FCC ID : 2ATIZ-ICEQ3

RF EXPOSURE EVALUATION

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) Radiation as specified in §1.1307(b)

Limits for Maximum Permissible Exposure (MPE)

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density(mW/cm^2)	Average Time
(A) Limits for Occupational/Control Exposures				
300-1500	**--**	**--**	**F/300**	**6**
1500-100000	**--**	**--**	**5**	**6**
(B) Limits for General Population/Uncontrol Exposures				
300-1500	**--**	**--**	**F/1500**	**6**
1500-100000	**--**	**--**	**1**	**30**

11.1 Friis transmission formula: Pd= (Pout*G)\ ($4*pi*R^2$)

Where

Pd= Power density in mW/cm^2

Pout=output power to antenna in mW

G= Numeric gain of the antenna relative to isotropic antenna

Pi=3.1416

R= distance between observation point and center of the radiator in 20cm

Pd the limit of MPE, $1mW/cm^2$. If we know the maximum gain of the nd total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

11.2 EUT TECHNICAL DESCRIPTION

Characteristics	Description
Product	Ice Maker
Model Number	ICEQ1-RZB15(B)-N8-3, ICEQ2-RZB15(B)-N8-3, ICEQ3-RZB15(B)-N8-3, ICEQ4-RZB15(B)-N8-3 Note: All models are identical except for the appearance difference, We choose ICEQ3-RZB15(B)-N8-3 for final test.

Device Type	BLE V4.2
Data Rate	1Mbps
Modulation	GFSK
Operating Frequency Range	2402-2480MHz
Number of Channels	40 Channels
Antenna Type	PCB Antenna
Antenna Gain	2.5 dBi

IEEE 802.11 WLAN Mode Supported	☒802.11b ☒802.11g ☒802.11n(20MHz channel bandwidth)
Modulation	DSSS with DBPSK/DQPSK/CCK for 802.11b OFDM with BPSK/QPSK/16QAM/64QAM for 802.11g/n
Operating Frequency Range	2412-2462MHz for 802.11b/g/n(HT20)
Number of Channels	11 channels for 802.11b/g/n(HT20)
Transmit Power Max	16.21dBm
Antenna Type	PCB Antenna
Antenna Gain	2.5 dBi
Power Supply	AC 120V/60Hz
Temperature Range	-10°C ~ 50°C

11.2 Measurement Result

Mode	Max Measured power (dBm)	Antenna gain (dBi)	Antenna Gain Numeric	R (cm)	Evaluation result (mW/cm2)	Power density Limits (mW/cm2)
BLE	5.09	2.5	1.78	20	0.0011	1
2.4G WIFI	16.21	2.5	1.78	20	0.0148	1

MAX RF EXPOSURE EVALUATION

BLE	2.4G WIFI	Summation of Evaluation result (mW/cm2)	Power density Limits (mW/cm2)
0.0011	0.0148	0.0159	<1

----- The End -----