



User Guide Standards

**13.3" Kaleido ePaper Display
(SD1452-NCB)**



Table of Contents

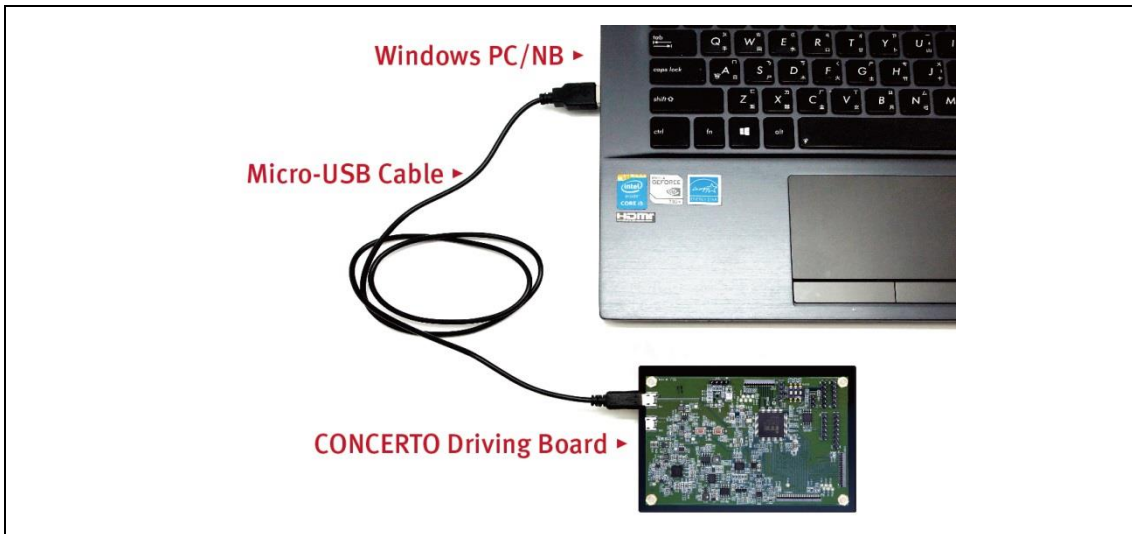
Firmware Update SOP	1
1. Hardware Guide	1
(1) Hardware Requirements.....	1
(2) Hardware Installation	1
2. Software Guide.....	2
(1) Software Requirements	2
(2) Firmware Update by Application Software	2
ePaper Display Update SOP	6
1 Introduction	6
(1) Package Contents.....	6
2 Hardware Guide	8
(1) Hardware Requirements.....	8
(2) Demo Kit Hardware Description	9
(3) Hardware Installation	10
3. Software Guide.....	13
(1) Software Requirements	13
(2) E Ink APPLICATION Display mode Introduction	13
(3) Display selected image to EPD.....	14
(4) Slide Show Function	17
4. Troubleshooting	20
5. Contact Information	20
6. Legal Information	20

Firmware Update SOP

1. Hardware Guide

(1) Hardware Requirements

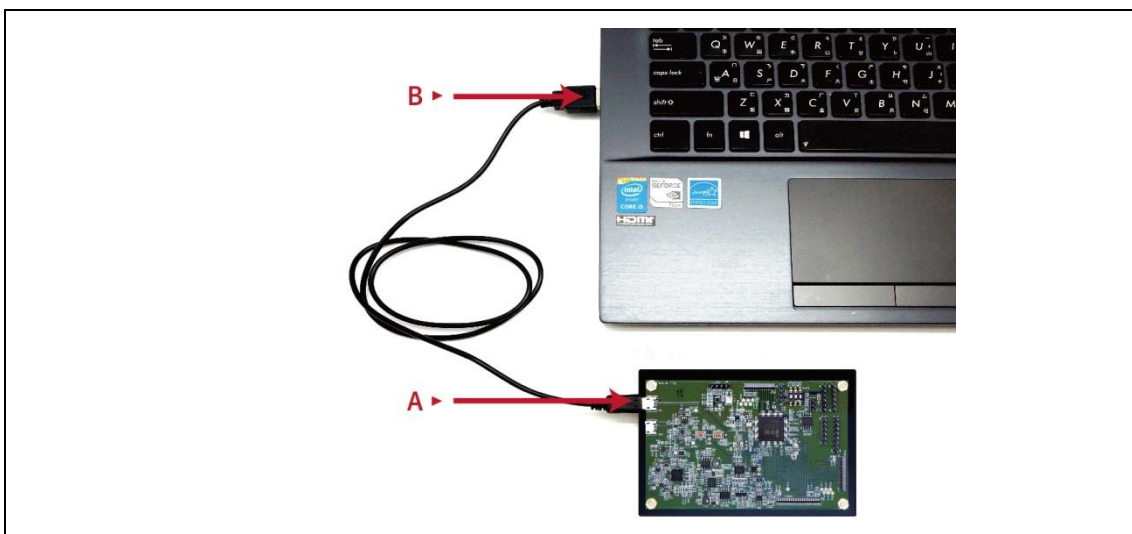
The firmware update requirements included the CONCERTO driving board, micro-USB cable and Windows PC/NB.



(2) Hardware Installation

Refer to following figure to setup CONCERTO driving board and connect it to your PC/NB:

- A Connect the micro-USB cable to CONCERTO driving board
- B Connect the micro-USB cable to PC/NB USB port



2. Software Guide

(1) Software Requirements


Application software **ITE_TCon_DemoAP_v2.6.0.exe** required.

Firmware required: Load the corresponding bin file of ePaper display.

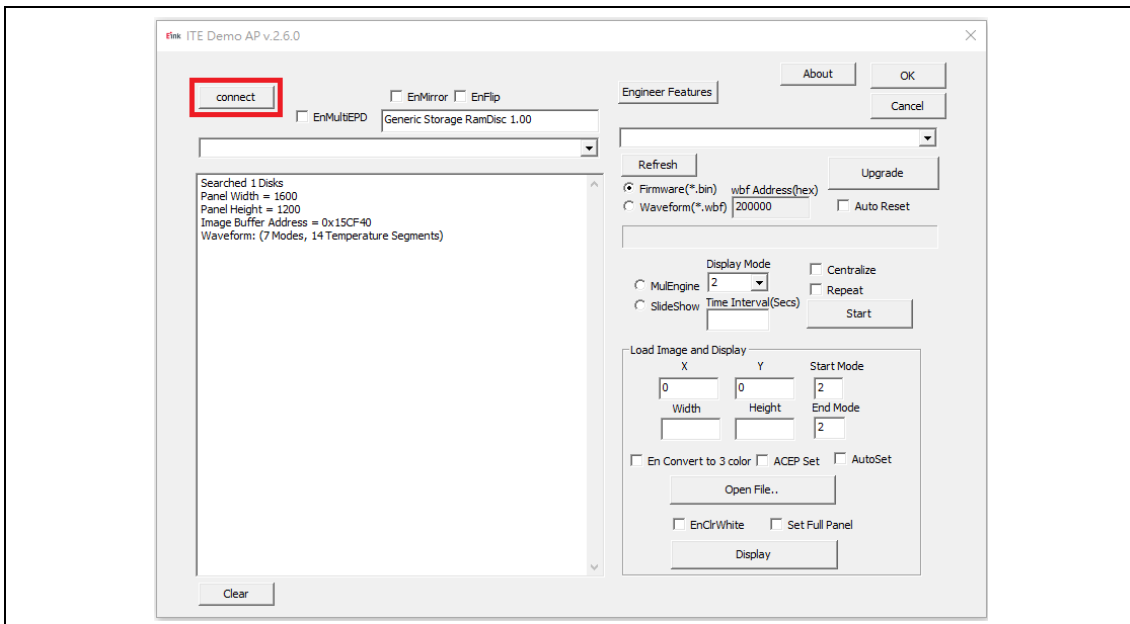
Put the firmware with application software in the same folder.



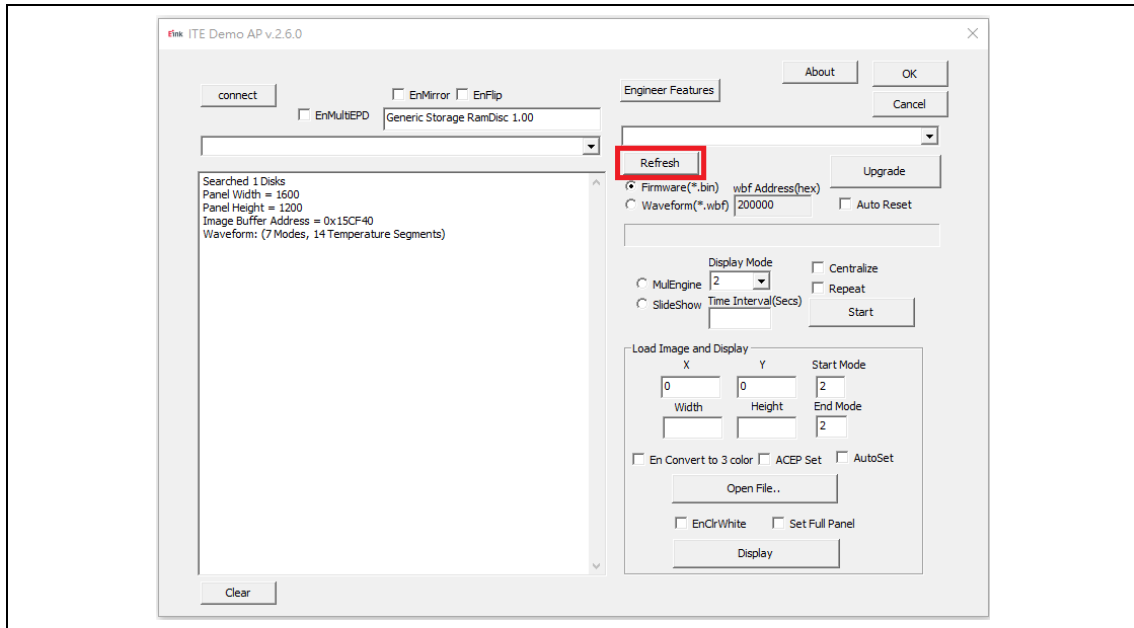
(2) Firmware Update by Application Software

● Press icon  to open application software.

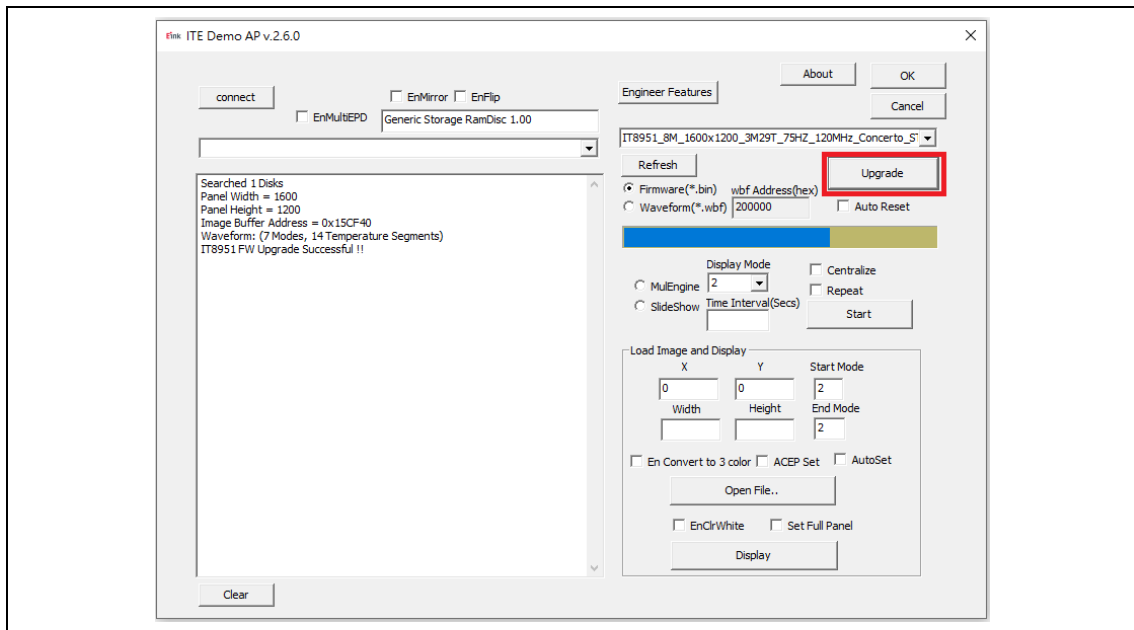
Click “connect” button to make sure the software has connected to physical drive.



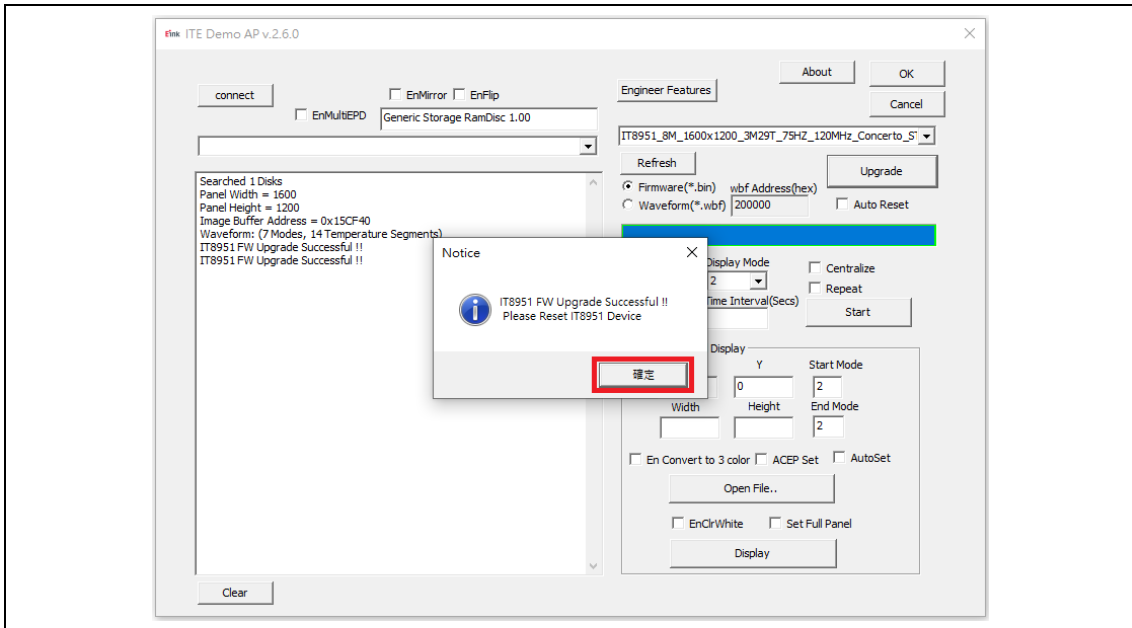
- Click “Refresh” and choose the firmware (bin file) option which you need to load:



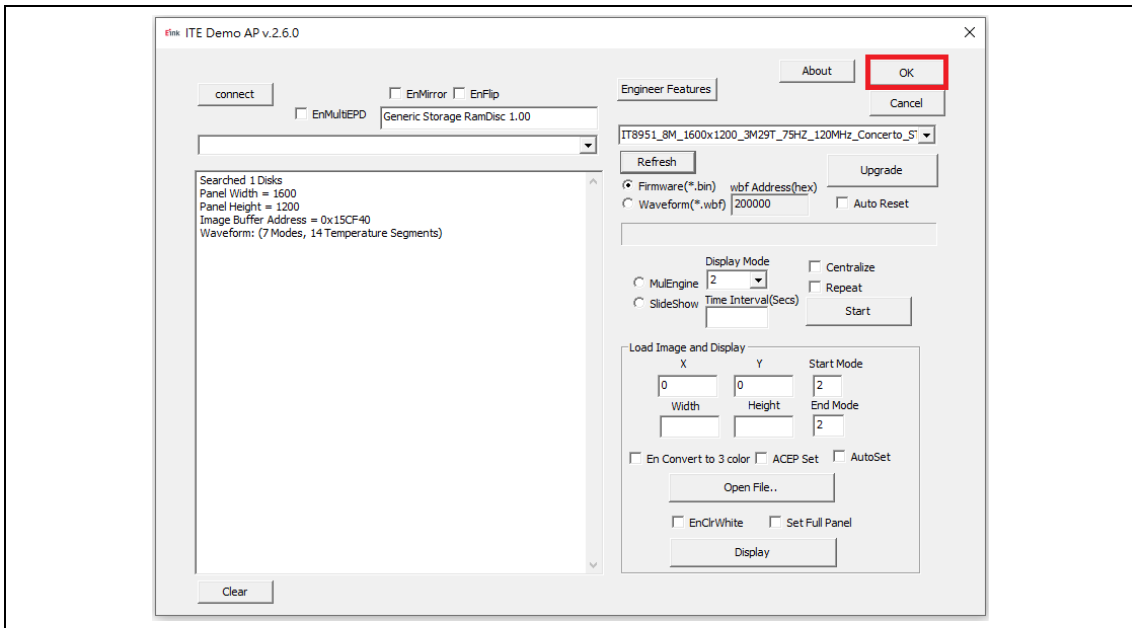
- Click “Upgrade” to load the firmware (bin file) to CONCERTO driving board.



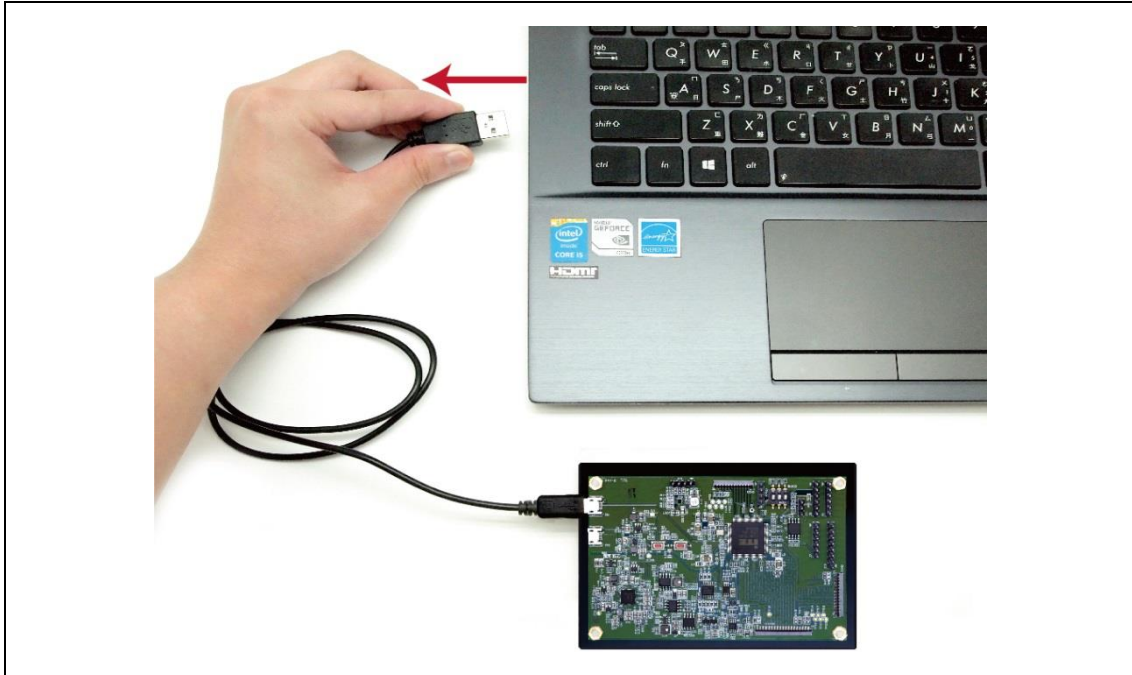
- Firmware (bin file) upgrade successful, click “OK” button.



- Click “OK” button to close the application software.



- Pull out the micro-USB cable, firmware update finished.



ePaper Display Update SOP

1 Introduction

E Ink's CONCERTO demo kit is intended to highlight the features and benefits of the 13.3" Kaleido ePaper display (EPD) display. This is an E Ink Kaleido™ 3 technology display module. It contains a TFT substrate, e-paper, front light and color components and has an active area of 13.3 inches. This module is capable of displaying images from 2-16 gray levels (1-4 bits), depending on the display controller and the associated wave file it uses. The front light can reduce light scatter to create more vivid images.

Included in the CONCERTO demo kit is CONCERTO driving board, micro-USB cable, transfer boards, transfer cables and jumpers.

(1) Package Contents

This demo kit contains the following:

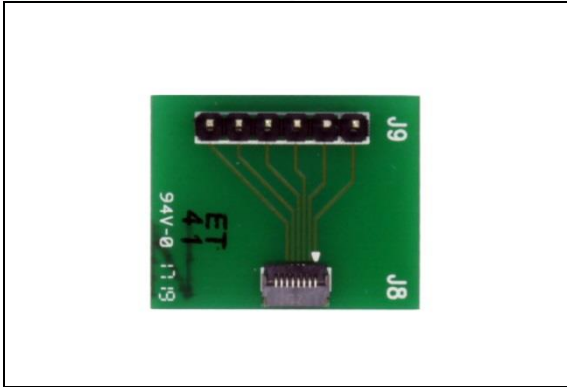
- CONCERTO Driving board
- Micro-USB cable
- Transfer board for touch
- Transfer board for front light
- 6 pins cable
- 4 pins cable
- Jumper
- FPC adapter
- FL adapter



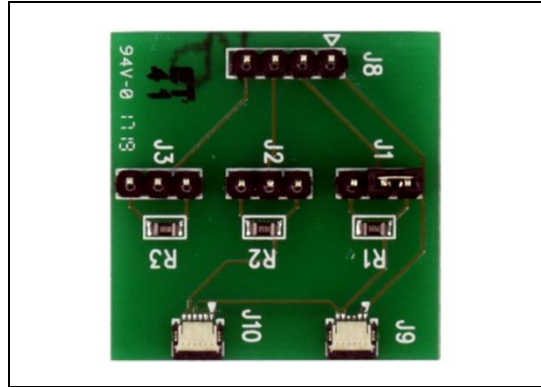
CONCERTO Driving board



Micro-USB cable



Transfer board for touch



Transfer board for front light



6 pins cable



4 pins cable



Jumper



FPC adapter



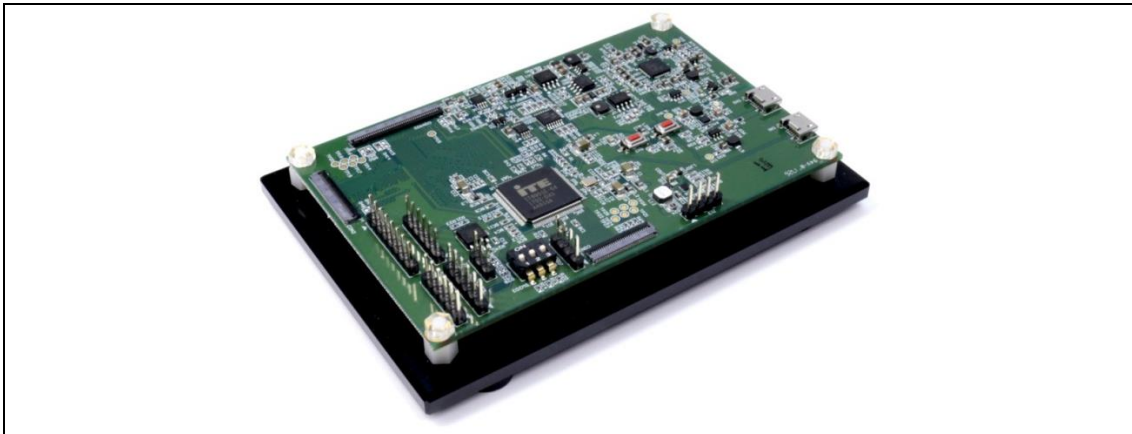
FL adapter

Specification

Item	Specification
TCON	IT8951 DX
TCON Solution	Hardware TCON
LED Driving IC	LM3532
LED Driving Solution	I2C I/F control
E Ink Display Panel	13.3" Kaleido 3 Outdoor
Dimension (WxHxD mm)	285.80(W)*213.65(H)*1.98(D)
Shape	Rectangular
Resolution	1600 (H)×1200 (V)
Input	5Vdc (USB), power on when connected to PC

2. Hardware Guide

(1) Hardware Requirements



CONCERTO Driving Board Demo Kits



Micro USB cable



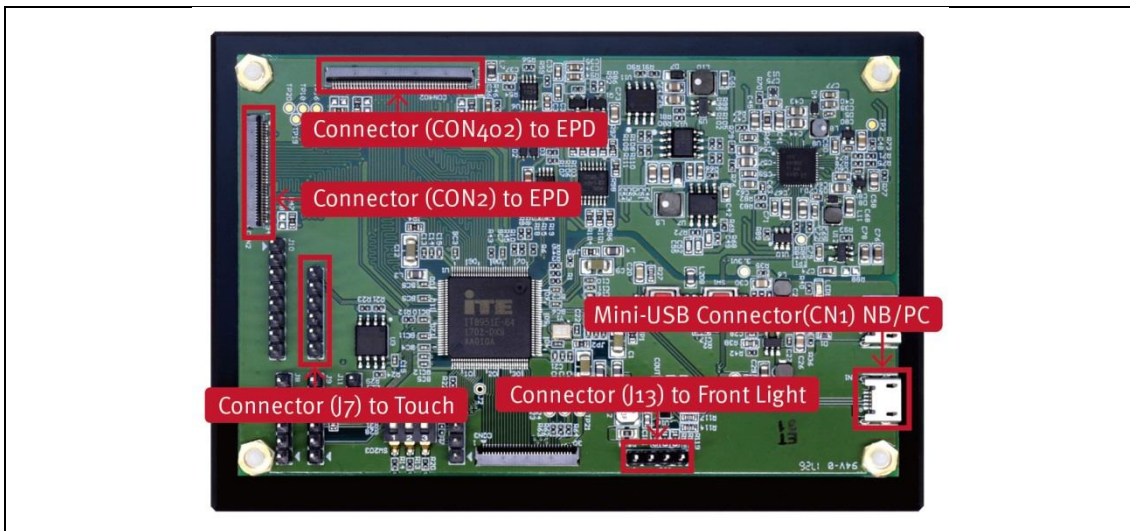
Windows PC/NB

Table 1 Minimum PC Requirements

CPU	Pentium III 800 MHz or later
RAM	128MB or greater
Required Software	Windows 7 or newer
Interface	USB port

(2) Demo Kit Hardware Description

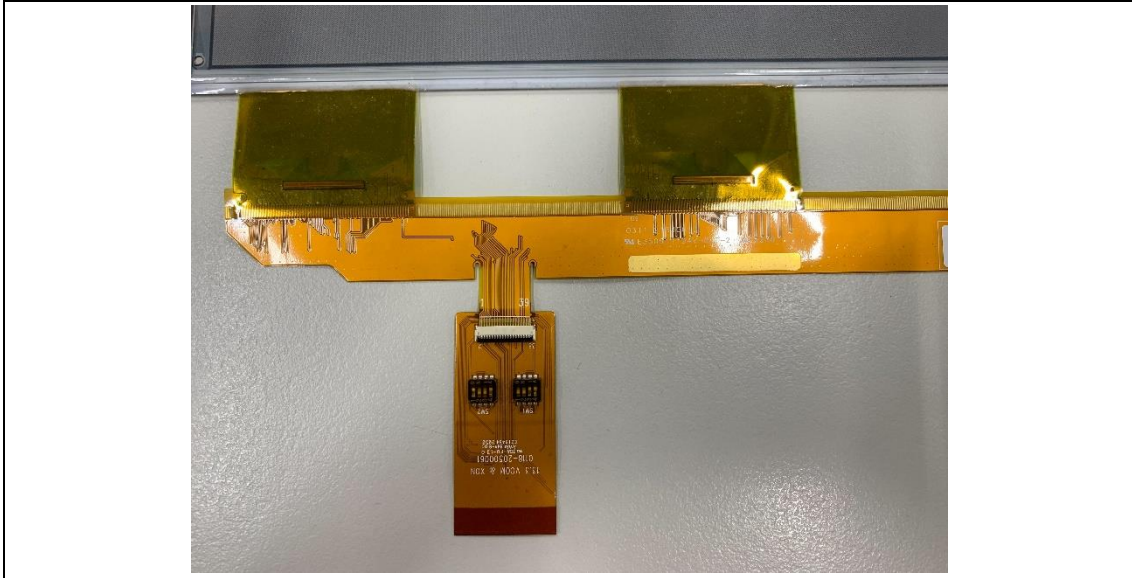
The demo kit includes a CONCERTO driving board. The CONCERTO driving board (connector 2 or connector 402) and E Ink ePaper display (EPD) panel are connected via a corresponding FPC adapter. The demo kit is included the touch (connector J7) and front light (connector J13) function. The micro USB port on the demo kit supplies power and data to the ITE board and E Ink panel. Users can easily demo the touch, front light and image update function on the touch screen of ePaper display. Furthermore, using the E Ink PC application, users can send customized image data to the board or update settings.



CONCERTO driving board function

(3) Hardware Installation

- a Connect SD1452-NCB EPD to FPC adapter.



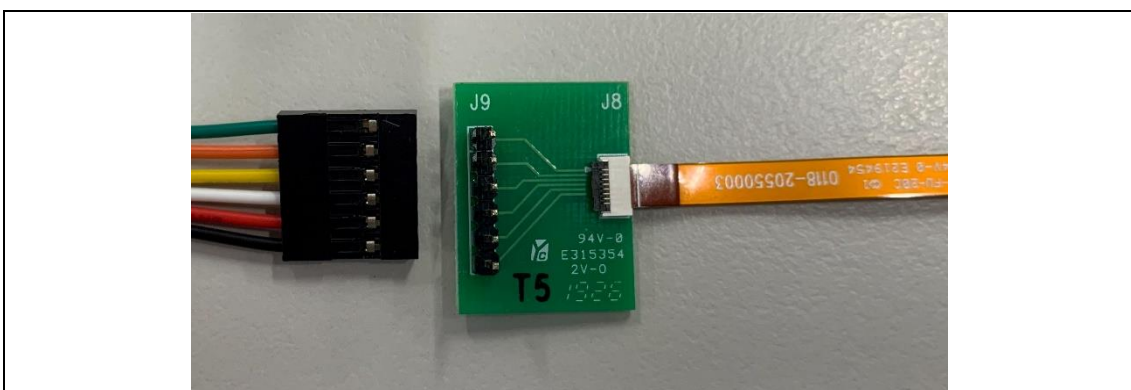
- b Connect front light FPC to FL adapter. , Pin1 to Pin1



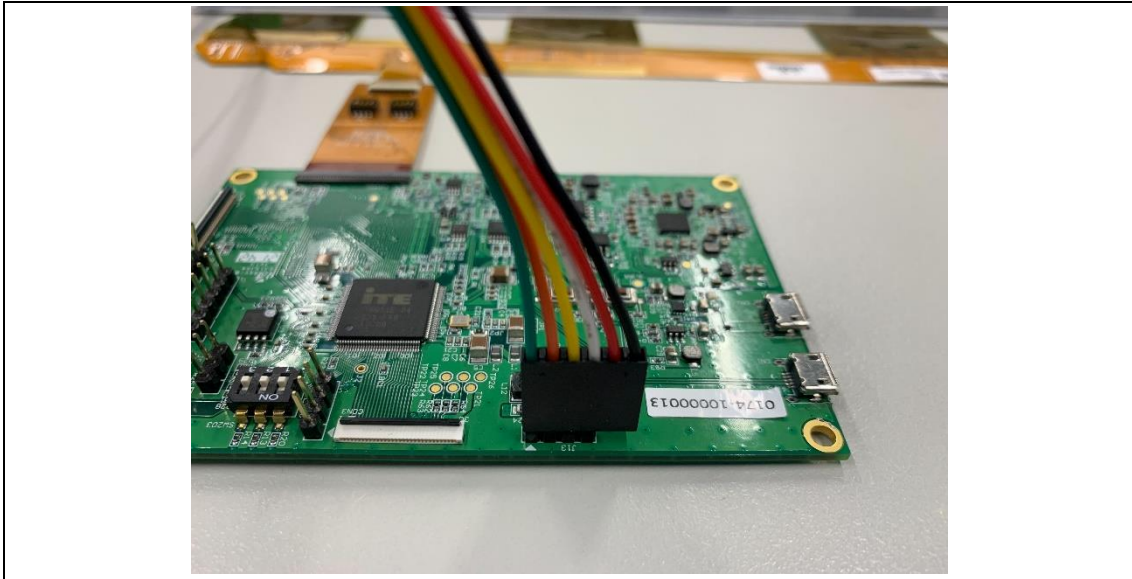
c Connect FPC adapter to CONCERTO driving board.



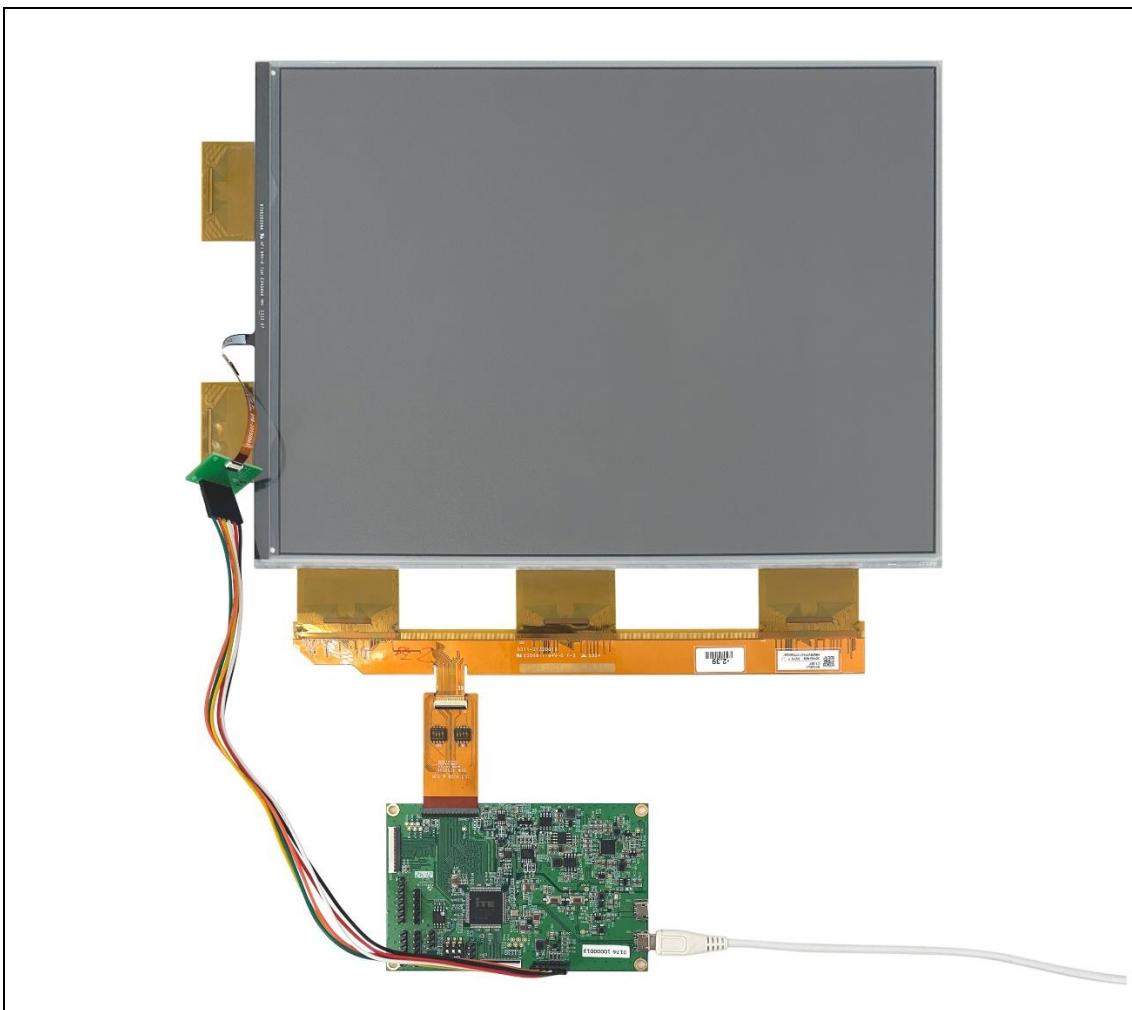
d Connect FL adapter to touch transfer board J8, Pin1 to Pin1. 6 pins cable connects touch transfer board J9, Pin1 to Pin1.



- e 6 pins cable connects to CONCERTO J13 connector, Pin1 to Pin1.



- f Connect micro USB cable to CONCERTO CN1 and PC/NB USB port.

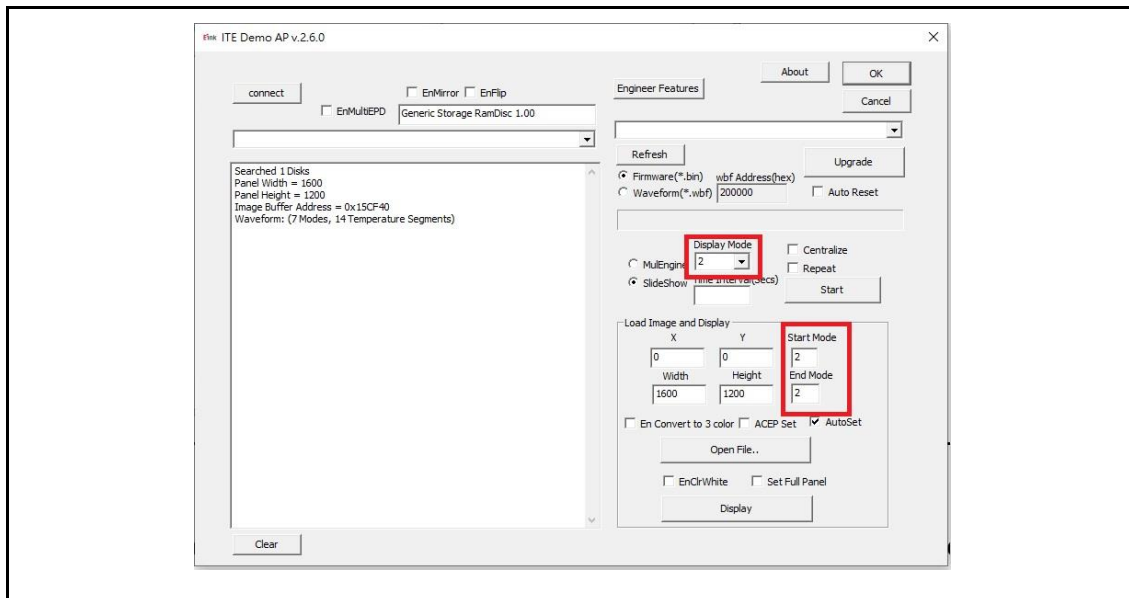


3. Software Guide

(1) Software Requirements

Application software **ITE_TCon_DemoAP_v2.6.0exe** required.

(2) E Ink APPLICATION Display mode Introduction



● What is a Waveform?

A predefined sequence of voltages applied to the E Ink material to switch it from one gray tone to another gray tone.

Paired to display by production lot, display size, and waveform type.

Standard waveforms ensure proper product performance and reliability.

● The waveform contains the following WF modes:

➤ MODE 0 — INIT

Initialize is used to completely clear the display, if it's left in an unknown state (i.e. if the previous image has been lost by a re-boot)

➤ MODE 1 — WGCC2

Wide temperature Grayscale Clear, 2 Levels. It can update any changed gray tone pixel to black or white only. It only updates changed pixels.

➤ MODE 2 — GCC16

Grayscale Clear, 16 Levels. A “more flashy” waveform used for 16 level grayscale images. This provides the best image appearance. All the pixels are updated or cleared.

(3) Display selected image to EPD

Procedures are as following:

- Run "ITE_TCon_DemoAP_v2.6.0.exe" software
- Click "Connect" button to make sure the software has connected to physical drive(Figure 3-2-a)

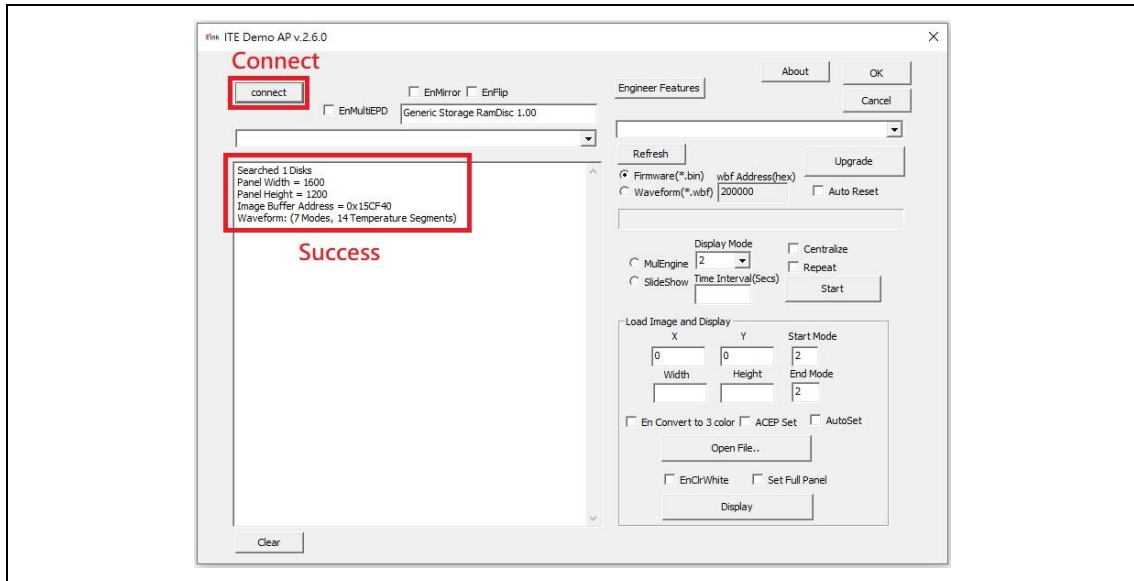


Figure 3-2-a

- Display EPD operation by USB interface contains the following steps:
 - Initial the SD1452-NCB EPD and CONCERTO driving board. (Figure 3-2-b)
 - Set the “Start Mode” and “End Mode” to “mode 0”.
 - Check “EnClrWhite” item.
 - Click “Display” icon, SD1452-NCB EPD initial to white pattern.

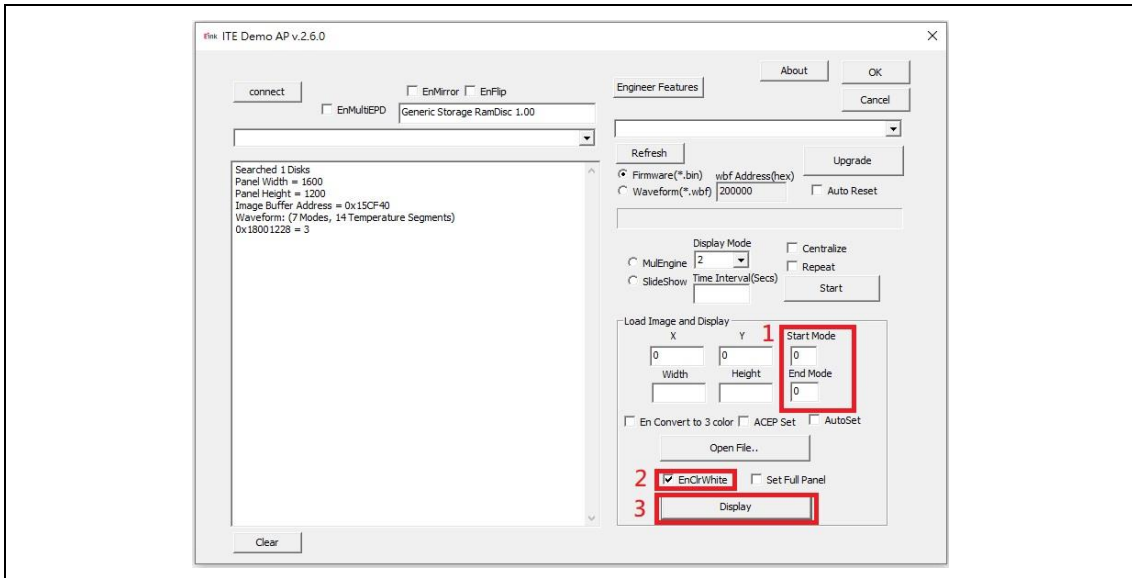


Figure 3-2-b

- Load images and display on the SD1452-NCB EPD.
- Set the “Start Mode” and “End Mode” to “mode 2”, check “AutoSet” Item to auto set the resolution (Figure 3-2-c)

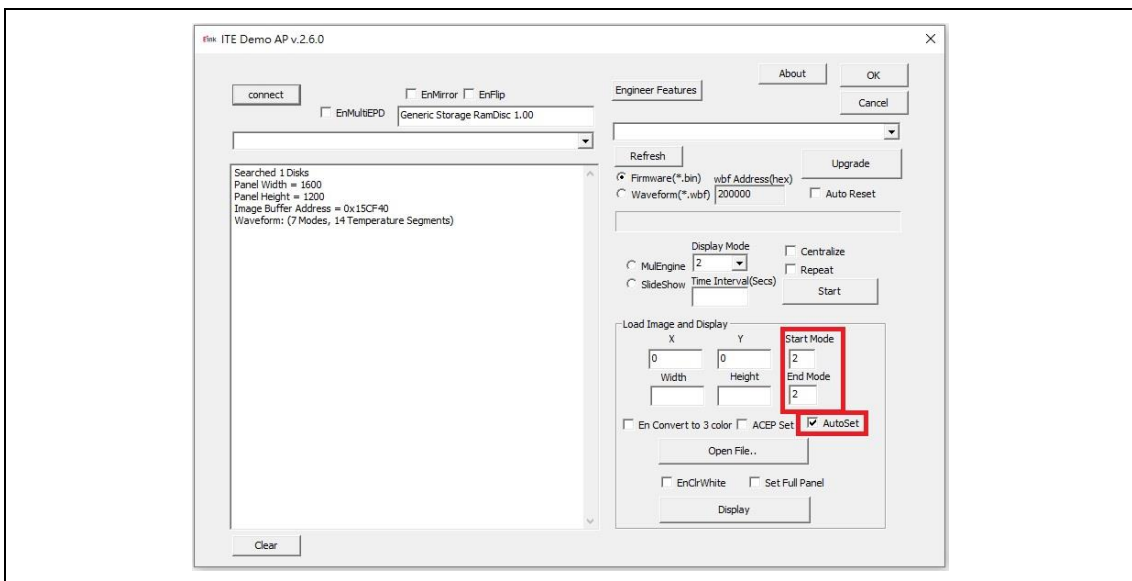


Figure 3-2-c

- Click “Open File..” to open a file browser to select an image. (Figure 3-2-d, Figure 3-2-e)

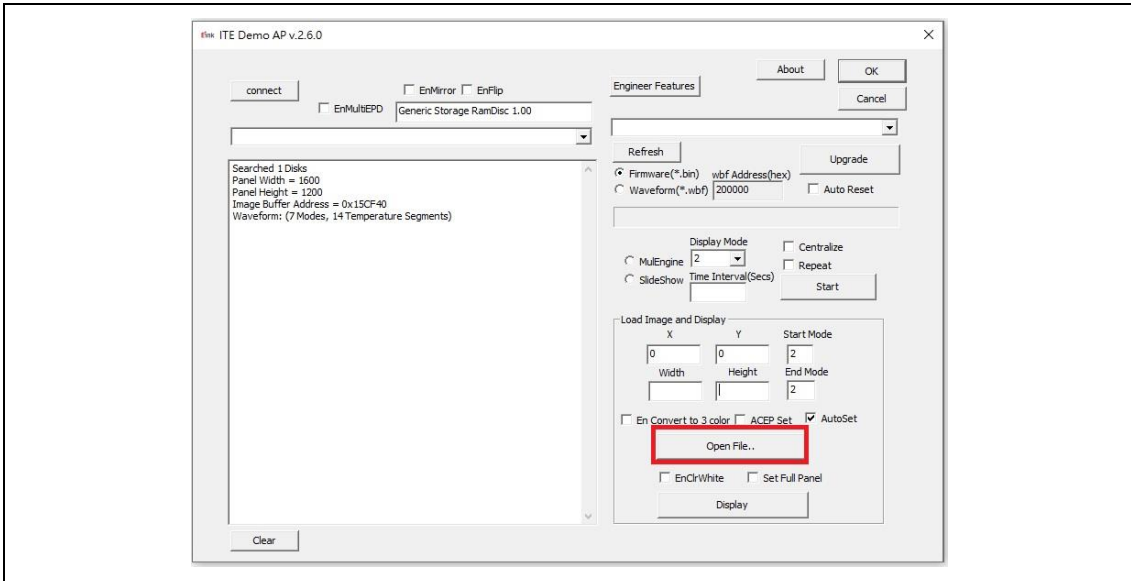


Figure 3-2-d

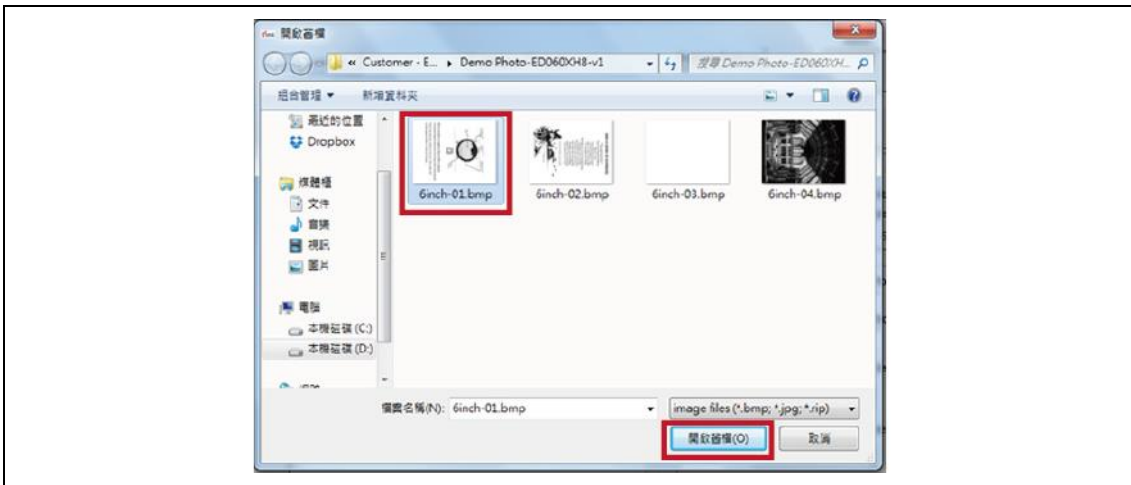


Figure 3-2-e

➤ Display selected image to EPD (Figure 3-2-f)

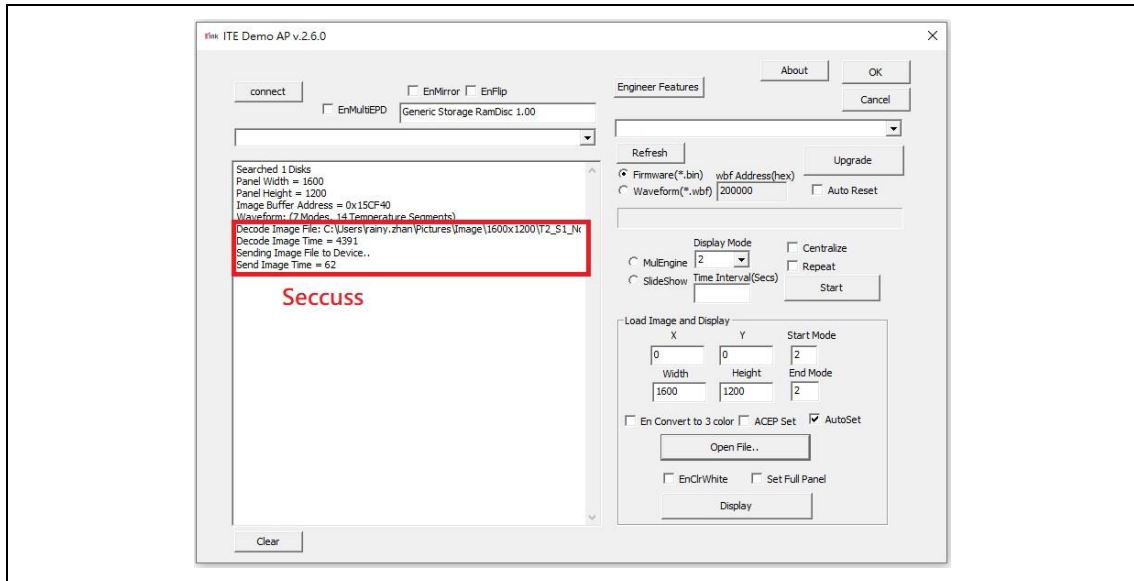


Figure 3-2-f

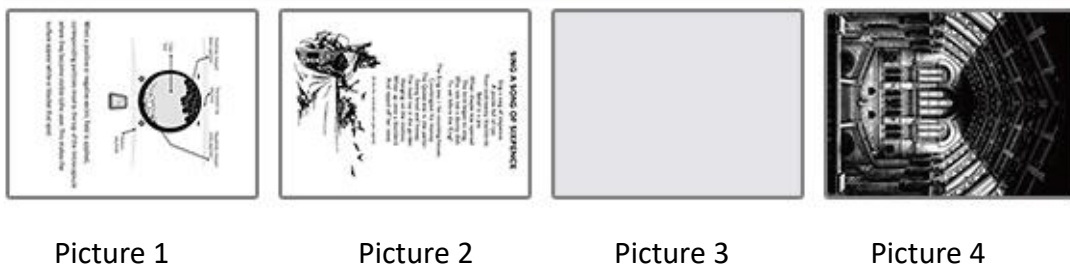
(4) Slide Show Function

- Select the display image.

Named the folder “SlideShowImages” that including the pictures you want to display, it needs to be in the same folder with the “ITE_Tcon_DemoAP_v2.6.0.exe”

SlideShowImages	112/8/8 下午 04:24	檔案資料夾	
ITE_TCon_DemoAP_2.6.0.exe	109/1/7 下午 02:10	應用程式	8,461 KB

For example: “SlideShowImages” contains 4 pictures:



Picture 1

Picture 2

Picture 3

Picture 4

- Connect to the CONCERTO driving board. (Figure 3-2-g)

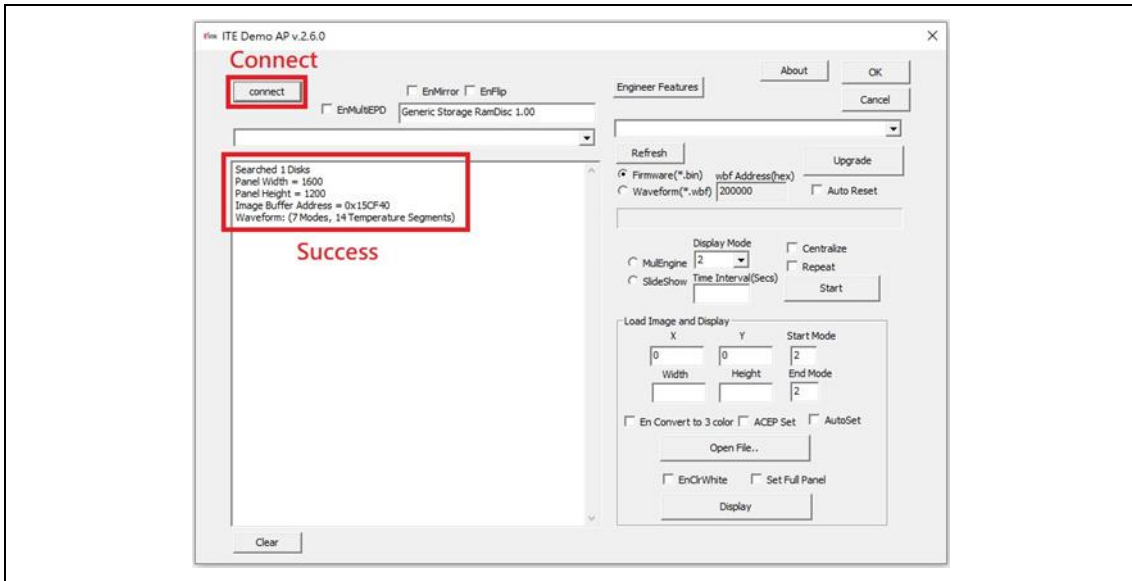


Figure 3-2-g

The AP is connecting to the CONCERTO driving board successfully.

- Slide Show display (Not Repeat) (Figure 3-2-h)

Operating Steps:

- (1) Select "Display Mode".
- (2) Choose "SlideShow" option.
- (3) Press "Start" button.

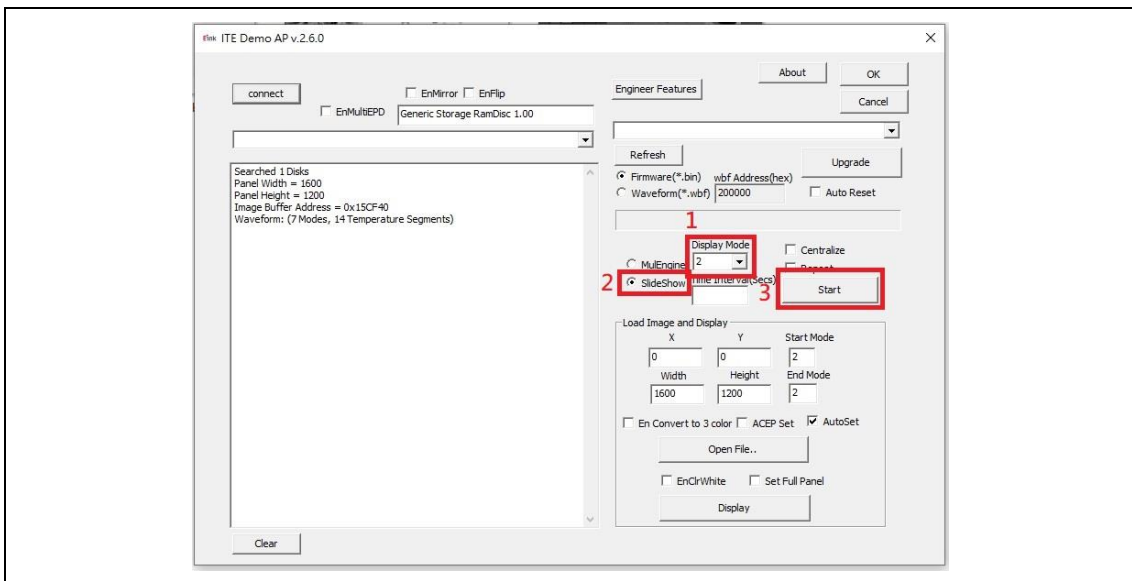


Figure 3-2-h

Image order:

Picture 1→Picture 2→Picture 3→Picture 4

- Slide Show Display (Repeat) (Figure 3-2-i)

Operating steps:

- (1) Select “Display Mode”.
- (2) Choose “SlideShow “option.
- (3) Check “Repeat” option.
- (4) Press “Start” button.

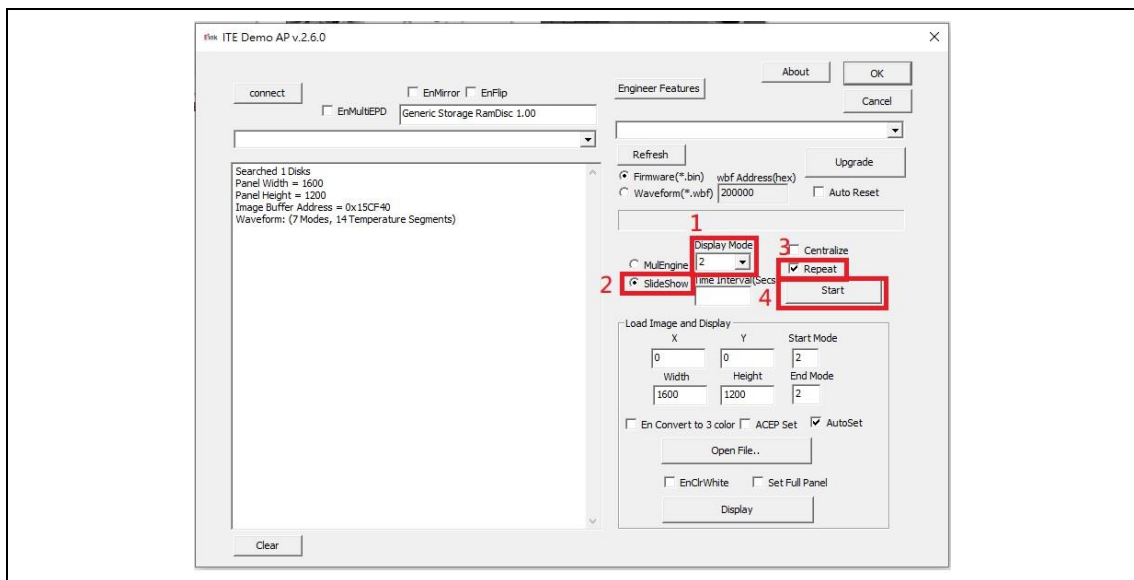


Figure 3-2-i

Image order:

Picture 1→Picture 2→Picture 3→Picture 4



- Disconnection

- Disconnect micro USB cable from PC/NB.
- Disconnect micro USB cable from CONCERTO driving board.
- Disconnection of the CONCERTO driving board and EPD(ePaper display).

Disconnect the EPD from CONCERTO driving board and change with another EPD.

4. Troubleshooting

Below list is commonly asked question:

Number	Name	Description
1	13.3" Kaleido EPD demo kit is not detected by the PC/NB	Cause: USB cable is damaged or PC/NB doesn't recognize CONCERTO. Solution: Replace the micro USB cable or reconnect micro USB cable.

5. Contact Information

For more information, please visit

<http://www.eink.com>

For sales office addresses, please visit

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

6. Legal Information

● Definitions

The document is a draft version only. The content is still under internal review and subject to formal approval which may result in modifications or additions. E Ink does not give any representations or warranties as to the accuracy or completeness of information included herein and shall have no liability for the consequences of use of such information.

● Right to make changes

E Ink reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice.

● Suitability for use

Products described in this document are intended for development purposes only and comes without any warranty. E Ink accepts no liability for inclusion and/or use of E Ink products in commercial products or applications and therefore such inclusion and/or use is at the customer’s own risk. In no event shall E Ink be liable for any direct, indirect, incidental, special, exemplary, or consequential damages (including, but not limited to, procurement of substitute goods or services; loss of use, data, or profits; or business interruption) however caused and on any theory of liability, arising in any way out of the use of the software.

● Applications

Applications that are described herein for any of these products are for illustrative purposes only. E Ink makes no representation or warranty that such applications will be suitable for the specified use without further testing or modification.

● No offer to sell or license

Nothing in this document may be interpreted or construed as an offer to sell products that is open for acceptance or the grant, conveyance or implication of any license under any copyrights, patents or other industrial or intellectual property rights.

● Trademarks

Notice: All referenced brands, product names, service names, and trademarks are the property of their respective owners.

● Revision History

Version	Date	Page	Description	Author
0.1	2023/08/08		Initial	Rainy