

REG. DATE : 2015.08.20

SPECIFICATION

REV.NO : 1.0

REV. DATE : 2015.10.01

MODEL NAME : TSTE-DR01A

PAGE : 1

SPECIFICATIONS FOR APPROVAL

PRODUCT NAME : Touch Sensor Module (65")

LGIT MODEL NAME : TSTE-DR01A

Customer P/N :

APPROVAL

LG Innotek Co., Ltd.

Drafter

Quality Team Agreement

Final Approver

Appendix

 LG Innotek		DOCUMENT No : 14-TW-
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1. General Description

1-1. General Feature

Item		Spec	Remark
Window Glass	Viewing Area	1430.4 mm X 805.6 mm	View Area 65 inch
	Out Dimension Size	1530.4 mm X 905.6 mm	
	Thickness	5.0mm	
	Material	Sodalime	Thermal Strengthened
	Deco Printing	Black	
	Printing Hole	-	
	AG coating	Yes	Gloss 90±20unit
	Chamfer	C0.8±0.2	
	Protection Film	-	
	Logo	-	
	Silk	-	
Touch Sensor	Type	GFF, 2 Metal Mesh sensor(PET)	
	Sensor Size	1470.4mm X 845.6mm	
	Thickness	0.35mm	without Protect Film
	Sensing Type	Mutual Capacitance 2 layer	
	Channel No.	Rx(Top) : 138 Tx(Bottom) : 78	Trace single routing
	Protection Film	Yes (0.050t or 0.075t)	
Control Board	Response Time	16ms	1~10point 기준 / CH141*78 / Repot rate 240Hz)
	Accuracy	±1.5mm	
	Separation	Min20mm	2-Point간 거리
FPCB	Type	COB Type	
	Connector	ZIF Type	FH30 Series
	Size	Rx : 308.52mm x 102.7mm Tx : 341.87mm x 60.7mm	
	Layer	Single Layer	

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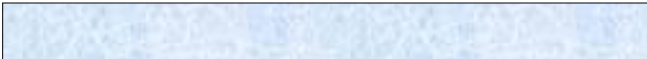
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1. General Description

1-2. Stack up

No	Structure	Feature
1		Window Glass
2		Top OCA
3		Top Sensor
4		Bottom OCA
5		Bottom Sensor

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2. Specification

2-1. Electrical Specification

- Drawing Test

2-2. Optical Specification

Feature	Specification
Transmittance (%)	Typ. 83% (Min 80%)
Haze	Typ. 8% (Max 10%)

2-3. Reference LCD Condition

Feature	Specification
Resolution	4096 x 2160 (UHD)
LCD Active Area(Size)	65"

2-4. Operating Environmental Condition

Feature		Specification
Temperature	Operating	5 to 60 °C
	Storage	-20 to 60°C
Humidity	Operating	8 to 85%
	Storage	8 to 90%

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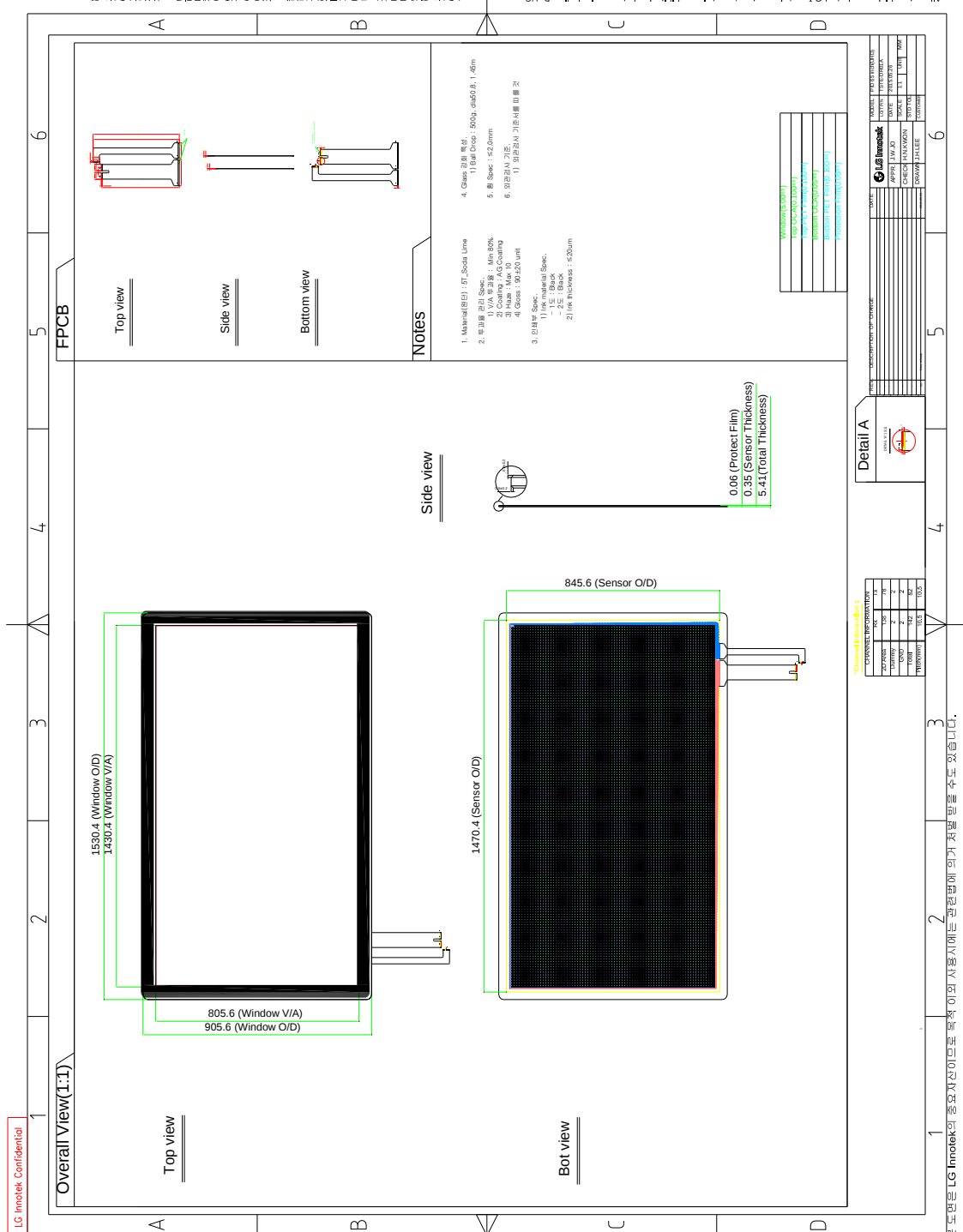
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3. Outline Dimension

3-1. Touch Module Outline Dimension

All parts which supply to LG Innotek must not contain prohibited substances including RoHS
 and/or other hazardous substances. For more details refer to LG Innotek's "Manual for management of
 hazardous substances in Product"



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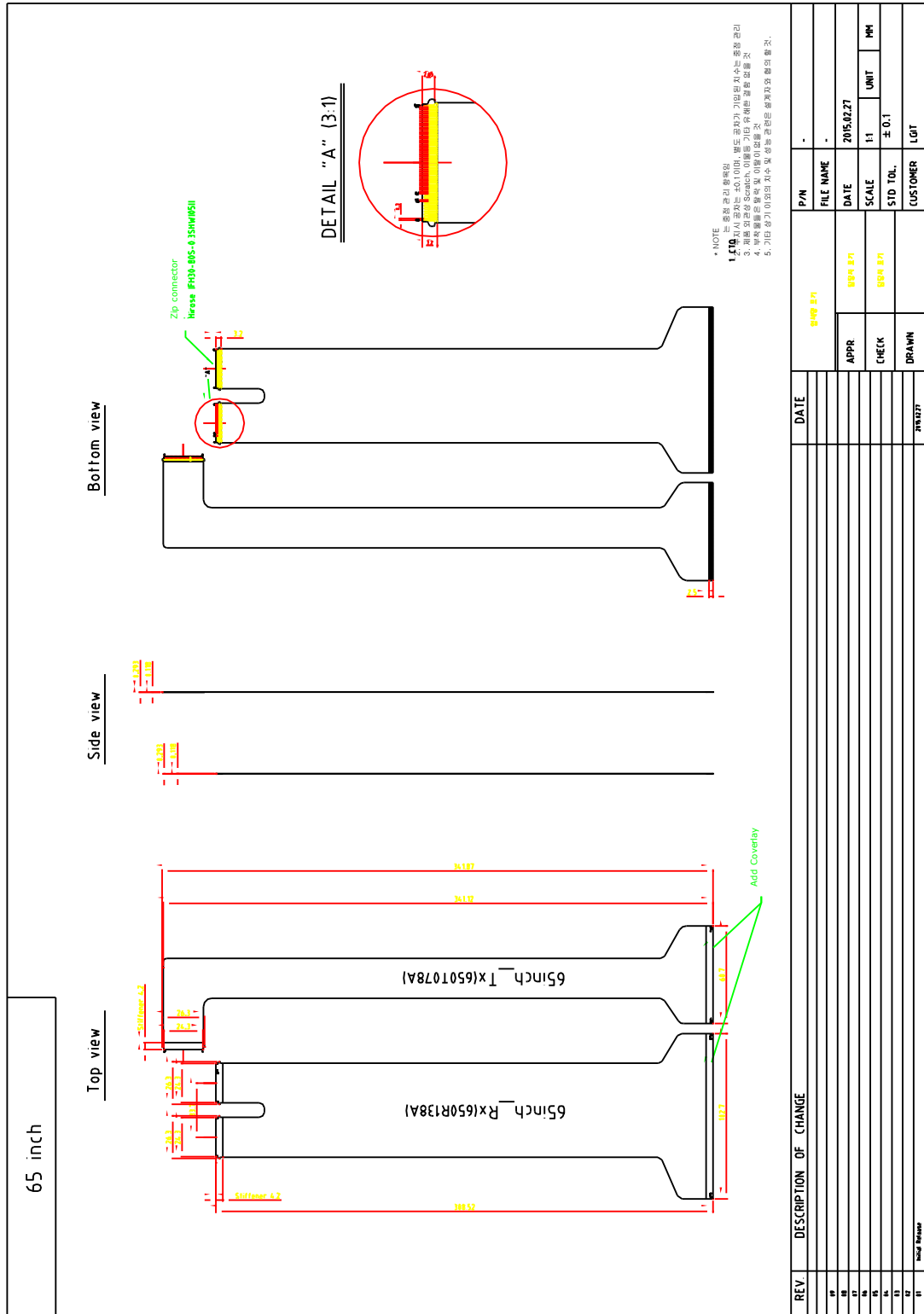
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3. Outline Dimension

3-2.FPC Outline Dimension



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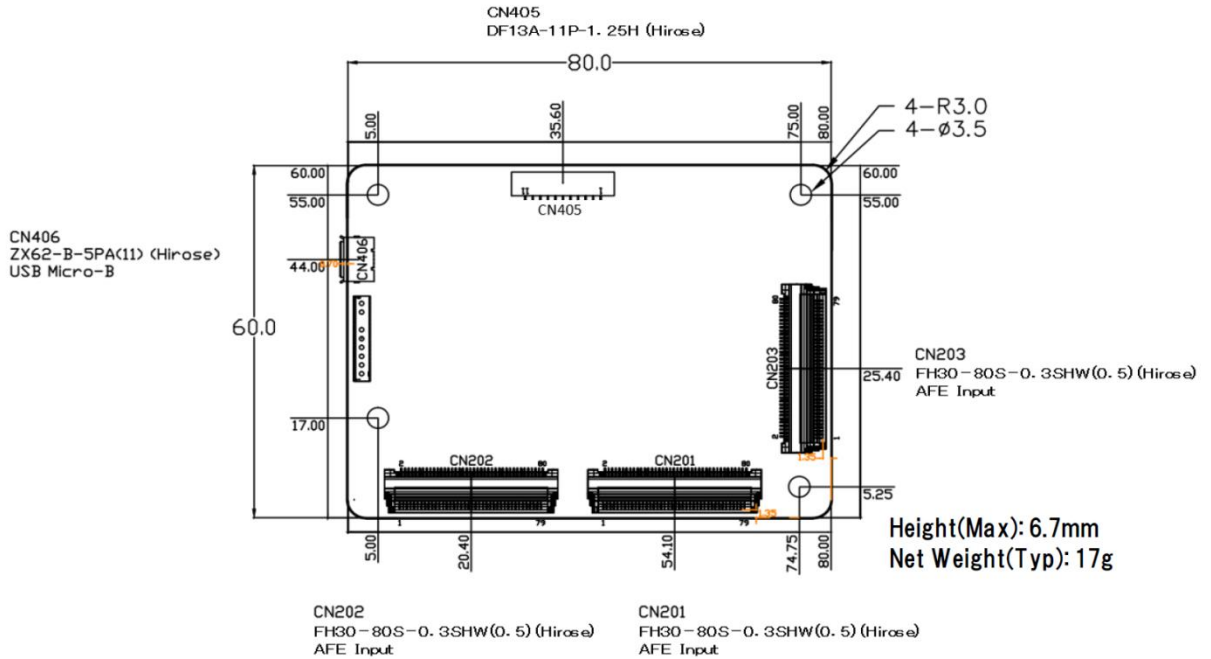
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4. Control Board

4-1. Outline Dimension



4-1-1. Connector Description & Pin Name

CN 201		CN 202		CN 203		CN 405		CN 406	
RX 2nd		RX 1st		TX		HSYNC		Micro USB	
Pin No.	Pin Name	Pin No.	Pin Name	Pin No.	Pin Name	Pin No.	Pin Name	Pin No.	Pin Name
1	Dummy	1	GND	1	GND	1	GND	1	VBUS
2	Rx 78	2	Rx 0	2	Tx 77	2	HSYNC	2	D-
3	Rx 79	3	Rx 1	3	Tx 76	3 ~ 11	DNC	3	D+
~		~		~				4	GND
19	Rx 95	23	Rx 21	23	Tx 56			5	GND
20	Rx 96	24	Rx 22	24	Tx 55				
21	Rx 97	25	Rx 23	25	Tx 54				
66	Rx 142	26	Rx 24	26	Tx 53				
67	GND	27	Rx 25	27	Tx 52				
68	GND	28	Rx 26	28	Tx 51				
~		~		~					
78	GND	78	Rx 76	78	Tx 1				
79	GND	79	Rx 77	79	Tx 0				
80	GND	80	Dummy	80	GND				

3D view

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4. Control Board

4-2. Reliability

Test Items	Condition	
High Temp Storage	Ta = 70℃	96hrs
Low Temp Storage	Ta = -20℃	96hrs
High Temp & High Humi Storage	Ta = 40℃ , 90%RH	96hrs
High Temp Operation	Ta = 60℃	96hrs
High Temp & High Humi Operation	Ta = 40℃ , 90%RH	96hrs
Heat Shock	Ta = -20℃ ↔ 70℃ each 30 min	5cycles

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4-3. Sharp Touch controller support OS(via USB)

	OS	Support	Driver	Remark
Windows	Windows 7	√	Windows USB/HID driver	
	Windows 8/8.1	√	Windows USB/HID driver	
Linux	Ubuntu 12.04	√	Linux USB/HID driver	-Kernel version 3.8 or above -Driver configuration might be modified to attach appropriate driver module.
	Ubuntu 13.04	√	Linux USB/HID driver	-Kernel version 3.8 or above -Driver configuration might be modified to attach appropriate driver module.
	Others			Contact us
Android	Gingerbread (2.3)	√	Available with custom HID driver provided by SHARP	
	Ice Cream Sandwich (4.0)	√	Android USB/HID driver	Driver configuration might be modified to attach appropriate driver module.
	Jelly Bean (4.3)	√	Android USB/HID driver	Driver configuration might be modified to attach appropriate driver module.
	KitKat (4.4)	√	Android USB/HID driver	Driver configuration might be modified to attach appropriate driver module.

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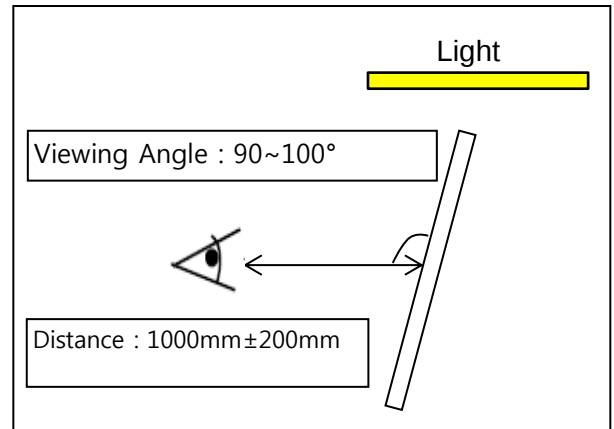
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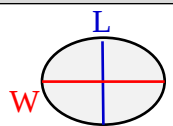
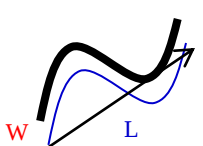
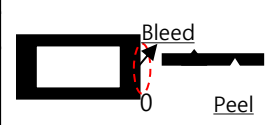
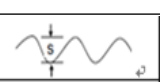
5. Inspection Standard

5-1. Cosmetic Inspection Condition

- Luminance : 600 ± 200 lux (diffused light source)
- Distance(With the unaided eye) : 1000 ± 200mm
- Light source : D65 (White-6,500K)
- Measurement method : With the unaided eye or the magnifying glass
- Viewing Angle : 90~100° (vertical)
- Duration : Up to 30 ~ 45sec



5-2. Cosmetic Inspection Standard

Item	Area	Judgment	65 Inch	Remark
Circular defect (Particles, Dent, Metal residue)	Active/Print	Ignore	$D \leq 1.2 \text{ mm}$ (Ignore the distance between defects)	 $(D = (L + W) / 2)$
		OK	$1.2 \text{ mm} < D \leq 1.8 \text{ mm} : 18\text{ea}$ (Distance between defects $\geq 10\text{mm}$)	
		NG	$D > 1.8 \text{ mm}$	
Linear defect (Scratch, Particles)	Active	Ignore	$W \leq 0.5\text{mm}$ and $L \leq 50.0 \text{ mm}$ (Ignore the distance between defects)	
		OK	$0.5 < W \leq 0.8\text{mm}$ and $L \leq 50\text{mm} : 16 \text{ ea}$ (Distance between defects $\geq 10\text{mm}$)	
		NG	$W > 0.8 \text{ mm}$ or $L > 50.0 \text{ mm}$	
Circular defect (translucent) ($D = (L + W) / 2$)	Active/Print	Ignore	$D \leq 1.3$	Include Bubble
		OK	$1.3 < D \leq 1.9\text{mm} : 18\text{ea}$	
		NG	$D > 1.9\text{mm} : \text{NG}$	
Chipping (Corner, Side)	Print/Edge	OK	$D \leq 0.5\text{mm} : \text{OK}$	
		NG	$D > 0.5\text{mm} : \text{NG}$	
Window Stain	Active/Print		Allowed if removable	
Paint Bleed/Peel/Scratch	Print	Ignore	$W \leq 0.2\text{mm}$ and $L \leq 30\text{mm}$ (Ignore the distance between defects)	Allowed paint marker pen
		OK	$0.2 < W \leq 0.3\text{mm}$ or $30 < L \leq 50\text{mm} : 10\text{ea}$ (Distance between defects $\geq 10\text{mm}$)	
		NG	$W > 0.3\text{mm}$ or $L > 50\text{mm}$	
Pin-holes	Print	Ignore	$D \leq 0.3 \text{ mm}$	
		OK	$0.3 \text{ mm} < D \leq 1.0 \text{ mm} : 15 \text{ ea}$ (Distance between defects $\geq 10\text{mm}$)	
		NG	$D > 1.0\text{mm}$	
Saw edge on printing	Print	OK	$S \leq 0.2 \text{ mm}$	
Protect film			Ignore protect film defect	

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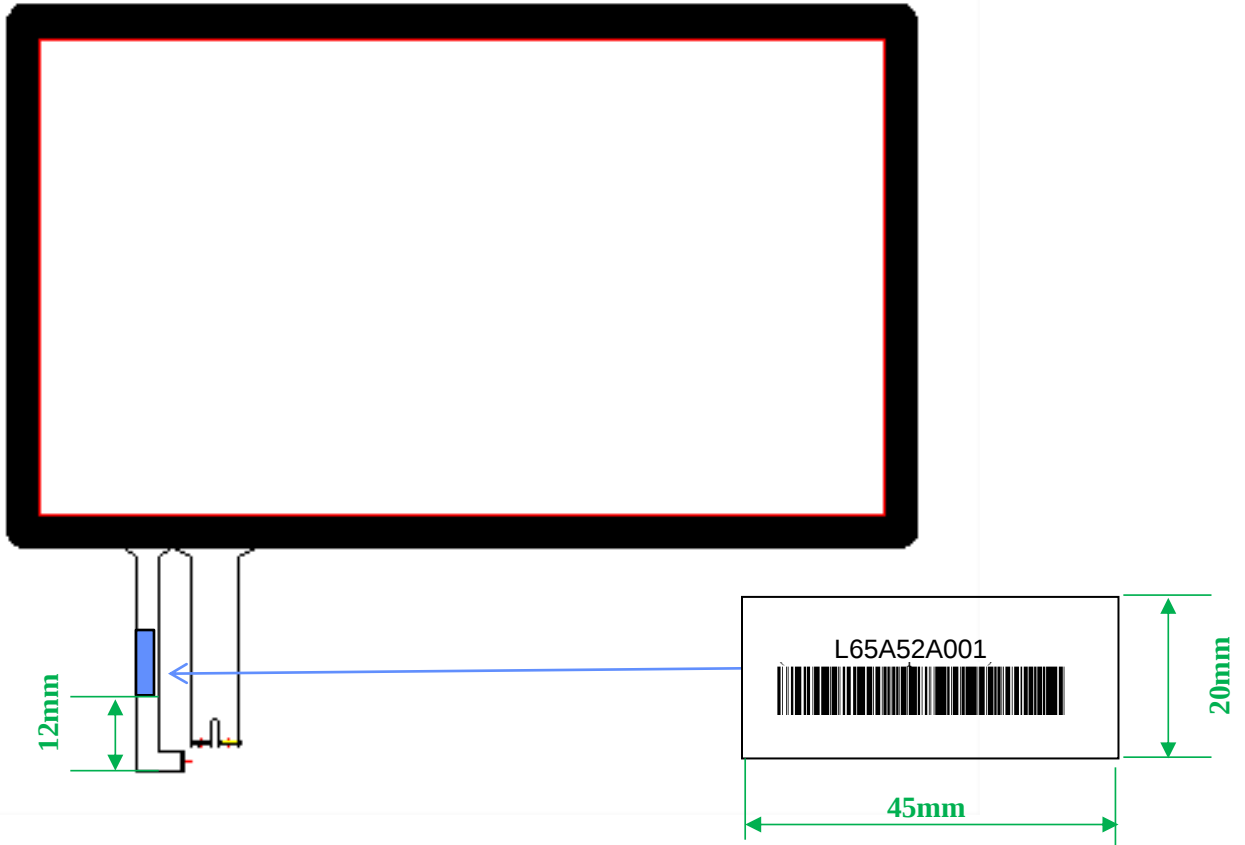
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6. Packing

6-1. Barcode & Lot marking

※ Lot Marking 위치 : Tx FPCB



LGIT		
Item	Contents	Description
(1)	Company Code	L
(2)	inch	6
(3)		5
(4)	Year	Ex) 2015 → 5
(5)	Month	Ex) 1month: 1, 10month: A, 11 month : B 12month: C
(6)	Day	Ex) 1day: 1, 10day: A, 31day: X (o,i 는 제외)
(7)	S/N	TSM Serial Number
(8)		
(9)		

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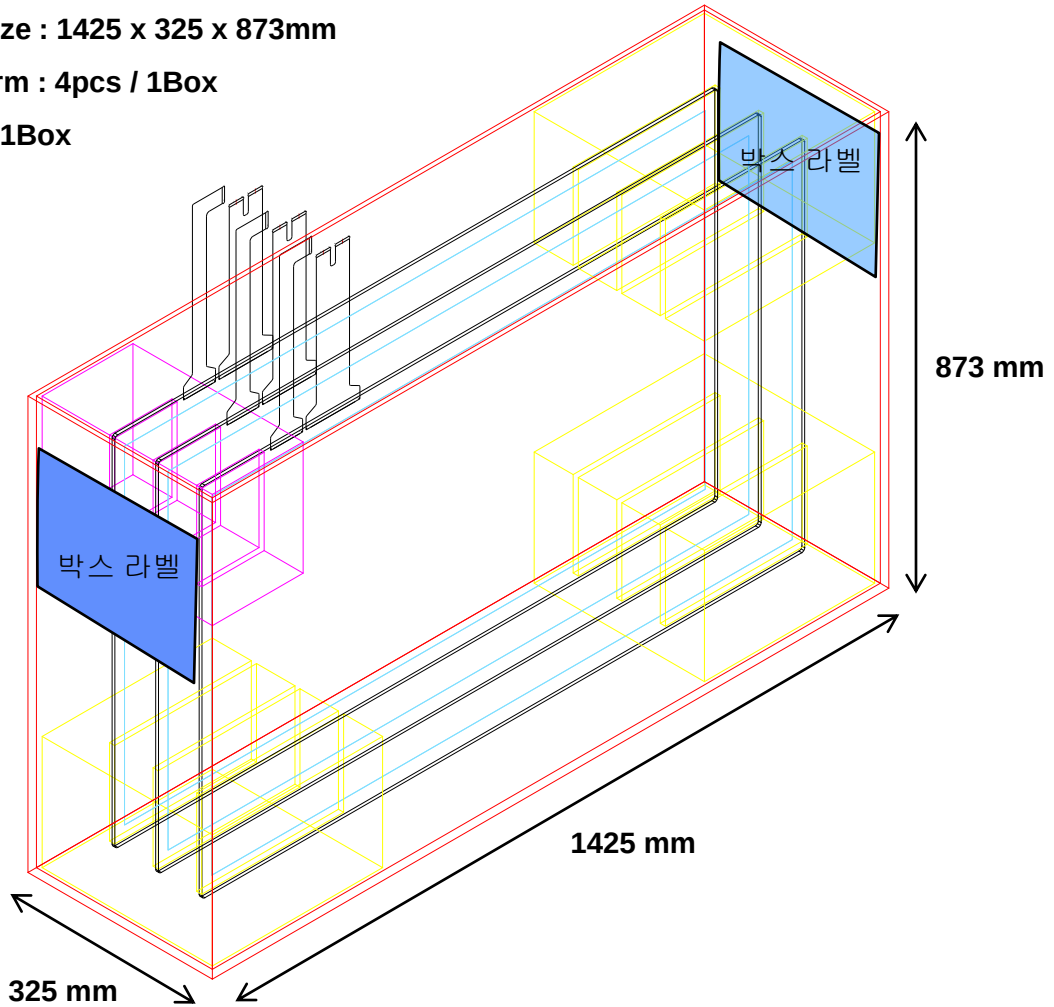
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6-2. Box Packing

Packing Information

- Box Size : 1425 x 325 x 873mm
- PE Form : 4pcs / 1Box
- 3pcs / 1Box

< Package Dimension >

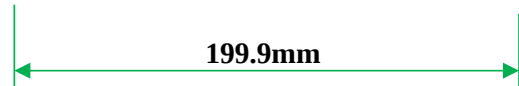


< Box Label Standard >

	Items	Description
1	LGIT P/N	LGIT Part No.: TSTE-DR01A
2	L/NO	Shipping Date - Category - Box No.
3	Q'TY	Quantity / Box
4	Supplier	LG Innotek

< Box Label Example >

65" Touch Sensor Module	
LGIT P/N	TSTE-DR01A
L/NO	150611-TSM-1
Q'TY	3 PCS
Supplier	LG Innotek



< Package Dimension >

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S P E C I F I C A T I O N

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Cautions & Warranty

 **Please pay attention to the following when you use this Touch Sensor Panel.**

1) Storage

When storing the TSP(Touch Sensor Panel)s as spares for a long time, the following precautions are necessary.

- Store the TSPs in a dark place. Do not expose the TSPs to sunlight. Keep the temperature between 5℃ and 30℃ at normal humidity.

2) Protection Film

- When the protection film is peeled off, static electricity is generated between the protection film and the TSP's transparent electrical film(Cu Mesh PET film). This should be peeled off slowly and carefully by people who are electrically grounded and the well ion-blower equipment or in such a condition, etc.
- When the TSP with protection film attached is stored for a long time, sometimes there remains a small amount of glue still on the TSP's transparent electrical film(Cu Mesh PET film) after the protection film is peeled off.
- You can remove the glue easily. When the glue remains on the TSP's transparent electrical film(Cu Mesh PET film) surface or its vestige is recognized, please wipe them off with absorbent cotton waste or other soft material like chamois soaked with ethyl-acetate.

3) Electrostatic Discharge Control

- Since the TSP is composed of electronic circuits, it is not strong to electrostatic discharge. Make certain that treatment persons are connected to ground through wrist band etc.

4) Installing and Assembling

- Do not touch, push or rub the exposed TSP's film with glass, tweezers or anything harder than 3H pencil lead. And please do not rub with dust clothes with chemical treatment. Do not touch the surface of film for bare hand or greasy cloth. (Some cosmetics deteriorate the film.)
- When the surface becomes dusty, please wipe gently with absorbent cotton or other soft material like chamois soaked with ethyl-acetate. Do not use acetone and toluene.
- Do not put a heavy, hard or sharp objects on the TSP.
- Do not apply excessive forces to the FPCB.

 Warranty

Touch Sensor Panel products shall be warranted for one year after shipping from LG Innotek Co. Ltd.
(Storage condition : Between 5℃ and 30℃ at normal humidity)

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