UNISIG

ERTMS/ETCS

FFFIS STM Test cases of Functional identity 007

DMI FUNCTION: DISPLAY OF ETCS TRAIN SPEED

Total: 20 Test cases

REF: SUBSET-074-2-7-i
ISSUE: 4.0.0
DATE: 05/07/2023

Company	Technical Approval	Management approval
ALSTOM		
AZD		
CAF		
HITACHI RAIL STS		
MERMEC		
SIEMENS		
THALES		

Modification History

Issue Number Date	Section Number	Modification / Description	Author
2.9.1 2013-01-30	All	Created in line with Subset 35 issue 3.0.0 date 2010-02-29, SRS issue 3.3.0 date 2012-03-07 and ETCS DMI specification issue 3.3.0 date 2012-03-01	Bombardier Astrid Geck
2.9.2 2013-08-30	All	Updated according to comments from 2nd internal review and from ERA traceability review	Bombardier Astrid Geck
2.9.3 2013-10-31		Updated according to CR 1158 (considering impact from CR 1173)	Bombardier Astrid Geck
2.9.4 2014-02-28	No change	No change to this part of the Subset	Thomas Mandry (Alstom)
2.9.5 2014-04-24	Front page	Baseline 3 1st Maintenance pre-release version	Thomas Mandry (Alstom)
3.0.0 2014-05-09	-	Baseline 3 1st Maintenance release version	Philippe Prieels
3.0.1 2015-08-17	7i2.7-9, 7i2.13, 7i3.2, 7i3.4, 7i3.6	CR 1278: impact from CRs 1094 & 1242 and from STMWP review: Update for CR 1242	Bombardier Astrid Geck
3.0.2 2015-10-19	No change to this part of the Subset	CR 1278: Updated according to SUBSET-074v301ERAreview	Thomas Mandry (Alstom)
3.1.0 2015-12-16	-	Baseline 3 2nd release version	Thomas Mandry (Alstom)
Version 3.1.1 2022-09-29	Front page Messages	Update of company list CR1238: "M_MODESTM" changed to "M_MODE"	Thomas Mandry (Alstom)
Version 3.9.1 25/11/22	-	Formal update for the 2nd consolidation review for Baseline 4 1st release version	Sven Adomeit (Siemens)
Version 3.9.2 2023-02-16	-	Formal update for the 3rd consolidation review for Baseline 4 1st release version	Thomas Mandry (Alstom)
Version 3.9.4 2023-06-20	-	Formal update for the 4th consolidation review for Baseline 4 1st release version	Thomas Mandry (Alstom)
Version 4.0.0 05/07/2023	-	Baseline 4 1st release version	Thomas Mandry (Alstom)

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2.9 Display of ETCS train speed

2.9.1 Test Case 7i2.1

TEST CASE HEADER	
Test case identification	DMI Function
	7i2.0.1.1.1
	Test of display of ETCS train speed at automatic transition for STM with no display of ETCS train speed. STM reports HS in time. STM reports DA in time. : At start of the test the Level is 1 and STM X is in CS. The train passes a level transition announcement to level NTC for STM X and ETCS orders the STM to HS. STM reports HS in time. Then the train passes the level transition border. The ETCS orders the STM to DA. STM reports DA in time.
ERTMS/ETCS on-board requirements tested	SUBSET-035 13.2.1.7
STM requirements tested	
Packets transmitted via FFFIS STM	STM-5, STM-14, STM-15
ERTMS/ETCS on-board configuration	Customisable DMI service with configuration 7a.2 or 7a.8. The test shall be performed with both configurations.
Comments and constraints	

Starting Conditions	Value	Comments
STM State	CS	
ETCS Mode	FS	
ETCS Level	Level 1	

Train State	moving	
ETCS Train Data	not relevant	
Active DMI channel Connection	not relevant	
Other DMI channels Connections	not relevant	
TIU Connection	not relevant	
BIU Connection	not relevant	
JD Connection	not relevant	
TIU Regenerative Brake Command	not relevant	
TIU Magnetic Shoes Brake Brake Command	not relevant	
TIU Eddy Current Brake Command for Emergency Brake	not relevant	
TIU Eddy Current Brake Command for Service Brake	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 Traction Status	not relevant	
TIU Direction Controller Position Status	not relevant	
TIU Cab Status	Cab A or B active	For the test it is not relevant, what cab is active
BIU Emergency Brake Command	not relevant	
BIU Service Brake Command	not relevant	
BIU Emergency Brake Status	not relevant	
BIU Service Brake Status	not relevant	

NTC isolation status	Not isolated for all STMs	

ERTMS/ETCS on-board Test Case

Step	Description/Comments	Input I/F	Input time	Input Action	Output I/F	Output time limit	Output action
1	Level transition to NTC for STM X	BTM	T0	Message-B1: balise group received with level transition announcement to Level NTC for STM X	PROF		STM control connection: Message-E1 The ETCS orders the STM to HS. Time:T1
					DMI		The ETCS displays the level announcement in C1. The ETCS layout of the default window is kept unchanged
2	STM reports HS in due time	PROF	T1+8s	STM Control connection: Message-S1			
3	The train passes the border to level NTC for STM X	BTM	T2 > T1+10s	Message-B2: balise group received with level border to Level NTC for STM X	DMI		The driver is requested to acknowledge the level announcement.
					PROF		STM control connection: Message-E2 The ETCS reports the changed mode to the STM and orders it to DA. Time:T3
					DMI		The ETCS speed dial is shown unchanged.
4	The driver acknowledges the transition	DMI	T2+3s	The driver presses the (level announcement) ack button			
5	The STM reports DA in due time	PROF	T3+3s	STM Control Connection: Message-	DMI		The ETCS speed dial is hidden.

				S2			

Message-B1 balise 1 of 2 : Level transition announcement for Level NTC for STM X			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	0	Balise 1 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	41	Level Transition Order
Q_DIR	2	01b	Nominal
L_PACKET	13	71	
Q_SCALE	2	01b	1m scale
D_LEVELTR	15	5000	5000m
M_LEVELTR	3	1	Level NTC specified by NID_NTC
NID_NTC	8	FINITE_VALUE	NID_NTC for STM X
L_ACKLEVELTR	15	0	0m
N_ITER	5	0	no mixed level area
NID_PACKET	8	255	Finishing flag of the telegram

Message-B1 balise 2 of 2 : End of group			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	1	Balise 2 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	255	Finishing flag of the telegram

Message-E1: The ETCS orders the STM to HS			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
NID_PACKET	8	14	State order to STM (STM-14)
L_PACKET	13	25	Packet Length
NID_STMSTATEORDER	4	6	State order to HS
Padding bits	7	NOT RELEVANT	

Message-S1: STM reports HS			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
NID_PACKET	8	15	State report from STM (STM-15)
L_PACKET	13	25	Packet Length
NID_STMSTATE	4	6	State HS
Padding bits	7	0000000b	

Message-B2 balise 1 of 2 : Level transition border for Level NTC for STM X			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	0	Balise 1 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	41	Level Transition Order
Q_DIR	2	01b	Nominal

L_PACKET	13	71	
Q_SCALE	2	01b	1m scale
D_LEVELTR	15	0	0m
M_LEVELTR	3	1	Level NTC specified by NID_NTC
NID_NTC	8	FINITE_VALUE	NID_NTC for STM X
L_ACKLEVELTR	15	0	0m
N_ITER	5	0	no mixed level area
NID_PACKET	8	255	Finishing flag of the telegram

Message-B2 balise 2 of 2 : End of group			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	1	Balise 2 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	255	Finishing flag of the telegram

Message-E2: The ETCS reports the changed mode to the STM and orders it to DA

VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	10	Message Length
NID_PACKET	8	5	ETCS status data (STM-5)
L_PACKET	13	36	Packet Length
M_LEVEL	3	1	Level STM
NID_NTC	8	FINITE_VALUE	NID_NTC for STM X
M_MODE	4	13	National System
NID_PACKET	8	14	State order to STM (STM-14)
L_PACKET	13	25	Packet Length
NID_STMSTATEORDER	4	7	State order to DA
Padding bits	3	NOT RELEVANT	

Message-S2: STM reports DA			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
STM-15: PL=25, ST=7, (State DA)			

End Conditions	**Value**	**Comments**
STM State	DA	
ETCS Mode	SN	
ETCS Level	Level NTC	
Train State	not relevant	

ETCS Train Data	not relevant	
Active DMI channel Connection	not relevant	
Other DMI channels Connections	not relevant	
TIU Connection	not relevant	
BIU Connection	not relevant	
JD Connection	not relevant	
TIU Regenerative Brake Command	not relevant	
TIU Magnetic Shoes Brake Command	not relevant	
TIU Eddy Current Brake Command for Emergency Brake	not relevant	
TIU Eddy Current Brake Command for Service Brake	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 Traction Status	not relevant	
TIU Direction Controller Position Status	not relevant	
TIU Cab Status	unchanged	
BIU Emergency Brake Command	not relevant	
BIU Service Brake Command	not relevant	
BIU Emergency Brake Status	not relevant	
BIU Service Brake Status	not relevant	
NTC isolation status	unchanged	

2.9.2 Test Case 7i2.2

TEST CASE HEADER	
Test case identification	DMI Function
	7i2.0.1.2.0.1
	Test of display of ETCS train speed at automatic transition for STM with no display of ETCS train speed. STM reports HS in time. STM doesn't report DA in time. : At start of the test the Level is 1 and STM X is in CS. The train passes a level transition announcement to level NTC for STM X and ETCS orders the STM to HS. STM reports HS in time. Then the train passes the level transition border. The ETCS orders the STM to DA. STM doesn't report DA in time. The ETCS applies the emergency brake. The ETCS informs the driver about the failure of the STM.
ERTMS/ETCS on-board requirements tested	SUBSET-035 13.2.1.7
STM requirements tested	
Packets transmitted via FFFIS STM	STM-5, STM-14, STM-15
ERTMS/ETCS on-board configuration	Customisable DMI service with configuration 7a.2 or 7a.8. The test shall be performed with both configurations.
Comments and constraints	Starting conditions as for test case 7i2.1.

ERTMS/ETCS on-board Test Case

Step	Description/Comments	Input I/F	Input time	Input Action	Output I/F	Output time limit	Output action
1	Level transition to NTC for STM X	BTM	T0	Message-B1: balise group received with level transition announcement to Level NTC for STM X	PROF		STM control connection: Message-E1 The ETCS orders the STM to HS. Time:T1

					DMI		The ETCS displays the level announcement in C1. The ETCS layout of the default window is kept unchanged
2	STM reports HS in due time	PROF	T1+8s	STM Control connection: Message-S1			
3	The train passes the border to level NTC for STM X	BTM	T2 > T1+10s	Message-B2: balise group received with level border to Level NTC for STM X	DMI		The driver is requested to acknowledge the level announcement.
					PROF		STM control connection: Message-E2 The ETCS reports the changed mode to the STM and orders it to DA. Time:T3
					DMI		The ETCS speed dial is shown unchanged.
4	The driver acknowledges the transition	DMI	T2+3s	The driver presses the (level announcement) ack button			
5	The STM doesn't report DA in due time		T3	More than 5 seconds passed since stateorder by ETCS	PROF	5s + Ts2b	STM Control connection: Message E-3 ETCS orders STM to FA
					DMI	5s + Ts1b	ETCS shows message '[name of NTC for STM X] failed' with acknowledgement.
					TIU	10s	ETCS applies emergency brake

Message-B1 balise 1 of 2 : Level transition announcement for Level NTC for STM X			
VARIABLE	Length	VALUE	COMMENT

Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	0	Balise 1 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	41	Level Transition Order
Q_DIR	2	01b	Nominal
L_PACKET	13	71	
Q_SCALE	2	01b	1m scale
D_LEVELTR	15	5000	5000m
M_LEVELTR	3	1	Level NTC specified by NID_NTC
NID_NTC	8	FINITE_VALUE	NID_NTC for STM X
L_ACKLEVELTR	15	0	0m
N_ITER	5	0	no mixed level area
NID_PACKET	8	255	Finishing flag of the telegram

Message-B1 balise 2 of 2 : End of group			
VARIABLE	Length	VALUE	COMMENT

Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	1	Balise 2 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	255	Finishing flag of the telegram

Message-E1: The ETCS orders the STM to HS			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
NID_PACKET	8	14	State order to STM (STM-14)
L_PACKET	13	25	Packet Length
NID_STMSTATEORDER	4	6	State order to HS
Padding bits	7	NOT RELEVANT	

Message-S1: STM reports HS			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X

L_MESSAGE	8	6	Message Length
NID_PACKET	8	15	State report from STM (STM-15)
L_PACKET	13	25	Packet Length
NID_STMSTATE	4	6	State HS
Padding bits	7	0000000b	

Message-B2 balise 1 of 2 : Level transition border for Level NTC for STM X			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	0	Balise 1 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	41	Level Transition Order
Q_DIR	2	01b	Nominal
L_PACKET	13	71	
Q_SCALE	2	01b	1m scale
D_LEVELTR	15	0	0m

M_LEVELTR	3	1	Level NTC specified by NID_NTC
NID_NTC	8	FINITE_VALUE	NID_NTC for STM X
L_ACKLEVELTR	15	0	0m
N_ITER	5	0	no mixed level area
NID_PACKET	8	255	Finishing flag of the telegram

Message-B2 balise 2 of 2 : End of group			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	1	Balise 2 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	255	Finishing flag of the telegram

Message-E2: The ETCS reports the changed mode to the STM and orders it to DA			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	10	Message Length

NID_PACKET	8	5	ETCS status data (STM-5)
L_PACKET	13	36	Packet Length
M_LEVEL	3	1	Level STM
NID_NTC	8	FINITE_VALUE	NID_NTC for STM X
M_MODE	4	13	National System
NID_PACKET	8	14	State order to STM (STM-14)
L_PACKET	13	25	Packet Length
NID_STMSTATEORDER	4	7	State order to DA
Padding bits	3	NOT RELEVANT	

Message-E3: The ETCS orders the STM to FA			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
STM-14: PL=25, STO=8, (State order to FA)			

End Conditions	**Value**	**Comments**
STM State	FA	
ETCS Mode	SN	
ETCS Level	Level NTC	
Train State	not relevant	
ETCS Train Data	not relevant	
Active DMI channel Connection	not relevant	
Other DMI channels Connections	not relevant	

TIU Connection	not relevant	
BIU Connection	not relevant	
JD Connection	not relevant	
TIU Regenerative Brake Command	not relevant	
TIU Magnetic Shoes Brake Command	not relevant	
TIU Eddy Current Brake Command for Emergency Brake	not relevant	
TIU Eddy Current Brake Command for Service Brake	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 Traction Status	not relevant	
TIU Direction Controller Position Status	not relevant	
TIU Cab Status	unchanged	
BIU Emergency Brake Command	not relevant	
BIU Service Brake Command	not relevant	
BIU Emergency Brake Status	not relevant	
BIU Service Brake Status	not relevant	
NTC isolation status	unchanged	

2.9.3 Test Case 7i2.3

TEST CASE HEADER

Test case identification	DMI Function
	7i2.0.1.3.0.1
	Test of display of ETCS train speed at automatic transition for STM with no display of ETCS train speed. STM reports HS in time. STM reports FA after order to DA. : At start of the test the Level is 1 and STM X is in CS. The train passes a level transition announcement to level NTC for STM X and ETCS orders the STM to HS. STM reports HS in time. Then the train passes the level transition border. The ETCS orders the STM to DA. STM reports FA after order to DA. The ETCS applies the emergency brake. The ETCS informs the driver about the failure of the STM.
ERTMS/ETCS on-board requirements tested	SUBSET-035 13.2.1.7
STM requirements tested	
Packets transmitted via FFFIS STM	STM-5, STM-14, STM-15
ERTMS/ETCS on-board configuration	Customisable DMI service with configuration 7a.2 or 7a.8. The test shall be performed with both configurations.
Comments and constraints	Starting conditions as for test case 7i2.1.

ERTMS/ETCS on-board Test Case

Step	Description/Comments	Input I/F	Input time	Input Action	Output I/F	Output time limit	Output action
1	Level transition to NTC for STM X	BTM	T0	Message-B1: balise group received with level transition announcement to Level NTC for STM X	PROF		STM control connection: Message-E1 The ETCS orders the STM to HS. Time:T1
					DMI		The ETCS displays the level announcement in C1. The ETCS layout of the default window is kept

							unchanged
2	STM reports HS in due time	PROF	T1+8s	STM Control connection: Message-S1			
3	The train passes the border to level NTC for STM X	BTM	T2 > T1+10s	Message-B2: balise group received with level border to Level NTC for STM X	DMI		The driver is requested to acknowledge the level announcement.
					PROF		STM control connection: Message-E2 The ETCS reports the changed mode to the STM and orders it to DA. Time:T3
					DMI		The ETCS speed dial is shown unchanged.
4	The driver acknowledges the transition	DMI	T2+3s	The driver presses the (level announcement) ack button			
5	The STM reports FA	PROF	T3+3s	STM Control Connection: Message-S2	DMI	Ts1c	ETCS shows message '[name of NTC for STM X] failed' with acknowledgement.
					TIU		ETCS applies emergency brake

Message-B1 balise 1 of 2 : Level transition announcement for Level NTC for STM X			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	0	Balise 1 of group
N_TOTAL	3	1	2 balises in group

M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	41	Level Transition Order
Q_DIR	2	01b	Nominal
L_PACKET	13	71	
Q_SCALE	2	01b	1m scale
D_LEVELTR	15	5000	5000m
M_LEVELTR	3	1	Level NTC specified by NID_NTC
NID_NTC	8	FINITE_VALUE	NID_NTC for STM X
L_ACKLEVELTR	15	0	0m
N_ITER	5	0	no mixed level area
NID_PACKET	8	255	Finishing flag of the telegram

Message-B1 balise 2 of 2 : End of group			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	1	Balise 2 of group
N_TOTAL	3	1	2 balises in group

M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	255	Finishing flag of the telegram

Message-E1: The ETCS orders the STM to HS			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
NID_PACKET	8	14	State order to STM (STM-14)
L_PACKET	13	25	Packet Length
NID_STMSTATEORDER	4	6	State order to HS
Padding bits	7	NOT RELEVANT	

Message-S1: STM reports HS			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
NID_PACKET	8	15	State report from STM (STM-15)
L_PACKET	13	25	Packet Length
NID_STMSTATE	4	6	State HS
Padding bits	7	0000000b	

Message-B2 balise 1 of 2 : Level transition border for Level NTC for STM X			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	0	Balise 1 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	41	Level Transition Order
Q_DIR	2	01b	Nominal
L_PACKET	13	71	
Q_SCALE	2	01b	1m scale
D_LEVELTR	15	0	0m
M_LEVELTR	3	1	Level NTC specified by NID_NTC
NID_NTC	8	FINITE_VALUE	NID_NTC for STM X
L_ACKLEVELTR	15	0	0m
N_ITER	5	0	no mixed level area
NID_PACKET	8	255	Finishing flag of the telegram

Message-B2 balise 2 of 2 : End of group			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	1	Balise 2 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	255	Finishing flag of the telegram

Message-E2: The ETCS reports the changed mode to the STM and orders it to DA			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	10	Message Length
NID_PACKET	8	5	ETCS status data (STM-5)
L_PACKET	13	36	Packet Length
M_LEVEL	3	1	Level STM
NID_NTC	8	FINITE_VALUE	NID_NTC for STM X
M_MODE	4	13	National System

NID_PACKET	8	14	State order to STM (STM-14)
L_PACKET	13	25	Packet Length
NID_STMSTATEORDER	4	7	State order to DA
Padding bits	3	NOT RELEVANT	

Message-S2: STM reports FA			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
STM-15: PL=25, ST=8, (State FA)			

End Conditions	**Value**	**Comments**
STM State	FA	
ETCS Mode	SN	
ETCS Level	Level NTC	
Train State	not relevant	
ETCS Train Data	not relevant	
Active DMI channel Connection	not relevant	
Other DMI channels Connections	not relevant	
TIU Connection	not relevant	
BIU Connection	not relevant	
JD Connection	not relevant	
TIU Regenerative Brake Command	not relevant	
TIU Magnetic Shoes Brake Command	not relevant	

TIU Eddy Current Brake Command for Emergency Brake	not relevant	
TIU Eddy Current Brake Command for Service Brake	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 Traction Status	not relevant	
TIU Direction Controller Position Status	not relevant	
TIU Cab Status	unchanged	
BIU Emergency Brake Command	not relevant	
BIU Service Brake Command	not relevant	
BIU Emergency Brake Status	not relevant	
BIU Service Brake Status	not relevant	
NTC isolation status	unchanged	

2.9.4 Test Case 7i2.4

TEST CASE HEADER	
Test case identification	DMI Function
	7i2.0.2.0.1
	Test of display of ETCS train speed at automatic transition for STM with no display of ETCS train speed. STM reports FA after order to HS. : At start of the test the Level is 1 and STM X is in CS. The train passes a level transition announcement to level NTC for STM X and ETCS orders the STM to HS. STM reports FA after order to HS. Then the train passes the level transition border. The ETCS

	applies the emergency brake. The ETCS informs the driver about the failure of the STM.
ERTMS/ETCS on-board requirements tested	SUBSET-035 13.2.1.7
STM requirements tested	
Packets transmitted via FFFIS STM	STM-14, STM-15
ERTMS/ETCS on-board configuration	Customisable DMI service with configuration 7a.2 or 7a.8. The test shall be performed with both configurations.
Comments and constraints	Starting conditions as for test case 7i2.1.

ERTMS/ETCS on-board Test Case

Step	Description/Comments	Input I/F	Input time	Input Action	Output I/F	Output time limit	Output action
1	Level transition to NTC for STM X	BTM	T0	Message-B1: balise group received with level transition announcement to Level NTC for STM X	PROF		STM control connection: Message-E1 The ETCS orders the STM to HS. Time:T1
					DMI		The ETCS displays the level announcement in C1. The ETCS layout of the default window is kept unchanged
2	STM reports FA	PROF	T1+8s	STM Control connection: Message-S1	DMI	Ts1c	ETCS shows message '[name of NTC for STM X] failed' with acknowledgement
3	The train passes the border to level NTC for STM X	BTM	T2 > T1+10s	Message-B2: balise group received with level border to Level NTC for STM X	DMI		The driver is requested to acknowledge the level announcement.

					TIU		The ETCS applies the emergency brake.
					DMI		The ETCS speed dial is shown unchanged.
4	The driver acknowledges the transition	DMI	T2+3s	The driver presses the (level announcement) ack button	TIU		The ETCS keeps the emergency brake

Message-B1 balise 1 of 2 : Level transition announcement for Level NTC for STM X			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	0	Balise 1 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	41	Level Transition Order
Q_DIR	2	01b	Nominal
L_PACKET	13	71	
Q_SCALE	2	01b	1m scale
D_LEVELTR	15	5000	5000m

M_LEVELTR	3	1	Level NTC specified by NID_NTC
NID_NTC	8	FINITE_VALUE	NID_NTC for STM X
L_ACKLEVELTR	15	0	0m
N_ITER	5	0	no mixed level area
NID_PACKET	8	255	Finishing flag of the telegram

Message-B1 balise 2 of 2 : End of group			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	1	Balise 2 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	255	Finishing flag of the telegram

Message-E1: The ETCS orders the STM to HS			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length

NID_PACKET	8	14	State order to STM (STM-14)
L_PACKET	13	25	Packet Length
NID_STMSTATEORDER	4	6	State order to HS
Padding bits	7	NOT RELEVANT	

Message-S1: STM reports FA			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
NID_PACKET	8	15	State report from STM (STM-15)
L_PACKET	13	25	Packet Length
NID_STMSTATE	4	8	State FA
Padding bits	7	0000000b	

Message-B2 balise 1 of 2 : Level transition border for Level NTC for STM X			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	0	Balise 1 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region

NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	41	Level Transition Order
Q_DIR	2	01b	Nominal
L_PACKET	13	71	
Q_SCALE	2	01b	1m scale
D_LEVELTR	15	0	0m
M_LEVELTR	3	1	Level NTC specified by NID_NTC
NID_NTC	8	FINITE_VALUE	NID_NTC for STM X
L_ACKLEVELTR	15	0	0m
N_ITER	5	0	no mixed level area
NID_PACKET	8	255	Finishing flag of the telegram

Message-B2 balise 2 of 2 : End of group			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	1	Balise 2 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region

NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	255	Finishing flag of the telegram

End Conditions	Value	Comments
STM State	FA	
ETCS Mode	SN	
ETCS Level	Level NTC	
Train State	not relevant	
ETCS Train Data	not relevant	
Active DMI channel Connection	not relevant	
Other DMI channels Connections	not relevant	
TIU Connection	not relevant	
BIU Connection	not relevant	
JD Connection	not relevant	
TIU Regenerative Brake Command	not relevant	
TIU Magnetic Shoes Brake Command	not relevant	
TIU Eddy Current Brake Command for Emergency Brake	not relevant	
TIU Eddy Current Brake Command for Service Brake	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 Traction Status	not relevant	
TIU Direction Controller Position Status	not relevant	
TIU Cab Status	unchanged	
BIU Emergency Brake Command	not relevant	
BIU Service Brake Command	not relevant	
BIU Emergency Brake Status	not relevant	
BIU Service Brake Status	not relevant	
NTC isolation status	unchanged	

2.9.5 Test Case 7i2.5

TEST CASE HEADER	
Test case identification	DMI Function
	7i2.0.3.0.1
	Test of display of ETCS train speed at automatic transition for STM with no display of ETCS train speed. STM doesn't report HS in time. : At start of the test the Level is 1 and STM X is in CS. The train passes a level transition announcement to level NTC for STM X and ETCS orders the STM to HS. STM doesn't report HS in time. Then the train passes the level transition border. The ETCS applies the emergency brake. The ETCS informs the driver about the failure of the STM.
ERTMS/ETCS on-board requirements tested	SUBSET-035 13.2.1.7
STM requirements tested	
Packets transmitted via FFFIS STM	STM-14

ERTMS/ETCS on-board configuration	Customisable DMI service with configuration 7a.2 or 7a.8. The test shall be performed with both configurations.
Comments and constraints	Starting conditions as for test case 7i2.1.

ERTMS/ETCS on-board Test Case

Step	Description/Comments	Input I/F	Input time	Input Action	Output I/F	Output time limit	Output action
1	Level transition to NTC for STM X	BTM	T0	Message-B1: balise group received with level transition announcement to Level NTC for STM X	PROF		STM control connection: Message-E1 The ETCS orders the STM to HS. Time:T1
					DMI		The ETCS displays the level announcement in C1. The ETCS layout of the default window is kept unchanged
2	STM doesn't report HS in due time		T1	More than 10 seconds passed since stateorder by ETCS	PROF	10s + Ts2a	STM Control connection: Message E-2 ETCS orders STM to FA
					DMI	10s + Ts1a	ETCS shows message '[name of NTC for STM X] failed' with acknowledgement
3	The train passes the border to level NTC for STM X	BTM	T2 > T1+10s	Message-B2: balise group received with level border to Level NTC for STM X	DMI		The driver is requested to acknowledge the level announcement.
					TIU		The ETCS applies the emergency brake.
					DMI		The ETCS speed dial is shown unchanged.

4	The driver acknowledges the transition	DMI	T2+3s	The driver presses the (level announcement) ack button	TIU		The ETCS keeps the emergency brake

Message-B1 balise 1 of 2 : Level transition announcement for Level NTC for STM X			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	0	Balise 1 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	41	Level Transition Order
Q_DIR	2	01b	Nominal
L_PACKET	13	71	
Q_SCALE	2	01b	1m scale
D_LEVELTR	15	5000	5000m
M_LEVELTR	3	1	Level NTC specified by NID_NTC
NID_NTC	8	FINITE_VALUE	NID_NTC for STM X
L_ACKLEVELTR	15	0	0m
N_ITER	5	0	no mixed level area

NID_PACKET	8	255	Finishing flag of the telegram

Message-B1 balise 2 of 2 : End of group			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	1	Balise 2 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	255	Finishing flag of the telegram

Message-E1: The ETCS orders the STM to HS			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
NID_PACKET	8	14	State order to STM (STM-14)
L_PACKET	13	25	Packet Length
NID_STMSTATEORDER	4	6	State order to HS
Padding bits	7	NOT RELEVANT	

Message-E2: The ETCS orders the STM to FA			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
STM-14: PL=25, STO=8, (State order to FA)			

Message-B2 balise 1 of 2 : Level transition border for Level NTC for STM X			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	0	Balise 1 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	41	Level Transition Order
Q_DIR	2	01b	Nominal
L_PACKET	13	71	
Q_SCALE	2	01b	1m scale
D_LEVELTR	15	0	0m

M_LEVELTR	3	1	Level NTC specified by NID_NTC
NID_NTC	8	FINITE_VALUE	NID_NTC for STM X
L_ACKLEVELTR	15	0	0m
N_ITER	5	0	no mixed level area
NID_PACKET	8	255	Finishing flag of the telegram

Message-B2 balise 2 of 2 : End of group			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	1	Balise 2 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	255	Finishing flag of the telegram

End Conditions	**Value**	**Comments**
STM State	FA	
ETCS Mode	SN	
ETCS Level	Level NTC	

Train State	not relevant	
ETCS Train Data	not relevant	
Active DMI channel Connection	not relevant	
Other DMI channels Connections	not relevant	
TIU Connection	not relevant	
BIU Connection	not relevant	
JD Connection	not relevant	
TIU Regenerative Brake Command	not relevant	
TIU Magnetic Shoes Brake Command	not relevant	
TIU Eddy Current Brake Command for Emergency Brake	not relevant	
TIU Eddy Current Brake Command for Service Brake	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 Traction Status	not relevant	
TIU Direction Controller Position Status	not relevant	
TIU Cab Status	unchanged	
BIU Emergency Brake Command	not relevant	
BIU Service Brake Command	not relevant	
BIU Emergency Brake Status	not relevant	
BIU Service Brake Status	not relevant	

NTC isolation status	unchanged	

2.9.6 Test Case 7i2.6

TEST CASE HEADER	
Test case identification	DMI Function
	7i2.0.4.0.0.1
	Test of display of ETCS train speed at automatic transition for STM with no display of ETCS train speed. STM reports PO after order to HS. : At start of the test the Level is 1 and STM X is in CS. The train passes a level transition announcement to level NTC for STM X and ETCS orders the STM to HS. STM reports PO after order to HS. Then the train passes the level transition border. The ETCS applies the emergency brake. The ETCS informs the driver about the failure of the STM.
ERTMS/ETCS on-board requirements tested	SUBSET-035 13.2.1.7
STM requirements tested	
Packets transmitted via FFFIS STM	STM-14, STM-15
ERTMS/ETCS on-board configuration	Customisable DMI service with configuration 7a.2 or 7a.8. The test shall be performed with both configurations.
Comments and constraints	Starting conditions as for test case 7i2.1.

ERTMS/ETCS on-board Test Case

Step	Description/Comments	Input I/F	Input time	Input Action	Output I/F	Output time limit	Output action
1	Level transition to NTC for STM X	BTM	T0	Message-B1: balise group received with level transition announcement	PROF		STM control connection: Message-E1

				to Level NTC for STM X			The ETCS orders the STM to HS. Time:T1
					DMI		The ETCS displays the level announcement in C1. The ETCS layout of the default window is kept unchanged
2	STM reports PO	PROF	T1+8s	STM Control connection: Message-S1			
3	STM doesn't report HS in due time		T1	More than 10 seconds passed since stateorder by ETCS	PROF	10s + Ts2a	STM Control connection: Message E-2 ETCS orders STM to FA
					DMI	10s + Ts1a	ETCS shows message '[name of NTC for STM X] failed' with acknowledgement
4	The train passes the border to level NTC for STM X	BTM	T2 > T1+10s	Message-B2: balise group received with level border to Level NTC for STM X	DMI		The driver is requested to acknowledge the level announcement.
					TIU		The ETCS applies the emergency brake.
					DMI		The ETCS speed dial is shown unchanged.
5	The driver acknowledges the transition	DMI	T2+3s	The driver presses the (level announcement) ack button	TIU		The ETCS keeps the emergency brake

Message-B1 balise 1 of 2 : Level transition announcement for Level NTC for STM X			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system

Q_MEDIA	1	0	Balise
N_PIG	3	0	Balise 1 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	41	Level Transition Order
Q_DIR	2	01b	Nominal
L_PACKET	13	71	
Q_SCALE	2	01b	1m scale
D_LEVELTR	15	5000	5000m
M_LEVELTR	3	1	Level NTC specified by NID_NTC
NID_NTC	8	FINITE_VALUE	NID_NTC for STM X
L_ACKLEVELTR	15	0	0m
N_ITER	5	0	no mixed level area
NID_PACKET	8	255	Finishing flag of the telegram

Message-B1 balise 2 of 2 : End of group			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system

Q_MEDIA	1	0	Balise
N_PIG	3	1	Balise 2 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	255	Finishing flag of the telegram

Message-E1: The ETCS orders the STM to HS			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
NID_PACKET	8	14	State order to STM (STM-14)
L_PACKET	13	25	Packet Length
NID_STMSTATEORDER	4	6	State order to HS
Padding bits	7	NOT RELEVANT	

Message-S1: STM reports PO			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
NID_PACKET	8	15	State report from STM (STM-15)

L_PACKET	13	25	Packet Length
NID_STMSTATE	4	1	State PO
Padding bits	7	0000000b	

Message-E2: The ETCS orders the STM to FA			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
STM-14: PL=25, STO=8, (State order to FA)			

Message-B2 balise 1 of 2 : Level transition border for Level NTC for STM X			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	0	Balise 1 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	41	Level Transition Order
Q_DIR	2	01b	Nominal

L_PACKET	13	71	
Q_SCALE	2	01b	1m scale
D_LEVELTR	15	0	0m
M_LEVELTR	3	1	Level NTC specified by NID_NTC
NID_NTC	8	FINITE_VALUE	NID_NTC for STM X
L_ACKLEVELTR	15	0	0m
N_ITER	5	0	no mixed level area
NID_PACKET	8	255	Finishing flag of the telegram

Message-B2 balise 2 of 2 : End of group			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	1	Balise 2 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	255	Finishing flag of the telegram

End Conditions	**Value**	**Comments**

STM State	FA	
ETCS Mode	SN	
ETCS Level	Level NTC	
Train State	not relevant	
ETCS Train Data	not relevant	
Active DMI channel Connection	not relevant	
Other DMI channels Connections	not relevant	
TIU Connection	not relevant	
BIU Connection	not relevant	
JD Connection	not relevant	
TIU Regenerative Brake Command	not relevant	
TIU Magnetic Shoes Brake Command	not relevant	
TIU Eddy Current Brake Command for Emergency Brake	not relevant	
TIU Eddy Current Brake Command for Service Brake	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 Traction Status	not relevant	
TIU Direction Controller Position Status	not relevant	
TIU Cab Status	unchanged	
BIU Emergency Brake Command	not relevant	

BIU Service Brake Command	not relevant	
BIU Emergency Brake Status	not relevant	
BIU Service Brake Status	not relevant	
NTC isolation status	unchanged	

2.9.7 Test Case 7i2.7

TEST CASE HEADER	
Test case identification	DMI Function
	7i2.0.1.1.2
	Test of display of ETCS train speed at automatic transition for STM with display of ETCS train speed. STM reports HS in time. STM reports DA in time. : At start of the test the Level is 1 and STM X is in CS. The train passes a level transition announcement to level NTC for STM X and ETCS orders the STM to HS. STM reports HS in time. Then the train passes the level transition border. The ETCS orders the STM to DA. STM reports DA in time.
ERTMS/ETCS on-board requirements tested	SUBSET-035 13.2.1.7
	ERA ERTMS 015560 (DMI Spec) 9.3.7.1.10
STM requirements tested	
Packets transmitted via FFFIS STM	STM-5, STM-14, STM-15
ERTMS/ETCS on-board configuration	Unified DMI service (7a.1) or Customisable DMI service with configuration 7a.3, 7a.4, 7a.5, 7a.6, 7a.7 or 7a.9. The test shall be performed at least with configurations 7a.1 and 7a.5.
Comments and constraints	Starting conditions as for test case 7i2.1.

ERTMS/ETCS on-board Test Case

Step	Description/Comments	Input I/F	Input time	Input Action	Output I/F	Output time limit	Output action
1	Level transition to NTC for STM X	BTM	T0	Message-B1: balise group received with level transition announcement to Level NTC for STM X	PROF		STM control connection: Message-E1 The ETCS orders the STM to HS. Time:T1
					DMI		The ETCS displays the level announcement in C1. The ETCS layout of the default window is kept unchanged
2	STM reports HS in due time	PROF	T1+8s	STM Control connection: Message-S1			
3	The train passes the border to level NTC for STM X	BTM	T2 > T1+10s	Message-B2: balise group received with level border to Level NTC for STM X	DMI		The driver is requested to acknowledge the level announcement.
					PROF		STM control connection: Message-E2 The ETCS reports the changed mode to the STM and orders it to DA. Time:T3
					DMI	Ts3a	If the speed range configured for the STM is different from the speed range configured for the ETCS it is changed to the STM range. The Current Speed pointer is displayed in grey. If ETCS areas are moved by the configuration of the STM they are moved.

4	The driver acknowledges the transition	DMI	T2+3s	The driver presses the (level announcement) ack button			
5	The STM reports DA in due time	PROF	T3+3s	STM Control Connection: Message-S2	DMI		The ETCS speed dial is shown with the range configured for the STM

Message-B1 balise 1 of 2 : Level transition announcement for Level NTC for STM X			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	0	Balise 1 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	41	Level Transition Order
Q_DIR	2	01b	Nominal
L_PACKET	13	71	
Q_SCALE	2	01b	1m scale
D_LEVELTR	15	5000	5000m
M_LEVELTR	3	1	Level NTC specified by NID_NTC
NID_NTC	8	FINITE_VALUE	NID_NTC for STM X

L_ACKLEVELTR	15	0	0m
N_ITER	5	0	no mixed level area
NID_PACKET	8	255	Finishing flag of the telegram

Message-B1 balise 2 of 2 : End of group			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	1	Balise 2 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	255	Finishing flag of the telegram

Message-E1: The ETCS orders the STM to HS			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
NID_PACKET	8	14	State order to STM (STM-14)
L_PACKET	13	25	Packet Length

NID_STMSTATEORDER	4	6	State order to HS
Padding bits	7	NOT RELEVANT	

Message-S1: STM reports HS			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
NID_PACKET	8	15	State report from STM (STM-15)
L_PACKET	13	25	Packet Length
NID_STMSTATE	4	6	State HS
Padding bits	7	0000000b	

Message-B2 balise 1 of 2 : Level transition border for Level NTC for STM X			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	0	Balise 1 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked

NID_PACKET	8	41	Level Transition Order
Q_DIR	2	01b	Nominal
L_PACKET	13	71	
Q_SCALE	2	01b	1m scale
D_LEVELTR	15	0	0m
M_LEVELTR	3	1	Level NTC specified by NID_NTC
NID_NTC	8	FINITE_VALUE	NID_NTC for STM X
L_ACKLEVELTR	15	0	0m
N_ITER	5	0	no mixed level area
NID_PACKET	8	255	Finishing flag of the telegram

Message-B2 balise 2 of 2 : End of group			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	1	Balise 2 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked

NID_PACKET	8	255	Finishing flag of the telegram

Message-E2: The ETCS reports the changed mode to the STM and orders it to DA			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	10	Message Length
NID_PACKET	8	5	ETCS status data (STM-5)
L_PACKET	13	36	Packet Length
M_LEVEL	3	1	Level STM
NID_NTC	8	FINITE_VALUE	NID_NTC for STM X
M_MODE	4	13	National System
NID_PACKET	8	14	State order to STM (STM-14)
L_PACKET	13	25	Packet Length
NID_STMSTATEORDER	4	7	State order to DA
Padding bits	3	NOT RELEVANT	

Message-S2: STM reports DA			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
STM-15: PL=25, ST=7, (State DA)			

End Conditions	**Value**	**Comments**
STM State	DA	

ETCS Mode	SN	
ETCS Level	Level NTC	
Train State	not relevant	
ETCS Train Data	not relevant	
Active DMI channel Connection	not relevant	
Other DMI channels Connections	not relevant	
TIU Connection	not relevant	
BIU Connection	not relevant	
JD Connection	not relevant	
TIU Regenerative Brake Command	not relevant	
TIU Magnetic Shoes Brake Command	not relevant	
TIU Eddy Current Brake Command for Emergency Brake	not relevant	
TIU Eddy Current Brake Command for Service Brake	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 Traction Status	not relevant	
TIU Direction Controller Position Status	not relevant	
TIU Cab Status	unchanged	
BIU Emergency Brake Command	not relevant	
BIU Service Brake Command	not relevant	

BIU Emergency Brake Status	not relevant	
BIU Service Brake Status	not relevant	
NTC isolation status	unchanged	

2.9.8 Test Case 7i2.8

TEST CASE HEADER	
Test case identification	DMI Function
	7i2.0.1.2.0.2
	Test of display of ETCS train speed at automatic transition for STM with display of ETCS train speed. STM reports HS in time. STM doesn't report DA in time. : At start of the test the Level is 1 and STM X is in CS. The train passes a level transition announcement to level NTC for STM X and ETCS orders the STM to HS. STM reports HS in time. Then the train passes the level transition border. The ETCS orders the STM to DA. STM doesn't report DA in time. The ETCS applies the emergency brake. The ETCS informs the driver about the failure of the STM.
ERTMS/ETCS on-board requirements tested	SUBSET-035 13.2.1.7
	ERA ERTMS 015560 (DMI Spec) 9.3.7.1.10
STM requirements tested	
Packets transmitted via FFFIS STM	STM-5, STM-14, STM-15
ERTMS/ETCS on-board configuration	Unified DMI service (7a.1) or Customisable DMI service with configuration 7a.3, 7a.4, 7a.5, 7a.6, 7a.7 or 7a.9. The test shall be performed at least with configurations 7a.1 and 7a.5.
Comments and constraints	Starting conditions as for test case 7i2.1.

ERTMS/ETCS on-board Test Case

Step	Description/Comments	Input I/F	Input	Input Action	Output	Output	Output action

			time		I/F	time limit	
1	Level transition to NTC for STM X	BTM	T0	Message-B1: balise group received with level transition announcement to Level NTC for STM X	PROF		STM control connection: Message-E1 The ETCS orders the STM to HS. Time:T1
					DMI		The ETCS displays the level announcement in C1. The ETCS layout of the default window is kept unchanged
2	STM reports HS in due time	PROF	T1+8s	STM Control connection: Message-S1			
3	The train passes the border to level NTC for STM X	BTM	T2 > T1+10s	Message-B2: balise group received with level border to Level NTC for STM X	DMI		The driver is requested to acknowledge the level announcement.
					PROF		STM control connection: Message-E2 The ETCS reports the changed mode to the STM and orders it to DA. Time:T3
					DMI	Ts3a	If the speed range configured for the STM is different from the speed range configured for the ETCS it is changed to the STM range. The Current Speed pointer is displayed in grey. If ETCS areas are moved by the configuration of the STM they are moved.
4	The driver acknowledges the	DMI	T2+3s	The driver presses the (level			

	transition			announcement) ack button			
5	The STM doesn't report DA in due time		T3	More than 5 seconds passed since stateorder by ETCS	PROF	5s + Ts2b	STM Control connection: Message E-3 ETCS orders STM to FA
					DMI	5s + Ts1b	ETCS shows message '[name of NTC for STM X] failed' with acknowledgement.
					TIU	10s	ETCS applies emergency brake
					DMI	5s + Ts3d	If the speed dial range was changed for the STM, it is changed back to the ETCS configured range. If ETCS areas were moved for the STM, they are moved back.

Message-B1 balise 1 of 2 : Level transition announcement for Level NTC for STM X			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	0	Balise 1 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group

Q_LINK	1	0	Unlinked
NID_PACKET	8	41	Level Transition Order
Q_DIR	2	01b	Nominal
L_PACKET	13	71	
Q_SCALE	2	01b	1m scale
D_LEVELTR	15	5000	5000m
M_LEVELTR	3	1	Level NTC specified by NID_NTC
NID_NTC	8	FINITE_VALUE	NID_NTC for STM X
L_ACKLEVELTR	15	0	0m
N_ITER	5	0	no mixed level area
NID_PACKET	8	255	Finishing flag of the telegram

Message-B1 balise 2 of 2 : End of group			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	1	Balise 2 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group

Q_LINK	1	0	Unlinked
NID_PACKET	8	255	Finishing flag of the telegram

Message-E1: The ETCS orders the STM to HS			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
NID_PACKET	8	14	State order to STM (STM-14)
L_PACKET	13	25	Packet Length
NID_STMSTATEORDER	4	6	State order to HS
Padding bits	7	NOT RELEVANT	

Message-S1: STM reports HS			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
NID_PACKET	8	15	State report from STM (STM-15)
L_PACKET	13	25	Packet Length
NID_STMSTATE	4	6	State HS
Padding bits	7	0000000b	

Message-B2 balise 1 of 2 : Level transition border for Level NTC for STM X			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram

M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	0	Balise 1 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	41	Level Transition Order
Q_DIR	2	01b	Nominal
L_PACKET	13	71	
Q_SCALE	2	01b	1m scale
D_LEVELTR	15	0	0m
M_LEVELTR	3	1	Level NTC specified by NID_NTC
NID_NTC	8	FINITE_VALUE	NID_NTC for STM X
L_ACKLEVELTR	15	0	0m
N_ITER	5	0	no mixed level area
NID_PACKET	8	255	Finishing flag of the telegram

Message-B2 balise 2 of 2 : End of group			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram

M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	1	Balise 2 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	255	Finishing flag of the telegram

Message-E2: The ETCS reports the changed mode to the STM and orders it to DA			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	10	Message Length
NID_PACKET	8	5	ETCS status data (STM-5)
L_PACKET	13	36	Packet Length
M_LEVEL	3	1	Level STM
NID_NTC	8	FINITE_VALUE	NID_NTC for STM X
M_MODE	4	13	National System
NID_PACKET	8	14	State order to STM (STM-14)
L_PACKET	13	25	Packet Length
NID_STMSTATEORDER	4	7	State order to DA

Padding bits	3	NOT RELEVANT	

Message-E3: The ETCS orders the STM to FA			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
STM-14: PL=25, STO=8, (State order to FA)			

End Conditions	**Value**	**Comments**
STM State	FA	
ETCS Mode	SN	
ETCS Level	Level NTC	
Train State	not relevant	
ETCS Train Data	not relevant	
Active DMI channel Connection	not relevant	
Other DMI channels Connections	not relevant	
TIU Connection	not relevant	
BIU Connection	not relevant	
JD Connection	not relevant	
TIU Regenerative Brake Command	not relevant	
TIU Magnetic Shoes Brake Command	not relevant	
TIU Eddy Current Brake Command for Emergency Brake	not relevant	
TIU Eddy Current Brake Command for Service Brake	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 Traction Status	not relevant	
TIU Direction Controller Position Status	not relevant	
TIU Cab Status	unchanged	
BIU Emergency Brake Command	not relevant	
BIU Service Brake Command	not relevant	
BIU Emergency Brake Status	not relevant	
BIU Service Brake Status	not relevant	
NTC isolation status	unchanged	

2.9.9 Test Case 7i2.9

TEST CASE HEADER	
Test case identification	DMI Function
	7i2.0.1.3.0.2
	Test of display of ETCS train speed at automatic transition for STM with display of ETCS train speed. STM reports HS in time. STM reports FA after order to DA. : At start of the test the Level is 1 and STM X is in CS. The train passes a level transition announcement to level NTC for STM X and ETCS orders the STM to HS. STM reports HS in time. Then the train passes the level transition border. The ETCS orders the STM to DA. STM reports FA after order to DA. The ETCS applies the emergency brake. The ETCS informs the driver about the failure of the STM.
ERTMS/ETCS on-board	SUBSET-035 13.2.1.7

requirements tested	
	ERA ERTMS 015560 (DMI Spec) 9.3.7.1.10
STM requirements tested	
Packets transmitted via FFFIS STM	STM-5, STM-14, STM-15
ERTMS/ETCS on-board configuration	Unified DMI service (7a.1) or Customisable DMI service with configuration 7a.3, 7a.4, 7a.5, 7a.6, 7a.7 or 7a.9. The test shall be performed at least with configurations 7a.1 and 7a.5.
Comments and constraints	Starting conditions as for test case 7i2.1.

ERTMS/ETCS on-board Test Case

Step	Description/Comments	Input I/F	Input time	Input Action	Output I/F	Output time limit	Output action
1	Level transition to NTC for STM X	BTM	T0	Message-B1: balise group received with level transition announcement to Level NTC for STM X	PROF		STM control connection: Message-E1 The ETCS orders the STM to HS. Time:T1
					DMI		The ETCS displays the level announcement in C1. The ETCS layout of the default window is kept unchanged
2	STM reports HS in due time	PROF	T1+8s	STM Control connection: Message-S1			
3	The train passes the border to level NTC for STM X	BTM	T2 > T1+10s	Message-B2: balise group received with level border to Level NTC for STM X	DMI		The driver is requested to acknowledge the level announcement.
					PROF		STM control connection: Message-E2 The ETCS reports the changed

							mode to the STM and orders it to DA. Time:T3
					DMI	Ts3a	If the speed range configured for the STM is different from the speed range configured for the ETCS it is changed to the STM range. The Current Speed pointer is displayed in grey. If ETCS areas are moved by the configuration of the STM they are moved.
4	The driver acknowledges the transition	DMI	T2+3s	The driver presses the (level announcement) ack button			
5	The STM reports FA	PROF	T3+3s	STM Control Connection: Message-S2	DMI	Ts1c	ETCS shows message '[name of NTC for STM X] failed' with acknowledgement.
					TIU		ETCS applies emergency brake
					DMI	Ts3c	If the speed dial range was changed for the STM, it is changed back to the ETCS configured range. If ETCS areas were moved for the STM, they are moved back.

Message-B1 balise 1 of 2 : Level transition announcement for Level NTC for STM X			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise

N_PIG	3	0	Balise 1 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	41	Level Transition Order
Q_DIR	2	01b	Nominal
L_PACKET	13	71	
Q_SCALE	2	01b	1m scale
D_LEVELTR	15	5000	5000m
M_LEVELTR	3	1	Level NTC specified by NID_NTC
NID_NTC	8	FINITE_VALUE	NID_NTC for STM X
L_ACKLEVELTR	15	0	0m
N_ITER	5	0	no mixed level area
NID_PACKET	8	255	Finishing flag of the telegram

Message-B1 balise 2 of 2 : End of group			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise

N_PIG	3	1	Balise 2 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	255	Finishing flag of the telegram

Message-E1: The ETCS orders the STM to HS			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
NID_PACKET	8	14	State order to STM (STM-14)
L_PACKET	13	25	Packet Length
NID_STMSTATEORDER	4	6	State order to HS
Padding bits	7	NOT RELEVANT	

Message-S1: STM reports HS			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
NID_PACKET	8	15	State report from STM (STM-15)
L_PACKET	13	25	Packet Length

NID_STMSTATE	4	6	State HS
Padding bits	7	0000000b	

Message-B2 balise 1 of 2 : Level transition border for Level NTC for STM X			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	0	Balise 1 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	41	Level Transition Order
Q_DIR	2	01b	Nominal
L_PACKET	13	71	
Q_SCALE	2	01b	1m scale
D_LEVELTR	15	0	0m
M_LEVELTR	3	1	Level NTC specified by NID_NTC
NID_NTC	8	FINITE_VALUE	NID_NTC for STM X
L_ACKLEVELTR	15	0	0m

N_ITER	5	0	no mixed level area
NID_PACKET	8	255	Finishing flag of the telegram

Message-B2 balise 2 of 2 : End of group			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	1	Balise 2 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	255	Finishing flag of the telegram

Message-E2: The ETCS reports the changed mode to the STM and orders it to DA			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	10	Message Length
NID_PACKET	8	5	ETCS status data (STM-5)
L_PACKET	13	36	Packet Length
M_LEVEL	3	1	Level STM

NID_NTC	8	FINITE_VALUE	NID_NTC for STM X
M_MODE	4	13	National System
NID_PACKET	8	14	State order to STM (STM-14)
L_PACKET	13	25	Packet Length
NID_STMSTATEORDER	4	7	State order to DA
Padding bits	3	NOT RELEVANT	

Message-S2: STM reports FA			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
STM-15: PL=25, ST=8, (State FA)			

End Conditions	**Value**	**Comments**
STM State	FA	
ETCS Mode	SN	
ETCS Level	Level NTC	
Train State	not relevant	
ETCS Train Data	not relevant	
Active DMI channel Connection	not relevant	
Other DMI channels Connections	not relevant	
TIU Connection	not relevant	
BIU Connection	not relevant	
JD Connection	not relevant	

TIU Regenerative Brake Command	not relevant	
TIU Magnetic Shoes Brake Command	not relevant	
TIU Eddy Current Brake Command for Emergency Brake	not relevant	
TIU Eddy Current Brake Command for Service Brake	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 Traction Status	not relevant	
TIU Direction Controller Position Status	not relevant	
TIU Cab Status	unchanged	
BIU Emergency Brake Command	not relevant	
BIU Service Brake Command	not relevant	
BIU Emergency Brake Status	not relevant	
BIU Service Brake Status	not relevant	
NTC isolation status	unchanged	

2.9.10 Test Case 7i2.10

TEST CASE HEADER	
Test case identification	DMI Function
	7i2.0.2.0.2
	Test of display of ETCS train speed at automatic transition for STM with display of ETCS train speed. STM reports FA after order to

	HS. : At start of the test the Level is 1 and STM X is in CS. The train passes a level transition announcement to level NTC for STM X and ETCS orders the STM to HS. STM reports FA after order to HS. Then the train passes the level transition border. The ETCS applies the emergency brake. The ETCS informs the driver about the failure of the STM.
ERTMS/ETCS on-board requirements tested	SUBSET-035 13.2.1.7
STM requirements tested	
Packets transmitted via FFFIS STM	STM-14, STM-15
ERTMS/ETCS on-board configuration	Unified DMI service (7a.1) or Customisable DMI service with configuration 7a.3, 7a.4, 7a.5, 7a.6, 7a.7 or 7a.9. The test shall be performed at least with configurations 7a.1 and 7a.5.
Comments and constraints	Starting conditions as for test case 7i2.1.

ERTMS/ETCS on-board Test Case

Step	Description/Comments	Input I/F	Input time	Input Action	Output I/F	Output time limit	Output action
1	Level transition to NTC for STM X	BTM	T0	Message-B1: balise group received with level transition announcement to Level NTC for STM X	PROF		STM control connection: Message-E1 The ETCS orders the STM to HS. Time:T1
					DMI		The ETCS displays the level announcement in C1. The ETCS layout of the default window is kept unchanged
2	STM reports FA	PROF	T1+8s	STM Control connection: Message-S1	DMI	Ts1c	ETCS shows message '[name of NTC for STM X] failed' with acknowledgement

3	The train passes the border to level NTC for STM X	BTM	T2 > T1+10s	Message-B2: balise group received with level border to Level NTC for STM X	DMI		The driver is requested to acknowledge the level announcement.
					TIU		The ETCS applies the emergency brake.
4	The driver acknowledges the transition	DMI	T2+3s	The driver presses the (level announcement) ack button	TIU		The ETCS keeps the emergency brake

Message-B1 balise 1 of 2 : Level transition announcement for Level NTC for STM X			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	0	Balise 1 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	41	Level Transition Order
Q_DIR	2	01b	Nominal
L_PACKET	13	71	
Q_SCALE	2	01b	1m scale
D_LEVELTR	15	5000	5000m

M_LEVELTR	3	1	Level NTC specified by NID_NTC
NID_NTC	8	FINITE_VALUE	NID_NTC for STM X
L_ACKLEVELTR	15	0	0m
N_ITER	5	0	no mixed level area
NID_PACKET	8	255	Finishing flag of the telegram

Message-B1 balise 2 of 2 : End of group			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	1	Balise 2 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	255	Finishing flag of the telegram

Message-E1: The ETCS orders the STM to HS			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length

NID_PACKET	8	14	State order to STM (STM-14)
L_PACKET	13	25	Packet Length
NID_STMSTATEORDER	4	6	State order to HS
Padding bits	7	NOT RELEVANT	

Message-S1: STM reports FA			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
NID_PACKET	8	15	State report from STM (STM-15)
L_PACKET	13	25	Packet Length
NID_STMSTATE	4	8	State FA
Padding bits	7	0000000b	

Message-B2 balise 1 of 2 : Level transition border for Level NTC for STM X			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	0	Balise 1 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region

NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	41	Level Transition Order
Q_DIR	2	01b	Nominal
L_PACKET	13	71	
Q_SCALE	2	01b	1m scale
D_LEVELTR	15	0	0m
M_LEVELTR	3	1	Level NTC specified by NID_NTC
NID_NTC	8	FINITE_VALUE	NID_NTC for STM X
L_ACKLEVELTR	15	0	0m
N_ITER	5	0	no mixed level area
NID_PACKET	8	255	Finishing flag of the telegram

Message-B2 balise 2 of 2 : End of group			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	1	Balise 2 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region

NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	255	Finishing flag of the telegram

End Conditions	Value	Comments
STM State	FA	
ETCS Mode	SN	
ETCS Level	Level NTC	
Train State	not relevant	
ETCS Train Data	not relevant	
Active DMI channel Connection	not relevant	
Other DMI channels Connections	not relevant	
TIU Connection	not relevant	
BIU Connection	not relevant	
JD Connection	not relevant	
TIU Regenerative Brake Command	not relevant	
TIU Magnetic Shoes Brake Command	not relevant	
TIU Eddy Current Brake Command for Emergency Brake	not relevant	
TIU Eddy Current Brake Command for Service Brake	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 Traction Status	not relevant	
TIU Direction Controller Position Status	not relevant	
TIU Cab Status	unchanged	
BIU Emergency Brake Command	not relevant	
BIU Service Brake Command	not relevant	
BIU Emergency Brake Status	not relevant	
BIU Service Brake Status	not relevant	
NTC isolation status	unchanged	

2.9.11 Test Case 7i2.11

TEST CASE HEADER	
Test case identification	DMI Function
	7i2.0.3.0.2
	Test of display of ETCS train speed at automatic transition for STM with display of ETCS train speed. STM doesn't report HS in time. : At start of the test the Level is 1 and STM X is in CS. The train passes a level transition announcement to level NTC for STM X and ETCS orders the STM to HS. STM doesn't report HS in time. Then the train passes the level transition border. The ETCS applies the emergency brake. The ETCS informs the driver about the failure of the STM.
ERTMS/ETCS on-board requirements tested	SUBSET-035 13.2.1.7
STM requirements tested	
Packets transmitted via FFFIS STM	STM-14

ERTMS/ETCS on-board configuration	Unified DMI service (7a.1) or Customisable DMI service with configuration 7a.3, 7a.4, 7a.5, 7a.6, 7a.7 or 7a.9. The test shall be performed at least with configurations 7a.1 and 7a.5.
Comments and constraints	Starting conditions as for test case 7i2.1.

ERTMS/ETCS on-board Test Case

Step	Description/Comments	Input I/F	Input time	Input Action	Output I/F	Output time limit	Output action
1	Level transition to NTC for STM X	BTM	T0	Message-B1: balise group received with level transition announcement to Level NTC for STM X	PROF		STM control connection: Message-E1 The ETCS orders the STM to HS. Time:T1
					DMI		The ETCS displays the level announcement in C1. The ETCS layout of the default window is kept unchanged
2	STM doesn't report HS in due time		T1	More than 10 seconds passed since stateorder by ETCS	PROF	10s + Ts2a	STM Control connection: Message E-2 ETCS orders STM to FA
					DMI	10s + Ts1a	ETCS shows message '[name of NTC for STM X] failed' with acknowledgement
3	The train passes the border to level NTC for STM X	BTM	T2 > T1+10s	Message-B2: balise group received with level border to Level NTC for STM X	DMI		The driver is requested to acknowledge the level announcement.
					TIU		The ETCS applies the emergency brake.
4	The driver acknowledges the transition	DMI	T2+3s	The driver presses the (level announcement) ack button	TIU		The ETCS keeps the emergency brake

Message-B1 balise 1 of 2 : Level transition announcement for Level NTC for STM X			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	0	Balise 1 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	41	Level Transition Order
Q_DIR	2	01b	Nominal
L_PACKET	13	71	
Q_SCALE	2	01b	1m scale
D_LEVELTR	15	5000	5000m
M_LEVELTR	3	1	Level NTC specified by NID_NTC
NID_NTC	8	FINITE_VALUE	NID_NTC for STM X
L_ACKLEVELTR	15	0	0m
N_ITER	5	0	no mixed level area
NID_PACKET	8	255	Finishing flag of the telegram

Message-B1 balise 2 of 2 : End of group			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	1	Balise 2 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	255	Finishing flag of the telegram

Message-E1: The ETCS orders the STM to HS			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
NID_PACKET	8	14	State order to STM (STM-14)
L_PACKET	13	25	Packet Length
NID_STMSTATEORDER	4	6	State order to HS
Padding bits	7	NOT RELEVANT	

Message-E2: The ETCS orders the STM to FA

VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
STM-14: PL=25, STO=8, (State order to FA)			

Message-B2 balise 1 of 2 : Level transition border for Level NTC for STM X			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	0	Balise 1 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	41	Level Transition Order
Q_DIR	2	01b	Nominal
L_PACKET	13	71	
Q_SCALE	2	01b	1m scale
D_LEVELTR	15	0	0m
M_LEVELTR	3	1	Level NTC specified by NID_NTC

NID_NTC	8	FINITE_VALUE	NID_NTC for STM X
L_ACKLEVELTR	15	0	0m
N_ITER	5	0	no mixed level area
NID_PACKET	8	255	Finishing flag of the telegram

Message-B2 balise 2 of 2 : End of group			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	1	Balise 2 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	255	Finishing flag of the telegram

End Conditions	**Value**	**Comments**
STM State	FA	
ETCS Mode	SN	
ETCS Level	Level NTC	
Train State	not relevant	

ETCS Train Data	not relevant	
Active DMI channel Connection	not relevant	
Other DMI channels Connections	not relevant	
TIU Connection	not relevant	
BIU Connection	not relevant	
JD Connection	not relevant	
TIU Regenerative Brake Command	not relevant	
TIU Magnetic Shoes Brake Command	not relevant	
TIU Eddy Current Brake Command for Emergency Brake	not relevant	
TIU Eddy Current Brake Command for Service Brake	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 Traction Status	not relevant	
TIU Direction Controller Position Status	not relevant	
TIU Cab Status	unchanged	
BIU Emergency Brake Command	not relevant	
BIU Service Brake Command	not relevant	
BIU Emergency Brake Status	not relevant	
BIU Service Brake Status	not relevant	
NTC isolation status	unchanged	

2.9.12 Test Case 7i2.12

TEST CASE HEADER	
Test case identification	DMI Function
	7i2.0.4.0.0.2
	Test of display of ETCS train speed at automatic transition for STM with display of ETCS train speed. STM reports PO after order to HS. : At start of the test the Level is 1 and STM X is in CS. The train passes a level transition announcement to level NTC for STM X and ETCS orders the STM to HS. STM reports PO after order to HS. Then the train passes the level transition border. The ETCS applies the emergency brake. The ETCS informs the driver about the failure of the STM.
ERTMS/ETCS on-board requirements tested	SUBSET-035 13.2.1.7
STM requirements tested	
Packets transmitted via FFFIS STM	STM-14, STM-15
ERTMS/ETCS on-board configuration	Unified DMI service (7a.1) or Customisable DMI service with configuration 7a.3, 7a.4, 7a.5, 7a.6, 7a.7 or 7a.9. The test shall be performed at least with configurations 7a.1 and 7a.5.
Comments and constraints	Starting conditions as for test case 7i2.1.

ERTMS/ETCS on-board Test Case

Step	Description/Comments	Input I/F	Input time	Input Action	Output I/F	Output time limit	Output action
1	Level transition to NTC for STM X	BTM	T0	Message-B1: balise group received with level transition announcement to Level NTC for STM X	PROF		STM control connection: Message-E1 The ETCS orders the STM to HS. Time:T1

					DMI		The ETCS displays the level announcement in C1. The ETCS layout of the default window is kept unchanged
2	STM reports PO	PROF	T1+8s	STM Control connection: Message-S1			
3	STM doesn't report HS in due time		T1	More than 10 seconds passed since stateorder by ETCS	PROF	10s + Ts2a	STM Control connection: Message E-2 ETCS orders STM to FA
					DMI	10s + Ts1a	ETCS shows message '[name of NTC for STM X] failed' with acknowledgement
4	The train passes the border to level NTC for STM X	BTM	T2 > T1+10s	Message-B2: balise group received with level border to Level NTC for STM X	DMI		The driver is requested to acknowledge the level announcement.
					TIU		The ETCS applies the emergency brake.
5	The driver acknowledges the transition	DMI	T2+3s	The driver presses the (level announcement) ack button	TIU		The ETCS keeps the emergency brake

Message-B1 balise 1 of 2 : Level transition announcement for Level NTC for STM X			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	0	Balise 1 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates

M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	41	Level Transition Order
Q_DIR	2	01b	Nominal
L_PACKET	13	71	
Q_SCALE	2	01b	1m scale
D_LEVELTR	15	5000	5000m
M_LEVELTR	3	1	Level NTC specified by NID_NTC
NID_NTC	8	FINITE_VALUE	NID_NTC for STM X
L_ACKLEVELTR	15	0	0m
N_ITER	5	0	no mixed level area
NID_PACKET	8	255	Finishing flag of the telegram

Message-B1 balise 2 of 2 : End of group			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	1	Balise 2 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates

M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	255	Finishing flag of the telegram

Message-E1: The ETCS orders the STM to HS			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
NID_PACKET	8	14	State order to STM (STM-14)
L_PACKET	13	25	Packet Length
NID_STMSTATEORDER	4	6	State order to HS
Padding bits	7	NOT RELEVANT	

Message-S1: STM reports PO			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
NID_PACKET	8	15	State report from STM (STM-15)
L_PACKET	13	25	Packet Length
NID_STMSTATE	4	1	State PO
Padding bits	7	0000000b	

Message-E2: The ETCS orders the STM to FA			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
STM-14: PL=25, STO=8, (State order to FA)			

Message-B2 balise 1 of 2 : Level transition border for Level NTC for STM X			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	0	Balise 1 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	41	Level Transition Order
Q_DIR	2	01b	Nominal
L_PACKET	13	71	
Q_SCALE	2	01b	1m scale
D_LEVELTR	15	0	0m

M_LEVELTR	3	1	Level NTC specified by NID_NTC
NID_NTC	8	FINITE_VALUE	NID_NTC for STM X
L_ACKLEVELTR	15	0	0m
N_ITER	5	0	no mixed level area
NID_PACKET	8	255	Finishing flag of the telegram

Message-B2 balise 2 of 2 : End of group			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	1	Balise 2 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	255	Finishing flag of the telegram

End Conditions	**Value**	**Comments**
STM State	FA	
ETCS Mode	SN	
ETCS Level	Level NTC	

Train State	not relevant	
ETCS Train Data	not relevant	
Active DMI channel Connection	not relevant	
Other DMI channels Connections	not relevant	
TIU Connection	not relevant	
BIU Connection	not relevant	
JD Connection	not relevant	
TIU Regenerative Brake Command	not relevant	
TIU Magnetic Shoes Brake Command	not relevant	
TIU Eddy Current Brake Command for Emergency Brake	not relevant	
TIU Eddy Current Brake Command for Service Brake	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 Traction Status	not relevant	
TIU Direction Controller Position Status	not relevant	
TIU Cab Status	unchanged	
BIU Emergency Brake Command	not relevant	
BIU Service Brake Command	not relevant	
BIU Emergency Brake Status	not relevant	
BIU Service Brake Status	not relevant	

NTC isolation status	unchanged	

2.9.13 Test Case 7i2.13

TEST CASE HEADER	
Test case identification	DMI Function
	7i2.0.5.0.1.1.2
	Test of display of ETCS train speed at automatic transition for STM X with no display of ETCS train speed and STM Y with display of ETCS train speed. The level transition announcement for level NTC for STM X is replaced by a new level transition announcement for Level NTC for STM Y. : At start of the test the Level is 1 and STM X and STM Y are in CS. The train passes a level transition announcement to level NTC for STM X and ETCS orders the STM X to HS. The level transition announcement is replaced by a new level transition announcement for Level NTC for STM Y. The ETCS orders STM X back to CS and after it reports CS, STM Y to HS. Then the train passes the level transition border for level NTC for STM Y and STM Y is ordered to DA. The STMs report the ordered state in time.
ERTMS/ETCS on-board requirements tested	SUBSET-035 13.2.1.7
	ERA ERTMS 015560 (DMI Spec) 9.3.7.1.10
STM requirements tested	
Packets transmitted via FFFIS STM	STM-5, STM-14, STM-15
ERTMS/ETCS on-board configuration	For STM X: Customisable DMI service with configuration 7a.2 or 7a.8. The test shall be performed with both configurations. For STM Y: Unified DMI service (7a.1) or Customisable DMI service with configuration 7a.3, 7a.4, 7a.5, 7a.6, 7a.7 or 7a.9. The test shall be performed at least with configurations 7a.1 and 7a.5.
Comments and constraints	

Starting Conditions	Value	Comments
STM State	CS	For STM X and STM Y
ETCS Mode	FS	
ETCS Level	Level 1	
Train State	moving	
ETCS Train Data	not relevant	
Active DMI channel Connection	not relevant	
Other DMI channels Connections	not relevant	
TIU Connection	not relevant	
BIU Connection	not relevant	
JD Connection	not relevant	
TIU Regenerative Brake Command	not relevant	
TIU Magnetic Shoes Brake Brake Command	not relevant	
TIU Eddy Current Brake Command for Emergency Brake	not relevant	
TIU Eddy Current Brake Command for Service Brake	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 Traction Status	not relevant	
TIU Direction Controller Position Status	not relevant	
TIU Cab Status	Cab A or B active	For the test it is not relevant, what cab is active

BIU Emergency Brake Command	not relevant	
BIU Service Brake Command	not relevant	
BIU Emergency Brake Status	not relevant	
BIU Service Brake Status	not relevant	
NTC isolation status	Not isolated for all STMs	

ERTMS/ETCS on-board Test Case

Step	Description/Comments	Input I/F	Input time	Input Action	Output I/F	Output time limit	Output action
1	Level transition to NTC for STM X	BTM	T0	Message-B1: balise group received with level transition announcement to Level NTC for STM X	PROF		STM control connection: Message-E1 The ETCS orders STM X to HS. Time:T1
					DMI		The ETCS displays the level announcement in C1. The ETCS layout of the default window is kept unchanged
2	STM X reports HS in due time	PROF	T1+8s	STM Control connection: Message-S1			
3	Level transition to NTC for STM Y	BTM	T2 > T1+10s	Message-B2: balise group received with level transition announcement to Level NTC for STM Y	PROF		STM control connection: Message-E2 The ETCS orders STM X to CS. Time:T3
					DMI		The ETCS displays the level announcement in C1. The ETCS layout of the default window is kept unchanged
4	STM X reports CS in due time	PROF	T3+8s	STM control connection: Message-	PROF		STM control connection: Message-

				S2			E3 The ETCS orders STM Y to HS. Time:T4
5	STM Y reports HS in due time	PROF	T4+8s	STM control connection: Message-S3			
6	The train passes the border to level NTC for STM Y	BTM	T5 > T4+10s	Message-B3: balise group received with level border to Level NTC for STM Y	DMI		The driver is requested to acknowledge the level announcement.
					PROF		STM control connection: Message-E4 The ETCS reports the changed mode to STM X.
					PROF		STM control connection: Message-E5 The ETCS reports the changed mode to STM Y and orders it to DA. Time:T6
					DMI	Ts3a	If the speed range configured for STM Y is different from the speed range configured for the ETCS it is changed to the STM range. The Current Speed pointer is displayed in grey. If ETCS areas are moved by the configuration of the STM Y they are moved.
8	The driver acknowledges the transition	DMI	T5+3s	The driver presses the (level announcement) ack button			
9	The STM reports DA in due time	PROF	T6+3s	STM Control Connection: Message-S4	DMI		The ETCS speed dial is shown with the range configured for STM Y

Message-B1 balise 1 of 2 : Level transition announcement for Level NTC for STM X			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	0	Balise 1 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	41	Level Transition Order
Q_DIR	2	01b	Nominal
L_PACKET	13	71	
Q_SCALE	2	01b	1m scale
D_LEVELTR	15	5000	5000m
M_LEVELTR	3	1	Level NTC specified by NID_NTC
NID_NTC	8	FINITE_VALUE	NID_NTC for STM X
L_ACKLEVELTR	15	0	0m
N_ITER	5	0	no mixed level area
NID_PACKET	8	255	Finishing flag of the telegram

Message-B1 balise 2 of 2 : End of group			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	1	Balise 2 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	255	Finishing flag of the telegram

Message-E1: The ETCS orders STM X to HS			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
NID_PACKET	8	14	State order to STM (STM-14)
L_PACKET	13	25	Packet Length
NID_STMSTATEORDER	4	6	State order to HS
Padding bits	7	NOT RELEVANT	

Message-S1: STM X reports HS

VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
NID_PACKET	8	15	State report from STM (STM-15)
L_PACKET	13	25	Packet Length
NID_STMSTATE	4	6	State HS
Padding bits	7	0000000b	

Message-B2 balise 1 of 2 : Level transition announcement for Level NTC for STM Y			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	0	Balise 1 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	41	Level Transition Order
Q_DIR	2	01b	Nominal
L_PACKET	13	71	

Q_SCALE	2	01b	1m scale
D_LEVELTR	15	5000	5000m
M_LEVELTR	3	1	Level NTC specified by NID_NTC
NID_NTC	8	FINITE_VALUE	NID_NTC for STM Y
L_ACKLEVELTR	15	0	0m
N_ITER	5	0	no mixed level area
NID_PACKET	8	255	Finishing flag of the telegram

Message-B2 balise 2 of 2 : End of group			
VARIABLE	Length	VALUE	COMMENT
Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	1	Balise 2 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	255	Finishing flag of the telegram

Message-E2: The ETCS orders STM X to CS			
VARIABLE	Length	VALUE	COMMENT

NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
STM-14: PL=25, STO=5, (Conditional state order to CS)			

Message-S2: STM X reports CS			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
STM-15: PL=25, ST=4, (State CS)			

Message-E3: The ETCS orders STM Y to HS			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM Y
L_MESSAGE	8	6	Message Length
STM-14: PL=25, STO=6, (State order to HS)			

Message-S3: STM Y reports HS			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM Y
L_MESSAGE	8	6	Message Length
STM-15: PL=25, ST=6, (State HS)			

Message-B3 balise 1 of 2 : Level transition border for Level NTC for STM Y			
VARIABLE	Length	VALUE	COMMENT

Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	0	Balise 1 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	41	Level Transition Order
Q_DIR	2	01b	Nominal
L_PACKET	13	71	
Q_SCALE	2	01b	1m scale
D_LEVELTR	15	0	0m
M_LEVELTR	3	1	Level NTC specified by NID_NTC
NID_NTC	8	FINITE_VALUE	NID_NTC for STM Y
L_ACKLEVELTR	15	0	0m
N_ITER	5	0	no mixed level area
NID_PACKET	8	255	Finishing flag of the telegram

Message-B3 balise 2 of 2 : End of group			
VARIABLE	Length	VALUE	COMMENT

Q_UPDOWN	1	1	Up-link telegram
M_VERSION	7	FINITE_VALUE	Version of the ERTMS/ETCS system
Q_MEDIA	1	0	Balise
N_PIG	3	1	Balise 2 of group
N_TOTAL	3	1	2 balises in group
M_DUP	2	00b	No duplicates
M_MCOUNT	8	255	The telegram fits with all telegrams of the same balise group
NID_C	10	FINITE_VALUE	Identifier of country or region
NID_BG	14	FINITE_VALUE	Identifier of balise group
Q_LINK	1	0	Unlinked
NID_PACKET	8	255	Finishing flag of the telegram

Message-E4: The ETCS reports the changed mode to STM X			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	7	Message Length
NID_PACKET	8	5	ETCS status data (STM-5)
L_PACKET	13	36	Packet Length
M_LEVEL	3	1	Level STM
NID_NTC	8	FINITE_VALUE	NID_NTC for STM Y
M_MODE	4	13	National System
Padding bits	4	NOT RELEVANT	

Message-E5: The ETCS reports the changed mode to STM Y and orders it to DA

VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM Y
L_MESSAGE	8	10	Message Length
STM-5: PL=36, ML=1, (Level STM), NN =FINITE_VALUE, (NID_NTC for STM Y), MM =13, (National System)			
STM-14: PL=25, STO=7, (State order to DA)			

Message-S4: STM Y reports DA			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM Y
L_MESSAGE	8	6	Message Length
STM-15: PL=25, ST=7, (State DA)			

End Conditions	**Value**	**Comments**
STM State	CS DA	For STM X For STM Y
ETCS Mode	SN	
ETCS Level	Level NTC	
Train State	not relevant	
ETCS Train Data	not relevant	
Active DMI channel Connection	not relevant	
Other DMI channels Connections	not relevant	
TIU Connection	not relevant	
BIU Connection	not relevant	
JD Connection	not relevant	

TIU Regenerative Brake Command	not relevant	
TIU Magnetic Shoes Brake Command	not relevant	
TIU Eddy Current Brake Command for Emergency Brake	not relevant	
TIU Eddy Current Brake Command for Service Brake	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 Traction Status	not relevant	
TIU Direction Controller Position Status	not relevant	
TIU Cab Status	unchanged	
BIU Emergency Brake Command	not relevant	
BIU Service Brake Command	not relevant	
BIU Emergency Brake Status	not relevant	
BIU Service Brake Status	not relevant	
NTC isolation status	unchanged	

2.9.14 Test Case 7i2.14

TEST CASE HEADER	
Test case identification	DMI Function
	7i2.0.5.0.1.1.1
	Test of display of ETCS train speed at automatic transition for STM X with display of ETCS train speed and STM Y with no display

	of ETCS train speed. The level transition announcement for level NTC for STM X is replaced by a new level transition announcement for Level NTC for STM Y. : At start of the test the Level is 1 and STM X and STM Y are in CS. The train passes a level transition announcement to level NTC for STM X and ETCS orders the STM X to HS. The level transition announcement is replaced by a new level transition announcement for Level NTC for STM Y. The ETCS orders STM X back to CS and after it reports CS, STM Y to HS. Then the train passes the level transition border for level NTC for STM Y and STM Y is ordered to DA. The STMs report the ordered state in time.
ERTMS/ETCS on-board requirements tested	SUBSET-035 13.2.1.7
STM requirements tested	
Packets transmitted via FFFIS STM	STM-5, STM-14, STM-15
ERTMS/ETCS on-board configuration	For STM X: Unified DMI service (7a.1) or Customisable DMI service with configuration 7a.3, 7a.4, 7a.5, 7a.6, 7a.7 or 7a.9. The test shall be performed at least with configurations 7a.1 and 7a.5. For STM Y: Customisable DMI service with configuration 7a.2 or 7a.8. The test shall be performed with both configurations.
Comments and constraints	Starting and end conditions as for test case 7i2.13. Messages as for test case 7i2.13.

ERTMS/ETCS on-board Test Case

Step	Description/Comments	Input I/F	Input time	Input Action	Output I/F	Output time limit	Output action
1	Level transition to NTC for STM X	BTM	T0	Message-B1: balise group received with level transition announcement to Level NTC for STM X	PROF		STM control connection: Message-E1 The ETCS orders STM X to HS. Time:T1
					DMI		The ETCS displays the level

							announcement in C1. The ETCS layout of the default window is kept unchanged
2	STM X reports HS in due time	PROF	T1+8s	STM Control connection: Message-S1			
3	Level transition to NTC for STM Y	BTM	T2 > T1+10s	Message-B2: balise group received with level transition announcement to Level NTC for STM Y	PROF		STM control connection: Message-E2 The ETCS orders STM X to CS. Time:T3
					DMI		The ETCS displays the level announcement in C1. The ETCS layout of the default window is kept unchanged
4	STM X reports CS in due time	PROF	T3+8s	STM control connection: Message-S2	PROF		STM control connection: Message-E3 The ETCS orders STM Y to HS. Time:T4
5	STM Y reports HS in due time	PROF	T4+8s	STM control connection: Message-S3			
6	The train passes the border to level NTC for STM Y	BTM	T5 > T4+10s	Message-B3: balise group received with level border to Level NTC for STM Y	DMI		The driver is requested to acknowledge the level announcement.
					PROF		STM control connection: Message-E4 The ETCS reports the changed mode to STM X.
					PROF		STM control connection: Message-E5 The ETCS reports the changed

							mode to STM Y and orders it to DA. Time:T6
					DMI		The ETCS speed dial is shown unchanged.
8	The driver acknowledges the transition	DMI	T5+3s	The driver presses the (level announcement) ack button			
9	The STM reports DA in due time	PROF	T6+3s	STM Control Connection: Message-S4	DMI		The ETCS speed dial is hidden.

2.9.15 Test Case 7i3.1

TEST CASE HEADER	
Test case identification	DMI Function
	7i3.1.0.0.0.1
	Test of display of ETCS train speed at Start of Mission for STM X with no display of ETCS train speed. STM needs no specific NTC data.: At start of the test the stored level is valid and Level NTC for STM X. The mode is SB, the desk is open, the driver Id and the train running number are valid. The STM needs no specific NTC data and requests CS after it has received all configuration data. The STM is ordered to CS by the ETCS and reports CS in due time. The STM is then ordered to HS and reports HS in due time. The driver enters and validates ETCS train data that are sent to the STM also. The driver selects start and acknowledges level NTC for STM X. The changed mode is reported to the STM and it is ordered to DA. The STMs reports DA in due time.
ERTMS/ETCS on-board requirements tested	SUBSET-035 13.2.1.7

STM requirements tested	
Packets transmitted via FFFIS STM	STM-5, STM-13, STM-14, STM-15, STM-175, STM-176, STM-179, STM-184
ERTMS/ETCS on-board configuration	Customisable DMI service with configuration 7a.2 or 7a.8. The test shall be performed with both configurations.
Comments and constraints	

Starting Conditions	**Value**	**Comments**
STM State	CO	
ETCS Mode	SB	
ETCS Level	Level NTC	For STM X
Train State	standstill	
ETCS Train Data	Not Valid	
Active DMI channel Connection	not relevant	
Other DMI channels Connections	not relevant	
TIU Connection	not relevant	
BIU Connection	not relevant	
JD Connection	not relevant	
TIU Regenerative Brake Command	not relevant	
TIU Magnetic Shoes Brake Brake Command	not relevant	
TIU Eddy Current Brake Command for Emergency Brake	not relevant	
TIU Eddy Current Brake Command for Service Brake	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 Traction Status	not relevant	
TIU Direction Controller Position Status	not relevant	
TIU Cab Status	Cab A or B active	For the test it is not relevant, what cab is active
BIU Emergency Brake Command	not relevant	
BIU Service Brake Command	not relevant	
BIU Emergency Brake Status	not relevant	
BIU Service Brake Status	not relevant	
NTC isolation status	Not isolated for active STM. Not relevant for other STMs	

ERTMS/ETCS on-board Test Case

Step	Description/Comments	Input I/F	Input time	Input Action	Output I/F	Output time limit	Output action
1	STM requests CS	PROF	T0	STM control connection: Message-S1	PROF	Ts4	STM control connection: Message-E1 The ETCS orders the STM to CS. Time:T1
2	STM reports CS in due time	PROF	T1+8s	STM control connection: Message-S2	PROF	Ts6	STM control connection: Message-E2 The ETCS orders the STM to HS. Time:T2
3	STM reports HS in due time	PROF	T2+8s	STM control connection: Message-S3			

4	Train data entry	DMI	T3 > T2+8s	Driver enters and validates ETCS train data	PROF	Ts7	STM control connection: Message-E3 The ETCS sends the start flag to the STM. Time:T4
5	ETCS sends train data to STM		T4		PROF	Ts8	STM control connection: Message-E4 The ETCS sends train data to the STM. Time:T5
6	STM sends End of Specific NTC Data Entry	PROF	T5+8s	STM control connection: Message-S4	PROF	Ts9	STM control connection: Message-E5 The ETCS sends the stop flag. Time:T6
7	Driver selects Start	DMI	T5+15s	Driver presses 'Start' button	DMI		The default window is entered with SN mode acknowledgement requested.
8	Driver acknowledges mode SN	DMI	T5+20s	Driver presses mode (ack) button	PROF	Ts10	STM control connection: Message-E6 The ETCS orders the STM to DA. Time:T6
					DMI		The ETCS speed dial is shown unchanged.
9	The STM reports DA in due time	PROF	T6+3s	STM Control Connection: Message-S5	DMI		The ETCS speed dial is hidden.

Message-S1: STM requests CS			
VARIABLE	Length	VALUE	COMMENT

NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
NID_PACKET	8	13	State request from STM (STM-13)
L_PACKET	13	25	Packet Length
NID_STMSTATEREQUEST	4	4	State CS
Padding bits	7	0000000b	

Message-E1: The ETCS orders STM to CS			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
NID_PACKET	8	14	State order to STM (STM-14)
L_PACKET	13	25	Packet Length
NID_STMSTATEORDER	4	4	Unconditional state order to CS
Padding bits	7	NOT RELEVANT	

Message-S2: STM X reports CS			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
NID_PACKET	8	15	State report from STM (STM-15)
L_PACKET	13	25	Packet Length
NID_STMSTATE	4	4	State CS
Padding bits	7	0000000b	

Message-E2: The ETCS orders STM to HS			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
STM-14: PL=25, STO=6, (State order to HS)			

Message-S3: STM X reports HS			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
STM-15: PL=25, ST=6, (State HS)			

Message-E3: The ETCS sends the start flag			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	5	Message Length
NID_PACKET	8	184	Specific NTC Data Entry flag (STM-184)
L_PACKET	13	22	Packet Length
M_DATAENTRYFLAG	1	1	START
Padding bits	2	00b	

Message-E4: The ETCS sends train data The sequence of packets in the message may be switched and this message may be merged with the previous one

VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	COMPUTED	Message Length
NID_PACKET	8	175	Validated train data (STM-175)
L_PACKET	13	COMPUTED	Packet Length
NC_CDTRAIN	4	FINITE_VALUE	
NC_TRAIN	15	FINITE_VALUE	
L_TRAIN	12	FINITE_VALUE	
V_MAXTRAIN	7	FINITE_VALUE	
M_LOADINGGAUGE	8	FINITE_VALUE	
M_AXLELOADCAT	7	FINITE_VALUE	
M_AIRTIGHT	2	FINITE_VALUE	
M_TRAINTYPE	8	FINITE_VALUE	
N_ITER	5	FINITE_VALUE (n)	Following elements missing if value is 0
M_VOLTAGE(1)	4	FINITE_VALUE	
NID_CTRACTION (1)	10	FINITE_VALUE	Missing, if M_VOLTAGE(1)=0
...			
M_VOLTAGE(n)	4	FINITE_VALUE	
NID_CTRACTION (n)	10	FINITE_VALUE	Missing, if M_VOLTAGE(n)=0
NID_PACKET	8	176	Validated train data traction/brake parameters (STM-176)
L_PACKET	13	COMPUTED	Packet Length
T_BRAKE_SERVICE	12	FINITE_VALUE	
T_BRAKE_EMERGENCY	12	FINITE_VALUE	

T_TRACTION_CUT_OFF	12	FINITE_VALUE	
M_BRAKE_POSITION	2	FINITE_VALUE	
M_BRAKE_PERCENTAGE_STM	8	FINITE_VALUE	
Padding bits	COM PUTED	NOT RELEVANT	

Message-S4: The STM sends End of Specific NTC Data Entry			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
NID_PACKET	8	179	Request for Specific NTC Data Entry (STM-179)
L_PACKET	13	27	Packet Length
Q_FOLLOWING	1	0	No following packet
N_ITER	5	0	End of Specific NTC Data Entry"
Padding bits	5	00000b	

Message-E5: The ETCS sends the stop flag			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	5	Message Length
NID_PACKET	8	184	Specific NTC Data Entry flag (STM-184)
L_PACKET	13	22	Packet Length
M_DATAENTRYFLAG	1	0	STOP

Padding bits	2	00b	

Message-E6: The ETCS reports the changed mode to STM X and orders it to DA			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	10	Message Length
NID_PACKET	8	5	ETCS status data (STM-5)
L_PACKET	13	36	Packet Length
M_LEVEL	3	1	Level STM
NID_NTC	8	FINITE_VALUE	NID_NTC for STM X
M_MODE	4	13	National System
NID_PACKET	8	14	State order to STM (STM-14)
L_PACKET	13	25	Packet Length
NID_STMSTATEORDER	4	7	State order to DA
Padding bits	3	NOT RELEVANT	

Message-S5: STM X reports DA			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
STM-15: PL=25, ST=7, (State DA)			

End Conditions	**Value**	**Comments**
STM State	DA	

ETCS Mode	SN	
ETCS Level	Level NTC	For STM X
Train State	not relevant	
ETCS Train Data	Valid	
Active DMI channel Connection	not relevant	
Other DMI channels Connections	not relevant	
TIU Connection	not relevant	
BIU Connection	not relevant	
JD Connection	not relevant	
TIU Regenerative Brake Command	not relevant	
TIU Magnetic Shoes Brake Command	not relevant	
TIU Eddy Current Brake Command for Emergency Brake	not relevant	
TIU Eddy Current Brake Command for Service Brake	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 Traction Status	not relevant	
TIU Direction Controller Position Status	not relevant	
TIU Cab Status	unchanged	
BIU Emergency Brake Command	not relevant	
BIU Service Brake Command	not relevant	

BIU Emergency Brake Status	not relevant	
BIU Service Brake Status	not relevant	
NTC isolation status	unchanged	

2.9.16 Test Case 7i3.2

TEST CASE HEADER	
Test case identification	DMI Function
	7i3.1.0.0.0.2
	Test of display of ETCS train speed at Start of Mission for STM X with display of ETCS train speed. STM needs no specific NTC data.: At start of the test the stored level is valid and Level NTC for STM X. The mode is SB, the desk is open, the driver Id and the train running number are valid. The STM needs no specific NTC data and requests CS after it has received all configuration data. The STM is ordered to CS by the ETCS and reports CS in due time. The STM is then ordered to HS and reports HS in due time. The driver enters and validates ETCS train data that are sent to the STM also. The driver selects start and acknowledges level NTC for STM X. The changed mode is reported to the STM and it is ordered to DA. The STMs reports DA in due time.
ERTMS/ETCS on-board requirements tested	SUBSET-035 13.2.1.7
	ERA ERTMS 015560 (DMI Spec) 9.3.7.1.10
STM requirements tested	
Packets transmitted via FFFIS STM	STM-5, STM-13, STM-14, STM-15, STM-175, STM-176, STM-179, STM-184
ERTMS/ETCS on-board configuration	Unified DMI service (7a.1) or Customisable DMI service with configuration 7a.3, 7a.4, 7a.5, 7a.6, 7a.7 or 7a.9.

	The test shall be performed at least with configurations 7a.1 and 7a.5.
Comments and constraints	Starting and end conditions as for test case 7i3.1. Same messages as for test case 7i3.1

ERTMS/ETCS on-board Test Case

Step	Description/Comments	Input I/F	Input time	Input Action	Output I/F	Output time limit	Output action
1	STM requests CS	PROF	T0	STM control connection: Message-S1	PROF	Ts4	STM control connection: Message-E1 The ETCS orders the STM to CS. Time:T1
2	STM reports CS in due time	PROF	T1+8s	STM control connection: Message-S2	PROF	Ts6	STM control connection: Message-E2 The ETCS orders the STM to HS. Time:T2
3	STM reports HS in due time	PROF	T2+8s	STM control connection: Message-S3			
4	Train data entry	DMI	T3 > T2+8s	Driver enters and validates ETCS train data	PROF	Ts7	STM control connection: Message-E3 The ETCS sends the start flag to the STM. Time:T4
5	ETCS sends train data to STM		T4		PROF	Ts8	STM control connection: Message-E4 The ETCS sends train data to the STM. Time:T5

6	STM sends End of Specific NTC Data Entry	PROF	T5+8s	STM control connection: Message-S4	PROF	Ts9	STM control connection: Message-E5 The ETCS sends the stop flag. Time:T6
7	Driver selects Start	DMI	T5+15s	Driver presses 'Start' button	DMI		The default window is entered with SN mode acknowledgement requested.
8	Driver acknowledges mode SN	DMI	T5+20s	Driver presses mode (ack) button	PROF	Ts10	STM control connection: Message-E6 The ETCS orders the STM to DA. Time:T6
					DMI	Ts3a	If the speed range configured for STM Y is different from the speed range configured for the ETCS it is changed to the STM range. The Current Speed pointer is displayed in grey. If ETCS areas are moved by the configuration of the STM Y they are moved.
9	The STM reports DA in due time	PROF	T6+3s	STM Control Connection: Message-S5	DMI		The ETCS speed dial is shown with the range configured for the STM

2.9.17 Test Case 7i3.3

TEST CASE HEADER	
Test case identification	DMI Function
	7i3.1.0.0.0.1

	Test of display of ETCS train speed at Start of Mission for STM X with no display of ETCS train speed. STM needs specific NTC data.: At start of the test the stored level is valid and Level NTC for STM X. The mode is SB, the desk is open, the driver Id and the train running number are valid. The ETCS and the specific NTC data of STM X have been entered and validated. The STM has received the stop flag and requests CS. The STM is ordered to CS by the ETCS and reports CS in due time. The STM is then ordered to HS and reports HS in due time. The driver selects start and acknowledges level NTC for STM X. The changed mode is reported to the STM and it is ordered to DA. The STMs reports DA in due time.
ERTMS/ETCS on-board requirements tested	SUBSET-035 13.2.1.7
STM requirements tested	
Packets transmitted via FFFIS STM	STM-5, STM-13, STM-14, STM-15
ERTMS/ETCS on-board configuration	Customisable DMI service with configuration 7a.2 or 7a.8. The test shall be performed with both configurations.
Comments and constraints	

Starting Conditions	Value	Comments
STM State	DE	
ETCS Mode	SB	
ETCS Level	Level NTC	For STM X
Train State	standstill	
ETCS Train Data	Valid	
Active DMI channel Connection	not relevant	

Other DMI channels Connections	not relevant	
TIU Connection	not relevant	
BIU Connection	not relevant	
JD Connection	not relevant	
TIU Regenerative Brake Command	not relevant	
TIU Magnetic Shoes Brake Brake Command	not relevant	
TIU Eddy Current Brake Command for Emergency Brake	not relevant	
TIU Eddy Current Brake Command for Service Brake	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 Traction Status	not relevant	
TIU Direction Controller Position Status	not relevant	
TIU Cab Status	Cab A or B active	For the test it is not relevant, what cab is active
BIU Emergency Brake Command	not relevant	
BIU Service Brake Command	not relevant	
BIU Emergency Brake Status	not relevant	
BIU Service Brake Status	not relevant	
NTC isolation status	Not isolated for active STM. Not relevant for other STMs	

ERTMS/ETCS on-board Test Case

Step	Description/Comments	Input I/F	Input time	Input Action	Output I/F	Output time limit	Output action
1	STM requests CS	PROF	T0	STM control connection: Message-S1	PROF	Ts5	STM control connection: Message-E1 The ETCS orders the STM to CS. Time:T1
2	STM reports CS in due time	PROF	T1+8s	STM control connection: Message-S2	PROF	Ts6	STM control connection: Message-E2 The ETCS orders the STM to HS. Time:T2
3	STM reports HS in due time	PROF	T2+8s	STM control connection: Message-S3			
4	Driver selects Start	DMI	T2+15s	Driver presses 'Start' button	DMI		The default window is entered with SN mode acknowledgement requested.
5	Driver acknowledges mode SN	DMI	T2+20s	Driver presses mode (ack) button	PROF	Ts10	STM control connection: Message-E3 The ETCS orders the STM to DA. Time:T6
					DMI		The ETCS speed dial is shown unchanged.
6	The STM reports DA in due time	PROF	T6+3s	STM Control Connection: Message-S4	DMI		The ETCS speed dial is hidden.

Message-S1: STM requests CS			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X

L_MESSAGE	8	6	Message Length
NID_PACKET	8	13	State request from STM (STM-13)
L_PACKET	13	25	Packet Length
NID_STMSTATEREQUEST	4	4	State CS
Padding bits	7	0000000b	

Message-E1: The ETCS orders STM to CS			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
NID_PACKET	8	14	State order to STM (STM-14)
L_PACKET	13	25	Packet Length
NID_STMSTATEORDER	4	4	Unconditional state order to CS
Padding bits	7	NOT RELEVANT	

Message-S2: STM X reports CS			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
NID_PACKET	8	15	State report from STM (STM-15)
L_PACKET	13	25	Packet Length
NID_STMSTATE	4	4	State CS
Padding bits	7	0000000b	

Message-E2: The ETCS orders STM to HS			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
STM-14: PL=25, STO=6, (State order to HS)			

Message-S3: STM X reports HS			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
STM-15: PL=25, ST=6, (State HS)			

Message-E3: The ETCS reports the changed mode to STM X and orders it to DA			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	10	Message Length
NID_PACKET	8	5	ETCS status data (STM-5)
L_PACKET	13	36	Packet Length
M_LEVEL	3	1	Level STM
NID_NTC	8	FINITE_VALUE	NID_NTC for STM X
M_MODE	4	13	National System
NID_PACKET	8	14	State order to STM (STM-14)
L_PACKET	13	25	Packet Length
NID_STMSTATEORDER	4	7	State order to DA

Padding bits	3	NOT RELEVANT	

Message-S4: STM X reports DA			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
STM-15: PL=25, ST=7, (State DA)			

End Conditions	**Value**	**Comments**
STM State	DA	
ETCS Mode	SN	
ETCS Level	Level NTC	For STM X
Train State	not relevant	
ETCS Train Data	Valid	
Active DMI channel Connection	not relevant	
Other DMI channels Connections	not relevant	
TIU Connection	not relevant	
BIU Connection	not relevant	
JD Connection	not relevant	
TIU Regenerative Brake Command	not relevant	
TIU Magnetic Shoes Brake Command	not relevant	
TIU Eddy Current Brake Command for Emergency Brake	not relevant	
TIU Eddy Current Brake Command for Service Brake	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 Traction Status	not relevant	
TIU Direction Controller Position Status	not relevant	
TIU Cab Status	unchanged	
BIU Emergency Brake Command	not relevant	
BIU Service Brake Command	not relevant	
BIU Emergency Brake Status	not relevant	
BIU Service Brake Status	not relevant	
NTC isolation status	unchanged	

2.9.18 Test Case 7i3.4

TEST CASE HEADER	
Test case identification	DMI Function
	7i3.1.0.0.0.2
	Test of display of ETCS train speed at Start of Mission for STM X with display of ETCS train speed. STM needs specific NTC data.: At start of the test the stored level is valid and Level NTC for STM X. The mode is SB, the desk is open, the driver Id and the train running number are valid. The ETCS and the specific NTC data of STM X have been entered and validated. The STM has received the stop flag and requests CS. The STM is ordered to CS by the ETCS and reports CS in due time. The STM is then ordered to HS and reports HS in due time.

	The driver selects start and acknowledges level NTC for STM X. The changed mode is reported to the STM and it is ordered to DA. The STMs reports DA in due time.
ERTMS/ETCS on-board requirements tested	SUBSET-035 13.2.1.7
	ERA ERTMS 015560 (DMI Spec) 9.3.7.1.10
STM requirements tested	
Packets transmitted via FFFIS STM	STM-5, STM-13, STM-14, STM-15
ERTMS/ETCS on-board configuration	Unified DMI service (7a.1) or Customisable DMI service with configuration 7a.3, 7a.4, 7a.5, 7a.6, 7a.7 or 7a.9. The test shall be performed at least with configurations 7a.1 and 7a.5.
Comments and constraints	Starting and end conditions as for test case 7i3.1. Same messages as for test case 7i3.3

ERTMS/ETCS on-board Test Case

Step	Description/Comments	Input I/F	Input time	Input Action	Output I/F	Output time limit	Output action
1	STM requests CS	PROF	T0	STM control connection: Message-S1	PROF	Ts5	STM control connection: Message-E1 The ETCS orders the STM to CS. Time:T1
2	STM reports CS in due time	PROF	T1+8s	STM control connection: Message-S2	PROF	Ts6	STM control connection: Message-E2 The ETCS orders the STM to HS. Time:T2
3	STM reports HS in due time	PROF	T2+8s	STM control connection: Message-S3			

4	Driver selects Start	DMI	T2+15s	Driver presses 'Start' button	DMI		The default window is entered with SN mode acknowledgement requested.
5	Driver acknowledges mode SN	DMI	T2+20s	Driver presses mode (ack) button	PROF	Ts10	STM control connection: Message-E3 The ETCS orders the STM to DA. Time:T6
					DMI	Ts3a	If the speed range configured for STM Y is different from the speed range configured for the ETCS it is changed to the STM range. The Current Speed pointer is displayed in grey. If ETCS areas are moved by the configuration of the STM Y they are moved.
6	The STM reports DA in due time	PROF	T6+3s	STM Control Connection: Message-S4	DMI		The ETCS speed dial is shown with the range configured for the STM

2.9.19 Test Case 7i3.5

TEST CASE HEADER	
Test case identification	DMI Function
	7i3.2.0.0.1
	Test of display of ETCS train speed at manual level selection for STM X with no display of ETCS train speed. : At start of the test the train is at standstill and the driver Id is valid. The driver selects the main window and then the Level window. The driver selects Level NTC X and confirms it.

	The STM is ordered to DA by the ETCS and reports DA in due time. The driver returns to the default window.
ERTMS/ETCS on-board requirements tested	SUBSET-035 13.2.1.7
STM requirements tested	
Packets transmitted via FFFIS STM	STM-5, STM-14, STM-15
ERTMS/ETCS on-board configuration	Customisable DMI service with configuration 7a.2 or 7a.8. The test shall be performed with both configurations.
Comments and constraints	For the test, if there is a table of supported levels by trackside available it must include the level NTC for STM X.

Starting Conditions	**Value**	**Comments**
STM State	CS	
ETCS Mode	FS	
ETCS Level	Level 1	
Train State	standstill	
ETCS Train Data	not relevant	
Active DMI channel Connection	not relevant	
Other DMI channels Connections	not relevant	
TIU Connection	not relevant	
BIU Connection	not relevant	
JD Connection	not relevant	

TIU Regenerative Brake Command	not relevant	
TIU Magnetic Shoes Brake Brake Command	not relevant	
TIU Eddy Current Brake Command for Emergency Brake	not relevant	
TIU Eddy Current Brake Command for Service Brake	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 Traction Status	not relevant	
TIU Direction Controller Position Status	not relevant	
TIU Cab Status	Cab A or B active	For the test it is not relevant, what cab is active
BIU Emergency Brake Command	not relevant	
BIU Service Brake Command	not relevant	
BIU Emergency Brake Status	not relevant	
BIU Service Brake Status	not relevant	
NTC isolation status	Not isolated for active STM. Not relevant for other STMs	

ERTMS/ETCS on-board Test Case

Step	Description/Comments	Input I/F	Input time	Input Action	Output I/F	Output time limit	Output action
1	Entering Level window	DMI	T0	The driver selects the main window and then the Level window.	DMI		The button for NTC X is enabled.
2	Selection of NTC X	DMI	T0+5s	The driver selects Level NTC X and	PROF	Ts10	STM control connection: Message-

				confirms it			E1 The ETCS reports the changed mode and level to STM X and orders it to DA. Time:T1
					DMI		The ETCS speed dial is shown unchanged.
3	The STM reports DA in due time	PROF	T1+3s	STM Control Connection: Message-S1	DMI		The ETCS speed dial is hidden.
4	Return to Main window	DMI	T1+10s	The driver returns to the Main window	DMI		
5	Return to default window	DMI	T1+15s	The driver returns to the default window	DMI		The default window is shown as configured for the STM.

Message-E1: The ETCS reports the changed mode and level to STM X and orders it to DA			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	10	Message Length
NID_PACKET	8	5	ETCS status data (STM-5)
L_PACKET	13	36	Packet Length
M_LEVEL	3	1	Level STM
NID_NTC	8	FINITE_VALUE	NID_NTC for STM X
M_MODE	4	13	National System
NID_PACKET	8	14	State order to STM (STM-14)
L_PACKET	13	25	Packet Length
NID_STMSTATEORDER	4	7	State order to DA

Padding bits	3	NOT RELEVANT	

Message-S1: STM X reports DA			
VARIABLE	Length	VALUE	COMMENT
NID_STM	8	FINITE_VALUE	NID_STM of the STM X
L_MESSAGE	8	6	Message Length
NID_PACKET	8	15	State report from STM (STM-15)
L_PACKET	13	25	Packet Length
NID_STMSTATE	4	7	State DA
Padding bits	7	0000000b	

End Conditions	**Value**	**Comments**
STM State	DA	
ETCS Mode	SN	
ETCS Level	Level NTC	For STM X
Train State	not relevant	
ETCS Train Data	not relevant	
Active DMI channel Connection	not relevant	
Other DMI channels Connections	not relevant	
TIU Connection	not relevant	
BIU Connection	not relevant	
JD Connection	not relevant	
TIU Regenerative Brake Command	not relevant	
TIU Magnetic Shoes Brake Command	not relevant	

TIU Eddy Current Brake Command for Emergency Brake	not relevant	
TIU Eddy Current Brake Command for Service Brake	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 Traction Status	not relevant	
TIU Direction Controller Position Status	not relevant	
TIU Cab Status	unchanged	
BIU Emergency Brake Command	not relevant	
BIU Service Brake Command	not relevant	
BIU Emergency Brake Status	not relevant	
BIU Service Brake Status	not relevant	
NTC isolation status	unchanged	

2.9.20 Test Case 7i3.6

TEST CASE HEADER	
Test case identification	DMI Function
	7i3.2.0.0.2
	Test of display of ETCS train speed at manual level selection for STM X with display of ETCS train speed. : At start of the test the train is at standstill and the driver Id is valid. The driver selects the main window and then the Level window.

	The driver selects Level NTC X and confirms it. The STM is ordered to DA by the ETCS and reports DA in due time. The driver returns to the default window.
ERTMS/ETCS on-board requirements tested	SUBSET-035 13.2.1.7
	ERA ERTMS 015560 (DMI Spec) 9.3.7.1.10
STM requirements tested	
Packets transmitted via FFFIS STM	STM-5, STM-14, STM-15
ERTMS/ETCS on-board configuration	Unified DMI service (7a.1) or Customisable DMI service with configuration 7a.3, 7a.4, 7a.5, 7a.6, 7a.7 or 7a.9. The test shall be performed at least with configurations 7a.1 and 7a.5.
Comments and constraints	For the test, if there is a table of supported levels by trackside available it must include the level NTC for STM X. Starting and end conditions as for test case 7i3.5. Same messages as for test case 7i3.5.

ERTMS/ETCS on-board Test Case

Step	Description/Comments	Input I/F	Input time	Input Action	Output I/F	Output time limit	Output action
1	Entering Level window	DMI	T0	The driver selects the main window and then the Level window.	DMI		The button for NTC X is enabled.
2	Selection of NTC X	DMI	T0+5s	The driver selects Level NTC X and confirms it	PROF	Ts10	STM control connection: Message-E1 The ETCS reports the changed mode and level to STM X and orders it to DA. Time:T1

					DMI	Ts3a	If the speed range configured for STM Y is different from the speed range configured for the ETCS it is changed to the STM range. The Current Speed pointer is displayed in grey. If ETCS areas are moved by the configuration of the STM Y they are moved.
3	The STM reports DA in due time	PROF	T1+3s	STM Control Connection: Message-S1	DMI		The ETCS speed dial is shown with the range configured for the STM
4	Return to Main window	DMI	T1+10s	The driver returns to the Main window	DMI		
5	Return to default window	DMI	T1+15s	The driver returns to the default window	DMI		The default window is shown as configured for the STM.