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Federal Communications Commission, OET
Authorization and Evaluation Division
7435 Oakland Mills Road
Columbia, Maryland 21046

Subject: RF Exposure Evaluation

Reference: FCC ID: **2AGRJ-A2RX**

This evaluation is for the rf exposure contribution related to the Bluetooth transmitter.

The attached assessment for the Bluetooth transmitter was prepared by Mark Briggs, Product Regulatory Engineer.

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Bluetooth RF Exposure Evaluation

Bluetooth specifications:

- Frequency Range: 2402 – 2480 MHz
- Output power (maximum): 0dBm (1.0mW)
- Antenna gain: 2.6dBi
- Maximum eirp: 2.6Bm (1.8mW)

SAR Exclusion

As the charging surface and related electronics, under some conditions, may be within 20cm of the person the rf exposure evaluation will be based on requirements for a portable device versus a mobile device. Section 4.3 of KDB 447498 does not require a SAR measurement for devices operating below the SAR exclusion threshold. For 100 MHz to 6 GHz and *test separation distances* ≤ 50 mm, the 1-g and 10-g *SAR test exclusion thresholds* for a body exposure condition are determined by the following:

[(*max. power of channel, including tune-up tolerance, mW*) / (*min. test separation distance, mm*)] [$\sqrt{f_{(GHz)}}$] ≤ 3.0 where

- $f_{(GHz)}$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation (note - when the minimum test separation distance is < 5 mm, a distance of 5 mm is used to determine SAR test exclusion)
- The result is rounded to one decimal place for comparison

For this device, assuming a separation of less than 5mm between antenna and body, the threshold is:

2mW / 5mm x √2.48 GHz = **0.6**

As the value is below the threshold of 3.0 the Bluetooth transmitter is excluded from stand-alone rf exposure evaluation.

Estimated SAR Value

To assess the contribution of the Bluetooth transmitter to the rf exposure potential of the complete device KDB 447498 allows use of the following formula where the antenna is within 50mm of the body:

[(*max. power of channel, including tune-up tolerance, mW*) / (*min. test separation distance, mm*)]·[√f(GHz)/*7.5*] W/kg,

Estimated SAR value for this Bluetooth transmitter is: 2mW / 5mm x √2.48 / 7.5 = 0.08 W/Kg. This value may be used to determine the rf exposure for simultaneous conditions when the module is installed into a system containing other transmitters. Note that the Bluetooth transmitter will only operate when the host system is on a charging mat.

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