PD IEC TR 63385-1:2023

BSI Standards Publication

Transmitting and receiving equipment for radiocommunication — Short-range radar technologies and their performance standard

Part 1: System applications of short-range radars

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The UK participation in its preparation was entrusted to Technical Committee W/-, Consumer Products and Services Sector Policy and Strategy Committee.

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Published by BSI Standards Limited 2023

ISBN 978 0 539 17513 4

ICS 33.060.20

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This Published Document was published under the authority of the Standards Policy and Strategy Committee on 30 November 2023.

Amendments/corrigenda issued since publication

Date	Text affected

IEC TR 63385-1

Edition 1.0 2023-11

TECHNICAL REPORT

colour inside

Transmitting and receiving equipment for radiocommunication – Short-range radar technologies and their performance standards –
Part 1: System applications of short-range radars

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ICS 33.060.20

ISBN 978-2-8322-7752-2

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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TRANSMITTING AND RECEIVING EQUIPMENT FOR RADIOCOMMUNICATION – SHORT-RANGE RADAR TECHNOLOGIES AND THEIR PERFORMANCE STANDARD –

Part 1: System applications of short-range radars

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IEC TR 63385-1 has been prepared by IEC technical committee 103: Transmitting and receiving equipment for radiocommunication. It is a Technical Report.

The text of this Technical Report is based on the following documents:

Draft	Report on voting
103/235/DTR	103/257/RVDTR

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this Technical Report is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

A list of all parts in the IEC 63385 series, published under the general title *Transmitting and receiving equipment for radiocommunication – Short-range radar technologies and their performance standard*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

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INTRODUCTION

Short-range radar systems are widely exploited in civil applications, such as automotive, weather forecast, mobile, aviation, or security inspections applications. The performance of each radar system is guaranteed in the field without any harmful interference but the frequency allocation using theoretical calculations does not consider the latest mitigation technologies. In order to increase the efficiency of the system usage without any degradation of the performance of the radars, this document describes the principles of the radar systems and their performance in applications.

This document summarizes the technological features of short-range radar systems. In addition, some practical applications are also investigated and reported.

TRANSMITTING AND RECEIVING EQUIPMENT FOR RADIOCOMMUNICATION – SHORT-RANGE RADAR TECHNOLOGIES AND THEIR PERFORMANCE STANDARD –

Part 1: System applications of short-range radars

1 Scope

This part of IEC 63385 provides a catalogue of the architecture and principles of measurement of short-range radars that are widely exploited in civil applications. The applications are related to the detection of the target for obstacle avoidance, motion sensing, or identification of devices. The mass civil use of radars sometimes creates compatibility issues among the services. This document provides clarification on the characteristics of the radar systems and additional information on applications in the field.

2 Normative references

There are no normative references in this document.

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

No terms and definitions are listed in this document.

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

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

3.2 Abbreviated terms

AoA	angle of arrival
FFT	Fast Fourier Transformation
FM	frequency modulation or frequency modulated
FMCW	frequency modulated continuous wave
PPM	pulse position modulation
radar	radio detection and ranging
RCS	radar cross-section
Rx	receiver
S/N ratio	signal to noise ratio
SSR	secondary surveillance radar
ToA	time of arrival
Tx	transmitter
UWB	ultra wide band