RF Exposure report

The equipment under test (EUT) is a Baby Monitor - Nursery Unit with 2.4GHz wireless control function. The EUT is powered by DC5V via micro USB port which can be connected to adapter with 100-240VAC. For more detail information pls. refer to the user manual.

2.4GHz wireless control function operates in 2410.875-2471.625MHz. There are total 19 channels.

Modulation Type: GFSK
Antenna Type: Integral antenna
Antenna Gain: 0dBi
The nominal radiated output power (e.i.r.p) specified: 14dBm (Tolerance: +/-3dB)
The nominal conducted output power specified: 14dBm (Tolerance: +/-3dB)

The maximum radiated emission for the EUT is 112.2dBμV/m at 3m in the frequency 2441.250MHz = [(FS*D) ^2 / 30] mW
= 16.97dBm which is within the production variation

The minimum radiated emission for the EUT is 111.6dBμV/m for at 3m in the frequency 2410.875MHz = [(FS*D) ^2 / 30] mW
= 16.37dBm 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.

For Maximum Permissible Exposure (MPE) evaluation of the product, the maximum power density at 20 cm from this transmitter shall be less than the General Population / Uncontrolled MPE limit in FCC Part 1.1310.

The maximum EIRP= 17.0dBm=50.1mW
The source-based time averaged maximum radiated power = 50.1mW x Duty Cycle = 50.1mW x 9.087% = 4.6mW

From above data, the exposed power density at a distance (R) of 20cm from the center of radiation of the antenna can be calculated according to OET 65 as follow:
= PG/4πR^2
= EIRP/4πR^2 = 4.6/ 4πR^2
= 0.001 mW/cm^2

The MPE limit is 1.0 mW/cm^2 for general population and uncontrolled exposure in the 2.4GHz frequency range according to FCC Part 1.1310. 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.

Transmitter Duty Cycle Calculation
The duration of one cycle = 100 ms
Effective period of the cycle = 826.1μs
DC = 11 * 0.8261 ms / 100 ms = 0.09087 or 9.087%

The following RF exposure statement or similar sentence is proposed to be included in the user manual:

“FCC RF Radiation Exposure Statement Caution: This Transmitter must be installed to provide a separation distance of at least 20 cm from all persons.”