

# NXP Eindhoven

## Site Security Target

Rev. 2.9 — 27 April 2022

NXPOMS-1719007347-2663

Evaluation document

PUBLIC

### Document information

| Information | Content   |
|-------------|---|
| Keywords    | Common Criteria, Development Site, NXP Semiconductors Eindhoven, Site Security Target                 |
| Abstract    | Site Security Target for the site certification of the site NXP Semiconductors Netherlands, Eindhoven |



## 1 Document Information

### 1.1 Reference

|                   |   |
|-------------------|---|
| Title:            | Site Security Target - NXP Eindhoven                                  |
| Version:          | 2.9   |
| Date:             | 27 April 2022   |
| Company:          | NXP Semiconductors Netherlands  |
| Name of the site: | NXP Eindhoven   |
| Site Type:        | Admin site<br>Development site<br>Internal shipment<br>Satellite site |
| EAL:              | EAL: SARs taken from EAL6   |

### 1.2 Revision History

| Rev. | Date       | Description   | Author             | Owner                |
|------|------------|---|--------------------|----------------------|
| 2.7  | 2022-02-03 | Initial release in DitaOxygen XML Author v21 . All revisions prior to 2.7 archived. | Antoinette Dickens | Peter van Disseldorp |
| 2.8  | 2022-05-04 | Feedback from SGS (To be released) update NXPOMS *2663                              | Antoinette Dickens | Peter van Disseldorp |
| 2.9  | 2022-27-04 | Update to Site Description  | Antoinette Dickens | Peter van Disseldorp |

## 2 SST Introduction

This document is based on the Eurosmart Site Security Target Template [1] with adaptations such that it fits the site.

This Site Security Target is intended to be used by only one specific client, namely NXP Semiconductors B.V.. Therefore, the term 'client' in this document refers directly to NXP Semiconductors B.V..

Definitions of the color coded areas and handling instructions for classified material can be found here [2]

In the following chapters you will find several times statements like 'this and/or that'. The applicability is given by the 'type of site' and the definition of assets.

### 2.1 Identification of the Site

The site NXP Eindhoven is located at:

```
NXP Semiconductors Eindhoven HTC-46.3-west (Development Center)
Building 46, High Tech Campus 5656AE, Eindhoven
The Netherlands
```

### 2.2 Site Description

#### 2.2.1 Physical Scope

The areas in scope are located on the upper floor of HTC 46 in an enclosed area consisting of two RED areas with lab facilities and Secure IT Administration area. The building is leased and occupied only by NXP. The closed area forms the premises of the site under evaluation and gives all necessary protection to the integrated development area. The area is equipped with security systems providing detection as well as stop layers. Both areas are security areas having restricted access where only authorized persons are allowed to access this area.

Within the development, only members of the development team are entitled to access sensitive information like source code, confidential development documentation and samples. To enforce such access restriction, a combination of physical, procedural, personnel and logical measurements have been installed. Note that physical security objects are not allowed to remain unattended in the two smaller RED rooms (lab facilities).

Within the Secure IT Administration area, only members of the Secure IT Administration team are entitled to access logical information. To enforce such access restriction, a combination of physical, procedural, personnel and logical measurements have been installed. There are no physical security objects stored in this area.

The upper floor of the west side of building specified in [Section 2.1](#) is in the scope of the SST. The surroundings of this building are not in the scope of the SST. Therefore the walls of this building form the physical boundary of the site.

A more detailed view can be found in the Site Security Manual for the Site in NXPOMS-1719007347-2650.

### 2.2.2 Logical Scope

The following life-cycle phases as defined in 'Security IC Platform Protection Profile with Augmentation Packages' (PP-0084) are subject of the SST:

Phase I : Security IC Embedded Software Development

Phase II: IC Embedded Software and testing

To perform its activities the site uses the NXP CCC&S (Competence Center Crypto and Security) provided and managed remote IT- infrastructure. Locally available IT equipment like workstations or VPN router is also provided and managed by NXP CCC&S directly. The site works according to NXP CCC&S processes.

### 2.2.3 List of services in Scope

The following services and/or processes provided by the site are in the scope of the site evaluation process. Some processes are directly part of the phases presented before and others are supporting processes which can be involved at any phase of the development. The services are detailed in section [Section 8.2](#).

- Development
  - Software Testing & Verification
  - Internal Shipment
  - IT Administration
- NXP Eindhoven Site Services Related to lifecycle phases
- Phase I : Security IC Embedded Software Development
  - Phase II: IC Embedded Software and testing
  - Phase II: IC Dedicated Software and testing
-

### 3 Conformance Claim

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The SST is conformant to Common Criteria Version 3.1 ([\[4\]](#), [\[5\]](#)).

For the evaluation the following methodology will be used:

- Common Methodology for Information Security Evaluation (CEM), Evaluation Methodology; Version 3.1 ([\[6\]](#))

The evaluation of the site comprises the following assurance components:

- **ALC\_CMC.5**
- **ALC\_CMS.5**
- **ALC\_DVS.2**
- **ALC\_LCD.1**

The assurance level chosen for the SST is compliant to the Security IC Platform Protection Profile [\[3\]](#) and is therefore suitable for the evaluation of (software for) Security ICs.

The chosen assurance components are derived from the assurance level EAL6 of the assurance class "Life-Cycle Support". For the assessment of the security measures attackers with a high attack potential are assumed. Therefore, this site supports product evaluations up to EAL6.

## 4 Security Problem Definition

The Security Problem Definition comprises security problems derived from threats against the assets handled by the site and security problems derived from the configuration management requirements. The configuration management covers the integrity of the TOE and the security management of the site.

### 4.1 Assets

Depending on the setup of the Site, the protection of the following assets is needed:

**Physical Security Objects:** The site has physical security objects in relation to the "intended TOEs". Both the integrity and the confidentiality of these must be protected.

- Samples
- Printed security documents
- Wafers and dies (all processing states, all treatment steps, good and fail parts)
- Security Seal Tape
- IT Infrastructure (e.g. VPN and MacSec router, Switches, network components)

**Development Data:** The site has access to or even copies of electronic development data in relation to developed TOEs. Both the integrity and the confidentiality of these electronic documents must be protected.

- Chip Design Data (e.g. netlists)
- Chip Design Data (e.g. key material)
- Chip Development Documents (e.g. design documentation)
- Chip Development Documents (e.g. characterization plan and reports)
- Chip Layout Data (e.g. mask data, GDS2)
- Evaluation Documents (e.g. Design reports, guidance documentation)
- PQE Documents (e.g. Failure analysis report)
- Product Documents (e.g. datasheets, specification)
- Software Development (e.g. specifications, source code, reports)
- Test Software/Data/Documents (e.g. specifications, test code)

**Development Tools:** To perform its development activities the site uses tools to transform source code into binaries. The integrity of these tools (running on local or remote development computers) must be protected.

- Development tools for hard and software development (e.g. compiler, bitfiles)

**IT Security Objects:** The site has IT security objects in relation IT infrastructure. Both the integrity and the confidentiality of these must be protected. Development data or keys hosted on the storages in the datacenter are **not** in scope of this SST, but of those for the datacenters.

- Admin account

**Cryptographic Keys:** The site creates, receives and/or handles cryptographic keys. Both the integrity and the confidentiality of these electronic data must be protected.

- Router keys to establish a secure connection

**Site Certification Data:** The site has access to documentation needed to successfully pass a site certification. Both the integrity and the confidentiality of this data must be protected.

- Site Security Manual
- Document list

## 4.2 Threats

**T.Smart-Theft:** An attacker tries to access sensitive areas of the site for manipulation or theft of sensitive assets. The attacker has sufficient time to investigate the site outside the controlled boundary. For the attack the use of standard equipment for burglary is considered. In addition, the attacker may be able to use specific working clothes of the site to camouflage the intention.

**T.Rugged-Theft:** An experienced thief with specialised equipment for burglary, who may be paid to perform the attack tries to access sensitive areas and manipulate or steal sensitive assets.

**T.Computer-Net:** A hacker with substantial expertise, standard equipment, who may be paid to attempt to remotely access sensitive network segments to get access to development and/or production systems with the intention to modify the development and/or production process thus violating integrity and possibly confidentiality.

**T.Accident-Change:** An employee, contractor or student trainee may exchange products of different production lots / different clients during production or changes tool configuration that have an impact on the "intended TOE" by accident.

**T.Unauthorised-Staff:** Unauthorised employees or subcontractors get access to assets or systems used for development, configuration management and/or production, so that the confidentiality and/or the integrity of the "intended TOE" is violated. This can apply to any development and/or production step and any asset related to the "intended TOE" or its configuration.

**T.Staff-Collusion:** An attacker tries to get access to assets handled at the site. The attacker tries to get support from one employee through an attempted extortion or an attempt at bribery.

**T.Attack-Transport:** An attacker might try to get hold of any assets during the internal shipment and/or the external delivery. The target is to compromise confidential information or violate the integrity of the assets during the shipment/delivery process to allow a modification, cloning or the direct/indirect retrieval of confidential information.

## 4.3 Organisational Security Policies

**P.Config-IT\_Env:** In addition to the used software on development and/or production workstations and servers, the site uses configuration management systems for file versioning and problem tracking. For file versioning and problem tracking, the team members are assigned to project specific, centralized repositories to support proper management of multiple products and the site internal procedures. The team members are requested to use only project related IT equipment with the provided tools.

**P.LifeCycle-Doc:** The site uses life cycle documentation that describe:

1. Description of configuration management systems and their usage;
2. A configuration items list;
3. Site security;
4. The production/development process;
5. The production/development tools.

**P.Config-Items:** The configuration management system shall be able to uniquely identify all configuration items. This includes the unique identification of items that are created, generated, developed or used at a site as well as the received and transferred and/or provided items.

**P.Config-Control:** The procedures for setting up the production and/or development process for a new product as well as the procedure that allows changes of the initial setup for a product is only applied by authorised personnel. Automated systems support the configuration management and ensure access control or interactive acceptance measures for set up and changes. The procedure for the initial set up of a production and/or development process ensures that sufficient information is provided by the client.

**P.Config-Process:** The services and/or processes provided by the site are controlled in the configuration management plan. This comprises incoming items, tools used for the development and/or production of the product, the management of flaws and optimizations of the process flow as well as the documentation that describes the services and/or processes provided by the site. A released production/development process is defined and under version control.

**P.Reception-Control:** The inspection of incoming items done at the site ensures that the received assets comply with the properties stated by the client. Furthermore, it is verified that the "intended TOE" can be identified and a released process is defined for the "intended TOE". If applicable this aspect includes the check that all required information and data is available to handle the incoming items.

**P.Zero-Balance:** The site ensures that all sensitive items (security relevant parts of the "intended TOEs" of different clients) are separated and traced on a device basis. For each handover, either an automated or an organizational "two-employees-acknowledgement" (four-eyes principle) is applied for functional and defect assets. As per the released production process the defect assets are either destroyed at the site or sent back to the client.

**P.Organise-Product:** The development, configuration, pre-personalisation, initialisation or personalisation process is applied as specified by the client. If the data includes sensitive items like keys relevant for the life-cycle or configuration data that affect the security of the "intended TOE", appropriate measures are in place. This includes the requirement that the knowledge of sensitive keys is split to at least two different persons. Furthermore, technical measures like crypto-boxes, separation of network, split access permission and secure storage is implemented for this kind of data.

**P.Product-Transport:** Technical and organisational measures ensure the correct labelling of the "intended TOE". A controlled internal shipment and/or the external delivery is applied. The transport supports traceability up to the recipient. If applicable or required, this policy includes measures for packing to protect the product during transport.

**P.Data-Transfer:** Any data in electronic form (e.g. keys, initialization data, design data, job deck, product specifications, test programs, test program specifications, release information etc.) that is classified as sensitive or higher security level by the client is encrypted to ensure confidentiality of the data. In addition, measures are used to control the integrity of the data after the transfer.

**P.Scrap-Items:** Any item that is defect, end-of-life or that does not comply with the quality requirements is shipped back to the client for destruction or is scrapped at the site in a way that the destructed item does not support any attacker.



## 4.4 Assumptions

Each site operating in a production flow must rely on preconditions provided by the previous site. Each site must rely on the information received by the previous site/client. This is reflected by the assumptions that must be defined for the interface.

**A.Secure-IT-Provisioning:** The local IT equipment (e.g. workstations, servers, HSMS) is connected to a secure remote IT-Infrastructure through a secure (encrypted) network connection. The local secure IT-infrastructure together with the remote secure IT-infrastructure and the secure connection between them will satisfy all relevant ALC requirements and are provided and managed by the client. The workstations are configured such that any logical assets are contained within encrypted containers.

**NXP rationale for usage of this site:** *The secure connection is established by using a VPN tunnel between the two sites. The underlying connection is a rented line which additionally provides an encryption on its own. The evaluator was informed during connection of this site to the security certified network infrastructure. The correctness of the implementation was checked during the virtual Master IT audit. Please refer to the site visit report [8]. The standard NXP Semiconductors PC/Laptop stream developed during the 'Tightening security project' supports the usage of encrypted containers. The usage of this tool is introduced to every user during the advanced security training.*

**A.Client-Agreements [IT]:** The site participates in the administration of the IT environment. The site and the client agree on the following items:

- the activities to be performed by the site including work instructions,
- in case of necessary updates to the life cycle documentation, the site and the client align.

The agreed methods and tools ensure the correct handling of the configuration items in terms of Common Criteria regarding the classes ALC\_CMC, ALC\_CMS.

**NXP rationale for usage of this site:** *Secure IT environment manager provides CM controlled work instructions to the site. As the employees at this site are considered as regular team members just located at another physical site, each change on the documents controlled in NXPOMS is accessible by them. All admin employees are trained concerning relevant security requirements using "Security\_Awareness\_Training @ Brainshark" and work according to NXPOMS-1719007347-2401 "CCC&S Security Objects". Furthermore they have access to all relevant experts at the other secure IT locations worldwide.*

**A.Client-Agreements [Satellite]:** The site participates in the development of products. The site and the client agree on the following items:

- the activities to be performed by the site,
- the specifications of the input for the site including tools,
- the acceptance of the results by the client,
- the used configuration management methods, tools and their setup,
- the delivery and shipment details of any security relevant item,
- the necessary setup of computers, their configuration and user accounts,
- the handling of scrap configuration items: in case that scrap is not destroyed by the site, scrap configuration items are transferred back to the client,
- in case of necessary updates to the life cycle documentation, the site and the client align.

The agreed methods and tools ensure the correct handling of the configuration items in terms of Common Criteria regarding the classes ALC\_CMC, ALC\_CMS and ALC\_TAT.

**NXP rationale for usage of this site:** Whether the team members are located on an NXP premise or remotely on another secure site does not make any difference. They are part of the team and contribute in the same way as all team members do. All available security objects are handled according to NXPOMS-1719007347-2401 "CCC&S Security Objects". All activities per site are covered in the overall PMP, the sub-project PMP or the WBS in Sciforma as documented in NXPOMS-999116894-3989 "BL C&S BCaM Handbook". The input for the site is handled during the project setup and the creation of the WBS for the engineers at the site. The acceptance of the results is defined during the project setup in the requirements development phase and checked during the gate reviews. The used configuration management methods and tools are documented in NXPOMS-1719007347-2524 "Configuration and Data Management Procedure". The delivery and shipment is covered by NXPOMS-1719007347-2354 "CCC&S Packing and Delivery Requirements for Security Products", while the return shipment (also scrap) from this site to NXP is covered in their ALC-DVS documentation. This site is supported by the NXP IT team to put in place and to configure development and production computers according to corporate and/or CCC&S rules. They use the usual configuration management tools which were certified during the virtual Master IT audit.

**A.Item-Identification:** Each configuration item received by the site is appropriately labelled to ensure the identification of the configuration item.

**NXP rationale for usage of this site:** Standard tools like Enovia, Collabnet, DesignSync and NXPOMS were checked during the Hamburg Common Criteria audit. The site sticks to these tools commonly used in NXP. They all were found suitable for proper configuration item handling and providing unique identifiers.

**A.Internal-Shipment:** The recipient (client) of the product is identified by the address of the client site. The address of the client is part of the product setup.

**NXP rationale for usage of this site:** All shipments follow the same procedures. A shipment request is generated per paper, database, website or per mail. After approval (e.g. by security management, export control, group leader, cost center manager,...) such request is entered/transferred in to SAP where a shipment address must exist for the recipient. Every new external development or production site has to be added once to the SAP system, before it can be used. The address is determined during project setup or site certification request. The secure shipment process from that moment on is according the to process documentation in NXPOMS-1719007347-2354 "CCC&S Packing and Delivery Requirements for Security Products".

## 5 Security Objectives

The Security Objectives are related to physical, technical, and organizational security measures, the configuration management as well as the internal shipment and/or the external delivery.

**O.Config-IT\_Env:** In addition to the used software on development workstations/systems and servers, the site uses configuration management systems for file versioning and problem tracking. For file versioning unique repositories are used to support proper management of multiple products and the site internal procedures.

**O.Exclusive-Access:** The only way to access the clients network is through management workstations connected to the encryption equipment provided by the client. There is no internal network access to the encryption equipment.

**O.LifeCycle-Doc:** The site uses life cycle documentation that describes:

1. Description of configuration management systems and their usage;
2. A configuration items list;
3. Site security;
4. The manufacturing process;
5. The manufacturing tools;
6. Configuration Management Plan.

**O.Physical-Access:** The combination of physical partitioning between the different access control levels together with technical and organisational security measures allows a sufficient separation of employees to enforce the "need to know" principle. The access control shall support the limitation for the access to these areas including the identification and rejection of unauthorised people. The site enforces two or three levels of access control to sensitive areas of the site. The access control measures ensure that only registered and authorized people can access restricted areas. Sensitive products and data are handled in restricted areas only. Network cabling is protected according to classification of the transferred data by avoiding routes through public areas or by usage of appropriate cryptographic measures.

**O.Security-Control:** Assigned personnel of the site or guards operate the systems for access control and surveillance and respond to alarms. Technical security measures like video control, motion sensors and similar kind of sensors support the enforcement of the access control. These personnel are also responsible for registering and ensuring escort of visitors, contractors and suppliers.

**O.Alarm-Response:** The technical and organisational security measures ensure that an alarm is generated before an unauthorised person gets access to any sensitive configuration item (assets). After the alarm is triggered the unauthorised person still has to overcome further security measures. The reaction time of the employees and/or guards is short enough to prevent a successful attack.

**O.Internal-Monitor:** The site performs security management meetings at least every six months. The security management meetings are used to review security incidences, to verify that maintenance measures are applied and to reconsider the assessment of risks and security measures. Furthermore, an internal audit is performed every year to control the application of the security measures. Sensitive processes may be controlled within a shorter time frame to ensure a sufficient protection.

**O.Maintain-Security:** Technical security measures are maintained regularly to ensure correct operation. The logging of sensitive systems is checked regularly. This comprises the access control system to ensure that only authorised employees have access to

sensitive areas as well as computer/network systems to ensure that they are configured as required to ensure the protection of the networks and computer systems.

**O.Network-Separation:** The development network of the site exists within the secured areas of the site only. It is connected only to:

1. the VPN gateway that provides a secure connection to the remote secure network of the client;
2. the development workstations provided by the client;
3. additional equipment (e.g. a printer) approved by the client.

**O.Logical-Access:** The site implements a firewall system to enforce a logical separation between the internal network and the internet. The firewall system ensures that only defined services and defined connections are accepted. Furthermore, the internal network is separated into production networks, office and administration network. Specific networks for production and configuration/administration are further logically separated from other internal network to enforce access control. Access to the production network and related systems is restricted to authorised employees involved in the configuration tasks of the production systems. Every user of an IT system has its own user account and password. An authentication using a unique user account and password is enforced by all computer systems.

**O.Logical-Operation:** All network segments and the computer systems are kept up to date (software updates, security patches, virus protection, spyware protection). The backup of sensitive data and security relevant logs is applied according to the classification of the stored data.

**O.Config-Items:** The site has a configuration management system that assigns a unique internal identification to each product to uniquely identify configuration items and allow an assignment to the client. Also, the internal procedures and guidance are covered by the configuration management.

**O.Config-Control:** The site applies a release procedure for the setup of the production and/or development process for each new product. In addition, the site has a process to classify and introduce changes for services and/or processes of released products. Minor changes are handled by the site, major changes must be acknowledged by the client. A designated team is responsible for the release of new products and for the classification and release of changes. This team comprises specialists for all aspects of the services and/or processes. The services and/or processes can be changed by authorised personnel only. Automated systems support configuration management and production control.

**O.Config-Process:** The site controls its services and/or processes using a configuration management plan. The configuration management is controlled by tools and procedures for the development and production of the product, for the management of flaws and optimisations of the process flow as well as for the documentation that describes the services and/or processes provided by a site.

**O.Staff-Engagement:** All employees who have access to sensitive configuration items and who can move parts of the product out of the defined production/development flow are checked regarding security concerns and have to sign a nondisclosure agreement. Furthermore, all employees are trained and qualified for their job.

**O.Zero-Balance:** The site ensures that all sensitive products ("intended TOE" of different clients) are separated and traced on a device basis. Automated control and/or two employees acknowledgement during hand over is applied for functional and defective

devices. According to the agreed production flow the defect devices are either destroyed at the site or sent to the client or the consumer.

**O.Reception-Control:** Upon reception of any product/mask/"intended TOE" an immediate incoming inspection is performed. The inspection comprises the received amount, their identification and the assignment of the items to a related internal process.

**O.Internal-Shipement:** The recipient of a physical configuration item is identified by the assigned client address. The internal shipment procedure is applied to the configuration item. The address for shipment can only be changed by a controlled process. The packaging is part of the defined process and applied as agreed with the client. The forwarder supports the tracing of configuration items during internal shipment. For every sensitive configuration item, the protection measures against manipulation are defined.

**O.Data-Transfer:** Sensitive electronic configuration items (data or documents in electronic form) are protected with cryptographic algorithms to ensure confidentiality and integrity. The associated keys must be assigned to individuals to ensure that only authorised employees are able to extract the sensitive electronic configuration item. The keys are exchanged based on secure measures and they are sufficiently protected.

**O.Control-Scrap:** The site has either measures in place to destruct sensitive documentation, erase electronic media and destroy sensitive configuration items so that they do not support an attacker, or the site returns the assets to be scrapped to the client, according to the secure shipment procedure of the client.

## 5.1 Security Objectives Rationale

The SST includes a Security Objectives Rationale with two parts. The first part includes the tracing which shows how the threats and OSPs are covered by the Security Objectives. The second part includes a justification that shows that all threats and OSPs are effectively addressed by the Security Objectives.

Note that the assumptions of the SST cannot be used to cover any threat or OSP of the site. They are pre-conditions fulfilled either by the site providing the sensitive configuration items or by the site receiving the sensitive configuration items. Therefore, they do not contribute to the security of the site under evaluation.

### 5.1.1 Mapping of Security Objectives

All the given security objective(s) in the table below counter(s) the threat / OSP.

Table 1. Security Problem Definition mapping to Security Objective

| Security Problem Definition / Threats | Security Objective   |
|---------------------------------------|--|
| T.Smart-Theft                         | O.Physical-Access<br>O.Security-Control<br>O.Alarm-Response<br>O.Internal-Monitor<br>O.Maintain-Security |
| T.Rugged-Theft                        | O.Physical-Access<br>O.Security-Control<br>O.Alarm-Response<br>O.Internal-Monitor<br>O.Maintain-Security |

Table 1. Security Problem Definition mapping to Security Objective...continued

| Security Problem Definition / Threats  | Security Objective   |
|--|--|
| T.Computer-Net                         | O.Exclusive-Access<br>O.Maintain-Security<br>O.Network-Separation<br>O.Logical-Access  |
| T.Accident-Change                      | O.Logical-Access<br>O.Logical-Operation<br>O.Config-Items<br>O.Config-Control<br>O.Config-Process<br>O.Staff-Engagement<br>O.Zero-Balance<br>O.Control-Scrap                               |
| T.Unauthorised-Staff                   | O.Physical-Access<br>O.Security-Control<br>O.Alarm-Response<br>O.Internal-Monitor<br>O.Maintain-Security<br>O.Logical-Operation<br>O.Staff-Engagement<br>O.Zero-Balance<br>O.Control-Scrap |
| T.Staff-Collusion                      | O.Internal-Monitor<br>O.Maintain-Security<br>O.Staff-Engagement<br>O.Zero-Balance<br>O.Control-Scrap   |
| T.Attack-Transport                     | O.LifeCycle-Doc<br>O.Internal-Shipment   |
| Security Problem Definition / Policies | Security Objective   |
| P.Config-IT_Env                        | O.Config-IT_Env  |
| P.LifeCycle-Doc                        | O.LifeCycle-Doc  |
| P.Config-Items                         | O.Config-Items<br>O.Reception-Control  |
| P.Config-Control                       | O.Logical-Access<br>O.Config-Items<br>O.Config-Control   |
| P.Config-Process                       | O.Config-Process   |
| P.Reception-Control                    | O.Reception-Control  |
| P.Zero-Balance                         | O.Staff-Engagement<br>O.Zero-Balance<br>O.Control-Scrap  |

Table 1. Security Problem Definition mapping to Security Objective...continued

| Security Problem Definition / Threats | Security Objective  |
|---------------------------------------|---|
| P.Organise-Product                    | O.Logical-Access<br>O.Logical-Operation<br>O.Config-Control<br>O.Config-Process |
| P.Product-Transport                   | O.Config-Process<br>O.Internal-Shipment<br>O.Data-Transfer                      |
| P.Data-Transfer                       | O.Data-Transfer   |
| P.Scrap-Items                         | O.Control-Scrap   |

5.1.2 Objectives Rationale

The following rationale provides a justification that shows that all threats and OSP are effectively addressed by the Security Objectives.

**O.Config-IT\_Env:** The site uses only project related tools and IT equipment. To provide a separation between different projects, the site uses configuration file versioning and unique repositories as well as configuration management systems.

*This directly addresses the OSP P.Config-IT\_Env.*

**O.Exclusive-Access:** Using the protected security networks is only possible from inside the certified security areas or via VPN tunnel in specific cases. Administrative tasks can only be executed by authorized personnel from specific security rooms. No other possibility does exist to access or administrate the security networks.

*This directly addresses the threat T.Computer-Net.*

**O.LifeCycle-Doc:** Dedicated documents exist which define the use and the management of the configuration management systems, the configuration item list, the site security, the production/development process and the production/development tools. The site follows the procedures and instructions of these documents.

*This directly addresses the OSP P.LifeCycle-Doc. The threat T.Attack-Transport can be prevented.*

**O.Physical-Access:** The site implements a "need to know" principle by separation measures using a combination of physical partitioning together with technical and organisational security measures. The access control measures support the enforcement of the separation and the "need to know" principle. The handling of assets is restricted to separate security areas.

*By the combination of these measures the threats T.Smart-Theft, T.Rugged-Theft and T.Unauthorised-Staff can be prevented.*

**O.Security-Control:** The site is using dedicated, trained security personnel for guard services. These personnel are responsible for operation of the access control and alarm systems, performing patrol rounds, visitor registration, physical key management, the surveillance of the technical alarm sensors and the responses to incidents.

*By the combination of these measures the threats T.Smart-Theft, T.Rugged-Theft and T.Unauthorised-Staff can be prevented.*

**O.Alarm-Response:** In case of an access attempt to an asset by an unauthorized person, the site has an alarm system in place. After the alarm is triggered the

unauthorised person still must overcome further security measures. The reaction time of the employees and/or guards is short enough to prevent a successful attack.

*By the combination of these measures the threats T.Smart-Theft, T.Rugged-Theft and T.Unauthorised-Staff can be prevented.*

**O.Internal-Monitor:** Regular meetings are implemented to monitor security incidences as well as changes or updates of security relevant systems and processes. This includes the assessment of security alarms and associated logs of the physical and logical protection. In addition, results of internal audits and assessments are reviewed.

*This helps to prevent the threat(s) T.Smart-Theft, T.Rugged-Theft, T.Unauthorised-Staff and T.Staff-Collusion.*

**O.Maintain-Security:** The security related surveillance and alarm systems are maintained on a regular basis. The physical and logical access permission are reviewed and updated if needed. Logs of the associated systems are reviewed to support the work.

*This helps to prevent the threat(s) T.Smart-Theft, T.Rugged-Theft, T.Computer-Net, T.Unauthorised-Staff and T.Staff-Collusion.*

**O.Network-Separation:** The security network is located in a dedicated secured area. This network is connected only to dedicated trustworthy systems.

*This directly addresses the threat T.Computer-Net.*

**O.Logical-Access:** The secure IT network is split in several segments according to different security level and purpose (development, administration, lab, manufacturing). The protection of network segments is implemented according to the classification of the processed data. The separation is enforced by firewalls and additional network components. Network services are limited to prevent the misuse and the access to network segments. User accounts are limited to the access rights required by the job task following a strict "need to know principle".

*This helps to address the OSP(s) P.Config-Control and P.Organise-Product. This helps to prevent the threat(s) T.Computer-Net and T.Accident-Change.*

**O.Logical-Operation:** Virus protection and patch management for operating systems and applications ensure the secure operation of the computer systems and the defense against malfunctions provoked by malicious software. Furthermore, backup of the production control system and data processing tools is implemented and the classified data from the client is excluded from the backup.

*This directly addresses the OSP P.Organise-Product. This helps to prevent the threat(s) T.Unauthorised-Staff and T.Accident-Change.*

**O.Config-Items:** The different items part of an "intended TOE" and the "intended TOE" itself is under configuration management. This configuration management system assigns unique identification numbers.

*This helps to address the OSP(s) P.Config-Items and P.Config-Control. This helps to prevent the threat T.Accident-Change.*

**O.Config-Control:** "Intended TOE" development is performed by authorized people using configuration management plan and change management. Automated tools are used for configuration management and for production control.

*This helps to address the OSP(s) P.Organise-Product and P.Config-Control. This helps to prevent the threat T.Accident-Change.*



**O.Config-Process:** The control of the released production/development processes and the controlled introduction of changes ensure a reproducible and consistent production/development. Procedures for setting up the production/development process as well as changes to the released processes and documents are in place. Changes can only be done by authorised personnel. A team of specialists ensures that all aspects are covered for the introduction of new processes and for the assessment of changes. All documentation is under configuration management.

*This helps to address the OSP(s) P.Product-Transport, P.Organise-Product and P.Config-Process. This helps to prevent the threat T.Accident-Change.*

**O.Staff-Engagement:** The site has established personnel security measures. All employees who have access to assets are checked regarding security concerns and have to sign a non-disclosure agreement. This provides legal liability to protect the assets against disclosure. Furthermore, all employees are qualified for their job, are trained and had to pass a questionnaire to check the security awareness.

*This directly addresses the OSP P.Zero-Balance. This helps to prevent the threat(s) T.Accident-Change, T.Unauthorised-Staff and T.Staff-Collusion.*

**O.Zero-Balance:** The security of scrap handling is ensured by either securely destruct assets (e.g. paper shredder) or return them to the client. Furthermore, in case of production, all assets are uniquely identified throughout the whole process. Before an order is closed a zero-balance calculation is documenting the good and bad parts of this order.

*This directly addresses the OSP P.Zero-Balance. This helps to prevent the threat(s) T.Accident-Change, T.Unauthorised-Staff and T.Staff-Collusion.*

**O.Reception-Control:** When design/test/production data is received, the integrity and completeness of the data is verified and assigned to the related client order. The link between data and client order ensures the unique identification. When receiving physical assets, an inspection of the items is performed in order to acknowledge the correct amount, their identification and the assignment. Received assets are registered within the tracking system.

*This helps to address the OSP(s) P.Reception-Control and P.Config-Items.*

**O.Internal-Shipment:** Packing procedures including seal tape and the tracking of the transport support the identification of manipulations during the transport. The address of the client is part of the product setup and included in the requirements specification of the client.

*This directly addresses the OSP P.Product-Transport. The threat T.Attack-Transport can be prevented.*

**O.Data-Transfer:** The integrity and confidentiality of the data transfer from/to the site is protected against modification and/or disclosure by cryptographic means during transfer. The selected cryptographic algorithms are appropriate to resist against high attack potential. Cryptographic keys and password used for secure communication are sufficiently protected against unauthorised access and disclosure.

*This helps to address the OSP P.Product-Transport P.Data-Transfer.*

**O.Control-Scrap:** The security of scrap handling is ensured by either securely destruct assets at the site (e.g. paper shredder) or return them to the client. Scrap material is stored, until destruction or shipment back to the client, in security environments. Procedures document the destruction process.

*This helps to address the OSP(s) P.Zero-Balance and P.Scrap-Items. This helps to prevent the threat(s) T.Accident-Change, T.Unauthorised-Staff and T.Staff-Collusion.*

## **6 Extended Assurance Components Definition**

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No extended components are defined in this Site Security Target.

## 7 Security Assurance Requirements

Clients using this Site Security Target require a TOE evaluation up to evaluation assurance level EAL6, potentially claiming conformance with the Eurosmart Protection Profile [3].

The Security Assurance Requirements (SAR) are:

- CM capabilities (ALC\_CMC.5)
- CM scope (ALC\_CMS.5)
- Development Security (ALC\_DVS.2)
- Life-cycle definition (ALC\_LCD.1)

The Security Assurance Requirements listed above fulfil the requirements of [7] because hierarchically higher components than the defined minimum site requirements (ALC\_CMC.3, ALC\_CMS.3, ALC\_DVS.1) are used in this Site Security Target.

In addition, the minimum set of SARs is extended by SAR of the assurance components for "Life-cycle definition" (ALC\_LCD.1), .

### 7.1 Application Notes and Refinements

The description of the site certification process [7] includes specific application notes. The main item is that a product that is considered as "intended TOE" is not available during the evaluation. Since the term "TOE" is not applicable in the Site Security Target, the associated processes for the handling of products, or "intended TOEs" are in the scope of this Site Security Target and are described in this document. These processes are subject of the evaluation of the site.

The SST in hand has been refined to consider "intended TOEs" rather than specific TOEs. All other refinements as stipulated by the corresponding subsections in "Application Notes for Site Certification" [7], chapter 5 of the chosen [Assurance Classes](#) have been applied as well. In addition, the relevant refinements of the Eurosmart PP [3] have been considered.

### 7.2 Security Assurance Rationale

The Security Assurance Rationale maps the content elements of the selected assurance components of [5] to the Security Objectives defined in this SST. The refinements described above are considered.

The site has a process in place to ensure an appropriate and consistent identification of the products. If the site already receives configuration items, this process is based on the assumption that the received configuration items are appropriately labelled and identified.

Note: The content elements that are changed from the original CEM [6] according to the application notes in the process description [7] are written in italic. The term TOE can be replaced by "configuration items" in most cases. In specific cases it is replaced by "intended TOE". "Configuration items" is used here in the sense that these are items contributing to build or to produce the TOE.

The SAR Rationale does not explicitly address the developer action elements defined in [5] because they are implicitly included in the content elements. This comprises the provision of the documentation to support the evaluation and the preparation for the site visit. This includes the requirement that the procedures are applied as written and explained in the documentation.

7.2.1 Rationales, Aspects and References for ALC\_CMC.5

**ALC\_CMC.5.1C** - The CM documentation shall show that a process is in place to ensure an appropriate and consistent labelling.

| Security Objective  | Rational   |
|---------------------|--|
| O.Reception-Control | Ensures the correct identification of the incoming items.  |
| O.Config-IT_Env     | A CM-Plan which is mandatory for each project ensures appropriate and consistent labeling through its application. |
| O.LifeCycle-Doc     | The provided tools include a configuration management system for versioning and bug tracking.                      |

| Aspects  | Reference  |
|--|--|
| The sources are labelled in the version control system, which is owned by CCC&S. Documents are labelled with a DOC-number, -title, -owner and date. Configuration Items are identified via the identifiers that are automatically provided by the system as well as the baseline labels that are given by the configuration manager. | - NXPOMS-999116894-3989 - BL C&S BCaM Handbook, slide on Configuration management<br>- Configuration Management References and Templates |

**ALC\_CMC.5.2C** - The CM documentation shall describe the method used to uniquely identify the configuration items.

| Security Objective | Rational  |
|--------------------|---|
| O.LifeCycle-Doc    | The method used to uniquely identify the configuration items is described in the CM-Plan. |

| Aspects   | Reference  |
|---|--|
| All items can be uniquely identified by the version control system, which is owned by CCC&S. Documents can be uniquely identified using the labelling described above. Configuration Items are identified via the identifiers that are automatically provided by the system as well as the baseline labels that are given by the configuration manager. | - NXPOMS-999116894-3989 - BL C&S BCaM Handbook, slide on Configuration management<br>- Configuration Management References and Templates |

**ALC\_CMC.5.3C** - The CM documentation shall justify that the acceptance procedures provide for an adequate and appropriate review of changes to all configuration items.

| Security Objective | Rational   |
|--------------------|--|
| O.LifeCycle-Doc    | The adequate and appropriate acceptance procedures for configuration items are described in the CM-Plan. |
| O.Config-Control   | Change acceptance is managed by authorized people only.  |

| Aspects   | Reference   |
|---|---|
| Review board is in place for every project.<br>Steering is done by CCC&S. | <ul style="list-style-type: none"> <li>- NXPOMS-999116894-3989 - BL C&amp;S BCaM Handbook, slide on Configuration management, Change Control Board - CCB &amp; Change Control Process Outline</li> <li>- NXPOMS-999116894-3989 - BL C&amp;S BCaM Handbook, slide on Configuration management, slide on NPI 3.0 Key Review overview</li> <li>- NPI Lifecycle</li> <li>- Configuration Management References and Templates</li> <li>- NXPOMS-1719007347-2486 - BL C&amp;S Gate Checklist</li> </ul> |

**ALC\_CMC.5.4C** - The CM system shall uniquely identify all configuration items.

| Security Objective | Rational  |
|--------------------|---|
| O.Config-IT_Env    | Provides the CM system.   |
| O.Config-Items     | The configuration management system is ensuring uniqueness of the identification.                                   |
| O.Config-Process   | Unique identification of all configuration items is realized by performing the configuration management activities. |
| O.LifeCycle-Doc    | All actions are performed in accordance with the CM-Plan.   |

| Aspects  | Reference  |
|--|--|
| All items can be uniquely identified by the version control system, which is owned by CCC&S. | <ul style="list-style-type: none"> <li>- NXPOMS-999116894-3989 - BL C&amp;S BCaM Handbook, slide on Configuration management</li> <li>- Configuration Management References and Templates</li> </ul> |

**ALC\_CMC.5.5C** - The CM system shall provide automated measures such that only authorised changes are made to the configuration items.

| Security Objective | Rational                |
|--------------------|-------------------------|
| O.Config-IT_Env    | Provides the CM system. |

| Security Objective | Rational  |
|--------------------|---|
| O.Config-Items     | The CM system ensure unique identification.                               |
| O.Config-Process   | Mandates a CM-Plan for each project.                                      |
| O.Config-Control   | Ensures that only authorized changes are made to the configuration items. |
| O.LifeCycle-Doc    | Enforces the configuration management process.                            |

| Aspects  | Reference  |
|--|--|
| Different CM tools like DesignSync, CollabNet as well as EnoviaNXP provide automated measures to only allow authorized changes to configuration items. Restricted access allows only authorized persons to do changes and the authorization for the change is approved by the Change Control Board using the change process. | <ul style="list-style-type: none"> <li>- NXPOMS-999116894-3989 - BL C&amp;S BCaM Handbook, slide on Configuration management</li> <li>- Configuration Management References and Templates</li> <li>- CollabNet TeamForge - User Guide</li> </ul> |

**ALC\_CMC.5.6C** - The CM system shall support the production of the *intended* TOE by automated means.

| Security Objective | Rational   |
|--------------------|--|
| O.Config-IT_Env    | Provides the CM system.  |
| O.Config-Items     | The CM system ensure unique identification.                            |
| O.Config-Process   | Mandates a CM-Plan for each project.                                   |
| O.LifeCycle-Doc    | Enforces the configuration management process and the automated means. |
| O.Zero-Balance     | Zero-Balancing is performed at each step.                              |

| Aspects  | Reference   |
|--|---|
| Different CM tools like DesignSync, CollabNet as well as EnoviaNXP support the development of the "intended TOE" by automated means. | <ul style="list-style-type: none"> <li>- NXPOMS-999116894-3989 - BL C&amp;S BCaM Handbook, slide on Configuration management</li> <li>- Configuration Management References and Templates</li> <li>- CollabNet TeamForge - User Guide</li> <li>- NXPOMS-1719007347-2657 - Design Environment Maintenance</li> </ul> |

**ALC\_CMC.5.7C** - The CM system shall ensure that the person responsible for accepting a configuration item into CM is not the person who developed it.

| Security Objective | Rational   |
|--------------------|--|
| O.LifeCycle-Doc    | Ensures, that activities performed are such that the person responsible for accepting a configuration item into CM is not the person who developed it. |
| O.Config-Process   | Mandates a CM-Plan for each project.   |

| Aspects   | Reference   |
|---|---|
| Specific roles in tools are defined in a way that the person responsible for accepting a configuration item into CM is not the person who developed it. E.g. the role 'Documentation Office' publishes a document written by an 'Author' or the 'Integrator' generates the release of the "intended TOE", while the 'Developer' is responsible for the development of the "intended TOE" but cannot release it. | <ul style="list-style-type: none"> <li>- NXPOMS-999116894-4839 - Project Setup in CollabNet instructions</li> <li>- Configuration Management Procedure</li> <li>- NXPOMS-999116894-14314 - BL CS Project Role Descriptions</li> </ul> |

**ALC\_CMC.5.8C** - The CM system shall identify the configuration items that comprise the TSF.

| Security Objective | Rational   |
|--------------------|--|
| O.Config-IT_Env    | Provides the CM system.  |
| O.Config-Items     | The CM system ensure unique identification.  |
| O.Config-Process   | Mandates a CM-Plan for each project.   |
| O.LifeCycle-Doc    | The CM-Plan identifies the configuration items that comprise the TSF supported by the configuration management system. |

| Aspects   | Reference  |
|---|--|
| Per [7] there is no specific TOE in the focus, therefore, this is only applicable to the CM documentation. The documentation can be identified in the tool EnoviaNXP. | - Product/project specific CM plans and the CI list that is used for CC evaluation |

**ALC\_CMC.5.9C** - The CM system shall support the audit of all changes to the *intended* TOE by automated means, including the originator, date, and time in the audit trail.

| Security Objective | Rational                |
|--------------------|-------------------------|
| O.Config-IT_Env    | Provides the CM system. |



| Security Objective | Rational   |
|--------------------|--|
| O.Config-Items     | The CM system ensure unique identification.  |
| O.Config-Process   | Mandates a CM-Plan for each project.   |
| O.LifeCycle-Doc    | As described in the CM-Plan the configuration management systems are configured such that an audit trail (showing originator, date and time) is automatically generated. |

| Aspects   | Reference   |
|---|---|
| Different CM tools like DesignSync or CollabNet provide automated means to support the audit of all changes. Documents stored in EnoviaNXP or NXPOMS are under version control. | <ul style="list-style-type: none"> <li>- Enovia Synchronicity</li> <li>- DesignSync - System Administration Help</li> <li>- Technical Design - CollabNet service for BUS&amp;C (now CCC&amp;S)</li> <li>- NXP OMS Training</li> </ul> |

**ALC\_CMC.5.10C** - The CM system shall provide an automated means to identify all other configuration items that are affected by the change of a given configuration item.

| Security Objective | Rational  |
|--------------------|---|
| O.Config-IT_Env    | Provides the CM system.   |
| O.Config-Items     | The CM system ensure unique identification.   |
| O.Config-Process   | Mandates a CM-Plan for each project.  |
| O.LifeCycle-Doc    | As described in the CM-Plan the CM system and software installed on the development workstations and servers provide automated means to identify all other configuration items that are affected by the change of a given configuration item. |

| Aspects   | Reference   |
|---|---|
| In case a source file has been changed, the code is compiled again, and all affected items are identified as they are marked as 'changed' compared with the version in the CM system. | <ul style="list-style-type: none"> <li>- DesignSync - System Administration Help</li> <li>- Technical Design - CollabNet service for BUS&amp;C (now CCC&amp;S)</li> <li>- Configuration Management Procedure</li> <li>- Requirements Engineering Procedure</li> </ul> |

**ALC\_CMC.5.11C** - The CM system shall be able to identify the version of the implementation representation from which the *intended* TOE is generated.

| Security Objective | Rational   |
|--------------------|--|
| O.Config-IT_Env    | Provides the CM system.  |
| O.Config-Items     | The CM system ensure unique identification.  |
| O.Config-Process   | Mandates a CM-Plan for each project.   |
| O.LifeCycle-Doc    | The version of the implementation representation from which the "intended TOE" is generated can be determined through baselines. |

| Aspects   | Reference  |
|---|--|
| Different CM tools like DesignSync or CollabNet provide means to tag (baseline) a released version from which the "intended TOE" is generated. The version information of documents is stored in EnoviaNXP or NXPOMS. | <ul style="list-style-type: none"> <li>- Enovia Synchronicity</li> <li>- DesignSync - System Administration Help</li> <li>- Technical Design - CollabNet service for BUS&amp;C (now CCC&amp;S)</li> <li>- NXPOMS-999116894-3989 - BL C&amp;S BCaM Handbook, slides referring to Baselines</li> <li>- Configuration Management Procedure</li> <li>- Requirements Engineering Procedure</li> </ul> |

**ALC\_CMC.5.12C** - The CM documentation shall include a CM plan.

| Security Objective | Rational                             |
|--------------------|--------------------------------------|
| O.Config-Process   | Mandates a CM-Plan for each project. |

| Aspects  | Reference   |
|--|---|
| Each project must have a project specific CM plan. | <ul style="list-style-type: none"> <li>- NXPOMS-999116894-3989 - BL C&amp;S BCaM Handbook, slide on Configuration management</li> <li>- Product specific configuration management plan (CMP) available</li> </ul> |

**ALC\_CMC.5.13C** - The CM plan shall describe how the CM system is used for the development of the *intended* TOE.

| Security Objective | Rational   |
|--------------------|--|
| O.LifeCycle-Doc    | The life-cycle documentation describes how the CM system is used for the development of the product. |

| Aspects  | Reference  |
|--|--|
| The development environment used is set up centrally as documented. Each project must create a project specific CM plan. | <ul style="list-style-type: none"> <li>- NXPOMS-999116894-4839 - Project Setup in CollabNet instructions</li> <li>- NXPOMS-999116894-3989 - BL C&amp;S BCaM Handbook, slide on Configuration management</li> <li>- Product specific configuration management plan (CMP) available</li> </ul> |

**ALC\_CMC.5.14C** - The CM plan shall describe the procedures used to accept modified or newly created configuration items as part of the *intended* TOE.

| Security Objective | Rational  |
|--------------------|---|
| O.LifeCycle-Doc    | The acceptance procedures for modified or newly created configuration items are described in the CM-Plan. |
| O.Config-Control   | Mandates a CM-Plan for each project.  |

| Aspects  | Reference   |
|--|---|
| The development environment used is set up centrally to ensure 'separation of duties'. Each project must have a project specific CM plan where the project specific CCB is described. Documents are managed centrally after initial creation by the 'Documentation Officer'. | <ul style="list-style-type: none"> <li>- NXPOMS-999116894-4839 - Project Setup in CollabNet instructions</li> <li>- NXPOMS-999116894-3989 - BL C&amp;S BCaM Handbook, slide on Configuration management and Change Control Board - CCB</li> <li>- Product specific configuration management plan (CMP) available</li> </ul> |

**ALC\_CMC.5.15C** - The evidence shall demonstrate that all configuration items are being maintained under the CM system.

| Security Objective | Rational  |
|--------------------|---|
| O.LifeCycle-Doc    | All configuration items are under configuration system and listed in the CI-list. |
| O.Config-Process   | Ensures, that all configuration items are under version control.                  |

| Aspects   | Reference  |
|---|--|
| The development environment used is set up centrally to ensure 'separation of duties'. Each project must have a project specific CM plan where the project specific processes are described. Documents are stored in project vaults. Evidences can be provided during a site visit. | <ul style="list-style-type: none"> <li>- NXPOMS-999116894-4839 - Project Setup in CollabNet instructions</li> <li>- NXPOMS-999116894-3989 - BL C&amp;S BCaM Handbook, slide on Configuration management</li> <li>- Product specific configuration management plan (CMP) available and documentation</li> </ul> |

**ALC\_CMC.5.16C** - The evidence shall demonstrate that the CM system is being operated in accordance with the CM plan.

| Security Objective | Rational   |
|--------------------|--|
| O.Config-IT_Env    | Provides the CM system.  |
| O.Config-Process   | Ensures, that all configuration items are under version control. |
| O.LifeCycle-Doc    | The CI-list is generated from the CM systems.                    |

| Aspects  | Reference   |
|--|---|
| After the development environment used is set up centrally, each project must have a project specific CM plan where the project specific processes are described. Documents are stored in project vaults. Evidences can be provided during a site visit. | - NXPOMS-999116894-3989 - BL C&S BCaM Handbook, slide on Configuration management<br>- Product specific configuration management plan (CMP) available and documentation |

The security assurance requirements of the assurance class "CM capabilities" listed above are suitable to support the production of complex products due to the formalized acceptance process and the automated support. The identification of all configuration items supports an automated and industrialized production process. The requirement for authorized changes supports the integrity and confidentiality required for the products. Therefore, this assurance level meets the requirements for the configuration management.

**7.2.2 Rationales, Aspects and References for ALC\_CMS.5**

The scope of the evaluation according to the assurance class ALC\_CMS comprises the security products, the complete documentation of the site provided for the evaluation and the configuration and initialization data as well as associated tools. The specifications and descriptions provided by the client are not part of the configuration management at the certified site.

**ALC\_CMS.5.1C** - The configuration list includes the following: the *intended* TOE itself; the evaluation evidence required by the SARs in the ST; the parts that comprise the *intended* TOE; the implementation representation; security flaws; and development tools and related information. The CM documentation shall include a CM plan.

| Security Objective | Rational  |
|--------------------|---|
| O.LifeCycle-Doc    | The life-cycle documentation includes a CI-List which contains all the items of this content element. |

| Aspects   | Reference                             |
|---|---------------------------------------|
| In terms of site certification, the configuration list is represented by the list of all applicable documents including this SST. | - SST<br>- Document list/Bibliography |

**ALC\_CMS.5.2C** - The configuration list shall uniquely identify the configuration items.

| Security Objective | Rational   |
|--------------------|--|
| O.LifeCycle-Doc    | The CI-List uniquely identifies the configurations items per version, date, NXPOMS number, Collabnet ID (whatever is applicable per CI). |

| Aspects  | Reference   |
|--|---|
| All configuration items are maintained in the CM systems. Every document can be uniquely identified by version, date, NXPOMS number, Collabnet ID (whatever is applicable per CI). | - NXP OMS Training<br>- CollabNet TeamForge - User & Administration Guide |

**ALC\_CMS.5.3C** - For each TSF relevant configuration item, the configuration list shall indicate the developer/*subcontractor* of the item.

| Security Objective | Rational  |
|--------------------|---|
| O.LifeCycle-Doc    | The CI-List indicates the developer/subcontractor/author for each configuration item. |

| Aspects  | Reference                    |
|--|------------------------------|
| In terms of site certification, the CI-list is the list of all applicable documents. In the CI-List the author of each item is listed. | - Document list/Bibliography |

The security assurance requirements of the assurance class "CM scope" listed above support the control of the production and test environment. This includes product related documentation and data as well as the documentation for the configuration management and the site security measures. Since the site certification process focuses on the processes based on the absence of a concrete TOE these assurance requirements are suitable.

### 7.2.3 Rationales, Aspects and References for ALC\_DVS.2

**ALC\_DVS.2.1C** - The development security documentation shall describe all the physical, procedural, personnel, and other security measures that are necessary to protect the confidentiality and integrity of the *intended* TOE design and implementation in its development environment.

| Security Objective   | Rational  |
|----------------------|---|
| O.LifeCycle-Doc      | This covers the overall development security documentation.   |
| O.Exclusive-Access   | This covers the technical restrictions.   |
| O.Physical-Access    | This covers the physical measures.  |
| O.Security-Control   | This covers the organizational measures of the guard team.  |
| O.Alarm-Response     | This covers the physical measures and their alarm follow up by the guard team.  |
| O.Internal-Monitor   | This covers organizational measures by reviews and management attention.  |
| O.Maintain-Security  | This covers organizational measures by maintenance.   |
| O.Network-Separation | This covers logical measures, esp. the network separation.  |
| O.Logical-Operation  | This covers logical measures and the user interaction with the security systems.  |
| O.Logical-Access     | This covers logical measures in the area of firewall and virus protection as well at patch management.                        |
| O.Internal-Shipment  | This covers procedural measures of internal transport of security material.   |
| O.Control-Scrap      | This covers procedural measures of secure destruction of security material.   |
| O.Staff-Engagement   | This covers personnel measures.   |
| O.Zero-Balance       | This covers the procedural measure to ensure all security material is under control.  |
| O.Data-Transfer      | This covers logical measures related to cryptographic encryption and signature algorithms during electronic transfer of data. |

| Aspects  | Reference  |
|--|--|
| - Access control to development areas inside the building, surveillance, alarm system and guard services to prevent access to the security area for unauthorized persons | - NXPOMS-1719007347-2650 - Site Security Manual - NXP Semiconductors Eindhoven |
| - Operation of the physical security system, emergency procedures, incident handling and reporting   |  |
| - Tracing and control of Visitors, external suppliers and cleaning personnel   |  |

| Aspects   | Reference |
|---|-----------|
| <ul style="list-style-type: none"> <li>- Internal storage of products in a strong room, handling of physical objects, zero balancing, disposal of security products</li> <li>- Trustworthiness and training of staff</li> <li>- Organizational measures to enforce security and alarm tracing</li> <li>- Personal accountability for products</li> <li>- Policies and procedures for the internal handling of confidential information</li> <li>- Network security measures to ensure logical protection and authentication to computer systems using username and password</li> <li>- Maintenance of security measures</li> <li>- Protection of the internal shipment</li> <li>- Destruction of sensitive documents, data, products and other items</li> </ul> |           |

**ALC\_DVS.2.2C** - The development security documentation shall justify that the security measures provide the necessary level of protection to maintain the confidentiality and integrity of the *intended* TOE.

| Security Objective | Rational  |
|--------------------|---|
| O.LifeCycle-Doc    | The development security documentation justifies, that the security measures provide the necessary level of protection to maintain the confidentiality and integrity of the "intended TOE". |

| Aspects  | Reference  |
|--|--|
| The justification is provided in this site security target because it shows that all threats are addressed by the measures. In addition, the measures are monitored to control the effectiveness. Besides this the lifecycle documentation also provides a justification from a different angle. | <ul style="list-style-type: none"> <li>- NXPOMS-1719007347-2650 - Site Security Manual - NXP Semiconductors Eindhoven</li> <li>- This SST, see <a href="#">chapter 7.2 Security Assurance Rationale</a></li> </ul> |

The security assurance requirements of the assurance class "Development security" listed above are required since a high attack potential is assumed for potential attackers. The configuration items and information handled at the site during development, production, testing, assembly and pre-personalization or personalization of the "intended TOE" can be used by potential attackers for the development of attacks. Any keys loaded into the "intended TOE" also support the security during the internal shipment or the external delivery. Therefore, the handling and storage of electronic keys must also be

protected. Further on the Protection Profile [3] requires this protection for sites involved in the lifecycle of Security ICs development and production.

**7.2.4 Rationales, Aspects and References for ALC\_LCD.1**

**ALC\_LCD.1.1C** - The life-cycle definition documentation shall describe the model used to develop and maintain the *intended* TOE.

| Security Objective | Rational   |
|--------------------|--|
| O.LifeCycle-Doc    | The live-cycle documentation describes the model used to develop the "intended TOE". |

| Aspects  | Reference  |
|--|--|
| The "intended TOE" is developed and maintained as per NXP development process. | - NXPOMS-999116894-3989 - BL C&S BCaM Handbook<br>- NXPOMS-1719007347-2486 - BL C&S Gate Checklist |

**ALC\_LCD.1.2C** - The life-cycle model shall provide for the necessary control over the development and maintenance of the *intended* TOE.

| Security Objective | Rational  |
|--------------------|---|
| O.LifeCycle-Doc    | The life-cycle model as described in the life-cycle documentation ensures the necessary control over the development and maintenance of the "intended TOE". |

| Aspects   | Reference   |
|---|---|
| The development control of CCC&S provides the necessary control and compliance of the development environment in use. | - NXPOMS-999116894-3989 - BL C&S BCaM Handbook<br>- NXPOMS-1719007347-2486 - BL C&S Gate Checklist<br>- NXPOMS-999116894-4839 - Project Setup in Collabnet Instructions |

The security assurance requirements of the assurance class "Life-cycle definition" listed above are suitable to support the controlled development and production process. This includes the documentation of these processes and the procedures for the configuration management. One site provides only a limited support of the described lifecycle for the development and production of Security ICs. However, the assurance requirements are suitable to support the application of the site evaluation results for the evaluation of an "intended TOE".



## 8 Site Summary Specification

Please refer for the rationales, aspects and references to the subchapters in [Section 7.2](#) for the different ALC classes.

### 8.1 Preconditions Required by the Site

This section includes justifications for the assumptions defined in the SST. These assumptions are relevant for the splicing process since they must be examined during the product evaluation. Especially aspects like the classification of items and the appropriate provision of specifications for the site must be verified by checking appropriate evidence (e.g. the set of specifications provided to the site with a site certificate) during the product evaluation.

Please also refer to the site visit checklist [\[8\]](#).

The following table explains the preconditions of the client that are required to ensure the security measures of the site in order to protect its assets.

**Table 2. Preconditions of Assumptions**

| Assumption                      | Precondition  |
|---------------------------------|---|
| <b>A.Secure-IT-Provisioning</b> | To enable that the site participates in the development of products the client provides services to setup and maintain the necessary development environment (e.g. workstations, tools, test samples) and configuration management systems (e.g. user accounts in project repositories). The client also provides a secure connection between the IT equipment of the site and a secure remote IT infrastructure of the client. These services are provided by the client in a secure way in order to properly protect the assets of the site. This includes the enforcement of a trustworthy access policy to the site equipment and data using the secure connection based on a "need-to-know" principle. |
| <b>A.Client-Agreements [IT]</b> | To allow the site to provide the IT administration service, it is necessary that the relevant work instructions and procedures are trained, shared and kept up to date. Furthermore, changes to the relevant procedures require a notification of the relevant people.  |

Table 2. Preconditions of Assumptions...continued

| Assumption                                    | Precondition   |
|---|--|
| <p><b>A.Client-Agreements [Satellite]</b></p> | <p>To enable the site to participate in the development of products, the client needs to provide services to setup and maintain the necessary development environment (e.g. workstations, development tools, test samples). Further, the client needs to setup and maintain the used configuration management systems and provide a project specific CM plan.</p> <p>This includes the setup and maintenance of user accounts in the project repositories and other required configuration management tools. The client needs to agree about the configuration management methods and the usage of the configuration management tools. The configuration management methods and tools by the client ensure the correct handling of the configuration items according to Common Criteria.</p> <p>For each project setup, the client needs to agree on the activities to be performed by the site, the specifications of the input for the site and the acceptance of the results from the site. Regarding a destruction of certain physical assets, the client need to specify whether the scrap need to be destroyed by the site or need to be sent back to the client. In the latter case the client is responsible for the secure destruction of the assets.</p> |
| <p><b>A.Item-Identification</b></p>           | <p>Before sending items to this site, the previous site must label it uniquely. Those unique identifiers can come from EnoviaNXP, Collabnet or other tools.</p>  |
| <p><b>A.Internal-Shipment</b></p>             | <p>Internal shipment can only take place based on an order in SAP and to addresses defined in SAP. The shipment method is described in the shipment and delivery documentation. The site had to be informed about correct shipment information.</p>  |

8.2 Services of the Site

Table 3. Services of the Site

| Service of the Site                                   | Explanation of the Service  |
|---|---|
| <p><b>S.IT_Admin_Services (RS/HS/PS-RS/PS-HS)</b></p> | <p>Administration of the listed MASTER IT services by</p> <ul style="list-style-type: none"> <li>• Resolving problems and responding to incidents</li> <li>• Implementing approved IT Changes</li> <li>• Implementing approved Service Request</li> </ul> <p>For the following services:</p> <ul style="list-style-type: none"> <li>• Client Systems and Workplace Services</li> <li>• Infrastructure services</li> <li>• System Box Infrastructure</li> <li>• Network Services</li> <li>• Monitoring Services</li> <li>• NXDI Infrastructue Services</li> <li>• Collaboration Services</li> <li>• Security Services</li> <li>• Monitoring Services</li> </ul> <p><i>Dependencies:</i><br/> <b>S.Secure_Area</b> must be fulfilled to ensure physical security</p> <p><i>Assumptions:</i><br/> <b>A.Secure-IT-Provisioning</b> must be fulfilled for secure networks<br/> <b>A.Client-Agreements [IT]</b> must be fulfilled</p> |
| <p><b>S.IT_Admin_Services_CSx (CSM/CSH)</b></p>       | <p>Administration of the listed MASTER IT services by</p> <ul style="list-style-type: none"> <li>• Resolving problems and responding to incidents</li> <li>• Implementing approved IT Changes</li> <li>• Implementing approved Service Request</li> </ul> <p>For the following services:</p> <ul style="list-style-type: none"> <li>• Client Systems and Workplace Services</li> <li>• Infrastructure services</li> <li>• System Box Infrastructure</li> <li>• Network Services</li> <li>• Monitoring Services</li> <li>• NXDI Infrastructue Services</li> <li>• Collaboration Services</li> <li>• Security Services</li> <li>• Monitoring Services</li> </ul> <p><i>Dependencies:</i><br/> <b>S.Secure_Area</b> must be fulfilled to ensure physical security</p> <p><i>Assumptions:</i><br/> <b>A.Secure-IT-Provisioning</b> must be fulfilled for secure networks<br/> <b>A.Client-Agreements [IT]</b> must be fulfilled</p> |

Table 3. Services of the Site...continued

| Service of the Site         | Explanation of the Service   |
|-----------------------------|--|
| <p><b>S.IT_Support</b></p>  | <p>The site provides 1st and/or 2nd &amp; 3rd level IT support to the client. This consists of activities such as:</p> <ul style="list-style-type: none"> <li>• Ticket creation or 1st level telephone hotline</li> <li>• Remote support 2nd and 3rd level</li> <li>• Installation of Client Operating Systems</li> <li>• Remote installation of software upgrades and patches</li> <li>• Resolving problems and responding to incidents</li> <li>• Implementing approved IT Changes</li> <li>• Implementing approved Service Request</li> </ul> <p><i>Dependencies:</i><br/> <b>S.Secure_Area</b> must be fulfilled to ensure physical security</p> <p><i>Assumptions:</i><br/> <b>A.Secure-IT-Provisioning</b> must be fulfilled for secure networks<br/> <b>A.Client-Agreements [IT]</b> must be fulfilled</p>  |
| <p><b>S.Development</b></p> | <p>IC Embedded Software Development and testing (Phase 1) and/or IC Dedicated Software Development and testing (Phase 2) as defined in [3], as well as development and characterization/validation testing of secure smart card ICs.</p> <p>The typical Life Cycle model for Smart Cards usually comprises the following phases: (i) Development, (ii) Validation, (iii) Production, (iv) Delivery, (v) Preparation, (vi) Operation whereas the site under evaluation supports the life cycle phase (i) Development and (ii) Validation.</p> <p>Development of IC and dedicated software which comprises:</p> <ul style="list-style-type: none"> <li>• The generation of the analog and digital hardware designs, embedded &amp; IC dedicated software and the creation of development related documents.</li> <li>• The purpose of verification is the preparation of the design freeze and sample production.</li> <li>• The purpose of validation is to release the product to the Operations organization that facilitates the volume ramp up. Samples can have a form of a wafer, a die, a module or package, a card or an inlay.</li> <li>• Debugging during development phase</li> <li>• The sample creation (if applicable)</li> <li>• ESD (electro static discharge) review services and ESD TLP (transmission line pulse) services for design projects for the client (if applicable)</li> </ul> <p><i>Dependencies:</i><br/> <b>S.Secure_Area</b> must be fulfilled to ensure physical security</p> <p><i>Assumptions:</i><br/> <b>A.Secure-IT-Provisioning</b> must be fulfilled for secure networks<br/> <b>A.Client-Agreements [Satellite]</b> must be fulfilled<br/> <b>A.Item-Identification</b> must be fulfilled</p> |

Table 3. Services of the Site...continued

| Service of the Site                  | Explanation of the Service   |
|--------------------------------------|--|
| <b>S.Internal_Shipment</b>           | <p>The site uses a shipment method such that assurance of integrity is assured throughout transport of physical security objects. Thus, the site does not comply with ALC_DEL.1, but internal shipment is covered under ALC_DVS.2.</p> <p><i>Dependencies:</i><br/> <b>S.Secure_Area</b> must be fulfilled to ensure physical security</p> <p><i>Assumptions:</i><br/> <b>A.Item-Identification</b> must be fulfilled<br/> <b>A.Internal-Shipment</b> must be fulfilled</p>  |
| <b>S.Secure_Area</b>                 | <p>The site provides a secure physical environment (RED and/or YELLOW area) for classified IT infrastructure and equipment installed by the client at the site according to Common Criteria requirements.</p> <p><i>Dependencies:</i><br/> none</p> <p><i>Assumptions:</i><br/> none</p>   |
| <b>S.Verification_And_Validation</b> | <p>Verification comprises verification and simulation of embedded and IC dedicated software on emulation devices of Smart Card ICs as well as simulation of VHDL code of SmartCard ICs itself. The purpose of verification is the preparation of developed software for implementation on the target device. Validation comprises validation of embedded and IC dedicated software with real samples of Smart Card ICs, as well as validation of real SmartCard ICs without additional embedded software. The purpose of validation is to release the product to the Operations organization, that facilitates the volume ramp up.</p> <p><i>Dependencies:</i><br/> <b>S.Secure_Area</b> must be fulfilled to ensure physical security</p> <p><i>Assumptions:</i><br/> <b>A.Secure-IT-Provisioning</b> must be fulfilled for secure networks<br/> <b>A.Client-Agreements [Satellite]</b> must be fulfilled<br/> <b>A.Item-Identification</b> must be fulfilled</p> |

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## 10 Glossary

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|                  |  |
|------------------|--|
| <b>CA</b>        | – Certificate Authority  |
| <b>CC</b>        | – Common Criteria  |
| <b>CCC&amp;S</b> | – Competence Center Crypto & Security  |
| <b>CI</b>        | – Configuration Item   |
| <b>CKC</b>       | – Customer Key Creation (system for key creation and post-shipment services) |
| <b>CL</b>        | – Configuration List   |
| <b>CM</b>        | – Configuration Management   |
| <b>CSH</b>       | – China Secure High Confidential   |
| <b>CSM</b>       | – China Secure Main Confidential   |
| <b>CSR</b>       | – Certificate Signing Requests   |
| <b>CTO</b>       | – Chief Technology Organization  |
| <b>CSx</b>       | – China Secure - Main or High Confidential                                   |
| <b>DIT</b>       | – Data Intake and Translation  |
| <b>DMZ</b>       | – Demilitarized Zone   |
| <b>DNV</b>       | – Dynamic Non-volatile   |
| <b>EAL</b>       | – Evaluation Assurance Level   |
| <b>FH</b>        | – Fabkey Helpdesk (old name of DNV desk)                                     |
| <b>FS</b>        | – Facility Secure  |
| <b>FAE</b>       | – Field Application Engineer   |
| <b>HS</b>        | – High Secure  |
| <b>HSM</b>       | – Hardware Security Module   |
| <b>IC</b>        | – Integrated Circuit   |
| <b>IP</b>        | – Intellectual Property  |
| <b>KDS</b>       | – Key Delivery Services  |
| <b>KIS</b>       | – Key Insertion Server   |
| <b>MBK</b>       | – Master Backup Key  |
| <b>NPIT</b>      | – New Product Introduction Team  |
| <b>OEF</b>       | – Order Entry Form   |
| <b>OSP</b>       | – Organizational Security Policy   |
| <b>PP</b>        | – Protection Profile   |
| <b>PS</b>        | – Production Secure  |
| <b>PS-HS</b>     | – Production Secure-High Secure  |
| <b>PS-RS</b>     | – Production Secure-Restricted Secure  |
| <b>PMP</b>       | – Project Management Plan  |

- PQE** – Product Quality Engineer
- RCS** – ROM Code System
- ROM** – Read-Only Memory
- RS** – Restricted Secure
- SAR** – Security Assurance Requirement
- SNV** – Static Non-Volatile
- SNR** – Serial Number Server
- SSM** – Site Security Manual
- SST** – Site Security Target
- ST** – Security Target
- TOE** – Target of Evaluation
- TP** – Trust Provisioning
- TSM** – Trusted Service Manager



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