ERTMS/ETCS & ERTMS/ATO

Exceptions for on-board reduced envelopes of ETCS system versions

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1. MODIFICATION HISTORY

Issue Number Date	Section Number	Modification / Description	Author
0.0.1 27/09/23	All	First draft	AH/OG
0.0.2 24/11/23	All	Outcome of EECT#100 and #101 reviews. Inclusion of the SUBSET-125, SUBSET-130 and SUBSET-147 parts	AH/OG
0.0.3 06/12/23	All	Inclusion of the SUBSET-137 part	AH/OG
0.0.4 21/12/23	All	Inclusion of the SUBSET-035, SUBSET-037-1, SUBSET-037-2, SUBSET-040, SUBSET-041, SUBSET-056, SUBSET-057, SUBSET-058, SUBSET-059, SUBSET-074-2, SUBSET-091, SUBSET-092-1, SUBSET-092-1; SUBSET-120 parts	AH/OG
0.0.5 11/01/24	All	Extension of scope to ATO on-board Inclusion of the SUBSET-038, SUBSET-114, A11T6001 parts	AH/OG
0.0.6 07/02/24	All	Outcome of EECT#102 review Notes for the superseded clauses transformed into exceptions. Inclusion of the SUBSET-146 part	AH/OG

0.0.7 22/03/24	All	Outcome of EECT#103 and EECT#104 reviews Sections 3.3 & 3.4 clean-up Swapping of sub-sections 5.x.2 and 5.x.3, for future proof evolutions.	AH/OG
0.0.8 02/05/24	All	Outcome of EECT#106 review and corrections from EAL review.	AH/OG
0.1.0 17/05/24	-	Pre-release version	AH/OG

2. TABLE OF CONTENTS

3. INTRODUCTION

3.1 Scope and purpose

3.1.1.1 This document aims at listing all the exceptions to CCS TSI appendix A documents or part of documents (chapters, section, clauses, etc…) which are to be complied with by an ERTMS/ETCS on-board equipment that is said to support a reduced envelope of ETCS system versions up to 2.1 or up to 2.2, and by an ERTMS/ATO on-board equipment interfaced to an ERTMS/ETCS on-board equipment that is said to support a reduced envelope of ETCS system versions up to 2.2.

3.1.1.2 To that effect, only documents or part of documents that are considered as ERTMS/ETCS and/or ERTMS/ATO on-board requirements are identified. For the particular case of the SUBSET-026, this is achieved by taking into account its chapter 9, which classifies all the individual clauses.

3.1.1.3 Should any part of a CCS TSI appendix A document be referred to in this document, its corresponding exception shall only apply to the ERTMS/ETCS and/or ERTMS/ATO on-board equipment and not to any other constituent, even if the requirement targeted by the exception applies to the concerned constituent too (e.g. to the ERTMS/ETCS trackside).

3.1.1.4 In other terms the purpose of this document is NOT to create artificially a set of specifications for an ETCS Baseline 3 Release 2 debugged (abusively called “2.1 debugged system”) together with another set of specifications whose highest ETCS system version would be 2.2 as a result of the ATO function addition (abusively called “2.2 system”), while those releases never took place before the issuance of the ETCS Baseline 4 Release 1.

3.2 Content

3.2.1.1 This document covers the following subjects:

1. A reference table listing of all the CCS TSI appendix A documents;
2. The detailed exceptions, when relevant, for each concerned CCS TSI appendix A document;
3. Inside each section devoted to a given document, one subsection enclosing all the exceptions common to both reduced envelopes of ETCS system versions and two subsections for exceptions applicable only to the reduced envelopes of ETCS system versions up to 2.1 and 2.2, respectively.

3.2.1.2 In general, the ETCS on-board requirements referred to in this document originate from Change Requests classified as enhancement. It is however not excluded that, for interoperability or editorial consistency reasons, some parts of a requirement originating from an enhancement CR are not covered by an exception (i.e. they remain applicable

to the reduced envelope on-board) or conversely that parts of some CR's classified as error are covered by exceptions listed in this document.

3.2.1.3 Whenever an exception in this document stipulates a replacing clause and this latter includes a reference to another clause of the targeted document or of another document, this reference shall be understood as taking into account the replacement, if any, of the referred clause through another exception in this document.

3.3 References

3.3.1.1 See CCS TSI appendix A documents targeted by the exceptions to ERTMS/ETCS on-board and ERTMS/ETCS ATO on-board in Table 1 and Table 2.

3.4 Terms, definitions and abbreviations

3.4.1.1 For general terms, definitions and abbreviations refer to [Subset 023]

3.4.1.2 Other abbreviations used in this document can be found in each similar section of the CCS TSI appendix A documents targeted by the exceptions to ERTMS/ETCS on-board and ERTMS/ETCS ATO on-board (see Table 1 and Table 2).

4. LIST OF CONCERNED APPENDIX A DOCUMENTS

4.1.1.1 The table below identifies amongst the complete list of CCS TSI Appendix A mandatory specifications, which ones are applicable to the ERTMS/ETCS on-board and for each of them whether exceptions are stipulated for any of the two reduced envelopes of on-board supported ETCS system versions.

Index no	Reference	Exception for reduced envelope up to ETCS system version		Remark
		2.1	2.2	
3	SUBSET-023	None	None	
4	SUBSET-026	See 5.2	See 5.2	
5	SUBSET-027	See 5.3	See 5.3	
6	ERA_ERTMS_015560	See 5.4	See 5.4	
7	SUBSET-034	See 5.5	See 5.5	
8	SUBSET-035	See 5.6	See 5.6	
9	SUBSET-036	None	None	
10a	SUBSET-037-1	See 5.8	See 5.8	
10b	SUBSET-037-2	See 5.9	See 5.9	
10c	SUBSET-037-3	Document not applicable	Document not applicable	
10d	SUBSET-146	See 5.11	See 5.11	
11	SUBSET-038	None	None	
12	SUBSET-039			Applicable to trackside only
13	SUBSET-040	See 5.13	See 5.13	
14	SUBSET-041	See 5.14	See 5.14	
16	SUBSET-044	None	None	
19	SUBSET-047	None	None	
20	SUBSET-048	None	None	
23	SUBSET-054			Not applicable to ETCS on-board
25	SUBSET-056	None	None	
26	SUBSET-057	None	None	
27	SUBSET-091	See 5.20	See 5.20	
29	SUBSET-102	None	None	
31	SUBSET-094	See 5.22	See 5.22	
32	EIRENE FRS			Not applicable to ETCS on-board
33	EIRENE SRS			Not applicable to ETCS on-board
34	A11T6001	None	None	
36 c	SUBSET-074-2	See 5.24	See 5.24	
37 b	SUBSET-076-5-2	None	None	
37 c	SUBSET-076-6-3	None	None	
37 d	SUBSET-076-7	See 5.27	See 5.27	
39	SUBSET-092-1	See 5.28	See 5.28	
40	SUBSET-092-2	See 5.29	See 5.29	
43	SUBSET 085	None	None	
45	SUBSET-101	None	None	
46	SUBSET-100	None	None	

Index no	Reference	Exception for reduced envelope up to ETCS system version		Remark
		2.1	2.2	
49	SUBSET-059	None	None	
50	SUBSET-103	None	None	
52	SUBSET-058	See 5.35	See 5.35	
60	SUBSET-104	None	None	
63	SUBSET-098			Applicable to trackside only
64	EN 301 515			Not applicable to ETCS on-board
65	TR 102 281			Not applicable to ETCS on-board
66	(MORANE) A 01 T 0004 1			Not applicable to ETCS on-board
67	(MORANE) P 38 T 9001			Not applicable to ETCS on-board
68	ETSI TS 102 610			Not applicable to ETCS on-board
69	(MORANE) F 10 T 6002			Not applicable to ETCS on-board
70	(MORANE) F 12 T 6002			Not applicable to ETCS on-board
71	(MORANE) E 10 T 6001			Not applicable to ETCS on-board
72	(MORANE) E 12 T 6001			Not applicable to ETCS on-board
73	(MORANE) F 10 T6001			Not applicable to ETCS on-board
74	(MORANE) F 12 T6001			Not applicable to ETCS on-board
75	(MORANE) F 10 T 6003			Not applicable to ETCS on-board
76	(MORANE) F 12 T 6003			Not applicable to ETCS on-board
77	ERA/ERTMS/033281			Not applicable to ETCS on-board
79	SUBSET-114	None	None	
81	SUBSET-119	See 5.38	See 5.38	
82	SUBSET-120	See 5.39	See 5.39	
83	SUBSET-137	None	None	
84	SUBSET-125	Document not applicable	See 5.41	
85	SUBSET-126			Not applicable to ETCS on-board
86	SUBSET-148			Not applicable to ETCS on-board
87	SUBSET-130	Document not applicable	See 5.44	
88	SUBSET-139			Not applicable to ETCS on-board
89	SUBSET-143	Document not applicable	None	
90	SUBSET-147	See 5.47	See 5.47	
92	FFFIS-7950	Document not applicable	Document not applicable	
93	FU-7120			Not applicable to ETCS on-board
94	AT-7800			Not applicable to ETCS on-board
95	FIS-7970	Document not applicable	Document not applicable	
98	SUBSET-151			Not applicable to ETCS on-board
99	TOBA-7510			Not applicable to ETCS on-board
101	21E089			Applicable to trackside only
102	13E154	Document not applicable	None	
103	TD/011REC1028	None	None	
104	SUBSET-153			This document

Table 1: Exceptions to the CCS TSI Appendix A documents applicable to the ERTMS/ETCS on-board

4.1.1.2 The table below identifies amongst the complete list of CCS TSI Appendix A mandatory specifications, which ones are applicable to the ERTMS/ATO on-board and for each of them whether exceptions are stipulated for the reduced envelope of on-board supported ETCS system versions up to 2.2. Note: the TSI CCS does not foresee that an ERTMS/ATO on-board can be interfaced to ERTMS/ETCS on-board equipment supporting only a reduced envelope of ETCS system versions up to 2.1.

Index no	Reference	Exception for reduced envelope up to ETCS system version	Remark
		2.2	
3	SUBSET-023	None	
4	SUBSET-026		Not applicable to ATO on-board
5	SUBSET-027		Not applicable to ATO on-board
6	ERA_ERTMS_015560		Not applicable to ATO on-board
7	SUBSET-034		Not applicable to ATO on-board
8	SUBSET-035		Not applicable to ATO on-board
9	SUBSET-036		Not applicable to ATO on-board
10a	SUBSET-037-1	None	
10b	SUBSET-037-2		Not applicable to ATO on-board
10c	SUBSET-037-3	None	
10d	SUBSET-146	None	
11	SUBSET-038		Not applicable to ATO on-board
12	SUBSET-039		Not applicable to ATO on-board
13	SUBSET-040		Not applicable to ATO on-board
14	SUBSET-041		Not applicable to ATO on-board
16	SUBSET-044		Not applicable to ATO on-board
19	SUBSET-047		Not applicable to ATO on-board
20	SUBSET-048		Not applicable to ATO on-board
23	SUBSET-054		Not applicable to ATO on-board
25	SUBSET-056		Not applicable to ATO on-board
26	SUBSET-057		Not applicable to ATO on-board
27	SUBSET-091		Not applicable to ATO on-board
29	SUBSET-102		Not applicable to ATO on-board
31	SUBSET-094		Not applicable to ATO on-board
32	EIRENE FRS		Not applicable to ATO on-board
33	EIRENE SRS		Not applicable to ATO on-board
34	A11T6001	None	
36 c	SUBSET-074-2		Not applicable to ATO on-board
37 b	SUBSET-076-5-2		Not applicable to ATO on-board
37 c	SUBSET-076-6-3		Not applicable to ATO on-board
37 d	SUBSET-076-7		Not applicable to ATO on-board
39	SUBSET-092-1		Not applicable to ATO on-board
40	SUBSET-092-2		Not applicable to ATO on-board

Index no	Reference	Exception for reduced envelope up to ETCS system version	Remark
		2.2	
43	SUBSET 085		Not applicable to ATO on-board
45	SUBSET-101		Not applicable to ATO on-board
46	SUBSET-100		Not applicable to ATO on-board
49	SUBSET-059		Not applicable to ATO on-board
50	SUBSET-103		Not applicable to ATO on-board
52	SUBSET-058		Not applicable to ATO on-board
60	SUBSET-104		Not applicable to ATO on-board
63	SUBSET-098		Not applicable to ATO on-board
64	EN 301 515		Not applicable to ATO on-board
65	TR 102 281		Not applicable to ATO on-board
66	(MORANE) A 01 T 0004 1		Not applicable to ATO on-board
67	(MORANE) P 38 T 9001		Not applicable to ATO on-board
68	ETSI TS 102 610		Not applicable to ATO on-board
69	(MORANE) F 10 T 6002		Not applicable to ATO on-board
70	(MORANE) F 12 T 6002		Not applicable to ATO on-board
71	(MORANE) E 10 T 6001		Not applicable to ATO on-board
72	(MORANE) E 12 T 6001		Not applicable to ATO on-board
73	(MORANE) F 10 T6001		Not applicable to ATO on-board
74	(MORANE) F 12 T6001		Not applicable to ATO on-board
75	(MORANE) F 10 T 6003		Not applicable to ATO on-board
76	(MORANE) F 12 T 6003		Not applicable to ATO on-board
77	ERA/ERTMS/033281		Not applicable to ATO on-board
79	SUBSET-114		Not applicable to ATO on-board
81	SUBSET-119		Not applicable to ATO on-board
82	SUBSET-120		Not applicable to ATO on-board
83	SUBSET-137		Not applicable to ATO on-board
84	SUBSET-125	See 5.41	
85	SUBSET-126	None	
86	SUBSET-148	None	
87	SUBSET-130	See 5.44	
88	SUBSET-139	None	
89	SUBSET-143	None	
90	SUBSET-147	None	
92	FFFIS-7950		Not applicable to ATO on-board
93	FU-7120		Not applicable to ATO on-board
94	AT-7800		Not applicable to ATO on-board
95	FIS-7970		Not applicable to ATO on-board
98	SUBSET-151	None	
99	TOBA-7510		Not applicable to ATO on-board
101	21E089		Not applicable to ATO on-board

Index no	Reference	Exception for reduced envelope up to ETCS system version	Remark
		2.2	
102	13E154	None	
103	TD/011REC1028		Not applicable to ATO on-board
104	SUBSET-153		This document

Table 2: Exceptions to the CCS TSI Appendix A documents applicable to the ERTMS/ATO on-board

5. LIST OF DETAILED EXCEPTIONS PER DOCUMENT

5.1 SUBSET-023

5.1.1.1 Void

5.2 SUBSET-026

5.2.1 Exceptions applicable to all reduced envelopes of ETCS system versions

5.2.1.1 The clause 3.5.3.5.2.1 shall be replaced with: “Exception: an order to establish a communication session with an Accepting RBC, which is embedded in the RBC transition order, shall not terminate the communication session with the currently supervising RBC, unless the on-board equipment is only able to handle one communication session and the situation is such that a session must be established with another RBC (see 3.15.1.3.2.4 for details).”

5.2.1.2 The clauses 3.5.3.7.1 & 3.5.3.7.2 shall not apply.

5.2.1.3 The clauses 3.5.3.7.3, 3.5.3.7.4 & 3.5.3.7.4.1 shall not apply.

5.2.1.4 The item 3.5.3.8 i) shall be replaced with: “The driver elects to modify the GSM-R Radio Network ID.”

5.2.1.5 The clause 3.5.4.2 shall be replaced with: “When EURORADIO indicates the loss of the safe radio connection, the ERTMS/ETCS on-board equipment shall immediately try to set-up a new safe radio connection.”

5.2.1.6 The clause 3.5.4.4 shall be replaced with: “Exception to 3.5.4.2 and 3.5.4.3: the on-board equipment shall not try to set up a new safe radio connection and shall stop any ongoing attempts if the engine, taking into account its front and rear ends, overlaps an announced radio hole (see 3.12.1.3). The on-board equipment shall try to set it up again when the engine rear end reaches the end of the radio hole.”

5.2.1.7 The clause 3.5.6.2 shall be replaced with: “When powered-off, ERTMS/ETCS on-board equipment shall memorize the last received GSM-R Radio Network identity (from trackside or from driver) and shall use it when powered-up again.”

5.2.1.8 The clause 3.5.6.4 shall not apply.

5.2.1.9 The clause 3.5.6.5 shall be replaced with: “On reception of the Radio Network registration order, ERTMS/ETCS on-board equipment shall immediately order the Radio Network registration of each GSM-R Mobile Terminal that fulfils the following conditions:”

5.2.1.10 The clause 3.5.6.7 shall be replaced with: “Any order to establish a communication session with an RBC received from trackside shall not lead to any request to set-up a safe radio connection by ERTMS/ETCS on-board equipment if no GSM-R Mobile Terminal is duly registered to a GSM-R Radio Network.”

5.2.1.11 The clause 3.6.1.3.4 shall be replaced with: “The front end of the train refers to the front end of the engine with regards to the train orientation.”

5.2.1.12 The clause 3.6.1.5.1 shall not apply.

5.2.1.13 The clause 3.6.1.7 shall be replaced with: “The min safe rear end position shall be calculated by subtracting from the min safe front end position, the train length stored as valid Train Data.”

5.2.1.14 The clause 3.6.3.1.3.2 shall not apply.

5.2.1.15 The clause 3.6.4.1.5 shall be replaced with:

“The confidence interval to the train front end position shall be delimited by:

a) The min(imum) safe front end position, which is in rear (in relation to the orientation of the train) of the estimated train front end position at a distance calculated as follows:

$$L_{doubtover} = Q_{locacc-refBG} + \text{overreading amount}$$

b) The max(imum) safe front end position, which is in advance (in relation to the orientation of the train) of the estimated train front end position at a distance calculated as follows:

$$L_{doubtunder} = Q_{locacc-refBG} + \text{underreading amount}$$

5.2.1.16 The item 3.6.5.1.2 f) shall be replaced with: “The estimated speed”

5.2.1.17 The item 3.6.5.1.4 i) shall not apply.

5.2.1.18 The Table 2b & Table 2c shall be replaced with:

No Integrity information	< 5 -p1-	< 5,7,8,9 -p3-	< 1,6 -p3
2 > -p1-	**Integrity confirmed by driver**	< 2 -p2-	< 2 -p1-
3 > -p3-		**Integrity confirmed by external source**	< 3 -p2-
4 > -p2-		4 > -p1-	**Integrity lost**

Table 2b: Transitions between values of the train integrity status information to be reported to the RBC

Condition Id	Content of the conditions
[1]	The Train Data status is changed from valid to invalid
[2]	(Train is at standstill) AND [(valid Train Data is available and has been acknowledged by the RBC) AND (no new Train Data regarding train length acquired from external source is pending driver's validation)] AND (the train integrity is confirmed by the driver)
[3]	(The information "Train integrity confirmed" is received from an external source) AND [(valid Train Data is available and has been acknowledged by the RBC) AND (Train Data regarding train length has not changed since the time the train was last known to be integer) AND (no new Train Data regarding train length acquired from external source is pending driver's validation)] AND (the train position is valid and is referred to an LRBG) AND (the train position was valid and was referred to an LRBG at the time the train was last known to be integer) AND (no reverse movement is currently performed nor has been performed since the time the train was last known to be integer) AND (the distance between the min safe rear end at the time the train was last known to be integer and the current estimated train position does not exceed the range of the confirmed train length information)
[4]	(The information "Train integrity lost" is received from an external source) AND (valid Train Data is available since the time the train integrity was last known to be lost)
[5]	A position report indicating that the train integrity is confirmed is sent to the RBC

[6]	The information "Train integrity status unknown" is received from an external source
[7]	(Train Data regarding length is changed) OR (new Train Data regarding train length acquired from external source is pending driver's validation)
[8]	A reverse movement is performed
[9]	The distance between the min safe rear end at the time the train was last known to be integer and the current estimated train position exceeds the range of the confirmed train length information

Table 2c: Transition conditions for the train integrity status information to be reported to the RBC"

5.2.1.19 The item 3.6.7.1 d) shall be replaced with: "the fixed distance over which the on-board balise transmission alarms are ignored, before a safety reaction is triggered (see clause 3.15.7.2);"

5.2.1.20 The clause 3.7.3.4 shall not apply.

5.2.1.21 he clause 3.11.4.3 shall be replaced with: "The ERTMS/ETCS on-board equipment shall consider the most restrictive speed restriction that is associated with any axle load category lower than, or equal to that of the train assuming that the axle load categories are sorted in ascending order from category A to E5."

5.2.1.22 he clause 3.11.11.6 shall be replaced with:

"If the permitted braking distance is to be achieved with the emergency brake, the ERTMS/ETCS on-board equipment shall seek the PBD speed restriction value (V_PBD) which satisfies the two following inequalities. The resulting value shall then be rounded down to the next lower multiple of 5km/h:

$$ABS\{(V_{PBD} + dV_{ebi}) - (V_{EBD}(d_{offset} + D_{bec}) - V_{deltaoPBD})\} \leq 1km/h$$

$$d_{offset} + D_{bec} \leq d_{PBD}$$

With dV_{ebi} as defined in 3.13.9.2.3 by substituting V_{MRSP} with V_{PBD}

With $V_{deltaoPBD} = f_{41}(V_{PBD} + dV_{ebi})$ or $V_{deltaoPBD} = 0$ (if compensation of speed inaccuracy is inhibited by National Value)

With $D_{bec} = (V_{PBD} + dV_{ebi} + V_{deltaoPBD}) \cdot (T_{traction} + T_{berem})$

With $T_{traction}$ and T_{berem} as defined in 3.13.9.3.2

With d_{PBD} being the permitted braking distance given by trackside

With $V_{EBD}(d)$ being the EBD curve that reaches zero speed at d_{PBD}

With $d_{offset} = L_{antenna-front} + T_{41} \cdot (V_{PBD} + dV_{ebi} + V_{deltaoPBD})$

If no speed value fulfils the above inequalities, then:

$V_{PBD} = 0$”

5.2.1.23 he clause 3.11.11.8 shall be replaced with:

“If the permitted braking distance is to be achieved with the service brake, the ERTMS/ETCS on-board equipment shall seek the PBD_{EBD} speed restriction value which satisfies the two following inequalities:

$$ABS\left\{\begin{array}{c}(V_{PBD} + dV_{sbi}) - \\ \left(V_{EBD}\left(d_{offset} + D_{bec} + (V_{PBD} + dV_{sbi}) \cdot T_{bs2}\right) - V_{deltaoPBD}\right)\end{array}\right\} \leq 1km/h$$

$$d_{offset} + D_{bec} + (V_{PBD} + dV_{sbi}) \cdot T_{bs2} \leq d_{PBD}$$

With dV_{sbi} as defined in 3.13.9.2.5 by substituting V_{MRSP} with V_{PBD}

With $V_{deltaoPBD} = f_{41}(V_{PBD} + dV_{sbi})$ or $V_{deltaoPBD} = 0$ (if compensation of speed inaccuracy is inhibited by National Value)

With $D_{bec} = (V_{PBD} + dV_{sbi} + V_{deltaoPBD}) \cdot (T_{traction} + T_{berem})$

With $T_{traction}$ and T_{berem} as defined in 3.13.9.3.2

With T_{bs2} as defined in 3.13.9.3.3

With d_{PBD} being the permitted braking distance given by trackside

With $V_{EBD}(d)$ being the EBD curve that reaches zero speed at d_{PBD}

With $d_{offset} = L_{antenna-front} + T_{41} \cdot (V_{PBD} + dV_{sbi} + V_{deltaoPBD})$

If no speed value fulfils the above inequalities, then:

$V_{PBD} = 0$”

5.2.1.24 The clause 3.12.1.2.1.5 shall be replaced with: “Exception 4: The start and end of a radio hole shall be evaluated taking into account the estimated position of the front and rear ends of the engine respectively.”

5.2.1.25 The clause 3.13.2.2.3.2.2 and the Figure 31 shall be replaced with: “The model for the brake build up time shall be given as a step function as explained in Figure 31.”

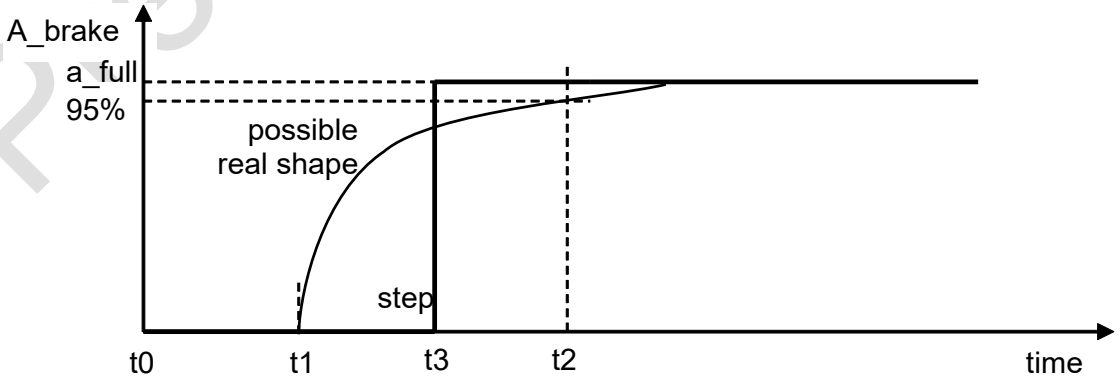

Figure 31: Brake Build Up Time Model

5.2.1.26 The clause 3.13.2.2.3.2.8 shall be replaced with: “It shall be possible to define individual values of T_brake_emergency and T_brake_service for each combination of use of regenerative brake, eddy current brake, magnetic shoe brake and Ep brake.”

5.2.1.27 The Table 4 in clause 3.13.2.2.6.2 shall be replaced with:

		When interface exists and if status affects the brake parameter, selection of brake parameter according to status of:			
		regenerative brake	eddy current brake	magnetic shoe brake	Ep brake
Brake parameter	A_brake_emergency(V)	x	x	x	
	T_brake_emergency	x	x	x	x
	A_brake_service(V)	x	x		
	T_brake_service	x	x		x

Table 4: Selection of brake parameters according to status of special brakes

5.2.1.28 The clause 3.13.3.4.2.1 shall be replaced with: “The equivalent brake build up time for the emergency brake shall be determined as specified in Appendix A.3.8.”

5.2.1.29 The clause 3.13.3.4.3.1 shall be replaced with: “The equivalent brake build up time for the full service brake shall be determined as specified in Appendix A.3.9.”

5.2.1.30 The item 3.13.3.4.4.1 c) shall not apply.

5.2.1.31 The item 3.13.6.2.2.2 a) shall be replaced with: “The values of T_brake_emergency acquired as part of Train Data (see 3.13.2.2.3.2.8) or the value of T_brake_emergency derived from the conversion model (see 3.13.3.4) using the brake position and train length acquired as Train Data.”

5.2.1.32 The clause 3.13.6.2.2.3 shall be replaced with:

“The safe brake build up time T_be shall be equal to:

If values of T_brake_emergency are acquired as part of Train Data:

T_be = T_brake_emergency, with T_brake_emergency corresponding to the combination of special brakes currently in use

If the conversion model is used:

T_be = Kt_int * T_brake_emergency”

5.2.1.33 The clause 3.13.6.2.2.4 shall not apply.

5.2.1.34 The clause 3.13.6.3.2.3 a) shall be replaced with: “The values of T_brake_service acquired as part of Train Data (see 3.13.2.2.3.2.8) or the value(s) of T_brake_service derived from the conversion model (see 3.13.3.4) using the brake position and train length acquired as Train Data)”

5.2.1.35 The clause 3.13.6.3.2.4 shall be replaced with:

“The expected brake build up time T_bs shall be equal to the brake build up time of the full service brake:

T_bs = T_brake_service, with T_brake_service corresponding to the combination of special brakes currently in use”

5.2.1.36 The clause 3.13.6.3.2.5 shall not apply.

5.2.1.37 The clause 3.13.9.3.2.6 shall be replaced with: “The remaining time with no traction (T_berem) shall be equal to MAX(T_be - T_traction ; 0).”

5.2.1.38 The clause 3.13.9.3.2.9 shall be replaced with: “If T_be > T_traction, the estimated acceleration during T_berem (A_est2) shall be the one measured at the moment when the calculation is made, but limited to values between 0 and +0.4m/s^2.”

5.2.1.39 The clause 3.13.9.3.3.3 shall be replaced with: “If the service brake command is available for use and the service brake feedback is not available for use, T_bs1 and T_bs2 shall be equal to T_bs.”

5.2.1.40 The clause 3.13.9.3.5.1 shall be replaced with: “In case the calculation of the GUI curve is inhibited, the on-board shall calculate the location of the Permitted speed supervision limit valid for the estimated speed, assuming that this latter remains constant during the interval T_driver until the location of the SBI1 (for the EOA) or the SBI2 (for an EBD based target) supervision limit is reached.

$d_P(V_{est}) = d_{SBI1}(V_{est}) - V_{est} \cdot T_{driver}$ for the EOA

$d_P(V_{est}) = d_{SBI2}(V_{est}) - V_{est} \cdot T_{driver}$ for an EBD based target”

5.2.1.41 The items 3.13.9.3.5.9 c), d) & e) shall not apply.

5.2.1.42 The clause 3.13.9.3.5.10 shall be replaced with:

“To do so, the same formulas defined above with V_est and V_delta0 shall be applied, by substituting V_est with V_target and V_delta0 with V_delta0t.

$$d_{EBI}(V_{target}) = d_{EBD}(V_{target} + V_{deltaot}) - (V_{target} + V_{deltaot}) \cdot (T_{berem} + T_{traction})$$

$$d_P(V_{target}) = d_{EBI}(V_{target}) - V_{target} \cdot (T_{driver} + T_{bs2})\text{”}$$

5.2.1.43 The clause 3.13.9.3.6.2 shall be replaced with:

“If the service brake feedback interface is not available for use, then T_indication shall be calculated as follows:

$T_{indication} = max\{(0.8 \cdot T_{bs}), 5s\} + T_{driver}$”

5.2.1.44 The clause 3.13.9.3.6.5 shall not apply.

5.2.1.45 The clause 3.13.9.4.8.2 shall be replaced with:

"The on-board equipment shall seek for each target referred to in clause 3.13.9.4.8, a release speed value which satisfies the two following inequalities:

$$ABS\{V_{release} - (V_{EBD}(d_{tripEOA} + \alpha \cdot D_{41} + D_{bec}) - V_{deltaorsob})\} \leq 1km/h$$

$$d_{tripEOA} + \alpha \cdot D_{41} + D_{bec} \leq d_{EBD}(V_{target})$$

With $V_{deltaorsob} = max\{f_{41}(V_{release}), V_{ura}\}$ or $V_{deltaorsob} = 0$ (if compensation of speed inaccuracy is inhibited by National Value)

With $D_{bec} = (V_{release} + V_{deltaorsob}) \cdot (T_{traction} + T_{berem})$

With $T_{traction}$ and T_{berem} as defined in 3.13.9.3.2 but considering the traction cut-off as if it was not implemented

With $D_{41} = T_{41} \cdot (V_{release} + V_{deltaorsob})$

With

$$d_{tripEOA} = d_{EOA} + \alpha \cdot L_{antenna-front}$$
$$+max\{(2 \cdot Q_{locacc-refBG} + 10m + 10\% \cdot d_{EOA}), (d_{maxsafefront} - d_{minsafefront})\}$$

And with $\alpha = 1$ either if the current level is 1 and no order to switch to level 2 at a location in rear of the EOA is stored on-board or if an order to switch to level 1 at a location in rear of the EOA is stored on-board

$\alpha = 0$ either if the current level is 2 and no order to switch to level 1 at a location in rear of the EOA is stored on-board or if an order to switch to level 2 at a location in rear of the EOA is stored on-board

And with T_{41} as defined in SUBSET-041 § 5.2.1.13

If no speed value higher than V_target fulfils the above inequalities, then:

$V_{release} = V_{target}$"

5.2.1.46 The clause 3.13.10.4.8.1 shall be replaced with: "As long as the displayed values are locked due to SB feedback (see Appendix A.3.10 for details), the on-board equipment shall ensure that the displayed Permitted speed, the displayed SBI speed (if any) and the distance to target never increase (e.g. due to the reduction of T_bs1 and T_bs2 or e.g. due to relocation). In other terms if a concerned displayed value (VP_DMI, VSBI_DMI or target distance) calculated as above has a higher value than the previously displayed value, then the previous value shall remain displayed until a further calculated value is lower than the displayed one."

5.2.1.47 The item 3.13.11.3 c) shall be replaced with: "If available for use, the service brake feedback shall not have any effect: T_bs1ind and T_bs2ind shall be set to T_bs if the service brake command is available for use, otherwise they shall be set to "zero". T_tractionind and T_beremind shall be defined as in 3.13.9.3.2 for T_traction and T_berem by substituting T_bs2 with T_bs2ind"

5.2.1.48 The clause 3.14.1.7.6 shall not apply.

5.2.1.49 The clause 3.15.1.3.2 shall be replaced with: “Exception to 3.15.1.3.1 a) (degraded situation): If the on-board equipment is able to handle only one communication session at a given time, it shall wait until the session with the Handing over RBC is terminated due to crossing the border, apply the clause 3.5.6.6 (if relevant), and then establish the session with the Accepting RBC after successful registration of the GSM-R Mobile Terminal to the new GSM-R Radio Network (if relevant).”

5.2.1.50 The clause 3.15.1.3.3 shall be replaced with: “As soon as the on-board equipment has established the session with the Accepting RBC, it shall send its Train Data unless it is in sleeping or non leading mode.”

5.2.1.51 The clause 3.15.7.4 shall not apply.

5.2.1.52 The clause 3.15.7.6 shall be replaced with: “If the BTM alarm is triggered and not ignored according to 3.15.7.5, the ERTMS/ETCS on-board equipment shall trigger a safety reaction.”

5.2.1.53 The clause 3.16.3.4.1.3 shall be replaced with: “As long as the engine, taking into account its front and rear ends, overlaps an announced radio hole, the ERTMS/ETCS on-board equipment shall stop the supervision of the safe radio connection. Afterwards, until a new message has been received, the current onboard time shall be compared with the on-board time when the engine rear end left the radio hole (instead of the time stamp of the latest received message).”

5.2.1.54 The clause 3.18.3.2 shall be replaced with:

“Before starting a mission, the Train Data shall be acquired by the ERTMS/ETCS on-board equipment of a leading engine

a) Train category(ies)

b) Train length

c) Traction / brake parameters:

- Traction model
- Braking models (brake build up time and speed dependent deceleration) or brake percentage
- Brake position
- On-board correction factors
- Nominal rotating mass

d) Maximum train speed

e) Loading gauge

f) Axle load category

g) Traction system(s) accepted by the engine

h) Train fitted with airtight system

i) List of National Systems available on-board

j) Intentionally deleted

k) Axle number"

5.2.1.55 The clause 3.18.3.2.2 shall be replaced with: "Exception: The driver shall never be involved in the entry/ modification/validation of the Train Data "Traction system(s) accepted by the engine", "List of National Systems available on-board" and "Axle number"."

5.2.1.56 The clauses 3.18.3.2.4, 3.18.3.2.5, 3.18.3.2.5.1 and 3.18.3.5 shall not apply.

5.2.1.57 The clause 3.18.3.8 shall be replaced with: "In case the Train Data regarding train length has been increased, the currently used track description, if any, shall be considered as unknown in rear of the former min safe rear end of the train."

5.2.1.58 The clauses 3.18.3.9, 3.18.3.10 and 3.18.3.10.2 shall not apply.

5.2.1.59 The clause 3.18.4.3.6 shall be replaced with: "At standstill, the ERTMS/ETCS on-board equipment shall offer the possibility to the driver to modify the GSM-R Radio Network ID.

5.2.1.60 The clause 3.18.4.3.6.1 shall be replaced with: "If the driver elects to do so, the ERTMS/ETCS on-board equipment shall terminate the ongoing communication session(s), if any, and shall abort any ongoing attempts to establish a communication session."

5.2.1.61 The clause 3.18.4.3.6.2 shall be replaced with: "As soon as the related safe connection is released, if any, the on-board equipment shall acquire an alphanumeric list of available and allowed GSM-R networks, based on a request to the GSM-R Mobile Terminal(s). If the driver selects a new GSM-R Radio Network ID from the proposed list, the registration of the GSM-R Mobile Terminal(s) to this new GSM-R Radio Network shall be ordered."

5.2.1.62 The clause 3.18.4.3.6.3 shall be replaced with: "If not "unknown" the status of the RBC contact information shall be immediately set to "invalid" as soon as the driver has selected a new GSM-R Radio Network ID."

5.2.1.63 The clause 3.18.6.1 shall be replaced with: "Outside the context of data entry, the ERTMS/ETCS on-board equipment shall offer the possibility to the driver to view the driver ID, the train running number, the RBC contact information, the GSM-R Radio Network ID, the Virtual Balise Cover(s) and the Train Data either modifiable by the driver or modifiable by other ERTMS/ETCS external sources."

5.2.1.64 The annex A.3.1 Table shall be replaced with:

Fixed Value Data	**Value**	**Name**
The number of times to try to establish a safe radio connection.	3 times	

Repetition of radio messages (i.e. excluding the first sending)	3 times	
Waiting time before radio message repetition	15 s	
Speed difference between Permitted speed and Emergency Brake Intervention supervision limits, minimum value	7.5 km/h	dV_ebi_min
Speed difference between Permitted speed and Emergency Brake Intervention supervision limits, maximum value	15 km/h	dV_ebi_max
Value of MRSP where dV_ebi starts to increase to dV_ebi_max	110 km/h	V_ebi_min
Value of MRSP where dV_ebi stops to increase to dV_ebi_max	210 km/h	V_ebi_max
Speed difference between Permitted speed and Service Brake Intervention supervision limits, minimum value	5.5 km/h	dV_sbi_min
Speed difference between Permitted speed and Service Brake Intervention supervision limits, maximum value	10 km/h	dV_sbi_max
Value of MRSP where dV_sbi starts to increase to dV_sbi_max	110 km/h	V_sbi_min
Value of MRSP where dV_sbi stops to increase to dV_sbi_max	210 km/h	V_sbi_max
Speed difference between Permitted speed and Warning supervision limits, minimum value	4 km/h	dV_warning_min
Speed difference between Permitted speed and Warning supervision limits, maximum value	5 km/h	dV_warning_max
Value of MRSP where dV_warning starts to increase to dV_warning_max	110 km/h	V_warning_min
Value of MRSP where dV_warning stops to increase to dV_warning_max	140 km/h	V_warning_max
Time before the first Indication to display the TTI	14 s	T_dispTTI
Time between Warning supervision limit and SBI	2 s	T_warning
Driver reaction time between Permitted speed supervision limit and SBI	4 s	T_driver
Maximum possible rotating mass as a percentage of the total weight of the train	15 %	M_rotating_max

Minimum possible rotating mass as a percentage of the total weight of the train	2 %	M_rotating_min
MA request repetition cycle, default value	60 s	$T_{CYCRQSTD}$
Level/Mode transitions: Driver acknowledgement time	5 s	T_{ACK}
Maximum time to maintain a communication session in case of failed re-connection attempts	5 minutes	
Distance of metal immunity in Levels 0/NTC	300 metres	
Driver reaction time before sounding the horn	4 s	
Time between minimum safe rear end of the train leaving a track condition area and on-board deleting the applicable indication	5 s	
Distance to keep on-board information in rear of the min safe rear end of the train	300 metres	
Additional delay time to disconnection on supervision of safe radio connection	60 s	
“Connection status” timer for safe radio connection indication	45 s	
Time from the latest Radio Network registration order to a Mobile Terminal after which the registration is considered as failed.	40 s	
Monitoring of odometer accuracy: Total distance of accumulated movements	5000 m	
Monitoring of odometer accuracy: Maximum distance interval	100 m	
Monitoring of odometer accuracy: Impairment threshold	250 m (derived from 5% of 5000m)	
Monitoring of odometer accuracy: Safety threshold	1500 m (derived from 30% of 5000m)	

5.2.1.65 The table 17 in annex A.3.3 shall be replaced with:

Type of check	**Type of data**		
	Individual information	**Telegram**	**Message**
System Version	3.17.3.11 a) & c)	3.17.3.5 a), d) & e)	3.17.3.5 b) 3.17.3.6 a) 3.17.3.6 c) 3.17.3.11 b)

Type of check	Type of data		
	Individual information	**Telegram**	**Message**
Virtual Balise Cover		3.15.9.3 a)	
Unauthorised Direction Movement Protection		3.14.3.6	
Duplicated balises	3.16.2.4.8.1 3.16.2.4.8.2 together with 3.16.2.4.8.2.1		
Linking			3.4.4.4.2 3.4.4.4.2.1 3.4.4.4.2.2 3.4.4.4.3.2 together with 3.4.4.4.3 and 3.4.4.4.6 3.4.4.4.7
Message consistency			3.16.1.4 together with 3.16.1.1 and 3.16.1.1.1 3.16.1.4 together with 3.16.2.4.1, 3.16.2.4.7, 3.16.2.4.7.1 and with exception 3.16.2.4.2 3.16.1.4 together with 3.16.2.4.4, 3.16.2.4.7, 3.16.2.4.7.1 and with exception 3.16.2.4.4.1 a) 3.16.1.4 together with 3.16.2.5.1, 3.16.2.4.7, 3.16.2.4.7.1 and with exception 3.16.2.5.1.1 a) 3.16.1.4 together with 3.16.3.1.1 a), 3.16.3.3.3 and 3.16.3.1.1 c)
EOLM vs loop identity			3.4.5.2.1
Validity direction	3.6.3.1.3 with exception 3.6.3.1.3.1 3.6.3.1.4 with exception 3.6.3.1.4.1		
Level, mode, origin of information, infill/non-infill, other miscellaneous criteria	4.8		

5.2.1.66 The table in clause A.3.4.1.3 shall be replaced with:

Data Stored on-board	Situations listed above		
	a – d, f, n	e, g – j, l, m	k
National Values	U	U	U
Not yet applicable National Values	D[1]	D[10]	D
Linking	D[1]	D[10]	D
Movement Authority	D[1] [3]	D[10] [11]	D[5]
Gradient Profile	D[1]	D[10]	D
International SSP	D[1]	D[10]	D
Axle load speed profile	D[1]	D[10]	D
STM max speed	U	U	D
STM system speed/distance	U	U	D
Level Transition Order	U	U	D
Stop Shunting on desk opening	U	U	U
List of balise groups for SH area	D	D[9]	D[5]
MA Request Parameters	U	U	U
Position Report parameters	U	U	U
List of Balise groups in SR Authority + SR mode speed limit and distance	U[2]	U	D[5]
Temporary Speed Restrictions	U	U	D
Inhibition of revocable TSRs from balises in level 2	U	U	D
Default Gradient for TSR	U[4]	U[4]	D
Signalling related Speed Restriction	D[1]	D[10]	D[5]
Route Suitability Data	D[1]	D[10]	D
Plain Text Information (location based)	D[8]	D[13]	D
Plain Text Information (not location based)	U	U	D
Fixed Text Information (location based)	D[8]	D[13]	D
Fixed Text Information (not location based)	U	U	D
Geographical Position	U	U	U
Mode Profile	D[1] [7] [14]	D[10] [12]	D[5]

Data Stored on-board	Situations listed above		
	a – d, f, n	e, g – j, l, m	k
RBC Transition Order	D[1]	D[10]	D
Radio Infill Area information	D[1]	D[10]	D
EOLM information	U	U	U
Track Conditions excluding big metal masses	R[1]	R[10]	R
Track condition big metal masses	R[1]	R[10]	R
Unconditional Emergency Stop	U	U	D
Conditional Emergency Stop	U	U	D
Train Position	U	U	U
Accumulated underestimation / overestimation in measuring the movements over a defined total distance	U	U	U
Train Data	U	U	TBR
Adhesion factor	U	U	D
ERTMS/ETCS level	U	U	U
Table of priority of trackside supported levels	U	U	U
Not yet applicable table of priority of trackside supported levels	U	U	D
Driver ID	U	U	TBR
GSM-R Radio Network ID	U	U	U
RBC contact information	U	U	U
Train Running Number	U	U	TBR
Reversing Area Information	D[1]	D[10]	D
Reversing Supervision Information	U	U	D
Track Ahead Free Request	U[6]	U	D
Level Crossing information	U	U	D
Permitted Braking Distance Information	D[1]	D[10]	D
RBC/RIU System Version	U	U	U
Operated System Version	U	U	U
Language used to display information to the driver	U	U	U

Data Stored on-board	Situations listed above		
	a – d, f, n	e, g – j, l, m	k
Virtual Balise Covers	U	U	U
Generic LS function marker	U	U	U
LSSMA display toggle on order	U	U	D

5.2.1.67 The clause A.3.8.6 shall not apply.

5.2.1.68 The clause A.3.9.6 shall be replaced with: “The values of a, b, c and kto used in A.3.9.1, A.3.9.2, A.3.9.3 and A.3.9.4 define reference values for the equivalent brake build up time for the service brake, which shall be considered as maximum ones. If justified by the specific brake system of the train other values of these coefficients, which lead to shorter values of the equivalent brake build up time for the service brake, may be used.”

5.2.1.69 The clause A.3.9.8 shall not apply.

5.2.1.70 The sections A.3.12 & A.3.13 shall not apply.

5.2.1.71 The item 4.4.7.1.6 b) shall not apply.

5.2.1.72 The clause 4.4.8.1.4 shall not apply.

5.2.1.73 The clause 4.4.15.1.1.3 shall be replaced with: “If the “non-leading input signal" is no longer present, the switch to Stand-By mode shall be made only if the train is at standstill.”

5.2.1.74 The clause 4.4.15.1.3 shall be replaced with: “The ERTMS/ETCS on-board equipment shall perform the Train Position function; in particular, the front/rear end of the engine (i.e., not the train) shall be used to refer to train front/rear end and no train integrity information shall be reported to the RBC, regardless of whether the train integrity is available on-board.”

5.2.1.75 The section 4.4.21 shall not apply.

5.2.1.76 In the transition conditions table in section 4.6.3, the condition [10] shall be replaced with:

[10]	(valid Train Data is stored on board) AND (MA + SSP +gradient are on-board) AND (the train position confidence interval does not overlap any Mode Profile)

5.2.1.77 In the transition conditions table in section 4.6.3, the conditions [81], [82] and [83] shall not apply.

5.2.1.78 The item 4.8.2.1 b) shall be replaced with: “the direction for which the information is valid matches the current train orientation, or the balise group crossing direction (for SL, PS and SH engines).(see section 3.6.3)”

5.2.1.79 The table in section 4.8.3 shall be replaced with:

NR = Not Relevant A = Accepted R = Rejected

Information	From RBC	Type	Onboard operating level			
			0	NTC	1	2
National Values	No	Non-infill	A	A	A	A
	No	Infill				
	Yes	NR	R [2]	R [2]	R [2]	A
Linking	No	Non-infill	R [1]	R [1]	A	R [1]
	No	Infill	R	R	A	R [1]
	Yes	NR	R [2]	R [2]	R [2]	A [3]
Signalling Related Speed Restriction	No	Non-infill	R [1]	R [1]	A	R [1]
	No	Infill	R	R	A [18]	R [1]
	Yes	NR				
Movement Authority + (optional) Mode Profile + (optional) List of Balise Groups for SH area	No	Non-infill	R [1]	R [1]	A [4]	R [1]
	No	Infill	R	R	A [4]	R [1]
	Yes	NR	R [2]	R [2]	R [2]	A [3] [4] [5]
Repositioning Information	No	Non-infill	R	R	A	R
	No	Infill				
	Yes	NR				
Gradient Profile	No	Non-infill	R [1]	R [1]	A	R [1]
	No	Infill	R	R	A	R [1]
	Yes	NR	R [2]	R [2]	R [2]	A [3]
International SSP	No	Non-infill	R [1]	R [1]	A	R [1]
	No	Infill	R	R	A	R [1]
	Yes	NR	R [2]	R [2]	R [2]	A [3]
Axle Load speed profile	No	Non-infill	R [1]	R [1]	A	R [1]
	No	Infill	R	R	A	R [1]
	Yes	NR	R [2]	R [2]	R [2]	A [3]
Level Transition Order	No	Non-infill	A	A	A	A [16]
	No	Infill	R	R	A	R [1]
	Yes	NR	A	A	A	A
Conditional Level Transition Order	No	Non-infill	A [11]	A [11]	A [11]	A [11] [16]
	No	Infill				
	Yes	NR				
Session Management	No	Non-infill	A [15]	A [15]	A [15]	A [14] [15]

Information	From RBC	Type	Onboard operating level			
			0	NTC	1	2
	No	Infill				
	Yes	NR	A [15]	A [15]	A [15]	A [15]
Radio Network registration	No	Non-infill	A	A	A	A
	No	Infill				
	Yes	NR	A	A	A	A
MA Request Parameters	No	Non-infill				
	No	Infill				
	Yes	NR	A	A	A	A
Position Report parameters	No	Non-infill				
	No	Infill				
	Yes	NR	A	A	A	A
SR Authorisation + (optional) List of Balise Groups in SR mode	No	Non-infill				
	No	Infill				
	Yes	NR	R	R	R	A [3]
Stop if in SR mode	No	Non-infill	R	R	A	A
	No	Infill				
	Yes	NR				
SR distance information from loop	No	Non-infill	R	R	A	R
	No	Infill				
	Yes	NR				
Temporary Speed Restriction	No	Non-infill	A	R [1] [2]	A	A [8]
	No	Infill	R	R	A	R [1]
	Yes	NR	R [2]	R [2]	R [2]	A [3]
Temporary Speed Restriction Revocation	No	Non-infill	A	R [1] [2]	A	A
	No	Infill				
	Yes	NR	R [2]	R [2]	R [2]	A [3]
Inhibition of revocable TSRs from balises in level 2	No	Non-infill				
	No	Infill				
	Yes	NR	R [2]	R [2]	R [2]	A
Default Gradient for TSR	No	Non-infill	A	R [1] [2]	A	A
	No	Infill				

Information	From RBC	Type	Onboard operating level			
			0	NTC	1	2
	Yes	NR				
Route Suitability Data	No	Non-infill	R [1]	R [1]	A	R [1]
	No	Infill	R	R	A	R [1]
	Yes	NR	R [2]	R [2]	R [2]	A [3]
Adhesion Factor	No	Non-infill	R[1]	R[1]	A	R
	No	Infill	R	R	A	R [1]
	Yes	NR	R[2]	R[2]	R[2]	A
Plain Text Information	No	Non-infill	A	R [1] [2]	A	A
	No	Infill				
	Yes	NR	R [2]	R [2]	R [2]	A [12]
Fixed Text Information	No	Non-infill	A	R [1] [2]	A	A
	No	Infill				
	Yes	NR	R [2]	R [2]	R [2]	A [12]
Geographical Position	No	Non-infill	A	R [1] [2]	A	A
	No	Infill				
	Yes	NR	R [2]	R [2]	R [2]	A
RBC Transition Order	No	Non-infill	R	R	R	A [15]
	No	Infill				
	Yes	NR	R	R	R	A [3] [15]
Danger for SH information	No	Non-infill	A [13]	A [13]	A	A
	No	Infill				
	Yes	NR				
Stop Shunting on desk opening	No	Non-infill	A	A	A	A
	No	Infill				
	Yes	NR				
Radio Infill Area information	No	Non-infill	R	R	A [15]	R [1]
	No	Infill	R	R	A	R [1]
	Yes	NR				
Session Management with neighbouring RIU	No	Non-infill	R	R	A [15]	R
	No	Infill				
	Yes	NR				
EOLM information	No	Non-infill	A	A	A	A
	No	Infill				

Information	From RBC	Type	Onboard operating level			
			0	NTC	1	2
	Yes	NR				
Assignment of Co-ordinate system	No	Non-infill				
	No	Infill				
	Yes	NR	A [10]	A [10]	A [10]	A [10]
Infill Location Reference	No	Non-infill				
	No	Infill	R	R	A	R [1]
	Yes	NR				
Track Conditions excluding big metal masses	No	Non-infill	R [1]	R [1]	A	R [1]
	No	Infill	R	R	A	R [1]
	Yes	NR	R [2]	R [2]	R [2]	A [3]
Track condition big metal masses	No	Non-infill	A	A	A	A
	No	Infill	R	R	A	R [1]
	Yes	NR				
Location Identity (NID_C + NID_BG transmitted in the balise telegram)	No	Non-infill	A	A	A	A
	No	Infill				
	Yes	NR				
Recognition of exit from TRIP mode	No	Non-infill				
	No	Infill				
	Yes	NR	R	R	R	A
Acknowledgement of Train Data	No	Non-infill				
	No	Infill				
	Yes	NR	A	A	A	A
Request to shorten MA (MA + (optional) Mode Profile + (optional) List of Balise Groups for SH area)	No	Non-infill				
	No	Infill				
	Yes	NR	R	R	R	A [3] [4] [5]
Unconditional Emergency Stop	No	Non-infill				
	No	Infill				
	Yes	NR	R [2]	R [2]	R [2]	A
Conditional Emergency Stop	No	Non-infill				
	No	Infill				

Information	From RBC	Type	Onboard operating level			
			0	NTC	1	2
	Yes	NR	R [2]	R [2]	R [2]	A
Revocation of Emergency Stop (Conditional or Unconditional)	No	Non-infill				
	No	Infill				
	Yes	NR	R	R	R	A
SH refused	No	Non-infill				
	No	Infill				
	Yes	NR	R	R	R	A [3]
SH authorised + (optional) List of Balise Groups for SH area	No	Non-infill				
	No	Infill				
	Yes	NR	R	R	R	A [3]
Track Ahead Free Request	No	Non-infill				
	No	Infill				
	Yes	NR	R	R	R	A [3]
Train Running Number	No	Non-infill				
	No	Infill				
	Yes	NR	R	R	R	A
Acknowledgement of session termination	No	Non-infill	A	A	A	A
	No	Infill				
	Yes	NR	A	A	A	A
Train Rejected	No	Non-infill				
	No	Infill				
	Yes	NR	R	R	R	A
Train Accepted	No	Non-infill				
	No	Infill				
	Yes	NR	R	R	R	A
SoM Position Report Confirmed by RBC	No	Non-infill				
	No	Infill				
	Yes	NR	R	R	R	A
Reversing Area Information	No	Non-infill	R [1]	R [1]	A	R [1]
	No	Infill	R	R	A	R [1]
	Yes	NR	R [2]	R [2]	R [2]	A [3]

Information	From RBC	Type	Onboard operating level			
			0	NTC	1	2
Reversing Supervision Information	No	Non-infill	R [1]	R [1]	A	R [1]
	No	Infill	R	R	A	R [1]
	Yes	NR	R [2]	R [2]	R [2]	A [3]
Default Balise/Loop/RIU Information	No	Non-infill	A	A	A	A
	No	Infill				
	Yes	NR				
Track Ahead Free up to level 2 transition location	No	Non-infill	A [9]	A [9]	A [9]	R
	No	Infill				
	Yes	NR				
Permitted Braking Distance Information	No	Non-infill	R [1]	R [1]	A	R [1]
	No	Infill	R	R	A	R [1]
	Yes	NR	R [2]	R [2]	R [2]	A [3]
Level Crossing information	No	Non-infill	R [1] [2]	R [1] [2]	A	A
	No	Infill	R	R	A	R [1]
	Yes	NR	R [2]	R [2]	R [2]	A [3]
Virtual Balise Cover order	No	Non-infill	A	A	A	A
	No	Infill				
	Yes	NR				
Generic LS function marker	No	Non-infill	A	A	A	A
	No	Infill				
	Yes	NR				
LSSMA display toggle on order	No	Non-infill	R [1]	R [1]	A	R [1]
	No	Infill				
	Yes	NR	R [2]	R [2]	R [2]	A [3] [5]
LSSMA display toggle off order	No	Non-infill	R	R	A	R
	No	Infill				
	Yes	NR	R	R	R	A
Data to be used by applications outside ERTMS/ETCS	No	Non-infill	A	A	A	A
	No	Infill	R	R	A	R [1]
	Yes	NR	A	A	A	A

[1] exception: stored onboard if an order to switch to level 1 at a further location has been received.

[2] exception: stored onboard if an order to switch to level 2 at a further location has been received.

[3] exception: rejected if:

- Train Data has been sent to the RBC and the RBC has not yet acknowledged any train data in the ongoing communication session, or

- Train Data where the value of Train category, Axle load, Loading gauge or Traction system is different from the last value acknowledged by the RBC has been sent to the RBC and the corresponding “Acknowledgement of Train Data” has not been received yet.

[4] exception: rejected if the SSP and gradient already available on-board or given together with the MA do not cover the full length of the MA.

[5] exception: rejected if emergency stop(s) have been accepted and are not yet revoked or deleted onboard (see mode transitions).

[8] exception: revocable TSRs shall be rejected if information “inhibition of revocable TSRs from balises in level 2” is stored on-board.

[9] exception: rejected if no level 2 transition order is stored onboard.

[10] exception: rejected if the referred LRBG is memorised to have been reported with different “previous LRBG”

[11] exception: rejected if a level transition order is received in the same message, or if a previous level transition order has announced a level transition still to be executed

[12] exception: rejected if the text message is sent with a request for report of driver acknowledgement with the same text message identifier as a previously received text message, which the driver has not yet acknowledged

[13] exception: rejected if not received together with an immediate level transition order to level 1 or 2

[14] exception: rejected if it relates to an order to establish a communication session with an RBC referred to in an RBC transition order currently stored or received in the same message

[15] exception: rejected if it is a session establishment order (which, for sleeping units, is to be executed) received together with an order and if none of the GSM-R Mobile Terminal(s) available to establish the communication session is registered to this GSM-R Radio Network.

[16] exception: rejected if it is received from a balise group marked as unlinked and the list of trackside supported levels contained in that order includes level 1.

[18] exception: rejected if the Signalling Related Speed Restriction equals zero

5.2.1.80 The clause 4.11.1.4 shall be replaced with: “In case Shunting or Passive Shunting mode was left to No Power mode and a stored and not yet evaluated immediate level transition order or conditional level transition order has to be evaluated (see 4.4.8.1.5, 4.4.20.1.11), the following shall apply:”

5.2.1.81 The clause 5.4.1.4 shall not apply.

5.2.1.82 The row D7 in section 5.4.3.2 shall be replaced with:

D7	If at least one GSM-R Mobile Terminal is registered to a Radio Network, the process shall go to A31. If no GSM-R Mobile Terminal is registered to a Radio Network, the process shall go to S4

5.2.1.83 The row S3 in section 5.4.3.2 shall be replaced with:

S3	The ERTMS/ETCS on-board equipment shall offer the possibility to the driver to re-enter the GSM-R Radio Network ID. If the driver elects to do so, the on-board equipment shall terminate the ongoing communication session, if any. As soon as the related safe connection is released, if any, the on-board equipment shall acquire an alphanumeric list of available and allowed GSM-R networks, based on a request to the GSM-R Mobile Terminal(s): • If this list is empty (**E3**) the process shall go to **A29** • If the driver selects a new GSM-R Radio Network ID from the proposed list, the registration of the GSM-R Mobile Terminal(s) to this new GSM-R Radio Network shall be ordered and if not “unknown” the status of the RBC contact information shall be immediately set to “invalid”. If at least one GSM-R Mobile Terminal is registered to a Radio Network, the ERTMS/ETCS on-board equipment shall offer the following options to the driver for the RBC contact information: • Only if the status of the RBC contact information is “invalid” or “valid”: order the ERTMS/ETCS on-board equipment to use the last stored RBC contact information • Order the ERTMS/ETCS on-board equipment to use the EIRENE short number (trackside call routing function) • Enter the RBC contact information (if its status is "unknown"), or revalidate/re-enter it (if its status is “invalid” or “valid”). Once the driver has selected the first or second option or once data is validated (**E5**), the process shall go to **A31**

5.2.1.84 The row S4 in section 5.4.3.2 shall be replaced with:

S4	The ERTMS/ETCS on-board equipment shall wait until: • at least one GSM-R Mobile Terminal is registered to a GSM-R Radio Network (**E6**); in such case the process shall go to **A31**, OR • a sufficient time (refer to Appendix A.3.1) is elapsed since it has sent the latest GSM-R Radio Network registration order to a GSM-R Mobile Terminal (**E7**); in such case the process shall go to **A29**

5.2.1.85 The row A29 in section 5.4.3.2 shall be replaced with:

A29	The ERTMS/ETCS on-board equipment shall inform the driver that the GSM-R network registration has failed This condition leads to **S10** (the driver has to unlock the situation to continue e.g. selection of new level)

5.2.1.86 The rows A41, A43, D8, A42, D9 and S5 in section 5.4.3.2 shall not apply.

5.2.1.87 The row S10 in section 5.4.3.2 shall be replaced with:

S10	The ERTMS/ETCS on-board equipment shall offer the possibility to the driver to select SH, NL, or to select Train Data Entry. • If the driver selects SH (**E12**), the process shall continue in the same way as the procedure “Shunting initiated by the driver”. If, in level 2, the RBC rejects the request for Shunting (**E13**), the process shall go back to **S10**. • If the driver selects NL (**E10**) then the ERTMS/ETCS on-board equipment shall immediately switch to Non Leading mode (refer to SRS chapter 4, transition between modes: transition [46]). The mission starts in NL mode (if level is 2, the ERTMS/ETCS on-board equipment also reports the change of mode to the RBC). • If the driver selects Train Data Entry (**E11**), the process shall go to **S12** • Following **E10**, **E12**, if the position is still invalid, the ERTMS/ETCS on-board shall delete the train position data (new status: “unknown”)

5.2.1.88 The label of the row “S3: driver has re-entered a new GSM-R Radio Network ID or a new Radio Network type” in the table of clause 5.4.3.3 shall be replaced with: “S3: driver has re-entered a new GSM-R Radio Network ID”

5.2.1.89 The item 5.4.5.3 j) 2nd bullet shall be replaced with: “If the level is 0/1/NTC, then the driver shall only have the possibility to modify the GSM-R Radio Network ID.”

5.2.1.90 The item 5.4.5.3 k) shall not apply.

5.2.1.91 The item 5.4.5.3 l) shall not apply.

5.2.1.92 The clause 5.5.3.1.3 shall be replaced with: “If a communication session with an RBC exists:

Step 2 - The end of mission shall be reported to the RBC by means of the message “End of Mission”.

Step 3 - The RBC shall request to terminate the communication session.

Step 4 - The ERTMS/ETCS on-board equipment shall terminate the communication session

End of procedure”

5.2.1.93 The clause 5.5.3.1.4 shall not apply.

5.2.1.94 The clause 5.5.4.1.1 shall be replaced with: “Level 2: In case a communication session is established and no request to terminate the communication session is received from the RBC within a fixed waiting time (see appendix to chapter 3, List of Fixed Value Data) after sending the “End of Mission” message, the message shall be repeated with the fixed waiting time after each repetition.”

5.2.1.95 {CR1359}The item 5.10.2.4.1 a) shall be replaced with: “Level 2: at least one GSM-R Mobile Terminal is available on-board, i.e. the ETCS onboard has detected at least one GSM-R Mobile Terminal in working condition, independently whether it is registered to a network or not.”

5.2.1.96 {CR1359}The item 5.10.3.15.2 a) shall be replaced with: “immediately if valid RBC contact information is available and at least one GSM-R Mobile Terminal is registered to a Radio Network,”

5.2.1.97 The row S140 in section 5.11.2.2 shall be replaced with:

S140	The ERTMS/ETCS on-board equipment shall offer the possibility to the driver to select "start" (only if train data has been previously entered), or to select SH a) If the driver selects "start" and the level is 1 (**E150**), the process shall go to **S160** b) If the driver selects "start" and the level is 2 (**E155**), the process shall go to **S150** c) If the driver selects SH (**E145**), the process shall continue in the same ways as the procedure “Shunting initiated by the driver”. If the SH request is refused by the RBC (**E165**) the process shall return to **S140**.

5.2.1.98 The clause 5.18.5.2 shall be replaced with: “When the engine front end passes the start location (point D) of the radio hole area, the “radio hole” indication shall be displayed to the driver.”

5.2.1.99 The clause 5.18.5.3 shall be replaced with: “When the engine rear end passes the end location (point E) of the radio hole area, the “radio hole” indication to the driver shall be removed.”

5.2.1.100 The section 5.21 shall not apply.

5.2.1.101 The section 5.22 shall not apply.

5.2.1.102 The clauses 6.6.2.1.2 and 6.6.4.1.1 shall not apply because they are superseded by the exception to the clause 3.6.1.3.4.

5.2.1.103 The clauses 6.6.2.1.4 and 6.6.4.1.3 shall not apply because they are superseded by the exception to the clause 3.11.4.3.

5.2.1.104 The clauses 6.6.2.2.3 and 6.6.4.2.1 shall not apply because they are superseded by the exception to the item 4.4.7.1.6 b).

5.2.1.105 The clauses 6.6.2.3.1 and 6.6.4.3.1 shall not apply because they are superseded by the exception to the row S10 in section 5.4.3.2.

5.2.1.106 The clauses 6.6.2.3.2 and 6.6.4.3.1 shall not apply because they are superseded by the exception to the item 5.4.5.3 k).

5.2.1.107 The clauses 6.6.2.3.3, 6.6.2.3.4, 6.6.2.3.5 shall not apply because they are superseded by the exceptions to the clauses 5.5.3.1.3, 5.5.3.1.4 and 5.5.4.1.1 respectively.

5.2.1.108 The clause 6.6.2.3.6 shall not apply because it is superseded by the exception to the row S140 in section 5.11.2.2.

5.2.1.108.1 The clause 6.6.2.3.7 shall not apply because it is superseded by the exception to the section 5.21.

5.2.1.109 The clause 6.6.3.1.1 shall be replaced with: “For information received from trackside, the message consistency check shall be achieved taking into account the exceptions to chapters 7 and 8 as described in sections 6.5.1.5, 6.5.1.6 and 6.5.1.7, but excluding clause 6.5.1.5.34.2.

5.2.1.110 The following items in section 6.6.3.2.3 shall be replaced with:

Received information		**Action**	
Packet Number	Packet Name	Operated system version number X = 1	Operated system version number X = 2
45	Radio Network registration	U	U

[18] The variable NID_PACKET shall be set to 70

5.2.1.111 The exception [23] in section 6.6.3.2.3 shall not apply.

5.2.1.112 The clauses 6.6.3.4.1.2, 6.6.5.3.3, 6.6.5.4.2 and 6.6.5.5.2 shall not apply because they are superseded by the exceptions to the clauses 3.5.3.7.4 and 3.5.3.7.4.1.

5.2.1.113 The clause 6.6.3.4.1.3 shall not apply.

5.2.1.114 The clause 6.6.3.4.1.6 shall not apply because it is superseded by the exception to the clause 3.18.3.10.

5.2.1.115 The clause 6.6.3.4.4 shall be replaced with: “The ERTMS/ETCS on-board equipment shall elaborate the information to be transmitted to the RBC/RIU certified to system version number X = 1, by applying the following translation table.”

5.2.1.116 The clause 6.6.4.3.1 shall not apply because it is superseded by the exceptions to the row S140 in section 5.11.2.2 and to the section 5.21.

5.2.1.117 The clause 6.6.4.3.2 shall not apply because it is superseded by the exceptions to the clauses 5.5.3.1.3, 5.5.3.1.4 and 5.5.4.1.1.

5.2.1.118 The clause 6.6.5.2.2 shall not apply.

5.2.1.119 The clauses 6.6.5.2.5, 6.6.5.2.6 & 6.6.5.2.7 shall not apply.

5.2.1.120 The clause 6.6.5.3.4 shall not apply.

5.2.1.121 The clause 6.6.5.3.6 shall be replaced with: “The ERTMS/ETCS on-board equipment shall elaborate the information to be transmitted to the RBC/RIU certified to system version number X = 2.0, by applying the following translation table.”

5.2.1.122 The clause 6.6.5.4.3 shall not apply.

5.2.1.123 The clause 6.6.5.4.5 shall be replaced with: “The ERTMS/ETCS on-board equipment shall elaborate the information to be transmitted to the RBC/RIU certified to system version number X = 2.1, by applying the following translation table.”

5.2.1.124 The clause 6.6.5.5.3 shall not apply.

5.2.1.125 The clause 6.6.5.5.5 shall be replaced with: “The ERTMS/ETCS on-board equipment shall elaborate the information to be transmitted to the RBC/RIU certified to system version number X = 2.2, by applying the following translation table.”

5.2.1.126 The clause 6.6.5.6.2 shall be replaced with: “The ERTMS/ETCS on-board equipment shall elaborate the information to be transmitted to the RBC/RIU certified to system version number X = 2.3, by applying the following translation table.”

5.2.1.127 The table in section 7.4.1.2 shall be replaced with:

Packet Number	Packet Name	Page N°
0	Position Report	
1	Position Report based on two balise groups	
2	Onboard supported system versions	
4	Error Reporting	
5	Train running number	
9	Level 2 transition information	
11	Validated train data	
44	Data used by applications outside the ERTMS/ETCS system.	

5.2.1.128 The sections 7.4.2.7.1 (Packet Number 31: RBC transition order for RBC interfaced to FRMCS only) & 7.4.2.7.2 (Packet Number 32: Session Management for RBC interfaced to FRMCS only) shall not apply.

5.2.1.129 The section 7.4.2.11.1 (Packet Number 45: Radio Network transition order) shall be replaced with:

Packet Number 45: Radio Network registration

Description	Packet to give the identity of the GSM-R Radio Network.		
Transmitted by	Balise, RBC, RIU		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	
	NID_MN	24	

5.2.1.130 The table 7.4.2.13 (Packet Number 51: Axle Load Speed Profile) shall be replaced with:

Description	This packet gives the speed restrictions for trains with axle load category higher than or equal to the specified value for the speed restriction, assuming that the axle load categories are sorted in ascending order from category A to E5		
Transmitted by	Any		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	
	Q_SCALE	2	
	Q_TRACKINIT	1	
	D_TRACKINIT	15	Only if Q_TRACKINIT = 1
	D_AXLELOAD	15	Only if Q_TRACKINIT = 0, D_AXLELOAD and the following variables follow
	L_AXLELOAD	15	
	Q_FRONT	1	
	N_ITER	5	
	M_AXLELOADCAT(n)	7	
	V_AXLELOAD(n)	7	Speed restriction to be applied if the axle load category of the train ≥ M_AXLELOADCAT(n)
	N_ITER	5	
	D_AXLELOAD(k)	15	
	L_AXLELOAD(k)	15	
	Q_FRONT(k)	1	
	N_ITER(k)	5	
	M_AXLELOADCAT(k,m)	7	
	V_AXLELOAD(k,m)	7	Speed restriction to be applied if the axle load category of the train ≥ M_AXLELOADCAT(k,m)

5.2.1.131 The table 7.4.2.19 (Packet Number 67: Track Condition Big Metal Masses) shall be replaced with:

Description	The packet gives details concerning where to ignore integrity check alarms of balise transmission due to big metal masses trackside.
Transmitted by	Balise

Content	Variable	Length	Comment
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	
	Q_SCALE	2	
	D_TRACKCOND	15	
	L_TRACKCOND	15	The distance for which integrity check alarms of balise transmission shall be ignored
	N_ITER	5	
	D_TRACKCOND(k)	15	
	L_TRACKCOND(k)	15	The distance for which integrity check alarms of balise transmission shall be ignored

5.2.1.132 The table 7.4.2.21 (Packet Number 70: Route Suitability Data) shall be replaced with:

Description	The packet gives the characteristics needed to enter a route.		
Transmitted by	Any		
Content	Variable	Length	Comment
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	
	Q_SCALE	2	
	Q_TRACKINIT	1	
	D_TRACKINIT	15	Only if Q_TRACKINIT = 1
	D_SUITABILITY	15	Only If Q_TRACKINIT = 0, D_SUITABILITY and the following variables follows
	Q_SUITABILITY	2	
	M_LINEGAUGE	8	If Q_SUITABILITY = loading gauge
	M_AXLELOADCAT	7	If Q_SUITABILITY = axle load. It gives the max axle load category, assuming that the axle load categories are sorted in ascending order from category A to E5.

	M_VOLTAGE	4	If Q_SUITABILITY = traction system
	NID_CTRACTION	10	If Q_SUITABILITY = traction system and M_VOLTAGE ≠ 0
	N_ITER	5	
	D_SUITABILITY(k)	15	
	Q_SUITABILITY(k)	2	
	M_LINEGAUGE(k)	8	If Q_SUITABILITY(k) = loading gauge
	M_AXLELOADCAT(k)	7	If Q_SUITABILITY(k) = axle load. It gives the max axle load category, assuming that the axle load categories are sorted in ascending order from category A to E5.
	M_VOLTAGE(k)	4	If Q_SUITABILITY(k) = traction system
	NID_CTRACTION(k)	10	If Q_SUITABILITY(k) = traction system and M_VOLTAGE(k) ≠0

5.2.1.132.1 The section 7.4.3.4.3 (Packet Number 10: Safe consist length information for Supervised Manoeuvre) shall not apply.

5.2.1.133 Note: the packets listed above, which are not applicable to an on-board with a reduced envelope of ETCS system versions, may contain variables that have been introduced in the system version number X = 2.3 or 3.0. These variables are not mentioned in this section, since their use is implicitly forbidden by the fact that the packets using them are not applicable.

5.2.1.134 The table 7.5.1.56 (L_TRAIN) shall be replaced with:

Name	Train length		
Description	This is the length of the train acquired as Train Data.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
12 bits	0 m	4095 m	1 m

5.2.1.135 The table 7.5.1.67.2 (M_LINEAXLELOADCAT) shall not apply.

5.2.1.136 The table 7.5.1.102.2 (Q_DESK) shall not apply.

5.2.1.137 The table 7.5.1.120.1 (Q_NETWORKTYPE) shall not apply.

5.2.1.138 The table 7.5.1.172 (V_TRAIN) shall be replaced with:

Name	Train speed		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
7 bits	0 km/h	600 km/h	5 km/h
Special/Reserved Values	121-127	Spare	

5.2.1.139 The table in clause 8.4.4.4.1 shall be replaced with:

Track to Train message	**Mess. ID**	**Optional packets**
SR Authorisation	2	63
Movement Authority	3	21, 27, 49, 80, plus common optional packets
Request To Shorten MA	9	49, 80
General Message	24	From RBC: 21, 27, plus common optional packets From RIU: 44, 45, 143, 180, 254
SH authorised	28	3, 44, 49
MA with Shifted Location Reference	33	21, 27, 49, 80, plus common optional packets
Infill MA	37	5, 21, 27, 39, 40, 41, 44, 49, 51, 52, 65, 68, 69, 70, 71, 80, 88, 138, 139

5.2.1.140 The clause 8.4.4.4.5 shall not apply.

5.2.1.141 The table in section 8.5.2 shall be replaced with:

Mes. Id.	**Message Name**	**Invariant**	**Transmitted to**
129	Validated Train Data	No	RBC
130	Request for Shunting	No	RBC
132	MA Request	No	RBC
136	Train Position Report	No	RBC, RIU
137	Request to shorten MA is granted	No	RBC
138	Request to shorten MA is rejected	No	RBC
146	Acknowledgement	No	RBC, RIU
147	Acknowledgement of Emergency Stop	No	RBC
149	Track Ahead Free Granted	No	RBC
150	End of Mission	No	RBC
153	Radio infill request	No	RIU
154	No compatible version supported	Yes	RBC, RIU

Mes. Id.	Message Name	Invariant	Transmitted to
155	Initiation of a communication session	Yes	RBC, RIU
156	Termination of a communication session	Yes	RBC, RIU
157	SoM Position Report	No	RBC
158	Text message acknowledged by driver	No	RBC
159	Session Established	No	RBC, RIU

5.2.1.142 The table in section 8.5.3 shall be replaced with:

Mes. Id.	Message Name	Invariant	Transmitted by
2	SR Authorisation	No	RBC
3	Movement Authority	No	RBC
6	Recognition of exit from TRIP mode	No	RBC
8	Acknowledgement of Train Data	No	RBC
9	Request to Shorten MA	No	RBC
15	Conditional Emergency Stop	No	RBC
16	Unconditional Emergency Stop	No	RBC
18	Revocation of Emergency Stop	No	RBC
24	General message	No	RBC, RIU
27	SH Refused	No	RBC
28	SH Authorised	No	RBC
33	MA with Shifted Location Reference	No	RBC
34	Track Ahead Free Request	No	RBC
37	Infill MA	No	RIU
40	Train Rejected	No	RBC
32	RBC/RIU System Version	Yes	RBC, RIU
39	Acknowledgement of termination of a communication session	Yes	RBC, RIU
41	Train Accepted	No	RBC
43	SoM position report confirmed by RBC	No	RBC
45	Assignment of coordinate system	No	RBC

5.2.1.143 The section 8.6.2.1 (Message 131: Request for Supervised Manoeuvre) shall not apply.

5.2.1.144 The section 8.6.3.1 (Message 133: Safe consist length information for Supervised Manoeuvre) shall not apply.

5.2.1.145 The table 8.6.10 (Message 150 End of Mission) shall be replaced with:

Field No.	VARIABLE/ PACKET	Remarks
1	NID_MESSAGE	
2	L_MESSAGE	
3	T_TRAIN	
4	NID_ENGINE	
5	Packet 0 or 1	

5.2.1.146 The section 8.7.2.1 (Message 4: SM Authorisation) shall not apply.

5.2.1.147 The section 8.7.2.2 (Message 5: SM Refused) shall not apply.

5.2.1.148 The section 8.7.3.1 (Message 7: Acknowledgement of safe consist length info for SM) shall not apply.

5.2.1.149 The section 8.7.16 (Message 38: Acknowledgement of session establishment) shall not apply.

5.2.1.150 Note: the messages listed above, which are not applicable to an on-board with a reduced envelope of ETCS system versions, may contain packets and/or variables that have been introduced in the system version number X.Y = 2.3 or 3.0. These packets and/or variables are not mentioned in this section, since their use is implicitly forbidden by the fact that the messages using them are not applicable.

5.2.2 Exceptions applicable only to the reduced envelope of ETCS system versions up to X.Y = 2.1

5.2.2.1 The clause 3.8.4.6.2 shall be replaced with: “An infill MA shall be evaluated on-board only if the on-board equipment is in FS or LS mode.”

5.2.2.2 The section 3.15.11 shall not apply.

5.2.2.3 The section 4.4.16 shall not apply.

5.2.2.4 The figure 1 in section 4.5.2 shall be replaced with:

ONBOARD-FUNCTIONS	**RELATED SRS §**	**NP**	**SB**	**PS**	**SH**	**FS**	**LS**	**SR**	**OS**	**SL**	**NL**	**UN**	**TR**	**PT**	**SF**	**IS**	**SN**	**RV**
Check Data Consistency																		
Check linking consistency	3.16.2.3 3.4.4.2.1.1 3.4.4.4					X	X		X						NR	NR		

ONBOARD-FUNCTIONS	RELATED SRS §	NP	SB	PS	SH	FS	LS	SR	OS	SL	NL	UN	TR	PT	SF	IS	SN	RV
Check message consistency for balise groups announced by linking and for other balise groups marked as linked while the linking consistency is checked	3.16.2.4.1 3.16.2.4.2 3.16.2.4.3 3.16.2.4.3.1					X	X		X						NR	NR		
Check balise detection degradation	3.16.2.7.1					X	X		X						NR	NR		
Check balise cross-talk while expecting repositioning information	3.16.2.7.2					X	X		X						NR	NR		
Check safe radio connection (only level 2)	3.16.3.4					X	X		X						NR	NR		
Report Train Position:																		
When train reaches standstill	3.6.5.1.4 a)					X	X	X	X						NR	NR		X
When mode changes to…{1}	3.6.5.1.4 b)		X		X {2}	X	X	X	X	X	X	X	X	X	NR	NR	X	X
When train integrity confirmed by driver	3.6.5.1.4 c)		X			X	X	X	X			X		X	NR	NR	X	
When loss of train integrity is detected	3.6.5.1.4 d)		X			X	X	X	X			X	X	X	NR	NR	X	X
When train front/rear passes an RBC/RBC border (only level 2)	3.6.5.1.4 e) 3.6.5.1.4 k)					X	X	X	X				X		NR	NR		
When train rear passes a level transition border (from level 2 to 0, NTC, 1)	3.6.5.1.4 f)					X	X	X	X			X	X		NR	NR	X	
When change of level due to trackside order	3.6.5.1.4 g)					X	X	X	X		X		X		NR	NR		
When change of level due to driver request	3.6.5.1.4 g)		X			X	X	X	X		X				NR	NR		
When establishing a session with RBC	3.6.5.1.4 h)		X		X	X	X	X	X	X	X	X	X	X	NR	NR	X	X
When a data consistency error is detected (only level 2)	3.6.5.1.4 l)		X			X	X	X	X	X	X	X	X	X	NR	NR	X	X
As requested by RBC…	3.6.5.1.4		X			X	X	X	X		X	X	X	X	NR	NR	X	X
… or at every passage of an LRBG compliant balise group	3.6.5.1.4 j)					X	X	X	X		X	X	X	X	NR	NR	X	X
Manage MA																		

ONBOARD-FUNCTIONS	RELATED SRS §	NP	SB	PS	SH	FS	LS	SR	OS	SL	NL	UN	TR	PT	SF	IS	SN	RV
Request MA Cyclically with respect to perturbation location (T_MAR) or MA timer elapsing (T_TIMEOUTRQST) (only level 2)	3.8.2.2					X	X		X						NR	NR		
Request MA Cyclically when “Start” is selected (only level 2)	3.8.2.3 4.4.11 5.4, 5.11		X					X						X	NR	NR		
Request MA on reception of "track ahead free up to the level 2 transition location"	3.8.2.4		X			X	X	X	X			X	X	X	NR	NR	X	
Request MA Cyclically on track description deletion (only level 2)	3.8.2.5					X	X		X						NR	NR		
Determine EOA/LOA, SvL, Danger Point, etc…	3.8.4 3.8.5					X	X		X						NR	NR		
Determine Most Restrictive Speed Profile, based on :																		
SSP	3.13.7.2 3.11.2.2 a)					X	X		X						NR	NR		
ASP	3.13.7.2 3.11.2.2 b)					X	X		X						NR	NR		
TSR	3.13.7.2 3.11.2.2 c)					X	X	X	X			X			NR	NR		
Signalling related speed restriction when evaluated as a speed limit	3.13.7.2 3.11.2.2 e)					X	X		X						NR	NR		
Mode related speed restriction	3.13.7.2 3.11.2.2 f)				X		X	X	X			X			NR	NR		X
Train related speed restriction	3.13.7.2 3.11.2.2 d)					X	X	X	X			X			NR	NR		X
STM max speed	3.13.7.2 3.11.2.2 g)					X	X	X	X			X			NR	NR	X	
STM system speed	3.13.7.2 3.11.2.2 h)					X	X	X	X			X			NR	NR		
LX speed	3.13.7.2 3.11.2.2 i)					X	X		X						NR	NR		

ONBOARD-FUNCTIONS	RELATED SRS §	NP	SB	PS	SH	FS	LS	SR	OS	SL	NL	UN	TR	PT	SF	IS	SN	RV
Speed restriction to ensure a given permitted braking distance	3.13.7.2 3.11.2.2 k)					X	X		X						NR	NR		
Override related speed restriction	3.13.7.2 3.11.2.2 j)				X			X				X			NR	NR		
Monitor speed and distance, based on:																		
MA, release speed, mode profile, non protected LX start location, and route unsuitability location	3.13.2.3.6.1 a) 3.13.8.2.1 b)&c) 3.13.9.4 3.13.10.5 3.13.1.5					X	X		X						NR	NR		
Gradient	3.13.4					X	X	X	X			X			NR	NR		
MRSP	3.13.7				X {4}	X	X	X	X			X			NR	NR	X {3} {4}	X {4}
Allowed distance to run in Staff Resp. mode	3.13.2.3.6.1 b) 3.13.8.2.1 d) 3.13.10.4.13.1							X							NR	NR		
Protect against Undesirable Train Movements																		
Roll Away Protection	3.14.2				X	X	X	X	X			X		X	NR	NR		X
Unauthorised Direction Movement Protection	3.14.3					X	X	X	X					X	NR	NR		X
Other functions																		
Manage RBC/RBC Handover (only level 2)	3.15.1, 5.15					X	X	X	X	X	X		X		NR	NR		
Check of odometer accuracy thresholds	3.6.8.5, 3.6.8.6, 3.6.8.7					X	X	X	X						NR	NR		

ONBOARD-FUNCTIONS	RELATED SRS §	NP	SB	PS	SH	FS	LS	SR	OS	SL	NL	UN	TR	PT	SF	IS	SN	RV
Storage of accumulated underestimation / overestimation in measuring the movements over a defined total distance	3.6.8.2 to 4			X	X	X	X	X	X	X	X	X	X	X	NR	NR	X	X

Figure 1: Active Functions table

{1} For ETCS level 2 this may imply establishing a radio communication session if none is established

{2} Exception: the transition PS => SH shall not be reported

{3} In case the ERTMS on-board equipment is interfaced to the National System through an STM, refer to SUBSET-035 for details

{4} Ceiling Speed Monitoring only (no braking curve)

5.2.2.5 The figure 2 in section 4.6.2 shall be replaced with:

NP	<29 -p2-	<29 -p2-	<29 -p2-	<29 -p2-	<29 -p2-	<29 -p2-	<29 -p2-	<29 -p2-	<29 -p2-	<29 -p2-	<29 -p2-	<29 -p2-	<29 -p2-		<29 -p2-	<29 -p2-
4> -p2-	SB	<22 -p4-	<19, 27, 30 -p5-	<28 -p5-	<28 -p5-	<28 -p5-	<28 -p5-	<2, 3 -p3-	<28, 47 -p3-	<28 -p6-		<28 -p4			<28 -p6-	<28 -p4-
		PS	<26 -p5-													
	5, 6, 50> -p7-	23> -p4	SH	<5,6, 50,51 -p6-	<5,6, 50,51 -p6-	<5,6, 51 -p6-	<5,6 50,51 -p6-			<5,61 -p7-	<68 -p4	<5,6, 50,78 -p5-			<5,61 -p7	
	10> -p7-			FS	<76 -p6-	<31,32 -p6-	<75 -p6-			<25 -p7-		<31 -p5-			<25 -p7-	
	70> -p7-			70,72> -p6-	LS	<72 -p6-	<70,74 -p6-			<71 -p7-		<70 -p5-			<71 -p7-	
	8,37> -p7-			37> -p6-	37> -p6-	SR	<37 -p6-			<44,45 -p4-		<8,37 -p5-			<44,45 -p4-	
	15> -p7-			15,40> -p6-	15,73> -p6-	40> -p6-	OS			<34 -p7-		<15 -p5-			<34 -p7-	
	14> -p5-	14> -p4						SL								
	46> -p6-		46> -p5-	46> -p6-	46> -p6-	46> -p6-	46> -p6-		NL							
	60> -p7-			21> -p6-	21> -p6-	21> -p6-	21> -p6-			UN	<62 -p4-	<77 -p5-			<21 -p7-	
	20> -p4-		49,52, 65> -p4-	11,12, 16,17, 18,20, 41,65, 66,69> -p4-	11,12, 16,17, 18,20, 41,65, 66,69> -p4-	18,20, 42, 43, 36, 54,65> -p4-	11,12, 16,17, 18,20, 41,65, 66,69> -p4-			67,39, 20> -p5-	TR				<67, 39,38, 35,20 -p5-	
											7> -p4-	PT				
	13> -p3-		13> -p3-	13,84> -p3-	13,84> -p3-	13,84> -p3-	13,84> -p3-			13> -p3-	13> -p3-	13> -p3-	SF		<13 -p3-	<13 -p3-
1> -p1-	1> -p1-	1> -p1-	1> -p1-	1> -p1-	1> -p1-	1> -p1-	1> -p1-	1> -p1-	1> -p1-	1> -p1-	1> -p1-	1> -p1-	1> -p1-	IS	<1 -p1-	<1 -p1-
	58> -p7-			56> -p6-	56> -p6-	56> -p6-	56> -p6-			56> -p7-	63> -p4-	79> -p5-			SN	
				59> -p6-	59> -p6-		59> -p6-									RV

5.2.2.6 In the transition conditions table in section 4.6.3, the conditions [9], [24], [33], [48], [53], [80] and the footnote {10} shall not apply.

5.2.2.7 In the transition conditions table in section 4.6.3, the footnote {7} shall be replaced with: “{7} The request to acknowledge Limited Supervision is displayed to the driver only if certain conditions are fulfilled. These conditions are not specified here. See the “Limited Supervision” procedure” of SRS-§5 (for transitions from FS/OS/UN to LS) and the "Start of mission" procedure (for transition from SB to LS).”

5.2.2.8 The tables in section 4.7.2 shall be replaced with:

Input information	NP	SB	PS	SH	FS	LS	SR	OS	SL	NL	UN	TR	PT	SF	IS	SN	RV
Train Data (refer to 3.18.3.2)		A			A	A	A	A			A			NA	NA	A	
Selection of language		A		A	A	A	A	A		A	A	A	A	NA	NA	A	A
Driver id		A		A	A	A	A	A		A	A			NA	NA	A	
Train running number		A			A	A	A	A		A	A			NA	NA	A	
ERTMS/ETCS level		A			A	A	A	A		A	A			NA	NA	A	
Track Adhesion factor		A			A	A	A	A			A			NA	NA	A	
RBC contact information		A			A	A	A	A		A			A	NA	NA		
GSM-R radio network-id		A			A	A	A	A		A	A		A	NA	NA	A	
Train integrity confirmation		A			A	A	A	A			A		A	NA	NA	A	
Start		A					A						A	NA	NA		
Override request		A		A	A	A	A	A			A		A	NA	NA	A	
Shunting request		A			A	A	A	A			A		A	NA	NA	A	
“Continue Shunting on desk closure” request				A										NA	NA		
“Exit of Shunting” request				A										NA	NA		
Non Leading request		A		A	A	A	A	A						NA	NA		
Ackn of fixed text information		A			A	A	A	A			A	A	A	NA	NA		A
Ackn of plain text information		A			A	A	A	A			A	A	A	NA	NA		A
Ackn of level transition		A		A	A	A	A	A			A	A		NA	NA	A	
Ackn of Limited Supervision mode		A			A	A		A					A	NA	NA		
Ackn of On Sight mode		A			A	A		A					A	NA	NA		
Ackn of Shunting mode		A		A	A	A		A					A	NA	NA		
Ackn of Staff Resp. mode		A											A	NA	NA		
Ackn of Unfitted mode		A												NA	NA		
Ackn of Reversing mode					A	A		A						NA	NA		
Ackn of SN mode		A												NA	NA		

Input information	NP	SB	PS	SH	FS	LS	SR	OS	SL	NL	UN	TR	PT	SF	IS	SN	RV
Ackn of Train Trip												A		NA	NA		
Ackn for Roll Away Protection				A	A	A	A	A			A		A	NA	NA		A
Ackn for Unauthorised Direction Movement Protection					A	A	A	A					A	NA	NA		A
Ackn for Standstill Supervision		A												NA	NA		
Ackn for Post Trip distance exceeded													A	NA	NA		
Ackn of Train Data change from source different from the driver					A	A	A	A			A	A		NA	NA	A	
Ackn for reversing distance exceeded														NA	NA		A
Track Ahead Free		A				A	A	A					A	NA	NA		
SR mode speed limit and distance							A							NA	NA		
Virtual Balise Cover		A												NA	NA		
Isolation	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Output information	NP	SB	PS	SH	FS	LS	SR	OS	SL	NL	UN	TR	PT	SF	IS	SN	RV
ERTMS/ETCS Mode		A		X	X	X	X	X		X	X	A	X	A	X	X	X
Current ERTMS/ETCS level		A		X	X	X	X	X		X	X	A	X	NA	NA	X	X
Train Speed		A		X	X	X	X	X		X	X	A	X	NA	NA	A	X
Permitted Speed				A	X		A	A						NA	NA		X
SBI Speed					A									NA	NA		
Target Speed					A		A	A						NA	NA		
Target distance					A		A	A						NA	NA		X
Release speed					A	A		A						NA	NA		
Speed and distance monitoring supervision status				A	A	A	A	A			A		A	NA	NA		A
Time to Indication					A		A	A						NA	NA		
LSSMA						A								NA	NA		
Trip reason												A	X	NA	NA		
Train Data (refer to 3.18.3.2)		A			A	A	A	A			A	A	A	NA	NA	A	A
Driver id		A		A	A	A	A	A		A	A	A	A	NA	NA	A	A
Train running number		A		A	A	A	A	A		A	A	A	A	NA	NA	A	A
RBC contact information		A		A	A	A	A	A		A	A	A	A	NA	NA	A	A

Output information	NP	SB	PS	SH	FS	LS	SR	OS	SL	NL	UN	TR	PT	SF	IS	SN	RV
GSM-R radio network-id		A		A	A	A	A	A		A	A	A	A	NA	NA	A	A
Virtual Balise Covers		A		A	A	A	A	A		A	A	A	A	NA	NA	A	A
Brake indication		A		A	A	A	A	A			A	A	A	NA	NA	A	A
Fixed text information		A			A	A	A	A			A	A	A	NA	NA		A
Plain text information		A			A	A	A	A			A	A	A	NA	NA		A
Reversing allowed					A	A		A						NA	NA		
Track condition excluding sound horn, non stopping areas, tunnel stopping areas and big metal masses - Power control - Pantograph control - Air tightness control - Radio hole, supervision of safe radio connection stopped - Brakes control					A	A		A		A		A	A	NA	NA		
Track conditions sound horn, non stopping areas, tunnel stopping areas					A	A		A						NA	NA		
Geographical position		A			A	A	A	A		A	A	A	A	NA	NA		
Override status				A			A				A			NA	NA	A	
LX status "not protected"					A	A		A						NA	NA		
Shunting refused by RBC		A			A	A	A	A					A	NA	NA		
Shunting request not answered by RBC		A			A	A	A	A					A	NA	NA		
Entry in FS					A									NA	NA		
Entry in OS								A						NA	NA		
Level transition announcement					A	A	A	A		A	A	A	A	NA	NA	A	
Track Ahead Free request		A				A	A	A					A	NA	NA		
Adhesion factor “slippery rail”		A			A	A	A	A			A	A	A	NA	NA	A	A
Trackside malfunction		A		A	A	A	A	A			A	A	A	NA	NA	A	A
Notification of Train Data change from source different from the driver		A			A	A	A	A			A	A	A	NA	NA	A	
Operated System Version		A		A	A	A	A	A		A	A	A	A	NA	NA	A	A

Output information	NP	SB	PS	SH	FS	LS	SR	OS	SL	NL	UN	TR	PT	SF	IS	SN	RV
Radio Network registration failed		A			A	A	A	A		A			A	NA	NA		
Safe radio connection indication		A		A	A	A	A	A		A	A	A	A	NA	NA	A	A
Local time		A		X	X	X	X	X		X	X	A	X	NA	NA	A	X
Gradient					X			A						NA	NA		
MRSP					X			A						NA	NA		
First Indication location					A			A						NA	NA		
EOA[2]/LOA					A			A						NA	NA		
Brake reason		A		A	A	A	A	A			A	A	A	NA	NA	A	A
Trackside not compatible		A		A	A	A	A	A		A	A	A	A	NA	NA	A	A
Train is rejected		A												NA	NA		
Route unsuitability(ies)					A	A		A						NA	NA		
Set Speed indication		A		A	A	A	A	A		A	A	A	A	NA	NA	A	A
Impairment due to accumulated underestimation / overestimation in measuring the movements over a defined total distance (refer to 3.6.8.5 and 6)					A	A	A	A						NA	NA		
NTC not available [1]										A				NA	NA	A	
NTC data need [1]					A	A	A	A			A	A	A	NA	NA	A	
NTC failed [1]		A		A	A	A	A	A		A	A	A	A	NA	NA	A	

[1] In case the ERTMS/ETCS on-board equipment is interfaced to the National System through an STM, refer to SUBSET-035 for details.

[2] When the ERTMS/ETCS on-board equipment applies at least one of the clauses 3.12.2.4, 3.12.4.7 and 3.12.5.8, it refers to the closest location amongst the temporary EOA(s) and the EOA.

5.2.2.9 The clause 4.8.4.1.1 shall be replaced with: “For infill information, only the columns FS and LS shall apply. In all other modes, infill information shall be rejected.”

5.2.2.10 The table in section 4.8.4 shall be replaced with:

NR = Not Relevant A = Accepted R = Rejected

Information	Mode																
	NP	SB	PS	SH	FS	LS	SR	OS	SL	NL	UN	TR	PT	SF	IS	SN	RV
National Values	NR	A [2]	A	A	A	A	A	A	A	A	A	A	A [1]	NR	NR	A	A
Linking	NR	A[2][4]	R	R	A	A	A	A	R	A	A	R	A [1]	NR	NR	A	R
Signalling Related Speed Restriction	NR	A[2][4]	R	R	A	A	A	A	R	R	A	R	A [1]	NR	NR	A	R
Movement Authority + (optional) Mode Profile + (optional) List of Balise Groups for SH area	NR	A[2][4] [11]	R	R	A	A	A	A	R	R	A	R	A [1]	NR	NR	A	R
Repositioning Information	NR	R	R	R	A	A	R	A	R	R	R	R	R	NR	NR	R	R
Gradient Profile	NR	A[2][4]	R	R	A	A	A	A	R	R	A	R	A [1]	NR	NR	A	R
International SSP	NR	A[2][4]	R	R	A	A	A	A	R	R	A	R	A [1]	NR	NR	A	R
Axle load speed profile	NR	A[2][4]	R	R	A	A	A	A	R	R	A	R	A [1]	NR	NR	A	R
STM max speed	NR	A [2]	R	R	A	A	A	A	R	R	A	A	A [1]	NR	NR	A	R
STM system speed/distance	NR	A [2]	R	R	A	A	A	A	R	R	A	A	A [1]	NR	NR	R	R
Level Transition Order and Conditional Level Transition Order	NR	A [2]	A [7]	A [7]	A	A	A	A	A	A	A	A	A [1] [5]	NR	NR	A	R
Session Management	NR	A	A [3]	A [3]	A	A	A	A	A	A	A	A	A [1]	NR	NR	A	A
Radio Network registration	NR	A [2]	A	A	A	A	A	A	A	A	A	A	A [1]	NR	NR	A	A

Information	Mode																
	NP	SB	PS	SH	FS	LS	SR	OS	SL	NL	UN	TR	PT	SF	IS	SN	RV
MA Request Parameters	NR	A [2]	R	R	A	A	A	A	R	R	A	R	A [1]	NR	NR	A	R
Position Report parameters	NR	A [2]	R	R	A	A	A	A	R	A	A	R	A [1]	NR	NR	A	A
SR Authorisation+ (optional) List of Balise Groups in SR mode	NR	A[2][4][11]	R	R	R	R	A	R	R	R	R	R	A [1]	NR	NR	R	R
Stop if in SR mode	NR	R	R	R	R	R	A	R	R	R	R	R	R	NR	NR	R	R
SR distance information from loop	NR	R	R	R	R	R	A [6]	R	R	R	R	R	R	NR	NR	R	R
Temporary Speed Restriction	NR	A [2][4]	R	R	A	A	A	A	R	R	A	A	A [1]	NR	NR	A	R
Temporary Speed Restriction Revocation	NR	A[2][4]	R	R	A	A	A	A	R	R	A	A	A [1]	NR	NR	A	R
Inhibition of revocable TSRs from balises in level 2	NR	A [2]	R	R	A	A	A	A	R	R	A	A	A [1]	NR	NR	A	R
Default Gradient for TSR	NR	A[2][4]	R	R	A	A	A	A	R	R	A	A	A [1]	NR	NR	A	R
Route Suitability Data	NR	A[2][4]	R	R	A	A	A	A	R	R	A	R	A [1]	NR	NR	A	R
Adhesion Factor	NR	A[2][4]	R	R	A	A	A	A	R	R	A	R	A [1]	NR	NR	A	R
Plain Text Information	NR	A [2]	R	R	A	A	A	A	R	R	A	A	A [1]	NR	NR	A	A
Fixed Text Information	NR	A [2]	R	R	A	A	A	A	R	R	A	A	A [1]	NR	NR	A	A
Geographical Position	NR	A [2]	R	R	A	A	A	A	R	A	A	A	A [1]	NR	NR	A	R
RBC Transition Order	NR	A[2][4]	A [8]	A [8]	A	A	A	A	A	A	R	A	A [1]	NR	NR	R	R

Information	Mode																
	NP	SB	PS	SH	FS	LS	SR	OS	SL	NL	UN	TR	PT	SF	IS	SN	RV
Danger for SH information	NR	R	R	A	R	R	R	R	R	R	R	R	R	NR	NR	R	R
Stop Shunting on desk opening	NR	R	A	R	R	R	R	R	R	R	R	R	R	NR	NR	R	R
Radio Infill Area information	NR	R	R	R	A	A	A	A	R	R	R	R	R	NR	NR	R	R
Session Management with neighbouring RIU	NR	R	R	R	A	A	A	A	R	R	R	R	R	NR	NR	R	R
EOLM information	NR	R	R	R	A	A	A	A	A	A	A	A	R	NR	NR	A	A
Assignment of Co-ordinate system	NR	A [2]	R	R	R	R	A	R	R	A	A	R	A [1]	NR	NR	A	R
Infill Location Reference	NR	R	R	R	A	A	R	R	R	R	R	R	R	NR	NR	R	R
Track Conditions excluding sound horn, non stopping areas, tunnel stopping areas and big metal masses	NR	A[2][4]	R	R	A	A	A	A	R	A	A	A	A [1]	NR	NR	A	R
Track conditions sound horn, non stopping areas, tunnel stopping areas	NR	A[2][4]	R	R	A	A	A	A	R	R	A	R	A [1]	NR	NR	A	R
Track condition big metal masses	NR	A[2][4]	A	A	A	A	A	A	A	A	A	A	A [1]	NR	NR	A	R
Location Identity (NID_C + NID_BG)	NR	A [2]	A	A	A	A	A	A	A	A	A	A	A	NR	NR	A	A
Recognition of exit from TRIP mode	NR	R	R	R	R	R	R	R	R	R	R	R	A	NR	NR	R	R

Information	Mode																
	NP	SB	PS	SH	FS	LS	SR	OS	SL	NL	UN	TR	PT	SF	IS	SN	RV
Acknowledgement of Train Data	NR	A [2]	R	R	A	A	A	A	R	R	A	A	A	NR	NR	A	A
Request to shorten MA (MA + (optional) Mode Profile + (optional) List of Balise Groups for SH area)	NR	R	R	R	A	A	R	A	R	R	R	R	R	NR	NR	R	R
Unconditional Emergency Stop	NR	A [2]	R	R	A	A	A	A	R	R	A	R	R	NR	NR	A	R
Conditional Emergency Stop	NR	R	R	R	A	A	R	A	R	R	A	R	R	NR	NR	A	R
Revocation of Emergency Stop (Conditional or Unconditional)	NR	R	R	R	A	A	R	A	R	R	R	R	A [1]	NR	NR	R	R
SH refused	NR	A [2] [14]	R	R	A[14]	A[14]	A[14]	A[14]	R	R	R	R	A [1] [14]	NR	NR	R	R
SH authorised + (optional) List of Balise Groups for SH area	NR	A [2] [14]	R	R	A[14]	A[14]	A[14]	A[14]	R	R	R	R	A [1] [14]	NR	NR	R	R
Track Ahead Free Request	NR	A [2]	R	R	R	A	A	A	R	R	R	R	A[1]	NR	NR	R	R
Train Running Number	NR	A [2]	R	R	A	A	A	A	R	A	R	A	A	NR	NR	R	A
Acknowledgement of session termination	NR	A	A	A	A	A	A	A	A	A	A	A	A	NR	NR	A	A
Train Rejected	NR	A [2]	R	R	R	R	R	R	R	R	R	R	R	NR	NR	R	R
Train Accepted	NR	A [2]	R	R	R	R	R	R	R	R	R	R	R	NR	NR	R	R
SoM Position Report Confirmed by RBC	NR	A [2]	R	R	R	R	R	R	R	R	R	R	R	NR	NR	R	R

Information	Mode																
	NP	SB	PS	SH	FS	LS	SR	OS	SL	NL	UN	TR	PT	SF	IS	SN	RV
Reversing Area Information	NR	A[2][4]	R	R	A	A	A	A	R	R	A	R	A [1]	NR	NR	A	A
Reversing Supervision Information	NR	A[2][4]	R	R	A	A	A	A	R	R	A	R	A [1]	NR	NR	A	A
Default Balise/Loop/RIU Information	NR	A [2]	A	A	A	A	A	A	A	A	A	A	A	NR	NR	A	A
Track Ahead Free up to level 2 transition location	NR	A [2]	R	R	A	A	A	A	R	R	A	A	A	NR	NR	A	R
Permitted Braking Distance Information	NR	A[2][4]	R	R	A	A	A	A	R	R	A	R	A [1]	NR	NR	A	R
Level Crossing information	NR	A[2][4]	R	R	A	A	A	A	R	R	A	R	A [1]	NR	NR	A	R
Virtual Balise Cover order	NR	A	A	A	A	A	A	A	A	A	A	A	A	NR	NR	A	A
Generic LS function marker	NR	A	A	A	A	A	A	A	A	A	A	A	A	NR	NR	A	A
LSSMA display toggle on order	NR	R	R	R	A [9]	A	A [9]	A [10]	R	R	A [9]	R	R	NR	NR	A [9]	R
LSSMA display toggle off order	NR	R	R	R	R	A	R	R	R	R	R	R	R	NR	NR	R	R
Data to be used by applications outside ERTMS/ETCS	NR	A	A	A	A	A	A	A	A	A	A	A	A	NR	NR	A	A

[1]: for level 2: only if following the reception of the information “Recognition of Exit from TR mode” with a more recent time stamp; for level 1: rejected

[2]: only if a cab is active

[3]: for order to establish a communication session: RBC contact information is stored without establishing the communication session

[4]: only if valid Train Data are stored on-board

[5]: only level transition announcement (i.e., immediate level transition order and conditional level transition order shall be rejected)

[6]: rejected if override is active

[7]: only immediate level transition order and conditional level transition order shall be accepted (i.e., level transition announcement shall be rejected) and stored for later evaluation (see 4.4.8.1.5 & 4.4.20.1.11)

[8]: only RBC transition order with null distance to execution shall be accepted (i.e., RBC transition announcement shall be rejected) for storing the RBC contact information (see 4.4.8.1.5.2 & 4.4.20.1.13)

[9]: only if the train position confidence interval overlaps the Limited Supervision area of a mode profile received in the same message AND if starting from the min safe front end of the train this Limited Supervision area is the furthest area that the train position confidence interval overlaps within in the mode profile

[10]: only if the train position confidence interval overlaps the Limited Supervision area of a mode profile received in the same message AND if starting from the min safe front end of the train this Limited Supervision area is the furthest area that the train position confidence interval overlaps within the mode profile AND if the estimated front end of the train is not inside an OS acknowledgement area

[11]: only if valid Train Running Number is stored on-board or if Train Running Number is received in the same message

[14]: rejected if the time stamp referring to the on-board request does not match the time stamp of the last sent request

5.2.2.11 The table in section 4.10 shall be replaced with:

D = Deleted TBR = To Be Revalidated U = Unchanged NR = Not relevant R = Reset

Data Stored on-board	Entered Mode																
	NP	SB	PS	SH	FS	LS	SR	OS	SL	NL	UN	TR	PT	SF	IS	SN	RV
National Values	U	U	U	U	U	U	U	U	U	U	U	U	U	NR	NR	U	U
Not yet applicable National Values	D	U	U	U	U	U	U	U	U	U	U	U	U	NR	NR	U	U
Linking	D	D	D	D	U	U	D	U	D	D	D	D	U	NR	NR	D	D
Movement Authority	D	D	D	D	U	U	D	U	D	D	D	D	U	NR	NR	D	D
Gradient Profile	D	D	D	D	U	U	D	U	D	D	D	D	U	NR	NR	D	D
International SSP	D	D	D	D	U	U	D	U	D	D	D	D	U	NR	NR	D	D
Axle load speed profile	D	D	D	D	U	U	D	U	D	D	D	D	U	NR	NR	D	D
STM max speed	D	D	D	D	U	U	D	U	D	D	U	U	U	NR	NR	U	D
STM system speed/distance	D	D	D	D	U	U	D	U	D	D	U	U	U	NR	NR	U	D
Level Transition announcement	D	D	U	D	U	U	D	U	D	D	D	U	U	NR	NR	D	D
Immediate Level Transition Order/Conditional Level Transition Order	U	U	U	U	D	D	D	D	U	U	D	U	D	NR	NR	D	D

Data Stored on-board	Entered Mode																
	NP	SB	PS	SH	FS	LS	SR	OS	SL	NL	UN	TR	PT	SF	IS	SN	RV
Stop Shunting on desk opening	D	D	U	U	U	U	U	U	D	U	U	U	U	NR	NR	U	U
List of Balise Groups for SH area	D	D	U	U	U	U	D	U	D	D	D	D	U	NR	NR	D	D
MA Request Parameters	D	U	U	U	U	U	U	U	U	U	U	U	U	NR	NR	U	U
Position Report parameters	D	U	U	U	U	U	U	U	U	U	U	U	U	NR	NR	U	U
List of Balise Groups in SR Authority + SR mode speed limit and distance	D	D	D	D	D	D	U	D	D	D	D	D	U	NR	NR	D	D
Temporary Speed Restriction	D	D	D	D	U	U	U	U	D	D	U	U	U	NR	NR	D	D
Inhibition of revocable TSRs from balises in level 2	D	D	D	D	U	U	D	U	D	D	D	U	U	NR	NR	D	D
Default Gradient for TSR	D	D	D	D	U	U	U	U	D	D	U	U	U	NR	NR	D	D
Signalling related Speed Restriction	D	D	D	D	U	U	D	U	D	D	D	D	U	NR	NR	D	D
Route Suitability Data	D	D	D	D	U	U	D	U	D	D	D	D	U	NR	NR	D	D

Data Stored on-board	Entered Mode																
	NP	SB	PS	SH	FS	LS	SR	OS	SL	NL	UN	TR	PT	SF	IS	SN	RV
Adhesion Factor (from trackside)	R	R	R	R	U	U	U	U	R	R	U	U	U	NR	NR	R	U
Adhesion Factor (from driver)	R	R	R	R	U	U	U	U	R	R	U	U	U	NR	NR	U	U
Plain Text Information	D	D	D	D	U	U	U	U	D	D	U	U	U	NR	NR	D	U
Fixed Text Information	D	D	D	D	U	U	U	U	D	D	U	U	U	NR	NR	D	U
Geographical Position	D	U	D	D	U	U	U	U	D	U	U	U	U	NR	NR	D	D
Mode Profile	D	D	D	D	U	U	D	U	D	D	D	D	U	NR	NR	D	D
RBC Transition Order	D	D	D	D	U	U	D	U	D	D	D	D	U	NR	NR	D	D
Radio Infill Area information	D	D	D	D	U	U	D	D	D	D	D	D	U	NR	NR	D	D
EOLM information	TBR	U	D	D	U	U	U	U	U	U	U	U	U	NR	NR	U	U
Track Conditions excluding sound horn, non stopping areas, tunnel stopping areas and big metal masses	R	R	R	R	U	U	R	U	R	U	R	U	U	NR	NR	R	R
Track conditions sound horn, non stopping areas, tunnel stopping areas	R	R	R	R	U	U	R	U	R	R	R	R	R	NR	NR	R	R
Track condition big metal masses	R	R	R	R	U	U	R	U	R	U	U	U	U	NR	NR	U	R

Data Stored on-board	Entered Mode																
	NP	SB	PS	SH	FS	LS	SR	OS	SL	NL	UN	TR	PT	SF	IS	SN	RV
Unconditional Emergency Stops	D	D	D	D	U	U	D	U	D	D	D	U	U	NR	NR	D	D
Conditional Emergency Stops	D	D	D	D	U	U	D	U	D	D	D	U	U	NR	NR	D	D
Train Position	TBR	U	U	U	U	U	U	U	U[1]	U	U	U	U	NR	NR	U	U
Accumulated underestimation / overestimation in measuring the movements over a defined total distance	U	U	U	U	U	U	U	U	U	U	U	U	U	NR	NR	U	U
Train Data	D	TBR	U	TBR	U	U	U	U	U	TBR	U	U	U	NR	NR	U	U
ERTMS/ETCS level	TBR	U	U	U	U	U	U	U	U	U	U	U	U	NR	NR	U	U
Table of priority of trackside supported levels	TBR	U	U	U	U	U	U	U	U	U	U	U	U	NR	NR	U	U
Not yet applicable table of priority of trackside supported levels	U	D	U	D	U	U	D	U	D	D	D	U	U	NR	NR	D	D
Driver ID	D	TBR	U	U	U	U	U	U	D	U	U	U	U	NR	NR	U	U
GSM-R Radio Network ID	U	U	U	U	U	U	U	U	U	U	U	U	U	NR	NR	U	U
RBC contact information	TBR	U	U	U	U	U	U	U	U	U	U	U	U	NR	NR	U	U

Data Stored on-board	Entered Mode																
	NP	SB	PS	SH	FS	LS	SR	OS	SL	NL	UN	TR	PT	SF	IS	SN	RV
Train Running Number	D	TBR	U	U	U	U	U	U	D	U	U	U	U	NR	NR	U	U
Reversing Area Information	D	D	D	D	U	U	D	U	D	D	D	D	U	NR	NR	D	U
Reversing Supervision Information	D	D	D	D	U	U	D	U	D	D	D	D	U	NR	NR	D	U
Track Ahead Free Request	D	D	D	D	D	D	U	U	D	D	D	D	U	NR	NR	D	D
Permitted Braking Distance Information	D	D	D	D	U	U	D	U	D	D	D	D	U	NR	NR	D	D
Level Crossing information	D	D	D	D	U	U	D	U	D	D	D	D	U	NR	NR	D	D
RBC/RIU System Version	D	U	U	U	U	U	U	U	U	U	U	U	U	NR	NR	U	U
Operated System Version	U	U	U	U	U	U	U	U	U	U	U	U	U	NR	NR	U	U
Virtual Balise Covers	U	U	U	U	U	U	U	U	U	U	U	U	U	NR	NR	U	U
Language used to display information to the driver	U	U	U	U	U	U	U	U	U	U	U	U	U	NR	NR	U	U
Generic LS function marker	U	U	U	U	U	U	U	U	U	U	U	U	U	NR	NR	U	U
LSSMA display toggle on order	D	D	D	D	D	U	D	D	D	D	D	D	U	NR	NR	D	D

[1]: exception: “D” when the status is invalid

5.2.2.12 The table in section 4.12 shall be replaced with:

Brake command reason	Entered Mode																
	NP	SB	PS	SH	FS	LS	SR	OS	SL	NL	UN	TR	PT	SF	IS	SN	RV
Trip	R																
Speed & Distance monitoring	R	R		TBR	TBR	TBR	TBR	TBR			TBR	R				TBR	
Roll Away Protection	R	R		M	M	M	M	M			M	R				R	
Unauthorised Direction Movement Protection	R	R		R	M [1]	M [1]	M [1]	M [1]			R	R				R	
Standstill Supervision	R			R	R	R	R	R	R		R	R				R	
Linking inconsistency	R	R		M	M	M	M	M			M	M				M	
BG message inconsistency	R	R		M	M	M	M	M			M	M				M	
RAMS related functions	R	R		M	M	M	M	M			M	M				M	
Check safe radio connection (T_NVCONTACT)	R	R		R	M	M	R	M			R	R				R	
Reverse Movement distance in RV mode overpassed	R	R															
Reverse Movement distance in PT mode overpassed	R	R		R	R	R	R	R									

Brake command reason	Entered Mode															
	NP	SB	PS	SH	FS	LS	SR	OS	SL	NL	UN	TR	PT	SF	IS	SN	RV
Change of Train Data from sources different from the driver while running	R	R		R	M	M	M	M	R		M	M	M			M	
Train movement detected while the driver is modifying or revalidating the Train Data (ETCS or NTC)	R	R		R	M	M	M	M			M	M				M	
Train movement detected while the driver is entering SR speed/distance limits	R	R		R	R	R		R			R	R				R	
Text message not acknowledged	R	R		R	M	M	M	M	R		M	M	M			R	
STM control function (see SUBSET-035 10.3.3.3)	R	R		R	R	R	R	R			R	R					
STM control function (see SUBSET-035 10.3.3.4)	R	R		R	R	R	R	R			R	R					
Mode change to OS not acknowledged	R	R		R	R	R	R				R	R				R	
Mode change to SH not acknowledged	R	R										R					

Brake command reason	Entered Mode																
	NP	SB	PS	SH	FS	LS	SR	OS	SL	NL	UN	TR	PT	SF	IS	SN	RV
Mode change to LS not acknowledged	R	R		R	R		R	R			R	R				R	
Change to level NTC not acknowledged	R	R		R	R	R	R	R			R	R	R				
Change to level 0 not acknowledged	R	R		R	R	R	R	R				R				R	

[1]: exception: R in case of transition from PT mode

5.2.2.13 The row A33 in section 5.4.3.2 shall be replaced with:

A33	The “SoM position report” message, marked as referring to a “valid train position referred to an LRBG”, shall be transmitted to the RBC together with valid Train running number, if already stored on-board. If already stored on-board, valid Train Data shall be transmitted to the RBC immediately after the “SoM position report” message. This condition leads to **S10**.

5.2.2.14 The row A34 in section 5.4.3.2 shall be replaced with:

A34	If the train position data stored in the on-board equipment is of status “invalid” and refers to an LRBG, the “SoM position report” message, marked as referring to an “invalid train position referred to an LRBG”, shall be transmitted to the RBC. Otherwise the "SoM position report" message, marked as referring to "no train position referred to an LRBG” and with the LRBG identity set to "unknown", shall be transmitted to the RBC. In both cases valid Train running number, if already stored on-board, shall be included in the “SoM position report” message. In both cases valid Train Data, if already stored on-board, shall be transmitted to the RBC immediately after the “SoM position report” message. The process shall then go to **D33**

5.2.2.15 The row S0 in section 5.6.2.2 shall be replaced with:

S0	The train is at standstill and the ERTMS/ETCS on-board equipment is in FS, LS, OS, SR, SN, UN, PT or SB mode. When the driver selects Shunting (**E015**) the process shall go to **D020**.

5.2.2.16 The item 5.8.2.1 b) shall be replaced with: “The current mode is Full Supervision, Limited Supervision, On Sight, Staff Responsible, Shunting, Unfitted, Post Trip, Stand By (in level 2 only) or SN (National System) AND”

5.2.2.17 The item 5.8.3.1 a) shall be replaced with: “If the current mode is Full Supervision, Limited Supervision, On Sight, Stand-By or Post Trip, the mode shall immediately switch to the Staff Responsible (SR) mode (if the mode is already SR it remains unchanged)”

5.2.2.18 The clause 5.8.3.1.1 shall be replaced with: “If the mode, when activating Override, is OS, LS or FS, the former EOA/LOA shall be retained. If the mode is SB or PT and there is a valid train position stored on-board, the current position of the train front shall be considered as the former EOA/LOA. If the mode is SB or PT and there is no valid train position stored on-board, the on-board shall supervise a zero distance from the virtual train front position (see section 3.6.7) to the former EOA/LOA.”

5.2.2.19 The row S010 in section 5.11.2.2 shall be replaced with:

S010	The ERTMS/ETCS on-board equipment is in one of the following modes: FS, LS, OS, SR, SB, SH, SN or UN When an event occurs, which leads to train trip reaction (**E015** – refer to chapter 4, transitions between modes), the process shall go to **A025**.

5.2.2.20 The row S0 in section 5.17.2.2 shall be replaced with:

S0	The ERTMS/ETCS on-board equipment is in one of the following modes: FS, LS, OS, SR, SB, SN, UN, TR, PT and valid Train Data is stored on-board. If a change of input information, which affects Train Data, is detected on an ERTMS/ETCS on-board external interface **(E0)**, the process shall go to **D0**

5.2.2.21 The row D3 in section 5.17.2.2 shall be replaced with:

D3	Depending on the mode of the ERTMS/ETCS on-board equipment, the following shall apply: • If mode is FS, LS, or OS, the process shall go to **D7** • If mode is SB or PT, the process shall go to **A1** • If mode is UN, SN, SR, or TR the process shall go to **D5**

5.2.2.22 The row D2 in section 5.17.2.2 shall be replaced with:

D2	Depending on the mode of the ERTMS/ETCS on-board equipment, the following shall apply: • If mode is FS, LS, OS, SR, SB, SN or UN the process shall go to **D9** • If mode is TR or PT, the process shall go to **S1**

5.2.2.23 The clauses 6.6.2.2.4, 6.6.2.2.5, 6.6.2.2.6 and 6.6.4.2.2 shall not apply.

5.2.2.24 The translation [6] in section 6.6.3.2.3 shall be replaced with:

[6] if Q_TEXTCONFIRM ≠ 0, then Q_CONFTEXTDISPLAY and Q_TEXTREPORT (introduced in system version number X = 2) shall be set to 0

5.2.2.25 The section 6.6.3.4.5 shall be replaced with:

Depending on the transmitted message/packet, the action can be:

a) data is unchanged,
b) data is deleted (i.e. it is not sent to the receiver)
c) data is translated,
d) not relevant (i.e. no corresponding requirement to trigger the sending is applicable)

D = Deleted T = Translated U = Unchanged NR = Not relevant

Mess $nb_{pck\ nb}$	Message name/packet name	Action
XXX_0	Position Report	T [1]
XXX_1	Position Report based on two balise groups	T [1]
159_2	On-board supported system versions	T[6]
XXX_4	Error Reporting	U [2]
XXX_5	Train Running Number	NR
132_9	Level 2 transition information	U
129_{11}	Validated Train Data (packet)	T [3]

Mess $nb_{pck\ nb}$	Message name/packet name	Action
129	Validated Train Data (message)	U
130	Request for Shunting	U
132	MA Request	T [4]
136	Train Position Report	U
137	Request to shorten MA is granted	U
138	Request to shorten MA is rejected	U
146	Acknowledgement	U
147	Acknowledgement of Emergency Stop	T [5]
149	Track Ahead Free Granted	U
150	End of Mission	U
153	Radio infill request	U
154	No compatible version supported	U
155	Initiation of a communication session	U
156	Termination of a communication session	U
157	SoM Position Report	U
158	Text message acknowledged by driver	NR
159	Session Established	U

[1] the packet 0 and the packet 1 shall be translated as follows:

Description	This packet is used to report the train position and speed as well as some additional information (e.g. mode, level, etc.)		
Transmitted to	RBC, RIU		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	L_PACKET	13	
	Q_SCALE	2	
	NID_LRBG	10 + 14	
	D_LRBG	15	
	Q_DIRLRBG	2	
	Q_DLRBG	2	
	L_DOUBTOVER	15	
	L_DOUBTUNDER	15	
	Q_INTEGRITY	2	
	L_TRAININT	15	

	V_TRAIN	7	
	Q_DIRTRAIN	2	
	M_MODE	4	See translation [1a]
	M_LEVEL	3	See translation [1b]
	NID_NTC	8	

Description	This packet is an extension of the “standard position report“ packet 0. It is used in case of single balise groups if the orientation of the LRBG is unknown but the on-board equipment is able to report a second balise group (the one detected before) to give a direction reference for the directional information in the position report.		
Transmitted to	RBC, RIU		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	L_PACKET	13	
	Q_SCALE	2	
	NID_LRBG	10 + 14	
	NID_PRVLRBG	10 + 14	
	D_LRBG	15	
	Q_DIRLRBG	2	
	Q_DLRBG	2	
	L_DOUBTOVER	15	
	L_DOUBTUNDER	15	
	Q_INTEGRITY	2	
	L_TRAININT	15	
	V_TRAIN	7	
	Q_DIRTRAIN	2	
	M_MODE	4	See translation [1a]
	M_LEVEL	3	See translation [1b]
	NID_NTC	8	

[1a] Exception: if M_MODE (as per 7.5.1.72) = 15 (PS), then M_MODE (X=1) = 3 (SH)

Note: if M_MODE (as per 7.5.1.72) = 12 (LS), no translation is effected

[1b] M_LEVEL shall be set according to the following table:

Value that corresponds the level operated on-board	Transmitted value to an X=1 RBC
0	0
1	1

2	2
3	3 or 4, see {1}

{1} M_LEVEL = 4 if a table of trackside supported levels is stored on-board and it is originated from a level transition order with M_LEVELTR = 4 given with a priority higher than M_LEVELTR = 3, if any. Otherwise, M_LEVEL = 3.

[2] Exceptions: if M_ERROR (as per 7.5.1.64) = 6, then M_ERROR (X=1) = 7; if M_ERROR (as per 7.5.1.64) = 7 or 8 then the packet shall be deleted

[3] the packet 11 shall be translated as follows:

Description	Validated train data.		
Transmitted to	RBC		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	L_PACKET	13	
	NID_OPERATIONAL	32	See translation [3a]
	NC_TRAIN	15	See translation [3b]
	L_TRAIN	12	
	V_MAXTRAIN	7	
	M_LOADINGGAUGE	8	See translation [3c]
	M_AXLELOAD	7	See translation [3d]
	M_AIRTIGHT	2	
	N_ITER	5	See translation [3e]
	N_ITER	5	
	NID_NTC (k)	8	Type of National System available

[3a] NID_OPERATIONAL shall be set to the value stored on-board

[3b] NC_TRAIN shall be set according to the following table:

Value stored on-board	Transmitted value to X=1 RBC
NC_CDTRAIN	NC_TRAIN
0	xxx xxxx xxxx xx1x
1	xxx xxxx xxxx x1xx
2	xxx xxxx xxxx 1xxx
3	xxx xxxx xxx1 xxxx
4	xxx xxxx xx1x xxxx
5	xxx xxxx x1xx xxxx
6	x1x xxxx xxxx xxxx
7	xxx xxxx 1xxx xxxx
8	xx1 xxxx xxxx xxxx

9	xxx xxxx xxxx xxx1
10	xxx xxx1 xxxx xxxx
NC_TRAIN	
000 0000 0000 0000	No bit is set to 1
xxx xxxx xxxx xxx1	xxx xx1x xxxx xxxx
xxx xxxx xxxx xx1x	xxx x1xx xxxx xxxx
xxx xxxx xxxx x1xx	xxx 1xxx xxxx xxxx
Other values	No bit is set to 1

[3c] M_LOADINGGAUGE shall be set to 0

[3d] M_AXLELOAD shall be set according to the following table:

Value stored on-board	Transmitted value to X=1 RBC
A	16 t
HS17	17 t
B1	18 t
B2	18 t
C2	20 t
C3	20 t
C4	20 t
D2	22,5 t
D3	22,5 t
D4	22,5 t
D4xL	22,5 t
E4	25 t
E5	25 t

[3e] N_ITER shall be set to 0

[4] Q_MARQSTREASON shall be replaced with Q_TRACKDEL (1 bit) as follows: if Q_MARQSTREASON = x1xxx, Q_TRACKDEL shall be set to 1, otherwise Q_TRACKDEL shall be set to 0

[5] The variable Q_EMERGENCYSTOP (modified in system version number X = 2) shall be set according to the following table:

Value that would be transmitted to X=2 RBC	Transmitted value to X=1 RBC
Q_EMERGENCYSTOP	Q_EMERGENCYSTOP
0	0

1	0
2	2
3	1

[6] the packet 2 shall be replaced with the following packet numbered as 3:

Description	Telephone numbers associated to the onboard equipment		
Transmitted to	RBC, RIU		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	=3
	L_PACKET	13	
	N_ITER	5	
	NID_RADIO (k)	64	

5.2.2.26 The clause 6.6.5.1.1 shall be replaced with: “For information received from trackside, the message consistency check shall be achieved taking into account the exceptions to chapters 7 and 8, as described in section 6.5.2.3 but excluding clauses 6.5.2.3.14, 6.5.2.3.14.1, 6.5.2.3.15, 6.5.2.3.15.1, 6.5.2.3.16, 6.5.2.3.16.1, 6.5.2.3.16.2, 6.5.2.3.17, 6.5.2.3.17.1, 6.5.2.3.18 and 6.5.2.3.18.1.

5.2.2.27 The clause 6.6.5.2.3 shall be replaced with: “Upon receipt of a packet 72, the translation [22] referred to in 6.6.3.2.3 shall apply by analogy.”

5.2.2.28 The clause 6.6.5.2.4 shall be replaced with: “Upon receipt of a packet 76, the translation [22] referred to in 6.6.3.2.3 shall apply by analogy.”

5.2.2.29 The clause 6.6.5.3.5 shall not apply.

5.2.2.30 The section 6.6.5.3.7 shall be replaced with:

Depending on the transmitted message/packet, the action can be:

a) data is unchanged,
b) data is deleted (i.e. it is not sent to the receiver)
c) data is translated,
d) not relevant (i.e. no corresponding requirement to trigger the sending is applicable)

D = Deleted T = Translated U = Unchanged NR = Not relevant

Mess $nb_{pck\ nb}$	Message name/packet name	Action
XXX_0	Position Report	T [1]
XXX_1	Position Report based on two balise groups	T [1]
159_2	On-board supported system versions	T [2]

Mess $nb_{pck\ nb}$	Message name/packet name	Action
XXX_4	Error Reporting	U
XXX_5	Train Running Number	U
132_9	Level 2 transition information	U
129_{11}	Validated Train Data (packet)	U
129	Validated Train Data (message)	U
130	Request for Shunting	U
132	MA Request	U
136	Train Position Report	U
137	Request to shorten MA is granted	U
138	Request to shorten MA is rejected	U
146	Acknowledgement	U
147	Acknowledgement of Emergency Stop	U
149	Track Ahead Free Granted	U
150	End of Mission	U
153	Radio infill request	U
154	No compatible version supported	U
155	Initiation of a communication session	U
156	Termination of a communication session	U
157	SoM Position Report	U
158	Text message acknowledged by driver	U
159	Session Established	U

[1] the packet 0 and the packet 1 shall be translated as follows:

Description	This packet is used to report the train position and speed as well as some additional information (e.g. mode, level, etc.)		
Transmitted to	RBC, RIU		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	L_PACKET	13	
	Q_SCALE	2	
	NID_LRBG	10 + 14	
	D_LRBG	15	
	Q_DIRLRBG	2	
	Q_DLRBG	2	

	L_DOUBTOVER	15	
	L_DOUBTUNDER	15	
	Q_INTEGRITY	2	
	L_TRAININT	15	
	V_TRAIN	7	
	Q_DIRTRAIN	2	
	M_MODE	4	
	M_LEVEL	3	See translation [1a]
	NID_NTC	8	

Description	This packet is an extension of the “standard position report“ packet 0. It is used in case of single balise groups if the orientation of the LRBG is unknown but the on-board equipment is able to report a second balise group (the one detected before) to give a direction reference for the directional information in the position report.		
Transmitted to	RBC, RIU		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	L_PACKET	13	
	Q_SCALE	2	
	NID_LRBG	10 + 14	
	NID_PRVLRBG	10 + 14	
	D_LRBG	15	
	Q_DIRLRBG	2	
	Q_DLRBG	2	
	L_DOUBTOVER	15	
	L_DOUBTUNDER	15	
	Q_INTEGRITY	2	
	L_TRAININT	15	
	V_TRAIN	7	
	Q_DIRTRAIN	2	
	M_MODE	4	
	M_LEVEL	3	See translation [1a]
	NID_NTC	8	

[1a] See translation [1b] referred to in 6.6.3.4.5, which applies by analogy

[2] See translation [6] referred to in 6.6.3.4.5, which applies by analogy

5.2.2.31 The clause 6.6.5.4.4 shall not apply.

5.2.2.32 The section 6.6.5.4.6 shall be replaced with:

Depending on the transmitted message/packet, the action can be:

a) data is unchanged,

b) data is deleted (i.e. it is not sent to the receiver)

c) data is translated,

d) not relevant (i.e. no corresponding requirement to trigger the sending is applicable)

D = Deleted T = Translated U = Unchanged NR = Not relevant

Mess $nb_{pck\ nb}$	Message name/packet name	Action
XXX_0	Position Report	T [1]
XXX_1	Position Report based on two balise groups	T [1]
159_2	On-board supported system versions	U
XXX_4	Error Reporting	U
XXX_5	Train Running Number	U
132_9	Level 2 transition information	U
129_{11}	Validated Train Data (packet)	U
129	Validated Train Data (message)	U
130	Request for Shunting	U
132	MA Request	U
136	Train Position Report	U
137	Request to shorten MA is granted	U
138	Request to shorten MA is rejected	U
146	Acknowledgement	U
147	Acknowledgement of Emergency Stop	U
149	Track Ahead Free Granted	U
150	End of Mission	U
153	Radio infill request	U
154	No compatible version supported	U
155	Initiation of a communication session	U
156	Termination of a communication session	U
157	SoM Position Report	U
158	Text message acknowledged by driver	U
159	Session Established	U

[1] the packet 0 and the packet 1 shall be translated as follows:

Description	This packet is used to report the train position and speed as well as some additional information (e.g. mode, level, etc.)		
Transmitted to	RBC, RIU		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	L_PACKET	13	
	Q_SCALE	2	
	NID_LRBG	10 + 14	
	D_LRBG	15	
	Q_DIRLRBG	2	
	Q_DLRBG	2	
	L_DOUBTOVER	15	
	L_DOUBTUNDER	15	
	Q_INTEGRITY	2	
	L_TRAININT	15	
	V_TRAIN	7	
	Q_DIRTRAIN	2	
	M_MODE	4	
	M_LEVEL	3	See translation [1a]
	NID_NTC	8	

Description	This packet is an extension of the “standard position report“ packet 0. It is used in case of single balise groups if the orientation of the LRBG is unknown but the on-board equipment is able to report a second balise group (the one detected before) to give a direction reference for the directional information in the position report.		
Transmitted to	RBC, RIU		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	L_PACKET	13	
	Q_SCALE	2	
	NID_LRBG	10 + 14	
	NID_PRVLRBG	10 + 14	
	D_LRBG	15	
	Q_DIRLRBG	2	
	Q_DLRBG	2	
	L_DOUBTOVER	15	
	L_DOUBTUNDER	15	
	Q_INTEGRITY	2	

L_TRAININT	15	
V_TRAIN	7	
Q_DIRTRAIN	2	
M_MODE	4	
M_LEVEL	3	See translation [1a]
NID_NTC	8	

[1a] See translation [1b] referred to in 6.6.3.4.5, which applies by analogy

5.2.2.33 The sections 6.6.5.5.6 & 6.6.5.6.3 shall be replaced with:

Depending on the transmitted message/packet, the action can be:

a) data is unchanged,
b) data is deleted (i.e. it is not sent to the receiver)
c) data is translated,
d) not relevant (i.e. no corresponding requirement to trigger the sending is applicable)

D = Deleted T = Translated U = Unchanged NR = Not relevant

Mess $nb_{pck\ nb}$	Message name/packet name	Action
XXX_0	Position Report	T [1]
XXX_1	Position Report based on two balise groups	T [1]
159_2	On-board supported system versions	U
XXX_4	Error Reporting	U
XXX_5	Train Running Number	U
132_9	Level 2 transition information	U
129_{11}	Validated Train Data (packet)	U
129	Validated Train Data (message)	U
130	Request for Shunting	U
132	MA Request	U
136	Train Position Report	U
137	Request to shorten MA is granted	U
138	Request to shorten MA is rejected	U
146	Acknowledgement	U
147	Acknowledgement of Emergency Stop	U
149	Track Ahead Free Granted	U
150	End of Mission	U

Mess $nb_{pck\ nb}$	Message name/packet name	Action
153	Radio infill request	U
154	No compatible version supported	U
155	Initiation of a communication session	U
156	Termination of a communication session	U
157	SoM Position Report	U
158	Text message acknowledged by driver	U
159	Session Established	U

[1] the packet 0 and the packet 1 shall be translated as follows:

Description	This packet is used to report the train position and speed as well as some additional information (e.g. mode, level, etc.)		
Transmitted to	RBC, RIU		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	L_PACKET	13	
	Q_SCALE	2	
	NID_LRBG	10 + 14	
	D_LRBG	15	
	Q_DIRLRBG	2	
	Q_DLRBG	2	
	L_DOUBTOVER	15	
	L_DOUBTUNDER	15	
	Q_INTEGRITY	2	
	L_TRAININT	15	
	V_TRAIN	7	
	Q_DIRTRAIN	2	
	M_MODE	4	
	M_LEVEL	3	See translation [1a]
	NID_NTC	8	

Description	This packet is an extension of the “standard position report“ packet 0. It is used in case of single balise groups if the orientation of the LRBG is unknown but the on-board equipment is able to report a second balise group (the one detected before) to give a direction reference for the directional information in the position report.
Transmitted to	RBC, RIU

Content	Variable	Length	Comment
	NID_PACKET	8	
	L_PACKET	13	
	Q_SCALE	2	
	NID_LRBG	10 + 14	
	NID_PRVLRBG	10 + 14	
	D_LRBG	15	
	Q_DIRLRBG	2	
	Q_DLRBG	2	
	L_DOUBTOVER	15	
	L_DOUBTUNDER	15	
	Q_INTEGRITY	2	
	L_TRAININT	15	
	V_TRAIN	7	
	Q_DIRTRAIN	2	
	M_MODE	4	
	M_LEVEL	3	See translation [1a]
	NID_NTC	8	

[1a] See translation [1b] referred to in 6.6.3.4.5, which applies by analogy

5.2.2.34 The table in section 7.4.1.1 shall be replaced with:

Packet Number	Packet Name	Page N°
0	Virtual Balise Cover marker	
2	System Version order	
3	National Values	
5	Linking	
6	Virtual Balise Cover order	
12	Level 1 Movement Authority	
13	Staff Responsible distance information from loop	
15	Level 2 Movement Authority	
16	Repositioning Information	
21	Gradient Profile	
27	International Static Speed Profile	
39	Track Condition Change of traction system	
40	Track Condition Change of allowed current consumption	
41	Level Transition Order	
42	Session Management for RBC interfaced to GSM-R	
44	Data used by applications outside the ERTMS/ETCS system.	
45	Radio Network registration	
46	Conditional Level Transition Order	
49	List of Balise Groups for SH Area	

Packet Number	Packet Name	Page N°
51	Axle load Speed Profile	
52	Permitted Braking Distance Information	
57	Movement Authority Request Parameters	
58	Position Report Parameters	
63	List of Balise Groups in SR Authority	
64	Inhibition of revocable TSRs from balises in level 2	
65	Temporary Speed Restriction	
66	Temporary Speed Restriction Revocation	
67	Track Condition Big Metal Masses	
68	Track Condition	
69	Track Condition Station Platforms	
70	Route Suitability Data	
71	Adhesion Factor	
72	Packet for sending plain text messages	
76	Packet for sending fixed text messages	
79	Geographical Position Information	
80	Mode profile	
88	Level crossing information	
90	Track Ahead Free up to level 2 transition location	
131	RBC transition order for RBC interfaced to GSM-R	
132	Danger for Shunting information	
133	Radio infill area information	
134	EOLM Packet	
135	Stop Shunting on desk opening	
136	Infill location reference	
137	Stop if in Staff Responsible	
138	Reversing area information	
139	Reversing supervision information	
140	Train running number from RBC	
141	Default Gradient for Temporary Speed Restriction	
143	Session Management with neighbouring Radio Infill Unit	
145	Inhibition of balise group message consistency reaction	
180	LSSMA display toggle order	
181	Generic LS function marker	
254	Default balise, loop or RIU information	
255	End of Information	

5.2.2.35 In section 7.4.2.23, "Packet Number 73" shall be replaced with "Packet Number 72"

5.2.2.36 In section 7.4.2.24, "Packet Number 74" shall be replaced with "Packet Number 76"

5.2.2.37 The table 7.4.3.1 (Packet Number 0: Position Report) shall be replaced with:

Description	This packet is used to report the train position and speed as well as some additional information (e.g. mode, level, etc.)		
Transmitted to	RBC, RIU		
Content	**Variable**	**Length**	**Comment**

	NID_PACKET	8	
	L_PACKET	13	
	Q_SCALE	2	
	NID_LRBG	10 + 14	
	D_LRBG	15	
	Q_DIRLRBG	2	
	Q_DLRBG	2	
	L_DOUBTOVER	15	
	L_DOUBTUNDER	15	
	Q_INTEGRITY	2	
	L_TRAININT	15	If Q_INTEGRITY = “Train integrity confirmed by external source” or “Train integrity confirmed by driver”
	V_TRAIN	7	
	Q_DIRTRAIN	2	
	M_MODE	4	
	M_LEVEL	3	
	NID_NTC	8	If M_LEVEL = NTC

5.2.2.38 The table 7.4.3.2 (Packet Number 1: Position Report based on two balise groups) shall be replaced with:

Description	This packet is an extension of the “standard position report “ packet 0. It is used in case of single balise groups if the orientation of the LRBG is unknown but the on-board equipment is able to report a second balise group (the one detected before) to give a direction reference for the directional information in the position report.		
Transmitted to	RBC, RIU		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	L_PACKET	13	
	Q_SCALE	2	
	NID_LRBG	10 + 14	
	NID_PRVLRBG	10 + 14	Used as reference for all directional information in the packet: a move from PRVLRBG towards the LRBG defines the “nominal” direction
	D_LRBG	15	
	Q_DIRLRBG	2	Train orientation according to reference direction

Q_DLRBG	2	Train front position according to reference direction
L_DOUBTOVER	15	
L_DOUBTUNDER	15	
Q_INTEGRITY	2	
L_TRAININT	15	If Q_INTEGRITY = “Train integrity confirmed by external source” or “Train integrity confirmed by driver”
V_TRAIN	7	
Q_DIRTRAIN	2	Actual running direction according to reference direction
M_MODE	4	
M_LEVEL	3	
NID_NTC	8	If M_LEVEL = NTC

5.2.2.39 The table 7.5.1.64 (M_ERROR) shall be replaced with:

Name	Identifier of the type of error		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
8 bits			
Special/Reserved Values	0	Balise group: linking consistency error (ref. 3.16.2.3)	
	1	Linked balise group: message consistency error (ref. 3.16.2.4.1/4)	
	2	Unlinked balise group: message consistency error (ref. 3.16.2.5)	
	3	Radio: message consistency error (ref. 3.16.3.1.1 except 3.16.3.1.1 b)	
	4	Radio: sequence error (ref. 3.16.3.1.1b)	
	5	Radio: safe radio connection error (ref. 3.16.3.4, to be sent when communication links re-established)	
	6	Safety critical fault (ref 4.4.6.1.6 , 4.4.15.1.5)	
	7	Double linking error (3.16.2.7.1)	
	8	Double repositioning error (3.16.2.7.2)	
	9-255	Spare	

5.2.2.40 The Table 7.5.1.72 (M_MODE) shall be replaced with:

Name	Onboard operating mode		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
4 bits			
Special/Reserved Values	0	Full Supervision	
	1	On Sight	
	2	Staff Responsible	
	3	Shunting	

	4	Unfitted
	5	Sleeping
	6	Stand By
	7	Trip
	8	Post Trip
	9	System Failure
	10	Isolation
	11	Non Leading
	12	Limited Supervision
	13	National System
	14	Reversing
	15	Passive Shunting

5.2.2.41 The Table 7.5.1.73 (M_MODETEXTDISPLAY) shall be replaced with:

Name	On-board operating mode for text display		
Description	The display of the text starts if the on-board is in the defined mode/ends if the on-board executes a transition from the defined mode		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
4 bits			
Special/Reserved Values	0	Full Supervision	
	1	On Sight	
	2	Staff Responsible	
	3	Spare	
	4	Unfitted	
	5	Spare	
	6	Stand By	
	7	Trip	
	8	Post Trip	
	9	Spare	
	10	Spare	
	11	Spare	
	12	Limited Supervision	
	13	Spare	
	14	Reversing	
	15	No “mode” sub-condition specified for the start/end condition of the display of the text	

5.2.2.42 The table in clause 8.4.4.4.1.1 shall be replaced with:

Common optional packets
3, 5, 39, 40, 51, 41, 42, 44, 45, 52, 57, 58, 64, 65, 66, 68, 69, 70, 71, 72, 76, 79, 88, 131, 138, 139, 140, 180

5.2.2.43 The clause 8.4.4.4.3 shall be replaced with: “The train to track message 157 (SoM Position Report) may include the following packets:

a) Packet 4 (Error Reporting, see section 3.16.4),

b) Packet 5 (Train running number, see section 5.4.3.2 A33&A34),

c) Packet 44 (Data used by applications outside the ERTMS/ETCS system).”

5.2.3 Exceptions applicable only to the reduced envelope of ETCS system versions up to X.Y = 2.2

5.2.3.1 The figure 1 in section 4.5.2 shall be replaced with:

ONBOARD-FUNCTIONS	RELATED SRS §	NP	SB	PS	SH	FS	AD	LS	SR	OS	SL	NL	UN	TR	PT	SF	IS	SN	RV
Check Data Consistency																			
Check linking consistency	3.16.2.3 3.4.4.2.1.1 3.4.4.4					X	X	X		X						NR	NR		
Check message consistency for balise groups announced by linking and for other balise groups marked as linked while the linking consistency is checked	3.16.2.4.1 3.16.2.4.2 3.16.2.4.3 3.16.2.4.3.1					X	X	X		X						NR	NR		
Check balise detection degradation	3.16.2.7.1					X	X	X		X						NR	NR		
Check balise cross-talk while expecting repositioning information	3.16.2.7.2					X	X	X		X						NR	NR		
Check safe radio connection (only level 2)	3.16.3.4					X	X	X		X						NR	NR		
Report Train Position:																			
When train reaches standstill	3.6.5.1.4 a)					X	X	X	X	X						NR	NR		X
When mode changes to…{1}	3.6.5.1.4 b)		X		X {2}	X	X	X	X	X	X	X	X	X	X	NR	NR	X	X
When train integrity confirmed by driver	3.6.5.1.4 c)		X			X	X	X	X	X			X		X	NR	NR	X	
When loss of train integrity is detected	3.6.5.1.4 d)		X			X	X	X	X	X			X	X	X	NR	NR	X	X
When train front/rear passes an RBC/RBC border (only level 2)	3.6.5.1.4 e) 3.6.5.1.4 k)					X	X	X	X	X				X		NR	NR		
When train rear passes a level transition border (from level 2 to 0, NTC, 1)	3.6.5.1.4 f)					X	X	X	X	X			X	X		NR	NR	X	
When change of level due to trackside order	3.6.5.1.4 g)					X	X	X	X	X		X		X		NR	NR		
When change of level due to driver request	3.6.5.1.4 g)		X			X	X	X	X	X		X				NR	NR		
When establishing a session with RBC	3.6.5.1.4 h)		X		X	X	X	X	X	X	X	X	X	X	X	NR	NR	X	X

ONBOARD-FUNCTIONS	RELATED SRS §	NP	SB	PS	SH	FS	AD	LS	SR	OS	SL	NL	UN	TR	PT	SF	IS	SN	RV
When a data consistency error is detected (only level 2)	3.6.5.1.4 l)		X			X	X	X	X	X	X	X	X	X	X	NR	NR	X	X
As requested by RBC…	3.6.5.1.4		X			X	X	X	X	X		X	X	X	X	NR	NR	X	X
… or at every passage of an LRBG compliant balise group	3.6.5.1.4 j)					X	X	X	X	X		X	X	X	X	NR	NR	X	X
Manage MA																			
Request MA Cyclically with respect to perturbation location (T_MAR) or MA timer elapsing (T_TIMEOUTRQST) (only level 2)	3.8.2.2					X	X	X		X						NR	NR		
Request MA Cyclically when “Start” is selected (only level 2)	3.8.2.3 4.4.11 5.4, 5.11		X						X						X	NR	NR		
Request MA on reception of "track ahead free up to the level 2 transition location"	3.8.2.4		X			X	X	X	X	X			X	X	X	NR	NR	X	
Request MA Cyclically on track description deletion (only level 2)	3.8.2.5					X	X	X		X						NR	NR		
Determine EOA/LOA, SvL, Danger Point, etc…	3.8.4 3.8.5					X	X	X		X						NR	NR		
Determine Most Restrictive Speed Profile, based on :																			
SSP	3.13.7.2 3.11.2.2 a)					X	X	X		X						NR	NR		
ASP	3.13.7.2 3.11.2.2 b)					X	X	X		X						NR	NR		
TSR	3.13.7.2 3.11.2.2 c)					X	X	X	X	X			X			NR	NR		
Signalling related speed restriction when evaluated as a speed limit	3.13.7.2 3.11.2.2 e)					X	X	X		X						NR	NR		
Mode related speed restriction	3.13.7.2 3.11.2.2 f)				X			X	X	X			X			NR	NR		X
Train related speed restriction	3.13.7.2 3.11.2.2 d)					X	X	X	X	X			X			NR	NR		X
STM max speed	3.13.7.2 3.11.2.2 g)					X	X	X	X	X			X			NR	NR	X	
STM system speed	3.13.7.2 3.11.2.2 h)					X	X	X	X	X			X			NR	NR		

ONBOARD-FUNCTIONS	RELATED SRS §	NP	SB	PS	SH	FS	AD	LS	SR	OS	SL	NL	UN	TR	PT	SF	IS	SN	RV
LX speed	3.13.7.2 3.11.2.2 i)					X	X	X		X						NR	NR		
Speed restriction to ensure a given permitted braking distance	3.13.7.2 3.11.2.2 k)					X	X	X		X						NR	NR		
Override related speed restriction	3.13.7.2 3.11.2.2 j)				X				X				X			NR	NR		
Monitor speed and distance, based on:																			
MA, release speed, mode profile, non protected LX start location, and route unsuitability location	3.13.2.3.6.1 a) 3.13.8.2.1 b)&c) 3.13.9.4 3.13.10.5 3.13.1.5					X	X	X		X						NR	NR		
Gradient	3.13.4					X	X	X	X	X			X			NR	NR		
MRSP	3.13.7				X {4}	X	X	X	X	X			X			NR	NR	X {3} {4}	X {4}
Allowed distance to run in Staff Resp. mode	3.13.2.3.6.1 b) 3.13.8.2.1 d) 3.13.10.4.13.1								X							NR	NR		
Protect against Undesirable Train Movements																			
Roll Away Protection	3.14.2				X	X	X	X	X	X			X		X	NR	NR		X
Unauthorised Direction Movement Protection	3.14.3					X	X	X	X	X					X	NR	NR		X
Other functions																			
Manage RBC/RBC Handover (only level 2)	3.15.1, 5.15					X	X	X	X	X	X	X		X		NR	NR		
Check of odometer accuracy thresholds	3.6.8.5, 3.6.8.6, 3.6.8.7					X	X	X	X	X						NR	NR		
Storage of accumulated underestimation / overestimation in measuring the movements over a defined total distance	3.6.8.2 to 4			X	X	X	X	X	X	X	X	X	X	X	X	NR	NR	X	X

Figure 1: Active Functions table

{1} For ETCS level 2 this may imply establishing a radio communication session if none is established

{2} Exception: the transition PS => SH shall not be reported

{3} In case the ERTMS on-board equipment is interfaced to the National System through an STM, refer to SUBSET-035 for details

{4} Ceiling Speed Monitoring only (no braking curve)

5.2.3.2 The figure 2 in section 4.6.2 shall be replaced with:

NP	<29 -p2-	<29 -p2-	<29 -p2-	<29 -p2-	<29 -p2-	<29 -p2-	<29 -p2-	<29 -p2-	<29 -p2-	<29 -p2-	<29 -p2-	<29 -p2-	<29 -p2-	<29 -p2-		<29 -p2-	<29 -p2-
4> -p2-	SB	<22 -p4-	<19, 27, 30 -p5-	<28 -p5-	<28 -p5-	<28 -p5-	<28 -p5-	<28 -p5-	<2, 3 -p3-	<28, 47 -p3-	<28 -p6-		<28 -p4			<28 -p6-	<28 -p4-
		PS	<26 -p5-														
	5, 6, 50> -p7-	23> -p4	SH	<5,6, 50,51 -p6-	<5,6, 50,51 -p6	<5,6, 50,51 -p6-	<5,6, 51 -p6-	<5,6 50,51 -p6-			<5,61 -p7-	<68 -p4	<5,6, 50,78 -p5-			<5,61 -p7	
	10> -p7-			FS	<9,24, 33,48, 53 -p7-	<76 -p6-	<31,32 -p6-	<75 -p6-			<25 -p7-		<31 -p5-			<25 -p7-	
				80> -p7-	AD												
	70> -p7-			70,72> -p6-	70,72> -p6-	LS	<72 -p6-	<70,74 -p6-			<71 -p7-		<70 -p5-			<71 -p7-	
	8,37> -p7-			37> -p6-	37> -p6-	37> -p6-	SR	<37 -p6-			<44,45 -p4-		<8,37 -p5-			<44,45 -p4-	
	15> -p7-			15,40> -p6-	15,40> -p6-	15,73> -p6-	40> -p6-	OS			<34 -p7-		<15 -p5-			<34 -p7-	
	14> -p7-	14> -p4							SL								
	14> -p5-																
	46> -p6-		46> -p5-	46> -p6-	46> -p6-	46> -p6-	46> -p6-	46> -p6-		NL							
	60> -p7-			21> -p6-	21> -p6-	21> -p6-	21> -p6-	21> -p6-			UN	<62 -p4-	<77 -p5-			<21 -p7-	
	20> -p4-		49,52, 65> -p4-	11,12, 16,17, 18,20, 41,65, 66,69> -p4-	11,12, 16,17, 18,20, 41,65, 66,69> -p4-	11,12, 16,17, 18,20, 41,65, 66,69> -p4-	18,20, 42, 43, 36, 54,65> -p4-	11,12, 16,17, 18,20, 41,65, 66,69> -p4-			67,39, 20> -p5-	TR				<67, 39,38, 35,20 -p5-	
												7> -p4-	PT				
	13> -p3-		13> -p3-	13,84> -p3-	13,84> -p3-	13,84> -p3-	13,84> -p3-	13,84> -p3-			13> -p3-	13> -p3-	13> -p3-	SF		<13 -p3-	<13 -p3-
1> -p1-	1> -p1-	1> -p1-	1> -p1-	1> -p1-	1> -p1-	1> -p1-	1> -p1-	1> -p1-	1> -p1-	1> -p1-	1> -p1-	1> -p1-	1> -p1-	1> -p1-	IS	<1 -p1-	<1 -p1-
	58> -p7-			56> -p6-	56> -p6-	56> -p6-	56> -p6-	56> -p6-			56> -p7-	63> -p4-	79> -p5-			SN	
				59> -p6-	59> -p6-	59> -p6-		59> -p6-									RV

5.2.3.3 The tables in section 4.7.2 shall be replaced with:

Input information	NP	SB	PS	SH	FS	AD	LS	SR	OS	SL	NL	UN	TR	PT	SF	IS	SN	RV
Train Data (refer to 3.18.3.2)		A			A	A	A	A	A			A			NA	NA	A	
Selection of language		A		A	A	A	A	A	A		A	A	A	A	NA	NA	A	A
Driver id		A		A	A	A	A	A	A		A	A			NA	NA	A	
Train running number		A			A	A	A	A	A		A	A			NA	NA	A	
ERTMS/ETCS level		A			A	A	A	A	A		A	A			NA	NA	A	
Track Adhesion factor		A			A	A	A	A	A			A			NA	NA	A	
RBC contact information		A			A	A	A	A	A		A			A	NA	NA		
GSM-R radio network-id		A			A	A	A	A	A		A	A		A	NA	NA	A	
Train integrity confirmation		A			A	A	A	A	A			A		A	NA	NA	A	
Start		A						A						A	NA	NA		
Override request		A		A	A	A	A	A	A			A		A	NA	NA	A	
Shunting request		A			A	A	A	A	A			A		A	NA	NA	A	
“Continue Shunting on desk closure” request				A											NA	NA		
“Exit of Shunting” request				A											NA	NA		
Non Leading request		A		A	A	A	A	A	A						NA	NA		
Ackn of fixed text information		A			A	A	A	A	A			A	A	A	NA	NA		A
Ackn of plain text information		A			A	A	A	A	A			A	A	A	NA	NA		A
Ackn of level transition		A		A	A	A	A	A	A			A	A		NA	NA	A	
Ackn of Limited Supervision mode		A			A	A	A		A					A	NA	NA		
Ackn of On Sight mode		A			A	A	A		A					A	NA	NA		
Ackn of Shunting mode		A		A	A	A	A		A					A	NA	NA		
Ackn of Staff Resp. mode		A												A	NA	NA		
Ackn of Unfitted mode		A													NA	NA		
Ackn of Reversing mode					A	A	A		A						NA	NA		
Ackn of SN mode		A													NA	NA		
Ackn of Train Trip													A		NA	NA		
Ackn for Roll Away Protection				A	A		A	A	A			A		A	NA	NA		A
Ackn for Unauthorised Direction Movement Protection					A		A	A	A					A	NA	NA		A
Ackn for Standstill Supervision		A													NA	NA		
Ackn for Post Trip distance exceeded														A	NA	NA		
Ackn of Train Data change from source different from the driver					A	A	A	A	A			A	A		NA	NA	A	
Ackn for reversing distance exceeded															NA	NA		A
Track Ahead Free		A					A	A	A					A	NA	NA		

Input information	NP	SB	PS	SH	FS	AD	LS	SR	OS	SL	NL	UN	TR	PT	SF	IS	SN	RV
SR mode speed limit and distance								A							NA	NA		
Virtual Balise Cover		A													NA	NA		
Isolation	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ATO selector		A		A	A	A	A	A	A		A	A	A	A	NA	NA	A	A
ATO engage					A	A									NA	NA		
ATO disengage						A									NA	NA		
Skip ATO stopping point request/revocation					A	A									NA	NA		

Output information	NP	SB	PS	SH	FS	AD	LS	SR	OS	SL	NL	UN	TR	PT	SF	IS	SN	RV
ERTMS/ETCS Mode		A		X	X	X	X	X	X		X	X	A	X	A	X	X	X
Current ERTMS/ETCS level		A		X	X	X	X	X	X		X	X	A	X	NA	NA	X	X
Train Speed		A		X	X	X	X	X	X		X	X	A	X	NA	NA	A	X
Permitted Speed				A	X	X		A	A						NA	NA		X
SBI Speed					A	A									NA	NA		
Target Speed					A	A		A	A						NA	NA		
Target distance					A	A		A	A						NA	NA		X
Release speed					A	A	A		A						NA	NA		
Speed and distance monitoring supervision status				A	A	A	A	A	A			A		A	NA	NA		A
Time to Indication					A	A		A	A						NA	NA		
LSSMA							A								NA	NA		
Trip reason													A	X	NA	NA		
Train Data (refer to 3.18.3.2)		A			A	A	A	A	A			A	A	A	NA	NA	A	A
Driver id		A		A	A	A	A	A	A		A	A	A	A	NA	NA	A	A
Train running number		A		A	A	A	A	A	A		A	A	A	A	NA	NA	A	A
RBC contact information		A		A	A	A	A	A	A		A	A	A	A	NA	NA	A	A
GSM-R radio network-id		A		A	A	A	A	A	A		A	A	A	A	NA	NA	A	A
Virtual Balise Covers		A		A	A	A	A	A	A		A	A	A	A	NA	NA	A	A
Brake indication		A		A	A		A	A	A			A	A	A	NA	NA	A	A
Fixed text information		A			A	A	A	A	A			A	A	A	NA	NA		A
Plain text information		A			A	A	A	A	A			A	A	A	NA	NA		A
Reversing allowed					A	A	A		A						NA	NA		

Output information	NP	SB	PS	SH	FS	AD	LS	SR	OS	SL	NL	UN	TR	PT	SF	IS	SN	RV
Track condition excluding sound horn, non stopping areas, tunnel stopping areas and big metal masses - Power control - Pantograph control - Air tightness control - Radio hole, supervision of safe radio connection stopped - Brakes control					A	A	A		A		A		A	A	NA	NA		
Track conditions sound horn, non stopping areas, tunnel stopping areas					A	A	A		A						NA	NA		
Geographical position		A			A	A	A	A	A		A	A	A	A	NA	NA		
Override status				A				A				A			NA	NA	A	
LX status "not protected"					A	A	A		A						NA	NA		
Shunting refused by RBC		A			A	A	A	A	A					A	NA	NA		
Shunting request not answered by RBC		A			A	A	A	A	A					A	NA	NA		
Entry in FS					A										NA	NA		
Entry in OS									A						NA	NA		
Level transition announcement					A	A	A	A	A		A	A	A	A	NA	NA	A	
Track Ahead Free request		A					A	A	A					A	NA	NA		
Adhesion factor “slippery rail”		A			A	A	A	A	A			A	A	A	NA	NA	A	A
Trackside malfunction		A		A	A	A	A	A	A			A	A	A	NA	NA	A	A
Notification of Train Data change from source different from the driver		A			A	A	A	A	A			A	A	A	NA	NA	A	
Operated System Version		A		A	A	A	A	A	A		A	A	A	A	NA	NA	A	A
Radio Network registration failed		A			A	A	A	A	A		A			A	NA	NA		
Safe radio connection indication		A		A	A	A	A	A	A		A	A	A	A	NA	NA	A	A
Local time		A		X	X	X	X	X	X		X	X	A	X	NA	NA	A	X
Gradient					X	X			A						NA	NA		
MRSP					X	X			A						NA	NA		
First Indication location					A	A			A						NA	NA		
EOA[2]/LOA					A	A			A						NA	NA		
Brake reason		A		A	A		A	A	A			A	A	A	NA	NA	A	A
Trackside not compatible		A		A	A	A	A	A	A		A	A	A	A	NA	NA	A	A

Output information	NP	SB	PS	SH	FS	AD	LS	SR	OS	SL	NL	UN	TR	PT	SF	IS	SN	RV
Train is rejected		A													NA	NA		
Route unsuitability(ies)					A	A	A		A						NA	NA		
Set Speed indication		A		A	A	A	A	A	A		A	A	A	A	NA	NA	A	A
ATO status		A		A	A	A	A	A	A		A	A	A	A	NA	NA	A	A
Target Advice Speed, Coasting advice, next advice change location					A										NA	NA		
Dwell time, next stopping point name and estimated arrival time, stopping points locations, door information, Stopping accuracy, Skip Stopping Point indicator					A	A									NA	NA		
ATO warning						A									NA	NA		
ATO data need					A	A	A	A	A			A	A	A	NA	NA	A	
Impairment due to accumulated underestimation / overestimation in measuring the movements over a defined total distance (refer to 3.6.8.5 and 6)					A	A	A	A	A						NA	NA		
NTC not available [1]											A				NA	NA	A	
NTC data need [1]					A	A	A	A	A			A	A	A	NA	NA	A	
NTC failed [1]		A		A	A	A	A	A	A		A	A	A	A	NA	NA	A	

[1] In case the ERTMS/ETCS on-board equipment is interfaced to the National System through an STM, refer to SUBSET-035 for details.

[2] When the ERTMS/ETCS on-board equipment applies at least one of the clauses 3.12.2.4, 3.12.4.7 and 3.12.5.8, it refers to the closest location amongst the temporary EOA(s) and the EOA.

5.2.3.4 The table in section 4.8.4 shall be replaced with:

NR = Not Relevant A = Accepted R = Rejected

Information	Mode																	
	NP	SB	PS	SH	FS	AD	LS	SR	OS	SL	NL	UN	TR	PT	SF	IS	SN	RV
National Values	NR	A [2]	A	A	A	A	A	A	A	A	A	A	A	A [1]	NR	NR	A	A
Linking	NR	A[2][4]	R	R	A	A	A	A	A	R	A	A	R	A [1]	NR	NR	A	R
Signalling Related Speed Restriction	NR	A[2][4]	R	R	A	A	A	A	A	R	R	A	R	A [1]	NR	NR	A	R
Movement Authority + (optional) Mode Profile + (optional) List of Balise Groups for SH area	NR	A[2][4] [11]	R	R	A	A	A	A	A	R	R	A	R	A [1]	NR	NR	A	R
Repositioning Information	NR	R	R	R	A	A	A	R	A	R	R	R	R	R	NR	NR	R	R
Gradient Profile	NR	A[2][4]	R	R	A	A	A	A	A	R	R	A	R	A [1]	NR	NR	A	R
International SSP	NR	A[2][4]	R	R	A	A	A	A	A	R	R	A	R	A [1]	NR	NR	A	R
Axle load speed profile	NR	A[2][4]	R	R	A	A	A	A	A	R	R	A	R	A [1]	NR	NR	A	R
STM max speed	NR	A [2]	R	R	A	A	A	A	A	R	R	A	A	A [1]	NR	NR	A	R
STM system speed/distance	NR	A [2]	R	R	A	A	A	A	A	R	R	A	A	A [1]	NR	NR	R	R
Level Transition Order and Conditional Level Transition Order	NR	A [2]	A [7]	A [7]	A	A	A	A	A	A	A	A	A	A [1] [5]	NR	NR	A	R
Session Management	NR	A	A [3]	A [3]	A	A	A	A	A	A	A	A	A	A [1]	NR	NR	A	A
Radio Network registration	NR	A [2]	A	A	A	A	A	A	A	A	A	A	A	A [1]	NR	NR	A	A
MA Request Parameters	NR	A [2]	R	R	A	A	A	A	A	R	R	A	R	A [1]	NR	NR	A	R
Position Report parameters	NR	A [2]	R	R	A	A	A	A	A	R	A	A	R	A [1]	NR	NR	A	A

Information	Mode																	
	NP	SB	PS	SH	FS	AD	LS	SR	OS	SL	NL	UN	TR	PT	SF	IS	SN	RV
SR Authorisation+ (optional) List of Balise Groups in SR mode	NR	A[2][4][11]	R	R	R	R	R	A	R	R	R	R	R	A [1]	NR	NR	R	R
Stop if in SR mode	NR	R	R	R	R	R	R	A	R	R	R	R	R	R	NR	NR	R	R
SR distance information from loop	NR	R	R	R	R	R	R	A [6]	R	R	R	R	R	R	NR	NR	R	R
Temporary Speed Restriction	NR	A [2][4]	R	R	A	A	A	A	A	R	R	A	A	A [1]	NR	NR	A	R
Temporary Speed Restriction Revocation	NR	A[2][4]	R	R	A	A	A	A	A	R	R	A	A	A [1]	NR	NR	A	R
Inhibition of revocable TSRs from balises in level 2	NR	A [2]	R	R	A	A	A	A	A	R	R	A	A	A [1]	NR	NR	A	R
Default Gradient for TSR	NR	A[2][4]	R	R	A	A	A	A	A	R	R	A	A	A [1]	NR	NR	A	R
Route Suitability Data	NR	A[2][4]	R	R	A	A	A	A	A	R	R	A	R	A [1]	NR	NR	A	R
Adhesion Factor	NR	A[2][4]	R	R	A	A	A	A	A	R	R	A	R	A [1]	NR	NR	A	R
Plain Text Information	NR	A [2]	R	R	A	A	A	A	A	R	R	A	A	A [1]	NR	NR	A	A
Fixed Text Information	NR	A [2]	R	R	A	A	A	A	A	R	R	A	A	A [1]	NR	NR	A	A
Geographical Position	NR	A [2]	R	R	A	A	A	A	A	R	A	A	A	A [1]	NR	NR	A	R
RBC Transition Order	NR	A[2][4]	A [8]	A [8]	A	A	A	A	A	A	A	R	A	A [1]	NR	NR	R	R
Danger for SH information	NR	R	R	A	R	R	R	R	R	R	R	R	R	R	NR	NR	R	R
Stop Shunting on desk opening	NR	R	A	R	R	R	R	R	R	R	R	R	R	R	NR	NR	R	R
Radio Infill Area information	NR	R	R	R	A	A	A	A	A	R	R	R	R	R	NR	NR	R	R
Session Management with neighbouring RIU	NR	R	R	R	A	A	A	A	A	R	R	R	R	R	NR	NR	R	R
EOLM information	NR	R	R	R	A	A	A	A	A	A	A	A	A	R	NR	NR	A	A

Information	Mode																	
	NP	SB	PS	SH	FS	AD	LS	SR	OS	SL	NL	UN	TR	PT	SF	IS	SN	RV
Assignment of Co-ordinate system	NR	A [2]	R	R	R	R	R	A	R	R	A	A	R	A [1]	NR	NR	A	R
Infill Location Reference	NR	R	R	R	A	A	A	R	R	R	R	R	R	R	NR	NR	R	R
Track Conditions excluding sound horn, non stopping areas, tunnel stopping areas and big metal masses	NR	A[2][4]	R	R	A	A	A	A	A	R	A	A	A	A [1]	NR	NR	A	R
Track conditions sound horn, non stopping areas, tunnel stopping areas	NR	A[2][4]	R	R	A	A	A	A	A	R	R	A	R	A [1]	NR	NR	A	R
Track condition big metal masses	NR	A[2][4]	A	A	A	A	A	A	A	A	A	A	A	A [1]	NR	NR	A	R
Location Identity (NID_C + NID_BG)	NR	A [2]	A	A	A	A	A	A	A	A	A	A	A	A	NR	NR	A	A
Recognition of exit from TRIP mode	NR	R	R	R	R	R	R	R	R	R	R	R	R	A	NR	NR	R	R
Acknowledgement of Train Data	NR	A [2]	R	R	A	A	A	A	A	R	R	A	A	A	NR	NR	A	A
Request to shorten MA (MA + (optional) Mode Profile + (optional) List of Balise Groups for SH area)	NR	R	R	R	A	A	A	R	A	R	R	R	R	R	NR	NR	R	R
Unconditional Emergency Stop	NR	A [2]	R	R	A	A	A	A	A	R	R	A	R	R	NR	NR	A	R
Conditional Emergency Stop	NR	R	R	R	A	A	A	R	A	R	R	A	R	R	NR	NR	A	R
Revocation of Emergency Stop (Conditional or Unconditional)	NR	R	R	R	A	A	A	R	A	R	R	R	R	A [1]	NR	NR	R	R

Information	Mode																	
	NP	SB	PS	SH	FS	AD	LS	SR	OS	SL	NL	UN	TR	PT	SF	IS	SN	RV
SH refused	NR	A [2] [14]	R	R	A[14]	A[14]	A[14]	A[14]	A[14]	R	R	R	R	A [1] [14]	NR	NR	R	R
SH authorised + (optional) List of Balise Groups for SH area	NR	A [2] [14]	R	R	A[14]	A[14]	A[14]	A[14]	A[14]	R	R	R	R	A [1] [14]	NR	NR	R	R
Track Ahead Free Request	NR	A [2]	R	R	R	R	A	A	A	R	R	R	R	A[1]	NR	NR	R	R
Train Running Number	NR	A [2]	R	R	A	A	A	A	A	R	A	R	A	A	NR	NR	R	A
Acknowledgement of session termination	NR	A	A	A	A	A	A	A	A	A	A	A	A	A	NR	NR	A	A
Train Rejected	NR	A [2]	R	R	R	R	R	R	R	R	R	R	R	R	NR	NR	R	R
Train Accepted	NR	A [2]	R	R	R	R	R	R	R	R	R	R	R	R	NR	NR	R	R
SoM Position Report Confirmed by RBC	NR	A [2]	R	R	R	R	R	R	R	R	R	R	R	R	NR	NR	R	R
Reversing Area Information	NR	A[2][4]	R	R	A	A	A	A	A	R	R	A	R	A [1]	NR	NR	A	A
Reversing Supervision Information	NR	A[2][4]	R	R	A	A	A	A	A	R	R	A	R	A [1]	NR	NR	A	A
Default Balise/Loop/RIU Information	NR	A [2]	A	A	A	A	A	A	A	A	A	A	A	A	NR	NR	A	A
Track Ahead Free up to level 2 transition location	NR	A [2]	R	R	A	A	A	A	A	R	R	A	A	A	NR	NR	A	R
Permitted Braking Distance Information	NR	A[2][4]	R	R	A	A	A	A	A	R	R	A	R	A [1]	NR	NR	A	R
Level Crossing information	NR	A[2][4]	R	R	A	A	A	A	A	R	R	A	R	A [1]	NR	NR	A	R
Virtual Balise Cover order	NR	A	A	A	A	A	A	A	A	A	A	A	A	A	NR	NR	A	A
Generic LS function marker	NR	A	A	A	A	A	A	A	A	A	A	A	A	A	NR	NR	A	A
LSSMA display toggle on order	NR	R	R	R	A [9]	A [9]	A	A [9]	A [10]	R	R	A [9]	R	R	NR	NR	A [9]	R

Information	Mode																	
	NP	SB	PS	SH	FS	AD	LS	SR	OS	SL	NL	UN	TR	PT	SF	IS	SN	RV
LSSMA display toggle off order	NR	R	R	R	R	R	A	R	R	R	R	R	R	R	NR	NR	R	R
Data to be used by applications outside ERTMS/ETCS	NR	A	A	A	A	A	A	A	A	A	A	A	A	A	NR	NR	A	A

[1]: for level 2: only if following the reception of the information “Recognition of Exit from TR mode” with a more recent time stamp; for level 1: rejected

[2]: only if a cab is active

[3]: for order to establish a communication session: RBC contact information is stored without establishing the communication session

[4]: only if valid Train Data are stored on-board

[5]: only level transition announcement (i.e., immediate level transition order and conditional level transition order shall be rejected)

[6]: rejected if override is active

[7]: only immediate level transition order and conditional level transition order shall be accepted (i.e., level transition announcement shall be rejected) and stored for later evaluation (see 4.4.8.1.5 & 4.4.20.1.11)

[8]: only RBC transition order with null distance to execution shall be accepted (i.e., RBC transition announcement shall be rejected) for storing the RBC contact information (see 4.4.8.1.5.2 & 4.4.20.1.13)

[9]: only if the train position confidence interval overlaps the Limited Supervision area of a mode profile received in the same message AND if starting from the min safe front end of the train this Limited Supervision area is the furthest area that the train position confidence interval overlaps within in the mode profile

[10]: only if the train position confidence interval overlaps the Limited Supervision area of a mode profile received in the same message AND if starting from the min safe front end of the train this Limited Supervision area is the furthest area that the train position confidence interval overlaps within the mode profile AND if the estimated front end of the train is not inside an OS acknowledgement area

[11]: only if valid Train Running Number is stored on-board or if Train Running Number is received in the same message

[14]: rejected if the time stamp referring to the on-board request does not match the time stamp of the last sent request

5.2.3.5 The table in section 4.10 shall be replaced with:

D = Deleted TBR = To Be Revalidated U = Unchanged NR = Not relevant R = Reset

Data Stored on-board	Entered Mode																	
	NP	**SB**	**PS**	**SH**	**FS**	**AD**	**LS**	**SR**	**OS**	**SL**	**NL**	**UN**	**TR**	**PT**	**SF**	**IS**	**SN**	**RV**
National Values	U	U	U	U	U	U	U	U	U	U	U	U	U	U	NR	NR	U	U
Not yet applicable National Values	D	U	U	U	U	U	U	U	U	U	U	U	U	U	NR	NR	U	U
Linking	D	D	D	D	U	U	U	D	U	D	D	D	D	U	NR	NR	D	D
Movement Authority	D	D	D	D	U	U	U	D	U	D	D	D	D	U	NR	NR	D	D
Gradient Profile	D	D	D	D	U	U	U	D	U	D	D	D	D	U	NR	NR	D	D
International SSP	D	D	D	D	U	U	U	D	U	D	D	D	D	U	NR	NR	D	D
Axle load speed profile	D	D	D	D	U	U	U	D	U	D	D	D	D	U	NR	NR	D	D
STM max speed	D	D	D	D	U	U	U	D	U	D	D	U	U	U	NR	NR	U	D
STM system speed/distance	D	D	D	D	U	U	U	D	U	D	D	U	U	U	NR	NR	U	D
Level Transition announcement	D	D	U	D	U	U	U	D	U	D	D	D	U	U	NR	NR	D	D
Immediate Level Transition Order/Conditional Level Transition Order	U	U	U	U	D	D	D	D	D	U	U	D	U	D	NR	NR	D	D
Stop Shunting on desk opening	D	D	U	U	U	U	U	U	U	D	U	U	U	U	NR	NR	U	U
List of Balise Groups for SH area	D	D	U	U	U	U	U	D	U	D	D	D	D	U	NR	NR	D	D

Data Stored on-board	Entered Mode																	
	NP	SB	PS	SH	FS	AD	LS	SR	OS	SL	NL	UN	TR	PT	SF	IS	SN	RV
MA Request Parameters	D	U	U	U	U	U	U	U	U	U	U	U	U	U	NR	NR	U	U
Position Report parameters	D	U	U	U	U	U	U	U	U	U	U	U	U	U	NR	NR	U	U
List of Balise Groups in SR Authority + SR mode speed limit and distance	D	D	D	D	D	D	D	U	D	D	D	D	D	U	NR	NR	D	D
Temporary Speed Restriction	D	D	D	D	U	U	U	U	U	D	D	U	U	U	NR	NR	D	D
Inhibition of revocable TSRs from balises in level 2	D	D	D	D	U	U	U	D	U	D	D	D	U	U	NR	NR	D	D
Default Gradient for TSR	D	D	D	D	U	U	U	U	U	D	D	U	U	U	NR	NR	D	D
Signalling related Speed Restriction	D	D	D	D	U	U	U	D	U	D	D	D	D	U	NR	NR	D	D
Route Suitability Data	D	D	D	D	U	U	U	D	U	D	D	D	D	U	NR	NR	D	D
Adhesion Factor (from trackside)	R	R	R	R	U	U	U	U	U	R	R	U	U	U	NR	NR	R	U
Adhesion Factor (from driver)	R	R	R	R	U	U	U	U	U	R	R	U	U	U	NR	NR	U	U
Plain Text Information	D	D	D	D	U	U	U	U	U	D	D	U	U	U	NR	NR	D	U
Fixed Text Information	D	D	D	D	U	U	U	U	U	D	D	U	U	U	NR	NR	D	U
Geographical Position	D	U	D	D	U	U	U	U	U	D	U	U	U	U	NR	NR	D	D
Mode Profile	D	D	D	D	U	U	U	D	U	D	D	D	D	U	NR	NR	D	D

Data Stored on-board	Entered Mode																	
	NP	SB	PS	SH	FS	AD	LS	SR	OS	SL	NL	UN	TR	PT	SF	IS	SN	RV
RBC Transition Order	D	D	D	D	U	U	U	D	U	D	D	D	D	U	NR	NR	D	D
Radio Infill Area information	D	D	D	D	U	U	U	D	D	D	D	D	D	U	NR	NR	D	D
EOLM information	TBR	U	D	D	U	U	U	U	U	U	U	U	U	U	NR	NR	U	U
Track Conditions excluding sound horn, non stopping areas, tunnel stopping areas and big metal masses	R	R	R	R	U	U	U	R	U	R	U	R	U	U	NR	NR	R	R
Track conditions sound horn, non stopping areas, tunnel stopping areas	R	R	R	R	U	U	U	R	U	R	R	R	R	R	NR	NR	R	R
Track condition big metal masses	R	R	R	R	U	U	U	R	U	R	U	U	U	U	NR	NR	U	R
Unconditional Emergency Stops	D	D	D	D	U	U	U	D	U	D	D	D	U	U	NR	NR	D	D
Conditional Emergency Stops	D	D	D	D	U	U	U	D	U	D	D	D	U	U	NR	NR	D	D
Train Position	TBR	U	U	U	U	U	U	U	U	U[1]	U	U	U	U	NR	NR	U	U
Accumulated underestimation / overestimation in measuring the movements over a defined total distance	U	U	U	U	U	U	U	U	U	U	U	U	U	U	NR	NR	U	U
Train Data	D	TBR	U	TBR	U	U	U	U	U	U	TBR	U	U	U	NR	NR	U	U
ERTMS/ETCS level	TBR	U	U	U	U	U	U	U	U	U	U	U	U	U	NR	NR	U	U

Data Stored on-board	Entered Mode																	
	NP	SB	PS	SH	FS	AD	LS	SR	OS	SL	NL	UN	TR	PT	SF	IS	SN	RV
Table of priority of trackside supported levels	TBR	U	U	U	U	U	U	U	U	U	U	U	U	U	NR	NR	U	U
Not yet applicable table of priority of trackside supported levels	U	D	U	D	U	U	U	D	U	D	D	D	U	U	NR	NR	D	D
Driver ID	D	TBR	U	U	U	U	U	U	U	D	U	U	U	U	NR	NR	U	U
GSM-R Radio Network ID	U	U	U	U	U	U	U	U	U	U	U	U	U	U	NR	NR	U	U
RBC contact information	TBR	U	U	U	U	U	U	U	U	U	U	U	U	U	NR	NR	U	U
Train Running Number	D	TBR	U	U	U	U	U	U	U	D	U	U	U	U	NR	NR	U	U
Reversing Area Information	D	D	D	D	U	U	U	D	U	D	D	D	D	U	NR	NR	D	U
Reversing Supervision Information	D	D	D	D	U	U	U	D	U	D	D	D	D	U	NR	NR	D	U
Track Ahead Free Request	D	D	D	D	D	D	D	U	U	D	D	D	D	U	NR	NR	D	D
Permitted Braking Distance Information	D	D	D	D	U	U	U	D	U	D	D	D	D	U	NR	NR	D	D
Level Crossing information	D	D	D	D	U	U	U	D	U	D	D	D	D	U	NR	NR	D	D
RBC/RIU System Version	D	U	U	U	U	U	U	U	U	U	U	U	U	U	NR	NR	U	U
Operated System Version	U	U	U	U	U	U	U	U	U	U	U	U	U	U	NR	NR	U	U
Virtual Balise Covers	U	U	U	U	U	U	U	U	U	U	U	U	U	U	NR	NR	U	U

Data Stored on-board	Entered Mode																	
	NP	SB	PS	SH	FS	AD	LS	SR	OS	SL	NL	UN	TR	PT	SF	IS	SN	RV
Language used to display information to the driver	U	U	U	U	U	U	U	U	U	U	U	U	U	U	NR	NR	U	U
Generic LS function marker	U	U	U	U	U	U	U	U	U	U	U	U	U	U	NR	NR	U	U
LSSMA display toggle on order	D	D	D	D	D	D	U	D	D	D	D	D	D	U	NR	NR	D	D
ATO selector position	U	U	U	U	U	U	U	U	U	U	U	U	U	U	NR	NR	U	U

[1]: exception: “D” when the status is invalid

5.2.3.6 The table in section 4.12 shall be replaced with:

Brake command reason	Entered Mode																	
	NP	SB	PS	SH	FS	AD	LS	SR	OS	SL	NL	UN	TR	PT	SF	IS	SN	RV
Trip	R																	
Speed & Distance monitoring	R	R		TBR	TBR		TBR	TBR	TBR			TBR	R				TBR	
Roll Away Protection	R	R		M	M		M	M	M			M	R				R	
Unauthorised Direction Movement Protection	R	R		R	M [1]		M [1]	M [1]	M [1]			R	R				R	
Standstill Supervision	R			R	R		R	R	R	R		R	R				R	
Linking inconsistency	R	R		M	M		M	M	M			M	M				M	
BG message inconsistency	R	R		M	M		M	M	M			M	M				M	
RAMS related functions	R	R		M	M		M	M	M			M	M				M	

Brake command reason	Entered Mode																	
	NP	SB	PS	SH	FS	AD	LS	SR	OS	SL	NL	UN	TR	PT	SF	IS	SN	RV
Check safe radio connection (T_NVCONTACT)	R	R		R	M		M	R	M			R	R				R	
Reverse Movement distance in RV mode overpassed	R	R																
Reverse Movement distance in PT mode overpassed	R	R		R	R		R	R	R									
Change of Train Data from sources different from the driver while running	R	R		R	M		M	M	M	R		M	M	M			M	
Train movement detected while the driver is modifying or revalidating the Train Data (ETCS or NTC)	R	R		R	M		M	M	M			M	M				M	
Train movement detected while the driver is entering SR speed/distance limits	R	R		R	R		R		R			R	R				R	
Text message not acknowledged	R	R		R	M		M	M	M	R		M	M	M			R	
STM control function (see SUBSET-035 10.3.3.3)	R	R		R	R		R	R	R			R	R					

Brake command reason	Entered Mode																	
	NP	SB	PS	SH	FS	AD	LS	SR	OS	SL	NL	UN	TR	PT	SF	IS	SN	RV
STM control function (see SUBSET-035 10.3.3.4)	R	R		R	R		R	R	R			R	R					
Mode change to OS not acknowledged	R	R		R	R		R	R				R	R				R	
Mode change to SH not acknowledged	R	R											R					
Mode change to LS not acknowledged	R	R		R	R			R	R			R	R				R	
Change to level NTC not acknowledged	R	R		R	R		R	R	R			R	R	R				
Change to level 0 not acknowledged	R	R		R	R		R	R	R				R				R	

[1]: exception: R in case of transition from PT mode

5.2.3.7 The row A33 in section 5.4.3.2 shall be replaced with:

A33	The “SoM position report” message, marked as referring to a “valid train position referred to an LRBG”, shall be transmitted to the RBC, together with valid Train Data and/or valid Train running number, if already stored on-board. This condition leads to **S10**.

5.2.3.8 The row A34 in section 5.4.3.2 shall be replaced with:

A34	If the train position data stored in the on-board equipment is of status “invalid” and refers to an LRBG, the “SoM position report” message, marked as referring to an “invalid train position referred to an LRBG”, shall be transmitted to the RBC. Otherwise the "SoM position report" message, marked as referring to "no train position referred to an LRBG” and with the LRBG identity set to "unknown", shall be transmitted to the RBC. In both cases valid Train Data and/or valid Train running number, if already stored on-board, shall be included in the “SoM position report” message. The process shall then go to **D33**

5.2.3.9 The row S0 in section 5.6.2.2 shall be replaced with:

S0	The train is at standstill and the ERTMS/ETCS on-board equipment is in FS, LS, AD, OS, SR, SN, UN, PT or SB mode. When the driver selects Shunting (**E015**) the process shall go to **D020**.

5.2.3.10 The row S010 in section 5.11.2.2 shall be replaced with:

S010	The ERTMS/ETCS on-board equipment is in one of the following modes: FS, AD, LS, OS, SR, SB, SH, SN or UN When an event occurs, which leads to train trip reaction (**E015** – refer to chapter 4, transitions between modes), the process shall go to **A025**.

5.2.3.11 The section 6.6.3.4.5 shall be replaced with:

Depending on the transmitted message/packet, the action can be:

a) data is unchanged,
b) data is deleted (i.e. it is not sent to the receiver)
c) data is translated,
d) not relevant (i.e. no corresponding requirement to trigger the sending is applicable)

D = Deleted T = Translated U = Unchanged NR = Not relevant

Mess $nb_{pck\ nb}$	Message name/packet name	Action
XXX_0	Position Report	T [1]
XXX_1	Position Report based on two balise groups	T [1]

Mess $nb_{pck\ nb}$	Message name/packet name	Action
159_2	On-board supported system versions	T[6]
XXX_4	Error Reporting	U [2]
XXX_5	Train Running Number	NR
132_9	Level 2 transition information	U
129_{11}	Validated Train Data (packet)	T [3]
129	Validated Train Data (message)	U
130	Request for Shunting	U
132	MA Request	T [4]
136	Train Position Report	U
137	Request to shorten MA is granted	U
138	Request to shorten MA is rejected	U
146	Acknowledgement	U
147	Acknowledgement of Emergency Stop	T [5]
149	Track Ahead Free Granted	U
150	End of Mission	U
153	Radio infill request	U
154	No compatible version supported	U
155	Initiation of a communication session	U
156	Termination of a communication session	U
157	SoM Position Report	U [7]
158	Text message acknowledged by driver	NR
159	Session Established	U

[1] the packet 0 and the packet 1 shall be translated as follows:

Description	This packet is used to report the train position and speed as well as some additional information (e.g. mode, level, etc.)		
Transmitted to	RBC, RIU		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	L_PACKET	13	
	Q_SCALE	2	
	NID_LRBG	10 + 14	
	D_LRBG	15	
	Q_DIRLRBG	2	

	Q_DLRBG	2	
	L_DOUBTOVER	15	
	L_DOUBTUNDER	15	
	Q_INTEGRITY	2	
	L_TRAININT	15	
	V_TRAIN	7	
	Q_DIRTRAIN	2	
	M_MODE	4	See translation [1a]
	M_LEVEL	3	See translation [1b]
	NID_NTC	8	

Description	This packet is an extension of the “standard position report“ packet 0. It is used in case of single balise groups if the orientation of the LRBG is unknown but the on-board equipment is able to report a second balise group (the one detected before) to give a direction reference for the directional information in the position report.		
Transmitted to	RBC, RIU		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	L_PACKET	13	
	Q_SCALE	2	
	NID_LRBG	10 + 14	
	NID_PRVLRBG	10 + 14	
	D_LRBG	15	
	Q_DIRLRBG	2	
	Q_DLRBG	2	
	L_DOUBTOVER	15	
	L_DOUBTUNDER	15	
	Q_INTEGRITY	2	
	L_TRAININT	15	
	V_TRAIN	7	
	Q_DIRTRAIN	2	
	M_MODE	4	See translation [1a]
	M_LEVEL	3	See translation [1b]
	NID_NTC	8	

[1a] M_MODE shall be set according to the following table:

Value that corresponds the mode operated on-board	Transmitted value to an X=1 RBC

0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	3
16	0

Note: if M_MODE (X=2) = 12 (LS), no translation is effected

[1b] M_LEVEL shall be set according to the following table:

Value that corresponds the level operated on-board	Transmitted value to an X=1 RBC
0	0
1	1
2	2
3	3 or 4, see {1}

{1} M_LEVEL = 4 if a table of trackside supported levels is stored on-board and it is originated from a level transition order with M_LEVELTR = 4 given with a priority higher than M_LEVELTR = 3, if any. Otherwise, M_LEVEL = 3.

[2] Exceptions: if M_ERROR (as per 7.5.1.64) = 6, then M_ERROR (X=1) = 7; if M_ERROR (as per 7.5.1.64) = 7, 8, 9 or 10 then the packet shall be deleted

[3] the packet 11 shall be translated as follows:

Description	Validated train data.		
Transmitted to	RBC		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	

	L_PACKET	13	
	NID_OPERATIONAL	32	See translation [3a]
	NC_TRAIN	15	See translation [3b]
	L_TRAIN	12	
	V_MAXTRAIN	7	
	M_LOADINGGAUGE	8	See translation [3c]
	M_AXLELOAD	7	See translation [3d]
	M_AIRTIGHT	2	
	N_ITER	5	See translation [3e]
	N_ITER	5	
	NID_NTC (k)	8	Type of National System available

[3a] NID_OPERATIONAL shall be set to the value stored on-board

[3b] NC_TRAIN shall be set according to the following table:

Value stored on-board	Transmitted value to X=1 RBC
NC_CDTRAIN	NC_TRAIN
0	xxx xxxx xxxx xx1x
1	xxx xxxx xxxx x1xx
2	xxx xxxx xxxx 1xxx
3	xxx xxxx xxx1 xxxx
4	xxx xxxx xx1x xxxx
5	xxx xxxx x1xx xxxx
6	x1x xxxx xxxx xxxx
7	xxx xxxx 1xxx xxxx
8	xx1 xxxx xxxx xxxx
9	xxx xxxx xxxx xxx1
10	xxx xxx1 xxxx xxxx
NC_TRAIN	
000 0000 0000 0000	No bit is set to 1
xxx xxxx xxxx xxx1	xxx xx1x xxxx xxxx
xxx xxxx xxxx xx1x	xxx x1xx xxxx xxxx
xxx xxxx xxxx x1xx	xxx 1xxx xxxx xxxx
Other values	No bit is set to 1

[3c] M_LOADINGGAUGE shall be set to 0

[3d] M_AXLELOAD shall be set according to the following table:

Value stored on-board	Transmitted value to X=1 RBC
A	16 t
HS17	17 t
B1	18 t
B2	18 t
C2	20 t
C3	20 t
C4	20 t
D2	22,5 t
D3	22,5 t
D4	22,5 t
D4xL	22,5 t
E4	25 t
E5	25 t

[3e] N_ITER shall be set to 0

[4] Q_MARQSTREASON shall be replaced with Q_TRACKDEL (1 bit) as follows: if Q_MARQSTREASON = x1xxx, Q_TRACKDEL shall be set to 1, otherwise Q_TRACKDEL shall be set to 0

[5] The variable Q_EMERGENCYSTOP (modified in system version number X = 2) shall be set according to the following table:

Value that would be transmitted to X=2 RBC	Transmitted value to X=1 RBC
Q_EMERGENCYSTOP	Q_EMERGENCYSTOP
0	0
1	0
2	2
3	1

[6] the packet 2 shall be replaced with the following packet numbered as 3:

Description	Telephone numbers associated to the onboard equipment		
Transmitted to	RBC, RIU		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	=3
	L_PACKET	13	
	N_ITER	5	

	NID_RADIO (k)	64	

[7] Exception: the packet 11, if any, shall be deleted

5.2.3.12 The clause 6.6.5.1.1 shall be replaced with: “For information received from trackside, the message consistency check shall be achieved taking into account the exceptions to chapters 7 and 8, as described in section 6.5.2.3 but excluding clauses 6.5.2.3.16, 6.5.2.3.16.1, 6.5.2.3.16.2, 6.5.2.3.17, 6.5.2.3.17.1, 6.5.2.3.18 and 6.5.2.3.18.1.

5.2.3.13 The clause 6.6.5.3.5 shall be replaced with:

The rows A33 & A34 in section 5.4.3.2 shall be replaced with:

A33	The “SoM position report” message, marked as referring to a “valid train position referred to an LRBG”, shall be transmitted to the RBC together with valid Train running number, if already stored on-board. If already stored on-board, valid Train Data shall be transmitted to the RBC immediately after the “SoM position report” message. This condition leads to **S10**.
A34	If the train position data stored in the on-board equipment is of status “invalid” and refers to an LRBG, the “SoM position report” message, marked as referring to an “invalid train position referred to an LRBG”, shall be transmitted to the RBC. Otherwise the "SoM position report" message, marked as referring to "no train position referred to an LRBG” and with the LRBG identity set to "unknown", shall be transmitted to the RBC. In both cases valid Train running number, if already stored on-board, shall be included in the “SoM position report” message. In both cases valid Train Data, if already stored on-board, shall be transmitted to the RBC immediately after the “SoM position report” message. The process shall then go to **D33**

5.2.3.14 The section 6.6.5.3.7 shall be replaced with:

Depending on the transmitted message/packet, the action can be:

a) data is unchanged,

b) data is deleted (i.e. it is not sent to the receiver)

c) data is translated,

d) not relevant (i.e. no corresponding requirement to trigger the sending is applicable)

D = Deleted T = Translated U = Unchanged NR = Not relevant

Mess $nb_{pck\ nb}$	Message name/packet name	Action
XXX_0	Position Report	T [1]
XXX_1	Position Report based on two balise groups	T [1]
159_2	On-board supported system versions	T [2]

Mess $nb_{pck\ nb}$	Message name/packet name	Action
XXX_4	Error Reporting	U [3]
XXX_5	Train Running Number	U
132_9	Level 2 transition information	U
129_{11}	Validated Train Data (packet)	U
129	Validated Train Data (message)	U
130	Request for Shunting	U
132	MA Request	U
136	Train Position Report	U
137	Request to shorten MA is granted	U
138	Request to shorten MA is rejected	U
146	Acknowledgement	U
147	Acknowledgement of Emergency Stop	U
149	Track Ahead Free Granted	U
150	End of Mission	U
153	Radio infill request	U
154	No compatible version supported	U
155	Initiation of a communication session	U
156	Termination of a communication session	U
157	SoM Position Report	U [4]
158	Text message acknowledged by driver	U
159	Session Established	U

[1] the packet 0 and the packet 1 shall be translated as follows:

Description	This packet is used to report the train position and speed as well as some additional information (e.g. mode, level, etc.)		
Transmitted to	RBC, RIU		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	L_PACKET	13	
	Q_SCALE	2	
	NID_LRBG	10 + 14	
	D_LRBG	15	
	Q_DIRLRBG	2	
	Q_DLRBG	2	

	L_DOUBTOVER	15	
	L_DOUBTUNDER	15	
	Q_INTEGRITY	2	
	L_TRAININT	15	
	V_TRAIN	7	
	Q_DIRTRAIN	2	
	M_MODE	4	See translation [1a]
	M_LEVEL	3	See translation [1b]
	NID_NTC	8	

Description	This packet is an extension of the “standard position report“ packet 0. It is used in case of single balise groups if the orientation of the LRBG is unknown but the on-board equipment is able to report a second balise group (the one detected before) to give a direction reference for the directional information in the position report.		
Transmitted to	RBC, RIU		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	L_PACKET	13	
	Q_SCALE	2	
	NID_LRBG	10 + 14	
	NID_PRVLRBG	10 + 14	
	D_LRBG	15	
	Q_DIRLRBG	2	
	Q_DLRBG	2	
	L_DOUBTOVER	15	
	L_DOUBTUNDER	15	
	Q_INTEGRITY	2	
	L_TRAININT	15	
	V_TRAIN	7	
	Q_DIRTRAIN	2	
	M_MODE	4	See translation [1a]
	M_LEVEL	3	See translation [1b]
	NID_NTC	8	

[1a] M_MODE shall be set according to the following table:

Value that corresponds the mode operated on-board	Transmitted value to an X.Y=2.0 RBC

0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	0

[1b] See translation [1b] referred to in 6.6.3.4.5, which applies by analogy

[2] See translation [6] referred to in 6.6.3.4.5, which applies by analogy

[3] Exception: if M_ERROR (as per 7.5.1.64) = 9 or 10, then the packet shall be deleted

[4] Exception: the packet 11, if any, shall be deleted

5.2.3.15 The clause 6.6.5.4.4 shall be replaced with: “The clause 6.6.5.3.5 shall apply.”

5.2.3.16 The section 6.6.5.4.6 shall be replaced with:

Depending on the transmitted message/packet, the action can be:

a) data is unchanged,
b) data is deleted (i.e. it is not sent to the receiver)
c) data is translated,
d) not relevant (i.e. no corresponding requirement to trigger the sending is applicable)

D = Deleted T = Translated U = Unchanged NR = Not relevant

Mess $nb_{pck\ nb}$	Message name/packet name	Action
XXX_0	Position Report	T [1]
XXX_1	Position Report based on two balise groups	T [1]

Mess $nb_{pck\ nb}$	Message name/packet name	Action
159_2	On-board supported system versions	U
XXX_4	Error Reporting	U [2]
XXX_5	Train Running Number	U
132_9	Level 2 transition information	U
129_{11}	Validated Train Data (packet)	U
129	Validated Train Data (message)	U
130	Request for Shunting	U
132	MA Request	U
136	Train Position Report	U
137	Request to shorten MA is granted	U
138	Request to shorten MA is rejected	U
146	Acknowledgement	U
147	Acknowledgement of Emergency Stop	U
149	Track Ahead Free Granted	U
150	End of Mission	U
153	Radio infill request	U
154	No compatible version supported	U
155	Initiation of a communication session	U
156	Termination of a communication session	U
157	SoM Position Report	U [3]
158	Text message acknowledged by driver	U
159	Session Established	U

[1] See translation [1] referred to in 6.6.5.3.7

[2] See exception [3] referred to in 6.6.5.3.7

[3] Exception: the packet 11, if any, shall be deleted

5.2.3.17 The clause 6.6.5.5.4 shall not apply because it is superseded by the exceptions to the rows A33 & A34 in section 5.4.3.2.

5.2.3.18 The sections 6.6.5.5.6 & 6.6.5.6.3 shall be replaced with:

Depending on the transmitted message/packet, the action can be:

a) data is unchanged,

b) data is deleted (i.e. it is not sent to the receiver)

c) data is translated,

d) not relevant (i.e. no corresponding requirement to trigger the sending is applicable)

D = Deleted T = Translated U = Unchanged NR = Not relevant

Mess $nb_{pck\ nb}$	Message name/packet name	Action
XXX_0	Position Report	T [1]
XXX_1	Position Report based on two balise groups	T [1]
159_2	On-board supported system versions	U
XXX_4	Error Reporting	U
XXX_5	Train Running Number	U
132_9	Level 2 transition information	U
129_{11}	Validated Train Data (packet)	U
129	Validated Train Data (message)	U
130	Request for Shunting	U
132	MA Request	U
136	Train Position Report	U
137	Request to shorten MA is granted	U
138	Request to shorten MA is rejected	U
146	Acknowledgement	U
147	Acknowledgement of Emergency Stop	U
149	Track Ahead Free Granted	U
150	End of Mission	U
153	Radio infill request	U
154	No compatible version supported	U
155	Initiation of a communication session	U
156	Termination of a communication session	U
157	SoM Position Report	U
158	Text message acknowledged by driver	U
159	Session Established	U

[1] the packet 0 and the packet 1 shall be translated as follows:

Description	This packet is used to report the train position and speed as well as some additional information (e.g. mode, level, etc.)		
Transmitted to	RBC, RIU		
Content	**Variable**	**Length**	**Comment**

NID_PACKET	8	
L_PACKET	13	
Q_SCALE	2	
NID_LRBG	10 + 14	
D_LRBG	15	
Q_DIRLRBG	2	
Q_DLRBG	2	
L_DOUBTOVER	15	
L_DOUBTUNDER	15	
Q_INTEGRITY	2	
L_TRAININT	15	
V_TRAIN	7	
Q_DIRTRAIN	2	
M_MODE	5	
M_LEVEL	3	See translation [1a]
NID_NTC	8	

Description	This packet is an extension of the “standard position report“ packet 0. It is used in case of single balise groups if the orientation of the LRBG is unknown but the on-board equipment is able to report a second balise group (the one detected before) to give a direction reference for the directional information in the position report.		
Transmitted to	RBC, RIU		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	L_PACKET	13	
	Q_SCALE	2	
	NID_LRBG	10 + 14	
	NID_PRVLRBG	10 + 14	
	D_LRBG	15	
	Q_DIRLRBG	2	
	Q_DLRBG	2	
	L_DOUBTOVER	15	
	L_DOUBTUNDER	15	
	Q_INTEGRITY	2	
	L_TRAININT	15	
	V_TRAIN	7	
	Q_DIRTRAIN	2	
	M_MODE	5	

	M_LEVEL	3	See translation [1a]
	NID_NTC	8	

[1a] See translation [1b] referred to in 6.6.3.4.5, which applies by analogy

5.2.3.19 The table in section 7.4.1.1 shall be replaced with:

Packet Number	Packet Name	Page N°
0	Virtual Balise Cover marker	
2	System Version order	
3	National Values	
5	Linking	
6	Virtual Balise Cover order	
12	Level 1 Movement Authority	
13	Staff Responsible distance information from loop	
15	Level 2 Movement Authority	
16	Repositioning Information	
21	Gradient Profile	
27	International Static Speed Profile	
39	Track Condition Change of traction system	
40	Track Condition Change of allowed current consumption	
41	Level Transition Order	
42	Session Management for RBC interfaced to GSM-R	
44	Data used by applications outside the ERTMS/ETCS system.	
45	Radio Network registration	
46	Conditional Level Transition Order	
49	List of Balise Groups for SH Area	
51	Axle load Speed Profile	
52	Permitted Braking Distance Information	
57	Movement Authority Request Parameters	
58	Position Report Parameters	
63	List of Balise Groups in SR Authority	
64	Inhibition of revocable TSRs from balises in level 2	
65	Temporary Speed Restriction	
66	Temporary Speed Restriction Revocation	
67	Track Condition Big Metal Masses	
68	Track Condition	
69	Track Condition Station Platforms	
70	Route Suitability Data	
71	Adhesion Factor	
73	Packet for sending plain text messages	
74	Packet for sending fixed text messages	
79	Geographical Position Information	
80	Mode profile	
88	Level crossing information	
90	Track Ahead Free up to level 2 transition location	
131	RBC transition order for RBC interfaced to GSM-R	
132	Danger for Shunting information	

Packet Number	Packet Name	Page N°
133	Radio infill area information	
134	EOLM Packet	
135	Stop Shunting on desk opening	
136	Infill location reference	
137	Stop if in Staff Responsible	
138	Reversing area information	
139	Reversing supervision information	
140	Train running number from RBC	
141	Default Gradient for Temporary Speed Restriction	
143	Session Management with neighbouring Radio Infill Unit	
145	Inhibition of balise group message consistency reaction	
180	LSSMA display toggle order	
181	Generic LS function marker	
254	Default balise, loop or RIU information	
255	End of Information	

5.2.3.20 The Table 7.5.1.72 (M_MODE) shall be replaced with:

Name	Onboard operating mode		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
5 bits			
Special/Reserved Values	0	Full Supervision	
	1	On Sight	
	2	Staff Responsible	
	3	Shunting	
	4	Unfitted	
	5	Sleeping	
	6	Stand By	
	7	Trip	
	8	Post Trip	
	9	System Failure	
	10	Isolation	
	11	Non Leading	
	12	Limited Supervision	
	13	National System	
	14	Reversing	
	15	Passive Shunting	
	16	Automatic Driving	
	17-31	Spare	

5.2.3.21 The Table 7.5.1.73 (M_MODETEXTDISPLAY) shall be replaced with:

Name	On-board operating mode for text display		
Description	The display of the text starts if the on-board is in the defined mode/ends if the on-board executes a transition from the defined mode		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
4 bits			
Special/Reserved Values	0	Full Supervision	
	1	On Sight	
	2	Staff Responsible	
	3	Automatic Driving	
	4	Unfitted	
	5	Spare	
	6	Stand By	
	7	Trip	
	8	Post Trip	
	9	Spare	
	10	Spare	
	11	Spare	
	12	Limited Supervision	
	13	Spare	
	14	Reversing	
	15	No “mode” sub-condition specified for the start/end condition of the display of the text	

5.2.3.22 The table in clause 8.4.4.4.1.1 shall be replaced with:

Common optional packets
3, 5, 39, 40, 51, 41, 42, 44, 45, 52, 57, 58, 64, 65, 66, 68, 69, 70, 71, 73, 74, 79, 88, 131, 138, 139, 140, 180

5.2.3.23 The clause 8.4.4.4.3 shall be replaced with: “The train to track message 157 (SoM Position Report) may optionally include the following packets:

a) Packet 4 (Error Reporting, see section 3.16.4),

b) Packet 5 (Train running number, see section 5.4.3.2 A33&A34),

c) Packet 11 (Train Data, see section 5.4.3.2 A33&A34),

d) Packet 44 (Data used by applications outside the ERTMS/ETCS system).”

5.3 SUBSET-027

5.3.1 Exceptions applicable to all reduced envelopes of ETCS system versions

5.3.1.1 The table TRAIN DATA in section 4.2.4.2 shall be replaced with:

Description	This message contains the train data.		
Content	**Complementary Variable**	**Length**	**Comment**
	V_MAXTRAIN		Maximum train speed for the train. Defined in Chapter 7 of [1]
	NC_CDTRAIN		Cant deficiency train category. Defined in Chapter 7 of [1]
	NC_TRAIN		Other international train category. Defined in Chapter 7 of [1]
	L_TRAIN		Train length. Defined in Chapter 7 of [1]
	T_TRACTION_CUT_OFF	12	
	M_BRAKE_POSITION	2	
	M_NOM_ROT_MASS	5	
	Q_BRAKE_CAPT_TYPE	1	
	M_BRAKE_PERCENTAGE	8	Only if Q_BRAKE_CAPT_TYPE = 0
	N_BRAKE_CONF	4	Only if Q_BRAKE_CAPT_TYPE = 0
	M_BRAKE_LAMBDA_CONF(k)	3	Only if Q_BRAKE_CAPT_TYPE = 0: specific configuration of the special brakes for lambda train
	T_BRAKE_SERVICE(k)	12	Only if Q_BRAKE_CAPT_TYPE = 0: Service Brake equivalent brake build up time for target speed = 0
	T_BRAKE_SERVICE(k)	12	Only if Q_BRAKE_CAPT_TYPE = 0: Service Brake equivalent build up time for target speed > 0
	N_BRAKE_CONF	4	Only if Q_BRAKE_CAPT_TYPE = 1 (gamma type), N_BRAKE_CONF and the following variables follow until A_BRAKE_SERVICE_COMP inclusive
	M_BRAKE_GAMMA_CONF(k)	4	Specific configuration of the special brakes for gamma trains
	T_BRAKE_EMERGENCY(k)	12	Emergency Brake equivalent brake build up time
	N_BRAKE_SECTIONS(k)	3	Number of sections in order to build the following brake model.

V_BRAKE_EMERGENCY_COMP(k, m)	10	Speed component of the emergency brake nominal deceleration.
A_BRAKE_EMERGENCY_COMP(k, m)	8	Acceleration component of the emergency brake nominal deceleration.
M_KDRY_RST(A_BRAKE_EMERGENCY_COMP(k, m), 0)	5	Rolling stock correction factor on dry rail for a confidence level equal to 50 %
M_KDRY_RST(A_BRAKE_EMERGENCY_COMP(k, m), 1)	5	Rolling stock correction factor on dry rail for a confidence level equal to 90 %
M_KDRY_RST(A_BRAKE_EMERGENCY_COMP(k, m), 2)	5	Rolling stock correction factor on dry rail for a confidence level equal to 99 %
M_KDRY_RST(A_BRAKE_EMERGENCY_COMP(k, m), 3)	5	Rolling stock correction factor on dry rail for a confidence level equal to 99,9 %
M_KDRY_RST(A_BRAKE_EMERGENCY_COMP(k, m), 4)	5	Rolling stock correction factor on dry rail for a confidence level equal to 99,99 %
M_KDRY_RST(A_BRAKE_EMERGENCY_COMP(k, m), 5)	5	Rolling stock correction factor on dry rail for a confidence level equal to 99,999 %
M_KDRY_RST(A_BRAKE_EMERGENCY_COMP(k, m), 6)	5	Rolling stock correction factor on dry rail for a confidence level equal to 99,9999 %
M_KDRY_RST(A_BRAKE_EMERGENCY_COMP(k, m), 7)	5	Rolling stock correction factor on dry rail for a confidence level equal to 99,99999 %
M_KDRY_RST(A_BRAKE_EMERGENCY_COMP(k, m), 8)	5	Rolling stock correction factor on dry rail for a confidence level equal to 99,999999 %
M_KDRY_RST(A_BRAKE_EMERGENCY_COMP(k, m), 9)	5	Rolling stock correction factor on dry rail for a confidence level equal to 99,9999999 %
M_KWET_RST(A_BRAKE_EMERGENCY_COMP(k, m))	5	Rolling stock correction factor on wet rail
T_BRAKE_SERVICE(k)	12	Service Brake equivalent brake build up time
N_BRAKE_SECTIONS(k)	3	Number of sections in order to build the following brake model.
V_BRAKE_SERVICE_COMP(k, m)	10	Speed component of the service brake nominal deceleration.

A_BRAKE_SERVICE_COMP(k, m)	8	Acceleration component of the service brake nominal deceleration.
M_LOADINGGAUGE		Loading gauge. Defined in Chapter 7 of [1]
N_AXLE		Axle number of the engine. Defined in Chapter 7 of [1]
M_AXLELOADCAT		Axle load category. Defined in Chapter 7 of [1]
N_ITER		Number of iterations. Defined in Chapter 7 of [1]
M_VOLTAGE(k)		Traction system voltage. Defined in Chapter 7 of [1]
NID_CTRACTION(k)		Only if M_VOLTAGE(k) ≠ 0. Country identifier of the traction system. Defined in Chapter 7 of [1]
N_ITER		Number of iterations. Defined in Chapter 7 of [1]
NID_NTC(k)		National system identity. Defined in Chapter 7 of [1]
M_AIRTIGHT		Airtight system presence. Defined in Chapter 7 of [1]

5.3.1.2 The tables T_BRAKE_SERVICE_REACT & T_BRAKE_EMERGENCY_REACT in section 4.2.4.2 shall not apply.

5.3.1.3 The section 4.2.4.23 shall be replaced with:

DMI SYSTEM STATUS MESSAGE

Description	This message contains which system status messages are displayed to the driver		
Content	**Complementary Variable**	**Length**	**Comment**
	SYSTEM_STATUS_MESSAGE	27	

SYSTEM_STATUS_MESSAGE

Name	SYSTEM STATUS MESSAGE		
Description	System status message displayed to the driver A bit set to '1' means that the corresponding system status message is displayed		
Length of variable	**Bit number**	**Definition**	**Resolution/formula**
27 bits		as in chapter 15 of [3]	Bitset The least significant bit of the variable corresponds to bit 01.

Special/Reserved Values	Bit 01	Balise read error
	Bit 02	Trackside malfunction
	Bit 03	Communication error
	Bit 04	Entering FS
	Bit 05	Entering OS
	Bit 06	Runaway movement
	Bit 07	SH refused
	Bit 08	SH request failed
	Bit 09	Trackside not compatible
	Bit 10	Train data changed
	Bit 11	Train is rejected
	Bit 12	Unauthorized passing of EOA / LOA
	Bit 13	No MA received at level transition
	Bit 14	SR distance exceeded
	Bit 15	SH stop order
	Bit 16	SR stop order
	Bit 17	Emergency stop
	Bit 18	RV distance exceeded
	Bit 19	No track description
	Bit 20	Route unsuitable – axle load category
	Bit 21	Route unsuitable – loading gauge
	Bit 22	Route unsuitable – traction system
	Bit 23	Radio network registration failed
	Bit 24	Spare
	Bit 25	PT distance exceeded
	Bit 26	Spare
	Bit 27	Odometer impaired

5.3.1.4 The section 4.2.4.24 shall be replaced with:

RBC CONTACT INFORMATION ENTERED BY THE DRIVER

Description	This message contains the RBC contact information entered by the driver.		
Content	**Complementary Variable**	**Length**	**Comment**
	Q_RBCENTRY	2	
	NID_C		Only if Q_RBCENTRY = 2 Identity of the country or region complementing the RBC identity number. Defined in chapter 7 of [1]
	NID_RBC		Only if Q_RBCENTRY = 2 RBC ETCS identity number. Defined in Chapter 7 of [1]
	NID_RADIO		Only if Q_RBCENTRY = 2 Radio subscriber number. Defined in Chapter 7 of [1]

Q_RBCENTRY

Name	Qualifier for the RBC contact information		
Description	This variable indicates the type of driver's selection for the RBC data		
Length of variable	**Minimum Value**	**Maximum Value**	**Resolution/formula**
2 bit			
Special/reserved value	0	Contact last known RBC	
	1	Use short number	
	2	Enter RBC data	
	3	Spare	

5.3.1.5 The section 4.2.4.51 shall not apply.

5.3.1.6 The section 4.2.4.54 shall not apply.

5.3.2 Exceptions applicable only to the reduced envelope of ETCS system versions up to X.Y = 2.1

5.3.2.1 The table 1 shall be replaced with:

NID_MESSAGE	MESSAGE	PAGE
1	GENERAL MESSAGE	
2	TRAIN DATA	
3	EMERGENCY BRAKE COMMAND STATE	
4	SERVICE BRAKE COMMAND STATE	
5	MESSAGE TO RADIO INFILL UNIT	
6	TELEGRAM FROM BALISE	
7	MESSAGE FROM EUROLOOP	
8	MESSAGE FROM RADIO INFILL UNIT	
9	MESSAGE FROM RBC	
10	MESSAGE TO RBC	
11	DRIVER'S ACTIONS	
12	BALISE GROUP ERROR	
13	RADIO ERROR	
14	STM INFORMATION	
15	INFORMATION FROM COLD MOVEMENT DETECTOR	
16	START DISPLAYING FIXED TEXT MESSAGE	

17	STOP DISPLAYING FIXED TEXT MESSAGE	
18	START DISPLAYING PLAIN TEXT MESSAGE	
19	STOP DISPLAYING PLAIN TEXT MESSAGE	
20	SPEED AND DISTANCE MONITORING INFORMATION	
21	DMI SYMBOL STATUS	
22	DMI SOUND STATUS	
23	DMI SYSTEM STATUS MESSAGE	
24	RBC CONTACT INFORMATION ENTERED BY THE DRIVER	
25	SR SPEED/DISTANCE ENTERED BY THE DRIVER	
26	NTC SELECTED	
27	SAFETY CRITICAL FAULT IN MODE SL, NL OR PS	
28	VIRTUAL BALISE COVER SET BY THE DRIVER	
29	VIRTUAL BALISE COVER REMOVED BY THE DRIVER	
30	SLEEPING INPUT	
31	PASSIVE SHUNTING INPUT	
32	NON LEADING INPUT	
33	REGENERATIVE BRAKE STATUS	
34	MAGNETIC SHOE BRAKE STATUS	
35	EDDY CURRENT BRAKE STATUS	
36	ELECTRO PNEUMATIC BRAKE STATUS	
37	ADDITIONAL BRAKE STATUS	
38	CAB STATUS	
39	DIRECTION CONTROLLER POSITION	
40	TRACTION STATUS	
41	TYPE OF TRAIN DATA	
42	NATIONAL SYSTEM ISOLATION	
43	TRACTION CUT OFF COMMAND STATE	
44	LOWEST SUPERVISED SPEED WITHIN THE MOVEMENT AUTHORITY	

45	TRACK CONDITIONS	
46	SET SPEED	
47	BRAKE AND TRACTION INTERFACE CONFIGURATION	
48	RADIO NETWORK ID ENTERED BY THE DRIVER	
49	TRAIN RUNNING NUMBER ENTERED BY THE DRIVER	
50	TRAIN INTEGRITY INFORMATION	
51	SPARE	
52	ODOMETER ACCURACY MONITORING ERROR	
53-254	SPARE	
255	ETCS ON-BOARD PROPRIETARY JURIDICAL DATA	

5.3.2.2 The table M_DRIVERACTIONS in section 4.2.4.11 shall be replaced with:

M_DRIVERACTIONS

Name	Driver's actions.		
Description	This variable contains the driver's action.		
Length of variable	**Minimum Value**	**Maximum Value**	**Resolution/formula**
8 bit			
Special/Reserved Values	0000 0000	Ack of On Sight mode	
	0000 0001	Ack of Shunting mode	
	0000 0010	Ack of Train Trip	
	0000 0011	Ack of Staff Responsible mode	
	0000 0100	Ack of Unfitted mode	
	0000 0101	Ack of Reversing mode	
	0000 0110	Ack level 0	
	0000 0111	Spare	
	0000 1000	Spare	
	0000 1001	Spare	
	0000 1010	Ack level NTC	
	0000 1011	Shunting selected	
	0000 1100	Non Leading selected	
	0000 1101	Ack of Limited Supervision mode	
	0000 1110	Override selected	
	0000 1111	"Continue Shunting on desk closure" selected	
	0001 0000	Brake release acknowledgement	
	0001 0001	Exit of Shunting selected	
	0001 0010	Isolation selected	

	0001 0011	Start selected
	0001 0100	Train Data Entry requested
	0001 0101	Validation of train data
	0001 0110	Confirmation of Track Ahead Free
	0001 0111	Ack of Plain Text information
	0001 1000	Ack of Fixed Text information
	0001 1001	Request to hide supervision limits
	0001 1010	Train integrity confirmation
	0001 1011	Request to show supervision limits
	0001 1100	Ack of SN mode
	0001 1101	Selection of Language
	0001 1110	Request to show geographical position
	0001 1111	Request to hide geographical position
	0010 0000	“Slippery rail” selected
	0010 0001	“Non slippery rail” selected
	0010 0010	Level 0 selected
	0010 0011	Level 1 selected
	0010 0100	Level 2 selected
	0010 0101	Spare
	0010 0110	Level NTC selected
	0010 0111	Request to show tunnel stopping area information
	0010 1000	Request to hide tunnel stopping area information
	0010 1001	Scroll up button activated
	0010 1010	Scroll down button activated

5.3.2.3 The section 4.2.4.21 shall be replaced with:

DMI SYMBOL STATUS

Description	This message contains the status of the set of symbols that can be displayed on the DMI (except planning, navigation and settings related symbols that are not considered as relevant for juridical recording).		
Content	**Complementary Variable**	**Length**	**Comment**
	DMI_SYMB_STATUS	87	

DMI_SYMB_STATUS

Name	DMI SYMBOL STATUS		
Description	Status of the symbols displayed to the driver A bit set to ‘1’ means that the corresponding symbol is displayed.		
Length of variable	**Bit number**	**Definition**	**Resolution/formula**
87 bits		as in chapter 13 of [3]	Bitset The bit 01 corresponds to the least significant bit of the variable

Special/Reserved Values	Bit 01	LE01
	Bit 02	LE02
	Bit 03	LE03
	Bit 04	LE04
	Bit 05	spare
	Bit 06	LE06
	Bit 07	LE07
	Bit 08	LE08
	Bit 09	LE09
	Bit 10	LE10
	Bit 11	spare
	Bit 12	LE12
	Bit 13	spare
	Bit 14	spare
	Bit 15	spare
	Bit 16	MO01
	Bit 17	MO02
	Bit 18	MO03
	Bit 19	MO04
	Bit 20	MO05
	Bit 21	MO06
	Bit 22	MO07
	Bit 23	MO08
	Bit 24	MO09
	Bit 25	MO10
	Bit 26	MO11
	Bit 27	MO12
	Bit 28	MO13
	Bit 29	MO14
	Bit 30	MO15
	Bit 31	MO16
	Bit 32	MO17
	Bit 33	MO18
	Bit 34	MO19
	Bit 35	MO20
	Bit 36	MO21
	Bit 37	MO22
	Bit 38	ST01
	Bit 39	ST02
	Bit 40	ST03
	Bit 41	ST04
	Bit 42	ST05
	Bit 43	ST06
	Bit 44	TC01
	Bit 45	TC02
	Bit 46	TC03
	Bit 47	TC04
	Bit 48	TC05

	Bit 49	TC06
	Bit 50	TC07
	Bit 51	TC08
	Bit 52	TC09
	Bit 53	TC10
	Bit 54	TC11
	Bit 55	TC12
	Bit 56	TC13
	Bit 57	TC14
	Bit 58	TC15
	Bit 59	TC16
	Bit 60	TC17
	Bit 61	TC18
	Bit 62	TC19
	Bit 63	TC20
	Bit 64	TC21
	Bit 65	TC22
	Bit 66	TC23
	Bit 67	TC24
	Bit 68	TC25
	Bit 69	TC26
	Bit 70	TC27
	Bit 71	TC28
	Bit 72	TC29
	Bit 73	TC30
	Bit 74	TC31
	Bit 75	TC32
	Bit 76	TC33
	Bit 77	TC34
	Bit 78	TC35
	Bit 79	TC36
	Bit 80	TC37
	Bit 81	DR01
	Bit 82	DR02
	Bit 83	DR03
	Bit 84	DR04
	Bit 85	DR05
	Bit 86	LX01
	Bit 87	LS01

5.3.2.4 The section 4.2.4.53 shall not apply.

5.3.2.5 The table 2 shall be replaced with:

TRIGGERING EVENT	NID_MESSAGE
Every 5 seconds	1
When the operated system version changes	1

When the level changes	1 (and 26 when level changes to NTC)
When the mode changes	1
When train data are validated at SoM	2
When train data are changed	2
When the state of the emergency brake command changes	3
When the state of the service brake command changes	4
When a telegram from an Eurobalise is received	6
When a message from an Euroloop is received	7
When a message from a RIU is received	8
When a message to a RIU is sent	5
When a message from a RBC is received	9
When a message to a RBC is sent	10
When a balise group error is detected	12
When a radio message error is detected	13
When a safety critical fault in mode SL, NL or PS occurs	27
At start up[2]	15, 47
When the driver acts on the on-board system through the DMI	11
When a fixed text message is shown to the driver	16
When a fixed text message is not shown any more to the driver	17
When a plain text message is shown to the driver	18
When a plain text message is not shown any more to the driver	19
When any of the speed and distance monitoring information changes	20
When the LSSMA appears, changes or disappears on the DMI	44
When the Set Speed appears, changes or disappears on the DMI	46

When any of the DMI symbols appears or disappears	21
When the playing of any audible information to the driver is started	22
When any of the system status messages appears or disappears on the DMI	23
When any of the STM related system status messages appears or disappears on the DMI	14
When the driver selects “Contact last known RBC”, “Use short number” or when the driver has entered/re-entered/revalidated the RBC data	24
When the driver has entered a GSM-R Radio Network ID	48
When the driver has entered/re-entered/revalidated the Train Running Number	49
When the driver changes the SR speed/distance	25
When the driver sets a Virtual Balise Cover	28
When the driver removes a Virtual Balise Cover	29
In any of the following events • At start up[2] • When the sleeping input state changes	30
In any of the following events • At start up[2] • When the passive shunting input state changes	31
At start up[2] and when the non leading input state changes	32
Only if the ERTMS/ETCS onboard is interfaced with the regenerative brake: • At start up[2] • When the status of the regenerative brake changes	33
Only if the ERTMS/ETCS onboard is interfaced with the magnetic shoe brake in any of the following events: • At start up[2] • When the status of the magnetic shoe brake changes	34
Only if the ERTMS/ETCS onboard is interfaced with the eddy current brake in any of the following events:	35

• At start up[2] • When the status of the eddy current brake changes	
Only if the ERTMS/ETCS onboard is interfaced with the electro pneumatic brake in any of the following events: • At start up[2] • When the status of the electro pneumatic brake changes	36
Only if the ERTMS/ETCS onboard is interfaced with the additional brakes in any of the following events • At start up[2] • When the status of the additional brake changes	37
At start up[2] and when the cab status changes	38
In any of the following events: • At start up[2] if a cab is already active • When a cab becomes active • When the direction controller input state changes	39
In any of the following events: • At start up[2] • When the status of the traction changes	40
In any of the following events: • At start up[2] if a cab is already active • When a cab becomes active • When the type of the train data changes	41
In any of the following events: • At start up[2] • When the isolation status of any National System changes	42
When the traction cut off command state changes	43
When any of the following packets is sent to an STM: • STM-14 State order • STM-20 Antenna/BTM ID • STM-22 Test Procedure Permission	14

• STM-31 Active DMI channel • STM-34 Button event report • STM-40 Acknowledgement reply • STM-47 ETCS BTM status message to STM	
When any of the following packets is received from an STM: • STM-6 Override activation • STM-16 STM max speed • STM-17 STM system speed and distance • STM-18 National Trip Procedure • STM-21 Test Procedure Permission Request • STM-23 End of Test Procedure • STM-32 Button Request • STM-35 Indicator request • STM-38 Text message • STM-39 Delete text message • STM-46 Sound command • STM-128 Brake command • STM-129 STM specific brake control command • STM-130 STM commands to train interface • STM-161 NTC juridical data	14
When packet STM-15 State report from STM is received from an STM: • after a (re)connection • or with a different value of NID_STMSTATE with regards to previously-received packet STM-15	14
When packet STM-43 Speed and distance supervision information is received from an STM with a different value of any variable except D_TARGET with regards to previously-received packet STM-43	14
At any STM disconnect event	14
Each time information related to track condition(s) is provided to an ERTMS/ETCS external function	45

Only if the ERTMS/ETCS on-board is interfaced with a train integrity external source in any of the following events: • At start up[2] • When the train integrity information changes	50
When any of the thresholds related to the odometer accuracy monitoring is reached	52

Table 2: List of triggering events and related messages

[2] i.e. once the ERTMS/ETCS on-board is powered up, when the connection with the On-board Recording Device is established.

5.3.3 Exceptions applicable only to the reduced envelope of ETCS system versions up to X.Y = 2.2

5.3.3.1 The table 1 shall be replaced with:

NID_MESSAGE	MESSAGE	PAGE
1	GENERAL MESSAGE	
2	TRAIN DATA	
3	EMERGENCY BRAKE COMMAND STATE	
4	SERVICE BRAKE COMMAND STATE	
5	MESSAGE TO RADIO INFILL UNIT	
6	TELEGRAM FROM BALISE	
7	MESSAGE FROM EUROLOOP	
8	MESSAGE FROM RADIO INFILL UNIT	
9	MESSAGE FROM RBC	
10	MESSAGE TO RBC	
11	DRIVER'S ACTIONS	
12	BALISE GROUP ERROR	
13	RADIO ERROR	
14	STM INFORMATION	
15	INFORMATION FROM COLD MOVEMENT DETECTOR	
16	START DISPLAYING FIXED TEXT MESSAGE	
17	STOP DISPLAYING FIXED TEXT MESSAGE	
18	START DISPLAYING PLAIN TEXT MESSAGE	
19	STOP DISPLAYING PLAIN TEXT MESSAGE	
20	SPEED AND DISTANCE MONITORING INFORMATION	
21	DMI SYMBOL STATUS	
22	DMI SOUND STATUS	
23	DMI SYSTEM STATUS MESSAGE	
24	RBC CONTACT INFORMATION ENTERED BY THE DRIVER	
25	SR SPEED/DISTANCE ENTERED BY THE DRIVER	

26	NTC SELECTED	
27	SAFETY CRITICAL FAULT IN MODE SL, NL OR PS	
28	VIRTUAL BALISE COVER SET BY THE DRIVER	
29	VIRTUAL BALISE COVER REMOVED BY THE DRIVER	
30	SLEEPING INPUT	
31	PASSIVE SHUNTING INPUT	
32	NON LEADING INPUT	
33	REGENERATIVE BRAKE STATUS	
34	MAGNETIC SHOE BRAKE STATUS	
35	EDDY CURRENT BRAKE STATUS	
36	ELECTRO PNEUMATIC BRAKE STATUS	
37	ADDITIONAL BRAKE STATUS	
38	CAB STATUS	
39	DIRECTION CONTROLLER POSITION	
40	TRACTION STATUS	
41	TYPE OF TRAIN DATA	
42	NATIONAL SYSTEM ISOLATION	
43	TRACTION CUT OFF COMMAND STATE	
44	LOWEST SUPERVISED SPEED WITHIN THE MOVEMENT AUTHORITY	
45	TRACK CONDITIONS	
46	SET SPEED	
47	BRAKE AND TRACTION INTERFACE CONFIGURATION	
48	RADIO NETWORK ID ENTERED BY THE DRIVER	
49	TRAIN RUNNING NUMBER ENTERED BY THE DRIVER	
50	TRAIN INTEGRITY INFORMATION	
51	SPARE	
52	ODOMETER ACCURACY MONITORING ERROR	
53	TARGET ADVICE SPEED	

54-254	SPARE	
255	ETCS ON-BOARD PROPRIETARY JURIDICAL DATA	

5.3.3.2 The table M_DRIVERACTIONS in section 4.2.4.11 shall be replaced with:

M_DRIVERACTIONS

Name	Driver's actions.		
Description	This variable contains the driver's action.		
Length of variable	**Minimum Value**	**Maximum Value**	**Resolution/formula**
8 bit			
Special/Reserved Values	0000 0000	Ack of On Sight mode	
	0000 0001	Ack of Shunting mode	
	0000 0010	Ack of Train Trip	
	0000 0011	Ack of Staff Responsible mode	
	0000 0100	Ack of Unfitted mode	
	0000 0101	Ack of Reversing mode	
	0000 0110	Ack level 0	
	0000 0111	Spare	
	0000 1000	Spare	
	0000 1001	Spare	
	0000 1010	Ack level NTC	
	0000 1011	Shunting selected	
	0000 1100	Non Leading selected	
	0000 1101	Ack of Limited Supervision mode	
	0000 1110	Override selected	
	0000 1111	"Continue Shunting on desk closure" selected	
	0001 0000	Brake release acknowledgement	
	0001 0001	Exit of Shunting selected	
	0001 0010	Isolation selected	
	0001 0011	Start selected	
	0001 0100	Train Data Entry requested	
	0001 0101	Validation of train data	
	0001 0110	Confirmation of Track Ahead Free	
	0001 0111	Ack of Plain Text information	
	0001 1000	Ack of Fixed Text information	
	0001 1001	Request to hide supervision limits	
	0001 1010	Train integrity confirmation	
	0001 1011	Request to show supervision limits	
	0001 1100	Ack of SN mode	
	0001 1101	Selection of Language	
	0001 1110	Request to show geographical position	

	0001 1111	Request to hide geographical position
	0010 0000	“Slippery rail” selected
	0010 0001	“Non slippery rail” selected
	0010 0010	Level 0 selected
	0010 0011	Level 1 selected
	0010 0100	Level 2 selected
	0010 0101	Spare
	0010 0110	Level NTC selected
	0010 0111	Request to show tunnel stopping area information
	0010 1000	Request to hide tunnel stopping area information
	0010 1001	Scroll up button activated
	0010 1010	Scroll down button activated
	0010 1011	ATO "On" selected
	0010 1100	ATO "Stand by" selected
	0010 1101	ATO engage selected
	0010 1110	ATO disengage selected
	0010 1111	Request to skip ATO stopping point
	0011 0000	Revoke skip ATO stopping point requested

5.3.3.3 The section 4.2.4.21 shall be replaced with:

DMI SYMBOL STATUS

Description	This message contains the status of the set of symbols that can be displayed on the DMI (except planning, navigation and settings related symbols that are not considered as relevant for juridical recording).		
Content	**Complementary Variable**	**Length**	**Comment**
	DMI_SYMB_STATUS	108	

DMI_SYMB_STATUS

Name	DMI SYMBOL STATUS		
Description	Status of the symbols displayed to the driver A bit set to ‘1’ means that the corresponding symbol is displayed.		
Length of variable	**Bit number**	**Definition**	**Resolution/formula**
108 bits		as in chapter 13 of [3]	Bitset The bit 01 corresponds to the least significant bit of the variable
Special/Reserved Values	Bit 01 Bit 02 Bit 03 Bit 04 Bit 05 Bit 06 Bit 07 Bit 08	LE01 LE02 LE03 LE04 spare LE06 LE07 LE08	

	Bit 09	LE09
	Bit 10	LE10
	Bit 11	spare
	Bit 12	LE12
	Bit 13	spare
	Bit 14	MO23
	Bit 15	spare
	Bit 16	MO01
	Bit 17	MO02
	Bit 18	MO03
	Bit 19	MO04
	Bit 20	MO05
	Bit 21	MO06
	Bit 22	MO07
	Bit 23	MO08
	Bit 24	MO09
	Bit 25	MO10
	Bit 26	MO11
	Bit 27	MO12
	Bit 28	MO13
	Bit 29	MO14
	Bit 30	MO15
	Bit 31	MO16
	Bit 32	MO17
	Bit 33	MO18
	Bit 34	MO19
	Bit 35	MO20
	Bit 36	MO21
	Bit 37	MO22
	Bit 38	ST01
	Bit 39	ST02
	Bit 40	ST03
	Bit 41	ST04
	Bit 42	ST05
	Bit 43	ST06
	Bit 44	TC01
	Bit 45	TC02
	Bit 46	TC03
	Bit 47	TC04
	Bit 48	TC05
	Bit 49	TC06
	Bit 50	TC07
	Bit 51	TC08
	Bit 52	TC09
	Bit 53	TC10
	Bit 54	TC11
	Bit 55	TC12
	Bit 56	TC13

	Bit 57	TC14
	Bit 58	TC15
	Bit 59	TC16
	Bit 60	TC17
	Bit 61	TC18
	Bit 62	TC19
	Bit 63	TC20
	Bit 64	TC21
	Bit 65	TC22
	Bit 66	TC23
	Bit 67	TC24
	Bit 68	TC25
	Bit 69	TC26
	Bit 70	TC27
	Bit 71	TC28
	Bit 72	TC29
	Bit 73	TC30
	Bit 74	TC31
	Bit 75	TC32
	Bit 76	TC33
	Bit 77	TC34
	Bit 78	TC35
	Bit 79	TC36
	Bit 80	TC37
	Bit 81	DR01
	Bit 82	DR02
	Bit 83	DR03
	Bit 84	DR04
	Bit 85	DR05
	Bit 86	LX01
	Bit 87	LS01
	Bit 88	spare
	Bit 89	ATO01
	Bit 90	ATO02
	Bit 91	ATO03
	Bit 92	ATO04
	Bit 93	ATO05
	Bit 94	ATO06
	Bit 95	ATO07
	Bit 96	ATO08
	Bit 97	ATO09
	Bit 98	ATO10
	Bit 99	ATO11
	Bit 100	ATO12
	Bit 101	ATO13
	Bit 102	ATO14
	Bit 103	ATO15
	Bit 104	ATO16

	Bit 105	ATO17
	Bit 106	ATO18
	Bit 107	ATO19
	Bit 108	ATO20

5.3.3.4 The table 2 shall be replaced with:

TRIGGERING EVENT	NID_MESSAGE
Every 5 seconds	1
When the operated system version changes	1
When the level changes	1 (and 26 when level changes to NTC)
When the mode changes	1
When train data are validated at SoM	2
When train data are changed	2
When the state of the emergency brake command changes	3
When the state of the service brake command changes	4
When a telegram from an Eurobalise is received	6
When a message from an Euroloop is received	7
When a message from a RIU is received	8
When a message to a RIU is sent	5
When a message from a RBC is received	9
When a message to a RBC is sent	10
When a balise group error is detected	12
When a radio message error is detected	13
When a safety critical fault in mode SL, NL or PS occurs	27
At start up[2]	15, 47
When the driver acts on the on-board system through the DMI	11
When a fixed text message is shown to the driver	16
When a fixed text message is not shown any more to the driver	17

When a plain text message is shown to the driver	18
When a plain text message is not shown any more to the driver	19
When any of the speed and distance monitoring information changes	20
When the LSSMA appears, changes or disappears on the DMI	44
When the Set Speed appears, changes or disappears on the DMI	46
When the Target Advice Speed appears, changes or disappears on the DMI	53
When any of the DMI symbols appears or disappears	21
When the playing of any audible information to the driver is started	22
When any of the system status messages appears or disappears on the DMI	23
When any of the STM related system status messages appears or disappears on the DMI	14
When the driver selects “Contact last known RBC”, “Use short number” or when the driver has entered/re-entered/revalidated the RBC data	24
When the driver has entered a GSM-R Radio Network ID	48
When the driver has entered/re-entered/revalidated the Train Running Number	49
When the driver changes the SR speed/distance	25
When the driver sets a Virtual Balise Cover	28
When the driver removes a Virtual Balise Cover	29
In any of the following events • At start up[2] • When the sleeping input state changes	30
In any of the following events • At start up[2] • When the passive shunting input state changes	31

At start up[2] and when the non leading input state changes	32
Only if the ERTMS/ETCS onboard is interfaced with the regenerative brake: • At start up[2] • When the status of the regenerative brake changes	33
Only if the ERTMS/ETCS onboard is interfaced with the magnetic shoe brake in any of the following events: • At start up[2] • When the status of the magnetic shoe brake changes	34
Only if the ERTMS/ETCS onboard is interfaced with the eddy current brake in any of the following events: • At start up[2] • When the status of the eddy current brake changes	35
Only if the ERTMS/ETCS onboard is interfaced with the electro pneumatic brake in any of the following events: • At start up[2] • When the status of the electro pneumatic brake changes	36
Only if the ERTMS/ETCS onboard is interfaced with the additional brakes in any of the following events • At start up[2] • When the status of the additional brake changes	37
At start up[2] and when the cab status changes	38
In any of the following events: • At start up[2] if a cab is already active • When a cab becomes active • When the direction controller input state changes	39
In any of the following events: • At start up[2] • When the status of the traction changes	40
In any of the following events: • At start up[2] if a cab is already active • When a cab becomes active	41

• When the type of the train data changes	
In any of the following events: • At start up[2] • When the isolation status of any National System changes	42
When the traction cut off command state changes	43
When any of the following packets is sent to an STM: • STM-14 State order • STM-20 Antenna/BTM ID • STM-22 Test Procedure Permission • STM-31 Active DMI channel • STM-34 Button event report • STM-40 Acknowledgement reply • STM-47 ETCS BTM status message to STM	14
When any of the following packets is received from an STM: • STM-6 Override activation • STM-16 STM max speed • STM-17 STM system speed and distance • STM-18 National Trip Procedure • STM-21 Test Procedure Permission Request • STM-23 End of Test Procedure • STM-32 Button Request • STM-35 Indicator request • STM-38 Text message • STM-39 Delete text message • STM-46 Sound command • STM-128 Brake command • STM-129 STM specific brake control command • STM-130 STM commands to train interface • STM-161 NTC juridical data	14
When packet STM-15 State report from STM is received from an STM:	14

• after a (re)connection • or with a different value of NID_STMSTATE with regards to previously-received packet STM-15	
When packet STM-43 Speed and distance supervision information is received from an STM with a different value of any variable except D_TARGET with regards to previously-received packet STM-43	14
At any STM disconnect event	14
Each time information related to track condition(s) is provided to an ERTMS/ETCS external function	45
Only if the ERTMS/ETCS on-board is interfaced with a train integrity external source in any of the following events: • At start up[2] • When the train integrity information changes	50
When any of the thresholds related to the odometer accuracy monitoring is reached	52

Table 2: List of triggering events and related messages

[2] i.e. once the ERTMS/ETCS on-board is powered up, when the connection with the On-board Recording Device is established.

5.4 ERA_ERTMS_015560

5.4.1 Exceptions applicable to all reduced envelopes of ETCS system versions

5.4.1.1 The item 5.3.2.7.1 i) shall be replaced with: “[More] button: to be used to present the next predefined choices of a dedicated keyboard, symbol NA23 of chapter 13 shall be used.”

5.4.1.2 The cell “FS / SM / OS” in table 8 of section 8.2.1.2 shall be replaced with “FS / OS”

5.4.1.3 The cell “SB / LS / SM / OS / SR / SH / UN / RV / TR / PT / NL” in table 9 of section 8.2.1.4 shall be replaced with “SB / LS / OS / SR / SH / UN / RV / TR / PT / NL”

5.4.1.4 The cell “SM / OS* / SR*” in table 10 of section 8.2.1.5 shall be replaced with “OS* / SR*”

5.4.1.5 The cell “FS / SM / OS* / LS” in table 10 of section 8.2.1.6 shall be replaced with “FS / OS* / LS”

5.4.1.6 The section 8.2.3.10 shall not apply.

5.4.1.7 The section 8.2.3.11 shall not apply.

5.4.1.8 The clause 10.2.2.6.1 shall not apply.

5.4.1.9 The clause 11.2.1.5 shall be replaced with: “The ‘Shunting’, ’Exit Shunting’, ‘Non-Leading’ and ‘Maintain Shunting’ buttons shall be delay type buttons.”

5.4.1.10 The clause 11.3.4.2 shall be replaced with: “The window title shall indicate “Radio network ID””.

5.4.1.11 The clause 11.3.5.4 shall be replaced with: “The 2nd input field with the label ‘RBC phone number’ shall be used for the entry / revalidation of the RBC telephone number.”

5.4.1.12 The sections 11.3.15 and 11.3.16 shall not apply.

5.4.1.13 The clause 11.5.1.6.1 shall not apply.

5.4.1.14 The table 44 in section 11.5.1 shall be replaced with:

Topic	**Window #**	**Data view item #**	**Label**
Driver ID	1	1	Driver ID
Train running number	1	2	Train running number
Train data	1	3	Train type
Train data	1	4	Train category
		5	Length (m)
		6	Brake percentage
		7	Maximum speed (km/h)
		8	Axle load category
		9	Airtight
		10	Loading gauge
Radio data info	2	11	Radio network ID
		12	RBC ID

Topic	Window #	Data view item #	Label
		13	RBC phone number
VBCs stored on-board	2..n	14	VBC #1 set code
		15	VBC #2 set code
		...	...

5.4.1.15 The table 45 in section 11.5.1 shall be replaced with:

Topic	Window #	Data view item #	Label
Driver ID	1	1	Driver ID
Train running number	1	2	Train running number
Train data	1	4	Train category
		5	Length (m)
		6	Brake percentage
		7	Maximum speed (km/h)
		8	Axle load category
		9	Airtight
		10	Loading gauge
Radio data info	2	11	Radio network ID
		12	RBC ID
		13	RBC phone number
VBCs stored on-board	2..n	14	VBC #1 set code
		15	VBC #2 set code
		...	...

5.4.1.16 The clause 11.6.1.3 shall not apply.

5.4.1.17 The clause 11.7.2.2 shall be replaced with: “The [close] button shall be disabled in all windows presented before reaching S10 except in the steps S1-1, S1-2, S3-2-2 and S3-3.”

5.4.1.18 The row D7 in table 49 of section 11.7.2 shall be replaced with:

D7	If at least one GSM-R Mobile Terminal is registered to a Radio Network, the process shall go to **A31** If no GSM-R Mobile Terminal is registered to a Radio Network, the process shall go to **S4**

5.4.1.19 The row S3-1 in table 49 of section 11.7.2 shall be replaced with:

S3-1	The **Radio data window** shall offer the possibility to the driver to select 'Contact last RBC', 'Use short number', 'Enter RBC data' and 'Radio network ID' • If the driver presses 'Contact last RBC' or 'Use short number', the procedure shall go to **A31**. • If the driver presses 'Enter RBC data', the procedure shall go to **S3-3**. • If the driver presses 'Radio network ID', the procedure shall go to **S3-2-1**.

5.4.1.20 The row S4 in table 49 of section 11.7.2 shall be replaced with:

S4	The **Main window** shall be presented to the driver with all buttons 'disabled'. The symbol **ST05** shall be displayed to show that the onboard still awaits the registration to the Radio Network. If at least one GSM-R Mobile Terminal is registered to a GSM-R Radio Network, the procedure shall go to **A31** If a sufficient time is elapsed since the latest GSM-R Radio Network registration order was sent to a GSM-R Mobile Terminal, the procedure shall go to **A29**

5.4.1.21 The rows A42, D9, S5, D10, S3-4, A41 and A43 in table 49 of section 11.7.2 shall not apply.

5.4.1.22 The row A29 in table 49 of section 11.7.2 shall be replaced with:

A29	The text message "**Radio network registration failed**" (see chapter 15) shall be displayed. This procedure shall go to **S10.**

5.4.1.23 The row S1 in table 50 of section 11.7.3 shall be replaced with:

S1	The **Main window** shall offer the possibility to the driver to select 'Driver ID', 'Shunting' / 'Exit Shunting', 'Maintain Shunting', 'Non leading', 'Train data', 'Level', 'Train running number' and 'Start'. • If the driver presses 'Driver ID', the procedure shall go to **S2**. • If the driver presses 'Shunting', the procedure shall go to the Shunting dialogue sequence. • If the driver presses 'Non-Leading' or 'Maintain Shunting', the procedure shall go back to **the default window**. • If the driver presses 'Exit Shunting', the procedure shall go to **S0** of the start up dialogue sequence. • If the driver presses 'Train data', the procedure shall go to **S3-1** • If the driver presses 'Level', the procedure shall go to **S4** • If the driver presses 'Train running number', the procedure shall go to **S6** • If the driver presses 'Start' and the level is 0/1/NTC, the procedure shall go back to **the default window**. • If the driver presses 'Start' and the level is 2, the procedure shall go to **D7** • If the driver presses 'Radio data', the procedure shall go to **S5-1**

5.4.1.24 The row D5 in table 50 of section 11.7.3 shall be replaced with:

D5	If at least one GSM-R Mobile Terminal is registered to a Radio Network and RBC contact information is “valid”, the procedure shall go to **S8** If either no GSM-R Mobile Terminal is registered to a Radio Network or RBC contact information is “invalid” or “unknown”, the procedure shall go to **S5-1** Exception: If, following the level entry/re-validation, the ERTMS/ETCS on-board equipment switches to the TR mode (case of a transition from level 0/NTC to 2), the **Default window** shall firstly be presented with the symbol **MO05**. As soon as the symbol **MO05** is acknowledged, the procedure shall go to **S5-1**

5.4.1.25 The row S5-1 in table 50 of section 11.7.3 shall be replaced with:

S5-1	The **Radio data window** shall offer the possibility to the driver to select ‘Contact last RBC’, ‘Use short number’, ‘Enter RBC data’ and ‘Radio network ID’ • If the driver presses ‘Contact last RBC’ or ‘Use short number’, the procedure shall go to **S8**. • If the driver presses ‘Enter RBC data’, the procedure shall go to **S5-3**. • If the driver presses ‘Radio network ID’, the procedure shall go to **S5-2-1**.

5.4.1.26 The row A5 in table 50 of section 11.7.3 shall be replaced with:

A29	The text message “**Radio network registration failed**” (see chapter 15) shall be displayed. This procedure shall go to **S1.**

5.4.1.27 The row D9, S5-4, A6, A7 and S10 in table 50 of section 11.7.3 shall not apply.

5.4.1.28 The row S1 in table 53 of section 11.7.6 shall be replaced with:

S1	The **Special window** shall be presented to the driver. When the driver presses the ‘Adhesion’ button, the procedure shall go to **S2.** When the driver presses the ‘Train Integrity’ button, the procedure shall go back to **the default window**. When the driver presses the ‘SR speed / distance’ button, the procedure shall go to **S3.**

5.4.1.29 The section 11.7.8 shall not apply.

5.4.1.30 The row MO24 in table 60 of section 13.3 shall not apply.

5.4.1.31 The row ST07 in table 61 of section 13.4 shall not apply.

5.4.1.32 The section 13.13 shall not apply.

5.4.1.32.1 The clause 15.1.1.4.1 shall be replaced with: “Exception: The system status message “[name of NTC] failed” shall be displayed as a text message to be acknowledged.”

5.4.1.33 The table 68 of section 15 shall be replaced with:

System status message	Start condition	End condition	Table 4.7.2 corresponding row
Balise read error	3.16.2.4.4.3	Message displayed for 30 s once 3.14.1.6 is fulfilled	Brake reason
	3.16.2.5.3	Message displayed for 30 s once 3.14.1.6 is fulfilled	Brake reason

System status message	Start condition	End condition	Table 4.7.2 corresponding row
	3.16.2.6.1 (service brake reaction)	Message displayed for 30 s once 3.14.1.6 is fulfilled	Brake reason
	3.16.2.7.1.1	Message displayed for 30 s once 3.14.1.6 is fulfilled	Brake reason
	3.16.2.7.2.2	Message displayed for 30 s once 3.14.1.6 is fulfilled	Brake reason
	4.6.3 [17]	PT mode left, 4.6.3 [62], 4.6.3 [63], 4.6.3 [68]	Trip reason
	4.6.3 [66]	PT mode left, 4.6.3 [62], 4.6.3 [63], 4.6.3 [68]	Trip reason
Trackside malfunction	3.16.2.4.9	Message displayed for 30 s	Trackside malfunction
Communication error	3.16.3.4.1 (service brake reaction)	Message displayed for 30 s (if 3.14.1.7 fulfilled beforehand) or if brake command reason revoked as per 4.12.1.2 beforehand, 3.14.1.7 (if message displayed for 30 s beforehand), Brake command reason revoked as per 4.12.1.2 (if message displayed for 30 s beforehand)	Brake reason
	4.6.3 [41]	PT mode left, 4.6.3 [62], 4.6.3 [63]	Trip reason
Entering FS	4.4.9.1.4	4.4.9.1.4	Entry in FS
Entering OS	4.4.12.1.7	4.4.12.1.7	Entry in OS
Runaway movement	3.14.2.4	3.14.1.5	Brake reason
	3.14.3.2	3.14.1.5	Brake reason
	3.14.4.2 and 3.14.4.5	3.14.1.5	Brake reason
	3.18.3.3.1	3.14.1.5	Brake reason
	4.4.11.1.5.1	3.14.1.5	Brake reason
SH refused	5.6.2 A220	As soon as any button in the main window is selected	Shunting refused by RBC
	4.6.3 [35]	4.6.3 [63]	Trip reason
SH request failed	5.6.4.1.2	As soon as any button in the main window is selected	Shunting request not answered by RBC
Trackside not compatible	3.5.3.7 d) 2nd bullet	Message displayed for 30 s	Trackside not compatible
	4.6.3 [65]	PT mode left, 4.6.3 [62], 4.6.3 [63], 4.6.3 [68]	Trip reason

System status message	Start condition	End condition	Table 4.7.2 corresponding row
Train data changed	5.17.2.2 A1	Message displayed for 30 s from the time a train movement is detected	Notification of Train Data change from source different from the driver
	5.17.2.2 S2	5.17.2.2 S3 (E3)	Brake reason
	5.17.2.2 S4	5.17.2.2 S5 (E5)	Brake reason
Train is rejected	5.4.3.2 A40	As soon as any button in the main window is selected	Train is rejected
Unauthorized passing of EOA / LOA	4.6.3 [11]	PT mode left, 4.6.3 [62], 4.6.3 [63]	Trip reason
	4.6.3 [12]	PT mode left, 4.6.3 [62], 4.6.3 [63]	Trip reason
	4.6.3 [16]	PT mode left, 4.6.3 [62], 4.6.3 [63]	Trip reason
	4.6.3 [18]	PT mode left, 4.6.3 [62], 4.6.3 [63]	Trip reason
	4.6.3 [43]	PT mode left, 4.6.3 [62], 4.6.3 [63]	Trip reason
No MA received at level transition	4.6.3 [39]	PT mode left, 4.6.3 [62], 4.6.3 [63]	Trip reason
	4.6.3 [67]	PT mode left, 4.6.3 [62], 4.6.3 [63]	Trip reason
SR distance exceeded	4.6.3 [42]	PT mode left, 4.6.3 [62], 4.6.3 [63]	Trip reason
SH stop order	4.6.3 [49]	PT mode left, 4.6.3 [68]	Trip reason
	4.6.3 [52]	PT mode left, 4.6.3 [68]	Trip reason
SR stop order	4.6.3 [36]	PT mode left, 4.6.3 [62], 4.6.3 [63]	Trip reason
	4.6.3 [54] (if operated system version X ≥ 2)	PT mode left, 4.6.3 [62], 4.6.3 [63]	Trip reason
	6.6.2.2.2 (if operated system version X = 1)	PT mode left, 4.6.3 [62], 4.6.3 [63]	Trip reason
Emergency stop	4.6.3 [20]	PT mode left, 4.6.3 [62], 4.6.3 [63]	Trip reason
RV distance exceeded	3.15.4.8	3.14.1.7.1	Brake reason
	4.4.18.1.4	3.14.1.7.1	Brake reason
PT distance exceeded	4.4.14.1.3	3.14.1.7.4	Brake reason

System status message	Start condition	End condition	Table 4.7.2 corresponding row
	4.4.14.1.3.2	3.14.1.7.4	Brake reason
No track description	4.6.3 [69]	PT mode left, 4.6.3 [62], 4.6.3 [63]	Trip reason
[name of NTC] brake demand	4.6.3 [38]	PT mode left, 4.6.3 [62], 4.6.3 [63]	Trip reason
Route unsuitable – loading gauge	3.12.2.3 a)	Route suitability data deleted as per A.3.4, 3.7.3.2 d), 3.7.3.1 h) with 3.12.2.3 a) not fulfilled	Route unsuitability(ies)
Route unsuitable – traction system	3.12.2.3 b)	Route suitability data deleted as per A.3.4, 3.7.3.2 d), 3.7.3.1 i) with 3.12.2.3 b) not fulfilled	Route unsuitability(ies)
Route unsuitable –axle load category	3.12.2.3 c)	Route suitability data deleted as per A.3.4, 3.7.3.2 d), 3.7.3.1 j) with 3.12.2.3 c) not fulfilled	Route unsuitability(ies)
Radio network registration failed	5.4.3.2 A29	As soon as any button in the main window is selected	Radio Network registration failed
Odometer impaired	3.6.8.5	3.6.8.6	Impairment due to accumulated underestimation / overestimation in measuring the movements over a defined total distance

5.4.2 Exceptions applicable only to the reduced envelope of ETCS system versions up to X.Y = 2.1

5.4.2.1 The item 5.1.2.2.3 d) shall be replaced with: “numbers for the kilometres part of the geographical position, for the remaining distance to the tunnel stopping area, for the Lowest Supervised Speed within the Movement Authority: 12 cells,”

5.4.2.2 The item 5.1.2.2.3 e) shall be replaced with: “numbers for the target distance digital, in the planning information, for the metres part of the geographical position: 10 cells,”

5.4.2.3 The item 6.3.1.2 g) shall not apply.

5.4.2.4 The clause 7.2.3.3 shall be replaced with: “While the Warning Status information is active, the audible information S2, see chapter 14 shall be played.”

5.4.2.5 The clause 7.4.1.1 shall be replaced with: “When the onboard enters the Target Speed Monitoring (TSM) from the Ceiling Speed Monitoring (CSM) or when there is a change of MRDT (see the conditions in document [2]), the audible information Sinfo (see chapter 14) shall be played, unless in Limited Supervision mode.”

5.4.2.6 The clause 7.4.3.3 shall be replaced with: “As soon as the Over-speed Status is activated, the audible information S1, see chapter 14 shall be played.”

5.4.2.7 The clause 7.4.4.3 shall be replaced with: “While the Warning Status is active, the audible information S2, see chapter 14 shall be played.”

5.4.2.8 The clause 7.5.1.1 shall be replaced with: “When the onboard enters the Release Speed Monitoring (RSM) from the Ceiling Speed Monitoring (CSM) (see the conditions in document [2]), the audible information Sinfo (see chapter 14) shall be played, unless in Limited Supervision mode.”

5.4.2.9 The clause 8.1.1.4 shall be replaced with:

“The layers on the ETCS default window shall be as follows:

a) Layer 0: E10, E11, F, H (soft key technology), I (soft key technology), G1, G2, G3, G4, G5, G6, G7, G8, G9, G10, Z (touch screen technology), Y (touch screen technology)

b) Layer -1: A1, A2+A3 (drawn as one area), A4, B (drawn as one area), D (drawn as one area), C1, C2+C3+C4 (drawn as one area), C5, C6, C7, C8, C9, E1, E2, E3, E4 (touch screen technology), E5-E8 (soft key technology, drawn as one area) or E5-E9 (touch screen technology, drawn as one area), G11, G12, G13

c) Layer -2: B3, B4, B5, B6, B7”

5.4.2.10 The rows related to AD mode in table 8 of section 8.2.1.2 shall not apply.

5.4.2.11 The rows related to AD mode in table 9 of section 8.2.1.4 shall not apply.

5.4.2.12 The cell “SB / FS / AD / TR / PT / NL / UN / LS” in table 10 of section 8.2.1.5 shall be replaced with “SB / FS / TR / PT / NL / UN / LS”

5.4.2.13 The table 11 in section 8.2.1.6 shall be replaced with:

Mode	Supervision Status		Release speed digital
FS / OS* / LS	CSM	AIIS	no
	CSM (with target information)**	AIIS	no
	TSM	AIIS	yes (medium grey)
	RSM	AIIS	yes (medium grey)
SB / SH / UN / PT / TR / NL / SR / RV	-	AIIS	no

* For OS, the digital presentation of the release speed is shown if driver has requested to display it (toggle on) (see chapter 8.2.2.4 for the toggling function)

** “With target information” only when requested by National Value

5.4.2.14 The cell “FS / AD / SM” in table 13 of section 8.2.2.1.8 shall be replaced with “FS”

5.4.2.15 The cell “FS / AD / SM / OS / SR*” in table 14 of section 8.2.2.2 and in table 15a of section 8.2.2.5 shall be replaced with “FS / OS / SR*”

5.4.2.16 The clause 8.2.2.5.7 shall be replaced with: “When the TTI is displayed, the sound Sinfo shall be played.”

5.4.2.17 The clause 8.2.3.1.2 shall be replaced with: “The current ERTMS/ETCS mode shall be displayed in B7 (see Figure 55) by using the following symbols defined in chapter 13: symbols MO01, MO04, MO06, MO07, MO09, MO11, MO12, MO13, MO14, MO16, MO18 or MO21.”

5.4.2.18 The item 8.3.1.1 b) shall be replaced with “the current mode is FS,”

5.4.2.19 {CR1238}The clauses 8.3.4.25, 8.3.6.4.2 and 8.3.6.6.1 shall not apply.

5.4.2.20 The item 8.3.6.9 a) shall be replaced with “PL23 and its attached speed value shall be drawn on top of PL22 and PL21 and their attached speed values,”

5.4.2.21 The clause 8.3.8.2.1 shall not apply.

5.4.2.22 The clause 8.3.10.1 shall be replaced with “These DMI objects allow the driver to change the distance scale of the planning information (zoom function). The zoom function is located respectively in D9/D12 (touch screen technology) and F9/F10/D9/D12 (soft key technology) (see Figure 85).”

5.4.2.23 The clause 8.3.10.6 shall be replaced with “When using soft key technology, when the planning information is shown, a [Scale Up] button shall be used in the area F10 to shorten the distance scale of the whole planning information. One of the symbols NA03, NA05 shall be displayed in D9 in order to echo respectively the NA07 or NA09 of the F10 button.”

5.4.2.24 The clause 8.3.10.7 shall be replaced with “When using soft key technology, when the planning information is shown, a [Scale Down] button shall be used in the area F9 to enlarge the distance scale of the whole planning information. One of the symbols NA04, NA06 shall be displayed in D12 in order to echo respectively the NA08 or NA10 of the F9 button.”

5.4.2.25 The section 8.5 shall not apply.

5.4.2.26 The table 33 in section 11.2.1 shall be replaced with:

Button / selection #	label	Enabling conditions	SRS reference
1	Start	(train is at standstill) AND (mode is SB) AND (Driver ID is valid) AND (Train data are valid) AND (ERTMS/ETCS level is valid) AND (Train running number is valid) AND ((ERTMS/ETCS level is 0/NTC/1) OR ((ERTMS/ETCS level is 2) AND (communication session exists) AND (Train Data acknowledged by RBC)) OR ((ERTMS/ETCS level is 2) AND (no communication session exists))) OR (train is at standstill) AND (mode is PT) AND (Train data are valid) AND ((ERTMS/ETCS level is 1) OR ((ERTMS/ETCS level is 2) AND (communication session exists) AND (no pending emergency stop is stored onboard))) OR (mode is SR) AND (ERTMS/ETCS level is 2) AND (communication session exists)	3.8.2.7 4.4.11.1.6 4.4.14.1.6 4.7.2 5.4.3.2 S20 5.4.5.3 5.11.3 S140
2	Driver ID	(train is at standstill) AND (mode is SB) AND (Driver ID is valid) AND (ERTMS/ETCS level is valid) OR ((Modification of Driver ID while running is allowed by national value) OR ((Modification of Driver ID while running is not allowed by national value) AND (train is at standstill))) AND (mode is SH/FS/LS/SR/OS/NL/UN/SN)	3.18.4.1 4.7.2 5.4.5.3
3	Train data	(train is at standstill) AND (Driver ID is valid) AND (ERTMS/ETCS level is valid) AND (mode is SB/FS/LS/SR/OS/UN/SN)	3.18.3.2.1 3.18.3.3 4.7.2 5.4.3.2 S10 5.4.5.3
5	Level	(train is at standstill) AND (Driver ID is valid) AND (mode is SB/FS/LS/SR/OS/NL/UN/SN)	3.18.4.2 4.7.2 5.4.5.3
6	Train running number	(train is at standstill) AND (mode is SB) AND (Driver ID is valid) AND (ERTMS/ETCS level is valid) OR (mode is FS/LS/SR/OS/NL/UN/SN)	3.18.4.5.1 3.18.4.5.2 3.18.4.5.3 4.7.2 5.4.5.3

Button / selection #	label	Enabling conditions	SRS reference
7	Shunting	(train is at standstill) AND (Driver ID is valid) AND (mode is SB/FS/LS/SR/OS/UN/SN) AND (ERTMS/ETCS level is valid) AND ((ERTMS/ETCS level is 0/1/NTC) OR ((ERTMS/ETCS level is 2) AND (communication session exists))) OR (train is at standstill) AND (mode is PT) AND ((ERTMS/ETCS level is 1) OR ((ERTMS/ETCS level is 2) AND (communication session exists) AND (no pending emergency stop is stored onboard)))	4.4.8.1.6 4.7.2 5.4.3.2 S10 5.4.5.3 5.6.3 E015 5.11.2 S140
	Exit Shunting	(train is at standstill) AND (mode is SH)	4.6.3 [19] 4.7.2
8	Non-Leading	(train is at standstill) AND (Driver ID is valid) AND (ERTMS/ETCS level is valid) AND (mode is SB/SH/FS/LS/SR/OS) AND (The “non leading” input signal is received)	4.6.3 [46] 4.7.2 5.4.3.2 S10 5.4.5.3
9	Maintain Shunting	(mode is SH) AND (The “passive shunting” input signal is received)	4.4.20.1.5 4.4.20.1.6 4.6.3 [26] 4.7.2
10	Radio data	(train is at standstill) AND (Driver ID is valid) AND (ERTMS/ETCS level is valid) AND (mode is SB/FS/LS/SR/OS/NL/PT/UN/SN)	3.18.4.3 4.7.2

5.4.2.27 The table 34 in section 11.2.2 shall be replaced with:

Button /selection #	label	Enabling conditions	SRS reference
1	EOA	(train speed is under or equal to the speed limit for triggering the “override”function) AND (mode is FS/LS/SR/OS/UN/SN/SH) OR (train speed is under or equal to the speed limit for triggering the “override”function) AND (mode is SB) AND (Driver ID is valid) AND (Train data are valid) AND (Train running number is valid) AND (ERTMS/ETCS level is valid) AND (ERTMS/ETCS level is 2) OR (train speed is under or equal to the speed limit for triggering the “override”function) AND (mode is PT) AND (Train data are valid) AND (Train running number is valid)	4.6.3 [37] 4.7.2 5.4.5.3 5.8.2.1 5.11.4.2

5.4.2.28 The table 35 in section 11.2.3 shall be replaced with:

Button /selection #	label	Enabling conditions	SRS reference
1	Adhesion	(train is at standstill) AND (mode is SB) AND (Modification of adhesion factor by driver is allowed by national value) AND (Driver ID is valid) AND (Train data are valid) AND (ERTMS/ETCS level is valid) OR (Modification of adhesion factor by driver is allowed by national value) AND (mode is FS/LS/SR/OS/UN/SN)	3.18.4.6.2.1 4.7.2
2	SR speed / distance	(train is at standstill) AND (mode is SR)	4.4.11.1.5 4.7.2
3	Train integrity	(train is at standstill) AND (mode is SB/FS/LS/SR/OS/UN/PT/SN) AND (Driver ID is valid) AND (Train data are valid and have been acknowledged by an RBC with which a communication session exists) AND (ERTMS/ETCS level is valid) AND (the train position is valid and is referred to an LRBG) AND (the distance between the current min safe rear end and the current estimated front end does not exceed the range of the confirmed train length information)	3.6.5.2.1 3.6.5.2.2 4.7.2

5.4.2.29 The table 36 in section 11.2.4 shall be replaced with:

Button /selection #	label	Enabling conditions	SRS reference
1	Symbol SE03 (for touch) Language (for soft)	(train is at standstill) AND (mode is SB) OR (mode is SH/FS/LS/SR/OS/NL/UN/TR/PT/SN/RV)	4.7.2
2	Symbol SE02 (for touch) Volume (for soft)	(train is at standstill) AND (mode is SB) OR (mode is SH/FS/LS/SR/OS/NL/UN/TR/PT/SN/RV)	-
3	Symbol SE01 (for touch) Brightness (for soft)	(train is at standstill) AND (mode is SB) OR (mode is SH/FS/LS/SR/OS/NL/UN/TR/PT/SN/RV)	-
4	System version	(train is at standstill) AND (mode is SB) OR (mode is SH/FS/LS/SR/OS/NL/UN/TR/PT/SN/RV)	4.7.2
5	Set VBC	(train is at standstill) AND (mode is SB) AND (maximum on-board storage capacity of VBC set by driver is not reached, see [4] 4.5.1.2)	4.7.2

Button /selection #	label	Enabling conditions	SRS reference
6	Remove VBC	(train is at standstill) AND (mode is SB) AND (at least one VBC is stored on-board)	4.7.2
7 and following	Used for “Additional DMI technical functions” (outside of the scope of this specification)		

5.4.2.30 The table 37 in section 11.2.5 shall be replaced with:

Button /selection #	label	Enabling conditions	SRS reference
1	Contact last RBC	(train is at standstill) AND (Driver ID is valid) AND (mode is SB/FS/LS/SR/OS/NL/PT) AND (ERTMS/ETCS level is valid) AND (ERTMS/ETCS level is 2) AND (RBC contact information is valid OR invalid) AND (at least one GSM-R Mobile Terminal registered to a GSM-R Radio Network)	3.18.4.3.2 5.4.3.2 S3 5.4.5.3 j
2	Use short number	(train is at standstill) AND (Driver ID is valid) AND (mode is SB/FS/LS/SR/OS/NL/PT) AND (ERTMS/ETCS level is valid) AND (ERTMS/ETCS level is 2) AND (at least one GSM-R Mobile Terminal registered to a GSM-R Radio Network)	3.18.4.3.2 3.18.4.3.4 5.4.3.2 S3 5.4.5.3 j
3	Enter RBC data	(train is at standstill) AND (Driver ID is valid) AND (mode is SB/FS/LS/SR/OS/NL/PT) AND (ERTMS/ETCS level is valid) AND (ERTMS/ETCS level is 2) AND (at least one GSM-R Mobile Terminal registered to a GSM-R Radio Network)	3.18.4.3.2 5.4.3.2 S3 5.4.5.3 j
4	Radio network ID	(train is at standstill) AND (Driver ID is valid) AND (mode is SB/FS/LS/SR/OS/NL/PT/UN/SN) AND (ERTMS/ETCS level is valid)	3.18.4.3.6 5.4.3.2 S3 5.4.5.3 j

5.4.2.31 The section 11.3.14 shall not apply.

5.4.2.32 The table 47 in section 11.6 shall be replaced with:

Parent/child relationship *(from left to right = from parent to child)*			
Default	Main	Driver ID	-
		Train data *(one or more windows)*	-
		Train data validation *(accessible via Train data windows)*	-
		Level	-
		Radio data	GSM-R network ID *(accessible via the Radio data window and only if driver selects “Radio network ID”)*

			RBC data *(accessible via the Radio data window and only if driver selects "Enter RBC data")*
		Train running number	-
	Override	-	-
	Data View	-	-
	Special	Adhesion	-
		SR speed / distance	-
	Settings	Language	-
		Volume	-
		Brightness	-
		System version	-
		Set VBC	-
		Set VBC validation	-
		Remove VBC	-
		Remove VBC validation	-
		Additional DMI technical functions	-

5.4.2.33 The table 48 in section 11.7.1 shall be replaced with:

Window	Corresponding button for checking the enabling conditions
Train running number	Train running number
Driver ID	Driver ID
ERTMS/ETCS level	Level
GSM-R network ID	Radio network ID
RBC data	Enter RBC data
Language	Language
Volume	Volume
Brightness	Brightness
Train data	Train data
Train data validation	Train data
SR speed / distance	SR speed / distance
Adhesion	Adhesion

5.4.2.34 The row S1 in table 54 of section 11.7.7 shall be replaced with:

S1	The **Settings window** shall be presented to the driver. When the driver presses the 'Language' button, the procedure shall go to **S2**. When the driver presses the 'Volume' button, the procedure shall go to **S3**. When the driver presses the 'Brightness' button, the procedure shall go to **S4**. When the driver presses the 'System version' button, the procedure shall go to **S5**. When the driver presses the 'Set VBC' button, the procedure shall go to **S6-1**. When the driver presses the 'Remove VBC' button, the procedure shall go to **S7-1**.

5.4.2.35 The row S8 in table 54 of section 11.7.7 shall not apply.

5.4.2.36 The clause 12.2.1.1 shall be replaced with: "The NTC data entry selection window shall comply with the requirements in chapter 10.2."

5.4.2.37 The clause 12.2.1.2 shall be replaced with: "The window title shall indicate "National data entry selection"."

5.4.2.38 The clause 12.2.1.4 shall be replaced with: "The buttons of the NTC data entry selection window shall be enabled when the conditions specified in Table 55 are fulfilled and no driver's acknowledgement is required."

5.4.2.39 The table 55 in section 12.2.1 shall be replaced with:

Button /selection #	label	Enabling conditions	SUBSET-035 reference
1	NTC A	(train is at standstill) AND (Driver ID is valid) AND (ERTMS/ETCS level is valid) AND (mode is SB/FS/LS/SR/OS/UN/SN) AND ('Specific NTC data entry request' received for NTC A) AND (no 'STOP' flag has been sent to the STM supporting NTC A)	10.7.4.3 10.7.4.5
2	NTC B	(train is at standstill) AND (Driver ID is valid) AND (ERTMS/ETCS level is valid) AND (mode is SB/FS/LS/SR/OS/UN/SN) AND ('Specific NTC data entry request' received for NTC B) AND (no 'STOP' flag has been sent to the STM supporting NTC B)	10.7.4.3 10.7.4.5
3	NTC C	(train is at standstill) AND (Driver ID is valid) AND (ERTMS/ETCS level is valid) AND (mode is SB/FS/LS/SR/OS/UN/SN) AND ('Specific NTC data entry request' received for NTC C) AND (no 'STOP' flag has been sent to the STM supporting NTC C)	10.7.4.3 10.7.4.5
...	...	...	
10	End of data entry	(train is at standstill) AND (Driver ID is valid) AND (ERTMS/ETCS level is valid) AND (mode is SB/FS/LS/SR/OS/UN/SN)	10.7.3.1

5.4.2.40 The clause 12.2.1.6 shall be replaced with: "The button (for touch screen technology) / selection (for soft key technology) #10 shall be reserved for the 'End of data entry'."

5.4.2.41 The sections 12.3.2 and 12.4.2 shall not apply.

5.4.2.42 The clause 12.5.1.6 shall be replaced with: “The data view windows of all the National Systems available on-board shall be considered as an extension of the ETCS (see 11.5.1) data view windows. In other terms, the 1st NTC X data view window is accessed by pressing the [Next] button on the last ETCS Data view window, the 1st NTC Y data view window is accessed by pressing the [Next] button on the last NTC X data view window,...”

5.4.2.43 The sections 12.5.2 shall not apply.

5.4.2.44 The table 56 in section 12.6 shall be replaced with:

<table>
<tr><th colspan="4">Parent/child relationship

(from left to right = from parent to child)</th></tr>
<tr><td rowspan="5">Default</td><td rowspan="5">Main</td><td rowspan="5">National data entry selection
(accessible via the Train data validation window)</td><td>NTC A data
(one or more windows)</td></tr>
<tr><td>NTC A data validation
(accessible via NTC A data windows)</td></tr>
<tr><td>NTC B data
(one or more windows)</td></tr>
<tr><td>NTC B data validation
(accessible via NTC B data windows)</td></tr>
<tr><td>...</td></tr>
</table>

5.4.2.45 The table 57 in section 12.7 shall be replaced with:

Window	Corresponding button for checking the enabling conditions
NTC A data	NTC A
NTC A data validation	NTC A
NTC B data	NTC B
NTC B data validation	NTC B
...	...

5.4.2.46 The clause 12.7.2.4 shall be replaced with: “The steps of the “NTC data” dialogue sequence shall follow Table 58.”

5.4.2.47 The row D1 in table 58 of section 12.7 shall be replaced with:

D1	If at least one NTC needs data i.e. at least one STM has sent a ‘Specific NTC Data Need’ information indicating that it needs Specific NTC Data, the procedure shall go to **S1**; otherwise it shall go to **D6** in the “Main window” dialogue sequence.

5.4.2.48 The row S1 in table 58 of section 12.7 shall be replaced with:

S1	The **NTC data entry selection window** shall be presented to the driver with all buttons 'disabled' except the 'End of data entry' button. The symbol **ST05** shall be displayed to show that the ERTMS/ETCS on-board awaits an answer from all the connected STMs supporting NTCs that need specific data. Note: When the ETCS Train data are validated (step S3-2, Main dialogue sequence), the START flag is sent and then it is followed by the sending of the ETCS Train data (see document [3]). When, for each concerned STM, the ERTMS/ETCS on-board equipment has either received a 'Specific NTC data entry request' or has sent the 'STOP' flag (see document [3], 10.7.4.3 a) and b)), the procedure shall go to **S2.** The driver can choose to skip at once the data entry/validation process of all the NTCs supported by STMs: If the driver presses 'End of data entry', the procedure shall immediately go to **D6** in the "Main window" dialogue sequence. Note: When the driver presses 'End of data entry', the ERTMS/ETCS on-board sends a 'STOP' flag (see document [3]) to those STMs to which no 'STOP' flag has been sent yet.

5.4.2.49 The row S2 in table 58 of section 12.7 shall be replaced with:

S2	The **NTC data entry selection window** shall offer the possibility to the driver to select 'NTC A', 'NTC B',... and 'End of data entry' • If the driver presses 'NTC X', the procedure shall go to **S3-1**. Note: the button 'NTC X' represents any of the enabled NTC buttons ('NTC A', 'NTC B', ...) • If the driver presses 'End of data entry', the procedure shall go to **D6** in the "Main window" dialogue sequence i.e. it allows the driver to skip some NTC data entry/validation processes that are not needed for the mission. Note: When the driver presses 'End of data entry', the ERTMS/ETCS on-board sends a 'STOP' flag (see document [3]) to those STMs to which no 'STOP' flag has been sent yet.

5.4.2.50 The row S4 in table 58 of section 12.7 shall be replaced with:

S4	The **NTC data entry selection window** shall be presented to the driver with all buttons 'disabled'. The symbol **ST05** shall be displayed to show that the ERTMS/ETCS on-board awaits an answer from the STM supporting NTC X. If the ERTMS/ETCS on-board equipment receives a new 'Specific NTC data entry request' from the STM supporting NTC X, the procedure shall go back to **S3-1** If the ERTMS/ETCS on-board equipment sends the 'STOP' flag (see document [3], 10.7.4.3 a) and b)) to the STM supporting NTC X, the procedure shall go to **S2**

5.4.2.51 The rows S5-1 and S5-2 in table 58 of section 12.7 shall not apply.

5.4.2.52 The row MO23 in table 60 of section 13.3 shall not apply.

5.4.2.53 The row PL37 in table 63 of section 13.6 shall not apply.

5.4.2.54 The area for the symbols NA07 and NA09 in table 64 of section 13.7 shall be replaced with F10.

5.4.2.55 The area for the symbols NA08 and NA10 in table 64 of section 13.7 shall be respectively replaced with F9.

5.4.2.56 The section 13.12 shall not apply.

5.4.2.57 The clause 15.1.1.1 shall be replaced with: “The system status messages shall be displayed to the driver as specified in Table 68 and Table 69, in order to fulfil the driver information required in documents [2] and [3] respectively.”

5.4.2.58 The clause 15.1.1.2 shall be replaced with: “In Table 68 and Table 69, it is assumed that when a start condition is applied the onboard is in one of the modes for which it is possible to display the corresponding information in table 4.7.2 of document [2]. Then after any mode change, to one of those for which it is specified that the information is not displayed, shall also be considered as an end condition for the system status message.”

5.4.2.59 The clause 15.1.1.3 shall be replaced with: “The case of the displayed system status messages shall comply with the case of the texts in Table 68 and Table 69.”

5.4.2.60 The table 70 of section 15 shall not apply.

5.4.3 Exceptions applicable only to the reduced envelope of ETCS system versions up to X.Y = 2.2

5.4.3.1 The table 11 in section 8.2.1.6 shall be replaced with:

Mode	Supervision Status		Release speed digital
FS / OS* / LS	CSM	AIIS	no
	CSM (with target information)**	AIIS	no
	TSM	AIIS	yes (medium grey)
	RSM	AIIS	yes (medium grey)
AD	CSM	AIIS	no
	CSM (with target information)**	AIIS	no
	TSM	AIIS	yes (medium grey)
	RSM	AIIS	yes (medium grey)
SB / SH / UN / PT / TR / NL / SR / RV	-	AIIS	no

* For OS, the digital presentation of the release speed is shown if driver has requested to display it (toggle on) (see chapter 8.2.2.4 for the toggling function)

** “With target information” only when requested by National Value

5.4.3.2 The cell “FS / AD / SM” in table 13 of section 8.2.2.1 shall be replaced with “FS / AD”

5.4.3.3 The cell “FS / AD / SM / OS / SR*” in table 14 of section 8.2.2.2 and in table 15a of section 8.2.2.5 shall be replaced with “FS / AD / OS / SR*”

5.4.3.4 The clause 8.2.3.1.2 shall be replaced with: “The current ERTMS/ETCS mode shall be displayed in B7 (see Figure 55) by using the following symbols defined in chapter 13: symbols MO01, MO04, MO06, MO07, MO09, MO11, MO12, MO13, MO14, MO16, MO18, MO21 or MO23.”

5.4.3.5 The item 8.3.1.1 b) shall be replaced with “the current mode is FS or AD,”

5.4.3.6 The table 33 in section 11.2.1 shall be replaced with:

Button / selection #	label	Enabling conditions	SRS reference
1	Start	(train is at standstill) AND (mode is SB) AND (Driver ID is valid) AND (Train data are valid) AND (ERTMS/ETCS level is valid) AND (Train running number is valid) AND ((ERTMS/ETCS level is 0/NTC/1) OR ((ERTMS/ETCS level is 2) AND (communication session exists) AND (Train Data acknowledged by RBC)) OR ((ERTMS/ETCS level is 2) AND (no communication session exists))) OR (train is at standstill) AND (mode is PT) AND (Train data are valid) AND ((ERTMS/ETCS level is 1) OR ((ERTMS/ETCS level is 2) AND (communication session exists) AND (no pending emergency stop is stored onboard))) OR (mode is SR) AND (ERTMS/ETCS level is 2) AND (communication session exists)	3.8.2.7 4.4.11.1.6 4.4.14.1.6 4.7.2 5.4.3.2 S20 5.4.5.3 5.11.3 S140
2	Driver ID	(train is at standstill) AND (mode is SB) AND (Driver ID is valid) AND (ERTMS/ETCS level is valid) OR ((Modification of Driver ID while running is allowed by national value) OR ((Modification of Driver ID while running is not allowed by national value) AND (train is at standstill))) AND (mode is SH/FS/AD/LS/SR/OS/NL/UN/SN)	3.18.4.1 4.7.2 5.4.5.3
3	Train data	(train is at standstill) AND (Driver ID is valid) AND (ERTMS/ETCS level is valid) AND (mode is SB/FS/AD/LS/SR/OS/UN/SN)	3.18.3.2.1 3.18.3.3 4.7.2 5.4.3.2 S10 5.4.5.3
5	Level	(train is at standstill) AND (Driver ID is valid) AND (mode is SB/FS/AD/LS/SR/OS/NL/UN/SN)	3.18.4.2 4.7.2 5.4.5.3
6	Train running number	(train is at standstill) AND (mode is SB) AND (Driver ID is valid) AND (ERTMS/ETCS level is valid) OR (mode is FS/AD/LS/SR/OS/NL/UN/SN)	3.18.4.5.1 3.18.4.5.2 3.18.4.5.3 4.7.2 5.4.5.3

Button / selection #	label	Enabling conditions	SRS reference
7	Shunting	(train is at standstill) AND (Driver ID is valid) AND (mode is SB/FS/AD/LS/SR/OS/UN/SN) AND (ERTMS/ETCS level is valid) AND ((ERTMS/ETCS level is 0/1/NTC) OR ((ERTMS/ETCS level is 2) AND (communication session exists))) OR (train is at standstill) AND (mode is PT) AND ((ERTMS/ETCS level is 1) OR ((ERTMS/ETCS level is 2) AND (communication session exists) AND (no pending emergency stop is stored onboard)))	4.4.8.1.6 4.7.2 5.4.3.2 S10 5.4.5.3 5.6.3 E015 5.11.2 S140
	Exit Shunting	(train is at standstill) AND (mode is SH)	4.6.3 [19] 4.7.2
8	Non-Leading	(train is at standstill) AND (Driver ID is valid) AND (ERTMS/ETCS level is valid) AND (mode is SB/SH/FS/AD/LS/SR/OS) AND (The “non leading” input signal is received)	4.6.3 [46] 4.7.2 5.4.3.2 S10 5.4.5.3
9	Maintain Shunting	(mode is SH) AND (The “passive shunting” input signal is received)	4.4.20.1.5 4.4.20.1.6 4.6.3 [26] 4.7.2
10	Radio data	(train is at standstill) AND (Driver ID is valid) AND (ERTMS/ETCS level is valid) AND (mode is SB/FS/AD/LS/SR/OS/NL/PT/UN/SN)	3.18.4.3 4.7.2

5.4.3.7 The table 35 in section 11.2.3 shall be replaced with:

Button /selection #	label	Enabling conditions	SRS reference
1	Adhesion	(train is at standstill) AND (mode is SB) AND (Modification of adhesion factor by driver is allowed by national value) AND (Driver ID is valid) AND (Train data are valid) AND (ERTMS/ETCS level is valid) OR (Modification of adhesion factor by driver is allowed by national value) AND (mode is FS/AD/LS/SR/OS/UN/SN)	3.18.4.6.2.1 4.7.2
2	SR speed / distance	(train is at standstill) AND (mode is SR)	4.4.11.1.5 4.7.2

Button /selection #	label	Enabling conditions	SRS reference
3	Train integrity	(train is at standstill) AND (mode is SB/FS/AD/LS/SR/OS/UN/PT/SN) AND (Driver ID is valid) AND (Train data are valid and have been acknowledged by an RBC with which a communication session exists) AND (ERTMS/ETCS level is valid) AND (the train position is valid and is referred to an LRBG) AND (the distance between the current min safe rear end and the current estimated front end does not exceed the range of the confirmed train length information)	3.6.5.2.1 3.6.5.2.2 4.7.2

5.4.3.8 The table 36 in section 11.2.4 shall be replaced with:

Button /selection #	label	Enabling conditions	SRS reference
1	Symbol SE03 (for touch) Language (for soft)	(train is at standstill) AND (mode is SB) OR (mode is SH/FS/AD/LS/SR/OS/NL/UN/TR/PT/SN/RV)	4.7.2
2	Symbol SE02 (for touch) Volume (for soft)	(train is at standstill) AND (mode is SB) OR (mode is SH/FS/AD/LS/SR/OS/NL/UN/TR/PT/SN/RV)	-
3	Symbol SE01 (for touch) Brightness (for soft)	(train is at standstill) AND (mode is SB) OR (mode is SH/FS/AD/LS/SR/OS/NL/UN/TR/PT/SN/RV)	-
4	System version	(train is at standstill) AND (mode is SB) OR (mode is SH/FS/AD/LS/SR/OS/NL/UN/TR/PT/SN/RV)	4.7.2
5	Set VBC	(train is at standstill) AND (mode is SB) AND (maximum on-board storage capacity of VBC set by driver is not reached, see [4] 4.5.1.2)	4.7.2
6	Remove VBC	(train is at standstill) AND (mode is SB) AND (at least one VBC is stored on-board)	4.7.2
7	ATO	(train is at standstill) AND (mode is SB) OR (mode is SH/FS/AD/LS/SR/OS/NL/UN/TR/PT/SN/RV)	3.15.11.2 4.7.2
8 and following	Used for “Additional DMI technical functions” (outside of the scope of this specification)		

5.4.3.9 The table 37 in section 11.2.5 shall be replaced with:

Button /selection #	label	Enabling conditions	SRS reference
1	Contact last RBC	(train is at standstill) AND (Driver ID is valid) AND (mode is SB/FS/AD/LS/SR/OS/NL/PT) AND (ERTMS/ETCS level is valid) AND (ERTMS/ETCS level is 2) AND (RBC contact information is valid OR invalid) AND (at least one GSM-R Mobile Terminal registered to a GSM-R Radio Network)	3.18.4.3.2 5.4.3.2 S3 5.4.5.3 j
2	Use short number	(train is at standstill) AND (Driver ID is valid) AND (mode is SB/FS/AD/LS/SR/OS/NL/PT) AND (ERTMS/ETCS level is valid) AND (ERTMS/ETCS level is 2) AND (at least one GSM-R Mobile Terminal registered to a GSM-R Radio Network)	3.18.4.3.2 3.18.4.3.4 5.4.3.2 S3 5.4.5.3 j
3	Enter RBC data	(train is at standstill) AND (Driver ID is valid) AND (mode is SB/FS/AD/LS/SR/OS/NL/PT) AND (ERTMS/ETCS level is valid) AND (ERTMS/ETCS level is 2) AND (at least one GSM-R Mobile Terminal registered to a GSM-R Radio Network)	3.18.4.3.2 5.4.3.2 S3 5.4.5.3 j
4	Radio network ID	(train is at standstill) AND (Driver ID is valid) AND (mode is SB/FS/AD/LS/SR/OS/NL/PT/UN/SN) AND (ERTMS/ETCS level is valid)	3.18.4.3.6 5.4.3.2 S3 5.4.5.3 j

5.4.3.10 The table 47 in section 11.6 shall be replaced with:

Parent/child relationship *(from left to right = from parent to child)*			
Default	Main	Driver ID	-
		Train data *(one or more windows)*	-
		Train data validation *(accessible via Train data windows)*	-
		Level	-
		Radio data	GSM-R network ID *(accessible via the Radio data window and only if driver selects "Radio network ID")*
			RBC data *(accessible via the Radio data window and only if driver selects "Enter RBC data")*
		Train running number	-
	Override	-	-

	Data View	-	-
	Special	Adhesion	-
		SR speed / distance	-
	Settings	Language	-
		Volume	-
		Brightness	-
		System version	-
		Set VBC	-
		Set VBC validation	-
		Remove VBC	-
		Remove VBC validation	-
		ATO selector	-
		Additional DMI technical functions	-

5.4.3.11 The table 48 in section 11.7.1 shall be replaced with:

Window	Corresponding button for checking the enabling conditions
Train running number	Train running number
Driver ID	Driver ID
ERTMS/ETCS level	Level
GSM-R network ID	Radio network ID
RBC data	Enter RBC data
Language	Language
Volume	Volume
Brightness	Brightness
ATO selector	ATO
Train data	Train data
Train data validation	Train data
SR speed / distance	SR speed / distance
Adhesion	Adhesion

5.5 SUBSET-034

5.5.1 Exceptions applicable to all reduced envelopes of ETCS system versions

5.5.1.1 The clause 2.2.3.3.1 shall be replaced with: “The non-leading input shall have the value “Non-leading permitted” if the travel direction is selected AND either

a) the brake release function of the train wide brake control device of the engine is inhibited (for example in case the driver of the non-leading engine is allowed to command the service brake application),

OR

b) the train wide service brake control device of the engine is isolated (for example it is isolated from the brake pipe, in case of using a brake pipe pressure control system).”

5.5.1.2 The section 2.2.6 shall not apply.

5.5.1.3 The sections 2.4.11 and 2.6.2 shall not apply.

5.5.1.4 The clause 2.6.4.1 shall be replaced with: “The other train data can be provided to the ETCS on-board via Train Interface in the following ways:”

5.5.1.5 The row “2.2.6” of Table 1 shall not apply.

5.5.1.6 The rows “2.4.11” and “2.6.2” of Table 1 shall not apply.

5.5.1.7 The row “Remote Shunting” of Table 4 shall not apply.

5.5.1.8 The rows “Engine orientation in Supervised Manoeuvre” and “Overall consist length information” of Table 4 shall not apply.

5.5.2 Exceptions applicable only to the reduced envelope of ETCS system versions up to X.Y = 2.1

5.5.2.1 The section 2.2.5 shall not apply.

5.5.2.2 The row “2.2.5” of Table 1 shall not apply.

5.5.2.3 The row “Automatic Driving” of Table 4 shall not apply.

5.5.3 Exceptions applicable only to the reduced envelope of ETCS system versions up to X.Y = 2.2

5.5.3.1 Void

5.6 SUBSET-035

5.6.1 Exceptions applicable to all reduced envelopes of ETCS system versions

5.6.1.1 The clause 10.5.1.3 shall not apply.

5.6.2 Exceptions applicable only to the reduced envelope of ETCS system versions up to X.Y = 2.1

5.6.2.1 The clause 10.5.1.2 shall not apply.

5.6.2.2 The clause 10.7.3.4 shall be replaced with: "When the ERTMS/ETCS on-board receives the “Specific NTC Data Need” while in FS, LS, SR, OS, UN, TR, PT and SN modes, it shall inform the driver that the national system needs data."

5.6.3 Exceptions applicable only to the reduced envelope of ETCS system versions up to X.Y = 2.2

5.6.3.1 Void

5.7 SUBSET-036

5.7.1.1 Void

5.8 SUBSET-37-1

5.8.1 Exceptions applicable to all reduced envelopes of ETCS system versions

5.8.1.1 The clause 7.1.1.4 shall be replaced with “The Transmission Mode Table shall contain the following entry for each ever-requested RBC (identified with ETCS ID), the default value is underlined:

GSM-R-Mode = [unknown, CS, PS]”

5.8.1.2 The table in clause 7.1.1.7 shall be replaced with:

GSM-R Mode	Action
CS	Establish connection in CS mode.
PS	Establish connection in PS Mode. If the DNS response does not contain an “A” field, the user shall be informed by a T-DISCONNECT.indication unless a “TXT” field indicating CS mode (txm=cs) is received. In this case “CS” shall be stored to GSM-R-Mode and connection establishment shall be done accordingly.
unknown	Try to connect according to GSM-R Mode PS, but if no A-field is received, “CS” shall be stored to GSM-R Mode and connection shall be established accordingly. Note: If receiving an ‘A’ field the mode shall be set to “PS” also if the connection cannot be established.

5.8.1.3 The clause 7.1.1.9 shall not apply.

5.8.1.4 The table in clause 7.1.1.11 shall be replaced with:

Connection	Action (in parallel to the ongoing connection)
CS	**PS check**: When second GSM-R MT is free, DNS request for “A” field, if successful, set GSM-R Mode to PS.

5.8.1.5 In clause B.2.1.1 table 19, the parameter ´Connection Request Type (CET)’ shall not apply.

5.8.1.6 The clause B.5.1.3 shall be replaced with “By means of the service primitive “T-REGISTRATION.request” the service user is able to request the registration of one or more Mobile Terminations with one or more mobile networks.”

5.8.1.7 The clause B.5.1.9 shall not apply.

5.8.1.8 The clause B.5.1.11 shall be replaced with “The mobile network registration indication can be given independently of a request. In case of a network registration status change the user shall be informed via registration indication message.”

5.8.2 Exceptions applicable only to the reduced envelope of ETCS system versions up to X.Y = 2.1

5.8.2.1 Void

5.8.3 Exceptions applicable only to the reduced envelope of ETCS system versions up to X.Y = 2.2

5.8.3.1 Void

5.9 SUBSET-37-2

5.9.1 Exceptions applicable to all reduced envelopes of ETCS system versions

5.9.1.1 In clause 5.2.1.1, the parameter ´Connection Request Type (CET)' shall not apply.

5.9.2 Exceptions applicable only to the reduced envelope of ETCS system versions up to X.Y = 2.1

5.9.2.1 Void

5.9.3 Exceptions applicable only to the reduced envelope of ETCS system versions up to X.Y = 2.2

5.9.3.1 Void

5.10 SUBSET-037-3

5.10.1.1 Void

5.11 SUBSET-146

5.11.1 Exceptions applicable to all reduced envelopes of ETCS system versions

5.11.1.1 The exceptions in this section shall only apply to the KM application in the ERTMS/ETCS on-board.

5.11.1.2 In the table of references in 3.2, the following reference shall be added:

RFC-5246	The Transport Layer Security (TLS) Protocol. Version 1.2	August 2008

5.11.1.3 In the table of references in 3.2, the following references shall not apply:

RFC-5905	Network Time Protocol Version 4	June 2010
RFC-9150	TLS 1.3 Authentication and Integrity-Only Cipher Suites	January 2022

5.11.1.4 The section 5.3 shall not apply.

5.11.1.5 The clause 5.4.1.1 shall be replaced with: “TLS version 1.2 shall be supported. See **[**RFC-5246]”.

5.11.1.6 The clauses 5.4.1.2 and 5.4.1.4 shall not apply.

5.11.1.7 The clause 5.4.1.7 shall be replaced with: “TLS communication between communicating parties shall be encrypted.”

5.11.1.8 The clause 5.4.2.3 shall be replaced with: “The following cipher suites shall/may be supported:

TLS Version	Cipher Suite	Comment
1.2	TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384	Recommendation in [ANSSI]. May be supported.
	TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384	Shall be supported
	TLS_ECDHE_ECDSA_WITH_NULL_SHA	May be supported

Table 1. Mandatory and Optional Supported Cipher Suites

5.11.1.9 The clause 5.4.2.4.2 shall be replaced with: “The TLS client and TLS server shall/may support the following elliptic curves,

Curve	Comment
secp256r1	Reference [RFC-5480]. May be supported.
brainpoolP256r1	Reference [RFC-5639]. Shall be supported.

Table 2. Mandatory and Optional Supported Elliptic Curves”

5.11.1.10 The following clause shall be added:

“5.4.2.9.3 No extension or option shall be used in the “Client Certificate” message.”

5.11.1.11 The following clause shall be added:

“5.4.2.11.2 No extension or option shall be used in the “Certificate Verify” message.”

5.11.1.12 The section 5.4.2.12 shall be replaced with:

“**5.4.2.12 Finished**

5.4.2.12.1 The “Finished” message shall be supported and used by both the TLS client and the TLS server.

5.4.2.12.2 No extension or option shall be used in the “Finished” message.”

5.11.1.13 The following section shall be added:

“**5.4.2.13 Server Hello Done**

5.4.2.8.13.1 The “Server Hello Done” message, without extension or option, shall be supported by the TLS client.”

5.11.1.14 The clause 5.5.2.3.4 shall not apply.

5.11.1.15 The clause 5.5.2.3.10 shall be replaced with: “For the first certificate request, the PKI client shall authenticate itself by using shared secret information (a ‘passphrase’) to create the “protection” field contained in the “Certificate Request” message.”

5.11.1.16 The clause 5.5.3.1.1 shall be replaced with: “The “Certificate Request”, “Certificate Response”, “Certification Confirmation” and “Confirmation Acknowledgement” messages shall be exchanged in the same session.”

5.11.1.17 The row “protectionAlg” in Table 5 of clause 5.5.3.2.1 shall be replaced with:

protectionAlg	AlgorithmIdentifier	Optional	Mandatory	For a first certificate request, algorithmIdentifier shall be PasswordBasedMAC for messages emitted by PKI client and sha384WithRSAEncryption for messages emitted by the PKI server ([RFC-4055]) and certificate rekey messages emitted by PKI client

5.11.1.18 The row “extensions” in Table 9 of clause 5.5.3.3.1 shall be replaced with:

extensions	Extensions	Optional	Shall not be used	

5.11.1.19 The row “algorithm” in Table 10 of clause 5.5.3.3.1 shall be replaced with:

algorithm	AlgorithmIdentifier	Mandatory	Mandatory	The AlgorithmIdentifier rsaEncryption shall be used.

5.11.1.20 The row “signature” in Table 17 of clause 5.5.3.4.1 shall be replaced with:

Signature	AlgorithmIdentifier	Mandatory	Mandatory	The algorithmIdentifier shall be sha384WithRSAEncryption ([RFC-4055]) (for KM use case).

5.11.1.21 The section 5.6.2.2 shall not apply.

5.11.1.22 The clause 5.6.2.3.1 shall be replaced with: “The PKI client shall be able to check whether the certificate of a peer has been revoked, by sending an OCSP Request to the OCSP responder.”

5.11.1.23 The clause 5.6.3.3.5 shall not apply.

5.11.1.24 The section 5.9 shall not apply.

5.11.2 Exceptions applicable only to the reduced envelope of ETCS system versions up to X.Y = 2.1

5.11.2.1 Void

5.11.3 Exceptions applicable only to the reduced envelope of ETCS system versions up to X.Y = 2.2

5.11.3.1 Void

5.12 SUBSET-038

5.12.1.1 Void

5.13 SUBSET-040

5.13.1 Exceptions applicable to all reduced envelopes of ETCS system versions

5.13.1.1 The rule 4.3.2.1 bullet m) shall be replaced with:

Number of Route suitability data

	Maximum number of iterations in 1 packet	Minimum memorised on board
Rule	2	1 list of loading gauges AND 1 value of axle load category AND 1 value of traction system type.
Reference	SUBSET-026 – section 7.4.2.21	
Justification		

5.13.1.2 The rule 4.3.2.1 bullet p) shall be replaced with:

Number of Axle load speed restriction values per ASP segment

	Maximum number of iterations per ASP segment	Minimum memorised on board
Rule	3	
Reference	SUBSET-026 – section 7.4.2.13	
Justification		

5.13.1.3 The rule 4.3.2.1 bullet s) shall be replaced with:

Number of Permitted Braking Distance Speed Restrictions

	Maximum number of iterations in 1 packet	Minimum memorised on board
Rule	2	5
Reference	SUBSET-026 – section 7.4.2.13.1	
Justification		

5.13.1.4 The clause 4.4.1.1.4 shall not apply.

5.13.1.5 The clause 4.4.1.3.2 shall not apply.

5.13.1.6 The rule 4.4.3.2 shall not apply.

5.13.1.7 The clause 6.3.1.2 shall not apply because it is superseded by the exception to the rule 4.3.2.1 bullet s).

5.13.1.8 The clause 6.3.1.3 shall not apply because it is superseded by the exception to the rule 4.3.2.1 bullet p).

5.13.2 Exceptions applicable only to the reduced envelope of ETCS system versions up to X.Y = 2.1

5.13.2.1 The clause 4.2.4.14 shall be replaced with “Packets 72 and 76 (text messages)”

5.13.3 Exceptions applicable only to the reduced envelope of ETCS system versions up to X.Y = 2.2

5.13.3.1 Void

5.14 SUBSET-041

5.14.1.1 Void

5.15 SUBSET-044

5.15.1.1 Void

5.16 SUBSET-047

5.16.1.1 Void

5.17 SUBSET-048

5.17.1.1 Void

5.18 SUBSET-056

5.18.1.1 Void

5.19 SUBSET-057

5.19.1.1 Void

5.20 SUBSET-091

5.20.1 Exceptions applicable to all reduced envelopes of ETCS system versions

5.20.1.1 The clause 9.7 shall not apply

5.20.1.2 The table in §12.1.1.3 shall be replaced with:

Event Id.	Event Description	Corresponding performance requirement in Subset-041
DMI-01a	Failure to provide Warning indication	
DMI-01b	Valid ETCS on-board output via DMI obscured by erroneous output (audio or visual)	
DMI-01c	Failure to display request for acknowledgement	
DMI-01f	Failure to display ACK for RV request	
DMI-01g	Failure to display Air Tightness Control	
DMI-01h	Failure to present Display Distance to Target information	
DMI-01i	Failure to present Time To Indication information	
DMI-02a	False presentation of Warning	
DMI-02b	False presentation of IS mode (shown as IS mode when not)	
DMI-02c	False presentation of brake indication	
DMI-02g	False presentation of “LX not protected”	
DMI-03e	Wrong fixed text message displayed	
DMI-03f	“Tunnel stopping area” displayed at the wrong geographical place	
DMI-03g	Wrong Display Distance to Target information	
DMI-03h	Wrong Time To Indication information	
DMI-04a	False command to exit shunting	
DMI-04c	False START command	
DMI-04g	Spurious request to change to another ETCS Level	

Event Id.	Event Description	Corresponding performance requirement in Subset-041
DMI-04h	Spurious acknowledgement of intervention leading to release of emergency or service brake	
DMI-04j	False Isolation command	
DMI-05a	Deleted Level transition acknowledgement	
DMI-05b	Deleted acknowledgement	
DMI-05e	Deleted driver request to apply Track Adhesion Factor	
DMI-05f	Deleted Reversing mode acknowledgement	
MMI-1a	False acknowledgement of mode change to less restrictive mode	
MMI-1b	False command to enter NL mode	
MMI-1c	False command of Override request	
MMI-1d	False acknowledgement of Level Transition	
MMI-1e	False acknowledgement of Train Trip	
MMI-1f	False acknowledgement of Track Ahead Free	
MMI-1g	False request for SH mode	
MMI-1h	False acknowledgement of undesired train movement (RAP, UDMP, SSS, PT distance and reversing distance)	
MMI-2a.1	False presentation of train speed	
MMI-2a.2	False presentation of speed (except train speed) or distance, including supervision status	
MMI-2b	False presentation of mode	
MMI-2c	False presentation of track adhesion factor	
MMI-2d	Failure to present Entry in FS/OS information	
MMI-2e	False presentation of train data/additional data	

Event Id.	Event Description	Corresponding performance requirement in Subset-041
MMI-2f	Failure to display Override status, including false enabling of override selection	
MMI-2g	Failure to present acknowledgement message to a less restrictive mode	
MMI-2h	False presentation of TAF request	
MMI-2i	Failure to present LX “not protected” information	
MMI-2j	False presentation of reversing allowed	
MMI-2k	False presentation of level transition announcement	
MMI-3	Falsification of driver’s train data / additional data input stored on-board	
MMI-4	Falsification of SR speed/distance data	
MMI-5	Falsification of train integrity confirmation input	
MMI-6	Falsification of Virtual Balise Cover	
ODO-1	Incorrect standstill indication	
ODO-2	Speed measurement underestimates trains actual speed	5.3.1.2: Accuracy of speed known on-board, in ceiling speed monitoring, release speed monitoring and in target speed monitoring in case the compensation of the speed measurement inaccuracy is inhibited
ODO-3	Incorrect actual physical speed direction	
ODO-4	The confidence interval for distance measurement does not include the real position of the train	
ODO-5	Cold Movement not detected	
KERNEL-1	Balise linking consistency checking failure	In case the message is received but the linking is not consistent: 5.2.1.1: Delay between receiving of a balise message and applying the emergency brake

Event Id.	Event Description	Corresponding performance requirement in Subset-041
KERNEL-2	Balise group message consistency checking failure	5.2.1.1: Delay between receiving of a balise message and applying the emergency brake
KERNEL-3	Failure of radio message correctness check	
KERNEL-4	Radio sequencing checking failure	
KERNEL-5	Radio link supervision function failure	
KERNEL-6	Manage communication session failure	
KERNEL-7	Incorrect LRBG	
KERNEL-8	Emergency Message Acknowledgement Failure	
KERNEL-9	Speed calculation underestimates train speed	5.3.1.2: Accuracy of speed known on-board, in ceiling speed monitoring, release speed monitoring and in target speed monitoring in case the compensation of the speed measurement inaccuracy is inhibited
KERNEL-10	Functional failure of standstill detection	
KERNEL-11	Incorrect traction/braking model (e.g. brake use restrictions)	
KERNEL-12	Failure of standstill supervision	
KERNEL-13	Failure of reverse movement distance monitoring	
KERNEL-14	Failure of unauthorised direction movement protection	
KERNEL-15	Incorrect cab status (TIU failure)	
KERNEL-16	Incorrect train status TIU sleeping/cab status	
KERNEL-17	Wrong Acceptance of MA	
KERNEL-18	Failure to manage RBC/RBC	

Event Id.	Event Description	Corresponding performance requirement in Subset-041
KERNEL-19	Failure of train trip supervision in OS, LS and FS	5.2.1.1: Delay between receiving of a balise message and applying the emergency brake 5.2.1.13: Delay between passing an EOA/LOA and applying the emergency brake
KERNEL-20	Failure of train trip supervision, shunting and SR	5.2.1.1: Delay between receiving of a balise message and applying the emergency brake
KERNEL-21	Incorrect supervision of stop in SR	5.2.1.1: Delay between receiving of a balise message and applying the emergency brake
KERNEL-22	Incorrect current EOA	5.2.1.6: Delay between receiving of an emergency message and applying the reaction on-board
KERNEL-23	Incorrect train position / train data sent from on-board to trackside	5.3.1.3: Age of speed and position measurement for position report to trackside 5.3.2.1: Safe clock drift
KERNEL-24	Failure of message acknowledgement	
KERNEL-25	Incorrect traction/braking model (Acceleration only)	
KERNEL-26	Deleted	
KERNEL-27	Incorrect System Data (e.g. current level)	
KERNEL-28	Incorrect confidence interval	
KERNEL-29	Failure to shorten MA	
KERNEL-30	Incorrect shortening of MA	
KERNEL-31	Deleted	
KERNEL 32	Failure of loop message consistency checking	

Event Id.	Event Description	Corresponding performance requirement in Subset-041
KERNEL-33	Wrong processing of MA information	5.2.1.3: Delay between receiving of a balise message and reporting the resulting change of status on-board (5.2.1.4: Delay between receiving of a MA via radio and the update of EOA/LOA on-board). Note: Whether 5.2.1.4 is safety related must be evaluated in the specific application's hazard analysis, see further section 5.3.
KERNEL-34	Incorrect supervision of MA time-outs (sections and overlaps)	5.2.1.3: Delay between receiving of a balise message and reporting the resulting change of status on-board (5.2.1.4: Delay between receiving of a MA via radio and the update of EOA/LOA on-board). Note: Whether 5.2.1.4 is safety related must be evaluated in the specific application's hazard analysis, see further section 5.3.
KERNEL-35	Incorrect supervision of odometry errors for distance measurement	
KERNEL-36	Incorrect relocation of location based information	
TI-1	Service brake / emergency brake not commanded when required	5.2.1.1: Delay between receiving of a balise message and applying the emergency brake 5.2.1.13: Delay between passing an EOA/LOA and applying the emergency brake
TI-2	Service brake / emergency brake release commanded when not required	
TI-3	Inappropriate sleeping request	
TI-4	Incorrect brake status (TIU failure)	
TI-5	Incorrect direction controller position report (TIU failure)	
TI-6b	Wrong Cabin considered as Active	

Event Id.	Event Description	Corresponding performance requirement in Subset-041
TI-7	Inappropriate passive shunting request	
TI-8	Inappropriate Non Leading permitted signal received	
TI-10	Falsification of train data received by External Source	
TI-11	Traction Cut-Off not commanded when required	
TI-12	Inappropriate Train Integrity Confirmed Status received	
EUB-H1	A balise group is not detected, due to failure of a balise group to transmit a detectable signal	
EUB-H4	Transmission of an erroneous telegram interpretable as correct, due to failure within a Balise	
EUB-H7	Erroneous localisation of a Balise Group, with reception of valid telegrams, due to failure within Balises (too strong up-link signal)	
EUB-H8	The order of reported Balises, with reception of valid telegram, is erroneous due to failure within a Balise (too strong up-link signal)	
EUB-H9	Erroneous reporting of a Balise Group in a different track, with reception of valid telegrams, due to failures within Balises (too strong up-link signal)	
BTM-H1	A balise group is not detected, due to failure within the on-board BTM function	
BTM-H4	Transmission to the on-board kernel of an erroneous telegram, interpretable as correct, due to failure within the on-board BTM function	

Event Id.	Event Description	Corresponding performance requirement in Subset-041
BTM-H7	Erroneous localisation of a Balise Group, with reception of valid telegrams, due to failure within the on-board BTM function (erroneous threshold function or significantly excessive Tele-powering signal)	
BTM-H8	The order of reported Balises, with reception of valid telegrams, is erroneous due to failure within the on-board BTM function (erroneous threshold function or significantly excessive Tele-powering signal	
BTM-H9	Erroneous reporting of a Balise Group in a different track, with reception of valid telegrams, due to failure within the on-board BTM function (erroneous threshold function or significantly excessive Tele-powering signal)	
OB-EUR-H4	Radio message corrupted in on-board Euroradio, such that the message appears as consistent	
TR-EUR-H4	Radio message corrupted in trackside Euroradio, such that the message appears as consistent	
LEU-H4	Transmission of an erroneous telegram / telegrams interpretable as correct, due to failure within the LEU function	
EUL-H4	Transmission of an erroneous telegram / telegrams interpretable as correct, due to failure within a Loop	
LTM-H4	Transmission of an erroneous telegram / telegrams, interpretable as correct, due to failure within the on-board LTM function	
RBC-2	Incorrect radio message sent from RBC Kernel, such that the message appears as consistent	

Event Id.	Event Description	Corresponding performance requirement in Subset-041
RBC-3	The RBC misinterprets a message from an adjacent RBC, causing incorrect message to ETCS on-board	
RBC-4	The RBC gives an erroneous message to an adjacent RBC	

5.20.2 Exceptions applicable only to the reduced envelope of ETCS system versions up to X.Y = 2.1

5.20.2.1 Void

5.20.3 Exceptions applicable only to the reduced envelope of ETCS system versions up to X.Y = 2.2

5.20.3.1 Void

5.21 SUBSET-102

5.21.1.1 Void

5.22 SUBSET-094

5.22.1 Exceptions applicable to all reduced envelopes of ETCS system versions

5.22.1.1 xxxx

5.22.2 Exceptions applicable only to the reduced envelope of ETCS system versions up to X.Y = 2.1

5.22.2.1 xxxxx

5.22.3 Exceptions applicable only to the reduced envelope of ETCS system versions up to X.Y = 2.2

5.22.3.1 xxxxx

5.23 A11T6001

5.23.1.1 Void

5.24 SUBSET-074-2

5.24.1.1 Void

5.25 SUBSET-076-5-2

5.25.1.1 Void

5.26 SUBSET-076-6-3

5.26.1.1 Void

5.27 SUBSET-076-7

5.27.1 Exceptions applicable to all reduced envelopes of ETCS system versions

5.27.1.1 xxxx

5.27.2 Exceptions applicable only to the reduced envelope of ETCS system versions up to X.Y = 2.1

5.27.2.1 xxxxx

5.27.3 Exceptions applicable only to the reduced envelope of ETCS system versions up to X.Y = 2.2

5.27.3.1 xxxxx

5.28 SUBSET-092-1

5.28.1.1 Void

5.29 SUBSET-092-2

5.29.1.1 Void

5.30 SUBSET-085

5.30.1.1 Void

5.31 SUBSET-101

5.31.1.1 Void

5.32 SUBSET-100

5.32.1.1 Void

5.33 SUBSET-059

5.33.1.1 Void

5.34 SUBSET-103

5.34.1.1 Void

5.35 SUBSET-058

5.35.1.1 Void

5.36 SUBSET-104

5.36.1.1 Void

5.37 SUBSET-114

5.37.1.1 Void

5.38 SUBSET-119

5.38.1 Exceptions applicable to all reduced envelopes of ETCS system versions

5.38.1.1 The clause 2.1.1.10 shall be replaced with:

"Subset-034 [6] contains the mandatory and optional requirements for the application of the I/O functions by the rolling stock subsystem. Unless specified otherwise, all I/O functions shall be implemented in the ERTMS/ETCS on-board with the exception of the acquisition of train data information from the train interface which is an optional feature for the ERTMS/ETCS on-board equipment according to [6], 2.6.2.2."

5.38.1.2 The table in section 4.3.5 shall be replaced with:

TR Packet 3			
Data name	**Type**	**Description (as a complement to Table 4-1)**	**Byte.Bit Offset**
TR_OBU_ L_CONSISTFRONTCABAMAX	UNSIGNED16	The validity bit shall be set to 0	0.0
TR_OBU_ L_CONSISTFRONTCABAMIN	UNSIGNED16	The validity bit shall be set to 0	2.0
TR_OBU_ L_CONSISTFRONTCABANOM	UNSIGNED16	The validity bit shall be set to 0	4.0
TR_OBU_ L_CONSISTREARCABAMAX	UNSIGNED16	The validity bit shall be set to 0	6.0
TR_OBU_ L_CONSISTREARCABAMIN	UNSIGNED16	The validity bit shall be set to 0	8.0
TR_OBU_ L_CONSISTREARCABANOM	UNSIGNED16	The validity bit shall be set to 0	10.0
Spare1	UNSIGNED16		12.0
Spare2	UNSIGNED16		14.0
Spare3	UNSIGNED16		16.0
Spare4	UNSIGNED16		18.0
Spare5	UNSIGNED16		20.0
Spare6	UNSIGNED16		22.0
Validity	UNSIGNED16	Validity of value of variables contained in bytes 0 to 11 of the packet. The validity of the signal with offset 0.0 is in bit 0. The validity of the signal with offset 22.0 is in bit 11.	24.0

5.38.1.3 The table in section 7.1.3 shall be replaced with:

TR Packet 3			
Data name	**Type**	**PROFINET signal name**	**Byte.Bit Offset**
Validity1 (part 1)	UNSIGNED8	Q_P3_Valid1_1; the validity bit shall be set to 0	0.0
Validity1 (part 2)	UNSIGNED8	Q_Spare1	1.0
Validity2 (part 1)	UNSIGNED8	Q_Spare2	2.0
Validity2 (part 2)	UNSIGNED8	Q_Spare3	3.0
TR_OBU_ L_CONSISTFRONTCABAMAX	UNSIGNED16	Q_L_CFrontCAMax; the validity bit shall be set to 0	4.0
TR_OBU_ L_CONSISTFRONTCABAMIN	UNSIGNED16	Q_L_CFrontCAMin; the validity bit shall be set to 0	6.0
TR_OBU_ L_CONSISTFRONTCABANOM	UNSIGNED16	Q_L_CFrontCANom; the validity bit shall be set to 0	8.0
TR_OBU_ L_CONSISTREARCABAMAX	UNSIGNED16	Q_L_CRearCAMax; the validity bit shall be set to 0	10.0
TR_OBU_ L_CONSISTREARCABAMIN	UNSIGNED16	Q_L_CRearCAMin; the validity bit shall be set to 0	12.0
TR_OBU_ L_CONSISTREARCABANOM	UNSIGNED16	Q_L_CRearCANom; the validity bit shall be set to 0	14.0

5.38.2 Exceptions applicable only to the reduced envelope of ETCS system versions up to X.Y = 2.1

5.38.2.1 The table in section 4.3.7 shall be replaced with:

OBU Packet 1			
Data name	**Type**	**Description (as a complement to Table 4-1)**	**Byte.Bit Offset**
OBU_TR_ServiceBrake	BOOLEAN1		0.0
OBU_TR_EB3_Cmd	BOOLEAN1		0.1
OBU_TR_TCO_Cmd	BOOLEAN1		0.2
OBU_TR_RBInhibit_Cmd	BOOLEAN1		0.3
OBU_TR_MGInhibit_Cmd	BOOLEAN1		0.4
OBU_TR_ECSInhibit_Cmd	BOOLEAN1		0.5
OBU_TR_ECEInhibit_Cmd	BOOLEAN1		0.6
OBU_TR_AT_Cmd	BOOLEAN1		0.7
OBU_TR_MPS_Cmd	BOOLEAN1		1.0
OBU_TR_PG_Cmd	BOOLEAN1		1.1

OBU Packet 1			
Data name	**Type**	**Description (as a complement to Table 4-1)**	**Byte.Bit Offset**
OBU_TR_AD_Status	BOOLEAN1	The validity bit shall be set to 0	1.2
OBU_TR_RS_Status	BOOLEAN1	The validity bit shall be set to 0	1.3
Spare1	BOOLEAN1		1.4
Spare2	BOOLEAN1		1.5
Spare3	BOOLEAN1		1.6
OBU_TR_EngOrientSM	BOOLEAN1	The validity bit shall be set to 0	1.7
Spare4	UNSIGNED16		2.0
OBU_TR_CTS_D_Change	INTEGER16	Change of Traction System	4.0
OBU_TR_CTS_NewId	UNSIGNED16		6.0
OBU_TR_CTS_NewVoltage	UNSIGNED8		8.0
Spare5	UNSIGNED8		9.0
OBU_TR_ACC_D_Change	INTEGER16	Change of Allowed Current Consumption	10.0
OBU_TR_ACC_Limit	UNSIGNED16		12.0
Spare6	UNSIGNED16		14.0
Spare7	UNSIGNED16		16.0
Spare8	UNSIGNED16		18.0
Spare9	UNSIGNED16		20.0
Validity1	UNSIGNED16	Validity of value of variables contained in the first two bytes of the packet. The validity of the signal with offset 0.0 is in bit 0. The validity of the signal with offset 1.0 is in bit 8. The validity of the signal with offset 1.7 is in bit 15.	22.0
Validity2	UNSIGNED16	Validity of value of variables contained in bytes 2 to 19 of the packet. The validity of the 1st	24.0

OBU Packet 1			
Data name	**Type**	**Description (as a complement to Table 4-1)**	**Byte.Bit Offset**
		signal with offset 2.0 is in bit 0. The validity of the signal with offset 20.0 is in bit 10.	

5.38.2.2 The table in section 7.1.4 shall be replaced with:

OBU Packet 1			
Data name	**Type**	**PROFINET signal name**	**Byte.Bit Offset**
Validity1 (part 1)	UNSIGNED8	I_P1_Valid1_1	0.0
Validity1 (part 2)	UNSIGNED8	I_P1_Valid1_2	1.0
Validity2 (part 1)	UNSIGNED8	I_P1_Valid2_1	2.0
Validity2 (part 2)	UNSIGNED8	I_Spare1	3.0
OBU_TR_ServiceBrake	BOOLEAN1	I_ServiceBrake	4.0
OBU_TR_EB3_Cmd	BOOLEAN1	I_EB3_Cmd	4.1
OBU_TR_TCO_Cmd	BOOLEAN1	I_TCO_Cmd	4.2
OBU_TR_RBInhibit_Cmd	BOOLEAN1	I_RBInhibit_Cmd	4.3
OBU_TR_MGInhibit_Cmd	BOOLEAN1	I_MGInhibit_Cmd	4.4
OBU_TR_ECSInhibit_Cmd	BOOLEAN1	I_ECSInhibit_Cmd	4.5
OBU_TR_ECEInhibit_Cmd	BOOLEAN1	I_ECEInhibit_Cmd	4.6
OBU_TR_AT_Cmd	BOOLEAN1	I_AT_Cmd	4.7
OBU_TR_MPS_Cmd	BOOLEAN1	I_MPS_Cmd	5.0
OBU_TR_PG_Cmd	BOOLEAN1	I_PG_Cmd	5.1
OBU_TR_AD_Status	BOOLEAN1	I_AD_Status; the validity bit shall be set to 0	5.2
OBU_TR_RS_Status	BOOLEAN1	I_RS_Status; the validity bit shall be set to 0	5.3
Spare1	BOOLEAN1	I_Spare2	5.4
Spare2	BOOLEAN1	I_Spare3	5.5
Spare3	BOOLEAN1	I_Spare4	5.6
OBU_TR_EngOrientSM	BOOLEAN1	I_EngOrientSM; the validity bit shall be set to 0	5.7
Spare4 (part 1)	UNSIGNED8	I_Spare5	6.0
Spare4 (part 2)	UNSIGNED8	I_Spare6	7.0

OBU Packet 1			
Data name	**Type**	**PROFINET signal name**	**Byte.Bit Offset**
OBU_TR_CTS_NewVoltage	UNSIGNED8	I_CTS_NewVolt	8.0
Spare5	UNSIGNED8	I_Spare7	9.0
OBU_TR_CTS_NewId	UNSIGNED16	I_CTS_NewId	10.0
OBU_TR_ACC_Limit	UNSIGNED16	I_ACC_Limit	12.0
OBU_TR_CTS_D_Change	INTEGER16	I_CTS_D_Change	14.0
OBU_TR_ACC_D_Change	INTEGER16	I_ACC_D_Change	16.0

5.38.3 Exceptions applicable only to the reduced envelope of ETCS system versions up to X.Y = 2.2

5.38.3.1 The table in section 4.3.7 shall be replaced with:

OBU Packet 1			
Data name	**Type**	**Description (as a complement to Table 4-1)**	**Byte.Bit Offset**
OBU_TR_ServiceBrake	BOOLEAN1		0.0
OBU_TR_EB3_Cmd	BOOLEAN1		0.1
OBU_TR_TCO_Cmd	BOOLEAN1		0.2
OBU_TR_RBInhibit_Cmd	BOOLEAN1		0.3
OBU_TR_MGInhibit_Cmd	BOOLEAN1		0.4
OBU_TR_ECSInhibit_Cmd	BOOLEAN1		0.5
OBU_TR_ECEInhibit_Cmd	BOOLEAN1		0.6
OBU_TR_AT_Cmd	BOOLEAN1		0.7
OBU_TR_MPS_Cmd	BOOLEAN1		1.0
OBU_TR_PG_Cmd	BOOLEAN1		1.1
OBU_TR_AD_Status	BOOLEAN1		1.2
OBU_TR_RS_Status	BOOLEAN1	The validity bit shall be set to 0	1.3
Spare1	BOOLEAN1		1.4
Spare2	BOOLEAN1		1.5
Spare3	BOOLEAN1		1.6
OBU_TR_EngOrientSM	BOOLEAN1	The validity bit shall be set to 0	1.7
Spare4	UNSIGNED16		2.0

OBU Packet 1			
Data name	**Type**	**Description (as a complement to Table 4-1)**	**Byte.Bit Offset**
OBU_TR_CTS_D_Change	INTEGER16	Change of Traction System	4.0
OBU_TR_CTS_NewId	UNSIGNED16		6.0
OBU_TR_CTS_NewVoltage	UNSIGNED8		8.0
Spare5	UNSIGNED8		9.0
OBU_TR_ACC_D_Change	INTEGER16	Change of Allowed Current Consumption	10.0
OBU_TR_ACC_Limit	UNSIGNED16		12.0
Spare6	UNSIGNED16		14.0
Spare7	UNSIGNED16		16.0
Spare8	UNSIGNED16		18.0
Spare9	UNSIGNED16		20.0
Validity1	UNSIGNED16	Validity of value of variables contained in the first two bytes of the packet. The validity of the signal with offset 0.0 is in bit 0. The validity of the signal with offset 1.0 is in bit 8. The validity of the signal with offset 1.7 is in bit 15.	22.0
Validity2	UNSIGNED16	Validity of value of variables contained in bytes 2 to 19 of the packet. The validity of the 1st signal with offset 2.0 is in bit 0. The validity of the signal with offset 20.0 is in bit 10.	24.0

5.38.3.2 The table in section 7.1.4 shall be replaced with:

OBU Packet 1			
Data name	**Type**	**PROFINET signal name**	**Byte.Bit Offset**
Validity1 (part 1)	UNSIGNED8	I_P1_Valid1_1	0.0
Validity1 (part 2)	UNSIGNED8	I_P1_Valid1_2	1.0

OBU Packet 1			
Data name	**Type**	**PROFINET signal name**	**Byte.Bit Offset**
Validity2 (part 1)	UNSIGNED8	I_P1_Valid2_1	2.0
Validity2 (part 2)	UNSIGNED8	I_Spare1	3.0
OBU_TR_ServiceBrake	BOOLEAN1	I_ServiceBrake	4.0
OBU_TR_EB3_Cmd	BOOLEAN1	I_EB3_Cmd	4.1
OBU_TR_TCO_Cmd	BOOLEAN1	I_TCO_Cmd	4.2
OBU_TR_RBInhibit_Cmd	BOOLEAN1	I_RBInhibit_Cmd	4.3
OBU_TR_MGInhibit_Cmd	BOOLEAN1	I_MGInhibit_Cmd	4.4
OBU_TR_ECSInhibit_Cmd	BOOLEAN1	I_ECSInhibit_Cmd	4.5
OBU_TR_ECEInhibit_Cmd	BOOLEAN1	I_ECEInhibit_Cmd	4.6
OBU_TR_AT_Cmd	BOOLEAN1	I_AT_Cmd	4.7
OBU_TR_MPS_Cmd	BOOLEAN1	I_MPS_Cmd	5.0
OBU_TR_PG_Cmd	BOOLEAN1	I_PG_Cmd	5.1
OBU_TR_AD_Status	BOOLEAN1	I_AD_Status	5.2
OBU_TR_RS_Status	BOOLEAN1	I_RS_Status; the validity bit shall be set to 0	5.3
Spare1	BOOLEAN1	I_Spare2	5.4
Spare2	BOOLEAN1	I_Spare3	5.5
Spare3	BOOLEAN1	I_Spare4	5.6
OBU_TR_EngOrientSM	BOOLEAN1	I_EngOrientSM; the validity bit shall be set to 0	5.7
Spare4 (part 1)	UNSIGNED8	I_Spare5	6.0
Spare4 (part 2)	UNSIGNED8	I_Spare6	7.0
OBU_TR_CTS_NewVoltage	UNSIGNED8	I_CTS_NewVolt	8.0
Spare5	UNSIGNED8	I_Spare7	9.0
OBU_TR_CTS_NewId	UNSIGNED16	I_CTS_NewId	10.0
OBU_TR_ACC_Limit	UNSIGNED16	I_ACC_Limit	12.0
OBU_TR_CTS_D_Change	INTEGER16	I_CTS_D_Change	14.0
OBU_TR_ACC_D_Change	INTEGER16	I_ACC_D_Change	16.0

5.39 SUBSET-120

5.39.1 Exceptions applicable to all reduced envelopes of ETCS system versions

5.39.1.1 The section 2.1.3.6 shall not apply.

5.39.1.2 The section 2.1.5.7 shall not apply.

5.39.1.3 The section 2.1.7.2 shall not apply.

5.39.2 Exceptions applicable only to the reduced envelope of ETCS system versions up to X.Y = 2.1

5.39.2.1 The section 2.1.3.5 shall not apply.

5.39.3 Exceptions applicable only to the reduced envelope of ETCS system versions up to X.Y = 2.2

5.39.3.1 Void

5.40 SUBSET-137

5.40.1.1 Void

5.41 SUBSET-125

5.41.1 Exceptions applicable to all reduced envelopes of ETCS system versions

5.41.1.1 Void

5.41.2 Exceptions applicable only to the reduced envelope of ETCS system versions up to X.Y = 2.1

5.41.2.1 Void

5.41.3 Exceptions applicable only to the reduced envelope of ETCS system versions up to X.Y = 2.2

5.41.3.1 The item 7.1.3.8 b) shall not apply.

5.41.3.2 The item 10.2.7.16 b) shall not apply.

5.42 SUBSET-126

5.42.1.1 Void

5.43 SUBSET-148

5.43.1.1 Void

5.44 SUBSET-130

5.44.1 Exceptions applicable to all reduced envelopes of ETCS system versions

5.44.1.1 Void

5.44.2 Exceptions applicable only to the reduced envelope of ETCS system versions up to X.Y = 2.1

5.44.2.1 Void

5.44.3 Exceptions applicable only to the reduced envelope of ETCS system versions up to X.Y = 2.2

5.44.3.1 In the table of section 6.2.2.2 (Packet Number 6: ETCS_ATO_Dynamic), the items 41,42, 43, 44 and 45 shall be replaced with:

41	T_TRACTION	[If M_MODE is equal to FS, AD or OS] Time during which the traction effort is still present after the Emergency brake intervention. If conversion model is used, this variable is to be used only when braking to standstill.	UINT16	**Resolution:** 10 ms
42	T_TRACTION_SPEED	[If M_MODE is equal to FS, AD or OS] Time during which the traction effort is still present after the Emergency brake intervention when braking to a target speed > 0 km/h if conversion model is used.	UINT16	**Resolution:** 10 ms **Special value:** 65535 = Not relevant in case conversion model is not used
43	Spare	[If M_MODE is equal to FS, AD or OS]	UINT16	
44	T_BEREM	[If M_MODE is equal to FS, AD or OS] Remaining time during which the traction effort is not present until the equivalent brake build up time elapses after the Emergency brake intervention. If conversion model is used, this variable is to be used only when braking to standstill.	UINT16	**Resolution:** 10 ms
45	T_BEREM_SPEED	[If M_MODE is equal to FS, AD or OS] Remaining time during which the traction effort is not present until the equivalent brake build up time elapses after the Emergency brake intervention when braking to a target speed > 0 km/h if conversion model is used.	UINT16	**Resolution:** 10 ms **Special value:** 65535 = Not relevant in case conversion model is not used

5.45 SUBSET-139

5.45.1.1 Void

5.46 SUBSET-143

5.46.1.1 Void

5.47 SUBSET-147

5.47.1 Exceptions applicable to all reduced envelopes of ETCS system versions

5.47.1.1 The clause 3.1.1.3 shall not apply.

5.47.1.2 The clause 3.1.1.6.1 shall not apply.

5.47.1.3 The clause 8.4.9.1.1 shall not apply.

5.47.2 Exceptions applicable only to the reduced envelope of ETCS system versions up to X.Y = 2.1

5.47.2.1 Void

5.47.3 Exceptions applicable only to the reduced envelope of ETCS system versions up to X.Y = 2.2

5.47.3.1.1 Void

5.48 FFFIS-7950

5.48.1.1 Void

5.49 FIS-7970

5.49.1.1 Void

5.50 SUBSET-151

5.50.1.1 Void

5.51 13E154

5.51.1.1 Void

5.52 TD/011REC1028

5.52.1.1 Void