

4. CLIENT INFORMATION

Company Name Simoco Australasia Pty Ltd
Address 1270 Ferntree Gully Rd,
Scoresby, Victoria, 3179
Country Australia
Contact Mr Robert Stowell

5. TEST SAMPLE DESCRIPTION

Brand Name Simoco
Model Number Pulse Air Data Modem AC
Manufacturer Simoco Australia Pty Ltd
Designed in Australia
Manufactured in Taiwan
Serial Number 5PDAC1646 04NR
FCC ID STZAIR600AC

The sample tested has the following specifications:

Rated Transmitter Output Power

5.0 Watts (+37 dBm) burst which is a DMR 50% TDMA

Transmitter Certification Range

150 – 174 MHz

Test frequencies

Channel	Frequency (MHz)	Power (Watts)
1	151.0750	5.0
2	161.5000	5.0
3	173.3750	5.0

Exposure of humans to RF fields

As per FCC KDB 447498 D01 and Section 2.1091 radio frequency transmitters are required to be operated in a manner that ensures the public is not exposed to RF energy levels.

Calculations have been made using the General Public/Uncontrolled Exposure limits that are defined in Section 1.1310.

Minimum safe distances have been calculated below.

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

- General Population / Uncontrolled exposure is 0.2 mW/cm²

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 metres:

$$\text{Power Density} = 0.2 \text{ mW/cm}^2 = E^2/3770$$

$$E = \sqrt{0.2 * 3770}$$

$$E = 27.4 \text{ V/m}$$

The rated maximum transmitter power (PC) = 5 watts (+37 dBm).

A duty cycle (DC) of 50% (0.5) has been applied as the device uses source based 50% TDMA which relates to the carrier duty cycle.

The client has declared that this transmitter can be operated using a non-directional antenna with a gain of 0 dBd or a directional antenna with a gain of up to 6 dBd.

Calculations of the safe distance for these types of antenna are detailed in the table below.

Antenna Gain (dBd)	Max Gain (dBi)	Tx Power (dBm)	EIRP (dBm)	EIRP (Watts)	E Limit (V/m)	Safe Distance (Metres)
0.0	2.15	37.0	39.15	8.22	27.4	0.40
6.0	8.15	37.0	45.15	32.73	27.4	0.80

A sample calculation for the safe distance would be:

$$d = \sqrt{(30 * P * G * DC) / E}$$

$$d = \sqrt{(30 * 32.73 * 0.5) / 27.4}$$

$$d = 0.80 \text{ metres or } 80 \text{ cm}$$

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