# On the use of Postamble for relay link

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Purpose:

The purpose of this slide is to support proposed frame structure for multi-hop relay and postamble for relay link.

# On the use of postamble for relay link: #07/136

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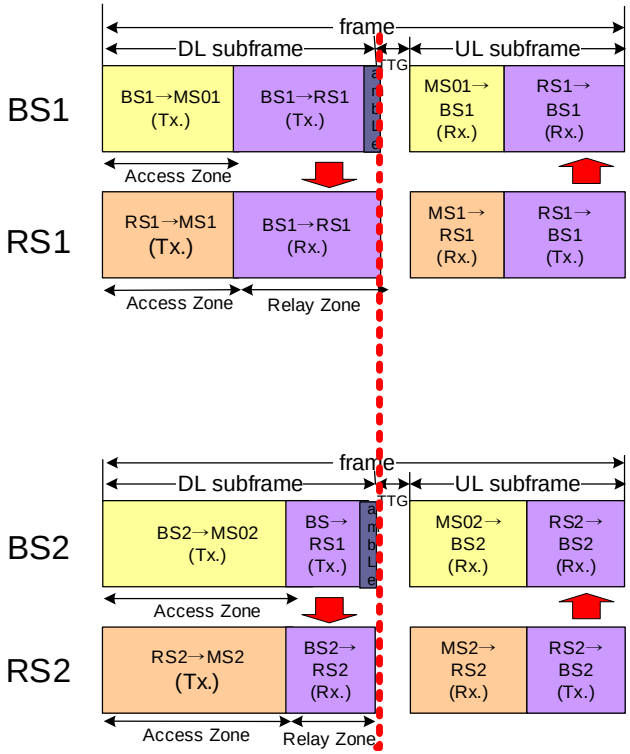
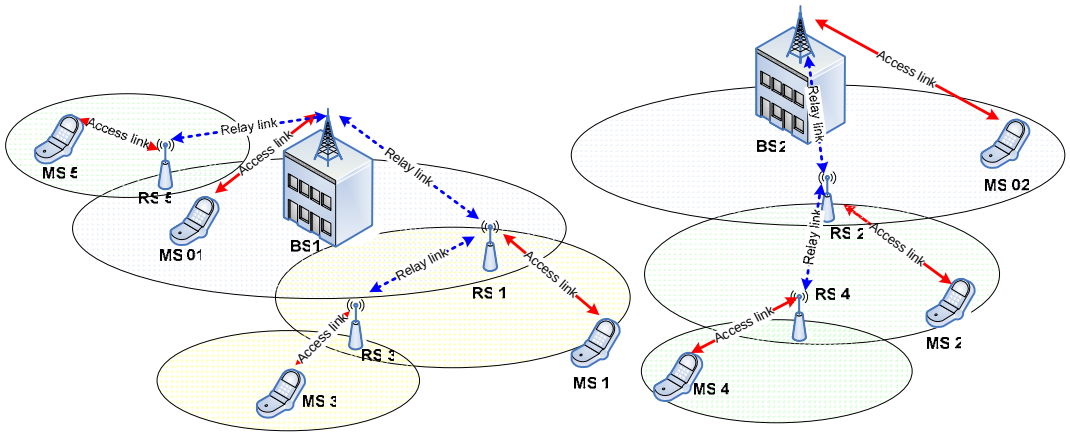
# Amble for the relay link

- Time Aligned amble location
  - Synchronization for the relay link
  - Neighbor scanning
- Flexible relay zone
  - To support Load balancing (access zone/relay zone)
  - Postamble can support flexible access/relay zone

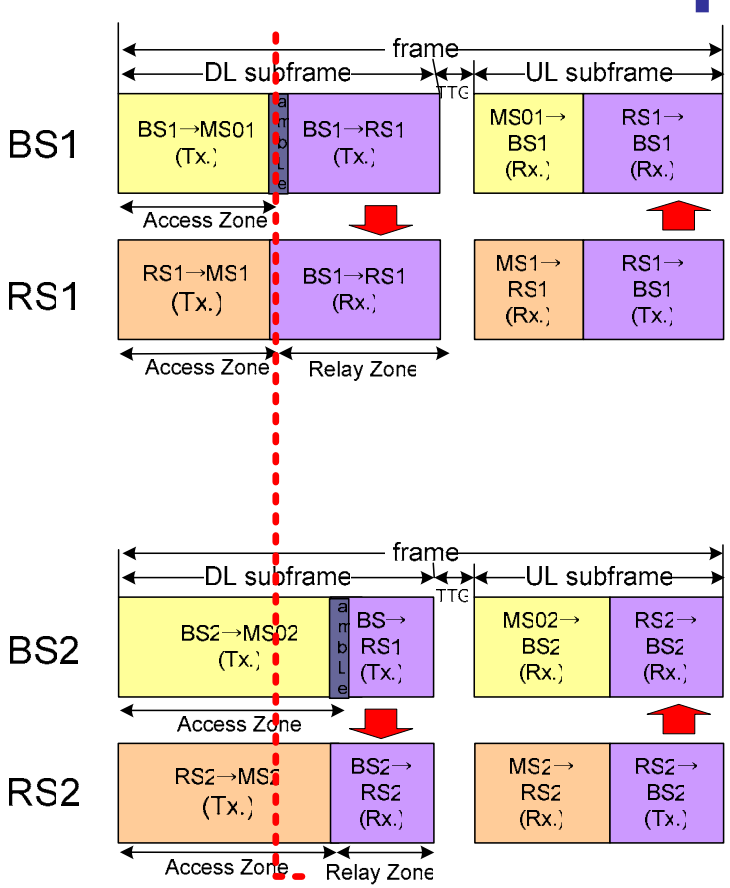
# Amble location for the relay link -Postamble-

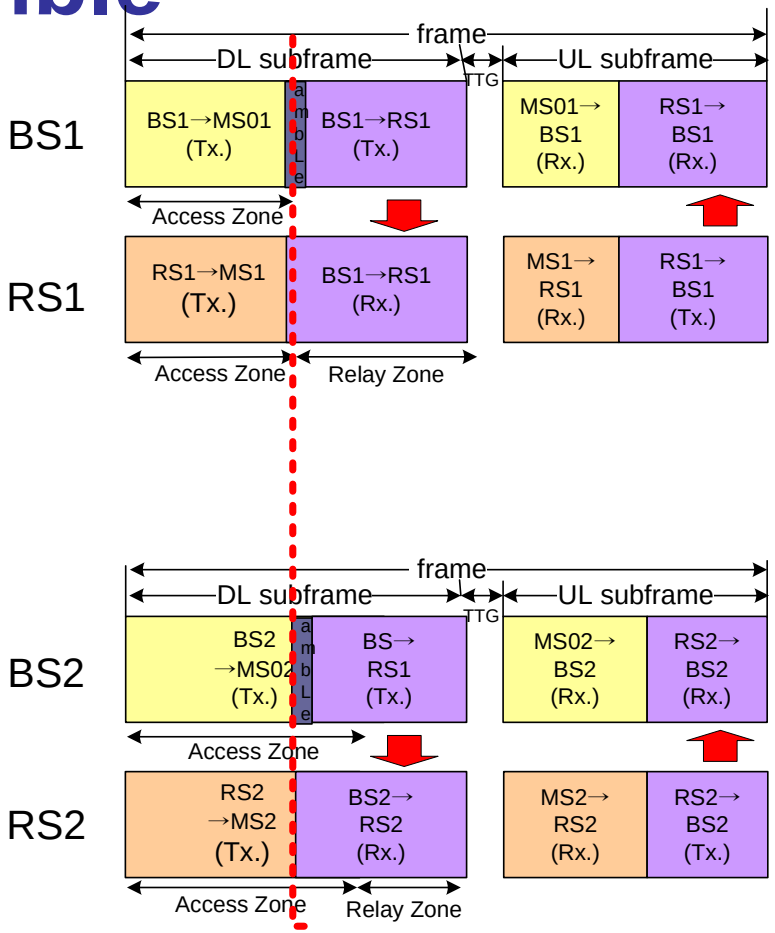



**Both flexibility and time alignment can be satisfied**

# Amble location for the relay link -Preamble-



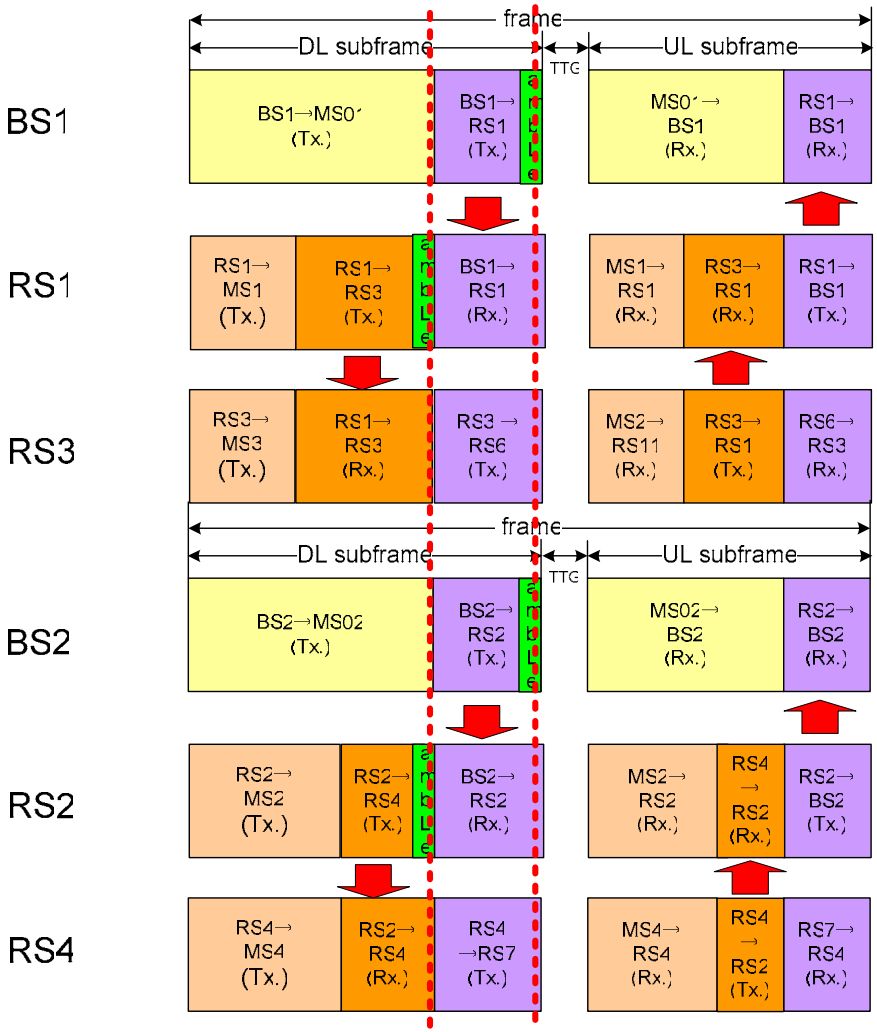




**-flexibility is satisfied**
**However, time alignment is not satisfied-**

**-time alignment is satisfied**
**However, flexibility is not satisfied-**

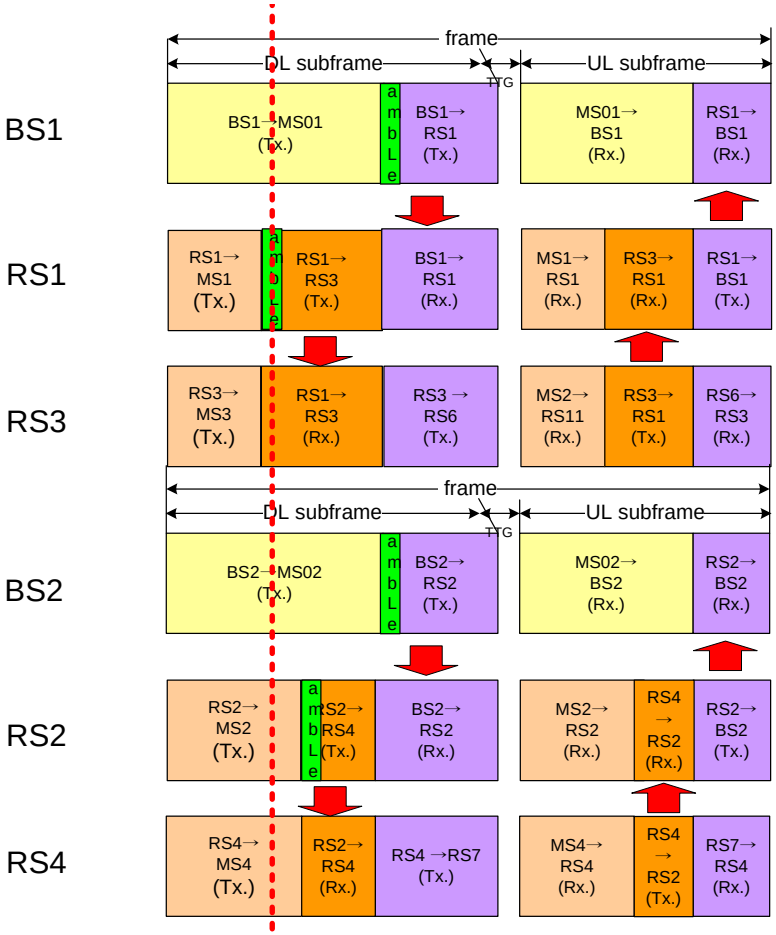
**Both flexibility and time alignment can not be satisfied simultaneously**

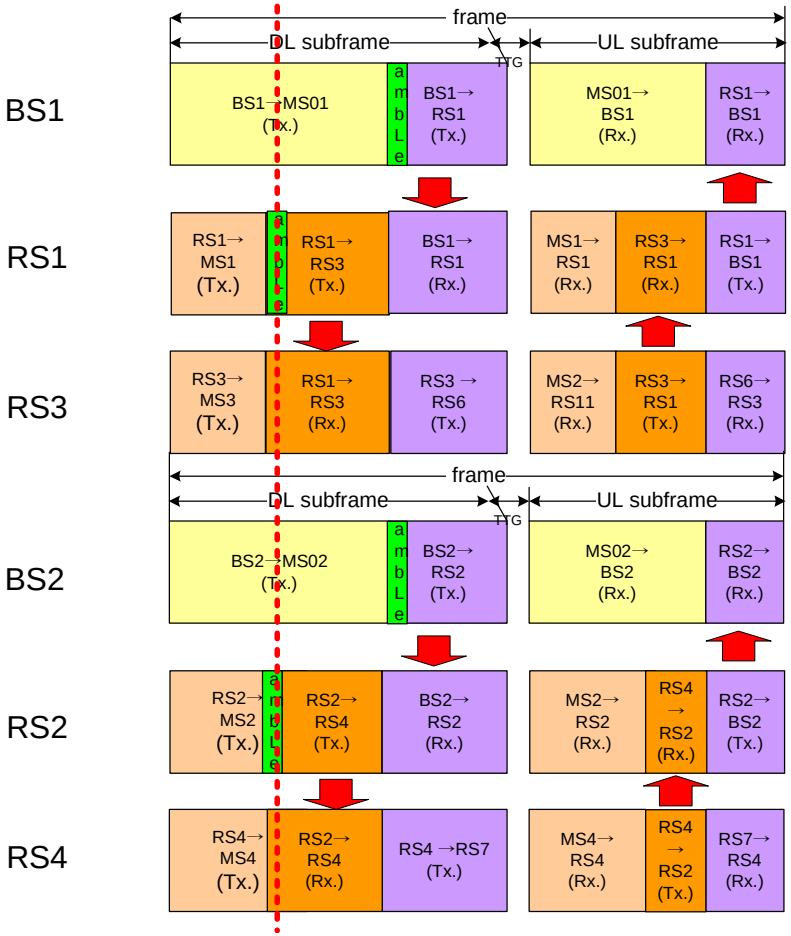
# Amble location for the relay link -Postamble-




**Both flexibility and time alignment can be satisfied simultaneously**

# Amble location for the relay link -Preamble-



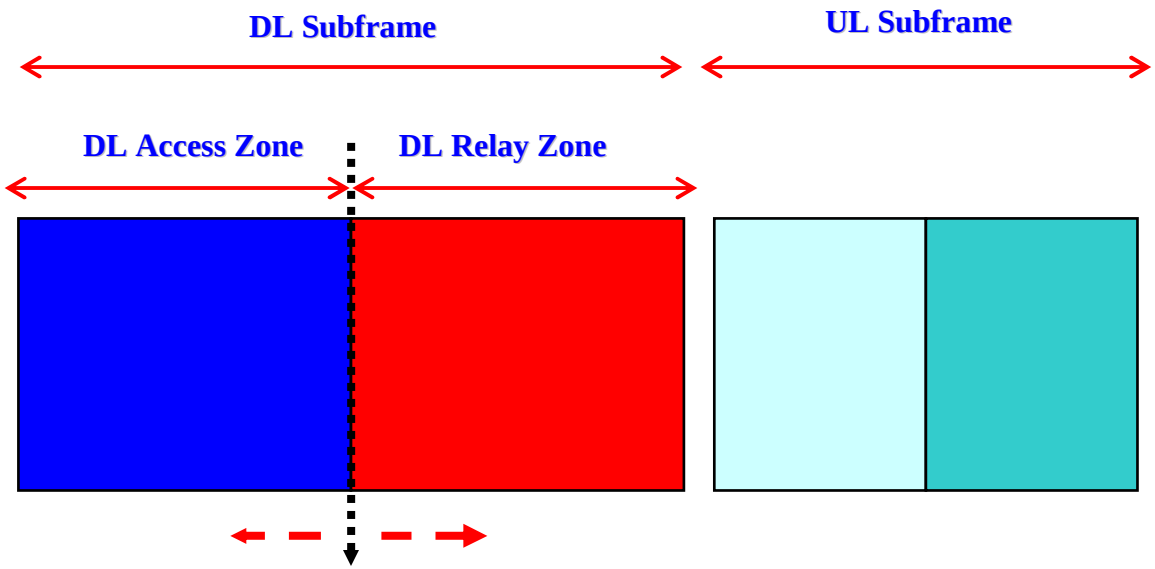




**-flexibility is satisfied**
**However, time alignment is not satisfied-**

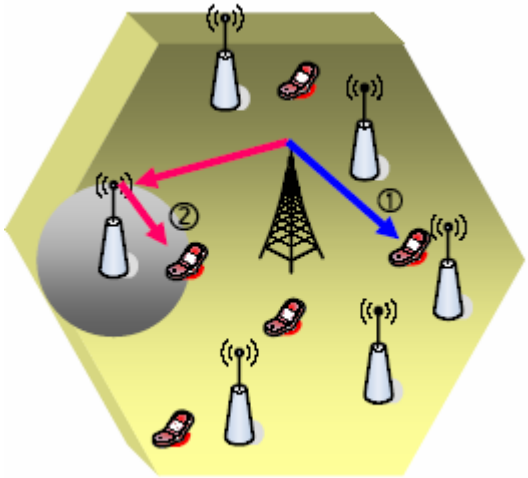
**-time alignment is satisfied**
**However, flexibility is not satisfied-**

**Both flexibility and time alignment can not be satisfied simultaneously**

# Performance Result
# -Load Balancing-




Flexible Boundary
Step size: 1 OFDMA symbol



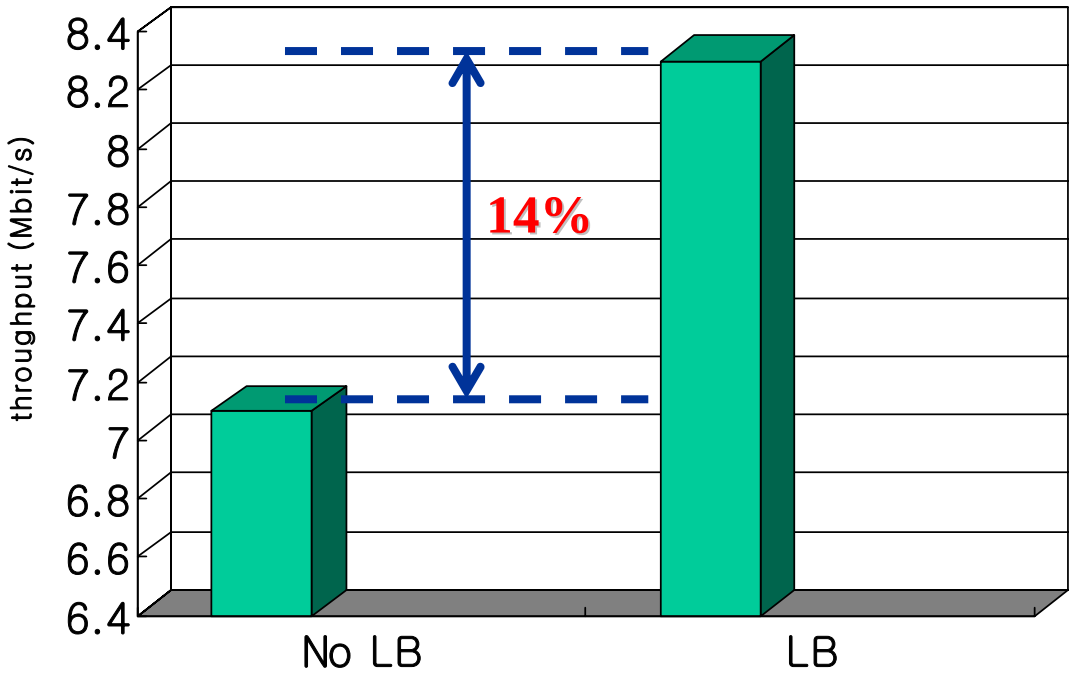

1 frame: 42 OFDMA symbols
DL subframe: UL subframe=27:15

# Load Balancing
# (Simulation Parameter)

| | |
|---|---|
| Frequency Band | 2.3GHz |
| Bandwidth | 10MHz |
| Cell layout | 10 cells-wrap around |
| Cell radius | 1km |
| Sectorization | No (omni antenna) |
| RS configuration | 6 Fixed RS per cell, 2/3 position from MR-BS |
| BS Power | 20W |
| RS Power | 10W |
| Channel model<br>(BS-RS link) | Path-loss: LOS(Winner model), Shadow fading:3.4dB |
| Channel model<br>(BS-MS link/RS-MS link) | Path-loss: NLOS (Winner model), Shadow fading: 8dB<br>Multi-path fading: ITU-R Pedestrian A model |
| Mobile speed | 3km/h |
| Scheduling | Round Robin |
| Traffic model | Ethernet model (Average rate ~100kbps)<br>Arrival process: Pareto distribution(a=1.3)<br>Average packet size=2944.8bits |

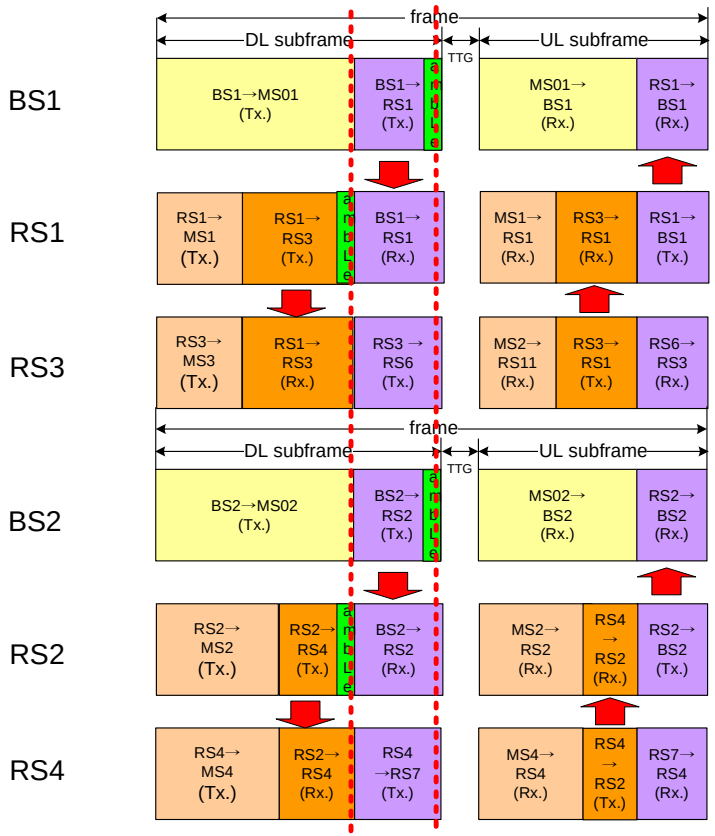
# Cell Throughput Comparison

## (No Load Balancing (No LB) vs. Load Balancing(LB)



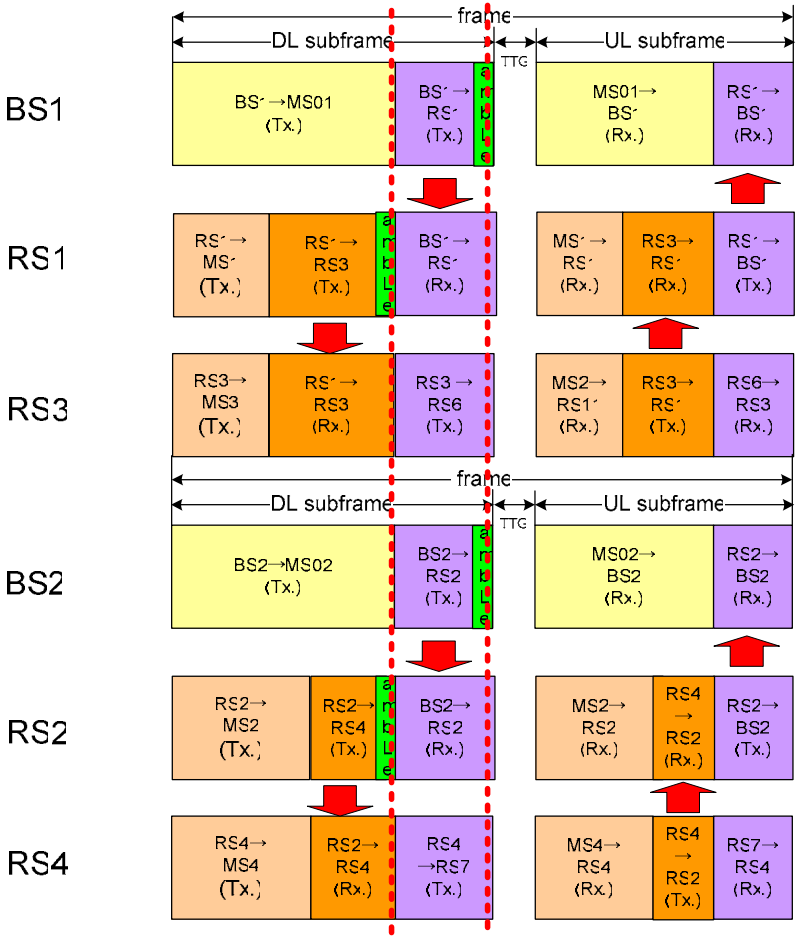

**Number of users in a cell: 100**

# Amble location for the relay link -Postamble-

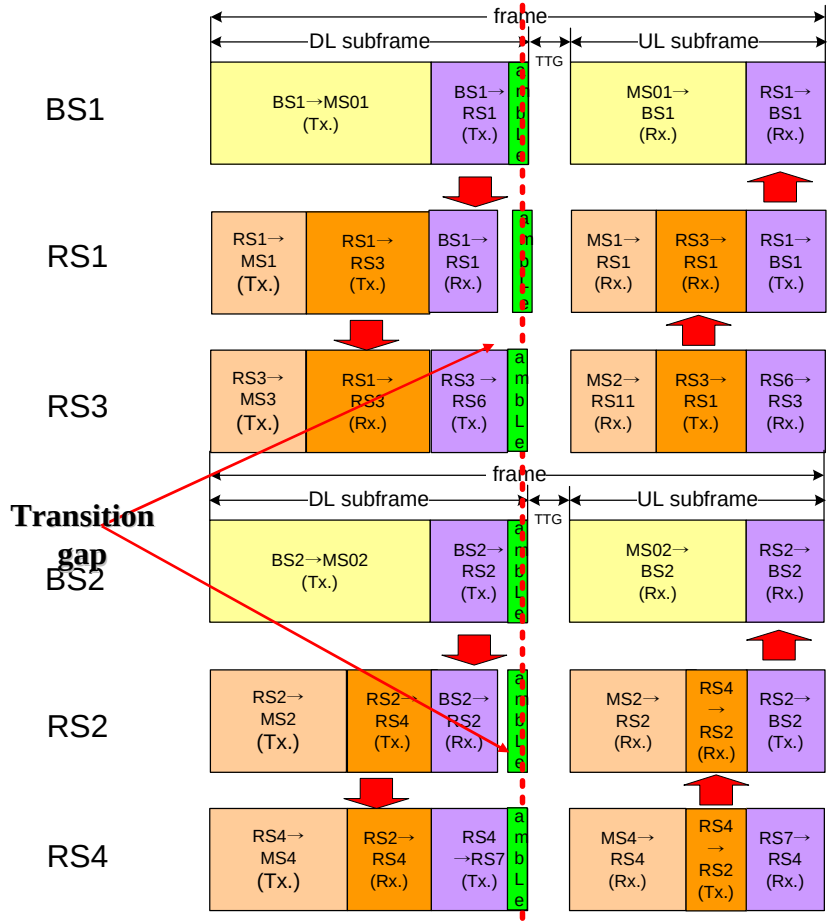



**Both flexibility and time alignment can be satisfied simultaneously**

# Amble location for the relay link -Postamble-




**Amble at the end of relay zone**




**Amble at the end of DL subframe**

- **Signaling to enable one RS to listen**
- **Transition gap is needed**

# Conclusions

- Preamble
- Postamble
  - At the end of the relay zone
  - At the end of the DL subframe (Fully time aligned)
- Our recommendation: We prefer postamble at the end of the relay zone.