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BSI Standards Publication

Public transport - Interoperable fare management system - Bluetooth low energy ticketing use cases and guidelines

bsi.

National foreword

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English Version

Public transport - Interoperable fare management system - Bluetooth low energy ticketing use cases and guidelines

Transport public - Système de gestion tarifaire interopérable - Cas d'utilisation et lignes directrices pour l'usage du Bluetooth faible énergie dans les applications de billetterie

Öffentlicher Verkehr - Interoperables Fahrgeldmanagement System - Die Irigenergie-Bluetooth Anwendungen und Vorgaben für den Fahrkartenverkauf

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European foreword

This document (CEN/TR 17311:2019) has been prepared by Technical Committee CEN/TC 278 “Intelligent transport systems”, the secretariat of which is held by NEN.

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1 Scope

The intention of this document is to review what was done to envision the limits of the proposed technique and related schemes which will be described and to define what could be submitted to standards. Concepts which are to be used for BLE in IFM are based on a highly spread technology which is BLE. This is not limited to any trademark or proprietary scheme. Therefore any person having a smartphone can use this technology with prerequisite to have a Bluetooth version greater than 4.0 and a dedicated application on board the smartphone.

The background of this document is related to usage in Account Based Ticketing frame (see related document made in ISO/TC 204/WG 8). There is no information related to the IFM itself.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

4 Symbols and abbreviations

TR Technical Report

EN European Standard

5 Introduction to BLE

5.1 What is BLE

Bluetooth low energy (BLE) is a wireless personal area network technology designed and marketed by the Bluetooth Special Interest Group aimed at novel applications in the healthcare, fitness, beacons, security, and home entertainment industries. Compared to Classic Bluetooth, BLE is intended to provide considerably reduced power consumption and cost while maintaining a similar communication range.

The Bluetooth Low Energy identifies a number of markets for low energy technology, particularly in the smart home, health, sport and fitness sectors. Cited advantages include: low power requirements, operating for "months or years" on a small size button cell and low cost compatibility with a large installed base of mobile phones, tablets and computers.

Compared to classic Bluetooth technology, BLE has the characteristics as shown in Table 1.

Table 1 — Comparison between classic Bluetooth and Bluetooth Low Energy

Technical specification	Classic Bluetooth technology	Bluetooth Low Energy
Distance/range (theoretical max.)	100 m	> 100 m
Over the air data rate	1 Mbit/s to 3 Mbit/s	125 kbit/s – 1 Mbit/s – 2 Mbit/s
Application throughput	0,7 Mbit/s to 2,1 Mbit/s	0,27 Mbit/s
Active slaves	7	Not defined; implementation dependent