

# Safety Human Exposure

## 1.1 Radio Frequency Exposure Compliance

### 1.1.1 Electromagnetic Fields

#### RESULT:

Pass

|                           |                                                                                                                                                    |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| Test item                 | : StickerPix Print+Cut                                                                                                                             |
| Identification / Type No. | : CSTP401                                                                                                                                          |
| FCC ID                    | : 2AYX6-CSTP401                                                                                                                                    |
| IC                        | : 27018-CSTP401                                                                                                                                    |
| Test standard             | : CFR47 FCC Part 2: Section 2.1091<br>CFR47 FCC Part 1: Section 1.1310<br>FCC KDB Publication 447498 D04 V01<br>RSS-102 Issue 6, December 15, 2023 |

#### ➤ Product Classification

This device defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the RF source's radiating structure(s) and the body of the user or nearby persons.

Max -1.30 dBi

#### ➤ Radio Frequency Exposure Limit

For FCC:

According to FCC KDB # 447498 D04 V01, Clause Appendix B and 1.1307(b)(3)(i)(B)

The available maximum time-averaged power or effective radiated power (ERP), whichever is greater, is less than or equal to the threshold  $P_{th}$  (mW) described in the following formula. This method shall only be used at separation distances (cm) from 0.5 centimeters to 40 centimeters and at frequencies from 0.3 GHz to 6 GHz (inclusive).  $P_{th}$  is given by:

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases}$$

Where

$$x = -\log_{10} \left( \frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right) \text{ and } f \text{ is in GHz;}$$

and

$$ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases}$$

$d$  = the separation distance (cm);

For IC:

| Frequency (MHz) | ≤ 5 mm (mW) | 10 mm (mW) | 15 mm (mW) | 20 mm (mW) | 25 mm (mW) | 30 mm (mW) | 35 mm (mW) | 40 mm (mW) | 45 mm (mW) | > 50 mm (mW) |
|-----------------|-------------|------------|------------|------------|------------|------------|------------|------------|------------|--------------|
| ≤ 300           | 45          | 116        | 139        | 163        | 189        | 216        | 246        | 280        | 319        | 362          |
| 450             | 32          | 71         | 87         | 104        | 124        | 147        | 175        | 208        | 248        | 296          |
| 835             | 21          | 32         | 41         | 54         | 72         | 96         | 129        | 172        | 228        | 298          |
| 1900            | 6           | 10         | 18         | 33         | 57         | 92         | 138        | 194        | 257        | 323          |
| 2450            | 3           | 7          | 16         | 32         | 56         | 89         | 128        | 170        | 209        | 245          |
| 3500            | 2           | 6          | 15         | 29         | 50         | 72         | 94         | 114        | 134        | 158          |
| 5800            | 1           | 5          | 13         | 23         | 32         | 41         | 54         | 74         | 102        | 128          |

When the operating frequency of the device is between two frequencies located in above table, linear interpolation shall be applied for the applicable separation distance. If the separation distance of the device is between two distances located in above table, linear interpolation may be applied for the applicable frequency. Alternatively, the limit corresponding to the smaller distance may be employed.

#### IC Field reference level exposure exemption limits

Field reference level (FRL) exposure evaluation is required if the separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm (i.e. mobile devices), except when the device operates as follows:

- below 20 MHz and the source-based, time-averaged maximum EIRP of the device is equal to or less than 1 W (adjusted for tune-up tolerance)
- at or above 20 MHz and below 48 MHz and the source-based, time-averaged maximum EIRP of the device is equal to or less than  $4.49/f^{0.5}W$  (adjusted for tune-up tolerance), where  $f$  is in MHz
- at or above 48 MHz and below 300 MHz and the source-based, time-averaged maximum EIRP of the device is equal to or less than 0.6 W (adjusted for tune-up tolerance)
- at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum EIRP of the device is equal to or less than  $1.31 \times 10^{-2} f^{0.6834} W$  (adjusted for tune-up tolerance), where  $f$  is in MHz
- at or above 6 GHz and the source-based, time-averaged maximum EIRP of the device is equal to or less than 5 W (adjusted for tune-up tolerance)

#### a) EUT RF Exposure Evaluation standalone operations

FCC

| Mode   | Frequency [GHz] | *Measured RF Output Power [dBm] | Antenna Gain [dBi] | RF Output Power [dBm] | ERP [dBm] | ERP [mW] | d [cm] | P <sub>th</sub> [mW] |
|--------|-----------------|---------------------------------|--------------------|-----------------------|-----------|----------|--------|----------------------|
| BR/EDR | 2.480           | 6.946                           | -1.3               | 5.646                 | 3.496     | 2.237    | 20     | 3060                 |
| BLE    | 2.440           | 6.934                           | -1.3               | 5.634                 | 3.484     | 2.230    | 20     | 3060                 |

The NFC Maximum E-field is 36.5dBuV/m@3m\*, i.e. ERP=-60.85dBm (0.000001mW), which much lower than 1mW, as per section 2.1.2\_1-mW Test Exemption of KDB 447498 D04, EUT is excluded from MPE evaluation.

IC

| Mode   | Frequency [GHz] | *Measured RF Output Power [dBm] | Antenna Gain [dBi] | EIRP [dBm] | EIRP [W] | d [cm] | Limit [W] |
|--------|-----------------|---------------------------------|--------------------|------------|----------|--------|-----------|
| BR/EDR | 2.480           | 6.946                           | -1.3               | 5.646      | 0.004    | 20     | 2.7355    |
| BLE    | 2.440           | 6.934                           | -1.3               | 5.634      | 0.004    | 20     | 2.7053    |

The max. field strength is 36.5dBuV/m@3m, according to ANSI C63.10 the max. ERP=-60.85dBm = 0.000001mW that is less than 1W.

Note:

BR/EDR RF Output Power: Refer CN26IMUB 001

BLE RF Output Power: Refer CN26IMUB 002

RFID max. filed level: Refer to test report CN26IMUB 003

➤ **Conclusion**

The distance between antenna and human is larger than 20cm in the normal use.

Therefore, the maximum calculations result of above are meet the requirement of Radio Frequency Exposure limit.