



CURTIS
STRAUS

Test Report

Report No EJ0908-1

Client Wavemark
Rich Leitermann

Address 1 Monarch Drive
Littleton, MA 01460

Phone (978) 431-1633

Item tested Roving Reader (MN: RR1000)

Standards FCC Part 15 Section 15.225
FCC ID UQY-RR1000
FRN

Test Dates October 8th, 2009

Results As detailed within this report

Prepared by 
Tuyen Truong – Compliance Engineer

Authorized by 
Mairaj Hussain – EMC Supervisor

Issue Date Oct 26-09

Conditions of Issue This Test Report is issued subject to the conditions stated in the 'Conditions of Testing' section on page 14 of this report.

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Summary

On October 8th, 2009 we tested the Roving Reader for compliance with the following requirements:

EMC Emissions:

- FCC 47 CFR Part 15.225

Registration numbers for all open area test sites can be found in the *Test Equipment Used* Section starting on page 13.

We found that the product met the above requirements with modification (see *Modifications Required for Compliance* section on page 6). Rich Leitermann from Wavemark was present during the testing. The test sample was received in good condition.

The purpose of this test report is to support the Roving Reader (FCC ID: UQY-RR1000) which contains a radio operating at 13.56 MHz. The radio is only intended to operate in battery mode. In radio charging mode, radio Tx would be turned off. AC Mains conducted emissions were performed in charging mode with Tx off using 50 Ω / 50 μ H LISN.

Temperature and voltage variation tests were not performed on the radio sample because Wavemark has not made any changes to the original radio by Feig with FCC ID: PJMMR101-PR101. Test report containing data for frequency stability is attached with this application.

Release Control Record

Issue No.	Reason for change	Date Issued
1	Original Release	11/16/2009

Test Methodology

Radiated emission testing was performed according to the procedures specified in ANSI C63.4 (2003). Emissions were maximized by rotating the system around its vertical axis as well as varying the test antenna's height and polarity. The EUT's antenna was also maximized. The EUT was tested as a standalone unit. A separate test report has been issued to cover the associated digital circuitry of product in order to satisfy DoC requirements.

Frequency range investigated: 0.009MHz – 1000MHz

Measurement distance:	0.15 - 30MHz	Conducted
	0.009 – 30MHz	3m (loop antenna)
	30MHz – 1000MHz	3m

AC Line conducted emissions testing was performed with a 50Ω/50μH LISN.

Release Control Record

Issue No.	Reason for change	Date Issued
1	Original Release	11/16/2009

Product Tested - Configuration Documentation

EUT Configuration											
Work Order: J0908 Company: Wavemark Company Address: 80 Central Street, Suite 300 Boxborough, MA 01719 Contact: Rich Leitermann Person Present: Rich Leitermann											
		MN			PN			SN			
EUT:		RR1000			04-0051			Sample 1			
Antenna		--			04-0050			Sample 2			
Cell - CON AC/DC Power Brick		452040-SB			--			--			
EUT Description: Roving Reader EUT Max Frequency: 13.56 MHz											
Support Equipment:		MN			SN						
Dell Laptop		PP09S								--	
EUT Ports:											
Port Label	Port Type	No. of ports	No.		Cable Type	Shielded	Ferrites	Length	Max Length	In/Out	Unpopulated Reason
USB	USB	1	1		USB	Yes	No	6ft	12 ft	Indoor	
Antenna	Coax	1	1		Coaxial	Yes	No	10ft	10ft	Indoor	
Battery Charger	Power Input	1	1		2-wired conductor	No	No	4ft	6ft	Indoor	
Software / Operating Mode Description:											
Support laptop which is connected by USB to EUT used to turn on TX continuously.											

Statement of Conformity

The Roving Reader has been found to conform to the following parts of 47 CFR as detailed below:

Part 2	Part 15	Comments
	15.15(b)	There are no controls accessible to the users that vary the output power.
2.925	15.19	The label is shown in the label exhibit.
	15.21	Information to the user is shown in the instruction manual exhibit.
	15.27	See modification section of the report.
	15.205 15.209	The fundamental is not in a Restricted band and the spurious and harmonic emissions in the Restricted bands comply with the general emission limits of 15.209.
	15.207	The unit meets the AC conducted emissions requirements of 15.207.
	15.225(a-d)	The unit complies with these requirements as shown in this test report.
	15.225(e)	See attached PJMMR101 test report for frequency stability test data.

Modifications Required for Compliance

Modifications were required for the following test:

- Radiated Spurious Emissions

Please see radiated emissions table for further details.

Test Results

Fundamental Measurement

LIMITS

Frequency Range (MHz)	Limit @ 30m (µV/m)	Limit @ 30m (dBµV/m)
13.553-13.567	15,848	83.9
13.410-13.553 13.567-13.710	334	50.4
13.110-13.410 13.710-14.010	106	40.5

[15.225(a-c)]

Measurements were taken at 3m. Limit was adjusted using the following equation;
 $40 \cdot \log(D1/D2) = 40 \cdot \log(30/3) = 40$. New Limit = Limit@30m + 40dB.

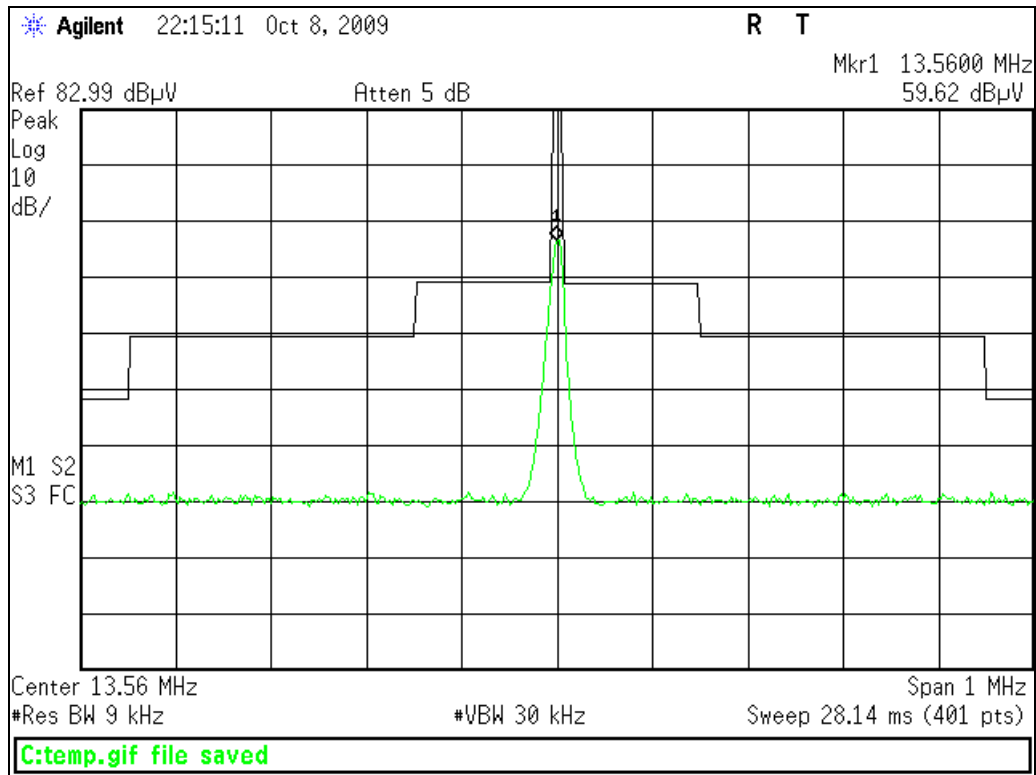
MEASUREMENTS

Radiated Emissions Table - Fundamental Readings										Bureau Veritas Consumer Products Services			
Date: 08-Oct-09		Company: Wavemark				Work Order: J0908							
Engineer: Tuyen Truong		EUT Desc: RR1000				EUT Operating Voltage/Frequency: 12 Vdc (battery operated)							
Frequency Range: 13.56 MHz						Measurement Distance: 3 m							
Notes: EUT's antenna was varied in different orientations to maximize emissions.										EUT Max Freq: 13.56 MHz (fundamental frequency)			
Antenna Polarization (0°- 90°)	Frequency (MHz)	Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Reading (dBµV/m)	FCC15.225			Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	
X - Orientation	0	13.56	46.9	0.0	38.0	0.2	85.1	---	---	---	124.0	-38.9	Pass
	90	13.56	54.2	0.0	38.0	0.2	92.4	---	---	---	124.0	-31.6	Pass
Y - Orientation	0	13.56	57.6	0.0	38.0	0.2	95.8	---	---	---	124.0	-28.2	Pass
	90	13.56	59.6	0.0	38.0	0.2	97.8	---	---	---	124.0	-26.2	Pass
Z - Orientation	0	13.56	58.0	0.0	38.0	0.2	96.2	---	---	---	124.0	-27.8	Pass
	90	13.56	59.1	0.0	38.0	0.2	97.3	---	---	---	124.0	-26.7	Pass
Table Result: Pass by -26.2 dB										Worst Freq: 13.56 MHz			
Test Site: "Chamber 2"		Pre-Amp: none		Cable: #1506 + #1508		Analyzer: #1328		Antenna: Sm Loop (high)					

Fundamental Measurement Modifications:

None

ANALYZER PLOT



Fundamental Reading @ 13.56 MHz - Antenna in Y-orientation

Radiated Spurious Emissions

LIMITS

“The field strength of any emissions appearing outside of the 13.110-14.010 MHz band shall not exceed the general radiated emission limits in § 15.209” [15.225(d)]

Bandwidth Settings:

0.009-30MHz
30-1000MHz

RBW=9kHz, VBW=30kHz
RBW=120kHz, VBW=300kHz

MEASUREMENTS

Radiated Emissions Table											
Date: 08-Oct-09			Company: Wavemark			Work Order: J0908					
Engineer: Tuyen Truong			EUT Desc: RR1000			EUT Operating Voltage/Frequency: 12 Vdc (battery operated)					
Temp: 25.5°C			Humidity: 26%			Pressure: 1005.1 mBar					
Frequency Range: 0.09 to 5 MHz						Measurement Distance: 3 m					
Notes:						EUT Max Freq: 13.56 MHz					
Antenna Polarization (0°-90°)	Frequency (MHz)	Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Reading (dBµV/m)	FCC Class B			Result (Pass/Fail)	
							Limit (dBµV/m)	Margin (dB)			
90	0.0094	30.5	-8.4	82.0	0.0	120.9	128.0	-7.2	Pass		
90	0.07	30.0	22.2	65.9	0.0	73.7	110.7	-37.0	Pass		
90	0.109	26.7	22.6	62.5	0.1	66.7	106.9	-40.2	Pass		
90	0.223	26.3	22.8	57.6	0.1	61.2	100.6	-39.5	Pass		
0	0.223	25.9	22.8	57.6	0.1	60.8	100.6	-39.8	Pass		
Table Result: Pass by -7.2 dB						Worst Freq: 0.0094 MHz					
Test Site: EMI Chamber 2			Cable 1: Asset #1506			Cable 2: Asset #1508					
Analyzer: Asset #1328			Preamp: Blue			Antenna: Sm Loop (low)					

Radiated Emissions Table											
Date: 08-Oct-09			Company: Wavemark			Work Order: J0908					
Engineer: Tuyen Truong			EUT Desc: RR1000			EUT Operating Voltage/Frequency: 12 Vdc (battery operated)					
Temp: 25.5°C			Humidity: 26%			Pressure: 1005.1 mBar					
Frequency Range: 5 - 30 MHz						Measurement Distance: 3 m					
Notes:						EUT Max Freq: 13.56 MHz					
Antenna Polarization (0°-90°)	Frequency (MHz)	Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Reading (dBµV/m)	FCC Class B			Result (Pass/Fail)	
							Limit (dBµV/m)	Margin (dB)			
0	27.125	26.6	22.7	36.2	0.3	40.4	69.5	-29.1	Pass		
90	27.125	37.1	22.7	36.2	0.3	50.9	69.5	-18.6	Pass		
Table Result: Pass by -18.6 dB						Worst Freq: 27.125 MHz					
Test Site: EMI Chamber 2			Cable 1: Asset #1506			Cable 2: Asset #1508					
Analyzer: Asset #1328			Preamp: Blue			Antenna: Sm Loop (high)					

Radiated Emissions Table											
Date: 08-Oct-09			Company: Wavemark			Work Order: J0908					
Engineer: Tuyen Truong			EUT Desc: RR1000			EUT Operating Voltage/Frequency: 12 Vdc (battery)					
Temp: 25.5°C			Humidity: 26%			Pressure: 1005.1 mBar					
Frequency Range: 30 to 1000 MHz						Measurement Distance: 3 m					
Notes: Added a straight through ferrite (Steward, PN: 28A0593-0A2) on each Antenna and USB cable.						EUT Max Freq: 13.56 MHz					
Antenna Polarization (H/V)	Frequency (MHz)	Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Reading (dBµV/m)	FCC Class B			Result (Pass/Fail)	
							Limit (dBµV/m)	Margin (dB)			
Radio On and Charger off - Battery mode operated											
v	40.69	47.0	22.6	14.3	0.4	39.1	40.0	-0.9	Pass		
v	54.23	47.9	22.6	7.9	0.4	33.6	40.0	-6.4	Pass		
v	67.8	38.2	22.6	8.4	0.5	24.5	40.0	-15.5	Pass		
v	81.36	38.2	22.7	8.2	0.5	24.2	40.0	-15.8	Pass		
v	192.0	37.3	22.6	11.9	0.7	27.3	43.5	-16.2	Pass		
v	272.0	32.9	22.6	13.6	0.9	24.8	46.0	-21.2	Pass		
Table Result: Pass by -0.9 dB						Worst Freq: 40.69 MHz					
Test Site: EMI Chamber 2			Cable 1: Asset #1506			Cable 2: Asset #1508					
Analyzer: Asset #1328			Preamp: Blue			Antenna: Red-White					

Radiated Emissions Modifications:

Straight through ferrite (Steward, PN: 28A0593-0A2) was added on each Antenna and USB cable. Prior to the modification, EUT failed by +1.3 dB at 54.23 MHz. With the modification in place, EUT then passed by -0.9 dB.

Modification Photos:



Modification Photo #1

AC Line Conducted Emission Measurements

LIMITS

Frequency of emission (MHz)	Quasi-peak limit (dBµV)	Average limit (dBµV)
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

[47 CFR 15.207(a)]

MEASUREMENTS

AC Mains Conducted Emissions										
Date: 08-Oct-09			Company: Wavemark			Work Order: J0908				
Engineer: Tuyen Truong			EUT Desc: RR1000			Test Site: CEM12				
Temp: 25.5 °C			Humidity: 26%			Pressure: 1005.1 mBar				
Notes: Charging mode with radio off.										
Measurement Device: Yellow-Black LISN						EUT Operating Voltage/Frequency: 120 Vac, 60 Hz.				
Range: 0.15-30MHz						Spectrum Analyzer: Black				
Frequency (MHz)	Q.P. Readings		Ave. Readings		Impedance Factor (dB)	FCC/CISPR B		FCC/CISPR B		Overall Result (Pass/Fail)
	QP1 (dBµV)	QP2 (dBµV)	AV1 (dBµV)	AV2 (dBµV)		qp Limit (dBµV)	qp Margin dB	AVE Limit (dBµV)	AVE Margin dB	
0.18	26.7	29.4	21.5	20.0	20.5	64.5	-14.6	54.5	-12.5	Pass
0.23	32.3	29.6	21.3	22.6	20.4	62.5	-9.8	52.5	-9.5	Pass
0.36	28.0	29.6	27.7	24.5	20.2	58.7	-8.9	48.7	-0.8	Pass
0.41	28.5	29.3	23.8	21.5	20.2	57.7	-8.2	47.7	-3.7	Pass
4.50	10.5	16.7	4.0	14.6	20.1	56.0	-19.2	46.0	-11.3	Pass
5.54	6.1	12.4	2.2	10.3	20.1	60.0	-27.6	50.0	-19.6	Pass
Table Result: Pass by -0.80 dB Worst Freq: 0.36 MHz										

Conducted Emissions Modifications:

None

Additional Modifications in place during testing:

Modification done during radiated EMI scan

Test Equipment Used

REV. 13-OCT-2009

SPECTRUM ANALYZERS / RECEIVERS / PRESELECTORS		RANGE	MN	MFR	SN	ASSET	CAT	CALIBRATION DUE
BLACK		9kHz-12.8GHz	8596E	Agilent	3710A00944	00337	I	18-SEP-2010
SA EMI CHAMBER (1328)		9kHz-13.2 GHz	E4405B	Agilent	MY44210241	1328	I	06-FEB-2010
RADIATED EMISSIONS SITES		FCC CODE	IC CODE	VCCI CODE	CAT	CALIBRATION DUE		
EMI CHAMBER 2		719150	2762A-7	R-3033	I	15-FEB-2011		
ANTENNAS		RANGE	MN	MFR	SN	ASSET	CAT	CALIBRATION DUE
RED-WHITE BILOG		30-2000MHZ	JB1	SUNOL	A091604-1	01105	I	17 DEC-2010
SMALL LOOP		10kHz-30MHZ	PLA-130/A	ARA	1024	00755	I	05-MAR-2010
PREAMPS / COUPLERS ATTENUATORS / FILTERS		RANGE	MN	MFR	SN	ASSET	CAT	CALIBRATION DUE
BLUE		0.009-2000MHZ	ZFL-1000-LN	CS	N/A	00759	II	07-APR-2010
CONDUCTED TEST SITES (MAINS / TELCO)		FCC CODE	VCCI CODE	CAT	CALIBRATION DUE			
CEMI 2		719150	C-3361, T-1576	III	NA			
LISNS/MEASUREMENT PROBES		RANGE	MN	MFR	SN	ASSET	CAT	CALIBRATION DUE
YELLOW-BLACK LISN		30kHz-50MHZ	8012-50-R-24-BNC	SOLAR	0411657	00248	I	27-MAY-2010

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

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.

Rev.160009121(2)_#684340 v13CS