Appendix A

(version 4)

to Technical Specifications

“Operation and traffic management”

adopted by

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Amending Decision 2012/757/EU

ERTMS OPERATIONAL PRINCIPLES AND RULES

(ETCS 3.3.0 and GSM-R 7.0)

1. AMENDMENT RECORD

Version	Date	Main modifications	Author(s)
1	01/02/08	First version	ERA
2	23/07/12	ETCS version 2.3.0d	ERA
3	02/12/13	ETCS version 3.3.0 / GSM-R emergency call	ERA
4	30/06/15	Transfer of operational rules from Appendix A to Appendix B	ERA

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3. INTRODUCTION

3.1 PURPOSE AND STRUCTURE OF THE DOCUMENT

This document contains the principles and harmonised rules for the operation of ERTMS.

The structure of each rule is the following:

- title,
- when necessary, situations in which the rule applies, presented in a frame, including the applicable ETCS levels; sometimes the situation is described for some specific sub-sections of the rules,
- the rule itself.

When this document refers to level 1 it applies to both applications, with or without trackside signals.

When this document refers to level 2 it applies to both applications, with or without trackside signals.

All language referring to people applies equally to male and female persons.

Annex A contains the different ERTMS written orders.

Annex B contains the different ETCS operational train categories.

Annex C contains the list of references to non-harmonised rules. In some situations a procedure is not related to ERTMS and therefore depends on non-harmonised rules.

The description of the technical functions for ETCS and GSM-R is contained in the corresponding system requirements specification and therefore out of scope for this document.

If information displayed on the DMI does not require an action from the driver this information is not contained in the rules.

3.2 SCOPE AND FIELD OF APPLICATION

The scope is the following:

- ETCS level 1 application whether or not trackside signals or infill are present,
- ETCS level 2 application, whether or not trackside signals are present,
- ETCS level 3 application without trackside signals,
- ETCS transitions between level 1, level 2 and level 3 applications,
- ETCS transitions to / from level NTC,
- GSM-R.

The following items are out of scope:

- ETCS level 0 application (and transitions to / from another level),
- ETCS level NTC.

The rules have been developed independently of other control command systems that may be present including where lines are equipped with ETCS level 1 / 2 / 3.

When ETCS level 1 or ETCS level 2 are implemented on lines fitted with other control command systems it is necessary to assess the applicability of these rules and if necessary supplement them with non-harmonised rules. This includes those lines fitted with both ETCS level 1 and ETCS level 2.

Some situations however require taking into account information displayed on the DMI referring to ETCS level 0 or ETCS level NTC.

GSM-R voice radio operational rules are applicable on lines equipped with GSM-R independently of the control command system in use.

4. REFERENCES, TERMS AND ABBREVIATIONS

4.1 REFERENCE DOCUMENTS

Table 1 : reference documents

Ref. N°	Document Reference	Title
[1]	Annex A of the CCS TSI	ERA/REC/03-2012/ERTMS

4.2 TERMS & ABBREVIATIONS

Table 2 : Terms

Term	Definition
Acknowledgement	Confirmation given by the driver to a request from the ETCS on-board that he has received information he needs to take into account.
Applicable speed limit (in SR)	The lowest speed limit of: • maximum speed for SR, • maximum train speed, • timetable / Route Book, • temporary speed restrictions (transmitted by other means than written order), • written order.

Authorisation for ERTMS train movement	Permission for a train to move given by means of:
	• a trackside signal at proceed aspect or,
	• an MA or,
	• a written order:
	  ○ to start in SR after preparing a train movement or,
	  ○ to pass an EOA or,
	  ○ to proceed after train trip.

Table 2 : Terms

Term	Definition
Border crossing	Location where trains cross from a railway network in one Member State to a railway network in another Member State.
De-registration	Termination of the temporary relationship between the telephone number and the train running number. This action can be initiated by the user of a GSM-R radio, by automatic systems or by the network authority,. The de-registration allows the de-registered train running number to be re-used.
Driver Machine Interface (DMI)	Train device to enable communication between the ETCS on-board and the driver.
Emergency propelling area	Area where propelling movements in RV are allowed.
Emergency stop order	ETCS order braking a train with the maximum brake force until the train is at a standstill.
End Of Authority (EOA)	Location to which an ETCS train is authorised to proceed and where the target speed is zero.
ETCS location marker	Harmonised trackside ETCS signal used to identify the end of a block section as a potential EOA.
ETCS on-board	The part of ETCS installed on a railway vehicle.
ETCS stop marker	Harmonised trackside ETCS signal used to: • identify the end of a block section as a potential EOA and, • indicate the location where a train running in SR has to stop.
ETCS operational train category	Set of technical and / or operational characteristics of a train to which a specific ETCS speed profile applies.

Table 2 : Terms

Term	Definition
Functional number (GSM-R)	Full number used within the functional addressing scheme to identify an end user or a system by function or role rather than by a specific item of radio equipment or user subscription. The functional number can be divided into two parts: • functional addressing (process of addressing a call using a specific number, representing the function a user is performing, rather than a number identifying the GSM-R on-board), • location dependent addressing (process of addressing a particular function – typically a signaller – based on the current location of the user – typically a train).
GSM-R mode	Status of the GSM-R on-board which provides functions for: • train movement, • or shunting movement.
GSM-R network	Radio network which provides GSM-R functions.
GSM-R network marker	Harmonised trackside GSM-R signal to indicate the network to be selected.
GSM-R on-board	The part of GSM-R installed on a railway vehicle.
Maximum speed for RV	Maximum speed given from the trackside in RV.
Maximum speed for SR	Maximum speed given from the trackside in SR.
Movement Authority (MA)	Permission for a train to move to a specific location with supervision of speed.
Non stopping area	Area defined by the Infrastructure Manager where it may not be safe or suitable to stop a train.
Override EOA speed	Maximum speed when the override EOA function is active.

Table 2 : Terms

Term	Definition
Permitted speed	Maximum speed at which a train / shunting movement can run without ETCS warning and / or brake intervention.
Proceed aspect	Any signal aspect which permits the driver to pass the signal.
Propelling	Movement of a train where the driver is not in the leading cab of the leading vehicle.
Radio communication	Exchange of information between the ETCS on-board and the RBC / radio infill unit.
Radio Block Centre (RBC)	ETCS trackside centralised unit controlling ETCS train movements in level 2 / 3.
Radio hole	A pre-defined area where it is not possible to establish a reliable radio communication channel.
Registration	Temporary relationship between the telephone number and the train running number.
Release speed	Maximum speed at which a train is allowed to reach the end of its Movement Authority.
Revocation of MA	Withdrawal of a previous given MA.
Route Book	Description of the lines and the associated line-side equipment for the lines over which the driver will operate and relevant to the driving task.
Securing	Measures to be applied to avoid unintentional movement of railway vehicles.
Shunting movement	Way of moving vehicles without train data and controlled by shunting orders.

Table 2 : Terms

Term	Definition
Tandem	Two or more traction units mechanically and pneumatically coupled but not all remote controlled and where each traction unit not remote controlled requires a driver.
Temporary speed restriction	Reduction of the line speed for a limited period of time.
Text message	Information in writing displayed on the DMI.
Train data	Information which describes the characteristics of a train.
Train preparer	Performer in charge of the preparation of a train.
Transition	Controlled change between the different ETCS levels.
Transition point	Point where a transition between ETCS levels takes place.
Trip	Irrevocable application of the emergency brakes by ETCS until the train / shunting movement is at a standstill.

Table 3 : Abbreviations

Abbreviation	Definition
DMI	Driver Machine Interface
EOA	End Of Authority
ERTMS	European Rail Traffic Management System
ETCS	European Train Control System
FS	Full Supervision
G	Goods train braking mode
GSM-R	Global System for Mobile communication - Railway
LS	Limited Supervision
MA	Movement Authority
NL	Non Leading
NTC	National Train Control system
OS	On Sight
P	Passenger train braking mode
RBC	Radio Block Centre
RV	Reversing
SH	Shunting
SN	National System
SR	Staff Responsible
STM	Specific Transmission Module
UN	Unfitted
VBC	Virtual Balise Cover

5. PRINCIPLES

5.1 PRINCIPLES FOR ETCS

5.1.1 CAB-SIGNALLING

Cab signalling provides movement authorities to trains; these movement authorities are displayed on a DMI installed in the driver's cab. The driver shall observe the displayed information on the DMI and shall react as required by the operational rules; the operational rules (including non-harmonised rules) could require him at times to look outside.

5.1.2 KNOWLEDGE OF OPERATING LEVEL

Before applying an ETCS rule that is particular to a specific operating level the signaller shall ascertain what level the concerned train is operating in.

5.1.3 OBSERVANCE OF SIGNALLING

The driver shall obey the indications displayed on the DMI.

5.1.4 INTENTIONALLY BLANK

5.1.5 INTENTIONALLY BLANK

5.1.6 AUTHORISATION TO START A MOVEMENT IN SR

The driver shall be authorised by the signaller to start a movement in SR by means of written order, except in case of starting a movement in level 1 / 2 with trackside signals.

5.1.7 SPEED RESTRICTIONS IN SR

The signaller shall give all speed restrictions lower than the maximum speed for SR to the driver of a train running in SR by means of written order except if the driver is informed by a dedicated document/computer medium about these speed limitations.

5.1.8 AUTHORISATION TO PASS AN EOA

The driver shall only be authorised to pass an EOA by the signaller by means of a written order.

5.1.9 TRAINS / SHUNTING MOVEMENTS BEING TRIPPED

After a trip has occurred the driver shall continue running in the same direction only if he has received permission by written order from the signaller.

5.2 PRINCIPLES FOR GSM-R

Intentionally blank.

6. ETCS RULES

6.1 PUTTING THE ETCS ON-BOARD INTO SERVICE

The driver switches the ETCS on-board on. Levels 0, 1, 2, 3, NTC

When requested by the ETCS on-board, the driver shall enter, re-enter or re-validate the driver identification, the level, the radio network identification and the RBC identification / phone number.

In case the following text message is displayed:

"Radio network registration failed"

the driver shall enter the radio network identification.

6.2 PREPARING A MOVEMENT

The ETCS on-board is in service. Levels 0, 1, 2, 3, NTC

In level 2 / 3, in case the train is rejected the driver shall apply rule "reacting to unexpected situations when preparing a train movement" (section 6.40.2).

6.2.1 The traction unit has to move as a train

The driver shall:

- apply rule "entering data" (section 6.4.1),
- select "Start".

In case an acknowledgement for SR is requested in level 1 without trackside signals, in level 2 without trackside signals and in level 3, the driver shall apply section 6.2.4.

In case an acknowledgement for SH is requested in level 2 / 3, the driver shall apply rule "reacting to unexpected situations when preparing a train movement" (section 6.40.1).

6.2.2 The traction unit has to move in SH

The driver shall prepare for shunting and apply rule “performing shunting movements in SH”.

6.2.3 The traction unit has to move in NL

The driver of the non leading engine shall prepare for tandem movement and apply rule “performing a tandem movement”.

6.2.4 The traction unit has to move as a train and an acknowledgement for SR is requested

Levels 1 without trackside signals, 2 without trackside signals, 3

When the following symbol is displayed with a flashing frame:

the driver shall inform the signaller about the situation.

Before acknowledging the driver shall receive permission to start in SR from the signaller by means of ETCS Written Order 07.

Before authorising a driver to start in SR, the signaller shall, according to non-harmonised rules:

- check if all the conditions for the route are met,
- check all restrictions and / or instructions that are necessary and include them in ETCS Written Order 07,
- check for temporary speed restrictions to be included in ETCS Written Order 07.

If the train is not located at an ETCS stop marker this authorisation is valid from the current location of the train to the next ETCS stop marker.

If the train is located at an ETCS stop marker this authorisation is valid from this ETCS stop marker to the next one; the signaller shall authorise the driver to pass the EOA by means of ETCS Written Order 07.

The driver shall:

- receive ETCS Written Order 07 from the signaller,
- check the applicable speed limit,
- use the override function if requested,
- and when the following symbol is displayed:

  - start the train,
  - not exceed the override EOA speed while this symbol is displayed.

If allowed by non-harmonised rules, the signaller can authorise the driver to pass several consecutive ETCS stop markers with only one written order.

If the signaller can establish that the track is free then he can exempt the driver from running on sight in SR according to non-harmonised rules.

6.3 PERFORMING SHUNTING MOVEMENTS IN SH

Rolling stock has to be moved in SH. Levels 1, 2, 3

6.3.1 Manual entry into SH

The driver shall select “Shunting” according to non-harmonised rules.

6.3.2 Automatic entry into SH

When the following symbol is displayed with a flashing frame:

the driver shall:

- first ensure he has the correct information concerning the movement he is to perform,
- then acknowledge.

6.3.3 Running in SH

When the following symbol is displayed:

the driver shall apply non-harmonised rules.

6.3.4 Maintain SH when changing the cab

When the shunting procedure requires the use of different cabs the driver is allowed to select “Maintain Shunting” before closing the driving desk.

6.3.5 Exit from SH

When all shunting movements to be performed in SH are finished the driver shall:

- select “Exit Shunting”,
- ensure that no traction unit remains in the “Maintain Shunting” status.

6.3.6 SH not granted

Levels 2, 3

When one of the following text messages is displayed:

“SH refused”

“SH request failed”

the driver shall inform the signaller about the situation.

Driver and signaller shall apply non-harmonised rules.

6.3.7 Passing a defined border of a shunting area

When a shunting movement needs to pass a defined border of a shunting area driver and signaller shall apply non-harmonised rules.

6.4 ENTERING DATA

Data have to be entered or modified. Levels 0, 1, 2, 3, NTC

6.4.1 Entering data during train preparation

The train preparer shall enter / modify and confirm all of the following data:

- ETCS operational train category,
- train length,
- deceleration data / brake parameters,
- maximum train speed,
- axle load / axle load category,
- train fitted with airtight system,
- additional data for the available STMs,
- train running number,

if this data is not pre-configured on-board or received from ETCS external sources.

Before confirming data that is pre-configured on-board or received from ETCS external sources and that are modifiable by the driver, the train preparer shall make sure the train data and the train consist match.

6.4.2 Manual change of data

After each modification of the composition of the train and after a technical problem that leads to a modification of the data, the train preparer / driver shall:

- determine the new data,
- enter the data,
- validate the new data.

6.4.3 Change of data by ETCS external sources

When the following text message is displayed on the DMI:

"Train data changed"

a) if the change of train data leads to an application of the brake

When at a standstill, the driver shall:

- acknowledge the brake application,
- modify and/or validate the data if requested by the on-board system,
- take into account the modified data.

In level 1, and in level 2 if no new MA is received, the signaller shall authorise the driver to pass the EOA (rule "authorising the passing of an EOA").

b) in all other cases

The driver shall take into account the modified data.

6.5 INTENTIONALLY BLANK

6.6 INTENTIONALLY BLANK

6.7 ENTERING AND OPERATING IN LEVEL 0

6.7.1 Announcement

The train is approaching a level 0 area. Levels 1, 2, 3, NTC

When a transition to level 0 is announced by displaying the following symbol:

the driver shall apply non-harmonised rules.

6.7.2 Acknowledgement

When the following symbol is displayed with a flashing frame:

the driver shall acknowledge.

6.7.3 Running

The train is running in a level 0 area.

When the following symbol is displayed:

the driver shall apply non-harmonised rules.

6.8 ENTERING AND OPERATING IN LEVEL 1

6.8.1 Announcement

The train is approaching a level 1 area. Levels 2, 3, NTC

When a transition to level 1 is announced by displaying the following symbol:

the driver shall prepare to apply rules for level 1.

6.8.2 Acknowledgement

When the following symbol is displayed with a flashing frame:

the driver shall acknowledge.

6.8.3 Running

The train is running in a level 1 area.

When the following symbol is displayed:

the driver shall apply rules according to level 1.

6.9 ENTERING AND OPERATING IN LEVEL 2

6.9.1 Announcement

The train is approaching a level 2 area. Levels 1, 3, NTC

When a transition to level 2 is announced by displaying the following symbol:

the driver shall prepare to apply rules for level 2.

6.9.2 Acknowledgement

When the following symbol is displayed with a flashing frame:

the driver shall acknowledge.

6.9.3 Running

The train is running in a level 2 area.

When the following symbol is displayed:

the driver shall apply rules according to level 2.

6.10 ENTERING AND OPERATING IN LEVEL 3

6.10.1 Announcement

The train is approaching a level 3 area. Levels 1, 2, NTC

When a transition to level 3 is announced by displaying the following symbol:

the driver shall prepare to apply rules for level 3.

6.10.2 Acknowledgement

When the following symbol is displayed with a flashing frame:

the driver shall acknowledge.

6.10.3 Running

The train is running in a level 3 area.

When the following symbol is displayed:

the driver shall apply rules according to level 3.

6.11 ENTERING AND OPERATING IN LEVEL NTC

6.11.1 Announcement

The train is approaching a level NTC area. Levels 1, 2, 3

When a transition to level NTC is announced by displaying the following symbol:

the driver shall apply non-harmonised rules.

6.11.2 Acknowledgement

When the following symbol is displayed with a flashing frame:

the driver shall acknowledge.

6.11.3 Running

The train is running in a level NTC area.

When the following symbol is displayed:

the driver shall apply non-harmonised rules.

Note: the symbols which are displayed on the DMI are given as examples; it is in reality a specific symbol for each NTC.

6.12 RUNNING IN FS

Levels 1, 2, 3

When the following symbol is displayed:

the driver shall not exceed the permitted speed.

If in addition the following text message is displayed:

"Entering FS"

the driver shall not exceed speed restrictions that apply for the part of the train that is not covered by the FS MA.

6.13 RUNNING IN OS

Levels 1, 2, 3

When the following symbol is displayed with a flashing frame:

the driver shall:

- acknowledge,
- start or continue running on sight.

When the following symbol is displayed:

the driver shall:

- run on sight as long as this symbol is displayed,
- not exceed the permitted speed.

If in addition the following text message is displayed:

“Entering OS”

the driver shall not exceed speed restrictions that apply for the part of the train that is not covered by the OS MA.

6.14 RUNNING IN SR

Levels 1, 2, 3

When the following symbol is displayed with a flashing frame:

the driver shall:

- first receive an authorisation for ERTMS train movement,
- check the applicable speed limit,
- then acknowledge.

When the following symbol is displayed:

the driver shall:

- run on sight, unless a written order exempts him from running on sight in SR,
- not exceed the applicable speed limit,
- in level 1 without trackside signal, in level 2 without trackside signals, and in level 3, stop at the next ETCS stop marker, inform the signaller about the situation and follow any instructions given.

If allowed by non-harmonised rules, the driver can be authorised by the signaller to pass several consecutive ETCS stop markers with only one written order.

6.15 RUNNING IN LS

Levels 1, 2

When the following symbol is displayed with a flashing frame:

the driver shall acknowledge according to non-harmonised rules.

When the following symbol is displayed:

the driver shall apply non-harmonised rules.

6.16 RUNNING IN UN

Level 0

When the following symbol is displayed with a flashing frame:

the driver shall acknowledge according to non-harmonised rules.

When the following symbol is displayed:

the driver shall apply non-harmonised rules.

6.17 RUNNING IN SN

Level NTC

When the following symbol is displayed with a flashing frame:

the driver shall acknowledge according to non-harmonised rules.

When the following symbol is displayed:

the driver shall apply non-harmonised rules.

6.18 APPROACHING AN EOA WITH A RELEASE SPEED INDICATION

Levels 1, 2, 3

When the train is approaching an EOA and a release speed is displayed on the DMI, the driver is authorised:

- to approach a signal or a buffer stop which is a short distance behind the EOA indicated on the DMI without exceeding the release speed,
- in level 1 with trackside signals to proceed without exceeding the release speed when the trackside signal shows a proceed aspect.

6.19 MANAGING A TRACK AHEAD FREE REQUEST

The train is at a standstill or approaching a trackside signal, or an ETCS stop marker / ETCS location marker. Levels 2, 3

When the following symbol is displayed:

the driver is allowed to confirm that the track ahead is free if he can ascertain that the track section between the head of the train and the next trackside signal, or ETCS stop marker / ETCS location marker is free.

6.20 PASSING A SECTION WITH LOWERED PANTOGRAPH(S)

The train is approaching a section of the line to be passed with lowered pantograph(s). Levels 1, 2, 3

When the following symbol is displayed:

the driver shall lower the pantograph(s).

When the following symbol is displayed:

the driver shall keep the pantograph(s) lowered.

When the following symbol is displayed:

the driver is authorised to raise the pantograph(s), taking into account their positions.

6.21 CHANGING THE ELECTRIC POWER SUPPLY

The train is approaching a section of the line where the electric power supply must be changed. Levels 1, 2, 3

When one of the following symbols is displayed:

the driver shall change the electric power supply accordingly.

6.22 PASSING A SECTION WITH MAIN POWER SWITCH SWITCHED OFF

The train is approaching a section of the line where the main power switch must be switched off. Levels 1, 2, 3

When the following symbol is displayed:

the driver shall switch off the main power switch.

When the following symbol is displayed:

the driver shall keep the main power switch switched off.

When the following symbol is displayed:

the driver is authorised to switch on the main power switch, taking into account the position of the pantographs.

6.23 PASSING A NON STOPPING AREA

The train is approaching a non stopping area. Levels 1, 2, 3

When the following symbol is displayed:

the driver shall avoid stopping in the announced non stopping area.

When the following symbol is displayed:

the driver shall avoid stopping.

6.24 PASSING A SECTION WITH INHIBITION OF MAGNETIC SHOE BRAKE

The train is approaching a section of the line where the magnetic shoe brake shall not be used. Levels 1, 2, 3

When the following symbol is displayed:

the driver shall release the magnetic shoe brake, if applied, except in case of an emergency situation.

When the following symbol is displayed:

the driver shall not use the magnetic shoe brake except in case of an emergency situation.

6.25 PASSING A SECTION WITH INHIBITION OF EDDY CURRENT BRAKE

The train is approaching a section of the line where the eddy current brake shall not be used. Levels 1, 2, 3

When the following symbol is displayed:

the driver shall release the eddy current brake, if applied, except in case of an emergency situation.

When the following symbol is displayed:

the driver shall not use the eddy current brake except in case of an emergency situation.

6.26 PASSING A SECTION WITH INHIBITION OF REGENERATIVE BRAKE

The train is approaching a section of the line where the regenerative brake shall not be used. Levels 1, 2, 3

When the following symbol is displayed:

the driver shall release the regenerative brake, if applied, except in case of an emergency situation.

When the following symbol is displayed:

the driver shall not use the regenerative brake except in case of an emergency situation.

6.27 PASSING A PRESSURE SEAL SECTION

The train is approaching a section of the line where the air condition intakes shall be closed. Levels 1, 2, 3

When the following symbol is displayed:

the driver shall close the air conditioning intakes.

When the following symbol is displayed:

the driver shall keep the air conditioning intakes closed.

When the following symbol is displayed:

the driver is authorised to open the air conditioning intakes.

6.28 SOUNDING THE AUDIBLE WARNING DEVICE

Levels 1, 2, 3

When the following symbol is displayed:

the driver shall apply the audible warning device according to non-harmonised rules.

6.29 CHANGING OF ADHESION FACTOR

The train is in a section of line where the adhesion factor could be changed. Levels 1, 2, 3

When the following symbol is displayed:

the driver shall apply non-harmonised rules.

6.30 PASSING A RADIO HOLE

The train is in a section of line without radio coverage. Levels 2, 3

When the following symbol is displayed:

the driver shall apply non-harmonised rules.

6.31 ENTERING AN OCCUPIED TRACK SECTION WITHIN A STATION

It is necessary to enter a track section that is occupied in a station. Levels 1, 2, 3

When a train has to enter an occupied track, the signaller shall:

- obtain confirmation that the occupying train is at a standstill and will remain at a standstill,
- set the route for the train that has to enter the occupied track
- if required by non-harmonised rules authorise the train to enter the occupied track.

In case of an unplanned movement and if required by non-harmonised rules, the signaller shall inform the drivers of both trains of the circumstances before setting the route. The driver of the train that has to enter the occupied track shall follow the instructions received from the signaller.

6.32 PERFORMING A TANDEM MOVEMENT

A non leading engine is coupled to the master engine (or to a train including the master engine). Levels 1, 2, 3

6.32.1 Entry into NL

The driver of the non leading engine shall select “Non-Leading”.

When the following symbol is displayed on the DMI:

the driver of the non leading engine shall confirm to the driver of the leading engine that the non leading traction unit is in NL.

When the following text message is displayed on the DMI of the non leading engine:

“No track condition will be received”

the driver of the non leading engine shall inform the driver of the leading engine. Both drivers shall apply non-harmonised rules.

6.32.2 Performing the tandem movement

The tandem movement shall be performed according to non-harmonised rules.

6.32.3 Exit from NL

When the train is at a standstill the driver of the non leading engine shall:

- apply the brakes,
- confirm to the driver of the leading engine that the non leading traction unit is not any more in NL.

6.33 REVOKING AN AUTHORISATION FOR ERTMS TRAIN MOVEMENT

The signaller decides to change existing traffic arrangements. Levels 1, 2, 3

If possible in level 2 and in level 3 the signaller shall revoke an MA by the use of the co-operative shortening of MA.

In all other cases, the signaller shall apply non-harmonised rules.

When non-harmonised rules stipulate that a train has to be at a standstill before making traffic arrangements, the signaller shall order the driver to remain at a standstill by means of ETCS Written Order 03.

To restart the trains the signaller shall:

- issue an authorisation for ERTMS train movement,
- issue ETCS Written Order 04 in order to revoke ETCS Written Order 03.

6.34 TAKING MEASURES IN THE EVENT OF AN EMERGENCY

An emergency situation occurs. Levels 1, 2, 3

6.34.1 To protect the trains

When a performer discovers an emergency situation he shall perform all actions necessary to avoid or reduce the effect of the situation and inform the signaller as soon as possible according to non-harmonised rules.

When a signaller is informed of an emergency situation he shall immediately protect endangered trains.

To stop trains in level 2 and in level 3, the signaller may use the emergency stop order; the emergency stop order shall not be revoked before it is safe for these trains to restart.

The signaller shall stop all other trains approaching the danger area according to non-harmonised rules.

The signaller shall inform all drivers as appropriate.

When the following text message is displayed:

"Emergency stop"

the driver shall apply rule "responding to a trip".

6.34.2 To restart the trains

According to non-harmonised rules, the signaller shall:

- decide if it is possible to authorise train movement,
- decide if instructions and / or restrictions for train movement are necessary,
- if an emergency stop order has been issued revoke it,
- give authorisation to the drivers to restart.

To restart trains that have not been tripped and if instructions and / or restrictions are necessary the signaller shall issue ETCS Written Order 05. In level 1 with trackside signals the driver shall run on sight up to the next trackside signal.

To restart trains that have been tripped, signaller and driver shall take measures in response to a trip (rule “responding to a trip”). The signaller shall include necessary instructions and / or restrictions for train movement according to non-harmonised rules in ETCS Written Order 02.

6.34.3 To protect and restart shunting movements

The signaller and the driver shall apply non-harmonised rules.

6.35 STOPPING IN A SAFE AREA

The driver needs to stop the train in a safe area. Levels 1, 2, 3

The driver shall toggle on the display of the indication of the safe areas where the train can stop.

When the following symbol is displayed:

and the driver decides to stop at the indicated safe area he shall take into account the remaining distance displayed on the DMI.

When the following symbol is displayed:

and the driver decides to stop at the indicated safe area he shall stop the train.

6.36 PROPELLING IN RV

A train has to be moved in the reverse direction inside an emergency propelling area. Levels 1, 2, 3

6.36.1 Preparing the movement to be performed in RV

When the train is at a standstill and the following symbol is displayed:

the driver shall trigger the transition to RV.

6.36.2 Running in RV

When the following symbol is displayed with a flashing frame:

the driver shall:

- acknowledge,
- propel the train according to non-harmonised rules as soon as the following symbol is displayed:

- not exceed the maximum speed for RV,
- not exceed the permitted distance to run.

6.36.3 Exceeding the permitted distance in RV

When the following text message is displayed with a flashing frame:

"RV distance exceeded",

the driver shall:

- report to the signaller,
- acknowledge at a standstill if the permitted distance in RV has not been extended,
- release the brake.

6.36.4 Exit from RV

After the train has completed its propelling and as soon as it is at a standstill the driver shall report to the signaller. If no additional movement in RV is required the driver shall close the driving desk to exit RV.

6.37 REACTING TO UNINTENTIONAL MOVEMENTS

After being at a standstill the train / shunting movement has moved unintentionally and the ETCS on-board has triggered the brake. Levels 1, 2, 3

When the following text message is displayed:

"Runaway movement",

the driver shall secure the train / shunting movement according to non-harmonised rules and acknowledge the brake application.

6.38 MANAGING ROUTE UNSUITABILITY

Levels 1, 2, 3

When a route unsuitability is detected driver and signaller shall apply non-harmonised rules.

6.39 AUTHORISING THE PASSING OF AN EOA

It is necessary to authorise a driver to pass an EOA. Levels 1, 2, 3

Before authorising a driver to pass an EOA by means of ETCS Written Order 01 the signaller shall, according to non-harmonised rules:

- check if all the conditions for the route are met,
- check all restrictions and / or instructions that are necessary and include them in ETCS Written Order 01,
- check for temporary speed restrictions to be included in ETCS Written Order 01.

If the signaller can establish that the track is free then he can exempt the driver from running on sight in SR according to non-harmonised rules.

In level 1 without trackside signals, in level 2 without trackside signals and in level 3, if allowed by non-harmonised rules, the signaller can authorise the driver to pass several consecutive ETCS stop markers with only one written order.

To pass the EOA, the driver shall:

- receive ETCS Written Order 01 from the signaller,
- check the applicable speed limit,
- use the override function,
- and when the following symbol is displayed:

  - start the train,
  - not exceed the override EOA speed while this symbol is displayed.

6.40 REACTING TO UNEXPECTED SITUATIONS WHEN PREPARING A TRAIN MOVEMENT

Levels 2, 3

6.40.1 The traction unit has to move as a train but an acknowledgement for SH is requested

When the following symbol is displayed with a flashing frame:

before acknowledging the driver shall inform the signaller about the situation.

Driver and signaller shall apply non-harmonised rules.

6.40.2 The train is rejected

When the following text message is displayed on the DMI:

"Train is rejected"

the driver shall inform the signaller about the situation. Driver and signaller shall apply non-harmonised rules.

6.41 RESPONDING TO A TRIP

A train or a shunting movement is tripped. Levels 1, 2, 3

6.41.1 Immediate measures

When the following symbol is displayed:

the driver shall assume that there is a dangerous situation and he shall perform all actions necessary to avoid or reduce the effect of this situation. This may include moving the train / shunting movement backwards according to non-harmonised rules.

a) In case a backward movement is necessary

When, in accordance with non-harmonised rules, the driver decides to move the train / shunting movement backwards and when the following symbol is displayed with a flashing frame:

the driver shall acknowledge.

When the following symbol is displayed:

the driver shall:

- release the emergency brake and,
- move the train / shunting movement backwards.

After moving backwards as soon as the train / shunting movement is at a standstill, the driver shall inform the signaller about the situation.

b) In all other cases

When the following symbol is displayed with a flashing frame:

the driver shall acknowledge.

When the following symbol is displayed:

the driver shall inform the signaller about the situation.

6.41.2 To continue running

Before giving permission to the driver to proceed after a trip by means of ETCS Written Order 02 the signaller shall, according to non-harmonised rules:

- check if all the conditions for the route are met,
- check all restrictions and / or instructions that are necessary and include them in ETCS Written Order 02,
- check for temporary speed restrictions to be included in ETCS Written Order 02.

If the signaller can establish that the track is free then he can exempt the driver of a train from running on sight in SR if allowed by non-harmonised rules.

To proceed the driver shall:

- receive ETCS Written Order 02 with all additional instructions given by the signaller,
- according to the task to be performed select “Start” or “SH” and follow the instructions given in ETCS Written Order 02,
- restart the train / shunting movement.

If in level 2 and in level 3, at any step of the procedure, the following text message is displayed:

”Communication error”,

the driver shall inform the signaller about the situation. Signaller and driver shall take measures to pass an EOA (rule “authorising the passing of an EOA”). In this case, ETCS Written Order 01 shall be issued by the signaller in place of ETCS Written Order 02.

6.41.3 No movement required after a trip

In the case of a train / shunting movement not required to be moved after a trip, the signaller shall order the driver to select “Start” / “SH” and close the driving desk by means of ETCS Written Order 02 using the additional instructions section.

6.41.4 Trip in SH when passing a defined border of a shunting area

Levels 1, 2, 3

When a shunting movement is tripped when passing a defined border of a shunting area driver and signaller shall apply non-harmonised rules.

6.42 MANAGING A TRACKSIDE MALFUNCTION

The on-board receives the information of a trackside equipment malfunction. Levels 1, 2, 3

When the following text message is displayed:

"Trackside malfunction",

the driver shall inform the signaller about the situation.

6.43 MANAGING INCOMPATIBILITY BETWEEN TRACKSIDE AND ETCS ON-BOARD

An incompatibility between trackside and ETCS on-board occurs and the brakes are triggered by the ETCS on-board (the train is not tripped). Levels 1, 2, 3

When the following text message is displayed:

"Trackside not compatible",

the driver shall inform the signaller about the situation.

Driver and signaller shall apply non-harmonised rules.

6.44 MANAGING A LEVEL CROSSING NOT PROTECTED

The train is approaching a level crossing which is not protected. Levels 1, 2, 3

6.44.1 If in FS, OS or LS

When the following symbol is displayed:

the driver shall apply non-harmonised rules.

6.44.2 If in SR

When the following text message is displayed:

"Level crossing not protected",

driver and signaller shall apply non-harmonised rules.

6.45 MANAGING A BALISE READ ERROR

A balise read error occurs and the brakes are triggered by the ETCS on-board (the train is not tripped). Levels 1, 2, 3

When the following text message is displayed:

"Balise read error",

and the train is not tripped, the driver shall inform the signaller about the situation.

If no new MA is received, when the train has come to a standstill, the signaller shall authorise the driver to pass the EOA (rule "authorising the passing of an EOA").

If the situation is repeated driver and signaller shall apply non-harmonised rules.

6.46 MANAGING A FAILED LEVEL TRANSITION

The transition takes place but no MA valid beyond the transition point is received on-board or the transition does not take place when passing the transition point. Levels 1, 2, 3

6.46.1 If the train has been tripped

The driver and the signaller shall take measures in response of a trip (rule “responding to a trip”).

After selecting “Start” the driver shall:

- check the correct ETCS level to be selected,
- change the ETCS level (rule “entering data” (section 6.4.2)),

and then restart the train.

In case the ETCS level to be selected is not available on-board driver and signaller shall apply non-harmonised rules.

6.46.2 If in SR

The driver shall:

- stop the train,
- apply the following section 6.46.3.

6.46.3 In all other cases

The driver shall:

- inform the signaller about the situation,
- when at a standstill check the correct ETCS level to be selected,
- change the ETCS level (rule “entering data” (section 6.4.2)),

and then restart the train.

In case the ETCS level to be selected is not available on-board driver and signaller shall apply non-harmonised rules.

6.47 MANAGING ABSENCE OF RBC INFORMATION

There is no RBC information received in an area not identified as a radio hole and the brakes are triggered by the ETCS on-board (the train is not tripped). Levels 2, 3

When the following text message is displayed:

”Communication error”,

the driver shall inform the signaller about the situation when at a standstill.

If no new MA is received when the train has come to a standstill, the signaller shall authorise the driver to pass the EOA (rule “authorising the passing of an EOA”).

6.48 MANAGING A RADIO COMMUNICATION FAILURE

An ETCS radio communication failure occurs. Levels 0, 1, 2, 3, NTC

When the following symbol is displayed:

the driver shall check the ETCS level, the radio network identification, the RBC identification / phone number, and correct them if necessary (rule “entering data” (section 6.4.2)).

If the radio communication with the RBC still cannot be established, the driver shall inform the signaller about the situation.

a) when in level 2 preparing a movement and the traction unit has to move in SH

The driver and the signaller shall apply non-harmonised rules.

b) when in level 2 preparing a tandem movement

The driver of the non leading engine shall inform the driver of the leading engine about the radio communication failure. Both drivers shall apply non-harmonised rules.

c) in all other cases

The signaller shall authorise the driver to pass the EOA (rule ”authorising the passing of an EOA”).

6.49 MANAGING A FAILURE OF SELF TEST

Levels 0, 1, 2, 3, NTC

When the information about the failure of an ETCS device is shown to the driver, he shall switch off the ETCS on-board and then switch it on again to trigger a new self test. If the same information is shown again, the driver shall inform the signaller about the situation.

The driver shall request a change of traction unit.

If the traction unit must be moved driver and signaller shall apply non-harmonised rules.

6.50 MANAGING A FAILURE AFFECTING THE ON-BOARD RADIO EQUIPMENT

Levels 0, 1, 2, 3, NTC

When a failure of the on-board radio equipment is detected the driver shall inform the signaller about the situation.

6.50.1 During the preparation of the traction unit

Levels 2, 3

The driver shall request a change of traction unit.

If the traction unit must be moved, driver and signaller shall apply non-harmonised rules.

If the traction unit must not be moved, the driver shall switch off the ETCS on-board.

6.50.2 While running

Levels 1 with infill function by radio, 2, 3

Driver and signaller shall apply non-harmonised rules.

6.51 MANAGING A DMI WITH BLANK SCREEN

The DMI fails and shows a blank screen. Levels 0, 1, 2, 3, NTC

When the DMI fails and shows a blank screen the driver shall inform the signaller about the situation.

Driver and signaller shall apply non-harmonised rules.

6.52 MANAGING A SYSTEM FAILURE

Levels 0, 1, 2, 3, NTC

When the following symbol is displayed:

the driver shall inform the signaller about the situation.

Driver and signaller shall apply non-harmonised rules.

6.53 MANAGING A NTC FAILURE

Levels 0, 1, 2, 3, NTC

When the following text message is displayed:

"[name of NTC] failed"

the driver shall apply non-harmonised rules.

6.54 MANAGING A VBC

Levels 0, 1, 2, 3, NTC

Driver and signaller shall apply non-harmonised rules.

7. GSM/R RULES

7.1 SELECTING THE GSM-R MODE

The driver needs to change the GSM-R mode.

When the displayed GSM-R mode does not correspond with the task to be performed (train or shunting movement), the driver shall select the correct mode.

7.2 ENTERING THE FUNCTIONAL NUMBER

The train preparer / driver is performing the registration.

The train preparer / driver shall enter the functional number:

- as early as possible before the initial departure,
- every time the functional number changes.

7.3 SELECTING THE GSM-R NETWORK AT A BORDER CROSSING

The train is approaching a border crossing.

When according to the Route Book or a GSM-R network marker the driver has to select a new GSM-R network, he shall start the selection process unless he is engaged in an emergency call

7.4 PERFORMING A DE-REGISTRATION

The train has to be manually de-registered.

The driver shall carry out the de-registration according to non-harmonised rules.

7.5 INTENTIONALLY BLANK

7.6 MANAGING A FAILURE OF SELF TEST

When the following text message is displayed:

"Self test failed",

the driver shall inform the signaller about the situation.

Driver and signaller shall apply non-harmonised rules.

7.7 MANAGING A LACK OF GSM-R NETWORK

When the following text message is displayed:

"No network",

the driver shall inform the signaller about the situation.

Driver and signaller shall apply non-harmonised rules.

7.8 MANAGING A FAILURE OF THE GSM-R ON-BOARD WHILE RUNNING

The driver shall inform the signaller about the situation.

Driver and signaller shall apply non-harmonised rules.

7.9 MANAGING A FAILURE OF DE-REGISTRATION

If the de-registration is not possible the driver shall inform the signaller about the situation.

Driver and signaller shall apply non-harmonised rules.

7.10 TAKING MEASURES IN CASE THE FUNCTIONAL NUMBER IS NOT AVAILABLE

When the following text message is displayed:

"Number not available",

the train preparer / driver shall check the correct number and try again to register.

If the registration fails again, he shall inform the signaller about the situation.

Train preparer / driver and signaller shall apply non-harmonised rules.

7.11 TAKING MEASURES IN CASE THE FUNCTIONAL NUMBER IS ALREADY USED

When the following text message is displayed:

"Number already used",

the train preparer / driver shall check the correct number and inform the signaller if the number is correct.

Train preparer / driver and signaller shall apply non-harmonised rules.

7.12 MANAGING A FAILURE WHILE ENTERING THE FUNCTIONAL NUMBER

When it is not possible to enter the functional number, the train preparer / driver shall inform the signaller about the situation.

Train preparer / driver and signaller shall apply non-harmonised rules.

8. ANNEX A – ERTMS WRITTEN ORDERS

The information contained in these written orders is mandatory, the presentation is informative (including the numbering of the ETCS written orders and the numbering of the clauses within the written order).

The different ETCS written orders to be used according to the operational rules are the following:

- ETCS Written Order 01: Permission to pass an EOA
- ETCS Written Order 02: Permission to proceed after a trip
- ETCS Written Order 03: Obligation to remain at a standstill
- ETCS Written Order 04: Revocation of ETCS Written Order 03
- ETCS Written Order 05: Obligation to run under restrictions
- ETCS Written Order 06: (reserved)
- ETCS Written Order 07: Permission to start in SR after preparing a movement

1 – ETCS Written Order 01

ETCS Written Order 01

PERMISSION TO PASS AN EOA

Signal box: **Date: ...../...../.....** **Time: ..... : .....**
…….....
(dd / mm / yy) (hh : mm)

Train Running Number: .....

at: ..... on track: .....
(km / signal)

1 ☐ is allowed to pass EOA at: .....
(km / signal)

2 ☐ run with maximum speed of:

..... km/h from ..... to .....
(km / signal) (km / signal)

and ..... km/h from ..... to .....
(km / signal) (km / signal)

and ..... km/h from ..... to .....
(km / signal) (km / signal)

3 ☐ is exempted from running on sight

4 ☐ set SR speed to ..... km/h

5 ☐ set SR distance to ..... m

6 ☐ additional instructions: .....
.....
.....

Authorisation Number: .....

Mark with a cross the boxes of the sections that shall become valid (X).
In the valid sections fill in the information on the dotted lines.
Delete non-valid text in brackets (example: km ~~/ signal~~).

2 – ETCS Written Order 02

ETCS Written Order 02

PERMISSION TO PROCEED AFTER A TRIP

Signal box: ..... **Date: ...../...../.....** (dd / mm / yy) **Time: ..... : .....** (hh : mm)

Train Running Number or Shunting Movement Number: .....

at: ..... on track: ..... (km / signal)

1 ☐ if no MA received is allowed to start in SR

2 ☐ select SH

3 ☐ run with maximum speed of:

..... km/h from: ..... (km / signal) to: ..... (km / signal)

and ..... km/h from: ..... (km / signal) to: ..... (km / signal)

4 ☐ is exempted from running on sight

5 ☐ examine the line, for the following reason: .....

6 ☐ report findings to: .....

7 ☐ set SR speed to ..... km/h

8 ☐ set SR distance to ..... m

9 ☐ additional instructions: .....

Authorisation Number: .....

Mark with a cross the boxes of the sections that shall become valid (X).

In the valid sections fill in the information on the dotted lines.
Delete non-valid text in brackets (example: km ~~/ signal~~).

3 – ETCS Written Order 03

ETCS Written Order 03

OBLIGATION TO REMAIN AT A STANDSTILL

Signal box: ..... **Date: ...../...../.....** (dd / mm / yy) **Time: ..... : .....** (hh : mm)

Train Running Number: .....

at: ..... on track: ..... (km / signal)

1 ☐ remain at a standstill at the current position

2 ☐ additional instructions: .....

.....

.....

Authorisation Number: .....

Mark with a cross the boxes of the sections that shall become valid (X).
In the valid sections fill in the information on the dotted lines.
Delete non-valid text in brackets (example: km ~~/ signal~~).

4 – ETCS Written Order 04

ETCS Written Order 04

REVOCATION OF ETCS WRITTEN ORDER 03

Signal box: ..... **Date: ...../...../.....** (dd / mm / yy) **Time: ..... : .....** (hh : mm)

Train Running Number: .....

at: ..... on track: ..... (km / signal)

1 ☐ ETCS written order 03 with Authorisation Number ..... is revoked

2 ☐ additional instructions: .....

.....

.....

Authorisation Number: .....

Mark with a cross the boxes of the sections that shall become valid (X).
In the valid sections fill in the information on the dotted lines.
Delete non-valid text in brackets (example: km ~~/ signal~~).

5 – ETCS Written Order 05

ETCS Written Order 05

OBLIGATION TO RUN UNDER RESTRICTIONS

Signal box: ..... **Date: ...../...../.....** (dd / mm / yy) **Time: ..... : .....** (hh : mm)

Train Running Number or Shunting Movement Number: .....

at: ..... on track: ..... (km / signal)

1 ☐ run on sight from: ..... (km / signal) to: ..... (km / signal)

2 ☐ run with maximum speed of:

..... km/h from: ..... (km / signal) to: ..... (km / signal)

and ..... km/h from: ..... (km / signal) to: ..... (km / signal)

and ..... km/h from: ..... (km / signal) to: ..... (km / signal)

3 ☐ examine the line, for the following reason: .....

.....

4 ☐ report findings to: .....

5 ☐ additional instructions: .....

.....

.....

Authorisation Number: .....

Mark with a cross the boxes of the sections that shall become valid (X).
In the valid sections fill in the information on the dotted lines.
Delete non-valid text in brackets (example: km ~~/ signal~~).

6 – ETCS Written Order 06

Intentionally blank.

7 – ETCS Written Order 07

ETCS Written Order 07

PERMISSION TO START IN SR AFTER PREPARING A MOVEMENT

Signal box: ..... **Date: ...../...../.....** (dd / mm / yy) **Time: ..... : .....** (hh : mm)

Train Running Number: .....

at: ..... on track: .....
(km / signal)

1 ☐ is allowed to start in SR

2 ☐ is allowed to pass EOA at: .....
(km / signal)

3 ☐ run with maximum speed of:

..... km/h from: ..... (km / signal) to: ..... (km / signal)

and ..... km/h from: ..... (km / signal) to: ..... (km / signal)

and ..... km/h from: ..... (km / signal) to: ..... (km / signal)

4 ☐ is exempted from running on sight

5 ☐ set SR speed to ..... km/h

6 ☐ set SR distance to ..... m

7 ☐ additional instructions: .....
.....

Authorisation Number: .....

Mark with a cross the boxes of the sections that shall become valid (X).
In the valid sections fill in the information on the dotted lines.
Delete non-valid text in brackets (example: km ~~/ signal~~).

9. ANNEX B – LIST OF ETCS OPERATIONAL TRAIN CATEGORIES

The ETCS operational train categories are listed in the table below:

label	type of train	type of brake	cant deficiency
PASS 1	**passenger train**	**P**	**80**
PASS 2			**130**
PASS 3			**150**
TILT 1	**tilting passenger train**		**165**
TILT 2			**180**
TILT 3			**210**
TILT 4			**225**
TILT 5			**245**
TILT 6			**275**
TILT 7			**300**
FP 1	**freight train**		**80**
FP 2			**100**
FP 3			**130**
FP 4			**150**
FG 1		**G**	**80**
FG 2			**100**
FG 3			**130**
FG 4			**150**

10. ANNEX C – TABLE OF REFERENCES TO NON-HARMONISED RULES

The non-harmonised rules which are referenced in the ERTMS operational rules and mentioned in this document are the following:

Reference	Subject	In charge
5.1.1	Driver's observance of the line in cab-signalling	RU
6.2.4 6.14 6.39	Passing several consecutive ETCS stop markers in SR with only one written order	IM
6.2.4 6.39 6.41.2	Checking route conditions	IM
6.2.4 6.39 6.41.2	Checking necessary restrictions and / or instructions for running in SR	IM
6.2.4 6.39 6.41.2	Checking speed restrictions lower than the maximum speed for SR	IM
6.2.4 6.39 6.41.2	Exempting the driver from running on sight in SR	IM
6.3.1	Manual entry into SH	RU
6.3.3	Running in SH	IM
6.3.6	SH refused by the RBC / SH request failed	IM
6.3.7	Passing a defined border of a shunting area	IM
6.7.1	Announcement of a level 0 transition	IM

Reference	Subject	In charge
6.7.3	Running in level 0	IM
6.11.1	Announcement of a level NTC transition	IM
6.11.3	Running in level NTC	IM
6.15	Acknowledgement of LS	IM
6.15	Running in LS	IM
6.16	Acknowledgement of UN	IM
6.16	Running in UN	IM
6.17	Acknowledgement of SN	IM
6.17	Running in SN	IM
6.28	Sounding the audible warning device	IM
6.29	Changing the adhesion factor by the driver	RU
6.30	Passing a radio hole	IM
6.31	Unplanned movement entering an occupied track section within a station	IM
6.32.1	No track condition received in NL	RU
6.32.2	Performing a tandem movement	RU
6.33	Revoking an authorisation for ERTMS train movement	IM
6.34.1	Protecting trains in the event of an emergency situation	IM
6.34.2	Restarting the trains after an emergency situation	IM
6.34.3	Protecting and restarting shunting movements	IM
6.36.2	Running in RV	IM
6.37	Securing trains / shunting movements in case of unintentional movements	RU
6.38	Managing route unsuitability	IM
6.40.1	An acknowledgement for SH is requested after selecting “start”	IM
6.40.2	The train is rejected when preparing a movement	IM

Reference	Subject	In charge
6.41.1	Moving the train backwards after a trip	IM
6.41.2	To continue running after a trip	IM
6.41.4	Trip in SH	IM
6.43	Managing incompatibility between trackside and ETCS on-board	IM
6.44.1	Managing a level crossing not protected in FS / OS	IM
6.44.2	Managing a level crossing not protected in SR	IM
6.45	Managing a balise read error	IM
6.46.1 6.46.3	Incoming ETCS level not available on-board when passing a transition point	IM
6.48 a)	Managing a radio communication failure when SH is requested	IM
6.48 b)	Managing a radio communication failure when a traction unit has to move in NL	IM
6.49	Managing a failure of Self Test	IM
6.50.1	Managing a failure affecting the on-board radio equipment during the preparation of the traction unit	IM
6.50.2	Managing a failure affecting the on-board radio equipment while running	IM
6.51	Managing a DMI with blank screen	IM
6.52	Managing a system failure	IM
6.53	Managing a NTC failure	IM
6.54	Managing a VBC	IM
7.4	Performing a de-registration	RU
7.6	Managing a failure during the self test of the GSM-R on-board	IM
7.7	Managing a lack of GSM-R network	IM
7.8	Managing a failure of the GSM-R on-board while running	IM

Reference	Subject	In charge
7.9	Managing a failure of de-registration	IM
7.10	Taking measures in case the functional number is not available	IM
7.11	Taking measures in case the functional number is already used	IM
7.12	Managing a failure while entering the functional number	IM