Assignments of Pilots for 256 FFT OFDMA mode

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Purpose:

This presents an optional way of pilot assignment for OFDMA PHY

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INTRODUCTION

1. Assumption : OFDMA – subchannelization
2. 2048 FFT vs. 256 FFT
   - channel spacing of 256 FFT is much longer than that of 2048 FFT
   - pilots of 256 FFT is much smaller than that of 2048 FFT
   - exact frequency / phase estimation is impossible

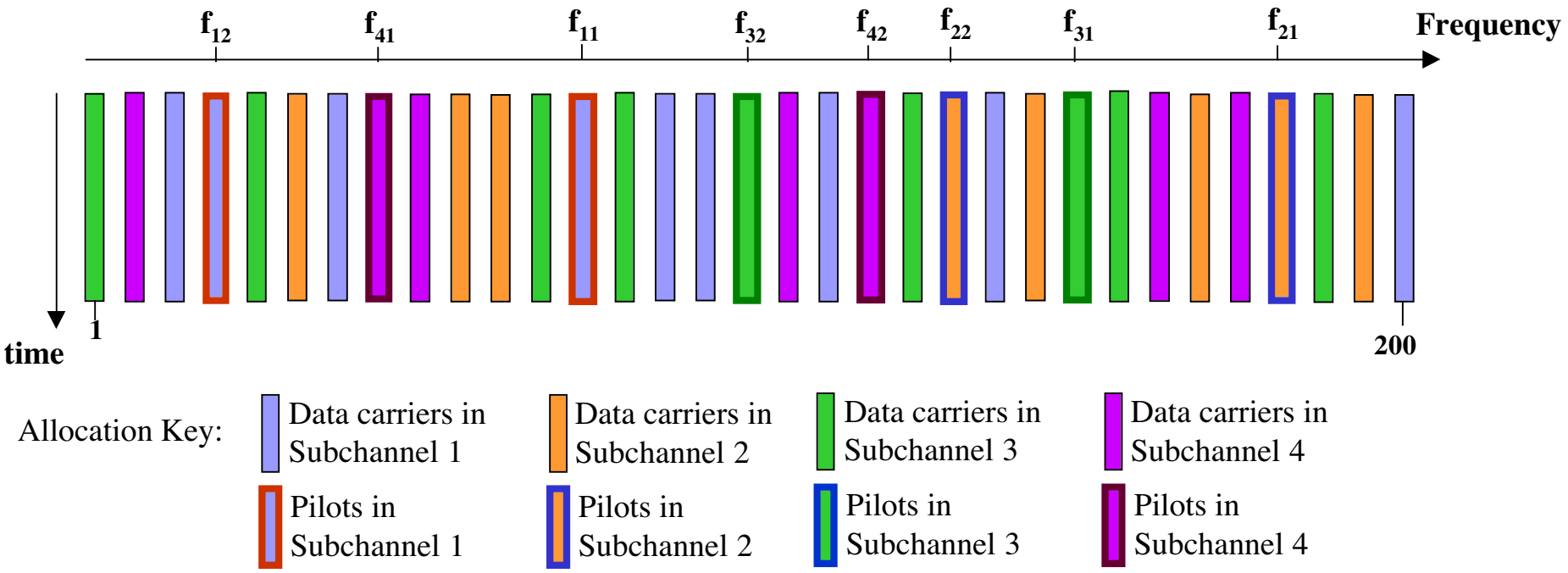
	2048 FFT OFDMA	**256 FFT OFDMA**	**PROPOSED**
# of Subch.	32	4	4
# of Data carriers / subch.	48	48	48
# of Pilots / subch.	5	2	**2 ~ max. 2 x 4**

Assignment of Pilots

- **256 FFT with sub-channelization**

  - N_{used}(200) = Subchannels(4) x {Data carriers(48) + Pilots(2)}

- **f_{mn} : n_{th} (n=1,2) pilot in the m_{th} (m=1,2,3,4) subchannel**



Share of Pilots –BASIC scheme

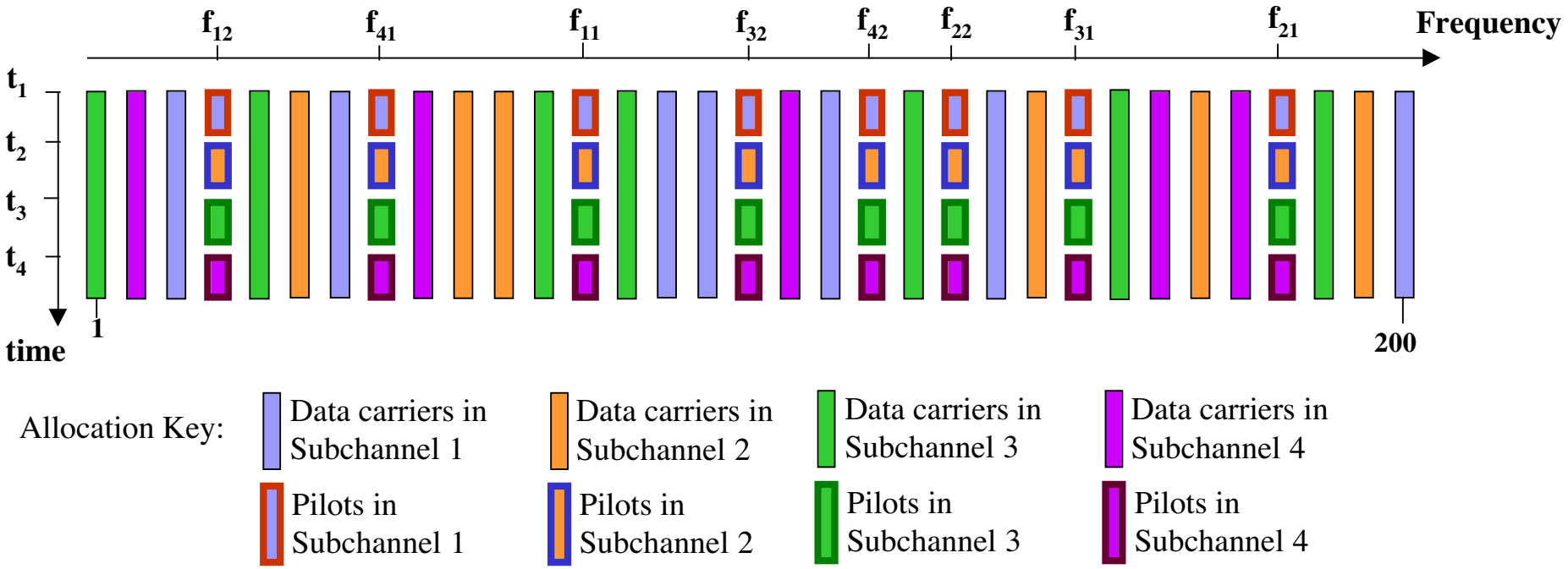
1. All subchannels can share pilots from all subchannels.

- At specific time(random/const.) pilots can be accessed.

  - t_m : pilot access time of the m_{th} subchannel

- # of pilots per subchannel : 2 -> max. 4*2
- Total amount of pilots do not increase.

5. Phase & frequency estimation enhancement



Conclusion

- Pilot share with time scheduling is effective assignment in a condition which needs many pilots.

- The subchannel should access pilots at its access time.

- **Frequency/phase estimation enhancement**, BER enhancement and data throughput increase are obtained.