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RF Exposure Evaluation Report

APPLICANT	SPECTRA ENGINEERING PTY LTD
	731 MARSHALL RD MALAGA WESTERN AUSTRALIA 6090 AUSTRALIA
FCC ID	OKRMXDR4V
IC	5605A-MXDR4V
MODEL NUMBER	MXDR4V
PRODUCT DESCRIPTION	MXDR/ATLAS 4500 BASE STATION UHF
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.

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: 11/1/2016

RF Exposure Requirements

General information

Device type: MXDR/ATLAS 4500 BASE STATION UHF

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	Any	8.15

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:

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

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

Insert values in yellow highlighted boxes to determine Minimum Separation Distance							
Max Power	109.9	W	*equals*	Max Power	109900	mW	
Duty Cycle	100	%	*equals*	Duty Factor	1	numeric	
Antenna Gain	8.15	dBi	*equals*	Gain numeric	6.531306	numeric	
Coax Loss	2	dB		Gain - Coax Loss	4.120975	numeric	
Power Density	0.3	mW/cm^2					

Enter power Density from the chart to the right

Rule Part 1.1310, Table 1 (B)

Frequency	512	MHz

Frequency range	Power density	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	**347 cm**	**3.47 m**

Minimum Seperation in Inches	136.3539	Inches

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FCC ID: OKRMXDR4V
Report: 2104AUT16RF EXP MPE RPT_Rev1