

SDR in ORBIT: LTE-U

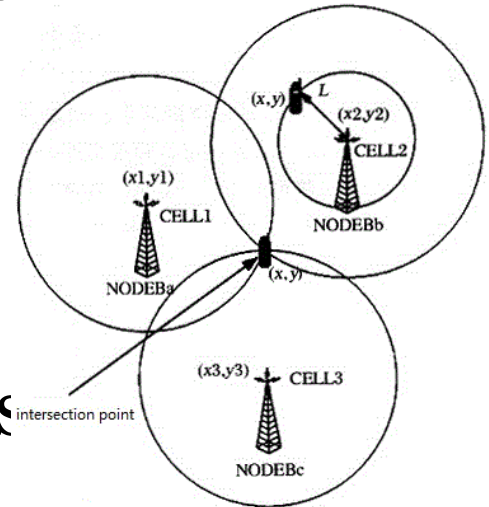
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Frequency use

- Of the approximately 500MHz of available spectrum in the 5 GHz band, only 20MHz is required for an LTE-U small cell to operate.
- As 802.11ac supports more traffic, "cleanliness" of the unlicensed spectrum degraded.

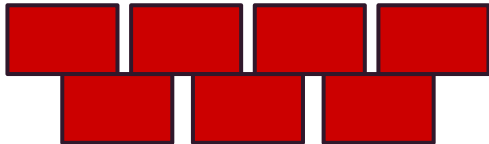
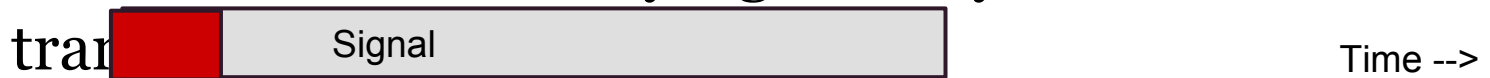
Licensed Spectrum

- Cell search- Timing
 - Primary Synchronization Signal (PSS)
 - Secondary Synchronization Signal (SSS)
- Channel tracking
 - Cell-specific reference signal
- Decode broadcast information
 - System information
- Fixed time, channel for transmission



Unlicensed Spectrum

- Unlicensed: No fixed time, channel
 - Listen Before Transmit (LBT)
 - Collision Avoidance
 - Energy detection- detect open channels (Match filter)
 - Preamble- introductory signal to synchronize



WiMAX and LTE-U on ORBIT

- Test connection between two nodes using base station
- More experience with OpenAirInterface was made.
- Unsuccessful due to compiling errors

Next week

- Continue on the Tutorials of ORBIT and resolve problems
- Test LTE-U on the GRID
- Learn more about LTE and unlicensed spectrum