

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
29 June 2023 (29.06.2023)



(10) International Publication Number
WO 2023/122790 A1

(51) International Patent Classification:

G10L 13/08 (2013.01) *G10L 25/30* (2013.01)
G10L 13/10 (2013.01) *G06N 3/04* (2023.01)
G10L 13/033 (2013.01) *G06N 3/08* (2023.01)
G10L 13/047 (2013.01) *G06F 40/40* (2020.01)

(21) International Application Number:

PCT/US2022/082348

(22) International Filing Date:

23 December 2022 (23.12.2022)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

17/645,883 23 December 2021 (23.12.2021) US

(71) Applicant: **EQUINIX, INC.** [US/US]; One Lagoon Drive,
Redwood City, CA 94065 (US).

(72) Inventors: **WANG, Qiang**; One Lagoon Drive, Redwood City, CA 94065 (US). **SRIDHAR, Balakrishnan**; One Lagoon Drive, Redwood City, CA 94065 (US). **KARTAWIRA, Iwan**; One Lagoon Drive, Redwood City, CA 94065 (US). **SINGH, Manveer**; One Lagoon Drive, Redwood City, CA 94065 (US). **LINGAMPALLI, Mohan, Rao, G.**; One Lagoon Drive, Redwood City, CA 94065 (US).

(74) Agent: **BUSCHBACH, Michael** et al.; Shumaker & Siefert, P.A., 1625 Radio Drive, Suite 100, Woodbury, MN 55125 (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, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CV, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU,

(54) Title: HYBRID COMPENSATION OF CHROMATIC DISPERSION IN OPTICAL NETWORKS

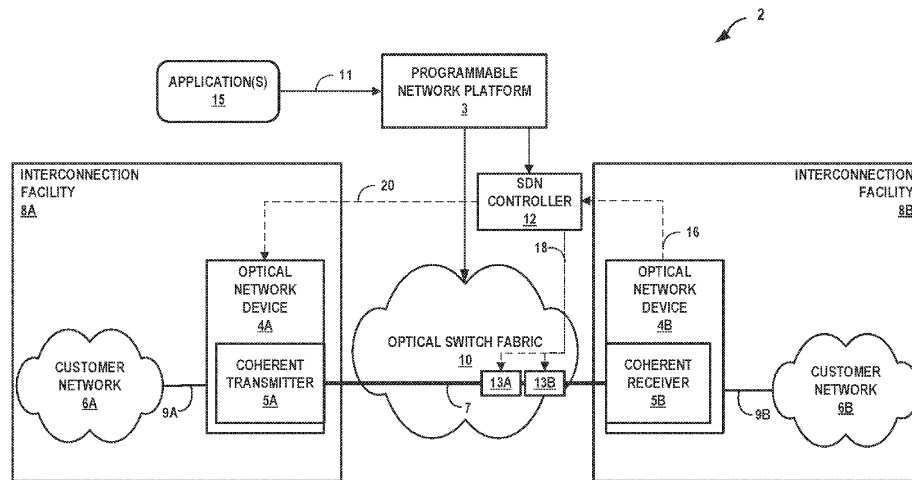


FIG. 1

(57) Abstract: Techniques are described for providing a hybrid compensation of chromatic dispersion in optical networks to reduce power consumption by coherent receivers. In some examples, a controller may receive a chromatic dispersion value of an optical signal from a coherent receiver integrated with a receiver optical network device. The controller may compare the chromatic dispersion value with a threshold. The controller may, in response to determining that the chromatic dispersion value satisfies the threshold, perform at least one of: configure a switch connected to a dispersion compensation module (DCM) with a state to provide access to the DCM to compensate the chromatic dispersion value of the optical signal, or adjust a phase response of a filter of a coherent transmitter to compensate the chromatic dispersion value of the optical signal.

[Continued on next page]

LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG,
NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS,
RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH,
TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS,
ZA, ZM, ZW.

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, CV, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, 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, ME, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

Published:

- *with international search report (Art. 21(3))*