

SEMI E87.1-0702

PROVISIONAL SPECIFICATION FOR SECS-II PROTOCOL FOR CARRIER MANAGEMENT (CMS)

This provisional specification was technically approved by the Global Information and Control Committee and is the direct responsibility of the North American Information and Control Committee. Current edition approved by the North American Regional Standards Committee on April 30 2002. Initially available at www.semi.org June 2002; to be published July 2002. Originally published February 2000; previously published March 2002.

1 Purpose

1.1 This document maps the services and data of SEMI E87 to SECS-II streams and functions, and data definitions.

2 Scope

2.1 This is a provisional specification covering equipment supporting automated access to load ports from the host point-of-view. The provisional status is required because of the immaturity of implementations of integrated equipment with AMHS, and additional specifications may yet be defined. Also, further exception handling and error recovery scenarios need to be defined.

2.2 This document applies to all implementations of SEMI E87 that use the SECS-II message protocol (SEMI E5). Compliance to this standard requires compliance to both SEMI E87 and SEMI E5.

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

3 Limitations

3.1 This specification applies to semiconductor equipment with SEMI E15.1 compliant load ports. It may also be applied to other manufacturing equipment that supports automated carrier transfer and or contains an internal buffer.

3.2 This is a provisional specification. The following areas must be completed before the provisional status is removed:

- 1) Any additional services, or changes to existing services, in Carrier Management must be mapped to SECS-II messages.

4 Referenced Standards

4.1 SEMI Standards

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

SEMI 15.1 — Provisional Specification for 300 mm Tool Load Port

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

SEMI E87 — Specification for Carrier Management (CMS)

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

5 Services Mapping

5.1 This section shows the specific SECS-II streams and functions that shall be used for SECS-II implementation of the services defined in SEMI E87, as well as the parameter mapping for data attached to services.

5.2 Services Message Mapping

5.2.1 Table 1 defines the relationships between SEMI E87 services and SECS-II messages.

Table 1 Services Message Mapping Table

<i>Service Name</i>	<i>Stream, Function</i>	<i>SECS-II Message Name</i>
Bind	S3,F17/18	Carrier Action Request/Acknowledge
CancelBind	S3,F17/18	Carrier Action Request/Acknowledge
CancelAllCarrierOut	S3,F19/20	Cancel All Carrier Out Request/Acknowledge
CancelCarrier	S3,F17/18	Carrier Action Request/Acknowledge
CancelCarrierAtPort	S3,F17/18	Carrier Action Request/Acknowledge
CancelCarrierNotification	S3,F17/18	Carrier Action Request/Acknowledge
CancelCarrierOut	S3,F17/18	Carrier Action Request/Acknowledge
CancelReservationAtPort	S3,F25/26	Port Action Request/Acknowledge
CarrierIn	S3,F17/18	Carrier Action Request/Acknowledge
CarrierNotification	S3,F17/18	Carrier Action Request/Acknowledge
CarrierOut	S3,F17/18	Carrier Action Request/Acknowledge
CarrierReCreate	S3,F17/18	CarrierReCreate Rquest/Acknowledge
CarrierRelease	S3,F17/18	Carrier Action Request/Acknowledge
CarrierTagReadData	S3,F29/30	Carrier Tag Read Data Request/Acknowledge
CarrierTagWriteData	S3,F31/32	Carrier Tag Write Data Request/Acknowledge
ChangeAccess	S3,F27/28	ChangeAccess
ChangeServiceStatus	S3,F25/26	Port Action Request/Acknowledge
ProceedWithCarrier	S3,F17/18	Carrier Action Request/Acknowledge
ReserveAtPort	S3,F25/26	Port Action Request/Acknowledge

5.3 Services Parameter Mapping

5.3.1 Table 2 maps the SEMI E87 service parameters to SECS-II Data Items.

NOTE 2: Use of parameters not specified for a given message in SEMI E87 is prohibited. SECS-II data items not used for a given message shall be sent as zero-length items.

Table 2 Service Parameters to SECS-II Data Items Mapping

<i>Parameter Name</i>	<i>Range</i>	<i>SECS-II Data Item</i>
AccessMode	Enumerated: MANUAL, AUTO	PORTACCESS
AttributeData	Any	CATTRDATA
AttributeID	Text format restrictions per SEMI E39.1, Section 6.	CATTRID
CarrierID	1 to 80 characters	CARRIERID
CMAcknowledge	Enumerated	CAACK
CMStatus	Structure	L,2 1. <CAACK> 2. Status
Data	ASCII (20)	DATA
DataLength	Integer (Un or Sn)	DATALLENGTH
DataSeg	ASCII (20)	DATASEG
ErrorCode	Enumerated	ERRCODE
ErrorText	1 to 80 characters	ERRTEXT
LocationID	ASCII (20)	LOCID
PropertiesList	Non-identifier properties	L,n 1. L,2 1. <CATTRID ₁ > 2. <CATTRDATA ₁ >

Parameter Name	Range	SECS-II Data Item
		. . n. L,2 1. <CATTRID _n > 2. <CATTRDATA _n >
PortID	U1 (1–255)	PTN
ServiceStatus	Enumerated: IN SERVICE, OUT OF SERVICE	U1 0 = OUT OF SERVICE 1 = IN SERVICE
Status	n errors	L,n 1. L,2 1. <ERRCODE ₁ > 2. <ERRTEXT ₁ > . . n. 1. <ERRCODE _n > 2. <ERRTEXT _n >

5.4 SECS-II Data Items Without Corresponding SEMI E87 Parameters

5.4.1 Table 3 contains the SECS-II data items that do not correspond to SEMI E87's service parameter.

Table 3 Additional Data Item Requirements Table

Function	SECS-II Data Item
Used by S3,F17 to differentiate between Bind, CancelCarrierOut, CancelCarrierAtPort, CancelBind, CarrierIn, ProceedWithCarrier, CancelCarrierNotification CarrierNotification services, and CarrierReCreate.	CARRIERACTION
Used to satisfy SECS-II conventions for linking a multi-block inquiry with a subsequent multi-block message. Neither required nor specified by CMS.	DATAID
Used to inform receiver of total message length size for SECS-II multi-block conventions. May also be used to indicate the length of a section of data being transmitted to or from a carrier tag.	DATALLENGTH
Used to satisfy SECS-II multi-block requirements. Neither required nor specified by SEMI E87.	GRANT
Used by S3,F25 to differentiate between port related, CancelReservationAtPort, and ReserveAtPort services.	PORTACTION
Used by S3F27 to specify desired Port Access Mode.	ACCESSMODE