



**BUREAU  
VERITAS**

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

# Test Report

Report No	EM1961-3
Client	Ohio Willow Wood Mike Haynes
Address	15441 Scioto Darby Rd. Mt. Sterling, Ohio 43143
Phone	800-553-3445
Items tested	LLV-21011
FCC ID	U3V-LLV21011
IC ID	7475A-LLV21011
FRN	0016158792
Equipment Code	8CC
Prepared by	 Chris Reynolds – Test Engineer
Authorized by	 Mairaj Hussain – EMC Supervisor
Issue Date	<u>12/13/2012</u>
Conditions of Issue	This Test Report is issued subject to the conditions stated in the 'Conditions of Testing' section on page 27 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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Cert. No. 1627-01

ACCREDITED

Cert. No. 1627-01

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REV 27-NOV-12 (KK)



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## Summary

On August 8, 17, 2012 and November 8, 2012 we tested the LLV-21011 for compliance with the following requirements:

### EMC Emissions:

- CFR 47 FCC Part 18 emissions requirements (USA)

We found that the product met the above requirements without modification. Mike Haynes from Ohio Willow Wood was present during the testing. The test sample was received in good condition. The sample was received on August 8, 2012.

The EUT is an inductive charger that, while charging, operates at 42kHz. For data in this report, the EUT was operating only in this mode of operation.

Issue No.	Reason for change	Date Issued
1	Original Release	January 4, 2013

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**Product Tested****Configuration Documentation**

EUT Configuration																																		
MN SN																																		
<b>Work Order:</b> M1961 <b>Company:</b> Ohio Willow Wood <b>Company Address:</b> 15441 Scioto Darby Rd. Mt. Sterling, OH 43143 <b>Contact:</b> Mike Haynes <b>Person Present:</b> Mike Haynes																																		
<b>EUT:</b> <b>Charger (inductive)</b> LLV-21011 <b>EUT Description:</b> LimbLogic VS - Vacuum suspension system for prosthetic limbs <b>EUT Max Frequency:</b> 16MHz <b>EUT ISM Frequency:</b> 42kHz & 84 (±)kHz																																		
<b>Support Equipment:</b> HP Laptop compaq nc6320																																		
<b>EUT Ports:</b> <table border="1"> <thead> <tr> <th>Port Label</th> <th>Port Type</th> <th>No. of ports</th> <th>No.</th> <th>Populated</th> <th>Cable Type</th> <th>Shielded</th> <th>Ferrites</th> <th>Length</th> <th>Max Length</th> <th>In/Out NEBS Type</th> <th>Unpopulated Reason</th> </tr> </thead> <tbody> <tr> <td>AC to DC brick</td> <td>DC power</td> <td>1</td> <td>1</td> <td></td> <td>2-wire DC</td> <td>No</td> <td>On Dc side</td> <td>7'</td> <td>NA</td> <td>Indoor</td> <td></td> </tr> </tbody> </table>											Port Label	Port Type	No. of ports	No.	Populated	Cable Type	Shielded	Ferrites	Length	Max Length	In/Out NEBS Type	Unpopulated Reason	AC to DC brick	DC power	1	1		2-wire DC	No	On Dc side	7'	NA	Indoor	
Port Label	Port Type	No. of ports	No.	Populated	Cable Type	Shielded	Ferrites	Length	Max Length	In/Out NEBS Type	Unpopulated Reason																							
AC to DC brick	DC power	1	1		2-wire DC	No	On Dc side	7'	NA	Indoor																								
<b>Software / Operating Mode Description:</b> EUT is set to alternately turn the pump on to the set 20 inches of mercury then release and turn back on after reaching a software controlled setpoint. The Limblogic Prosthetist software on the support laptop communicates with the EUT via the wireless USB device (low power bluetooth module). Alternatively the EUT is controlled via the wireless fob.																																		

**Compliance Statement**

TEST	RESULT	TEST METHOD	STANDARD	MARGIN	COMMENTS
<b><i>Radiated Emissions</i></b>	PASS	MP 5	47 CFR FCC Part 18	>20dB	
<b><i>AC Mains Conducted Emissions</i></b>	PASS	MP 5	47 CFR FCC Part 18	-15.6 dB @ 0.3 MHz	



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

There were no modifications required for compliance.



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***RADIATED EMISSIONS*****Test Method:**

In accordance with the following:

- MP 5

**Results:**

TEST	RESULT	STANDARD	MARGIN	COMMENTS
<b><i>Radiated Emissions</i></b>	Pass	47 CFR FCC Part 18	>20dB	



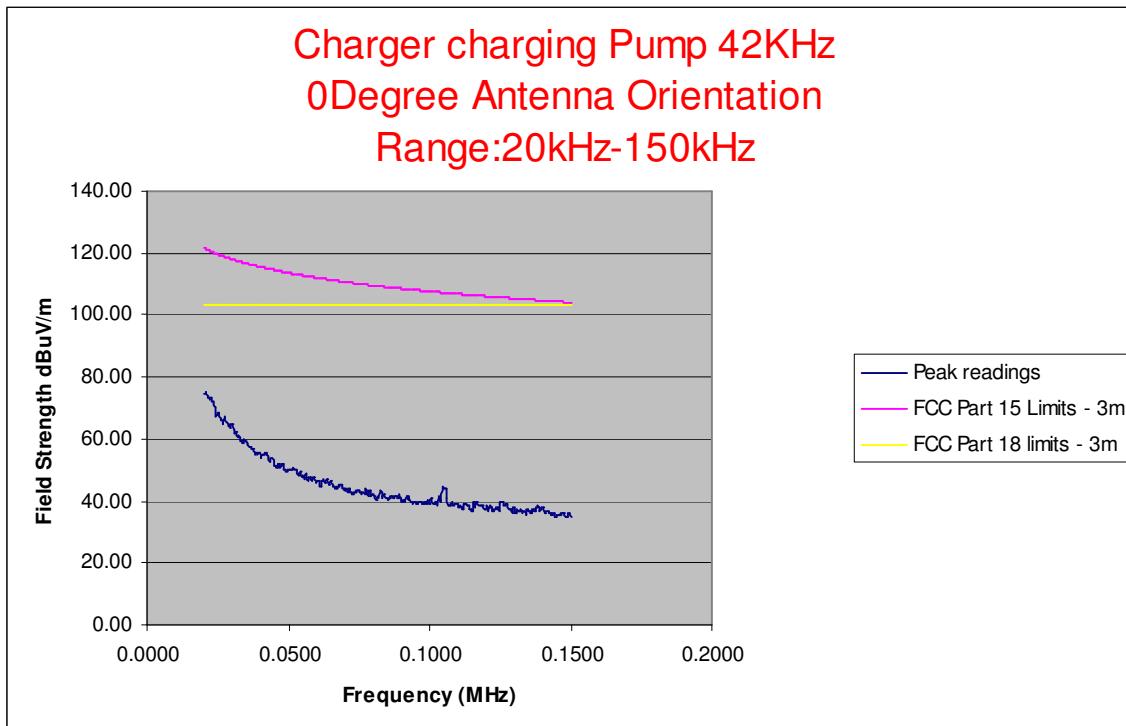
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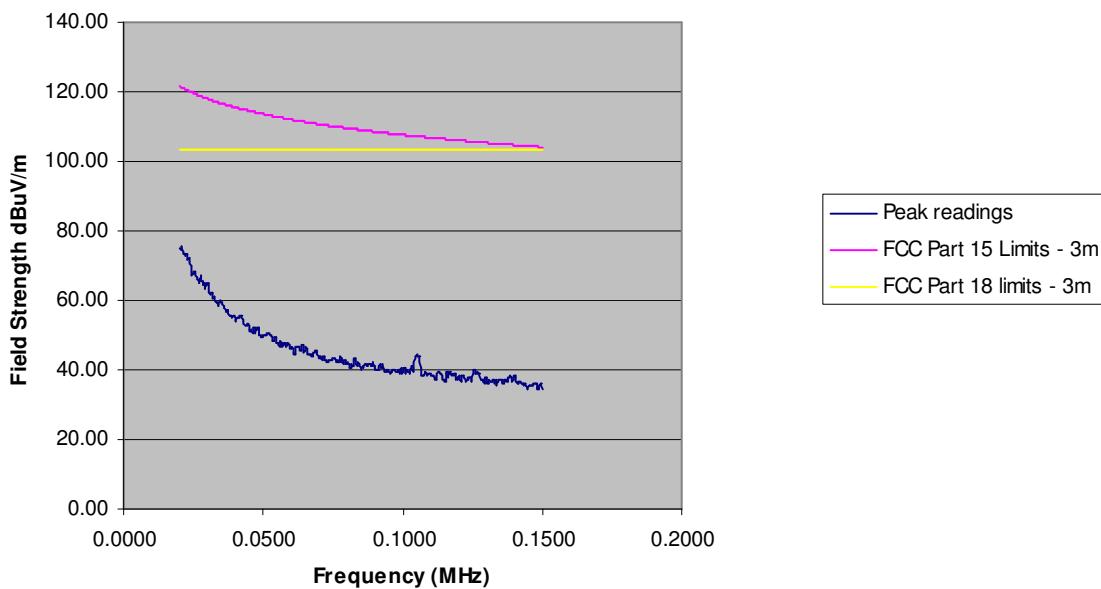
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**Radiated Emissions Data Table(s):**

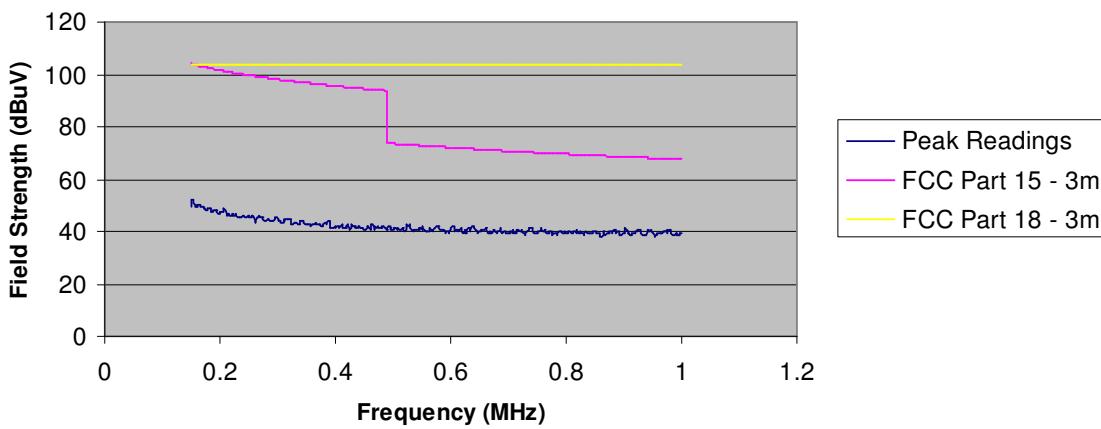
Radiated Emissions Table							FCC Part 15			FCC Part 18							
Date: 07-Aug-12		Company: Ohio Willow Wood					Work Order: M1961										
Engineer: Ahmed Ahmed		EUT Desc: Charger charging Pump 42KHz					EUT Operating Voltage/Frequency: 120Vac/60Hz										
Temp: 25°C		Humidity: 31%		Pressure: 1005mBar													
Frequency Range: 9-20kHz							Measurement Distance: 3 m										
Notes:																	
Antenna Polarization (0° - 90°)	Frequency (MHz)	Reading (dB $\mu$ V)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Reading (dB $\mu$ V/m)	FCC Part 15			FCC Part 18							
							Limit (dB $\mu$ V/m)	Margin (dB)	Result (Pass/Fail)	Limit (dB $\mu$ V/m)	Margin (dB)	Result (Pass/Fail)					
No Emissions found in this range.																	
Test Site: EMI Chamber 2		Cable 1: Asset #1505		Cable 2: Asset #1522		Cable 3: ---											
Analyzer: Gold		Preamp: none		Antenna: Sm Loop (low)		Preselector: ---											



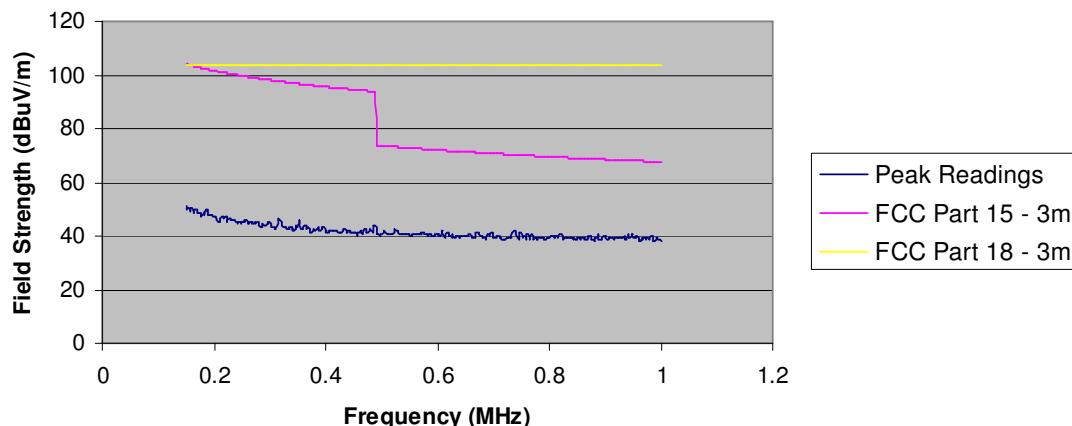
Charger charging Pump 42kHz.  
90Degree Antenna Orientation  
Range:20kHz-150kHz



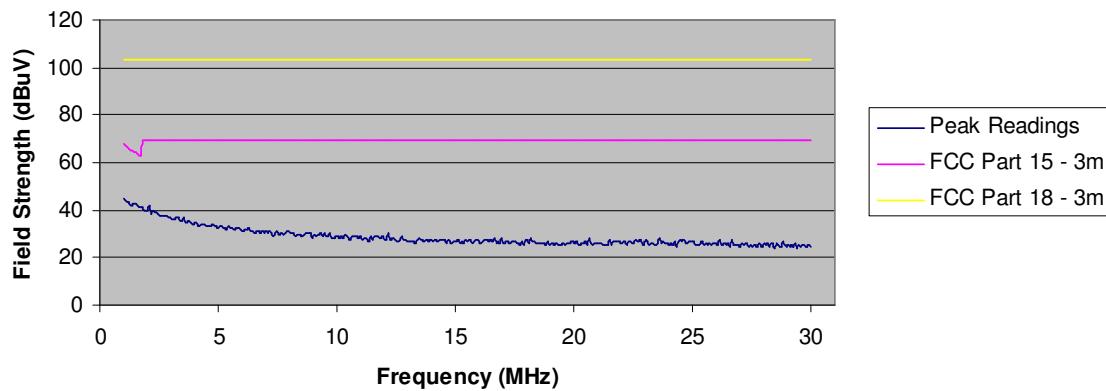
Charger charging Pump 42kHz.  
0Degree Antenna Orientation  
Range: 0.15-1MHz



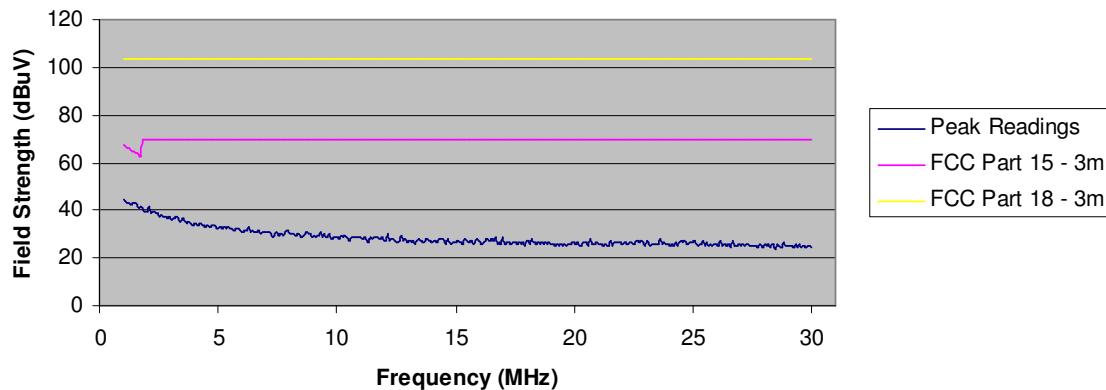
**Charger charging Pump 42kHz.  
90Degree Antenna Orientation  
Range: 0.15-1MHz**



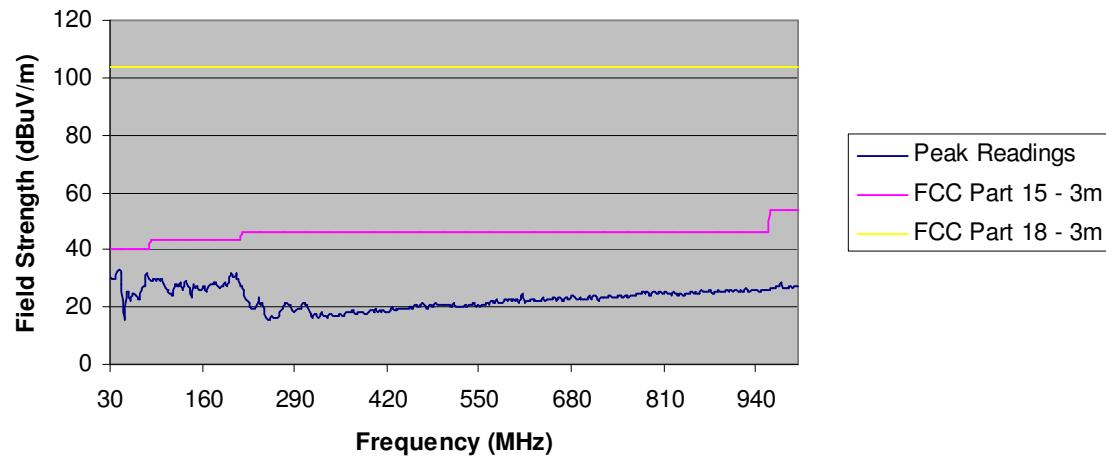
**Charger charging Pump 42kHz  
0Degree Antenna Orientation  
Range: 1-30MHz**



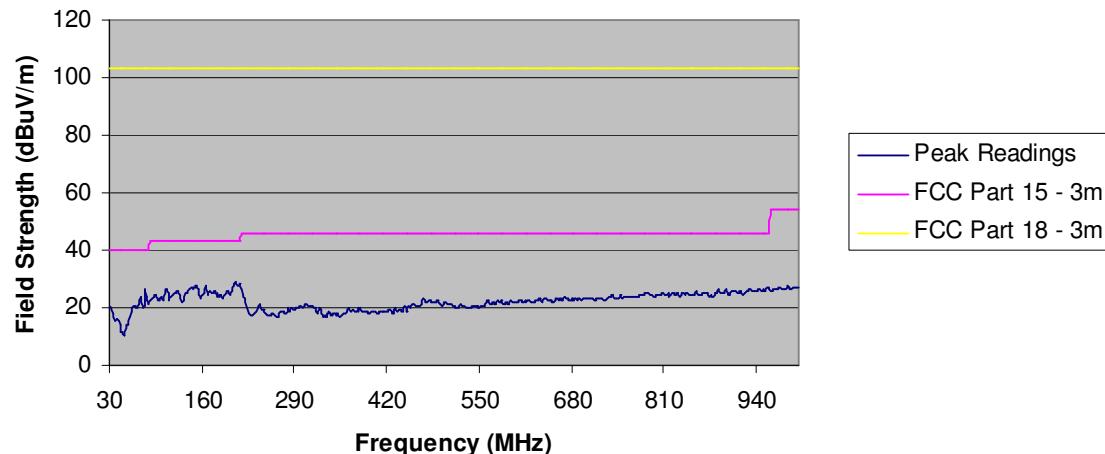
**Charger charging Pump 42kHz  
90Degree Antenna Orientation  
Range: 1-30MHz**



**Charger charging Pump 42kHz  
Vertical Antenna Polarity  
Range: 30-1000MHz**



**Charger charging Pump 42kHz**  
**Horizontal Antenna Polarity**  
**Range: 30-1000MHz**



Rev.8/4/2012

Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due
Gold	100Hz-26.5 GHz	E4407B	Agilent	MY45113816	1284	I	2/3/2013
<b>Radiated Emissions Sites</b>							
EMI Chamber 2	FCC Code 719150	IC Code 2762A-7	VCCI Code A-0015			Cat II	Calibration Due 2/15/2014
<b>Antennas</b>	<b>Range</b>	<b>MN</b>	<b>Mfr</b>	<b>SN</b>	<b>Asset</b>	<b>Cat</b>	<b>Calibration Due</b>
Small Loop	10kHz-30MHz	PLA-130/A	ARA	1024	755	I	4/27/2014
<b>Cables</b>	<b>Range</b>	<b>Mfr</b>					
Asset #1505	9kHz - 18GHz	Florida RF				Cat II	Calibration Due 2/9/2013
Asset #1522	9kHz - 26.5GHz	Florida RF				II	9/21/2012
<b>Meteorological Meters</b>		<b>MN</b>	<b>Mfr</b>	<b>SN</b>	<b>Asset</b>	<b>Cat</b>	<b>Calibration Due</b>
Weather Clock (Pressure Only)	BA928	Oregon Scientific	C3166-1	831	I		3/28/2013
CHAMBER2 Thermohygrometer	35519-044	Control Company	72457639	1347	II		8/19/2013

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



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Testing Cert. No. 1627-01

**Radiated Emissions Modifications:**

None



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## Radiated Emissions Testing Overview

REV 10-APR-09

Testing performed according to MP-5.



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**CONDUCTED EMISSIONS****Test Method:**

In accordance with the following:

- CFR 47 FCC Part 18

**Results:**

TEST	RESULT	STANDARD	MARGIN	COMMENTS
<b><i>AC Mains Conducted Emissions</i></b>	PASS	47 CFR FCC Part 18	-15.6 dB @ 0.3 MHz	



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## Conducted Emissions Data Table(s):

## AC Conducted Emissions Data Table

AC Conducted Emissions Data Table							Company: Ohio Willow Wood			Work Order: M1961				
Date: 17-Aug-12 Engineer: Tuyen Truong Temp: 24.8 °C Notes: EUT with USB interface			EUT Desc: LimbLogic Humidity: 31%			Pressure: 1002 mBar								
Frequency (MHz)	Frequency Range: 0.15-30 MHz						EUT Input Voltage/Frequency: 230Vac,50Hz							
	Quasi-Peak Readings	Average Readings	LISN Factors	Cable Factor	ATTN Factor	FCC Part 18	OP Limit	Margin	Result	Avg Limit	Margin	Result		
	OP1 (dBuV)	OP2 (dBuV)	AVG1 (dBuV)	AVG2 (dBuV)	L1 (dB)	L2 (dB)	(dB)	(dB)	(Pass/Fail)	(dB)	(dB)	(Pass/Fail)		
0.30	16.8	20.5	8.6	14.2	-0.7	-0.2	-0.1	-20.1	60.2	-19.3	Pass	50.2	-15.6	Pass
0.59	14.6	15.2	3.6	4.0	-0.5	-0.2	-0.1	-20.1	56.0	-20.5	Pass	46.0	-21.6	Pass
3.00	6.0	6.6	-0.9	0.2	-0.1	-0.1	-0.1	-20.1	56.0	-29.1	Pass	46.0	-25.5	Pass
6.06	5.0	4.5	-1.6	-2.3	-0.1	-0.1	-0.2	-20.1	60.0	-34.7	Pass	50.0	-31.2	Pass
13.09	4.1	3.7	-2.7	-3.2	-0.4	-0.4	-0.2	-20.1	60.0	-35.3	Pass	50.0	-32.1	Pass
22.15	3.5	3.7	-2.9	0.2	-0.5	-0.4	-0.3	-20.1	60.0	-35.5	Pass	50.0	-29.0	Pass

**Result:** Pass**Worst Margin:** -15.6 dB**Frequency:** 0.30 MHz

Measurement Device: 230VAC LISN Asset 1492

Cable: CEMI-03

Spectrum Analyzer: Red

Attenuator: 20dB Attenuator-60

Site: CEMI 6

Rev.8/10/2012

Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due
Red	9kHz-1.8GHz	8591E	Agilent	3441A03559	24	I	5/23/2013
LISNs/Measurement Probes	Range	MN	Mfr	SN	Asset	Cat	Calibration Due
230VAC LISN Asset 1492	10kHz-50MHz	9252-50-R-24-BNC	Solar	84713	1492	I	5/10/2013
Conducted Test Sites (Mains / Telco)	FCC Code	VCCI Code			Cat	Calibration Due	
CEMI 6	719150	A-0015			III	NA	
Cables	Range	Mfr			Cat	Calibration Due	
CEMI-03	9kHz - 2GHz	C-S			II	9/16/2012	
Meteorological Meters	MN	Mfr	SN	Asset	Cat	Calibration Due	
Weather Clock (Pressure Only)	BA928	Oregon Scientific	C3166-1	831	I	3/28/2013	
CEMI6 Thermohygrometer	35519-044	Control Company	72457730	1344	II	8/19/2013	

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



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**Conducted Emissions Modifications:**

None



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## Line Conducted Emissions Overview:

REV 9-MAY-06

Digital and microprocessor based devices use radio frequency (RF) digital techniques for timing purposes and in applications such as switching power supplies. An unintentional consequence of this for AC powered devices is that a certain amount of the RF energy is impressed upon the AC power mains in the form of a conducted noise voltage. These conducted emissions have the potential to interfere with constructive uses of the RF spectrum such as AM radio and may also interfere with other devices attached to the same AC mains circuit. In order to reduce the likelihood that a device will interfere it is required that the conducted RF signals from the device are below an allowable level.

Testing is performed according to test methods from ANSI C63.4 and CISPR 22.

Line conducted emissions are measured from the device over the frequency range of 0.15 to 30 MHz. The EUT is powered from a Line Impedance Stabilization Network (LISN). The purpose of the LISN is to provide a calibrated impedance across which to measure the conducted emissions. The RF noise voltage produced by the EUT across the LISN is measured and compared to the limit. In order for the LISN to perform properly it is attached to a ground plane at least 2 meters by 2 meters in size. For tabletop equipment the measurement is performed with the equipment 40 cm from a vertical conducting surface bonded to a ground plane under the product. The ground plane extends 0.5 meters beyond the product and is 2.5mx3.7m in size. The vertical surface is 2.5mx2.5m.

As with radiated emissions, the "human factor" is accounted for by the use of a "quasi-peak" detector in the receiver or spectrum analyzer that measures the signal from the LISN. For certain tests (such as EN55022), both an average and a quasi-peak limit are specified. Emissions from a device must be below both limits when measured with the appropriate detector. If the emission level is below the average limit when measured with the quasi-peak detector, the EUT is presumed to pass both limits.

The possible operating modes of the EUT are explored to determine the configuration that maximizes emissions. Software is investigated as well as different methods of displaying data if available. Data is recorded in the worst case operating mode.

As of September 9, 2002, the FCC has harmonized it's conducted emission limits with CISPR. The following table displays the limits applicable to both FCC and CISPR.



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Line Conducted Emissions Limits: Class A (dB $\mu$ V)		
Frequency (MHz)	Quasi-Peak	Average
0.15 - 0.5	79	66
0.5 - 30	73	60
Line Conducted Emissions Limits: Class B (dB $\mu$ V)		
Frequency (MHz)	Quasi-Peak	Average
0.15 - 0.5	66 - 56*	56 - 46*
0.5 - 5	56	46
5 - 30	60	50

Note 1: The lower limit applies at the transition frequencies

\*Note 2: The limit decreases linearly with the logarithm of the frequency

At least the six highest emissions with respect to the limit are recorded. If less than six emissions are visible above the noise floor of the instrumentation, then the noise floor at six representative frequencies is recorded. The test report will document if noise floor readings are reported.

All testing is performed within the framework of a laboratory quality system modeled on ISO/IEC 17025 *General requirements for the competence of calibration and testing laboratories* and is subject to our terms and conditions. This test method is covered by our A2LA accreditation.



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### ***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.



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### ***Product Documentation***

If additional documentation on the product has been provided for insertion in the report, it is appended here.



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## ***Jurisdictional Labeling and Required Instruction Manual Inserts***

### **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.

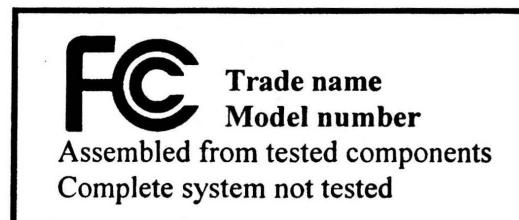
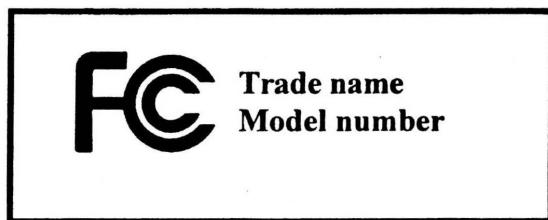
If the labeling area for the device is so small, and / or it is not practical to place the required statement on the device, then the statement can be placed in the user manual or product packaging - Section 15.19(a)(5). Generally, devices smaller than the palm of the hand are considered small. However, 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 lists in each emissions section of this report.

## 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



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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.

### **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 lists in each emissions section of this report.



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## 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-STRAUSS (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 were 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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