RF exposure Estimation for COM-DEX

1. Introduction

COM-DEX is audiphones with Bluetooth 3.0, Bluetooth Low Energy which operated at 2.4GHz and SRD which operated at 10.6MHz

2. Limit and Guidelines on Exposure to Electromagnetic Fields

According to§15.247(e)(i) and §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

1) According to KDB 447498 D01 Mobile Portable RF Exposure v05r02, no SAR required if power is lower than the flowing threshold:

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] [√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

- f(GHz) is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation25
- The result is rounded to one decimal place for comparison
- 3.0 and 7.5 are referred to as the numeric thresholds in the step 2 below

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm according to 5) in section 4.1 is applied to determine SAR test exclusion.

3. Calculation method

FCC ID: TTY-CMDEX

For Bluetooth Module

[(max. power of` channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] ·[√f(GHz)] ≤ 3.0

Conducted Power + tune up tolerance = 2.20mW

Distance = 5 mm
f = 2.441 GHz

[2.20/5] * SQRT(2.441) =0.69
0.69 ≤ 3.0
Therefore, excluded from SAR testing.

For BLE Module

[(max. power of` channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] ·[√f(GHz)] ≤ 3.0

Conducted Power + tune up tolerance = 1.36mW
Distance = 5 mm
f = 2.440 GHz

[1.36/5] * SQRT(2.440) =0.42
0.42 ≤ 3.0
Therefore, excluded from SAR testing.

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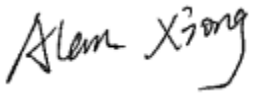

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