849 NW STATE ROAD 45
NEWBERRY, FL 32669 USA
PH: 888.472.2424 OR
352.472.5500
FAX: 352.472.2030
EMAIL: INFO@TIMCOENGR.COM
HTTP://WWW.TIMCOENGR.COM

www.timcoengr.com

RF Exposure Evaluation Report

APPLICANT	SPECTRA ENGINEERING PTY LTD
	731 MARSHALL RD MALAGA WESTERN AUSTRALIA 6090 AUSTRALIA
FCC ID	OKRMXDR7V
MODEL NUMBER	MXDR7V
PRODUCT DESCRIPTION	ATLAS 4500 REPEATER 700/800 MHz
STANDARD APPLIED	CFR 47 Part 2.1091
PREPARED BY	Sid Sanders

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:

Sid Sanders
Engineering Project Manager

Date: 7/27/2016

Applicant: SPECTRA ENGINEERING PTY LTD
FCC ID: OKRMXDR7V
Report: V:\S\SPECTRA_OKR\1198AUT16\1198AUT16RF EXP MPE RPT160616 REV.DOCX

Page 2 of 4

RF Exposure Requirements

General information

Device type: ATLAS 4500 REPEATER 700/800 MHz

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	0

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.

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	120	W	equals	Max Power	120000	mW
Duty Cycle	100	%	equals	Duty Factor	1	numeric
Antenna Gain	0	dBi	equals	Gain numeric	1	numeric
Coax Loss	1.5	dB		Gain - Coax Loss	0.707946	numeric
Power Density	0.6	mW/cm^2				

Enter power Density from the chart to the right

Frequency	869	MHz

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	**0.6**
1,500-100,000	1	**1**

f = frequency in MHz

Minimum Separation Distance	**106 cm**	**1.06 m**

Minimum Seperation in Inches   41.75845 Inches

Applicant: SPECTRA ENGINEERING PTY LTD
FCC ID: OKRMXDR7V
Report: V:\S\SPECTRA_OKR\1198AUT16\1198AUT16RF EXP MPE RPT160616 REV.DOCX