



## Maximum Permissible Exposure

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**FCC ID:** 2AP48CT1800  
**APPLICANT:** Centron Design Co., Ltd.  
**Application Type:** Certification  
**Product:** Wireless Streaming Station  
**Model No.:** CT1800, HS770, NM240, NJ340  
**Trademark:**   
**FCC Rule Part(s):** Part 2.1091  
**Received Date:** December 23, 2019  
**Test Date:** April 10, 2020

**Tested By** : Fran Chen

( Fran Chen )

**Reviewed By** : Paddy Chen

( Paddy Chen )

**Approved By** : Chenz Ker

( Chenz Ker )



The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report. Test results reported herein relate only to the item(s) tested.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Taiwan) Co., Ltd.

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## Revision History

| Report No.    | Version | Description     | Issue Date |
|---------------|---------|-----------------|------------|
| 1912TW1201-U6 | 1.0     | Original Report | 2020-05-15 |

## 1. PRODUCT INFORMATION

### 1.1. Equipment Description

|                       |                                                                                                                            |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------|
| Product Name          | Wireless Streaming Station                                                                                                 |
| Model No.             | CT1800, HS770, NM240, NJ340                                                                                                |
| Brand Name            | <b>CENTRON</b><br>DESIGN                                                                                                   |
| Supports Radios Spec. | 2.4G: 802.11b/g/n-20/n-40<br>5G: 802.11a/n-20/ac-20n/n-40/ac-40/ac-80, Band 1, 4<br>Bluetooth Dual Mode: V2.1+EDR/ V4.0 LE |

Note:

1. Model Difference: The difference of models only for marketing different, the other RF hardware was the same. (declared by the manufacturer)
2. The test was performed base on CT1800.

## 1.2. Antenna Description

| 2.4GHz       |             |
|--------------|-------------|
| Antenna Type | FPCB        |
| Antenna M/N  | RF11C00762S |
| Antenna Gain | 4.16dBi     |
| 5.0GHz       |             |
| Antenna Type | FPCB        |
| Antenna M/N  | RF11C00762S |
| Antenna Gain | 4.0dBi      |

## 2. MAXIMUM PERMISSIBLE EXPOSURE (MPE)

### 2.1. Limits

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)

#### 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) |
|-----------------------------------------------------------|-------------------------------|-------------------------------|-------------------------------------|------------------------|
| (A) Limits for Occupational/ Control Exposures            |                               |                               |                                     |                        |
| 0.3-3.0                                                   | 614                           | 1.63                          | *100                                | 6                      |
| 3.0-30                                                    | 1842/f                        | 4.89/f                        | *900/f <sup>2</sup>                 | 6                      |
| 30-300                                                    | 61.4                          | 0.163                         | 1.0                                 | 6                      |
| 300-1500                                                  | --                            | --                            | f/300                               | 6                      |
| 1500-100,000                                              | --                            | --                            | 5                                   | 6                      |
| (B) Limits for General Population/ Uncontrolled Exposures |                               |                               |                                     |                        |
| 0.3-1.4                                                   | 614                           | 1.63                          | *100                                | 30                     |
| 1.34-30                                                   | 824/f                         | 2.19/f                        | *180/f <sup>2</sup>                 | 30                     |
| 30-300                                                    | 27.5                          | 0.073                         | 0.2                                 | 30                     |
| 300-1500                                                  | --                            | --                            | f/1500                              | 30                     |
| 1500-100,000                                              | --                            | --                            | 1.0                                 | 30                     |

Note : (1) f= Frequency in MHz , (2) \* = Plane-wave equivalent power density

Calculation Formula:  $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot r^2)$

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

Under normal use condition, is at least 20cm away from the body of the user .

So, this device is classified as **Mobile Device**.

## 2.2. Test Result

| Mode            | Frequency Band (MHz) | Maximum Output Power (dBm) | Gain (dBi) | Power Density at R = 20 cm (mW/cm <sup>2</sup> ) | Limit (mW/cm <sup>2</sup> ) |
|-----------------|----------------------|----------------------------|------------|--------------------------------------------------|-----------------------------|
| BT              | 2402~2480            | 5.24                       | 4.16       | 0.0017                                           | 1                           |
| BLE             | 2402~2480            | 7.97                       | 4.16       | 0.0033                                           | 1                           |
| WiFi 2.4G       | 2412~2462            | 23.93                      | 4.16       | 0.1282                                           | 1                           |
| WiFi 5G (Band1) | 5150~5250            | 16.24                      | 4.0        | 0.0210                                           | 1                           |
| WiFi 5G (Band4) | 5725~5850            | 16.28                      | 4.0        | 0.0212                                           | 1                           |

### Conclusion :

$$CPD1/LPD1 + CPD2/LPD2 + \dots + CPDN/LPDN \leq 1$$

CPD : Calculation Power Density

LPD : Limit of Power Density

| Mode            | Power Density | Limit | Conclusion | Result ( $\leq 1$ ) |
|-----------------|---------------|-------|------------|---------------------|
| WiFi 2.4G       | 0.1282        | 1     | 0.1494     | Pass                |
| WiFi 5G (Band4) | 0.0212        | 1     |            |                     |

Therefore, the Max Power Density at R (20 cm) = 0.1494mW/cm<sup>2</sup>.

So, device can comply with FCC radiation exposure requirement specified in the FCC Rule 2.1091.

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