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INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Video surveillance systems for use in security applications – Part 1-1: System requirements – General

Systèmes de vidéosurveillance destinés à être utilisés dans les applications de sécurité – Partie 1-1: Exigences systèmes – Généralités

IEC 62676-1-1:2013

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CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

VIDEO SURVEILLANCE SYSTEMS FOR USE IN SECURITY APPLICATIONS –

Part 1-1: System requirements – General

FOREWORD

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International Standard IEC 62676-1-1 has been prepared by IEC technical committee 79: Alarm and electronic security systems.

The text of this standard is based on the following documents:

FDIS	Report on voting
79/432/FDIS	79/445/RVD

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

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

The reader's attention is drawn to the fact that Annex A lists all of the "in-some-country" clauses on differing practices of a less permanent nature relating to the subject of this standard.

A list of all parts in the IEC 62676, published under the general title *Video surveillance systems for use in security applications*, can be found on the IEC website.

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

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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INTRODUCTION

The IEC Technical Committee 79 in charge of alarm and electronic security systems together with many governmental organisations, test houses and equipment manufacturers has defined a common framework for video surveillance transmission in order to achieve interoperability between products.

The IEC 62676 series of standards on video surveillance system is divided into 4 independent parts:

Part 1: System requirements

Part 2: Video transmission protocols

Part 3: Analog and digital video interfaces

Part 4: Application guidelines (to be published)

Each part has its own clauses on scope, references, definitions and requirements.

This IEC 62676-1 series consists of 2 subparts, numbered parts 1-1 and 1-2 respectively:

IEC 62676-1-1, *System requirements – General*

IEC 62676-1-2, *System requirements – Performance requirements for video transmission*

The first subpart of this IEC 62676-1 series applies to systems for surveillance of private and public areas. It includes four security grades and four environmental classes.

This IEC Standard is intended to assist Video Surveillance System (VSS) companies, manufacturers, system integrators, installers, consultants, owners, users, insurers and law enforcement in achieving a complete and accurate specification of the surveillance system. This International Standard does not specify the type of technology for a certain observation task.

Due to the wide range of VSS applications e.g. security, safety, public safety, transportation, etc. only the minimum requirements are covered in this standard.

For specific applications e.g. in homeland security, additional requirements need to be applied, which are defined in the annex of this standard.

This IEC Standard is not intended to be used for testing individual VSS components.

Today VSSs reside in security networks using IT infrastructure, equipment and connections within the protected site itself.

VIDEO SURVEILLANCE SYSTEMS FOR USE IN SECURITY APPLICATIONS –

Part 1-1: System requirements – General

1 Scope

This part of IEC 62676 specifies the minimum requirements and gives recommendations for Video Surveillance Systems (VSS), so far called CCTV, installed for security applications. This Standard specifies the minimum performance requirements and functional requirements to be agreed on between customer, law-enforcement where applicable and supplier in the operational requirement, but does not include requirements for design, planning, installation, testing, operation or maintenance. This standard excludes installation of remotely monitored detector activated VSSs.

This IEC Standard also applies to VSS sharing means of detection, triggering, interconnection, control, communication and power supplies with other applications. The operation of a VSS is not be adversely influenced by other applications.

Requirements are specified for VSS components where the relevant environment is classified. This classification describes the environment in which the VSS component may be expected to operate as designed. When the requirements of the four environmental classes are inadequate, due to the extreme conditions experienced in certain geographic locations, special national conditions may be applied (see Annex A).

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60065, *Audio, video and similar electronic apparatus – Safety requirements*

IEC 60068-2-75, *Environmental testing – Part 2-75: Tests – Test Eh: Hammer tests*

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

IEC 60950-1, *Information technology equipment – Safety – Part 1: General requirements*

IEC 61000-6-1:2005, *Electromagnetic compatibility (EMC) – Part 6-1: Generic standards – Immunity for residential, commercial and light-industrial environments*

IEC 61000-6-2:2005, *Electromagnetic compatibility (EMC) – Part 6-2: Generic standards – Immunity for industrial environments*

IEC 61000-6-3, *Electromagnetic compatibility (EMC) – Part 6-3: Generic standards – Emission standard for residential, commercial and light-industrial environments*

IEC 61000-6-4, *Electromagnetic compatibility (EMC) – Part 6-4: Generic standards – Emission standard for industrial environments*

IEC 62262, *Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)*

IEC 62599-1:2010, *Alarm systems – Part 1: Environmental test methods*

IEC 62599-2:2010, *Alarm systems – Part 2: Electromagnetic compatibility – Immunity requirements for components of fire and security alarm systems*

IEC 62676-4, *Video surveillance systems for use in security applications – Part 4: Application guidelines*[1]

ISO 12233:2000, *Photography – Electronic still-picture cameras – Resolution measurements*

3 Terms, definitions and abbreviations

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1.1
access level
level of access to particular functions of the VSS, defining the user rights of an operator, to control and configure the system as well as the access to data on the VSS

3.1.2
acknowledge
action of a user to accept a message or an indication

3.1.3
action
deliberate operation or act by the user which is part of alarm procedure

3.1.4
Advanced Streaming Format
proprietary digital audio/digital video container format, especially meant for streaming media

3.1.5
alarm
warning of the presence of any hazard to life, property or the environment

3.1.6
alarm condition
condition of an alarm system, or part thereof, which results from the response of the system to the presence of a hazard

3.1.7
alarm message
message from the system to an operator, to describe time, type and location of an alarm

3.1.8
alarm procedure
indications and manual or automatic controls as response to an alarm condition

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1 To be published.

3.1.9
alarm receiving centre
continuously manned centre to which information concerning the status of one or more alarm systems is reported

3.1.10
alert
warning addressed to persons for their information or to request intervention (e.g. by police, service personnel) in response to an alarm, tamper or fault

EXAMPLE: Visual-alert, acoustic/ audible-alert, external-alert.

Note 1 to entry: Sometimes the term “alarm warning” is used instead.

3.1.11
alternative device
VSS component of the same type as the primary device

3.1.12
archive
data stored on a long term permanent or partially permanent storage

EXAMPLE: CD’s or digital tapes are considered to be ‘archived’.

3.1.13
area of interest
region in the scene monitored by an image capturing device

3.1.14
audio video interleave format
proprietary multimedia format containing audio and video data in a standard container that allows synchronous audio-with-video playback

3.1.15
authentication
method to verify whether an image has been altered

3.1.16
authorisation
permission to gain access to specified functions or components of a VSS

3.1.17
authorisation codes
physical or logical keys which permit access to VSS functions

3.1.18
automatic number plate recognition
optical character recognition on images to read and extract the alphanumerics of the licence plate of vehicles

3.1.19
automatic teller machine
device that provides a method of financial transactions in public space without the need for a human clerk

3.1.20
auxiliary equipment
video system used not as primary mitigation of the risk

3.1.21
backup image
an accurate and complete replica of the primary image, irrespective of media

3.1.22
throughput
(relating to interconnection) data transfer rate or amount of data that can be transferred from one point to another in a given time period

Note 1 to entry: Throughput is quoted in bits per s.

3.1.23
capacity
(relating to recording) the total amount of stored information that a storage media or medium can hold.

Note 1 to entry: It is expressed as a quantity of bits or bytes.

3.1.24
VSS
system consisting of camera equipment, storage, monitoring and associated equipment for transmission and controlling purposes

Note 1 to entry: CCTV systems are included in the more general term ´VSS´.

3.1.25
channel
single path for conveying digital or analogue data, distinguished from other parallel paths

EXAMPLE: Video input or output channel.

3.1.26
checksum
unique value or key computed by an algorithm for a data packet, based on the information it contains

Note 1 to entry: It is passed along with the data to authenticate that the data has not been tampered with. Any change to the image data, metadata or image sequence would cause a change in the resultant checksum.

3.1.27
compression
the process of reducing the size of a data (image) file

3.1.28
compression rate
ratio of a file's or image's uncompressed size compared to its compressed size

Note 1 to entry: A high compression rate means smaller image files and lower image quality and vice versa.

3.1.29
common interconnection
interconnection used by several video and data channels and/or other applications

3.1.30
communication
transmission of messages and/or signals between VSS components

3.1.31
component
functional part of the VSS

3.1.32
continually
recurring frequently at regular intervals

3.1.33
contrast
(relating to image) difference in visual properties that makes an object (or its representation in an image) distinguishable from other objects and the background

Note 1 to entry: In visual perception of the real world, contrast is determined by the difference in the colour and brightness of the object and other objects within the same field of view.

3.1.34
data
image, meta and other data of the VSS

3.1.35
data acquisition
sampling of information to generate data by processing of signals with appropriate sensors converting the measurement parameter to a signal

3.1.36
data backup
process of copying data to enable the recovery of the original recording in the event that the original recording is lost or damaged

3.1.37
database
structured collection of records or data. Records are retrieved in answer to queries

3.1.38
data identification
capability to find, retrieve or delete specific data without ambiguity e.g. by the use of unique IDs

3.1.39
data integrity
condition when data has not been modified or altered from its source either maliciously or by accident and in which data are maintained during any operation, such as transmission, storage, and retrieval, in order to preserve data for their intended use

3.1.40
data management
management of user-actions, audio-/video-data and general information's that are not part of the activity management

3.1.41
data manipulation protection
means to guarantee the integrity of data

EXAMPLE: Certified data handling, encryption, watermarking and limited access to the data.

3.1.42
default (by)
parameter settings stored in equipment by the manufacturer that can replace settings configured during commissioning or in later use

3.1.43
decryption
process of changing encrypted data into plain data using a cryptographic algorithm and key

3.1.44
digital image
image consisting of pixels using ranges of discrete values

3.1.45
digital video recorder
system that is capable of recording, playback, backup and export of digital images captured by image sources.

Note 1 to entry: A Network Video Recorder is included within this definition.

3.1.46
documentation
(relating to the system) paperwork (or other media) prepared during the design, installation and hand over of the system recording details of the VSS

Note 1 to entry: Component documentation may be provided by the manufacturer on paper or an alternative. medium

3.1.47
electronic article surveillance
technological method for preventing shoplifting e.g. from retail stores

3.1.48
encryption
cryptographic transformation of data that conceals the data original meaning to prevent it from being known or used

3.1.49
equidistant interval
constant distance in time, when sampling values of a continuous signal

3.1.50
essential functions
vital functions of a VSS, which are image capturing, transmission, recording and/or presentation

3.1.51
event
incident in the real world

EXAMPLE: A fire (burning house), an intrusion (broken door) or moving person, a power-failure, a short circuit, presence of an intruder.

3.1.52
event driven action
user or system activity driven by an alarm- or trigger-signal

3.1.53
event recording
event controlled recording or storing of image signals for a pre-determined time

3.1.54
exact copy
transfer of data from original recording location or master copy to secondary storage, if digital as bit for bit copy

3.1.55
export
transfer of data from the original location to a secondary storage location with a minimum of necessary changes

3.1.56
external input
external source connected to a dedicated input on the VSS

3.1.57
external interconnection
interconnections exchanging data over the boundary of the system

3.1.58
external system
VSS receiving and sending information and control signals but not providing VSS functions

3.1.59
failover
capability to switch over automatically to a redundant or standby component or system, upon the failure or abnormal termination of the previously active component or system

3.1.60
fail-safe
function or method which ensures that a failure of equipment, process, or system does not propagate beyond the immediate environs of the failing entity

EXAMPLE: A device causing no harm or at least a minimum of harm to other devices or hazards to personnel on failure or operator error.

Note 1 to entry: A fail-safe system has been designed in a way that the probability of a failure is extremely low to accomplish its assigned mission regardless of environmental factors.

3.1.61
fault
VSS condition of one or more components or interconnections that prevents the VSS or part thereof from operating normally

3.1.62
fault message
message from the system to an operator, to describe time, type and location of a fault

3.1.63
fingerprint
method of generating a unique ‘fingerprint’ of the original recorded image that cannot be reproduced if the image is altered

3.1.64

graphics interchange format
8-bit-per-pixel bitmap image format

3.1.65
hazard
incident that the VSS is designed to detect

EXAMPLE: Smoke or movement.