FH-OFDM Modem

The FH-OFDM (multicarrier) modem is developed for OFDM applications used in frequency hopping transmission scenarios or fixed frequency scenarios.

Functional Description

● The modem mainly consists of two components. The first component is an FH modem that is used to establish communication during hopping and to synchronize the communication. Once established, data communication is then performed via the second component, which is an OFDM modem.

● The modem consists of two nodes (central node-terminal), each node has its transmitter and receiver. The frame structure for the down link, during the FH acquisition phase;

● No central node- terminal distinction in case of fixed frequency operation;

● Control signaling, during OFDM operation, is a 128 word (96 bits with CRC-32) that is encrypted using AES algorithm.

● Lowest SNR required for QEF performance, in case of no impairments (no SFO, no CFO and no phase noise) and code rate ½ for info block length 4K, 50 LDPC decoding iterations, and BPSK modulation is -0.25 dB.

● Supported throughputs in case of FH, BW 28 MHz, hopping rate 1K, FFT size 512, 256 QAM and LDPC code rate ⅘ with 10 decoding iterations is 114.65 Mbps.

Benefits

● Supported hopping rate: 1K hop/sec.

● Supported number of hopping channels up to 32.

● The maximum supported distance is 40 Km.

● Achievable throughput of up to 114.65 Mbps in frequency hopping mode, and up to 158.72 Mbps in fixed frequency mode of operation.

Features

● Supports LDPC code: AR4JA for rates (½, ⅔, and ⅘) and info block length (1024, 4096) bits.

● Supported OFDM sizes: 32, 64, 128, 256, 512.

● Supported modulation orders: BPSK up to 256 QAM.

● Supported oversampling ratios (4, 8).

● CRC-32 for all the FEC frames.

● Supported SFO up to 16 ppm.

● Supported CFO up to 80 KHz

Additional Features Include

● Supports LDPC code: AR4JA for rates (½, ⅔, and ⅘) and info block length (1024, 4096) bits.

● Supported OFDM sizes: 32, 64, 128, 256, 512.

● Supported modulation orders: BPSK up to 256 QAM.

● Supported oversampling ratios (4, 8).

● CRC-32 for all the FEC frames.

● Supported SFO up to 16 ppm.

● Supported CFO up to 80 KHz.

Applications

● OFDM applications in frequency hopping transmission scenarios, with an option of fixed frequency transmission

A comprehensive FH-OFDM Modem datasheet can be provided under an NDA, please contact us at info@global-ipc.com.