

SEMI E189.1-0524

SPECIFICATION FOR SECS-II PROTOCOL FOR EQUIPMENT MANAGEMENT OF CONSUMABLES AND DURABLES (EMCD)

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NOTICE: Paragraphs entitled ‘NOTE:’ are not an official part of this Standard or Safety Guideline and are not intended to modify or supersede the official Standard or Safety Guideline. These have been supplied by the global technical committee to enhance the usage of the Standard or Safety Guideline.

1 Purpose

1.1 This Specification maps the services and data of the SEMI E189, Specification for Equipment Management of Consumables and Durables, to the SECS-II Standard.

NOTE 1: The Information & Control Technical Committee is developing an Equipment Management Specification to be used in conjunction with this Standard.

2 Scope

2.1 This Specification covers Equipment Management of Consumables and Durables (EMCD).

2.2 This Specification applies to all equipment implementations of SEMI E189, Specification for Equipment Management of Consumables and Durables.

2.3 Compliance to this Specification implies conformance to SEMI E30 and SEMI E5.

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 Limitations

3.1 This Specification applies to equipment implementing the GEM Standard, SEMI E30.

4 Referenced Standards and Documents

4.1 SEMI Standards and Safety Guidelines

SEMI E5 — Specification for SEMI Equipment Communications Standard 2 Message Content (SECS-II)

SEMI E30 — Specification for the Generic Model for Communications and Control of Manufacturing Equipment (GEM)

SEMI E39 — Specification for Object Services: Concepts, Behavior, and Services

SEMI E39.1 — Specification for SECS-II Protocol for Object Services (OSS)

SEMI E189 — Specification for Equipment Management of Consumables and Durables

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

5 Terminology

5.1 Abbreviations and Acronyms

5.1.1 EMCD — Equipment Management of Consumables and Durables

6 Conventions

6.1 Requirements Identification

6.1.1 The following notation specifies the structure of requirement identifiers.

6.1.1.1 The following requirements prefix format is used at the beginning of requirement text. Refer to Table 1 for the format notation of the requirements prefix.

- [Esss.ss-RQ-nnnnnn-nn]

6.1.1.2 To mark the end of the requirement text the following suffix format is used.

- [/RQ]

6.1.1.3 Requirements in the body text are highlighted with a border and light green background (may appear gray in black and white printouts).

[Esss.ss-RQ-nnnnnn-nn] Requirement text. [/RQ]

Table 1 Requirement Identifiers

<i>Format Notation</i>	<i>Purpose</i>
Esss.ss	SEMI Standards Specification identifier. Examples: E087.00, E087.01, E134.00.
RQ	Indicates this is a requirement identifier.
Nnnnn	Unique five-digit number within this Specification. 90000–99999 are reserved for use by SEMI.
.nn	Two-digit number that indicates version level of the requirement (.00 is used for the first version of a requirement).
/RQ	Indicates the end of a requirement.

6.1.2 Requirements in tables are delimited in one of two ways.

6.1.2.1 Where the requirement occupies an entire row in the table, the requirement ID is placed in column 1. No ‘[/RQ]’ is used to mark the end of the requirements text in this case. The table may also contain rows that are not requirements. In this case, the column 1 cell is left blank.

6.1.2.2 Nonrequirements text related to a requirements row may be included in an adjacent row. The relationship between the rows is indicated by a broken line separating the two.

6.1.2.3 Where the requirement occupies only one cell, the text in the cell includes the requirement ID prefix and suffix similar to requirements in the body text.

6.1.2.4 No cell in a table will contain both requirement and nonrequirement text.

6.1.2.5 Cells that contain requirements are shaded light green.

6.1.2.6 Table 2 provides an example of requirements in a table. Note that in this example, the same requirement is presented in two alternative formats. In practice, mixing the two approaches in the same table is not typically done.

Table 2 Example Table with Requirements

<i>RequirementID</i>	<i>Statement</i>	<i>Additional Detail</i>
Esss.ss-RQ-nnnnnn-nn	The light shall be blue.	There shall be no similar color in the light panel.
	The blue light is typically placed at the leftmost position in the light panel.	
	[Esss.ss-RQ-nnnnnn-nn] The light shall be blue. There shall be no similar color in the light panel. [/RQ]	The blue light is typically placed at the leftmost position in the light panel.

6.1.3 Only text marked with the requirement identifier is a requirement of this Specification.

6.1.3.1 Clarification, examples, and related recommendations may be provided near a requirement, but are not part of the requirement.

6.1.3.2 Note that the word ‘should’ is used in some nonrequirements text and it denotes a recommendation or a best practice, not a requirement.

6.1.4 Parent-child relationship of requirements are noted in the tables in Appendix 1. Where a parent requirement includes conditions or selection criteria, these are passed to their children. For example, if a parent requirement is stated to apply only to photolithography equipment, any child requirements also apply only to such equipment. The condition need not be restated for each child requirement.

6.2 Naming

6.2.1 The dashes in names of collection events, status variables, states and other items are not considered part of the name but instead indicate a continuation of the name. For example, an item named ‘aPrettyLongAndDescriptive-Name’ would be interpreted as having the name ‘aPrettyLongAndDescriptiveName’.

7 Requirements

7.1 Prerequisites

7.1.1 SECS-II

7.1.1.1 SEMI E5 specifies the SECS-II protocol.

[E189.01-RQ-00001-00] Equipment shall provide an implementation of the SECS-II protocol as specified in SEMI E5. [/RQ]

7.1.2 GEM

7.1.2.1 SEMI E30 specifies the GEM standard.

[E189.01-RQ-00002-00] Equipment shall provide an implementation of the GEM standard as specified in SEMI E30. [/RQ]

7.1.3 EMCD

7.1.3.1 SEMI E189 specifies the Management of Consumables and Durables standard.

[E189.01-RQ-00003-00] Equipment shall provide an implementation of the SEMI E189 Standard. [/RQ]

7.2 Consumables

7.2.1 Mapping of Services

[E189.01-RQ-01001-00] Equipment shall implement the consumable services using the SECS-II messages as defined in the Table 3 Service Mapping. [/RQ]

7.2.1.1 A summary of the mapping of SECS-II messages to EMCD services.

Table 3 Service Mapping

Service	SECS-II Message	Details
ProceedWithConsumable	S2F41/S2F42 or S2F49/S2F50	RCMD = ‘PROCEEDWITHCONSUMABLE’ Parameter: ObjID If using S2F41 CPNAME = ‘OBJID’ (Format 20) CPVAL = ObjID for the consumable object, Format 20 If using S2F49 OBSPEC = ObjID for the consumable object Parameter: AssignedID If using S2F41

Service	SECS-II Message	Details
		CPNAME = 'ASSIGNEDID' (Format 20) CPVAL = Assigned ID for the consumable object, Format 20 If using S2F49 CPNAME = 'ASSIGNEDID' (Format 20) CEPVAL = Assigned ID for the consumable object, Format 20 Parameter: AttributeList If using S2F41 CPNAME = <attribute name> (Format 20) CPVAL = attribute value for the consumable object, with a Format matching the attribute's Format. If using S2F49 CPNAME = <attribute name> (Format 20) CEPVAL = attribute value for the consumable object, with a Format matching the attribute's Format. Parameter: Acknowledge If using S2F42 or S2F50, use HCACK Parameter: RejectionList If using S2F42, use CPNAME to identify any invalid parameter and CPACK to specify the reason. If using S2F50, use CPNAME to identify any invalid parameter and CEPACK to specify the reason.
CancelConsumable	S2F41/S2F42 and/or S2F49/S2F50	RCMD = 'CANCELCONSUMABLE' (Format 20) Parameter: ObjID If using S2F41 CPNAME = 'OBJID' (Format 20) CPVAL = ObjID for the consumable object, Format 20 If using S2F49 OBSPEC = ObjID for the consumable object Parameter: Acknowledge If using S2F42 or S2F50, use HCACK Parameter: RejectionList If using S2F42, use CPNAME to identify any invalid parameter and CPACK to specify the reason. If using S2F50, use CPNAME to identify any invalid parameter and CEPACK to specify the reason.
ReplaceConsumable	S2F41/S2F42 and/or S2F49/S2F50	RCMD = 'REPLACECONSUMABLE' Parameter: ObjID If using S2F41 CPNAME = 'OBJID' (Format 20) CPVAL = ObjID for the consumable object, Format 20 If using S2F49 OBSPEC = ObjID for the consumable object

Service	SECS-II Message	Details
		Parameter: Require If using S2F41 CPNAME = 'REQUIRE' (Format 20) CPVAL = 'YES' or 'NO' (Format 20) If using S2F49 CPNAME = 'REQUIRE' (Format 20) CEPVAL = 'YES' or 'NO' (Format 20) Parameter: Reason If using S2F41 CPNAME = 'REASON' (Format 20) CPVAL = Reason for the requested transition. (Format 20) If using S2F49 CPNAME = 'REASON' (Format 20) CEPVAL = Reason for the requested transition. (Format 20) Parameter: Acknowledge If using S2F42 or S2F50, use HCACK Parameter: RejectionList If using S2F42, use CPNAME to identify any invalid parameter and CPACK to specify the reason. If using S2F50, use CPNAME to identify any invalid parameter and CEPACK to specify the reason.
RetainConsumable	S2F41/S2F42 and/or S2F49/S2F50	RCMD = 'RETAINCONSUMABLE' Parameter: ObjID If using S2F41 CPNAME = 'OBJID' (Format 20) CPVAL = ObjID for the consumable object, Format 20 If using S2F49 OBJSPEC = ObjID for the consumable object Parameter: Reason If using S2F41 CPNAME = 'REASON' (Format 20) CPVAL = Reason for the requested transition. (Format 20) If using S2F49 CPNAME = 'REASON' (Format 20) CEPVAL = Reason for the requested transition. (Format 20) Parameter: Acknowledge If using S2F42 or S2F50, use HCACK Parameter: RejectionList If using S2F42, use CPNAME to identify any invalid parameter and CPACK to specify the reason. If using S2F50, use CPNAME to identify any invalid parameter and CEPACK to specify the reason.