

Blind Selected Mapping for OFDM

A crest factor reduction technique and apparatus that provide for orthogonal frequency division multiplexing systems

Georgia Tech inventors have created a crest factor reduction (CFR) technique and apparatus that provide for OFDM systems using blind selected pilot tone modulation. The technique combines the merits of PTAM and SLM, and is implemented using a joint channel estimation and crest factor reduction algorithm. Instead of fixing the pilot tone locations as in conventional PTAM, different pilot tone locations are employed, and movement of the pilot tones is synchronized with the choice of phase rotation sequence. The pilot tone/phase sequence combination that results in the lowest PAR of the time-domain signal is used for transmission.

Summary Bullets

- **Less distortions** – achieves a better peak-to-average power ratio
- **Cheaper** – lower cost solution

Solution Advantages

- **Less distortions** – achieves a better peak-to-average power ratio
- **Cheaper** – lower cost solution

Potential Commercial Applications

- Wireless communications systems using OFDM

Background and More Information

Orthogonal frequency division multiplexing (OFDM) is a spectrally efficient multicarrier modulation technique for high speed data transmission over multipath fading channels, but has low power efficiency. OFDM signals have large crest factors, or peak-to-average power ratios (PARs) which lead to power inefficiency in the RF portion of the transmitter. Selected mapping can be used to reduce the PAR of an OFDM signal and is distortionless.

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Publications

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