



RF Exposure Evaluation Report

APPLICANT	INTERNATIONAL TECHNICAL MKTG. INC.
ADDRESS	P.O. BOX 23159 FEDERAL WAY WA 98093
FCC ID	XLTKTS-1GA
MODEL NUMBER	KTS-1GA
PRODUCT DESCRIPTION	GPS RADIO BUOY
DATE SAMPLE RECEIVED	07/12/2019
FINAL TEST DATE	07/24/2019
PREPARED BY	Franklin Rose
TEST RESULTS	☒ PASS ☐ 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

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

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:



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

GENERAL INFORMATION

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

ANTENNA INFORMATION

Manufacturer Provides Antenna	Type	Max Gain (dBi)
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:

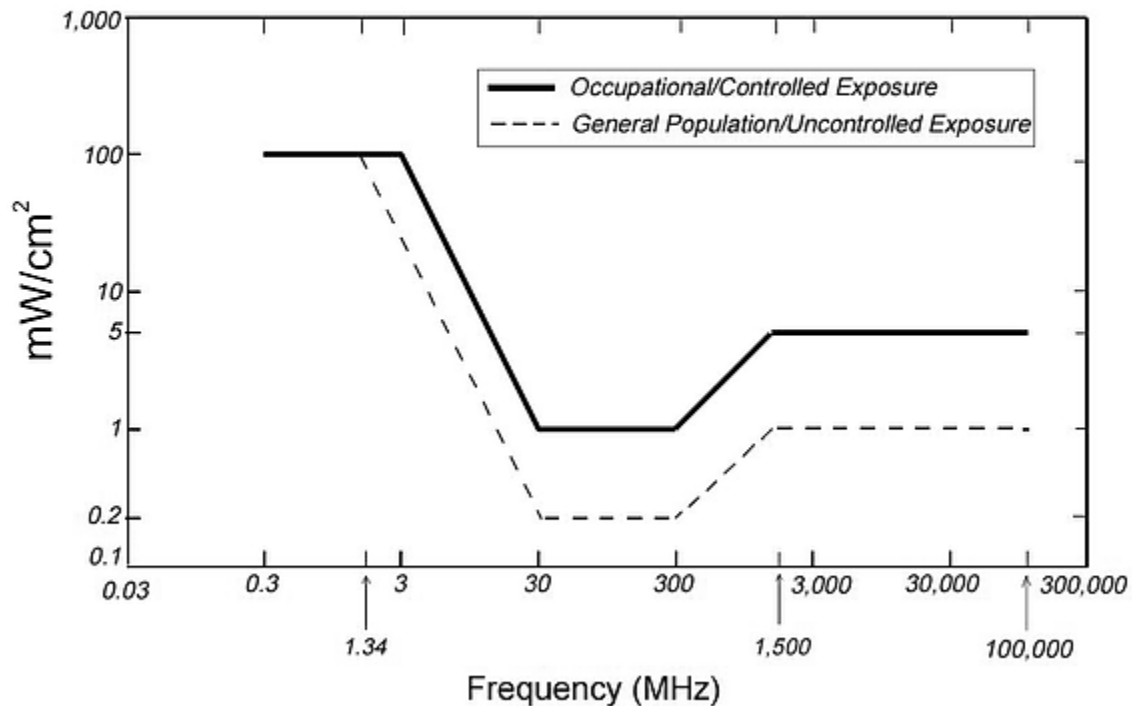
$$E(V/m) = \frac{\sqrt{30 \times P \times G}}{d}$$

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

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/cm²
Power Density, Controlled Exposure	100 mW/cm²
Minimum Separation Distance (in all cases)	20 cm

MPE Diagram

