DIN EN 54-24:2008-06 (E)

Fire detection and fire alarm systems - Part 24: Components of voice alarm systems - Loudspeakers

Contents

Page

Foreword 4

Introduction 6

1 Scope 7

2 Normative references 7

3 Terms, definitions and abbreviations 8
3.1 Terms and definitions 8
3.2 Abbreviations 11

4 Requirements 11
4.1 Compliance 11
4.2 Frequency response limits 11
4.3 Durability 12
4.4 Construction 12
4.4.1 Provision for external conductors 12
4.4.2 Materials 12
4.4.3 Enclosure protection 12
4.4.4 Access 12
4.5 Marking and data 12
4.5.1 Marking 12
4.5.2 Information in the product data sheet 13

5 Tests 14
5.1 General 14
5.1.1 Atmospheric conditions for tests 14
5.1.2 Operating conditions for tests 14
5.1.3 Mounting arrangements 14
5.1.4 Tolerances 14
5.1.5 Frequency response measurement and sensitivity calculation 14
5.1.6 Frequency response measurement and sensitivity calculation for loudspeakers requiring dedicated system equalization 16
5.1.7 Provision for tests 16
5.1.8 Test schedule 16
5.2 Reproducibility 18
5.2.1 Object of the test 18
5.2.2 Test procedure 18
5.2.3 Test requirements 18
5.3 Rated impedance 18
5.3.1 Object of the test 18
5.3.2 Test procedure 18
5.3.3 Test requirements 19
5.4 Horizontal and vertical coverage angles 19
5.4.1 Object of the test 19
5.4.2 Test procedure 19
5.4.3 Test requirement 20
5.5 Maximum sound pressure level 20
5.5.1 Object of the test 20
5.5.2 Test procedure 20

5.5.3 Test requirements 20
5.6 Rated noise power (durability) 21
5.6.1 Object of the test 21
5.6.2 Test procedure 21
5.6.3 Test requirement: 21
5.7 Dry heat (operational) 21
5.7.1 Object of the test 21
5.7.2 Test procedure 22
5.7.3 Test requirements 22
5.8 Dry heat (endurance) 22
5.8.1 Object of the test 22
5.8.2 Test procedure 23
5.8.3 Test requirements 23
5.9 Cold (operational) 23
5.9.1 Object of the test 23
5.9.2 Test procedure 24
5.9.3 Test requirements 24
5.10 Damp heat, cyclic (operational) 25
5.10.1 Object of the test 25
5.10.2 Test procedure 25
5.10.3 Test requirements 25
5.11 Damp heat, steady state (endurance) 26
5.11.1 Object of the test 26
5.11.2 Test procedure 26
5.11.3 Test requirements 26
5.12 Damp heat, cyclic (endurance) 27
5.12.1 Object of the test 27
5.12.2 Test procedure 27
5.12.3 Test requirements 27
5.13 Sulfur dioxide (SO_2) corrosion (endurance) 28
5.13.1 Object of the test 28
5.13.2 Test procedure 28
5.13.3 Test requirements 28
5.14 Shock (operational) 29
5.14.1 Object of the test 29
5.14.2 Test procedure 29
5.14.3 Test requirements 29
5.15 Impact (operational) 30
5.15.1 Object of the test 30
5.15.2 Test procedure 30
5.15.3 Test requirements 30
5.16 Vibration, sinusoidal (operational) 31
5.16.1 Object of the test 31
5.16.2 Test procedure 31
5.16.3 Test requirements 32
5.17 Vibration, sinusoidal (endurance) 32
5.17.1 Object of the test 32
5.17.2 Test procedure 32
5.17.3 Test requirements 33
5.18 Enclosure protection 33
5.18.1 Object of the tests 33
5.18.2 Enclosure of the loudspeaker 33
5.18.3 Test procedures 33
5.18.4 Test requirements 34

Annex A (normative) Acoustical measurements 35

Annex B (normative) Measuring rated noise power (durability) 41

Annex C (informative) Loudspeaker references 48

Annex ZA (informative) Clauses of this European Standard addressing the provisions of the EU Construction Products Directive (89/106/EEC) 50