# Test Report



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

Report No	EQ2569-1
Client	Ideal Industries, Inc.
Address	Becker Place Sycamore, IL 60178
Phone	(815) 895-1295
Items tested FCC ID IC FRN	SCD1000-EM 2AAMXSCD1000EM 11250A-SCD1000EM 0002862225
Equipment Type Equipment Code Emission Designator	Digital Transmission System DTS 767KG1D
FCC/IC Rule Parts	CFR Title 47 FCC Part 15.247, ISED Canada RSS-247 Issue 1
Test Dates	August 25, 29 and September 2, 2016
Results	As detailed within this report
Prepared by	Tuyen Truong – Test Engineer
Authorized by	Vinus Fazilogiu - Sr. EMC Engineer
Authorized by Issue Date	Vinus Fazilogiu - Sr. EMC Engineer 1/23/2017

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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page 1 of 32

### Contents

Contents	2
Summary	3
Test Methodology	
Product Tested - Configuration Documentation	
Statement of Conformity	6
Test Results	
Bandwidth	7
Fundamental Emission Output Power	
Radiated Spurious Emissions	.13
Conducted Spurious Emissions	.18
Power Spectral Density	
AC Line Conducted Emissions	.25
Occupied Bandwidth	.27
Measurement Uncertainty	
Conditions Of Testing	

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



### Summary

This test report supports an application for certification of a transmitter operating pursuant to: CFR Title 47 FCC Part 15.247, ISED Canada RSS-247 Issue 1

The product is the SCD1000-EM. It is a digitally modulated transmitter that operates in the 902-928MHz frequency range. The product was tested with a permanently attached wire antenna with 4.55dBi gain.

We found that the product met the above requirements without modification. The test samples were received in good condition.

Model tested: SCD1000-EM Additional model: SCLED1000EM Results in this report also represent the additional model above. Per client, circuit and PCB are identical for both models. The only difference is where dim and dim return leads egress from the product housing.





### Test Methodology

All testing was performed according to the following rules/procedures/documents; CFR Title 47 FCC Part 15.247, ISED Canada RSS-247 Issue 1, ISED Canada RSS-Gen Issue 4, FCC KDB 558074 D01 DTS Measurement Guidance v03r05 and ANSI C63.10-2013.

Radiated emissions were maximized by rotating the device around three orthogonal axes as well as varying the test antenna's height and polarity. AC line conducted emissions testing was performed with a  $50\Omega/50\mu$ H LISN. The EUT operating voltage was 120/277VAC at 60Hz.

RF measurements were performed at the antenna port on 3 channels as follows:

Low channel = 902.7MHz Mid channel = 915MHz

High channel = 927.3MHz

The following bandwidths were used during radiated spurious and AC line conducted emissions tests:

Frequency	RBW	VBW
0.15-30MHz	9kHz	30kHz
30-1000MHz	120kHz	1MHz
1-10GHz	1MHz	3MHz





page 4 of 32

# **Product Tested - Configuration Documentation**

					E	UT Configurat	ion				
Work	Order:	Q2569									
Co	mpany:	Ideal Ir	ndustries, Inc	;							
Company A	ddress:	Becker	Place								
		Sycamo	ore, IL 6017	8							
C	Contact:	Tim Tu	ınnell								
				MN			PN			SN	
	EUT:		SCE	1000-EM					02001D67	(Radiated &	Conducted EMI)
			SCE	1000-EM					Sam	ple 2 (RF Me	asurement)
EUT Desc	ription:	Smart (	Connector								
EUT TX Free	quency:	902.7 t	o 927.3 MHz	2							
Port Label	Port	Туре	# ports	# populated	cable ty	pe shield	ed ferrites	length (m)	in/out	under test	comment
AC Mains	Powe	r AC	1	1	Power AC	C No	No	1	in	yes	
Antenna	other		1	1	other	No	No	0.05	in	yes	
Load	Powe	r AC	1	1	Power AC	C No	No	3	in	yes	
Dimming	Powe	r AC	1	1	other	No	No	3	in	yes	
Software Operating	g Mode D	escriptio	n:								
EUT was set to trans	mit at Lo	w (902.71	MHz), Middl	e (915MHz) and	l High (927.	.3MHz) channe	s.				





page 5 of 32

# Statement of Conformity

RSS-GEN	RSP-100	RSS 247	Part 15	Comments
6.3			15.15(b)	There are no controls accessible to the user that
				varies the output power to operate in violation of the
				regulatory requirements.
	3.1		15.19	The label is shown in the label exhibit.
	4		15.21	Information to the user is shown in the instruction
				manual exhibit.
			15.27	No special accessories are required for compliance.
3, 6.1			15.31	The EUT was tested in accordance with the
				measurement standards in this section.
6.13			15.33	Frequency range was investigated according to this
				section, unless noted in specific rule section under
				which the equipment operates.
8.1			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.
8.3			15.203	The antenna for this device is a permanently
				attached wire antenna with 4.55dBi gain.
8.10			15.205	The fundamental is not in a Restricted band and the
			15.209	spurious and harmonic emissions in the Restricted
				bands comply with the general emission limits of
				15.209 or RSS-Gen as applicable
8.8			15.207	EUT meets the AC Line conducted emissions
				requirements of this section.
			15.247	The unit complies with the requirements of 15.247
		RSS 247		The unit complies with the requirements of RSS-247
6.6				Occupied Bandwidth measurements were made.





# **Test Results**

#### Bandwidth

#### LIMIT

The minimum 6 dB bandwidth shall be at least 500 kHz. [15.247(a) (2)]

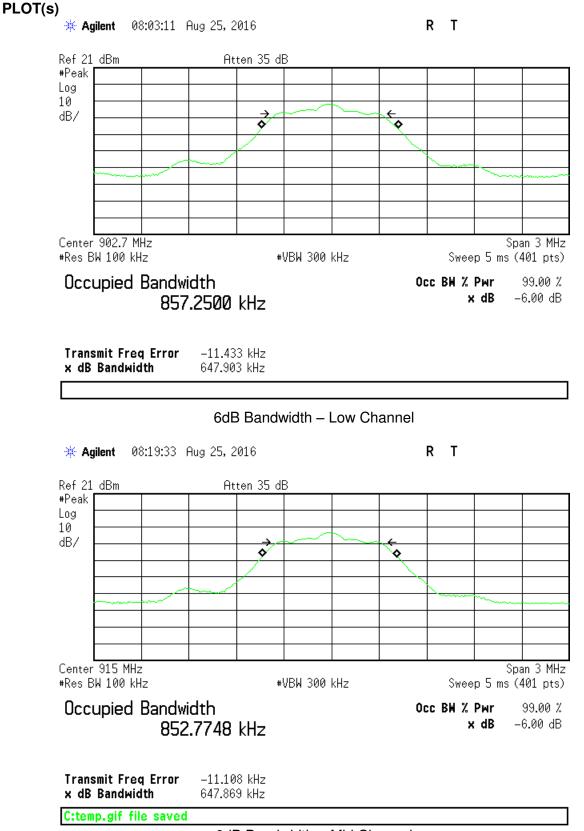
#### **MEASUREMENTS / RESULTS**

Date: 25-Aug-16	Company: lo	deal Industries, In	с.						Work Orde	r: Q2569
Engineer: Tuyen Truong	EUT Desc: S	CD1000				EUT Op	eratin	g Voltage	/Frequenc	<b>y:</b> 120Vac/6
Temp: 23.4°C	Humidity: 5	0%	Pres	<b>sure:</b> 1010mBar						
Frequency F	Range: 902.7-927.3	MHz								
Notes:										
									6dB BW	I
Frequency			Reading				Ē	Limit	Margin	Resu
(MHz)			(KHz)					(KHz)	(KHz)	(Pass/F
902.7			647.903					≥500	+147.90	3 Pas
915			647.869					≥500	+147.86	9 Pas
927.3			648.396					≥500	+148.39	6 Pas
Test Site: CEMI5 Analyzer: SA#1328	Attenuation: A	sset#791								
Analyzer: SA#1328 8/21/2016 Spectrum Analyzers / Receive	ers/Preselectors	Range 9kHz-13.2 GHz	<b>MN</b> E4405B	<b>Mfr</b> Acilent	<b>SN</b> MY44210241	<b>Asset</b> 1328	Cat	Calibrat	tion Due	urtis-Straus LLC Calibrated
Analyzer: SA#1328 8/21/2016 Spectrum Analyzers / Receive SA EMI Chamber (1	ers /Preselectors 328)	<b>Range</b> 9kHz-13.2 GHz		Agilent			I	2/26/	t <b>ion Due</b> 2017	urtis-Straus LLC Calibrated 2/26/201
Analyzer: SA#1328 8/21/2016 Spectrum Analyzers / Receive	ers /Preselectors 328)	Range						2/26/ Calibrat	t <b>ion Due</b> 2017	urtis-Straus LLC Calibrated 2/26/201
Analyzer: SA#1328 8/21/2016 Spectrum Analyzers / Receive SA EMI Chamber (1 Conducted Test Sites (Ma	ers /Preselectors 328) ins / Telco) eters	Range 9kHz-13.2 GHz FCC Code		Agilent VCCI Code			l Cat	2/26/ Calibrat N Calibrat 4/28/	iion Due 2017 iion Due IA iion Due	urtis-Straus LLC Calibrated 2/26/201 Calibrated

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





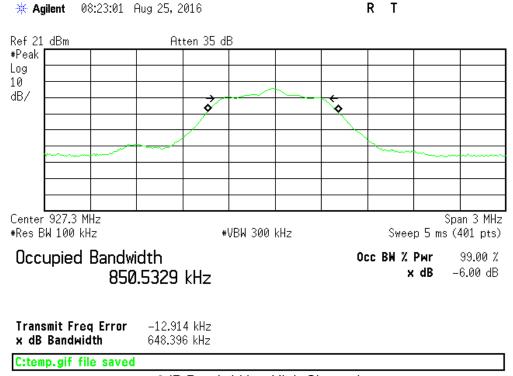


6dB Bandwidth - Mid Channel









6dB Bandwidth – High Channel





page 9 of 32

### **Fundamental Emission Output Power**

LIMIT

Conducted Output Power 1 Watt [15.247(b) (3)]

Per 558074 D01 DTS Measurement Guidance v03r05 Section 9.2.2.2 (AVGSA-1 Average Conducted Output Power)

#### **MEASUREMENTS / RESULTS**

Date: 25-Aug-16	c	Company: Ideal In	ndustries, Inc.					1	Work Orde	r: Q2569
Engineer: Tuyen Truong	E	EUT Desc: SCD10	000			EUT Op	peratii	ng Voltage	Frequency	y: 120Vac/60
Temp: 23.4°C	1	Humidity: 50%	Pr	essure: 1010mBar						
Frequ	ency Range: 9	902.7-927.3 MHz								
Notes:										
									FCC 15.24	47
Frequency	Reading	Atte	enuation	Fina	I Conducted Rea	ding	ŀ	Limit	Margin	Resul
(MHz)	(dBm)		(dB)		(dBm)	-		(dBm)	(dB)	(Pass/Fa
902.7	-1.96	1	9.42		17.46			30.0	-12.54	Pass
915	-3.46	1	9.42		15.96			30.0	-14.04	Pass
927.3	-4.61	1	9.42		14.81			30.0	-15.19	Pass
Table Result:	Pass	by -12	.54 dB				Wo	rst Freq:	902.	7 MHz
Test Site: CEMI5 Analyzer: SA#1328	Atte	enuation: Asset	#791							
									Copyright Cu	irtis-Straus LLC
3/21/2016 Spectrum Analyzers / Receive SA EMI Chamber (*		rs Rang 9kHz-13.2			<b>SN</b> MY44210241	<b>Asset</b> 1328	Cat I	Calibrati 2/26/2		Calibrated 2/26/2016
		FCC C	ode	VCCI Code			Cat	Calibrati NA		Calibrated
Conducted Test Sites (Ma CEMI 5	ains / Telco)	71915	50	A-0015			Ш	INA		
	eters		50 MN BA92 HTC-	Mfr 28 Oregon Scientific	<b>SN</b> C3166-1	<b>Asset</b> 831 2085	III Cat I	Calibrati 4/28/2 4/5/2	018	<b>Calibrated</b> 4/28/2016 4/5/2016

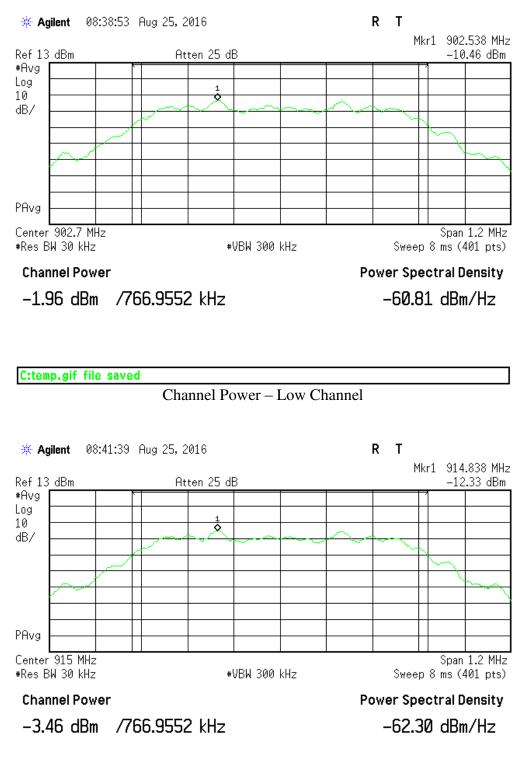
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page 10 of 32

#### PLOTS



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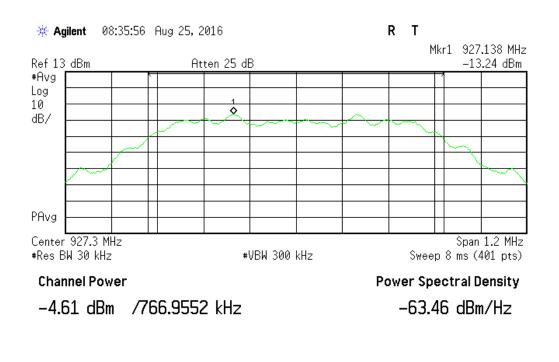
Channel Power – Mid Channel



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page 11 of 32



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Channel Power – High Channel





1/23/2017

# **Radiated 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 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the 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. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)). [15.247(d)]

### **MEASUREMENTS / RESULTS**

Date: 25-Aug-16	Company: Ideal Inc	lustries, Inc.						Work Orc	ler: Q2569
ngineer: Tuyen Truong	EUT Desc: SCD100	00			E	EUT Ope	erating	y Voltage/Frequen	icy: 120Vac/60
Temp: 23.4°C	Humidity: 50%		Pressure: 1	010mBar					
Frequency R	lange: 902.7-927.3 MHz								
Notes: Maximum In Ban	nd Peak PSD in 100 KHz R	BW							
Frequency	Readin	g		Attenuation			Adju	isted Reading	
(MHz)	(dBm)			(dB)				(dBm)	
902.7 est Site: CEMI5	-1.04 Attenuation: Asset#7	-		19.42				18.4	
st Site: CEMI5 alyzer: SA#1328 v. 8/21/2016	Attenuation: Asset#7	791						Copyright	
st Site: CEMI5 halyzer: SA#1328 v. 8/21/2016 Spectrum Analyzers / I		-	<b>MN</b> E4405B	19.42 Mfr Agilent	<b>SN</b> MY44210241	<b>Asset</b> 1328	Cat I		Calibrated
est Site: CEMI5 nalyzer: SA#1328 w. 8/21/2016 Spectrum Analyzers / I SA EMI Cha Conducted Test Si	Attenuation: Asset#7	791 Range		Mfr			Cat ∣ Cat Ⅲ	Copyright Calibration Due	Curtis-Straus LLC Calibrated 2/26/2016 Calibrated N/A
est Site: CEMI5 halyzer: SA#1328 ev. 8/21/2016 Spectrum Analyzers / I SA EMI Cha Conducted Test Si CEI Meteorolog Weather Clock	Attenuation: Asset#7 Receivers /Preselectors amber (1328) ites (Mains / Telco)	Range 9kHz-13.2 GHz FCC Code		Mfr Agilent VCCI Code			l Cat	Copyright Calibration Due 2/26/2017 Calibration Due	Calibrated 2/26/2016 Calibrated

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page 13 of 32

Engineer:	08-Aug-16 Zachary Johns		Company: EUT Desc:	SCD1000	tries, Inc.				EUT Operat	۷ //ing Voltage	Vork Order: Frequency:	
Temp:	22.6°C		Humidity:			Pressure:	1010mBar					
		ncy Range:								nt Distance:	•	
Notes:		eadings com	pared to Pe	ak Power S	Spectral D	nly the worst ca ensity (worst ca 88.2dBµV/m		the 4.55dBi		UT TX Freq:	902.7 to 927	'.3 MHz
Antenna			Preamp	Antenna	Cable	Adjusted				F	CC 15.247 (	d)
Polarization (H / V)	Frequency (MHz)	Reading (dBµV)	Factor (dB)	Factor (dB/m)	Factor (dB)	Reading (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail
V	41.2	50.4	22.4	13.2	0.4	41.6				88.2	-46.6	Pass
v	54.2	47.7	22.5	7.5	0.5	33.2				88.2	-55.0	Pass
н	76.4	32.3	22.4	8.8	0.6	19.3				88.2	-68.9	Pass
V	80.7	43.3	22.5	8.0	0.6	29.4				88.2	-58.8	Pass
V	207.5	43.4	22.5	11.0	0.9	32.8				88.2	-55.4	Pass
н	800.3	34.5	22.4	21.3	2.2	35.6				88.2	-52.6	Pass
н	75.59	42.4	22.4	9.0	0.6	29.6				88.2	-58.6	Pass
н	821.52	36.5	22.3	21.7	2.2	38.1				88.2	-50.1	Pass
н	80.44	41.4	22.5	8.1	0.6	27.6				88.2	-60.6	Pass
н	799.21	37.6	22.4	21.3	2.1	38.6				88.2	-49.6	Pass
Н	77.53	42.6	22.4	8.6	0.6	29.4				88.2	-58.8	Pass
Н	799.21	40.1	22.4	21.3	2.1	41.1	l			88.2	-47.1	Pass
Table	e Result:	Pass	by	-46.6	dB				W	orst Freq:	41.2	MHz
Analyzer:	EMI Chamber Rental SA#1 d Emissions C		Cable 1: Preamp: v 1.017.169		52				Asset #1507 Red-Black		Cable 3: Preselector:	

<u>Note</u>: No emissions found within 10dB of the limit, which was set -30dB down from the peak of Power Spectral Density of the Fundamental frequency (worst case). (See section 15.247(e) – Power Spectral Density) (i.e. Worst Case Conducted Power Spectral Density Reading + Antenna Gain = EIRP then calculated field strength based off of  $P = (Ed)^2/(30G)$ . Field Strength – 30dB = Adjusted Limit dBµV/m

Rev. 9/1/2016 Spectrum Analyzers / Receivers /Preselectors 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	Cat I	Calibration Due 12/23/2016	Calibrated on 12/23/2015
Radiated Emissions Sites	FCC Code	IC Code	VCCI Code	Range		Cat	Calibration Due	Calibrated on
EMI Chamber 2	719150	2762A-7	A-0015	30-1000MHz		II	3/22/2017	3/22/2015
Preamps /Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Blue	0.009-2000MHz	ZFL-1000-LN	CS	N/A	759	II	5/13/2017	5/13/2016
Antennas	Range	MN	<b>Mfr</b>	<b>SN</b>	<b>Asset</b>	Cat	Calibration Due	Calibrated on
Red-Black Bilog	30-2000MHz	JB1	Sunol	A091604-2	1106	I	2/9/2017	2/9/2015
Meteorological Meters Weather Clock (Pressure Only) TH A#2081		MN BA928 HTC-1	Mfr Oregon Scientific HDE	<b>SN</b> C3166-1	Asset 831 2081	Cat I	Calibration Due 4/28/2018 4/5/2017	Calibrated on 4/28/2016 4/5/2016
Cables Asset #1507 Asset #2052	<b>Range</b> 9kHz - 18GHz 9kHz - 18GHz		<b>Mfr</b> Florida RF Florida RF			Cat II	Calibration Due 2/14/2017 3/2/2017	Calibrated on 2/14/2016 3/2/2016

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





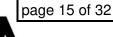
	08-Aug-16			Ideal Indus	stries, In	с.						Vork Orde	
0	Zachary Johns	on	EUT Desc:			_			EUT Ope	erating	g Voltage/	Frequency	y: 120V/60Hz
Temp:	22.6°C		Humidity:			Pressu	Ire: 1010mBar						
		ncy Range:						Ν	leasure		Distance:	• • • •	
Notes:	All 3 channels	(Low, Mid a	nd High) we	re investiga	ited and	only the wors	t case recorded.			EUT	TX Freq:	902.7 to 92	27.3 MHz
Antenna			Broomp	Antenna	Cable	Adjustos		FCC 15.209		FCC 15.209			
Polarization (H/V)	Frequency (MHz)	Reading (dBµV)	Preamp Factor (dB)	Factor (dB/m)	Factor (dB)	Adjusted Reading (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result (Pass/Fa		Limit (dBµV/m)	Margin (dB)	Result (Pass/Fai
(II/V) H	270.0	(dBµV) 33.9	22.6	13.2	1.2	(dBµV/iii) 25.7	(dbµv/m)	(db)	(1 435/1 4		46.0	-20.3	Pass
н	329.4	40.7	22.0	14.0	1.2	33.6					46.0	-12.4	Pass
н	332.64	45.1	22.4	14.1	1.3	38.1					46.0	-7.9	Pass
Н	330.7	46.2	22.4	14.0	1.3	39.1					46.0	-6.9	Pass
Tahl	e Result:	Pass	by	-6.9	dB					Wors	st Freq:	330.	7 MHz
Test Site: Analyzer: Ssoft Radiate	EMI Chamber : Rental SA#1 Ed Emissions Ca	alculator	Preamp: v 1.017.169					Cable 2: / Antenna: F			P	Cable 3 Preselecto Copyright Cu	r:
Test Site: Analyzer: Ssoft Radiate ljusted Read v. 9/1/2016	EMI Chamber : Rental SA#1	alculator Preamp Fac ceivers /Pres	Preamp: v 1.017.169 ctor + Anter	Blue	+ Cable	Factor MN E7405A	<b>Mfr</b> Agilent				E Calibrati 12/23/	Preselecto Copyright Cu	r: urtis-Straus LLC Calibrated
Test Site: Analyzer: Ssoft Radiate Ijusted Read	EMI Chamber : Rental SA#1 d Emissions Ca ling = Reading -	alculator Preamp Fac ceivers /Pres 860) sions Sites	Preamp: v 1.017.169 ctor + Anter	Blue Inna Factor - Rar	+ Cable nge 5.5 GHz Code	MN		Antenna: I	Red-Blac Asset	k	Calibrati	on Due 2016 on Due	
Test Site: Analyzer: Ssoft Radiate ijusted Read v. 9/1/2016 Spectrum	EMI Chamber : Rental SA#1 ad Emissions Ca ling = Reading - Analyzers / Ren SA #2 (1 Radiated Emis	alculator Preamp Fac ceivers /Pres 860) sions Sites aber 2 tenuators / F	Preamp: v 1.017.169 ctor + Anter selectors	Blue nna Factor - Rar 9kHz-26 FCC ( 719 Rar	+ Cable nge 5.5 GHz Code 150	MN E7405A IC Code	Agilent VCCI Code	Antenna: H SN MY45104916 Range	Red-Blac Asset	k Cat I Cat	Calibrati 12/23/ Calibrati	on Due 2016 on Due 2017 on Due	Calibrated of 12/23/2015
Test Site: Analyzer: Ssoft Radiate ijusted Read v. 9/1/2016 Spectrum	EMI Chamber : Rental SA#1 ad Emissions Ci Image Reading - Analyzers / Rei SA #2 (1 Radiated Emis EMI Cham	alculator Preamp Fac ceivers /Pres 860) sions Sites hber 2 tenuators / F	Preamp: v 1.017.169 ctor + Anter selectors	Blue nna Factor - Rar 9kHz-26 FCC ( 719 Rar	+ Cable nge 5.5 GHz Code 150 nge 000MHz nge	MN E7405A IC Code 2762A-7 MN	Agilent VCCI Code A-0015 Mfr	Antenna: I SN MY45104916 Range 30-1000MHz SN	Asset 1860	k Cat I Cat II Cat	Calibrati 12/23/ Calibrati 3/22/2 Calibrati	on Due 2016 on Due 2017 on Due 2017 on Due 2017 on Due	r: rtis-Straus LLC Calibrated 12/23/2015 Calibrated 3/22/2015 Calibrated
Test Site: Analyzer: soft Radiate justed Read v. 9/1/2016 Spectrum Pream	EMI Chamber : Rental SA#1 ad Emissions C; Image Reading - A Analyzers / Re- SA #2 (1 Radiated Emis EMI Cham https / Couplers At Blue Antenn	alculator Preamp Fac ceivers / Pres 860) sions Sites bber 2 tenuators / F tas Bilog al Meters ressure Only)	Preamp: v 1.017.169 ctor + Anter selectors	Blue Rar 9kHz-26 FCC ( 719 Rar 0.009-20 Rar	+ Cable nge 5.5 GHz Code 150 nge 000MHz nge	MN E7405A IC Code 2762A-7 MN ZFL-1000-LN MN	Agilent VCCI Code A-0015 Mfr CS Mfr	Antenna: I SN MY45104916 Range 30-1000MHz SN N/A SN	Asset 1860 Asset 759 Asset	k Cat I Cat II Cat II Cat	Calibrati 12/23/ Calibrati 3/22/2 Calibrati 5/13/2 Calibrati	reselecto Copyright Cu on Due 2016 on Due 2017 on Due 2017 on Due 2017 on Due 2017	r: rtis-Straus LLC Calibrated 12/23/2015 Calibrated 5/13/2016 Calibrated
Test Site: Analyzer: soft Radiate justed Read v. 9/1/2016 Spectrum Pream	EMI Chamber : Rental SA#1 ed Emissions Ca ing = Reading - Analyzers / Re SA #2 (1 Radiated Emis EMI Cham neps /Couplers At Blue Antenn Red-Black Meteorologic Veather Clock (Pi	alculator Preamp Fac ceivers / Pres 860) sions Sites aber 2 tenuators / F has Bilog al Meters ressure Only) 081	Preamp: v 1.017.169 ctor + Anter selectors	Blue Rar 9kHz-26 FCC ( 719 Rar 0.009-20 Rar	+ Cable nge 3.5 GHz Code 150 nge 000MHz nge 00MHz	MN E7405A IC Code 2762A-7 ZFL-1000-LN MN JB1 MN BA928	Agilent VCCI Code A-0015 Mfr CS Mfr Sunol Mfr Oregon Scientific	Antenna: I SN MY45104916 Range 30-1000MHz SN N/A SN A091604-2 SN	Asset 1860 Asset 759 Asset 1106 Asset 831	k Cat I Cat II Cat I Cat I Cat I Cat	Calibrati 12/23/ Calibrati 3/22/2 Calibrati 5/13/2 Calibrati 2/9/2 Calibrati 4/28/2	reselecto Copyright Cu 2016 on Due 2017 on Due 2017 on Due 2017 on Due 2017 on Due 2018 017	<ul> <li>Galibrated 12/23/2015</li> <li>Calibrated 3/22/2015</li> <li>Calibrated 5/13/2016</li> <li>Calibrated 2/9/2015</li> <li>Calibrated 4/28/2016</li> </ul>
Test Site: Analyzer: soft Radiate justed Read v. 9/1/2016 Spectrum Pream	EMI Chamber :: Rental SA#1 d Emissions C: ing = Reading - a Analyzers / Ren SA #2 (1 Radiated Emis EMI Charr nps /Couplers At Blue Antenn Red-Black Meteorologic Weather Clock (P) TH A#20	alculator Preamp Fau ceivers / Pres 860) sions Sites ber 2 tenuators / F as Bilog al Meters ressure Only) 081 507	Preamp: v 1.017.169 ctor + Anter selectors	Blue nna Factor - 9kHz-26 FCC ( 719 Rar 0.009-20 Rar 30-200	+ Cable nge 3.5 GHz Code 150 nge 000MHz nge 18GHz	MN E7405A IC Code 2762A-7 ZFL-1000-LN MN JB1 MN BA928	Agilent VCCI Code A-0015 Mfr CS Mfr Sunol Mfr Oregon Scientific HDE	Antenna: I SN MY45104916 Range 30-1000MHz SN N/A SN A091604-2 SN	Asset 1860 Asset 759 Asset 1106 Asset 831	k Cat I Cat II Cat II Cat I Cat I I	Calibrati 12/23/ Calibrati 3/22/2 Calibrati 5/13/2 Calibrati 2/9/2 Calibrati 4/28/2 4/5/2	reselecto Copyright Cu on Due 2016 on Due 2017 on Due 2017 on Due 2017 on Due 2018 017 on Due 2018	<ul> <li>Calibrated (12/23/2015)</li> <li>Calibrated (3/22/2015)</li> <li>Calibrated (5/13/2016)</li> <li>Calibrated (2/9/2015)</li> <li>Calibrated (4/28/2016)</li> <li>Calibrated (4/5/2016)</li> </ul>

Date:	25-Aug-16		Company:	Ideal Indus	tries, Inc.					v	/ork Order:	Q2569
Engineer:	Zachary Johnson		EUT Desc:	SCD1000					EUT Operati	ng Voltage/	Frequency:	120V/60Hz
Temp:	22.6°C		Humidity:	50%			Pressure: 1010	0mBar				
		Frequency Range:	1-6GHz						Measuremen	nt Distance:	3 m	
Notes:	TX on Low channe Limit is set at 30c	el dB below the fundame	ental						EL	JT TX Freq:	902.7 to 927	.3 MHz
Antenna		Peak	Preamp	Antenna	Cable	Adjusted				F	CC 15.247(	d)
Polarization (H / V)	Frequency (MHz)	Reading (dBµV)	Factor (dB)	Factor (dB/m)	Factor (dB)	Peak Reading (dBµV/m)				Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)
H V	5508 5656	34.1 34.6	18.2 18.4	34.8 35	5.5 5.6	56.2 56.8				88.2 88.2	-32.0 -31.4	Pass Pass
Tabl	e Result:	Pass	by	-31.4	dB	•			Wa	orst Freq:	5656.0	MHz
Test Site:	EMI Chamber 2		Cable 1:	Asset #20	52				Cable 2: Asset #1507		Cable 3:	
Analyzer:	Rental SA#1		Preamp:	Asset #15	17				Antenna: Blue Horn	F	reselector:	
	ed Emissions Calco ing = Reading - Pr	ulator v 1.017.169 reamp Factor + Anten		- Cable Fac	tor						Copyright Curti	s-Straus LLC 2
Radiated	Emission	s Table										
Date:	25-Aug-16		Company:	Ideal Indus	tries, Inc.					v	/ork Order:	Q2569
				0004000							-	1001//0011

Date:	25-Aug-16		Company:	Ideal Indus	tries, Inc.				V	Vork Order:	Q2569
Engineer:	Zachary Johnson	1	EUT Desc:	SCD1000				EUT Operati	ng Voltage/	Frequency:	120V/60Hz
Temp:	22.6°C		Humidity:	50%			Pressure: 1010mBar				
		Frequency Range:	1-6GHz					Measuremer	nt Distance:	3 m	
Notes:	TX on Mid chann Limit is set at 30	el dB below the fundame	ntal					EL	JT TX Freq:	902.7 to 927	.3 MHz
Antenna		Peak	Preamp	Antenna	Cable	Adjusted				FCC 15.247(	3)
Polarization	Frequency	Reading	Factor	Factor	Factor	Peak Reading			Limit	Margin	Result
(H / V)	(MHz)	(dBµV)	(dB)	(dB/m)	(dB)	(dBµV/m)			(dBµV/m)	(dB)	(Pass/Fail)
Н	1990.0	34.1	20.1	31.7	3.4	49.1			88.2	-39.1	Pass
V	5714.0	34.6	18.4	35.1	5.6	56.9			88.2	-31.3	Pass
Table	e Result:	Pass	by	-31.3	dB			Wa	orst Freq:	5714.0	MHz
	EMI Chamber 2 Rental SA#1			Asset #205 Asset #15				Cable 2: Asset #1507 Antenna: Blue Horn	F	Cable 3: Preselector:	
	d Emissions Calo ing = Reading - P	culator v 1.017.169 reamp Factor + Anten		Cable Fac	tor					Copyright Curti	s-Straus LLC 20



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ACCREDITED Testing Cert. No. 1627-0

1/23/2017

Engineer:	: 25-Aug-16 : Zachary Johnsor : 22.6°C		Company: EUT Desc: Humidity:		tries, Inc.		Pressure: 1	010mBar	E	UT Oper	۷ /ating Voltage	Vork Order Frequency	
		Frequency Range:	: 1-6GHz						М		ent Distance:		
Notes:	TX on High chan Limit is set at 30	nel 0dB below the fundame	ental								EUT TX Freq:	902.7 to 92	7.3 MHz
Antenna		Peak	Preamp	Antenna	Cable	Adjusted						FCC 15.247	(d)
olarization	Frequency	Reading	Factor	Factor	Factor	Peak Reading					Limit	Margin	Result
(H / V)	(MHz)	(dBµV)	(dB)	(dB/m)	(dB)	(dBµV/m)					(dBµV/m)	(dB)	(Pass/Fa
н	1082.0	34.9	21.2	28.5	2.5	44.7					88.2	-43.5	Pass
V	2411.0	40.4	20.9	32.3	3.6	55.4					88.2	-32.8	Pass
	e Result:	Pass	by	-32.8	dB					V	Vorst Freq:	2411.0	MHz
	EMI Chamber 2		Cable 1:	Asset #205	52				able 2: A		07	Cable 3	
	: Rental SA#1			Asset #151	7			Ar	itenna: B	lue Horn	F	Preselector	
	ed Emissions Cal	culator v 1.017.169 Preamp Factor + Anter		0 · · · F ·								Copyright Curl	tis-Straus LLC
usteu nieau	ing – neading - i	reamp racior + Anter	ina raciór 4		.01								
Spectru		Receivers / Presele	ctors	Ran	•	MN	Mfr	SN	Asset	Cat	Calibration I		
Spectru	Br	rown	ectors	9kHz-26	6.5GHz	E4407B	Agilent	SG44210511	<b>Asset</b> 1510	T	1/21/2017		1/21/2016
Spectru	Br Radiated Er	rown missions Sites	ectors	9kHz-26 FCC (	5.5GHz	E4407B	Agilent VCCI Code	SG44210511 Range		Cat	1/21/2017 Calibration I	Due Ca	1/21/2016
Spectru	Br Radiated Er	rown	ectors	9kHz-26	5.5GHz	E4407B	Agilent	SG44210511		T	1/21/2017	Due Ca	1/21/2016
·	Br Radiated Er EMI C	rown missions Sites		9kHz-26 FCC (	5.5GHz Code 150	E4407B	Agilent VCCI Code	SG44210511 Range		Cat	1/21/2017 Calibration I	Due Ca	1/21/2016 librated o 3/22/2015
·	Br Radiated En EMI C amps /Couplers 1517 H	rown missions Sites hamber 2 s Attenuators / Filte IF Preamp		9kHz-26 FCC ( 7191 Ran 1-200	Code 150 ge GHz	E4407B IC Code 2762A-7 MN CS	Agilent VCCI Code A-0015 Mfr CS	SG44210511 Range 30-1000MHz SN N/A	1510 Asset 1517	I Cat II Cat II	1/21/2017 Calibration I 3/22/2017 Calibration I 8/14/2017	Due Ca Due Ca	1/21/2016 librated o 3/22/2015 librated o 8/14/2016
·	Br Radiated En EMI C amps /Couplers 1517 H	rown missions Sites hamber 2 s Attenuators / Filte		9kHz-26 FCC ( 7191 Ran 1-200	Code 150 ge GHz	E4407B IC Code 2762A-7 MN	Agilent VCCI Code A-0015 Mfr	SG44210511 Range 30-1000MHz SN	1510 Asset	I Cat II Cat	1/21/2017 Calibration I 3/22/2017 Calibration I	Due Ca Due Ca	1/21/2016 librated of 3/22/2015 librated of
·	Br Radiated E EMI C amps /Couplers 1517 H 213	rown missions Sites hamber 2 s Attenuators / Filte IF Preamp		9kHz-26 FCC ( 7191 Ran 1-200	5.5GHz Code 150 ge GHz 000MHz	E4407B IC Code 2762A-7 MN CS	Agilent VCCI Code A-0015 Mfr CS	SG44210511 Range 30-1000MHz SN N/A	1510 Asset 1517	I Cat II Cat II	1/21/2017 Calibration I 3/22/2017 Calibration I 8/14/2017	Due Ca Due Ca	librated o 3/22/2015 librated o 8/14/2016
·	Br Radiated E EMI C amps /Couplers 1517 H 213 Ant	rown missions Sites hamber 2 s Attenuators / Filte IF Preamp 10 BRF		9kHz-26 FCC C 719 <sup>-1</sup> Ran 1-200 0.009-180	5.5GHz Code 150 ge GHz 000MHz ge	E4407B IC Code 2762A-7 MN CS BRM18770	Agilent VCCI Code A-0015 Mfr CS Micro-Tronics	SG44210511 Range 30-1000MHz SN N/A 1	1510 Asset 1517 2130	I Cat II Cat II II	1/21/2017 Calibration I 3/22/2017 Calibration I 8/14/2017 1/6/2017	Due Ca Due Ca	1/21/2016 librated o 3/22/2015 librated o 8/14/2016 1/6/2016
·	Br Radiated Er EMI C amps /Couplers 1517 H 213 Ant Blue	rown missions Sites hamber 2 s Attenuators / Filte IF Preamp 00 BRF ennas a Horn		9kHz-26 FCC ( 7191 Ran 1-200 0.009-180 Ran	5.5GHz Code 150 ge GHz 000MHz ge	E4407B IC Code 2762A-7 MN CS BRM18770 MN 3117	Agilent VCCI Code A-0015 Mfr CS Micro-Tronics Mfr	SG44210511 Range 30-1000MHz SN N/A 1 SN 157647	1510 Asset 1517 2130 Asset 1861	I Cat II Cat II II Cat	1/21/2017 Calibration I 3/22/2017 Calibration I 8/14/2017 1/6/2017 Calibration I 2/8/2017	Due Ca Due Ca Due Ca	1/21/2016 librated of 3/22/2015 librated of 8/14/2016 1/6/2016 librated of 2/8/2015
·	Radiated Ei EMI C amps /Coupler: 1517 H 213 Ant Blue Meteorolo	rown missions Sites hamber 2 s Attenuators / Filte IF Preamp 10 BRF ennas e Horn ugical Meters		9kHz-26 FCC ( 7191 Ran 1-200 0.009-180 Ran	5.5GHz Code 150 ge GHz 000MHz ge	E4407B IC Code 2762A-7 MN CS BRM18770 MN	Agilent VCCI Code A-0015 Mfr CS Micro-Tronics Mfr ETS	SG44210511 <b>Range</b> 30-1000MHz <b>SN</b> N/A 1 <b>SN</b>	1510 Asset 1517 2130 Asset	I Cat II Cat II II Cat I	1/21/2017 Calibration I 3/22/2017 Calibration I 8/14/2017 1/6/2017 Calibration I	Due Ca Due Ca Due Ca Due Ca	1/21/2016 librated of 3/22/2015 librated of 8/14/2016 1/6/2016 librated of
·	Radiated Ei EMI C amps /Couplers 1517 H 213 Ant Blue Meteorolo Weather Clock	rown missions Sites hamber 2 s Attenuators / Filte IF Preamp 00 BRF ennas a Horn		9kHz-26 FCC ( 7191 Ran 1-200 0.009-180 Ran	5.5GHz Code 150 ge GHz 000MHz ge	E4407B IC Code 2762A-7 CS BRM18770 MN 3117 MN	Agilent VCCI Code A-0015 Mfr CS Micro-Tronics Mfr ETS Mfr	SG44210511 <b>Range</b> 30-1000MHz <b>SN</b> N/A 1 <b>SN</b> 157647 <b>SN</b>	1510 Asset 1517 2130 Asset 1861 Asset	I Cat II Cat II II Cat I Cat	1/21/2017 Calibration I 3/22/2017 Calibration I 8/14/2017 1/6/2017 Calibration I 2/8/2017 Calibration I	Due Ca Due Ca Due Ca Due Ca	1/21/2016 librated ( 3/22/2015 librated ( 8/14/2016 1/6/2016 librated ( 2/8/2015
·	Radiated Ei EMI C amps /Couplers 1517 H 213 Ant Blue Meteorolo Weather Clock TH /	rown missions Sites hamber 2 s Attenuators / Filte IF Preamp 00 BRF ennas ennas e Horn sigical Meters ((Pressure Only)) A#2081		9kHz-26 FCC C 7191 Ran 1-20C 0.009-180 Ran 1-180	S.5GHz Code 150 ge GHz 000MHz ge Ghz	E4407B IC Code 2762A-7 MN CS BRM18770 MN 3117 MN BA928	Agilent VCCI Code A-0015 Mfr CS Micro-Tronics Mfr ETS Mfr Oregon Scientific	SG44210511 <b>Range</b> 30-1000MHz <b>SN</b> N/A 1 <b>SN</b> 157647 <b>SN</b>	1510 Asset 1517 2130 Asset 1861 Asset 831	I Cat II Cat II Cat I Cat I II	1/21/2017 Calibration I 3/22/2017 Calibration I 8/14/2017 Calibration I 2/8/2017 Calibration I 4/28/2018 4/5/2017	Due Ca Due Ca Due Ca	1/21/2016 librated d 3/22/2015 librated d 8/14/2016 1/6/2016 librated d 2/8/2015 librated d 4/28/2016
·	Radiated Ei EMI C amps /Coupler: 1517 H 213 Ant Blue Meteorolo Weather Clock TH / Ca	rown missions Sites hamber 2 s Attenuators / Filte IF Preamp 10 BRF ennas 9 Horn sical Meters < (Pressure Only)		9kHz-26 FCC ( 7191 Ran 1-200 0.009-180 Ran	S.5GHz Code 150 ge 3Hz D000MHz ge Ghz ge	E4407B IC Code 2762A-7 MN CS BRM18770 MN 3117 MN BA928	Agilent VCCI Code A-0015 CS Micro-Tronics Mfr ETS Oregon Scientific HDE	SG44210511 <b>Range</b> 30-1000MHz <b>SN</b> N/A 1 <b>SN</b> 157647 <b>SN</b>	1510 Asset 1517 2130 Asset 1861 Asset 831	I Cat II Cat II II Cat I Cat I	1/21/2017 Calibration I 3/22/2017 Calibration I 8/14/2017 1/6/2017 Calibration I 2/8/2017 Calibration I 4/28/2018	Due Ca Due Ca Due Ca Due Ca	1/21/2016 librated d 3/22/2015 librated d 8/14/2016 1/6/2016 librated d 2/8/2015 librated d 4/28/2016
·	Radiated E EMIC EMIC amps/Couplers 1517 H 213 Ant Blue Meteorolo Weather Clock Weather Clock Ca Asse	rown missions Sites hamber 2 s Attenuators / Filte IF Preamp 00 BRF ennas en Horm ngical Meters ( (Pressure Only) A#2081 ables		9kHz-26 FCC C 719 Ran 1-200 0.009-180 Ran 1-180 Ran	S.5GHz Code 150 ge GHZ D00MHZ ge Ghz ge 18GHz	E4407B IC Code 2762A-7 MN CS BRM18770 MN 3117 MN BA928	Agilent VCCI Code A-0015 Mfr CS Micro-Tronics Mfr Oregon Scientific HDE Mfr	SG44210511 <b>Range</b> 30-1000MHz <b>SN</b> N/A 1 <b>SN</b> 157647 <b>SN</b>	1510 Asset 1517 2130 Asset 1861 Asset 831	I Cat II Cat II Cat I Cat I II Cat	1/21/2017 Calibration I 3/22/2017 Calibration I 8/14/2017 1/6/2017 Calibration I 2/8/2017 Calibration I 4/28/2018 4/5/2017 Calibration I	Due Ca Due Ca Due Ca Due Ca	1/21/2016 librated ( 3/22/2015 librated ( 8/14/2016 1/6/2016 librated ( 4/28/2016 4/28/2016 librated ( 4/5/2016 librated (
·	Radiated E EMIC EMIC amps/Couplers 1517 H 213 Ant Blue Meteorolo Weather Clock Weather Clock Ca Asse	rown missions Sites hamber 2 s Attenuators / Filte IF Preamp 0 BRF ennas e Horn ngical Meters ( (Pressure Only) A#2081 attention of the second of		9kHz-26 FCC C 719* Ran 1-200 0.009-180 Ran 1-180 Ran 9kHz - 1	S.5GHz Code 150 ge GHZ D00MHZ ge Ghz ge 18GHz	E4407B IC Code 2762A-7 MN CS BRM18770 MN 3117 MN BA928	Agilent VCCI Code A-0015 CS Micro-Tronics Mfr ETS Oregon Scientific HDE Mfr Florida RF	SG44210511 <b>Range</b> 30-1000MHz <b>SN</b> N/A 1 <b>SN</b> 157647 <b>SN</b>	1510 Asset 1517 2130 Asset 1861 Asset 831	I Cat II Cat II Cat I II Cat II Cat II	1/21/2017 Calibration I 3/22/2017 Calibration I 8/14/2017 1/6/2017 Calibration I 2/8/2017 Calibration I 4/28/2018 4/5/2017 Calibration I 2/14/2017	Due Ca Due Ca Due Ca Due Ca	1/21/2016 librated ( 3/22/2015 librated ( 8/14/2016 1/6/2016 librated ( 2/8/2015 librated ( 4/28/2016 librated ( 2/14/2016
Prea	Radiated Ei EMI C amps /Couplers 1517 H 213 Ant Blue Meteorolo Weather Clock TH / Ca Asse Asse	rown missions Sites hamber 2 s Attenuators / Filte IF Preamp 0 BRF ennas e Horn ngical Meters ( (Pressure Only) A#2081 attention of the second of	rs	9kHz-26 FCC C 719 Ran 1-200 0.009-180 Ran 1-180 Ran 9kHz - 9kHz -	SGHz Code 150 ge GHz 000MHz ge Ghz 18GHz 18GHz	E4407B IC Code 2762A-7 CS BRM18770 MN 3117 MN BA928 HTC-1	Agilent VCCI Code A-0015 CS Micro-Tronics Mfr ETS Oregon Scientific HDE Florida RF Florida RF	SG44210511 <b>Range</b> 30-1000MHz <b>SN</b> N/A 1 <b>SN</b> 157647 <b>SN</b>	1510 Asset 1517 2130 Asset 1861 Asset 831	I Cat II Cat II Cat I II Cat II Cat II	1/21/2017 Calibration I 3/22/2017 Calibration I 8/14/2017 1/6/2017 Calibration I 2/8/2017 Calibration I 4/28/2018 4/5/2017 Calibration I 2/14/2017	Due Ca Due Ca Due Ca Due Ca	1/21/2010 librated 3/22/2011 librated 8/14/2016 1/6/2016 librated 2/8/2015 librated 4/28/2016 librated 2/14/2016

Date:	29-Aug-16			Company:	Ideal Indus	tries, Inc						١	Vork Order:	Q2569	
Engineer:	Chris Bramley			EUT Desc:	SCD1000						EUT Operati	ng Voltage/	Frequency:	120V/60Hz	
Temp:	24.5°C			Humidity:	40%			Pressure	: 1010mBar						
		Freque	ncy Range:	6-10GHz							Measuremer	nt Distance:	1 m		
Notes:	EUT Tx at 902	2.7MHz.									EUT	Max Freq:	927.3MHz		
				ſ					FCC 15.209	High Frequ	ency - Peak	FCC 15.	209 High Fre	equency -	
Antenna		Peak	Average	Preamp	Antenna	Cable	Adjusted	Adjusted					Average		
olarization	Frequency	Reading	Reading	Factor	Factor	Factor	Peak Reading	Avg Reading	Limit	Margin	Result	Limit	Margin	Result	
(H / V)	(MHz)	(dBµV)	(dBµV)	(dB)	(dB/m)	(dB)	(dBµV/m)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dBµV/m)	(dB)	(Pass/Fail)	
h	6318.9	34.09	24.3	16.2	35.8	8.0	61.7	51.9	83.5	-21.8	Pass	63.5	-11.6	Pass	
v	7221.6	41.47	34.2	15.9	35.9	8.0	69.5	62.2	83.5	-14.0	Pass	63.5	-1.3	Pass	
v	8124.3	34.48	22.5	15.9	36.1	8.1	62.8	50.8	83.5	-20.7	Pass	63.5	-12.7	Pass	
h	9027.0	33.56	20.5	15.8	36.6	8.0	62.4	49.3	83.5	-21.1	Pass	63.5	-14.2	Pass	
Table	e Result:		Pass	by	-1.3	dB					Wa	orst Freq:	7221.6	MHz	
Test Site:	Test Site: EMI Chamber 1         Cable 1: Asset #2051         Cable 2: Asset #1784														
Anolymous	Rental SA#1			Preamp:	Brown					Antenna	Blue Horn				





1/23/2017

Radiated	d Emissio	ons T <u>al</u>	ole											
	29-Aug-16			Company:	Ideal Indus	stries, Inc						V	Vork Order	: Q2569
Engineer:	Chris Bramley			EUT Desc:	SCD1000						EUT Opera	ating Voltage/	Frequency	: 120V/60Hz
Temp:	24.5°C			Humidity:	40%			Pressure:	1010mBar					
		Freque	ency Range:	6-10GHz							Measurem	ent Distance:	1 m	
Notes:	EUT Tx at 915	iMHz.									El	JT Max Freq:	927.3MHz	
		•				. <u> </u>								
Antenna		Peak	Average	Preamp	Antenna	Cable	Adjusted	Adjusted	FCC 15.209 H	High Freque	ency - Peak	FCC 15.2	209 High Fr Average	
Polarization	Frequency	Reading	Reading	Factor	Factor	Factor	Peak Reading		Limit	Margin	Result	Limit	Margin	Result
(H / V)	(MHz)	(dBµV)	(dBµV)	(dB)	(dB/m)	(dB)	(dBµV/m)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dBµV/m)	(dB)	(Pass/Fail)
h	6405.0	34.43 37.47	23.0 28.3	16.0 15.9	35.8 35.9	8.2 7.7	62.4 65.2	51.0 56.0	83.5 83.5	-21.1 -18.3	Pass Pass	63.5 63.5	-12.5 -7.5	Pass Pass
v v	7320.0 8235.0	37.47	20.3	16.0	35.9	8.1	62.1	49.7	83.5	-16.3	Pass	63.5	-7.5	Pass
h	9150.0	31.95	19.2	15.7	36.7	8.0	61.0	49.7	83.5	-21.4	Pass	63.5	-15.8	Pass
Tabl	e Result:		Pass	by	-7.5	dB					V	Vorst Freq:	7320.0	) MHz
	EMI Chamber	4		-	Asset #20					Cable 2	Asset #178			
	Rental SA#1			Preamp:		91					Blue Horn	4		
	ed Emissions C	alculator	v 1.017.170		DIOWII					Antennu.	Blue Hom		Copyright Cu	tis-Straus LLC 200
Adjusted Read	ling = Reading	- Preamp Fa	actor + Anten	na Factor +	- Cable Fac	tor								
Badiated	d Emissio	ns Tal	ole							_				
	29-Aug-16			Company	Ideal Indus	strips Inc.						v	Vork Order	·· 02569
	Chris Bramley			EUT Desc:		unes, inc.					FUT Oner	v //ating Voltage		
•	24.5°C			Humidity:				Pressure:	1010mBar		LOT Open	ing voltage/	riequency	. 120 9/00112
Temp.	24.00	Freque	ency Range:		4070			Treasure.	ToTombai		Measurem	ent Distance:	1 m	
Notes	EUT Tx at 927	-	ney nanye:	0-10GHZ								UT Max Freg:		
Notes.	LUI IX at 92/	.0141112									-	/ Max rieq.	027.01VI112	
									FCC 15.209 H	High Freque	ancy - Peal	FCC 15.2	209 High Fr	
Antenna Polarization	Francis	Peak Reading	Average Reading	Preamp Factor	Antenna Factor	Cable Factor	Adjusted Peak Reading	Adjusted	Limit	Morain	Result	Limit	Average	Result
(H/V)	Frequency (MHz)	(dBµV)	(dBµV)	(dB)	(dB/m)	(dB)	(dBµV/m)	g Avg Reading (dBµV/m)	(dBµV/m)	Margin (dB)	(Pass/Fail)	(dBµV/m)	Margin (dB)	(Pass/Fail)
(11/ V) h	6491.1	33.78	(dBµV) 22.5	16.1	35.8	7.2	60.7	49.4	(dBµv/iii) 83.5	-22.8	Pass	63.5	-14.1	Pass
v	7418.4	35.96	25.5	15.9	36.0	7.9	64.0	53.5	83.5	-19.5	Pass	63.5	-10.0	Pass
v	8345.7	33.12	19.5	16.0	36.1	8.2	61.4	47.8	83.5	-22.1	Pass	63.5	-15.7	Pass
h	9273.0	32.28	18.9	15.6	36.8	8.6	62.1	48.7	83.5	-21.4	Pass	63.5	-14.8	Pass
Tabl	e Result:		Pass	by	-10.0	dB					И	Vorst Freq:	7418.4	1 MHz
Test Site:	EMI Chamber	1		Cable 1:	Asset #20	51				Cable 2:	Asset #178	84		
	Rental SA#1			Preamp:	Brown					Antenna:	Blue Horn			
CSsoft Radiate Adjusted Read	ed Emissions C		v 1.017.170		Cable Fad	tor							Copyright Cur	tis-Straus LLC 200
		rioumpre		na ruotor i	Cubio 1 uc	tor								
Rev. 8/29/201	6 um Analyzer	e / Receiv	ore /Procolu	ectore	Bai	nae	MN	Mfr	SN	Asset	Cat	Calibration D	)ue Cs	librated on
opeen	ann Anaryzer	Brown	13/1103010	201013		6.5GHz	E4407B	Agilent	SG442105		1	1/21/2017		1/21/2016
	Radiated	Emission	e Sitae		FCC	Code	IC Code	VCCI Code	Range		Cat	Calibration D		librated on
		Chamber				0150	2762A-6	A-0015	30-1000MH	Ηz	ll l	3/21/2017		3/21/2015
<b>D</b>	amna (Car		otoro / Ellt		<b>D</b>		MN	N.6	SN	Asset	Cat	Colibratio - F		librated
Pre	amps /Coupl	Brown	ators / Filte	315	Rar 1-10	nge GHz	CS	Mfr CS	SN N/A	1523	Cat (	Calibration D 10/8/2016		10/8/2015
											0-1	0-11b		
		Intennas Iue Horn			Rar 1-18	<b>nge</b> 8Ghz	MN 3117	Mfr ETS	<b>SN</b> 157647	Asset 1861	Cat 0	Calibration D 2/8/2017	ue Ca	2/8/2015
			atore				MAP.				0	Calibration		
	Meteoro Weather Clo	ological M					MN BA928	Mfr Oregon Scientific	SN C3166-1	Asset 831	Cat	Calibration D 4/28/2018		4/28/2016
		H A#2080	Only/				HTC-1	HDE	. 00100-1	2080	i i	4/5/2017		4/5/2016
		Cables			Rar						Cat	Calibration D		librated on
		set #1784				18GHz		Mfr Florida RF				3/7/2017	Jue Ca	3/7/2016

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**

Test Site: CEMI5 Analyzer: SA#1328	A	ttenuation:	Asset#791						
Table Result:	Pass	by	-6.56 dB				Worst Freq:	902.0	MHz
928.0	-43.22		19.42			-23.80	-11.60	-12.20	Pas
902.0	-37.58		19.42			-18.16	-11.60	-6.56	Pas
(MHz)	(dBm)		(dB)			(dBm)	(dBm)	(dB)	(Pass/F
Frequency	Reading		Attenuation		Final C	conducted Reading	Limit	FCC 15.247 Margin	Resu
	e is set to -30	dB from the	max in-band pea	ak PSD level i	n 100kHz RBW	(Attenuation factor i	included or 19.42dB	m)	
Frequ Notes:	ency Range	: 902.7-927.	3 MHz						
Temp: 23.4°C		Humidity:		Pressure:	1010mBar				
Engineer: Tuyen Truong		EUT Desc:		_		EUT C	perating Voltage/	Frequency:	120Vac/6
Date: 25-Aug-16			Ideal Industries	, Inc.				Vork Order:	
and Edge									
t Site: CEMI5 At Iyzer: SA#1328	tenuation: A	Asset#791						Copyright Curtis	-Straus LLC
902.7		-1.043			19.42		18.4		
(MHz)		(dBm)			(dB)		(dBm)	•	
Frequency		Reading		A	ttenuation		Adjusted Readin	a	
Notes: Maximum In Band Peal	k PSD in 100	KHz RBW							
Frequency Range:	902.7-927.3	MHz							
Temp: 23.4°C	Humidity: 5		Pre	essure: 1010	mBar	-0. 0	ionaling fortago,		
ineer: Tuyen Truong	EUT Desc: S		103, 110.			FUT Or	erating Voltage/F		
Date: 25-Aug-16		deal Industri	ioc Inc					ork Order:	

#### Rev. 8/21/2016

(ev. 8/21/2016								
Spectrum Analyzers / Receivers / Preselectors SA EMI Chamber (1328)	<b>Range</b> 9kHz-13.2 GHz	<b>MN</b> E4405B	Mfr Agilent	<b>SN</b> MY44210241	<b>Asset</b> 1328	Cat I	Calibration Due 2/26/2017	Calibrated on 2/26/2016
Conducted Test Sites (Mains / Telco) CEMI 5	FCC Code 719150		VCCI Code A-0015			Cat Ⅲ	Calibration Due NA	Calibrated on N/A
Meteorological Meters		MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Weather Clock (Pressure Only)		BA928	Oregon Scientific	C3166-1	831	1	4/28/2018	4/28/2016
TH A#2085		HTC-1	HDE		2085	Ш	4/5/2017	4/5/2016
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	Ш	8/14/2017	8/14/2016

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



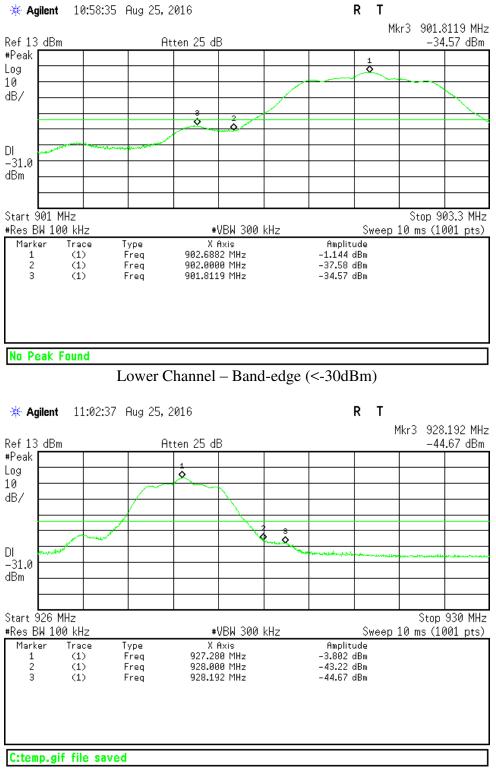
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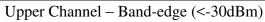


page 18 of 32

#### Plots

#### Conducted Band Edge









### **Conducted Spurious Emission**

Conducted spurious emissions at the antenna port were measured in accordance with FCC KDB 558074 D01 DTS Measurement Guidance v03r05 Section 11.0.

Frequency range up to 10GHz was investigated for all 3 channels (low, middle and high) at the EUT antenna port.

Date: 25-Aug-16	Company: lo	leal Industries, Inc.			W	ork Order: (	Q2569
ngineer: Tuyen Truong	EUT Desc: S	CD1000		EUT Operation	ng Voltage/F	requency:	120Vac/60
Temp: 23.4°C	Humidity: 5	0% <b>Pr</b> e	essure: 1010mBar				
Frequency Range	e: 902.7-927.3	MHz					
Notes: Maximum In Band Pe	ak PSD in 100	KHz RBW					
Frequency		Reading	Attenuation	Ac	ljusted Readin	a	
(MHz)		(dBm)	(dB)		(dBm)	<u> </u>	
902.7		-1.043	19.42		18.4		
	Attenuation: A	sset#791					
nalyzer: SA#1328						Copyright Curtis-	Straug II C
						Copyright Curtis-	
onducted Couries	o Emiooi	0.10					
onducted Spuriou	IS EMISSI						
Date: 25-Aug-16		Company: Ideal Industries,	Inc.			Vork Order:	
Engineer: Tuyen Truor	g	EUT Desc: SCD1000	Dra course 1010m Day	EUT Operat	ing Voltage/	Frequency:	120Vac/60
Temp: 23.4°C		Humidity: 50%	Pressure: 1010mBar				
		902.7-927.3 MHz					
Notes: TX on low ch The Limit he		B from the max in-band pea	k PSD level in 100kHz RBV	V (Attenuation factor include	ed or 19.42dB	m)	
						FCC 15.247	
Frequency	Reading	Attenuation	Final	Conducted Reading	Limit	Margin	Result
(MHz)	(dBm)	(dB)		(dBm)	(dBm)	(dB)	(Pass/Fa
30.0	-53.74	19.42		-34.32	-11.60	-22.72	Pass
1805.4	-53.18	19.42		-33.76	-11.60	-22.16	Pass
Table Result	: Pass	by -22.16 dB		W	orst Freq:	1805.4	MHz
Test Site: CEMI5	A	ttenuation: Asset#791					
Analyzer: SA#1328							
						Copyright Curtis	-Straus LLC
onducted Spuriou	is Emissi	on					
Date: 25-Aug-16		Company: Ideal Industries,	Inc.			Vork Order:	
Engineen Tuuren Tuuren	g	EUT Desc: SCD1000		EUT Operat	ing Voltage/	Frequency:	120Vac/60
Engineer: Tuyen Truor							
Temp: 23.4°C		Humidity: 50%	Pressure: 1010mBar				
Temp: 23.4°C Free		Humidity: 50% 902.7-927.3 MHz	Pressure: 1010mBar				
Temp: 23.4°C Free Notes: TX on mid cl	hannel	902.7-927.3 MHz		N / A44			
Temp: 23.4°C Free Notes: TX on mid cl	hannel	;		V (Attenuation factor include	ed or 19.42dB	,	
Temp: 23.4°C Free Notes: TX on mid cl	hannel	902.7-927.3 MHz		V (Attenuation factor include	ed or 19.42dB	m) FCC 15.247	
Temp: 23.4°C Free Notes: TX on mid c The Limit he Frequency	hannel ere is set to -30d	902.7-927.3 MHz B from the max in-band pea Attenuation	Ik PSD level in 100kHz RBV	Conducted Reading	Limit	FCC 15.247 Margin	
Temp: 23.4°C Free Notes: TX on mid c The Limit he Frequency (M+z)	Reading (dBm)	902.7-927.3 MHz B from the max in-band pea Attenuation (dB)	Ik PSD level in 100kHz RBV	Conducted Reading (dBm)	Limit (dBm)	FCC 15.247 Margin (dB)	(Pass/Fa
Temp: 23.4°C Free Notes: TX on mid c The Limit he Frequency (MHz) 30.0	Reading (dBm) -53.93	902.7-927.3 MHz B from the max in-band pea Attenuation (dB) 19.42	Ik PSD level in 100kHz RBV	Conducted Reading (dBm) -34.51	Limit (dBm) -11.60	FCC 15.247 Margin (dB) -22.91	(Pass/Fa Pass
Temp: 23.4°C Free Notes: TX on mid c The Limit he Frequency (MHz)	Reading (dBm)	902.7-927.3 MHz B from the max in-band pea Attenuation (dB)	Ik PSD level in 100kHz RBV	Conducted Reading (dBm)	Limit (dBm)	FCC 15.247 Margin (dB)	Result (Pass/Fai Pass Pass
Temp: 23.4°C Free Notes: TX on mid c The Limit he Frequency (MHz) 30.0	Reading (dBm) -53.93 -53.48	902.7-927.3 MHz B from the max in-band pea Attenuation (dB) 19.42	Ik PSD level in 100kHz RBV	Conducted Reading (dBm) -34.51 -34.06	Limit (dBm) -11.60	FCC 15.247 Margin (dB) -22.91	<sup>(Pass/Fa</sup> Pass Pass





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Date: 25-Aug-16	Co	mpany: Ideal Industrie	s, Inc.					V	Vork Orde	r: Q2569
Engineer: Tuyen Truong	EU	T Desc: SCD1000				EUT O	peratir	ng Voltage/	Frequency	120Vac/60
Temp: 23.4°C	Hu	imidity: 50%	Pressu	<b>ire:</b> 1010mBar						
Freque	ency Range: 90	2.7-927.3 MHz								
Notes: TX on high cha The Limit here		rom the max in-band pe	eak PSD le	evel in 100kHz RB\	V (Attenuation	factor in	cluded	l or 19.42dB	m)	
									FCC 15.2	47
Frequency (MHz)	Reading (dBm)	Attenuation (dB)		Final	Conducted Rea (dBm)	ding		Limit (dBm)	Margin (dB)	Result (Pass/Fa
30.0	-53.30	19.42			-33.88			-11.60	-22.28	Pass
1854.6	-53.19	19.42			-33.77			-11.60	-22.17	Pass
Table Result:	Pass	by -22.17 dB					Wo	rst Freq:	1854.	6 MHz
Test Site: CEMI5 Analyzer: SA#1328	Atter	uation: Asset#791							Copyright Cu	ntis-Straus LLC
8/21/2016										
Spectrum Analyzers / Receive SA EMI Chamber (1		<b>Range</b> 9kHz-13.2 GHz	<b>MN</b> E4405B	Mfr Agilent	<b>SN</b> MY44210241	<b>Asset</b> 1328	Cat I	Calibratio 2/26/20		Calibrated 2/26/2016
	ins / Telco)	FCC Code		VCCI Code A-0015			Cat	Calibratio NA		Calibrated
Conducted Test Sites (Ma CEMI 5	,	719150		A-0013						N/A
	eters	719150	<b>MN</b> BA928 HTC-1	Mfr Oregon Scientific HDE	<b>SN</b> C3166-1	<b>Asset</b> 831 2085	Cat	Calibratic 4/28/20 4/5/20	on Due 018	N/A Calibrated 4/28/2016 4/5/2016

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8/14/2017

8/14/2016

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

0.009-18 GHz PE 7019-20

HF 20dB 50W Attenuator





page 21 of 32

# **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)]

Per 558074 D01 DTS Measurement Guidance v03r05 DTS Method 10.3 AVGPSD-1 (trace averaging with EUT transmitting at full power throughout each sweep)

#### **MEASUREMENTS / RESULTS**

HF 20dB 50W Attenuator

Engineer: Tuyen Truong Temp: 23.4°C Freque Notes: Frequency (MHz) 902.7 915	ncy Range: : Reading	EUT Desc: SCD1000 Humidity: 50% 902.7-927.3 MHz	Press	<b>ure:</b> 1010mBar		EUT Op	peratin	ig Voltage	/Frequenc	<b>:y:</b> 120Vac/6
Frequency (MHz) 902.7	ncy Range: : Reading		Press	<b>ure:</b> 1010mBar						
Frequency (MHz)       902.7	Reading	902.7-927.3 MHz								
Frequency (MHz) 902.7	•									
(MHz) 902.7	•									
(MHz) 902.7	•								FCC 15.2	247
902.7		Attenuat	on	Final	Conducted Rea	ding		Limit	Margin	Resul
•••	(dBm)	(dB)			(dBm)			(dBm)	(dB)	(Pass/F
915	-13.49	19.42	2		5.93			8.0	-2.07	Pass
	-15.64	19.42	2		3.78			8.0	-4.22	Pass
927.3	-17.91	19.42	)		1.51			8.0	-6.49	Pas
Table Result:	Pass	by -2.07	dB				Wol	rst Freq:	902	.7 MHz
Test Site: CEMI5 Analyzer: SA#1328	Atte	enuation: Asset#791							Copyright C	curtis-Straus LLC
3/21/2016										
Spectrum Analyzers / Receiver		•	MN	Mfr	SN	Asset	Cat	Calibrati		Calibrated
SA EMI Chamber (13	328)	9kHz-13.2 GH	z E4405B	Agilent	MY44210241	1328	I	2/26/2	2017	2/26/201
Conducted Test Sites (Mai	ns / Telco)	FCC Code		VCCI Code			Cat	Calibrati	on Due	Calibrated
CEMI 5		719150		A-0015			Ш	NA	Ą	N/A
Meteorological Met	ters		MN	Mfr	SN	Asset	Cat	Calibrati	on Due	Calibrated
Weather Clock (Pressur	e Only)		BA928	Oregon Scientific	C3166-1	831	I	4/28/2	2018	4/28/2016
· ·			HTC-1	HDE		2085	11	4/5/2	017	4/5/2016

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



0.009-18 GHz PE 7019-20

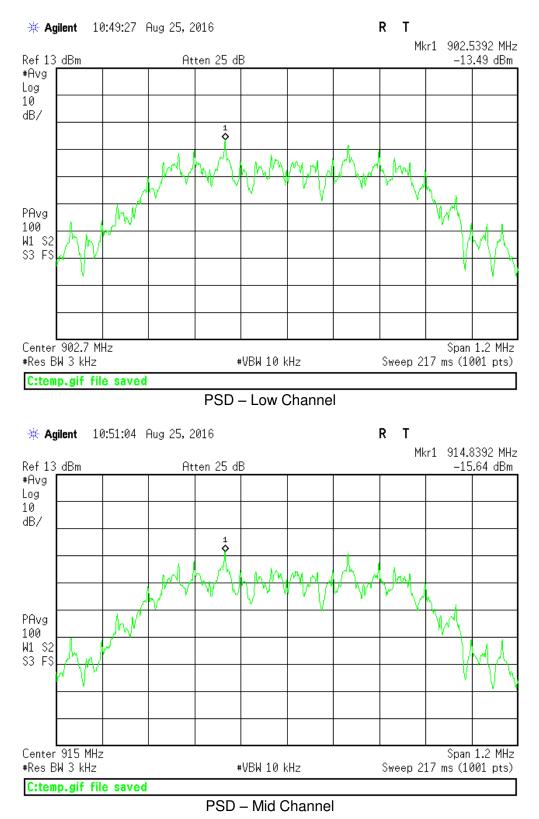


8/14/2017

8/14/2016

page 22 of 32

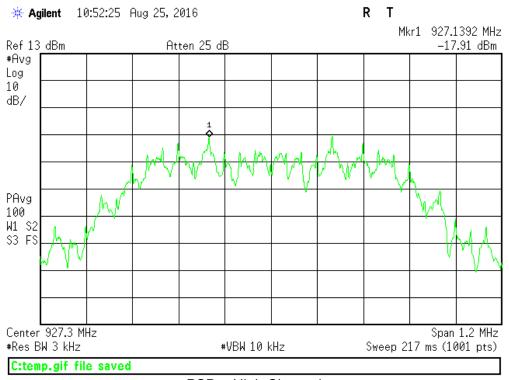
#### **PLOTS**





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PSD – High Channel





page 24 of 32

# 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**

	ate: 02-Sep-16							Ideal Industrie	es, Inc.			١	Vork Order	: Q2569
	er: Tuyen Truong np: 22.7 °C						EUT Desc: Humidity:						Broceuro	: 1010 mBar
No							nunnuny.	47 /0					Fiessure	. 1010 IIIDa
						Frequ	ency Range:	0.15 to 30 MH	Ηz	EUT I	nput Voltage	/Frequency:	120Vac/60H	z
		i-Peak dings		erage adings	LIS		Cable	ATTN	FCC 15.2		7		FCC 15.207	
Frequency	QP1	QP2	AVG1	AVG2	L1	L2	Factor	Factor	QP Limit	Margin	Result	AVG Limit	Margin	Result
(MHz)	(dBµV)	(dBµV)	(dBµV)	(dBµV)	(dB)	(dB)	(dB)	(dB)	(dBµV)	(dB)	(Pass/Fail)	(dBµV)	(dB)	(Pass/Fai
0.43	25.2	26.3	17.6	19.9	0.0	0.0	-0.1	-20.3	57.2	-10.4	Pass	47.2	-6.8	Pass
0.90	23.1	21.4	11.2	10.8	-0.1	0.0	-0.1	-20.3	56.0	-12.4	Pass	46.0	-14.3	Pass
4.03	19.6	17.8	8.9	8.3	-0.1	-0.1	-0.2	-20.3	56.0	-15.8	Pass	46.0	-16.5	Pass
10.08	18.8	16.7	7.8	6.3	-0.1	-0.1	-0.2	-20.3	60.0	-20.6	Pass	50.0	-21.5	Pass
13.36	20.4	18.7	8.3	6.8	-0.2	-0.2	-0.2	-20.3	60.0	-18.9	Pass	50.0	-21.0	Pass
22.99	18.0	16.2	6.4	5.1	-0.2	-0.2	-0.3	-20.3	60.0	-21.3	Pass	50.0	-22.8	Pass
Resu	It: Pass						Worst	Margin:	-6.8	dB	Freq	uency:	0.433	MHz
surement Devic	e: LISN Asset	1791					Cable:	CEMI-01			Spectrum	Analyzer:	Rental SA	#5
						ļ	Attenuator:	20dB Atter	n-4			Site:	CEMI6	
MI Calculator Versio												Equipment Fa	actor Sheet	rev: 8/24/20
ed Reading = Raw Re	ading + LISN Inse	tion Loss + Ca	able Loss + Att	enuation										

	: 02-Sep-16 : Tuyen Truong						Company: EUT Desc:	Ideal Industrie SCD1000	es, Inc.			v	Vork Order	: Q2569
Temp	: 22.7 ºC						Humidity:	47%					Pressure	: 1010 mBa
Notes														
			-		-	Frequ	ency Range:	0.15 to 30 M	Hz	EUT Ir	nput Voltage	/Frequency: 2	277Vac/60H	z
	Quasi	-Peak	Ave	rage	LIS	SN								
	Read	dings	Read	lings	Fac	tors	Cable	ATTN		FCC 15.207			FCC 15.207	,
Frequency	QP1 QP2 AVG1 AV			AVG2	L1	L2	Factor	Factor	QP Limit	Margin	Result	AVG Limit	Margin	Result
(MHz)	(dBµV)	(dBµV)	(dBµV)	(dBµV)	(dB)	(dB)	(dB)	(dB)	(dBµV)	(dB)	(Pass/Fail)	(dBµV)	(dB)	(Pass/Fai
0.43	26.7	27.1	19.2	18.4	0.0	0.0	-0.1	-20.3	57.2	-9.7	Pass	47.2	-7.6	Pass
0.90	18.5	20.8	14.6	9.9	-0.1	0.0	-0.1	-20.3	56.0	-14.7	Pass	46.0	-10.9	Pass
4.03	20.1	18.2	10.5	7.6	-0.1	-0.1	-0.2	-20.3	56.0	-15.4	Pass	46.0	-14.9	Pass
10.08	18.9	19.7	11.3	7.0	-0.1	-0.1	-0.2	-20.3	60.0	-19.6	Pass	50.0	-18.1	Pass
13.36	20.0	19.1	8.3	7.1	-0.2	-0.2	-0.2	-20.3	60.0	-19.3	Pass	50.0	-21.0	Pass
22.99	14.9	15.7	4.3	3.9	-0.2	-0.2	-0.3	-20.3	60.0	-23.6	Pass	50.0	-24.9	Pass
Result:	Pass						Worst	Margin:	-7.6	dB	Freq	uency:	0.433	MHz
surement Device:	LISN Asset	1791					Cable:	CEMI-01			Spectrum	Analyzer:	Rental SA	#5
							Attenuator:	20dB Atter	า-4			Site:	CEMI6	
MI Calculator Version 3	0.14											Equipment Fa		





page 25 of 32

Rev. 8/29/2016								
Spectrum Analyzers / Receivers / Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
SA EMI Chamber (1327)	9kHz-13.2 GHz	E4405B	Agilent	MY45103416	1327	I	8/4/2017	8/4/2016
LISNs/Measurement Probes	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
LISN Asset 1791	9KHz-30MHz	NNLK 8121	Schwarzbeck	NNLK 8121-603	1791	I	6/23/2017	6/23/2016
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
Weather Clock (Pressure Only)		BA928	Oregon Scientific	C3166-1	831	1	4/28/2018	4/28/2016
TH A#2082		HTC-1	HDE		2082	11	4/5/2017	4/5/2016
Cables	Range		Mfr			Cat	Calibration Due	Calibrated on
Cables CEMI-01	<b>Range</b> 9kHz - 2GHz		Mfr C-S			Cat ∥	Calibration Due 9/11/2016	Calibrated on 9/11/2015
	•	MN		SN	Asset			

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





## **Occupied Bandwidth**

#### REQUIREMENT

When an occupied bandwidth is not specified in the applicable RSS, the transmitted signal bandwidth to be reported is its 99% emission bandwidth, as calculated or measured. [RSS-GEN 4.6.1]

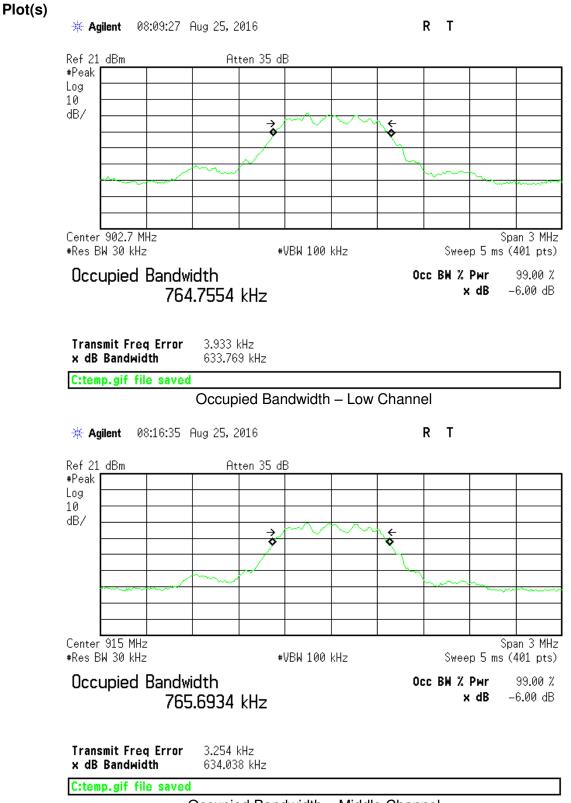
#### **MEASUREMENTS / RESULTS**

99% OCCUPIED B	ANDWIDTH								
Date: 25-Aug-16	Company: lo	Company: Ideal Industries, Inc.				Work Order: Q2569			
Engineer: Tuyen Truong	EUT Desc: S	SCD1000				EUT Op	peratin	g Voltage/Freque	ncy: 120Vac/60Hz
Temp: 23.4°C	Humidity: 5	0%	Pres	<b>sure:</b> 1010mBar					
Freque	ncy Range: 902.7-927.3	MHz							
Notes:									
Frequency				Occupied Bandwi	idth Beading				
(MHz)		Occupied Bandwidth Reading (KHz)							
902.7				764.75	54				
915	765.6934								
927.3	766.9552								
Test Site: CEMI5 Analyzer: SA#1328	Attenuation: A	Asset#791						Copyrigh	t Curtis-Straus LLC 2000
Rev. 8/21/2016 Spectrum Analyzers / Red SA EMI Chamb		<b>Range</b> 9kHz-13.2 GHz	<b>MN</b> E4405B	<b>Mfr</b> Agilent	<b>SN</b> MY44210241	<b>Asset</b> 1328	Cat	Calibration Due 2/26/2017	<b>Calibrated on</b> 2/26/2016
Conducted Test Sites CEMI		FCC Code 719150		VCCI Code A-0015			Cat Ⅲ	Calibration Due NA	Calibrated on N/A
Meteorologica Weather Clock (Pr TH A#20	ressure Only)		MN BA928 HTC-1	<b>Mfr</b> Oregon Scientific HDE	<b>SN</b> C3166-1	<b>Asset</b> 831 2085	Cat I II	Calibration Due 4/28/2018 4/5/2017	Calibrated on 4/28/2016 4/5/2016
Preamps /Couplers Att HF 20dB 50W		<b>Range</b> 0.009-18 GHz	<b>MN</b> PE 7019-20	<b>Mfr</b> Pasternack	<b>SN</b> 1	<b>Asset</b> 791	Cat II	Calibration Due 8/14/2017	Calibrated on 8/14/2016

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





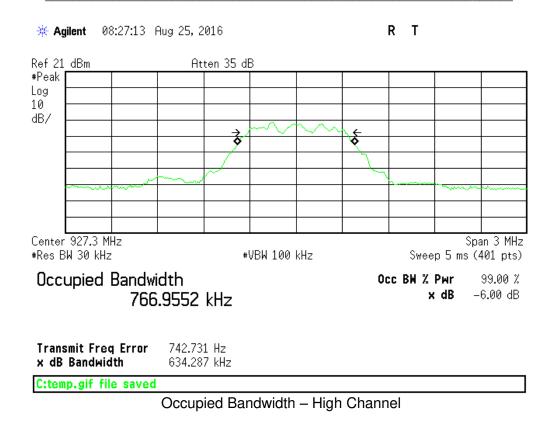


Occupied Bandwidth - Middle Channel













page 29 of 32

### 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 CISPR	5.6dB 4.6dB	N/A 5.2dP (Ulaiopr)
Radiated Emissions (1-26.5GHz)	4.6dB	5.2dB (Ucispr) 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 (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°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		



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page 30 of 32

### **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.

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.
 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 nonperformance 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





page 31 of 32

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.





page 32 of 32

1/23/2017