RF Exposure Estimation

1. Introduction

Product: Remote Control
Model no.: RC411, RC4111801/01R, RC411XXXX/XXR, RC411XXXX/XXBR('X' can be 0-9; 'B' means packed with dry battery)
FCC ID: 2AGOFRC411A

The EUT is a Remote control which contain BLE 1Mbps function inside.
Reference Report: 709502402070-00B
Note: All models are identical in electrical structure, mechanical structure. There are cosmetic differences (colour/painting/printed). Basic software architecture remains unchanged. So RF exposure estimation were applied on RC411, other models deemed to fulfill the requirement without further estimation.

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.

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.

3. Calculation method

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

Conducted Power + tune up tolerance = 1.73dBm= 1.49mW
Distance = 5 mm
f = 2.402 GHz

[1.49/5] * SQRT (2.402) =0.4617
0.4617≤ 3.0
Therefore, excluded from SAR testing.

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----------End of Test Report----------

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