



# 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>	2ARJIDS100
<b>IC</b>	24642-DS100
<b>MODEL NUMBER</b>	DS100
<b>PRODUCT DESCRIPTION</b>	FM BROADCAST TRANSMITTER
<b>FINAL TEST DATE</b>	1/14/2018
<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
2270UT18 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:



<b>Name and Title</b>	Franklin Rose, Project Director / EMC Specialist
<b>Date</b>	06/29/2020

## GENERAL INFORMATION

<b>EUT Description</b>	FM BROADCAST TRANSMITTER		
<b>Model Number</b>	DS100		
<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)
DS30	5%	100	90	105

## FCC MPE Distance

<i>Uncontrolled Public RF Exposure/MPE Guideline</i>	
Separation Distance (cm)	204.4 cm
Power Density (mW/cm <sup>2</sup> )	0.2 mW/cm <sup>2</sup>
<i>Controlled Occupational RF Exposure/MPE Guideline</i>	
Separation Distance (cm)	91.4 cm
Power Density (mW/cm <sup>2</sup> )	1 mW/cm <sup>2</sup>

## FCC MPE Calculations

<i>EUT Parameters</i>		
<i>Parameter</i>	<i>Value</i>	<i>Unit</i>
<i>EUT Form Factor</i>	Fixed	
<i>Lowest Frequency</i>	88.000	MHz
<i>Highest Frequency</i>	108.000	MHz
<i>Maximum Power</i>	105.000	W
<i>Tune Up Tolerance</i>	0.000	+/- W
<i>Duty Cycle</i>	100%	%
<i>Antenna Gain</i>	0.000	dBi EIRP
<i>Coax Loss</i>	0.000	dB
<i>EIRP</i>	105.000	W

<i>Calculations</i>	
<i>RF Exposure Field Strength Limits</i>	
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>
<i>Separation Distance</i>	
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>	204.4 cm
Controlled Sep. Distance @ 1 mW/cm <sup>2</sup>	91.41 cm
<i>EUT Power Density at 20 cm</i>	
Calculation Method	Power Density (mW/cm <sup>2</sup> ) = P(mW) / 4π R(cm) <sup>2</sup>
EUT Power Density @ 20 cm	20.889 mW/cm <sup>2</sup>

APPLICANT: RFE BROADCAST S.R.L.  
 FCC ID: 2ARJIDS100  
 IC: 24642-DS100  
 Report: 2270UT18 MPE\_TestReport\_Rev2

## ISED MPE Distance

<b>Uncontrolled Public RF Exposure/MPE Guideline</b>	
Separation Distance (cm)	254.4 cm
Power Density (W/m <sup>2</sup> )	1.291 W/m <sup>2</sup>
<b>Controlled Occupational RF Exposure/MPE Guideline</b>	
Separation Distance (cm)	113 cm
Power Density (W/m <sup>2</sup> )	6.46 W/m <sup>2</sup>

## ISED MPE Calculations

<b>EUT Parameters</b>		
Parameter	Value	Unit
EUT Form Factor	Fixed	
Lowest Frequency	88.000	MHz
Highest Frequency	108.000	MHz
Maximum Power	105.000	W
Tune Up Tolerance	0.000	+/- W
Duty Cycle	100%	%
Antenna Gain	0.000	dBi EIRP
Coax Loss	0.000	dB
EIRP	105.000	W

<b>Calculations</b>	
<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>	254.41 cm
Controlled Sep. Distance @ 6.46 W/m <sup>2</sup>	113.77 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	208.89 W/m <sup>2</sup>