british security industry association

interpretation of
BSEN50131-5-3:2005
– recommendations to manufacturers

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1. Introduction

This document has been prepared to give guidance on the interpretation of some of the clauses in BS EN 50131-5-3:2005 that have been open to misinterpretation, in need of further clarification or which do not interface correctly with other standards in the EN50131 family – especially prEN50131-1:2004.

Whilst prepared initially for use by manufacturers when designing their products to conform to the new requirements, this guideline should also be a useful source of clarification for specifiers, installers and others working with the standard.

Only those items in BS EN 50131-5-3:2005 which give concerns are listed below. All other clauses or parts of the standard are believed to be self-explanatory.

Advisory note:
This guide has been produced for use in PD6662:2004 – Scheme for the application of European standards for Intruder and Hold up alarm systems. With the implementation of PD6662:2010 and the dual running period associated with this transition, other BSIA Industry guidance may have been produced for the later Scheme and therefore you should ensure you seek the appropriate guidance. If you are unsure please contact the BSIA Technical team on 085 389 3889 or email: technical@bsia.co.uk

2. Interpretation of clauses

3.1.8 Failure of periodic communication
prEN50131-1 defines "periodic communication" as "any valid signal or message. Periodic communication would therefore include supervision, alarm and tamper. So "failure of periodic communication" means "failure of communication"

3.1.12 Monitoring message
A supervision signal is a monitoring message.

4.3 Immunity to unintentional and intentional component and message substitution
The requirements of 4.3 and the means to verify them are unclear. It is recommended that manufacturers agree an interpretation with their test house.

4.4 Immunity to interference
The requirement refers to "…the 20 system relevant messages…" but does not say what these messages are. It is agreed that they may be defined by the manufacturer.

4.4.1 Interference outside of the assigned band for grades 1 and 2 equipment

a. The requirement incorrectly states "…the level of interference (defined as Level B in Annex C…)". Level B is illustrated in Annex C, but is defined in Table 6.

b. 4.4.1 uses the following formula to calculate F1, F1 $= (F_{min} - 5\% F_{min})$, whereas Annex C says: F1 $= (F_{ab\text{-}min} - 5\% F_{ab\text{-}min})$

   It is agreed that the formula in 4.4.1 should be used at Annex C is informative only.

4.4.2 Interference within the assigned band for grades 1 and 2 equipment

The interference signal is applied at the operating frequency for single frequency devices and at the mid frequency for multiple frequency devices. It is therefore likely to be more difficult for single frequency devices to pass this test.

4.4.3 Interference for grades 3 and 4

10 V/m is thought to be too high for single frequency systems.

4.5.1 Requirement for the detection of a failure of periodic communication

a. Table 10 shows a time of 100s for grade 3 equipment, whereas prEN50131-1: 2004 Table 18 shows 60s. In order to comply with EN 50131-1, the time should be 60s.
b. In the final paragraph, examples of "Portable Equipment" are remote key fobs or devices worn by a user such as a personal attack device, or other devices, which could be removed from the site in normal use.

4.5.2 Table 11 Detection of interference

It is not clear what "maximum" refers to in the column heading, therefore ignore it.

4.5.2 Table 12 Detection of interference for equipment

It is not clear why WD are marked "optional" for grades 1 & 2 and in particular why they should have to pass the grade 3 interference test referred to in the note.

4.5.2 Table 13 Level of interference signal

a. Although the table only refers to WD and ATE it is assumed that it should also apply to CIE.
b. It is unclear why the grade 1 level is optional when the feature is mandatory. Therefore, assume the level is also mandatory at grade 1.
c. The table refers only to "Tamper notification" however at grades 1 and 2, a fault signal is also permitted (see 4.5.2 paragraph 3).
d. It is noted that system performance will almost certainly have been compromised at significantly lower levels of interference than the table describes. It is therefore likely that manufacturers may want to design their equipment with lower interference detection thresholds.

5.1.1 Reference level determination

a. In paragraph 2 "…transmitting and receiving equipment" is referring to the antennas of the equipment.
b. Paragraph 4 is the test antenna, paragraph 5 is the EUT antenna.
c. Para 6 refers to 50 messages, these may be defined by the manufacturer.

5.1.3 Verification of immunity to collision

Para 3 means having two devices transmitting simultaneously, one transmitting a monitoring signal, the other an alarm signal, the alarm signal must get through within 10s.

5.1.6 Tests for immunity to interference

The field strength shall be set using the methods in EN61000-4-3, the interfering field strength should be set at the position of the receiver.

5.1.6.1 Test for interference outside of the assigned band for grade 1 and 2 equipment

"t" is the duration of one bit. (It is assumed that it is a 50% mark/space ratio.)

5.1.7.1 Test for the detection of a failure of periodic communication on a link

a) Supplementary test conditions for verifying links from a transmitting equipment to the CIE Paragraph 3 appears to introduce a new requirement.

5.1.7.2 Tests for detection of interference

b) and c) appear to be testing the same requirement.

Annex F - Interference timing diagrams

The first drawing should be for 5s not 10s (see 4.5.2 and 5.1.7.2 b).