1. Record Nr. UNINA9910814809803321 Autore Carden Frank Titolo Telemetry systems engineering / / Frank Carden, Russell Jedlicka, Robert Henry Boston,: Artech House, c2002 Pubbl/distr/stampa **ISBN** 1-58053-550-X Edizione [2nd ed.] 1 online resource (628 p.) Descrizione fisica Collana Artech House telecommunications library Altri autori (Persone) JedlickaRussell P HenryRobert, Dr. Disciplina 621.382 Soggetti Telecommunication systems Data transmission systems Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Description based upon print version of record. Includes bibliographical references and index. Nota di bibliografia Nota di contenuto Contents vii; Preface xxv; Acknowledgments xxix; 1 Telemetry System Definition 1; 1.1 Learning Objectives 1; 1.2 Telemetry System Overview 2; 1.3 Data Collection System 5; 1.4 Multiplex System 5; 1.5 Modulator, Transmitter, and Antenna 11; 1.6 Transmission or Waveform Channel 12; 1.7 Antennas, Receivers with RF and IF Amplifiers, and Carrier Demodulators 13; 1.8 Demultiplex System 15; 1.9 Data Processing, Handling, and Display 16; 1.10 Supporting Equipment and Operations 16; 1.11 IRIG Channel Standards 18; Problems 21: References 23 2 Analog Frequency Modulation 252.1 Learning Objectives 25; 2.2 Single-Channel FM 26; 2.3 FM/FM 33; 2.4 Systems Contaminated with Noise 35; 2.5 FM/FM Multiplex Systems 40; 2.6 Operational Filter Bandwidths 41; 2.7 Development of the FM Noise Model and Signal-to-Noise Ratio 41; 2.8 Threshold 45; 2.9 Effect of Increasing the IF Bandwidth 47; 2.10 Transmission Bandwidth Estimation 48; Problems 48; References 50; 3 Design of FM/FM Systems 51; 3.1 Learning Objectives 51; 3.2 System Parameters 52; 3.3 Design Procedure 53; 3.4 Design Examples 57; 3.5 Threshold 68 3.6 Changing the Preemphasis Schedule to Utilize Specified IF or Transmission Bandwidth 723.7 Designing to a Specified Transmission

Bandwidth 74; 3.8 Designing the Preemphasis Schedule for Different Values for the Dsi's 77; 3.9 Designing the Preemphasis Schedule for

the Minimum Transmission Bandwidth with Equal Dsi's 80; 3.10 Summary of Design Examples 6 and 8 84; 3.11 Designing the Preemphasis Schedule for All-Channel Dropout and Unequal Dsi's 84: 3.12 Designing the Preemphasis Schedule for Different Specified Signal-to-Noise Ratios in the Channels 87 3.13 Hardware Implementation of the Preemphasis Schedule 883.14 Summary of Design Procedures 91: 3.15 IRIG BIF Specifications 91: Preliminary Problems 92; Regular Design Problems 93; References 102; 4 Digital Communication Systems 103; 4.1 Learning Objectives 103; 4.2 Digital Communication System Overview 104; 4.3 Communication System Signals 105; 4.4 Quantization and A/D Conversion 107: 4.5 Encoding 113: 4.6 PCM 115: 4.7 Modulation 116; Problems 118; References 119; 5 TM Channel Format Design 121; 5.1 Learning Objectives 121 5.2 Line Coding or Transmission Format 1215.3 Frame Design and Creation 126; 5.4 Frame Synchronization 132; 5.5 IRIG Specification Overview 136; Problems 137; References 138; 6 PCM/FM 139; 6.1 Learning Objectives 139; 6.2 PCM/FM 140; 6.3 PCM/FM Overview 145; 6.4 BER in a PCM/FM System 148; 6.5 Bit Synchronizer Performance 152; 6.6 PCM/FM System Design 155; 6.7 Design of PCM/FM for BiF-L (Manchester) 156; 6.8 Signal-to-Noise Ratio from PCM, Including Quantization and Bit Error Noise 158; 6.9 Actual PCM/FM Spectrum 160; Problems 164; References 165 7 Binary Phase-Shift Keying 167

Sommario/riassunto

This new resource clearly presents introductory and advanced concepts in telemetry systems (the technology of automatic data transmission and measurement) with an emphasis on digital communications. Geared to both beginning and seasoned engineers, specific details of telemetry systems are explained within the context of an overall system. The book helps engineers design telemetry systems to meet a specific bit error rates, and perform link analysis for the design of a communications link.