# Test Report



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

Report No	ER0779-1
Client	Shooter's Touch
Address	25 Rolling Lane Weston MA 02493
Phone	781-354-3354
Items tested FCC ID IC ID FRN	Swish Hoop 2AQMMSHNSM01 24124-SHNSM01 0026446617
Equipment Type Equipment Code Emission Designator	Digital Transmission System DTS 1M79F1D
FCC/IC Rule Parts	CFR Title 47 FCC Part 15.247, ISED Canada RSS-247 Issue 2
Test Dates	1/25/2017 -2/6/2017
Results	As detailed within this report
Prepared by	Zachary Johnson Test Engineer
Authorized by	Jason Haley – Sr. EMC Engineer
Issue Date	9/13/2018
Conditions of Issue	This Test Report is issued subject to the conditions stated in the ' <i>Conditions of Testing</i> ' section on page 29 of this report.

Curtis-Straus LLC is accredited by the American Association for Laboratory Accreditation for the specific scope of accreditation under Certificate Number 1627-01. This report may contain data which is not covered by the A2LA accreditation.





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Form Final Report REV 12-07-15



### 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 2

The Swish Hoop operates in the 2402MHz-2480MHz frequency range and has a PCB trace antenna with 0dBi peak gain. It is powered by 3V battery only.

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





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### Test Methodology

All testing was performed according to the following rules/procedures/documents; CFR Title 47 FCC Part 15.247, RSS-247 Issue 2, RSS-Gen Issue 5, FCC KDB 558074 D01 DTS Measurement Guidance v03r05 and ANSI C63.10-2013.

Radiated emissions were maximized by rotating the device around 3 orthogonal planes (X, Y and Z) as well as varying the test antenna's height and polarity.

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

- 2402MHz: Low Channel
- 2440MHz: Mid Channel
- 2480MHz: High Channel

The following bandwidths were used during radiated spurious emissions testing.

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





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

		T Configuration	
		JT Configuration	
Work Order:	R0779		
Company:	Shooters Touch LLC		
Company Address:	25 Rolling Lane		
	Weston, MA, 02493		
Contact:	Steven Gordon		
	MN	PN	SN
EUT:	SHNSM01-B1		
EUT Description:	Bluetooth		
EUT Max Frequency:	16 MHz		
EUT Min Frequency:	0.032 MHz		
EUT Components	MN		SN
SHNSM01			
Software Operating Mode D	escription:		
Used DTM software to control	channels		
Performance Criteria:			
Maintains Bluetooth connection	on.<10% PER.		





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### Statement of Conformity

The Swish Hoop has been found to conform to the following parts of 47 CFR and RSS 210 as detailed below:

RSS-GEN	RSP-100	RSS 210	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.
	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, 6.1, 6.5			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
				installed PCB antenna.
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 210		The unit complies with the requirements of RSS-210
6.6				Occupied Bandwidth measurements were made.

Modifications Required for Compliance None





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### Test Results

### Bandwidth

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

#### **MEASUREMENTS / RESULTS**

			6dB Band	dwidth					
Date: 7/10/2017	Compar	y: Shooter's T	ouch LLC					Work Order:	R0779
Engineer: Zac Johnson	EU	IT: Swish Hoop	D		Ор	erating	Volta	ge/Frequency:	3V DC
Temp: 24.1°C	Humidi	<b>ty:</b> 44%	Pressure	: 1009mBar					
Frequency Range: 2	402-2480 MHz	Mea	asurement Type	: Conducted					
		Measu	urement Method	I: FCC KDB 55	8074 D01 D	TS Mea	s Guid	ance V04	
Notes:									
								6dB Bandwi	dth
Frequency			Reading				Limit	Margin	Result
(MHz)			(kHz)				(kHz)	(kHz)	(Pass/Fail)
2402			811.2				≥500	311	Pass
2440			790.1				≥500	290	Pass
2480			766.5				≥500	267	Pass
Test Site: EMC-3	Cabl	e: 2286 Cbl		Attenu	uator: 2121	Pad			
Analyzer: 1118470 SA								Copyright Cur	tis-Straus LLC 2
ev. 6/24/2017									
Spectrum Analyzers / Receivers Rental EXA Signal Analyzer		Range 9KHz-26.5GHz	<b>MN</b> N9010A-526;M	Mfr AT	<b>SN</b> MY51170093	Asset 1118470	Cat I	Calibration Due 1/3/2018	Calibrated 1/3/2017
Preamps /Couplers Attenuat API - 30dB 20W Attenu		<b>Range</b> 9KHz-40GHz	<b>MN</b> 89-30-11	Mfr API Weinschel	<b>SN</b> 703	Asset 2121	Cat I	Calibration Due 3/22/2018	Calibrated 3/22/2217
Meteorological Mete Weather Clock (Pressure TH A#2077			MN BA928 HTC-1	<b>Mfr</b> Oregon Scientific HDE	<b>SN</b> C3166-1	Asset 831 2077	Cat I	<b>Calibration Due</b> 4/28/2018 3/23/2018	Calibrated 4/28/2016 3/23/2017
Cables Asset #2286		<b>Range</b> 9KHz-26.5GHz	FLC-1.5FT-SMSM+	<b>Mfr</b> Mini-Circuits	16021030		Cat II	Calibration Due 1/27/2018	Calibrated of 1/27/2017

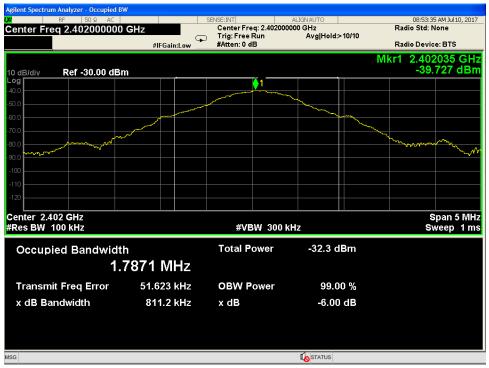
All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

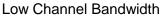


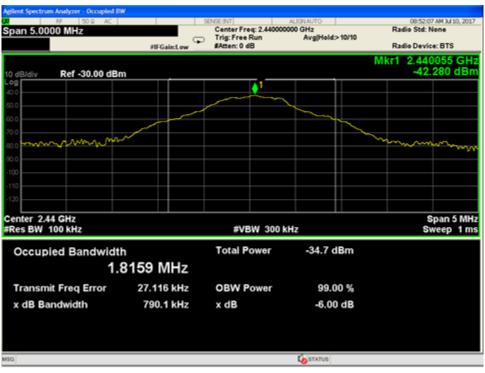


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#### PLOTS







Middle Channel Bandwidth



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High Channel Bandwidth





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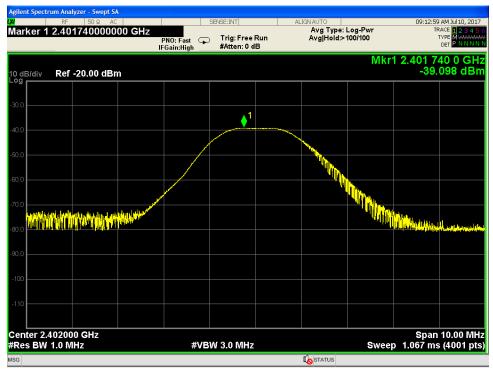
### **Peak Power**

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

#### **MEASUREMENTS / RESULTS**

Engineer: Zac Johnson EUT: Swish Hoop Temp: 24.1°C Humidity: 44%			Operating	Malta				
Temp: 24.1°C Humidity: 44%			Operating	Operating Voltage/Frequency: 3V D				
		Pressure: 1009mBar						
Frequency Range: 2402-2480 MHz	Measurem	nent Type: Conducted						
Notes:		T						
Frequency Peak Reading Cable Loss /	Attenuator Loss	Peak Output Power	Limit	Margin	Result			
(MHz) (dBm) (dB)	(dB)	(dBm)	(dBm)	(dB)	(Pass/Fai			
2402 -39.10 0.40	30.00	-8.70	30.0	-38.70	Pass			
2440 -41.70 0.40	30.00	-11.30	30.0	-41.30	Pass			
2480 -44.30 0.40	30.00	-13.90	30.0	-43.90	Pass			
Test Site: EMC-3 Cable: 2286 Cbl		At	tenuator: 2121 Pad					

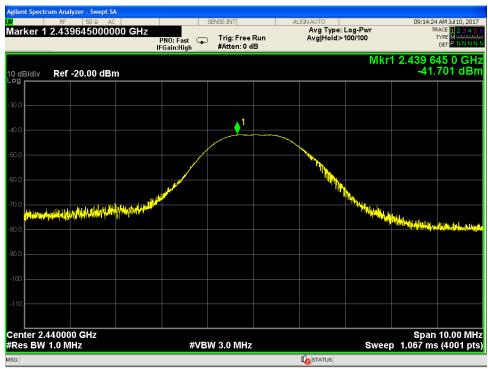
#### PLOTS



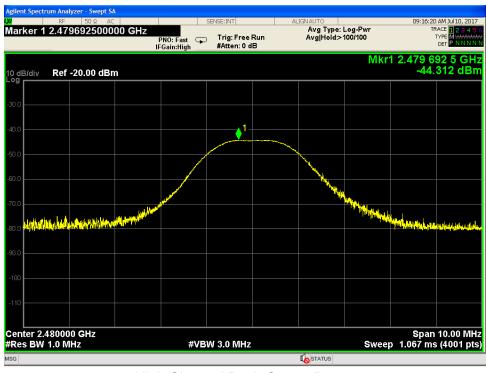
Low Channel Peak Output Power







Middle Channel Peak Output Power



High Channel Peak Output Power





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### Band Edge Measurements (Conducted and Radiated)

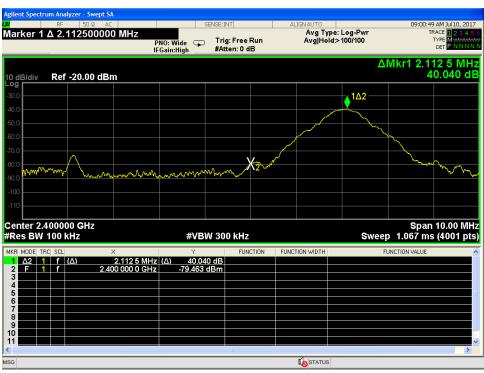
Limits: Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a). [15.247(d)]

#### **MEASUREMENTS / RESULTS**

#### Conducted:

	Cor	nducted Bandedge			
Date: 7/10/2017	Company: Shooter's To	buch LLC		Work Order	: R0779
Engineer: Zac Johnson	EUT: Swish Hoop		Operating Voltage	/Frequency	: 3V DC
Temp: 24.1°C	Humidity: 44%	Pressure: 1009mBa	ar		
Frequency Range: 24	402-2480 MHz	Measurement Type: Conducte Measurement Method: FCC KDE		uidance V04	
Notes:					
	Bandedge	Fundamental	Delta to Peak	Li	mit
	(dBm)	(dBm)	(dB)	(dB)	(Pass/Fail)
Low Bandedge	-79.5	-39.5	40.0	≥20	Pass
High Bandedge	-90.0	-45.4	44.6	≥20	Pass
Test Site: EMC-3	Cable: 2286 Cbl	Attenuate	or: 2121 Pad		
Analyzer: 1118470 SA				Copyright Curtis	Straus LLC 2000

#### PLOTS



Low Band Edge





				08:59:07 AM Jul 10, 2
	g: Free Run ten: 0 dB	Avg Type: Avg Hold>		TRACE 123 TYPE M
			ΔMkr	1 -3.440 0 M 44.614 (
<u>م</u>				
- Volume -				
- man	m	<u>,</u>	•••••••••••••••••	
#VBW 30	0 kHz		Sweep 1	Span 10.00 № .067 ms (4001 p
Y	FUNCTION	FUNCTION WIDTH	FUNCTI	ON VALUE
Hz (Δ) 44.614 dB				
-90.009 dBill				
		والمحصدية		
	Ш			
	#VBW 30	#VBW 300 kHz	#VBW 300 kHz #VBW 300 kHz	#Gain:High     #Atten: 0 dB       ΔMkr       ΔMkr       μ     μ       μ

High Band Edge





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#### Radiated:

Date:	27-Jun-17			Company:	Shooters 7	Fouch LLC	2					v	Vork Order	: R0779	
Engineer:	Chris Hamel			EUT Desc:	Swish Hoo	р				E	UT Opera	ting Voltage/	Frequency	: 3.3V DC	
Temp:	25.1°C			Humidity:	39%			Pressure: 1	008						
		Freque	ncy Range:	1-6GHz						M	leasureme	ent Distance:	3 m		
Notes:	Worst case or	ientation Y.	Band Edge								EL	JT Max Freq:			
Antenna		Peak	Average	Preamp	Antenna	Cable	Adjusted	Adjusted	FCC Class B	High Freq Peak	luency -	FCC Clas	ss B High F Average		
Polarization	Frequency	Reading	Reading	Factor	Factor	Factor	Peak Reading	Avg Reading	Limit N	argin	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/Fa	
н	2390.0	26.4	5.9	0.0	28.0	3.2	57.6	37.1		16.4	Pass	54.0	-16.9	Pass	
н	2366.7	27.0	5.7	0.0	28.0	3.2	58.2	36.9	-	15.8	Pass	54.0	-17.1	Pass	
н	2311.4	25.6	5.3	0.0	27.9	3.2	56.7	36.4	-	17.3	Pass	54.0	-17.6	Pass	
н	2488.1	26.18	5.8	0.0	28.3	3.2	57.7	37.3		16.3	Pass	54.0	-16.7	Pass	
Н	2483.5	24.91	5.6	0.0	28.2	3.2	56.3	37.0	74.0	17.7	Pass	54.0	-17.0	Pass	
Table	e Result:		Pass	by	-15.8	dB					И	orst Freq:	2366.7	MHz	
Test Site:	EMI Chamber	1		Cable 1:	Asset #20	51				Cable 2: A	Asset #205	4	Cable 3		
Analyzer:	2093			Preamp:		51					Asset #205 Drange Hor		Cable 3 Preselector		
Analyzer: Ssoft Radiate		alculator	v 1.017.188 ctor + Anten	Preamp:	none								Preselector		
Analyzer: Ssoft Radiate ijusted Read	2093 Id Emissions C ing = Reading 7 I <b>m Analyzers</b>	Calculator - Preamp Fa	ctor + Anten rs/Preseleo	Preamp: na Factor +	none	tor	<b>MN</b> N9038A	<b>Mfr</b> Agilent					Preselector Copyright Cur	: tis-Straus LLC	
Analyzer: Ssoft Radiate Ijusted Read	2093 ad Emissions C ing = Reading - 7 im Analyzers 2093 MX Radiated	alculator - Preamp Fa	ctor + Anten rs/Preseled siver	Preamp: na Factor +	none Cable Fac	ge .5GHz Code			SN	ntenna: C Asset	Drange Hor	n F	Preselector Copyright Cur Due Ca Due Ca	: tis-Straus LLC	
Analyzer: Ssoft Radiate Ijusted Read	2093 d Emissions C ing = Reading - 7 im Analyzers 2093 MXI Radiated EMI Ar	alculator • Preamp Fa • / Receiver E EMI Rece Emissions	ctor + Anten rs/Preseled siver	Preamp: na Factor +	none Cable Fac Ran 20Hz-26 FCC C	tor ge .5GHz Sode [50 ge	N9038A	Agilent	SN MY51210181 Range	Asset 2093 Asset	Cat I Cat	n F Calibration I 8/9/2017 Calibration I	Preselector Copyright Cur Due Ca Due Ca B Due Ca	: librated c 8/9/2016	
Analyzer: Ssoft Radiate Ijusted Read	2093 d Emissions C ing = Reading - 7 im Analyzers 2093 MXI Radiated EMI An Ora Ora Meteorol TH	Alculator Preamp Fa / Receiver E EMI Receiv	ctor + Anten rs /Preseled viver Sites ters	Preamp: na Factor +	Ran 20Hz-26 FCC C 7191 Ran	tor ge .5GHz Sode [50 ge	N9038A IC Code 2762A-6 MN 3115 MN HTC-1	Agilent VCCI Code A-0015 Mfr EMCO Mfr HDE	SN MY51210181 Range 1-18GHz SN 0004-6123 SN	Asset 2093 Asset 1685 Asset 390 Asset 2084	Cat I Cat I Cat I Cat I Cat I	n E Calibration I 8/9/2017 Calibration I 12/21/2013 Calibration I 10/13/2013 Calibration I 3/23/2018	Preselector Copyright Cur Due Ca 8 Ca 9 Due Ca 8 Ca 9 Due Ca 8 Ca 9 Ca	: is Straus LLC alibrated of alibrated of 12/21/2016 alibrated of 10/13/2016 alibrated of 3/23/2017	
Analyzer: Ssoft Radiate justed Read	2093 d Emissions C ing = Reading - 7 Im Analyzers 2093 MXI Radiated EMI Ar Ora Meteorol	Alculator Preamp Fa / Receiver E EMI Receiv	ctor + Anten rs /Preseled viver Sites ters	Preamp: na Factor +	Ran 20Hz-26 FCC C 7191 Ran	tor ge .5GHz Sode [50 ge	N9038A IC Code 2762A-6 MN 3115 MN HTC-1	Agilent VCCI Code A-0015 Mfr EMCO Mfr	SN MY51210181 Range 1-18GHz SN 0004-6123	Asset 2093 Asset 1685 Asset 390 Asset	Cat I Cat I Cat I Cat I Cat	n E Calibration I 8/9/2017 Calibration I 12/21/201: Calibration I 10/13/201: Calibration I	Preselector Copyright Cur Due Ca 8 Ca 9 Due Ca 8 Ca 9 Due Ca 8 Ca 9 Ca	: Ilibrated ( 8/9/2016 Ilibrated ( 12/21/2016 Ilibrated ( 10/13/2016	
Analyzer: Ssoft Radiate Jjusted Read	2093 d Emissions C ing = Reading - 7 im Analyzers 2093 MXI Radiated EMI An Ora Meteoroi TH Weather Clo	Alculator Preamp Fa / Receiver E EMI Receiv	ctor + Anten rs /Preseled viver Sites ters	Preamp: na Factor +	Ran 20Hz-26 FCC C 7191 Ran	ge .5GHz Code 50 ge GHz	N9038A IC Code 2762A-6 MN 3115 MN HTC-1	Agilent VCCI Code A-0015 Mfr EMCO Mfr HDE	SN MY51210181 Range 1-18GHz SN 0004-6123 SN	Asset 2093 Asset 1685 Asset 390 Asset 2084	Cat I Cat I Cat I Cat I Cat I	n E Calibration I 8/9/2017 Calibration I 12/21/2013 Calibration I 10/13/2013 Calibration I 3/23/2018	Due Ca Due Ca Due Ca Due Ca	: Ilibrated ( 8/9/2016 Ilibrated ( 12/21/2016 Ilibrated ( 10/13/2016 Ilibrated ( 3/23/2017	
Analyzer: Ssoft Radiate djusted Read	2093 d Emissions C ing = Reading 7 im Analyzers 2093 MXI Radiated EMI An Ora Meteorol Th Weather Clo	Alculator Preamp Fa A Receive E EMI Rece Emissions Chamber 1 ntennas inge Hom logical Me I A#2084 ck (Pressur	ctor + Anten rs /Preseled viver Sites ters	Preamp: na Factor +	Rone Cable Fac Ran 20Hz-26 FCC C 7191 Ran 1-180	ge .5GHz Sode 50 ge SHz	N9038A IC Code 2762A-6 MN 3115 MN HTC-1	Agilent VCCI Code A-0015 Mfr EMCO Mfr HDE Oregon Scientific	SN MY51210181 Range 1-18GHz SN 0004-6123 SN	Asset 2093 Asset 1685 Asset 390 Asset 2084	Cat I Cat I Cat I Cat I I I I	n E Calibration I 8/9/2017 Calibration I 12/21/2013 Calibration I 10/13/2013 Calibration I 3/23/2018 4/28/2018	Due Ca Due Ca Due Ca Due Ca	: IbsStraus LLC 8/9/2016 Ibibrated ( 2/21/2016 Ibibrated ( 3/23/2017 4/28/2016	

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





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### **Duty-Cycle Correction Factor**

Single Pulse: 2.5ms Time between pulses: 36.90s 0.0025/36.9 = 0.00677% DCCF = 20dB

Agilon	t Spectrum Analyzer - Swept SA				
IXI RI			AL 1	GN OFF	01:26:25 AM Jun 28, 2017
	ker 1 Δ 2.50000 ms PREAMP	PNO: Wide +++ Trig: F	Free Run n: 0 dB	Avg Type: Log-Pwr	TRACE 1 2 3 4 5 6 TYPE WWWWWW DET P S N N N N
10 dE Log	3/div Ref 66.99 dBµ\	v			ΔMkr1 2.500 ms 1.27 dB
					*
57.0					
47.0					
37.0					
27.0					
17.0					
6.99	lan dhe ne ee dika waai i wad daa	<sup>174</sup> กรรม เป็นเป็นเป็นเป็น เป็นเป็น เป็น เป็น เป็	Աստ նաշվերը հայուր	~~~	
-3.01	ո ո ուն, մեմում այի , միսոմ Բիմը տ, (	ี่ม เขีย£วิ่งว่าเรา ณิเราใหญ่ให้ได้ได้เข้างาว ะ เหมึ่วไหม่] ใจกะ	ց ֆոլի բեր    ոլիլիցերերինի	ore allinn−ok∥ona laller ore mark	19/1 <b>5</b> , 17, 19, 19/14/19/04, 19/14/19/14
-13.0					
-23.0					
	ter 2.440000000 GHz BW 100 kHz	#VBW 3.0 N	MHz	Sweep	Span 0 Hz 500.0 ms (1001 pts)
MSG				STATUS 🔀 Align Now, All	required

Single pulse





	PRESEL 50 Ω A	IC		SENSE:INT	A	ALIGN OFF AVg Type:	Log-Pwr		25 AM Jun 28, 20 TRACE 1 2 3 4 1
	PREAMP		PNO: Wide ↔ IFGain:High						DET P S N N
dB/div F	Ref 66.99 dBj	ν						ΔMk	r1 36.90 0.23 d
-			•	1Δ2					
□ <mark>                                    </mark>									
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99 <b></b>	material	maluprocessed	Hernalmonah	Kolmanata	municipation	the work and the second second	A HANNA HANNA	-	un durphik-photom
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nter 2.44 s BW 100	0000000 GHz ) kHz	<u> </u> 2	#VE	BW 3.0 MHz		1	Sw	reep 100.0	Span 0 I s (1001 pi
G						STATUS 🐼	Align Now,	•	· ·

Pulse Train





#### **Radiated Spurious Emissions**

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

#### **MEASUREMENTS / RESULTS**

Curtis Straus	s - a Burea	u Veritas C	ompany					Work Ord	er - R0779			
Radiated Em	nissions Ele	ectric Field	3m Distan	се				EUT Powe	r Input - 3\	/DC		
30-1000MHz	Tabular D	ata						Test Site -	Chamber	1		
Operator: Y	F							Temp; Hu	mid; Pres -	24.4°C; 37	RH; 1009Bar	
Center Char	nnel 2440N	1Hz										
EUT in Y-axis	s							EUT Maxir	num Frequ	iency - 248	0MHz	
All emission	ns more tha	an 20dB be	low the lin	nit.								
						Horizo	ontal					
												Worst
	QP	Preampli	Antenna	Cable		QP	Limit	Margin	Results	Antenna	Turntable	Margin
Frequency	Reading	fier Gain	Factor	Loss		Amplitude	Req. 1	Req. 1	Req. 1	Height	Azimuth	Limit 1
MHz	dBµV	dB	dB/m	dB		dBµV/m	dbµV/m	dB	pass/fail	centimete	degrees	dB
30.856	19.6	25.8	20.6	(	0.4	14.8	40	-25.2	PASS	225	205	-25.2
200.062	21.3	25.9	12.3		1	8.7	43.5	-34.9	PASS	124	139	
925.157	21.1	26.1	22.6		2	19.7	46	-26.4	PASS	125	178	
						Vert	ical					
												Worst
	QP	Preampli	Antenna	Cable		QP	Limit	Margin	Results	Antenna	Turntable	Margin
Frequency	Reading	fier Gain	Factor	Loss		Amplitude	Req. 1	Req. 1	Req. 1	Height	Azimuth	Limit 1
MHz	dBµV	dB	dB/m	dB		dBµV/m	dBµV/m	dB	pass/fail	centimete	degrees	dB
30.845	19.6	25.8	20.7	(	0.4	14.8	40	-25.2	PASS	124	202	-25.2
121.002	20	25.9	14.3	(	0.6	9	43.5	-34.5	PASS	207	209	
156.873	21.2	25.9	12.1		0.7	8.1	43.5	-35.5	PASS	198	157	
498.555	20.5	25.9	17.9		1.6	14.1	46	-32	PASS	125	42	
933.407	21.1	26.1	22.7		2	19.7	46	-26.4	PASS	126	13	

30-1000MHz

6/24/2017								
Spectrum Analyzers / Receivers / Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated or
2093 MXE EMI Receiver	20Hz-26.5GHz	N9038A	Agilent	MY51210181	2093	1	8/9/2017	8/9/2016
Radiated Emissions Sites	FCC Code	IC Code	VCCI Code	Range	Asset	Cat	Calibration Due	Calibrated or
EMI Chamber 1	719150	2762A-6	A-0015	1-18GHz	1685	1	12/21/2018	12/21/2016
Preamps /Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated or
Green	0.009-2000MHz	ZFL-1000-LN	CS	N/A	802	Ш	9/19/2017	9/19/2016
Antennas	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated or
Red-Brown Bilog	30-2000MHz	JB1	Sunol	A0032406	1218	1	1/13/2019	1/13/2017
Meteorological Meters		MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated o
TH A#2084		HTC-1	HDE		2084	- 11	3/23/2018	3/23/2017
Weather Clock (Pressure Only)		BA928	Oregon Scientific	C3166-1	831	1	4/28/2018	4/28/2016
Cables	Range		Mfr			Cat	Calibration Due	Calibrated o
Asset #2051	9kHz - 18GHz		Florida RF			Ш	3/5/2018	3/5/2017
Asset #2054	9kHz - 18GHz		Florida RF			Ш	10/30/3017	10/30/2016

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





	-					1			r		r –	r	r			1	1	1
Curtis Straus															er - R0779			
Radiated Em	hissions Ele	ectric Field	3m Distan	ce											er Input - 3	/DC		
1-6GHz														Test Site	- CH1			
Operator: CO	СН													Temp; Hu	mid; Pres	25.1°C; 38%	RH; 1008n	Bar
EUT in Y-axis	s																	
20dB DCCF a	pplied to	harmonics	for average	e readings										EUT Maxi	mum Frequ	ency - 2480	MHz	
Low Channe	l (2402MH	z)																
								Н	orizontal									
			Raw				Adjusted	Adjusted									Worst	Worst
	Raw Peak		Average	Preamp	Antenna	Cable	Peak	Average	Peak	Peak	Peak	Average	Average	Average	Antenna	Turntable	Peak	Average
Frequency	Reading	DCCF	Reading	Factor	Factor	Factor	Amplitude	Amplitude	Limit	Margin	Results	Limit	Margin	Results	Height	Azimuth	Margin	Margin
MHz	dBµV	dB	dBµV	dB	dB/m	dB	dBµV/m	dBµV/m	dBµV/m	dB	Pass/Fail	dBµV/m	dB	Pass/Fail	centimet	degrees	dB	dB
2308.6	19.9	0	11.4	0	27.9	3.2	51	42.4	74	-23	PASS	54	-11.5	PASS	104	175		
2365.8	20.8	0	11.5	0	28	3.2	51.9	42.7	74	-22	PASS	54	-11.3	PASS	125	17		
4804.5	21.1	-20	1.1	0	33	4.8	58.8	38.8	74	-15.2	PASS	54	-15.2	PASS	207	71	-15.2	
5902.4	17.5	0	9.3	0	34	5.9	57.5	49.3	74	-16.5	PASS	54	-4.7	PASS	188	69		-4.7
								· ·	/ertical									
			Raw				Adjusted	Adjusted									Worst	Worst
	Raw Peak		Average	Preamp	Antenna	Cable	Peak	Average	Peak	Peak	Peak	Average	Average	Average	Antenna	Turntable	Peak	Average
Frequency	Reading	DCCF	Reading	Factor	Factor	Factor	Amplitude	Amplitude	Limit	Margin	Results	Limit	Margin	Results	Height	Azimuth	Margin	Margin
No emission	ns found																	
							4	GHz-	CU-									
							I	GUT-	SGП2		/							
					-													
Curtis Strau			. /											Vork Orde				
Radiated Er	missions E	lectric Fie	ld 3m Dist	ance											Input - 3V	DC		
1-6GHz														'est Site - O				
Operator: C	СН												Т	emp; Hum	nid; Pres -	25.1°C; 38%	RH; 1008n	nBar
Mid Channe	el (2440M	Hz)																
EUT in Y-axi	is												E	UT Maxim	um Frequ	ency - 2480I	MHz	

Curtis Strau	us - a Burea	u Veritas (	Company										Work Ord	er - R0779			
Radiated Er	missions El	ectric Field	d 3m Dista	nce									EUT Powe	r Input - 3\	/DC		
1-6GHz													Test Site -	CH1			
Operator: C	ССН												Temp; Hu	mid; Pres -	25.1°C; 389	6RH; 1008n	nBar
Mid Channe	el (2440MF	łz)															
EUT in Y-axi	is												EUT Maxir	num Frequ	uency - 2480	)MHz	
								Horizor	ntal								
		Raw				Adjusted	Adjusted									Worst	Worst
	Raw Peak	Average	Preamp	Antenna	Cable	Peak	Average	Peak	Peak	Peak	Average	Average	Average	Antenna	Turntable	Peak	Average
Frequency	Reading	Reading	Factor	Factor	Factor	Amplitude	Amplitude	Limit	Margin	Results	Limit	Margin	Results	Height	Azimuth	Margin	Margin
MHz	dBµV	dBµV	dB	dB/m	dB	dBµV/m	dBµV/m	dBµV/m	dB	Pass/Fail	dBµV/m	dB	Pass/Fail	centimete	degrees	dB	dB
3589.8	20.9	12	0	31.5	4	56.4	47.4	74	-17.6	PASS	54	-6.6	PASS	125	266		
5687.3	18	9	0	33.8	6.2	58	49.1	74	-16	PASS	54	-4.9	PASS	290	186	-16	-4.9
								Vertic	al								
		Raw				Adjusted	Adjusted									Worst	Worst
	Raw Peak	Average	Preamp	Antenna	Cable	Peak	Average	Peak	Peak	Peak	Average	Average	Average	Antenna	Turntable	Peak	Average
Frequency	Reading	Reading	Factor	Factor	Factor	Amplitude	Amplitude	Limit	Margin	Results	Limit	Margin	Results	Height	Azimuth	Margin	Margin
No emissio	ons found																

1GHz-6GHz Mid





Curtis Strau	is - a Burea	u Veritas C	Company						er - R0779
Radiated Er	nissions Ele	ectric Field	l 3m Distan	ice			EUT	F Power Inp	out - 3VDC
1-6GHz								Test	Site - CH1
Operator: C	СН				Tem	p; Humid; I	۲es - 25.1°	°C; 38%RH;	1008mBar
High Chann	el (2480MF	lz)				EUT N	/laximum F	requency	2480MHz
EUT in Y-axi	is. Peak em	issions me	eet average	e limits.					
				Vert	ical				
Frequency	Raw Peak Reading	Preamp Factor	Antenna Factor	Cable Factor	Adjusted Peak Reading	Average Limit	Delta to Average Limit	Test Result	Worst Margin
MHz	dBµV	dB	dB/m	dB	dBµV/m	dBµV/m	dB	Pass/Fail	dB
2557	17.9	0	28.6	3.3	49.7	54	-4.2	PASS	
3534.75	14.8	0	31.3	3.9	50	54	-4	PASS	
5945.38	12.6	0	34.1	5.9	52.5	54	-1.4	PASS	-1.4
				Horizo	ontal				
Frequency	Raw Peak Reading	Preamp Factor	Antenna Factor	Cable Factor	Adjusted Peak Reading	Average Limit	Delta to Average Limit	Test Result	Worst Margin
MHz	dBµV	dB	dB/m	dB	dBµV/m	dBµV/m	dB	Pass/Fail	dB
2556.5	16.9	0	28.6	3.3	48.7	54	-5.2	PASS	
3598.25	14.4	0	31.5	4	49.9	54	-4.1	PASS	
5633.88	12	0	33.8	6	51.8	54	-2.2	PASS	-2.2
				1GH7-6G	Hz High				

1GHz-6GHz High

Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
20Hz-26.5GHz	N9038A	Agilent	MY51210181	2093	1	8/9/2017	8/9/2016
FCC Code	IC Code	VCCI Code	Range	Asset	Cat	Calibration Due	Calibrated on
719150	2762A-6	A-0015	1-18GHz	1685	Т	12/21/2018	12/21/2016
Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
1-18GHz	3115	EMCO	0004-6123	390	1	10/13/2018	10/13/2016
	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
	HTC-1	HDE		2084	Ш	3/23/2018	3/23/2017
	BA928	Oregon Scientific	C3166-1	831	1	4/28/2018	4/28/2016
Range		Mfr			Cat	Calibration Due	Calibrated on
9kHz - 18GHz		Florida RF			Ш	3/5/2018	3/5/2017
9kHz - 18GHz		Florida RF			1	10/30/3017	10/30/2016
	20Hz-26.5GHz FCC Code 719150 Range 1-18GHz	20Hz-26.5GHz         N9038A           FCC Code         IC Code           719150         2762A-6           Range         MN           1-18GHz         3115           MN         HTC-1           BA928         HTC-1           Range         MN	20Hz-26.5GHz         N9038A         Agilent           FCC Code         IC Code         VCCI Code           719150         2762A-6         A-0015           Range         MN         Mfr           1-18GHz         3115         EMCO           MN         Mfr           1-18GHz         3115         EMCO           MN         Mfr           Grade         BA928         Oregon Scientific           Manage         Mfr         HTC-1           HDE         BA928         Oregon Scientific           Manage         Mfr         HTC-1           BA928         Florida RF         Scientific	20Hz-26.5GHz         N9038A         Agilent         MY51210181           FCC Code         IC Code         VCCI Code         Range           719150         2762A-6         A-0015         1-18GHz           Range         MN         Mfr         SN           1-18GHz         3115         EMCO         0004-6123           0         MN         Mfr         SN           1-18GHz         3115         EMCO         0004-6123           0         MN         Mfr         SN           HTC-1         HDE             BA928         Oregon Scientific         C3166-1           Range         Mfr             9kHz - 18GHz         Florida RF	20Hz-26.5GHz         N9038A         Agilent         MY51210181         2093           FCC Code         IC Code         VCCI Code         Range         Asset           719150         2762A-6         A-0015         1-18GHz         1685           Range         MN         Mfr         SN         Asset           1-18GHz         3115         EMCO         0004-6123         390           MN         Mfr         SN         Asset           1-18GHz         3115         EMCO         0004-6123         390           MN         Mfr         SN         Asset           MN         Mfr         SN         Asset           MR         Oregon Scientific         C3166-1         2084           BA928         Oregon Scientific         C3166-1         400           Kange         Mfr         Florida RF         400	20Hz-26.5GHz         N9038A         Agilent         MY51210181         2093         I           FCC Code         IC Code         VCCI Code         Range         Asset         Cat           719150         2762A-6         A-0015         1-18GHz         1685         I           Range         MN         Mfr         SN         Asset         Cat           1-18GHz         3115         EMCO         0004-6123         390         I	20Hz-26.5GHz         N9038A         Agilent         MY51210181         2093         I         8/9/2017           FCC Code         IC Code         VCCI Code         Range         Asset         Cat         Calibration Due           719150         2762A-6         A-0015         1-18GHz         1685         I         12/21/2018           Range         MN         Mfr         SN         Asset         Cat         Calibration Due           1-18GHz         3115         EMCO         0004-6123         390         I         10/13/2018           1-18GHz         MN         Mfr         SN         Asset         Cat         Calibration Due           1-18GHz         MS         Oregon Scientific         C3166-1         81         I         4/28/2018           1-18GHz         Graph Scientific         C3166-1         81         1         4/28/2018

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





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Curtis Stra	ius - a Burea	u Veritas C	ompany									Work Ord	er - R0779					
Radiated E	Emissions Ele	ectric Field	1m Distan	ice								EUT Powe	r Input - 3\	/DC				
6-18GHz Ta	abular Data											Test Site -	Chamber	1				
Operator:	YF											Temp; Hu	mid; Pres -	24.4°C; 37	%RH; 1009	mBar		
EUT in Y-a	xis																	
20dB DCCF	Fapplied to	harmonics.	. No other	emissior	ns detected	i.						EUT Maxir	num Frequ	uency - 248	OMHz			
			Raw	Preamp			Adjusted	Adjusted									Worst	Worst
Antenna		Raw Peak	Average	lifier	Antenna	Cable	Peak	Average	Peak	Peak	Peak	Average	Average	Average	Antenna	EUT	Peak	Average
Polarity	Frequency	Reading	Reading	Factor	Factor	Factor	Amplitude	Amplitude	Limit	Margin	Results	Limit	Margin	Results	Height	Azimuth	Margin	Margin
H/V	MHz	dBµV	dBµV	dB	dB	dB	dBµV/m	dBµV/m	dBµV/m	dB	Pass/Fail	dBµV/m	dB	Pass/Fail	cm	degrees	dB	dB
								Low Cha	annel 2402	MHz								
н	7206	12.5	-7.5	0	37.2	7.1	56.8	36.8	83.5	-26.7	PASS	63.5	-26.7	PASS	150	158	-26.7	-26.7
V	7206	13.4	-6.6	0	37.2	7.1	57.7	48.9	83.5	-25.8	PASS	63.5	-25.8	PASS	185	212	-25.8	-25.8
								Center Cl	nannel 244	0MHz								
н	7320	15.1	-4.9	0	37.6	7.1	59.7	39.7	83.5	-23.8	PASS	63.5	-23.8	PASS	186	0	-23.8	-23.8
V	7320	9.8	-10.2	0	37.6	7.1	54.4	34.4	83.5	-29.1	PASS	63.5	-29.1	PASS	100	47	-29.1	-29.1
								High Ch	annel 2480	MHz								
н	7440	14	-6	0	37.5	7.2	58.8	38.8	83.5	-24.7	PASS	63.5	-24.7	PASS	175	8	-24.7	-24.7
V	7440	8.7	-11.3	0	37.5	7.2	53.5	33.5	83.5	-30	PASS	63.5	-30	PASS	100	90	-30	-30

6GHz-18GHz

. 6/24/2017								
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	1	8/9/2017	8/9/2016
Radiated Emissions Sites	FCC Code	IC Code	VCCI Code	Range	Asset	Cat	Calibration Due	Calibrated or
EMI Chamber 1	719150	2762A-6	A-0015	1-18GHz	1685	1	12/21/2018	12/21/2016
Antennas	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Orange Horn	1-18GHz	3115	EMCO	0004-6123	390	Т	10/13/2018	10/13/2016
Meteorological Meters		MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated or
TH A#2084		HTC-1	HDE		2084	Ш	3/23/2018	3/23/2017
Weather Clock (Pressure Only)		BA928	Oregon Scientific	C3166-1	831	1	4/28/2018	4/28/2016
Cables	Range		Mfr			Cat	Calibration Due	Calibrated or
Asset #2051	9kHz - 18GHz		Florida RF			Ш	3/5/2018	3/5/2017
Asset #2054	9kHz - 18GHz		Florida RF			Ш	10/30/3017	10/30/2016

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





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#### Test Report for Shooter's Touch LLC • Report No. ER0779-1 September 13, 2018

Date	28-Jun-17			Company:	Shooters To	ouch LLC	2					v	Vork Orde	er: R0779
Engineer:	YF			EUT Desc:	Model: SHN	ISM01				E	UT Opera	ting Voltage/	Frequenc	y: 3VDC
Temp:	25.1C			Humidity:	38%			Pressure: 10	08mbar					
		Freque	ncy Range:	18-25GHz						м	leasureme	ent Distance:	0.1m	
Notes	Center channe	el (2440MHz)	)								EU	JT Max Freq:	2480MHz	
Antenna		Peak	Average	Preamp	Antenna	Cable	Adjusted	djusted	FCC Class B H Po	gh Freq ak	uency -	FCC Clas	s B High Averag	Frequency · e
Polarization (H/V)	Frequency (MHz)	Reading (dBµV)	Reading (dBµV)	Factor (dB)	Factor (dB/m)	Factor (dB)		g Reading dBµV/m)		r <b>gin</b> iB)	Result (Pass/Fail)	Limit (dBµV/m)	Margin (dB)	Result (Pass/Fa
No emissions f	ound													
Tabl	e Result:	II		by	d	∄B					W	/orst Freq:	-	MHz
Analyzer:	EMI Chamber Gold				EMIR-HIGH- 18-26.5GHz					ible 2: tenna: 1	8-26.5GHz	Horn F	Cable Preselecto	or:
	ed Emissions C ling = Reading		v 1.017.168 ctor + Anten		Cable Facto								Copyright C	urtis-Straus LLC
					Cable Facto		8GHz-250	θHz					Copyright C	urtis-Straus LLC
Adjusted Read	ing = Reading 7 Im Analyzers	- Preamp Fa	ctor + Anten	na Factor + ors	Cable Facto Range 100Hz-26.5 (	1	8GHz-250 MN E4407B	GHZ Mfr Agilent	<b>SN</b> MY45113816	<b>Asset</b> 1284	: Cat	<b>Calibration</b> 2/28/2018	Due (	
Adjusted Read	ing = Reading 7 Im Analyzers Chambers	- Preamp Fa	ctor + Anten s/Preselect	na Factor + ors	Range	1	MN	Mfr		1284 Asset	I		Due ( 3 Due (	Calibrated c
Adjusted Read	ing = Reading 7 Im Analyzers Chambers EMIC An	• Preamp Fa / Receivers Gold s and Stripl	ctor + Anten s/Preselect	na Factor + ors	Range	1 <sub>GHz</sub>	MN E4407B MN	Mfr Agilent Mfr	MY45113816 SN J1173 - 0002A SN	1284 Asset	I Cat	2/28/2018 Calibration	Due ( 3 Due ( tems Se Due (	Calibrated of 2/28/2017 Calibrated of
djusted Read ev. 6/24/201 Spectru	ing = Reading 7 Im Analyzers Chambers EMI ( An HF (M Imps /Couple)	<ul> <li>Preamp Fa</li> <li>/ Receivers</li> <li>Gold</li> <li>and Stripl</li> <li>Chamber 1</li> <li>Chamber 1</li> <li>tennas</li> <li>/hite) Horn</li> </ul>	ctor + Anten s/Preselect	na Factor + ors	Range 100Hz-26.5 ( Range	1 GHz łz	MN E4407B MN DRS2014X8LH MN	Mfr Agilent Mfr ETS Mfr Waveline Mfr	MY45113816 SN J1173 - 0002A SN	1284 Asset 1685 Asset	Cat I Cat II	2/28/2018 Calibration See RFI Syst Calibration	Due ( 3 Due ( tems Se Due ( Use ( Due (	Calibrated of 2/28/2017 Calibrated of ee RFI Syste Calibrated of
djusted Read ev. 6/24/201 Spectru	ing = Reading 7 m Analyzers Chambers EMIC An HF (M HF C C C	<ul> <li>Preamp Fa</li> <li>/ Receivers</li> <li>Gold</li> <li>and StripI</li> <li>Chamber 1</li> <li>tennas</li> <li>/hite) Hom</li> <li>rs Attenuate</li> </ul>	ctor + Anten s/Preselect	na Factor + ors	Range 100Hz-26.5 ( Range 18-26.5GH Range	1 GHz Hz A	MN E4407B MN DRS2014X8LH MN 801-WLM MN	Mfr Agilent Mfr ETS Mfr Waveline Mfr	MY45113816 SN J1173 - 0002A SN 758 SN	1284 Asset 1685 Asset 758 Asset	Cat I Cat II III	2/28/2018 Calibration See RFI Syst Calibration Verify before Calibration	Due ( 3 Due ( tems Se Due ( 7 Due (	Calibrated of 2/28/2017 Calibrated of ee RFI Syste Calibrated of date of test Calibrated of
Adjusted Read Rev. 6/24/201 <sup>°</sup> Spectru	ing = Reading 7 m Analyzers Chambers EMIC An HF (M mps /Couples HF C REM	V Receivers Gold S and Stripl Chamber 1 tennas /hite) Hom rs Attenuate (Yellow) ables	ctor + Anten s/Preselect ine ors / Filters	na Factor + ors	Range 100Hz-26.5 ( 18-26.5GH Range 18-26.5GH Range	1 GHz Hz A	MN E4407B MN DRS2014X8LH MN 801-WLM MN FS4-18002650-60-8J	Mfr Agilent Mfr ETS Mfr Waveline P-4 CS Mfr	MY45113816 SN J1173 - 0002A SN 758 SN	1284 Asset 1685 Asset 758 Asset	i Cat II E Cat II Cat II	2/28/2018 Calibration See RFI Syst Calibration Verify before Calibration 9/16/2017 Calibration	Due ( 3 Due ( tems Se Due ( 7 Due ( 7 Due ( 7 Due (	Calibrated 2/28/2017 Calibrated are RFI Syst Calibrated date of tes Calibrated 9/16/2016 Calibrated

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





### **Conducted Spurious Emissions**

Limits: In any 100kHz 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. [15.247(d)]

#### **MEASUREMENTS / RESULTS**

9kHz to 25GHz frequency range was investigated for 3 channels (low, middle and high) and no emissions within 20dB of their corresponding fundamentals were observed.



9kHz-25GHz Conducted Spurious (Low channel)





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9kHz-25GHz Conducted Spurious (Mid channel)



9kHz-25GHz Conducted Spurious (High channel)





#### **Power Spectral Density**

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

#### **MEASUREMENTS / RESULTS**

Date: 7/10/2017	Company:	Shooter's Touch	h LLC			Work Order:	R0779
Engineer: Zac Johnso	on EUT:	Swish Hoop		Oper	ating Voltage	/Frequency:	3V DC
Temp: 24.1°C	Humidity:	44%	Pressure: 1009mBar				
Frequency Range:	2402-2480 MHz	Measurer	nent Type: Conducted	1			
Notes:							
NOLES.					1	1 1	
Frequency	Peak Reading	Cable Loss	Attenuator Loss	Peak PSD	Limit	Margin	Result
(MHz)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)	
2402	-51.30	0.40	30.00	-20.90	8.0	-28.90	Pass
2440	-53.60	0.40	30.00	-23.20	8.0	-31.20	Pass
2480	-58.30	0.40	30.00	-27.90	8.0	-35.90	Pass
est Site: EMC-3	Cable:	2286 Cbl		Attenuator:	2121 Pad		
Analyzer: 1118470 S		2200 001		Allenuator:	2121 Pau		

#### PLOTS



Low Channel PSD







#### Middle Channel PSD



High Channel PSD





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### Occupied Bandwidth

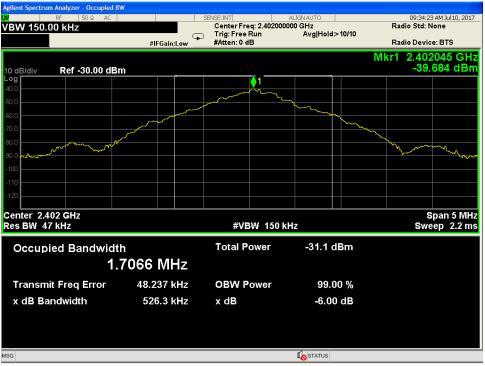
Requirement: When an occupied bandwidth is not specified in the applicable RSS, the transmitted signal bandwidth to be reported is its 99% emission bandwidth, as calculated or measured. [RSS-GEN 6.6]

[RSS-GEN 6.6]

#### **MEASUREMENTS / RESULTS**

	99	9% Occupied Bandwidth	
Date: 7/10/2017	Company: Shooter's To	puch LLC	Work Order: R0779
Engineer: Zac Johnson	EUT: Swish Hoop	)	Operating Voltage/Frequency: 3V DC
Temp: 24.1°C	Humidity: 44%	Pressure: 1009mBar	
Frequency Range: 2402	-2480 MHz	Measurement Type: Conducted	
Notes:			
Frequency		99% OBW	
(MHz)		(MHz)	
2402		1.7066	
2440		1.7922	
2480		1.7273	
Test Site: EMC-3	Cable: 2286 Cbl	Attenuator: 2121 Pad	
Analyzer: 1118470 SA			Copyright Curtis-Straus LLC

#### PLOTS

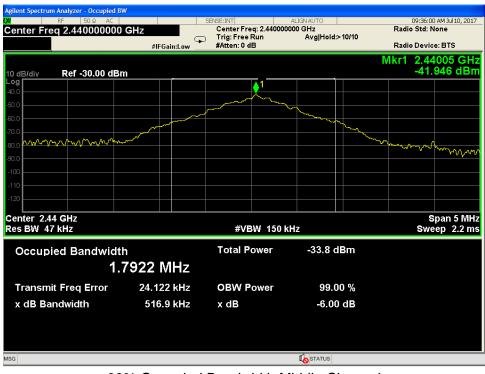


99% Occupied Bandwidth Low Channel





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99% Occupied Bandwidth Middle Channel



99% Occupied Bandwidth High Channel





#### Measurement Uncertainty

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

Measurement	Expanded Uncertainty k=2	Maximum allowable uncertainty
Radiated Emissions (30-1000MHz) NIST	5.6dB	N/A
CISPR	4.6dB	5.2dB (Ucispr)
Radiated Emissions (1-26.5GHz)	4.6dB	N/A
Radiated Emissions (above 26.5GHz)	4.9dB	N/A
Magnetic Radiated Emissions	5.6dB	N/A
Conducted Emissions NIST CISPR	3.9dB 3.6dB	N/A 3.6dB (Ucispr)
Telco Conducted Emissions (Current)	2.9dB	N/A
Telco Conducted Emissions (Voltage)	4.4dB	N/A
Electrostatic Discharge	11.5%	N/A
Radiated RF Immunity (Uniform Field)	1.6dB	N/A
Electrical Fast Transients	23.1%	N/A
Surge	23.1%	N/A
Conducted RF Immunity	3dB	N/A
Magnetic Immunity	12.8%	N/A
Dips and Interrupts	2.3V	N/A
Harmonics	3.5%	N/A
Flicker	3.5%	N/A
Radio frequency (@ 2.4GHz)	3.23 x 10 <sup>-8</sup>	1 x 10 <sup>-7</sup>
RF power, conducted	0.40dB	0.75dB
Maximum frequency deviation: • Within 300Hz and 6kHz of audio frequency / Within 6kHz and 25kHz of audio frequency	3.4% 0.3dB	5% 3dB
Adjacent channel power	1.9dB	3dB
Conducted spurious emission of transmitter, valid up to 12.75GHz	2.39dB	3dB
Conducted emission of receivers	1.3dB	3dB
Radiated emission of transmitter, valid up to 26.5GHz	3.9dB	6dB
Radiated emission of transmitter, valid up to 80GHz	3.3dB	6dB
Radiated emission of receiver, valid up to 26.5GHz	3.9dB	6dB
Radiated emission of receiver, valid up to 80GHz	3.3dB	6dB
Humidity	2.37%	5%
Temperature	0.7°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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### **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.

The Company disclaims any and all responsibility or liability arising out of or in connection with e-mail transmissions of such information.
 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.
 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 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. CLIÉNT 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 TESTED GOODS. 14. EXCEPT AS MAY OTHERWISE BE EXPRESSLY AGREED TO IN WRITING BY THE COMPANY AND NOTWITHSTANDING ANY

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.





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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 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. Rev.160009121(2)\_#684340 v14CS





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