**3GPP TSG-SA WG6 Meeting #42-BIS-e S6-210994r1**

**e-meeting, 12th – 20th April 2021 (revision of S6-210749)**

**Source: Tencent**

**Title: Procedure for UAV and UAV-C Pairing and C2 QoS Provisioning using Group ID**

**Spec: 3GPP TS 23.255 v0.3.0**

**Agenda item: 7.10**

**Document for: Approval**

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**1. Introduction**

This contribution adds a new feature in UASAPP TS 23.255 for UAV and UAV-C grouping.

**2. Reason for Change**

In TR 23.755, solution#5 provides a grouping approach for C2 QoS provisioning. Based on the study evaluations, the proposed group method enables UAE-S for QoS management using a group-based approach.

**3. Proposal**

It is proposed for adoption to 3GPP TS 23.255 v0.3.0.

\* \* \* Change \* \* \* \*

## 6.x UAV and UAV-C Pairing and C2 QoS Provisioning using Group ID

### 6.x.1 General

This clause describes the procedure for UAV and UAV-C grouping C2 QoS provisioning using subsequent group id.

6.x.2 Procedures

6.x.2.1 Procedure for group creation for one pair of UAV and UAV-C

Figure 6.x.2.1-1 illustrates a high-level procedure for group creation.

Pre-conditions:

- Both UAV-C and UAV have successfully connected to the UAE server.

- A CAA-level UAV ID may be assigned during the 3GPP network registration process.



Figure 6.x.2.1-1: Procedure for group creation for one pair of UAV and UAV-C

1. The UAE server recognizes a unique pair of UAV and UAV-C either by 3GPP UE ID or CAA-level UAV ID.

Editor’s Note: How UAE server recognizes a pair of UAV-C and UAV is FFS

1. The UAE server sends a group creation request to the SEAL GM server, if there is no pre-assigned group ID, by using the GM-S reference link as specified in 3GPP TS 23.434 [11] using the procedure defined in clause 10.3. The SEAL GM server creates one group ID for one pair of UAV and UAV-C as specified in 3GPP TS 23.434 [11].

3. The UAE server uses the returned group ID for UAS for QoS management.

6.x.2.2 Procedure for group-based approach for C2 QoS provisioning

Figure 6.x.2.2-1 illustrates a high-level workflow of group-based C2 QoS provisioning.

Editor's note: QoS provisioning when C2 is in dynamically changing mode is FFS.

Pre-conditions:

- Both UAV and UAV-C have registered to 3GPP 5G network respectively. C2 communication is established.

- The procedure specified in clause 6.x.2.1 is performed and the group ID for the UAS group is available at the UAE server.



Figure 6.x.2.2-1: Procedure of group-based approach for C2 QoS provisioning.

1. The UAE server monitors the QoS for the UAS group (which includes a UAV and UAV-C).

Editor’s Note: The details of UAE server QoS monitoring is FFS

1. In cases where the network condition for C2 communication does not satisfy the pre-defined QoS requirement, the UAE server may choose to send QoS adaptation request to the SEAL NRM server using the NRM-S reference point as specified in 3GPP TS 23.434 [11]. The QoS adaptation request needs to be sent per group ID for a pair of UAV and UAV-C created in the procedure specified in 6.x.2.1. The subsequent network resource adaptation procedure is triggered by the UAE server as specified in clause 14.3.3.3.1 of TS 23.434 [11].

3. The UAE client and UAE server established communication based on new QoS requirements as specified in clause 14.3.3.2.1.2-1 of 3GPP TS 23.434 [11].

4. UAS application layer adapts the updated QoS assignment.

Editor’s Note: How the UAS application layer is adapting newly assigned QoS out of 3GPP’s scope.

### 6.x.3 Information flows

Editor's Note: This clause will describe the information flow tables