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**Australian Government**  
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**Defence Signals Directorate**  
**Australasian Information Security**  
**Evaluation Program**

**Life Cycle Definition (ALC\_LCD.3) - CC**  
**V2.2**

***Common Evaluation Methodology***

**11 November 2005**

**Version 1.1**

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## **Amendment Record**

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# 1 Measurable Life Cycle Model (ALC\_LCD.3)

## 1.1 Objectives

- 1 The objective of this sub-activity is to determine whether the developer has used a documented, standardised and measurable model of the TOE life-cycle.

## 1.2 Input

- 2 The evaluation evidence for this sub-activity is:
  - a) the ST;
  - b) the life-cycle definition documentation;
  - c) information about the standard used.

## 1.3 Evaluator Actions

### 1.3.1 ALC\_LCD.3.1E

<b>ALC_LCD.3.1C</b> The life-cycle definition documentation shall describe the model used to develop and maintain the TOE, <b>including the details of its arithmetic parameters and/or metrics used to measure the TOE development against the model.</b>
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ALC\_LCD.3-1 The evaluator *shall examine* the documented description of the life-cycle model used to determine that it covers the development and maintenance process, including the details of its arithmetic parameters and/or metrics used to measure the TOE development against the model.

- 3 The description of the life-cycle model should include:
  - a) information on the life-cycle phases of the TOE and the boundaries between the subsequent phases;

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- b) information on the procedures, tools and techniques used by the developer (e.g. for design, coding, testing, bug-fixing);
- c) overall management structure governing the application of the procedures (e.g. an identification and description of the individual responsibilities for each of the procedures required by the development and maintenance process covered by the life-cycle model);
- d) information which parts of the TOE are delivered by subcontractors, if subcontractors are involved;
- e) information on the parameters/metrics that are used to measure the TOE development against the model. Metrics standards typically include guides for measuring and producing reliable products and cover the aspects reliability, quality, performance, complexity and cost.

**ALC\_LCD.3.2C** The life-cycle model shall provide for the necessary control over the development and maintenance of the TOE.

ALC\_LCD.3-2 The evaluator *shall examine* the life-cycle model to determine that use of the procedures, tools and techniques described by the life-cycle model will make the necessary positive contribution to the development and maintenance of the TOE.

4 The information provided in the life-cycle model gives the evaluator assurance that the development and maintenance procedures adopted would minimise the likelihood of security flaws. For example, if the life-cycle model described the review process, but did not make provision for recording changes to components, then the evaluator may be less confident that errors will not be introduced into the TOE. The evaluator may gain further assurance by comparing the description of the model against an understanding of the development process gleaned from performing other evaluator actions relating to the TOE development (e.g. those covered under the CM capabilities (ACM\_CAP)). Identified deficiencies in the life-cycle model will be of concern if they might reasonably be expected to give rise to the introduction of flaws into the TOE, either accidentally or deliberately.

5 The CC does not mandate any particular development approach, and each should be judged on merit. For example, spiral, rapid-prototyping and waterfall approaches to design can all be used to produce a quality TOE if applied in a controlled environment.

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**ALC\_LCD.3.3C** The life-cycle definition documentation shall explain why the model was chosen.

ALC\_LCD.3-3 The evaluator *shall examine* the life-cycle definition documentation to determine that it explains why the model was chosen.

- 6 The life-cycle definition documentation should provide reasons for adoption of the chosen life-cycle model. Such reasons may include, for example, conformance to an organisational policy or to a security policy (also in the form of the Security Target), or may be in the form of benefits perceived to be attainable through use of the life-cycle model.

**ALC\_LCD.3.4C** The life-cycle definition documentation shall explain how the model is used to develop and maintain the TOE.

ALC\_LCD.3-4 The evaluator *shall examine* the life-cycle definition documentation to determine that it explains how the model has been applied to the development and maintenance of the TOE.

- 7 Whereas the requirements of the Evaluation of sub-activity (ALC\_LCD.1) are confined to a description of the model used, this component requires the developer to explain how the model has been applied to the TOE under evaluation. This explanation should cover using the life-cycle model for development and maintenance of the TOE as well as compliance of the model with the configuration management (family ACM\_CAP).

**ALC\_LCD.3.5C** The life-cycle definition documentation shall demonstrate compliance with the standardised **and measurable** life-cycle model.

ALC\_LCD.3-5 The evaluator *shall examine* the life-cycle definition documentation to determine that it demonstrates that the life-cycle model used by the developer corresponds to the standardised and measurable model.

- 8 The life-cycle definition documentation should relate aspects of the standardised model to the specific development and maintenance procedures in place for the TOE, such that conformance to the standardised model can be easily confirmed by the evaluator. The correspondence evidence may, for example, take the form of a mapping from detailed steps and organisation roles in the standardised model to individual development procedures and roles or personnel from the development environment.
- 9 The life-cycle definition documentation should describe adaptations of the standardised model to meet specific TOE or organisational requirements.
- 10 Through completion of this work unit, the evaluator should gain a clear understanding of how the standardised model has been applied, and that it has been applied correctly.

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<b>ALC_LCD.3.6C</b> The life-cycle output documentation shall provide the results of the measurements of the TOE development using the standardised and measurable life-cycle model.
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ALC\_LCD.3-6 The evaluator *shall examine* the life-cycle output documentation to determine that it provides the results of the measurements of the TOE development using the standardised and measurable life-cycle model.

11 The results of the measurements and the life-cycle progress of the TOE should be in accordance with the life-cycle model.