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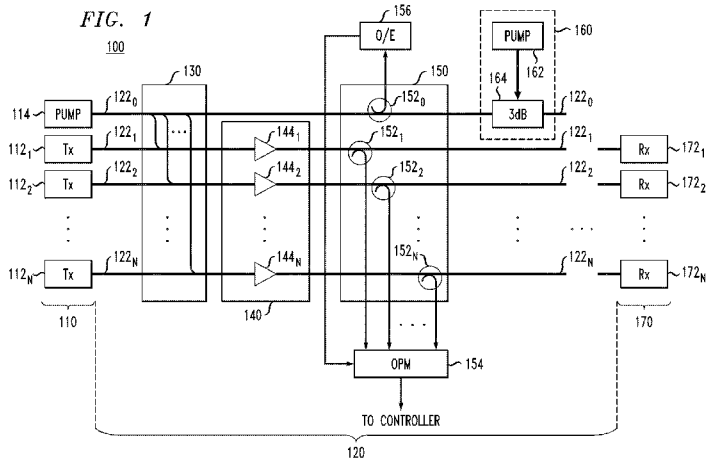
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(54) Title: OPTICAL PUMPING AND POWERING IN SPATIALLY MULTIPLEXED TRANSMISSION LINKS

FIG. 1



(57) Abstract: A spatially multiplexed optical link having a plurality of transmission paths, wherein at least one transmission path is configured to carry an optical-pump signal while one or more other transmission paths carry data-bearing signals. Disposed within the optical link are an optical signal-distribution module and an amplifier module. The optical signal-distribution module is configured to couple portions of the optical-pump signal into the data-bearing transmission paths. The amplifier module is configured to amplify the data-bearing signals using these portions of the optical- pump signal as a power source in a suitable all-optical amplification scheme. The optical-pump signal can optionally be tapped and applied to a photovoltaic element configured to directly power a device, e.g., an optical performance monitor, or to charge the battery of that device to enable its autonomous operation if external electrical power is not available where the device is deployed.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

H04B 10/13(2006.01)i

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)

H04B 10/13; G02B 6/036; G01J 1/44; G02B 6/26; H04B 10/08; G02B 6/34

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models
Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: optical, power, pumping, transmit

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 7941022 B1 (SCHAFFNER JAMES H. et al.) 10 May 2011 See abstract, Figs. 1-2, column 2, line 30 -column 4, line 39, claim 1	1-10
A	US 2009-0016715 A1 (FUREY JAMES) 15 January 2009 See abstract, Fig. 1, paragraph [0016], claim 1	1-10
A	US 2008-0277565 A1 (BOOKBINDER DANA CRAIG et al.) 13 November 2008 See abstract, Fig. 6, paragraphs [0069]-[0070], claim 1	1-10
A	US 2002-0039465 A1 (NEAL G. SKINNER) 04 April 2002 See abstract, Fig. 4, paragraphs [0035]-[0038], claim 1	1-10

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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