

Analysis Report

The Equipment Under Test (EUT), is a portable 2.4GHz Transceiver (Piano Unit) for a RC Piano. The sample supplied operated on 1 channel, normally at 2470MHz.

The EUT is powered by 3 x 1.5V AA batteries. After switching on the EUT, the piano will emit sounds based on the keyboard button pressed.

Antenna Type: Internal, Integral antenna

Antenna Gain: 0dBi

Nominal rated field strength is 95.5dBμV/m at 3m (Peak), 84.7dBμV/m at 3m (Average)

Maximum allowed production tolerance: +/- 3dB

According to the KDB 447498:

Based on the maximum average field strength of production tolerance was 87.7dBμV/m at 3m in frequency 2.470GHz.

Thus, it below calculated field strength according to minimum SAR exclusion threshold level as follows:

The worst case of SAR Exclusion Threshold Level:

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

$= 3.0 * 5 / \sqrt{2.483.5} \text{ mW}$

$= 9.52 \text{ mW}$

According to the KDB 412172 D01:

$\text{EIRP} = [(\text{FS} * \text{D})^2 * 1000 / 30]$

Calculated Field Strength for 9.52mW is 105dBuV/m @3m

Since maximum average field strength plus production tolerance $\leq 105\text{dBuV/m @3m}$ and antenna gain is $\geq 0.0\text{dBi}$, it is concluded that maximum Conducted Power and Field Strength are well below the SAR Exclusion threshold level, so the EUT is considered to comply with SAR requirement without testing.