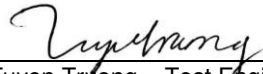
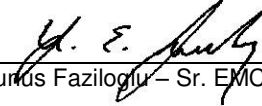




**BUREAU  
VERITAS**

# Test Report

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

Report No	EQ0039-5
Client	Amazon Robotics LLC
Address	300 River Park Drive North Reading, MA 01864
Phone	(978) 276-2815
Items tested	H-DU User Interface
FCC ID	2AEZR-HUI925
IC ID	10244A-HUI925
FRN	0024656845
Equipment Type Equipment Code	Low Power Communication Device Transmitter DXX
Standards	CFR 47 FCC 15.249, RSS 210 Issue 9 Annex B.10
Test Dates	June 16 to 27 and October 27, 2016
Results	As detailed within this report
Prepared by	 Tuyen Truong – Test Engineer
Authorized by	 Yunus Faziloglu – Sr. EMC Engineer
Issue Date	1/17/2017
Conditions of Issue	This Test Report is issued subject to the conditions stated in the 'Conditions of Testing' section on page 16 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.



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



## Contents

Contents.....	2
Product Tested - Configuration Documentation .....	3
Summary .....	4
Test Methodology .....	5
Compliance Statement.....	6
Modifications Required for Compliance .....	6
Test Results .....	7
<i>Fundamental Measurements</i> .....	7
Radiated Spurious Emissions .....	9
AC Line Conducted Emissions.....	11
<i>Occupied Bandwidth</i> .....	13
Measurement Uncertainty.....	15
Conditions Of Testing .....	16

Form Final Report REV 2-16-07 (DW)



**Product Tested - Configuration Documentation**

EUT Configuration										
<b>Work Order:</b>		Q0039								
<b>Company:</b>		Amazon Robotics LLC								
<b>Company Address:</b>		300 River Park Drive North Reading, MA, 01864								
<b>Contact:</b>		Dao Keopadith								
		MN			PN			SN		
<b>EUT:</b>		HUI			600-00986			#1		
<b>EUT Description:</b>		H-DU User Interface								
<b>EUT Max Frequency:</b>		925 MHz								
<b>EUT Min Frequency:</b>		0.125 MHz								
Port Label	Port Type	# ports	# populated	cable type	shielded	ferrites	length (m)	in/out	under test	comment
CAN cable	other	1	1	other	Yes	No	0.8	in	yes	
Host Port Label	Port Type	# ports	# populated	cable type	shielded	ferrites	length (m)	max length (m)	in/out	comment
Power Supply	Power DC	1	1	other	No	No	0.2	0.2	in	
USB (laptop)	USB	1	1	USB	Yes	No	10	10	out	
<b>Software Operating Mode Description:</b>										
Cerberus manager 1.4.2.4. Hercules User Interface which contains the transmitter is set to transmit at 925 MHz with 3 different power settings (-30dBm, 0dBm and +7dBm).										

Issue No.	Reason for change	Date Issued
1	Original Release	January 17, 2017



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



**Summary**

This test report supports an application for certification of a transmitter operating pursuant to CFR 47 FCC 15.249, RSS 210 Issue 9 Annex B.10.

Model: 600-00986

The product operates at 925MHz.

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

Issue No.	Reason for change	Date Issued
1	Original Release	January 17, 2017



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



## Test Methodology

Radiated emission testing was performed according to the procedures specified in ANSI C63.10 (2013) and RSS-Gen Issue 4. Radiated Emissions were maximized in the orientation at final installation. The device antenna is integral, therefore it could not be maximized separately.

Product is 3.3VDC powered. Emissions on AC mains side of DC supply were tested with a 50Ω/50μH LISN.

The product was tested with modulation on and the readings were compared against the limits specified in FCC 15.249 and RSS 210 Issue 9 Annex B.10.

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

Frequency	RBW	VBW
0.15-30MHz	9kHz	30kHz
30-1000MHz	120kHz	1MHz
1-25GHz	1MHz	3MHz

Issue No.	Reason for change	Date Issued
1	Original Release	January 17, 2017



## Compliance Statement

RSS-GEN	RSP-100	RSS 210	Part 15	Comments
6.3			15.15(b)	There are no controls accessible to the user that vary the output power.
	3.1		15.19	The label is shown in the label exhibit.
	3.2		15.21	Information to the user is shown in the instruction manual exhibit.
			15.27	No special accessories are required for compliance.
6.1, 6.5			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.
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 an internal surface-mount ceramic chip antenna with 3.32dBi gain.
8.10			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 or RSS-Gen as applicable
8.8			15.207	AC side of EUT Power Supply meet the limits in 15.207
		B.10(a)	15.249(a)	The fundamental and harmonics meet the limits in 15.249(a)
		B.10(b)	15.249(d)	Spurious emissions meet the limits in 15.209.
6.6				99% emissions bandwidth plot is provided.

### Modifications Required for Compliance

None

**Test Results**

**Fundamental Measurements**

**LIMITS**

The field strength from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental Frequency	Field Strength of Fundamental (millivolts/meter)	Field Strength of Harmonics (microvolts/meter)
902 - 928 MHz	50	500
2400 - 2483.5 MHz	50	500
5725 - 5875 MHz	50	500
24.0 - 24.25 GHz	250	2500

[15.249(a)]

**MEASUREMENTS / RESULTS**

Radiated Emissions Table												
Date: 16-Jun-16			Company: Amazon Robotics LLC				Work Order: Q0039					
Engineer: Tuyen Truong			EUT Desc: H-DU User Interface				EUT Operating Voltage/Frequency: 120Vac/60Hz					
Temp: 23.4°C			Humidity: 42%				Pressure: 994.3mBar					
Frequency Range: 902 to 928 MHz						Measurement Distance: 3m						
Notes: EUT P/N: 600-00986 Rev. 8						EUT Tx Freq: 925 MHz						
Antenna Polarization (H/V)	Frequency (MHz)	Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Reading (dBµV/m)	---			FCC 15.249		
							Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)
EUT TX power is set to -30dBm												
v	925.0	52.9	25.4	22.5	2.0	52.0	---	---	---	94.0	-42.0	Pass
h	925.0	49.4	25.4	22.5	2.0	48.5	---	---	---	94.0	-45.5	Pass
EUT TX power is set to 0dBm												
v	925.0	67.1	25.4	22.5	2.0	66.2	---	---	---	94.0	-27.8	Pass
EUT TX power is set to +7dBm												
v	925.0	73.1	25.4	22.5	2.0	72.2	---	---	---	94.0	-21.8	Pass
<b>Table Result:</b> Pass			by -21.8 dB				<b>Worst Freq:</b> 925.0 MHz					
Test Site: EMI Chamber 1			Cable 1: Asset #2051				Cable 2: Asset #1785					
Analyzer: Rental SA#2			Preamp: Red-White				Antenna: Red-Brown					
CSsoft Radiated Emissions Calculator v 1.017.164												
Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor												
Copyright Curtis-Straus LLC 2000												



Rev. 6/8/2016

<b>Spectrum Analyzers / Receivers /Preselectors</b>		<b>Range</b>	<b>MN</b>	<b>Mfr</b>	<b>SN</b>	<b>Asset</b>	<b>Cat</b>	<b>Calibration Due</b>	<b>Calibrated on</b>
SA #2 (1860)		9kHz-26.5 GHz	E7405A	Agilent	MY45104916	1860	I	12/23/2016	12/23/2015
<b>Radiated Emissions Sites</b>		<b>FCC Code</b>	<b>IC Code</b>	<b>VCCI Code</b>	<b>Range</b>		<b>Cat</b>	<b>Calibration Due</b>	<b>Calibrated on</b>
EMI Chamber 1		719150	2762A-6	A-0015	30-1000MHz		II	3/21/2017	3/21/2015
<b>Preamps /Couplers Attenuators / Filters</b>		<b>Range</b>	<b>MN</b>	<b>Mfr</b>	<b>SN</b>	<b>Asset</b>	<b>Cat</b>	<b>Calibration Due</b>	<b>Calibrated on</b>
Red-White		0.009-2000MHz	ZFL-1000-LN	CS	N/A	1258	II	12/27/2016	12/27/2015
<b>Antennas</b>		<b>Range</b>	<b>MN</b>	<b>Mfr</b>	<b>SN</b>	<b>Asset</b>	<b>Cat</b>	<b>Calibration Due</b>	<b>Calibrated on</b>
Red-Brown Bilog		30-2000MHz	JB1	Sunol	A0032406	1218	I	12/4/2016	12/4/2014
<b>Meteorological Meters</b>			<b>MN</b>	<b>Mfr</b>	<b>SN</b>	<b>Asset</b>	<b>Cat</b>	<b>Calibration Due</b>	<b>Calibrated on</b>
TH A#2080			HTC-1	HDE	2080	2080	II	4/5/2017	4/5/2016
Barometric A#2160			5396-0321	Monarch Instruments	4000060	2160	I	3/7/2017	3/7/2016
<b>Cables</b>		<b>Range</b>		<b>Mfr</b>			<b>Cat</b>	<b>Calibration Due</b>	<b>Calibrated on</b>
Asset #1785		9kHz - 18GHz		Florida RF			II	1/5/2017	1/5/2016
Asset #2051		9kHz - 18GHz		Florida RF			II	3/2/2017	3/2/2016

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



BUREAU  
VERITAS





# Radiated Spurious Emissions LIMITS

15.249 (d) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in § 15.209, whichever is the lesser attenuation.

## MEASUREMENTS / RESULTS

Radiated Emissions Table												
Date: 16-Jun-16			Company: Amazon Robotics LLC				Work Order: Q0039					
Engineer: Tuyen Truong			EUT Desc: H-DU User Interface				EUT Operating Voltage/Frequency: 120Vac/60Hz					
Temp: 23.4°C			Humidity: 42%				Pressure: 994.3mBar					
Frequency Range: 30 to 1000 MHz						Measurement Distance: 3m						
Notes: EUT P/N: 600-00986 Rev. 8						EUT Tx Freq: 925 MHz						
Antenna Polarization (H/V)	Frequency (MHz)	Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Reading (dBµV/m)	FCC 15.209					
							Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)			
TX at +7dBm setting												
v	36.075	41.1	25.4	16.9	0.5	33.1				40.0	-6.9	Pass
v	46.975	45.5	25.4	9.5	0.5	30.1				40.0	-9.9	Pass
v	78.5	37.2	25.5	7.9	0.6	20.2				40.0	-19.8	Pass
v	105.175	37.4	25.4	11.5	0.8	24.3				43.5	-19.2	Pass
v	163.375	42.2	25.9	12.1	1.0	29.4				43.5	-14.1	Pass
h	163.375	33.6	25.9	12.1	1.0	20.8				43.5	-22.7	Pass
v	221.575	38.8	25.9	10.8	1.1	24.8				46.0	-21.2	Pass
h	224.0	32.5	25.9	10.9	1.1	18.6				46.0	-27.4	Pass
v	818.125	33.9	25.5	21.7	2.0	32.1				46.0	-13.9	Pass
TX at -30dBm setting												
v	36.0	41.0	25.4	16.9	0.5	33.0				40.0	-7.0	Pass
v	47.98	42.8	25.4	9.0	0.5	26.9				40.0	-13.1	Pass
<b>Table Result:</b> Pass			by -6.9 dB				<b>Worst Freq:</b> 36.075 MHz					
Test Site: EMI Chamber 1			Cable 1: Asset #2051				Cable 2: Asset #1785			Cable 3: ---		
Analyzer: Rental SA#2			Preamp: Red-White				Antenna: Red-Brown			Preselector: ---		
CSsoft Radiated Emissions Calculator v 1.017.164										Copyright Curtis-Straus LLC 2000		
Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor												

Rev. 6/8/2016

Spectrum Analyzers / Receivers / Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
SA #2 (1860)	9kHz-26.5 GHz	E7405A	Agilent	MY45104916	1860	I	12/23/2016	12/23/2015
Radiated Emissions Sites	FCC Code	IC Code	VCCI Code	Range		Cat	Calibration Due	Calibrated on
EMI Chamber 1	719150	2762A-6	A-0015	30-1000MHz		II	3/21/2017	3/21/2015
Preamps / Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Red-White	0.009-2000MHz	ZFL-1000-LN	CS	N/A	1258	II	12/27/2016	12/27/2015
Antennas	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Red-Brown Bilog	30-2000MHz	JB1	Sunol	A0032406	1218	I	12/4/2016	12/4/2014
Meteorological Meters		MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
TH A#2080		HTC-1	HDE	2080	2080	II	4/5/2017	4/5/2016
Barometric A#2160		5396-0321	Monarch Instruments	4000060	2160	I	3/7/2017	3/7/2016
Cables	Range		Mfr			Cat	Calibration Due	Calibrated on
Asset #1785	9kHz - 18GHz		Florida RF			II	1/5/2017	1/5/2016
Asset #2051	9kHz - 18GHz		Florida RF			II	3/2/2017	3/2/2016

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



Radiated Emissions Table														
Date: 16-Jun-16			Company: Amazon Robotics LLC						Work Order: Q0039					
Engineer: Tuyen Truong			EUT Desc: H-DU User Interface						EUT Operating Voltage/Frequency: 120Vac/60Hz					
Temp: 23.4°C			Humidity: 42%						Pressure: 994.3mBar					
Frequency Range: 1 to 6 GHz									Measurement Distance: 3m					
Notes: EUT P/N: 600-00986 Rev. 8									EUT Max Freq: 925 MHz					
Antenna Polarization (H/V)	Frequency (MHz)	Peak Reading (dBuV)	Average Reading (dBuV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Peak Reading (dBuV/m)	Adjusted Avg Reading (dBuV/m)	FCC 15.209 High Frequency - Peak			FCC 15.209 High Frequency - Average		
									Limit (dBuV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBuV/m)	Margin (dB)	Result (Pass/Fail)
TX at +7dBm setting														
v	1850.0	34.11	22.4	18.8	30.8	3.2	49.3	37.6	74.0	-24.7	Pass	54.0	-16.4	Pass
h	1850.0	35.13	22.7	18.8	30.8	3.2	50.3	37.9	74.0	-23.7	Pass	54.0	-16.1	Pass
TX at -30dBm setting														
h	1850.0	34.14	21.3	18.8	30.8	3.2	49.3	36.5	74.0	-24.7	Pass	54.0	-17.5	Pass
<b>Table Result:</b> Pass by -16.1 dB <b>Worst Freq:</b> 1850.0 MHz														
Test Site: EMI Chamber 1			Cable 1: Asset #2051						Cable 2: Asset #1785			HPF 1288		
Analyzer: Rental SA#2			Preamp: Asset #1517						Antenna: Blue Horn					
CSsoft Radiated Emissions Calculator v 1.017.164 Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor														

Copyright Curtis-Straus LLC 2000

Radiated Emissions Table														
Date: 16-Jun-16			Company: Amazon Robotics LLC						Work Order: Q0039					
Engineer: Tuyen Truong			EUT Desc: H-DU User Interface						EUT Operating Voltage/Frequency: 120Vac/60Hz					
Temp: 23.4°C			Humidity: 42%						Pressure: 994.3mBar					
Frequency Range: 6 to 10 GHz									Measurement Distance: 1m					
Notes: EUT P/N: 600-00986 Rev. 8									EUT Max Freq: 925 MHz					
Antenna Polarization (H/V)	Frequency (MHz)	Peak Reading (dBuV)	Average Reading (dBuV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Peak Reading (dBuV/m)	Adjusted Avg Reading (dBuV/m)	FCC 15.209 High Frequency - Peak			FCC 15.209 High Frequency - Average		
									Limit (dBuV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBuV/m)	Margin (dB)	Result (Pass/Fail)
TX at +7dBm setting (worst case)														
No emissions found in this range														
<b>Table Result:</b> --- by --- dB <b>Worst Freq:</b> --- MHz														
Test Site: EMI Chamber 1			Cable 1: Asset #2051						Cable 2: Asset #1785			Cable 3: ---		
Analyzer: Rental SA#2			Preamp: Asset #1517						Antenna: Blue Horn			Preselector: ---		
CSsoft Radiated Emissions Calculator v 1.017.164 Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor														

Copyright Curtis-Straus LLC 2000

Rev. 6/8/2016										
Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on		
SA #2 (1860)	9kHz-26.5 GHz	E7405A	Agilent	MY45104916	1860	I	12/23/2016	12/23/2015		
Radiated Emissions Sites	FCC Code	IC Code	VCCI Code	Range	Cat	Calibration Due	Calibrated on			
EMI Chamber 1	719150	2762A-6	A-0015	1-18GHz	I	5/23/2017	5/23/2015			
Preamps /Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on		
1517 HF Preamp	1-20GHz	CS	CS	N/A	1517	II	8/6/2016	8/6/2015		
Antennas	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on		
Blue Horn	1-18Ghz	3117	ETS	157647	1861	I	2/8/2017	2/8/2015		
Meteorological Meters		MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on		
TH A#2080		HTC-1	HDE		2080	II	4/5/2017	4/5/2016		
Barometric A#2160		5396-0321	Monarch Instruments	4000060	2160	I	3/7/2017	3/7/2016		
Cables	Range		Mfr			Cat	Calibration Due	Calibrated on		
Asset #1785	9kHz - 18GHz		Florida RF			II	1/5/2017	1/5/2016		
Asset #2051	9kHz - 18GHz		Florida RF			II	3/2/2017	3/2/2016		

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



## AC Line Conducted Emissions LIMITS

Frequency of emission (MHz)	Quasi-peak limit (dB $\mu$ V)	Average limit (dB $\mu$ V)
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

AC Side of a DC Supply Conducted Emissions														
Date: 27-Jun-16				Company: Amazon Robotics LLC				Work Order: Q0039						
Engineer: Patrick Crozier				EUT Desc: #5 Hercules Drive: HUI				Pressure: 1010 mBar						
Temp: 23.2 °C				Humidity: 44%				Notes: Transmit pwr = -30dB, Transmit rate = 4Hz						
Frequency Range: 0.15-30MHz										EUT Input Voltage/Frequency: 120V/60Hz				
Frequency (MHz)	Quasi-Peak Readings		Average Readings		LISN Factors		Cable Factor (dB)	ATTN Factor (dB)	FCC 15.207			FCC 15.207		
	QP1 (dB $\mu$ V)	QP2 (dB $\mu$ V)	AVG1 (dB $\mu$ V)	AVG2 (dB $\mu$ V)	L1 (dB)	L2 (dB)			QP Limit (dB $\mu$ V)	Margin (dB)	Result (Pass/Fail)	AVG Limit (dB $\mu$ V)	Margin (dB)	Result (Pass/Fail)
0.16	8.5	8.7	4.0	4.1	-0.1	-0.1	-0.1	-20.4	65.5	-36.2	Pass	55.5	-30.8	Pass
2.19	6.2	6.0	1.6	1.5	0.0	0.0	-0.1	-20.4	56.0	-29.3	Pass	46.0	-23.8	Pass
2.64	7.1	6.7	2.7	3.8	0.0	0.0	-0.1	-20.4	56.0	-28.4	Pass	46.0	-21.7	Pass
3.80	8.7	8.4	4.5	5.5	0.0	0.0	-0.2	-20.4	56.0	-26.7	Pass	46.0	-20.0	Pass
3.99	9.0	8.0	8.5	10.4	0.0	0.0	-0.2	-20.4	56.0	-26.5	Pass	46.0	-15.0	Pass
4.41	9.1	9.8	8.5	9.7	0.0	0.0	-0.2	-20.4	56.0	-25.6	Pass	46.0	-15.8	Pass
<b>Result: Pass</b>				<b>Worst Margin: -15.0 dB</b>				<b>Frequency: 3.986 MHz</b>						
Measurement Device: LISN ASSET 1726(Line 1) LISN ASSET 1727(Line 2)				Cable: CEMI-01				Spectrum Analyzer: Gold						
				Attenuator: 20dB Attenuator-64				Site: CEMI 2						
C-S CEMI Calculator Version 3.0.14								Equipment Factor Sheet rev: 5/11/2016						
Adjusted Reading = Raw Reading + LISN Insertion Loss + Cable Loss + Attenuation														

AC Side of a DC Supply Conducted Emissions														
Date: 27-Jun-16				Company: Amazon Robotics LLC				Work Order: Q0039						
Engineer: Patrick Crozier				EUT Desc: #5 Hercules Drive: HUI				Pressure: 1010 mBar						
Temp: 23.2 °C				Humidity: 44%				Notes: Transmit pwr = 0dB, Transmit rate = 4Hz						
Frequency Range: 0.15-30MHz										EUT Input Voltage/Frequency: 120V/60Hz				
Frequency (MHz)	Quasi-Peak Readings		Average Readings		LISN Factors		Cable Factor (dB)	ATTN Factor (dB)	FCC 15.207			FCC 15.207		
	QP1 (dB $\mu$ V)	QP2 (dB $\mu$ V)	AVG1 (dB $\mu$ V)	AVG2 (dB $\mu$ V)	L1 (dB)	L2 (dB)			QP Limit (dB $\mu$ V)	Margin (dB)	Result (Pass/Fail)	AVG Limit (dB $\mu$ V)	Margin (dB)	Result (Pass/Fail)
0.16	8.6	8.8	4.4	4.2	-0.1	-0.1	-0.1	-20.4	65.5	-36.1	Pass	55.5	-30.5	Pass
3.17	12.6	10.3	11.3	9.1	0.0	0.0	-0.1	-20.4	56.0	-22.9	Pass	46.0	-14.2	Pass
3.31	13.3	10.5	10.3	10.5	0.0	0.0	-0.2	-20.4	56.0	-22.1	Pass	46.0	-14.9	Pass
3.44	12.2	11.1	11.1	9.1	0.0	0.0	-0.2	-20.4	56.0	-23.3	Pass	46.0	-14.4	Pass
3.72	11.0	11.3	11.5	9.3	0.0	0.0	-0.1	-20.4	56.0	-24.2	Pass	46.0	-14.0	Pass
3.85	10.5	10.3	8.0	7.3	0.0	0.0	-0.2	-20.4	56.0	-24.9	Pass	46.0	-17.4	Pass
<b>Result: Pass</b>				<b>Worst Margin: -14.0 dB</b>				<b>Frequency: 3.718 MHz</b>						
Measurement Device: LISN ASSET 1726(Line 1) LISN ASSET 1727(Line 2)				Cable: CEMI-01				Spectrum Analyzer: Gold						
				Attenuator: 20dB Attenuator-64				Site: CEMI 2						
C-S CEMI Calculator Version 3.0.14								Equipment Factor Sheet rev: 5/11/2016						
Adjusted Reading = Raw Reading + LISN Insertion Loss + Cable Loss + Attenuation														



AC Side of a DC Supply Conducted Emissions														
Date: 27-Jun-16				Company: Amazon Robotics LLC				Work Order: Q0039						
Engineer: Patrick Crozier				EUT Desc: #5 Hercules Drive: HUI										
Temp: 23.2 °C				Humidity: 44%				Pressure: 1010 mBar						
Notes: Transmit pwr = +7dB, Transmit rate = 4Hz														
Frequency Range: 0.15-30MHz						EUT Input Voltage/Frequency: 120V/60Hz								
Frequency (MHz)	Quasi-Peak Readings		Average Readings		LISN Factors		Cable Factor (dB)	ATTN Factor (dB)	FCC 15.207			FCC 15.207		
	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)
0.16	8.7	8.4	3.9	4.0	-0.1	-0.1	-0.1	-20.4	65.5	-36.2	Pass	55.5	-30.9	Pass
2.52	7.3	6.7	2.7	2.1	0.0	0.0	-0.1	-20.4	56.0	-28.2	Pass	46.0	-22.8	Pass
2.89	11.5	9.8	4.8	5.0	0.0	0.0	-0.1	-20.4	56.0	-24.0	Pass	46.0	-20.5	Pass
3.44	13.9	8.6	6.9	7.0	0.0	0.0	-0.2	-20.4	56.0	-21.5	Pass	46.0	-18.5	Pass
3.61	11.7	11.2	6.3	6.4	0.0	0.0	-0.1	-20.4	56.0	-23.7	Pass	46.0	-19.0	Pass
4.53	8.9	9.2	3.9	4.1	0.0	0.0	-0.2	-20.4	56.0	-26.2	Pass	46.0	-21.3	Pass
<b>Result: Pass</b>				<b>Worst Margin: -18.5 dB</b>				<b>Frequency: 3.440 MHz</b>						
Measurement Device: LISN ASSET 1726(Line 1) LISN ASSET 1727(Line 2)						Cable: CEM-01			Spectrum Analyzer: Gold					
						Attenuator: 20dB Attenuator-64			Site: CEMI 2					
C-S CEMI Calculator Version 3.0.14														
Adjusted Reading = Raw Reading + LISN Insertion Loss + Cable Loss + Attenuation														
Equipment Factor Sheet rev: 5/11/2016														

Rev. 6/8/2016

Spectrum Analyzers / Receivers / Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on	
Gold	100Hz-26.5 GHz	E4407B	Agilent	MY45113816	1284	I	1/13/2017	1/13/2016	
LISNs/Measurement Probes	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on	
LISN Asset 1726	150kHz-30MHz	LI-150A	Com-Power	201092	1726	I	2/4/2017	2/4/2016	
LISN Asset 1727	150kHz-30MHz	LI-150A	Com-Power	201093	1727	I	2/4/2017	2/4/2016	
Conducted Test Sites (Mains / Telco)	FCC Code	VCCI Code	Cat	Calibration Due	Calibrated on				
CEMI 2	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	I	4/28/2017	4/28/2016		
TH A#2078	HTC-1	HDE		2078	II	4/5/2017	4/5/2016		
Cables	Range	Mfr	Cat	Calibration Due	Calibrated on				
CEMI-01	9kHz - 2GHz	C-S	II	9/11/2016	9/11/2015				
Attenuators	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on	
20dB Attenuator-64	9kHz-2GHz			N/A		II	11/15/2016	11/15/2015	

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 to be its 99% emission bandwidth, as calculated or measured. [RSS-GEN 6.6]

## MEASUREMENTS / RESULTS

Radiated Emissions Table - Occupied Bandwidth					
Date: 27-Oct-16		Company: Amazon Robotics LLC		Work Order: Q0039	
Engineer: JH		EUT Desc: Hercules User Interface		EUT Operating Voltage/Frequency: 9VDC	
Temp: 23°C		Humidity: 25%		Pressure: 1024mBar	
Frequency Range: 925 MHz			Measurement Distance: 3 m		
Notes: Config 9. Fundamental Emissions Scan				EUT Max Freq: 925 MHz	
Antenna Polarization (H/V)	Frequency (MHz)	Occupied Bandwidth (KHz)			
V	925.0	188.95			
<b>Table Result:</b>		by		dB	
				<b>Worst Freq:</b>	
				MHz	
Test Site: EMI Chamber 1		Cable 1: EMIR-HIGH-22		Cable 2: Asset #2051	
Analyzer: Rental SA#5		Preamp: Green		Cable 3: ---	
CSsoft Radiated Emissions Calculator v 1.017.175				Antenna: Red-Black	
				Preselector: ---	
Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor					

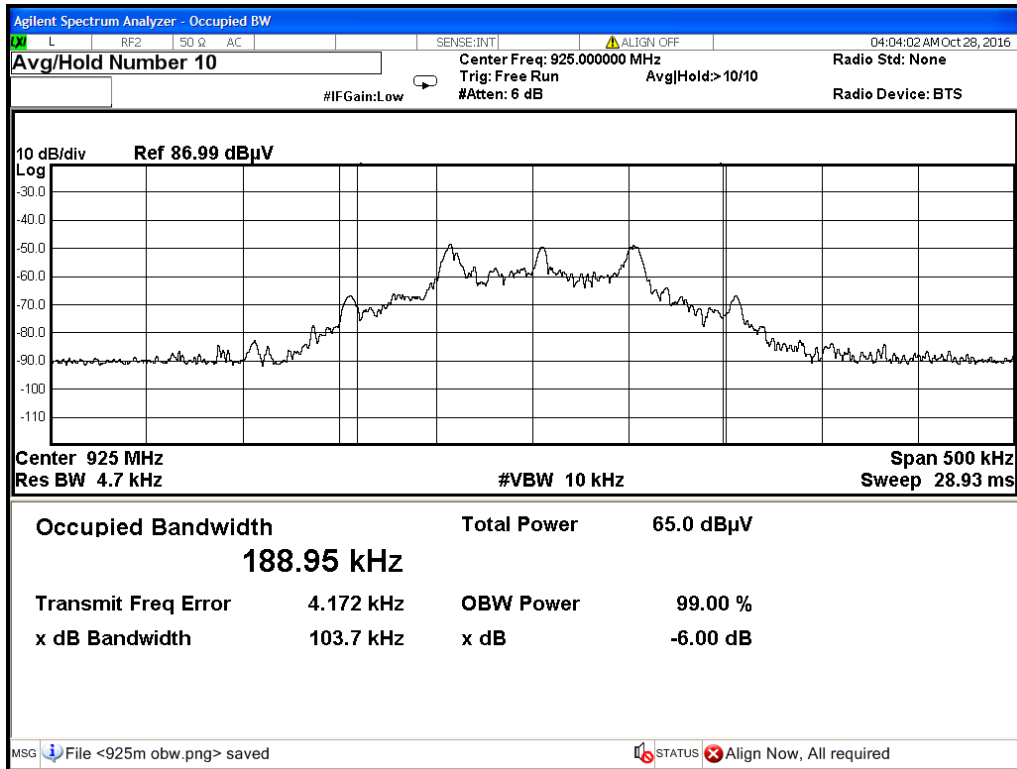
Rev. 12/8/2016

Spectrum Analyzers / Receivers / Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
SA #5 (1178898)	9kHz-26.5GHz	E4407B	Agilent	US40241082	1178898	I	12/30/2016	12/30/2015
Radiated Emissions Sites	FCC Code	IC Code	VCCI Code	Range		Cat	Calibration Due	Calibrated on
EMI Chamber 1	719150	2762A-6	A-0015	30-1000MHz		II	3/21/2017	3/21/2015
Preamps / Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Green	0.009-2000MHz	ZFL-1000-LN	CS	N/A	802	II	9/19/2017	9/19/2016
Antennas	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Red-Black Bilog	30-2000MHz	JB1	Sunol	A091604-2	1106	I	2/9/2017	2/9/2015
Meteorological Meters		MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Weather Clock (Pressure Only)		BA928	Oregon Scientific	C3166-1	831	I	4/28/2018	4/28/2016
TH A#2080		HTC-1	HDE		2080	II	4/5/2017	4/5/2016
Cables	Range		Mfr			Cat	Calibration Due	Calibrated on
Asset #2051	9kHz - 18GHz		Florida RF			II	3/2/2017	3/2/2016
REMI-High-22	1- 18GHz		C-S			II	2/14/2017	2/14/2016

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



Plot(s)



Occupied Bandwidth - 925 MHz

### 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
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



## 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.



BUREAU  
VERITAS

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

One Distribution Center Circle, #1 • Littleton, MA • TEL (978) 486-8880 • FAX (978) 486-8828



page 16 of 17



13. CLIENT SHALL, EXCEPT TO THE EXTENT OF COMPANY'S LIABILITY TO CLIENT HEREUNDER (WHICH IN NO EVENT SHALL EXCEED THE LIMITATION OF LIABILITY HEREIN), HOLD HARMLESS AND INDEMNIFY THE COMPANY, ITS AFFILIATES AND THEIR RESPECTIVE DIRECTORS, OFFICERS, EMPLOYEES, AGENTS AND SUBCONTRACTORS AGAINST ALL ACTUAL OR ALLEGED THIRD PARTY CLAIMS FOR LOSS, DAMAGE OR EXPENSE OF WHATSOEVER NATURE AND HOWSOEVER ARISING FROM OR RELATING TO (i) THE PERFORMANCE, PURPORTED PERFORMANCE OR NON-PERFORMANCE OF ANY SERVICES BY THE COMPANY OR (ii) THE SALE, RESALE, MANUFACTURE, DISTRIBUTION OR USE OF ANY TESTED GOODS.

14. EXCEPT AS MAY OTHERWISE BE EXPRESSLY AGREED TO IN WRITING BY THE COMPANY AND NOTWITHSTANDING ANY PROVISION TO THE CONTRARY CONTAINED HEREIN OR IN ANY TEST REPORT, NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE, IS MADE.

15. (A) IN NO EVENT WHATSOEVER SHALL THE COMPANY BE LIABLE FOR ANY CONSEQUENTIAL, SPECIAL, INCIDENTAL, EXEMPLARY OR PUNITIVE DAMAGES IN CONNECTION WITH, RELATING TO OR ARISING OUT OF THE TEST REPORT OR THE SERVICES PROVIDED BY THE COMPANY HEREUNDER, INCLUDING WITHOUT LIMITATION LOSS OF OR DAMAGE TO PROPERTY; LOSS OF INCOME, PROFIT OR USE; OR ANY CLAIMS OR DEMANDS MADE AGAINST CLIENT OR ANY OTHER PERSON BY ANY THIRD PARTY IN CONNECTION WITH, RELATING TO OR ARISING OUT OF THE SERVICES PROVIDED BY THE COMPANY HEREUNDER.

(B) NOTWITHSTANDING ANY PROVISION TO THE CONTRARY CONTAINED HEREIN, AND IN RECOGNITION OF THE RELATIVE RISKS AND BENEFITS TO CLIENT AND THE COMPANY ASSOCIATED WITH THE TESTING SERVICES CONTEMPLATED HEREBY, THE RISKS HAVE BEEN ALLOCATED SUCH THAT UNDER NO CIRCUMSTANCES WHATSOEVER SHALL THE LIABILITY OF THE COMPANY TO CLIENT OR ANY THIRD PARTY IN RESPECT OF ANY CLAIM FOR LOSS, DAMAGE OR EXPENSE, OF WHATSOEVER NATURE OR MAGNITUDE, AND HOWSOEVER ARISING, EXCEED AN AMOUNT EQUAL TO FIVE (5) TIMES THE AMOUNT OF THE FEES PAID TO THE COMPANY FOR THE SPECIFIC SERVICES WHICH GAVE RISE TO SUCH CLAIM OR U.S.\$10,000, WHICHEVER IS THE LESSER AMOUNT.

16. The Company shall not be liable for any loss or damage resulting from any delay or failure in performance of its obligations hereunder resulting directly or indirectly from any event of force majeure or any event outside the control of the Company. If any such event occurs, the Company may immediately cancel or suspend its performance hereunder without incurring any liability whatsoever to Client.

17. Company's services, including these Conditions, shall be governed by, and construed in accordance with, the local laws of the country where the Company performs the tests or, in the case of tests performed in the United States of America, the laws of Massachusetts without regard to conflicts of laws principles. If any aspect(s) of these Conditions is found to be illegal or unenforceable, the validity, legality and enforceability of all remaining aspects of these Conditions shall not in any way be affected or impaired thereby. Any proceeding related to the subject matter hereof shall be brought, if at all, in the courts of the country where the Company performs the tests or, in the case of tests performed in the United States of America, in the courts of Massachusetts. Client waives the right to interpose any counterclaim or setoffs of any nature in any litigation arising hereunder.

Rev.160009121(2)\_#684340 v13CS



BUREAU  
VERITAS

