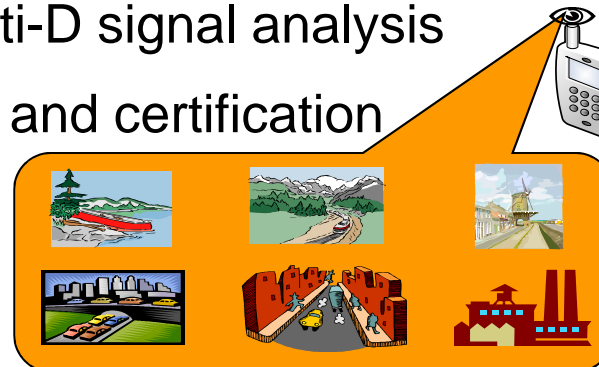
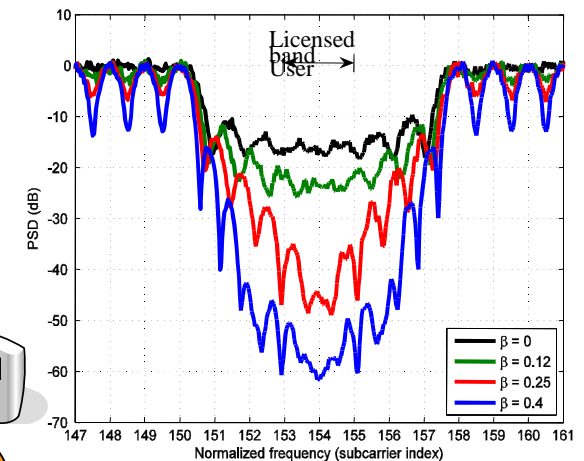
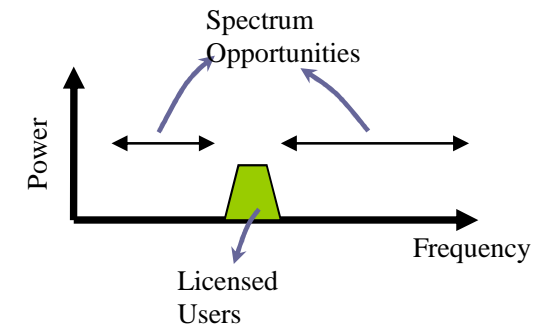
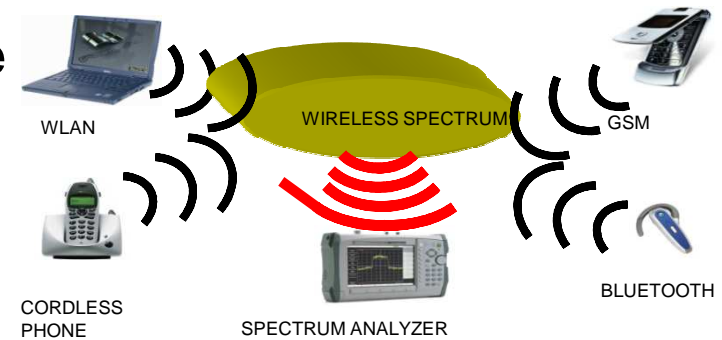


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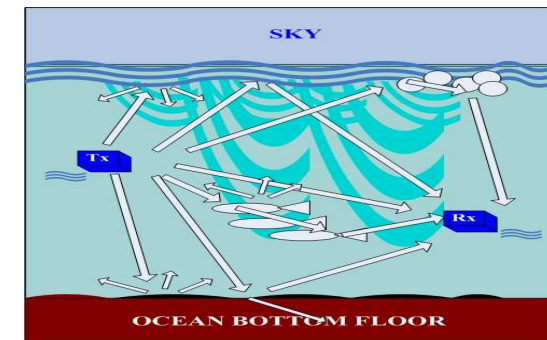
# Cognitive and Software Defined Radio Research

- Spectrum sensing/awareness, interference estimation
- Spectrum shaping (waveform shaping)
- Signal characterization (classification and identification of signals)
- Radio channel parameters estimation
- Cross-layer adaptation and optimization
- Exploiting OFDM(A) and UWB for Cognitive radio
- Geo-locationing and use of it for improved communication
- Signal intelligence – multi-D signal analysis
- Testing, measurements, and certification
- Carrier aggregation



# Next Generation Wireless Related Research

- ❑ Femtocells
- ❑ IMT-Advanced (LTE-advanced)
- ❑ OFDMA-based custom flexible broadband network for military and public safety applications
- ❑ Generic and fully adaptable OFDM(A) based system design
- ❑ Underwater communications
- ❑ Powerline communications
- ❑ Aeronautical (HAP) communications
- ❑ Smart grid
- ❑ Interference cancellation and awareness (Handling interference in heterogeneous networks)
- ❑ Channel measurements and modeling



# Other research activities

- Impact of wind tribunes on wireless signals
- Mine detection with UWB signaling (ground penetrating radar)
- HF, VHF, and UHF radio design
- Smart homes and advanced metering
- Waveform/Modulation design beyond OFDMA (5G and beyond)
- Equalization, synchronization, channel estimation, and interference cancellation
- Radio and channel parameters estimation for advanced and adaptive transceiver design

