MAINTENANCE & CUSTOMISATION GUIDE

OF THE ETCS DRIVER'S HANDBOOK

1.10
05/05/2025

ETCS DRIVER'S HANDBOOK

EUROPEAN UNION AGENCY FOR RAILWAYS

MODIFICATION HISTORY

Issue Number Date	Section Number	Modification /Description	Author/Editor
0.0.1 21/02/2025		First draft for TSI 2023 (baseline 4 Release 1)	Transurb
0.02 01/04/2025		Draft elaborated by ERA	ERA
1.00 11/04/2025		First consolidated release	Transurb

Notice for use/Disclaimer

This Handbook may serve as the basis for a generic training material and reference guide for drivers being trained to drive under ETCS.

For driver certification purposes, it is recommended that users produce a more specific training manual by omitting from the Handbook any content that is not applicable in a particular on-board unit configuration and complementing the Handbook with information related to the specific rolling stock type on which the on-board unit is installed; the customized version of the Handbook may also be complemented with conditions enforced by relevant company rules on driver's actions involving the ETCS on-board unit.

Users should apply similar customization principles to generate type-specific versions of the Handbook to serve as user's manuals for specific rolling stock types operated by specific railway undertakings in specific areas of use.

In all cases, the users shall bear the full responsibility for any customization of the Handbook to meet any particular need.

The guide provided herewith is intended to facilitate the customization process, yet the Agency cannot be held liable for any adverse side-effect resulting from the omission of applicable content from, or the inclusion of non-harmonized content into, any customized version of the handbook.

EUROPEAN UNION AGENCY FOR RAILWAYS

TABLE OF CONTENT

1 INTRODUCTION

1.1 PURPOSE AND SCOPE

The aim of this document is to explain how the ETCS driver's handbook [10] can be used as a template to produce model-specific manuals, hereafter also referred to as "customisation". The ETCS driver's handbook should be complemented with specific rolling stock information and other relevant information, e.g. which SRS version is installed, how to physically isolate the ETCS from the rolling stock brake system, the Driver Machine Interface (DMI) failure modes, operational and company rules and the Class B systems which operate through the ETCS DMI.

The aim of this document is also to explain how to maintain the ETCS driver's handbook [10] when a new version of the ETCS reference documentation is released, e.g. System Requirements Specification, ETCS Driver Machine Interface and ERTMS Operational Principles and Rules.

The release of new versions of these documents will includes modifications on their clauses. In order to maintain the ETCS driver's handbook, these modified or added changes should be identified, analysing their impact in the ETCS driver's handbook and updating the ETCS driver's handbook accordingly.

This document therefore covers the maintenance and customisation of both the MS Word format and HTML format of the ETCS driver's handbook.

It is out of the scope of this document the customisation and maintenance processes of the ETCS driver's handbook for Baseline 2 on-boards.

General notes:

- Maintenance of the Handbook to reflect new specifications will normally be undertaken by ERA. The revised Handbook will then be made available to the sector.
- The principles presented in this document can also be used to record the traceability of the modifications included in the ETCS driver's handbook [10] when producing model-specific manuals.

1.2 BACKGROUND: THE HARMONISED ETCS DRIVER'S HANDBOOK

The ETCS driver's handbook has been produced to provide a harmonised handbook on the use of the ETCS on-board equipment by the driver of a train fitted with this system. It has been produced in three languages: English, French and German. Additionally, there are two open source formats either MS Word or HTML.

The ETCS driver's handbook includes all the ETCS DMI features, options, configuration parameters, expected system reactions, system messages, degraded situations, etc. from the driver's viewpoint. Information which is not relevant to the driver has been omitted from this document.

The scope of the current version of the ETCS driver's handbook is limited to Baseline 3 & 4 ETCS on-boards, i.e. B3 Maintenance Release 1, B3 Release 2 and Baseline 4 Release 1, operated in applicable ETCS system versions (i.e. 1.1, 2.0, 2.1, 2.2, 2.3 or 3.0). The scope of the harmonised handbook does not include Class B systems when operated through the ETCS DMI.

1.3 CONTENTS OF THIS GUIDE

This document has been structured in two main sections related to the steps that must followed to maintain the ETCS driver's handbook:

- Section 2 explains the steps required to produce model-specific manuals (customisation process).
    - Sub-Section 2.1 describes how to identify clauses of the ETCS driver's handbook that are not applicable by considering the baseline, the ETCS system version, the ETCS levels, level transitions and the DMI screen technology.
    - Sub-Section 2.2 explains how to complement the model-specific manuals with rolling stocks specific information, in addition to the attributes considered in section 2.1.
    - Sub-Section 2.3 explains how to complement the model-specific manuals with network specific information, in addition to the attributes considered in section 2.1.
- Section 3 explains the process to maintain the ETCS driver's handbook, by adding or removing clauses(maintenance process).
    - Section 3.1 describes the process to collect all the modified parts in the reference documentation, identifying those clauses that include relevant information for drivers
    - Section 3.2 describes how to modify the ETCS driver's handbook, if necessary.
- Section 4 explains how to add/delete clauses or sections into a model-specific manual (word version).
- Section 5 explains how to preconfigure the HTML version of the handbook in order to spare the need for drivers to select the parameters for customising the ETCS Driver's handbook, i.e. baseline, system version, level, level transitions and DMI screen technology.
- Section 6 explains how to emphasise clauses that include more relevant information for the driver.
- Section 7 defines the different attributes used in the clause and figure codification scheme and their possible values.

1.4 REFERENCE DOCUMENTS

[1] Subset-026: System Requirements Specification, version 4.0.0

[2] Subset-026: System Requirements Specification, versions 3.6.0. & 3.4.0.

[3] ERA_ERTMS_015560: ETCS Driver Machine Interface, version 4.0.0.

[4] ERA_ERTMS_015560: ETCS Driver Machine Interface, versions 3.6.0. & 3.4.0.

[5] Subset-034: ERTMS/Train Functional Interface Specification, version 4.0.0

[6] Subset-125: ERTMS/ATO System Requirements Specification, version 1.0.0

[7] Subset 153: Exceptions for on-board reduced envelopes of ETCS system versions, version 0.1.0

[8] OPE TSI 2023. Technical Specification for Interoperability relating to the 'operation and traffic management' subsystem. Appendix A: ERTMS/ETCS operational principles and rules, version 6.0.

[9] Technical Specification for Interoperability relating to the ‘operation and traffic management’ subsystem. Appendix C2: Operational instructions. Commission implementing regulation (EU) 2019/773 of 16 May 2019, with latest amendment from Commission Implementing Regulation (EU) 2023/1694 of 10 August 2023.

[10] ETCS driver’s handbook. Version 2.4.0. Date: February 2025

[11]Traceability table of the ETCS driver’s handbook. Version 2.5.0. Date: April 2025

[12]Technical Specification for Interoperability relating to the ‘rolling stock — locomotives and passenger rolling stock’ subsystem. Commission Regulation (EU) No 1302/2014 of 18 November 201, with latest amendment from Commission Implementing Regulation (EU) 2023/1694 of 10 August 2023.

2 PRODUCING MODEL-SPECIFIC MANUALS

The ETCS driver's handbook collates all the harmonised ETCS functions included in the ETCS specifications. However, parts of the ETCS driver's handbook will not be relevant for specific vehicles or networks (e.g. clauses related to touch screen technology are not relevant in case of a train equipped with soft key technology). Also, other information could be relevant and will need be added, for example the specific train process to power on the ETCS on-board.

The ETCS driver's handbook can be used as a template to produce model-specific manuals following the steps indicated in this section:

- Identifying non-applicable harmonised clauses by consideration the relevance of the baseline, system version, level, level transitions and DMI screen technology.
- Complementing the model-specific manuals with rolling stock specific information.
- Complementing the model-specific manuals with network specific information.

Note: The HTML version of the ETCS driver's handbook has been created following the same structure as the Word version. Any modifications made to the MS Word version shall be manually repeated in the HTML files (refer to section **Error! Reference source not found.** of this document), in order to ensure that both versions of the model-specific manuals have the same information.

2.1 IDENTIFYING NON-APPLICABLE HARMONISED CLAUSES

The clauses included in the ETCS driver's handbook are characterised by the following attributes: baseline, ETCS system version, ETCS level, level transitions, DMI screen technology and type of requirement. This characterisation information is included in the codification of each clause according to the clause codification principles indicated in section 7.

The non-applicable clauses should be identified to customise the ETCS driver's handbook. This sub-section explicates how to identify clauses in the ETCS driver's handbook, which are not applicable for a specific rolling stock and/or network by considering the ETCS on-board baseline, ETCS system version, the ETCS level, level transitions and the on-board DMI screen technology.

In the MS Word format of the ETCS driver's handbook, the non-applicable clauses have to be identified and deleted manually by the person that produces the model-specific manual.

In the HTML format of the Harmonised ETCS driver's handbook, the non-applicable clauses are identified and hidden automatically by the reader selecting the relevant attributes in the HTML file.

The general criteria applicable to filtering the clauses can be found in section 7 of this document.

2.2 COMPLEMENTING WITH ROLLING STOCK SPECIFIC INFORMATION

This sub-section explains how to complement a model-specific manual with rolling stock specific information, in addition to the attributes considered in the section 2.1, i.e. the attributes baseline, ETCS system version, ETCS level, level transitions and DMI screen technology.

The clauses included in the harmonised handbook which depend on the specific ETCS on-board implementation are identified and classified as vehicle dependant. For example, the following topics have been classified as vehicle dependant. Note this is not an exhaustive list:

- **Clauses related to optional buttons positioned on the driver's desk, e.g. additional buttons to access the language window, volume window or brightness windows.**
- **Clauses and sections related to specific on-board processes, e.g. how to power on/off the ETCS on-board, open/close the desk, complete an internal test or how to enter/exit the isolation mode.**
- **Clauses related to the track conditions that could either be automatically executed by the ETCS on-board or manually executed by the driver, e.g. lowering the pantograph or changing the traction system.**
- **Clauses related to the ETCS on-board configuration for train data entry, i.e. fixed, flexible or mixed.**
- **Clauses relate to the national functions implemented by the ETCS on-board.**
- **Clauses relate to the Class B system implemented by the ETCS on-board.**

Clauses that are vehicle dependant are coded as "V" (see section 7). These clauses should be identified and complemented in the model-specific manual based on specific vehicle characteristics for both the Word version and HTML version of a model-specific manual.

In addition, in case of other aspects outside of the scope of the harmonised specifications implemented by the ETCS on-board (e.g. additional buttons in the Setting window for additional DMI technical functions), these other aspects should be included in the model-specific manuals.

The author of a model-specific manual is responsible for not including information from the ETCS driver's handbook that they consider either too detailed or unnecessary. An explanation of how to added or deleted clauses or sections is given in section 3.

2.3 COMPLEMENTING WITH THE NETWORK SPECIFIC INFORMATION

This sub-section details how to complement model-specific manuals with network specific information, in addition to the attributes considered in the section 2.1 , i.e. the attributes baseline, ETCS system version, ETCS level, level transitions, DMI screen technology.

There are clauses included in the ETCS driver's handbook which relate to requirements that the driver has to take into account but that are different depending on the network where it is running, the railway operator, etc. are classified as network dependant. For example, the following topics have been classified as network dependant. Note this is not an exhaustive list:

- **Clauses related to National values, e.g. the driver can modify the adhesion factor only if national values of the network allow it.**
- **Clauses that indicate that the driver must do something according to non-harmonised rules, e.g. driver selection of shunting.**
- **The clause that introduces the indicative format for the European instructions included in the Appendix C2 to the TSI OPE, e.g., there is no obligation to display a field not used in a Member State in the European instruction.**
- **Network specific procedures, e.g. indicating how to manage an absence of the mode transition.**

Clauses that are network dependant are coded as “N” (see section 7). These clauses should be identified and complemented in the model-specific manuals based on specific network characteristics for both the Word version and the HTML version.

Additionally, other relevant information should be included in the model-specific manuals. For example, specific company rules and uncommon operational situations identified in the Safety Management System (SMS), e.g. awakening of an ETCS on-board after having crossed the national borders in NP mode should be included in the model-specific manuals.

The general ETCS functions (e.g. track conditions, track ahead free, etc.) and ETCS modes (e.g. Limited supervision, Shunting, etc.) are not classified as being network dependant. In case of the networks where the rolling stock running does not implement an ETCS function or mode, they can be deleted from the model-specific manual.

The author of a model-specific manual is responsible for not including information from the ETCS driver’s handbook that they consider either too detailed or unnecessary. An explanation of how to add or delete clauses or sections is given in section 3.3 of this document.

3 MAINTENANCE OF THE ETCS DRIVER'S HANDBOOK

When a new version of the ETCS reference documentation is released, the modifications included in them should be considered to maintain the ETCS driver's handbook.

The reference documentation that support the clauses included in the ETCS driver's handbook are the following documents:

- System Requirements Specification (i.e. Subset-026, all versions **Error! Reference source not found.** and [2].
- ETCS Driver Machine Interface (all versions [3] and [4]).
- ERTMS Operational Principles and Rules (Appendix A to the TSI OPE [8]).
- Operational Instructions (Appendix C to the TSI OPE [9]).
- ERTMS/ATO System Requirements Specifications (i.e. Subset 125 v1.0.0 [6])
- ERTMS/Train Functional Interface Specification (i.e. Subset 034, v4.0.0 [5])
- Exceptions for on-board reduced envelopes of ETCS system versions (i.e. Subset 153, v0.1.0 [7])
- Locomotive & Passenger TSI functional and technical specifications (§4.3 of the TSI Loc&Pas [12]).

The possible modifications in these documents could involve the addition of new clauses and sections (e.g. apparition of new functionalities) or the modification of the current handbook clauses (e.g. variations in certain procedures). The clause codification used in the ETCS driver's handbook may be also modified (e.g. a new baseline is released or a new system version is defined).

First, the person responsible for the maintenance of the ETCS driver's handbook must collect all the modified clauses in the Traceability table [11]. This guide specifies how to include all the clauses determining if they contain relevant information for the driver or not in the section 3.1.

Once the clauses that contain relevant information for the driver have been identified, it must be confirmed if they were already included in the ETCS driver's handbook. This document explains how to do this verification through the table of characterization of clauses. The clauses that are not relevant for drivers will not have an impact on the handbook.

Modifications on the specifications may involve changes in the meaning of certain clauses (e.g. modification in the Start of Mission procedure). These changes could result on the modification of the current handbook clauses, addition of new clauses and variations on the clause codification. This guide indicates how to manage these modifications on the ETCS driver's handbook [10] and the Traceability table [11] in section 3.2.1 of this document.

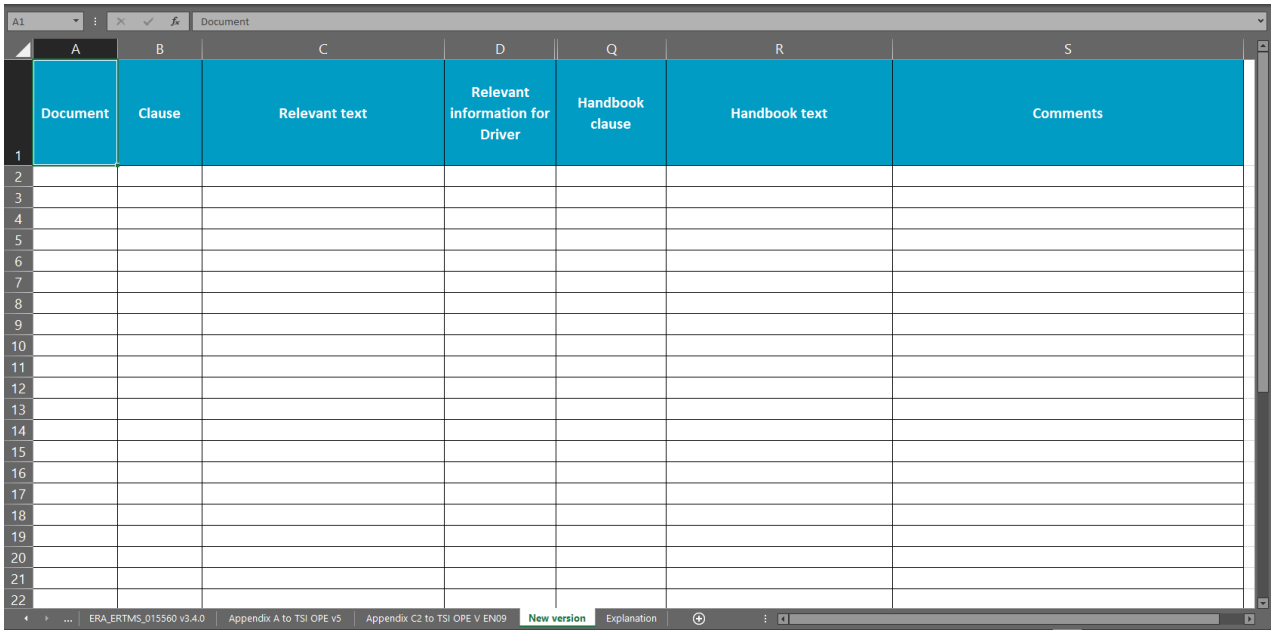
If a certain modification does not change the meaning of the clause (e.g. is due to an editorial change) no modification of the ETCS driver's handbook is needed. However, it is necessary to update the Traceability table [11] based on the procedure described in this document in the section 3.2.2.

Finally, new versions of the reference documentation may include clauses that did not exist in the previous documents. If these clauses contain relevant information for the driver, they must be included in the ETCS driver's handbook [10] and the Traceability table [11]. For example, the handover between RBCs is a procedure between the train and RBC that does not need driver's intervention, so it is not included in the handbook. However, if a new mode is defined, the acknowledgement of the mode involves a driver action, so these clauses would have to be included in the handbook. There may be also additional reference documents in future specification updates. This guide explains how to add new relevant clauses and sections in the ETCS driver's handbook in the section 3.2.3.

3.1 ANALYSING THE CHANGES INCLUDED IN THE REFERENCE DOCUMENTATION

The first step that must be done to update the ETCS driver's handbook when a new version of the reference documentation (**Error! Reference source not found.**, [2], [3], [4], [5], [6], [7], [8], [9] and [12]) is published, is to identify all the changes included in this documents. All the new clauses that were not included in the previous versions of the available documentation and those that have been modified must be included in the table of characterization of clauses.

A new excel sheet must be added in the table, following the format of the already existing ones, as shown in the figure bellow:



The table includes the following fields: *Document*, *Clause*, *Relevant text*, *Relevant information for Driver*, *Handbook clause*, *Handbook text* and *Comments*. In this step, the fields *Document*, *Clause*, *Relevant text* and *Relevant information for Driver* will be completed.

The person responsible for the maintenance of the ETCS driver's handbook must include all the clauses in which there has been a modification. Possible modifications cover both editorial changes and changes in the meaning. Afterwards, all the clauses must be analysed, deciding if the clause contains or not relevant information for the driver (e.g. the clause is related to driver actions or consequences of the driver actions).

3.2 UPDATING THE ETCS DRIVER'S HANDBOOK

Once the clauses including relevant information for the driver have been identified, the person responsible for the maintenance of the ETCS driver's handbook must check if these clauses were already included in the handbook. This process can be done by using the table of characterization of clauses. If a certain clause, was included in the previous version of the specifications, and it is classified has having relevant information for the driver, it is included in the handbook. The specific handbook clause to which it is traced can be known by consulting the column *Handbook clause* and *Handbook text*.

After checking if the modified clauses are included in the handbook, three different possibilities may occur. These possibilities have been described in the sub-sections 3.2.1, 3.2.2 and 3.2.3 respectively:

- The clause was already included in the ETCS driver's handbook and the modification affects the clause meaning (e.g. a modification in the SoM procedure).
- The clause was already included in the ETCS driver's handbook, but the modification does not affect the clause meaning (e.g. an editorial change).
- The clause was not included in the ETCS driver's handbook and therefore a new clause or section must be added.

3.2.1 MODIFICATIONS AFFECTING CLAUSE MEANING

This sub-section is focused on the clauses that have been modified in the new version of the reference documentation and are traced to handbook clauses. To update the ETCS driver's handbook it is necessary to add new handbook clauses, based on the modified source clauses, and to change the handbook clause codes in some situations.

The clause code is based on the following attributes: baseline, ETCS system version, ETCS level, level transitions, DMI screen technology and type of requirement. The complete explanation of the clause codification is included in section 7 of this document: Clause codification principles. When a new version of the specifications is released, the attribute baseline should be adapted.

The person responsible of the maintenance of the ETCS driver's handbook must distinguish the handbook clauses that were previously applicable to all baselines (i.e. Baseline 3 Maintenance Release 1, Baseline 3 Release 2 and Baseline 4 Release 1) from those only applicable to one baseline. This can be done through the clause codification. As explained in section 7, when a certain clause is applicable to all baselines (BSL), the attribute BSL is omitted. If a certain clause is only applicable to Baseline 3 Release 2, the attribute BSL will take the value B32, and the clause will be codified as -[B32…].

When a clause codified as applicable to all baselines is modified, its codification must be updated. For instance, if an existing clause will not apply in a new baseline, the baseline attribute will have to be introduced to set this apart from clauses that will apply to the new baseline, which will have a new BSL value associated with this new baseline. This clause must be added following the procedure specified in section 3.3.

When a handbook clause is only applicable to one baseline and the source clause is modified, it is not necessary to update the clause code. The clause code already indicates that the clause is only applicable to one baseline. Another clause must be included in the ETCS driver's handbook associated to the new baseline and based on the source clause modification. This clause must be added following the procedure specified in section 4.3. This clause must be characterized as applicable to the new baseline.

Apart from a new baseline, a new system version (VER) may be defined. The procedure to follow is the same as the one described for a new baseline, as the attribute VER is also omitted when a clause is relevant for all the compatible operated system versions (i.e. 1.1, 2.0, 2.1, 2.2, 2.3 and 3.0).

In addition to the ETCS driver's handbook [10], the Traceability table **Error! Reference source not found.** must be modified too:

- The codes of the affected handbook clauses must be replaced with the new values. Moreover, the modified reference clauses must be trace to the new handbook clause. The reference clauses that

were traced to the previous handbook clause, which code has been modified, must be duplicated and traced to the new handbook clause too.

- The codes of the affected handbook clauses must be replaced with the new values. The new handbook clauses must be included in the table in alphabetic order. They must be traced to the modified reference clauses and to those that were trace to the previous handbook clause.

3.2.2 EDITORIAL MODIFICATIONS

There may be modifications in the reference documentation that do not change the meaning of the clauses (e.g. editorial changes), so it is not necessary to update the current ETCS driver's handbook clauses. These changes do not add additional information, so it is not necessary to include new clauses.

However, the modified source clauses should be traced to the handbook clauses as they contain relevant information for the driver. The person responsible for the maintenance of the ETCS driver's handbook must add this traceability in the Traceability table **Error! Reference source not found.**.

- The modified source clause must be traced with the handbook clause. To know which is the relevant handbook clause, the source clause should be checked in the previous version of the reference documentation. The columns *Handbook clause* and *Handbook text* must be filled with this information.
- A new row must be added in the relevant handbook clause, including the traceability with the modified clause of the reference documentation.

3.2.3 ADDING NEW CLAUSES AND SECTIONS

There may be clauses in the new versions of the reference documentation that are not included in the ETCS driver's handbook and are considered as containing relevant information for the driver.

To include the new clauses, the principles described in section 7 must be followed. The clause codification should include a reference to the section from where the clause was included within the ETCS driver's handbook, i.e. letters to identify the title of the section.

If a clause is added to an existing section, it will take the code that the existing section has. This code is usually characterised by two or three letters that represent and identify a simplified version of the section title. If a clause is in a section that belongs to another higher-level section, the clause will acquire the codification of both the section and the sub-section. The code of title, chapter and section is always separated with a full spot.

The attributes baseline and system version must be updated according to the new values of the attributes.

If several new clauses must be included (e.g. a new procurement is described), creating a new section will be useful. In order to add a new section to the structure provided by the ETCS driver's handbook, it is necessary to:

- **Select a title for the section that does not match an existing one.**
- **Define a code with 2 or 3 letters which easily identifies the title of the section or chapter and does not match any existing title to prevent similar clauses codes.**

If it is a sub-section included in another section, the code will include both the code of the higher-level section and the sub-section separated by a full spot.

For additional details on clause addition, refer to section 4.1 of this document.

3.3 ADDITIONAL COMMENTS

The following additional aspects should be considered when updating the ETCS driver's handbook to the modifications of the reference documentation.

- **This guide is focused on the procedures that must be performed to update the ETCS driver's handbook to the modifications on the specifications. However, if the content of a clause has not been modified in the latest version of the specifications, the codification should be reviewed. For example, there are some clauses that are only applicable to Baseline 4 Release 1. If those clauses are not modified in the new documentation the content of the handbook clause must remain unchanged. However, the codification must be updated to indicate that the clause is applicable to B4R1 and the new baseline, following the principles explained in section 7 of this document.**
- **The figures included in the handbook use the codification defined in section 7 of this document. Therefore, the codification of the figures related to the clauses affected by the modifications of the reference documentation, should be also updated.**
- **If when adding a new clause, it is necessary to include a cross-reference to a certain section, the text of the cross reference should be blue and underlined. The cross-references do not work in the printed version. Therefore, the cross-references could be removed, and the text changed to an appropriate colour (e.g. grey).**

4 HOW TO ADD OR DELETE CLAUSES AND SECTIONS

This section describes how to compile model-specific manuals and future updates of the manual by adding or deleting clauses and sections (word and HTML versions).

4.1 ADDING NEW CLAUSES

New clauses can be added to the handbook to complement the information for specific models or when there is an update of the specifications.

New and modified clauses beyond the scope of the ETCS should be characterised as additional clauses, i.e. use the code “A” in the “Type of requirement” (see section 7). This indicates an additional requirement that does not exist in the ETCS driver’s handbook. Note that this does not guarantee that the same code has not been used in another model-specific manual for another additional clause.

Depending on the case, the new clauses may have to be characterised by using the other attributes defined in section 7 of this document , i.e. baseline, ETCS system version, ETCS level, level transitions and DMI screen technology . Including the characterisation of new clauses could be useful if it is expected that the driver will filter the HTML version of a model-specific manual.

The clause codification should include a reference to the section from where the clause was included within the model-specific manual, i.e. letters to identify the title of the section .

If a clause is added to an existing section, it will take the code that the existing section has. This code is usually characterised by two or three letters that represent and identify a simplified version of the section title. If a clause is in a section that belongs to another higher-level section, the clause will acquire the codification of both the section and the sub-section. The code of title, chapter and section is always separated with a full stop as indicated in section 7.

If the clause to be added requires a new section in the manual, the author of the model-specific manual should follow the steps included in the section 4.3.

4.2 DELETING CLAUSES

The author of a model-specific or updated manual is responsible for the deletion of any non-applicable clauses included in the ETCS driver’s handbook.

If the deletion of a clause does not affect the numbering of existing clauses, the clause can be deleted. However, if the deletion of a clause does affect the numbering of existing clauses, then the clause should be maintained, and the clause text should be replaced with "*Intentionally deleted*".

4.3 PRINCIPLES FOR ADDING NEW CLAUSES/SECTIONS

New sections can be added to the handbook to complement the information for specific models or when there is an update of the specifications.

If it is necessary to add a new section to the structure provided by the ETCS driver’s handbook, the author shall:

- **Select a title for the section that does not match an existing one.**

- **Define a code with 2 or 3 letters which easily identifies the title of the section or chapter and does not match any existing title to prevent similar clauses codes.**
- **If it is a sub-section included in another section, the code will include both the code of the higher-level section and the sub-section separated by a full spot.**

4.4 DELETING SECTIONS

Deleting sections included in the ETCS driver's handbook when producing model-specific manuals is a decision that could be taken by the author of the model-specific manual depending on the information they want to provide to drivers.

The modular and flexible structure of the ETCS driver's handbook allows the author of the model-specific manual to delete a section without affecting the codification of the other sections. However, cross-references to the deleted section could still exist within the document. Redundant cross-references should be checked and deleted from the model-specific manuals.

5 UPDATE OF THE HTML VERSION OF THE HANDBOOK

All the options to filter the content of the ETCS Driver's handbook, which the final user will visualise, are located in the "*content\js\data.js*". file. It consists in a file of plain text and it can be opened with any text editor. Within this file the following options can be edited:

- **Filtered by clause attributes.**
- **Filtered by elements in the table of content.**
- **Adding a sentence in the header of the handbook pages.**

The editing of this file should be performed by personnel competent with the JavaScript language. An incorrect modification could cause errors that prevents the application execution. It is recommended that a backup copy of the file is made before it is edited. This task is under the full responsibility of the entity which undertakes it.

It is recommended to use a comprehensive text editor (for example Notepad++, which uses a General Public Licence) or an Integrated Development Environment (IDE, for example Microsoft Visual Studio Code, a free proprietary software) to amend the HTML, CSS or Javascript files, as they provide useful indications on the code, for example highlighting syntax errors or linking to resources on common functions and values.

5.1 FILTERED BY CLAUSE ATTRIBUTES

The editing of this filter is for the final user to visualize only those clauses of the handbook that match the requirements of the attributes entered. If it is left in blank, by default, every time the final user executes the application, the final user must introduce the values of the attributes in the visual interface; these attributes could be changed whenever the final user wants. Otherwise, if the values of this filter are edited, the final user cannot change them from within the application.
In order to customise this filter, it is necessary to edit the "etcs.dataOptions" object, which is composed of the following proprieties or attributes:

- **baseline: "",**

  Baseline (BSL). It admits a single value between these three:

  - **3M1** (Baseline 3 Maintenance Release 1)
  - **32** (Baseline 3 Release 2)
  - **41** (Baseline 4 Release 1)

Example: *baseline: "3M1",*

- **version: "",**

  System version (VER). It admits one value between these five:
  - **11** (1.1)
  - **20** (2.0)
  - **21** (2.1)
  - **22** (2.2)
  - **30** (3.0)

Example: version: “20”,

Note: depending on the baseline value selected, the user is restricted in the choice of system versions. For details on the compatibility between baselines and system version, please refer to the introduction of the Handbook.

- **level: “”,**

  Level (LEV). It admits one or more values between these five, separated by a hyphen:
  - **0** (Level 0)
  - **N** (Level NTC)
  - **1** (Level 1)
  - **2** (Level 2)
  - **3** (Level 3)

Example: level: “N-2”,

Note: Level 3 cannot be selected if Baseline 4 Release 1 is selected.

- **transition: “”,**

Level Transition (LTR). It admits one or more values between these five, separated by a hyphen:
- **0** (Transition to level 0)
- **N** (Transition to level NTC)
- **1** (Transition to level 1)
- **2** (Transition to level 2)
- **3** (Transition to level 3)

Example: transition: “2-3”,

Note: transitions can only be selected corresponding to the levels already selected.

- **screen: “”**

Screen technology (TEC). It admits a single value between these two:
- **T** (Touch screen technology)
- **S** (Soft key technology)

Example: screen: “S”

content > js > JS data.js > ...

```
1   if (!etcs) { var etcs = {}; }
2
3   etcs.headerText = "";
4
5   etcs.dataOptions = {
6       baseline:   "",             // 3M1 | 32 | 41
7       version:    "10-11-20-21-22-23-30",     // 10-11-20-21-22-23-30
8       level:      "0-N-1-2-3",    // 0-N-1-2-3
9       transition: "0-N-1-2-3",    // 0-N-1-2-3
10      screen:     ""              // S | T
11  };
12
13  etcs.dataIndex = [
14  {
15      code: 'INT', name: 'Introduction (INT)', active: true, level2: [
16          {
17              code: 'INT.SCP', name: 'Scope and Purpose (SCP)', active: true
18          },
19          {
20              code: 'INT.TER', name: 'Terms and Abbreviations (TER)', active: true
21          },
22          {
23              code: 'INT.COD', name: 'Codification and Symbols (COD)', active: true
24          },
25          {
26              code: 'INT.REF', name: 'Reference documents (REF)', active: true
27          }
28      ]
29  },
```

Figure 1. Filtered my clauses attributes: highlighted in red is the properties to edit.

5.2 FILTERED BY ELEMENTS OF THE TABLE OF CONTENTS

The purpose of this filter is to hide from the final user certain points of the table of content, regardless of the clauses it includes.
In order to customise this filter, it is necessary to edit the “etcs.dataIndex” array. Each element of this array corresponds to an element of the table of contents of the manual (themes, subtopics, chapters), maintaining the same order. The only editable property of this array is the “active” element which has two possible values:

- **active: true**

Default option. Filtering by table of content is not performed.

- **active: false**

The element of the corresponding table of content is hidden.

For example, to hide to the user the INT.REF point, the line

code: 'INT.REF', name: 'Reference documents (REF)', active: true

should be modified by

code: 'INT.REF', name: 'Reference documents (REF)', active: false

For example, to hide to the user the full INT.REF, the line

*code: 'INT', name: 'Introduction (INT)', active: **true**, level2:[*

should be modified by

*code: 'INT', name: 'Introduction (INT)', active: **false**, level2:[*

content > js > JS data.js > ...

```
1   if (!etcs) { var etcs = {}; }
2
3   etcs.headerText = "";
4
5   etcs.dataOptions = {
6       baseline:   "",             // 3M1 | 32 | 41
7       version:    "10-11-20-21-22-23-30",     // 10-11-20-21-22-23-30
8       level:      "0-N-1-2-3",    // 0-N-1-2-3
9       transition: "0-N-1-2-3",    // 0-N-1-2-3
10      screen:     ""              // S | T
11  };
12
13  etcs.dataIndex = [
14  {
15      code: 'INT', name: 'Introduction (INT)', active: true, level2: [
16          {
17              code: 'INT.SCP', name: 'Scope and Purpose (SCP)', active: true
18          },
19          {
20              code: 'INT.TER', name: 'Terms and Abbreviations (TER)', active: true
21          },
22          {
23              code: 'INT.COD', name: 'Codification and Symbols (COD)', active: true
24          },
25          {
26              code: 'INT.REF', name: 'Reference documents (REF)', active: true
27          }
28      ]
29  },
```

Figure 2. Filtered by elements of the table of contents. Highlighted in red is the properties to edit.

5.3 ADDING A SENTENCE IN THE HEADER OF THE HANDBOOK PAGES

There is the possibility to include a short customized sentence in the header of all handbook pages.
To do that, the “etcs.headerText” text variable, which is in the beginning of the configuration file, must be edited adding the short sentence to be displayed between the two quotation marks. If that sentence contains, in turn, two quotation marks, it is necessary to write the \ character (backslash) before the quotations marks.
For example, to show the text *This is an example of “header”*:

etcs.headerText = " This is an example of \"header\"";

For example, to show the *This is an example* text:

etcs.headerText = "This is an example";

```
content > js > JS data.js > level2 > name
1   if (!etcs) { var etcs = {}; }
2
3   etcs.headerText = "This is an example";
4
5   etcs.dataOptions = {
6       baseline:    "",              // 3M1 | 32 | 41
7       version:     "10-11-20-21-22-23-30",     // 10-11-20-21-22-23-30
8       level:       "0-N-1-2-3",     // 0-N-1-2-3
9       transition:  "0-N-1-2-3",     // 0-N-1-2-3
10      screen:      ""               // S | T
11  };
12
13  etcs.dataIndex = [
```

Figure 3. Customization of a common text in the header of all handbook pages.

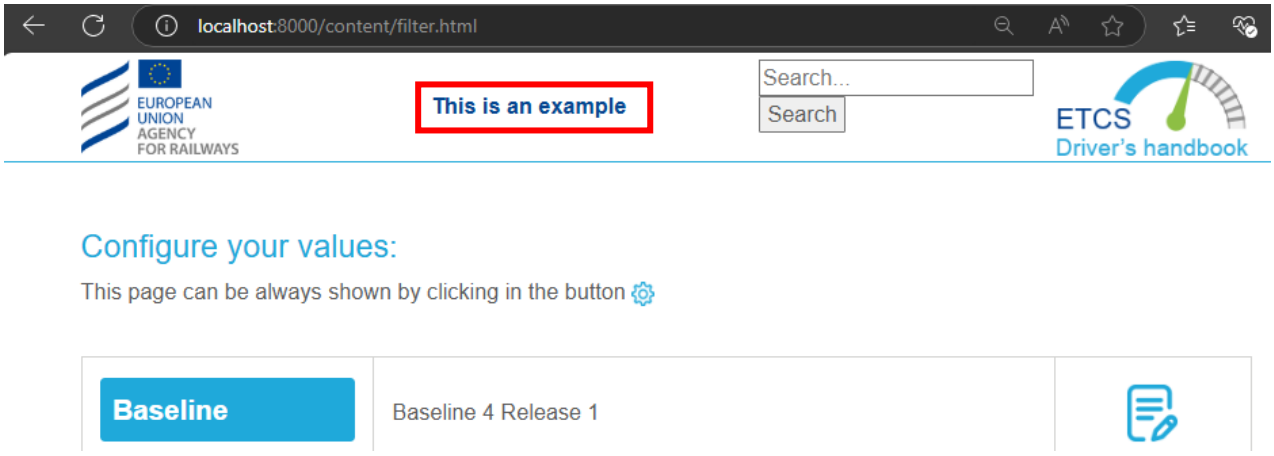


Figure 4. Example of displaying custom text in the header of all pages.

5.4 ADDING OTHER CLAUSES

Clauses may be added in any part of the Handbook. To do so, the relevant html file, corresponding to the desired section, must be edited.

Once the relevant html file is opened, a new clause can be added while respecting the following structure example:

```
<div class=" ver-222330 lev-2 tec-S">
    <p class="clause"><img src="img/bullet.png" title="show clause codification" class="change-cl"><span>FS.ATO.DAS-[222330.L2.S].3</span>While driving with DAS,
        the DMI also displays the following <abbr title="Automatic Train Operation On-Board">ATO-OB</abbr> information, as indicated in Figure FS.ATO.DAS-[222330.L2.S].F3:</p>
    <ol class="letter margin-cl">
        <li>The name and the estimated arrival time at the next Stopping Point or Stopping Point to be skipped in local time (1),</li>
        <li>The distance to the next Stopping Points or Stopping Points to be skipped in the planning area (2).</li>
    </ol>
    <div class="image"><img src="img/content/Figure FS.ATO.DAS-[222330.L2.S].F3.png" width="550"></div>
    <p class="pie">Figure FS.ATO.DAS-[222330.L2.S].F3: Driving with DAS showing upcoming stopping points (soft key technology)</p>
</div>
```

Each clause, comprised of title, text, image and lists, is delimited by the balises `<div>` and `</div>`.

Between these balises, the attributes defined above can be added with the keyword “class”. The attributes are separated by a space if there a several, and the attribute name shall be followed by a dash “-“ and then the relevant attribute value. It shall follow the structure:

- bsl
  - 3M1
  - 32
  - 41
  - 3241
  - 3 – corresponding to a clause applicable to baselines 3 Maintenance Release 1 and 3 Release 2
- ver, corresponding to the values in §5.1
  - 112021
  - 11202122
  - 2021
  - 202122
  - 21222330
  - 22
  - 222330
  - 2330

Note: version 23 corresponds to operated system version 2.3. The version 23 is never included in the clause title.

- lev
  - Any combination with 0, N, 1, 2 or 3
- ltr
  - Same as above
- tec
  - Either S for softkey or T for touchscreen.

If none of these attributes are added, the clause is always shown.

The clause text shall always be preceded by:

```
<p class="clause"><img src="img/bullet.png" title="show clause codification"
                       class="change-cl">
```

The clause title shall then be inserted between `<span> </span>` balises. The clause text can then be added in plain ended with the `</p>` balise.

If an additional paragraph must be added, it can be done between additional `<p> </p>` balises. As long as the paragraph is contained between the `<div class=""></div>` balises, their property is retained and the text is shown following the attributes..

If an image is to be inserted, it shall follow the structure :

```
<div class="image"><img src="img/content/Figure FS.ATO.DAS-
[222330.L2.S].F3.png" width="550"></div>
```

The corresponding image shall then be added in the `img/content` folder or in the appropriate folder as indicated in the `src` attribute. It shall then be followed by the legend with the structure:

```
<p class="pie">Figure FS.ATO.DAS-[222330.L2.S].F3: Driving with DAS showing
upcoming stopping points (soft key technology)</p>
```

Lists can also be added to be chosen between two categories:

- Ordered lists (1), 2), 3)…). They should be added between `<ol class="letter margin-cl"> </ol>` balises.
- Unordered (bullet points). They should be added between `<ul class="margin-cl"> </ul>` balises.

Then each list element shall be added between `<li></li>` balises. **Several levels can then be defined. Example:**

```
<ol class="letter margin-cl">
      <li>ATO status,</li>
      <li>At stopping points:</li>
      <ul class="margin-cl">
            <li>Stopping accuracy,</li>
            <li>Dwell time,</li>
            <li>Door information,</li>
      </ul>
      <li>Between stopping points:</li>
      <ul class="margin-cl">
            <li>Next stopping point name and estimated arrival
            time,</li>
            <li>Skip stopping point status,</li>
      </ul>
      <li>Upcoming stopping point in the planning area,</li>
      <li>Coasting advice OR Target speed advice,</li>
      <li>Distance to next advice change marker.</li>
</ol>
```

6 HOW TO HIGHLIGHT RELEVANT CLAUSES

Clauses that require special attention from the driver should be highlighted in ETCS driver's handbook. Two different icons have been used to make the driver aware of the importance of these clauses.

Warning icon	Meaning
	Attention icon. This icon highlights clauses that provide relevant information for the driver. The driver must pay special attention to these clauses.
	Safety icon. This icon alerts the driver of a critical situation that can lead to a hazardous situation.

Note: Only the Attention icon has been included in the ETCS driver's handbook.

All the clauses that need to be highlighted will include the attention icon. Since the reference documentation does not include the performance of a safety evaluation, the safety icon will not be included in the maintenance of the ETCS driver's handbook.

However, in the customisation process, the safety critical clauses must be identified by the author of the model-specific manual, based on a safety evaluation which is to be performed under their Safety Management System (SMS).

Each time a clause that must be emphasised is identified, the author shall:

- **Add a border to the clause. In the Word version, the "Borders" command is used to add or remove border in a selected object.**
- **Add the corresponding attention icon. This is placed on the left-hand side of the clause.**

7 CLAUSE CODIFICATION PRINCIPLES

7.1 GENERAL CODE STRUCTURE

All the clauses within the ETCS driver's handbook have been be identified by a code identification which is written before each clause. This code provides information about the section from where the clause is included and clause attributes that provides information about the applicability of the clause.

Each clause code has the following structure: TIT.CHA.SEC-[BSL.VER.LEV.LTR.TEC.TYP].N

Section information				Clauses attributes							Number
TIT	-	CHA	-	SEC	-	[BSL	. VER	. LEV	. LTR	. TEC	. TYP]	N

Note: BSL, VER, LEV, LTR, TEC and TYP only apply when a specific attribute must indicate a baseline-specific, system version-specific, level-specific, level transition-specific, screen technology-specific or a type of requirement different than "common", respectively. For every clause, only the non-universally applicable attributes will be included. Therefore, clauses related to universally applicable cases will not include the clause attributes part of the code identification.

Section information:

- TIT: 3 or 2 letters to identify the title of the high level section.
- CHA: 3 or 2 letters to identify the title of the medium level section, if applicable.
- SEC: 3 or 2 letters to identify the title of the low level section, if applicable.

Clause attributes:

- BSL: Baseline. This attribute indicates for which baseline(s) the clause is applicable to. The full baseline code shall be preceded by the letter "B" in order to prevent misunderstanding with the ETCS system version.
- VER: ETCS system version. This attribute indicates for which ETCS system version(s) the clause is applicable to.
- LEV: ETCS level. This attribute indicates for which ETCS level(s) the clause is applicable to. The full level code shall be preceded by the letter "L" in order to prevent misunderstanding with the ETCS system version.
- LTR. This attribute indicates which level transition is relevant to a clause. The full level code shall be preceded by the letter "T" in order to prevent misunderstanding with the ETCS system version.
- TEC: DMI screen technology. This attribute indicates for which type of screen technology the clause is applicable to.
- TYP: Type of requirement. This attribute indicates if a clause is a common, vehicle, network or additional requirement.

Numbering:

- N: Number starts at 1 for numbed clauses within the same section information and applicability information.

7.2 ATTRIBUTE CODES

The tables shown below include the possible combinations of values for each clause attribute and their codification.

7.2.1 CCS BASELINE OF THE ETCS ON-BOARD. (CLAUSE ATTRIBUTE BSL)

There are three excluding options: B3 MR1, B3 R2 and B4R1. Clauses that are only applicable for B3 MR1 are coded as “B3M1”, those only applicable for B3 R2 are coded as “B32” and those only applicable for B4 R1 are coded as “B41”. In case of clauses relevant for B3MR1, B3R2 and B4R1, the attribute “BSL” is omitted.

Depending on the CCS Baseline of the ETCS on-board, some clauses of the ETCS driver’s handbook are not applicable.

For example, the clauses characterised as only applicable for B3 R2 ETCS on-board are not applicable in the model-specific manual of a B3 MR1 ETCS on-board.

Baseline Code	Meaning
B3M1	B3MR1
B32	B3R2
B3	B3MR1 & B3R2
B3241	B3R2 & B4R1
B41	B4R1

Note:

In case of clauses relevant for B3MR1, B3R2 and B4R1, the attribute “BSL” is omitted.

7.2.2 OPERATED SYSTEM VERSION (CLAUSE ATTRIBUTE VER)

There are five excluding options: 1.1, 2.0, 2.1, 2.2 and 3.0. For clauses applicable to specific ETCS system versions, the applicable ETCS system version is indicated in the clauses codification. In case of relevant clauses for all the system versions mentioned above, the attribute “VER” is omitted.

From the on-board point of view, the on-board supported ETCS system versions are specified by the CCS baseline, i.e. B4 R1 on-boards support these five versions but the B3 MR1 and B3 R2 on-boards do not support operated system versions above 2.0 and 2.1 respectively.

This attribute is more relevant for customising the ETCS driver’s handbook by considering the networks where the ETCS on-board is going to run. In that case, the input should be the ETCS system version operated by the trackside infrastructure (e.g. version 1.1 in case of baseline 2 networks).

For example, the clauses characterised as only applicable for system versions 2.0 and 2.1 are non-applicable in the customised handbook of a network operated with system version 1.1.

System version Code	Meaning
11	1.1

20	2.0
21	2.1
22	2.2
23	2.3
30	3.0

Notes:

If no VER attribute is included in a clause identifier, the BSL attribute indicates the following:

- "B3M1" implies that the clause applies to operated SV 1.1 and 2.0
- "B3" implies that the clause applies to operated SV 1.1, 2.0 and 2.1
- "B32" implies that the clause applies to operated SV 1.1 and 2.1
- "B3241" or "B41" imply that the clause applies to operated SV 1.1, 2.1, 2.2, 2.3 and 3.0.

In case of clauses relevant for all operated system versions, the attribute "VER" is omitted.

System version compatibility chart and particular cases:

TS → / OB ↓	2.3.0d 1.0	3.4.0 1.0	3.4.0 1.1	3.4.0 2.0	3.6.0 1.0	3.6.0 1.1	3.6.0 2.0	3.6.0 2.1	4.0.0 1.0	4.0.0 1.1	4.0.0 2.0	4.0.0 2.1	4.0.0 2.2	4.0.0 2.3	4.0.0 3.0
4.0.0 3.0	1.1	1.1	1.1	2.3	1.1	1.1	2.3	2.3	1.1	1.1	2.3	2.3	2.3	2.3	3.0
4.0.0 2.2	1.1	1.1	1.1	2.2	1.1	1.1	2.2	2.2	1.1	1.1	2.2	2.2	2.2	2.2	INCOMP
4.0.0 2.1	1.1	1.1	1.1	2.1	1.1	1.1	2.1	2.1	1.1	1.1	2.1	2.1	2.1	2.1	INCOMP
3.6.0 2.1	1.1	1.1	1.1	2.1	1.1	1.1	2.1	2.1	1.1	1.1	2.1	2.1	2.1	2.1	INCOMP
3.4.0 2.0	1.1	1.1	1.1	2.0	1.1	1.1	2.0	2.0	1.1	1.1	2.0	2.0	2.0	2.0	INCOMP
2.3.0d 1.0	1.0	1.0	1.0	INCOMP	1.0	1.0	INCOMP	INCOMP	1.0	1.0	INCOMP	INCOMP	INCOMP	INCOMP	INCOMP

For clauses applying to SV 2.2 and/or 3.0 only, the VER attributes "22", "2230" and "30" should be used. These already indicate that the respective Baseline is 4.1, so there is no need to indicate the Baseline attribute in the respective clauses.

1. When a clause applies only to B3R2 (SV 2.1) but not in the reduced version 2.1 of B4R1, the BSL attribute (32) will be added to the identifier. Similarly, when a clause applies only to the reduced version SV 2.1 of B4R1 but not in the same SV of B3R2, the baseline attribute (41) will be added to the identifier.
2. In case of clauses relevant for several system versions, the system version codes will be written in increasing order as indicated in the table without spaces. For example, a clause applicable for v1.1 and v2.0 will be codified as "1120".

3. As explained in the Introduction, system version 1.0 cannot be selected with the applicable baselines as it is not a compatible operated system version.
4. When customising the Handbook for the reduced envelopes of Baseline 4 (up to and incl. 2.1, up to and incl. 2.2), the users shall only consider clauses with “B3241”, “B41” or no baseline attribute at all. If there is no SV attribute in the identifier, the clause is applicable for all SVs, including the reduced ones. If there is a SV attribute 30, then the clause is only applicable to SVs 2.3 and 3.0 and should therefore be excluded from both reduced variants of the Handbook. If there is a SV attribute 2230, the clause is applicable to SVs 2.2, 2.3 and 3.0, so it should be excluded from the reduced variant of the Handbook for SV 2.1. If there is a SV attribute 212230, the clause is applicable to both reduced variants of the Handbook.
5. Whenever a clause is applicable to operated system version 3.0, it is also applicable to system version 2.3. As a result, it has been decided to remove mentions the codification “23” from the clause codification. In the HTML version, the user can still select system version 2.3 and a text explaining this is displayed when the user hovers a clause applicable to version 3.0.

7.2.3 ETCS LEVEL (CLAUSE ATTRIBUTE LEV)

There are five non excluding options: level 0, level NTC, level 1, level 2 or level 3. For clauses applicable to specific ETCS levels, the applicable ETCS level is indicated in the clauses codification, i.e. level 0 with “0”, level NTC with “N”, level 1 with “1”, level 2 with “2” and level 3 with “3”

When complementing the model-specific manuals with rolling stock specific information, the ETCS levels available for use by the on-board1 should be considered.

In addition, by considering the networks where the ETCS on-board is going to run, only the ETCS levels implemented in these networks that are available for use by the ETCS on-board should be considered in model-specific manual.

For example, the clauses characterised as only applicable for level 2 are non-applicable in the model-specific manual of an ETCS on-board that considers only level 0 and level 1 as available for use.

Level Code	Meaning
0	Level 0
N	Level NTC
1	Level 1
2	Level 2
3	Level 3

Notes:

[1] Clause 5.10.2.4.1 in the Subset-026 indicates the conditions to an on-bard equipment considers an ETCS level as “available for use”

- In case of clauses relevant for several ETCS levels, the system version codes will be written in increasing order as indicated in the table without spaces. For example, a clause applicable for level 0, NTC and 1 will be codified as “L0N1” and a clause applicable for level 2 and 3 will be codified as “L23”.
- In case of clauses relevant for all levels, the attribute “LEV” is omitted.
- Since Level 3 has been removed in the specifications as of Baseline 4 Release 1, clauses mentioning the former are not applicable in the latter. In the HTML version of the handbook, the user is forbidden from selecting Level 3 if Baseline 4 Release 1 is selected, so clauses relating to this level are never visible when B4R1 is selected. Level 3 will still be available for selection when selecting Baseline 3.
- The ETCS driver’s handbook includes screenshots applicable for both Level 1 and Level 2. If both levels are applicable, then either one or both screenshots could be included in the model-specific manual.

7.2.4 ETCS LEVEL TRANSITIONS (CLAUSE ATTRIBUTE LTR)

There are five non excluding options: transition to level 0, transition to level NTC, transition to level 1, transition to level 2 or transition to level 3. For clauses applicable to specific ETCS level transitions, the applicable ETCS level transition is indicated in the clauses codification, i.e. level 0 with “0”, level NTC with “N”, level 1 with “1”, level 2 with “2” and level 3 with “3”.

When complementing the model-specific manuals with rolling stock specific information, the ETCS levels available for use by the ETCS on-board should be considered.

In addition, by considering the networks where the ETCS on-board is going to run, only the ETCS level transitions implemented in these networks should be considered in the model-specific manual.

For example, the clauses characterised as only applicable for level transitions to NTC are non-applicable in a model-specific manual of a network where level NTC is not implemented.

Level transition Code	Meaning
0	Level transition to level 0
N	Level transition to level NTC
1	Level transition to level 1
2	Level transition to level 2
3	Level transition to level 3

Notes:

- In case of clauses relevant for several level transitions, the level transition codes will be written in increasing order as indicated in the table without spaces.
- In case of relevant clauses for all the level transitions, the attribute “LTR” is omitted.
- In case of transitions to a level not available for use by the ETCS on-board, the model-specific manuals should include the procedures for degraded situations because if none of the ordered

level(s) is available for use by the ETCS on-board, the ETCS on-board nevertheless makes the transition to the ordered level with the lowest priority[2].

7.2.5 DMI SCREEN TECHNOLOGY (CLAUSE ATTRIBUTE TEC)

There are two excluding options either soft key technology or touch screen technology. All the clauses are characterised as being applicable to both DMI screen technologies or a specific DMI screen technology. Clauses that are only applicable for Soft key technology are coded with “S” and those only applicable for touch screen technology are coded with “T”.

For example, the clauses characterised as only applicable for soft key technology are non-applicable in the model-specific manual of an ETCS on-board that implements touch screen technology.

Screen technology Code	Meaning
S	Soft key
T	Touch screen

Notes:

- In case of clauses relevant for both Soft key and Touch screen technologies, the attribute “TEC” is omitted.

7.2.6 TYPE OF REQUIREMENT (CLAUSE ATTRIBUTE TYP)

This attribute indicates if a clause relates to a requirement coming from the vehicle, the network or if it reflects a requirement resulting from another source. Clauses applicable regardless of such requirements are considered as common.

Type of requirement Code	Meaning
V	Vehicle
N	Network
A	Additional

Notes:

- For this attribute only one type could be chosen.
- Common requirement: Requirements that will be common for all ERTMS equipped vehicles. In case of common requirements, the attribute TYP is omitted.
- Optional requirement: ERTMS functions that will not always be available since they depend on specific vehicle characteristics (e.g. radio infill information).

[2] Subset-026: §5.10.2.7 and §5.10.2.7.1

- Different requirement: Requirements that the driver will always need to take into account but that are different depending on the specific vehicle, the network where it is running, the Railway operator using the Handbook, etc. (e.g. the driver could modify the adhesion factor only if national values of the network allow it)
- Additional requirement: Requirements added by the final user for a specific train. The numbering of these additional requirements are out of the scope of this project, i.e. there is not way to guarantee that different users use the same code to identify similar additional clauses.