

(43) International Publication Date
20 September 2012 (20.09.2012)

WIPO | PCT

(51) International Patent Classification:

G02B 6/12 (2006.01) G02B 6/13 (2006.01)
G02B 6/122 (2006.01) G02B 6/136 (2006.01)

(21) International Application Number:

PCT/US2012/026262

(22) International Filing Date:

23 February 2012 (23.02.2012)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/453,120 15 March 2011 (15.03.2011) US
13/112,653 20 May 2011 (20.05.2011) US

(71) Applicant (for all designated States except US): **ALCATEL LUCENT** [FR/FR]; 3, avenue Octave Gréard, F-75007 Paris (FR).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **WEIMANN, Nils** [US/US]; 35 Gates Avenue, Gillette, NJ 07933 (US). **HOUTSMA, Vincent** [NL/US]; 45 Brier Court, New Providence, NJ 07974 (US). **ACHOUCE, Mohand** [FR/FR]; 15, Rue Marie Debos, F-92120 Montrouge (FR).

(74) Agent: **MURGIA, Gregory J.**; Alcatel-lucent Usa Inc., Attention: Docket Administrator - Room 3d-201, 600-700 Mountain Avenue, Murray Hill, NJ 07974-0636 (US).

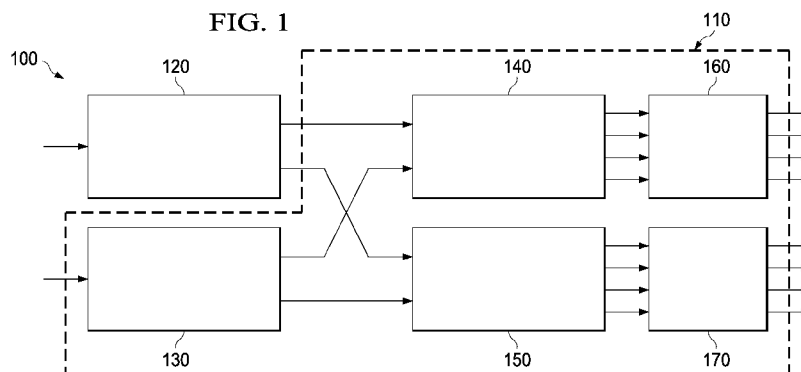
(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

(54) Title: NONLITHIC PHOTONIC INTEGRATED CIRCUIT



(57) Abstract: An optical device includes a waveguide slab, first and second input port couplers, and first and second output port couplers located over a planar optical substrate. The waveguide slab has a plane of symmetry. The first and second input port couplers extend from the waveguide slab and have an input coupler pair axis located about midway between the first and second input port couplers. The input coupler pair axis is offset at a nonzero first distance from the plane of symmetry. The first and second output port couplers extend from the waveguide slab and have an output coupler pair axis located about midway between the first and second output port couplers. The output coupler pair axis is offset at a different nonzero second distance from the plane of symmetry.



WO 2012/125267 A1