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**Video surveillance systems for use in security applications -
Part 6: Performance testing and grading of real-time intelligent video content analysis devices and systems for use in video surveillance applications**

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FOREWORD

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IEC 62676-6 has been prepared by IEC technical committee 79: Alarm and electronic security systems. It is an International Standard.

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

Draft	Report on voting
79/708/FDIS	79/740/RVD

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts in the IEC 62676 series, 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 document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

– reconfirmed,
– withdrawn, or
– revised.

INTRODUCTION

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

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

Part 1: System requirements

Part 2: Video transmission protocols

Part 3: Analogue and digital video interfaces

Part 4: Application guidelines

Part 5: Data specifications and image quality performance for camera devices

Part 6: Performance testing and grading of real-time intelligent video

This document is organised as follows:

The introduction and preliminaries, such as understanding the common terms, abbreviations, etc., agreed between all regions are presented in Clause 1 to 5.10.

In Clause 6 to 6.7.3 the fundamentals of the testing framework are explained, such as the core, complex and degree of difficulty measures, the XML/JSON test data that annotates the event information and the methodology that underlines the process.

In 6.8 to 6.8.11 elements of the testing process are explained.

In 6.9 to 13.9.12 further details on the application of core, complex and application of the degree-of-difficulty are explained.

From Clause 14 to 17.6 the testing and grading aspects are explained.

Lastly the Annexes contain further information from all contributors explaining the tests, outcomes, technical basis, details of some essential processes, footage repositories and backup information that might be useful to fully exploit the offering in this document.

1 Scope

This part of IEC 62676 specifies the functions, performance, interfaces, environmental adaptability, test methods, performance evaluation and grading rules of real-time intelligent video analysis in surveillance systems.

This document applies to live and forensic, real-time intelligent video analysis devices and systems in video surveillance.

The document is centred on testing performance and grading device functionality which enables:

- Core capability: Classification of objects, detection of specific "object activity", such as "stopping", "starting", "direction of movement", etc.
  Examples are listed in Annex A.
- Complex capability: Detection of "scenarios" which are based on combinations of object activity, such as "loitering", "perimeter intrusion detection", "person down", "tailgating", "intrusion", "abandoned object detection", explosion, fire, flood, potential terrorist attack using a vehicle, owner of an abandoned bag, etc.
  Examples of current scenarios are listed and described in Annex B.
- Degree of difficulty: The application of real operating environments to test the performance under known or required operating stress levels, examples of operating stress levels that are sterile or non-sterile, indoor or outdoor, target obscuration levels, extreme weather conditions, vibrating mechanical rugged environments causing image shake resulting in degradation of image quality requirement, see Table 1 and Annex C.

The purpose of this document is to provide end users, at different levels of the service process, from users and installers, integrators and maintenance companies, to certification providers, with methods to measure the performance of video analysis systems that must also comply with other parts of the standard.

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

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

IEC 62676-5:2018, *Video surveillance systems for use in security applications - Part 5: Data specifications and image quality performance for camera devices*

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IEC 62676-2-31:2019, *Video surveillance systems for use in security applications - Part 2-31: Live streaming and control based on web services*

IEC 62676-2-32:2019, *Video surveillance systems for use in security applications - Part 2-32: Recording control and replay based on web services*

IEC 62676-2-33:2022, *Video surveillance systems for use in security applications - Part 2-33: Video transmission protocols - Cloud uplink and remote management system access*

IEC 62676-3, *Video surveillance systems for use in security applications - Part 3: Analog and digital video interfaces*

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KISA – *Korean Framework for testing 2016*

GB 30147 – *China Framework for testing 2015*

JRC 103650, ISBN 978-92-79-63952-4, doi:10.2788/92267 includes iLiDS the Government regulated certification house responsible for assessing all CCTV based video content analysis systems; https://ec.europa.eu/jrc

SP 800-37, Revision 2, *Risk Management Framework for Information Systems and Organizations: A System Life Cycle Approach for Security and Privacy*

Communications standards

Layer	Common standards
5. Application Layer	HTTP, HTML (Web) MPEG, H.323 (audio/video) SMTP, IMAP, POP (e-mail)
4. Transport layer	TCP (Internet and LANs) SPIXEL (Novell LANs)
3. Network layer	IP (Internet and LANs) IPIXEL (Novell LANs)
2. Data link layer	Ethernet (LAN) Frame relay (WAN) T1 (MAN and WAN)