

1. MAXIMUM PERMISSIBLE EXPOSURE (MPE)

1.1 General Information

Client Information

Applicant: Shenzhen Simolio Electronic Co., Ltd
Address of applicant: 6F, Bldg 1, Block A, Xifa Industrial Zone, Yintian Xixiang, Gongle Community, Xixiang St, Baoan District, Shenzhen, Guangdong

Manufacturer: Shenzhen Simolio Electronic Co., Ltd
Address of manufacturer: 6F, Bldg 1, Block A, Xifa Industrial Zone, Yintian Xixiang, Gongle Community, Xixiang St, Baoan District, Shenzhen, Guangdong

General Description of EUT:

Product Name: Bluetooth transmitter receiver
Trade Name: SIMOLIO
Model No.: JH-202D
Adding Model(s): JH-201A, JH-201D, JH-203A, JH-203U, JH-204V, JH-205H, JH-206H, JH-207D, JH-208D, JH-209D, JH-209A, JH-211D, JH-212A, JH-213A, JH-214A, JH-215A, JH-216D, JH-217D, JH-218D, JH-219D
Rated Voltage: DC5V
Battery Capacity: /
Adapter Model: MODEL:PS06C050K1000UU
INPUT:AC100-240V~50/60Hz 0.25A
OUTPUT:DC5.0V,1000mA
FCC ID: 2AYV2JH-202D
Equipment Type: Mobile device

Technical Characteristics of EUT:

Bluetooth

Bluetooth Version: V5.0 (BR/EDR mode)
Frequency Range: 2402-2480MHz
RF Output Power: 8.14dBm (Conducted)
Data Rate: 1Mbps, 2Mbps, 3Mbps
Modulation: GFSK, $\pi/4$ DQPSK, 8DPSK
Quantity of Channels: 79
Channel Separation: 1MHz
Type of Antenna: External Antenna
Antenna Gain: 2.22dBi

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: 8.5(dBm)

Maximum peak output power at antenna input terminal: 7.08(mW)

Prediction distance: >20(cm)

Prediction frequency: 2480 (MHz)

Antenna gain: 2.22 (dBi)

Directional gain (numeric gain): 1.67

The worst case is power density at prediction frequency at 20cm: 0.0023(mw/cm²)

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

Result: Pass