

# RF Exposure Evaluation declaration

Product Name : Voice control Bluetooth car kit

Model No. : BlueAnt S4

FCC ID : VHFBLUEANTS4

Applicant : BlueAnt Wireless

Address : Level 4, Building 1,658 Church St, Richmond  
VICTORIA 3121 Australia

Date of Receipt : Mar. 09, 2010

Date of Declaration : Mar. 23, 2010

Report No. : 103143R-RFUSP29V01

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 (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Average Time (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 : Voice control Bluetooth car kit  
 Test Item : RF Exposure Evaluation  
 Test Site : No.3 OATS

#### Antenna Gain

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 3 dBi in logarithm scale.

#### 1Mbps

##### Output Power Into Antenna & RF Exposure Evaluation Distance (3 dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
00	2402.00	2.7040	0.068693
39	2441.00	2.6122	0.066361
78	2480.00	2.8314	0.071930

#### 3Mbps

##### Output Power Into Antenna & RF Exposure Evaluation Distance (3 dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
00	2402.00	1.4757	0.037490
39	2441.00	1.3964	0.035474
78	2480.00	1.3305	0.033800

The distance r (4<sup>th</sup> column) calculated from the Friis transmission formula is far shorter than 20 cm separation requirement.