

FCC RF Exposure

EUT Description:Ceiling recessed LED luminaire

ModelNo.:SK-QR1100-F1 100W(384X1W/LED Module)

FCC ID:2BRJR-SK-QR1100-F1

Equipment type: mobile equipment

Test procedures according to the technical standards: KDB 447498 D01 V06 andFCC 2.1091.

1. Limits

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)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*(900/f ²)	6
30–300	61.4	0.163	1.0	6
300–1500			f/300	6
1500–100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f ²)	30
30–300	27.5	0.073	0.2	30
300–1500			f/1500	30
1500–100,000			1.0	30

F = frequency in MHz

Formula: $P_d = (P_{out} * G) / (4 * \pi * r^2)$

Where :

P_d = power density in mW/cm²,

P_{out} = output power to antenna in mW;

G = gain of antenna in linear scale,

$\pi = 3.14$;

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

P_d is the limit of MPE, 1 mW/cm². If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

2. Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

3. Test Result of RF Exposure Evaluation

WIFI

	Output power(dBm)	Max tune-up(mW)	Antenna Gain(dBi)	Power Density at R=20cm (mW/cm ²)	Limit (mW/cm ²)	Result
802.11b	6.30	4.2658	0	0.0016	1.0	Pass
802.11g	6.26	4.2267	0	0.0016	1.0	Pass
802.11n20	5.89	3.8815	0	0.0017	1.0	Pass

BLE

Frequency(MHz)	Output power(dBm)	Max tune-up(mW)	Antenna Gain(dBi)	Power Density at R=20cm (mW/cm ²)	Limit (mW/cm ²)	Result
2402	1.13	1.3490	0	0.0004	1.0	Pass
2440	2.44	1.7539	0	0.0005	1.0	Pass
2480	1.96	1.5704	0	0.0005	1.0	Pass

Wifi: Conclusion: the max result 0.0017: ≤ 1.0 compliance with FCC's RF Exposure.

BLE: Conclusion: the max result 0.0005: ≤ 1.0 compliance with FCC's RF Exposure.

Note: WiFi 2.4G and BLE cannot be sent simultaneously