

RF EXPOSURE EVALUATION

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency(RF) Radiation as specified in §1.1307(b)

FCC ID: VIX-SPKA75

EUT Specification

| | | | |
|-----------------------------------|--|--|--|
| EUT | Karaoke System with Bluetooth | | |
| Frequency band (Operating) | <input type="checkbox"/> WLAN: 2.412GHz ~ 2.462GHz <input type="checkbox"/> WLAN: 5.18GHz ~ 5.32GHz / 5.50GHz ~ 5.70GHz <input type="checkbox"/> WLAN: 5.745GHz ~ 5825GHz <input checked="" type="checkbox"/> Others | | |
| Device category | <input type="checkbox"/> Portable (<20cm separation) <input checked="" type="checkbox"/> Mobile (>20cm separation) <input type="checkbox"/> Others ____ | | |
| Exposure classification | <input type="checkbox"/> Occupational/Controlled exposure (S = 5mW/cm ²) <input checked="" type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm ²) | | |
| Antenna diversity | <input checked="" type="checkbox"/> Single antenna <input type="checkbox"/> Multiple antennas <input type="checkbox"/> Tx diversity <input type="checkbox"/> Rx diversity <input type="checkbox"/> Tx/Rx diversity | | |
| Antenna gain (Max) | 0 dBi | | |
| Evaluation applied | <input checked="" type="checkbox"/> MPE Evaluation <input type="checkbox"/> SAR Evaluation | | |

Limits for Maximum Permissible Exposure(MPE)

| Frequency Range(MHz) | Electric Field Strength(V/m) | Magnetic Field Strength(A/m) | Power Density(mW/cm ²) | Average Time |
|--|------------------------------|------------------------------|------------------------------------|--------------|
| (A) Limits for Occupational/Control Exposures | | | | |
| 300-1500 | -- | -- | F/300 | 6 |
| 1500-100000 | -- | -- | 5 | 6 |
| (B) Limits for General Population/Uncontrol Exposures | | | | |
| 300-1500 | -- | -- | F/1500 | 6 |
| 1500-100000 | -- | -- | 1 | 30 |

Friis transmission formula: $P_d = \frac{P_{out} \cdot G}{4 \cdot \pi \cdot R^2}$

Where

P_d = Power density in mW/cm^2

P_{out} = output power to antenna in mw

G = gain of antenna in linear scale

π = 3.1416

R = distance between observation point and center of the radiator in cm

P_d the limit of MPE, $1mW/cm^2$. If we know the maximum gain of the antenna and total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

Measurement Result

| Channel Frequency (MHz) | Measurement Peak Output Power(dBm) | | |
|-------------------------|------------------------------------|----------------|-------|
| | GFSK | $\pi/4$ -DQPSK | 8DPSK |
| 2402 | 1.01 | 1.33 | 1.53 |
| 2441 | 0.42 | 0.80 | 0.88 |
| 2480 | 0.24 | 0.66 | 0.78 |

| Channel Frequency (MHz) | Tune up tolerance (dBm) | Max tune up conducted power(dBm) | Output Peak power (mW) | Ant. Gain (dBi) | Ant. Gain (numeric) | Power density at 20cm (mW/cm^2) | Power density Limits (mW/cm^2) |
|-------------------------|-------------------------|----------------------------------|------------------------|-----------------|---------------------|-------------------------------------|------------------------------------|
| 2402 | 1±1 | 2 | 1.58 | 0 | 1.00 | 0.00032 | 1 |
| 2441 | 0±1 | 1 | 1.26 | 0 | 1.00 | 0.00025 | 1 |
| 2480 | 0±1 | 1 | 1.26 | 0 | 1.00 | 0.00025 | 1 |
| 2402 | 0±1 | 1 | 1.26 | 0 | 1.00 | 0.00025 | 1 |
| 2441 | 0±1 | 1 | 1.26 | 0 | 1.00 | 0.00025 | 1 |
| 2480 | 1±1 | 2 | 1.58 | 0 | 1.00 | 0.00032 | 1 |
| 2402 | 1±1 | 2 | 1.58 | 0 | 1.00 | 0.00032 | 1 |
| 2441 | 0±1 | 1 | 1.26 | 0 | 1.00 | 0.00025 | 1 |
| 2480 | 0±1 | 1 | 1.26 | 0 | 1.00 | 0.00025 | 1 |

Signature



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Date: 2019-09-18