

## 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: **2ACWISE32HY19B**

### EUT Specification

| EUT                               | LED TV                                                                                                                                                                                                                         |
|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Frequency band (Operating)</b> | <input checked="" 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 ~ 5825GHz<br><input type="checkbox"/> Others  |
| <b>Device category</b>            | <input type="checkbox"/> Portable (<20cm separation)<br><input checked="" type="checkbox"/> Mobile (>20cm separation)<br><input type="checkbox"/> Others ____                                                                  |
| <b>Exposure classification</b>    | <input type="checkbox"/> Occupational/Controlled exposure (S = 5mW/cm <sup>2</sup> )<br><input checked="" type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm <sup>2</sup> )                                  |
| <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>          | 19.49dBm for 802.11b<br>23.25dBm for 802.11g<br>22.20dBm for 802.11n(H20)<br>21.54dBm for 802.11n(H40)                                                                                                                         |
| <b>Antenna gain (Max)</b>         | 2dBi                                                                                                                                                                                                                           |
| <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> ) | Average Time |
|--------------------------------------------------------------|------------------------------|------------------------------|------------------------------------|--------------|
| <b>(A) Limits for Occupational/Control Exposures</b>         |                              |                              |                                    |              |
| <b>300-1500</b>                                              | --                           | --                           | <b>F/300</b>                       | <b>6</b>     |
| <b>1500-100000</b>                                           | --                           | --                           | <b>5</b>                           | <b>6</b>     |
| <b>(B) Limits for General Population/Uncontrol Exposures</b> |                              |                              |                                    |              |
| <b>300-1500</b>                                              | --                           | --                           | <b>F/1500</b>                      | <b>6</b>     |
| <b>1500-100000</b>                                           | --                           | --                           | <b>1</b>                           | <b>30</b>    |

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

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

| Operating Mode | Test Channel | Output Peak power (dBm) | Output Peak power (mW) | Antenna Gain (dBi) | Antenna Gain (numeric) | Power density at 20cm (mW/cm <sup>2</sup> ) | Power density Limits (mW/cm <sup>2</sup> ) |
|----------------|--------------|-------------------------|------------------------|--------------------|------------------------|---------------------------------------------|--------------------------------------------|
| 802.11b        | 1            | 19.49                   | 88.920                 | 2                  | 1.585                  | 0.0280387                                   | 1                                          |
|                | 6            | 19.29                   | 84.918                 | 2                  | 1.585                  | 0.0267768                                   | 1                                          |
|                | 11           | 18.38                   | 68.865                 | 2                  | 1.585                  | 0.0217149                                   | 1                                          |
| 802.11g        | 1            | 23.25                   | 211.349                | 2                  | 1.585                  | 0.0666436                                   | 1                                          |
|                | 6            | 22.96                   | 197.697                | 2                  | 1.585                  | 0.0623388                                   | 1                                          |
|                | 11           | 22.18                   | 165.196                | 2                  | 1.585                  | 0.0520904                                   | 1                                          |
| 802.11n (H20)  | 1            | 22.20                   | 165.959                | 2                  | 1.585                  | 0.0523310                                   | 1                                          |
|                | 6            | 21.75                   | 149.624                | 2                  | 1.585                  | 0.0471802                                   | 1                                          |
|                | 11           | 20.87                   | 122.180                | 2                  | 1.585                  | 0.0385264                                   | 1                                          |
| 802.11n (H40)  | 3            | 20.43                   | 110.408                | 2                  | 1.585                  | 0.0348144                                   | 1                                          |
|                | 6            | 21.54                   | 142.561                | 2                  | 1.585                  | 0.0449530                                   | 1                                          |
|                | 9            | 20.97                   | 125.026                | 2                  | 1.585                  | 0.0394238                                   | 1                                          |

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