

# Receiver Sensitivity Tables for MIMO-OFDM 802.11n

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# Overview

- PHY options for increasing data rate
- Simulation environment
- Rate versus RX sensitivity
- Rate versus distance
- Comparison of MIMO detectors
- Observations and recommendations
- Appendix: Rate/RX sensitivity tables

## PHY options for increasing data rate

- Increasing modulation order
  - RF more demanding
- Increasing channel code rate (e.g. 3/4 to 7/8)
  - Viterbi decoder traceback length increases
  - Operating close to constellation capacity saturation
- Increasing bandwidth
  - Spectrally inefficient (but: 255MHz become available)
- Increasing number of transmit antennas
  - Costs: parallel RF chains; channel correlations
- Purpose of study
  - Determine rate tables
  - Determine suitable combinations of PHY options

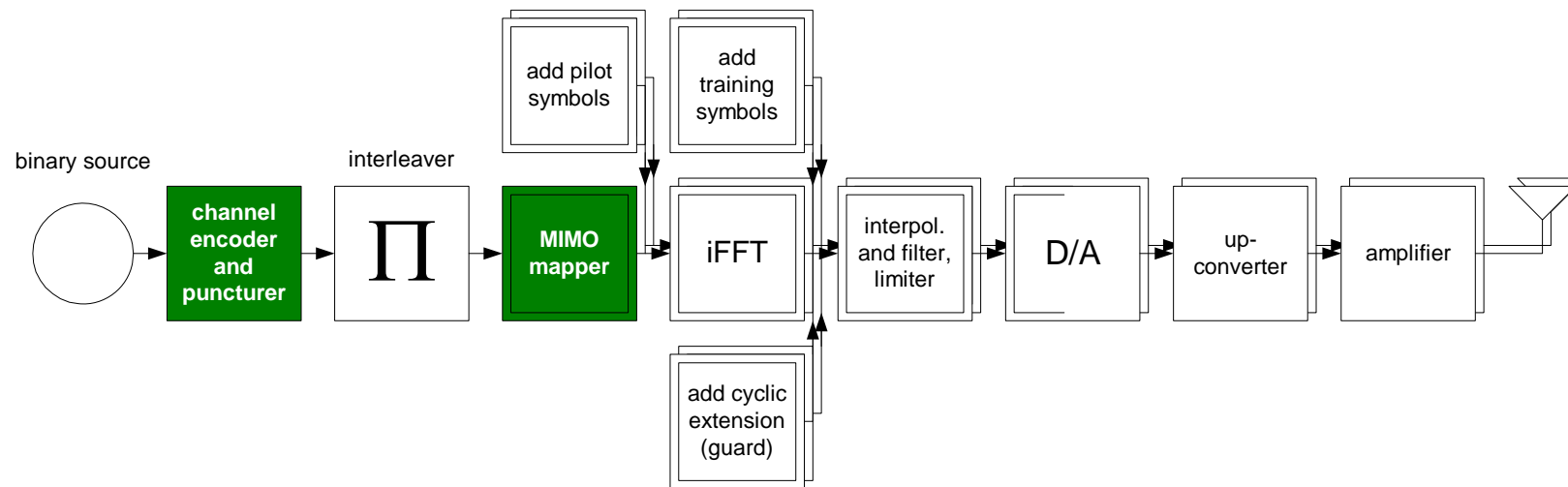
# Simulation Environment

- 802.11a PHY simulation environment, plus
  - Higher order QAM constellations
  - Higher/lower channel code rates
  - TX/RX diversity/MIMO OFDM
    - ZF detection and soft post processing (shown in plots)
    - APP and reduced APP detection
  - Increased channel bandwidth, from 20MHz to 40MHz (64 to 128 FFT)

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doc.: IEEE 802.11-03/845r0

# Likely 802.11n Transmitter



- Shown with 2 TX antennas

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