



TECHNICAL SPECIFICATION

LTE;
Functional architecture and information flows to support
Mission Critical Video (MCVideo);
Stage 2
(3GPP TS 23.281 version 18.12.0 Release 18)



ReferenceRTS/TSGS-0623281 vic0

KeywordsLTE

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 the
[ETSI Search & Browse Standards](#) application.

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 on [ETSI deliver](#) repository.

Users should be aware that the present document may be revised or have its status changed, this information is available in the [Milestones listing](#).

If you find errors in the present document, please send your comments to the relevant service listed under [Committee Support Staff](#).

If you find a security vulnerability in the present document, please report it through our [Coordinated Vulnerability Disclosure \(CVD\)](#) program.

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 2026.
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 IPR online database](#).

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™**, **LTE™** and **5G™** logo 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 at [3GPP to ETSI numbering cross-referencing](#).

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.....	11
1 Scope	12
2 References	12
3 Definitions, symbols and abbreviations	13
3.1 Definitions	13
3.2 Symbols.....	14
3.3 Abbreviations	14
4 Introduction	14
5 Architectural requirements	14
5.1 Media routing requirements	14
5.2 MCVideo group affiliation and MCVideo group de-affiliation	15
5.3 Device inventory requirements.....	15
5.4 Device discovery requirements (off-network).....	15
5.5 Bearer management.....	15
5.5.1 General.....	15
5.5.2 EPS bearer considerations	15
5.5.3 EPS unicast bearer considerations for MCVideo.....	15
5.5.4 MBMS bearer management.....	16
5A Involved business relationships.....	16
6 MCVideo Functional model.....	16
6.1 Functional model description	16
6.1.1 On-network functional model.....	16
6.1.2 Off-network functional model	17
6.2 Functional entities description.....	18
6.2.1 General.....	18
6.2.2 MCVideo service application plane.....	18
6.2.2.1 General	18
6.2.2.2 Common services core	18
6.2.2.3 MCVideo application service.....	18
6.2.2.3.1 MCVideo client	18
6.2.2.3.2 MCVideo server	18
6.2.2.3.3 Media distribution function	19
6.2.2.3.4 Media mixer	19
6.2.2.3.5 MCVideo user database.....	19
6.2.2.3.6 Transmission control server.....	19
6.2.2.3.7 Transmission control participant	19
6.2.2.3.8 MC gateway server.....	20
6.3 Reference points	20
6.3.1 Reference point MCVideo-1 (between the MCVideo client and the MCVideo server)	20
6.3.2 Reference point MCVideo-2 (between the MCVideo server and the MCVideo user database).....	20
6.3.3 Reference point MCVideo-3 (between the MCVideo server and the MCVideo server and between the MCVideo server and the MC gateway server).....	20
6.3.4 Reference point MCVideo-4 (between the transmission control participant and the transmission control server).....	20
6.3.4A Reference point MCVideo-5 (between the MCVideo server and the EPS)	20
6.3.4B Reference point MCVideo-6 (between the MCVideo server and the EPS)	21
6.3.5 Reference point MCVideo-7 (between the media distribution function and the media mixer)	21
6.3.6 Reference point MCVideo-8 (between the media distribution function and the media mixer)	21

6.3.7	Reference point MCVideo-9 (between the transmission control participant and the transmission control server).....	21
6.3.8	Reference point MCVideo-10 (between the MC gateway server and the MC gateway server in a different MCVideo system)	21
6A	Identities	21
6B	Application of functional model to deployments	21
7	Procedures and information flows.....	22
7.1	Group call.....	22
7.1.1	General.....	22
7.1.2	On-network group call	22
7.1.2.1	General	22
7.1.2.2	Information flows for group call in on-network.....	22
7.1.2.2.1	Group call request (MCVideo client – MCVideo server).....	22
7.1.2.2.2	Group call request.....	22
7.1.2.2.3	Group call response	23
7.1.2.2.4	Group call response (MCVideo client – MCVideo server)	23
7.1.2.2.5	Group call release request.....	23
7.1.2.2.6	Group call release request (MCVideo client – MCVideo server).....	24
7.1.2.2.7	Group call release response	24
7.1.2.2.8	Group call rejoin request	24
7.1.2.2.9	Group call rejoin response.....	25
7.1.2.2.10	Group join request	25
7.1.2.2.11	Group join response.....	25
7.1.2.2.12	Group call leave request	25
7.1.2.2.12a	Group call leave request	26
7.1.2.2.13	Group call leave response.....	26
7.1.2.2.13a	Group call leave response.....	26
7.1.2.2.14	Void.....	27
7.1.2.2.15	Void.....	27
7.1.2.2.16	Void.....	27
7.1.2.2.17	Void.....	27
7.1.2.2.18	MCVideo emergency group call request	27
7.1.2.2.19	MCVideo emergency group call response.....	27
7.1.2.2.20	MCVideo in-progress emergency group state cancel request.....	27
7.1.2.2.21	MCVideo in-progress emergency group state cancel response	28
7.1.2.2.22	MCVideo imminent peril group call request	28
7.1.2.2.23	MCVideo imminent peril group call response.....	28
7.1.2.2.24	MCVideo imminent peril group call cancel request	29
7.1.2.2.25	MCVideo imminent peril group call cancel response.....	29
7.1.2.3	Group call within one MC system.....	29
7.1.2.3.1	Group call models.....	29
7.1.2.3.1.1	Pre-arranged group call.....	29
7.1.2.3.1.2	Chat group call.....	34
7.1.2.3.2	Exiting group call due to de-affiliation.....	40
7.1.2.3.3	MCVideo user leaving a group call.....	41
7.1.2.4	Broadcast group call.....	42
7.1.2.4.1	General	42
7.1.2.4.2	Common broadcast group call procedure	42
7.1.2.5	Emergency and imminent peril procedures.....	43
7.1.2.5.1	MCVideo emergency group call.....	43
7.1.2.5.1.1	MCVideo emergency group call commencement.....	43
7.1.2.5.1.2	MCVideo group call upgraded to an MCVideo emergency group call.....	45
7.1.2.5.1.3	MCVideo in-progress emergency group state cancel	47
7.1.2.5.2	MCVideo imminent peril group call.....	49
7.1.2.5.2.1	MCVideo imminent peril group call commencement.....	49
7.1.2.5.2.2	Imminent peril group call upgrade.....	51
7.1.2.5.2.3	MCVideo imminent peril group call cancel.....	53
7.1.2.6	MCVideo emergency alert (on-network and off-network).....	54
7.1.2.7	MCVideo ad hoc group emergency alert (on-network).....	54
7.1.3	Off-network group communications	54

7.1.3.1	General	54
7.1.3.2	Information flows for off-network group communications	55
7.1.3.2.1	Group communication announcement	55
7.1.3.2.2	Group communication answer response	55
7.1.3.2.3	MCVideo upgrade to emergency group communication	56
7.1.3.2.4	MCVideo emergency group communication cancel	56
7.1.3.2.5	MCVideo upgrade to imminent peril group communication	56
7.1.3.2.6	MCVideo imminent peril group communication cancel	56
7.1.3.2.7	MCVideo emergency alert announcement	57
7.1.3.2.8	MCVideo emergency alert cancel announcement	57
7.1.3.3	Group communication setup	57
7.1.3.3.1	General	57
7.1.3.3.2	Procedure	57
7.1.3.4	Passive join to group communication	59
7.1.3.4.1	General	59
7.1.3.4.2	Procedure	59
7.1.3.5	Active join to group communication	60
7.1.3.5.1	General	60
7.1.3.5.2	Procedure	60
7.1.3.6	Broadcast group communication	61
7.1.3.7	Group communication release due to inactivity	62
7.1.3.8	Emergency and imminent peril procedures	62
7.1.3.8.1	Emergency group communication	62
7.1.3.8.2	MCVideo imminent peril	63
7.1.3.9	MCVideo emergency alert	64
7.1.3.9.1	General	64
7.2	Private call	64
7.2.1	General	64
7.2.2	Private call on-network	64
7.2.2.1	General	64
7.2.2.2	Information flows for private call in on-network	64
7.2.2.2.1	MCVideo private call request (MCVideo client – MCVideo server)	64
7.2.2.2.2	MCVideo private call request	65
7.2.2.2.3	MCVideo private call response (MCVideo client – MCVideo server)	66
7.2.2.2.4	MCVideo private call response	66
7.2.2.2.5	MCVideo call end request	67
7.2.2.2.6	MCVideo emergency private call request (MCVideo client to MCVideo server)	67
7.2.2.2.7	MCVideo emergency private call request	68
7.2.2.2.8	Emergency MCVideo private call response (MCVideo client – MCVideo server)	68
7.2.2.2.9	Emergency MCVideo private call response	68
7.2.2.2.10	MCVideo progress indication	69
7.2.2.2.11	MCVideo functional alias resolution response	69
7.2.2.3	Private call within one MC system	69
7.2.2.3.1	Private call setup in automatic commencement mode	69
7.2.2.3.2	Private call setup in manual commencement mode	71
7.2.2.3.2.1	Description	71
7.2.2.3.2.2	Procedure	71
7.2.2.3.3	Private call release	73
7.2.2.3.3.1	Client initiated	73
7.2.2.3.3.2	Server initiated	74
7.2.2.4	MCVideo emergency private call	75
7.2.2.4.1	MCVideo emergency private call commencement	75
7.2.2.4.2	MCVideo private call emergency upgrade	77
7.2.3	Off-network private communications	78
7.2.3.1	General	78
7.2.3.2	Information flows for off-network private communications	78
7.2.3.2.1	Private communication request	78
7.2.3.2.2	Private communication answer response	79
7.2.3.2.3	Private communication release request	79
7.2.3.2.4	Private communication release response	79
7.2.3.3	Use of ProSe for off-network private communications	80
7.2.3.4	Automatic commencement private communication	80

7.2.3.4.1	General	80
7.2.3.4.2	Procedure.....	80
7.2.3.5	Manual commencement private communication.....	82
7.2.3.5.1	General	82
7.2.3.5.2	Procedure – Communication accepted	82
7.2.3.5.3	Procedure – Communication rejected/ignored	84
7.2.3.6	Private communication release.....	85
7.2.3.6.1	General	85
7.2.3.6.2	Procedure.....	85
7.3	Video pull.....	86
7.3.1	General.....	86
7.3.2	On-network video pull	86
7.3.2.1	General	86
7.3.2.2	Information flows for on-network video pull.....	86
7.3.2.2.1	MCVideo pull from server request	87
7.3.2.2.2	MCVideo pull from server response.....	87
7.3.2.2.3	MCVideo pull from server complete request	87
7.3.2.2.4	MCVideo pull from server complete response	87
7.3.2.3	One-to-one video pull	88
7.3.2.3.1	General	88
7.3.2.3.2	One-to-one video pull – call setup.....	88
7.3.2.3.3	One-to-one video pull – call release	89
7.3.2.4	One-from-server video pull.....	89
7.3.2.4.1	General	89
7.3.2.4.2	Procedure.....	89
7.3.3	Off-network video pull	90
7.3.3.1	General	90
7.3.3.2	Information flows for off-network video pull	91
7.3.3.3	Video pull to self.....	91
7.3.3.3.1	General	91
7.3.3.3.2	Procedure.....	91
7.4	Video push.....	93
7.4.1	General.....	93
7.4.2	On-network video push.....	93
7.4.2.1	General	93
7.4.2.2	Information flows for on-network video push.....	93
7.4.2.2.1	Remote video push request.....	93
7.4.2.2.2	Remote video push response	94
7.4.2.2.3	Remote video push release request.....	94
7.4.2.2.4	MCVideo push to server request	95
7.4.2.2.5	MCVideo push to server response.....	95
7.4.2.2.6	MCVideo push to server complete request.....	95
7.4.2.2.7	MCVideo push to server complete response	96
7.4.2.3	One-to-one video push	96
7.4.2.3.1	General	96
7.4.2.3.2	One-to-one video push – call setup	96
7.4.2.3.3	One-to-one video push – call release.....	97
7.4.2.4	One-to-server video push	97
7.4.2.4.1	General	97
7.4.2.4.2	Procedure.....	97
7.4.2.5	Remotely initiated video push.....	99
7.4.2.5.1	General	99
7.4.2.5.2	Remotely initiated video push – call setup	99
7.4.2.5.3	Remotely initiated video push – call release by authorized user	100
7.4.2.6	Remotely initiated video push to group	101
7.4.2.6.1	General	101
7.4.2.6.2	Remotely initiated video push to group – call setup.....	101
7.4.2.6.3	Remotely initiated video push to group – call release by authorized user.....	102
7.4.3	Off-network video push	103
7.4.3.1	General	103
7.4.3.2	Information flows for off-network video push.....	103
7.4.3.2.1	Remote video push request.....	103

7.4.3.2.2	Video push trying response	103
7.4.3.2.3	Notification of video push	103
7.4.3.3	Video push to another MCVidéo user	104
7.4.3.3.1	General	104
7.4.3.3.2	Procedure.....	104
7.4.3.4	Remotely initiated video push.....	105
7.4.3.4.1	General	105
7.4.3.4.2	Procedure.....	105
7.4.3.5	Remotely initiated video push to a group.....	107
7.4.3.5.1	General	107
7.4.3.5.2	Procedure.....	107
7.5	Capability information sharing.....	108
7.5.1	General.....	108
7.5.2	On-network capability information sharing	108
7.5.2.1	General.....	108
7.5.2.2	Information flows for on-network capability information sharing.....	108
7.5.2.2.1	Update MCVidéo capabilities info request.....	108
7.5.2.2.2	Update MCVidéo capabilities info response	109
7.5.2.2.3	Get MCVidéo capabilities info request	109
7.5.2.2.4	Get MCVidéo capabilities info response.....	109
7.5.2.2.5	Subscribe MCVidéo capabilities info request	109
7.5.2.2.6	Subscribe MCVidéo capabilities info response	110
7.5.2.2.7	Notify MCVidéo capabilities info request.....	110
7.5.2.2.8	Notify MCVidéo capabilities info response	110
7.5.2.3	Update MCVidéo capabilities information at the MCVidéo server	110
7.5.2.4	Retrieve MCVidéo capabilities information by the MCVidéo client.....	111
7.5.2.5	Subscription and notification for MCVidéo capabilities information	111
7.5.3	Off-network capability information sharing	112
7.5.3.1	General	112
7.5.3.2	Information flows for Off-network capability information sharing	113
7.5.3.2.1	Capability request.....	113
7.5.3.2.2	Capability announcement	113
7.5.3.2.3	Activity status request	113
7.5.3.2.4	Activity status announcement.....	114
7.5.3.3	Periodic capability announcements.....	114
7.5.3.3.1	General	114
7.5.3.3.2	Procedure.....	114
7.5.3.4	Request capabilities from client(s).....	115
7.5.3.4.1	General	115
7.5.3.4.2	Request clients with particular capabilities	115
7.5.3.4.3	Request capabilities from a particular client.....	116
7.5.3.5	Request activity status from client(s).....	117
7.5.3.5.1	General	117
7.5.3.5.2	Request activity status of group members	117
7.5.3.5.3	Request activity status from a particular client.....	118
7.6	Ambient viewing call	119
7.6.1	General.....	119
7.6.2	Information flows for ambient viewing call.....	119
7.6.2.1	Ambient viewing call request.....	119
7.6.2.2	Ambient viewing call response	120
7.6.2.3	Ambient viewing call release request.....	120
7.6.2.4	Ambient viewing call release response	120
7.6.2.5	Ambient viewing call release notification.....	121
7.6.3	Procedures.....	121
7.6.3.1	Remotely initiated ambient viewing call setup procedure.....	121
7.6.3.2	Locally initiated ambient viewing call setup procedure.....	122
7.6.3.3	Ambient viewing call release – server initiated	123
7.6.3.4	Ambient viewing call release – "viewing" user initiated	124
7.6.3.5	Ambient viewing call release – "viewed to" user initiated.....	125
7.7	Transmission control	126
7.7.1	Transmission control for on-network MCVidéo service.....	126
7.7.1.1	General	126

7.7.1.2	Information flows for transmission control for on-network	126
7.7.1.2.1	General	126
7.7.1.2.2	Transmit media request	126
7.7.1.2.3	Transmit media granted	127
7.7.1.2.4	Transmit media rejected	127
7.7.1.2.5	Media transmission notification	127
7.7.1.2.6	Receive media request	127
7.7.1.2.7	Receive media response	128
7.7.1.2.8	Media reception notification	128
7.7.1.2.9	Queue position info	128
7.7.1.2.10	Transmission revoked	129
7.7.1.2.11	Queue position request	129
7.7.1.2.12	Transmit media cancel request	129
7.7.1.2.13	Transmit media cancel response	129
7.7.1.2.14	Transmit media cancel request notify	130
7.7.1.2.15	Transmit media end request	130
7.7.1.2.16	Transmit media end response	130
7.7.1.2.17	Remote transmit media request	130
7.7.1.2.18	Remote transmit media response	131
7.7.1.2.19	Remote transmit media end request	131
7.7.1.2.20	Remote transmit media cancel response	131
7.7.1.2.21	Media reception end request	131
7.7.1.2.22	Media reception end response	132
7.7.1.2.23	Media reception override notification	132
7.7.1.2.24	Transmit media end notify	132
7.7.1.2.25	Transmission idle	132
7.7.1.3	Transmission control within one MC system for MCVideo service	133
7.7.1.3.1	Transmission control during an MCVideo session	133
7.7.1.3.2	Reception control during an MCVideo session	134
7.7.1.3.2A	End media reception – receiving user initiated	135
7.7.1.3.2B	End media reception – transmission control server initiated	136
7.7.1.3.2C	Reception control on overridden – mandatory mode	137
7.7.1.3.2D	Reception control on overridden – negotiated mode	137
7.7.1.3.3	Transmission revoke during an MCVideo session	138
7.7.1.3.4	Queue position during an MCVideo session	139
7.7.1.3.5	Transmit media request cancellation from the video transmission queue	140
7.7.1.3.5.1	Transmit media request cancellation from the queue – MCVideo user initiated	140
7.7.1.3.5.2	Transmit media request cancellation from the queue - transmission control server initiated ..	141
7.7.1.3.6	End a media transmission during an MCVideo session	142
7.7.1.3.6.1	End a media transmission – MCVideo user initiated	142
7.7.1.3.6.2	End a media transmission – transmission control server initiated	143
7.7.1.3.6.3	End a media transmission – remote MCVideo user initiated	144
7.7.1.3.7	Remotely initiated media transmission during an MCVideo session	145
7.7.1.3.8	Transmission idle during an MCVideo session	145
7.7.2	Off-network transmission control	146
7.7.2.1	General	146
7.7.2.2	Information flows for off-network transmission control	147
7.7.2.2.1	Transmission request	147
7.7.2.2.2	Transmission granted	147
7.7.2.2.3	Transmission release	148
7.7.2.2.4	Transmission rejected	148
7.7.2.2.5	Transmission revoked	148
7.7.2.2.6	Transmission arbitration taken	149
7.7.2.2.7	Transmission arbitration release	149
7.7.2.3	Initializing transmission control – single arbitrator approach	149
7.7.2.3A	Initializing transmission control – self arbitration approach	150
7.7.2.4	Transmission permission granted	151
7.7.2.5	Transmission permission rejected	152
7.7.2.6	Releasing transmission permission	153
7.7.2.7	Transmission override	154
7.7.2.8	Transmission override (revoke self)	155
7.7.2.9	Transmission arbitration release	157

7.7.2.9.1	Transmission arbitration release	157
7.7.2.9.2	Transmission arbitration release with delegation	157
7.7.2.10	Simultaneous transmission requests	158
7.8	MCVideo service configuration	159
7.9	Affiliation and de-affiliation to/from MCVideo group(s)	159
7.9a	Functional alias management	160
7.10	Use of MBMS transmission (on-network)	160
7.10.1	Information flows for MBMS Transmission	160
7.10.1.1	General	160
7.10.1.2	MapGroupToBearer	160
7.10.1.3	UnmapGroupFromBearer	161
7.10.2	Use of pre-established MBMS bearers	161
7.10.3	Use of dynamic MBMS bearer establishment	161
7.10.4	Video call connect and disconnect over MBMS	162
7.10.4.1	General	162
7.10.4.2	Procedure	162
7.10.4.2.1	Call connect over MBMS	162
7.10.4.2.2	Call disconnect over MBMS	163
7.10.5	Switching from MBMS bearer to unicast bearer	164
7.11	Simultaneous session for MCVideo calls (on-network)	164
7.12	User authentication and authorization for MCVideo service	164
7.13	Support for multiple devices	165
7.14	Location information (on-network)	165
7.15	MCVideo resource management (on-network)	165
7.16	MCVideo client query	166
7.16.1	General	166
7.16.2	Information flows for MCVideo client query	166
7.16.2.1	MCVideo client query request	166
7.16.2.2	MCVideo client query response	166
7.16.3	MCVideo client query procedure	166
7.17	MCVideo adaptation during MCVideo communication	167
7.17.1	General	167
7.17.2	Information flows for MCVideo adaptation	167
7.17.2.1	MCVideo communication parameter update request	167
7.17.2.2	MCVideo communication parameter update response	168
7.17.3	MCVideo adaptation procedure	168
7.17.3.1	MCVideo adaptation during group communication procedure – transmitting client triggered	168
7.17.3.2	MCVideo adaptation during group communication procedure – receiving user triggered	169
7.17.3.3	MCVideo adaptation during private communication procedure – transmitting client triggered	170
7.17.3.4	MCVideo adaptation during group communication procedure – receiving user triggered	171
7.18	Use of ProSe capabilities in off-network MCVideo communications	172
7.18.1	General	172
7.18.2	Procedures	173
7.19	Ad hoc group call	173
7.19.1	General	173
7.19.2	Information flows	173
7.19.2.1	Ad hoc group call request (MCVideo client – MCVideo server)	173
7.19.2.2	Ad hoc group call request return (MCVideo server – MCVideo client)	175
7.19.2.3	Void	175
7.19.2.4	Ad hoc group call request (MCVideo server – MCVideo client)	175
7.19.2.5	Ad hoc group call response (MCVideo server – MCVideo client)	176
7.19.2.6	Void	176
7.19.2.7	Ad hoc group call response (MCVideo client – MCVideo server)	176
7.19.2.8	Ad hoc group call release request (MCVideo server – MCVideo client)	177
7.19.2.9	Ad hoc group call release response (MCVideo client – MCVideo server)	177
7.19.2.10	Ad hoc group call notify (MCVideo server – MCVideo client)	177
7.19.2.11	Modify ad hoc group call participants request (MCVideo client – MCVideo server)	178
7.19.2.12	Modify ad hoc group call participants response (MCVideo server – MCVideo client)	178
7.19.2.13	Ad hoc group call leave request (MCVideo server – MCVideo client)	179
7.19.2.14	Ad hoc group call leave response (MCVideo client – MCVideo server)	179
7.19.2.15	Ad hoc group call add user notification (MCVideo server – MCVideo server)	180
7.19.2.16	Ad hoc group call remove user notification (MCVideo server – MCVideo server)	180

7.19.2.17 Ad hoc group call release notification (MCVideo server – MCVideo server)..... 180

7.19.2.18 Ad hoc group call get userlist (MCVideo server – MCVideo server)..... 180

7.19.2.19 Ad hoc group call get userlist response (MCVideo server – MCVideo server) 181

7.19.3 Procedures..... 181

7.19.3.1 Ad hoc group call procedures in single MCVideo system 181

7.19.3.1.1 Ad hoc group call setup 181

7.19.3.1.2 Release ad hoc group call 184

7.19.3.1.3 Ad hoc group call setup with MCVideo server determining the participants lists 185

7.19.3.1.4 Modification of ad hoc group call participants by an authorized user..... 188

7.19.3.1.5 Modification of ad hoc group call participants by the MCVideo server..... 190

7.19.3.2 Ad hoc group call involving multiple MC systems..... 192

7.19.3.2.1 Ad hoc group call setup – Participants list determined by the MCVideo server 192

7.19.3.2.2 Modification of ad hoc group call participants by the MCVideo server..... 194

7.19.3.2.3 Release ad hoc group call and stop determining the ad hoc group call participants by partner
MCVideo system – Participants list determined by the MCVideo server 196

7.19.3.2.4 Procedure for ad hoc group call setup – Participants list provided by the Initiator 198

7.19.3.2.5 Procedure for ad hoc group call release by MCVideo server – Participants list provided by
the Initiator 199

7.19.3.2.6 Modification of ad hoc group call participants by an authorized user..... 201

Annex A (normative): MCVideo related configuration data.....204

A.1 General 204

A.2 MCVideo UE configuration data 204

A.3 MCVideo user profile configuration data..... 205

A.4 MCVideo related Group configuration data..... 214

A.5 MCVideo service configuration data..... 216

Annex B (informative): Change history219

History 224

Sample Document

get full document from standards.iteh.ai

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.

Sample Document

get full document from standards.iteh.ai

1 Scope

This document specifies the functional model, procedures and information flows needed for the mission critical video (MCVideo) service. Support for both MCVideo group streaming and MCVideo private streaming operating in on-network and off-network modes of operation is specified.

The corresponding service requirements are defined in 3GPP TS 22.280 [2], and 3GPP TS 22.281 [3].

The present document is applicable primarily to mission critical video service using E-UTRAN access based on the common functional architecture for mission critical services defined in 3GPP TS 23.280 [6] and the EPC architecture defined in 3GPP TS 23.401 [8].

The MCVideo service can be used for public safety applications and also for general commercial applications e.g. utility companies and railways.

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 Common Requirements (MCCoRe); Stage 1".
- [3] 3GPP TS 22.281: "Mission Critical Video services".
- [4] 3GPP TS 23.002: "Network Architecture".
- [5] 3GPP TS 23.228: "IP Multimedia Subsystem (IMS); Stage 2".
- [6] 3GPP TS 23.280: "Common functional architecture to support mission critical services; Stage 2".
- [7] 3GPP TS 23.303: "Proximity-based services (ProSe); Stage 2".
- [8] 3GPP TS 23.401: "General Packet Radio Service (GPRS) enhancements for Evolved Universal Terrestrial Radio Access Network (E-UTRAN) access".
- [9] 3GPP TS 23.468: "Group Communication System Enablers for LTE (GCSE_LTE); Stage 2".
- [10] Void
- [11] 3GPP TS 23.203: "Policy and charging control architecture".
- [12] 3GPP TS 36.331: "Evolved Universal Terrestrial Radio Access (E-UTRA); Radio Resource Control (RRC); Protocol specification".
- [13] 3GPP TS 29.468: "Group Communication System Enablers for LTE (GCSE_LTE); MB2 reference point; Stage 3".
- [14] 3GPP TS 33.180: "Security of the mission critical service".
- [15] 3GPP TS 22.179: "Mission Critical Push to Talk (MCPTT); Stage 1".

3 Definitions, symbols 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].

MCVideo client: An instance of an MC service client that provides the client application function for the MCVideo service.

MCVideo group: An MC service group configured for MCVideo service.

MCVideo group affiliation: An MC service group affiliation for MCVideo.

MCVideo group de-affiliation: An MC service group de-affiliation for MCVideo.

MCVideo group home system: The mission critical system where the MCVideo group is defined.

MCVideo group host server: The MCVideo server within a mission critical system which provides centralised support for MCVideo services of an MCVideo group defined in a MCVideo group home system.

MCVideo ID: An instance of an MC service ID within the MCVideo service.

MCVideo server: An instance of an MC service server that provides the server application function for the MCVideo service.

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 system: The collection of applications, services, and enabling capabilities required to provide Mission Critical video for a Mission Critical Organization.

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

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

Transmission control: Video transmitting control mechanism in an MCVideo service that determines which participants have the authority to transmit video, and determines the onward downlink video transmission during a video call.

For the purposes of the present document, the following terms and definitions given in 3GPP TS 22.280 [2] apply:

Mission Critical
Mission Critical Applications
Mission Critical Service
Mission Critical Organization
Mission Critical System

For the purposes of the present document, the following terms given in 3GPP TS 22.179 [15] apply

Group-broadcast group
User-broadcast group

For the purposes of the present document, the following terms and definitions given in 3GPP TS 22.281 [3] apply:

Real Time
Real Time Video

For the purposes of the present document, the following terms and definitions given in 3GPP TS 23.280 [6] apply:

Ad hoc Group Communication
MC service client
MC service group
MC service group affiliation
MC service group de-affiliation
MC service group home system
MC service group host
MC service ID
MC service server
Pre-arranged group

3.2 Symbols

For the purposes of the present document, the following symbols given in 3GPP TS 22.280 [2] apply:

Nc2

3.3 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].

E-UTRAN	Evolved Universal Terrestrial Radio Access Network
EPC	Evolved Packet Core
GCS AS	Group Communication Service Application Server
GCSE_LTE	Group Communication Service Enabler over LTE
HTTP	Hyper Text Transfer Protocol
IMS	IP Multimedia Subsystem
MC	Mission Critical
MCVideo	Mission Critical Video
MCVideo group ID	MCVideo group identity
MCVideo ID	MCVideo user identity
ProSe	Proximity-based Services
SIP	Session Initiated Protocol

4 Introduction

The MCVideo service supports video media communication between several users (i.e. group call), where each user has the ability to gain access to the permission to stream video 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 [6].

5 Architectural requirements

5.1 Media routing requirements

The video media flow for a private call shall be routed according to one of the following two options:

- a) Option 1:
 - 1) Through the primary MCVideo system if both users in the call belong to the same organisation; or
 - 2) Through the primary MCVideo system of each users, if the users in the call do not belong to the same organisation.