

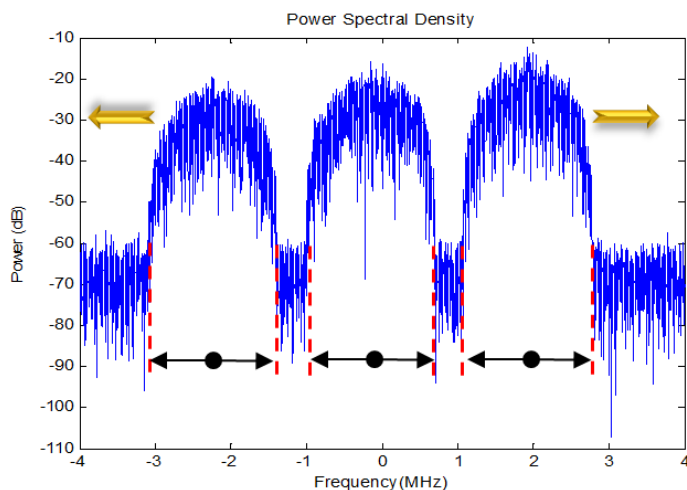
Adaptive Roll-off Factor Utilization in Filter Bank Multicarrier Systems

Background:

Roll off factor (α) is one of the main parameter that determines the time and frequency characteristics of filters. In conventional systems α is specified by considering the worst cases of the channel. However, in time varying channels, best α value is time varying as well. Since total bandwidth of the signal is changed with α proportionally ($BW = F \times (1 + \alpha)$), spectrum can be utilized more efficiently by changing α according to the state of the channel.

System Procedure:

- Channel information is taken or estimated timely
- Best α is selected for corresponding channel state
- Subcarrier spacings are adjusted to prevent overlapping



Open research areas:

- Scheduling of symbols based on their α values
- α optimization techniques for multi-user scenarios

NOTE: Proposed technique is re-designed for multi-user scenarios by allowing subcarriers to have different α . Please look at publications for more detail.