



# RF Exposure Evaluation Report

<b>APPLICANT</b>	RFE BROADCAST S.R.L.
<b>ADDRESS</b>	VIA MAREVITANO N. 26 FALERNA (CZ) 88042 ITALY
<b>FCC ID</b>	2ARJIDS3000
<b>IC</b>	24642-DS3000
<b>MODEL NUMBER</b>	DS1000, DS2000, DS3000
<b>PRODUCT DESCRIPTION</b>	FM BROADCAST TRANSMITTER
<b>FINAL TEST DATE</b>	1/14/2019
<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
2272UT18 MPETestReport_	Rev1	Initial Issue	12/4/2019
	Rev2	Updated power output	06/29/2020

**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 Director / EMC Specialist
<b>Date</b>	06/29/2020

APPLICANT: RFE BROADCAST S.R.L.  
FCC ID: 2ARJIDS3000  
IC: 24642-DS3000  
Report: 2272UT18 MPE\_TestReport\_Rev2

## GENERAL INFORMATION

<b>EUT Description</b>	FM BROADCAST TRANSMITTER		
<b>Model Number</b>	DS1000, DS2000, DS3000		
<b>EUT Power Source</b>	<input checked="" type="checkbox"/> 110-120Vac, 50-60Hz	<input type="checkbox"/> DC Power (13.8 VDC)	<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 checked="" type="checkbox"/> Fixed	<input type="checkbox"/> Mobile	<input type="checkbox"/> Portable
<b>Antenna Connector</b>	External, N Type		
<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

Antenna is Provided	Type	Max Gain (dBi)
No	n/a	0.0

## RF POWER OUTPUT

Model	Stable over Input Voltage Variation (+/- %)	Output Power (W)	Min Power 90% (W)	Max Power 105% (W)
DS1000	5%	1000	900	1050
DS2000	5%	2000	1800	2100
DS3000	5%	3000	2700	3150

## FCC MPE Distance

Uncontrolled Public RF Exposure/MPE Guideline	
Separation Distance (cm)	1119 cm
Power Density (mW/cm <sup>2</sup> )	0.2 mW/cm <sup>2</sup>
Controlled Occupational RF Exposure/MPE Guideline	
Separation Distance (cm)	500 cm
Power Density (mW/cm <sup>2</sup> )	1 mW/cm <sup>2</sup>

## FCC MPE Calculations

EUT Parameters		
Parameter	Value	Unit
EUT Form Factor	Fixed	
Lowest Frequency	88.000	MHz
Highest Frequency	108.000	MHz
Maximum Power	3150.000	W
Tune Up Tolerance	0.000	+/- W
Duty Cycle	100%	%
Antenna Gain	0.000	dBi EIRP
Coax Loss	0.000	dB
EIRP	3150.000	W

Calculations	
<b>RF Exposure Field Strength Limits</b>	
Public Persons may be exposed up to:	
Worst-Case RF Field Strength Limit for the General Public (Uncontrolled Environment)	0.2 mW/cm <sup>2</sup>
Occupational Persons may be exposed up to:	
Worst-Case RF Field Strength Limit for Controlled Use (Controlled Environment)	1 mW/cm <sup>2</sup>
<b>Separation Distance</b>	
Mandatory distance from radiating element:	
Calculation Method	Distance from Radiating Element (cm) = SQRT (P(mW) / 4π S(mW/cm <sup>2</sup> ))
Uncontrolled Sep. Distance @ 0.2 mW/cm <sup>2</sup>	1119.53 cm
Controlled Sep. Distance @ 1 mW/cm <sup>2</sup>	500.67 cm
<b>EUT Power Density at 20 cm</b>	
Calculation Method	Power Density (mW/cm <sup>2</sup> ) = P(mW) / 4π R(cm) <sup>2</sup>
EUT Power Density @ 20 cm	626.673 mW/cm <sup>2</sup>

## ISED MPE Distance

Uncontrolled Public RF Exposure/MPE Guideline	
Separation Distance (cm)	1393 cm
Power Density (W/m <sup>2</sup> )	1.291 W/m <sup>2</sup>
Controlled Occupational RF Exposure/MPE Guideline	
Separation Distance (cm)	623 cm
Power Density (W/m <sup>2</sup> )	6.46 W/m <sup>2</sup>

## ISED MPE Calculations

EUT Parameters		
Parameter	Value	Unit
EUT Form Factor	Fixed	
Lowest Frequency	88.000	MHz
Highest Frequency	108.000	MHz
Maximum Power	3150.000	W
Tune Up Tolerance	0.000	+/- W
Duty Cycle	100%	%
Antenna Gain	0.000	dBi EIRP
Coax Loss	0.000	dB
EIRP	3150.000	W

Calculations	
<b>RF Exposure Field Strength Limits</b>	
Public Persons may be exposed up to:	
Worst-Case RF Field Strength Limit for the General Public (Uncontrolled Environment)	1.291 W/m <sup>2</sup>
Occupational Persons may be exposed up to:	
Worst-Case RF Field Strength Limit for Controlled Use (Controlled Environment)	6.46 W/m <sup>2</sup>
<b>Separation Distance</b>	
Mandatory distance from radiating element:	
Calculation Method	Distance from Radiating Element (cm) = SQRT (P(mW) / 4π S(mW/cm <sup>2</sup> ))
Uncontrolled Sep. Distance @ 1.291 W/m <sup>2</sup>	1393.44 cm
Controlled Sep. Distance @ 6.46 W/m <sup>2</sup>	623.16 cm
<b>EUT Power Density at 20 cm</b>	
Calculation Method	Power Density (mW/cm <sup>2</sup> ) = P(mW) / 4π R(cm) <sup>2</sup>
EUT Power Density @ 20 cm	6266.73 W/m <sup>2</sup>