

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
29 December 2004 (29.12.2004)

PCT

(10) International Publication Number
WO 2004/114530 A3

- (51) International Patent Classification⁷: G02B 06/28, H04B 10/00
- (21) International Application Number: PCT/US2004/019551
- (22) International Filing Date: 21 June 2004 (21.06.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 60/480,003 20 June 2003 (20.06.2003) US
- (71) Applicant (for all designated States except US): CORVIS CORPORATION [US/US]; 7015 Albert Einstein Drive, P.O. Box 9400, Columbia, MD 21046-9400 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, 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, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

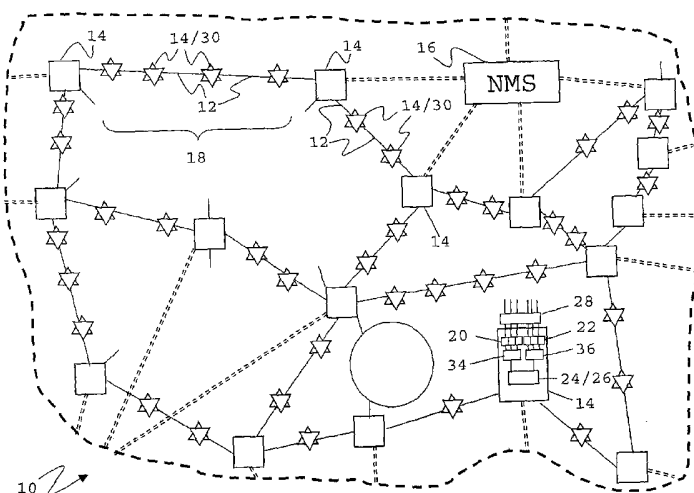
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

- (72) Inventors; and
- (75) Inventors/Applicants (for US only): FELDMAN, Sandra, F. [US/US]; c/o Corvis Corporation, 7015 Albert Einstein Drive, P.O. Box 9400, Columbia, MD 21046-9400 (US). GARDINER, Kent, C. [US/US]; 2735 Dunleer Road, Ellicott City, MD 21042 (US).
- (74) Agents: WOLF, Darren, E. et al.; c/o Corvis Corporation, 7015 Albert Einstein Drive, P.O. Box 9400, Columbia, MD 21046-9400 (US).

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

[Continued on next page]

(54) Title: SYSTEMS, DEVICES, AND METHODS FOR CONTROLLING NON-LINEAR OPTICAL INTERACTIONS



(57) Abstract: An optical communications system, comprising a first node (14), first dispersion compensation fiber located in the first node, wherein the first dispersion compensation fiber induces dispersion onto optical signals passing through the first dispersion compensation fiber, a second node (14), a plurality of spans (12) between the first and second nodes, and second dispersion compensation fiber located in at least one of the spans (12), wherein the second dispersion compensation fiber induces dispersion onto optical signals passing through the second dispersion compensation fiber, and wherein the dispersion induced by the second dispersion compensation fiber is opposite in sign to that induced by the first dispersion compensation fiber.

WO 2004/114530 A3



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

7 July 2005

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.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/19551

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G02B 06/28; H04B 10/00

US CL : 385/24; 398/148

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 385/24; 398/147, 148, 81

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
"Understanding Fiber Optics," by Jeff Hecht

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
U.S. EAST search database: nodes, spans, (negative with dispersion) same (positive with dispersion)
Google Search: nodes, spans, negative dispersion, positive dispersion

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2002/0118936 A1 (TSURITANI et al) 29 August 2002 (29.08.2002) see entire document.	1-20
X	US 6,307,985 B1 (MURAKAMI et al) 23 October 2001 (23.10.2001), see entire document, esp. Fig. 1 and col. 5, lines 24-48.	1-8, and 12-14 -----
---		9-11, and 15-20
Y		9-11 and 15-20

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"B" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

02 February 2005 (02.02.2005)

Date of mailing of the international search report

10 MAY 2005

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Facsimile No. (703) 305-3230

Authorized officer

Rodney Bovernick

Telephone No. (571) 272-1550