



BSI Standards Publication

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

National foreword

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TECHNICAL REPORT

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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 - Energieeffiziente
Bluetooth Anwendungen und Vorgaben
für den Fahrkartenverkauf

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Contents

Page

European foreword	iii
1 Scope	4
2 Normative references	4
3 Terms and definitions	4
4 Symbols and abbreviations	4
5 Introduction to BLE	4
5.1 What is BLE	4
5.2 BLE ecosystem analysis	5
5.2.1 Introduction	5
5.2.2 Key Features of the Bluetooth Low Energy	6
5.2.3 Bluetooth single mode and Bluetooth dual mode	6
5.3 Bluetooth Low Energy Architecture	7
5.3.1 General	7
5.3.2 The controller	7
5.3.3 Physical layer	8
5.3.4 Link Layer	8
5.3.5 Host Controller interface	9
5.3.6 Host	9
5.3.7 Logical Link Control and Adaptation Protocol	9
5.3.8 Security manager protocol	10
5.3.9 Attribute protocol	10
5.3.10 Attribute database, server and client	11
5.3.11 Generic attribute Profile	12
5.3.12 Generic Access Profile	13
6 BLE usage in IFM systems: concept description	13
6.1 Introduction	13
6.2 Overview: building blocks and network topology	14
6.2.1 Building blocks of BLE	14
6.2.2 Network topology	14
6.3 How BLE can work: description of the different approaches	16
6.3.1 Introduction	16
6.3.2 Walk-In/ Walk-Out and Be-In/Be-Out	16
6.4 Technical features according on usage concepts	18
6.4.1 Validation by Embedded in frame location — Location Management	18
6.4.2 Validation by URL — Repository location	19
6.5 Advantages and drawbacks	20
6.5.1 Introduction	20
6.5.2 Main advantages	20
6.5.3 Main drawbacks	21
6.6 BLE vs competitive technologies	22
7 How to ensure co-existence and migrations from or to other IFMS technologies	23
8 Use cases description	24
8.1 Norway use case: Oslo Ruter operator	24
8.2 ACTV-Venezia use case	25
8.3 Usage of BLE in bus system	26
8.4 Use Case EILO — Rhein-Main-Verkehrsverbund, Germany	27
Bibliography	28

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