

RF Exposure Requirements

1.1 General Information

Client Information

Applicant : Foshan Alpicool Electric Appliance Co., LTD.
Address of applicant : 13A, Xinlong Road, ShilongJiyue Industrial Zone Xintang Village,
Lunjiao Town, Shunde District, Foshan, Guangdong, China
Manufacturer : The same as above
Address of manufacturer : The same as above

General Description of E.U.T

FCC ID : 2A9O8-ZGW
Product Name : Car Refrigerator
Model No. : ZGW41, ZGW51, ZGW61, ZG41, ZG51, ZG61, TW35, TW45,
TW55, TA35, TA45, TA55, TWW35, TWW45, TWW55, TAW35,
TAW45, TAW55
Rated Voltage : DC 12/24V, 60W
Battery Capacity : ---
Power Adapter : GM95-145600-D
Input: 100-240V~, 50/60Hz, 2.5A; Output: DC 14.5V.6.0A

Technical Characteristics of EUT

BT

Bluetooth Version : V5.0(BR+EDR mode)
Frequency Range : 2402-2480MHz
Max. RF Output Power : 4.65dBm (Conducted)
Modulation : GFSK , $\pi/4$ DQPSK
Data Rate : 1Mbps, 2Mbps
Quantity of Channels : 79
Channel Separation : 1MHz
Type of Antenna : PCB Antenna
Antenna Gain : -2.41dBi

Technical Characteristics of EUT

BLE

Bluetooth Version.....	: V5.0 (BLE mode)
Frequency Range	: 2402-2480MHz
RF Output Power	: 4.16 dBm (Conducted)
Modulation	: GFSK
Data Rate	: 1Mbps
Quantity of Channels	: 40
Channel Separation.....	: 2MHz
Type of Antenna	: PCB Antenna
Antenna Gain	: -2.41dBi

2 Applicable Standard

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

3 Calculation Method

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

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), R=20cm.

4 MPE Calculation Result

Test Mode	Antenna Gain (dBi)	Numeric gain	Conducted Power (dBm)	Maximum Tune-up output power		PD (mW/cm ²)	Limit (mW/cm ²)
				(dBm)	(mW)		
BT	-2.41	0.57	4.65	5.00	3.16	0.00036	1.0
BLE	-2.41	0.57	4.16	5.00	3.16	0.00036	1.0

Result: Pass

=====End of Report=====