



# Test Report

**BUREAU VERITAS** Curtis-Straus LLC, a wholly owned subsidiary of BV CPS

Report No EK1397-1

Client ThingMagic  
Satyan Shah

Address One Cambridge Center  
Cambridge, MA 02142


Items tested M5e-Compact  
FCC ID: QV5MERCURY5EC

Standards FCC Part 15.247 Class II Permissive Change

Test Dates October 19, 2010

Results As detailed within this report

Prepared by   
Evan Gould – Test Engineer

Authorized by   
John Underwood – EMC Manager

Issue Date 10/27/2010

Conditions of Issue This Test Report is issued subject to the conditions stated in the 'Conditions of Testing' section on page 26 of this report.

Curtis-Straus LLC is accredited by the American Association for Laboratory Accreditation for the specific scope of accreditation under Certificate Number 1627-01. This report may contain data which is not covered by the A2LA accreditation.



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REV 11-MAR-10 (SC)



## Summary

On October 19, 2010 we tested the ThingMagic M5e-Compact for compliance with the following requirements. The peak output power and conducted harmonic emissions from the intentional radiator were scanned due to the replacement of the obsolete amplifier with a new substitution. The purpose of the report is to support a Class II Permissive Change.

### EMC Emissions:

- FCC 47 CFR Part 15.247

We found that the product met the above requirements without modification (see *Modifications Required for Compliance* section on page 5). John Carrick from ThingMagic was present during the testing. The test sample was received in good condition. The sample was received on October 19, 2010.

Issue No.	Reason for change	Date Issued
1	Original Release	October 27, 2010

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**Product Tested**

**Configuration Documentation**

EUT Configuration										
Work Order: K1397 Company: ThingMagic Company Address: One Cambridge Center Cambridge, MA 02142 Contact: Satyan Shah Person Present: John Carrick										
					<b>MN</b>			<b>SN</b>		
EUT:					M5e-C			3333		
EUT Description: M5e-Compact EUT TX Frequency: 902-928MHz (FCC)										
<b>Support Equipment:</b>					<b>MN</b>			<b>SN</b>		
M5e Development Board					-			-		
<b>EUT Ports:</b>										
Port Label	Port Type	No. of ports	No. Populated	Cable Type	Shielded	Ferrites	Length	Max Length	In/Out NEBS Type	Unpopulated Reason
Antenna	MMCX	1	All	coax	Yes	None	NA	NA	In	NA
<b>Software / Operating Mode Description:</b>										
Using a command prompt interface on the support laptop to control channel, power, hopping.										



**Compliance Statement**

TEST	RESULT	STANDARD	LIMIT	MARGIN	COMMENTS
<b>Peak Output Power</b>	PASS	15.247(b)(2)	30dBm	-7.4dB	Test performed by EG on 10/19/10
<b>Conducted Spurious Emissions</b>	PASS	15.247(d)	20dB down		Test performed by EG on 10/19/10



### ***Modifications Required for Compliance***

There were no modifications required for compliance.



**Peak Output Power**

**Test Method:**

In accordance with the following:

- ANSI C63.10 (2009)

**Results:**

TEST	RESULT	LIMIT	MARGIN	COMMENTS
<i>Peak Output Power</i>	PASS	30dBm	-7.4dB	Test performed by EG on 10/19/10

**Environmental Conditions:**

Temp: 22.6°C

Humidity: 27%rh

Pressure: 1002mB



Peak Output Power Data Table(s):

Table 1

Peak Conducted Output Power

Frequency (MHz)	SA Reading (dBm)	Cable Factor (dB)	Adjusted Reading (dBm)	Limit (dBm)	Margin (dB)	Result (Pass/Fail)
902.75	22.5	0.1	22.6	30	-7.4	Pass
915.25	22.5	0.1	22.6	30	-7.4	Pass
927.25	22.5	0.1	22.6	30	-7.4	Pass

Rev: 18-Oct-2010

Spectrum Analyzers / Receivers /Preselectors  
Rental SA #1 (Brown)

Range  
9kHz-26.5GHz

MN  
E4407B

Mfr  
Agilent

SN  
SG44210511

Asset  
1510

Cat  
I

Calibration Due  
25-Mar-2011

Cables  
Diplexer-01

Range

Mfr  
C-S

Cat  
II

Calibration Due  
17-Aug-2011

Meteorological Meters

Weather Clock (Pressure Only)  
EMC5 Thermohyrometer

MN

BA928  
35519-044

Mfr

Oregon Scientific  
Control Company

SN

C3166-1  
90823030

Asset

831  
1497

Cat

I  
II

Calibration Due

17-Mar-2011  
20-Mar-2011

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

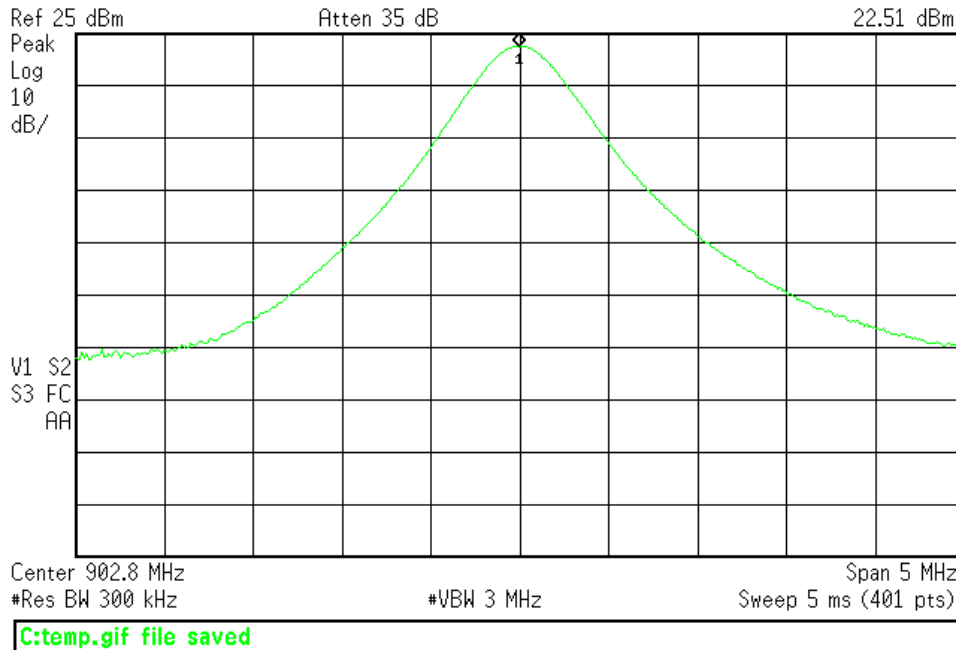
Plot 1

902.75MHz POP

Agilent 10:18:02 Oct 19, 2010

R T

Mkr1 902.7500 MHz  
22.51 dBm





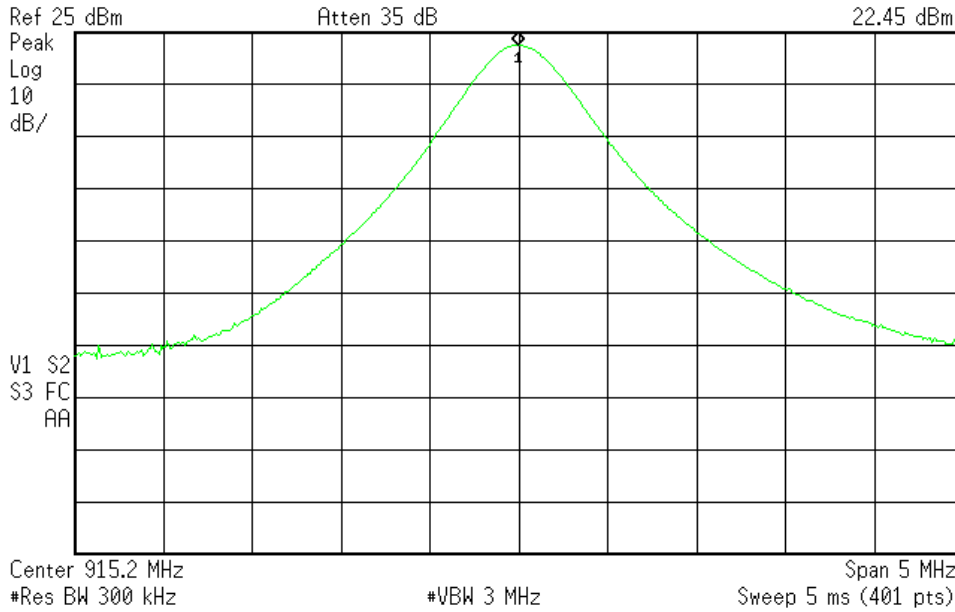
Plot 2

915.25MHz POP

Agilent 10:31:58 Oct 19, 2010

R T

Mkr1 915.2500 MHz  
22.45 dBm



C:\temp.gif file saved

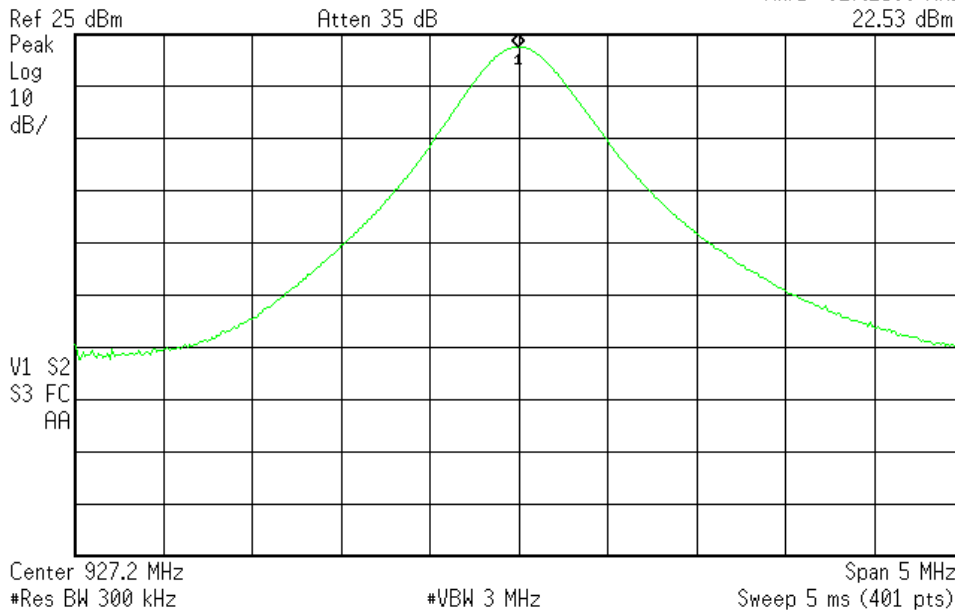
Plot 3

927.25MHz POP

Agilent 10:33:58 Oct 19, 2010

R T

Mkr1 927.2500 MHz  
22.53 dBm



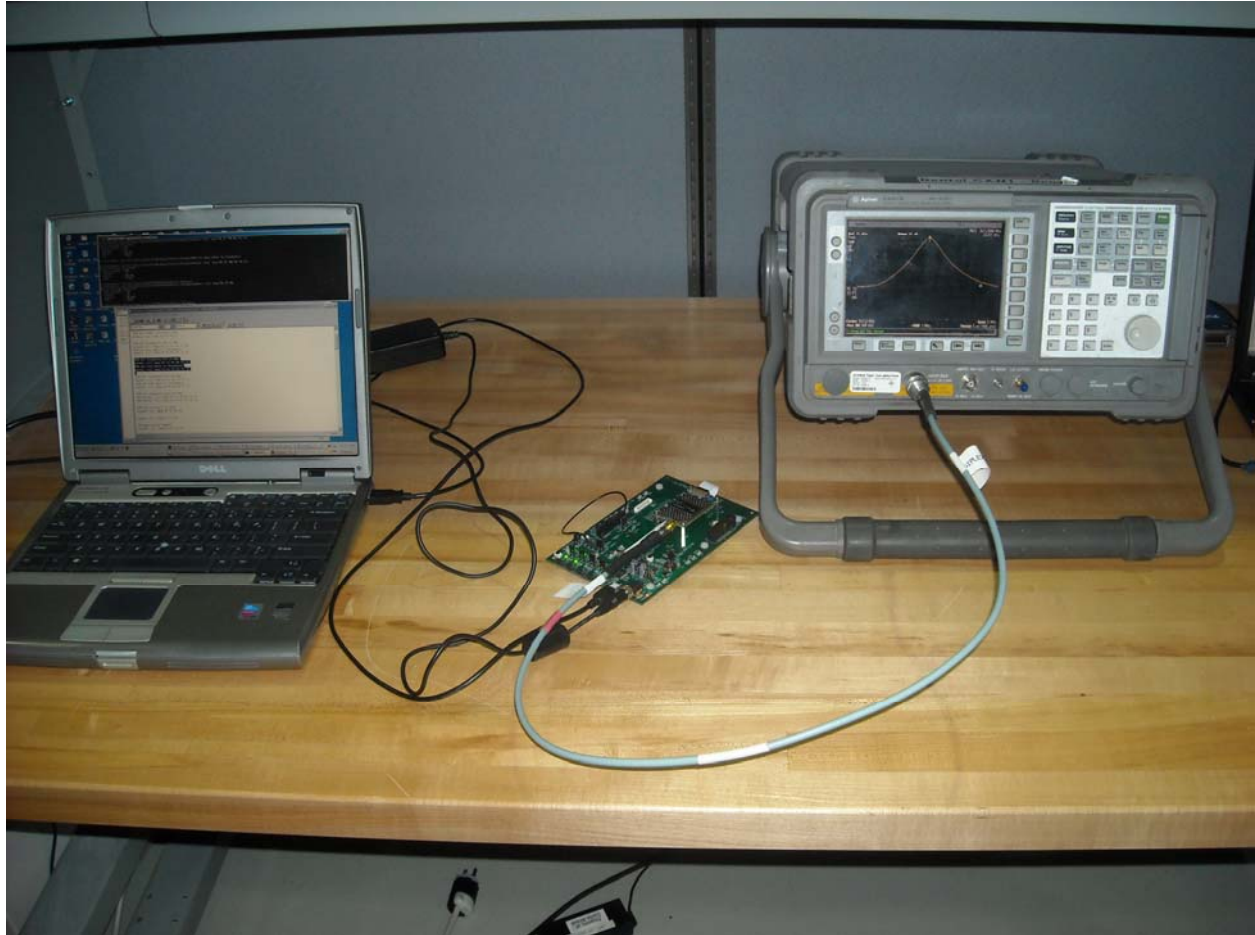
C:\temp.gif file saved

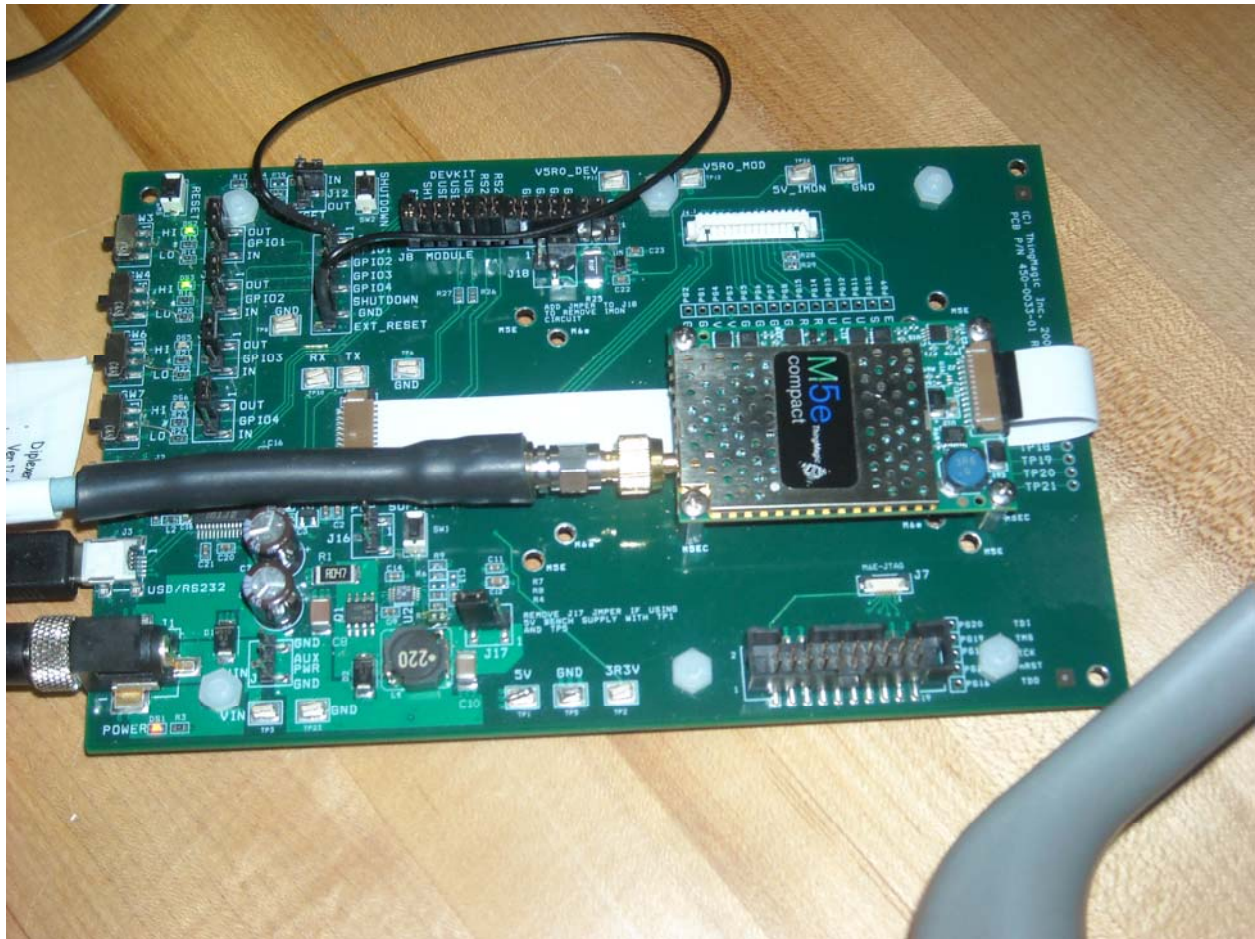


**Radiated Emissions Modifications:**  
None



**Peak Output Power Setup Photograph(s):**





**Conducted Harmonic Spurious Emissions**

**Test Method:**

In accordance with the following:

- ANSI C63.10 (2009)

**Results:**

TEST	RESULT	LIMIT	MARGIN	COMMENTS
<b>Conducted Spurious Emissions</b>	PASS	20dB down		Test performed by EG on 10/19/10

**Environmental Conditions:**

**Temp:** 22.6°C

**Humidity:** 27%rh

**Pressure:** 1002mB



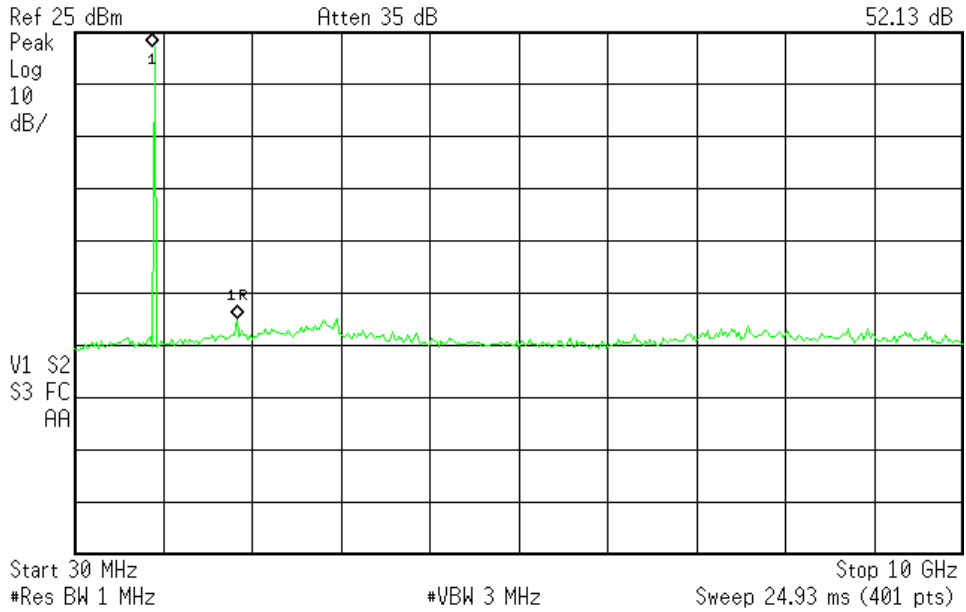
Plot 4

Conducted Spurious Emissions

Agilent 10:41:28 Oct 19, 2010

R T

Mkr1 Δ -923 MHz  
52.13 dB



C:\temp.gif file saved

Rev: 18-Oct-2010

**Spectrum Analyzers / Receivers /Preselectors**

Rental SA #1 (Brown)

Range	MN	Mfr	SN	Asset	Cat	Calibration Due
9kHz-26.5GHz	E4407B	Agilent	SG44210511	1510	I	25-Mar-2011

**Cables**  
Diplexer-01

Range	Mfr	Cat	Calibration Due
	C-S	II	17-Aug-2011

**Meteorological Meters**

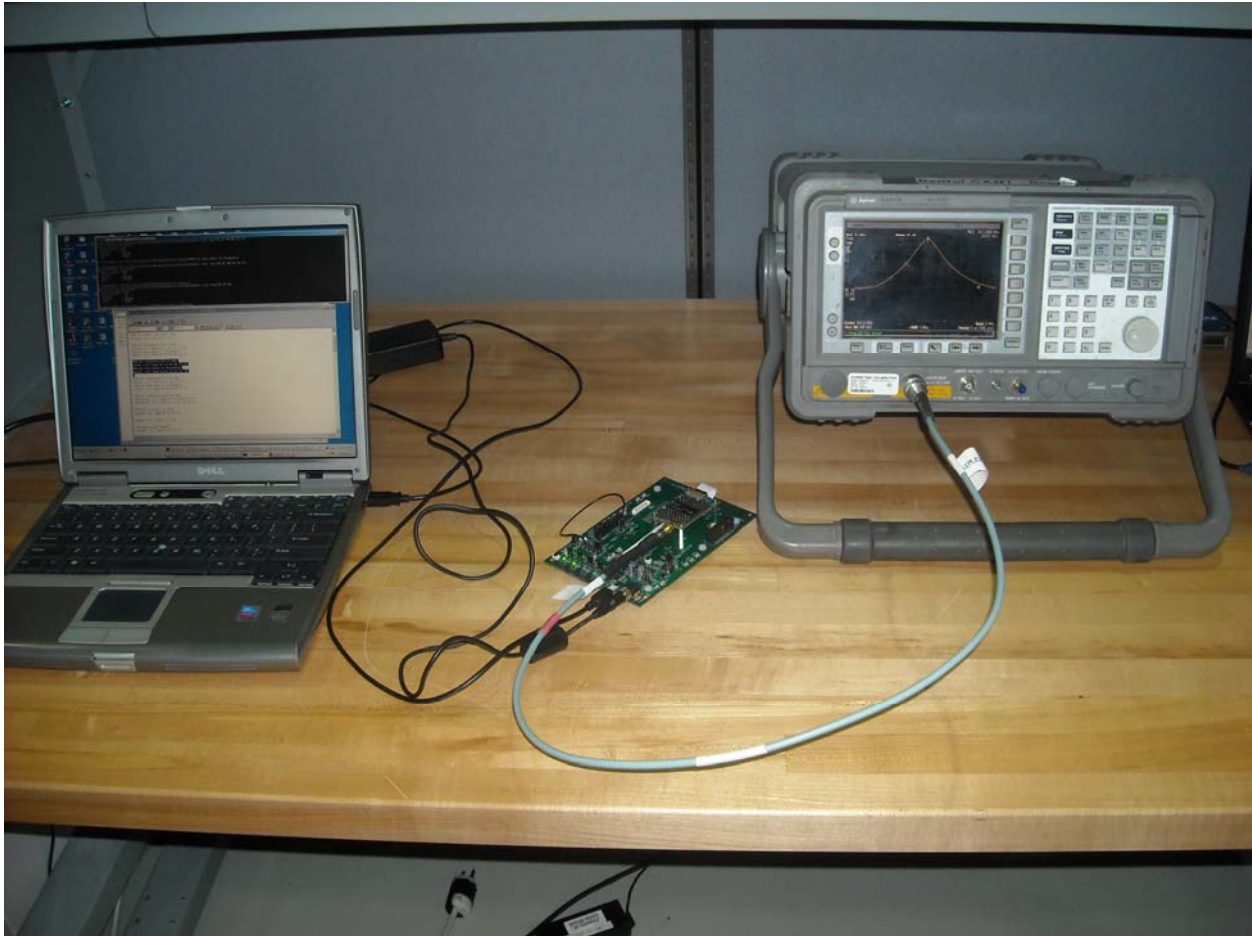
Weather Clock (Pressure Only)  
EMC5 Thermohyrometer

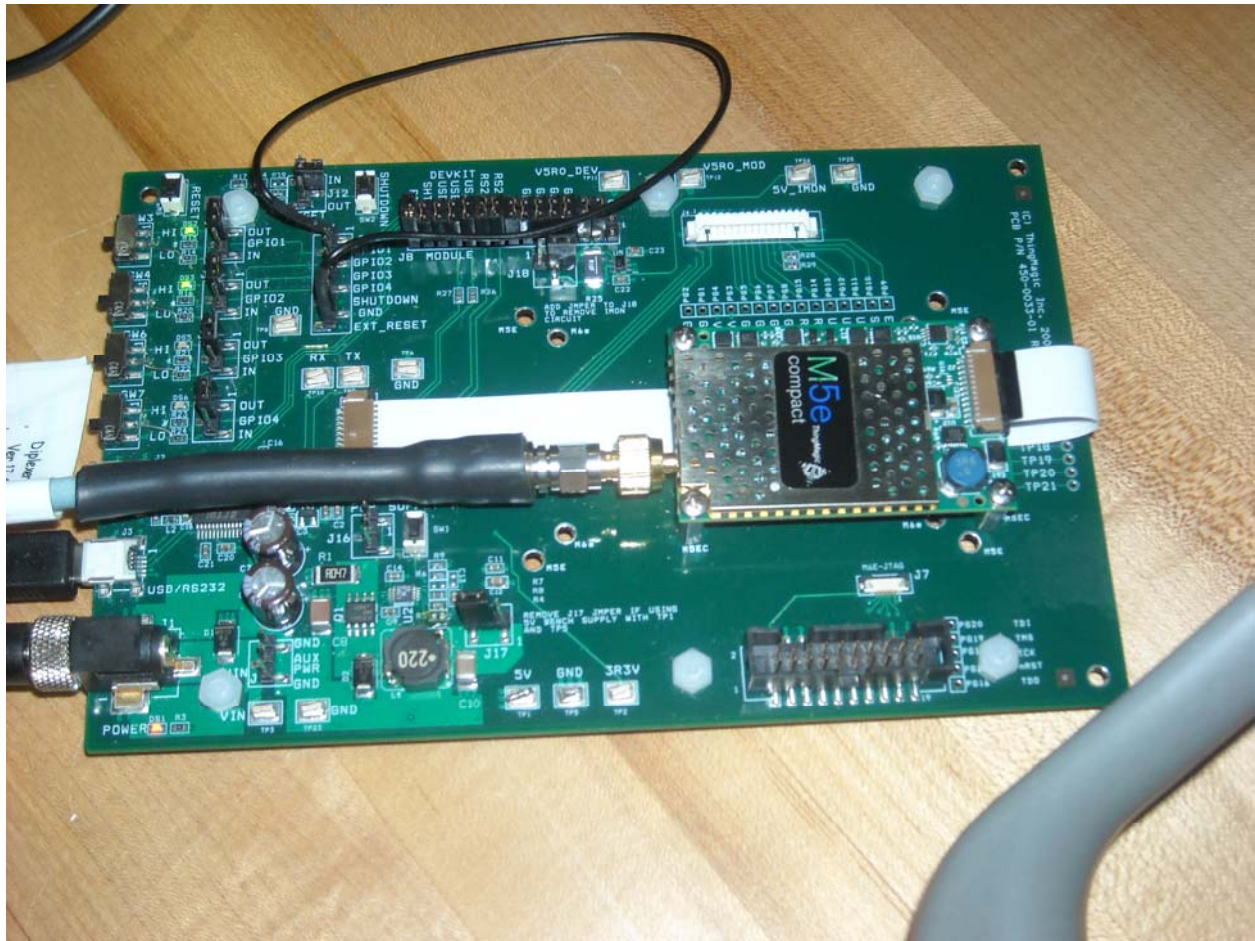
MN	Mfr	SN	Asset	Cat	Calibration Due
BA928	Oregon Scientific	C3166-1	831	I	17-Mar-2011
35519-044	Control Company	90823030	1497	II	20-Mar-2011

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.



**Conducted Spurious Emissions Setup Photograph(s):**







### Measurement Uncertainty

The listed uncertainties are the worst case uncertainty for the entire range of measurement. Please note that the uncertainty values are provided for informational purposes only and are not used in determining the PASS/FAIL results.

Measurement	Expanded Uncertainty k=2	Maximum allowable uncertainty
Radiated Emissions (30-1000MHz)		
NIST	5.6dB	N/A
CISPR	4.6dB	5.2dB (Ucisprr)
Radiated Emissions (1-26.5GHz)	4.6dB	N/A
Radiated Emissions (above 26.5GHz)	4.9dB	N/A
Magnetic Radiated Emissions	5.6dB	N/A
Conducted Emissions		
NIST	3.9dB	N/A
CISPR	3.6dB	3.6dB (Ucisprr)
Telco Conducted Emissions (Current)	2.9dB	N/A
Telco Conducted Emissions (Voltage)	4.4dB	N/A
Electrostatic Discharge	11.5%	N/A
Radiated RF Immunity (Uniform Field)	1.6dB	N/A
Electrical Fast Transients	23.1%	N/A
Surge	23.1%	N/A
Conducted RF Immunity	3dB	N/A
Magnetic Immunity	12.8%	N/A
Dips and Interrupts	2.3V	N/A
Harmonics	3.5%	N/A
Flicker	3.5%	N/A
Radio frequency (@ 2.4GHz)	$3.23 \times 10^{-8}$	$1 \times 10^{-7}$
RF power, conducted	0.40dB	0.75dB
Maximum frequency deviation:		
• Within 300Hz and 6kHz of audio frequency / Within 6kHz and 25kHz of audio frequency	3.4%	5%
Adjacent channel power	0.3dB	3dB
Adjacent channel power	1.9dB	3dB
Conducted spurious emission of transmitter, valid up to 12.75GHz	2.39dB	3dB
Conducted emission of receivers	1.3dB	3dB
Radiated emission of transmitter, valid up to 26.5GHz	3.9dB	6dB
Radiated emission of transmitter, valid up to 80GHz	3.3dB	6dB
Radiated emission of receiver, valid up to 26.5GHz	3.9dB	6dB
Radiated emission of receiver, valid up to 80GHz	3.3dB	6dB
Humidity	2.37%	5%
Temperature	0.7°C	1.0°C
Time	4.1%	10%
RF Power Density, Conducted	0.4dB	3dB
DC and low frequency voltages	1.3%	3%
Voltage (AC, <10kHz)	1.3%	2%
Voltage (DC)	0.62%	1%

The above reflects a 95% confidence level



**Jurisdictional Labeling and Required Instruction Manual Inserts**

**CE Marking - European Union (EU)**

The CE mark is affixed by a manufacturer to its product in order to demonstrate to customs and other officials that the product marked is in conformity with all applicable European Union (EU) Directives. The CE mark must take the form shown below and must be affixed to the product unless the product is too small. If the product is too small, the CE mark may be affixed to the packaging, instructions for use or the guarantee certificate. The CE mark must be a minimum 5mm in height.

It is customary to include the written Declaration of Conformity with the shipment of the product as well in case of questions at the border. Supplying the Declaration of Conformity with the product is not required, it's just good preventative practice. It is required that the directive be held available to EU officials for a period of ten years following the placement of the product on the market.



The CE marking is available in bit-mapped form from the Curtis-Straus web site at <http://www.curtis-straus.com> or call us for a complementary disk.

**Sample Declaration of Conformity**

<p>Declaration of conformity                  Konformitätserklärung                  Déclaration de conformité                  Declaración de Confomidad                  Verklaring de overeenstemming                  Dichiarazione di conformità</p> <p>We/Wir/ Nous/WIJ/Noi: <b>COMPANY NAME</b>  <b>ADDRESS</b></p> <p>declare under our sole responsibility that the product,                  erklären, in alleniniger Verantwortung, daß dieses Produkt,                  déclarons sous notre seule responsabilité que le produit,                  declaramos, bajo nuestra sola responsabilidad, que el producto,                  verklaren onder onze verantwoordelijkheid, dat het product,                  dichiariamo sotto nostra unica responsabilità, che il prodotto,</p> <p><b>MODEL NUMBER</b>  <b>SERIAL NUMBER RANGE</b></p> <p>to which this declaration relates is in conformity with the following standard(s) or other normative documents.                  auf das sich diese Erklärung bezieht, mit der/den folgenden Norm(en) oder Richtlinie(n) übereinstimmt.                  auquel se réfère cette déclaration est conforme à la (aux) norme(s) ou au(x) document(s) normatif(s).                  al que se refiere esta declaración es conforme a la(s) norma(s) u otro(s) documento(s) normativo(s).                  waarnaar deze verklaring verwijst, aan de volende norm(en) of richtlijn(en) beantwoordt.                  a cui si riferisce questa dichiarazione è conforme alla/e seguente/i norma/o documento/i normativo/i.</p> <p><b>LIST OF DIRECTIVES AND EN'S TO WHICH CONFORMANCE IS CLAIMED (Including Title and edition date).</b>  <b>SIGNATURE OF RESPONSIBLE PARTY, DATE, and PLACE OF ISSUE</b></p>
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### EN 55022 Class A Warning Requirements

EN 55022 does not restrict the marketing of Class A information technology equipment, but does require it to include the following warning in the instructions for use.

**Warning**

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

### FCC Requirements

#### Required Equipment Authorization for Device Type

Type of Device	Equipment Authorization Required
TV broadcast receiver	Verification
FM broadcast receiver	Verification
CB receiver	Declaration of Conformity or Certification
Superregenerative receiver	Declaration of Conformity or Certification
Scanning receiver	Certification
Radar detector	Certification
All other receivers subject to part 15	Declaration of Conformity or Certification
TV interface device	Declaration of Conformity or Certification
Cable system terminal device	Declaration of Conformity
Stand-alone cable input selector switch	Verification
Class B personal computers and peripherals	Declaration of Conformity or Certification
CPU boards and internal power supplies used with Class B personal computers	Declaration of Conformity or Certification
Class B personal computers assembled using authorized CPU boards or power supplies	Declaration of Conformity
Class B external switching power supplies	Verification
Other Class B digital devices & peripherals	Verification
Class A digital devices, peripherals & external switching power supplies	Verification
Access Broadband over Power Line (Access BPL)	Certification
All other devices	Verification

#### FCC Required labeling for Verified Devices 47 CFR Part 15.19

The specific labeling requirements for a device subject to the Verification or Certification procedure are contained in Section 15.19(a). These labelling requirements are:

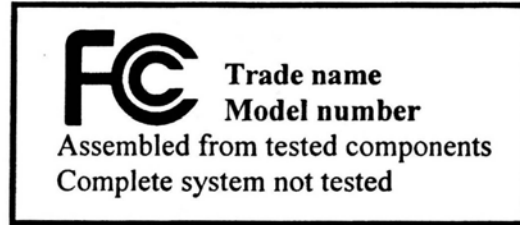
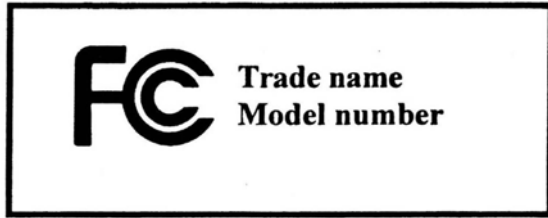
- One of three compliance statements specified in Section 15.19(a);
- If the device is subject only to Verification include a label bearing a unique identifier - Section 2.954;
- If the device is subject to Certification (1) Section 2.925 contains information on identification of the equipment; (2) include a label bearing an FCC Identifier (FCC ID) - Section 2.926.



If the labeling area for the device is so small, and / or it is not practical to place the required statement on the device, then the statement can be placed in the user manual or product packaging - Section 15.19(a)(5). Generally, devices smaller than the palm of the hand are considered small. However, the device must still be labeled with the unique identifier (Verification) or the FCC ID (Certification).

**Declaration of Conformity (DoC):**

The labeling requirements for a device subject to the Declaration of Conformity (DoC) procedure are specified in Section 15.19(b). The label should include the FCC logo along with the Trade Name and Model Number, which satisfies the unique identifier requirement of Section 2.1074 if it represents the identical equipment tested for DoC compliance. For personal computers assembled from authorized components, the following additional text must also be included: “Assembled from tested components,” “Complete system not tested.” When the device is so small and / or when it is not practical to place the required additional text on the device, the text may be placed in the user manual or pamphlet supplied to the user. However, the FCC logo, Trade Name, and Model Number must still be displayed on the device - Section 15.19(b)(3).



Part 15 Declaration of Conformity (DoC) Label Examples

**FCC Required Instruction Manual Inserts CFR 47 Part 15.21 and 15.105**

Section 15.21 requires that in the user manual, the user shall be cautioned that changes / modifications not approved by the responsible party could void the user’s authority to operate the equipment. The acceptable formats for user information dissemination are paper, computer disk or over the Internet. Where special accessories, such as shielded cables and/or special connectors, are required to comply with the emission limits, the instruction manual shall include appropriate instructions on the first page of the text describing the installation of the device (Section 15.27(a)).

For a Class A or Class B digital device (unintentional radiator), as well as any composite device that is both an intentional and unintentional radiator, the text specified in Section 15.105 must be placed in the user manual.

Devices authorized under the Declaration of Conformity (DoC) procedure must also include a compliance information statement (in the user manual or on a separate sheet) as required by Section 2.1077. The objective of this compliance statement is to allow the FCC to associate the equipment with the party responsible for compliance with the DoC requirements.

Devices certified as software defined radio that use an electronic labeling method to display the FCC ID must provide instructions in the user manual on how to access the electronic display (Section 2.925(e)).

Additional statements and information may be required for compliance to specific or general rule parts. The following is an example of some additional user information requirements. The party responsible for compliance must provide any additional statement(s) required.



- Kits - TV interface and Cable system terminal device marketed as Kits: Section 15.25 (d);
- TV interface devices, including cable system terminal devices: Section 15.115 (c) (5);
- Labeling of digital cable ready products: Section 15.123 - use of the term cable ready/compatible;
- External power amplifiers and antenna modifications: Section 15:204 (d) (2) – 1 notice of authorized amplifiers;
- Cordless telephones: Section 15.214 (c) & (d) (3) - privacy statement & security code statement;
- Cordless telephones: Section 15.233 (b) (2) (ii) - interference to TV;
- Cordless telephones: Section 15.233 (h) - cordless phones without digital security (Section 15.214);
- Professionally installed systems: Section 15.247 (c) (1) (iii);
- Operation within the Band 92-95 GHz: Section 15.257 (a) (4) - indoor use only;
- Unlicensed PCS: Section 15.311 - notification and coordination with UTAM, Inc.;
- RF exposure statements: Section 2.1091 (d) (3) - Mobile devices (a minimum separation distance may be required).

Our facility codes can be found in the *Test Equipment Used* Section starting on page 17.

## FCC Part 18 Required Labeling for Industrial, Scientific and Medical Equipment

### Labeling Requirements for Part 18 Devices:

Equipment that intentionally generates radio frequency energy for non telecommunications functions for industrial, scientific, medical (ISM) or other purposes must be authorized and labeled according to the procedures outlined in Part 2, Subpart J, Sections 18.203 and 18.209.

Non-consumer ISM equipment is authorized under the Verification procedure. Consumer ISM equipment is authorized under either the Declaration of Conformity or Certification procedure, except that consumer ultrasonic equipment generating less than 500 watts and operating below 90 KHz is subject to the Verification procedure.

Labeling for Verification requires a unique identifier (Section 2.954) to facilitate positive identification of the Verified device. The identification should not be confused with the FCC ID used on devices subject to Certification Labels for Part 18 devices subject to Certification require an FCC Identifier as described in Section 2.926.

For Declaration of Conformity the device shall be permanently labelled with the Part 18 logo (Section 18.209) illustrated below, in addition to a unique identifier (Section 2.1074) to facilitate positive identification.



Part 18 Declaration of Conformity (DoC) Logo

All [Artwork](#) shown above for Declaration of Conformity labels is available at:



<http://www.fcc.gov/labhelp> KDB Number 784748 (Select link on the left hand side “Detail Criteria Search” and in the Publication Number field enter 784748; then push the Submit Query button.)

### **User Manual and User Information for Part 18 Devices:**

For all industrial, scientific, medical (ISM) devices, the instruction manual or, if no instruction manual is provided, the product packaging must provide information that addresses the following: (1) interference potential of the device, (2) maintenance of the system and (3) simple measures that can be taken to correct interference. RF lighting devices must add a statement similar to the following: “This product may cause interference to radio equipment and should not be installed near maritime safety communications equipment, ships at sea or other critical navigation or communications equipment operating between 0.45-30 MHz.” (Section 18.213)

In addition, Part 18 devices that are authorized under the Declaration of Conformity procedure shall also include in the instruction manual, on a separate sheet, or on the packaging the following: identification of the product (e.g. name and model number), a statement similar to “This device complies with Part 18 of the FCC Rules” (Section 18.212), and the name and address of the responsible party (Section 2.909).

### **Multiple Authorization Procedures:**

A device subject to multiple authorization procedures requires appropriate testing and labeling for each of the respective authorization procedures. As a general rule, the Declaration of Conformity (DoC) text statement is required over any Verification statement. For devices subject to DoC and Verification, or Certification and Verification, the labeling requirements for DoC or Certification need only apply. When a device is authorized under both DOC and Certification procedures, the DoC logo and FCC ID (or FCC IDs if applicable) are required.

This requirement does not negate the testing requirement for each individual device that is subject to both multiple authorization procedures, and / or multiple technical rules. For example, an 802.11 WIFI Router that is also a CLASS B personal computer peripheral digital device must be tested as a computer peripheral (Section 15.3) and as a Digital Transmitter (Section 15.247) and must be labeled with the DoC logo and an FCC ID.

When supplying information to users, all relevant instructions that pertain to all components of a composite device are required. For example, Class A or Class B statements in Section 15.105; all warning statements and special instructions as required by Sections 15.21 and 15.27; and all Part 18 applicable instructions must be clearly stated. Variations in editing to clarify the language and structure are permitted if all the relevant points applicable to all of the components are represented.

## **Australian Communications and Media Authority (ACMA)**

### **Labeling**

Before a product can be marketed it must be labeled. Labeling for EMC is intended to provide a traceable link between a device and the supplier responsible for placing it on the Australian market, that is, the Australian manufacturer, importer or agent for an overseas manufacturer.

Under the EMC framework, manufacturers and importers of a device must satisfy certain requirements before a label can be affixed to a device. In general these involve completing the supplier’s Declaration of Conformity and establishing a Compliance Folder.



**General Labeling Conditions**

The label should meet the following specifications:

<b>Location:</b>	The label shall normally be placed on the external surface of the product as near as practical to the model identification. Where this is not practical, due to the size or nature of the product, the label may be placed on the labeling or packaging or warranty or instructions of this device. In addition the label may be placed on promotional material associated with the product.
<b>Method of Marking:</b>	The label shall be durably applied by any suitable means such as printing, painting, molding, etching and engraving. Reproduction shall be legible and conform the specifications for each mark.
<b>Scale:</b>	The label shall be legible with characters generally larger than 3mm.
<b>Color:</b>	The label may be reproduced in any color provided that visibility is assured through either contrast with the background color or marking in relief (molding, engraving etc.)
<b>Identification of the supplier:</b>	Devices bearing the compliance mark shall also be marked with some means of identifying the person responsible for placing the product on the Australian market: In the case of products manufactured in Australia this will be the manufacturer. For devices manufactured outside Australia this will be the importer or agent of an overseas manufacturer/supplier.

The label may be affixed to a product at any point prior to its being offered for sale on the Australian market. The ACMA recognizes that for many imported products it will be more cost effective to label the product at the time of manufacture rather than to apply the label at the time of marketing and distribution. A product may not be offered for sale unless it is properly labeled and the Compliance Folder is complete. Penalties apply to the misuse of the label.

**C-Tick Mark**

The C-Tick Mark is intended for use on all articles which conform with the EMC framework. The C-Tick Mark can also be used to show compliance with telecommunications and radiocommunications standards. For EMC compliance the C-Tick Mark must be accompanied by:

- The registered name and address of the place of business of the Australian supplier; or
- The Australian Company Number (ACN); or
- A supplier code issued by the ACMA; or
- Trademark/Name registered in Australia.

If the Trademark/Name option is to be used, registration details of the Trademark/Name should accompany the application. Suppliers may elect their preferred option for labeling using the C-Tick Mark. The components of the compliance label will be combined in such a manner that the C-Tick Mark and supplier identification information are contiguous.

Before a device is labeled with the C-Tick Mark the supplier must submit a written notice to the ACMA. A supplier is only required to submit one application to the ACMA advising of their intention to use the C-Tick Mark on all compliant products. The ACMA proposes that retailers and wholesalers satisfy themselves that a product is correctly labeled before offering it for sale.

**Regulatory Compliance Mark**

The Regulatory Compliance Mark (RCM) is described in joint Australian and New Zealand standard AS/NZS 4417. The mark is intended for use by a number of regulators and covers main-connected devices. Some devices may be ineligible to use the mark and should therefore apply the C-Tick Mark. All devices that acquire a Certificate of Suitability for electrical safety



compliance will be eligible to use the RCM to denote EMC compliance once compliance has been established.

When using the RCM, the means of identifying the person responsible for placing a device on the Australian market will be through:

- The registered name and address of the place of business of the Australian supplier; or
- The Australian Company Number (ACN); or
- A supplier code issued by the ACMA; or
- Trademark/Name registered in Australia

Where a supplier intends to use the RCM for EMC compliance they should complete the application form in AS/NZS 4417 part 3.

Further information can be found at the ACMA web site at <http://www.acma.gov.au/acmainter> .

### Canadian Requirements

Digital products and ISM products must be labeled by a notice in French and English. The notice **must** take the form of a label on the product. As an alternative, where it is not feasible to label the product due to product size or other consideration, the notice must be reproduced in the manual. Note that considerations such as product appearance are not considered to meet the feasibility test. The notice must state that the product is in compliance with Canadian Interference-Causing Equipment regulations and may be in your own words. A suggested text is:

#### For ITE products:

This Class A or B digital apparatus complies with Canadian ICES-003.

Cet appareil numerique de la classe A or B est conforme a la norme NMB-003 du Canada.

#### For ISM products:

This ISM apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Ce generateur de frequence radio ISM respecte toutes les exigences du Reglement sur le materiel brouilleur du Canada.

Although the ITE limits are different from the FCC in some minor ways, equipment which complies with the FCC limits is considered by Industry Canada to be compliant with the Canadian rules. For ITE, equipment in compliance with either FCC Part 15 or CISPR 22 is considered to meet ICES-003. ISM equipment limits are the same as the EU EN55011 emission limits. Reports must be kept on file for review by the appropriate Canadian Minister for a period of five years.

Our facility codes can be found in the *Test Equipment Used* Section starting on page 17.

### VCCI Requirements

In order to comply with VCCI and appropriately label your product, you must be a member of the Voluntary Control Council for Interference (VCCI). Every company is eligible to join the VCCI. Membership dues are assessed based on company size and vary from 200,000 yen to 800,000 yen (about \$2,000 to \$8,000) per year. Since the VCCI fiscal year commences April 1, it may be prudent to wait for April if that month is near to avoid paying double dues.





This report contains the information you need to fill out the Conformity Verification Report. Once filled out, it must be sent to VCCI. You must also label your product with the appropriate class A or class B mark and supply the required user information in your manual. The Conformity Verification Report label marks and other VCCI forms, documents and instructions can be found at the VCCI member page [http://www.vcci.or.jp/vcci\\_e/member/index.html](http://www.vcci.or.jp/vcci_e/member/index.html).

There are two ways to submit your report to VCCI: by postal mail and by Internet. For more information regarding the VCCI internet submission service, go to [http://www.vcci.or.jp/vcci\\_e/member/news/index6.html](http://www.vcci.or.jp/vcci_e/member/news/index6.html)

Curtis-Straus, the measurement facility, is a VCCI supporting member Rank D, acceptance number 818. Our facility codes can be found in the *Test Equipment Used* Section starting on page 17.



## Conditions Of Testing

[Bureau Veritas Consumer Products Services, Inc., a Massachusetts corporation], and/or its affiliates (collectively, the "Company") will conduct, at the request of the Submitter ("Client"), the tests specified on the submitted Test Request Form or equivalent in accordance with, and subject to, the following terms and conditions (collectively, "Conditions"):

1. All orders for tests are subject to acceptance by the Company, and no order will constitute a binding commitment of the Company unless and until such order is accepted by it, as evidenced by the issuance of a written report ("Test Report") by the Company. The Test Report is issued solely by the Company, is intended for the exclusive use of Client and shall not be published, used for advertising purposes, copied or replicated for distribution to any other person or entity or otherwise publicly disclosed without the prior written consent of the Company. By submitting a request for services to the Company, Client consents to the disclosure to accreditation bodies of those records of Client relevant to the accreditation body's assessment of the Company's competence and compliance with relevant accreditation criteria. The Company shall not be liable for any loss or damage whatsoever resulting from the failure of the Company to provide its services within any time period for completion estimated by the Company. If Client anticipates using the Test Report in any legal proceeding, arbitration, dispute resolution forum or other proceeding, it shall so notify the Company prior to submitting the Test Report in such proceeding. The Company has no obligation to provide a fact or expert witness at such proceeding unless the Company agrees in advance to do so for a separate and additional fee.
2. The Test Report will set forth the findings of the Company solely with respect to the test samples identified therein. Unless specifically and expressly indicated in the Test Report, the results set forth in such Test Report are not intended to be indicative or representative of the quality or characteristics of the lot from which a test sample is taken, and Client shall not rely upon the Test Report as being so indicative or representative of the lot or of the tested product in general. The Test Report will reflect the findings of the Company at the time of testing only, and the Company shall have no obligation to update the Test Report after its issuance. The Test Report will set forth the results of the tests performed by the Company based upon the written information provided to the Company. The Test Report will be based solely on the samples and written information submitted to the Company by Client, and the Company shall not be obligated to conduct any independent investigation or inquiry with respect thereto.
3. The Company may, in its sole discretion, destroy samples which have been furnished to the Company for testing and which have not been destroyed in the course of testing. The Company may delegate the performance of all or a portion of the services contemplated hereunder to an affiliate, agent or subcontractor of the Company, and Client consents to such delegation.
4. These Conditions and the Test Report represent the entire understanding of the parties hereto with respect to the subject matter hereof and of the Test Report, and no modification, variance or extrapolation with respect thereto shall be permitted without the prior written consent of the Company.
5. The names, service marks, trademarks and copyrights of the Company and its affiliates, including the names "BUREAU VERITAS," "BUREAU VERITAS CONSUMER PRODUCTS SERVICES," "BVCPS," "MTL," "ACTS," "MTL-ACTS" and "CURTIS-STRAUS" (collectively, the "Marks") are and shall remain the sole property of the Company or its affiliates and shall not be used by Client except solely to the extent that Client obtains the prior written approval of the Company and then only in the manner prescribed by the Company. Client shall not contest the validity of the Marks or take any action that might impair the value or goodwill associated with the Marks or the image or reputation of the Company or its affiliates.
6. Payment in full shall be due 30 days after the date of invoice. Interest shall be due on overdue amounts from the due date until paid at an interest rate of 1.5% per month or, if less, the maximum rate permitted by law. The Company reserves the right, at any time and from time to time, to revoke any credit extended to Client. Client shall reimburse the Company for any costs it incurs in collecting past due amounts, including court costs and fees and expenses of attorneys and collection agencies. The Test Report may not be used or relied upon by Client if and for so long as Client fails to pay when due any invoice issued by the Company or any affiliate of it to Client or any affiliate or subsidiary of Client together with interest and penalties, if any, accrued thereon.
7. The Company disclaims any and all responsibility or liability arising out of or in connection with e-mail transmissions of such information.
8. Client understands and agrees that the Company is neither an insurer nor a guarantor, that the Company does not take the place of Client or any designer, manufacturer, agent, buyer, distributor or transportation or shipping company, and that the Company disclaims all liability in such capacities. Client further understands that if it seeks assurance against loss or damage, it should obtain appropriate insurance.
9. Client agrees that the Company, by providing the services, does not take the place of Client nor any third party, nor does the Company release them from any of their obligations, nor does the Company otherwise assume, abridge, abrogate or undertake to discharge any duty of any third party to Client or any duty of Client or any third party to any other third party, and Client will not release any third party from its obligations and duties with respect to the tested goods.
10. Client shall, on a timely basis, (a) provide adequate instructions to the Company in order to enable the Company to perform properly its services, (b) provide, or cause Client's suppliers and contractors to provide, the Company with all documents necessary to enable the Company to perform its services, (c) furnish the Company with all relevant information regarding Client's intended use and purposes of the tested goods, (d) advise the Company of essential dates and deadlines relevant to the tested goods and (e) fully exercise all rights and remedies available to Client against third parties in respect of the tested goods.
11. The Company shall undertake due care and ordinary skill in the performance of its services to Client, and the Company shall accept responsibility only where such skill has not been exercised and, even in such event, only to the extent of the limitation of liability set forth herein.
12. If Client desires to assert a claim arising from or relating to (i) the performance, purported performance or non-performance of any services by the Company or (ii) the sale, resale, manufacture, distribution or use of any tested goods, it must submit that claim to the Company in a writing that sets forth with particularity the basis for such claim within 60 days from discovery of the potential claim and not more than six months after the date of issuance of the Test Report to Client. Client waives any and all such claims including, without limitation, claims that the Test Report is inaccurate, incomplete or misleading or that additional or different testing is required, unless and then only to the extent that Client submits a written claim to the Company within both such time periods.
13. CLIENT SHALL, EXCEPT TO THE EXTENT OF COMPANY'S LIABILITY TO CLIENT HEREUNDER (WHICH IN NO EVENT SHALL EXCEED THE LIMITATION OF LIABILITY HEREIN), HOLD HARMLESS AND INDEMNIFY THE COMPANY, ITS



AFFILIATES AND THEIR RESPECTIVE DIRECTORS, OFFICERS, EMPLOYEES, AGENTS AND SUBCONTRACTORS AGAINST ALL ACTUAL OR ALLEGED THIRD PARTY CLAIMS FOR LOSS, DAMAGE OR EXPENSE OF WHATSOEVER NATURE AND HOWSOEVER ARISING FROM OR RELATING TO (i) THE PERFORMANCE, PURPORTED PERFORMANCE OR NON-PERFORMANCE OF ANY SERVICES BY THE COMPANY OR (ii) THE SALE, RESALE, MANUFACTURE, DISTRIBUTION OR USE OF ANY TESTED GOODS.

14. EXCEPT AS MAY OTHERWISE BE EXPRESSLY AGREED TO IN WRITING BY THE COMPANY AND NOTWITHSTANDING ANY PROVISION TO THE CONTRARY CONTAINED HEREIN OR IN ANY TEST REPORT, NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE, IS MADE.

15. (A) IN NO EVENT WHATSOEVER SHALL THE COMPANY BE LIABLE FOR ANY CONSEQUENTIAL, SPECIAL, INCIDENTAL, EXEMPLARY OR PUNITIVE DAMAGES IN CONNECTION WITH, RELATING TO OR ARISING OUT OF THE TEST REPORT OR THE SERVICES PROVIDED BY THE COMPANY HEREUNDER, INCLUDING WITHOUT LIMITATION LOSS OF OR DAMAGE TO PROPERTY; LOSS OF INCOME, PROFIT OR USE; OR ANY CLAIMS OR DEMANDS MADE AGAINST CLIENT OR ANY OTHER PERSON BY ANY THIRD PARTY IN CONNECTION WITH, RELATING TO OR ARISING OUT OF THE SERVICES PROVIDED BY THE COMPANY HEREUNDER.

(B) NOTWITHSTANDING ANY PROVISION TO THE CONTRARY CONTAINED HEREIN, AND IN RECOGNITION OF THE RELATIVE RISKS AND BENEFITS TO CLIENT AND THE COMPANY ASSOCIATED WITH THE TESTING SERVICES CONTEMPLATED HEREBY, THE RISKS HAVE BEEN ALLOCATED SUCH THAT UNDER NO CIRCUMSTANCES WHATSOEVER SHALL THE LIABILITY OF THE COMPANY TO CLIENT OR ANY THIRD PARTY IN RESPECT OF ANY CLAIM FOR LOSS, DAMAGE OR EXPENSE, OF WHATSOEVER NATURE OR MAGNITUDE, AND HOWSOEVER ARISING, EXCEED AN AMOUNT EQUAL TO FIVE (5) TIMES THE AMOUNT OF THE FEES PAID TO THE COMPANY FOR THE SPECIFIC SERVICES WHICH GAVE RISE TO SUCH CLAIM OR U.S.\$10,000, WHICHEVER IS THE LESSER AMOUNT.

16. The Company shall not be liable for any loss or damage resulting from any delay or failure in performance of its obligations hereunder resulting directly or indirectly from any event of force majeure or any event outside the control of the Company. If any such event occurs, the Company may immediately cancel or suspend its performance hereunder without incurring any liability whatsoever to Client.

17. Company's services, including these Conditions, shall be governed by, and construed in accordance with, the local laws of the country where the Company performs the tests or, in the case of tests performed in the United States of America, the laws of Massachusetts without regard to conflicts of laws principles. If any aspect(s) of these Conditions is found to be illegal or unenforceable, the validity, legality and enforceability of all remaining aspects of these Conditions shall not in any way be affected or impaired thereby. Any proceeding related to the subject matter hereof shall be brought, if at all, in the courts of the country where the Company performs the tests or, in the case of tests performed in the United States of America, in the courts of Massachusetts. Client waives the right to interpose any counterclaim or setoffs of any nature in any litigation arising hereunder.

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