

Analysis Report

The equipment under test (EUT) is a transmitter for Projection Alarm clock with indoor and outdoor Temperature operating at 433.920MHz. The EUT is powered by two 1.5V Size "AA" battery. For more detailed features description, please refer to the user's manual.

Type of the antenna: Integral Antenna

Modulation Type: ASK

Antenna Gain: -4dBi

The nominal radiated output power (e.r.p) specified: -10.00dBm (Tolerance: +/- 3dB)

The nominal conducted output power specified: -6.00dBm (Tolerance: +/- 3dB)

According to the KDB 447498:

The worst-case peak radiated emission for the EUT is 85.1dBμV/m at 3m in the frequency 433.92MHz

The EIRP = $[(FS \cdot D)^2 / 30]$ mW = -10.13dBm

The ERP = EIRP – 2.15 = -12.28 dBm

which is within the production variation.

The maximum conducted output power specified is -3dBm = 0.5mW

The source- based time-averaging conducted output power
= $0.5 \cdot \text{Duty Cycle}$ mW < 0.5 mW

The SAR Exclusion Threshold Level:

= $3.0 \cdot (\text{min. test separation distance, mm}) / \sqrt{\text{freq. in GHz}}$

= $3.0 \cdot 5 / \sqrt{0.43392}$ mW

= 22.77 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.

The duty cycle is simply the on-time divided by the period:

The duration of the pulse train = 53.91s > 100 ms

Effective period of the cycle = $0.58\text{ms} \times 23 + 0.435\text{ms} \times 11 = 18.125$ ms

DC = $18.125 \text{ ms} / 100 \text{ ms} = 0.1813$ or 18.13%