SEMI E99.1-1104 (Reapproved 0710)
SPECIFICATION FOR SECS-I AND SECS-II PROTOCOL FOR CARRIER ID READER/WRITER FUNCTIONAL STANDARD

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1 Purpose

1.1 This document maps the services and data of the Carrier ID Reader/Writer (CIDRW) standard to SECS-II streams and functions and data definitions.

2 Scope

2.1 This document applies to all implementations of CIDRW that use the SECS-II message protocol (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 Referenced Standards and Documents

3.1 *SEMI Standards*

SEMI E4 — SEMI Equipment Communications Standard 1 Message Transfer (SECS-I)

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

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

4 Terminology

4.1 *Abbreviations and Acronyms*

4.1.1 *CIDRW* — Carrier ID Reader/Writer; represents both the Reader and the Read/Writer.

4.1.2 *SECS* — SEMI Equipment Communications Standard

5 Physical Requirements

5.1 The CIDRW using the SECS-I protocol shall use a 9-pin female connector.

6 Service Message Mapping

6.1 Table 1 shows the specific SECS-II streams and functions that shall be used for SECS-II implementations of the service messages defined in SEMI E99.

6.2 Request and notification messages are mapped to primary (odd-numbered) SECS-II functions and response messages are mapped to secondary (even-numbered) SECS-II functions.

6.2.1 In some cases, a common set of parameters allows more than one service to be mapped to the same stream and function, with an additional SECS-II data item used to differentiate between the two services.

Table 1 Services Mapped to SECS-II Messages

Message Name	*Stream,Function*	*SECS-II Name*
ChangeState	S18,F13/F14	Subsystem Command Request/Acknowledge
Get Attributes	S18,F1/F2	Read Attribute Request/Data
Get Status	S18,F13/F14	Subsystem Command Request/Acknowledge
Perform Diagnostics	S18,F13/F14	Subsystem Command Request/Acknowledge

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Message Name	*Stream,Function*	*SECS-II Name*
Read Data	S18,F5/F6	Read Request/Data
Read ID	S18,F9/F10	Read ID Request/Data
Reset	S18,F13/F14	Subsystem Command Request/Acknowledge
Set Attributes	S18,F3/F4	Write Attribute Request/Acknowledge
Write Data	S18,F7/F8	Write Request/Acknowledge
Write ID	S18,F11/F12	Write ID Request/Acknowledge

7 Service Parameter to Data Item Mapping

7.1 Table 2 shows the mapping between message parameters defined by CIDRW and data items defined by SECS-II. For parameters specified in the definitions of a CIDRW service, either the parameters themselves, or individual elements of complex parameters, map to a specific data item.

Table 2 Service Parameters to Data Item Mapping

Parameter Name	*SECS-II Data Item*	*Format*	*Values*
Attribute ID	ATTRID	20	Name of attribute
Attribute Value	ATTRVAL	20	
Carrier ID	MID	20	20_{16} – $7E_{16}$ (Visible ASCII)
Data	DATA	20	All characters 00H-0FFH
DataSize	DATALENGTH	52	
DataSeg	DATASEG	20	
HeadID	TARGETID	20	00–31 Identifies either an individual head (01–31) or the CIDRW subsystem itself (00).
PM Information	STATUS	20	NE = Normal execution; MR = Maintenance required
Result Status	SSACK	20	NO = Normal operation; EE = Execution error; CE = Communication error; HE = Hardware error; TE = Tag error
Status	List of STATUS	L,4 1. <PMInformation> 2. <AlarmStatus> 3. <OperationalStatus> 4. <HeadStatus>	Current values of PM Information with the corresponding attributes for CIDRW and Head (if applicable). See Tables 4 and 5.
StateRequest	CPVAL	20	OP, MT

#1 There are also data items used in SECS-II messages that do not map to specific services parameters. Services with the same set of parameters are mapped to the same SECS-II message by adding an additional data item to differentiate between the services. Table 3 contains the SECS-II data items that have not a corresponding CIDRW service parameter.

Table 3 Additional Data Requirements Table

SECS-II Data Item	*Function*	*Value*
SSCMD	Used to differentiate between different subsystem commands indicated.	ChangeState GetStatus Perform Diagnostics Reset

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