

RS Sleep Mode

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Purpose:

This contribution proposes RS sleep mode procedure and restrictions.

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Design Considerations

- The trigger methods of RS sleep mode shall be initiated by either RS itself or MR-BS
- The trigger methods of MS sleep mode are still initiated by either MS or MR-BS as defined in IEEE 802.16e-2005
- RS sleep mode **shall** be centralized control at MR-BS in MR networks with centralized scheduling or distributed scheduling
- Support of RS sleep mode is **optional**

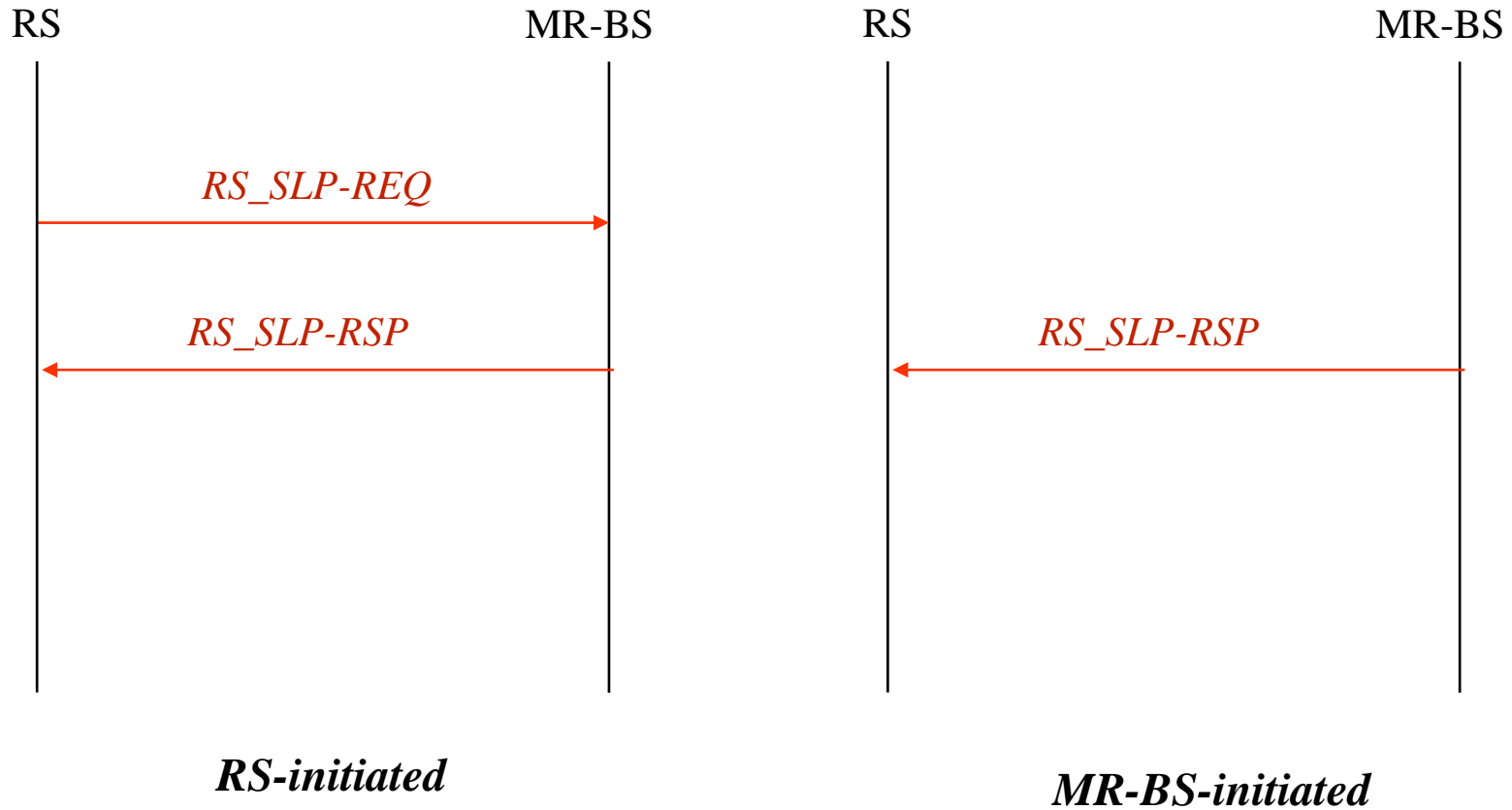
Principles of Centralized Control

- MR-BS is responsible for controlling RS sleep mode
- MR-BS and MS exchange MS sleep mode messages end-to-end and RS shall have the associated information

RS Sleep Mode

- RS could get into sleep mode only when all subordinated MSs and RSs are in sleep mode
- RS sleep mechanism:
 - RS can request the activation of RS sleep mode by exchanging RS_SLP-REQ/RS_SLP-RSP messages with MR-BS
 - Alternatively, RS sleep mode is activated by MR-BS by sending unsolicited RS_SLP-RSP to designated RS
 - RS is notified sleep information of all subordinate MSs and RSs by MR-BS
 - The RS sleep window shall be less than or equal to the overlapping time interval of all sleep windows of connections of subordinate MS(s) and RS(s)
- RS wake up mechanisms:
 - The RS can be woken up via the notification of MOB_TRF-IND sent by the MR-BS
 - The RS can also be woken up by itself when it wants to send data to the MR-BS

RS Sleep Mode Initiation



RS Sleep Modes

- Full RS Sleep Mode
 - No traffic at relay link and access link
- Partial RS Sleep Mode
 - No traffic at relay link or access link except the DL Start Frame Preamble, FCH, DCD, UCD, DL_MAP, UL_MAP, broadcast messages, etc., sent by RS at predefined intervals
 - When the RS supports its subordinate MS event-based actions, it shall send the DL Start Frame Preamble, FCH and UL_MAP, and allocate UL BW for bandwidth requests
 - RS in Partial RS Sleep Mode may
 - Send its own broadcast messages
 - Relay broadcast messages from MR-BS

Conclusions

- Propose procedures for RS sleep mode
 - Full and partial RS sleep mode procedures
 - **RS_SLP-REQ/RSP** management messages between MR-BS and RS to support RS sleep mode
- The partial RS sleep mode is proposed to support MS event-based actions such as MS mobility, MS network entry/re-entry, etc