

INTERTEK TESTING SERVICES

RF Exposure

The equipment under test (EUT) is a Rear Surround Speaker with 5.8GHz function operating in 5729-5851MHz. The EUT is powered by AC 100-240V, 50/60Hz. For more detail information pls. refer to the user manual.

5.8G function:

Antenna Type: Integral antenna

Antenna Gain: 0.26 dBi max

Modulation Type: GFSK

The nominal conducted output power specified: 5.74dBm (+/-3dB).

The nominal radiated output power (e.i.r.p) specified: 6dBm (+/- 3dB).

According to the KDB 447498 V07:

The maximum peak radiated emission for the EUT is 102.7dB μ V/m at 3m in the frequency 5851MHz

The EIRP = [(FS*D) ^2 / 30] mW = 7.5dBm
which is within the production variation.

The minimum peak radiated emission for the EUT is 100.7dB μ V/m at 3m in the frequency 5729MHz

The EIRP = [(FS*D) ^2 / 30] mW = 5.5dBm
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 V07 and OET 65, the simple calculation as below:

The source-based time averaged maximum radiated power = 6dBm+3dB= 9dBm = 7.9mW

At the distance (R) of 20cm to 40cm and in 0.3 GHz to 6 GHz, MPE Exclusion Threshold Level:

$$P_{th} \text{ (mW)} = ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases}$$

The MPE limit is 3060mW for general population and uncontrolled exposure in the 2.4GHz frequency range according to FCC Part 1.1307. 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.

Note: EIRP is higher than ERP, thus EIRP is compared with the Exclusion Threshold.

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