

## R1-105085 Proposals on UL ACK/NACK Feedback in LTE-A TDD

Nokia, Nokia Siemens Networks

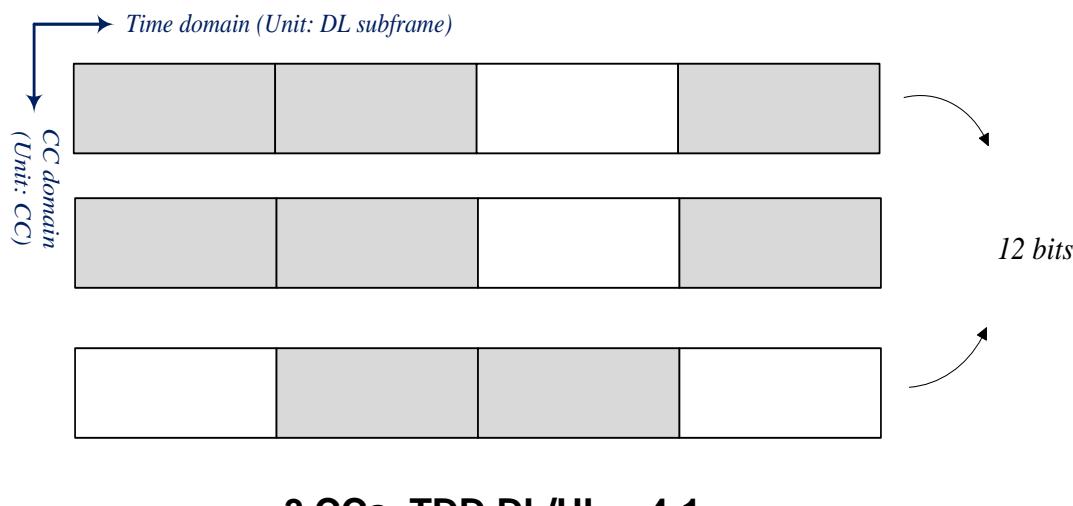
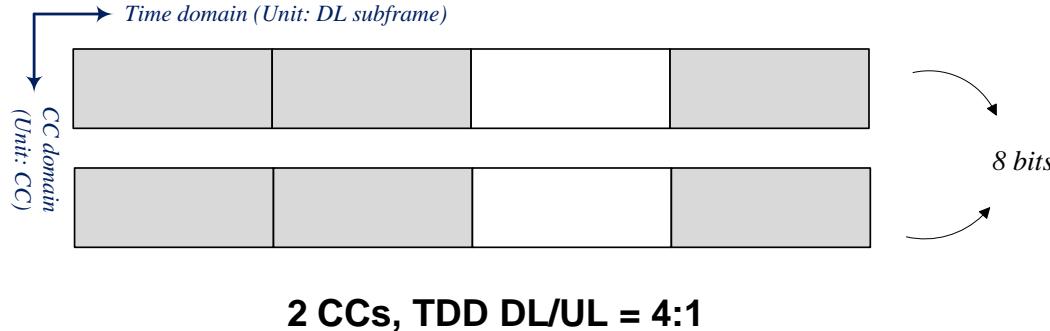
# Proposals for ACK/NACK partial bundling in LTE-A TDD

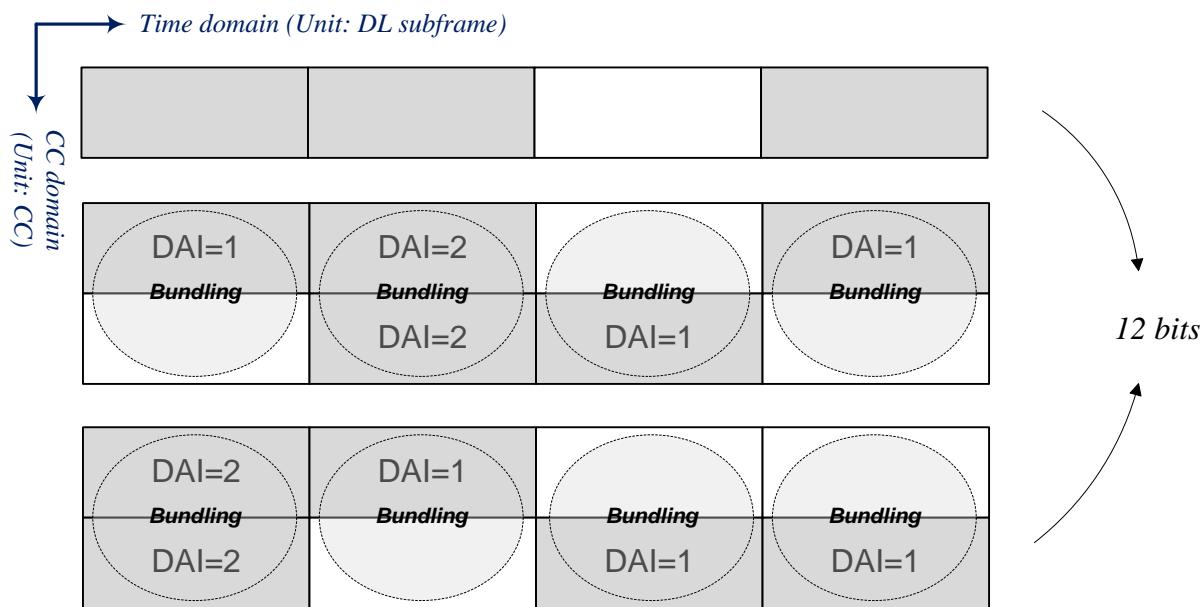
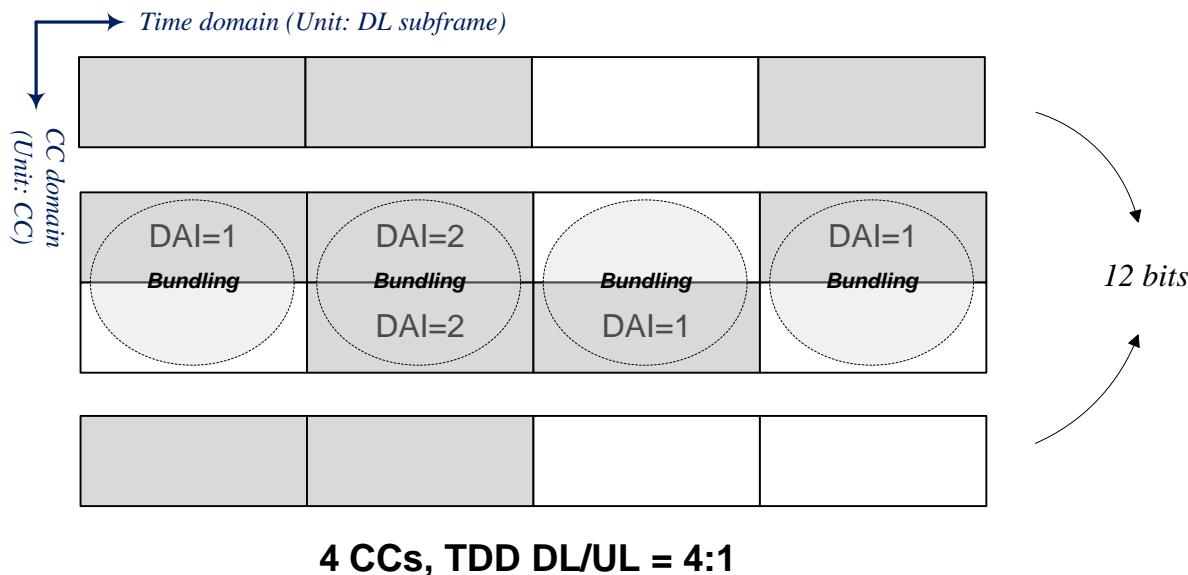
- Maximum number of ACK/NACK bits is 12
  - FFS if the maximum number is further limited to 11 or 10
- Spatial bundling is always applied
- CC-domain bundling is applied when partial bundling is needed
  - DAI bit-width is 2 as in Rel-8
    - DAI is encoded as “(total number of assignments within the current bundle) MOD 4”

# Appendix

- Based on proposals in slide #2, several examples are shown in the following for CC-domain partial bundling
  - Page #4, #5, Examples of bundled ACK/NACK bits on DFT-S-OFDM
  - Page #6, #7, Example of bundled ACK/NACK bits on PUCCH format 1b with channel selection

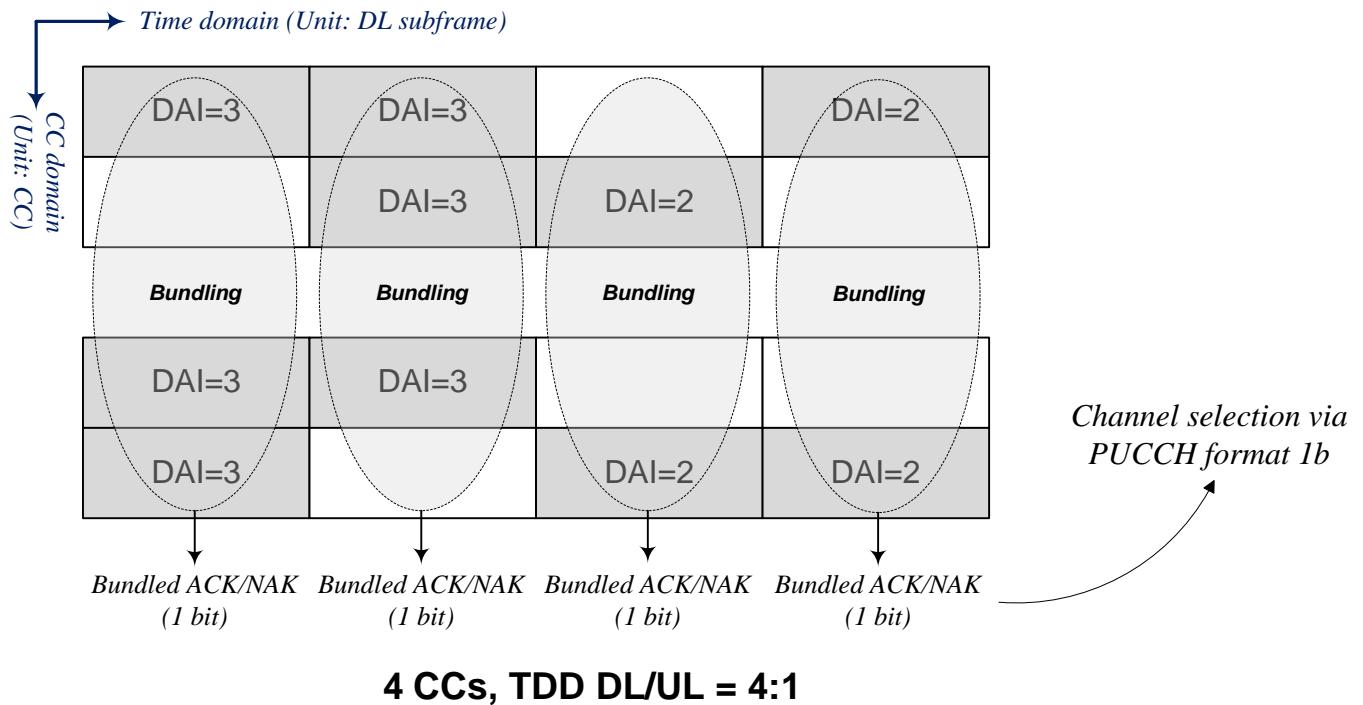
## Examples of bundled ACK/NACK bits on DFT-S-OFDM

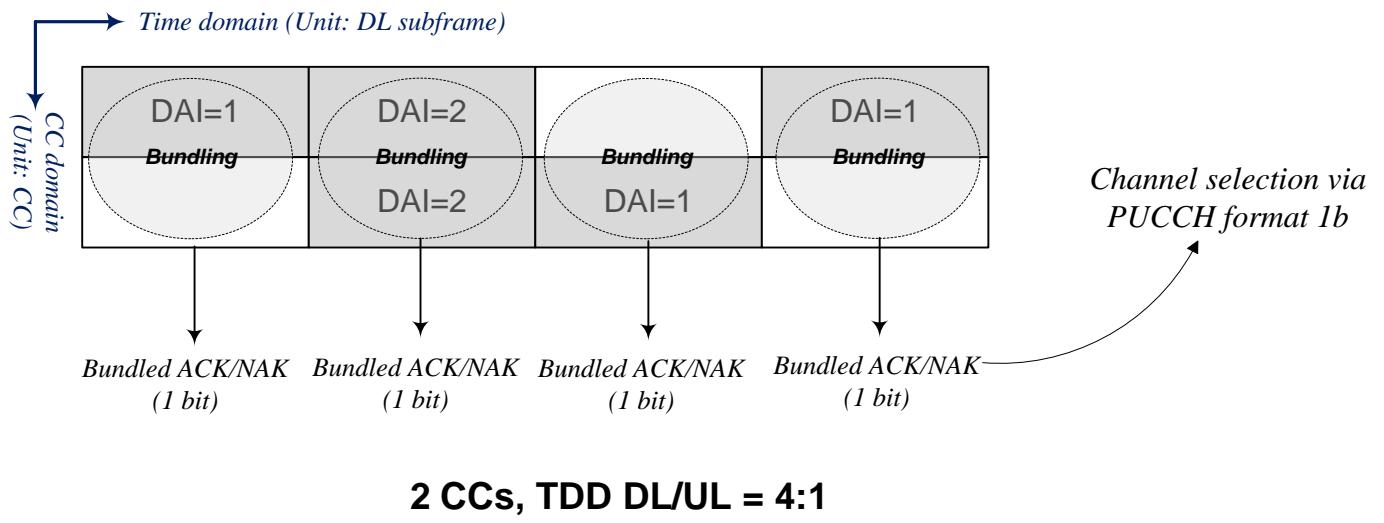




**5 CCs, TDD DL/UL = 4:1**

# Example of bundled ACK/NACK bits on PUCCH format 1b with channel selection





# Reference

- [1] R1-104431, “UL ACK/NAK Feedback in LTE-A TDD”, Nokia, Nokia Siemens Networks
- [2]R1-104433, “UL ACK/NAK feedback for power-limited UE in LTE-A TDD”, Nokia, Nokia Siemens Networks