**3GPP TSG-WG SA2 Meeting #164S2-2408852**

**Maastricht, NL, 19th Aug – 23rd Aug, 2024 (revision of S2-2408073)**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **23.228** | **CR** | **1427** | **rev** | **1** | **Current version:** | **18.6.0** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network |  | Core Network | **X** |

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|  | | | | | | | | | | |
| ***Title:*** | Architecture for UE-satellite-UE communicaitons | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | vivo, Thales, CATT, CSCN, Honor, Tencent | | | | | | | | | |
| ***Source to TSG:*** | SA2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5GSAT\_Ph3\_ARCH | | | | |  | ***Date:*** | | | 2024-08-09 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-19 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Addition of features to support UE-satellite-UE communications for satellite communications based on the conclusions for KI#3 in TR 23.700-29.   * Understanding the architecture is crucial for identifying the affected interfaces and assessing the potential impacts or enhancements needed to support the introduced feature. In the context of UE-SAT-UE, several interfaces will involve satellite transport links (e.g feeder links, and/or inter-satellite links). Implementing this feature requires specific assumptions and requirements for these links. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Add an architecture to describe the interfaces. | | | | | | | | |
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| ***Consequences if not approved:*** | | UE-satellite-UE communication will not be activated. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | XY.2 (new) | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

\* \* \* \* First change \* \* \* \*

# XY.2 Architecture

As depicted in Figure 4.x-1, the 5G System architecture allows the UE-satellite-UE communication with gNB, UPF, and IMS-AGW onboarding satellite(s).



Figure XY.2-1: UE-Satellite-UE communication architecture in Reference points representation

NOTE 1: In context of 5GC control plane, N2, N4 interfaces are over satellite transport layer links (feeder link and optionally inter-satellite links), where the lower layer protocol is out of 3GPP scope;

NOTE 2: In context of 5GC user plane, N3 and N6 interfaces may be internal interfaces if gNB, UPF, and IMS-AGW are onboarding the same satellite, or over inter-satellite links if gNB, UPF, and IMS-AGW are onboarding different satellites, N9 interface is over satellite transport layer links. he lower layer protocol is out of 3GPP scope;

NOTE 3: In context of IMS, Iq interface is over satellite transport layer links (feeder link and optionally inter-satellite links), where the lower layer protocol is out of 3GPP scope;

NOTE 4: The satellite transport layers including the feeder link and ISL are assumed to be always available for IMS service continuity;

NOTE 5: For clarity, the connections within 5GC and IMS core are not depicted in the architecture diagrams. For more information on 5GC architectures refer to clause 4.2.3 in TS23.501 [93].

The functionalities executed by N2, N3, N4, N6, and N9 are described in clause 4.2.7 in TS 23.501 [993], and the functionalities executed by Iq are described in clause G.3.3.

Editor’s Note: whether and how to include without AGW architecture is FFS.

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