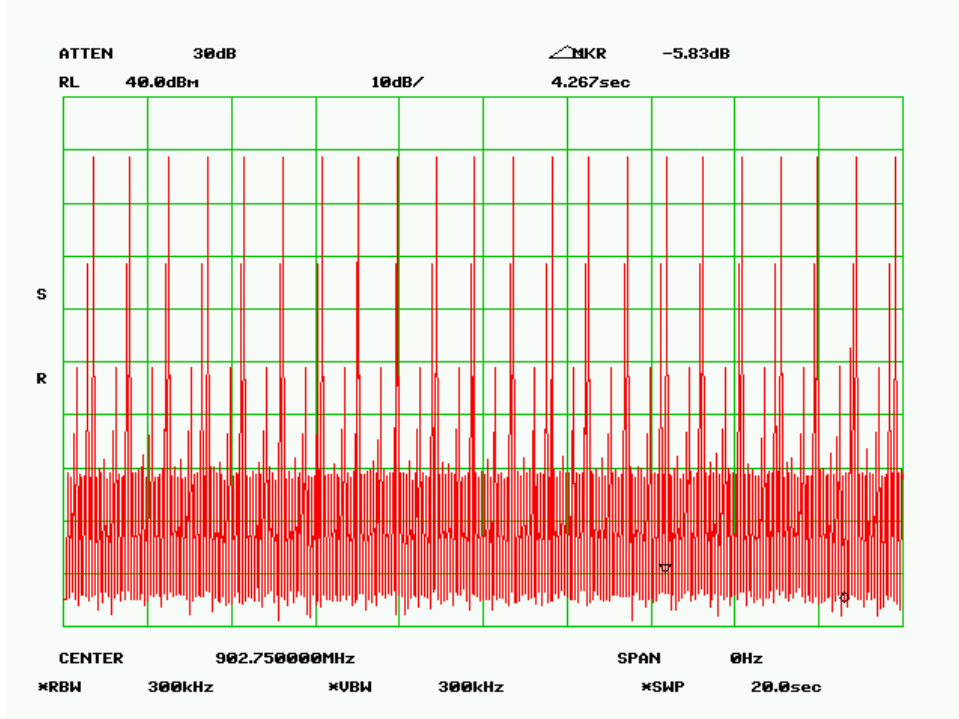
**Procedures:** The Time of Occupancy measurement was taken conducted using a spectrum analyzer.

**Test Result:**

Channel	Channel Frequency (MHz)	Dwell Time (sec)	Limit (sec)
Low	902.750	0.234	0.4
Mid	915.250	0.231	0.4
High	927.250	0.238	0.4

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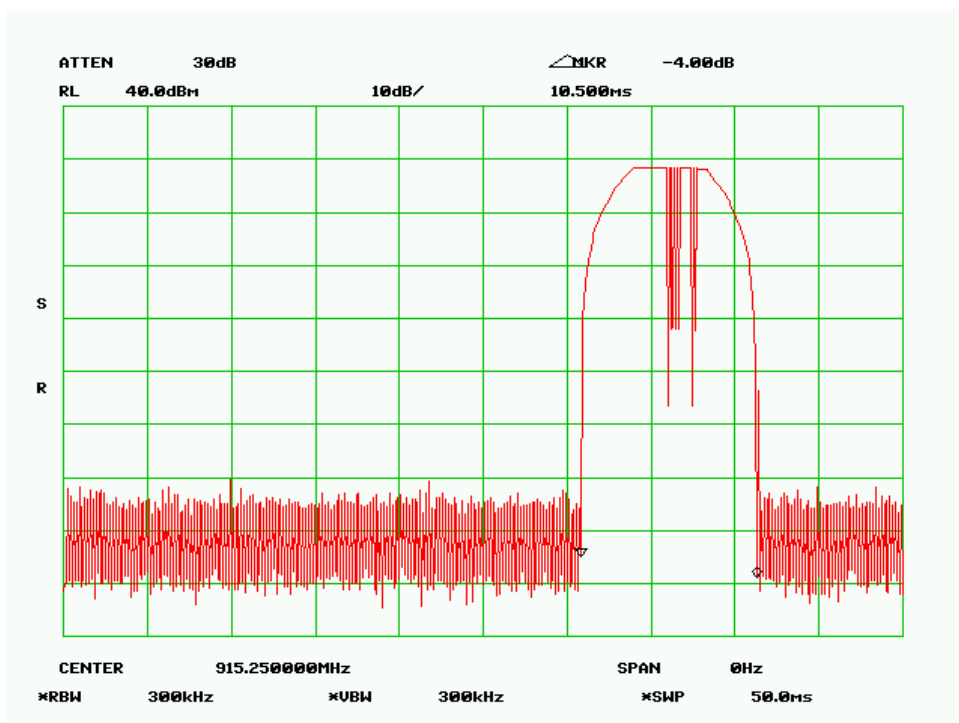
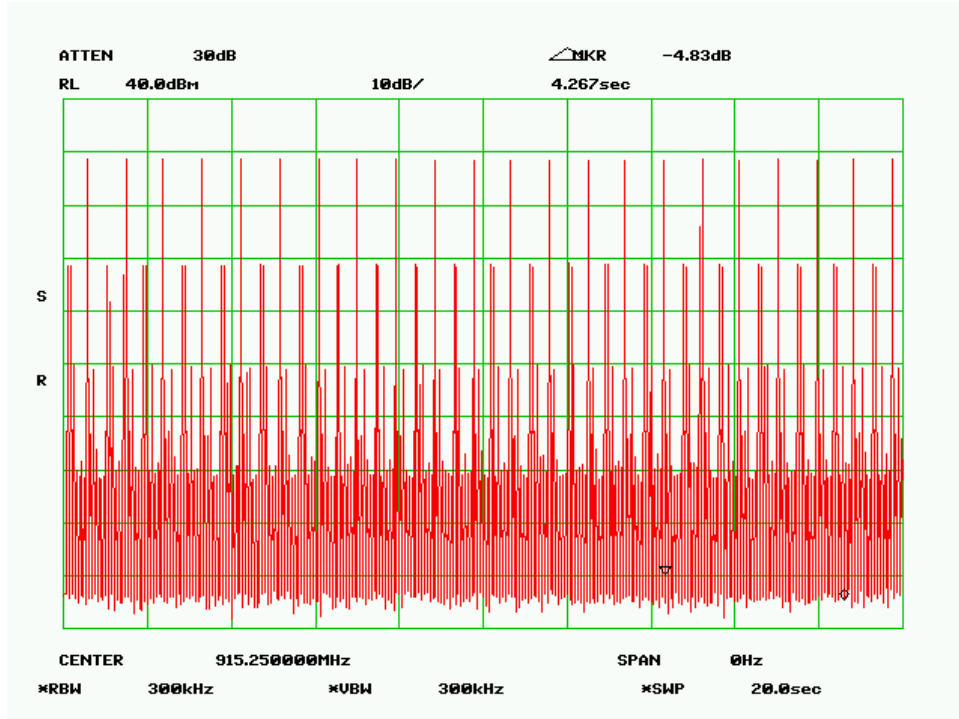
### Low Channel





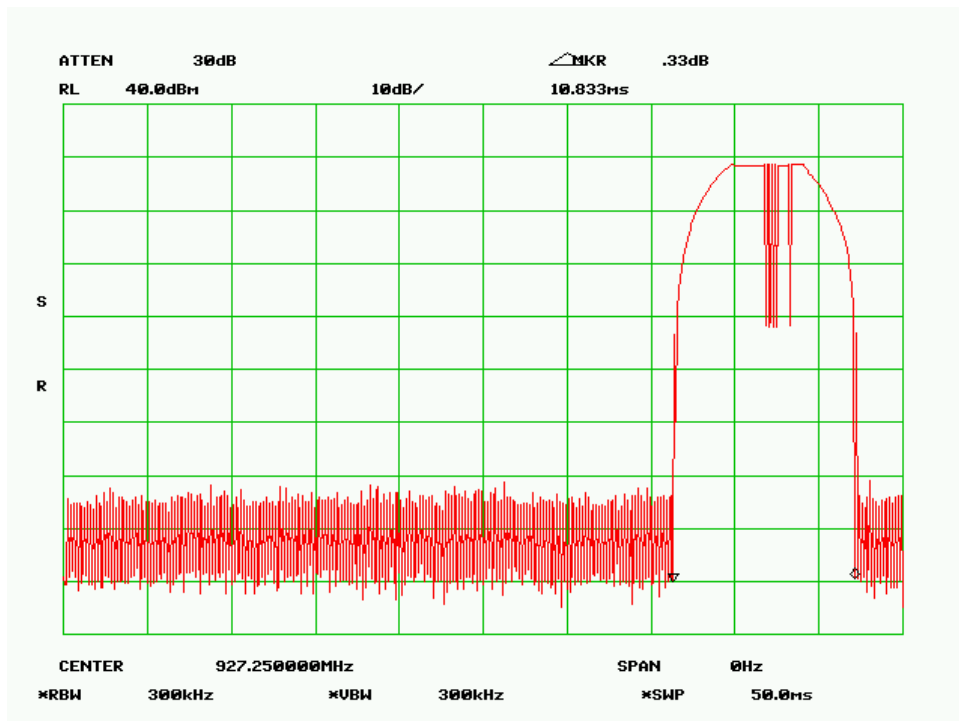
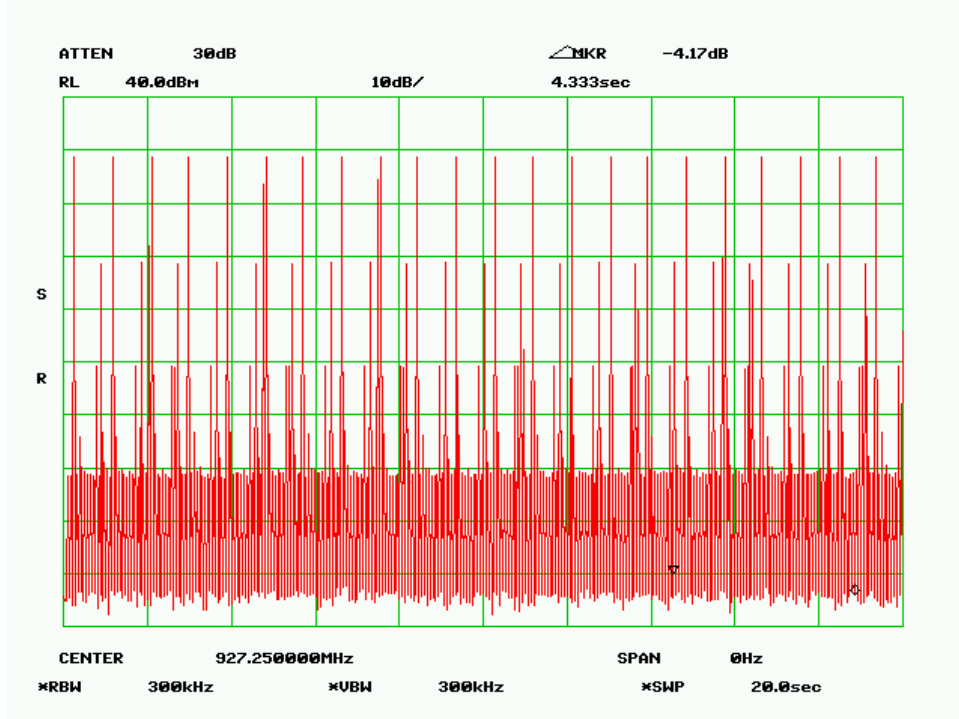
A

### Mid Channel



A

### High Channel



## 5.7 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	23°C - 25°C
Relative Humidity	50%
Atmospheric Pressure	1019mbar
4. Test Date : January 01 to January 07, 2009  
Tested By :Choon Sian Ooi

**Standard Requirement :** 47 CFR §15.247(b)

**Procedures:** The peak output power was measured conducted using a spectrum analyzer at low, mid, and hi channels. Peak detector was set to measure the power output. The power is converted from watt to dBm, therefore, 1 watt = 30 dBm. The highest antenna gain that will be used is -20dBi.

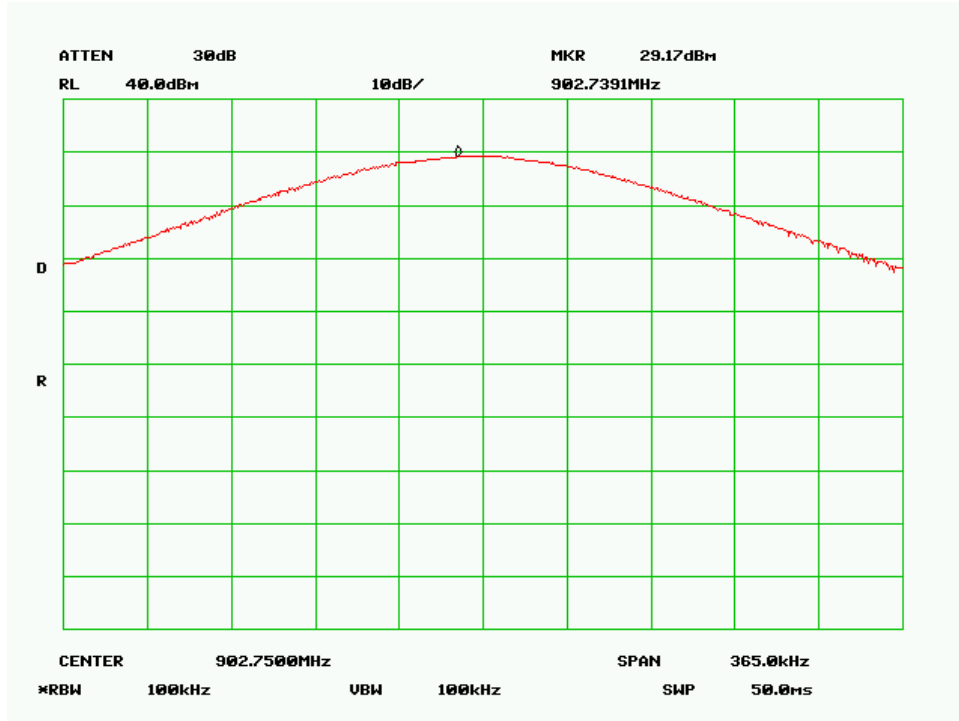
**Note:** For frequency hopping systems operating in the 902–928 MHz band: 1 watt for systems employing at least 50 hopping channels; and, 0.25 watts for systems employing less than 50 hopping channels, but at least 25 hopping channels, as permitted under paragraph (a)(1)(i) of this section.

**Test Result :**

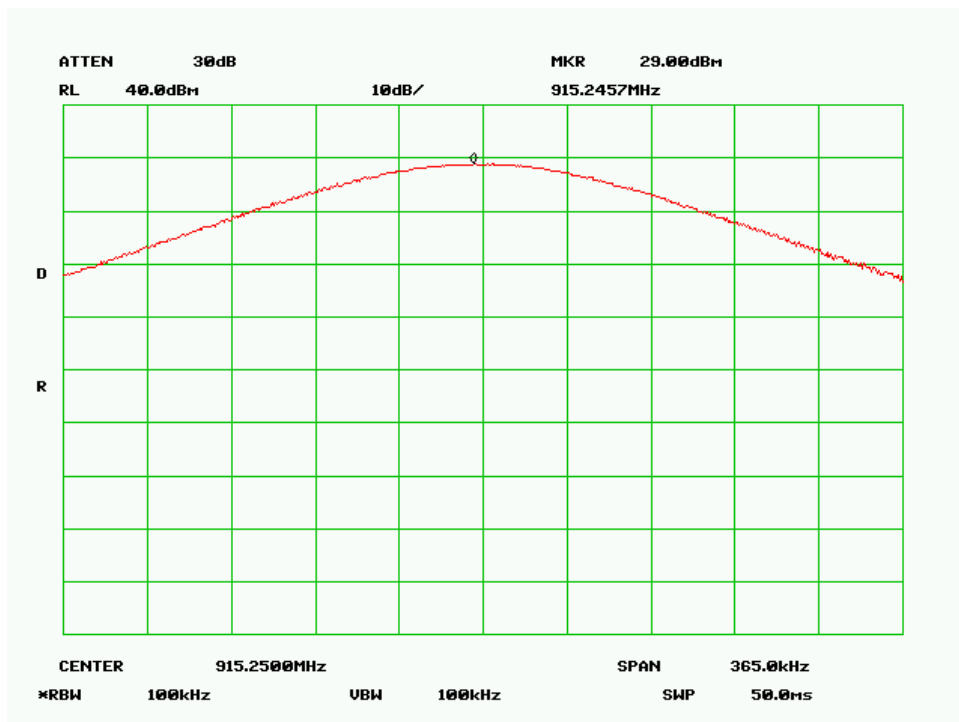
Channel	Channel Frequency (MHz)	Measured Output Power (dBm)	Peak Output Power Limit (dBm)
Low	902.750	29.50	30
Mid	915.250	29.50	30
High	927.250	29.67	30

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### Output Power Low Channel

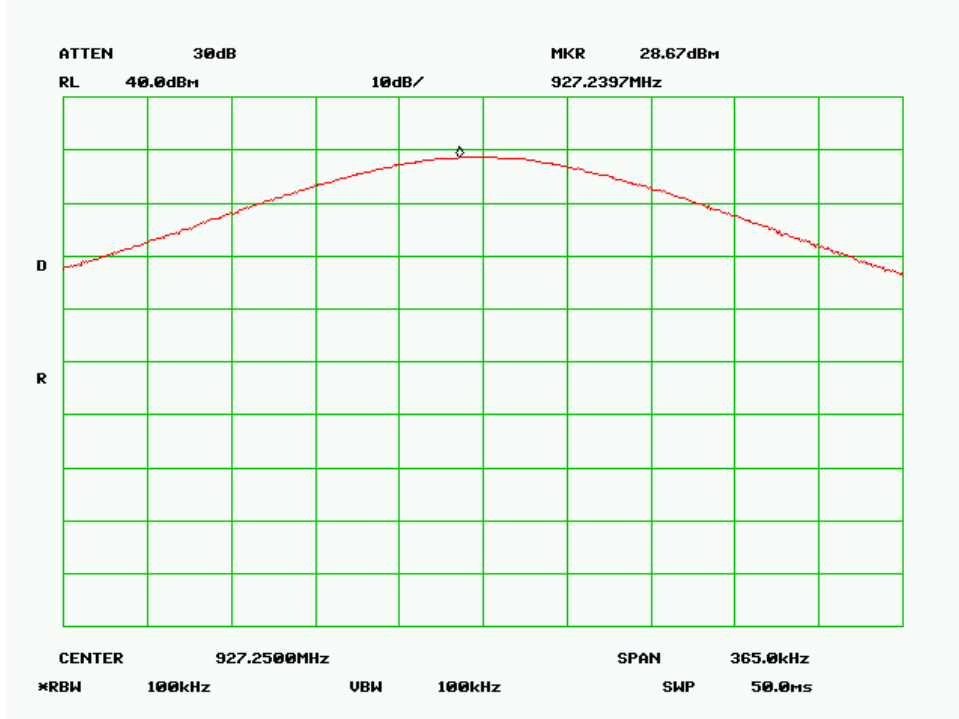


### Output Power Mid Channel



A

### Output Power High Channel



## 5.8 100 kHz Bandwidth of Frequency Band Edge

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 – 20GHz is  $\pm 1.5$ dB.
3. Environmental Conditions

Temperature	23°C - 25°C
Relative Humidity	50%
Atmospheric Pressure	1019mbar
4. Test Date : January 01 to January 07, 2009  
Tested By :Choon Sian Ooi

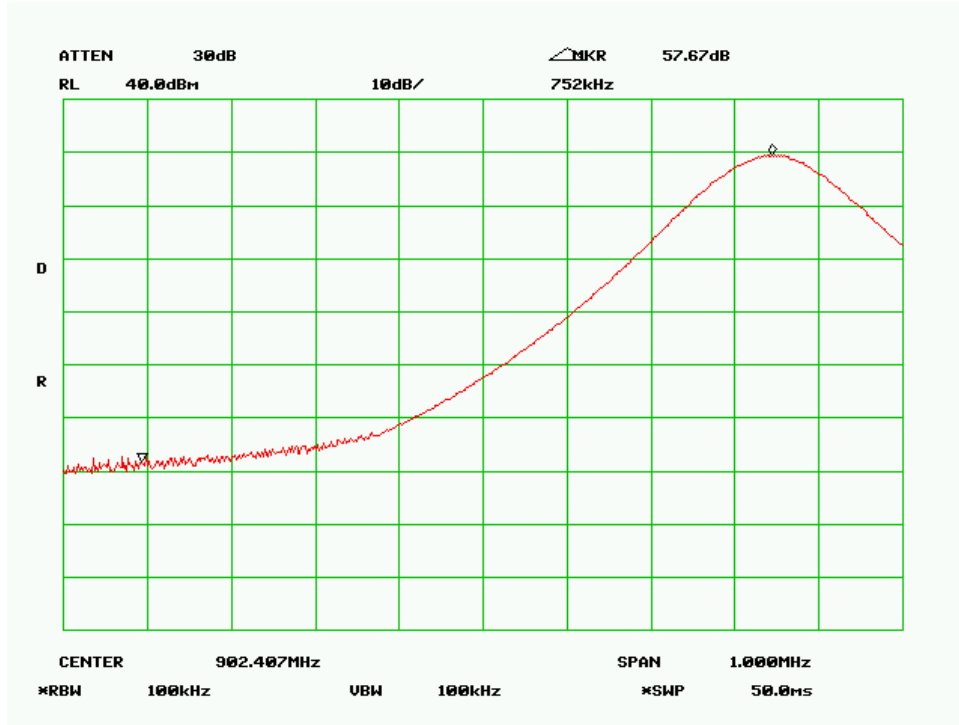
**Standard Requirement :** 47 CFR §15.247(b)

**Procedures:** in any 100 kHz bandwidth outside the frequency band 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. Attenuation below the general limits specified in §15.209(a) is not required.

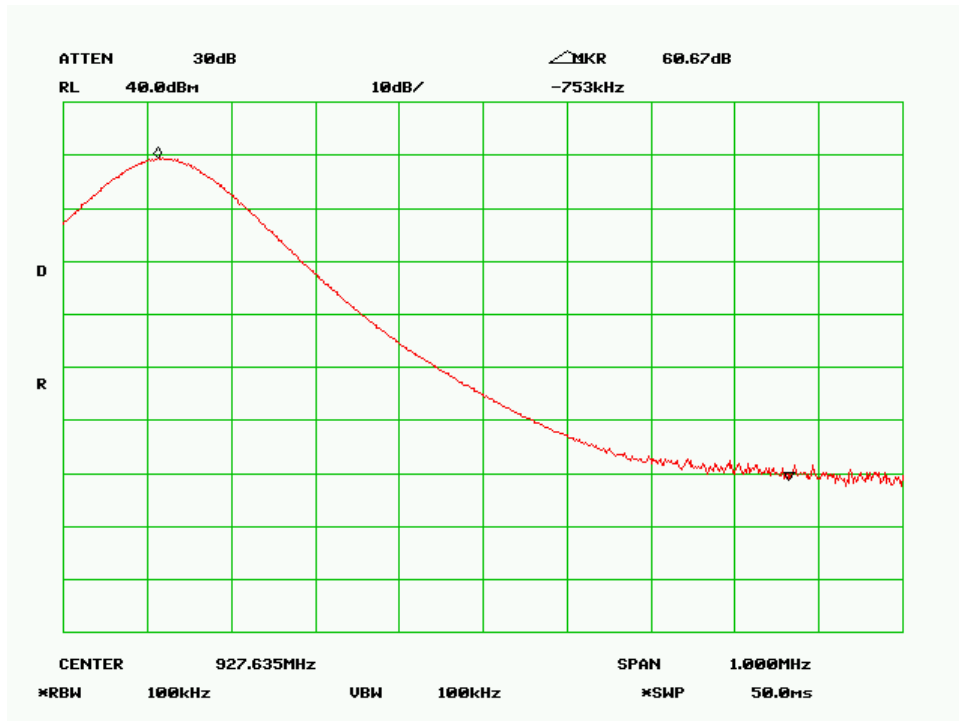
**Test Result:**

A

### Low Channel



### High Channel



## 5.9 Antenna Port Emission

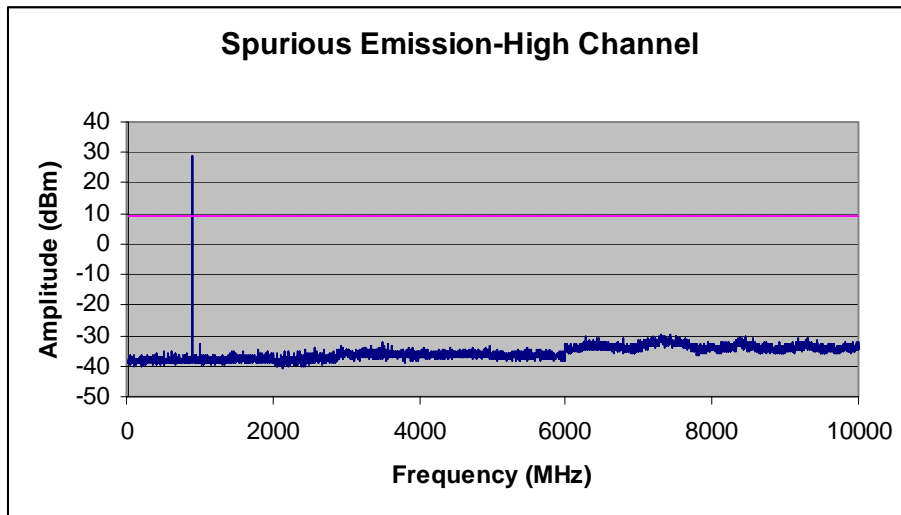
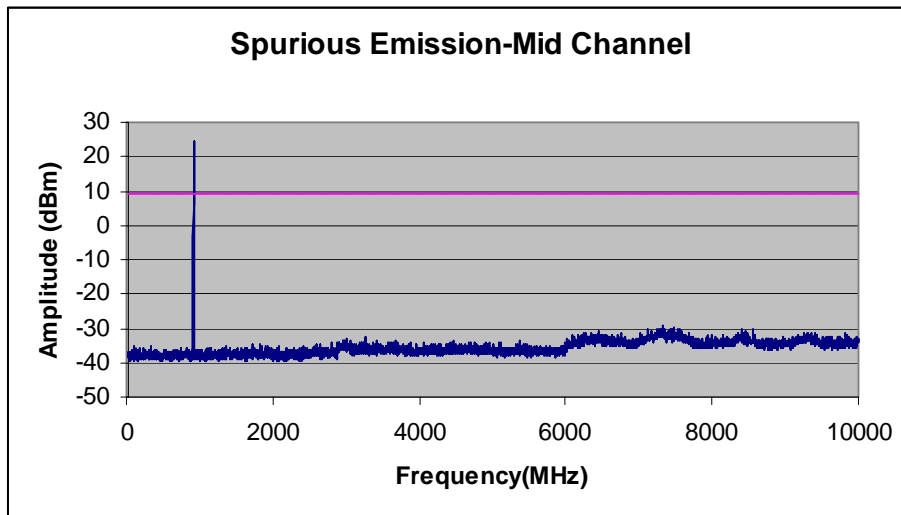
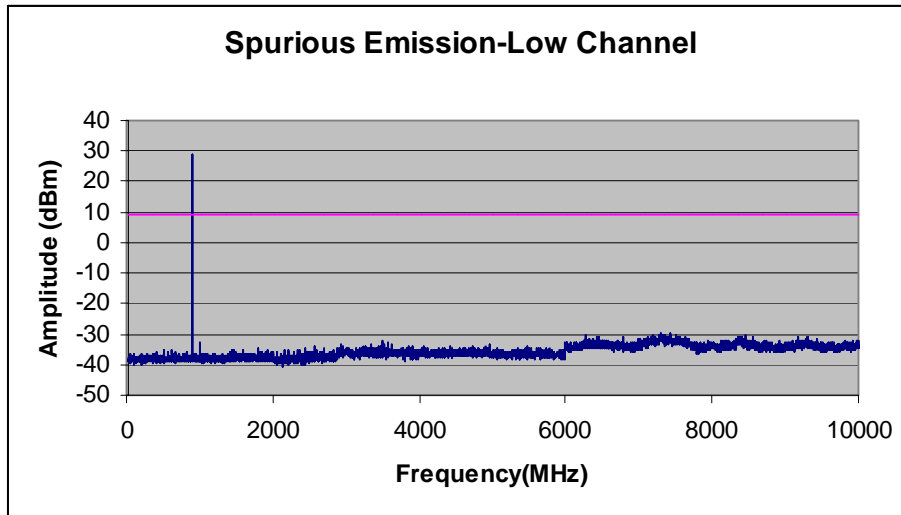
1. Conducted Measurement  
EUT was set for low , mid, high channel with modulated mode and highest RF output power.  
The spectrum analyzer was connected to the antenna terminal.
2. Conducted Emissions Measurement Uncertainty  
All test measurements carried out are traceable to national standards. The 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 – 20GHz is  $\pm 1.5$ dB.
3. Environmental Conditions  
Temperature 23°C - 25°C  
Relative Humidity 50%  
Atmospheric Pressure 1019mbar
4. Test Date : January 01 to January 07, 2009  
Tested By :Choon Sian Ooi

**Standard Requirement :** 47 CFR §15.247(c)

**Procedures:** The conducted spurious emissions were measured conducted using a spectrum analyzer at low, mid, and hi channels. The limit was determined by attenuating 20 dB of the RF peak power output

**Test Result:**





## 5.10 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	23°C - 25°C
Relative Humidity	50%
Atmospheric Pressure	1019mbar

Test Date : January 01 to January 07, 2009  
Tested By :Choon Sian Ooi

**Standard Requirement :** 47 CFR §15.247(c)

**Procedures:** Radiated emissions were measured according to ANSI C63.4. The EUT was set to transmit at the highest output power. The EUT was set to transmit at mid channel. Note that setting the channel other than mid, the spurious emissions are the same.

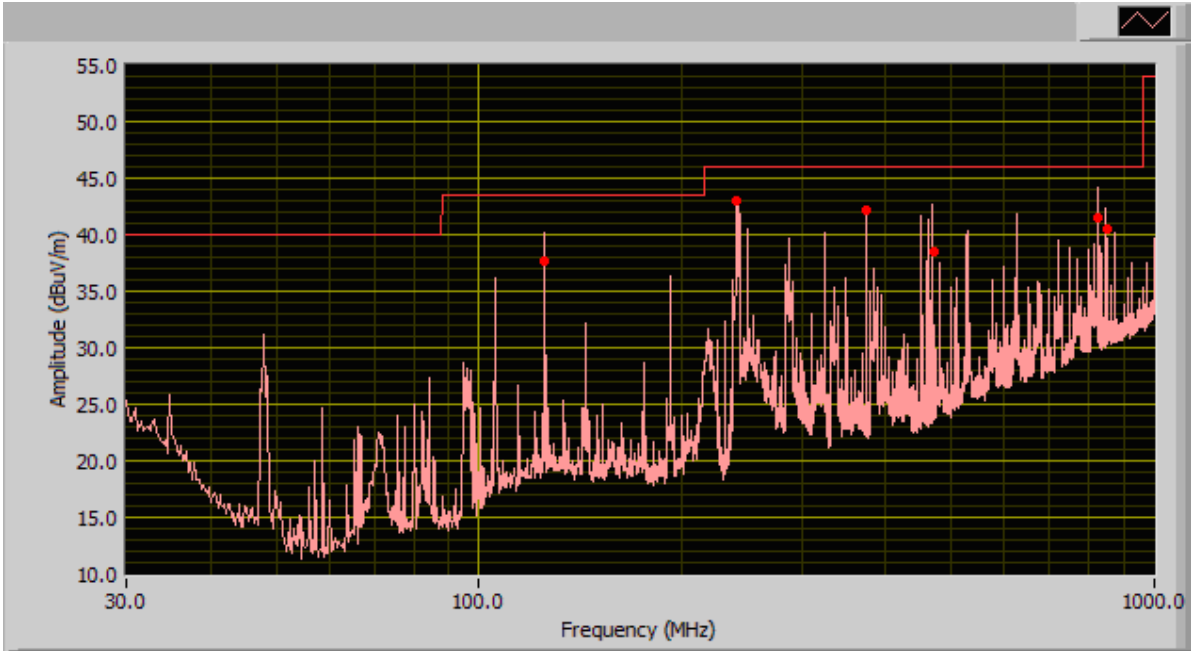
The limit is converted from microvolts/meter to decibel microvolts/meter.

Sample Calculation: Corrected Amplitude = Raw Amplitude (dBµV/m) + ACF(dB) + Cable Loss(dB)

**Test Result:**

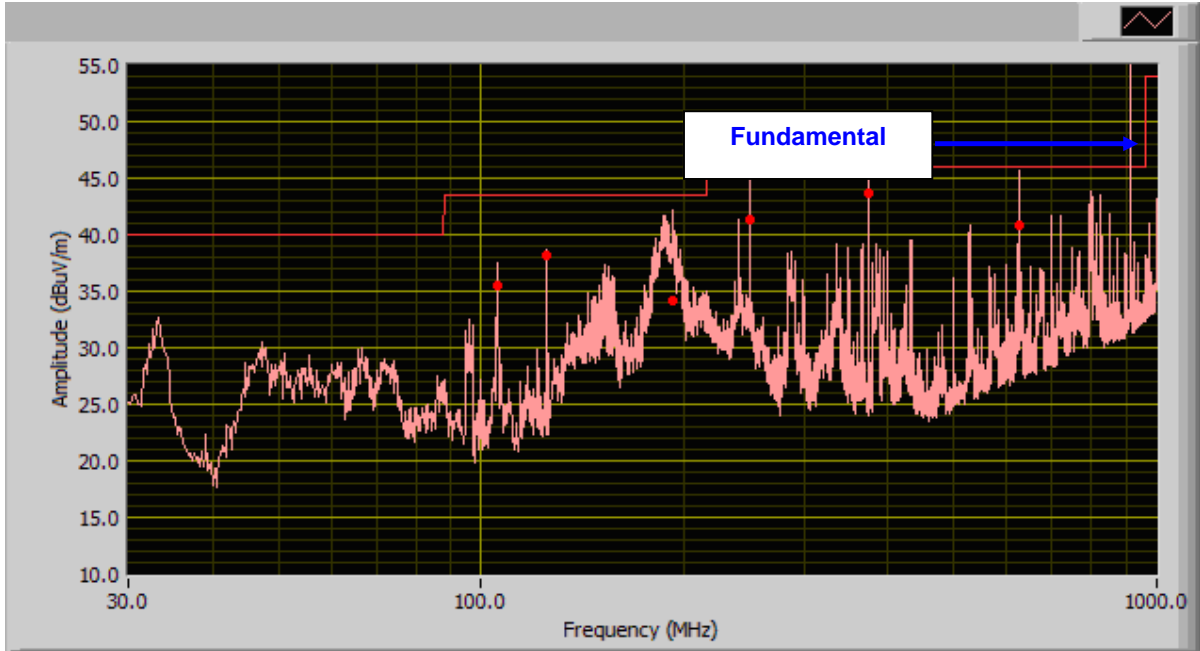
## Radiated Emission Plot (Receive mode)

### Test Data



Frequency (MHz)	Quasi-Peak (dBμV/m)	Antenna height (cm)	Polarity	Turntable position (deg)	Limit (dBμV/m)	Margin (dB)
824.76	41.50	144.00	V	184.00	46.00	-4.50
240.03	43.08	127.00	H	215.00	46.00	-2.92
467.25	38.60	208.00	H	318.00	46.00	-7.40
124.95	37.71	227.00	H	3.00	43.50	-5.79
846.07	40.40	398.00	H	154.00	46.00	-5.60
375.03	42.20	137.00	V	186.00	46.00	-3.80

**Radiated Emission Plot (Transmit mode)**



**Test Data**

Frequency (MHz)	Quasi-Peak (dB $\mu$ V/m)	Antenna height (cm)	Polarity	Turntable position (deg)	Limit (dB $\mu$ V/m)	Margin (dB)
125.00	38.19	146.00	V	166.00	46.00	-5.31
105.72	35.53	109.00	V	335.00	43.50	-7.97
250.01	41.39	136.00	H	296.00	46.00	-4.61
375.01	43.76	130.00	V	256.00	46.00	-2.24
623.97	41.03	102.00	H	263.00	46.00	-4.97
191.97	34.12	149.00	V	175.00	46.00	-9.38

## 5.12 Radiated Spurious Emissions > 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 1GHz – 20GH is +5.6dB/-4.5dB (for EUTs < 0.5m X 0.5m X 0.5m).
4. Environmental Conditions

Temperature	23°C - 25°C
Relative Humidity	50%
Atmospheric Pressure	1019mbar

Test Date : January 01 to January 07, 2009  
Tested By :Choon Sian Ooi

**Standard Requirement :** 47 CFR §15.247(d)

**Procedures:** Equipment was setup in a semi-anechoic chamber. For measurements above 1 GHz an average measurement was taken with a 10Hz video bandwidth. The EUT was tested at low, mid and high with the highest output power. Investigated up to 10<sup>th</sup> harmonics of the operating frequency.

Sample Calculation:

EUT Field Strength = Raw Amplitude(dBμV/m) – Amplifier Gain(dB) + Antenna Factor(dB) + Cable Loss(dB) + Filter Attenuation(dB, if used)

**NOTE:** *All the test was done when the both radio was turn on to simulate the worst case.*

**Test Result:**

## Host EUT RASOR 600

### @ 902.750MHz @ 3 Meter

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Corrected Reading	Limit	Margin	
1.831	61.5	200	1	v	26.4	2.16	31.98	58.08	74	-15.92	Peak
1.831	55.39	187	1.2	h	26.4	2.16	31.98	51.97	74	-22.03	Peak
1.831	52.53	200	1	v	26.4	2.16	31.98	49.11	54	-4.89	Ave
1.831	43.66	187	1.2	h	26.4	2.16	31.98	40.24	54	-13.76	Ave
2.745	46.25	271	1	v	29.8	2.72	32.08	46.69	74	-27.31	Peak
2.745	50.25	159	1	h	29.8	2.72	32.08	50.69	74	-23.31	Peak
2.745	34.49	271	1.3	v	29.8	2.72	32.08	34.93	54	-19.07	Ave
2.745	40.05	159	1.4	h	29.8	2.72	32.08	40.49	54	-13.51	Ave
3.661	44.82	190	1.1	v	32.5	3.435	32.37	48.385	74	-25.615	Peak
3.661	46.58	271	1.7	h	32.5	3.435	32.37	50.145	74	-23.855	Peak
3.661	34.53	190	1.1	v	32.5	3.435	32.37	38.095	54	-15.905	Ave
3.661	36.94	271	1.7	h	32.5	3.435	32.37	40.505	54	-13.495	Ave

Emission was scanned up to 10GHz.

### @ 915.250MHz @ 3Meter

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Corrected Reading	Limit	Margin	
1.83	44.01	180	155	v	26.4	2.16	31.98	40.59	74	-33.41	Peak
1.83	41.67	180	155	h	26.4	2.16	31.98	38.25	74	-35.75	Peak
1.83	31.93	180	155	v	26.4	2.16	31.98	28.51	54	-25.49	Ave
1.83	30.56	180	155	h	26.4	2.16	31.98	27.14	54	-26.86	Ave
2.74	40.23	180	155	v	29.8	2.72	32.08	40.67	74	-33.33	Peak
2.74	40.14	180	155	h	29.8	2.72	32.08	40.58	74	-33.42	Peak
2.74	29.56	180	155	v	29.8	2.72	32.08	30	54	-24	Ave
2.74	29.45	180	155	h	29.8	2.72	32.08	29.89	54	-24.11	Ave
3.66	40.67	180	155	v	32.5	3.435	32.37	44.235	74	-29.765	Peak
3.66	40.23	180	155	h	32.5	3.435	32.37	43.795	74	-30.205	Peak
3.66	29.61	180	155	v	32.5	3.435	32.37	33.175	54	-20.825	Ave
3.66	29.12	180	155	h	32.5	3.435	32.37	32.685	54	-21.315	Ave

Emission was scanned up to 10GHz.

**@ 927.250MHz @ 3Meter**

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Corrected Reading	Limit	Margin	
1.855	58.32	24	1	v	26.4	2.16	31.98	54.9	74	-19.1	Peak
1.855	54.83	102	1	h	26.4	2.16	31.98	51.41	74	-22.59	Peak
1.855	48.69	24	1	v	26.4	2.16	31.98	45.27	54	-8.73	Ave
1.855	44.79	180	1.3	h	26.4	2.16	31.98	41.37	54	-12.63	Ave
2.782	60.61	115	1.1	v	29.8	2.72	32.08	61.05	74	-12.95	Peak
2.782	50.43	235	1.7	h	29.8	2.72	32.08	50.87	74	-23.13	Peak
2.782	49.39	115	1.1	v	29.8	2.72	32.08	49.83	54	-4.17	Ave
2.782	39.73	235	1.7	h	29.8	2.72	32.08	40.17	54	-13.83	Ave
3.709	44.83	190	1.1	v	32.5	3.435	32.37	48.395	74	-25.605	Peak
3.709	45.27	271	1.7	h	32.5	3.435	32.37	48.835	74	-25.165	Peak
3.709	31.83	190	1.1	v	32.5	3.435	32.37	35.395	54	-18.605	Ave
3.709	35.61	271	1.7	h	32.5	3.435	32.37	39.175	54	-14.825	Ave

Emission was scanned up to 10GHz.

## Annex A. TEST INSTRUMENT & METHOD

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

Instrument	Model	Serial #	Calibration Due
<b>AC Conducted Emissions</b>			
R&S EMI Test Receiver	ESIB40	100179	04/25/2009
R&S LISN	ESH2-Z5	861741/013	04/24/2009
CHASE LISN	MN2050B	1018	04/24/2009
<b>Radiated Emissions</b>			
R&S EMI Test Receiver	ESIB40	100179	04/25/2009
Com Power Corp Horn Antenna (18GHz to 40GHz)	AH-840	101013	03/19/2010
EMCO Horn Antenna (1-18GHz)	3115	10SL0059	01/04/2009
Sunol Sciences, Inc. antenna (30MHz~2GHz)	JB1	A030702	10/04/2009
Wiltron Signal Generator (10MHz to 40GHz)	68169B	973407	04/25/2009
Com Power Preamplifier (18GHz to 40GHz)	PA-840	181250	05/21/2009
HP Preamplifier (1-18GHz)	8449B	3008A00715	04/24/2009
HP Preamplifier (0.1-1300MHz)	8447F	1937A01160	04/24/2009
Millitech, External Mixer	MHB-06-RD3A0	9259	N/A
MILITECH, External Mixer (Above 40GHz)	MHB-06-RD3A0	9259	N/A
MILITGECH, Horn Antenna (above 40GHz)	WT-KaD	WT28-6	N/A

Note: No calibration required.



## 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 50Ω/50μH 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 μV = 47.96 dBμV
Transducer factor of LISN, pulse limiter & cable loss at 20 MHz = 11.20 dB	
Q-P reading obtained directly from EMI Receiver = 40.00 dBμV (Calibrated for system losses)	
Therefore, Q-P margin = 47.96 – 40.00 = 7.96	i.e. <b>7.96 dB below limit</b>

## Annex A. iii RADIATED EMISSIONS TEST DESCRIPTION

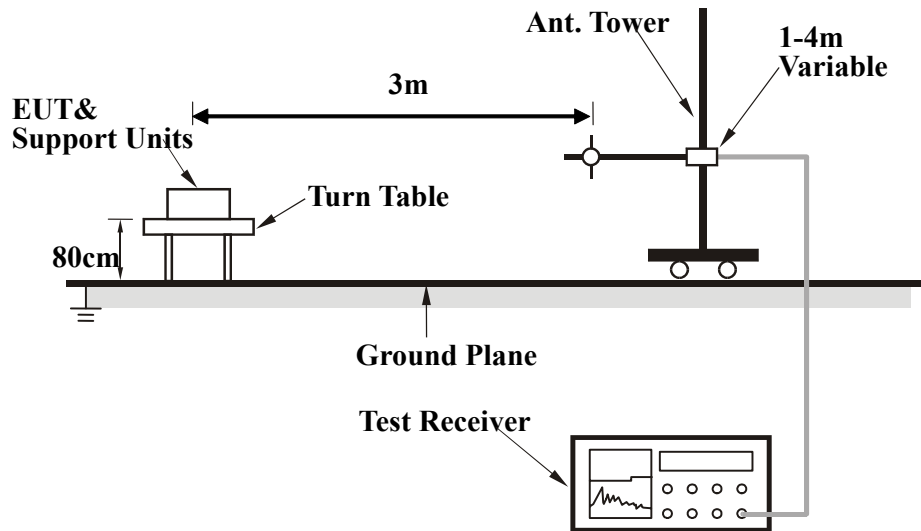
### EUT Characterisation

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.



**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

$$\text{Corr. Factor} = \text{Antenna Factor} + \text{Cable Factor} - \text{Amplifier Gain (if any)}$$

And the average value is

$$\text{Average} = \text{Peak Value} + \text{Duty Factor or}$$

$$\text{Set RBW} = 1\text{MHz, VBW} = 10\text{Hz.}$$

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.

**Annex B EUT AND TEST SETUP PHOTOGRAPHS**

**Please see the attachment**

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

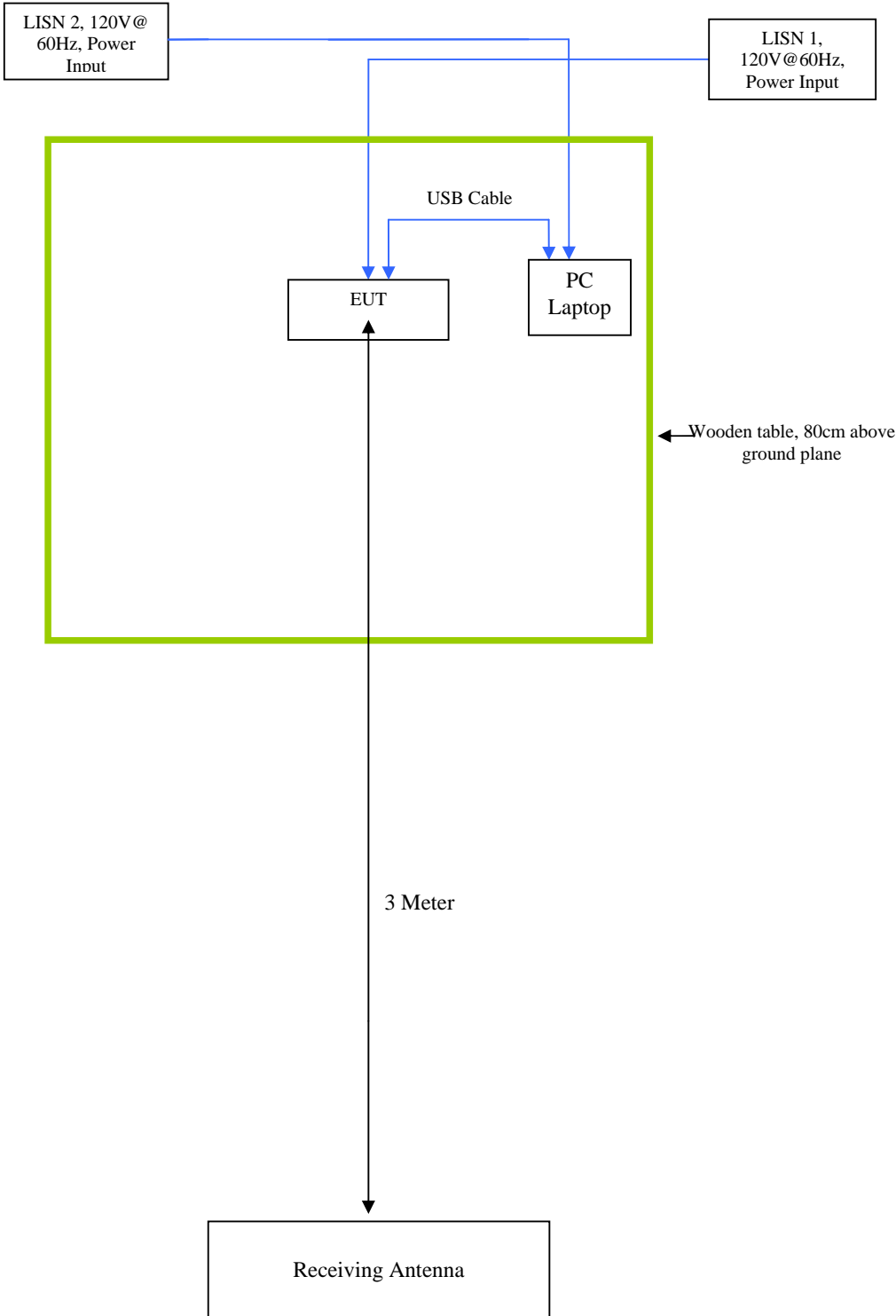
**EUT TEST CONDITIONS**

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

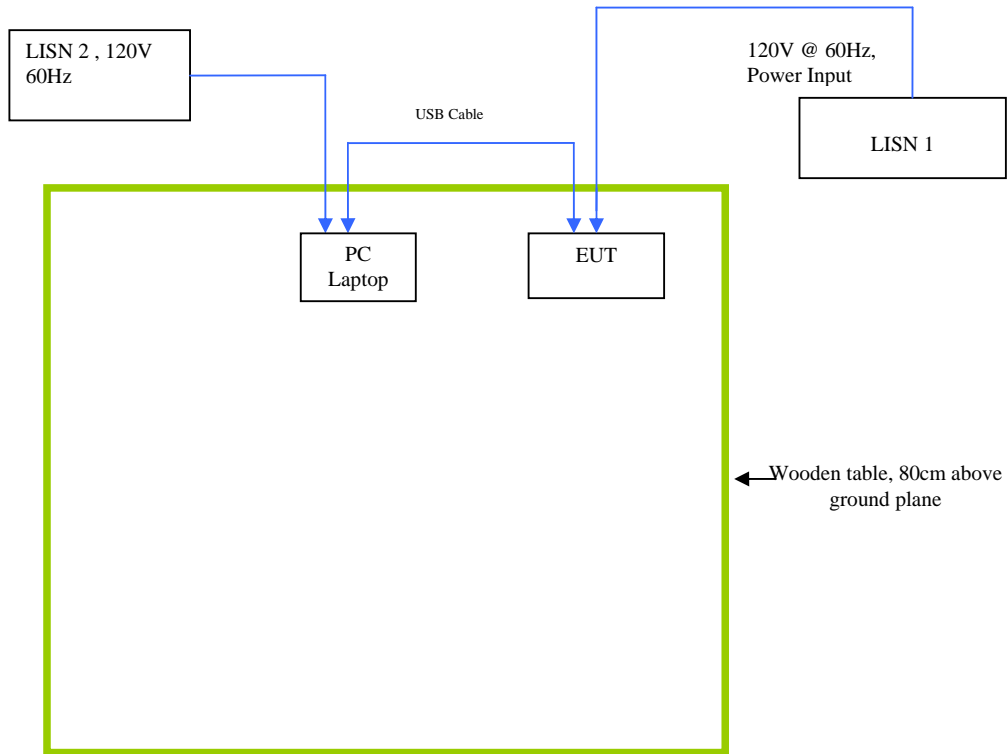
The following is a description of supporting equipment and details of cables used with the EUT.

Equipment Description (Including Brand Name)	Model & Serial Number	Cable Description (List Length, Type & Purpose)
PC Laptop / DELL	Latitude DS520	Serial Cable , 1meter From PC Laptop to EUT

### Block Configuration Diagram for Radiated Emission



### Block Configuration Diagram for Conducted Emission




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

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

Test	Description Of Operation
<b>Emissions Testing</b>	The EUT was controlled via PC Laptop using Agency Testing Program provided by applicant.
<b>Others Testing</b>	The EUT was controlled via PC Laptop using Agency Testing Program provided by applicant.

A



**SIEMIC, Inc.**  
Accessing global markets

Title:	RF Test Report of Zebra Technologies Corp. Model P640I & P630I	Serial#	SL08012102-ZBR-007 (15.247) (M5e)
To	FCC 15.247 2007, IC RSS210 Issue 7: 2007	Issue Date	15 December 2009
		Page	48 of 65 <a href="http://www.sieminc.com">www.sieminc.com</a>

## Annex D USER MANUAL, BLOCK & CIRCUIT DIAGRAM

**Please see attachment**



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**Annex E. SIEMIC ACCREDITATION CERTIFICATES**

**SIEMIC ACREDITATION DETAILS: A2LA Certificate Number: 2742.01**

	 <b>THE AMERICAN ASSOCIATION FOR LABORATORY ACCREDITATION</b>
<b>ACCREDITED LABORATORY</b>	
A2LA has accredited <b>SIEMIC LABORATORIES</b> <b>San Jose, CA</b> for technical competence in the field of <b>Electrical Testing</b>	
<small>This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 <i>General Requirements for the Competence of Testing and Calibration Laboratories</i>. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated 18 June 2005).</small>	
	Presented this 11th day of July 2008.  President For the Accreditation Council Certificate Number 2742.01 Valid to September 30, 2010
<small>For the tests or types of tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.</small>	

	<b>THE AMERICAN ASSOCIATION FOR LABORATORY ACCREDITATION</b>
<b>ACCREDITED PRODUCT CERTIFICATION BODY</b>	
A2LA has accredited <b>SIEMIC INC.</b> <b>San Jose, CA</b> for technical competence as a <b>Product Certification Body</b>	
<small>This product certification body is accredited in accordance with the recognized International Standard ISO/IEC Guide 65:1996 <i>General requirements for bodies operating product certification systems</i>. 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) and IC (Canada) requirements.</small>	
	Presented this 9th day of January 2009.  President For the Accreditation Council Certificate Number: 2742.02 Valid to: September 30, 2010
<small>For the product certification schemes to which this accreditation applies, please refer to the certification body's Scope of Accreditation.</small>	



SCOPE OF ACCREDITATION TO ISO/IEC GUIDE 65:1996

SIEMIC INC.  
2206 Ringwood Ave.  
San Jose, CA 95131  
Mr. Snell Leong (Authorized Representative) Phone: 408 526 1188  
[www.siemic.com](http://www.siemic.com)

PRODUCT CERTIFICATION CONFORMITY ASSESSMENT BODY (CAB)

Valid to: September 30, 2010

Certificate Number: 2742.02

In recognition of the successful completion of the A2LA Certification Body Accreditation Program evaluation, including the US Federal Communications Commission (FCC), Industry Canada (IC) and Singapore (IDA) requirements for the indicated types of product certifications, accreditation is granted to this organization to perform the following product certification schemes:

Economy

Scope

**Federal Communication Commission - (FCC)**

Unlicensed Radio Frequency Devices	A1, A2, A3, A4
Licensed Radio Frequency Devices	B1, B2, B3, B4
Telephone Terminal Equipment	C

*\*Please refer to FCC TCB Program Roles and Responsibilities, v04, released February 14, 2008 detailing scopes, roles and responsibilities. <http://www.fcc.gov/oet/ea/FCC-Overview-TCB-Program.pdf>*

**Industry Canada - (IC)**

Radio All Radio Standards Specifications (RSS) in Category I Equipment Standards List Radio

*\*Please refer to Industry Canada (IC) website at: [http://www.ic.gc.ca/epic/site/smt-gst.nsf/en/tl\\_sf01342e.html](http://www.ic.gc.ca/epic/site/smt-gst.nsf/en/tl_sf01342e.html)*

**IDA – Singapore**

Line Terminal Equipment All Technical Specifications for Line Terminal Equipment – Table 1 of IDA MRA Recognition Scheme: 2008, Annex 2

Radio-Communication Equipment All Technical Specifications for Radio-Communication Equipment – Table 2 of IDA MRA Recognition Scheme: 2008, Annex 2

*\*Please refer to Info-Communication Development Authority (IDA) Singapore website at: [http://www.ida.gov.sg/doc/Policies%20and%20Regulation/Policies\\_and\\_Regulation\\_Level2/20060609145118/MRA\\_RecScheme.pdf](http://www.ida.gov.sg/doc/Policies%20and%20Regulation/Policies_and_Regulation_Level2/20060609145118/MRA_RecScheme.pdf)*

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**SIEMIC, Inc.**

Accessing global markets

Title: RF Test Report of Zebra Technologies Corp.  
Model P640I & P630I  
To: FCC 15.247 2007, IC RSS210 Issue 7: 2007

Serial# SL08012102-ZBR-007 (15.247) (M5e)  
Issue Date 15 December 2009  
Page 51 of 65  
www.siemic.com

**SIEMIC ACREDITATION DETAILS: FCC Test Site Registration No. 783147**

**FEDERAL COMMUNICATIONS COMMISSION**

**Laboratory Division  
7435 Oakland Mills Road  
Columbia, MD 21046**

December 20, 2007

Registration Number: 783147

SIEMIC Laboratories  
2206 Ringwood Avenue,  
San Jose, CA 95131

Attention: Leslie Bai

Re: Measurement facility located at San Jose  
3 & 10 meter site  
Date of Renewal: December 20, 2007

Dear Sir or Madam:

Your request for renewal of the registration of the subject measurement facility has been received. The information submitted has been placed in your file and the registration has been renewed. The name of your organization will remain on 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,

Phyllis Parrish  
Industry Analyst

A

**SIEMIC ACREDITATION DETAILS: Industry of Canada CAB ID : US0160**



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

March 4, 2009

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 Industry Canada (IC), 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 USA  
Identification No.: US0160  
Recognized Scope: CS-03 Part I, II, V, VI, VII and VIII

You may submit test data to IC to verify that the equipment to be imported into Canada 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>. Please contact Ms. Ramona Saar at (301) 975-5521 or [ramona.saar@nist.gov](mailto:ramona.saar@nist.gov) if you have any questions.


Sincerely,

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

Enclosure

cc: CAB Program Manager

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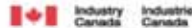


**SIEMIC, Inc.**  
Accessing global markets

Title: RF Test Report of Zebra Technologies Corp.  
Model P640I & P630I  
To: FCC 15.247 2007, IC RSS210 Issue 7: 2007

Serial# SL08012102-ZBR-007 (15.247) (M5e)  
Issue Date 15 December 2009  
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www.siemic.com

## SIEMIC ACREDITATION DETAILS: Industry of Canada Test Site Registration No. 4842-1



May 23rd, 2008

OUR FILE: 46405-4842  
Submission No: 126429

Siemic Inc.  
2206 Ringwood Ave.  
San Jose CA 95131  
USA

**Attention:** Leslie Bai

Dear Sir/Madame:

The Bureau has received your application for the registration / renewal of a 3/10m OATS. 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 (**4842A-1**). Please reference the appropriate site number in the body of test reports containing measurements performed on the site. In addition, please be informed that the Bureau is now utilizing a **new site numbering scheme** in order to simplify the electronic filing process. Our goal is to reduce the number of secondary codes associated to one particular company. The following changes have been made to your record.

- Your primary code is: **4842**
- The company number associated to the site(s) located at the above address is: **4842A**
- The table below is a summary of the changes made to the unique site registration number(s):

New Site Number	Obsolete Site Number	Description of Site	Expiry Date (YYYY-MM-DD)
4842A-1	4842-1	3m Chamber	2010-05-23

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\\_000052e.html](http://strategis.ic.gc.ca/epic/internet/inceb-bhst.nsf/en/h_000052e.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,



S. Proisy  
Test & Measurement Specialist  
Certification and Engineering Bureau  
3701 Carling Ave., Building 94  
Ottawa, Ontario K2H 8S2

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**SIEMIC ACREDITATION DETAILS: FCC DOC CAB Recognition : US1109**

**FEDERAL COMMUNICATIONS COMMISSION**

**Laboratory Division  
7435 Oakland Mills Road  
Columbia, MD 21046**

August 28, 2008

Siemic Laboratories  
2206 Ringwood Ave.,  
San Jose, CA 95131

Attention: Leslie Bai

Re: Accreditation of Siemic Laboratories  
Designation Number: US1109  
Test Firm Registration #: 540430

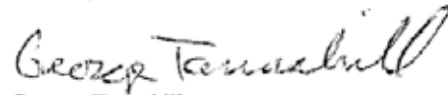
Dear Sir or Madam:

We have been notified by American Association for Laboratory Accreditation that Siemic Laboratories has been accredited as a Conformity Assessment Body (CAB).

At this time Siemic Laboratories is hereby designated to perform compliance testing on equipment subject to Declaration Of Conformity (DOC) and Certification under Parts 15 and 18 of the Commission's Rules.

This designation will expire upon expiration of the accreditation or notification of withdrawal of designation.

Sincerely,



George Tannahill  
Electronics Engineer

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**SIEMIC, Inc.**

Accessing global markets

Title: RF Test Report of Zebra Technologies Corp.  
Model P640I & P630I  
To: FCC 15.247 2007, IC RSS210 Issue 7: 2007

Serial# SL08012102-ZBR-007 (15.247) (M5e)  
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www.siemic.com

**SIEMIC ACREDITATION DETAILS: Australia CAB ID : US0160**

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

November 20, 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 Australian Communications and Media Authority (ACMA) 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: EMC: AS/NZS 4251.1 (until 5/31/2009), AS/NZS 4251.2 (until 5/31/2009), AS/NZS CISPR 11, AS/NZS CISPR 14.1, AS/NZS CISPR 22, AS/NZS 61000.6.3, AS/NZS 61000.6.4  
Radiocommunications: AS/NZS 4281, AS/NZS 4268, AS/NZS 4280.1, AS/NZS 4280.2, AS/NZS 4295, AS/NZS 4582, AS/NZS 4583, AS/NZS 4769.1, AS/NZS 4769.2, AS/NZS 4770, AS/NZS 4771  
Telecommunications: AS/ACIF S002:05, AS/ACIF S003:06, AS/ACIF S004:06, AS/ACIF S006:01, AS/ACIF S016:01, AS/ACIF S031:01, AS/ACIF S038:01, AS/ACIF S040:01, AS/ACIF S041:05, AS/ACIF S043.2:06, AS/NZS 60950.1

You may submit test data to ACMA to verify that the equipment to be imported into Australia 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>. Please contact Ms. Ramona Saar, at (301) 975-5521 or [ramona.saar@nist.gov](mailto:ramona.saar@nist.gov) if you have questions.



Sincerely,

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

Enclosure

cc: Snell Leong, Siemic, Inc.; Ramona Saar, NIST

**SIEMIC ACREDITATION DETAILS: Korea CAB ID: US0160**

 <p>October 1, 2008</p> <p>Mr. Leslie Bai          SIEMIC, Inc.          2206 Ringwood Avenue          San Jose, CA 95131</p> <p>Dear Mr. Bai:</p> <p>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, <b>Phase I</b> Procedures, of the APEC Tel MRA. The pertinent information about your laboratory's designation is as follows:</p> <p>CAB Name: SIEMIC, Inc.          Physical Location: 2206 Ringwood Avenue, San Jose, CA 95131          Identification No.: US0160          Recognized Scope: <b>EMI:</b> KCC Notice 2008-39, RRL Notice 2008-3: CA Procedures for EMI KN22: Test Method for EMI  <b>EMS:</b> 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  <b>Wireless:</b> 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  <b>Wired:</b> 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</p> <p>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.</p> <p>Recognized CABs are listed on the NIST website at <a href="http://ts.nist.gov/mra">http://ts.nist.gov/mra</a>. If you have any questions please contact Ramona Saar at (301) 975-5521 or <a href="mailto:ramona.saar@nist.gov">ramona.saar@nist.gov</a>.</p> <p>Sincerely,            David F. Alderman          Group Leader, Standards Coordination and Conformity Group          Standards Services Division</p> <p>Enclosure</p> <p>cc: Ramona Saar</p>	<p><b>UNITED STATES DEPARTMENT OF COMMERCE</b>  <b>National Institute of Standards and Technology</b>          Gaithersburg, Maryland 20899</p>
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**SIEMIC, Inc.**  
Accessing global markets

Title: RF Test Report of Zebra Technologies Corp.  
Model P640I & P630I  
To: FCC 15.247 2007, IC RSS210 Issue 7: 2007

Serial# SL08012102-ZBR-007 (15.247) (M5e)  
Issue Date 15 December 2009  
Page 57 of 65  
www.sieminc.com

**SIEMIC ACREDITATION DETAILS: Taiwan BSMI 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: Joginder Dhillon

**NIST**

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**SIEMIC ACREDITATION DETAILS: Taiwan NCC CAB ID: US0160**



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

November 25, 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 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  
Additional Scope: PSTN01, ADSL01, ID0002, IS6100 and CNS 14336

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**

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**SIEMIC ACREDITATION DETAILS: Mexico NOM Recognition**



**Laboratorio Valentín V. Rivero**

México D.F. a 18 de octubre de 2008.

**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 encontrara el Acuerdo en idioma ingles y español prellenado de los cuales le pido sea revisado y en su caso corregido, para que si esta de acuerdo poder firmarlo para mandarlo con las autoridades Mexicanas para su vista bueno y así poder ejercer dicho acuerdo.

Aprovecho este escrito para mencionarle que nuestro intermediario gestor será la empresa Isatel 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 gestoría de la certificación de cumplimiento con Normas Oficiales Mexicanas de producto en México.

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

Atentamente:



**Ing. Faustino Gomez González**  
 Gerente Técnico del Laboratorio de  
 CANIETI

Culacán 71  
 Politécnico Cuicuilá  
 04100 México, D.F.  
 Tel: 5255 0000-600 12 líneas  
 Fax: 5254 8487  
 www.canietit.org

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**SIEMIC, Inc.**  
Accessing global markets

Title: RF Test Report of Zebra Technologies Corp.  
Model P640I & P630I  
To: FCC 15.247 2007, IC RSS210 Issue 7: 2007

Serial# SL08012102-ZBR-007 (15.247) (M5e)  
Issue Date 15 December 2009  
Page 60 of 65  
www.siemic.com

**SIEMIC ACREDITATION DETAILS: Hong Kong OFTA CAB ID : 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

**NIST**

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		Serial# SL08012102-ZBR-007 (15.247) (M5e)
Title: RF Test Report of Zebra Technologies Corp. Model P640I & P630I		Issue Date 15 December 2009
To: FCC 15.247 2007, IC RSS210 Issue 7: 2007		Page 61 of 65 <a href="http://www.siemic.com">www.siemic.com</a>

**SIEMIC ACREDITATION DETAILS: Australia ACMA CAB ID: US0160**


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

November 20, 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 Australian Communications and Media Authority (ACMA) 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: EMC: AS/NZS 4251.1 (until 5/31/2009), AS/NZS 4251.2 (until 5/31/2009), AS/NZS CISPR 11, AS/NZS CISPR 14.1, AS/NZS CISPR 22, AS/NZS 61000.6.3, AS/NZS 61000.6.4  
Radiocommunications: AS/NZS 4281, AS/NZS 4268, AS/NZS 4280.1, AS/NZS 4280.2, AS/NZS 4295, AS/NZS 4582, AS/NZS 4583, AS/NZS 4769.1, AS/NZS 4769.2, AS/NZS 4770, AS/NZS 4771  
Telecommunications: AS/ACIF S002:05, AS/ACIF S003:06, AS/ACIF S004:06, AS/ACIF S006:01, AS/ACIF S016:01, AS/ACIF S031:01, AS/ACIF S038:01, AS/ACIF S040:01, AS/ACIF S041:05, AS/ACIF S043.2:06, AS/NZS 60950.1

You may submit test data to ACMA to verify that the equipment to be imported into Australia 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>. Please contact Ms. Ramona Saar, at (301) 975-5521 or [ramona.saar@nist.gov](mailto:ramona.saar@nist.gov) if you have questions.

Sincerely,

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

Enclosure

cc: Snell Leong, Siemic, Inc.; Ramona Saar, NIST

**SIEMIC ACREDITATION DETAILS: Australia NATA Recognition**



Leslie Bai  
SIEMIC, Inc.  
2206 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)

A

**SIEMIC ACREDITATION DETAILS: VCCI Radiated Test Site Registration No. R-3083**



**CERTIFICATE**

Company: SIEMIC Inc.  
 <Member No. 3081 >

Facility: SIEMIC Inc.  
 (Radiation 3 meter site)

Location of Facility:  
 2206 Ringwood Avenue, San Jose, CA 95131 USA

*This is to certify that the following measuring facility  
 has been registered in accordance with the Rules  
 for Voluntary Control Measures*

Registration No.: R-3083  
 Date of Registration: June 12 , 2009  
 This Certificate is valid until September 30 , 2010

VCCI Council



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**SIEMIC, Inc.**

Accessing global markets

Title: RF Test Report of Zebra Technologies Corp.  
Model P640I & P630I  
To: FCC 15.247 2007, IC RSS210 Issue 7: 2007

Serial# SL08012102-ZBR-007 (15.247) (M5e)  
Issue Date 15 December 2009  
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www.siemic.com

**SIEMIC ACREDITATION DETAILS: VCCI Conducted (Main Port) Test Site Registration No. C-3421**



VCCI Council

# CERTIFICATE

**Company: SIEMIC Inc.**

*<Member No. 3081 >*

**Facility: SIEMIC Inc.**

**(Main Ports Conducted Interference Measurement)**

**Location of Facility:**

**2206 Ringwood Avenue, San Jose, CA 95131 USA**

*This is to certify that the following measuring facility  
has been registered in accordance with the Rules  
for Voluntary Control Measures*

**Registration No.: C-3421**

**Date of Registration: June 12 , 2009**

**This Certificate is valid until September 30 , 2010**

VCCI Council





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**SIEMIC ACREDITATION DETAILS: VCCI Conducted (Telecom Port) Test Site Registration No. T-1597**



  
 VCCI Council

# CERTIFICATE

**Company:** SIEMIC Inc.  
*<Member No. 3081 >*

**Facility:** SIEMIC Inc.  
(Telecommunication Ports Conducted Interference Measurement)

**Location of Facility:**  
2206 Ringwood Avenue, San Jose, CA 95131 USA

*This is to certify that the following measuring facility  
 has been registered in accordance with the Rules  
 for Voluntary Control Measures*

**Registration No.:** T-1597  
**Date of Registration:** June 12 , 2009  
**This Certificate is valid until** September 30 , 2010

VCCI Council





