

## RF EXPOSURE EVALUATION

### EUT Specification

|  |  |
|--|--|
| <b>EUT</b>   | Tiki Torch Bluetooth Speaker   |
| <b>Model Number</b>                                | TT100, PBG-1280S<br>These model are the same expect the model name and appearance, Here select TT100 for test. |
| <b>FCC ID</b>                                      | 2ALZLTIKITORCHTT100  |
| <b>Antenna gain (Max)</b>                          | 0dBi for PCB Antenna, 1.2dBi for Internal Antenna  |
| <b>Operation Frequency</b>                         | BT:2408MHz-2480MHz<br>5.8G:5725MHz-5850MHz   |
| <b>Classification Per Stipulated Test Standard</b> | §15.247(i), §2.1093  |
| <b>Modulation</b>                                  | BT: GFSK, pi/4-DQPSK, 8-DPSK<br>5.8G: FSK  |
| <b>Max. output power</b>                           | BT: -4.26 dBm(0.000375W)<br>5.8G: 85.31 dBuV/m   |
| <b>Evaluation applied</b>                          | <input type="checkbox"/> MPE Evaluation<br><input checked="" type="checkbox"/> SAR Evaluation                  |

### Test Requirement:

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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)

Limits for Maximum Permissible Exposure (MPE)

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

|             |    |    |   |    |
|-------------|----|----|---|----|
| 1500-100000 | -- | -- | 1 | 30 |
|-------------|----|----|---|----|

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

Where

$P_d$  = Power density in mW/cm<sup>2</sup>

$P_{out}$  = output power to antenna in mW

$G$  = Numeric gain of the antenna relative to isotropic antenna

$\pi$  = 3.1416

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

$P_d$  the limit of MPE, 1mW/cm<sup>2</sup>. 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.

## 2 Measurement Result

**BT:**

| Operating Mode | Test Channel | 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 <sup>2</sup> ) | Power density Limits (mW/cm <sup>2</sup> ) |
|----------------|--------------|-------------------------|-----------------------------------|------------------------|-----------------|---------------------|---|--|
| GFSK           | 0            | -4 ± 1                  | -3                                | 0.501                  | 0               | 1.000               | 0.000100                                    | 1  |
|                | 39           | -4 ± 1                  | -3                                | 0.501                  | 0               | 1.000               | 0.000100                                    | 1  |
|                | 78           | -7 ± 1                  | -6                                | 0.251                  | 0               | 1.000               | 0.000050                                    | 1  |
| pi/4-DQPSK     | 0            | -4 ± 1                  | -3                                | 0.501                  | 0               | 1.000               | 0.000100                                    | 1  |
|                | 39           | -4 ± 1                  | -3                                | 0.501                  | 0               | 1.000               | 0.000100                                    | 1  |
|                | 78           | -7 ± 1                  | -6                                | 0.251                  | 0               | 1.000               | 0.000050                                    | 1  |
| 8-DPSK         | 0            | -4 ± 1                  | -3                                | 0.501                  | 0               | 1.000               | 0.000100                                    | 1  |
|                | 39           | -4 ± 1                  | -3                                | 0.501                  | 0               | 1.000               | 0.000100                                    | 1  |
|                | 78           | -7 ± 1                  | -6                                | 0.251                  | 0               | 1.000               | 0.000050                                    | 1  |

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For 5.8G, the power is too low,so No evaluation required .

Signature:



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Date: 2021-06-17