SPEC

Spec No.	TQ3C-8EAF0-E1YAG56-00
Date	September 21, 2016

TYPE : TCG104VGLPEANN-AN60

< 10.4 inch VGA transmissive color TFT with LED backlight>

CONTENTS

KYOCERA DISPLAY CORPORATION

This specification is subject to change without notice.
Consult Kyocera before ordering.

Original Issue Date	Designed by: Engineering dept.			Confirmed by: QA dept.	
	Prepared	Checked	Approved	Checked	Approved
September 21, 2016	M. Koyama	T. Onodera	Y. Matsumoto	K. Sugano	O. Sato

KYOCERA

Warning

1. This Kyocera LCD module has been specifically designed for use only in electronic devices and industrial machines in the area of audio control, office automation, industrial control, home appliances, etc. The module should not be used in applications where the highest level of safety and reliability are required and module failure or malfunction of such module results in physical harm or loss of life, as well as enormous damage or loss. Such fields of applications include, without limitation, medical, aerospace, communications infrastructure, atomic energy control. Kyocera expressly disclaims any and all liability resulting in any way to the use of the module in such applications.

2. Customer agrees to indemnify, defend and hold Kyocera harmless from and against any and all actions, claims, damages, liabilities, awards, costs, and expenses, including legal expenses, resulting from or arising out of Customer's use, or sale for use, or Kyocera modules in applications.

Caution

1. Kyocera shall have the right, which Customer hereby acknowledges, to immediately scrap or destroy tooling for Kyocera modules for which no Purchase Orders have been received from the Customer in a two-year period.

Revision record

Date	Designed by : Engineering dept.			Confirmed by : QA dept.	
	Prepared	Checked	Approved	Checked	Approved

Rev.No.	Date	Page	Descriptions

1. Application

This document defines the specification of TCG104VGLPEANN-AN60. (RoHS Compliant)

2. Construction and outline

LCD	: Transmissive color dot matrix type TFT
Backlight system	: LED
Polarizer	: Anti-Glare treatment
Interface	: LVDS
Additional circuit	: Timing controller, Power supply (3.3V input) Constant current circuit for LED Backlight (12V input)

3. Mechanical specifications

Item	Specification	Unit
Outline dimensions 1)	240.7(W)×(180.2)(H)×9(D)	mm
Active area	211.2(W)×158.4(H) (26.4cm/10.4 inch(Diagonal))	mm
Dot format	640×(R,G,B)(W)×480(H)	dot
Dot pitch	0.11(W)×0.33(H)	mm
Base color 2)	Normally White	-
Mass	445	g

1) Projection not included. Please refer to outline for details.
2) Due to the characteristics of the LCD material, the color varies with environmental temperature.

4. Absolute maximum ratings

4-1. Electrical absolute maximum ratings

Item		Symbol	Min.	Max.	Unit
Supply voltage(+3.3V)		V_{DD}	0	4.0	V
Supply voltage(+12V)		V_{IN}	-0.3	14.0	V
Input signal voltage	1)	V_{I1}	-0.3	VDD+0.3	V
	2)	V_{I2}	-0.3	VDD+0.3	V
	3)	V_{I3}	-0.3	V_{IN}	V

1) SC
2) RxIN0-/+、RxIN1-/+、RxIN2-/+、RxIN3-/+、CK IN-/+
3) BLBRT, BLEN

4-2. Environmental absolute maximum ratings

Item		Symbol	Min.	Max.	Unit
Operating temperature	1)	T_{OP}	-20	70	°C
Storage temperature	2)	T_{STO}	-30	80	°C
Operating humidity	3)	H_{OP}	10	4)	%RH
Storage humidity	3)	H_{STO}	10	4)	%RH
Vibration		-	5)	5)	-
Shock		-	6)	6)	-

1) Operating temperature means a temperature which operation shall be guaranteed. Since display performance is evaluated at 25°C, another temperature range should be confirmed.
2) Temp. = -30°C＜48h , Temp. = 80°C＜168h
Store LCD at normal temperature/humidity. Keep them free from vibration and shock.
An LCD that is kept at a low or a high temperature for a long time can be defective due to other conditions, even if the low or high temperature satisfies the standard.
(Please refer to “Precautions for Use” for details.)
3) Non-condensing
4) Temp.≦40°C, 85%RH Max.
Temp.＞40°C, Absolute humidity shall be less than 85%RH at 40°C.
5)

Frequency	10～55 Hz	Acceleration value (0.3～9 m/s²)
Vibration width	0.15mm	
Interval	10-55-10 Hz 1 minutes	

2 hours in each direction X, Y, Z (6 hours total)
EIAJ ED-2531
6) Acceleration: 490 m/s², Pulse width: 11 ms
3 times in each direction: ±X, ±Y, ±Z
EIAJ ED-2531

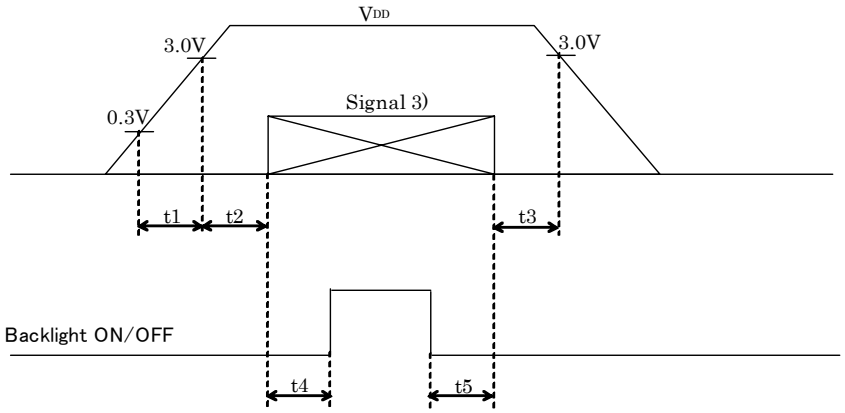
5. Electrical characteristics

5-1. LCD

Temp. = -20～70°C

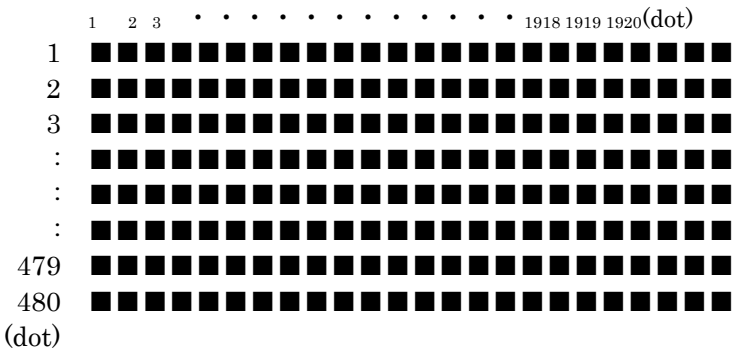
Item		Symbol	Condition	Min.	Typ.	Max.	Unit
Supply voltage	1)	V_{DD}	-	3.0	3.3	3.6	V
Current consumption		I_{DD}	2)	-	165	215	mA
Permissive input ripple voltage		V_{RP}	V_{DD}=3.3V	-	-	100	mVp-p
Input signal voltage	3)	V_{IL}	"Low" level	0	-	0.2VDD	V
		V_{IH}	"High" level	0.8VDD	-	V_{DD}	V
Input leak current	3)	I_{OL}	V_{I3}=0V	-10	-	10	μA
		I_{OH}	V_{I3}=3.3V	-	-	350	μA
Differential input voltage	4)	$\|V_{ID}\|$	-	100	-	600	mV
Differential input threshold voltage	4)	V_{TL}	"Low" level	-100	-	-	mV
		V_{TH}	"High" level	-	-	100	mV
LVDS Common mode voltage	4)	V_{ICM}		$\|V_{ID}\|/2$	1.2	2.4-$\|V_{ID}\|/2$	
Terminator		R_1	-	-	100	-	Ω

1) V_{DD}-turn-on conditions



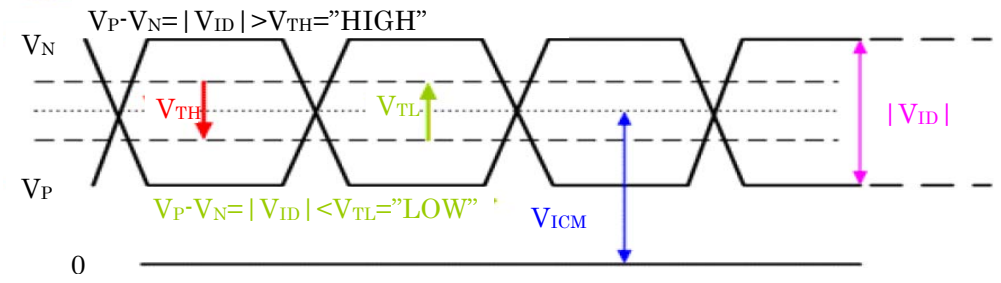
0＜t1≦20ms
0＜t2≦50ms
0＜t3≦1s
20frame refresh≦t4
0≦t5

2) Display pattern:
V_{DD} = 3.3V, Temp. = 25°C



3) Input signal : SC

4) Input signal : RxIN3+, RxIN3-, RxIN2+, RxIN2-, RxIN1+, RxIN1-, RxIN0+, RxIN0-
CK IN+, CK IN-

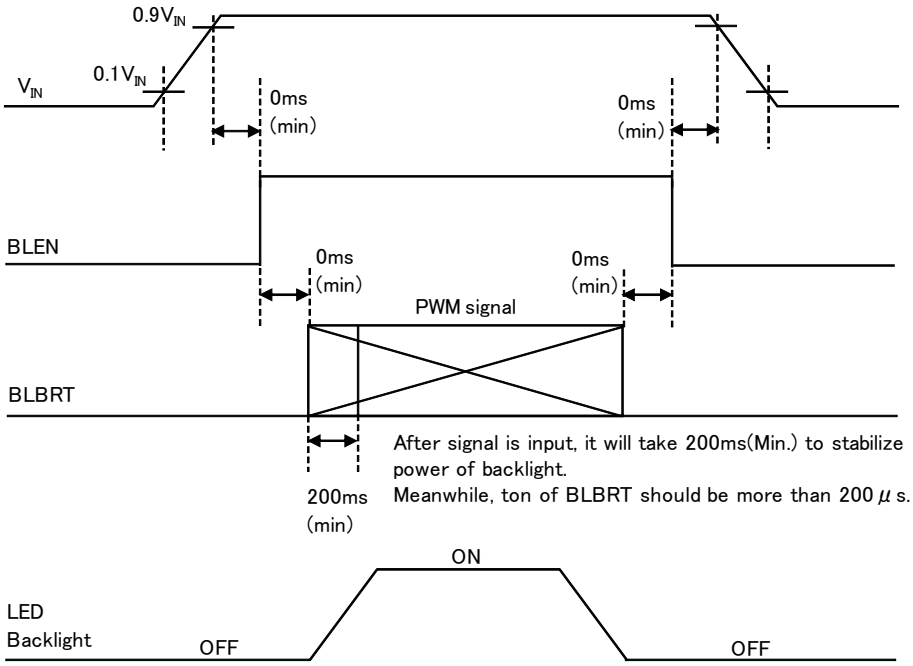


5-2. Constant current circuit for LED Backlight

Temp. = -20～70°C

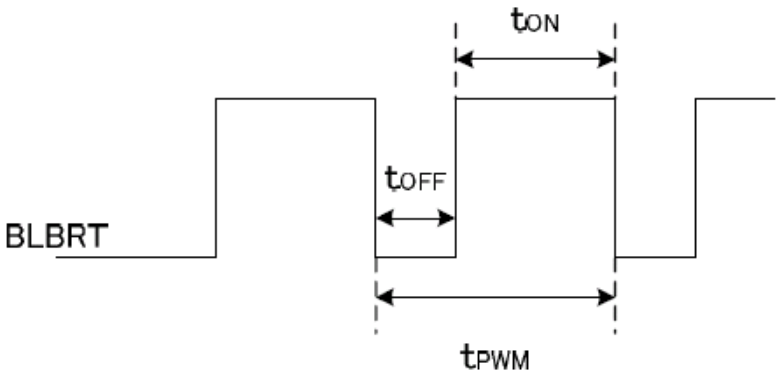
Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Supply voltage 1)	V_{IN}	-	10.8	12.0	13.2	V
Current consumption	I_{IN}	2)	-	275	440	mA
Permissive input ripple voltage	V_{RP_BL}	V_{IN}=12.0V	-	-	100	mVp-p
BLBRT Input signal voltage	V_{IL_BLBRT}	"Low" level	0	-	0.8	V
	V_{IH_BLBRT}	"High" level	2.3	-	V_{IN}	V
BLBRT Input pull-down resistance	R_{IN_BLBRT}	-	100	300	500	kΩ
BLEN Input signal voltage	V_{IL_BLEN}	"Low" level	0	-	0.8	V
	V_{IH_BLEN}	"High" level	2.3	-	V_{IN}	V
BLEN Input pull-down resistance	R_{IN_BLEN}	-	100	300	500	kΩ
PWM Frequency 3)	f_{PWM}	-	200	-	10k	Hz
PWM Duty ratio 3)	D_{PWM}	f_{PWM}=200Hz	1		100	%
		f_{PWM}=2kHz	10	-	100	%
		f_{PWM}=10kHz	50	-	100	%
Operating life time 4), 5)	T	Temp.=25° C	-	50,000	-	h

1) V_{IN}-turn-on conditions



2) V_{IN} = 12V, Temp. = 25℃, D_{PWM} = 100%

3) PWM Timing Diagram



t_{ON}, t_{OFF} ≧ 50 μs.
In case of lower frequency, the deterioration of the display quality, flicker etc., may occur.

4) When brightness decrease 50% of minimum brightness.
The average life of a LED will decrease when the LCD is operating at higher temperatures.

5) Life time is estimated data.(Condition : IF=60mA, Ta=25℃ in chamber).

6. Optical characteristics

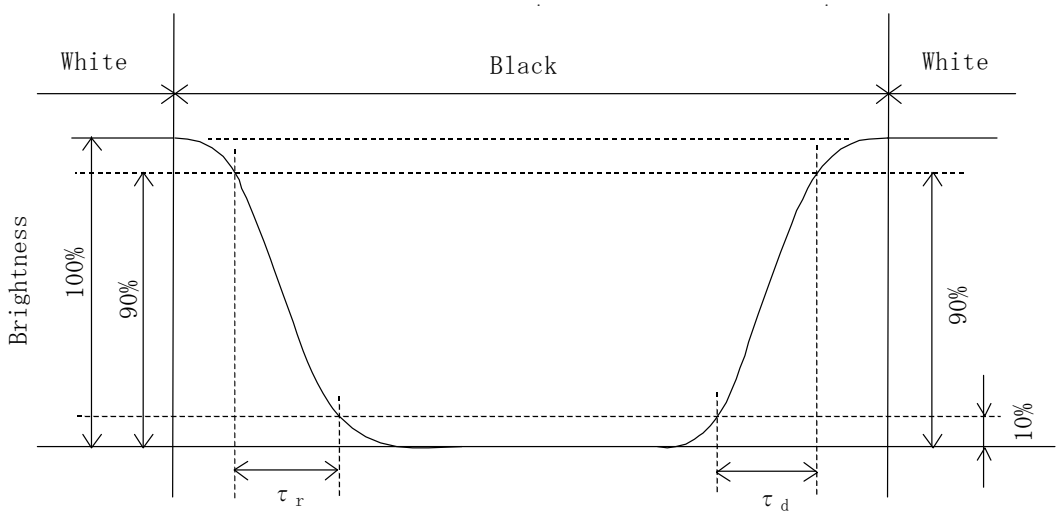
Measuring spot = ϕ 6.0mm, Temp. = 25°C

Item		Symbol	Condition	Min.	Typ.	Max.	Unit
Response time	Rise	τ_r	$\theta = \phi = 0°$	-	10	-	ms
	Down	τ_d	$\theta = \phi = 0°$	-	20	-	ms
Viewing angle range View direction : 6 o'clock (Gray inversion)		θ UPPER	CR≧10	-	60	-	deg.
		θ LOWER		-	70	-	
		ϕ LEFT		-	70	-	deg.
		ϕ RIGHT		-	70	-	
Contrast ratio		CR	$\theta = \phi = 0°$	350	500	-	-
Brightness		L	IF=(60)mA	300	450	-	cd/m²
Chromaticity coordinates	Red	x	$\theta = \phi = 0°$	0.550	0.600	0.650	-
		y		0.300	0.350	0.400	
	Green	x	$\theta = \phi = 0°$	0.285	0.335	0.385	
		y		0.515	0.565	0.615	
	Blue	x	$\theta = \phi = 0°$	0.100	0.150	0.200	
		y		0.065	0.115	0.165	
	White	x	$\theta = \phi = 0°$	0.240	0.290	0.340	
		y		0.260	0.310	0.360	

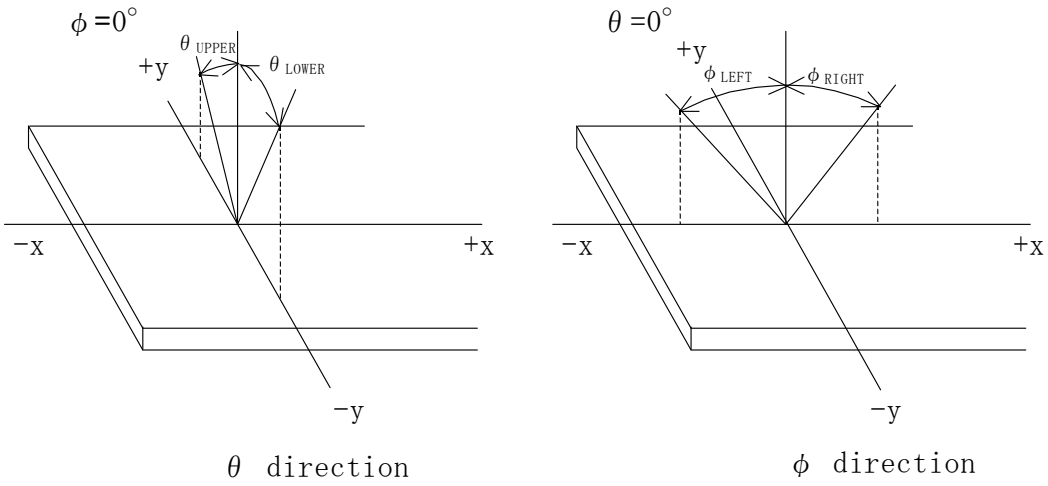
6-1. Definition of contrast ratio

$$\text{CR(Contrast ratio)} = \frac{\text{Brightness with all pixels "White"}}{\text{Brightness with all pixels "Black"}}$$

6-2. Definition of response time

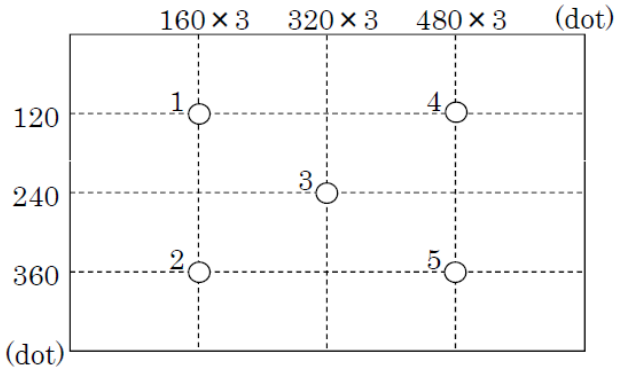


6-3. Definition of viewing angle



θ direction　　ϕ direction

6-4. Brightness measuring points



1) Rating is defined as the white brightness at center of display screen(3).
2) 5 minutes after LED is turned on. (Ambient Temp.=25℃)

7. Interface signals

7-1. Interface signals

No.	Symbol	Description	Note
1	GNB	GND (Backlight)	
2	GNB	GND (Backlight)	
3	GNB	GND (Backlight)	
4	BLBRT	PWM signal (Brightness adjustment)	
5	BLEN	ON/OF terminal voltage	
6	V_{IN}	+12V power supply	
7	V_{IN}	+12V power supply	
8	V_{IN}	+12V power supply	
9	NC	No Connect	
10	NC	No Connect	
11	V_{DD}	+3.3V power supply	
12	V_{DD}	+3.3V power supply	
13	GND	GND	
14	GND	GND	
15	RxIN0-	LVDS receiver signal CH0(-)	LVDS
16	RxIN0+	LVDS receiver signal CH0(+)	LVDS
17	GND	GND	
18	RxIN1-	LVDS receiver signal CH1(-)	LVDS
19	RxIN1+	LVDS receiver signal CH1(+)	LVDS
20	GND	GND	
21	RxIN2-	LVDS receiver signal CH2(-)	LVDS
22	RxIN2+	LVDS receiver signal CH2(+)	LVDS
23	GND	GND	
24	CK IN-	LVDS receiver signal CK(-)	LVDS
25	CK IN+	LVDS receiver signal CK(+)	LVDS
26	GND	GND	
27	RxIN3-	LVDS receiver signal CH3(-)	LVDS
28	RxIN3+	LVDS receiver signal CH3(+)	LVDS
29	GND	GND	
30	SC	Scan direction control(GND: Normal、High: Reverse)	1)

LCD connector : MDF76GW-30S-1H(55) (HIROSE)

* This connector has 32pins and pin No.1 and No.32 connect to GND
Above interface signal table specifies 30pins assigned from pin No.2 to No.31.

Matching connector : MDF76-30P-1C (HIROSE)

1)

SC = L

SC = H

8. Input timing characteristics

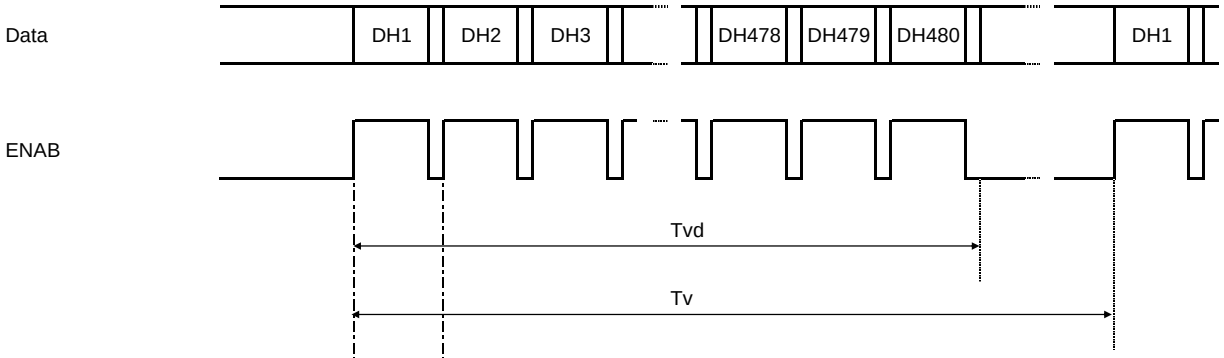
8-1. Timing Characteristics

Item		Symbol	Min.	Typ.	Max.	Unit	Note
Clock (CK)	Frequency	1/Tc	22.66	25.2	27.69	MHz	
Enable signal (DE)	Horizontal Period	Th	750	800	850	Tc	
			27.1	31.7	-	μs	1)
	Horizontal display period	Thd	640			Tc	
	Vertical Period	Tv	490	525	590	Th	
	Vertical display period	Tvd	480			Th	
Refresh rate		fv	50	60	70	Hz	2)

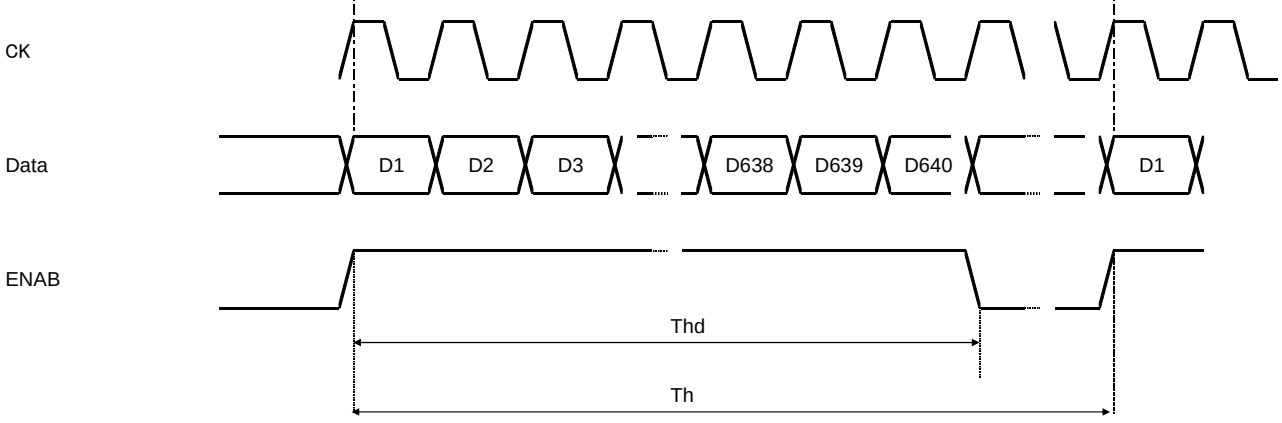
1) Please set a clock frequency, a vertical dormant period, and the horizontal dormant period so that the Horizontal Period should not reach less than Min. value.

2) If the refresh rate reach less than Min. value, the deterioration of the display quality, flicker etc., may occur.(fv=1/Tv)

Vertical Timing Diagram

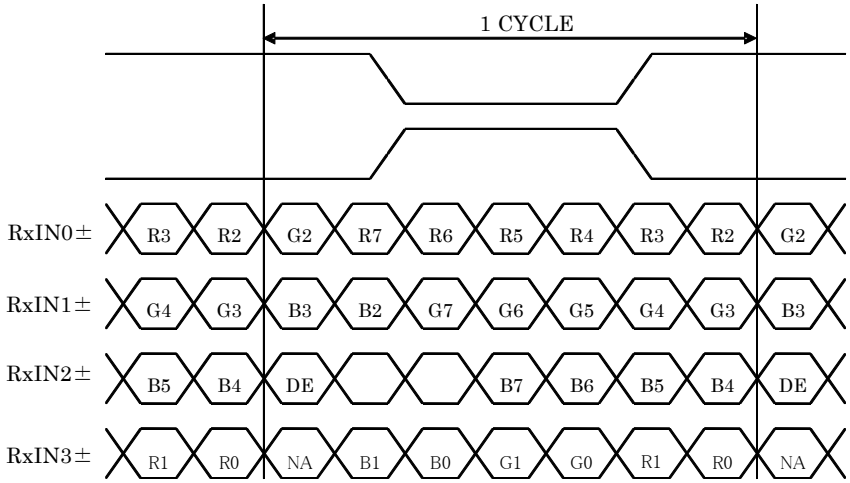


Horizontal Timing Diagram

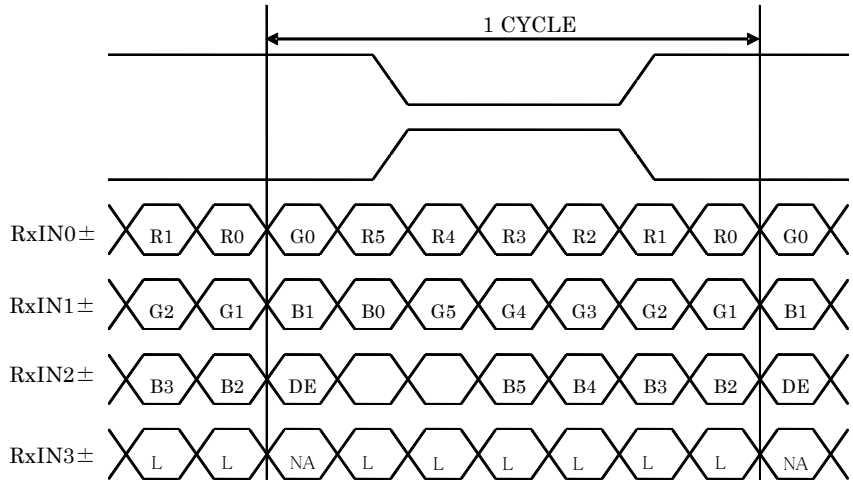


8-2. Data

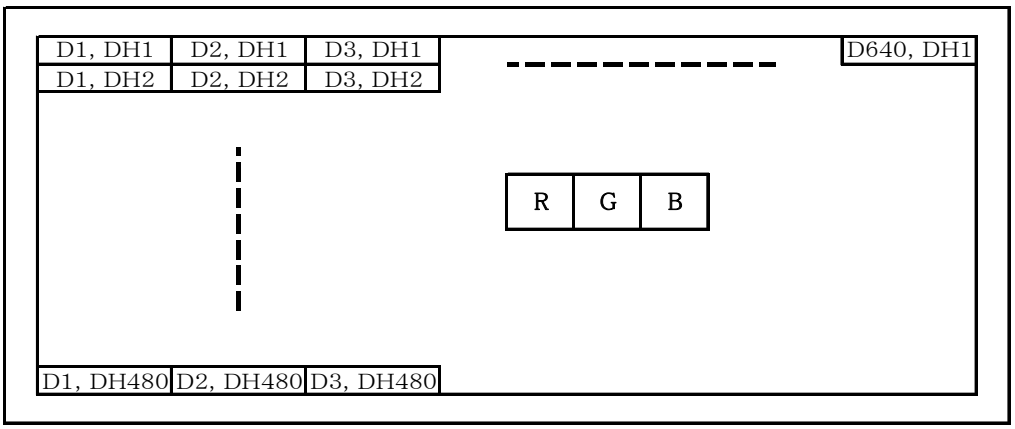
8-2-1.8bit Input



8-2-2.6bit Input



8-3. Input Data Signals and Display position on the screen



9. Lot number identification

The lot number shall be indicated on the back of the backlight case of each LCD.

TCG104VGLPEANN-AN60 - □ : □□ - □□ - □□□:□□□ MADE IN □□□□□

↓ ↓ ↓↓ ↓ ↓ ↓

1 2 3 4 5 2 6

No1. - No5. above indicate
1. Data matrix
2. Version Number
3. Year code
4. Month code
5. Date
6. Version Number

Year	2016	2017	2018	2019	2020	2021
Code	6	7	8	9	0	1

Month	Jan.	Feb.	Mar.	Apr.	May	Jun.
Code	1	2	3	4	5	6

Month	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Code	7	8	9	X	Y	Z

10. Warranty

10-1. Incoming inspection

Please inspect the LCD within one month after your receipt.

10-2. Production warranty

Kyocera warrants its LCD's for a period of 12 months from the ship date. Kyocera shall, by mutual agreement, replace or re-work defective LCD's that are shown to be Kyocera's responsibility.

11. Precautions for use

11-1. Installation of the LCD

1) A transparent protection plate shall be added to protect the LCD and its polarizer
2) The LCD shall be installed so that there is no pressure on the LSI chips.
3) The LCD shall be installed flat, without twisting or bending.
4) A transparent protection sheet is attached to the polarizer. Please remove the protection film slowly before use, paying attention to static electricity.

11-2. Static electricity

1) Since CMOS ICs are mounted directly onto the LCD glass, protection from static electricity is required.
2) Workers should use body grounding. Operator should wear ground straps.

11-3. LCD operation

1) The LCD shall be operated within the limits specified. Operation at values outside of these limits may shorten life, and/or harm display images.
2) Please select the best display pattern based on your evaluation because flicker, lines or nonuniformity or unevenness can be visible depending on display patterns.

11-4. Storage

1) The LCD shall be stored within the temperature and humidity limits specified.
   Store in a dark area, and protect the LCD from direct sunlight or fluorescent light.
2) Always store the LCD so that it is free from external pressure onto it.

11-5. Usage

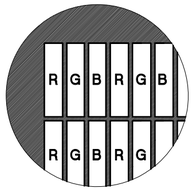
1) DO NOT store in a high humidity environment for extended periods. Polarizer degradation bubbles, and/or peeling off of the polarizer may result.
2) The front polarizer is easily scratched or damaged. Prevent touching it with any hard material, and from being pushed or rubbed.
3) The LCD screen may be cleaned by wiping the screen surface with a soft cloth or cotton pad using a little Ethanol.
4) Water may cause damage or discoloration of the polarizer. Clean condensation or moisture from any source immediately.
5) Always keep the LCD free from condensation during testing. Condensation may permanently spot or stain the polarizer.
6) Do not disassemble LCD because it will result in damage.
7) This Kyocera LCD has been specifically designed for use in general electronic devices, but not for use in a special environment such as usage in an active gas. Hence, when the LCD is supposed to be used in a special environment, evaluate the LCD thoroughly beforehand and do not expose the LCD to chemicals such as an active gas.
8) Please do not use solid-base image pattern for long hours because a temporary afterimage may appear. We recommend using screen saver etc. in cases where a solid-base image pattern must be used.
9) Liquid crystal may leak when the LCD is broken. Be careful not to let the fluid go into your eyes and mouth. In the case the fluid touches your body; rinse it off right away with water and soap.

12. Reliability test data

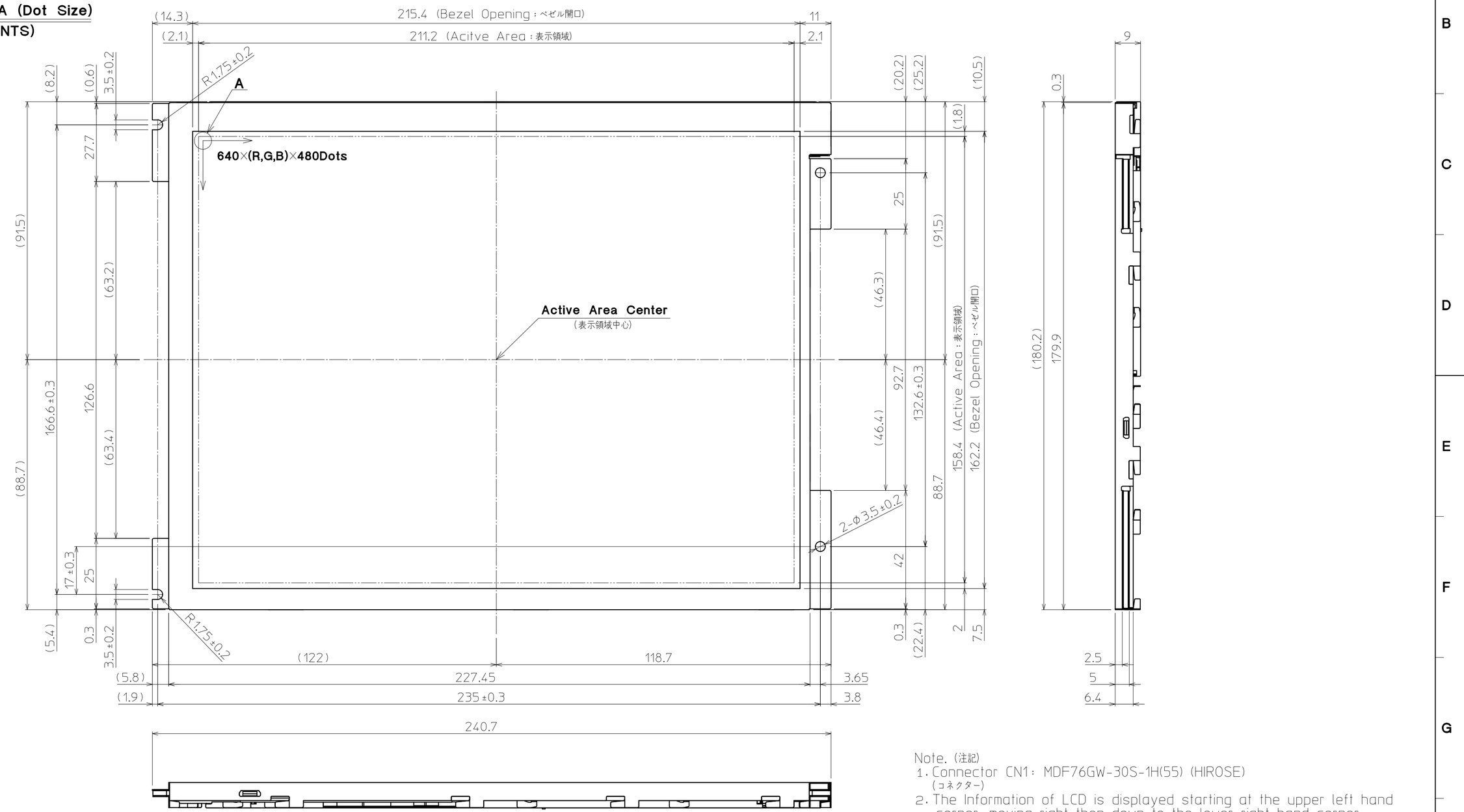
Test item	Test condition	Test time	Judgement
High temp. atmosphere	80°C	(240h)	Display function : No defect Display quality : No defect Current consumption : No defect
Low temp. atmosphere	-30°C	(240h)	Display function : No defect Display quality : No defect Current consumption : No defect
High temp. humidity atmosphere	40°C 90% RH	(240h)	Display function : No defect Display quality : No defect Current consumption : No defect
Temp. cycle	-30°C 0.5h R.T. 0.5h 80°C 0.5h	(10cycles)	Display function : No defect Display quality : No defect Current consumption : No defect
High temp. operation	70°C	(500h)	Display function : No defect Display quality : No defect Current consumption : No defect

1) Each test item uses a test LCD only once. The tested LCD is not used in any other tests.
2) The LCD is tested in circumstances in which there is no condensation.
3) The reliability test is not an out-going inspection.
4) The result of the reliability test is for your reference purpose only.
   The reliability test is conducted only to examine the LCD's capability.

No	Description	Drawn	Checked	Checked	Approved



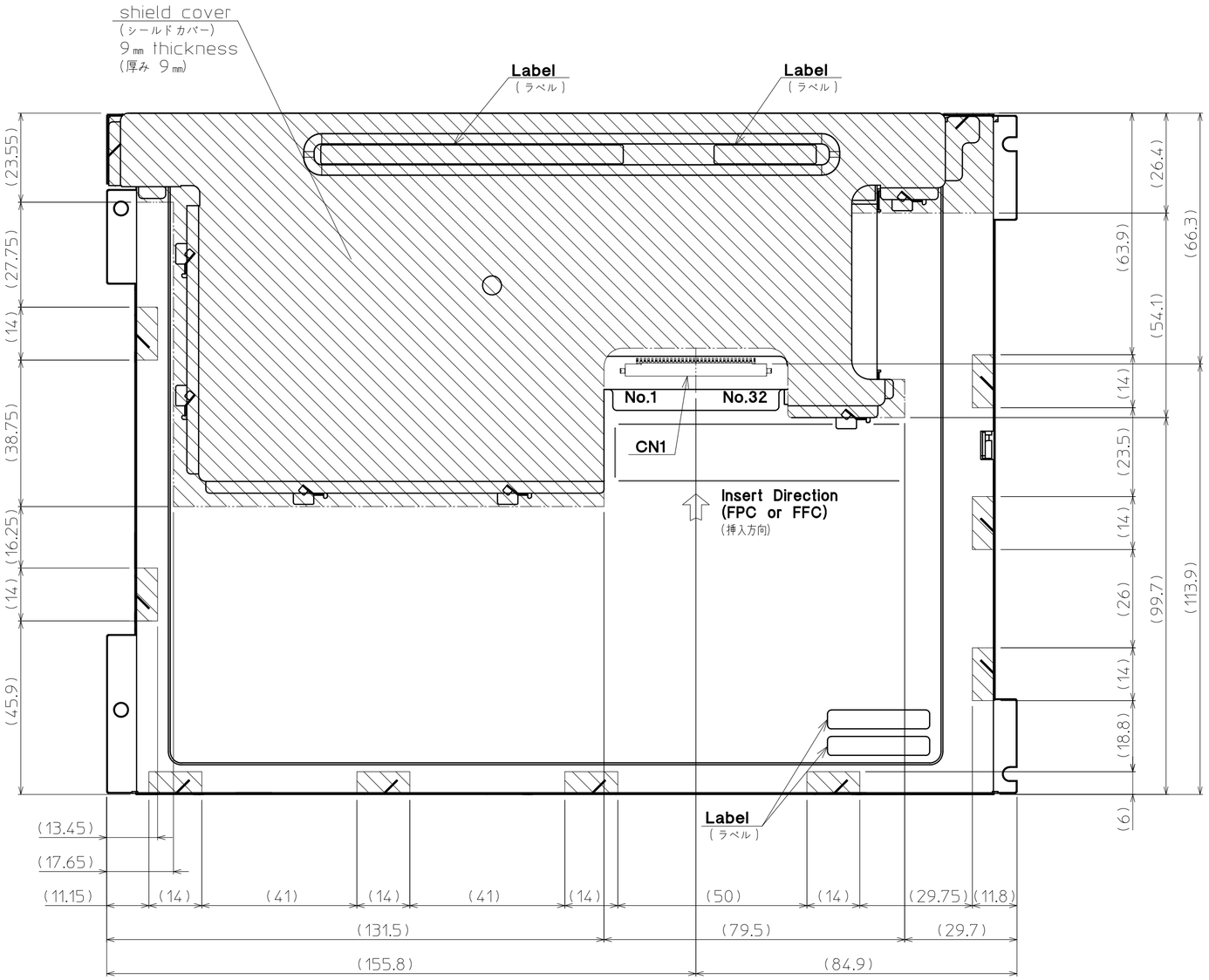
DETAIL A (Dot Size)
(NTS)



Note. (注記)
1. Connector CN1: MDF76GW-30S-1H(55) (HIROSE)
（コネクター）
2. The Information of LCD is displayed starting at the upper left hand corner, moving right then down to the lower right hand corner.
(LCDにおいて、画像データの表示は左上コーナーから始まり、右へ進み下へ送られ右下コーナーへ向かう。)
3. Tolerance without indication : ±0.5
（指示無き公差）

Material 材 質	Treatment 処 理	Approved '15.08.10 加藤	Checked	Checked '15.08.10 蔭山	Drawn 圓福	Scale 1:1 (NTS)	Title TCG104VGLPEANN	KYOCERA	Year-Month-Day '15.08.08	Size 2
Quantity 製作数	Description; 備 考 RoHS						Outline Dimensions	Drawing No. 121A8088900		1/2

No	Description	Drawn	Checked	Checked	Approved



This drawing is a back side view of a flip horizontal to a front drawing.

※ 1/2 正図面に対して左右反転の裏面図である。

Note. (注記)
1. Projected part is 9㎜ thickness.
(厚み 9㎜)

Material 材質	Treatment 処理	Approved '15.08.10	Checked	Checked '15.08.10	Drawn	Scale 1:1	Title TCG104VGLPEANN	KYOCERA	Year–Month–Day '15.08.08	Size 2
Quantity 製作数	Description; 備考 RoHS	加藤		蔭山	圓福		Outline Dimensions	Drawing No. 121A8088900		2/2

Spec No.	TQ3C-8EAF0-E2YAG56-00
Date	September 21, 2016

KYOCERA INSPECTION STANDARD

TYPE : TCG104VGLPEANN-AN60

KYOCERA DISPLAY CORPORATION

Original Issue Date	Designed by : Engineering dept.			Confirmed by : QA dept.	
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September 21, 2016	M. Koyama	T. Onodera	Y. Matsumoto	K. Sugano	O. Sato

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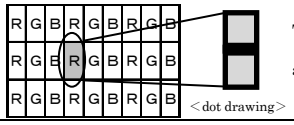
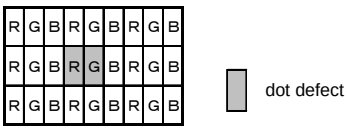
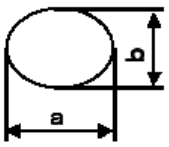
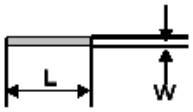
Rev.No.	Date	Page	Descriptions

Visuals specification

1) Note

<table>
<tr><th></th><th colspan="3">Note</th></tr>
<tr><td>General</td><td colspan="3">1. Customer identified anomalies not defined within this inspection standard shall be reviewed by Kyocera, and an additional standard shall be determined by mutual consent.
2. This inspection standard about the image quality shall be applied to any defect within the effective active area and shall not be applicable to outside of the area.
3. Inspection conditions
Luminance : 500 Lux min.
Inspection distance : 300 mm.
Temperature : 25 ± 5℃
Direction : Directly above</td></tr>
<tr><td rowspan="6">Definition of inspection item</td><td rowspan="4">Dot defect</td><td>Bright dot defect</td><td>The dot is constantly “on” when power applied to the LCD, even when all “Black” data sent to the screen.
Inspection tool: 5% Transparency neutral density filter.
Count dot: If the dot is visible through the filter.
Don’t count dot: If the dot is not visible through the filter.
 
There is an electrode in the middle of the dot and one dot is shown in the left drawing.
＜dot drawing＞</td></tr>
<tr><td>Black dot defect</td><td>The dot is constantly “off” when power applied to the LCD, even when all “White” data sent to the screen.
Similar size compared to bright dot.</td></tr>
<tr><td>White dot (Circular/foreign particle)</td><td>Pixel works electrically, however, circular/foreign particle makes dot appear to be “on” even when all “Black” data is sent to the screen.</td></tr>
<tr><td>Adjacent dot</td><td>Adjacent dot defect is defined as two or more bright dot defects or black dot defects.
 
dot defect</td></tr>
<tr><td rowspan="2">External inspection</td><td>Bubble, Scratch, Foreign particle (Polarizer, Cell, Backlight)</td><td>Visible operating (all pixels “Black” or “White”) and non operating.</td></tr>
<tr><td>Appearance inspection</td><td>Does not satisfy the value at the spec.</td></tr>
<tr><td>Definition of size</td><td colspan="2">Definition of circle size
 
d =(a + b)/2
Definition of linear size
  </td></tr>
</table>

2) Standard

<table>
<tr><th colspan="2">Classification</th><th colspan="2">Inspection item</th><th>Judgement standard</th></tr>
<tr><td rowspan="6">Defect (in LCD glass)</td><td rowspan="5">Dot defect</td><td colspan="2">Bright dot defect</td><td>Acceptable number : 4
Bright dot spacing : 5 mm or more</td></tr>
<tr><td colspan="2">Black dot defect</td><td>Acceptable number : 5
Black dot spacing : 5 mm or more</td></tr>
<tr><td rowspan="2">2 dot join</td><td>Bright dot defect</td><td>Acceptable number : 2</td></tr>
<tr><td>Black dot defect</td><td>Acceptable number : 3</td></tr>
<tr><td colspan="2">3 or more dots join</td><td>Acceptable number : 0</td></tr>
<tr><td colspan="2">Total dot defects</td><td>Acceptable number : 5 Max</td></tr>
<tr><td>Others</td><td colspan="2">White dot, Dark dot (Circle)</td><td>
<table>
<tr><th>Size (mm)</th><th>Acceptable number</th></tr>
<tr><td>d ≦ 0.2</td><td>(Neglected)</td></tr>
<tr><td>0.2 ＜ d ≦ 0.4</td><td>5</td></tr>
<tr><td>0.4 ＜ d ≦ 0.5</td><td>3</td></tr>
<tr><td>0.5 ＜ d</td><td>0</td></tr>
</table>
</td></tr>
<tr><td rowspan="4">External inspection (Defect on Polarizer or between Polarizer and LCD glass)</td><td colspan="2">Polarizer (Scratch)</td><td>
<table>
<tr><th>Width (mm)</th><th>Length (mm)</th><th>Acceptable number</th></tr>
<tr><td>W ≦ 0.1</td><td>－</td><td>(Neglected)</td></tr>
<tr><td rowspan="2">0.1 ＜ W ≦ 0.3</td><td>L ≦ 5.0</td><td>(Neglected)</td></tr>
<tr><td>5.0 ＜ L</td><td>0</td></tr>
<tr><td>0.3 ＜ W</td><td>－</td><td>0</td></tr>
</table>
</td></tr>
<tr><td colspan="2">Polarizer (Bubble)</td><td>
<table>
<tr><th>Size (mm)</th><th>Acceptable number</th></tr>
<tr><td>d ≦ 0.2</td><td>(Neglected)</td></tr>
<tr><td>0.2 ＜ d ≦ 0.3</td><td>5</td></tr>
<tr><td>0.3 ＜ d ≦ 0.5</td><td>3</td></tr>
<tr><td>0.5 ＜ d</td><td>0</td></tr>
</table>
</td></tr>
<tr><td colspan="2">Foreign particle (Circular shape)</td><td>
<table>
<tr><th>Size (mm)</th><th>Acceptable number</th></tr>
<tr><td>d ≦ 0.2</td><td>(Neglected)</td></tr>
<tr><td>0.2 ＜ d ≦ 0.4</td><td>5</td></tr>
<tr><td>0.4 ＜ d ≦ 0.5</td><td>3</td></tr>
<tr><td>0.5 ＜ d</td><td>0</td></tr>
</table>
</td></tr>
<tr><td colspan="2">Foreign particle (Linear shape)
Scratch</td><td>
<table>
<tr><th>Width (mm)</th><th>Length (mm)</th><th>Acceptable number</th></tr>
<tr><td>W ≦ 0.03</td><td>－</td><td>(Neglected)</td></tr>
<tr><td rowspan="3">0.03 ＜ W ≦ 0.1</td><td>L ≦ 2.0</td><td>(Neglected)</td></tr>
<tr><td>2.0 ＜ L ≦ 4.0</td><td>3</td></tr>
<tr><td>4.0 ＜ L</td><td>0</td></tr>
<tr><td>0.1 ＜ W</td><td>－</td><td>(According to circular shape)</td></tr>
</table>
</td></tr>
</table>