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## RF Exposure Evaluation Report

<b>APPLICANT</b>	ROHILL ENGINEERING B.V.
	Edisonstraat 12 P.O. Box 373, 7900 AJ Hoogeveen Hoogeveen 7903 AN NETHERLANDS
<b>FCC ID</b>	2AGJ3R-8070-450MHZ
<b>MODEL NUMBER</b>	R-8070-450
<b>PRODUCT DESCRIPTION</b>	TETRA TRANSCEIVER
<b>STANDARD APPLIED</b>	CFR 47 Part 2.1091
<b>PREPARED BY</b>	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.

The attached report shall not be reproduced except in full without the written approval of TIMCO ENGINEERING, INC.

## 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:** **3/11/2016**



A handwritten signature in blue ink, appearing to read 'Cory Leverett', is written over a red circular seal. The seal contains the text 'TIMCO ENGINEERING, INC.' around the perimeter and 'FL 32669' in the center.

# RF Exposure Requirements

## General information

Device type: TETRA TRANSCEIVER

Devices that operate under Part 90 of this chapter are subject to RF exposure evaluation prior to equipment authorization or use.

## Antenna

The manufacturer does not specify an antenna, but a typical antenna has a gain of 0 dBi.

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

Operation: A typical installation consists of an antenna system with a 10 meter coaxial cable of the type RG 213/ U type which has a loss as follows;

Nom. Attenuation for RG 213/U:

Frequency MHz	Attenuation per 100ft. dB
1	.27
10	.55
50	1.3
100	1.9
200	2.7
400	4.1
700	6.5
900	7.6
1000	8.0
4000	21.5

## MPE Calculation:

The minimum separation distance is calculated as follows:

$$E(V/m) = \frac{\sqrt{30 \times P \times G}}{d}$$

$$\text{Power density: } P_d(mW/cm^2) = \frac{E^2}{3770}$$

The limit for general uncontrolled exposure environment is shown in FCC rule Part 1.11310, Table 1.

**Minimum Separation Distance for Mobile or Fixed Devices  
Controlled Exposure**

**Insert values in yellow highlighted boxes to determine Minimum Separation Distance**

Max Power	43.4	W	equals	Max Power	43400	mW
Duty Cycle	100	%	equals	Duty Factor	1	numeric
Antenna Gain	12	dBi	equals	Gain numeric	15.84893192	numeric
Coax Loss	1	dB		Gain - Coax Loss	12.58925412	numeric
Power Density	1.6	mW/cm <sup>2</sup>				
Frequency	470	MHz				

**Enter power Density from the chart to the right**

**Rule Part 1.1310, Table 1 (A)**

Freq range	Power density	Enter this value		
		MHz	mW/cm <sup>2</sup>	mW/cm <sup>2</sup>
0.3 - 3	100		100	
3 - 30	900/f <sup>2</sup>		0.0	
30-300	1		1	
300-1,500	f/300		1.6	
1,500-100,000	5		5	

f = frequency in MHz

**Minimum Separation Distance**

**165 cm**

**1.65 m**

Minimum Separation in Inches

64.85064 Inches

Applicant: ROHILL ENGINEERING B.V.

FCC ID: 2AGJ3R-8070-450MHZ

Report: 113AUT16TestReport\_Rev1