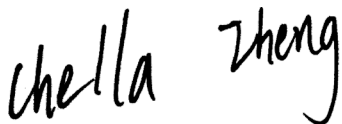


# FCC RF EXPOSURE REPORT

## FCC ID: 2AXJ4VX20

**Project No.** : 2101C102A  
**Equipment** : AX1800 Mesh Wi-Fi 6 System with Built-in Smart Speaker  
**Brand Name** : tp-link  
**Test Model** : Deco Voice X20  
**Series Model** : N/A  
**Applicant** : TP-Link Corporation Limited  
**Address** : Room 901, 9/F. , New East Ocean Centre, 9 Science Museum Road,  
Tsim Sha Tsui, Kowloon, Hong Kong  
**Manufacturer** : TP-Link Corporation Limited  
**Address** : Room 901, 9/F. , New East Ocean Centre, 9 Science Museum Road,  
Tsim Sha Tsui, Kowloon, Hong Kong  
**Date of Receipt** : Jan. 11, 2021  
Jul. 29, 2021  
**Date of Test** : Feb. 03, 2021 ~ Apr. 09, 2021  
**Issued Date** : Aug. 24, 2021  
**Report Version** : R00  
**Test Sample** : Engineering Sample No.: DG2021020289  
**Standard(s)** : FCC Guidelines for Human Exposure IEEE C95.1 & FCC Part 2.1091  
FCC Title 47 Part 2.1091, OET Bulletin 65 Supplement C

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.



Prepared by : Chella Zheng



Approved by : Ethan Ma



TESTING CERT #5123.02

Add: No. 3 Jinshagang 1st Rd. Shixia, Dalang Town, Dongguan City, Guangdong, People's Republic of China.

Tel: +86-769-8318-3000

Web: [www.newbtl.com](http://www.newbtl.com)

**REPORT ISSUED HISTORY**

| Report Version | Description                                                                                                                                  | Issued Date   |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| R00            | Compared with original report(BTL-FCCP-5-2101C102), changed the BT antenna, which does not affect the test results. Other are kept the same. | Aug. 24, 2021 |

## 1. TEST FACILITY

The test facilities used to collect the test data in this report is at the location of No. 3 Jinshagang 1st Rd. Shixia, Dalang Town, Dongguan City, Guangdong, People's Republic of China.

BTL's Test Firm Registration Number for FCC: 357015

BTL's Designation Number for FCC: CN1240

## 2. MPE CALCULATION METHOD

Calculation Method of RF Safety Distance:

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

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:

For BT:

| Ant. | Brand   | P/N | Antenna Type | Connector | Gain (dBi) |
|------|---------|-----|--------------|-----------|------------|
| 1    | tp-link | N/A | Dipole       | I-PEX     | 0.96       |

Note:

The antenna gain is provided by the manufacturer.

For LE:

| Ant. | Brand   | P/N | Antenna Type | Connector | Gain (dBi) |
|------|---------|-----|--------------|-----------|------------|
| 1    | tp-link | N/A | Dipole       | I-PEX     | 0.96       |

Note:

The antenna gain is provided by the manufacturer.

For 2.4GHz:

| Ant. | Brand   | Model Name | Antenna Type | Connector | Gain (dBi) |
|------|---------|------------|--------------|-----------|------------|
| 1    | tp-link | N/A        | Dipole       | I-PEX     | 1.97       |
| 2    | tp-link | N/A        | Dipole       | I-PEX     | 1.96       |

Note:

- 1) This EUT supports CDD, and all antenna gains are not equal, so Directional gain=10log[(10<sup>G1/20</sup>+10<sup>G2/20</sup>+...10<sup>GN/20</sup>)<sup>2</sup>/N]dBi, that is Directional gain=10log[(10<sup>1.97/20</sup>+10<sup>1.96/20</sup>)<sup>2</sup>/2]dBi =4.98.
- 2) The antenna gain is provided by the manufacturer.

For 5GHz:

| Ant. | Brand   | Model Name | Antenna Type | Connector | Gain (dBi) | Note   |
|------|---------|------------|--------------|-----------|------------|--------|
| 1    | tp-link | N/A        | Dipole       | I-PEX     | 0.82       | UNII-1 |
| 2    | tp-link | N/A        | Dipole       | I-PEX     | 0.85       | UNII-1 |
| 1    | tp-link | N/A        | Dipole       | I-PEX     | 0.86       | UNII-3 |
| 2    | tp-link | N/A        | Dipole       | I-PEX     | 0.94       | UNII-3 |

Note:

- 1) This EUT supports CDD, and all antenna gains are not equal, so Directional gain= $10\log[(10^{G1/20}+10^{G2/20}+\dots+10^{GN/20})^2/N]$  dBi,  
For UNII-1: that is Directional gain= $10\log[(10^{0.82/20}+10^{0.85/20})^2/2]$  dBi =3.85.  
For UNII-3: that is Directional gain= $10\log[(10^{0.86/20}+10^{0.94/20})^2/2]$  dBi =3.91.
- 2) The antenna gain is provided by the manufacturer.

### 3. TEST RESULTS

For BT:

| Antenna Gain (dBi) | Antenna Gain (numeric) | Max. Output Power (dBm) | Max. Output Power (mW) | Power Density (S) (mW/cm <sup>2</sup> ) | Limit of Power Density (S) (mW/cm <sup>2</sup> ) | Test Result |
|--------------------|------------------------|-------------------------|------------------------|-----------------------------------------|--------------------------------------------------|-------------|
| 0.96               | 1.2474                 | 9.42                    | 8.7498                 | 0.00217                                 | 1                                                | Complies    |

For LE:

| Antenna Gain (dBi) | Antenna Gain (numeric) | Max. Output Power (dBm) | Max. Output Power (mW) | Power Density (S) (mW/cm <sup>2</sup> ) | Limit of Power Density (S) (mW/cm <sup>2</sup> ) | Test Result |
|--------------------|------------------------|-------------------------|------------------------|-----------------------------------------|--------------------------------------------------|-------------|
| 0.96               | 1.2474                 | 9.55                    | 9.0157                 | 0.00224                                 | 1                                                | Complies    |

For 2.4GHz:

| Directional Gain (dBi) | Directional Gain (numeric) | Max. Output Power (dBm) | Max. Output Power (mW) | Power Density (S) (mW/cm <sup>2</sup> ) | Limit of Power Density (S) (mW/cm <sup>2</sup> ) | Test Result |
|------------------------|----------------------------|-------------------------|------------------------|-----------------------------------------|--------------------------------------------------|-------------|
| 4.98                   | 3.1477                     | 27.77                   | 598.4116               | 0.37493                                 | 1                                                | Complies    |

For 5GHz UNII-1:

| Directional Gain (dBi) | Directional Gain (numeric) | Max. Output Power (dBm) | Max. Output Power (mW) | Power Density (S) (mW/cm <sup>2</sup> ) | Limit of Power Density (S) (mW/cm <sup>2</sup> ) | Test Result |
|------------------------|----------------------------|-------------------------|------------------------|-----------------------------------------|--------------------------------------------------|-------------|
| 3.85                   | 2.4266                     | 27.88                   | 613.7620               | 0.29645                                 | 1                                                | Complies    |

For 5GHz UNII-3:

| Directional Gain (dBi) | Directional Gain (numeric) | Max. Output Power (dBm) | Max. Output Power (mW) | Power Density (S) (mW/cm <sup>2</sup> ) | Limit of Power Density (S) (mW/cm <sup>2</sup> ) | Test Result |
|------------------------|----------------------------|-------------------------|------------------------|-----------------------------------------|--------------------------------------------------|-------------|
| 3.91                   | 2.4604                     | 27.46                   | 557.1857               | 0.27287                                 | 1                                                | Complies    |

**For the max simultaneous transmission MPE:**

| Power Density (S) (mW/cm <sup>2</sup> ) | Power Density (S) (mW/cm <sup>2</sup> ) | Power Density (S) (mW/cm <sup>2</sup> ) | Total   | Limit of Power Density (S) (mW/cm <sup>2</sup> ) | Test Result |
|-----------------------------------------|-----------------------------------------|-----------------------------------------|---------|--------------------------------------------------|-------------|
| LE                                      | 2.4GHz                                  | 5GHz                                    |         |                                                  |             |
| 0.00224                                 | 0.37493                                 | 0.29645                                 | 0.67362 | 1                                                | Complies    |

Note: The calculated distance is 20 cm.

Output power including tune up tolerance(tune up tolerance: 0.5 dBm).

**End of Test Report**