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| Technical Report |
| 3rd Generation Partnership Project;Technical Specification Group Radio Access Network;Study on NR sidelink relay; (Release 17) |
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# Foreword

This Technical Report 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 is related to Study on NR Sidelink Relay with a scope as defined in [2].

The document describes NR enhancements to sidelink relay, which were analyzed as part of the study such as sidelink-based UE-to-network and UE-to-UE relay, and discovery model/procedure for sidelink relaying.

# 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 RP-193253 "New SID: Study on NR sidelink relay".

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[x] <doctype> <#>[ ([up to and including]{yyyy[-mm]|V<a[.b[.c]]>}[onwards])]: "<Title>".

# 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].

Definition format (Normal)

**<defined term>:** <definition>.

**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 format (EW)

<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 format (EW)

<ABBREVIATION> <Expansion>

# 4 Sidelink-based UE-to-network Relay

## 4.1 Scenario

## 4.2 Relay (re-)selection criterion and procedure

## 4.3 Relay/Remote UE authorization

## 4.4 Layer-2 Relay

### 4.4.1 Architecture and Protocol Stack

### 4.4.2 QoS

### 4.4.3 Security

### 4.4.4 Control Plane Procedure

## 4.5 Layer-3 Relay

### 4.5.1 Architecture and Protocol Stack

### 4.5.2 QoS

### 4.5.3 Security

### 4.5.4 Control Plane Procedure

# 5 Sidelink-based UE-to-UE Relay

## 5.1 Scenario

## 5.2 Relay (re-)selection criterion and procedure

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## 5.4 Layer-2 Relay

### 5.4.1 Architecture and Protocol Stack

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### 5.4.4 Control Plane Procedure

## 5.5 Layer-3 Relay

### 5.5.1 Architecture and Protocol Stack

### 5.5.2 QoS

### 5.5.3 Security

### 5.5.4 Control Plane Procedure

# 6 Discovery for Sidelink Relay

# 7 Analysis of Solution

## 7.1 UE-to-Network Relay

## 7.2 UE-to-UE Relay

# 8 Conclusion

Annex A: Change history

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| **Change history** |
| **Date** | **Meeting** | **TDoc** | **CR** | **Rev** | **Cat** | **Subject/Comment** | **New version** |
| 2020-08 | RAN2#110 | R2-2006602 |  |  |  | Skeleton TR | 0.0.0 |