RF Exposure

The equipment under test (EUT) is a Mickey Train Track Set operating at 2.4G Band. The EUT can be powered by DC 3.0V (2 x 1.5V AAA batteries).For more detail information pls. refer to the user manual.

Antenna Type: Integral antenna
Modulation Type: GFSK
Antenna Gain: 0dBi
The nominal conducted output power specified: -10.0 dBm (±3dB)
The nominal radiated output power (e.i.r.p) specified: -10.0 dBm (±3dB)

According to the KDB 447498:

The Maximum peak radiated emission for the EUT is 84.4 dBμV/m at 3m in the frequency 2460MHz
The EIRP = [(FS*D) ^2 / 30] mW = -10.83dBm
which is within the production variation.

The Minimum peak radiated emission for the EUT is 83.9 dBμV/m at 3m in the frequency 2420MHz
The EIRP = [(FS*D) ^2 / 30] mW = -11.33dBm
which is within the production variation.

The maximum conducted output power specified is -7dBm= 0.200mW
The source- based time-averaging conducted output power
=0.200* Duty cycle mW <0.200 mW(Duty cycle <100%)

The SAR Exclusion Threshold Level:

P_{th}(mW) = ERP_{20cm} * $(d/20cm)^{x}$ (X= $-\log_{10}\left(\frac{60}{ERP_{20\ cm}\sqrt{f}}\right)$)

= 3060 * $(0.5/20)^{1.9}$ mW
= 2.72 mW

Since max. power of the source-based time-averaging conducted output power and effective radiated power (ERP) 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 one cycle = 24.2319ms
Effective period of the cycle = 0.9855ms x 4 = 3.942ms
DC =3.942ms / 24.2319ms =0.1627 or 16.27%