HOT DISPLAY
LCM Finished product inspection standards-Level C

1.0 Purpose:

To ensure that the products produced by the company meet the requirements of the final design and customers, provide a basis for product testing, and ensure product quality.

2.0 Scope:

This standard applies to the appearance and electrical inspection process of the LCM finished products produced by the company, including production self-inspection, IPQC and QA sampling
inspection.

3.0 Responsibilities and authorities:

3.1 Self-inspector: Responsible for conducting a full inspection of the LCM finished products according to this standard and distinguishing between qualified and unqualified products, and clearly marking the bad phenomena.

3.2 IPQC: Responsible for sampling and confirming the semi-finished products and finished products (qualified products, unqualified products) in the manufacturing process according to this standard.

3.3 QA: Responsible for sampling and checking the LCM finished products before warehousing and shipment according to this standard and determining the results.

4.0 Definition:

4.1 Major defects (MA): Defects that affect product functions and characteristics, or affect customer assembly, such as high current, no display, no conversion, missing strokes, multiple strokes, ghosting, chaotic program, uneven background color, double images, missing processing and other undesirable phenomena.

4.2 Minor defects (MI): Defects that have a certain impact on product appearance but do not affect product functions and characteristics and customer

assembly,
such as scratches, top injuries, internal contamination, fingerprints, bubbles, black spots and other undesirable phenomena.

5.0 Inspection standards:

5.1 Inspection conditions:

5.1.1 Under a 40W fluorescent lamp, maintain a visual distance of 30cm for inspection.

5.1.2 Select and prepare supporting testing equipment according to different models of LCM finished products, such as electric measuring machines, test racks, etc.

5.1.3 Adjust the corresponding test parameters according to the LCM product finalization data.

5.2 Basic inspection principles:

5.2.1 The appearance size, specifications and models of the module shall comply with the requirements of the finalized data. In principle, no defects are allowed in the LCM finished product.

5.2.2 Defects that cannot be described in words shall be judged based on the samples accepted by the customer.

5.2.3 The defects of material parts on the finished product shall be judged based on the "Incoming Material Inspection Standard".

5.2.4 This standard may be appropriately supplemented or modified according to customer requirements.

6.0 Inspection procedure: According to different requirements, it is divided into three levels of inspection standards: A, B, and C. This standard is the C level inspection standard.

NO	Material	Test items
6.1	**LCD screen**	For details, please refer to "LCD Defective Phenomenon Detection Details (Class C)"
6.2	**Metal frame**	**6.2.1** The iron frame surface must not be rusty. **6.2.2** If the coating peels off or the leakage is greater than 1.0mm2, it will be rejected. **6.2.3** The iron frame twist feet must be tightly buckled on the COB board, with a gap of ≤1.0mm, and the twist angle must be 450 ~500 degrees with the COB edge.
		6.3.1 COB sealant shall not expose gold or bond wire, and the sealant height shall not exceed the height specified in the "Standardized Data". The sealant shall not exceed 2.0mm outside the silk screen circle.

6.3	**COB**	**6.3.2** COB sealant shall not be stained on the welding area, conductive electrode, via and gold finger. **6.3.3** The welding of sheet (plug-in) components must be neat, and the silk screen may be slightly defective, but it can be identified and accepted. The components are not damaged, and the surface paint is allowed to be slightly damaged and fall off, not exceeding 1/3 of itself, and the silk screen is still clearly recognizable. The welding slope of sheet components shall not exceed 1/2 of the pad. **6.3.4** Components on COB shall not be missed, under-welded, wrongly welded, or over-welded; there shall be no poor welding phenomena such as false welding, false welding, and cold welding. The solder joints shall be uniform and bright, and no tin beads, tin tips, tin slag, residues, etc. are allowed, and the vias shall not be blocked by tin slag. **6.3.5** The exposed gold part (pad) of the gold finger that does not need to be soldered has a uniform gold plating layer, bright color, no missing plating, and no oxidation. **6.3.6** The green oil coating is uniform and smooth. Not on the trace, the maximum length of green oil shedding is ≤5.0mm.
6.4	**Backlight**	**6.4.1** The backlight should be close to the COB, with a gap of ≤1.0mm. After power is turned on, the backlight should emit light evenly without any different colors (distinguishable by the naked eye at 20cm). The current should meet the requirements of the standard data, and the welding quality should meet the welding standards.
6.5	**PIN**	**6.5.1** The shape and size of the pins are consistent with the "Standardized Data", the pins are arranged neatly, without deviation, looseness, bending, deformation, and the plastic body has no cracks, melting, falling off, and no poor welding. **6.5.2** The surface of the pins is uneven and oxidation or other attachments are not allowed. The drop size between the pins is ±0.5mm, and the inclination angle should be <20°.
6.6	**FPC**	**6.6.1** FPC and FFC must not be of the wrong model, must not be oxidized, and must not have tin beads, glue, ACF and other adhesive foreign matter at the welding or plug-in places. **6.6.2** The FPC, FFC and COB electrodes must be aligned neatly, without short circuits, and the misalignment must be within 1/3 of the electrode spacing. The welding must be tight and must not be lifted. The cable must not be burned or damaged. **6.6.3** TCP/FPC/COF silicone should cover the LCD steps and be full and uniform. **6.6.4** The gold (zinc) plated parts of FPC and FFC must be ≤0.5mm for crushing, particles, and debris, and the welding ends must not be scorched; No cracks between the wiring and the substrate, etc.
6.7	**Conductive tape**	**6.7.1** The conductive rubber strip must not be used with the wrong model, and must not fall over after assembly. Its skew angle is less than 200 and must not be exposed outside the iron frame.
6.8	**Label**	**6.8.1** The size, position, text, date, and batch number of the label on the back of the LCM must be correct, and the

		handwriting must be clear and evenly thick and thin. No label should be missing.

7.0 Electrical test of finished module

7.1 Determination of qualified products

When the full display and sub-display are displayed, the characters are complete and clear, without any display defects; the current value, LCD viewing angle direction and display program

must meet the requirements of the standard data, and there is no mixed color or foreign matter in the display window.

7.2 Determination of unqualified products

Any product with high current, no display, no conversion, missing strokes, multiple strokes, chaotic program, poor etching, ghosting, short circuit, open circuit, etc. or exceeding customer requirements and sample requirements will be judged as a defective product and rejected.

8.0 Finished product packaging standards:

8.1 Single product packaging is strictly packaged according to the standard data or specified requirements. When the product is packaged, its protective film shall not be lifted, skewed, or

fall off.

8.2 Foam boxes and foam board blister trays shall not be damaged, dirty, deformed or have severe yellow spots. The quantity of each turn or each box, each layer,

each box shall be uniform, and no more or less (except for the last number boxes) shall be put.

8.3 The packaging cartons should not be seriously damaged, and the printed patterns and words on the surface should be beautiful and clear, not blurred. The specifications and models of the packaging cartons of each product should be unified, and the printed patterns and materials should be unified. When sealing the cartons, use sealing tape as required. The tape should not cover the printed patterns and words on the cartons. The sealing should be neat, tight, reliable and beautiful.

8.4 For the packaging of LCD products with hot-pressed paper, the LCDs should be placed in the same order in the foam box, and the hot-pressed paper should not be bent by the foam strips. Each box should be squeezed tightly after packaging, and there should be no looseness. After packaging, it should be checked by turning it upside down and patting it. When the customer has requirements for packaging, it should be packaged according to the customer's requirements and actual conditions.

9.0 Reliability test standards:

All or part of the qualified products that have passed the finished product inspection will be subjected to reliability testing. The reliability test conditions can be determined according to the characteristic parameters of each module. If the customer has special requirements, it will be determined according to the

customer's requirements.

10.0 QA Shipping Sampling Inspection Standards:

10.1 This standard is based on the national standard GB2828-87 "Batch Inspection Count Sampling Procedure and Sampling Table" and uses a normal one-time sampling plan to conduct module finished product shipment inspection. The inspection level is usually the general level II, unless the customer has special requirements.

Qualified quality level AQL value regulations.

Module Level	AQL	
	MA	MI
Level A	0.4	1.0
Level B	0.65	1.5
Level C	1.0	2.5

*The sample size is determined based on the batch size and inspection level, and the sample size code is determined through the "sample size code table".

10.2 Sampling plan: According to the sample size code and AQL value, the sampling plan is found through the "normal inspection one-time sampling plan" That is (n/AC Re)

n——sample size number AC——qualified judgment number Re——unqualified judgment number

Based on the comparison between the sampling plan and the sampling inspection results, determine whether the batch of products is qualified. If qualified, they will be shipped. If unqualified, they will be returned to the production line for rework.