METHOD AND APPARATUS FOR COMPENSATING DIFFERENTIAL GROUP DELAY

An improved digital differential group delay (DGD) controller is capable of producing variable DGD used to compensate for DGD in a fiber optic link in real time. The DGD controller comprises one or more sets of a polarization modulator optically coupled with a fixed delay component, such as a birefringent plate. Each set provides an amount of DGD compensation. By controlling the number of stages in the controller, the amount of DGD compensation provided by each stage, and which stages are placed in the OλV state, the total amount of DGD compensation provided by the digital DGD controller can be varied.
## INTERNATIONAL SEARCH REPORT

### A. CLASSIFICATION OF SUBJECT MATTER

- **IPC(7)**: G02B 6/00
- **US CL**: 389/011

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.: 385/011, 4, 12, 14, 147; 356/399, 409, 401; 250/201.4, 548, 201.2, 201.7; 349/77, 100, 117, 106, 196, 31, 172

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

NONE

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

- **DERwent**, **USPOPUS**: search terms polarization adj

### C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>US 5,191,200 A (VAN DER WERFF et al.) 2 March 1995 (02.03.1995), see entire document.</td>
<td>1-22</td>
</tr>
</tbody>
</table>

Further documents are listed in the continuation of Box C.

See patent family annex.

- **A** document defining the general state of the art which is not considered to be of particular relevance
- **E** earlier application or patent published on or after the International filing date
- **L** document which may involve the same principle or theory
- **O** document referring to an end condition, use, or method
- **I** document published prior to the International filing date but later than the priority date claimed

Date of the actual completion of the international search: 12 February 2004

Date of mailing of the international search report: 01 March 2004

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