RF EXPOSURE EVALUATION

EUT Specification

EUT	Bluetooth Color Changing Dual Alarm Clock Radio with USB Charging for Mobile Devices
Model Number	iBT29, iBT29BX6, iBT29a(a could be single or multiple digits by any alphabets denote different cabinet color);here we prepare iBT29 for the all test.
FCC ID	EMOIBT29A
Antenna gain (Max)	0dBi
Operation Frequency	2.4G:2408MHz-2480MHz
Input Rating	AC 120V 60Hz
Classification Per Stipulated Test Standard	§ 15.247(i), § 2.1093
Modulation	GFSK, pi/4-DQPSK , 8-DPSK
Max. output power	5.24 dBm(0.00334W)
Evaluation applied	☒ MPE Evaluation ☐ SAR Evaluation

Test Requirement:

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**

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 cm

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.

2 Measurement Result

Antenna gain:0 dBi

Operation Mode	Channel Frequency (MHz)	Output Power (dBm)	Target Power W/tolerance (dBm)	Max tune up power tolerance (dBm)	Max tune up power tolerance (mW)	Power Density at R=20cm (mW/cm^2)	Limit (mW/cm^2)	Verdict
GFSK	2402	2.57	2±1	3	2.00	0.000398	1.0	PASS
	2441	4.66	4±1	5	3.16	0.000629	1.0	PASS
	2480	5.24	5±1	6	3.98	0.000792	1.0	PASS
pi/4-DQPSK	2402	-1.13	-1±1	0	1.00	0.000199	1.0	PASS
	2441	1.51	1±1	2	1.58	0.000314	1.0	PASS
	2480	2.06	2±1	3	2.00	0.000398	1.0	PASS
8-DPSK	2402	-0.40	0±1	1	1.26	0.000251	1.0	PASS
	2441	2.18	2±1	3	2.00	0.000398	1.0	PASS
	2480	2.69	2±1	3	2.00	0.000398	1.0	PASS

Signature:

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