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| Technical Specification|Report |
| 3rd Generation Partnership Project;Technical Specification Group TSG SA;Study on Network of Service Robots with Ambient Intelligence (Release 19) |
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# Foreword

This clause is mandatory; do not alter the text in any way other than to choose between "Specification" and "Report".

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

#

# 1 Scope

The present document describes use cases and aspects related to efficient communications service and cooperative operation for a group of service robots including:

* + exposure of information between application layer and communications layer,
	+ support of on-demand high priority communications,
	+ KPIs for large-scale group operation scenarios,
	+ support of scalable and efficient use of communication resources,
	+ requirements related to media applications specific for service robots, and
	+ aspects related to security, privacy and charging

that are relevant to support stable operation of service robots. This document also describes the existing service requirements and potential correlation with other studies.

# 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".

…

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

It is preferred that the reference to 21.905 be the first in the list.

# 3 Definitions of terms, symbols and abbreviations

This clause and its three subclauses are mandatory. The contents shall be shown as "void" if the TS/TR does not define any terms, symbols, or 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 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 Overview

Editor’s Note: To include medicated interpretation of the Study Objective into the details of this Technical Report. This includes the related industry verticals that utilize the group operation of service robots, such as enterprise building cleaning / disinfection, robotics-assisted search and rescue operation with coordination, hazardous control operation under extreme conditions (that are affecting both communications and robotic manipulations that are required for a given task), multi-agent heterogeneous delivery of items with coordination, smart agriculture support (e.g., agriculture 4.0), and the like.

# 5 Use cases

# 6 Other considerations

*Editor’s Note: This clause is intended to include implementation and deployment related considerations, e.g., issues and guidelines.*

# 7 Conclusions and recommendations

*Editor’s Note: This clause will include a summary of all recommendations about Use Cases that will be collected. I recommend that we should work on this clause at a later phase in order to make a well-prepared summary of recommendations.*

Annex <A> (informative):
<Title>

Annex <X> (informative):
Change history

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| **Change history** |
| **Date** | **Meeting** | **TDoc** | **CR** | **Rev** | **Cat** | **Subject/Comment** | **New version** |
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