Video surveillance systems for use in security applications -- Part 2-1: Video transmission protocols - General requirements

EESTI STANDARDIKESKUS
ESTONIAN CENTRE FOR STANDARDISATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 62676-2-1:2014 sisaldab Euroopa standardi EN 62676-2-1:2014 inglisekeelset teksti.	This Estonian standard EVS-EN 62676-2-1:2014 consists of the English text of the European standard EN 62676-2-1:2014.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 17.01.2014.	Date of Availability of the European standard is 17.01.2014.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 13.320

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 62676-2-1

January 2014

English version

Video surveillance systems for use in security applications - Part 2-1: Video transmission protocols - General requirements
(IEC 62676-2-1:2013)

Systèmes de vidéosurveillance destinés à être utilisés dans les applications de sécurité -
Part 2-1: Protocoles de transmission vidéo - Exigences générales
(CEI 62676-2-1:2013)

Videoüberwachungsanlagen für Sicherungsanwendungen – Teil 2-1: Videoübertragungsprotokolle – Allgemeine Anforderungen
(IEC 62676-2-1:2013)

This European Standard was approved by CENELEC on 2013-12-12. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Avenue Marnix 17, B - 1000 Brussels

Ref. No. EN 62676-2-1:2014 E

Foreword

The text of document 79/435/FDIS, future edition 1 of IEC 62676-2-1, prepared by IEC TC 79 "Alarm and electronic security systems" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62676-2-1:2014.

The following dates are fixed:

- latest date by which the document has (dop) 2014-09-12
  to be implemented at national level by
  publication of an identical national
  standard or by endorsement
- latest date by which the national (dow) 2016-12-12
  standards conflicting with the
  document have to be withdrawn

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

Endorsement notice

The text of the International Standard IEC 62676-2-1:2013 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

IEC 62676-1-1   NOTE   Harmonised as EN 62676-1-1.

Annex ZA
(normative)

Normative references to international publications
with their corresponding European publications

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.

NOTE   When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 62676-1-2	-	Video surveillance systems for use in security applications - Part 1-2: Video transmission – General video transmission - requirements	EN 62676-1-2	-
IEC 62676-2-2	-	Video surveillance systems for use in security applications - Part 2-2: Video transmission protocols - IP interoperability implementation based on HTTP and REST services	EN 62676-2-2	-
IEC 62676-2-3	-	Video surveillance systems for use in security applications - Part 2-3: Video transmission protocols - IP interoperability implementation based on WEB services	EN 62676-2-3	-
IETF RFC 2326	1998	Real time Streaming protocol (RTSP)		
IETF RFC 3550	-	A Transport Protocol for Real-Time Applications	-	-
IETF RFC 3984	-	RTP Payload Format for H.264 Video	-	-
IETF RFC 4566	-	SDP: Session Description Protocol	-	-
IETF RFC 3016	-	RTP Payload Format for MPEG-4 Audio/Visual Streams	-	-
IETF RFC 4571	-	Framing Real-time Transport Protocol (RTP) and RTP Control Protocol (RTCP) Packets over Connection-Oriented Transport	-	-
IETF RFC 3551	-	RTP Profile for Audio and Video Conferences with Minimal Control	-	-

CONTENTS

INTRODUCTION

The 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 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 62676-2 series consists of 3 subparts, numbered parts 2-1, 2-2 and 2-3 respectively:

IEC 62676-2-1, *Video transmission protocols – General requirements*

IEC 62676-2-2, *Video transmission protocols – IP interoperability implementation based on HTTP and REST services*

IEC 62676-2-3, *Video transmission protocols – IP interoperability implementation based on Web services*

The first subpart of this IEC 62676-2 series defines protocol requirements to be fulfilled by any high-level IP video device interface. The following two parts – Part 2-2 and Part 2-3 – define two alternative protocols, one is based on HTTP and REST services and the second is based on Web Services. It is based on the general requirements for video transmission of IEC 62676-1-2, which defines minimum IP connectivity requirements, basic video streaming, stream control, eventing, discovery and description functions.

The purpose of the transmission system in a video surveillance system installation is to provide reliable transmission of video signals between the different types of Video Surveillance System (VSS) so far called CCTV equipment in security, safety and monitoring applications.

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

VIDEO SURVEILLANCE SYSTEMS FOR USE IN SECURITY APPLICATIONS –

Part 2-1: Video transmission protocols – General requirements

1 Scope

This part of IEC 62676 introduces an IP network interface for devices in surveillance applications. This International Standard specifies a network protocol for the full interoperability of video devices. On top of the basic layers protocols are defined to accomplish the full interoperability of video devices. In surveillance applications IP video devices have to use standardized protocols to accomplish following functionality: video streaming, stream control, event handling, discovery, capability description, device management, PTZ control, auxiliaries and other functions.

Some areas of this transmission standard are covered by more than one approach, e.g. ZeroConf and WS-Discovery.

The network protocols recommended and defined by this video transmission standard are selected with a sense for future relevance and further extensions.

Video transmission equipment may be combined with additional functions, e.g. for audio or metadata transmission.

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 62676-1-2, *Video surveillance systems for use in security applications – Part 1-2: System requirements – Performance requirements for video transmission*

IEC 62676-2-2, *Video surveillance systems for use in security applications – Part 2-2: Video transmission protocols – IP interoperability implementation based on HTTP and REST services*

IEC 62676-2-3, *Video surveillance systems for use in security applications – Part 2-3: Video transmission protocols – IP interoperability implementation based on web services*

IETF RFC 2326:1998, *Real Time Streaming Protocol (RTSP)*

IETF RFC 3016, *RTP Payload Format for MPEG-4 Audio-Visual Streams*

IETF RFC 3550, *A transport protocol for Real-Time Applications* (Replaces RFC 1889)

IETF RFC 3550, Standard 64, *RTP: A Transport Protocol for Real-Time Applications*

IETF RFC 3551, *Profile for audio and video conferences with minimal control* (Replaces RFC890)

IETF RFC 3551, Standard 65, *RTP Profile for Audio and Video Conferences with Minimal Control*

IETF RFC 3984, *RTP payload format for H.264/AVC*

IETF RFC 4566, *SDP: Session Description Protocol*

IETF RFC 4571*, Framing Real-time Transport Protocol and RTP Control Protocol [RTCP] Packets over Connection-Oriented Transport*

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
analog
a form of information that is represented by a continuous and smoothly varying amplitude or frequency changes over a certain range

3.1.2
analog video
video signal made of a continuous electrical signal

3.1.3
application program interface
a set of interfaces for developers to interact with a component or application

3.1.4
bandwidth
property of networks to describe the amount of data that can be carried from one point in the network to another in a given time period, usually a second, affected in video surveillance by frame rate, image resolution, compression ratio, image noise, complexity detail of a monitored scene

3.1.5
capability
a named piece of functionality (or feature) that is declared as supported or requested by an agent

3.1.6
capturing
process of transferring video from one source to another for use on a digital video device, network or storage, e.g. conversion of analog to digital

3.1.7
channel
one or more streams of video, audio and/or metadata that together constitute a unique entity for the purpose of surveillance

3.1.8
client
a software application or other entity that uses the services offered by a Video Transmission Device (VTD)