

849 NW STATE ROAD 45 NEWBERRY, FL 32669 USA

PH: 888.472.2424 OR

352.472.5500

FAX: 352.472.2030

EMAIL: <a href="mailto:linfo@timcoengr.com">lnfo@timcoengr.com</a></a>
<a href="http://www.timcoengr.com">http://www.timcoengr.com</a></a>

# **RF Exposure Evaluation Report**

APPLICANT	RADIO SOLUTIONS, INC.
	55 ACCORD PARK DRIVE NORWELL, MA. 02061 USA
FCC ID	2AHVPSB400M2A
MODEL NUMBER	SB400M2A
PRODUCT DESCRIPTION	UHF SIGNAL BOOSTER
STANDARD APPLIED	CFR 47 Part 2.1091
PREPARED BY	Franklin Rose

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:**

Franklin Rose, Testing Technician/Project Manager

Date: 11/29/2017

Applicant: RADIO SOLUTIONS, INC. FCC ID: 2AHVPSB400M2A

Report: 1702AUT17RF Exp MPE Rpt



# **RF Exposure Requirements**

### **General information**

Device type: UHF SIGNAL BOOSTER

### **Antenna**

The manufacturer does not provide an antenna, but a 2.15 dBi dipole will be assumed as FCC Rule Part 90.219(e)(1) limits output power to 5 Watts ERP.

### **MPE Calculation**:

The minimum separation distance is calculated as follows:

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

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Minimum Separation Distance for Mobile or Fixed Devices General Population/Uncontrolled Exposure    Insert values in yellow highlighted boxes to determine Minimum Separation Distance
Insert values in yellow highlighted boxes to determine Minimum Separation Distance  Max Power 1.58 W equals Max Power 1580 mW Duty Cycle 100 % equals Duty Factor 1 numeric Antenna Gain 2.15 dBi equals Gain numeric 1.64059 numeric Coax Loss 0 dB Gain - Coax Los 1.64059 numeric Power Density 0.3 mW/cm² Rule Part 1.1310, Table 1 (B) Frequency MHz Frequency ran Power der Enter this value  MHz mW/cm² mW/cm² 0.3-1.34 100 100  1.34-30 180/f² 0.0 30-300 0.2 0.2 300-1,500 f/1500 0.3 1,500-100,000 1 f = frequency in MHz  Minimum Separation Distance 26 cm 0.26 m
Max Power 1.58 W equals Duty Factor 1 numeric Antenna Gain 2.15 dBi equals Gain numeric 1.64059 numeric 1.6405
Max Power 1.58 W equals Duty Factor 1 numeric Antenna Gain 2.15 dBi equals Gain numeric 1.64059 numeric 1.6405
Duty Cycle 100 % equals Duty Factor 1 numeric 1.64059 numeric 2.15 dBi equals Gain numeric 1.64059 numeric 1.64059 numeric 1.64059 numeric 2.60 mW/cm² mW/cm² Rule Part 1.1310, Table 1 (B) Frequency MHz Rule Part 1.1310, Table 1 (B) Frequency mW/cm² mW/cm² mW/cm² 0.3-1.34 100 100 1.34-30 180/f² 0.0 30-300 0.2 0.2 300-1,500 f/1500 0.3 1,500-100,000 1 1 f = frequency in MHz  Minimum Separation Distance 26 cm 0.26 m
Coax Loss   O   dB   mw/cm²
Power Density
Enter power Density from the chart to the right Frequency  490 MHz  Frequency ran Power der Enter this value  MHz mW/cm² mW/cm²  0.3-1.34 100 100  1.34-30 180/f² 0.0  30-300 0.2 0.2  300-1,500 f/1500 0.3  1,500-100,000 1 1  f = frequency in MHz  Minimum Separation Distance  26 cm  0.26 m
Enter power Density from the chart to the right Frequency  490 MHz  Frequency ran Power der Enter this value  MHz mW/cm² mW/cm²  0.3-1.34 100 100  1.34-30 180/f² 0.0  30-300 0.2 0.2  300-1,500 f/1500 0.3  1,500-100,000 1 1  f = frequency in MHz  Minimum Separation Distance  26 cm  0.26 m
MHz   mW/cm²   mW/cm²   0.3-1.34   100   100   1.34-30   180/f²   0.0   30-300   0.2   0.2   300-1,500   f/1500   0.3   1,500-100,000   1   f = frequency in MHz   f = frequency in MHz   Minimum Separation Distance   26 cm   0.26 m
0.3-1.34   100   100   1.34-30   180/f²   0.0   30-300   0.2   0.2   300-1,500   f/1500   0.3   1,500-100,000   1   1   f = frequency in MHz
0.3-1.34   100   100   1.34-30   180/f²   0.0   30-300   0.2   0.2   300-1,500   f/1500   0.3   1,500-100,000   1   1   f = frequency in MHz
30-300 0.2 0.2 300-1,500 f/1500 0.3 1,500-100,000 1 f = frequency in MHz  Minimum Separation Distance 26 cm 0.26 m
300-1,500 f/1500 0.3 1,500-100,000 1 f = frequency in MHz  Minimum Separation Distance 26 cm 0.26 m
1,500-100,000 1 1 f = frequency in MHz  Minimum Separation Distance 26 cm 0.26 m
f = frequency in MHz  Minimum Separation Distance 26 cm 0.26 m
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Minimum Seperation in Inches 10.31567 Inches
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