# FCC RADIO EXPOSURE TEST REPORT

| | | |
|---|---|---|
| FCC ID | : | 2AWNEKDE20101 |
| Equipment | : | Home Entertainment Hub |
| Brand Name | : | E1 by Ericsson |
| Model Name | : | KDE20101 |
| Applicant | : | Ericsson AB<br>21-23 Torshamnsgatan Stockholm, 16480 Sweden |
| Manufacturer | : | CyberTAN Technology Inc.<br>No. 99, Park Avenue III Science-based Industrial Park Hsinchu Taiwan 308 |
| Standard | : | 47 CFR Part 2.1091 |

The product was received on Mar. 30, 2020, and testing was started from Mar. 30, 2020 and completed on May 04, 2020. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in 47 CFR Part 2.1091 and shown compliance with the applicable technical standards.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Approved by: Sam Chen

*SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory*
*No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)*

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# History of this test report

| Report No. | Version | Description | Issued Date |
|---|---|---|---|
| FA031633 | 01 | Initial issue of report | Aug. 03, 2020 |
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# Summary of Test Result

| Report Clause | Ref Std. Clause | Test Items | Result (PASS/FAIL) | Remark |
|---|---|---|---|---|
| 2 | - | Exposure evaluation | PASS | - |

| Declaration of Conformity: |
|---|
| The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers. |
| **Comments and Explanations:** |
| The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification. |

**Reviewed by: Sam Chen**

**Report Producer: Wendy Pan**

# 1 General Description

## 1.1 EUT General Information

| RF General Information | | | |
|---|---|---|---|
| **Evaluation Mode** | **Frequency Range (MHz)** | **Operating Frequency (MHz)** | **Modulation Type** |
| 2.4GHz WLAN | 2400-2483.5 | 2412-2462 | 802.11b: DSSS (DBPSK, DQPSK, CCK)<br>802.11g/n: OFDM (BPSK, QPSK, 16QAM, 64QAM) |
| Zigbee | 2400-2483.5 | 2405-2475 | O-QPSK |

### 1.1.1 The EUT Support Function Information

| Module | Function | Camera |
|---|---|---|
| AX<br>(Contain module FCC ID:<br>PD9AX200NG ) | WLAN 2.4GHz, WLAN 5GHz and Bluetooth | Support |
| AI | WLAN 2.4GHz, Zigbee | Does not support |

## 1.2 Testing Location

| Testing Location | | | |
|---|---|---|---|
| ☐ | HWA YA | ADD : No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.<br>TEL : 886-3-327-3456 FAX : 886-3-327-0973 | |
| ☒ | JHUBEI | ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C.<br>TEL : 886-3-656-9065 FAX : 886-3-656-9085 | |

Test site Designation No. TW0006 with FCC.

Test site registered number IC 4086D with Industry Canada.

# 2 Maximum Permissible Exposure

## 2.1 Limit of Maximum Permissible Exposure

(A) Limits for Occupational / Controlled Exposure

| Frequency Range (MHz) | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) (mW/ cm²) | Averaging Time \|E\|²,\|H\|² or S (minutes) |
|---|---|---|---|---|
| 0.3-3.0 | 614 | 1.63 | (100)* | 6 |
| 3.0-30 | 1842 / f | 4.89 / f | (900 / f)* | 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 Exposure

| Frequency Range (MHz) | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) (mW/ cm²) | Averaging Time \|E\|²,\|H\|² or S (minutes) |
|---|---|---|---|---|
| 0.3-1.34 | 614 | 1.63 | (100)* | 30 |
| 1.34-30 | 824/f | 2.19/f | (180/f)* | 30 |
| 30-300 | 27.5 | 0.073 | 0.2 | 30 |
| 300-1500 | | | F/1500 | 30 |
| 1500-100,000 | | | 1.0 | 30 |

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

## 2.2 MPE Calculation Method

The MPE was calculated at 20 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

E (V/m) = $\frac{\sqrt{30 \times P \times G}}{d}$ Power Density: *Pd* (W/m²) = $\frac{E^2}{377}$

**E** = Electric field (V/m)

**P** = RF output power (W)

**G** = EUT Antenna numeric gain (numeric)

**d** = Separation distance between radiator and human body (m)

The formula can be changed to

***Pd*** = $\frac{30 \times P \times G}{377 \times d^2}$

## 2.3 Calculated Result and Limit

**Exposure Environment: General Population / Uncontrolled Exposure**

| Mode | DG (dBi) | Power (dBm) | EIRP (dBm) | Tolerance (dB) | Tune-up EIRP (dBm) | Tune-up EIRP (W) | Distance (cm) | S ($mW/cm^2$) | S Limit ($mW/cm^2$) |
|---|---|---|---|---|---|---|---|---|---|
| AI Module (WLAN 2.4GHz) | 2.60 | 15.27 | 17.87 | 0.50 | 18.37 | 0.06871 | 20 | 0.01367 | 1.00000 |
| AI Module (Zigbee) | 2.40 | 20.70 | 23.10 | 0.50 | 23.60 | 0.22909 | 20 | 0.04557 | 1.00000 |

Simultaneous Transmission Analysis Mode:

1. AX module (WLAN 2.4GHz + Bluetooth) + AI module (WLAN 2.4GHz + Zigbee)

| Mode | DG (dBi) | Power (dBm) | EIRP (dBm) | Tolerance (dB) | Tune-up EIRP (dBm) | Tune-up EIRP (W) | Distance (cm) | S ($mW/cm^2$) | S Limit ($mW/cm^2$) | Ratio (S/Limit) |
|---|---|---|---|---|---|---|---|---|---|---|
| AX Module (WLAN 2.4GHz) | 3.00 | 29.95 | 32.95 | 0.50 | 33.45 | 2.21309 | 20 | 0.44027 | 1.00000 | 0.44027 |
| AX Module (Bluetooth) | 3.00 | 10.79 | 13.79 | 0.50 | 14.29 | 0.02685 | 20 | 0.00534 | 1.00000 | 0.00534 |
| AI Module (WLAN 2.4GHz) | 2.60 | 15.27 | 17.87 | 0.50 | 18.37 | 0.06871 | 20 | 0.01367 | 1.00000 | 0.01367 |
| AI Module (Zigbee) | 2.40 | 20.70 | 23.10 | 0.50 | 23.60 | 0.22909 | 20 | 0.04557 | 1.00000 | 0.04557 |
| | | | | | | | | | Sum Ratio | 0.50485 |
| | | | | | | | | | Ratio Limit | 1 |

2. AX module (WLAN 5GHz + Bluetooth) + AI module (WLAN 2.4GHz + Zigbee)

| Mode | DG (dBi) | Power (dBm) | EIRP (dBm) | Tolerance (dB) | Tune-up EIRP (dBm) | Tune-up EIRP (W) | Distance (cm) | S ($mW/cm^2$) | S Limit ($mW/cm^2$) | Ratio (S/Limit) |
|---|---|---|---|---|---|---|---|---|---|---|
| AX Module (WLAN 5GHz) | 3.30 | 23.14 | 26.44 | 0.50 | 26.94 | 0.49431 | 20 | 0.09834 | 1.00000 | 0.09834 |
| AX Module (Bluetooth) | 3.00 | 10.79 | 13.79 | 0.50 | 14.29 | 0.02685 | 20 | 0.00534 | 1.00000 | 0.00534 |
| AI Module (WLAN 2.4GHz) | 2.60 | 15.27 | 17.87 | 0.50 | 18.37 | 0.06871 | 20 | 0.01367 | 1.00000 | 0.01367 |
| AI Module (Zigbee) | 2.40 | 20.70 | 23.10 | 0.50 | 23.60 | 0.22909 | 20 | 0.04557 | 1.00000 | 0.04557 |
| | | | | | | | | | Sum Ratio | 0.16292 |
| | | | | | | | | | Ratio Limit | 1 |

Note: The above antenna gain was declared by manufacturer.

THE END