

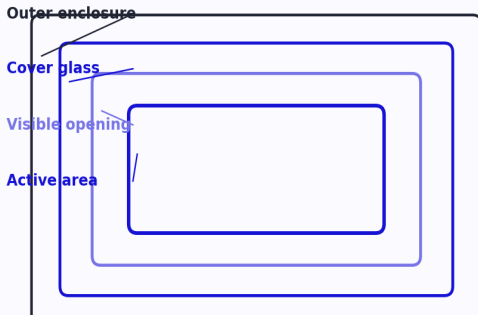
# Engineering Guide to Integrating Curved PCAP Displays into Casino Gaming Cabinets

Cabinet opening, active area, mounting, touch, interfaces, LED halo and sample validation

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### CABINET FIT VARIABLES

Confirm geometry and interfaces before cabinet production.



Mounting


Connector clearance

Touch & glass

### DISPLAY GEOMETRY


C-Curve, J-Curve and flat profiles require different cabinet interfaces.

**C-Curve**




Continuous symmetrical curve

**J-Curve**



Straight section with lower hook

**Flat**



Straight profile

Conceptual only - use approved model-specific 2D/3D drawings.

Prepared for gaming equipment manufacturers, cabinet developers and system integrators.

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## Executive Summary

A practical framework for selecting and validating display assemblies before cabinet production

Casino gaming display integration is not only a screen-selection task. The display diagonal, curvature, active area, cover glass, visible opening, mounting references, interface direction and rear clearance form one mechanical and electrical system. A mismatch in any one item can delay the sample stage or require cabinet rework.

This guide explains the information that should be confirmed before a curved PCAP display is released for cabinet testing. It is intended for early engineering review and project communication. Final dimensions and production requirements must always be controlled through model-specific drawings and customer-approved project documents.

### Key principle

Use general guides to select the right display family, model datasheets to confirm the product configuration, and accurate 2D/3D interface drawings to approve cabinet fit.

## Typical ClaraTech Project Scope

Display family	Typical sizes	Common options	Project note
C-Curve	32 / 43 / 49 / 55 in.	FHD / 2K / 4K, PCAP, optional halo	Standard 1500R; special curvature by review
J-Curve	32 / 43 / 49 / 55 in.	4K, PCAP, optional halo	Profile and orientation must match cabinet geometry
Vertical / Flat	21.5-55 in.	FHD / 2K / 4K, PCAP, optional LED halo	Suitable for vertical and auxiliary display positions
Project options	Model-dependent	350-1500 cd/m <sup>2</sup> , HDMI 2.0, DP 1.4, USB HID, RS232	Final availability depends on the selected model and BOM

Note: The table above is a project-selection overview, not a guarantee that every option is available in every size.

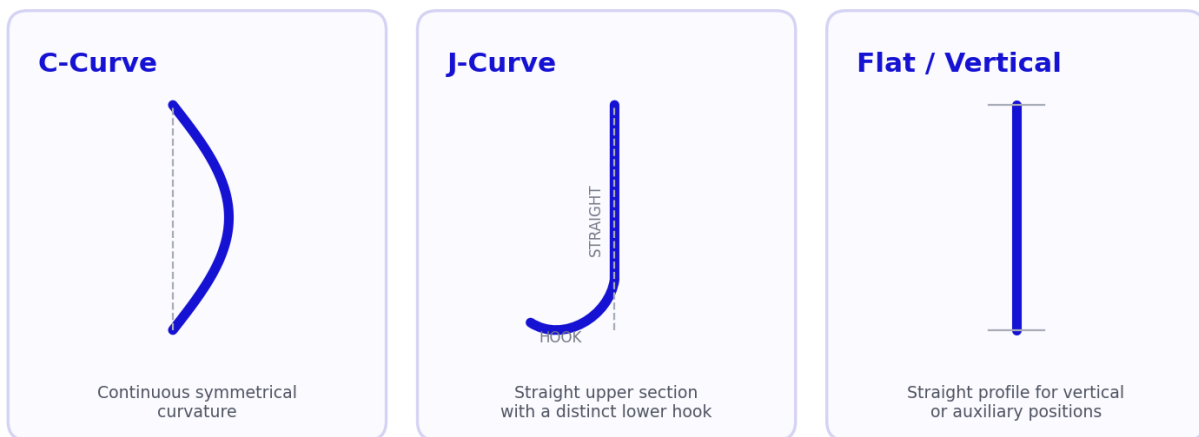
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## Select Geometry Before Finalizing the Cabinet Opening

C-Curve, J-Curve and flat displays create different visible profiles and different cabinet interfaces. Two displays with the same diagonal size can have different active-area dimensions, outer glass sizes, depths and mounting references. The selected geometry should therefore be reviewed together with the cabinet front design, not after the opening has already been released for production.

### DISPLAY SIDE PROFILES

The profile shape and installation orientation must be confirmed against the cabinet drawing.



*Conceptual profiles only. Curvature, orientation, glass, mounting and housing must be confirmed by model.*

Figure 1. Conceptual display profiles. The drawing explains geometry only and is not a production drawing.

- Confirm whether the curve is symmetrical or asymmetrical and define the installation orientation.
- Confirm the curvature radius and the datum used to measure the profile.
- Check the visible opening along the complete curved edge, not only at the center point.
- Reserve space for the cover glass, front frame and any LED halo assembly.
- Review rear enclosure depth and interface direction before cabinet tooling is finalized.

#### Avoid this shortcut

**Do not approve a cabinet opening based only on a marketing size such as 49-inch or 55-inch. Use the exact active-area, glass, enclosure and mounting data for the selected model.**

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## Control the Dimension Chain

The cabinet opening, panel active area, cover glass and outer enclosure serve different functions. Treating them as interchangeable is one of the most common causes of exposed inactive borders, blocked image area, poor bezel overlap or mechanical interference.

### CONTROL THE DIMENSION CHAIN

Each dimension serves a different function and must not be substituted for another.

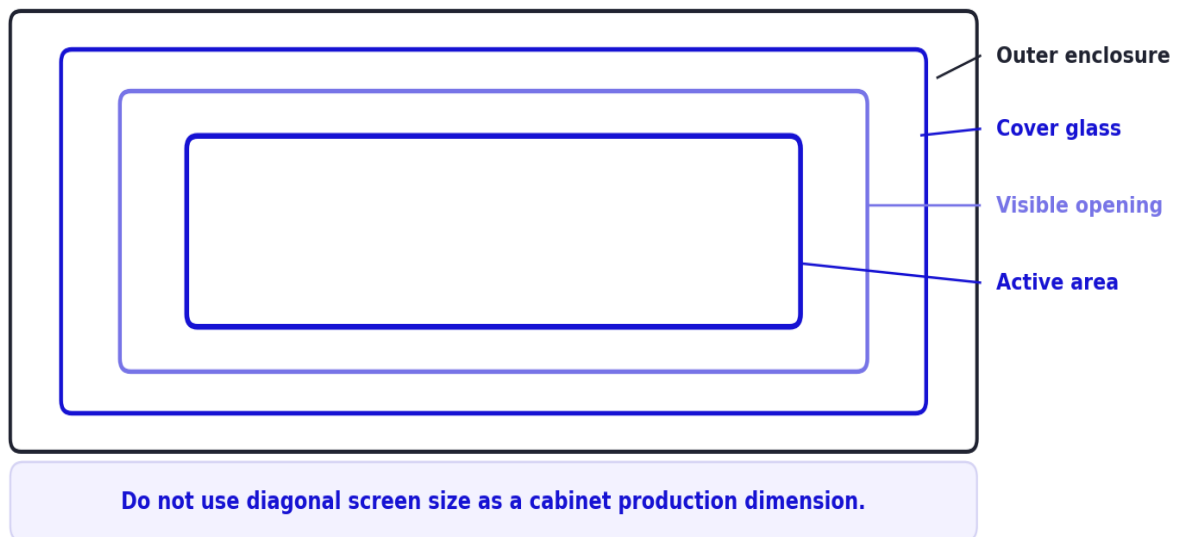


Figure 2. Relationship between the enclosure, cover glass, visible opening and active area.

### Minimum dimensions to confirm

- Overall display assembly width, height and maximum depth.
- Panel active-area width and height.
- Cover-glass width, height, thickness and edge treatment.
- Recommended visible opening and allowable bezel overlap.
- Mounting hole coordinates, thread or hole size, and mounting datum.
- Connector projection and minimum cable insertion / bend clearance.
- Tolerance on dimensions that directly affect cabinet fit.

#### Drawing control

**A public white paper may use conceptual diagrams. A cabinet fit review must use an accurate model-specific mechanical interface drawing. Volume production must use the approved drawing revision.**

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## Mechanical, Glass and Thermal Integration

The display assembly is influenced by the cabinet front frame, touch glass, bonding or air-gap structure, LCD module, backlight and rear enclosure. Any change in glass thickness, touch structure, halo layout, mounting bracket or controller position may change the overall envelope or interface location.

### MECHANICAL, GLASS AND THERMAL INTERFACE

Review the complete stack and the surrounding cabinet space as one assembly.

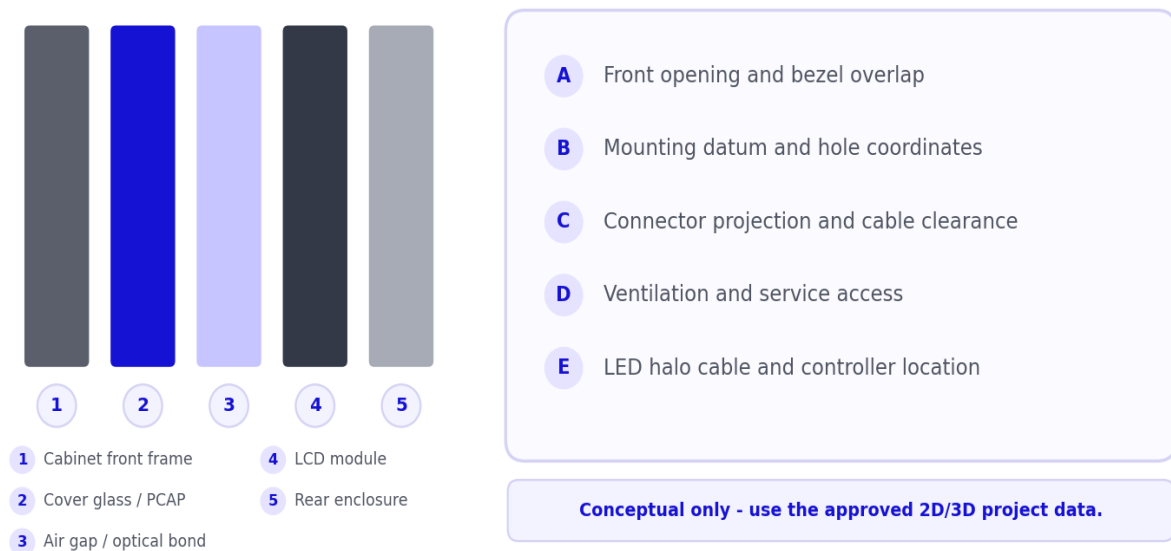


Figure 3. Conceptual front-stack and the cabinet interface items that require project review.

### Mechanical review points

- Front mounting, rear mounting or side-bracket method.
- Cabinet frame overlap around the complete curved perimeter.
- Service access for video, touch, power and halo connections.
- Cable bend radius and strain relief, especially near curved edges.
- Ventilation path and clearance around the backlight and controller enclosure.
- Handling and transport protection for curved cover glass.

### Glass and touch considerations

- Cover-glass thickness, surface finish and impact requirement must match the final touch configuration.
- Air-gap and optical-bonding designs should be evaluated with the front-frame structure and image-quality target.
- Touch performance should be checked after installation in the final grounded cabinet, not only on an open bench.

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## PCAP Touch, Video, Power and LED Halo

Electrical compatibility should be frozen together with the mechanical design. A display may fit the cabinet but still fail project validation if the host signal, EDID, touch interface, grounding, cable length, power capacity or halo control method is not confirmed.

### Display and Touch

- Required resolution and refresh rate
- HDMI / DisplayPort version
- EDID and host-system compatibility
- USB HID touch interface
- Grounding and EMC environment
- Touch accuracy at curved edges
- OS and application validation

### Power and LED Halo

- Input voltage and power architecture
- Typical and maximum consumption
- Halo supply and control interface
- Addressable RGB zoning requirement
- Controller and cable location
- Full-output thermal condition
- Startup, shutdown and default behavior

## Recommended confirmation statement

### Model-dependent configuration

Final resolution, brightness, interface, PCAP controller, cover glass, LED halo and compliance documentation are subject to the selected model and approved project BOM.

## Why cabinet-level testing matters

Metal structure, grounding, nearby power supplies, long cables, decorative lighting and software settings can change touch or signal behavior. The final acceptance test should therefore be completed inside the intended cabinet with the actual host system, power supply and cable routing.

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## Validate the Sample Before Freezing Volume Production

A controlled sample process reduces the risk of producing a mechanically correct display with the wrong interface, brightness, touch behavior, glass structure or LED configuration. Each stage should create a record that can be referenced by engineering, purchasing and quality teams.

### RECOMMENDED SAMPLE-TO-PRODUCTION WORKFLOW

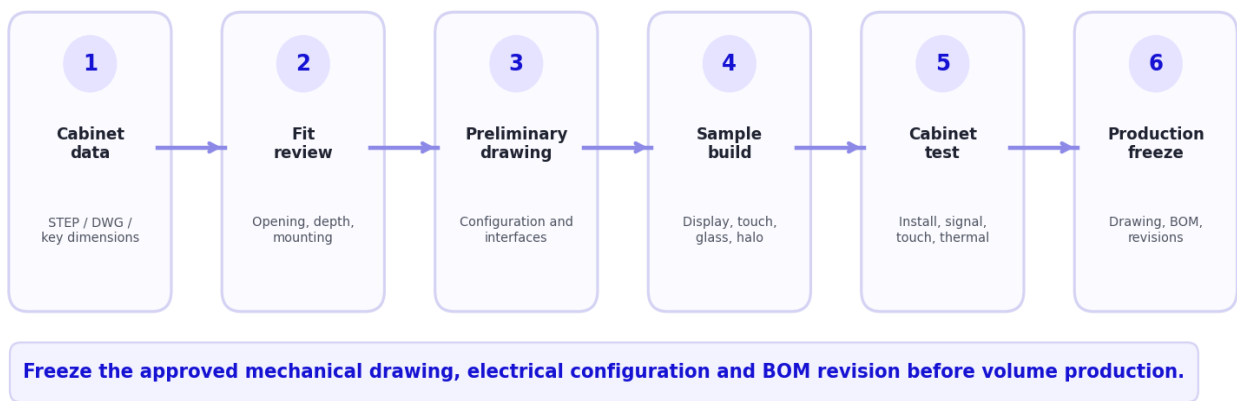


Figure 4. Recommended review and approval workflow.

### Sample validation checklist

Category	Check items	Approval evidence
Mechanical	opening, bezel overlap, depth, holes, connector access	approved fit review / drawing
Display	resolution, brightness, image area, color and uniformity	sample test record
Touch	accuracy, edge response, grounding and OS behavior	cabinet-level touch test
Interfaces	video, USB, RS232 / OSD and cable direction	host-system compatibility result
LED halo	control, power, zones, effects and thermal condition	halo function test
Reliability	burn-in, visual inspection, packaging and transport	inspection report
<b>Production freeze</b> <b>Record the approved model, drawing revision, BOM revision, firmware, touch controller, glass, interface board, halo controller, cable set and packaging before placing a repeat or volume order.</b>		

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## Cabinet Fit Review Information Checklist

Providing the following information at the beginning of a project allows the display and cabinet interfaces to be reviewed more efficiently. A complete STEP or DWG file is preferred, but key dimensions can be used for an initial review.

No.	Information required	What to provide
1	Cabinet geometry	STEP / DWG file, front profile, opening dimensions and available internal envelope
2	Display position	main display, top box, vertical display or auxiliary position
3	Target size and shape	screen size, C-Curve / J-Curve / flat, orientation and curvature
4	Image requirement	resolution, refresh rate, brightness and viewing environment
5	Mounting	mounting method, hole references, bezel overlap and service access
6	Touch and glass	PCAP requirement, glass thickness / finish, bonding preference and operating system
7	Interfaces	video input, touch USB, RS232 / OSD, connector direction and cable length
8	LED halo	lighting area, zoning, control protocol, power and cable outlet
9	Power and environment	input power, cabinet grounding, ventilation and operating temperature
10	Project plan	sample quantity, target test date, estimated production volume and certification needs

### Send cabinet data for an initial fit review

ClaraTech can review cabinet opening, active area, mounting space, connector direction, touch integration and LED halo requirements before a sample configuration is confirmed.

### Request a Sample Quote or Cabinet Fit Review

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**Document notice:** This guide provides general engineering information. Illustrations are conceptual and must not be used for cabinet manufacturing. Final specifications, certifications and drawings are model- and project-dependent.