



# TEST REPORT

REPORT NUMBER:I21W00004

ON

**Type of Equipment:** AT Pro NG  
**Type of Designation:** Tracker  
**Manufacturer:** Micron Electronics LLC  
**FCC ID:** ZKQ-ATPNG

## ACCORDING TO

FCC CFR 47 Part 2.1091 《Radiofrequency radiation exposure evaluation: mobile devices》

FCC CFR 47 Part1.1310 《Radiofrequency radiation exposure limits》

**Chongqing Academy of Information and Communication Technology**

***Month date, year***

*Apr,10,2021*

***Signature***

**Xiang Luoyong**

***Director***

### **Note:**

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of Chongqing Academy of Information and Communications Technology.



**Revision Version**

| <b>Report Number</b> | <b>Revision</b> | <b>Date</b> | <b>Memo</b>                     |
|----------------------|-----------------|-------------|---------------------------------|
| I21W00004-MPE        | 00              | 2021-04-10  | Initial creation of test report |



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## 1. Test Laboratory

### 1.1. Testing Location

|               |                                                                             |
|---------------|-----------------------------------------------------------------------------|
| Company Name: | Chongqing Academy of Information and Communications Technology              |
| Address:      | No. 8, Yuma Road, Chayuan New City, Nan'an District, Chongqing, P. R. China |
| Postal Code:  | 401336                                                                      |
| Telephone:    | 0086-23-88069965                                                            |
| Fax:          | 0086-23-88608777                                                            |

### 1.2. Testing Environment

|                     |       |
|---------------------|-------|
| Normal Temperature: | 21.3℃ |
| Relative Humidity:  | 75%   |

### 1.3. Project Data

|                     |            |
|---------------------|------------|
| Testing Start Date: | 2021-04-09 |
| Testing End Date:   | 2021-04-09 |

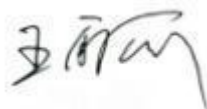
### 1.4. Signature



2021-04-10

**Fu Bohao**  
(Prepared this test report)

**Date**



2021-04-10

**Wang Lili**  
(Reviewed this test report)

**Date**



2021-04-10

**Xiang Luoyong**  
Director of the laboratory  
(Approved this test report)

**Date**

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## 2. Client Information

### 2.1. Applicant Information

|                 |                                                        |
|-----------------|--------------------------------------------------------|
| Company Name:   | Micron Electronics LLC                                 |
| Address /Post:  | 1001 Yamato Road, Suite 400, Boca Raton, FL 33431, USA |
| Telephone:      | 18885383489                                            |
| Fax:            | --                                                     |
| Email:          | pcheng@micron-electronics.com                          |
| Contact Person: | Ping Cheng                                             |

### 2.2. Manufacturer Information

|                 |                                                        |
|-----------------|--------------------------------------------------------|
| Company Name:   | Micron Electronics LLC                                 |
| Address /Post:  | 1001 Yamato Road, Suite 400, Boca Raton, FL 33431, USA |
| Telephone:      | 18885383489                                            |
| Fax:            | --                                                     |
| Email:          | pcheng@micron-electronics.com                          |
| Contact Person: | Ping Cheng                                             |

### 3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

#### 3.1. About EUT

|                                                                    |                            |
|--------------------------------------------------------------------|----------------------------|
| Description:                                                       | AT Pro NG                  |
| Model name:                                                        | Tracker                    |
| GSM Frequency Band                                                 | GPRS850/1900,EGPRS850/1900 |
| CATM Frequency Band                                                | Band2/4/5/12/13            |
| Support Technology                                                 | 2.4G WLAN                  |
| GPRS Multislot Class                                               | 12                         |
| EGPRS Multislot Class                                              | 12                         |
| Antenna type:                                                      | FPC                        |
| Note: Photographs of EUT are shown in ANNEX A of this test report. |                            |

#### 3.2. Internal Identification of EUT used during the test

| EUT ID* | SN or IMEI      | HW Version  | SW Version | Date of receipt |
|---------|-----------------|-------------|------------|-----------------|
| S4      | 866884045634251 | F602_V1_PCB | L101_PTCRB | 2021-03-22      |

\*EUT ID: is used to identify the test sample in the lab internally.

#### 3.3. Internal Identification of AE used during the test

| EUT ID* | SN | Description |
|---------|----|-------------|
| NA      | NA | NA          |

\*AE ID: is used to identify the test sample in the lab internally.

## 4. Reference Documents

### 4.1. Applicable Standards

The MPE report was carried out on a sample equipment to demonstrate limited compliance with FCC CFR 47 Part 2.1091.

**FCC CFR 47 Part 2.1091:** Radiofrequency radiation exposure evaluation: mobile devices

### 4.2. Test Limits

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2m normally can be maintained between the user and the device.

MPE for the upper tier (people in controlled environments)

| Frequency Range<br>[MHz]                                | Electric field<br>strength<br>(V/m) | Magnetic field<br>strength<br>(A/m) | Power density<br>(mW/cm <sup>2</sup> ) | Averaging time<br>(minutes) |
|---------------------------------------------------------|-------------------------------------|-------------------------------------|----------------------------------------|-----------------------------|
| (A) Limits for Occupational/Controlled Exposure         |                                     |                                     |                                        |                             |
| 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                           |
| 1500-100000                                             | --                                  | --                                  | 5                                      | 6                           |
| (B) Limits for General Population/Uncontrolled Exposure |                                     |                                     |                                        |                             |
| 0.3-1.34                                                | 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                          |
| 1500-100000                                             | --                                  | --                                  | 1.0                                    | 30                          |

Note: f=frequency in MHz; \*Plane-wave equivalent power density

For the DUT, the limits for the general public when an RF safety program is unavailable.



## 5. Test Results

### 5.1. RF Power Output

| Frequency Band | Highest Averaged Power Output(dBm) | Highest Frame-Averaged Output Power (dBm) | Antenna Gain(dBi) |
|----------------|------------------------------------|-------------------------------------------|-------------------|
| GPRS 850 3TS   | 31.00                              | 26.74                                     | 0.5               |
| GPRS 1900 4TS  | 31.00                              | 27.99                                     | 0.5               |
| CATM1 Band2    | 24.74                              | 24.74                                     | 0.5               |
| CATM1 Band4    | 24.74                              | 24.74                                     | 0.5               |
| CATM1 Band5    | 24.55                              | 24.55                                     | 0.5               |
| CATM1 Band12   | 24.58                              | 24.58                                     | 0.5               |
| CATM1 Band13   | 25.42                              | 25.42                                     | 0.5               |
| 2.4G WLAN      | 18.46                              | 18.46                                     | 0.5               |

Notes:

1) Division Factors

To average the power, the division factor is as follows:

1TX-slot = 1 transmit time slot out of 8 time slots=> conducted power divided by (8/1) => -9.03dB

2TX-slots = 2 transmit time slots out of 8 time slots=> conducted power divided by (8/2) => -6.02dB

3TX-slots = 3 transmit time slots out of 8 time slots=> conducted power divided by (8/3) => -4.26dB

4TX-slots = 4 transmit time slots out of 8 time slots=> conducted power divided by (8/4) => -3.01dB

2) According to the conducted power as above, the measurements are performed with 1Txslots for 850MHz and 1900MHz.

### 5.2. Calculation Information

For conservative evaluation consideration, only maximum power of each frequency band based on the tighter limits respectively are used to calculate the boundary power density.

Based on the FCC KDB 447498 D01 and 47 CFR §2.1091, the DUT is evaluated as a mobile device.

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

Where

P = Power in Watts

G = Numeric antenna gain

d = Distance in meters

S = Power density in milliwatts / square centimeter

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### 5.3. Results

| Frequency range | Limit(mW/cm <sup>2</sup> ) | Results(mW/cm <sup>2</sup> ) | Verdict |
|-----------------|----------------------------|------------------------------|---------|
| GPRS 850 3TS    | 0.549                      | 0.105                        | Pass    |
| GPRS 1900 4TS   | 1.000                      | 0.141                        | Pass    |
| CATM1 Band2     | 1.000                      | 0.066                        | Pass    |
| CATM1 Band4     | 1.000                      | 0.066                        | Pass    |
| CATM1 Band5     | 0.549                      | 0.064                        | Pass    |
| CATM1 Band12    | 0.466                      | 0.064                        | Pass    |
| CATM1 Band13    | 0.518                      | 0.078                        | Pass    |
| 2.4G WLAN       | 1.000                      | 0.016                        | Pass    |

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#### 5.4. Result of GPRS 850

**Test Results:** MPE Limit Calculation: the EUT'S operating frequencies @ 824.2 ~ 848.8 MHz; The maximum conducted is 26.74 dBm. The maximum gain is 0.5 dBi. Therefore, maximum limit for general public RF exposure:  $824.2/1500=0.549 \text{ mW/cm}^2$ .

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

P= input power of the antenna (472.063 mW)

G = antenna gain (1.122 numeric)

r = distance to the center of radiation of antenna (in meter)= 20 cm

$$S=(472.063*1.122)/(4\pi*20^2)=0.105\text{mW/cm}^2$$

Therefore, at 20 cm the spectral power density is less than the  $0.549 \text{ mW/cm}^2$  limit for uncontrolled exposure.

#### 5.5. Result of GPRS 1900

**Test Results:** MPE Limit Calculation: the EUT'S operating frequencies @ 1850.2 ~ 1909.8 MHz; The maximum conducted is 27.99 dBm. The maximum gain is 0.5 dBi. Therefore, maximum limit for general public RF exposure:  $1.0 \text{ mW/cm}^2$ .

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

P= input power of the antenna (629.506 mW)

G = antenna gain (1.122 numeric)

r = distance to the center of radiation of antenna (in meter)= 20 cm

$$S=(629.506*1.122)/(4\pi*20^2)=0.141 \text{ mW/cm}^2$$

Therefore, at 20 cm the spectral power density is less than the  $1.0 \text{ mW/cm}^2$  limit for uncontrolled exposure.

## 5.6. Result of CATM Band 2

**Test Results:** MPE Limit Calculation: the EUT'S operating frequencies @ 1850.0 ~ 1909.9 MHz; The maximum conducted is 24.74 dBm. The maximum gain is 0.5 dBi. Therefore, maximum limit for general public RF exposure: 1.0 mW/cm<sup>2</sup>.

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

P= input power of the antenna (297.852 mW)

G = antenna gain (1.122numeric)

r = distance to the center of radiation of antenna (in meter)=20 cm

$$S=(297.852*1.122)/(4\pi*20^2)=0.066\text{mW/cm}^2$$

Therefore, at 20 cm the spectral power density is less than the 1.0 mW/cm<sup>2</sup> limit for uncontrolled exposure.

## 5.7. Result of CATM Band 4

**Test Results:** MPE Limit Calculation: the EUT'S operating frequencies @ 1710.0 ~ 1754.9 MHz; The maximum conducted is 24.74 dBm. The maximum gain is 0.5 dBi. Therefore, maximum limit for general public RF exposure: 1 mW/cm<sup>2</sup>.

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

P= input power of the antenna (297.852 mW)

G = antenna gain (1.122numeric)

r = distance to the center of radiation of antenna (in meter)=20 cm

$$S=(297.852*1.122)/(4\pi*20^2)=0.066\text{mW/cm}^2$$

Therefore, at 20 cm the spectral power density is less than the 1 mW/cm<sup>2</sup> limit for uncontrolled exposure.

## 5.8. Result of CATM Band 5

**Test Results:** MPE Limit Calculation: the EUT'S operating frequencies @ 824.0 ~ 848.9 MHz; The maximum conducted is 24.55dBm. The maximum gain is 0.5 dBi. Therefore, maximum limit for general public RF exposure: 824.0/1500=0.549 mW/cm<sup>2</sup>.

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

P= input power of the antenna (285.102 mW)

G = antenna gain (1.122numeric)

r = distance to the center of radiation of antenna (in meter)=20 cm

$$S=(285.102*1.122)/(4\pi*20^2)=0.064\text{mW/cm}^2$$

Therefore, at 20 cm the spectral power density is less than the 0.549mW/cm<sup>2</sup> limit for uncontrolled exposure.

### 5.9. Result of CATM Band 12

**Test Results:** MPE Limit Calculation: the EUT'S operating frequencies @ 699.0 ~ 715.9 MHz; The maximum conducted is 24.58dBm. The maximum gain is 0.5 dBi. Therefore, maximum limit for general public RF exposure: 699.0/1500=0.466 mW/cm<sup>2</sup>.

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

P= input power of the antenna (287.078 mW)

G = antenna gain (1.122numeric)

r = distance to the center of radiation of antenna (in meter)=20 cm

$$S=(287.078*1.122)/(4 \pi *20^2)=0.064\text{mW/cm}^2$$

Therefore, at 20 cm the spectral power density is less than the 0.466mW/cm<sup>2</sup> limit for uncontrolled exposure.

### 5.10. Result of CATM Band 13

**Test Results:** MPE Limit Calculation: the EUT'S operating frequencies @ 777.0 ~ 786.9 MHz; The maximum conducted is 25.42 dBm. The maximum gain is 0.5 dBi. Therefore, maximum limit for general public RF exposure: 777.0/1500=0.518 mW/cm<sup>2</sup>.

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

P= input power of the antenna (348.337 mW)

G = antenna gain (1.122numeric)

r = distance to the center of radiation of antenna (in meter)=20 cm

$$S=(348.337*1.122)/(4 \pi *20^2)=0.078\text{mW/cm}^2$$

Therefore, at 20 cm the spectral power density is less than the 0.518mW/cm<sup>2</sup> limit for uncontrolled exposure.

### 5.11. Result of 2.4G WLAN 802.11g

**Test Results:** MPE Limit Calculation: the EUT'S operating frequencies @ 2400.0 ~ 2483.5 MHz; The maximum conducted is 18.46 dBm. The maximum gain is 0.5 dBi. Therefore, maximum limit for general public RF exposure: 1.0 mW/cm<sup>2</sup>.

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

P= input power of the antenna (70.146 mW)

G = antenna gain (1.122numeric)

r = distance to the center of radiation of antenna (in meter)=20 cm

$$S=(70.146*1.122)/(4\pi*20^2)=0.016\text{mW/cm}^2$$

Therefore, at 20 cm the spectral power density is less than the 1.0 mW/cm<sup>2</sup> limit for uncontrolled exposure.

### ANNEX A: EUT photograph

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See the document" Tracker -External Photos".

**\*\*\*END OF REPORT\*\*\***

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