**3GPP TSG-SA1 Meeting #96e *S1-214145r1***

**Electronic Meeting, 8 November –18 November 2021** (revision of S1-21xxxx)

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **22.261** | **CR** | **0615** | **rev** | **-** | **Current version:** | **18.4.0** |  |
|  | | | | | | | | |
| *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 | **X** | Core Network | **X** |

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| ***Title:*** | Initial requirements for Passive IoT | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Vodafone, BMW Brilliance Automotive, CAICT, CATT, China Mobile, China Telecom, China Unicom, EDF, Futurewei, HiSilicon, Huawei, KPN, Novamint, NTT DOCOMO, Quanray, Spreadtrum, vivo | | | | | | | | | |
| ***Source to TSG:*** | SA1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | xxx | | | | |  | ***Date:*** | | | 2021-10-29 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-18 |
|  | *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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | The basic service requirements are captured for Passive IoT. These requirements should be added to Basic Capabilities section. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Documenting initial requirements for Passive IoT. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The basic requirements for Passive IoT would be missing. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

----------------------------- start of the first change -----------------------------

# 6 Basic capabilities

## 6.15 Energy efficiency

### 6.15.1 Description

Energy efficiency is a critical issue in 5G. The potential to deploy systems in areas without a reliable energy source requires new methods of managing energy consumption not only in the UEs but throughout all components of the 5G system.

Small form factor UEs also typically have a small battery (or may need to function using only a small energy harvesting mechanism) and this not only puts constrains on general power optimization but also on how the energy is consumed. With smaller power sources it is more important to understand and follow the limitations for both the maximum peak and continuous current drain.

### 6.15.2 Requirements

The 5G access network shall support an energy saving mode with the following characteristics:

- the energy saving mode can be activated/deactivated either manually or automatically;

- service can be restricted to a group of users (e.g. public safety user, emergency callers).

NOTE: When in energy saving mode the UE's and Access transmit power may be reduced or turned off (deep sleep mode), end-to-end latency and jitter may be increased with no impact on set of users or applications still allowed.

The 5G system shall support mechanisms to improve battery life for a UE over what is possible in EPS.

The 5G system shall optimize the battery consumption of a relay UE via which a UE is in indirect network connection mode.

The 5G system shall support UEs using small rechargeable and single coin cell batteries (e.g. considering impact on maximum pulse and continuous current).

The 5G System shall support communication with a UE or device which operates at a max instantaneous power of only a few hundred micro Watts, using an energy harvesting mechanism.

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