



Institut luxembourgeois de la normalisation
de l'accréditation, de la sécurité et qualité
des produits et services

ILNAS-EN IEC 63119-2:2022

Information exchange for electric vehicle charging roaming service - Part 2: Use cases

Échange d'informations pour le service
d'itinérance de la recharge des véhicules
électriques - Partie 2: Cas d'utilisation

Informationsaustausch für Roaming-
Ladedienste für Elektrofahrzeuge - Teil 2:
Anwendungsfälle

11/2022

National Foreword

This European Standard EN IEC 63119-2:2022 was adopted as Luxembourgish Standard ILNAS-EN IEC 63119-2:2022.

Every interested party, which is member of an organization based in Luxembourg, can participate for FREE in the development of Luxembourgish (ILNAS), European (CEN, CENELEC) and International (ISO, IEC) standards:

- Participate in the design of standards
- Foresee future developments
- Participate in technical committee meetings

<https://portail-qualite.public.lu/fr/normes-normalisation/participer-normalisation.html>

THIS PUBLICATION IS COPYRIGHT PROTECTED

Nothing from this publication may be reproduced or utilized in any form or by any mean - electronic, mechanical, photocopying or any other data carries without prior permission!

ILNAS-EN IEC 63119-2:2022

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 63119-2

November 2022

ICS 43.120

English Version

**Information exchange for electric vehicle charging roaming
service - Part 2: Use cases
(IEC 63119-2:2022)**

Échange d'informations pour le service d'itinérance de la
recharge des véhicules électriques - Partie 2: Cas
d'utilisation
(IEC 63119-2:2022)

Informationsaustausch für Roaming-Ladedienste für
Elektrofahrzeuge - Teil 2: Anwendungsfälle
(IEC 63119-2:2022)

This European Standard was approved by CENELEC on 2022-11-22. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.



European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

The text of document 69/847/FDIS, future edition 1 of IEC 63119-2, prepared by IEC/TC 69 "Electrical power/energy transfer systems for electrically propelled road vehicles and industrial trucks" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 63119-2:2022.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2023-08-22
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2025-11-22

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 63119-2:2022 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standard indicated:

IEC 61850-7-420 NOTE Harmonized as EN IEC 61850-7-420

IEC 62559-2 NOTE Harmonized as EN 62559-2

ISO15118 (series) NOTE Harmonized as EN ISO 15118 (series)

ISO 15118-2:2014 NOTE Harmonized as EN ISO 15118-2:2016 (not modified)

ISO 15118-20 NOTE Harmonized as EN ISO 15118-20

Annex ZA
(normative)**Normative references to international publications
with their corresponding European publications**

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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 63119-1	-	Information exchange for electric vehicle charging roaming service - Part 1: General	EN IEC 63119-1	-



INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Information exchange for electric vehicle charging roaming service –
Part 2: Use cases**

**Échange d'informations pour le service d'itinérance de la recharge des véhicules
électriques –
Partie 2: Cas d'utilisation**

CONTENTS

FOREWORD	6
1 Scope	8
2 Normative references	8
3 Terms and definitions	8
4 Abbreviated terms	11
5 General requirements	11
5.1 General	11
5.2 System requirements	11
5.2.1 General	11
5.2.2 CSO system platform requirement	12
5.2.3 CSP platform system requirement	12
5.3 Communication requirements	12
5.4 Cybersecurity requirements	13
5.4.1 Data transmission security	13
5.4.2 Role identification	13
5.4.3 Information privacy protection	13
5.4.4 Information sharing principle	13
5.4.5 Encryption key usage and management	13
5.4.6 Agreement sharing principle	13
5.5 Unique identifier	13
5.5.1 Requirements of the unique identifier	13
5.5.2 Classification of the global ID	13
5.5.3 Definition of the global identifier	14
5.6 Identification method type	14
5.7 Session and transaction	15
5.7.1 General	15
5.7.2 Session	15
5.7.3 Transaction	15
5.7.4 Service session flowchart diagram	16
6 Architecture	17
6.1 System architecture	17
6.2 Actors and systems	18
6.2.1 Definition of actors	18
6.2.2 Systems actors	19
6.3 Roaming function domain	19
6.3.1 General	19
6.3.2 General information exchange	19
6.3.3 Tariff and pricing	19
6.3.4 Energy transfer management	19
6.3.5 Certification handling	20
6.3.6 Support functions	20
6.4 Clearing house function	20
6.4.1 Transaction hub switch	20
6.4.2 SDR reconciliation	21
6.4.3 Settlement	21
7 Use cases view	21

7.1	Use case hierarchy diagram.....	21
7.2	Use case hierarchy layer.....	22
7.2.1	Use case groups.....	23
7.2.2	Use case list.....	24
8	Use cases	26
8.1	General information exchange	26
8.1.1	UC1-1 Platform authentication	26
8.1.2	UC1-2 Sites information exchange.....	28
8.1.3	UC1-3 Sharing dynamic status of EV supply equipment.....	29
8.2	Tariff and pricing.....	30
8.2.1	UC2-1 Inform home-CSP on tariff information	30
8.2.2	UC2-2 home-CSP request tariffs from visited-CSO	31
8.3	Energy transfer management	31
8.3.1	UC3-1 Start charging roaming locally at the EV supply equipment	31
8.3.2	UC3-2 Start charging roaming remotely from home-CSP.....	33
8.3.3	UC3-3 Start charging roaming by PnC	35
8.3.4	UC3-4 Stop energy transfer session via home-CSP	37
8.3.5	UC3-5 Complete a charging service transaction in a roaming scenario	38
8.3.6	UC3-6 Collect dynamic charging information.....	38
8.3.7	UC3-7 Charge plan exchange	39
8.3.8	UC3-8 Reservation of an EV supply equipment.....	40
8.3.9	UC3-9 SDR information exchange	42
8.3.10	UC3-10 Update charge plan by visited-CSO	43
8.4	Credentials handling	43
8.4.1	UC4-1 Support online identification of the user at a visited-CSO.....	43
8.4.2	UC4-2 Pre-distribution of information for offline identification of the user at a visited-CSO	45
8.5	Supporting functions	45
8.5.1	UC5-1 Maintenance/outage information	45
8.5.2	UC5-2 Emergency cable unlocking after charging service activated	47
8.5.3	UC5-3 Emergency cable unlocking for charging service activation failed	48
	Annex A (informative) Roaming scenarios	50
A.1	Roaming scenario 1 – Roaming by using QR code scanning	50
A.1.1	Roaming scenario description.....	50
A.1.2	Roaming scenario business sequence diagram.....	51
A.1.3	List of elementary use cases	52
A.2	Roaming scenario 2 – Charging site navigation service.....	53
A.2.1	Roaming scenario description	53
A.2.2	Roaming scenario business sequence diagram.....	53
A.3	Roaming scenario 3 – Roaming by using RFID card.....	53
A.3.1	Roaming scenario description	53
A.3.2	List of elementary use cases	54
	Annex B (informative) Service session data	55
B.1	Service session data diagram	55
B.2	SDR general structure.....	56
	Bibliography.....	57
	Figure 5-1 – Service session structure	15

Figure 5-2 – Relationship between session and transaction	16
Figure 5-3 – Diagram of service session	17
Figure 6-1 – System architecture	18
Figure 6-2 – Clearing house function	20
Figure 6-3 – Clearing house.....	21
Figure 7-1 – Use case hierarchy diagram.....	22
Figure 7-2 – Use case hierarchy diagram of charging roaming	23
Figure 7-3 – Use domain overview of the 1-Layer in the hierarchy diagram	24
Figure 7-4 – Use case groups overview	24
Figure 8-1 – Use case sequence diagram for platform authentication.....	28
Figure 8-2 – Use case sequence diagram for Start charging roaming locally at the EV supply equipment.....	33
Figure 8-3 – Use case sequence diagram for Start charging roaming remotely from home-CSP	35
Figure 8-4 – Use case sequence diagram for Start charging roaming by PnC	37
Figure A.1.1 – Roaming by using QR code scanning.....	50
Figure A.1.2 – Sequence diagram	52
Figure A.2.1 – Charging site navigation service	53
Figure B.1 – Data diagram of service session	55
 Table 1 – System actor categories	12
Table 2 – Structure of the global identifier.....	14
Table 3 – Definition of the global identifier syntax	14
Table 4 – Session categories	15
Table 5 – Definition of actors	18
Table 6 – Use case group index and description	23
Table 7 – Use case list	25
Table 8 – Use case description for platform authentication	26
Table 9 – Use case description for Sites information exchange.....	28
Table 10 – Use case description for sharing dynamic status of EV supply equipment.....	29
Table 11 – Use case description for Inform home-CSP on tariff information	30
Table 12 – Use case description for home-CSP request tariffs from visited-CSO	31
Table 13 – Use case description for Start charging roaming locally at the EV supply equipment.....	31
Table 14 – Use case description for Start charging roaming remotely from home-CSP.....	34
Table 15 – Use case description for Start charging roaming by PnC	36
Table 16 – Use case description for Stop energy transfer session via home-CSP	37
Table 17 – Use case description for Complete a charging service transaction in a roaming scenario	38
Table 18 – Use case description for Collect dynamic charging information.....	39
Table 19 – Use case description for Charge plan exchange	40
Table 20 – Use case description for Reservation of an EV supply equipment.....	40
Table 21 – Use case description for SDR information exchange	42
Table 22 – Use case description for Update charge plan by visited-CSO	43

Table 23 – Use case description for Support online identification of the user at a visited-CSO	44
Table 24 – Use case description for Pre-distribution of information for offline identification of the user at a visited-CSO	45
Table 25 – Use case description for Maintenance/outage information	46
Table 26 – Use case description for Emergency cable unlocking after charging service activated.....	47
Table 27 – Use case description for Emergency cable unlocking for charging service activation failed.....	48
Table A.1 – Roaming scenario: peer-to-peer roaming by scanning EV supply equipment QR code	51
Table A.2 – Elementary use cases	52
Table A.3 – Peer-to-peer roaming for charging service using RFID card	53
Table A.4 – Elementary use cases	54
Table B.1 – SDR general structure.....	56