

SEMI E110-1102 (Reapproved 0709) GUIDELINE FOR INDICATOR PLACEMENT ZONE AND SWITCH PLACEMENT VOLUME OF LOAD PORT OPERATION INTERFACE FOR 300 mm LOAD PORTS

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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 interchangeability 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.

NOTICE: SEMI Standards and Safety Guidelines do not purport to address all safety issues associated with their use. It is the responsibility of the users of the Documents to establish appropriate safety and health practices, and determine the applicability of regulatory or other limitations prior to use.

3 Referenced Standards and Documents

3.1 SEMI Standards and Safety Guidelines

SEMI E15 — Specification for Tool Load Port

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

SEMI E47.1 — Mechanical Specification for FOUPS Used to Transport and Store 300 mm Wafers

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

SEMI E87 — Specification for Carrier Management (CMS)

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

4 Terminology

4.1 Definitions

4.1.1 *bilateral datum plane* — a vertical plane that bisects the wafers and that is perpendicular to both the horizontal and facial datum planes. [SEMI E57]

4.1.2 *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. [SEMI E57]

4.1.3 *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. [SEMI E87]

4.1.4 *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. [SEMI E57]

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

4.1.6 *internal buffer equipment* — equipment that uses an internal buffer. [SEMI E87]

4.1.7 *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.

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

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

4.1.10 *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 1: 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.