



LG

Life's Good

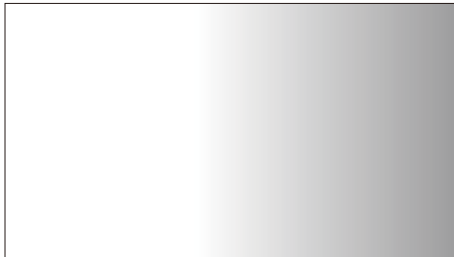
LG Digital Signage SERVICE MANUAL

CHASSIS : DWA2A

MODEL : LAEC015 LAEC015-GN

CAUTION

BEFORE SERVICING THE CHASSIS, READ THE SAFETY PRECAUTIONS IN THIS MANUAL.



P/NO : MFL63261649 (2112-REV00)

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PRECAUTION

WARNING FOR THE SAFETY-RELATED COMPONENT.

- There are some special components used in monitor that are important for safety. **These parts are marked ⚠ on the Exploded View.** It is essential that these critical parts should be replaced with the manufacturer's specified parts to prevent electric shock, fire or other hazard.
- Do not modify original design without obtaining written permission from manufacturer or you will void the original parts and labor guarantee.

⚠ CAUTION

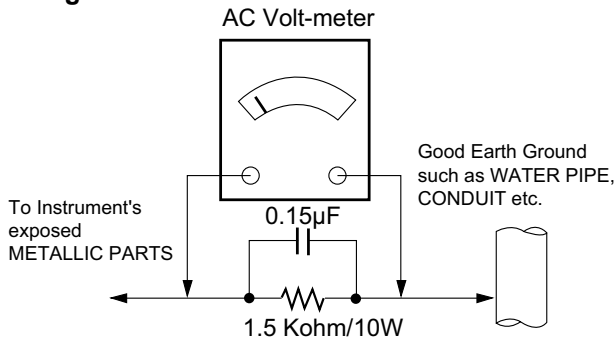
Use only an insulated screwdriver to prevent electric shock.

⚠ WARNING

CAUTION ELECTRIC SHOCK POSSIBLE !

- Handle the wires and connectors of the inverter. Circuit with extreme caution. If the wires are pressed together they can cause a short and may burn or cause a fire.

Leakage Current Hot Check Circuit



When the load is 25A between Earth and 2nd Ground for 1 second, Resistance must be less than 0.1 ohms

*Base on Adjustment standard

• Replaceable batteries

⚠ CAUTION

RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE.
DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.
REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE.

ADVARSEL

Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri af samme fabrikat og type.
Lever det brugte batteri tilbage til leverandøren.

ATTENTION

Il y a danger d'explosion s'il y a remplacement incorrect de la batterie.
Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur.
Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

VORSICHT

Explosionsgefahr bei unsachgemäßem Austausch der Batterie
Entsorgung gebrauchter Batterien nach Anleitung

注意

電池を誤って交換すると爆発する危険があります。
必ず同一又は同等のタイプのもものと交換して下さい。

SERVICING PRECAUTIONS

CAUTION: Before servicing receivers covered by this service manual and its supplements and addenda, read and follow the SAFETY PRECAUTIONS on page 3 of this publication.

NOTE: If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions on page 3 of this publication, always follow the safety precautions. Remember: Safety First.

General Servicing Precautions

1. Always unplug the receiver AC power cord from the AC power source before;
 - a. Removing or reinstalling any component, circuit board module or any other receiver assembly.
 - b. Disconnecting or reconnecting any receiver electrical plug or other electrical connection.
 - c. Connecting a test substitute in parallel with an electrolytic capacitor in the receiver.
CAUTION: A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.
2. Test high voltage only by measuring it with an appropriate high voltage meter or other voltage measuring device (DVM, FETVOM, etc) equipped with a suitable high voltage probe. Do not test high voltage by "drawing an arc".
3. Do not spray chemicals on or near this receiver or any of its assemblies.
4. Unless specified otherwise in this service manual, clean electrical contacts only by applying the following mixture to the contacts with a pipe cleaner, cotton-tipped stick or comparable non-abrasive applicator; 10% (by volume) Acetone and 90% (by volume) isopropyl alcohol (90%-99% strength)
CAUTION: This is a flammable mixture.
Unless specified otherwise in this service manual, lubrication of contacts is not required.
5. Do not defeat any plug/socket B+ voltage interlocks with which receivers covered by this service manual might be equipped.
6. Do not apply AC power to this instrument and/or any of its electrical assemblies unless all solid-state device heat sinks are correctly installed.
7. Always connect the test receiver ground lead to the receiver chassis ground before connecting the test receiver positive lead.
Always remove the test receiver ground lead last.
8. Use with this receiver only the test fixtures specified in this service manual.
CAUTION: Do not connect the test fixture ground strap to any heat sink in this receiver.

Electrostatically Sensitive (ES) Devices

Some semiconductor (solid-state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by static by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed to prevent potential shock reasons prior to applying power to the

unit under test.

2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static type solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.
CAUTION: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device.)

General Soldering Guidelines

1. Use a grounded-tip, low-wattage soldering iron and appropriate tip size and shape that will maintain tip temperature within the range or 500 °F to 600 °F.
2. Use an appropriate gauge of RMA resin-core solder composed of 60 parts tin/40 parts lead.
3. Keep the soldering iron tip clean and well tinned.
4. Thoroughly clean the surfaces to be soldered. Use a mall wire-bristle (0.5 inch, or 1.25cm) brush with a metal handle. Do not use freon-propelled spray-on cleaners.
5. Use the following unsoldering technique
 - a. Allow the soldering iron tip to reach normal temperature. (500 °F to 600 °F)
 - b. Heat the component lead until the solder melts.
 - c. Quickly draw the melted solder with an anti-static, suction-type solder removal device or with solder braid.
CAUTION: Work quickly to avoid overheating the circuit board printed foil.
6. Use the following soldering technique.
 - a. Allow the soldering iron tip to reach a normal temperature (500 °F to 600 °F)
 - b. First, hold the soldering iron tip and solder the strand against the component lead until the solder melts.
 - c. Quickly move the soldering iron tip to the junction of the component lead and the printed circuit foil, and hold it there only until the solder flows onto and around both the component lead and the foil.
CAUTION: Work quickly to avoid overheating the circuit board printed foil.
 - d. Closely inspect the solder area and remove any excess or splashed solder with a small wire-bristle brush.

IC Remove/Replacement

Some chassis circuit boards have slotted holes (oblong) through which the IC leads are inserted and then bent flat against the circuit foil. When holes are the slotted type, the following technique should be used to remove and replace the IC. When working with boards using the familiar round hole, use the standard technique as outlined in paragraphs 5 and 6 above.

Removal

1. Desolder and straighten each IC lead in one operation by gently prying up on the lead with the soldering iron tip as the solder melts.
2. Draw away the melted solder with an anti-static suction-type solder removal device (or with solder braid) before removing the IC.

Replacement

1. Carefully insert the replacement IC in the circuit board.
2. Carefully bend each IC lead against the circuit foil pad and solder it.
3. Clean the soldered areas with a small wire-bristle brush. (It is not necessary to reapply acrylic coating to the areas).

"Small-Signal" Discrete Transistor

Removal/Replacement

1. Remove the defective transistor by clipping its leads as close as possible to the component body.
2. Bend into a "U" shape the end of each of three leads remaining on the circuit board.
3. Bend into a "U" shape the replacement transistor leads.
4. Connect the replacement transistor leads to the corresponding leads extending from the circuit board and crimp the "U" with long nose pliers to insure metal to metal contact then solder each connection.

Power Output, Transistor Device

Removal/Replacement

1. Heat and remove all solder from around the transistor leads.
2. Remove the heat sink mounting screw (if so equipped).
3. Carefully remove the transistor from the heat sink of the circuit board.
4. Insert new transistor in the circuit board.
5. Solder each transistor lead, and clip off excess lead.
6. Replace heat sink.

Diode Removal/Replacement

1. Remove defective diode by clipping its leads as close as possible to diode body.
2. Bend the two remaining leads perpendicular to the circuit board.
3. Observing diode polarity, wrap each lead of the new diode around the corresponding lead on the circuit board.
4. Securely crimp each connection and solder it.
5. Inspect (on the circuit board copper side) the solder joints of the two "original" leads. If they are not shiny, reheat them and if necessary, apply additional solder.

Fuse and Conventional Resistor

Removal/Replacement

1. Clip each fuse or resistor lead at top of the circuit board hollow stake.
2. Securely crimp the leads of replacement component around notch at stake top.
3. Solder the connections.

CAUTION: Maintain original spacing between the replaced component and adjacent components and the circuit board to prevent excessive component temperatures.

Circuit Board Foil Repair

Excessive heat applied to the copper foil of any printed circuit board will weaken the adhesive that bonds the foil to the circuit board causing the foil to separate from or "lift-off" the board. The following guidelines and procedures should be followed whenever this condition is encountered.

At IC Connections

To repair a defective copper pattern at IC connections use the following procedure to install a jumper wire on the copper pattern side of the circuit board. (Use this technique only on IC connections).

1. Carefully remove the damaged copper pattern with a sharp knife. (Remove only as much copper as absolutely necessary).
2. Carefully scratch away the solder resist and acrylic coating (if used) from the end of the remaining copper pattern.
3. Bend a small "U" in one end of a small gauge jumper wire and carefully crimp it around the IC pin. Solder the IC connection.
4. Route the jumper wire along the path of the out-away copper pattern and let it overlap the previously scraped end of the good copper pattern. Solder the overlapped area and clip off any excess jumper wire.

At Other Connections

Use the following technique to repair the defective copper pattern at connections other than IC Pins. This technique involves the installation of a jumper wire on the component side of the circuit board.

1. Remove the defective copper pattern with a sharp knife. Remove at least 1/4 inch of copper, to ensure that a hazardous condition will not exist if the jumper wire opens.
2. Trace along the copper pattern from both sides of the pattern break and locate the nearest component that is directly connected to the affected copper pattern.
3. Connect insulated 20-gauge jumper wire from the lead of the nearest component on one side of the pattern break to the lead of the nearest component on the other side. Carefully crimp and solder the connections.
CAUTION: Be sure the insulated jumper wire is dressed so the it does not touch components or sharp edges.

SPECIFICATION

1. Application range

This specification is applied to the DWA2A chassis.

2. General Specification

No	Item	Specification	Remarks			
1	Input	HDMI(3)	Maximum Resolution	3840x2160@30Hz		
			Recommend Resolution	1920x1080@60Hz		
			HDCP Support	HDCP2.2		
			Color Format & Depth	Supporting color format - RGB444/YCbCr444 8/10/12bits - YCbCr422 12bit		
	DP	Maximum Resolution	3840x2160@30Hz	* DP Version: 1.2a		
					Recommend Resolution	1920x1080@60Hz
					HDCP Support	HDCP1.3, HDCP2.2
					Color Format & Depth	Supporting color format (8 Bits) - RGB444 - YCbCr444
	USB	USB Version	2.0	* Device: Memory stick, Mouse, Service(F/W Download)		
	RS232C In	UART Comm. w/ IR Daisy Chain		4P, 3.5mm Phone Jack		
	IR/Brightness Sensor	Type	Dongle type	5P, 3.5mm Phone Jack		
		IR Receiver	O			
		Brightness sensor	O			
LAN	RJ45, 100Base-T	O	SuperSign CMS			
2	Output	DP	Maximum Resolution	NA	SST(Single Stream Transmit)/Daisy Chain	
			Recommend Resolution	NA		
			HDCP Support	NA		
			Color Format & Depth	NA		
	Speaker Out	Type	Built-in	* Measured conditon - USB(Music) : - 9dB - USB(Movie/AC3), HDMI(Music): -12dB - HDMI(PCM 2ch): -20dB - PC Audio In: 0.7Vrms		
					Impedance	Typ. 6Ω
					Output mode	BTL
					Output Power	9W + 9W
	Audio Out	Output type	NA			
					Output level	NA
					Supporting mode	NA
	SPDIF Out	Optical Audio out	O			
	RS232C Out	UART Comm. w/ IR Daisy Chain		4P, 3.5mm Phone Jack		

No	Item		Specification			Remarks	
3	"Special Feature"	Temp. Sensor	MM3286CFBE : 85 °C Protection			Board-in	
		Current Sensor	X			Board-in	
		Wi-Fi/BT	Wi-Fi	802.11ac, 802.11n		Built-in (LGSBWAC72)	
			BT	Version 4.0, Support Beacon			
	Logo Detachable	none					
4	Video signal	Operating Frequency	Horizontal frequency	27 - 68 kHz			
			Vertical frequency	24 - 62 Hz			
			Synchronization	Separate Sync, Digital			
5	Remote control		Wireless Remote Control(Infrared Radiation)			LG Code	
	REMOCON Working Sensitivity, Straight		Working Sensitivity, Straight	Min. 6m			
6	Local Key		8 key			INPUT, MENU, v, ^, <, >, AUTO/SET, Φ/I	
7	Input Change Time		HDMI	3.0 sec + 10% below		1920x1080@60Hz (1080p@60Hz)	
			DVI	NA		NA	
			DP	5.0 sec + 10% below		1920x1080@60Hz (1080p@60Hz)	
8	RTC Clock Accuracy		± 3sec during 24 hours				
			Min	Typ	Max		
9	Power ON Screen Mute Time				10	sec	
10	Standby Discharge Time		On Condition : No more than 1s, Off Condition : No more than 3s				
11	Module Life Time			30,000		Hrs	
12	Environment Condition	Operation Temperature	0		40	deg	LGE Specification
		Operation Humidity	10		90	%	LGE Specification
		Storage Temperature	-10		50	deg	LGE Specification
		Storage Humidity	5		90	%	LGE Specification
13	Absolute maximum rating	GND	1600Vac/1sec or 2250Vdc/1sec				
		Signal	3000Vac/1sec or 4242Vdc/1sec				
		Current	100mA(AC) / 10mA(DC)			mA	

3. Signal Timing (Supporting Resolution)

3.1. HDMI/DP (PC Mode)

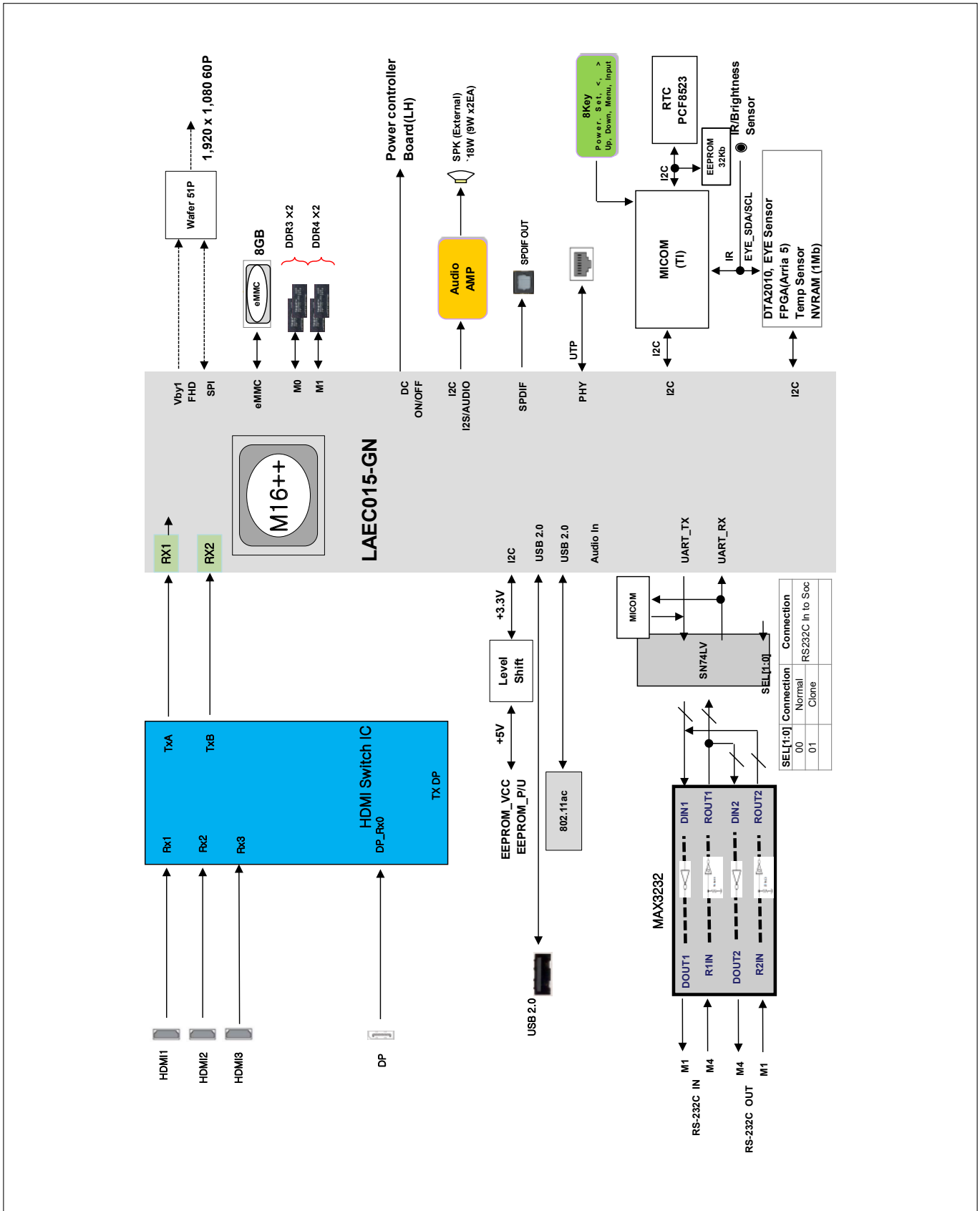
No.	Section	Pol.	Dot Clock [MHz]	Frequency [kHz]/ [Hz]	Total Cycle (E)	Display (A)	Front Porch(B)	Sync. (D)	Back Porch(F)	Resolution	Support
1	H(Pixels)	+	40	37.879	1056	800	40	128	88	800 x 600	All inputs
	V(Lines)	+		60.317	628	600	1	4	23		
2	H(Pixels)	-	65	48.363	1344	1024	24	136	160	1024 x 768	
	V(Lines)	-		60	806	768	3	6	29		
3	H(Pixels)	+	74.5	44.772	1664	1280	64	128	192	1280 x 720	
	V(Lines)	+		59.855	748	720	3	5	20		
4	H(Pixels)	-	85.86	47.7	1800	1366	72	144	216	1366 x 768	
	V(Lines)	-		60	795	768	1	3	23		
5	H(Pixels)	+	108	63.981	1688	1280	48	112	248	1280 x 1024	
	V(Lines)	+		60.02	1066	1024	1	3	38		
6	H(Pixels)	-	146.25	65.29	2240	1680	104	176	280	1680 x 1050	
	V(Lines)	+		59.954	1089	1050	3	6	30		
7	H(Pixels)	+	148.5	67.5	2200	1920	88	44	88	1920 x 1080	
	V(Lines)	+		60	1125	1080	4	5	46		
8	H(Pixels)	+	297	67.5	4400	3840	176	88	296	3840 x 2160	
	V(Lines)	+		30	2250	2160	8	10	72		

3.2. HDMI/DP (DTV Mode)

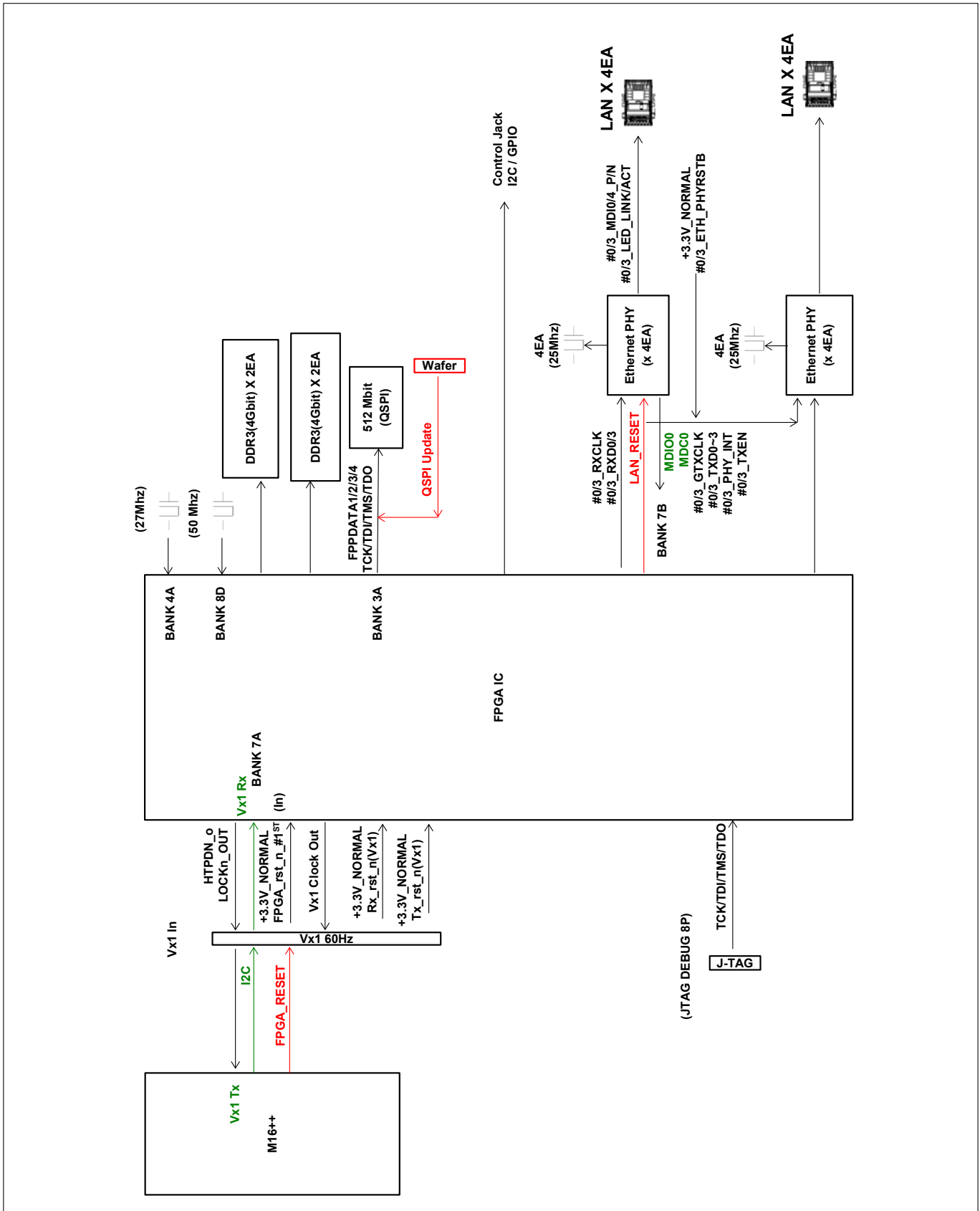
No.	Specification				
	H-freq(kHz)	V-freq(Hz)	Remarks	Resolution	Support
1	31.5	60	EDTV 480p	480/60P	O
2	31.25	50	EDTV 576p	576/50P	O
3	37.5	50	HDTV 720p	720/50P	O
4	45	60	HDTV 720p	720/60P	O
5	28.1	50	HDTV 1080i 50Hz	1080/50i	O
6	33.75	60	HDTV 1080i 60Hz	1080/60i	O
7	56.25	50	HDTV 1080P 50Hz	1080/50P	O
8	67.432	59.94	HDTV 1080P 60Hz	1080/60P	O
9	67.5	60	HDTV 1080P 60Hz	1080/60P	O
10	67.5	30	UD 2160P 30Hz	2160/30P	O

BLOCK DIAGRAM

1. Main Board(M16PP board)



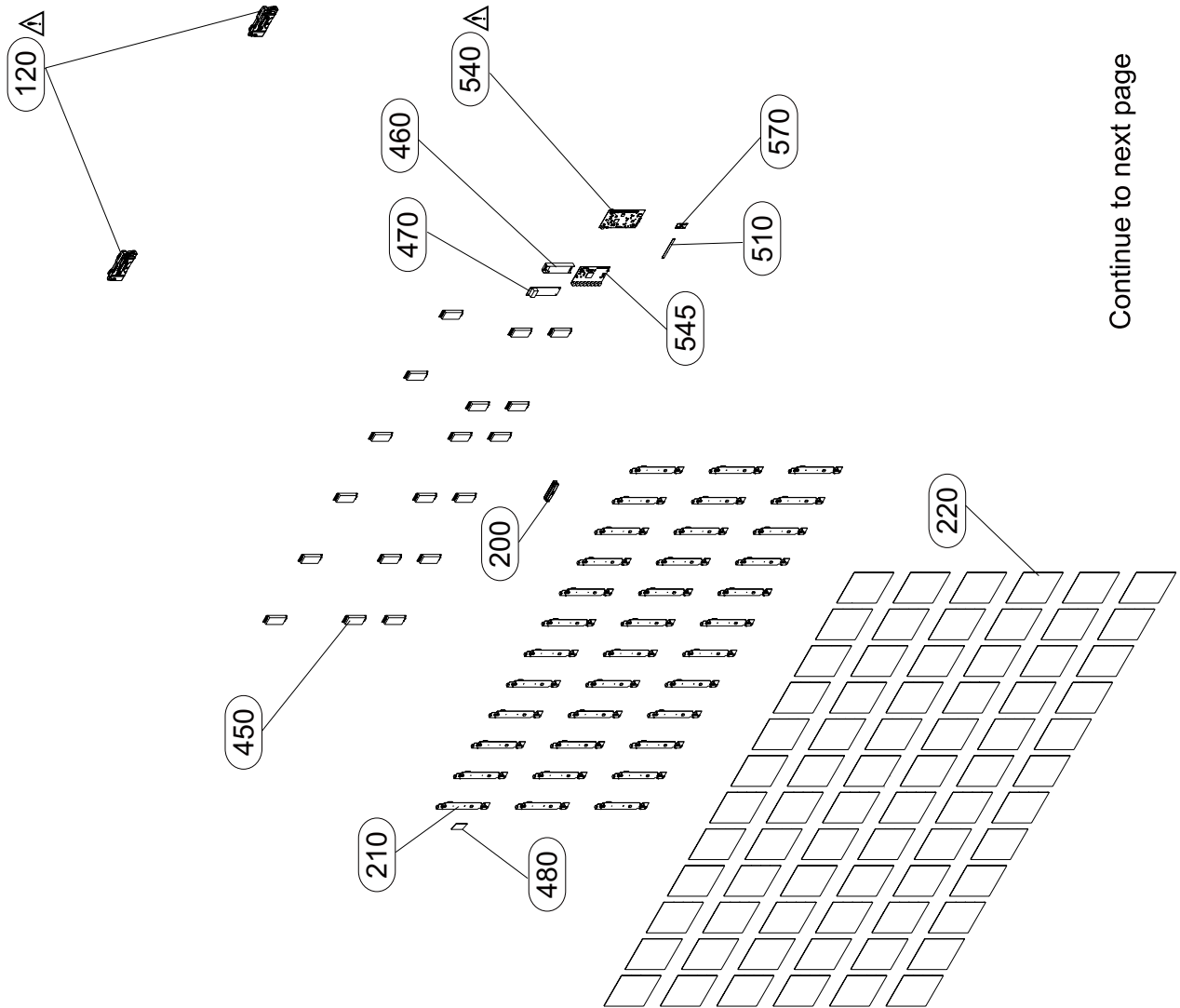
2. FPGA board(Arria5)























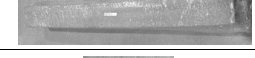





EXPLODED VIEW








IMPORTANT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These parts are identified by Δ in the EXPLODED VIEW. It is essential that these special safety parts should be replaced with the same components as recommended in this manual to prevent Shock, Fire, or other Hazards. Do not modify the original design without permission of manufacturer.



Continue to next page

No.	Picture
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AC6	
AR1	
HR1	
HR2	
HR3	
HS1	
HS2	
HS3	
HW1	

DISASSEMBLY

■ Dismount LED Display Module

Step1. Power off the LED display.

Step2. Hold the 2pcs handles, push the lock inward and pull the handles toward outside, and then take it up.



Step3. Take the tool up and horizontally fit it closely to the display surface. Please pay more attention to the direction.



Step4. Pull the handles towards the center.

■ Dismount LED Display Module

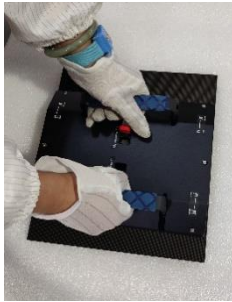
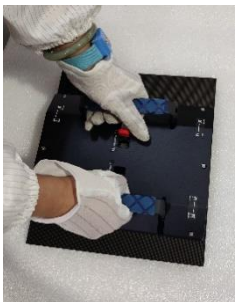
Step4. Pull the handles towards the center.



Step5. Ensure the magnet is locked. Take down the LDM carefully.

**Step6. Put down the LDM and tool together carefully onto an anti-static soft pad.
(such as white foam which used to protect the parts in the flight case)**

Step7. Push the lock toward inside and pull the handles toward outside and lift the tool up carefully.

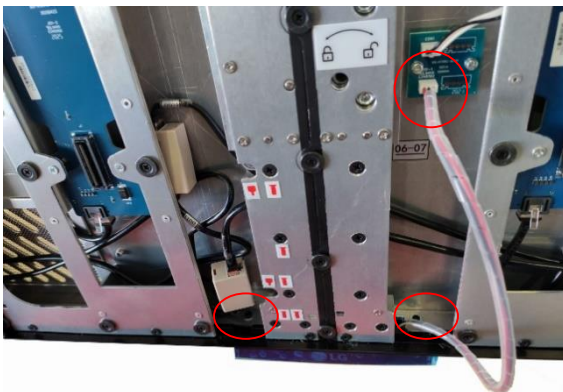


■ SET Disassemble

Step1. All the LMDs (LED Panel) have labels stuck on the back side. Please remove all LDMs by paying attention to their numbers.

<u>01-01</u>	<u>01-02</u>	<u>01-03</u>	<u>01-04</u>	<u>01-05</u>	<u>01-06</u>	<u>01-07</u>	<u>01-08</u>	<u>01-09</u>	<u>01-10</u>	<u>01-11</u>	<u>01-12</u>
<u>02-01</u>	<u>02-02</u>	<u>02-03</u>	<u>02-04</u>	<u>02-05</u>	<u>02-06</u>	<u>02-07</u>	<u>02-08</u>	<u>02-09</u>	<u>02-10</u>	<u>02-11</u>	<u>02-12</u>
<u>03-01</u>	<u>03-02</u>	<u>03-03</u>	<u>03-04</u>	<u>03-05</u>	<u>03-06</u>	<u>03-07</u>	<u>03-08</u>	<u>03-09</u>	<u>03-10</u>	<u>03-11</u>	<u>03-12</u>
<u>04-01</u>	<u>04-02</u>	<u>04-03</u>	<u>04-04</u>	<u>04-05</u>	<u>04-06</u>	<u>04-07</u>	<u>04-08</u>	<u>04-09</u>	<u>04-10</u>	<u>04-11</u>	<u>04-12</u>
<u>05-01</u>	<u>05-02</u>	<u>05-03</u>	<u>05-04</u>	<u>05-05</u>	<u>05-06</u>	<u>05-07</u>	<u>05-08</u>	<u>05-09</u>	<u>05-10</u>	<u>05-11</u>	<u>05-12</u>
<u>06-01</u>	<u>06-02</u>	<u>06-03</u>	<u>06-04</u>	<u>06-05</u>	<u>06-06</u>	<u>06-07</u>	<u>06-08</u>	<u>06-09</u>	<u>06-10</u>	<u>06-11</u>	<u>06-12</u>

Step2. Disconnect the sensor box module and the connected cable.



■ SET Disassemble

Step3. Uninstall Screws



Uninstall 11 pcs fasten

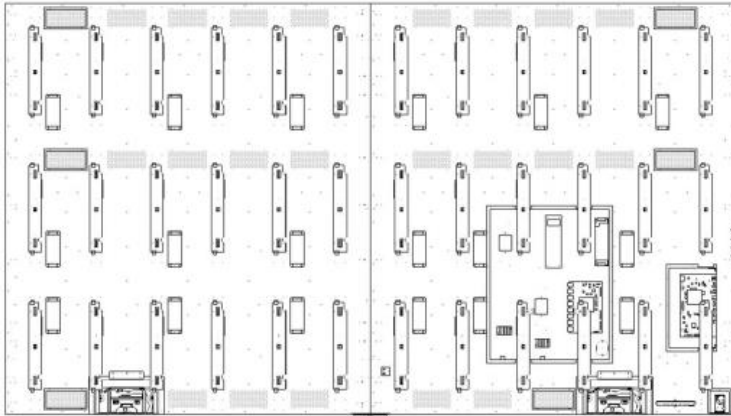


Uninstall 16 pcs M4 flat head screws

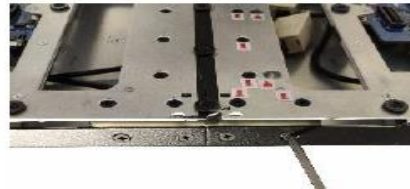
■ SET Disassemble

Step4. Uninstall M4 Screws

4 PCS M4 screws



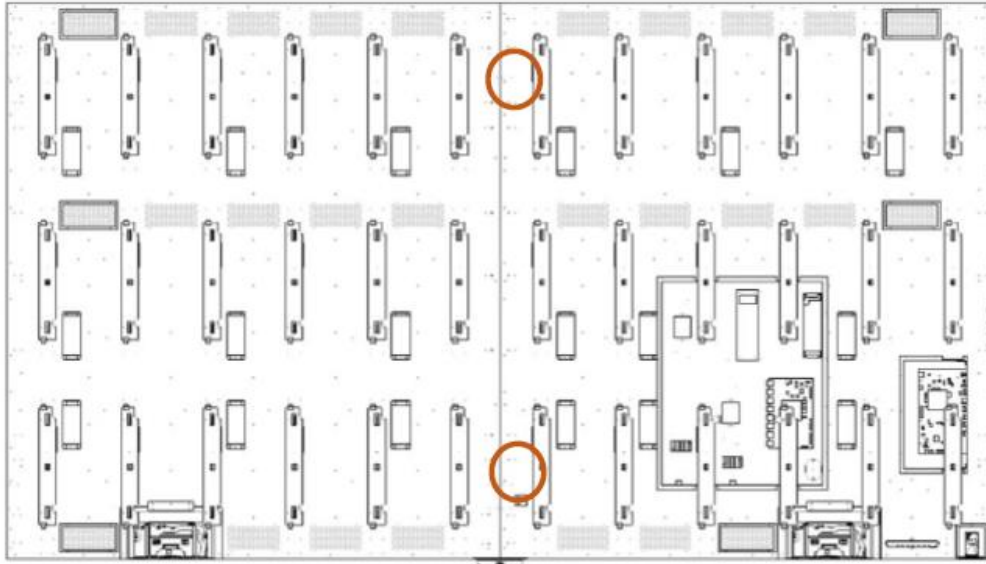
4 PCS M4 screws



1. Disassemble Step

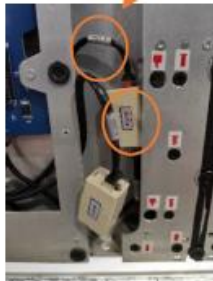
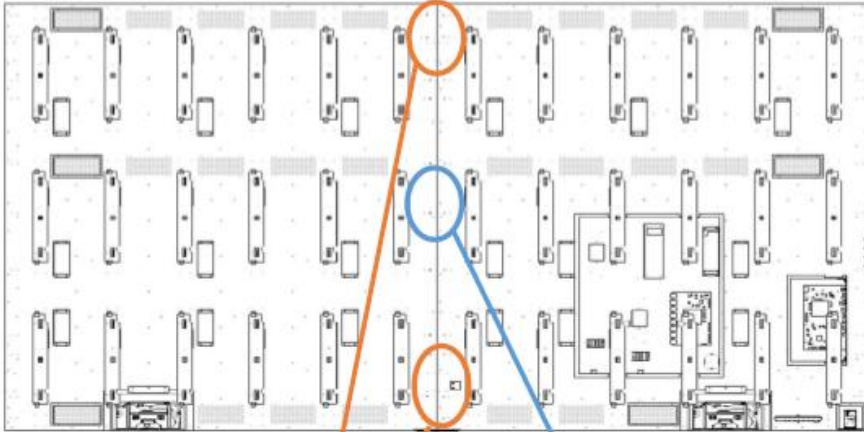
■ SET Disassemble

Step5. Unfasten with a hexagonal plate.



■ SET Disassemble

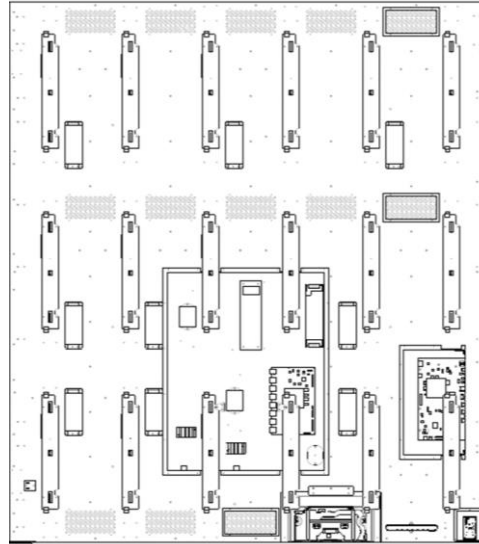
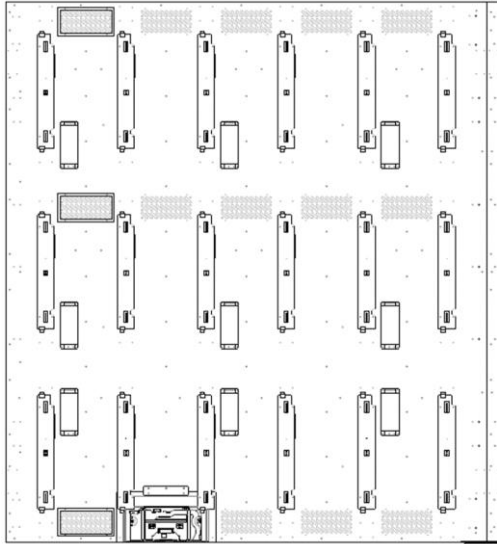
Step6. Disconnect all cables in cabinet



1. Disassemble Step

■ SET Disassemble

Step7. Separate the cabinets from each other.



2. Assemble Step

■ Assemble

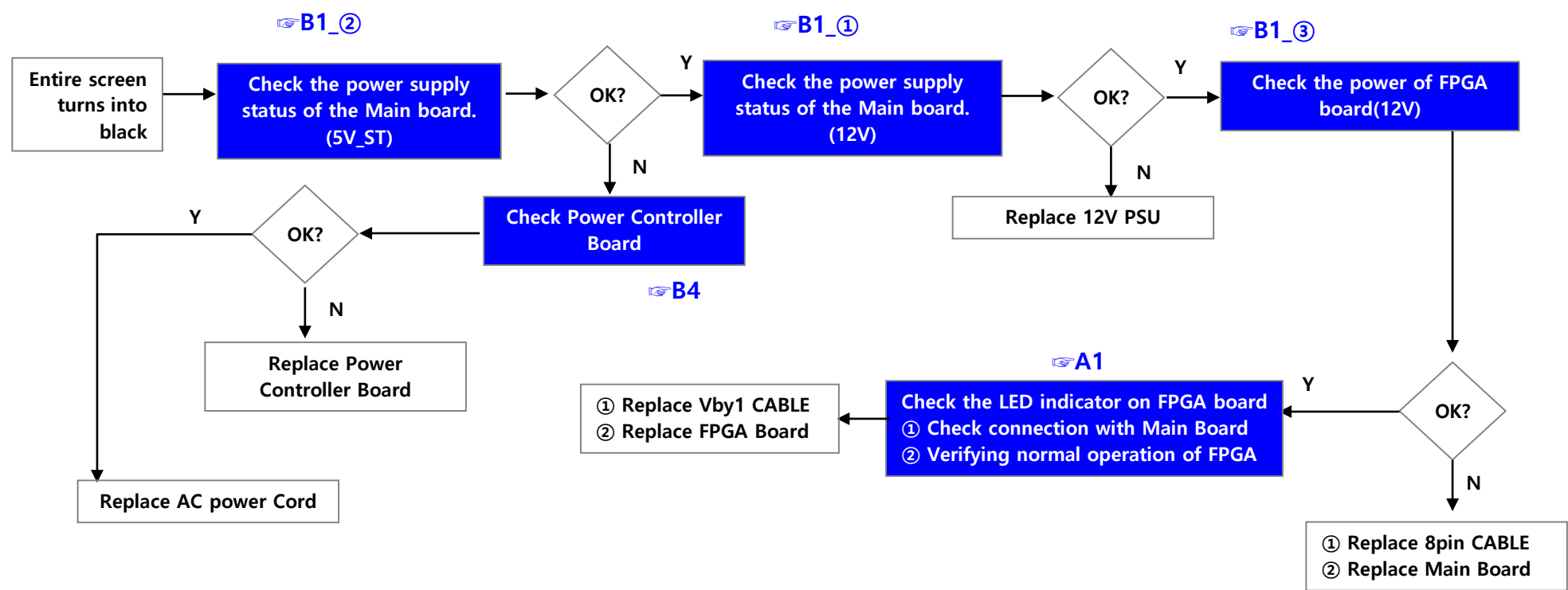
The assembly is in an opposite order of the steps that has been shown in "Disassemble Step".

TROUBLESHOOTING GUIDE

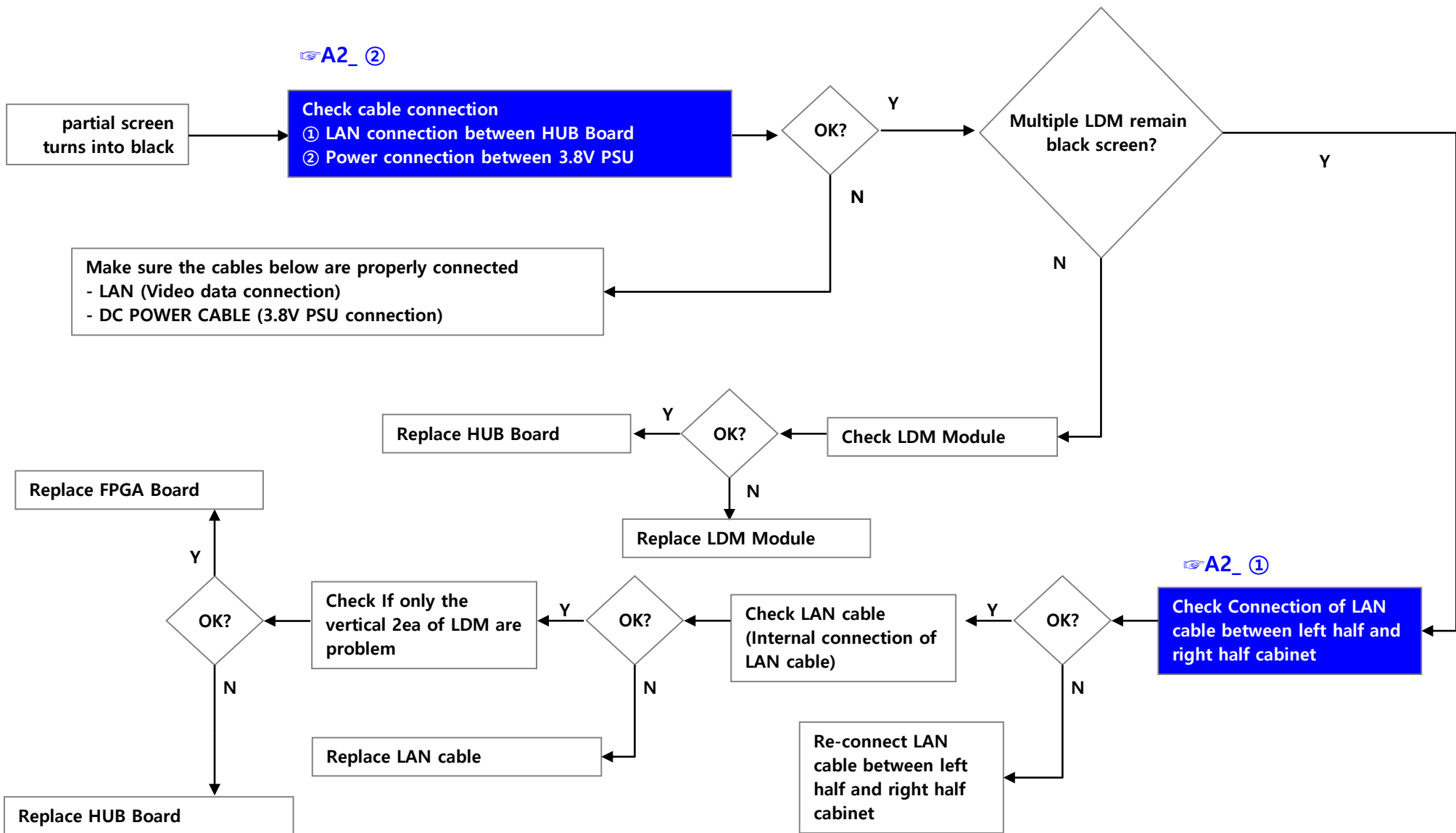
AIO136 LED signage troubleshooting procedures

No.	Error symptom (1st category)	Error symptom (2nd category)	Page	Remarks
1	A. Video Error	No Video (entire screen turns into black)	1	
2		No Video (partial screen turns into black)	2	
3		Weird Pattern with an area covering the multiple modules of the screen	3	
4		Color Error	4	
1	B. Power Error	No Power to entire screen	5	
2		No Power to partial screen	6	
3		Weird Pattern with an area covering certain part of the single module (LED module 1EA only in certain areas)	7	
1	C. Exterior Defect	LED Defect (Line/Dot defect, etc.)	8	
1	D. Function Error	Error Alarm on the "Dashboard" of LED Assistant	9	

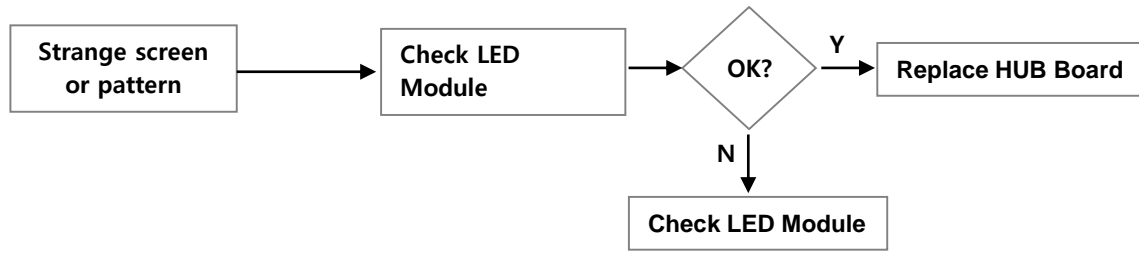
AIO136 LED SIGNAGE	Error symptom	A. Video error	Established date		
		No video (Entire screen turns into black)	Revised date		



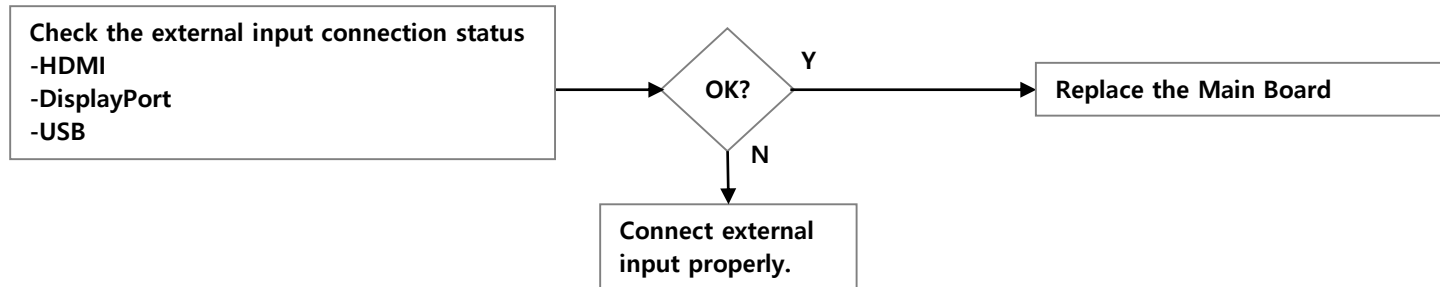
AIO136 LED SIGNAGE	Error symptom	A. Video error	Established date		
		No video (partial screen turns into black)	Revised date		



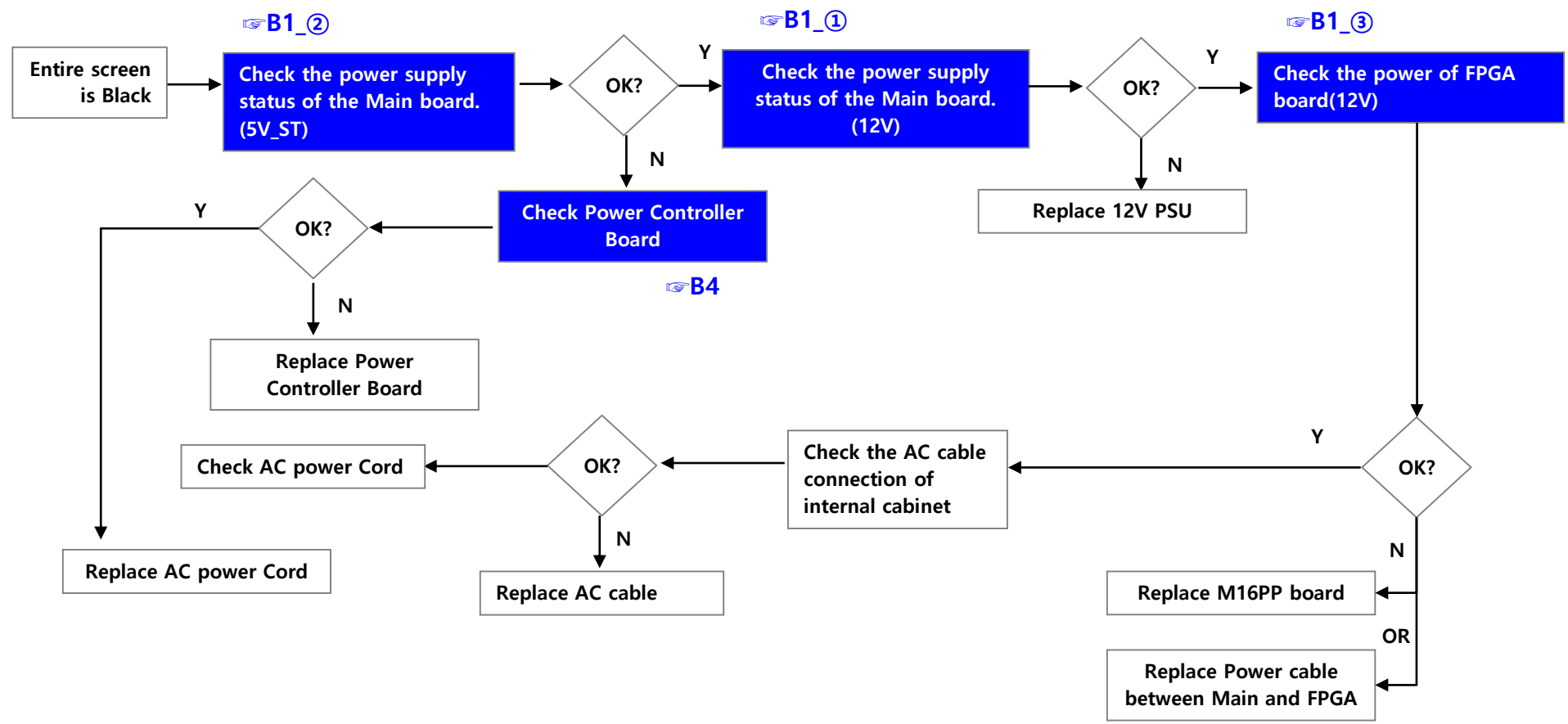
AIO136 LED SIGNAGE	Error symptom	A. Video error	Established date		
		Weird Pattern with an area covering the multiple modules of the screen	Revised date		



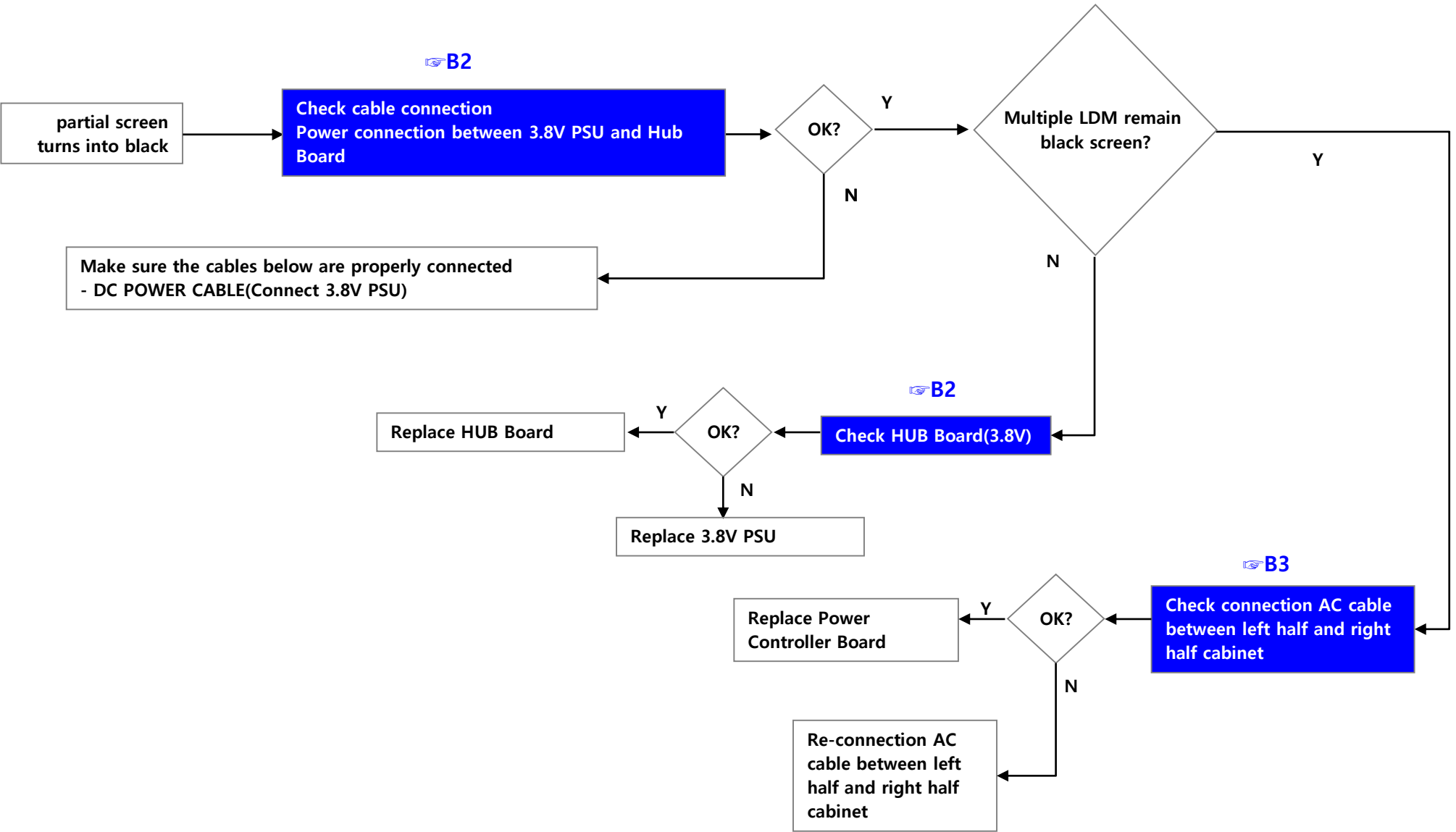
AIO136 LED SIGNAGE	Error symptom	A. Video error	Established date		
		Color Error	Revised date		



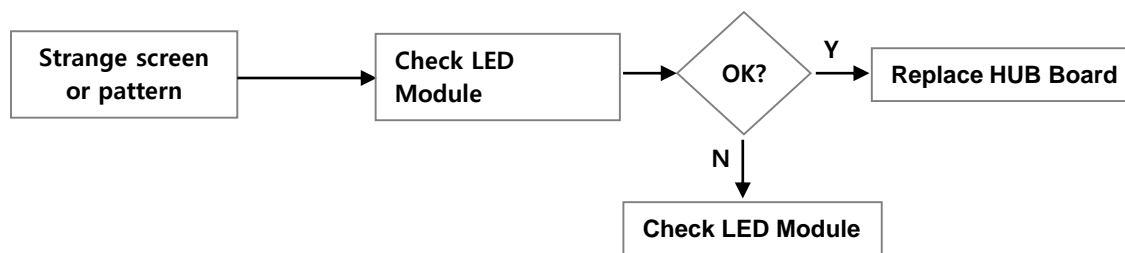
AIO136 LED SIGNAGE	Error symptom	B. Power error	Established date		
		No Power to entire screen	Revised date		



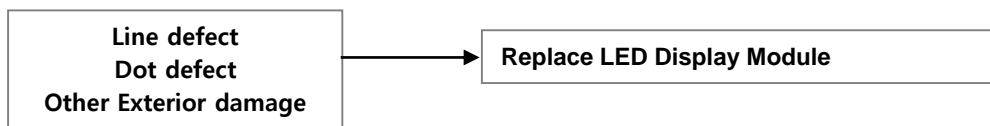
AIO136 LED SIGNAGE	Error symptom	B. Power error	Established date		
		No Power to partial screen	Revised date		



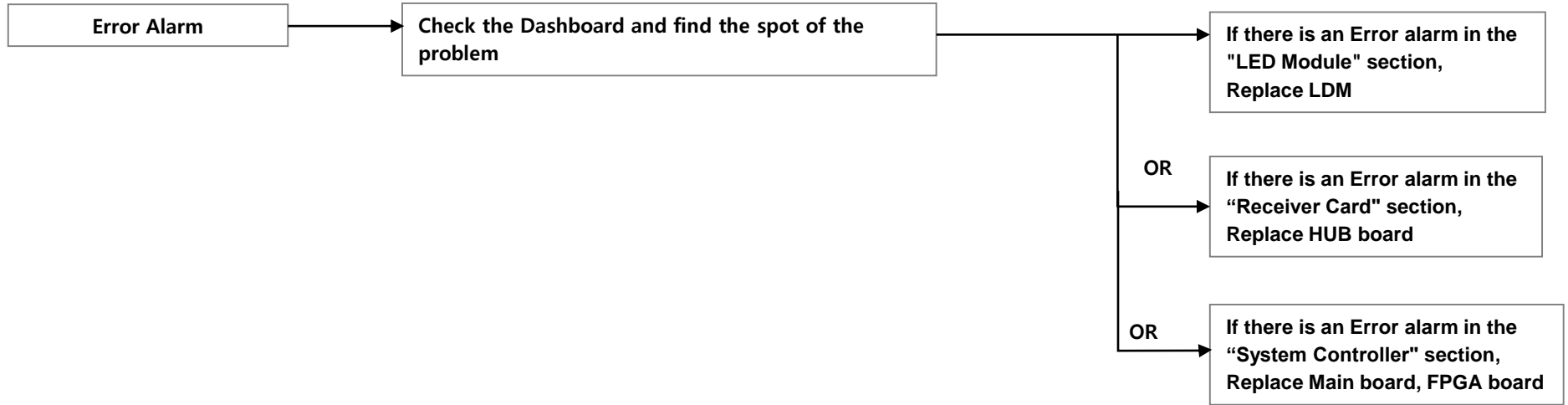
AIO136 LED SIGNAGE	Error symptom	B. Power error	Established date		
		Weird Pattern with an area covering certain part of the single module (LED module 1EA only in certain areas)	Revised date		



AIO136 LED SIGNAGE	Error symptom	C. Exterior Defect	Established date		
		LED Defect (Line/Dot defect, etc.)	Revised date		



AIO136 LED SIGNAGE	Error symptom	D. Function Error	Established date		
		Error Alarm on the "Dashboard" of LED Assistant	Revised date		

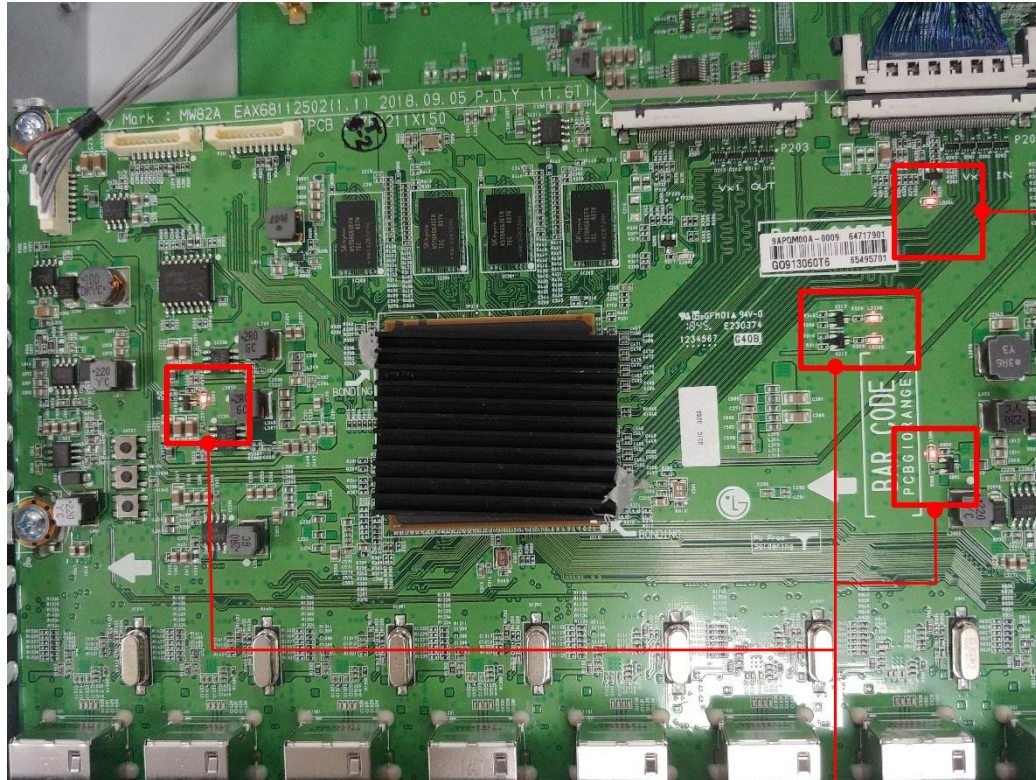


AIO136 LED SIGNAGE Standard Repair Process

No.	증상 (대분류)	상세 (소분류)	Page	Remarks
1	A. Video error - No Video (entire screen turns into black) - No Video (partial screen turns into black)	Check the Indicator on the System Controller FPGA board.	A1	
2	- Weird Pattern with an area covering the multiple modules of the screen - Color Error	Check LAN Cable connection. (cabinet <-> cabinet, HUB board <-> HUB board)	A2	
1	B. Power error - No Power to entire screen - No Power to partial screen - Weird Pattern with an area covering certain part of the single module	Check the power of the system controller's main / FPGA board	B1	
2		Check PSU / HUB board	B2	
3		Check AC Cable connection between left half and right half	B3	
4		Check Power Controller board	B4	
1	C. Exterior Defect - LED Defect (Line/Dot Defect, etc.)		C-1	

Standard Repair Process Detail Technical Manual

AIO136 LED SIGNAGE	Error symptom	A. Video error	Established date		
	Content		Check the Indicator on the System Controller FPGA board.	Revised date	



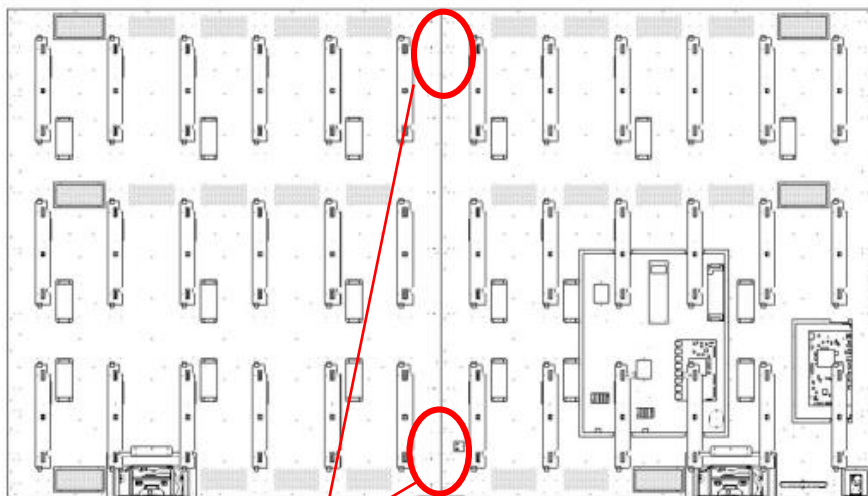
① Check the connection with M16PP.

② Check normal operation of FPGA.

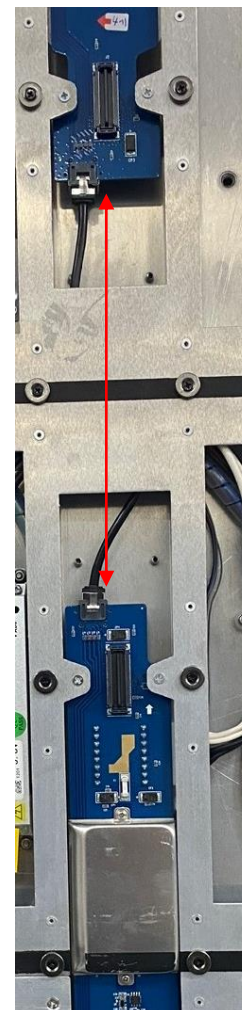


Standard Repair Process Detail Technical Manual

AIO136 LED SIGNAGE	Error symptom	A. Video error	Established date		
	Content		Check LAN Cable connection. (cabinet <-> cabinet, HUB board <-> HUB board)	Revised date	



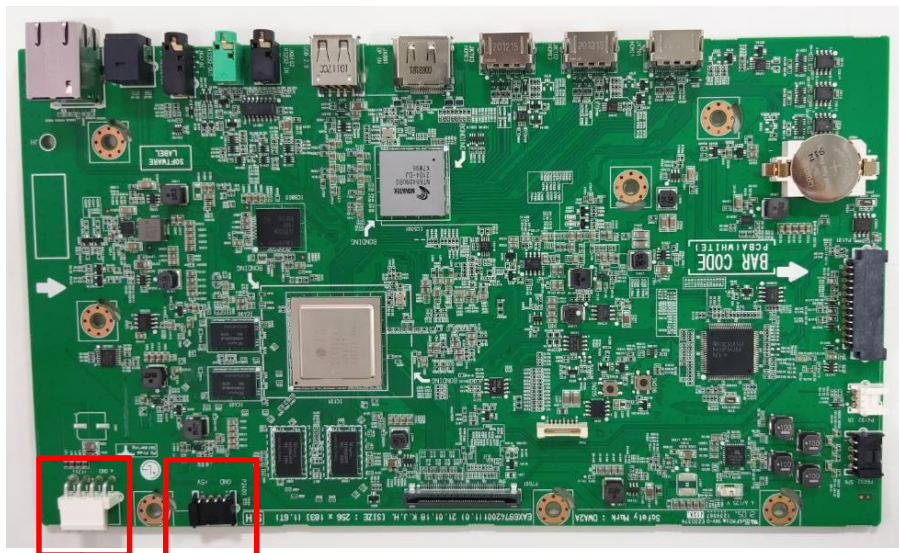
①
Check Connection of LAN cable
between left half and right half
cabinet.



②
Check Connection of
LAN cable between HUB boards.



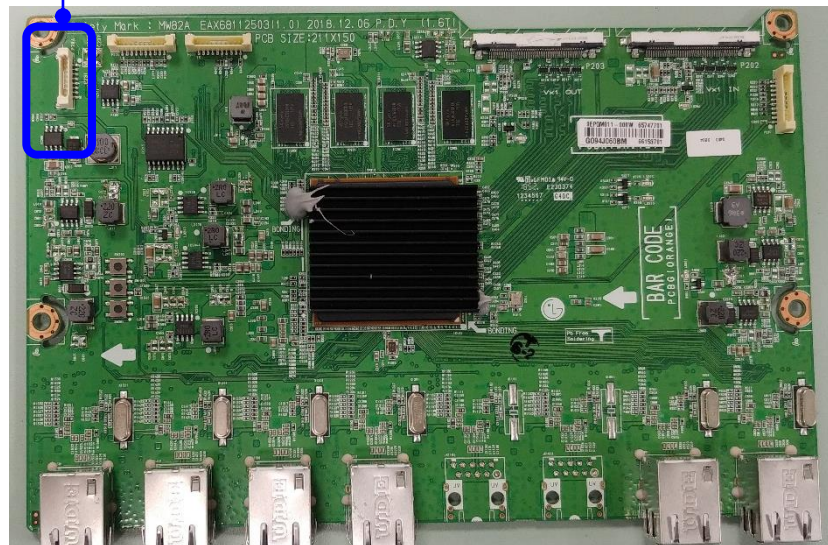
AIO136 LED SIGNAGE	Error symptom	B. Power error	Established date	
	Content	Check the power of the system controller's main / FPGA board	Revised date	B1



① P200
12V supplied from 12V PSU

② P2400
5V_ST powered from Power controller board

③ P204
12V powered from main board



Standard Repair Process Detail Technical Manual

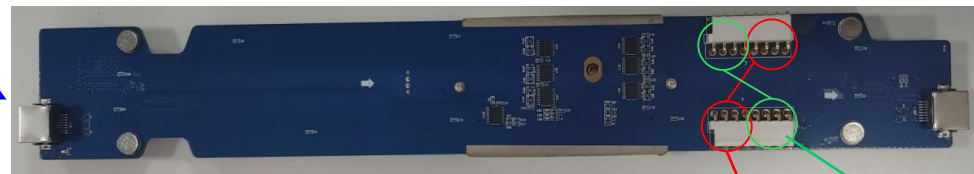
AIO136 LED SIGNAGE	Error symptom	B. Power error	Established date	
	Content		Check AC Cable connection between left half and right half	Revised date



12V PSU			
PIN NO.	PIN NAME	PIN NO.	PIN NAME
1,2	12V	3,4	GND



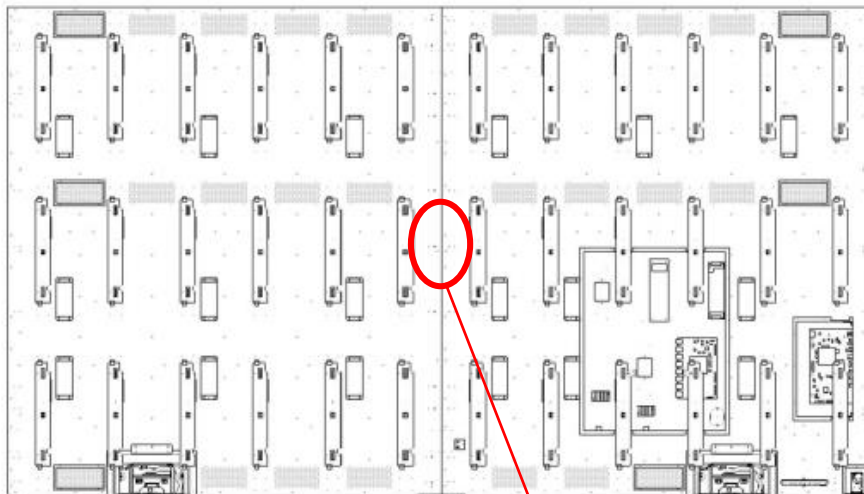
3.8V PSU			
PIN NO.	PIN NAME	PIN NO.	PIN NAME
1,2	3.8V	3,4	GND



HUB Board			
PIN NO.	PIN NAME	PIN NO.	PIN NAME
1,2,3,4	3.8V	5,6,7,8	GND

Standard Repair Process Detail Technical Manual

AIO136 LED SIGNAGE	Error symptom	B. Power error	Established date	
	Content		Check AC Cable connection between left half and right half	Revised date



- ① Check Connection of AC cable between left half and right half cabinet.

B3



Standard Repair Process Detail Technical Manual

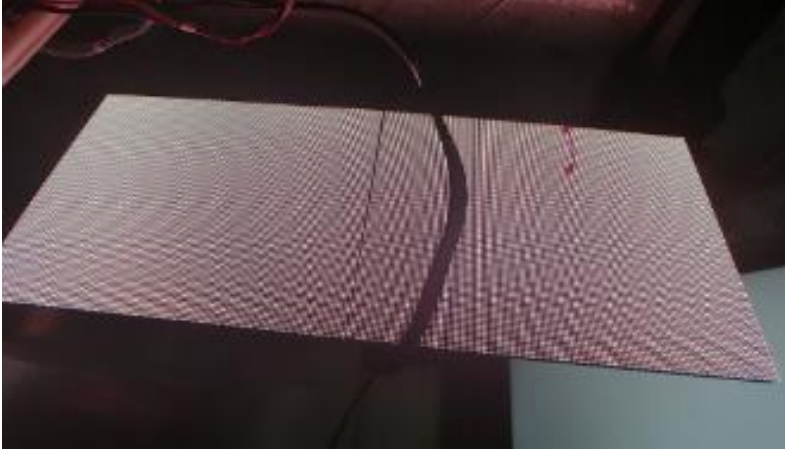
AIO136 LED SIGNAGE	Error symptom	B. Power error	Established date	
	Content	Check Power Controller board	Revised date	B4



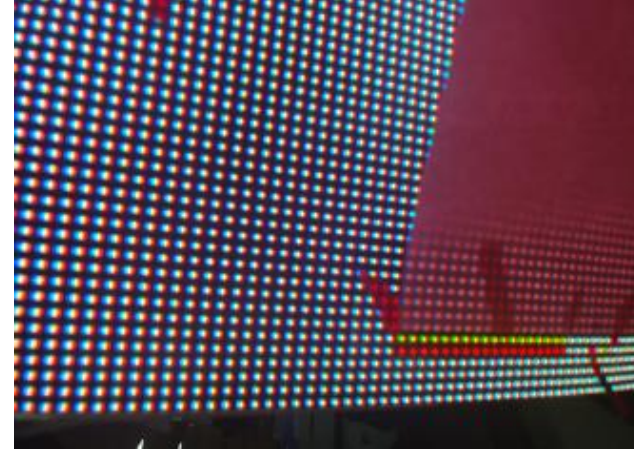
PIN NO.	PIN NAME	PIN NO.	PIN NAME
1	5V_ST	4	GND



Appendix : When to replace LED display module



Line defect



Line defect



Line defect / Dot defect

Unrepairable Case :

If there is a defect in the LED module on the installation site as shown in the picture, there is no way to repair it in the field. Therefore, the LED display module should be replaced as soon as possible.

C-1.

SOFTWARE UPDATE GUIDE

AIO136 LED Signage SW Update Guide

No.	Contents	Remarks
1	System Controller Mainboard F/W Update	
2	FPGA F/W Update	
3	Receiver Card F/W Update	
4	Receiver Card Setting Data (Configuration Data) Update	

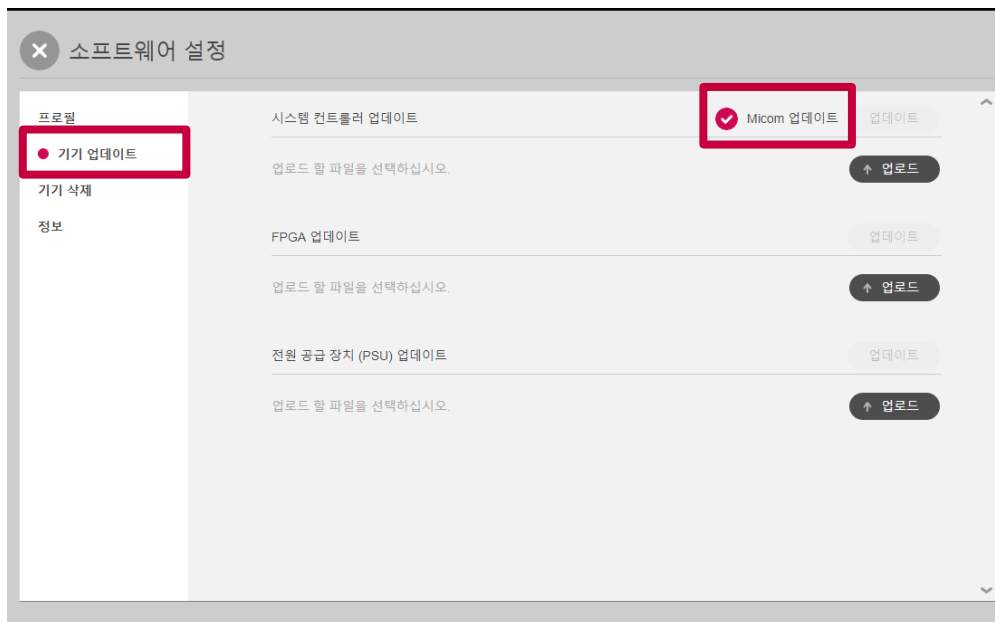
1. System Controller Mainboard F/W Update

Step 1~2



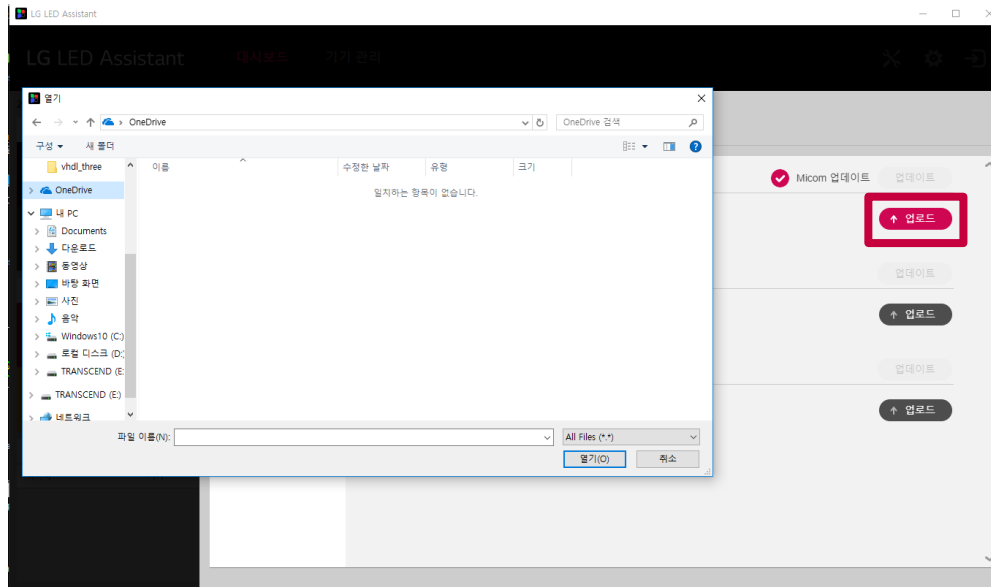
- Step 1.** Run the LED Assistant.
- Step 2.** Click "Software Settings" at the top left.
- Step 3.** Select the "Device Update" tab on the left.
- Step 4.** Check "Update Micom".

Step 3~4



1. System Controller Mainboard F/W Update

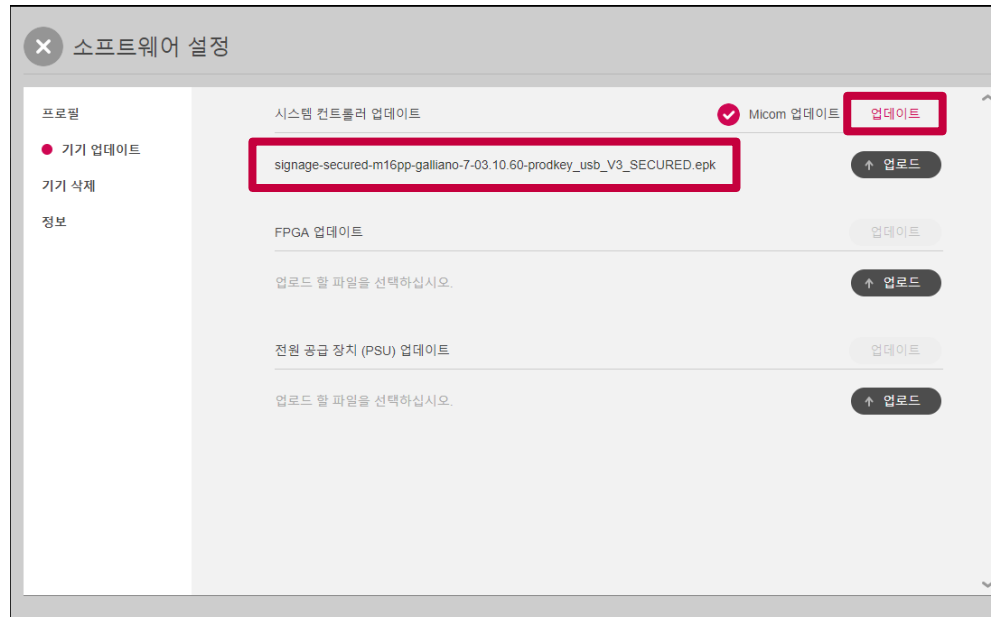
Step
5



Step 5. In the "System Controller Update" section, click "Upload"

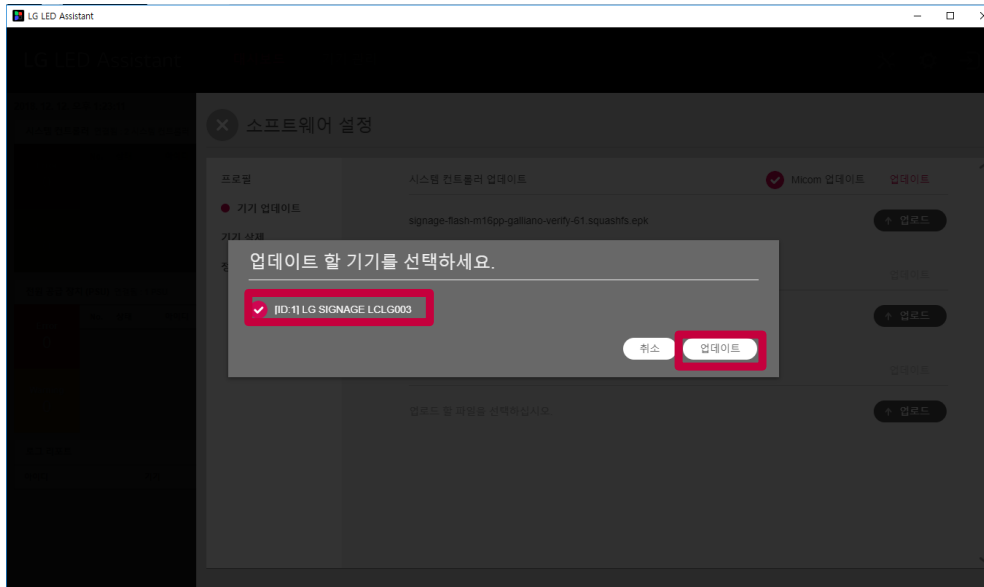
Step 6. Upload the firmware from the directory and click "Update".

Step
6



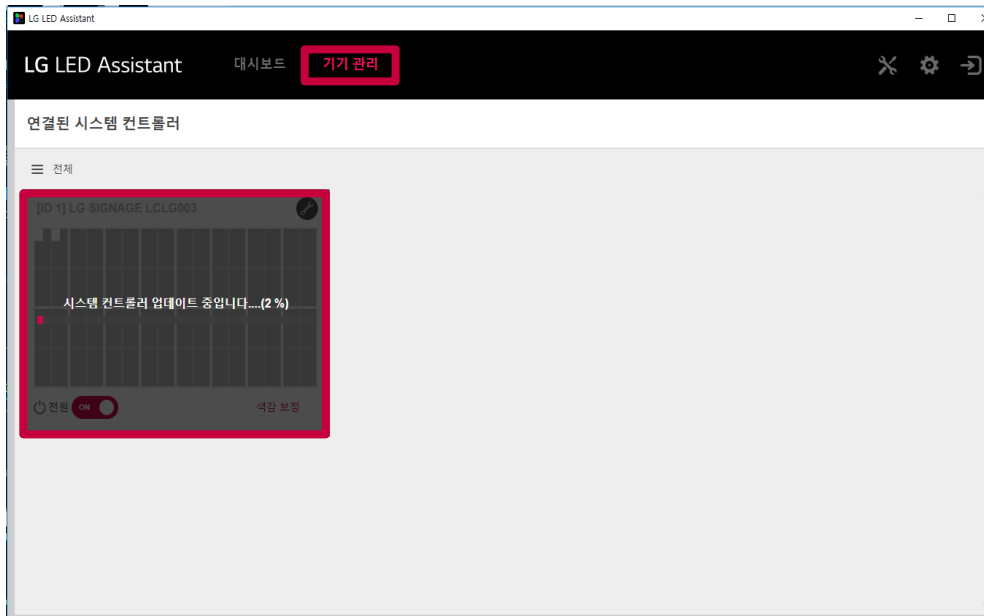
1. System Controller Mainboard F/W Update

Step
7



Step 7. Select System Controller from the pop-up, and click "Update".

Step
8



Step 8. Check "Device Management" to see if firmware update is working normally.

2. FPGA F/W Update

Step
1~2

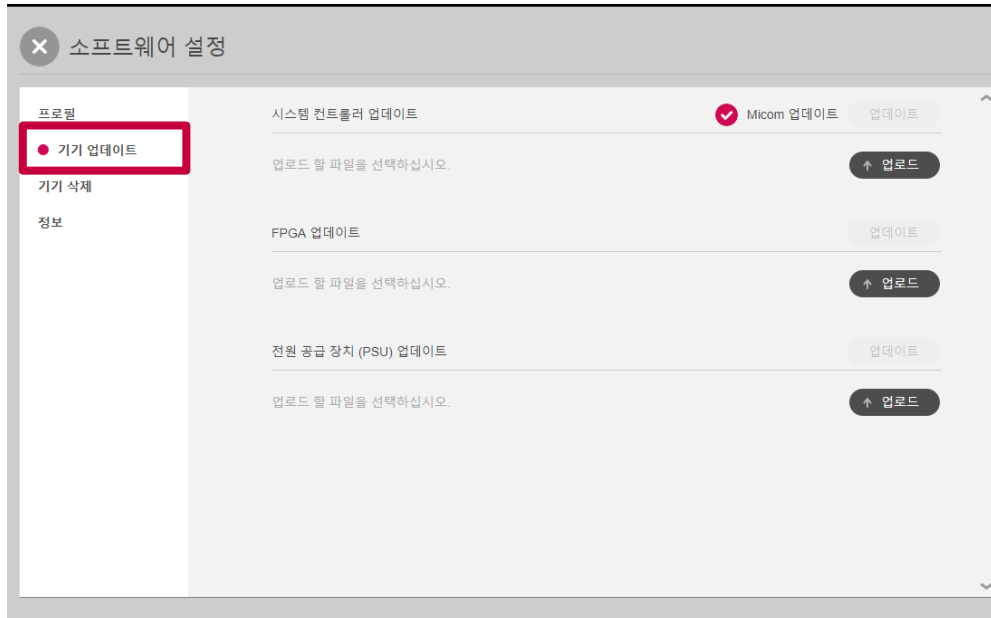


Step 1. Run the LED Assistant.

Step 2. Click "Software Settings" at the top left.

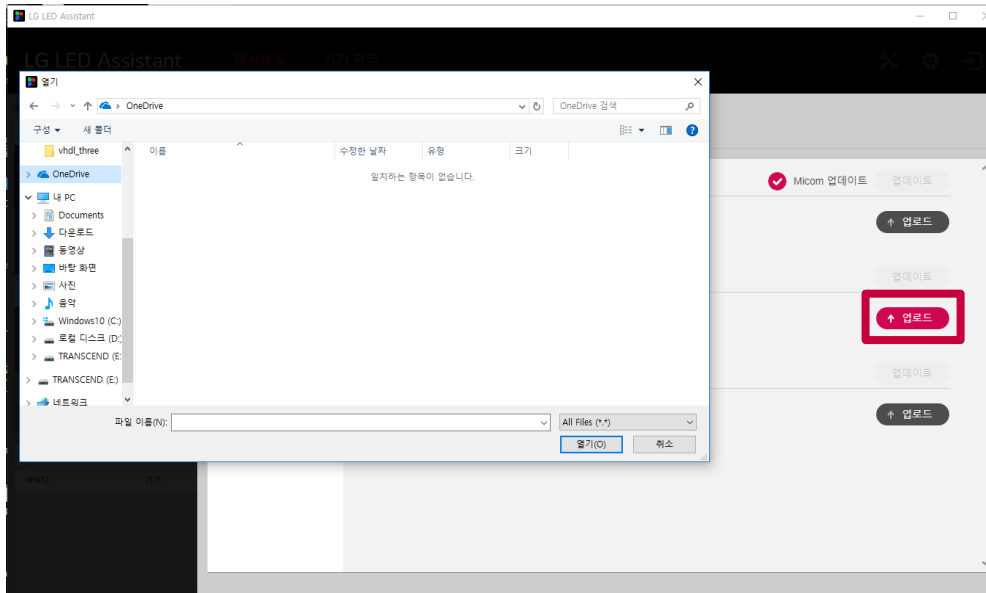
Step 3. Select the "Device Update" tab on the left.

Step
3~4

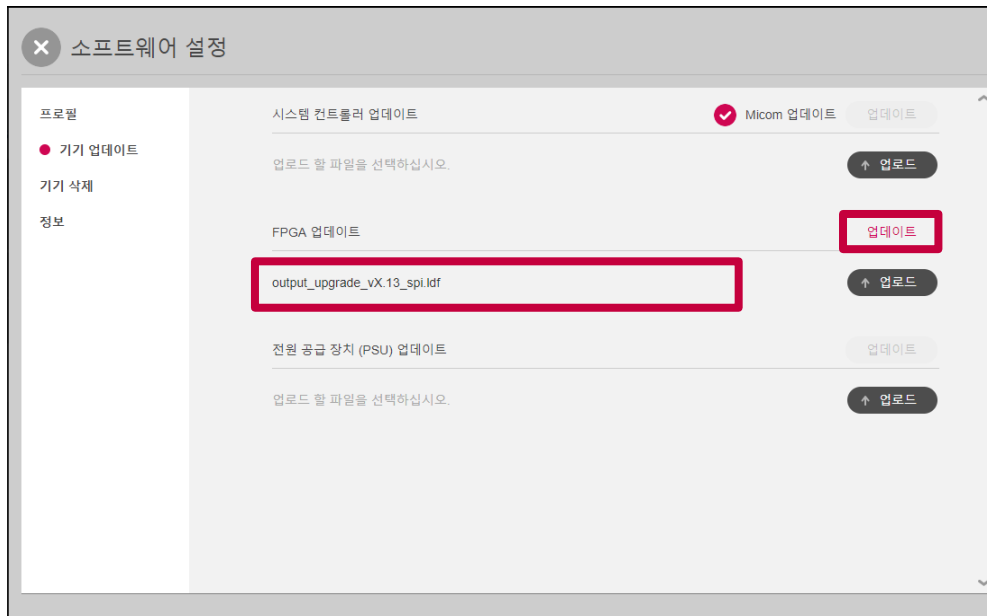


2. FPGA F/W Update

Step
5



Step
6

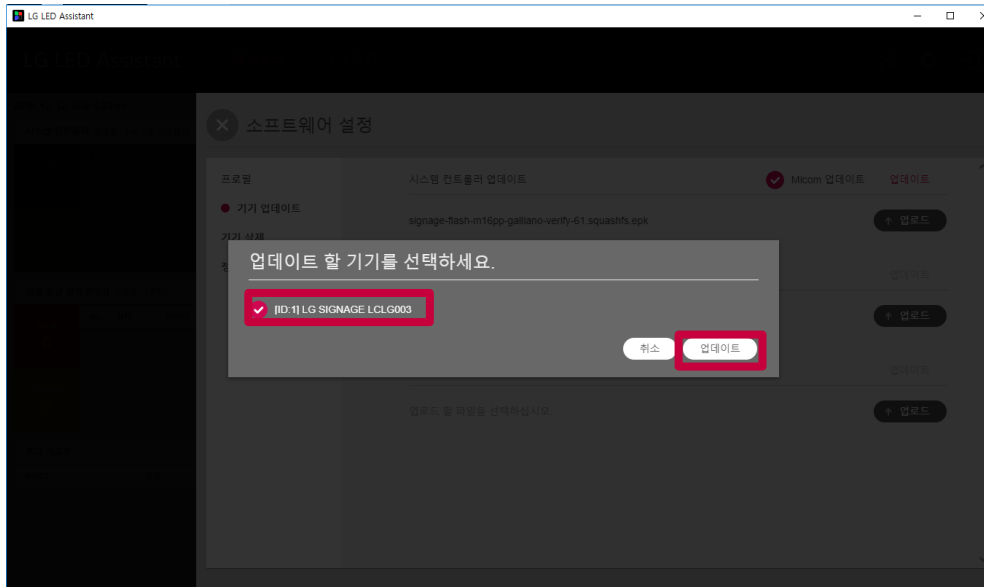


Step 5. In the "FPGA Update" section, click "Upload".

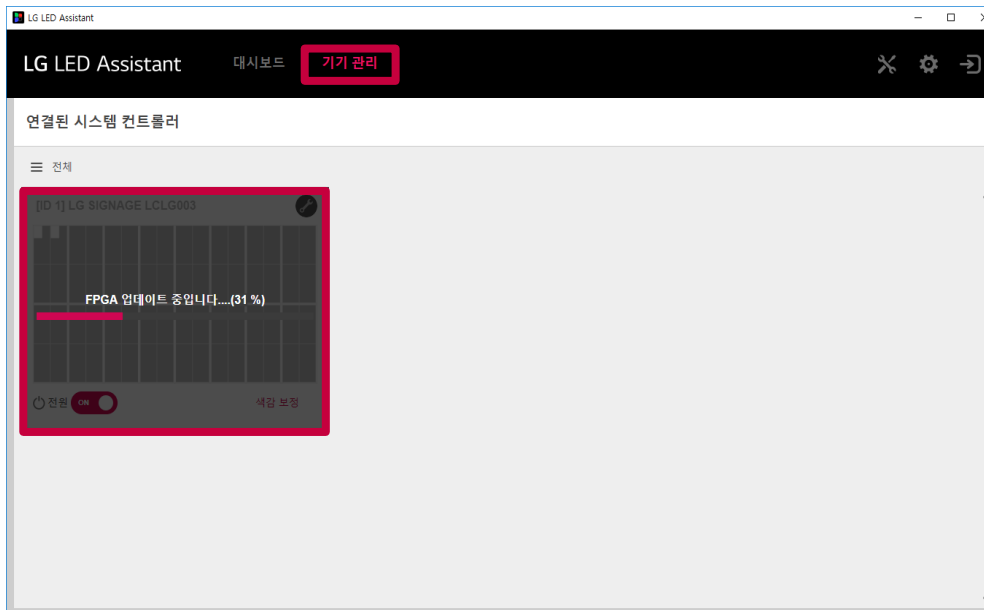
Step 6. Upload the firmware from the directory and click "Update" shown on the right.

2. FPGA F/W Update

Step
7



Step
8

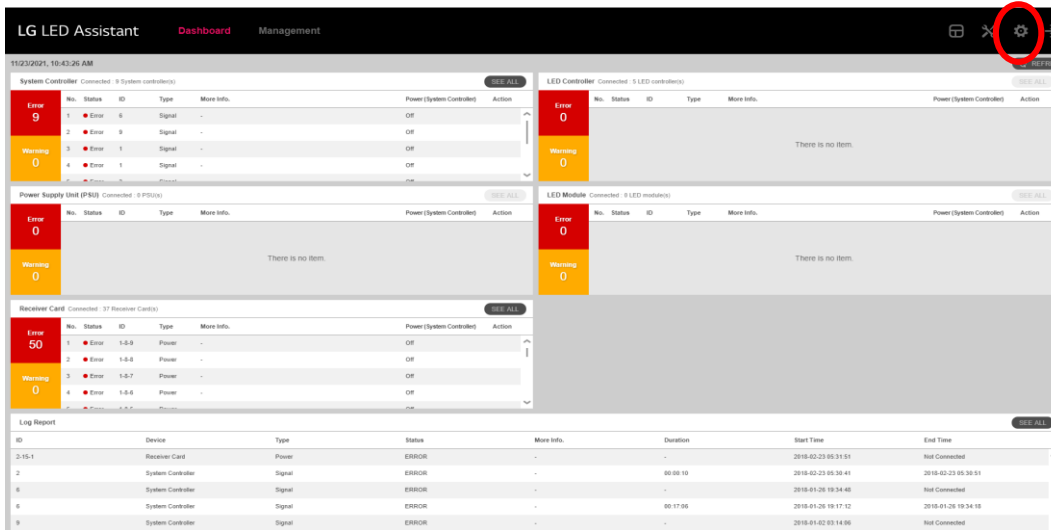


Step 7. Select System Controller from the pop-up, and click "Update".

Step 8. Check "Device Management" to see if firmware update is working normally

3. Receiver Card F/W Update

Step
1~2

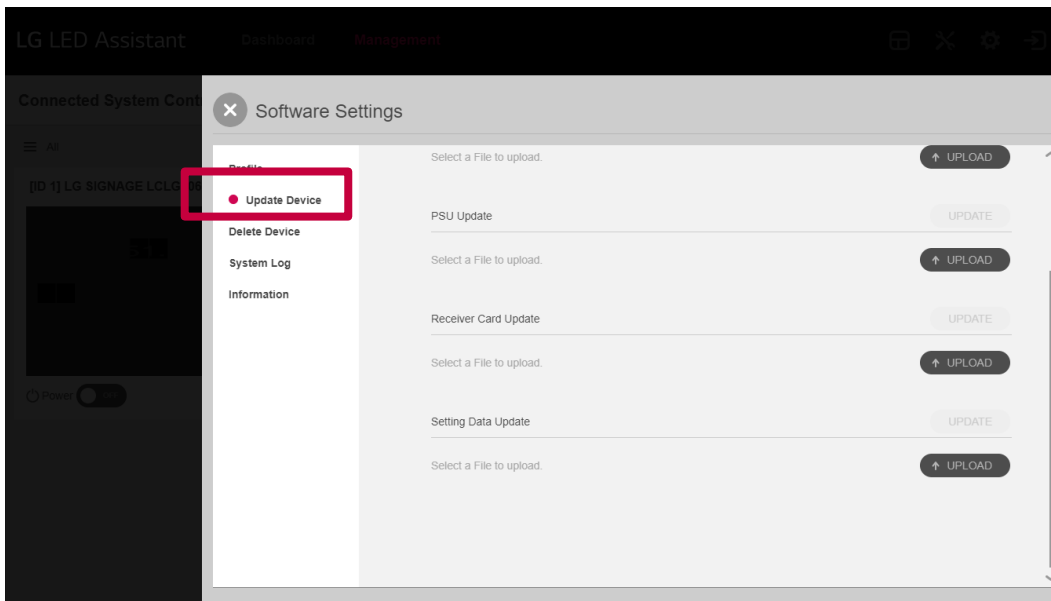


Step 1. Run the LED Assistant.

Step 2. Click "Software Settings" at the top left.

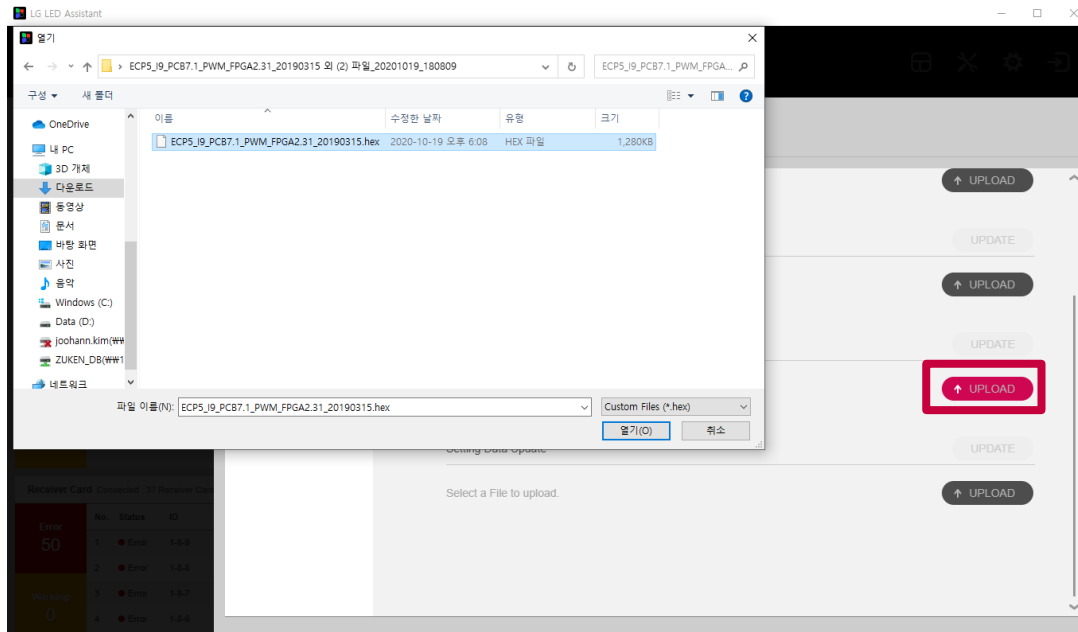
Step 3. Select the "Device Update" tab on the left.

Step
3~4



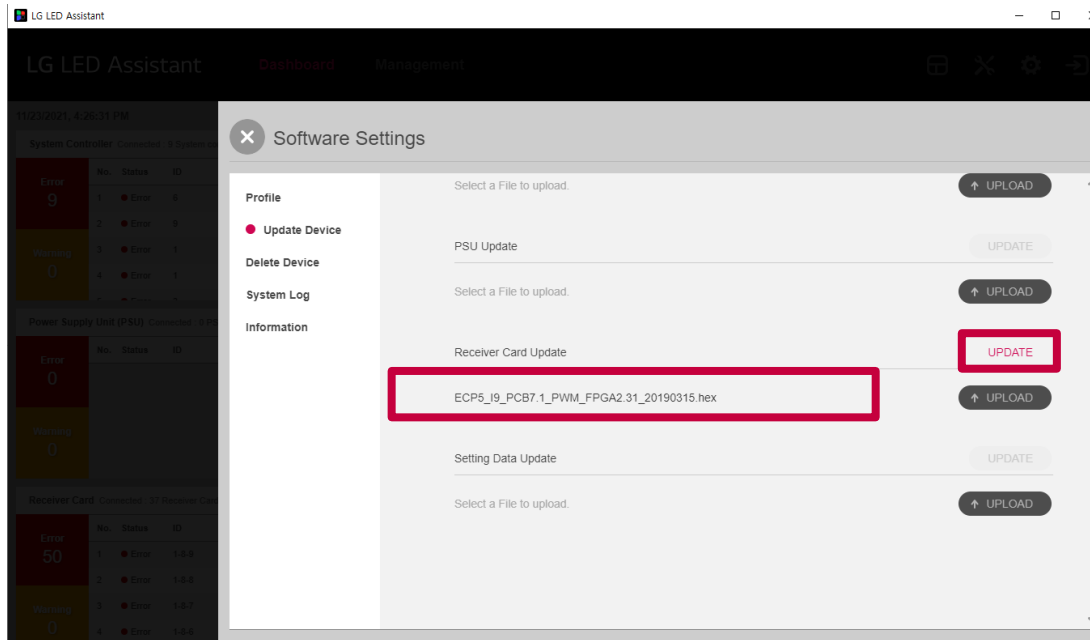
3. Receiver Card F/W Update

Step
5



Step 5. In the "Receiver Card Update" section, click "Upload".

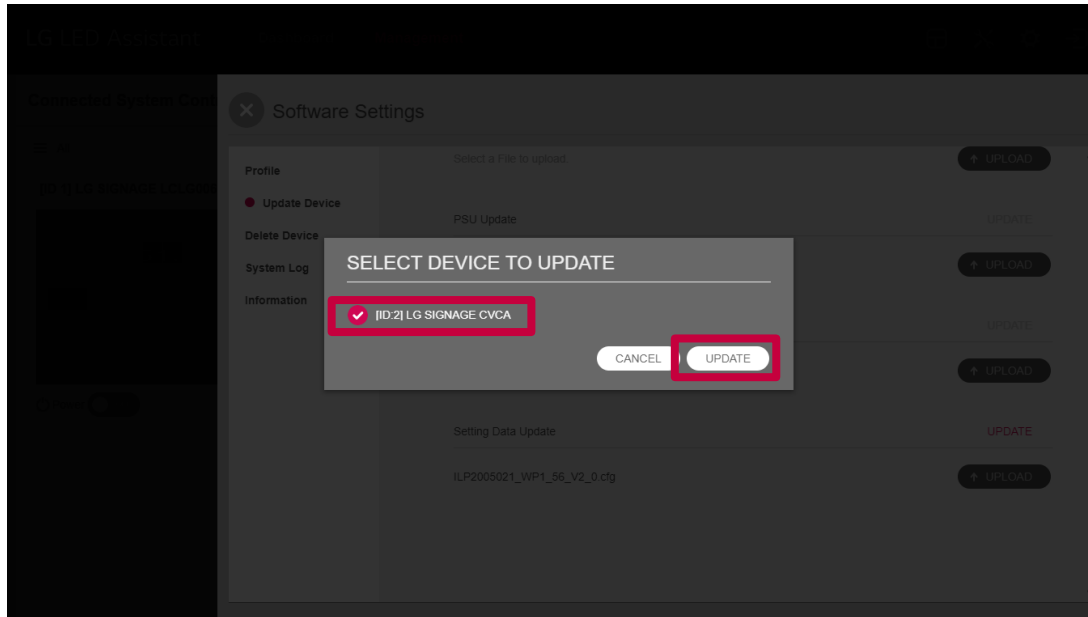
Step
6



Step 6. Upload the firmware from the directory and click "Update" shown on the right.

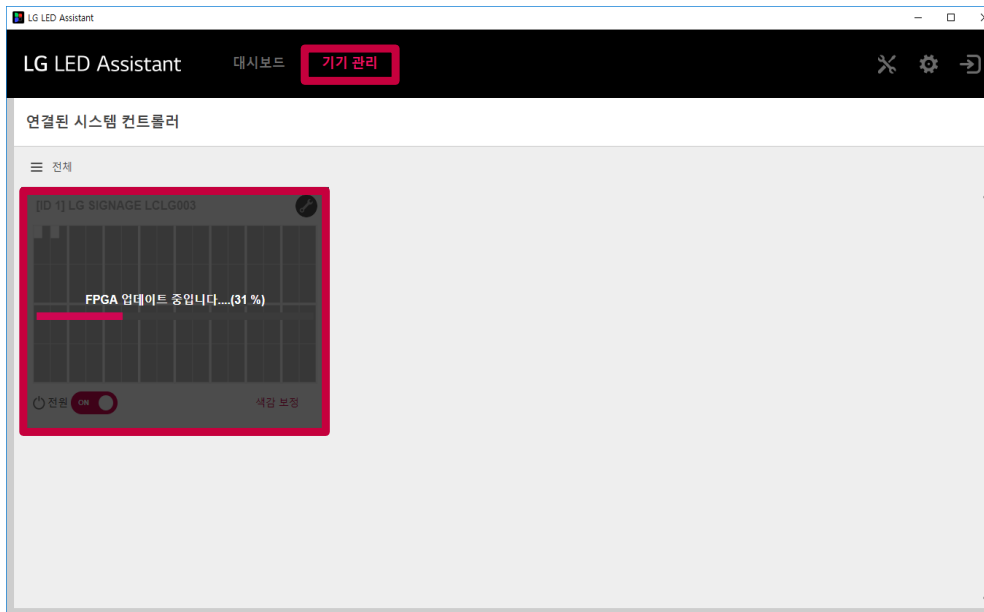
3. Receiver Card F/W Update

Step
7



Step 7. Select System Controller from the pop-up, and click "Update".

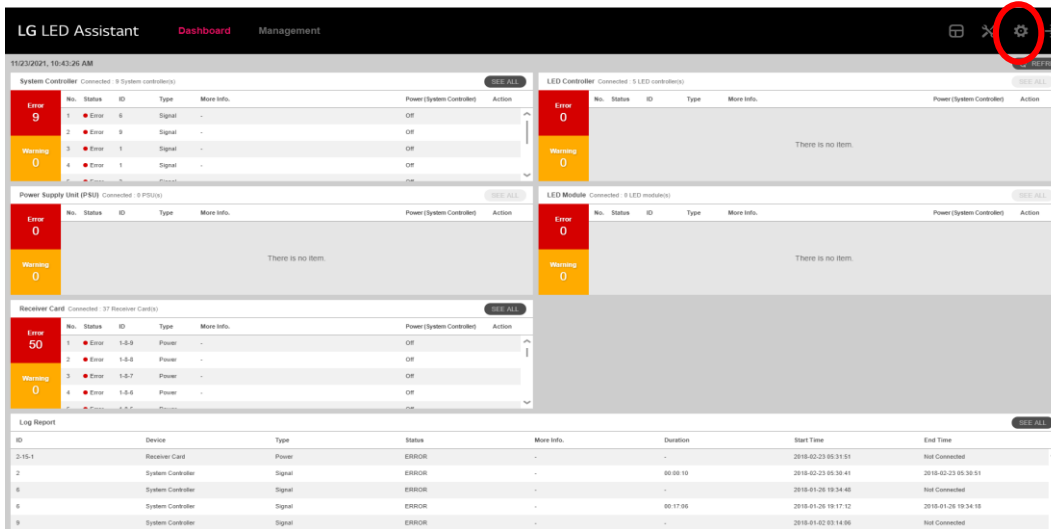
Step
8



Step 8. Check "Device Management" to see if firmware update is working normally

4. Receiver Card Setting Data (Configuration Data) Update

Step
1~2

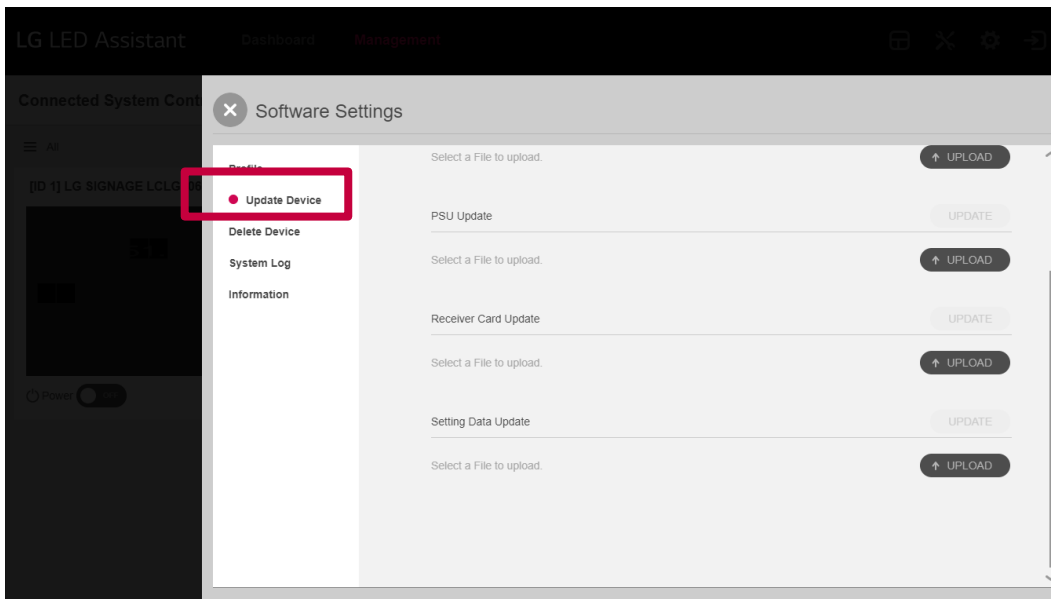


Step 1. Run the LED Assistant.

Step 2. Click "Software Settings" at the top left.

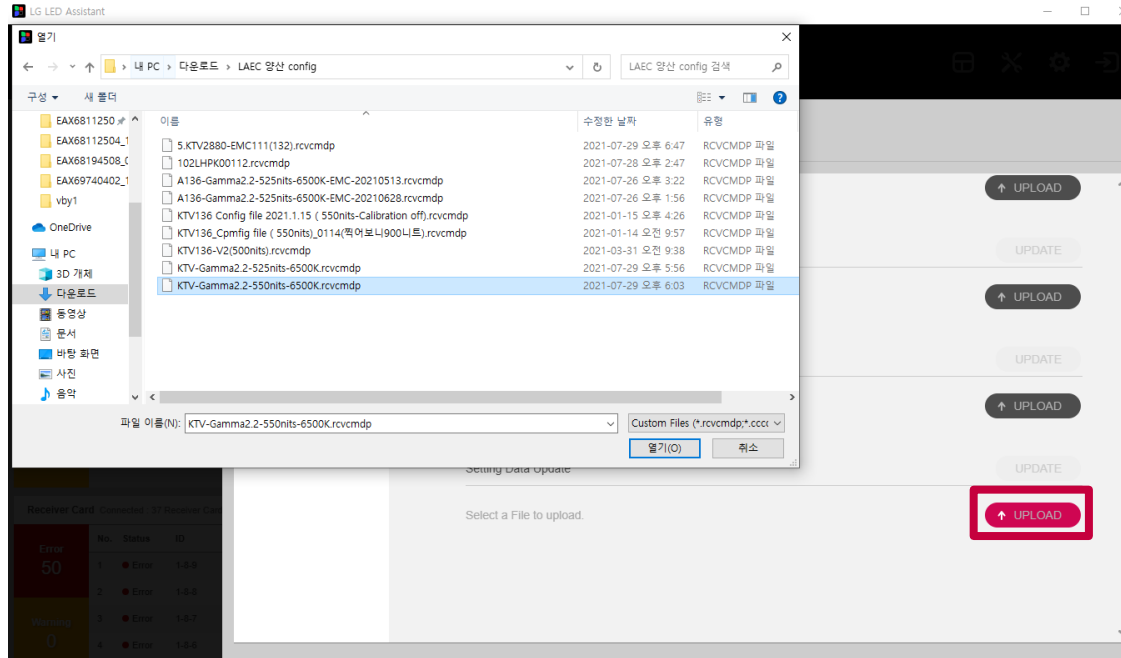
Step 3. Select the "Device Update" tab on the left.

Step
3~4



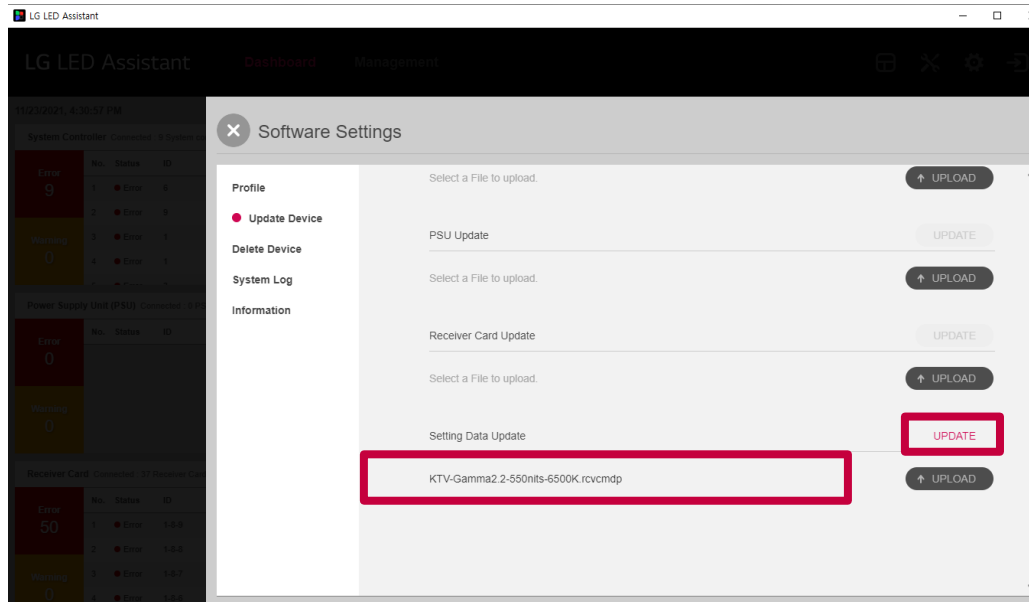
4. Receiver Card Setting Data (Configuration Data) Update

Step
5



Step 5. In the "Setting Data Update" section, click "Upload".

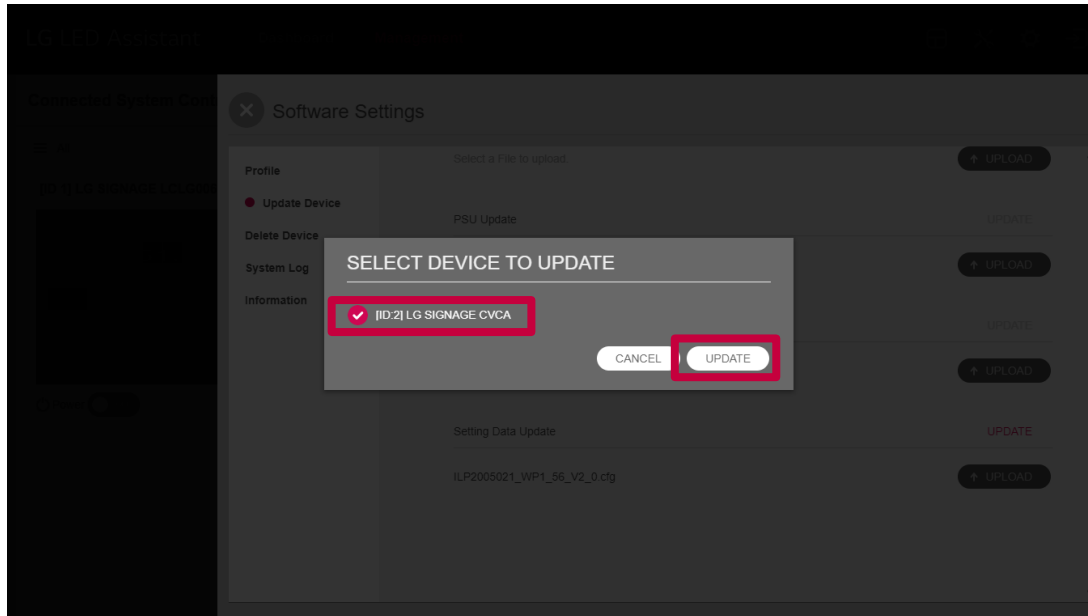
Step
6



Step 6. Upload the firmware from the directory and click "Update" shown on the right.

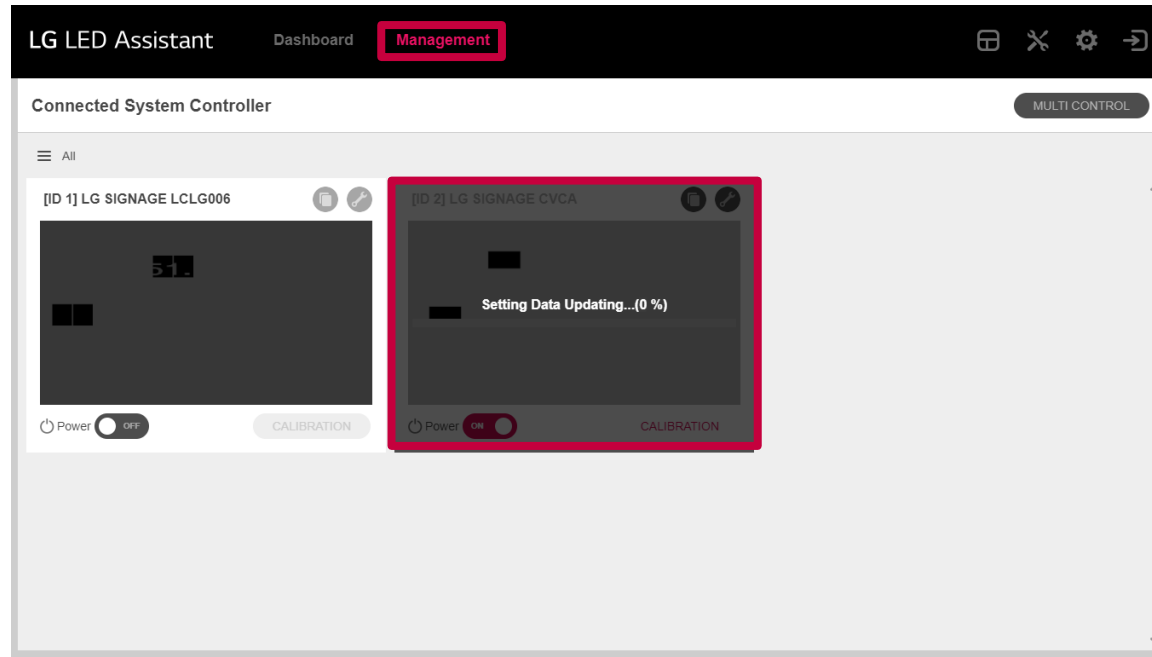
4. Receiver Card Setting Data (Configuration Data) Update

Step
7



Step 7. Select System Controller from the pop-up, and click "Update".

Step
8



Step 8. Check "Device Management" to see if firmware update is working normally

