

Design Considerations of Pilot Structures for Uplink MIMO Transmission

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Purpose:

Propose to be discussed and adopted by TGM for the use in Project 802.16m SDD

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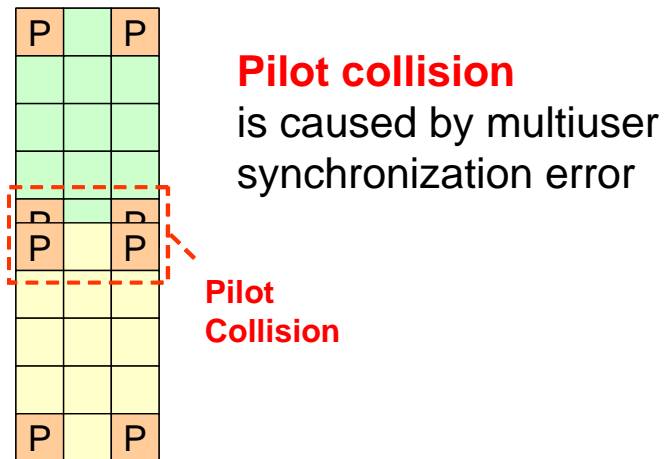
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Design Considerations of Uplink Pilot Pattern

- 1. Avoid pilot collision



- ◆ Reserve a buffer region without any pilot locating in each resource block

- 2. Limit PAPR level

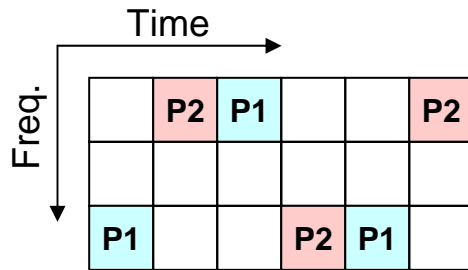
- ◆ No more than one pilot in a single symbol in each resource block

- 3. Maximally avoid channel extrapolation

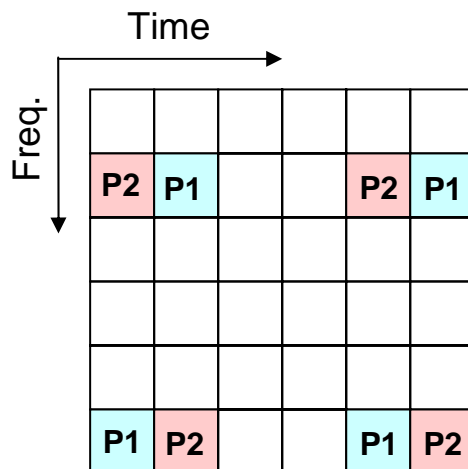
- ◆ Pilot tones should frame most of data tones

Design Examples

- **Two** design examples for 2-data-stream case
 - ◆ For 3-by-6 resource block size

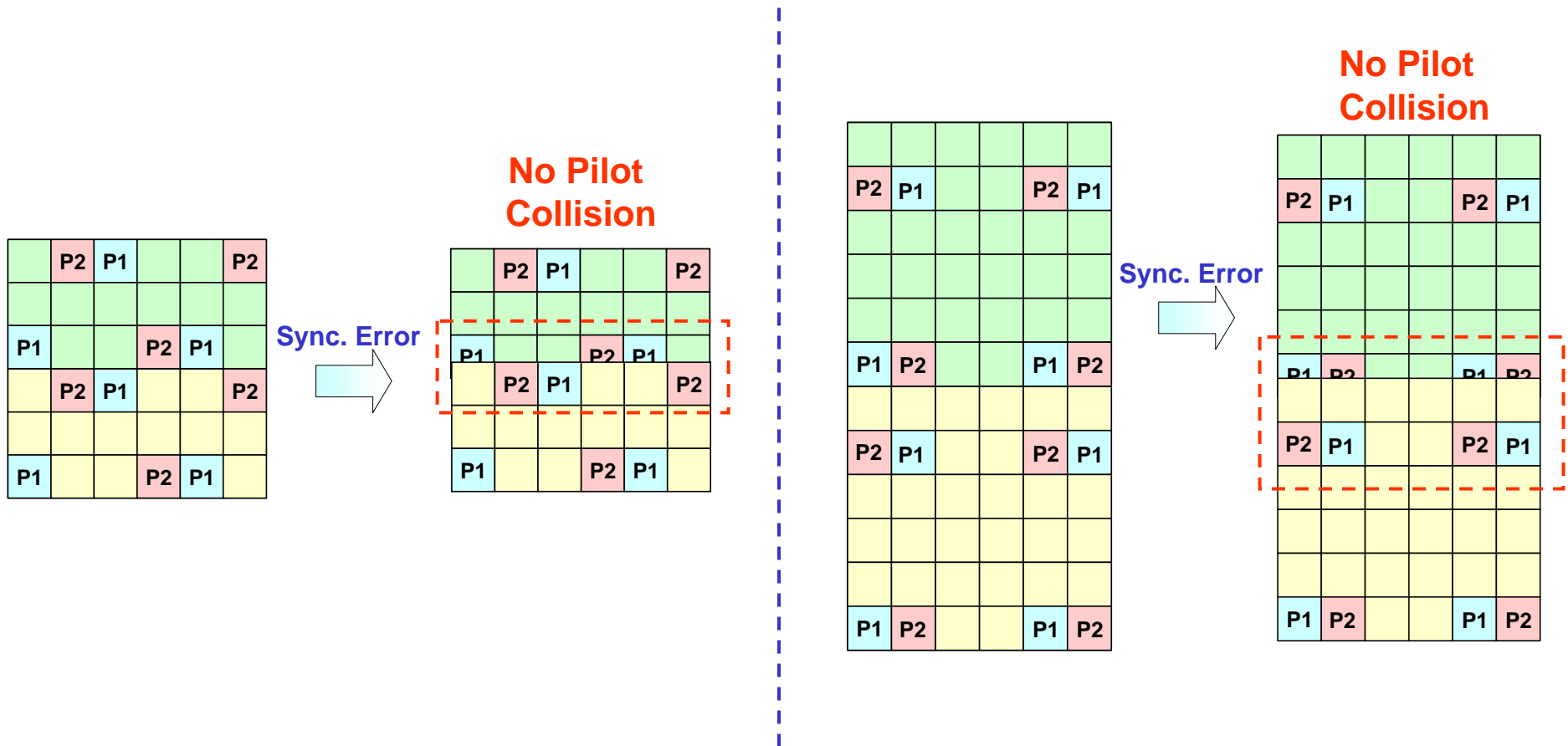


- ◆ For 6-by-6 resource block size



P1 Pilot for stream 1
P2 Pilot for stream 2

- Reserve a buffer region to avoid pilot collision
 - ◆ Both examples can avoid pilot collision



Conclusion

- Three design considerations of uplink pilot pattern
 - ◆ Avoid pilot collision due to multiuser synchronization error
 - ◆ Limit PAPR level
 - ◆ Avoid channel extrapolation maximally
 - ◆ Two design examples are provided to illustrate design concepts