

1. MAXIMUM PERMISSIBLE EXPOSURE (MPE)

1.1 General Information

Client Information

Applicant: TIC Audio Inc
Address of applicant: 15224 E STAFFORD ST, 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: Bluetooth Speaker
Trade Name: /
Model No.: B503, B509, B529, B526, B521, B522, B523, B524, B525, B527, B511, B512, B513, B514, B515, B516, B517, B519, B520, BPS550, BPS560, BPS510, BPS520, BPS530, BPS540, BPS590, BPS565, GS305, GS405, GS505, GS605, GS705, GS805, GS905, GS105, GS205, TFS551, TFS552, TFS553, TFS554, TFS555, TFS556, TFS557, TFS559, TFS561, TFS562, TFS563, TFS564, TFS565, TFS566, TFS567, TFS569, IWB501, TRB502, SRB508, RB505, RB506, RB541, RB542, RB543, RB544, RB545, RB546, RB547, RB549, RB531, RB532, RB533, RB534, RB535, RB536, RB537, RB539, PB580, PB581, PB583, PB584, PB585, PB586, PB587, PB588, PB589, PB590, PB591, PB592, 9B593, PB594, PB595, PB596, PB597, PB599, SBB518, SBB528, SBB538, SBB548, SBB558, SBB568, SBB578, SBB598
FCC ID: 2AJNGB503
Rated Voltage: Adapter DC17V

Technical Characteristics of EUT:

Bluetooth Version: V5.0 (BDR/EDR mode)
Frequency Range: 2402-2480MHz
RF Output Power: 7.016dBm (Conducted)
Data Rate: 1Mbps, 2Mbps, 3Mbps
Modulation: GFSK, Pi/4 QDPSK, 8DPSK
Quantity of Channels: 79
Channel Separation: 1MHz
Type of Antenna: Integral Antenna
Antenna Gain: 4dBi

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 equivalent power density

1.3 MPE Calculation Method

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

S = power density (in appropriate units, e.g., mw/cm²)

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: 8 (dBm)

Maximum peak output power at antenna input terminal: 6.31 (mW)

Prediction distance: >20(cm)

Prediction frequency: 2480 (MHz)

Antenna gain: 4 (dBi)

Directional gain (numeric gain): 2.51

The worst case is power density at prediction frequency at 20cm: 0.0032(mw/cm²)

MPE limit for general population exposure at prediction frequency: 1 (mw/cm²)

Result: Pass