

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
26 September 2002 (26.09.2002)

PCT

(10) International Publication Number
WO 02/075934 A3

(51) International Patent Classification⁷: **H04J 14/02**,
H01S 3/10, 3/108, 3/30

(21) International Application Number: PCT/US02/06641

(22) International Filing Date: 15 March 2002 (15.03.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
09/809,422 16 March 2001 (16.03.2001) US

(71) Applicant (for all designated States except US): **DORSAL NETWORKS, INC.** [US/US]; 9212 Berger Road, Columbia, MD 21046 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **DENNIS, Michael, L.** [US/US]; 209 Leo Lane, Alexandria, VA 22308 (US). **MAHON, Cathal** [IE/IE]; Vedbendvei 27, DK-2900 Hellerup (DK). **HAYES, M. Imran** [US/US]; 5818 Stevens Forest Road, #34, Columbia, MD 21045 (US).

PEDERSEN, Bo [IE/US]; 1398 Saefern Way, Annapolis, MD 21401 (US). **RAMANUJAM, Nandakumar** [MY/US]; 256 Kensington Drive, Morganville, NJ 07751 (US). **SHEIH, William** [US/US]; 12290 Green Meadow Drive, Room 306, Columbia, MD 21044 (US).

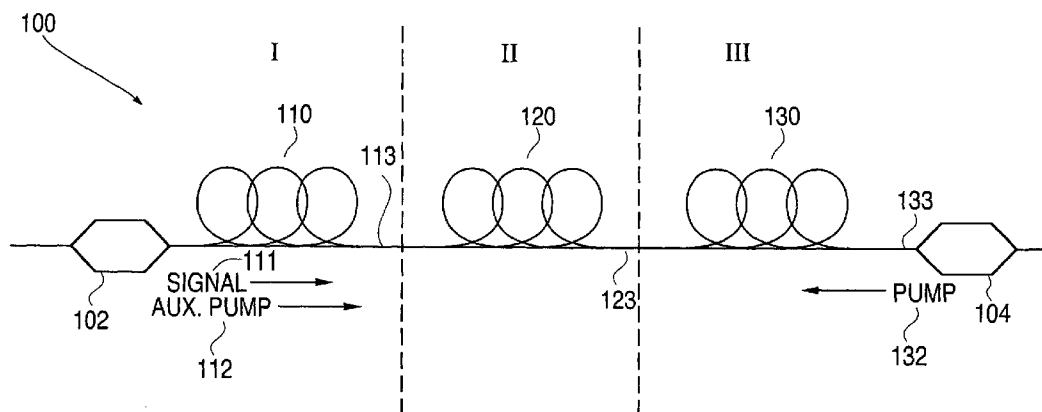
(74) Agents: **KUMAR, Johnny, A.** et al.; Foley & Lardner, Washington Harbour, 3000 K Street, N.W., Suite 500, Washington, D.C. 20007-5143 (US).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: METHOD AND SYSTEM FOR DISPERSION MAPS AND ENHANCED DISTRIBUTED GAIN EFFECT IN LONG HAUL TELECOMMUNICATIONS



(57) Abstract: A system and method of providing a transmission span (100) that compensates for signal attenuation, dispersion, and nonlinearity of an optical signal communicated between two line units (102, 104) of a transmission link includes dividing the transmission span (100) into a plurality of fiber segments and selecting a particular fiber for each of the segments. The fiber selection and arrangement of fibers within the span (100) can be selected in accordance with the nonlinearity, dispersion conditions, and distributed gain conditions of the constituent fibers. In a three segment map, the first segment (110) can provide low non linearity, the third segment (130) can provide distributed gain, and the second segment (120) can compensate for the dispersion of the first and third segments (130). The span (100) can be used, e.g., for distributed Raman amplification. The span (100) can alternatively include a two segment map, a four segment map, or a map with additional segments.



WO 02/075934 A3



Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(88) Date of publication of the international search report:

21 November 2002