



# RF Exposure Evaluation Report

|                             |                                                                        |
|-----------------------------|------------------------------------------------------------------------|
| <b>APPLICANT</b>            | Radio Solutions, Inc.                                                  |
| <b>ADDRESS</b>              | 2101 NW 79th Ave.<br>MIAMI FL 33122 USA                                |
| <b>FCC ID</b>               | 2AHVPSB400M3A, 2AHVPSB400M3B                                           |
| <b>IC</b>                   | 21503-SB400M3                                                          |
| <b>MODEL NUMBER</b>         | SB400M3, NF-BDA-400-M3, HON-BDA-400M3                                  |
| <b>PRODUCT DESCRIPTION</b>  | UHF Industrial Booster                                                 |
| <b>DATE SAMPLE RECEIVED</b> | 07/22/2020                                                             |
| <b>FINAL TEST DATE</b>      | 07/30/2020                                                             |
| <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 |
|----------------------------|----------------|---------------|------------|
| 2571-20<br>MPE_TestReport_ | Rev1           | Initial Issue | 08/06/2019 |

**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:

A handwritten signature in blue ink, appearing to read "Franklin Rose", is written over a circular red stamp. The stamp contains the text "TIMCO ENGINEERING" around the perimeter.

|                       |                                                 |
|-----------------------|-------------------------------------------------|
| <b>Name and Title</b> | Franklin Rose, Project Manager / EMC Specialist |
|-----------------------|-------------------------------------------------|

|             |            |
|-------------|------------|
| <b>Date</b> | 08/06/2020 |
|-------------|------------|

## EUT INFORMATION



|                             |                                                   |                                                        |                                                |
|-----------------------------|---------------------------------------------------|--------------------------------------------------------|------------------------------------------------|
| <b>EUT Description</b>      | UHF Industrial Booster                            |                                                        |                                                |
| <b>Model Number</b>         | SB400M3, NF-BDA-400-M3, HON-BDA-400M3             |                                                        |                                                |
| <b>Modified for Testing</b> | <input type="checkbox"/>                          |                                                        |                                                |
| <b>Modification</b>         |                                                   |                                                        |                                                |
| <b>Antenna Connector</b>    | <input type="checkbox"/><br>UHF                   | <input type="checkbox"/><br>BNC                        | <input checked="" type="checkbox"/><br>N       |
|                             | <input type="checkbox"/><br>TNC                   | <input type="checkbox"/><br>SMA                        | <input type="checkbox"/><br>Other              |
| <b>EUT Power Source</b>     | <input type="checkbox"/><br>AC Power (110-120 V)  | <input checked="" type="checkbox"/><br>DC Power (28 V) | <input type="checkbox"/><br>DC Battery (7.4 V) |
|                             | <input type="checkbox"/><br>Engineering Prototype | <input checked="" type="checkbox"/><br>Pre-Production  | <input type="checkbox"/><br>Post-Production    |
| <b>Type of Equipment</b>    | <input checked="" type="checkbox"/><br>Fixed      | <input type="checkbox"/><br>Mobile                     | <input type="checkbox"/><br>Portable           |

## ANTENNA INFORMATION

| Manufacturer Provides Antenna | Type        | Max Gain (dBi) |
|-------------------------------|-------------|----------------|
| No                            | Unspecified | 0 dBi          |

## FCC MPE SEPARATION

### EUT Parameters

| Parameter         | Value   | Unit       |
|-------------------|---------|------------|
| EUT Form Factor   | Fixed ▼ |            |
| Lowest Frequency  | 406.100 | MHz        |
| Highest Frequency | 512.000 | MHz        |
| Maximum Power     | 5.000   | W ▼        |
| Tune Up Tolerance | 0.000   | +/- W ▼    |
| Duty Cycle        | 100%    | %          |
| Antenna Gain      | 0.000   | dBi EIRP ▼ |
| Coax Loss         | 0.000   | dB ▼       |
| EIRP              | 5.000   | W          |

### Uncontrolled Public RF Exposure/MPE Guideline

|                                     |                          |
|-------------------------------------|--------------------------|
| Separation Distance (cm)            | 38.34 cm                 |
| Power Density (mW/cm <sup>2</sup> ) | 0.271 mW/cm <sup>2</sup> |

### Controlled Occupational RF Exposure/MPE Guideline

|                                     |                          |
|-------------------------------------|--------------------------|
| Separation Distance (cm)            | 20 cm                    |
| Power Density (mW/cm <sup>2</sup> ) | 0.995 mW/cm <sup>2</sup> |

## FCC MPE CALCULATION

### Calculations

#### RF Exposure Field Strength Limits

Public Persons may be exposed up to:

|                                                                                      |                          |
|--------------------------------------------------------------------------------------|--------------------------|
| Worst-Case RF Field Strength Limit for the General Public (Uncontrolled Environment) | 0.271 mW/cm <sup>2</sup> |
|--------------------------------------------------------------------------------------|--------------------------|

Occupational Persons may be exposed up to:

|                                                                                |                          |
|--------------------------------------------------------------------------------|--------------------------|
| Worst-Case RF Field Strength Limit for Controlled Use (Controlled Environment) | 1.354 mW/cm <sup>2</sup> |
|--------------------------------------------------------------------------------|--------------------------|

#### Separation Distance

Mandatory distance from radiating element:

| Calculation Method                                    | Distance from Radiating Element (cm)<br>= SQRT (P(mW) / 4π S(mW/cm <sup>2</sup> )) |
|-------------------------------------------------------|------------------------------------------------------------------------------------|
| Uncontrolled Sep. Distance @ 0.271 mW/cm <sup>2</sup> | 38.34 cm                                                                           |
| Controlled Sep. Distance @ 1.354 mW/cm <sup>2</sup>   | 17.14 cm                                                                           |

#### EUT Power Density at 20 cm

| Calculation Method        | Power Density (mW/cm <sup>2</sup> )<br>= P(mW) / 4π R(cm) <sup>2</sup> |
|---------------------------|------------------------------------------------------------------------|
| EUT Power Density @ 20 cm | 0.995 mW/cm <sup>2</sup>                                               |

## ISED MPE SEPARATION

| <b>EUT Parameters</b>    |              |             |
|--------------------------|--------------|-------------|
| <b>Parameter</b>         | <b>Value</b> | <b>Unit</b> |
| <b>EUT Form Factor</b>   | Fixed ▼      |             |
| <b>Lowest Frequency</b>  | 406.100      | MHz         |
| <b>Highest Frequency</b> | 470.000      | MHz         |
| <b>Maximum Power</b>     | 5.000        | W ▼         |
| <b>Tune Up Tolerance</b> | 0.000        | +/- W ▼     |
| <b>Duty Cycle</b>        | 100%         | %           |
| <b>Antenna Gain</b>      | 0.000        | dBi EIRP ▼  |
| <b>Coax Loss</b>         | 0.000        | dB ▼        |
| <b>EIRP</b>              | 5.000        | W           |

| <b>Uncontrolled Public RF Exposure/MPE Guideline</b> |                        |
|------------------------------------------------------|------------------------|
| Separation Distance (cm)                             | 50.05 cm               |
| Power Density (W/m <sup>2</sup> )                    | 1.588 W/m <sup>2</sup> |

| <b>Controlled Occupational RF Exposure/MPE Guideline</b> |                       |
|----------------------------------------------------------|-----------------------|
| Separation Distance (cm)                                 | 20 cm                 |
| Power Density (W/m <sup>2</sup> )                        | 9.95 W/m <sup>2</sup> |

## ISED MPE CALCULATION

### Calculations

#### RF Exposure Field Strength Limits

Public Persons may be exposed up to:

|                                                                                      |                        |
|--------------------------------------------------------------------------------------|------------------------|
| Worst-Case RF Field Strength Limit for the General Public (Uncontrolled Environment) | 1.588 W/m <sup>2</sup> |
|--------------------------------------------------------------------------------------|------------------------|

Occupational Persons may be exposed up to:

|                                                                                |                        |
|--------------------------------------------------------------------------------|------------------------|
| Worst-Case RF Field Strength Limit for Controlled Use (Controlled Environment) | 13.01 W/m <sup>2</sup> |
|--------------------------------------------------------------------------------|------------------------|

#### Separation Distance

Mandatory distance from radiating element:

| Calculation Method                                  | Distance from Radiating Element (cm)<br>= SQRT (P(mW) / 4π S(mW/cm <sup>2</sup> )) |
|-----------------------------------------------------|------------------------------------------------------------------------------------|
| Uncontrolled Sep. Distance @ 1.588 W/m <sup>2</sup> | 50.05 cm                                                                           |
| Controlled Sep. Distance @ 13.01 W/m <sup>2</sup>   | 17.49 cm                                                                           |

#### EUT Power Density at 20 cm

| Calculation Method        | Power Density (mW/cm <sup>2</sup> )<br>= P(mW) / 4π R(cm) <sup>2</sup> |
|---------------------------|------------------------------------------------------------------------|
| EUT Power Density @ 20 cm | 9.95 W/m <sup>2</sup>                                                  |

## END OF REPORT