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**Electricity metering – Payment systems –
Part 42: Transaction Reference Numbers (TRN)**

**Comptage de l'électricité – Systèmes de paiement –
Partie 42: Numéros de référence des transactions (TRN)**



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IEC Secretariat
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

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CONTENTS

FOREWORD.....	7
INTRODUCTION.....	9
1 Scope.....	10
2 Normative references	10
3 Terms, definitions, abbreviated terms and notation.....	11
3.1 Terms and definitions.....	11
3.2 Abbreviated terms.....	12
3.3 Notation.....	13
4 Numbering conventions in this document.....	13
5 Reference smart meter model.....	13
5.1 Generic functional reference diagram.....	13
5.2 Token transfer protocol reference model.....	15
5.3 Dataflow from the POSApplicationProcess to the TokenCarrier.....	16
5.4 Dataflow from the TokenCarrier to the MeterApplicationProcess.....	16
5.5 MeterFunctionObjects / companion specifications.....	17
6 POSToTokenCarrierInterface application layer protocol.....	17
6.1 APDU: ApplicationProtocolDataUnit.....	17
6.1.1 Data elements in the APDU.....	17
6.1.2 SupplierID.....	19
6.1.3 MeterID.....	19
6.1.4 TokenOriginationID.....	19
6.1.5 MessageIdentifier.....	19
6.1.6 SequentialTokenNumber (STN).....	21
6.1.7 TruncatedSequentialTokenNumber (TSTN).....	21
6.1.8 Deducing the MS part of STN and validating TSTN.....	21
6.1.9 FunctionIndex.....	24
6.1.10 Relating the FunctionIndex and STN.....	25
6.1.11 SingleTokenPayload.....	27
6.1.12 SuperTokenPayload.....	27
6.1.13 MessageAuthenticationCode (MAC) and TruncatedMAC (TMAC).....	27
6.1.14 AdditionalAuthenticationData (AAD).....	30
6.1.15 SingleTokenPayload AAD preparation, TMAC derivation and APDU preparation.....	30
6.1.16 SuperTokenPayload AAD preparation, TMAC derivation and APDU preparation.....	31
6.1.17 Offset.....	34
6.2 Tokens.....	34
6.2.1 Token definition and format.....	34
6.2.2 Class 4: RESERVED FOR FUTURE ASSIGNMENT.....	35
6.2.3 Class 5 tokens.....	35
6.2.4 Class 5: Unencrypted tokens.....	39
6.2.5 Class 5: Encrypted tokens.....	41
6.3 Token data elements.....	47
6.4 TCDU Generation functions.....	47
6.5 Security functions.....	49
6.5.1 General requirements.....	49
6.5.2 Key management.....	49

6.5.3	Key derivation.....	50
6.5.4	Encryption process	50
7	TokenCarrierToMeterInterface application layer protocol	50
7.1	APDU: ApplicationProtocolDataUnit	50
7.1.1	Data elements in the APDU	50
7.1.2	TokenData.....	50
7.1.3	AuthenticationResult.....	50
7.1.4	ValidationResult	51
7.1.5	TokenResult	51
7.2	APDU Extraction processes	52
7.2.1	APDU Extraction process for Class 5 tokens.....	52
7.2.2	APDU Extraction process for SubClass 0 unencrypted token	53
7.2.3	APDU Extraction process for SubClass 8 encrypted token	53
7.3	Security functions	54
7.3.1	Key attributes and key changes	54
7.3.2	Decryption algorithm.....	55
7.3.3	TokenAuthentication	55
7.3.4	TokenValidation.....	55
7.3.5	TokenResult	55
8	MeterApplicationProcess requirements	56
8.1	General requirements	56
8.2	Token acceptance/rejection	56
8.3	Display indicators and markings.....	57
8.4	TransferCredit tokens	57
8.5	Engineering/SpecialFunction tokens	57
9	KMS: KeyManagementSystem generic requirements	58
10	Maintenance of unassigned entities	58
	Annex A (informative) Verhoeff code implementation example	59
	A.1 Sample code.....	59
	Annex B (informative) Example of ExtendedTransferCredit	61
	B.1 Class 5: SubClass 10: TransferCredit + Tariff	61
	B.1.1 General	61
	B.1.2 Block sequence/SuperTokenBlockToFollow	61
	B.1.3 Complete tariff.....	62
	B.1.4 Tariff sub-information.....	62
	B.1.5 Tariff activation month	62
	B.1.6 Tariff data.....	63
	B.1.7 Tariff types	63
	B.1.8 Tariff sub-information.....	63
	B.2 Class 5, SubClass 10, tariff type 0: TransferCredit + slab or time-of-use tariff.....	64
	B.2.1 Class 5, SubClass 10, tariff type 0, sub-type 0: TransferCredit + slab tariff.....	64
	B.2.2 Number of slab boundaries	65
	B.2.3 Slab scaling.....	65
	B.2.4 Slab field size	65
	B.2.5 Slab value	66
	B.2.6 Class 5, SubClass 10, tariff type 0, sub-type 1: TransferCredit + time of use (TOU) tariff	66
	B.2.7 Week definition.....	66

B.2.8	Time period definitions	67
B.2.9	Register definitions	68
B.3	Class 5, SubClass 10, tariff type 1: TransferCredit + rate prices or fixed charge price token format	68
B.3.1	Class 5, SubClass 10, tariff type 1: tariff sub-information	68
B.3.2	Class 5, SubClass 10, tariff type 1, sub-type 0: TransferCredit + rate prices	68
B.3.3	Class 5, SubClass 10, tariff type 1: tariff sub-information	69
B.3.4	Number of rate prices	69
B.3.5	Rate price multiplier	70
B.3.6	Rate price field size	70
B.3.7	Rate price value	70
B.3.8	Class 5, SubClass 10, tariff type 1, sub type 1: TransferCredit + fixed charge prices	71
B.3.9	Number of fixed charge prices	71
B.3.10	Fixed charge price multiplier	72
B.3.11	Fixed charge price field size	72
B.3.12	Fixed charge application	72
B.3.13	Fixed charge price value	72
B.4	Class 5, SubClass 10, tariff type 2: TransferCredit + electricity duty (ED) token format	72
B.4.1	Electricity duty (ED)	72
B.4.2	Electricity duty on energy charges	73
B.4.3	Electricity duty on fixed charges	73
B.4.4	Number of electricity duty slabs	73
B.4.5	Electricity duty rate	73
B.4.6	Electricity duty slab size	74
B.5	SubClass 0 TCDU generation detailed process	75
B.6	SubClass 8 TCDU generation detailed process	75
B.7	SubClass 10 TCDU generation detailed process	76
B.8	SubClass 10 APDU extraction detailed process	77
	Bibliography	80
	Figure 1 – Functional block diagram of a generic payment meter	14
	Figure 2 – Reference model as a 2-layer collapsed OSI protocol stack	15
	Figure 3 – Generic model of POSApplicationProcess to TokenCarrier	16
	Figure 4 – Data flow from the TokenCarrier to the MeterApplicationProcess	16
	Figure 5 – Generic data elements for AAD payload construction for SingleTokenPayload	28
	Figure 6 – Generic data elements for AAD payload construction for SuperTokenPayload	29
	Figure 7 – InitializationVector (IV) construction	29
	Figure 8 – GMAC construction	30
	Figure 9 – Class 5 SubClass 8 TMAC derivation and full APDU preparation example	31
	Figure 10 – Class 5 SubClass 10 TMAC derivation and full APDU preparation example	33
	Figure 11 – TCDU generation for SubClass 0 unencrypted tokens	48
	Figure 12 – TCDU generation for SubClass 8 encrypted tokens	49
	Figure 13 – APDU extraction process for SubClass 0 tokens	53

Figure 14 – APDU extraction process for SubClass 8 tokens	54
Figure B.1 – TCDU generation process for SubClass 0	75
Figure B.2 – TCDU generation process for SubClass 8	76
Figure B.3 – TCDU generation process for SubClass 10	77
Figure B.4 – APDU extraction process for SubClass 10	78
Table 1 – Basic and derived elements of APDU and TCDU construction	17
Table 2 – SubClass-wise MessageIdentifier detail and SubClass Functional Class	20
Table 3 – Example of defining L_N and U_N for each SubClass	22
Table 4 – Process of validating STN and deducing MS(N)	22
Table 5 – Last accepted token example(a)	23
Table 6 – Last accepted token example(b)	23
Table 7 – Last accepted token example(c)	24
Table 8 – Last accepted token example(d)	24
Table 9 – Numeric constants and their purpose	34
Table 10 – Token definition and format	35
Table 11 – Class 5 SubClass assignment	36
Table 12 – SubClass-wise boundaries for Class 5 APDU before encryption	37
Table 13 – SubClass-wise boundaries for Class 5 tokens, TCDU after encryption (if applicable) and adding offset (without CheckDigit)	37
Table 14 – Class 5 SubClass boundaries for TCDU (reserved space)	38
Table 15 – SubClass related FunctionalClass and associated use cases	39
Table 16 – SubClass 0: TransferCredit token	40
Table 17 – SubClass 8: TransferCredit token	41
Table 18 – Class 5, SubClass 9: Special Function token	41
Table 19 – Service types	42
Table 20 – Block 1 of TransferCredit + Function token	43
Table 21 – Block 2 to $N-1$ of N ($N > 2$) TransferCredit + Function token	44
Table 22 – Last block TransferCredit + Function token	44
Table 23 – Block 1 for class 5 SubClass 11 meter generated token structure	45
Table 24 – Block 2 for class 5 SubClass 11 meter generated token structure	45
Table 25 – Token data elements	47
Table 26 – Data elements in the APDU	50
Table 27 – Possible values for AuthenticationResult	51
Table 28 – Possible values for ValidationResult	51
Table 29 – Possible values for TokenResult	52
Table B.1 – Block 1 of TransferCredit + tariff token	61
Table B.2 – Block 2 of TransferCredit + Tariff token	61
Table B.3 – Block 3 of TransferCredit + Tariff token	63
Table B.4 – Block 4 of TransferCredit + Tariff token	63
Table B.5 – Tariff types	63
Table B.6 – Details of tariff sub-information	64
Table B.7 – Block 2 for class 5, SubClass 10, tariff type 0, sub-type 0 (TransferCredit + slab tariff)	64

Table B.8 – Block 2 for Class 5, SubClass 10, tariff type 0, sub-type 0 (TransferCredit + slab tariff) – tariff data part.....	65
Table B.9 – Block 3 for class 5, SubClass 10, tariff type 0, sub-type 0 (TransferCredit + slab tariff).....	66
Table B.10 – Block 2 for class 5, SubClass 10, tariff type 0, sub-type 1 (TransferCredit + time of use tariff).....	66
Table B.11 – Block 3 for class 5, SubClass 10, tariff type 0, sub-type 1 (TransferCredit + time of use tariff).....	68
Table B.12 – Block 4 for class 5, SubClass 10, tariff type 0, sub-type 1 (TransferCredit + time of use tariff).....	68
Table B.13 – Block 2 for class 5, SubClass 10, tariff type 1, sub-type 0 (TransferCredit + rate prices).....	68
Table B.14 – Block 2 for class 5, SubClass 10, tariff type 1, sub-type 0 (TransferCredit + rate prices) – tariff data.....	69
Table B.15 – Block 3 for class 5, SubClass 10, tariff type 1, sub-type 0 (TransferCredit + rate prices).....	70
Table B.16 – Block 4 for class 5, SubClass 10, tariff type 1, sub-type 0 (TransferCredit + rate prices).....	71
Table B.17 – Block 2 for class 5, SubClass 10, tariff type 1, sub-type 1 (TransferCredit + fixed charge prices).....	71
Table B.18 – Block 2 for class 5, SubClass 10, tariff type 1, sub-type 1 (TransferCredit + fixed charge prices) – tariff data.....	71
Table B.19 – Block 2 for class 5, SubClass 10, tariff type 2, sub-type 0 (TransferCredit + electricity duty).....	73
Table B.20 – Block 2 for class 5, SubClass 10, tariff type 2, sub-type 0 (TransferCredit + electricity duty) – data field.....	73
Table B.21 – Electricity duty slab value encoding.....	74
Table B.22 – Block 3 for class 5, SubClass 10, tariff type 2, sub-type 0 (TransferCredit + electricity duty).....	75

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ELECTRICITY METERING – PAYMENT SYSTEMS –**Part 42: Transaction Reference Numbers (TRN)**

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Draft	Report on voting
13/1843/CDV	13/1860/RVC

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

A list of all parts in the IEC 62055 series, published under the general title *Electricity metering – Payment systems*, can be found on the IEC website.

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INTRODUCTION

The IEC 62055 series recognizes and takes into account the concept of layered interoperability for use within the smart metering and smart grid domains.

It also ensures system element interoperability above the semantic layer to include business function and business process interoperability layers within an electricity metering system, thus ensuring overall compatibility at all these levels.

This document is based on the principles the IEC 62055 standards are built on and sets the rules for future extensions to guarantee consistency, thus providing a common vocabulary for use by utilities to express requirements in tenders and also by vendors to have a unified understanding for interpretation of the tender requirements.

This document forms part of the IEC 62055 series and shares some references with IEC 62055-41, in that both standards represent TransferCredit tokens utilising 20-digit token carriers. However, IEC 62055-41 and IEC 62055-42 differ greatly in their encoding, security mechanism and intended use cases. Whereas IEC 62055-41 is meant for predominantly offline systems, IEC 62055-42 is intended for mostly online systems where the decimal token carrier is used as a back-up mechanism for vending while meters are intermittently offline.

The IEC 62055 series has been developed by IEC TC13 specifically for electricity metering systems, but it is equally applicable in the domain of other utility services such as water and gas.

ELECTRICITY METERING – PAYMENT SYSTEMS –

Part 42: Transaction Reference Numbers (TRN)

1 Scope

This document specifies a token generation mechanism and token structure for smart prepayment functionality in markets where IEC 62055-41 compliant systems are not used, and where a different security mechanism is required by project-specific or national requirements. This document specifies token structure, authentication and an anti-replay mechanism, token operating model, and protocol.

This document is informed by the STS Association key management services, and by the key management mechanisms used within the DLMS/COSEM security model within IEC 62056-6-2. Reference is made to the international STS token standards (IEC 62055-41, IEC 62055-51 and IEC 62055-52) for payment metering systems, and interworking has been considered where appropriate in terms of token carrier ranges in the decimal domain. IEC 62055-41 tokens and those described in this document are not interoperable, however their domains are designed to be mutually exclusive to ensure the two kinds of tokens do not interfere with each other.

Metering application processing and functionality, HAN interface commands and attributes, WAN interface commands and attributes are outside the scope of this document; however, reference is made to other standards in this regard.

The mechanism for auditing and retrieving data from the meter relating to tariffication, meter readings, profile data and other legal metrology information is outside the scope of this document; however, this is defined as part of any overall metering solution. Such interfaces for retrieving data from a meter may be defined using suitable protocols such as DLMS/COSEM as defined in the IEC 62056 series.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60050-300:2001, *International Electrotechnical Vocabulary (IEV) – Part 300: Electrical and electronic measurements and measuring instruments – Part 311: General terms relating to measurements – Part 312: General terms relating to electrical measurements – Part 313: Types of electrical measuring instruments – Part 314: Specific terms according to the type of instrument*

IEC 60050-300:2001/AMD1:2015

IEC 60050-300:2001/AMD2:2016

IEC 60050-300:2001/AMD3:2017

IEC 60050-300:2001/AMD4:2020

IEC TR 62051:1999, *Electricity metering – Glossary of terms*

IEC TR 62055-21:2005, *Electricity metering – Payment systems – Part 21: Framework for standardization*

IEC 62055-31:2005, *Electricity metering – Payment systems – Part 31: Particular requirements – Static payment meters for active energy (classes 1 and 2)*