上海冠显光电科技有限公司
Shanghai Top Display Optoelectronics Co., LTD

# Final-specification

| | | |
|---|---|---|
| MODEL | : | TY068WXH02CF |
| ISSUED DATE | : | 2025-02-22 |
| VERSION | : | 1.3 |

## Version record

| Issued Date | Description | Version | Editor | Audit |
|---|---|---|---|---|
| 2023-09-01 | First version | 1.0 | | |
| 2023-12-12 | Add model definition chapter,and modify the brightness | 1.1 | | |
| 2024-05-10 | Final version | 1.2 | Amber | Cain |
| 2025-02-22 | Final release(Adding debugging tools) | 1.3 | Xenia | |

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# 1. Hardware Introduction

This chapter mainly introduces the product appearance diagram, hardware configuration diagram and tools required for debugging.

## 1.1. Product Appearance

The following is the appearance of the product corresponding to this model (hardware interfaces, etc., vary according to the specific model of backplane components), as shown in Figure 1.1-1

Note: There is no key structural process modification or major layout adjustment, only changes in product process or reliability. The company will not initiate changes to the outside product appearance. The specific items are subject to the received goods.



Figure 1.1-1 6.86 inch UART screen

## 1.2. Hardware Configuration

The following is the reference diagram of the hardware configuration of the product of this size, taking the capacitive screen as an example, as shown in Figure 1.2-1.

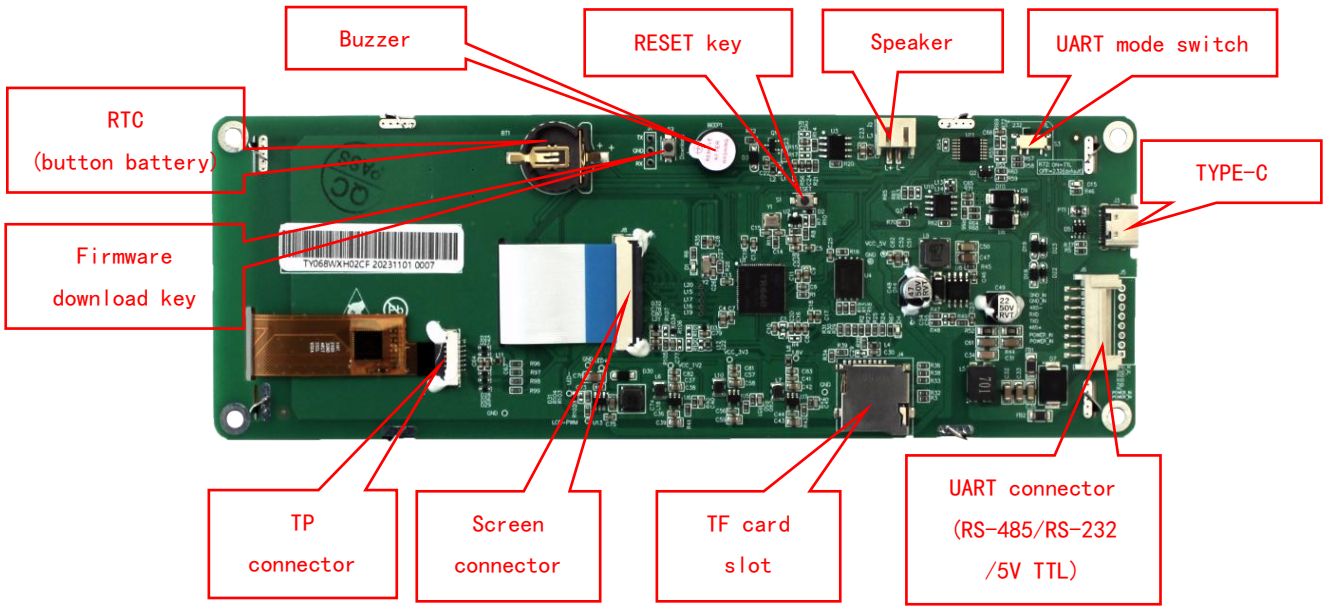



Figure 1.2-1 Drive board hardware configuration

## 1.3. UART Mode

The serial communication method can be switched via toggle switch (S3).

(1) The UART port supports 5V TTL communication when the switch is toggled to the “TTL” position.
(2) When the switch is toggled to the “232” position, the UART port supports RS-232 communication.
(3) The UART port supports RS-485 communication when the switch is set to the "TTL" or "232" position.

## 1.4. Connector Pin Definitions

| Pin Name | Type | Reset state | Internal Configurable Pull-up and Pull-down Resistors | Default drive capability (mA) | Voltage | Function |
|---|---|---|---|---|---|---|
| GND_IN | POWER | 0V | - | - | 0V | POWER-GND |
| GND_IN | POWER | 0V | - | - | 0V | POWER-GND |
| 485- | - | - | - | - | - | 485-/485_B |
| RXD | - | - | - | - | 5V | UART3-RX (to user's TX) |
| TXD | - | - | - | - | 5V | UART3-TX (to user's RX) |
| 485+ | - | - | - | - | - | 485+/485_A |
| POWER_IN | INPUT | - | - | - | - | POWER-INPUT, DC4.5~24V |
| POWER_IN | INPUT | - | - | - | - | POWER-INPUT, DC4.5~24V |

## 2. Product Specifications

| | |
|---|---|
| **● Product parameter** | |
| Model | TY068WXH02CF |
| Product serial | Commercial Grade |
| Core processor | TR660 |
| Size | 6.75 inch |
| Resolution | 480RGB×1280 |
| Active area(mm) | 160.51(W) ×60.19(H) |
| Product size(mm) | 201(W)×68(H)×17.9(T) |
| Color | 16.7M,24 bit RGB |
| Storage | Customer available 60M Bytes |
| Pictures format | JPG/PNG |
| Video playback | H.264 format video only |
| Audio playback | MP3 and WAV format audio support |
| Download pictures | TYPE-C or TF card |
| Firmware update | TYPE-C or TF card |
| **● LCD screen** | |
| Display type | TFT LCD IPS |
| Back light | LED |
| Brightness(cd/m²) | 340 |
| Contrast | 1500 |
| Life time(hour) | 30000 |
| Perspective(T/B/L/R) | (85/85/85/85) |
| **● Touch panel** | |
| Touch mode | Capacitive touch screen |
| Input mode | Finger |
| **● Environmental electrical parameters** | |

| | |
|---|---|
| Voltage | 4.5~24V DC |
| Power consumption | 12V/237mA (Maximum starting current)<br>12V/95mA (Turn off the backlight) |
| Working temperature | -20℃～70℃ |
| Storage temperature | -30℃～80℃ |
| Working humidity | 10%~90%RH |
| Storage humidity | 10%~90%RH |
| **● Communication interface parameters** | |
| Communication mode | 485/232/5V TTL |
| Baud | 1200~115200,typical value is 115200 |
| Data frame format | 8N1 |
| Communication<br>plug-in specification | HY2.0-8P |
| **● Other hardware specifications** | |
| Micro TF card | Support |
| Buzzer | Support |
| TYPE-C | Support |
| RTC | Support |
| Speaker | Support 4Ω2W speakers |

# 3. Reliability Test

## 3.1. ESD Test

### 3.1.1. Implementation Standards

| | |
|---|---|
| Implementation standards | GB/T 17626.2 |
| Performance criteria | B |

### 3.1.2. Test Environment

**Test ambient temperature:** 25℃

**Test environment humidity:** 50%

**Test process:** place the product on the test bench, conduct contact and air discharge in turn around the iron frame of the serial port screen and the display area, and observe whether there is any abnormal reset and restart display.




Figure3.1.2-1 ESD Test Environment

### 3.1.3. Test Data Results:

| Discharge type | Discharge value | Test Results | Performance criteria |
|---|---|---|---|
| Contact | ±8KV | Pass | B |
| Discharge | ±15KV | Pass | B |

## 3.2. Electrical Fast Transient Group Pulse Test （EFT）

### 3.2.1. Implementation Standards

| | |
|---|---|
| Implementation standards | GB/T 17626.4 |

### 3.2.2. Test Environment

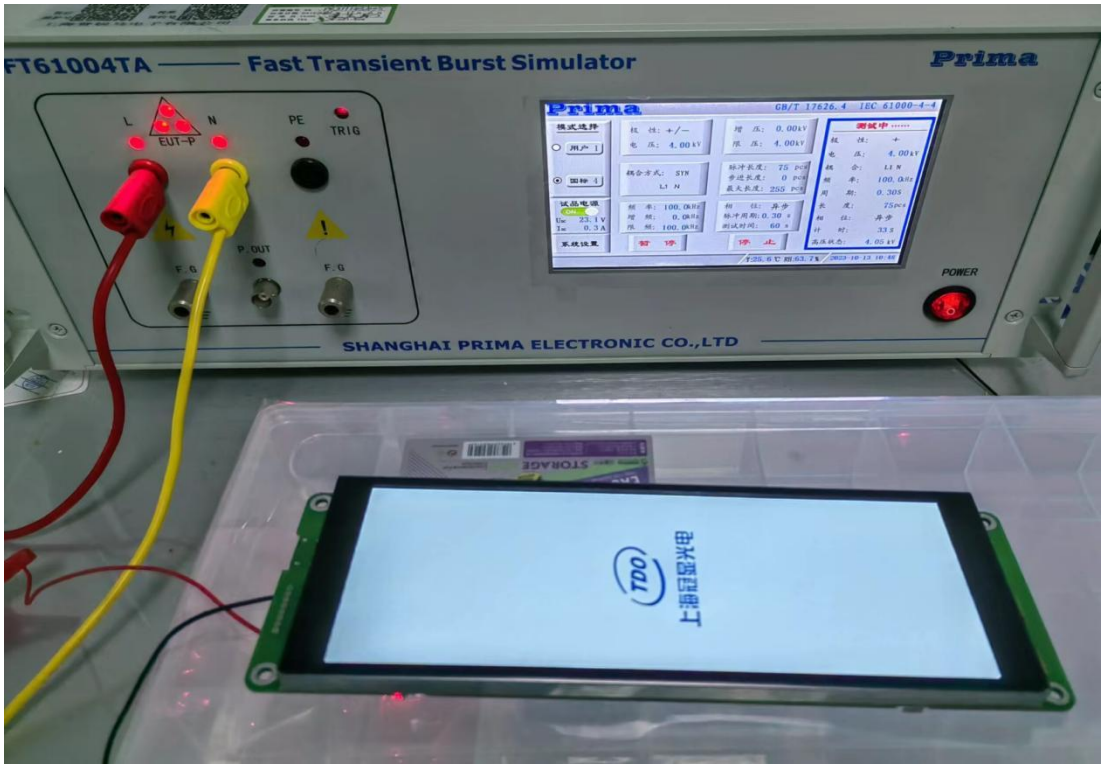



Figure 3.2.2-1 EFT test

**Test ambient temperature:** 25℃

**Test environment humidity:** 50%

**Test process:** Place the product flat on the test bench, 10cm high, and supply power to the smart screen through the power supply after coupling the pulse group by the pulse group generator. Observe the screen during the experiment to see if there are phenomena such as reset and restart, abnormal display, touch abnormality, and so on.

### 3.2.3. Test Data Results:

| | |
|---|---|
| Implementation standards | GB/T 17626.4 |
| Performance criteria | B |

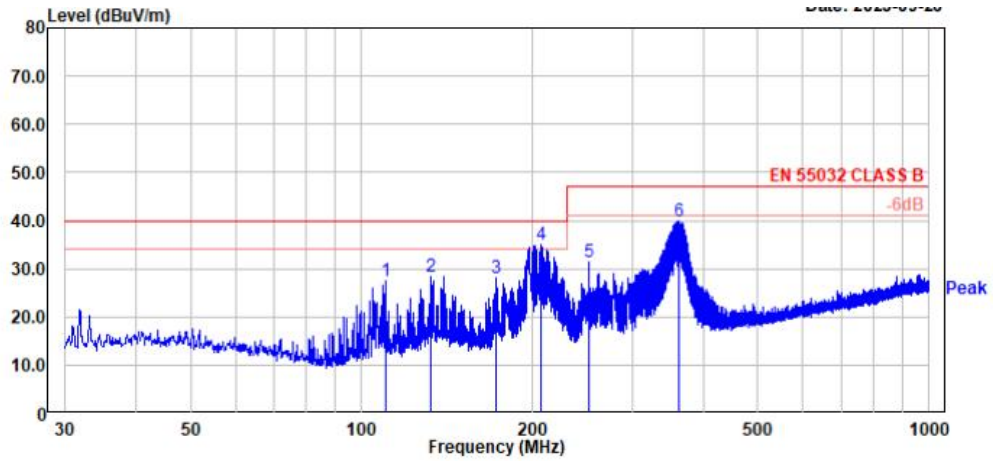
## 3.3. Radiation Test

### 3.3.1. Implementation Standards

| | |
|---|---|
| Implementation standards | EN 55032 |
| Performance criteria | B |

### 3.3.2. Test Data Results

(1) Radiation test horizontal direction test data diagram

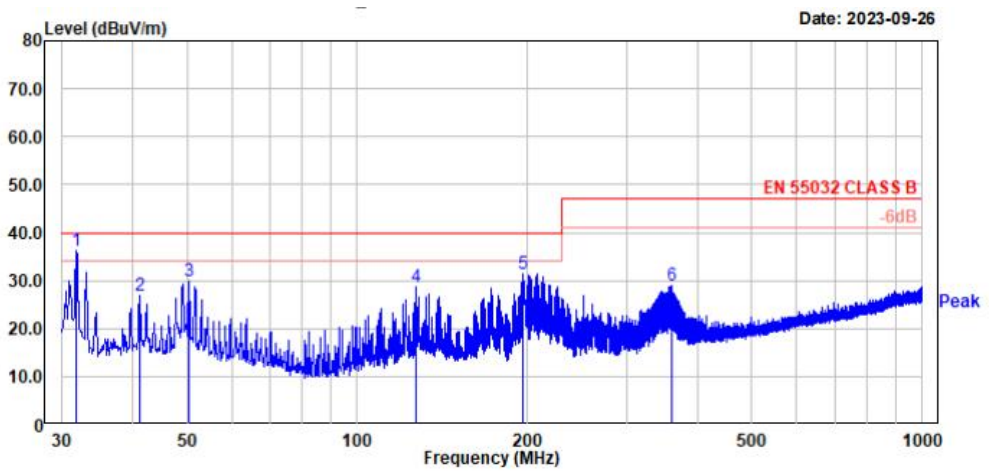



```
Site          : chamber
Condition     : EN 55032 CLASS B 3m VULB 9168 Horizontal
              : DET:Peak
Applicant     : 上海冠显光电科技有限公司
EUT           : 6.75
M/N           :
Power Supply  : DC 24V
Test Mode     : Working
Test Engineer: CK
Memo          :
```

| | Freq | Level | Read Level | Limit Line | Over Limit | Ant Factor | Cable Loss | Remark | APos | TPos |
|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dBuV | dBuV/m | dB | dB/m | dB | | cm | deg |
| 1 | 110.146 | 27.34 | 17.11 | 40.00 | -12.66 | 10.06 | 0.17 | Peak | 300 | 143 |
| 2 | 132.820 | 28.50 | 16.48 | 40.00 | -11.50 | 11.83 | 0.19 | Peak | 200 | 122 |
| 3 | 172.711 | 28.06 | 16.42 | 40.00 | -11.94 | 11.43 | 0.21 | Peak | 100 | 91 |
| 4 | 207.146 | 35.09 | 25.20 | 40.00 | -4.91 | 9.65 | 0.24 | Peak | 200 | 306 |
| 5 | 252.009 | 31.27 | 19.46 | 47.00 | -15.73 | 11.54 | 0.27 | Peak | 100 | 305 |
| 6 | 362.589 | 39.95 | 25.20 | 47.00 | -7.05 | 14.40 | 0.35 | Peak | 100 | 192 |

Figure3.3.3-1 radio test horizontal direction test data diagram

(2) Vertical direction test data chart of radiation test

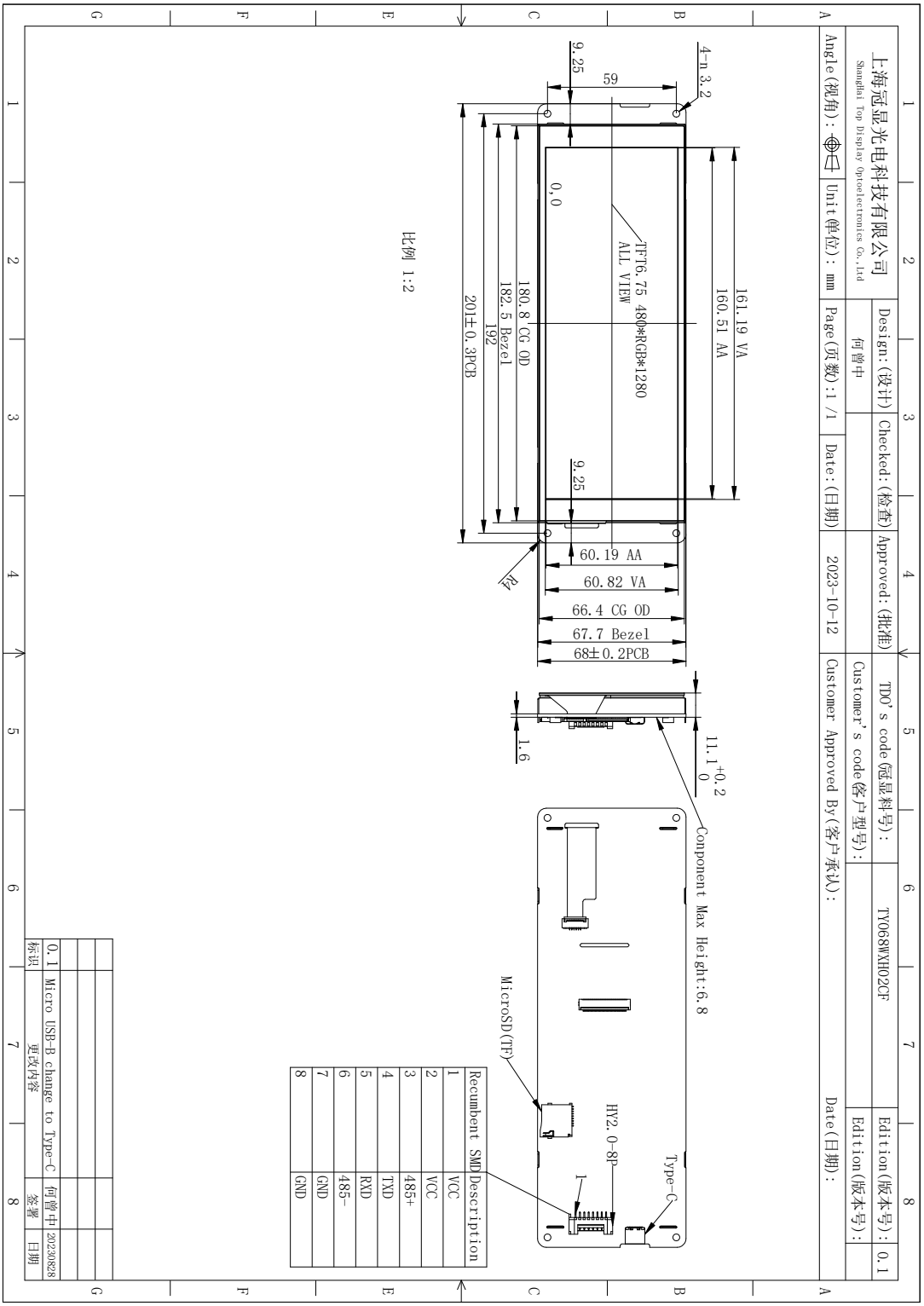



```
Site          : chamber
Condition     : EN 55032 CLASS B 3m VULB 9168 Vertical
              : DET:Peak
Applicant     : 上海冠显光电科技有限公司
EUT           : 6.75
M/N           :
Power Supply  : DC 24V
Test Mode     : Working
Test Engineer: CK
Memo          :
```

| | Freq | Level | Read Level | Limit Line | Over Limit | Ant Factor | Cable Loss | Remark | APos | TPos |
|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dBuV | dBuV/m | dB | dB/m | dB | | cm | deg |
| 1 | 31.819 | 36.33 | 23.92 | 40.00 | -3.67 | 12.29 | 0.12 | Peak | 100 | 83 |
| 2 | 41.155 | 26.79 | 13.23 | 40.00 | -13.21 | 13.44 | 0.12 | Peak | 100 | 192 |
| 3 | 50.491 | 29.87 | 16.79 | 40.00 | -10.13 | 12.95 | 0.13 | Peak | 100 | 150 |
| 4 | 127.364 | 28.70 | 17.04 | 40.00 | -11.30 | 11.48 | 0.18 | Peak | 100 | 296 |
| 5 | 196.476 | 31.30 | 21.44 | 40.00 | -8.70 | 9.63 | 0.23 | Peak | 100 | 144 |
| 6 | 360.164 | 28.86 | 14.17 | 47.00 | -18.14 | 14.34 | 0.35 | Peak | 150 | 151 |

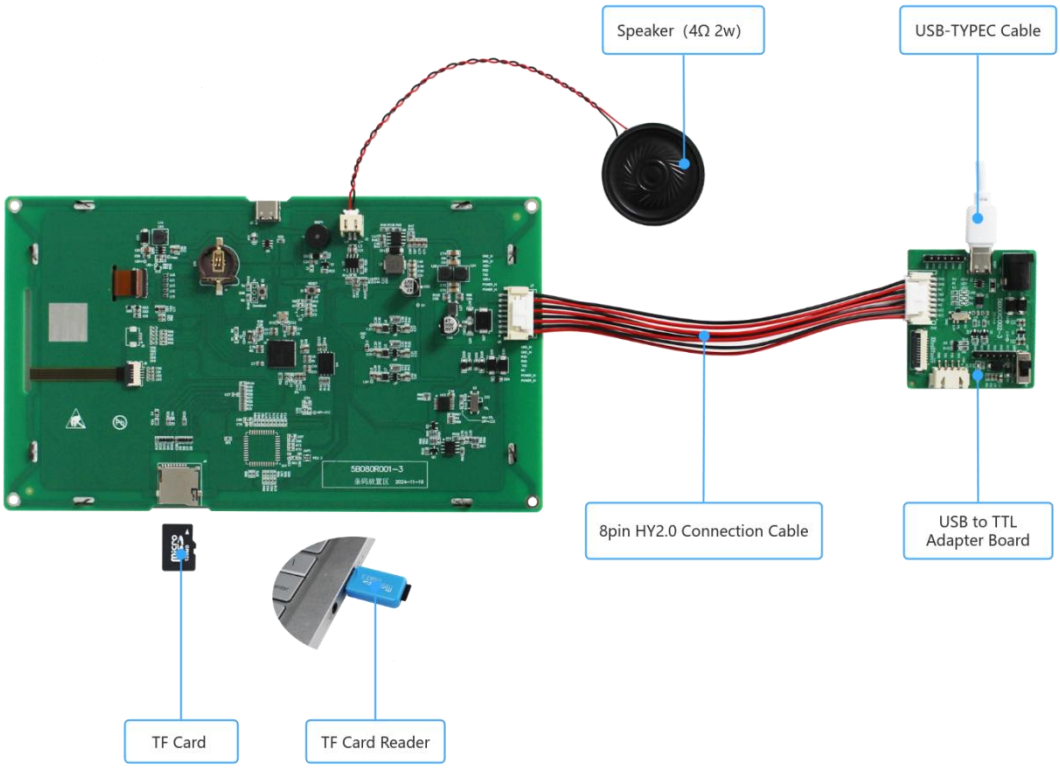
Figure 3.3.3-2 radio test Vertical direction test data diagram

# 4. Product Size



# 5. Debugging Tools

It is recommended for new users of TDO smart LCMs to purchase official accessories. For more details, please refer to customer service center.




(The above diagram shows the use of the debugging tools, not the product diagram. Please refer to document 1.1 for the physical drawing of this product.)

# 6. Model Definition

| T | Y | 068 | WX | H | 02 | C | F |
|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

① : 1 position--TDO abbreviation, fixed。

② : 1 position--U(U series serial port)/P(parallel port)/Y(Y series serial port)/H(HDMI interface type)/S(adapter board)/L

③ : 3 position--size,eg.068->6.8 inch

④ : 2 position--resolution abbreviation

⑤ : 1 position--C (Consumer Grade) / H (Commercial Grade) / T (Industrial Grade) / M (Medical Grade) / L (MINI Board) / P (With Case)

⑥ : 2 position---serial number

⑦ : 1 position---C (with capacitive touch panel)/R (with resistive touch panel)/N (without touch panel)

⑧ : 1 position-----Platform: F-TR660 / G-TR540 / H-TR230M /J -TR240 / K-TR661 / D-TR670 / 0-Android / 1-Linux

# 7. Sale and Service




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# 8. Disclaimer

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