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   Discussion and development of 802.16.3 PHY
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Space-Time Codes for 802.16.3

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Last year A. R. Hammons, H. El Gamal submitted several technical proposals and presentations on Space-Time Coding (STC).

These STCs, applicable to both OFDM and single carrier systems, meet complexity/benefit criteria for many or most applications.

As the one or two PHYs progress, we would like to participate in the evaluation of the STCs as optional or evolutionary features.
STC Benefit - OFDM Example

- 4 Tx/Rx BTS antennas
- 2 Tx/Rx CPE antennas
- 6 MHz channel
- QPSK, not 256-QAM
- 20 Mbps downlink @ 13 dB with FER=1%
  - Approximately double the rate
  - C/N threshold consistent with tight reuse
  - bits/sec/Hz/cell - about 3X non-MIMO
Complexity Issues

- Moderate BTS complexity (4 Rx/Tx)
- Low CPE complexity (2 Rx/Tx)
- Would not be appropriate for a portable
- Reasonable for MMDS applications
• Many of us, as engineers, have spent considerable time dealing with the NLOS communications
• This is a chance to exploit the fading channel - not just mitigate it!!!