

# **FCC RF EXPOSURE REPORT**

**FCC ID: RYK-WSDB104GNIBT**

**Project No. : 1708083**  
**Equipment : 802.11b/g/n WiFi+BT IOT Module**  
**Model : WSDB-104GNI(BT)**  
**Series Model : N/A**  
**Applicant : SparkLAN Communications, Inc.**  
**Address : 8F.,No.257,Sec.2,Tiding-Blvd.,Neihu  
District,Taipei City 11493,Taiwan (R.O.C.)**

**According: : FCC Guidelines for Human Exposure IEEE  
C95.1**

## **B T L I N C .**

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## MPE CALCULATION METHOD:

Calculation Method of RF Safety Distance:

$$S = \frac{PG}{4\pi r^2} = \frac{EIRP}{4\pi r^2}$$

where:

S = power density

P = power input to the antenna

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna

Table for Filed Antenna:

Group 1:

| Ant. | Brand      | Model          | Type   | Connector | Gain (dBi) |
|------|------------|----------------|--------|-----------|------------|
| 0    | Long Cheng | FDE ACBSMA BGP | Dipole | RP-SMA    | 3.67       |

Group 2:

| Ant. | Brand | Model | Type | Connector | Gain (dBi) |
|------|-------|-------|------|-----------|------------|
| 0    | N/A   | N/A   | PCB  | N/A       | -5.01      |

## CACULATION:

### Bluetooth EDR:

|             |                |
|-------------|----------------|
| Test Mode : | TX Mode _1Mbps |
|-------------|----------------|

| Antenna Gain (dBi) | Antenna Gain (numeric) | Peak Output Power (dBm) | Peak Output Power (mW) | Power Density (S) (mW/cm <sup>2</sup> ) | Limit of Power Density (S) (mW/cm <sup>2</sup> ) | Test Result |
|--------------------|------------------------|-------------------------|------------------------|-----------------------------------------|--------------------------------------------------|-------------|
| 3.67               | 2.3281                 | 3                       | 1.9953                 | 0.00092459                              | 1                                                | Complies    |

|             |                |
|-------------|----------------|
| Test Mode : | TX Mode _3Mbps |
|-------------|----------------|

| Antenna Gain (dBi) | Antenna Gain (numeric) | Peak Output Power (dBm) | Peak Output Power (mW) | Power Density (S) (mW/cm <sup>2</sup> ) | Limit of Power Density (S) (mW/cm <sup>2</sup> ) | Test Result |
|--------------------|------------------------|-------------------------|------------------------|-----------------------------------------|--------------------------------------------------|-------------|
| 3.67               | 2.3281                 | 1                       | 1.2589                 | 0.00058338                              | 1                                                | Complies    |

### Bluetooth LE:

|             |                   |
|-------------|-------------------|
| Test Mode : | CH00, CH19 , CH39 |
|-------------|-------------------|

| Antenna Gain (dBi) | Antenna Gain (numeric) | Peak Output Power (dBm) | Peak Output Power (mW) | Power Density (S) (mW/cm <sup>2</sup> ) | Limit of Power Density (S) (mW/cm <sup>2</sup> ) | Test Result |
|--------------------|------------------------|-------------------------|------------------------|-----------------------------------------|--------------------------------------------------|-------------|
| 3.67               | 2.3281                 | 1                       | 1.2589                 | 0.00058338                              | 1                                                | Complies    |

## 2.4G:

|             |                                    |
|-------------|------------------------------------|
| Test Mode : | TX B Mode Total / CH01, CH06, CH11 |
|-------------|------------------------------------|

| Antenna Gain (dBi) | Antenna Gain (numeric) | Peak Output Power (dBm) | Peak Output Power (mW) | Power Density (S) (mW/cm <sup>2</sup> ) | Limit of Power Density (S) (mW/cm <sup>2</sup> ) | Test Result |
|--------------------|------------------------|-------------------------|------------------------|-----------------------------------------|--------------------------------------------------|-------------|
| 3.67               | 2.3281                 | 15                      | 31.6228                | 0.01465380                              | 1                                                | Complies    |

|             |                                    |
|-------------|------------------------------------|
| Test Mode : | TX G Mode Total / CH01, CH06, CH11 |
|-------------|------------------------------------|

| Antenna Gain (dBi) | Antenna Gain (numeric) | Peak Output Power (dBm) | Peak Output Power (mW) | Power Density (S) (mW/cm <sup>2</sup> ) | Limit of Power Density (S) (mW/cm <sup>2</sup> ) | Test Result |
|--------------------|------------------------|-------------------------|------------------------|-----------------------------------------|--------------------------------------------------|-------------|
| 3.67               | 2.3281                 | 22                      | 158.4893               | 0.07344299                              | 1                                                | Complies    |

|             |                                        |
|-------------|----------------------------------------|
| Test Mode : | TX N-20M Mode Total / CH01, CH06, CH11 |
|-------------|----------------------------------------|

| Antenna Gain (dBi) | Antenna Gain (numeric) | Peak Output Power (dBm) | Peak Output Power (mW) | Power Density (S) (mW/cm <sup>2</sup> ) | Limit of Power Density (S) (mW/cm <sup>2</sup> ) | Test Result |
|--------------------|------------------------|-------------------------|------------------------|-----------------------------------------|--------------------------------------------------|-------------|
| 3.67               | 2.3281                 | 22                      | 158.4893               | 0.07344299                              | 1                                                | Complies    |

Note: the calculated distance is 20 cm.