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Date :	2017/5/9

internal use only **CUSTOMER APPROVAL SHEET**

Company Name

H120BLN02.0 MODEL

CUSTOMER Title :

APPROVED

Name :

APPROVAL FOR SPECIFICATIONS ONLY (Spec. Ver. ___)

APPROVAL FOR SPECIFICATIONS AND ES SAMPLE (Spec. Ver. ____)

- APPROVAL FOR SPECIFICATIONS AND CS SAMPLE (Spec. Ver.)
- **CUSTOMER REMARK :** 10 confidential for th

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Version 2.0 Page: 2/22



Product Specification

1.20" AMOLED

MODEL NAME: H120BLN02.0

AUO Product P/N: 95.01H79.000

>Preliminary Specification< >Final Specification

Note: The content of this specification is subject to change.

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Record of Revision

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1	2017/5/10	1-22	First edition
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A. General Specification

1. Physical Specifications

	ltem	Description	Remark
1	Screen Size (inch)	1.20"	
2	Display Mode	AMOLED	
3	Display Resolution	390x390	
4	Active Area (mm*mm)	30.42 (H)×30.42(V)	
5	Frame rate (normal mode)	45 (Hz)	×3
6	Pixel Configuration	Hyper R.G.B	Of.
7	Display Color (M)	16.7	
8	Brightness (nits)	350	1 ²
9	Interface	MIPI	CMD Mode
10	Driver IC	W022	
11	Outline Dimension (mm*mm*mm)	33.22 (H) × 33.75 (V) × 0.656(T)	cell+foam

2. FPC Pin Assignment

5

Main FPC Pin assignment — AMOLED Panel Input/Output Signal Interfac

FPCA recommended connector: AXG220144

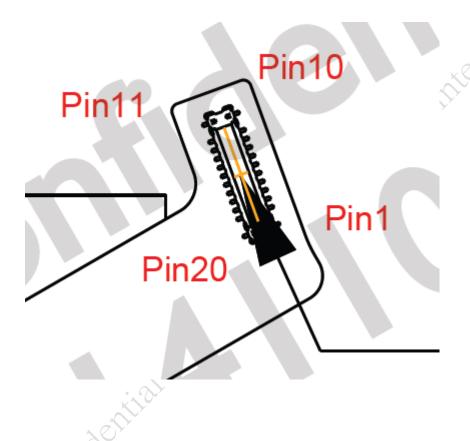
Main board recommended connector: AXG120144

	FPC	Pin_name	I/O	Description		
	4	511/00	Р	AMOLED negative power supply		
	1	ELVSS	~	(Power IC needs to follow AUO's suggestion)		
	2 ELVSS		P	AMOLED negative power supply		
	2	ELV35		(Power IC needs to follow AUO's suggestion)		
	3 ELVSS		Р	AMOLED negative power supply		
	5	LEV35		(Power IC needs to follow AUO's suggestion)		
	4	VCI	Р	Driver analog power supply		
	5	VDDIO	Р	Power supply for Interface system excep MIPI interface		
	6 GND P		Р	Ground		
	ТЕ	TE	0	Tearing effect output pin to synchronize MCU to frame		
		IE	0	writing.		
	8	NC	-	No Connection		
	9	RESX	Ι	Device reset signal (0 : Enable ; 1: Disable)		
	10	SWIRE	0	SWIRE signal for PWR IC control		
	11	GND	Р	Ground		
	12	DSI_CLKP		MIPI positive clock signal		
	13	DSI_CLKN	I	MIPI negative clock signal		
	14	GND	Р	Ground		
	15	DSI_D0P	I/O	MIPI positive data signal		
	16	DSI_DON	I/O	MIPI negative data signal		

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17	GND	Р	Ground
10			AMOLED positive power supply
18 ELVDD			(Power IC needs to follow AUO's suggestion)
10	P		AMOLED positive power supply
19 ELVDD			(Power IC needs to follow AUO's suggestion)
20		Р	AMOLED positive power supply
20 ELVDD			(Power IC needs to follow AUO's suggestion)

Note1: I = input ; O = output ; P = Power ; I/O = input / Output; NC= No Connection Note2: Pin assignment may be adjust according to Layout condition



3. Absolute Maximum Ratings

	Item	Symbol	Min.	Max.	Unit	Remark
\bigcirc	Digital Power Supply	VDDIO	-0.3	5.5	V	
)	Analog Power Supply	VCI	-0.3	5.5	V	
	ELVDD power Supply	ELVDD	-	5.0	V	
	ELVSS power Supply	ELVSS	-5.0	-	V	

Note : If the module exceeds the absolute maximum ratings, it may be damaged permanently.

B. DC Characteristics

1. Display DC Characteristics

Item		Symbol	Min.	Тур.	Max.	Unit	Remark
Digital Power Su	ipply	VDDIO	1.65	1.8	1.95	V	Note1
Battery power Ve	oltage	VCI	3.27	3.3	3.33	V	Note1
ELVDD power S	upply	ELVDD	3.27	3.3	3.33	V	Note1
ELVSS power Supply		ELVSS	-3.27	-3.3	-3.33	V	Note1
Input Signal	H Level	V _{IH}	0.8* VDDIO	-	VDDIO	V	Note1
Voltage	L Level	V _{IL}	0	-	0.2* VDDIO	V	
Output Signal	H Level	V _{OH}	0.8* VDDIO	-	VDDIO	V	Note1
Voltage	L Level	V _{OL}	0	-5	0.2* VDDIO	V	Note1

Note 1: The operation is guaranteed under the recommended operating conditions only. The operation is not guaranteed if a quick voltage change occurs during the operation. To prevent the noise, a bypass capacitor must be inserted into the line closed to the power pin.

2. Display Current Consumption

	ltem	Symbol	Condition	Min.	Тур.	Max.	Unit	Remark
		P _{OLED}	ELVDD:3.3V			117	mW	Note1
Pa	nel Power	IOLED	ELVSS:-3.3V			17.5	mA	Note1
	~	P _{VCI}			5.7	6.9	mW	Note2
	Normal	I _{VCI}			1.7	2.1	mA	Note2
	Normai	P _{VDDIO}			2.2	2.7	mW	Note2
\mathcal{O}) ×	I _{VDDIO}			1.2	1.5	mA	Note2
$\mathbf{)}$		P _{VCI}			3.8	4.6	mW	Note3
IC		I _{VCI}			1.2	1.4	mA	Note3
	Idle	P _{VDDIO}			1.2	1.4	mW	Note3
		I _{VDDIO}			0.7	0.8	mA	Note3
		P _{VCI}				0.17	mW	
	Slear	I _{VCI}	VCI : 3.3V			0.05	mA	
	Sleep	P _{VDDIO}				0.33	mW	
		I _{VDDIO}	VDDIO :1.8V			0.18	mA	

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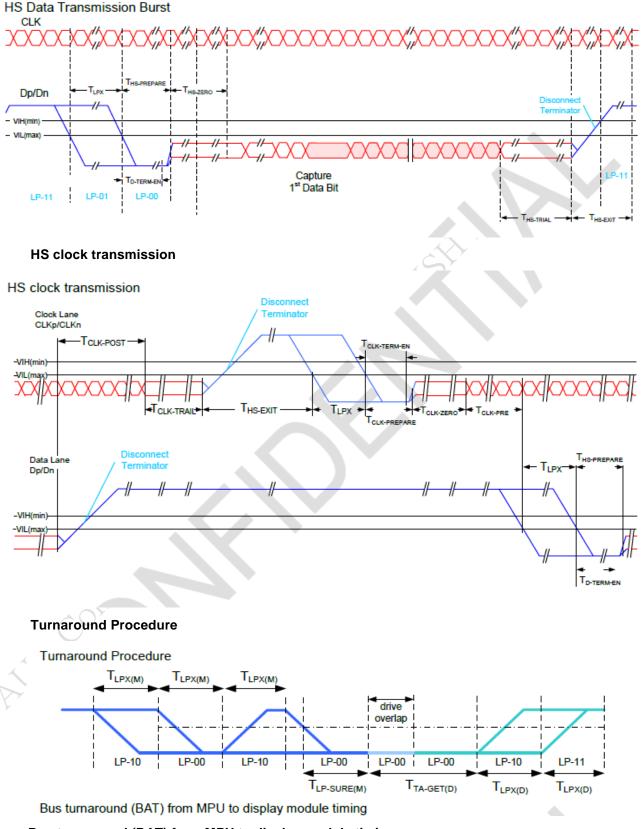
	P _{VCI}	VCI : 3.3V	 	0.14	mW	Note4
Deep	I _{VCI}	VCI . 3.3V	 	0.05	mA	Note4
Standby	P _{VDDIO}	VDDIO :1.8V	 	0.09	mW	Note4
	I _{VDDIO}		 	0.05	mA	Note4

Note 1: Based on L255 (350nits) full white pattern

The contraction of the contracti

C. AC Characteristics

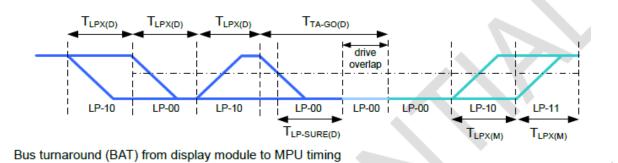
1. MIPI Interface Characteristics HS Data Transmission Burst



Bus turnaround (BAT) from MPU to display module timing

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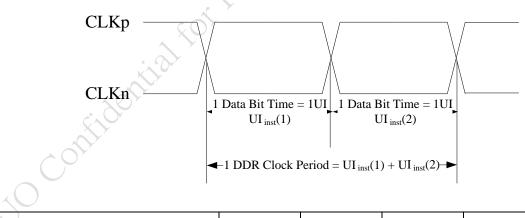


Timing Parameters

Symbol	Description	Min	Тур	Max	Unit
T _{CLK-POST}	Time that the transmitter continues to send HS clock after the last associated Data Lane	60ns + 52*UI	-0		Ns
	has transitioned to LP Mode. Interval is		×OFF		
	defined as the period from the end of T_{HS-}				
	TRAIL to the beginning of $T_{CLK-TRAIL}$.		Y Y		
T _{CLK-TRAIL}	Time that the transmitter drives the HS-0	60			Ns
	state after the last payload clock bit of a HS				
	transmission burst.	Ś			
T _{HS-EXIT}	Time that the transmitter drives LP-11	300			Ns
	following a HS burst.				
T _{CLK-TERM-EN}	Time for the Clock Lane receiver to enable	Time for Dn to		38	Ns
	the HS line termination, starting from the	reach V _{TERM-}			
	time point when Dn crosses V _{ILMAX} .	EN			
T _{CLK-PREPARE}	Time that the transmitter drives the Clock	38		95	Ns
	Lane LP-00 Line state immediately before				
	the HS-0 Line state starting the HS				
	transmission.				
T _{CLK-PRE}	Time that the HS clock shall be driven by the	8			UI
	transmitter prior to any associated Data				
Ċ	Lane beginning the transition from LP to HS				
	mode.				
T _{CLK-PREPARE}	$T_{\text{CLK-PREPARE}}$ + time that the transmitter drives	300			Ns
+ T _{CLK-ZERO}	the HS-0 state prior to starting the Clock.				
T _{D-TERM-EN}	Time for the Data Lane receiver to enable	Time for Dn to		35 ns	
	the HS line termination, starting from the	Reach $V_{\text{TERM-}}$		+4*UI	
	time point when Dn crosses $V_{\text{IL,MAX}}$.	EN			
T _{HS-PREPARE}	Time that the transmitter drives the Data	40ns + 4*UI		85 ns +	ns
	Lane LP-00 Line state immediately before			6*UI	
	the HS-0 Line state starting the HS				
	transmission				

T _{HS-PREPARE}	$T_{HS-PREPARE}$ + time that the transmitter drives	145ns + 10*UI			Ns
+ T _{HS-ZERO}	the HS-0 state prior to transmitting the Sync				
	sequence.				
T _{HS-TRAIL}	Time that the transmitter drives the flipped	60ns + 4*UI			Ns
	differential state after last payload data bit of				
	a HS transmission burst				
T _{LPX(M)}	Transmitted length of any Low-Power state	50		150	Ns
	period of MCU to display module				A
T _{TA-SURE(M)}	Time that the display module waits after the	T _{LPX(M)}		2*T _{LPX(M)}	Ns
	LP-10 state before transmitting the Bridge				
	state (LP-00) during a Link Turnaround.			P	
T _{LPX(D)}	Transmitted length of any Low-Power state	50	6	150	Ns
	period of display module to MCU				
T _{TA-GET(D)}	Time that the display module drives the		5*T _{LPX(D)}		Ns
	Bridge state (LP-00) after accepting control		Y		
	during a Link Turnaround.	i cont	Y		
T _{TA-GO(D)}	Time that the display module drives the	Al-	4*T _{LPX(D)}		Ns
	Bridge state (LP-00) before releasing control	G	. ,		
	during a Link Turnaround.	P			
T _{TA-SURE(D)}	Time that the MPU waits after the LP-10	T _{LPX(D)}		2*T _{LPX(D)}	Ns
	state before transmitting the Bridge state				
	(LP-00) during a Link Turnaround.				
		1	I		L

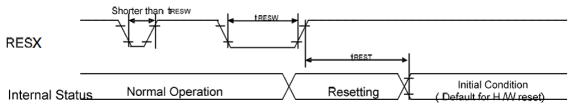
DDR Clock Definition



Clock Parameter	Symbol	Min	Тур	Max	Units	
Ul instataneous	Ul _{inst}	2		12.5	Ns	

2. Display RESET Timing Characteristics

Reset input timing



Timing Parameters

Symbol	Parameter	Related Pins	MIN	ТҮР	MAX	Note	Unit
t _{RESW}	*1) Reset low pulse width	RESX	10	-	-	- 0	μs
		-	-	-	5	When reset applied during Sleep in mode	ms
t _{REST}	*2) Reset complete time	-		-	120	When reset applied during Sleep out mode	ms

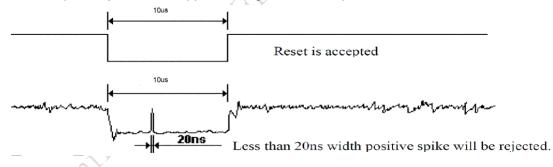
Note 1. Spike due to an electrostatic discharge on RESX line does not cause irregular system reset according to the table below.

	• ~ Y
RESX Pulse	Action
Shorter than 5µs	Invalid Reset
Longer than 10µs	Valid Reset
Between 5μs and 10μs	Reset Initialigation Precedure

Note 2. During the resetting period, the display will be blanked (The display is entering blanking sequence, which maximum time is 120 ms, when Reset Starts in Sleep Out –mode. The display remains the blank state in Sleep In –mode) and then return to Default condition for H/W reset.

Note 3. During Reset Complete Time, data in OTP will be latched to internal register during this period. This loading is done every time when there is H/W reset complete time (tREST) within 5ms after a rising edge of RESX.

Note 4. Spike Rejection also applies during a valid reset pulse as shown below:

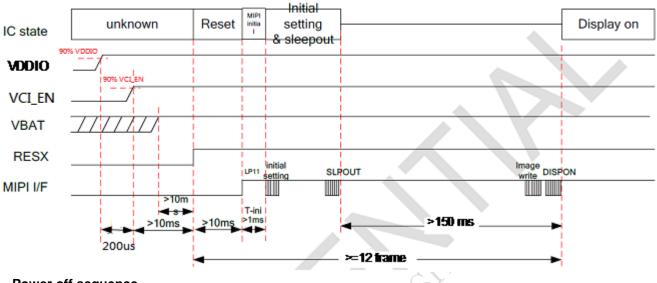


Note 5. It is necessary to wait 5msec after releasing RESX before sending commands. Also Sleep Out command cannot be sent for 120msec.

Operating Sequence

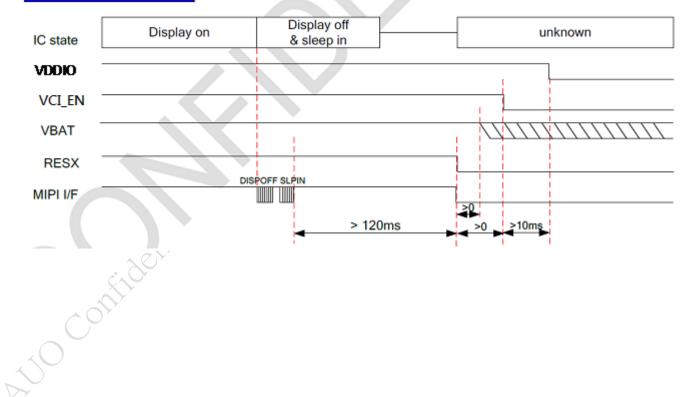
Power on sequence

Power On sequence

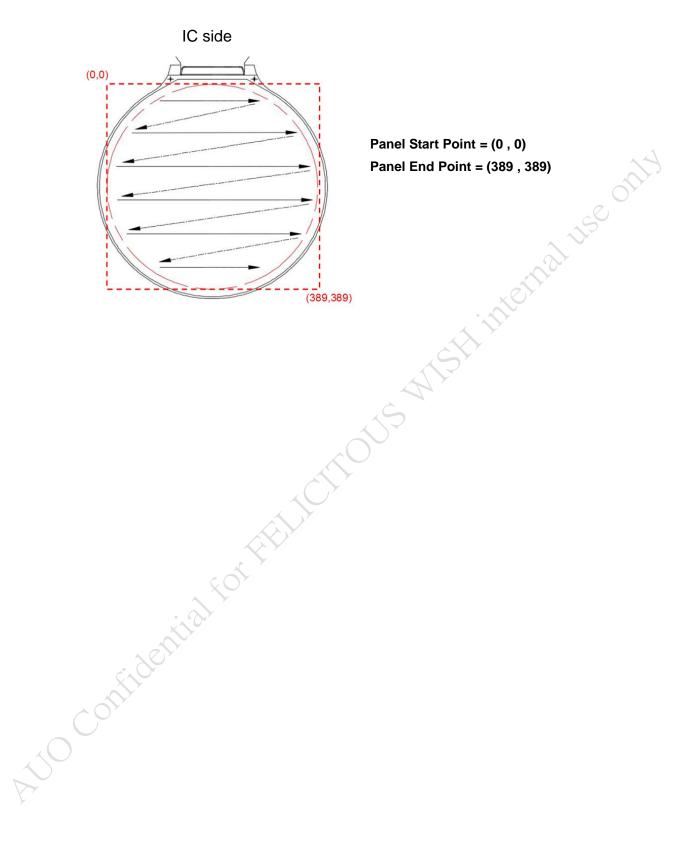


Power off sequence

Power Off sequence



D. Display Scan Direction & Coordinate



Coordinate

Y	StartX	EndX	Total	Y	StartX	EndX	Total	Y	StartX	EndX	Total	Y	StartX	EndX	Total	Y	StartX	EndX	Total	Y	StartX	EndX	Total	Y	StartX	EndX	Total
1	181	208	28	61	54	335	282	121	15	374	360	181	1	388	388	241	5	384	380	301	31	358	328	361	92	297	206
2	171	218	48	62	53	336	284	122	14	375	362	182	0	389	390	242	б	383	378	302	32	357	326	362	94	295	202
3	164 158	225 231	62 74	63 64	52 51	337 338	286 288	123 124	14 14	375 375	362 362	183 184	0	389 389	390 390	243 244	6 6	383 383	378 378	303 304	32 33	357 356	326 324	363 364	95 97	294 292	200 196
5	153	236	84	65	50	339	200	124	14	376	364	185	0	389	390	244	6	383	378	305	34	355	322	365	 99	292	190
б	149	240	92	66	49	340	292	126	13	376	364	186	0	389	390	246	7	382	376	306	34	355	322	366	100	289	190
7	145	244	100	67	48	341	294	127	12	377	366	187	0	389	390	247	7	382	376	307	35	354	320	367	102	287	186
8	141	248	108	68	47	342	296	128	12	377	366	188	0	389	390	248	7	382	376	308	36	353	318	368	104	285	182
9 10	138 135	251 254	114 120	69 70	47 46	342 343	296 298	129 130	12	377 378	366 368	189 190	0	389 389	390 390	249 250	7	382 381	376 374	309 310	36 37	353 352	318 316	369 370	106 108	283 281	178 174
11	132	257	126	71	45	344	300	131	11	378	368	191	0	389	390	251	8	381	374	311	38	351	314	371	110	279	170
12	129	260	132	72	44	345	302	132	11	378	368	192	0	389	390	252	8	381	374	312	39	350	312	372	112	277	166
13	126	263	138	73	43	346	304	133	10	379	370	193	0	389	390	253	9	380	372	313	39	350	312	373	114	275	162
14 15	124 121	265 268	142 148	74 75	42 42	347 347	306 306	134 135	10 10	379 379	370 370	194 195	0	389 389	390 390	254 255	9 9	380 380	372 372	314 315	40 41	349 348	310 308	374 375	117 119	272 270	156 152
16	119	270	152	76	41	348	308	136	9	380	372	196	0	389	390	256	10	379	370	316	42	347	306	376	121	268	148
17	117	272	156	77	40	349	310	137	9	380	372	197	0	389	390	257	10	379	370	317	42	347	306	377	124	265	142
18	114	275	162	78	39	350	312	138	9	380	372	198	0	389	390	258	10	379	370	318	43	346	304	378	126	263	138
19	112	277	166	79	39	350	312	139	8	381	374	199	0	389	390	259	11	378	368	319	44	345	302	379	129	260	132
20 21	<u>110</u> 108	279 281	170 174	80 81	38 37	351 352	314 316	140 141	8	381 381	374 374	200 201	0	389 389	390 390	260 261	11 11	378 378	368 368	320 321	45 46	344 343	300 298	380 381	132 135	257 254	126 120
22	106	283	178	82	36	353	318	142	7	382	376	202	0	389	390	262	12	377	366	322	47	342	296	382	138	251	114
23	104	285	182	83	36	353	318	143	7	382	376	203	0	389	390	263	12	377	366	323	47	342	296	383	141	248	108
24	102	287	186	84	35	354	320	144	7	382	376	204	0	389	390	264	12	377	366	324	48	341	294	384	145	244	100
25 26	100 99	289 290	190 192	85 86	34 34	355 355	322 322	145 146	7	382 383	376 378	205 206	0	389 389	390 390	265 266	13 13	376 376	364 364	325 326	49 50	340 339	292 290	385 386	149 153	240 236	92 84
27	97	290	192	87	33	356	324	140	6	383	378	200	0	389	390	267	14	375	362	327	51	338	230	387	155	231	74
28	95	294	200	88	32	357	326	148	б	383	378	208	0	389	390	268	14	375	362	328	52	337	286	388	164	225	62
29	94	295	202	89	32	357	326	149	6	383	378	209	0	389	390	269	14	375	362	329	53	336	284	389	171	218	48
<u>30</u> 31	92 90	297 299	206 210	90 91	31 30	358 359	328 330	150 151	5 5	384 384	380 380	210 211	1	388 388	388 388	270 271	15 15	374 374	360 360	330 331	54 55	335 334	282 280	390	181	208	28
32	89	300	210	92	30	359	330	152	5	384	380	212	1	388	388	272	16	373	358	332	56	333	278				
33	87	302	216	93	29	360	332	153	5	384	380	213	1	388	388	273	16	373	358	333	57	332	276				
34	86	303	218	94	29	360	332	154	4	385	382	214	1	388	388	274	17	372	356	334	58	331	274				
35 36	84	305	222 224	95	28	361	334	155	4	385	382	215	1	388	388	275 276	17	372 372	356	335	59 60	330	272				
37	83 81	306 308	228	96 97	27 27	362 362	336 336	156 157	4	385 385	382 382	216 217	1	388 388	388 388	277	17 18	371	356 354	336 337	61	329 328	270 268				
38	80	309	230	98	26	363	338	158	4	385	382	218	1	388	388	278	18	371	354	338	62	327	266				
39	79	310	232	99	26	363	338	159	3	386	384	219	1	388	388	279	19	370	352	339	63	326	264				
40 41	77 76	312 313	236	100	25	364	340	160	3	386	384	220	2	387	386 386	280	19	370 369	352 350	340	64	325	262				
41	75	313	238 240	101 102	24 24	365 365	342 342	161 162	3	386 386	384 384	221 222	2	387 387	386	281 282	20 20	369	350	341 342	65 66	324 323	260 258				
43	73	316	244	103	23	366	344	163	3	386	384	223	2	387	386	283	21	368	348	343	67	322	256				
44	72	317	246	104	23	366	344	164	3	386	384	224	2	387	386	284	21	368	348	344	69	320	252				
45	71	318	248	105	22	367	346	165	2	387	386	225	2	387	386	285	22	367 367	346	345	70	319	250				\vdash
46 47	70 69	319 320	250 252	106 107	22 21	367 368	346 348	166 167	2	387 387	386 386	226 227	2 3	387 386	386 384	286 287	22 23	366	346 344	346 347	71 72	318 317	248 246				
48	67	322	256	108	21	368	348	168	2	387	386	228	3	386	384	288	23	366	344	348	73	316	244				
49	66	323	258	109	20	369	350	169	2	387	386	229	3	386	384	289	24	365	342	349	75	314	240				
50	65	324 325	260	110	20	369 270	350 352	170 171	2	387 387	386	230	3	386	384	290	24	365 364	342 240	350	76	313	238				\vdash
51 52	64 63	325	262 264	111 112	19 19	370 370	352	171	1	387 388	386 388	231 232	3	386 386	384 384	291 292	25 26	364 363	340 338	351 352	77 79	312 310	236 232				\vdash
53	62	327	266	113	19	371	354	173	1	388	388	233	4	385	382	293	26	363	338		80	309	230				
54	61	328	268	114	18	371	354	174	1	388	388	234	4	385	382	294	27	362	336	354	81	308	228				
55	60 50	329	270	115	17	372	356	175	1	388	388	235	4	385	382	295	27	362	336		83	306	224				\vdash
56 57	<u>59</u> 58	330 331	272 274	116 117	17 17	372 372	356 356	176 177	1	388 388	388 388	236 237	4	385 385	382 382	296 297	28 29	361 360	334 332	356 357	84 86	305 303	222 218				\vdash
58	57	332	276	118	16	373	358	178	1	388	388	238	5	384	380	298	29	360	332	358	87	302	216				
59	56	333	278		16	373	358	179	1	388	388	239	5	384	380	299	30	359	330	359	89	300	212				
60	55		280		15	374	360	180	1	388	388	240	5	384	380	300	30	359	330	360	90	299	210				
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E. Optical Specifications

ľ	tem	Abbr.	Min.	Тур.	Max.	Unit	Remark
Optical C	haracteristic	Brightness	315	350		nits	Note 3
Contr	ast ratio	@25deg	10000				Note 4
Brightnes	s Uniformity	350nits	85				Note 5
		Тор	80°			deg	
Viewi	ng angle	Bottom	80°			deg	Note 6
CR	>1600	Left	80°			deg	
		Right	80°			deg	
	White	CIE1931 x	0.28	0.30	0.32	00	
	White	CIE1931 y	0.29	0.31	0.33		
	Red	CIE1931 x	0.640	0.670	0.700		
Oslar	Red	CIE1931 y	0.300	0.330	0.360		Nata 7
Color	Green	CIE1931 x	0.186	0.236	0.286		Note 7
	Green	CIE1931 y	0.661	0.711	0.761		
	Blue	CIE1931 x	0.090	0.130	0.170		
	Blue	CIE1931 y	0.025	0.065	0.105		
N	TSC	CIE x , y	82	100		%	
Life time	LT95	25°C	150			hrs	Note 8
Crosstalk	L128△CT	Vertical			110	%	Note 9
FI	icker				-30	db	Note 10
Ga	amma	<u>ζ</u> Ογ	1.9	2.2	2.5		Note 11

Note 1: Ambient temperature =25 °C±2 °C, measured by CA-310

Note 2: To be measured in the dark room.

Note 3: The brightness measurement shall be done at the center of the display with a full white image.

Note 4: Definition of contrast ratio:

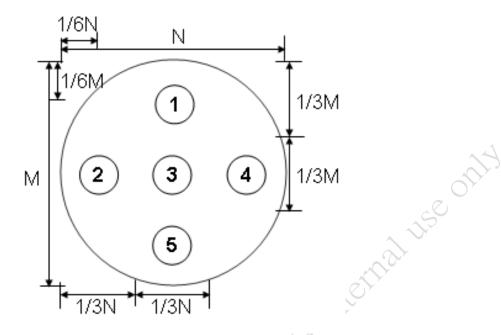
Contrast ratio is calculated with the following formula:

Contrast ratio (CR)=

Photo detector output when OLED is at "White" state

Photo detector output when OLED is at "Black

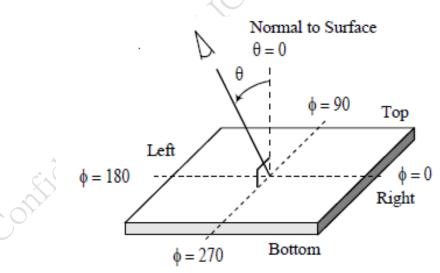
Note 5: Uniformity. Refer to figure as below



- Bp (Max.) = Maximum brightness in 5 measured spots
- Bp (Min.) = Minimum brightness in 5 measured spots.

Note 6: Definition of viewing angle :

The optical performance is specified as the driver IC located at =270°



Note 7: The color chromaticity should be based on sample performance because new OLED material should be verified later.

Note 8: Time to 95% Luminance

To measure the burn-in effect, a test pattern with white background applied to the AMOLED display at 100% loading

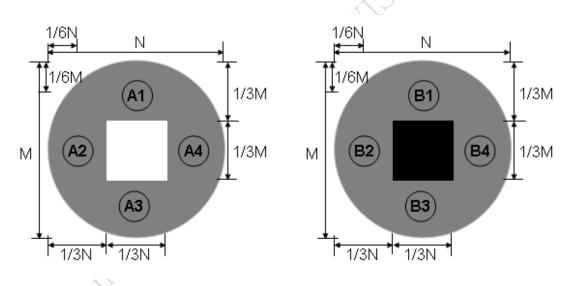
Note 9: Cross-talk

- There should be no visible cross-talk in normal direction of the display when the two "Cross-talk Test • Patterns " below are loaded.
- Measurement equipment: DMS-803 or similar equipments
- The point should be marked is, the background of Cross-talk Test Pattern-"gray" are defined as middle • gray scale . For example, RGB 24bit "gray" defined as below:

R7	R6	R5	R4	R3	R2	R1	RO	G7	G6	G5	G4	G3	G2	G1	G 0	B7	B 6	B5	B 4	B 3	B2	B1	B0	
1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	
\triangle Bpn = Bpn (gray) / Bpn (white)																								
Which n means the dot No. In the Cross-talk Test Pattern ;																								
Bpn (gray) means the brightness of the No.n spots in Cross-talk Test Pattern A and B;																								
Bpn	(wh	ite)	mea	ans t	he b	origh	ntnes	ss of	f the	No.	n sp	oots	in F	ull w	hite	Tes	st Pa	atter	n;)	

 \triangle Bpn = Bpn (gray) / Bpn (white)

- \triangle Bp (Max.) = Maximum value in A1~A4 and B1~B4.
- \triangle Bp (Min.) = Minimum value in A1~A4 and pB1~B4.
- \triangle CT= \triangle Bp (Max.)/ \triangle Bp(Min.).
- \triangle CT must be less than 1.10

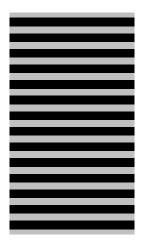


Note 10: Flicker

The flicker level is defined using Fast Fourier Transformation (FTT) as follows:

$$Flic \ker = 20 \log_{10} \left(2 \frac{f_{FFTC}(n)}{f_{FFTC}(0)} \right) + FS(Hz)$$
(dB)

where fFFTC(n) is the nth FFT coefficient, and fFFTC(0) is the 0th FFT coefficient which is DC component. FS(Hz) is the flicker sensitivity as a function of frequency. The flicker level shall be measured with the test pattern in below. The gray leves of test pattern is 128.



se only

Note 11 : Gamma spec. is based on Gray level 255, 250, 244, 240, 232, 224, 206, 192, 160, 128, 95, 63, 47 & 31.

F. Reliability Test Items

Category	No.	Amount	Remark		
	1	High Temp. Operation	Ta= 60℃ 168 hrs	5 pcs	
	2	High Temp. Storage	Ta= 70 ℃ 168 hrs	5 pcs	Non-operation
	3	Low Temp. Operation	Ta= -20 °C 168 hrs	5 pcs	
	4	Low Temp. Storage	Ta= -30 °C 168 hrs	5 pcs	Non-operation
	5	High Temp./Humi. Operation	Ta= 60 °C. 90% RH 168 hrs	5 pcs	
Reliability (Environment)	6	Thermal Shock	-40 ℃ ~70 ℃, Dwell for 30 min. 100 cycles.	5 pcs	Non-operation
	7	Contact mode	± 4KV; discharge time:10; Interval:1sec; Criteria: B	5 pcs	Test model :
	7	ESD Air mode	 ± 8KV; discharge time:10;Interval:Discharge; Criteria: B 	5 pcs	IEC61000-4-2, 150pf,330ohm

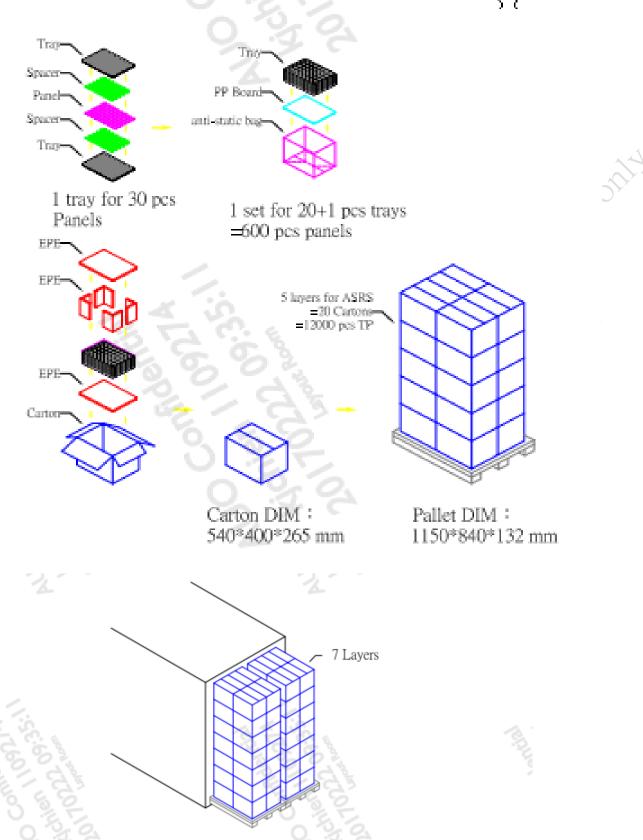
Judge Criteria: No functional defect.

Drop test ~

Test items	Conditions	Remark			
Drop Test	Drop the packing from 76cm height, 6	Box			
	surfaces, 3 edges and 1 corner.				

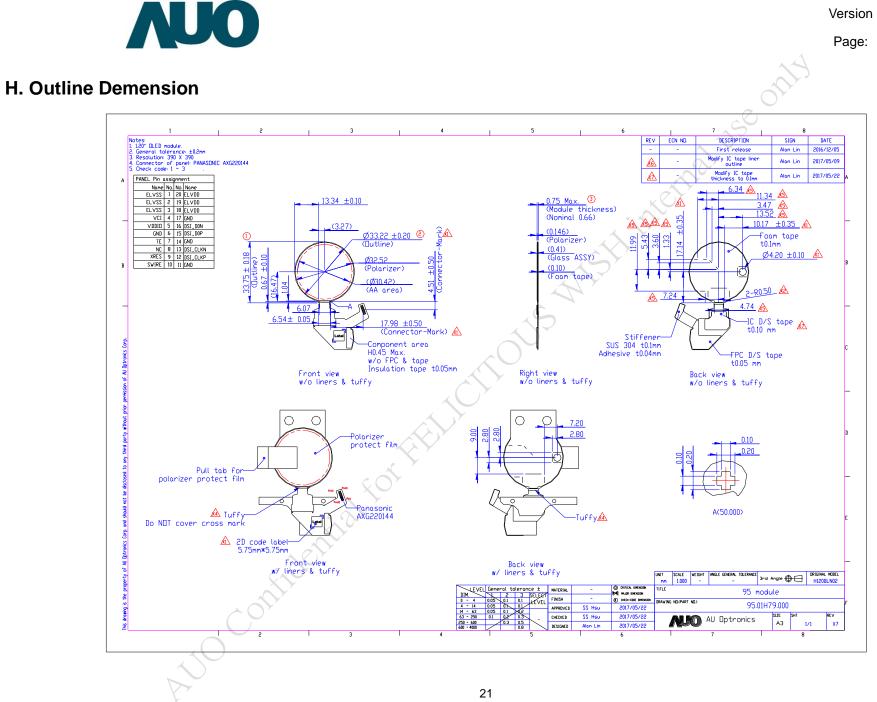
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G. Packing



For 20' Container: 12 Pallets=336 cartons=201600 pcs Panels For 40' Container : 28 Pallets=784 cartons=470400 pcs Panels

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I. Precaution

Please pay attention to the following items when you use the OLED Modules(Panel):

- Do not twist or bend the module(panel) and prevent the unsuitable external force for display during assembly. 1.
- 2. Adopt measures for good heat radiation. Be sure to use the module(panel) with in the specified temperature.
- Avoid dust or oil mist during assembly. 3.
- 4. Follow the correct power sequence while operating. Do not apply the invalid signal, otherwise, it will cause improper shut down and damage the module(panel).
- Less EMI: it will be more safety and less noise. 5.
- Please operate module(panel) in suitable temperature. The response time & brightness will drift by different temperature. 6.
- Avoid to display the fixed pattern (exclude the white pattern) in a long period, otherwise, it will cause image sticking. 7.
- Please be sure to turn-off the power when connecting or disconnecting the circuit. 8.
- Polarizer scratches easily, please handle it carefully. 9.
- Display surface never likes dirt or stains. 10.
- A dew drop may lead to destruction. Please wipe off any moisture before using module(panel). 11.
- Sudden temperature changes cause condensation, and it will cause polarizer damaged. 12.
- High temperature and humidity may degrade performance. Please do not expose the module(panel) to the direct sunlight 13. and so on.
- Acetic acid or chlorine compounds are not friends with AMOLED display module(panel). 14.
- Static electricity will damage the module(panel), please do not touch the module(panel) without any grounded device. 15.
- Please avoid any static electricity damage (ESD) during producing and operating. 16.
- 17. Do not disassemble and reassemble the module(panel) by self.
- Be careful do not touch the rear side directly. 18.
- No strong vibration or shock. It will cause module(panel) broken. 19.
- Storage the modules(panel) in suitable environment with regular packing. 20.
- 21. Be careful of injury from a broken display module(panel).
- Please avoid the pressure adding to the surface (front or rear side) of modules(panel), because it will cause the display 22. non-uniformity or other function issue.
- Please check there is no mechanical interference between AMOLED display module (panel) and customer's mechanical. 23.
- UV light would damage OLED material. To avoid damage, UV light must shine directly onto the front side of the OLED 24. panel, any light to the side/back of the panel must be avoided, and black tray must be used to avoid any UV reflection via tray to the side/back of the OLED panel.

Page:

Version

1.0