

Project: IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs)

Submission Title: Resolution of the comments on the RSLN of the draft 15-12-0089-06

Date Submitted: 17 July, 2012

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Re:

Abstract: For resolving the comments on the RSLN of the draft 15-12-0089-06-TG4k, the RSLN structure and relaying feature are described.

Purpose: Analysis of the LECIM MAC, RSLN MAC

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Resolution of the comments on the RSLN of the draft 15-12-0089-06

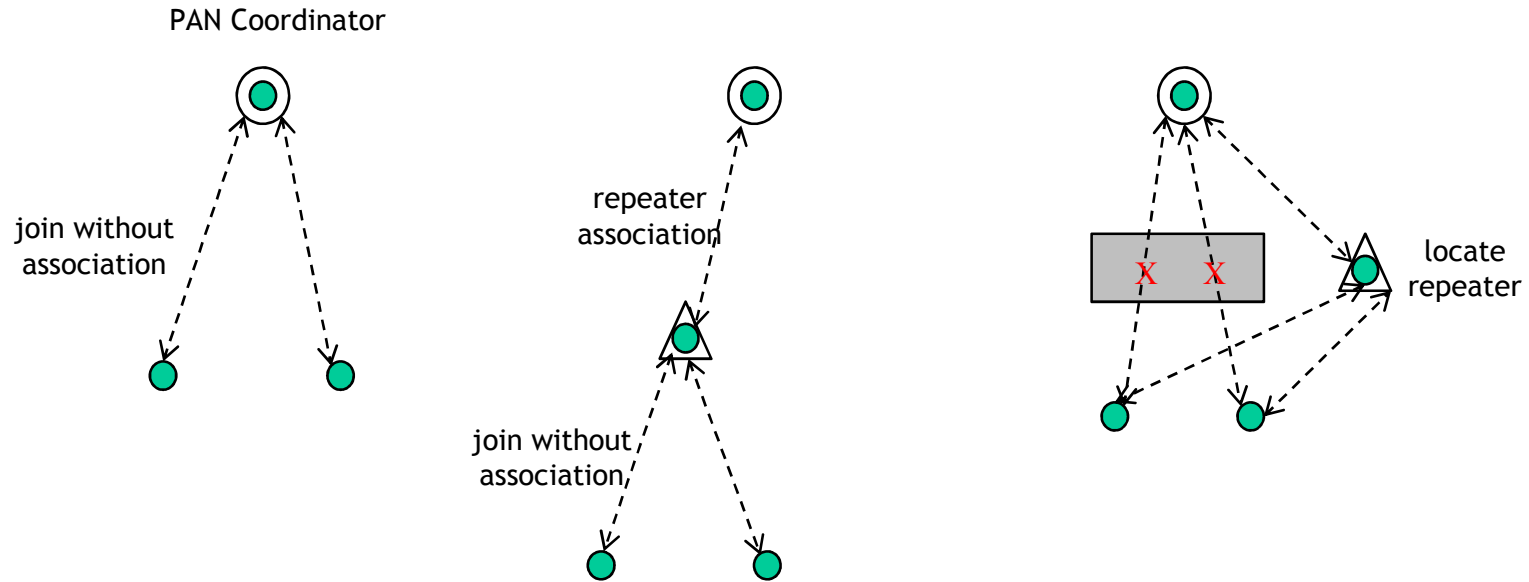
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Comments on RSLN

- RSLN Slot-Link Structure
 - CID 393, 156, 395, 396, 397, 399, 400, 162, 402
- Synchronous Relaying
 - CID 401, 403, 161, 404, 405, 406, 349, 350, 353, 414, 356, 357, 374
- Formation and Maintaining RSLN
 - CID 410, 411, 412, 374

Repeater for the Star Topology

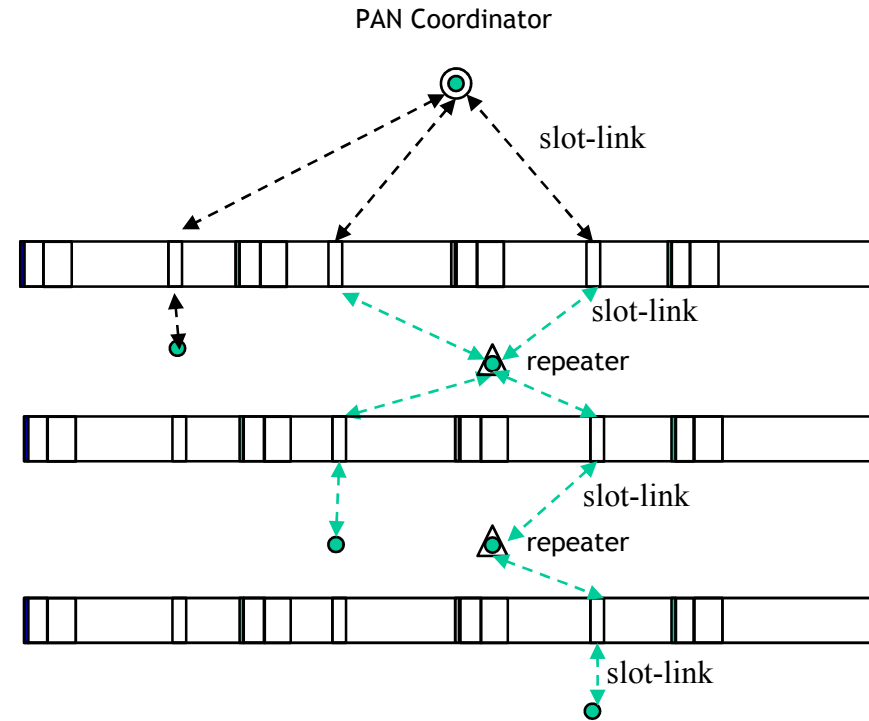
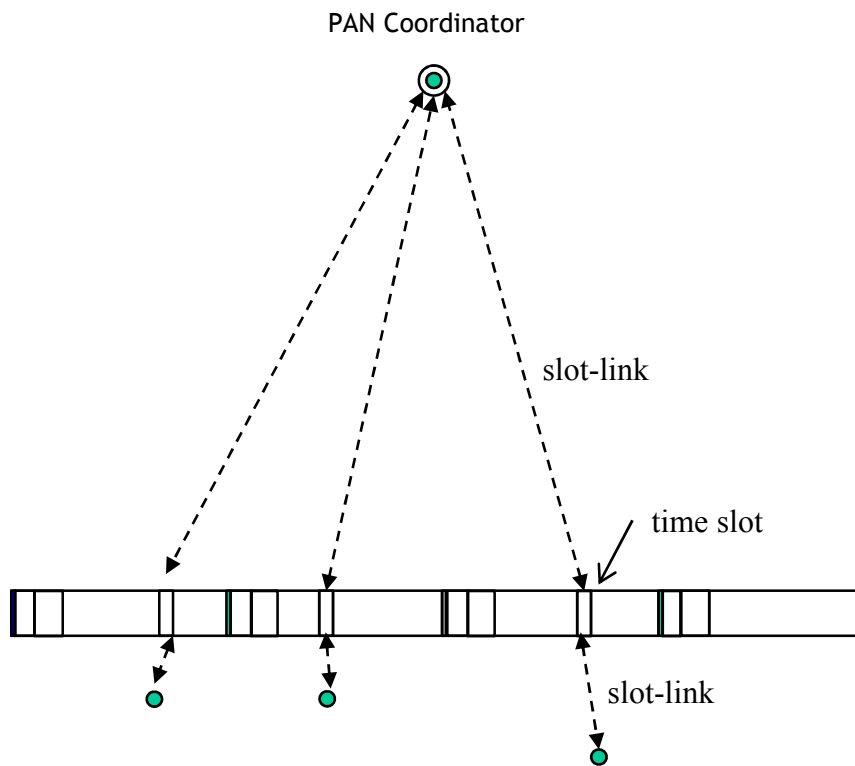


Minimal Network Infrastructure for Reliable Operation in dramatically Changing Environments

- no association procedure between PAN coord and end devices
 - pre-assigned primary bidirectional device slot
- energy efficient point-to-point downward management channel
 - bidirectional device slot
- reconfiguration free, no networking overhead link extension
 - synchronous frame relaying between two MAC entities

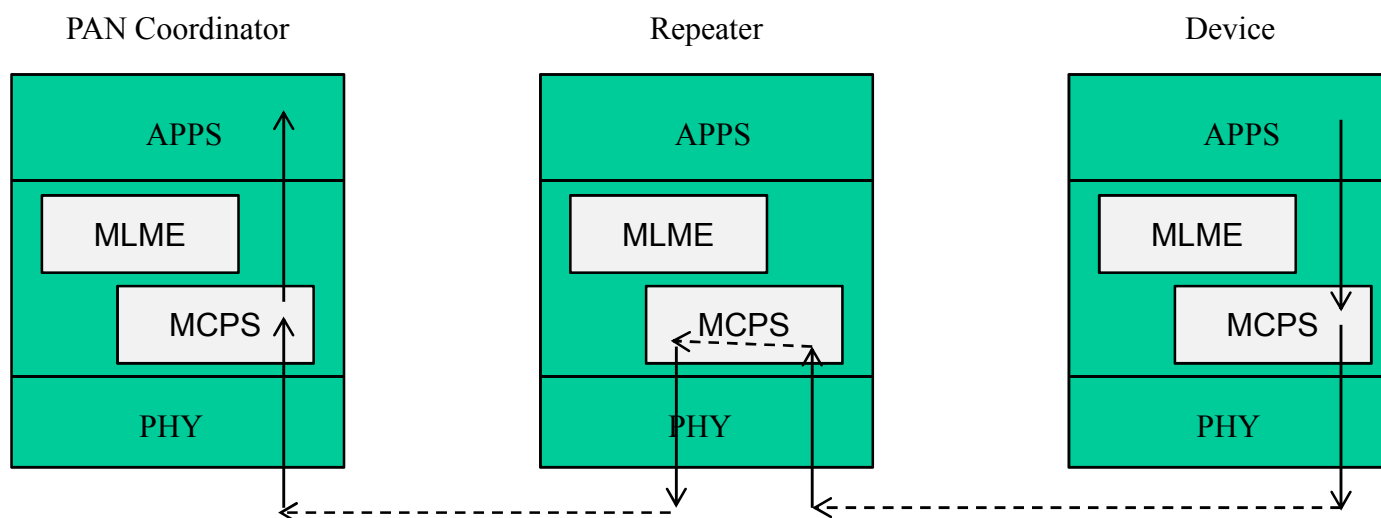
Relayed Slot Link Network

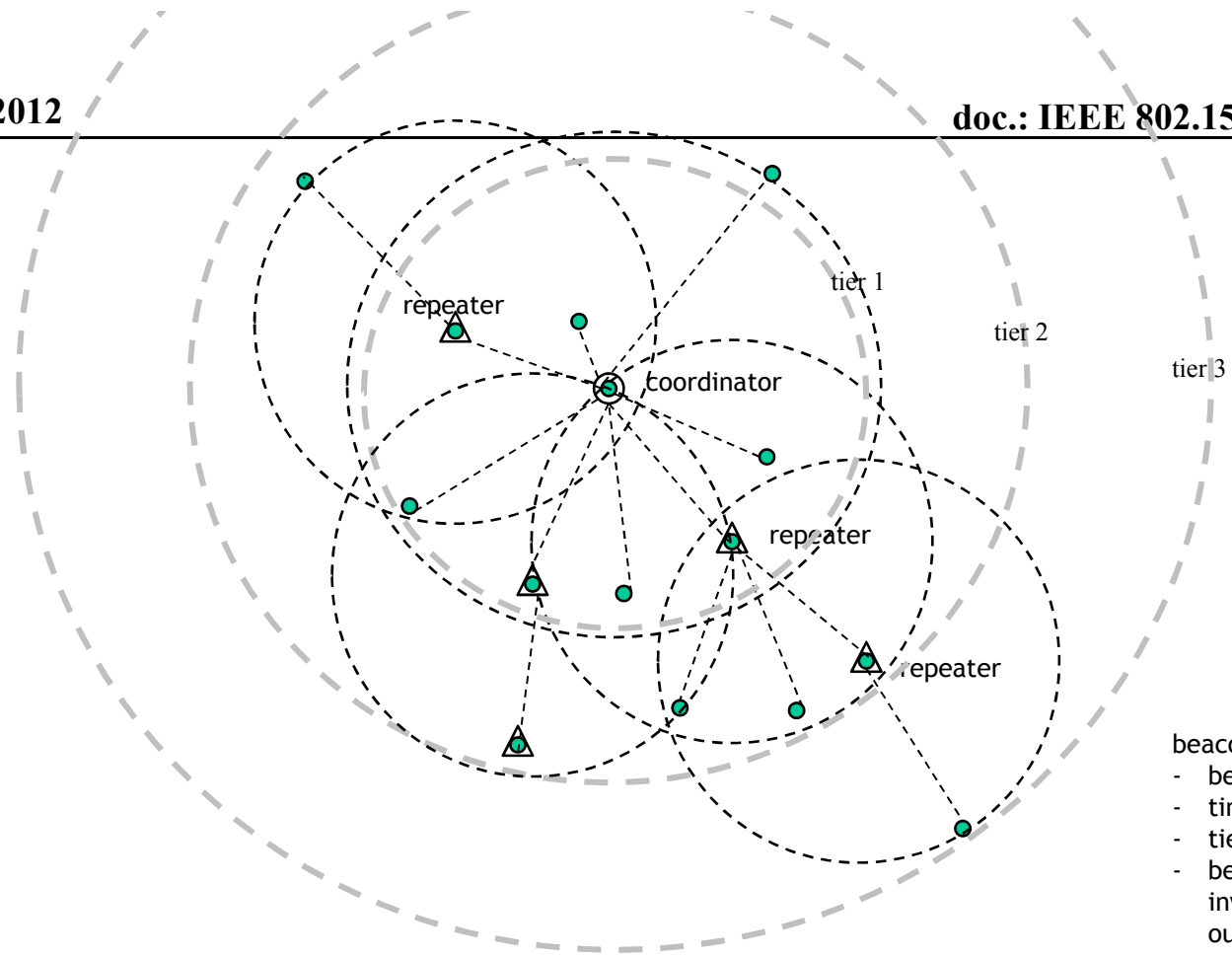
- time slot and slot-link
- slot-link relaying



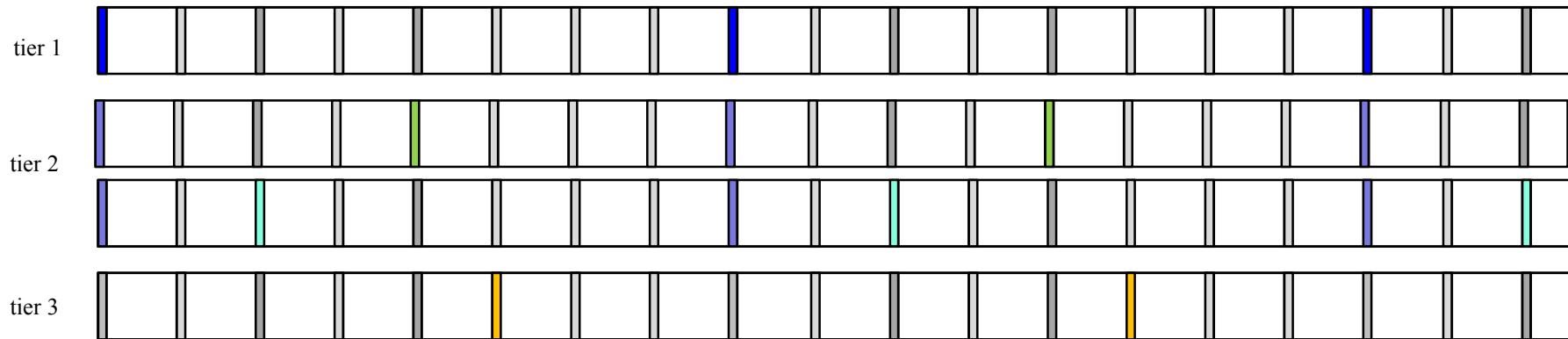
Relaying at the MAC Layer

- synchronous relaying between two peer MAC entities





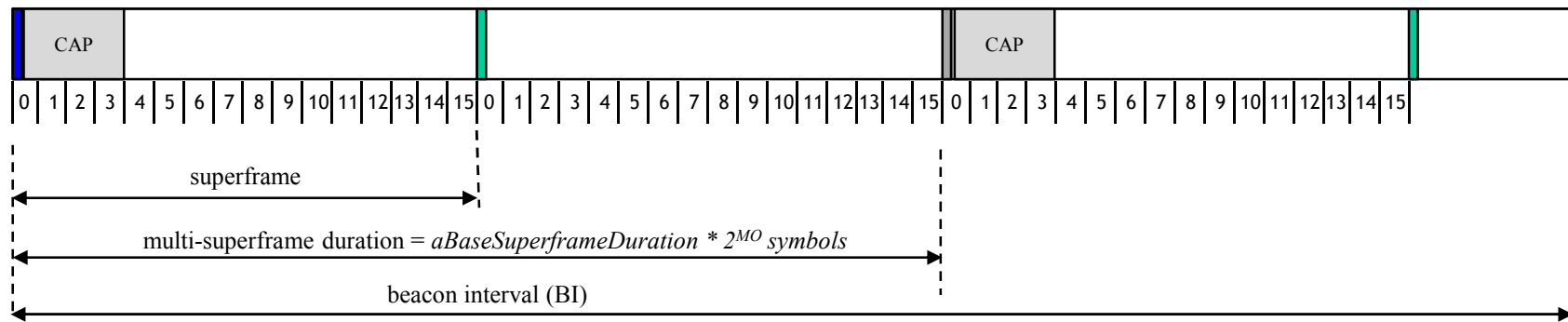
- beacon
- beacon seq # (0 ~ $2^{(B0-50)} - 1$)
 - time stamp
 - tier #: 0 ~ 3
 - beacon occupied bit map : 1-hop inward, peer level, 1-hop outward



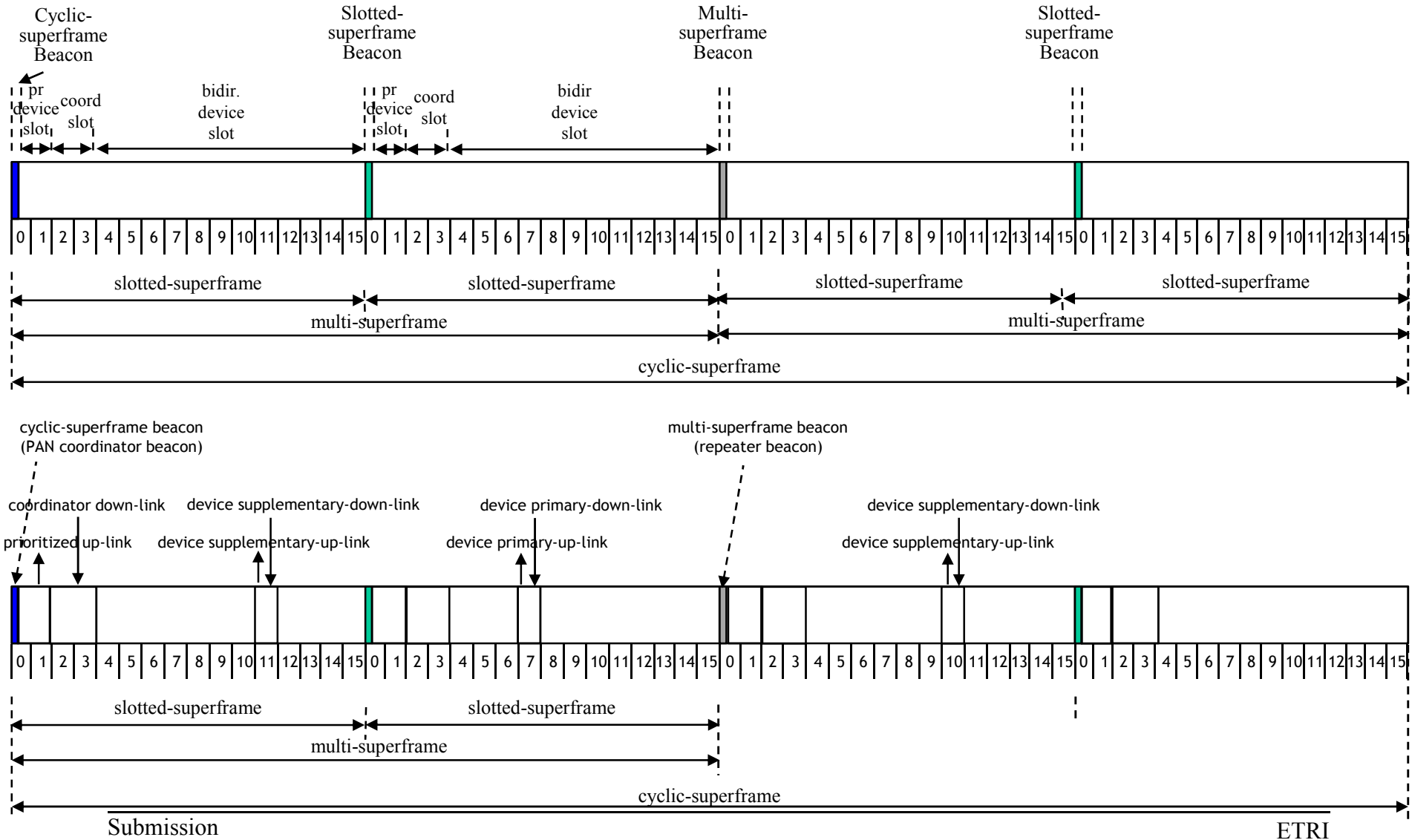
DSME

- DSME
 - unidirectional GTS
 - CAP is the only channel to device from coordinator
 - GTS allocation procedure
 - support for multi-hopped network, channel diversity
 - need all the neighbor device must be active
 - need to check & update GTS status
 - need association procedure for the all the devices
 - can assign time slots for over 1,000 devices
 - associate devices to network

 - delay sensitive transmission is supported ?
 - MAC layer relaying is possible ?

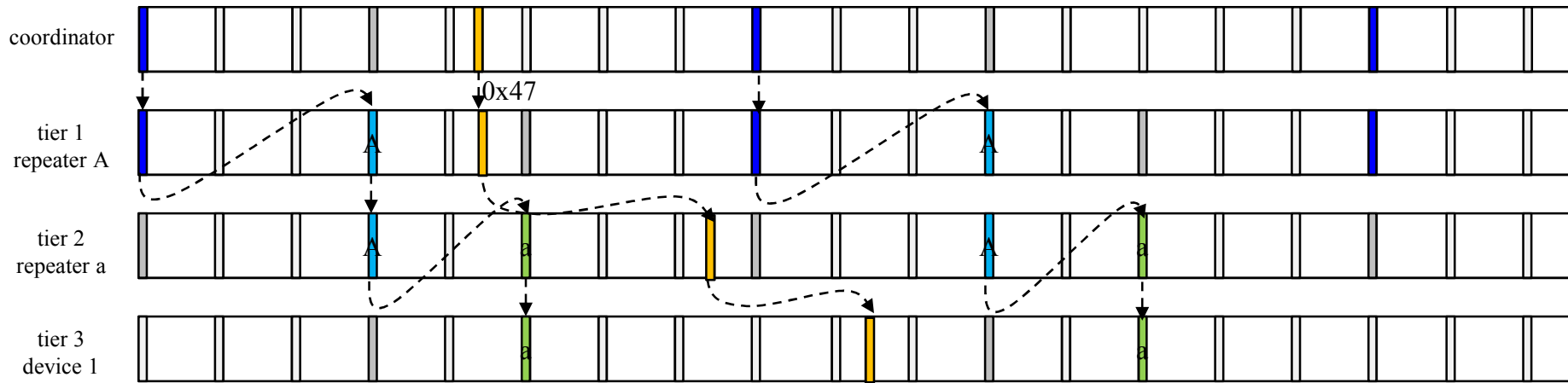


Bidirectional Device Slot and Cyclic-Superframe

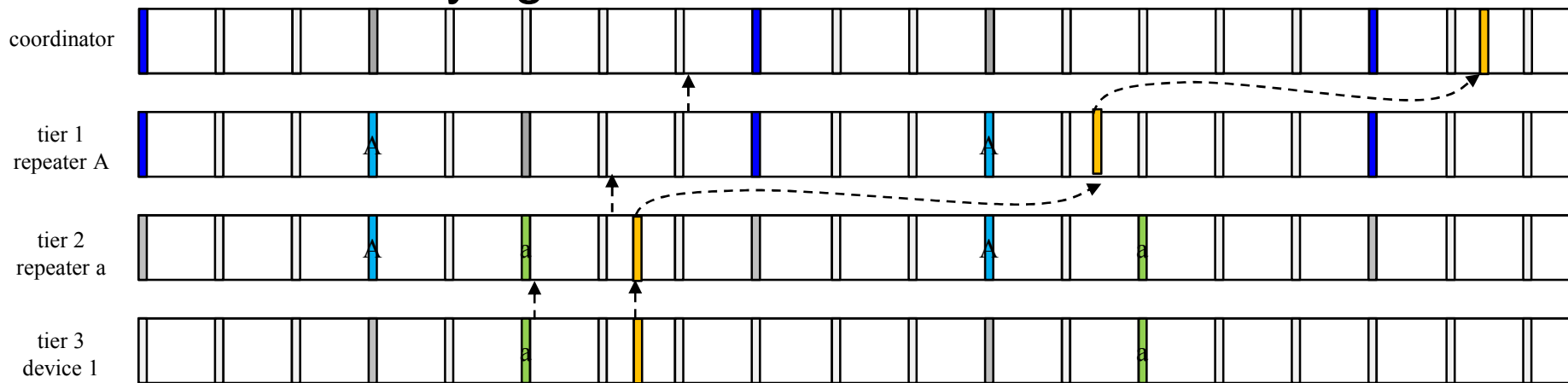


Transmission in RSLN enabled PAN

- outward relaying

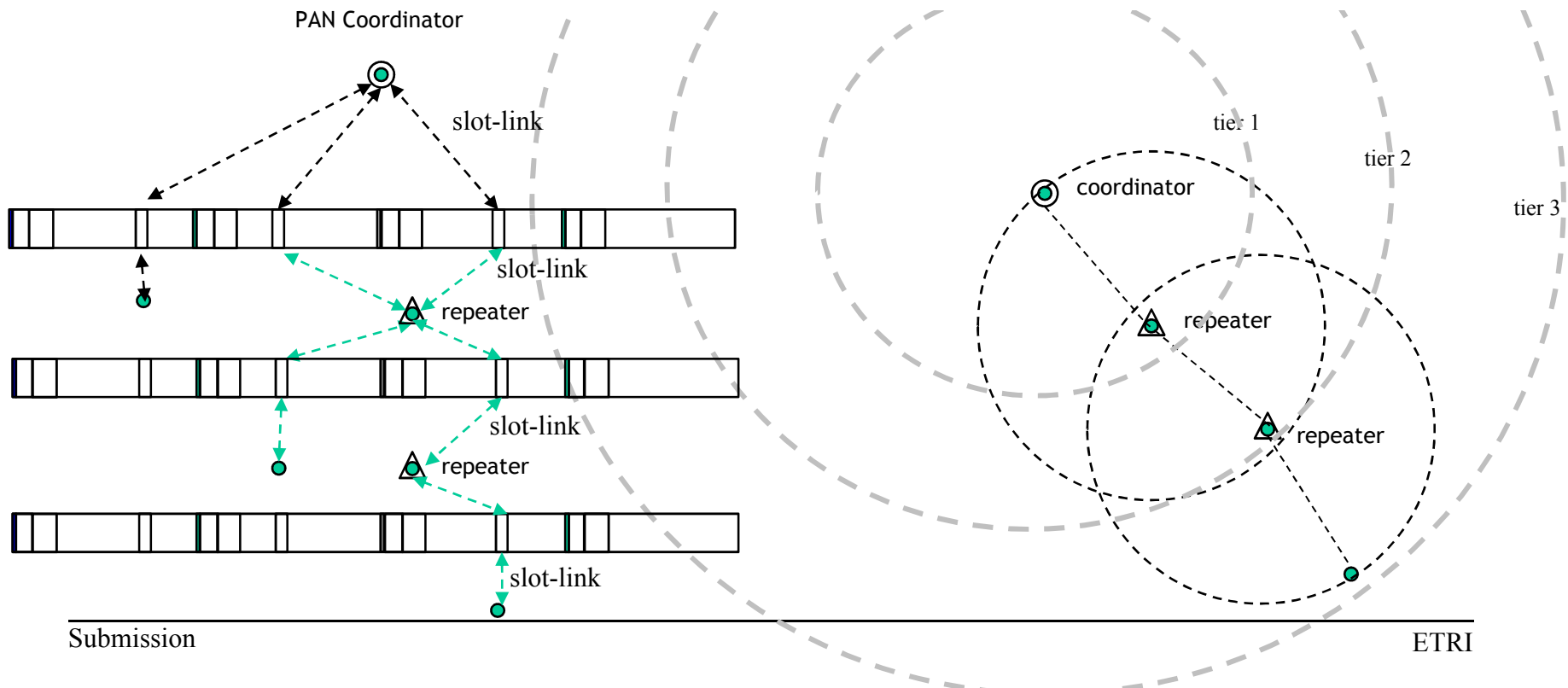


- inward relaying



Relaying Operation

- relaying information
 - tier #, location of slot, grade of link, indication of cyclic-superframe beacon
- carry on header IE
 - beacon : RSLN-enabled PAN descriptor IE
 - data, command, ACK : RSLN Relaying spec IE



Resolution on Comments

- RSLN Slot-Link Structure
 - revise 5.1.1.8 RSLN slot-link structure
- Synchronous Relaying
 - revise 5.1.2.7 RSLN slot-link structure
- Formation and Maintaining RSLN
 - add pending slot operation
 - revise 6.2.23 Primitives for RSLN

Thanks for your Attention!
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