

## RF EXPOSURE EVALUATION

### EUT Specification

|                                   |                                                                                                                                                                                                                                                                |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>EUT</b>                        | JENSEN 2-ZONE WALL STEREO                                                                                                                                                                                                                                      |
| <b>Frequency band (Operating)</b> | <input type="checkbox"/> WLAN: 2.412GHz ~ 2.462GHz<br><input type="checkbox"/> WLAN: 5.18GHz ~ 5.32GHz / 5.50GHz ~ 5.70GHz<br><input type="checkbox"/> WLAN: 5.745GHz ~ 5.825GHz<br><input checked="" type="checkbox"/> Others(Bluetooth: 2.402GHz ~ 2.480GHz) |
| <b>Device category</b>            | <input type="checkbox"/> Portable (<20cm separation)<br><input checked="" type="checkbox"/> Mobile (>20cm separation)<br><input type="checkbox"/> Others ____                                                                                                  |
| <b>Antenna diversity</b>          | <input checked="" type="checkbox"/> Single antenna<br><input type="checkbox"/> Multiple antennas<br><input type="checkbox"/> Tx diversity<br><input type="checkbox"/> Rx diversity<br><input type="checkbox"/> Tx/Rx diversity                                 |
| <b>Max. output power</b>          | 4.57dBm(2.86mW)                                                                                                                                                                                                                                                |
| <b>Antenna gain</b>               | 0dBi                                                                                                                                                                                                                                                           |
| <b>Evaluation applied</b>         | <input checked="" type="checkbox"/> MPE Evaluation<br><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 <sup>2</sup> ) |
|----------------------|------------------------------|------------------------------|-------------------------------------|
| 300-1500             | --                           | --                           | F/1500                              |
| 1500-100000          | --                           | --                           | 1                                   |

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

Where

$P_d$  = Power density in  $mW/cm^2$

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

$G$  = gain of antenna in linear scale

$\pi$  = 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                         | Gain | Channel Frequency (MHz) | Max Output power (dBm) | Tolerance | Max Tune-UP power (mW) | Power density at 20cm ( $mW/cm^2$ ) | Power density Limits ( $mW/cm^2$ ) |
|---------------------------------|------|-------------------------|------------------------|-----------|------------------------|-------------------------------------|------------------------------------|
| <b>GFSK</b>                     |      |                         |                        |           |                        |                                     |                                    |
| Low                             | 0    | 2402                    | 4.32                   | $\pm 0.5$ | 3.03                   | 6.03e-4                             | 1                                  |
| Middle                          | 0    | 2441                    | 4.52                   | $\pm 0.5$ | 3.18                   | 6.33e-4                             | 1                                  |
| High                            | 0    | 2480                    | 4.57                   | $\pm 0.5$ | 3.21                   | 6.39e-4                             | 1                                  |
| <b><math>\pi/4</math>-DQPSK</b> |      |                         |                        |           |                        |                                     |                                    |
| Low                             | 0    | 2402                    | 4.02                   | $\pm 0.5$ | 2.83                   | 5.63e-4                             | 1                                  |
| Middle                          | 0    | 2441                    | 4.18                   | $\pm 0.5$ | 2.94                   | 5.85e-4                             | 1                                  |
| High                            | 0    | 2480                    | 4.23                   | $\pm 0.5$ | 2.97                   | 5.91e-4                             | 1                                  |
| <b>8DPSK</b>                    |      |                         |                        |           |                        |                                     |                                    |
| Low                             | 0    | 2402                    | 4.09                   | $\pm 0.5$ | 2.88                   | 5.73e-4                             | 1                                  |
| Middle                          | 0    | 2441                    | 4.29                   | $\pm 0.5$ | 3.01                   | 5.99e-4                             | 1                                  |
| High                            | 0    | 2480                    | 4.45                   | $\pm 0.5$ | 3.13                   | 6.23e-4                             | 1                                  |