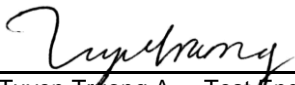





# Test Report



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

Report No	EO0675-1
Client	Powercast Corporation Charlie Greene
Address	566 Alpha Drive Pittsburgh, PA 15238
Phone	412-436-4077
Items tested	SCD1000 AND SCLED1000
FCC ID	2AAMXSCD1000
IC	11250A-SCD1000
FRN	0002862225
Equipment Type	Part 15.247 Digitally Modulated
Equipment Code	DTS
FCC/IC Rule Parts	47 CFR 15.247, RSS-210 Issue 8, RSS GEN Issue 3
Test Dates	May 7 – 9 and June 11, 2014
Results	As detailed within this report
Prepared by	 Tuyen Truong A. – Test Engineer
Authorized by	 Christopher Reynolds – EMC Supervisor
Issue Date	6/30/2014
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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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 15.247. The products are the SCD1000 AND SCLED1000. They are digitally modulated transmitters that operate in the range 902-928MHz. Products were tested with an on board antenna with a gain of 4.55dBi.

We found that the products met the above requirements without modification. Charlie Greene from Powercast Corporation was present during the testing. The test samples were received in good condition.

Please note that The SCD1000 and SCLED1000 differ only in where the dimming wires (purple and gray) exit the enclosure. The SCD1000 has all wires exiting through the nipple. The SCLED1000 has the purple and gray dimming wires exiting away from the high voltage wires but does not cross the board. Therefore, Radiated Spurious Emissions and AC Line Conducted Emissions testing were separately performed for each model. Only conducted testing at the Antenna port was performed once.



### ***Test Methodology***

Radiated emission and AC Line conducted testing were performed according to the procedures specified in FCC Guidance for performing compliance measurement on DTS operating under section 15.247, April 19, 2013 and ANSI C63.10 (2009) and C63.4 (2003). Radiated Emissions were maximized by rotating the device around its axes as well as varying the test antenna's height and polarity. The antenna was maximized separately.

Conducted emissions at the antenna port were performed, as required by rule section.

The EUT operating voltage is 120VAC, 60Hz

Low operating channel frequency = 902.7MHz

Mid operating channel frequency = 915MHz

High operating channel frequency = 927.3MHz

The following bandwidths were used during radiated spurious and line conducted emissions.

<b>Frequency</b>	<b>RBW</b>	<b>VBW</b>
0.15-30MHz	9kHz	30kHz
30-1000MHz	120kHz	1MHz
1-10GHz	1MHz	3MHz

**Product Tested - Configuration Documentation**

EUT Configuration										
Work Order: O0675 Company: Powercast Corporation Company Address: 566 Alpha Drive Pittsburgh, PA 15238 Contact: Charlie Greene										
			<b>MN</b>				<b>SN</b>			<b>Comment</b>
<b>EUT:</b>			SCD1000				Sample 1			EMI-Radiated
			SCLED1000				Sample 1			EMI-Radiated
			SCD1000/SCLED1000				Sample 2			Conducted tests only
<b>EUT Description:</b> Smart Connector <b>EUT Max Frequency:</b> <108MHz <b>EUT ISM Frequency:</b> 902-928MHz										
<b>Support Equipment:</b>			<b>MN</b>				<b>SN</b>			
none										
<b>EUT Ports:</b>										
Port Label	Port Type	No. of ports	No. Populated	Cable Type	Shielded	Ferrites	Length	Max Length	In/Out NEBS Type	Unpopulated Reason
AC Mains	Power	1	1	2-wires	No	No	1.5m	>3m	Indoor	
Antenna	Antenna	1	1	1-wire	No	No	10cm	--	Indoor	
Load	Power Output	1	1	2-wires	No	No	3m	>3m	Indoor	
Dimming	Signal	1	1	2-wires	No	No	3m	>3m	Indoor	
<b>Software / Operating Mode Description:</b>										
EUT is transmitting on one of three pre-programmed channels between 902-928MHz.										



## Statement of Conformity

The SCD1000 AND SCLED1000 has been found to conform to the following parts of 47 CFR and as detailed below:

RSS-GEN	RSS 210	Part 15	Comments
5.3		15.15(b)	There are no controls accessible to the user that varies the output power above specified limits.
5.2		15.19	The label is shown in the label exhibit.
7.1.5		15.21	Information to the user is shown in the instruction manual exhibit.
		15.27	No special accessories are required for compliance.
		15.31	The EUT was tested in accordance with the measurement standards in this section.
		15.33	Frequency range was investigated according to this section, unless noted in specific rule section under which the equipment operates.
		15.35	The EUT emissions were measured using the measurement detector and bandwidth specified in this section, unless noted in specific rule section under which the equipment operates.
7.1.4		15.203	EUT employs a permanently connected antenna.
	2.6	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.
7.2.2		15.207	EUT meets the AC Line conducted emissions requirements of 15.207.
	Annex 8	15.247	The unit complies with the requirements of 15.247
4.6.1		15.247	Occupied Bandwidth measurements were made.



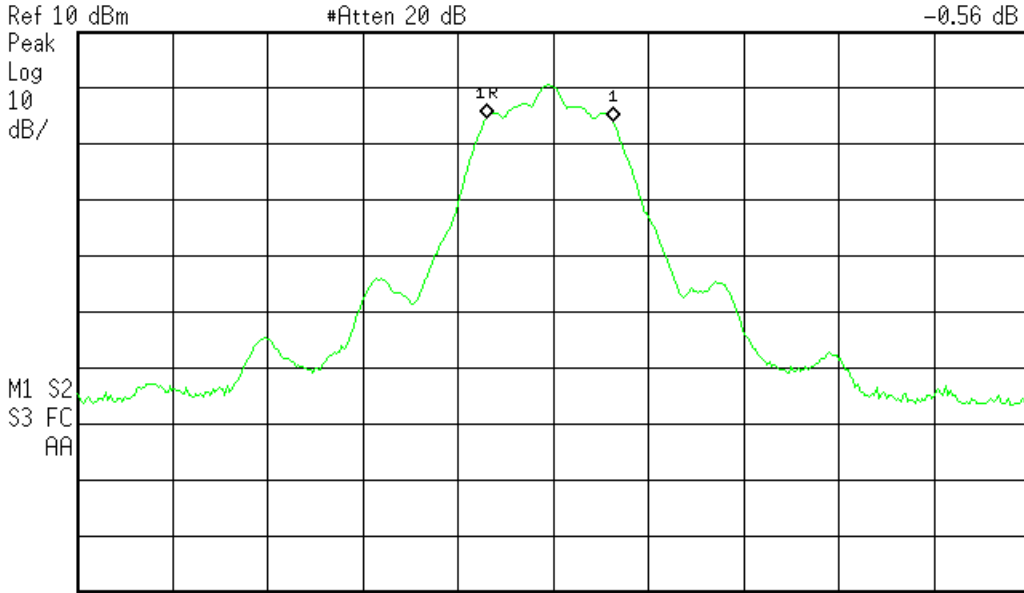


PLOT(s)

Agilent 17:37:20 May 7, 2014

R T

Mkr1 Δ 662.5 kHz  
-0.56 dB



Ref 10 dBm #Atten 20 dB  
Center 902.7 MHz #Res BW 100 kHz #VBW 300 kHz Span 5 MHz  
Sweep 5 ms (401 pts)

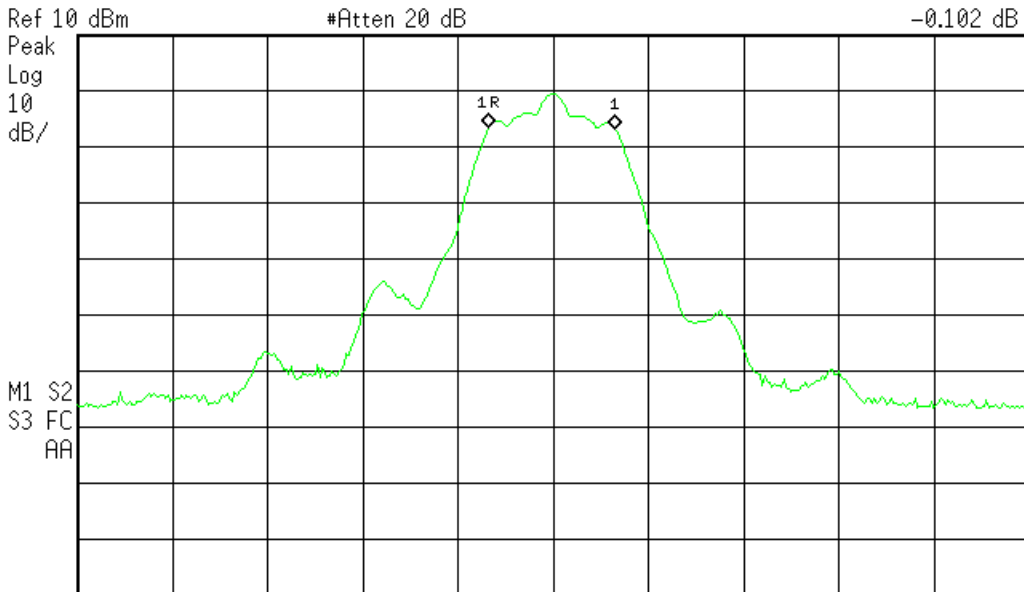
C:\temp.gif file saved

Low Channel – 6dB Bandwidth

Agilent 17:39:13 May 7, 2014

R T

Mkr1 Δ 662.5 kHz  
-0.102 dB



Ref 10 dBm #Atten 20 dB  
Center 915 MHz #Res BW 100 kHz #VBW 300 kHz Span 5 MHz  
Sweep 5 ms (401 pts)

C:\temp.gif file saved

Mid Channel – 6dB Bandwidth

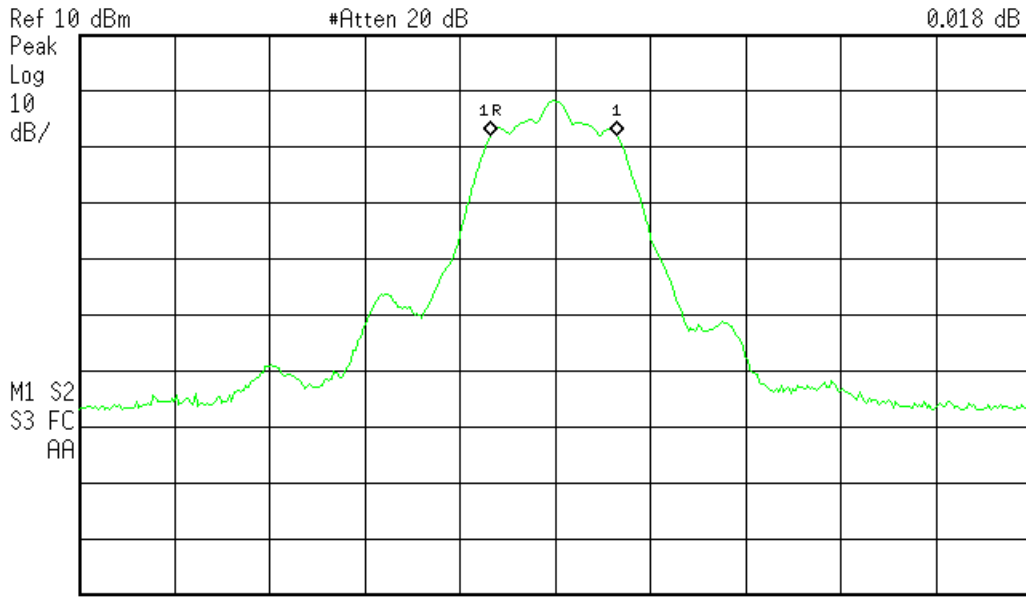




Agilent 17:43:20 May 7, 2014

R T

Mkr1 Δ 662.5 kHz  
0.018 dB



Center 927.3 MHz Span 5 MHz  
#Res BW 100 kHz #VBW 300 kHz Sweep 5 ms (401 pts)

C:temp.gif file saved

High Channel – 6 dB Bandwidth



## Fundamental Emission Output Power

### LIMIT

Conducted Output Power

1 Watt

[15.247(b) (3)]

### MEASUREMENTS / RESULTS

Engineer	Tuyen Truong
Date	5/7/2014
Site	CEMI6
Environmental Conditions	22.4°C, 34%, 1013mb

**DTS Method 9.2.2.2 Method AVGSA-1 (Trace averaging with the EUT transmitting at full power throughout each sweep)**

Maximum Conducted (average) Output Power						
<b>Tested by:</b> Tuyen Truong		<b>Analyzer:</b> GOLD		<b>WO:</b> O0675		
<b>Date:</b> 5/7/2014		<b>Attenuator:</b> PE7019-20 #791		<b>RBW =</b> 30KHz		
<b>Company:</b> Powercast Corporation		<b>Operating Voltage:</b> 120Vac/60Hz		<b>VBW =</b> 100KHz		
<b>EUT:</b> SCD1000				<b>Limit =</b> 1Watt or 30dBm		
<b>TX Mode:</b> DMSS						
Channel (MHz)	Measured power (dBm)	Attenuator factor (dB)	Adjusted power measurement (dBm)	Limit (dBm)	Margin (dB)	Result
902.7	0.16	19.29	19.45	30	-10.55	pass
915	-0.91	19.29	18.38	30	-11.62	pass
927.3	-2.12	19.29	17.17	30	-12.83	pass

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Spectrum Analyzers / Receivers / Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Gold	100Hz-26.5 GHz	E4407B	Agilent	MY45113816	1284	I	3/28/2015	3/28/2014
Conducted Test Sites (Mains / Telco)	FCC Code	VCCI Code		Cat	Calibration Due	Calibrated on		
CEMI 6	719150	A-0015		III	NA	N/A		
Meteorological Meters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Temp./Humidity/Atm. Pressure Gauge TH A#1831		7400 Perception II 35519-044	Davis Control Company	N/A 130319991	965 1831	I II	5/29/2014 6/13/2015	5/29/2013 6/13/2013
Preamps/Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
HF 20dB 50W Attenuator	0.009-18 GHz	PE 7019-20	Pasternack	1	791	II	7/13/2014	7/13/2013

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



PLOTS

Agilent 18:13:31 May 7, 2014

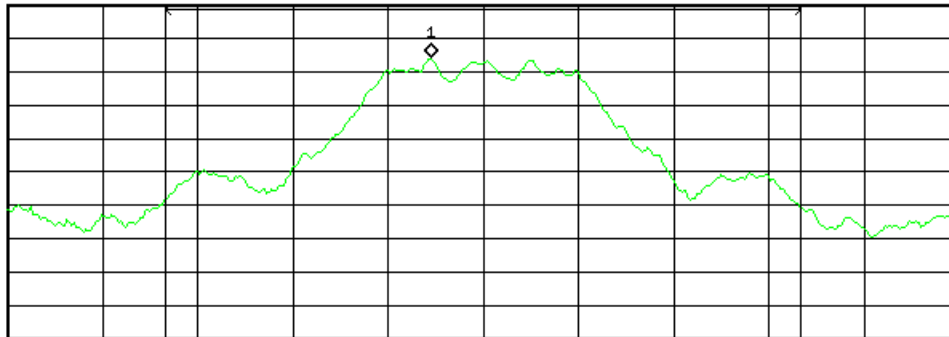
R T

Mkr1 902.5350 MHz  
-6.014 dBm

Ref 10 dBm

#Atten 20 dB

#Avg  
Log  
10  
dB/



Center 902.7 MHz

Span 3 MHz

#Res BW 30 kHz

#VBW 100 kHz

Sweep 8 ms (401 pts)

Channel Power

Power Spectral Density

0.16 dBm /2.0000 MHz

-62.85 dBm/Hz

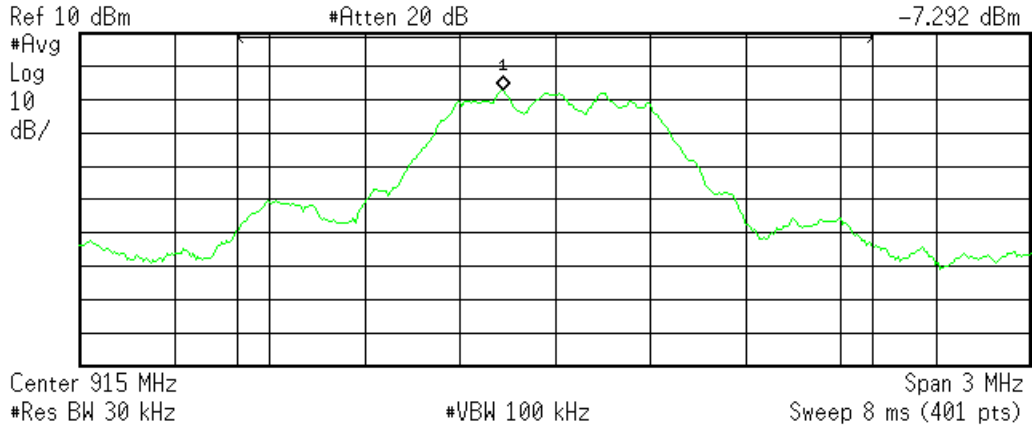
C:\temp.gif file saved

Low Channel – Channel Power

Agilent 18:17:05 May 7, 2014

R T

Mkr1 914.8350 MHz  
-7.292 dBm



**Channel Power**  
-0.91 dBm /2.0000 MHz

**Power Spectral Density**  
-63.92 dBm/Hz

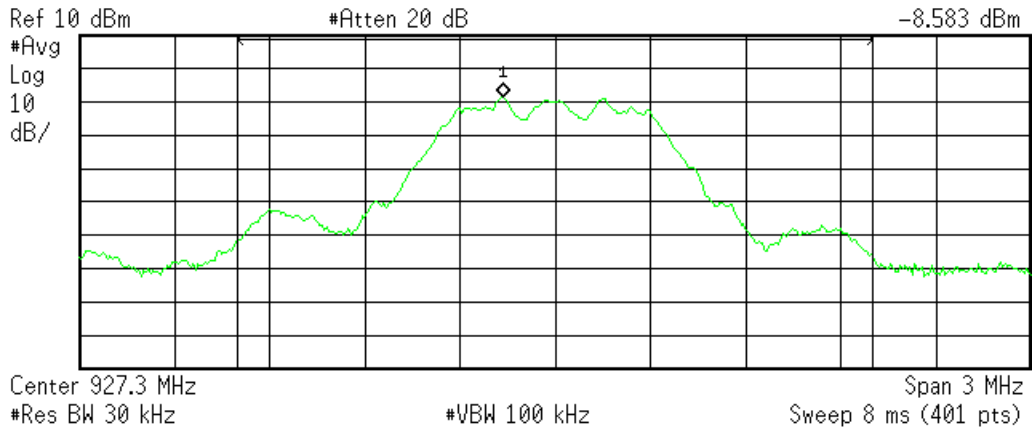
C:\temp.gif file saved

Mid Channel – Channel Power

Agilent 18:21:01 May 7, 2014

R T

Mkr1 927.1350 MHz  
-8.583 dBm



**Channel Power**  
-2.12 dBm /2.0000 MHz

**Power Spectral Density**  
-65.13 dBm/Hz

C:\temp.gif file saved

High Channel – Channel Power



# Radiated Spurious Emissions

## LIMITS

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).  
[15.247(d)]

## MEASUREMENTS / RESULTS

### SCD1000

Radiated Emissions Table												
Date: 07-May-14			Company: Powercast Corporation				Work Order: O0675					
Engineer: Tuyen Truong			EUT Desc: SCD1000				EUT Operating Voltage/Frequency: 120Vac/60Hz					
Temp: 25°C			Humidity: 4%				Pressure: 1013mBar					
Frequency Range: 30 to 1000MHz							Measurement Distance: 3 m					
Notes: TX on low channel All orientations of EUT were investigated.							EUT Max Freq: <108MHz EUT TX Freq: 902-928MHz					
Antenna Polarization (H/V)	Frequency (MHz)	Reading (dBuV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Reading (dBuV/m)	---			e-CFR §15.209		
							Limit (dBuV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBuV/m)	Margin (dB)	Result (Pass/Fail)
v	54.33	47.7	25.6	7.0	0.7	29.8	---	---	---	40.0	-10.2	Pass
v	55.83	50.4	25.6	6.9	0.7	32.4	---	---	---	40.0	-7.6	Pass
h	55.91	45.3	25.6	6.9	0.7	27.3	---	---	---	40.0	-12.7	Pass
v	108.7	41.8	25.6	12.2	0.9	29.3	---	---	---	43.5	-14.2	Pass
h	115.7	38.7	25.6	13.8	0.9	27.8	---	---	---	43.5	-15.7	Pass
v	188.0	40.8	25.8	11.0	1.2	27.2	---	---	---	43.5	-16.3	Pass
v	245.7	41.4	25.8	11.8	1.3	28.7	---	---	---	46.0	-17.3	Pass
h	389.9	46.9	25.8	15.1	1.7	37.9	---	---	---	46.0	-8.1	Pass
v	411.6	41.8	25.7	16.1	1.8	34.0	---	---	---	46.0	-12.0	Pass
v	846.7	25.9	25.7	21.8	2.6	24.6	---	---	---	46.0	-21.4	Pass
v	958.0	32.4	25.3	22.9	2.6	32.6	---	---	---	46.0	-13.4	Pass
<b>Table Result:</b> Pass			by -7.6 dB				<b>Worst Freq:</b> 55.83 MHz					
Test Site: EMI Chamber 1			Cable 1: Asset #1505				Cable 2: Asset #1507			Cable 3: ---		
Analyzer: Gold			Preamp: Orange				Antenna: Red-Black			Preselector: ---		

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Spectrum Analyzers / Receivers / Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Gold	100Hz-26.5 GHz	E4407B	Agilent	MY45113816	1284	I	3/28/2015	3/28/2014
Radiated Emissions Sites	FCC Code	IC Code	VCCI Code	Range		Cat	Calibration Due	Calibrated on
EMI Chamber 1	719150	2762A-6	A-0015	>1GHz		I	5/17/2015	5/17/2013
Preamps / Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Orange	0.009-2000MHz	ZFL-1000-LN	CS	N/A	765	II	2/4/2015	2/4/2014
Antennas	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Red-Black Bilog	30-2000MHz	JB1	Sunol	A091604-2	1106	I	1/28/2015	1/28/2013
Meteorological Meters		MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Temp./Humidity/Atm. Pressure Gauge		7400 Perception	Davis	N/A	965	I	5/29/2014	5/29/2013
TH A#1832		35519-044	Control Company	130318277	1832	II	6/13/2015	6/13/2013
Cables	Range		Mfr			Cat	Calibration Due	Calibrated on
Asset #1505	9kHz - 18GHz		Florida RF			II	3/7/2015	3/7/2014
Asset #1507	9kHz - 18GHz		Florida RF			II	2/23/2015	2/23/2014

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



Radiated Emissions Table															
Date: 08-May-14				Company: Powercast Corporation				Work Order: O0675							
Engineer: Tuyen Truong				EUT Desc: SCD1000				EUT Operating Voltage/Frequency: 120Vac/60Hz							
Temp: 24°C				Humidity: 5%				Pressure: 1000mBar							
Frequency Range: 1-10GHz							Measurement Distance: 3 m								
Notes:							EUT Max Freq: <108MHz								
Antenna Polarization (H/V)	Frequency (MHz)	Peak Reading (dBµV)	Average Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Peak Reading (dBµV/m)	Adjusted Avg Reading (dBµV/m)	e-CFR §15.209 High Frequency - Peak			e-CFR §15.209 High Frequency - Average			
									Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	
v	1805.0	43.71	36.6	21.1	27.1	2.7	52.4	45.3	74.0	-21.6	Pass	54.0	-8.7	Pass	
h	1805.0	48.59	43.8	21.1	27.1	2.7	57.3	52.5	74.0	-16.7	Pass	54.0	-1.5	Pass	
v	1830.0	39.43	32.4	21.1	27.3	2.7	48.3	41.3	74.0	-25.7	Pass	54.0	-12.7	Pass	
h	1830.0	44.9	39.0	21.1	27.3	2.7	53.8	47.9	74.0	-20.2	Pass	54.0	-6.1	Pass	
v	1854.0	35.7	31.1	21.1	27.4	2.7	44.7	40.1	74.0	-29.3	Pass	54.0	-13.9	Pass	
h	1854.0	37.93	32.2	21.1	27.4	2.7	46.9	41.2	74.0	-27.1	Pass	54.0	-12.8	Pass	
<b>Table Result:</b> Pass by -1.5 dB <b>Worst Freq:</b> 1805.0 MHz															
Test Site: 1DCC-OATS-3M-I				Cable 1: EMIR-HIGH-22				Cable 2: ---				Cable 3: ---			
Analyzer: Asset #1328				Preamp: Asset #1517				HPF: 1288				Antenna: Orange Horn			
												Preselector: ---			

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<b>Spectrum Analyzers / Receivers/Preselectors</b>										
SA EMI Chamber (1328)		Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on	
		9kHz-13.2 GHz	E4405B	Agilent	MY44210241	1328	I	1/13/2015	1/13/2014	
<b>Radiated Emissions Sites</b>										
1DCC-OATS-3M-I		FCC Code	IC Code	VCCI Code	Range	Cat	Calibration Due	Calibrated on		
		719150	2762A-8	A-0015	30-1000MHz	II	5/17/2015	5/17/2013		
<b>Preamps/Couplers Attenuators / Filters</b>										
1517 HF Preamp		Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on	
		1-20GHz	CS	CS	N/A	1517	II	9/11/2014	9/11/2013	
High Pass Filter		Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on	
		0.03-9 GHz	VHP-16	Mini-Circuits	NA	1288	II	1/8/2015	1/8/2014	
<b>Antennas</b>										
Orange Horn		Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on	
		1-18GHz	3115	EMCO	0004-6123	390	I	10/2/2014	10/2/2013	
<b>Meteorological Meters</b>										
Temp./Humidity/Atm. Pressure Gauge			MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on	
			7400 Perception	Davis	N/A	965	I	5/29/2014	5/29/2013	
TH A#1831			35519-044	Control Company	130319991	1831	II	6/13/2015	6/13/2013	
<b>Cables</b>										
REMI-High-22		Range	Mfr				Cat	Calibration Due	Calibrated on	
		9kHz - 18GHz	C-S				II	2/12/2015	2/12/2014	

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

## SCLED1000

Radiated Emissions Table															
Date: 09-May-14				Company: Powercast Corporation				Work Order: O0675							
Engineer: Tuyen Truong				EUT Desc: SCLED1000				EUT Operating Voltage/Frequency: 120Vac/60Hz							
Temp: 29°C				Humidity: 5%				Pressure: 1013mBar							
Frequency Range: 30 to 1000 MHz							Measurement Distance: 3 m								
Notes:							EUT Max Freq: <108MHz								
Antenna Polarization (H/V)	Frequency (MHz)	Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Reading (dBµV/m)	---			e-CFR §15.209					
							Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)			
v	55.31	44.1	22.5	7.8	0.6	30.0	---	---	---	40.0	-10.0	Pass			
h	67.97	41.2	22.5	8.4	0.6	27.7	---	---	---	40.0	-12.3	Pass			
v	85.24	46.9	22.5	8.0	0.7	33.1	---	---	---	40.0	-6.9	Pass			
v	162.8	40.4	22.6	12.7	1.1	31.6	---	---	---	43.5	-11.9	Pass			
h	264.4	38.9	22.5	13.1	1.3	30.8	---	---	---	46.0	-15.2	Pass			
h	408.4	42.2	22.5	16.4	1.5	37.6	---	---	---	46.0	-8.4	Pass			
v	463.3	33.6	22.4	17.4	1.6	30.2	---	---	---	46.0	-15.8	Pass			
v	837.0	28.7	21.6	22.3	2.2	31.6	---	---	---	46.0	-14.4	Pass			
v	934.5	28.8	22.0	23.2	2.3	32.3	---	---	---	46.0	-13.7	Pass			
v	958.0	25.4	22.1	23.4	2.3	29.0	---	---	---	46.0	-17.0	Pass			
<b>Table Result:</b> Pass by -6.9 dB <b>Worst Freq:</b> 85.24 MHz															
Test Site: EMI Chamber 2				Cable 1: Asset #1506				Cable 2: Asset #1786				Cable 3: ---			
Analyzer: Rental SA#2				Preamp: Blue				Antenna: Red-White				Preselector: ---			



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<b>Spectrum Analyzers / Receivers / Preselectors</b> Rental SA #2 (1860)	<b>Range</b> 9kHz-26.5 GHz	<b>MN</b> E7405A	<b>Mfr</b> Agilent	<b>SN</b> MY45104916	<b>Asset</b> 1860	<b>Cat</b> I	<b>Calibration Due</b> 5/15/2014	<b>Calibrated on</b> 4/15/2013
<b>Radiated Emissions Sites</b> EMI Chamber 2	<b>FCC Code</b> 719150	<b>IC Code</b> 2762A-7	<b>VCCI Code</b> A-0015	<b>Range</b> >1GHz		<b>Cat</b> I	<b>Calibration Due</b> 5/16/2015	<b>Calibrated on</b> 5/16/2013
<b>Preamps / Couplers Attenuators / Filters</b> Blue	<b>Range</b> 0.009-2000MHz	<b>MN</b> ZFL-1000-LN	<b>Mfr</b> CS	<b>SN</b> N/A	<b>Asset</b> 759	<b>Cat</b> II	<b>Calibration Due</b> 5/31/2014	<b>Calibrated on</b> 5/31/2013
<b>Antennas</b> Red-White BiLog	<b>Range</b> 30-2000MHz	<b>MN</b> JB1	<b>Mfr</b> Sunol	<b>SN</b> A091604-1	<b>Asset</b> 1105	<b>Cat</b> I	<b>Calibration Due</b> 7/24/2015	<b>Calibrated on</b> 7/24/2013
<b>Meteorological Meters</b> Temp./Humidity/Atm. Pressure Gauge TH A#1831		<b>MN</b> 7400 Perception 35519-044	<b>Mfr</b> Davis Control Company	<b>SN</b> N/A 130319991	<b>Asset</b> 965 1831	<b>Cat</b> I II	<b>Calibration Due</b> 5/29/2014 6/13/2015	<b>Calibrated on</b> 5/29/2013 6/13/2013
<b>Cables</b> Asset #1506 Asset #1786	<b>Range</b> 9kHz - 18GHz 9kHz - 18GHz		<b>Mfr</b> Florida RF Florida RF			<b>Cat</b> II II	<b>Calibration Due</b> 3/7/2015 3/15/2015	<b>Calibrated on</b> 3/7/2014 3/15/2014

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

<b>Radiated Emissions Table</b>														
Date: 08-May-14			Company: Powercast Corporation				Work Order: O0675							
Engineer: Tuyen Truong			EUT Desc: SCLED1000				EUT Operating Voltage/Frequency: 120Vac/60Hz							
Temp: 24°C			Humidity: 5%				Pressure: 1000mBar							
Frequency Range: 1-10GHz					Measurement Distance: 3 m									
Notes: EUT Max Freq: <108MHz														
Antenna Polarization (H/V)	Frequency (MHz)	Peak Reading (dBµV)	Average Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Peak Reading (dBµV/m)	Adjusted Avg Reading (dBµV/m)	e-CFR §15.209 High Frequency - Peak			e-CFR §15.209 High Frequency - Average		
									Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)
v	1805.0	37.8	28.4	21.1	27.1	2.7	46.5	37.1	74.0	-27.5	Pass	54.0	-16.9	Pass
h	1805.0	37.16	28.2	21.1	27.1	2.7	45.9	36.9	74.0	-28.1	Pass	54.0	-17.1	Pass
h	1830.0	39.8	33.8	21.1	27.3	2.7	48.7	42.7	74.0	-25.3	Pass	54.0	-11.3	Pass
v	1830.0	42.78	36.8	21.1	27.3	2.7	51.7	45.7	74.0	-22.3	Pass	54.0	-8.3	Pass
v	1854.6	43.96	37.9	21.1	27.4	2.7	53.0	46.9	74.0	-21.0	Pass	54.0	-7.1	Pass
h	1854.6	43.05	37.4	21.1	27.4	2.7	52.1	46.4	74.0	-21.9	Pass	54.0	-7.6	Pass
<b>Table Result:</b> Pass by -7.1 dB										<b>Worst Freq:</b> 1854.6 MHz				
Test Site: 1DCC-OATS-3M-I			Cable 1: EMIR-HIGH-22				Cable 2: ---			Cable 3: ---				
Analyzer: Asset #1328			Preamp: Asset #1517				Antenna: Orange Horn			Preselector: ---				

Rev. 5/4/2014

<b>Spectrum Analyzers / Receivers / Preselectors</b> SA EMI Chamber (1328)	<b>Range</b> 9kHz-13.2 GHz	<b>MN</b> E4405B	<b>Mfr</b> Agilent	<b>SN</b> MY44210241	<b>Asset</b> 1328	<b>Cat</b> I	<b>Calibration Due</b> 1/13/2015	<b>Calibrated on</b> 1/13/2014
<b>Radiated Emissions Sites</b> 1DCC-OATS-3M-I	<b>FCC Code</b> 719150	<b>IC Code</b> 2762A-8	<b>VCCI Code</b> A-0015	<b>Range</b> 30-1000MHz		<b>Cat</b> II	<b>Calibration Due</b> 5/17/2015	<b>Calibrated on</b> 5/17/2013
<b>Preamps / Couplers Attenuators / Filters</b> 1517 HF Preamp High Pass Filter	<b>Range</b> 1-20GHz 0.03-9 GHz	<b>MN</b> CS VHP-16	<b>Mfr</b> CS Mini-Circuits	<b>SN</b> N/A NA	<b>Asset</b> 1517 1288	<b>Cat</b> II II	<b>Calibration Due</b> 9/11/2014 1/8/2015	<b>Calibrated on</b> 9/11/2013 1/8/2014
<b>Antennas</b> Orange Horn	<b>Range</b> 1-18GHz	<b>MN</b> 3115	<b>Mfr</b> EMCO	<b>SN</b> 0004-6123	<b>Asset</b> 390	<b>Cat</b> I	<b>Calibration Due</b> 10/2/2014	<b>Calibrated on</b> 10/2/2013
<b>Meteorological Meters</b> Temp./Humidity/Atm. Pressure Gauge TH A#1831		<b>MN</b> 7400 Perception 35519-044	<b>Mfr</b> Davis Control Company	<b>SN</b> N/A 130319991	<b>Asset</b> 965 1831	<b>Cat</b> I II	<b>Calibration Due</b> 5/29/2014 6/13/2015	<b>Calibrated on</b> 5/29/2013 6/13/2013
<b>Cables</b> REM-High-22	<b>Range</b> 9kHz - 18GHz		<b>Mfr</b> C-S			<b>Cat</b> II	<b>Calibration Due</b> 2/12/2015	<b>Calibrated on</b> 2/12/2014

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



## Conducted Spurious Emissions

### LIMITS

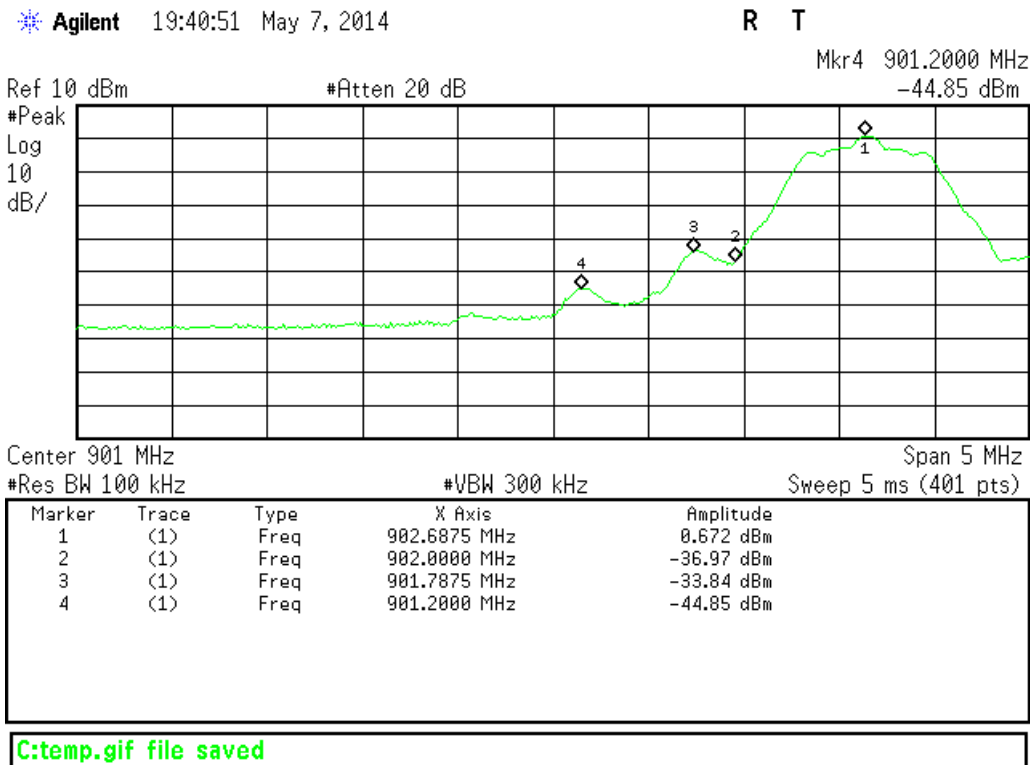
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth that contains the highest level of desired power based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB ...

[15.247(d)]

### MEASUREMENTS / RESULTS

#### Plots

#### Conducted Band Edge



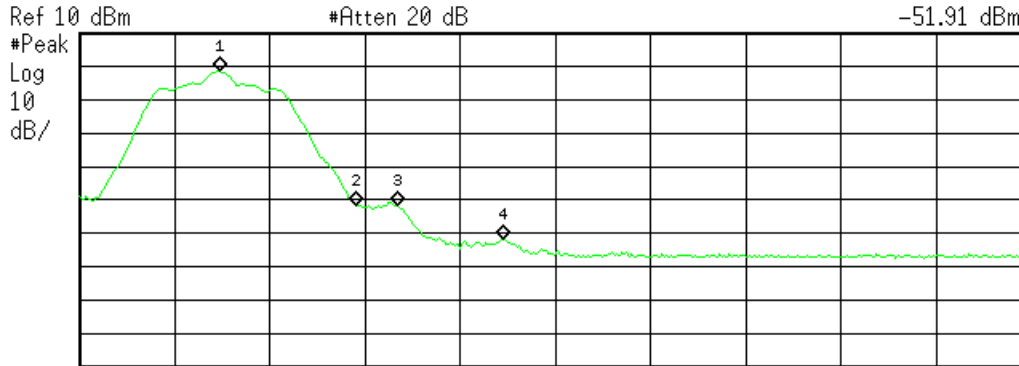
Lower Channel – Band-edge (<-30dBm)



Agilent 19:44:43 May 7, 2014

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Mkr4 928.7750 MHz  
-51.91 dBm



Center 929 MHz #Res BW 100 kHz #Atten 20 dB #VBW 300 kHz Span 5 MHz Sweep 5 ms (401 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	927.2875 MHz	-1.666 dBm
2	(1)	Freq	928.0000 MHz	-41.52 dBm
3	(1)	Freq	928.2250 MHz	-41.64 dBm
4	(1)	Freq	928.7750 MHz	-51.91 dBm

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Upper Channel – Band-edge (<-30dBm)

### Conducted Spurious Emission

Conducted Spurious Emissions at the Antenna Port:

For these scans, the spectrum analyzer was set to the following:

- Span: 400MHz
- Resolution Bandwidth: 100 KHz
- Video Bandwidth: 300 KHz
- Points per sweep: 8192

The frequency range 30MHz-10GHz was tested at EUT antenna port and no emissions were found within 10dB of the limit, which was set at 30dB below the power of the transmit frequency. The low, mid, and high channels were tested.



# Power Spectral Density

## LIMIT

...the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3 kHz band during any time interval of continuous transmission.  
[15.247(e)]

## MEASUREMENTS / RESULTS

Engineer	Tuyen Truong A.
Date	5/7/2014
Site	CEMI6
Environmental Conditions	22.4°C, 34%, 1013mb

DTS Method 10.3 AVGPS-1 (trace averaging with EUT transmitting at full power throughout each sweep)

15.247 (e) Maximum Power Spectral Density									
Tested by: Tuyen Truong									
Date: 5/7/2014, 6/11/2014			Analyzer: GOLD						
Company: Powercast Corporation			Attenuation: PE7019-20 #791		RBW = 3KHz				
EUT: SCD1000					VBW = 10KHz				
channel (MHz)	mode	measured PSD (dBm)	attenuator factor (dB)	adjusted power measurement	bandwidth correction factor adjustment	limit (dBm)	margin (dB)	result	
902.7	DMSS	-13.45	19.29	5.84	0	8	-2.16	Pass	
915	DMSS	-14.79	19.29	4.50	0	8	-3.50	Pass	
927.3	DMSS	-17.23	19.29	2.06	0	8	-5.94	Pass	

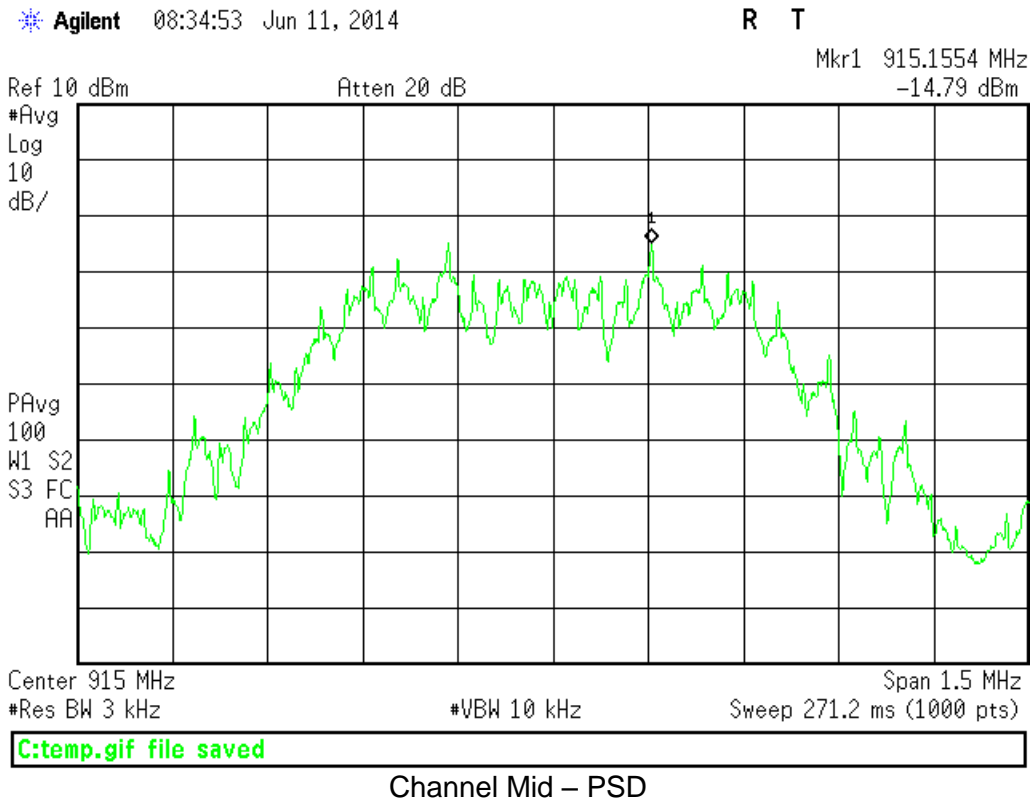
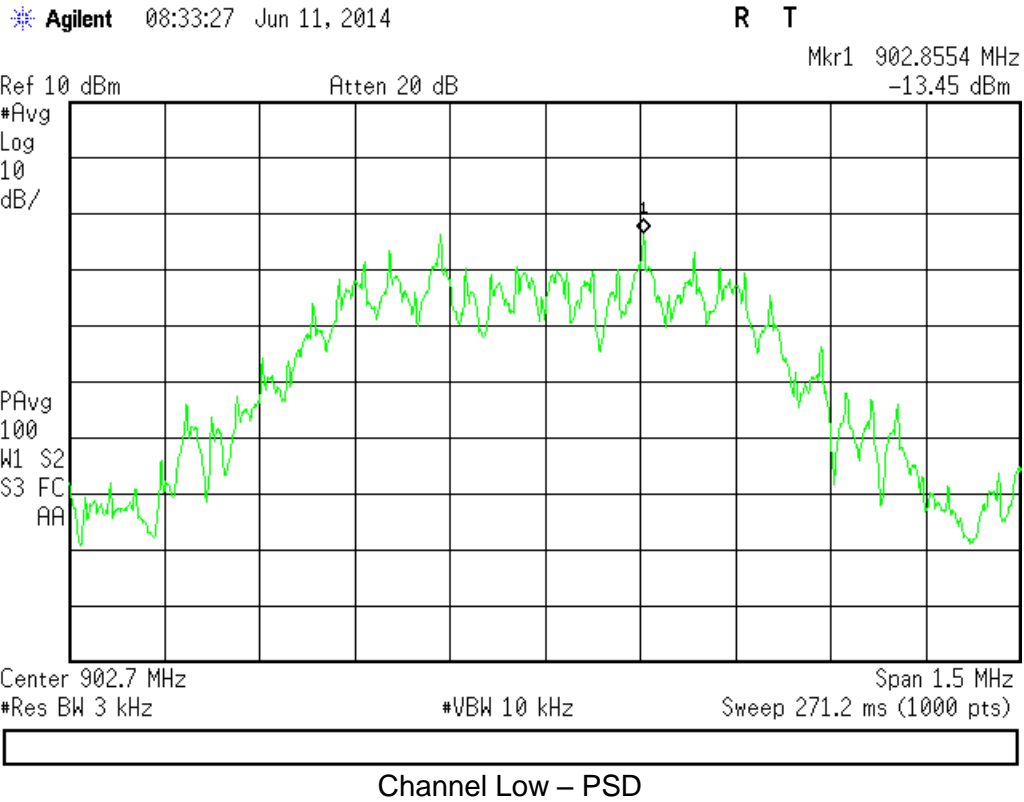
Rev. 5/4/2014

Spectrum Analyzers / Receivers / Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on	
Gold	100Hz-26.5 GHz	E4407B	Agilent	MY45113816	1284	I	3/28/2015	3/28/2014	
Conducted Test Sites (Mains / Telco)	FCC Code	VCCI Code		Cat	Calibration Due	Calibrated on			
CEMI 6	719150	A-0015		III	NA	N/A			
Meteorological Meters	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on		
Temp./Humidity/Atm. Pressure Gauge TH A#1831	7400 Perception II 35519-044	Davis Control Company	N/A 130319991	965 1831	I II	5/29/2014 6/13/2015	5/29/2013 6/13/2013		
Preamps / Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on	
HF 20dB 50W Attenuator	0.009-18 GHz	PE 7019-20	Pasternack	1	791	II	7/13/2014	7/13/2013	

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



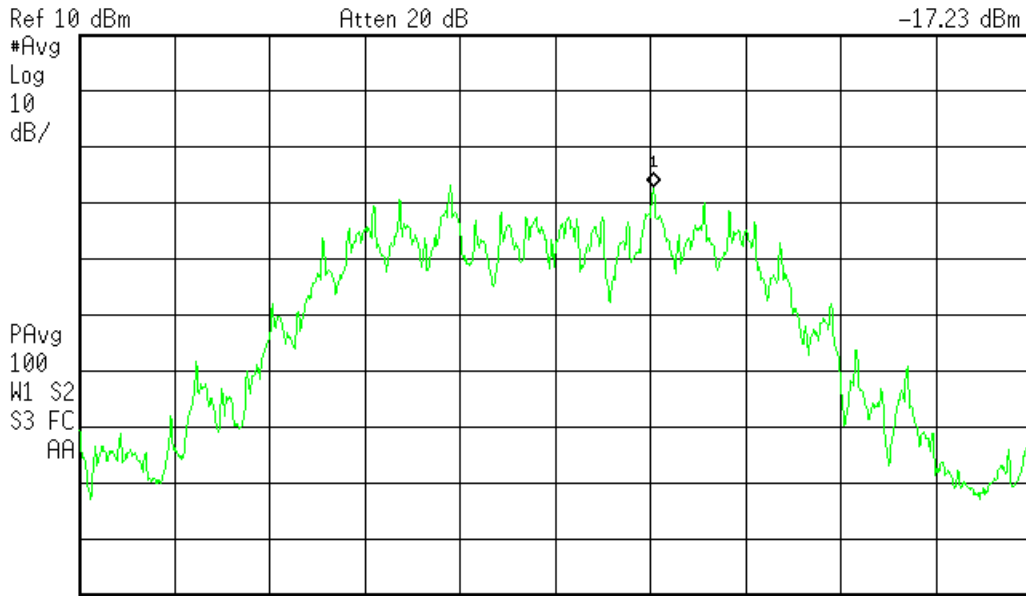
PLOTS



Agilent 08:36:05 Jun 11, 2014

R T

Mkr1 927.4554 MHz  
-17.23 dBm



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Channel High – PSD



## AC 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

\*Decreases with the logarithm of the frequency.

[47 CFR 15.207(a)]

## MEASUREMENTS / RESULTS

Engineer	Tuyen Truong
Date	5/8/2014
Site	CEMI6
Environmental Conditions	22°C, 2%, 1000mb

### AC Conducted Emissions Data Table

Date: 08-May-14		Company: Powercast Corporation		Work Order: O0675										
Engineer: Tuyen Truong		EUT Desc: SCD1000		Pressure: 1000 mBar										
Temp: 22.8 °C		Humidity: 28%												
Notes:														
Frequency Range: 0.15-30 MHz														
EUT Input Voltage/Frequency: 120Vac/60Hz														
Frequency (MHz)	Quasi-Peak Readings		Average Readings		LISN Factors		Cable Factor (dB)	ATTN Factor (dB)	FCC/CISPR Class B			FCC/CISPR Class B		
	QP1 (dBµV)	QP2 (dBµV)	AVG1 (dBµV)	AVG2 (dBµV)	L1 (dB)	L2 (dB)			QP Limit (dBµV)	Margin (dB)	Result (Pass/Fail)	AVG Limit (dBµV)	Margin (dB)	Result (Pass/Fail)
0.41	13.3	17.8	4.4	7.9	0.0	0.0	-0.2	-20.3	57.7	-19.3	Pass	47.7	-19.3	Pass
1.46	8.1	10.3	1.8	2.7	0.0	0.0	-0.2	-20.3	56.0	-25.1	Pass	46.0	-22.8	Pass
3.10	7.7	9.4	1.6	2.6	0.0	0.0	-0.2	-20.3	56.0	-26.1	Pass	46.0	-22.9	Pass
14.10	7.2	8.1	3.9	13.1	-0.1	-0.1	-0.3	-20.3	60.0	-31.2	Pass	50.0	-16.2	Pass
19.20	15.9	17.0	9.2	9.3	-0.1	-0.1	-0.4	-20.3	60.0	-22.2	Pass	50.0	-19.9	Pass
29.72	6.6	6.6	0.3	0.4	-0.1	-0.2	-0.4	-20.3	60.0	-32.5	Pass	50.0	-28.8	Pass
<b>Result: Pass</b>						<b>Worst Margin: -16.2 dB</b>			<b>Frequency: 14.100 MHz</b>					
Measurement Device: LISN ASSET 1730(Line 1) LISN ASSET 1731(Line 2)						Cable: CEMI-03			Spectrum Analyzer: Yellow					
						Attenuator: 20dB Attenuator-64			Site: CEMI6					

Spectrum Analyzers / Receivers / Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Yellow	9kHz-2.9GHz	8594E	Agilent	3523A01958	100	I	6/3/2014	6/3/2013
LISNs/Measurement Probes	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
LISN Asset 1730	150kHz-30MHz	LI-150A	Com-Power	201090	1730	I	2/26/2015	2/26/2014
LISN Asset 1731	150kHz-30MHz	LI-150A	Com-Power	201091	1731	I	3/3/2015	3/3/2014
Conducted Test Sites (Mains / Telco)	FCC Code	VCCI Code	Cat	Calibration Due	Calibrated on			
CEMI 6	719150	A-0015	III	NA	N/A			
Meteorological Meters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Temp./Humidity/Atm. Pressure Gauge		7400	Perceptio	N/A	965	I	5/29/2014	5/29/2013
TH A#1831		35519-044	Control Company	130319991	1831	II	6/13/2015	6/13/2013
Cables	Range	Mfr	Cat	Calibration Due	Calibrated on			
CEMI-03	9kHz - 2GHz	C-S	II	9/30/2014	9/30/2013			
Attenuators	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
20dB Attenuator-64	9kHz-2GHz			N/A		II	11/20/2014	11/20/2013

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



BUREAU  
VERITAS



AC Conducted Emissions Data Table														
Date: 08-May-14 Engineer: Tuyen Truong Temp: 22.8 °C					Company: Powercast Corporation EUT Desc: SCLIED1000 Humidity: 28%					Work Order: O0675 Pressure: 1000 mBar				
Notes:														
Frequency Range: 0.15-30 MHz										EUT Input Voltage/Frequency: 120Vac/60Hz				
Frequency (MHz)	Quasi-Peak Readings		Average Readings		LISN Factors		Cable Factor (dB)	ATTN Factor (dB)	FCC/CISPR Class B			FCC/CISPR Class B		
	QP1 (dBµV)	QP2 (dBµV)	AVG1 (dBµV)	AVG2 (dBµV)	L1 (dB)	L2 (dB)			QP Limit (dBµV)	Margin (dB)	Result (Pass/Fail)	AVG Limit (dBµV)	Margin (dB)	Result (Pass/Fail)
0.41	17.5	22.9	6.8	14.2	0.0	0.0	-0.2	-20.3	57.7	-14.2	Pass	47.7	-12.9	Pass
1.46	9.7	13.2	3.3	6.0	0.0	0.0	-0.2	-20.3	56.0	-22.3	Pass	46.0	-19.5	Pass
3.10	8.0	10.1	1.5	3.5	0.0	0.0	-0.2	-20.3	56.0	-25.4	Pass	46.0	-21.9	Pass
14.10	7.8	7.1	1.1	0.8	-0.1	-0.1	-0.3	-20.3	60.0	-31.6	Pass	50.0	-28.2	Pass
18.30	15.6	16.3	8.6	9.3	-0.1	-0.1	-0.4	-20.3	60.0	-23.0	Pass	50.0	-19.9	Pass
29.72	6.7	6.6	0.4	0.4	-0.1	-0.2	-0.4	-20.3	60.0	-32.5	Pass	50.0	-28.7	Pass
<b>Result:</b> Pass					<b>Worst Margin:</b> -12.9 dB					<b>Frequency:</b> 0.408 MHz				
Measurement Device: LISN ASSET 1730(Line 1) LISN ASSET 1731(Line 2)					Cable: CEMI-03					Spectrum Analyzer: Yellow				
					Attenuator: 20dB Attenuator-64					Site: CEMI 6				

Spectrum Analyzers / Receivers / Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on	
Yellow	9kHz-2.9GHz	8594E	Agilent	3523A01958	100	I	6/3/2014	6/3/2013	
LISNs/Measurement Probes	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on	
LISN Asset 1730	150kHz-30MHz	LI-150A	Com-Power	201090	1730	I	2/26/2015	2/26/2014	
LISN Asset 1731	150kHz-30MHz	LI-150A	Com-Power	201091	1731	I	3/3/2015	3/3/2014	
Conducted Test Sites (Mains / Telco)	FCC Code	VCCI Code	Cat	Calibration Due	Calibrated on				
CEMI 6	719150	A-0015	III	NA	N/A				
Meteorological Meters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on	
Temp./Humidity/Atm. Pressure Gauge		7400	Perceptio	Davis	N/A	965	I	5/29/2014	5/29/2013
TH A#1831		35519-044	Control Company	130319991	1831	II	6/13/2015	6/13/2013	
Cables	Range	Mfr	Cat	Calibration Due	Calibrated on				
CEMI-03	9kHz - 2GHz	C-S	II	9/30/2014	9/30/2013				
Attenuators	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on	
20dB Attenuator-64	9kHz-2GHz			N/A		II	11/20/2014	11/20/2013	

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



### Occupied Bandwidth

#### REQUIREMENT

When an occupied bandwidth is no specified in the applicable RSS, the transmitted signal bandwidth to be reported is to be its 99% emission bandwidth, as calculated or measured. [RSS-GEN 4.6.1]

Engineer	Tuyen Truong
Date	5/7/2014
Site	CEMI6
Environmental Conditions	23.9°C, 25%, 1015mb

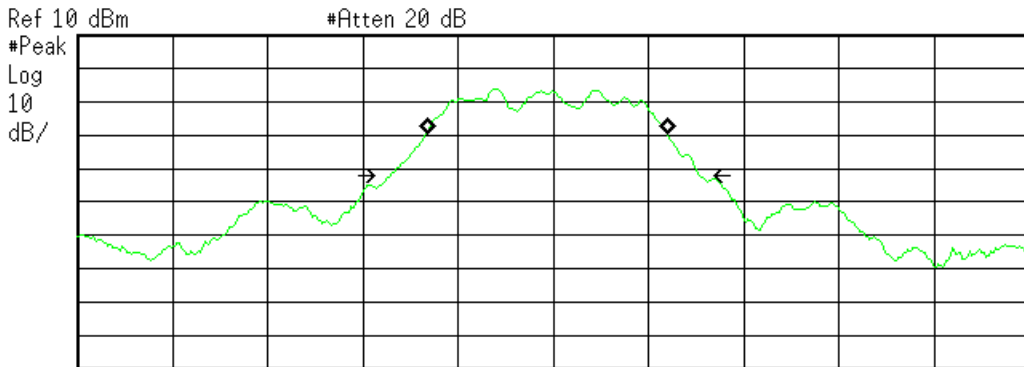
99% Occupied Bandwidth		
Frequency (MHz)	Mode	99% Occupied Bandwidth (KHz)
902.7	DMSS	757.3684
915	DMSS	751.7372
927.3	DMSS	748.2224
<b>Tested by:</b> Tuyen Truong <b>Date:</b> 5/7/2014 <b>Company:</b> Powercast Corporation <b>EUT:</b> SCD1000		<b>RBW = 30KHz</b> <b>VBW = 100KHz</b> <b>Analyzer:</b> GOLD SA <b>Attenuator:</b> PE7019-20



Plot(s)

Agilent 17:35:29 May 7, 2014

R T



Ref 10 dBm #Atten 20 dB  
 #Peak  
 Log  
 10  
 dB/  
 Center 902.7 MHz Span 3 MHz  
 #Res BW 30 kHz #VBW 100 kHz Sweep 5 ms (401 pts)

**Occupied Bandwidth**  
 757.3684 kHz

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

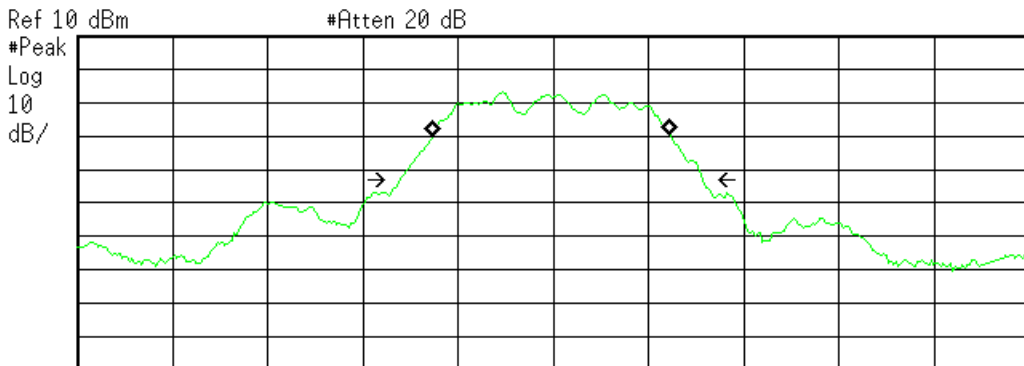
**Transmit Freq Error** -20.599 kHz  
**x dB Bandwidth** 972.796 kHz

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Low Channel – Occupied Bandwidth

Agilent 17:41:56 May 7, 2014

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Ref 10 dBm #Atten 20 dB  
 #Peak  
 Log  
 10  
 dB/  
 Center 915 MHz Span 3 MHz  
 #Res BW 30 kHz #VBW 100 kHz Sweep 5 ms (401 pts)

**Occupied Bandwidth**  
 751.7372 kHz

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** -5.924 kHz  
**x dB Bandwidth** 952.251 kHz

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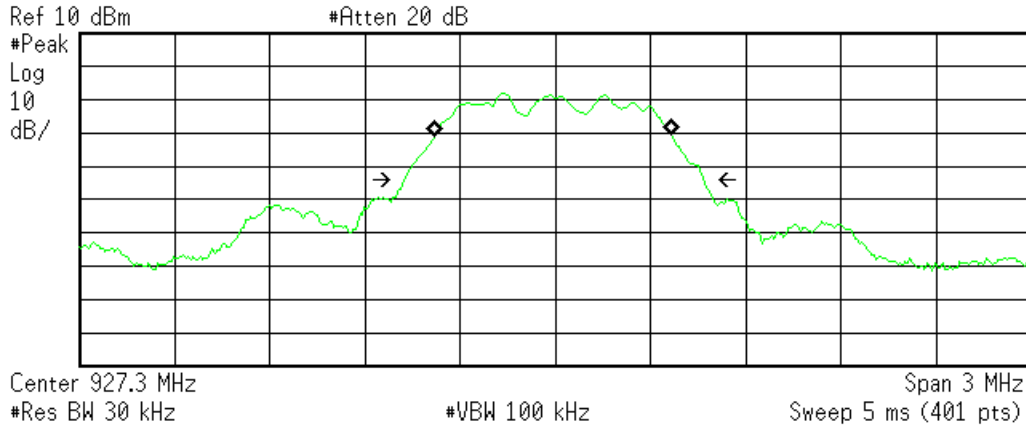
Mid Channel – Occupied Bandwidth





Agilent 17:44:47 May 7, 2014

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Occupied Bandwidth  
 748.2224 kHz

Occ BW % Pwr 99.00 %  
 x dB -26.00 dB

Transmit Freq Error -6.909 kHz  
 x dB Bandwidth 942.308 kHz

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High Channel – Occupied Bandwidth



### Measurement Uncertainty

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

Measurement	Expanded Uncertainty k=2	Maximum allowable uncertainty
Radiated Emissions (30-1000MHz)		
NIST	5.6dB	N/A
CISPR	4.6dB	5.2dB (Ucisprr)
Radiated Emissions (1-26.5GHz)	4.6dB	N/A
Radiated Emissions (above 26.5GHz)	4.9dB	N/A
Magnetic Radiated Emissions	5.6dB	N/A
Conducted Emissions		
NIST	3.9dB	N/A
CISPR	3.6dB	3.6dB (Ucisprr)
Telco Conducted Emissions (Current)	2.9dB	N/A
Telco Conducted Emissions (Voltage)	4.4dB	N/A
Electrostatic Discharge	11.5%	N/A
Radiated RF Immunity (Uniform Field)	1.6dB	N/A
Electrical Fast Transients	23.1%	N/A
Surge	23.1%	N/A
Conducted RF Immunity	3dB	N/A
Magnetic Immunity	12.8%	N/A
Dips and Interrupts	2.3V	N/A
Harmonics	3.5%	N/A
Flicker	3.5%	N/A
Radio frequency (@ 2.4GHz)	$3.23 \times 10^{-8}$	$1 \times 10^{-7}$
RF power, conducted	0.40dB	0.75dB
Maximum frequency deviation:		
• Within 300Hz and 6kHz of audio frequency / Within 6kHz and 25kHz of audio frequency	3.4%	5%
Adjacent channel power	0.3dB	3dB
Conducted spurious emission of transmitter, valid up to 12.75GHz	1.9dB	3dB
Conducted emission of receivers	2.39dB	3dB
Conducted emission of receivers	1.3dB	3dB
Radiated emission of transmitter, valid up to 26.5GHz	3.9dB	6dB
Radiated emission of transmitter, valid up to 80GHz	3.3dB	6dB
Radiated emission of receiver, valid up to 26.5GHz	3.9dB	6dB
Radiated emission of receiver, valid up to 80GHz	3.3dB	6dB
Humidity	2.37%	5%
Temperature	0.7°C	1.0°C
Time	4.1%	10%
RF Power Density, Conducted	0.4dB	3dB
DC and low frequency voltages	1.3%	3%
Voltage (AC, <10kHz)	1.3%	2%
Voltage (DC)	0.62%	1%
The above reflects a 95% confidence level		



## 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.

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.

The complete list of the Approved Subcontractors Curtis-Straus may use to delegate the performance of work can be provided upon request.

