

# Certification Report

**BSI-CC-PP-0057-2010**

for

**Protection Profile  
Digital Tachograph – Vehicle Unit (VU PP)  
Version 1.0**

from

**Federal Office for Information Security**

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Bundesamt  
für Sicherheit in der  
Informationstechnik

# Deutsches IT-Sicherheitszertifikat

erteilt vom



Bundesamt für Sicherheit in der Informationstechnik

## BSI-CC-PP-0057-2010

Common Criteria Protection Profile

### Digital Tachograph – Vehicle Unit (VU PP)

Version 1.0

developed by Federal Office for Information Security

Assurance Package claimed in the Protection Profile:  
Common Criteria Part 3 conformant  
EAL 4 augmented by  
ATE\_DPT.2 and AVA\_VAN.5



Common Criteria  
Recognition  
Arrangement



The Protection Profile identified in this certificate has been evaluated at an approved evaluation facility using the Common Methodology for IT Security Evaluation (CEM), Version 3.1 for conformance to the Common Criteria for IT Security Evaluation (CC), Version 3.1.

This certificate applies only to the specific version and release of the Protection Profile and in conjunction with the complete Certification Report.

The evaluation has been conducted in accordance with the provisions of the certification scheme of the German Federal Office for Information Security (BSI) and the conclusions of the evaluation facility in the evaluation technical report are consistent with the evidence adduced.

This certificate is not an endorsement of the Protection Profile by the Federal Office for Information Security or any other organisation that recognises or gives effect to this certificate, and no warranty of the Protection Profile by the Federal Office for Information Security or any other organisation that recognises or gives effect to this certificate, is either expressed or implied.

Bonn, 20 August 2010

For the Federal Office for Information Security

Bernd Kowalski  
Head of Department



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## Preliminary Remarks

Under the BSIG<sup>1</sup> Act, the Federal Office for Information Security (BSI) has the task of issuing certificates for information technology products as well as for Protection Profiles (PP).

A PP defines an implementation-independent set of IT security requirements for a category of products which are intended to meet common consumer needs for IT security. The development and certification of a PP or the reference to an existent one gives consumers the possibility to express their IT security needs without referring to a special product. Product or system certifications can be based on Protection Profiles. For products which have been certified based on a Protection Profile an individual certificate will be issued.

Certification of the Protection Profile is carried out on the instigation of the BSI or a sponsor.

A part of the procedure is the technical examination (evaluation) of the Protection Profile according to Common Criteria [1].

The evaluation is normally carried out by an evaluation facility recognised by the BSI or by BSI itself.

The result of the certification procedure is the present Certification Report. This report contains among others the certificate (summarised assessment) and the detailed Certification Results.

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<sup>1</sup> Act on the Federal Office for Information Security (BSI-Gesetz - BSIG) of 14 August 2009, Bundesgesetzblatt I p. 2821

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## A Certification

### 1 Specifications of the Certification Procedure

The certification body conducts the procedure according to the criteria laid down in the following:

- BSIG<sup>2</sup>
- BSI Certification Ordinance<sup>3</sup>
- BSI Schedule of Costs<sup>4</sup>
- Special decrees issued by the Bundesministerium des Innern (Federal Ministry of the Interior)
- DIN EN 45011 standard
- BSI certification: Procedural Description (BSI 7125) [3]
- Common Criteria for IT Security Evaluation (CC), Version 3.1<sup>5</sup> [1]
- Common Methodology for IT Security Evaluation, Version 3.1 [2]
- BSI certification: Application Notes and Interpretation of the Scheme (AIS) [7]
- Procedure for the Issuance of a PP certificate by the BSI

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<sup>2</sup> Act on the Federal Office for Information Security (BSI-Gesetz - BSIG) of 14 August 2009, Bundesgesetzblatt I p. 2821

<sup>3</sup> Ordinance on the Procedure for Issuance of a Certificate by the Federal Office for Information Security (BSI-Zertifizierungsverordnung, BSIZertV) of 07 July 1992, Bundesgesetzblatt I p. 1230

<sup>4</sup> Schedule of Cost for Official Procedures of the Bundesamt für Sicherheit in der Informationstechnik (BSI-Kostenverordnung, BSI-KostV) of 03 March 2005, Bundesgesetzblatt I p. 519

<sup>5</sup> Proclamation of the Bundesministerium des Innern of 12 February 2007 in the Bundesanzeiger dated 23 February 2007

## 2 Recognition Agreements

In order to avoid multiple certification of the same Protection Profile in different countries a mutual recognition of IT security certificates - as far as such certificates are based on CC - under certain conditions was agreed.

### 2.1 European Recognition of ITSEC/CC – Certificates (SOGIS-MRA)

The SOGIS-Mutual Recognition Agreement (SOGIS-MRA) Version 3 became effective in April 2010. It defines the recognition of certificates for IT-Products at a basic recognition level and in addition at higher recognition levels for IT-Products related to certain technical domains only.

The basic recognition level includes Common Criteria (CC) Evaluation Assurance Levels EAL1 to EAL4 and ITSEC Evaluation Assurance Levels E1 to E3 (basic). For higher recognition levels the technical domain “Smartcard and similar devices” has been defined. It includes assurance levels beyond EAL4 resp. E3 (basic).

The new agreement was initially signed by the national bodies of Finland, France, Germany, The Netherlands, Norway, Spain, Sweden and the United Kingdom.

Within the terms of this agreement the German Federal Office for Information Security (BSI) recognises

- for the basic recognition level certificates issued as of April 2010 by the national certification bodies of France, The Netherlands, Spain and the United Kingdom.
- for the higher recognition level in the technical domain “Smartcard and similar devices” certificates issued as of April 2010 by the national certification bodies of France, The Netherlands and the United Kingdom.

In addition, certificates issued for Protection Profiles based on Common Criteria are part of the recognition agreement.

The SOGIS-MRA logo printed on the certificate indicates that it is recognised under the terms of this agreement.

### 2.2 International Recognition of CC – Certificates (CCRA)

An arrangement (Common Criteria Recognition Arrangement) on the mutual recognition of certificates based on the CC evaluation assurance levels up to and including EAL 4 has been signed in May 2000 (CCRA). It includes also the recognition of Protection Profiles based on the CC.

As of January 2009 the arrangement has been signed by the national bodies of: Australia, Austria, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, India, Israel, Italy, Japan, Republic of Korea, Malaysia, The Netherlands, New Zealand, Norway, Pakistan, Republic of Singapore, Spain, Sweden, Turkey, United Kingdom, United States of America. The current list of signatory nations resp. approved certification schemes can be seen on the web site: <http://www.commoncriteriaportal.org>

The Common Criteria Recognition Arrangement logo printed on the certificate indicates that this certification is recognised under the terms of this agreement.



### 3 Performance of Evaluation and Certification

The certification body monitors each individual evaluation to ensure a uniform procedure, a uniform interpretation of the criteria and uniform ratings.

The Protection Profile Digital Tachograph – Vehicle Unit (VU PP), Version 1.0 has undergone the certification procedure at BSI.

The evaluation of the Protection Profile Digital Tachograph – Vehicle Unit (VU PP), Version 1.0 was conducted by the ITSEF SRC Security Research & Consulting GmbH. The evaluation was completed on 19 July 2010. The ITSEF SRC Security Research & Consulting GmbH is an evaluation facility (ITSEF)<sup>6</sup> recognised by the certification body of BSI.

For this certification procedure the sponsor and applicant is: Federal Office for Information Security.

The PP was developed by: T-Systems GEI GmbH on behalf of the Federal Office for Information Security.

The certification is concluded with the comparability check and the production of this Certification Report. This work was completed by the BSI.

### 4 Validity of the certification result

This Certification Report only applies to the version of the Protection Profile as indicated.

In case of changes to the certified version of the Protection Profile, the validity can be extended to new versions and releases, provided the sponsor applies for assurance continuity (i.e. re-certification or maintenance) of the modified Protection Profile, in accordance with the procedural requirements, and the evaluation does not reveal any security deficiencies.

For the meaning of the assurance levels please refer to the excerpts from the criteria at the end of the Certification Report.

### 5 Publication

The Protection Profile Digital Tachograph – Vehicle Unit (VU PP), Version 1.0 has been included in the BSI list of the certified Protection Profiles, which is published regularly (see also Internet: <https://www.bsi.bund.de> and [4]). Further information can be obtained from BSI-Infoline +49 228 9582-111.

Further copies of this Certification Report can be requested from the sponsor<sup>7</sup> of the Protection Profile. The Certification Report may also be obtained in electronic form at the internet address stated above.

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<sup>6</sup> Information Technology Security Evaluation Facility

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## **B Certification Results**

The following results represent a summary of

- the certified Protection Profile,
- the relevant evaluation results from the evaluation facility, and
- complementary notes and stipulations of the certification body.

## 1 Protection Profile Overview

The Protection Profile Digital Tachograph – Vehicle Unit (VU PP), Version 1.0 [6] is established by the Federal Office for Information Security as a basis for the development of Security Targets in order to perform a certification of an IT-product, the Target of Evaluation (TOE).

The TOE addressed by the current Protection Profile is a vehicle unit (VU) in the sense of Annex I B of Commission Regulation (EC) No. 1360/2002 [8] intended to be installed in road transport vehicles. Its purpose is to record, store, display, print and output data related to driver activities. The VU records and stores user activities data in its internal data memory and it also records user activities data in tachograph cards. The VU outputs data to a display, a printer and external devices. It is connected to a motion sensor with which it exchanges vehicle's motion data. Users identify themselves to the VU using tachograph cards.

The physical scope of the TOE is a device to be installed in a vehicle. The TOE consists of a hardware box including a processing unit, a data memory, a real time clock, two smart card interface devices (driver and co-driver), a printer, a display, a visual warning, a calibration/downloading connector, facilities for entry of user's inputs, embedded software and of related user manuals. It must be connected to a motion sensor and to a power supply unit; it can temporarily be connected with other devices used for calibration, data export, software upgrade and diagnostics.

The TOE receives motion data from the motion sensor and activity data via the facilities for entry of user's. It stores all these user data internally and can export them to the tachograph cards inserted, to the display, to the printer, and to electrical interfaces.

The main security feature of the TOE is the following: The data to be measured and recorded and then to be checked by control authorities must be available and reflect fully and accurately the activities of controlled drivers and vehicles in terms of driving, work, availability and rest periods and in terms of vehicle speed.

The Protection Profile aims to serve as a common basis for vehicle unit manufacturers who intend to evaluate and certify their vehicle units in accordance with the Common Criteria. It continues the explicit intention of the European Commission to ensure a common and comparable level of security for the technical components of the Digital Tachograph System (here: vehicle units) expressed in the Commission Regulation 1360/2002, Annex I B [8], Appendix 10 [9] (Vehicle Unit Generic Security Target written according to ITSEC).

Due to this aim of the current Protection Profile and to the fact that the Vehicle Unit Generic Security Target within Appendix 10 [9] represents part of a legislative, the PP intends to reflect the Vehicle Unit Generic Security Target as exactly as possible. It is currently not intended to modify or evolve the latter. The coverage of the requirements of [9] by the security functional requirements of the current PP is stated in Annex A of the Protection Profile.

A security certification according to the Vehicle Unit Generic Security Target within Appendix 10 [9] is a formal prerequisite for the type approval of a vehicle unit. Since the current PP defines a security policy being equivalent to the Vehicle Unit Generic Security Target, a security certification according to the PP may also be used and shall be accepted as an equivalent prerequisite for the type approval of a vehicle unit.

The assets to be protected by a TOE claiming conformance to this PP are defined in the Protection Profile [6], chapter 3.1. Based on these assets the security problem definition is defined in terms of assumptions, threats and organisational security policies. This is outlined in the Protection Profile [6], chapter 3.2 - 3.4.

These assumptions, threats and organisational security policies are split into security objectives to be fulfilled by a TOE claiming conformance to this PP and security objectives to be fulfilled by the operational environment of a TOE claiming conformance to this PP. These objectives are outlined in the PP [6], chapter 4.1 and 4.2.

The Protection Profile [6] requires a Security Target based on this PP or another PP claiming this PP, to fulfil the CC requirements for strict conformance.

## 2 Security Functional Requirements

Based on the security objectives to be fulfilled by a TOE claiming conformance to this PP the security policy is expressed by the set of security functional requirements (SFR) to be implemented by a TOE. It covers the following issues:

- Identification and authentication of motion sensor and tachograph cards,
- Access control to functions and stored data,
- Accountability of users,
- Audit of events and faults,
- Prevention of object reuse for secret data,
- Accuracy of recorded and stored data,
- Reliability of services,
- Secure data exchange with motion sensor, tachograph cards and external media (download function).

These TOE security functional requirements are outlined in the PP [6], chapter 6.1. They are all selected from Common Criteria Part 2. Thus the SFR claim is called:

Common Criteria Part 2 conformant

## 3 Security Assurance Requirements

The TOE security assurance package claimed in the Protection Profile is based entirely on the assurance components defined in part 3 of the Common Criteria. Thus, this assurance package is called:

Common Criteria Part 3 conformant  
EAL 4 augmented by  
ATE\_DPT.2 and AVA\_VAN.5

(for the definition and scope of assurance packages according to CC see part C or [1], part 3 for details).

## 4 Results of the PP-Evaluation

The Evaluation Technical Report (ETR) [5] was provided by the ITSEF according to the Common Criteria [1], the Methodology [2], the requirements of the Scheme [3] and all interpretations and guidelines of the Scheme (AIS) [7] as relevant for the TOE.

As a result of the evaluation the verdict PASS is confirmed for the assurance components of the class APE.

The following assurance components were used:

- APE\_INT.1 PP introduction
- APE\_CCL.1 Conformance claims
- APE\_SPD.1 Security problem definition
- APE\_OBJ.2 Security objectives
- APE\_ECD.1 Extended components definition
- APE\_REQ.2 Derived security requirements

The results of the evaluation are only applicable to the Protection Profile as defined in chapter 1.

## 5 Obligations and notes for the usage

The following aspects need to be fulfilled when using the Protection Profile:

The application notes given in the PP shall be considered to gain additional information and specific explanations.

## 6 Protection Profile Document

The Protection Profile Digital Tachograph – Vehicle Unit (VU PP), Version 1.0 [6] is being provided within a separate document as Annex A of this report.

## 7 Definitions

### 7.1 Acronyms

|              |  |
|--------------|--|
| <b>AIS</b>   | Application Notes and Interpretations of the Scheme  |
| <b>BSI</b>   | Bundesamt für Sicherheit in der Informationstechnik / Federal Office for Information Security, Bonn, Germany |
| <b>BSIG</b>  | BSI-Gesetz / Act on the Federal Office for Information Security  |
| <b>CCRA</b>  | Common Criteria Recognition Arrangement  |
| <b>CC</b>    | Common Criteria for IT Security Evaluation   |
| <b>CEM</b>   | Common Methodology for Information Technology Security Evaluation  |
| <b>EAL</b>   | Evaluation Assurance Level   |
| <b>ETR</b>   | Evaluation Technical Report  |
| <b>IT</b>    | Information Technology   |
| <b>ITSEC</b> | Information Technology Security Evaluation Criteria  |
| <b>ITSEF</b> | Information Technology Security Evaluation Facility  |
| <b>PP</b>    | Protection Profile   |
| <b>SAR</b>   | Security Assurance Requirement   |
| <b>SF</b>    | Security Function  |
| <b>SFP</b>   | Security Function Policy   |
| <b>SFR</b>   | Security Functional Requirement  |
| <b>ST</b>    | Security Target  |
| <b>TOE</b>   | Target of Evaluation   |
| <b>TSF</b>   | TOE Security Functionality   |
| <b>VU</b>    | Vehicle Unit   |

## 7.2 Glossary

**Augmentation** - The addition of one or more requirement(s) to a package.

**Extension** - The addition to an ST or PP of functional requirements not contained in part 2 and/or assurance requirements not contained in part 3 of the CC.

**Formal** - Expressed in a restricted syntax language with defined semantics based on well-established mathematical concepts.

**Informal** - Expressed in natural language.

**Object** - An passive entity in the TOE, that contains or receives information, and upon which subjects perform operations.

**Protection Profile** - An implementation-independent statement of security needs for a TOE type.

**Security Target** - An implementation-dependent statement of security needs for a specific identified TOE.

**Semiformal** - Expressed in a restricted syntax language with defined semantics.

**Subject** - An active entity in the TOE that performs operations on objects.

**Target of Evaluation** - A set of software, firmware and/or hardware possibly accompanied by guidance.

**TOE Security Functionality** - combined functionality of all hardware, software, and firmware of a TOE that must be relied upon for the correct enforcement of the SFRs.



## 8 Bibliography

- [1] Common Criteria for Information Technology Security Evaluation, Version 3.1, Part 1: Introduction and general model, Revision 3, July 2009  
Part 2: Security functional components, Revision 3, July 2009  
Part 3: Security assurance components, Revision 3, July 2009
- [2] Common Methodology for Information Technology Security Evaluation (CEM), Evaluation Methodology, Version 3.1, Revision 3, July 2009
- [3] BSI certification: Procedural Description (BSI 7125)
- [4] German IT Security Certificates (BSI 7148, BSI 7149), periodically updated list published also on the BSI Website
- [5] Evaluation Technical Report, Version 1.1, 14 July 2010, Evaluation Technical Report for Protection Profile 'Digital Tachograph – Vehicle Unit (VU PP)' BSI-CC-PP-0057, SRC Security Research & Consulting GmbH (confidential document)
- [6] Common Criteria Protection Profile Digital Tachograph – Vehicle Unit (VU PP) BSI-CC-PP-0057, Version 1.0, 13 July 2010, Federal Office for Information Security
- [7] Application Notes and Interpretations of the Scheme (AIS) as relevant for the TOE<sup>8</sup>.
- [8] Annex I B of Commission Regulation (EC) No. 1360/2002 'Requirements for construction, testing, installation and inspection', 05.08.2002 and last amended by CR (EC) No. 432/2004 and corrigendum dated as of 13.03.2004 (OJ L 77)
- [9] Appendix 10 of Annex I B of Commission Regulation (EEC) No. 1360/2002 – Generic Security Targets

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<sup>8</sup> specially

- AIS 32, Version 5, 17 May 2010, CC-Interpretationen im deutschen Zertifizierungsschema

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## C Excerpts from the Criteria

CC Part1:

### Conformance Claim (chapter 10.4)

„The conformance claim indicates the source of the collection of requirements that is met by a PP or ST that passes its evaluation. This conformance claim contains a CC conformance claim that:

- describes the version of the CC to which the PP or ST claims conformance.
- describes the conformance to CC Part 2 (security functional requirements) as either:
  - **CC Part 2 conformant** - A PP or ST is CC Part 2 conformant if all SFRs in that PP or ST are based only upon functional components in CC Part 2, or
  - **CC Part 2 extend-ed** - A PP or ST is CC Part 2 extended if at least one SFR in that PP or ST is not based upon functional components in CC Part 2.
- describes the conformance to CC Part 3 (security assurance requirements) as either:
  - **CC Part 3 conformant** - A PP or ST is CC Part 3 conformant if all SARs in that PP or ST are based only upon assurance components in CC Part 3, or
  - **CC Part 3 extended** - A PP or ST is CC Part 3 extended if at least one SAR in that PP or ST is not based upon assurance components in CC Part 3.

Additionally, the conformance claim may include a statement made with respect to packages, in which case it consists of one of the following:

- Package name Conformant - A PP or ST is conformant to a pre-defined package (e.g. EAL) if:
  - the SFRs of that PP or ST are identical to the SFRs in the package, or
  - the SARs of that PP or ST are identical to the SARs in the package.
- Package name Augmented - A PP or ST is an augmentation of a predefined package if:
  - the SFRs of that PP or ST contain all SFRs in the package, but have at least one additional SFR or one SFR that is hierarchically higher than an SFR in the package.
  - the SARs of that PP or ST contain all SARs in the package, but have at least one additional SAR or one SAR that is hierarchically higher than an SAR in the package.

Note that when a TOE is successfully evaluated to a given ST, any conformance claims of the ST also hold for the TOE. A TOE can therefore also be e.g. CC Part 2 conformant.

Finally, the conformance claim may also include two statements with respect to Protection Profiles:

- PP Conformant - A PP or TOE meets specific PP(s), which are listed as part of the conformance result.
- Conformance Statement (Only for PPs) - This statement describes the manner in which PPs or STs must conform to this PP: strict or demonstrable. For more information on this Conformance Statement, see Annex D.”

CC Part 3:

**Class APE: Protection Profile evaluation** (chapter 10)

“Evaluating a PP is required to demonstrate that the PP is sound and internally consistent, and, if the PP is based on one or more other PPs or on packages, that the PP is a correct instantiation of these PPs and packages. These properties are necessary for the PP to be suitable for use as the basis for writing an ST or another PP.”

| Assurance Class                          | Assurance Components   |
|--|--|
| Class APE: Protection Profile evaluation | APE_INT.1 PP introduction  |
|  | APE_CCL.1 Conformance claims   |
|  | APE_SPD.1 Security problem definition  |
|  | APE_OBJ.1 Security objectives for the operational environment<br>APE_OBJ.2 Security objectives |
|  | APE_ECD.1 Extended components definition   |
|  | APE_REQ.1 Stated security requirements<br>APE_REQ.2 Derived security requirements              |

APE: Protection Profile evaluation class decomposition

**Class ASE: Security Target evaluation** (chapter 11)

“Evaluating an ST is required to demonstrate that the ST is sound and internally consistent, and, if the ST is based on one or more PPs or packages, that the ST is a correct instantiation of these PPs and packages. These properties are necessary for the ST to be suitable for use as the basis for a TOE evaluation.”

| Assurance Class                       | Assurance Components   |
|---------------------------------------|--|
| Class ASE: Security Target evaluation | ASE_INT.1 ST introduction  |
|                                       | ASE_CCL.1 Conformance claims   |
|                                       | ASE_SPD.1 Security problem definition  |
|                                       | ASE_OBJ.1 Security objectives for the operational environment<br>ASE_OBJ.2 Security objectives               |
|                                       | ASE_ECD.1 Extended components definition   |
|                                       | ASE_REQ.1 Stated security requirements<br>ASE_REQ.2 Derived security requirements                            |
|                                       | ASE_TSS.1 TOE summary specification<br>ASE_TSS.2 TOE summary specification with architectural design summary |

ASE: Security Target evaluation class decomposition

## Security assurance components (chapter 7)

“The following Sections describe the constructs used in representing the assurance classes, families, and components.”

“Each assurance class contains at least one assurance family.”

“Each assurance family contains one or more assurance components.”

The following table shows the assurance class decomposition.

| Assurance Class         | Assurance Components  |
|-------------------------|---|
| ADV: Development        | ADV_ARC.1 Security architecture description   |
|                         | ADV_FSP.1 Basic functional specification<br>ADV_FSP.2 Security-enforcing functional specification<br>ADV_FSP.3 Functional specification with complete summary<br>ADV_FSP.4 Complete functional specification<br>ADV_FSP.5 Complete semi-formal functional specification with additional error information<br>ADV_FSP.6 Complete semi-formal functional specification with additional formal specification |
|                         | ADV_IMP.1 Implementation representation of the TSF<br>ADV_IMP.2 Implementation of the TSF   |
|                         | ADV_INT.1 Well-structured subset of TSF internals<br>ADV_INT.2 Well-structured internals<br>ADV_INT.3 Minimally complex internals   |
|                         | ADV_SPM.1 Formal TOE security policy model  |
|                         | ADV_TDS.1 Basic design<br>ADV_TDS.2 Architectural design<br>ADV_TDS.3 Basic modular design<br>ADV_TDS.4 Semiformal modular design<br>ADV_TDS.5 Complete semiformal modular design<br>ADV_TDS.6 Complete semiformal modular design with formal high-level design presentation  |
| AGD:                    | AGD_OPE.1 Operational user guidance   |
| Guidance documents      | AGD_PRE.1 Preparative procedures  |
| ALC: Life cycle support | ALC_CMC.1 Labelling of the TOE<br>ALC_CMC.2 Use of a CM system<br>ALC_CMC.3 Authorisation controls<br>ALC_CMC.4 Production support, acceptance procedures and automation<br>ALC_CMC.5 Advanced support  |
|                         | ALC_CMS.1 TOE CM coverage<br>ALC_CMS.2 Parts of the TOE CM coverage<br>ALC_CMS.3 Implementation representation CM coverage<br>ALC_CMS.4 Problem tracking CM coverage<br>ALC_CMS.5 Development tools CM coverage   |
|                         | ALC_DEL.1 Delivery procedures   |
|                         | ALC_DVS.1 Identification of security measures<br>ALC_DVS.2 Sufficiency of security measures   |

| Assurance Class               | Assurance Components  |
|-------------------------------|---|
|                               | ALC_FLR.1 Basic flaw remediation<br>ALC_FLR.2 Flaw reporting procedures<br>ALC_FLR.3 Systematic flaw remediation<br><br>ALC_LCD.1 Developer defined life-cycle model<br>ALC_LCD.2 Measurable life-cycle model<br><br>ALC_TAT.1 Well-defined development tools<br>ALC_TAT.2 Compliance with implementation standards<br>ALC_TAT.3 Compliance with implementation standards - all parts   |
| ATE: Tests                    | ATE_COV.1 Evidence of coverage<br>ATE_COV.2 Analysis of coverage<br>ATE_COV.3 Rigorous analysis of coverage<br><br>ATE_DPT.1 Testing: basic design<br>ATE_DPT.2 Testing: security enforcing modules<br>ATE_DPT.3 Testing: modular design<br>ATE_DPT.4 Testing: implementation representation<br><br>ATE_FUN.1 Functional testing<br>ATE_FUN.2 Ordered functional testing<br><br>ATE_IND.1 Independent testing – conformance<br>ATE_IND.2 Independent testing – sample<br>ATE_IND.3 Independent testing – complete |
| AVA: Vulnerability assessment | AVA_VAN.1 Vulnerability survey<br>AVA_VAN.2 Vulnerability analysis<br>AVA_VAN.3 Focused vulnerability analysis<br>AVA_VAN.4 Methodical vulnerability analysis<br>AVA_VAN.5 Advanced methodical vulnerability analysis   |

Assurance class decomposition

## Evaluation assurance levels (chapter 8)

“The Evaluation Assurance Levels (EALs) provide an increasing scale that balances the level of assurance obtained with the cost and feasibility of acquiring that degree of assurance. The CC approach identifies the separate concepts of assurance in a TOE at the end of the evaluation, and of maintenance of that assurance during the operational use of the TOE.

It is important to note that not all families and components from CC Part 3 are included in the EALs. This is not to say that these do not provide meaningful and desirable assurances. Instead, it is expected that these families and components will be considered for augmentation of an EAL in those PPs and STs for which they provide utility.”

### Evaluation assurance level (EAL) overview (chapter 8.1)

“Table 1 represents a summary of the EALs. The columns represent a hierarchically ordered set of EALs, while the rows represent assurance families. Each number in the resulting matrix identifies a specific assurance component where applicable.

As outlined in the next Section, seven hierarchically ordered evaluation assurance levels are defined in the CC for the rating of a TOE's assurance. They are hierarchically ordered inasmuch as each EAL represents more assurance than all lower EALs. The increase in assurance from EAL to EAL is accomplished by substitution of a hierarchically higher assurance component from the same assurance family (i.e. increasing rigour, scope, and/or depth) and from the addition of assurance components from other assurance families (i.e. adding new requirements).

These EALs consist of an appropriate combination of assurance components as described in chapter 7 of this CC Part 3. More precisely, each EAL includes no more than one component of each assurance family and all assurance dependencies of every component are addressed.

While the EALs are defined in the CC, it is possible to represent other combinations of assurance. Specifically, the notion of “augmentation” allows the addition of assurance components (from assurance families not already included in the EAL) or the substitution of assurance components (with another hierarchically higher assurance component in the same assurance family) to an EAL. Of the assurance constructs defined in the CC, only EALs may be augmented. The notion of an “EAL minus a constituent assurance component” is not recognised by the standard as a valid claim. Augmentation carries with it the obligation on the part of the claimant to justify the utility and added value of the added assurance component to the EAL. An EAL may also be augmented with extended assurance requirements.”

| Assurance Class            | Assurance Family | Assurance Components by Evaluation Assurance Level |      |      |      |      |      |      |
|----------------------------|------------------|--|------|------|------|------|------|------|
|                            |                  | EAL1   | EAL2 | EAL3 | EAL4 | EAL5 | EAL6 | EAL7 |
| Development                | ADV_ARC          |  | 1    | 1    | 1    | 1    | 1    | 1    |
|                            | ADV_FSP          | 1  | 2    | 3    | 4    | 5    | 5    | 6    |
|                            | ADV_IMP          |  |      |      | 1    | 1    | 2    | 2    |
|                            | ADV_INT          |  |      |      |      | 2    | 3    | 3    |
|                            | ADV_SPM          |  |      |      |      |      | 1    | 1    |
|                            | ADV_TDS          |  | 1    | 2    | 3    | 4    | 5    | 6    |
| Guidance Documents         | AGD_OPE          | 1  | 1    | 1    | 1    | 1    | 1    | 1    |
|                            | AGD_PRE          | 1  | 1    | 1    | 1    | 1    | 1    | 1    |
| Life cycle Support         | ALC_CMC          | 1  | 2    | 3    | 4    | 4    | 5    | 5    |
|                            | ALC_CMS          | 1  | 2    | 3    | 4    | 5    | 5    | 5    |
|                            | ALC_DEL          |  | 1    | 1    | 1    | 1    | 1    | 1    |
|                            | ALC_DVS          |  |      | 1    | 1    | 1    | 2    | 2    |
|                            | ALC_FLR          |  |      |      |      |      |      |      |
|                            | ALC_LCD          |  |      | 1    | 1    | 1    | 1    | 2    |
|                            | ALC_TAT          |  |      |      | 1    | 2    | 3    | 3    |
| Security Target Evaluation | ASE_CCL          | 1  | 1    | 1    | 1    | 1    | 1    | 1    |
|                            | ASE_ECD          | 1  | 1    | 1    | 1    | 1    | 1    | 1    |
|                            | ASE_INT          | 1  | 1    | 1    | 1    | 1    | 1    | 1    |
|                            | ASE_OBJ          | 1  | 2    | 2    | 2    | 2    | 2    | 2    |
|                            | ASR_REQ          | 1  | 2    | 2    | 2    | 2    | 2    | 2    |
|                            | ASE_SPD          |  | 1    | 1    | 1    | 1    | 1    | 1    |
|                            | ASE_TSS          | 1  | 1    | 1    | 1    | 1    | 1    | 1    |
| Tests                      | ATE_COV          |  | 1    | 2    | 2    | 2    | 3    | 3    |
|                            | ATE_DPT          |  |      | 1    | 1    | 3    | 3    | 4    |
|                            | ATE_FUN          |  | 1    | 1    | 1    | 1    | 2    | 2    |
|                            | ATE_IND          | 1  | 2    | 2    | 2    | 2    | 2    | 3    |
| Vulnerability assessment   | AVA_VAN          | 1  | 2    | 2    | 3    | 4    | 5    | 5    |

Table 1: Evaluation assurance level summary”



**Evaluation assurance level 1 (EAL1) - functionally tested** (chapter 8.3)

## “Objectives

EAL1 is applicable where some confidence in correct operation is required, but the threats to security are not viewed as serious. It will be of value where independent assurance is required to support the contention that due care has been exercised with respect to the protection of personal or similar information.

EAL1 requires only a limited security target. It is sufficient to simply state the SFRs that the TOE must meet, rather than deriving them from threats, OSPs and assumptions through security objectives.

EAL1 provides an evaluation of the TOE as made available to the customer, including independent testing against a specification, and an examination of the guidance documentation provided. It is intended that an EAL1 evaluation could be successfully conducted without assistance from the developer of the TOE, and for minimal outlay.

An evaluation at this level should provide evidence that the TOE functions in a manner consistent with its documentation.”

**Evaluation assurance level 2 (EAL2) - structurally tested** (chapter 8.4)

## “Objectives

EAL2 requires the co-operation of the developer in terms of the delivery of design information and test results, but should not demand more effort on the part of the developer than is consistent with good commercial practise. As such it should not require a substantially increased investment of cost or time.

EAL2 is therefore applicable in those circumstances where developers or users require a low to moderate level of independently assured security in the absence of ready availability of the complete development record. Such a situation may arise when securing legacy systems, or where access to the developer may be limited.”

**Evaluation assurance level 3 (EAL3) - methodically tested and checked** (chapter 8.5)

## “Objectives

EAL3 permits a conscientious developer to gain maximum assurance from positive security engineering at the design stage without substantial alteration of existing sound development practises.

EAL3 is applicable in those circumstances where developers or users require a moderate level of independently assured security, and require a thorough investigation of the TOE and its development without substantial re-engineering.”

**Evaluation assurance level 4 (EAL4) - methodically designed, tested, and reviewed**  
(chapter 8.6)**“Objectives**

EAL4 permits a developer to gain maximum assurance from positive security engineering based on good commercial development practises which, though rigorous, do not require substantial specialist knowledge, skills, and other resources. EAL4 is the highest level at which it is likely to be economically feasible to retrofit to an existing product line.

EAL4 is therefore applicable in those circumstances where developers or users require a moderate to high level of independently assured security in conventional commodity TOEs and are prepared to incur additional security-specific engineering costs.”

**Evaluation assurance level 5 (EAL5) - semiformally designed and tested** (chapter 8.7)**“Objectives**

EAL5 permits a developer to gain maximum assurance from security engineering based upon rigorous commercial development practises supported by moderate application of specialist security engineering techniques. Such a TOE will probably be designed and developed with the intent of achieving EAL5 assurance. It is likely that the additional costs attributable to the EAL5 requirements, relative to rigorous development without the application of specialised techniques, will not be large.

EAL5 is therefore applicable in those circumstances where developers or users require a high level of independently assured security in a planned development and require a rigorous development approach without incurring unreasonable costs attributable to specialist security engineering techniques.”

**Evaluation assurance level 6 (EAL6) - semiformally verified design and tested**  
(chapter 8.8)**“Objectives**

EAL6 permits developers to gain high assurance from application of security engineering techniques to a rigorous development environment in order to produce a premium TOE for protecting high value assets against significant risks.

EAL6 is therefore applicable to the development of security TOEs for application in high risk situations where the value of the protected assets justifies the additional costs.”

**Evaluation assurance level 7 (EAL7) - formally verified design and tested**  
(chapter 8.9)**“Objectives**

EAL7 is applicable to the development of security TOEs for application in extremely high risk situations and/or where the high value of the assets justifies the higher costs. Practical application of EAL7 is currently limited to TOEs with tightly focused security functionality that is amenable to extensive formal analysis.”

**Class AVA: Vulnerability assessment** (chapter 16)

“The AVA: Vulnerability assessment class addresses the possibility of exploitable vulnerabilities introduced in the development or the operation of the TOE.”

**Vulnerability analysis (AVA\_VAN)** (chapter 16.1)

## "Objectives

Vulnerability analysis is an assessment to determine whether potential vulnerabilities identified, during the evaluation of the development and anticipated operation of the TOE or by other methods (e.g. by flaw hypotheses or quantitative or statistical analysis of the security behaviour of the underlying security mechanisms), could allow attackers to violate the SFRs.

Vulnerability analysis deals with the threats that an attacker will be able to discover flaws that will allow unauthorised access to data and functionality, allow the ability to interfere with or alter the TSF, or interfere with the authorised capabilities of other users."

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## **D Annexes**

### **List of annexes of this certification report**

Annex A: Protection Profile Digital Tachograph – Vehicle Unit (VU PP), Version 1.0 provided within a separate document.

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