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# HSPA Dual-Band UL carrier aggregation - Motivations

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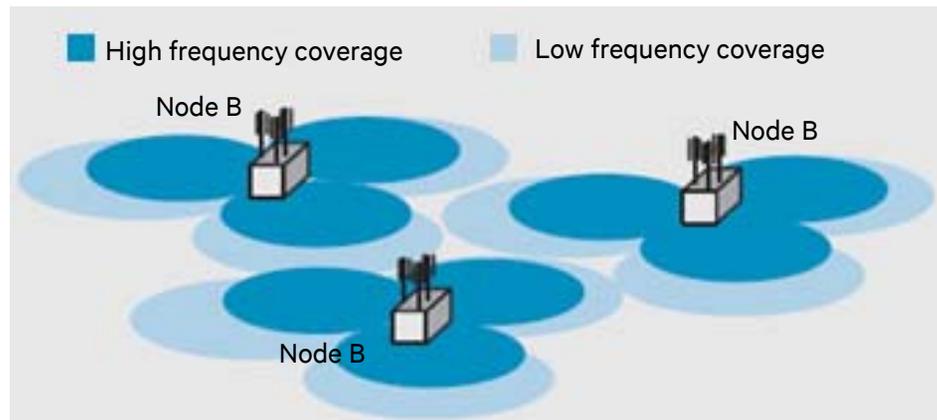
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## Motivation

- DB-DC/4C-HSDPA can aggregate DL across two bands
  - UL carriers are configured only on one of the two bands
  - UL carriers on the other band are not efficiently exploited
- DC-HSUPA is possible, but may not always be suitable
  - 10MHz of contiguous spectrum may not be available (e.g. in some 900MHz markets)
- DB-DC-HSUPA is a natural evolution/extension of DC-HSUPA & DB-DC/4C-HSDPA, to optimize spectrum utilization and UL data performance

# Deployment Scenario and Band Combinations

Scenario: Co-located (aligned) antenna patterns on both bands



## Candidate Band Combinations

UL/DL Band A	UL/DL Band B
I	VIII
I	V
II	V

*Bands Legend:*

*I = 2100 MHz*

*II = 1900 MHz*

*V = 850 MHz*

*VIII = 900 MHz*

*NOTE: one UL carrier configured on each UL band*

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## Work Item Aspects

- RAN4 is the primary WG. Some RF aspects to consider:
  - UE maximum output power requirements, e.g. per PA/band/UE
    - Note: a separate PA per band is assumed
  - UE Tx requirements for unbalanced Tx power
  - UE self-desensitization caused by intermodulation products of aggregating two UL inter-band carriers
  - UL Harmonics based on different band combinations
- RAN2/3 should introduce the functionality in relevant AS/UTRAN protocols and specifications
- Such feature should be defined as release-independent
  - As for other multi-carrier configurations (TS 25.327)
- *WID provided in RP-141990*