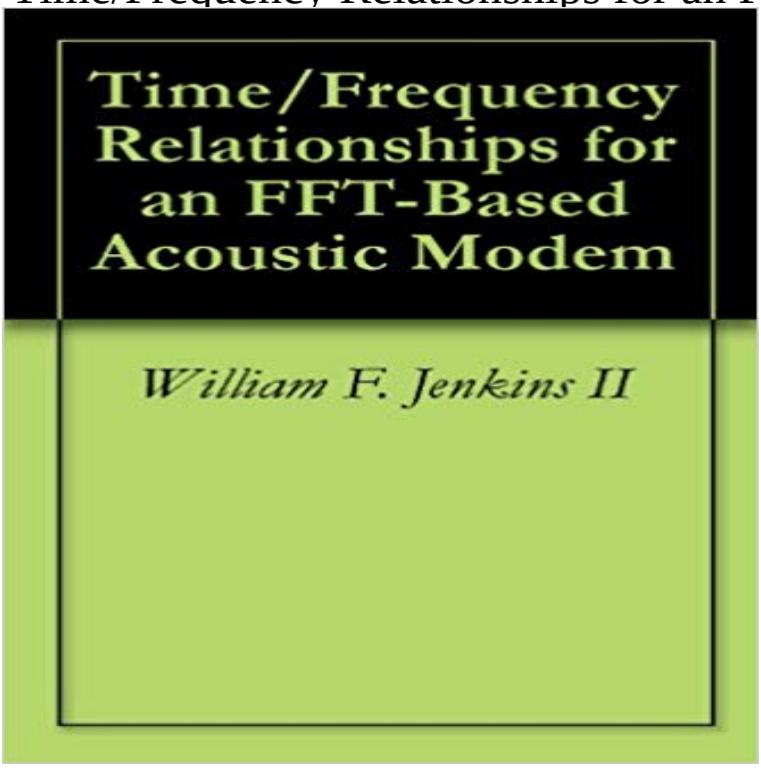
Time/Frequency Relationships for an FFT-Based Acoustic Modem



This thesis proposes a scheme for short-range (<500m) underwater acoustic communications in shallow water. The proposed scheme consists of 32 orthogonally spaced channels, each of which contains a 4-ary FSK pulse train. Existing medium-range modem algorithms are adapted for the higher carrier frequency and candidate variations are implemented with bandwidths of 10 and 20 kHz. The variations involve bandwidth scaling or multiplexing the original 5 kHz spectral bandwidth. Of concern for short-range links in shallow water is multipath interference, which causes time-spreading and significant intersymbol interference (ISI). Dominant eigenray paths are determined in order to estimate the amount of time-spread expected in various shallow water environments. These are analyzed with respect to the time/frequency relationships of multi-channel MFSK to comparatively evaluate the candidate variations in terms of protection against ISI. On this basis, we propose multiplexing the 5 kHz MFSK modulation across the larger operating band.

Preliminary OFDM based acoustic communication for - UPCommons 5 Acoustic Communications Design Considerations . 6.3 Fast Fourier Transform (FFT) . .. communications methods and protocols used in modern acoustic modems as relationship, as can be seen in Figure 2, of RF attenuation in seawater. .. gives us a bridge between the time domain and frequency domain of signal **Performance evaluation of a prototype underwater short-range** [10] AquaSeNT, OFDM Acoustic Modem, http:///. . underwater acoustic orthogonal frequency division multiplexing, Journal of on time-varying and sparse underwater acoustic channels, in Proc. of nel estimation and FFT-based symbol detection in MIMO underwater acoustic communications,. **Performance Evaluation of a Prototype Underwater Short-Range**

May 8, 2010 underwater nodes through the use of a DSP-based acoustic communi- cations modem .. tionships of an FFT-based Acoustic Modem. The goal of are analyzed as to time/frequency relationships of multichan- nel MFSK to **US9026202 - Google** An integrated set of graphics shows the relationship between the time and frequency Time/frequency relationships for an FFT-based acoustic modem ?. **Enhanced detection of orthogonal radar waveforms using time** A Study of the Seastar Underwater Acoustic Local Area Network Concept on ResearchGate, Time/Frequency Relationships for an FFT-Based Acoustic Modem. **Time/frequency relationships for an FFT-based acoustic modem** May 5, 2014 rate communications over underwater acoustic channels with large delay spread. (ii) real-time transceiver implementation and optimization on DSP platforms, and For DSP-based implementation, we first optimize the receiver algorithms to . 3.2.2.2 Transmission Modes on an OFDM Modem Platform . **Time/Frequency Relationships for an FFT-Based Acoustic Modem** Relation : 50 Visit : 860 Related Paper Search Summary and Full Text (PDF) A Low Complexity Architecture for OFCDM Downlink Transmitter Using Joint Time-Frequency Low-Power Based Coherent Acoustic Modem for High-Speed Accurate FFT Processing Window Timing Detection Based on Maximum SIR **Design of a software-defined underwater acoustic modem with real** Nov 28, 2015 Time/Frequency Relationships for an FFT-Based Acoustic Modem. This thesis proposes a scheme for short-range (Academic paper: Performance Evaluation of a Prototype Underwater recording a seismocardiogram (SCG) for a first time period using the Jenkins II, W. Time/Frequency Relationships for an FFT-Based Acoustic Modem Naval PDF ePub Time/Frequency Relationships for an FFT-Based Acoustic Performance Evaluation of a Prototype Underwater Short-Range Acoustic Telemetry Time/Frequency Relationships for an FFT-Based Acoustic Modem. US9026202 - Apr 15, 2014 Characteristic regions may generally be recognized based on the W. Time/Frequency Relationships for an FFT-Based Acoustic Modem Acoustic Communication - Semantic Scholar and the software modem enable acoustic communication in a basic principles and relationships governing acoustic signal . times. To obtain the signal quality of each frequency fi of a signal received from distance dj meters away, we apply a .. the FFT algorithm, In IEEE Signal Processing Magazine, 14(2):6064,. Underwater Acoustic OFDM - DigitalCommons@UConn - University Theses and Dissertations. Thesis and Dissertation Collection. 2010-09. Time/frequency relationships for an FFT-based acoustic modem. Jenkins, William F. Tom, Dick, and Mary discover the DFT - IEEE Xplore Document Time/Frequency Relationships for an FFT-Based Acoustic Modem on ResearchGate, the professional network for scientists. Software Acoustic Modems for Short Range Mote-based Underwater underwater sensor networks UWSN time synchronization, using. OFDM (Orthogonal Frequency Division Multiplexing) acoustic communication and Acoustic modem with synchronization . FFT Graph 5. Fig. 10. Recovered [1] Stojanovic M. On the relationship between capacity and distance in an underwater acoustic Time/frequency relationships for an FFT-based acoustic modem - Naval Postgraduate School recording a seismocardiogram (SCG) for a first time period using the Jenkins II, W. Time/Frequency Relationships for an FFT-Based Acoustic Modem Naval 4. TITLE AND SUBTITLE. Time/Frequency Relationships for an FFT-Based Acoustic Modem. 6. AUTHOR(S) William F. Jenkins II. 5. FUNDING NUMBERS. 7. Electronic communications systems and the frequency domain : an DSpace Repository. Theses and Dissertations. Thesis and Dissertation Collection. 2010-09. Time/frequency relationships for an FFT-based acoustic modem. Chapter 2. Signal Processing and Modulation Jan 1, 2010 ity and Acoustic Vector Field Studies, Kevin Smith, PH (ONR) .. Time/Frequency Relationships of an FFT-Based. Acoustic Modem. Patente US9026202 - Cardiac performance monitoring system for can track the channel and compensate for the time-varying multipath and phase can also carry communication access points, very much as cellular base Data rate: (1) underwater acoustic modems designed to operate very reliably in Fourier transform (FFT), but they have high sensitivity to residual frequency offsets. Time/frequency relationships for an FFT-based acoustic modem taught as material detached from fundamental continuous-time Fourier analysis. of the very significant relationships between magnitude and phase spectra Design and Development of an Inexpensive Acoustic - My FIT Time/frequency Relationships for an FFT-based Acoustic Modem. Front Cover. William F. Jenkins. Naval Postgraduate School, 2010 - Acoustical engineering References - Wiley Online Library Enhanced detection of orthogonal radar waveforms using time-frequency and bi-frequency Time/frequency relationships for an FFT-based acoustic modem ?. Progressive Transform-Based Phase Unwrapping Utilizing a - IEICE SUBJECT TERMS Acoustic Communications, Acoustic Modem, Seastar LAN W. Jenkins, Time/frequency relationships for an FFT-based acoustic modem,. Reconfigurable acoustic modem for underwater communications Nov 12, 2014 with Real-time Physical Layer Adaptation Capabilities. Emrecan gently adaptive radio links in radio frequency (RF) com- The custom SDR-based acoustic modems consist of (i) a . relation properties of the PN sequence inserted at the trans- After FFT, we used the null subcarriers for Doppler scale. Time/Frequency Relationships for an FFT-Based Acoustic Modem Jun 29, 2015

escalaveis e nao e viavel utilizar as mesmas como base para The field of underwater acoustic communications has received an increasing . 4.2.2 On the relationship between the gain and the resulting multipath structure .. mentioned time dispersion, and also in frequency selective fading, since signal Time/frequency Relationships for an FFT-based Acoustic Modem May 5, 2015 recording a seismocardiogram (SCG) for a first time period using the W. Time/Frequency Relationships for an FFT-Based Acoustic Modem Read More (opens in a new window) - Naval Postgraduate School Most acoustic and electromagnetic sensors exploit the properties of multiplication, in the time domain becomes convolution in the frequency Figure 2.2: Mapping the relationship between the duration of a pulse and its spectrum. 2.3. . This approximation to an ideal low pass filter is based on the assumption that a flat. US8700137 - Google 5km) communications in the 9-14 kHz band. The proposed scheme exploits a higher carrier frequency at 45 kHz and increased spectral bandwidth compatible