

Title (en)

COMMUNICATION SYSTEM AND SPLIT-BAND AMPLIFYING APPARATUS USING A DEPRESSED-PROFILE FIBER AMPLIFIER

Title (de)

KOMMUNIKATIONSSYSTEM UND BANDAUFGETEILTE VERSTÄRKUNGSVORRICHTUNG MIT EINEM FASERVERSTÄRKER MIT GEDRÜCKTEM PROFIL

Title (fr)

SYSTEME DE COMMUNICATION ET APPAREIL D'AMPLIFICATION A BANDE DIVISEE METTANT EN OEUVRE UN AMPLIFICATEUR A FIBRE A PROFIL DEPRIME

Publication

EP 1488548 A2 20041222 (EN)

Application

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Priority

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Abstract (en)

[origin: WO03076979A2] An optical communication system (200) and a split-band amplifying apparatus (212) that amplifies optical signals whose short wavelength band includes at least a portion of the S-band and whose long wavelength band includes at least a portion of the C- and/or L-band. The amplifying apparatus (212) has a first (212A) and second section (212B) for respectively amplifying the long and short wavelength bands. The second section (212B) comprises a short-pass fiber (10) with a core (12) doped with an active material (18) such as Erbium. A pump source pumps the Erbium to a level of high relative inversion D such that the Erbium exhibits positive gains in the S-band and high gains in a long wavelength band longer than the S-band, i.e., in the C- and L-Bands. The core (12) is surrounded by a depressed cladding (14), which is surrounded by a secondary cladding (16). The core (12) has a core cross-section and a refractive index n_0 , the depressed cladding (14) has a depressed cladding cross-section and a refractive index n_1 , and the secondary cladding (16) has a secondary cladding cross-section and a refractive index n_2 . The core cross-section, the depressed cladding cross-section and the refractive indices n_0 , n_1 , and n_2 are selected to obtain losses at least comparable to the high gains in the long wavelength band and losses substantially smaller than the positive gains in the S-band. The fiber amplifier functions as a pre-amplifier, a power-boosting amplifier or an in-line amplifier in the optical communication system.

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