ERTMS/ETCS

System Requirements Specification

Chapter 7

ERTMS/ETCS language

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7.1 Modification History

Issue Number Date	Section Number	Modification / Description	Author
0.0.1 990422	All	Creation of document	OG/DD
0.0.2 990423	All	Changed according to Siemens comments	OG/DD
1.1.0 990423	All	Class P Official Issue	OG/DD
1.1.1 990525	All	Add review comments UNISIG_All_COM_006_7.doc	BRO
1.1.2	All	Some minor corrections	SAB
1.1.3	All	First draft for class 1	SAB
1.1.4	All	Update according to review comments	SAB
1.1.5	All	Some minor modifications (see revision marks) + Addition of length of variables in the packets.	OG
1.1.6	Version number and editorial changes.	Finalisation meeting in Stuttgart 990729	HE
1.2.0 990730	Version Number	Release Version	HE
1.2.1 991209	All	Changes according to WPs for SRS upgrade + editorial changes due to ECSAG / UNISIG agreed questions	OG
1.3.0 991217	All	Changed according to review comments	OG
2.0.0 991222	Minor editorial changes	Release version	OG
2.0.1 000926	All	Corrections after UNISIG review 15 June 00	OG
2.1.0 001012	All	Corrections according to " nisig_all_com_SRS_ 2.0.1" document	OG
2.2.0	Packet 71 deleted, NID_C 10 bit	UNISIG release	SAB

2.2.2	see revision marks	Corrections according to SUBSET-026 Corrected Paragraphs, issue 2.2.2. Mainly, Packet 71 and Q_NVDRIVER_ADHES added	OG
2.2.4 24.05.2004		Update after cross checking and comments from Alain	B. Stamm
2.2.4 SG checked 28/05/04	Including all CLRs agreed with the EEIG (see "List of CLRs agreed with EEIG for SRS v2.2.4" dated 28/05/04) Affected clauses see change marks		H. Kast
2.2.5 04/01/05	Incorporation of solution proposal for CLR 007 with EEIG users group comments		A. Hougardy
2.2.6	Incorporation of all CRs and CLRs submitted to the EEIG until 21.01.2005		B. Stamm
2.2.7	Incorporation of all CRs and CLRs extracted from "CR-Report_10.6.05-by number.rtf" and mentioned in column 2.2.7 in "CR status 13.6.05 _rmk_chap_3_4_220605.xls"		B. Stamm
2.2.8	Change marks cleaned up and updated according to last CRs decisions (including split of CRs7&126)		J. Liesche
2.2.9 24/02/06	Including all CRs that are classified as "IN" as per SUBSET-108 version 1.0.0 Removal of all CRs that are not classified as "IN" as per SUBSET-108 version 1.0.0, with the exception of CRs 63,98,120,158,538		J. Liesche
2.3.0 24/02/06	Release version		HK
2.3.1	Including SG CR decision made since SRS 2.2.8, correct errors in 2.2.8 detected when creating SRS 2.3.0		J. Liesche
2.3.2 17/03/08	Including all CRs that are classified as "IN" as per SUBSET-108 version 1.2.0 and all CRs that are in state "Analysis completed" according to ERA CCM		A. Hougardy

2.9.1 06/10/08	Including all enhancement CR's retained for 3.0.0 baseline and all other error CR's that are in state "Analysis completed" according to ERA CCM For editorial reasons, the following CR's are also included: CR656, CR804, CR821	A. Hougardy
3.0.0 23/12/08	Release version	A. Hougardy
3.0.1 22/12/09	Including the results of the editorial review of the SRS 3.0.0 and the other error CR's that are in state "Analysis completed" according to ERA CCM	A. Hougardy
3.1.0 22/02/10	Release version	A. Hougardy
3.1.1 08/11/10	Including all CR's that are in state "Analysis completed" according to ERA CCM, plus CR731, 972 and 1000.	A. Hougardy
3.2.0 22/12/10	Release version	A. Hougardy
3.2.1 13/12/11	Including all CR's that are in state "Analysis completed" according to ERA CCM.	A. Hougardy
3.3.0 07/03/12	Baseline 3 release version	A. Hougardy

7.2 Table of Contents

7.3 Components of ERTMS/ETCS Language

7.3.1 Introduction

7.3.1.1 The ERTMS/ETCS language is used in transmitting information over the radio, balise and loop airgaps.

7.3.1.2 The ERTMS/ETCS language is based on variables, packets, messages and telegrams (variables and packets are described in this section, while telegrams and messages are described in chapter 8).

7.3.1.3 Note: A number of variables contain values which have to be assigned. Some of these values have to be unique to ensure that the system functions properly. A centralised handling of this assignment is therefore required (nationally or internationally, depending on the variable). The variables concerned have been marked. The values included in this document for these variables are therefore not to be used without prior verification of their validity. See SUBSET-054 for further details.

7.3.2 Definition of Variables

7.3.2.1 Variables shall be used to encode single data values. Variables cannot be split in minor units. The whole variable has one type (meaning).

7.3.2.2 Variables may have special values which are related to the basic meaning of the variable.

7.3.2.3 Special values have always the highest values in a variable (eg. 11...111 = “unknown”).

7.3.2.4 Spare values shall be located between the normal and special values in the variable range

7.3.2.5 Names of variables are unique. A variable is used in context with the meaning as described in the variable definition. Variables with different meanings have different names.

7.3.2.6 All variable definitions shall be independent of the transport media over which they are used, if used in more than one media.

7.3.2.7 Signed values shall be encoded as 2’s complement.

7.3.2.8 One bit variables (Boolean) shall always use 0 for false and 1 for true.

7.3.2.9 Offsets for numerical values shall be avoided (0 shall be used for 0, 1 for 1, etc.) except where justified.

7.3.2.10 When transmitting over the different transmission media, the most significant bit shall be transmitted first.

7.3.2.11 All Variables have one of the following prefixes:

A_	Acceleration
D_	distance
G_	Gradient
L_	length
M_	Miscellaneous
N_	Number
NC_	class number
NID_	identity number
Q_	Qualifier
T_	time/date
V_	Speed
X_	Text

7.3.3 Definition of Packets

7.3.3.1 Packets are multiple variables grouped into a single unit, with a defined internal structure.

7.3.3.2 This structure consists of a packet header with:

- Track to Train: a unique packet number, the length of the packet in bits, the orientation information, optionally the distance scale and an information section containing a defined set of variables. The packet structure is as follows:

Number	NID_PACKET	Packet identifier
Direction	Q_DIR	Specifies the validity direction of transmitted data
Length	L_PACKET	Number of bits in the packet
Scale	Q_SCALE	Specifies which distance scale is used for all distance information within the packet. There is no Q_SCALE variable in packets which do not contain distance information.
Information	.....	Well defined set(s) of variables.

- Train to Track: a unique packet number, the length of the packet in bits, optionally the distance scale and an information section containing a defined set of variables. The packet structure is as follows:

Number	NID_PACKET	Packet identifier
Length	L_PACKET	Number of bits in the packet
Scale	Q_SCALE	Specifies which distance scale is used for all distance information within the packet.

		There is no Q_SCALE variable in packets which do not contain distance information.
Information	.....	Well defined set(s) of variables.

7.3.3.3 The packet definition does not change when transmitted over different transmission media.

7.3.3.4 All currently not defined packet identifiers are reserved for future use and shall be considered as invalid values (i.e. like spare values). Exception: reception of information only differing by Y with regards to the highest system version number X supported by on-board (refer to section 3.17.3.11). All future packet definitions shall follow the above defined structure.

7.3.3.5 Exception: Packet 0 “Virtual Balise Cover marker” and Packet 255: “End of Telegram” do not follow the above defined structure.

7.3.3.6 N_ITER specifies the number of iterations of a variable or group of variables which follow.

7.3.3.7 If N_ITER is 0 then no variables follow.

7.3.3.8 Two nested levels of iterations can exist.

7.3.3.9 If, depending on the value of a previous qualifier variable in the packet, a variable is optional, it is written indented in the packet definition

7.3.3.10 Note: Row “Transmitted by” in the description of a packet specifies which ERTMS/ETCS trackside device (balise, loop, RIU, RBC) can transmit this packet. “Any” means that the packet can be transmitted by a balise, a loop, an RBC and a RIU.

7.3.3.10.1 Note: Row “Transmitted to” in the description of a packet specifies to which ERTMS/ETCS trackside device the packet can be transmitted.

7.4 PACKETS

7.4.1 List of Packets

7.4.1.1 Track to Train

7.4.1.2 Train to Track

7.4.1.3 Track to Train or Train to Track

7.4.2 PACKETS: TRACK TO TRAIN

7.4.2.0 Packet Number 0: Virtual Balise Cover marker

Description	Indication to on-board that the telegram can be ignored according to a VBC		
Transmitted by	Balise		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	NID_VBCMK	6	

7.4.2.1 Packet Number 2: System Version order

Description	This packet is used to tell the on-board which is the operated system version		
Transmitted by	Balise		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	
	M_VERSION	7	

7.4.2.1.1 Packet Number 3: National Values

Description	Downloads a set of National Values to the train		
Transmitted by	Balise, RBC		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	
	Q_SCALE	2	
	D_VALIDNV	15	
	NID_C	10	Identification of national areas to which the set applies
	N_ITER	5	
	NID_C(k)	10	Identification of additional national area(s) to which the set applies
	V_NVSHUNT	7	
	V_NVSTFF	7	
	V_NVONSIGHT	7	
	V_NVLIMSUPERV	7	
	V_NVUNFIT	7	

V_NVREL	7	
D_NVROLL	15	
Q_NVSBTSMPERM	1	
Q_NVEMRRLS	1	
Q_NVGUIPERM	1	
Q_NVSBFBPERM	1	
Q_NVINHSMICPERM	1	
V_NVALLOWOVTRP	7	
V_NVSUPOVTRP	7	
D_NVOVTRP	15	
T_NVOVTRP	8	
D_NVPOTRP	15	
M_NVCONTACT	2	
T_NVCONTACT	8	
M_NVDERUN	1	
D_NVSTFF	15	
Q_NVDRIVER_ADHES	1	
A_NVMAXREDADH1	6	
A_NVMAXREDADH2	6	
A_NVMAXREDADH3	6	
Q_NVLOCACC	6	
M_NVAVADH	5	
M_NVEBCL	4	
Q_NVKINT	1	
Q_NVKVINTSET	2	Only if Q_NVKINT = 1, Q_NVKVINTSET and the following variables follow
A_NVP12	6	Only if Q_NVKVINTSET = 1
A_NVP23	6	Only if Q_NVKVINTSET = 1
V_NVKVINT	7	= 0 km/h
M_NVKVINT	7	Valid between V_NVKVINT and V_NVKVINT(1) If Q_NVKVINTSET = 1, gives the correction factor if maximum emergency brake deceleration is lower than A_NVP12

M_NVKVINT	7	Only if Q_NVKVINTSET = 1 Valid between V_NVKVINT and V_NVKVINT(1) Gives the correction factor if maximum emergency brake deceleration is higher than A_NVP23
N_ITER	5	
V_NVKVINT(n)	7	
M_NVKVINT(n)	7	Valid between V_NVKVINT(n) and V_NVKVINT(n+1) If Q_NVKVINTSET = 1, gives the correction factor if maximum emergency brake deceleration is lower than A_NVP12
M_NVKVINT(n)	7	Only if Q_NVKVINTSET = 1 Valid between V_NVKVINT(n) and V_NVKVINT(n+1) Gives the correction factor if maximum emergency brake deceleration is higher than A_NVP23
N_ITER	5	
Q_NVKVINTSET(k)	2	
A_NVP12(k)	6	Only if Q_NVKVINTSET(k) = 1
A_NVP23(k)	6	Only if Q_NVKVINTSET(k) = 1
V_NVKVINT(k)	7	= 0km/h
M_NVKVINT(k)	7	Valid between V_NVKVINT(k) and V_NVKVINT(k,1) If Q_NVKVINTSET(k) = 1, gives the correction factor if maximum emergency brake deceleration is lower than A_NVP12(k)
M_NVKVINT(k)	7	Only if Q_NVKVINTSET(k) = 1 Valid between V_NVKVINT(k) and V_NVKVINT(k,1) Gives the correction factor if maximum emergency brake deceleration is higher than A_NVP23(k)

N_ITER(k)	5	
V_NVKVINT(k,m)	7	
M_NVKVINT(k,m)	7	Valid between V_NVKVINT(k,m) and V_NVKVINT(k,m+1) If Q_NVKVINTSET(k) = 1, gives the correction factor if maximum emergency brake deceleration is lower than A_NVP12(k)
M_NVKVINT(k,m)	7	Only if Q_NVKVINTSET(k) = 1 Valid between V_NVKVINT(k,m) and V_NVKVINT(k,m+1) Gives the correction factor if maximum emergency brake deceleration is higher than A_NVP23(k)
L_NVKRINT	5	= 0m
M_NVKRINT	5	Valid between L_NVKRINT and L_NVKRINT(1)
N_ITER	5	
L_NVKRINT(l)	5	
M_NVKRINT(l)	5	Valid between L_NVKRINT(l) and L_NVKRINT(l+1)
M_NVKTINT	5	

7.4.2.2 Packet Number 5: Linking

Description	Linking Information.		
Transmitted by	Any		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	
	Q_SCALE	2	
	D_LINK	15	
	Q_NEWCOUNTRY	1	
	NID_C	10	if Q_NEWCOUNTRY = 1
	NID_BG	14	
	Q_LINKORIENTATION	1	
	Q_LINKREACTION	2	
	Q_LOCACC	6	

	N_ITER	5	
	D_LINK (k)	15	
	Q_NEWCOUNTRY(k)	1	
	NID_C (k)	10	if Q_NEWCOUNTRY(k) = 1
	NID_BG (k)	14	
	Q_LINKORIENTATION (k)	1	
	Q_LINKREACTION (k)	2	
	Q_LOCACC (k)	6	

7.4.2.2.1 Packet Number 6: Virtual Balise Cover order

Description	The packet sets/removes a Virtual Balise Cover.		
Transmitted by	Balise		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	
	Q_VBCO	1	
	NID_VBCMK	6	
	NID_C	10	
	T_VBC	8	Only if Q_VBCO = 1

7.4.2.3 Packet Number 12: Level 1 Movement Authority

Description	Transmission of a movement authority for level 1.		
Transmitted by	Balise, loop, RIU		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	
	Q_SCALE	2	
	V_MAIN	7	
	V_LOA	7	
	T_LOA	10	Can be set to “no time-out”
	N_ITER	5	Set to zero if V_MAIN = 0 or if only one section in the MA
	L_SECTION(k)	15	
	Q_SECTIONTIMER(k)	1	
	T_SECTIONTIMER(k)	10	

	D_SECTIONTIMERSTOPLOC(k)	15	
	L_ENDSECTION	15	
	Q_SECTIONTIMER	1	
	T_SECTIONTIMER	10	
	D_SECTIONTIMERSTOPLOC	15	
	Q_ENDTIMER	1	
	T_ENDTIMER	10	
	D_ENDTIMERSTARTLOC	15	
	Q_DANGERPOINT	1	
	D_DP	15	
	V_RELEASEDP	7	
	Q_OVERLAP	1	
	D_STARTOL	15	
	T_OL	10	
	D_OL	15	
	V_RELEASEOL	7	

7.4.2.3.1 Packet Number 13: Staff Responsible distance Information from loop

Description	Information for trains in staff responsible mode		
Transmitted by	Loop		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	
	Q_SCALE	2	
	Q_NEWCOUNTRY	1	
	NID_C	10	If Q_NEWCOUNTRY = 1
	NID_BG	14	Main signal balise group
	Q_NEWCOUNTRY	1	
	NID_C	10	If Q_NEWCOUNTRY = 1
	NID_BG	14	Reference balise
	D_SR	15	
	N_ITER	5	
	Q_NEWCOUNTRY (k)	1	
	NID_C (k)	10	If Q_NEWCOUNTRY (k) = 1
	NID_BG (k)	14	Reference balise
	D_SR (k)	15	

7.4.2.4 Packet Number 15: Level 2/3 Movement Authority

Description	Transmission of a movement authority for levels 2/3.		
Transmitted by	RBC		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	
	Q_SCALE	2	
	V_LOA	7	
	T_LOA	10	Can be set to “no time-out”
	N_ITER	5	Set to zero if only one section in the MA
	L_SECTION(k)	15	
	Q_SECTIONTIMER(k)	1	
	T_SECTIONTIMER(k)	10	

D_SECTIONTIMERSTOPLOC(k)	15	
L_ENDSECTION	15	
Q_SECTIONTIMER	1	
T_SECTIONTIMER	10	
D_SECTIONTIMERSTOPLOC	15	
Q_ENDTIMER	1	
T_ENDTIMER	10	
D_ENDTIMERSTARTLOC	15	
Q_DANGERPOINT	1	
D_DP	15	
V_RELEASEDP	7	
Q_OVERLAP	1	
D_STARTOL	15	
T_OL	10	
D_OL	15	
V_RELEASEOL	7	

7.4.2.5 Packet Number 16: Repositioning Information

Description	Transmission of the update of the current distance		
Transmitted by	Balise		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	
	Q_SCALE	2	
	L_SECTION	15	

7.4.2.6 Packet Number 21: Gradient Profile

Description	Transmission of the gradient. D_GRADIENT gives the distance to the next change of the gradient value. The gradient value is the minimum gradient for the given distance.		
Transmitted by	Any		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	
	Q_SCALE	2	
	D_GRADIENT	15	

	Q_GDIR	1	0 = downhill 1= uphill
	G_A	8	
	N_ITER	5	
	D_GRADIENT(k)	15	
	Q_GDIR(k)	1	0 = downhill 1= uphill
	G_A(k)	8	

7.4.2.7 Packet Number 27: International Static Speed Profile

Description	Static speed profile and optionally speed limits depending on the international train category.		
Transmitted by	Any		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	
	Q_SCALE	2	
	D_STATIC	15	
	V_STATIC	7	Basic SSP
	Q_FRONT	1	
	N_ITER	5	
	Q_DIFF(n)	2	
	NC_CDDIFF(n)	4	If Q_DIFF(n) = 0
	NC_DIFF(n)	4	If Q_DIFF(n) = 1 or 2
	V_DIFF(n)	7	
	N_ITER	5	
	D_STATIC(k)	15	
	V_STATIC(k)	7	Basic SSP
	Q_FRONT(k)	1	
	N_ITER(k)	5	
	Q_DIFF(k,m)	2	
	NC_CDDIFF(k,m)	4	If Q_DIFF(k,m) = 0
	NC_DIFF(k,m)	4	If Q_DIFF(k,m) = 1 or 2
	V_DIFF(k,m)	7	

7.4.2.8 Packet Number 39: Track Condition Change of traction system

Description	The packet gives information about change of the traction system.		
Transmitted by	Any		
Content	**Variable**	**Length**	**Comment**

	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	
	Q_SCALE	2	
	D_TRACTION	15	
	M_VOLTAGE	4	Identity of the traction system
	NID_CTRACTION	10	NID_CTRACTION given only if M_VOLTAGE ≠ 0

7.4.2.8.1 Packet Number 40: Track Condition Change of allowed current consumption

Description	The packet gives information about change of the allowed current consumption.		
Transmitted by	Any		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	
	Q_SCALE	2	
	D_CURRENT	15	
	M_CURRENT	10	Allowed current consumption.

7.4.2.9 Packet Number 41: Level Transition Order

Description	Packet to identify where a level transition shall take place. In case of mixed levels, the successive M_LEVELTR's go from the highest priority level to the lowest one.		
Transmitted by	Any		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	
	Q_SCALE	2	
	D_LEVELTR	15	
	M_LEVELTR	3	
	NID_NTC	8	If M_LEVELTR = 1 (NTC)
	L_ACKLEVELTR	15	
	N_ITER	5	
	M_LEVELTR(k)	3	
	NID_NTC(k)	8	If M_LEVELTR(k) = 1 (NTC)

	L_ACKLEVELTR(k)	15	

7.4.2.10 Packet Number 42: Session Management

Description	Packet to give the identity and telephone number of the RBC with which a session shall be established or terminated.		
Transmitted by	Balise, RBC		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	
	Q_RBC	1	
	NID_C	10	RBC ETCS identity : NID_C not relevant if NID_RBC has value “Contact last known RBC”
	NID_RBC	14	
	NID_RADIO	64	not relevant if NID_RBC has value “Contact last known RBC”
	Q_SLEEPSESSION	1	

7.4.2.11 Packet Number 44: Data used by applications outside the ERTMS/ETCS system.

Description	Messages between trackside and on-board devices, which contain information used by applications outside the ERTMS/ETCS system.		
Transmitted by	Any		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	
	NID_XUSER	9	
	NID_NTC	8	Only if NID_XUSER = 102 (National System functions)
	Other data, depending on NID_XUSER		

7.4.2.11.1 Packet Number 45: Radio Network registration

Description	Packet to give the identity of the Radio Network to which a registration shall be enforced.		
Transmitted by	Balise, RBC, RIU		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	

	Q_DIR	2	
	L_PACKET	13	
	NID_MN	24	

7.4.2.11.2 Packet Number 46: Conditional Level Transition Order

Description	Packet for a conditional level transition. The successive M_LEVELTR's go from the highest priority level to the lowest one.		
Transmitted by	Balise		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	
	M_LEVELTR	3	
	NID_NTC	8	If M_LEVELTR = 1 (NTC)
	N_ITER	5	
	M_LEVELTR(k)	3	
	NID_NTC(k)	8	If M_LEVELTR(k) = 1 (NTC)

7.4.2.12 Packet Number 49: List of balises for SH Area

Description	Used to list balise group(s) which the train can pass over in SH mode		
Transmitted by	Any		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	
	N_ITER	5	
	Q_NEWCOUNTRY(k)	1	
	NID_C(k)	10	if Q_NEWCOUNTRY(k) = 1
	NID_BG(k)	14	

7.4.2.13 Packet Number 51: Axle Load Speed Profile

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		
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)

7.4.2.13.1 Packet Number 52: Permitted Braking Distance Information

Description	This packet requests the on-board calculation of speed restrictions which ensure a given permitted brake distance in case of an EB, or SB, intervention		
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_PBD	15	Only if Q_TRACKINIT = 0, D_PBD and the following variables follow
	Q_GDIR	1	0 = downhill, 1 = uphill
	G_PBDSR	8	Gradient value to be used for the calculation

	Q_PBDSR	1	
	D_PBDSR	15	
	L_PBDSR	15	
	N_ITER	5	
	D_PBD(k)	15	
	Q_GDIR(k)	1	0 = downhill, 1 = uphill
	G_PBDSR(k)	8	Gradient value to be used for the calculation
	Q_PBDSR(k)	1	
	D_PBDSR(k)	15	
	L_PBDSR(k)	15	

7.4.2.14 Packet Number 57: Movement Authority Request Parameters

Description	This packet is intended to give parameters telling when and how often the train has to ask for a movement authority.		
Transmitted by	RBC		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	
	T_MAR	8	
	T_TIMEOUTRQST	10	
	T_CYCRQST	8	

7.4.2.15 Packet Number 58: Position Report Parameters

Description	This packet is intended to give parameters telling when and how often the position has to be reported.		
Transmitted by	RBC		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	
	Q_SCALE	2	
	T_CYCLOC	8	
	D_CYCLOC	15	
	M_LOC	3	
	N_ITER	5	
	D_LOC(k)	15	

	Q_LGTLOC(k)	1	

7.4.2.16 Packet Number 63: List of Balises in SR Authority

Description	Used to list balise group(s) which the train can pass over in SR mode		
Transmitted by	RBC		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	Q_DIR	*2*	
	L_PACKET	13	
	N_ITER	5	
	Q_NEWCOUNTRY(k)	1	
	NID_C(k)	10	if Q_NEWCOUNTRY(k) = 1
	NID_BG(k)	14	

7.4.2.16.1 Packet Number 64: Inhibition of revocable TSRs from balises in L2/3

Description	This packet is used to inhibit revocable TSRs from balises in level 2 or 3.		
Transmitted by	RBC		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	

7.4.2.17 Packet Number 65: Temporary Speed Restriction

Description	Transmission of temporary speed restriction.		
Transmitted by	Any		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	
	Q_SCALE	2	
	NID_TSR	8	
	D_TSR	15	
	L_TSR	15	
	Q_FRONT	1	
	V_TSR	7	

7.4.2.18 Packet Number 66: Temporary Speed Restriction Revocation

Description	Transmission of temporary speed restriction revocation.		
Transmitted by	Any		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	
	NID_TSR	8	Identity of TSR to be revoked

7.4.2.19 Packet Number 67: Track Condition Big Metal Masses

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

7.4.2.20 Packet Number 68: Track Condition

Description	The packet gives details concerning the track ahead to support the driver when e.g. lower pantograph		
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_TRACKCOND	15	Only if Q_TRACKINIT = 0, D_TRACKCOND and the following variables follow
	L_TRACKCOND	15	
	M_TRACKCOND	4	
	N_ITER	5	
	D_TRACKCOND(k)	15	
	L_TRACKCOND(k)	15	
	M_TRACKCOND(k)	4	

7.4.2.20.1 Packet Number 69: Track Condition Station Platforms

Description	The packet gives details concerning the location and height of station platforms for use by the train's door control system		
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_TRACKCOND	15	Only if Q_TRACKINIT = 0, D_TRACKCOND and the following variables follow
	L_TRACKCOND	15	
	M_PLATFORM	4	
	Q_PLATFORM	2	
	N_ITER	5	
	D_TRACKCOND(k)	15	
	L_TRACKCOND(k)	15	
	M_PLATFORM(k)	4	
	Q_PLATFORM(k)	2	

7.4.2.21 Packet Number 70: Route Suitability Data

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= Max axle load.
	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) = Max axle load.
	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

7.4.2.22 Packet number 71: Adhesion factor

Description	This packet is used when the trackside requests a change of the adhesion factor to be used in the brake model.		
Transmitted by	Any		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	
	Q_SCALE	2	
	D_ADHESION	15	

	L_ADHESION	15	
	M_ADHESION	1	

7.4.2.23 Packet Number 72: Packet for sending plain text messages

Description			
Transmitted by	Balise, RBC		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	
	Q_SCALE	2	
	Q_TEXTCLASS	2	
	Q_TEXTDISPLAY	1	Start/end events relation
	D_TEXTDISPLAY	15	Start event
	M_MODETEXTDISPLAY	4	Start event
	M_LEVELTEXTDISPLAY	3	Start event
	NID_NTC	8	If M_LEVELTEXTDISPLAY = 1 (NTC)
	L_TEXTDISPLAY	15	End event
	T_TEXTDISPLAY	10	End event
	M_MODETEXTDISPLAY	4	End event
	M_LEVELTEXTDISPLAY	3	End event
	NID_NTC	8	If M_LEVELTEXTDISPLAY = 1 (NTC)
	Q_TEXTCONFIRM	2	
	Q_CONFTEXTDISPLAY	1	If Q_TEXTCONFIRM ≠ 0
	Q_TEXTREPORT	1	If Q_TEXTCONFIRM ≠ 0
	NID_TEXTMESSAGE	8	Only If Q_TEXTREPORT = 1
	NID_C	10	Only If Q_TEXTREPORT = 1
	NID_RBC	14	Only If Q_TEXTREPORT = 1
	L_TEXT	8	
	X_TEXT(L_TEXT)	8	

7.4.2.24 Packet Number 76: Packet for sending fixed text messages

Description			
Transmitted by	Balise, RBC		
Content	**Variable**	**Length**	**Comment**

NID_PACKET	8	
Q_DIR	2	
L_PACKET	13	
Q_SCALE	2	
Q_TEXTCLASS	2	
Q_TEXTDISPLAY	1	Start/end events relation
D_TEXTDISPLAY	15	Start eventcondition
M_MODETEXTDISPLAY	4	Start event
M_LEVELTEXTDISPLAY	3	Start event
NID_NTC	8	If M_LEVELTEXTDISPLAY = 1 (NTC)
L_TEXTDISPLAY	15	End event
T_TEXTDISPLAY	10	End event
M_MODETEXTDISPLAY	4	End event
M_LEVELTEXTDISPLAY	3	End event
NID_NTC	8	If M_LEVELTEXTDISPLAY = 1 (NTC)
Q_TEXTCONFIRM	2	
Q_CONFTEXTDISPLAY	1	If Q_TEXTCONFIRM ≠ 0
Q_TEXTREPORT	1	If Q_TEXTCONFIRM ≠ 0
NID_TEXTMESSAGE	8	Only If Q_TEXTREPORT = 1
NID_C	10	Only If Q_TEXTREPORT = 1
NID_RBC	14	Only If Q_TEXTREPORT = 1
Q_TEXT	8	

7.4.2.25 Packet Number 79: Geographical Position Information

Description	This packet gives geographical location information for one or multiple references to the train.		
Transmitted by	Balise, RBC		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	
	Q_SCALE	2	
	Q_NEWCOUNTRY	1	
	NID_C	10	if Q_NEWCOUNTRY = 1
	NID_BG	14	Geographical Position Reference Balise Group

	D_POSOFF	15	
	Q_MPOSITION	1	Geographical Position counting direction
	M_POSITION	24	Track kilometre reference value
	N_ITER	5	
	Q_NEWCOUNTRY(k)	1	
	NID_C(k)	10	if Q_NEWCOUNTRY(k) = 1
	NID_BG(k)	14	Geographical Position Reference Balise Group
	D_POSOFF(k)	15	
	Q_MPOSITION(k)	1	Geographical Position counting direction
	M_POSITION(k)	24	Track kilometre reference value

7.4.2.26 Packet Number 80: Mode profile

Description	Mode profile associated to an MA		
Transmitted by	Any		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	
	Q_SCALE	2	
	D_MAMODE	15	
	M_MAMODE	2	OS, LS, SH
	V_MAMODE	7	
	L_MAMODE	15	
	L_ACKMAMODE	15	
	Q_MAMODE	1	
	N_ITER	5	
	D_MAMODE(k)	15	
	M_MAMODE(k)	2	OS, LS, SH
	V_MAMODE(k)	7	
	L_MAMODE(k)	15	
	L_ACKMAMODE(k)	15	
	Q_MAMODE(k)	1	

7.4.2.26.1 Packet Number 88: Level Crossing information

Description	Level Crossing information		
Transmitted by	Any		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	
	Q_SCALE	2	
	NID_LX	8	
	D_LX	15	
	L_LX	15	
	Q_LXSTATUS	1	
	V_LX	7	Only if Q_LXSTATUS = 1
	Q_STOPLX	1	Only if Q_LXSTATUS = 1
	L_STOPLX	15	Only if Q_STOPLX = 1

7.4.2.26.2 Packet Number 90: Track Ahead Free up to level 2/3 transition location

Description	Notification to on-board that track ahead is free from the balise group transmitting this information up to the level 2/3 transition location		
Transmitted by	Balise		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	
	Q_NEWCOUNTRY	1	
	NID_C	10	If Q_NEWCOUNTRY = 1
	NID_BG	14	Level 2/3 transition location balise group

7.4.2.27 Packet Number 131: RBC transition order

Description	Packet to order an RBC transition		
Transmitted by	Balise, RBC		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	
	Q_SCALE	2	
	D_RBCTR	15	

	NID_C	10	"Accepting" RBC identity
	NID_RBC	14	
	NID_RADIO	64	"Accepting" RBC radio subscriber number
	Q_SLEEPSESSION	1	

7.4.2.28 Packet Number 132: Danger for Shunting information

Description	Transmission of the aspect of a shunting signal		
Transmitted by	Balise		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	
	Q_ASPECT	1	

7.4.2.29 Packet Number 133: Radio infill area information

Description			
Transmitted by	Balise		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	
	Q_SCALE	2	
	Q_RIU	1	
	NID_C	10	RIU ETCS identity
	NID_RIU	14	
	NID_RADIO	64	
	D_INFILL	15	
	NID_C	10	Refers to the next main signal balise group (relevant only for the case of establishing a communication session)
	NID_BG	14	

7.4.2.30 Packet Number 134: EOLM Packet

Description	This packet announces a loop.		
Transmitted by	Balise		
Content	**Variable**	**Length**	**Comment**

	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	
	Q_SCALE	2	
	NID_LOOP	14	
	D_LOOP	15	
	L_LOOP	15	
	Q_LOOPDIR	1	
	Q_SSCODE	4	

7.4.2.31 Packet Number 135: Stop Shunting on desk opening

Description	Packet to stop Shunting on desk opening.		
Transmitted by	Balise		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	

7.4.2.32 Packet Number 136: Infill location reference

Description	Defines location reference for all data contained in the same radio message or balise/loop telegram respectively, following this packet.		
Transmitted by	Balise, loop, RIU		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	
	Q_NEWCOUNTRY	1	
	NID_C	10	If Q_NEWCOUNTRY = 1
	NID_BG	14	

7.4.2.33 Packet Number 137: Stop if in Staff Responsible

Description	Information to stop a train in staff responsible.		
Transmitted by	Balise		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	

	Q_SRSTOP	1	

7.4.2.34 Packet Number 138: Reversing area information

Description	Used to send start and length of reversing area to the on-board		
Transmitted by	Any		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	
	Q_SCALE	2	
	D_STARTREVERSE	15	
	L_REVERSEAREA	15	

7.4.2.35 Packet Number 139: Reversing supervision information

Description	Used to send supervision parameters (distance to run, speed) of reversing area to the on-board		
Transmitted by	Any		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	
	Q_SCALE	2	
	D_REVERSE	15	
	V_REVERSE	7	

7.4.2.36 Packet Number 140: Train running number from RBC

Description	Train running number from RBC		
Transmitted by	RBC		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	
	NID_OPERATIONAL	32	

7.4.2.37 Packet Number 141: Default Gradient for Temporary Speed Restriction

Description	It defines a default gradient to be used for TSR supervision when no gradient profile (packet 21) is available
Transmitted by	Balise

Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	
	Q_GDIR	1	0 = downhill 1= uphill
	G_TSR	8	

7.4.2.37.1 Packet Number 143: Session Management with neighbouring Radio Infill Unit

Description	Packet to give the identity and telephone number of the neighbouring Radio Infill Unit with which a session shall be established or terminated.		
Transmitted by	RIU		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	
	Q_RIU	1	
	NID_C	10	RIU ETCS identity
	NID_RIU	14	
	NID_RADIO	64	

7.4.2.37.2 Packet Number 145: Inhibition of balise group message consistency reaction

Description	Indication to on-board that the balise group message consistency reaction (service brake command) can be inhibited for this balise group message only, in case one or more balise telegram(s) of the group is/are missed or is/are detected but not decoded.		
Transmitted by	Balise		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	

7.4.2.38 Packet Number 254: Default balise, loop or RIU information

Description	Indication to on-board that balise telegram, loop message or RIU information contains default information due to a fault of the trackside equipment.		
Transmitted by	Balise, loop, RIU		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	Q_DIR	2	
	L_PACKET	13	

7.4.3 PACKETS: TRAIN TO TRACK

7.4.3.1 Packet Number 0: Position Report

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_LENGTH	2	
	L_TRAININT	15	If Q_LENGTH = “Train integrity confirmed by integrity monitoring device” 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

7.4.3.2 Packet Number 1: Position Report based on two balise groups

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_LENGTH	2	
L_TRAININT	15	If Q_LENGTH = “Train integrity confirmed by integrity monitoring device” 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

7.4.3.3 Packet Number 3: Onboard telephone numbers

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

7.4.3.4 Packet Number 4: Error reporting

Description	Error reporting to the RBC		
Transmitted to	RBC		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	L_PACKET	13	

	M_ERROR	8	error type identifier

7.4.3.4.1 Packet Number 5: Train running number

Description	Train running number		
Transmitted to	RBC		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	L_PACKET	13	
	NID_OPERATIONAL	32	

7.4.3.4.2 Packet Number 9: Level 2/3 transition information

Description	Identity of the level 2/3 transition balise group		
Transmitted to	RBC		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	L_PACKET	13	
	NID_LTRBG	10 + 14	

7.4.3.5 Packet Number 11: Validated train data

Description	Validated train data.		
Transmitted to	RBC		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	L_PACKET	13	
	NC_CDTRAIN	4	
	NC_TRAIN	15	
	L_TRAIN	12	
	V_MAXTRAIN	7	
	M_LOADINGGAUGE	8	
	M_AXLELOADCAT	7	
	M_AIRTIGHT	2	
	N_AXLE	10	
	N_ITER	5	
	M_VOLTAGE(k)	4	Identity of the traction system
	NID_CTRACTION(k)	10	NID_CTRACTION(k) given only if M_VOLTAGE(k) ≠ 0
	N_ITER	5	
	NID_NTC(k)	8	Type of National System available

7.4.3.6 Packet Number 44: Data used by applications outside the ERTMS/ETCS system.

Description	Messages between on-board and trackside devices, which contain information used by applications outside the ERTMS/ETCS system.		
Transmitted to	RBC, RIU		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	
	L_PACKET	13	
	NID_XUSER	9	
	Other data, depending on NID_XUSER		

7.4.4 PACKETS: TRACK TO TRAIN or TRAIN TO TRACK

7.4.4.1 Packet Number 255: End of Information

Description	This packet consists only of NID_PACKET containing 8 bit 1s It acts as a finish flag; the receiver will stop reading the remaining part of the message/telegram when receiving eight bits set to one in the NID_PACKET field.		
Transmitted by/to	Balise, Loop		
Content	**Variable**	**Length**	**Comment**
	NID_PACKET	8	= 255 (1111 1111)

7.5 Definitions of Variables

7.5.0.1 A_NVMAXREDADH1

Name	Maximum deceleration under reduced adhesion conditions (1)		
Description	Maximum deceleration under reduced adhesion conditions applicable for trains: • With brake position “Passenger train in P”, and • with special/additional brakes independent from wheel/rail adhesion. This variable is part of the National Values		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
6 bits	0 m/s^2	3.15 m/s^2	0.05 m/s^2

7.5.0.2 A_NVMAXREDADH2

Name	Maximum deceleration under reduced adhesion conditions (2)		
Description	Maximum deceleration under reduced adhesion conditions applicable for trains: • with brake position “Passenger train in P”, and • without special/additional brakes independent from wheel/rail adhesion. This variable is part of the National Values		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
6 bits	0 m/s^2	3.15 m/s^2	0.05 m/s^2

7.5.0.3 A_NVMAXREDADH3

Name	Maximum deceleration under reduced adhesion conditions (3)		
Description	Maximum deceleration under reduced adhesion conditions applicable for trains: • with brake position “Freight train in P”, or • with brake position “Freight train in G”. This variable is part of the National Values		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
6 bits	0 m/s^2	3.15 m/s^2	0.05 m/s^2

7.5.0.4 A_NVP12

Name	Lower deceleration limit to determine the set of Kv to be used		
Description	Lower deceleration limit to determine the set of correction factor Kv to be used for Conventional Passenger trains. This variable is part of the National Values.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
6 bits	0 m/s^2	3.15 m/s^2	0.05 m/s^2

7.5.0.5 A_NVP23

Name	Upper deceleration limit to determine the set of Kv to be used		
Description	Upper deceleration limit to determine the set of correction factor Kv to be used for Conventional Passenger trains. This variable is part of the National Values.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
6 bits	0 m/s^2	3.15 m/s^2	0.05 m/s^2

7.5.1.1 D_ADHESION

Name	Distance to start of area with reduced adhesion factor		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.670 km	10 cm, 1 m or 10 m depending on Q_SCALE

7.5.1.2 D_AXLELOAD

Name	Incremental distance to the start of the next Axle load speed profile		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 m	327.670 km	10 cm, 1m or 10 m depending on Q_SCALE

7.5.1.2.1 D_CURRENT

Name	Distance to change of allowed current consumption		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.670 km	10 cm, 1 m or 10 m depending on Q_SCALE

7.5.1.3 D_CYCLOC

Name	Distance between two position reports from the train		
Description	The train has to report its position every D_CYCLOC meters.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.660 km	10 cm, 1m or 10 m depends on Q_SCALE
Special/Reserved Values	1111 … 1111	The train has not to report cyclically its position.	

7.5.1.4 D_DP

Name	Distance from the End of Authority to danger point		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.670 km	10 cm, 1m or 10 m depends on Q_SCALE.

7.5.1.5 D_EMERGENCYSTOP

Name	Distance to emergency stop location		
Description	Distance between the LRBG and the emergency stop location		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.670 km	10 cm, 1m or 10 m depends on Q_SCALE.

7.5.1.6 D_ENDTIMERSTARTLOC

Name	Distance from End section timer start location to End of Authority		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.670 km	10 cm, 1m or 10 m depends on Q_SCALE

7.5.1.7 D_GRADIENT

Name	Incremental distance to next change of gradient.

Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.670 km	10 cm, 1m or 10 m depends on Q_SCALE.

7.5.1.8 D_INFILL

Name	Distance to location where to connect/disconnect to a radio infill unit		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.670 km	10 cm, 1m or 10 m depends on Q_SCALE

7.5.1.9 D_LEVELTR

Name	Distance to level transition		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.660 km	10 cm, 1m or 10 m depends on Q_SCALE.
Special/Reserved Values	32767	Now (The level transition is performed upon receipt of the order)	

7.5.1.10 D_LINK

Name	Incremental linking distance to next linked balise group		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.670 km	10 cm, 1m or 10 m depends on Q_SCALE

7.5.1.11 D_LOC

Name	Incremental distance between locations where the train has to report its position.		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.670 km	10 cm, 1m or 10 m depends on Q_SCALE

7.5.1.12 D_LOOP

Name	Distance between EOLM and start of loop		
Description	The EOLM specifies the distance to the beginning of the loop transmission		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.660 km	10 cm, 1m or 10 m depends on Q_SCALE
Special/Reserved Values	1111 … 1111	Distance not known	

7.5.1.13 D_LRBG

Name	Distance between the last relevant balise group and the estimated front end of the train (the side of the active cab).		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.660 km	10 cm, 1m or 10 m depends on Q_SCALE
Special/Reserved Values	32767	Unknown	

7.5.1.13.1 D_LX

Name	Distance to LX start location		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.670 km	10 cm, 1m or 10 m depends on Q_SCALE

7.5.1.14 D_MAMODE

Name	Incremental distance to the start of the next Mode Profile		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.670 km	10 cm, 1m or 10 m depends on Q_SCALE

7.5.1.15 D_NVOVTRP

Name	Maximum distance for overriding the train trip		
Description	This variable is part of the National Values		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.670 km	10 cm, 1m or 10 m depends on Q_SCALE

7.5.1.16 D_NVPOTRP

Name	Maximum distance for reversing in Post Trip mode		
Description	This variable is part of the National Values		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.670 km	10 cm, 1m or 10 m depends on Q_SCALE

7.5.1.17 D_NVROLL

Name	Roll away distance limit		
Description	This variable is part of the National Values and is used for Roll Away Protection and Reverse Movement Protection. Within the (national/default) limits of D_NVROLL the train may be moved for uncoupling.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.660 km	10 cm, 1m or 10 m depends on Q_SCALE
Special/Reserved Values	32767	∞	

7.5.1.18 D_NVSTFF

Name	Maximum distance for running in Staff Responsible mode		
Description	This variable is part of the National Values		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.660 km	10 cm, 1m or 10 m depends on Q_SCALE
Special/Reserved Values	32767	∞	

7.5.1.19 D_OL

Name	The distance from the End of Authority to the end of overlap		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.670 km	10 cm, 1m or 10 m depends on Q_SCALE.

7.5.1.19.1 D_PBD

Name	Permitted Braking Distance		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.670 km	10 cm, 1m or 10 m depends on Q_SCALE.

7.5.1.19.2 D_PBDSR

Name	Incremental distance to the start of the next speed restriction to ensure permitted braking distance		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.670 km	10 cm, 1m or 10 m depends on Q_SCALE.

7.5.1.20 D_POSOFF

Name	Offset from the location reference of the geographical position reference balise group to the related track kilometre reference.		
Description	The geographical position reporting function uses this variables content as an offset from the location reference of the geographical position reference balise group to the related track kilometre reference.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 m	327.670 km	10 cm, 1m or 10 m depends on Q_SCALE.

7.5.1.21 D_RBCTR

Name	Distance to RBC transition		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.670 km	10 cm, 1m or 10 m depends on Q_SCALE.

7.5.1.22 D_REF

Name	Reference distance		
Description	Distance between the LRBG and the new shifted location reference. The positive values are in the nominal direction of the LRBG		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
16 bits	-327.680 km	327.670 km	10 cm, 1m or 10 m depends on Q_SCALE.
Special/Reserved Values	The negative value are coded in 2's complement		

7.5.1.23 D_REVERSE

Name	Maximum distance to run in RV mode		
Description	Distance from reference location to end location of the distance to run in RV mode		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.660 km	10 cm, 1m or 10 m depends on Q_SCALE
Special/Reserved Values	32767	represents ∞	

7.5.1.24 D_SECTIONTIMERSTOPLOC

Name	Distance from beginning of section to the Section Time-out stop location		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***

15 bits	0 cm	327.670 km	10 cm, 1m or 10 m depends on Q_SCALE

7.5.1.25 D_SR

Name	Distance in SR mode		
Description	Distance that can be run in SR mode		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.660 km	10 cm, 1m or 10 m depends on Q_SCALE
Special/Reserved Values	32767	Represents ∞	

7.5.1.26 D_STARTOL

Name	Distance from overlap timer start location to End of Authority		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.670 km	10 cm, 1m or 10 m depends on Q_SCALE

7.5.1.27 D_STARTREVERSE

Name	Distance to start of reversing permitted area		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.670 km	10 cm, 1m or 10 m depends on Q_SCALE

7.5.1.28 D_STATIC

Name	Incremental distance to next discontinuity in a international SSP profile		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.670 km	10 cm, 1m or 10 m depends on Q_SCALE

7.5.1.29 D_SUITABILITY

Name	Distance to change in route suitability		
Description	The incremental distance to where the route suitability data changes.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 m	327.670 km	10 cm, 1m or 10 m depending on Q_SCALE

7.5.1.30 D_TAFDISPLAY

Name	Distance from where on a track ahead free request shall be displayed		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.670 km	10 cm, 1m or 10 m depends on Q_SCALE

7.5.1.31 D_TEXTDISPLAY

Name	Distance from where on a text shall be displayed		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.660 km	10 cm, 1m or 10 m depends on Q_SCALE
Special/Reserved Values	1111 … 1111	The display of the text shall not be distance limited.	

7.5.1.32 D_TRACKINIT

Name	Distance to start of empty profile		
Description	Distance to where initial states of the related track description in the packet shall be resumed		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 m	327.670 km	10 cm, 1m or 10 m depending on Q_SCALE

7.5.1.33 D_TRACKCOND

Name	Track condition distance		
Description	The incremental distance to where the track conditions change.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 m	327.670 km	10 cm, 1m or 10 m depending on Q_SCALE

7.5.1.34 D_TRACTION

Name	Distance to change of traction		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 m	327.670 km	10 cm, 1m or 10 m depending on Q_SCALE

7.5.1.35 D_TSR

Name	Distance to beginning of temporary speed restriction		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.670 km	10 cm, 1m or 10 m depends on Q_SCALE

7.5.1.36 D_VALIDNV

Name	Distance to start of validity of national values		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.660 km	10 cm, 1m or 10 m depends on Q_SCALE
Special/Reserved Values	32767	Now (National Values are immediately applicable)	

7.5.1.37 G_A

Name	Safe gradient		
Description	This is the absolute value of the minimum gradient between two defined locations.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
8 bits	0	254‰	1‰
Special/Reserved Values	255	Non numerical value telling that the current gradient description ends at D_GRADIENT(n)	

7.5.1.37.1 G_PBDSR

Name	Default gradient for PBD Speed restriction		
Description	Defines a default gradient to be used for calculation of speed restriction to ensure permitted braking distance		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
8 bits	0	255‰	1‰

7.5.1.38 G_TSR

Name	Default gradient for TSR supervision		
Description	defines a default gradient to be used for TSR supervision when no gradient profile (packet 21) is available.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
8 bits	0	255‰	1‰

7.5.1.39 L_ACKLEVELTR

Name	Length of the acknowledgement area in rear of the required level		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.670 km	10 cm, 1m or 10 m depends on Q_SCALE

7.5.1.40 L_ACKMAMODE

Name	Length of the acknowledgement area in rear of the start of the required mode		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.670 km	10 cm, 1m or 10 m depends on Q_SCALE

7.5.1.41 L_ADHESION

Name	Length of reduced adhesion		
Description	Length for which the reduced adhesion factor apply.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.670 km	10 cm, 1 m or 10 m depending on Q_SCALE

7.5.1.42 L_AXLELOAD

Name	Length of speed restriction due to Axle load		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 m	327.670 km	10 cm, 1m or 10 m depending on Q_SCALE

7.5.1.43 L_DOUBTOVER

Name	L_DOUBTOVER		
Description	L_DOUBTOVER is the over-reading amount plus the Q_LOCACC of the LRBG		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.660 km	10 cm, 1m or 10 m depends on Q_SCALE
Special/Reserved Values	32767	Unknown	

7.5.1.44 L_DOUBTUNDER

Name	L_DOUBTUNDER		
Description	L_DOUBTUNDER is the under-reading amount plus the Q_LOCACC of the LRBG		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.660 km	10 cm, 1m or 10 m depends on Q_SCALE
Special/Reserved Values	32767	Unknown	

7.5.1.45 L_ENDSECTION

Name	Length of the End section in the MA		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.670 km	10 cm, 1m or 10 m depends on Q_SCALE.

7.5.1.46 L_LOOP

Name	Length of loop		
Description	L_LOOP specifies the length of the loop starting from the distance indicated by D_LOOP		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.660 km	10 cm, 1m or 10 m depends on Q_SCALE
Special/Reserved Values	1111 … 1111	Length not known	

7.5.1.46.1 L_LX

Name	Length of the LX area		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.670 km	10 cm, 1m or 10 m depends on Q_SCALE

7.5.1.47 L_MAMODE

Name	Length of the area of the required mode		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 m	327.660 km	10 cm, 1m or 10 m depending on Q_SCALE
Special/Reserved Values	1111…111	Infinite length	

7.5.1.48 L_MESSAGE

Name	Message length		
Description	L_MESSAGE indicates the length of the message in bytes, including all packets and all variables defined in the message header (NID_MESSAGE and L_MESSAGE also).		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
10 bits	0	1023	1 Byte

7.5.1.48.1 L_NVKRINT

Name	Train length step used to define the integrated correction factor Kr		
Description	This variable is part of the National Values		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
5 bits			
Special/Reserved Values	0	0m	
	1	25m	
	2	50m	
	3	75m	
	4	100m	
	5	150m	
	6	200m	

	7	300m
	....	.... (steps of 100m)
	31	2700m

7.5.1.49 L_PACKET

Name	Packet length		
Description	L_PACKET indicates the length of the packet in bits, including all bits of the packet header		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
13 bits	0	8191	1 bit

7.5.1.49.1 L_PBDSR

Name	Length of speed restriction to ensure permitted braking distance		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.670 km	10 cm, 1m or 10 m depends on Q_SCALE.

7.5.1.50 L_REVERSEAREA

Name	Length of the reversing permitted area		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.670 km	10 cm, 1m or 10 m depends on Q_SCALE

7.5.1.51 L_SECTION

Name	Length of section in the MA		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.670 km	10 cm, 1m or 10 m depends on Q_SCALE

7.5.1.51.1 L_STOPLX

Name	Length of the stopping area in rear of the start location of the LX area		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.670 km	10 cm, 1m or 10 m depends on Q_SCALE

7.5.1.52 L_TAFDISPLAY

Name	Length on which a track ahead free request shall be displayed		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.670 km	10 cm, 1m or 10 m depends on Q_SCALE

7.5.1.53 L_TEXT

Name	Length of text string		
Description	L_TEXT defines the length of a text string (L_TEXT * X_TEXT)		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
8 bits	0	255	1 Text String Element

7.5.1.54 L_TEXTDISPLAY

Name	Length on which a text shall be displayed		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.660 km	10 cm, 1m or 10 m depends on Q_SCALE
Special/Reserved Values	32767	The display of the text shall not be distance limited.	

7.5.1.55 L_TRACKCOND

Name	Length for which the defined track condition is valid		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 m	327.670 km	10 cm, 1m or 10 m depending on Q_SCALE

7.5.1.56 L_TRAIN

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

7.5.1.57 L_TRAININT

Name	Safe Train length		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 m	32767 m	1 m

7.5.1.58 L_TSR

Name	Length of the temporary speed restriction		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits	0 cm	327.670 km	10 cm, 1m or 10 m depends on Q_SCALE

7.5.1.59 M_ACK

Name	Qualifier for acknowledgement request		
Description	Indicates whether the telegram must be acknowledged or not		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
1 bit			
Special/Reserved Values	0	No acknowledgement required	
	1	Acknowledgement required	

7.5.1.60 M_ADHESION

Name	Adhesion factor		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
1 bit			

Special/Reserved Values	0	Slippery rail
	1	Non slippery rail

7.5.1.61 M_AIRTIGHT

Name	airtight system presence		
Description	indicates whether the train is fitted with an airtight system or not.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
2 bits			
Special/Reserved Values	00	Not fitted	
	01	Fitted	
	10	Spare	
	11	Spare	

7.5.1.62 M_AXLELOADCAT

Name	Axle load category		
Description	The values allocated below correspond to a list of increasing axle load categories (i.e. B1 > HS17, B2 > B1, D2 > C4, ….etc) and it is used by the on-board equipment to compare its axle load category with the axle load category sent by trackside. For the underlying meaning of the axle load categories listed below (with the exception of HS17) refer to CR INF TSI. The category HS17 (axle load <= 17t) corresponds to a static load per axle only, as specified in HS RST TSI clause 4.2.3.2. The introduction of this artefact is necessary to ensure backward compatibility, without any negative performance impact, in case ASPs are used on lines operated with system version X = 1.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
7 bits			
Special/Reserved Values	0	A	
	1	HS17	
	2	B1	
	3	B2	
	4	C2	
	5	C3	
	6	C4	
	7	D2	
	8	D3	
	9	D4	
	10	D4XL	
	11	E4	
	12	E5	
	13-127	Spare	

7.5.1.62.1 M_CURRENT

Name	Allowed current consumption		
Description	It defines the allowed current consumption to be used by the train		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
10 bits	0 A	10000 A	10 A

Special/Reserved Values	1001 - 1022	Spare
	1023	No restriction for current consumption

7.5.1.63 M_DUP

Name	Duplicate balise		
Description	Flags to tell whether the balise is a duplicate of one of the adjacent balises.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
2 bits			
Special/Reserved Values	00	No duplicates	
	01	This balise is a duplicate of the next balise (seen in the nominal direction of the balise group).	
	10	This balise is a duplicate of the previous balise (seen in the nominal direction of the balise group).	
	11	Spare	

7.5.1.64 M_ERROR

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. 3.16.3.1.1a,c)	
	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 failure (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	

7.5.1.65 M_LEVEL

Name	Current Operating Level		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
3 bits			
Special/Reserved Values	0	Level 0	
	1	Level NTC specified by NID_NTC	
	2	Level 1	
	3	Level 2	
	4	Level 3	
	5-7	Spare	

7.5.1.66 M_LEVELTEXTDISPLAY

Name	Onboard operating level for text display		
Description	The text is displayed when entering / as long as in the defined level		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
3 bits			
Special/Reserved Values	0	Level 0	
	1	Level NTC specified by NID_NTC	
	2	Level 1	
	3	Level 2	
	4	Level 3	
	5	The display of the text shall not be limited by the level	
	6-7	Spare	

7.5.1.67 M_LEVELTR

Name	Required level		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
3 bits			Bitset
Special/Reserved Values	0	Level 0	
	1	Level NTC specified by NID_NTC	
	2	Level 1	
	3	Level 2	
	4	Level 3	
	5-7	Spare	

7.5.1.67.1 M_LINEGAUGE

Name	Line gauge		
Description	Defining which loading gauge(s) are permitted on a line (refer to TSI INF)		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
8 bits			Bitset
Special/Reserved Values	xxxx xxx1	G1	
	xxxx xx1x	GA	
	xxxx x1xx	GB	
	xxxx 1xxx	GC	
	00000000	Spare	
	xxx1 xxxx	Spare	
	xx1x xxxx	Spare	
	x1xx xxxx	Spare	
	1xxx xxxx	Spare	

7.5.1.68 M_LOADINGGAUGE

Name	Loading gauge
Description	Defining the loading gauge profile of a train (refer to TSI RST)

Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
8 bits			
Special/Reserved Values	0	The train does not fit to any of the interoperable loading gauge profiles	
	1	G1	
	2	GA	
	3	GB	
	4	GC	
	5-255	Spare	

7.5.1.69 M_LOC

Name	Special location/moment where the train has to report its position		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
3 bits			
Special/Reserved Values	000	Now (The position report is sent upon receipt of the order)	
	001	Every LRBG compliant balise group.	
	010	Do not send position report on passage of LRBG compliant balise group.	
	011 - 111	Spare	

7.5.1.70 M_MAMODE

Name	Required mode for a part of the MA		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
2 bits			
Special/Reserved Values	00	On Sight	
	01	Shunting	
	10	Limited Supervision	
	11	Spare	

7.5.1.71 M_MCOUNT

Name	Message counter		
Description	The purpose of this counter is to make it possible for the ERTMS/ETCS on-board to detect which balise group message the telegram belongs to.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
8 bits	0	253	Numbers
Special/Reserved Values	254	The telegram never fits any message of the group	
	255	The telegram fits with all telegrams of the same balise group	

7.5.1.72 M_MODE

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

7.5.1.73 M_MODETEXTDISPLAY

Name	Onboard operating mode for text display		
Description	The text is displayed when entering / as long as in 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	Non Leading	
	12	Limited Supervision	
	13	Spare	
	14	Reversing	
	15	The display of the text shall not be limited by the mode.	

7.5.1.73.1 M_NVAVADH

Name	Weighting factor for available wheel/rail adhesion		
Description	This variable is part of the National Values.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
5 bits	0	1.00	0.05

Special/Reserved Values	1.05 – 1.55	Spare

7.5.1.74 M_NVCONTACT

Name	T_NVCONTACT reaction		
Description	Indicates the reaction to be performed when T_NVCONTACT timer elapses This variable is part of the National Values		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
2 bits			
Special/Reserved Values	00	Train trip	
	01	Apply service brake	
	10	No Reaction	
	11	Spare	

7.5.1.75 M_NVDERUN

Name	Entry of Driver ID permitted while running		
Description	This variable is part of the National Values		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
1 bit			
Special/Reserved Values	0	No	
	1	Yes	

7.5.1.75.1 M_NVEBCL

Name	Confidence level for emergency brake safe deceleration on dry rails		
Description	This variable is part of the National Values. Based on the required confidence level, the on-board equipment selects its corresponding rolling stock correction factor Kdry_rst(V). The confidence level on emergency brake safe deceleration represents the probability of the following individual event: the rolling stock emergency brake subsystem of the train does ensure a deceleration at least equal to A_brake_emergency(V) * Kdry_rst(V), when the emergency brake is commanded on dry rails.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
4 bits			
Special/Reserved Values	0	Confidence level = 50 %	
	1	Confidence level = 90 %	
	2	Confidence level = 99 %	
	3	Confidence level = 99.9 %	
	4	Confidence level = 99.99%	
	5	Confidence level = 99.999 %	
	6	Confidence level = 99.9999 %	
	7	Confidence level = 99.99999 %	
	8	Confidence level = 99.999999 %	
	9	Confidence level = 99.9999999 %	
	10-15	Spare	

7.5.1.75.2 M_NVKRINT

Name	Integrated correction factor Kr

Description	This is the train length dependent integrated correction factor. M_NVKRINT(l) is valid for a train length between L_NVKRINT(l) and L_NVKRINT(l+1). M_NVKRINT is valid between 0m and L_NVKRINT(1) This variable is part of the National Values		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
5 bits	0	1.55	0.05

7.5.1.75.3 M_NVKTINT

Name	Integrated correction factor Kt		
Description	This variable is part of the National Values		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
5 bits	0	1.55	0.05

7.5.1.75.4 M_NVKVINT

Name	Integrated correction factor Kv		
Description	This is the speed dependent integrated correction factor. M_NVKVINT(n) is valid for an estimated speed between V_NVKVINT(n) and V_NVKVINT(n+1). M_NVKVINT is valid between 0 km/h and V_NVKVINT(1) This variable is part of the National Values		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
7 bits	0	2.54	0.02

7.5.1.75.5 M_PLATFORM

Name	Type of platform		
Description	Nominal height of platform above rail level (refer to TSI infrastructure)		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
4 bits			
Special/Reserved Values	0000	200 mm	
	0001	300-380 mm	
	0010	550 mm	
	0011	580 mm	
	0100	680 mm	
	0101	685 mm	
	0110	730 mm	
	0111	760 mm	
	1000	840 mm	
	1001	900 mm	
	1010	915 mm	
	1011	920 mm	
	1100	960 mm	
	1101	1100 mm	
	1110 – 1111	Spare	

7.5.1.76 M_POSITION

Name	Track kilometre reference value		
Description	The geographical position reporting function uses this variables content as a reference value.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
24 bits	0 m	9'999'999 m	1 m
Special/Reserved Values	10'000'000-16'777'214	Spare	
	16'777'215	No more geographical position calculation after this reference location	

7.5.1.77 M_TRACKCOND

Name	Type of track condition		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
4 bits			
Special/Reserved Values	0000	Non stopping area. Initial state: stopping permitted	
	0001	Tunnel stopping area. Initial state: no tunnel stopping area	
	0010	Sound horn. Initial state: no request for sound horn	
	0011	Powerless section – lower pantograph. Initial state: not powerless section	
	0100	Radio hole (stop supervising T_NVCONTACT). Initial state: supervise T_NVCONTACT	
	0101	Air tightness. Initial state: no request for air tightness	
	0110	Switch off regenerative brake. Initial state: regenerative brake on	
	0111	Switch off eddy current brake for service brake. Initial state: eddy current brake for service brake on	
	1000	Switch off magnetic shoe brake. Initial state: magnetic shoe brake on	
	1001	Powerless section – switch off the main power switch. Initial state: not powerless section	
	1010	Switch off eddy current brake for emergency brake. Initial state: eddy current brake for emergency brake on	
	1011 –1111	Spare	

7.5.1.78 M_VOLTAGE

Name	Traction System voltage		
Description	It indicates the voltage of the traction system installed on a specific line or respectively that can be used by an engine The identity of the traction system is given by M_VOLTAGE and, if M_VOLTAGE ≠ 0, by the country identifier of the traction system (NID_CTRACTION)		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
4 bits			
Special/Reserved Values	0	Line not fitted with any traction system	
	1	AC 25 kV 50 Hz	
	2	AC 15 kV 16.7 Hz	
	3	DC 3 kV	
	4	DC 1.5 kV	
	5	DC 600/750 V	
	6-15	Spare	

7.5.1.79 M_VERSION

Name	Version of ETCS system		
Description	This gives the version of the ETCS system Each part indicates the first and second number of the version respectively. - The first number distinguishes not compatible versions. (The three MSB's) - The second number indicates compatibility within a version X. (The four LSB's)		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
7 bits			
Special/Reserved Values	000 XXXX	Previous versions according to e.g. EEIG SRS, UIC A200 SRS	
	001 0000	Version 1.0, introduced in SRS 1.2.0 and re-used in SRSs 2.0.0, 2.2.2, 2.3.0	
	001 0001	Version 1.1, introduced in SRS 3.3.0	
	001 0010	Not valid	
	….		
	001 1111	Not valid	
	010 0000	Version 2.0, introduced in SRS 3.3.0	
	010 0001	Reserved for future use (this is a valid value)	
	…	…	
	111 1111	Reserved for future use (this is a valid value)	

7.5.1.79.1 N_AXLE

Name	Axle number of the engine		
Description	This gives the number of axles of the single unit (fixed train set or locomotive) in which the onboard equipment is fitted		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
10 bits	0	1022	integers
Special/Reserved Values	1023	Unknown	

7.5.1.80 N_ITER

Name	Number of iterations of a data set following this variable in a packet		
Description	If N_ITER is 0 then no data set is following. Two nested levels of iterations can exist.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
5 bits	0	31	integers

7.5.1.81 N_PIG

Name	Position in Group		
Description	Defines the relative position in a balise group		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
3 bits			
Special/Reserved Values	0	I am the 1st	
	…	…	
	7	I am the 8th	

7.5.1.82 N_TOTAL

Name	Total number of balise(s) in the group

Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
3 bits			
Special/Reserved Values	0	1 balise in the group	
	…		
	7	8 balises in the group	

7.5.1.82.1 NC_CDDIFF

Name	Cant Deficiency SSP category		
Description	It is the “Cant Deficiency” SSP category for which a different value for the static line speed exists. Used together with V_DIFF to permit certain trains to go faster or lower than the “international basic static speed” given by V_STATIC.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
4 bits	0	15	
Special/Reserved Values	0	Specific SSP applicable to Cant Deficiency 80 mm	
	1	Specific SSP applicable to Cant Deficiency 100 mm	
	2	Specific SSP applicable to Cant Deficiency 130 mm	
	3	Specific SSP applicable to Cant Deficiency 150 mm	
	4	Specific SSP applicable to Cant Deficiency 165 mm	
	5	Specific SSP applicable to Cant Deficiency 180 mm	
	6	Specific SSP applicable to Cant Deficiency 210 mm	
	7	Specific SSP applicable to Cant Deficiency 225 mm	
	8	Specific SSP applicable to Cant Deficiency 245 mm	
	9	Specific SSP applicable to Cant Deficiency 275 mm	
	10	Specific SSP applicable to Cant Deficiency 300 mm	
	11 - 15	Spare	

7.5.1.82.2 NC_CDTRAIN

Name	Cant Deficiency Train Category		
Description	Cant Deficiency Train category to which the train belongs. Thanks to NC_CDTRAIN, the train knows the “Cant Deficiency” SSP it must obey. By receiving a list of static speed profile, thanks to NC_CDDIFF, the train can select the “Cant Deficiency” SSP best suiting its NC_CDTRAIN. A train belongs to one and only one category of Cant Deficiency.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
4 bits	0	15	
Special/Reserved Values	0	Cant Deficiency 80 mm	
	1	Cant Deficiency 100 mm	
	2	Cant Deficiency 130 mm	
	3	Cant Deficiency 150 mm	
	4	Cant Deficiency 165 mm	
	5	Cant Deficiency 180 mm	
	6	Cant Deficiency 210 mm	
	7	Cant Deficiency 225 mm	

	8	Cant Deficiency 245 mm
	9	Cant Deficiency 275 mm
	10	Cant Deficiency 300 mm
	11 - 15	Spare

7.5.1.83 NC_DIFF

Name	Other specific SSP category		
Description	It is the “other specific” SSP category for which a different value for the static line speed exists. Used together with V_DIFF to permit trains belonging to the corresponding “other international” train category to go faster or lower than the “international basic static speed” given by V_STATIC. Value 0 of NC_DIFF corresponds to the LSB of NC_TRAIN, value 14 of NC_DIFF to MSB (15-bit variable) of NC_TRAIN.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
4 bits	0	15	Numbers
Special/Reserved Values	0	Specific SSP applicable to Freight train braked in “P” position	
	1	Specific SSP applicable to Freight train braked in “G” position	
	2	Specific SSP applicable to Passenger train	
	3-15	Spare	

7.5.1.84 NC_TRAIN

Name	Other International Train Category.		
Description	Other train category (different from Cant Deficiency) to which the train belongs. Thanks to NC_TRAIN, the train knows the “Other specific” SSP category it must consider. By receiving a list of static speed profile, thanks to NC_DIFF, the train can select the SSP it must obey. Each bit represents one category. A train can belong to various categories.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
15 bits			Bitset
Special/Reserved Values	000 0000 0000 0000	Train does not belong to any of the “Other International” Train Category	
	Xxx xxxx xxxx xxx1	Freight train braked in “P” position	
	Xxx xxxx xxxx xx1x	Freight train braked in “G” position	
	Xxx xxxx xxxx x1xx	Passenger train	
	Xxx xxxx xxx 1xxx	Spare	
	Xxx xxxx xxx1 xxxx	Spare	
	Xxx xxxx xx1x xxxx	Spare	
	Xxx xxxx x1xx xxxx	Spare	
	Xxx xxxx 1xxx xxxx	Spare	
	Xxx xxx1 xxxx xxxx	Spare	
	Xxx xx1x xxxx xxxx	Spare	
	Xxx x1xx xxxx xxxx	Spare	
	Xxx 1xxx xxxx xxxx	Spare	
	Xx1 xxxx xxxx xxxx	Spare	
	X1x xxxx xxxx xxxx	Spare	
	1xx xxxx xxxx xxxx	Spare	

7.5.1.85 NID_BG (Values to be assigned according to 7.3.1.3)

Name	Identity number of the balise group		
Description	Identity number of a balise group or loop within the country or region defined by NID_C.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
14 bits	0	16382	Numbers
Special/Reserved Values	16383	Identity is unknown (only to be used for Linking information)	

7.5.1.86 NID_C (Values to be assigned according to 7.3.1.3)

Name	Identity number of the country or region		
Description	Code used to identify the country or region in which the balise group, the RBC or the RIU is situated. These need not necessarily follow administrative or political boundaries.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
10 bits	0	1023	Numbers

7.5.1.86.1 NID_CTRACTION (Values to be assigned according to 7.3.1.3)

Name	Country identifier of the traction system		
Description	It identifies the information, additional to M_VOLTAGE, required to fully define the traction system.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
10 bits	0	1023	Numbers

7.5.1.87 NID_EM

Name	Emergency message identity		
Description	Identifies the number of the emergency message		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
4 bits			

7.5.1.88 NID_ENGINE (Values to be assigned according to 7.3.1.3)

Name	Onboard ETCS identity		
Description	The ETCS identity number is uniquely defined for ERTMS/ETCS purposes		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
24 bits			

7.5.1.89 NID_LOOP (Values to be assigned according to 7.3.1.3)

Name	Identity number of the loop		
Description	Identity number of a loop within the country or region defined by NID_C given in the EOLM balise header.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
14 bits	0	16383	Numbers

7.5.1.90 NID_LRBG

Name	Identity of last relevant balise group		
Description	Country/region identity (NID_C) + balise identity number of last relevant balise group (NID_BG).		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
10 + 14 bits			
Special/Reserved Values	16777215	Unknown	

7.5.1.90.1 NID_LTRBG

Name	Identity of the level 2/3 transition balise group		
Description	Identity of the balise group at the level 2/3 transition location towards which the train is running. Country/region identity (NID_C) + balise identity number of the level 2/3 transition location balise group (NID_BG).		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
10 + 14 bits			

7.5.1.90.2 NID_LX

Name	Identity number of the Level Crossing.		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
8 bits	0	255	Number
Special/Reserved Values	0-126	Reserved for non RBC transmission (balise, loop or radio infill)	
	127-255	Reserved for RBC transmission	

7.5.1.91 NID_MESSAGE

Name	Message identifier		
Description	Message identifier. Regards defined values of NID_MESSAGE, refer to chapters 8.5.2 and 8.5.3		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
8 bits	0	255	Numbers

7.5.1.91.1 NID_MN (Values to be assigned according to 7.3.1.3)

Name	Identity of Radio Network		
Description	The NID_MN identifies the GSM-R network the calling mobile station has to register with. The NID_MN consists of up to 6 digits which are entered left adjusted into the data field, the leftmost digit is the digit to be dialled first. In case the NID_MN is shorter than 6 digits, the remaining space is to be filled with special character “F”. For further information about NID_MN refer to Subset-54.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
24 bits	0	999999	Binary Coded Decimal
Special/Reserved Values	For each digit ;		
	Values A – E	Not Used	
	F	Use value F for digit to indicate no digit (if number shorter than 6 digits)	

7.5.1.92 NID_OPERATIONAL

Name	Train Running Number		
Description	This is the operational train running number. The NID_OPERATIONAL consists of up to 8 digits which are entered left adjusted into the data field, the leftmost digit is the digit to be entered first. In case the NID_OPERATIONAL is shorter than 8 digits, the remaining space is to be filled with special character “F”.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
32 bits	0	9999 9999	Binary Coded Decimal
Special/Reserved Values	For each digit ;		
	Values A – E	Spare	
	F	Use value F for digit to indicate no digit (if number shorter than 8 digits)	

	FFFF FFFF	Spare

7.5.1.93 NID_PACKET

Name	Packet identifier		
Description	This is used in the header for each packet, allowing the receiving equipment to identify the data which follows. Regards defined values of NID_PACKET,.refer to “packet numbers” in the tables in chapter 7.4.1.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
8 bits	0	255	Numbers

7.5.1.94 NID_PRVLRBG

Name	Identity of previous LRBG		
Description	Previous LRBG detected when running towards the balise group identified as LRBG with no change of direction in-between. Country/region identity (NID_C) + balise identity number of the previous LRBG (NID_BG).		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
10 + 14 bits			
Special/Reserved Values	16777215	unknown	

7.5.1.95 NID_RADIO (Values to be assigned according to 7.3.1.3)

Name	Radio subscriber number.		
Description	Quoted as a 16 digit decimal number. The number is to be entered “left adjusted” starting with the first digit to be dialled. Padding by the special value F shall be added after the least significant digit of the number. For further information about NID_RADIO refer to SUBSET-054.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
64 bits	0	9999 9999 9999 9999	Binary Coded Decimal
Special/Reserved Values	For each digit ;		
	Values A – E	Not Used	
	F	Use value F for digit to indicate no digit (if number shorter than 16 digits)	
	FFFF FFFF FFFF FFFF	Use the short number stored onboard	

7.5.1.96 NID_RBC (Values to be assigned according to 7.3.1.3)

Name	RBC ETCS identity number		
Description	This variable provides the identity of the RBC belonging to NID_C. The RBC ETCS identity is given by NID_C + NID_RBC.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
14 bits	0	16 382	Number
Special/Reserved Values	16 383	Contact last known RBC	

7.5.1.97 NID_RIU (Values to be assigned according to 7.3.1.3)

Name	Identity of radio infill unit		
Description	This variable provides the identity of the RIU belonging to NID_C. The RIU ETCS identity is given by NID_C + NID_RIU.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
14 bits	0	16 383	Number

7.5.1.98 NID_NTC (Values to be assigned according to 7.3.1.3)

Name	National System identity		
Description	Each value of this variable represents the identity of a National System.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
8 bits	0	255	

7.5.1.98.1 NID_TEXTMESSAGE

Name	Text message identifier		
Description	Identity of a text message from trackside to be used in a report of driver acknowledgement to the RBC		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
8 bits	0	255	Number

7.5.1.99 NID_TSR

Name	Identity number of Temporary Speed Restriction.		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
8 bits	0	255	Number
Special/Reserved Values	0-126	Reserved for non RBC transmission (balise, loop or radio infill)	
	127-254	Reserved for RBC transmission	
	255	Non-revocable speed restriction (applicable for all transmission media)	

7.5.1.99.1 NID_VBCMK

Name	Marker for Virtual Balise Cover		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
6 bits	0	63	Number

7.5.1.100 NID_XUSER (Values to be assigned according to 7.3.1.3)

Name	Identity of user system		
Description	Identity of user system for which remainder of packet is intended.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
9 bits	0	511	Numbers

7.5.1.101 Q_ASPECT

Name	Aspect of “danger for shunting” signal		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
1 bit			
Special/Reserved Values	0	Stop if in SH mode	
	1	Go if in SH mode	

7.5.1.101.1 Q_CONFTEXTDISPLAY

Name	Qualifier for text confirmation versus end of text display
Description	Gives the relationship between the event “driver acknowledgement” and the list of events “location”, “time”, “mode”, “level” defining the end condition for text display

Length of variable	*Minimum Value*	*Maximum Value*	*Resolution/formula*
1 bit			
Special/Reserved Values	0	Driver acknowledgement always ends the text display, regardless of the end condition	
	1	Driver acknowledgement is an additional condition to end the display	

7.5.1.102 Q_DANGERPOINT

Name	Qualifier for danger point description.		
Description	This variable is set to 1 if either a danger point exists or a release speed has to be specified		
Length of variable	*Minimum Value*	*Maximum Value*	*Resolution/formula*
1 bit			
Special/Reserved Values	0	No danger point information	
	1	Danger point information to follow	

7.5.1.102.1 Q_DIFF

Name	Qualifier for specific SSP categories.		
Description	Indicates the type of specific SSP category In case of “other specific” SSP, it tells ERTMS/ETCS on-board equipment whether it replaces or not the Cant Deficiency SSP as selected by on-board (ref. 3.11.3.2.3), when the train belongs to an “other international” train category to which the “other specific” SSP applies		
Length of variable	*Minimum Value*	*Maximum Value*	*Resolution/formula*
2 bits			
Special/Reserved Values	0	Cant Deficiency specific category	
	1	Other specific category, replaces the Cant Deficiency SSP	
	2	Other specific category, does not replace the Cant Deficiency SSP	
	3	Spare	

7.5.1.103 Q_DIR

Name	Validity direction of transmitted data		
Description	Qualifier to indicate the relevant validity direction of transmitted data, with reference to directionality of the balise group sending the information or to directionality of the LRBG, in case of information sent via radio.		
Length of variable	*Minimum Value*	*Maximum Value*	*Resolution/formula*
2 bits			
Special/Reserved Values	00	Reverse	
	01	Nominal	
	10	Both directions	
	11	Spare	

7.5.1.104 Q_DIRLRBG

Name	Orientation of the train in relation to the direction of the LRBG		
Description			
Length of variable	*Minimum Value*	*Maximum Value*	*Resolution/formula*
2 bits			
Special/Reserved Values	0	Reverse	

	1	Nominal
	2	Unknown
	3	Spare

7.5.1.105 Q_DIRTRAIN

Name	Direction of train movement in relation to the LRBG orientation		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
2 bits			
Special/Reserved Values	0	Reverse	
	1	Nominal	
	2	Unknown	
	3	Spare	

7.5.1.106 Q_DLRBG

Name	Qualifier telling on which side of the LRBG the estimated front end is		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
2 bits			
Special/Reserved Values	0	Reverse	
	1	Nominal	
	2	Unknown	
	3	Spare	

7.5.1.107 Q_EMERGENCYSTOP

Name	Qualifier for emergency stop acknowledgement		
Description	Qualifier to inform the RBC about the use of emergency stop by on-board equipment.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
2 bit			
Special/Reserved Values	0	Conditional Emergency Stop accepted, with update of EOA	
	1	Conditional Emergency Stop accepted, with no update of EOA	
	2	Unconditional Emergency Stop accepted	
	3	Emergency stop (Conditional or Unconditional) rejected, whatever the reason	

7.5.1.108 Q_ENDTIMER

Name	Qualifier to indicate whether end section timer information exists for the End section in the MA		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
1 bit			
Special/Reserved Values	0	No End section timer information	
	1	End section timer information to follow	

7.5.1.109 Q_FRONT

Name	Qualifier for validity end point of profile element		
Description	Qualifier to indicate if a speed limit given for a profile element is to be applied until the front of the train (no train length delay) or the end of the train (train length delay) has left the element		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
1 bit			
Special/Reserved Values	0	Train length delay on validity end point of profile element.	
	1	No train length delay on validity end point of profile element	

7.5.1.110 Q_GDIR

Name	Qualifier for gradient slope.		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
1 bit			
Special/Reserved Values	0	downhill	
	1	uphill	

7.5.1.111 Q_INFILL

Name	Qualifier to indicate whether a train is entering or exiting the radio infill area.		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
1 bit			
Special/Reserved Values	0	Enter	
	1	Exit	

7.5.1.112 Q_LENGTH

Name	Qualifier for train integrity status		
Description	Qualifier, identifying the train integrity information available. The related safe train length information is given by L_TRAININT		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
2 bits			
Special/Reserved Values	0	No train integrity information available	
	1	Train integrity confirmed by integrity monitoring device	
	2	Train integrity confirmed by driver	
	3	Train integrity lost	

7.5.1.113 Q_LGTLOC

Name	Qualifier for the specified report location		
Description	This qualifier tells whether the train has to report its position when the max safe front end or when the min safe rear end has over passed the location defined by D_LOC		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
1 bit			
Special/Reserved Values	0	Min safe rear end	
	1	Max safe front end	

7.5.1.114 Q_LINK

Name	Link Qualifier		
Description	This qualifier is used to mark a balise group as linked or unlinked.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
1 bit			
Special/Reserved Values	0	Unlinked	
	1	Linked	

7.5.1.115 Q_LOCACC

Name	Accuracy of the balise location		
Description	This Qualifier defines the absolute value of the accuracy of the Balise location (i.e., the value 63m identifies a location accuracy of +/- 63m)		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
6 bits	0 m	63 m	1 m

7.5.1.116 Q_LINKORIENTATION

Name	Qualifier for the direction of the linked balise group		
Description	Indicates whether the linked balise group will be overpassed by the train in nominal or reverse direction.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
1 bit			
Special/Reserved Values	0	The balise group is seen by the train in reverse direction	
	1	The balise group is seen by the train in nominal direction	

7.5.1.117 Q_LINKREACTION

Name	linking reaction		
Description	Qualifier for the reaction to be performed if a linking or a balise group message consistency problem occurs with the balise group linked to.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
2 bits			
Special/Reserved Values	00	Train trip	
	01	Apply service brake	
	10	No Reaction	
	11	Spare	

7.5.1.118 Q_LOOPDIR

Name	Qualifier to indicate the direction of the loop		
Description	Indicates LOOP-reference direction in relation to EOLM direction		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
1 bit			
Special/Reserved Values	0	Opposite	
	1	Same	

7.5.1.118.1 Q_LXSTATUS

Name	LX Protection Status
Description	Indicates whether the LX is protected or not

Length of variable	*Minimum Value*	*Maximum Value*	*Resolution/formula*
1 bit			
Special/Reserved Values	0	LX is protected	
	1	LX is not protected	

7.5.1.118.2 Q_MAMODE

Name	Qualifier to indicate the supervision of the beginning of the mode profile		
Description	This qualifier defines whether the beginning of the mode profile shall be considered either as the EOA (keeping the SvL given by the MA) or as both the EOA and SvL (instead of the EOA and SvL given by the MA).		
Length of variable	*Minimum Value*	*Maximum Value*	*Resolution/formula*
1 bit			
Special/Reserved Values	0	as the EOA (keeping the SvL given by the MA)	
	1	as both the EOA and SvL (instead of the EOA and SvL given by the MA)	

7.5.1.118.3 Q_MARQSTREASON

Name	Reason for MA request sending		
Description	Qualifier to indicate the reason why the MA request is sent to the RBC		
Length of variable	*Minimum Value*	*Maximum Value*	*Resolution/formula*
5 bits			Bitset
Special/Reserved Values	xxxx1	Start selected by driver	
	xxx1x	Time before reaching pre-indication location for the EOA/LOA reached	
	xx1xx	Time before a section timer/LOA speed timer expires reached	
	x1xxx	Track description deleted	
	1xxxx	TAF up to level 2/3 transition location	

7.5.1.119 Q_MEDIA

Name	Qualifier to indicate the type of media		
Description	Indicates whether it is a balise telegram or a loop message		
Length of variable	*Minimum Value*	*Maximum Value*	*Resolution/formula*
1 bit			
Special/Reserved Values	0	Balise	
	1	Loop	

7.5.1.120 Q_MPOSITION

Name	Qualifier for track kilometre direction.		
Description	Qualifier to indicate the direction of counting of the geographical position track kilometre in relation to the geographical position reference balise group directionality.		
Length of variable	*Minimum Value*	*Maximum Value*	*Resolution/formula*
1 bit	0	1	
Special/Reserved Values	0	Opposite (counting downwards if passed in nominal direction or counting upwards if passed in reverse direction)	
	1	Same (counting upwards if passed in nominal direction or counting downwards if passed in reverse direction)	

7.5.1.121 Q_NEWCOUNTRY

Name	New Country Qualifier		
Description	Qualifier to indicate whether the next balise group is in the same country / railway administration as the one before inside the packet or not. For the first balise group in the packet, if Q_NEWCOUNTRY = 0, it is the same country / railway administration as the one of the LRBG within the radio message, the one of balise group within the balise telegram giving the packet, or the one of the loop within the loop message giving the packet.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
1 bit			
Special/Reserved Values	0	Same country / railway administration, no NID_C follows	
	1	Not the same country / railway administration, NID_C follows	

7.5.1.122 Q_NVDRIVER_ADHES

Name	Qualifier for the modification of trackside adhesion factor by driver		
Description	This variable is part of the National Values		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
1 bit			
Special/Reserved Values	0	Not allowed	
	1	Allowed	

7.5.1.123 Q_NVEMRRLS

Name	Qualifier Emergency Brake Release		
Description	Permission to revoke the emergency brake command when the Permitted Speed limit is no longer exceeded or at standstill (for ceiling speed and target speed monitoring). This variable is part of the National Values		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
1 bit			
Special/Reserved Values	0	Revoke emergency brake command at standstill	
	1	Revoke emergency brake command when permitted speed supervision limit is no longer exceeded	

7.5.1.123.1 Q_NVGUIPERM

Name	Permission to use the guidance curve		
Description	This variable is part of the National Values		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
1 bit			
Special/Reserved Values	0	No	
	1	Yes	

7.5.1.123.2 Q_NVINHSMICPERM

Name	Permission to inhibit the compensation of the speed measurement inaccuracy		
Description	Qualifier to inhibit the compensation of the speed measurement inaccuracy for the calculation of the EBI related supervision limits. This variable is part of the National Values		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
1 bit			

Special/Reserved Values	0	No
	1	Yes

7.5.1.123.3 Q_NVKINT

Name	Qualifier for integrated correction factors		
Description	This variable is part of the National Values		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
1 bit			
Special/Reserved Values	0	No integrated correction factors follow	
	1	Integrated correction factors follow	

7.5.1.123.4 Q_NVKVINTSET

Name	Type of Kv_int set		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
2 bits			
Special/Reserved Values	00	Freight trains	
	01	Conventional passenger trains	
	10-11	Spare	

7.5.1.123.5 Q_NVLOCACC

Name	Default accuracy of the balise location (absolute value)		
Description	This variable is part of the National Values		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
6 bits	0 m	63 m	1 m

7.5.1.123.6 Q_NVSBFBPERM

Name	Permission to use the service brake feedback		
Description	This variable is part of the National Values		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
1 bit			
Special/Reserved Values	0	No	
	1	Yes	

7.5.1.124 Q_NVSBTSMPERM

Name	Permission to use service brake in target speed monitoring		
Description	This variable is part of the National Values		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
1 bit			
Special/Reserved Values	0	No	
	1	Yes	

7.5.1.125 Q_ORIENTATION

Name	Co-ordinate system assigned to a single balise group
Description	The co-ordinate system is assigned by the RBC to a balise group reported by the on-board equipment

	as LRBG. The information reverse/nominal (i.e., the assigned co-ordinate system) is given in relation to the direction in which the balise has been passed when reading it.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
1 bit			
Special/Reserved Values	0	The balise group has been passed by the train in reverse direction	
	1	The balise group has been passed by the train in nominal direction	

7.5.1.126 Q_OVERLAP

Name	Qualifier to tell whether there is an overlap		
Description	This variable is set to 1 if either an overlap exists or a release speed has to be specified		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
1 bit			
Special/Reserved Values	0	No overlap information	
	1	Overlap information to follow	

7.5.1.126.1 Q_PBDSR

Name	Qualifier for Permitted Braking Distance		
Description	Qualifier defining whether the permitted braking distance is to be achieved with the Service Brake or Emergency Brake		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
1 bit			
Special/Reserved Values	0	EB intervention requested	
	1	SB intervention requested	

7.5.1.126.2 Q_PLATFORM

Name	Platform position (relative to direction of authorised movement)		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
2 bits			
Special/Reserved Values	00	Platform on left side	
	01	Platform on right side	
	10	Platform on both sides	
	11	Spare	

7.5.1.127 Q_RBC

Name	Qualifier for communication session order		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
1 bit			
Special/Reserved Values	0	Terminate communication session	
	1	Establish communication session	

7.5.1.128 Q_RIU

Name	Qualifier for communication session order
Description	

Length of variable	*Minimum Value*	*Maximum Value*	*Resolution/formula*
1 bit			
Special/Reserved Values	0	Terminate communication session	
	1	Establish communication session	

7.5.1.129 Q_SCALE

Name	Qualifier for the distance scale.		
Description	Qualifier to indicate the same scale used for describing all distances inside the packet that contains Q_SCALE.		
Length of variable	*Minimum Value*	*Maximum Value*	*Resolution/formula*
2 bits			
Special/Reserved Values	0	10 cm scale	
	1	1 m scale	
	2	10 m scale	
	3	Spare	

7.5.1.130 Q_SECTIONTIMER

Name	Qualifier to indicate whether there is a Section Time-Out related to the section		
Description			
Length of variable	*Minimum Value*	*Maximum Value*	*Resolution/formula*
1 bit			
Special/Reserved Values	0	No Section Timer information	
	1	Section Timer information to follow	

7.5.1.131 Q_SLEEPSESSION

Name	Session management for sleeping equipment		
Description	Qualifier for a Sleeping onboard equipment to execute or not the “session establishment” order		
Length of variable	*Minimum Value*	*Maximum Value*	*Resolution/formula*
1 bit			
Special/Reserved Values	0	Ignore session establishment order	
	1	Execute session establishment order	

7.5.1.132 Q_SRSTOP

Name	“Stop if in Staff Responsible” information		
Description	Specifies whether an onboard equipment in staff responsible has to stop or not		
Length of variable	*Minimum Value*	*Maximum Value*	*Resolution/formula*
1 bit			
Special/Reserved Values	0	Stop if in SR mode	
	1	Go if in SR mode	

7.5.1.133 Q_SSCODE

Name	Spread Spectrum Code for Euroloop		
Description	Specifies the code required to receive telegrams from a specific Euroloop installation.		
Length of variable	*Minimum Value*	*Maximum Value*	*Resolution/formula*
4 bits	0	14	

Special/Reserved Values	15	Code reserved for test purposes

7.5.1.134 Q_STATUS

Name	status of SoM position report		
Description	It provides the status of the position report		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
2 bits			
Special/Reserved Values	00	Invalid	
	01	Valid	
	10	Unknown	
	11	spare	

7.5.1.134.1 Q_STOPLX

Name	Qualifier for stopping in rear of the LX		
Description	Indicates whether stopping the train in rear of a non protected LX is required		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
1 bit			
Special/Reserved Values	0	No stop required	
	1	Stop required	

7.5.1.135 Q_SUITABILITY

Name	Type of route suitability data		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
2 bits			
Special/Reserved Values	00	Loading gauge	
	01	Max axle load	
	10	Traction system	
	11	Spare	

7.5.1.136 Q_TEXT

Name	Fixed message to be displayed.		
Description	Q_TEXT is a pointer to select a fixed text message from the defined table. The language selected by the driver for the DMI shall be used additionally as a qualifier to choose the appropriate language table.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
8 bits	0	255	
Special/Reserved Values	0	“Level crossing not protected”	
	1	“Acknowledgement”	
	2-255	Spare	

7.5.1.137 Q_TEXTCLASS

Name	Class of message to be displayed.		
Description	Q_TEXTCLASS specifies the class of the text message included in the same packet (either plain or fixed message)		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***

2 bits			
Special/Reserved Values	00	Auxiliary Information	
	01	Important Information	
	10	Spare	
	11	Spare	

7.5.1.138 Q_TEXTCONFIRM

Name	Qualifier for text confirmation		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
2 bits			
Special/Reserved Values	00	No confirmation required	
	01	Confirmation required	
	10	Confirmation required: command application of the service brake when display end condition is fulfilled, unless the text has already been acknowledged by the driver	
	11	Confirmation required: command application of the emergency brake when display end condition is fulfilled, unless the text has already been acknowledged by the driver	

7.5.1.139 Q_TEXTDISPLAY

Name	Qualifier for the combination of text message eventss		
Description	Q_TEXTDISPLAY defines whether the start/end events for text message are to be combined or not		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
1 bit			
Special/Reserved Values	0	No, display as soon as / until one of the events is fulfilled	
	1	Yes, display as soon as / until all events are fulfilled	

7.5.1.140 Q_TEXTREPORT

Name	Qualifier for reporting acknowledgement of text by driver		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
1 bit			
Special/Reserved Values	0	No driver acknowledgement report required	
	1	Driver acknowledgement report required	

7.5.1.141 Q_TRACKINIT

Name	Qualifier for resuming the initial states of the related track description of the packet.		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
1 bit			
Special/Reserved Values	0	No initial states to be resumed, profile to follow	
	1	Empty profile, initial states to be resumed	

7.5.1.142 Q_UPDOWN

Name	Balise telegram transmission direction

Description	It defines the direction of the information in the balise telegram		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
1 bit			
Special/Reserved Values	0	Down link telegram	
	1	Up link telegram	

7.5.1.142.1 Q_VBCO

Name	Qualifier for Virtual Balise Cover order		
Description	Qualifier to set or remove a VBC		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
1 bit			
Special/Reserved Values	0	Remove the Virtual Balise Cover	
	1	Set the Virtual Balise Cover	

7.5.1.143 T_CYCLOC

Name	Time Interval between two position reports sent by the train		
Description	The train must send its position every T_CYCLOC		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
8 bits	0 seconds	254 s	1s
Special/Reserved Values	255	∞	

7.5.1.144 T_CYCRQST

Name	Time between two cyclic requests for a movement authority		
Description	When the train asks for a movement authority request, it will repeat its request every T_CYCRQST seconds until it receives a new MA		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
8 bits	0 seconds	254 s	1s
Special/Reserved Values	255	No repetition	

7.5.1.145 T_ENDTIMER

Name	Validity time for the End section in the MA		
Description	Time for which the End section is valid measured from the moment the train reaches the location defined by D_ENDTIMERSTARTLOC.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
10 bits	0	1022	1 s
Special/Reserved Values	1023	∞	

7.5.1.146 T_LOA

Name	Validity time for the target speed at the LOA		
Description	Time for which the target speed is valid measured from the moment information is received		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
10 bits	0	1022	1 s
Special/Reserved Values	1023	∞	

7.5.1.147 T_MAR

Name	Time before reaching pre-indication location for the EOA/LOA		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
8 bits	0	254	1 s
Special/Reserved Values	255	No MA request triggering with regards to this function	

7.5.1.148 T_NVCONTACT

Name	Maximal time without new “safe” message.		
Description	If no “safe” message has been received from the track for more than T_NVCONTACT seconds, an appropriate action according to M_NVCONTACT must be triggered. This variable is part of the National Values		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
8 bits	0s	254s	1s
Special/Reserved Values	1111 1111	T_NVCONTACT = ∞.	

7.5.1.149 T_NVOVTRP

Name	Maximum time for overriding the train trip		
Description	This variable is part of the National Values		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
8 bits	0 s	255 s	1 s

7.5.1.150 T_OL

Name	Overlap validity time		
Description	The time span the train can expect the overlap to be available, measured from the moment the train reaches the location defined by D_STARTOL.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
10 bits	0	1022 s	1 s
Special/Reserved Values	1023	∞	

7.5.1.151 T_SECTIONTIMER

Name	Validity time of a section in the MA		
Description	Time for which the section is valid.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
10 bits	0	1022	1 s
Special/Reserved Values	1023	∞	

7.5.1.152 T_TEXTDISPLAY

Name	Duration for which a text shall be displayed		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
10 bits	0	1022 s	1 s
Special/Reserved Values	1023	Display of text not limited by time.	

7.5.1.153 T_TIMEOUTRQST

Name	Time before any section timer expires or the LOA speed timer expires		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
10 bits	0	1022	1 s
Special/Reserved Values	1023	No MA request triggering with regards to this function	

7.5.1.154 T_TRAIN

Name	Trainborne clock		
Description	Time, according to trainborne clock, at which message is sent		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
32 bits	0	42949672.94 s	10 ms
Special/Reserved Values	4294967295	Unknown	

7.5.1.154.1 T_VBC

Name	VBC validity period		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
8 bits	0	255 days	1 day

7.5.1.155 V_AXLELOAD

Name	Speed restriction related to axleload		
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	

7.5.1.156 V_DIFF

Name	Absolute Positive Speed associated to a train category.		
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	

7.5.1.157 V_LOA

Name	Permitted speed at the limit of authority		
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	

7.5.1.157.1 V_LX

Name	Permitted speed for the LX speed restriction		
Description	Speed at which the LX can be passed when it is not protected		
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	

7.5.1.158 V_MAIN

Name	Signalling related speed restriction		
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	
	V_MAIN = 0 means “trip order”		

7.5.1.159 V_MAMODE

Name	Required mode related speed		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
7 bits	0	600 km/h	5 km/h
Special/Reserved Values	121 – 126	Spare	
	127	Use the national speed value of the required mode	

7.5.1.160 V_MAXTRAIN

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

7.5.1.161 V_NVALLOWOVTRP

Name	Speed limit allowing the driver to select the “override” function		
Description	This variable is part of the National Values		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
7 bits	0 km/h	600km/h	5 km/h
Special/Reserved Values	121 – 127	Spare	

7.5.1.161.1 V_NVKVINT

Name	Speed step used to define the integrated correction factor Kv		
Description	This variable is part of the National Values		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
7 bits	0 km/h	600km/h	5 km/h
Special/Reserved Values	121 – 127	Spare	

7.5.1.161.2 V_NVLIMSUPERV

Name	Limited Supervision mode speed limit		
Description	This variable is part of the National Values		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
7 bits	0 km/h	600km/h	5 km/h

Special/Reserved Values	121 – 127	Spare

7.5.1.162 V_NVONSIGHT

Name	On Sight mode speed limit		
Description	This variable is part of the National Values		
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	

7.5.1.163 V_NVSUPOVTRP

Name	Override speed limit to be supervised when the “override” function is active		
Description	This variable is part of the National Values		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
7 bits	0 km/h	600km/h	5 km/h
Special/Reserved Values	121 – 127	Spare	

7.5.1.164 V_NVREL

Name	Release Speed		
Description	This variable is part of the National Values		
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	

7.5.1.165 V_NVSHUNT

Name	Shunting mode speed limit		
Description	This variable is part of the National Values		
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	

7.5.1.166 V_NVSTFF

Name	Staff Responsible mode speed limit		
Description	This variable is part of the National Values		
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	

7.5.1.167 V_NVUNFIT

Name	Unfitted mode speed limit		
Description	This variable is part of the National Values		
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	

7.5.1.168 V_RELEASEDP

Name	Release speed associated with the danger point		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
7 bits	0 km/h	600 km/h	5 km/h
Special/Reserved Values	121-125	Spare	
	126	Use onboard calculated release speed	
	127	Use national value	

7.5.1.169 V_RELEASEOL

Name	Release speed associated with the overlap		
Description			
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
7 bits	0 km/h	600 km/h	5 km/h
Special/Reserved Values	121-125	Spare	
	126	Use onboard calculated release speed	
	127	Use national value	

7.5.1.170 V_REVERSE

Name	Reversing mode speed limit		
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	

7.5.1.171 V_STATIC

Name	Basic static speed profile		
Description	Basic static speed profile speed after discontinuity (k).		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
7 bits	0	600 km/h	5 km/h
Special/Reserved Values	121-126	Spare	
	127	Non numerical value telling that the static speed profile description ends at D_STATIC(n)	

7.5.1.172 V_TRAIN

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

7.5.1.173 V_TSR

Name	Permitted speed for the temporary speed restriction
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	

7.5.1.174 X_TEXT

Name	Text String Element		
Description	Text strings are used to transmit plain text messages. Each element of a text string contains a single character encoded as ISO 8859-1, also known as Latin Alphabet #1.		
Length of variable	***Minimum Value***	***Maximum Value***	***Resolution/formula***
8 bits			