**3GPP TSG-SA4 Meeting # 129-eS4-241495r02**

**Online, 19th August – 23th August 2024**

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| *CR-Form-v12.2* | | | | | | | | |
| **PSEUDO CHANGE REQUEST** | | | | | | | | |
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|  | **26.942** | **CR** |  | **rev** |  | **Current version:** | **0.2.1** |  |
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| *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:*** | [FS\_MediaEnergyGREEN] Description of the existing collection and exposure of energy consumption information at NF | | | | | | | | | |
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| ***Source to WG:*** | Orange | | | | | | | | | |
| ***Source to TSG:*** | S4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | FS\_MediaEnergyGREEN | | | | |  | ***Date:*** | | | 2024-05-20 |
|  |  | | | |  | |  | | |  |
| ***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)* | |
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| ***Reason for change:*** | | Related work in 3GPP on Collection and exposure of data collection, reporting and exposure at NF needs to be described | | | | | | | | |
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| ***Summary of change:*** | | Description of the existing work in the clause on Collection and exposure of energy consumption information at NF. This is only a summary of existing work listing the main principles. If details are needed, for example on format or protocols, it will be described in the description of the solution using those format or protocols. | | | | | | | | |
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| ***Consequences if not approved:*** | | SID objectives will not be met. | | | | | | | | |
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| ***Clauses affected:*** | | 2, 4.2.2.3 | | | | | | | | |
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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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| **1st Change** |

# 2 References

[23700-66] 3GPP TR 23.700-66: "Study on Energy Efficiency and Energy Saving".

[28.310] 3GPP TS 28.310: "Management and orchestration; Energy efficiency of 5G".

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| **2nd Change** |

#### 4.2.2.3 Collection and exposure of energy consumption information at NF

TR 23.700-66 [23700-66] studies and identifies potential enhancements to the 5G System (e.g., including network energy-related information exposure, enhancement for subscription and policy control to enable energy efficiency as a service criterion) to improve energy efficiency and to support energy saving in the network.

Three different key issues have been identified is that study:

- KI#1: Network energy related information exposure

- KI#2: Subscription and policy control to support energy efficiency and energy saving as service criteria

- KI#3: 5GS enhancements for network energy saving and efficiency

The conclusions and the normative work following TR 23.700-66 [23700-66] will be used for collection and exposure of energy consumption information at Network Functions and are summarised as follows:

1. A new network functionality will be defined to collect and calculate energy-related information and expose it to authorised consumers. The granularity of energy information exposed will depend on the authorised consumer:

- If the authorised consumer is a 5GC Network Function: per application, per Network Slice, per UE, per-UE-per-QoS Flow.

- If the authorised consumer is an Application Function: per application corresponding to the AF in question, per Network Slice, per UE, and per UE per AF.

2. The energy-related information will include Energy Consumption information and renewable energy information.

- Energy Consumption information is defined in the TS 28.310 [28310]

- Renewable energy information means energy from renewable non-fossil sources. For example (but not limited to) wind, solar, aerothermal, geothermal, hydrothermal.

3. .Authorised consumers may subcribe to periodic or threshold-based exposure of Energy Consumption information by the new network functionality.

4. The information for the calculation of the Energy Consumption information is obtained from the following sources:

- OAM: provides Energy Consumption information from the gNodeB(s) and UPF(s) serving the UE, or the Network Slice serving the UE;

- OAM: provides the overall data volume of the gNodeB;

- UPF: provides the overall data volume of the UPF;

- UPF: provides the data volume for the QoS Flow or the Service Data Flow (SDF).

5. The new functionality determines the end-to-end energy consumption based on energy consumption per the granularities above at the serving Network Function (i.e. NG-RAN and UPF).

6. In Release 19, only the energy-related information of user plane communication (not control plane signalling) is supported.

7. To support Enhancements on NF discovery and (re-)selection based on energy-related information, the NF profile may be extended (e.g. by including the new energy-related information or by reusing existing NF profile parameters) to allow an operator to influence NF discovery and selection based on its energy strategy. In addition, NF discovery and (re-) selection will be enhanced to consider the energy-related information from the NF profiles and/or discovery requests from the NF consumer.

The recommendations of the present document focusing on media services will need to be aligned with the conclusions of TR 23.700-66 [23700-66] impacting Application Functions used for media services.

[Editor’s note: TR 23.700-66 v1.0.0 has been approved by SA but additional studies are still in progress in SA2. Conclusions of TR 23.700-66 could be updated based on the progress of SA2]

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| **End of Changes** |