

# Certification Report

**BSI-DSZ-CC-0935-2015**

for

**MN67S150 Smart Card IC Version RV08 including  
IC Dedicated Software**

from

**Panasonic Semiconductor Solutions Co., Ltd.**

BSI - Bundesamt für Sicherheit in der Informationstechnik, Postfach 20 03 63, D-53133 Bonn  
Phone +49 (0)228 99 9582-0, Fax +49 (0)228 9582-5477, Infoline +49 (0)228 99 9582-111



Bundesamt  
für Sicherheit in der  
Informationstechnik

# Deutsches IT-Sicherheitszertifikat

erteilt vom



Bundesamt für Sicherheit in der Informationstechnik

**BSI-DSZ-CC-0935-2015 (\*)**

**MN67S150 Smart Card IC Version RV08 including IC Dedicated Software**

from: Panasonic Semiconductor Solutions Co., Ltd.  
PP Conformance: Security IC Platform Protection Profile, Version 1.0,  
15 June 2007, BSI-CC-PP-0035-2007  
Functionality: PP conformant plus product specific extensions  
Common Criteria Part 2 extended  
Assurance: Common Criteria Part 3 conformant  
EAL 6 augmented by ASE\_TSS.2



SOGIS  
Recognition Agreement



The IT Product identified in this certificate has been evaluated at an approved evaluation facility using the Common Methodology for IT Security Evaluation (CEM), Version 3.1 extended by advice of the Certification Body for components beyond EAL 5 and CC Supporting Documents as listed in the Certification Report for conformance to the Common Criteria for IT Security Evaluation (CC), Version 3.1. CC and CEM are also published as ISO/IEC 15408 and ISO/IEC 18045.

(\*) This certificate applies only to the specific version and release of the product in its evaluated configuration and in conjunction with the complete Certification Report and Notification. For details on the validity see Certification Report part A chapter 4.

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 IT Product by the Federal Office for Information Security or any other organisation that recognises or gives effect to this certificate, and no warranty of the IT Product 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, 16 April 2015  
For the Federal Office for Information Security

Bernd Kowalski  
Head of Department

L.S.



**Bundesamt für Sicherheit in der Informationstechnik**

Godesberger Allee 185-189 - D-53175 Bonn - Postfach 20 03 63 - D-53133 Bonn  
Phone +49 (0)228 99 9582-0 - Fax +49 (0)228 9582-5477 - Infoline +49 (0)228 99 9582-111

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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.

Certification of a product is carried out on the instigation of the vendor or a distributor, hereinafter called the sponsor.

A part of the procedure is the technical examination (evaluation) of the product according to the security criteria published by the BSI or generally recognised security criteria.

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.

The Certification Results contain the technical description of the security functionality of the certified product, the details of the evaluation (strength and weaknesses) and instructions for the user.

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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:

- Act on the Federal Office for Information Security<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 ISO/IEC 17065 standard
- BSI certification: Technical information on the IT security certification, Procedural Description (BSI 7138) [3]
- BSI certification: Requirements regarding the Evaluation Facility (BSI 7125) [3]
- Common Criteria for IT Security Evaluation (CC), Version 3.1<sup>5</sup> [1] also published as ISO/IEC 15408.
- Common Methodology for IT Security Evaluation (CEM), Version 3.1 [2] also published as ISO/IEC 18045.
- BSI certification: Application Notes and Interpretation of the Scheme (AIS) [4]

### 2 Recognition Agreements

In order to avoid multiple certification of the same product in different countries a mutual recognition of IT security certificates - as far as such certificates are based on ITSEC or 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 EAL 1 to EAL 4 and ITSEC Evaluation Assurance Levels E1 to E3 (basic). For higher

<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 Security Certificates and approval by the Federal Office for Information Security (BSI-Zertifizierungs- und -Anerkennungsverordnung - BSIZertV) of 17 December 2014, Bundesgesetzblatt 2014, part I, no. 61, p. 2231

<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, p. 3730

recognition levels the technical domain Smart card and similar Devices has been defined. It includes assurance levels beyond EAL 4 resp. E3 (basic). In addition, certificates issued for Protection Profiles based on Common Criteria are part of the recognition agreement.

As of September 2011 the new agreement has been signed by the national bodies of Austria, Finland, France, Germany, Italy, The Netherlands, Norway, Spain, Sweden and the United Kingdom. Details on recognition and the history of the agreement can be found at <https://www.bsi.bund.de/zertifizierung>.

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

This certificate is recognized under SOGIS-MRA for all assurance components selected.

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

The international arrangement on the mutual recognition of certificates based on the CC (Common Criteria Recognition Arrangement, CCRA-2014) has been ratified on 08 September 2014. It covers CC certificates based on collaborative Protection Profiles (cPP) (exact use), certificates based on assurance components up to and including EAL 2 or the assurance family Flaw Remediation (ALC\_FLR) and certificates for Protection Profiles and for collaborative Protection Profiles (cPP).

The CCRA-2014 replaces the old CCRA signed in May 2000 (CCRA-2000). Certificates based on CCRA-2000, issued before 08 September 2014 are still under recognition according to the rules of CCRA-2000. For on 08 September 2014 ongoing certification procedures and for Assurance Continuity (maintenance and re-certification) of old certificates a transition period on the recognition of certificates according to the rules of CCRA-2000 (i.e. assurance components up to and including EAL 4 or the assurance family Flaw Remediation (ALC\_FLR)) is defined until 08 September 2017.

As of September 2014 the signatories of the new CCRA are government representatives from the following nations: Australia, Austria, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, India, Israel, Italy, Japan, Malaysia, The Netherlands, New Zealand, Norway, Pakistan, Republic of Korea, Singapore, Spain, Sweden, Turkey, United Kingdom, and the United States.

The current list of signatory nations and approved certification schemes can be seen on the website: <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 by the nations listed above.

As the product certified has been accepted into the certification process before 08 September 2014, this certificate is recognized according to the rules of CCRA-2000, i.e. up to and including CC part 3 EAL 4 components. This evaluation contains the components ADV\_FSP.5, ADV\_IMP.2, ADV\_INT.3, ADV\_SPM.1, ADV\_TDS.5, ALC\_CMC.5, ALC\_CMS.5, ALC\_DVS.2, ALC\_TAT.3, ATE\_COV.3, ATE\_DPT.3, ATE\_FUN.2 and AVA\_VAN.5 that are not mutually recognised in accordance with the provisions of the CCRA-2000, for mutual recognition the EAL 4 components of these assurance families are relevant.



### 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 product MN67S150 Smart Card IC Version RV08 including IC Dedicated Software has undergone the certification procedure at BSI.

The evaluation of the product MN67S150 Smart Card IC Version RV08 including IC Dedicated Software was conducted by TÜV Informationstechnik GmbH. The evaluation was completed on 7 April 2015. TÜV Informationstechnik 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: Panasonic Semiconductor Solutions Co., Ltd..

The product was developed by: Panasonic Semiconductor Solutions Co., Ltd..

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 product as indicated. The confirmed assurance package is only valid on the condition that

- all stipulations regarding generation, configuration and operation, as given in the following report, are observed,
- the product is operated in the environment described, as specified in the following report and in the Security Target.

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

The Certificate issued confirms the assurance of the product claimed in the Security Target at the date of certification. As attack methods evolve over time, the resistance of the certified version of the product against new attack methods needs to be re-assessed. Therefore, the sponsor should apply for the certified product being monitored within the assurance continuity program of the BSI Certification Scheme (e.g. by a re-certification). Specifically, if results of the certification are used in subsequent evaluation and certification procedures, in a system integration process or if a user's risk management needs regularly updated results, it is recommended to perform a re-assessment on a regular e.g. annual basis.

In order to avoid an indefinite usage of the certificate when evolved attack methods require a re-assessment of the products resistance to state of the art attack methods, the maximum validity of the certificate has been limited. The certificate issued on 16 April 2015 is valid until 15 April 2020. The validity date can be extended by re-assessment or re-certification.

The owner of the certificate is obliged:

1. when advertising the certificate or the fact of the product's certification, to refer to the Certification Report as well as to provide the Certification Report and the

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

Security Target and user guidance documentation mentioned herein to any applicant of the product for the application and usage of the certified product,

2. to inform the Certification Body at BSI immediately about vulnerabilities of the product that have been identified by the developer or any third party after issuance of the certificate,
3. to inform the Certification Body at BSI immediately in the case that security relevant changes in the product's evaluated life cycle, e.g. related to development and production sites or processes, occur or the confidentiality of documentation and information related to the product or resulting from the evaluation and certification procedure is not given any longer. In particular, prior to the dissemination of confidential documentation and information related to the product or resulting from the evaluation and certification procedure that do not belong to the product deliverables according to the Certification Report part B chapter 2 to third parties, permission of the Certification Body at BSI has to be obtained.

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

## 5 Publication

The product MN67S150 Smart Card IC Version RV08 including IC Dedicated Software has been included in the BSI list of certified products, which is published regularly (see also Internet: <https://www.bsi.bund.de> and [5]). Further information can be obtained from BSI-Infoline +49 228 9582-111.

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

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<sup>7</sup> Panasonic Semiconductor Solutions Co., Ltd.  
1 Kotari-yakemachi, Nagaokakyo City  
Kyoto 617-8520  
Japan

## **B Certification Results**

The following results represent a summary of

- the Security Target of the sponsor for the Target of Evaluation,
- the relevant evaluation results from the evaluation facility, and
- complementary notes and stipulations of the certification body.

# 1 Executive Summary

The Target of Evaluation (TOE) is MN67S150 Smart Card IC Version RV08 including IC Dedicated Software. The TOE is the smart card integrated circuit (IC) called MN67S150, developed by Panasonic Semiconductor Solutions Co., Ltd. The TOE is composed of hardware including a processing unit, Cryptographic Hardware (TDES and AES), security components, RF interface, and volatile and non-volatile memories. It also includes IC Dedicated Software and documentation. The IC Dedicated Software is used for test purposes during production but also provide additional services to facilitate usage of hardware to perform testing. All other software is called Security IC Embedded Software, which is not part of the TOE.

The TOE is intended to be used for the applications requiring high security such as transportation and fare collection applications (the Commuter ticket), access control applications (ID cards), and government applications (the Basic Resident Register, health cards and driver license).

The security features implemented by the MN67S150 are true random number generator, voltage sensors, glitch sensor, low frequency sensor, light sensor, clock filters (high frequency & glitch), reset filter, temperature sensors (high & low), sensing shield, cryptograpy (TDES and AES) and countermeasures against DFA, DPA and SPA. For more detail please refer to [6], chapter 1.3.

The Security Target [6] is the basis for this certification. It is based on the certified Protection Profile Security IC Platform Protection Profile, Version 1.0, 15 June 2007, BSI-CC-PP-0035-2007 [7].

The TOE Security Assurance Requirements (SAR) are based entirely on the assurance components defined in Part 3 of the Common Criteria (see part C or [1], Part 3 for details). The TOE meets the assurance requirements of the Evaluation Assurance Level EAL 6 augmented by ASE\_TSS.2.

The TOE Security Functional Requirements (SFR) relevant for the TOE are outlined in the Security Target [6] and [8], chapter 7. They are selected from Common Criteria Part 2 and some of them are newly defined.

The TOE Security Functional Requirements are implemented by the following TOE Security Functionality:

TOE Security Functionality	Addressed issue
SF.RNG	Random Number Generator
SF.FAS	Filters and Sensors
SF.PHY	Tamper Resistance
SF.DPR	Data Protection
SF.MCT	Mode Control
SF.CRPT	Cryptography
SF.ACU	Access Control Unit
SF.ID	ID Injection

Table 1: TOE Security Functionalities

For more details please refer to the Security Target [6] and [8], chapter 7.

The assets to be protected by the TOE are defined in the Security Target [6] and [8], chapter 3.1.1. Based on these assets the TOE Security Problem is defined in terms of Assumptions, Threats and Organisational Security Policies. This is outlined in the Security Target [6] and [8], chapter 3.3.

This certification covers the configurations of the TOE as outlined in chapter 8.

The vulnerability assessment results as stated within this certificate do not include a rating for those cryptographic algorithms and their implementation suitable for encryption and decryption (see BSIG Section 9, Para. 4, Clause 2).

The certification results only apply to the version of the product indicated in the certificate and on the condition that all the stipulations are kept as detailed in this Certification Report. This certificate is not an endorsement of the IT product by the Federal Office for Information Security (BSI) or any other organisation that recognises or gives effect to this certificate, and no warranty of the IT product by BSI or any other organisation that recognises or gives effect to this certificate, is either expressed or implied.

## 2 Identification of the TOE

The Target of Evaluation (TOE) is called:

### **MN67S150 Smart Card IC Version RV08 including IC Dedicated Software**

The following table outlines the TOE deliverables:

No	Type	Identifier	Release	Form of delivery
1	HW	MN67S150 Smart Card IC Version RV08 including IC Dedicated Software	RV08	Sawn wafers (dice)
2	SW	MN67S150 Smart Card IC - IC Dedicated Software consisting of: IC Dedicated Support Software <ol style="list-style-type: none"> <li>1. I/O Preprocessor API</li> <li>2. Memory API</li> <li>3. Cryptographic API</li> <li>4. Timer API</li> <li>5. Utility API</li> <li>6. Issuance API</li> <li>7. Secure Startup</li> </ol> IC Dedicated Test Software <ol style="list-style-type: none"> <li>1. Contact Test Software</li> </ol>	FV0C	Encrypted in electronic form Object file (.rf), Executable format file (.ex) or HEX format file (.hex)
3	DOC	MN67S150 Smart Card IC Administrator Guidance for Smartcard Embedded Software Developer	1.4	Encrypted in electronic form
4	DOC	MN101C/MN101E Series Installation Manual	11640-080E	Encrypted in electronic form
5	DOC	MN101C/MN101E/MN103L Series In-Circuit Emulator Installation Manual	19940-015E	Encrypted in electronic form
6	DOC	PCI/PC Card Installation Manual	19942-101E	Encrypted in

No	Type	Identifier	Release	Form of delivery
				electronic form
7	DOC	MN101C00 Series LSI User's Manual	21499-030E	Encrypted electronic form in
8	DOC	Debug Factory Builder Version 4 Tutorial	1999002-010	Encrypted electronic form in
9	DOC	MN101C/MN101E Series Cross Assembler User's Manual	11410-230E	Encrypted electronic form in
10	DOC	MN101C Series Instruction Manual	11450-041E	Encrypted electronic form in
11	DOC	MN101C/MN101E Series C Compiler User's Manual Library Reference	11422-060E	Encrypted electronic form in
12	DOC	MN101C/MN101E Series C Compiler User's Manual Language Description	11421-090E	Encrypted electronic form in
13	DOC	MN101C/MN101E/MN101L Series C Compiler User's Manual Usage Guide	11420-210E	Encrypted electronic form in
14	DOC	MN67S150 Software Library Specification	1.20	Encrypted electronic form in
15	DOC	MN67S150 Smart Card IC Administrator Guidance for Card Manufacturer	1.2	Encrypted electronic form in

Table 2: Deliverables of the TOE

A processing step during LSI testing incorporates the chip-individual features into the TOE. Each individual TOE is uniquely identified by its ID number. The ID comprises the lot number, the wafer number and the coordinates of the chip on the wafer.

The hardware of the TOE is identified by MN67S150 Smart Card IC Version RV08 including IC Dedicated Software. In addition the dedicated software stored in the ROM of the IC is identified by FV0C (see also table 2).

Another characteristic of the TOE is the chip version information. This information is stored in the ROM and can be read out by the user of the card via the command `mc_GetDevVersion`. For the format of the chip version information see [11], chapter 3.8.2.2. During the production tests furthermore a unique chip ID is written into each copy of the TOE (this chip ID is then stored in NVM and cannot be modified after production tests are finished). The TOE is produced only in Tonami/Japan and the unique Chip ID is represented by '001' (see [11], chapter 3.8.2.1).

### 3 Security Policy

The Security Policy is expressed by the set of Security Functional Requirements and implemented by the TOE.

The Security Policy of the TOE is to provide basic security functionalities to be used by the smart card operating system and the smart card application thus providing an overall

smart card system security. Therefore, the TOE will implement a symmetric cryptographic block cipher algorithm (Triple-DES and AES) to ensure the confidentiality of plain text data by encryption and to support secure authentication protocols and it will provide a True Random Number Generator (TRNG).

As the TOE is a hardware security platform, the security policy of the TOE is also to provide protection against leakage of information (e.g. to ensure the confidentiality of cryptographic keys during AES and Triple-DES cryptographic functions performed by the TOE), against physical probing, against malfunctions, against physical manipulations and against abuse of functionality. Hence the TOE shall

- maintain the integrity and the confidentiality of data stored in the memory of the TOE and
- maintain the integrity, the correct operation and the confidentiality of security functionalities (security mechanisms and associated functions) provided by the TOE.

## 4 Assumptions and Clarification of Scope

The Assumptions defined in the Security Target and some aspects of Threats and Organisational Security Policies are not covered by the TOE itself. These aspects lead to specific security objectives to be fulfilled by the TOE-Environment. The following topics are of relevance: Protection during packaging, finishing and personalization, usage of hardware platform and treatment of user data. Details can be found in the Security Target [6] and [8], chapter 3.4.1.

## 5 Architectural Information

The Target of Evaluation (TOE) is a Smart card integrated circuit which is composed of hardware such as a processing unit, Cryptographic Hardware (TDES, AES), security components, RF Interface and volatile and non-volatile memories ([6] and [8], figure 1). The TOE also includes IC Designer/Manufacturer proprietary IC Dedicated Software ([6] and [8], figure 2). Such software (also known as IC firmware) is used for test purposes during production but also provides additional services to facilitate usage of hardware. In addition to the IC Dedicated Software the Smart Card Integrated Circuit also includes hardware to perform testing. All other software is called Security IC Embedded Software, which is not part of the TOE.

## 6 Documentation

The evaluated documentation as outlined in table 2 is being provided with the product to the customer. This documentation contains the required information for secure usage of the TOE in accordance with the Security Target.

Additional obligations and notes for secure usage of the TOE as outlined in chapter 10 of this report have to be followed.

## 7 IT Product Testing

The tests performed by the developer were divided into six categories:

1. Technology development tests as the earliest tests to check the technology against the specification and to get the technology parameters used in simulations of the circuitry (this testing is not strictly related to Security Functionalities);
2. Tests which are performed in a simulation environment with different tools for the analogue circuitries and for the digital parts of the TOE;
3. Regression tests of the hardware within a simulation environment based on special software dedicated only for the regression tests;
4. Regression tests which are performed for the IC Dedicated Test Software and for the IC Dedicated Support Software on emulator versions of the TOE and within a software simulation of chip in special hardware;
5. Characterisation and verification tests to release the TOE to production:
  - a) used to determine the behaviour of the chip with respect to different operating conditions and varied process parameters (often also referred to as characterisation tests);
  - b) special verification tests for Security Functionalities which were done with samples of the TOE (referred also as developers security evaluation) and which include also layout tests by automatic means and optical control, in order to verify statements concerning the layout;
6. Functional production tests, which are done for every chip to check its correct functionality as a last step of the production process (phase 3).

The developer tests cover all Security Functionalities and all security mechanisms as identified in the functional specification.

The evaluators were able to repeat the tests of the developer either using the library of programs, tools and prepared chip samples delivered to the evaluator or at the developers site. They performed independent tests to supplement, augment and to verify the tests performed by the developer. The tests of the developer were repeated by sampling, by repetition of complete regression tests and by software routines developed by the evaluators and computed on samples with an evaluation operating system. For the developer tests repeated by the evaluators other test parameters were used and the test equipment was varied. Security features of the TOE realised by specific design and layout measures were checked by the evaluators during layout inspections both in design data and on the final product.

The evaluation has shown that the actual version of the TOE provides the Security Functionalities as specified by the developer. The test results confirm the correct implementation of the TOE Security Functionalities.

For penetration testing the evaluators took all Security Functionalities into consideration. Intensive penetration testing was planned based on the analysis results and performed for the underlying mechanisms of Security Functionalities using bespoke equipment and expert know how. The penetration tests considered both the physical tampering of the TOE and attacks which do not modify the TOE physically. The penetration tests results confirm that the TOE is resistant to attackers with high attack potential in the intended environment for the TOE.



## 8 Evaluated Configuration

This certification covers the following configurations of the TOE: MN67S150 Smart Card IC Version RV08 including IC Dedicated Software (table 2).

## 9 Results of the Evaluation

### 9.1 CC specific results

The Evaluation Technical Report (ETR) [9] 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) [4] as relevant for the TOE..

The Evaluation Methodology CEM [2] was used for those components up to EAL5 extended by advice of the Certification Body for components beyond EAL 5 and guidance specific for the technology of the product [4] (AIS 34).

The following guidance specific for the technology was used:

- The Application of CC to Integrated Circuits
- The Application of Attack Potential to Smartcards
- Guidance, Smartcard Evaluation

For RNG assessment the scheme interpretations AIS 31 was used (see [4]).

To support composite evaluations according to AIS 36 the document ETR for composite evaluation [10] was provided and approved. This document provides details of this platform evaluation that have to be considered in the course of a composite evaluation on top.

The assurance refinements outlined in the Security Target were followed in the course of the evaluation of the TOE.

As a result of the evaluation the verdict PASS is confirmed for the following assurance components:

- All components of the EAL 6 package including the class ASE as defined in the CC (see also part C of this report)
- The components ASE\_TSS.2 augmented for this TOE evaluation.

The evaluation has confirmed:

- PP Conformance: Security IC Platform Protection Profile, Version 1.0, 15 June 2007, BSI-CC-PP-0035-2007 [7]
- for the Functionality: PP conformant plus product specific extensions  
Common Criteria Part 2 extended
- for the Assurance: Common Criteria Part 3 conformant  
EAL 6 augmented by ASE\_TSS.2

For specific evaluation results regarding the development and production environment see annex B in part D of this report.

The results of the evaluation are only applicable to the TOE as defined in chapter 2 and the configuration as outlined in chapter 8 above.

## 9.2 Results of cryptographic assessment

The strength of the cryptographic algorithms was not rated in the course of this certification procedure (see BSIG Section 9, Para. 4, Clause 2). But Cryptographic Functionalities with a security level of lower than 100 bits can no longer be regarded as secure without considering the application context. Therefore for this functionalities it shall be checked whether the related crypto operations are appropriate for the intended system. Some further hints and guidelines can be derived from the 'Technische Richtlinie BSI TR-02102' (<https://www.bsi.bund.de>).

Any Cryptographic Functionality that is marked in column 'Security Level above 100 Bits' of the following table with 'no' achieves a security level of lower than 100 Bits (in general context).

Purpose	Cryptographic Mechanism	Standard of Implementation	Key Size in Bits	Security Level above 100 Bits
Cryptographic Primitive	DES	[FIPS46-3] (DES) [SP 800-38A] (CBC, ECB)	k  = 56	No
	TDES	[SP-800-67] (TDEA) [SP 800-38A] (ECB)	k  = 112	No
	AES	[FIPS197] (AES) [SP 800-38A] (OFB, ECB, CBC) [SP 800-38B] (CMAC)	k  = 128	Yes
	Physical True RNG PTG.2	[AIS31]	N/A	N/A

Table 3: TOE cryptographic functionality

- [AIS31] Anwendungshinweise und Interpretationen zum Schema (AIS), AIS 31, Funktionalitätsklassen und Evaluationsmethodologie für physikalische Zufallszahlengeneratoren, Version 3, 2013-05-15, Bundesamt für Sicherheit in der Informationstechnik.
- [FIPS46-3] DATA ENCRYPTION STANDARD (DES), Federal Information Processing Standards Publication 46-3, Reaffirmed 1999 October 25, withdrawn 2005 May 19, U.S. Department of Commerce / National Institute of Standards and Technology.
- [FIPS197] Federal Information Processing Standards Publication 197, November 26, 2001, Announcing the ADVANCED ENCRYPTION STANDARD (AES), National Institute of Standards and Technology.
- [NIST SP800-67] NIST Special Publication 800-67, Recommendation for the Triple Data Encryption Algorithm (TDEA) Block Cipher, Revised January 2012, Revision 1, National Institute of Standards and Technology (NIST), Technology Administration, U.S. Department of Commerce.
- [SP-800-38A] NIST Special Publication 800-38A, Recommendation for Block Cipher Modes of Operation, Methods and Techniques, 2001 Edition, National Institute of Standards and Technology (NIST), Technology Administration, U.S. Department of Commerce.
- [SP-800-38B] NIST Special Publication 800-38B, Recommendation for Block Cipher Modes of Operation, The CMAC Mode for Authentication, 2005 Edition, National Institute of Standards and Technology (NIST), Technology Administration, U.S. Department of Commerce.

## 10 Obligations and Notes for the Usage of the TOE

The documents as outlined in table 2 contain necessary information about the usage of the TOE and all security hints therein have to be considered. In addition all aspects of Assumptions, Threats and OSPs as outlined in the Security Target not covered by the TOE itself need to be fulfilled by the operational environment of the TOE.

The customer or user of the product shall consider the results of the certification within his system risk management process. In order for the evolution of attack methods and techniques to be covered, he should define the period of time until a re-assessment of the TOE is required and thus requested from the sponsor of the certificate.

The limited validity for the usage of cryptographic algorithms as outlined in chapter 9.2 has to be considered by the user and his system risk management process.

Some security measures are partly implemented in the hardware and require additional configuration or control or measures to be implemented by the IC Dedicated Support Software or Embedded Software.

For this reason the TOE includes guidance documentation (see table 2) which contains guidelines for the developer of the IC Dedicated Support Software and Embedded Software on how to securely use the microcontroller chip and which measures have to be implemented in the software in order to fulfil the security requirements of the Security Target of the TOE.

In the course of the evaluation of the composite product or system it must be examined if the required measures have been correctly and effectively implemented by the software. Additionally, the evaluation of the composite product or system must also consider the evaluation results as outlined in the document ETR for composite evaluation [10].

The Security IC Embedded Software Developer receives all necessary recommendations and hints to develop his software in form of the delivered documentation.

- All security hints described in [12] and further documents referred to in [12] have to be considered.

The Composite Product Manufacturer receives all necessary recommendations and hints to develop his software in form of the delivered documentation.

- All security hints described in [12] have to be considered.

## 11 Security Target

For the purpose of publishing, the Security Target [8] of the Target of Evaluation (TOE) is provided within a separate document as Annex A of this report. It is a sanitised version of the complete Security Target [6] used for the evaluation performed. Sanitisation was performed according to the rules as outlined in the relevant CCRA policy (see AIS 35 [4]).

## 12 Definitions

### 12.1 Acronyms

<b>AIS</b>	Application Notes and Interpretations of the Scheme
<b>AES</b>	Advanced Encryption Standard

<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>CBC</b>	Cipher Block Chaining
<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>DES</b>	Data Encryption Standard; symmetric block cipher algorithm
<b>DPA</b>	Differential Power Analysis
<b>DFA</b>	Differential Failure Analysis
<b>EAL</b>	Evaluation Assurance Level
<b>ECB</b>	Electronic Code Book
<b>ETR</b>	Evaluation Technical Report
<b>FIB</b>	Focused Ion Beam
<b>IC</b>	Integrated Circuit
<b>IT</b>	Information Technology
<b>ITSEF</b>	Information Technology Security Evaluation Facility
<b>PP</b>	Protection Profile
<b>RF</b>	Radio Frequency
<b>RNG</b>	Random Number Generator
<b>SAR</b>	Security Assurance Requirement
<b>SFP</b>	Security Function Policy
<b>SFR</b>	Security Functional Requirement
<b>SPA</b>	Simple Power Analysis
<b>ST</b>	Security Target
<b>TDES</b>	Triple Data Encryption Standard
<b>Triple-DES</b>	Triple Data Encryption Standard
<b>TOE</b>	Target of Evaluation
<b>TSF</b>	TOE Security Functionality

## 12.2 Glossary

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

**Collaborative Protection Profile** - A Protection Profile collaboratively developed by an International Technical Community endorsed by the Management Committee.

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

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

**Informal** - Expressed in natural language.

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

**Package** - named set of either security functional or security assurance requirements

**Protection Profile** - A formal document defined in CC, expressing an implementation independent set of security requirements for a category of IT Products that meet specific consumer needs.

**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** - An IT Product and its associated administrator and user guidance documentation that is the subject of an Evaluation.

**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.

## 13 Bibliography

- [1] Common Criteria for Information Technology Security Evaluation, Version 3.1,  
Part 1: Introduction and general model, Revision 4, September 2012  
Part 2: Security functional components, Revision 4, September 2012  
Part 3: Security assurance components, Revision 4, September 2012
- [2] Common Methodology for Information Technology Security Evaluation (CEM),  
Evaluation Methodology, Version 3.1, Rev. 4, September 2012
- [3] BSI certification: Technical information on the IT security certification of products,  
protection profiles and sites (BSI 7138) and Requirements regarding the Evaluation  
Facility for the Evaluation of Products, Protection Profiles and Sites under the CC  
and ITSEC (BSI 7125)
- [4] Application Notes and Interpretations of the Scheme (AIS) as relevant for the TOE<sup>8</sup>.
- [5] German IT Security Certificates (BSI 7148), periodically updated list published also  
in the BSI Website
- [6] Security Target MN67S150 Smart Card IC, BSI-DSZ-CC-0935-2015, Version 1.8,  
2015-03-09, Panasonic Semiconductor Solutions Co., Ltd. (confidential document)
- [7] Security IC Platform Protection Profile, Version 1.0, 15 June 2007,  
BSI-CC-PP-0035-2007
- [8] Security Target (ST-Lite) MN67S150 Smart Card IC, BSI-DSZ-CC-0935-2015,  
Version 1.8, 2015-03-09, Panasonic Semiconductor Solutions Co., Ltd. (sanitised  
public document)
- [9] Evaluation Technical Report Summary (ETR Summary) for MN67S150 Smart Card  
IC Version RV08 including IC Dedicated Software, Version 3, 2015-03-11, TÜV  
Informationstechnik GmbH (confidential document)

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<sup>8</sup>specifically

- AIS 20, Version 3, Funktionalitätsklassen und Evaluationsmethodologie für deterministische Zufallszahlengeneratoren
- AIS 25, Version 8, Anwendung der CC auf Integrierte Schaltungen including JIL Document and CC Supporting Document
- AIS 26, Version 9, Evaluationsmethodologie für in Hardware integrierte Schaltungen including JIL Document and CC Supporting Document
- AIS 31, Version 3, Funktionalitätsklassen und Evaluationsmethodologie für physikalische Zufallszahlengeneratoren
- AIS 32, Version 7, CC-Interpretationen im deutschen Zertifizierungsschema
- AIS 34, Version 3, Evaluation Methodology for CC Assurance Classes for EAL5+ (CCv2.3 & CCv3.1) and EAL6 (CCv3.1)
- AIS 35, Version 2, Öffentliche Fassung des Security Targets (ST-Lite) including JIL Document and CC Supporting Document and CCRA policies
- AIS 36, Version 4, Kompositionsevaluierung including JIL Document and CC Supporting Document
- AIS 38, Version 2, Reuse of evaluation results
- AIS 46, Version 3, Informationen zur Evaluierung von kryptographischen Algorithmen und ergänzende Hinweise für die Evaluierung von Zufallszahlengeneratoren

- [10] ETR for composite evaluation according to AIS 36 for MN67S150 Smart Card IC Version RV08 including IC Dedicated Software, Version 2, 2015-03-11, TÜV Informationstechnik GmbH (confidential document)
- [11] MN67S150 Smartcard IC Administrator Guidance for Security IC Embedded Software Developer, Version 1.4, 2014-12-04, Panasonic Semiconductor Solutions Co., Ltd.
- [12] MN67S150 Smartcard IC Administrator Guidance for Card Manufacturer, Version 1.2, 2014-07-23, Panasonic Semiconductor Solutions Co., Ltd.

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## C Excerpts from the Criteria

CC Part 1:

### 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 extended** - 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 APE_OBJ.2 Security objectives
	APE_ECD.1 Extended components definition
	APE_REQ.1 Stated security requirements 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 ASE_OBJ.2 Security objectives
	ASE_ECD.1 Extended components definition
	ASE_REQ.1 Stated security requirements ASE_REQ.2 Derived security requirements
	ASE_TSS.1 TOE summary specification 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 ADV_FSP.2 Security-enforcing functional specification ADV_FSP.3 Functional specification with complete summary ADV_FSP.4 Complete functional specification ADV_FSP.5 Complete semi-formal functional specification with additional error information ADV_FSP.6 Complete semi-formal functional specification with additional formal specification
	ADV_IMP.1 Implementation representation of the TSF ADV_IMP.2 Implementation of the TSF
	ADV_INT.1 Well-structured subset of TSF internals ADV_INT.2 Well-structured internals ADV_INT.3 Minimally complex internals
	ADV_SPM.1 Formal TOE security policy model
	ADV_TDS.1 Basic design ADV_TDS.2 Architectural design ADV_TDS.3 Basic modular design ADV_TDS.4 Semiformal modular design ADV_TDS.5 Complete semiformal modular design ADV_TDS.6 Complete semiformal modular design with formal high-level design presentation
AGD: Guidance documents	AGD_OPE.1 Operational user guidance
	AGD_PRE.1 Preparative procedures
ALC: Life cycle support	ALC_CMC.1 Labelling of the TOE ALC_CMC.2 Use of a CM system ALC_CMC.3 Authorisation controls ALC_CMC.4 Production support, acceptance procedures and automation ALC_CMC.5 Advanced support
	ALC_CMS.1 TOE CM coverage ALC_CMS.2 Parts of the TOE CM coverage ALC_CMS.3 Implementation representation CM coverage ALC_CMS.4 Problem tracking CM coverage ALC_CMS.5 Development tools CM coverage
	ALC_DEL.1 Delivery procedures
	ALC_DVS.1 Identification of security measures ALC_DVS.2 Sufficiency of security measures
	ALC_FLR.1 Basic flaw remediation ALC_FLR.2 Flaw reporting procedures ALC_FLR.3 Systematic flaw remediation
	ALC_LCD.1 Developer defined life-cycle model

Assurance Class	Assurance Components
	ALC_LCD.2 Measurable life-cycle model
	ALC_TAT.1 Well-defined development tools ALC_TAT.2 Compliance with implementation standards ALC_TAT.3 Compliance with implementation standards - all parts
	ATE_COV.1 Evidence of coverage ATE_COV.2 Analysis of coverage ATE_COV.3 Rigorous analysis of coverage
ATE: Tests	ATE_DPT.1 Testing: basic design ATE_DPT.2 Testing: security enforcing modules ATE_DPT.3 Testing: modular design ATE_DPT.4 Testing: implementation representation
	ATE_FUN.1 Functional testing ATE_FUN.2 Ordered functional testing
	ATE_IND.1 Independent testing – conformance ATE_IND.2 Independent testing – sample ATE_IND.3 Independent testing – complete
	AVA_VAN.1 Vulnerability survey AVA_VAN.2 Vulnerability analysis AVA_VAN.3 Focused vulnerability analysis AVA_VAN.4 Methodical vulnerability analysis 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.

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

#### “Objectives

EAL 1 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.

EAL 1 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.

EAL 1 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 EAL 1 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 (EAL 2) - structurally tested (chapter 8.4)**

#### “Objectives

EAL 2 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.

EAL 2 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 (EAL 3) - methodically tested and checked (chapter 8.5)**

#### “Objectives

EAL 3 permits a conscientious developer to gain maximum assurance from positive security engineering at the design stage without substantial alteration of existing sound development practises.

EAL 3 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 (EAL 4) - methodically designed, tested, and reviewed** (chapter 8.6)

“Objectives

EAL 4 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. EAL 4 is the highest level at which it is likely to be economically feasible to retrofit to an existing product line.

EAL 4 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 (EAL 5) - semiformally designed and tested** (chapter 8.7)

“Objectives

EAL 5 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 EAL 5 assurance. It is likely that the additional costs attributable to the EAL 5 requirements, relative to rigorous development without the application of specialised techniques, will not be large.

EAL 5 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 (EAL 6) - semiformally verified design and tested** (chapter 8.8)

“Objectives

EAL 6 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.

EAL 6 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 (EAL 7) - formally verified design and tested** (chapter 8.9)

“Objectives

EAL 7 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 EAL 7 is currently limited to TOEs with tightly focused security functionality that is amenable to extensive formal analysis.”

Assurance Class	Assurance Family	Assurance Components by Evaluation Assurance Level						
		EAL 1	EAL 2	EAL 3	EAL 4	EAL 5	EAL 6	EAL 7
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”

**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.”



## **D Annexes**

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

Annex A: Security Target provided within a separate document.

Annex B: Evaluation results regarding development  
and production environment

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## Annex B of Certification Report BSI-DSZ-CC-0935-2015

### Evaluation results regarding development and production environment



The IT product MN67S150 Smart Card IC Version RV08 including IC Dedicated Software (Target of Evaluation, TOE) has been evaluated at an approved evaluation facility using the Common Methodology for IT Security Evaluation (CEM), Version 3.1 extended by advice of the Certification Body for components beyond EAL 5 and guidance specific for the technology of the product for conformance to the Common Criteria for IT Security Evaluation (CC), Version 3.1.

As a result of the TOE certification, dated 16 April 2015, the following results regarding the development and production environment apply. The Common Criteria assurance requirements ALC – Life cycle support (i.e. ALC\_CMC.5, ALC\_CMS.5, ALC\_DEL.1, ALC\_DVS.2, ALC\_LCD.1, ALC\_TAT.3)

are fulfilled for the development and production sites of the TOE listed below:

Site	Function	Address
Moriguchi (Panasonic Semiconductor Solutions)	Development regarding: <ol style="list-style-type: none"> <li>1. Security IC Embedded Software</li> <li>2. Logical design data</li> <li>3. Physical design data</li> <li>4. IC dedicated software</li> <li>5. Configuration data (ROM data, TSF data)</li> <li>6. Pre-personalization data</li> <li>7. Specific development aids</li> <li>8. Test and characterisation related data</li> <li>9. Material for software development support</li> <li>10. Wafer/development samples for testing</li> <li>11. Related documentation</li> </ol>	Panasonic Semiconductor Solutions Co., Ltd. Semiconductor Business Unit 3-1-1 Yagumo-naka-machi, Moriguchi City, Osaka 570-8501, Japan
Asaka (Toppan Printing)	Production regarding data conversion for photomask creation	Toppan Printing Co., Ltd. Material Solutions Division 7-21-33 Nobitome, Niiza-city, Saitama 352-8562, Japan

Site	Function	Address
Shiga (Toppan Printing)	Production regarding photomask creation	Toppan Printing Co., Ltd. Material Solutions Division 1101-20, Myohoji-cho, Higashi Omi-city, Shiga 527-8566, Japan
Tonami (TowerJazz Panasonic Semiconductor)	Wafer production	TowerJazz Panasonic Semiconductor Co., Ltd. 271 Higashi-kaihotsu, Tonami City, Toyama 939-1312, Japan
Uozu (TowerJazz Panasonic Semiconductor)	Production regarding assembly, wafer testing and delivery	TowerJazz Panasonic Semiconductor Co., Ltd. 800 Higashiyama, Uozu City, Toyama 937-8585, Japan
Iruma (Matsuda Sangyo)	Defective products processing	Matsuda Sangyo Co., Ltd. Product Division Iruma Factory 87 Higashisayama, Negishi, Iruma, Saitama 358-0034, Japan

For the sites listed above, the requirements have been specifically applied in accordance with the Security Target [6]. The evaluators verified, that the threats, security objectives and requirements for the TOE life cycle phases up to delivery (as stated in the Security Target [6] and [8]) are fulfilled by the procedures of these sites.