1. Record Nr. UNINA9910143748903321 Autore Larsen Erik R. <1975-> Titolo Audio bandwidth extension: application of psychoacoustics, signal processing and loudspeaker design / / Erik Larsen, Ronald M. Aarts Chichester, : John Wiley & Sons, c2004 Pubbl/distr/stampa **ISBN** 1-280-54162-8 9786610541621 0-470-85871-0 0-470-85865-6 Descrizione fisica 1 online resource (313 p.) Altri autori (Persone) AartsRonald M 621.3822 Disciplina Soggetti **Psychoacoustics** Signal processing Acoustical engineering Radio frequency Loudspeakers - Design and construction Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Description based upon print version of record. Note generali Includes bibliographical references (p. [269]-284) and index. Nota di bibliografia Nota di contenuto Audio Bandwidth Extension; Contents; Preface; I Introduction; I.1 Bandwidth Defined; I.2 Historic Overview; I.2.1 Electroacoustic Transducers; I.2.2 Sound Quality; I.3 Bandwidth Extension Framework; I.3.1 Introduction; I.3.2 The Framework; 1 From Physics to Psychophysics; 1.1 Signal Theory; 1.1.1 Linear and Non-linear Systems; 1.1.2 Continuous-time LTI (LTC) Systems: 1.1.3 Discrete-time LTI (LTD) Systems; 1.1.4 Other Properties of LTI Systems; 1.1.5 Digital Filters; 1.2 Statistics of Audio Signals; 1.2.1 Speech; 1.2.2 Music; 1.3 Loudspeakers; 1.3.1 Introduction to Acoustics 1.3.2 Loudspeakers 1.3.3 Bessel and Struve Functions; 1.4 Auditory Perception; 1.4.1 Physical Characteristics of the Peripheral Hearing System: 1.4.2 Non-linearity of the Basilar Membrane Response: 1.4.3 Frequency Selectivity and Auditory Filters; 1.4.4 Loudness and Masking; 1.4.5 Pitch; 1.4.6 Timbre; 1.4.7 Auditory Scene Analysis; 1.4.8 Perceptual Modelling - Auditory Image Model; 2 Psychoacoustic

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Sommario/riassunto

Bandwidth extension (BWE) refers to various methods that increase either the perceived or real frequency spectrum (bandwidth) of audio signals. Such frequency extension is desirable if at some point the frequency content of the audio signal has been reduced, as can happen for example during recording, transmission or reproduction. This volume, significant in dealing exclusively with BWE, discusses applications to music and speech and places particular emphasis on signal processing techniques. Presents an all-encompassing approach to BWE by covering theory, applications and algorithms<