

RF EXPOSURE EVALUATION

EUT Specification

EUT	LED COB
Model Number	E.Show TW+
FCC ID	2A2LS-ESHOWTW
Antenna gain (Max)	3.2 dBi
Operation Frequency	2.4G: 2408MHz-2480MHz
Input Rating	AC 120V 60Hz
Classification Per Stipulated Test Standard	§15.247(i), §2.1091
Modulation	2.4G:GFSK
Max. output power	15.75 dBm(0.03758W)
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: $P_d = \frac{P_{out} \cdot G}{4 \cdot \pi \cdot R^2}$

Where

P_d = Power density in mW/cm²

P_{out} =output power to antenna in mW

G = Numeric gain of the antenna relative to isotropic antenna

π =3.1416

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

P_d the limit of MPE, 1mW/cm². If we know the maximum gain of the antenna and 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: 3.2 dBi

Operation Mode	Channel Number	Channel Frequency (MHz)	Measurement Level (dBm)	Limit (dBm)	Verdict
GFSK	0	2402	14.45	30	PASS
	39	2441	15.35	30	PASS
	78	2480	15.75	30	PASS

Operating Mode	Test Channel	Tune up tolerance (dBm)	Max tune up conducted power (dBm)	Output Peak power (mW)	Ant. Gain (dBi)	Ant. Gain (numeric)	Power density at 20cm (mW/cm ²)	Power density Limits (mW/cm ²)
GFSK	0	15±1	16	39.811	3.2	2.089	0.016547	1
	39	15±1	16	39.811	3.2	2.089	0.016547	1
	78	15±1	16	39.811	3.2	2.089	0.016547	1

Signature:



Sam Lv

Date: 2021-07-26

