

FCC Testing of the  
Shot Scope Technologies Ltd  
GPS Golf Watch, Model: Shot Scope V2  
In accordance with FCC 47 CFR Part 15B

Prepared for: Shot Scope Technologies Ltd  
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Product Service

Choose certainty.  
Add value.

FCC ID: 2AHWR-SS03

## COMMERCIAL-IN-CONFIDENCE

Date: September 2017  
Document Number: 75940057-07 | Issue: 01

| RESPONSIBLE FOR      | NAME            | DATE              | SIGNATURE |
|----------------------|-----------------|-------------------|-----------|
| Project Management   | Natalie Bennett | 04 September 2017 |           |
| Authorised Signatory | Matthew Russell | 04 September 2017 |           |

Signatures in this approval box have checked this document in line with the requirements of TÜV SÜD Product Service document control rules.

### ENGINEERING STATEMENT

The measurements shown in this report were made in accordance with the procedures described on test pages. All reported testing was carried out on a sample equipment to demonstrate limited compliance with FCC 47 CFR Part 15B. The sample tested was found to comply with the requirements defined in the applied rules.

| RESPONSIBLE FOR | NAME          | DATE              | SIGNATURE |
|-----------------|---------------|-------------------|-----------|
| Testing         | Graeme Lawler | 04 September 2017 |           |

FCC Accreditation  
90987 Octagon House, Fareham Test Laboratory

### EXECUTIVE SUMMARY

A sample of this product was tested and found to be in compliance with FCC 47 CFR Part 15B: 2016.



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#### ACCREDITATION

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## 1 Report Summary

### 1.1 Report Modification Record

Alterations and additions to this report will be issued to the holders of each copy in the form of a complete document.

| Issue | Description of Change | Date of Issue     |
|-------|-----------------------|-------------------|
| 1     | First Issue           | 04 September 2017 |

**Table 1**

### 1.2 Introduction

|                               |                                   |
|-------------------------------|-----------------------------------|
| Applicant                     | Shot Scope Technologies Ltd       |
| Manufacturer                  | Shot Scope Technologies Ltd       |
| Model Number(s)               | Shot Scope V2                     |
| Serial Number(s)              | Not Serialised (75940057-TSR0007) |
| Hardware Version(s)           | 1.2                               |
| Software Version(s)           | 1.0                               |
| Number of Samples Tested      | 1                                 |
| Test Specification/Issue/Date | FCC 47 CFR Part 15B: 2016         |
| Order Number                  | TUV SUD CE & FCC 001              |
| Date                          | 15-August-2017                    |
| Date of Receipt of EUT        | 29-August-2017                    |
| Start of Test                 | 29-August-2017                    |
| Finish of Test                | 29-August-2017                    |
| Name of Engineer(s)           | Graeme Lawler                     |
| Related Document(s)           | ANSI C63.4 (2014)                 |



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**1.3 Brief Summary of Results**

A brief summary of the tests carried out in accordance with FCC 47 CFR Part 15B is shown below.

| Section             | Specification Clause | Test Description   | Result | Comments/Base Standard |
|---------------------|----------------------|--------------------|--------|------------------------|
| Configuration: Idle |                      |                    |        |                        |
| 2.1                 | 15.109               | Radiated Emissions | Pass   | ANSI C63.4             |

**Table 2**

#### 1.4 Declaration of Build Status

| MAIN EUT   |   |  |  |
|--|---|--|--|
| MANUFACTURING DESCRIPTION  | GPS golf watch with automated performance tracking  |  |  |
| MANUFACTURER   | Shot Scope Technologies Ltd   |  |  |
| MODEL NAME/NUMBER  | Shot Scope V2   |  |  |
| PART NUMBER  | SSP-GPS-01  |  |  |
| SERIAL NUMBER  | 0030  |  |  |
| HARDWARE VERSION   | 1.2   |  |  |
| SOFTWARE VERSION   | 1.0   |  |  |
| TRANSMITTER FREQUENCY OPERATING RANGE (MHz)                                      | 2402 – 2480 (BLE), 13.56 (RFID)   |  |  |
| RECEIVER FREQUENCY OPERATING RANGE (MHz)   | 1575.42 (GPS), 1602.0 (Glonass)   |  |  |
| COUNTRY OF ORIGIN  | United Kingdom  |  |  |
| INTERMEDIATE FREQUENCIES   |   |  |  |
| EMISSION DESIGNATOR(S):<br>(i.e. G1D, GXW)                                       |   |  |  |
| MODULATION TYPES:<br>(i.e. GMSK, QPSK)   | GFSK (BLE), ASK (RFID)  |  |  |
| HIGHEST INTERNALLY GENERATED FREQUENCY   | 2.480 GHz (BLE)   |  |  |
| OUTPUT POWER (W or dBm)  | -2dBm (BLE)   |  |  |
| FCC ID   | 2AHWR-SS03  |  |  |
| INDUSTRY CANADA ID   |   |  |  |
| TECHNICAL DESCRIPTION<br>(a brief description of the intended use and operation) | Shot Scope V2 is used by golfers to provide distance information from their position to their target. It also tracks how far each golf shot is hit and what golf club was used. |  |  |
| BATTERY/POWER SUPPLY   |   |  |  |
| MANUFACTURING DESCRIPTION  | Lithium Polymer Battery, 400mAh   |  |  |
| MANUFACTURER   | Yok Energy  |  |  |
| TYPE   | Lithium Polymer   |  |  |
| PART NUMBER  | YE463030C   |  |  |
| VOLTAGE  | Nominal 3.7V  |  |  |
| COUNTRY OF ORIGIN  | China   |  |  |
| MODULES (if applicable)  |   |  |  |
| MANUFACTURING DESCRIPTION  | GNSS receiver module  |  |  |
| MANUFACTURER   | Origin GPS  |  |  |
| TYPE   | ORG1510-MK05  |  |  |
| POWER  |   |  |  |
| FCC ID   |   |  |  |
| COUNTRY OF ORIGIN  | Israel  |  |  |
| INDUSTRY CANADA ID   |   |  |  |
| EMISSION DESIGNATOR  |   |  |  |
| DHSS/FHSS/COMBINED OR OTHER  |   |  |  |
| ANCILLARIES (if applicable)  |   |  |  |
| MANUFACTURING DESCRIPTION  |   |  |  |
| MANUFACTURER   |   |  |  |
| TYPE   |   |  |  |
| PART NUMBER  |   |  |  |
| SERIAL NUMBER  |   |  |  |
| COUNTRY OF ORIGIN  |   |  |  |

I hereby declare that the information supplied is correct and complete.  
 Name: Lewis Allison Position held: Chief Technology Officer  
 Date: 28/08/2017

## 1.5 Product Information

### 1.5.1 Technical Description

Shot Scope V2 is used by golfers to provide distance information from their position to their target. It also tracks how far each golf shot is hit and what golf club was used.

### 1.6 Deviations from the Standard

No deviations from the applicable test standard were made during testing.

### 1.7 EUT Modification Record

The table below details modifications made to the EUT during the test programme.  
The modifications incorporated during each test are recorded on the appropriate test pages.

| Modification State                               | Description of Modification still fitted to EUT | Modification Fitted By | Date Modification Fitted |
|--|---|------------------------|--------------------------|
| Serial Number: Not Serialised (75940057-TSR0007) |   |                        |                          |
| 0  | As supplied by the customer                     | Not Applicable         | Not Applicable           |

**Table 3**

### 1.8 Test Location

TÜV SÜD Product Service conducted the following tests at our Fareham Test Laboratory.

| Test Name           | Name of Engineer(s) | Accreditation |
|---------------------|---------------------|---------------|
| Configuration: Idle |                     |               |
| Radiated Emissions  | Graeme Lawler       | UKAS          |

**Table 4**

Office Address:

Octagon House  
Concorde Way  
Segensworth North  
Fareham  
Hampshire  
PO15 5RL  
United Kingdom

## 2 Test Details

### 2.1 Radiated Emissions

#### 2.1.1 Specification Reference

FCC 47 CFR Part 15B, Clause 15.109

#### 2.1.2 Equipment Under Test and Modification State

Shot Scope V2, S/N: Not Serialised (75940057-TSR0007) - Modification State 0

#### 2.1.3 Date of Test

29-August-2017

#### 2.1.4 Test Method

The test was performed in accordance with ANSI C63.4, clause 8.

#### 2.1.5 Environmental Conditions

Ambient Temperature 22.7 °C

Relative Humidity 55.0 %

#### 2.1.6 Test Results

Idle

Highest frequency generated or used within the EUT: 2.480 GHz

Upper frequency test limit: 13 GHz

| Frequency (GHz) | Result (µV/m) |         | Limit (µV/m) |         | Margin (µV/m) |         | Angle (°) | Height (m) | Polarisation |
|-----------------|---------------|---------|--------------|---------|---------------|---------|-----------|------------|--------------|
|                 | Peak          | Average | Peak         | Average | Peak          | Average |           |            |              |
| *               |               |         |              |         |               |         |           |            |              |

**Table 5 - 30 MHz to 1 GHz**

\*No emissions were detected within 10 dB of the limit.

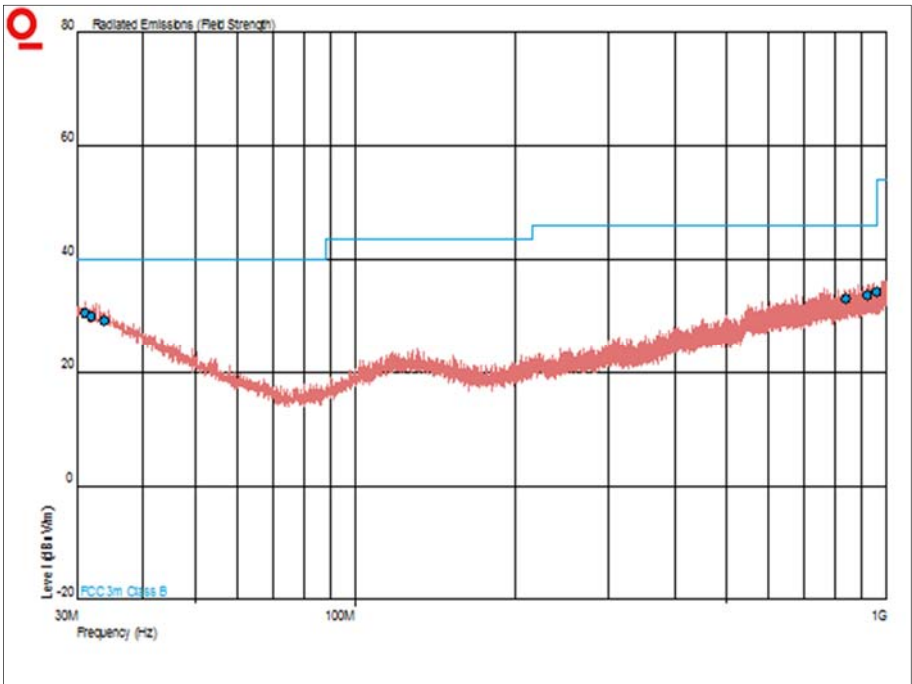


Figure 1 - 30 MHz to 1 GHz - Horizontal and Vertical

| Frequency (GHz) | Result (µV/m) |         | Limit (µV/m) |         | Margin (µV/m) |         | Angle (°) | Height (m) | Polarisation |
|-----------------|---------------|---------|--------------|---------|---------------|---------|-----------|------------|--------------|
|                 | Peak          | Average | Peak         | Average | Peak          | Average |           |            |              |
| *               |               |         |              |         |               |         |           |            |              |

Table 6 - 1 GHz to 13 GHz

\*No emissions were detected within 10 dB of the limit.





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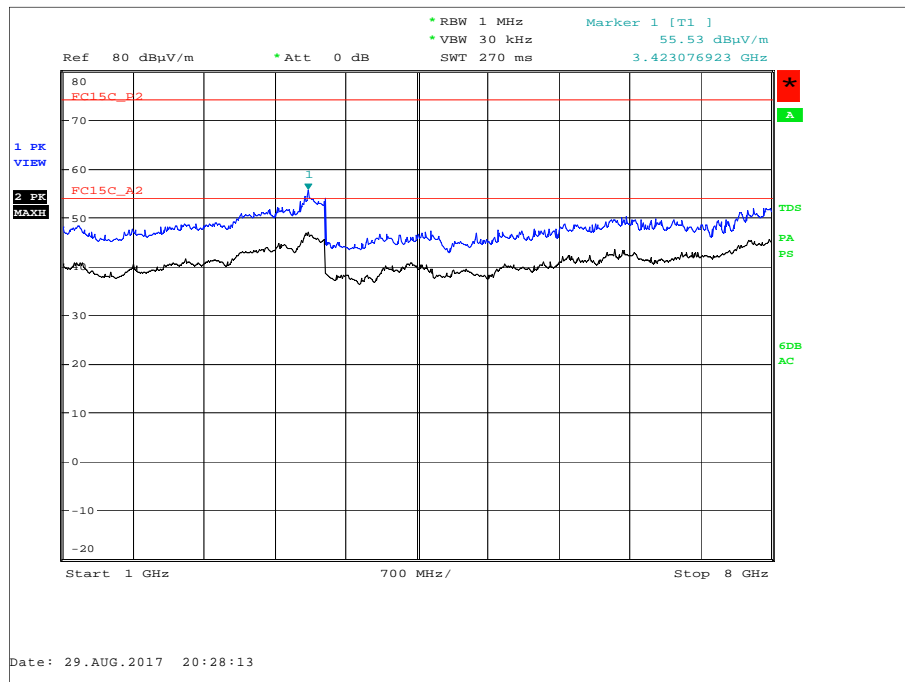


Figure 2 - 1 GHz to 8 GHz - Horizontal and Vertical

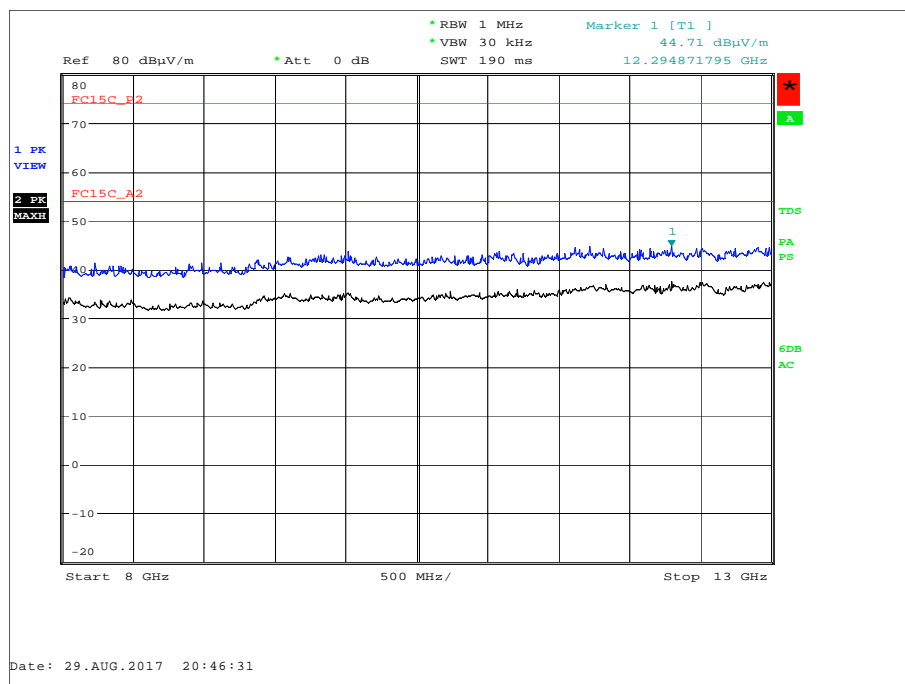


Figure 3 - 8 GHz to 13 GHz - Horizontal and Vertical

FCC 47 CFR Part 15, Limit Clause 15.109

| Frequency of Emission (MHz) | Field Strength (μV/m) |
|-----------------------------|-----------------------|
| 30 to 88                    | 100.0                 |
| 88 to 216                   | 150.0                 |
| 216 to 960                  | 200.0                 |
| Above 960                   | 500.0                 |

**2.1.7 Test Location and Test Equipment Used**

This test was carried out in EMC Chamber 5.

| Instrument                           | Manufacturer             | Type No                | TE No | Calibration Period (months) | Calibration Due |
|--------------------------------------|--------------------------|------------------------|-------|-----------------------------|-----------------|
| Antenna (Bilog)                      | Schaffner                | CBL6143                | 287   | 24                          | 18-Apr-2018     |
| Pre-Amplifier                        | Phase One                | PS04-0086              | 1533  | 12                          | 31-Jul-2018     |
| Screened Room (5)                    | Rainford                 | Rainford               | 1545  | 36                          | 20-Dec-2017     |
| Turntable Controller                 | Inn-Co GmbH              | CO 1000                | 1606  | -                           | TU              |
| Cable (N-N, 8m)                      | Rhophase                 | NPS-2302-8000-NPS      | 3248  | 12                          | 02-May-2018     |
| EMI Test Receiver                    | Rohde & Schwarz          | ESU40                  | 3506  | 12                          | 12-Nov-2017     |
| Tilt Antenna Mast                    | maturo GmbH              | TAM 4.0-P              | 3916  | -                           | TU              |
| Mast Controller                      | maturo GmbH              | NCD                    | 3917  | -                           | TU              |
| Suspended Substrate Highpass Filter  | Advance Power Components | 11SH10-3000/X18000-O/O | 4412  | 12                          | 03-Apr-2018     |
| Cable (Yellow, Rx, Km-Km 2m)         | Scott Cables             | KPS-1501-2000-KPS      | 4527  | 6                           | 04-Nov-2017     |
| Double Ridged Waveguide Horn Antenna | ETS-Lindgren             | 3117                   | 4722  | 12                          | 17-Feb-2018     |
| Double Ridge Broadband Horn Antenna  | Schwarzbeck              | BBHA 9120 B            | 4848  | 12                          | 17-Feb-2018     |

**Table 7**

TU - Traceability Unscheduled



3      **Measurement Uncertainty**

For a 95% confidence level, the measurement uncertainties for defined systems are:

| Test Name          | Measurement Uncertainty                              |
|--------------------|--|
| Radiated Emissions | 30 MHz to 1 GHz: ±5.2 dB<br>1 GHz to 40 GHz: ±6.3 dB |

**Table 8**