

INTERTEK TESTING SERVICES

RF Exposure

The Equipment Under Test (EUT) is a Wireless/Wired Sensor Translator operating at 433.95MHz. When the machine receives the paired 345MHz signal, it will forward 433.95MHz to other hosts. When the hardware is anti-theft and the machine is tampered with, the machine will forward 433.95MHz to other hosts. The EUT is powered by 12V=1A (Internal Li-ion battery:3.7V=,2000mAh,7.400Wh). For more detailed features description, please refer to the user's manual.

Antenna Type: Internal Integral Antenna

Modulation: OOK

Antenna Gain: -1.85dBi Max.

According to the KDB 447498 D04 Interim General RF Exposure Guidance v01 (D01 447498 General RF Exposure Guidance v07):

The maximum peak radiated emission for the EUT is 98.7dB μ V/m at 3m in the frequency 433.95MHz.

The EIRP = [(FS*D) ^2 / 30] mW = 3.5 dBm
which is within the production variation.

The nominal radiated output power (e.i.r.p) specified: 3.0 dBm (Tolerance: \pm 1dB)

The nominal conducted output power specified: 4.85 dBm (Tolerance: \pm 1dB)

The maximum conducted output power specified is 5.85 dBm= 3.85 mW

The source- based time-averaging conducted output power
= (3.85* Duty cycle) mW< (3.85*1) mW (Duty cycle<100%)

The SAR Exclusion Threshold Level:

$$P_{th} \text{ (mW)} = ERP_{20cm} (d/20cm)^x \text{ where } (x = -\log_{10} \left(\frac{60}{ERP_{20cm} \sqrt{f}} \right))$$
$$= 2040 * 0.43395 * (0.5/20)^{0.99} \text{ mW}$$
$$= 22.96 \text{ mW}$$

Since the source-based time-averaging conducted output power is well below the SAR low threshold level, so the EUT is considered to comply with SAR requirement without testing.