## Test Report



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

Report No EK1442-1

Client UltraClenz, LLC

Address 1440 W. Indiantown Rd. Suite 350

Jupiter, FL 33458

Phone 561-840-8405

Items tested Gateway Assembly FCC ID Z9O-FAS1506

FRN 0021282710

Equipment Type | Security Device Transceiver

Equipment Code DSR

FCC Rule Parts 47 CFR 15.231(a)

Test Dates November 8, 2010, December 20-22, 2010, April 12 and 30, 2012

Results As detailed within this report

Prepared by

Matthew Burman – Test Engineer

Authorized by

Mairaj Hussain - EMC Supervisor

Issue Date

June 13, 2012

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.

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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Form Final Report REV 7-20-07 (DW)



#### Summary

This test report supports an application for certification of a transmitter operating pursuant to 47 CFR 15.231(a). The product is the Gateway Assembly. The operating frequency is 433.9MHz. It is powered at 120Vac 60Hz. Line Conducted Emissions was performed.

We found that the product met the requirements without modification. The test sample was received in good condition.

#### Test Methodology

Testing was performed according to ANSI C63.4-2003 and ANSI C63.10-2009. Radiated emissions were maximized by rotating the device around its three orthogonal axes, as well as varying the test antenna's height and polarity. The EUT's antenna was maximized separately.

Frequency range investigated: 0.15MHz – 4.5GHz

Measurement distance: 30-4500MHz 3m

0.15-30MHz Conductive

Release Control Record Issue No. Reason for change

1 Original Release

Date Issued



Curtis-Straus LLC, a wholly owned subsidiary of BV CPS
One Distribution Center Circle, #1 ● Littleton, MA ● TEL (978) 486-8880 ● FAX (978) 486-8828

### **Product Tested - Configuration Documentation**

Work Order	: K1442	·			•					
	: UltraClenz, I	LC								
Company Address			ite 350							
	Jupiter, FL 3	3458								
Contact	: Marina Willis	5								
		MN						SN		
EUT	:	FAS1506						Sample 1		
EUT Description EUT Tx Frequency		sembly								
Support Equipment:		MN						SN		
Support Equipment: Kenwood AC adapter		<b>MN</b> W08-1044						SM Sample 1		
								Sample 1		
Kenwood AC adapter	Port Type		No. Populated	Cable Type	Shielded	Ferrites	Length		In/Out NEBS Type	Unpopulated Reas
Kenwood AC adapter  EUT Ports:	Port Type Console	W08-1044		Cable Type USB	Shielded Yes	Ferrites none	Length 1.5m	Sample 1		Unpopulated Reas
Kenwood AC adapter  EUT Ports:  Port Label		W08-1044						Sample 1  Max  Length	NEBS Type	Unpopulated Reas
Kenwood AC adapter  EUT Ports:  Port Label  USB	Console	W08-1044						Sample 1  Max  Length	NEBS Type	



#### **Test Results**

## Fundamental Emission LIMIT

Fundamental	Field Strength	Field Strength
Frequency	of Fundamental	of Spurious
	(microvolts/meter)	Emission
		(microvolts/meter)
260-470MHz	3,750 to 12,500	375 to 1,250

[15.231(a)]

Average Limit[dB $\mu$ V/m] = 20log(41.6667(F[in MHz]) - 7083.3333) @ 3m

Example Calculation:  $20\log(41.6667(433.9) - 7083.3333) = 80.8dB\mu V/m @ 3m$ 

#### **MEASUREMENT**

MEASL	JUCINICI	<u> </u>								
Radiated	Fundame	ental Er	nissior	ıs Tabl	е					
Date:	08-Nov-10		Company:	UltraClenz					Work Order:	K1442
Engineer:	Evan Gould		EUT Desc: WiNET Gateway					EUT Operating	Voltage/Frequency:	120Vac 60Hz
Temp:	24.2℃		<b>Humidity:</b>	22%			Pressure: 9	990mBar		
	Freque	ncy Range:	30-1000MH	Ηz			M	Measurement Distance: 3 m	ı	
Notes:	Worst case 100 DCCF = -33.9	ms duty cyc	le = 2%							
Antenna			Preamp	Antenna	Cable	Duty Cycle	Adjusted		47 CFR 15.231(a)	
Polarization	Frequency	Reading	Factor	Factor	Factor	Factor	Reading	Limit	Margin	Result
(H / V)	(MHz)	(dBµV)	(dB)	(dB/m)	(dB)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)
Hpk	433.77	74.2	0.0	16.9	1.2	0.0	92.3	100.8	-8.5	Pass
Hav	433.77	40.3	0.0	16.9	1.2	33.9	58.4	80.8	-22.4	Pass
Tab	le Result:	Pass	by	-8.5	dB			Worst Freq:	433.77	MHz
								A 1 #4 E00		
Test Site:	EMI Chamber 2	2	Cable 1:	Asset #150	J6		Cable 2: /	Asset #1508	Cable 3:	

Rev. 11/4/2010 Spectrum Analyzers / Receivers / Preselectors Gold	Range 100Hz-26.5 GHz	<b>MN</b> E4407B	<b>Mfr</b> Agilent	<b>SN</b> MY45113816	Asset 1284	Cat 	Calibration Due 4/9/2011
Radiated Emissions Sites EMI Chamber 2	<b>FCC Code</b> 719150	IC Code 2762A-7	<b>VCCI Code</b> R-3033, G-107			Cat I	Calibration Due 2/15/2011
Antennas Red-White Bilog	Range 30-2000MHz	<b>MN</b> JB1	<b>Mfr</b> Sunol	<b>SN</b> A091604-1	<b>Asset</b> 1105	Cat 	Calibration Due 12/17/2010
Meteorological Meters Temp./Humidity/Atm. Pressure Gauge CHAMBER2 Thermohygrometer		MN 7400 Perception II 35519-044	Mfr Davis Control Company	<b>SN</b> N/A 72457639	<b>Asset</b> 965 1347	Cat   	Calibration Due 4/6/2011 8/18/2011
<b>Cables</b> Asset #1506 Asset #1508	<b>Range</b> 9kHz - 18GHz 9kHz - 26.5GHz		<b>Mfr</b> Florida RF Florida RF			Cat II II	<b>Calibration Due</b> 8/16/2011 4/20/2011

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





#### **Bandwidth**

#### LIMIT

"The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70MHz and below 900MHz...Bandwidth is determined at the points 20dB down from the modulated carrier". [15.231(c)]

#### **MEASUREMENTS / RESULTS**

Date: 22-Dec-10	Company: Ultraclenz		Work Order:	K1442	
Engineer: Matthew Burman	<b>EUT Desc:</b> WiNET Gateway	F Desc: WiNET Gateway EUT Operating Voltage/Frequency: 120			
<b>Temp:</b> 19.7℃	Humidity: 23%	Pressure: 997mBar			
Fundame	ental: 433.9MHz	Meas	urement Distance:	3 m	
	or troduonov				
Notes: Limit = 0.25% of cente	er frequency		FCC 15 231(c)		
Notes: Limit = 0.25% of cente		Limit	FCC 15.231(c)  Margin	Result	
	ncy Bandwidth	Limit (MHz)	(-)	Result (Pass/Fail)	
Frequen	Bandwidth (MHz)	<u> </u>	Margin		
Frequen (MHz)	Bandwidth (MHz)	(MHz)	Margin (MHz)	(Pass/F	

Rev: 20-Dec-2010 Spectrum Analyzers / Receivers / Preselectors Rental SA #1 (Brown)	<b>Range</b> 9kHz-26.5GHz	<b>MN</b> E4407B	<b>Mfr</b> Agilent	<b>SN</b> SG44210511	<b>Asset</b> 1510	Cat I	Calibration Due 25-Mar-2011
Radiated Emissions Sites 1DCC-OATS-3M-I	<b>FCC Code</b> 719150	IC Code 2762A-8	VCCI Code R-3109			Cat II	Calibration Due 7-Jul-2011
<b>Antennas</b> Green-Red Bilog	Range 30-2000MHz	MN CBL6112B	<b>Mfr</b> Chase	<b>SN</b> 2435	Asset 990	Cat I	Calibration Due 30-Jun-2012
Meteorological Meters Temp./Humidity/Atm. Pressure Gauge 1DCC-OATS-3M-I Thermohygrometer		MN 7400 Perception II 35519-044	Mfr Davis Control Company	<b>SN</b> N/A 72457635	<b>Asset</b> 965 1334	Cat I II	Calibration Due 6-Apr-2011 18-Aug-2011
Cables REMI-14	<b>Range</b> 9kHz - 2GHz		Mfr C-S			Cat II	Calibration Due 17-Sep-2011

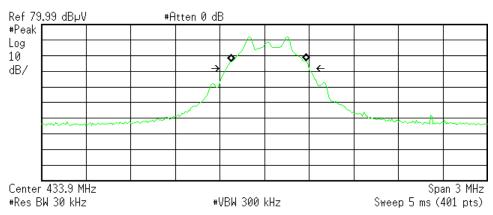
All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.





★ Agilent 12:38:32 Dec 22, 2010

R T



Occupied Bandwidth 504.4368 kHz

0cc BW % Pwr 99.00 % x dB -20.00 dB

Transmit Freq Error 24.682 kHz x dB Bandwidth 551.883 kHz

C:temp.gif file saved



# Harmonics and Spurious Emissions LIMIT

Fundamental	Field Strength	Field Strength
Frequency	of Fundamental	of Spurious
	(microvolts/meter)	Emission
	,	(microvolts/meter)
260 - 470 MHz	3,750 to 12,500	375 to 1,250
[15.231(a)]		

Average Limit[dB $\mu$ V/m] = 20log(41.6667(F[in MHz]) - 7083.3333) - 20 @ 3m

Example Calculation:  $20\log(41.6667(433.9) - 7083.3333) - 20 = 60.8$ **dB\muV/m** @ **3m** 

#### **MEASUREMENTS**

Date	08-Nov-10		Company:	UltraClenz							Work Order	: K1442
Engineer	Evan Gould		EUT Desc:	WiNET Ga	teway					EUT Operatin	g Voltage/Frequency	: 120Vac 60Hz
Temp	24.2°C		Humidity:	22%		Pressure:	990mBar					
	Freque	ency Range:	30-1000MF	-lz					M	leasurement Distance: 3	m	
Notes	Worst case 10 DCCF = -33.9	Oms duty cyc	le = 2%									
Antenna			Preamp	Antenna	Cable	Adjusted					FCC 15.231(a)	
Polarization	Frequency	Reading	Factor	Factor	Factor	Reading	Limit	Margin	Result	Limit	Margin	Result
			(dB)	(dB/m)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dBµV/m)	(dB)	(Pass/Fail)
(H / V)	(MHz)	(dBµV)										
	867.6	62.7	22.7	22.4	2.0	64.4				80.8	-16.4	Pass
(H / V)					2.0 2.0	64.4 30.5				80.8 60.8	-16.4 -30.3	Pass Pass
(H / V) Hpk Hav	867.6	62.7	22.7	22.4	2.0							Pass
(H / V) Hpk Hav	867.6 867.6	62.7 28.8 Pass	22.7 22.7 by	22.4 22.4	2.0 dB					60.8	-30.3	Pass MHz

Rev. 11/4/2010							
Spectrum Analyzers / Receivers / Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due
Gold	100Hz-26.5 GHz	E4407B	Agilent	MY45113816	1284	ı	4/9/2011
Radiated Emissions Sites	FCC Code	IC Code	VCCI Code			Cat	Calibration Due
EMI Chamber 2	719150	2762A-7	R-3033, G-107			1	2/15/2011
Preamps /Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due
Blue	0.009-2000MHz	ZFL-1000-LN	CS	N/A	759	II	4/6/2011
Antennas	Range	MN	Mfr	SN	Asset	Cat	Calibration Due
Red-White Bilog	30-2000MHz	JB1	Sunol	A091604-1	1105	1	12/17/2010
Meteorological Meters		MN	Mfr	SN	Asset	Cat	Calibration Due
Temp./Humidity/Atm. Pressure Gauge		7400 Perception II	Davis	N/A	965	- 1	4/6/2011
CHAMBER2 Thermohygrometer		35519-044	Control Company	72457639	1347	II	8/18/2011
Cables	Range		Mfr			Cat	Calibration Due
Asset #1506	9kHz - 18GHz		Florida RF			II	8/16/2011
Asset #1508	9kHz - 26.5GHz		Florida RF			ll .	4/20/2011

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

Date	: 08-Nov-10		Company:	UltraClenz							Work Order:	K1442	
Engineer	: Evan Gould		EUT Desc:	WiNET Ga	teway					EUT Operating	Voltage/Frequency:	120Vac 60Hz	
Temp	: 24.2°C		Humidity:	22%		Pressure:	990mBar						
	Freque	ency Range:	30-1000MH	lz					N	leasurement Distance: 3	m		
Notes	: Non RF emissi	UIIS											
Antenna			Preamp	Antenna	Cable	Adjusted					FCC Class A		
	Frequency	Reading	Preamp Factor	Antenna Factor	Cable Factor	Adjusted Reading	Limit	 Margin	Result	Limit	FCC Class A Margin	Result	
	Frequency (MHz)	Reading (dBμV)					Limit (dBµV/m)		Result (Pass/Fail)	Limit (dBµV/m)		Result (Pass/Fail)	
Polarization			Factor	Factor	Factor	Reading	-	Margin			Margin		
Polarization (H / V)	(MHz)	(dBµV)	Factor (dB)	Factor (dB/m)	Factor (dB) 0.9	Reading (dBμV/m)	(dBµV/m)	Margin (dB)	(Pass/Fail)	(dBµV/m)	Margin (dB)	(Pass/Fail) Pass	





Rev. 11/4/2010 Spectrum Analyzers / Receivers / Preselectors Gold	Range 100Hz-26.5 GHz	<b>MN</b> E4407B	<b>Mfr</b> Agilent	<b>SN</b> MY45113816	Asset 1284	Cat 	Calibration Due 4/9/2011
Radiated Emissions Sites EMI Chamber 2	<b>FCC Code</b> 719150	IC Code 2762A-7	<b>VCCI Code</b> R-3033, G-107			Cat I	Calibration Due 2/15/2011
Preamps /Couplers Attenuators / Filters Blue	<b>Range</b> 0.009-2000MHz	MN ZFL-1000-LN	Mfr CS	SN N/A	Asset 759	Cat II	Calibration Due 4/6/2011
<b>Antennas</b> Red-White Bilog	Range 30-2000MHz	MN JB1	<b>Mfr</b> Sunol	<b>SN</b> A091604-1	Asset 1105	Cat 	Calibration Due 12/17/2010
Meteorological Meters Temp./Humidity/Atm. Pressure Gauge CHAMBER2 Thermohygrometer		MN 7400 Perception II 35519-044	Mfr Davis Control Company	<b>SN</b> N/A 72457639	<b>Asset</b> 965 1347	Cat   	Calibration Due 4/6/2011 8/18/2011
<b>Cables</b> Asset #1506 Asset #1508	<b>Range</b> 9kHz - 18GHz 9kHz - 26.5GHz		<b>Mfr</b> Florida RF Florida RF			Cat II II	Calibration Due 8/16/2011 4/20/2011

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

Radiated	Emissio	ns Tab	le													
Date: 20-Dec-10 Company: UltraClenz					•			•		,	Work O	der: K1442				
Engineer: Evan Gould			EUT Desc: Gateway						EUT Operating Voltage/Frequency: 120Vac						ncy: 120Vac 60Hz	
Temp: 17.3 °C Humidity: 23%				Pressure: 999mBar												
Frequency Range: 1 - 4.5GHz							Measurement Distance: 3 m									
Notes:																
Antenna		Peak	Average	Preamp	Antenna	Cable	Adjusted	Adjusted	FCC Class	FCC Class B High Frequency - Peak			FCC C	Freguen	quency - Average	
Polarization	Frequency	Reading	Reading	Factor	Factor	Factor		Avg Readi			Margin Result		Limit		argin	Result
(H / V)	(MHz)	(dBµV)	(dBµV)	(dB)	(dB/m)	(dB)	(dBµV/m)	(dBμV/m			(dB) (Pass/Fail)		(dBµV/m)		(dB)	(Pass/Fail)
V V	1735.3 2170.0	45.3 41.9	11.4 8.0	20.1 21.3	26.4 27.9	1.5 1.4	53.1 49.9	19.2 16.0	74.0 74.0	-20.9 Pass -24.1 Pass			54.0 54.0	-34.8 -38.0		Pass Pass
Tab	le Result:		Pass	by	-20.9	dB							Worst Freq		173	35.3 MHz
	1DCC-OATS-3 Rental SA#1	3M-I			EMIR-HIG Asset #15					Yellow Hom	Cable 3: Preselector:					
Rev: 20-E	)ec-2010															
	Spectrum Analyzers / Receivers / Preselectors				ors	Range		MN		Mfr		SN	Asset	Cat	Calibration Due	
Оросс		•	41 (Bro				9kHz-26.5GHz		E4407B		Agilent		SG44210511	1510	ı	25-Mar-2011
			(	,								3				
Radiated Emissions Sites							FCC Code		IC Code	IC Code VCCI Code		CI Code			Cat	Calibration Due
1DCC-OATS-3M-I						719150	)	2762A-8 R-31			-3109				7-Jul-2011	
Preamps /Couplers Attenuators / Filters						Range		MN	Mfr		SN	Asset	Cat	Calibration Due		
·						1-18GHz			CS CS			N/A	1517	II	1-Jun-2011	
1517 HF Preamp						1-1001	ız	US.			US .	IN/A	1517	11	1-3411-2011	
Antennas						Range	,	MN	MN Mfr		Mfr	SN	Asset	Cat	Calibration Due	
Yellow Horn					1-18GHz		3115	3115 EMCO		9608-4898	37	I	27-May-2011			
Meteorological Meters								MN			Mfr	SN	Asset	Cat	Calibration Due	
Temp./Humidity/Atm. Pressure Gauge								7400 Perception	ш	г	Davis	N/A	965	1	6-Apr-2011	
1DCC-OATS-3M-I Thermohygrometer														:		
1	DCC-OA	1 S-3M-	I I herm	onygror	neter				35519-044		Contro	I Company	72457635	1334	II	18-Aug-2011
Cables							Range	,				Mfr			Cat	Calibration Due
	REMI-High-21						9kHz - 26.5	GHz				C-S			- II	8-Jan-2011
· · · · · · · · ·												-				

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

**Note:** 15.231(b)(3) states "Spurious emissions shall be attenuated to the average...limits shown in this table [15.231(e)] or to the general limits shown in Section 15.209, whichever limit permits a higher field strength." Since the emissions above meet the 15.209 limits, those limits are displayed in the data table to show worst case.





### Line Conducted Emissions 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				

<sup>\*</sup>Decreases with the logarithm of the frequency. [47 CFR 15.207(a)]

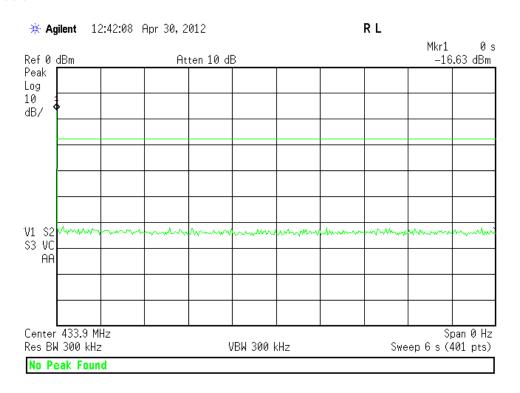
Engine Ter	nte: 12-Apr-12 er: Matthew Burn np: 23.2 °C	nan		Company: UltraClenz LLC EUT Desc: Gateway Assembly Humidity: 21%							Work Order: K1442  Pressure: 1006 mBar				
Not	es:					Fregu	ency Range:	0.15-30MHz		EUT	Input Voltage	/Frequency:	120Vac 60H	7	
Quasi-Peak Readings		Average Readings		LISN Factors		Cable	ATTN	FCC	C/CISPR Class B		FCC/CISPR Class B				
Frequency (MHz)	QP1 (dBuV)	QP2 (dBuV)	AVG1 (dBuV)	AVG2 (dBuV)	L1 (dB)	L2 (dB)	Factor (dB)	Factor (dB)	QP Limit (dB)	Margin (dB)	Result (Pass/Fail)	AVG Limit (dB)	Margin (dB)	Result (Pass/Fa	
0.20 0.41	29.5 24.8	16.8 23.6	22.6 21.2	24.4 21.8	-0.2 -0.1	-0.1 -0.1	-0.1 -0.1	-20.6 -20.7	63.5 57.6	-13.1 -11.9	Pass Pass	53.5 47.6	-8.3 -5.0	Pass Pass	
0.82 1.65	23.3 17.5	18.8 19.5	15.4 12.1	15.2 13.6	-0.1 -0.1	-0.1 -0.1	-0.1 -0.1	-20.6 -20.6	56.0 56.0	-11.9 -15.7	Pass Pass	46.0 46.0	-9.7 -11.6	Pass Pass	
5.00	8.8 -1.8	8.4 -2.1	-3.4 -18.1	-0.8 -18.1	-0.2 -0.4	-0.1 -0.4	-0.1 -0.2	-20.6 -20.7	56.0 56.0	-26.3 -36.5	Pass Pass	46.0 46.0	-25.9 -42.8	Pass Pass	
Result: Pass								Margin:	-5.0 dB		Fred	Frequency:		MHz	
leasurement Device: 230VAC LISN Asset 1492								Cable: CEMI-03			Spectrum Analyzer: Black				
						Attenuator: 20dB Atten-4						Site: CEMI 3			

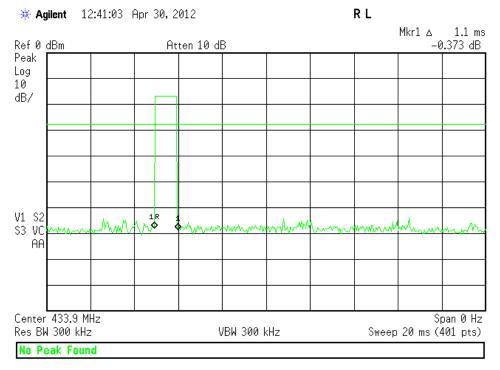




#### Timing Requirements

"A transmitter activated automatically shall cease transmission within 5 seconds after activation" 15.231(a)(2)



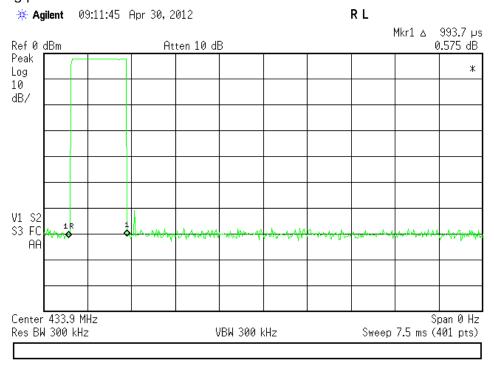






"Periodic transmissions at regular predetermined intervals are not permitted. However, polling or supervision transmissions, including data, to determine system integrity of transmitters used in security or safety applications are allowed if the total duration of transmissions does not exceed more than two seconds per hour for each transmitter." 15.231(a)(3)

#### Single polling pulse



During one hour of normal operation, only a single pulse was observed.

The total time for periodic transmission is 993.7us, which is less than the 2 seconds allowed.



#### 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 (Ucispr)
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 CISPR	3.9dB 3.6dB	N/A 3.6dB (Ucispr)
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 x 10 <sup>-8</sup>	1 x 10 <sup>-7</sup>
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% 0.3dB	5% 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℃	1.0℃
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		



#### 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 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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