

## RF EXPOSURE EVALUATION

### 1. PRODUCT INFORMATION

Product Description	Bluetooth FM Transmitter
Model Name	HK302, HK301, HK303, HK305, HK306, HK307, HK308, HK309, HK601, HK602, HK603, HK605, HK606, HK607, HK608, HK609
FCC ID	2AR6E-HK302

### 2. EVALUATION METHOD

According to 447498 D01 General RF Exposure Guidance v05

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

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$  for 1-g SAR and  $\leq 7.5$  for 10-g extremity SAR.

Where  $f(\text{GHz})$  is the RF channel transmit frequency in GHz

Power and distance are rounded to the nearest mW and mm before calculation

### 3. CALCULATION

$$P_t = 0.773 \text{ dBm} = 1.19 \text{ mW}$$

The value of the Maximum output power  $P_t$  is referred to the test report of the CFR47 §15.247.

The result for RF exposure evaluation  $\text{SAR} = (1.19 \text{ mW} / 5 \text{ mm}) \cdot [\sqrt{2.441(\text{GHz})}] = 0.37 < 3.0$  for 1-g SAR and  $\leq 7.5$  for 10-g extremity SAR.

§15.239

$$\text{FM } P_t = -48.26 \text{ dBm} = 0.000015 \text{ mW}$$

The value of the Maximum output power  $P_t$  is referred to the test report of the CFR47 For frequencies below 100 MHz and test separation distances  $\leq 50$  mm, the power threshold determined by the following:

$$P_{\text{max}} = 0.5 * 474 * [1 + \log(100/f)] \text{ mW, where } f \text{ is MHz}$$

For 88.1 MHz,  $P_{\text{max}} = 250 \text{ mW}$ .  $P_t < P_{\text{max}}$ .

$$\text{For } 107.9 \text{ MHz, } P = 3 * 5 / 0.1079^{0.5} = 45.7 \text{ mW}$$

$P_{\text{max}} = 45.7 \text{ mW}$ .  $P_t < P_{\text{max}}$ .

Simultaneous transmission between Bluetooth and FM transmitter:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})/x}] \text{ W/kg, for test separation distances } \leq 50 \text{ mm};$

where  $x = 7.5$  for 1-g SAR and  $x = 18.75$  for 10-g SAR.

$$\text{SAR} = (0.37 + 0.000015) / 7.5 = 0.049 \text{ W/kg} < 1.6 \text{ W/kg}$$

### 4. CONCLUSION

The SAR evaluation is not required.

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