|  |  |
| --- | --- |
| 3GPP TS 24.514 V0.0.0 (2023-04) | |
| Technical Specification | |
| 3rd Generation Partnership Project;  Technical Specification Group Core Network and Terminals;  Ranging based services and sidelink positioning in 5G system(5GS);  Stage 3;  (Release 18) | |
|  | |
|  |  |
| The present document has been developed within the 3rd Generation Partnership Project (3GPP TM) and may be further elaborated for the purposes of 3GPP. The present document has not been subject to any approval process by the 3GPPOrganizational Partners and shall not be implemented. This Specification is provided for future development work within 3GPPonly. The Organizational Partners accept no liability for any use of this Specification. Specifications and Reports for implementation of the 3GPP TM system should be obtained via the 3GPP Organizational Partners' Publications Offices. | |

|  |
| --- |
|  |
| ***3GPP***  Postal address  3GPP support office address  650 Route des Lucioles - Sophia Antipolis  Valbonne - FRANCE  Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16  Internet  http://www.3gpp.org |
| ***Copyright Notification***  No part may be reproduced except as authorized by written permission. The copyright and the foregoing restriction extend to reproduction in all media.  © 2023, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC).  All rights reserved.  UMTS™ is a Trade Mark of ETSI registered for the benefit of its members  3GPP™ is a Trade Mark of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners LTE™ is a Trade Mark of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners  GSM® and the GSM logo are registered and owned by the GSM Association |

Contents

Foreword 4

1 Scope 6

2 References 6

3 Definitions of terms, symbols and abbreviations 6

3.1 Terms 6

3.2 Symbols 6

3.3 Abbreviations 6

4 General description 6

5 Provisioning of configuration information for Ranging and sidelink positioning service 7

5.1 General 7

5.2 Configuration and precedence of Ranging and sidelink positioning configuration parameters 7

5.3 Procedures 7

6 Ranging and sidelink positioning UE discovery 7

6.1 Overview 7

6.2 Ranging and sidelink positioning direct discovery 7

6.2.1 General 7

6.2.2 5G ProSe capable UEs discovery 7

6.2.3 V2X capable UEs discovery 7

6.3 Located UE discovery 7

7 Ranging and sidelink positioning communication 8

7.1 Overview 8

7.2 Ranging and sidelink positioning direct communication over PC5 8

7.2.1 General 8

7.2.2 Procedures 8

7.3 Ranging and sidelink positioning communication on LCS aspect 8

8. Handling of unknown, unforeseen, and erroneous PC5 signalling protocol data 8

8.1 General 8

9. Message functional definition and contents 8

9.1 Overview 8

10. Information elements coding 9

10.1 Overview 9

10.2 General 9

Annex <X> (informative): Change history 10

For definitive guidance on drafting 3GPP TSs and TRs, see [3GPP TS 21.801](http://www.3gpp.org/DynaReport/21801.htm) supplemented by the 3GPP web page <http://www.3gpp.org/specifications-groups/delegates-corner/writing-a-new-spec>.

Ensure all blue guidance text is removed before submitting the TS/TR to the TSG for approval.

# 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

Editor’s Note: This clause will provide the scope of the specification.

# 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".

# 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].

**example:** text used to clarify abstract rules by applying them literally.

## 3.2 Symbols

For the purposes of the present document, the following symbols apply:

<symbol> <Explanation>

## 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].

<ABBREVIATION> <Expansion>

# 4 General description

Editor’s Note: This clause will provide description of Ranging\_SL services from stage 3 perspective.

# 5 Provisioning of configuration information for Ranging and sidelink positioning service

## 5.1 General

Editor’s Note: This clause will provide description of provisioning of Raning\_SL configuration.

## 5.2 Configuration and precedence of ranging and sidelink positioning configuration parameters

Editor’s Note: This clause will provide description of RANGING\_SL configuration precedence and parameters.

## 5.3 Procedures

Editor’s Note: This clause will provide procedures to provision RANGING\_SL configuration parameter

# 6 Ranging and sidelink positioning UE discovery

## 6.1 Overview

Editor’s Note: This clause will provide description of RANGING\_SL UE discovery.

## 6.2 Ranging and sidelink positioning direct discovery

### 6.2.1 General

Editor’s Note: This clause will provide description at the UE, and between UEs, for the general direct discovery used for Ranging/Sidelink Positioning.

### 6.2.2 5G ProSe capable UEs discovery

Editor’s Note: This clause will provide description and the procedures at the UE, and between UEs, for the 5G ProSe capable UEs used for Ranging/Sidelink Positioning. The description may just be brief, and the details of direct discovery procedures may refer to that defined in 3GPP TS 24.554.

### 6.2.3 V2X capable UEs discovery

Editor’s Note: This clause will provide description and the procedures at the UE, and between UEs, for the 5G V2X capable UEs used for Ranging/Sidelink Positioning. The description may just be brief, and the details of direct discovery procedures may refer to that defined in 3GPP TS 24.287.

## 6.3 Located UE discovery

Editor’s Note: This clause will provide description of the procedures at the UE, between UEs, and between the UE and the LMF for the Located UE Discovery.

# 7 Ranging and sidelink positioning communication

## 7.1 Overview

Editor’s Note: This clause will provide description of Ranging\_SL communication.

## 7.2 Ranging and sidelink positioning direct communication over PC5

Editor’s Note: This clause will provide description and the procedures for Ranging\_SL direct communication over PC5 .

### 7.2.1 General

Editor’s Note: This clause will provide description for Ranging\_SL direct communication over PC5.

### 7.2.2 Unicast mode ranging and sidelink positioning direct communication over PC5

Editor’s Note: This clause will provide description of the procedures for unicast mode Ranging\_SL direct communication over PC5.

### 7.2.3 Groupcast mode ranging and sidelink positioning direct communication over PC5

Editor’s Note: This clause will provide description of the procedures for groupcast Ranging\_SL direct communication over PC5.

### 7.2.4 Broadcast mode ranging and sidelink positioning direct communication over PC5

Editor’s Note: This clause will provide description of the procedures for broadcast mode Ranging\_SL direct communication over PC5.

## 7.3 Ranging and sidelink positioning communication on LCS aspect

Editor’s Note: This clause will provide description and the procedures for Ranging\_SL communication on LCS aspect, e.g. to support Network assisted Sidelink Positioning and Ranging/SL Positioning service exposure. The description may just be brief and help to give a whole picture of the solution for Ranging\_SL, and the details of LCS signalling may refer to that defined in 3GPP TS 24.571.

# 8. Handling of unknown, unforeseen, and erroneous PC5 signalling protocol data

## 8.1 General

Editor’s Note: This clause will provide description for handling of unknown, unforeseen, and erroneous signalling protocol data

# 9. Message functional definition and contents

## 9.1 Overview

Editor’s Note: This clause will provide description of the message functional definition and contents for this specification.

# 10. Information elements coding

## 10.1 Overview

Editor’s Note: This clause will provide information elements coding for RANGING\_SL.

## 10.2 General

3GPP

# Annex <X> (informative): Change history

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Change history** | | | | | | | |
| **Date** | **Meeting** | **TDoc** | **CR** | **Rev** | **Cat** | **Subject/Comment** | **New version** |
| 2023-04 | CT1#141e | C1-232576 |  |  |  | TS skeleton from Rapporteur |  |