Resource block with pilot structure

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Re:
IEEE 802.16m-08/005: Call for Contributions on Project 802.16m System Description Document (SDD) (2008-01-24), Pilot Structures as relevant to downlink MIMO and Downlink Physical Resource Allocation Unit.

Abstract:
Discussion on resource block with pilot structure of IEEE 802.16m SDD

Purpose:
Adoption of proposed text into SDD

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Resource block with pilot structure

- Resource block with pilot structure
  - There is a tradeoff between channel estimation error and pilot overhead.
  - Thus, it can be designed to maximize the capacity of both uplink and downlink.
  - Resource block that maximizes the capacity for low mobility is not appropriate for high mobility (~350 km/h) with inter-carrier interference (ICI).

Resource block with pilot structure (low mobility)
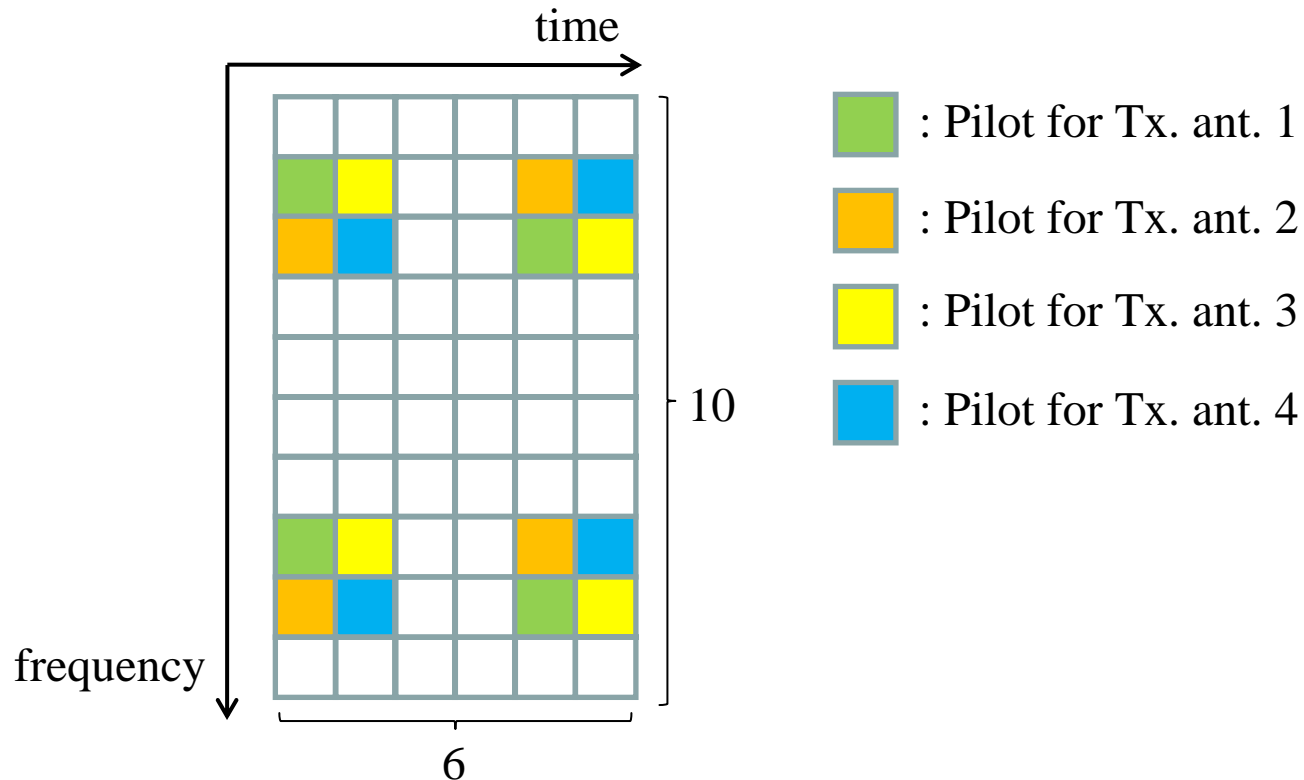
- We propose a 10x6 block with 4 pilot subcarriers per one transmit antenna.
- It is efficient in terms of capacity with linear interpolation over ITU-R Ped.B(3km/h) and Veh.A(60km/h) channels.

Proposed Texts into SDD

- X.y. Resource block with pilot structure
  - *The same resource block with pilot structure is used for both downlink and uplink. The resource block with pilot structure should be designed to maximize the capacity. An alternative resource block with pilot structure is required to support high mobility.*