



RF Exposure Evaluation Report

APPLICANT	KP ELECTRONIC SYSTEMS LTD.
ADDRESS	P.O. BOX 42 TEFEN INDUSTRIAL PARK, 24959 ISRAEL
FCC ID	H78KPMATUDI
MODEL NUMBER	MATU-DI
PRODUCT DESCRIPTION	MINI ALARM TRANSMITTER
DATE SAMPLE RECEIVED	08/09/2019
FINAL TEST DATE	08/09/2019
PREPARED BY	Tim Royer
TEST RESULTS	<input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAIL

Report Number	Report Version	Description	Issue Date
2050AUT19 MPE_	Rev1	Initial Issue	08/09/2019
	Rev2	Updated antenna gain	09/10/2019
	Rev3	Updated Power Density	09/18/2019

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



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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:



Sr. EMC Engineer
EMC-003838-NE



Name and Title Tim Royer, Project Manager/Testing Engineer

Date 08/09/2019

General Information

EUT Description	MINI ALARM TRANSMITTER		
Model Number	MATU-DI		
EUT Power Source	<input type="checkbox"/> 110–120Vac, 50–60Hz	<input checked="" type="checkbox"/> DC Power	<input type="checkbox"/> Battery Operated
Test Item	<input type="checkbox"/> Engineering Prototype	<input checked="" type="checkbox"/> Pre-Production	<input type="checkbox"/> Production
Type of Equipment	<input checked="" type="checkbox"/> Fixed	<input type="checkbox"/> Mobile	<input type="checkbox"/> Portable
Antenna Connector	SMA Type		
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)
No	Unspecified	0

Output Power

Frequency	Max Power Output (W)
470.275	3.01

Note: The EUT will be deployed per FCC 47 CFR 90.219(d) "Deployment Rules", which requires output power be limited to 5 W in system installation.

MPE CALCULATION

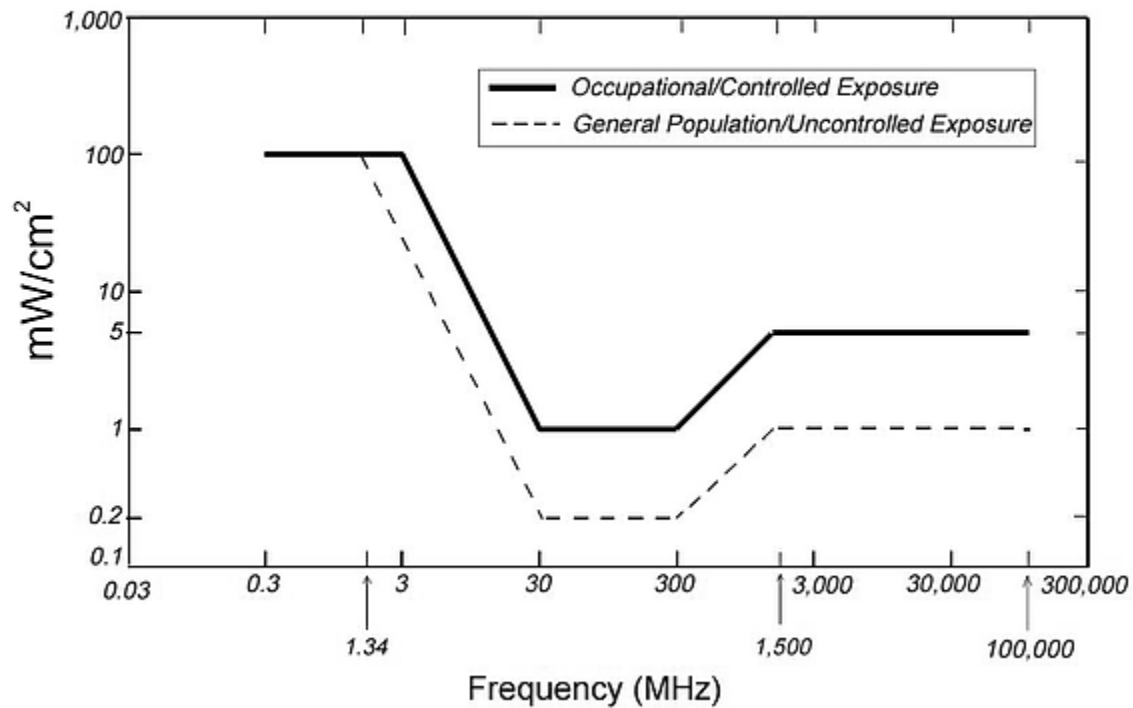
The minimum separation distance is calculated as follows:

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

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

MPE LIMITS

*Figure 1. FCC Limits for Maximum Permissible Exposure (MPE)
Plane-wave Equivalent Power Density*



MPE Table

General Uncontrolled Exposure

The limit for General Uncontrolled Exposure Environment is calculated as shown in FCC Pt. 1.1310, Table B:

Variable	Value
Max Power	3.01 W
Frequency Range	430 – 470.275 MHz
Worst-case Frequency	470.275 MHz
Duty Cycle (at full power)	100%
Power Density	0.31351667 mW/cm ²
Minimum Separation Distance	27.65 cm

