

## 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: **2ACWIELSW3917B**

### EUT Specification

|                                   |                                                                                                                                                                                                                                |
|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>EUT</b>                        | <b>LED TV</b>                                                                                                                                                                                                                  |
| <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>          | 802.11b: 13.84dBm<br>802.11g: 10.69 dBm<br>802.11n(HT20): 9.99dBm<br>802.11n(HT40): 6.84dBm                                                                                                                                    |
| <b>Antenna gain (Max)</b>         | 2.0dBi ( for per antenna port Max)                                                                                                                                                                                             |
| <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>         |                              |                              |                                    |              |
| 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           |

## 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

| Test Channel | Average Output Power (dBm) |         |               |               |
|--------------|----------------------------|---------|---------------|---------------|
|              | 802.11b                    | 802.11g | 802.11n(HT20) | 802.11n(HT40) |
| Lowest       | 12.63                      | 8.63    | 7.58          | 4.65          |
| Middle       | 13.84                      | 10.42   | 9.65          | 6.84          |
| Highest      | 13.61                      | 10.69   | 9.99          | 6.63          |

| Operating Mode | Test Channel | Tune up tolerance (dBm) | Max tune up conducte d power(d Bm) | Output Peak power (mW) | Ant. Gain (dBi) | Ant. Gain (numeric) | Power density at 20cm (mW/ cm2 ) | Power density Limits (mW/ cm2 ) |
|----------------|--------------|-------------------------|------------------------------------|------------------------|-----------------|---------------------|----------------------------------|---------------------------------|
| 802.11b        | 1            | 13+1                    | 14                                 | 25.119                 | 2               | 1.585               | 0.007920                         | 1                               |
|                | 6            | 14+1                    | 15                                 | 31.623                 | 2               | 1.585               | 0.009971                         | 1                               |
|                | 11           | 13+1                    | 14                                 | 25.119                 | 2               | 1.585               | 0.007920                         | 1                               |
| 802.11g        | 1            | 8+1                     | 9                                  | 7.943                  | 2               | 1.585               | 0.002505                         | 1                               |
|                | 6            | 10+1                    | 11                                 | 12.589                 | 2               | 1.585               | 0.003969                         | 1                               |
|                | 11           | 10+1                    | 11                                 | 12.589                 | 2               | 1.585               | 0.003969                         | 1                               |
| 802.11n (HT20) | 1            | 7+1                     | 8                                  | 6.310                  | 2               | 1.585               | 0.001989                         | 1                               |
|                | 6            | 9+1                     | 10                                 | 10.000                 | 2               | 1.585               | 0.003153                         | 1                               |
|                | 11           | 10+1                    | 11                                 | 12.589                 | 2               | 1.585               | 0.003969                         | 1                               |
| 802.11n (HT40) | 3            | 4+1                     | 5                                  | 3.162                  | 2               | 1.585               | 0.000997                         | 1                               |
|                | 6            | 7+1                     | 8                                  | 6.310                  | 2               | 1.585               | 0.001989                         | 1                               |
|                | 9            | 6+1                     | 7                                  | 5.012                  | 2               | 1.585               | 0.001580                         | 1                               |

Signature:



Print: Sam Lv

Title: Manager

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