



# RF Exposure Evaluation Report

<b>APPLICANT</b>	INTERNATIONAL TECHNICAL MKTG. INC.
<b>ADDRESS</b>	P.O. BOX 23159 FEDERAL WAY WA 98093
<b>FCC ID</b>	XLTKTS-1GA
<b>MODEL NUMBER</b>	KTS-1GA
<b>PRODUCT DESCRIPTION</b>	GPS RADIO BUOY
<b>DATE SAMPLE RECEIVED</b>	07/12/2019
<b>FINAL TEST DATE</b>	07/24/2019
<b>PREPARED BY</b>	Franklin Rose
<b>TEST RESULTS</b>	<input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAIL

Report Number	Report Version	Description	Issue Date
1790UT19_MPE TestReport_	Rev1	Initial Issue	08/02/2019
1790UT19_MPE TestReport_	Rev2	Updated Controlled RF Safety Distance	10/07/2019

**THE ATTACHED REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE WRITTEN APPROVAL OF TIMCO ENGINEERING, INC.**

## TABLE OF CONTENTS

<b>GENERAL REMARKS .....</b>	<b>2</b>
<b>GENERAL INFORMATION .....</b>	<b>3</b>
<b>ANTENNA INFORMATION .....</b>	<b>3</b>
<b>POWER OUTPUT OF EUT .....</b>	<b>3</b>
<b>MPE CALCULATION.....</b>	<b>4</b>
<b>MPE LIMITS.....</b>	<b>4</b>
<b>MPE TABLE .....</b>	<b>5</b>
<b>MPE DIAGRAM.....</b>	<b>5</b>

## GENERAL REMARKS

### Summary

The device under test does:

- ☒ Fulfill the general approval requirements as identified in this test report and was selected by the customer.
- ☐ Not fulfill the general approval requirements as identified in this test report

### Attestations

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

All instrumentation and accessories used to test products for compliance to the indicated standards are calibrated regularly in accordance with ISO 17025 requirements.

I attest that the necessary measurements were made at:

**Timco Engineering Inc.**  
**849 NW State Road 45**  
**Newberry, FL 32669**  
**Designation #: US1070**

**Prepared by:**



<b>Name and Title</b>	Franklin Rose, Project Manager / EMC Specialist
<b>Date</b>	08/02/2019

## GENERAL INFORMATION

<b>EUT Description</b>	GPS RADIO BUOY		
<b>Model Number</b>	KTS-1GA		
<b>EUT Power Source</b>	<input type="checkbox"/> 110–120Vac, 50–60Hz	<input checked="" type="checkbox"/> DC Power	<input type="checkbox"/> Battery Operated
<b>Test Item</b>	<input type="checkbox"/> Engineering Prototype	<input checked="" type="checkbox"/> Pre-Production	<input type="checkbox"/> Production
<b>Type of Equipment</b>	<input type="checkbox"/> Fixed	<input checked="" type="checkbox"/> Mobile	<input type="checkbox"/> Portable
<b>Antenna Connector</b>	Monopole threaded connector		
<b>Test Conditions</b>	The temperature was 26°C Relative humidity of 50%.		
<b>Modification to the EUT</b>	No Modification to EUT.		
<b>Applicable Standards</b>	FCC CFR 47 Part 2.1091		
<b>Test Facility</b>	Timco Engineering Inc. at 849 NW State Road 45 Newberry, FL 32669 USA. Designation #: US1070		

## ANTENNA INFORMATION

<b>Manufacturer Provides Antenna</b>	<b>Type</b>	<b>Max Gain (dBi)</b>
Yes	Fiberglass Monopole	0 dBi

## POWER OUTPUT OF EUT

Peak Power: **3.0 W**

Tolerance: +/- 0.5 W

Maximum Peak Power: 3.5 W

## MPE CALCULATION

The minimum separation distance is calculated as follows:

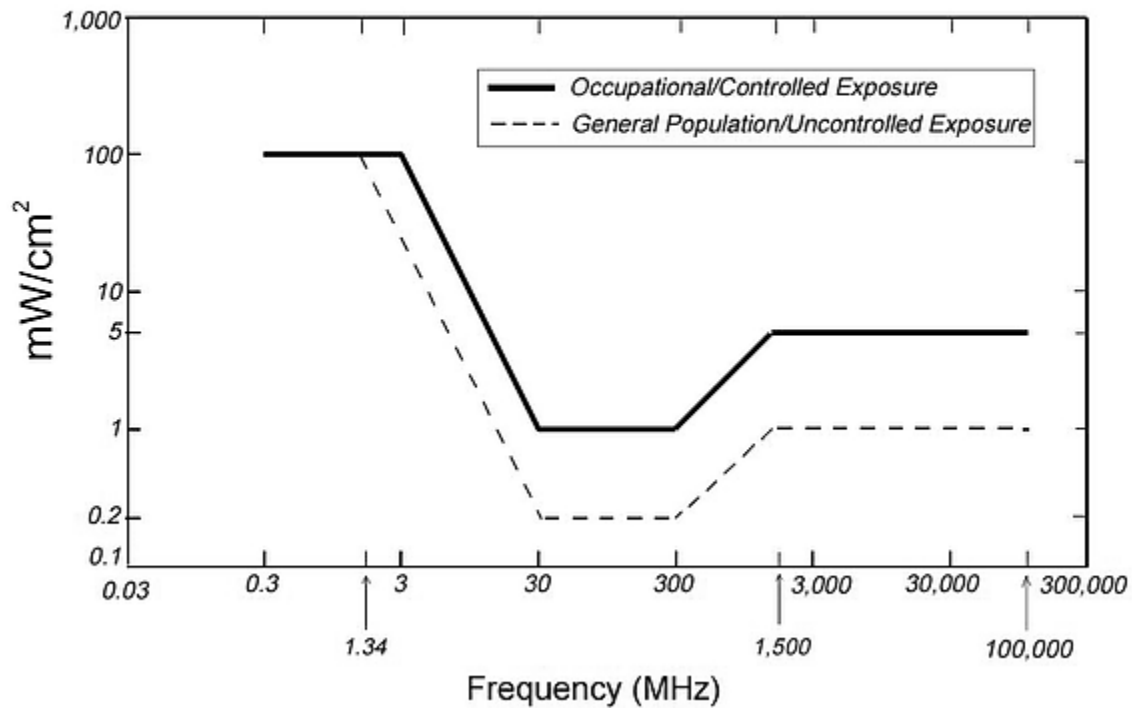
$$E(V/m) = \frac{\sqrt{30 \times P \times G}}{d}$$

$$\text{Power density: } P_d(mW/cm^2) = \frac{E^2}{3770}$$

## MPE LIMITS

**Figure 1. FCC Limits for Maximum Permissible Exposure (MPE)**

*Plane-wave Equivalent Power Density*



## MPE Table

The limit for General Uncontrolled Exposure Environment is calculated as shown in FCC Pt. 1.1310, Table B, and Limits Occupational/Controlled Exposure per Table A:

Variable	Value
Max Power	3.5 W
Frequency Range	1.9 – 2.0 MHz
Duty Cycle (at full power)	100%
Max Antenna Gain	0 dB
Coax Loss	0 dB
Power Density, Uncontrolled Exposure	49.86 mW/cm <sup>2</sup>
Power Density, Controlled Exposure	100 mW/cm <sup>2</sup>
Minimum Separation Distance (in all cases)	20 cm

## MPE Diagram

