



# Maximum Permissible Exposure Evaluation

**FCC ID: WNA-GN630**

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).

**EUT Specification**

|                            |                                                                                                                                                                                                                                |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product Name:              | GPON                                                                                                                                                                                                                           |
| Trade Mark:                | SKYWORTH                                                                                                                                                                                                                       |
| Model/Type Reference:      | GN630V                                                                                                                                                                                                                         |
| Listed Model(s):           | TEN25, GN630, GN630VE, SK-D7462, SK-D7462v2                                                                                                                                                                                    |
| Model Differences:         | Only the model names are different                                                                                                                                                                                             |
| Frequency Band (Operating) | WLAN: 2412MHz ~ 2462MHz<br>U-NII-1: 5180MHz ~ 5240MHz<br>U-NII-2A: 5260MHz ~ 5320MHz<br>U-NII-2C: 5500MHz ~ 5700MHz<br>U-NII-3: 5745MHz ~ 5825MHz                                                                              |
| Device Category            | <input type="checkbox"/> Portable (<5mm separation)<br><input checked="" type="checkbox"/> Mobile (>20cm separation)<br><input type="checkbox"/> Fixed (>20cm separation)<br><input type="checkbox"/> Others ____              |
| Exposure Classification    | <input type="checkbox"/> Occupational/Controlled exposure ( $S=5\text{mW}/\text{cm}^2$ )<br><input checked="" type="checkbox"/> General Population/Uncontrolled exposure ( $S=1\text{mW}/\text{cm}^2$ )                        |
| Antenna Diversity          | <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 type="checkbox"/> Tx/Rx diversity |
| Antenna Gain (Max)         | WLAN: Ant1: 2.75dBi; Ant2: 2.09dBi<br>RLAN: Ant1: 3.99dBi; Ant2: 3.98dBi                                                                                                                                                       |
| Evaluation Applied         | <input checked="" type="checkbox"/> MPE Evaluation<br><input type="checkbox"/> SAR Evaluation                                                                                                                                  |

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**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> ) | Averaging Time (minutes) |
|---------------------------------------------------------|-------------------------------|-------------------------------|-------------------------------------|--------------------------|
| (A) Limits for Occupational/Controlled Exposure         |                               |                               |                                     |                          |
| 300-1500                                                | --                            | --                            | F/300                               | <6                       |
| 1500-100000                                             | --                            | --                            | 5                                   | <6                       |
| (B) Limits for General Population/Uncontrolled Exposure |                               |                               |                                     |                          |
| 300-1500                                                | --                            | --                            | F/1500                              | <30                      |
| 1500-100000                                             | --                            | --                            | 1                                   | <30                      |

**Calculation Method**

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

Where:

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

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

$G$  = gain of antenna in linear scale

$\pi$  = 3.1416

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

$P_d$  limit of MPE is 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.

**Measurement Result**

| Mode                     | Frequency (MHz) | Antenna Gain (dBi) | Maximum Power (dBm) | Tune Up Tolerance (dB) | Max. Tune Up Power (dBm) | Power Density at 20cm (mW/cm <sup>2</sup> ) | Limit (mW/cm <sup>2</sup> ) |
|--------------------------|-----------------|--------------------|---------------------|------------------------|--------------------------|---------------------------------------------|-----------------------------|
| WLAN 802.11b ant2        | 2412            | 2.09               | 17.97               | ± 1                    | 18.97                    | 0.02539                                     | 1                           |
| RLAN U-NII-1 802.11ax40  | 5230            | 3.99               | 18.86               | ± 1                    | 19.86                    | 0.04828                                     | 1                           |
| RLAN U-NII-2A 802.11ax20 | 5260            | 3.99               | 18.63               | ± 1                    | 19.63                    | 0.04579                                     | 1                           |
| RLAN U-NII-2C 802.11ax20 | 5700            | 3.99               | 18.83               | ± 1                    | 19.83                    | 0.04794                                     | 1                           |
| RLAN U-NII-3 802.11ax20  | 5745            | 3.99               | 18.95               | ± 1                    | 19.95                    | 0.04929                                     | 1                           |

The WLAN and RLAN can transmit simultaneously.

| WLAN Power density at 20cm (mW/cm <sup>2</sup> ) | RLAN Power density at 20cm (mW/cm <sup>2</sup> ) | Total Power density at 20cm (mW/cm <sup>2</sup> ) | Power density Limit (mW/cm <sup>2</sup> ) |
|--------------------------------------------------|--------------------------------------------------|---------------------------------------------------|-------------------------------------------|
| 0.02539                                          | 0.04929                                          | 0.07468                                           | 1                                         |

Note:

1. Calculate in the worst-case mode.
2. Max. Tune Up Power is declared by manufacturer, and used to calculate.
3. For a more detailed features description, please refer to the RF Test Report.

\*\*\*\*\*THE END\*\*\*\*\*

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