

Title (en)

A DIGITAL SYSTEM FOR SUBSCRIBER LINES ALLOWING HIGH BIT RATES

Title (de)

EIN HOHE BITRATEN ERLAUBENDES, DIGITALES SYSTEM FÜR TEILNEHMERLEITUNGEN

Title (fr)

SYSTEME NUMERIQUE POUR LIGNES D'ABONNES PERMETTANT DES DEBITS BINAIRES ELEVES

Publication

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Application

EP 98931186 A 19980630

Priority

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- SE 9702550 A 19970630

Abstract (en)

[origin: WO9900926A2] A subscriber line connection for very high bit rates in a telecommunication network comprises a line unit (5) connected to a transport network (1) and through a twisted two-wire cable (7) to a subscriber unit (9). Information is communicated bidirectionally on the cable using frequency multiplexing on orthogonal carriers. The line and subscriber units each comprise modulating units (19, 37) determining an inverse discrete fourier transform on incoming symbols and demodulating units (29, 43) for making a direct discrete fourier transform on a sampled stream of the signal forwarded on the cable (7). The transforming units (19, 29) used for transmission in one direction use carriers which are different from those used by the transforming units (37, 43) in the opposite direction. The carriers are selected so that in at least one of the directions special properties of the transforms are used for reducing the number of calculations which are required. In the direction from the subscriber (3) only carriers having even indices can be used in the transforming unit (37) and then the output signal sent on the cable (7) will consist of a repeated sequence having half the length of that obtained when all carriers are used, so that only a sequence having half the length has to be calculated and repeated. In the transforming unit (43) receiving such a twice repeated signal, the received symbols can be subdivided into two equal segments which are added to each other and then a reduced transforming operation is executed. In the opposite direction the transforming operation using all carriers can always be calculated. Then also, the lowest frequencies can be always assigned to this direction towards the subscriber, since the transmission in the opposite direction may be especially sensitive to noise or interference at low frequencies which thus should not be used.

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