Doc. Number:

☐ Tentative Specification
☐ Preliminary Specification
■ Approval Specification

MODEL NO.: F035A05-601

Customer:

APPROVED BY **SIGNATURE**

Name / Title
Note

Please return 1 copy for your confirmation with your signature and comments.

Approved By	Checked By	Prepared By
Jay Hsu	Tommy Lin	Wenting Yang

- CONTENTS -

REVISION HISTORY

Version	Date	Page (New)	Section	Description
Ver 0.0	2019/1/21	All	All	Product spec was first issued for LCD cut.
Ver 1.0	2019/3/5	All	All	Revised package information.
Ver 1.1	2019/04/15	All	All	Add Polar information.
Ver 2.0	2019/05/22	All	All	Add the weight of LCD cut., and revised Vbrigh & Transmittance.
Ver 3.0	2019/12/31	All	All	Revise Polar information.

1.PURPOSE

The specification F035A05-601 is a 3.50” a-Si TFT Liquid Crystal Display ODF cell. The ODF cell has been designed by Innolux, and manufactured by Innolux under the agreement of customer. The a-Si TFT-LCD cell will be applied to a high transmittance operating in the normally black mode a-Si TFT-LCD product.

2.GENERAL RULES OF SINGLE PANEL

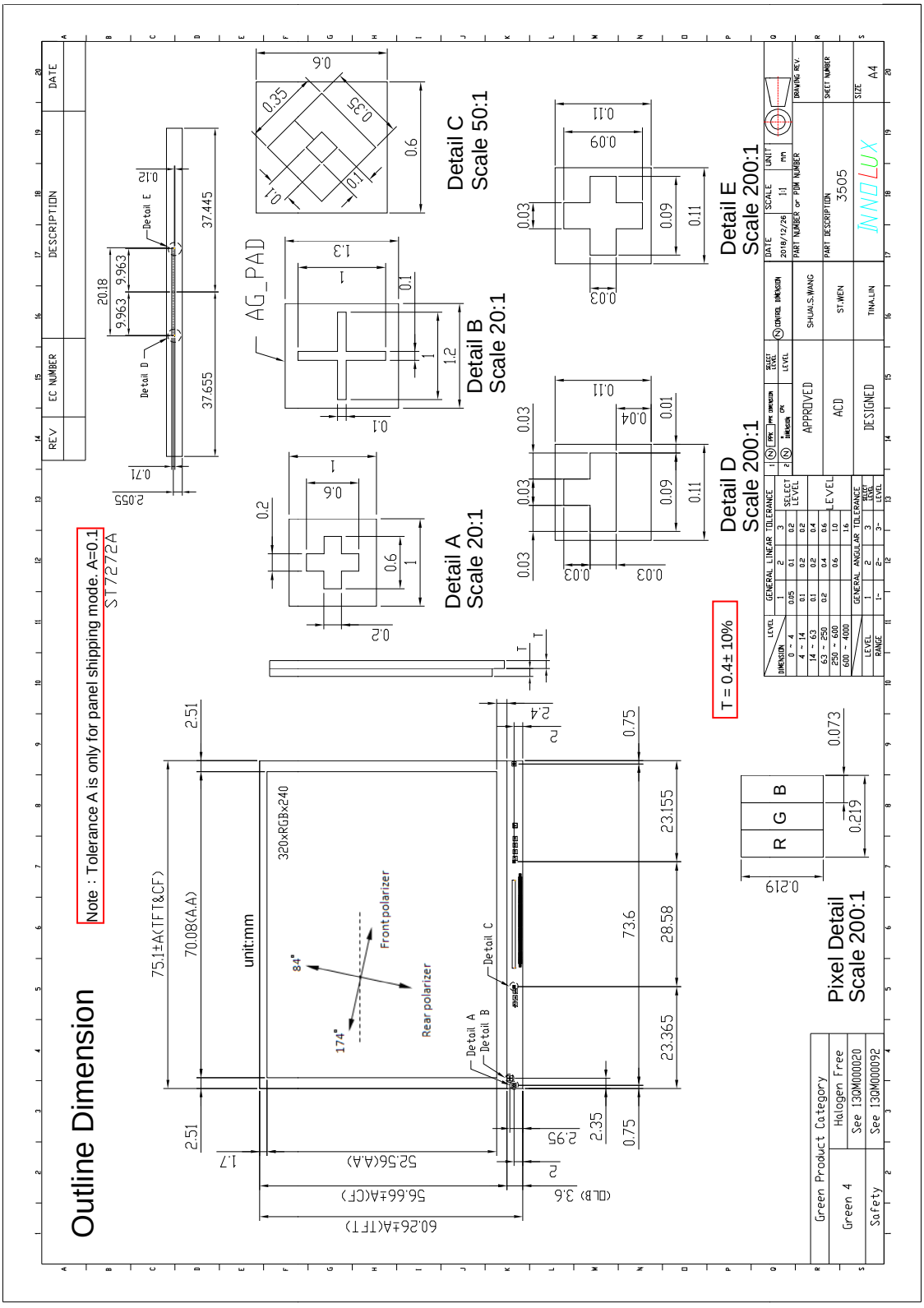
2.1 GENERAL SPECIFICATION

No.	Item		Specification	unit
1	Glass thickness	TFT	0.4	mm
		CF	0.4	
2	Shipping mode		ODF cut	-
3	Shipping size		320.3 (H) x 540.7 (V) x 0.8 (D)	mm
4	Panel outline dimension		75.1 (H)x 60.26 (V)x 0.8 (D)	mm
5	Active screen size		70.08 (H) x 52.56 (V)	
6	Resolution		320 RGB x 240	pixel
7	Pixel driving element		a-Si TFT	-
8	Sub pixel size		0.073 × 0.219	mm
9	Pixel arrangement		RGB-stripe	-
10	View direction (Gray inversion)		Free	-
11	Cell gap		3.2 ± 0.2	um
12	Driver IC		Sitronix ST7272A	
13	Weight without POL		367.3	g
14	Scanning Method		Dual scan	

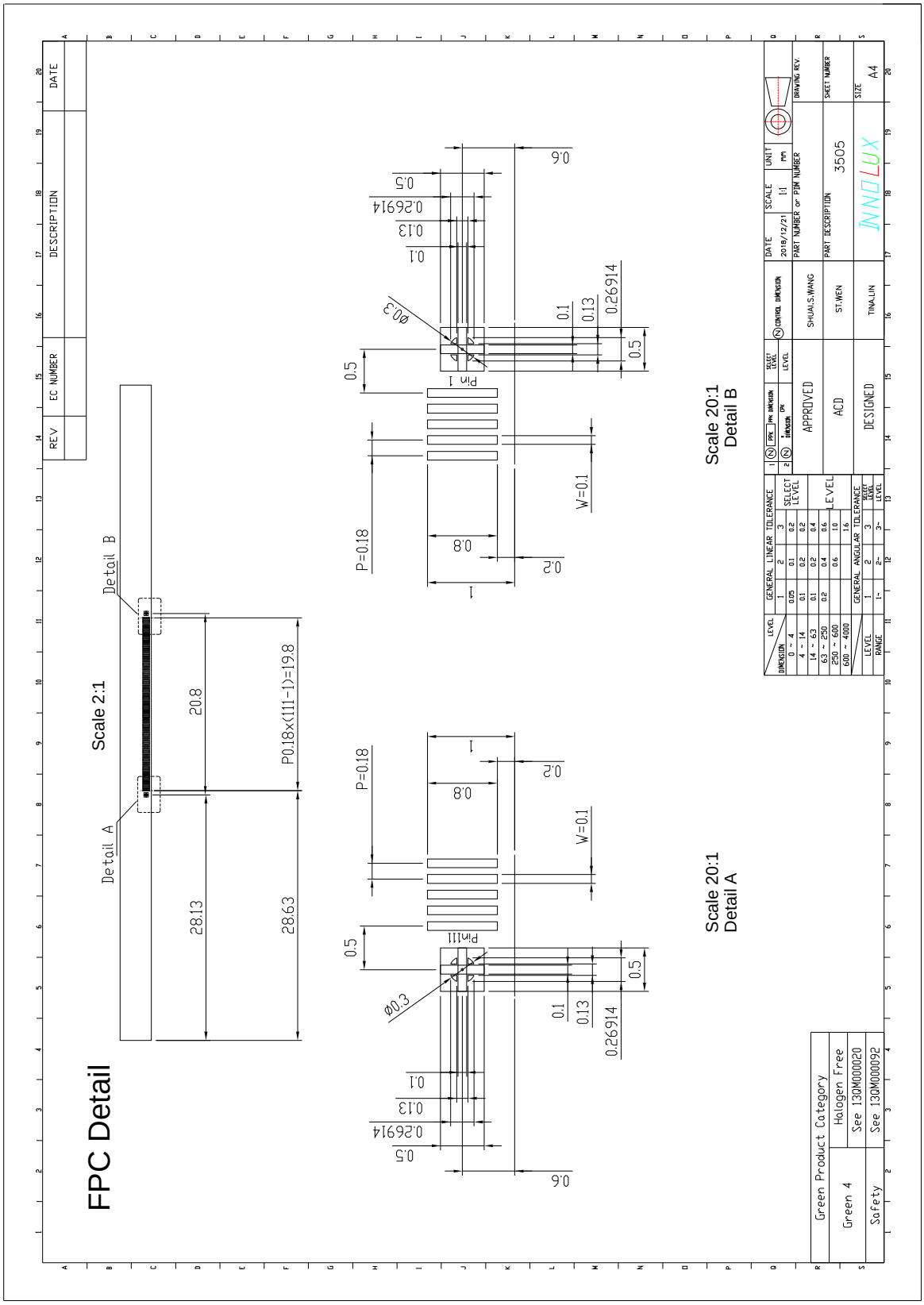
<Note> 1. This model is designed by the panel without bumping compensation.

2.2 DIMENSION

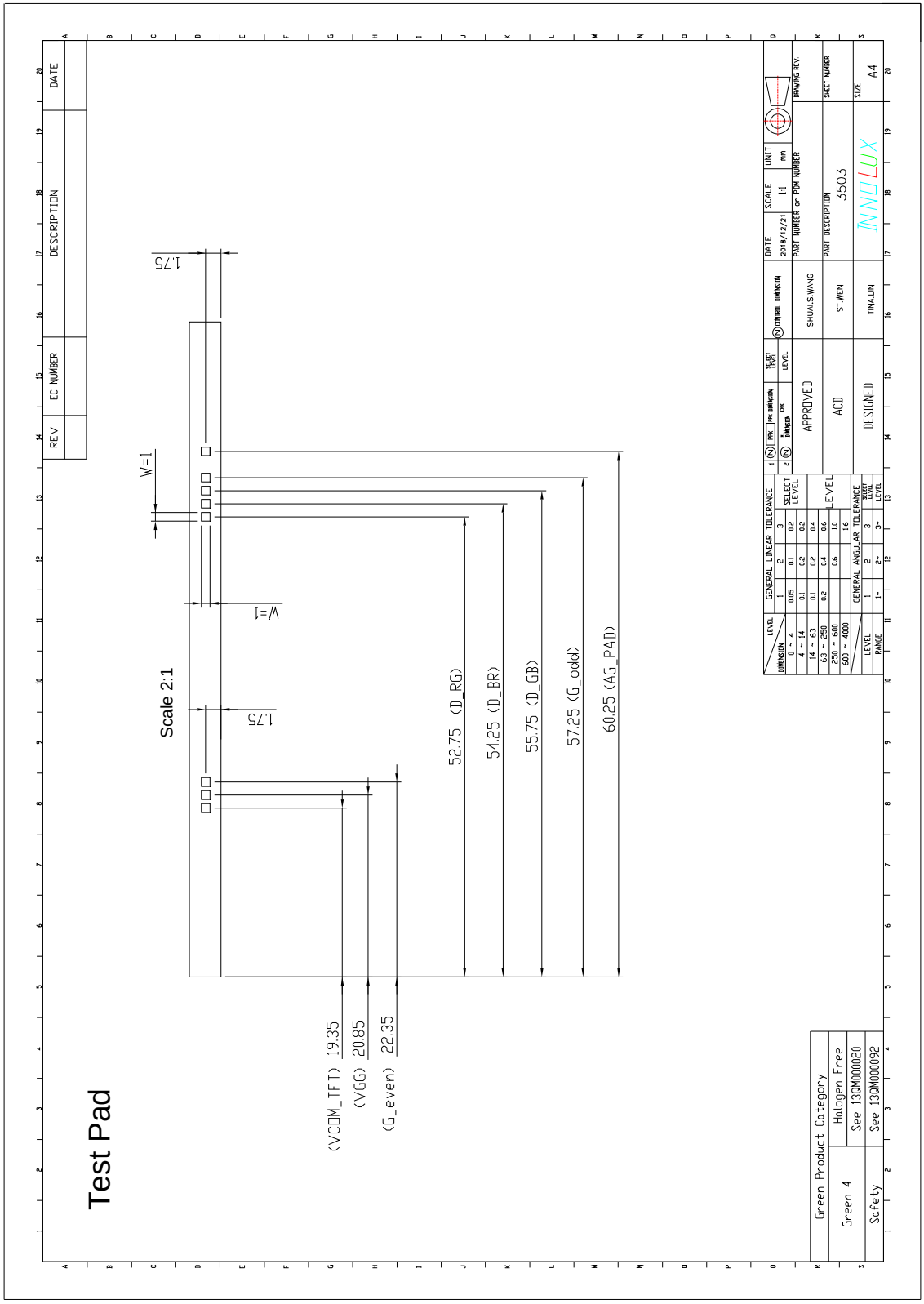
2.2.1 OUTLINE DIMENSION



2.2.2 FPC DETAIL



2.2.3 TEST PAD



3. PIN ASSIGNMENT

3.1 FPC/IC PIN ASSIGNMENT TABLE

IC information			FPC information	
No	ST7272A Pin Name		No.	Panel ILB Pin Name
			1	觀景窗
			2	AG_Pad
			3	AG_Pad
			4	VGG
1	DUMMY			
2	DGND			
3	DUMMY			
4	DUMMY			
5	DGND			
6	VPP		5	VPP
7	VPP			
8	VPP			
9	VPP		6	
10	VPP			
11	VPP			
12	DGND			
13	DUMMY			
14	DUMMY			
15	DUMMY			
16	DUMMY			
17	DGND			
18	GVDD		7	GVDD
19	GVDD			
20	GVDD			
21	GVDD			
22	GVDD			
23	GVDD			
24	GVCL		8	GVCL
25	GVCL			
26	GVCL			
27	GVCL		9	
28	GVCL			
29	GVCL			

30	VCOM		10	VCOM
31	VCOM			
32	VCOM			
33	VCOM		11	
34	VCOM			
35	VCOM			
36	VDIR		12	VDIR
37	DUMMY		13	DUMMY
38	DUMMY			
39	HDIR		14	HDIR
40	DUMMY		15	DUMMY
41	DUMMY			
42	DUMMY			
43	DUMMY			
44	DUMMY			
45	DUMMY			
46	DGND		16	DGND
47	DGND			
48	DGND			
49	DGND			
50	DGND		17	
51	DGND			
52	DGND			
53	DGND			
54	VCC		18	VCC
55	VCC			
56	VCC			
57	VCC			
58	VCC			
59	VCC			
60	VDDI		19	VDDI
61	VDDI			
62	VDDI			
63	VDDI		20	
64	VDDI			
65	VDDI			
66	VDD		21	VDD
67	VDD			

68	VDD			
69	VDD			
70	VDD		22	
71	VDD			
72	VDD			
73	VDD			
74	DUMMY		23	DUMMY
75	TESTI1		24	TESTI1
76	TESTI1			
77	DCLK		25	DCLK
78	DCLK			
79	DGND		26	DGND
80	DGND			
81	DB0		27	DB0
82	DB0			
83	DB1		28	DB1
84	DB1			
85	DGND		29	DGND
86	DGND			
87	DB2		30	DB2
88	DB2			
89	DB3		31	DB3
90	DB3			
91	DGND		32	DGND
92	DGND			
93	DB4		33	DB4
94	DB4			
95	DB5		34	DB5
96	DB5			
97	DGND		35	DGND
98	DGND			
99	DB6		36	DB6
100	DB6			
101	DB7		37	DB7
102	DB7			
103	DGND		38	DGND
104	DGND			
105	HSYNC		39	HSYNC

106	HSYNC			
107	DG0		40	DG0
108	DG0			
109	DG1		41	DG1
110	DG1			
111	DG2		42	DG2
112	DG2			
113	DG3		43	DG3
114	DG3			
115	VSYNC		44	VSYNC
116	VSYNC			
117	DG4		45	DG4
118	DG4			
119	DG5		46	DG5
120	DG5			
121	DGND		47	DGND
122	DGND			
123	DG6		48	DG6
124	DG6			
125	AUTODL		49	AUTODL
126	DE		50	DE
127	DE			
128	DG7		51	DG7
129	DG7			
130	DR0		52	DR0
131	DR0			
132	DR1		53	DR1
133	DR1			
134	DR2		54	DR2
135	DR2			
136	DR3		55	DR3
137	DR3			
138	DR4		56	DR4
139	DR4			
140	DR5		57	DR5
141	DR5			
142	DR6		58	DR6
143	DR6			

144	DR7		59	DR7
145	DR7			
146	HDPOL		60	HDPOL
147	HDPOL			
148	VDPOL		61	VDPOL
149	VDPOL			
150	DCLKPOL		62	DCLKPOL
151	DCLKPOL			
152	PARA_SERI		63	PARA_SERI
153	PARA_SERI			
154	TESTI2		64	TESTI2
155	TESTI2			
156	GRB		65	GRB
157	GRB			
158	DISP		66	DISP
159	DISP			
160	SCL		67	SCL
161	SCL			
162	SDA		68	SDA
163	SDA			
164	CS		69	CS
165	CS			
166	ENPROG		70	ENPROG
167	ENPROG			
168	SPI_I2C_SEL		71	SPI_I2C_SEL
169	SPI_I2C_SEL			
170	BIST_EN		72	BIST_EN
171	BIST_EN			
172	TESTO1		73	TESTO1
173	TESTO1			
174	DUMMY		74	DUMMY
175	DUMMY			
176	DUMMY			
177	DUMMY			
178	DUMMY			
179	TESTOUT0			
180	TESTOUT1			
181	TESTOUT2			

182	TESTOUT3			
183	TESTOUT4			
184	TESTOUT5			
185	TESTOUT6			
186	TESTOUT7			
187	TEST_IN0			
188	TEST_IN1			
189	TEST_IN2			
190	TEST_IN3			
191	TEST_IN4			
192	TEST_IN5			
193	TEST_IN6			
194	TEST_IN7			
195	TEST_IN8			
196	TEST_IN9			
197	TEST_IN10			
198	TEST_IN11			
199	TEST_IN12			
200	TEST_IN13			
201	TEST_IN14			
202	DUMMY		75	DUMMY
203	DUMMY			
204	DUMMY			
205	DUMMY			
206	DUMMY			
207	DUMMY			
208	DUMMY			
209	DUMMY			
210	DUMMY		76	
211	DUMMY			
212	DUMMY			
213	DUMMY			
214	DUMMY			
215	DUMMY			
216	DUMMY			
217	AGND		77	AGND
218	AGND			
219	AGND		78	

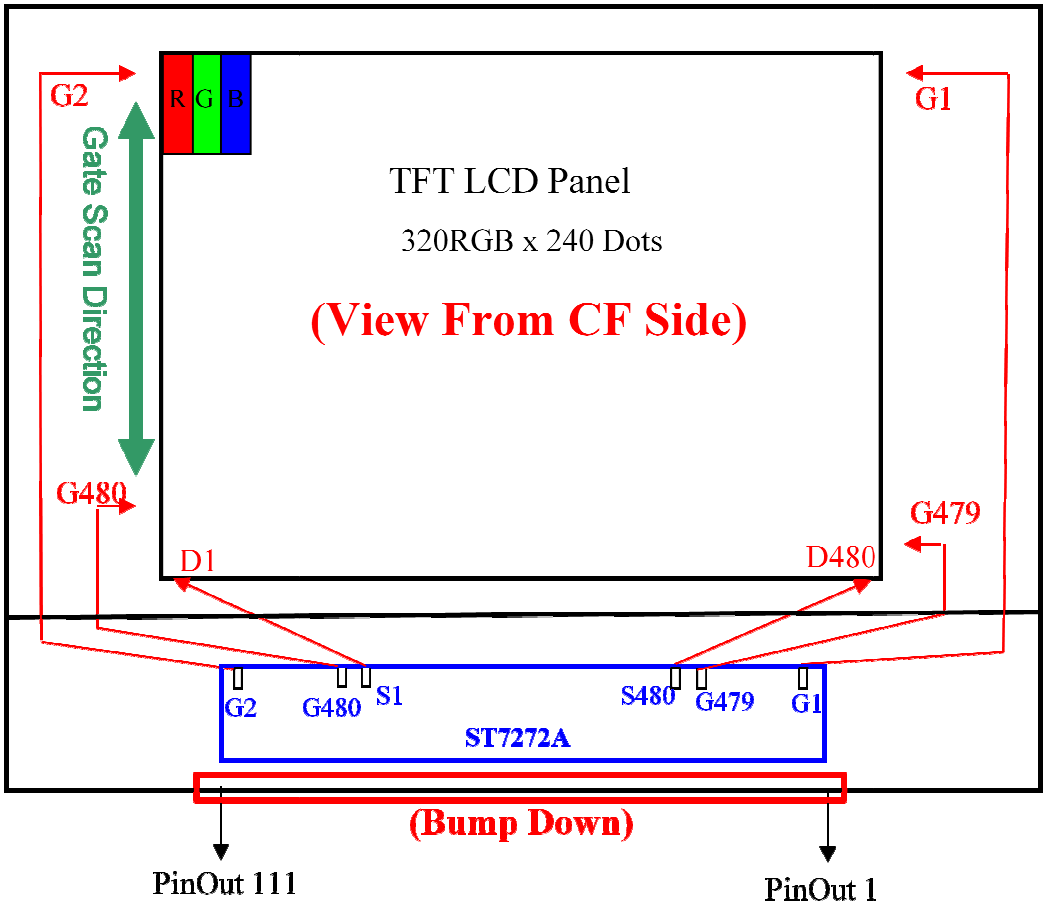
220	AGND			
221	AGND		79	
222	AGND			
223	AGND			
224	AVCL		80	AVCL
225	AVCL			
226	AVCL			
227	AVCL			
228	AVCL			
229	AVCL			
230	DUMMY		81	DUMMY
231	DUMMY			
232	DUMMY			
233	DUMMY			
234	DUMMY			
235	DUMMY			
236	DUMMY		82	
237	DUMMY			
238	DUMMY			
239	DUMMY			
240	DUMMY			
241	DUMMY			
242	AVDD		83	AVDD
243	AVDD			
244	AVDD			
245	AVDD			
246	AVDD			
247	AVDD			
248	AVDD			
249	AVDD			
250	PGND		84	PGND
251	PGND			
252	PGND			
253	PGND		85	
254	PGND			
255	PGND			
256	PGND		86	
257	PGND			

258	DUMMY		87	DUMMY
259	DUMMY			
260	DUMMY			
261	DUMMY			
262	AVDD1		88	AVDD1
263	AVDD1			
264	AVDD1			
265	AVDD1		89	
266	AVDD1			
267	AVDD1			
268	DUMMY		90	DUMMY
269	DUMMY			
270	DUMMY			
271	DUMMY		91	
272	DUMMY			
273	DUMMY			
274	AVCL1		92	AVCL1
275	AVCL1			
276	AVCL1			
277	AVCL1		93	
278	AVCL1			
279	AVCL1			
280	TESTO		94	TESTO
281	TESTO			
282	TESTO			
283	TESTO			
284	TESTO			
285	TESTO			
286	PVDD		95	PVDD
287	PVDD			
288	PVDD			
289	PVDD		96	
290	PVDD			
291	PVDD			
292	PVDD		97	
293	PVDD			
294	VGSP		98	VGSP
295	VGSP			

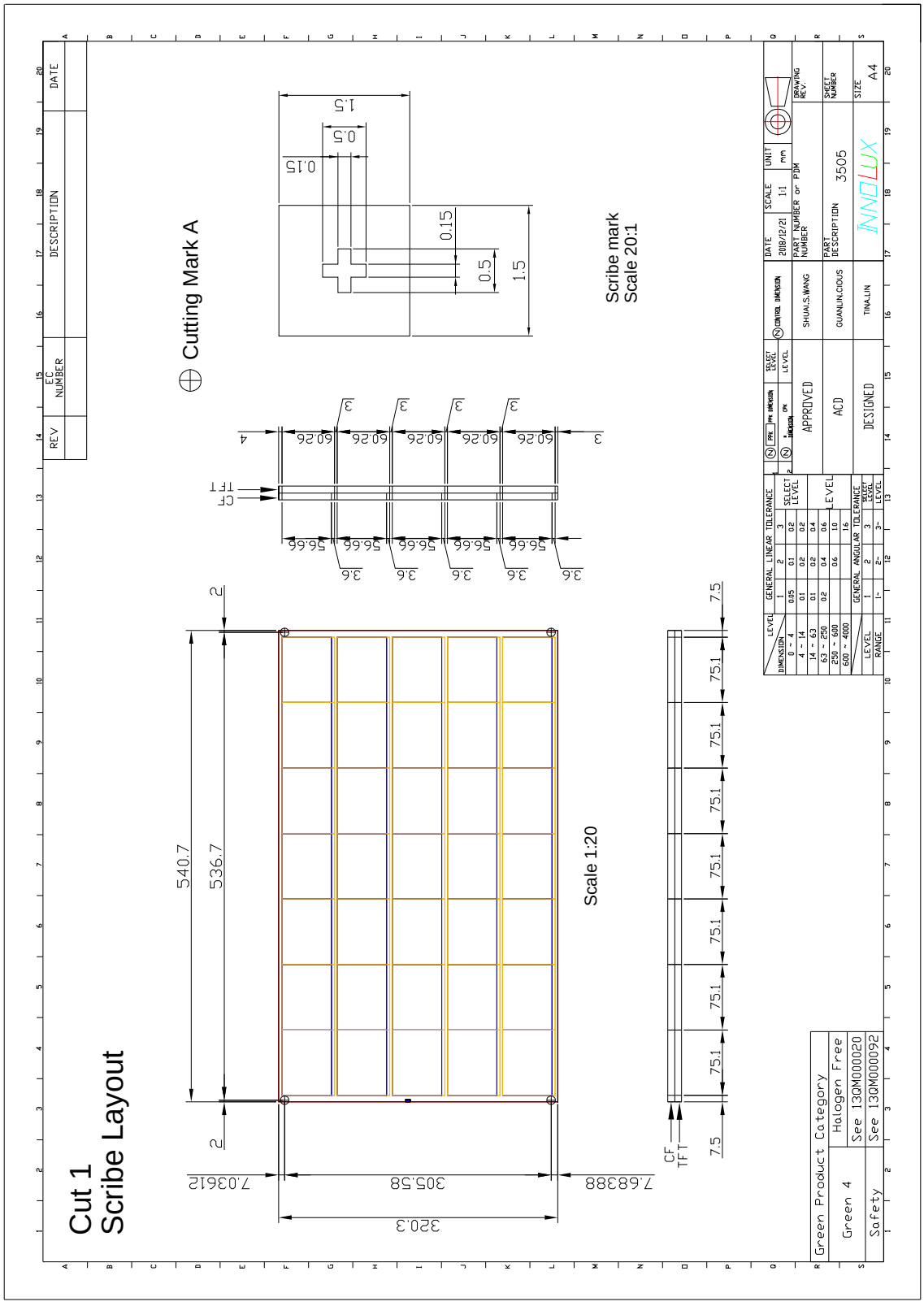
296	VGSP			
297	VGSP			
298	VGSP			
299	VGSP			
300	VCCA		99	VCCA
301	VCCA			
302	VCCA			
303	VCCA		100	
304	VCCA			
305	VCCA			
306	VGH		101	VGH
307	VGH			
308	VGH			
309	VGH		102	
310	VGH			
311	VGH			
312	DUMMY		103	DUMMY
313	DUMMY			
314	DUMMY			
315	DUMMY			
316	DUMMY			
317	DUMMY			
318	DUMMY		104	
319	DUMMY			
320	DUMMY			
321	DUMMY			
322	DUMMY			
323	DUMMY			
324	VGL		105	VGL
325	VGL			
326	VGL			
327	VGL		106	
328	VGL			
329	VGL			
330	PGND		107	PGND
331	DUMMY			
			108	VGG
			109	DUMMY

			110	AG_Pad
			111	觀景窗

3.2 SCHEMATIC PANEL LAYOUT



4. CELL SCRIBE



5.ELECTRICAL SPECIFICATION

Item	Symbol	Specification			Unit
		Min.	Typ.	Max.	
TFT gate on voltage	VGH	15.5	16	16.5	V
TFT gate on voltage	VGL	-10.5	-10	-9.5	V
TFT common electrode voltage	Vcom(DC)	0.032	0.48	0.98	V

Note:(1) Vcom must be adjusted to optimize display quality: cross-talk, contrast ratio and etc.

(2) VGH is TFT gate operating voltage

(3) VGL is TFT gate operating voltage

(4) Environmental condition: 25±5

3.5"	Signal	Black	Gray32(12.5%)	Gray64(25%)	Gray128(50%)	White
DATA (DR/DG/DB)	Vsh(V)	0.9	2.3	2.7	3.3	5.7
	Vsl(V)	0.5	-0.9	-1.3	-1.9	-4.3

6. OPTICAL SPECIFICATION

Item		Symbol	Conditions	Specifications			Unit	Note
				Min.	Typ.	Max.		
Transmittance (Under Clight)		T%	Viewing normal angle $\theta_X = \theta_Y = 0°$	5.72	6.35	--	%	T% definition : (w/o DBEF) & (w/o APCF) (w/o Haze) & (w/o WPA) All left side data are based on INX's following condition – LC : AAS Light source : C light Machine : DMS-900 V_{LC} : Vbright ≧ 4.7V Vdark ≦ 0.4V
Contrast Ratio		CR		640	800	--	--	
Response Time		$T_{on}+T_{off}$		--	25	35	ms	
Viewing Angle	Hor.	θ_{X+}	Center CR>10	70	80	--	deg.	
		θ_{X-}		70	80	--		
	Ver.	θ_{Y+}		70	80	--		
		θ_{Y-}		70	80	--		
CF Only Color Chromaticity (CIE1931)	Red	X_R	Viewing normal angle $\theta_X = \theta_Y = 0$	0.614	0.634	0.654	--	Under C light simulation
		Y_R		0.321	0.341	0.361		
	Green	X_G		0.283	0.303	0.323		
		Y_G		0.527	0.547	0.567		
	Blue	X_B		0.118	0.138	0.158		
		Y_B		0.070	0.090	0.110		
	White	X_W		0.297	0.317	0.337		
		Y_W		0.308	0.328	0.348		
Color Gamut		CG		--	60	--	%	

*Note (1) Definition of Contrast Ratio (CR):

The contrast ratio can be calculated by the following expression.

Contrast Ratio (CR) = L255 / L0

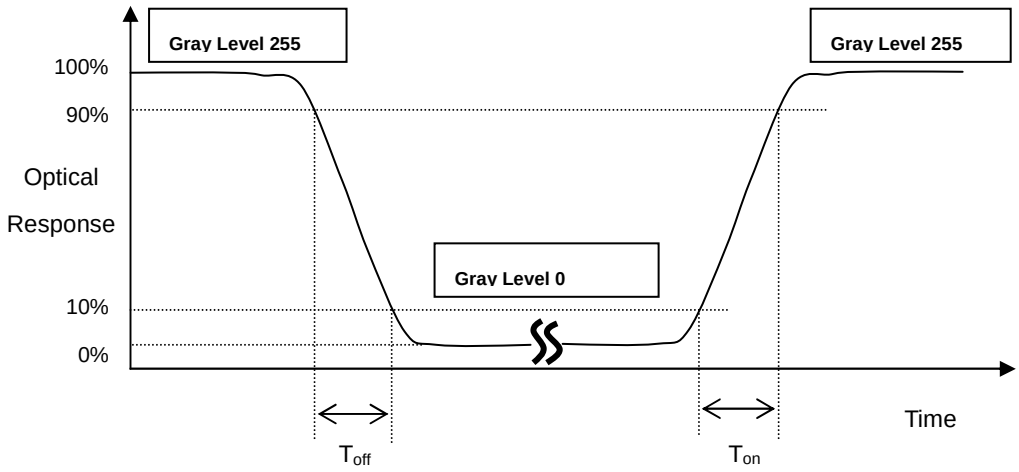
L255: Luminance of gray level 255

L 0: Luminance of gray level 0

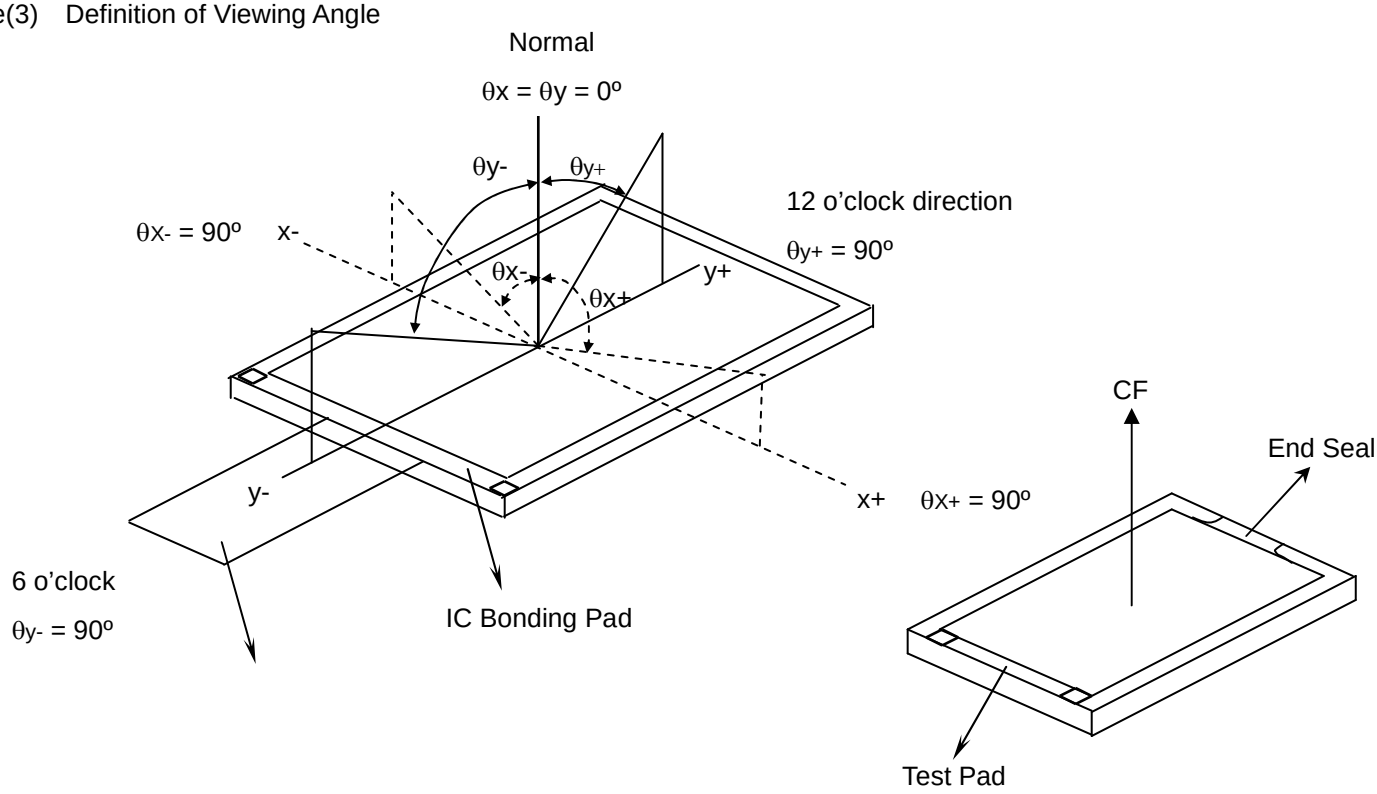
CR = CR (5)

CR (X) is corresponding to the Contrast Ratio of the point X at Figure in Note (5).

*Note (2) Definition of Response Time (T_{on}, T_{off}):

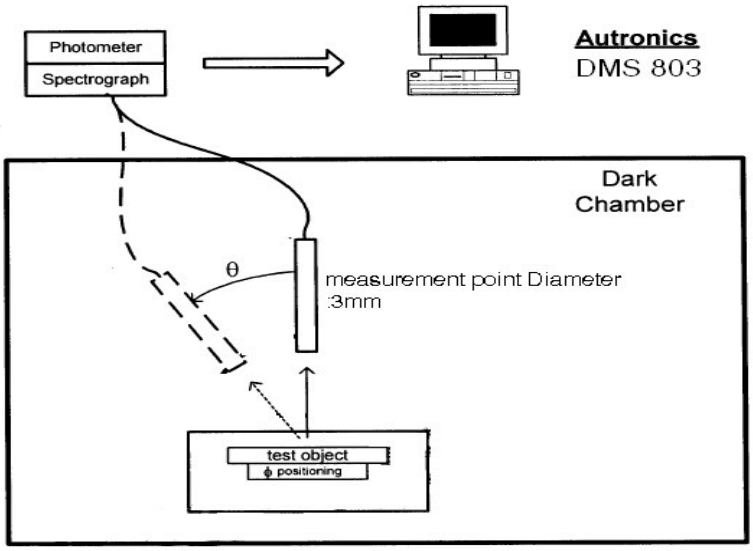


*Note(3) Definition of Viewing Angle

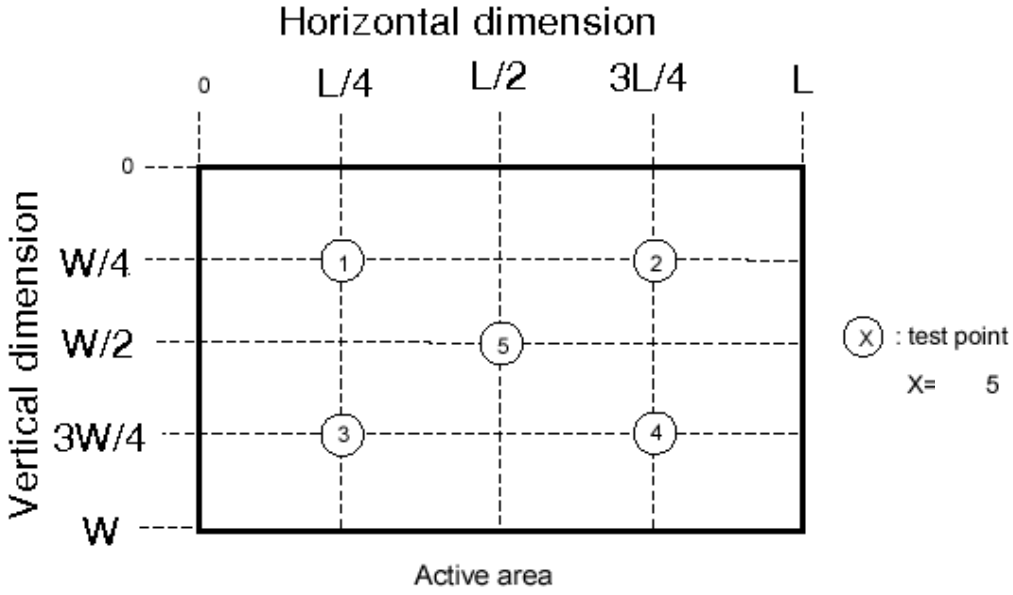


*Note (4) Measurement Set-Up:

The LCD module should be stabilized at a given temperature for 20 minutes to avoid abrupt temperature change during measuring. In order to stabilize the luminance, the measurement should be executed after lighting Backlight for 20 minutes in a windless room.



*Note (5)



7. RELIABILITY SPECIFICATION

No.	Test Item	Test Condition	Check Time
1	High Temp Storage	90℃	240 hrs
2	Low Temp Storage	-40℃	240 hrs
3	High Temp Operation	85℃	240 hrs
4	Low Temp Operation	-30℃	240 hrs
5	High Temp & High Humidity Operation	60℃/90%RH	240 hrs

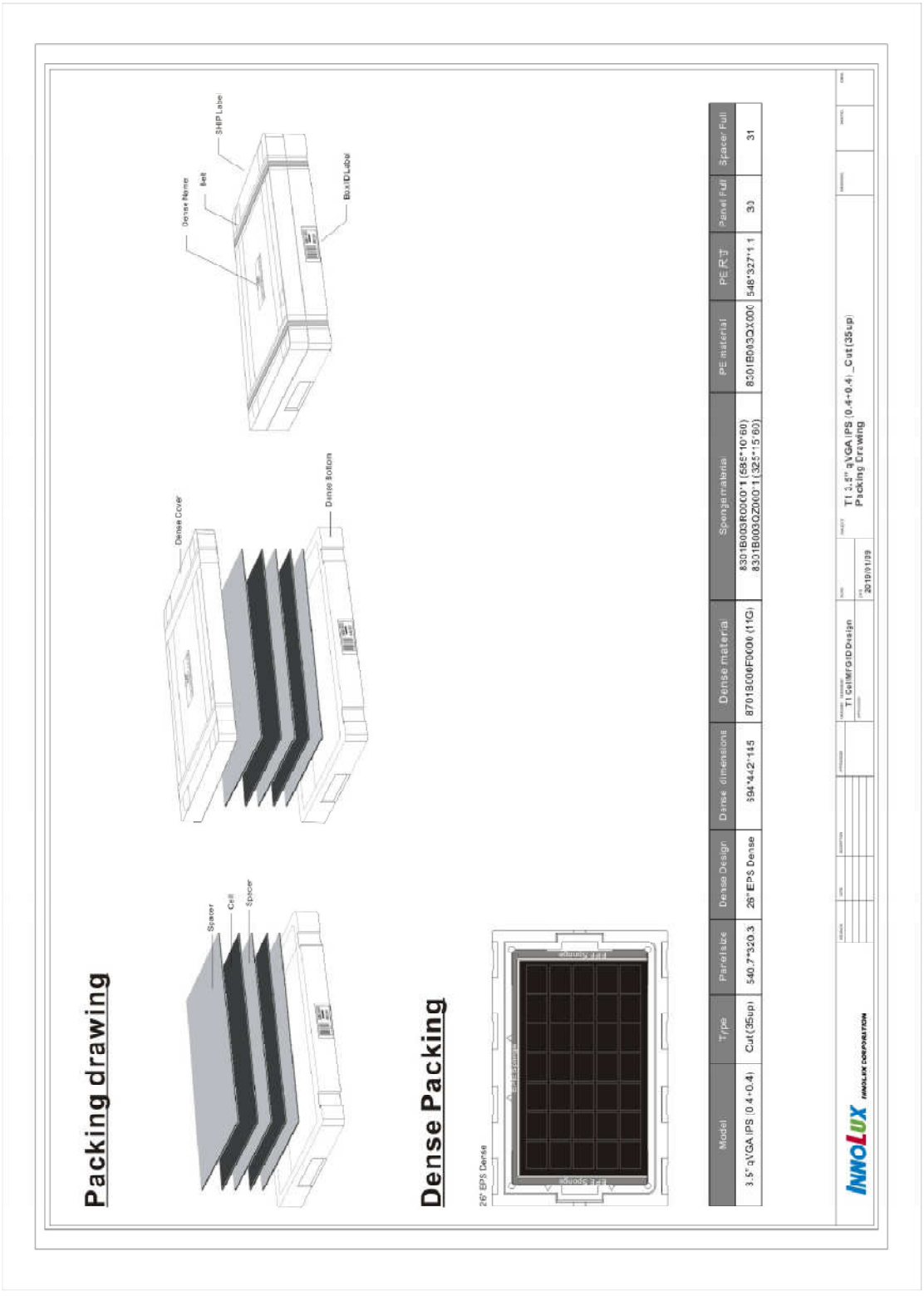
Note: (1) The test samples have recovery time for 2 hours at room temperature before the function check. In the standard conditions, there is no display function NG issue occurred.

(2) After the reliability test, the product only guarantees operation, but don't guarantee all of the cosmetic specification.

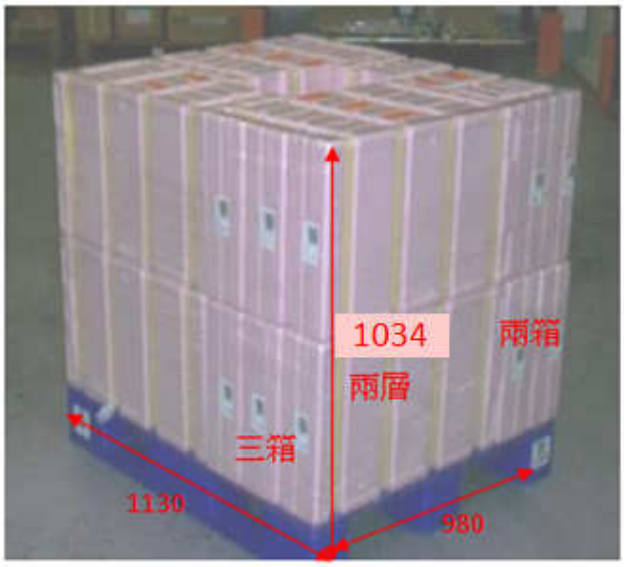
(3) Under no condensation of dew

8. PACKAGE FORM

8.1 CELL PACKAGE



8.2 PALLET PACKAGE



箱體料號：8701B000F0000
箱體編號：11G*

外箱尺寸 mm	單層堆疊	堆疊層數	總堆疊箱數	堆疊長寬高 mm
694*442*145	10	2	20	1130*980*1034

空運堆疊2層，海運20'堆疊2層，海運40'堆疊2+2層