

**FCC RF EXPOSURE REPORT**

|                                   |                                                                                                                                                                                                                                            |
|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>EUT</b>                        | Building Automation System                                                                                                                                                                                                                 |
| <b>FCC ID</b>                     | 2AKZUFT                                                                                                                                                                                                                                    |
| <b>Frequency band (Operating)</b> | <input checked="" type="checkbox"/> WLAN: 2.412GHz ~ 2.462GHz<br><input checked="" type="checkbox"/> WLAN: 2.422GHz ~ 2.452GHz<br><input type="checkbox"/> WLAN: 5.180GHz ~ 5.240GHz<br><input type="checkbox"/> WLAN: 5.190GHz ~ 5.230GHz |
| <b>Device category</b>            | <input type="checkbox"/> Portable (<20cm separation)<br><input checked="" type="checkbox"/> Mobile (>20cm separation)                                                                                                                      |
| <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 type="checkbox"/> Single antenna<br><input checked="" type="checkbox"/> Multiple antennas<br><input type="checkbox"/> Tx diversity<br><input type="checkbox"/> Rx diversity<br><input checked="" type="checkbox"/> Tx/Rx diversity  |
| <b>Max. output power</b>          | 27.53dBm (566.239 mW)                                                                                                                                                                                                                      |
| <b>Antenna gain (Max)</b>         | 2dBi(Numeric gain:1.58)                                                                                                                                                                                                                    |
| <b>Evaluation applied</b>         | <input checked="" type="checkbox"/> MPE Evaluation*<br><input type="checkbox"/> SAR Evaluation<br><input type="checkbox"/> N/A                                                                                                             |

**Note:**

1. The maximum output power is 27.53dBm (566.239 mW) at 2422MHz (with numeric 1.58 antenna gain.)
2. DTS device is not subject to routine RF evaluation; MPE estimate is used to justify the compliance.
3. For mobile or fixed location transmitters, no SAR consideration applied. The maximum power density is 1.0 mW/cm<sup>2</sup> even if the calculation indicates that the power density would be larger.

**TEST RESULTS**

No non-compliance noted.

**Calculation**

Given  $E = \frac{\sqrt{30 \times P \times G}}{d}$  &  $S = \frac{E^2}{3770}$

Where  $E$  = Field strength in Volts / meter  
 $P$  = Power in Watts  
 $G$  = Numeric antenna gain  
 $d$  = Distance in meters  
 $S$  = Power density in milliwatts / square centimeter

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{3770 d^2}$$

Changing to units of mW and cm, using:

$$P \text{ (mW)} = P \text{ (W)} / 1000 \text{ and}$$
$$d \text{ (cm)} = d \text{ (m)} / 100$$

Yields

$$S = \frac{30 \times (P/1000) \times G}{3770 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2} \quad \text{Equation 1}$$

Where  $d$  = Distance in cm  
 $P$  = Power in mW  
 $G$  = Numeric antenna gain  
 $S$  = Power density in mW / cm<sup>2</sup>

**Maximum Permissible Exposure**

| Modulation Mode | Frequency band (MHz) | Peak output power(dBm) | Peak output power(mW) | Antenna Gain (dBi) | Antenna gain (Numeric ) | Distance (cm) | Power density (mW/cm2) | Limit (mW/cm2) |
|-----------------|----------------------|------------------------|-----------------------|--------------------|-------------------------|---------------|------------------------|----------------|
| 802.11b         | 2412-2462            | 22.86                  | 193.196832            | 2                  | 1.58489319              | 20            | 0.06093307             | 1              |
| 802.11g         | 2412-2462            | 27.22                  | 527.229861            | 2                  | 1.58489319              | 20            | 0.166285               | 1              |
| 802.11n HT20    | 2412-2462            | 27.28                  | 534.564359            | 2                  | 1.58489319              | 20            | 0.16859826             | 1              |
| 802.11n HT40    | 2422-2452            | 27.53                  | 566.239289            | 2                  | 1.58489319              | 20            | 0.17858833             | 1              |