TIMCO ENGINEERING, Inc.
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RF Exposure Evaluation Report

APPLICANT	RITRON, INC.
	505 West Carmel Dr. PO Box 1998 Carmel IN 46032-7564 USA
FCC ID	AIERIT44-465
MODEL NUMBER	RLR-465DMR, RLR-465NX
PRODUCT DESCRIPTION	UHF-DIGITAL REPEATER
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, Engineering Project Manager

Date: 04/09/2018

RF Exposure Requirements

General information

Device type: UHF-DIGITAL REPEATER

Antenna

The manufacturer specifies a max antenna gain of 25 dBi.

Antenna p/n	Type	Max. Gain (dBi)
Any	Yagi	12

Operating configuration and exposure conditions:

The conducted output power is shown in the table below. Typical use qualifies for a maximum duty cycle factor of 100%.

MPE Calculation:

The minimum separation distance is calculated as follows:

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

FCC Limit:
The limit for General Uncontrolled Exposure Environment is shown in FCC rule Part 1.1310, Table 1.

ISED Limit:
The limit for General Public Use: RSS-102 (i5) § 4 Table 3 General Public Use Limits

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RF Exposure Table

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	10	W	*equals*	Max Power	10000	mW
Duty Cycle	100	%	*equals*	Duty Factor	1	numeric
Antenna Gain	12	dBi	*equals*	Gain numeric	15.84893	numeric
Coax Loss	0	dB		Gain - Coax Loss	15.84893	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 range	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	**205 cm**	(2.05 m)
	81 in	(6.72 ft)

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Report: RF EXP MPE RPT.DOCX