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INTERNATIONAL STANDARD

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Transmitting and receiving equipment for radiocommunication – Radio-over-fibre technologies and their performance standard – Part 2: Radio-over-fibre-based fronthaul network for railway communication systems

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

TRANSMITTING AND RECEIVING EQUIPMENT FOR RADIOCOMMUNICATION – RADIO-OVER-FIBRE TECHNOLOGIES AND THEIR PERFORMANCE STANDARD –

Part 2: Radio-over-fibre-based fronthaul network for railway communication systems

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INTRODUCTION

A high-speed train communication network comprises two parts: a back-end network and wireless access system to deliver data to train cars. In this back-end network, optical fiber communication-based networks are generally utilized to reduce the complexity of the radio access units set along the railway track, which delivers the signal wirelessly to the train car, wireless signals are generated and processed at a central office, and then are transported via an optical fiber network into the radio access units. A radio-over-fiber fronthaul network is configured to transport the wireless signal, which is applicable between a node base station and radio access units set at a trackside. The radio-over-fiber-based fronthaul link connects the node base station to the trackside radio access units and carries millimeter-wave subcarrier or intermediate frequency components to transmit high-capacity signals. This document provides the required performance with reliability and quality assurance of radio-over-fiber-based fronthaul networks for railway communication networks between trains and tracksides, as well as a design guide for network configuration.

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