

Technical Specification

T0450 Performance Specification for Ultrasonic Rail Flaw Detection Equipment

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1 Purpose

- 1.1 The purpose of this Specification is to define the performance and other technical requirements of ultrasonic rail flaw detection equipment for use on the London Underground network.

2 Scope

- 2.1 This specification applies to the following equipment options for ultrasonic rail flaw detection:
- a) Pedestrian-operated single rail testing;
 - b) Pedestrian-operated dual rail testing with one operator;
 - c) Dual rail testing using a motorised trolley.

3 Requirements

3.1 General Requirements

- 3.1.1 The ultrasonic test equipment shall be capable of carrying out ultrasonic inspection of rails to detect rail defects of the size threshold and to the probability as defined in Network Rail standard NR/SP/TRK/014.

3.2 Operating Environment

- 3.2.1 The equipment must be able to operate and detect ultrasonic defects in the following configuration and environmental conditions.

- 3.2.2 Track Configuration and Conditions.

The equipment shall operate in the following track configurations and conditions.

- a) Structure gauge – Motorised/self-propelled trolley mounted and pedestrian operated equipment to comply with LU standard 1-156 – Gauging and Clearances;
- b) Track gauge from 1422mm to 1468mm;
- c) Cant up to 150mm;
- d) Minimum curve radius of 60 metres;
- e) Rail profiles BS 95RBH (bull head) as shown in BS11, 54E1, 56E1 and 60E1 (flat bottom) as shown in BS EN 13674-1;
- f) Rail grades R220, R260, R350HT and R370CrHT as defined in BS EN 13674-1;
- g) Rail inclination of 1:20 (plain line) and 1:20 or vertical (junction work);
- h) In tunnels (concreted track), sub surface or open track sections (ballasted track);
- i) Plain line rails and junctionwork rails (where rail bottom can be detected);
- j) In the presence of check rails (in points and crossings and on curves less than 200m radius), 3rd and 4th rail conductor rail systems and station pits;