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RF Exposure Evaluation Report

APPLICANT	ONE WORLD TECHNOLOGIES, INC
	1428 PEARMAN DAIRY ROAD ANDERSON SOUTH CAROLINA 29625 USA
FCC ID	VMZES5
MODEL NUMBER	ES5000
PRODUCT DESCRIPTION	INSPECTION SCOPE RADIO WITH WI FI
STANDARD APPLIED	CFR 47 Part 2.1091
PREPARED BY	Mario de Aranzeta

We, TIMCO ENGINEERING, INC. would like to declare that the device has been evaluated in accordance with 47 CFR Part 2.1091 and meets the requirements.

The attached report shall not be reproduced except in full without the written approval of TIMCO ENGINEERING, INC.

GENERAL REMARKS

Attestations

This equipment has been evaluated in accordance with the standards identified in this report. To the best of my knowledge and belief, these evaluations were performed using the procedures described in this report.

I attest that the necessary evaluations were made, under my supervision, at:

Timco Engineering Inc.
849 NW State Road 45
Newberry, FL 32669

Authorized Signatory Name:



Mario de Aranzeta
Senior Engineer
Engineering Project Manager

Date: August 11, 2014

GENERAL INFORMATION

EUT Description	INSPECTION SCOPE RADIO WITH WI FI
FCC ID	VMZES5
Model Number	ES5000
Frequency Range	2437 MHz
Type of Emission	802.11 g n
Modulation	OFDM
EUT Power Source	<input type="checkbox"/> 110–120Vac/50– 60Hz
	<input type="checkbox"/> DC Power 12V
	<input checked="" type="checkbox"/> Battery Operated Exclusively
Test Item	<input type="checkbox"/> Prototype
	<input checked="" type="checkbox"/> Pre-Production
	<input type="checkbox"/> Production
Type of Equipment	<input type="checkbox"/> Fixed
	<input type="checkbox"/> Mobile
	<input checked="" type="checkbox"/> Portable
Test Conditions	The temperature was 26°C Relative humidity of 64%.
Revision History to the EUT	None
Test Facility	Timco Engineering Inc. 849 NW State Road 45 Newberry, FL 32669 USA.

RF Exposure Requirements

General information

Device type: A handheld video inspection device with Part 15 WIFI transceiver (802.11 g,n only) capable of operation on only one channel 2437 MHz. The conducted RF output power is 11.9 dBm or 16 mW.

Antenna

The integral antenna has a gain < 2 dBi.

Operating configuration and exposure conditions:

Photos on the subsequent pages show the position of the hands in relation to the product and a cutaway view of the product and the distance between the radiating structure and the hand. No duty cycle correction factor was taken in the calculation of minimum separation distance.

MPE Calculation:

The minimum separation distance is calculated as follows:

$$E(V/m) = \frac{\sqrt{30 \times P \times G}}{d} \quad \text{Power density: } P_d(mW/cm^2) = \frac{E^2}{3770}$$

The limit for general uncontrolled exposure environment is shown in FCC rule Part 1.1310, Table 1.





Minimum Separation Distance for Mobile or Fixed Devices General Population/Uncontrolled Exposure					
Insert values in yellow highlighted boxes to determine Minimum Separation Distance					
Max Power	0.016	W	equals	Max Power	16 mW
Duty Cycle	100	%	equals	Duty Factor	1 numeric
Antenna Gain	2	dBi	equals	Gain numeric	1.584893 numeric
Coax Loss	0	dB		Gain - Coax Loss	1.584893 numeric
Power Density	1	mW/cm ²			
Enter power Density from the chart to the right			Rule Part 1.1310, Table 1		
Frequency	2437	MHz		Frequency range	Power density Enter this value
				MHz	mW/cm ²
				0.3-1.34	100
				1.34-30	180/f ²
				30-300	0.2
				300-1,500	f/1500
				1,500-100,000	1
				f = frequency in MHz	
Minimum Separation Distance			1 cm		0.01 m
Minimum Separation in Inches	0.558842 Inches				