

Section 1: General Information

0. Identification of the type

0.1 0.2 0.4 Type ID:	13-018-0010-6-001-001
0.3 Date of record:	2020-11-30

1. General Information

1.1 Type name:	TGV Duplex E Océane Like
1.2 Alternative type name:	

1.3 Manufacturer:

1.3.1 Manufacturer identification data:

1.3.1.1 Name of organisation:	SNCF Mobilités
1.3.1.2 Registered business number:	552049447
1.3.1.3 Organisation code:	

1.3.2 Manufacturer contact data:

1.3.2.1 Address of organisation, street and number:	9 rue Jean-Philippe Rameau
1.3.2.2 Town:	Saint-Denis
1.3.2.3 Country code:	87
1.3.2.4 Post code:	93200
1.3.2.5 E-mail address:	Pascal.BOSCH@sncf.fr

Registration Method: New Type

Registered Vehicle Type:

1.4 Category:	Traction vehicles
1.5 Subcategory:	Self-propelled passenger trainset (incl. railbusses)
1.6 Platform:	TGV

Section 2: Conformity with TSI

2.1 Conformity with TSI and Sections not complied with:

1435mm / AC 25kV-50Hz / Crocodile	CR CCS (Dec 2006/679/EC amended by Dec 2006/860/EC) CR LOC & PAS (Dec 2011/291/EU) HS RST (Dec 2008/232/EC)
1435mm / AC 25kV-50Hz / Decision 2008/386/EC Set_1	CR CCS (Dec 2006/679/EC amended by Dec 2006/860/EC) CR LOC & PAS (Dec 2011/291/EU) HS RST (Dec 2008/232/EC)
1435mm / AC 25kV-50Hz / KVB	CR CCS (Dec 2006/679/EC amended by Dec 2006/860/EC) CR LOC & PAS (Dec 2011/291/EU) HS RST (Dec 2008/232/EC)

1435mm / AC 25kV-50Hz / TVM 430	CR CCS (Dec 2006/679/EC amended by Dec 2006/860/EC) CR LOC & PAS (Dec 2011/291/EU) HS RST (Dec 2008/232/EC)
1435mm / DC 1.5kV (Specific Case FR) / Crocodile	CR CCS (Dec 2006/679/EC amended by Dec 2006/860/EC) CR LOC & PAS (Dec 2011/291/EU) HS RST (Dec 2008/232/EC)
1435mm / DC 1.5kV (Specific Case FR) / Decision 2008/386/EC Set_1	CR CCS (Dec 2006/679/EC amended by Dec 2006/860/EC) CR LOC & PAS (Dec 2011/291/EU) HS RST (Dec 2008/232/EC)
1435mm / DC 1.5kV (Specific Case FR) / KVB	CR CCS (Dec 2006/679/EC amended by Dec 2006/860/EC) CR LOC & PAS (Dec 2011/291/EU) HS RST (Dec 2008/232/EC)
1435mm / DC 1.5kV (Specific Case FR) / TVM 430	CR CCS (Dec 2006/679/EC amended by Dec 2006/860/EC) CR LOC & PAS (Dec 2011/291/EU) HS RST (Dec 2008/232/EC)

2.3 Applicable specific cases (specific cases conformity with which has been assessed)

2.2 Reference of 'EC type examination certificates'

Reference of 'EC type examination certificates' - if module SB applied - and/or 'design verification certificate' - if module SH1 applied	2593/2/SH1/2020/CCO/FR-EN/9210/0307
Reference of 'EC type examination certificates' - if module SB applied - and/or 'design verification certificate' - if module SH1 applied	2593/6/SH1/2020/CCO/FR-EN/9210/0308
Reference of 'EC type examination certificates' - if module SB applied - and/or 'design verification certificate' - if module SH1 applied	2593/6/SH1/2020/CCO/FR-EN/9210/0306
Reference of 'EC type examination certificates' - if module SB applied - and/or 'design verification certificate' - if module SH1 applied	2593/2/SH1/2020/RST/FR/9210/0201
Reference of 'EC type examination certificates' - if module SB applied - and/or 'design verification certificate' - if module SH1 applied	2593/4/SH1/2020/RST/FR/9210/0200
Reference of 'EC type examination certificates' - if module SB applied - and/or 'design verification certificate' - if module SH1 applied	2593/6/SH1/2020/RST/FR/9210/0202

Section 3: Authorisations

France

3.0 Area Of Use:	FR(France)
3.1.1 Member state of authorisation:	France(FR)
3.1.2.1 Status:	Valid
3.1.2.2 Validity of Authorisation (until):	

3.1.2.3 Coded conditions for use and other restrictions:

1435mm / AC 25kV-50Hz / Crocodile

1 Technical restriction related to construction

1.1 Minimum curve radius in meters: 150

1.3 Speed restrictions in Km/h: 320 LGV / 220 LC

1.4 Use in multiple operation (maximum number of trainsets authorised to be coupled together to operate as a single train): 2

2 Geographical restriction

2.2 Wheelset gauge: 2.2.4 Gauge 1435

2.4 ERTMS on board: 2.4.1 ETCS

2.4 ERTMS on board: 2.4.2 GSM-R voice

2.4 ERTMS on board: 2.4.3 GSM-R for ETCS

2.5 B System on board

2.5.1 Class B signalling system: 2.5.107 Crocodile

2.5.1 Class B signalling system: 2.5.112 KVB

2.7 Noise category: 2.7.2 Can be used in all quieter routes- TSI Noise compliant- Silent (tested against a TSI NOI)

3 Environmental restrictions

3.1 Climatic zone EN 50125-1:2014: 3.1.3 T3

4 Restrictions on use

4.2 Condition based (distance travelled, wear, etc.): True

5 On-board equipment

5.1 Recording device: 5.1.02 "Acquisition et Traitement des Evénements de Sécurité en Statique" (ATESS)

1435mm / AC 25kV-50Hz / Decision 2008/386/EC Set_1

1 Technical restriction related to construction

1.1 Minimum curve radius in meters: 150

1.3 Speed restrictions in Km/h: 320 LGV / 220 LC

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5 On-board equipment

5.1 Recording device: 5.1.02 "Acquisition et Traitement des Evénements de Sécurité en Statique" (ATESS)

1435mm / AC 25kV-50Hz / TVM 430

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 - 1.3 Speed restrictions in Km/h: 320 LGV / 220 LC
 - 1.4 Use in multiple operation (maximum number of trainsets authorised to be coupled together to operate as a single train): 2
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 - 2.2 Wheelset gauge: 2.2.4 Gauge 1435
 - 2.4 ERTMS on board: 2.4.1 ETCS
 - 2.4 ERTMS on board: 2.4.2 GSM-R voice
 - 2.4 ERTMS on board: 2.4.3 GSM-R for ETCS
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- 4 Restrictions on use
 - 4.2 Condition based (distance travelled, wear, etc.): True
- 5 On-board equipment
 - 5.1 Recording device: 5.1.02 "Acquisition et Traitement des Evénements de Sécurité en Statique" (ATESS)

1435mm / DC 1.5kV (Specific Case FR) / Crocodile

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4 Restrictions on use
4.2 Condition based (distance travelled, wear, etc.): True
5 On-board equipment
5.1 Recording device: 5.1.02 "Acquisition et Traitement des Evénements de Sécurité en Statique" (ATESS)

1435mm / DC 1.5kV (Specific Case FR) / TVM 430

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1.1 Minimum curve radius in meters: 150
1.3 Speed restrictions in Km/h: 320 LGV / 220 LC
1.4 Use in multiple operation (maximum number of trainsets authorised to be coupled together to operate as a single train): 2
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3 Environmental restrictions

3.1 Climatic zone EN 50125-1:2014: 3.1.3 T3

4 Restrictions on use

4.2 Condition based (distance travelled, wear, etc.): True

5 On-board equipment

5.1 Recording device: 5.1.02 "Acquisition et Traitement des Evénements de Sécurité en Statique" (ATESS)

3.1.2.4 Non-coded conditions for use and other restrictions:

3.1.3.1.1 Date of the original authorisation: 2020-11-23

3.1.3.1.2 Authorisation holder:

3.1.3.1.2.1 Authorisation holder identification data:

3.1.3.1.2.1.1 Name of organisation: Voyages SNCF

3.1.3.1.2.1.2 Registered business number: FR88519037584

3.1.3.1.2.1.3 Organisation code:

3.1.3.1.2.2 Authorisation holder contact data:

3.1.3.1.2.2.1 Address of organisation, street and number: 1-3 avenue François Mitterrand

3.1.3.1.2.2.2 Town: SAINT DENIS

3.1.3.1.2.2.3 Country code: 87

3.1.3.1.2.2.4 Post code: 93200

3.1.3.1.2.2.5 E-mail address: virginie.huard@sncf.fr

3.1.3.1.3 Authorisation document reference: FR8020200016

3.1.3.1.4 Certificate of verification : Reference of type examination or design examination type:

FR/00000519037584/2020/000005 du 25/08/2020

3.1.3.1.5 Parameters for which conformity to applicable national rules has been assessed:

1435mm / AC 25kV-50Hz / Crocodile

2015/2299/EU

4.5.1 Emergency braking performance

4.5.2 Service braking performance

4.5.4 Parking brake performance

8.2.2.9 Running through phase or system separation sections

8.4.1 EMC within the vehicle

8.4.3.1 Maximum electro-magnetic fields

9.3.1 Speed indication

9.3.4 Driver supervision

9.6 Recording device

12.1.2.2 Other GSM-R requirements

12.2.1 National on-board signalling systems

12.2.3 Transitions

12.2.5.5 Ergonomic aspects of DMI

1435mm / AC 25kV-50Hz / Decision 2008/386/EC
Set_1

2015/2299/EU

4.5.1 Emergency braking performance

4.5.2 Service braking performance

4.5.4 Parking brake performance

8.2.2.9 Running through phase or system
separation sections

8.4.1 EMC within the vehicle

8.4.3.1 Maximum electro-magnetic fields

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9.3.4 Driver supervision

9.6 Recording device

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12.2.1 National on-board signalling systems

12.2.3 Transitions

12.2.5.5 Ergonomic aspects of DMI

1435mm / AC 25kV-50Hz / KVB

2015/2299/EU

4.5.1 Emergency braking performance

4.5.2 Service braking performance

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8.2.2.9 Running through phase or system
separation sections

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9.3.4 Driver supervision

9.6 Recording device

12.1.2.2 Other GSM-R requirements

12.2.1 National on-board signalling systems

12.2.3 Transitions

12.2.5.5 Ergonomic aspects of DMI
1435mm / AC 25kV-50Hz / TVM 430
2015/2299/EU

4.5.1 Emergency braking performance
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12.2.1 National on-board signalling systems
12.2.3 Transitions
12.2.5.5 Ergonomic aspects of DMI
1435mm / DC 1.5kV (Specific Case FR) / Crocodile
2015/2299/EU

4.5.1 Emergency braking performance
4.5.2 Service braking performance
4.5.4 Parking brake performance
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12.2.3 Transitions
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1435mm / DC 1.5kV (Specific Case FR) / Decision
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12.1.2.2 Other GSM-R requirements

12.2.1 National on-board signalling systems

12.2.3 Transitions

12.2.5.5 Ergonomic aspects of DMI

1435mm / DC 1.5kV (Specific Case FR) / KVB
2015/2299/EU

4.5.1 Emergency braking performance

4.5.2 Service braking performance

4.5.4 Parking brake performance

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12.2.1 National on-board signalling systems

12.2.3 Transitions

12.2.5.5 Ergonomic aspects of DMI

1435mm / DC 1.5kV (Specific Case FR) / TVM 430
2015/2299/EU

4.5.1 Emergency braking performance

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12.2.5.5 Ergonomic aspects of DMI

Paramètre 4.10.8 :

- sous 1,5kV en US, la distance minimale est de 162 mètres
- sous 1,5kV en UM, la distance minimale est de 38 mètres

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3.1.3.1.6 Comments:

3.1.3.1.7 Reference to the written declaration by the proposer referred to in Article 3(11) of Regulation (EU) 402/2013:

3.1.3.1 Initial Registration

3.1.2.3 Coded conditions for use and other restrictions:

1435mm / AC 25kV-50Hz / Crocodile

1 Technical restriction related to construction

1.1 Minimum curve radius in meters: 150

1.3 Speed restrictions in Km/h: 320 LGV / 220 LC

1.4 Use in multiple operation (maximum number of trainsets authorised to be coupled together to operate as a single train): 2

2 Geographical restriction

2.2 Wheelset gauge: 2.2.4 Gauge 1435

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2.5 B System on board

2.5.1 Class B signalling system: 2.5.107 Crocodile

2.5.1 Class B signalling system: 2.5.112 KVB

2.7 Noise category: 2.7.2 Can be used in all quieter routes- TSI Noise compliant- Silent (tested against a TSI NOI)

3 Environmental restrictions

3.1 Climatic zone EN 50125-1:2014: 3.1.3 T3

4 Restrictions on use

4.2 Condition based (distance travelled, wear, etc.): True

5 On-board equipment

5.1 Recording device: 5.1.02 "Acquisition et Traitement des Evénements de Sécurité en Statique" (ATESS)

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2.2 Wheelset gauge: 2.2.4 Gauge 1435
2.4 ERTMS on board: 2.4.1 ETCS
2.4 ERTMS on board: 2.4.2 GSM-R voice
2.4 ERTMS on board: 2.4.3 GSM-R for ETCS
2.5 B System on board
2.5.1 Class B signalling system: 2.5.107 Crocodile
2.5.1 Class B signalling system: 2.5.112 KVB
2.7 Noise category: 2.7.2 Can be used in all quieter routes- TSI Noise compliant- Silent (tested against a TSI NOI)

3 Environmental restrictions

3.1 Climatic zone EN 50125-1:2014: 3.1.3 T3

4 Restrictions on use

4.2 Condition based (distance travelled, wear, etc.): True

5 On-board equipment

5.1 Recording device: 5.1.02 "Acquisition et Traitement des Evénements de Sécurité en Statique" (ATESS)

1435mm / DC 1.5kV (Specific Case FR) / KVB

1 Technical restriction related to construction

1.1 Minimum curve radius in meters: 150

1.3 Speed restrictions in Km/h: 320 LGV / 220 LC

1.4 Use in multiple operation (maximum number of trainsets authorised to be coupled together to operate as a single train): 2

2 Geographical restriction

2.2 Wheelset gauge: 2.2.4 Gauge 1435

2.4 ERTMS on board: 2.4.1 ETCS

2.4 ERTMS on board: 2.4.2 GSM-R voice

2.4 ERTMS on board: 2.4.3 GSM-R for ETCS

2.5 B System on board

2.5.1 Class B signalling system: 2.5.107 Crocodile

2.5.1 Class B signalling system: 2.5.112 KVB

2.7 Noise category: 2.7.2 Can be used in all quieter routes- TSI Noise compliant- Silent (tested against a TSI NOI)

3 Environmental restrictions

3.1 Climatic zone EN 50125-1:2014: 3.1.3 T3

4 Restrictions on use

4.2 Condition based (distance travelled, wear, etc.): True

5 On-board equipment

5.1 Recording device: 5.1.02 "Acquisition et Traitement des Evénements de Sécurité en Statique" (ATESS)

1435mm / DC 1.5kV (Specific Case FR) / TVM 430

1 Technical restriction related to construction

1.1 Minimum curve radius in meters: 150

1.3 Speed restrictions in Km/h: 320 LGV / 220 LC

1.4 Use in multiple operation (maximum number of trainsets authorised to be coupled together to operate as a single train): 2

2 Geographical restriction

2.2 Wheelset gauge: 2.2.4 Gauge 1435

2.4 ERTMS on board: 2.4.1 ETCS

2.4 ERTMS on board: 2.4.2 GSM-R voice

2.4 ERTMS on board: 2.4.3 GSM-R for ETCS

2.5 B System on board

2.5.1 Class B signalling system: 2.5.107 Crocodile

2.5.1 Class B signalling system: 2.5.112 KVB

2.7 Noise category: 2.7.2 Can be used in all quieter routes- TSI Noise compliant- Silent (tested against a TSI NOI)

3 Environmental restrictions

3.1 Climatic zone EN 50125-1:2014: 3.1.3 T3

4 Restrictions on use

4.2 Condition based (distance travelled, wear, etc.): True

5 On-board equipment

5.1 Recording device: 5.1.02 "Acquisition et Traitement des Evénements de Sécurité en Statique" (ATESS)

3.1.2.4 Non-coded conditions for use and other restrictions:

3.1.3.1.1 Date of the original authorisation: 2020-11-23

3.1.3.1.2 Authorisation holder:

3.1.3.1.2.1 Authorisation holder identification data:

3.1.3.1.2.1.1 Name of organisation: Voyages SNCF

3.1.3.1.2.1.2 Registered business number: FR88519037584

3.1.3.1.2.1.3 Organisation code:

3.1.3.1.2.2 Authorisation holder contact data:

3.1.3.1.2.2.1 Address of organisation, street and number: 1-3 avenue François Mitterrand

3.1.3.1.2.2.2 Town: SAINT DENIS

3.1.3.1.2.2.3 Country code: 87

3.1.3.1.2.2.4 Post code: 93200

3.1.3.1.2.2.5 E-mail address: virginie.huard@sncf.fr

3.1.3.1.3 Authorisation document reference: FR8020200016

3.1.3.1.4 Certificate of verification : Reference of type examination or design examination type:

FR/00000519037584/2020/000005 du 25/08/2020

3.1.3.1.5 Parameters for which conformity to applicable national rules has been assessed:

1435mm / AC 25kV-50Hz / Crocodile

4.5.1 Emergency braking performance

4.5.2 Service braking performance

4.5.4 Parking brake performance

8.2.2.9 Running through phase or system separation sections

8.4.1 EMC within the vehicle

8.4.3.1 Maximum electro-magnetic fields

9.3.1 Speed indication

9.3.4 Driver supervision

9.6 Recording device

12.1.2.2 Other GSM-R requirements

12.2.1 National on-board signalling systems

12.2.3 Transitions

12.2.5.5 Ergonomic aspects of DMI

1435mm / AC 25kV-50Hz / Decision 2008/386/EC Set_1

4.5.1 Emergency braking performance

4.5.2 Service braking performance

4.5.4 Parking brake performance

8.2.2.9 Running through phase or system separation sections

8.4.1 EMC within the vehicle

8.4.3.1 Maximum electro-magnetic fields

9.3.1 Speed indication

9.3.4 Driver supervision

9.6 Recording device

12.1.2.2 Other GSM-R requirements

12.2.1 National on-board signalling systems

12.2.3 Transitions

12.2.5.5 Ergonomic aspects of DMI

1435mm / AC 25kV-50Hz / KVB

4.5.1 Emergency braking performance

4.5.2 Service braking performance

4.5.4 Parking brake performance

8.2.2.9 Running through phase or system separation sections

8.4.1 EMC within the vehicle

8.4.3.1 Maximum electro-magnetic fields

9.3.1 Speed indication

9.3.4 Driver supervision

9.6 Recording device

12.1.2.2 Other GSM-R requirements

12.2.1 National on-board signalling systems

12.2.3 Transitions

12.2.5.5 Ergonomic aspects of DMI

1435mm / AC 25kV-50Hz / TVM 430

4.5.1 Emergency braking performance

4.5.2 Service braking performance

4.5.4 Parking brake performance

8.2.2.9 Running through phase or system separation sections

8.4.1 EMC within the vehicle

8.4.3.1 Maximum electro-magnetic fields

9.3.1 Speed indication

9.3.4 Driver supervision

9.6 Recording device

12.1.2.2 Other GSM-R requirements

12.2.1 National on-board signalling systems

12.2.3 Transitions

12.2.5.5 Ergonomic aspects of DMI

1435mm / DC 1.5kV (Specific Case FR) / Crocodile

4.5.1 Emergency braking performance

4.5.2 Service braking performance

4.5.4 Parking brake performance

8.2.2.9 Running through phase or system separation sections

8.4.1 EMC within the vehicle

8.4.3.1 Maximum electro-magnetic fields

9.3.1 Speed indication

9.3.4 Driver supervision

9.6 Recording device

12.1.2.2 Other GSM-R requirements

12.2.1 National on-board signalling systems

12.2.3 Transitions

12.2.5.5 Ergonomic aspects of DMI
1435mm / DC 1.5kV (Specific Case FR) / Decision
2008/386/EC Set_1

4.5.1 Emergency braking performance
4.5.2 Service braking performance
4.5.4 Parking brake performance

8.2.2.9 Running through phase or system
separation sections

8.4.1 EMC within the vehicle
8.4.3.1 Maximum electro-magnetic fields

9.3.1 Speed indication
9.3.4 Driver supervision
9.6 Recording device

12.1.2.2 Other GSM-R requirements
12.2.1 National on-board signalling systems
12.2.3 Transitions
12.2.5.5 Ergonomic aspects of DMI
1435mm / DC 1.5kV (Specific Case FR) / KVB

4.5.1 Emergency braking performance
4.5.2 Service braking performance
4.5.4 Parking brake performance

8.2.2.9 Running through phase or system
separation sections

8.4.1 EMC within the vehicle
8.4.3.1 Maximum electro-magnetic fields

9.3.1 Speed indication
9.3.4 Driver supervision
9.6 Recording device

12.1.2.2 Other GSM-R requirements
12.2.1 National on-board signalling systems
12.2.3 Transitions
12.2.5.5 Ergonomic aspects of DMI
1435mm / DC 1.5kV (Specific Case FR) / TVM 430

4.5.1 Emergency braking performance
4.5.2 Service braking performance
4.5.4 Parking brake performance

8.2.2.9 Running through phase or system
separation sections

8.4.1 EMC within the vehicle
8.4.3.1 Maximum electro-magnetic fields

9.3.1 Speed indication

9.3.4 Driver supervision

9.6 Recording device

12.1.2.2 Other GSM-R requirements

12.2.1 National on-board signalling systems

12.2.3 Transitions

12.2.5.5 Ergonomic aspects of DMI

Paramètre 4.10.8 :

- sous 1,5kV en US, la distance minimale est de 162 mètres
- sous 1,5kV en UM, la distance minimale est de 38 mètres

3.1.3.1.6 Comments:

3.1.3.1.7 Reference to the written declaration by the proposer referred to in Article 3(11) of Regulation (EU) 402/2013:

LTAFF302 - PBH-2020-042 du 14/05/2020

Section 4: Technical Characteristics

4.1.3 Wheel set gauge RC	1435	mm
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4.1.12 Number of vehicles composing the fixed formation (for fixed formation only)	10
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4.13.1 Signalling

4.13.1.1 ETCS equipment on-board and the set of specifications from CCS TSI Annex A RC	Decision 2008/386/EC Set_1
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4.13.1.5 Class B or other train protection control and warning systems installed (system and if applicable version) RC	Crocodile KVB TVM 430
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4.13.1.7 ETCS on-board implementation RC	Cab radio 1KM
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4.13.1.8 ETCS System Compatibility	ESC-NP-CCS7. 4a
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4.13.1.9 Managing information about the completeness of the train RC	False
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4.13.2 Radio

4.13.2.1 GSM-R Radio voice on board and its Baseline RC	Regulation 2016/919 Set_1
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4.13.2.3 Class B or other radio systems installed (system and if applicable version) RC		None				
4.13.2.5 Radio Voice System Compatibility		RSC-NP-CCS7.4a				
4.13.2.6 Voice and operational communication implementation RC		Cab radio 1KM				
4.13.2.7 GSM-R Radio Data communication on board and its Baseline RC		Regulation 2016/919 Set_1				
4.13.2.8 Radio Data System Compatibility		RSC-NP-CCS7.4a				
		RSC-FR-01-D				
4.13.2.9 Data communication application for ETCS implementation RC		Cab radio 1KM				
4.13.2.10 Voice SIM Card GSM-R Home Network		GSM-R F (France)				
4.13.2.11 Data SIM Card GSM-R Home Network		GSM-R F (France)				
4.13.2.12 Voice SIM Card support of Group ID 555		False				
4.10.1 Energy supply system (voltage and frequency) RC		AC 25kV-50Hz DC 1.5kV (Specific Case FR)				
4.10.4 Maximum current at standstill per pantograph (to be indicated for each DC systems the vehicle is equipped for)	DC 1.5kV (Specific Case FR)	295	A			
4.10.5 Height of interaction of pantograph with contact wires (over top of rail) (to be indicated for each energy supply system the vehicle is equipped for) RC	AC 25kV-50Hz	0004.59	m	0006.20	m	
	DC 1.5kV (Specific Case FR)	0004.47	m	0006.30	m	

4.10.6 Pantograph head geometry (to be indicated for each energy supply system the vehicle is equipped for) RC	AC 25kV-50Hz	1450 (sc FR)	mm
	DC 1.5kV (Specific Case FR)	1950 sc FR	mm
4.10.7 Number of pantographs in contact with the overhead contact line (OCL) (to be indicated for each energy supply system the vehicle is equipped for) RC	AC 25kV-50Hz	1	
	DC 1.5kV (Specific Case FR)	2	
4.10.8 Shortest distance between two pantographs in contact with the OCL (to be indicated for each energy supply system the vehicle is equipped for; to be indicated for single and if applicable multiple operation) (only if number of raised pantographs is more than 1) RC	DC 1.5kV (Specific Case FR)	38	m
4.10.10 Material of pantograph contact strip the vehicle may be equipped with (to be indicated for each energy supply system the vehicle is equipped for) RC	AC 25kV-50Hz	Plan carbon	
	DC 1.5kV (Specific Case FR)	If permitted by RINF: impregnated carbon with clad copper are allowed	
4.10.11 Automatic dropping device (ADD) fitted (to be indicated for each energy supply system the vehicle is equipped for) RC	AC 25kV-50Hz	True	
	DC 1.5kV (Specific Case FR)	True	

4.10.14 Electric units equipped with power or current limitation function RC	1435mm / AC 25kV-50Hz / Crocodile	True		
	1435mm / AC 25kV-50Hz / Decision 2008/386/EC Set_1	True		
	1435mm / AC 25kV-50Hz / KVB	True		
	1435mm / AC 25kV-50Hz / TVM 430	True		
	1435mm / DC 1.5kV (Specific Case FR) / Crocodile	True		
	1435mm / DC 1.5kV (Specific Case FR) / Decision 2008/386/EC Set_1	True		
	1435mm / DC 1.5kV (Specific Case FR) / KVB	True		
	1435mm / DC 1.5kV (Specific Case FR) / TVM 430	True		
4.10.15 Mean contact force RC	1435mm / AC 25kV-50Hz / Crocodile	195		N
	1435mm / AC 25kV-50Hz / Decision 2008/386/EC Set_1	195		N
	1435mm / AC 25kV-50Hz / KVB	195		N
	1435mm / AC 25kV-50Hz / TVM 430	195		N
	1435mm / DC 1.5kV (Specific Case FR) / Crocodile	200		N
	1435mm / DC 1.5kV (Specific Case FR) / Decision 2008/386/EC Set_1	200		N
	1435mm / DC 1.5kV (Specific Case FR) / KVB	200		N
	1435mm / DC 1.5kV (Specific Case FR) / TVM 430	200		N

4.1.2 Speed

4.1.2.1 Maximum design speed	1435mm / AC 25kV-50Hz / Crocodile	160	km/h
	1435mm / AC 25kV-50Hz / Decision 2008/386/EC Set_1	320	km/h
	1435mm / AC 25kV-50Hz / KVB	220	km/h
	1435mm / AC 25kV-50Hz / TVM 430	320	km/h
	1435mm / DC 1.5kV (Specific Case FR) / Crocodile	160	km/h
	1435mm / DC 1.5kV (Specific Case FR) / KVB	220	km/h
4.1.5 Maximum number of trainsets or locomotives coupled together in multiple operation.	1435mm / AC 25kV-50Hz / Crocodile	2	
	1435mm / AC 25kV-50Hz / Decision 2008/386/EC Set_1	2	
	1435mm / AC 25kV-50Hz / KVB	2	
	1435mm / AC 25kV-50Hz / TVM 430	2	
	1435mm / DC 1.5kV (Specific Case FR) / Crocodile	2	
	1435mm / DC 1.5kV (Specific Case FR) / Decision 2008/386/EC Set_1	2	
	1435mm / DC 1.5kV (Specific Case FR) / KVB	2	
	1435mm / DC 1.5kV (Specific Case FR) / TVM 430	2	
4.2.1 Reference profile RC		Gauge 3.3	
4.3.1 Temperature range		T1 (-25 to +40)	
4.3.3 Snow, ice and hail conditions		Nominal	
4.4.1 Fire safety category RC		A	
4.5.2 Design mass			
4.5.2.1 Design mass in working order RC		429726	kg

4.5.2.2 Design mass under normal payload RC	441753	kg
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4.5.2.3 Design mass under exceptional payload RC	469670	kg
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4.5.3 Static axle load

4.5.3.1 Static axle load in working order RC	17225	kg
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4.5.3.2 Static axle load under normal payload RC	18221	kg
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4.5.3.3 Static axle load under exceptional payload RC	19825	kg
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4.5.3.4 Position of the axles along the unit (axle spacing) :	1435mm / AC 25kV-50Hz / Crocodile	a: 0003,00 b: 0003,28 c: 0015,70	m
a: Distance between axles	1435mm / AC 25kV-50Hz / Decision 2008/386/EC Set_1	a: 0003,00 b: 0003,28 c: 0015,70	m
b: Distance from end axle to the end of the nearest coupling plane	1435mm / AC 25kV-50Hz / KVB	a: 0003,00 b: 0003,28 c: 0015,70	m
c: distance between two inside axles	1435mm / AC 25kV-50Hz / TVM 430	a: 0003,00 b: 0003,28 c: 0015,70	m
RC	1435mm / DC 1.5kV (Specific Case FR) / Crocodile	a: 0003,00 b: 0003,28 c: 0015,70	m
	1435mm / DC 1.5kV (Specific Case FR) / Decision 2008/386/EC Set_1	a: 0003,00 b: 0003,28 c: 0015,70	m
	1435mm / DC 1.5kV (Specific Case FR) / KVB	a: 0003,00 b: 0003,28 c: 0015,70	m
	1435mm / DC 1.5kV (Specific Case FR) / TVM 430	a: 0003,00 b: 0003,28 c: 0015,70	m

4.5.5 Total vehicle mass (for each vehicle of the unit) RC	1435mm / AC 25kV- 50Hz / Crocodile	429726	kg
	1435mm / AC 25kV- 50Hz / Decision 2008/386/EC Set_1	429726	kg
	1435mm / AC 25kV- 50Hz / KVB	429726	kg
	1435mm / AC 25kV- 50Hz / TVM 430	429726	kg
	1435mm / DC 1.5kV (Specific Case FR) / Crocodile	429726	kg
	1435mm / DC 1.5kV (Specific Case FR) / Decision 2008/386/EC Set_1	429726	kg
	1435mm / DC 1.5kV (Specific Case FR) / KVB	429726	kg
	1435mm / DC 1.5kV (Specific Case FR) / TVM 430	429726	kg
4.5.6 Mass per wheel RC	1435mm / AC 25kV- 50Hz / Crocodile	8869	kg
	1435mm / AC 25kV- 50Hz / Decision 2008/386/EC Set_1	8869	kg
	1435mm / AC 25kV- 50Hz / KVB	8869	kg
	1435mm / AC 25kV- 50Hz / TVM 430	8869	kg
	1435mm / DC 1.5kV (Specific Case FR) / Crocodile	8869	kg
	1435mm / DC 1.5kV (Specific Case FR) / Decision 2008/386/EC Set_1	8869	kg
	1435mm / DC 1.5kV (Specific Case FR) / KVB	8869	kg
	1435mm / DC 1.5kV (Specific Case FR) / TVM 430	8869	kg

4.6.4 Combination of maximum speed and maximum cant deficiency for which the vehicle was assessed RC	1435mm / AC 25kV-50Hz / Crocodile	0160,00	km/h	0165,00	mm
	1435mm / AC 25kV-50Hz / Decision 2008/386/EC Set_1	0320,00	km/h	0130,00	mm
	1435mm / AC 25kV-50Hz / KVB	0220,00	km/h	0150,00	mm
	1435mm / AC 25kV-50Hz / TVM 430	0320,00	km/h	0130,00	mm
	1435mm / DC 1.5kV (Specific Case FR) / Crocodile	0160,00	km/h	0165,00	mm
	1435mm / DC 1.5kV (Specific Case FR) / KVB	0220,00	km/h	0150,00	mm

4.6.5 Rail inclination RC	1435mm / AC 25kV-50Hz / Crocodile	1/20
	1435mm / AC 25kV-50Hz / Decision 2008/386/EC Set_1	1/20
	1435mm / AC 25kV-50Hz / KVB	1/20
	1435mm / AC 25kV-50Hz / TVM 430	1/20
	1435mm / DC 1.5kV (Specific Case FR) / Crocodile	1/20
	1435mm / DC 1.5kV (Specific Case FR) / Decision 2008/386/EC Set_1	1/20
	1435mm / DC 1.5kV (Specific Case FR) / KVB	1/20
	1435mm / DC 1.5kV (Specific Case FR) / TVM 430	1/20

4.7.1 Maximum average deceleration	1.42	m/s ²
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4.7.2.1 Brake performance on steep gradients with normal payload

4.7.2.1.2 Speed (if no reference case is indicated)	60	km/h
4.7.2.1.3 Gradient (if no reference case is indicated)	21	‰ (mm/m)
4.7.2.1.5 Time (if distance is not indicated) (if no reference case is indicated)	45	min

4.7.2.1.6 Maximum brake thermal energy capacity	1435mm / AC 25kV-50Hz / Crocodile	521	kJ
	1435mm / AC 25kV-50Hz / Decision 2008/386/EC Set_1	521	kJ
	1435mm / AC 25kV-50Hz / KVB	521	kJ
	1435mm / AC 25kV-50Hz / TVM 430	521	kJ
	1435mm / DC 1.5kV (Specific Case FR) / Crocodile	521	kJ
	1435mm / DC 1.5kV (Specific Case FR) / Decision 2008/386/EC Set_1	521	kJ
	1435mm / DC 1.5kV (Specific Case FR) / KVB	521	kJ
	1435mm / DC 1.5kV (Specific Case FR) / TVM 430	521	kJ

4.7.3 Parking brake

4.7.3.3 Maximum gradient on which the unit is kept immobilized by the parking brake alone (if the vehicle is fitted with it)	3.5	‰ (mm/m)
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4.7.4.1 Eddy current brake

4.7.4.1.1 Eddy current track brake fitted RC	False
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4.7.4.2 Magnetic brake

4.7.4.2.1 Magnetic track brake fitted RC	False
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4.7.4.3 Regenerative brake (only for vehicles with electrical traction)

4.7.4.3.1 Regenerative brake fitted RC	False
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4.7.5 Emergency brake : Stopping distance and deceleration profile for each load condition per design maximum speed a: Load condition: working order b: Load condition: normal payload c: Load condition: exceptional payload	1435mm / AC 25kV- 50Hz / Crocodile	a: 3560,00	m	0001,09	m/s ²
		b: 0000,00	m	0000,00	m/s ²
		c: 0000,00	m	0000,00	m/s ²
	1435mm / AC 25kV- 50Hz / Decision 2008/386/EC Set_1	a: 3560,00	m	0001,09	m/s ²
		b: 0000,00	m	0000,00	m/s ²
		c: 0000,00	m	0000,00	m/s ²
	1435mm / AC 25kV- 50Hz / KVB	a: 3560,00	m	0001,09	m/s ²
		b: 0000,00	m	0000,00	m/s ²
		c: 0000,00	m	0000,00	m/s ²
	1435mm / AC 25kV- 50Hz / TVM 430	a: 3560,00	m	0001,09	m/s ²
		b: 0000,00	m	0000,00	m/s ²
		c: 0000,00	m	0000,00	m/s ²
	1435mm / DC 1.5kV (Specific Case FR) / Crocodile	a: 3560,00	m	0001,09	m/s ²
		b: 0000,00	m	0000,00	m/s ²
		c: 0000,00	m	0000,00	m/s ²
	1435mm / DC 1.5kV (Specific Case FR) / Decision 2008/386/EC Set_1	a: 3560,00	m	0001,09	m/s ²
		b: 0000,00	m	0000,00	m/s ²
		c: 0000,00	m	0000,00	m/s ²
	1435mm / DC 1.5kV (Specific Case FR) / KVB	a: 3560,00	m	0001,09	m/s ²
		b: 0000,00	m	0000,00	m/s ²
		c: 0000,00	m	0000,00	m/s ²
	1435mm / DC 1.5kV (Specific Case FR) / TVM 430	a: 3560,00	m	0001,09	m/s ²
		b: 0000,00	m	0000,00	m/s ²
		c: 0000,00	m	0000,00	m/s ²

4.7.6 For general operation : Brake weight percentage (lambda) or Braked mass	1435mm / AC 25kV-50Hz / Crocodile	,	(%) or	00315,00	tonnes
	1435mm / AC 25kV-50Hz / Decision 2008/386/EC Set_1	,	(%) or	00315,00	tonnes
	1435mm / AC 25kV-50Hz / KVB	,	(%) or	00315,00	tonnes
	1435mm / AC 25kV-50Hz / TVM 430	,	(%) or	00315,00	tonnes
	1435mm / DC 1.5kV (Specific Case FR) / Crocodile	,	(%) or	00315,00	tonnes
	1435mm / DC 1.5kV (Specific Case FR) / Decision 2008/386/EC Set_1	,	(%) or	00315,00	tonnes
	1435mm / DC 1.5kV (Specific Case FR) / KVB	,	(%) or	00315,00	tonnes
	1435mm / DC 1.5kV (Specific Case FR) / TVM 430	,	(%) or	00315,00	tonnes
4.7.7 Service brake: At maximum service brake:	1435mm / AC 25kV-50Hz / Crocodile	3560,00	m	0001,09	m/s ²
Stopping distance, Maximum deceleration, for the load condition 'design mass under normal payload' at the design maximum speed.	1435mm / AC 25kV-50Hz / Decision 2008/386/EC Set_1	3560,00	m	0001,09	m/s ²
	1435mm / AC 25kV-50Hz / KVB	3560,00	m	0001,09	m/s ²
	1435mm / AC 25kV-50Hz / TVM 430	3560,00	m	0001,09	m/s ²
	1435mm / DC 1.5kV (Specific Case FR) / Crocodile	3560,00	m	0001,09	m/s ²
	1435mm / DC 1.5kV (Specific Case FR) / Decision 2008/386/EC Set_1	3560,00	m	0001,09	m/s ²
	1435mm / DC 1.5kV (Specific Case FR) / KVB	3560,00	m	0001,09	m/s ²
	1435mm / DC 1.5kV (Specific Case FR) / TVM 430	3560,00	m	0001,09	m/s ²

4.7.8 Wheel slide protection system	1435mm / AC 25kV-50Hz / Crocodile	True	
	1435mm / AC 25kV-50Hz / Decision 2008/386/EC Set_1	True	
	1435mm / AC 25kV-50Hz / KVB	True	
	1435mm / AC 25kV-50Hz / TVM 430	True	
	1435mm / DC 1.5kV (Specific Case FR) / Crocodile	True	
	1435mm / DC 1.5kV (Specific Case FR) / Decision 2008/386/EC Set_1	True	
	1435mm / DC 1.5kV (Specific Case FR) / KVB	True	
	1435mm / DC 1.5kV (Specific Case FR) / TVM 430	True	
4.8.1 Vehicle length		200.19	m
4.8.2 Minimum in-service wheel diameter RC		920	mm
4.8.4 Minimum horizontal curve radius capability RC		150	m
4.8.5 Minimum vertical convex curve radius capability		500	m
4.8.6 Minimum vertical concave curve radius capability		900	m
4.9.1 Type of end coupling	Automatic Type 10 / Scharfenberg		
	Tensile force	1000.0000	kN
	Compressive force	1500.0000	kN
4.9.2 Axle bearing condition monitoring (hot axles box detection) RC		Detectable by line side	
4.12.3.1 Platform heights for which the vehicle is designed. RC		385	mm
		550	mm
		760	mm

4.14.1 Type of train detection systems for which the vehicle has been designed and assessed RC

Track circuits