

## RF Exposure Evaluation Report

**Report Reference No.**.....: **MTWG22030228-H**

**FCC ID**..... : **2A6AR-RX416BT**

Compiled by

( position+printed name+signature)...: File administrators Alisa Luo

Supervised by

( position+printed name+signature)...: Test Engineer Sunny Deng

Approved by

( position+printed name+signature)...: Manager Yvette Zhou

Date of issue.....: **April 22,2022**

**Representative Laboratory Name .:** **Shenzhen Most Technology Service Co., Ltd.**

Address .....: No.5, 2nd Langshan Road, North District, Hi-tech Industrial Park,  
Nanshan, Shenzhen, Guangdong, China.

**Applicant's name**.....: **Hangzhou TaoYun Technology Co.,LTD.**

Address .....: No.1401-1,HengXin Main Building,No.588,JiangNan  
Road,Changhe Street, BinJiang Area, Hangzhou city, Zhejiang  
province, China.

**Test specification/ Standard** .....: **47 CFR Part 1.1307**

**47 CFR Part 1.1310**

**KDB447498D01 General RF Exposure Guidance v06**

TRF Originator.....: Shenzhen Most Technology Service Co., Ltd.

**Shenzhen Most Technology Service Co., Ltd. All rights reserved.**

This publication may be reproduced in whole or in part for non-commercial purposes as long as the Shenzhen Most Technology Service Co., Ltd. is acknowledged as copyright owner and source of the material. Shenzhen Most Technology Service Co., Ltd. takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context.

**Test item description** .....: Label Printer

Trade Mark .....: /

Manufacturer .....: **Hangzhou TaoYun Technology Co.,LTD.**

Model/Type reference.....: RX416BT

Listed Models .....: RX106BT,RX416DBT,RX106DBT,RX416SBT,RX106SBT,KM106B  
T,KM106DBT,KM106SBT,KM-106BT,KM-106DBT,KM-106SBT

Modulation Type .....: GFSK,  $\pi$ /4DQPSK, 8DPSK

Operation Frequency.....: From 2402MHz to 2480MHz

Hardware Version.....: RP421WBU\_GD\_V1.0\_201113 22AZ.BZAAAC

Software Version .....: RP420B(RX416BT)\_BU\_GD303VCT6\_200DPI\_BT(BR8051)\_F4R2  
\_high-speed\_V4.31\_210419.bin

Rating .....: DC 24V by Adapter

Result.....: **PASS**

## TEST REPORT

Equipment under Test : Label Printer

Model /Type : RX416BT

Listed Models : RX106BT,RX416DBT,RX106DBT,RX416SBT,RX106SBT,KM106BT,KM106DBT,KM106SBT,KM-106BT,KM-106DBT,KM-106SBT

Remark : Only the name of the product, the name of the model and the color of the appearance are different between the models, other are the same, the differences do not affect the safety and Electromagnetic compatibility of the product.

Applicant : Label Printer

Address : No.1401-1,HengXin Main Building,No.588,JiangNan Road,Changhe Street, BinJiang Area, Hangzhou city, Zhejiang province, China.

Manufacturer : **Hangzhou TaoYun Technology Co .,LTD.**

Address : No.1401-1,HengXin Main Building,No.588,JiangNan Road,Changhe Street, BinJiang Area, Hangzhou city, Zhejiang province, China.

|                     |             |
|---------------------|-------------|
| <b>Test Result:</b> | <b>PASS</b> |
|---------------------|-------------|

The test report merely corresponds to the test sample.  
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

## 1. Revision History

| Revision | Issue Date | Revisions     | Revised By |
|----------|------------|---------------|------------|
| 00       | 2022-04-22 | Initial Issue | Alisa Luo  |
|          |            |               |            |
|          |            |               |            |

## 2. SAR Evaluation

### 2.1 RF Exposure Compliance Requirement

#### 2.1.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v06

##### 4.3.1. Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

#### 2.1.2 Limits

According to FCC Part1.1310: 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 part1.1307(b)

**TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)**

| 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) |
|--|-------------------------------------|-------------------------------------|--|-----------------------------|
| <b>(A) Limits for Occupational/Controlled Exposures</b>        |                                     |                                     |  |                             |
| 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>(B) Limits for General Population/Uncontrolled Exposure</b> |                                     |                                     |  |                             |
| 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                          |
| 1500–100,000 .....   | .....                               | .....                               | 1.0                                    | 30                          |

F= Frequency in MHz

Friis Formula

Friis transmission 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

$P_d$  is the limit of MPE, 1 mW/cm<sup>2</sup>. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance  $r$  where the MPE limit is reached.

**2.1.3 EUT RF Exposure**

Antenna Gain:0dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 0 in linear scale. Output Power Into Antenna &amp; RF Exposure Evaluation Distance:

BLE

| GFSK             |                         |                         |                       |
|------------------|-------------------------|-------------------------|-----------------------|
| Test channel     | Peak Output Power (dBm) | Tune up tolerance (dBm) | Maximum tune-up Power |
|                  |                         |                         | (dBm)                 |
| Lowest(2402 MHz) | 0.205                   | $0.205 \pm 1$           | 1.205                 |
| Middle(2440MHz)  | 0.150                   | $0.150 \pm 1$           | 1.150                 |
| Highest(2480MHz) | -2.107                  | $-2.107 \pm 1$          | -1.107                |

BLE

| Worst case: GFSK  |   |  |                    |  |       |        |
|-------------------|---|--|--------------------|--|-------|--------|
| Channel           | Maximum Peak Conducted Output Power (dBm) | Maximum Peak Conducted Output Power (MW) | Antenna Gain (dBi) | Power Density at R = 20 cm (mW/cm <sup>2</sup> ) | Limit | Result |
| Highest(2402 MHz) | 1.205                                     | 1.32                                     | 0                  | 0.0003   | 1.0   | Pass   |

Note: 1) Refer to report **MTWG22030228-R2** for EUT test Max Conducted average Output Power value.Note: 2)  $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2) = (1.32 \cdot 1) / (4 \cdot 3.1416 \cdot 20^2) = 0.0003$

## EDR

| GFSK             |                         |                         |                       |
|------------------|-------------------------|-------------------------|-----------------------|
| Test channel     | Peak Output Power (dBm) | Tune up tolerance (dBm) | Maximum tune-up Power |
|                  |                         |                         | (dBm)                 |
| Lowest(2402 MHz) | -2.35                   | $-2.35 \pm 1$           | -1.35                 |
| Middle(2441MHz)  | -3.55                   | $-3.55 \pm 1$           | -2.55                 |
| Highest(2480MHz) | -5.05                   | $-5.05 \pm 1$           | -4.05                 |

| $\pi/4$ DQPSK    |                         |                         |                       |
|------------------|-------------------------|-------------------------|-----------------------|
| Test channel     | Peak Output Power (dBm) | Tune up tolerance (dBm) | Maximum tune-up Power |
|                  |                         |                         | (dBm)                 |
| Lowest(2402 MHz) | -3.57                   | $-3.57 \pm 1$           | -2.57                 |
| Middle(2441MHz)  | -4.25                   | $-4.25 \pm 1$           | -3.25                 |
| Highest(2480MHz) | -5.56                   | $-5.56 \pm 1$           | -4.56                 |

| 8DPSK            |                         |                         |                       |
|------------------|-------------------------|-------------------------|-----------------------|
| Test channel     | Peak Output Power (dBm) | Tune up tolerance (dBm) | Maximum tune-up Power |
|                  |                         |                         | (dBm)                 |
| Lowest(2402 MHz) | -4.87                   | $-4.87 \pm 1$           | -3.87                 |
| Middle(2441MHz)  | -5.85                   | $-5.85 \pm 1$           | -4.85                 |
| Highest(2480MHz) | -5.15                   | $-5.15 \pm 1$           | -4.15                 |

## EDR

| Worst case: GFSK  |   |  |                    |  |       |        |
|-------------------|---|--|--------------------|--|-------|--------|
| Channel           | Maximum Peak Conducted Output Power (dBm) | Maximum Peak Conducted Output Power (MW) | Antenna Gain (dBi) | Power Density at R = 20 cm (mW/cm <sup>2</sup> ) | Limit | Result |
| Highest(2402 MHz) | -1.35                                     | 0.73                                     | 0                  | 0.0002   | 1.0   | Pass   |

Note: 1) Refer to report **MTWG22030228-R1** for EUT test Max Conducted average Output Power value.

Note: 2)  $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2) = (0.73 \cdot 1) / (4 \cdot 3.1416 \cdot 20^2) = 0.0002$

.....THE END OF REPORT.....