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RF Exposure Evaluation Report

APPLI CANT	SPECTRA ENGINEERING PTY LTD
	731 MARSHALL RD MALAGA WESTERN AUSTRALIA 6090 AUSTRALIA
FCC I D	OKRMXDR7V
MODEL NUMBER	MXDR7V
PRODUCT DESCRIPTION	ATLAS 4500 MULTIMODE STATION
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

RF Exposure Requirements

General information

Device type: ATLAS 4500 MULTIMODE STATION

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:

$E(V/m) = \frac{\sqrt{30 \times P \times G}}{d}$	Power density: $P_d(mW/cm^2) = \frac{E^2}{3770}$
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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	<i>equals</i>	Max Power	120000 mW																								
Duty Cycle	100	%	<i>equals</i>	Duty Factor	1 numeric																								
Antenna Gain	0	dBi	<i>equals</i>	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			<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; border: 2px solid red;">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; border: 2px solid red;">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; border: 2px solid red;">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; border: 2px solid red;">0.6</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; border: 2px solid red;">1</td> </tr> </tbody> </table> f = frequency in 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
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300-1,500	f/1500	0.6																											
1,500-100,000	1	1																											
Frequency	869	MHz																											
Minimum Separation Distance		106 cm		1.06 m																									
Minimum Separation in Inches		41.75845 Inches																											

Applicant: SPECTRA ENGINEERING PTY LTD

FCC ID: OKRMXDR7V

Report: V:\S\SPECTRA_OKR\1198AUT16\1198AUT16RF EXP MPE RPT160616 REV2.DOCX