# SEMI E110-1101
# GUIDELINE FOR INDICATOR PLACEMENT ZONE AND SWITCH PLACEMENT VOLUME OF LOAD PORT OPERATION INTERFACE FOR 300 mm LOAD PORTS

This guideline was technically approved by the Global Physical Interfaces and Carriers Committee and is the direct responsibility of the Japanese Physical Interfaces and Carriers Committee. Current edition approved by the Japanese Regional Standards Committee on August 3, 2001. Initially available at www.semi.org September 2001; to be published November 2001.

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## 1 Purpose

1.1 This guideline defines the zones and volumes in which load port status indicators and load port operation switches should be placed. The purpose of this guideline is to give a similarity in the placement of them on a 300 mm load port. This guideline only defines the zones and volumes for them and the exact placement of them within these zone and volumes are at the direction of the load port suppliers.

1.2 The zones or volumes may be defined more precisely by standardization improvement on load port design and good unification of load port operation among device manufactures. This guideline may be improved to be a specification after this effort.

## 2 Scope

2.1 This guideline defines following recommended specifications for 300 mm load port.

- Indicator placement zone in which load port status indicators should be placed.
- Switch placement volume in which load port operation switch should be placed.

2.2 This guideline covers the specifications for both fixed buffer equipment and internal buffer equipment.

2.3 This guideline is intended to set an appropriate level of specification that places minimal limits on innovation while ensuring modularity and inter-changeability at all mechanical interfaces. Only the physical interfaces for the load port are specified; no materials requirements, micro-contamination limits, use of or logic associated with the defined physical features are given in this specification.

2.4 This guideline does not purport to address safety issues, if any, associated with its use. It is the responsibility of the users of this guideline to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

## 3 Referenced Standards

3.1 *SEMI Standards*

SEMI E15 — Specification for Tool Load Port

SEMI E15.1 — Specification for 300 mm Tool Load Port

SEMI E47.1 — Provisional Mechanical Specifications for Boxes and Pods Used to Transport and Store 300mm Wafers

SEMI E57 — Mechanical Specification for Kinematic Couplings Used to Align and Support 300 mm Wafer Carriers

SEMI E87 — Provisional Specification for Carrier Management (CMS)

SEMI E101 — Provisional Guide for EFEM Functional Structure Model

NOTE 1: Unless otherwise indicated, all documents cited shall be the latest published versions.

## 4 Terminology

4.1 *bilateral datum plane* — a vertical plane that bisects the wafers and that is perpendicular to both the horizontal and facial datum planes (as defined in SEMI E57).

4.2 *facial datum plane* — a vertical plane that bisects the wafers and that is parallel to the front side of the carrier (where wafers are removed or inserted). On tool load ports, it is also parallel to the load face plane specified in SEMI E15 on the side of the tool where the carrier is loaded and unloaded (as defined in SEMI E57).

4.3 *fixed buffer equipment* — production equipment that has only fixed load ports and no internal buffer for carrier storage. Substrates are loaded and unloaded directly from the carrier at the load port for processing (as defined in SEMI E87).



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4.4 *horizontal datum plane* — a horizontal plane from which projects the kinematic-coupling pins on which the carrier sits. On tool load ports, it is at the load height specified in SEMI E15 and might not be physically realized as a surface (as defined in SEMI E57).

4.5 *indicator placement zone* — a zone in which load port status indicators are placed.

4.6 *internal buffer equipment* — equipment that uses an internal buffer (as defined in SEMI E87).

4.7 *load port operation interface* — any indicator (e.g. lamp, LED) to visualize status information of a load port to an operator and/or any switch to be used for manual handoff operation.

4.8 *load port operation switch* — any switch to be used for manual handoff operation.

4.9 *load port status indicator* — any indicator (e.g. lamp, LED) to visualize status information of a load port to an operator.

4.10 *switch placement volume* — a volume in which load port operation switch is placed.

## 5 Requirements

5.1 *Indicator placement zone*

5.1.1 *Indicator Placement Zone for a Load Port per SEMI E15.1 Option 1* — It is recommended that load port status indicators should be positioned within a zone given by x400, z400, and z401. The exact placement of them within this zone is at the direction of the load port supplier. They may be located at or behind (away from the operator) the equipment boundary. Clearances required by SEMI E15.1 cannot be violated.

NOTE 2: The indicator placement zone is not an exclusion zone. No assumption can be made that this zone needs to be kept empty by the load port supplier. Furthermore, no assumption can be made that a load port must have a physical surface representing the indicator placement zone.

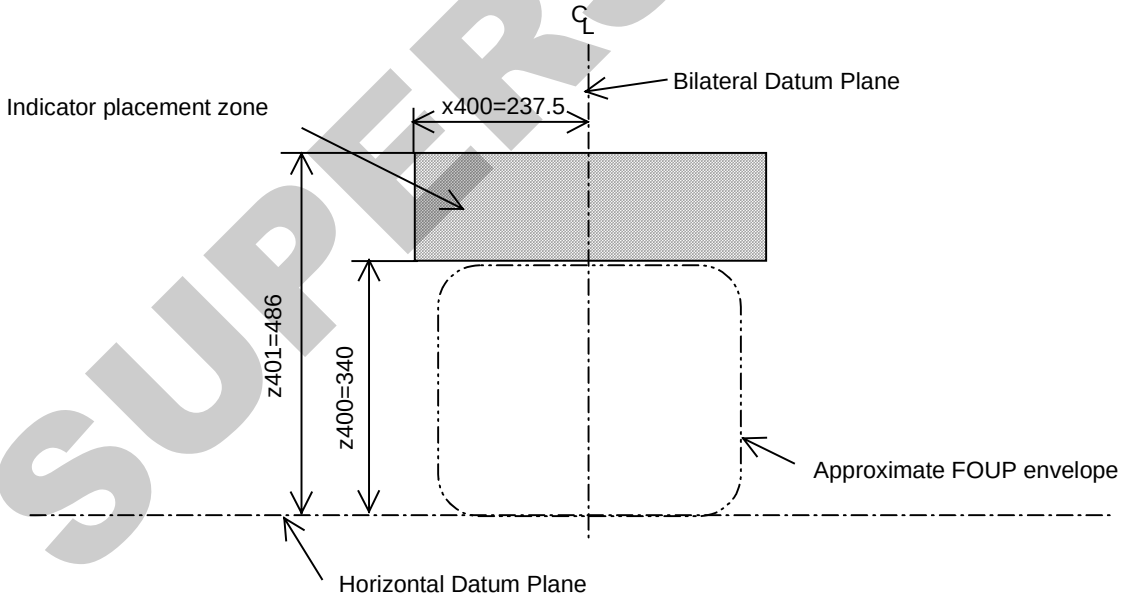


**Figure 1**
**Indicator placement zone for a load port per SEMI E15.1 Option 1**

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