RF EXPOSURE EVALUATION

EUT Specification

EUT	Smart LED Downlight
Model Number	SG-SML14W-01, SG-SML14W-02, SG-SML10W-01, SG-SML10W-02
FCC ID	2A2PA-SG-SML
Antenna gain (Max)	2.5dBi
Operation Frequency	2402-2480MHz
Input Rating	AC 100-240V, 50/60HZ 50-100mA
Modulation	GFSK
Max. output power	12.01dBm(0.0159W)

Test Requirement:

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 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.

11.2 Measurement Result

Antenna gain: 2.5 dBi

BLE:

Mode	Channel Freq. (MHz)	Measured power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain Numeric	Evaluation result (mW/cm2)	Power density Limits (mW/cm2)
GFSK	2402	11.98	12±1	13	1.7783	0.007059	1
GFSK	2440	11.91	12±1	13	1.7783	0.007059	1
GFSK	2480	12.01	12±1	13	1.7783	0.007059	1

Signature:

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