

HITULCD

Industrial Bar LCD Display

Temperature Performance Benchmark & Engineering Verification Reference

Industry reference review | -30°C to $+80^{\circ}\text{C}$ temperature range

DOCUMENT STATUS: INDUSTRY BENCHMARK — NOT A HITULCD TEST REPORT

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Purpose

This document reviews publicly available temperature specifications and environmental-test statements from selected display manufacturers. It provides context for evaluating a proposed -30°C to $+80^{\circ}\text{C}$ operating-temperature claim and for planning model-specific verification. It does not certify, test, or establish the performance of any HITULCD product.

1. Executive Summary

Public manufacturer documentation shows that wide-temperature LCD products are available in several categories. The reviewed examples include modules rated at -30°C to $+80^{\circ}\text{C}$, modules rated at -30°C to $+85^{\circ}\text{C}$, and industrial display products with narrower operating ranges such as -20°C to $+70^{\circ}\text{C}$. These specifications are not directly interchangeable: some refer to bare LCD modules, others to complete industrial monitors, and product-specific conditions may differ.

For HITULCD, the appropriate next step is to treat -30°C to $+80^{\circ}\text{C}$ as a declared specification only where supported by the exact panel, backlight, driver, power and mechanical configuration. A model-specific internal verification or third-party test should document the tested sample, operating state, stabilization, duration, data and acceptance criteria.

Key conclusion: competitor specifications establish market context, not proof that HITULCD has achieved the same range.

2. Publicly Available Industry Reference Data

Manufacturer / source	Product type / example	Published temperature information	Interpretation
Kingtech	7.0-inch IPS TFT module, PV07072H0540Z	Operating: -30°C to $+85^{\circ}\text{C}$	Module-level published spec; not a HITULCD test.
AZ Displays	AQM2416D graphic LCD module	Operating: -30°C to $+80^{\circ}\text{C}$; page also describes $85^{\circ}\text{C}/85\%\text{RH}$, 1,000 h reliability condition	Specific module and stated reliability condition; do not generalize to all products.
RONEN / ODM LCD	RG-T080BXEWA-01, 8.0-inch IPS TFT	Operating: -30°C to $+80^{\circ}\text{C}$	Published product specification; verify exact datasheet and revision before quoting.
Litemax	0708-T industrial LCD	Operating: -20°C to $+70^{\circ}\text{C}$; storage: -30°C to $+80^{\circ}\text{C}$	Illustrates why operating and storage ranges must be separated.
Topway	LMT020EAAFWA, 2.0-inch LCD module	Operating: -20°C to $+70^{\circ}\text{C}$; storage: -30°C to $+80^{\circ}\text{C}$	Manual notes display-quality characteristics are evaluated at room temperature.
Pacific Display	08200 LCD module specification	Extended operating: -20°C to $+70^{\circ}\text{C}$; extended storage: -30°C to $+80^{\circ}\text{C}$	Storage range is not an operating range.

Benchmark note: listed values are transcribed from public product pages or specifications available at the time of preparation. This is a selected sample, not a statistical survey of the LCD industry. Confirm current revisions directly with each manufacturer before external use.

3. What the Benchmark Does—and Does Not—Show

What it shows

- Wide-temperature LCD specifications exist in the market, including -30°C to $+80^{\circ}\text{C}$ and -30°C to $+85^{\circ}\text{C}$ examples.
- Operating temperature, storage temperature, and reliability-test conditions are distinct specification categories.
- Temperature claims are product-specific and may include conditions such as non-condensing operation or room-temperature optical evaluation.

What it does not show

- It does not demonstrate that a HITULCD bar LCD sample operated at -30°C or $+80^{\circ}\text{C}$.
- It does not establish cold-start capability, continuous operating duration, lifetime, temperature cycling performance, or performance across every size and configuration.
- It does not establish compliance with IEC 60068 or any certification unless HITULCD conducts and documents the relevant test.

4. Recommended HITULCD Verification Plan

Test item	Minimum documentation to define before testing
Sample identity	Exact model, size, resolution, panel part number, backlight, driver board, power supply, hardware revision and serial/sample ID.
Low-temperature operation	Target –30°C; define stabilization method, powered/unpowered state, cold-start requirement, dwell duration, signal, voltage and pass/fail criteria.
High-temperature operation	Target +80°C; define stabilization, continuous operation duration, signal, supply, chamber/sample temperature monitoring and pass/fail criteria.
Functional monitoring	Record startup, image stability, flicker, lines, black screen, freezing, backlight behavior and any resets or alarms.
Recovery inspection	Return to controlled room conditions; inspect appearance and repeat functional checks.
Evidence retention	Raw temperature logger file, chamber calibration status, photos, unedited video, test sheet, deviations, reviewer and report revision.

5. Suggested Claim Language for HITULCD

Before product-specific testing:

“Specified operating temperature: –30°C to +80°C. Temperature performance is configuration-dependent; model-specific verification records are available upon request where completed.”

After documented internal verification (only if results support it):

“HITULCD internally verified [model / hardware revision] under the documented test conditions at –30°C and +80°C. The verification applies only to the tested configuration and conditions. This is an internal engineering record, not a third-party certification.”

Do not use “tested,” “verified,” “passed,” “certified,” or “IEC compliant” for a model unless the supporting evidence exists and the wording accurately reflects the test scope.