

## RF Exposure Report

**Report No.:** MFBEOP-WTW-P22030407B

**FCC ID:** NKR-LS041

**Test Model:** S501R0-01

**Received Date:** 2024/8/29

**Test Date:** 2024/11/5 ~ 2024/11/12

**Issued Date:** 2024/12/9

**Applicant:** Wistron NeWeb Corporation

**Address:** 20 Park Avenue II, Hsinchu Science Park, Hsinchu 308, Taiwan, R.O.C.

**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch  
Lin Kou Laboratories

**Lab Address:** No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan

**Test Location (1):** No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City  
33383, Taiwan

**FCC Registration /** 788550 / TW0003  
**Designation Number:**

**Test Location (2):** No. 70, Wenming Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)

**FCC Registration /** 281270 / TW0032  
**Designation Number:**



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### Release Control Record

| Issue No.             | Description      | Date Issued |
|-----------------------|------------------|-------------|
| MFBEOP-WTW-P22030407B | Original release | 2024/12/9   |

## 1 Certificate of Conformity

**Product:** home security gateway

**Brand:** ADT

**Test Model:** S501R0-01

**Sample Status:** Engineering sample

**Applicant:** Wistron NeWeb Corporation

**Test Date:** 2024/11/5 ~ 2024/11/12

**FCC Rule Part:** FCC Part 2 (Section 2.1091)

**Standards:** KDB 447498 D01 General RF Exposure Guidance v06

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

**Prepared by :** Celine Chou , **Date:** 2024/12/9  
Celine Chou / Senior Specialist

**Approved by :** Jeremy Lin , **Date:** 2024/12/9  
Jeremy Lin / Project Engineer

## 2 RF Exposure

### 2.1 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 (minutes) |
|-------------------------------------------------------|-------------------------------|-------------------------------|-------------------------------------|------------------------|
| Limits For General Population / Uncontrolled Exposure |                               |                               |                                     |                        |
| 300-1500                                              | ...                           | ...                           | F/1500                              | 30                     |
| 1500-100,000                                          | ...                           | ...                           | 1.0                                 | 30                     |

F = Frequency in MHz

### 2.2 MPE Calculation 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

### 2.3 Classification

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. So, this device is classified as **Mobile Device**.

### 3 Calculation Result of Maximum Conducted Power

#### WLAN, BT, Zigbee and Z-wave (15.247)

| Function | Frequency Band (MHz) | Max AV Power (dBm) | Antenna Gain (dBi) | Distance (cm) | Power Density (mW/cm <sup>2</sup> ) | Limit (mW/cm <sup>2</sup> ) |
|----------|----------------------|--------------------|--------------------|---------------|-------------------------------------|-----------------------------|
| WLAN     | 2412-2462            | 22.73              | 5.19               | 20            | 0.123                               | 1.00                        |
|          | 5180-5240            | 23.60              | 5.56               | 20            | 0.164                               | 1.00                        |
|          | 5260-5320            | 23.09              | 5.36               | 20            | 0.139                               | 1.00                        |
|          | 5500-5720            | 23.83              | 5.54               | 20            | 0.172                               | 1.00                        |
|          | 5745-5825            | 25.22              | 5.52               | 20            | 0.236                               | 1.00                        |
| BT LE    | 2402-2480            | 13.57              | 4.26               | 20            | 0.012                               | 1.00                        |
| Z-wave   | 912-920              | 12.44              | 3.04               | 20            | 0.007                               | 0.60                        |

Note:

1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. Detail antenna specification please refer to antenna datasheet and/or antenna measurement report.

#### Z-wave (15.249)

| Function | Frequency Band (MHz) | Radiated Electric field (dBuV/m) @3m | Radiated Electric field (dBuV/m) @0.2m | EIRP Power (dBm) | Power Density (mW/cm <sup>2</sup> ) | Limit (mW/cm <sup>2</sup> ) |
|----------|----------------------|--------------------------------------|----------------------------------------|------------------|-------------------------------------|-----------------------------|
| Z-wave   | 908.40-916.00        | 92.80                                | 116.32                                 | -2.43            | 0.00011                             | 0.60                        |

Note:

1.  $92.80 + 20\log(3/0.2) = 116.32\text{dBuV/m}$ .
2. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
3. Due to radiated measurements are made and the antenna gain is already accounted for this device, so provide an antenna datasheet and/or antenna measurement report is not required. The antenna dimensions and pictures (include antenna wire length if have) are stated in EUT photo exhibit.

#### DECT

| Function | Frequency Band (MHz) | Max AV Power (dBm) | Antenna Gain (dBi) | Distance (cm) | Power Density (mW/cm <sup>2</sup> ) | Limit (mW/cm <sup>2</sup> ) |
|----------|----------------------|--------------------|--------------------|---------------|-------------------------------------|-----------------------------|
| DECT     | 1921.536-1928.448    | 18.40              | 5.05               | 20            | 0.044                               | 1.00                        |

Note:

1. The DECT antenna information for this EUT is listed as below.

| Antenna No. | Brand | Model | Antenna Gain (dBi) | Frequency Range | Antenna Type | Connector Type |
|-------------|-------|-------|--------------------|-----------------|--------------|----------------|
| DECT1       | WNC   | LS04  | 4.34               | 1920-1930MHz    | Dipole       | ipex(MHF)      |
| DECT2       | WNC   | LS04  | 5.05               | 1920-1930MHz    | Dipole       | ipex(MHF)      |

2. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

WWAN (The EUT contains certified LTE module (Brand: Telit, Model: LE910C1-WWXD, FCC ID: R17LE910CXWWX))

| Function | Band    | Conducted Power (dBm) | Antenna Gain (dBi) | Distance (cm) | Power Density (mW/cm <sup>2</sup> ) | Limit (mW/cm <sup>2</sup> ) |
|----------|---------|-----------------------|--------------------|---------------|-------------------------------------|-----------------------------|
| WWAN     | LTE B2  | 24.00                 | 3.21               | 20            | 0.105                               | 1.00                        |
|          | LTE B4  | 24.00                 | 2.61               | 20            | 0.091                               | 1.00                        |
|          | LTE B5  | 24.00                 | 1.32               | 20            | 0.068                               | 0.55                        |
|          | LTE B12 | 24.00                 | -0.02              | 20            | 0.050                               | 0.46                        |
|          | LTE B13 | 24.00                 | 1.32               | 20            | 0.068                               | 0.52                        |
|          | LTE B14 | 24.00                 | 1.32               | 20            | 0.068                               | 0.52                        |

Note:

1. The WWAN antenna information for this EUT is listed as below.

| Antenna No. | Brand | Model | Gain (dBi) |      |      |       |      |      | Type     | Connector |
|-------------|-------|-------|------------|------|------|-------|------|------|----------|-----------|
|             |       |       | B2         | B4   | B5   | B12   | B13  | B14  |          |           |
| LTE Main    | WNC   | LS04  | 3.21       | 2.35 | 1.13 | -0.02 | 1.13 | 1.13 | Monopole | ipex(MHF) |
| LTE Aux     | WNC   | LS04  | 1.75       | 2.61 | 1.32 | -0.05 | 1.32 | 1.32 | Dipole   | ipex(MHF) |

2. Detail antenna specification please refer to antenna datasheet and/or antenna measurement report.

3. This EUT only enable LTE B2, B4, B5, B12, B13, B14 function through proprietary firmware.

4. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

### Conclusion:

The formula of calculated the MPE is:

$$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$$

CPD = Calculation power density

LPD = Limit of power density

Simultaneously transmission condition.

| Condition | Technology                                                                                                         |
|-----------|--------------------------------------------------------------------------------------------------------------------|
| 1         | WLAN 2.4G + BLE + Z-wave + DECT + WWAN = $0.123 / 1 + 0.012 / 1 + 0.007 / 0.60 + 0.044 / 1 + 0.068 / 0.52 = 0.321$ |
| 2         | WLAN 5G + BLE + Z-wave + DECT + WWAN = $0.236 / 1 + 0.012 / 1 + 0.007 / 0.60 + 0.044 / 1 + 0.068 / 0.52 = 0.434$   |

Therefore the maximum calculations of above situations are less than the "1" limit.

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