Appendix VII

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REQUIREMENTS REGARDING INFORMATION SECURITY MANAGEMENT AND BUSINESS CONTINUITY MANAGEMENT

MCA HOLDERS, T2S DCA HOLDERS AND TIPS DCA HOLDERS

These requirements regarding information security management or business continuity management shall not apply to MCA holders, T2S DCA holders and TIPS DCA holders.

RTGS DCA HOLDERS AND AS

The requirements set out in section 1 of this Appendix VII (information security management) shall apply to all RTGS DCA holders and AS, except where an RTGS DCA holder or an AS demonstrates that a specific requirement is not applicable to it. In establishing the scope of application of the requirements within its infrastructure, the participant should identify the elements that are part of the Payment Transaction Chain (PTC). Specifically, the PTC starts at a Point of Entry (PoE), i.e. a system involved in the creation of transactions (e.g. workstations, front-office and back-office applications, middleware), and ends at the system responsible to send the message to the NSP.

The requirements set out in section 2 of this Appendix VII (business continuity management) shall apply to RTGS DCA holders and AS designated by the Eurosystem as being critical for the smooth functioning of the TARGET system on the basis of criteria periodically updated and published on the ECB's website.

1 Information security management

Requirement 1.1: Information security policy

The management shall set a clear policy direction in line with business objectives and demonstrate support for and commitment to information security through the issuance, approval and maintenance of an information security policy aiming at managing information security and cyber resilience across the organisation in terms of identification, assessment and treatment of information security and cyber resilience risks. The policy should contain at least the following sections: objectives, scope (including domains such as organisation, human resources, asset management etc.), principles and allocation of responsibilities.

Requirement 1.2: Internal organisation

An information security framework shall be established to implement the information security policy within the organisation. The management shall coordinate and review the establishment of the information security framework to ensure the implementation of the information security policy (as

per Requirement 1.1) across the organisation, including the allocation of sufficient resources and assignment of security responsibilities for this purpose.

Requirement 1.3: External parties

The security of the organisation's information and information processing facilities should not be reduced by the introduction of, and/or the dependence on, an external party/parties or products/services provided by them. Any access to the organisation's information processing facilities by external parties shall be controlled. When external parties or products/services of external parties are required to access the organisation's information processing facilities, a risk assessment shall be carried out to determine the security implications and control requirements. Controls shall be agreed and defined in an agreement with each relevant external party.

Requirement 1.4: Asset management

All information assets, the business processes and the underlying information systems, such as operating systems, infrastructures, business applications, off-the-shelf products, services and user-developed applications, in the scope of the Payment Transaction Chain shall be accounted for and have a nominated owner. The responsibility for the maintenance and the operation of appropriate controls in the business processes and the related IT components to safeguard the information assets shall be assigned.

Note: the owner can delegate the implementation of specific controls as appropriate but remains accountable for the proper protection of the assets.

Requirement 1.5: Information assets classification

Information assets shall be classified in terms of their criticality to the smooth delivery of the service by the participant. The classification shall indicate the need, priorities and degree of protection required when handling the information asset in the relevant business processes and shall also take into consideration the underlying IT components. An information asset classification scheme approved by the management shall be used to define an appropriate set of protection controls throughout the information asset lifecycle (including removal and destruction of information assets) and to communicate the need for specific handling measures.

Requirement 1.6: Human resources security

Security responsibilities shall be addressed prior to employment in adequate job descriptions and in terms and conditions of employment. All candidates for employment, contractors and third-party users shall be adequately screened, especially for sensitive jobs. Employees, contractors and third-party users of information processing facilities shall sign an agreement on their security roles and responsibilities. An adequate level of awareness shall be ensured among all employees, contractors and third-party users, and education and training in security procedures and the correct use of information processing facilities shall be provided to them to minimise possible security risks. A formal disciplinary process for handling security breaches shall be established for employees.

Responsibilities shall be in place to ensure that an employee's, contractor's or third-party user's exit from or transfer within the organisation is managed, and that the return of all equipment and the removal of all access rights are completed.

Requirement 1.7: Physical and environmental security

Critical or sensitive information processing facilities shall be housed in secure areas, protected by defined security perimeters, with appropriate security barriers and entry controls. They shall be physically protected from unauthorised access, damage and interference. Access shall be granted only to individuals who fall within the scope of Requirement 1.6. Procedures and standards shall be established to protect physical media containing information assets when in transit.

Equipment shall be protected from physical and environmental threats. Protection of equipment (including equipment used off-site) and against the removal of property is necessary to reduce the risk of unauthorised access to information and to guard against loss or damage of equipment or information. Special measures may be required to protect against physical threats and to safeguard supporting facilities such as the electrical supply and cabling infrastructure.

Requirement 1.8: Operations management

Responsibilities and procedures shall be established for the management and operation of information processing facilities covering all the underlying systems in the Payment Transaction Chain end-to-end.

As regards operating procedures, including technical administration of IT systems, segregation of duties shall be implemented, where appropriate, to reduce the risk of negligent or deliberate system misuse. Where segregation of duties cannot be implemented due to documented objective reasons, compensatory controls shall be implemented following a formal risk analysis. Controls shall be established to prevent and detect the introduction of malicious code for systems in the Payment Transaction Chain. Controls shall be also established (including user awareness) to prevent, detect and remove malicious code. Mobile code shall be used only from trusted sources (e.g. signed Microsoft COM components and Java Applets). The configuration of the browser (e.g. the use of extensions and plugins) shall be strictly controlled.

Data backup and recovery policies shall be implemented by the management; those recovery policies shall include a plan of the restoration process which is tested at regular intervals at least annually.

Systems that are critical for the security of payments shall be monitored and events relevant to information security shall be recorded. Operator logs shall be used to ensure that information system problems are identified. Operator logs shall be regularly reviewed on a sample basis, based on the criticality of the operations. System monitoring shall be used to check the effectiveness of controls

which are identified as critical for the security of payments and to verify conformity to an access policy model.

Exchanges of information between organisations shall be based on a formal exchange policy, carried out in line with exchange agreements among the involved parties and shall be compliant with any relevant legislation. Third party software components employed in the exchange of information with TARGET (e.g. software received from a Service Bureau) must be used under a formal agreement with the third party.

Requirement 1.9: Access control

Access to information assets shall be justified on the basis of business requirements (need-to-know[1]) and according to the established framework of corporate policies (including the information security policy). Clear access control rules shall be defined based on the principle of least privilege[2] to reflect closely the needs of the corresponding business and IT processes. Where relevant, (e.g. for backup management) logical access control should be consistent with physical access control unless there are adequate compensatory controls in place (e.g. encryption, personal data anonymisation).

Formal and documented procedures shall be in place to control the allocation of access rights to information systems and services that fall within the scope of the Payment Transaction Chain. The procedures shall cover all stages in the lifecycle of user access, from the initial registration of new users to the final deregistration of users that no longer require access.

Special attention shall be given, where appropriate, to the allocation of access rights of such criticality that the abuse of those access rights could lead to a severe adverse impact on the operations of the participant (e.g. access rights allowing system administration, override of system controls, direct access to business data).

Appropriate controls shall be put in place to identify, authenticate and authorise users at specific points in the organisation's network, e.g. for local and remote access to systems in the Payment Transaction Chain. Personal accounts shall not be shared in order to ensure accountability.

For passwords, rules shall be established and enforced by specific controls to ensure that passwords cannot be easily guessed, e.g. complexity rules and limited-time validity. A safe password recovery and/or reset protocol shall be established.

[1] The need-to-know principle refers to the identification of the set of information that an individual needs access to in order to carry out her/his duties.

[2] The principle of least privilege refers to the tailoring a subject's access profile to an IT system to match the corresponding business role.

A policy shall be developed and implemented on the use of cryptographic controls to protect the confidentiality, authenticity and integrity of information. A key management policy shall be established to support the use of cryptographic controls.
There shall be policy for viewing confidential information on screen or in print (e.g. a clear screen, a clear desk policy) to reduce the risk of unauthorised access.

When working remotely, the risks of working in an unprotected environment shall be considered and appropriate technical and organisational controls shall be applied.

Requirement 1.10: Information systems acquisition, development and maintenance
Security requirements shall be identified and agreed prior to the development and/or implementation of information systems.

Appropriate controls shall be built into applications, including user-developed applications, to ensure correct processing. These controls shall include the validation of input data, internal processing and output data. Additional controls may be required for systems that process, or have an impact on, sensitive, valuable or critical information. Such controls shall be determined on the basis of security requirements and risk assessment according to the established policies (e.g. information security policy, cryptographic control policy).

The operational requirements of new systems shall be established, documented and tested prior to their acceptance and use. As regards network security, appropriate controls, including segmentation and secure management, should be implemented based on the criticality of data flows and the level of risk of the network zones in the organisation. There shall be specific controls to protect sensitive information passing over public networks.

Access to system files and program source code shall be controlled and IT projects and support activities conducted in a secure manner. Care shall be taken to avoid exposure of sensitive data in test environments. Project and support environments shall be strictly controlled. Deployment of changes in production shall be strictly controlled. A risk assessment of the major changes to be deployed in production shall be conducted.

Regular security testing activities of systems in production shall also be conducted according to a predefined plan based on the outcome of a risk-assessment, and security testing shall include, at least, vulnerability assessments. All of the shortcomings highlighted during the security testing activities shall be assessed and action plans to close any identified gap shall be prepared and followed-up in a timely fashion.

Requirement 1.11: Information security in supplier[3] relationships

To ensure protection of the participant's internal information systems that are accessible by suppliers, information security requirements for mitigating the risks associated with supplier's access shall be documented and formally agreed upon with the supplier.

Requirement 1.12: Management of information security incidents and improvements

To ensure a consistent and effective approach to the management of information security incidents, including communication on security events and weaknesses, roles, responsibilities and procedures, at business and technical level, shall be established and tested to ensure a quick, effective and orderly and safely recover from information security incidents including scenarios related to a cyber-related cause (e.g. a fraud pursued by an external attacker or by an insider). Personnel involved in these procedures shall be adequately trained.

Requirement 1.13: Technical compliance review

A participant's internal information systems (e.g. back office systems, internal networks and external network connectivity) shall be regularly assessed for compliance with the organisation's established framework of policies (e.g. information security policy, cryptographic control policy).

Requirement 1.14: Virtualisation

Guest virtual machines shall comply with all the security controls that are set for physical hardware and systems (e.g. hardening, logging). Controls relating to hypervisors must include: hardening of the hypervisor and the hosting operating system, regular patching, strict separation of different environments (e.g. production and development). Centralised management, logging and monitoring as well as managing of access rights, in particular for high privileged accounts, shall be implemented based on a risk assessment. Guest virtual machines managed by the same hypervisor shall have a similar risk profile.

Requirement 1.15: Cloud computing

The usage of public and/or hybrid cloud solutions in the Payment Transaction Chain must be based on a formal risk assessment, taking into account the technical controls and the contractual clauses related to the cloud solution.

If hybrid cloud solutions are used, it is understood that the criticality level of the overall system is the highest one of the connected systems. All on-premises components of the hybrid solutions must be segregated from the other on-premises systems.

[3] A supplier in the context of this exercise should be understood as any third party (and its personnel) which is under contract (agreement), with the institution, to provide a service and under the service agreement the third party (and its personnel) is granted access, either remotely or on site, to information and/or information systems and/or information processing facilities of the institution in scope or associated to the scope covered under the exercise of the TARGET self-certification.

2. Business Continuity Management

The following requirements relate to business continuity management. Each TARGET participant designated by the Eurosystem as being critical for the smooth functioning of the TARGET system shall have a business continuity strategy in place that complies with the following requirements.

Requirement 2.1:

Business continuity plans shall be developed and procedures for maintaining them are in place.

Requirement 2.2:

An alternate operational site shall be available.

Requirement 2.3:

The risk profile of the alternate site shall be different from that of the primary site, in order to avoid that both sites are affected by the same event at the same time. For example, the alternate site shall be on a different power grid and central telecommunication circuit from those of the primary business location.

Requirement 2.4:

In the event of a major operational disruption rendering the primary site inaccessible and/or critical staff unavailable, the critical participant shall be able to resume normal operations from the alternate site, where it shall be possible to properly close the business day and open the following business day(s).

Requirement 2.5:

Procedures shall be in place to ensure that the processing of transactions is resumed from the alternate site within a reasonable timeframe after the initial disruption of service and commensurate to the criticality of the business that was disrupted.

Requirement 2.6:

The ability to cope with operational disruptions shall be tested at least once a year and critical staff shall be aptly trained. The maximum period between tests shall not exceed one year.