**3GPP TSG RAN WG1 #122bis R1-25nnnnn**

**Prague, Czech Republic, October 13th –17th, 2025**

**Source: Ad-Hoc Chair (AT&T)**

**Title: Session Notes of AI 9.4**

**Agenda Item: 9.4**

**Document for: Endorsement**

### 9.4 UE features for enhancements of network energy savings for NR

**Proposal: Adopt the following changes highlighted in chromatic fonts, while keeping the yellow highlighting, if any, as shown**

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| 61. Netw\_Energy\_NR\_enh | 61-2c | On-demand SSB SCell operation indicated to be activated by RRC based signaling and indicated to be adapted and deactivated by MAC CE signalling in Case #2 for different center frequencies | 1. Support RRC based signalling to indicate activation and MAC CE based signalling to indicate adaptation and deactivation of on-demand SSB transmission on the SCell in Case #2 (Always-on SSB is periodically transmitted on the cell) for different center frequencies between always-on SSB and on-demand SSB | 61-2a, 61-2b, 61-4a | Yes | No | UE does not support on-demand SSB transmission on the SCell indicated to be activated by RRC based signaling and indicated to be adapted and deactivated by MAC CE signalling in Case #2 for different center frequencies | Per band | n/a | n/a | n/a |  | Optional with capability signaling |

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| 61. Netw\_Energy\_NR\_enh | 61-1 | On-demand SSB SCell operation indicated by RRC based signaling in Case #1 | 1. Support RRC based signalling to indicate activation and deactivation of on-demand SSB transmission on the deactivated SCell in Case #1 (No always-on SSB on the cell) |  | Yes | No | UE does not support on-demand SSB transmission indicated by RRC based signaling in Case #1 | Per band | n/a | n/a | n/a | Note: it is up to RAN2 whether/how to update this FG for RRC based deactivation | Optional with capability signaling |

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| 61. Netw\_Energy\_NR\_enh | 61-1a | On-demand SSB SCell operation indicated to be activated by RRC based signaling and indicated to be adapted and deactivated by MAC CE signalling in Case #1 | 1. Support RRC based signalling to indicate activation and MAC CE based signalling to indicate adaptation of on-demand SSB transmission on the activated SCell and deactivation of on-demand SSB transmission on the deactivated SCell in Case #1 (No always-on SSB on the cell) | 61-1, 61-3 | Yes | No | UE does not support on-demand SSB transmission indicated to be activated by RRC based signaling and indicated to be adapted and deactivated by MAC CE signalling in Case #1 | Per band | n/a | n/a | n/a |  | Optional with capability signaling |

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| 61. Netw\_Energy\_NR\_enh | 61-3 | On-demand SSB SCell operation indicated via MAC CE in Case #1 | 1. Support MAC CE based signalling to indicate activation, ~~adaptation,~~ and deactivation of on-demand SSB transmission on the deactivated SCell and adaptation of on-demand SSB transmission on the activated SCell in Case #1 (No always-on SSB on the cell)2. Supported on-demand SSB deactivation mechanisms: Explicit indication of deactivation for on-demand SSB via MAC-CE for on-demand SSB transmission indicationImplicit deactivation via *od-ssb-nrofBurst* of on-demand SSB bursts to be transmitted after on-demand SSB is indicated |  | Yes |  | UE does not support on-demand SSB transmission on the SCell indicated via MAC CE in Case #1 | Per band | n/a | n/a | n/a | Component 2 candidate value: {explicit deactivation, explicit and implicit deactivation} | Optional with capability signaling |

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| 61. Netw\_Energy\_NR\_enh | 61-4 | On-demand SSB SCell operation indicated via MAC CE in Case #2 for same center frequency | 1. Support MAC CE based signalling to indicate activation of on-demand SSB transmission on deactivated SCell, adaptation of on-demand SSB transmission on activated SCell, and deactivation of on-demand SSB transmission on the SCell in Case #2 (Always-on SSB is periodically transmitted on the cell) for same center frequency between always-on SSB and on-demand SSB2.Supported time domain relation between on-demand SSB and always-on SSB3. Supported on-demand SSB deactivation mechanisms: - Explicit indication of deactivation for on-demand SSB via MAC-CE for on-demand SSB transmission indication- Implicit deactivation via *od-ssb-nrofBurst* of on-demand SSB bursts to be transmitted after on-demand SSB is indicated |  | Yes |  | UE does not support on-demand SSB transmission on the SCell indicated via MAC CE in Case #2 for same center frequency between always-on SSB and on-demand SSB | Per band | n/a | n/a | n/a | Candidate value of component 2 = {Time-C1, Time-C1nC2}Note: * Time-C1: During OD-SSB transmission, the union of AO-SSB transmission and OD-SSB transmission has a periodic time domain pattern (the interval between SSB bursts is even and supported in legacy specification)
* Time-C1nC2 includes both Time-C1 and Time-C2

(Time-C2: During OD-SSB transmission, the union of AO-SSB transmission and OD-SSB transmission has a non-periodic time domain pattern)Component 3 candidate value: {explicit deactivation, explicit and implicit deactivation} | Optional with capability signaling |

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| 61. Netw\_Energy\_NR\_enh | 61-4a | On-demand SSB SCell operation indicated via MAC CE in Case #2 for different center frequencies | 1. Support MAC CE based signalling to indicate activation of on-demand SSB transmission on deactivated SCell, adaptation of on-demand SSB transmission on activated SCell, and deactivation of on-demand SSB transmission on the SCell in Case #2 (Always-on SSB is periodically transmitted on the cell) for different center frequencies between always-on SSB and on-demand SSB2. Supported on-demand SSB deactivation mechanisms: - Explicit indication of deactivation for on-demand SSB via MAC-CE for on-demand SSB transmission indication- Implicit deactivation via *od-ssb-nrofBurst* of on-demand SSB bursts to be transmitted after on-demand SSB is indicated | 61-4 | Yes |  | UE does not support on-demand SSB transmission on the SCell indicated via MAC CE in Case #2 for different center frequencies between always-on SSB and on-demand SSB  | Per band | n/a | n/a | n/a | Component 3 candidate value: {explicit deactivation, explicit and implicit deactivation} | Optional with capability signaling |

R1-2507135 Discussion on UE features for enhancements of network energy savings for NR OPPO

R1-2507640 UE features for R19 NES Ericsson

R1-2507659 Views on UE features for Rel-19 NES Apple (Withdrawn)

R1-2507740 Summary of UE features for enhancements of network energy savings for NR Moderator (AT&T)