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RF Exposure Evaluation Report

APPLICANT	CRESCEND TECHNOLOGIES, LLC
	140 E. State Parkway SCHAUMBURG IL 60173 USA
FCC ID	CWWDSDTUL50
MODEL NUMBER	DSDTUL50
PRODUCT DESCRIPTION	UHF AMPLIFIER
STANDARD APPLIED	CFR 47 Part 2.1091
PREPARED BY	Franklin Rose

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:

Franklin Rose, Project Manager / Testing Technician

Date: 02/27/2018

RF Exposure Requirements

General information

Device type: UHF AMPLIFIER

Antenna

The manufacturer does not specify an antenna, but a typical antenna has a gain of 5 dBi.

Configuration	Antenna p/n	Type	Max. Gain (dBi)
Fixed mounted	Any	omni	5

Operating configuration and exposure conditions:

The conducted output power is shown in the table below.

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 1.1310, Table 1.

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	50	W	*equals*	Max Power	50000	mW
Duty Cycle	30	%	*equals*	Duty Factor	0.3	numeric
Antenna Gain	5	dBi	*equals*	Gain numeric	3.162278	numeric
Coax Loss	0	dB		Gain - Coax Los	3.162278	numeric
Power Density	0.3	mW/cm^2				

Enter power Density from the chart to the right

Frequency 470 MHz

Rule Part 1.1310, Table 1 (B)

Frequency rang	Power den	Enter this value
MHz	mW/cm^2	mW/cm^2
0.3-1.34	100	**100**
1.34-30	$180/f^2$	**0.0**
30-300	0.2	**0.2**
300-1,500	f/1500	**0.3**
1,500-100,000	1	**1**

f = frequency in MHz

Minimum Separation Distance	**112 cm**	**1.12 m**

Minimum Seperation in Inches 44.12802 Inches