

SAVI NETWORKS LLC

SAVI GLOBALTAG ST-694-001 WITH 433.92 MHZ

Model: ST-694-001

24 May 2010

Report No.: SL10012602-SAV-002R2(15.231 (a/e)

(This report supersedes NONE)



Modifications made to the product : None

This Test Report is Issued Under the Authority of:

	
Choon Sian Ooi Compliance Engineer	Leslie Bai Director of Certification

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FCC Test Report

To: FCC Part 15.231 (a/e) & RSS210 Issue 7:2007

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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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1 Executive Summary & EUT information

The purpose of this test programme was to demonstrate compliance of the Savi Networks LLC Savi GlobalTag ST-694-001 with 433.92 MHz , against the current Stipulated Standards. The Savi GlobalTag ST-694-001 with 433.92 MHz have demonstrated compliance with the 47 CFR FCC 15.231 (a)(e) : 2009 & RSS210 Issue 7 : 2007.

EUT Information

EUT	:	
Description	:	Savi GlobalTag ST-694-001 w/ 433.92 MHz
Model No	:	ST-694-001
Serial No	:	ESN 0-310520
Input Power	:	6VDC Lithium Non-Rechargeable Batteries
Classification	:	
Per Stipulated	:	Low Power Transceiver
Test Standard	:	

2 TECHNICAL DETAILS

Purpose	Compliance testing of Savi GlobalTag ST-694-001 with 433.92 MHz with stipulated standard
Applicant / Client	Savi Networks LLC
Manufacturer	Savi Networks LLC 351 E. Evelyn Avenue Mountain View, CA 94041
Laboratory performing the tests	SIEMIC Laboratories
Test report reference number	SL10012602-SAV-002R2(15.231 (a/e))
Date EUT received	12-May -2010
Standard applied	47 CFR FCC 15.231 (a)(e) : 2009 & RSS210 Issue 7 : 2007
Dates of test (from – to)	17- 21 May 2010
No of Units:	# 3
Equipment Category:	DXT
Trade Name:	Savi Networks LLC
Model :	ST-694-001
RF Operating Frequency (ies)	433.92MHz
Number of Channels :	1
Modulation :	FSK
FCC ID :	KL7-694T-V1
IC ID :	2404A-694T-V1

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:

Low Power Transceiver

Test Results Summary

Test Standard		Description	Pass / Fail
47 CFR Part 15.231: 2009 & RSS 210 Issue 7: 2007			
15.203	-	Antenna Requirement	Pass
15.207	RSS Gen (7.2.2)	Conducted Emission Voltage	N/A
15.231 (a)(1) & (2)	RSS210 (A1.1.1b)	Manually and Automatically Deactivation (note 1)	Pass
15.231 (b) / 15..209	RSS210 (A1.1.2(1))	Fundamental & Radiated Spurious Emission Limits	Pass
15.231 (c)	RSS210 (A1.1.2)	20 dB & 99%Bandwidth	Pass
15.231 (e)	RSS210 (A1.1.1)	Duration of transmissions (note 1)	Pass
15.231 (e)	RSS210 (A1.1.1c)	Period between transmissions (note 1)	Pass
15.231 (e) / 15.209	RSS210 (A1.1.2 (1))	Fundamental & Radiated Spurious Emission Limits	Pass
15.231 (c)	RSS210 (A1.1.2)	20 dB & 99% Bandwidth	Pass
Note 1		Refer to the operational description included with this application for detailed description timing diagrams for transmission duration.	
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.

The EUT is using integral antenna attached permanently to the device which meets the requirement.

5.2 AC Line Conducted Emission Test Result

Note: EUT is Solely Battery Operated.

Although the device may be connected to an AC adapter to charge the internal battery, when the AC-DC adapter is connected the device's transceiver functions are disabled.

5.3 20dB & 99% Occupied Bandwidth

1. Conducted Measurement
EUT was set 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 $\pm 1.5\text{dB}$.
4. Test Date : May 17 to 21, 2010
Tested By : Choon Sian Ooi

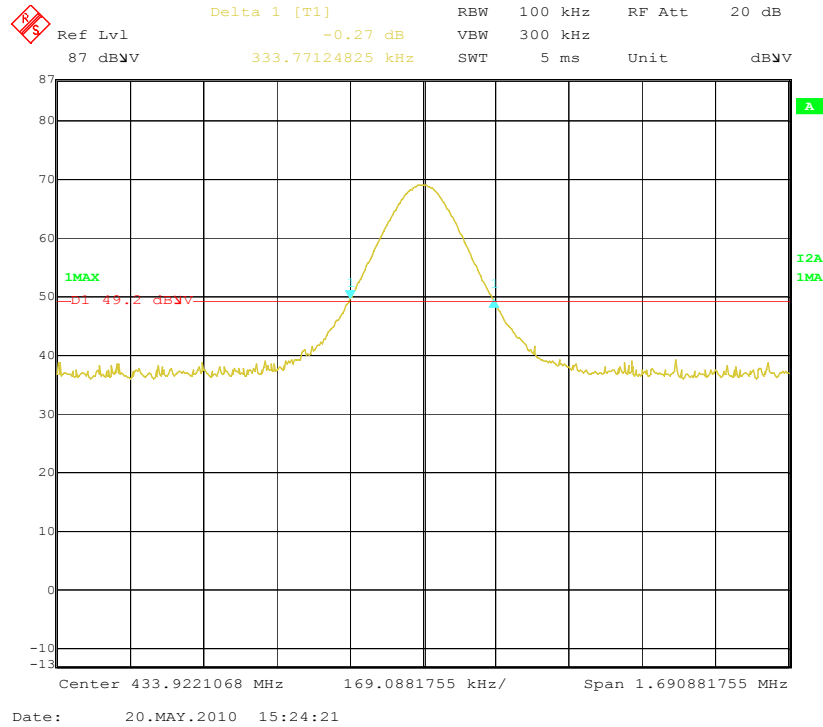
Requirement(s): 47 CFR §15.231 (c)

Procedures: The 20dB bandwidths were measured conducted using a spectrum analyzer.

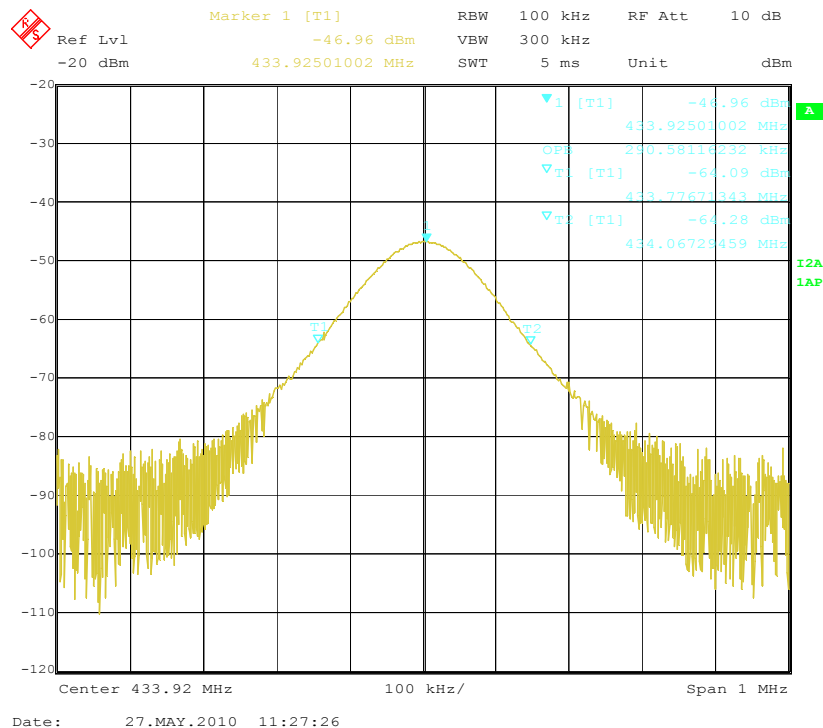
Test Result: Pass

Refer to the attached plots.

20dB Bandwidth



99% Bandwidth



5.4 Radiated Fundamental and Spurious Emission

- Radiated emissions were measured according to ANSI C63.4. The EUT was set 3 meter away from the measuring antenna. The loop antenna was positioned 1 meter above the ground from the center of the loop. The measuring bandwidth was set to 10kHz, All possible modes of operation were investigated. Only the worst case emissions measured, 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.
 - Sample Calculation: Corrected Amplitude = Raw Amplitude (dBμV/m) + ACF(dB) + Cable Loss(dB) – Distance Correction Factor.
Sample Calculation:
1) Corrected Amplitude = Raw Amplitude(dBμV/m) + ACF(dB) + Cable Loss(dB) – Distance Correction Factor
2) Pulse average reading = Peak reading + 20 log (Duty cycle).
 - 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 & 1GHz above (3m & 10m) is +/-6dB.
 - Environmental Conditions

Temperature	23°C
Relative Humidity	50%
Atmospheric Pressure	1019mbar
- Test Date : May 17 to 21, 2010
Tested By : Choon Sian Ooi

Standard Requirements:

Fundamental Frequency (MHz)	Field Strength of Fundamental (microvolts/meter)	Field Strength of Spurious Emissions (microvolts/meter)
40.66–40.70	1,000	100
70–130	500	50
130–174	500 to 1,500 ¹	50 to 150 ¹
174–260	1,500	150
260–470	1,500 to 5,000 ¹	150 to 500 ¹
Above 470	5,000	500

¹Linear interpolations.

Test Result: Pass

Fundamental Measurement @ 433.92MHz @ 3 Meter [FCC 15.231(a)]

Frequency (MHz)	Reading (dBuV/m)	Azimuth	Polarity	Height (m)	Factors (dB)	FCC 15.231(a) Limit (dBuV)	Margin (dB)	Comments
433.921	91.24	124	V	1.5	18.79	100.83	-9.59	Peak
433.921	79.24	124	V	1.5	--	80.83	-1.59	Ave
433.921	87.65	133	H	2.1	18.79	100.83	-13.18	Peak
433.921	75.65	133	H	2.1	--	80.83	-5.18	Ave

Note: Duty cycle is 25%. A-12dB correction was used to determine the average level from the peak reading.

Fundamental Measurement @ 433.92MHz @ 3 Meter [FCC 15.231(e)]

Frequency (MHz)	Reading (dBuV/m)	Azimuth	Polarity	Height (m)	Factors (dB)	FCC 15.231(e) Limit (dBuV)	Margin (dB)	Comments
433.921	91.24	124	V	1.5	18.79	92.87	-1.63	Peak
433.921	71.24	124	V	1.5	--	72.87	-1.63	Ave
433.921	87.65	133	H	2.1	18.79	92.87	-5.22	Peak
433.921	67.65	133	H	2.1	--	72.87	-5.22	Ave

Note: Duty cycle is 10%. A-20dB correction was used to determine the average level from the peak reading.

Additional note: 15.231(e) duty cycle calculations; please refer to the operational description included with this application for detailed description timing diagrams for transmission duration.

Spurious Emissions (<1GHz) Measurement @ 3 Meter [FCC 15.231e]

Frequency (MHz)	Corrected Reading (dBuV/m)	Azimuth	Polarity	Height (m)	Factors (dB)	FCC 15.231 Limit (dBuV)	Margin (dB)	Comments
865.69	37.67	34	V	1.4	24.9	72.87	-35.2	peak
865.69	25.67	34	V	1.4	24.9	52.87	-27.2	Ave
865.69	35.86	25	H	1.8	24.9	72.87	-37.01	Peak
865.69	23.86	25	H	1.8	24.9	52.87	-29.01	Ave

Spurious Emissions (<1GHz) Measurement @ 3 Meter [FCC 15.231a]

Frequency (MHz)	Corrected Reading (dBuV/m)	Azimuth	Polarity	Height (m)	Factors (dB)	FCC 15.231 Limit (dBuV)	Margin (dB)	Comments
865.69	37.67	34	V	1.4	24.9	80.83	-43.16	peak
865.69	17.67	34	V	1.4	24.9	60.83	-43.16	Ave
865.69	35.86	25	H	1.8	24.9	80.83	-44.97	Peak
865.69	15.86	25	H	1.8	24.9	60.83	-44.97	Ave

Spurious Emissions (>1GHz) Measurement @ 3 Meter [FCC 15.231(a)]

Frequency (MHz)	Reading (dBuV/m)	Direction (degree)	Height (cm)	Polar (V/H)	Antenna Loss (dB)	Cable loss (dB)	Amplifier (dB)	Corrected Reading (dBuV/m)	Limit (dBuV/m)	Margin (dB)	
1.302	41.67	160	1	v	24.8	1.51	31.99	35.99	80.83	-44.84	Peak
1.302	42.23	178	1.3	h	24.8	1.51	31.99	36.55	80.83	-44.28	Peak
1.736	45.55	285	1.5	v	25.7	2.17	31.98	41.44	80.83	-39.39	Peak
1.736	46.35	253	1.5	h	25.7	2.17	31.98	42.24	80.83	-38.59	Peak
2.165	44.55	190	1.1	v	27.5	2.44	32.04	42.45	80.83	-38.38	Peak
2.165	40.66	271	1.7	h	27.5	2.44	32.04	38.56	80.83	-42.27	Peak
1.302	29.67	160	1	v	24.8	1.51	31.99	23.99	60.83	-36.84	Ave
1.302	30.23	178	1.3	h	24.8	1.51	31.99	24.55	60.83	-36.28	Ave
1.736	33.55	285	1.5	v	25.7	2.17	31.98	29.44	60.83	-31.39	Ave
1.736	34.35	253	1.5	h	25.7	2.17	31.98	30.24	60.83	-30.59	Ave
2.165	32.55	190	1.1	v	27.5	2.44	32.04	30.45	60.83	-30.38	Ave
2.165	28.66	271	1.7	h	27.5	2.44	32.04	26.56	60.83	-34.27	Ave

Note: Duty cycle is 25%. A-12dB correction was used to determine the average level from the peak reading.

* Average Value is not taken into consideration, because peak value is well below average limit.

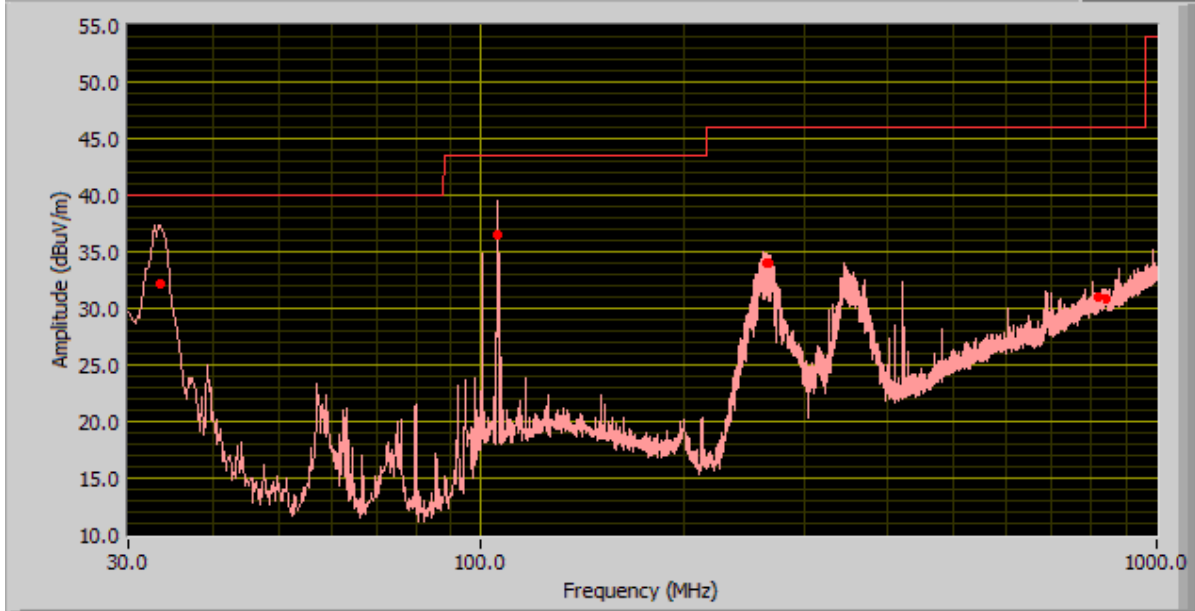
Spurious Emissions (>1GHz) Measurement @ 3 Meter [FCC 15.231(e)]

Frequency GHz	Reading dBuV/m	Direction Degree	Height Meter	Polar H/V	Antenna Loss (dB)	Cable loss (dB)	Amplifier (dB)	Corrected Reading (dBuV/m)	FCC 15.231(e) Limit (dBuV)	Margin (dB)	Comments
1.302	41.67	160	1	v	24.8	1.51	31.99	35.99	72.87	-31.2	Peak
1.302	42.23	178	1.3	h	24.8	1.51	31.99	36.55	72.87	-30.64	Peak
1.736	45.55	285	1.5	v	25.7	2.17	31.98	41.44	72.87	-27.32	Peak
1.736	46.35	253	1.5	h	25.7	2.17	31.98	42.24	72.87	-26.52	Peak
2.165	44.55	190	1.1	v	27.5	2.44	32.04	42.45	72.87	-28.32	Peak
2.165	40.66	271	1.7	h	27.5	2.44	32.04	38.56	72.87	-32.21	Peak
1.302	21.67	160	1	v	24.8	1.51	31.99	23.99	52.87	-31.2	Ave
1.302	22.23	178	1.3	h	24.8	1.51	31.99	24.55	52.87	-30.64	Ave
1.736	25.55	285	1.5	v	25.7	2.17	31.98	29.44	52.87	-27.32	Ave
1.736	26.35	253	1.5	h	25.7	2.17	31.98	30.24	52.87	-26.52	Ave
2.165	24.55	190	1.1	v	27.5	2.44	32.04	30.45	52.87	-28.32	Ave
2.165	20.66	271	1.7	h	27.5	2.44	32.04	26.56	52.87	-32.21	Ave

Note: Duty cycle is 10%. A-20dB correction was used to determine the average level from the peak reading.

* Average Value is not taken into consideration, because peak value is well below average limit.

Receiver Spurious Emission



Frequency (MHz)	QP (dBuV)	Azimuth	Polarity	Height (cm)	Factors (dB)	Limit (dBuV)	Margin (dBuV)
840.15	30.92	138.00	V	380.00	24.90	46.00	-15.08
830.52	31.06	98.00	H	380.00	25.47	46.00	-14.94
33.56	32.22	238.00	V	104.00	18.78	40.00	-7.78
105.72	36.54	25.00	V	110.00	13.30	43.50	-6.96
261.95	34.07	244.00	V	380.00	14.62	46.00	-11.93
263.42	34.01	320.00	V	325.00	14.70	46.00	-11.99

Annex A. TEST INSTRUMENT & METHOD

Annex A.i. TEST INSTRUMENTATION & GENERAL PROCEDURES

Instrument	Manufacturer	Model	CAL Due Date
Spectrum Analyzer	HP	8564E	05/17/2011
EMI Receiver	Rohde & Schwarz	ESIB40	05/19/2011
R&S LISN	R&S	ESH2-Z5	05/18/2011
CHASE LISN	Chase	MN2050B	05/11/2011
Antenna (1~18GHz)	EMCO	3115	04/01/2011
Antenna (30MHz~2GHz)	Sunol Sciencis	JB1	10/04/2011
Horn Antenna (18~40GHz)	COM Power	AH-840	03/19/2011
Pre-Amplifier (1~26GHz)	HP	8449	05/17/2011
Microwave Pre-Amp (18-40GHz)	COM Power	PA-840	05/21/2011
Chamber	Lingren	3m	12/04/2011

Note: Functional Verification

Annex A.ii. AC LINE 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. 7.96 dB below limit

Annex A. iii RADIATED EMISSIONS TEST DESCRIPTION

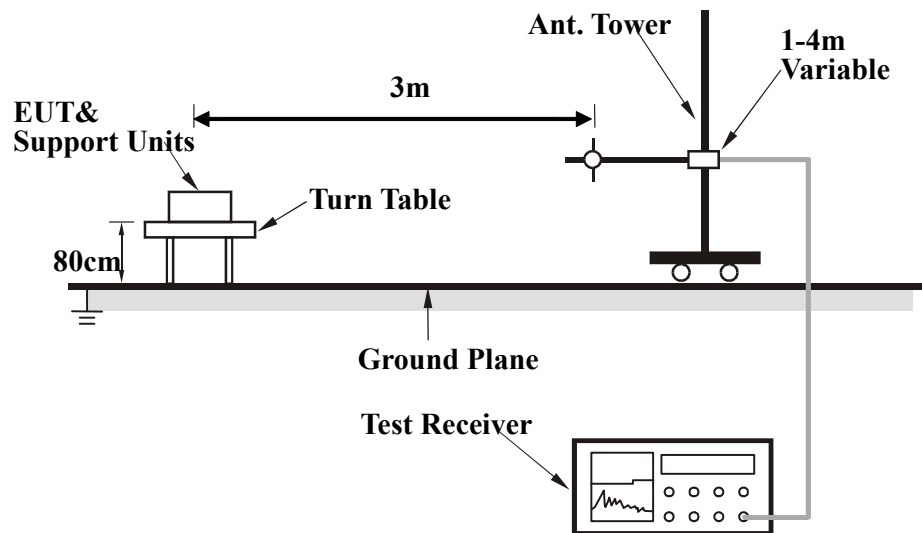
EUT Characterisation

EUT characterisation, over the frequency range from 30MHz to 10th 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
Below 30Mhz	QP/Ave	10KHz	10KHz
30 to 1000	QP	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

$$\text{Average} = \text{Peak Value} + \text{Duty Factor or measurement with above setting.}$$

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

See Attachment.

Annex C. TEST SETUP AND SUPPORTING EQUIPMENT

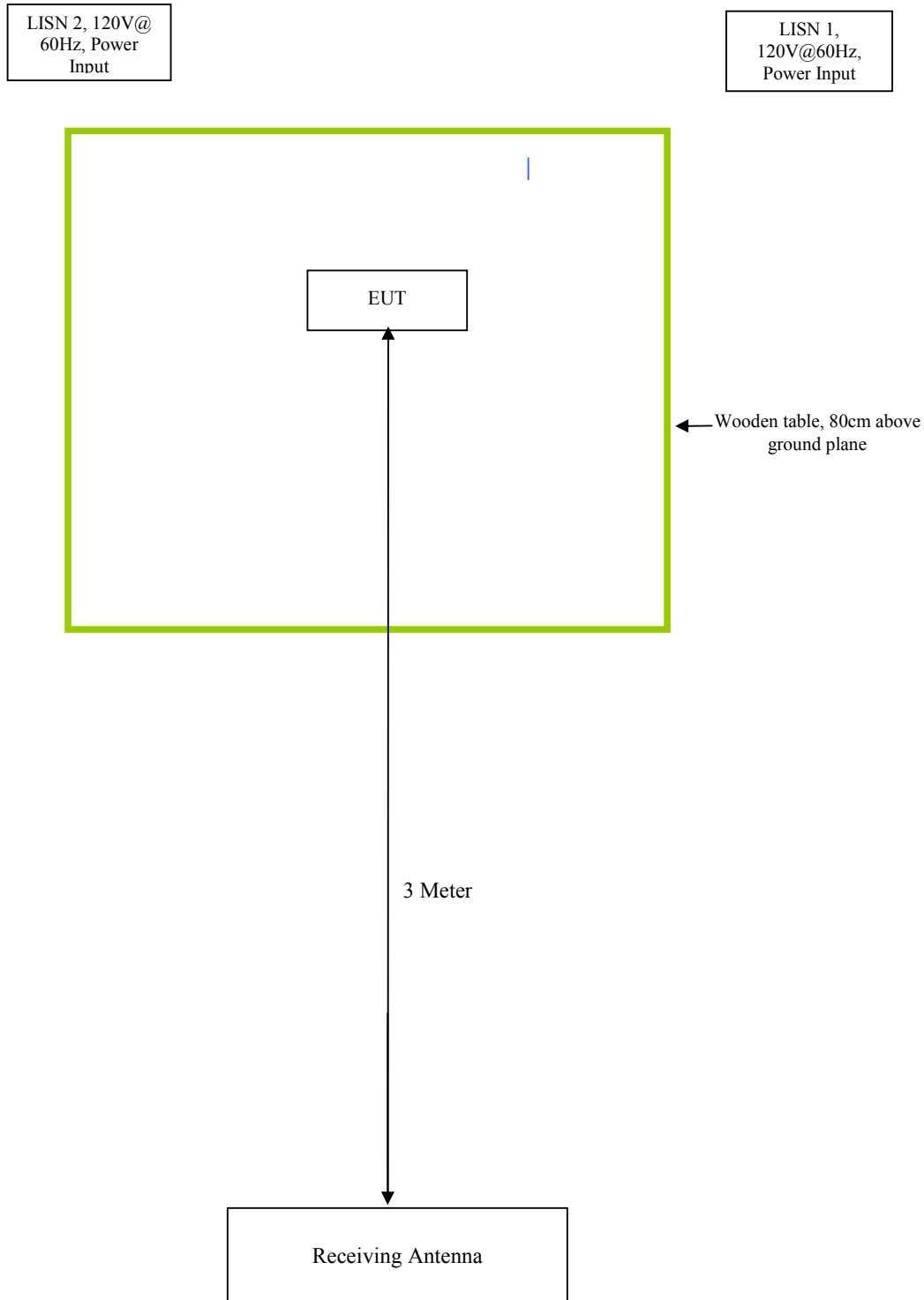
EUT TEST CONDITIONS

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)
-	-	-
	-	

Block Configuration Diagram for Radiated Emission



Block Configuration Diagram for Conducted Emission

NOTE: Not applicable EUT is using internal battery

Annex C.ii. EUT OPERATING CONDITIONS

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

Test	Description Of Operation
Emissions	EUT is configured using the manufacturer software for continuous TX operating mode.

Annex D USER MANUAL, BLOCK & CIRCUIT DIAGRAM

Please see attachment

Annex E SIEMIC ACCREDITATION

SIEMIC ACREDITATION DETAILS: A2LA Certificate Number: 2742.01





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

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 scope, roles and responsibilities: <http://www.fcc.gov/oteta/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/eic/site/smt-gst.nsf/enfr_401342c.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/Noe/Policies%20and%20Regulation/Policies_and_Regulation_Level2/20080609145118/MRA_RacScheme.pdf*

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 under E-Filing, OET Equipment Authorization Electronic Filing, Test Firms.

Sincerely,

Phyllis Parrish
Industry Analyst

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:

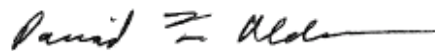
NIST is pleased to inform you that your laboratory has been recognized by Industry Canada (IC), under the Asia Pacific Economic Cooperation for Telecommunications Equipment Mutual Recognition Arrangement (APEC Tel MRA). Your laboratory is now designated to act as a Conformity Assessment Body (CAB) under 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 if you have any questions.

Sincerely,



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

Enclosure

cc: CAB Program Manager

NIST

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/inccb-bhst.nsf/en/h_t00052e.html.

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

Yours sincerely,



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

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

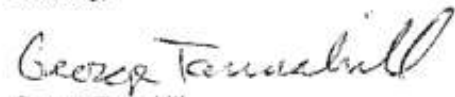
Dear Sir or Madam:

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

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

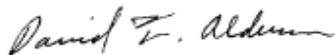
Dear Mr. Bai:

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 if you have questions.

Sincerely,



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

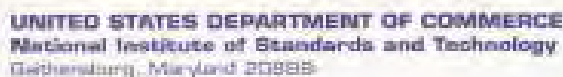
Enclosure

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

NIST

SIEMIC ACREDITATION DETAILS: Korea CAB ID: 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.	
Sincerely,  David F. Alderman Group Leader, Standards Coordination and Conformity Group Standards Services Division	
Enclosure	
cc: Ramona Saar	
	



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

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.

Band 7 Reden

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

Joginder Dhillon



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.

Sincerely,

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

Enclosure

cc: Ramona Sear

NIST

SIEMIC ACREDITATION DETAILS: Mexico NOM Recognition

 CÁMARA NACIONAL DE LA INDUSTRIA ELECTRONICA, DE TELECOMUNICACIONES E INFORMÁTICA	Laboratorio Valentin V. Rivero Mexico D.F. a 16 de octubre de 2006. 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 inglés y español prellenado 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 intermediano 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 Gómez González Gerente Técnico del Laboratorio de CANIETI Ciudad: Tl Avenida: Condesa 06100 México, D.F. Tel: 5206-0908 ext 124444 Fax: 5264-0442 www.canieti.org
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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.

Sincerely,



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

Enclosure

cc: Ramona Saar



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 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

NIST

SIEMIC ACREDITATION DETAILS: Australia NATA Recognition



Leslie Bai
SIEMIC, Inc.
2205 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 Fax: +61 3 9326 5148
E-Mail: Christopher.Norton@nata.asn.au
Internet: www.nata.asn.au

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

	 <i>VCCI Council</i>
CERTIFICATE	
Company: SIEMIC Inc. <i><Member No. 3081 ></i>	
Facility: SIEMIC Inc. (Main Ports Conducted Interference Measurement)	
Location of Facility: 2206 Ringwood Avenue, San Jose, CA 95131 USA	
<i>This is to certify that the following measuring facility has been registered in accordance with the Rules for Voluntary Control Measures</i>	
Registration No.: C-3421	
Date of Registration: June 12 , 2009	
This Certificate is valid until September 30 , 2010	
<i>VCCI Council</i> 	
	

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	
<i>This is to certify that the following measuring facility has been registered in accordance with the Rules for Voluntary Control Measures</i>	
Registration No.: T-1597	
Date of Registration: June 12 , 2009	
This Certificate is valid until September 30 , 2010	
	VCCI Council 
	