



Standard Practice for Equipment Control Matrix (ECM)¹

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1. Scope

1.1 This practice describes equipment control classes (ECCs), equipment control levels (ECLs), and their relationships.

1.2 This practice is intended to be applicable and appropriate for all equipment-holding entities.

1.3 This practice covers property categorized as equipment. Equipment as defined in Terminology E2135 is non-expendable, tangible moveable property needed for the performance of a task or useful in effecting an obligation.

1.4 This practice can be applied to an individual item of equipment, to groupings of equipment, or to all or a subset of an entity's equipment.

1.5 In accordance with the provisions of Practice E2279, this practice clarifies and enables effective and efficient control and tracking of equipment.

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

2. Referenced Documents

2.1 ASTM Standards:²

E2135 Terminology for Property and Asset Management

E2279 Practice for Establishing the Guiding Principles of Property Management

E2452 Practice for Equipment Management Process Maturity (EMPM) Model

E2495 Practice for Prioritizing Asset Resources in Acquisition, Utilization, and Disposition

¹ This practice is under the jurisdiction of ASTM Committee E53 on Asset Management and is the direct responsibility of Subcommittee E53.05 on Property Management Maturity.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

3. Terminology

3.1 *Definitions*—For definitions relating to property and asset management, refer to Terminology E2135.

3.1.1 *compliance impact*—a consequence of loss of control characterized by negative compliance with applicable laws, regulations, or other relevant internal or external guidance that does not rise to the level of an operational impact.

3.1.2 *containment*—the level of control characterized by process or electronic methods of assuring equipment items are contained within a designated area.

3.1.3 *continuous control*—real time tracking and control with either human or electronic monitoring and surveillance at all times.

3.1.4 *continuous control while mobile*—real time tracking and control with either human or electronic monitoring and surveillance at any time the equipment is not stationary in a secure, fixed location.

3.1.5 *equipment control classes (ECCs)*—five classifications or groupings of equipment based on the consequences of the loss of control of the equipment.

3.1.6 *equipment control levels (ECLs)*—five levels of control of equipment based on differentiated tracking specifications.

3.1.7 *equipment control matrix (ECM)*—the relationships between the ECCs and the ECLs.

3.1.8 *event tracking*—the level of control characterized by manual or electronic recording of movement, accountability, or stewardship changes.

3.1.9 *operational impact*—a consequence of loss of control characterized by negative operational impact that does not rise to the level of a personal or societal safety or security impact.

3.1.10 *personal safety/security consequence*—a consequence of loss of control characterized by negative personal safety or security impact that does not rise to the level of a societal safety or security impact.

3.1.11 *societal safety/security consequence*—a consequence of loss of control characterized by negative societal safety or security impact.

3.2 Acronyms:

3.2.1 *ECC*—equipment control class.

- 3.2.2 *ECL*—equipment control level.
- 3.2.3 *ECM*—equipment control matrix.

4. Significance and Use

4.1 This practice establishes a standard equipment control methodology to aid in requirements determination and communication with the end goal of the promulgation of safe, secure, cost effective, and risk appropriate control and tracking methodologies.

4.2 The ECCs provide standard classes for equipment based on control and tracking requirements for the equipment.

4.3 The ECLs provide standard names and definitions for existing equipment control practices.

4.4 The ECM relates the equipment control classes to the equipment control levels, providing a baseline for determination of safe, secure, risk appropriate, and cost effective control and tracking of various classes of equipment.

4.5 This practice encourages an inclusive understanding and communication of the control and tracking of equipment and enables meaningful discussion between parties with interest in the equipment.

4.6 This practice is intended to foster and enable additional standard practices related to or based on these terms and concepts.

5. Equipment Control Matrix (ECM)

5.1 *Equipment Control Classes (ECCs):*

5.1.1 The ECCs are based on the consequences of the loss of control of the equipment. There are five classifications, or groupings, which define the ECCs.

5.1.1.1 *Equipment Control Class 1*—Consequence of loss of control is a societal safety/security impact, which is characterized by negative societal safety or security impact.

5.1.1.2 *Equipment Control Class 2*—Consequence of loss of control is a personal safety/security impact, which is characterized by negative personal safety or security impact that does not rise to the level of a societal safety or security impact.

5.1.1.3 *Equipment Control Class 3*—Consequence of loss of control is an operational impact, which is characterized by negative operational impact that does not rise to the level of a personal or societal safety or security impact.

5.1.1.4 *Equipment Control Class 4*—Consequence of loss of control is a compliance impact, which is characterized by negative compliance with applicable laws regulations or other relevant internal or external guidance that does not rise to the level of an operational impact.

5.1.1.5 *Equipment Control Class 5*—Consequence of loss of control is not discernible, which is characterized by having no visible or recognizable impact on the organization.

5.2 *Equipment Control Levels (ECLs):*

5.2.1 The five levels of control of equipment are based on differentiated tracking specifications.

5.2.1.1 *Equipment Control Level A*.—Continuous, which provides real time tracking and control with either human or electronic monitoring and surveillance at all times.

5.2.1.2 *Equipment Control Level B*.—Continuous while mobile, which provides real time tracking and control with either human or electronic monitoring and surveillance at any time the equipment is not stationary in a secure, fixed location.

5.2.1.3 *Equipment Control Level C*.—Event tracking, which provides the level of control characterized by manual or electronic recording of movement, accountability, or stewardship changes.

5.2.1.4 *Equipment Control Level D*.—Containment, which provides the level of control characterized by process or electronic methods of assuring equipment items are contained within a designated area.

5.2.1.5 *Equipment Control Level E*.—No tracking and no protection are required at this level.

5.3 *Equipment Control Matrix (ECM):*

5.3.1 The equipment control matrix describes the relationships between the ECCs and the ECLs. (See **Table 1**.)

5.3.2 Each equipment control class has a corresponding, standard equipment control level.

5.3.2.1 The standard corresponding control level is marked with an “S” for Standard on **Table 1**.

5.3.2.2 An increased level of control is marked “I” for Increased on **Table 1**.

5.3.2.3 A decreased level of control is marked “D” for Decreased on **Table 1**.

5.3.2.4 Levels of control marked “NR” for Not Recommended on **Table 1** are not appropriate in most environments.

TABLE 1 Equipment Control Matrix

Equipment Control Classes	Equipment Control Levels				
	A.	B.	C.	D.	E.
Consequences of Loss of Control	Continuous	Continuous While Mobile	Event Tracking	Containment	No Tracking
1. Societal Safety/Security Impact	S	D	D	D	NR
2. Personal Safety/Security Impact	I	S	D	D	NR
3. Operational Impact	I	I	S	D	NR
4. Compliance Impact	I	I	I	S	D
5. No Discernible Impact	I	I	I	I	S

S = Standard Control and Tracking
 I = Increased Control and Tracking
 D = Decreased Control and Tracking
 NR = Not Recommended

5.3.3 Entities that choose to track and control equipment at a level of control other than standard should investigate and understand the implications of such decisions and document the supporting rationale.

6. Usage

6.1 An entity may use the ECM to better understand and thus appropriately control its equipment and to leverage this information to enhance safety, security, and performance.

6.2 This practice may be used as a preparatory step in implementing use of Practice E2452 or may be implemented concurrently or subsequently.

6.3 This practice may be used as a preparatory step or otherwise inform the use of Practice E2495.

6.4 This practice may suggest additional related or derivative standards based on this concept.

7. Keywords

7.1 assets; ECC; ECL; ECM; equipment; equipment control classes; equipment control levels; equipment control matrix; moveable property; property

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