**[R19 FS\_UAS\_Ph3] Pre-SA2#164 NWM Discussion for KI#2 - Version 0.0.1**

**SA2**

[**https://nwm-trial.etsi.org/#/documents/8896**](https://nwm-trial.etsi.org/#/documents/8896)

# 1 Introduction

**As a result of SA2#163 meeting (May 2024), TR 23.700-59 including KI#2 conclusion was sent to SA#104 for Information. After SA#104 (June 2024), TR 23.700-59v1.0.0 is available.**

**As a result of SA#104 (June 2024), WID ”Phase 3 for UAS, UAV and UAM” including the following KI#2 objective was approved (SP-240997).**

* **WT#2:** Enable network-assisted/ground-based mechanism for DAA (Detect And Avoid).
* Support 5GC positioning assistance information for network-assisted DAA.

***Please provide you feedback by July 26th EoB.***

# 2 Collecting companies view related to KI#2

# 2.1 KI#2 (NW-assisted/ground-based DAA)

# 2.1.1 Companies View related to KI#2

**Question#2-1:** Regarding ”NOTE 2: Applicability of the above solutions to support DAA will be evaluated during normative phase.” captured in clause 8.2, which aspects need to be evaluated ?

**Feedback Form 1: Feedback on Question#2-1**

**1 – Ericsson LM**

As per clause 6.19 of TS 23.288, “…it (Relative Proximity Analytics) may help the consumer identify UEs in the vicinity of another UE. Relative proximity information can also be leveraged by NWDAF to provide location information with finer granularity than TA/cell”. Consequently, it may be useful input and can be used to facilitate DAA.

GMLC service on Ranging/Sidelink Positioning location results, the USS estimates the potential collision based on the information received from GMLC and/or the predictions from NWDAF. The Ranging/Sidelink Positioning location results is useful information and should be considered.

|  |
| --- |
| **2 – LG Electronics France**  We think that Absolute location of a UAV and Output of Relative Proximity Analytics are useful for DAA by USS. If no clear aspect requiring evaluation is identified, we don’t have to spend time on ”evaluation”. |
| **3 – Huawei Technologies France**  LCS and ranging based relative and absolute location determination take place in real-time, and with highaccuracy, which is very much applicable to DAA use case.  However, NWDAF based option may not output the real-time location information, because it need time for analysis or prediction. The other aspect is the accuracy of the NWDAF output. It needs justification the accuracy can be compatible with the LCS/ranging case. |

**Question#2-2:** S2-2407213 (Solution#5 update) was not approved at SA2#163. And Relative distance of UAVs (i.e. the GMLC/Ranging aspects) was not included in KI#2 conclusion. Is there any way forward on this matter ? If yes, please provide your proposed update to the conclusion.

**Feedback Form 2: Feedback on Question#2-2**

|  |
| --- |
| **1 – QUALCOMM Europe Inc. - Italy**  Relative position of two UAVs is insufficient information for any DAA decision, since it does not factor in the movement vectors of the UAVs. No need to include. Moreover, no explanation yet has been provided as to how the USS would know whether the information is supported by the UAVs as it was proposed in the objected submission. |
| **2 – Ericsson LM**  Ranging is an available feature from rel18 which can be used efficiently to get distance between two UAVs  so proposed to keep it as solution. USS/UAS NF needs to use the available APIs to request 5GC/GMLC to provide distance between UAVs. UEs must be identified by Application Layer IDs which either provisioned by any AF into UDR and USS/UAS NF during ranging request provide GPSI only and ID translation happens in GMLC. Other way USS/UAS NF shall be aware of application Layer ID of UAV(s) and provide those in the ranging request together with GPSI.  Additionally, when it comes to Application Layer ID – we have already made an assumption for KI#1 that “…UTM can represent any authorized aviation AF that may require interaction with the MNO for the functions listed above.” Therefore, we don’t see the reason why the UTM can be considered as an AF that is aware on ranging APIs and thus can request such service directly.  As described in step 2 of solution 5: “The UAV(s) (via its paired UAV-C) or the UAV-C requests DAA service from USS. The request message includes identifier of the UAV(s) (e.g. GPSI(s), CAA-Level UAV ID(s)). USS derives information on DAA service and decides to subscribe/request to 5GC for GMLC service on Ranging/Sidelink Positioning location and/or Relative Proximity predictions on collision from NWDAF.” The request message from UAV to USS for DAA contains GPSI(s), etc.  Ranging can be useful, there could be the means to do it, assuming that UTM/USS will have some of the required capabilities. |
| **3 – LG Electronics France**  Our understanding is that USS can derive relative distance between UAVs by using information on absolute location of each UAV. Therefore, Ranging is not must-have but nice-to-have for NWDAA.  In addition, SA2#164 should focus on concluding KI#3 and progressing normative work for KI#1 and KI#2. Therefore, it would be reasonable to discuss and handle KI#2 related tdocs only if time permits. |
| **4 – LG Electronics France**  For clarity, the very last sentence posted above should read as below:  ”Therefore, it would be reasonable to discuss and handle tdocs updating KI#2 conclusion/solution in TR 23.700-59 only if time permits.” |
| **5 – CATT**  We think no new function is introduced in S2-2407213.  If our understanding is correct, we think if the concern in the last meeting still exists, we can forget the relative distance determined by ranging and keep the information enabling NWDAA in conclusion as it is. |
| **6 – Huawei Technologies France** same view as Ericsson |

# 3 Summary on companies view related to KI#2

# 3.1 KI#2 (NW-assisted/ground-based DAA)

**On Question#2-1:**

- 3 companies provided feedback.

- There was opinion that Relative Proximity Analytics are useful for NWDAA. Also, there was opinion that Relative Proximity Analytics may be non-real-time output and require justification regarding accuracy.

**On Question#2-2:**

- 5 companies provided feedback.

- Two companies supported to consider Relative distance of UAVs (i.e. the GMLC/Ranging aspects) while two companies did not support it.

- One company commented that it would be reasonable to discuss and handle tdocs updating KI#2 conclusion/solution in TR 23.700-59 only if time permits.