Title (en)

COMMUNICATION SYSTEM AND METHODS OF ESTIMATING CHANNEL IMPULSE RESPONSES THEREIN

Title (de)

MEHRFACHKANALSCHÄTZUNG IM FREQUENZBEREICH MITTELS WIENER MINIMUM MEAN SQUARED ERROR (MMSE) FILTER

Title (fr)

SYSTEME DE COMMUNICATION ET PROCEDES PERMETTANT D'ESTIMER LES REPONSES IMPULSIONNELLES DES VOIES DANS LE SYSTEME

Publication

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Application

EP 02720111 A 20020403

Priority

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- US 10991502 A 20020329

Abstract (en)

[origin: WO02082683A2] Multiple Steiner codes are transmitted as bursts (s11, s12, s33, 560, 524) from multiple base stations (182, 184, 186) having one or more transmit elements (174, 176, 178, 180), with successive bursts providing an extended training sequence for use in channel estimation at an addressed unit (172), such as a mobile handset. Accurate channel estimation is possible through the use of Wiener frequency domain MMSE deconvolution (518) combined with frequency domain spatial decoupling matrices, with quasi-orthogonal pseudo-noise sequences (502, 504, 520, 522) allocated to base stations and their antenna elements. The use of Steiner codes to supplement Wiener frequency domain MMSE deconvolution and frequency domain spatial decoupling results in the possibility of allocating only a single training sequence to each base station provided that the training sequence is of sufficient length to encompass all multiple time-translated channel impulse responses (H). Estimates may be refined iteratively by minimising the MS error of demodulated pilot symbols. Estimates may also be refined by removing taps from the impulse response which are insignificant based on a relatively long-term power-delay profile for the channel.
[origin: WO02082683A2] Multiple Steiner codes are transmitted as bursts (s>11<, s>12<, s>33<, 560, 524) from multiple base stations (182, 184, 186) having one or more transmit elements (174, 176, 178, 180), with successive bursts providing an extended training sequence (260) for use in channel estimation at an addressed unit (172), such as a mobile handset. Accurate channel estimation is possible through the use of Wiener frequency domain (252) MMSE deconvolution (266, 518) combined with frequency domain spatial decoupling matrices, with quasi-orthogonal pseudo-noise sequences (502, 504, 520, 522) allocated to base stations and their antenna elements. The use of Steiner codes to supplement Wiener frequency domain MMSE deconvolution and frequency domain spatial decoupling results in the possibility of allocating only a single training sequence to each base station provided that the training sequence is of sufficient length to encompass all multiple time-translated channel impulse responses (H). Estimates may be refined iteratively by minimising the MS minimum squared error of demodulated pilot symbols (1540). Estimates may also be refined by removing taps from the impulse response which are insignificant based on a relatively long-term power-delay profile for the channel (272).

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CPC (source: EP)

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See references of WO 02082683A2

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