




PatReader

Questel•Orbit is pleased to announce the availability of PatReader, a new visualization tool for quick and accurate scanning of full-text patents. It extracts and synthesizes all relevant information, and lays out the document in a convenient two-column format with elements on the left linked to the full-text on the right. This exclusive tool has been developed with partner company Lingway, known for its powerful linguistic tools.

Features:

-  **Assisted Reading** With a two column layout, the left column identifies key elements such as inventors, assignees, patent objectives, advantages and independent claims with right hand column view of the corresponding text.
-  **Text Highlighting** Color coding quickly distinguishes between text that describes the patent objective, advantages or independent claims.
-  **Synthetic Views** Browse easily from the items tagged by the synthetic view to the retrieved results. Independent claims are identified and linked. Links from phrases found to the precise location of the phrases in the full-text of the patent. Links hard to find information, such as patent numbers, buried in the full-text of the patents.

Exporting Results from Questel•Orbit to PatReader:

From an Online Search:

English language results from a search in one of the full-text files, EPAPAT, EPBPAT, PCTFULL, USPAT and USAPPS can be easily exported into PatReader. After an online search in one of the full-text files, the EXPORT feature is used to export the full-text records. An email will be sent with a link to the PatReader documents. The full-text records will be in HTML format.

From a SDI running in the Full-Text Files:

English language results from an SDI running in EPAPAT, EPBPAT, PCTFULL, USPAT or USAPPS can automatically be exported into PatReader.

Title, File, Number of Patents

Key Information For Easy Scanning

Highlighting Patent Objectives

&

Patent Advantages

Questel-Orbit PatReader - Microsoft Internet Explorer

Address: http://sobjprd.questel.fr/image/1m/j/P0000038-A420197-164123299.html

**DWDM AVANEX
USPAT
PATREADER**

USPAT - 14documents - generated on September 8, 2004

Attenuator Integrated With Modulator And Transmitting Module For WDM Systems Using The Same
US6785434 B2 20040831
AVANEXCORPORATION |

| Type of Information | Number | Elements / Best Representative |
|---|--------|---|
| Persons Inventors, Legal Representatives, Examiners | 10 | ANTHONY (1) ARTMAN THOMAS R (1) CARENCO (1) CASTOLDI ANDREA (1) DELL ORTO FLAVIO (1) DEROSA (1) GLICK EDWARD J (1) MUELLER FIEDLER (1) SCIANCALEPORE DAVIDE (1) SKEIE (1) |
| Organizations Assignees, Companies cited in text | 6 | AVANEXCORPORATION (1) BELL LABORATORIES (1) INTEGRATED OPTICS DEVICES III THE INTERNATIONAL SOCIETY (1) PATTERSON & SHERIDAN L L P (1) JDS UNIPHASE (2) |
| Patents Cited | 17 | EP00187 (1) EP01/00187 (1) EP0905536 (1) U S PAT NO 5 225 922 (1) U S PAT NO 5 970 201 (1) WO01/54318 (1) WO200154318 (1) US4300814 (2) US5249243 (2) US5970201 (2) US6400483 (2) US6493478 (2) |
| Patent Objectives Inventive /novelty aspects | 4 | This invention relates to an integrated optical device to be included in a transmitter for an optical fibre transmission system. In particular, this invention relates to a modulator with integrated attenuator to be included in a transmitter for a WDM optical fibre transmission system based on erbium doped fibre amplifiers, using pre-adjusting of the channel powers. Further, this invention relates to a method for reducing crosstalk between devices integrated on a substrate. (...) In a second aspect, the invention relates to an integrated optical device comprising: (...) In a third aspect, the invention relates to a method for reducing the crosstalk between at least two devices including optical waveguides integrated on a substrate, each of said optical devices including at least one multimodal section of optical waveguide, the crosstalk being generated by unguided optical radiation propagating on said substrate in a region comprised between said optical devices, said method comprising filtering said unguided radiation in said region. In a fourth aspect, the invention relates to a transmitting module comprising: |
| Patent Advantages Specific use | 1 | Advantageously, the metal strips are integrated in an extension of the electrodes of the Y-branch attenuator, so that the gap between the electrodes progressively increases from about 100% to about 170% of the MFD of the connecting waveguide in a first portion of the extension and is about 170% of the MFD of the connecting waveguide in a second portion of the extension. |
| Previous Patent Drawbacks | 2 | A major problem in implementing WDM channels on an optical transmission system is the absence of gain equalization. |

Independent Claims Shown

Click on Full Display for Full-Text & Synthetic Views

Questel-Orbit PatReader - Microsoft Internet Explorer

Address: http://sobjprd.questel.fr/image/1m/j/P0000038-A420197-164123299.html

**DWDM AVANEX
USPAT
PATREADER**

USPAT - 14documents - generated on September 8, 2004

WDM Utilizing Grating-Based Channel Separators
US6778780 B1 20040817
AVANEXCORPORATION |

| Type of Information | Number | Elements / Best Representative |
|---|--------|---|
| Persons Inventors, Legal Representatives, Examiners | 14 | BYSTROM KENNETH JOHN (1) CAO SIMON X F (1) GORBOUNOVA OLGA (1) LEWIS (1) LIN (1) LUO (1) MELI (1) PASCAL LESLIE (1) TRAN DZUNG (1) VOLLMER (1) VOLLMER HUBERT JOACHIM (1) WELLER BROPHY (1) CAO (2) |
| Organizations Assignees, Companies cited in text | 2 | AVANEXCORPORATION (1) MOSER PATTERSON & SHERIDAN LLP (1) |

Independent Claims

5

14. An integrated optical device comprising: a substrate, a Mach-Zehnder modulator integrated on said substrate characterized in that it further comprises a Y-branch attenuator integrated on said substrate, said Mach-Zehnder modulator being optically coupled to one arm of said Y-branch attenuator.
(...)
1. An integrated optical device comprising: a planar substrate, a Mach-Zehnder modulator integrated on said substrate characterized in that it further comprises a Y-branch optical attenuator integrated on said substrate to provide an attenuation range, said Y-branch attenuator being optically coupled to said Mach-Zehnder modulator, and means for reducing a crosstalk between said Y-branch attenuator and said Mach-Zehnder modulator, whereby the extinction ratio of the optical device is at least 18 dB on an attenuation range of at least 6 dB.
(...)
16. A method for reducing the crosstalk between at least two devices including optical waveguides integrated on a substrate, each of said optical devices including at least one multimodal section of optical waveguide, said crosstalk being generated by unguided optical radiation propagating on said substrate in a region comprised between said optical devices, said method comprising: integrating a Mach-Zehnder modular and a Y-branch attenuator on said substrate thereby defining said region; and

Full Display

Questel-Orbit PatReader: US6785434 - Microsoft Internet Explorer

Address: http://sobjprd.questel.fr/image/1m//P0000038-A420197-164123299.frame.1.html

Attenuator Integrated With Modulator And Transmitting Module For WDM Systems Using The Same
US6785434 B2 20040831
AVANEXCORPORATION |

Synthetic Views

- Persons
- Organizations
- Patent Objectives
- Previous Patents
- Patent Independent Claims
- Patent Advantages
- Previous Patent Drawbacks
- Legend

Contents

- Bibliographic
- Abstract
- Drawings
- Main Claim
- Additional Claims
- Brief Summary
- Detailed Description

Patent Number
US6785434 B2 20040831

Title
Attenuator integrated with modulator and transmitting module for WDM systems using the same

Inventor(s)
Castoldi, Andrea ;
Monza [IT]
Dell'orto, Flavio ;
Sergeno [IT]
Sciancalepore, Davide ;
Caluso [IT]

Patent Assignee
AvanexCorporation , Fremont CA [US]

Application Details
US168841 20020620 [2002US-0168841]

Priority Details
EP 00100832 20000117 [2000EP-0100832]

PCT Information
PCT Ser. No: PCT/ EP01/00187 [2001WO- EP00187] ,
Filing Date: 20010109 ,
PCT Pub. No.: WO01/54318 [WO200154318] ,
Pub. Date: 20010726 .

Document type
INVENTION (UTILITY) PATENT (with Pre-Grant Publicatn)

Persons : 10 occurrences

| Persons | Nb | Type | Occurrences |
|----------------------|----|--------------------|-------------|
| ANTHONY | 1 | Cited Person | 1 - |
| ARTMAN THOMAS R | 1 | Assistant examiner | 1 - |
| CARENCO | 1 | Cited Person | 1 - |
| CASTOLDI ANDREA | 1 | Inventor | 1 - |
| DELL'ORTO FLAVIO | 1 | Inventor | 1 - |
| DEROSA | 1 | Cited Person | 1 - |
| GLICK EDWARD J | 1 | Primary examiner | 1 - |
| MUELLER FIEDLER | 1 | Cited Person | 1 - |
| SCIANCALEPORE DAVIDE | 1 | Inventor | 1 - |
| SKEIE | 1 | Cited Person | 1 - |

Done Internet

Synthetic Views

&

Full-Text Side by Side

Questel-Orbit PatReader: US6785434 - Microsoft Internet Explorer

Address: http://sobjprd.questel.fr/image/1m//P0000038-A420197-164123299.frame.1.html

Attenuator Integrated With Modulator And Transmitting Module For WDM Systems Using The Same
US6785434 B2 20040831
AVANEXCORPORATION |

Organizations : 6 occurrences

| Organizations | Nb | Type | Occurrences |
|---|----|----------|-------------|
| AVANEXCORPORATION | 1 | Assignee | 1 - |
| BELL LABORATORIES | 1 | -- | 1 - |
| INTEGRATED OPTICS DEVICES III THE INTERNATIONAL SOCIETY | 1 | -- | 1 - |
| PATTERSON & SHERIDAN LLP | 1 | -- | 1 - |
| JDS UNIPHASE | 2 | -- | 1 - 2 - |

Patent Objective : 4 occurrences

| Phrases | Confidence |
|---|------------|
| This Invention Relates To An Integrated Optical Device To Be Included In A Transmitter For An Optical Fibre Transmission System. In Particular, This Invention Relates To A Modulator With Integrated Attenuator To Be Included In A Transmitter For A WDM Optical Fibre Transmission System Based On Erbium Doped Fibre Amplifiers, Using Pre-Adjusting Of The Channel Powers. Further, This Invention Relates To A Method For Reducing Crosstalk Between Devices Integrated On A Substrate. | high |
| In A Second Aspect, The Invention Relates | medium |

Another example is the "10 Gb/s Data Modulator with Integrated Variable Optical Attenuator (VOA)", sold by **JDS Uniphase**, Model 10150-002193. According to the data sheet by **JDS Uniphase** dated November/1999, this modulator has a driving voltage for the VOA section not higher than 4V. Generally speaking, these devices comprise a Y-branch waveguide structure with electrodes deposited near the waveguides. Typical voltages applied to the electrodes are higher than 15-20 V and can reach up to 30-50 V. **US Pat. No. 5,970,201** to Lucent Technologies discloses a circuit for regulating optical power levels. Electrooptic Y-branched attenuators are used to control optical output intensity by means of feedback loops from the outputs of the Y-branch attenuators to the electrodes of the attenuators, which determine the amount of light going to the outputs. The problem faced by the above patent is to obtain a polarization independent attenuator which can be inserted in an optical network for controlling the power of optical signals having random variations in the state of polarization, as in optically amplified transmission systems when one or several wavelength channels are added or dropped. The use of a fast feedback loop together with a Y-branch attenuator allows to obtain a polarization independent automatic power controlling device, which can be used in combination with an optical switch array.

SUMMARY OF THE INVENTION
Applicant has realized a modulator with integrated attenuator by using a Y-branch attenuator integrated on the same substrate of a Mach-Zehnder modulator. Applicant has found that the high driving voltage of a Y-branch attenuator is not a critical issue for the integration of the Y-branch attenuator on the same substrate of the Mach-Zehnder modulator. Applicant has found that, in order to meet the requirements of a WDM system using pre-equalization of the channels, a critical issue for an electro-optical device comprising a Mach-Zehnder modulator and a Y-branch attenuator integrated on the same substrate is the reduction of crosstalk between the two integrated devices. Such crosstalk is caused by portions of unguided optical power spread on the substrate starting from waveguide sections belonging to the upstream device, which optical power is then re-guided by waveguide sections belonging to the downstream device. **In this respect, Applicant has found that particular arrangements of the Y-branch attenuator with respect to the Mach-Zehnder modulator can effectively reduce the crosstalk between the two devices, whereas other arrangements suffer from crosstalk up to values that are unacceptable for a WDM system.** In particular, Applicant has found that a configuration comprising a Mach-Zehnder modulator coupled to one of the arms of the Y-branch attenuator effectively reduces the crosstalk between the two integrated devices, with respect to a configuration comprising a Mach-Zehnder modulator coupled to the common waveguide of the Y-branch attenuator. Applicant has also found that the use of a tilted Y-branch attenuator effectively reduces the crosstalk.

Done Internet

Synthetic View Items Linked to Terms in the Full-Text

Links from Phrases in Synthetic View To Phrases in Patent

Questel-Orbit PatReader: US6785434 - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address <http://sobjprd.questel.fr/image/1m/j/P0000038-A420197-164123299.frame.1.html>

Attenuator Integrated With Modulator And Transmitting Module For WDM Systems Using The Same
US6785434 B2 20040831
AVANEXCORPORATION |

Questel • Orbit
Intellectual Property Group

Patent Objective : 4 occurrences

| Phrases | Confidence |
|---|------------|
| This Invention Relates To An Integrated Optical Device To Be Included In A Transmitter For An Optical Fibre Transmission System. In Particular, This Invention Relates To A Modulator With Integrated Attenuator To Be Included In A Transmitter For A WDM Optical Fibre Transmission System Based On Erbium Doped Fibre Amplifiers Using Pre-Adjusting Of The Channel Powers. Further, This Invention Relates To A Method For Reducing Crosstalk Between Devices Integrated On A Substrate. | high |
| In A Second Aspect, The Invention Relates To An Integrated Optical Device Comprising: | medium |
| In A Third Aspect, The Invention Relates To A Method For Reducing The Crosstalk Between At Least Two Devices Including Optical Waveguides Integrated On A Substrate, Each Of Said Optical Devices Including At Least One Multimodal Section Of Optical Waveguide, The Crosstalk Being Generated By Unguided Optical Radiation Propagating On Said Substrate In A Region Comprised Between Said Optical Devices, Said Method Comprising Filtering Said Unguided Radiation In Said Region. In A Fourth Aspect, The Invention Relates To A Transmitting Module Comprising: | medium |
| In A Fifth Aspect, The Invention Relates To A Transmitting Module Comprising: | medium |

This invention relates to an integrated optical device to be included in a transmitter for an optical fibre transmission system.
In particular, this invention relates to a modulator with integrated attenuator to be included in a transmitter for a WDM optical fibre transmission system based on erbium doped fibre amplifiers, using pre-adjusting of the channel powers.
Further, this invention relates to a method for reducing crosstalk between devices integrated on a substrate.

BACKGROUND OF THE INVENTION
There is a considerable interest in using erbium doped fibre amplifiers (EDFA) to amplify weak optical signals for both local and trunk optical communications networks. The rare earth doped optical amplifying fibres are low in cost, exhibit low noise, provide relatively large bandwidth which is not polarization dependent, display substantially reduced crosstalk problems and present low insertion losses at the relevant operating wavelengths which are used in optical communications. A particular area of current concern is that of increasing the capacity of an existing optical fibre communication system. Recent advances in erbium doped fibre amplifier technology suggests that increased capacity can be best obtained with wavelength division multiplexing (WDM) channels. **A major problem in implementing WDM channels on an optical transmission system is the absence of gain equalization.** More specifically, because of non-uniform wavelength-dependent gain profile and saturation characteristics of optical fibre amplifiers, such as erbium doped fibre amplifiers, each channel in a WDM system will experience a different optical gain which, in turn, can result in an excessive bit error rate for channels with low gain. A solution to this problem is indicated in **U.S. Pat. No. 5,225,922** to AT&T **Bell Laboratories**, that discloses an optical transmission system in which the output powers and the signal-to-noise ratios of the channels of a WDM system are selectively equalized by adjusting the optical input signal powers. The power adjusters can be either optical amplifiers or optical attenuators or any device which can be used to selectively increase or decrease the power of the signal of each channel. Integrated optics devices based on lithium niobate technology are well known in the field of WDM systems (see for example S. Bosso, Applications of lithium niobate integrated optic in telecommunication systems, Proc. SPIE Vol. 3620, p 34-37, **Integrated Optics Devices III -- The International Society** for Optical Engineering, March/1999). Optical modulators are among the most commonly used integrated optical components. They function by controlling the amount of light transmitted into a fibre optic link from a continuous wave (CW) laser, which emits polarized light. A commonly used optical modulator for digital applications consists of a Mach-Zehnder interferometric waveguide structure, having two Y-junctions and two waveguide arms between them, integrated on a lithium niobate substrate with travelling wave electrodes. Optimization efforts have been performed over the last years to reduce the driving voltage of digital Mach-

<http://sobjprd.questel.fr/image/1m/j/P0000038-A420197-164123299.highlight.1.html#43557>

Links to Hard to Find Information Buried in the Full-Text of The Patent

Questel-Orbit PatReader: US6785434 - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address <http://sobjprd.questel.fr/image/1m/j/P0000038-A420197-164123299.frame.1.html>

Attenuator Integrated With Modulator And Transmitting Module For WDM Systems Using The Same
US6785434 B2 20040831
AVANEXCORPORATION |

Questel • Orbit
Intellectual Property Group

Previous Patents : 17 occurrences

| Patent | Nb | Occurrences |
|--------------------------------|----|-------------|
| EP00187 | 1 | 1 - |
| EP0100187 | 1 | 1 - |
| EP0905536 | 1 | 1 - |
| U.S. PAT. NO. 5,225,922 | 1 | 1 - |
| U.S. PAT. NO. 5,970,201 | 1 | 1 - |
| WO01/54318 | 1 | 1 - |
| WO2001/54318 | 1 | 1 - |
| US4300814 | 2 | 1 - 2 - |
| US5249243 | 2 | 1 - 2 - |
| US5970201 | 2 | 1 - 2 - |
| US6400483 | 2 | 1 - 2 - |
| US6493478 | 2 | 1 - 2 - |

Patent Advantage / Improvement: 1 occurrences

| Phrases | Confidence |
|--|------------|
| Advantageously, The Metal Strips Are Integrated In An Extension Of The Electrodes Of The Y-Branch Attenuator, So That The Gap Between The Electrodes Progressively Increases From About 100% To About 170% Of The MFD Of The Connecting Waveguide In A First Portion Of The Extension And Is About 170% Of The MFD Of The Connecting Waveguide In A Second Portion Of The Extension. | high |

A solution to this problem is indicated in **U.S. Pat. No. 5,225,922** to AT&T **Bell Laboratories**, that discloses an optical transmission system in which the output powers and the signal-to-noise ratios of the channels of a WDM system are selectively equalized by adjusting the optical input signal powers. The power adjusters can be either optical amplifiers or optical attenuators or any device which can be used to selectively increase or decrease the power of the signal of each channel. Integrated optics devices based on lithium niobate technology are well known in the field of WDM systems (see for example S. Bosso, Applications of lithium niobate integrated optic in telecommunication systems, Proc. SPIE Vol. 3620, p 34-37, **Integrated Optics Devices III -- The International Society** for Optical Engineering, March/1999). Optical modulators are among the most commonly used integrated optical components. They function by controlling the amount of light transmitted into a fibre optic link from a continuous wave (CW) laser, which emits polarized light. A commonly used optical modulator for digital applications consists of a Mach-Zehnder interferometric waveguide structure, having two Y-junctions and two waveguide arms between them, integrated on a lithium niobate substrate with travelling wave electrodes. Optimization efforts have been performed over the last years to reduce the driving voltage of digital Mach-Zehnder modulators and typical values of 3-4 V driving voltage (at 2.5 Gbit/s) are now reproducibly achieved on commercial devices. Recently, new devices have been introduced, integrating on the same lithium niobate substrate a variable attenuator with the modulator, in order to perform the adjusting of the power-per-channel for compensating EDFA gain shape. An example is the "OC192, Integrated 10 Gb/s Amplitude Modulator & Attenuator", sold by SDL Integrated Optics, Model IOAP-MOD9189-F-F-O. According to the data sheet by SDL Integrated Optics dated Sep. 24, 1999, this modulator has the benefit of a low drive voltage for ease of use with a wide range of commercially available drivers. With regards to the attenuation port, the same data sheet reports a value of driving voltage comprised between 8V and 12V. Another example is the "10 Gb/s Data Modulator with Integrated Variable Optical Attenuator (VOA)", sold by **JDS Uniphase**, Model 10150-002193. According to the data sheet by **JDS Uniphase** dated November/1999, this modulator has a driving voltage for the VOA section not higher than 4V. Y-branch electrooptical attenuators are known in the art. Generally speaking, these devices comprise a Y-branch waveguide structure with electrodes deposited near the waveguides. Typical voltages applied to the electrodes are higher than 15-20 V and can reach up to 30-50 V. **U.S. Pat. No. 5,970,201** to Lucent Technologies discloses a circuit for regulating optical power levels. Electrooptic Y-branched attenuators are used to control optical output intensity by means of feedback loops from the outputs of the Y-branch attenuators to the electrodes of the attenuators, which determine the amount of light going to the outputs

<http://sobjprd.questel.fr/image/1m/j/P0000038-A420197-164123299.highlight.1.html#43547>


Independent Claims are Identified & Linked

Questel-Orbit PatReader: US6785434 - Microsoft Internet Explorer

File Edit View Favorites Tools Help


Back Forward Stop Refresh Home Search Favorites Media Print Mail

Address http://sobjprd.questel.fr/image/1m/j/P0000038-A420197-164123299.frame.1.html



Attenuator Integrated With Modulator And Transmitting Module For WDM Systems Using The Same

US6785434 B2 20040831
AVANEXCORPORATION |



Independent Claims: 5 occurrences

Phrases

14. An Integrated Optical Device Comprising: A Substrate, A Mach-Zehnder Modulator Integrated On Said Substrate Characterized In That It Further Comprises A Y-Branch Attenuator Integrated On Said Substrate, Said Mach-Zehnder Modulator Being Optically Coupled To One Arm Of Said Y-Branch Attenuator.

1. An Integrated Optical Device Comprising: A Planar Substrate, A Mach-Zehnder Modulator Integrated On Said Substrate Characterized In That It Further Comprises A Y-Branch Optical Attenuator Integrated On Said Substrate To Provide An Attenuation Range, Said Y-Branch Attenuator Being Optically Coupled To Said Mach-Zehnder Modulator, And Means For Reducing A Crosstalk Between Said Y-Branch Attenuator And Said Mach-Zehnder Modulator, Whereby The Extinction Ratio Of The Optical Device Is At Least 18 DB On An Attenuation Range Of At Least 6 DB.

16. A Method For Reducing The Crosstalk Between At Least Two Devices Including Optical Waveguides Integrated On A Substrate, Each Of Said Optical Devices Including At Least One Multimodal Section Of Optical Waveguide, Said Crosstalk Being Generated By Unguided Optical Radiation Propagating On Said Substrate In A Region Comprised Between Said Optical Devices, Said Method Comprising: Integrating A Mach-Zehnder Modulator And A Y-Branch Attenuator On Said Substrate Thereby Defining Said Region, And

17. A Transmitting Module Comprising: A Laser Source For Emitting An Optical Signal, An Integrated Optical Device For Modulating The Intensity Of Said Optical Signal, Comprising A Mach-Zehnder Modulator Formed On A Substrate, Characterized In That Said Integrated Optical Device Further Comprises A Y-Branch Optical Attenuator Formed On Said Substrate, Said Substrate Optically Coupled To One Arm Of Said Y-Branch Attenuator.

19. A transmitting module as in claim 18, characterized in that said Y-branch attenuator is located upstream with respect to said Mach-Zehnder modulator.

20. A transmitting module as in claim 18, characterized in that said Y-branch attenuator is located downstream with respect to said Mach-Zehnder modulator.

21. A transmitting module comprising:
a laser source for emitting an optical signal; and
an integrated optical device for modulating the intensity of the optical signal, comprising:
- a Mach-Zehnder modulator formed on a substrate;
- a Y-branch optical attenuator formed on the substrate, wherein the Mach-Zehnder modulator is optically coupled to a first arm of the Y-branch attenuator and the Y-branch attenuator is located upstream with respect to said Mach-Zehnder modulator;
- a dummy waveguide coupled to a second arm of the Y-branch attenuator; and
- a feedback circuit optically connected to the dummy waveguide, the feedback circuit comprising electrical control circuits for controlling the wavelength of the emitted signal.

16. A method for reducing the crosstalk between at least two devices including optical waveguides integrated on a substrate, each of said optical devices including at least one multimodal section of optical waveguide, said crosstalk being generated by unguided optical radiation propagating on said substrate in a region comprised between said optical devices, said method comprising:
integrating a Mach-Zehnder modulator and a Y-branch attenuator on said substrate thereby defining said region; and
filtering said unguided radiation in said region.

17. A transmitting module comprising:
a laser source for emitting an optical signal, an integrated optical device for modulating the intensity of said optical signal, comprising a Mach-Zehnder modulator formed on a substrate, characterized in that said integrated optical device further comprises a Y-branch optical attenuator formed on said substrate optically coupled to said modulator, to provide an attenuation range, and means for reducing a crosstalk between said Y-branch attenuator and said Mach-Zehnder modulator, whereby the extinction ratio of the optical device is at least 18 dB on an attenuation range of at least 6 dB.

18. A transmitting module comprising:
a laser source for emitting an optical signal, an integrated optical device for modulating the intensity of said optical signal, comprising a Mach-Zehnder modulator formed on a substrate, characterized in that said integrated optical device further comprises a Y-branch optical attenuator formed on said substrate, and said Mach-Zehnder modulator is optically coupled to one arm of said Y-branch attenuator.

19. A transmitting module as in claim 18, characterized in that said Y-branch attenuator is located upstream with respect to said Mach-Zehnder modulator.

20. A transmitting module as in claim 18, characterized in that said Y-branch attenuator is located downstream with respect to said Mach-Zehnder modulator.

21. A transmitting module comprising:
a laser source for emitting an optical signal; and
an integrated optical device for modulating the intensity of the optical signal, comprising:
- a Mach-Zehnder modulator formed on a substrate;
- a Y-branch optical attenuator formed on the substrate, wherein the Mach-Zehnder modulator is optically coupled to a first arm of the Y-branch attenuator and the Y-branch attenuator is located upstream with respect to said Mach-Zehnder modulator;
- a dummy waveguide coupled to a second arm of the Y-branch attenuator; and
- a feedback circuit optically connected to the dummy waveguide, the feedback circuit comprising electrical control circuits for controlling the wavelength of the emitted signal.

Brief Summary

TECHNICAL FIELD

This invention relates to an integrated optical device to be included in a transmitter for an optical

http://sobjprd.questel.fr/image/1m/j/P0000038-A420197-164123299.highlight.1.html#43575

Internet

Exporting Results from Questel•Orbit to PatReader

EXPORT Assist Mode:

A permanent email address must be stored on your Questel•Orbit Logon. To permanently store an email address in Questel•Orbit, use the SET EMAIL command. Enter EXPORT at the command line and follow the menu instructions, selecting option 11 at the Page Style prompt.

Exporting Full-text Results into PatReader

If the search has been conducted in the full-text files, EPAPAT, EPBPAT or PCTFULL, limit your result set to English language records. This step may be omitted if the search has been conducted in USPAT or USAPPS.

Examples:

File : PCTFULL

```
SS Results
1      46 WATER SAFETY
2      46 1 AND ENGLISH/LA
```

File : EPAPAT

```
SS Results
1      12 WATER SAFETY
2      12 1 AND ENGLISH/LA
```

File : EPBPAT

```
SS Results
1      10 WATER SAFETY
2       9 1 AND ENGLISH/LA
```

Then use the EXPORT command to export the full-text records into PatReader.

Example:

? **EXPORT**

Enter the search statement number to be used for print :
(Pressing "Enter" will default to the last SS with results)

Enter range of records (e.g. 1-10 20 ...)
(Max 5000 records by post/mail and 1000 records by e-mail)
(Pressing "Enter" will default to ALL the records in the set)

Note: If you enter or default to more than the maximum allowable number of records, the system will cancel the print command only after you have completed all the steps.

Enter Delivery type, postal or email :
(Pressing 'Enter' will default to postal/mail delivery)

? **EMAIL**

Enter E-Mail address(es) :
(Up to 6 addresses, each on a separate line when prompted)
(Pressing "Enter" defaults ONLY to permanent email address)

? client@company.com

Enter Delivery format (TXT or RTF or PDF or XML) :
(RTF or PDF or XML is required for images)
(Pressing 'Enter' will default to TXT delivery format)

Please note: When exporting to PatReader, it is not necessary to specify the delivery format. Simply press "enter".

Enter only Format/Field(s) with LEGAL/FULLCLMS/CITE display options, e.g.: MAX LEGAL or ABST FULLCLMS.
(Pressing 'Enter' will default to MAX format)

Please note: When exporting to PatReader, it is not necessary to specify the display options. Simply press "enter".

Print images : Yes / No

? Y

Enter a Title, to identify print and display with results :
(3 lines max, up to 60 characters per line)
(Pressing 'Enter' will default to no title)

? Title

Next title line (3 lines maximum) :
Pressing "Enter" will stop title prompting)

Enter a Number corresponding to following Page Styles :

- 1 - Fields Tags and without Page Breaks (Default Page Style)
- 2 - Fields Tags and with Page Breaks
- 3 - Full Field Names, Indented Text and without Page Breaks
- 4 - Full Field Names, Indented Text and with Page Breaks
- 5 - Report (Available on selected databases)
- 6 - Report - Merged Family (Full-text only)
- 7 - Trademark Table (FRTM only)
- 10 - PatentExaminer (Pluspat only)
- 11 - PatReader (Available on selected databases)**

? 11

Sort results by field(s) : (e.g. /PA)
(Up to 3 fields for simultaneous sorting, e.g. /PA/PCL/PD)
(Press "Enter" if no specified field sorting is required)

Offline print of results in SS: 2
Number of documents: 46
Confirm: Y / N

? y

Print number: PR1

Expert Mode:

If you do not wish to use the EXPORT menu, you can directly enter a command to export the results to PatReader. A permanent email address must be stored on your Questel•Orbit Logon. To permanently store an email address in Questel•Orbit, use the SET EMAIL command.

The syntax to export full-text documents to PatReader is as follows:

```
EXPORT N-N PSET 11
```

N-N Range of documents
PSET 11 PatReader export format

The default, when using PSET 11, sends the HTML results, displayed in ALL format, to the stored email address.

You can add optional parameters (separated by a semi-colon ;):

```
EXPORT N-N PSET 11;TI  
;TI            To specify a title, this will appear in the subject line of the email
```

```
EXPORT N-N PSET 11;TI <Subject Matter>;EMAIL  
;EMAIL        To send to an alternate email address. Results may be sent to up to six recipients. If using  
              multiple email address, please separate by the exclamation point (!)
```

Cancelling [Erasing] an Export Request:

Export requests are processed every thirty minutes. To cancel an export request, you must do so **immediately** to avoid the export request being processed before the receipt of the ERase request.

Use the **ER** or **ERASE** command with the relevant PR number

```
er pr1
```

```
Cancel PR1 Confirm: Y / N
```

```
? Y
```

Entering Y confirms the instruction to cancel the Export.

Exporting Results from an SDI:

English language results from an SDI running in EPAPAT, EPBPAT, PCTFULL, USPAT or USAPPS can automatically be exported into PatReader, by selecting Page Style 11 (PSET 11) from the SDI setup menu.