Rail Delivery Group

National Rail

RDG Guidance Note:
L-NTC Principle Considerations for Driver Training

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About this document

Explanatory Note

The Rail Delivery Group is not a regulatory body and compliance with Guidance Notes or Approved Codes of Practice is not mandatory; they reflect good practice and are advisory only. Users are recommended to evaluate the guidance against their own arrangements in a structured and systematic way, noting that parts of the guidance may not be appropriate to their operations. It is recommended that this process of evaluation and any subsequent decision to adopt (or not adopt) elements of the guidance should be documented. Compliance with any or all of the contents herein, is entirely at an organisation's own discretion.

Other Guidance Notes or Approved Codes of Practice are available on the Rail Delivery Group (RDG) website.

Executive Summary:

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

Issue Record

Issues 1 to 2 of this document were published as: ATOC/GN ERTMS 001

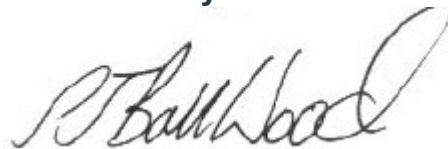| Issue	Date	Comments
1	May 2014	Original document
2	January 2017	Updated and reissued – Digital Railway revised plan
3	January 2020	Reviewed, updated and reissued.

This document is reviewed on a regular 3 year cycle.

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1   Purpose and Background

1.1   Purpose

This document provides guidance to Train Operators on the introduction of European Train Control System (ETCS) fitted and functional rolling stock. 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) may need to consider when implementing change.

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

1.2   Scope

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

1.3   Background

ETCS is a train control-command system developed in Europe and adopted by the European Union (EU). The EU directives state ETCS is to be used to achieve interoperability between EU railway administrations. Its operation provides Automatic Train Protection (Class A) functionality and was independently recommended by the Uff and Cullen accident reports as a superior technology to the UK's Class B Train Protection Warning Systems (TPWS). ETCS operates on the principle of speed-based signalling and requires the train to accurately report its location, monitor speed and braking, and intervene where necessary. On-board equipment required for ETCS includes a European Vital Computer (EVC), an ETCS juridical recording unit (JRU), a Driver Machine Interface (DMI) and GSM-R data radio.

2   Level – National Train Control (L-NTC) Principle

L-NTC (Level 0 on Cambrian) is the operation of an ETCS fitted train over a conventionally signalled route. To achieve this, the onboard ETCS equipment must be active. L-NTC provides vehicle (v-max) overspeed protection and transition readiness for ETCS. Data entry in L-NTC determines the braking algorithm for the traction type by the EVC post transition to L2/L3 (level 2/level 3 ETCS). Should a vehicle overspeed occur, L-NTC will also intervene by applying a full-service brake application until speed is reduced below the vehicle maximum speed, where it will return the brake control to the driver. L-NTC data entry also offers the facility to inhibit the ETCS transition, this is used where trains are operating through an Overlay area and the driver is not trained on ETCS L2/L3

When operating in L-NTC areas or inhibited, ETCS should remain passive and the train is operated in accordance with conventional signalling, however the ETCS equipment is functional in all ETCS levels and is capable of instigating brake applications where system or vehicle errors occur.

3 First in Class (FiC)

For a vehicle to be fitted with the ETCS on-board equipment, modification and intrusion into the vehicle control system is required.

Each FiC will require a train to be the test fitted with ETCS on-board to optimise the equipment installation. This will consider the location and intrusiveness of the installation and the ease at which the equipment can be fitted and maintained.

3.1 FiC Options

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

3.2 FiC Timeframes

FiC for some fleets may be several years ahead of ETCS L2/L3 operation whilst others may be a matter of months, however as the infrastructure plan for ETCS matures, the dates may alter, requiring review of FiC and fleet fitment plans together with driver training.

3.3 Fleet Fitment

Following FiC, a programme of fleet fitment will begin, with each trainset being released for modification. There is unlikely to be a cab reversion option at this stage and the trainsets will be returned to traffic fully operational with ETCS and operating in L-NTC. Driver training for L-NTC will need to be complete at this point.

3.4 New Trains

All new trains are now delivered with a degree of ETCS readiness, however different approaches by Operators and Train Builders will see some trains arrive with the system either dormant or isolated. This is partially driven by the infrastructure deployment programme and partially by the operators' desire to simplify training requirements.

4 Principle Considerations for a Training Plan

Each operator will need to understand the ETCS programme schemes, the critical dates for their route, the deployment of ETCS fitted trains, fleet cascades or new build trainsets, the timeframes these will be delivered in, the likely impacts of the changes brought by ETCS infrastructure and the wider deployment of new technologies likely to be implemented over their operational area. It is recommended the operator nominates a 'point of contact' for ETCS and the wider national digital enablers, 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 ETCS, with a review of route knowledge and link structures against ETCS planned infrastructure go live schemes together with driver numbers and likely exposure to ETCS fitted infrastructure.

Franchise commitments and the inclusion of new trains may also change the training timeline for driver training into ETCS. New trains may be delivered with a degree of ETCS readiness, however differing approaches by operators and train builders has seen some trains arrive with the system either removed, dormant or isolated.

Additionally, where an operator has not undertaken the FiC or has chosen cab reversion for FiC, consideration should be made as to the time required for trainers and managers education prior to

fleet fit and L2-L3 commissioning. The changes to data recorder data acquisition and analysis should also be considered.

5 Workstreams

It is anticipated that L-NTC operation will have little impact on the operators' safety and competency management systems, however the introduction of L-2/L-3 operation will, this is covered in the L-2 Principles Guidance Note.

Each operator will need to identify the best approach to L-NTC training, 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 or computer-based mediums. Some operators may use briefings to achieve learning whilst others may prefer a structured training period.

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