USF Available Technologies

Technology Transfer Office

Interference Identification for Orthogonal Frequency Division Multiplexing (OFDM) Based Systems

Researchers at the University of South Florida have developed an interference identification technique for orthogonal frequency-division multiplexing (OFDM) based communication systems.

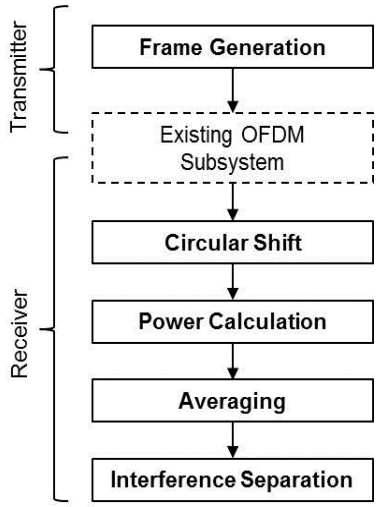
OFDM has been adopted by most communication systems, in part, because of its ability to effectively convert frequency selective channels to multiple flat sub-channels using one tap frequency domain channel equalization. OFDM is now commonly employed in digital broadcasting, and wireless local area networks (WLAN). The robustness of OFDM with regards to frequency selectivity makes it advantageous for use with multipath channels. However, OFDM may struggle with time variant channel conditions. Different impairments in the system such as insufficient guard interval (GI) in multipath channels and time selectivity result in similar consequences on data subcarriers. Thus, interference identification can be difficult, and communication performance cannot be guaranteed. Hence there is need for a interference identification technique for OFDM based communication systems.

Researchers at USF have invented an interference awareness and identification technique for OFDM based systems. The novel technique provides for enhanced investigation of interferences like inter-symbol, inter-carrier, narrowband, and adjacent channel interferences. It enables efficient and accurate identification and separation of interferences due to time varying impairment when multiple impairments exist instantaneously.

ADVANTAGES:

- **Improves performance of OFDM communication systems**
- **Measurement technique focusing on interference identification and estimation.**
- **Separates frequency-based interference from time-based interference**

Exploiting OFDM For Performance Improvement



Basic Steps Underlined for Interference Identification

Tech ID # 12A053 **Patent #: 9,065,710**

University of South Florida | Technology Transfer Office
813.974.0994 (office) | 813.974.8490 (fax)
patents@research.usf.edu
http://www.usf.edu/research-innovation/pl/