**3GPP TSG-WG SA2 Meeting #155 S2-230xxxx**

**Athens, Greece, 20-24 February 2023**

Title: [Draft] LS Reply on ECC request for standardisation support related to ECC Decision (22)07 on “harmonised framework on aerial UE usage in MFCN harmonised bands”

Response to: S2-20-2302206 (TFES(23)074033r1)

Release: Release XX

Work Item: XXXX

Source: SA2

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Attachments: N/A

**1. Overall Description:**

SA2 would like to thank ETSI TSG MSG/TFES for the incoming liaison. SA2 has discussed the content and has the following comments.

SA2 noticed the definition of aerial UE from ETSI TSG MSG/TFES:

*“According to this ECC Decision, an aerial UE refers to a UE supporting UAS features and services and requiring an aerial subscription. An aerial UE is installed either on-board an Unmanned Aircraft (e.g. drones) or on-board manned aircraft (e.g. helicopter). It identifies itself to the mobile network as being in this class.”*

Such definition goes beyond what 3GPP has considered before 3GPP release 17 that a 3GPP aerial UE is simply a UE with an aerial subscription. However, in release 17 SA2 has introduced the concept that a UE provisioned and configured to act as a UAV in addition to having an aerial subscription shall also indicate it is a UAV by providing an application layer identifier (the CAA-Level UAV ID, assigned by the UTM, see 3GPP TS 23.256) before receiving aerial services from the 3GPP network. This allows the 3GPP network to obtain authentication and authorization for the UAV by the UTM. Moreover, since Release 15 the LTE RAN is informed of the UE aerial subscription, and a similar mechanism is being added to NG-RAN (NR) for release 18. As such, SA2 believes that 3GPP specifications from release 17 already supports the above definition.

Regarding bullet points b, c, and d:

1. *mechanism/feature coherent with the above aerial UE definition in order to differentiate aerial UE, as defined by ECC Decision 22(07) from terrestrial UE operating under LTE/NR 5G networks*

SA2 believes that mechanisms from release 17 (for LTE) and from release 18 (for NR) will enable the differentiation as described in bullet (b).

1. *differentiation of aerial UE from other terrestrial UE shall not be changed by the end-user*

Though SA2 agrees that an aerial UE shall not be allowed to operate flight operations without indicating to the network that it is an aerial UE as per the ETSI definition, we recommend considering the scenarios we describe in relation to bullet (d) below.

1. *the aerial UE shall not be capable to connect to LTE/NR 5G networks without aerial subscription*

SA2 has discussed bullet (d) and understands that this is done to ensure the operation of actual aerial UEs in the correct frequencies to avoid the misuse of frequencies not allowed for aerial UEs. In 3GPP specifications before Release 17, it is not possible to enforce such requirement Since a UAV UE configured to behave as a UAV and with an aerial subscription, when not in flight, can connect as a regular UE to access services not related to UAV/flight operations. However, since Release 17 the functionality exists for an operator to restrict specific bands for aerial UEs as defined by ETSI TSG, i.e. to only UEs that are provisioned and configured to act as a UAV in addition to having an aerial subscription.

3GPP would like in addition for ETSI TSG MSG/TFES to consider the following scenarios:

* the aerial UE while on the ground (i.e. not in a flying state) may need to perform operations not related to any flight missions, e.g. large media dump, software updates, etc.
* certain aerial UEs (e.g. robotic videocamera drones) may also perform surveillance operations on the ground without taking a flight (e.g. as surveillance cameras).

In such scenarios, the 3GPP UE installed on the aerial vehicle requires connectivity for services not related to aerial operations and that may not always be available while in flight (e.g. downloading a large amount of high quality 4K video), and restricting such UE to behave as an aerial UE while on the ground would be restrictive for generic service provisioning beyond aerial operations. 3GPP release 17 mechanisms would allow such UE to register to the mobile network as a regular UE, access the necessary services and connectivity without being authorized for a flight, and operate in the frequency bands available to a non-aerial UE. At a later time, when ready for flight, the UE will need to re-register to the network and indicate its intention to operate as an aerial UE (in the ETSI definition), and as such be restricted to operate in the correct bands. Therefore, SA2 believes the restriction in bullet (d) is unnecessary.

In conclusion, 3GPP SA2 is of the opinion that most of the points raised by ETSI TC MSG/TFES are already supported by release 17 standards.

**2. Actions:**

**To ETSI TC MSG/TFES:**

**ACTION:** SA2 kindly ask ETSI TC MSG/TFES to take the above into account and in particular to consider the comments on the requirements in bullet (c) and (d).

**3. Date of Next TSG SA WG2 Meetings:**

TSG-SA2 Meeting #156 17-21 April 2023 e-meeting

TSG-SA2 Meeting #157 22-26 May 2023 EU