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TECHNICAL SPECIFICATION

**5G;
Unmanned Aerial System (UAS) support in 3GPP
(3GPP TS 22.125 version 16.4.0 Release 16)**

Reference

RTS/TSGS-0122125vg40

Keywords

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Contents

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.

Introduction

Interest in using cellular connectivity to support Unmanned Aerial Systems (UAS) is strong, and the 3GPP ecosystem offers excellent benefits for UAS operation. Ubiquitous coverage, high reliability and QoS, robust security, and seamless mobility are critical factors to supporting UAS command and control functions. In parallel, regulators are investigating safety and performance standards and Registration and licensing programs to develop a well-functioning private and civil UAS ecosystem which can safely coexist with commercial air traffic, public and private infrastructure, and the general population.

The 3GPP system can provide control plane and user plane communication services for UAS. Examples of services which can be offered to the UAS ecosystem includes data services for command and control (C2), telematics, UAS-generated data, remote identification, and authorisation, enforcement, and regulation of UAS operation.

1 Scope

The present document identifies the requirements for operation of Unmanned Aerial Vehicles (UAVs) via the 3GPP system.

This includes requirements for meeting the business, security, and public safety needs for the remote identification and tracking of UAS linked to a 3GPP subscription.

Note: This specification will not be maintained anymore in Rel-16; please refer to future Releases of this 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, 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].

Unmanned Aerial System (UAS): Composed of Unmanned Aerial Vehicle (UAV) and related functionality, including command and control (C2) links between the UAV and the control station, the UAV and the network, and for remote identification. An UAS may comprise of a UAV and a UAV controller.

Unmanned Aerial System Traffic Management (UTM): a set of functions and services for managing a range of autonomous vehicle operations.

UAV controller: The UAV controller of a UAS enables a drone pilot to control an UAV. BVLOS Beyond Visual Line of Sight

3.2 Symbols

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

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].

4 Void

5 Void

Annex A (informative):
Void

Annex B (informative): Change history

Change history							
Date	Meeting	TDoc	CR	Rev	Cat	Subject/Comment	New version
24/08/2018	SA1#83	S1-182766	-	-	-	Skeleton created	0.1.0
16/11/2018	SA1#84	S1-183278	-	-	-	TS22.125 v0.2.0 created to include agreements at this meeting	0.2.0
2018-12	SA#82	SP-181009	-	-	-	Presentation for one-step approval to SA	1.0.0
2018-12	SA#82	SP-181009	-	-	-	Raised to v.16.0.0 following SA#82's one step approval	16.0.0
2019-03	SA#83	SP-190083	0001	2	C	Removal of requirement on enforcement	16.1.0
2019-03	SA#83	SP-190083	0005	1	F	Detect and report the problematic UAV controller to UTM	16.1.0
2019-03	SA#83	SP-190083	0009	1	F	Clarification for identity of UAV controller data	16.1.0
2019-03	SA#83	SP-190083	0008	1	B	Addition for Abbreviations	16.1.0
2019-03	SA#83	SP-190083	0003	3	F	Clarification of Centralized UTM	16.1.0
2019-03	SA#83	SP-190083	0004	3	F	Clarification of Decentralized UTM for Collision Avoidance	16.1.0
2019-03	SA#83	SP-190083	0002	2	F	Clarification of UTM Definition	16.1.0
2019-03	SA#83	SP-190083	0006	3	B	Definition and Clarification for UTM	16.1.0
2019-06	SA#84	SP-190300	0010	3	F	Rewording the enforcement requirement in section 5.2	16.2.0
2019-09	SA#85	SP-190801	0021	2	F	Clarifications on UAS terminology and model	16.3.0
2021-03	SA#91e	SP-210197	0033	1	F	Clean-up alignment of R16 UAS requirements	16.4.0

History

Document history		
V16.3.0	November 2020	Publication
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