

**COMPLIANCE WORLDWIDE INC.  
TEST REPORT 152-24RF**

**In Accordance with the Requirements of  
FCC PART 2.1093 Radio Frequency Exposure Evaluation:  
Portable Devices**

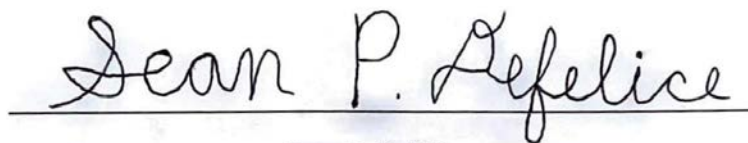
Issued to  
**Wiser Systems, Inc.  
811 W. Hargett Street  
Raleigh, NC 27603  
(919) 551-5566**

For the  
**USB Dongle Antenna  
Models: USB3V2.0**

**FCC ID: 2AGZM-A01116**

**Report Issued on April 30, 2024**

Tested by



Sean P. Defelice

Reviewed by



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## 1. Scope

This test report certifies that the Wiser Systems USB Dongle Antenna USB3V2.0 as tested, meets the FCC Part 2.1093 requirements exempting the device from a SAR Evaluation. The scope of this test report is limited to the test sample provided by the client, only in as much as that sample represents other production units. If any significant changes are made to the unit, the changes shall be evaluated and a retest may be required. Measurement Uncertainty will not be applied to any of the measurement / testing results in this test report to determine pass/fail criteria per the Decision Rule as defined in ISO/IEC Guide 17025-2017 Clause 3.7.

## 2. Product Details

- 2.1. Manufacturer: Wiser Systems, Inc.
- 2.2. Model Numbers: USB3V2.0
- 2.3. Serial Numbers: Pre production
- 2.4. Description: RRLT Locator System leverages new advances in Ultra-Wideband technology to deliver low cost/high accuracy, real-time localization.
- 2.5. Power Source: 5 VDC via USB, External Battery or USB to AC Adapter
- 2.6. Hardware Revision: Rev 1
- 2.7. Software Revision: N/A
- 2.8. Modulation Type: Pulse Modulation, Frequency Hopping
- 2.9. Operating Frequencies: 4.5 GHz Center Frequency Nominal (Channel 3 – 500 MHz BW)
- 2.10. EMC Modifications: None

## 3. Product Configuration

### 3.1 Operational Characteristics & Software

#### Hardware Setup:

Connect the Wiser USB Dongle to a laptop computer via USB.

Using the software tool configure the USB dongle to control the tag to transmit on Channels 3.

### 3.2. EUT Hardware

| Manufacturer  | Model/Part # / Options | Serial Number  | Input Volts | Freq (Hz) | Description/Function |
|---------------|------------------------|----------------|-------------|-----------|----------------------|
| Wiser Systems | USB3V2.0               | Pre-production | 5.0         | DC        | Client Tag           |

### 3.3. EUT Cables/Transducers

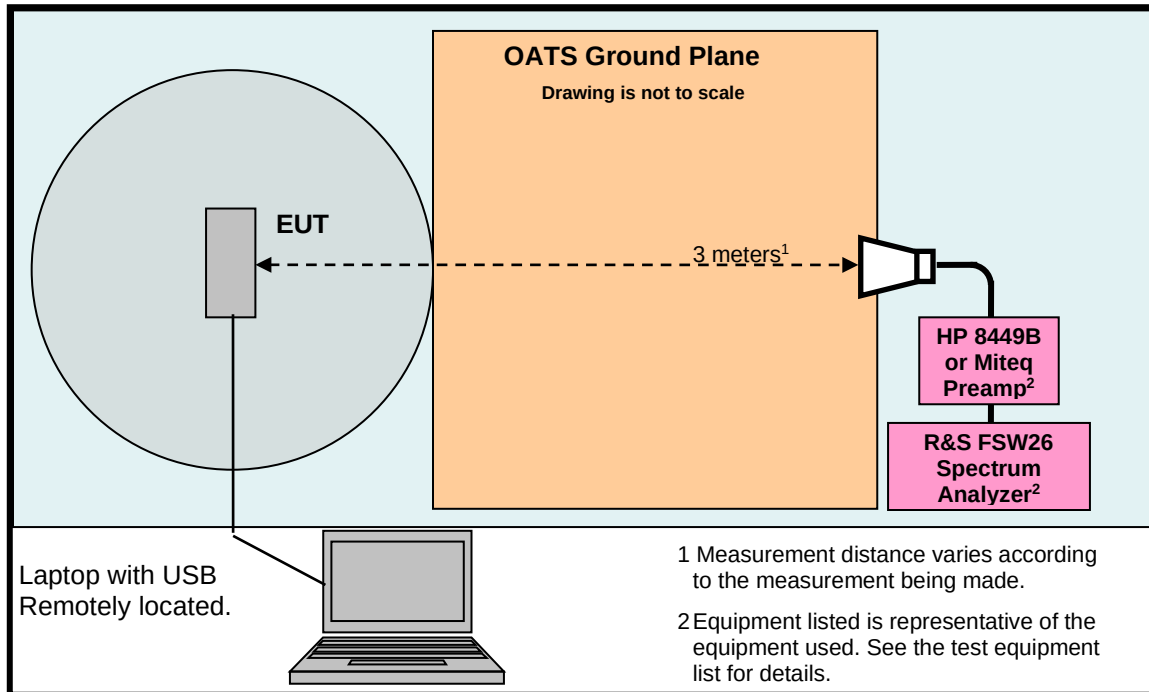
| Cable Type | Length | Shield | From | To                                 |
|------------|--------|--------|------|------------------------------------|
| USB        | 1M     | Yes    | EUT  | Laptop for Control / Battery Power |

### 3.4. Support Equipment

| Manufacturer | Model/Part # / Options | Serial Number | Input Voltage | Freq (Hz) | Description/Function           |
|--------------|------------------------|---------------|---------------|-----------|--------------------------------|
| Lenovo       | ThinkPad T440P         | PB-031DX9     | 120           | 60        | For controlling the USB Dongle |

### 3. Product Configuration (cont.)

#### 3.5. Test Setup Diagram



## 4. Measurements Parameters

### 4.1. Measurement Equipment Used to Perform Test

| Device                                           | Manufacturer       | Model No.    | Serial No. | Cal Due   | Interval |
|--------------------------------------------------|--------------------|--------------|------------|-----------|----------|
| Spectrum Analyzer, 2 Hz to 26.5 GHz <sup>1</sup> | Rohde & Schwarz    | FSW26        | 102057     | 6/24/2024 | 3 Years  |
| Dbl Ridged Guide Antenna 1- 18 GHz               | ETS-Lindgren       | 3117         | 00143292   | 5/11/2025 | 3 Years  |
| Dbl Ridged Guide Antenna 1- 18 GHz               | ETS-Lindgren       | 3117         | 00227631   | 4/21/2025 | 3 Years  |
| Preamplifier 2 to 12 GHz                         | JCA                | JCA48-4111B1 | 7087S      | 9/28/2024 | 1 Year   |
| Barometric Pressure/Humidity & Temp Datalogger   | Extech Instruments | SD700        | Q590483    | 4/4/2024  | 1 Year   |

<sup>1</sup> FSW26 Firmware revision: V4.71 SP1, Date installed: 11/16/2020 Previous V4.61, installed 08/11/2020.

### 4.2. Measurement & Equipment Setup

Test Dates: 4/16/2024  
 Test Engineers: Sean Defelice  
 Normal Site Temperature (15 - 35°C): 21.6  
 Relative Humidity (20 -75%RH): 35  
 Frequency Range: 4 to 5 GHz  
 Measurement Distance: 3 Meters  
 EMI Receiver IF Bandwidth: 1 MHz - Above 1 GHz  
 EMI Receiver Avg Bandwidth:  $\geq 3 * \text{RBW or IF(BW)}$   
 Detector Function: Peak  
 Measurement Uncertainty 1 to 6 GHz:  $\pm 5.17 \text{ dB}$

#### 4. Measurements Parameters (continued)

##### 4.3. Measurement Procedure

Test measurements were made in accordance with FCC Part 15.519 Subpart F.

The test methods used to generate the data in this test report is in accordance with ANSI C63.10:2013, American National Standard for Testing Unlicensed Wireless Devices.

##### 4.4. Measurement Uncertainty

The following uncertainties are expressed for an expansion/coverage factor of K=2.

|                                             |                        |
|---------------------------------------------|------------------------|
| RF Frequency (out of band)                  | $\pm 1 \times 10^{-8}$ |
| Radiated Emission of Transmitter to 100 GHz | $\pm 4.55$ dB          |
| Radiated Emission of Receiver               | $\pm 4.55$ dB          |
| Temperature                                 | $\pm 0.91^{\circ}$ C   |
| Humidity                                    | $\pm 5\%$              |

## 5. Measurement Data

### 5.1. Peak Emissions in a 50 MHz Bandwidth (15.519 (e), 15.521 (g) continued)

#### 5.1.1 Plot of Peak Power at 3 Meters (Channel 3)

| Frequency<br>(GHz) | Amplitude <sup>1</sup> | Limit    | Margin | Ant<br>Polarity | Ant<br>Height | Turntable<br>Azimuth | Result    |
|--------------------|------------------------|----------|--------|-----------------|---------------|----------------------|-----------|
|                    | (dBμV/m)               | (dBμV/m) | (dB)   | H/V             | cm            | Deg                  |           |
| 4.498              | 94.93                  | 95.20    | -0.27  | V               | 118           | 272                  | Compliant |

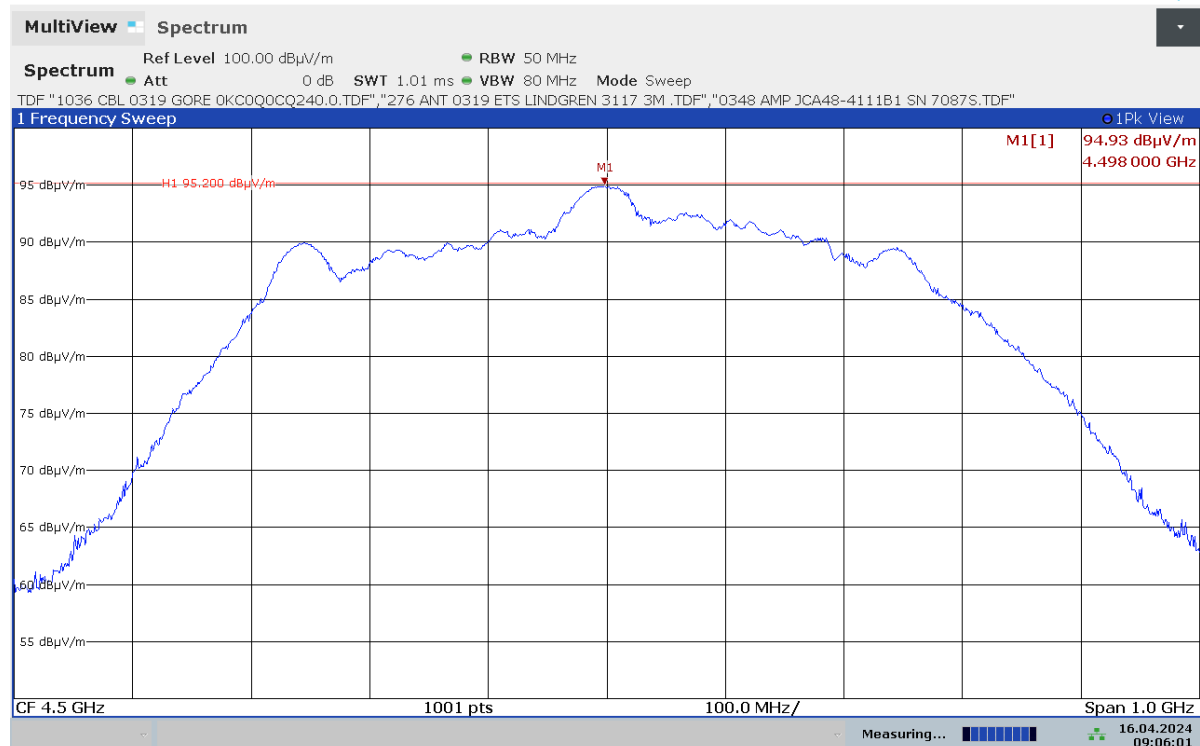
Notes: <sup>1</sup> Antenna Factor (AF), Cable Factor (CF) and External Preamplifier Gain (PAG) have been entered into the analyzer as transducer factors.

Equation (22) from ANSI C63.10-2013,  $EIRP = E_{meas} + 20 \log(d_{meas}) - 104.7$ ;  $d_{meas} = 3$

$EIRP (dBm) = E_{meas} (dBμV/m) - 95.2$

| Frequency<br>(GHz) | Amplitude <sup>1</sup><br>(dBm) | Limit<br>(dBm) | Margin | Ant<br>Polarity | Ant<br>Height | Turntable<br>Azimuth | Result    |
|--------------------|---------------------------------|----------------|--------|-----------------|---------------|----------------------|-----------|
|                    | EIRP                            | EIRP           | (dB)   | H/V             | cm            | Deg                  |           |
| 4.498              | -0.27                           | 0.00           | -0.27  | V               | 118           | 272                  | Compliant |

152-24 Wiser USBV1.0 UWB



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## 5. Measurement Data (continued)

### 5.2. Public Exposure to Radio Frequency Energy Levels (2.1093)

#### 5.2.1. 2.1093 Requirements

Requirement: Portable devices are subject to radio frequency radiation exposure requirements. For purposes of this section, a portable device is defined as a transmitting device designed to be used so that the radiating structure(s) of the device is/are within 20 centimeters of the body of the user.

Evaluation of compliance with the exposure limits in § 1.1310 of this chapter, and preparation of an EA if the limits are exceeded, is necessary for portable devices having single RF sources with more than an available maximum time-averaged power of 1 mW.

The 1-mW exemption is independent of service type and covers the full range of 100 kHz to 100 GHz, but it may not be used in conjunction with other exemption criteria or in devices with higher-power transmitters operating in the same time-averaging period.

Power levels from Section 5.1

| Channel | Frequency | Peak Field Strength | Distance | Antenna Gain <sup>1</sup> | Measured Output Power | Measured Output Power | Output Power Limit | Result    |
|---------|-----------|---------------------|----------|---------------------------|-----------------------|-----------------------|--------------------|-----------|
|         | (GHz)     | (dBμV/m)            | (m)      | (dBi)                     | (dBm)                 | (mW)                  | (mW)               |           |
| 3       | 4.498     | 94.93               | 3.0      | 0.000                     | -0.27                 | 0.934                 | 1                  | Compliant |

**Note:** Antenna gain is included in the field strength measurements. Measured Power is determined by 3M Peak Field Strength – 95.2 = dBm

Conclusion: The device under test meets the exclusion requirement detailed in FCC OET 447498 D01, dated October 23, 2015 Clause 4.3.1 (a).