



Global UTM
Association

Liaison Statement

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Introduction

Aerial Connectivity Joint Activity (ACJA) is the first initiative to result from the cooperation agreement signed last year by the GSMA and the Global UTM Association (GUTMA)¹. ACJA has been conceived in large part to give relevant members of the aviation and cellular industries a forum by which they can share views on how their two worlds can work most effectively together.

ACJA therefore also aims to educate stakeholders from across the cellular and aviation ecosystems – in particular, by creating a common understanding. Particular focus for ACJA will be given to how standards are used to promote safety, as standards-based systems benefit from more testing, data analysis, and experience than individual proprietary systems. ACJA's work will also seek to identify the potential capabilities and needs of cellular networks in unmanned traffic management (UTM) and aviation in general.

The Global UTM Association (GUTMA) is a non-profit consortium of worldwide Unmanned Aircraft Systems Traffic Management (UTM) stakeholders. Its purpose is to foster the safe, secure and efficient integration of drones in national airspace systems. Its mission is to support and accelerate the transparent implementation of globally interoperable UTM systems. GUTMA gathers various type of stakeholders starting from UTM companies, Drone Manufacturers, Aircraft manufacturers, CAAs, ANSPs and Airline. As a strong player in UTM world, GUTMA is working with FAA / EASA and SDOs to provide market driven recommendations and standards.

Overall Description

ACJA thanks 3GPP SA WG1 for their liaison statement in S1-210359.

ACJA has discussed the changes to TS 22.125. With respect to the newly formulated requirement:

[R-5.1-017] The 3GPP system shall support the UTM in detection of UAV operating without authorization.

ACJA expresses concerns about the feasibility and logic of such requirement and sees the scenarios below to be considered:

¹ <https://www.gsma.com/iot/news/gsma-and-gutma-launch-new-joint-initiative-to-align-mobile-and-aviation-industries/>

- Scenario A: a UAV without a 3GPP aerial subscription that happens to be flying (and thus unauthorized both from a subscription point of view and from an UTM point of view)
- Scenario B: a UAV with an aerial subscription that did not register to the 3GPP network using release 17 mechanisms and therefore did not get authorized for UAV operations in a 3GPP network
- Scenario C: a UAV with an aerial subscription tries to register to the 3GPP network using release 17 mechanisms and 3GPP network receives a negative authentication/authorization response from UTM (i.e. the UAV is not authorized). 3GPP system may keep the UAV UE registered without access to aerial services i.e. not authorized for UAV operations using 3GPP network.

ACJA kindly asks SA1 to clarify which scenario the requirement refers to, considering the following points:

- A UAV operating without authorization as in the scenarios A & B above is a UE that is registered and connected to the MNO network and has not indicated any UAV features and/or does not have an aerial subscription. As such, it is indistinguishable from e.g. a normal UE on a helicopter, which is flying but not autonomously, or high speed elevator in a tall building, which may appear to be flying vertically. As such, ACJA believes it is not reasonable to ask a 3GPP system to detect which UEs are actually autonomously flying unauthorized UAVs versus regular UEs that may be in motion but not flying autonomously.
- Moreover, such unauthorized UAVs, based on 3GPP mechanisms, are not identifiable as aviation entities and the 3GPP system is not aware of any associated aviation identity, and as such, they cannot be reported to the UTM.
 - The only information available to the 3GPP system about such UEs is their permanent 3GPP identity, which is of no use to the UTM since it does not identify the UAV, the UAV operator, or the UAV pilot.
 - Without an aviation-level identity provided by the UAV to the 3GPP system, the 3GPP system does not know to which entity in the UTM the UAV should be reported to.
 - The UTM is only aware of aviation-level identifiers and maintains no correlation between such identifiers and the 3GPP identities, unless release 17 mechanisms being defined in 3GPP SA2 are in place and the UAV is authorized and authenticated as may be required in the operating jurisdiction.

Regarding the usage of the term “UAV” in the requirements provided in the liaison statement, and the use of the same in 22.125, especially when in the context of identification and authorization for operation, we recognize a need to explicitly define what is the intended meaning. Is the UAV referring to:

- a. the aerial equipment,
- b. the modem with RAN access (UE) embedded in the aerial equipment, as registered in the UTM,
- c. the full-set of a and b together, or

d. other

As such, to avoid misinterpretation of such statements, we suggest that the definition be provided in express words as they lead to different interpretations on authorization for operation and identification.

ACJA recommends describing the requirement more in detail considering the actual UTM functionality, or eliminating it completely.

ACTIONS

GSMA and GUTMA, as part of the joint activity ACJA, kindly asks 3GPP SA1 and SA6 to take this information into account, describing the requirement more in detail considering the actual UTM functionality, or eliminating it completely.

NEXT MEETINGS

ACJA#12 5th of May 2021