

Alarm systems — Intrusion systems

Part 5-3: Requirements for interconnections equipment using radio frequency techniques

ICS 13.310

National foreword

This British Standard is the UK implementation of EN 50131-5-3:2005+A1:2008. It supersedes BS EN 50131-5-3:2005 which is withdrawn.

National Annex NA (informative) reproduces CENELEC Interpretation Sheets 1, August 2010.

The UK participation in its preparation was entrusted by Technical Committee GW/1, Electronic security systems, to Subcommittee GW/1/1, Alarm components.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

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**Alarm systems -
Intrusion systems**
**Part 5-3: Requirements for interconnections equipment
using radio frequency techniques**

Systèmes d'alarme -
Systèmes d'alarme intrusion
Partie 5-3: Exigences pour les équipements
d'alarme intrusion utilisant
des techniques radio

Alarmanlagen -
Einbruchmeldeanlagen
Teil 5-3: Anforderungen an
Übertragungsgeräte,
die Funkfrequenz-Techniken verwenden

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CENELEC

European Committee for Electrotechnical Standardization
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Foreword

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The following dates were fixed:

- latest date by which the EN has to be implemented
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Foreword to amendment A1

This amendment to the European Standard EN 50131-5-3:2005 was prepared by the Technical Committee CENELEC TC 79, Alarm systems.

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1 Scope

This European Standard applies to intrusion alarm equipment using radio frequency (RF) links and located on protected premises. It does not cover long range radio transmissions.

This standard defines the terms used in the field of intrusion alarm equipment using radio frequency links as well as the requirements relevant to the equipment.

It shall be used in conjunction with the other parts of the EN 50131 series that define the functional requirements of the equipment regardless of the type of interconnections used.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>
EN 50131-1	1997	Alarm systems – Intrusion systems – Part 1: General requirements
EN 50131-6	1997	Alarm systems – Intrusion systems – Part 6: Power supplies
EN 301489-1	1999	Electromagnetic compatibility and Radio Spectrum Matters (ERM); Electromagnetic Compatibility (EMC) standard for radio equipment and services – Part 1: Common technical requirements

3 Definitions and abbreviations

For the purposes of this document, the following terms and definitions apply.

3.1 Definitions

3.1.1

alarm message

message conveying information regarding intruder, tamper or fault alarms

3.1.2

assigned band

frequency band within which the equipment is authorized to operate

3.1.3

attenuation

degradation of the RF signal due to a change in the passive environment of the system after its installation (e.g. creation, relocation or reflection or absorption materials)

3.1.4

collision

simultaneous transmissions from two or more RF communication devices belonging to the same system, of sufficient signal strength to cause corruption or obliteration of the RF signals

3.1.5

collision rate

probability of two or more messages having part or all of their information coincident on the RF link leading to a collision

3.1.6

communication link

all local equipment, media and protocols used to route messages

3.1.7

disturbance

event originating internally or externally to the system and liable to impair transmission and/or processing of data in the system

NOTE 1 It can be unintentionally or intentionally harmful.

Causes of disturbance are attenuation, collision, unintentional or intentional message substitution and other RF interference.

NOTE 2 The different effects which disturbances may have on the signals are

- no corruption of the RF signal,
- corruption of the RF signal with no message corruption,
- corruption of the RF signal with partial message corruption,
- total obliteration of the RF signal (inability to receive).

3.1.8

failure of periodic communication

inability to pass a message on an RF link

3.1.9

identification code

part of a message used to identify a transmitting RF communication device belonging to the system

3.1.10

intentional message substitution

deliberate transmissions from an RF communication device using the correct protocol with the intention of reducing the security of the system

3.1.11

message authentication

exchange of codes to validate the uniqueness of a transmitting device to a receiving device

3.1.12

monitoring message

message used to check the integrity of the communication link

3.1.13

RF interference

RF emissions from any other source, that may cause corruption or obliteration of wanted signals and do not conform to the definition of collision or message substitution

3.1.14

RF communication device

device using RF transmission links

3.1.15

throughput ratio

ratio of the total number of messages sent by the transmitting device to the total number of messages correctly interpreted by the receiving device

3.1.16

unintentional message substitution

non-deliberate transmissions from an RF communication device using the correct protocol emanating from another system with no intention of reducing the security

3.2 Abbreviations

For the purpose of this document, the following abbreviations apply:

ATE: alarm transmission equipment

CIE: control and indicating equipment

RF: radio frequency

RL: reference level

TL: transmitted level

WD: warning device

4 General requirements

4.1 Immunity to attenuation

Due to the fact there may be changes in the passive environment after installation, it shall be possible to temporarily attenuate the RF link during installation or maintenance according to the values given in Table 1.

The manufacturer shall specify the means used on its equipment to fulfil this requirement.

Table 1 – Immunity to attenuation

	Attenuation
Grade 1	3 dB
Grade 2	6 dB
Grade 3	9 dB
Grade 4	12 dB

NOTE Grades are defined in EN 50131-1.

4.2 Immunity to collision

4.2.1 Requirement for collision rate

The objective of the requirement for collision rate is to ensure a high level of confidence in the transmissions of alarm and monitoring messages thus reducing the probability of equipment on the same system causing interference by design and possibly leading to loss or corruption of information. To keep the collision rate as small as possible, the following requirements given in Table 2 shall be fulfilled.