PRODUCT SPECIFICATION

MODEL NAME: EPM315Q****

(●) Preliminary Specification (Design Approval)
( ) Final Specification (Products approval)

RECEPTION STAMP		JOLED Inc.	
Date		Date	2020.8.4
Approved by		Approved by	
		Checked	
Remark		Drawn	Takahiro HATAYA

Please return one copy after stamping your acceptance sign on this product specification.

Contents

1. Description

This specification applies to the OLED PANEL module of the following Parts number, manufactured by JOLED Inc.

Parts Number : EPM315Q****

2. Over View

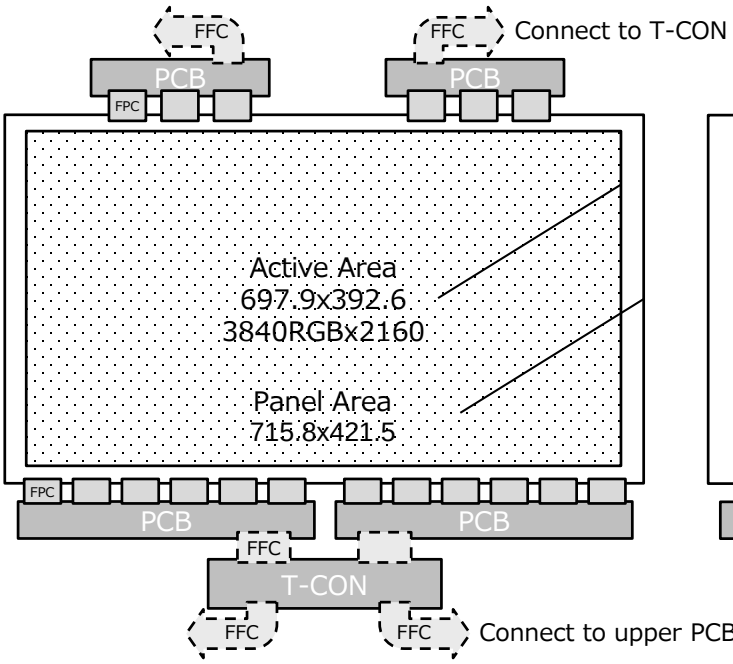
Items	Specifications	Unit	Remark
Screen size	31.5	inch	
Outline Dimensions	Panel Area : 715.8×421.5 T-CON : 295×48 PCB : (up) 209.3×19.2 (low) 341×27	mm	*1)
Weight	1100	g	*1)
Active Area (With Wobbling)	H697.92×V392.58 (H700.828×V395.488)	mm	
Active Pixel (With Wobbling)	H3840RGB×V2160 (H3856RGB×V2176)	-	
Pixel Pitch	0.18175×0.18175	mm	
Pixel Arrangement	R.G.B. Vertical Stripes	-	
Color Depth	10	bpc	
Luminance White (Peak/Raster)	540/250	cd/m^2	
Color Difference	0.02	-	Δu'v'@45deg
Power Consumption	67	W	initial power(module)
Display Mode	Normally Black	-	

*1) PCB each 2pcs

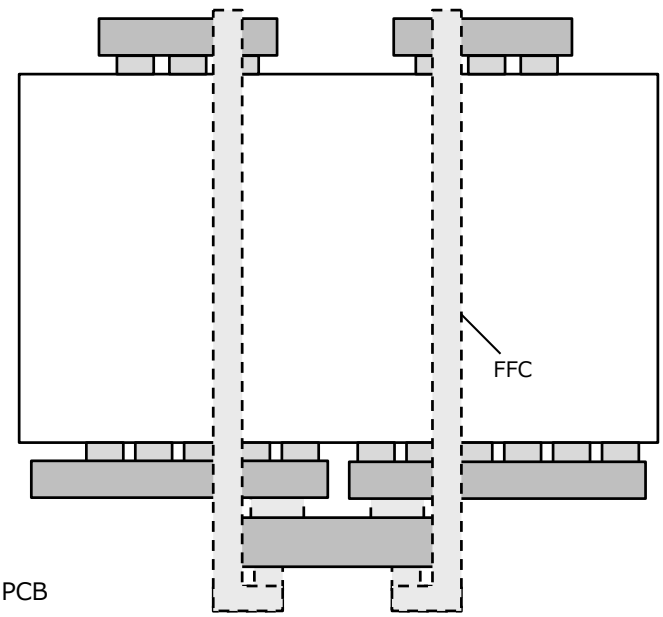
Panel Module components

* FFCs are NOT included. Please prepare the FFCs whose length depends on customer's mounting.

Front view



Rear view

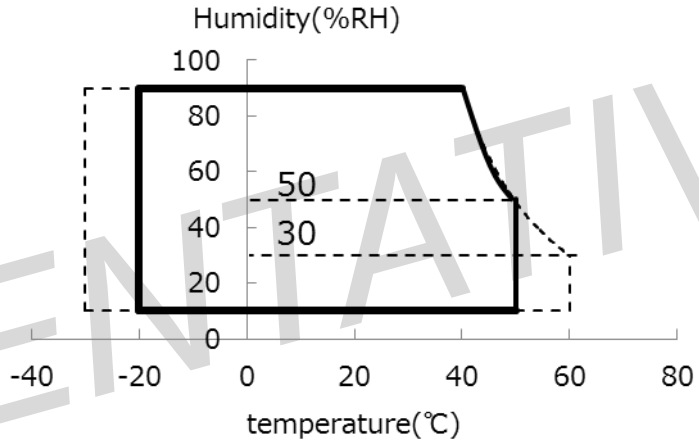


3. Operating/Storage Condition

Items	Symbol	Min.	Max.	Unit	Remark
Operating Temperature (Glass Surface)	Tsop	-20	50	℃	*2)
Operating Humidity	Hop	*1)		%RH	
Storage Temperature	Tst	-30	60	℃	
Storage Humidity	Hst	*1)		%RH	

*1) Ta≦40℃･･･The relative humidity Max is 90% RH. No condensation.

Ta＞40℃･･･The relative humidity should be a steam atmosphere at 40degC.
and 90% RH or less (wet bulb temperature ≦ 39degC).



*2) “Operating” means only “can operate”, no warranty of optical performance.
Optical performance is guaranteed under the condition of Ta=25degC.

4. Electrical Specification

4-1 Absolute Maximum Rating

Items	Symbol	Min.	Max.	Unit	Remark
Power Supply Input Voltage	Vsup	0	28	V	ripple included
Signal Input Voltage		-0.5	3.75	V	
Signal Input Voltage of eDP		-0.5	1.6	V	

4-2 Power Supply Characteristics

Items	Symbol	Min.	Typ.	Max.	Unit	Remark
Power Supply Input Voltage	Vsup	22.8	24	25.2	V	
Allowable Vsup Ripple Voltage	Vrpp			1000	mVpp	
Power Supply Input Peak Current	Ipeak	-		5	A	*1)
Vsup Power Consumption	Pc	-	67		W	*2)

*1) Peak condition : 1Flame period（16.7ms@60Hz）at Black→White scene change

*2) Typ.Value is the initial (shipped) value.
Condition: Vsup=24V , Ta=25℃, fv=60Hz, full white raster

4-2 Interface Connections

Connector Part number : I-PEX Cabline-VS 20455-050E-76

Pin	Symbol	Description
1	NC	Open
2	H GND	High Speed Ground
3	Lane3 N	eDP Main Link
4	Lane3 P	eDP Main Link
5	H GND	High Speed Ground
6	Lane2 N	eDP Main Link
7	Lane2 P	eDP Main Link
8	H GND	High Speed Ground
9	Lane1 N	eDP Main Link
10	Lane1 P	eDP Main Link
11	H GND	High Speed Ground
12	Lane0 N	eDP Main Link
13	Lane0 P	eDP Main Link
14	H GND	High Speed Ground
15	AUX P	eDP AUX
16	AUX N	eDP AUX
17	H GND	High Speed Ground
18	TEST1	Reserved
19	TEST2	Reserved
20	TEST3	Reserved
21	TEST4	Reserved
22	TEST5	Reserved
23	TEST6	Reserved
24	SOS	Diagnosis / 3.3V Push-pull
25	DISP ON	Stand by control/3.3V CMOS input/3.3V pull-up resistor 100k
26	GND	Ground
27	HPD	eDP Hot Plug detect/3.3V pull-up resistor 4.7k
28	GND	Ground
29	GND	Ground
30	GND	Ground
31	GND	Ground
32	GND	Ground
33	GND	Ground
34	GND	Ground
35	GND	Ground
36	GND	Ground
37	GND	Ground
38	NC	Open
39	Vsup	Power supply
40	Vsup	Power supply
41	Vsup	Power supply
42	Vsup	Power supply
43	Vsup	Power supply
44	Vsup	Power supply
45	Vsup	Power supply
46	Vsup	Power supply
47	Vsup	Power supply
48	Vsup	Power supply
49	Vsup	Power supply
50	NC	Open

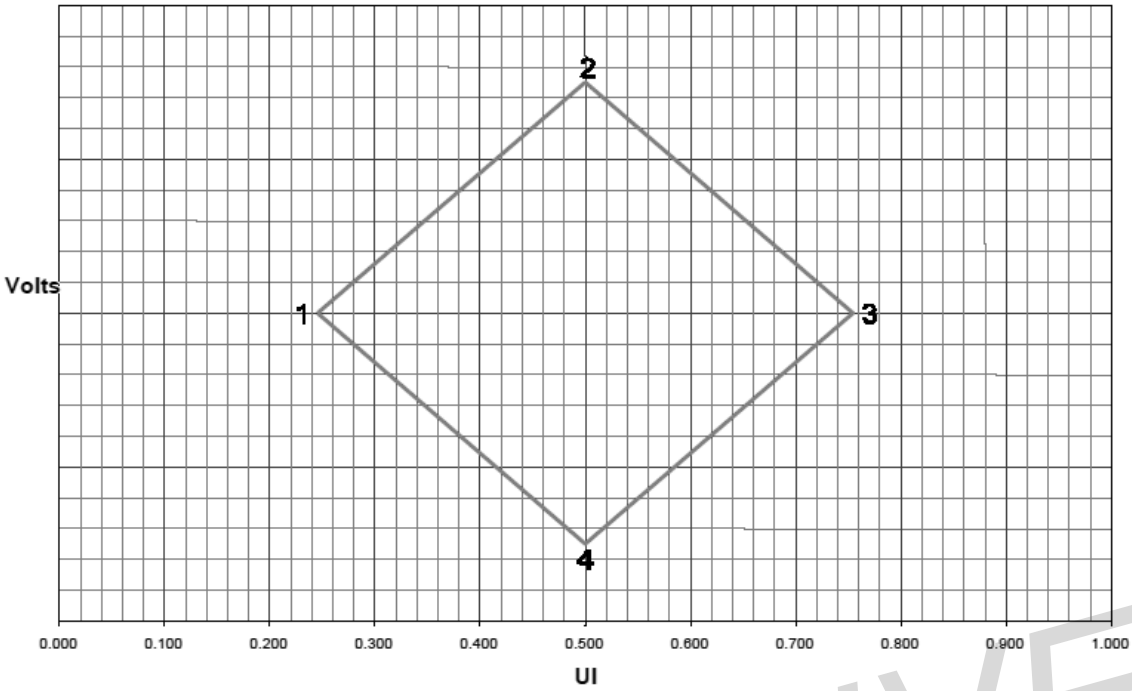
4-3 eDP Electrical Characteristics

4-3-1 CML Input

Symbol	Parameter	Min.	Typ.	Max.	Unit
RPIN	CML Differential Input Resistance	80	100	120	ohm
VRX_DC_CM	CML DC Common Mode Voltage	-	0	-	V
IRRIH	CML Input Current High	7.0	-	13.2	mA
IRRIL	CML Input Current Low	-	0	-	mA

4-3-2 Main Link Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Unit
UI_HBR2	Unit Interval for HBR2	185	-	370	ps
UI_HBR	Unit Interval for HBR	370	-	617	ps
UI_RBR	Unit Interval for RBR	617	-	621	ps
LRX_SKEWINTRA PAIR_HBR2	Lane Intra-pair Skew Tolerance for HBR2 range	-	-	50	ps
LRX_SKEWINTRA PAIR_HBR	Lane Intra-pair Skew Tolerance for HBR range	-	-	60	ps
LRX_SKEWINTRA PAIR_RBR	Lane Intra-pair Skew Tolerance for RBR range	-	-	260	ps
LRX_SKEWINTER PAIR	Lane-to-Lane Inter pair skew at RX package pins	-	-	20	UI
FRX_TRACKINGBW HBR2	Jitter Closed Loop Tracking Bandwidth for HBR2 range	10	-	-	MHz
FRX_TRACKINGBW HBR	Jitter Closed Loop Tracking Bandwidth for HBR range	10	-	-	MHz
FRX_TRACKINGBW RBR	Jitter Closed Loop Tracking Bandwidth for RBR range	5.4	-	-	MHz
Down_Spread Amplitude	Link clock down-spreading	0.0		0.5	%
Down_Spread Frequency	Link Clock down spreading frequency	30	-	33	kHz
Ctx	AC Coupling Capacitor	75	-	265	nF



Downstream Device EYE Mask at Receiver Connector Pins
with Considering eDP1.4a Reference Equalizer for HBR2/HBR/RBR

Downstream Device EYE Vertices for Receiver Connector
with Considering eDP1.4a Reference Equalizer for HBR2

Point	Time: (UI)	Voltage(Volts)
1	0.310	0.0
2	0.375-0.625	70mV
3	0.690	0.0
4	0.375-0.625	-70mV

Downstream Device EYE Vertices for Receiver Connector
with Considering eDP1.4a Reference Equalizer for HBR

Point	Time: (UI)	Voltage(Volts)
1	0.246	0.0
2	0.500	70mV
3	0.755	0.0
4	0.500	-70mV

Downstream Device EYE Vertices for Receiver Connector
with Considering eDP1.4a Reference Equalizer for RBR

Point	Time: (UI)	Voltage(Volts)
1	0.375	0.0
2	0.500	46mV
3	0.625	0.0
4	0.500	-46mV

eDP1.4a Reference Equalizer Poles and Zeros

Nominal Per-Lane Transfer Rate	DC gain (dB)	Frequency location of CTLE, Zero (ωz)	Frequency location of CTLE, First Pole (ωp1)	Frequency location of CTLE, Second Pole (ωp2)
HBR2/5.4Gbps	0	2π (640 x 10^6)	2π (2.70 x 10^9)	2π (4.50 x 10^9)
HBR/2.7Gbps	0	2π (585 x 10^6)	2π (1.35 x 10^9)	2π (2.50 x 10^9)
RBR/1.62Gbps	0	2π (460 x 10^6)	2π (0.81 x 10^9)	2π (1.46 x 10^9)

4-3-3 Number of Main Link Lane and Transfer Rate

	HBR2 5.4Gbps	HBR 2.7Gbps	RBR 1.62Gbps
4lane	○	-	-
2lane	-	-	-
1lane	-	-	-

4-3-4 AUX Characteristics

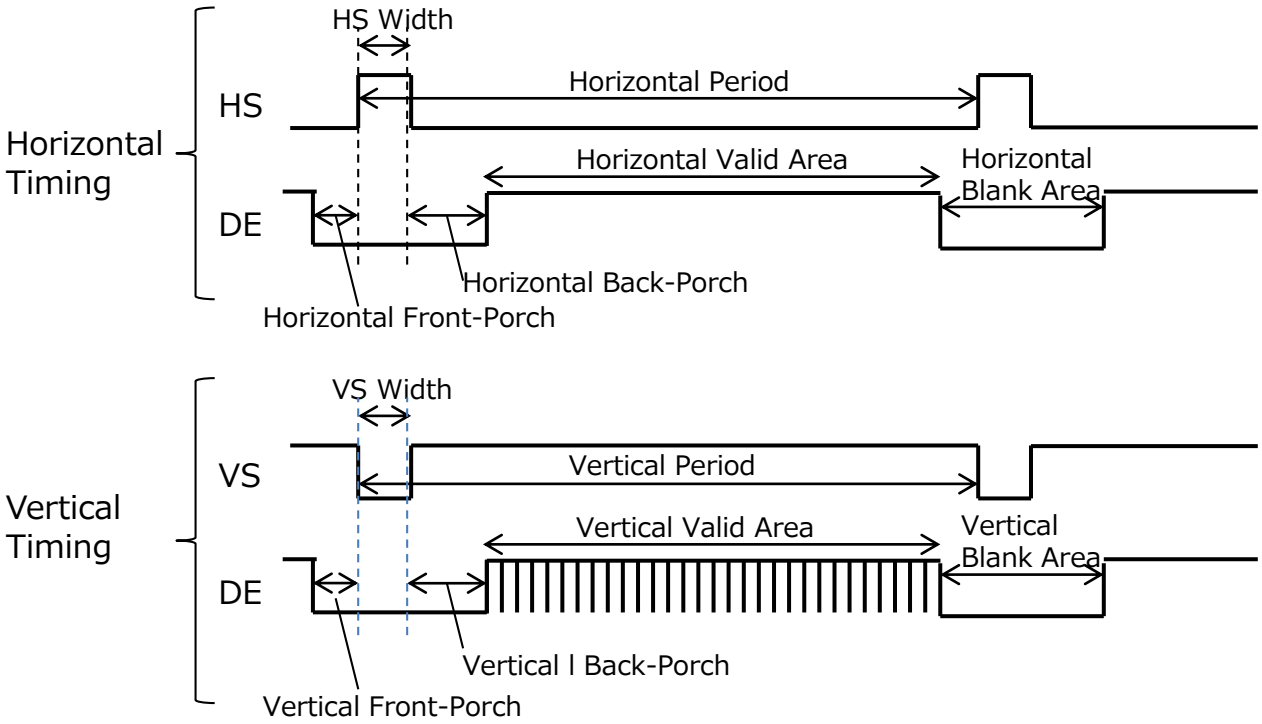
Symbol	Parameter	Min.	Typ.	Max.	Unit
UI	AUX Unit Interval	0.4	-	0.6	us
Pre-charge Pulses	Number of pre-charge pulses	10	-	16	
SYNC Pattern	Number of SYNC pulses which can receive AUX-RX	-	8	-	
	Number of SYNC pulses issued by AUX-TX	-	16	-	
Tcycle to Cycle jitter	Maximum allowable UI variation within a single transaction at connector pins for a transmitting device	-	-	0.08	UI
	Maximum allowable variation for adjacent bit times within a single transaction at connector pins for a transmitting device	-	-	0.04	UI
	Maximum allowable UI variation within a single transaction at connector pins for a receiving device	-	-	0.10	UI
	Maximum allowable variation for adjacent bit times within a single transaction at connector pins for a receiving device	-	-	0.05	UI
V_AUX_DIFF_pp	AUX Peak to Peak output voltage at TX package pins	0.18	-	1.38	V
	AUX Peak to Peak voltage for Input sensitivity	0.14	-	1.36	V
VAUX_DC_CM	AUX DC common mode voltage	0	-	2.0	V
VAUX_TERM_R	AUX CH termination DC resistance	-	100	-	ohm
AUX_TURN_CM	AUX turn around common mode voltage	-	-	0.3	V
IAUX_SHORT	AUX short circuit current limit	-	-	90	mA
CAUX	AUX AC-coupling capacitor	75	-	200	nF

4-4. Input Signals Timing Specification

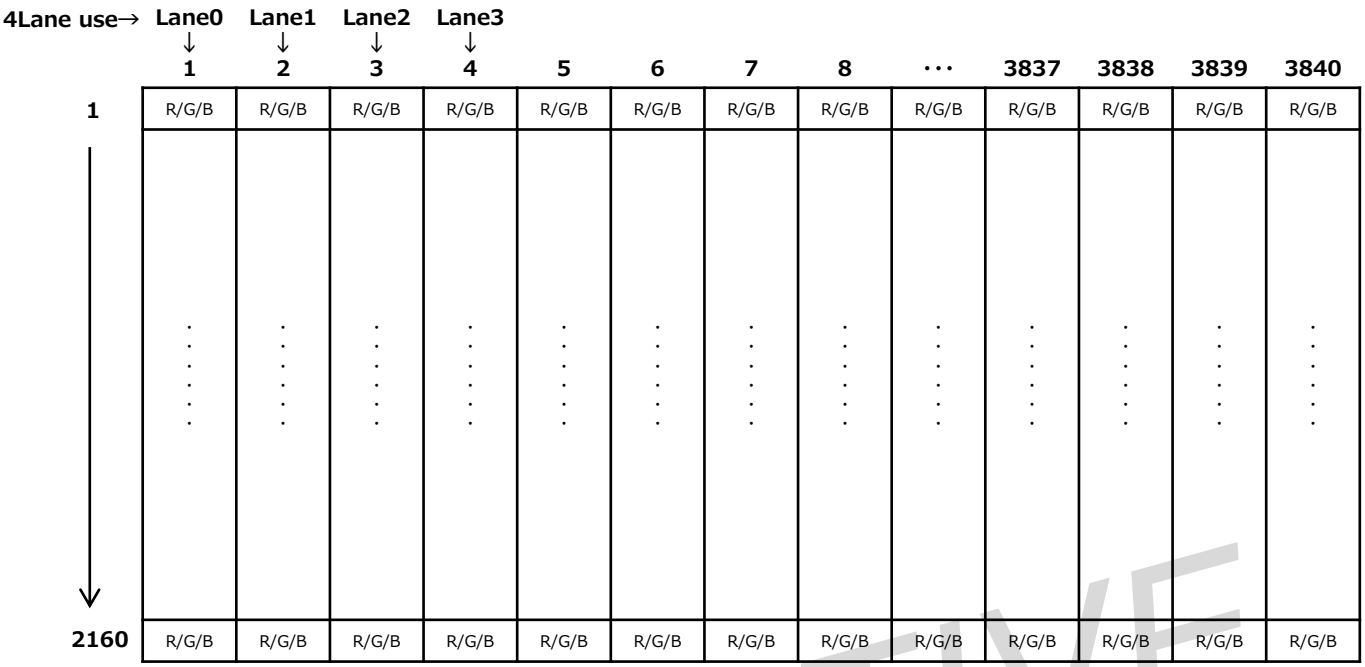
Items		Unit	Min.	Typ.	Max.	Remark
CLK	Clock Frequency	MHz	527.900	533.250	538.600	±1%
HS	Horizontal Frequency	kHz	131.960	133.313	134.662	
	Horizontal Period	clk	3960	4000	4080	
	HS Width	clk	32	32	32	Positive
VS	Vertical Frequency	Hz	59.000	59.997	61.000	±1Hz
	Vertical Period	line	2208	2222	2283	*1),*2)
	VS Width	line	5	5	5	Negative
DE	Horizontal Valid Area	clk	3840	3840	3840	
	Horizontal Blank Area	clk	120	160	240	
	Horizontal Back-Porch	clk	40	80	160	Without HS Width
	Horizontal Front-Porch	clk	48	48	48	
	Vertical Valid Area	line	2160	2160	2160	
	Vertical Blank Area	line	48	62	123	
	Vertical Back-Porch	line	40	54	115	Without VS Width
	Vertical Front-Porch	line	3	3	3	

*1) Please keep the total number of line (=Vertical Period) for each frame constant.
If it is not constant, that might cause display troubles, for example the screen blacks out.
*2) The luminance depends on the total number of line (=Vertical Period).

4-5. Input Signals Timing Chart



4-6. Pixel Format versus Input Signals

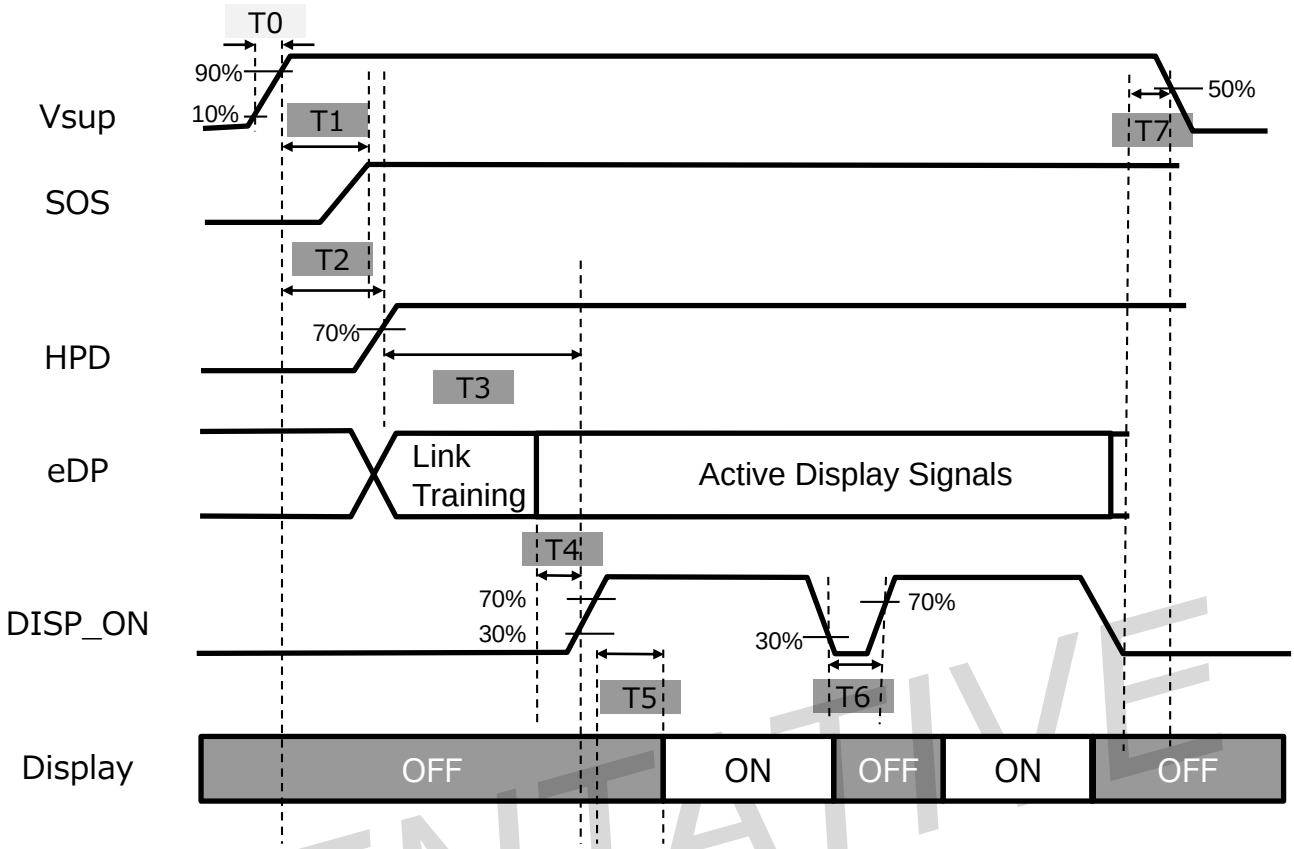


4-7. Display Color versus Input Signals

The following tables is for color versus input signals. The higher the input signal level, the higher the brightness. When input data in 8 bit format, it is handled as 10 bit data with lower 2 bits set to 00.

		Input Color Data		
		RED MSB LSB	**GREEN** MSB LSB	**BLUE** MSB LSB
		R9 R8 R7 R6 R5 R4 R3 R2 R1 R0	R9 R8 R7 R6 R5 R4 R3 R2 R1 R0	R9 R8 R7 R6 R5 R4 R3 R2 R1 R0
Basic Color	Black	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
	Red(1023)	1 1 1 1 1 1 1 1 1 1	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
	Green(1023)	0 0 0 0 0 0 0 0 0 0	1 1 1 1 1 1 1 1 1 1	0 0 0 0 0 0 0 0 0 0
	Blue(1023)	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	1 1 1 1 1 1 1 1 1 1
	Cyan	0 0 0 0 0 0 0 0 0 0	1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1
	Magenta	1 1 1 1 1 1 1 1 1 1	0 0 0 0 0 0 0 0 0 0	1 1 1 1 1 1 1 1 1 1
	Yellow	1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1	0 0 0 0 0 0 0 0 0 0
	White	1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1
RED	RED(000)	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
	RED(001)	0 0 0 0 0 0 0 0 0 1	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
	...	...	...	...
	RED(1022)	1 1 1 1 1 1 1 1 1 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
	RED(1023)	1 1 1 1 1 1 1 1 1 1	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
GREEN	GREEN(000)	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
	GREEN(001)	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 1	0 0 0 0 0 0 0 0 0 0
	...	...	...	...
	GREEN(1022)	0 0 0 0 0 0 0 0 0 0	1 1 1 1 1 1 1 1 1 0	0 0 0 0 0 0 0 0 0 0
	GREEN(1023)	0 0 0 0 0 0 0 0 0 0	1 1 1 1 1 1 1 1 1 1	0 0 0 0 0 0 0 0 0 0
BLUE	BLUE(000)	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
	BLUE(001)	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 1
	...	...	...	...
	BLUE(1022)	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	1 1 1 1 1 1 1 1 1 0
	BLUE(1023)	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	1 1 1 1 1 1 1 1 1 1

4-8. Power ON/OFF Sequence



Items	Symbol	Min.	Typ.	Max.	Unit	Remark
Vsup rising time	T0	2.0	-	20	ms	
SOS Operation Start	T1	-	-	6.0	ms	
Vsup ~ HPD Hi	T2	-	-	8.5	ms	
DISP_ON Operation Start	T3	580	-	-	ms	*1)
Link Training End ~ DISP_ON	T4	0	-	-	ms	*2)
DISP_ON ~ Video Output	T5	400	-	-	ms	
DISP_ON Switching	T6	265	-	-	ms	*3)
DISP_ON OFF ~ Vsup OFF	T7	100	-	-	ms	

*1) Even if DISP_ON becomes H before T3, the panel is not displayed.

*2) Changing DISP_ON to High after T4 will recommend.

*3) Even if the DISP_ON changes within T6 period, it will not be detected as H.

4-9. Control Line Specification

Pin	Symbol	I/O	Description
18	TEST1	Input	Test terminal（Please keep open）
19	TEST2	Input	Test terminal（Please keep open）
20	TEST3	NC	Test terminal（Please keep open）
21	TEST4	NC	Test terminal（Please keep open）
22	TEST5	NC	Test terminal（Please keep open）
23	TEST6	NC	Test terminal（Please keep open）
24	SOS	Output	Self-checking Notification. L: abnormal status　H: normal status [function] indicator of a single SOS pin as an error flag（power supply ,system,･･･）
25	DISP ON	Input	Standby control. L: standby (display black)　H:display video [function] control pin that switches the screen display ON / OFF from the set side.

5. Optical Characteristics

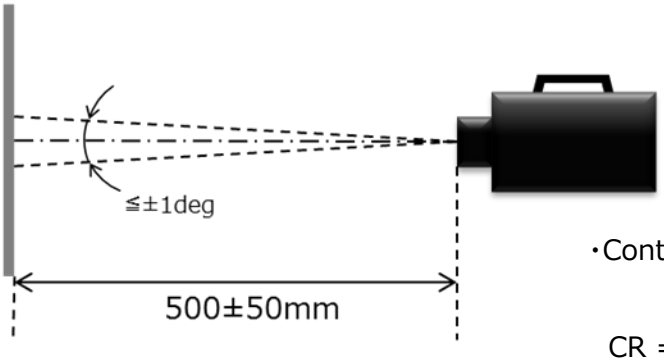
		Symbol	Angle	Min.	Typ.	Max.	Unit	Remark
Peak White Luminance		Lpw	θ=0°	(486)	540	-	cd/m^2	Condition : 10% window Center of screen
Full White Luminance		Lfw		250			cd/m^2	Center of screen
Black Luminance		Lbw		-	-	0.0005	cd/m^2	Full Black With CS-2000
Contrast Ratio		CR		1,000,000:1	-	-	-	Wpeak to Black
Color Chromaticity		White x		0.303	0.313	0.323	-	Condition : 10% window Peak Luminance Center of screen D65＝6504K
		White y		0.319	0.329	0.339	-	
		Red x			0.680		-	
		Red y			0.320		-	
		Green x			0.224		-	
		Green y			0.723		-	
		Blue x			0.138		-	
		Blue y			0.056		-	
Coverage for AdobeRGB / P3 / BT2020					99/99/78		%	
Luminance Uniformity		Lum		80	(90)	-	%	Lmin/Lmax @FullWhite
Chromaticity uniformity		Δu'v'		-	-	0.01	-	
Luminance viewing angle_1		Lva_1	Φ=0° 90° 180° 270°	89	-	-	deg	contrast≧10
Luminance viewing angle_2	θ=45°	Lva_2		50	-	-	%	
Color difference viewing angle	θ=45°	Δu'v'_va		-	-	0.02		
Crosstalk		CT	θ=0°	-	-	3	%	
Gamma		Gm		-	2.2	-	-	
Response time		(tr+tf)		-	0.1	-	ms	

Condition: Initial (at delivery), environmental temperature 25 degrees

5-1 Measurement Method for Luminance, color point

OLED Module

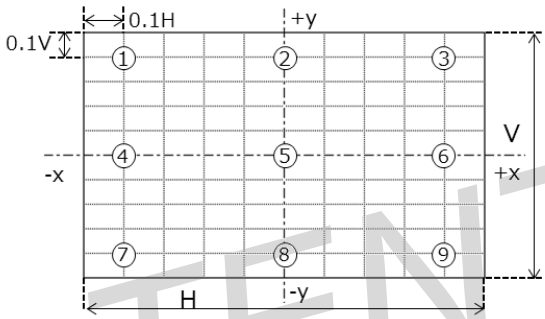
measured with CS-2000 or CA-310 (by Konica Minolta)



・Contrast ratio (dark-room)

$$CR = \frac{\text{Peak White Luminance}}{\text{Black Luminance}}$$

5-2 Definition of Uniformity



<9 points>

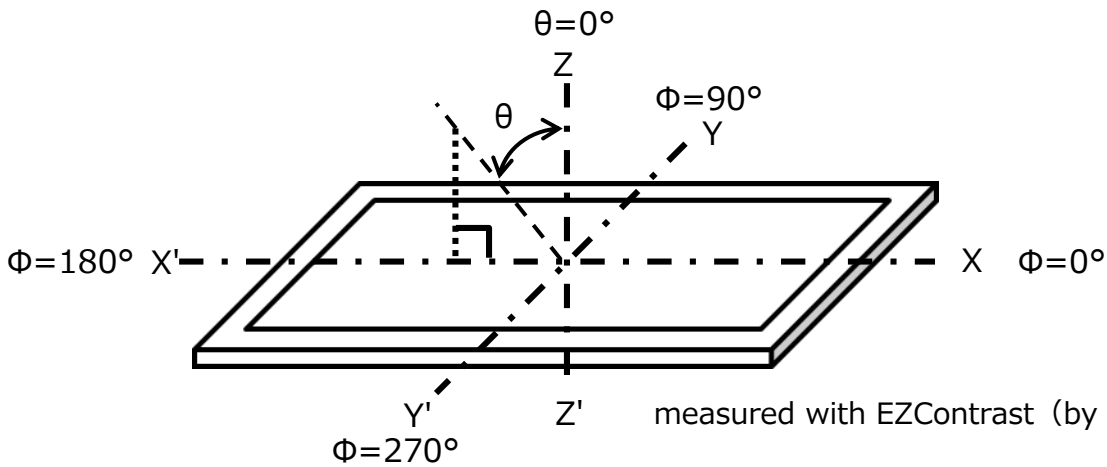
・Luminance Uniformity

Lum = Lmin／Lmax

・Chromaticity Uniformity

⊿u'v' = √((U'n-U'ave)^2+(V'n-V'ave)^2)

5-3 Definition of Viewing Angle



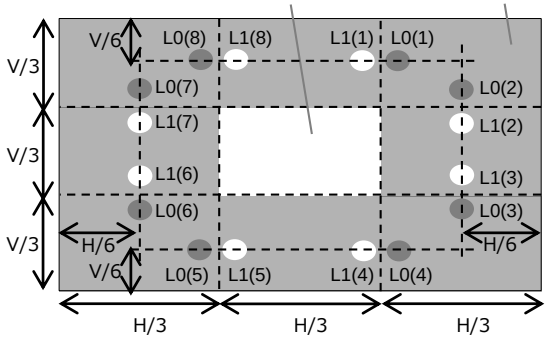
measured with EZContrast (by ELDIM)

5-4 Definition of Crosstalk

measured with CS-2000

White-Window,
Input Signal Level=100%

Gray-Back,
Input Signal Level=50%



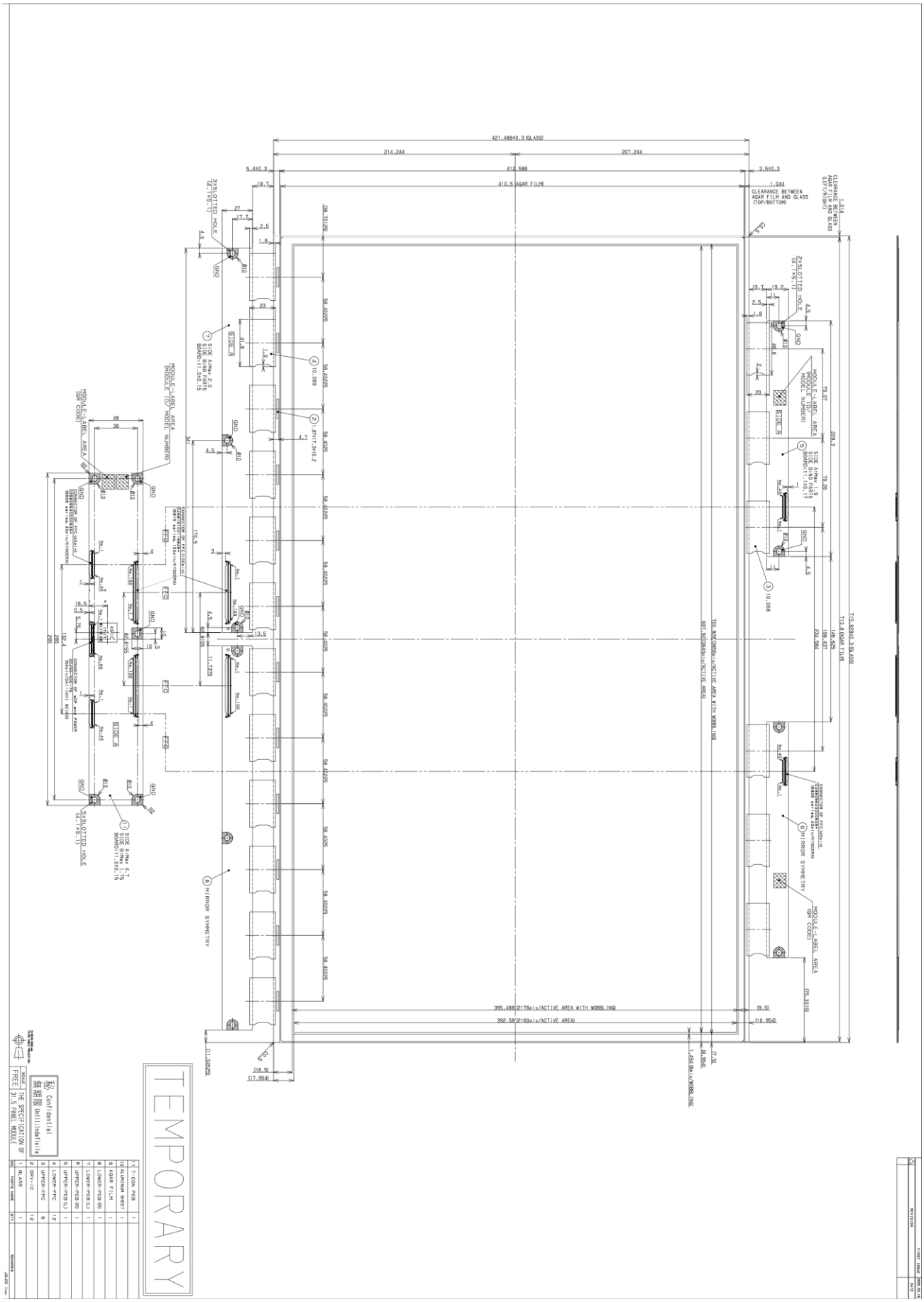
$$CT(n) = \frac{| L1(n) - L0(n) |}{L0(n)}$$

#n=1, 2, 3, ..., 8

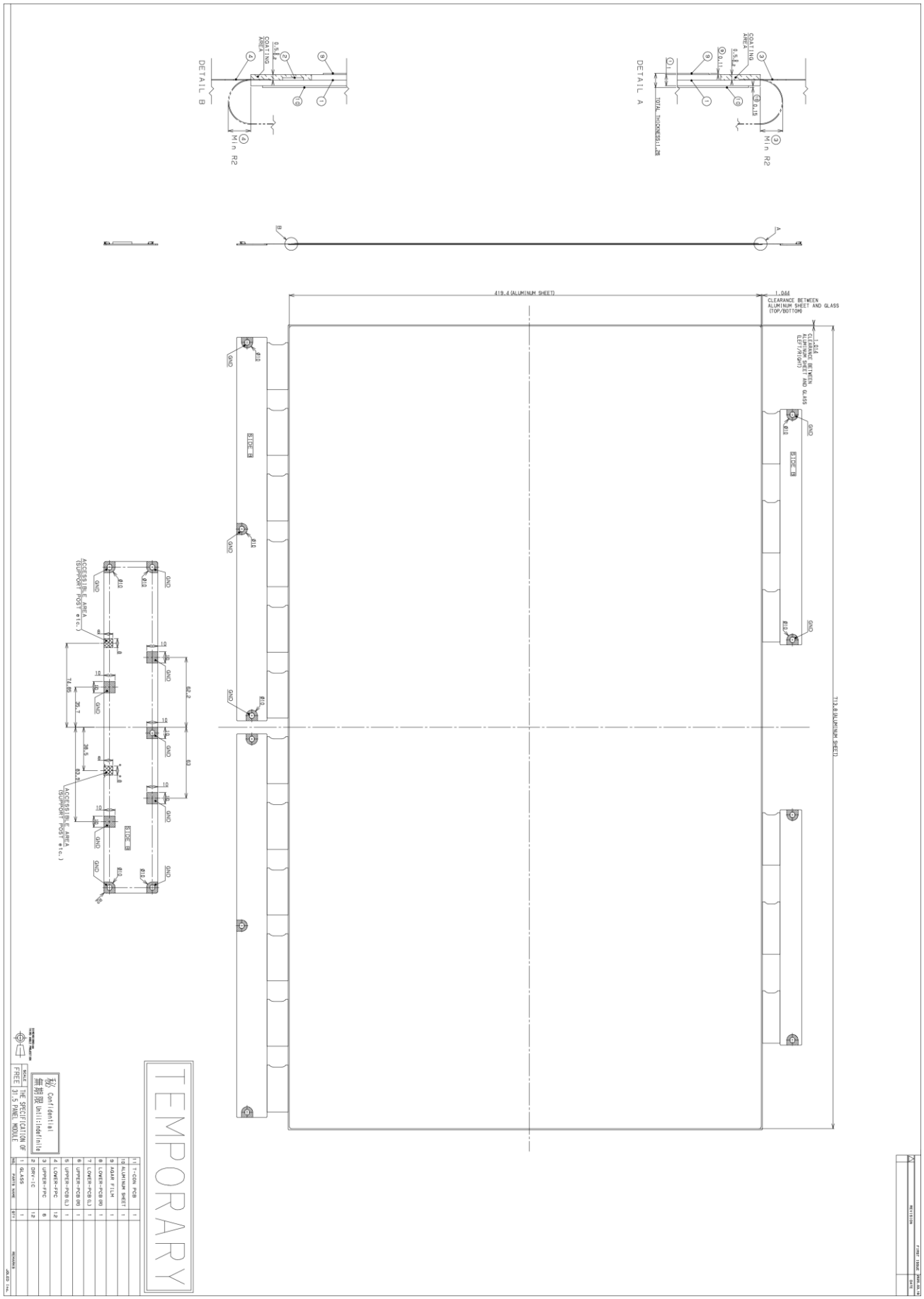
6. Mechanical Characteristics

Item1	Symbol	Item2	Value
Outline Dimension	Panel Area	Horizontal	715.828 mm
		Vertical	421.488 mm
		Thickness	1.3 mm
	T-CON	Horizontal	295 mm
		Vertical	48 mm
		Thickness	T.B.D.
Active Area		Horizontal	700.828 mm
		Vertical	395.488 mm
Weight (Panel＋PCB)		1100 g	
Surface Treatment		AGAR, Hardness: 2H	

6-1 Drawing


421.488±0.3 (GLASS)
214.244
207.244
412.588
410.5 (AGAR FILM)
5.440.3
3.540.3
CLEARANCE BETWEEN AGAR FILM AND GLASS (TOP/BOTTOM)
CLEARANCE BETWEEN AGAR FILM AND GLASS (LEFT/RIGHT)
3×5SLOTTED HOLE (4.1×5.1)
2×5SLOTTED HOLE (4.1×5.1)
5×5SLOTTED HOLE (4.1×5.1)
GND
SIDE 2
SIDE 3
SIDE 4
SIDE 1
MODULE LABEL AREA (MODULE ID/ MODEL NUMBER)
MODULE LABEL AREA (QR CODE)
SIDE B-Max 2.0 SIDE BIND PARTS BOARD(1):L092.15
SIDE B-Max 1.9 SIDE BIND PARTS BOARD(1):L46.11
SIDE B-Max 4.75 SIDE BIND PARTS BOARD(1):L092.15
CONNECTOR OF FFC(10Pin/2)
CONNECTOR OF FFC(40Pin/2)
CONNECTOR OF FFC(50Pin/2)
CONNECTOR OF FFC(68Pin/2)
FFC
MIRROR SYMMETRY
715.8±0.3 (GLASS)
713.4 (AGAR FILM)
395.488(2178pix/ACTIVE AREA WITH WOBBLING)
392.58(2160pix/ACTIVE AREA)
TEMPORARY
秘 Confidential
無期限 Until:Indefinite
FREE THE SPECIFICATION OF 31.5 PANEL MODULE
T-CON PCB
ALUMINUM SHEET
AGAR FILM
LOWER-PCB (M)
LOWER-PCB (L)
UPPER-PCB (M)
UPPER-PCB (L)
LOWER-FPC
UPPER-FPC
DRV-IC
GLASS

6-1 Drawing

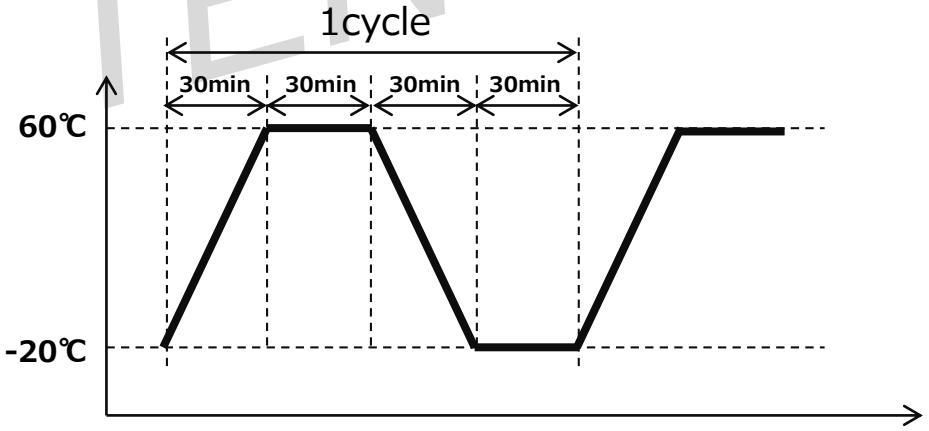

DETAIL B
DETAIL A
COATING AREA
Min R2
419.4(ALUMINUM SHEET)
1.044
CLEARANCE BETWEEN ALUMINUM SHEET AND GLASS (TOP/BOTTOM)
1.014
CLEARANCE BETWEEN ALUMINUM SHEET AND GLASS (LEFT/RIGHT)
713.8(ALUMINUM SHEET)
GND
SIDE B
ACCESSIBLE AREA (SUPPORT POST etc.)
TEMPORARY
秘 Confidential
無断複製 Until:Indefinite
THE SPECIFICATION OF FREE 31.5 PANEL MODULE

7. Reliability Test

Items		Conditions	Remark
1	High Temperature Operation	70℃ 500h	*1)
2	Low Temperature Operation	-30℃ 500h	*1)
3	High Temperature & High Humidity Operation	60℃/90%rh 500h	*2)
4	High Temperature Storage	80℃ 500h	
5	Low Temperature Storage	-40℃ 500h	
6	High Temperature & High Humidity Storage	60℃/90%rh 500h	
7	Heat cycle test Storage	-20℃/60℃ 250cycle ↑30min / →30min / ↓30min / →30min	

*1) No failure. No increase defects.

*2) Display function should be kept. No increase of detects beyond specification.
No deformation, cracking or chipping of the panel.



8. Standard

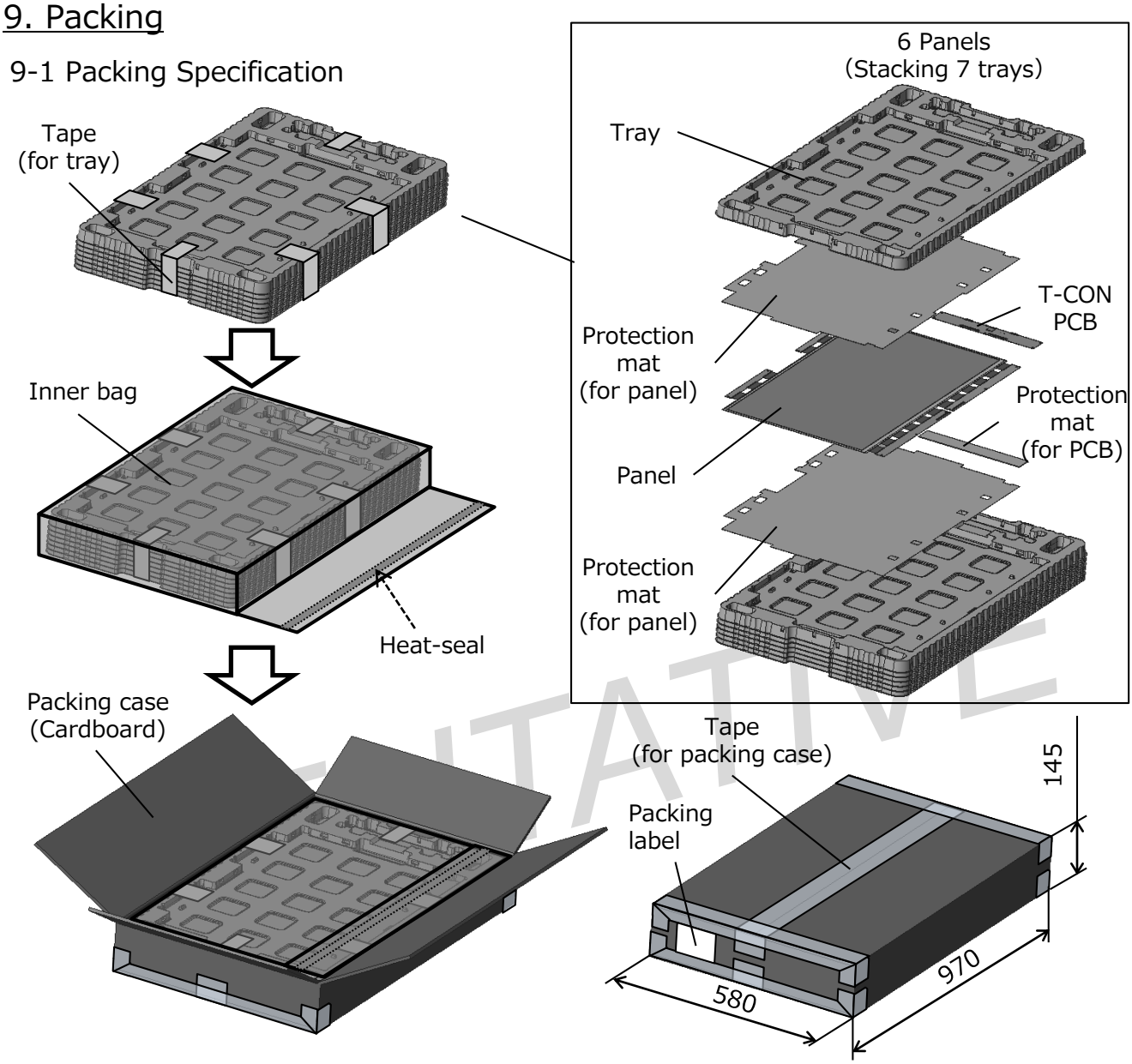
8-1 Safety
8-2 EMC
8-3 Environmental

This OLED module has not acquired safety standards such as UL.
Please apply for standards from customers.
本OLEDモジュールは、UL等の安全規格を取得しておりません。
お客様より規格申請をお願い致します。

T.B.D.

9. Packing

9-1 Packing Specification



Note : Depending on the delivery location, the packaging specification may change.

◆Basic Information
6 panels/ case

◆Packing case Specification
Material : Cardboard
Size : 954 x 564 x 113 (inside)
970 x 580 x 145 (outside)
Printing : Yes
Packing label : Yes

◆Tray Specification
Material : PS with antistat

◆Protection mat (for panel and PCB) Specification
Material : PE foam with antistat

◆Inner bag Specification
Material : LDPE with antistat

◆Other parts Specification
・Tape (for tray) : PET Tape
・Tape (for packing case) : OPP Tape

◆Other specifications
Weight : about 13kg
Stacking : 12 stack or less in total
*6 stack or less/pallet x 2 pallets

9-2 Packing Label

T.B.D.

9-3 Module Label

T.B.D.

10. Handling Precautions

10-1 Precautions for handling and installation

(1) Handle the module in a place with as few dust as possible.
;モジュールはできるだけ埃の少ない場所で取り扱ってください。

(2) Please do not apply partial strong power to a module. In particular, do not apply force to the FPC connection. It may cause deformation or damage. In addition, please warn the corner part of the glass when you put a panel in the tray because it is easy to be damaged.
;モジュールに部分的に強い力を掛けないでください。変形や破損などを生じる場合があります。
;特にFPC接続部に力を加えないでください。
;さらに、ガラスの角部分は破損しやすいので、パネルをトレーに収める時など、ガラスの角が
;乗り上げないようにご注意ください。

(3) When holding a module, hold it carefully and surely with both hands wearing soft and clean anti-static gloves. If you hold it with one hand, the inside of the module may be damaged.
;モジュールを持つ時は、柔らかい静電気の発生しない清潔な手袋で両手で丁寧に確実に保持し
;てください。片手で持つとモジュール内部に破損が生じる場合があります。

(4) Please be careful not to apply force to the FPC connection part, such as folding the circuit board to the back side of the panel when lifting the panel face down.
;パネルを裏向きで持ち上げる際には、回路基板をパネル裏面側に折りたたむなどFPC接続部に
力が加わらないようご注意ください。

T.B.D.

(5) Please fix the circuit board using a hole for incorporation.
;回路基板は組み込み用孔をご使用して固定してください。

(6) Please do not apply uneven stress like twist to the module directly, When assembling in the set housing.
;セット側筐体は、モジュールにねじれのような不均一な応力が直接かからないようにお願いします。

(7) Do not use substances containing acetic acid or chlorine. It affects the surface and circuits.
;酢酸や塩素を含む物質を使用しないでください。表面や回路への影響があります。

(8) Please do not scrub the surface with hard objects, sharp objects or bare hands.
;表面を固いものや鋭利なものや素手で擦ったりしないでください。

(9) If saliva, water droplets or dirt adheres, immediately wipe with absorbent cotton or a soft cloth.
;唾液や水滴や汚れなどが付着した場合は、すぐに脱脂綿か柔らかい布でふき取ってください。

(10) Please blow off the dust with electrostatic countermeasure blow.
;ゴミなどは静電対策が施されたブローで吹き飛ばしてください。

(11) Do not disassemble the module. Operation is affected.
;モジュールは分解しないでください。動作に影響があります。

(12) The module is made of glass or so. Please pay attention to handling.
In case of breakage, please be careful not to touch the damaged part.
;モジュールはガラスを使用しておりますので取使いにご注意いただき、破損した場合、
破損部を触らないようにご注意ください。

10-2 Long term storage

Please note the following points.

;長期で保管される場合、下記の点についてご注意をお願います。

(1) Please keep in the dark without sunlight.
Normal humidity (60% RH or less) at 0 to 30 ° C
;0～30℃で通常の湿度(60%RH以下)で、日光のあたらない暗所にて保管をお願いします。

(2) It is recommended to keep packaged state.
;梱包状態のまま保管されることを推奨します。

(3) Please Keep the module horizontal and store it.
モジュールが水平状態を維持した状態で保管いただきますようお願いします。

T.B.D.