**3GPP TSG-SA5 Meeting #145-e *S5-225084rev2***

**e-meeting, 15 - 24 August 2022** Revision of S5-225xxxx

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **32.240** | **CR** | **0444** | **rev** | **-** | **Current version:** | **17.6.0** |  |
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| *For* [***HELP***](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 |  | Radio Access Network |  | Core Network | **X** |

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| ***Title:***  | Introduction of Reference point representation for Converged Charging |
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| ***Source to WG:*** | MATRIXX Software, Ericsson LM |
| ***Source to TSG:*** | S5 |
|  |  |
| ***Work item code:*** | 5GS\_Ph1-SBI\_CH, TEI17 |  | ***Date:*** | 2022-08-22 |
|  |  |  |  |  |
| ***Category:*** | F |  | ***Release:*** | Rel-17 |
|  | *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 canbe 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-15 (Release 15)Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)* |
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| ***Reason for change:*** | The Reference Points for Charging services in convergde charging architecture are defined in clause 4.4.3, however the corresponding architecture is missing.IMS is missing the common architecture and the N46 states that it’s for SMS node instead of SMSF. |
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| ***Summary of change:*** | Add the Converged Charging architecture in Reference points representationAdding IMS node to the common architecture and changing the N46 to be for SMSF. |
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| ***Consequences if not approved:*** | The architecture and reference point will be misleading and it could be interpreted that Charging services are undifferentiated between NFs  |
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| ***Clauses affected:*** | 4.2.3, 4.4.3 |
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|  | **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 ...  |
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| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

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| **First change** |

### 4.2.3 Common architecture – service based interface

The following figures provide an overview of the logical ubiquitous charging architecture and the information flows for converged offline and online charging in service based interface variant for 5G systems and Edge Computing enabling sub-systems.

Figure 4.2.3.1 provides the overview in service based representation:



Figure 4.2.3.1: Logical ubiquitous charging architecture and information flows for 5G systems – service based representation

Figure 4.2.3.2 provides the overview in reference point representation:



Figure 4.2.3.1: Logical ubiquitous charging architecture and information flows for 5G systems – reference point representation

The reference points are defined in clause 4.4.3.

For the sake of simplicity, the SMF+PGW-C is not explicitly added in Figure 4.2.3.1 and Figure 4.2.3.2, and is represented by the SMF.The SMF+PGW-C uses Nchf for 5GS and EPC interworking as well as when enhanced to support GERAN/UTRAN.

The Nchf\_SpendingLimitControl service exposed by CHF and consumed by the PCF is specified in TS 23.502 [214].

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| **Second change** |

### 4.4.3 Charging services Reference point

The common charging architectures are mapped into the specific domain/subsystem/service charging architectures in the respective middle tier TSs, which contain in their reference point representation, the following reference points:

**N28:** Reference point between PCF and CHF defined in TS 23.501[215]**.**

**N40:** Reference point between SMF and the CHF in the same PLMN defined in clause 4.2 of TS 32.255 [15].

**N41:** Reference point between AMF and CHF in HPLMN defined in clause 4.2.2 of TS 32.256 [16].

**N42:** Reference point between AMF and CHF in VPLMN defined in clause 4.2.2 of TS 32.256 [16].

**N44:** Reference point between NEF and CHF defined in clause 4.4 of TS 32.254 [14].

**N45:** Reference point between IMS Node and CHF defined in clause 4.4 of TS 32.260 [20].

**N46:** Reference point between SMSF and CHF defined in clause 4.4 of TS 32.274 [34].

**N47**: Reference point between SMF and the CHF in different PLMNs defined in clause 4.2 of TS 32.255 [15].

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| **End of change** |