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RF Exposure Evaluation Report

APPLICANT	SPECTRA ENGINEERING PTY LTD
	731 MARSHALL RD MALAGA WESTERN AUSTRALIA 6090 AUSTRALIA
FCC ID	OKRMXDR1V
IC	5605A-MXDR1V
MODEL NUMBER	MXDR1V
PRODUCT DESCRIPTION	ATLAS 4500 BASE STATION VHF
STANDARD APPLIED	CFR 47 Part 2.1091, ISED RSS-102
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 ISED RSS-102 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:

Franklin Rose
Engineering Project Manager

Date: 5/ 9/ 2017

Applicant: SPECTRA ENGINEERING PTY LTD
FCC ID: OKRMXDR1V
IC: 5605A-MXDR1V
Report: 443AUT17RF Exp MPE Rpt.docx

RF Exposure Requirements

General information

Device type: ATLAS 4500 BASE STATION VHF

Antenna

Configuration	Antenna p/n	Type	Max. Gain
Fixed mounted	Any	omni	6 dBd

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:

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

The limit for general uncontrolled exposure environment is shown in FCC rule Part 1.11310, Table 1 and ISED RSS-102 § 4 Table 3.

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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	112.2	W	<i>equals</i>	Max Power	112200 mW																								
Duty Cycle	100	%	<i>equals</i>	Duty Factor	1 numeric																								
Antenna Gain	8.15	dBi	<i>equals</i>	Gain numeric	6.531306 numeric																								
Coax Loss	0	dB		Gain - Coax Loss	6.531306 numeric																								
Power Density	0.2	mW/cm ²																											
Enter power Density from the chart to the right			<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3" style="text-align: center;">Rule Part 1.1310, Table 1 (B)</th> </tr> <tr> <th style="text-align: center;">Frequency range</th> <th style="text-align: center;">Power density</th> <th style="text-align: center;">Enter this value</th> </tr> <tr> <th style="text-align: center;">MHz</th> <th style="text-align: center;">mW/cm²</th> <th style="text-align: center;">mW/cm²</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">0.3-1.34</td> <td style="text-align: center;">100</td> <td style="text-align: center;">100</td> </tr> <tr> <td style="text-align: center;">1.34-30</td> <td style="text-align: center;">180/f²</td> <td style="text-align: center;">0.0</td> </tr> <tr> <td style="text-align: center;">30-300</td> <td style="text-align: center;">0.2</td> <td style="text-align: center;">0.2</td> </tr> <tr> <td style="text-align: center;">300-1,500</td> <td style="text-align: center;">f/1500</td> <td style="text-align: center;">0.1</td> </tr> <tr> <td style="text-align: center;">1,500-100,000</td> <td style="text-align: center;">1</td> <td style="text-align: center;">1</td> </tr> </tbody> </table>			Rule Part 1.1310, Table 1 (B)			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	0.1	1,500-100,000	1	1
Rule Part 1.1310, Table 1 (B)																													
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MHz	mW/cm ²	mW/cm ²																											
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1,500-100,000	1	1																											
Frequency	174	MHz																											
			f = frequency in MHz																										
Minimum Separation Distance			540 cm		5.40 m																								
Minimum Separation in Inches		212.4276 Inches																											