



RF Exposure Evaluation Report

APPLICANT	RFE BROADCAST S.R.L.
ADDRESS	VIA MAREVITANO N. 26 FALERNA (CZ) 88042 ITALY
FCC ID	2ARJIDS50
IC	24642-DS50
MODEL NUMBER	DS50, DS30
PRODUCT DESCRIPTION	FM BROADCAST TRANSMITTER
FINAL TEST DATE	1/14/2018
PREPARED BY	Franklin Rose
TEST RESULTS	☒ PASS ☐ FAIL

Report Number	Report Version	Description	Issue Date
2269UT18 MPETestReport_	Rev1	Initial Issue	12/4/2019
	Rev2	Updated power output	2/6/2020
	Rev3	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:



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

APPLICANT: RFE BROADCAST S.R.L.
FCC ID: 2ARJIDS50
IC: 24642-DS50
Report: 2269UT18 MPE_TestReport_Rev3

GENERAL INFORMATION

EUT Description	FM BROADCAST TRANSMITTER		
Model Number	DS50		
EUT Power Source	☒ 110–120Vac, 50–60Hz	☐ DC Power (13.8 VDC)	☐ Battery Operated
Test Item	☐ Engineering Prototype	☒ Pre-Production	☐ Production
Type of Equipment	☒ Fixed	☐ Mobile	☐ Portable
Antenna Connector	External, N 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, IC 2056A		

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%	30	27	31.5
DS50	5%	50	45	52.5

FCC MPE Distance

Uncontrolled Public RF Exposure/MPE Guideline	
Separation Distance (cm)	144.5 cm
Power Density (mW/cm ²)	0.2 mW/cm ²
Controlled Occupational RF Exposure/MPE Guideline	
Separation Distance (cm)	64.6 cm
Power Density (mW/cm ²)	1 mW/cm ²

FCC MPE Calculations

EUT Parameters		
Parameter	Value	Unit
EUT Form Factor	Fixed	
Lowest Frequency	88.000	MHz
Highest Frequency	108.000	MHz
Maximum Power	52.500	W
Tune Up Tolerance	0.000	+/- W
Duty Cycle	100%	%
Antenna Gain	0.000	dBi EIRP
Coax Loss	0.000	dB
EIRP	52.500	W

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)	0.2 mW/cm ²
Occupational Persons may be exposed up to:	
Worst-Case RF Field Strength Limit for Controlled Use (Controlled Environment)	1 mW/cm ²
Separation Distance	
Mandatory distance from radiating element:	
Calculation Method	Distance from Radiating Element (cm) = $\sqrt{P(mW) / 4\pi S(mW/cm^2)}$
Uncontrolled Sep. Distance @ 0.2 mW/cm ²	144.53 cm
Controlled Sep. Distance @ 1 mW/cm ²	64.64 cm
EUT Power Density at 20 cm	
Calculation Method	Power Density (mW/cm ²) = $P(mW) / 4\pi R(cm)^2$
EUT Power Density @ 20 cm	10.445 mW/cm ²

ISED MPE Distance

Uncontrolled Public RF Exposure/MPE Guideline	
Separation Distance (cm)	179.8 cm
Power Density (W/m ²)	1.291 W/m ²
Controlled Occupational RF Exposure/MPE Guideline	
Separation Distance (cm)	80.4 cm
Power Density (W/m ²)	6.46 W/m ²

ISED MPE Calculations

EUT Parameters		
Parameter	Value	Unit
EUT Form Factor	Fixed	
Lowest Frequency	88.000	MHz
Highest Frequency	108.000	MHz
Maximum Power	52.500	W
Tune Up Tolerance	0.000	+/- W
Duty Cycle	100%	%
Antenna Gain	0.000	dBi EIRP
Coax Loss	0.000	dB
EIRP	52.500	W

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)	1.291 W/m ²
Occupational Persons may be exposed up to:	
Worst-Case RF Field Strength Limit for Controlled Use (Controlled Environment)	6.46 W/m ²
Separation Distance	
Mandatory distance from radiating element:	
Calculation Method	Distance from Radiating Element (cm) = SQRT (P(mW) / 4π S(mW/cm ²))
Uncontrolled Sep. Distance @ 1.291 W/m ²	179.89 cm
Controlled Sep. Distance @ 6.46 W/m ²	80.45 cm
EUT Power Density at 20 cm	
Calculation Method	Power Density (mW/cm ²) = P(mW) / 4π R(cm) ²
EUT Power Density @ 20 cm	104.45 W/m ²