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): 	SHARP CORPORATION	ISSUE File No. PAGE 5 Pages Applicable Division Mobile LCD Group
	Incoming Inspection Standards for TF	T-LCD 001
Customer's Approval		
Date	PRESENTED BY	11/12E36
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INCOMING INSPECTION STANDARDS FOR TFT-LCD MODULES

1. Scope

2. Incoming inspection

The Buyer shall have the right to conduct at its own cost and expense, an incoming inspection of the Module's at the destination specified in the relevant bills of lading in accordance with the Module's specifications separately agreed upon and the inspection standard set forth in this Article.

The Buyer shall notify the Seller writing of a result of such inspection judgment (acceptance or rejection) in accordance with the said inspection standard within 40 days after the date of the bills of lading.

Should the Buyer fail to so notify the seller within the said 40 days period, the Buyer's right to reject the Module's shall then lapse, and the said Module's shall be deemed to have been accepted by the Buyer.

3. Method of incoming inspection

Unless otherwise agreed in writing, the method of incoming inspection shall be in accordance with a sampling inspection based on ISO 2859-1.

- a) Lot size : Quantity per shipment lot per model
- b) Sampling type : Normal inspection, Single sampling
- c) Inspection level : II
- d) Sampling table : Table in ISO 2859-1

4. Acceptable quality level ("AQL")

The AQL for major and minor defects shall be respectively set forth below.

a) Major defects : AQL : 0.4 b) Minor defects : AQL : 1.0 Based on overall evaluation

5. Classification of defects

Defects are classified as major defect and a minor defect according to the degree of defect defined herein.

a) Major defect

A major defect is a defect that is likely to result in failure, or to reduce materially the usability of the product for its intended purpose.

Function defect

Abnormal operation including distinct R,G,B line defects and /or white line defect.

b) Minor defect

A major defect is a defect that is likely to result in failure, or to reduce materially the usability of the product for its intended purpose.

- 1. Dot Defect
- 2. Display non-uniformity
- 3. Afterimage

- 5. Scratches
- 6. Dents
- 7. Contrast ratio
- 4. Extraneous substances
- 8. Current dissipation

6. Determination of acceptability and subsequent disposal

If the number of defects found in the sample Module's from the lot is equal to or less than the applicable acceptance level, the lot shall be accepted. If the number of defects is greater than the applicable acceptance level, the lot shall be rejected. The Buyer shall inform the Seller of a detailed result of such inspection within the time period stipulated in Article 2.

The disposal is as follows :

a) Accepted lot

An acceptance under the above incoming inspection shall constitute an acceptance by the Buyer of such lot of the Module's in terms of the landed quality thereof.

b) Rejected lot

If a lot of PRODUCTS is rejected under the above incoming inspection due to any defects for which the Seller is responsible and such a fact is clearly confirmed by the Seller, the Seller shall exercise one of the following three options. This must be determined with mutual consent and shall be confirmed by the Seller. The best choice of the options shall be left to the Seller's discretion and the Seller shall advise the Buyer of its choice not later than two weeks of receipt of the Buyer's advice :

- 1. The Buyer shall return the defective lot to the place to be designated by the Seller and the Seller shall screen all of the PRODUCTS in the lot and repair defective PRODUCTS.
- 2. The Seller shall screen all of the PRODUCTS in the lot and repair defective products within a reasonable time period at the Buyer's facility.
- 3. The Buyer shall screen the entire lot for the good modules at the expense of the Seller to be separately agreed upon. The rejected PRODUCTS shall be returned to the place to be designated by the Seller.

Item	Inspection conditions	
Ambient illumination	300 ~ 500 lx	
Ambient temperature	20-25 °C	
Ambient Humidity	65 ± 5% RH	
Viewing distance	350 mm ± 50 mm	
Viewing angle	The surface of the Module and the eyes of the inspector shall be 90 ± 5 degrees.	
How to use ND filter	Use ND filter open to eyes (fig.2)	
Check pattern (Bright dot)	Black picture position	
Check pattern (Black dot)	White picture position	

7. Inspection conditions



8. External appearance inspection

Length : L(mm) , Average diameter : D(mm)						
	Inspection standards			note	Average Diameter	
	Ignore	Count		NG		
Black or white spots*	D<0.15	0.15<=D<=0.30		D>0.30	A,B	
Polarizer Dent or Bubble	D<0.15	0.15<=D<=0.30	N<=5	D>0.30	А	
Panel Dent	D<0.15	0.15<=D<=0.30		D>0.30	A,B	
Lint*	L<0.15	0.15<=L<=2.0 W<=0.1	N<=2	L>2.0	A,B	D=(a+b)/2
Scratches	L<2.0	2.0<=L <=5.0 W<=0.1	N<=3	L>5.0	А	Length

*Extraneous substances

*Please refer to specifications for the inspection area of the external appearance inspection.



note : inspection condition ; Judgment in each screen

item	condition A condition B		
Panel surface illumination	2500± 500 lx (external lighting source)	Use back light	
Ambient illumination	300 to 500 lx		
Viewing distance	350 mm ± 50 mm		
Check pattern	module non operation	white or Black picture position	

9. Visual inspection

9-1 Zone



Please refer to the effective display area (active area) of specification about H,L

9-2 Definition

No	Item		Definition	
a Det	Det	Pixel	3 sub-pixels (R+G+B)	
a	DOI	Dot	1 sub-pixel (R or G or B)	
		When the Module lights, dot appear bright in display		
h	Bright dot *	at Black picture position.		
D	(caused by TFT failure)	Count	Visible through 2% ND filter	
		Ignore	Not visible through 2% ND filter	
0	Black dot *	When the Module lights, dot appear black in display at		
L L	(caused by TFT failure)	white picture position		
al	Scratch on the	Count as bright dot	Visible over the half of a dot	
a	color filter	Ignore	Visible under the half of a dot	
0	Scratch on the	Count as bright dot	Visible over ø50 µm	
e	Cr mask	Ignore	Visible under ø50 µm	
* Departing Bright and Black dot caused by Extraneous Substances, Polarizer, bubble and/ or				

Regarding Bright and Black dot caused by Extraneous Substances, Polarizer bubble and/ or Scratch, "External inspection criteria" should be applied to them. (Please see section 8)

9-3 acceptable	number of dot defect	(Bright dot, Black dot)
0 0 00000000000		

Item	Number of dot defect	Check pattern	
Bright dot	3	Black pattern	
Bright dot +Black dot	6	Bright dot : Black pattern Black dot : White pattern	

9-4 Defect distance & join

Item		Inspection criteria		
Defect distance	Bright dots	5 mm or more		
	Black dots	5 mm or more		
Joined dots	Bright dots (2 dots join)	1 bright dot count		
	Black dots (2 dots join)	1 black dot count		
	3 dots or more	Not allowed		

10. Display non-uniformity

There should be no distinct non-uniformity visible through 2% transparency of filter.

11. Afterimage

The afterimage should be disappeared within 10 seconds when switching to pattern B after displaying pattern A for 30 minutes.



pattern A

* environmental conditions Room temperature : 25 °C / Humidity : 60 %RH

12. Others

If some problems arise about mentioned items in this document and other items, the user of the TFT-LCD module and Sharp will cooperate and make efforts to solve the problems with mutual respect and good will.