

Position Paper

Sounders and Visual Alarm Devices using radio frequency links

Executive summary

Sounders and Visual Alarm Devices (VADs) using radio frequency links are assessed in accordance with EN 54-25. This standard specifies that the devices “shall meet the requirements of the relevant part of EN 54”; being EN 54-3 or EN 54-23 respectively. However, a few Notified Bodies have observed that the scopes for the harmonised versions of these two product standards mention that they are “intended to cover only those devices which derive their operating power by means of a physical electrical connection to an external source such as a fire alarm system”. Their interpretation of this phrase (particularly the German translation thereof) has led them to conclude that they CANNOT use these standards to assess such products. While CEN/TC 72 have published a revision (and an amendment) of EN 54-3 to resolve this issue, the European Commission has not cited this latest revision as a harmonised standard and CEN/TC 72 has consequently held back from revising EN 54-23 to avoid the confusion that results from having two versions of the same standard in circulation.

The matter has been a source of frustration for several parties and has been discussed on many occasions within TC72, Euralarm, Notified Bodies and national trade associations. The matter was formally brought to the attention of SG07, the expert group of Notified Bodies, by means of a letter asking them to confirm that assessment and certification of radio-based sounder to the harmonised standard is possible. No formal response was received by TC72, but it has been reported that the TechSec gave an opinion that the cited revision does not cover battery-operated sounders. The full correspondence is in Appendix 1.

Taking into account the following five key points:

1. The scope of EN 54-3:2001/2006, and particularly its translation, is subject to different interpretations.
2. EN 54-25 refers to meeting the requirements given in other standards in the EN 54 series.
3. EN 54-25 includes requirements and tests for an internal autonomous power supply.
4. Changes to the scope in the latest revision of EN 54-3 have resolved the ambiguities of the Scope (see point 1).
5. The potential clash between the harmonised revisions of EN 54-25 and EN 54-3 is rooted in the non-citation of the later revision of EN 54-3.

Euralarm concludes that there is no technical reason why a radio-based sounder (or VAD) cannot be assessed using harmonised standards. Formally a Notified Body might choose to provide of Certificate of Constancy of Performance to EN 54-3:2001 and EN 54-25:2008 or provide a Certificate of Constancy of Performance to only EN 54-25:2008 and using EN 54-3:2014+A1:2019 as the relevant part of EN 54 for an alarm device (similarly EN 54-23 for VADs).

Evidence supporting the five points above is given in Appendix 2.

Appendix 1:

CEN/TC 72 WG3 wrote a letter to SGo7 to request support in the following matter as below:

"CEN/TC 72 WG3 has been reminded of a problem that exists in the current Harmonised Standard of EN 54-3 in that wireless-based fire alarm sounders (using radio to communicate) are considered to be out of the scope of the current EN 54-3 Harmonised Standard by some parties. Specifically, this outdated scope states that the standard is "intended to cover only those devices which derive their operating power by means of a physical electrical connection to an external source such as a fire alarm system.

It has been recently interpreted by one Notified Body that the current Harmonised standard cannot be applied to radio-based sounder for CE marking. However, WG3 notes that the use of the word 'intended' does not specifically exclude the use of the standard for devices which have an autonomous power supply. Other Notified Bodies have interpreted it thus and successfully assessed radio-based sounders with autonomous power sources using the standard in association with EN 54-25 which includes undated references to EN 54-3. They overcame these anomalies/omissions in the harmonised revision of the standards because radio-based sounders have been successfully addressed in the 2014 revision (and consequently also included in the A1:2019 amendment) of EN 54-3.

Importantly, a justification for this practical interpretation is that without it there is a risk that an unusually quiet (or loud) wireless sounder may be placed on the EU market without any assessment to EN 54-3 or EN 54-25.

Unfortunately, the current Harmonised Standard does not provide suitable test methods for wireless based sounders with autonomous power supplies to allow the full assessment of the essential characteristics as given in Annex ZA. The latest un-harmonised revision does but the Commission has identified anomalies that are preventing the latest version from being submitted for citation.

With these points in mind and to ensure safe and reliable products under the CE marking, we would like to request the agreement of SGo7 that radio-based sounders can be assessed and certified to the current EN 54-3 Harmonised Standard in conjunction with the latest published 2019 version".

The SGo7 Liaison Report to TC72 (doc N3437) reported on the matter as follows:

"The Technical Secretariat of the GNB has forwarded the question regarding internally powered alarm devices to the Commission for their advice. No answer received.

TechSec informed that they had thoroughly considered the matter and reached the conclusion that TechSec cannot endorse any guidance saying that battery powered sounders can be considered covered by the harmonised EN 54-3. TechSec have considered that the scope of EN 54-3 leaves very little room for interpretation, and the mandate seems not to help. Hence, they think that including battery powered sounders under the scope of EN 54-3 would require a rather expansive interpretation that might be overruled if questioned. TechSec further considered that if sounders with internal power supply are CE marked with reference to EN 54-3, they will benefit from the same market access as sounders with external power supplies. This would mean that Member States would have to accept sounders with internal power supply as meeting specifications drawn up to EN 54-3. Accordingly, Member States would not have the possibility to require for certain uses, that sounders must have an external power supply.

TechSec also believe that it should be borne in mind that the sounders in question are installed for the sole purpose of protecting public interests. The notified bodies and the GNB must be careful not to stretch their understanding of the harmonised specifications in a way that would (potentially) adversely affect the protection of public interests. Finally, they considered that should a battery powered sounder CE-marked to EN 54-3 fail in case of fire, e.g. due to a flat battery, those who suffer losses may hold the manufacturer (and other economic operators) liable, and possibly also the notified body that issued the certificate.

For the above reasons, TechSec conclude that the GNB should understand EN 54-3 as not covering battery operated sounders.”

Appendix 2:

Summary of the Harmonised Standards EN 54-3, EN 54-23 and EN 54-25:

CEN	EN 54-3:2001 Fire detection and fire alarm systems - Part 3: Fire alarm devices - Sounders		01/04/2003	01/06/2009
	EN 54-3:2001/A1:2002		01/04/2003	30/06/2005
	EN 54-3:2001/A2:2006		01/03/2007	01/06/2009

CEN	EN 54-23:2010 Fire detection and fire alarm systems - Part 23: Fire alarm devices - Visual alarm devices		01/12/2010	31/12/2013
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CEN	EN 54-25:2008 Fire detection and fire alarm systems - Part 25: Components using radio links		01/01/2009	01/04/2011
	EN 54-25:2008/AC:2012		01/07/2012	01/07/2012

These harmonised revisions have stagnated and become frozen under the Construction Product Regulations (CPR) and, despite TC72 managing to resolve the confusion caused by removing the word “intended” in the scope in the 2014 and subsequent 2019 revisions, these later revisions have not been cited as harmonised standards by the Commission due to issues with the legal framework.

Point 1: Scope of EN 54-3, English language, native language of the standards:

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EN 54-3:2001

1 Scope

This European Standard specifies the requirements, test methods and performance criteria for fire alarm sounders in a fixed installation **intended** to signal an audible warning of fire between a fire detection and fire alarm system and the occupants of a building. It is **intended** to cover only those devices which derive their operating power by means of a physical electrical connection to an external source such as a fire alarm system.

This standard specifies fire alarm sounders for two types of application environment, type A for indoor use and type B for outdoor use.

 This standard is **intended** to cover voice sounders by the application of additional requirements, tests and performance criteria detailed in Annex C. 

This standard is not **intended** to cover:

- a) loudspeaker type devices primarily **intended** for emitting emergency voice messages;
- b) supervisory sounders, for example, within the control and indicating equipment.

- “intended to cover only...” does NOT rule out that the standard may be used for other devices which do not derive their operating power by means of a physical electrical connection to an external source such as a fire alarm system. The expression simply conveys that the requirements have been written including clauses which relate to testing with an external power source.
- In fact the original intention when the standard was written was to not include some sub-standard battery-powered sounders that were on the market back in the late go’s. Note there is a significant difference between battery-powered sounders and radio-based sounders as the latter falls under another Harmonised standard, EN 54-25, which includes requirements for the internal power supply.
- Unfortunately, the German translation of the scope has a different meaning and indicates that it only applies to devices that draw their operating energy through a physical electrical connection from an external power source” (from google translation of German text)
- The normal expression for excluding devices from a standard (in English) is to say that the standard “does not apply to...”. Examples are EN 54-5, EN 54-7 EN 54-17, EN 54-10 The phrase “not intended to cover” is only used in the scopes of EN 54-3, EN 54-23 and EN 54-24 (loudspeakers).

The later revisions of EN 54-3 (2014 & 2019) include a revised scope which, amongst other things removed the sentence referring to using an external power source. However, these later revisions have not been cited by the European Commission as Harmonised standards.

Point 2. EN 54-25 + the relevant EN 54 standards:

EN 54-25 includes (5.2.1) clauses to ensure power is provided to the given product, meant to meet the relevant performance, and the standard says that the components “shall” meet the requirements of the relevant EN 54 standard.

5 Components requirements

5.1 Compliance

In order to comply with this standard the components shall meet the requirements of this clause which shall be verified by visual inspection or engineering assessment, shall be tested as described in Clause 8 and shall meet the requirements of the tests.

5.2 General

5.2.1 All components shall meet the requirements of the relevant part of EN 54 and the following additional specific requirements, including the transmission paths and/or radio links.

From this it is clear that CE marking of radio-based sounders and VADS to EN 54-25, calling upon EN 54-3 and EN 54-23 respectively for the performance expectations thereof, is wholly appropriate.

Point 3. EN 54-25 requirements for the power supplies:

EN 54-25 includes (5.3) clauses related the power supply equipment – one option clearly being an internal autonomous source.

5.3 Power supply equipment

5.3.1 The components shall be powered by:

- a) an autonomous power source, e.g. a primary battery, or
- b) a power supply equipment in accordance with EN 54-4.

NOTE In accordance with EN 54-2 a CIE is powered with power supply equipment complying with EN 54-4.

5.3.2 All components powered by an autonomous power source shall comply with the following requirements:

- a) the autonomous power source shall be within the enclosure of the component;
- b) the autonomous power source shall allow normal operation of the component for a minimum period of 36 months.

Point 4. EN 54-3:2001 has been replaced by a later version:

EN 54-3:2014+A1:2019 – resolved the issue by amended the scope, allows “not wired” products.

ISO 7240-3:2020 – has the same scope and requirements as the latest version of EN 54-3:2014+A1:2019 give a consistent approach with EN and ISO standards.

- European Commission refused to harmonise the latest version of the standard and will not harmonise any more standard under the current (to be replaced) CPR.

Point 5. Clash between harmonised standard and published standards:

EN 54-25 requires the components of a radio-based system shall be compliant with the relevant EN 54 standards but does not specify which revision as it is a generic clause covering all relevant parts of EN 54. Consequently, it could be interpreted to be the latest version or to the harmonised revision thereby leaving it to the manufacturer, in consultation with Notified Bodies who are amenable to doing so, to declare whichever is the most appropriate revision to use for their specific product.

About Euralarm

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Note: The English version of this document is the approved Euralarm reference document.

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