1. MAXIMUM PERMISSIBLE EXPOSURE (MPE)

1.1 General Information

Client Information

Applicant:	TIC Audio Inc
Address of applicant:	15224 Stafford Street, City of Industry, CA 91744
Manufacturer:	ZhangZhou Yile Electronics Technology Co., Ltd
Address of manufacturer:	Lantian Industrial District, Zhangzhou, Fujian, China

General Description of EUT:

Product Name:	Outdoor Bluetooth Patio Speakers
Trade Name:	TIC
Model No.:	BG4,BG5,BG50,BG3,BG13,BG14,BG150, BG23, BG24, BG25,BG250, BG63,BG64, BG65,BG66,BG83, BG84,BG85,BG86, BG88, BG10, BLS6,BLS8, BLS10,BLS16, BLS18,BLS26,BLS28,BLS20, BLS30, BLS36,BLS38,BLS66,BLS68,BLS60, BLS80,BLS86,BLS88, BRS5, BRS6, BRS10, BRS12,BRS50,BRS25,BRS66, BRS68,BRS86, BRS60, BRS80,BRS88, BRS98,BRS99, BRS3, BRS4,BRS16, BRS18,BPS10, BPS60,BRS28, BRS26, BRS36,BRS38,BRS76,BRS78,BPS8, BPS120, BPS16,BPS18,BPS26,BPS28, BPS36, BPS38,BPS66,BPS68, BPS86, BPS88,BPS80, BPS96,BPS98,BPS99, BNS3,BNS4,BNS5, BNS6, BNS8, BNS16, BNS18,BNS66,BNS68,BNS88, BNS98, BNS50,BNS60, BNS120,BNS166, BNS168, BNS198,BNS100,BNS110,BNS186,BA120, BA360, BA650,BA100,BA200,BA50,BA250, BA166, BA66, BA88, BA86,BA68,BA98, BA900,BA800,BA700, BA600,BA8,BA10,BA18, BA16
FCC ID:	2AJNGBG4
Rated Voltage:	Adapter:DC 19V

Technical Characteristics of EUT:

Bluetooth Version:	V4.2+EDR (Only BDR/EDR mode)
Frequency Range:	2402-2480MHz
RF Output Power:	3.083dBm (Conducted)
Data Rate:	1Mbps, 2Mbps, 3Mbps
Modulation:	GFSK, Pi/4 QDPSK, 8DPSK
Quantity of Channels:	79
Channel Separation:	1MHz
Type of Antenna:	Integral
Antenna Gain:	0.5dBi

1.2 Standard Applicable

According to § 1.1307(b)(1) and KDB 447498 D01 General RF Exposure Guidance v06, system operating under the provisions of this section shall be operating in a manner that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure.

(a) Limits for Occupational / Controlled Exposure

Frequency range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Times $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f)*	6
30-300	61.4	0.163	1.0	6
300-1500	/	/	F/300	6
1500-100000	/	/	5	6

(b) Limits for General Population / Uncontrolled Exposure

Frequency range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Times $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	F/1500	30
1500-100000	/	/	1	30

Note: f = frequency in MHz: * = Plane-wave equivalents power density

1.3 MPE Calculation Method

$S = (30*P*G) / (377*R^2)$

S = power density (in appropriate units, e.g., mw/cm^2)

P = power input to the antenna (in appropriate units, e.g., mw)

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor is normally numeric gain.

R = distance to the center of radiation of the antenna (in appropriate units, e.g., cm)

1.4 MPE Calculation Result

Maximum Tune-Up output power: 4.0 (dBm)
Maximum peak output power at antenna input terminal: 2.51 (mW)
Prediction distance: >20(cm)
Prediction frequency: 2480 (MHz)
Antenna gain: 0.5 (dBi)
Directional gain (numeric gain): 1.12
The worst case is power density at prediction frequency at 20cm: 0.0006(mw/cm^2)
MPE limit for general population exposure at prediction frequency: 1 (mw/cm^2)

Result: Pass

1.5 Test Setup Photos