ILLUMINANT北極光企業有限公司

PRODUCT SPECIFICATION FOR TFT LCM

CUSTOMER:	
MODEL NO:	IC-B200401-6YFLYA
ACCEPTED BY:	

APPROVED BY:	CHECKED BY:	ORGANIZED BY:
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☐ Approval for Specifications Only
■ Approval for Specifications and Sample

Note: 1. Version of Specifications : 1
2. Others: Rohs Compliment

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CONTENTS

RECORDS OF REVISION

DATE	REVISED NO.	REVISED DESCRIPTIONS	PREPARED	CHECKED	APPROVED
2009.04.16	01	FIRST ISSUE			

3. GENERAL SPECIFICATIONS

3-1 SCOPE :
This specification covers the delivery requirements for the liquid crystal display delivered by ILLUMINANT to Customer.

3-2 PRODUCTS :
Liquid Crystal Display Module (LCM)

3-3 MODULE NAME
IC-B200401-6YFLYA

4. FEATURES

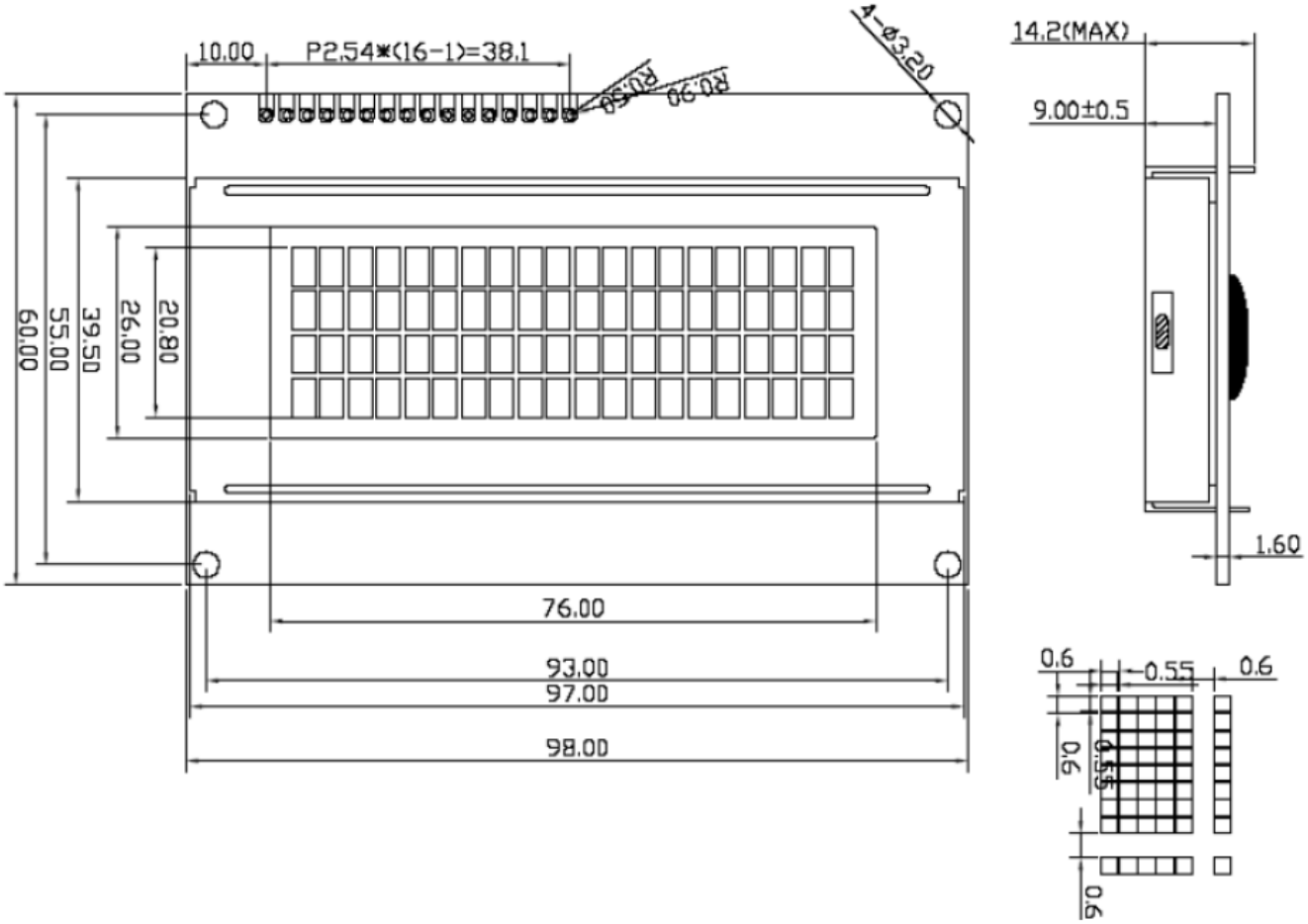
(1) Display Type : STN/YELLOW-GREEN, 6 O'clock, Transflective/Positive
(2) Driving Method : 1/16 duty, 1/5 bias
(3) Built-in Controller : SPLC780D
(4) LED Backlight : LED/Yellow-Green

5. MECHANICAL SPECIFICATIONS

ITEM	SPECIFICATIONS	UNIT
MODULE SIZE	96.00(W)X60.00(H)X14.20MAX(D)	mm
VIEWING AREA	76.00(W)X26.00(H)	mm
ACTIVE AREA	70.40(W)X20.80(H)	mm
DOT SIZE	0.55(W)X0.55(H)	mm
DOT PITCH	0.60(W)X0.60(H)	mm
BACKLIGHT	YELLOW-GREEN	--
ASSY.TYPE	COB	--
WEIGHT	TBD	--

NOTES :
LCM should be grounded during handling LCM.

6. OUTLINE DIMENSIONS



7. ABSOLUTE MAXIMUM RATINGS

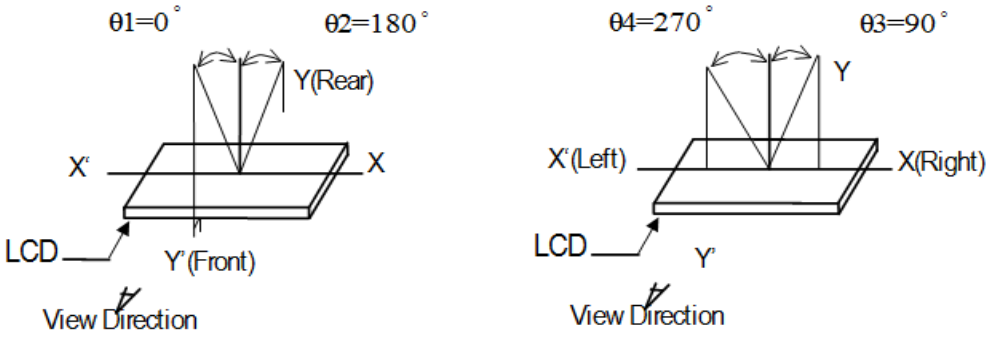
ITEM	SYMBOL	CONDITION	STANDARD VAULE			UNIT
			MIN	TYP	MAX	
Power Supply for Logic	V_{DD}	Ta=25℃	-0.3	-	5.0	V
Power Supply for LCD Driving	V_{LCD}	Ta=25℃	VDD-15	-	0.3	V
Input Voltage	V_{IN}	Ta=25℃	-0.3	-	V_{DD}	V
Operating Temperature	T_{OP}	-	-20	-	+70	℃
Storage Temperature	T_{ST}	-	-30	-	+80	℃
Storage Humidity	H_D	Ta<40℃	-	-	90	%RH

8. ELECTRICAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	CONDITION	MIN	TYP	MAX	UNIT
Supply Voltage (Logic)	VDD-VSS	Ta=25℃	4.8	5.0	5.2	V
Supply Voltage (LCD)	VLCD	Ta=25℃	-	4.7	-	V
Input Signal Voltage	V-IH	-	0.8VDD	-	VDD	V
	V-IL	-	VSS	-	0.2VDD	V
Output Signal Voltage	V-OH	IOH=-0.5	0.8VDD	-	VDD	V
	V-OL	IOL=-0.5	VSS	-	0.2VDD	V
Supply Current (Logic)	IDD	VDD=5.0V	-	3	5	mA
LCM Driver Voltage	VOP	VDD-VSS(-20℃)	-	-	-	V
		VDD-VSS(25℃)	-	4.7	-	V
		VDD-VSS(70℃)	-	-	-	V

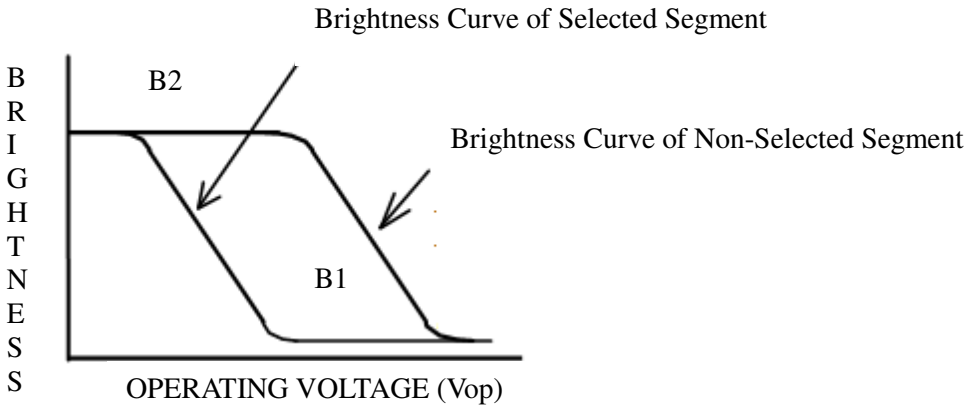
9. OPTICAL CHARACTERISTICS

9-1 DEFINITION OF VIEWING ANGLE

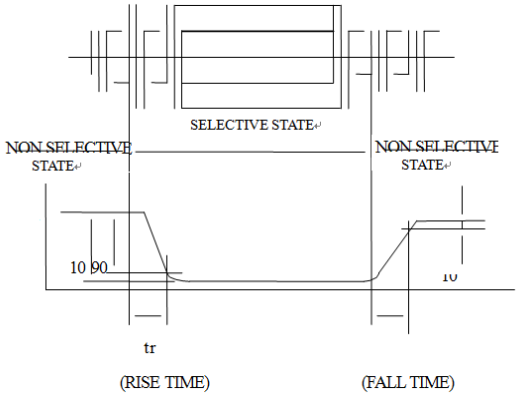


9-2 DEFINITION OF CONTRAST RATIO

$$CR = \frac{\text{Brightness of Non-selected Segment (B2)}}{\text{Brightness of Selected Segment (B1)}}$$



9-3 DEFINITION OF RESPONSE TIME



10. BACKLIGHT CHARACTERISTICS

10-1 LCD Module with LED Backlight

ITEM	SYMBOL	CONDITION	MIN	MAX	UNIT
Forward Current	If	Ta=25℃	-	480	mA
Reverse Voltage	VR	Ta=25℃	-	5	V
Power Dissipation	PO	Ta=25℃	-	2	W
Operating Temperature	TOP		-20	70	℃
Storage Temperature	TST		-30	80	℃

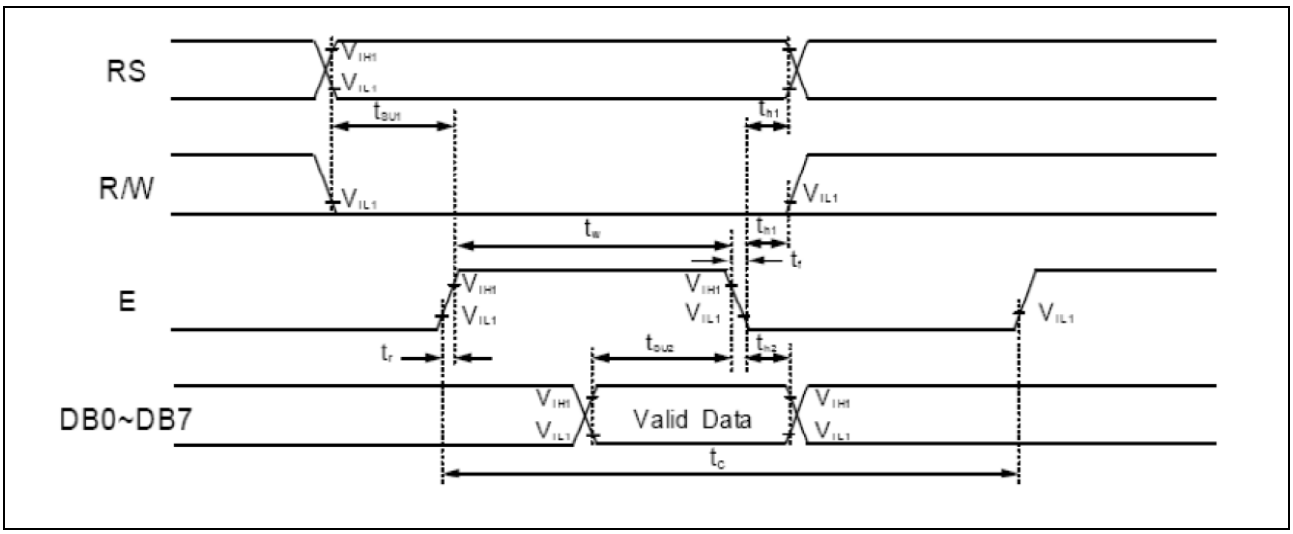
10-2 Electro-Optical Characteristics (Ta=25℃)

ITEM	SYMBOL	CONDITION	MIN	TYP	MAX	UNIT
Forward Voltage	VF	IF=480mA	4.0	4.2	4.4	V
Reverse Current	IR	VR=8V	-	-	0.2	mA
Average Brightness (with LCD)*1	IV	IF=480mA	-	-	-	cd/m^2
Uniformity*1 (with LCD)*1	△B	IF=480mA	70%	-	-	*2
Color	YELLOW-GREEN					

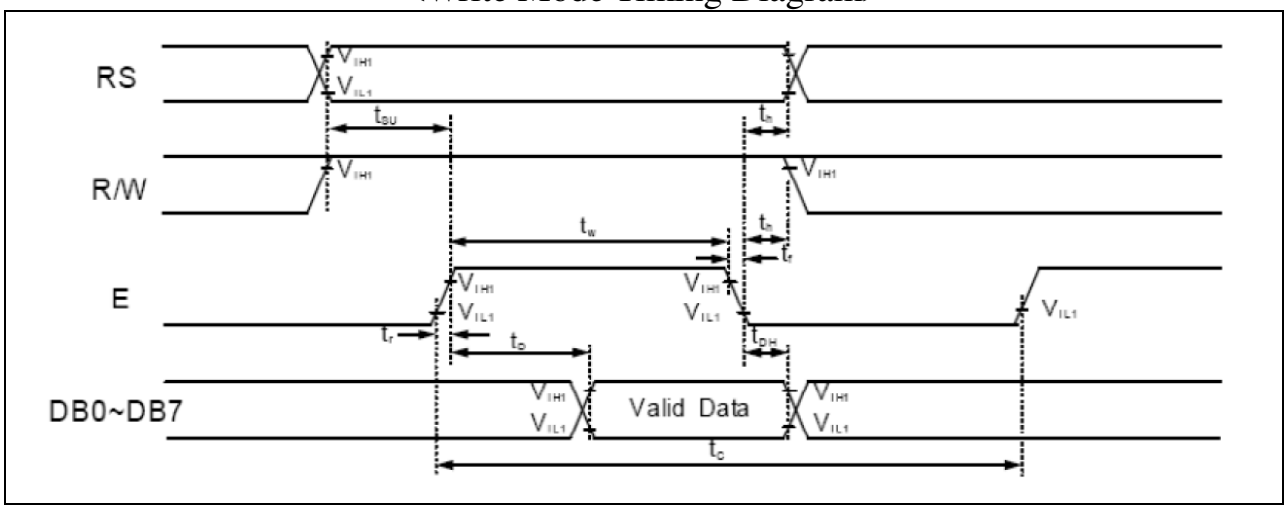
*1 This value will be changed while mass production, testing by BM7.

*2 △B=B(min)/B(max)

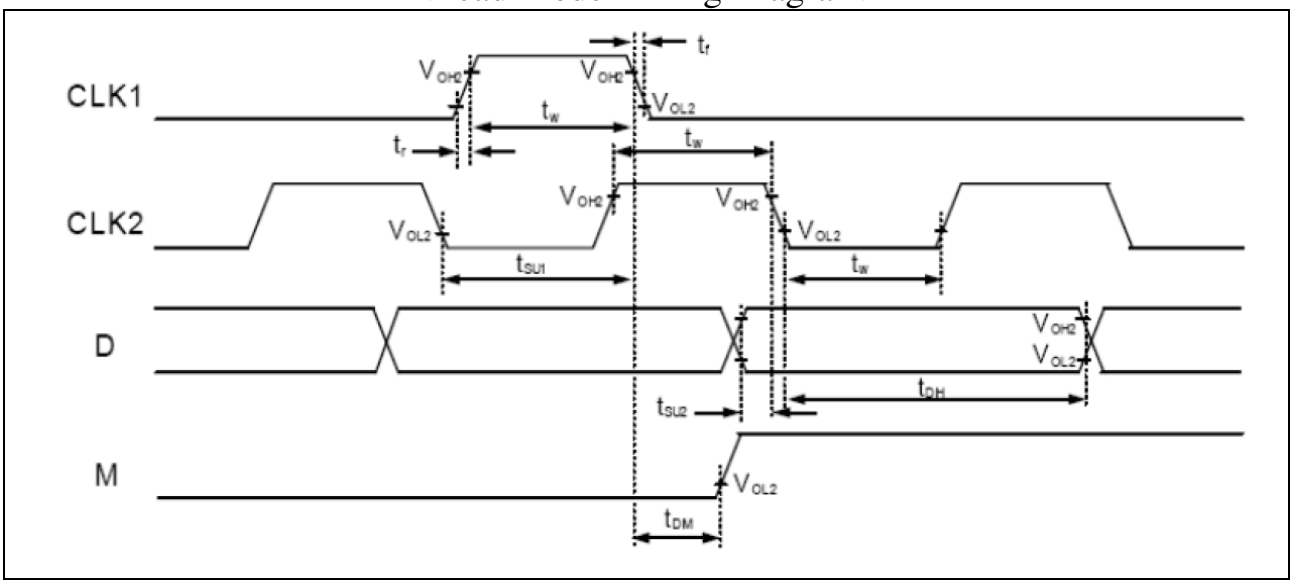
11. TIMING CHARACTERISTICS



<Write Mode Timing Diagram>



<Read Mode Timing Diagram>



<Interface Mode with Extension Driving Timing Diagram>

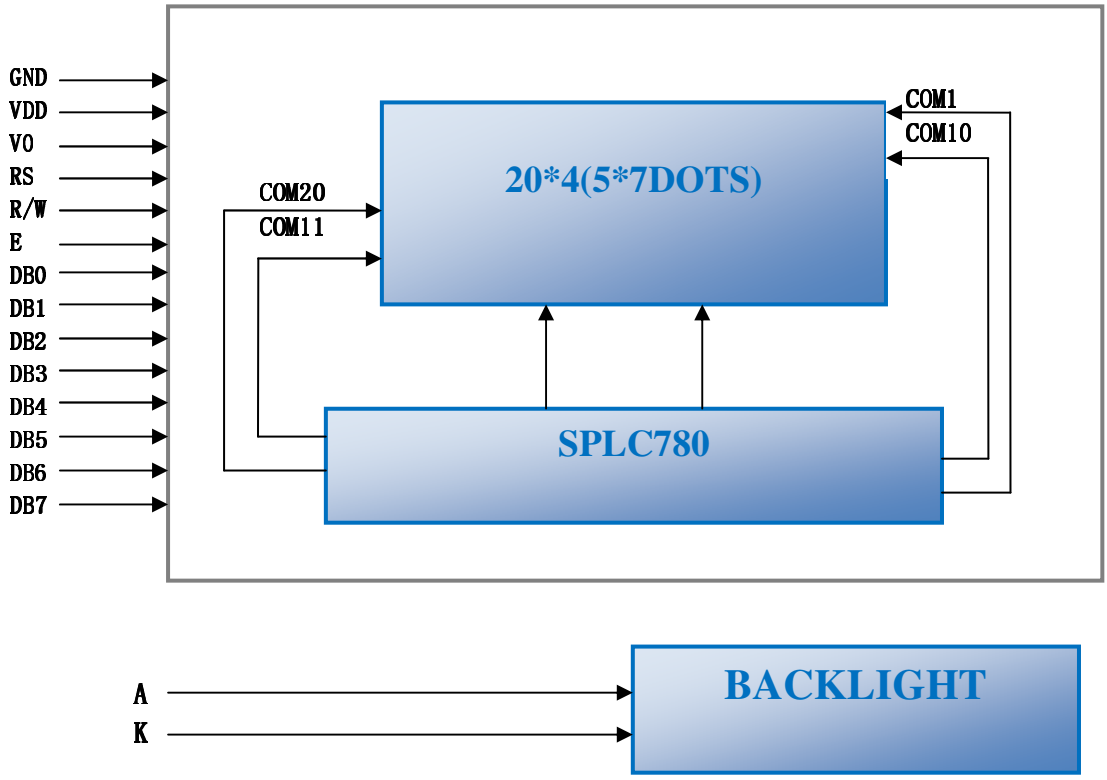
12. PIN ASSIGNMENT

PIN NO.	FUNCTION DESCRIPTIONS	SYMBOL
1	Ground for Logic	VSS
2	Power Supply for Logic	VDD
3	Power Supply for LCD Drive	V0
4	Register Selection (H:Data Code Input, L:Instruction Code Input)	RS
5	Read/Write Selection (H:Read, L:Write)	R/W
6	Enable Signal for LCM	E
7	Data Bit 0	DB0
8	Data Bit 1	DB1
9	Data Bit 2	DB2
10	Data Bit 3	DB3
11	Data Bit 4	DB4
12	Data Bit 5	DB5
13	Data Bit 6	DB6
14	Data Bit 7	DB7
15	Connect to the Positive of Backlight	A
16	Connect to the Negative of Backlight	K

13. RELIABILITY

ITEM	CONDITIONS	CRITERION
Operating Temperature	High Temperature +60℃ 200hrs	No defect in displaying and operational function
	Low Temperature -10℃ 200hrs	
Storage Temperature	High Temperature +70℃ 200hrs	No defect in displaying and operational function
	Low Temperature -20℃ 200hrs	
Humidity	50℃ 90%RH 96hrs	No defect in displaying and operational function
Vibration	*10-22Hz ⟶ 1.5mmp-p *22-500Hz ⟶ 1.5G *Total 0.5hrs	No defect in displaying and operational function
Static Electricity	VS=800V, RS=1.5K, CS=100pF 1time	No defect in displaying and operational function

14. BLOCK DIAGRAM



15. PRECAUTION FOR USE

The following precaution should be followed, since this module contains precise parts.

(1) Do not store module for an extended periods of time under the conditions of high temperature and high humidity.
(2) Avoid using or storing the module in areas that expose it to direct sunlight or ultraviolet rays.
(3) Use protective finger covers when handling the module to avoid scratching or staining the module.
(4) Care should be taken not to expose the module to static electricity, because the module contains C-MOS LSI's.
(5) The LSI is sensitive to light. The user's product should be designed so that LSI is not exposed to any light during operation.
(6) During installation, cover the display area with acrylic protection plates to protect the polarizer plate and LCD cells.
(7) Do not apply any excessive shocks to the module because the module contains sensitive LCD cells. Do not use a module, which has experienced strong mechanical shock.
(8) Care should be taken when the power supply turns on as following.
  (a) Do not apply any input signals before the supplying voltage is applied.
  (b) Do not turn off the power supply while any input signals are applied.

CAUTION

(1) Dangerous. Do not shock glass because glass can break.
(2) If module breaks, do not touch it directly.
  (Glass could stick or cut skin)
(3) Do not swallow Liquid Crystal.
  (In case of broken LCD panel, do not swallow liquid crystal even if there is no proof that liquid crystal is poisonous)
(4) If liquid crystal is exposed to skin, wash the area thoroughly with alcohol or soap.
(5) When disposing of the product, please observe industrial waste disposal laws in each country and district.
(6) In case of injury, give immediate treatment and consult with a doctor.
(7) This product is constructed precisely. Don't disassemble or modify.

※ Neglecting this mark can cause injury to humans and damage to materials.