Surenoo HDMI Display Module Series

Model No.: SHD070H-1024600 (IPS)

USER MANUAL

MPN: SUR-MPI7006/7007 (7 Inch HDMI Display-H)

Please click the following image to buy the sample

IPS Display, Support Aduio Output

Shenzhen Surenoo Technology Co.,Ltd.
www.surenoo.com

Reference Links

Surenoo HDMI Display Module Selection Guide

CONTENTS

1、Safety Precautions

1. Electricity and Safety

- Do not use a damaged power cord or plug, or a loose power socket
- Do not touch the power plug with wet hands
- Do not let any object compress or wrap the power cord
- Please Unplug the power cord when the device is unattended for a long time
- Insert the power plug all the way in so it is not loose

2. Installation and Safety

- Do not install the product near heat sources
- Do not set down the product on its front
- Do not install the product on an unstable or vibrating surface (insecure shelf, sloped surface, etc.)
- Do not place the monitor in any Damp area

3. Cleaning Products

Take the following steps when cleaning

- 1) Power off the product and computer
- 2) Disconnect the power cord from the product

  —Hold the power cable by the plug and do not touch the cable with wet hands. Otherwise, an electric shock may result
- 3) Wipe the monitor with a clean, soft and dry cloth

  —Do not apply a cleaning agent that contains alcohol, solvent, or surfactant to the monitor

  —Do not spray water or detergent directly on the product
- 4) Wet a soft and dry cloth in water and wring thoroughly to clean the exterior of the product
- 5) Connect the power cord to the product when cleaning is finished
- 6) Power on the product and computer

2、Package Contents

7-inch Touchscreen Monitor x 1

HDMI Cable x 1

For Connecting the computer

MicroUSB Cable x 1

For Power（5V/2A）

HDMI to HDMI Adapter x 1

For Connecting the Pi 3

MicroHDMI to HDMI Adapter x 1

For Connecting the Pi 4

MicroUSB to USB Adapter x 1

For Connecting the Pi 3

MicroUSB to USB Adapter x 1

For Connecting the Pi 4

Copper Posts and Screws(M2.5) x 4

For Installing Raspberry Pi

Cross Screwdriver (small) x 1

For Installing Raspberry Pi

Acrylic Stand x 2

For Standing the Monitor

Antiskid Shims x 4

For Stand Antiskid

Stand Installed Screws x 2

For Installing Stand

3、Product Description

1. Product Features

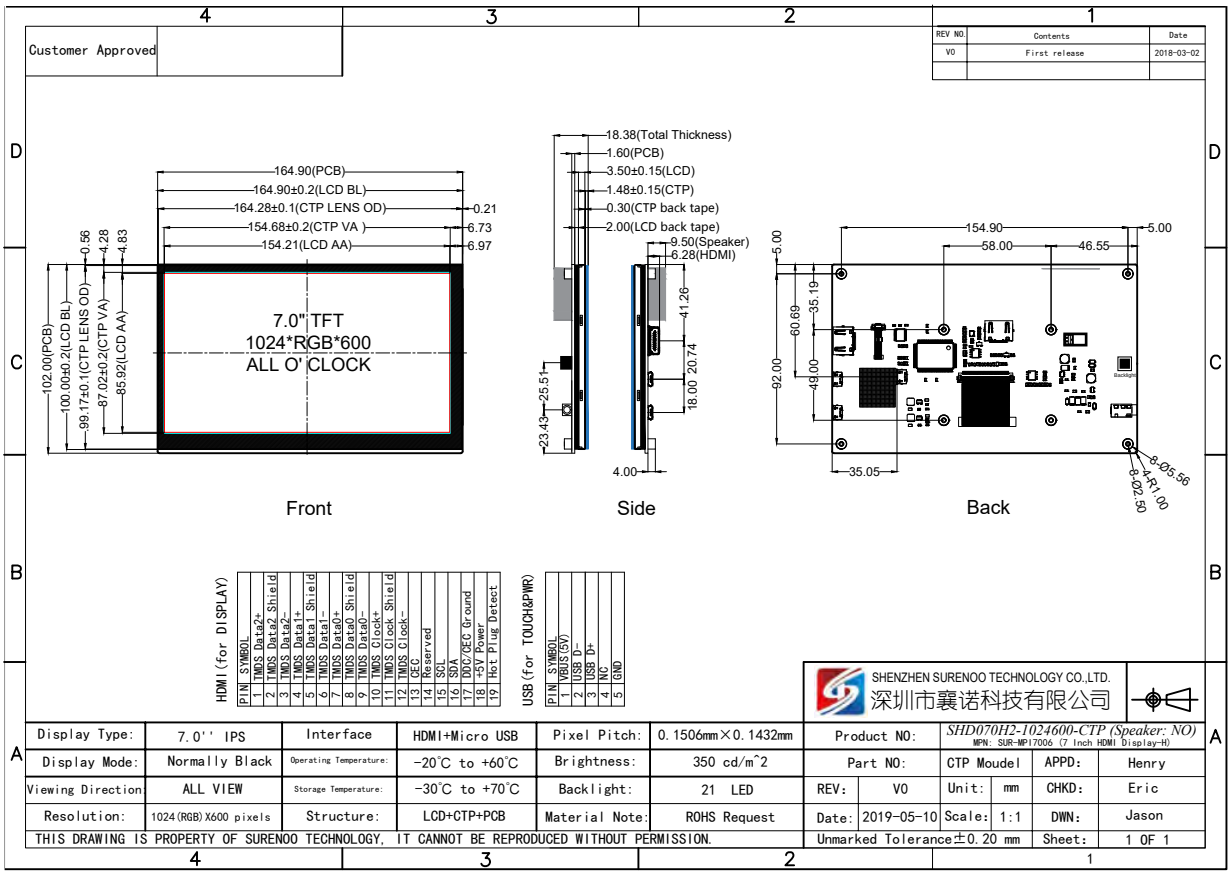
✧ The 7-inch IPS full view display has large visual angle, real color and excellent image quality
✧ The resolution is 1024x600, and the display screen is exquisite
✧ Toughened glass touch panel, hardness up to 6h, durable and scratch resistant
✧ Capacitive touch screen, up to support 5 touch points
✧ The HDMI HD input interface can be used for HDMI display
✧ External 3.5mm headphone output port, supporting audio output
✧ Independent backlight adjustment button to adjust backlight brightness at any time
✧ Those supporting mainstream development boards such as raspberry pie, banana PI and BB black
✧ For raspberry pie display, support raspbian, Ubuntu, Kali, win10 IOT and other systems, touch free drive
✧ It can be used as computer monitor, support win7 / win8 / win10 system, and touch free
✧ Those used as game console display, supporting PS4, XBOX360, switch, etc
✧ The product has passed CE and ROHS certification

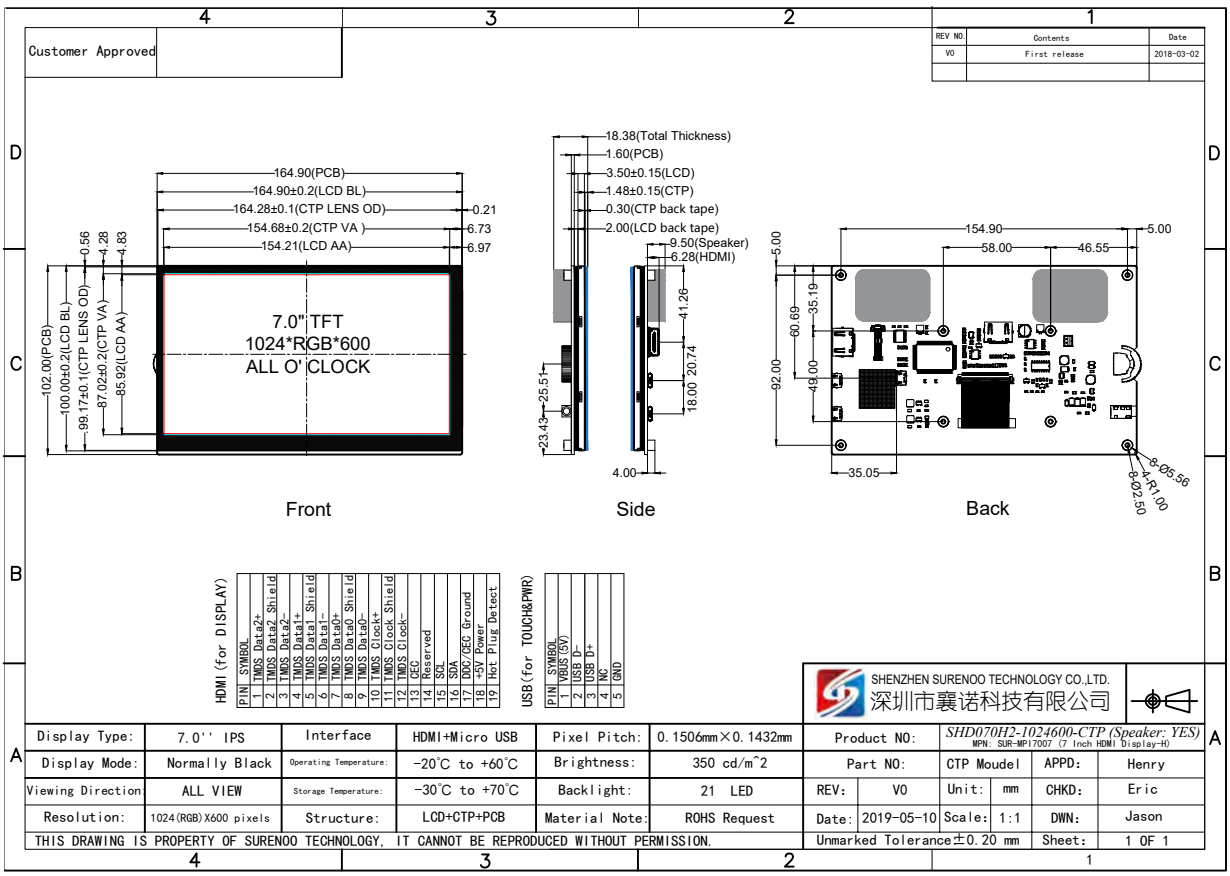
2. Product Parameters

SKU	MPI7006 (Speaker: NO) MPI7007 (Speaker: YES)
Screen Type	IPS screen
Screen Size	7.0 inch
Resolution	1024 x 600
Backlight Adjustment	Independent button to adjust
Touch Screen Type	Capacitive Touch Screen
Touch IC	GT911
Power	MicroUSB（5V/2A）
Video Input Interface	HDMI
Audio Output Interface	3.5mm Audio Interface
Module Size (L x W x H)	164.90 × 102.00 × (14.25±0.2)mm
Product Weight (including package)	510g

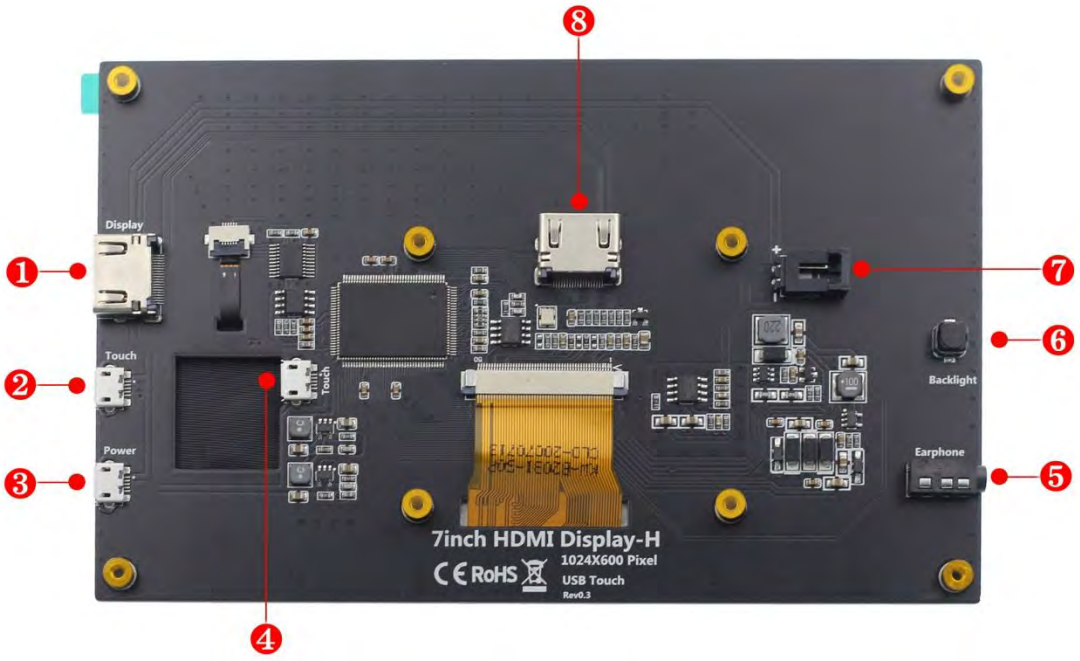
Note: The follwoing Introduce base on Model MPI7006 only.

2. Product Size





4. Product Interface and Key Description



❶ **HDMI Interface**: connect to the source device using an HDMI cable. This interface is often used to connect to a computer,The maximum supported resolution is 1080P.

❷ **Touch Interface(MicroUSB)**: Connect to the source device using a microusb cable. This interface is used for touch and power supply, and is often used to connect computers.

❸ **Power Interface(MicroUSB)**: Use microusb cable and power connection. This interface is only used for power supply.

❹ **Touch Interface(MicroUSB)**: Connect to the source device using a microusb cable. This interface is used for touch and power supply, and is often used to connect Raspberry Pi.

❺ **3.5mm audio interface**: connect audio output devices, such as headphones.

❻ **Backlight adjustment button**: used to adjust the backlight brightness of the screen.

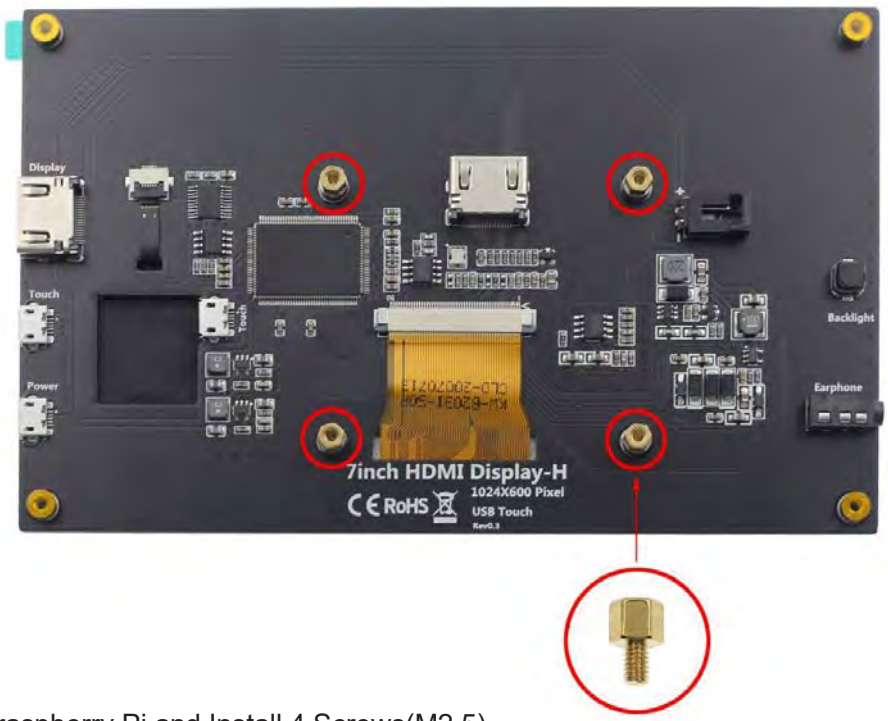
❼ **Fan interface**: used to connect the cooling fan.

❽ **HDMI Interface**: connect to the source device using an HDMI cable. This interface is only used to connect to a Raspberry Pi,The maximum resolution is 1024x600.

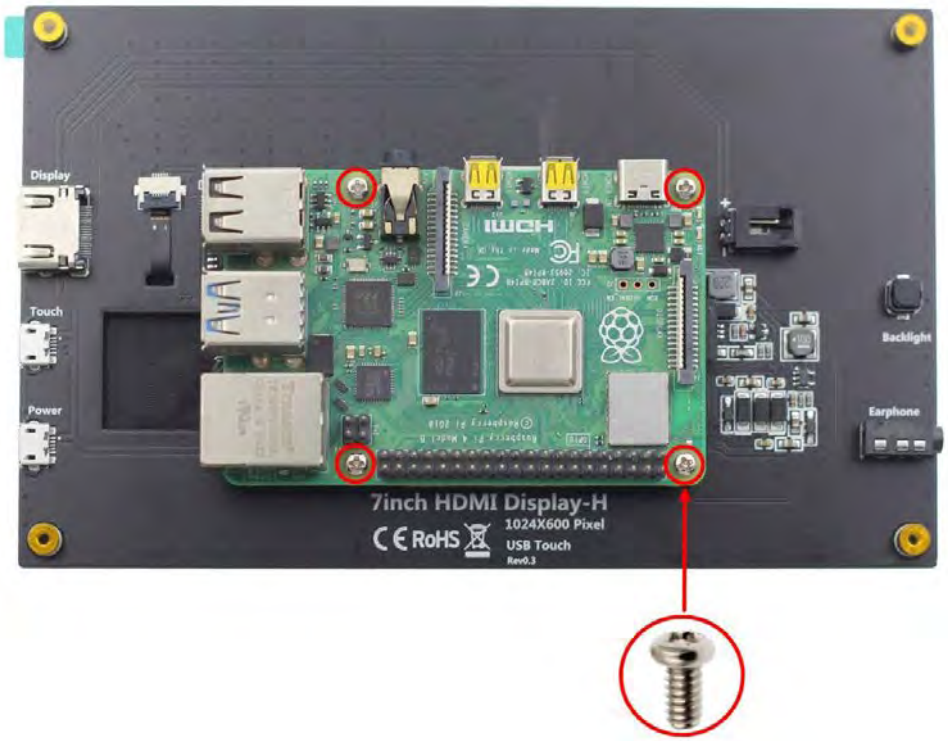
4、Install Device

1. Install Raspberry Pi

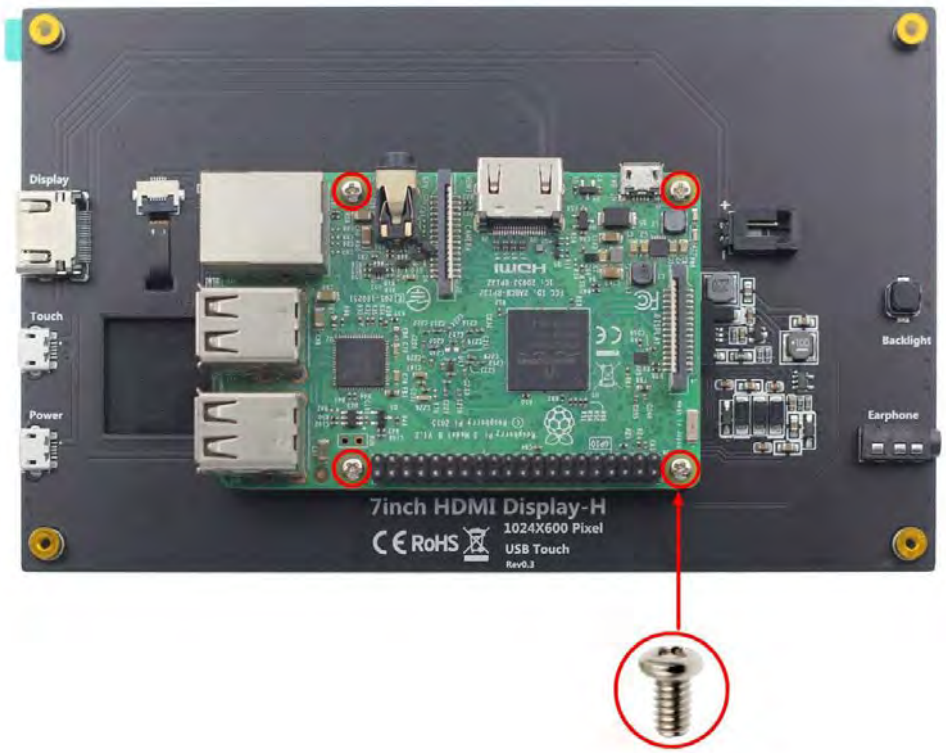
- 1) Install 4 Copper Posts



- 2) Place raspberry Pi and Install 4 Screws(M2.5)

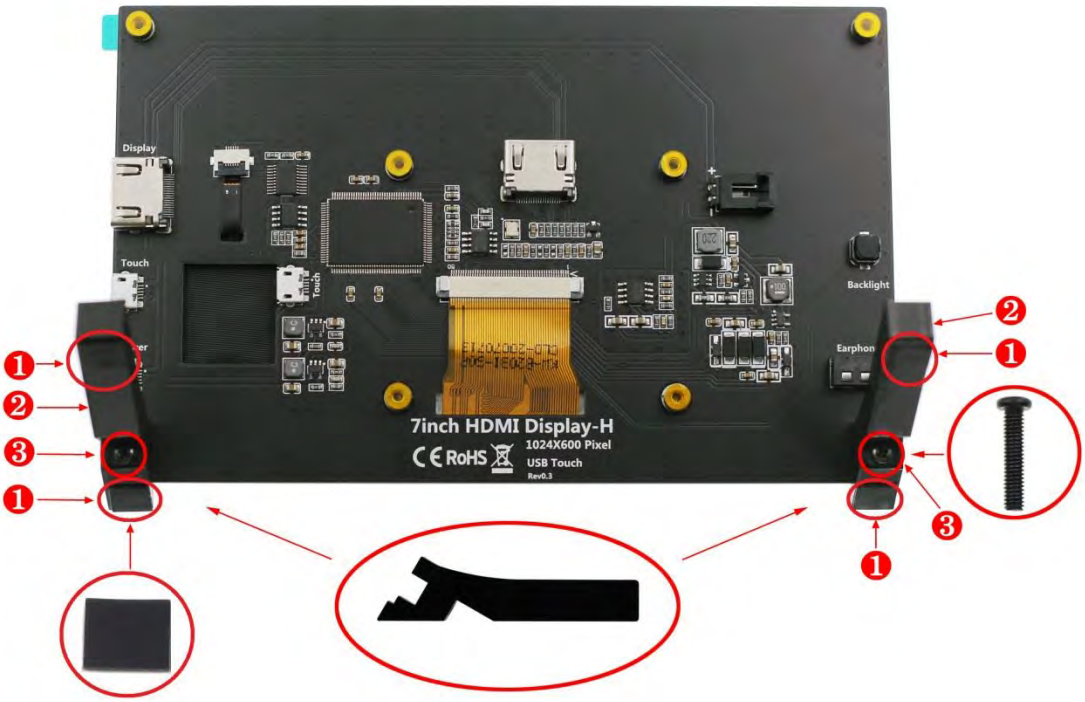


Install Raspberry Pi 4



Install Raspberry Pi 3

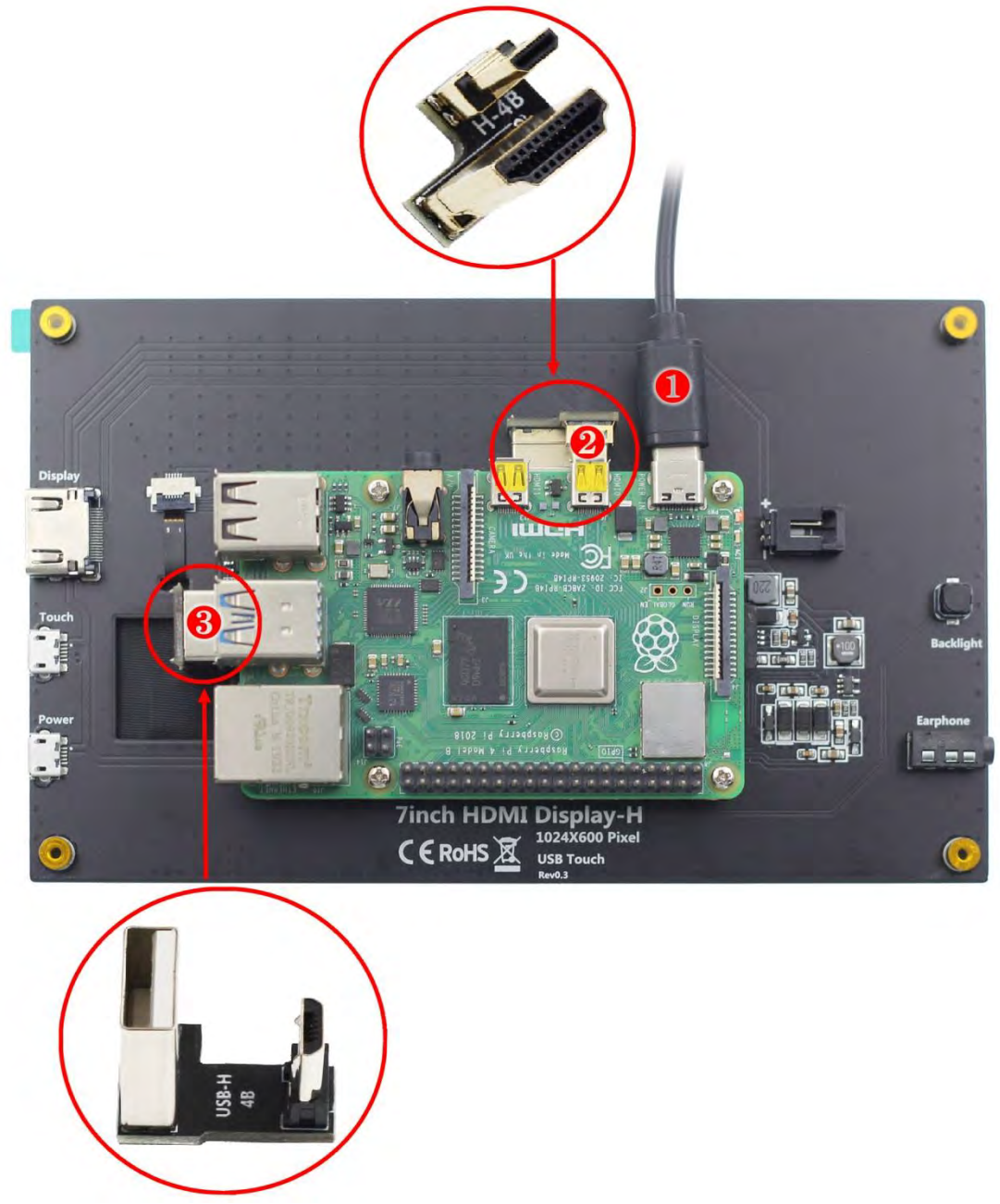
2. Install Stand



❶Install 4 Antiskid Shims ❷Place 2 stands ❸Install 2 Stands Installed Screws

5、*Connect to Raspberry Pi*

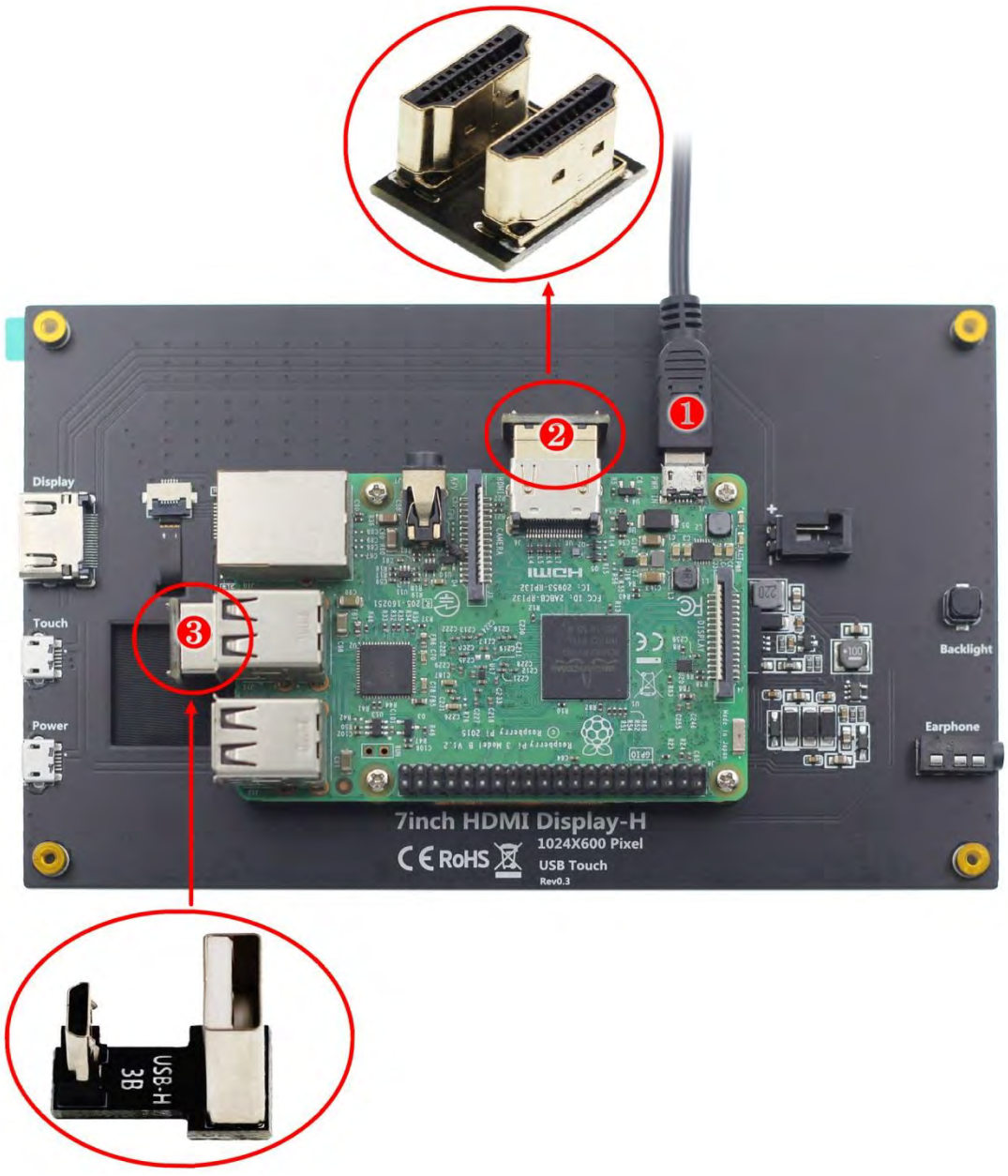
1. Connect to Raspberry Pi 4



❶ 5V/3A power adapter(Type C) ❷ MicroHDMI to HDMI Adapter

❸ MicroUSB to USB Adapter(For the Raspberry Pi 4)

2. Connect to Raspberry Pi3



❶ 5V/2A power adapter(Micro USB) ❷ HDMI to HDMI Adapter

❸ MicroUSB to USB Adapter(For the Raspberry Pi 3)

Note: Please connect the cables first then power the Raspberry Pi. And use the full 2.5A for power supply with Raspberry Pi 3B+, 3B, 2B, B+, B+, A, fully 3A for Raspberry Pi 4B.

6、Connect to PC or Laptop

❶ HDMI Cable

❷ Micro USB to USB A cable(for touch and power supply)

7、Use Raspbian / Ubuntu Mate / Retropie / Kali System

1. Download the latest Official Image

- **1) Download Raspbian latest Official Image**

  Download URL: https://www.raspberrypi.org/downloads/raspbian/

  Username: **pi** Password: **raspberry**

- **2) Download Ubuntu Mate latest Official Image**

  Download URL: https://ubuntu-mate.org/download/

  The user name and password can be set by yourself after startup

- **3) Download Kail latest Official Image**

  Download URL: https://www.offensive-security.com/kali-linux-arm-images/

  Username: kali(The old version is root) Password: kali(The old version is toor)

- **4) Download Retropie latest Official Image**

  Download URL: https://retropie.org.uk/download/

  Username: pi Password: raspberry

2. Brun Official Image

- **1) Download and install tool software（If they are already installed, this step can be ignored）**

SD card format software SDCard Formatter download URL :

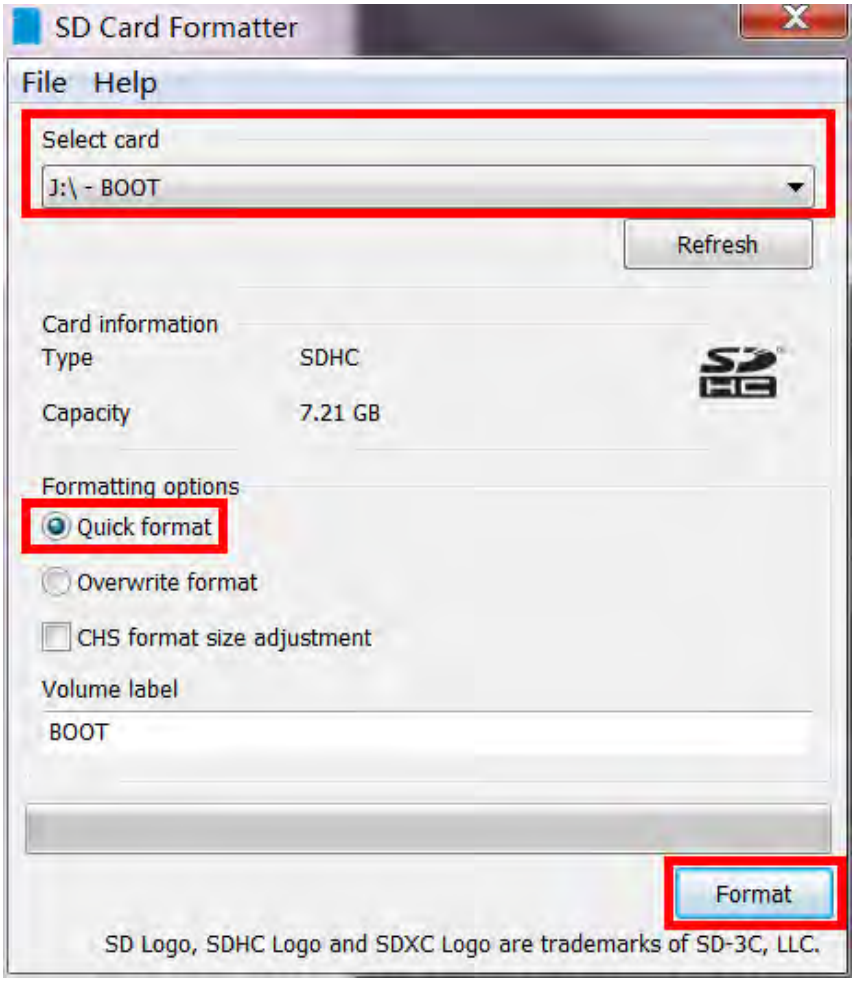
https://www.sdcard.org/downloads/formatter_4/

Image burning software win32diskimager download URL:

https://sourceforge.net/projects/win32diskimager/

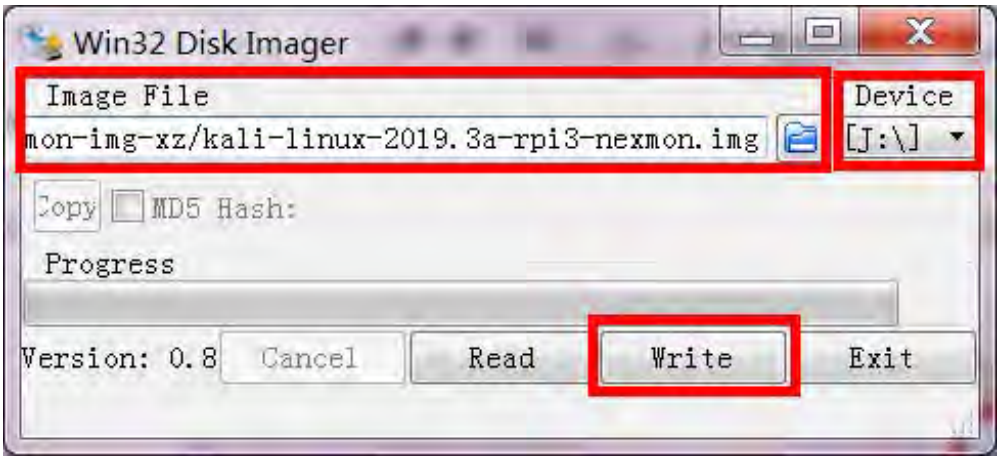
- **2) Format SD card**

Insert the SD card into the card reader -> Insert the card reader into the computer -> Open the SDFormatter software -> Select SD card -> Select quick format (generally select quick format, other options can be selected according to your own needs) -> Click the Format button-> Select "Yes" -> Click OK after formatting.



- **3) Brun Image**

Open the win32diskimager software -> Select the image file to be burned (xxx.img) -> Select SD card -> Click the "write" button -> Select "Yes" -> Wait for the burning to complete (the whole process lasts about 10 minutes)



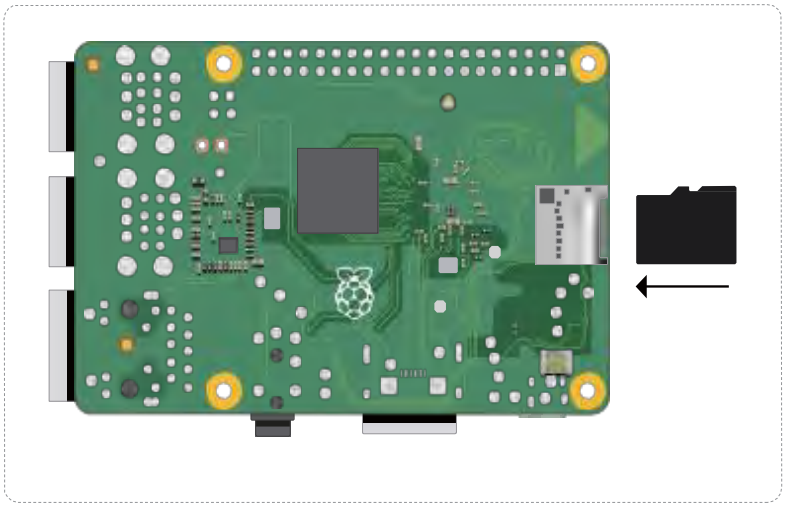
3. Modify the “config.txt” configuration file

Open the “config.txt” file in the root directory of SD card on the computer, Add the following at the end of the file, save and exit.

```
hdmi_force_edid_audio=1
max_usb_current=1
hdmi_force_hotplug=1
config_hdmi_boost=7
hdmi_group=2
hdmi_mode=87
hdmi_drive=2
display_rotate=0
hdmi_timings=1024 1 150 18 150 600 1 15 3 15 0 0 0 60 0 60000000 3
```

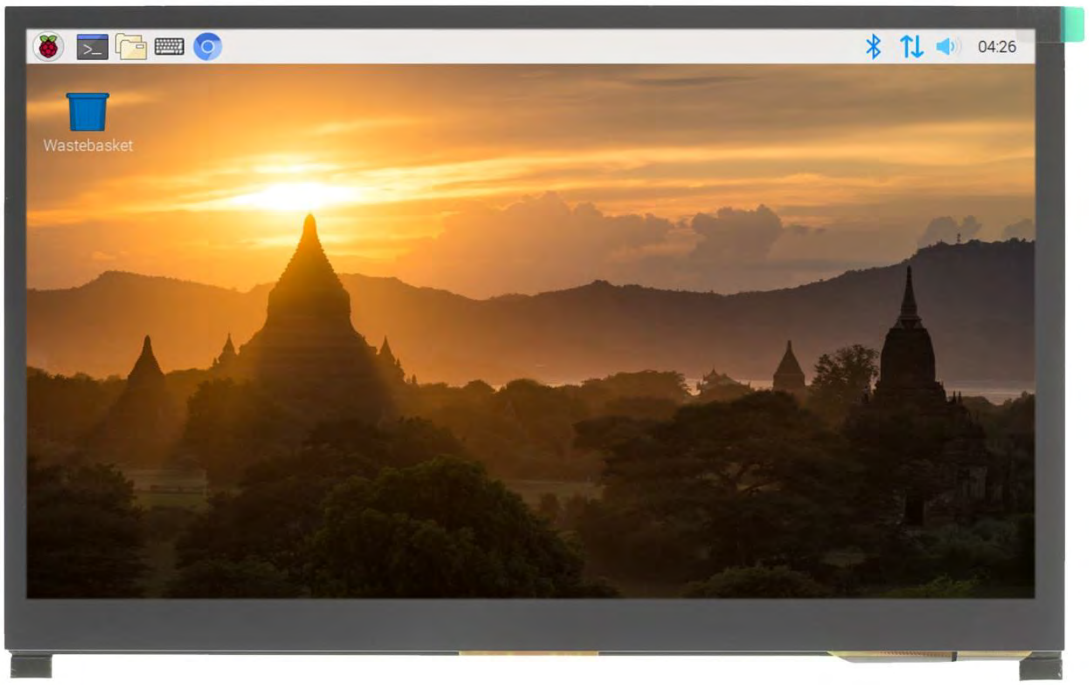
4. Insert SD card

After the above steps are completed, pop up the SD card on the computer and insert it into the SD card slot on the back of the raspberry pie.



5. Running system

After connecting the Raspberry Pi and the display module, power on the raspberry pie. You can see that the display screen has screen output and can be touched normally.



8、RELIABILITY TEST CONDITIONS

No.	Test Item	Test Condition
1	High Temperature Storage	80℃/120 hours
2	Low Temperature Storage	-30℃/120 hours
3	High Temperature Operating	70℃/120 hours
4	Low Temperature Operating	-20℃/120 hours
5	Temperature Cycle Storage	-20℃(30min.)~25(5min.)~70℃(30min.)×10cycles

A、Inspection after test:

Inspection after 2~4 hours storage at room temperature, the sample shall be free from defects:

- Air bubble in the LCD;
- Sealleak;
- Non-display;
- Missing segments;
- Glass crack;
- Current is twice higher than initial value.

B、Remark:

- The test samples should be applied to only one test item.
- Sample size for each test item is 5~10pcs.
- Failure Judgment Criterion: Basic Specification, Electrical Characteristic, Mechanical Characteristic, Optical Characteristic.

9、INSPECTION CRITERION

This specification is made to be used as the standard of acceptance/rejection criteria for TFT-LCD/IPS TFT-LCD module product, and this specification is applicable only in the case that the size of module equal to or exceed than 4.3 inch.

9.1 Sample plan

Sampling plan according to GB/T2828.1-2003/ISO 2859-1：1999 and ANSI/ASQC Z1.4-1993,normal level 2 and based on:

Major defect: AQL 0.65

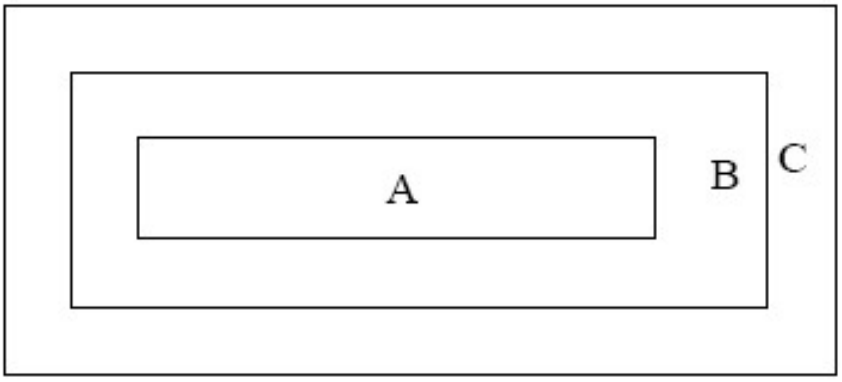
Minor defect: AQL 1.5

9.2 Inspection condition

Viewing distance for cosmetic inspection is about 30cm with bare eyes, and under an environment of 20~40W light intensity, all directions for inspecting the sample should be within 45°against perpendicular line. (Normal temperature 20~25℃and normal humidity 60 ±15%RH)

9.3 Definition of Inspection Item.

A、 Definition of inspection zone in LCD.



Zone A: character/Digit area

Zone B: viewing area except Zone A (Zone A + Zone B=minimum Viewing area)

Zone C: Outside viewing area (invisible area after assembly in customer's product)

Fig.1 Inspection zones in an LCD

Note: As a general rule, visual defects in Zone C are permissible, when it is no trouble for quality and assembly of customer's product.

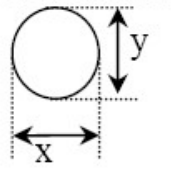
***B*、** *Definition of some visual defect*

Bright dot	*Because of losing all or part function, bad pixel dots appear bright and the size is more than 50% of one dot in which LCD panel is displaying under black pattern.*
Dark dot	*Dots appear dark and unchanged in size in which LCD panel is displaying under pure red, green, blue picture, or pure whiter picture.*

9.4 Major Defect

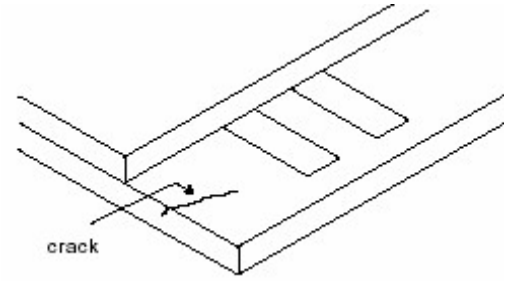
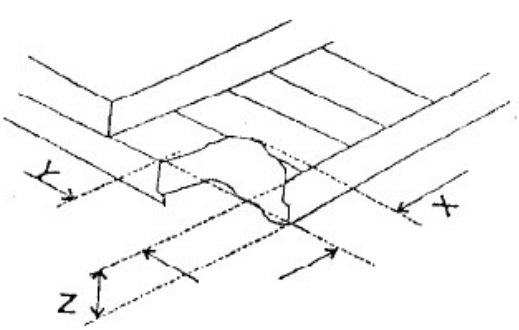
Item No.	***Items to be inspected***	***Inspection standard***	***Classification of defects***
1	*Functional defects*	*1) No display* *2) Display abnormally* *3) Missing vertical, horizontal segment* *4) Short circuit* *5) Excess power consumption* *6)Backlight no lighting, flickering and abnormal lighting*	*major*
2	*Missing*	*Missing component*	
3	*Outline dimension*	*Overall outline dimension beyond the drawing is not allowed*	

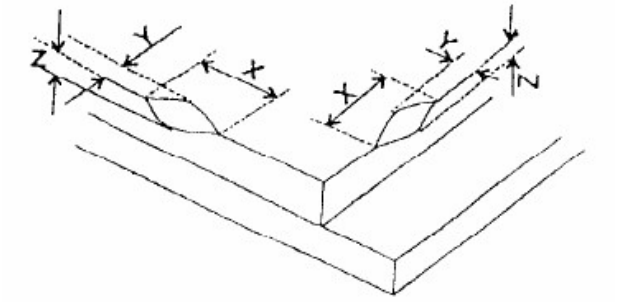
9.5、Minor Defect

<table>
<tr><th>Item No.</th><th>Items to be inspected</th><th>Inspection standard</th><th>Classification of defects</th></tr>
<tr><td>1</td><td>Bright dot /dark dot defect</td><td>
<table>
<tr><td rowspan="2">Zone</td><td colspan="3">Acceptable Qty</td><td rowspan="2"></td></tr>
<tr><td colspan="3">A+B</td></tr>
<tr><td></td><td>4.3” ～ 7”</td><td>7～10.1”</td><td>>10.1”</td><td>C</td></tr>
<tr><td>Bright pixel dot</td><td>1</td><td>2</td><td>3</td><td rowspan="5">Acceptable</td></tr>
<tr><td>Dark pixel dot</td><td>4</td><td>4</td><td>4</td></tr>
<tr><td>2bright dots adjacent</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>2dark dots adjacent</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Total bright and dark dots</td><td>5</td><td>6</td><td>7</td></tr>
</table>
Note: Minimum distance between defective dots is more than 5mm; Pixel dots’ function is normal, but bright dots caused by foreign material and other reasons are judged by the dot defect of 5.2.
</td><td>Minor</td></tr>
<tr><td>2</td><td>Dot defect
 

Φ=(x+y) /2</td><td>
<table>
<tr><td rowspan="2">Zone
Size(mm)</td><td colspan="3">Acceptable Qty</td><td rowspan="2"></td></tr>
<tr><td colspan="3">A+B</td></tr>
<tr><td></td><td>4.3”～7”</td><td>7～10.1”</td><td>>10.1”</td><td>C</td></tr>
<tr><td>Φ≤0.2</td><td>Acceptable</td><td>Acceptable</td><td>Acceptable</td><td rowspan="3">Acceptable</td></tr>
<tr><td>0.2＜Φ≤0.5</td><td>4</td><td>5</td><td>6</td></tr>
<tr><td>Φ＞0.5</td><td>0</td><td>0</td><td>0</td></tr>
</table>
Note:
1. Minimum distance between defective dots is more than 5 mm;
2. The quantity of defect is zero in operating condition.
</td><td>Minor</td></tr>
<tr><td>3</td><td>Linear defect</td><td>
<table>
<tr><td colspan="2" rowspan="2">Zone
Size (mm)</td><td colspan="3">Acceptable Qty</td><td rowspan="2"></td></tr>
<tr><td colspan="3">A+B</td></tr>
<tr><td>Length</td><td>Width</td><td>4.3”～7”</td><td>7～10.1”</td><td>>10.1”</td><td>C</td></tr>
<tr><td>Ignore</td><td>W≤0.05</td><td>Acceptable</td><td>Acceptable</td><td>Acceptable</td><td rowspan="3">Acceptable</td></tr>
<tr><td>L≤5.0</td><td>0.05＜W≤0.1</td><td>4</td><td>5</td><td>6</td></tr>
<tr><td>L＞5.0</td><td>W＞0.1</td><td>0</td><td>0</td><td>0</td></tr>
</table>
</td><td>Minor</td></tr>
</table>

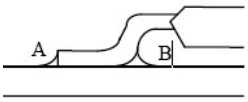
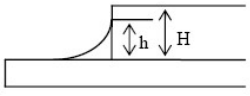
<table>
<tr>
<td>4</td>
<td>Polarizer defect</td>
<td>
5.4.1 Polarizer Position
(i) Shifting in position should not exceed the glass outline dimension.
(ii) Incomplete covering of the viewing area due to shifting is not allowed.
5.4.2 Dirt on polarizer
Dirt which can be wiped easily should be acceptable.
5.4.3 Polarizer Dent & Air bubble
<table>
<tr><td rowspan="2">Zone
Size(mm)</td><td colspan="3">Acceptable Qty</td></tr>
<tr><td colspan="2">A+B</td><td>C</td></tr>
<tr><td>Φ≤0.2</td><td>Acceptable</td><td>Acceptable</td><td>Acceptable</td><td rowspan="4">Acceptable</td></tr>
<tr><td>0.2＜Φ≤0.5</td><td>4</td><td>5</td><td>6</td></tr>
<tr><td>Φ＞0.5</td><td>0</td><td>0</td><td>0</td></tr>
</table>
5.4.4 Polarizer scratch
(i) If the polarizer scratch can be seen after cover assembling or in the operating condition, judge by the linear defect of 5.3.
(ii)If the polarizer scratch can be seen only in non-operating condition or some special angle, judge by the following:
<table>
<tr><td colspan="2" rowspan="2">Zone
Size (mm)</td><td colspan="3">Acceptable Qty</td></tr>
<tr><td colspan="2">A+B</td><td>C</td></tr>
<tr><td>Length</td><td>Width</td><td>4.3”～7”</td><td>7～10.1”</td><td>＞10.1”</td><td rowspan="4">Acceptable</td></tr>
<tr><td>Ignore</td><td>W≤0.05</td><td>Acceptable</td><td>Acceptable</td><td>Acceptable</td></tr>
<tr><td>1.0＜L≤5.0</td><td>0.05＜W≤0.20</td><td>4</td><td>5</td><td>6</td></tr>
<tr><td>L＞5.0</td><td>W＞0.2</td><td>0</td><td>0</td><td>0</td></tr>
</table>
</td>
<td>Minor</td>
</tr>
<tr>
<td rowspan="2">5</td>
<td>MURA</td>
<td>Using 3% ND filter, it’s NG if it can be seen in R,G,B picture.</td>
<td rowspan="2">Minor</td>
</tr>
<tr>
<td>White/Black dot（MURA）</td>
<td>Visible under：ND3%；D≦0.15mm, Acceptable；
0.15mm<D≦0.5mm, N≦4；D>0.5mm, Not allowable.</td>
</tr>
</table>

<table>
<tr><td rowspan="3">6</td><td rowspan="3">Glass defect</td><td>(i) Crack
Cracks are not allowed.
 
</td><td>Minor</td></tr>
<tr><td>(ii) TFT chips on corner
 

<table><tr><td>X</td><td>Y</td><td>Z</td><td>Acceptable</td></tr><tr><td>≤3.0</td><td>≤3.0</td><td>Not more than the thickness of glass</td><td>N≤3</td></tr></table>Chips on the corner of terminal shall not be allowed to extend into the ITO pad or expose perimeter seal.</td><td>Minor</td></tr>
<tr><td>(iii) Usual surface crack
 

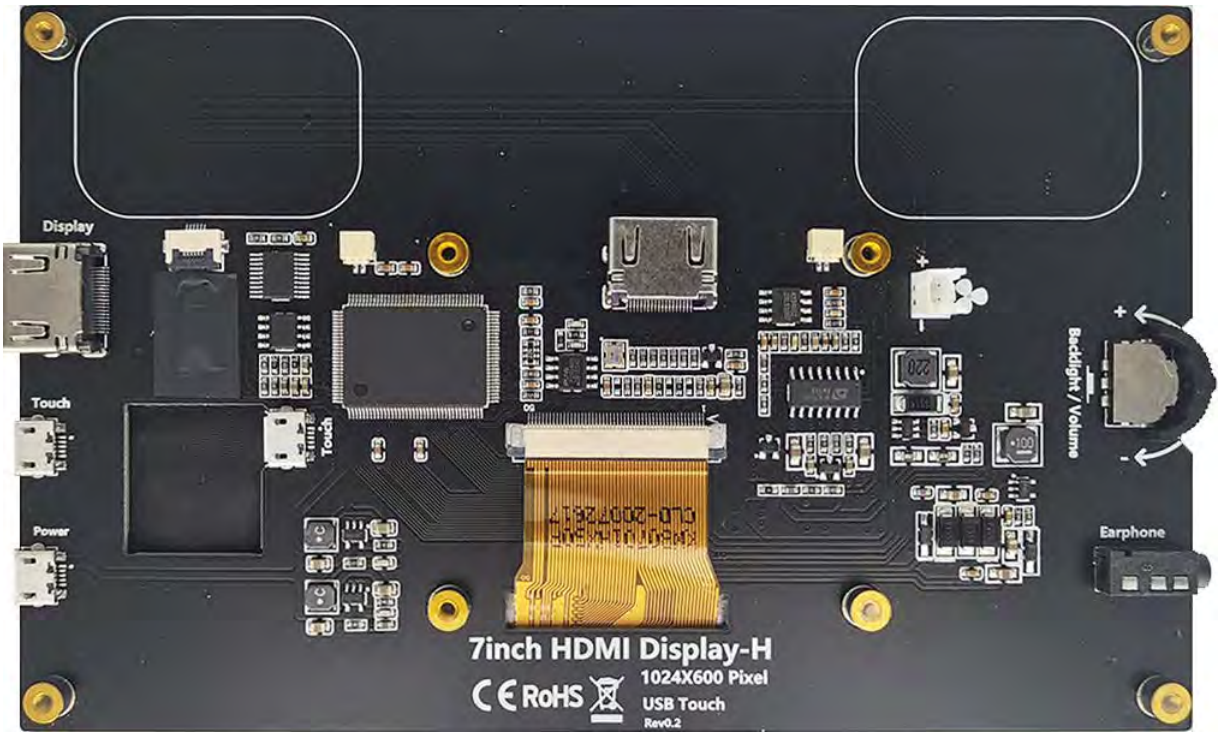
<table><tr><td>X</td><td>Y</td><td>Z</td><td>Acceptable</td></tr><tr><td>≤1.5</td><td>≤1.5</td><td>Not more than the thickness of glass</td><td>N≤4</td></tr></table>It is only applicable to the upper glass of LCD.</td><td>Minor</td></tr>
</table>

9.6 Module Cosmetic Criteria

Item No.	Items to be inspected	Inspection Standard	Classification of defects
1	Difference in Spec.	Not allowable	Major
2	Pattern peeling	No substrate pattern peeling and floating	Major
3	Soldering defects	No soldering missing	Major
		No soldering bridge	Major
		No cold soldering	Minor
4	Resist flaw on PCB	Visible copper foil (Φ0.5 mm or more) on substrate pattern is not allowed	Minor
5	FPC gold finger	No dirt, breaking, oxidation lead to black	Major
6	Backlight plastic frame	No deformation, crack, breaking, backlight positioning column breaking, obvious nick.	Minor
7	Marking printing effect	No dark marking, incomplete, deformation lead to unable to judge	Minor
8	Accretion of metallic Foreign matter	No accretion of metallic foreign matter (Not exceed Φ0.2mm)	Minor
9	Stain	No stain to spoil cosmetic badly	Minor
10	Plate discoloring	No plate fading, rusting and discoloring	Minor
11	1. Lead parts	a. Soldering side of PCB Solder to form a 'Filet' all around the lead. Solder should not hide the lead form perfectly.	Minor
		b. Components side(In case of 'Through Hole PCB') Solder to reach the Components side of PCB.	Minor
	2. Flat packages	Either 'Toe'(A) or 'Seal'(B)of the lead to be covered by "Filet". Lead form to be assume over Solder. 	Minor
	3. Chips	(3/2) H ≥h ≥(1/2) H 	Minor
	4. Solder ball/Solder splash	a. The spacing between solder ball and the conductor or solder pad h ≥0.13 mm. The diameter of solder ball d ≤0.15 mm.	Minor
		b. The quantity of solder balls or solder splashes isn't beyond 5 in 600 mm2.	Minor
		c. Solder balls/Solder splashes do not violate minimum electrical clearance.	Major

10、PICTURE

With Speaker



Without Speaker