

5.0" TFT LCM

PRODUCT SPECIFICATIONS

MODULE NO.: T0500D05Z

DOTS : 480*272

For Customer:	_____
Approved by:	_____
Signature:	_____
Date:	_____

Prepared	Checked	Approved

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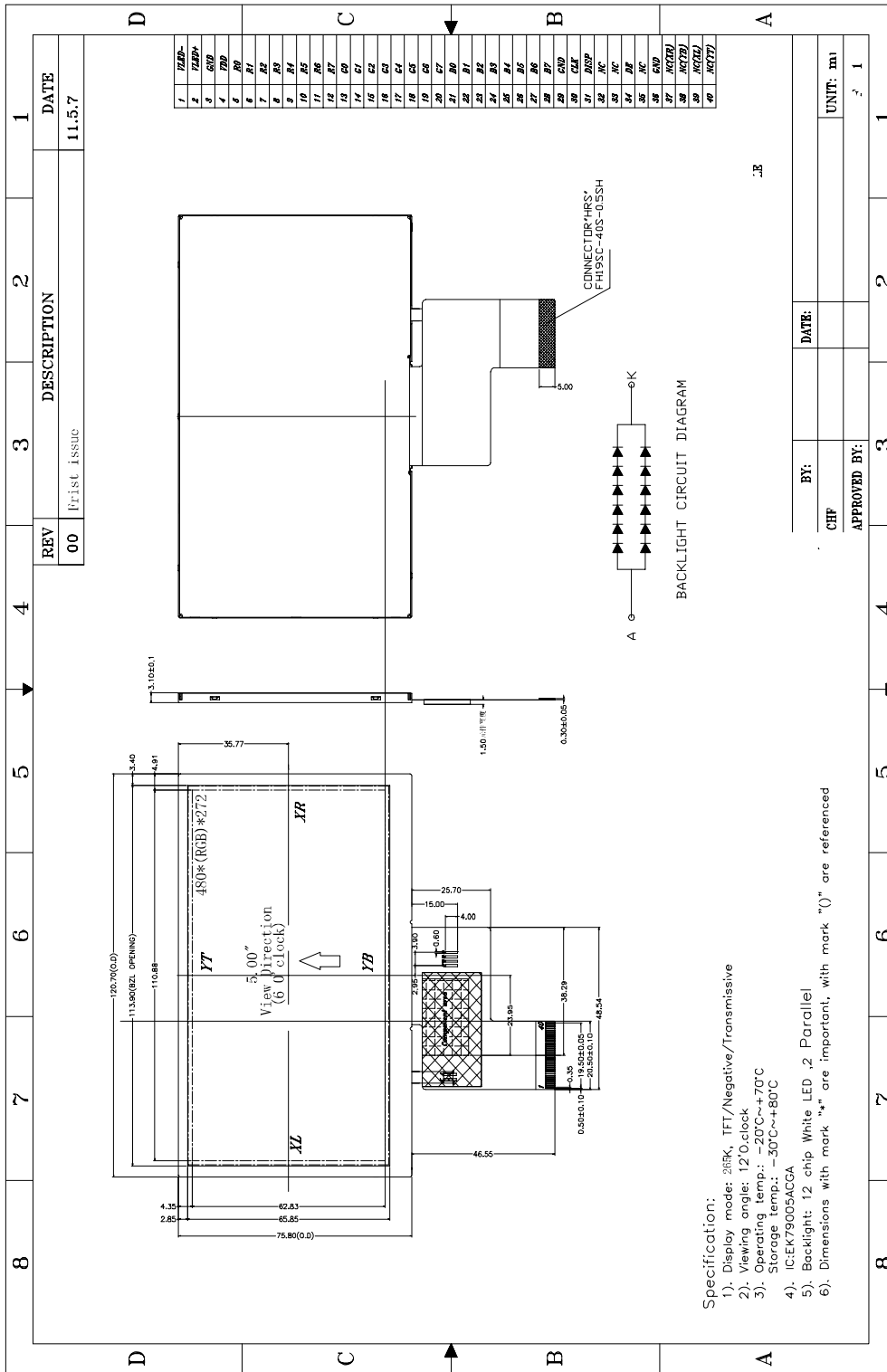
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1 LCD MODULE PHYSICAL DATA

1.1 General Description

Item	Standard Value	Unit
Screen size	5.0 (15:9)	inch
Number of dots	480 RGB(H) x 272(V)	pixels
LCM dimension	120.70 (W) x75.80 (H) x 3.10(T)	mm
Active area	110.88 (H) x 62.83 (V)	mm
Pixel pitch	0.231 (H) x 0.231 (V)	mm
Driver IC	EK79005ACGA	-
Viewing direction	6 o'clock	-
Backlight	12 chip white LED	-
Approx. weight	TBD	g

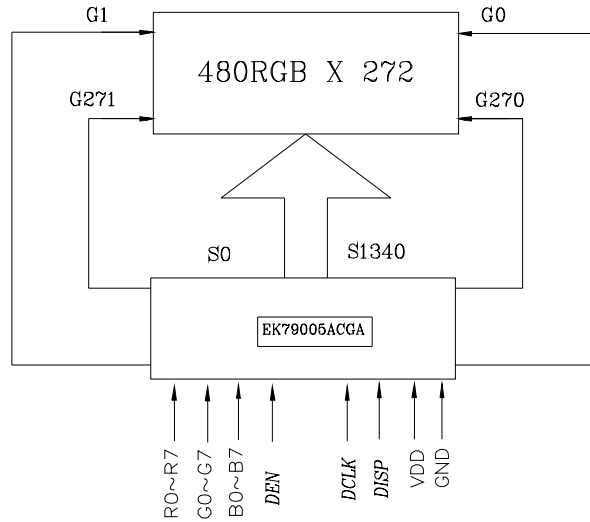
2 OUTLINE DIMENSIONS



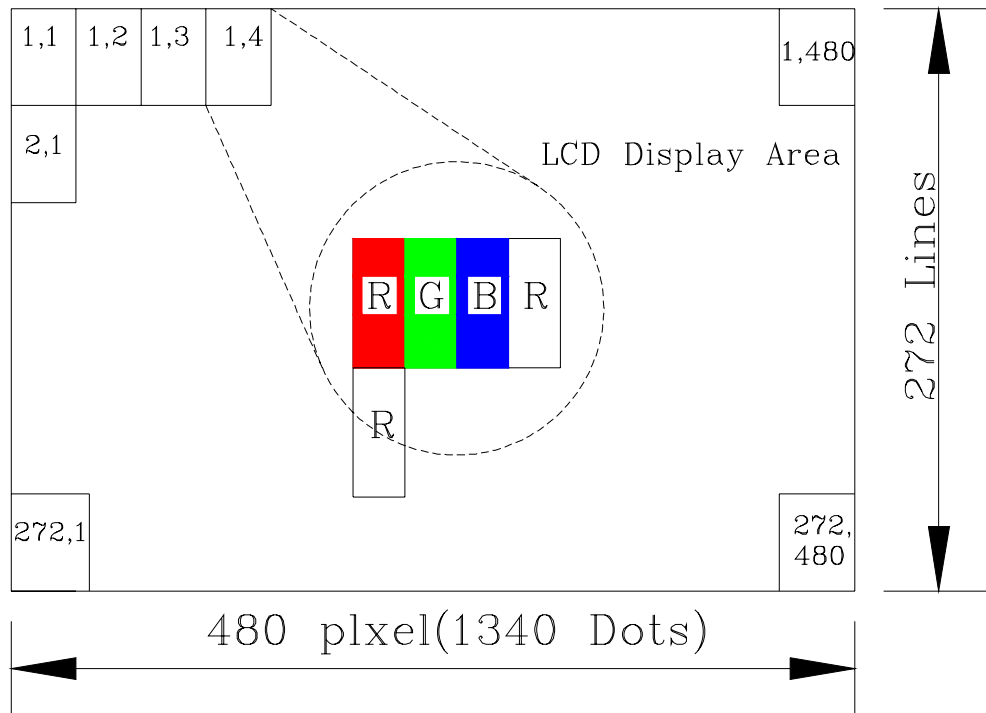
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3 BLOCK DIAGRAM

3.1 TFT LCD Module



3.2 Pixel Format



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4 ABSOLUTE MAXIMUM RATINGS

ITEM	SYMBOL	CONDITION				UNIT
			MIN	TYP	MAX	
analog circuit. supply voltage	VDD	Ta= +25°C	-0.3	--	3.6	V
digital circuit supply voltage	AVDD		-0.3	-	6	
Logic input voltage	VI1		-0.3	-	VDD+0.3	V
Driver input voltage	VI2		-0.3	-	AVDD+0.3	V
Logic output voltage	VO1		-0.3	-	VDD+0.3	V
Driver output voltage	VO2		-0.3	-	AVDD+0.3	V
Operating Temperature	Top	--	- 20	-	+70	°C
Storage Temperature	Tst	--	- 30	-	+80	°C

NOTE:

(1). If the module is used above these absolute maximum ratings. It may become permanently damaged. Using the module within the following electrical characteristic conditions are also exceeded, the module will malfunction and cause poor reliability

- (2). LCM should be grounded during handing LCM.
- (3). VDDIO>GND must be maintained.

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5 ELECTRICAL CHARACTERISTICS

5.1 DC Characteristics

ITEM	SYMBOL	CONDITIONS	STANDARD VALUE			UNIT
			MIN	TYP	MAX	
Logic power supply voltage	VDD	Ta= +25°C	3.0	3.3	3.6	V
Input high voltage	VIH	—	0.8 DVDD	—	DVDD	V
Input low voltage	VIL	—	Vss	—	0.2 DVDD	V

5.2 Back-Light unit

PARAMETER	SYMBOL	REMARK	STANDARD VALUE			UNIT
			MIN	TYP	MAX	
Forward voltage	VF	If =40mA	18.0	19.2	20.4	V
Luminous intensit(Include lcd)	Iv	If =40mA	260	-	-	cd/m2
Luminous tolerance	Iv-m	(min/max)/100	-	80	-	%
Chromaticity coordinates	X	If =40mA	0.250	-	0.315	
	Y		0.250	-	0.315	
Operating temperature	-20°C ~ 70°C					
Storage temperature	-30°C ~ 80°C					

5.3 AC Characteristics

Refer to EK79005ACGA data sheet.

6 ELECTRO-OPTICAL CHARACTERISTICS

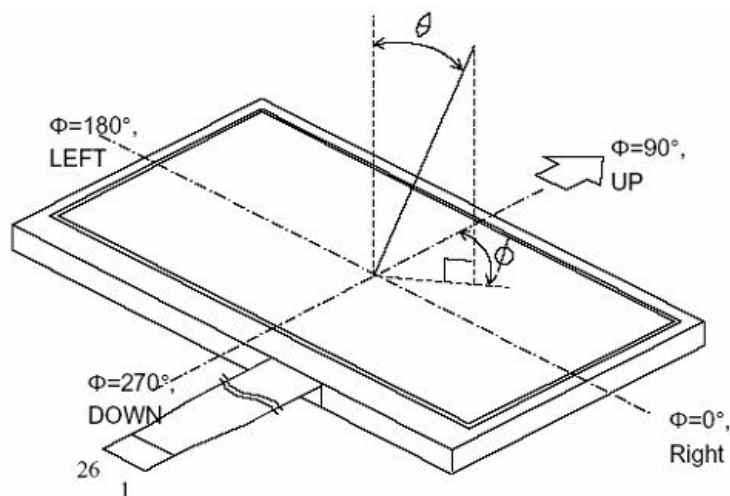
Parameter	Symbol	Condition	Min	Typ	Max	Unit	Note
Viewing angle	Left	CR>10	55	--	--	Degree	(2)
	Right		55	--	--	Degree	
	Up		45	--	--	Degree	
	Down		45	--	--	Degree	
Color Chromaticity (CIE1931)	White	Wx	0.285	0.309	--	--	(1)(4)
		Wy	0.314	0.334	--	--	
Contrast ratio	CR	θ =0 Normal Viewing angle	150	250	--	--	(1)(2)
White Luminance (center)	YL		160	260	--	cd/m2	(1)(4)
Response time	Tr+Tf		--	50	70	ms	(3)

Notes (1) : Contrast Ratio(CR) is defined mathematically as:

Measured at the center point of panel

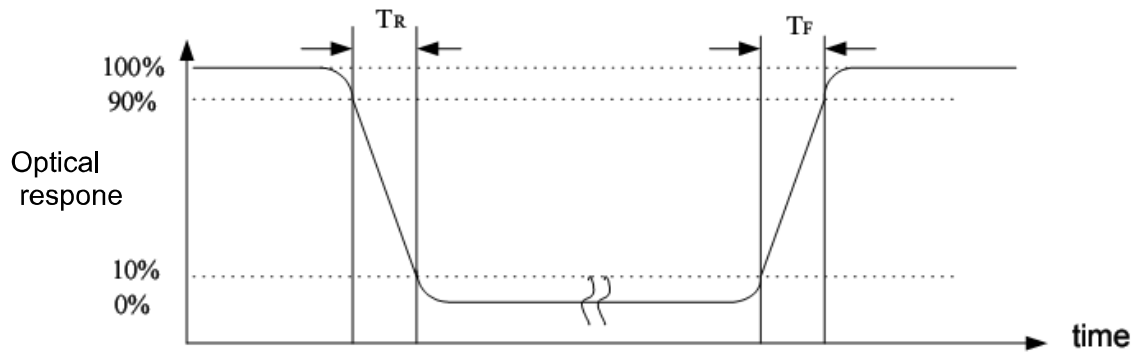
$$\text{Contrast Ratio} = \frac{\text{Surface Luminance with all white pixels}}{\text{Surface Luminance with all black pixels}}$$

Note (2): Definition of viewing angle

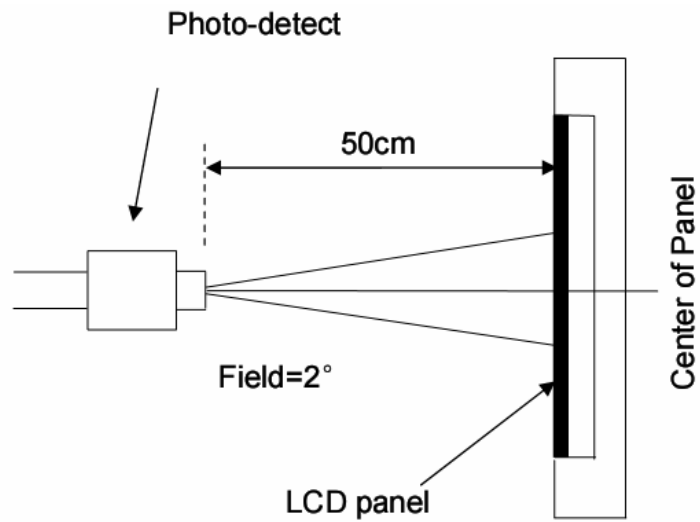


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Note (3): Definition of response time: $T_r + T_f$

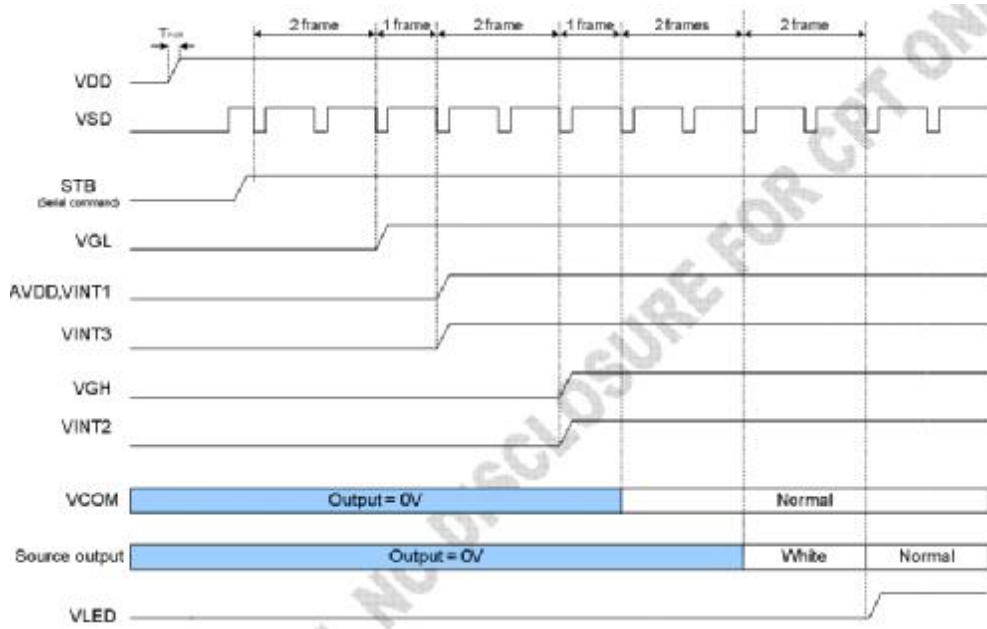


Note (4): Optical test equipment

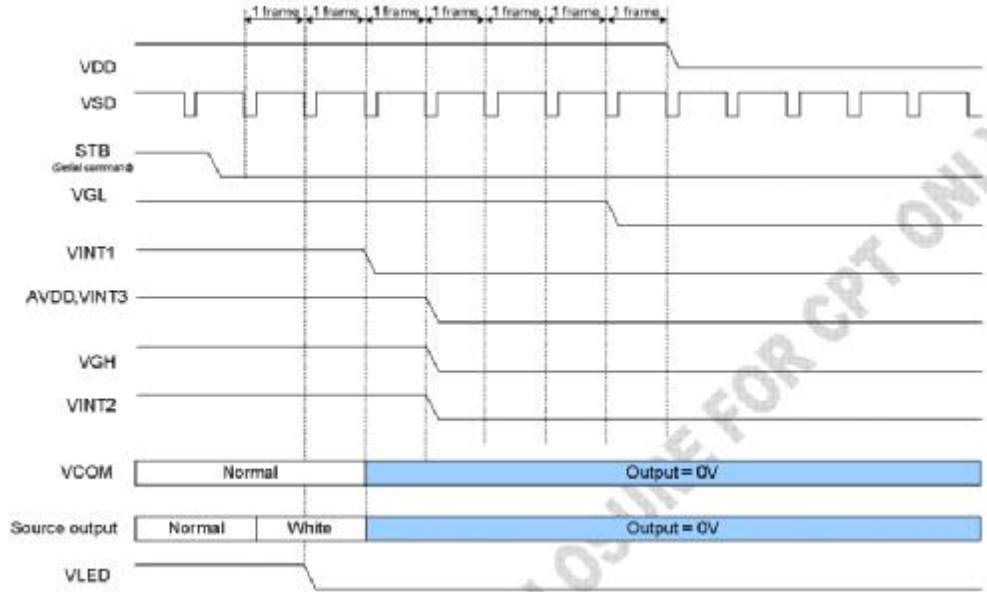


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7 Power on/off Sequence



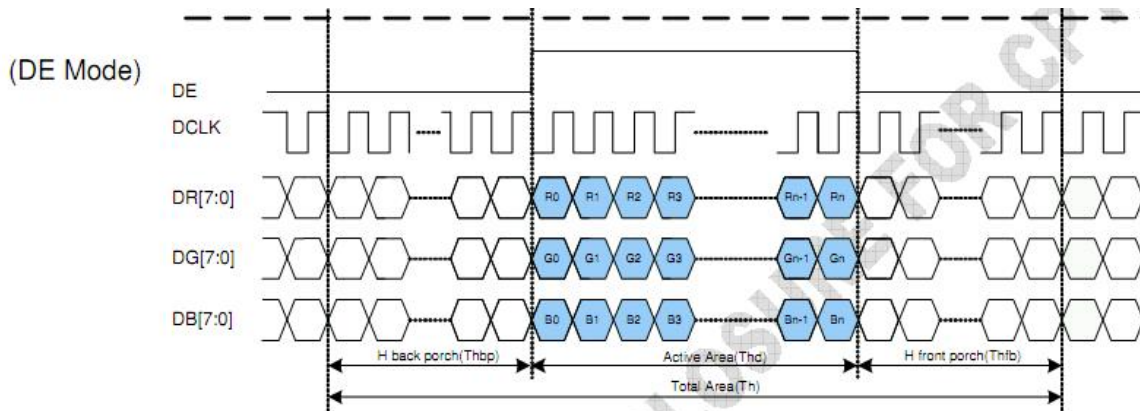
Power on sequence



Power off sequence

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8 Time characteristics



Parallel RGB input timign table

Parameter	Symbol	Value			Unit
		Min.	Typ.	Max.	
DCLK frequency	fclk	5	9	12	MHz
VSD period time	Tv	277	288	400	H
VSD display area	Tvd	272			H
VSD back porch	Tvb	3	8	31	H
VSD front porch	Tvfp	2	8	97	H
HSD period time	Th	520	525	800	DCLK
HSD display area	Thd	480			DCLK
HSD back porch	Thbp	36	40	255	DCLK
HSD front porch	Thfp	4	5	65	DCLK

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9 INTERFACE PIN CONNECTIONS

PIN NO.	SYMBOL	I/O	FUNCTION DESCRIPTIONS	Note
1	LED-K	P	The backlight ground.	
2	LED-A	P	Power supply for backlight.	
3	GND	P	Ground	
4	VCC	P	Supply voltage of logic control circuit	
5~12	R0~R7		Red data	
13~20	G0~G7		Green data	
21~28	B0~B7		Blue data	
29	GND	P	Ground	
30	CLK	I	Dot clock signal	
31	DISP		Display on/off. DISP=L: display off.	
32	NC	I	Not connection	
33	NC	I	Not connection	
34	DEN	I	Input data enable control.	
35	NC	--	Not connection	
36	GND	P	Ground	
37	XR	I	Not connection	
38	YD	I		
39	XL	I		
40	YU	I		

Note:

I: input signal

P: power supply

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10 RELIABILITY

NO.	Test Item	Description	Test Condition
1	High temperature storage	Endurance test applying the high storage temperature for a long time	70°C,240 H
2	Low temperature storage	Endurance test applying the low storage temperature for a long time	-20°C,240H
3	High temperature operation	Endurance test applying the electric stress under high temperature for a long time	60°C,96H
4	Low temperature operation	Endurance test applying the electric stress under low temperature for a long time	-10°C,96H
5	High temperature /humidity storage	Endurance test applying the high temperature and high humidity storage for a long time	50°C, 90% R.H 240H
6	High temperature /humidity operation	Endurance test applying electric stress under high temperature and high humidity for a long time	40°C 90% R.H 96H
7	Temperature Cycle	Endurance test applying the low and high temperature cycle -20°C → 25°C → 70°C →25°C 30min 5min 30min 5min one cycle	-20°C/70°C 10 cycles
8	Vibration test	Endurance test applying the vibration during transportation and using	10Hz~50Hz Swing:0.75mm time:30min
9	Fall test	Endurance test dropping the LCM from a high place	600mm height
10	Static electricity test	Endurance test applying static electric stress to terminal	Contact discharge: 4KV Air discharge: 8KV

NOTE: TEST CONDITION

- (1) Temperature and humidity: If no specification, temp. set at $25\pm 2^{\circ}\text{C}$, humidity set at $60\pm 5\%\text{RH}$.
- (2) Operating state: Samples subject to the test shall be in "operating" condition.