

Directional Sounders — Requirements and tests

ICS 13.200; 13.320

This Publicly Available
Specification comes into effect
on 17 February 2003

© BSI 17 February 2003

Amendments issued since publication

Amd. No.	Date	Comments

Contents

	Page
Foreword	ii
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Requirements	2
5 Tests	3
Annex A (normative) Sound level test and frequency test for sounders	7
Annex B (normative) Directional test for sounders	8
Bibliography	13
Figure B.1 — Recommended speaker / subject positioning	9
Figure B.2 — Sample record diagram	11
Figure B.3 — Sample record diagram showing five test runs	12
Table 1 — Schedule of tests	4
Table A.1 — Test report for 1/3 octave measurements in horizontal plane	7
Table A.2 — Test report for 1/3 octave measurements in vertical plane	8
Table B.1 — Age bandings and example quantities	10

Foreword

This Publicly Available Specification, PAS 41, has been published to provide an interim specification for companies designing and employing directional sounders as part of an emergency evacuation system within a building, ship or structure.

The Publicly Available Specification is based upon BS EN 54-3:2001, *Fire detection and alarm systems — Part 3: Fire alarm devices — Sounders*. Specific technical requirements for directional sounders have been developed through research and consultation with a balanced group of interested organizations.

In preparing this Publicly Available Specification, consideration was given to the constructional requirements of directional sounders and, importantly for this type of sounder, the qualitative assessment of a test subject's ability to locate the sound source accurately. Consequently, performance requirements have been developed that could take account of possible configurations without imposing undue restriction on the design freedom.

This Publicly Available Specification is not to be regarded as a British Standard. It will be withdrawn upon publication of its content in, or as, a British Standard.

Acknowledgement is given to the following organizations who were consulted in the development of this specification:

- British Fire Protection Systems Association;
- Industry Committee for Emergency Lighting (ICEL);
- University of Leeds;
- The Home Office;
- International Maritime Organization;
- Maritime & Coastguard Agency.

This publication does not purport to contain all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a Publicly Available Specification does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 13 and a back cover.

The BSI copyright notice displayed in this document indicates when the document was last issued.

1 Scope

This Publicly Available Specification specifies performance requirements and methods of test for directional sounders intended to aid the evacuation of a building, ship or structure under emergency conditions and/or where normal visibility is impaired.

NOTE 1 Normal visibility can be impaired by the nature of the environment or the people within that environment.

NOTE 2 The purpose of a directional sounder is to identify waypoints on an escape route. A directional sounder or directional sounder system should be regarded as a means of increasing the likelihood of people locating and using their nearest escape route, which may have been overlooked.

This Publicly Available Specification adopts the classification of BS EN 54-3:2001 for two types of application environments, and two classes of usage:

- type A, indoor use;
- type B, outdoor use;
- Class I, open space use;
- Class II, corridor use.

This Publicly Available Specification is not intended to cover:

- fire alarm sounders;
- non-directional audible evacuation signals covered by the scope of ISO 8201:1987;
- supervisory sounders, for example, within the control and indicating equipment.

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.

BS EN 54-3:2001, *Fire detection and fire alarm systems — Part 3: Fire alarm devices — Sounders*.

IEC 60651:1979, *Specifications for sound level meters*.

IEC 61260:1995, *Octave and fractional octave band filters*.

3 Terms and definitions

For the purposes of this Publicly Available Specification, the terms and definitions given in BS EN 54-3:2001 and the following apply.

3.1

directional sounder

audible device which, as part of an emergency evacuation system in a building, ship, structure, premises or location, guides a person, or persons, from an unsafe area to a safe area

3.2

type A device

audible directional sounder designed for indoor use

3.3

type B device

audible directional sounder designed for outdoor use

3.4

Class I device

audible directional sounder designed for open space use (subject to type A or type B)

3.5

Class II device

audible directional sounder designed for corridor use (subject to type A or type B)

3.6

directional sounder system

system comprised of one or more stand-alone or linked directional sounders for the purposes of identifying an escape route under emergency situations

3.7

supervisory sounder

audible device, usually mounted within a piece of equipment (e.g. control and indicating equipment), used for drawing attention, locally, to a change in status or the presence of an abnormal condition indicated by that equipment

[BS EN 54-3:2001]

3.8

sound pattern(s)

temporal arrangement of the bursts or pulses of sound output from the device

4 Requirements

4.1 Conformity

In order to conform to this Publicly Available Specification, directional sounders shall meet the requirements of this clause which shall be verified by visual inspection or engineering assessment, shall be tested in accordance with, and shall meet the requirements of Clause 5.

4.2 Sound level

The directional sounder shall conform to the requirements of BS EN 54-3:2001, 4.2.

4.3 Sound patterns

The directional sounder shall conform to the requirements of BS EN 54-3:2001, 4.3 except that only the sound pattern(s) shall be declared.

4.4 Durability

The directional sounder shall conform to the requirements of BS EN 54-3:2001, 4.4.

4.5 Construction

The directional sounder shall conform to the requirements of BS EN 54-3:2001, 4.5.

4.6 Marking and data

4.6.1 Marking

Each directional sounder shall be clearly marked with the following information:

- a) words "Directional Sounder";
- b) number and date of this Publicly Available Specification, i.e. PAS 41:2003¹⁾;
- c) environment type, i.e. type A or B (see 3.2 and 3.3);
- d) name or trademark of the manufacturer or supplier;
- e) manufacturer or supplier model designation (type or number);
- f) terminal designations;
- g) rated supply voltages or voltage ranges (a.c. or d.c.);
- h) power consumption;
- i) a mark(s) or code(s) for example, serial number or batch code, by which the manufacturer can identify, at least, the date or batch and place of manufacture and the version number(s) of any software contained within the device.

¹⁾ Marking PAS 41:2003 on or in relation to a product represents a manufacturer's declaration of conformity, i.e. a claim by or on behalf of the manufacturer that the product meets the requirements of the standard. The accuracy of the claim is solely the claimant's responsibility. Such a declaration is not to be confused with third-party certification, which may also be desirable.