**3GPP TSG-SA5 Meeting #154 *S5-241278***

Changsa, China, 15 April - 19 April 2024

**Source: Samsung**

**Title: Throughput and latency map for EE**

**Document for: Approval**

**Agenda Item: 6.19.2**

# 1 Decision/action requested

***In this box give a very clear / short /concise statement of what is wanted.***

# 2 References

None

# 3 Rationale

This provides the new use case of MDAS.

# 4 Detailed proposal

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| **First Change** |

# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[x] 3GPP TR 38.864, “Study on network energy savings for NR”.

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| **Next Change** |

# 5. Use Cases

5.1 Energy Saving based on Throughput requirements.

5.1.1 Description

Directional beams are formed using multiple antenna elements and directional beams are used in both common channels for initial access and in RRC\_CONNECTED state. Common signals/channels used for UE initial access are transmitted in synchronization signal block (SSB).Each SSB associated with a beam is designed at different directions to cover the intended coverage area of a cell as depicted in Figure 1.

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| Figure 1: Illustration of SSB beams covering full cell coverage area. | Figure 2: Illustration of reduced number of SSB beams covering only hotspot area. |

To reduce energy consumption, SSB beams which are not required based on traffic demand can be modified or deactivated. For example, as depicted in Figure 2, if the expected traffic (hotspot area) can be covered by 3 beams, then the remaining beams can be deactivated. This energy saving techniques depend on the accuracy of where the expected traffic demand comes from geographically, so that it can be correlated with SSB beam coverage areas.

This use case considers throughput as main criteria to define the traffic load. It is desirable to use MDA analytics to get throughput prediction for traffic load at the granular level of geographical coordinate. This information can be then used to reduce the coverage of the beam resulting in energy savings.

Editors Note: The realization of this use case depends on the definition of beam specific energy saving mechanism.

* + 1. Potential Requirements

REQ-TLM-FUN-01: MDA capability for energy saving analysis shall include providing the predicted throughput requirements for the area which is the candidate for the energy saving mechanism.

5.1.2 Potential Solutions

5.1.2.1 Solution-x

5.1.2.2 Solution-y

5.1.3 Evaluation of solutions

5.1 Use case B