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| 3GPP TS 24.554 V0.1.0 (2021-03) |
| Technical Specification |
| 3rd Generation Partnership Project;Technical Specification Group Core Network and Terminals;Proximity-services (ProSe) in 5G System (5GS) protocol aspects;Stage 3(Release 17) |
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# 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.

In the present document, modal verbs have the following meanings:

**shall** indicates a mandatory requirement to do something

**shall not** indicates an interdiction (prohibition) to do something

The constructions "shall" and "shall not" are confined to the context of normative provisions, and do not appear in Technical Reports.

The constructions "must" and "must not" are not used as substitutes for "shall" and "shall not". Their use is avoided insofar as possible, and they are not used in a normative context except in a direct citation from an external, referenced, non-3GPP document, or so as to maintain continuity of style when extending or modifying the provisions of such a referenced document.

**should** indicates a recommendation to do something

**should not** indicates a recommendation not to do something

**may** indicates permission to do something

**need not** indicates permission not to do something

The construction "may not" is ambiguous and is not used in normative elements. The unambiguous constructions "might not" or "shall not" are used instead, depending upon the meaning intended.

**can** indicates that something is possible

**cannot** indicates that something is impossible

The constructions "can" and "cannot" are not substitutes for "may" and "need not".

**will** indicates that something is certain or expected to happen as a result of action taken by an agency the behaviour of which is outside the scope of the present document

**will not** indicates that something is certain or expected not to happen as a result of action taken by an agency the behaviour of which is outside the scope of the present document

**might** indicates a likelihood that something will happen as a result of action taken by some agency the behaviour of which is outside the scope of the present document

**might not** indicates a likelihood that something will not happen as a result of action taken by some agency the behaviour of which is outside the scope of the present document

In addition:

**is** (or any other verb in the indicative mood) indicates a statement of fact

**is not** (or any other negative verb in the indicative mood) indicates a statement of fact

The constructions "is" and "is not" do not indicate requirements.

# 1 Scope

The present document specifies the protocols for Proximity-based Services (ProSe) in 5G system as specified in 3GPP TS 23.304 [2] for:

a) 5G ProSe direct discovery;

b) 5G ProSe communication over the PC5 interface;

c) 5G ProSe-enabled UE-to-network relay; and

d) 5G ProSe-enabled UE-to-UE relay

The present document defines the associated procedures for 5G ProSe service authorisation, 5G ProSe direct discovery (e.g. the procedures between 5G ProSe-enabled UE and 5G Direct Discovery Name Management Function (DDNMF) over the PC3 interface, the procedures over the PC5 interface), 5G ProSe UE-to-network relay discovery, 5G ProSe UE-to-UE relay discovery and 5G ProSe direct communication.

The present document also defines the message format, message contents, error handling and system parameters applied by the protocols for ProSe in 5GS.

# 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 23.304: "Proximity based Services (ProSe) in the 5G System (5GS); Stage 2".

# 3 Definitions of terms, symbols and abbreviations

## 3.1 Terms

For the purposes of the present document, the terms 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].

## 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].

5G ProSe 5G Proximity-based Services

# 4 General

## 4.1 Overview

# 5 Provisioning of parameters for 5G ProSe

## 5.1 Overview

## 5.2 Configuration and precedence of 5G ProSe configuration parameters

# 6 5G ProSe direct discovery

## 6.1 Overview

## 6.2 Procedures

# 7 5G ProSe direct communications

## 7.1 Overview

## 7.2 One-to-one 5G ProSe direct communications

# 8 5G ProSe UE-to-network relay

## 8.1 Overview

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# 9 5G ProSe UE-to-UE relay

## 9.1 Overview

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# 10 Handling of unknown, unforeseen, and erroneous protocol data

## 10.1 General

## 10.2 Handling of unknown, unforeseen, and erroneous protocol data in messages sent over the PC3 interface

## 10.3 Handling of unknown, unforeseen, and erroneous protocol data in messages sent over the PC5 interface

# 11 Message functional definitions and contents

## 11.1 Overview

## 11.2 5G ProSe discovery messages

## 11.3 PC5 signalling messages

# 12 Information elements coding

## 12.1 Overview

## 12.2 5G ProSe direct discovery message formats

## 12.3 PC5 signalling message formats

# 13 List of system parameters

## 13.1 Overview

## 13.2 Timers of provisioning of parameters for 5G ProSe configuration procedures

## 13.3 Timers of PC5 direct link management procedures

Annex <X> (informative):
Change history

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| **Change history** |
| **Date** | **Meeting** | **TDoc** | **CR** | **Rev** | **Cat** | **Subject/Comment** | **New version** |
| 2021-2 | CT1#128e | C1-211183 |  |  |  | Draft skeleton provided by the rapporteur. | 0.0.0 |
| 2021-2 | CT1#128e | C1-211184 |  |  |  | Implementing the following p-CR agreed by CT1:C1-211184Editorial change from the rapporteur.Specification number added. | 0.1.0 |