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

(19) World Intellectual Property Organization

International Bureau

ate NOCT

(10) International Publication Number WO 2011/025934 A3

(43) International Publication Date 3 March 2011 (03.03.2011)

- (51) International Patent Classification: *H04B 3/54* (2006.01)
- (21) International Application Number:

PCT/US2010/046942

(22) International Filing Date:

27 August 2010 (27.08.2010)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/275,350

28 August 2009 (28.08.2009) US

- (71) Applicant (for all designated States except US): EN-PHASE ENERGY, INC. [US/US]; 201 1st Street Suite 300, Petaluma, California 94952 (US).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): FORNAGE, Martin [FR/US]; 25 Halsey Avenue, Petaluma, California 94952 (US).

- (74) Agent: TABOADA, Alan; MOSER IP LAW GROUP, 1030 Broad Street, Suite 203, Shrewsbury, New Jersey 07702 (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, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, 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, 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, SE, SI, SK,

[Continued on next page]

(54) Title: POWER LINE COMMUNICATIONS APPARATUS

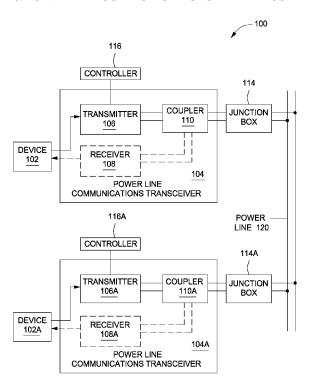


FIG. 1

(57) Abstract: Apparatus and system for communicating data via a power line. The apparatus comprises a transmitter comprising a modulator for generating a second digital signal based on input data; a digital buffer for amplifying the second digital signal to generate a third digital signal; a filter for filtering the third digital signal to generate an analog output waveform; and a coupler for coupling the analog output waveform to the power line.



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))
- (88) Date of publication of the international search report: 26 May 2011

International application No. **PCT/US2010/046942**

A. CLASSIFICATION OF SUBJECT MATTER

H04B 3/54(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)

IPC 9: H04B; H04M; H02J

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: Power, line, communication, transmitter, buffer, filter

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No
A	US 5404127 A1 (LEE et al.) 04 April 1995 See the abstract, claim 1, and figures 3-4.	1-20
A	US 2007-0152628 A1 (LEE) 05 July 2007 See the abstract, claim 1, and figures 4-5.	1-20
A	US 5952914 A1 (WYNN) 14 September 1999 See the abstract, claim 1, and figures 2-4.	1-20

	Further documents are	listed in the	continuation	of Box	C.
1	1 dittier decaments are	noted in the	Comminantion	OI DOM	٦

See patent family annex.

- * Special categories of cited documents:
- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent but published on or after the international filing date
- L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)
- 'O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed
- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "&" document member of the same patent family

Date of mailing of the international search report

Date of the actual completion of the international search

30 MARCH 2011 (30.03.2011)

01 APRIL 2011 (01.04.2011)

Name and mailing address of the ISA/KR



Korean Intellectual Property Office Government Complex-Daejeon, 189 Cheongsa-ro, Seo-gu, Daejeon 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

SOHN, Hyun-Woong

Telephone No. 82-42-481-5973



	AL SEARCH REPORT patent family members		nal application No. U S2010/046942
Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5404127 A1	04.04.1995	WO 92-21194 A1	26.11.1992
US 2007-0152628 A1	05.07.2007	DE 102006015712 A1 TW 289386 B US 7839618 B2	19.07.2007 01.11.2007 23.11.2010
US 5952914 A1	14.09.1999	EP 0902550 A2 EP 0902550 A3	17.03.1999 26.01.2000