

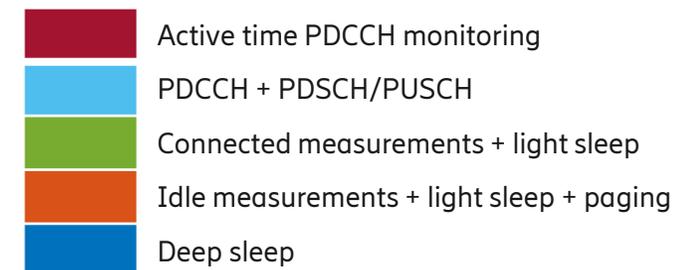
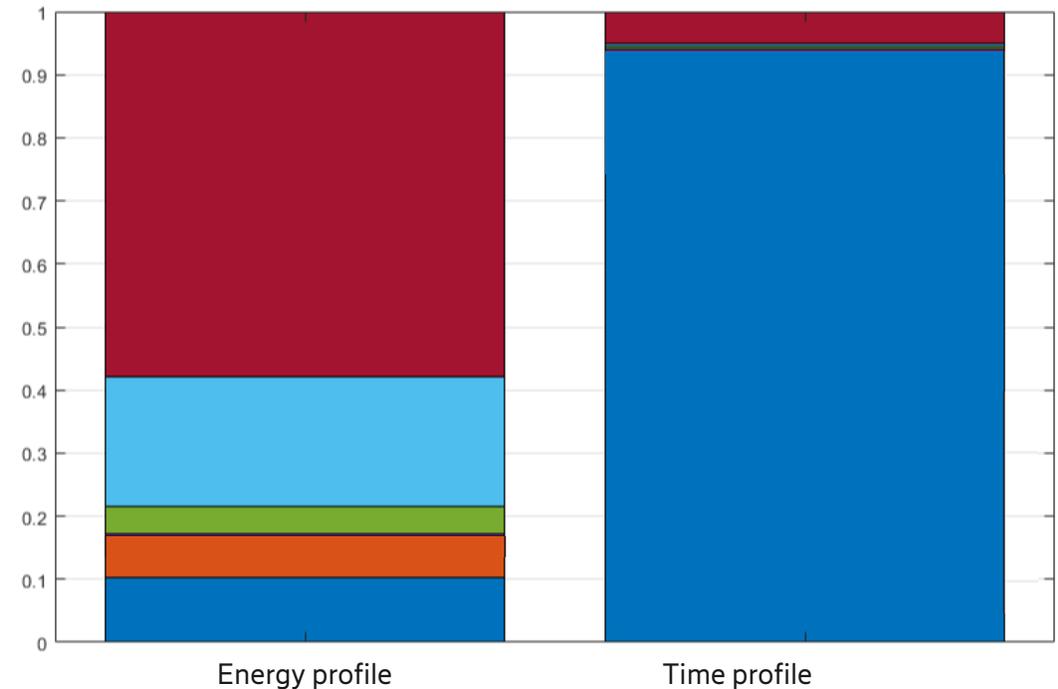


Views on NR UE Power Saving in Rel-18

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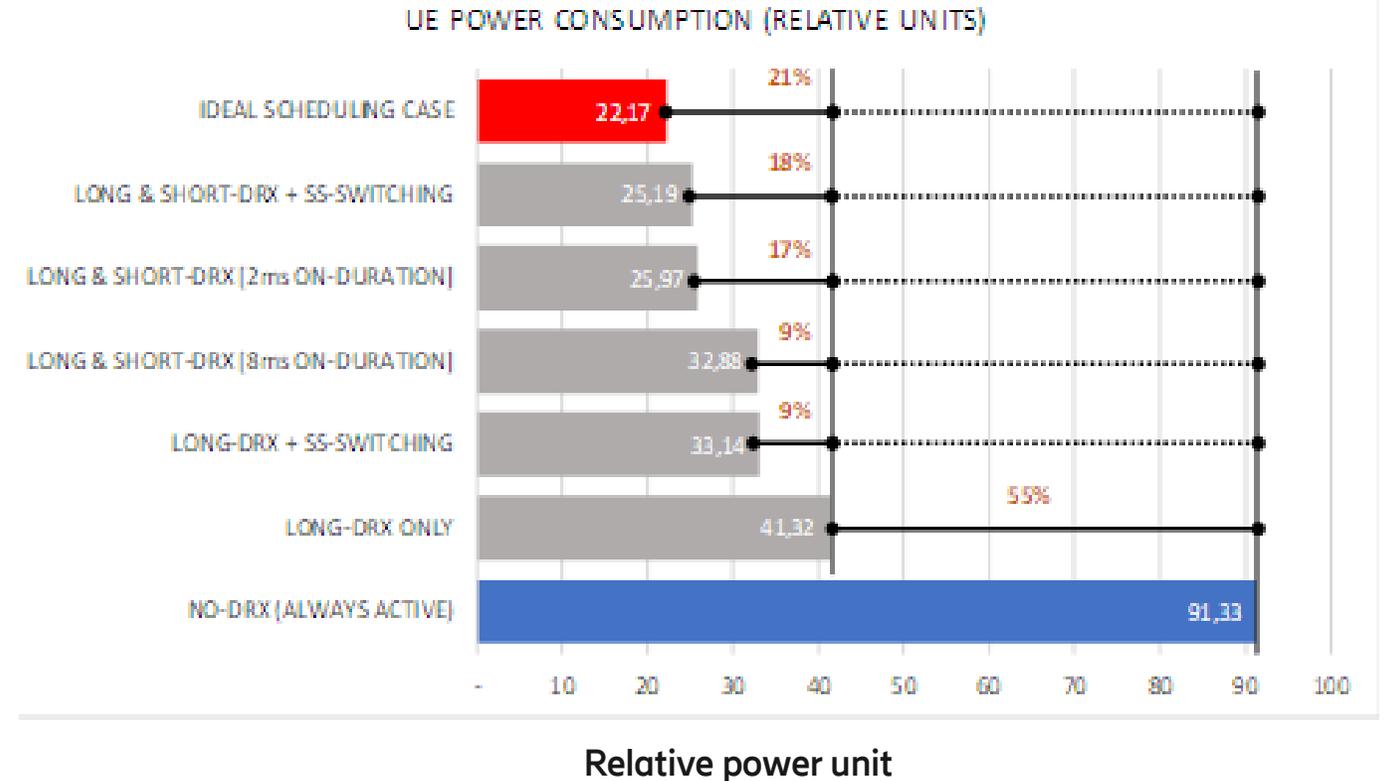
Justification Background (1)

- Opportunities to reduce UE energy consumption
 - Connected mode for PCell: PDCCH monitoring when not scheduled with data
 - Idle mode: paging monitoring + idle measurement
 - Carrier aggregation: unnecessarily active SCell when there is not much data



Justification Background (2)

- For connected mode, power consumption at tail of IAT can be significantly reduced by using Rel. 15 (Long-DRX + short-DRX) and possible Rel. 17 features.
 - Rel. 16 Wakeup signal and enhanced cross-slot scheduling can further reduce power consumption.
- Current features can already bring power consumption close to ideal limit.



Note: ideal scheduling case (ideal limit) means that during IAT, UE wake up only when there is scheduling.

Justification Background (3)



Idle mode

- Discussion of power-saving for the idle mode is still ongoing on Rel. 17 discussion with 2 main topics:
 - paging early indication
 - provision TRS occasion(s) for the idle UEs
- Both features are being specified to reduce idle mode power consumption

Carrier aggregation

- Energy consumption can be reduced by using SCell activation/deactivation, Secondary DRX, SCell dormancy

Others

- There are also other power-saving mechanisms in Rel. 15, 16, 17, e.g., RRM relaxation, UE assistance information, RLM/BFD relaxation, and fast release to idle



Justification

Potential shortcomings

- Following may still be considered for UE power-saving enhancement
 - Enhancement of Secondary DRX features for joint configuration with WUS and/or SCell dormancy indication
 - However, additional power saving achieved by having both features activated should be studied first
 - Enhancement of DRX mechanisms/adaptation
 - E.g., can be discussed in Rel. 18 XR
 - Enhancement of UAI for power-saving, e.g., additional DRX-parameters preference
 - E.g., can be discussed in Rel. 18 XR
 - Enhancement on BW, BD, and further enhanced idle mode
 - can be discussed in RedCap

Conclusions



- Based on the status of the current features for power-saving, there is very limited scope for improvements, at least for basic set-up/applications.
- Rel 15,16,17 UE power saving features already provide several tools which can bring UE power consumption close to ideal limit.
- There might be some additional improvements for non eMBB use cases, but are mostly suitable for specific applications, e.g., Redcap and XR.
- **Considering this, UE power saving should be discussed within respective WI instead of creating a separate WI.**



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