



RF EXPOSURE EVALUATION REPORT

APPLICANT : MiMOMax Wireless Limited
PRODUCT NAME : 700MHz Upper A Block Pyxis Transceiver
MODEL NAME : MWL-PYXIS-*H A/B/C*
BRAND NAME : MiMOMax Wireless
FCC ID : XMK-MMXPYXH001
ISSUE DATE : 2018-01-18

Tested by: Peng Fuwei
Peng Fuwei (Test engineer)

Approved by: Peng Huarui
Peng Huarui (Supervisor)

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DIRECTORY

- 1. Technical Information..... 3
- 1.1 Applicant and Manufacturer Information..... 3
- 1.2 Equipment Under Test (EUT) Description 3
- 2. Test standards..... 4
- 3. Radio Safety 5
- Annex A General Information..... 6

Change History		
Issue	Date	Reason for change
1.0	2018-01-18	First edition



1. Technical Information

Note: Provide by manufacturer.

1.1 Applicant and Manufacturer Information

Applicant:	MiMOMax Wireless Limited
Applicant Address:	540 Wairakei Road, Christchurch, 8053 New Zealand
Manufacturer:	MiMOMax Wireless Limited
Manufacturer Address:	540 Wairakei Road, Christchurch, 8053 New Zealand

1.2 Equipment Under Test (EUT) Description

Product Name:	700MHz Upper A Block Pyxis Transceiver
Serial No:	23002476
Hardware Version:	MWL-PYXIS-BHCA-IP010/Digital-IP002/RF-IP006
Software Version:	02.00.52
Operating Frequency Range:	757-758 MHz; 787-788 MHz
Channel Bandwidth:	12.5kHz; 25kHz; 50kHz
Modulation Type:	2GFSK;4GFSK
Operating Voltage:	10.5-60Vdc(Isolated)
Antenna Type:	Omni Antenna
Emission Designator:	12.5kHz:10K0W1W 25.0kHz:20K0W1W 50.0kHz:40K0W1W



2. Test standards

The objective of the report is to perform testing according to 47 CFR Part 1.1310 and Part 27.52 for the EUT FCC ID Certification:

No	Identity	Document Title
1	47 CFR Part 1.1310	Radio frequency exposure limits
2	47 CFR Part 27.52	RF safety



3. Radio Safety

3.1.1. Requirement

As per Section 1.1310 transmitters are required to be operated in a manner that ensures the public is not exposed to RF energy levels in accordance with OST/OET Bulletin Number 65.

Calculations have been made using the General Public/Uncontrolled Exposure limits. Minimum safe distances have been calculated below.

$$\text{Power density, mW/m}^2 = E^2/3770$$

- General Population / Uncontrolled exposure limit will be 0.504 mW/m²
(f/1500 = 757 MHz/1500)

As 757 MHz is the lowest frequency in the lowest band of operation in USA, this frequency has been used to give a worst-case result.

The minimum distance from the antenna at which the MPE is met is calculated from the equation relating field strength in V/m, transmit power in watts, transmit antenna gain, transmitter duty cycle and separation distance in meters:

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

Uncontrolled

$$E = 0.504 \text{ mW/m}^2 = E^2/3770$$

$$E = \sqrt{0.504 * 3770}$$

$$E = 43.6 \text{ V/m}$$

The rated maximum transmitter power = 1.0 watts.

A duty cycle of 100% as the transmitter is a base station could possibly be operated for long periods of time.

The client has declared that this transmitter can be operated using a range of antennas with various gains, as detailed in the table below

Antenna Type	Gain(dBi)	Max Gain	Safe Distance(m)	Safe Distance(cm)
Omni	2	1.6	0.16	16
	3	2.0	0.18	18
	4	2.5	0.20	20
	6	4.0	0.25	25

A sample calculation for the safe distance would be:

$$d = \sqrt{(30 * P * G * \text{Duty Cycle})} / E$$

$$d = \sqrt{(30 * 1 * 4.0 * 1.0)} / 43.6$$

$$d = 0.25 \text{ meters or } 25.0 \text{ cm}$$

Result: Complies if the safe distances defined above are applied.



Annex A General Information

1. Identification of the Responsible Testing Laboratory

Company Name:	Shenzhen Morlab Communications Technology Co., Ltd.
Department:	Morlab Laboratory
Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China
Responsible Test Lab Manager:	Mr. Su Feng
Telephone:	+86 755 36698555
Facsimile:	+86 755 36698525

2. Identification of the Responsible Testing Location

Name:	Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory
Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China

3. Facilities and Accreditations

All measurement facilities used to collect the measurement data are located at FL.3, Building A, FeiYang Science Park, Block 67, BaoAn District, Shenzhen, 518101 P. R. China. The test site is constructed in conformance with the requirements of ANSI C63.10-2013 and CISPR Publication 22; the FCC designation number is CN1192.

_____ END OF REPORT _____