INTERNATIONAL STANDARD

ISO 37184

Sustainable mobility and transportation — Framework for transportation services by providing meshes for 5G communication

Mobilité et transport durable — Cadre pour les services de transport en fournissant des mailles pour la communication 5G

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Introduction

5G is the latest generation of cellular mobile communication services, connecting multiple terminals and devices such as PCs and smartphones. Non-electronic objects can also be involved in 5G communication, when they are electronically recognized using methods such as QR-codes and face recognition by converting their images into electronic data. Thus, no matter whether things are digitally processed/processable or not, all items can be connected in 5G communication, which is characterized by high speed, negligible delay and large capacity traffic in data transmission, assisted with edge computing.

In 5G communication, carrier waves in high-frequency ranges are used, where many frequency channels had been vacant. However, high frequency waves are easily scattered by objects while propagating. This shortcoming requires building many base stations to successfully receive and forward waves.

Transportation services are the most widely networked to connect people, delivery items and freight to villages, towns, cities and large city zones with public roads, railroads and rivers or canals which have transportation facilities, i.e. streetlamps, traffic signals, signboards, bus stops, railroad instruments, stations, ports. Private and commercial vehicles are active wherever human activities are in place. Transportation facilities and vehicles are, therefore, operative places to install nodes with a transceiver for carrier waves. The facilities and vehicles statically or dynamically form local ad hoc networks of meshes which can organically be overlapped with backbone networks of 5G communication. This complements the current transportation services using 5G communication services, indirectly and effectively.

This document outlines how transportation facilities and vehicles can contribute to transportation services using 5G communication services by providing as many large and stable meshes as possible, as a means to support the current 5G backbone networks.

In the development of this document, ISO Guide 82 has been taken into account in addressing sustainability issues.