

RF Exposure

The equipment under test (EUT) is a Surround Speaker with 5.8G Band function operating in 5729-5847MHz. The EUT is powered by DC 24V/1.5A. For more detail information pls. refer to the user manual.

Standalone SAR evaluation for 5.8G function:

Antenna Type: Integral antenna

Antenna Gain: 0.5 dBi max

Modulation Type: GFSK

The nominal conducted output power specified: -6.5dBm (+/-2dB).

The nominal radiated output power (e.i.r.p) specified: -6dBm (+/- 2dB).

According to the KDB 447498 V06:

The maximum peak radiated emission for the EUT is 89.9dB μ V/m at 3m in the frequency 5729MHz

The EIRP = $[(FS * D)^2 / 30]$ mW = -5.33dBm

which is within the production variation.

The minimum peak radiated emission for the EUT is 87.7dB μ V/m at 3m in the frequency 5847MHz

The EIRP = $[(FS * D)^2 / 30]$ mW = -7.53dBm

which is within the production variation.

According to FCC Part 2.1091, this unlicensed transmitting devices is categorically excluded from routine environmental evaluation for RF exposure prior to equipment authorization or use, According to the KDB 447498 and OET 65, the simple calculation as below:

The source-based time averaged maximum radiated power = -4 dBm = 0.40 mW

From above data, the exposed power density at a distance (R) of 20cm from the center of radiation of the antenna for 5.8G mode can be calculated according to OET 65 as follow:

$$= 0.40 \text{ mW} / 4\pi R^2$$

$$= 0.00008 \text{ mW/cm}^2$$

$$< 1 \text{ mW/cm}^2$$

The MPE limit is 1.0 mW/cm² for general population and uncontrolled exposure in the Bluetooth frequency range according to FCC Part 1.1310. As the measured power density at 20cm from the transmitter is lower than the MPE limit, the compliance to the MPE limit can be ensured by indicating the minimum 20cm separation between the transmitter's radiating structure and body of the user or nearby persons.