

2019 Type RS (RS+) series

Service Manual

Version: V1.1, 11/12/2019



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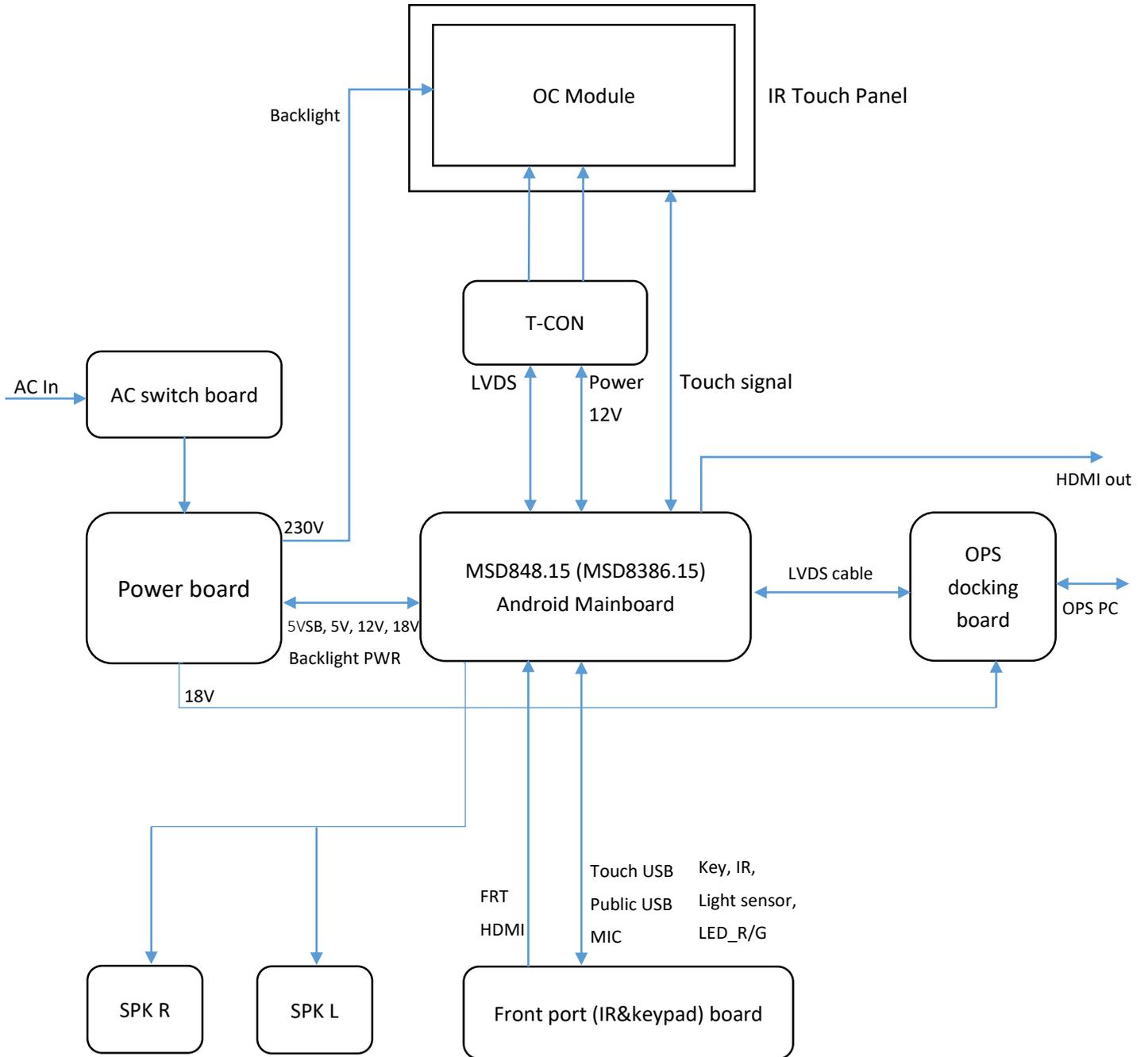
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Safety Nnotice

1. There are many electrical and mechanical parts in the RS series touchscreen, which the technician need pay attention to the safety precaution before repairing.
2. It is essential that all the components should be replaced with the same or authorized components as recommended in this manual to prevent Shock, Fire, or any other Hazards.
3. Please do not modify the original mechanical or electrical design without previous verification from the manufacturer or authorized agent.
4. Before start repairing or disassembling the machine, please make sure unplug the machine from any power source and properly grounded.

Part A. System Diagram



Part B. Recommended Spare Parts List

TT-6519RS RSPL:

Part No.	Part Description	Usage
Initial Parts set		
10503T7AP000006	Power board, MP600T-65P	1
10503T7AC000011	Mainboard TVE.MSD8386.15 V1.2 UHD DDR3GB eMMC1	1
30100T8C9004010	OPS docking board, HHT-OPS_PI3HDX1204B1-4K60HZ FFC-51	1
30100T7AP001010	AC switch board, HHT_AC_SWITCHBOARD_AP6	1
10503T9JM000002	Front port (IR&Keypad) board, RS_19 HDMI1.4 1204B IC	1
10503T7AC000005	65" IR PCB SET, X65H02 (10pcs PCBA)	1
Part list for reference		
10503T5A5000046	T-CON board, 60Hz for AUO T650QVN06.3	1
10403ZZZZ001683	Inner cable, between Power board and Mainboard, 14pin, 500mm	1
10403ZZZZ002225	Inner cable, LVDS cable, between Mainboard to T-CON board, 51pin, 801MM X6+	1
10403ZZZZ001384	Inner cable, between Mainboard and speaker, 2 ports cable, longer side 1290mm shorter side 950mm	1
10403ZZZZ001140	Inner cable, between Power board and OPS docking board, with Magnetic ring, 6pin to 4pin, 330mm	1
10403ZZZZ001487	Inner HDMI cable, HDMI2.0, between Mainboard and Front port (IR&Keypad) board, 900mm	1
10403ZZZZ000905	Inner cable, between AC switch board and Power board, 3pin, 560mm	1
10403ZZZZ001990	Inner cable, between Mainboard and IR Touch mainboard, 2 ports cable, 10pin to 6pin & 8pin, 1190mm	1
10403ZZZZ002179	Inner cable, between Mainboard and Front port (IR&Keypad) board, 920mm	1
10403ZZZZ002180	Inner cable, between Mainboard and 4K OPS board, 51P, FFC cable, 506 MM RS65-848.15	1
10403ZZZZ001875	RS DC power supply cable, 100mm	1
10500T6C6004011	Speaker, 8Ω15W, UY40223B8-10F-B	2
10505T7JC001010	2018 remote controller	1
10500T8I5009020	Double head Magnetic pen, Newline Logo	2
10403ZZZZ000807	USB A-A cable, 3m	1
10403ZZZZ001451	HDMI Cable, 3M	1
10500T6J8007010	WIFI dongle, EDUP AC1602, USB3.0, Dual-band	1

TT-7519RS RSPL:

Part No.	Part Description	Usage
Initial Parts set		
10514T8GP020010	Power board, MP600S-H-75T1 V01	1
10503T7AC000011	Mainboard TVE.MSD8386.15 V1.2 UHD DDR3GB eMMC1	1
30100T8C9004010	OPS docking board, HHT-OPS_PI3HDX1204B1-4K60HZ FFC-51	1
30100T5I3011010	AC switch board, HHT-AC_SWITCHBOARD	1
10503T9JM000002	Front port (IR&Keypad) board, RS_HDMI1.4 1204B	1
10503T7GC000003	75" IR PCB SET, X75H02 (10pcs PCBA)	1
Part list for reference		
10503T5G5000038	T-CON board, 60Hz for AUO T750QVN04.4	1
10403ZZZZ001234	Inner cable, between Power board and Mainboard, 14pin, 1050mm	1
10403ZZZZ002233	Inner cable, LVDS cable, between Mainboard and T-CON board, 51pin, 755mm	1
10403ZZZZ001241	Inner cable, between Mainboard and speaker, 2 ports cable, longer side 1380mm shorter side 500mm	1
10403ZZZZ001386	Inner cable, between Power board and OPS docking board, with Magnetic ring, 6pin to 4pin, 1450mm	1
10403ZZZZ001963	Inner HDMI cable, HDMI2.0, between Mainboard and Front port (IR&Keypad) board, 350mm	1
10403ZZZZ002396	Inner cable, between AC switch board and Power board, 5pin, 130mm	1
10403ZZZZ001992	Inner cable, between Mainboard and IR Touch mainboard, 2 ports cable, 10pin to 6pin & 8pin, 660mm	1
10403ZZZZ002178	Inner cable, between Mainboard and Front port (IR&Keypad) board, 590mm	1
10403ZZZZ002181	Inner cable, between Mainboard and OPS docking board, 51pin, FFC cable, 517 MM RS75-848.15	1
10403ZZZZ001875	RS DC power supply cable, 100mm	
10500T6C6004011	Speaker, 8Ω15W, UY40223B8-10F-B	2
10505T7JC001010	2018 remote controller	1
10500T8I5009020	Double head Magnetic pen, Newline Logo	2
10403ZZZZ000807	USB A-A cable, 3m	1
10403ZZZZ001451	HDMI Cable, 3M	1
10500T6J8007010	WIFI dongle, EDUP AC1602, USB3.0, Dual-band	1

TT-8619RS RSPL:

Part No.	Part Description	Usage
Initial Parts set		
10514T8JP020010	Power board, MP600S-H-86T1 V01	1
10503T7AC000011	Mainboard TVE.MSD8386.15 V1.2 UHD DDR3GB eMMC1	1
30100T8C9004010	OPS docking board, HHT-OPS_PI3HDX1204B1-4K60HZ FFC-51	1
30100T5I3011010	AC switch board, HHT-AC Switch	1
10503T9JM000002	Front port (IR&Keypad) board, RS_HDMI1.4 1204B	1
10503T7JC000004	86" IR PCB SET, X86H02 (12pcs PCBA)	1
Part list for reference		
10503T5J5000014	T-CON board, 60Hz for LC860EQY-FJA4	1
10403ZZZZ001234	Inner cable, between Power board and Mainboard, 14pin, 1050mm	1
10403ZZZZ001504	Inner cable, LVDS cable, between Mainboard and T-CON board, 51pin, 880mm	1
10403ZZZZ001235	Inner cable, between Mainboard and T-CON board, for power supply, 5pin, 900mm	1
10403ZZZZ001241	Inner cable, between Mainboard and speaker, 2 ports cable, longer side 1380mm shorter side 500mm	1
10403ZZZZ001386	Inner cable, between Power board and OPS docking board, with Magnetic ring, 6pin to 4pin, 1450mm	1
10403ZZZZ001963	Inner HDMI cable, HDMI2.0, between Mainboard and Front port (IR&Keypad) board, 350mm	1
10403ZZZZ002396	Inner cable, between AC switch board and Power board, 5pin, 130mm	1
10403ZZZZ001992	Inner cable, between Mainboard and IR Touch mainboard, 2 ports cable, 10pin to 6pin & 8pin, 660mm	1
10403ZZZZ002178	Inner cable, between Mainboard and Front port (IR&Keypad) board, 590mm	1
10403ZZZZ002181	Inner cable, between Mainboard and OPS docking board, 51pin, FFC cable, 517 MM RS75-848.15	1
10403ZZZZ001875	RS DC power supply cable, 100mm	1
10500T6C6004011	Speaker, 8Ω15W, UY40223B8-10F-B	2
10505T7JC001010	2018 remote controller	1
10500T8I5009020	Double head Magnetic pen, Newline Logo	2
10403ZZZZ000807	USB A-A cable, 3m	1
10403ZZZZ001451	HDMI Cable, 3M	1
10500T6J8007010	WIFI dongle, EDUP AC1602, USB3.0, Dual-band	1

Part C. Structure Exploded Diagram

Basically there are 4 layers for RS series structure, they are Outer frame (IR touch panel inside), Tempered glass, OC module (OC panel & Backlight) and PCBAs.

Structure exploded diagram (Zoom in to see details):

RS65:

<https://www.dropbox.com/s/2fj2bp8n9hcj44f/18%E6%AC%BE%E6%B5%B7%E5%A4%96RSx65%E7%88%86%E7%82%B8%E5%9B%BE.pdf?dl=0>

RS75

<https://www.dropbox.com/s/kadzcl3y1vshgz1/18%E6%AC%BE%E6%B5%B7%E5%A4%96RSx75%E7%88%86%E7%82%B8%E5%9B%BE.pdf?dl=0>

RS86:

<https://www.dropbox.com/s/n9cvebi2vqlgynv/18%E6%AC%BE%E6%B5%B7%E5%A4%96RSx86%E7%88%86%E7%82%B8%E5%9B%BE.pdf?dl=0>

Part D. OC module & IR touch PCBA Disassembly & Reassembly

A. Operation video of replacing OC module:

https://www.dropbox.com/s/oqlbsha5d6j2s3k/2018%20OEM_OC%20module_Disassembly%20%26%20Reassembly.mp4?dl=0

Operations involved in the above video:

1. Take off rear covers, remove all PCBAs and cables on the OC back cover.
2. Take off defect OC module from the defect screen.
3. Take new OC module (no outer frame) from new OC module (with outer frame) and put it on the defect screen.
4. Put back all PCBAs and cables on the new OC module, fix all of them and install the rear covers, power on to test it.
5. Throw away the defect OC module and the outer frame of new OC module.

Note:

1. The above step 2-3 had better be done in a dust-free plant to avoid the dust stick onto the tempered glass or OC module surface.

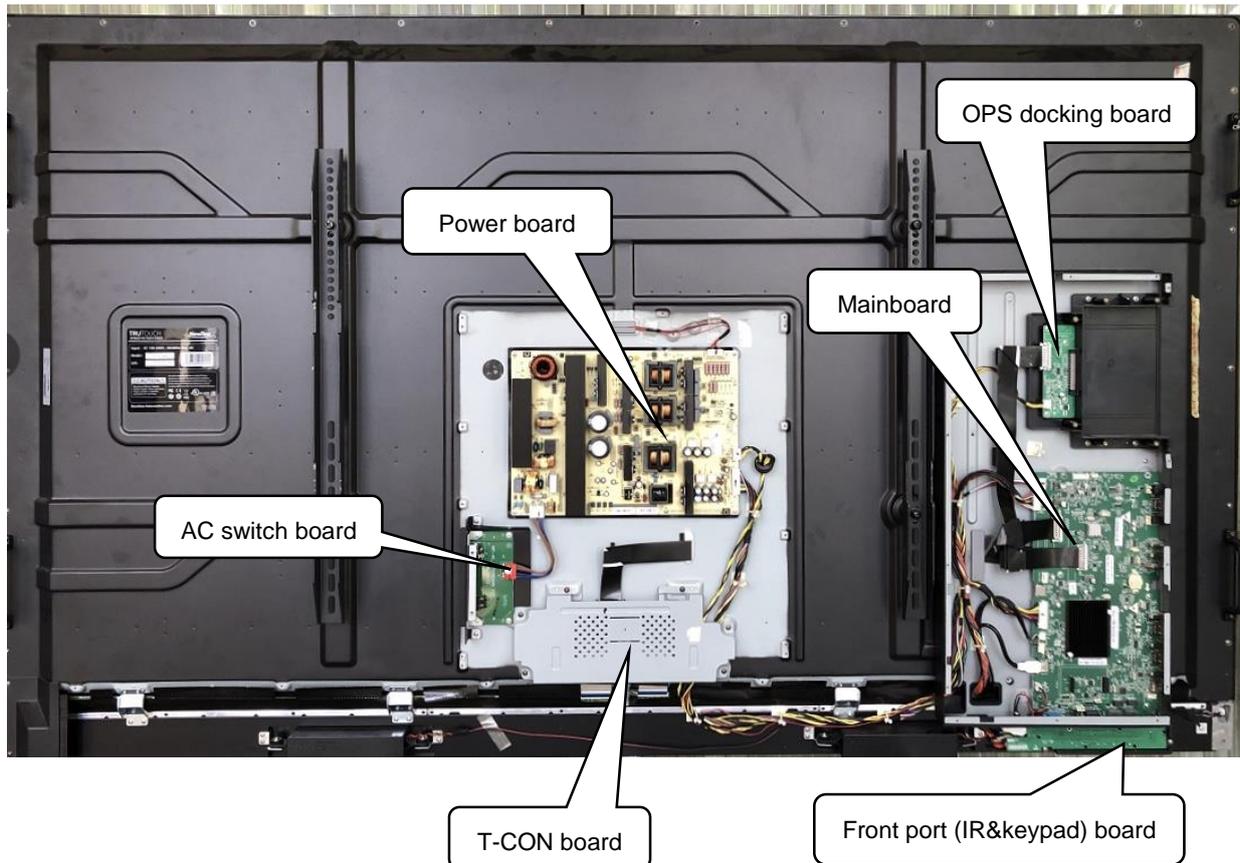
B. Operation video of disassembling and reassembling IR touch PCBAs:

https://www.dropbox.com/s/vwmeazi4wgpcswk/2018%20OEM_IR%20PCB%20SET_Disassembly%20%26%20Reassembly.mp4?dl=0

Operations involved in the above video:

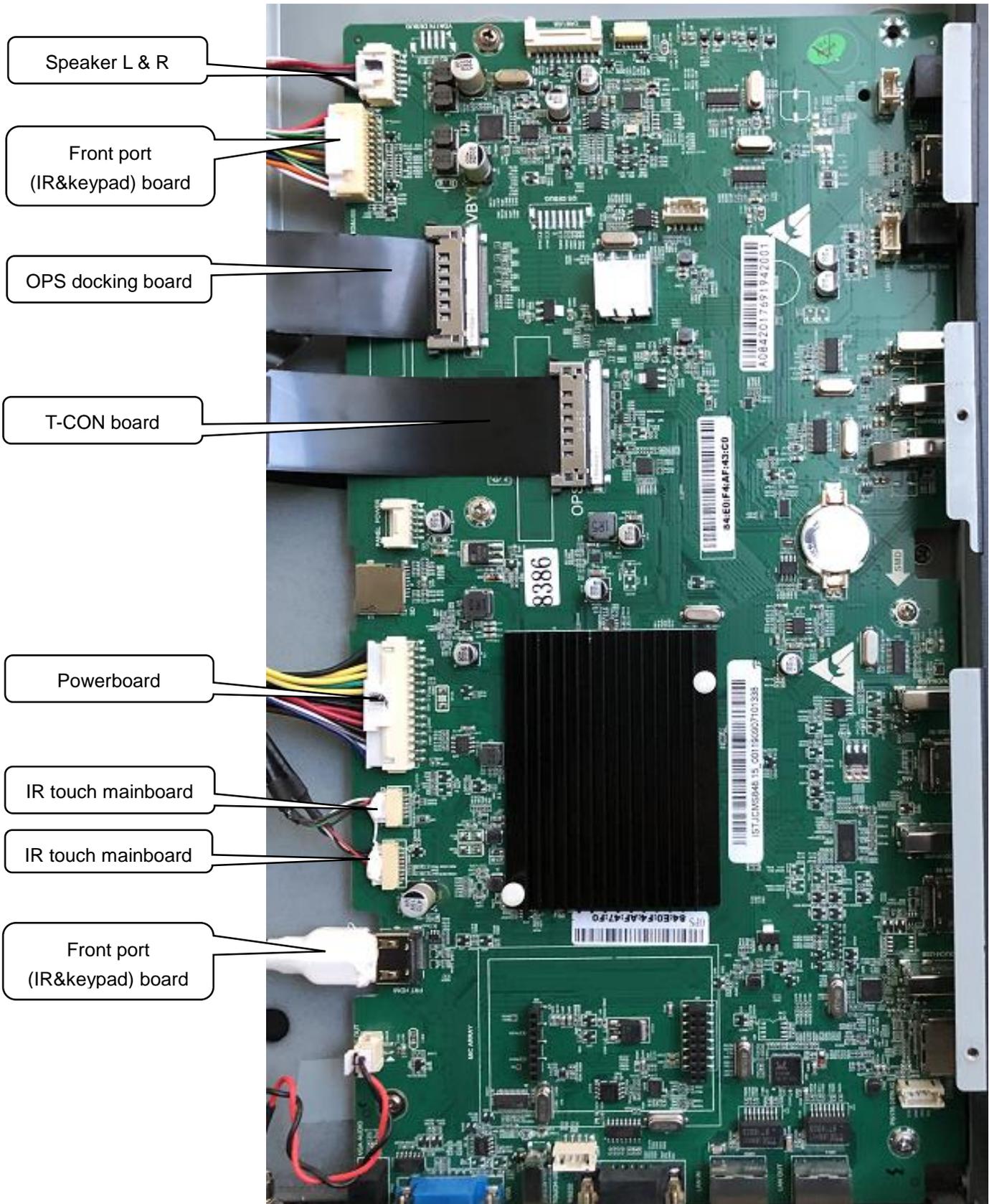
1. Take off 4 corner covers, there is no connection in the upper-right corner in front view, from right to left to remove upper IR PCBAs, from bottom to up to remove the left and right side IR PCBAs, from right to left to remove the bottom side IR PCBAs.
2. According to IR PCBA layout and refer to above opposite order to insert the 4 frames IR PCBAs.
3. Connect the bottom-left, bottom-right and upper-left corner PCBA, pay attention not to bend the contact pins, assemble the 4 corner covers.

Part E. PCBA Overviews

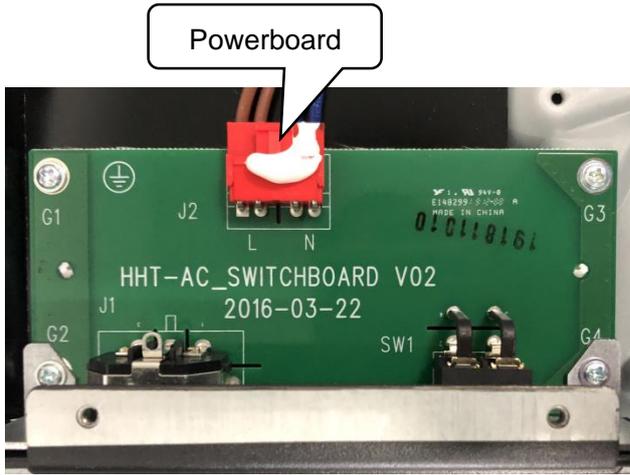


Note: IR PCB SET is in the outer frame, not show on the above picture.

1. Mainboard wiring



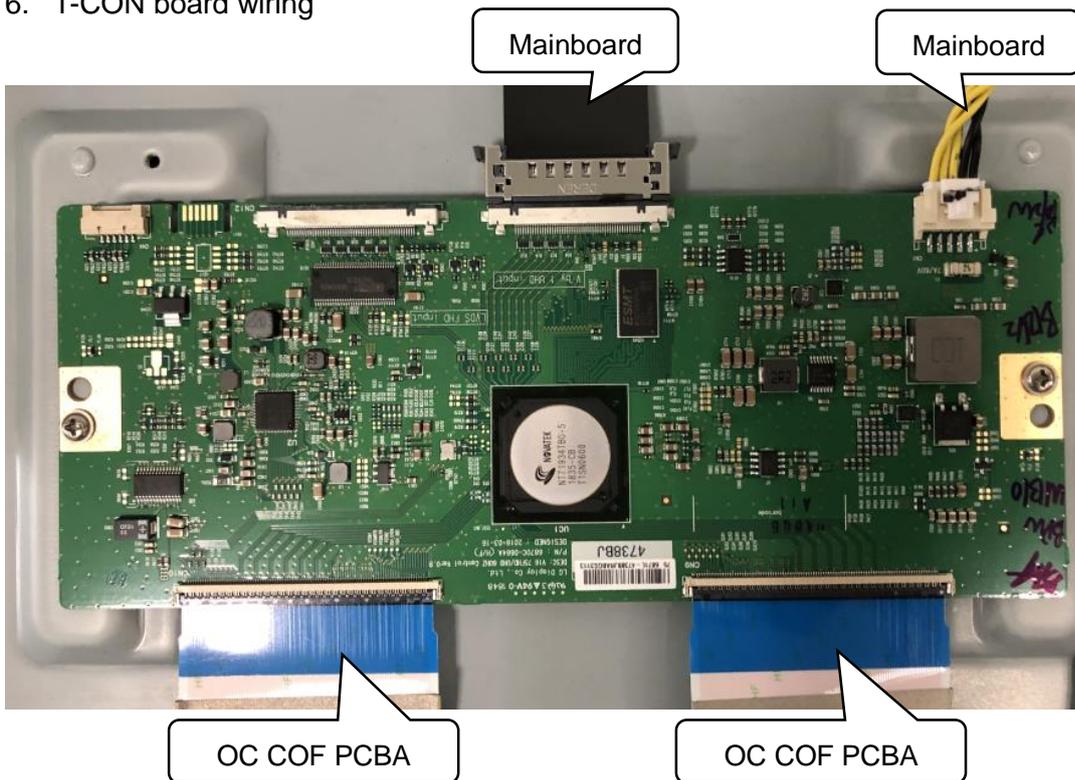
4. AC Switch board wiring



5. Front port (IR&Keypad) board wiring



6. T-CON board wiring



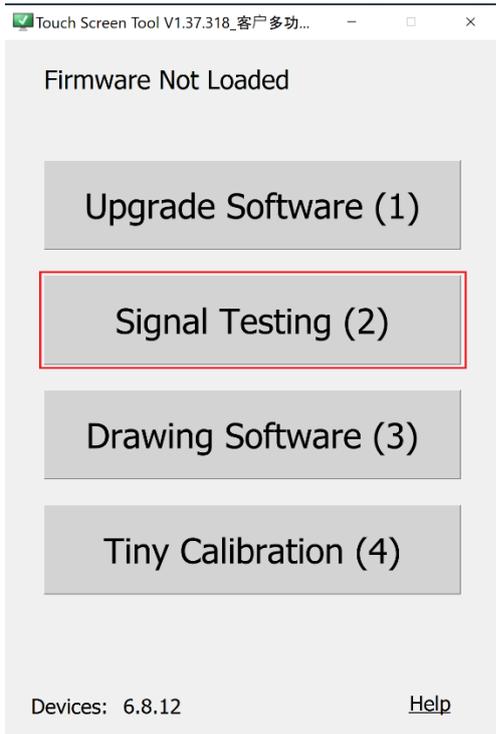
Part F. IR Touch Panel Signal Test

Step 1: Switch to Windows source.

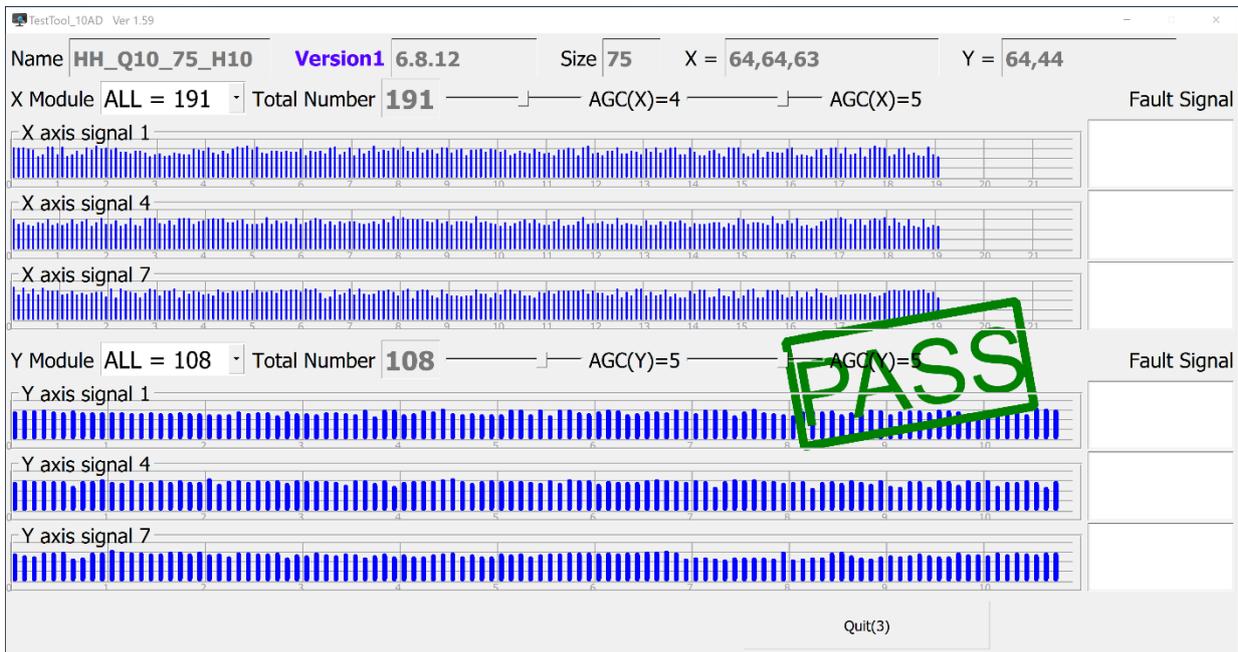
Step 2: Double click “TouchTestTool_1.37.318_for U and X.exe” to run it.

https://www.dropbox.com/s/exnvu5coqjssnq/TouchTestTool_1.37.318_for%20U%20and%20X_20190801.rar?dl=0

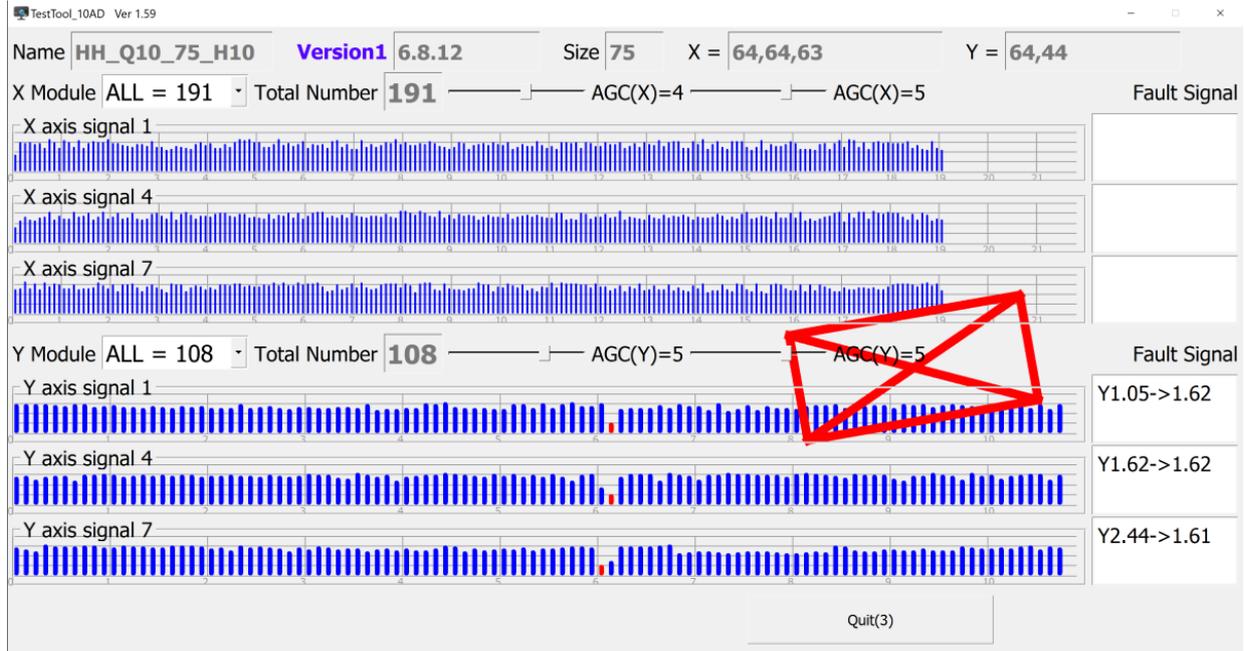
Step 3: Click the second option to start the signal testing.



Step 4: If the hardware is good, the testing tool will show “PASS” result as below.



If the hardware has some problem, you may will get error report such as below:



*It may will not affect the writing performance, if yes, don't need to repair it.

Note: If problem still present, please take picture or screen shoot the testing result to us for analysis.

Part G. Replace OC module (OC panel & backlight)

Refer to chapter A of Part D.

Part H. Clean dirt or condensation behind the tempered glass

Step 1. Refer to chapter A of Part D to remove the OC module.

Step 2. Check panel and glass surface to find where the dirt or condensation is.

Step 3. Use a dustless cloth under a strong light source to wipe it.

Note: If possible, these operation had better be done in a dust-free plant, if there is no dust-free plant available, a clean meeting room is recommended.

Part I. Replace Outer Frame (Front frame)

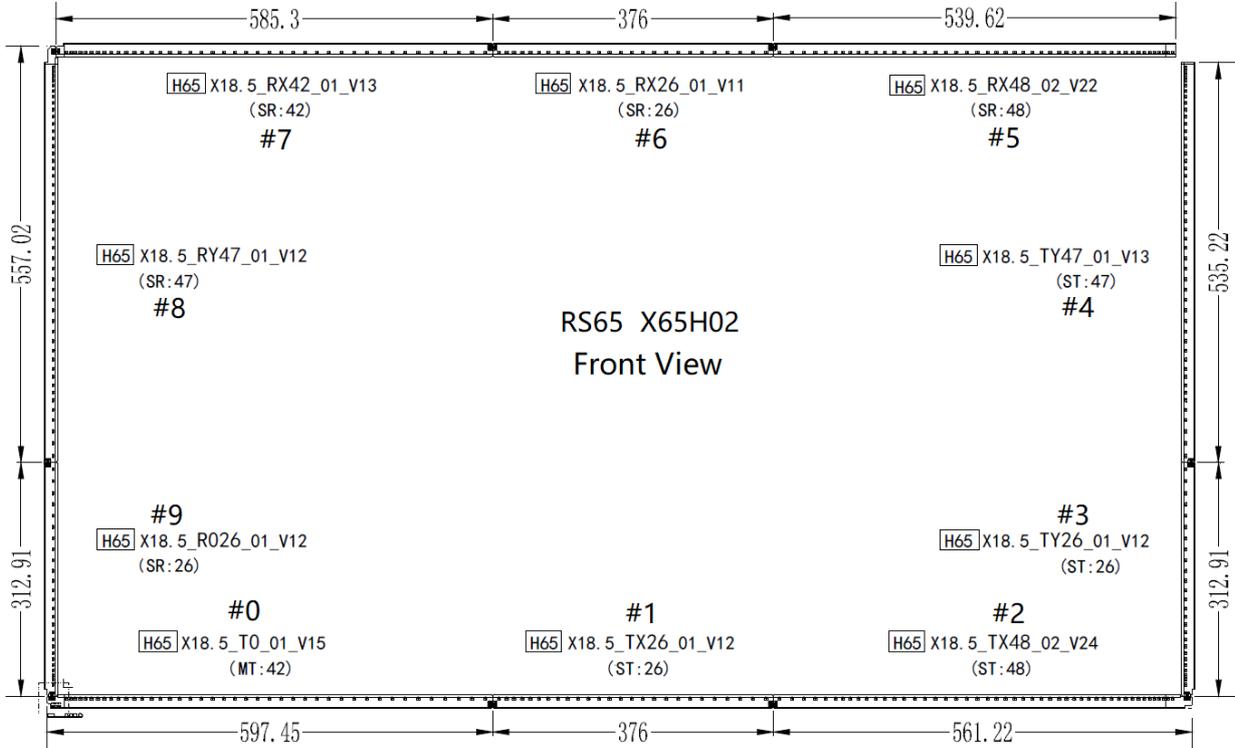
Refer to chapter A of Part D, remove the OC module, remove the tempered glass, then you can disassemble the outer frame and replace anyone of the outer frame.

Note: Pay attention to take out the IR PCB from original outer frame to new frame.

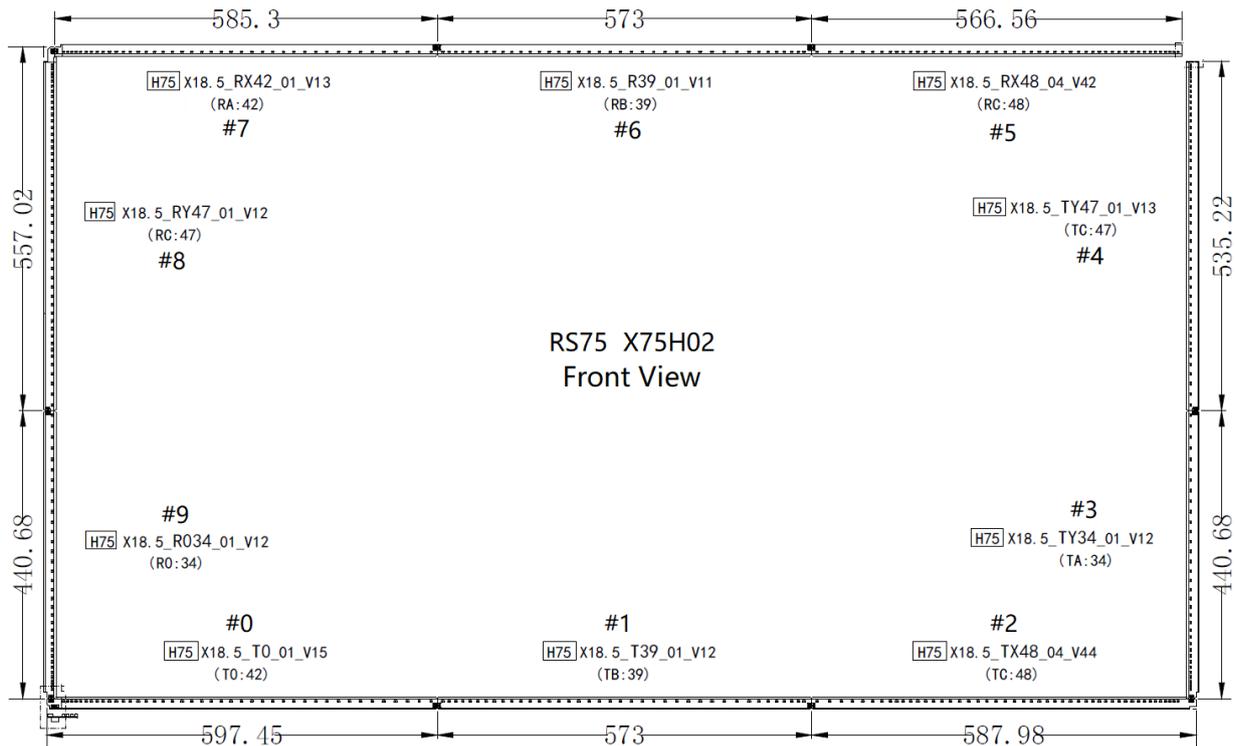
Part J. Replace IR Touch Panel Sensor PCBAs

Please see the chapter B of Part D before operation.

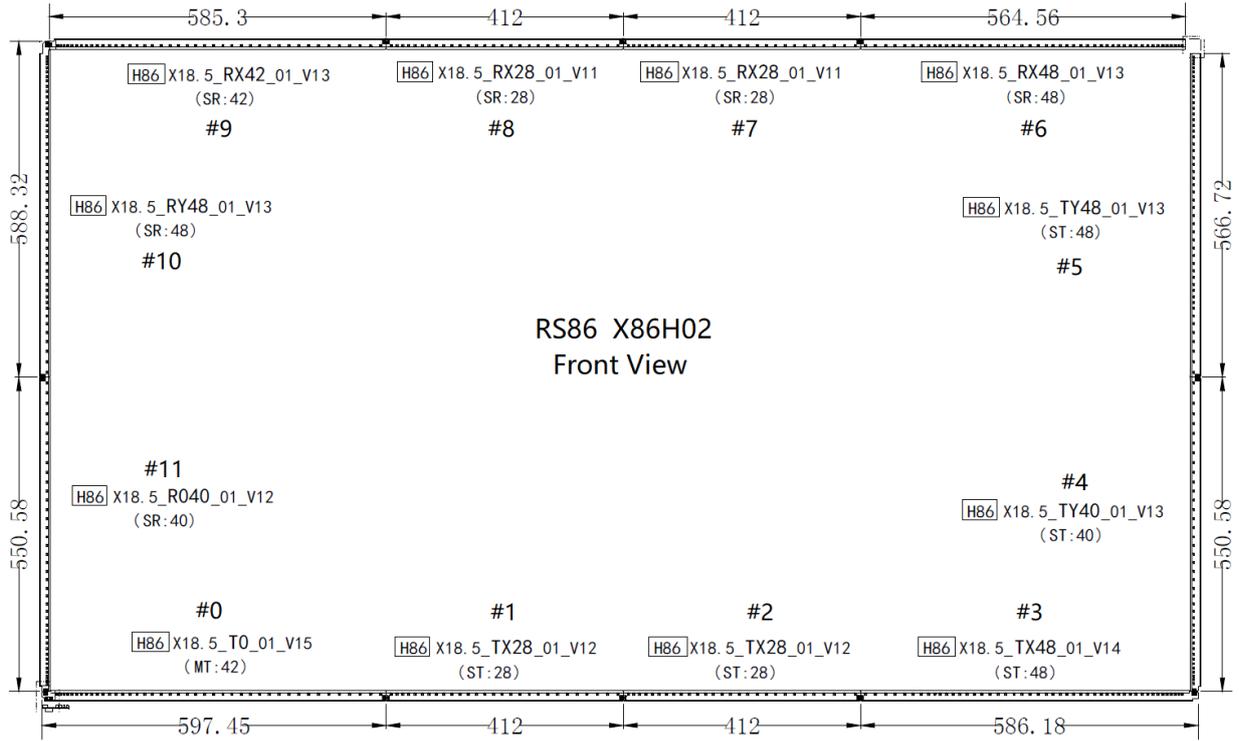
TT-6519RS (it is same as TT-6518RS):



TT-7519RS (it is same as TT-7518RS):

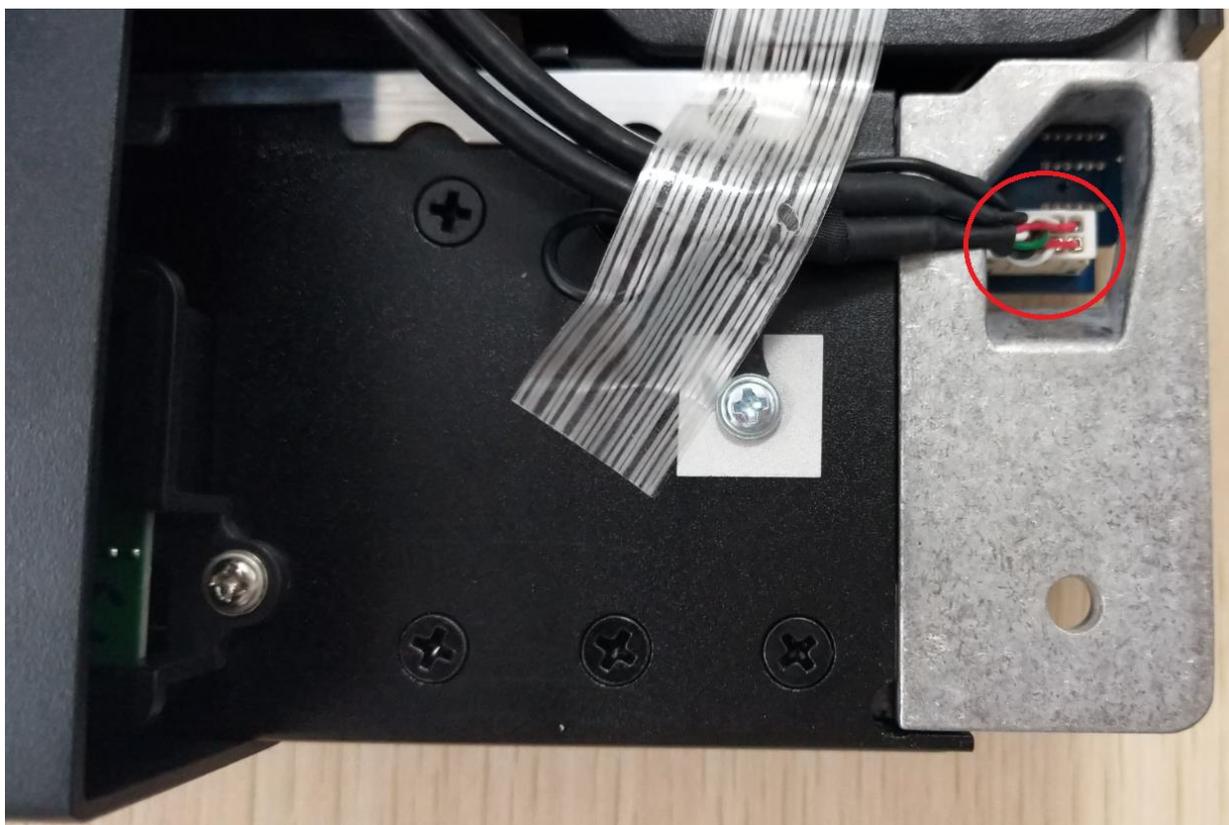


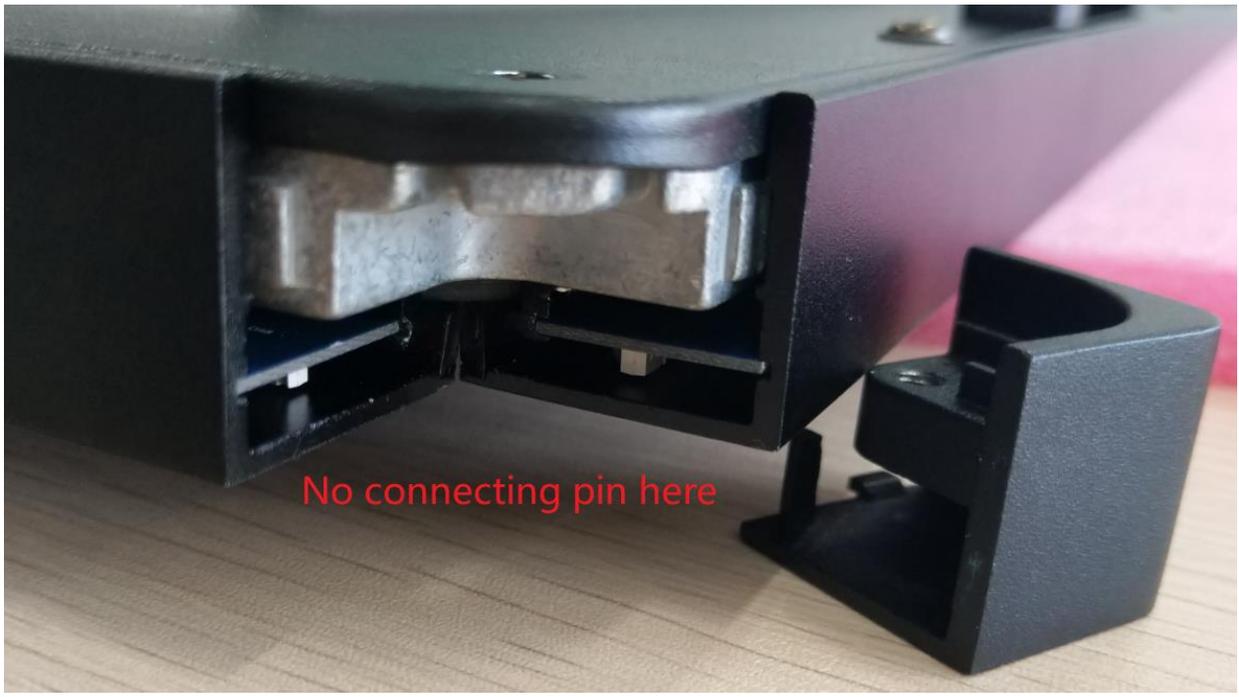
TT-8619RS (it is same as TT-8618RS):



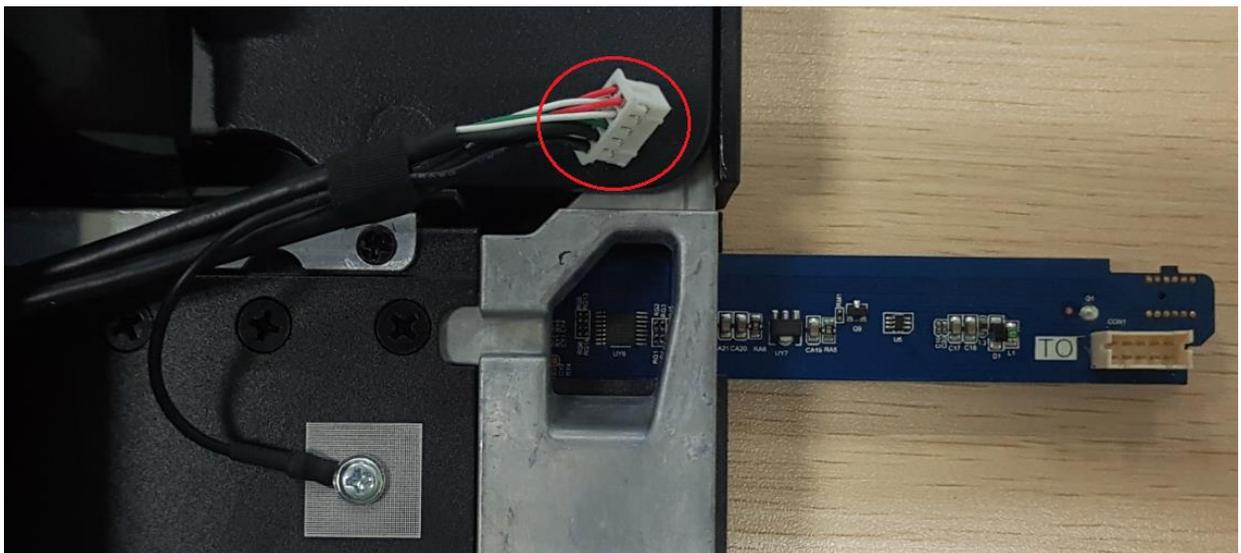
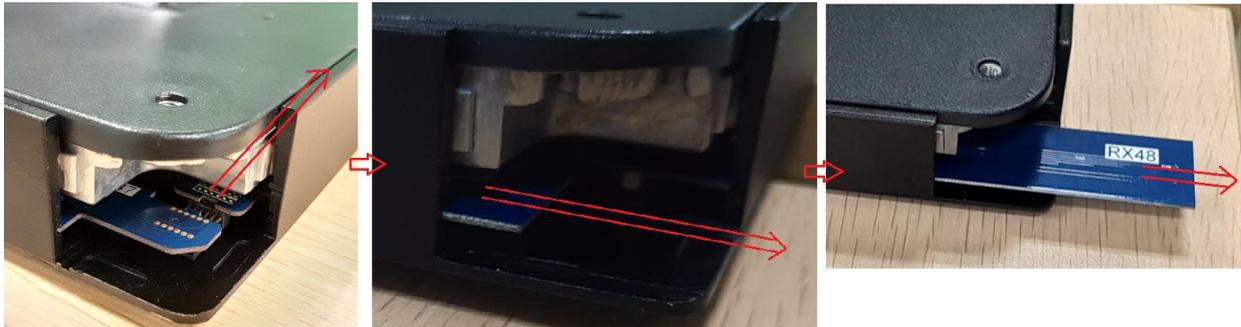
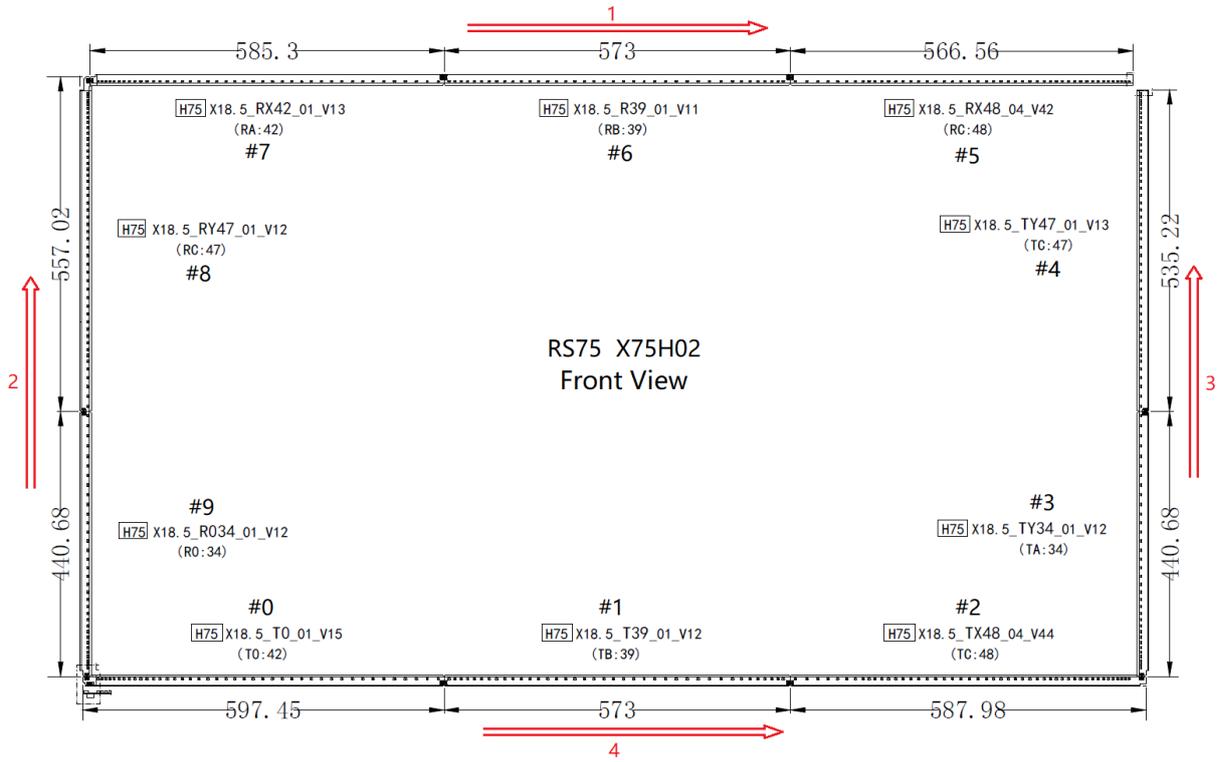
Step 1: Place it on a flat table, remove 4 corner covers.



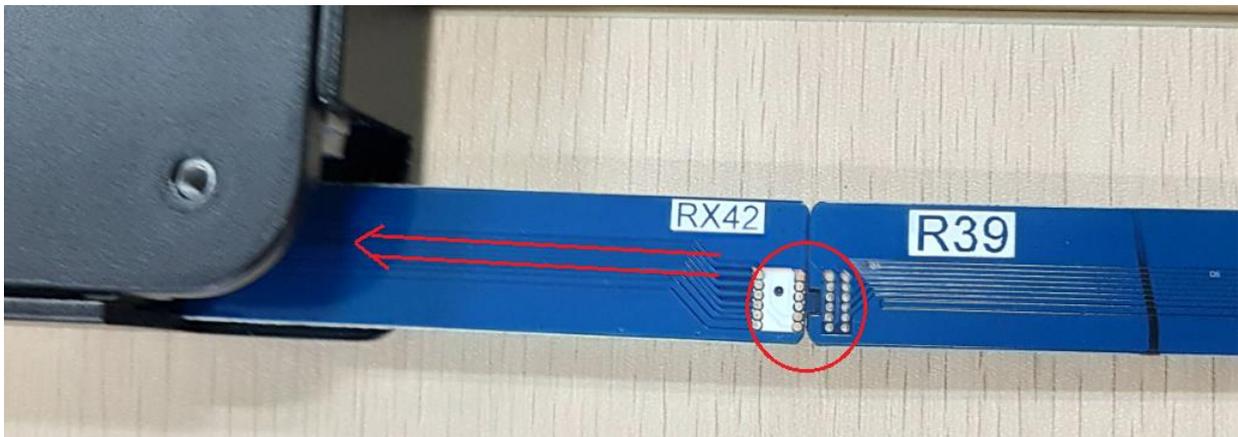
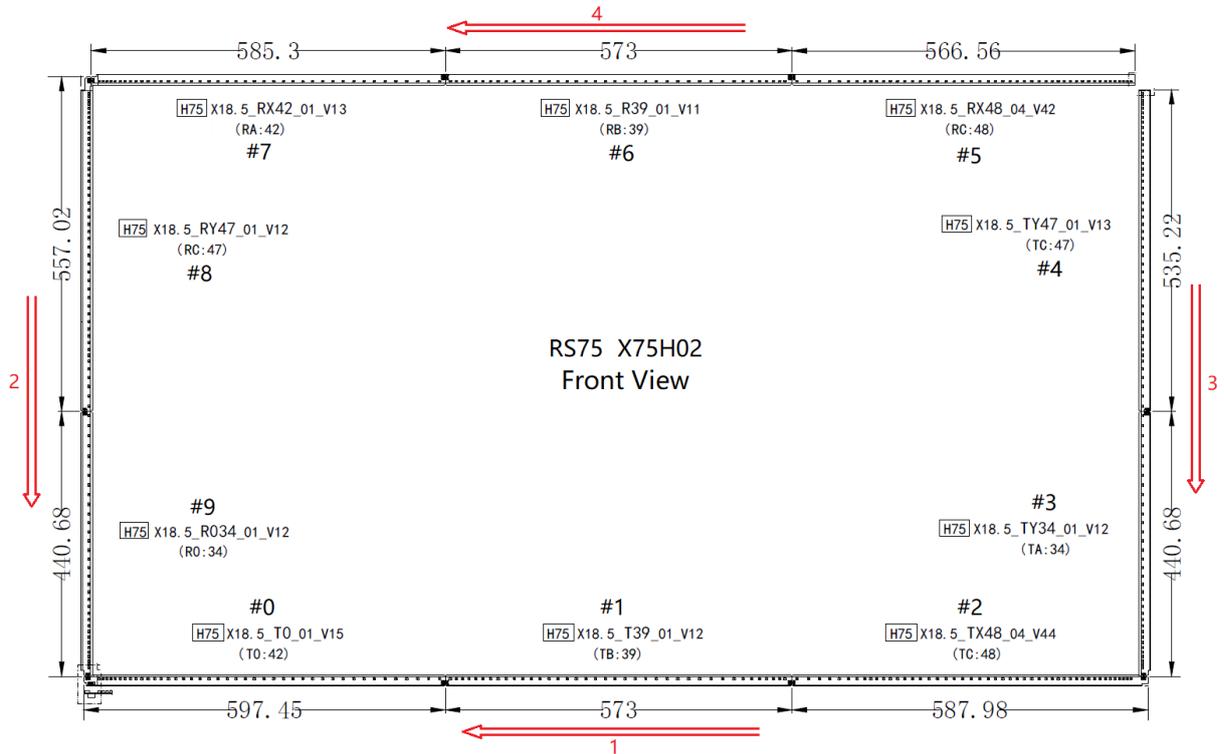
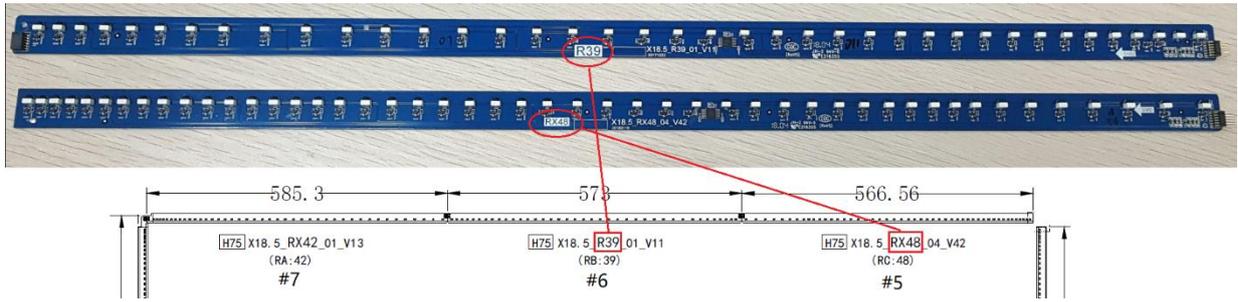


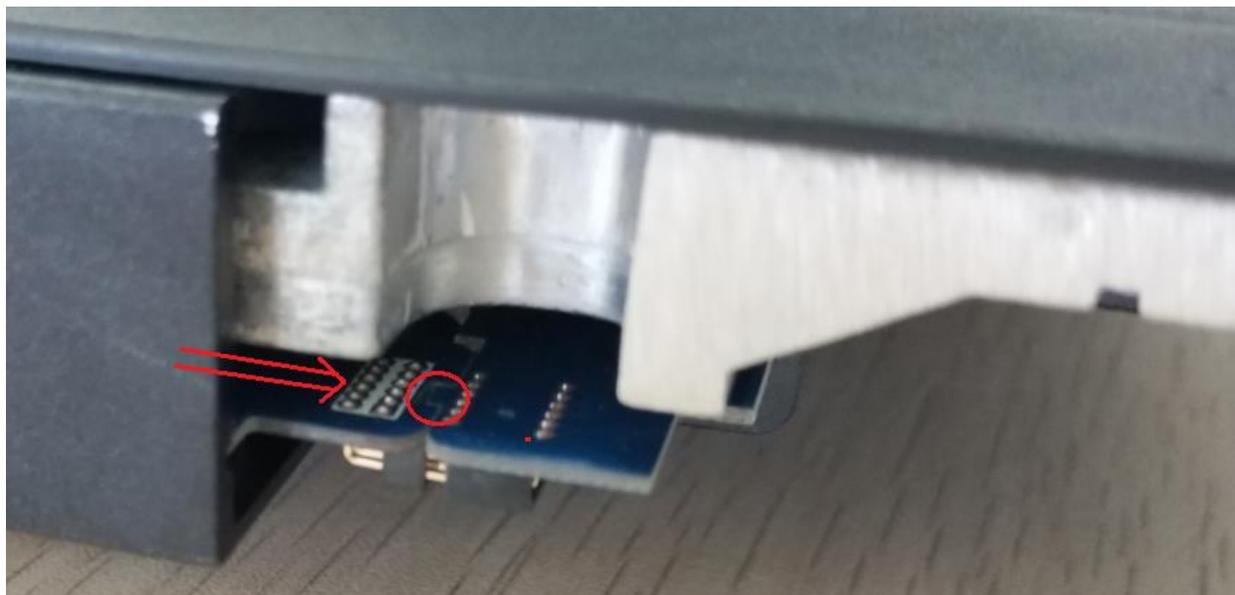


Step 2. Use a thin screwdriver or ball-pen to push and disconnect the PCBAs in the corner then take out the disconnected PCBA according to below red mark direction.



Step 3. Take new IR PCBA SET and according to the IR PCBA Layout to confirm the position in the 4 frames for every pieces PCBA, according to below red mark direction to insert the PCBAs. PCBA identification:





Note: Make sure every piece PCBA have been connected solidly, no loose connection. Usually need 2 person co-work to connect it, one person aim at the contact pins and pin slot, and one person push the PCBA in another side to make the contact pins get in pin slot.

Step 4. Install back 4 corner covers with screws.



Part K. Firmware Upgrade

How to upgrade FW and Config file from factory menu.

Step 1: Prepare a USB drive (make sure 8 character name) and formatted it with FAT32, copy the hht848upgrade.bin file and hdmiout.bin file (Rename hdmiout.bin.bin file to hdmiout.bin file, no need update hdmiout.bin file on RS86) to the root folder of USB drive, such as below.

名称	修改日期	类型	大小
hdmiout.bin	2019/9/2 17:28	BIN 文件	1,024 KB
hht848upgrade.bin	2019/9/1 0:26	BIN 文件	1,827,189 KB

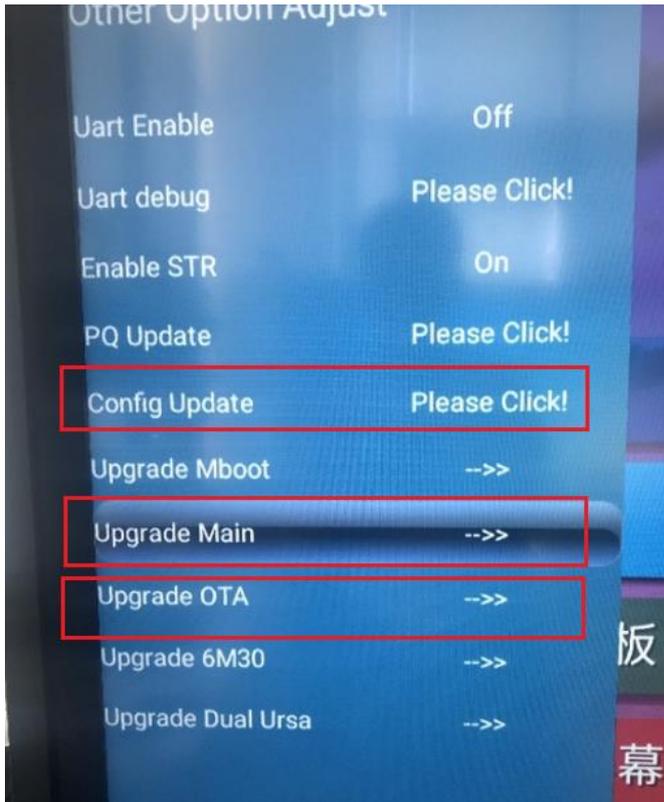
Step 2: Power on the display, and connect the USB drive to front or rear USB port.



Step3: Press source+2+5+8+0 to enter into factory menu and then enter into "Other options".

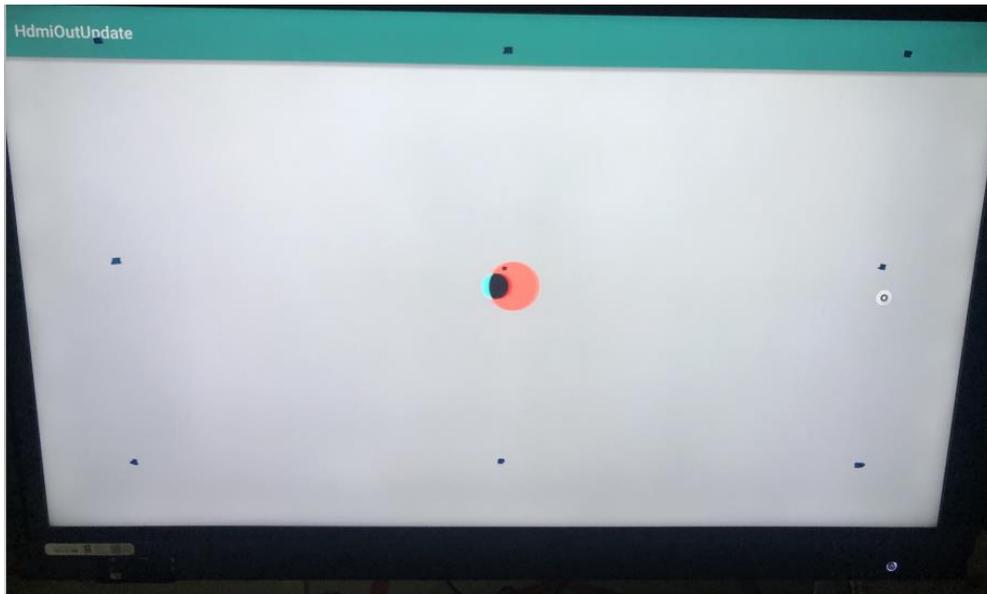


Step4: Select "Upgrade Main" option to upgrade the upgrade.bin file.



Step5: Need to turn on screen manually after upgrade.bin file was upgraded.

Step6: Select language and click "OK" to enter into main interface, replug the USB driver to let system detect the hdmiout file and update it automatically.



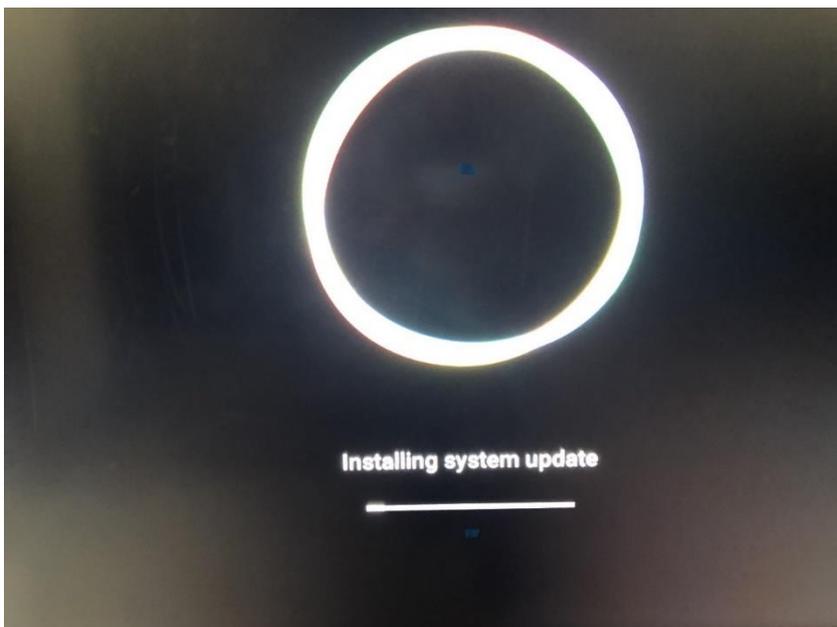
Step7: Need to turn on screen manually after hdmiout file was updated.

Step8: Copy the version control file and zip file to the root folder of USB driver, show as following:

> 此电脑 > GSP1RMCENXV (G:)

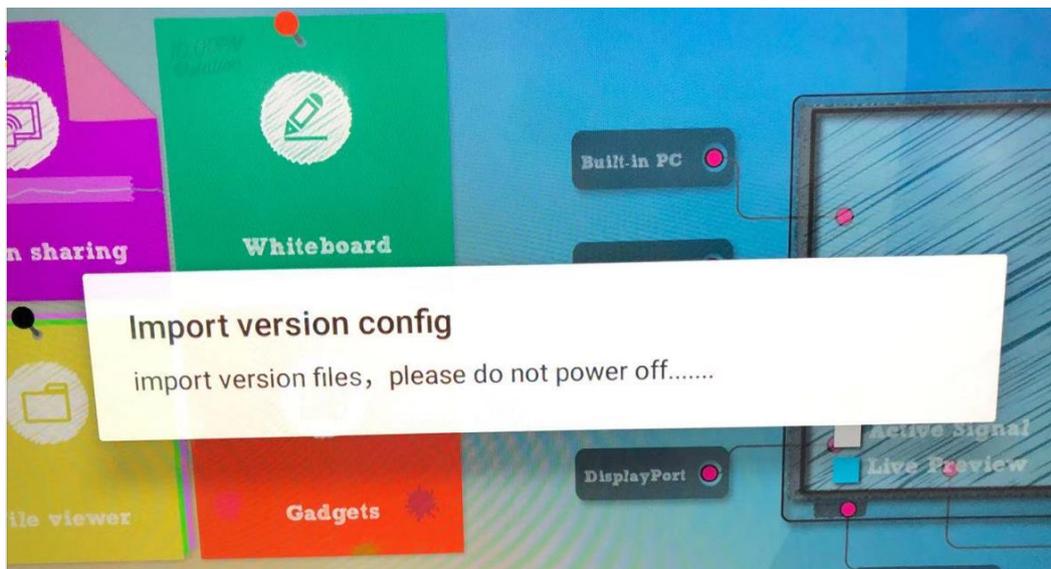
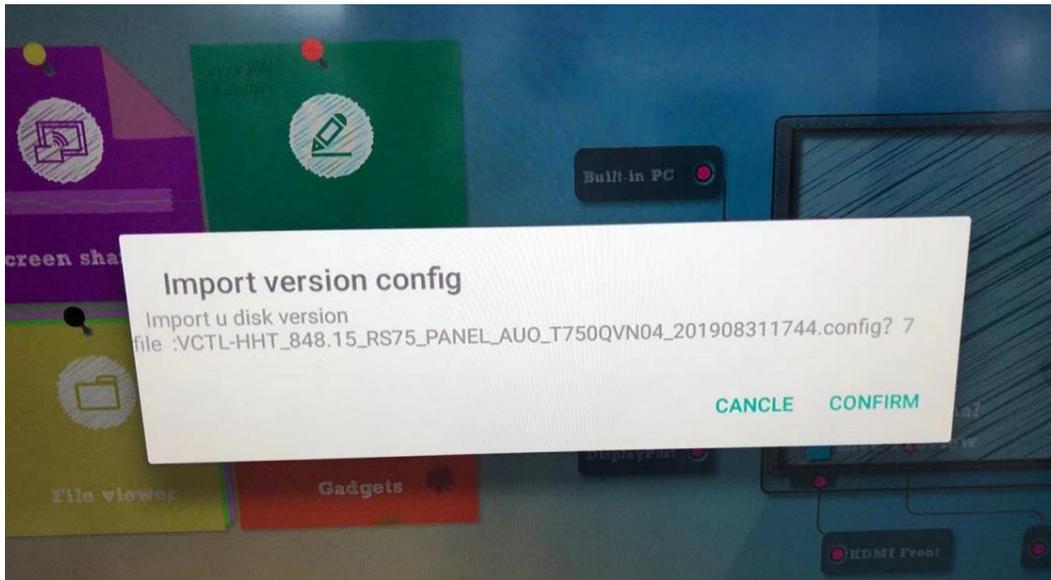
名称	修改日期	类型	大小
VCTL-HHT_848.15_OEM65_PANEL_AUO_T650QVN06_201907261711	2019/7/26 17:11	CONFIG 文件	191 KB
update_signed	2019/7/30 22:21	压缩(zipped)文件...	839,299 KB

Step9: Select "Upgrade OTA" option to upgrade .Zip file.



Step10: Screen will restart up automatically after Zip file was upgraded.

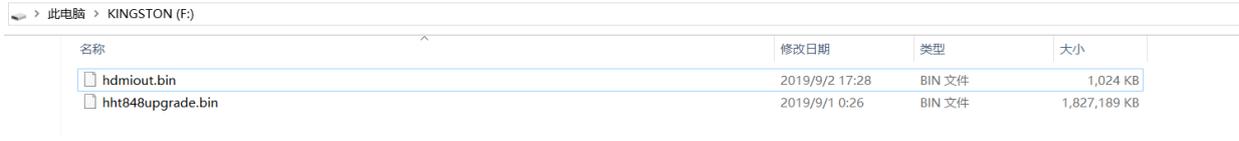
Step11: Select “Config Update” option to update the config file, or system will detect the Config file and update it automatically.



Step12: Need to turn on manually screen after Config file was updated.

How to upgrade FW and Config file for a blank mainboard.

Step 1: Prepare a USB drive (make sure 8 character name) and formatted it with FAT32, copy the hht848upgrade.bin file and hdmiout.bin file (Rename hdmiout.bin.bin file to hdmiout.bin file, no need update hdmiout.bin file on RS86) to the root folder of USB drive, such as below.



Step 2: Connect the USB drive to front or rear USB port.

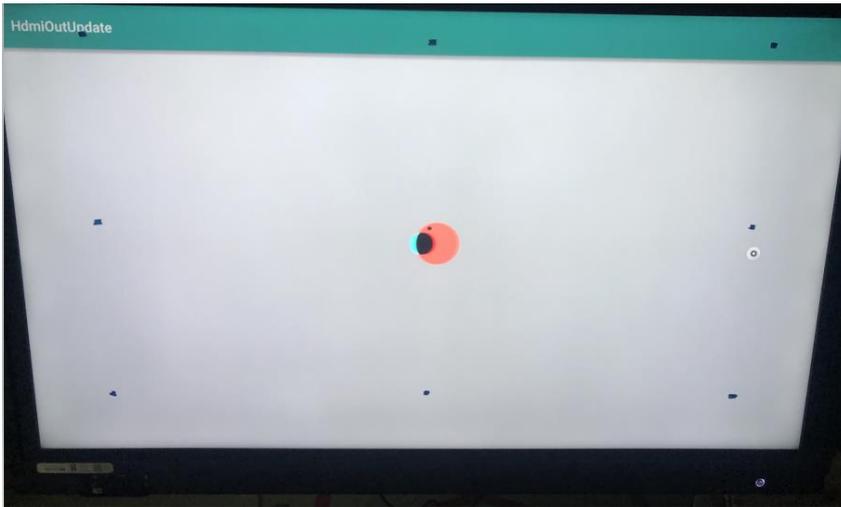


Step 3: Press down “Menu” button, DO NOT release, and then switch on screen, the main firmware upgrade will start automatically, then release menu button.



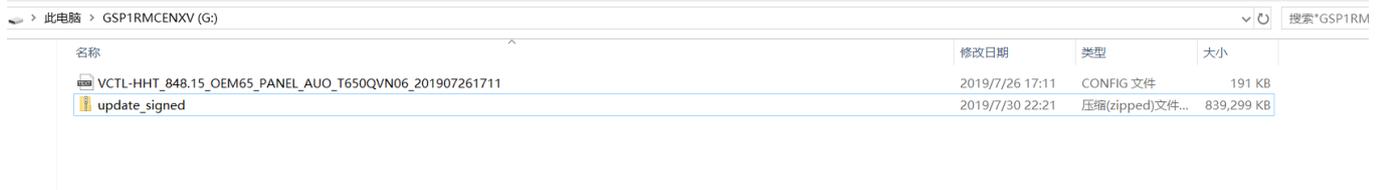
Step 4: Need to turn on screen manually after upgrade.bin file was upgraded.

Step5: Select language and click “OK” to enter into main interface, replug the USB driver to let system detect the hdmiout file and update it automatically.

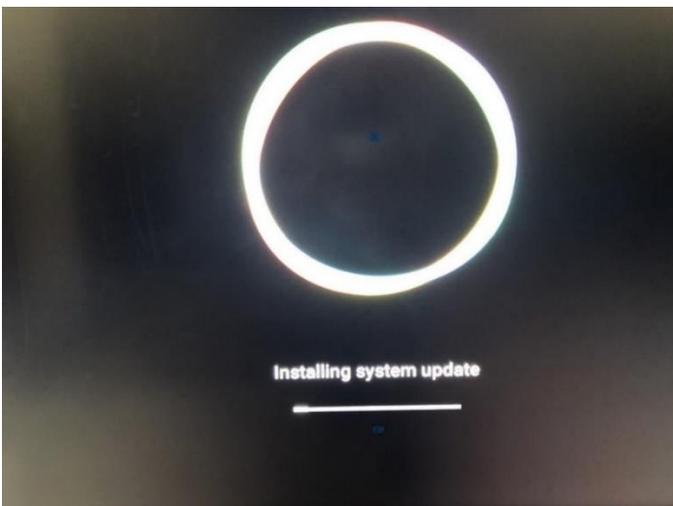


Step6: Need to turn on screen manually after hdmiout file was updated.

Step7: Copy the version file and zip file to the root folder of USB driver, show as following:



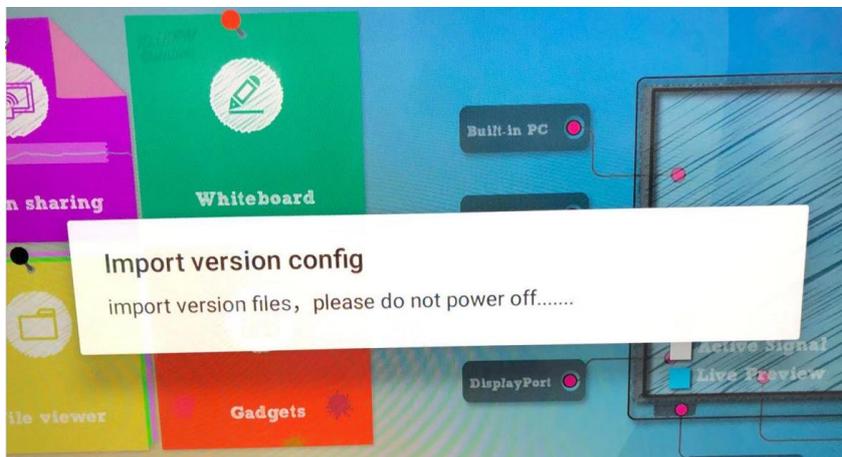
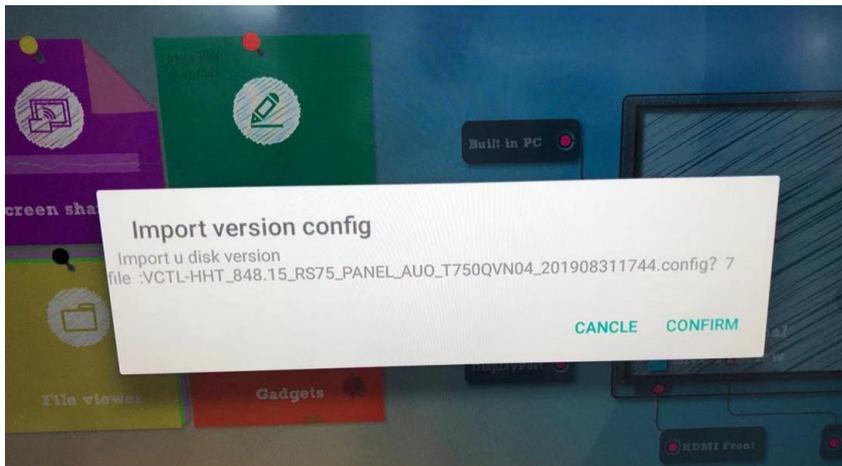
Step8: Switch on screen and press down power button, DO NOT release, the zip file will upgrade automatically.



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Step9: Screen will restart up automatically after Zip file was upgraded.

Step10: System will detect the Config file update it automatically



Step11: Need to turn on screen manually after Config file was updated.

Part L. Trouble shooting

Below are some true RMA cases from similar model for reference.

	Defect symptom	Repair procedure	Defect component
1	No image	Replace mainboard, no success. Replace power board, problem solved	Power board
2	No image	Replace all PCB modules, no success. Replace OC, problem solved	OC module
3	No image, backlight OK	Replace T-con	T-CON
4	No image, no backlight, long turn on	Mainboard	Mainboard
5	No image	Replace mainboard, solved	Mainboard
6	No touch	Fitted 2 sets new sensors	IR PCB SET
7	No touch	Main IR PCB changed	IR mainboard
8	No touch	Ribbon cables reconnected correctly around corners	Cable
9	No proper touch	Reconnect IR PCB's and replace FFC's with new ones	Cable
10	Gaps in touch	Fitted new set of IR (twice)	IR PCB SET
11	No touch	IR FW upgrade	IR firmware
12	No touch	Mainboard	Mainboard
13	Dead areas interactivity	Full set of IR sensors	IR PCB SET
14	No touch externally, android OK	Mainboard changed	Mainboard
15	Poor touch response	Reconnected IR array ribbon cable (bottom right)	Ribbon cable
16	No touch on all sources	Swapped mainboard	Mainboard
17	No touch on all sources	Reseated IR array	IR PCB SET
18	Large dead areas for touch and sluggish	Full set of IR PCBs changed	IR PCB SET
19	Vertical/Horizontal stripe/line in the image	Replace OC module	OC module
20	Vertical stripes in the image.	Reconnect T-con to OC panel connections and cleaned LVDS FFC. LVDS cable was sticked to tighten onto LED panel which causes an improper connection to T-con.	Clean cable & reconnect cable
21	Scrambled image	T-con changed	T-CON
22	3 vertical lines of pixels	T-con board	T-CON
23	Picture colors wrong/pixellated	T-con board	T-CON
24	Bleached image, contrast functions not responding	Firmware flashed	Firmware
25	Picture lines	T-con board replaced	T-CON
26	Picture breakup	T-con board replaced	T-CON

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27	Thick vertical lines on image.	Replaced T-con	T-CON
28	Single vertical line of pixels out	Panel issue	OC module
29	No signal on OPS input	Replace OPS docking board, no success. Replace mainboard, problem solved.	Mainboard
30	Stuck on splash screen	Reloaded firmware	Firmware
31	Dead	Power board changed	Power board
32	Rear HDMI and OPS "no signal"	Mainboard replaced (FW not successful)	Mainboard
33	Won't turn off/won't turn on	FW reloaded	Firmware
34	Will not turn on.	Mainboard changed	Mainboard
35	Stuck on splash screen, will not take flash	Changed mainboard at office	Mainboard
36	Not powering up	Mainboard	Mainboard
37	Not load past boot	FW reloaded	Firmware
38	Speakers popping	Speakers replaced	Speaker
39	No sound	Speakers replaced	Speaker
40	No Power	Replaced AC board & power board	AC board & power board

Thank you for reading!

For more info, please contact the manufacturer or authorized agent.