

## RF Exposure Evaluation declaration

Product Name : Wireless Outdoor Bridge

Model No. : ZA-5000-I

FCC ID. : UDKZA5000I

Applicant : Nanjing Z-COM Wireless Co., Ltd.

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Date of Receipt : 2006/06/06

Issued Date : 2006/07/19

Report No. : 066L128-2

The declaration results relate only to the samples calculated.

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## 1. RF Exposure Evaluation

### 1.1. Limits

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

#### LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

| Frequency Range<br>(MHz)                                  | Electric Field<br>Strength (V/m) | Magnetic Field<br>Strength (A/m) | Power Density<br>(mW/cm <sup>2</sup> ) | Average Time<br>(Minutes) |
|-----------------------------------------------------------|----------------------------------|----------------------------------|----------------------------------------|---------------------------|
| (A) Limits for Occupational/ Control Exposures            |                                  |                                  |                                        |                           |
| 300-1500                                                  | --                               | --                               | F/300                                  | 6                         |
| 1500-100,000                                              | --                               | --                               | 5                                      | 6                         |
| (B) Limits for General Population/ Uncontrolled Exposures |                                  |                                  |                                        |                           |
| 300-1500                                                  | --                               | --                               | F/1500                                 | 6                         |
| 1500-100,000                                              | --                               | --                               | 1                                      | 30                        |

F= Frequency in MHz

Friis Formula

Friis transmission formula:  $P_d = (P_{out} * G) / (4 * \pi * r^2)$

Where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = output power to antenna in mW

G = gain of antenna in linear scale

$\pi$  = 3.1416

R = distance between observation point and center of the radiator in cm

$P_d$  is the limit of MPE, 1 mW/cm<sup>2</sup>. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

### 1.2. Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

The temperature and related humidity: 18°C and 78% RH.

### 1.3. Test Result of RF Exposure Evaluation

Product : Wireless Outdoor Bridge (ZA-5000-I)  
Test Item : RF Exposure Evaluation  
Test Site : AC-3  
Test Mode : Transmitter

#### Antenna Gain

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 6dBi or 3.98 in linear scale.

#### Output Power Into Antenna & RF Exposure Evaluation Distance:

| Channel | Channel Frequency<br>(MHz) | Output Power to Antenna<br>(mW) | Power Density at R = 20 cm<br>(mW/cm <sup>2</sup> ) |
|---------|----------------------------|---------------------------------|-----------------------------------------------------|
| 149     | 5745.00                    | 34.2768                         | 0.0271                                              |
| 157     | 5785.00                    | 31.0456                         | 0.0246                                              |
| 161     | 5805.00                    | 35.3997                         | 0.0280                                              |

#### Note:

The power density Pd (4th column) at a distance of 20 cm calculated from the Friis transmission formula is far below the limit of 1 mW/cm<sup>2</sup>.