

AAS Enhancements for OFDMA PHY

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Purpose:

Discussion of new structures to consider for OFDMA AAS mode

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AAS Enhancements for OFDMA PHY

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Motivation

- Propose changes to current AAS definition for OFDMA to enhance AAS performance:
 - Achieve link budget performance of directed scan for minimal broadcast information
 - Provide mechanisms for supporting frequency reuse of less than one
 - Enable robust and efficient paging with minimal latency

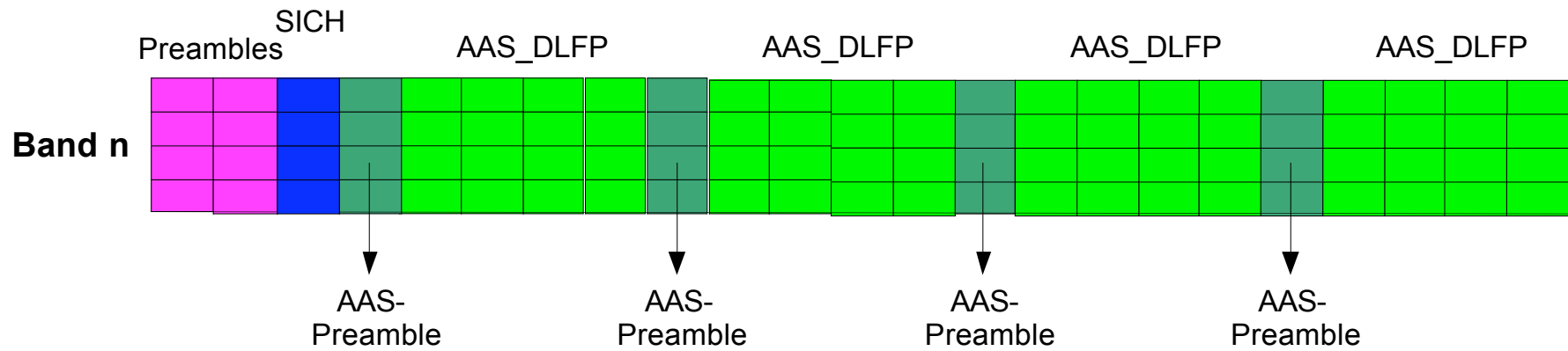
Proposed AAS Modes

- Two modes of AAS support defined:
 - Diversity-Map Signaling
 - Direct Signaling
- AAS modes are optional

Diversity Map Signaling

- Fixed subchannel assigned for AAS broadcast
- Carries beam-pattern diversity transmission of minimal information set (AAS_DLFP)
 - Uses most robust modulation/coding (QPSK/1-2 rate)
 - BSID, Frame Number, Preamble definition
 - Two full allocations (uplink or downlink)
- Directed transmissions will carry private MAPs for subsequent DL/UL allocations

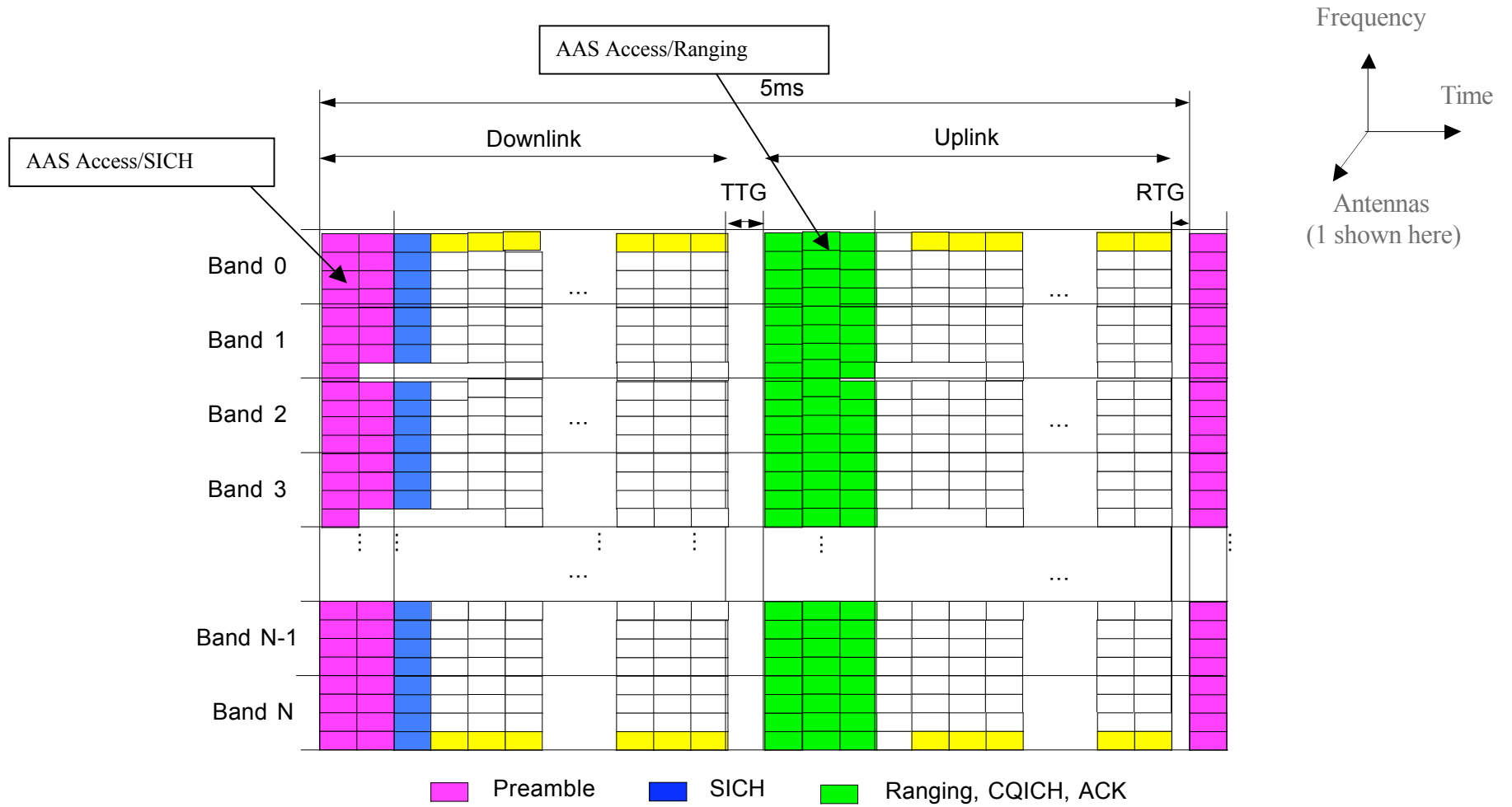
Diversity-Map Signaling



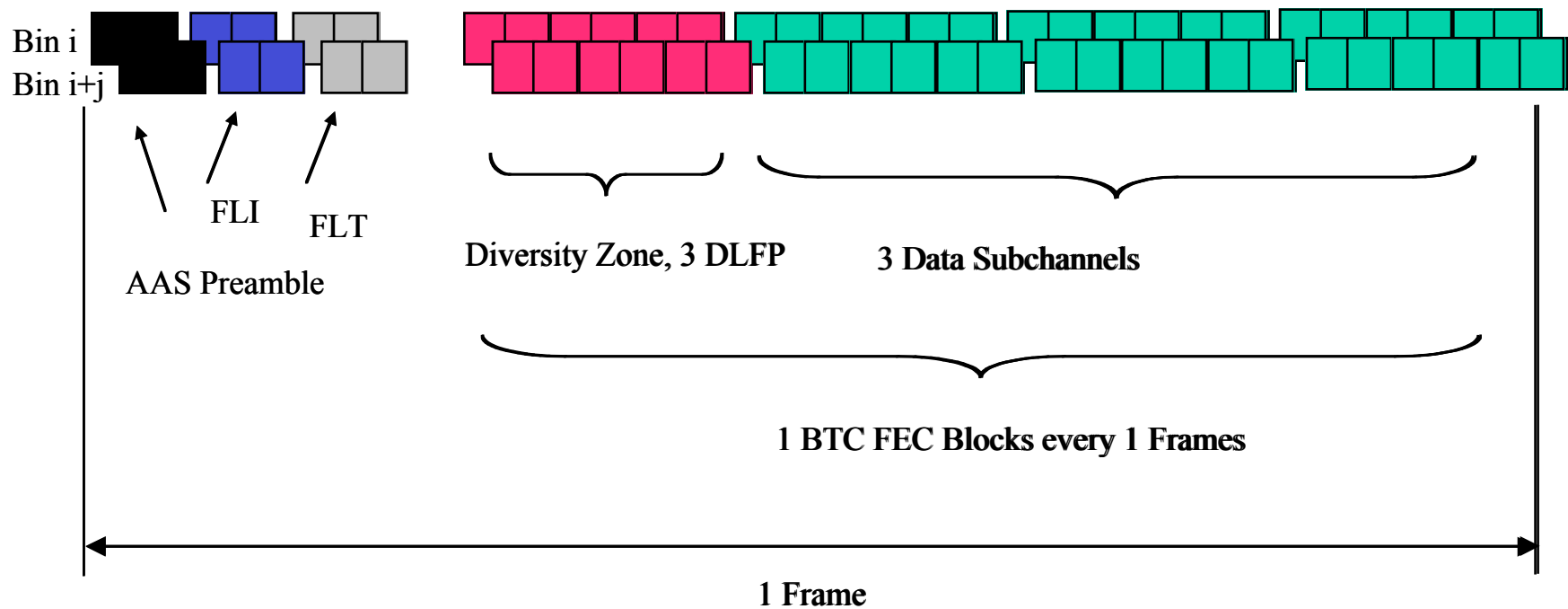
Direct Signaling

- Fixed subchannel assigned to AAS broadcast downlink as well as an AAS access/grant region
- Carries beam-pattern diversity transmission of basic information set (AAS_DLFP)
- SS-based unique signaling OFDM symbols defined:
 - FLI: Forward link initiation (paging)
 - FLT: Forward link training (distinct directed training)
 - RLI/RLA: Reverse link initiation (access request/AAS training)
 - Unique signaling mechanism provide low-latency, low-overhead support for multi-user beamforming (SDMA)

Direct-Signaling AAS Frame



Direct-Signaling Access Mechanism



Summary

- AAS enhancements to OFDMA PHY presented
 - Diversity-Map Signaling Mode
 - Direct-Signaling Mode
- Basic information broadcast with beam-pattern diversity
- Access grants, paging carried either by:
 - Map allocations in diversity broadcast
 - Unique signaling symbols
- Link budget deficit between directed transmissions and control signaling fully resolved