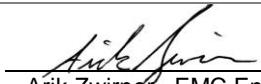




**BUREAU  
VERITAS**

# Test Report

Bureau Veritas Consumer Products Services, Inc.

Report No	ET1264-1
Client	Amazon Robotics LLC
Address	300 Riverpark Drive North Reading, MA 01864
Phone	(978) 276-2815
Items tested	FIDO CONTROL BOX ASSEMBLY, NA
FCC ID	2AEZR-FIDO
IC	10244A-FIDO
FRN	0024656845
Equipment Type	Low Power Communication Device Transmitter
Equipment Code	DXX
Standards	CFR Title 47 FCC Part 15.249, RSS-210 Issue 9 Annex B.10
Test Dates	Jun 7, 13, 17 and 25, 2019
Results	As detailed within this report
Prepared by	 Arik Zwirner - EMC Engineer
Authorized by	 Yilmaz Faziloglu - Sp. Engineer
Issue Date	9/23/2019
Conditions of Issue	This Test Report is issued subject to the conditions stated in the 'Conditions of Testing' section on page 14 of this report.

Bureau Veritas Consumer Products Services, Inc. is accredited by the American Association for Laboratory Accreditation for the specific scope of accreditation under Certificate Number 1627-01. This report may contain data which is not covered by the A2LA accreditation.



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



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**Product Tested - Configuration Documentation**

EUT Configuration										
Work Order:	T1264									
Company:	Amazon Robotics LLC									
Company Address:	300 River Park Drive									
	North Reading, MA, 01864									
Contact:	Dao Keopadith									
		<b>MN</b>							<b>SN</b>	
EUT:	FIDO CONTROL BOX ASSEMBLY, NA								Beta3-34-NA (for North America version)	
EUT Description:										
EUT Max Frequency:	925 MHz									
EUT Min Frequency:	0.125 MHz									
EUT Components		<b>MN</b>							<b>SN</b>	
CUI Power Supply		DSI36-15-UD								
Port Label	Port Type	# ports	# populated	cable type	shielded	ferrites	length (m)	in/out	under test	comment
AC Mains	Power AC	1	1	Power AC	No	No	2	in	yes	
Ethernet	Ethernet	1	1	Ethernet	No	No	10	in	yes	
Mini USB	USB	1	1	USB	Yes	Yes	2	in	yes	
Sensor 8-pin	other	3	3	other	Yes	Yes	3	in	yes	
Sensor 6-pin	other	2	2	other	Yes	Yes	3	in	yes	
Serial	other	1	1	other	Yes	No	2	in	yes	
DC power	Power DC	1	1	Power DC	No	No	2	in	yes	to AC-DC power supply
<b>Software Operating Mode Description:</b>										
Both 0.125MHz and 925MHz radios are ON during testing.										

Clock Frequencies	
frequencies (MHz)	925, 25, 0.125



Reason for change

Original Release

Date Issued

September 23, 2019

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Testing Cert. No. 1627-01

## ***Summary and Test Methodology***

On Jun 7, 13, 17 and 25, 2019 we tested the FIDO CONTROL BOX ASSEMBLY, NA for compliance with the following requirements:

CFR Title 47 FCC Part 15.249, RSS-210 Issue 9 Annex B.10

EUT transmits at 925MHz. Emissions were tested with the EUT in its intended upright installation orientation. EUT has an integral antenna.

Radiated emission testing was performed according to the procedures specified in ANSI C63.10-2013 and RSS-Gen Issue 5.

AC mains conducted emission testing was performed at an operating voltage of 120VAC/60Hz.

Following bandwidths were used during radiated and conducted spurious emissions testing.

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

We found that the product met the above requirements. The test sample was received in good condition.



## Compliance Statement

RSS-GEN	RSP-100	RSS 210	Part 15	Comments
6.4			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.
3.2			15.31	The EUT was tested in accordance with the measurement standards in this section.
6.13.2			15.33	Frequency range was investigated according to this section, unless noted in specific rule section under which the equipment operates.
6.13.1			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.
6.8			15.203	Splatch Antenna Factor ANT-916-SP Type: Surface Mount Peak gain: 1.4dBi
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 mains emissions met the requirements of 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.
6.7				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)]

#### Radiated Emissions Table

Radiated Emissions Table							Work Order: T1264		
Date: 10-Jun-19 Engineer: AKZ Temp: 25°C Humidity: 45% Pressure: 1010mbar							EUT Operating Voltage/Frequency: 120Vac/60Hz		
Frequency Range: 925MHz Fundamenta							Measurement Distance: 3 m		
Notes: Peak readings. EUT in upright position only (as intended installation)									
Antenna Polarization (H / V)							FCC 15.249		
Frequency (MHz)							Limit	Margin (dB)	Result (Pass/Fail)
V 925.0 60.3 31.7 28.9 2.3 59.8 --- --- 93.98 -34.2 ---							Limit (dB $\mu$ V/m)	Margin (dB)	Result (Pass/Fail)
H 925.0 58.5 31.7 28.9 2.3 58.0 --- --- 93.98 -36.0 ---							Limit (dB $\mu$ V/m)	Margin (dB)	Result (Pass/Fail)
Test Site: EMI Chamber 2			Cable 1: Asset #2586			Cable 2: Asset #2456			Cable 3: Asset #2467
Analyzer: ---			Preamp: None			Antenna: Red-Brown			Preselector: ---
CSsoft Radiated Emissions Calculator v 1.017.215									Copyright Curtis-Straus LLC 2000
Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor									



## Radiated Spurious Emissions

Bureau Veritas Consumer Product Services Inc.	Work Order - T1264
Radiated Emissions Electric Field 3m Distance	EUT Power Input - 120Vac/60Hz
30-1000MHz Horizontal Data	Test Site - CH-2
Notes:	Conditions - 25°C; 45%RH; 1005mBar
952MHz and 125kHz radios transmitting	Test Engineer - AKZ
EUT in vertical/upright orientation	

Data Taken at 10:49:48 AM, Friday, June 07, 2019

Frequency (MHz)	Raw QP Reading (dB $\mu$ V)	Correction Factor (dB/m)	Adjusted QP Amplitude (dB $\mu$ V/m)	Lim1: FCC_pt15_2_09 (dB $\mu$ V/m)	Margin to Lim1 (dB)	Test Results Lim1 (Pass/Fail)	Worst Margin Lim1 (dB)	Lim2: FCC_pt15_1_09_Class_B (dB $\mu$ V/m)	Margin to Lim2 (dB)	Test Results Lim2 (Pass/Fail)	Worst Margin Lim2 (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
280.002	25.9	-11.1	14.8	46	-31.2	PASS		46	-31.2	PASS		244	340
433.445	41.4	-7.9	33.5	46	-12.5	PASS		46	-12.5	PASS		161	0
443.843	39.2	-7.7	31.5	46	-14.5	PASS		46	-14.5	PASS		108	18
453.947	46.7	-7.3	39.4	46	-6.6	PASS	-6.6	46	-6.6	PASS	-6.6	145	70
544.392	26.7	-5.9	20.8	46	-25.2	PASS		46	-25.3	PASS		175	144
704.326	24.7	-3.7	21	46	-25	PASS		46	-25	PASS		244	43

Bureau Veritas Consumer Product Services Inc.	Work Order - T1264
Radiated Emissions Electric Field 3m Distance	EUT Power Input - 120Vac/60Hz
30-1000MHz Vertical Data	Test Site - CH-2
Notes:	Conditions - 25°C; 45%RH; 1005mBar
952MHz and 125kHz radios transmitting	Test Engineer - AKZ
EUT in vertical/upright orientation	

Data Taken at 10:49:48 AM, Friday, June 07, 2019

Frequency (MHz)	Raw QP Reading (dB $\mu$ V)	Correction Factor (dB/m)	Adjusted QP Amplitude (dB $\mu$ V/m)	Lim1: FCC_pt15_2_09 (dB $\mu$ V/m)	Margin to Lim1 (dB)	Test Results Lim1 (Pass/Fail)	Worst Margin Lim1 (dB)	Lim2: FCC_pt15_1_09_Class_B (dB $\mu$ V/m)	Margin to Lim2 (dB)	Test Results Lim2 (Pass/Fail)	Worst Margin Lim2 (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
76.538	44	-17.4	26.6	40	-13.4	PASS		40	-13.4	PASS		125	340
150.485	48	-12.7	35.2	43.5	-8.3	PASS	-8.3	43.5	-8.3	PASS	-8.3	166	114
209.758	43.2	-13.9	29.3	43.5	-14.2	PASS		43.5	-14.2	PASS		125	65
213.976	42.3	-13.8	28.5	43.5	-15	PASS		43.5	-15	PASS		125	4
214.724	41.7	-13.8	27.9	43.5	-15.6	PASS		43.5	-15.7	PASS		132	25
413.653	43.1	-7.8	35.3	46	-10.7	PASS		46	-10.7	PASS		125	150

## 30MHz-1GHz

Rev. 6/25/2019	Spectrum Analyzers / Receivers/Preselectors		Range 20Hz-26.5GHz	MN N9038A	Mfr Agilent	SN MY51210181	Asset 2093	Cat I	Calibration Due 11/21/2019	Calibrated on 11/21/2018
Radiated Emissions Sites		FCC Code 719150	IC Code 2762A-7	VCCI Code A-0015	Range 30-1000MHz	Asset 1686	Cat I	Calibration Due 12/7/2020	Calibrated on 12/7/2018	
EMI Chamber 2		719150	2762A-7	A-0015	1-18GHz	1686	I	12/7/2020	12/7/2018	
EMI Chamber 2										
Antennas		Range 30-2000MHz	MN JB1	Mfr Sunol	SN A0032406	Asset 1218	Cat I	Calibration Due 3/11/2021	Calibrated on 3/11/2019	
Red-Brown Bilog										
Preamps/Couplers Attenuators / Filters		Range 9KHz-1GHz	MN 310	Mfr SONOMA INSTRUMENT	SN 185710	Asset II	Cat II	Calibration Due 4/16/2020	Calibrated on 4/16/2019	
185710 Rental PA										
Meteorological Meters/Chambers		MN BA928	Mfr Oregon Scientific	SN C3166-1	Asset 831	Cat I	Calibration Due 5/15/2020	Calibrated on 5/15/2018		
Weather Clock (Pressure Only)		1235C97	Control Company	181683830	2659	I	4/3/2020	4/3/2019		
Asset #2659										
Cables		Range 9KHz-18GHz	Mfr MegaPhase		Cat II	Calibration Due 10/29/2019	Calibrated on 10/29/2018			
Asset #2455		9KHz-18GHz	MegaPhase		II	10/31/2019	10/31/2018			
Asset #2467		9KHz-18GHz	MegaPhase		II	4/2/2020	4/2/2019			
Asset #2606		9KHz-18GHz	MegaPhase							

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



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Bureau Veritas Consumer Product Services Inc.	Work Order - T1264
Radiated Emissions Electric Field 3m Distance	EUT Power Input - 120Vac/60Hz
Top Peaks Horizontal 1-6GHz	Test Site - CH-1
Notes:	Conditions - 22°C; 43%RH; 1010mBar
150cm EUT height	Test Engineer - AKZ
EUT in upright position	0

Data Taken at 10:48:55 AM, Monday, June 10, 2019

Frequency (MHz)	Raw Peak Reading (dB $\mu$ V)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dB $\mu$ V/m)	Pk Lim: FCC_pt15_2 09_Peak (dB $\mu$ V/m)	Margin to Peak Limit (dB)	Peak Limit Test Results (Pass/Fail)	Peak Limit Worst Margin (dB)	Av Lim: FCC_pt15_2 09_Average (dB $\mu$ V/m)	Margin to Avg Limit (dB)	Peak Limit Test Results (Pass/Fail)	Avg Limit Worst Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
3718.88	46	-0.7	45.3	74	-28.7	PASS		54	-8.7	PASS		200	135
5583.75	45.1	1.6	46.7	74	-27.3	PASS	-27.3	54	-7.3	PASS	-7.3	100	181

Bureau Veritas Consumer Product Services Inc.	Work Order - T1264
Radiated Emissions Electric Field 3m Distance	EUT Power Input - 120Vac/60Hz
Top Peaks Vertical 1-6GHz	Test Site - CH-1
Notes:	Conditions - 22°C; 43%RH; 1010mBar
150cm EUT height	Test Engineer - AKZ
EUT in upright position	0

Data Taken at 10:48:55 AM, Monday, June 10, 2019

Frequency (MHz)	Raw Peak Reading (dB $\mu$ V)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dB $\mu$ V/m)	Pk Lim: FCC_pt15_2 09_Peak (dB $\mu$ V/m)	Margin to Peak Limit (dB)	Peak Limit Test Results (Pass/Fail)	Peak Limit Worst Margin (dB)	Av Lim: FCC_pt15_2 09_Average (dB $\mu$ V/m)	Margin to Average Limit (dB)	Average Limit Test Result (Pass/Fail)	Average Limit Worst Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
1278.5	48.3	-8	40.2	74	-33.8	PASS		54	-13.8	PASS		200	283
3094.13	47.1	-2.2	44.9	74	-29.1	PASS		54	-9.1	PASS		100	106
4606.38	46.5	0.3	46.8	74	-27.2	PASS		54	-7.2	PASS		100	106
5994.75	44.8	2.2	47	74	-27	PASS	-27	54	-7	PASS	-7	100	255

## 1GHz-6GHz

Bureau Veritas Consumer Product Services Inc.	Work Order - T1264
Radiated Emissions Electric Field 1m Distance	EUT Power Input - 120Vac/60Hz
Top Peaks Horizontal 6-18GHz	Test Site - CH-1
Notes:	Conditions - 22°C; 43%RH; 1010mBar
150cm EUT height	Test Engineer - AKZ
EUT in upright position	0

Data Taken at 11:18:20 AM, Monday, June 10, 2019

Frequency (MHz)	Raw Peak Reading (dB $\mu$ V)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dB $\mu$ V/m)	Pk Lim: FCC_pt15_2 09_Peak (dB $\mu$ V/m)	Margin to Peak Limit (dB)	Peak Limit Test Results (Pass/Fail)	Peak Limit Worst Margin (dB)	Av Lim: FCC_pt15_2 09_Average (dB $\mu$ V/m)	Margin to Avg Limit (dB)	Peak Limit Test Results (Pass/Fail)	Avg Limit Worst Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
995.7	46.7	6.8	53.4	83.5	-30.1	PASS	-30.1	63.5	-10.1	PASS	-10.1	125	207

Bureau Veritas Consumer Product Services Inc.	Work Order - T1264
Radiated Emissions Electric Field 1m Distance	EUT Power Input - 120Vac/60Hz
Top Peaks Vertical 6-18GHz	Test Site - CH-1
Notes:	Conditions - 22°C; 43%RH; 1010mBar
EUT in upright position	Test Engineer - AKZ
	0

Data Taken at 11:18:20 AM, Monday, June 10, 2019

Frequency (MHz)	Raw Peak Reading (dB $\mu$ V)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dB $\mu$ V/m)	Pk Lim: FCC_pt15_2 09_Peak (dB $\mu$ V/m)	Margin to Peak Limit (dB)	Peak Limit Test Results (Pass/Fail)	Peak Limit Worst Margin (dB)	Av Lim: FCC_pt15_2 09_Average (dB $\mu$ V/m)	Margin to Avg Limit (dB)	Peak Limit Test Results (Pass/Fail)	Avg Limit Worst Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
9733.8	47	6.1	53.1	83.5	-30.4	PASS	-30.4	63.5	-10.4	PASS	-10.4	200	144

## 6GHz-10GHz



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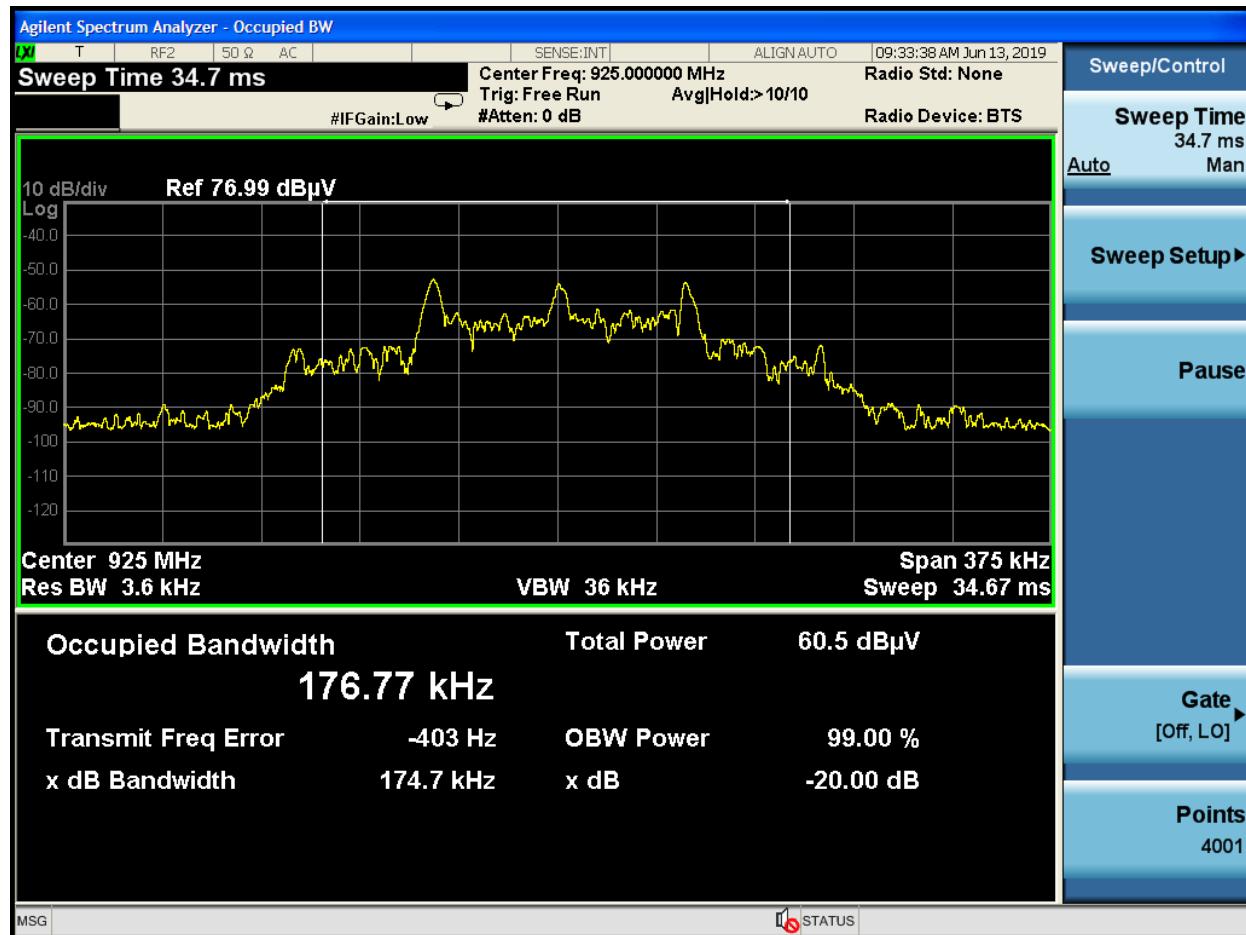
Rev. 5/24/2019

Spectrum Analyzers / Receivers /Preselectors		Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
2093 MXE EMI Receiver		20Hz-26.5GHz	N9038A	Agilent	MY51210181	2093	I	11/21/2019	11/21/2018
<b>Radiated Emissions Sites</b>		<b>FCC Code</b>	<b>IC Code</b>	<b>VCCI Code</b>	<b>Range</b>	<b>Asset</b>	<b>Cat</b>	<b>Calibration Due</b>	<b>Calibrated on</b>
EMI Chamber 2	719150	2762A-7	A-0015	30-1000MHz	1686	I		12/7/2020	12/7/2018
EMI Chamber 2	719150	2762A-7	A-0015	1-18GHz	1686	I		12/7/2020	12/7/2018
<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>
8449B HF Preamp	1-18GHz	8449B	Agilent	1149055		II		11/26/2019	11/26/2018
<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>
Blue Horn	1-18Ghz	3117	ETS	157647	1861	I		3/9/2021	3/9/2019
<b>Meteorological Meters/Chambers</b>		<b>MN</b>	<b>Mfr</b>	<b>SN</b>	<b>Asset</b>	<b>Cat</b>	<b>Calibration Due</b>	<b>Calibrated on</b>	
Weather Clock (Pressure Only)	BA928	Oregon Scientific	C3166-1	831	I			5/15/2020	5/15/2018
Asset #2656	1235C97	Control Company	181683818	2656	I			4/3/2020	4/3/2019
<b>Cables</b>		<b>Range</b>		<b>Mfr</b>		<b>Cat</b>	<b>Calibration Due</b>	<b>Calibrated on</b>	
Asset #2606	9KHz-18GHz		MegaPhase			II	4/2/2020	4/2/2019	
Asset #2455	9KHz-18GHz		MegaPhase			II	10/29/2019	10/29/2018	
Asset #2467	9KHz-18GHz		MegaPhase			II	10/31/2019	10/31/2018	

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



## Occupied Bandwidth



## Conducted Emissions

Bureau Veritas Consumer Product Services Inc.	Work Order # - T1264
Conducted Emissions per CISPR 16-2-1	EUT Power Input - 120VAC/60Hz
Peak Detector Data	Test Site - CEMI-5
Notes:	Conditions: - 23°C; 51%RH; 1006mBar
EUT Line tested: 120VAC/60Hz; Live Phase	Test Engineer - AKZ

17-Jun-19

Frequency	Raw Pk Reading	Correction Factor	Adjusted Pk Amplitude	QP Lim: Mains_FCC&CISP R_QP_Class_B	Margin to the QP Limit	Pk to QP Limit Results	Worst Margin (QP Limit)
(MHz)	(dB $\mu$ V)	(dB)	(dB $\mu$ V)	(dB $\mu$ V)	(dB)	(Pass/Fail)	(dB)
0.157	42.9	19.9	62.8	65.6	-2.8	PASS	-2.8
0.209	37.3	19.9	57.2	63.2	-6	PASS	
0.238	33.4	19.9	53.3	62.2	-8.9	PASS	
0.278	30.5	19.9	50.4	60.9	-10.4	PASS	
0.308	28.2	19.9	48.1	60	-11.9	PASS	
0.589	23	19.9	42.9	56	-13.1	PASS	

Bureau Veritas Consumer Product Services Inc.	Work Order # - T1264
Conducted Emissions per CISPR 16-2-1	EUT Power Input - 120VAC/60Hz
Final Average Detector Data	Test Site - CEMI-5
Notes:	Conditions: - 23°C; 51%RH; 1006mBar
EUT Line tested: 120VAC/60Hz; Live Phase	Test Engineer - AKZ

17-Jun-19

Frequency	Raw Avg Reading	Correction Factor	Adjusted Avg Amplitude	Av Lim: Mains_FCC&CISP R_Avg_Class_B	Avg Margin	Avg Results	Worst Avg Margin
(MHz)	(dB $\mu$ V)	(dB)	(dB $\mu$ V)	(dB $\mu$ V)	(dB)	(Pass/Fail)	(dB)
0.151	16.1	19.9	36.1	55.9	-19.9	PASS	
0.155	16.2	19.9	36.2	55.7	-19.6	PASS	
0.186	16.2	19.9	36.1	54.2	-18.1	PASS	
0.223	17.2	19.9	37.1	52.7	-15.6	PASS	
0.298	9.6	19.9	29.6	50.3	-20.7	PASS	
0.592	13.8	19.9	33.7	46	-12.3	PASS	-12.3



Bureau Veritas Consumer Product Services Inc.	Work Order # - T1264
Conducted Emissions per CISPR 16-2-1	EUT Power Input - 120VAC/60Hz
Peak Detector Data	Test Site - CEMI-5
Notes:	Conditions: - 23°C; 51%RH; 1006mBar
EUT Line tested: 120VAC/60Hz; Neutral Phase	Test Engineer - AKZ

17-Jun-19

Frequency	Raw Pk Reading	Correction Factor	Adjusted Pk Amplitude	QP Lim: Mains_FCC&CISP R_QP_Class_B	Margin to the QP Limit	Pk to QP Limit Results	Worst Margin (QP Limit)	Av Lim: Mains_FCC&CISP R_Avg_Class_B	Margin to Avg Limit	Pk to Avg Limit Results	Worst Margin (Avg Limit)
(MHz)	(dB $\mu$ V)	(dB)	(dB $\mu$ V)	(dB $\mu$ V)	(dB)	(Pass/Fail)	(dB)	(dB $\mu$ V)	(dB)	(Pass/Fail)	(dB)
0.151	35.9	19.9	55.8	65.9	-10.1	PASS	-10.1	55.9	-0.1	PASS	-0.1
0.193	30.1	19.9	50	63.9	-13.9	PASS		53.9	-3.9	PASS	
0.221	29.5	19.9	49.4	62.8	-13.4	PASS		52.8	-3.4	PASS	
0.251	29.2	19.9	49.1	61.7	-12.6	PASS		51.7	-2.6	PASS	
0.553	18.9	19.9	38.8	56	-17.2	PASS		46	-7.2	PASS	
0.592	21.2	19.9	41.1	56	-14.9	PASS		46	-4.9	PASS	

Bureau Veritas Consumer Product Services Inc.

Work Order # - T1264

Conducted Emissions per CISPR 16-2-1

EUT Power Input - 120VAC/60Hz

Final Average Detector Data

Test Site - CEMI-5

Notes:

Conditions: - 23°C; 51%RH; 1006mBar

EUT Line tested: 120VAC/60Hz; Neutral Phase

Test Engineer - AKZ

17-Jun-19

Frequency	Raw Avg Reading	Correction Factor	Adjusted Avg Amplitude	Av Lim: Mains_FCC&CISP R_Avg_Class_B	Avg Margin	Avg Results	Worst Avg Margin
(MHz)	(dB $\mu$ V)	(dB)	(dB $\mu$ V)	(dB $\mu$ V)	(dB)	(Pass/Fail)	(dB)
0.153	14.4	19.9	34.4	55.8	-21.4	PASS	
0.155	13.7	19.9	33.7	55.7	-22	PASS	
0.156	13	19.9	33	55.7	-22.7	PASS	
0.188	12.6	19.9	32.6	54.1	-21.6	PASS	
0.591	13.2	19.9	33.1	46	-12.9	PASS	-12.9
0.594	13	19.9	32.9	46	-13.1	PASS	

<b>Spectrum Analyzers / Receivers /Preselectors</b> Rental EXA Signal Analyzer(1118472)	Range 9KHz-26.5GHz	MN N9010A-526;K	Mfr AT	SN MY51170010	Asset 1118472	Cat I	Calibration Due 8/10/2019	Calibrated on 8/10/2018
<b>LISNs/Measurement Probes</b> LISN Asset 1726	Range 150kHz-30MHz	MN LI-150A	Mfr Com-Power	SN 201092	Asset 1726	Cat I	Calibration Due 4/10/2020	Calibrated on 4/10/2019
LISN Asset 1727	150kHz-30MHz	LI-150A	Com-Power	201093	1727	I	4/10/2020	4/10/2019
<b>Conducted Test Sites (Mains / Telco)</b> CEMI 5	FCC Code 719150	VCCI Code A-0015		Cat III	Calibration Due NA	Calibrated on N/A		
<b>Meteorological Meters/Chambers</b> Weather Clock (Pressure Only) Asset #2656	MN BA928 1235C97	Mfr Oregon Scientific Control Company	SN C3166-1 181683818	Asset 831 2656	Cat I I	Calibration Due 5/15/2020 4/3/2020	Calibrated on 5/15/2018 4/3/2019	
<b>Cables</b> CEMI-18	Range 9kHz - 2GHz	Mfr C-S		Cat II	Calibration Due 11/5/2019	Calibrated on 11/5/2018		
<b>Attenuators</b> 20dB20W Attenuator(A#2499)	Range 9KHz-4GHz	MN 766-20	Mfr Narda	SN 8710	Asset 2499	Cat II	Calibration Due 12/4/2019	Calibrated on 12/4/2018



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## 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 [no table (i.e. floor standing)]	4.6dB	5.2dB (Ucispr)
CISPR[table present]	6.0dB	
Radiated Emissions (1-26.5GHz) [no table (i.e. floor standing)]	4.6dB	N/A
Radiated Emissions (1-26.5GHz) [table present]	6.3dB	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)	$3.23 \times 10^{-8}$	$1 \times 10^{-7}$
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% 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		



## Conditions Of Testing

[Bureau Veritas Consumer Products Services, Inc., a Massachusetts corporation], and/or its affiliates (collectively, the "Company") will conduct, at the request of the Submitter ("Client"), the tests specified on the submitted Test Request Form or equivalent in accordance with, and subject to, the following terms and conditions (collectively, "Conditions"):

1. All orders for tests are subject to acceptance by the Company, and no order will constitute a binding commitment of the Company unless and until such order is accepted by it, as evidenced by the issuance of a written report ("Test Report") by the Company. The Test Report is issued solely by the Company, is intended for the exclusive use of Client and shall not be published, used for advertising purposes, copied or replicated for distribution to any other person or entity or otherwise publicly disclosed without the prior written consent of the Company. By submitting a request for services to the Company, Client consents to the disclosure to accreditation bodies of those records of Client relevant to the accreditation body's assessment of the Company's competence and compliance with relevant accreditation criteria. The Company shall not be liable for any loss or damage whatsoever resulting from the failure of the Company to provide its services within any time period for completion estimated by the Company. If Client anticipates using the Test Report in any legal proceeding, arbitration, dispute resolution forum or other proceeding, it shall so notify the Company prior to submitting the Test Report in such proceeding. The Company has no obligation to provide a fact or expert witness at such proceeding unless the Company agrees in advance to do so for a separate and additional fee.
2. The Test Report will set forth the findings of the Company solely with respect to the test samples identified therein. Unless specifically and expressly indicated in the Test Report, the results set forth in such Test Report are not intended to be indicative or representative of the quality or characteristics of the lot from which a test sample is taken, and Client shall not rely upon the Test Report as being so indicative or representative of the lot or of the tested product in general. The Test Report will reflect the findings of the Company at the time of testing only, and the Company shall have no obligation to update the Test Report after its issuance. The Test Report will set forth the results of the tests performed by the Company based upon the written information provided to the Company. The Test Report will be based solely on the samples and written information submitted to the Company by Client, and the Company shall not be obligated to conduct any independent investigation or inquiry with respect thereto.
3. The Company may, in its sole discretion, destroy samples which have been furnished to the Company for testing and which have not been destroyed in the course of testing. The Company may delegate the performance of all or a portion of the services contemplated hereunder to an affiliate, agent or subcontractor of the Company, and Client consents to such delegation.
4. These Conditions and the Test Report represent the entire understanding of the parties hereto with respect to the subject matter hereof and of the Test Report, and no modification, variance or extrapolation with respect thereto shall be permitted without the prior written consent of the Company.
5. The names, service marks, trademarks and copyrights of the Company and its affiliates, including the names "BUREAU VERITAS," "BUREAU VERITAS CONSUMER PRODUCTS SERVICES," "BVCPS," "MTL," "ACTS," "MTL-ACTS" and CURTIS-STRaus (collectively, the "Marks") are and shall remain the sole property of the Company or its affiliates and shall not be used by Client except solely to the extent that Client obtains the prior written approval of the Company and then only in the manner prescribed by the Company. Client shall not contest the validity of the Marks or take any action that might impair the value or goodwill associated with the Marks or the image or reputation of the Company or its affiliates.
6. Payment in full shall be due 30 days after the date of invoice. Interest shall be due on overdue amounts from the due date until paid at an interest rate of 1.5% per month or, if less, the maximum rate permitted by law. The Company reserves the right, at any time and from time to time, to revoke any credit extended to Client. Client shall reimburse the Company for any costs it incurs in collecting past due amounts, including court costs and fees and expenses of attorneys and collection agencies. The Test Report may not be used or relied upon by Client if and for so long as Client fails to pay when due any invoice issued by the Company or any affiliate of it to Client or any affiliate or subsidiary of Client together with interest and penalties, if any, accrued thereon.
7. The Company disclaims any and all responsibility or liability arising out of or in connection with e-mail transmissions of such information.
8. Client understands and agrees that the Company is neither an insurer nor a guarantor, that the Company does not take the place of Client or any designer, manufacturer, agent, buyer, distributor or transportation or shipping company, and that the Company disclaims all liability in such capacities. Client further understands that if it seeks assurance against loss or damage, it should obtain appropriate insurance.
9. Client agrees that the Company, by providing the services, does not take the place of Client nor any third party, nor does the Company release them from any of their obligations, nor does the Company otherwise assume, abridge, abrogate or undertake to discharge any duty of any third party to Client or any duty of Client or any third party to any other third party, and Client will not release any third party from its obligations and duties with respect to the tested goods.
10. Client shall, on a timely basis, (a) provide adequate instructions to the Company in order to enable the Company to perform properly its services, (b) provide, or cause Client's suppliers and contractors to provide, the Company with all documents necessary to enable the Company to perform its services, (c) furnish the Company with all relevant information regarding Client's intended use and purposes of the tested goods, (d) advise the Company of essential dates and deadlines relevant to the tested goods and (e) fully exercise all rights and remedies available to Client against third parties in respect of the tested goods.
11. The Company shall undertake due care and ordinary skill in the performance of its services to Client, and the Company shall accept responsibility only were such skill has not been exercised and, even in such event, only to the extent of the limitation of liability set forth herein.
12. If Client desires to assert a claim arising from or relating to (i) the performance, purported performance or non-performance of any services by the Company or (ii) the sale, resale, manufacture, distribution or use of any tested goods, it must submit that claim to the Company in a writing that sets forth with particularity the basis for such claim within 60 days from discovery of the potential claim and not more than six months after the date of issuance of the Test Report to Client. Client waives any and all such claims including, without limitation, claims that the Test Report is inaccurate, incomplete or misleading or that additional or different testing is required, unless and then only to the extent that Client submits a written claim to the Company within both such time periods.



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

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

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

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

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

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

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