

RF EXPOSURE EVALUATION

EUT Specification

EUT	LED ROUND WALL LANTERN, LED SQUARE WALL LANTERN
Model Name	LAN11SQ/SYNC/BZ, LAN11RND/SYNC/BZ, LAN11RND/SYNXXX, LAN11SQ/SYNC/XXX, UWL330/600/82765LEDP/RGBCCT/ONESYNC/RF-XXX, UWL329/600/82765LEDP/RGBCCT/ONESYNC/RF-XXX
Frequency band (Operating)	<input checked="" type="checkbox"/> 2.402GHz <input type="checkbox"/> WLAN: 5.18GHz ~ 5.32GHz / 5.50GHz ~ 5.70GHz <input type="checkbox"/> WLAN: 5.745GHz ~ 5825GHz <input checked="" type="checkbox"/> Others(Bluetooth: 2.402GHz ~ 2.480GHz)
Device category	<input type="checkbox"/> Portable (<20cm separation) <input checked="" type="checkbox"/> Mobile (>20cm separation) <input type="checkbox"/> Others ____
Antenna diversity	<input checked="" type="checkbox"/> Single antenna <input type="checkbox"/> Multiple antennas <input type="checkbox"/> Tx diversity <input type="checkbox"/> Rx diversity <input type="checkbox"/> Tx/Rx diversity
Max. output power	-1.99 dBm (0.632mW)
Antenna gain	-3.49dBi
Evaluation applied	<input checked="" type="checkbox"/> MPE Evaluation <input type="checkbox"/> SAR Evaluation

Limits for Maximum Permissible Exposure (MPE)

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density(mW/cm ²)
300-1500	--	--	F/1500
1500-100000	--	--	1

Friis transmission formula: $P_d = \frac{P_{out} * G}{4 * \pi * R^2}$

Where

P_d = Power density in mW/cm^2

P_{out} = output power to antenna in Mw

G = gain of antenna in linear scale

$\pi = 3.1416$

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

P_d the limit of MPE, $1mW/cm^2$. 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.

Measurement Result

$$E = EIRP - 20 \log D + 104.8$$

where:

E = electric field strength in $dB\mu V/m$,

EIRP = equivalent isotropic radiated power in dBm

D = specified measurement distance in meters.

$$EIRP = E - 104.8 + 20 \log D = 93.26 - 104.8 + 20 \log 3 = -1.99 \text{ dBm}$$

Max Output power (dBuV/m)	Gain	Channel Frequency (MHz)	Max Output power (dBm)	Tolerance	Max Tune-U P power (mW)	Power density at 20cm (mW/cm ²)	Power density Limits (mW/cm ²)
GFSK							
93.26	-3.49	2402	-1.99	±0.5	0.710	0.00006	1