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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.

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1 Scope

This document specifies the functional architecture, procedures and information flows needed to support the mission critical push to talk (MCPTT) service. The MCPTT service utilizes the common functional architecture to support MC services over LTE including the common services core defined in 3GPP TS 23.280 [16].Support for both MCPTT group calls and MCPTT private calls operating in on-network and off-network modes of operation is specified.

The corresponding service requirements are defined in 3GPP TS 22.179 [2] and 3GPP TS 22.280 [17].

The present document is applicable primarily to MCPTT voice service using E-UTRAN access based on the EPC architecture defined in 3GPP TS 23.401 [8]. Certain application functions of the MCPTT service such as dispatch and administrative functions could also be supported via non-3GPP access networks but no additional functionality is specified to support non-3GPP access.

The MCPTT service requires preferential handling compared to normal telecommunication services e.g. in support of police or fire brigade including the handling of prioritised MCPTT calls for emergency and imminent threats.

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

In the present document, MCPTT calls between MCPTT users on different MCPTT systems are considered.

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

[3] 3GPP TS 23.002: "Network Architecture".

[4] 3GPP TS 23.203: "Policy and charging control architecture".

[5] 3GPP TS 23.228: "IP Multimedia Subsystem (IMS); Stage 2".

[6] 3GPP TS 23.237: "IP Multimedia Subsystem (IMS) Service Continuity; 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] 3GPP TS 29.468: "Group Communication System Enablers for LTE (GCSE_LTE); MB2 Reference Point; Stage 3".

[11] 3GPP TS 33.179: "Security of Mission Critical Push-To-Talk (MCPTT)".

[12] 3GPP TS 36.331: "Evolved Universal Terrestrial Radio Access (E-UTRA); Radio Resource Control (RRC); Protocol specification".

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[13] IETF RFC 5245 (April 2010): "Interactive Connectivity Establishment (ICE): A Protocol for Network Address Translator (NAT) Traversal for Offer/Answer Protocols".

[14] void

[15] void

[16] 3GPP TS 23.280: "Common functional architecture to support mission critical services".

[17] 3GPP TS 22.280: "Mission Critical Common Requirements (MCCoRe); Stage 1".

[18] 3GPP TS 29.283: "Diameter data management applications".

[19] 3GPP TS 33.180: "Security of the mission critical service".

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].

Automatic commencement mode: A mode in which the initiation of the private call does not require any action on the part of the receiving MCPTT user.

First-to-answer call: A call that is started when the first MCPTT user among multiple potential target recipients answers. This call requires the answering MCPTT user to answer manually; automatic answer is not allowed

Group call: A mechanism by which an MCPTT user can make a one-to-many MCPTT transmission to other users that are members of MCPTT group(s).

Group home MCPTT system: The MCPTT system where the MCPTT group is defined.

Group host MCPTT server: The MCPTT server within an MCPTT system that provides centralised support for MCPTT services of an MCPTT group defined in a group home MCPTT system.

Manual commencement mode: A mode in which the initiation of the private call requires the receiving MCPTT user to perform some action to accept or reject the call setup.

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

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

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

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

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

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

On-network MCPTT service: The collection of functions and capabilities required to provide MCPTT via EPS bearers using E-UTRAN to provide the last hop radio bearers.

Pre-selected MCPTT user profile: An instance of the pre-selected MC service user profile for MCPTT.

UE-to-network relay MCPTT service: The collection of functions and capabilities required to provide MCPTT via a ProSe UE-to-network relay using ProSe direct communication paths to provide the last hop radio bearer(s).

For the purposes of the present document, the following terms and definitions given in 3GPP TS 22.179 [2] apply:

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