**3GPP TSG-WG SA2 Meeting #140E e-meeting *S2-200xxxx***

**Elbonia, August 19 – September 1, 2020 (revision of S2-200xxxx)**

**Source: Huawei, HiSilicon**

**Title: KI#7: evaluation and conclusion**

**Document for: Approval**

**Agenda Item: 8.7**

**Work Item / Release: FS\_ID\_UAS / Rel-17**

*Abstract: This contribution provides evaluations and conclusions for KI#7 User Plane Connectivity.*

# 1. Introduction/Discussion

The solutions of KI#7:User Plane Connectivity for UAVs include solution #2, #4, #5, #13, #20 and #21. The following table provides an analysis and comparison, focusing on aspects of KI#7.

|  |  |  |
| --- | --- | --- |
| Solution | Evaluation | Impacts |
| Sol#2:3GPP reference architecture for UAV remote identification | Architecture solution, no specific details on how to address KI#6 | none |
| Sol#4:Solution using User plane for UAV identification and authorization | UAS AF authorized the UAV via user plane before UAV sets up the C2 connection with USS/UTM, no details on how to configure the routing rules or routing path for C2 connection between UAV and USS/UTM | none |
| Sol#5:UAV authentication and authorization by USS/UTM based on NAS supplementary and secondary authentication and authorization procedures | With the authentication and authorization results from USS/UTM, the C2 connection between UAV and UAVC is set up, no details on how to configure the routing rules or routing path for C2 connection between UAV and UAVC  | none |
| Sol#13: Area of Interest for support of UTM's geofencing | With the AOI report from AMF SMF takes the appropriate network layer actions based on preconfigures traffic routing policies from USS/UTM. No details on how to implement for C2 connection. | The SMF takes the appropriate network layer actions (including C2 connection) based on preconfigures traffic routing policies from USS/UTM and AOI report from AMF |
| Sol#20:UAV and UAVC Association and Connectivity Control Using Secondary Authorization | With the authentication and authorization results and UAV/UAVC IP address from USS/UTM, the C2 connection between UAV and UAVC is set up by SMF provisioned packet filters. | The UAV/UAVC IP address is notified to the SMF. |
| Sol#21:Connectivity setup for C2 communication and association between UAV and UAV-C | With the authentication and authorization results and UAV/UAVC IP address from USS/UTM, the C2 connection between UAV and UAVC is set up by setting proper forwarding rules and modifying the UP connectivity. | The UAV/UAVC IP address is notified to the SMF. |

**Proposal**: The UAV/UAVC IP address is informed to the SMF, which then uses the IP address to configure the N4 rules at UPF in order to set up the C2 connection between UAV and UAVC.

# 2. Text Proposal

It is proposed to capture the following changes vs. TR 23.754.

\* \* \* \* First change (all new) \* \* \* \*

# 7 Evaluation

## 7.7 Key Issue 7: User Plane Connectivity for UAVs

Sol#2: this solution has no specific details on how to address this key issue.

Sol#4: this solution has no specific details on how to address this key issue.

Sol#5: this solution has no specific details on how to address this key issue.

Sol#13: this solution proposes that the SMF takes the appropriate network layer actions (including C2 connection) based on preconfigures traffic routing policies from USS/UTM and AOI report from AMF. But it has no specific details on how to address this key issue.

Sol#20: this solution proposes that UAV/UAVC IP address is informed to SMF by USS/UTM, then the C2 connection between UAV and UAVC is set up by SMF provisioned packet filters.

Sol#21: this solution proposed that UAV/UAVC IP address is informed to SMF by USS/UTM, then the C2 connection between UAV and UAVC is set up by setting proper forwarding rules and modifying the UP connectivity.

\* \* \* \* Second change (all new) \* \* \* \*

# 8 Conclusions

## 8.7 Key Issue 7: User Plane Connectivity for UAVs

The UAV/UAVC IP address is informed to the SMF, which then uses the IP address to configure the N4 rules at UPF in order to set up the C2 connection between UAV and UAVC.

\* \* \* \* End of changes \* \* \* \*