

14th December 2020

Mr. Paul Carter
Head of Authorisation UK
Bombardier Transportation UK Ltd.
Registered Office: Litchurch Lane,
Derby,
DE24 8AD

Contact: Adam Buckland

2 Rivergate
Temple Quay
Bristol
BS1 6EH

Dear Paul

**THE RAILWAYS (INTEROPERABILITY) REGULATIONS 2011, AS AMENDED
AUTHORISATION OF CLASS 387/1A AGAINST CCS TSI FOR THE ONBOARD
USE OF ETCS LEVEL NTC, ETCS LEVEL 0, 1 AND 2.**

VEHICLE NUMBERS (INCLUSIVE): 387130 TO 387141

I refer to your application for authorisation, received on the 17th November 2020.

This letter of authorisation is only valid when accompanied by Appendix 1 and Appendix 2.

Following review of your application, I can confirm that ORR grants authorisation under regulation 4 (1) (a) of the Railways (Interoperability) Regulations 2011, as amended. This authorisation is for the placing into service of an onboard ETCS level NTC and ETCS Level 0, 1 and 2 sub-system for Class 387/1a vehicles as per Appendix 1.

This authorisation relates to the following CCS onboard configuration of ETCS.

- The Product Version Information (PVI) which is to be adopted for APIS is PVI 3.1 as defined in PVI – 1DOC-1035196 Rev F and software release defined in PVI (software) – 1DOC-1041344 Rev 1.
- Generic product – R4 package 8C MR6.2, 1PRT-1001044 – 1.1.A8.0
- DMI generic product 3.15.12
- DMI specific application 3.15.13
- Class 387 PVI (HW) – 1PRD-1001094 release 1.0
- Class 387 PVI (SW) – PVI SA Class_387 SW3.1 – 1DOC-1039872L

- Vehicle Interface Adaptor – 1.0.0.2 (hosted on the DMI hardware as a shared DMI software application 3.15.13h)
- JRU issue A03
- VCU-C1.0.0.0
- VIPER switch 1.5.0.0

It is noted that the following CCS onboard configuration of the Class B system is:

Line Replaceable Unit	Part Number	Version Rev / Mod	Software Version
TPWS Control Unit	TY360/GRP01	Rev 1 / Mod 2	V4.0.6
AWS Receiver	TY294/GRP07	Rev 0 / Mod 0	V2.4
TPWS Antenna	TY255/GRP05	Rev 0 / Mod 0	n/a
TPWS DMI	TY361/GRP05	Rev 0 / Mod 0	V2.0 (see Note 2)
TPWS Sound Unit	TY363/GRP03	Rev 0 / Mod 1	826017.01
AWS Indicator	TY347/GRP05	Rev 0 / Mod 0	n/a

Configuration is valid for all vehicles as per Appendix 1.

It is noted that this has been based on CCS TSI 2016/919 (as amended up to 2019/776) using Set of Specifications #2 of the Technical Specification for Interoperability relating to the Control-Command and Signalling subsystems of the rail system in the European Union and other related mandatory standards.

I also refer to your EC Declaration of Verification, reference 1DOC-1061383 Ver B dated 17th November 2020 and Article 16 Declaration dated 17th November 2020.

The conditions of use on the structural subsystem are those contained in your Declaration of Verification dated 17th November 2020 and in your Technical File, reference 1DOC-1061382.

The limitations, restrictions and requirements are summarised below and reproduced in Appendix 2.

Limitations

1. There are 28 limitations of use based on out of scope functionality (Appendix 2.1).
 - NoBo/DeBo File – Class 387/1a (Hex) ETCS Independent Verification (SNCL-SN0182022-R11 issue 2) Appendix C – Table 9.
 - HEX CL387 Safety Justification Report (1DOC-1042977 Ver D) Section 5.1.1 – Table 3.

Requirements

1. Compatibility between the vehicle and the infrastructure.

Network Rail Summary of Compatibility shall be issued in accordance with RIS-8270-RST issue 1 prior to trains being put into use.

2. There are 119 restrictions based on CCS TSI non-compliance at the time of authorisation (Appendix 2.2)
 - HEX Class 387 CCS Resolution Plan (1DOC-1054541 Ver B) Appendix A – Tables 3 & 4
 - CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) Section 4 – Table 1 and Section 5 – Table 2.
 - HEX CL387 Safety Justification Report (1DOC-1042977 Ver D) Section 10.2.

There are 2 restrictions based on the exported Train Level SRACs (Appendix 2.3)

- Class 387 SRACs Train Level Report (1DOC-1052450 Rev D)
- HEX Class 387 CCS Resolution Plan (1DOC-1054541 Ver B) Appendix B.

Restrictions related to (PVI) 3.1.2 are required to be completed prior to trains being put into use. This should be performed in line with all relevant legislation in force at that time.

Restrictions related to ETCS Maintenance Releases 7 to 10 inclusive are required to be completed in a timely manner as set out in the HEX Class 387 CCS Resolution Plan (1DOC-1054541) to achieve the overarching end completion date of 31st March 2024.

The NSA may request progress on the ETCS Non-compliance Resolution Plan from time to time to demonstrate progression and ensure timely completion of the scheme.

The Technical File should be kept up to date.

The resolution plan is document 1DOC-1054541 and referenced to 1DOC-1045928 demonstrating non-compliant behaviour in line with the Safety Justification Report 1DOC-1042977. Any changes in these documents over the course of the maintenance releases shall be reflected in the resolution plan.

It is noted that a safety justification report has been produced by the applicant (1DOC-1042977 ver D) and has been reviewed by an Assessment Body.

The control, command and signalling subsystems authorised by this letter must be operated and maintained in accordance with Regulation 20.

You should be aware that any future modifications to the authorised subsystem may constitute a 'renewal' or an 'upgrade' as defined in Regulation 2. If a project entity, in relation to the project, considers that the modification meets either of these definitions they may apply, in accordance with the provisions of Regulation 13, to the Department for Transport (DfT) for a decision on whether a new authorisation will be required. Should DfT decide that an authorisation is not required they must consult with ORR whether authorisation is required on safety grounds.

As the project entity you are responsible for retaining the technical file, keeping it up to date and making it available to the ORR in accordance with Regulations 18 and 19.

If you are not the owner of the authorised subsystem you shall within 60 days, in accordance with Regulation 19(3), transfer the technical file, certificate of verification and verification declaration to the owner of the subsystem and the owner shall then be regarded as the project entity. If the owner, in accordance with Regulation 19(4), disposes of his interest in the authorised subsystem, he shall within 60 days of the disposal transfer the technical file, certificate of verification and verification declaration to the person acquiring that interest and that person shall be regarded as the project entity.

Please note that under Regulation 36, the person who applied for the authorisation shall send particulars to the Registration Entity to enable the registration entity to enter the information on the National Vehicle Register. This will include such further information as the registration entity may reasonably require set out in the relevant standard.

The person who applied for the authorisation to place in service will be issued with a determination of type in accordance with Commission Implementing Decision 2011/665/EC. The person who applied for the authorisation to place in service will receive the type authorisation after providing the data to the Registration Entity in accordance with Annex II of Commission Implementing Decision 2011/665/EC.

If you are the operator, may I remind you of the need to have adequate arrangements within your Safety Management System to control the risks associated with this rolling stock subsystem(s).

This decision letter will be published on ORR website.

Yours sincerely



Steve Fletcher
Deputy Director, Engineering & Asset Management

Cc

Ian Prosser	Director, Railway Safety Directorate, ORR
Ian Jones	Head of Interoperability, DfT
National Vehicle Register	nvr@networkrail.co.uk
Mick Bishop	Porterbrook
Kathryn Gibb	HM Inspector of Railways, ORR
Pete Gracey	Head of Interoperability, ORR
Dave Galloway	Professional Head of System Compatibility, NR

APPENDIX 1

Class	Unit Number	DMCO [DMOS(A)]	MSO [MOSL]	PTSO [PTOSL(W)]	DMSO [DMOS(B)]
387/1a	387130	421130	422130	423130	424130
	387131	421131	422131	423131	424131
	387132	421132	422132	423132	424132
	387133	421133	422133	423133	424133
	387134	421134	422134	423134	424134
	387135	421135	422135	423135	424135
	387136	421136	422136	423136	424136
	387137	421137	422137	423137	424137
	387138	421138	422138	423138	424138
	387139	421139	422139	423139	424139
	387140	421140	422140	423140	424140
	387141	421141	422141	423141	424141

APPENDIX 2

Appendix 2

The limitations, restrictions and requirements are summarised below and reproduced in this appendix.

Limitations

1. There are 28 limitations of use based on out of scope functionality (Appendix 2.1).
 - NoBo/DeBo File – Class 387/1a (Hex) ETCS Independent Verification (SNCL-SN0182022-R11 issue 2) Appendix C – Table 9.
 - HEX CL387 Safety Justification Report (1DOC-1042977 Ver D) Section 5.1.1 – Table 3.

Requirements

1. Compatibility between the vehicle and the infrastructure.

Network Rail Summary of Compatibility (NRSC) shall be issued in accordance with RIS-8270-RST issue 1 prior to trains being put into use.

2. There are 119 restrictions based on CCS TSI non-compliance at the time of authorisation (Appendix 2.2)
 - HEX Class 387 CCS Resolution Plan (1DOC-1054541 Ver B) Appendix A – Tables 3 & 4
 - CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) Section 4 – Table 1 and Section 5 – Table 2.
 - HEX CL387 Safety Justification Report (1DOC-1042977 Ver D) Section 10.2.

There are 2 restrictions based on the exported Train Level SRACs (Appendix 2.3)

- Class 387 SRACs Train Level Report (1DOC-1052450 Rev D)
- HEX Class 387 CCS Resolution Plan (1DOC-1054541 Ver B) Appendix B.

Restrictions related to Product Version Information (PVI) 3.1.2 are required to be completed prior to trains being put into use. This should be performed in line with all relevant legislation in force at that time.

Restrictions related to ETCS Maintenance Release 7 to 10 inclusive are required to be completed in a timely manner as set out in the HEX Class 387 CCS Resolution Plan (1DOC-1054541) to achieve the overarching end completion date of 31st March 2024.

The NSA may request progress on the ETCS Non-compliance Resolution Plan from time to time to demonstrate progression and ensure timely completion of the scheme.

The Technical File should be kept up to date.

The resolution plan is document 1DOC-1054541 and referenced to 1DOC-1045928 demonstrating non-compliant behaviour in line with the Safety Justification Report 1DOC-1042977. Any changes in these documents over the course of the maintenance releases shall be reflected in the resolution plan.

Appendix 2.1 Limitations based on Out Of Scope Functionality

The following items (28) have been identified by the applicant as being out of scope and hence present limitations in use of the sub-system. These need to be brought to any relevant duty holder's attention.

Item Reference and Condition	TSI Clause	Applicant Explanation
HEX CL 387 Safety Justification Report (1DOC-1042977 Ver D) Sec 5 - Table 3 NoBo/DeBo File - Class 387/1A (HEX) ETCS Independent Verification (SNCL-SN0182022-R011 issue 2) - Appendix C	4.2.3	Items / Functions not part of the onboard ETCS authorisation application Trackside ETCS functionality The trackside functionality does not form part of the onboard application and is therefore not within scope of the NoBo assessment of Bombardier's onboard train control system.
HEX CL 387 Safety Justification Report (1DOC-1042977 Ver D) Sec 5 - Table 3 NoBo/DeBo File - Class 387/1A (HEX) ETCS Independent Verification (SNCL-SN0182022-R011 issue 2) - Appendix C	4.2.4.2	Items / Functions not part of the onboard ETCS authorisation application Voice and operational communication applications: GSM-R voice radio The GSM-R voice radio is separate equipment and does not form part of the ETCS system. The certification of the GSM-R voice radio is described in the CCS TSI Compliance Report.
HEX CL 387 Safety Justification Report (1DOC-1042977 Ver D) Sec 5 - Table 3 NoBo/DeBo File - Class 387/1A (HEX) ETCS Independent Verification (SNCL-SN0182022-R011 issue 2) - Appendix C	4.2.4.1	Items / Functions not part of the onboard ETCS authorisation application Basic communication function: GSM-R SIM cards SIM cards are provided by GWR and are to be certified separately (i.e. not as part of the Bombardier onboard train control system application).
HEX CL 387 Safety Justification Report (1DOC-1042977 Ver D) Sec 5 - Table 3 NoBo/DeBo File - Class 387/1A (HEX) ETCS Independent Verification (SNCL-SN0182022-R011 issue 2) - Appendix C	6.2.4.2	Items / Functions not part of the onboard ETCS authorisation application Specific Transmission Module (STM) The STM is an optional interface. Subset-035 allows the use of a proprietary interface.
HEX CL 387 Safety Justification Report (1DOC-1042977 Ver D) Sec 5 - Table 3 NoBo/DeBo File - Class 387/1A (HEX) ETCS Independent Verification (SNCL-SN0182022-R011 issue 2) - Appendix C	4.1	Items / Functions not part of the onboard ETCS authorisation application Cold movement detection The absence of Cold Movement Detection is subject to a specific risk assessment in the Class 387 Cab Desk Risk Assessment

Item Reference and Condition	TSI Clause	Applicant Explanation
<p>HEX CL 387 Safety Justification Report (1DOC-1042977 Ver D) Sec 5 - Table 3</p> <p>NoBo/DeBo File - Class 387/1A (HEX) ETCS Independent Verification (SNCL-SN0182022-R011 issue 2) - Appendix C</p>	4.2.2	<p>Items / Functions not part of the onboard ETCS authorisation application</p> <p>Onboard ETCS functionality: Unfitted mode speed supervision when STM is operating in standalone mode</p> <p>It is not possible to be in unfitted whilst operating in Standalone STM modes. The ETCS can only be in one mode at a given time. In this instance it is in isolated mode.</p>
<p>HEX CL 387 Safety Justification Report (1DOC-1042977 Ver D) Sec 5 - Table 3</p> <p>NoBo/DeBo File - Class 387/1A (HEX) ETCS Independent Verification (SNCL-SN0182022-R011 issue 2) - Appendix C</p>	Annex G	<p>Items / Functions not part of the onboard ETCS authorisation application</p> <p>Open Point: Use of magnetic / eddy current brakes</p> <p>Class 387 is not fitted with Magnetic or eddy current brakes.</p>
<p>HEX CL 387 Safety Justification Report (1DOC-1042977 Ver D) Sec 5 - Table 3</p> <p>NoBo/DeBo File - Class 387/1A (HEX) ETCS Independent Verification (SNCL-SN0182022-R011 issue 2) - Appendix C</p>	N/A	<p>Items / Functions not part of the onboard ETCS authorisation application</p> <p>Air tightness controls</p> <p>The Class 387 ETCS does not control the air conditioning within the train.</p>
<p>HEX CL 387 Safety Justification Report (1DOC-1042977 Ver D) Sec 5 - Table 3</p> <p>NoBo/DeBo File - Class 387/1A (HEX) ETCS Independent Verification (SNCL-SN0182022-R011 issue 2) - Appendix C</p>	N/A	<p>Items / Functions not part of the onboard ETCS authorisation application</p> <p>Passenger door control by ETCS</p> <p>Class 387 provides passenger door control independently of the ETCS.</p>
<p>HEX CL 387 Safety Justification Report (1DOC-1042977 Ver D) Sec 5 - Table 3</p> <p>NoBo/DeBo File - Class 387/1A (HEX) ETCS Independent Verification (SNCL-SN0182022-R011 issue 2) - Appendix C</p>	4.1	<p>Items / Functions not part of the onboard ETCS authorisation application</p> <p>Brake pressure monitoring by ETCS</p> <p>Service brake pressure monitoring is an optional interface.</p>
<p>HEX CL 387 Safety Justification Report (1DOC-1042977 Ver D) Sec 5 - Table 3</p> <p>NoBo/DeBo File - Class 387/1A (HEX) ETCS Independent Verification (SNCL-SN0182022-R011 issue 2) - Appendix C</p>	4.1	<p>Items / Functions not part of the onboard ETCS authorisation application</p> <p>Non-leading mode</p> <p>Non-leading mode is disabled on Class 387 as is normal practise for multiple unit applications. This is clarified in RIS-0797-CCS.</p>

Item Reference and Condition	TSI Clause	Applicant Explanation
<p>HEX CL 387 Safety Justification Report (1DOC-1042977 Ver D) Sec 5 - Table 3</p> <p>NoBo/DeBo File - Class 387/1A (HEX) ETCS Independent Verification (SNCL-SN0182022-R011 issue 2) - Appendix C</p>	4.2.8	<p>Items / Functions not part of the onboard ETCS authorisation application</p> <p>Key Management Centre</p> <p>The responsibility for keeping GSM-R keys safe, correctly downloading them to the train and destroying them afterwards have been agreed with the Operator and Infrastructure Manager.</p>
<p>HEX CL 387 Safety Justification Report (1DOC-1042977 Ver D) Sec 5 - Table 3</p> <p>NoBo/DeBo File - Class 387/1A (HEX) ETCS Independent Verification (SNCL-SN0182022-R011 issue 2) - Appendix C</p>	4.1	<p>Items / Functions not part of the onboard ETCS authorisation application</p> <p>Train length integrated correction factor</p> <p>Class 387 uses fixed Train Data, so train length correction factors are not applicable.</p>
<p>HEX CL 387 Safety Justification Report (1DOC-1042977 Ver D) Sec 5 - Table 3</p> <p>NoBo/DeBo File - Class 387/1A (HEX) ETCS Independent Verification (SNCL-SN0182022-R011 issue 2) - Appendix C</p>	4.2.6.1	<p>Items / Functions not part of the onboard ETCS authorisation application</p> <p>ETCS and Class B train protection: Interfaces 'G' and 'K'</p> <p>Class 387 does not provide a KER STM.</p>
<p>HEX CL 387 Safety Justification Report (1DOC-1042977 Ver D) Sec 5 - Table 3</p> <p>NoBo/DeBo File - Class 387/1A (HEX) ETCS Independent Verification (SNCL-SN0182022-R011 issue 2) - Appendix C</p>	6.1.1.2	<p>Items / Functions not part of the onboard ETCS authorisation application</p> <p>Level NTC operation other than TPWS/AWS</p> <p>Class 387 does not support other Class B systems.</p>
<p>HEX CL 387 Safety Justification Report (1DOC-1042977 Ver D) Sec 5 - Table 3</p> <p>NoBo/DeBo File - Class 387/1A (HEX) ETCS Independent Verification (SNCL-SN0182022-R011 issue 2) - Appendix C</p>	4.1	<p>Items / Functions not part of the onboard ETCS authorisation application</p> <p>Passive Shunting Mode</p> <p>Passive shunting mode is disabled on Class 387 as is normal practise for multiple unit applications. This is clarified in RIS-0797-CCS.</p>
<p>HEX CL 387 Safety Justification Report (1DOC-1042977 Ver D) Sec 5 - Table 3</p> <p>NoBo/DeBo File - Class 387/1A (HEX) ETCS Independent Verification (SNCL-SN0182022-R011 issue 2) - Appendix C</p>	4.2.2	<p>Scope limited by ETCS Level or Baseline</p> <p>On-board ETCS functionality: ETCS Level 3</p> <p>ETCS Level 2 functionality provided</p>

Item Reference and Condition	TSI Clause	Applicant Explanation
<p>HEX CL 387 Safety Justification Report (1DOC-1042977 Ver D) Sec 5 - Table 3</p> <p>NoBo/DeBo File - Class 387/1A (HEX) ETCS Independent Verification (SNCL-SN0182022-R011 issue 2) - Appendix C</p>	4.2.7	<p>Scope limited by ETCS Level or Baseline</p> <p>Trackside interface internal to Control-Command and Signalling: Interfacing to ETCS trackside equipment that sends messages or packets, or uses Euroradio protocols other than those defined in ETCS Baseline 3, Maintenance Release 1</p> <p>ETCS Baseline 3, Maintenance Release 1</p>
<p>HEX CL 387 Safety Justification Report (1DOC-1042977 Ver D) Sec 5 - Table 3</p> <p>NoBo/DeBo File - Class 387/1A (HEX) ETCS Independent Verification (SNCL-SN0182022-R011 issue 2) - Appendix C</p>	4.2.2	<p>Scope limited by ETCS Level or Baseline</p> <p>Onboard ETCS functionality: Train integrity proving</p> <p>Train integrity proving is a Level 3 functionality. ETCS functionality up to Level 2 is provided on Class 387.</p>
<p>HEX CL 387 Safety Justification Report (1DOC-1042977 Ver D) Sec 5 - Table 3</p> <p>NoBo/DeBo File - Class 387/1A (HEX) ETCS Independent Verification (SNCL-SN0182022-R011 issue 2) - Appendix C</p>	4.2.4	<p>Functionality not in Operation on Rail Network in Great Britain</p> <p>Mobile communication functions for railways GSM-R: GSM-R packet switched radio network</p> <p>Class 387 is designed to operate on the GB Network.</p>
<p>HEX CL 387 Safety Justification Report (1DOC-1042977 Ver D) Sec 5 - Table 3</p> <p>NoBo/DeBo File - Class 387/1A (HEX) ETCS Independent Verification (SNCL-SN0182022-R011 issue 2) - Appendix C</p>	4.2.7	<p>Functionality not in Operation on Rail Network in Great Britain</p> <p>Trackside interface internal to Control Command and Signalling: Radio sessions initiated by the trackside (RBC)</p> <p>The Class 387 ETCS does not implement and therefore does not respond to a request from the RBC to initiate a radio session. Note that a safe radio session is only required for driving in Level 2.</p>
<p>HEX CL 387 Safety Justification Report (1DOC-1042977 Ver D) Sec 5 - Table 3</p> <p>NoBo/DeBo File - Class 387/1A (HEX) ETCS Independent Verification (SNCL-SN0182022-R011 issue 2) - Appendix C</p>	4.2.5.3, 4.2.7.5	<p>Functionality not in Operation on Rail Network in Great Britain</p> <p>Euroloop communication with the train</p> <p>Class 387 is designed to operate on the GB Network.</p>
<p>HEX CL 387 Safety Justification Report (1DOC-1042977 Ver D) Sec 5 - Table 3</p> <p>NoBo/DeBo File - Class 387/1A (HEX) ETCS Independent Verification (SNCL-SN0182022-R011 issue 2) - Appendix C</p>	4.2.5.1, 4.2.7.3, 4.2.8	<p>Functionality not in Operation on Rail Network in Great Britain</p> <p>Radio communication with the train: Radio infill functionality</p> <p>Class 387 is designed to operate on the GB Network.</p>

Item Reference and Condition	TSI Clause	Applicant Explanation
<p>HEX CL 387 Safety Justification Report (1DOC-1042977 Ver D) Sec 5 - Table 3</p> <p>NoBo/DeBo File - Class 387/1A (HEX) ETCS Independent Verification (SNCL-SN0182022-R011 issue 2) - Appendix C</p>	4.1	<p>Functionality not in Operation on Rail Network in Great Britain</p> <p>Track Ahead Free</p> <p>Class 387 is designed to operate on the GB Network.</p>
<p>HEX CL 387 Safety Justification Report (1DOC-1042977 Ver D) Sec 5 - Table 3</p> <p>NoBo/DeBo File - Class 387/1A (HEX) ETCS Independent Verification (SNCL-SN0182022-R011 issue 2) - Appendix C</p>	4.1	<p>Functionality not in Operation on Rail Network in Great Britain</p> <p>Interfacing ETCS Trackside equipment with NID_C=0</p> <p>Class 387 is designed to operate on the GB Network.</p>
<p>HEX CL 387 Safety Justification Report (1DOC-1042977 Ver D) Sec 5 - Table 3</p> <p>NoBo/DeBo File - Class 387/1A (HEX) ETCS Independent Verification (SNCL-SN0182022-R011 issue 2) - Appendix C</p>	7.5	<p>Limitation Required for Safe Operation</p> <p>Train detection systems specific implementation rules: Level crossing information (using Packet 88)</p> <p>Level crossing information manages the risks associated with the train interfering with the safe operation of and at a level crossing. The Class 387 ETCS does not implement the management of Packet 88 (Level crossing information) data and as a result the train will not be supervised according to the level crossing information.</p>
<p>HEX CL 387 Safety Justification Report (1DOC-1042977 Ver D) Sec 5 - Table 3</p> <p>NoBo/DeBo File - Class 387/1A (HEX) ETCS Independent Verification (SNCL-SN0182022-R011 issue 2) - Appendix C</p>	4.2.3	<p>Limitation Required for Safe Operation</p> <p>Trackside ETCS functionality: Route suitability based on traction type</p> <p>Managed via the Compatibility Assessment</p>
<p>HEX CL 387 Safety Justification Report (1DOC-1042977 Ver D) Sec 5 - Table 3</p> <p>NoBo/DeBo File - Class 387/1A (HEX) ETCS Independent Verification (SNCL-SN0182022-R011 issue 2) - Appendix C</p>	4.2.7	<p>Limitation Required for Safe Operation</p> <p>Trackside interface internal to Control Command and Signalling: RBC onboard short numbers</p> <p>Operation permitted only on infrastructure where the balises do not use short numbers</p>

Appendix 2.2 - Restrictions based on CCS TSI Non-Compliances

The following items (119) have been identified by the applicant as being restrictions based on CCS TSI non-compliance and hence present restrictions in use of the sub-system.

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
MR10	arn_043#4507 arn_043#5280	CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B) CL387-TSI-GoIC-NC-143 : Non-Compliances with Track-Train Interoperability Impact : Geographical Position Information Condition: Class 387 is technically compatible with routes that do not require geographical position reporting	SS026-3.6.6.4.2	The geographical position symbol should be displayed on the DMI when geographical information is available, and the geographical information is displayed after the driver requests it on the DMI. The geographical information should be available after the front end of the train passes the offset distance to the track kilometer reference from the balise containing the geographical position information. However, the Class 387 DMI displays the geographical position symbol immediately after passing a balise with an offset distance to a track kilometer reference, and removes the symbol once the offset distance is reached.
MR10	arn_043#6628	CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B) CL387-TSI-GoIC-NC-177 : Non-Compliances with Track-Train Interoperability Impact : Geographical Position Information Condition: Class 387 is technically compatible with routes that do not require geographical position reporting	SS026 3.6.6.4.2 SS026 3.6.6.9 b)	The onboard ETCS should stop calculating geographical position from a track kilometre reference if it is ordered to do so from the trackside. However the onboard ETCS continues to calculate geographical position reporting even when ordered to stop doing so.
MR10	arn_043#7630	CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B) CL387-TSI-GoIC-NC-210 : Non-Compliances with Track-Train Interoperability Impact : Geographical Position Information Condition: Class 387 is technically compatible with routes that do not require geographical position reporting	SS026 7.5.1.120	The ETCS onboard should consider the Q_MPOSITION variable, which corresponds to the driven track direction, in the calculation of the geographical position reporting information. However, the Class 387 ETCS does not consider this direction variable, so the geographical position reporting information can be incorrect.

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
MR10	arn_043#4187	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-273 : Non-Compliances with Track-Train Interoperability Impact : Geographical Position Information</p> <p>Condition: Class 387 is technically compatible with routes that do not require geographical position reporting</p>	<p>SS026-3.6.6.1 SS026-3.6.6.9</p>	<p>The display of the geographical position information on the DMI should be removed on driver request when the driver toggles the geographical position symbol.</p> <p>However, the Class 387 DMI does not always remove geographical position information when requested by the driver.</p>
MR10	arn_043#5403	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-136 : Non-Compliances with Track-Train Interoperability Impact : Limited Supervision Mode</p> <p>Condition: Class 387 is technically compatible with routes that do not require Limited Supervision mode</p>	<p>SS026 4.10.1.3:47</p>	<p>In level 1 Limited Supervision mode the onboard ETCS should display the Lowest Supervised Speed within the Movement Authority (LSSMA) on the DMI.</p> <p>However, when in L1 Limited Supervision mode the CL387 onboard ETCS does not display the LSSMA on the DMI.</p>
MR10	arn_043#8529	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-204 : Non-Compliances with Track-Train Interoperability Impact : Limited Supervision Mode</p> <p>Condition: Class 387 is technically compatible with routes that do not require Limited Supervision mode</p>	<p>SS026 3.8.5.2.2 SS026 4.6.2</p>	<p>Whilst driving in Limited Supervision mode and upon reaching an End of Authority, the train should enter Trip.</p> <p>However, following the receipt of Packet 16 repositioning information, the Class 387 ETCS transitions from Limited Supervision to Full Supervision mode for approximately one second before entering Trip at the End of Authority.</p>

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
MR10	arn_043#4703	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-302 : Non-Compliances with Track-Train Interoperability Impact : Limited Supervision Mode</p> <p>Condition: Class 387 is technically compatible with routes that do not require Limited Supervision mode</p>	SS027 4.3.1.1 Msg 44	<p>Whenever the Lowest Supervised Speed within the Movement Authority (LSSMA) appears, changes or disappears on the DMI, the LSSMA should be recorded on the JRU.</p> <p>However, when the Class 387 onboard ETCS transitions to Limited Supervision mode and the LSSMA is not currently displayed, the LSSMA is still recorded.</p>
MR10	arn_043#5338	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-137 : Non-Compliances with Track-Train Interoperability Impact : RBC/RBC Handover</p> <p>Condition: Class 387 is technically compatible with routes which do not require RBC/RBC handover</p>	SS026 4.8.4.2:28 [8]	<p>Whilst in Shunting mode the onboard ETCS should accept RBC transition orders, but only with zero distance to execution (i.e. RBC transition announcement should be rejected).</p> <p>However, the onboard ETCS in Shunting mode accepts RBC transition orders with non-zero distance to execution.</p>
MR8	arn_043#5914	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-154 : Non-Compliances with Track-Train Interoperability Impact : RBC/RBC Handover</p> <p>Condition: Class 387 is technically compatible with routes which do not require RBC/RBC handover</p>	SS026 4.8.3.1	<p>The onboard ETCS should reject a Movement Authority from the RBC if train data acknowledgement has not yet been received from the RBC.</p> <p>However, if during start of mission the driver changes the radio connection to a different RBC having received acknowledgement of train data from the original RBC, the CL387 onboard ETCS does not send train data automatically to the new RBC. The CL387 onboard ETCS is unable to establish a session with the new RBC.</p>

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
MR9	arn_043#4825	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-188 : Non-Compliances with Track-Train Interoperability Impact : RBC/RBC Handover</p> <p>Condition: Class 387 is technically compatible with routes which do not require RBC/RBC handover</p>	SS026 3.5.3.7 a)	<p>On performing a single modem RBC/RBC handover, the onboard should perform three attempts to establish a connection with the new RBC.</p> <p>However, only one connection request is received because the Class 387 onboard ETCS does not respect any delay whilst the disconnect procedure from the handing over RBC is ongoing, and hence the first two connection attempts are lost whilst the disconnect procedure is ongoing.</p>
MR10	arn_043#5570	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-197 : Non-Compliances with Track-Train Interoperability Impact : RBC/RBC Handover</p> <p>Condition: Class 387 is technically compatible with routes which do not require RBC/RBC handover</p>	<p>SS026-5.15.4.3 SS026-5.15.4.4</p>	<p>When the train is in Level 2 Full Supervision mode, approaches an RBC/RBC Handover border, both RBC sessions are established, but the train stops before the max safe front passes the handover border. The driver selects Override, and the train switches to Staff Responsible mode. The ETCS OB should not send termination request to the Accepting RBC.</p> <p>However, the CL387 sends the termination request to the Accepting RBC.</p>
MR9	433567	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-374 : Non-Compliances with Track-Train Interoperability Impact : RBC/RBC Handover</p> <p>Condition: Class 387 is technically compatible with routes which do not require RBC/RBC handover</p>	SS026-3.5.3.5.2	<p>The Onboard equipment should terminate current communication session with an RBC and establish a new communication session with new a RBC when a new Packet 42 is received with a different NID_RBC than the current RBC.</p> <p>However on the CL387, after the current RBC session is terminated, onboard is not able to establish a new communication session to the next RBC. This deviation is only applicable is only in case of wayside designed to change the supervised RBC by Packet 42 only, without any RBC to RBC Handing Over (HO) announcement or termination order of current RBC.</p>

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
MR9	arn_071#1573 494338	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-NCR-NC-004 : Non-Compliances with Track-Train Interoperability Impact : Permitted Braking Distance (packet 52)</p> <p>Condition: Class 387 is technically compatible with routes that do not require the use of permitted braking distance packets (packet 52) to supervise speed restrictions</p>	SS026 3.11.11.3	<p>When a Permitted Braking Distance (PBD) (packet 52) is received from the trackside, the ETCS should calculate a speed restriction based on the PBD and the applicable National Values to ensure that the train can stop within the maximum permitted stopping distance.</p> <p>However, the Class 387 ETCS does not recalculate the speed restriction if the "Integrated correction factors (X_NVKINTXXX)" or "Confidence level on emergency brake safe deceleration (M_NVEBCL)" National Values are changed.</p>
MR9	arn_071#1575 510871	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-NCR-NC-005 : Non-Compliances with Track-Train Interoperability Impact : Unlinked Balise Groups</p> <p>Condition: Class 387 is technically compatible with routes that do not require the use of unlinked balise groups</p>	SS026 3.6.4.3	<p>When the train receives a new Last Relevant Balise Group (LRBG), information belonging to previously received Linked Balise Groups (LBGs) shall be relocated to the LRBG.</p> <p>However, on Class 387 if the last received Unlinked Balise Group (UBG) has the same identity as the LRBG, ETCS will incorrectly relocate the previously received LBG information using the position of the UBG instead of the LRBG. The LBG information includes distances to safety critical features such as Supervised Location and End of Authority.</p>

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
PVI 3.1.2 (configuration of A_Max_Acc) MR9 (resolved)	arn_071#1460	CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B) CL387-TSI-NCR-NC-006 : Non-Compliances with Track-Train Interoperability Impact : Unlinked Balise Groups This non-compliance has been subject to a risk assessment in the Class 387 Safety Justification Report. To manage this non-compliance, appropriate mitigations have been applied to limit the operation of the train and these are transferred to the operator. This non-compliance is managed through the following stated condition and three SRACs (Vehicle_SRAC_54, Vehicle_SRAC_55, Vehicle_SRAC_56) referred to in the SRACs Train Level Report [12]. Condition: Class 387 is technically compatible with routes that do not require the use of unlinked balise groups	SS091 7.3.2 ETCS_OB07	The rate of failure for the train to fail to detect a balise group should not exceed the Tolerable Hazard Rate (THR) of 1.0×10^{-7} dangerous failures per hour. However, due to an error impacting the balise reader, it cannot be demonstrated that the Class 387 ETCS achieves the required THR for failing to detect balise groups.
MR8	arn_071#1344	CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B) CL387-TSI-CCS-NC-001 : Non-Compliances with no Track-Train Interoperability Impact : Compliance Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.	CCS TSI 3.2.1	In accordance with Table A 3 of the CCS TSI, the project should apply the mandatory standards EN 50126-1:2017 and EN 50126-2:2017 according to the risk management process set out in Annex I to the Commission Implementing Regulation (EU) No 402/2013, as referred to in Article 6(1)(a) of the Directive (EU) 2016/798. However, the Class 387 project applies an earlier version of the standard; EN 50126-1:1999, in its risk management process.

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
MR10	arn_043#6966	CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B) CL387-TSI-GoIC-NC-092 : Non-Compliances with no Track-Train Interoperability Impact : DMI Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.	ERA_DMI 5.3.2.2.1 ERA_DMI 5.4.1.8	Once the service brake or emergency brake is applied, the DMI displays a brake intervention symbol with a flashing yellow frame to indicate that an acknowledgement is required. When the driver holds the service or emergency brake intervention symbol to acknowledge the intervention, the flashing frame should be removed when the driver first presses the acknowledgement icon. However, the Class 387 DMI only removes the flashing frame when the driver releases the acknowledgement icon.
MR10	arn_043#6158 arn_043#5945	CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B) CL387-TSI-GoIC-NC-095a : Non-Compliances with no Track-Train Interoperability Impact : DMI Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.	ERA_DMI 5.1.3.3	Unless stated otherwise, text should be vertically centered inside its allocated area on the DMI. However, for the CI387 DMI, the text for the input fields "Enter Driver ID", "Select Level", "Enter Train Running Number" and "Enter Driver ID (Enter 16 Characters)" are vertically aligned to the top of the allocated area, rather than centered.
MR10	arn_043#6158 arn_043#5945	CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B) CL387-TSI-GoIC-NC-095b : Non-Compliances with no Track-Train Interoperability Impact : DMI Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.	ERA_DMI 5.1.3.3	The height of letters on alphanumeric keyboards should be 10 cells. However, for the CI387 DMI it is 16 cells.

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
MR10	arn_043#6788	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-096 : Non-Compliances with no Track-Train Interoperability Impact : DMI</p> <p>Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.</p>	ERA_DMI 10.3.2.3	<p>A cursor is used to indicate to the driver where his next selected character will be inserted within the input field. The cursor should flash by changing from visible to not visible every 250ms.</p> <p>However, for the Cl387 DMI the resolution of the timer for the flash is 100ms, therefore the cursor will not flash exactly at 250ms each time.</p>
MR10	arn_043#6783	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-097 : Non-Compliances with no Track-Train Interoperability Impact : DMI</p> <p>Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.</p>	ERA_DMI 10.3.3.8 ERA_DMI 10.3.3.10	<p>The DMI should display the echo text label and data in the correct location.</p> <p>However, the Class 387 DMI displays the echo text label and data in the correct area, but there is a minor discrepancy in the alignment of the echo text from the top of this area.</p>
MR10	arn_043#6786	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-099 : Non-Compliances with no Track-Train Interoperability Impact : DMI</p> <p>Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.</p>	ERA_DMI 10.5.1.7 ERA_DMI 10.5.1.9	<p>The DMI should display the text label and data in the correct location on the data view windows.</p> <p>However, although the Class 387 DMI displays the label and data in the correct area, there is a minor discrepancy in the alignment of the data view text and data, resulting in the text being displayed further to the left.</p>

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
MR10	arn_043#6668 arn_043#4691	CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B) CL387-TSI-GoIC-NC-102 : Non-Compliances with no Track-Train Interoperability Impact : DMI Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.	ERA_DMI 5.1.1.1.3 ERA_DMI 5.1.1.1.4 ERA_DMI 5.3.2.4.1 ERA_DMI 10.3.1.15 ERA_DMI 10.3.5.10	Inputs fields and buttons should be displayed according to the ERA_DMI requirements. However on the Class 387 DMI, the colour of the border and background for selected input fields and buttons have minor discrepancies to the requirements.
MR9	arn_043#6731	CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B) CL387-TSI-GoIC-NC-105 : Non-Compliances with no Track-Train Interoperability Impact : DMI Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.	ERA_DMI 5.4.1.9	If more than one object or text message requires a driver's acknowledgement, the DMI should display the next object or text message one second after the current object or text message has been acknowledged. However, when an object or text message is acknowledged the CL387 DMI displays the next one immediately, without the one second delay.
MR8	arn_043#7897	CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B) CL387-TSI-GoIC-NC-106 : Non-Compliances with no Track-Train Interoperability Impact : DMI This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI_DMI-JRU-& Other-065 of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).	ERA_DMI 8.2.3.2.2 ERA_DMI 8.2.3.2.3	When the ETCS level is invalid, the DMI should not display the level symbol. However, the CL387 DMI still displays the Level symbol when the ETCS level is invalid.

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
MR8	arn_043#8081	CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B) CL387-TSI-GoIC-NC-112 : Non-Compliances with no Track-Train Interoperability Impact : DMI Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.	ERA ERTMS 8.5.1.4	The 5 buttons (Main, Override, Data view, Special, Setting) for sub-level window selection should always be 'enabled'. However, the Class 387 DMI does not display the sub-level selection buttons when the cab is not active.
MR8	[VR_ERA015560] arn_043#3343	CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B) CL387-TSI-GoIC-NC-122a : Non-Compliances with no Track-Train Interoperability Impact : DMI Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.	ERA_DMI 11.7.1.8	During the start up dialogue sequence, if a driver's acknowledgement is required, the DMI should display it 1 second after the end of the start up dialogue sequence. However the CL387 DMI displays any required driver acknowledgement immediately after completion of the start up dialogue sequence.
MR8	[VR_ERA015560] arn_043#3343	CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B) CL387-TSI-GoIC-NC-122b : Non-Compliances with no Track-Train Interoperability Impact : DMI Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.	ERA_DMI 11.7.1.9	After the start up dialogue sequence, if a data entry or validation window is currently displayed when a driver's acknowledgement is required, the DMI should stop the data entry / validation process, display the parent window instead and the driver's acknowledgement should appear 1 second afterwards. However, the Class 387 DMI only presents the acknowledgement message when the driver closes the data entry or validation window.

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
MR9	474532	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-128 : Non-Compliances with no Track-Train Interoperability Impact : DMI</p> <p>Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.</p>	ERA_DMI 8.3.6.3	<p>When the train supervises a Limit of Authority (LoA) with target speed lower than current Most Restricted Speed Profile (MRSP), the DMI should display the speed discontinuity information with "Speed increase; grey", "Speed decrease; grey", or "Speed decrease to a zero target; grey" symbols.</p> <p>However, the Class 387 DMI does not display the speed discontinuity symbols when supervising a LoA with a target speed lower than the current MRSP.</p>
MR9	arn_043#6680	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-130 : Non-Compliances with no Track-Train Interoperability Impact : DMI</p> <p>Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.</p>	ERA_DMI 11.7.2.2	<p>When the hour glass symbol is displayed on the DMI, the 'close' button should be disabled on any open windows.</p> <p>However, the Class 387 DMI still enables the 'close' button whilst the hour glass symbol is displayed.</p>
MR9	arn_043#5835	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-132 : Non-Compliances with no Track-Train Interoperability Impact : DMI</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI_DMI-JRU-& Other-040k of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	ERA_DMI 11.7.3.3	<p>With the onboard ETCS in Post Trip mode, after sending a Movement Authority request, the DMI should display the hourglass symbol until the Movement Authority is received from the RBC. Once that Movement Authority is received, the DMI should switch from the Main window to the Default window and stop displaying the hourglass.</p> <p>However, with the Class 387 onboard ETCS in Post Trip mode, the Class 387 DMI switches from the Main window to the Default window upon sending the Movement Authority request, rather than waiting until the Movement Authority is received from the RBC. The hourglass symbol is not displayed between requesting and receiving the Movement Authority.</p>

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
MR10	arn_043#3752	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-142 : Non-Compliances with no Track-Train Interoperability Impact : DMI</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI_DMI-JRU-& Other-046 of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	<p>ERA_DMI 15.1.1.4 ERA_DMI 15.1.1.4.1</p>	<p>The DMI should display system status messages as text messages not to be acknowledged by the driver, with one exception (“[name of NTC] failed”).</p> <p>However the CL387 DMI displays all system status messages as text messages requiring acknowledgement by the driver.</p>
MR9	arn_043#6137 arn_043#6970	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-164 : Non-Compliances with no Track-Train Interoperability Impact : DMI</p> <p>Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.</p>	<p>ERA_DMI 10.3.2.1</p>	<p>When entering data in input fields on the DMI, a cursor should indicate where the next character will be inserted.</p> <p>However, in some cases the Class 387 ETCS DMI does not display an input cursor, for example in the input fields for the Train Running Number and RBC phone number.</p>
MR10	arn_043#6137	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-165 : Non-Compliances with no Track-Train Interoperability Impact : DMI</p> <p>Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.</p>	<p>ERA_DMI 10.3.2.4</p>	<p>The onboard ETCS DMI cursor should immediately move to the next input field position as the driver enters a character.</p> <p>However, the Class 387 ETCS DMI cursor disappears after the driver enters 8 characters for the Driver ID.</p>

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
MR9	arn_043#6694	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-166 : Non-Compliances with no Track-Train Interoperability Impact : DMI</p> <p>Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.</p>	ERA_DMI 10.3.3.5	<p>The DMI should display echo text as white if the entered data has been accepted by the driver, and grey if it has not been accepted.</p> <p>However, the Class 387 DMI displays echo text as white if the entered data has not yet been accepted by the driver.</p>
MR9	[VR_ERA015560] arn_043#3303	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-167 : Non-Compliances with no Track-Train Interoperability Impact : DMI</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI_DMI-JRU-& Other-044 of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	ERA_DMI 11.7.3.3	<p>If the driver selects 'Close' (X) in the Train Data Validation window, the DMI should display the parent window, in this case the Main window. If the driver selects 'No' in the Train Data Validation window, then the DMI should display the Train Data window.</p> <p>However, if the driver selects 'No' in the Train Data Validation window on the CL387 DMI, the Main window is displayed instead of the Train Data window.</p>
MR9	arn_043#4516	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-170 : Non-Compliances with no Track-Train Interoperability Impact : DMI</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI-GoIC-090 of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	(SS026 4.7.2) SS026 4.7.2.1.4:53 and 54	<p>The onboard ETCS should provide an indication (fixed text message) to the driver when an emergency brake feedback failure is detected.</p> <p>However the CL387 onboard ETCS does not provide this indication after emergency brake feedback failure.</p>

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
MR9	arn_043#6179	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-174 : Non-Compliances with no Track-Train Interoperability Impact : DMI</p> <p>Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.</p>	ERA_DMI 11.7.2	<p>During the Start of Mission, the DMI should follow the "Start Up" dialogue sequence and it should not be possible to select other menus.</p> <p>However, the Class 387 DMI allows the driver to select a new menu or submenu in the one second delay period between some menu sequences.</p>
MR9	arn_043#5571	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-184 : Non-Compliances with no Track-Train Interoperability Impact : DMI</p> <p>Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.</p>	SS026 4.4.12.1.4	<p>The onboard ETCS shall only display the supervision limit speed hooks on driver request in On Sight and Staff Responsible modes.</p> <p>However, the Class 387 DMI automatically toggles on the supervision limit speed hooks without driver request in some cases in On Sight and Staff Responsible modes.</p>
MR9	arn_043#4855	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-185 : Non-Compliances with no Track-Train Interoperability Impact : DMI</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI-GoIC-049 of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	SS026 3.18.6.1	<p>Outside the context of data entry, the driver should be able to view driver ID, train running number, RBC contact information, Virtual Balise Cover(s) and Train Data either modifiable by the driver or modifiable by other ERTMS/ETCS external sources.</p> <p>However, in Shunting mode the CL387 onboard ETCS does not open the data view window when selected by the driver.</p>

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
MR9	arn_043#8000	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-203 : Non-Compliances with no Track-Train Interoperability Impact : DMI</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI-GoIC-123 of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	SS026-3.5.7.1	<p>The standard specifies that the Connection Up symbol should be displayed if a safe radio connection has been established with the RBC.</p> <p>However, the Class 387 DMI does not display the Connection Up symbol when the radio connection is maintained after a cab de-activation and immediate re-activation.</p>
MR9	arn_043#8050	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-247 : Non-Compliances with no Track-Train Interoperability Impact : DMI</p> <p>Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.</p>	SS026-3.16.3.4.4	<p>Following a radio hole and if the safe radio connection does not receive a message after the T_NVCONTACT timer, the ETCS applies a reaction according to M_NVCONTACT. If the reaction is set to Service Brake (SB), the onboard ETCS applies SB and should inform the driver that the SB has been applied.</p> <p>However, the Class 387 DMI does not inform the driver, nor display a brake intervention status symbol or connection lost symbol after the SB is applied following the M_NVCONTACT reaction.</p>
MR8	arn_071#910	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-258 : Non-Compliances with no Track-Train Interoperability Impact : DMI</p> <p>Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.</p>	<p>SS026-4.4.11.1.5.2 SS026-3 A.3.11 (Maximum SR speed)</p>	<p>The resolution of the Staff Responsible mode speed limit driver entry should be 5 km/h.</p> <p>However, the CL387 DMI allows the driver the enter the SR speed limit in steps of 1 km/h.</p>

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
MR9	arn_043#7912	CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B) CL387-TSI-GoIC-NC-267 : Non-Compliances with no Track-Train Interoperability Impact : DMI Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.	SS026 3.16.2.4.4.3	When a Balise Group message which cannot be decoded is received because of a message consistency error, a service brake is applied and the Balise Read Error text message should be displayed on the DMI. The Class 387 ETCS applies the service brake, however the DMI does not display the Balise Read Error text message.
MR9	arn_043#6020	CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B) CL387-TSI-GoIC-NC-271 : Non-Compliances with no Track-Train Interoperability Impact : DMI Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.	SS026 5.4.3.2 (S3)	When National System (SN) mode is entered, the RBC ID is deleted. As the RBC ID is unknown, the option to 'Contact last RBC' on the DMI should not be enabled when the driver selects Level 2. However, if the driver selects Level 2 following SN mode, the Class 387 DMI enables the Contact last RBC option even if the RBC ID is unknown. The DMI accepts the information and attempts to contact the RBC using an unknown RBC ID.
MR9	arn_043#7657	CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B) CL387-TSI-GoIC-NC-287 : Non-Compliances with no Track-Train Interoperability Impact : DMI Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.	ERA_ERTMS 8.2.3.4.7	The ETCS DMI should display incoming auxiliary text messages in a second group below the important and system status text messages. However, in some cases on the Class 387 DMI, incoming auxiliary text messages are displayed above already displayed important and system text messages.

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
MR9	arn_043#8464	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-289 : Non-Compliances with no Track-Train Interoperability Impact : DMI</p> <p>Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.</p>	ERA_ERTMS 8.2.1.2.5	<p>In Staff Responsible or Unfitted modes with a Pre-Indication Monitoring supervision status, the speed pointer should display as grey when the speed is less than the target speed.</p> <p>However, the Class 387 DMI displays the speed pointer as white in this scenario.</p>
MR10	arn_043#8627	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-291 : Non-Compliances with no Track-Train Interoperability Impact : DMI</p> <p>Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.</p>	ERA_ERTMS 6.3.1.2	<p>Area B of the DMI should be drawn as described in ERA_ERTMS 6.3.1.2.</p> <p>However, on the CL387 DMI sub-areas B6 and B7 are have minor graphical pixel alignment deviations.</p>
MR9	arn_043#8122	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-294 : Non-Compliances with no Track-Train Interoperability Impact : DMI</p> <p>Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.</p>	SS026-5.18.5.3	<p>When the min safe rear end of the train passes the end location of a radio hole area, the "radio hole" indication to the driver should be removed.</p> <p>However, in this event the "radio hole" indication on the CL387 is removed when the safe front end of the train passes the end location of a radio hole area. Therefore, the radio hole icon may be removed too early.</p>

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
MR10	arn_043#6960	CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B) CL387-TSI-GoIC-NC-338 : Non-Compliances with no Track-Train Interoperability Impact : DMI Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.	ERA_DMI 5.1.1.3.2	When a flashing frame is required for an object on the DMI, the frame should flash by toggling every 0.25 seconds. However, the on the Class 387 DMI, the flashing frame toggles every 0.5 seconds.
MR10	arn_043#6963	CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B) CL387-TSI-GoIC-NC-340 : Non-Compliances with no Track-Train Interoperability Impact : DMI Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.	ERA_DMI 5.1.3.5	Unless stated otherwise, the line spacing of texts should be 2 times the height of characters (2H). However, on the Class 387 DMI, the line spacing for echo text or the buttons in area F is not always exactly 2H.
MR10	arn_043#3839 arn_043#6141 arn_043#6086 arn_043#6965	CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B) CL387-TSI-GoIC-NC-341 : Non-Compliances with no Track-Train Interoperability Impact : DMI Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.	ERA_DMI 5.1.5.1	When more than 5 (alpha)numeric characters are displayed on a text line, the characters should be split into two groups and there should be a single space between these groups. However on the CL387 DMI, the value of an input field is displayed as two groups when five characters are entered. For example, this is displayed as "1234 5" rather than "12345".

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
MR10	arn_043#6698	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-351 : Non-Compliances with no Track-Train Interoperability Impact : DMI</p> <p>Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.</p>	<p>SS026 - A 3.11:10 ERA_DMI 10.3.4.2.1</p>	<p>When the RBC ID is entered and accepted by the driver in the RBC data window, the ETCS should only accept the entered value if the RBC ID is within the range specified by SS026 A3.11. If the RBC ID is outside the specified range, the DMI should indicate the data in the echo text as '++++' in red and the input field should remain in the selected state.</p> <p>However, the Class 387 DMI accepts an out of range RBC ID.</p>
MR10	arn_043#6693 arn_043#6673	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-354 : Non-Compliances with no Track-Train Interoperability Impact : DMI</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI_DMI-JRU-& Other-040a of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	<p>ERA ERTMS 11.7.3.3</p>	<p>The DMI should follow the specified sequencing of windows, sub-level windows and menus, as well as the transitions for input fields.</p> <p>However the Class 387 DMI does not follow the window, sub-window and menu sequencing specified by ERA ERTMS 015560 during Start of Mission. For example, upon pressing the Close (X) button in the RBC Contact window, the Main window should be displayed. However, the Class 387 DMI displays the Level window instead.</p>
MR9	arn_043#8720	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-372 : Non-Compliances with no Track-Train Interoperability Impact : DMI</p> <p>Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.</p>	<p>ERA ERTMS- 8.3.5.2</p>	<p>When a vehicle approaches the End of Authority (EoA), the DMI Planning Area should only display gradient profile and speed profile up to the EoA.</p> <p>However on the CL387 DMI, after the EoA the complete gradient profile section of the Planning Area is lit up briefly with a gradient value of 0 and an infinite speed profile. When train enters Trip mode the Planning Area is removed.</p>

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
MR10	[VR_SS092-1] arn_043#4019	CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B) CL387-TSI-GoIC-NC-087 : Non-Compliances with no Track-Train Interoperability Impact : ERTMS This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI-GoIC-004 of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).	SS092-1 A3.1 SS092-1 Table A 2	It should be possible to reset the radio to Bombardier's default configuration. This should be implemented by command MC21. This is an internal command triggered by system conditions, not by the user. However command MC21 is not implemented in the Class 387 onboard ETCS and reset to default configuration is managed by different commands, but achieving the same objectives as MC21. Therefore the required functionality is achieved but with different commands than the specified MC21.
MR10	arn_043#5372	CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B) CL387-TSI-GoIC-NC-118 : Non-Compliances with no Track-Train Interoperability Impact : ERTMS This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI-GoIC-038 of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).	SS040 4.3.2.1.1 e)	The onboard ETCS should be able to store up to 30 Temporary Speed Restrictions (TSRs). If a message is received that exceeds that amount, the onboard ETCS should not consider the message, it should reject the message and inform the RBC. However the CL387 onboard ETCS is only able to store up to 20 TSRs. Once this is exceeded the onboard ETCS enters System Failure mode.
MR9	arn_043#4873	CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B) CL387-TSI-GoIC-NC-147 : Non-Compliances with no Track-Train Interoperability Impact : ERTMS This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI-GoIC-072 of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).	SS026 3.14.1.7.5	If the onboard ETCS triggers a brake command due to the driver not having acknowledged a text message, the brake command should be released once the driver has acknowledged the text message. However if the CL387 onboard ETCS triggers a brake command due to the driver not having acknowledged a text message, the brake is not released once the driver has acknowledged the text message until or unless the train is also at standstill.

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
MR9	arn_043#5559	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-148 : Non-Compliances with no Track-Train Interoperability Impact : ERTMS</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI-GoIC-040 of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	SS026 3.5.3.7 a) SS026 3.5.4.3 SS026 3.5.4.3.1 SS026 3.5.3.4 f)	<p>The onboard ETCS should establish a communication session when the previous communication session is considered as terminated due to loss of safe radio connection.</p> <p>However the Class 387 onboard ETCS does not attempt to establish a communication when the previous communication session is considered as terminated due to loss of safe radio connection.</p>
MR8	arn_043#6275	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-150 : Non-Compliances with no Track-Train Interoperability Impact : ERTMS</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI-GoIC-074 of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	(SS026 4.7.2) SS026 4.7.2.1.4:60	<p>The driver should be able to acknowledge an indication on that the onboard ETCS roll away protection has applied the brakes.</p> <p>However, this function has not been tested on Assembly level. If the CL387 onboard ETCS is in Reverse, Shunting or Limited Supervision mode, the driver is not able to acknowledge brakes applied by roll away protection.</p>
MR10	arn_043#4857	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-155 : Non-Compliances with no Track-Train Interoperability Impact : ERTMS</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI-GoIC-055 of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	SS026 4.4.8.1.6	<p>When the driver selects Shunting mode in Level 2, the onboard ETCS should send the request to the trackside for authorisation. The onboard ETCS then switches to Shunting mode only once that authorisation is received.</p> <p>However the CL387 onboard ETCS does not send the Shunting request to the trackside.</p>

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
MR9	arn_043#4582	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-156 : Non-Compliances with no Track-Train Interoperability Impact : ERTMS</p> <p>Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.</p>	SS026 4.4.9.1.4.1	<p>When the train length is increased whilst the train is in Full Supervision mode, the DMI should display "Entering FS" because the track description is updated.</p> <p>However, the CL387 DMI doesn't display "Entering FS" and the track description is deleted when the train length is increased whilst already in Full Supervision.</p>
MR9	arn_043#4451	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-160 : Non-Compliances with no Track-Train Interoperability Impact : ERTMS</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI-GoIC-048 of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	SS026 4.10.1.3:42b SS026 4.10.1.3:33	<p>When transitioning to level 0 Unfitted mode, the onboard ETCS should not change the stored Radio Network ID but should delete the RBC ID and phone number.</p> <p>However, when transitioning to level 0 Unfitted mode, the onboard ETCS deletes the Radio Network ID, does not delete the RBC ID and the RBC phone number is displayed as 0.</p>
MR9	arn_043#4718	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-162 : Non-Compliances with no Track-Train Interoperability Impact : ERTMS</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI-GoIC-053 of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	SS026 3.6.2.2.2 SS026 3.6.5.1.4 j)	<p>When passing a linked balise group contained in previously received linking information, the onboard ETCS should send a position report to the RBC (unless position report parameters from the RBC are stored onboard). Passing a linked balise group not contained in previously received linking information should not be a trigger for the onboard ETCS to send a position report to the RBC.</p> <p>However, when the train passes over a linked balise group not contained in the linking information, the CL387 onboard ETCS sends a position report to the RBC even if it should not.</p>

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
MR8	arn_043#4819	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-171 : Non-Compliances with no Track-Train Interoperability Impact : ERTMS</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI-GoIC-091 of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	SS026-5.4.3.3:5	<p>If the stored train position is 'unknown' during Start of Mission then the onboard ETCS should set the status of the ETCS Level variable to 'invalid' and send 'unknown' status to the DMI.</p> <p>However, when the stored train position is 'unknown' the CL387 onboard ETCS incorrectly sends "L1" to the DMI, and this results in the DMI indicating Level 1 as the current level.</p>
MR8	arn_043#6515	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-176 : Non-Compliances with no Track-Train Interoperability Impact : ERTMS</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI-GoIC-093 of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	SS026 4.4.11.1.5.1	<p>If train movement is detected while the Driver is entering Staff Responsible mode speed/distance limits on the DMI, the onboard ETCS should trigger the brakes. The CL387 onboard ETCS is compliant up until the brakes are triggered.</p> <p>However, if the Driver tries to move the train forward again (after the train has stopped and the brakes are released) the brakes are triggered again. The driver must open the Staff Responsible mode speed/distance window again and acknowledge the Staff Responsible mode speed/distance limits to avoid this repeat brake intervention. This repeat brake intervention and need to open the Staff Responsible mode speed and distance window again is the non-compliance.</p>

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
MR9	arn_043#6826	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-179 : Non-Compliances with no Track-Train Interoperability Impact : ERTMS</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI-GoIC-99 of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	<p>SS026 5.8.3.1.1 SS026 5.8.4.1 c)</p>	<p>When activating Override in Post Trip mode, the current position of the train front should be set as the former End of Authority, and the train should exit Override after the min safe antenna position has passed this former End of Authority.</p> <p>However, in Post Trip mode, the Class 387 ETCS incorrectly sets the former EoA as the min safe antenna position plus 5m instead of the estimated front end position. Note that the Class 387 EUROBALISE antenna location, which is used to calculate the min safe antenna position, is 5.08m behind the coupling face of the train.</p>
MR9	arn_043#7190	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-186 : Non-Compliances with no Track-Train Interoperability Impact : ERTMS</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI-GoIC-115 of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	<p>SS026 4.4.11.1.5 SS026 7.5.1.18</p>	<p>According to the standard, the driver is able to enter a maximum distance of 100,000m to move the train under his own responsibility in Staff Responsible (SR) mode.</p> <p>However, on the Class 387 ETCS if the driver modifies the SR distance to greater than 32,766m, the Class 387 ETCS will enter System Failure mode.</p>
MR9	arn_043#7292	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-187 : Non-Compliances with no Track-Train Interoperability Impact : ERTMS</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI-GoIC-061 of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	<p>SS114 4.3.4.2 SS114 4.3.4.3 SS114 4.5.1.7</p>	<p>The onboard ETCS should refer to only one Home Key Management Centre and receive all keys from that Home Key Management Centre.</p> <p>However the Class 387 ETCS does not know the identity of the Key Management Centre from which it is authorised to receive keys.</p>

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
MR8	arn_043#5259	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-189 : Non-Compliances with no Track-Train Interoperability Impact : ERTMS</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-TSI-TRANSITIONS-RR1 of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	SS026-4.6.2 [31] and [32]	<p>The onboard ETCS should transition from On Sight mode to Full Supervision mode if defined criteria are fulfilled, including that no specific mode is required by a mode profile.</p> <p>However, when in On Sight mode between two On Sight mode profiles without overlapping acknowledgement areas, the CL387 onboard ETCS remains in On Sight mode instead of transitioning to Full Supervision.</p>
MR10	arn_043#8149	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-200 : Non-Compliances with no Track-Train Interoperability Impact : ERTMS</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI-GoIC-128 of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	Subset 026-3.15.7.2	<p>The on-board ETCS should observe the Track Condition information for Big Metal Masses in Level 0 / NTC.</p> <p>However in Level 0 / NTC, the Class 387 ETCS does not observe BMM Track Conditions and applies the Emergency Brake after the distance of metal immunity length; 300m.</p>
MR10	arn_043#8116	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-201 : Non-Compliances with no Track-Train Interoperability Impact : ERTMS</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI-GoIC-060 of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	SS-114-4.3.4.9	<p>The onboard ETCS should be able to store 2000 key relations which consist of a relationship between a trackside unit, an authentication key and a validity period.</p> <p>However the CL387 onboard ETCS can store a maximum of 1000 key relations.</p>

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
MR9	arn_043#8645	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-205 : Non-Compliances with no Track-Train Interoperability Impact : ERTMS</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI-GoIC-131 of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	SS026 4.6.3 [10]	<p>The standard specifies that if in Standby mode and during the Start of Mission procedure, the ETCS should accept a Movement Authority (MA) and transition to Full Supervision (FS) mode, providing that valid Train Data is available.</p> <p>However, on the Class 387 ETCS the MA will not be accepted nor will the ETCS transition into FS mode until the driver has pressed the Start button.</p>
MR9	arn_043#4353	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-253 : Non-Compliances with no Track-Train Interoperability Impact : ERTMS</p> <p>Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.</p>	SS026 3.13.10.6.1: 3 SS026 3.13.10.6.1: 4 SS026 3.13.10.6.1: 5	<p>The transitions between types of speed and distance monitoring should consider the updated list of supervised targets before transitioning to a less restrictive speed and distance monitoring (RSM to TSM, RSM to CSM, or CSM to TSM).</p> <p>However, the Class 387 ETCS does not consider when the list of supervised targets is updated, which may result in an unnecessary transition from TSM/RSM for a short period whilst the conditions for the more restrictive speed and distance monitoring are not fulfilled.</p>
MR7	arn_043#8501	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-263 : Non-Compliances with no Track-Train Interoperability Impact : ERTMS</p> <p>Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.</p>	SS026 4.9.1.3	<p>The onboard ETCS should delete the Position Report Parameters when entering ETCS Level 1.</p> <p>However, the Class 387 ETCS also deletes the Position Report Parameters when the train is already in Level 1 and a Level Transition Order or Conditional Level Transition Order to Level 1 is received.</p>

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
MR9	arn_043#4380	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-268 : Non-Compliances with no Track-Train Interoperability Impact : ERTMS</p> <p>Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.</p>	<p>SS026 3.16.2.5.1 SS026 3.16.2.5.1.1.b</p>	<p>When passing a balise group with a message inconsistency, if the information "Inhibition of balise group message consistency reaction" (Packet 145) is received, the train should ignore the message inconsistency error.</p> <p>However, the Class 387 ETCS does not react to Packet 145. This results in the Class 387 reacting to the message inconsistency in a subsequent balise when it should not.</p>
MR10	arn_043#4132	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-274 : Non-Compliances with no Track-Train Interoperability Impact : ERTMS</p> <p>Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.</p>	SS026 4.8.3.1.1	<p>When a request to shorten the Movement Authority in Level 2 is rejected due to exception [4] in SS026 4.8.3.1.1, the ETCS should not send Message 138 as the shortened MA request should be discarded when the request is rejected.</p> <p>However, when the request to shorten the MA is rejected, the Class 387 ETCS sends Message 138 to the RBC.</p>
MR9	arn_043#8692	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-368 : Non-Compliances with no Track-Train Interoperability Impact : ERTMS</p> <p>Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.</p>	SS026-A.3.5.1	<p>When the train comes to a stop after entering a Full Supervision area, but is allowed to roll backwards into an On Sight or Limited Supervision area, the onboard ETCS should remain in Full Supervision mode and not revert to OS/LS mode.</p> <p>However, if the Class 387 is allowed to roll backwards past the transition border into an OS or LS after transitioning to FS mode, the mode switches back to OS/LS mode.</p>

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
MR9	arn_043#8663	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-369 : Non-Compliances with no Track-Train Interoperability Impact : ERTMS</p> <p>Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.</p>	SS040-4.3.2.1.1s	<p>The ETCS onboard should be able to store up to 5 Permitted Braking Distance (PBD) Information packets.</p> <p>However, when the Class 387 ETCS receives PBD information from multiple unlinked balise groups, the ETCS considers the information as inconsistent and applies the linking reaction.</p>
MR9	arn_043#8752	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-376 : Non-Compliances with no Track-Train Interoperability Impact : ERTMS</p> <p>Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.</p>	SS026-3.16.2.7.1.1	<p>If two consecutive linked balise groups announced by linking are not detected and the end of the expectation window of the second balise group has been passed, the ETCS onboard should command the service brake and the driver should be informed.</p> <p>However on the CL387, if two linked consecutive balise groups are missing/not functioning and the third linked balise group is passed within the expectation window of the second balise group, the system enters system failure mode.</p>
MR9	arn_071#1318	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-NCR-NC-001 : Non-Compliances with no Track-Train Interoperability Impact : ERTMS</p> <p>Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.</p>	SS026 3.13.9.3	<p>When the train is approaching the Service Brake Interval (SBI) speed limit, the ETCS should apply the Indication Status, followed by the Overspeed Status, followed by the Warning Status, prior to triggering the Intervention Status.</p> <p>However, when in a situation when undergoing insufficient deceleration below the SBI limit, the Class 387 ETCS may flicker the Intervention Status erroneously, bypassing the Overspeed and Warning Status indications on the DMI and applying the Intervention Status when it shouldn't.</p>

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
PVI 3.1.2	arn_071#1536	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-NCR-NC-002 : Non-Compliances with no Track-Train Interoperability Impact : ERTMS</p> <p>Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.</p>	SS040 4.4.1.4	<p>The ETCS uses the configured value of Kdry according to the confidence interval specified by the M_NVEBCL National Value, in its calculation of A_safe, the Emergency Brake Deceleration (EBD) curve, and hence when the emergency brake (EB) should be applied. The value of Kdry should be configured based on the requirements specified by SS040 4.4.1.4.</p> <p>However, the configured values of Kdry for Class 387 are not validated according to the requirements specified by SS040 4.4.1.4.</p>
Aligned with MR8	arn_071#1545	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-NCR-NC-003 : Non-Compliances with no Track-Train Interoperability Impact : ERTMS</p> <p>Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.</p>	SS040 4.4.1.5.1	<p>The ETCS uses the configured value of Kwet in its calculation of A_safe, the Emergency Brake Deceleration (EBD) curve, and hence when the emergency brake (EB) should be applied. The value of Kwet should be configured based on train specific field tests as specified by SS040 4.4.1.5.1.</p> <p>However, the configured values of Kwet for the Class 387 are not validated according to the requirements specified by SS040 4.4.1.5.1.</p>
MR10	[VR_SS026-3]	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-004 : Non-Compliances with no Track-Train Interoperability Impact : GSM-R Data Radio Communication</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI-GoIC-022 of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	SS026 3.5.6.7	<p>If no mobile terminal is registered to a radio network, any order to contact an RBC received from trackside should be rejected by the onboard ETCS.</p> <p>However, if no mobile terminal is registered to a radio network and an order to contact an RBC is received, the CL387 onboard ETCS continues to try registering and to establish a communication with an RBC.</p>

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
MR10	[VR_SS037] arn_043#4017	CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B) CL387-TSI-GoIC-NC-086 : Non-Compliances with no Track-Train Interoperability Impact : GSM-R Data Radio Communication This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI-GoIC-003 of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).	SS037 7.2.4.2.6 SS037 7.2.5.2.2 (Table 11) SS037 7.2.5.2.3 (Table 12) SS092-1 5.6	The standard allows for the implementation of Safety Feature negotiation, whereby the initiating entity can request a certain Safety Feature. The responding entity should then offer the requested Safety Feature, unless it is not available in which case it offers the default value. However, the Class 387 onboard ETCS does not support this Safety Feature negotiation. The standard defines only one Safety Feature (single Data Encryption Standard with modified Message Authentication Code algorithm 3), and this one is implemented.
MR10	[VR_FFFIS_MOR] arn_043#4018	CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B) CL387-TSI-GoIC-NC-121 : Non-Compliances with no Track-Train Interoperability Impact : GSM-R Data Radio Communication This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI-GoIC-057 of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).	MORANE FFFIS 4.4.5.4.1	The onboard ETCS should include a command to enable or disable the presentation of the connected line identity at the Terminal Equipment. However, the CL387 onboard ETCS does not include this command (AT+COLP: Attention command set, Connected Line Identification Presentation), so the Connected Line Identity is not presented to the trackside.

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
MR9	arn_043#5155	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-134 : Non-Compliances with no Track-Train Interoperability Impact : GSM-R Data Radio Communication</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI-GoIC-043 of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	SS026 3.5.3.7 a)	<p>The onboard ETCS should repeat requests to set up a safe radio connection with the trackside, unless part of an ongoing Start of Mission procedure, upon specified conditions including End of Mission being performed or an order to terminate the communications is received from trackside.</p> <p>However the CL387 onboard ETCS continues to request the set-up of a safe radio connection for 5 minutes after End of Mission or after an order to terminate communication session is received from trackside.</p>
MR9	arn_043#4870 arn_043#5550	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-139 : Non-Compliances with no Track-Train Interoperability Impact : GSM-R Data Radio Communication</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI-GoIC-046 of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	SS026 3.5.7.5 (Table 2, [5])	<p>The onboard ETCS should inform the driver about the status of the safe radio connection.</p> <p>In the scenario where T_NVCONTACT expires (maximum time since last received RBC message, while the radio connection is still working, this requires that the RBC violates requirement 3.16.3.4.7) and the subsequent additional delay time (60s) also expires, the onboard ETCS should release the safe radio connection and remove the "Connection Up" symbol.</p> <p>However in this scenario, the CL387 onboard ETCS releases the connection but does not remove the "Connection Up" symbol immediately; there is a 45s delay in removing the "Connection Up" symbol after the connection is released.</p>

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
MR9	arn_043#5481	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-161 : Non-Compliances with no Track-Train Interoperability Impact : GSM-R Data Radio Communication</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI-GoIC-085 of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	SS026 5.5.3.1.3	<p>Entering Shunting mode from Full Supervision, Limited Supervision, On Sight, Staff Responsible, National System or Unfitted mode (or from Post Trip if there was on on-going mission) is considered an end of mission. At end of mission the onboard ETCS should report the end of mission to the RBC.</p> <p>However, at end of mission initiated by entering Shunting mode, the CL387 onboard ETCS delays reporting end of mission to the RBC by 8 seconds.</p>
MR9	arn_043#7006	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-180 : Non-Compliances with no Track-Train Interoperability Impact : GSM-R Data Radio Communication</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI-GoIC-052 of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	SS026 3.5.6.6	<p>If the onboard ETCS connected mobile terminal is not currently registered to the Radio Network ordered by trackside and if other specified conditions are fulfilled, the onboard ETCS should initiate Radio Network registration.</p> <p>However, upon losing registration to the Radio Network, and with the other required criteria being fulfilled, the CL387 onboard ETCS does not initiate Radio Network registration.</p>

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
MR8	arn_043#4358	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-182 : Non-Compliances with no Track-Train Interoperability Impact : GSM-R Data Radio Communication</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI-GoIC-054 of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	<p>SS026 5.4.3.2:13 SS026 A.3.1:2 SS026 A.3.1: 17</p>	<p>In the absence of reply from the RBC, the onboard ETCS should wait 15 seconds before repeating its message to the RBC.</p> <p>However the onboard ETCS waits 30 seconds before repeating its message.</p>
MR9	arn_043#8348	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-191 : Non-Compliances with no Track-Train Interoperability Impact : GSM-R Data Radio Communication</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI-GoIC-121b of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	<p>SS026-3.5.3.7 a) 3rd bullet</p>	<p>According to the standard, the onboard ETCS should abort attempting to establish a connection with the RBC upon receiving an order to terminate the communication session from the trackside.</p> <p>However, if the RBC connection has not yet been established and an order to terminate the communication session is received from the trackside, the Class 387 ETCS will indefinitely attempt to establish communication with the RBC.</p>

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
MR7	arn_043#7668	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-196 : Non-Compliances with no Track-Train Interoperability Impact : GSM-R Data Radio Communication</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI-GoIC-116 of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	<p>SS026-3.5.3.7 a) 2nd bullet SS026-3.18.4.3.3 SS026-5.4.3.2:4</p>	<p>When the wrong RBC ID is stored and hence the train is unable to establish a communication session with the RBC, the ETCS should give the driver the opportunity to enter a degraded mode during the SoM procedure, or complete an EoM if the SoM has already been completed.</p> <p>However, when the wrong RBC ID is entered in the Class 387 ETCS such that there is an incorrect combination of RBC phone number and RBC ID, the Class 387 ETCS indefinitely attempts to contact the RBC with the wrong information, the DMI becomes unresponsive, and an ETCS reset is required.</p>
MR10	arn_043#4356 arn_043#4456	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-206 : Non-Compliances with no Track-Train Interoperability Impact : GSM-R Data Radio Communication</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI-GoIC-106 of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	<p>SS026 3.5.3.4 c) SS026 4.5.2.1:12</p>	<p>When the train is in Shunting mode and Exit Shunting is performed, the ETCS onboard should report the mode change to Standby mode, as the transition from Shunting to Standby is not considered an End of Mission.</p> <p>However, the Class 387 ETCS does not call the RBC to report the mode change from Shunting to Standby.</p>

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
MR9	arn_043#5488	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-208 : Non-Compliances with no Track-Train Interoperability Impact : GSM-R Data Radio Communication</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI-GoIC-108 of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	SS026 3.5.3.7 a) 4th bullet	<p>When the onboard ETCS requests the set-up of a safe radio connection with the trackside as part of Start of Mission, it should be repeated until successful or for a defined number of times. If it is not part of Start of Mission, it should be repeated until at least one of a number of specified conditions is met, one of which is that the train front end passes a level transition border (from level 2 to level 0, NTC or 1) .</p> <p>However, if the CL387 onboard ETCS is requesting to set up a safe radio connection with the trackside and there is no response whilst the train switches to level 1, train continues to call the trackside (for the defined number of times) rather than ceasing.</p>
MR10	arn_043#5294	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-272 : Non-Compliances with no Track-Train Interoperability Impact : GSM-R Data Radio Communication</p> <p>Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.</p>	SS026-6.6.3.2.3[10] SS026 7.5.1.92	<p>When the driver inputs a Train Running Number of 0, and the ETCS onboard communicates this to the RBC, the ETCS should send NID_OPERATIONAL as 0FFF FFFF.</p> <p>However, the Class 387 ETCS sends NID_OPERATIONAL as FFFF FFFF to the RBC when the driver enters a Train Running Number of 0.</p>
MR10	arn_043#5376	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-126 : Non-Compliances with no Track-Train Interoperability Impact : JRU</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI_DMI-JRU-& Other-038b of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	SS027 4.1.1.2 (b) SS027 4.2.3.5	<p>The onboard ETCS JRU should record the train position in metres.</p> <p>However the Class 387 onboard ETCS rounds up distances sent to the JRU.</p>

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
MR9	arn_043#5293	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-145 : Non-Compliances with no Track-Train Interoperability Impact : JRU</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI-GoIC-039 of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	SS026 3.17.2.8 a	<p>The onboard ETCS JRU should record a change of system version.</p> <p>However the CL387 onboard ETCS JRU does not record a change of system version when transitioning from Level 1 to Level 2.</p>
MR10	arn_043#5479	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-213 : Non-Compliances with no Track-Train Interoperability Impact : JRU</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI_DMI-JRU-& Other-038c of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	SS027 4.3.1.1:21	<p>The onboard ETCS JRU should correctly record the Symbol status when any of the DMI symbols appear or disappear.</p> <p>However, the Class 387 ETCS JRU does not log when track condition symbols (except Level Crossings) are removed from the DMI.</p>
MR10	arn_043#5448	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-214 : Non-Compliances with no Track-Train Interoperability Impact : JRU</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI_DMI-JRU-& Other-038ak of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	SS027 4.3.1.1:21	<p>The onboard ETCS JRU should correctly record the Symbol status when any of the DMI symbols appears or disappears.</p> <p>However the Class 387 ETCS JRU does not record the SB symbol status after powering on the ETCS.</p>

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
MR9	arn_043#7622	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-215 : Non-Compliances with no Track-Train Interoperability Impact : JRU</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI_DMI-JRU-& Other-038l of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	SS027 4.3.1.1:21	<p>The JRU should record all symbols that appear or disappear on the DMI.</p> <p>However, the Class 387 JRU incorrectly records the "Tunnel stopping area announcement; yellow" when the "Toggling function for tunnel stopping area" symbol appears or disappears on the DMI.</p>
MR10	arn_043#5171	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-216 : Non-Compliances with no Track-Train Interoperability Impact : JRU</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI_DMI-JRU-& Other-038m of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	SS027 4.3.1.1:21	<p>During a Level 0 selection, the "Level 0 announcement; grey" is displayed, followed by the "Level 0 acknowledgement; yellow" symbol once the driver has acknowledged the level selection. The JRU should record these DMI symbols as they appear and disappear on the DMI.</p> <p>However, the JRU records both the "Level 0 announcement; grey" and the "Level 0 acknowledgement; yellow" symbols at the same time.</p>
MR9	arn_043#4601	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-217 : Non-Compliances with no Track-Train Interoperability Impact : JRU</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI_DMI-JRU-& Other-038a of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	SS027 4.3.1.1:23	<p>When a "Shunt request failed" system status occurs, the JRU should record a system status message.</p> <p>However, the JRU records a plain text message representing "SH request failed", and does not record a system status message.</p>

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
MR10	arn_043#4864	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-219 : Non-Compliances with no Track-Train Interoperability Impact : JRU</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI_DMI-JRU-& Other-038ai of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	SS027 4.3.1.1:9	<p>According to the standard, a JRU message (Telegram received from Eurobalise) should be recorded when the ETCS receives a telegram from a balise.</p> <p>The Class 345 ETCS does record the correct JRU message when a telegram is received from a balise, however the identity of the Last Received Balise Group (NID_LRBG) contained within the message header is Unknown when driving in Level 1.</p>
MR10	arn_043#6349	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-220 : Non-Compliances with no Track-Train Interoperability Impact : JRU</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI_DMI-JRU-& Other-038x of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	SS027 4.3.1.1:13	<p>Upon receiving a message from the RBC, the onboard ETCS should send the contents of that RBC message to the JRU for recording. That message should include the Train Running Number.</p> <p>However the CL387 onboard ETCS does not send the Train Running Number with RBC messages to the JRU for recording. The Train Running Number in this case is not recorded.</p>
MR10	arn_043#6537	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-221 : Non-Compliances with no Track-Train Interoperability Impact : JRU</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI_DMI-JRU-& Other-038s of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	SS027 4.2.4.21	<p>The onboard ETCS JRU should record the status of the set of symbols that can be displayed on the DMI.</p> <p>However the CL387 ETCS JRU records that the Connection Lost / Set-Up Failed symbol and Connection Up symbol are displayed at the same time on the DMI which is not the case.</p>

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
MR9	arn_043#6581	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-222 : Non-Compliances with no Track-Train Interoperability Impact : JRU</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI_DMI-JRU-& Other-038t of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	SS027 4.2.4.23	<p>The onboard ETCS JRU should record a message when any system status message on the DMI appears or disappears. When the "Trackside malfunction" system message is displayed, the ETCS should send message 23 with bit 2 active to the JRU to record the system message.</p> <p>However the CL387 onboard ETCS sends JRU message 23 with bit 2 and bit 6, resulting in both the "Trackside malfunction" and "Runaway movement" system messages sent to the JRU.</p>
MR10	arn_043#7899	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-225 : Non-Compliances with no Track-Train Interoperability Impact : JRU</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI_DMI-JRU-& Other-038ag of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	SS027 4.3.1.1:26	<p>The onboard ETCS JRU should record a message when any DMI symbol appears or disappears.</p> <p>However, in Standby or Post Trip modes, the Class 387 JRU does not record the "Brake intervention" symbol after it is removed by driver acknowledgement.</p>
MR9	arn_043#8521	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-276 : Non-Compliances with no Track-Train Interoperability Impact : JRU</p> <p>Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.</p>	SS027 4.3.1.1:22	<p>When the playing of any audible information to the driver is started, JRU message 22 should be sent by the ETCS on-board equipment to record that the sinfo sound has been played.</p> <p>However, on CL387, JRU message 22 may be recorded incorrectly when no sinfo has been played to the driver.</p>

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
MR10	arn_043#8007	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-297 : Non-Compliances with no Track-Train Interoperability Impact : JRU</p> <p>Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.</p>	SS027-4.3.1.1:42	<p>The ETCS JRU should record the status of NTC isolation as M_NATIONAL_SYSTEM_ISOLATION equal to 0 when the STM is isolated, and 1 when the STM is not isolated.</p> <p>However, the Class 387 JRU records 1 when the STM is isolated, and 0 when it is not isolated.</p>
MR10	arn_043#4706	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-299 : Non-Compliances with no Track-Train Interoperability Impact : JRU</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI_DMI-JRU-& Other-038h of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	SS027 4.3.1.1:20	<p>The standard specifies that the JRU shall record the speed and distance monitoring data as displayed to the driver. Target distance (D_TARGET) forms a part of the speed and distance monitoring data.</p> <p>However, the Class 387 JRU may record a value of target distance (D_TARGET) as "None" when "0m" should be recorded, or "0m" when "None" should be recorded as part of the Speed and Distance Monitoring Information.</p>
MR10	arn_043#7811	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-300 : Non-Compliances with no Track-Train Interoperability Impact : JRU</p> <p>Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.</p>	SS027 4.3.1.1 Msg 21, 22, 40, 42	<p>According to the standard, the onboard JRU should record messages 21, 22, 40 and 42 according to the triggering events list defined in the Trigger events list (SS027, Clause 4.3.1.1).</p> <p>However, the Class 387 JRU sometimes records these messages twice or more often than expected.</p>

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
MR10	arn_043#4871	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-301 : Non-Compliances with no Track-Train Interoperability Impact : JRU</p> <p>Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.</p>	SS027 4.3.1.1 Msg 20	<p>When the train is in Staff Responsible mode with a permitted speed displayed and transitions to Shunt mode, the permitted speed is removed. The JRU should record Message 20 containing an "unknown" permitted speed when the permitted speed is removed.</p> <p>However, when the Class 387 transitions to Shunt mode from Staff Responsible, the JRU records the SR mode permitted speed instead of an unknown permitted speed.</p>
MR10	arn_043#4637	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-307 : Non-Compliances with no Track-Train Interoperability Impact : JRU</p> <p>Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.</p>	SS027 4.3.1.1:21	<p>When the Track Condition symbols appears or disappears on the DMI, Message 21 should be recorded by the JRU.</p> <p>However, the Class 387 JRU may also record an additional Message 21 for the Track Condition symbol when the min safe front end, estimated front end, or min safe rear end, passes the start or end of the Track Condition area.</p>
MR10	[VR_ERA015560]	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-227 : Non-Compliances with no Track-Train Interoperability Impact : Additional Functions</p> <p>This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI_DMI-JRU-& Other-001 of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).</p>	ERA_DMI 8.2.1.2.3 ERA_DMI 8.2.1.3.1	<p>The onboard ETCS should indicate the estimated train speed to the driver. The estimated speed is referred to as the nominal speed (Vnom) for the CL387 onboard ETCS.</p> <p>However, when in National System or Unfitted mode, the CL387 onboard ETCS includes an additional feature that is not specified in the standard. In these modes, if the difference between the nominal speed (Vnom) and the maximum speed (Vmax) exceeds certain thresholds, the needle on the speedometer will alternate between Vnom and Vmax rather than indicating the estimated speed. Those thresholds for the difference between Vnom and Vmax are as follows:</p> <ul style="list-style-type: none"> • greater than 5km/h for more than 2s, or • greater than 4km/h for more than 20s, or • greater than 2km/h for more than 180s. <p>The alternating frequency is 1Hz.</p>

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
MR10	[VR_SS026-5] arn_043#3085	CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B) CL387-TSI-GoIC-NC-231 : Non-Compliances with no Track-Train Interoperability Impact : Additional Functions This non-compliant behaviour is present in Class 345. Risk assessment has been completed in CL345-N-C-TSI-GoIC-008 of the Class 345 Safety Justification Report. The Class 387 Safety Justification Report reviews this risk assessment and related mitigations to use the Class 345 justification as a reference system for the relevant hazard(s).	SS026 5.8.2.1 ERA_DMI 11.2.2.4	The onboard ETCS should allow the driver to select Override only when specified criteria are fulfilled relating to train speed, onboard ETCS mode and availability of valid train data and train running number. However the CL387 includes an additional criterion not specified in the standard - that the Driver ID is entered in Stand By mode before Override is selected.
MR10	[VR_SS026-3]	CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B) CL387-TSI-GoIC-NC-250 : Non-Compliances with no Track-Train Interoperability Impact : Additional Functions Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.	SS026 3.12.1.2.1.3	This deviation is in relation to the Track Condition function. The end of Station Platforms should be evaluated taking into account the max safe front end of the train. However the Class 387 ETCS evaluates the end of Station Platforms using the min safe front end of the train. This is an additional function resulting from the implementation of CR 1163.
MR10	[VR_SS026-3]	CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B) CL387-TSI-GoIC-NC-252 : Non-Compliances with no Track-Train Interoperability Impact : Additional Functions Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.	SS026 3.13.9.3.2.10	When calculating the compensated speed and the distance travelled during the time elapsed between the emergency brake intervention and the full application of the brakes is derived according to the formulae specified by SS026 3.13.9.3.2.10. If the compensation of speed inaccuracy is inhibited by National Value, V_delta0 should be set as 0, instead of using V_ura; the compensated velocity delta. However, the Class 387 ETCS includes an additional function to only partially inhibit the compensation of V_delta0 when the inhibition is received from the National Values, in order to ensure safety when the speed measurement goes outside of the SS041 5.3.1.2 performance requirements.

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
MR10	[VR_SS026-4]	<p>CL387 HEX CCS TSI Non-Compliance Report (1DOC-1045928 Ver B) HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B)</p> <p>CL387-TSI-GoIC-NC-367 : Non-Compliances with no Track-Train Interoperability Impact : Additional Functions</p> <p>Non-compliant behaviour subject to risk assessment in the Class 387 Safety Justification Report.</p>	SS026 4.4.6.1.2	<p>No information should be shown on the desk of a sleeping cab.</p> <p>However, in Sleeping Mode, the Class 387 DMI displays the text "Driver's Cab not active".</p>

Appendix 2.3 - Restrictions based on the exported train level SRACs

The following items (2) have been identified by the applicant as being restrictions based on the exported train level SRACs and hence present restrictions in use of the sub-system.

Compliance	RCS NCR	Item Reference and Condition	TSI Clause	Applicant Explanation
Bombardier commits to resolve this defect prior to 25th March 2023, in accordance with the tolerable time at risk defined by Class_387-SRAC-29 and the Safety Bulletin issued by the Generic Product ISA [4].	arn_071#1507	HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B) Class_387-SRAC-29	n/a	A defect related to the ETCS product results in reduced memory checking of the ETCS hardware. The defect has been risk analysed and assessed with agreement from the Generic Product ISA, and is raised to the Specific application through a Safety Bulletin which is forwarded as an SRAC to the train level. The consequent risk tolerance time requires that this defect is fixed within 36 months in accordance with the conditions of the relevant Safety Bulletin.
Refer to CL387-TSI-NCR-NC-006 where Bombardier commits to managing this safety requirement in accordance with the 3 month time limitation referred to in Class_387-SRAC-26.	arn_071#1460	HEX Class 397 CCS Resolution Plan (1DOC-1054541 Ver B) Class_387-SRAC-26	n/a	A defect related to the balise reader results in a reduced likelihood to read balises, and the relevant THRs cannot be demonstrated in this scenario. This defect is managed through the relevant conditions and outgoing SRACs as noted in the non-compliance CL387-TSI-NCR-NC-006 referred to in the CCS TSI Non-Compliances Report.