



DISPLAY DEFINITION

Custom LCD Specification Framework

Public framework for defining a custom LCD module without exposing project-specific drawings or approval fields.

Application End product, environment, duty profile and user	Display Technology, content, active area, viewing mode and direction
Backlight Color, brightness intent, drive and optical stack	Control document Approved project drawing and specification

This framework replaces a specific customer drawing. Dimensions and performance values belong in the controlled project specification.

1. General Characteristics

Specification item	Definition required
Display content	Resolution, segments, icons, colors and update behavior
Active / viewing area	Size, location and relationship to the enclosure aperture
Viewing mode	Transmissive, reflective or transfective application intent
Viewing direction	Preferred orientation and acceptable viewing cone
Operating profile	Hours, duty cycle, storage and expected service conditions
Regulatory needs	Market and product-specific material or compliance requirements

2. Optical Definition

Optical item	Definition required
Brightness	Test pattern, current, temperature and viewing direction
Uniformity	Measurement points, calculation and acceptance method
Contrast	Ambient condition, backlight state and display pattern
Color	Target, tolerance, white point and measurement method
Response	Transition definition, temperature and timing convention



ELECTRICAL AND INTERFACE

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3. Electrical Requirements

Electrical item	Definition required
Power rails	Voltage ranges, sequencing, inrush and normal operating modes
Logic interface	Controller, protocol, data width and signal levels
Timing	Clock, sync, frame rate, polarity and tolerances
Backlight drive	Current, dimming method, channels and protection assumptions
Low-power behavior	Sleep, standby, wake and retained state
System immunity	Grounding, ESD and application-specific EMC targets

4. Connector and Pinout

Interface item	Required content
Connector	Part family, contact count, pitch and mating orientation
Pin assignment	Signal names, power, grounds and unused-pin treatment
FPC	Exit side, length, bend path, stiffener and contact finish
Service	Insertion space, retention, replacement and handling constraints

Controller initialization, timing and pinout must be approved together.



MECHANICAL AND QUALITY

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5. Mechanical Drawing

Mechanical item	Definition required
Datums	Reference edges or holes for active-area and connector location
Outline	Width, height, thickness, local protrusions and flatness needs
Mounting	Supports, fasteners, adhesive, gasket and clamp restrictions
Cover lens	Opening, gap, bonding intent and bezel overlap
Protection	Films, handling surfaces and assembly sequence

6. Qualification and Production

Control	Project definition
Environment	Operating, storage, humidity and cycling profiles
Mechanical	Shock, vibration, handling and connector durability
Cosmetic	Inspection zones, conditions, defect classes and limit samples
Production test	Patterns, electrical checks, backlight and interface test
Packaging	Protection, trays, ESD or moisture controls and labeling

7. Release Package

- Approved specification and dimensioned drawing.
- Pinout, timing definition and initialization information.
- Golden sample or controlled cosmetic references.
- Qualification evidence and production test plan.

One approved revision controls the display, interface and mechanical integration.