



B2B WARRANTY & SERVICE GUIDE

FOR CUSTOMER

5th. Dec. 2013
HE Company

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INTRODUCTION

This document is for B2B customer and system integrators.

This document contains basic service process, warranty policy about specific model, regional service contact point for B2B, basic B2B offering package. However some contents can be different by regional subsidiary's policy, by LG subsidiary's service policy. If B2B customer want to know the detailed information, product manager (or service manager) can help B2B customer's question in their regional subsidiary.

LG Electronics will put forth our best efforts and the fullest support to provide the highest quality product and service, and LG Electronics hopes to continue with SI and customer the positive and productive relationship for mutual benefit.

SERVICE PROCESS

LG Electronics recommends B2B customer and/or SI company to make a purchase of buffer stock to keep the business running normally minimizing downtime.

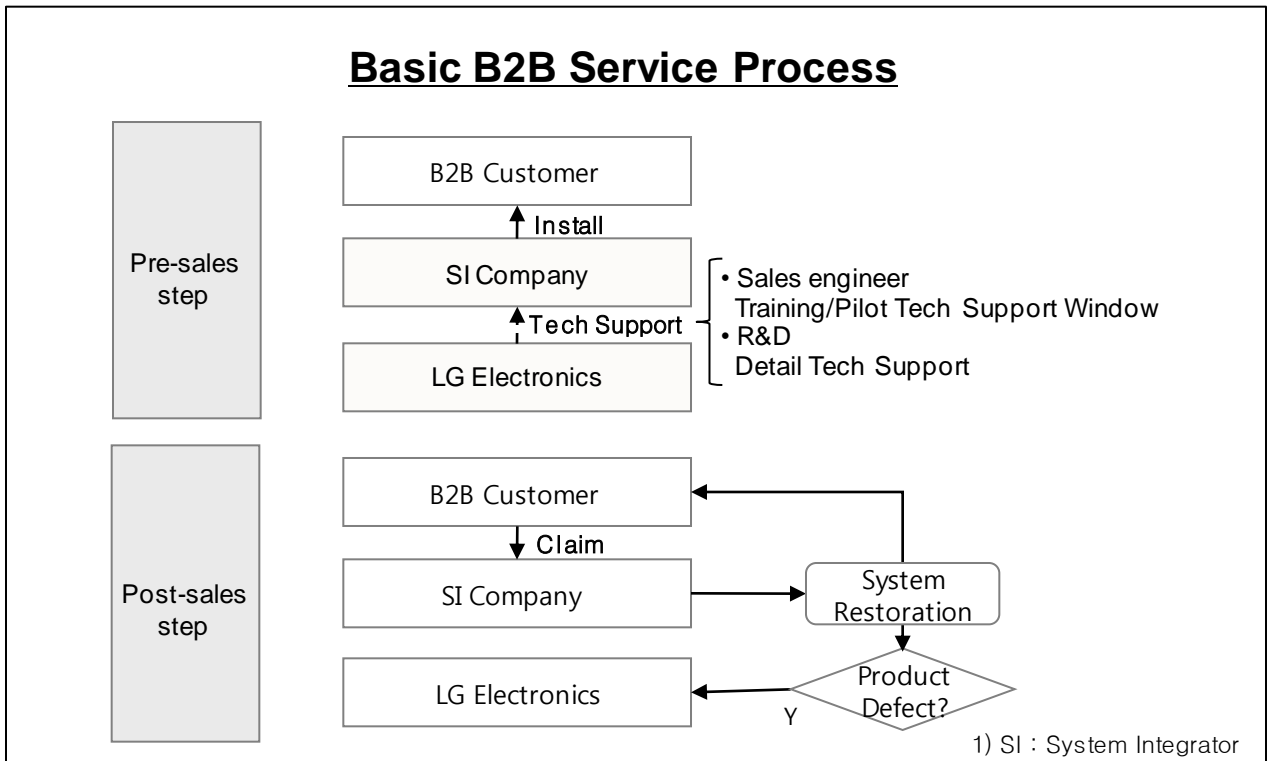
The basic service process for B2B customer/SI company is as follows,

● Pre-sales step

- ① The SI company install their hardware and software along with LG products.
- ② The Sales Engineer of LG Electronics will support when SI request for installation method or other technical queries.
- ③ LG Electronics recommends that SI company should help clarify their system in case of any problems occurring to B2B customers.
- ④ If Hotel TV, Signage have problem during installation, Sales Engineer of LG Electronics will aim to support the SI and B2B customers.

● Post-sales step

- ① If defect occurs, B2B customer will contact SI company first.
- ② SI should check the reason behind the problem to see if it is caused by LG product or not. SI company will restore the system of B2B customer by utilizing buffer stock.
- ③ If the defect caused by LG Electronics' product issue, SI engineer can escalate to the local B2B service contact point (refer to APPENDIX_REGIONAL CONTACT POINT). De-installation & re-installation of the product should be executed by SI or B2B customer.
- ④ LG will seek to remedy the problem within the appointed period with customer by arranging LG designated service engineer.
- ⑤ Service conditions and warranty policies of all countries can be different. Warranty is subject to the applicable laws of the country in which is it used.

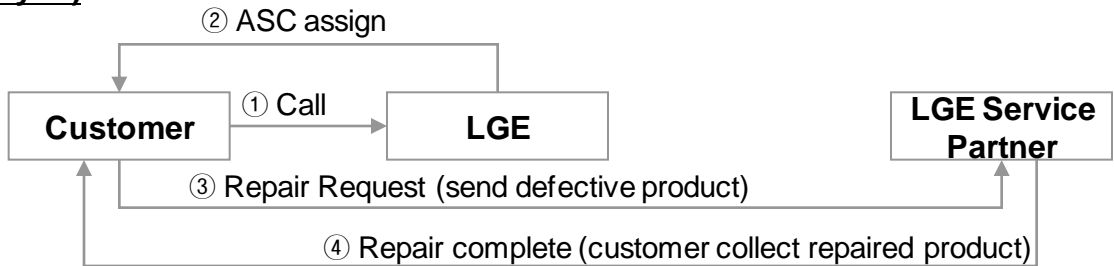


SERVICE TYPES

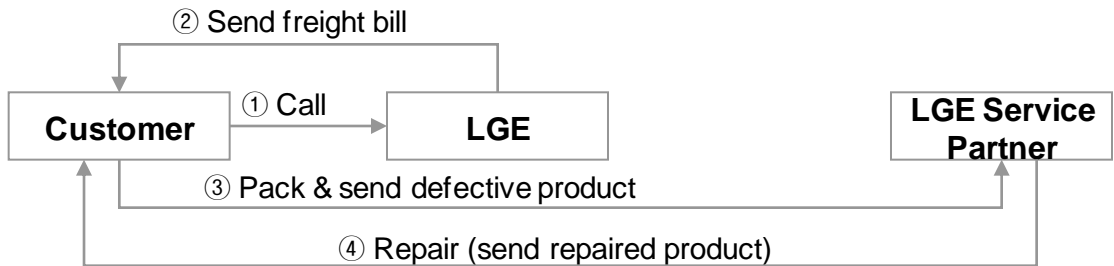
[Service Type] means Service Procedures or Processes for product failure occurring within warranty period which can be obtained from LG as part of basic warranty or B2B offering.

※ **Please note:** Not applicable in every subsidiary as some elements may be offered differently or other conditions may apply.
It is recommended that the SI / B2B customers contact your local LG B2B service person to see detailed conditions.

CI (Carry In)



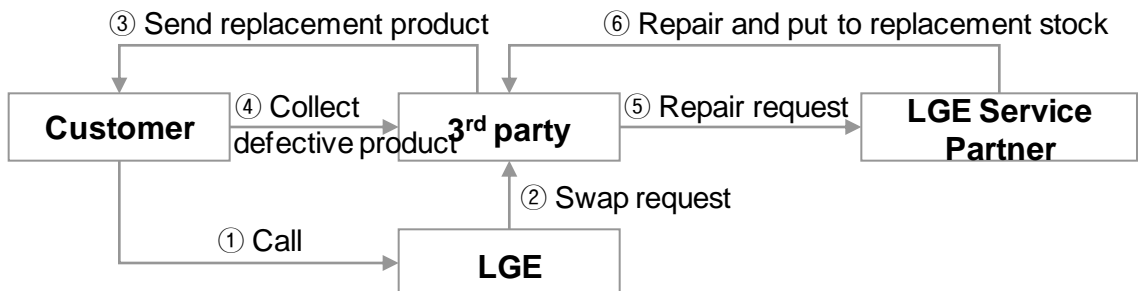
PD (Pickup & Delivery)



On-Site Repair



Swap



[Distributor MARKET] SERVICE PROCESS GUIDE

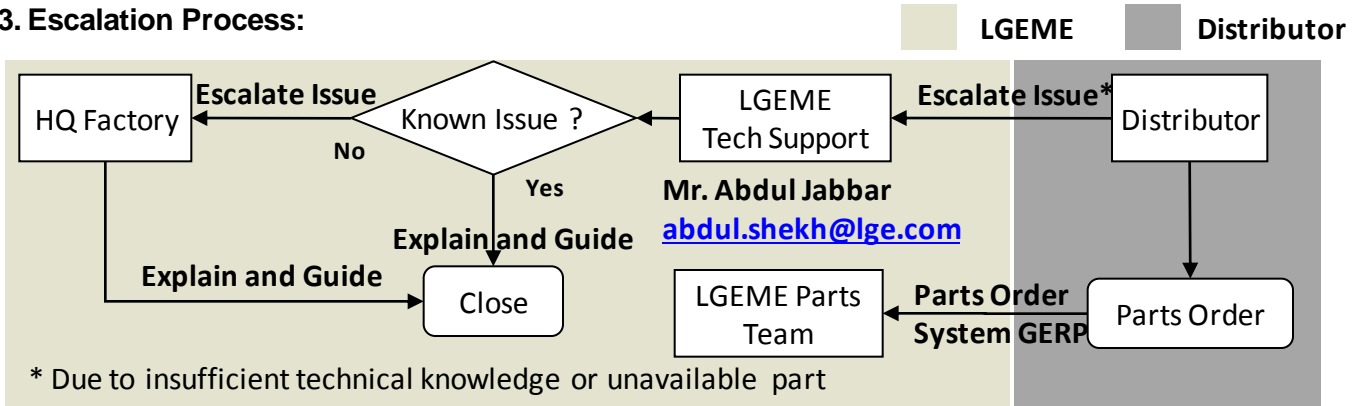
1. Distributor R&R:

- All service activities including parts purchase and service labor cost should be handled by our Distributor
- After LG sells products to Distributor, Distributor will hold full responsibility for customer service
- Distributors should hold responsibility of keeping SWAP units to replace faulty ones in case they were not able to meet the service lead time (2 days)

2. LG R&R:

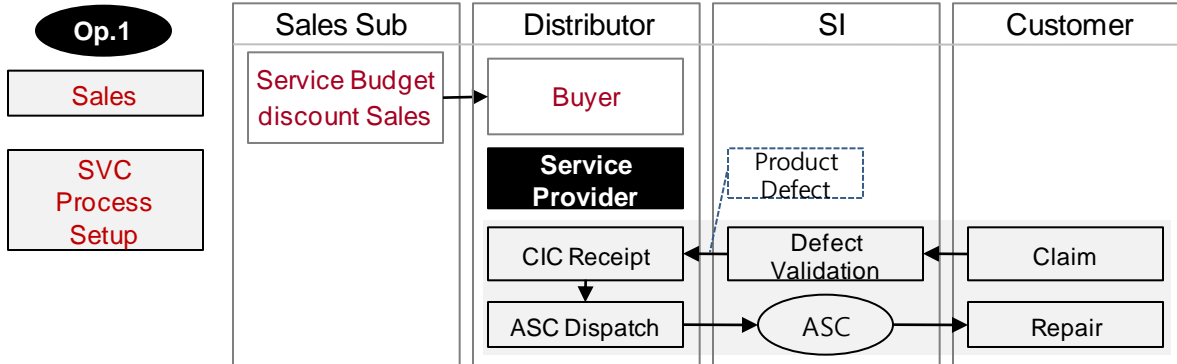
- LG should guarantee the availability of parts for a period of 3 years from the time the model is EOL
- LG will support CIC and technical trainings to Distributor's service team
- LG entrust Distributor with full Service for customer by Sales discount program (BOG*)
- Email, phone, and site support will be provided by LG technical team
- LG will support (quality / epidemic failure) issues in a compensation basis only after confirmation and approval by LG Factory

3. Escalation Process:



Distributor Service

LGE entrust Distributor with full Service for customer by Sales discount program (BOG**). After LGE sells Products to Distributor, Distributor will hold full responsibility for customer service.



✓ Check List

- Sales**
 - In this case, Products need to have Distributor's warranty card which customer can be informed providing Service.
 - LGE's SE (Sales Engineer) of HQ needs to provide product/installation training to Distributor.
 - Distributor**
 - Make(Register) account at LGEME to order Service parts.
- **BOG: Bought Out Guarantee

LIMITED WARRANTY

This warranty applies to Public Display panels only and only applies from the first date of purchase only. The right to request sight of the original proof of purchase is reserved.

It is the user's responsibility to ensure that the product is used in accordance with the manufacturers guidelines detailed in the instruction manual, supplied with the product, failure to do so will invalidate the warranty.

Note: Replacement units and repair parts may be new or factory-remanufactured and are warranted for the remaining portion of the original Product's warranty period or 90 days, whichever is longer. Please retain dealer's dated bill of sale or delivery ticket as evidence of the Date of Purchase for proof of warranty (you may be required to submit a copy to LGE or a LGE service representative). Some provision can be different via legal issue by each country or region.

The following are NOT COVERED UNDER WARRANTY:

- Damage caused in shipping or transit, moving or changing installation location.
- Product damage due to improper customer installation or installation inconsistent with the guide in owner's manual and other LG's instruction (eg. product installed in a place with excessive dust, abundant oil mist, chemical substances are used, operating in very high or low temperature, high humidity).
- Product issues due to deficient signal reception or set up adjustments.
- Product issues caused by use of parts, peripherals or software not recommended by LG.
- Product issues due to modification of or to any part of the Product.
- Consumable parts or accessories (such as fuses or disposable batteries).
- Damage (including cosmetic damage) or failure, due to misuse, abuse, negligence, improper maintenance or storage, or to acts of God or other causes beyond LG's control. (Causes beyond LG's control include but are not limited to lightning strike, power surges, power outages and water damage).
- Product issues due to repair or replacement of warranted parts by other than LG authorized service center.
- Product where the original factory serial numbers have been removed, defaced or changed in any way.
- Damage or missing components to any display, open box, discounted, or refurbished product.
- Damage caused by computer or internet viruses, bugs, worms or Trojan Horses.
- Image Sticking or Image Retention caused by displaying fixed image or same pattern for a long time. Refer to "Recommendation of operation time & condition" for optimized operation.
- The lamp life time of display panel is determined as the time which luminance of the lamp is 50% compared to that of initial value

RECOMMENDATION OF OPTIMIZED OPERATION

LG Electronics recommends the operation time and operating condition as follows for optimum display panel's function and lifetime :

Operation Time

Product	Panel Type	Operation Time
Monitor Signage	PD ¹⁾ Panel	24 hours / day
	TV Panel ²⁾	Max. 16 hours / day
Transparent Display	PD Panel (eg. 47TS30MF)	24 hours / day
	TV Panel (eg. 26TS30MF)	Max. 16 hours / day
Commercial TV (TV Signage)	TV Panel	Max. 16 hours / day

SI or Customer should keep operation guide in user manual or any installation guidance by LG Electronics. LG Electronics recommends not to use long-term static display. Image Sticking or Image Retention is not covered by warranty. If long-term static display is displayed, LG Electronics recommends to use ISM (Image Sticking Minimization) function which is described in the user manual and turn off the power periodically.

1. Operating Condition

1) Temperature and operating ambient humidity specified in owners manual.

Well-ventilated place is recommended to use signage system.

2) Display Pattern

Avoid long-term static display and minimize the contrast of contents.

3) Power and screen saver

Periodical power-off or screen saver is needed after long-term display.

2. Operating usages to protect against image sticking due to long-term static display

1) Turning off the power periodically

TV Panel ▶ Use 16hours → Turn off 2hours → Use 16hours

PD Panel ▶ Use 20hours → Turn off 4hours → Use 20hours

2) Static information display is recommended to use along with moving image³⁾.

- Cycling display between 5 minutes' information (static) display and 10 seconds' moving image.

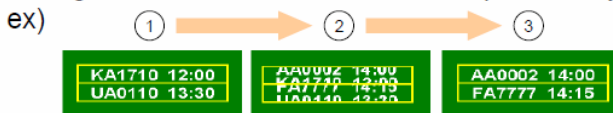
3) Background and character (image) color change

- Use different colors for background and character, respectively.

- Change colors with each other periodically.

4) Avoid combination of background and character with large different luminance

Example) • Change the characters with movement periodically.



• Avoid combination

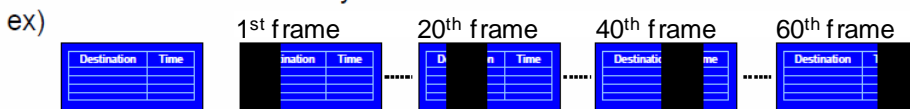
- Characters and background with large difference in luminance

- Black & white, black & yellow, black & grey

ex)



• Insert black data momentary.



1) PD : Public Display

2) TV Panel applied model : 38WR50MS, 42/47WL10, 42/47/55/60WL30, 84WS70BS

3) Moving Image : Black image is strongly recommended as a screen saver

GUARANTEE FOR BRIGHT AND DARK SUB-PIXEL

This article is a detailed description on how LG Electronics defines LCD pixel criteria for warranty as applied to all LG Electronics Signage and Hotel TV product.

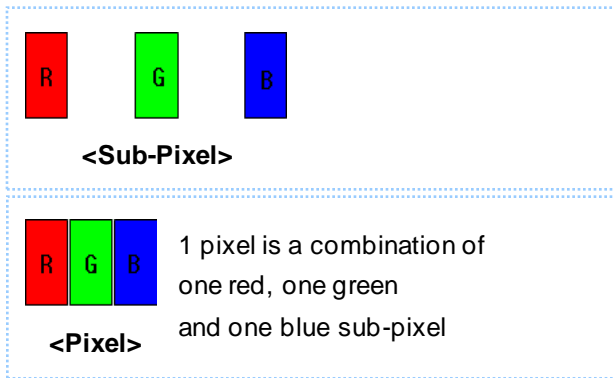
1. Definition of bright and dark sub-pixel

The LCD Monitor panel contains millions of red, green, and blue sub-pixels which when combined displays the monitor colors as shown in **Picture 1**. Some sub-pixels may exhibit as bright or dark spots on the screen as shown in **Picture 2** with the following symptoms:

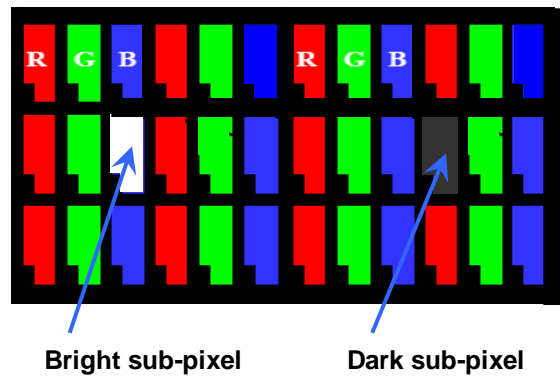
Bright sub-pixel : The symptom that some very small spots like red, green, or blue emit light on the screen.

Dark sub-pixel : The symptom that some very small spots are visible on the screen.

[Picture 1]



[Picture 2]



2. Guarantee for bright and dark sub-pixel

Bright or dark sub-pixels can occur during the production of the LCD Monitor panel but does not affect the LCD Monitor functionality. The customer may notice the bright or dark spots if the film of the liquid crystal does not perform as expected while customers uses the LCD monitor. However, this is not considered a defect unless the number of bright and dark sub-pixels exceeds the maximum allowable threshold as shown in **Table 1**.

[Table 1 : Allowed number of bright and dark sub-pixel]

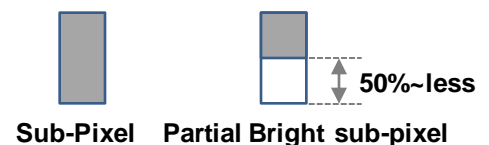
1-1. Dark sub-pixel

Code	Resolution	Sub-Pixel Quantity	Dark Sub-Pixel
SXGA (5:4)	1,280 x 1,024	3,932,160	4 Maximum
WXGA+ (16:10)	1,440 x 900	3,888,000	4 Maximum
HD (~16:9)	1,366 x 768	3,147,264	3 Maximum
HD+ (16:9)	1,600 x 900	4,320,000	4 Maximum
UXGA (4:3)	1,600 x 1,200	5,760,000	6 Maximum
FHD (16:9)	1,920 x 1,080	6,220,800	6 Maximum
WSXGA+ (16:10)	1,680 x 1,050	5,292,000	5 Maximum
WUXGA (16:10)	1,920 x 1,200	6,912,000	7 Maximum
WQXGA (16:10)	2,560 x 1,600	12,288,000	12 Maximum

1-2. Partial Bright sub-pixel

Partial Bright sub-pixel: Among Bright sub-pixel the size of sub pixel which appeared than half size of sub-pixel is defined as partial bright sub-pixel

Inspection Pattern	Partial Bright sub-pixel
64 gray	Max 10



INSTALLATION GUIDE _ OPENFRAME

Installation of Open frame Signage shall comply with the guide as described in the “Installation Check Guide”. Failure to follow these and other instructions will void any manufacturer warranty. The full version of “Installation Check Guide” will be provided separately.

OPENFRAME SIGNAGE

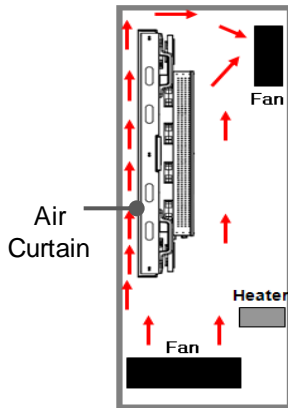
1-1. Keep temperature 0°C ~ 40°C(Mandatory)

- When designing the enclosure, the temperature inside the enclosure must be maintained between 0°C and 40°C.

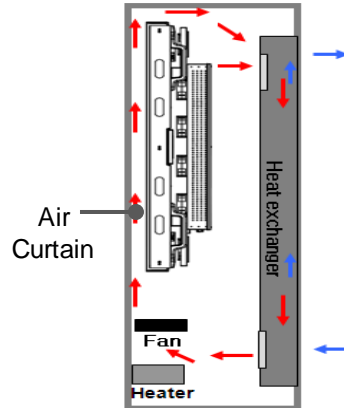
1-2. Consider using a cooling & heater solution (Mandatory)

- To maintain the temperature inside the enclosure, you may consider using a cooling and heater solution such as an air conditioner, heat exchanger, or combined cooler and heater depending on the external environment. (Please see below examples)
- You can also employ an air flow circulation system and air curtain* between the front panel and the enclosure.
- Recommend to design the exterior of the enclosure to meet with the IP65 standard.
- Use a dust filter to prevent dust .(At air inlet and outlet)

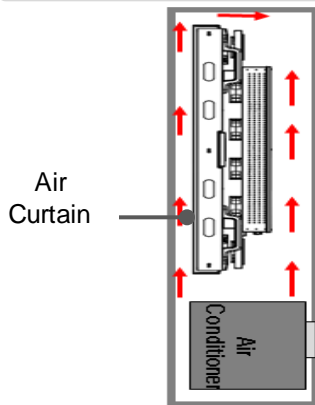
Example 1 Enclosure (Just fans)



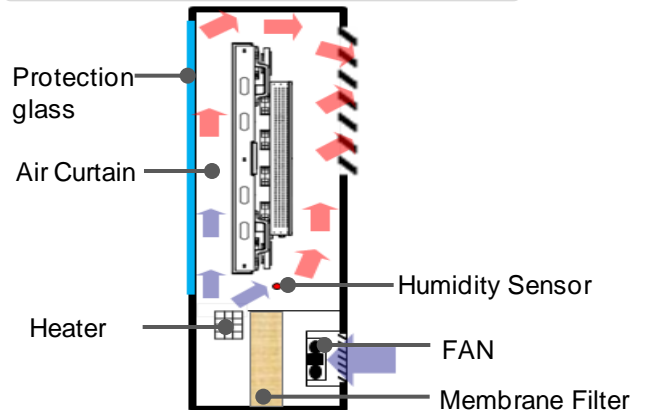
Example 2 Enclosure (Heat exchanger)



Example 3 : Enclosure (Air conditioner)



Example 4 : Direct Air Cooling Solution



*Air curtain :
Air flow circulation system between the front panel and the enclosure.

- Filter should be used for filtering out bugs, dust and water.
- For preventing from rust of lead frame in circuit board, operates the Heater if relative humidity is high.

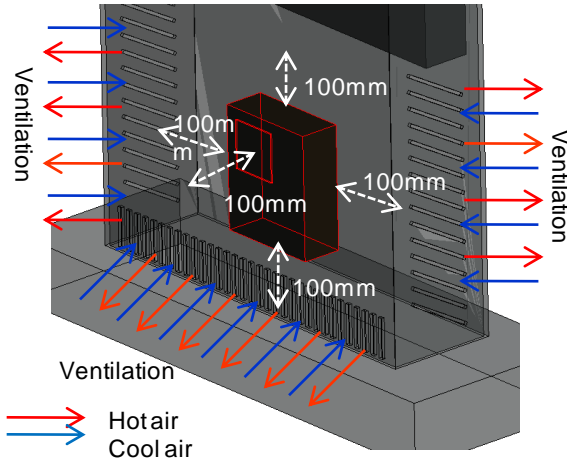
INSTALLATION GUIDE _ MEDIA PLAYER

Installation of Open frame Signage and Media Player shall comply with the guide as described in the "Installation Check Guide". Failure to follow these and other instructions will void any manufacturer warranty. The full version of "Installation Check Guide" will be provided separately.

MEDIA PLAYER

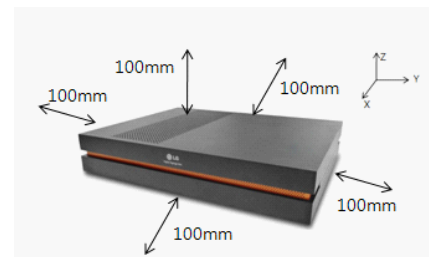
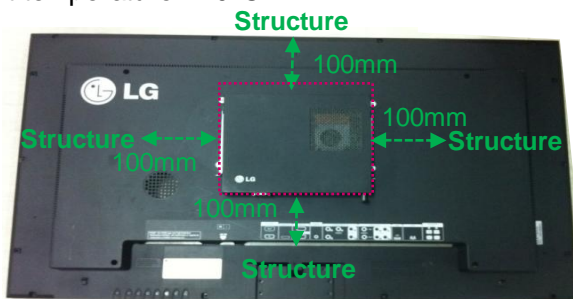
1-1. Install Dust filter & keep temperature 0°C ~ 40°C (Mandatory)

- Embedded Mount Condition
- Application model : NC1000, NA1000, NA1100, MP500, PC100
- Minimum distance between media player and structure : 100mm distance to X,Y,Z axis direction
- Should install dust filter in ventilation area
- When the unit is operating, you must keep temperature inside being 0°C ~ 40°C



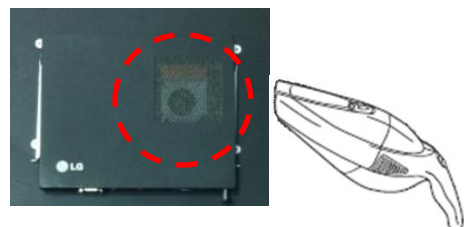
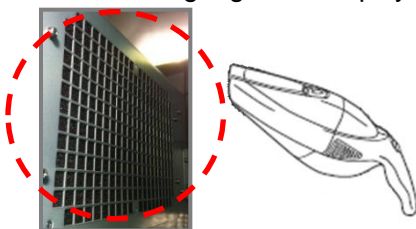
1-2. Minimum distance between media player and structure(100mm)

- Monitor Back Cover Mount Condition
- Application model : NC1000, NA1000, NA1100, MP500, PC100
- Minimum distance between player & structure : 100mm distance to X,Y,Z axis direction
- 0°C < Ambient temperature < 40°C



1-3. Periodic cleaning for ventilation area (Mandatory)

- Clean ventilation area for dust using vacuum cleaner periodically (once in 2~3 months)
- * Make sure to turn off the signage, media player and enclosure fan when cleaning



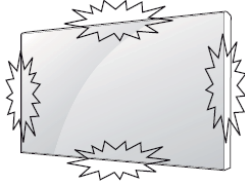
INSTALLATION GUIDE _ VIDEO WALL SIGNAGE

Installation of Video Wall Signage product shall comply with the guide as described in the “Easy Setup Guide”. Failure to follow these and other instructions will void any manufacturer warranty. Special care is required to avoid Line Defect or damage to the panel.

The “Easy Setup Guide” is enclosed in the Video Wall Signage product box.

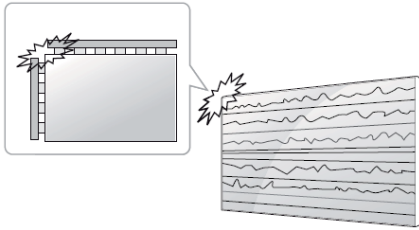
Video Wall

Causes & Phenomena of the Line Defect



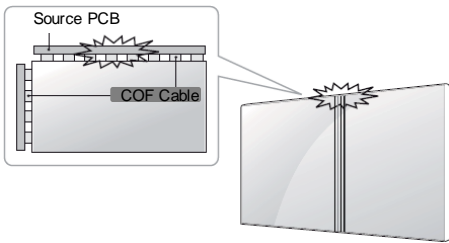
The line defect would occur on your set if you strike on the edge of the Set.

LOG (LINE ON GLASS) DEFECT

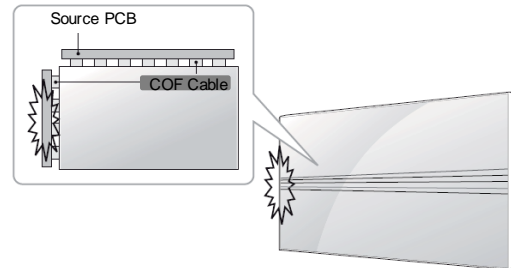


Shock on Module Left/Top Corner Left/Top LOG Crack Horizontal Line Defect

LOG (LINE ON GLASS) DEFECT



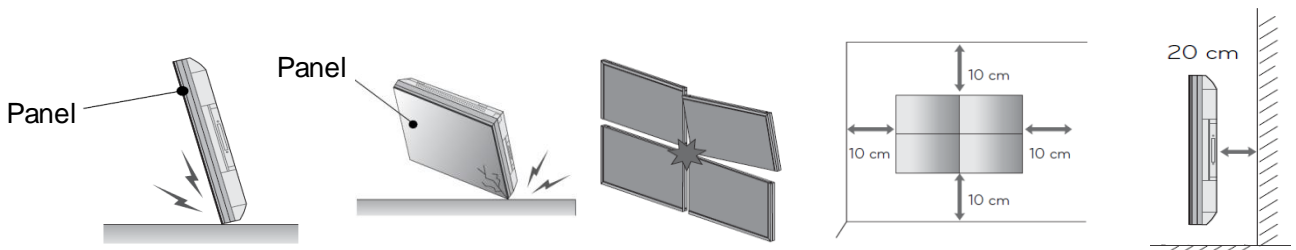
Shock on Module Top Side → Top COF Crack → Vertical Line Defect



Shock on Module Left Side → Left COF Crack → Horizontal Line Defect

Do not Collide & Install with enough airflow

- Be careful not to collide the sets with the floor or with each other.
- Install in the space with enough airflow



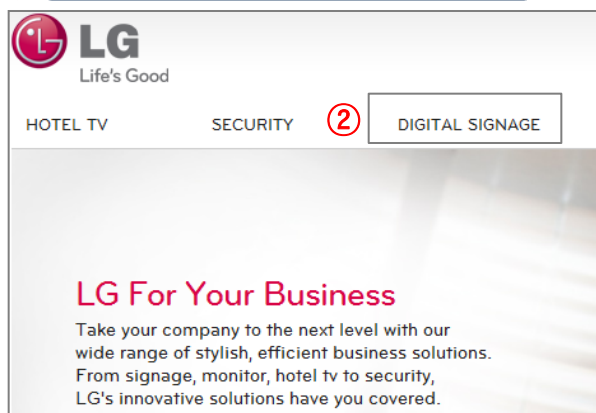
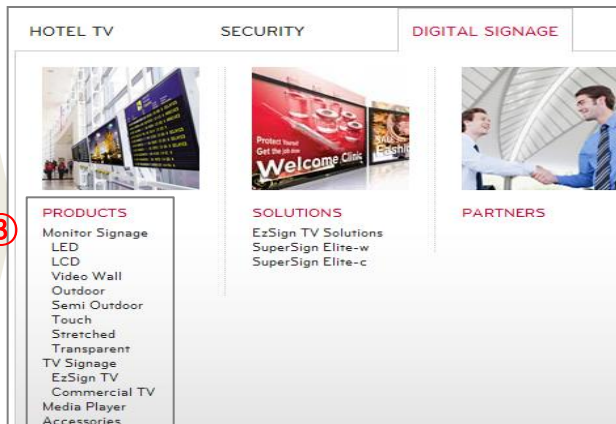
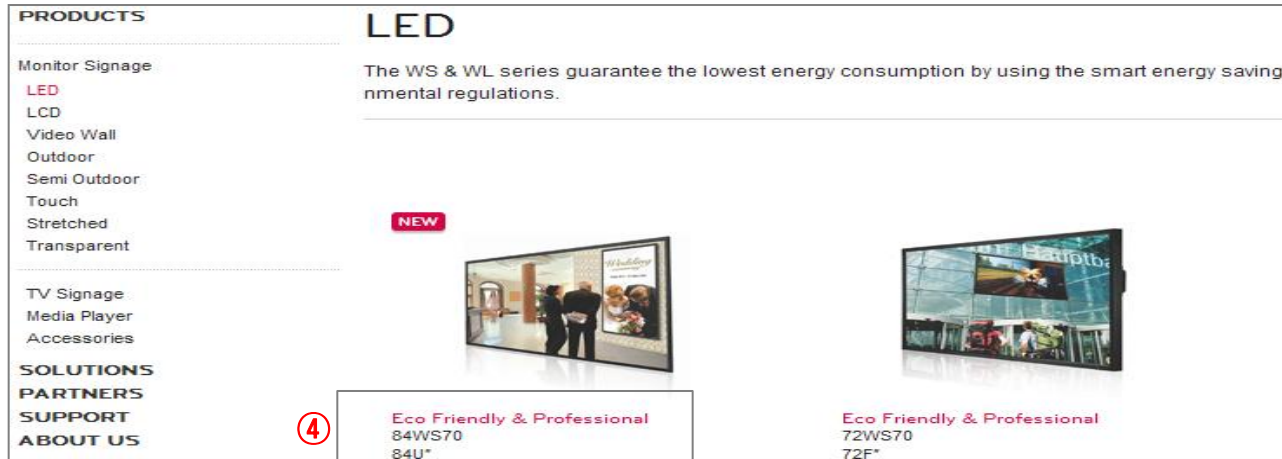
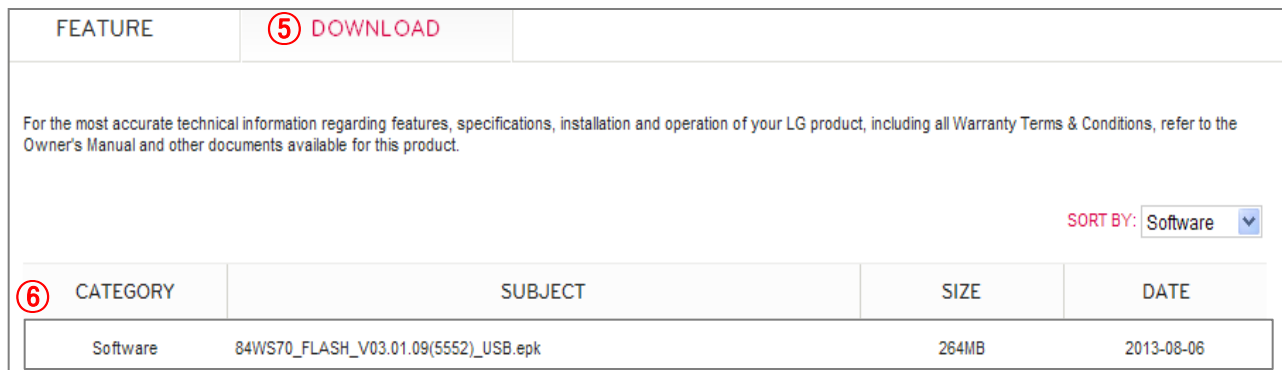
INSTALLATION GUIDE _ SOFTWARE UPDATE

This site, www.lgecommercial.com, is for Customer / Sales channel / SVC channel with relation to LGE. HQ will upgrade software whenever it release new firmware or new products. Therefore we hope that each subsidiary use this site for your skill-up and customer response. Also, you can request any kind help to HQ when you have any problem to download software.

[Step]

- ① Internet homepage access (www.lgecommercial.com) →
- ② Select “DIGITAL SIGNAGE” →
- ③ Select “PRODUCTS” →
- ④ “PRODUCTS” menu select (example) “Monitor Signage”
“LED”, “84WS70”) →
- ⑤ Select “ DOWNLOAD” →
- ⑥ Select “ Software”

① <http://www.lgecommercial.com/>

⑥ CATEGORY	SUBJECT	SIZE	DATE
Software	84WS70_FLASH_V03.01.09(5552)_USB.epk	264MB	2013-08-06

APPENDIX_REGIONAL CONTACT POINT (NA,SCA)

In case of difficulty, details of our authorized Service Centers can be obtained from LG Service Department, who will also be pleased to help you with regard to queries concerning the guarantee or the use of your product.

Region	Country	Technical Support	Help Desk • B2B : ■ • B2B/B2C : ■	Web / Email
NA	USA	Larry Fullone	1-888-865-3026	comm.display@lge.com
	Canada	Mohamad Sohun	1-888-542-2623	b2b.support@lge.com
SCA	Mexico	Marina Caballero	1-800-288-54-54	marina.caballero@lge.com (http://www.lg.com/mx)
	Panama	Romano Emiliani	315-6888	-
	Costa Rica			
	Ecuador			
	Venezuela			
	El Salvador			
	Rep. Dominicana			
	Nicaragua			
	Guatemala			
	Cuba			
Miami				
Puerto Rico				
Brazil	Valdiney Santos	0800 727 5454 / 3003 5454	helpdesk.bs@saclg.com.br	
Argentina	Marcelo Kuon	CABA y GBA: 0800-888-5454 Interior: 0810-555-5454	-	
Colombia	Alejandro Velandia	018000-910054	-	
Chile	Javier Pardo	2299-5411	javier.pardo@lge.com	
Peru	Hernan Palma	0-800-1-2424	www.lg.com.pe	

APPENDIX_REGIONAL CONTACT POINT (EUROPE, SCA)

Region	Country	Technical Support	Help Desk • B2B : ■ • B2B/B2C : ■	Web / Email
Europe	Netherlands	Robert Haller	0900-543-2222	www.lgcommercial.eu/service
	Spain	Mariano Valiente, Francisco Tatay, Carlos Tovar	96 305 05 66	http://www.lg.com/es/support preventa@lge.com
	United Kingdom	Andrew Hall	844-248-6655	lgsupport@sbe-ltd.co.uk
	Italy	Lorenzo Furio	199-600-122	http://www.lg.com/it/support
	Nordic	Mika Björksten	0770-54-54-50	b2b@lgservice.se
	Poland	Mirosław Korszen	801-801-054	www.lg.com/pl/wsparcie
	Germany	Patrick Hoff	0-18-03-807-020	b2b.service@lge.de
	France	Alcide DOSSANTOS, Jean SAMADYRAD	32 60 dites LG PRO	www.lg.com/fr savbtob@lge.com
	Czech Republic	Pavel Skabrada	CZ: 810 200 280 SK: 0850 850 710	www.lg.com/cz
	Hungary	Istvan Ferencz	06-40-1000-54	www.lg.com/hu ugyfelszolgalat@lge.com
	Portugal	Marco Almeida	808-505-222	www.lg.com/pt
	Greece	Matsamakís Markos	801 11 500 400	http://www.lg.com/gr/b2b http://www.lg.com/gr/b2b/contact-us
	Austria	Josef Hrdlicka	0810 144 131	-
	Romania	Radu MIRICA	0213154376	-
Latvia	Dmitry Stelmah	80200201	-	
CIS	Russia	Suren Shindyan	8-800-200-76-70	www.lg-b2b.ru suren.shindyan@lge.com
	Ukraina	Sergii Sydorenko	0-800-303-000	-
	Kazakhstan, Uzbekistan	Kirill Kim	8-8000-805-805	https://www.lg.com/kz/commercial/contact-us,

APPENDIX_REGIONAL CONTACT POINT (ASIA, MEA)

Region	Country	Technical Support	Help Desk • B2B : ■ • B2B/B2C : ■	Web / Email
Asia	Australia	Chris Hong	02 8811 8861	tony.chambers@lge.com
	China		400-819-0011	-
	Taiwan	Jack Liu	0800-898-899	yiwen.chen@lge.com
	Hongkong	Billy Wong	852-3543-7777	-
	Japan	Kazunori Chiba	0120-711-228	-
	Korea	Sungcheol Woo	1544-8777	http://www.lge.co.kr/
	Singapore	Patrick Chua	6512 0555	lenghuat.ong@lge.com
	Malaysia	Rapheal Wong	1800-822-822	yingkit.lam@lge.com
	India	Rohit Rajput	1800-180-9898	rajput.rohit@lge.com
	Indonesia	Willy Wenoris	0811-88-14010	any.setyowati@lge.com
	Philippines	Glenn Listana	02-902-5545	annel.llorca@lge.com
	Thailand	Samphan Khampradit	02-4737999	support.lgeth@lge.com
	Vietnam	Vuminhthao Vu	1800-1503	thi.le@lge.com
MEA	Turkey	Taylan.TARHAN	212-314-5224	taylan.tarhan@lge.com
	Kenya	Elias Antavieja	-	-
	Republic of South Africa	Tantseli Rantseli	0861 545454(LGLGLG)	tk.rantseli@lge.com
	Nigeria	BOG	80098115454	N/A
	U.A.E	BOG	8050299	N/A
	Morocco	TBA	081005454 (0522879200)	N/A
	Lebanon	BOG	1273	N/A
	Egypt	BOG	19960	N/A
	Nigeria	BOG	80098115454	N/A

※ BOG (Bought out guarantee) : Service is entrusted by distributor.

LG Electronics designated service centers by subsidiary for providing service. Service types can be differentiated by countries law, customer's needs, business type and/or subsidiary's policy. LG Electronics will use best endeavor to provide the best service for the B2B customer.