IEC 62820-2

Edition 1.0 2017-09

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Building intercom systems –
Part 2: Requirements for advanced security building intercom systems (ASBIS)

Systèmes d'interphone de bâtiment –
Partie 2: Exigences pour les systèmes d'interphone de bâtiment à sécurité avancée (ASBIS)

IEC 62820-2:2017-09(en-fr)

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BUILDING INTERCOM SYSTEMS –

Part 2: Requirements for advanced security building intercom systems (ASBIS)

FOREWORD

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International Standard IEC 62820-2 has been prepared by IEC technical committee 79: Alarm and electronic security systems.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
79/588/FDIS	79/590/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 62820 series, published under the general title *Building intercom systems*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

- reconfirmed,

- withdrawn,

- replaced by a revised edition, or

- amended.

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INTRODUCTION

The IEC 62820 series of standards set out the technical requirements for the composition, functions, performance, test methods of building intercom systems for building entry and application guidelines and consist of five parts:

Part 1-1:   System requirements – General;

Part 1-2:   System requirements – Building intercom systems using the internet protocol (IP);

Part 2:   Requirements for advanced security building intercom systems (ASBIS);

Part 3-1[1]: Application guidelines – General;

Part 3-2[2]: Application guidelines – Advanced security building intercom systems.

IEC 62820-2 specifies higher security requirements, to be used in buildings with advanced security needs that additionally or alternatively apply in respect of those in IEC 62820-1-1 and/or IEC 62820-1-2 which give basic requirements for building intercom systems.

Additional requirements and recommendations are those described in IEC 62820-2, but they are not covered by IEC 62820-1-1 neither IEC 62820-1-2.

Requirements and recommendations described by IEC 62820-2 have precedence, if also described in IEC 62820-1-1 and/or IEC 62820-1-2.

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[1]   Under preparation. Stage at the time of publication: IEC/AFDIS 62820-3-1:2017.

[2]   Under preparation. Stage at the time of publication: IEC/AFDIS 62820-3-2:2017.

BUILDING INTERCOM SYSTEMS –

Part 2: Requirements for advanced security building intercom systems (ASBIS)

1 Scope

This part of IEC 62820 specifies the technical requirements for the composition, function, performance and testing methods of Advanced Security Building Intercom Systems.

This document is applicable for intercom systems used for any advanced security communication in buildings.

Advanced security building intercom systems (ASBIS) are used for rapid emergency and danger messages verification by voice communication, warning of a danger, rapid notification of the responsible emergency services/intervention services and for sending instructions on how to proceed. The requirement for a suitable concept is prior risk assessment and a definition of the protection target.

A Security management unit (SMU) is a necessary part of an ASBIS.

The type of building and the usage of a building have influence on the risk calculation. In this document, the relevant functions and performances are divided into three grades. According to the results of the risk calculation, the security needs will be covered by an individual system profile.

NOTE 1   Examples of typical profiles and each grades are defined in IEC 62820-3-2, where a risk calculation is required.

NOTE 2   The application of this document does not dispense to comply with the public national regulations concerning emergency systems.

NOTE 3   Systems for emergency purposes can be the subject of approval by local authorities.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

IEC 60268-16, *Sound system equipment – Part 16: Objective rating of speech intelligibility by speech transmission index*

IEC 60417, *Graphical symbols for use on equipment* (available at http://www.graphical-symbols.info/equipment)

IEC 62820-1-1, *Building intercom systems – Part 1-1: System requirements – General*

IEC 62820-1-2, *Building intercom systems – Part 1-2: System requirements – Building intercom systems using the internet protocol (IP)*

IEC 62820-3-2, *Building intercom systems – Part 3-2: Application guidelines – Advanced security building intercom systems*

IEC 62676 (all parts), *Video surveillance systems for use in security applications*

ISO 7010, *Graphical symbols – Safety colours and safety signs – Registered safety signs*

ITU-T G.722, *7 kHz audio-coding within 64 kbit/s*

ITU-T P.79, Annex G, *Telephone transmission quality, telephone installations, local line networks*

ITU-T P.311, *Transmission characteristics for wideband digital handset and headset telephones*

ITU-T P.340, *Transmission characteristics and speech quality parameters of hands-free terminals*

ITU-T P.341, *Transmission characteristics for wideband digital loudspeaking and hands-free telephony terminals*

ITU-T P.800, *Methods for subjective determination of transmission quality*

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 62820-1-1 and IEC 62820-1-2 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

• IEC Electropedia: available at http://www.electropedia.org/

• ISO Online browsing platform: available at http://www.iso.org/obp

3.1.1
intercom unit
voice communication unit, inherent to the system

EXAMPLE   Explosion-proof-unit, clean-room-unit, emergency-call-unit, heavy-duty-unit, school-class-room-unit.

Note 1 to entry: In this document, it includes all types of voice communication units, in addition to those defined in IEC 62820-1-1 (VCU, URU, SMU).

3.1.2
full duplex
operating method in which transmission is possible simultaneously in both directions of a telecommunication channel

Note 1 to entry: This means that both participants in an established conversation can speak and listen at the same time. It is similar to a natural communication between persons while they are speaking and listening to each other without any technical system between them.

3.1.3
manually controlled half duplex
<non-simultaneous conversation> operating method in which the communication direction is manually switched by an operator between speaking and listening in an established 2-way communication.
This function needs a push-to-talk-key in those intercom units which have a need for this function.

3.1.4
automatic half duplex
<voice switched duplex> operating method in which the communication direction is automatically switched by the voice sound pressure level of the two speaking persons in an established 2-way communication

3.1.5
frequency range
system bandwidth necessary to transmit voice in both directions of a 2-way-communication

Note 1 to entry: The frequency range and its loudness range has a strong influence on intelligibility.

3.1.6
automatic volume control
command which allows to permanently measure the background noise to adjust the loudspeaker-amplifier of an intercom unit microphone to a dedicated additional grade over the background noise level

Note 1 to entry: Automatic volume control is very important for outside units in partly or temporary noisy environments to guaranty clear communication.

3.1.7
high priority call
Call from one intercom unit to another that must be attended first with regard the pending calls

3.1.8
building warnings distribution
system usage to give warning messages to all intercom units by a buzzer, warning-tone, or warning-tone and voice-message by all-call or group-call

3.1.9
environmental noise cancellation
reduction or elimination of background noise in the transmission of voice from Intercom units installed in noisy environments to increase intelligibility

3.1.10
public warning
warning information to all intercom units via an interface, triggered by external authorities (e.g. from government, fire brigade, police, security centres)

3.1.11
automatic aggression detection
audio analysis to detect characteristic danger sounds (scream, shoot, glass-break, etc.) at intercom units, to generate automatic warning messages

3.1.12
system redundancy
solutions to increase the system availability under fault conditions

Note 1 to entry: See examples in the application guidelines. The kind of redundancy has to be defined by a risk analysis.

3.1.13
security management unit call queue
calls storage to a security management unit from other intercom units in a row, on a first in/first out basis for all calls with the same priority, calls with a higher priority being arranged on top of the queue

3.1.14
intercom unit call transfer
transfer of any incoming calls to another intercom unit

Note 1 to entry: Other intercom units which shall receive transferred calls, need to have the same functionalities as the original receiver.

3.1.15
security management unit keep on hold
placement of an existing 2-way communication on hold whilst an inquiry call is being made

3.1.16
speech channel
transmission path in the system for a 2-way communication of voice

3.1.17
direct communication
call and voice communication between any unit

3.1.18
inductive loop
possibility to support people wearing a hearing aid via their personal units

3.1.19
interface
system connection to other security systems such as fire, burgla-, video, telephone, access-control and other systems, to send and receive information for optimized operational workflow and warning opportunities

3.1.20
user interface
hardware and/or software provided to permit a user to interact with the system

3.1.21
remote access permission
remote system programming/upgrading and other remote services by verified authorized persons

Note 1 to entry: Anybody who shall or can have access, has to be verified if he is authorized (in the meaning of permitted, certified, accredited).

3.1.22
software vulnerability grade
<hacking> protection against unauthorized remote influences to the complete system, such as reprogramming or fault generation

3.1.23
obsolete time
calculated lifetime of the system after which it cannot be repaired and shall be replaced, due to technical or economic reasons

3.1.24
overall system availability
summary of time in %, where the system is available per year (365 days x 24 hours = 100 %)

3.1.25
system test
line-error-test of the cable network and keep alive test of all system units (electronic/processor)

3.1.26
voice communication test
test of all units with test tones, about their possibility to send and receive voice-sound

3.1.27
error report
message of system faults to a responsible person or organization

3.1.28
speech transmission index
STI
overall quality of the voice from the human sender to the human receiver

Note 1 to entry: The influence that a transmission channel has on speech intelligibility is dependent on: speech grade at the receiver; frequency response of the channel; non-linear distortions; background noise grade at sender and receiver; quality of the sound reproduction equipment (loudspeaker); echoes (sound reflections); reverberation time; psychoacoustic effects (masking effects).

The value from 0 to 1 describes the intelligibility at the receiver (possibility to understand voice).
(0 to 0,3 = not understandable; >0,3 to 0,45 = poor; >0,45 to 0,6 = reasonable; >0,6 to 0,75 = good; >0,75 to 1 = excellent)

3.1.29
privacy protection
impossibility to listen to any intercom unit without the acceptance by the relevant user

3.1.30
privacy communication
2-way communication between two of any units without the possibility of listening by another unit under any circumstances, except, after an individual acknowledgement request by a third party and acceptance by the original party

3.1.31
microphone status indicator
visible and acoustical indication that the unit is still active in conversation and the microphone is sending information

3.1.32
system status monitoring
permanent check of all system devices regarding their defined operational status, user status and interface status

3.1.33
system event monitoring/reporting
permanent check of all devices about their defined event possibilities

Note 1 to entry: Events include, for example, user call events such as initiation, answer, completion, abnormal; event information such as date and time, source, description; all types of fault-events.

3.1.34
system fault monitoring
report of all types of faults by listing in protocol, for example:
not connected to network and/or server, button stuck, tone test, device restart, etc.

Note 1 to entry: Faults include, for example, no connection to network and/or server, button stuck, tone test, device restart.

3.1.35
network security
provisions   and policies adopted   by   a network   administrator to   prevent   and monitor unauthorized access, misuse, modification, or denial of a computer network and network-accessible resources

Note 1 to entry: Network security involves the authorization of access to data in a network, which is controlled by the network administrator. Users choose or are assigned an ID and password or other authenticating information that allows them to get access to information and programs within their authority.

3.1.36
network authentication and authorization
part of the overall risk management which has to be decided according to the chosen advanced building security grade

3.1.37
Transmission quality
Important factor of intelligibility, influenced by analogue-digital-analogue system procedures, such as background noise, jitter and tone replacements for lost sound samples, as well as any kind of distortions and frequency response

3.1.38
codec
method for data compression (voice over IP and video over IP) with the target of low data transmission rates

Note 1 to entry: Very useful standards are ITU G.711 for Standard telephone quality, and G.722 for High-Definition-Voice Telephony.

Note 2 to entry: See ITU G.711 for standard telephone quality and ITU-T G.722 for high definition voice telephony.

3.1.39
term and content deleted

3.1.40
intercom substation
Intercom Unit with limited functionalities compare to Intercom master-station

EXAMPLE   Loudspeaker with answer, loudspeaker with answer and a reduced keypad for limited call possibilities.

3.1.41
intercom master-station
Intercom unit with all the functionalities that are necessary to call any other intercom unit and to receive calls from any other intercom unit

3.1.42
conversation transfer
change of conversation partner to another one after an inquiry call-conversation

Note 1 to entry: Conversation transfer is normally done by an SMU to hand-over a conversation with a VCU to a dedicated URU.

3.1.43
Automatic volume control
AVC
constant adjustment of the acoustic pressure level according to environmental noise to achieve intelligibility

3.2   Abbreviated terms

ASBIS   advanced security building intercom system(s)

OLR   overall loudness rating

PIN   personal identification number

SMU   security management unit

STMR   side-tone masking rating

URU   user receiver unit