

ILITek TP Tool

User Guide

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Document Revision History

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1.01	2011/4/14	Jay	Update for AP Version V1.1.0.13
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1.03	2011/5/30	Jay	Added Bridge Out-Drawing
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1 Description

ILITek TP Tool supports USB and I²C interface (required ILITek Bridge) and is used for ILITek capacitive touch solution related product.

1.1 System Requirement

- The ILITek capacitive touch-related products.
- RAM at least 2G.
- The operating system of Windows XP or above grade.

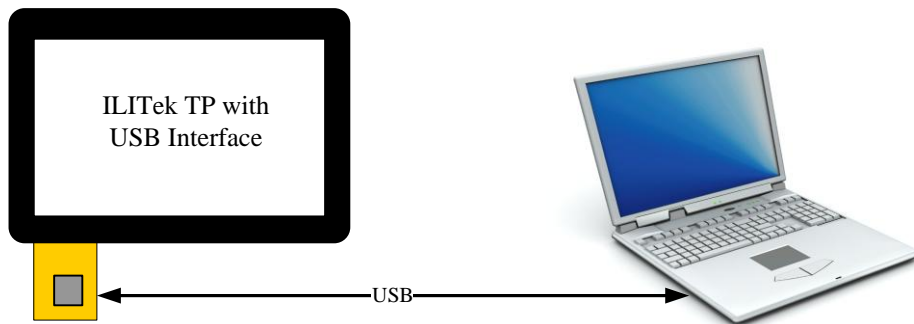


Figure 1-1: System Drawing with USB interface.

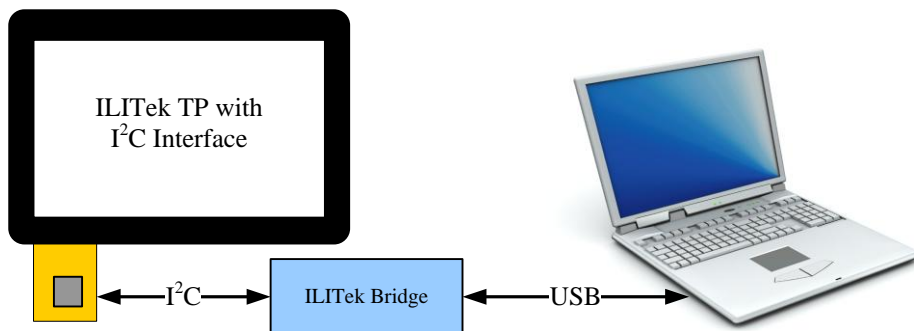


Figure 1-2: System Drawing with I²C interface.

1.2 ILITek Bridge (I²C to USB)

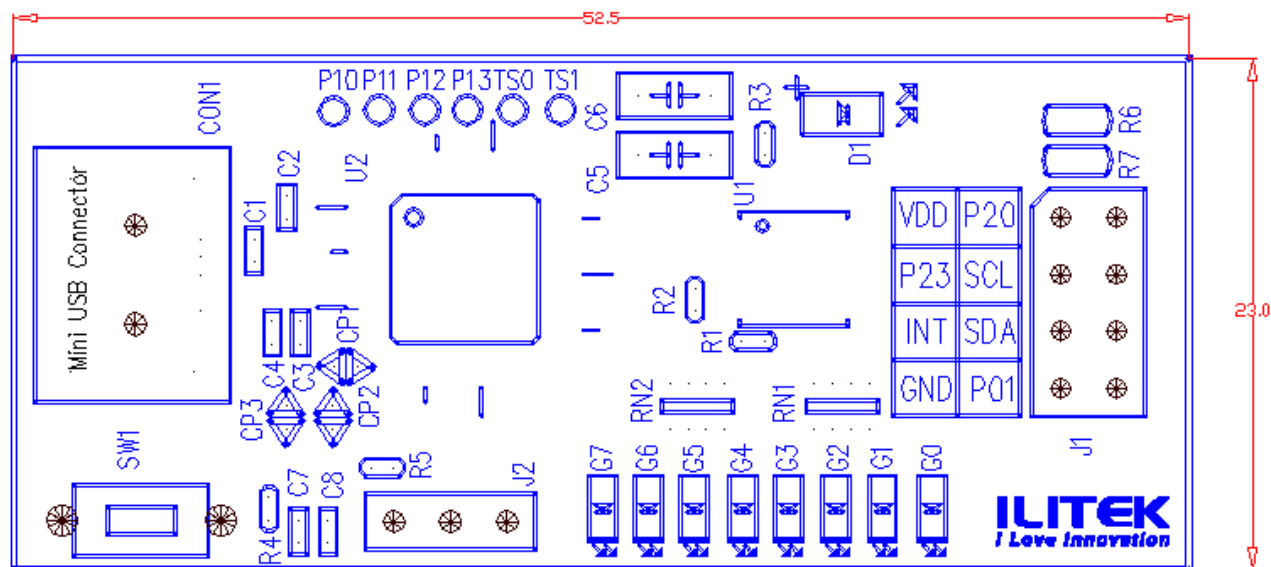


Figure 1-3: ILITek Bridge drawing

- 2-layer FR4 PCB

1.3 Main UI Description

- Legal Notice

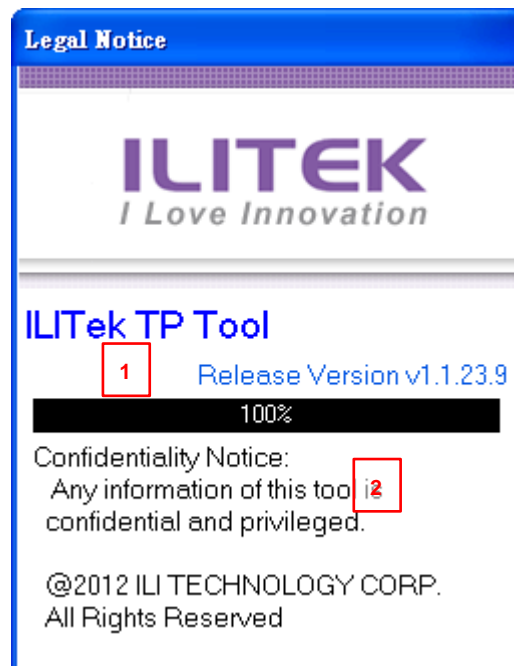


Figure 1-4: Legal Notice

Table 1-1: Detailed explanations of Legal Notice UI

No.	Item	Description
1	Release Version	Software release version
2	Legal Notice	Any information about this tool is confidential and privileged. Do not spread any.

- **Main Form**

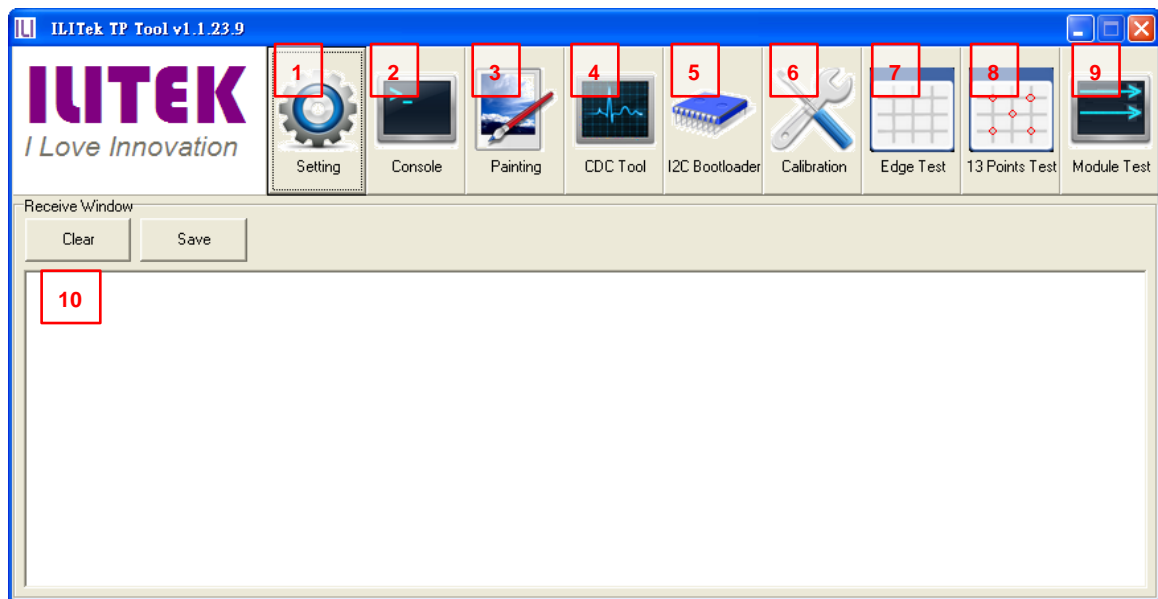


Figure 1-5: Main Form

Table 1-2: Detailed explanations of Main Form UI

No.	Item	Description
1	Setting	Interface setting and function setting
2	Console	Show TP receive data
3	Painting	Painting function
4	CDC Tool	Show CDC data
5	I2C Bootloader	Upgrade I ² C firmware tool
6	Calibration	Mass production calibration tool
7	Edge Test	Single touch painting test in the edge
8	13 Points Test	13 points touch location test
9	Module Test	TP module function test
10	Receive Window	Show receives data

2 Function Description

2.1 Setting

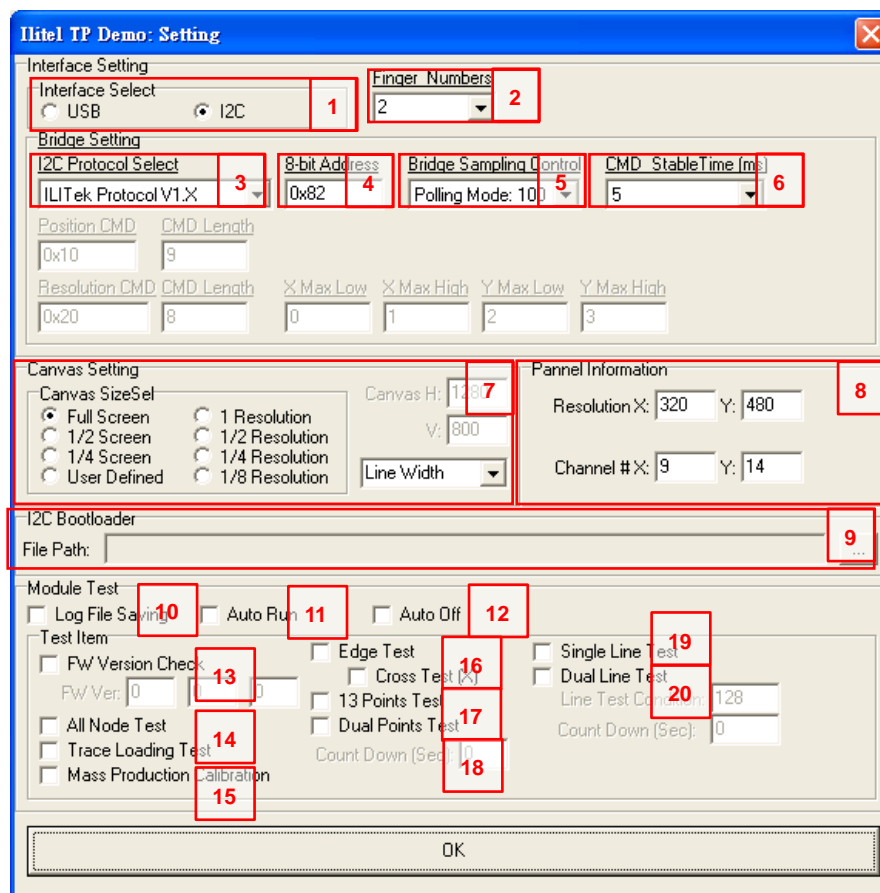
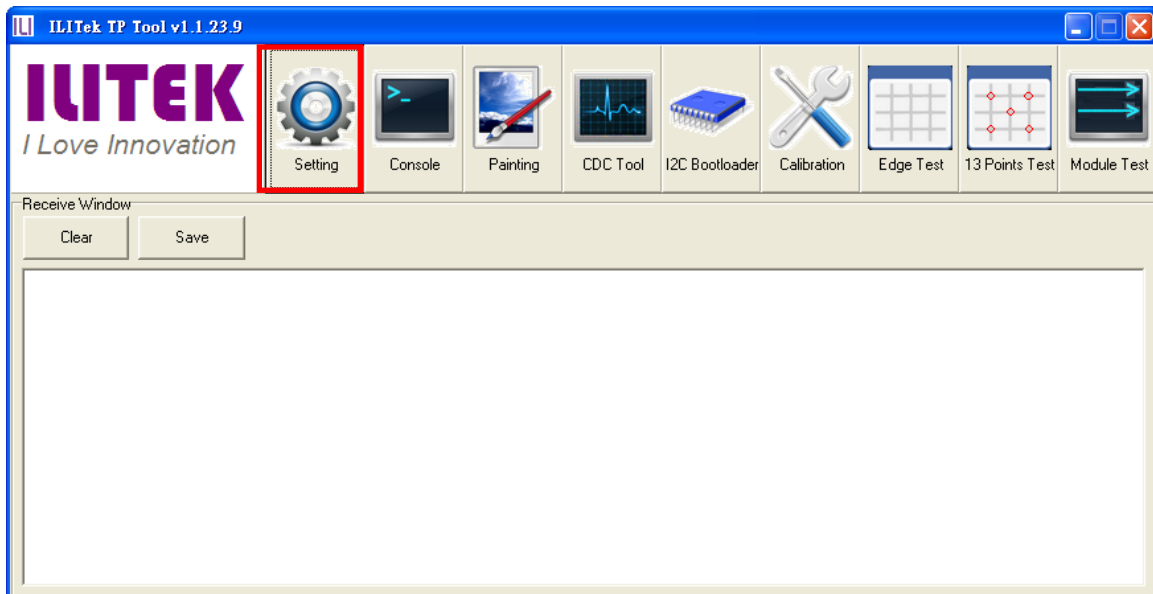


Figure 2-1: Setting

Table 2-1: Detailed explanations of Setting UI

No.	Item		Description
1	Interface Select		USB or I ² C Interface
2	Finger Numbers		Select the maximum finger numbers
3	I ² C Protocol Select	User Define	This item is only supported by ILITek member.
		ILITek Protocol V1X	V1X protocol only maximum support two-finger
		Addr: 0xB8,Length 10 Bytes	Support I ² C address 0xB8 protocol
		MTK V0.81	Support MTK protocol spec. V0.81
		ILITek Protocol V2X	V2X protocol support more than two-finger
		Exxx	Support Exxx protocol spec.
4	8-bit Address		ILITek default value is 0x82; Same as 7-bit I ² C address 0x41
5	Bridge Sampling Control		<p>If $\overline{\text{INT}}$ is using interrupt mode, this item select "Interrupt Mode".</p> <p>Otherwise, the user could select bridge sample timing which the maximum speed is 125Hz</p>
6	CMD Stable Time		Receive command data stabled time. (ILITek suggests more than 15ms.)
7	Canvas Setting	Canvas Size Select	Canvas size selects for Patting Function
		Line Width	Line draws width for Patting Function
8	Panel Information	Resolution	Touch panel resolution
		Channel #	Touch panel channel numbers
9	I ² C Bootloader		I ² C Bootloader default path
10	Log File Saving		AP auto-save the data of message box after module test
11	Auto Run		AP auto-execute "Module Test" function
12	Auto Off		AP auto-off when "Module Test" is finished
13	FW Version Check		Check the firmware version in module test
14	All Nodes Test and Trace Loading Test		Check CDC Value in module test
15	Mass Production Calibration		Execute mass production calibration in module test
16	Edge Test		Execute edge test in module test
17	13 Points Test		Execute 13 points test in module test
18	Dual Points Test		Execute dual points test in module test
19	Single Line Test		Execute single line test in module test
20	Dual Line Test		Execute dual line test in module test

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2.2 Console

ILITek TP Tool supports Console function.

All received data will show in Message Box.

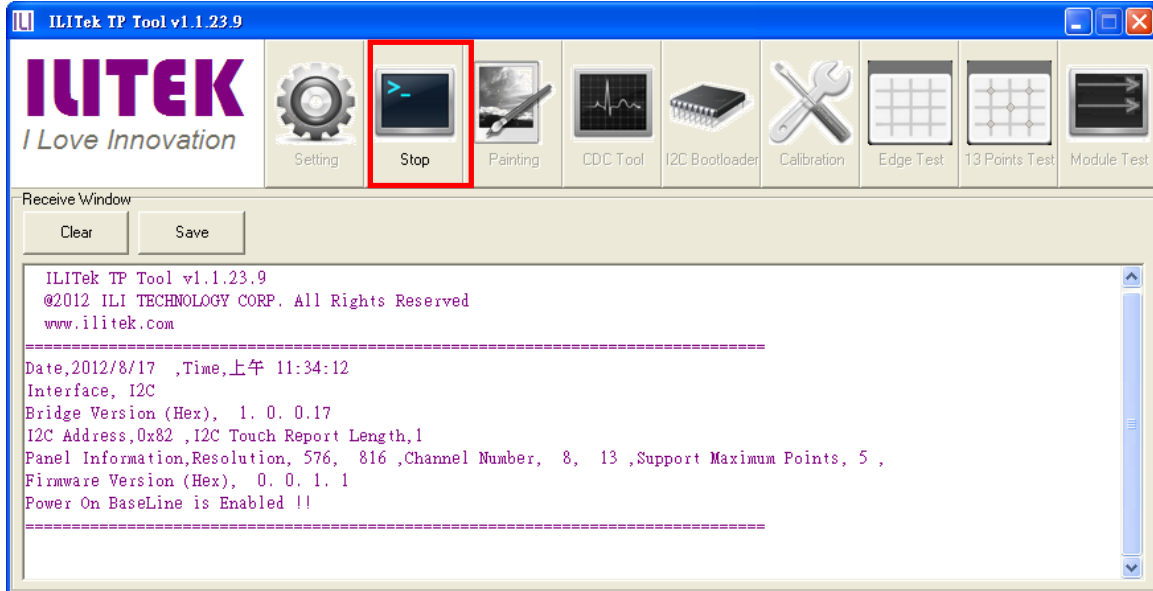


Figure 2-2: Console

2.3 Painting

ILITek TP Tool supports Painting function.

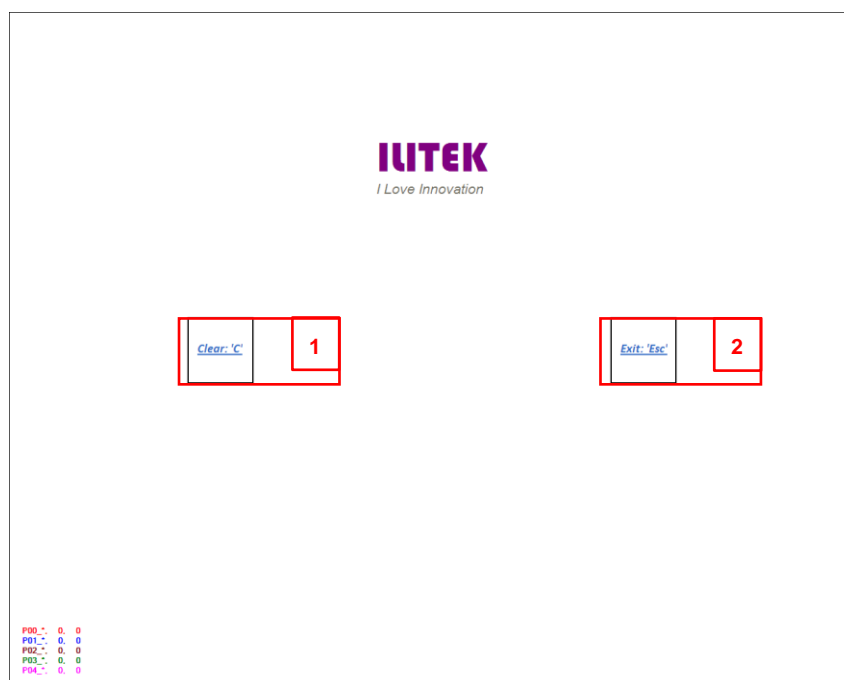
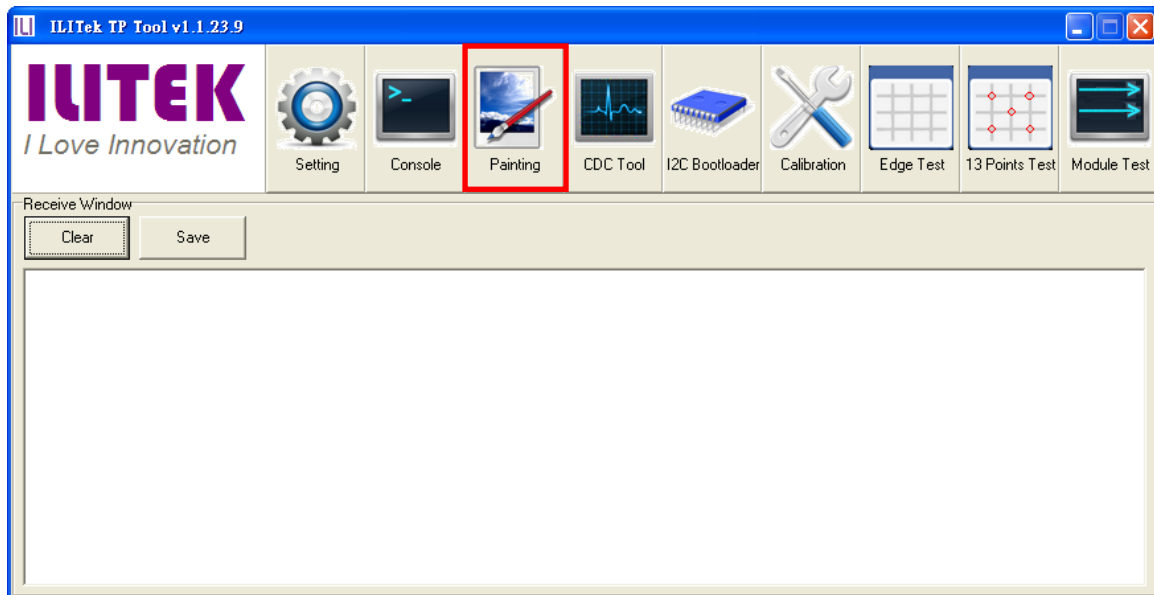


Figure 2-3: Painting

Table 2-2: Detailed explanations of Painting UI

No.	Item	Description
1	Clear : 'C'	User clicks the area, AP will clear the canvas
2	Exit : 'Esc'	User clicks the area, AP will close this function

2.4 CDC Tool

ILITek TP Tool supports CDC function.

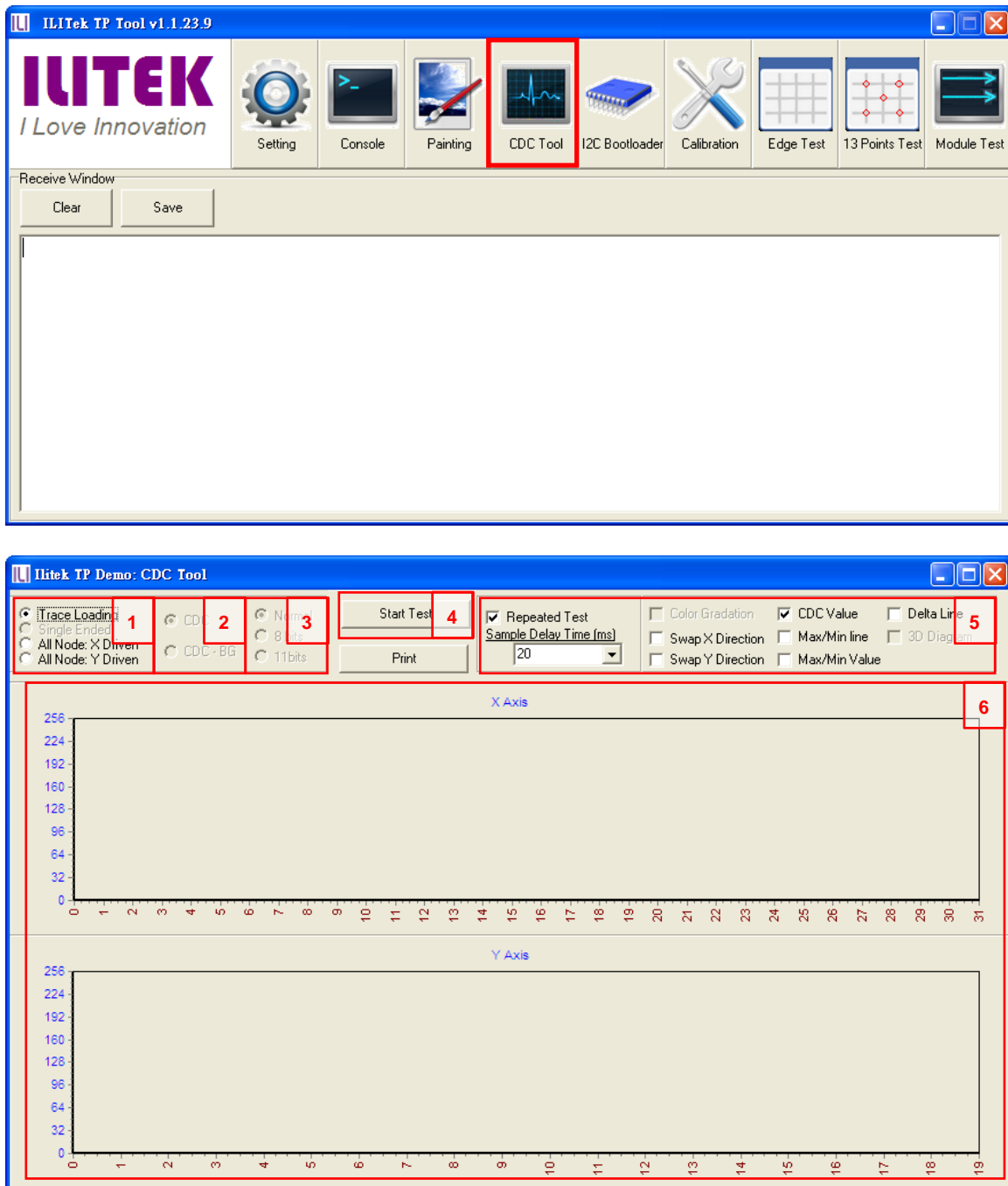


Figure 2-4: CDC Tool

Table 2-3: CDC Tool UI Description

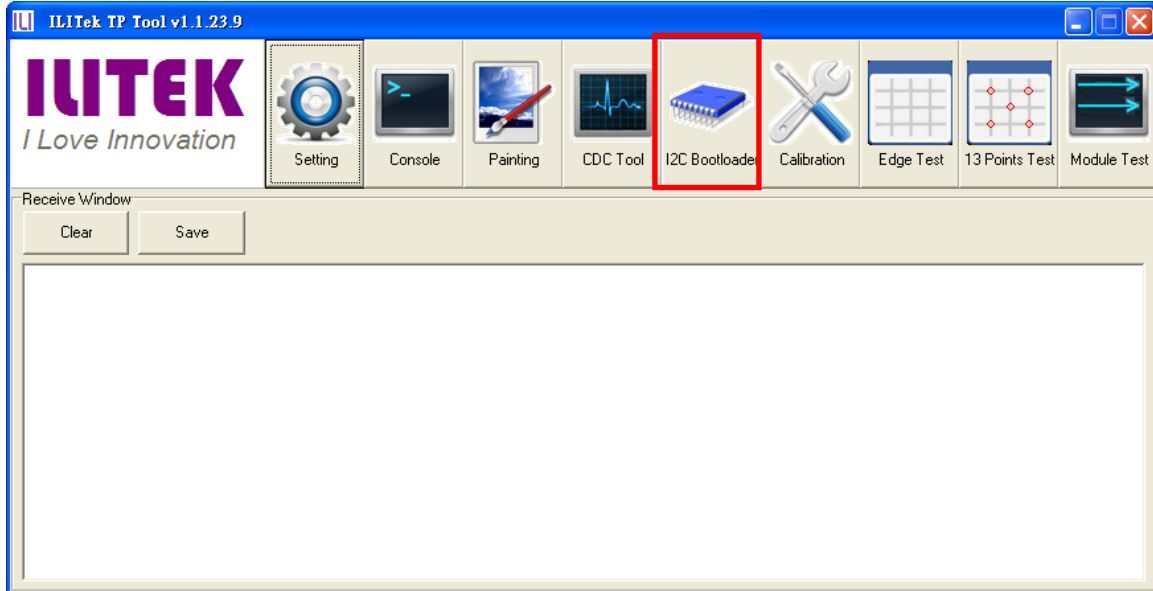
No.	Item		Description
1	Sensing Method		CDC sensing method
2	Data type		CDC data type
3	Data Format		CDC data format
4	Start Test		Start CDC test
5	Test Setting	Repeated Start	Repeat the test
		Sample Delay Time	The sample delay time of every frame
		Color Gradation	Show the result by color gradation
		Swap X Direction	Reverse X axis
		Swap Y Direction	Reverse Y axis
		CDC Value	Show the CDC value
		Max/Min Line	Show the max/min line
		Max/Min Value	Show the max/min value
		Delta Line	Show the delta line
		3D Diagram	Show diagram in 3D
6	Test Result		Show test result in this scope

2.5 I²C Bootloader

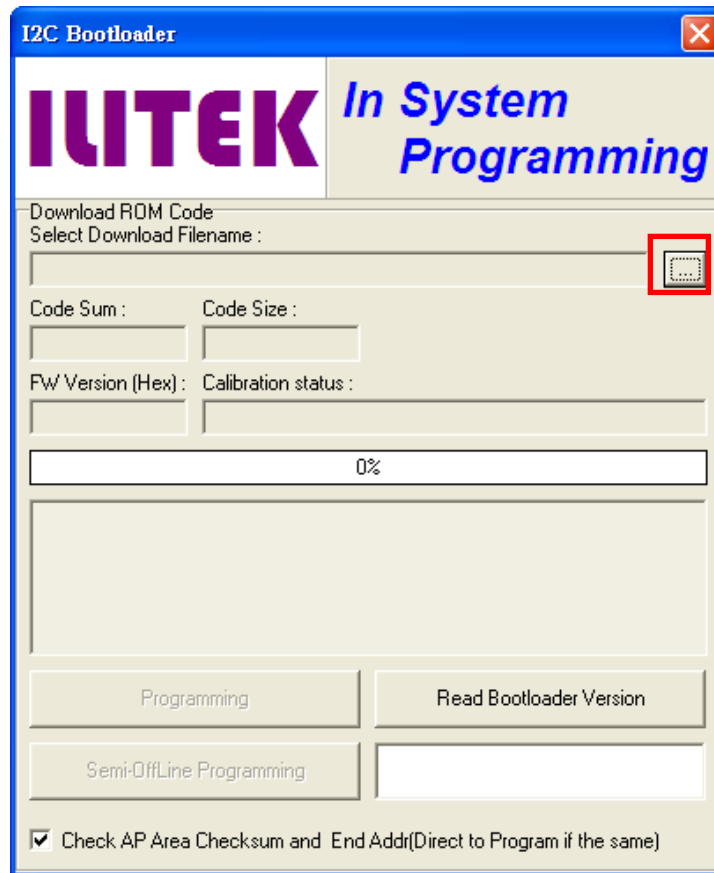
ILITek TP Tool supports I²C Bootloader function. The following steps will show how to program a hex file to IC by online and offline method

2.5.1 I²C Bootloader Online Programming

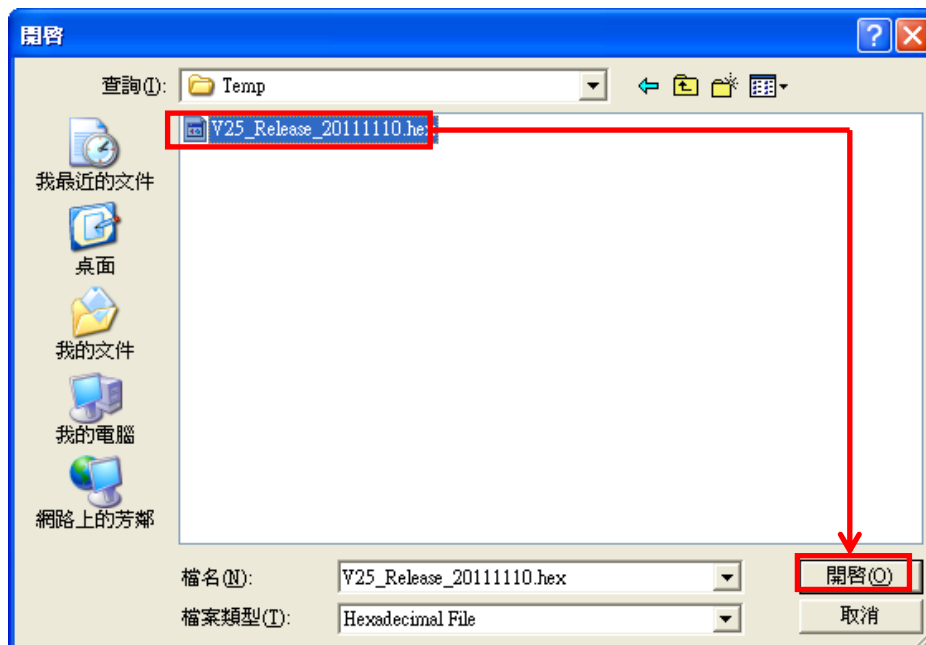
Step 1: Click "I2C Bootloader" button



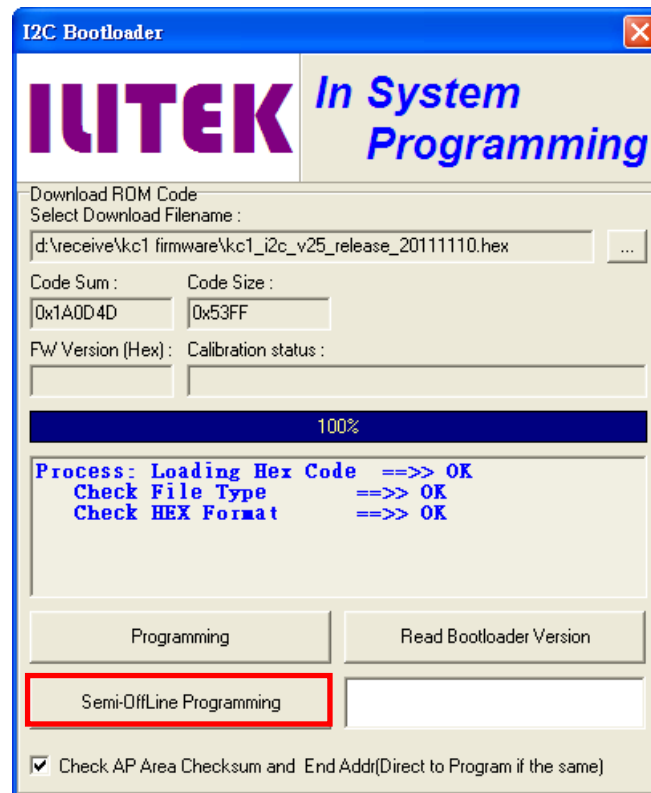
Step 2: Click “...” button



Step 3: Select firmware Hex file



Step 4: Click "Programming" button



Step 5: After the firmware update success, software will show the new firmware version.

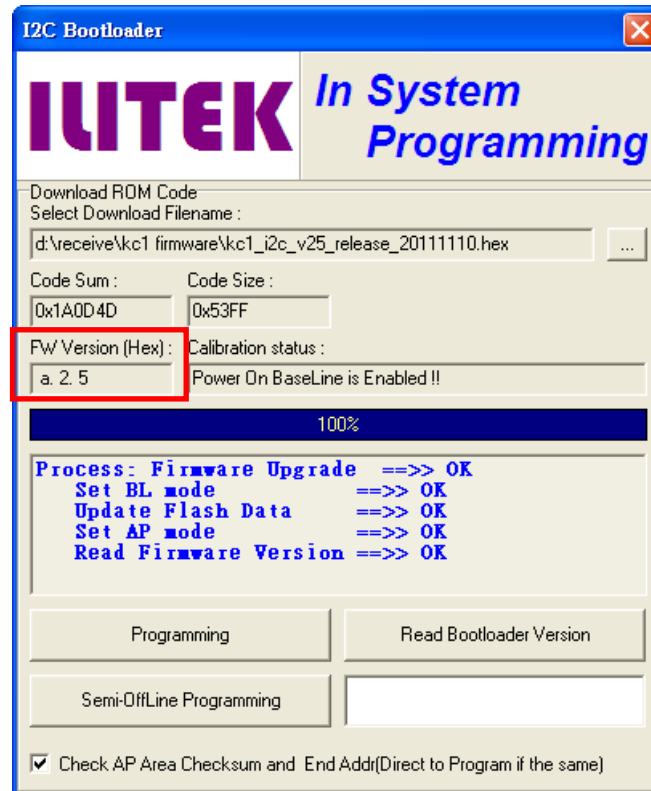


Figure 2-5: I²C Bootloader

Note: When update failed, the software will show the unfinished item. Table 2-4 will explain unfinished items.

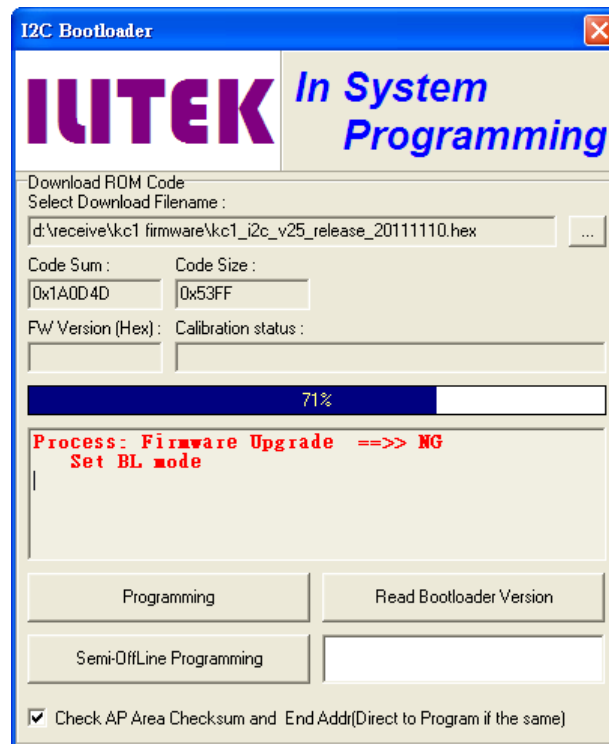


Figure 2-6: Programming failed

Table 2-4: The description of unfinished items

NO.	Item	Description
1	Set BL Mode	Cannot switch into BL mode
2	Process Hex Code	Cannot read programming hex file
3	Update Flash Data	Cannot programming file into IC
4	Set AP mode	Cannot switch into BL mode
5	Read Firmware Version	Cannot read firmware version

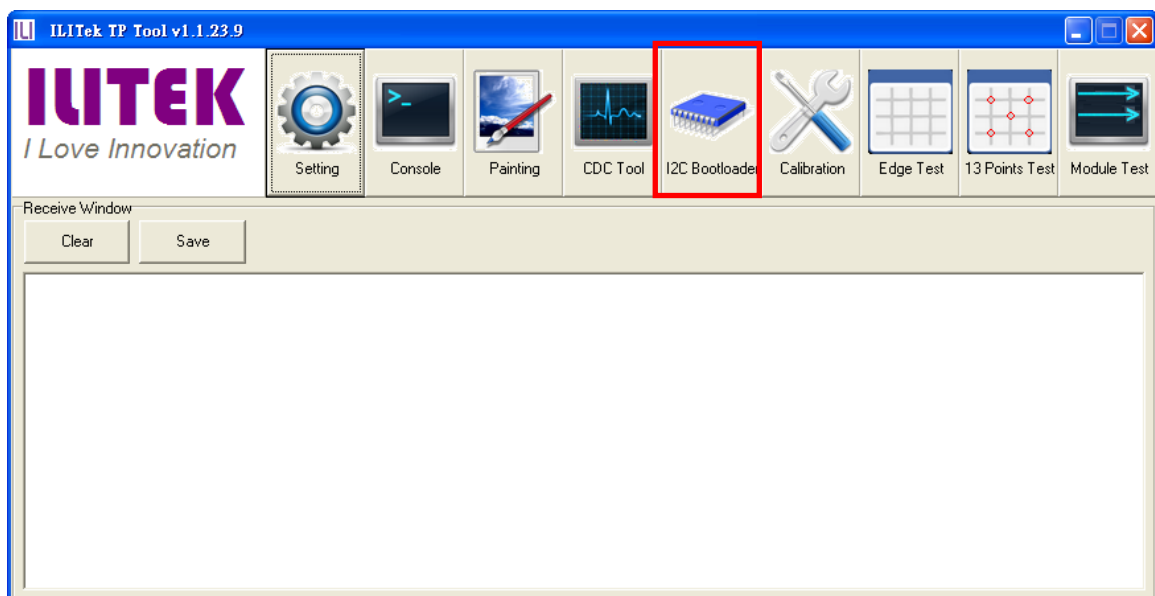
2.5.1 I²C Bootloader Offline Programming

Before offline programming, please make sure bridge version is V4.

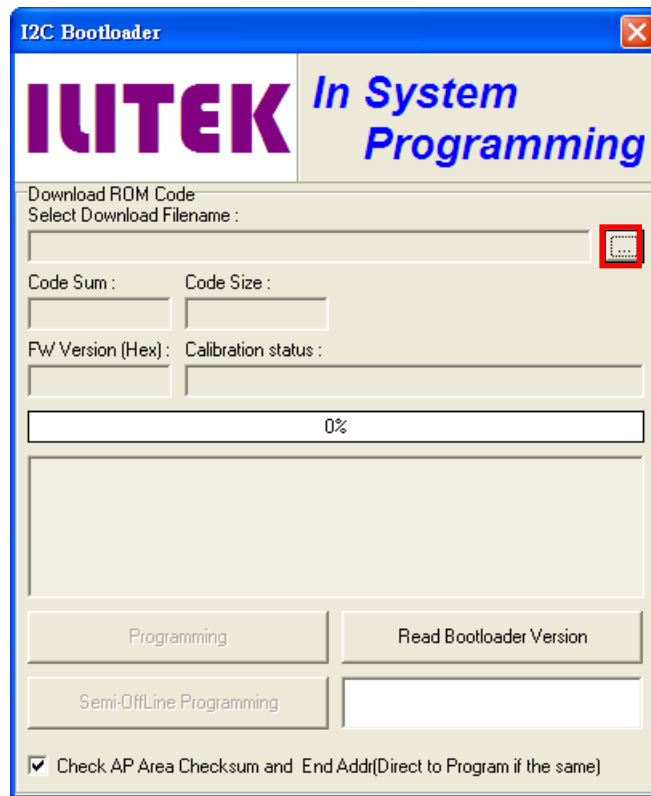


Figure 2-7: V4 Bridge

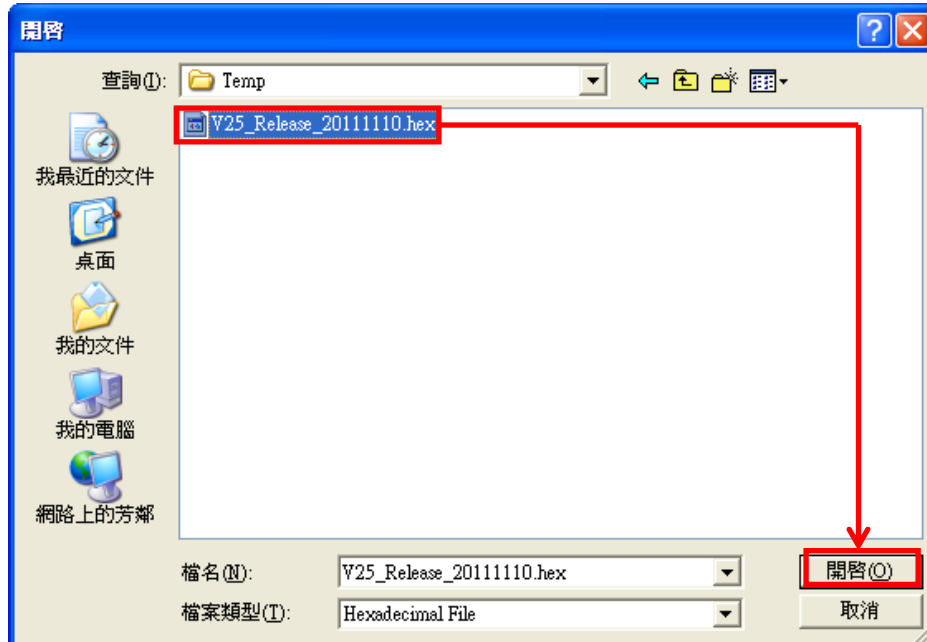
Step 1: Click "I2C Bootloader" button.



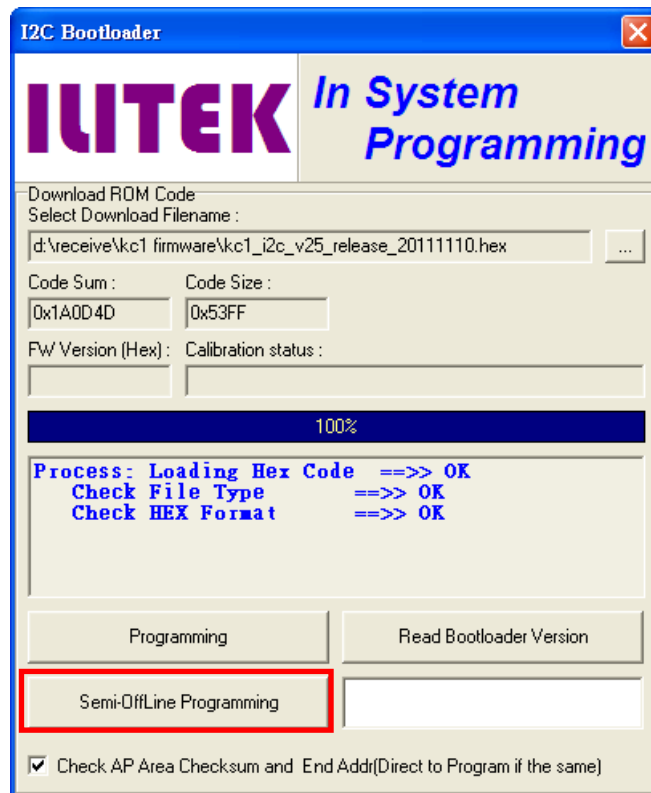
Step 2: Click "...”button.



Step 3: Select firmware hex file



Step 4: Click “Semi-OffLine Programming” button.



Step 5: After the firmware update success, software will show the new firmware version. The firmware hex file has been stored into the bridge.

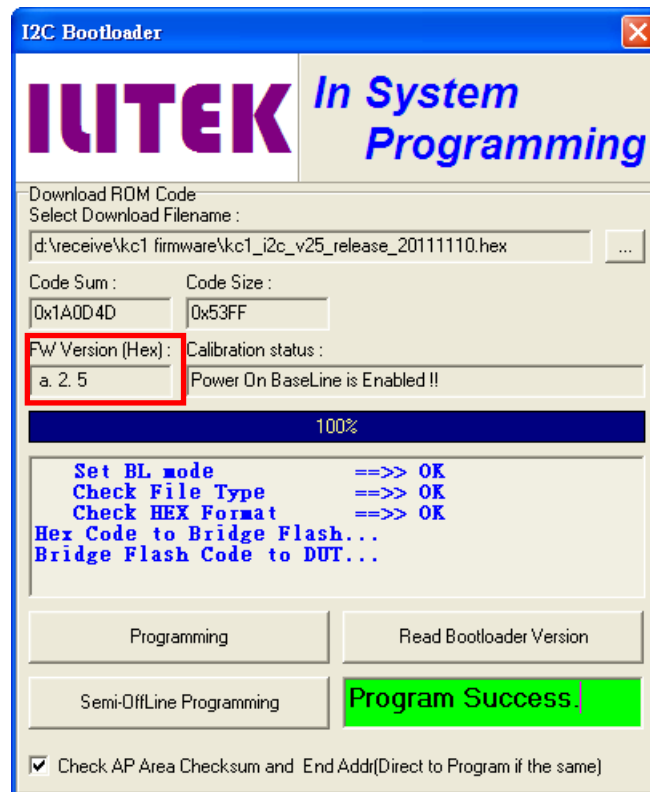
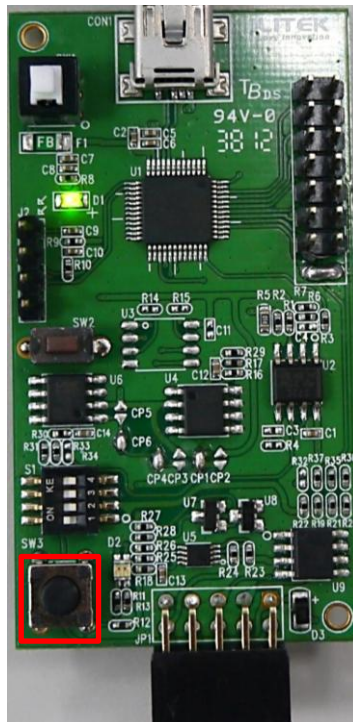


Figure 2-8: I²C Bootloader

Step 6: In the future, just press the button to update firmware.



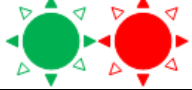






Step 7: Programming success until the programming light are not flashing



Note: During offline programming, bridge will show different lights, Table 2-5 will explain.

Table 2-5: Offline programming light description

Light	Status	Description	Troubleshooting
	Green Light	Programming Success	
	Green Blinking	MCU Kernel Version Is not match	Please confirm IC and firmware version
	Interaction Blinking	Programming	
	Orange Blinking	CheckSum failed	Check SMBus connection and reprogramming
	Orange Light	Start program	
	Red Light	AP/BL Mode switch failed	Check SMBus connection and reprogramming
	Red Blinking	Bridge empty	Use TP tool programming firmware into bridge

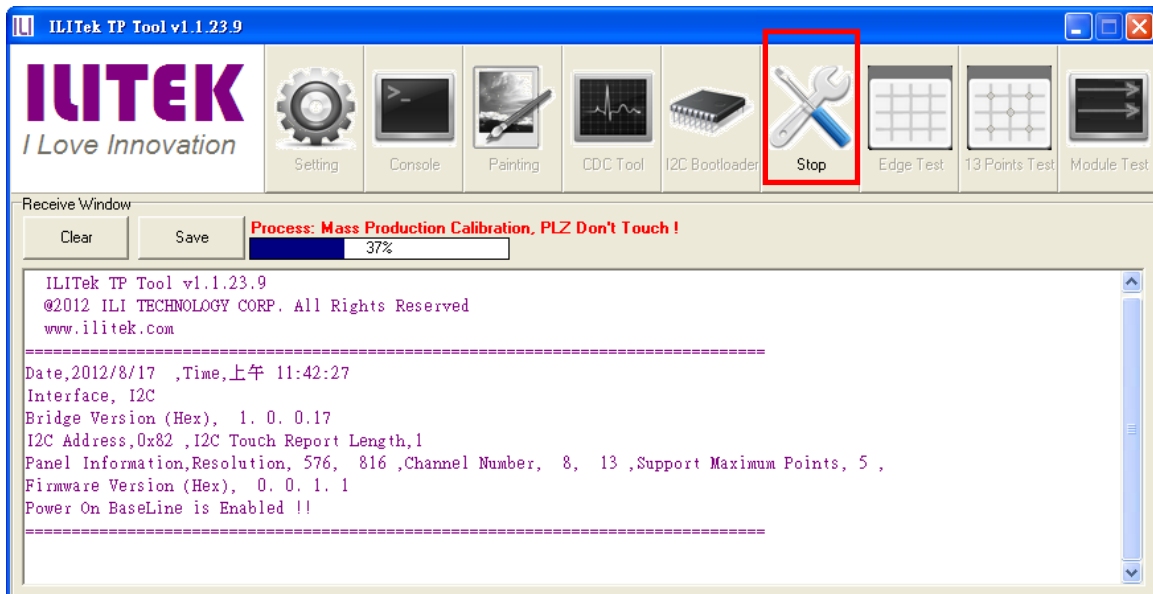
2.6 Calibration

ILITek TP Tool supports Calibration function. The touch panel is calibrated with the system environment.

Note 1: This command is only suggested to be used for mass production purpose.

Note 2: When using this command, it is very important to avoid any touch object surrounding the whole system during the calibrating period.

Note 3: This command need some time to execute. It takes about 7 seconds to be finished.



Message Box will show warning message and calibration finished message.

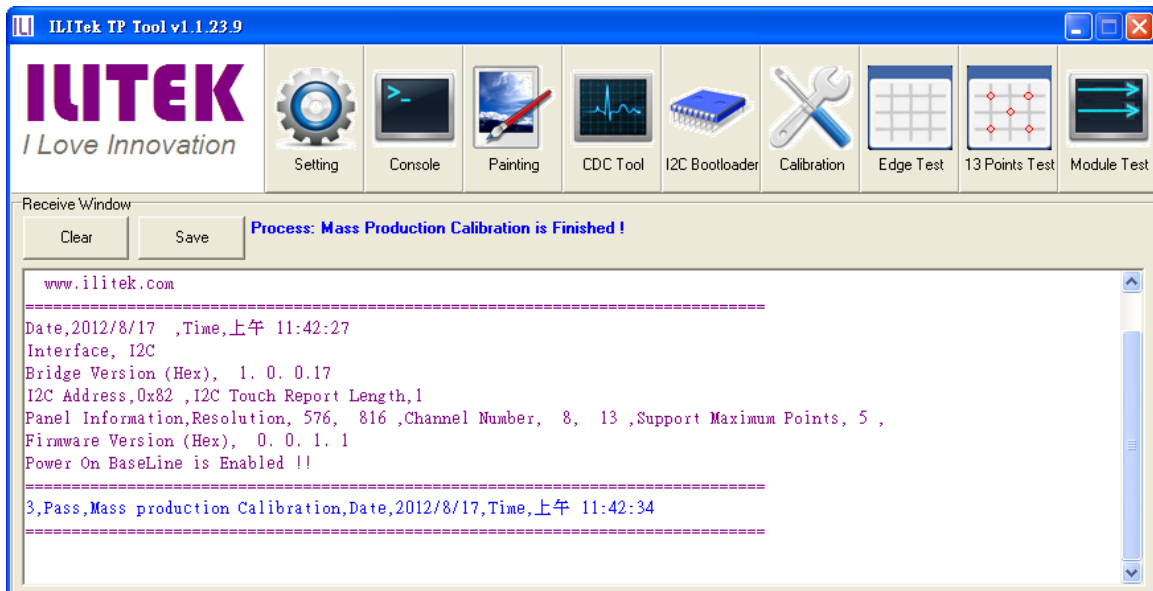
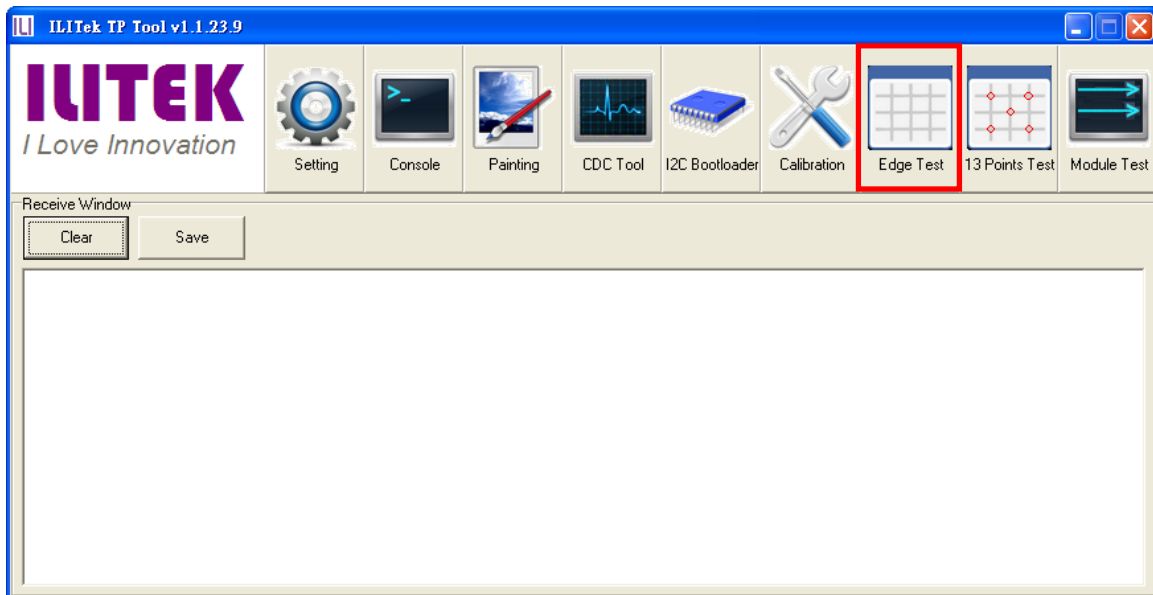


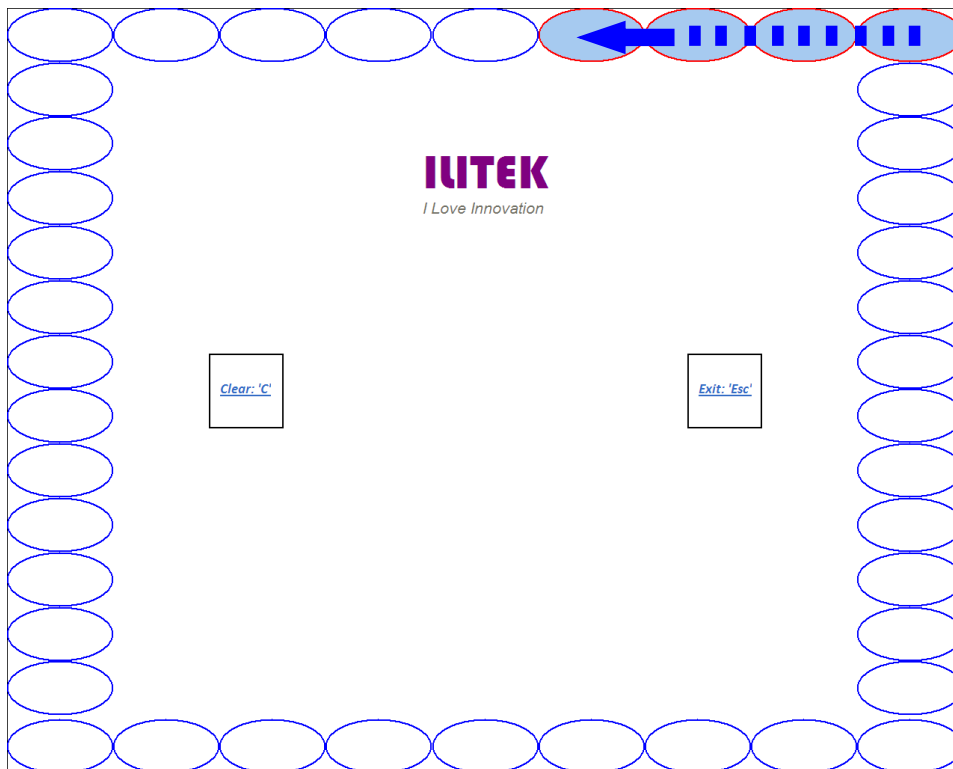
Figure 2-9: Calibration

2.7 Edge Test

ILITek TP Tool supports Edge Test function.



Draw on the blue icon and clean all icons to pass this test.



Message Box will show Pass/Fail result.

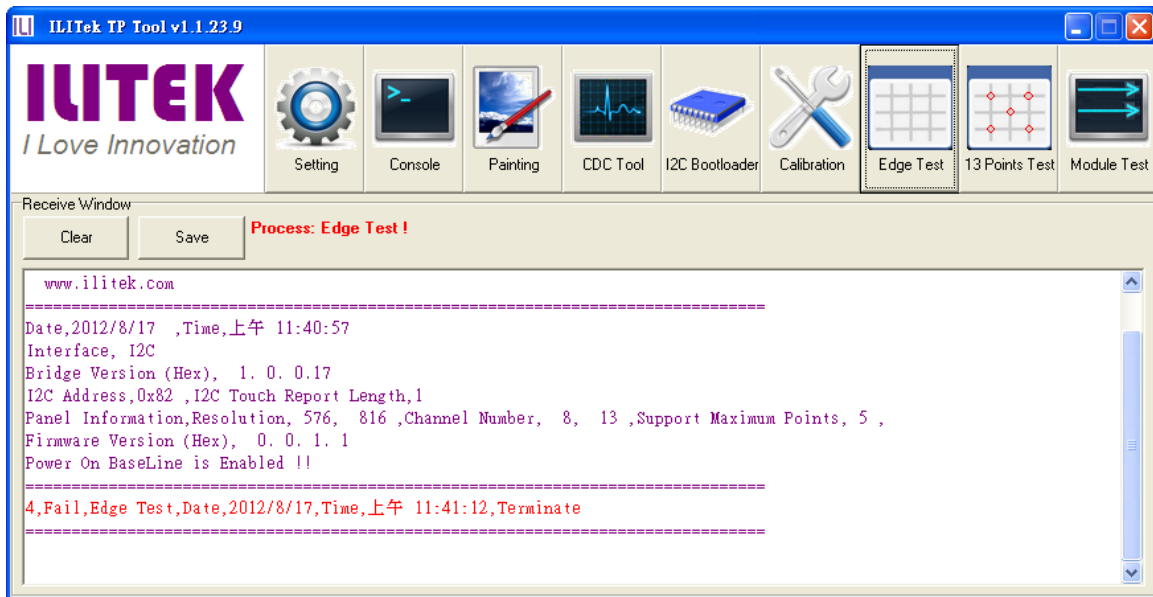


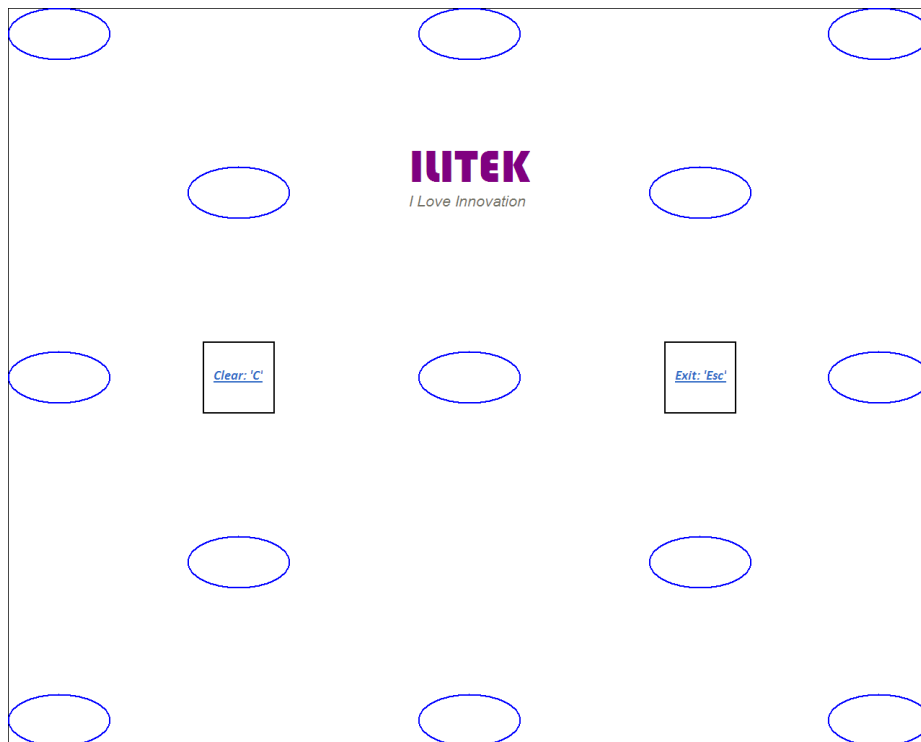
Figure 2-10: Edge Test

2.8 13 Points Test

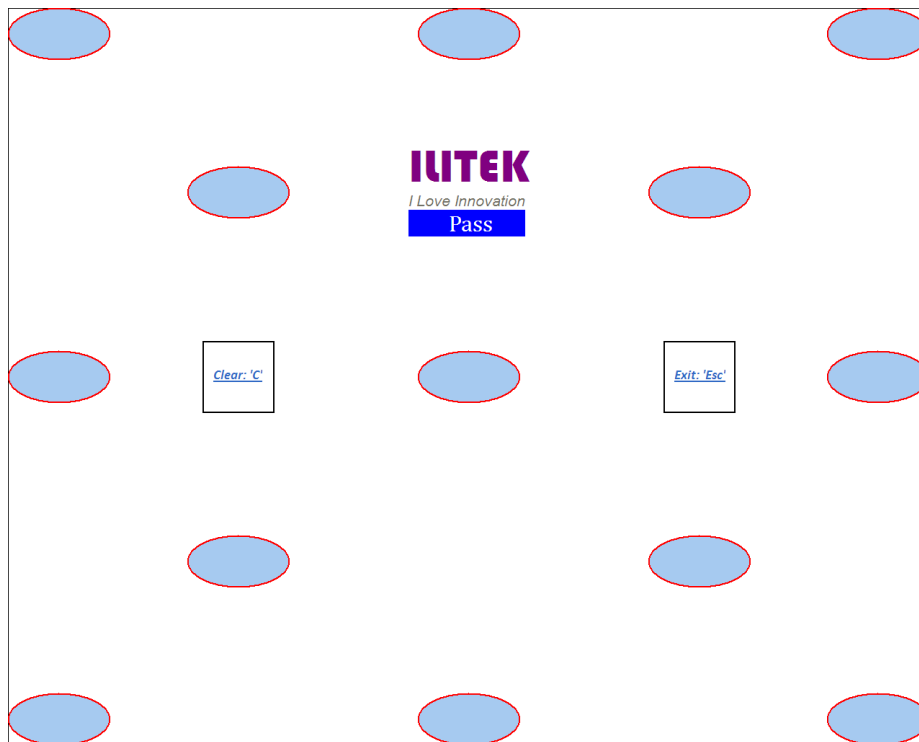
ILITEK TP Tool supports 13 Points Test function. This function is used for test sensor accuracy.



Tap on the blue icon.



Clean all the blue icon will pass.



Message Box will show Pass/Fail result.

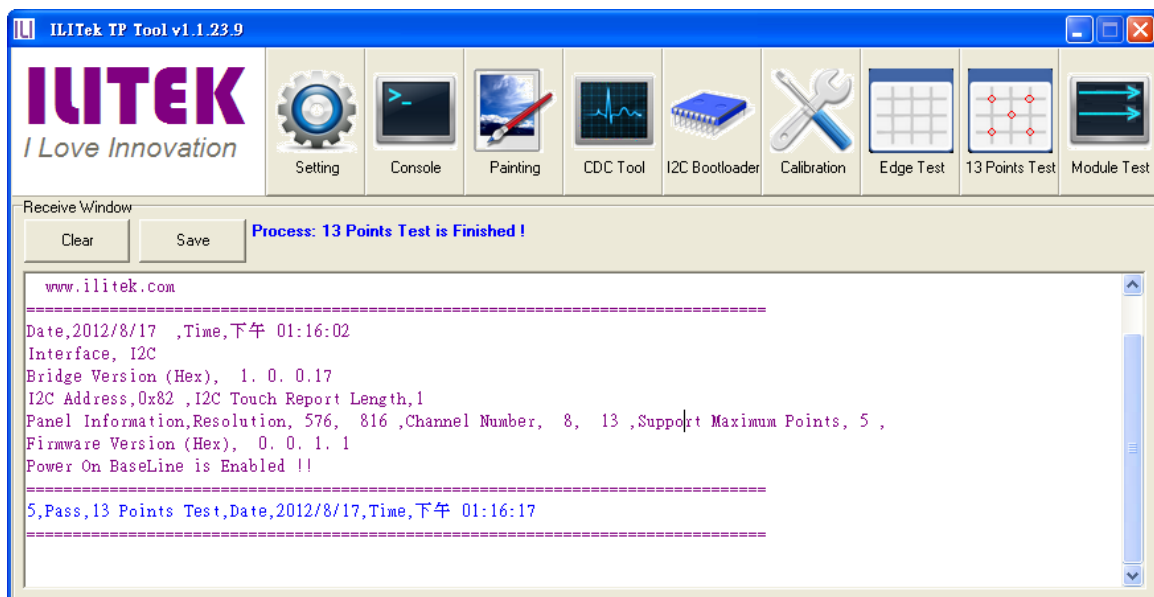


Figure 2-11: 13 Points Test

2.9 Module Test

ILITEK TP Tool supports Module Test function. It supports some of patterns like single line test and dual lines test.

Module Test will execute “FW Version Check” → “All Node Test” → “Trace Loading Check” → “Mass Production Calibration” → “Edge Test” → “13 Points Test” → “Dual-Points Test” → “Single Line Test” → “Dual-Line Test”

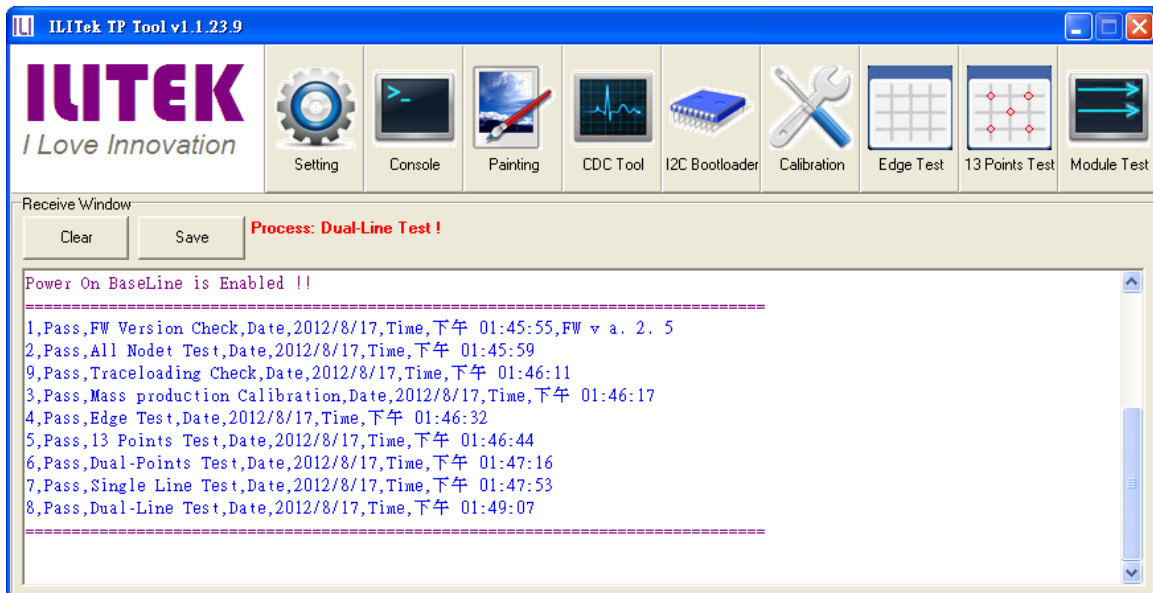
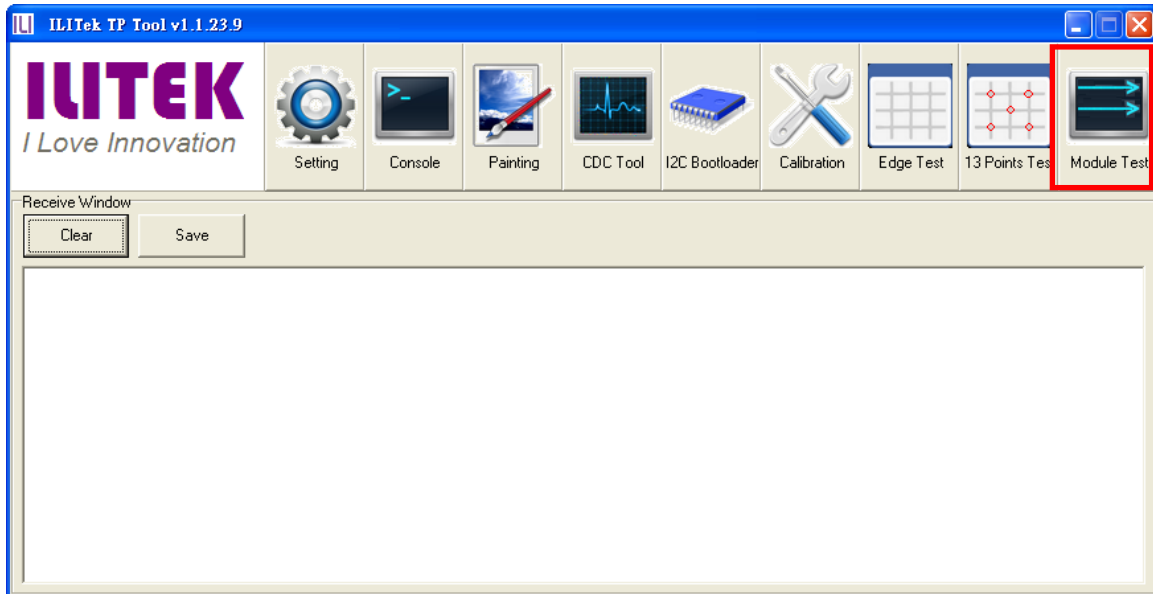


Figure 2-12: Module Test