

## AAS Maps Format for OFDM

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#### Purpose:

To correct deficiency in control mechanism for AAS in OFDM PHY

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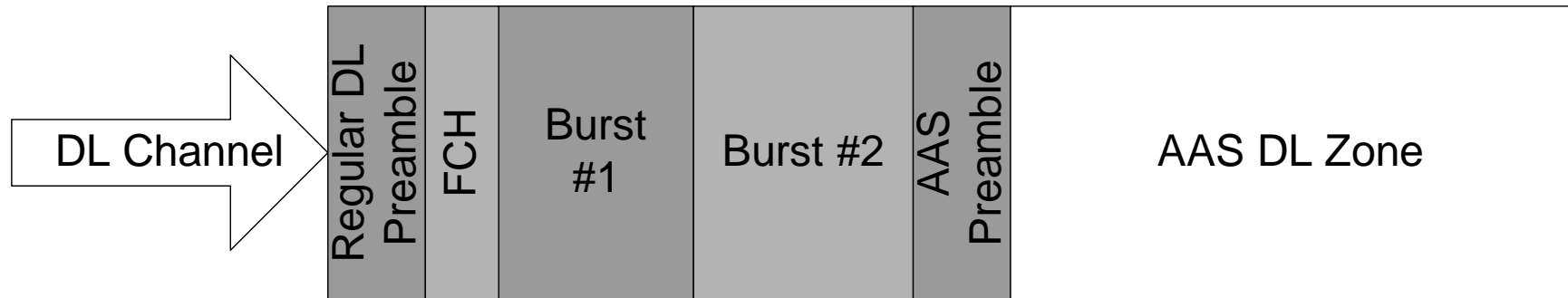
# Overview

- AAS link budget for a unicast directed transmission exceeds that for broadcast DL-MAP and UL-MAP
- Introduce additional control mechanisms in optional AAS frame to address this link budget imbalance:
  - Optional beam-pattern diversity transmission of AAS\_DLFP
  - Private AAS\_DLFP on directed transmission

# Proposal

- Mark the AAS DL frame with **AAS preamble** (replaces AAS NE preamble definition)
- Use beam-pattern diversity (order 1 – N) to transmit the following information immediately after the AAS preamble in the AAS\_DLFP:
  - Base station parameters (BSID, frame number, etc.)
  - Choice of compressed uplink or downlink allocations
- AAS\_DFLP uses BPSK-1/2 to improve link budget
- Flexible specification of AAS network entry (alert slot)

# Proposed AAS Frame (FDD)

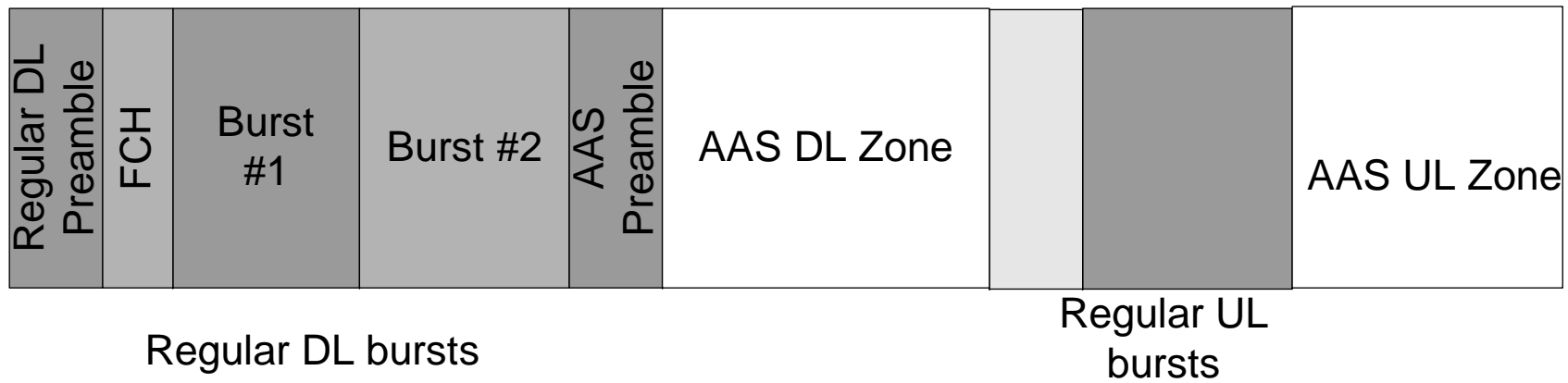


Regular DL bursts



Regular UL bursts

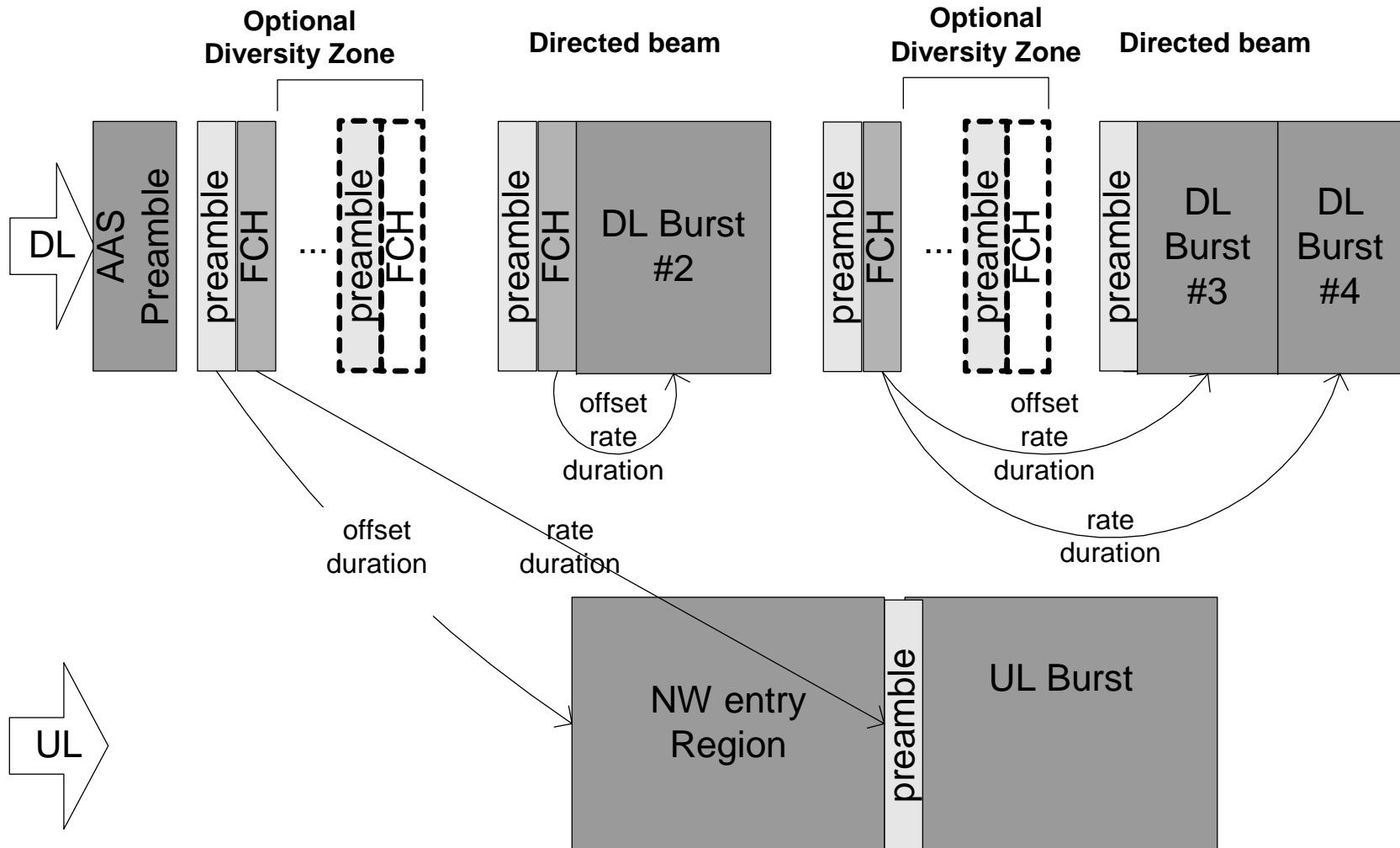
# Proposed AAS Frame (TDD)



# AAS\_DLFP Definition

- BS ID (4 LSB)
- Frame number (4 LSB)
- Reserved (6 bits)
- Choice of:
  - One AAS\_DLFP\_UL\_IE
    - Contains one full uplink allocation
  - One AAS\_COMP\_UL\_IE
    - Specifies two contiguous uplink allocations
    - One network entry specification
    - One uplink allocation
  - Three AAS\_DLFP\_DL\_IEs
    - Specifies three contiguous DL allocations

# Proposed AAS Frame - Detailed

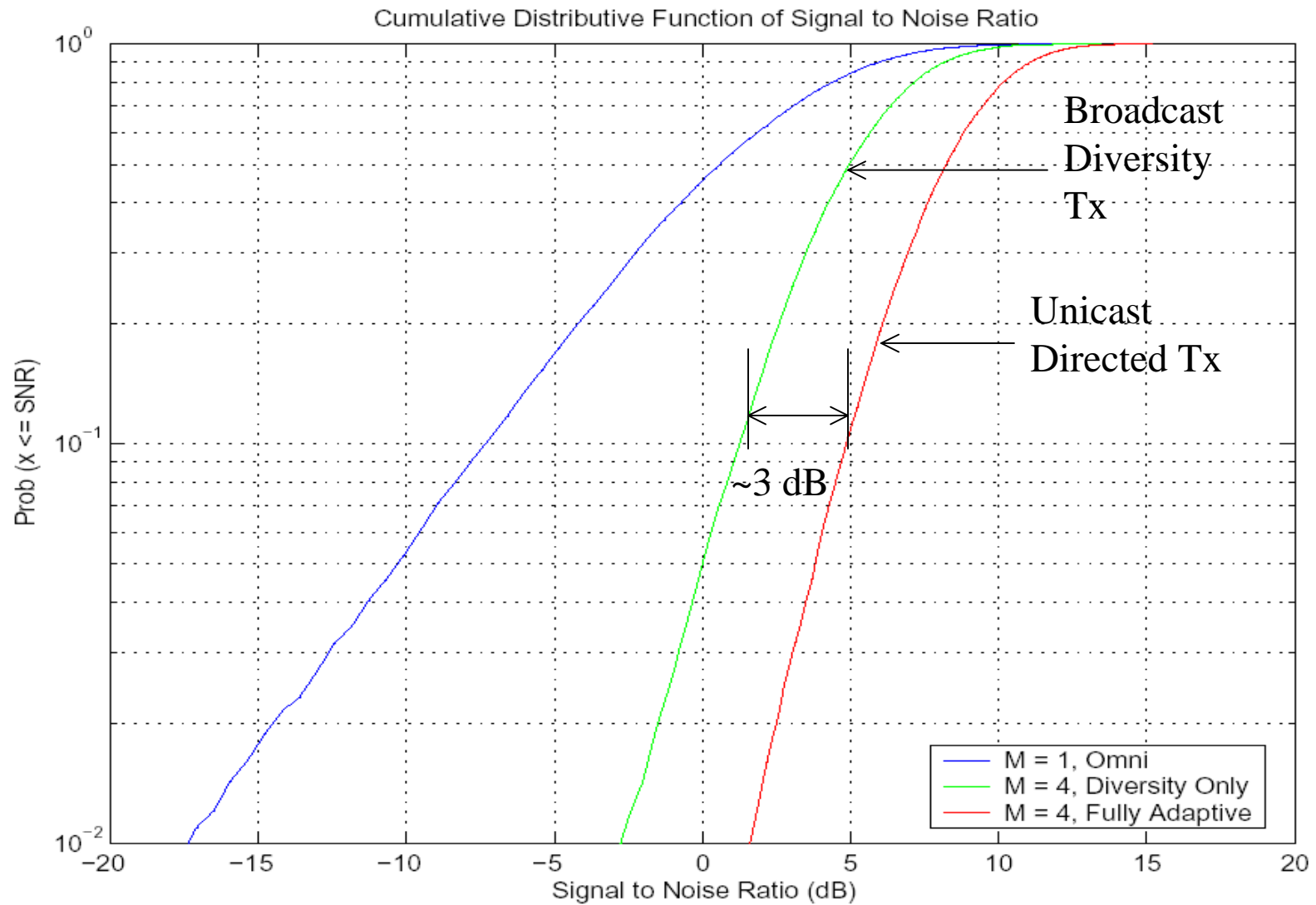




# Beam-Pattern Diversity Analysis

- Simulation of beam-pattern diversity link budget gain.
- Assumptions:
  - BS: 4 antennas, SS: 1 antenna
  - Independent Rayleigh fading
  - Flat fading channel
  - Omni antenna radiating same power as array
  - Normlize mean SNR of omni transmit to 0
  - 4<sup>th</sup> order diversity transmit at BS
  - Selection diversity at SS (chooses strongest received burst)

# Beam-Pattern Diversity Analysis



# Summary

- Link budget deficiency in AAS control mechanisms corrected through introduction of:
  - Beam-pattern diversity transmission of minimal broadcast information
  - Directed transmission of private maps
  - BPSK-1/2 modulation used for AAS\_DLFP
- Modifications will also provide robustness against interference
- Robust broadcast transmission allows for flexible allocation of AAS network access opportunities (replaces fixed AAS alert slot definition)