TIMCO ENGINEERING, Inc.
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RF Exposure Evaluation Report

APPLICANT	UNIDEN AMERICA CORPORATION
	3001 GATEWAY DRIVE SUITE 130 IRVING TEXAS 75063 USA
FCC ID	AMWUT655
IC	513C-UT655D
MODEL NUMBER	VHF490
PRODUCT DESCRIPTION	FIXED MOUNTED VHF MARINE TRANSCEIVER
STANDARD APPLIED	CFR 47 Part 2.1091
PREPARED BY	Cory Leverett

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.

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:

Cory Leverett

Engineering Project Manager

Date: 4/10/2017

RF Exposure Requirements

General information

Device type: FIXED MOUNTED VHF MARINE TRANSCEIVER

Antenna

Configuration	Antenna p/n	Type	Max. Gain (dBi)
Fixed mounted	Any	omni	9

MPE Calculation:

The minimum separation distance is calculated as follows:

$$E(V/m) = \frac{\sqrt{30 \times P \times G}}{d} \qquad \text{Power density: } P_d(mW/cm^2) = \frac{E^2}{3770}$$

The limit for general uncontrolled exposure environment is shown in FCC rule Part 1.11310, 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

Max Power	25	W	*equals*	Max Power	25000	mW
Duty Cycle	100	%	*equals*	Duty Factor	1	numeric
Antenna Gain	9	dBi	*equals*	Gain numeric	7.943282347	numeric
Coax Loss	0	dB		Gain - Coax Loss	7.943282347	numeric
Power Density	0.1291	mW/cm^2				

Enter power Density from the chart to the right

Frequency 162 MHz

RSS-102 (i5) § 4 Table 3 General Public Use Limits

Frequency Range	Power density	Enter this value
MHz	**W/M^2**	**mW/cm^2**
10 -20	2	0.2
20-48	$8.944/f^{0.5}$	0.070270701
48-300	1.291	0.1291
300-6000	$0.02619 f^{0.6834}$	0.085
6000-15000	10	1
15000-150000	10	1
150000-300000	$6.67 \times 10^{-5} f$	0.00108054

f = Frequency in MHz

Minimum Separation Distance	**350 cm**	**3.50 m**

Minimum Seperation in Inches 137.6374 Inches

Applicant: UNIDEN AMERICA CORPORATION
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Report: 332AUT17RF Exp MPE Rpt.docx