

ETSI TS 126 281 V17.0.0 (2022-05)



**LTE;
5G;
Mission Critical Video (MCVideo);
Codecs and media handling
(3GPP TS 26.281 version 17.0.0 Release 17)**



Reference

RTS/TSGS-0426281vh00

Keywords

5G,LTE

ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - APE 7112B
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° w061004871

Important notice

The present document can be downloaded from:

<http://www.etsi.org/standards-search>

The present document may be made available in electronic versions and/or in print. The content of any electronic and/or print versions of the present document shall not be modified without the prior written authorization of ETSI. In case of any existing or perceived difference in contents between such versions and/or in print, the prevailing version of an ETSI deliverable is the one made publicly available in PDF format at www.etsi.org/deliver.

Users of the present document should be aware that the document may be subject to revision or change of status.

Information on the current status of this and other ETSI documents is available at

<https://portal.etsi.org/TB/ETSIDeliverableStatus.aspx>

If you find errors in the present document, please send your comment to one of the following services:

<https://portal.etsi.org/People/CommitteeSupportStaff.aspx>

If you find a security vulnerability in the present document, please report it through our
Coordinated Vulnerability Disclosure Program:

<https://www.etsi.org/standards/coordinated-vulnerability-disclosure>

Notice of disclaimer & limitation of liability

The information provided in the present deliverable is directed solely to professionals who have the appropriate degree of experience to understand and interpret its content in accordance with generally accepted engineering or other professional standard and applicable regulations.

No recommendation as to products and services or vendors is made or should be implied.

No representation or warranty is made that this deliverable is technically accurate or sufficient or conforms to any law and/or governmental rule and/or regulation and further, no representation or warranty is made of merchantability or fitness for any particular purpose or against infringement of intellectual property rights.

In no event shall ETSI be held liable for loss of profits or any other incidental or consequential damages.

Any software contained in this deliverable is provided "AS IS" with no warranties, express or implied, including but not limited to, the warranties of merchantability, fitness for a particular purpose and non-infringement of intellectual property rights and ETSI shall not be held liable in any event for any damages whatsoever (including, without limitation, damages for loss of profits, business interruption, loss of information, or any other pecuniary loss) arising out of or related to the use of or inability to use the software.

Copyright Notification

No part may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm except as authorized by written permission of ETSI.

The content of the PDF version shall not be modified without the written authorization of ETSI.

The copyright and the foregoing restriction extend to reproduction in all media.

© ETSI 2022.
All rights reserved.

Intellectual Property Rights

Essential patents

IPRs essential or potentially essential to normative deliverables may have been declared to ETSI. The declarations pertaining to these essential IPRs, if any, are publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: "*Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards*", which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (<https://ipr.etsi.org/>).

Pursuant to the ETSI Directives including the ETSI IPR Policy, no investigation regarding the essentiality of IPRs, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

Trademarks

The present document may include trademarks and/or tradenames which are asserted and/or registered by their owners. ETSI claims no ownership of these except for any which are indicated as being the property of ETSI, and conveys no right to use or reproduce any trademark and/or tradename. Mention of those trademarks in the present document does not constitute an endorsement by ETSI of products, services or organizations associated with those trademarks.

DECT™, **PLUGTESTS™**, **UMTS™** and the ETSI logo are trademarks of ETSI registered for the benefit of its Members. **3GPP™** and **LTE™** are trademarks of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners. **oneM2M™** logo is a trademark of ETSI registered for the benefit of its Members and of the oneM2M Partners. **GSM®** and the GSM logo are trademarks registered and owned by the GSM Association.

Legal Notice

This Technical Specification (TS) has been produced by ETSI 3rd Generation Partnership Project (3GPP).

The present document may refer to technical specifications or reports using their 3GPP identities. These shall be interpreted as being references to the corresponding ETSI deliverables.

The cross reference between 3GPP and ETSI identities can be found under <http://webapp.etsi.org/key/queryform.asp>.

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the [ETSI Drafting Rules](#) (Verbal forms for the expression of provisions).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

Contents

Intellectual Property Rights	2
Legal Notice	2
Modal verbs terminology.....	2
Foreword.....	4
Introduction	4
1 Scope	5
2 References	5
3 Definitions and abbreviations.....	5
3.1 Definitions	5
3.2 Abbreviations	6
4 Codecs and media handling for MCVideo	6
4.1 MCVideo client	6
4.1.1 Codec	6
4.1.2 Audio codec	7
4.1.3 User plane protocol.....	7
Annex A (informative): Change history	8
History	9

Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

- x the first digit:
 - 1 presented to TSG for information;
 - 2 presented to TSG for approval;
 - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

Introduction

Requirements for codecs and media handling in support of the Mission Critical Video (MCVideo) service are contained in the present document.

The MCVideo service supports video communication between several users (i.e. group call), where each user has the ability to gain access to the permission to talk in an arbitrated manner. The MCVideo service also supports private calls between two users.

The MCVideo architecture is based on the functional architecture for mission critical communication services defined in 3GPP TS 23.280 [4].

1 Scope

The present document specifies the codecs and media handling for MCVideo. The requirements for MCVideo are specified by SA1 in two technical specifications:

- a. The requirements specific to Mission Critical Video have been specified in 3GPP TS 22.281 [3].
- b. The requirements common to multiple mission critical services have been specified in 3GPP TS 22.280 [2].

The architectural work for MCVideo is specified by SA6 in two technical specifications:

- a. architectural and feature work specific to MCVideo have been specified in 3GPP TS 23.281 [5].
- b. architectural aspects common to multiple mission critical services have been specified in 3GPP TS 23.280 [4].

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

- [1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [2] 3GPP TS 22.280: "Mission Critical Services Common Requirements".
- [3] 3GPP TS 22.281: "Mission Critical Video over LTE".
- [4] 3GPP TS 23.280: "Common functional architecture to support mission critical services; Stage 2".
- [5] 3GPP TS 23.281: "Functional architecture and information flows to support Mission Critical Video (MCVideo); Stage 2".
- [6] 3GPP TS 26.179: "Mission Critical Push To Talk (MCPTT); Codecs and media handling".
- [7] 3GPP TS 33.179: "Security of Mission Critical Push To Talk (MCPTT) over LTE".
- [8] IETF RFC 3550 (2003): "RTP: A Transport Protocol for Real-Time Applications".
- [9] IETF RFC 3711 (2004): "The Secure Real-time Transport Protocol (SRTP)".
- [10] IETF RFC 6184 (2011): "RTP Payload Format for H.264 Video".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TR 21.905 [1] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in 3GPP TR 21.905 [1].

240p: "240 progressive" - video resolution denoting the vertical resolution; all 240 lines are drawn in each frame.

720p: "720 progressive"- video resolution denoting the vertical resolution; all 720 lines are drawn in each frame.

1080p: "1080 progressive" -video resolution denoting the vertical resolution; all 1080 lines are drawn in each frame.

MCVideo client: The MCVideo client functional entity acts as the user agent for all MCVideo application transactions.

MCVideo Service: A video communication service supporting applications for mission critical organizations and mission critical applications for other businesses and organizations (e.g., utilities, railways) with strong security, high availability, reliability and priority handling.

MCVideo UE: An MC service UE that can be used to participate in MCVideo services.

MCVideo User: An MC service user who is authorized to MCVideo services via an MCVideo UE.

Mission Critical: Quality or characteristic of a communication activity, application, service or device, that requires low setup and transfer latency, high availability and reliability, ability to handle large numbers of users and devices, strong security and priority and pre-emption handling.

Mission Critical Applications: Generic communication applications with mission critical characteristics, traditionally encompassing push-to-talk voice (MCPTT), real-time video (MCVideo) and real-time data (MCData).

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in 3GPP TR 21.905 [1].

AVC	Advanced Video Coding
CHP	Constrained High Profile
fps	frames per second
GCS	Group Communication Service
HEVC	High Efficiency Video Coding
MBMS	Multimedia Broadcast/Multicast Service
MC	Mission Critical
MCPTT	Mission Critical Push-To-Talk
MCVideo	Mission Critical Video
RTCP	Real-Time Transport Control Protocol
RTP	Real-Time Transport Protocol
SRTCP	Secure Real-Time Transport Control Protocol
SRTP	Secure Real-Time Transport Protocol
UC	Unicast

4 Codecs and media handling for MCVideo

4.1 MCVideo client

4.1.1 Codec

MCVideo clients shall support the H.264 (AVC) codec as the mandatory universal interoperability codec.

MCVideo clients shall support video encoding and decoding of at least 240p. MCVideo clients may support video encoding and decoding up to 720p. More specifically:

- Transmitting capable MCVideo clients should support video encoding via H.264 (AVC) Constrained High Profile (CHP) Level 3.1 up to 1280x720@30fps.
- Receiving capable MCVideo clients should support video decoding via H.264 (AVC) Constrained High Profile (CHP) Level 3.1.

Transmitting capable MCVideo clients may also support variable rate video encoding from 10fps to 30fps and 240p to 1080p.

Receiving capable MCVideo clients may also support H.264 (AVC) Constrained High Profile (CHP) Level 4 with resolutions up to 1080p and framerate up to 30fps.

Based on operator / MCVideo service provider policy, the MCVideo service may optionally and additionally support the H.265 (HEVC) codec. If MCVideo services support the H.265 (HEVC) codec then MCVideo clients should additionally support encoding and decoding H.265 (HEVC). More specifically:

- Transmitting capable MCVideo clients may support video encoding via H.265 (HEVC) Main Profile, Main Tier, Level 3.1 up to 1280x720@30fps.
- Receiving capable MCVideo clients may support decoding of H.265 (HEVC) Main Profile, Main Tier, Level 4 with resolutions up to 1080p and framerate up to 30fps.
- Transmitting capable MCVideo clients may also support H.265 encoding in lossless mode.
- Receiving capable MCVideo clients may also support H.265 decoding in lossless mode.

4.1.2 Audio codec

In cases where the MCVideo service supports combined or separate handling of video and audio streams [3], MCVideo clients may support the same codecs as for MCPTT in accordance with TS 26.179 [6].

4.1.3 User plane protocol

MCVideo clients shall support both RTP [7], [9] and SRTP [8], [10] media transport.

Annex A (informative): Change history

Change history							
Date	Meeting	TDoc	CR	Rev	Cat	Subject/Comment	New version
2017-03	75					Version 14.0.0	14.0.0
2018-06	80					Version 15.0.0	15.0.0
2020-07	-	-	-	-	-	Update to Rel-16 version (MCC)	16.0.0
2022-04	-	-	-	-	-	Update to Rel-17 version (MCC)	17.0.0

History

Document history		
V17.0.0	May 2022	Publication