ETSI TS 122 280 V18.5.0 (2024-05)

LTE;
5G;
Mission Critical Services Common Requirements (MCCoRe);
Stage 1
(3GPP TS 22.280 version 18.5.0 Release 18)

Reference
RTS/TSGS-0122280vi50

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

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 https://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

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.

1 Scope

The present document provides the service requirements that are common across two or more mission critical services, that is MCPTT, MCData and MCVideo. The mission critical services make use of capabilities included in Group Communications System Enablers and Proximity Services, with additional requirements specific to the MCPTT Service as specified in 3GPP TS 22.179 [1], MCVideo Service as specified in 3GPP TS 22.281 [2], and MCData Service as specified in 3GPP TS 22.282 [3]. The mission critical services can be used for public safety applications and maritime safety applications and also for general commercial applications (e.g., utility companies, railways and maritime usage). The requirements in this specification do not apply to GSM or UMTS.

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 TS 22.179: "Mission Critical Push to Talk (MCPTT); Stage 1".

[2] 3GPP TS 22.281: "Mission Critical Video services".

[3] 3GPP TS 22.282: "Mission Critical Data services".

[4] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[5] 3GPP TS 22.278: "Service requirements for the Evolved Packet System (EPS)".

[6] 3GPP TS 22.468: "Group Communication System Enablers for LTE (GCSE_LTE) ".

[7] 3GPP TS 22.011: "Service accessibility".

[8] 3GPP TS 23.122: "Non-Access-Stratum (NAS) functions related to Mobile Stations (MS) in idle mode".

[9] ISBN 2-7461-1832-4: “UIC Project EIRENE System Requirements Specification”.

[10] ETSI EN 301 515 V3.0.0 (2018-03): “Global System for Mobile communication (GSM); Requirements for GSM operation on railways”.

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TR 21.905 [4] 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 [4].

Affiliated MCX Service Group Member: An MCX Service Group Member who has indicated an interest in participating in communications of the group, has been accepted by the MCX Service, and is prepared to receive and/or transmit Group Communications from/to the particular MCX Group.

Air ground air Communication: A communication (point-to-point or group) between at least one MCX User located on the ground and one or more MCX Users in helicopter(s) or aircraft while not on the ground, but in flight (in the air).

Broadcast Group Communication: A group communication where the initiating MCX User expects no response from the other MCX Users, so that when the user's transmission is complete, so is the communication.

Group Communication: A one-to-many or many-to-many communication using an MCX Service.

In-progress Emergency: An emergency condition that has been accepted by the MCX Service, but has not yet been cancelled.

Late Entry: An Affiliated MCX Service Group Member joins in an in progress MCX Service Group Communication.

Location: The current position and if available information about the instantaneous velocity and direction of the MCX UE, and other attributes e.g., a label indicating a geographic area in which the MCX UE is located.

NOTE 1: Location and Location information terms can be used interchangeably.

MCX Service Ad hoc Group Communication: The combining of a multiplicity of MCX Users into a group for the duration of a communication and when the communication is terminated the group no longer exists.

MCX Service Ad hoc Group Emergency Alert: The combining of a multiplicity of MCX Users into a group for sending an emergency alert.

MCX Service Administrator: An individual authorized to control MCX parameters for an organization including, for example, user and group definitions, user/group aliases, user priorities, group membership/priorities/hierarchies, security and privacy controls.

MCX Service Emergency Alert: A notification from the MCX UE to the MCX Service that the MCX User has an emergency condition.

MCX Service Emergency State: A heightened condition of alarm for an MCX User indicating a need for immediate assistance due to a personal life-threatening situation.

MCX Service Emergency Group Communication: An urgent MCX Service group communication initiated by a MCX user when there is the potential of immediate death or serious injury.

MCX Service Group: A defined set of MCX Users with associated communication dispositions (e.g. media restrictions, default priority and commencement directions).

MCX Service Group Communication: A group communication for a particular MCX Service.

MCX Service Group Member: An MCX User authorized, upon successful affiliation, to participate in Group Communications of a particular MCX Group.

MCX Service Imminent Peril Group Communication: An urgent MCX Service Group Communication initiated by an MCX user when there is a potential of death or serious injury, but is less critical than an MCX Service Emergency Group Communication.

MCX Service User Profile: The set of information associated to an MCX User that allows that user to employ the MCX Service in a given role and/or from a given MCX UE.

MCX UE: A UE that can be used to participate in MCX Services.

MCX User: A user of MCX Service, who can use an MCX UE to participate in MCX Services.

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).

NOTE 2: The short name, **MCX,** is used instead, with X standing for PTT, Video or Data

Mission Critical Organization: An end-user organization that includes MCX Users and/or MCX UEs, and can include MCX Service Administrators, and can be organized hierarchically with administrative control delegated within the organization or to an outside entity.

Mission Critical Service: Communication service providing enabling capabilities for Mission Critical Applications that are provided to end users from Mission Critical Organizations or other businesses and organizations (e.g., utilities, railways).

NOTE 3: The short name, MCX Service, can be used instead.

Participant: An MCX User who is currently receiving and/or transmitting in a Group Communication or a Private Communication.

Participant type: Functional category of the Participant (e.g., first responder, second responder, dispatch, dispatch supervisor), typically defined by the MCX Service Administrators.

Private Communication: A one-to-one communication between a pair of users using an MCX Service.

Selected MCX Service Group: An MCX Service Group that a particular Affiliated MCX Service Group Member uses for transmission.

Transmitting MCX Service Group Member: An Affiliated MCX Service Group Member who is currently transmitting in a Group Communication to a Selected MCX Service Group.

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [4] 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 [4].

MCCoRe	Mission Critical Services Common Requirements
MCData	Mission Critical Data
MCPTT	Mission Critical Push To Talk
MCVideo	Mission Critical Video
MCX	Mission Critical X, with X = PTT or X= Video or X= Data
MCX Service	Mission Critical Service

4 Overview

4.1 Rationale for MCCoRe

Further development of mission critical services beyond Mission Critical Push To Talk (MCPTT), such as Mission Critical Video (MCVideo) and Mission Critical Data (MCData), created an opportunity to re-use base functionality documented in the Stage 1 requirements for MCPTT. For example, the ability to communicate mission critical information to groups of users is a common need regardless of service type. Wherever originating MCPTT requirements were found to be in common with other mission critical services, those requirements were moved to this Technical Specification (3GPP TS 22.280). Each requirement that was moved has been voided in 3GPP TS 22.179, and an informative annex has been created at the end of that specification documenting the location of the originating 3GPP TS 22.179 requirement in the present document.

4.2 MCCoRe creation process

The creation of 3GPP TS 22.280 followed a thorough analysis by mission critical application stakeholders of all the requirements in 3GPP TS 22.179, TR 22.879, and TR 22.880. Each set of requirements was evaluated, requirement-by-requirement, to determine if any one requirement was applicable to another service (MCPTT, MCVideo, or MCData). If anyone requirement was shared between two or more services, it was designated as a Mission Critical Services Common Requirements (MCCoRe) requirement and placed into this technical specification. At the end of this specification, there are sets of normative annexes that enumerate each requirement in the present document that is

applicable to the given scope for the annex. For instance, one annex covers MCPTT, and there is a comprehensive table that lists every requirement that follows in clauses 5-9 that are applicable to MCPTT.

In the present document the term, MCX Service, is used to mean any mission critical service and when applied in requirements it means any mission critical service that is identified in the normative annexes as applying to the requirement in question. When the term, MCX Service, is used multiple times in a single requirement it means the same MCX Service except in the case of the inter service interworking in clause 8. Therefore, other than requirements in the inter services interworking clause, all requirements in the present document are single service requirements.

In principle, a mission critical group could use multiple services. At any time during a mission critical group communication, a group of mission critical users can, subject to permissions and availability of services and capable UEs, start or stop using any one or more instantiation(s) of any of the MCX services. In the text of the specification for each individual service, the group is considered to use the services of that individual type, and consequently is called MCPTT Group, MCVideo Group, MCData Group, or generically, MCX Service Group. Referring to a group as an individual service group is for writing simple requirements purposes, and does not mean that the group cannot actively use other services. See sub-clause 8.4 for more information.

The grouping and consolidation of common requirements shared by multiple mission critical applications is not to be construed as a statement or requirement of architectural design, impacting entities and interfaces. It is for downstream working groups to determine whether they can:

a) create generic MCX Service functionality that can be re-used by all Mission Critical Applications virtually unmodified;

b) extend and/or customize common MCX Services, if they determine that a Mission Critical Application has special needs, or

c) define separate support for Mission Critical Applications if they determine that they are so specialized that they cannot take advantage of a common MCX Service.

5 MCX Service requirements common for on the network and off the network

5.1 General Group Communications requirements

5.1.1 General aspects

[R-5.1.1-001] The MCX Service shall allow an MCX User utilizing one or more MCX UE(s), concurrently, to sign-in and receive service on each of the MCX UE(s).

[R-5.1.1-002] The MCX Service shall provide a mechanism by which an MCX UE makes a MCX Service group transmission to any MCX Service Group(s) for which the current MCX User is authorized.

NOTE: For off-network use, only group members with MCX UEs within communication range receive the transmission.

[R-5.1.1-003] The MCX Service shall be able to notify the Affiliated MCX Service Group Members when the group communication is set up (e.g., this can be provided as an audible tone on the MCX UE).

[R-5.1.1-004] The MCX Service shall provide a mechanism to disable notifications (e.g., audible tone) on an MCX UE when receiving normal MCX Service Group Communications (not MCX Service Emergency or Imminent Peril Communications).

[R-5.1.1-005] At any moment in time in an MCX Service Group communication, only one Participant type shall be used per Participant.

[R-5.1.1-006] The MCX Service shall provide a mechanism for a dispatcher or authorized user to configure which content source shall be able to transmit the content to an MCX Service Group (e.g. video cameras near an incident).

5.1.2 Group/status information

[R-5.1.2-001] The MCX Service shall provide a mechanism by which an MCX Service UE determines in which of the MCX Service Groups for which it is authorized there is an on-going MCX Service Group Communication.

[R-5.1.2-002] The MCX Service shall provide a mechanism by which an authorized MCX User determines in which MCX Service Groups there is an on-going MCX Service Group Communication.

5.1.3 Group configuration

[R-5.1.3-001] The MCX Service shall allow the MCX Service Administrator to restrict who can be a member of specific MCX Service Groups, so that those MCX Service Groups shall be inaccessible to other users, including dispatchers or supervisors.

[R-5.1.3-002] The MCX Service shall enable a properly provisioned and authorized MCX UE operating on the network to receive its application layer level parameters (e.g., MCX Service Group ID, group keys) necessary for initiating and participating in Selected MCX Service Group and Private Communications at a future time, while off the network.

NOTE: This is a "run-time" requirement applicable to an already configured MCX UE, when MCX Service Groups and/or MCX Users, in addition to what was already configured, need to participate in future off-network communications.

5.1.4 Identification

[R-5.1.4-001] The MCX Service shall support identifiers using character sets for international languages specified via configuration.

5.1.5 Membership/affiliation

[R-5.1.5-001] The MCX Service shall provide a mechanism by which an MCX User determines the currently defined MCX Service Groups for which the MCX User is authorized.

[R-5.1.5-002] The MCX Service shall provide a mechanism by which an MCX UE determines the currently defined MCX Service Groups for which it is authorized.

[R-5.1.5-003] The MCX Service shall support an MCX User's ability to affiliate to one or more MCX Service Groups.

[R-5.1.5-004] The MCX Service shall provide a mechanism for an MCX Service Administrator to limit the total number (Nc2) of MCX Service Groups that an MCX User can be affiliated to simultaneously.

[R-5.1.5-005] An MCX User may simultaneously be an MCX Service Group Member of one or more MCX Service Groups.

[R-5.1.5-006] The MCX Service shall provide a mechanism for an MCX Service Group Member to select zero or one Selected MCX Service Group.

[R-5.1.5-007] The MCX Service shall require that MCX Users affiliate with MCX Service Groups prior to participation in the communications of those groups.

[R-5.1.5-008] An MCX User shall be able to affiliate with a multiplicity of MCX Service Groups, subject to restrictions configured by the MCX Service Administrator.

5.1.6 Group Communication administration

[R-5.1.6-001] The MCX Service shall provide a mechanism for an MCX Service Administrator to configure the maximum duration for MCX Service Group Communications for MCX Users within their authority.

5.1.7 Prioritization

[R-5.1.7-001] The MCX Service shall provide a mechanism to organize MCX Service Groups into a hierarchy(ies).