

ERTMS/ETCS – Class 1

FFFIS STM test cases of Functional identity 011

PROCEDURE SPECIFIC TEST

Total: 3 Test cases

REF : Subset-074-2-11

ISSUE : Version 1.0.0

DATE : 13.10.2005

Company	Technical Approval	Management approval
ALCATEL		
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Modification History

Issue Number Date	Section Number	Modification / Description	Author
0.0.1 07/12/2004	All	First version	Alstom AS
0.0.2 15/12/2004	All	Reviewed in Madrid on 15-12-2004	Alstom AS
0.0.3 26/01/2005	All	Reviewed in Paris on 26-01-2005	Alstom AS
0.1.0 27/01/2005	Editorial	Editorial changed	Alstom AS
1.0.0 13.10.2005		Editorial changes for delivery	Invensys Rail

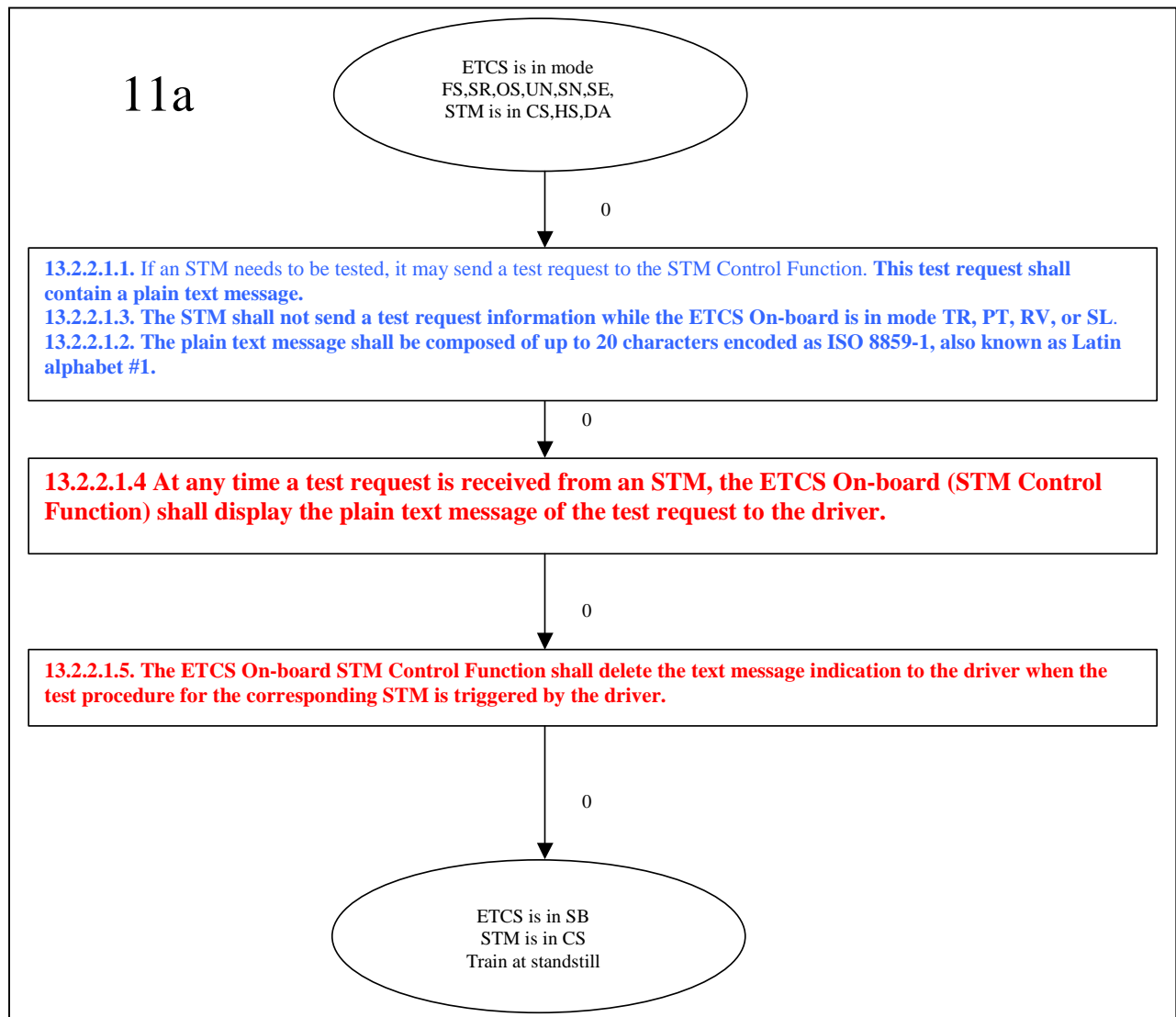
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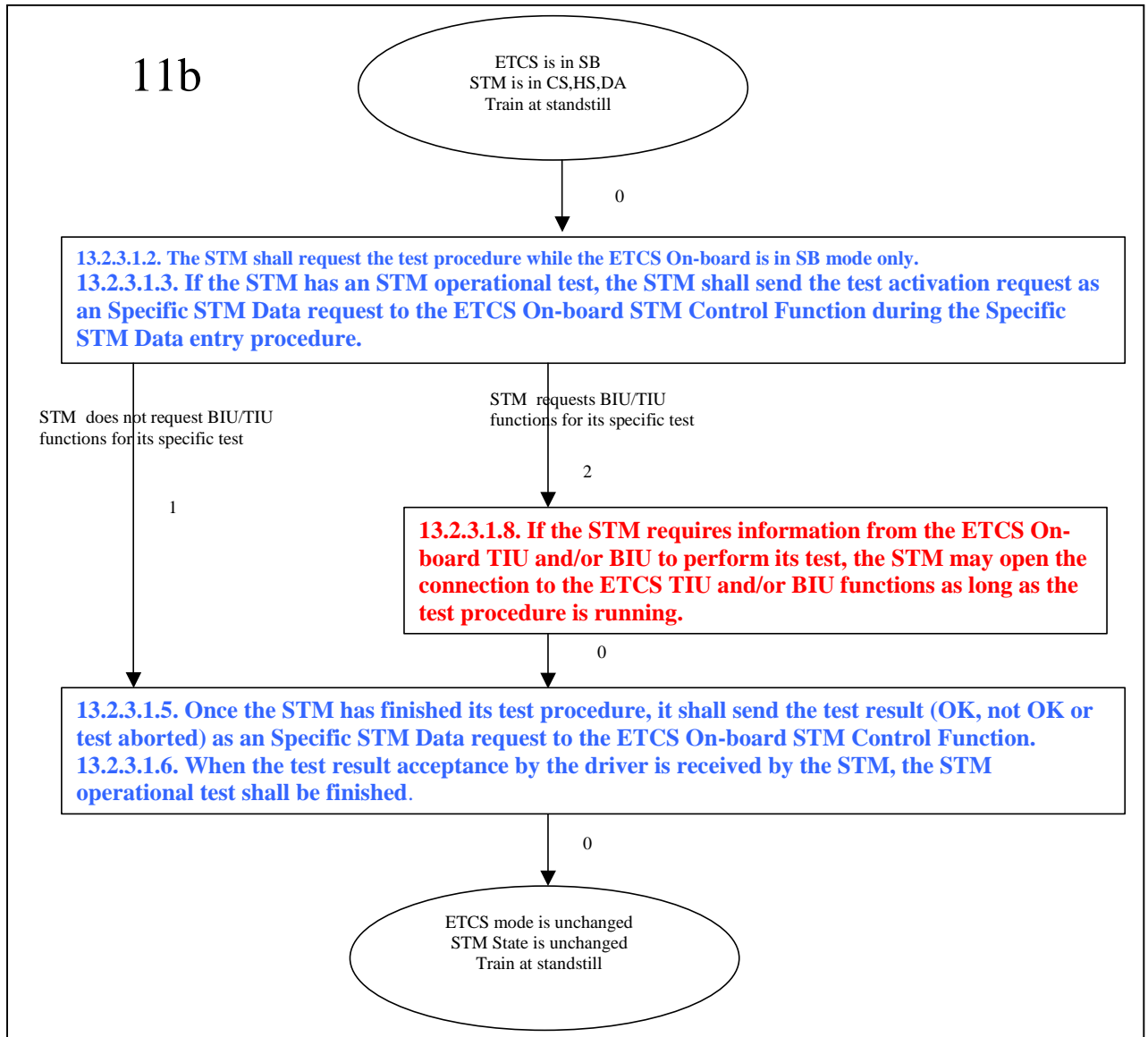
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Diagrams





TEST CASE 11a.0.0.0.0.

TEST CASE HEADER	
Test case Identification	Functional identity Procedure: STM Specific Test
ETCS Requirements Tested	Subset-035: 13.2.2.1.4
	Subset-026: None
STM Requirements Tested	Subset-035: 13.2.2.1.1; 13.2.2.1.2; 13.2.2.1.3;
	Subset-026: None
Packets transmitted via FFFIS STM	STM-15, STM-19.
Comments and constraints	The STM shall request Specific Test

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Starting Conditions	Value	Comments
STM_STATE	CS	
ETCS Mode	FS	
ETCS Level	1	
Train State	Not relevant	
Train Data	Valid	
Additional Data	Valid	
National Values	Valid	
STM Control Function Connection	Established	
DMI Connection	Not established	
Odometry Data	Transmitted	
Reference Time Data	Transmitted	
TIU Connection	Not relevant	
BIU Connection	Not relevant	
JRU Connection	Not relevant	
Other connections	Not relevant	
TIU Regenerative Brake Command	Not relevant	
TIU Magnetic Shoes Command	Not relevant	
TIU Eddy Current Brake Command	Not relevant	
TIU Inhibit Passenger Emergency Brake Command	Not relevant	
TIU Pantograph Command	Not relevant	
TIU Air Tightness Command	Not relevant	
TIU Main Switch / Circuit Breaker Command	Not relevant	
TIU Traction Cut Off Command	Not relevant	
TIU Sleeping Status	Not Sleeping	
TIU Traction Cut Off Status	Not relevant	
TIU Direction Controller Position Status	Not relevant	
TIU Cab Status (Desk Status)	Desk A opened	
BIU Status	Not relevant	
BIU Emergency Brake Command	Not relevant	
BIU Service Brake Command	Not relevant	
BIU Emergency Brake Status	Not relevant	

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BIU Service Brake Status		Not relevant	
STM Version Number	Subset-026	1.0	
	Subset-035	3.0.z	
	Subset-058	3.0.z	
	Subset-056	3.0.z	
	Subset-057	3.0.z	
ETCS Version Number	Subset-026	1.0	
	Subset-035	3.0.z	
	Subset-056	3.0.z	
	Subset-057	3.0.z	
	Subset-058	3.0.z	
Track Adhesion		Not relevant	

Test case for ETCS On-board:

Step	Description/Comments	Input I/F	Input Action	DUT	Output I/F	Output action
1,	ETCS receives STM specific test request and informs the driver that a test procedure is needed for one STM. [13.2.2.1.4.]	Prof	STM Control connection: Message 1: Packet STM-19 STM specific test request Packet STM-15 State report from STM	ETCS	DMI	Text information of the Packet 19 of Message 1 is displayed on the DMI.
2.	-	DMI	The driver requests DATA_ENTRY	ETCS	DMI	Text information is removed.

Test case for STM: No test case is needed because the function is STM internal.

Message 1: (STM => ETCS STM control function) Specific Test Request from STM.			
VARIABLE	Length	VALUE	COMMENTS
NID_STM	8	FINITE VALUE	Should be replaced by STM-1 ID when testing STM. When testing ETCS On-board a valid value should be used.
L_MESSAGE	8	COMPUTED	
NID_PACKET	8	15	State report from STM
L_PACKET	13	COMPUTED	
NID_STMSTATE	4	4	CS
NID_PACKET	8	19	State request from STM
L_PACKET	13	COMPUTED	
M_XATTRIBUTE	10	1000000001b	Text in white on black background and no flashing
L_TEXT	8	28	
X_TEXT(1)	8	"S"	
X_TEXT(2)	8	"T"	
X_TEXT(3)	8	"M"	
X_TEXT(4)	8	" "	
X_TEXT(5)	8	"A"	
X_TEXT(6)	8	" "	
X_TEXT(7)	8	"T"	
X_TEXT(8)	8	"E"	
X_TEXT(9)	8	"S"	
X_TEXT(10)	8	"T"	
X_TEXT(11)	8	" "	
X_TEXT(12)	8	"P"	
X_TEXT(13)	8	"R"	
X_TEXT(14)	8	"O"	
X_TEXT(15)	8	"C"	
X_TEXT(16)	8	"E"	
X_TEXT(17)	8	"D"	
X_TEXT(18)	8	"U"	
X_TEXT(19)	8	"R"	
X_TEXT(20)	8	"E"	
X_TEXT(21)	8	" "	

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X_TEXT(22)	8	"N"	
X_TEXT(23)	8	"E"	
X_TEXT(24)	8	"E"	
X_TEXT(25)	8	"D"	
X_TEXT(26)	8	"E"	
X_TEXT(27)	8	"D"	
X_TEXT(28)	8	" "	
Padding bits	COMPUTED	COMPUTED	

Message 2: (STM => ETCS) Specific Data Entry (test request).			
VARIABLE	Length	VALUE	COMMENTS
NID_STM	8	FINITE VALUE	
L_MESSAGE	8	COMPUTED	
NID_PACKET	8	15	State report from STM
L_PACKET	13	COMPUTED	
NID_STMSTATE	4	4	CS
NID_PACKET	8	179	Specific STM data entry request
L_PACKET	13	COMPUTED	
Q_DRIVERINT	1	0	
Q_FOLLOWING	1	0	
N_ITER	5	0	
Padding bits	COMPUTED	COMPUTED	

End Conditions		Value	Comments
STM_STATE		Unchanged	
ETCS Mode		SB	
ETCS Level		1	
Train State		Standstill	
Train Data		Unchanged	
Additional Data		Unchanged	
National Values		Unchanged	
STM Control Function Connection		Unchanged	
DMI Connection		Unchanged	
Odometry Data		Unchanged	
Reference Time Data		Unchanged	
TIU Connection		Unchanged	
BIU Connection		Unchanged	
JRU Connection		Unchanged	
Other connections		Unchanged	
TIU Regenerative Brake Command		Unchanged	
TIU Magnetic Shoes Command		Unchanged	
TIU Eddy Current Brake Command		Unchanged	
TIU Inhibit Passenger Emergency Brake Command		Unchanged	
TIU Pantograph Command		Unchanged	
TIU Air Tightness Command		Unchanged	
TIU Main Switch / Circuit Breaker Command		Unchanged	
TIU Traction Cut Off Command		Unchanged	
TIU Sleeping Status		Unchanged	
TIU Traction Cut Off Status		Unchanged	
TIU Direction Controller Position Status		Unchanged	
TIU Cab Status (Desk Status)		Unchanged	
BIU Status		Unchanged	
BIU Emergency Brake Command		Unchanged	
BIU Service Brake Command		Unchanged	
BIU Emergency Brake Status		Unchanged	
BIU Service Brake Status		Unchanged	
STM Version Number	Subset-026	Unchanged	

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	Subset-035	3.0.z	
	Subset-058	3.0.z	
	Subset-056	3.0.z	
	Subset-057	3.0.z	
ETCS Version Number	Subset-026	1.0	
	Subset-035	3.0.z	
	Subset-056	3.0.z	
	Subset-057	3.0.z	
	Subset-058	3.0.z	
Track Adhesion		Unchanged	

TEST CASE 11b.0.1.0.

TEST CASE HEADER	
Test case Identification	Functional identity Procedure: STM Specific Test
ETCS Requirements Tested	Subset-035: None
	Subset-026: None
STM Requirements Tested	Subset-035: 13.2.3.1.2; 13.2.3.1.3; 13.2.3.1.5; 13.2.3.1.6.
	Subset-026: None
Packets transmitted via FFFIS STM	STM-15, STM-175, STM-176, STM-177, STM-178, STM-179, STM-180.
Comments and constraints	The STM shall request Specific Test procedure.

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Starting Conditions	Value	Comments
STM_STATE	CS	
ETCS Mode	SB	
ETCS Level	1	
Train State	Standstill	
Train Data	Valid	
Additional Data	Valid	
National Values	Valid	
STM Control Function Connection	Established	
DMI Connection	Not established	
Odometry Data	Transmitted	
Reference Time Data	Transmitted	
TIU Connection	Not relevant	
BIU Connection	Not relevant	
JRU Connection	Not relevant	
Other connections	Not relevant	
TIU Regenerative Brake Command	Not relevant	
TIU Magnetic Shoes Command	Not relevant	
TIU Eddy Current Brake Command	Not relevant	
TIU Inhibit Passenger Emergency Brake Command	Not relevant	
TIU Pantograph Command	Not relevant	
TIU Air Tightness Command	Not relevant	
TIU Main Switch / Circuit Breaker Command	Not relevant	
TIU Traction Cut Off Command	Not relevant	
TIU Sleeping Status	Not Sleeping	
TIU Traction Cut Off Status	Not relevant	
TIU Direction Controller Position Status	Not relevant	
TIU Cab Status (Desk Status)	Desk A opened	
BIU Status	Not relevant	
BIU Emergency Brake Command	Not relevant	
BIU Service Brake Command	Not relevant	
BIU Emergency Brake Status	Not relevant	

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BIU Service Brake Status		Not relevant	
STM Version Number	Subset-026	1.0	
	Subset-035	3.0.z	
	Subset-058	3.0.z	
	Subset-056	3.0.z	
	Subset-057	3.0.z	
ETCS Version Number	Subset-026	1.0	
	Subset-035	3.0.z	
	Subset-056	3.0.z	
	Subset-057	3.0.z	
	Subset-058	3.0.z	
Track Adhesion		Not relevant	

Test case for ETCS On-board: Not needed for this test case

Test case for STM:

Step	Description/Comments	Input I/F	Input Action	DUT	Output I/F	Output action
1.	STM requests a test procedure when ETCS is in SB.	Prof	STM Control connection: Message 6: Packet STM-175 Train Data Packet STM-176 Train Data additional „braking characteristic“ to STM Packet STM-177: Additional Data Values and date/time to STM Packet STM-178 National Values to STM	STM	Prof	STM Control connection: Message 1: Packet STM-179 Specific STM Data Entry Request Packet STM-15 State report from STM
2.	Test shall be started when the driver acknowledge the test request on the DMI.	Prof	STM Control connection: Message 2: Packet STM-180 Specific STM Data to STM.			Test is performed by the STM.
3.	STM sends test result to the STM Control Connection	-	-	STM	Prof	STM Control connection: Message 3: Packet STM-179 (with status OK, not OK or test aborted) Specific STM Data Entry Request Packet STM-15 State report from STM
4.	STM shall receive Driver acknowledgement information	Prof	STM Control connection: Message 4: Packet STM-180 Specific STM Data to STM.	STM	-	-

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Step	Description/Comments	Input I/F	Input Action	DUT	Output I/F	Output action
5.	End of test procedure	-	-	STM	Prof	STM Control connection: Message 5 : Packet STM-179 Specific STM Data Entry Request With N_ITER=0 Packet STM-15 State report from STM

Message 1: (STM => ETCS) Specific Data Entry (test request).			
VARIABLE	Length	VALUE	COMMENTS
NID_STM	8	FINITE VALUE	
L_MESSAGE	8	COMPUTED	
NID_PACKET	8	15	State report from STM
L_PACKET	13	COMPUTED	
NID_STMSTATE	4	4	CS
NID_PACKET	8	179	Specific STM data entry request
L_PACKET	13	COMPUTED	
Q_DRIVERINT	1	0	
Q_FOLLOWING	1	0	
N_ITER	5	1	
NID_STM(1)	8	FINITE VALUE	Use the palette of the STM to be tested or simulated
NID_DATA(1)	8	1	
M_XATTRIBUTE(1)	10	1000000001b	Text in white on black background and no flashing
L_CAPTION(1)	5	27	
X_CAPTION(1,1)	8	'T'	
X_CAPTION(1,2)	8	'E'	
X_CAPTION(1,3)	8	'S'	
X_CAPTION(1,4)	8	'T'	
X_CAPTION(1,5)	8	'I'	
X_CAPTION(1,6)	8	' '	
X_CAPTION(1,7)	8	'I'	
X_CAPTION(1,7)	8	'S'	
X_CAPTION(1,8)	8	' '	
X_CAPTION(1,9)	8	'R'	
X_CAPTION(1,10)	8	'E'	
X_CAPTION(1,11)	8	'Q'	
X_CAPTION(1,12)	8	'U'	
X_CAPTION(1,13)	8	'E'	
X_CAPTION(1,14)	8	'S'	
X_CAPTION(1,15)	8	'T'	
X_CAPTION(1,16)	8	'E'	

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X_CAPTION(1,17)	8	'D'	
X_CAPTION(1,18)	8	' '	
X_CAPTION(1,19)	8	'B'	
X_CAPTION(1,20)	8	'Y'	
X_CAPTION(1,21)	8	' '	
X_CAPTION(1,22)	8	'S'	
X_CAPTION(1,23)	8	'T'	
X_CAPTION(1,24)	8	'M'	
X_CAPTION(1,25)	8	' '	
X_CAPTION(1,26)	8	'1'	
X_CAPTION(1,27)	8	' '	
L_VALUE(1)	8	0	
N_ITER(1)	5	2	
L_VALUE(1,1)	8	3	
X_VALUE (1,1,1)	8	'Y'	
X_VALUE (1,1,2)	8	'E'	
X_VALUE (1,1,3)	8	'S'	
L_VALUE(1,2)	8	2	
X_VALUE (1,2,1)	8	'N'	
X_VALUE (1,2,2)	8	'O'	
Padding bits	COMPUTED	COMPUTED	

Message 3: (STM => ETCS) Specific Data Entry (test request).			
VARIABLE	Length	VALUE	COMMENTS
NID_STM	8	FINITE VALUE	
L_MESSAGE	8	COMPUTED	
NID_PACKET	8	15	State report from STM
L_PACKET	13	COMPUTED	
NID_STMSTATE	4	4	CS
NID_PACKET	8	179	Specific STM data entry request
L_PACKET	13	COMPUTED	
Q_DRIVERINT	1	1	
Q_FOLLOWING	1	0	
N_ITER	5	1	
NID_STM(1)	8	FINITE VALUE	Use the palette of the STM to be tested or simulated
NID_DATA(1)	8	1	
M_XATTRIBUTE(1)	10	1000000001b	Text in white on black background and no flashing
L_CAPTION(1)	5	26	
X_CAPTION(1,1)	8	'T'	
X_CAPTION(1,2)	8	'E'	
X_CAPTION(1,3)	8	'S'	
X_CAPTION(1,4)	8	'T'	
X_CAPTION(1,5)	8	'I'	
X_CAPTION(1,6)	8	' '	
X_CAPTION(1,7)	8	'F'	
X_CAPTION(1,8)	8	'O'	
X_CAPTION(1,9)	8	'R'	
X_CAPTION(1,10)	8	' '	
X_CAPTION(1,11)	8	'S'	
X_CAPTION(1,12)	8	'T'	
X_CAPTION(1,13)	8	'M'	
X_CAPTION(1,14)	8	' '	
X_CAPTION(1,15)	8	'1'	
X_CAPTION(1,16)	8	' '	
X_CAPTION(1,17)	8	'I'	
X_CAPTION(1,18)	8	'S'	

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X_CAPTION(1,19)	8	' '	
X_CAPTION(1,20)	8	'P'	
X_CAPTION(1,21)	8	'A'	
X_CAPTION(1,22)	8	'S'	
X_CAPTION(1,23)	8	'S'	
X_CAPTION(1,24)	8	'E'	
X_CAPTION(1,25)	8	'D'	
X_CAPTION(1,26)	8	'.'	
L_VALUE(1)	8	0	
N_ITER(1)	5	3	
L_VALUE(1,1)	8	9	
X_VALUE (1,1,1)	8	'S'	
X_VALUE (1,1,2)	8	'T'	
X_VALUE (1,1,3)	8	'A'	
X_VALUE (1,1,4)	8	'T'	
X_VALUE (1,1,5)	8	'U'	
X_VALUE (1,1,6)	8	'S'	
X_VALUE (1,1,7)	8	' '	
X_VALUE (1,1,8)	8	'O'	
X_VALUE (1,1,9)	8	'K'	
L_VALUE(1,2)	8	10	
X_VALUE (1,2,1)	8	'S'	
X_VALUE (1,2,2)	8	'T'	
X_VALUE (1,2,3)	8	'A'	
X_VALUE (1,2,4)	8	'T'	
X_VALUE (1,2,5)	8	'U'	
X_VALUE (1,2,6)	8	'S'	
X_VALUE (1,2,7)	8	' '	
X_VALUE (1,2,8)	8	'N'	
X_VALUE (1,2,9)	8	'O'	
X_VALUE (1,2,10)	8	'K'	
L_VALUE(1,3)	8	7	
X_VALUE (1,3,1)	8	'A'	
X_VALUE (1,3,2)	8	'B'	

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X_VALUE (1,3,3)	8	'O'	
X_VALUE (1,3,4)	8	'R'	
X_VALUE (1,3,5)	8	'T'	
X_VALUE (1,3,6)	8	'E'	
X_VALUE (1,3,7)	8	'D'	
Padding bits	COMPUTED	COMPUTED	

Message 4: (ETCS=> STM) Specific STM Data to STM (test request acknowledgement by the driver)			
VARIABLE	Length	VALUE	COMMENTS
NID_STM	8	FINITE VALUE	
L_MESSAGE	8	COMPUTED	
NID_PACKET	8	180	Specific STM Data to STM
L_PACKET	13	COMPUTED	
N_ITER	5	1	
NID_STM(1)	8	FINITE VALUE	Use the palette of the STM to be tested or simulated
NID_DATA(1)	8	1	
L_VALUE(1)	8	9	
X_VALUE (1,1)	8	'S'	
X_VALUE (1,2)	8	'T'	
X_VALUE (1,3)	8	'A'	
X_VALUE (1,4)	8	'T'	
X_VALUE (1,5)	8	'U'	
X_VALUE (1,6)	8	'S'	
X_VALUE (1,7)	8	' '	
X_VALUE (1,8)	8	'O'	
X_VALUE (1,9)	8	'K'	
Padding bits	COMPUTED	COMPUTED	

Message 5: (STM => ETCS) Specific Data Entry (test request).			
VARIABLE	Length	VALUE	COMMENTS
NID_STM	8	FINITE VALUE	
L_MESSAGE	8	COMPUTED	
NID_PACKET	8	15	State report from STM
L_PACKET	13	COMPUTED	
NID_STMSTATE	4	4	CS
NID_PACKET	8	179	Specific STM data entry request
L_PACKET	13	COMPUTED	
Q_DRIVERINT	1	0	
Q_FOLLOWING	1	0	

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N_ITER	5	0	
Padding bits	COMPUTED	COMPUTED	

Message 6: (ETCS => STM) Packet STM-175 TRAIN DATA, STM-176 STM-177, STM-178 ADDITIONAL Train Data.			
VARIABLE	Length	VALUE	COMMENTS
NID_STM	8	FINITE VALUE	Should be replaced by STM-1 ID when testing STM. When testing ETCS On-board a valid value should be used.
L_MESSAGE	8	COMPUTED	
NID_PACKET	8	175	Train Data
L_PACKET	13	COMPUTED	
NID_OPERATIONAL	32	FINITE VALUE	
NC_TRAIN	15	FINITE VALUE	
L_TRAIN	12	FINITE VALUE	
V_MAXTRAIN	7	FINITE VALUE	
M_LOADINGGAUGE	8	FINITE VALUE	
M_AXLELOAD	7	FINITE VALUE	
M_AIRTIGHT	2	FINITE VALUE	
N_ITER	5	0	
NID_PACKET	8	176	Train data additional 'braking characteristic' to STM
L_PACKET	13	COMPUTED	
T_BEGIN_SB_EF	16	FINITE VALUE	
T_FULL_SB_EF	16	FINITE VALUE	
N_ITER	5	0	
T_BEGIN_EB_EF	10	FINITE VALUE	
T_FULL_EB_EF	8	FINITE VALUE	
N_ITER	5	0	
T_TRQCTION_CUT_OFF	16	FINITE VALUE	
A_MAX	8	FINITE VALUE	
NID_PACKET	8	177	ETCS additional data and date / Time
L_PACKET	13	COMPUTED	
NID_DRIVER	32	FINITE VALUE	
NID_ENGINE	24	FINITE VALUE	
M_ADHESION	1	FINITE VALUE	
T_YEAR	7	FINITE VALUE	
T_MONTH	4	FINITE VALUE	
T_DAY	5	FINITE VALUE	
T_MINUTES	5	FINITE VALUE	

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T_SECONDS	6	FINITE VALUE	
T_TTS	5	FINITE VALUE	
NID_PACKET	8	178	National Value To STM
L_PACKET	13	COMPUTED	
Q_SCALE	2	FINITE VALUE	
V_NVSHUNT	7	FINITE VALUE	
V_NVSTFF	7	FINITE VALUE	
V_NVONSIGHT	7	FINITE VALUE	
V_NVUNFIT	7	FINITE VALUE	
V_NVREL	7	FINITE VALUE	
D_NVROLL	15	FINITE VALUE	
V_NVALLOWOVTRP	7	FINITE VALUE	
V_NVSUPOVTRP	7	FINITE VALUE	
D_NVOVTRP	15	FINITE VALUE	
T_NVOVTRP	8	FINITE VALUE	
D_NVPOTRP	15	FINITE VALUE	
D_NVSTFF	15	FINITE VALUE	
Q_NVDRIVER_ADHES	1	FINITE VALUE	
Padding bits	COMPUTED	COMPUTED	

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Message 2: (ETCS=> STM) Specific STM Data to STM (test request acknowledgement by the driver)			
VARIABLE	Length	VALUE	COMMENTS
NID_STM	8	FINITE VALUE	
L_MESSAGE	8	COMPUTED	
NID_PACKET	8	180	Specific STM Data to STM
L_PACKET	13	COMPUTED	
N_ITER	5	1	
NID_STM(1)	8	FINITE VALUE	Use the palette of the STM to be tested or simulated
NID_DATA(1)	8	1	
L_VALUE(1)	8	3	
X_VALUE(1,1)	8	'Y'	
X_VALUE(1,2)	8	'E'	
X_VALUE(1,3)	8	'S'	
Padding bits	COMPUTED	COMPUTED	

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End Conditions	Value	Comments
STM_STATE	Unchanged	
ETCS Mode	SB	
ETCS Level	Unchanged	
Train State	Standstill	
Train Data	Unchanged	
Additional Data	Unchanged	
National Values	Unchanged	
STM Control Function Connection	Unchanged	
DMI Connection	Unchanged	
Odometry Data	Unchanged	
Reference Time Data	Unchanged	
TIU Connection	Unchanged	
BIU Connection	Unchanged	
JRU Connection	Unchanged	
Other connections	Unchanged	
TIU Regenerative Brake Command	Unchanged	
TIU Magnetic Shoes Command	Unchanged	
TIU Eddy Current Brake Command	Unchanged	
TIU Inhibit Passenger Emergency Brake Command	Unchanged	
TIU Pantograph Command	Unchanged	
TIU Air Tightness Command	Unchanged	
TIU Main Switch / Circuit Breaker Command	Unchanged	
TIU Traction Cut Off Command	Unchanged	
TIU Sleeping Status	Unchanged	
TIU Traction Cut Off Status	Unchanged	
TIU Direction Controller Position Status	Unchanged	
TIU Cab Status (Desk Status)	Unchanged	
BIU Status	Unchanged	
BIU Emergency Brake Command	Unchanged	
BIU Service Brake Command	Unchanged	
BIU Emergency Brake Status	Unchanged	
BIU Service Brake Status	Unchanged	
STM Version Number	Unchanged	

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ETCS Version Number		Unchanged	
Track Adhesion		Unchanged	

TEST CASE 11b.0.2.0.0.

TEST CASE HEADER	
Test case Identification	Functional identity Procedure: STM Specific Test
ETCS Requirements Tested	Subset-035: 13.2.3.1.8.
	Subset-026: None
STM Requirements Tested	Subset-035: 13.2.3.1.2; 13.2.3.1.3; 13.2.3.1.5; 13.2.3.1.6.
	Subset-026: None
Packets transmitted via FFFIS STM	STM-15, STM-136, STM-139, STM-175, STM-176, STM-177, STM-178, STM-179, STM-180.
Comments and constraints	The STM shall request Specific Test procedure with use of BIU and TUI.

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Starting Conditions	Value	Comments
STM_STATE	CS	
ETCS Mode	SB	
ETCS Level	1	
Train State	Standstill	
Train Data	Valid	
Additional Data	Valid	
National Values	Valid	
STM Control Function Connection	Established	
DMI Connection	Not established	
Odometry Data	Transmitted	
Reference Time Data	Transmitted	
TIU Connection	Not relevant	
BIU Connection	Not relevant	
JRU Connection	Not relevant	
Other connections	Not relevant	
TIU Regenerative Brake Command	Not relevant	
TIU Magnetic Shoes Command	Not relevant	
TIU Eddy Current Brake Command	Not relevant	
TIU Inhibit Passenger Emergency Brake Command	Not relevant	
TIU Pantograph Command	Not relevant	
TIU Air Tightness Command	Not relevant	
TIU Main Switch / Circuit Breaker Command	Not relevant	
TIU Traction Cut Off Command	Not relevant	
TIU Sleeping Status	Not Sleeping	
TIU Traction Cut Off Status	Not relevant	
TIU Direction Controller Position Status	Not relevant	
TIU Cab Status (Desk Status)	Desk A opened	
BIU Status	Not relevant	
BIU Emergency Brake Command	Not relevant	
BIU Service Brake Command	Not relevant	
BIU Emergency Brake Status	Not relevant	

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BIU Service Brake Status		Not relevant	
STM Version Number	Subset-026	1.0	
	Subset-035	3.0.z	
	Subset-058	3.0.z	
	Subset-056	3.0.z	
	Subset-057	3.0.z	
ETCS Version Number	Subset-026	1.0	
	Subset-035	3.0.z	
	Subset-056	3.0.z	
	Subset-057	3.0.z	
	Subset-058	3.0.z	
Track Adhesion		Not relevant	

Test case for ETCS On-board:

Step	Description/Comments	Input I/F	Input Action	DUT	Output I/F	Output action
1.	The ETCS shall sent ETCS train data entry value to STM.	-	-	ETCS	Prof	STM Control connection: Message 6: Packet STM-175 Train Data Packet STM-176 Train Data additional „braking characteristic” to STM Packet STM-177: Additional Data Values and date/time to STM Packet STM-178 National Values to STM
2.	Test request procedure is received from the STM and displayed on the DMI..	Prof	STM Control connection: Message 1: Packet STM-179 Specific STM Data Entry Request Packet STM-15 State report from STM	ETCS	DMI	Display the text to the Driver
3.	The ETCS shall return the Acknowledgement information to the STM	DMI	Acknowledgement of the Driver			STM Control connection: Message 5: Packet STM-180 Specific STM Data to STM.
4.	STM opens the connection to the TIU and to the BIU STM requests BIU and TIU information	-	-	ETCS	Prof	TIU/BIU connection: Message 4: Packet STM-139 Train Interface Status Packet STM-136 Brake Interface Status
5.	When the Specific STM test procedure is performed, a message is sent to the DMI. This message shall be acknowledged by the driver.	Prof	STM Control connection: Message 2: Packet STM-179 Specific STM Data Entry Request Packet STM-15 State report from STM	ETCS	DMI	Driver acknowledgment to the STM.

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Step	Description/Comments	Input I/F	Input Action	DUT	Output I/F	Output action
6.	The ETCS shall return the Acknowledgement information to the STM.	DMI	Acknowledgement of the Driver	ETCS	Prof	STM Control connection: Message 3: Packet STM-180 Specific STM Data to STM.
7	The ETCS will receive the end of data entry message (n_iter=0) to finish the Specific Test request procedure.	Prof	STM Control connection: Message 7: Packet STM-179 Specific STM Data Entry Request Packet STM-15 State report from STM	ETCS	-	-

Test case for STM: tested in test case 11b.0.1.0.

Message 1: (STM => ETCS) Specific Data Entry (test request).			
VARIABLE	Length	VALUE	COMMENTS
NID_STM	8	FINITE VALUE	
L_MESSAGE	8	COMPUTED	
NID_PACKET	8	15	State report from STM
L_PACKET	13	COMPUTED	
NID_STMSTATE	4	4	CS
NID_PACKET	8	179	Specific STM data entry request
L_PACKET	13	COMPUTED	
Q_DRIVERINT	1	0	
Q_FOLLOWING	1	0	
N_ITER	5	1	
NID_STM(1)	8	FINITE VALUE	Use the palette of the STM to be tested or simulated
NID_DATA(1)	8	1	
M_XATTRIBUTE(1)	10	1000000001b	Text in white on black background and no flashing
L_CAPTION(1)	5	28	
X_CAPTION(1,1)	8	'T'	
X_CAPTION(1,2)	8	'E'	
X_CAPTION(1,3)	8	'S'	
X_CAPTION(1,4)	8	'T'	
X_CAPTION(1,5)	8	'I'	
X_CAPTION(1,6)	8	' '	
X_CAPTION(1,7)	8	'I'	
X_CAPTION(1,7)	8	'S'	
X_CAPTION(1,8)	8	' '	
X_CAPTION(1,9)	8	'R'	
X_CAPTION(1,10)	8	'E'	
X_CAPTION(1,11)	8	'Q'	
X_CAPTION(1,12)	8	'U'	
X_CAPTION(1,13)	8	'E'	
X_CAPTION(1,14)	8	'S'	
X_CAPTION(1,15)	8	'T'	
X_CAPTION(1,16)	8	'E'	

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X_CAPTION(1,17)	8	'D'	
X_CAPTION(1,18)	8	' '	
X_CAPTION(1,19)	8	'B'	
X_CAPTION(1,20)	8	'Y'	
X_CAPTION(1,21)	8	' '	
X_CAPTION(1,22)	8	'S'	
X_CAPTION(1,23)	8	'T'	
X_CAPTION(1,24)	8	'M'	
X_CAPTION(1,25)	8	' '	
X_CAPTION(1,26)	8	'I'	
X_CAPTION(1,27)	8	' '	
L_VALUE(1)	8	0	
N_ITER(1)	5	2	
L_VALUE(1,1)	8	3	
X_VALUE (1,1,1)	8	'Y'	
X_VALUE (1,1,2)	8	'E'	
X_VALUE (1,1,3)	8	'S'	
L_VALUE(1,2)	8	2	
X_VALUE (1,2,1)	8	'N'	
X_VALUE (1,2,2)	8	'O'	
Padding bits	COMPUTED	COMPUTED	

Message 2: (STM => ETCS) Specific Data Entry (test request).			
VARIABLE	Length	VALUE	COMMENTS
NID_STM	8	FINITE VALUE	
L_MESSAGE	8	COMPUTED	
NID_PACKET	8	15	State report from STM
L_PACKET	13	COMPUTED	
NID_STMSTATE	4	4	CS
NID_PACKET	8	179	Specific STM data entry request
L_PACKET	13	COMPUTED	
Q_DRIVERINT	1	1	
Q_FOLLOWING	1	0	
N_ITER	5	1	
NID_STM(1)	8	FINITE VALUE	Use the palette of the STM to be tested or simulated
NID_DATA(1)	8	1	
M_XATTRIBUTE(1)	10	1000000001b	Text in white on black background and no flashing
L_CAPTION(1)	5	27	
X_CAPTION(1,1)	8	'S'	
X_CAPTION(1,2)	8	'P'	
X_CAPTION(1,3)	8	'E'	
X_CAPTION(1,4)	8	'C'	
X_CAPTION(1,5)	8	'I'	
X_CAPTION(1,6)	8	'F'	
X_CAPTION(1,7)	8	'I'	
X_CAPTION(1,8)	8	'C'	
X_CAPTION(1,9)	8	' '	
X_CAPTION(1,10)	8	'T'	
X_CAPTION(1,11)	8	'E'	
X_CAPTION(1,12)	8	'S'	
X_CAPTION(1,13)	8	'T'	
X_CAPTION(1,14)	8	' '	
X_CAPTION(1,15)	8	'R'	
X_CAPTION(1,16)	8	'E'	
X_CAPTION(1,17)	8	'Q'	
X_CAPTION(1,18)	8	'U'	

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X_CAPTION(1,19)	8	'I'	
X_CAPTION(1,20)	8	'R'	
X_CAPTION(1,21)	8	'E'	
X_CAPTION(1,22)	8	'D'	
X_CAPTION(1,23)	8	' '	
X_CAPTION(1,24)	8	'S'	
X_CAPTION(1,25)	8	'T'	
X_CAPTION(1,26)	8	'M'	
X_CAPTION(1,27)	8	'I'	
X_CAPTION(1,28)	8	' '	
L_VALUE(1)	8	0	
N_ITER(1)	5	3	
L_VALUE(1,1)	8	9	
X_VALUE (1,1,1)	8	'S'	
X_VALUE (1,1,2)	8	'T'	
X_VALUE (1,1,3)	8	'A'	
X_VALUE (1,1,4)	8	'T'	
X_VALUE (1,1,5)	8	'U'	
X_VALUE (1,1,6)	8	'S'	
X_VALUE (1,1,7)	8	' '	
X_VALUE (1,1,8)	8	'O'	
X_VALUE (1,1,9)	8	'K'	
L_VALUE(1,2)	8	10	
X_VALUE (1,2,1)	8	'S'	
X_VALUE (1,2,2)	8	'T'	
X_VALUE (1,2,3)	8	'A'	
X_VALUE (1,2,4)	8	'T'	
X_VALUE (1,2,5)	8	'U'	
X_VALUE (1,2,6)	8	'S'	
X_VALUE (1,2,7)	8	' '	
X_VALUE (1,2,8)	8	'N'	
X_VALUE (1,2,9)	8	'O'	
X_VALUE (1,2,10)	8	'K'	
L_VALUE(1,3)	8	7	

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X_VALUE (1,3,1)	8	'A'	
X_VALUE (1,3,2)	8	'B'	
X_VALUE (1,3,3)	8	'O'	
X_VALUE (1,3,4)	8	'R'	
X_VALUE (1,3,5)	8	'T'	
X_VALUE (1,3,6)	8	'E'	
X_VALUE (1,3,7)	8	'D'	
L_VALUE(1,1)	8	3	
X_VALUE (1,1,1)	8	'Y'	
X_VALUE (1,1,2)	8	'E'	
X_VALUE (1,1,3)	8	'S'	
L_VALUE(1,2)	8	2	
X_VALUE (1,2,1)	8	'N'	
X_VALUE (1,2,2)	8	'O'	
Padding bits	COMPUTED	COMPUTED	

Message 3: (ETCS=> STM) Specific STM Data to STM (test request acknowledgement by the driver)			
VARIABLE	Length	VALUE	COMMENTS
NID_STM	8	FINITE VALUE	
L_MESSAGE	8	COMPUTED	
NID_PACKET	8	180	Specific STM Data to STM
L_PACKET	13	COMPUTED	
N_ITER	5	1	
NID_STM(1)	8	FINITE VALUE	Use the palette of the STM to be tested or simulated
NID_DATA(1)	8	1	
L_VALUE(1)	8	9	
X_VALUE (1,1)	8	'S'	
X_VALUE (1,2)	8	'T'	
X_VALUE (1,3)	8	'A'	
X_VALUE (1,4)	8	'T'	
X_VALUE (1,5)	8	'U'	
X_VALUE (1,6)	8	'S'	
X_VALUE (1,7)	8	' '	
X_VALUE (1,8)	8	'O'	
X_VALUE (1,9)	8	'K'	
Padding bits	COMPUTED	COMPUTED	

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Message 4: (ETCS=> STM) TUI and BUI status to STM			
VARIABLE	Length	VALUE	COMMENTS
NID_STM	8	FINITE VALUE	
L_MESSAGE	8	COMPUTED	
NID_PACKET	8	139	TIU status
L_PACKET	13	COMPUTED	
M_TITR_C_STATUS	2	FINITE VALUE	
M_TIDIR_STATUS	3	FINITE VALUE	
M_TICAB_STATUS	3	FINITE VALUE	
NID_PACKET	8	136	BIU status
L_PACKET	13	COMPUTED	
M_BIEB_STATUS	2	FINITE VALUE	
M_BISB_STATUS	2	FINITE VALUE	
Padding bits	COMPUTED	COMPUTED	

Message 5: (ETCS=> STM) Specific STM Data to STM (test request acknowledgement by the driver)			
VARIABLE	Length	VALUE	COMMENTS
NID_STM	8	FINITE VALUE	
L_MESSAGE	8	COMPUTED	
NID_PACKET	8	180	Specific STM Data to STM
L_PACKET	13	COMPUTED	
N_ITER	5	1	
NID_STM(1)	8	FINITE VALUE	Use the palette of the STM to be tested or simulated
NID_DATA(1)	8	1	
L_VALUE(1)	8	3	
X_VALUE(1,1)	8	'Y'	
X_VALUE(1,2)	8	'E'	
X_VALUE(1,3)	8	'S'	
Padding bits	COMPUTED	COMPUTED	

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Message 6: (ETCS => STM) Packet STM-175 TRAIN DATA, STM-176 STM-177, STM-178 ADDITIONAL Train Data.			
VARIABLE	Length	VALUE	COMMENTS
NID_STM	8	FINITE VALUE	Should be replaced by STM-1 ID when testing STM. When testing ETCS On-board a valid value should be used.
L_MESSAGE	8	COMPUTED	
NID_PACKET	8	175	Train Data
L_PACKET	13	COMPUTED	
NID_OPERATIONAL	32	FINITE VALUE	
NC_TRAIN	15	FINITE VALUE	
L_TRAIN	12	FINITE VALUE	
V_MAXTRAIN	7	FINITE VALUE	
M_LOADINGGAUGE	8	FINITE VALUE	
M_AXLELOAD	7	FINITE VALUE	
M_AIRTIGHT	2	FINITE VALUE	
N_ITER	5	0	
NID_PACKET	8	176	Train data additional 'braking characteristic' to STM
L_PACKET	13	COMPUTED	
T_BEGIN_SB_EF	16	FINITE VALUE	
T_FULL_SB_EF	16	FINITE VALUE	
N_ITER	5	0	
T_BEGIN_EB_EF	10	FINITE VALUE	
T_FULL_EB_EF	8	FINITE VALUE	
N_ITER	5	0	
T_TRQCTION_CUT_OFF	16	FINITE VALUE	
A_MAX	8	FINITE VALUE	
NID_PACKET	8	177	ETCS additional data and date / Time
L_PACKET	13	COMPUTED	
NID_DRIVER	32	FINITE VALUE	
NID_ENGINE	24	FINITE VALUE	
M_ADHESION	1	FINITE VALUE	
T_YEAR	7	FINITE VALUE	
T_MONTH	4	FINITE VALUE	
T_DAY	5	FINITE VALUE	
T_MINUTES	5	FINITE VALUE	

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T_SECONDS	6	FINITE VALUE	
T_TTS	5	FINITE VALUE	
NID_PACKET	8	178	National Value To STM
L_PACKET	13	COMPUTED	
Q_SCALE	2	FINITE VALUE	
V_NVSHUNT	7	FINITE VALUE	
V_NVSTFF	7	FINITE VALUE	
V_NVONSIGHT	7	FINITE VALUE	
V_NVUNFIT	7	FINITE VALUE	
V_NVREL	7	FINITE VALUE	
D_NVROLL	15	FINITE VALUE	
V_NVALLOWOVTRP	7	FINITE VALUE	
V_NVSUPOVTRP	7	FINITE VALUE	
D_NVOVTRP	15	FINITE VALUE	
T_NVOVTRP	8	FINITE VALUE	
D_NVPOTRP	15	FINITE VALUE	
D_NVSTFF	15	FINITE VALUE	
Q_NVDRIVER_ADHES	1	FINITE VALUE	
Padding bits	COMPUTED	COMPUTED	

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Message 7: (STM => ETCS) Specific Data Entry (test request: end of procedure).			
VARIABLE	Length	VALUE	COMMENTS
NID_STM	8	FINITE VALUE	
L_MESSAGE	8	COMPUTED	
NID_PACKET	8	15	State report from STM
L_PACKET	13	COMPUTED	
NID_STMSTATE	4	4	CS
NID_PACKET	8	179	Specific STM data entry request
L_PACKET	13	COMPUTED	
Q_DRIVERINT	1	0	
Q_FOLLOWING	1	0	
N_ITER	5	0	
Padding bits	COMPUTED	COMPUTED	

End Conditions		Value	Comments
STM_STATE		Unchanged	
ETCS Mode		Unchanged	
ETCS Level		Unchanged	
Train State		Unchanged	
Train Data		Unchanged	
Additional Data		Unchanged	
National Values		Unchanged	
STM Control Function Connection		Unchanged	
DMI Connection		Unchanged	
Odometry Data		Unchanged	
Reference Time Data		Unchanged	
TIU Connection		Unchanged	
BIU Connection		Unchanged	
JRU Connection		Unchanged	
Other connections		Unchanged	
TIU Regenerative Brake Command		Unchanged	
TIU Magnetic Shoes Command		Unchanged	
TIU Eddy Current Brake Command		Unchanged	
TIU Inhibit Passenger Emergency Brake Command		Unchanged	
TIU Pantograph Command		Unchanged	
TIU Air Tightness Command		Unchanged	
TIU Main Switch / Circuit Breaker Command		Unchanged	
TIU Traction Cut Off Command		Unchanged	
TIU Sleeping Status		Unchanged	
TIU Traction Cut Off Status		Unchanged	
TIU Direction Controller Position Status		Unchanged	
TIU Cab Status (Desk Status)		Unchanged	
BIU Status		Unchanged	
BIU Emergency Brake Command		Unchanged	
BIU Service Brake Command		Unchanged	
BIU Emergency Brake Status		Unchanged	
BIU Service Brake Status		Unchanged	
STM Version Number	Subset-026	1.0	

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	Subset-035	3.0.z	
	Subset-058	3.0.z	
	Subset-056	3.0.z	
	Subset-057	3.0.z	
ETCS Version Number	Subset-026	1.0	
	Subset-035	3.0.z	
	Subset-056	3.0.z	
	Subset-057	3.0.z	
	Subset-058	3.0.z	
Track Adhesion		Unchanged	