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Electronic fee collection — Application interface definition for dedicated short-range communication

AMENDMENT 1

Perception du télépéage — Définition de l'interface d'application relative aux communications dédiées à courte portée

AMENDEMENT 1: Perception de télépéage — Définition de l'interface d'application relative aux communications dédiées à courte portée — AMENDEMENT 1

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Foreword

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This document was prepared by Technical Committee ISO/TC 204, *Intelligent transport systems*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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AMENDMENT 1

NOTE The syntax of the ASN.1 code in the attached file ISO14906(2020)EfcDsrcApplicationv8.asn or www.itsstandards.eu/index.php/efc#EFCstandards and also at https://standards.iso.org/iso/14906/ed-3/amd/1/en takes precedence to the ASN.1 code included in the main body of this document.

Replace the following text (i.e. lines 248 to 260) in ISO14906(2018)EfcDsrcApplicationv6.asn:

```
EngineCharacteristics::= INTEGER {
noEntry (0),
noEngine (1),
petrolUnleaded (2),
petrolLeaded (3),
diesel (4),
lPG (5),
battery (6),
solar (7),
hybrid (8),
hydrogen (9)
-- (10-255) are reserved for future CEN use
} (0..255)
```

with the following text (i.e. lines 248 to 304) in ISO14906(2020)EfcDsrcApplicationv8.asn:

```
EngineCharacteristics::= INTEGER {
noEntry (0),
noEngine (1),
petrolUnleaded (2),
petrolLeaded (3),
diesel (4),
lPG (5),
battery (6), -- vehicle powered exclusively by battery
solar (7),
hybrid (8), -- kept for legacy compatibility, more differentiated
values are available
hydrogen (9),
multi-fuel (10), -- multi fuel engine
bivalent-petrol-lpg (11), -- bivalent operating engine with petrol
or liquefied petroleum gas
bivalent-petrol-cng (12), -- bivalent operating engine with petrol
or compressed natural gas
combined-petrol-electric (13), -- combined operation with petrol and
electric engine
cng (14), -- compressed natural gas
lng (15), -- liquefied natural gas
combined-diesel-electric (16), -- combined operation of diesel and
electric engine
combined-hydrogen-electric (17), -- combined operation of hydrogen
and electric engine
bivalent-hydrogen-petrol (18), -- bivalent operating engine with
hydrogen or petrol
bivalent-hydrogen-petrol-electric-engine (19), -- bivalent operating
engine with hydrogen or petrol combined with electric engine
fuel-cell-hydrogen (20), -- fuel cell with hydrogen as primary energy
source and electric engine
fuel-cell-petrol (21), -- fuel cell with petrol as primary energy
source and electric engine
fuel-cell-methanol (22), -- fuel cell with methanol as primary energy
source and electric engine
```

```
fuel-cell-ethanol (23), -- fuel cell with ethanol as primary energy
source and electric engine
fuel-cell-diesel (24), -- fuel cell with diesel as primary energy
source and electric engine
combined-multi-fuel-electric-engine (25), -- combined operation of
multi fuel and electric engine
combined-cng-electric-engine (26), -- combined operation with
compressed natural gas and electric engine
combined-lng-electric-engine (27), -- combined operation with
liquefied natural gas and electric engine
petrol-ethanol (28), -- fuel mix of petrol and mainly ethanol, e.g.
E85
combined-lpg-electric-engine (29), -- combined operation of LPG and
electric engine
hybrid-petrol-external-battery (30), -- hybrid drive with petrol and
external rechargeable battery (plug-in hybrid)
hybrid-diesel-external-battery (31), -- hybrid drive with diesel and
external rechargeable battery (plug-in hybrid)
hybrid-lpg-external-battery (32), -- hybrid drive with LPG and
external rechargeable battery (plug-in hybrid)
hybrid-hydrogen-external-battery (33), -- hybrid drive with hydrogen
and external rechargeable battery (plug-in hybrid)
hybrid-multi-fuel-external-battery (34), -- hybrid drive with multi
fuel and external rechargeable battery (plug-in hybrid)
hybrid-cng-external-battery (35), -- hybrid drive with compressed
natural gas and external rechargeable battery (plug-in hybrid)
hybrid-lng-external-battery (36), -- hybrid drive with liquefied
natural gas and external rechargeable battery (plug-in hybrid)
hybrid-bivalent-hydrogen-petrol-external-battery (37), -- hybrid
drive with bivalent operating hydrogen and petrol engine and external
rechargeable battery (plug-in hybrid)
hydrogen-cng (38), -- fuel mix of hydrogen and compressed natural gas
hydrogen-lng (39), -- fuel mix of hydrogen and liquefied natural gas
hybrid-hydrogen-cng-external-battery (40), -- hybrid drive with
hydrogen and compressed natural gas and external chargable battery
(plug-in hybrid)
hybrid-hydrogen-lng-external-battery (41), -- hybrid drive with
hydrogen and liquefied natural gas and external chargable battery
(plug-in hybrid)
ethanol (42), -- ethanol or fuel mix of ethanol and other fuel
(except petrol) or additives, e.g. E95
hybrid-fuel-cell-hydrogen (43), -- hybrid drive with fuel cell
(electric engine) and hydrogen (combustion engine)
hybrid-fuel-cell-hydrogen-external-battery (44), -- hybrid drive with
fuel cell (electric engine) and hydrogen (combustion engine) and
external chargable battery (plug-in hybrid)
dual-fuel-lng-diesel (45), -- dual operation with LNG and diesel
electric-external (46), -- electric engine with external power supply
biogas (47), -- mixture of different gases produced by the breakdown
of organic matter
bioDiesel (48), -- vegetable oil- or animal fat-based diesel fuel
bioPetrol (49), -- petrol fully or partly based on vegetable sources
bivalent-petrol-biogas (50), -- bivalent operating engine with petrol
or biogas
combined-biogas-electric-engine (51), -- combined operation of biogas
and electric engine
dual-fuel-cng-diesel (52), -- dual operation with CNG and diesel
-- (53-254) are reserved for future CEN and ISO use
other (255)
} (0..255)
```

Annex A, second paragraph

Replace the text of Annex A starting with the second paragraph to:

“The actual ASN.1 module is contained in the attached files "ISO14906(2020)EfcDsrcApplicationv8.asn" and "ISO14906(2020)EfcDsrcGenericv9.asn", which can be directly imported in a compiler.

NOTE 1 The above referenced files (i.e. “ISO14906(2020)EfcDsrcApplicationv8.asn“ and “ISO14906(2020) EfcDsrcGenericv9.asn“) are freely available for download via a hyperlink at www.itsstandards.eu/index.php/efc#EFCstandards and also at https://standards.iso.org/iso/14906/ed-3/amd/1/en.

Table A.1 provides the SHA-256 cryptographic hash digests for the referenced files, offering a means to verify the integrity of the referenced files. The SHA-256 algorithm is specified in NIST 180-4.

Table A.1 — SHA-256 cryptographic hash digests

File Name	SHA-256 cryptographic hash digest
ISO14906(2020)EfcDsrcApplicationv8.asn	3326BE1BACC17AC002BDD79B8C6C0B1EB568D64253ED0B8F99B1E92BF827FBAA
ISO14906(2020)EfcDsrcGenericv9.asn	C8B26A088AD769F7D69A0EECCD632BEE1E8BD0FE261FCB67C6D75480B5594C81

NOTE 2 Pasting the text of the file into one of the hash digest computation pages available on the web can result in a non-matching hash digest due to changes in the underlying coding.

Annex D

Change the Annex D label from “(normative)” to “(informative)”

Change the Annex D title from

"Mapping table from LatinAlphabetNo2 & 5 to LatinAlphabetNo1"

to

“Mapping table from LatinAlphabetNo2, LatinCyrillicAlphabet, LatinGreekAlphabet and LatinAlphabetNo10 to LatinAlphabetNo1”

Change the first paragraph from

“If a Service Provider wants to use LatinAlphabetNo1 to encode an OBE, Table D.1 shall be used to map non-Latin1 characters to lower case Latin1 characters.”

to

“If a Service Provider wants to issue OBEs with an EFC application that only uses LatinAlphabetNo1 as the alphabet indicator in the LPN attribute, to encode licence plate numbers, then non-Latin characters should be mapped to LatinAlphabetNo1 lower case characters according to Table D.1.”

Table D.1

Add the following three rows at the end of Table D.1:

Source	Character upper / lower case	Mapping to lower case Latin1 characters
ISO/IEC 8859-7 (Latin/Greek Alphabet)	Λ - λ	a

Source	Character upper / lower case	Mapping to lower case Latin1 characters
ISO/IEC 8859-16 (Latin Alphabet No 10) NOTE Be aware that there is a similar looking character in ISO/IEC 8859-1 (“Eth”)	Đ - đ	ä
ISO/IEC 8859-16 (Latin Alphabet No 10)	Ć - ć	ü

Bibliography

Add the following entries:

ISO/IEC 8859-1, *Information technology — 8-bit single-byte coded graphic character sets — Part 1: Latin alphabet No. 1*

ISO/IEC 8859-7, *Information technology — 8-bit single-byte coded graphic character sets — Part 7: Latin/Greek alphabet*

ISO/IEC 8859-16, *Information technology — 8-bit single-byte coded graphic character sets — Part 16: Latin alphabet No. 10*