

Radio Frequency Exposure Report

On Behalf of

BUNCH UP TECHNOLOGY CORP LIMITED

UNIT 04,7/F,BRIGHT WAY TOWER,NO.33 MONG KOK ROAD,KOWLOON,HK.

Product Name:	Mobile speakers
Model/Type No.:	IK651, IK652, IK801, IK802, PBX-7, PA-65DC05L
Prepared By:	Shenzhen Hongcai Testing Technology Co., Ltd. 1st-3rd Floor, Building C, Shuanghuan Xin Yi Dai Hi-Tech Industrial Park, No.8 Baoqing Road, Baolong Industrial Zone, Longgang District, Shenzhen, Guangdong, China Tel: +86-755-86337020 Fax: +86-755-86337028
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Tested By:	Haiqing.Zhao/

Reviewed By:

Approved By:

Owen.Yang

EMC Technical Supervisor

Tony Wu

EMC Technical Manager

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1 - GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Applicant:	BUNCH UP TECHNOLOGY CORP LIMITED
Address of Applicant:	UNIT 04,7/F,BRIGHT WAY TOWER,NO.33 MONG KOK ROAD,KOWLOON,HK.
Manufacturer 1:	BUNCH UP TECHNOLOGY CORP LIMITED
Address of manufacturer:	UNIT 04,7/F,BRIGHT WAY TOWER,NO.33 MONG KOK ROAD,KOWLOON,HK.

General Description of E.U.T

Items	Description
EUT Description:	Mobile speakers
Model No.:	IK651
Supplementary Model:	IK651, IK652, IK801, IK802, PBX-7, PA-65DC05L
Frequency Band:	2402~2480MHz
Number of Channels:	79
Type of Modulation:	GFSK, Pi/4 DQPSK, 8-DPSK
Antenna Gain:	0dBi
Antenna Type:	PCB Antenna
Rated Voltage:	DC 12V 2A
Power Rating:	Battery 1:M12-2.6(12V, 2.6A) Battery 2: QP12-2.3(12V,2.3A) Battery 3:6-FM-2.6(12V, 2.6A) Adapter 1: KA1434-1501500UL INPUT:AC 100-240V, 50/60Hz OUTPUT:DC 15V, 1.5A Adapter 2: JDA0301500150WUS INPUT:AC 100-240V, 50/60Hz OUTPUT:DC 15V, 1.5A

Remark: * The test data gathered are from the production sample provided by the manufacturer.

*IK651,IK802,PBX-7 and PA-65DC05L have the same circuit and appearance, but different name.

They are Button VOL

*IK 652 and IK802 have the same circuit and appearance,but different name.they are Encipher VOL.

1.2 Objective

The objective of the following report is used to demonstrate that EUT operated in a manner that ensures the public is not exposed to radio frequency energy levels in excess of the relative provisions of FCC 47CFR Part 1.1307

1.3 General Description of Test

Items	Description
EUT Frequency band	<input checked="" type="checkbox"/> FHSS: 2.400GHz ~ 2.483GHz <input type="checkbox"/> WLAN: 2.400GHz ~ 2.483GHz <input type="checkbox"/> WLAN: 5.18GHz ~ 5.32GHz / 5.50GHz ~ 5.70GHz <input type="checkbox"/> WLAN: 5.745GHz ~ 5825GHz <input type="checkbox"/> Others: _____
Device category	<input type="checkbox"/> Portable (<20cm separation) <input checked="" type="checkbox"/> Mobile (>20cm separation) <input type="checkbox"/> Others _____
Exposure classification	<input type="checkbox"/> Occupational/Controlled exposure (S = 5mW/cm ²) <input checked="" type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm ²) <input type="checkbox"/> Others: _____
Antenna diversity	<input checked="" type="checkbox"/> Single antenna <input type="checkbox"/> Multiple antennas: <div style="margin-left: 40px;"> <input type="checkbox"/> Tx diversity <input type="checkbox"/> Rx diversity <input type="checkbox"/> Tx/Rx diversity </div>
Max. output power	2.15dBm (0.0016W)
Antenna gain (Max)	0dBi (Numeric gain:1)
Evaluation applied	<input checked="" type="checkbox"/> MPE Evaluation <input type="checkbox"/> SAR Evaluation
Note: 1. The maximum output power is 2.15dBm (0.0016W) at 2441MHz (with 1 numeric antenna gain.) 2. For mobile or fixed location transmitters, no SAR consideration applied. The minimum separation generally be used is at least 20 cm, even if the calculations indicate that the MPE distance would be lesser.	

1.4 Human Exposure Assessment Results

Calculation

Given $E = \frac{\sqrt{30 \times P \times G}}{d}$ & $S = \frac{E^2}{3770}$

Where E = Field Strength in Volts / meter

P = Power in Watts

G = Numeric antenna gain

d = Distance in meters

S = Power Density in milliwatts / square centimeter

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{3770 d^2}$$

Changing to units of mW and cm, using:

$$P \text{ (mW)} = P \text{ (W)} / 1000 \text{ and}$$

$$d \text{ (cm)} = 100 * d \text{ (m)}$$

Yields

$$S = \frac{30 \times (P/1000) \times G}{3770 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2}$$

Equation 1

Where d = distance in cm

P = Power in mW

G = Numeric antenna gain

S = Power Density in mW / cm²

EUT parameter (data from the separate report)	
Given $E = \frac{\sqrt{30 \times P \times G}}{d} \text{ \& \& } S = \frac{E^2}{3770}$	Where G: numerical gain of transmitting antenna; TP: Transmitted power in watt; d: distance from the transmitting antenna in meter
Max average output power in Watt (TP)	2.15dBm (0.0016W)
Antenna gain (G)	0 dBi (Numeric gain: 1)
Exposure classification	S=1mW/cm ²
Minimum distance in meter (d) (from transmitting structure to the human body)	20cm (0.2m)

Yields

$$S = \frac{30 \times P \times G}{3770 d^2}, \quad P=0.0016W, G=1, d=0.2$$

$$S=0.0003mW/cm^2$$

Or

$$d = \sqrt{\frac{30 \times P \times G}{3770 S}}, \quad S=0.0003, P=0.0016W, G=1$$

$$d=0.0424m$$

Conclusion:

$S=0.0003mW/cm^2$ is significant lower than the General Population Exposure Power Density Limit $1mW/cm^2$ or except the distance when human body proximity to the antenna is less than 2.25cm then will reach the General Population Exposure Power Density Limit

(For mobile or fixed location transmitters, the maximum power density is $1.0 mW / cm^2$ even if the calculation indicates that the power density would be larger.)

