



FOR THE SCOPE OF ACCREDITATION UNDER NVLAP LAB CODE 500051-0

## **TEST REPORT #290817**

**STANDARD: FCC PART 15**

**SUBPART C--INTENTIONAL RADIATORS**

**SECTION 15. 247 OPERATION WITHIN THE BANDS 902-928 MHZ,  
2400-2483.5 MHZ, AND 5725-5850 MHZ**

**EQUIPMENT TESTED:**

**INSTINCT PERFORMANCE, LLC**

**SPORT TRAINING EYEWARE**

**FCC ID: 2ANPQ-REV**

**MODELS: 001 AND 002**

**TEST DATE: 29 AUGUST 2017**

1100 Falcon Avenue  
Glencoe, MN 55336



Tele: 320-864-4444  
Fax: 320-864-6611

**Prepared for:** Instinct Performance, LLC  
14301 Caliber Dr, Suite 100  
Oklahoma City, OK 73134

**Test agent:** International Certification Services, Inc.  
1100 Falcon Avenue  
Glencoe, MN 55336  
Tele: 320-864-4444  
Fax: 320-864-6611

**Test location:** International Certification Services, Inc.  
1100 Falcon Avenue  
Glencoe, MN 55336  
Tele: 320-864-4444  
Fax: 320-864-6611

**Prepared by:** International Certification Services, Inc.  
1100 Falcon Avenue  
Glencoe, MN 55336

International Certification Services represents to the client that testing is done in accordance with standard procedures applicable and that reported test results are accurate within generally accepted commercial ranges of accuracy.

- 1.0** This report only applies to the specific samples tested under stated test conditions. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. International Certification Services shall have no liability for any deductions, inferences or generalizations drawn by the client or others from this report.

This report is the confidential property of the client. As a mutual protection to our clients, the public and ourselves, extracts from the test report shall not be reproduced except in full without our written approval.

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2.0 TEST SUMMARY

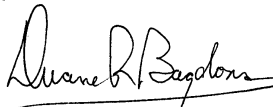
<b>TEST REPORT:</b> #290817	
<b>COMPANY:</b>	Instinct Performance, LLC
<b>AGENT:</b>	International Certification Services, Inc.
<b>PHONE:</b>	320-864-4444
<b>TEST DATE:</b>	29 August, 2017
<b>EQUIPMENT UNDER TEST:</b>	2400-2483.5 Mhz Training Eyeware Models: 001 (Sport) and 002 (Tactical)
<b>GENERAL TEST SUMMARY:</b> The testing was performed at International Certification Services, Inc. at 1100 Falcon Ave, Glencoe, MN 55336	
<b>VERIFICATION / CERTIFICATION STATUS:</b>	The 2400 – 2483.5 Mhz Training Eyeware Models: 001 (Sport) and 002 (Tactical) was found to be in compliance with the FCC Part 15 Subpart C, Section 15.247 requirements.
<b>MODIFICATIONS NECESSARY:</b>	None

TESTED BY

Duane R. Bagdons

WRITTEN BY

Duane R. Bagdons



### 3.0 Applicable Standards

47 CFR Ch.1 (10-1-98 Edition)

FCC Part 15 Radio Frequency Devices

Subpart C Intentional Radiators

Section 15.247 Operation within the bands 902-928 Mhz, 2400-2483.5 Mhz and 5725-5850 Mhz.

### 4.0 Referenced Standards

ANSI C63.4-2014 Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 Khz to 40 Ghz.

FCC DA- 00-705 Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems

ANSI C63.4-2014 American National Standard for Methods of Measurement of Radio Noise Emissions from Low Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 Ghz

ANSI C63.10-2013 American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices, Section 11

FCC KDB 447498 D01 RF Exposure Procedures and Equipment Authorization Policies for Mobile and Portable Devices.

**FCC KDB 558074 D01 DTS Meas Guidance v04**

### 5.0 Equipment Units Tested

The equipment tested was a battery and AC powered 2400 to 2483.5 MHz transmitter. AC power comes from a plug in wall wart type USB charger. The product is typically used only with the internal battery power but the battery can be charged from the AC public Mains during operation so the unit was tested with AC power applied to it. The antenna is an integrated chip soldered onto the PC board. The Antenna is a Model: W3008 Ceramic Chip Antenna made by Pulse Finland Oy. The gain of the antenna is specified at 1.7 peak dBi. This device uses a Cypress Semiconductor Corporation Model: CY8C4248LQI-BL483 for the Bluetooth Transceiver circuitry. The physical layer consists of the digital PHY and the RF transceiver that transmits and receives GFSK packets at 1 Mbps over a 2.4-GHz ISM band, which is compliant with the Bluetooth Smart Bluetooth Specification 4.1. It is a frequency hopping circuit that uses 40 channels. There are two different models of the Sport Training Eyeware namely Model 001 and Model: 002. Model: 001 is called the Sport Training Goggles and Model: 002 is the Tactical Goggles. The Sport Training Goggles was a normal configured product and the Tactile Goggles was programmed to provide the special test sequences that were required to test to the FCC 15.247 requirements. All of the testing for this report were performed on the Tactile Goggles Model: 002. The differences between the two models is as follows:

Model: 002 has a matte finish applied to the plastic molded parts while the Model: 001 has a gloss finish

Model 002 comes with ear stems (like normal glasses) while the Model: 001 comes with straps that go behind the head. Both the stems and the straps are field swappable by the user.

Model: 002 has amber colored lenses, while the Model: 001 has grey colored lenses

Model: 002 has slightly different frequencies and duty cycles for lens flickering than does the Model: 001. This is firmware modifications only, all electronics in both models are identical.

## 6.0 Equipment and Cable Configuration

See photo of the EUT test configuration setup in Attachment A

## 7.0 List of Test Equipment

<u>Test Equipment</u>	<u>Model</u>	<u>S/N</u>	<u>Next Calibration</u> <u>Date</u>
Spectrum Analyzer	Hewlett-Packard 8566B	2421A00458	
Preamp	MiniCircuits ZKL-2R7	N/A	04/07/18
Preamp	Comlilnear Corporation CLC-102	22773	12/26/18
Preamp	Nextec NB00391	378	01/09/18
Loop Antenna	Electrometrics ALP-11 / EM-6870	286	06/22/19
Loop Antenna	EMCO 6512	8912-1074	06/01/18
Biconical Antenna	AH Systems Model SAS- 200/540	328	06/01/18
Log Periodic Antenna (200-1000 MHz)	EMCO 3146	9111-3280	04/17/18
Horn Antenna (1-18 Ghz)	EMCO 3115	5697	04/17/18
Horn Antenna (3.95-5.85 Ghz)	Systron Donner DBK-520- 15		08/17/18
Horn Antenna (5.4-8.2 Ghz)	Narda 642	207	05/26/18
Horn Antenna (8.2-12.4 Ghz)	Scientific Atlanta 8.2-12.4	1172	05/26/18
Horn Antenna (12.4-18 Ghz)	Alpha Industries 61932400	30	05/26/18
Horn Antenna (18-26 Ghz)	Alpha Industries 61932500	55	05/26/18

All equipment is on a 2 year calibration cycle  
Measurement cable losses, and antenna correction factors are included in the data sheets.

8.0 Units of Measurement.

All field strength measurements were recorded in dBuV/m with the antenna located at 3 meters distance from the EUT. Frequency measurements are recorded in Mhz

9.0 Location of Test Site

The open area test site (OATS) measurement facility used to collect the data was International Certification Services, Inc. at 1100 Falcon Ave in Glencoe, MN 55336. This site has been certified to be in spec of the normalized site attenuation per ANSI C63.4-2014.

10.0 Measurement Procedures

The antenna was placed at a distance of 3 meters from the EUT. The EUT was set on an insulating table in the OATS site and rotated through 360 degrees to determine the worst case EUT orientation. The antenna was then positioned vertical and horizontal to determine which antenna polarity orientation was worst case. Then certification data was recorded at all the transmitter frequencies from the fundamental to the 10<sup>th</sup> harmonic at an antenna height variation of from 1-4 meters.

11.0 Reporting Measurement Data

See data sheets and plots in Attachment B.

12.0 Radiated Emissions Data

The frequency and amplitude of the tuned frequency of the EUT along with the frequencies and amplitudes of the harmonics up to the 10<sup>th</sup> harmonic are reported in the data sheets in Attachment B. This information is plotted against the limit of section 15.247 of FCC Part 15 subpart C. Both Horizontal and Vertical antenna polarities as well as antenna heights of 1 to 4 meters were observed but all maximum signal strengths occurred in the Horizontal antenna polarity and at 1 meter antenna height.

The Final Level, expressed in dBuV/m, is arrived at by taking the reading from the spectrum analyzer (Level dBuV) and adding the antenna correction factor and cable loss factor (Factor dB) and subtracting the preamp gain. This result then has the FCC limit subtracted from it to provide the margin which gives the tabular data as shown in the data sheets in Attachment B.

Example:

<u>Frequency</u>	<u>Level</u>	+	<u>Factor</u>	=	<u>Corr Data</u>	-	<u>FCC Limit</u>	=	<u>Margin</u>
<u>(MHz)</u>	<u>(dBuV)</u>	+	<u>(dB)</u>	=	<u>(dBuV/m)</u>	-	<u>(dBuV/m)</u>	=	<u>(dB)</u>
100.0	20.6	+	11.0	=	31.6	-	43.5	=	-11.9

13.0 Summary of Results

The EUT passed the requirements of FCC Part 15 Subpart C, Section 15.247 with a maximum Field Strength of 93.37 dBuV/m (which relates to a Maximum Power Output of 370 uW using the conversion formula in FCC DA-00-705) at the fundamental frequency of

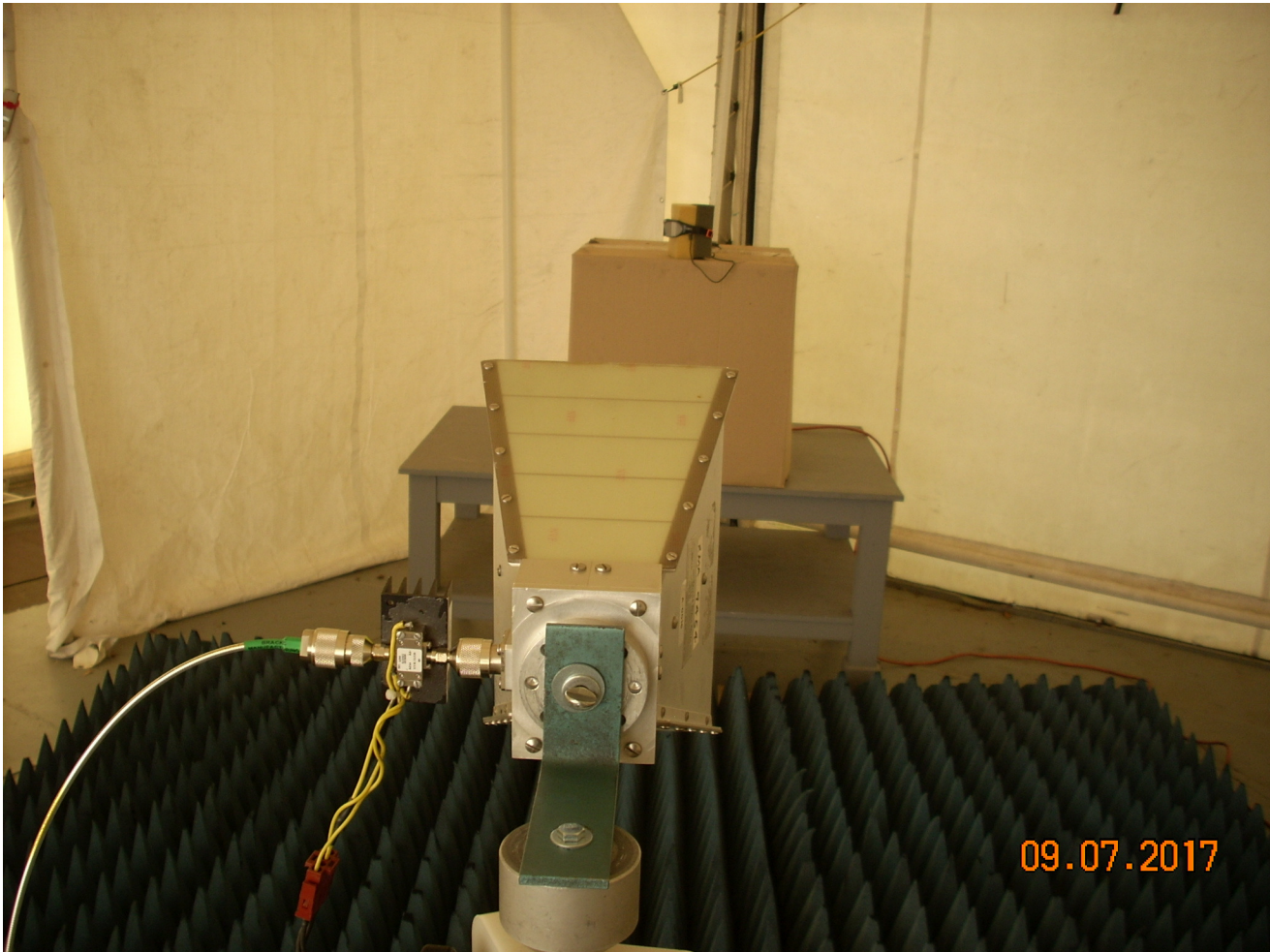
2479.78 Mhz against a limit of 125 mWatt. No modifications were necessary to accomplish this compliance.

The 20 dB Bandwidth was measured to be 1.57 Mhz

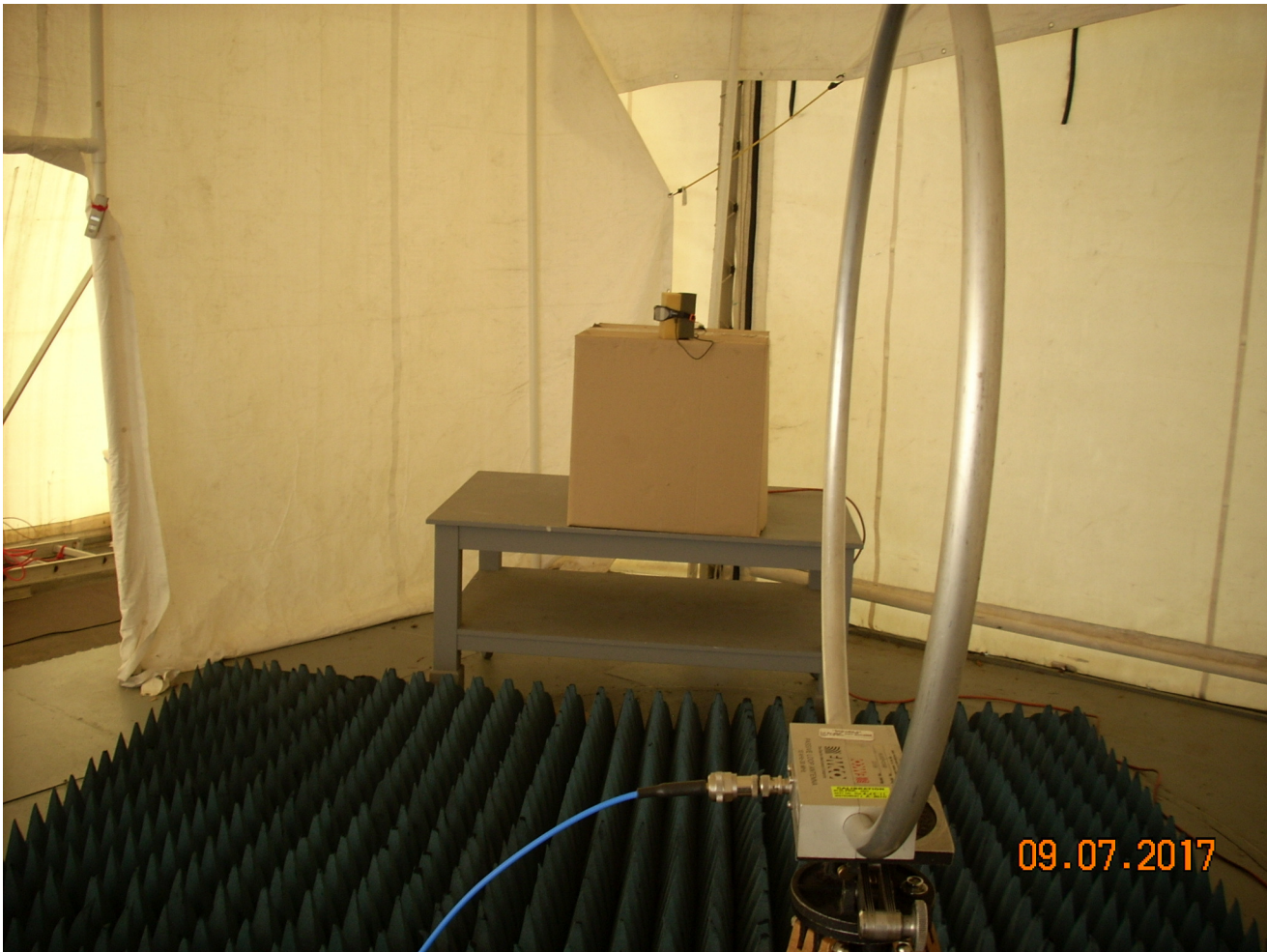


**14.0      RADIATED AND CONDUCTED MEASUREMENT TEST SET UP**

**Instinct Performance, LLC  
FCC ID: 2ANPQ-REV Model: 002  
Radiated Emissions Test Configuration**



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FCC ID: 2ANPQ-REV Model: 002  
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