User Guide Standards

Atelier with 13.3″ Gallery™ Plus Display (AC133UT1) — 【Glass】

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ePaper Display Update SOP

1 Introduction

Atelier with 13.3” Gallery Plus display (AC133UT1) demo kit allows E Ink clients to access the hardware and software of E Ink’s 13.3” Gallery Plus display module for evaluation. This kit demonstrates as a turnkey solution for those who are interested in designing with E Ink displays. Hardware and software design support is available from E Ink directly.

13.3” Gallery Plus display is suitable for various applications, e.g. Artwork, Signage, Retail, etc…

(1) PACKAGE CONTENTS

- 13.3” E Ink Gallery Plus display (EPD)
- Atelier - TCON Board
- Adapter 5V/3A (Tcon)

(2) 13.3” E Ink Gallery Plus display SPECIFICATION

EPD	13.3” Gallery Plus display
Resolution(mm)	1600(H) x 1200(V)
Active Area(mm)	270.4(H) × 202.8(V)
Outline Dimension(mm)	285.8(W) × 213.65(H) × 0.97(D)
Surface Treatment	AG
Operating Temperature	15~35 degree

(3) TCON BOARD SPECIFICATION

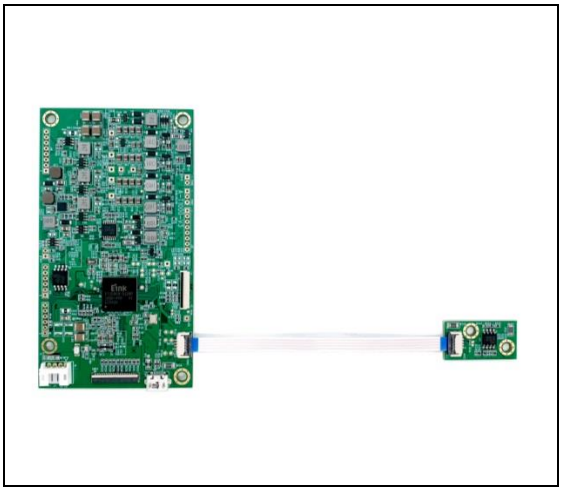
TCON	E ink Gallery Plus T1000
RAM	Embedded 64MB
Flash Memory	External 16MB
Display Interface	TTL/FPC Connector
Debug Interface	UART J8
Host Interface	USB Port (Micro USB)
Power Adapter	DC +5V/3A
Dimension	Tcon board: 55mm x100mm TS board: 27mmx14.4mm FFC: 10cm
Operating Temperature	0~40 degree

* Note: All hardware specifications are for the demonstration of this evaluation kit only.

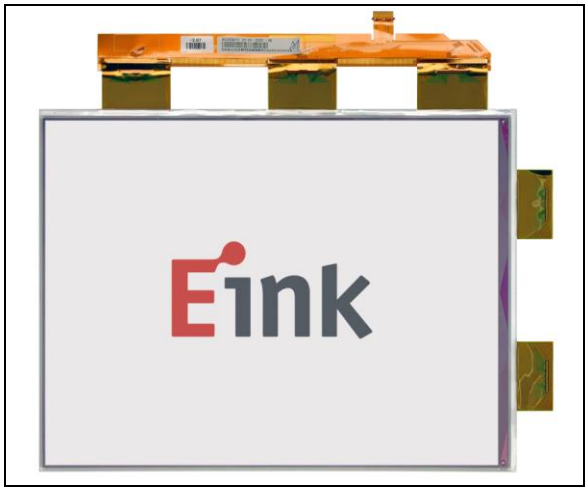
2 Hardware Guide

This section describes the hardware setup of the 13.3” Gallery Plus display demo kit.

(1) Hardware Requirements



Atelier - TCON Board



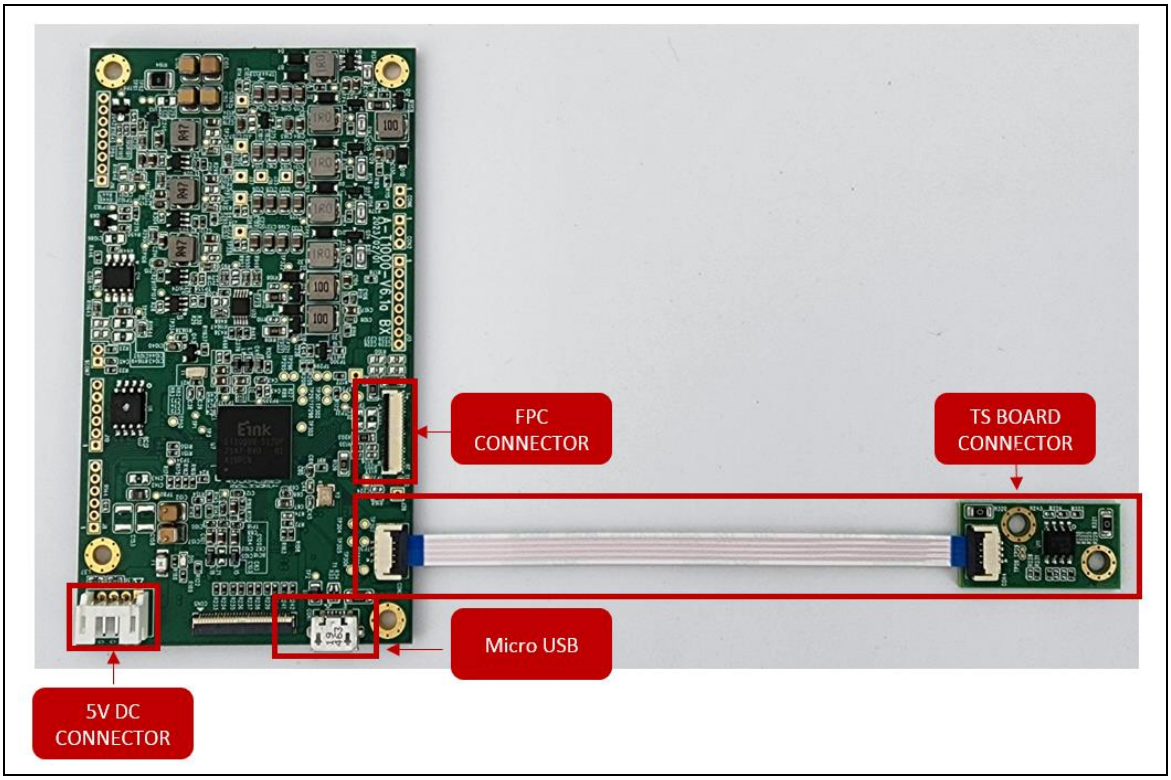
AC133UT1 - EPD

Adapter(Tcon)

(2) Demo Kit Hardware Description

The TCON board and E Ink panel are connected via a 39 pin FPC.

The micro USB port on the EVK work as interface can be used for control the TCON board such as update image on panel.



Atelier - TCON Board

Module Name	Description
FPC CONNECTOR	**Back Flip** Connector for 13.3” Gallery Plus
TS BOARD CONNECTOR	Connect to TS (thermal sensor) board via 10cm FFC
Micro USB	Micro USB, for Host connection
5V DC CONNECTOR	DC 5V/3A

Connector pin assignment

	FPC_J4	DC J1	UART_J8
PIN NUMBER	SIGNAL		SIGNAL
1	VNEG	+5V	VCCIO
2	VPOS	+5V	UART0_TX
3	GND	GND	UART0_RX
4	VDD	GND	UART0_CTS#
5	SDCLK		UART0_RTS#
6	SDLE		GND
7	SDOE		
8	GND		
9	GND		
10	NC		
11	SDCE_N0		
12	SDDO0		
13	SDDO1		
14	SDDO2		
15	SDDO3		
16	SDDO4		
17	SDDO5		
18	SDDO6		
19	SDDO7		
20	GND		
21	VCOM		
22	VCOM		
23	VGH		
24	VGL		
25	NC		
26	NC		
27	XON		
28	GDOE		
29	GND		
30	GND		
31	GND		
32	GDSPV		
33	GDSCK		
34	BORDER		
35	GND		
36	GND		
37	GND		
38	GND		
39	GND		

3 Setting Environment and Preceding Operation

(1) Download files from E Ink Cloud Server

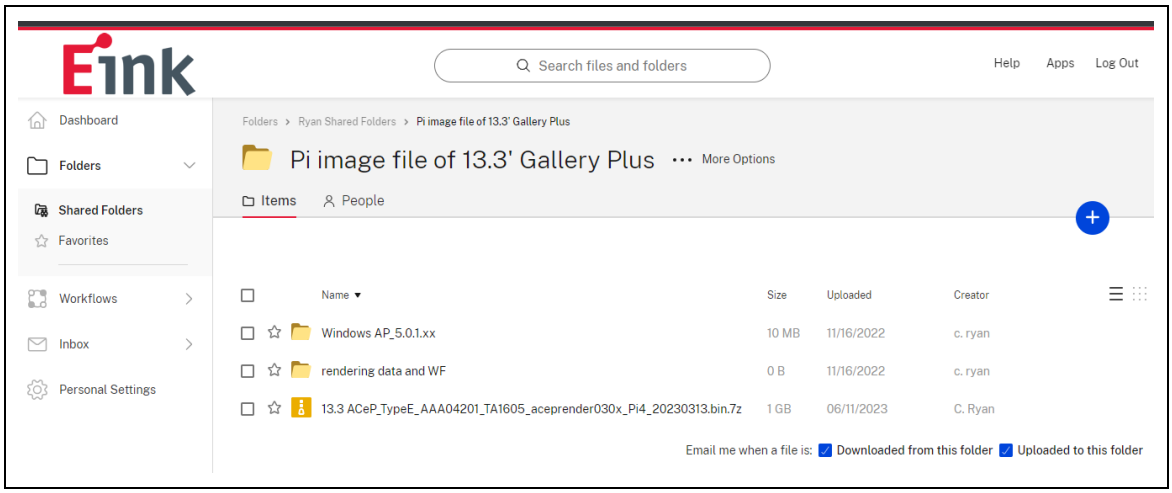
Please see the following steps for downloading E Ink Windows AP, rendering data and Image file (*.bin) from E Ink Cloud Server.

Step1: When E ink opens the download access, the system will notify and provide the hyperlink of E Ink Cloud Server via mail.

Step2: After connecting to E Ink Cloud Server (sharefile) for the first time, you need to register account with email address.

Step3: Image file and rendering data must be decompressed after downloading.

Step4: Waveform file (*.wbf) is included in the rendering data archive.



(2) Write Image File (*.bin) To USB drive

We can use software that supports Image File (*.bin) writing like ImgBurn / imageUSB.

We use imageUSB as an example. Please see the following steps for Image File (*.bin) writing.

Note: The image file must be decompressed after downloading.

Step1: Insert Empty MicroSD card (over than 8GB) and Quick Format MicroSD card.

Step2: Execute the Image software imageUSB.

Step3: Refresh drivers.

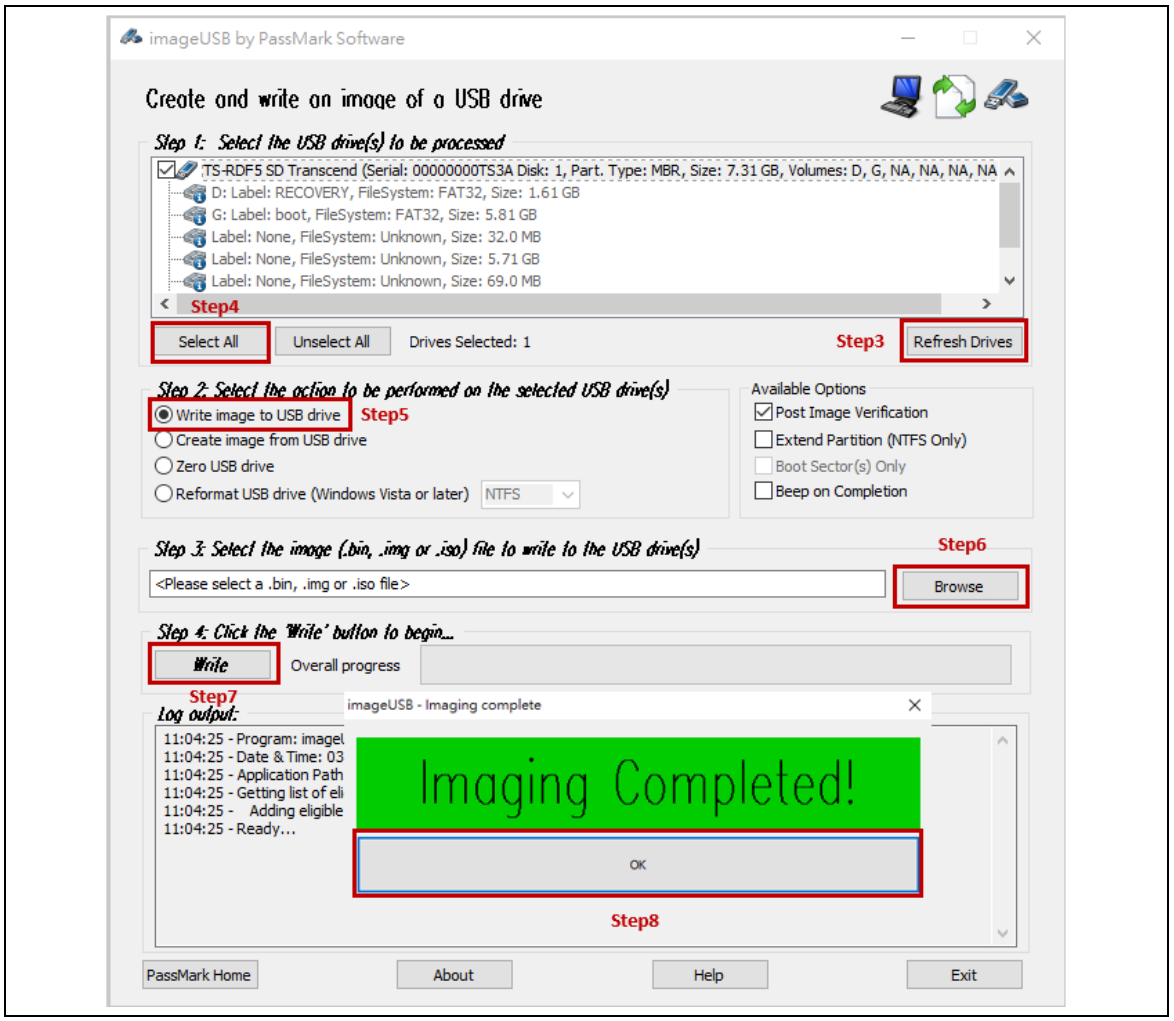
Step4: Select all of the USB drivers.

Step5: Select the option “Write image to USB driver”.

Step6: Click the “Browse” button and choose the image file (*.bin) that we provided.

Step7: Click the “Write” button.

Step8: Click the “OK” button when imaging completed.



(3) Firmware and Waveform upgrade by E Ink Windows AP

- Upgrade Firmware Operation

Step1: Connect TCON board to PC via Micro USB and plug in the TCON board power adapter. (It is not necessary to connect panel)

Step2: Execute the E Ink Windows AP to start the software

Step3: Click the “connect” button to connect the TCON board.

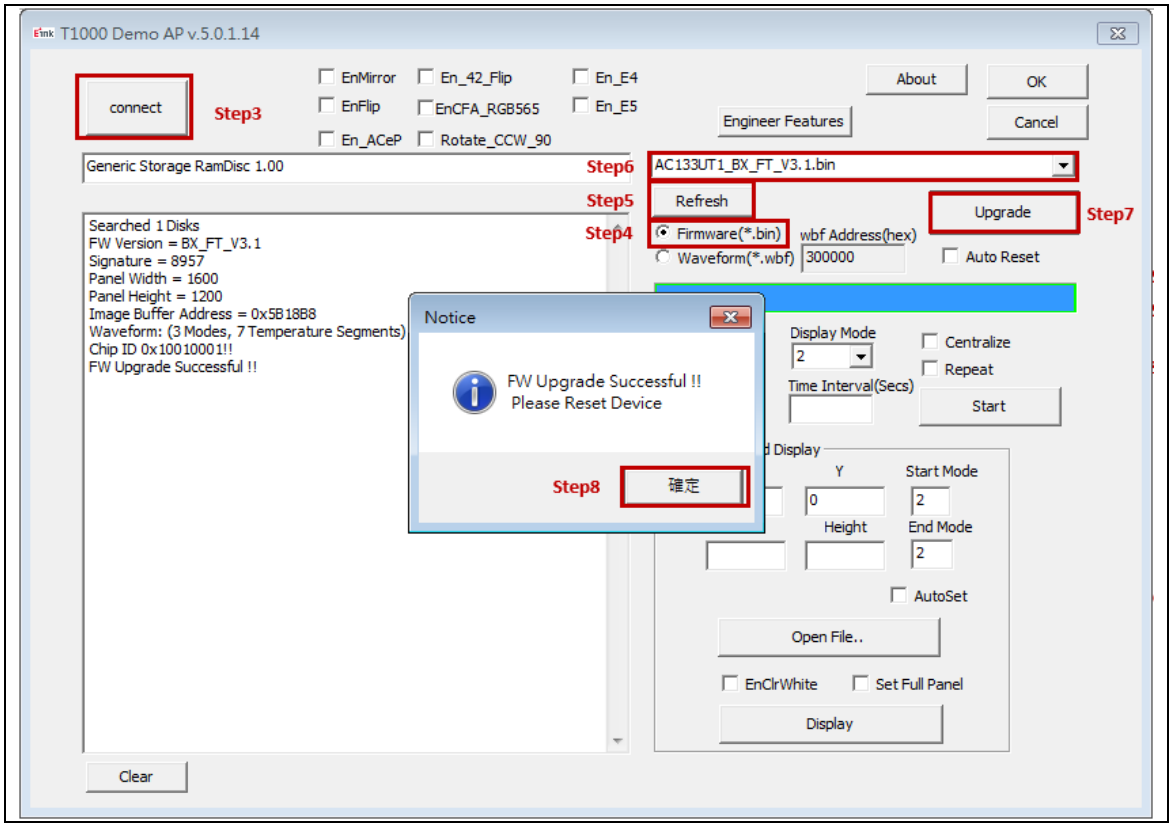
Step4: Select the “Firmware(*.bin)”

Step5: Click the “Refresh” button. (Firmware file and Windows AP must be placed in the same directory)

Step6: Select the Firmware file (*.bin).

Step7: Click the “Upgrade” button.

Step8: Please re-plug the TCON board power adapter (Reset) when firmware upgrade successful.



- Upgrade Waveform Operation

Step1: Connect TCON board to PC via Micro USB and plug in the TCON board power adapter. (It is not necessary to connect panel)

Step2: Execute the E Ink Windows AP to start the software

Step3: Click the “connect” button to connect the TCON board.

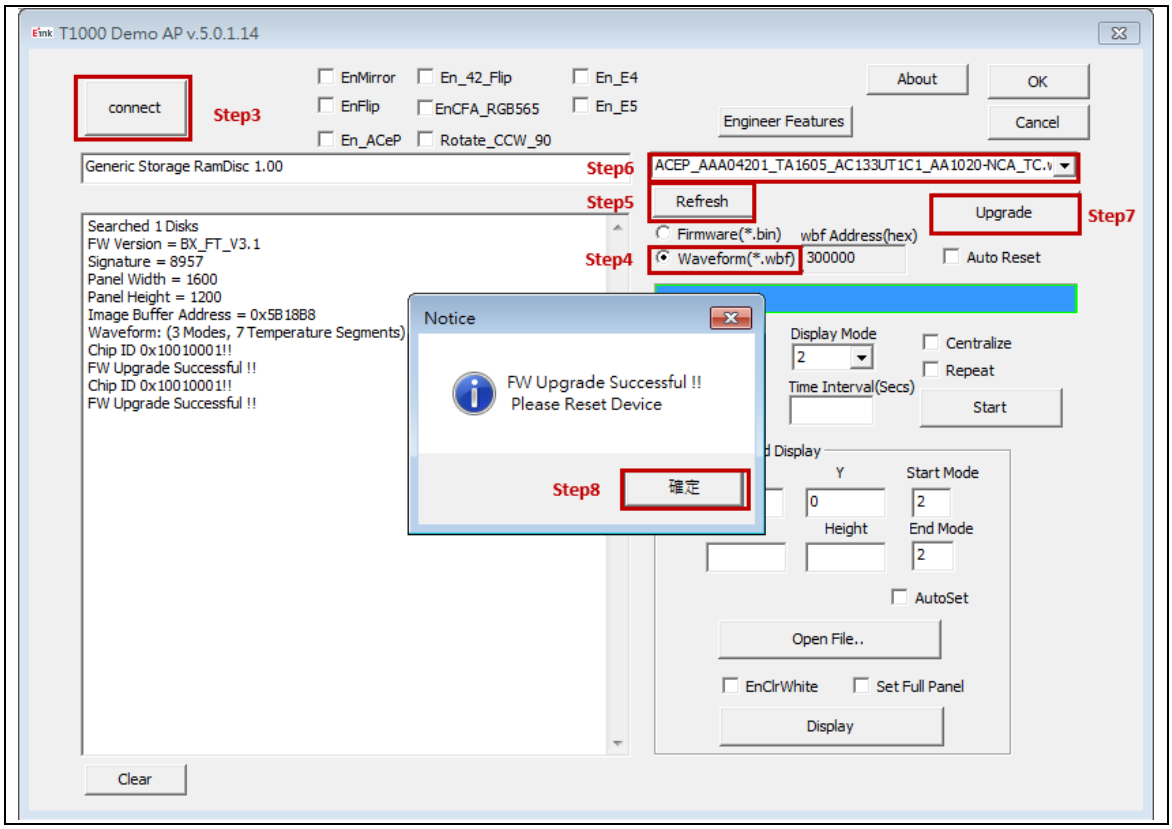
Step4: Select the “Waveform(*.wbf)”

Step5: Click the “Refresh” button. (Waveform file and the Windows AP must be placed in the same directory)

Step6: Select the Waveform file (*.wbf).

Step7: Click the “Upgrade” button.

Step8: Please re-plug the TCON board power adapter (Reset) when firmware upgrade successful.



4 13.3” Gallery Plus Operation Manual

(1) How to connect TCON board to AC133UT1

- Connect FPC of AC133UT1 to FPC connector of TCON board.

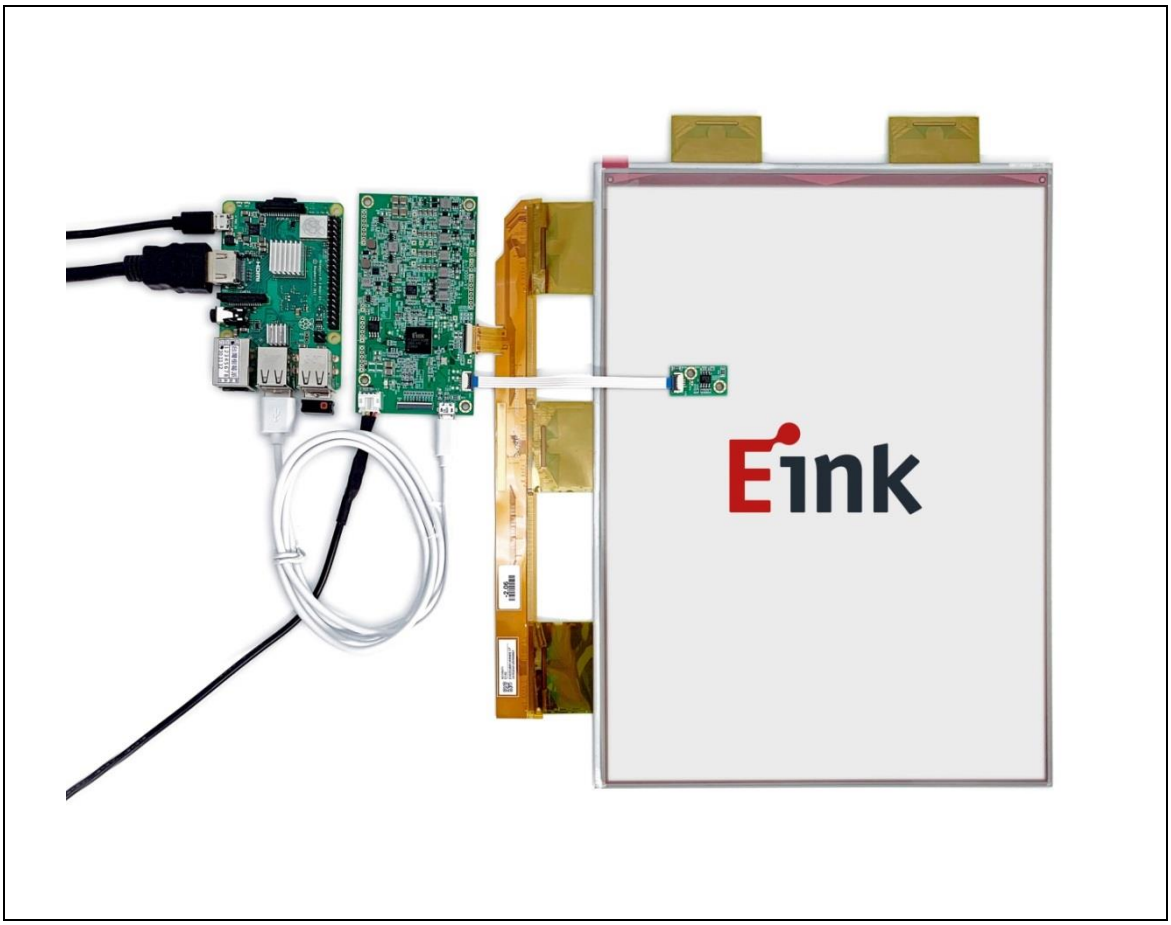
Note: Make sure the TS board is close to the EPD.

- Connect Micro USB to the HOST, we use Raspberry Pi as the HOST.
- TCON board 5V/3A power supply plug in.
- Raspberry Pi 5V/3A power supply plug in.

Note: Before you remove EPD, please make sure EPD is not updating image and then start to power off Raspberry Pi and TCON board.

(2) Example of using Raspberry Pi as the HOST

- **Please prepare Raspberry Pi, USB cable, SD card and Adaptor for Pi (5V/3A) before EVK operation.**
- **Never modify, or format the SD card by yourself.**
- After power on, needed waiting about 50s, the display will start to show image with E Ink logo. It means system is running successfully.



(3) Image File Type and Information

- JPG(.jpg), JPEG(.jpeg), BMP(.bmp), PNG(.png), TIFF(.tiff) are supported image file types.
- The image recommended resolution is 1600 (W) x 1200 (H). And we also can use any image resolution, we will resize and rotate the image automatically.

5 Raspberry Pi Operation

(1) Wireless network setting

We use cell phone as portable hotspots. See the following steps for Wireless network setting.

Step1: Open your Tethering and Portable hotspots.

Step2: Enter Tethering and Portable hotspots setting.

Step3: Configure hotspots default setting as following: (See Figure 4.1)

Network name (SSID): image_host

Security: WPA PSK

Password: imagekey

Step4: Record IP address of Raspberry Pi from connected devices to link Raspberry Pi in the chapter “How to upload / download image files”. (See Figure 4.2)
For example: IP address of Raspberry Pi is 192.168.43.240 in the Figure 4.2

Figure 4.1

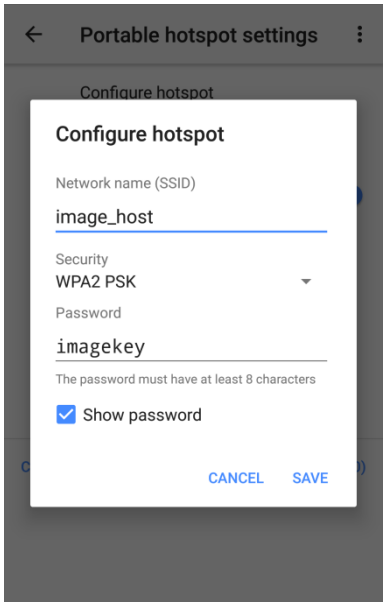
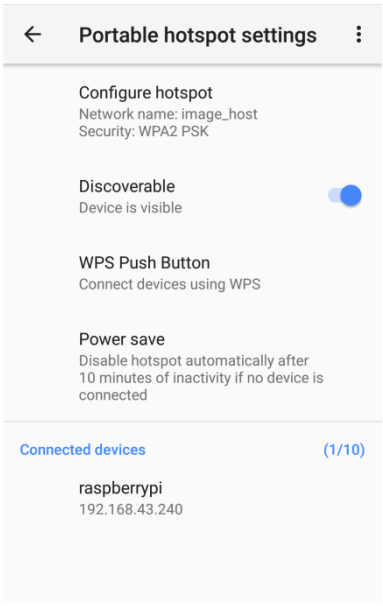


Figure 4.2



(2) Display Gallery Plus panel preceding operation

- Display config setting

  In the AceP_linux_usb folder, user can modify config.txt to change the directory of the image source path, dwell time and display initial mode.

  <image_source> Image source path must be under '/home/pi/Desktop'.

  <dwell_time>: Present the time interval between each display time, must be over 15 seconds.

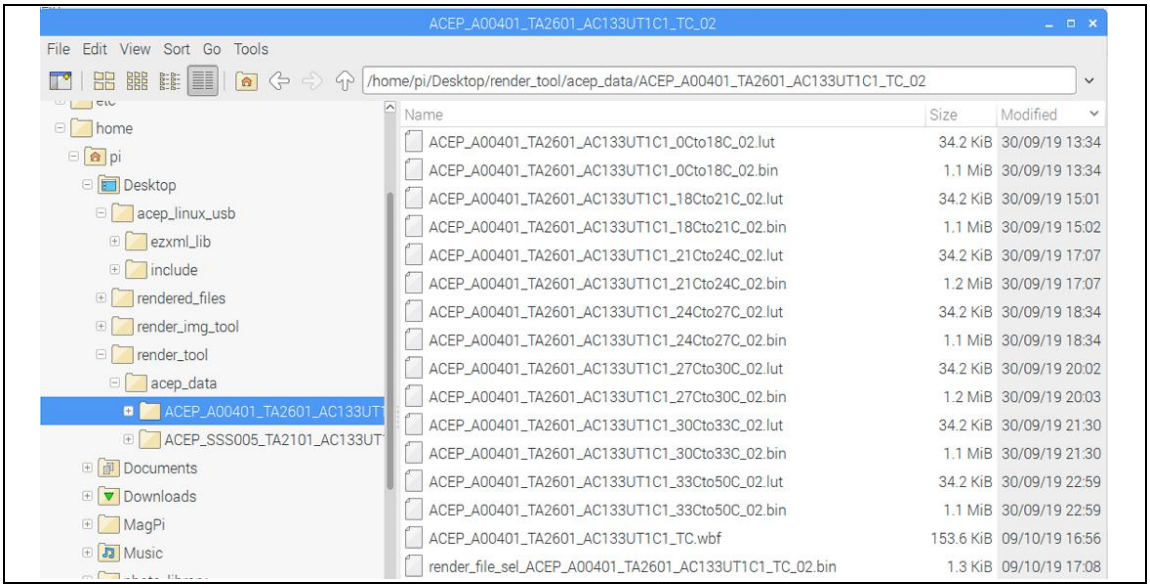
```
# image_source: image source path must be under '/home/pi/Desktop'
# dwell_time: Present the time interval between each display time, must be over 15 seconds.

[path]
image_source=image_library

[dwell]
dwell_time=15
```

- Image file placed folder

  According the above figure, **<u>put image files in the image_source folder. All of these images in the folder will be displayed repeatedly.</u>**

- Place render data files

  In the render_tool folder, user can place whole folder of render data. These files should be matched with Gallery Plus EPD and waveform version.



- User defined networks

  If we want to define multiple networks please see the following steps:

  Step1: Create a new file named “wpa_supplicant.conf”.

  Don’t use “Notepad” to save the file, please use other Linux-supported editors like Sublime Text / EmiEditor / Notepad++.

  Step2: Type following commands to define networks.

  ssid: Name of network hotspots

  psk: Password of network hotspots

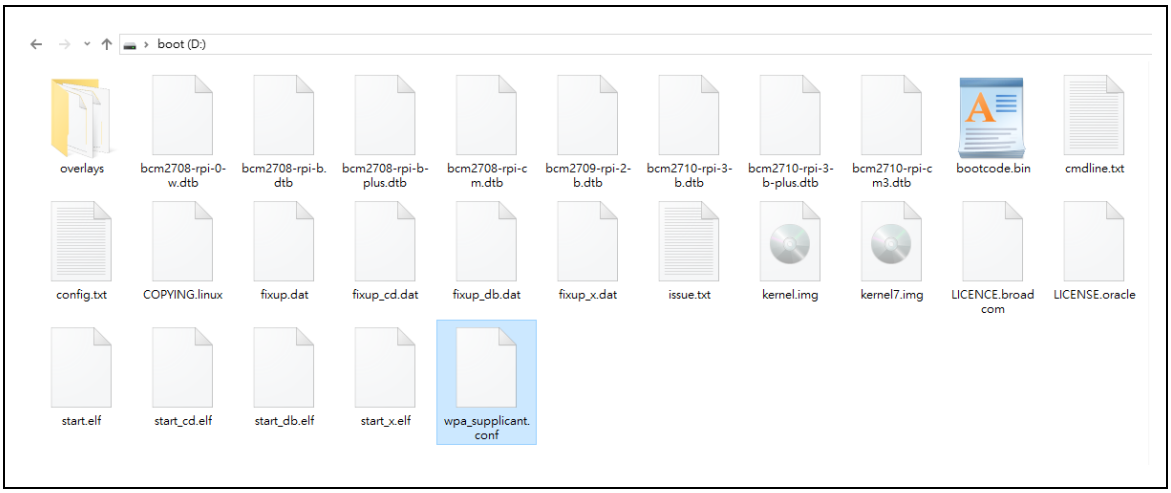
  key_mgmt: Key management protocols.

  Priority: Priority of network. (Higher number with higher priority)

wpa_supplicant.conf

```
country=TW
ctrl_interface=DIR=/var/run/wpa_supplicant GROUP=netdev
update_config=1

network={
    ssid="SSID_NAME"
    psk="SSID_KEY"
    key_mgmt=WPA-PSK
    priority=5
}

network={
    ssid="SSID_NAME2"
    psk="SSID_KEY2"
    key_mgmt=WPA-PSK
    priority=1
}
```

Step3: Insert SD card to PC, place the “wpa_supplicant.conf” under the “boot” directory.



Step4: The file “wpa_supplicant.conf” will be copied when Raspberry Pi reboot.

(3) How to upload / download image files

We can use software which supports FTP like FileZilla / File Manager + / AndFTP to upload / download image files. We use File Manager + as an example, please see the following steps:

Step1: Open File Manager + application and click the “Remote” icon. (See Figure 4.3)

Step2: Add a remote location and choose “FTP”. (See Figure 4.4)

Step3: Type IP address of Raspberry Pi which is mentioned in the chapter “Wireless network setting”, username and password before “OK” button is clicked. (See Figure 4.4)

Host: IP address of Raspberry Pi

Port: 21

Username: pi

Password: raspberry

Figure 4.3

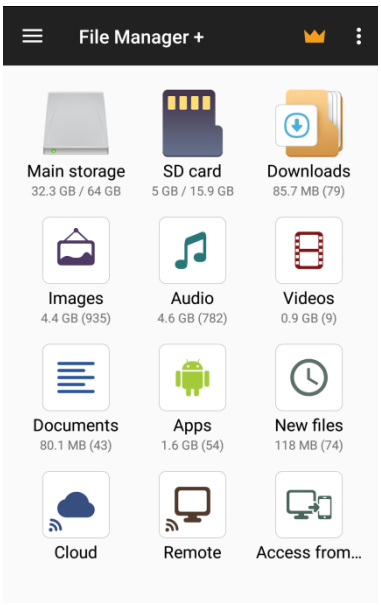


Figure 4.4

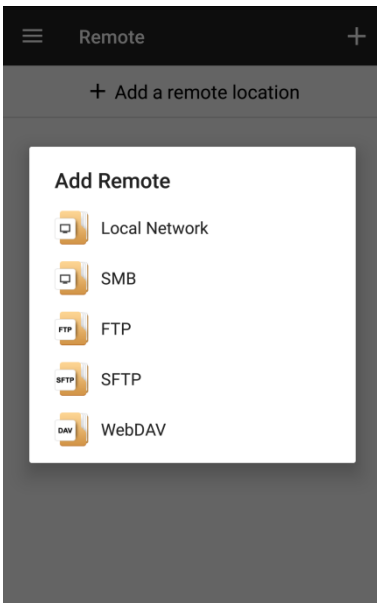
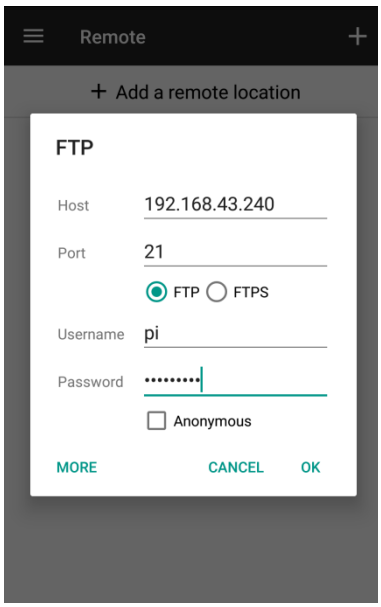


Figure 4.5



Step4: Copy / move image files from other image folders. (See Figure 4.6)

Step5: Paste image files to image_library directory of Raspberry Pi. (See Figure 4.7)

We can also delete image file from image_library directory. (See Figure 4.8)

Figure 4.6

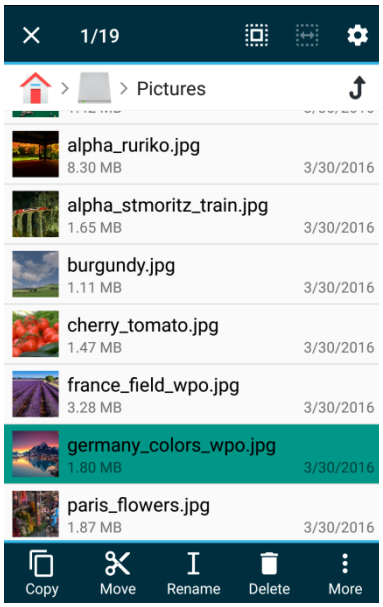


Figure 4.7

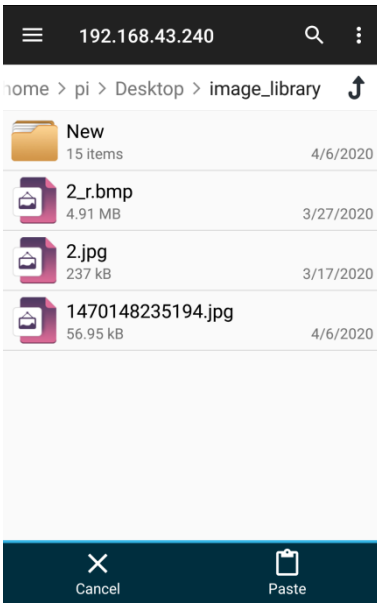
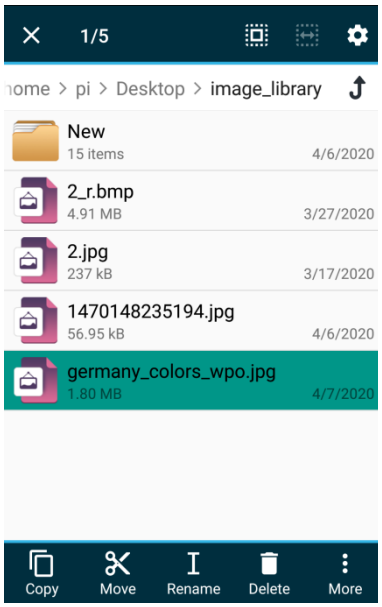


Figure 4.8



6 Appendix

7 Contact Information

For more information, please visit

http://www.eink.com

For sales office addresses, please visit

http://www.eink.com/contact_sales.html

8 Legal Information

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- Revision History

Version	Date	Pag	Description	Author
1.0	2022/07/05		Initial	Stewark
2.0	2023/06/12		Update Cloud server download operation	Stewark