

DMG48480C021_18WTC

Features:

- Powered by T5F0 ASIC, running DGUS II HMI platform, commercial-grade smart LCM.
- 2.1-inch, 480*480 resolution, IPS-TFT LCD.
- Air bonded capacitive touch panel.



1. Hardware and interface

1.1 Hardware interface diagram



Hardware interface diagram

1.2 Hardware and interface description

No.	Item	Description
1	T5F0 ASIC	DWIN independently developed, mass production in 2023. Dual 8051 cores, GUI and application run on separate 8051 cores.
2	User interface	10Pin_1.0mm socket for power supply and serial communication.
3	Flash	16Mbytes NOR Flash, can be used to store user UI files such as fonts, images, music, etc., with erase/write cycles > 100,000 times.
4	Buzzer	3V passive buzzer.
5	SD card slot	For DGUS project file downloads (UI, CFG files, kernel, etc.), 4 Mb/s rate.
6	PGT05 interface	For programming DGUS firmware.

2. Specification parameters

2.1 Display parameters

LCD Type	IPS, TFT LCD.
Viewing Angle	Wide viewing angle (85°/85°/85°/85° typical), high contrast, and good color reproduction.
Resolution	480×480 (support 0°/90°/180°/270°)
Active Area (AA)	D=53.28mm
Backlight	LED
Backlight Service Life	>20,000H
Brightness	350nit
Brightness Control	100-level brightness adjustment (Flickering may occur at 1%-30% of max brightness; not recommended for use in this range)
Note: Use dynamic screen saver to prevent afterimages from prolonged fixed page display.	

2.2 Touch parameters

Type	Capacitive touch panel.
Structure	G+FF structure with tempered glass surface and hardness ≥ 6H.
Light Transmittance	>85%

2.3 Serial interface parameters

Mode	UART2: ON=TTL/CMOS; OFF=RS232 (Default RS232) UART4: ON=TTL/CMOS; OFF=RS232 (Only available after OS configuration)				
Voltage Level	Test Condition	Min	Typ	Max	Unit
	Output 1, Iout = 1mA	3.0	3.3	-	V
	Output 0, Iout = -1mA	-	0	0.3	V
	Input 1, Iin = 1mA	2.4	3.3	5.0	V
	Input 0, Iin = -1mA	0	-	0.5	V
Baud Rate	3150~3225600bps, typical value of 115200bps.				
Data Format	UART2: N81 UART4: N81/E81/O81/N82 ,4 modes (OS configuration)				
Interface Cable	10Pin_1.0mm				

2.4 Electrical specifications

Rated Power	<5W	
Operating Voltage	4.5-5.5V, typical value of 5V.	
Operating Current	170mA	VCC=5V, max backlight.
	80mA	VCC=5V, backlight off.
Recommended power supply: 5V 1A DC.		

2.5 Operating environment

Operating Temperature	-20℃ to 70℃ (5V @ 60% RH)
Storage Temperature	-30℃ to 80℃
Conformal Coating	None
Operating Humidity	10%-90%RH, typical value of 60% RH.

3. Reliability test

3.1 Electrostatic discharge test

Test temperature: 25°C. Test humidity: 50%RH.

Test process: Place the product on the test bench fixture (approximately 15cm in height), and perform contact and air discharge tests on the smart LCM. Observe if any freezing, black or white screen, flickering, or rebooting occurs during the test.

Test conclusion: The product's ESD performance meets GB/T 17626.2 Class B standards.

■ Test standard : ☐ EN 61000-4-2:2009 ☐ IEC 61000-4-2:2008 ☐ GB/T 17626.2-2018
☐ Other:

Table 1: Electrostatic Discharge Immunity (Air Discharge)

Test Points Locations	Test Levels							
	-2kV	+2kV	-4kV	+4kV	-8kV	+8kV	-15kV	+15kV
Screen					A	A		
/	/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/	/

Table 2: Electrostatic Discharge Immunity (Direct Contact)

Test Points Locations	Test Levels							
	-2kV	+2kV	-4kV	+4kV	-6kV	+6kV	-8kV	+8kV
	✓	✓	✓	✓	✓	✓	✓	✓
/	/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/	/

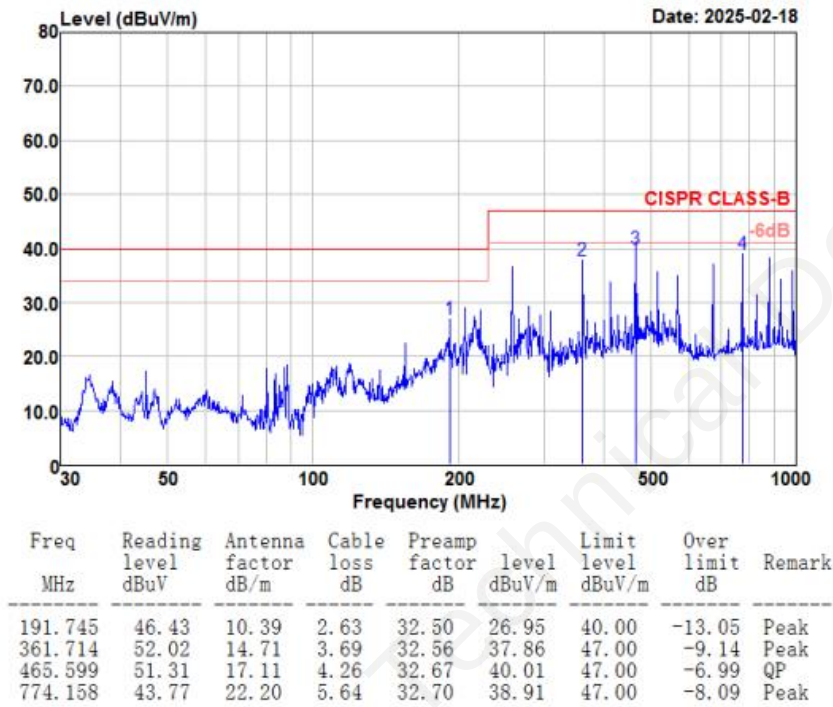
Performance Criterion:

- A. Normal performance within limits specified by the manufacturer, requestor or purchaser;
- B. Temporary loss of function or degradation of performance which ceases after the disturbance ceases, and from which the equipment under test recovers its normal performance, without operator intervention;
- C. Temporary loss of function or degradation of performance, the correction of which requires operator intervention;
- D. Loss of function or degradation of performance which is not recoverable, due to damage to hardware or software, or loss of data.

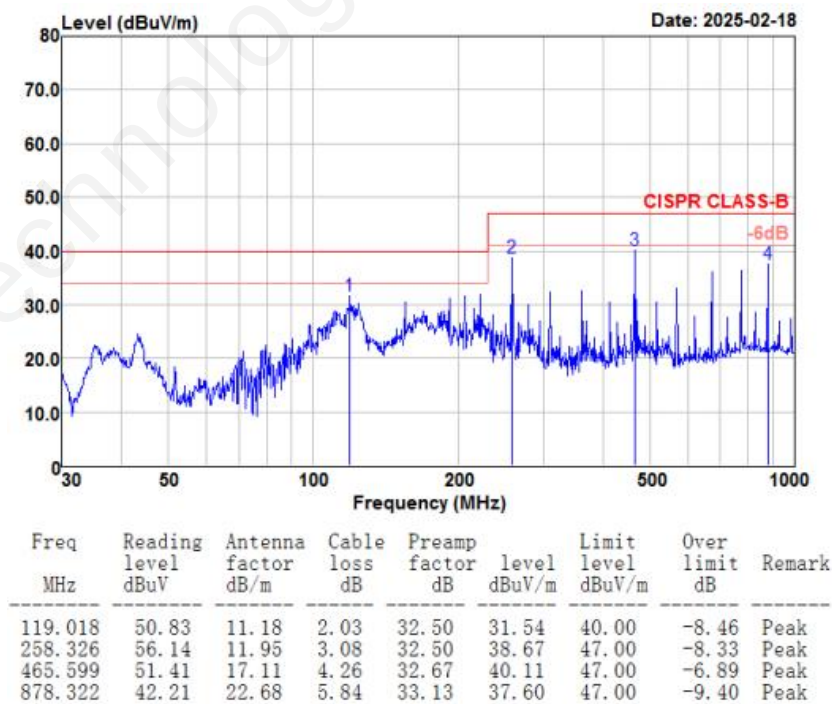
3.2 RE test

Test Item	Test Standard	Result
RE	Class B	Normal operation

HORIZONTAL



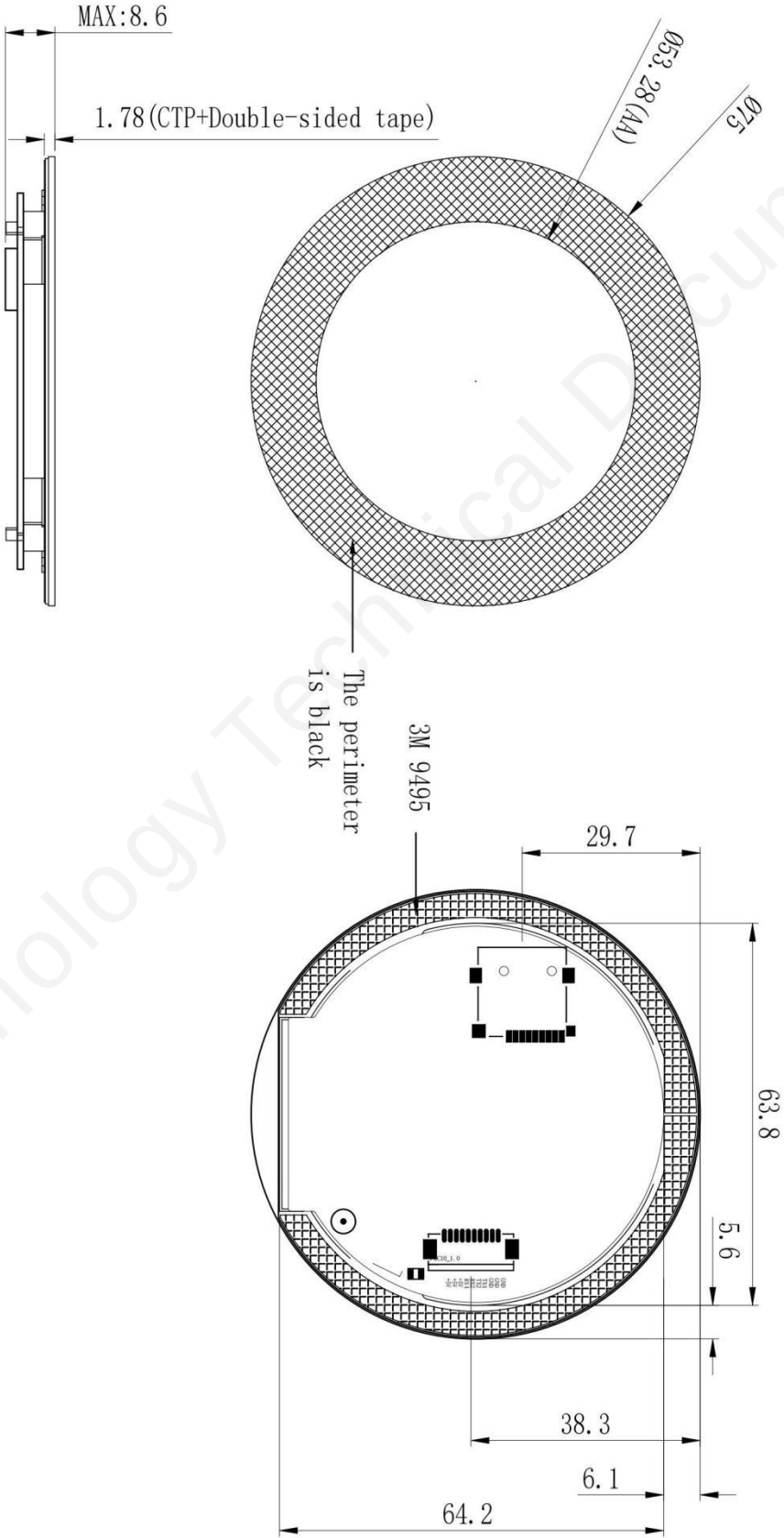
VERTICAL



4. Packaging & dimensions

Form Factor	75.0mm (W)× 75.0mm (H)× 8.6mm (T)			
Net Weight	45g			
Packaging Standards				
Model	Dimensions	Layer	Quantity/Layer	Quantity(Pcs)
Carton1:	220mm(L)×160mm(W)×47mm (H)	1	2	2
Carton2:	250mm(L)×200mm(W)×80mm (H)	2	2	4
Carton3:	320mm(L)×270mm(W)×80mm (H)	2	4	8
Carton4:	450mm(L)×350mm(W)×300mm (H)	2	25	50
Carton5:	600mm(L)×450mm(W)×300mm (H)	2	60	120

Definition	Pin#	Type	Description
GND	8, 9, 10	P	GND
TX4	7	0	UART4 Output
TX2	6	0	UART2 Output
RX2	5	1	UART2 Input
RX4	4	1	UART4 Input
+5V	1, 2, 3	P	Power Input



1. Location hole is used as position reference.

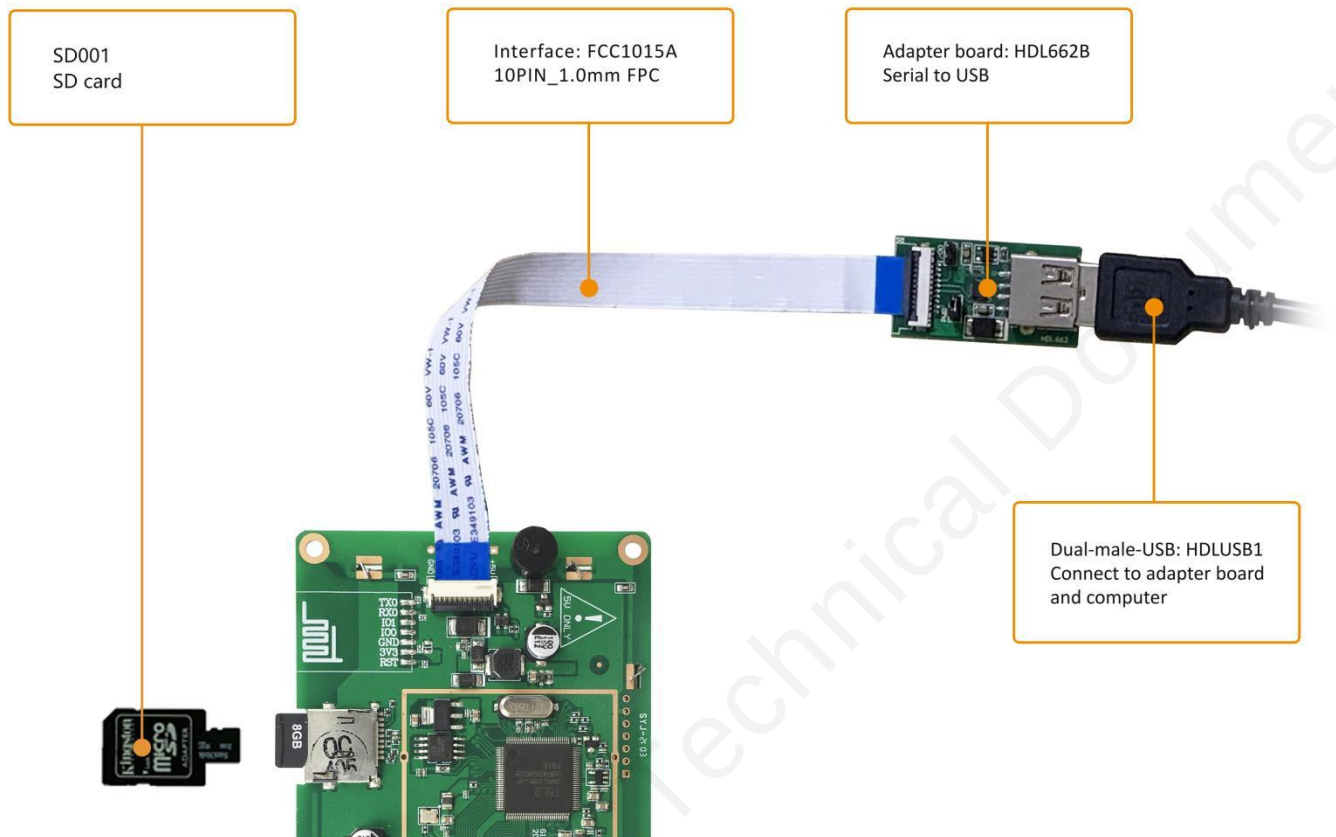
2. Unmarked Tolerance is $\pm 0.3\text{mm}$

Note: Active area is marked in Dash lines

Model	DMG48480C021_18WTC				DWIN Technology			
Drawing	A 4	Drawn	DWIN	Date				
Scale		Review		Date				
Unit	MM	Approval		Date				

5. Debug tools

It is recommended for new users of DWIN smart LCMs to purchase official accessories. For more details, please refer to customer service center.



6. Revision records

Rev	Revise Date	Content	Editor
00	2025-05-14	First Edition	Xu Ying

Please contact us if you have any questions about the use of this document or our products, or if you would like to know the latest information about our products:

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Thank you all for continuous support of DWIN, and your approval is the driving force of our progress!

Important Disclaimer

DWIN reserves the right to make any changes to product designs without prior notice.

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