Association of Train Operating Companies

L-NTC Principle Considerations for Driver Training GN
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ATOC Guidance Note - L-NTC Principle Considerations for Driver Training

Authorised by

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Synopsis

This document provides support to Train Operators in evaluating the work streams required for L-NTC Operation

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Part A

Issue record

This Guidance Note will be updated when necessary by distribution of a complete replacement.

Issue	Date	Comments
One	May 2014	Original document

Responsibilities

Copies of this Guidance Note should be distributed by ATOC members to relevant persons within their respective organisations.

Explanatory note

This Guidance Note is for the information of ATOC members.

Guidance note status

This document is not intended to create legally binding obligations for Network Rail or between Railway Undertakings and should be binding in honour only.

Supply

Copies of this Guidance Note may also be obtained from the ATOC members' web site.

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Part B

1. Purpose

This document provides guidance to Train Operators on the introduction of European Rail Traffic Management System (ERTMS) fitted rolling stock through the national ERTMS project. It specifically deals with the operational changes required for Level – National Train Control (L-NTC) operation and suggests the actions a Train Operating Company (TOC) will need to consider when implementing change.

These include: -

- Identification of first trainset fitment date.
- Impact of the first trainset fitment.
- Updating Competency Management Systems.
- Identifying feasibility of training requirements.
- Exploring options to best manage competency retention.

2. Scope

This document is designed to assist Train Operators in responding with a common approach to the implementation of ERTMS L-NTC whilst supporting the national programme. Guidance is given on the work streams they will encounter and suggested outputs they will need to achieve.

3. Background

ERTMS is a train control-command system developed in Europe and adopted by the European Union. The European Union directives have included ERTMS as the system to be used for interoperability. Its operation provides Automatic Train Protection functionality and was independently recommended by the Uff and Cullen reports as the system beyond Train Protection Warning Systems (TPWS). It operates on a speed-based signalling principle and requires the train to accurately report its location, monitor speed and braking, and intervene where necessary. On-board equipment required for ERTMS includes an European Vital Computer (EVC), an ERTMS data recorder, a Driver Machine Interface (DMI) and GSM-R radio fitment.

4. L-NTC principle

L-NTC (Level 0 on Cambrian) is the operation of an ERTMS-fitted train over conventionally signalled areas. To achieve this, the on-board ERTMS equipment requires data input prior to train movement. This data allows the train to calculate a brake intervention curve prior to releasing its brakes, and puts the train in a state of readiness should its journey take it into a Level 2 (L-2) European Train Control System (ETCS) area.

The ERTMS equipment then remains passive and the train is operated in the conventional way.

5. First in Class (FiC)

For a trainset to be fitted with the ERTMS on-board equipment, considerable modification and intrusion is required to the existing on-train equipment, including additional odometry measuring, the fitment of the European Vital Computer (EVC) and the revision of the driving cab desk to accommodate the DMI.

Each traction type will require one train to be the test bed for engineers to optimise the fitment of the ERTMS equipment. This will consider the location and intrusiveness of the fit and the ease at which the equipment can be fitted.

6. FiC options

Following FiC fitment, the trainset will return to normal traffic, however there are several options available at point of tendering. It may be preferential for the train to be returned with all of the equipment fitted and functioning, or there may be options for it to be isolated, or partially removed. These options are given to allow operators and engineers the best compromise between train running, driver training and system testing.

7. FiC timeframes

FiC for some fleets may be several years ahead of the need to operate in L-2 whilst others may be a matter of months, with fleet fitment taking place closer to the operational need for ERTMS, however as the national plan for ERTMS infrastructure matures, the route conversion dates may alter, thus requiring review of FiC and fleet fitment dates.

8. Fleet fitment

Following FiC, a programme of fleet fitment will begin, with each trainset being released for a period of time (nominally, 1 week) to be fitted with ERTMS. During fleet fit, there will be no cab reversion option and the trainsets will be returned to traffic fully operational, and operating in L-NTC.

9. Principle considerations for a training plan

Each operator will need to understand the ERTMS programme, the critical dates, timeframes and likely impacts of the changes brought by ERTMS to their operation. It is recommended the operator nominates a ‘point of contact’ for ERTMS, who can focus on the project and provide guidance to the operations and engineering teams.

Consideration should also be given to the operators existing structure in readiness for the ERTMS National Programme, with a review of route knowledge and link structures against L-NTC (and L-2) planned infrastructure-live dates together with driver numbers and likely exposure to ERTMS equipment.

Additionally, where an operator has not undertaken the FiC or has chosen cab reversion for FiC, consideration should be made in the time required to up-skill trainers and managers prior to fleet fit.

Appendix A is provided to assist in this evaluation for L-NTC.

10. Work streams

L-NTC Operation will have little impact on the operators' safety and competency management systems, however the introduction of L-2 operation will, this is covered in the L-2 Principles Guidance Note.

Each operator will need to identify the best approach to L-NTC up-skilling, with a structured plan appropriate to their competency management system (CMS).

It is envisaged the driver training package for L-NTC will be supplied to the industry in a modular format, allowing flexibility of delivery and timeframes, together with consistency. This will include the opportunity for simulation and, where necessary, training of cab revisions and Railway Group Standard-compliant TPWS. Depending on the output of Appendix B, some Operators may use briefings to achieve up-skilling whilst others may prefer a structured training day.

Structured training day (example only)

This list is not exhaustive:

- Introduction to ERTMS (how it works) and on train equipment
- Railway Group Standard-compliant TPWS – type of intervention and reset
- Isolation of separate systems – Faults
- Operational Rules
- Cab layout alterations for FiC and fleet fit
- Preparation/liven up (aux on)
- Cab start-up (key on)
- During the journey and DMI features
- Cab close-down (key off)
- Faults

Briefings (examples only)

Briefing 1

- Railway Group Standard-compliant TPWS – type of intervention and reset
- Isolation of separate systems – Faults

Briefing 2

- Introduction to ERTMS (how it works) and on-train equipment

Briefing 3

- Cab layout alterations for FiC and fleet fit
- (This will be one briefing per traction type)

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Briefing 4

- (With Simulation) and repeatable (as per TOC CMS) where frequency of exposure is low.
- Preparation/liven up (aux on)
- Cab start-up (key on)
- During the journey and DMI features
- Cab close-down (key off)
- Faults

11. Appendices

Appendix A L-NTC Principle questions

Question	Consideration
What is the first date an ERTMS trainset arrives?	Is this likely to change?
Is this First in Class (FiC) or Fleet Fit?	Is this likely to change? (eg, under a new franchise)
If FiC, what is the time gap before any Fleet fit? (any of your fleet)	Is this likely to change? (eg, under a new franchise)
If full cab fitment is to remain, what routes do you envisage operating the trainset over?	Can this be restricted to assist in maintaining driver competency?
If full cab fitment is to remain, how many drivers will be exposed to the trainset?	Can this be reduced by altering stock workings, driver diagrams or drivers links/depots workings? Can the number of times a driver is exposed to the trainset be increased?
If full cab fitment is to remain, will the cab set-up time be extended through DMI setup time?	Are Operational/diagramming considerations necessary?
Is the staff-side representation (Trades Unions) currently aware of and engaged in the introduction of ERTMS?	Is this a potential risk in delaying the project later on?
Do the drivers have experience of modern TMS/MiTRAC/TASS/DAS and/or GSM-R?	If they do, this may be advantageous in determining the final briefing/training need.
Is Railway Group Standard-compliant TPWS going to influence the briefing cycle?	By including this in the briefing process, does it make a full training day more cost effective?
Are the cab desk alterations going to influence the briefing cycle?	By including these in the briefing process, does it make a full training day more cost effective?
What are the current company agreements for Driver Briefing and Training?	Will these limit the options available?
Does the Competency Management System require alteration for the initial training or briefing requirements?	Is there a need for a CMS review prior to the FiC or fleet fit arrival?
Will the train data recorder be replaced by the JRU (Juridical Recording Unit)?	Will the Driver Management/Incident response staff need retraining?
Will the Driver Management teams require up-skilling?	Can the Driver Management Teams deliver assessments and incident response?

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Appendix B - Identifying output.