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[Continued on next page]

(54) Title: SPECTRAL PHASE ANALYSIS FOR PRECISION RANGING

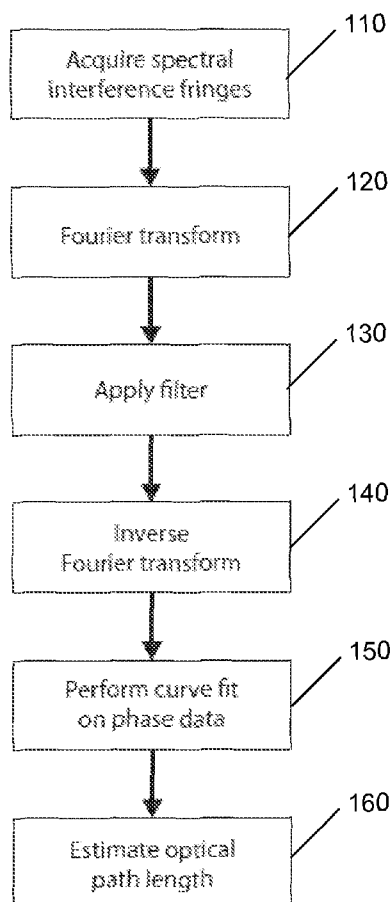


FIG. 1

(57) Abstract: Interferometric path length measurements using frequency-domain interferometry form the basis of several measurement techniques, including optical frequency domain reflectometry (OFDR), optical coherence tomography (OCT), and frequency-modulated continuous wave (FMCW) radar and lidar. A phase-sensitive and self-referenced approach to frequency-domain interferometry yields absolute and relative path length measurements with axial precision orders of magnitude better than the transform-limited axial resolution of the system.





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.

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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).

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2012/023189**A. CLASSIFICATION OF SUBJECT MATTER****G01B 9/02(2006.01)i, G01N 21/45(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)

G01B 9/02; G01N 33/48; G01N 21/41; G02B 6/00

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: interferometry, interference pattern, fringe, filter, fourier, curve-fitting, tomography

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 05880841 A (JOSEPH C. MARRON et al.) 09 March 1999 See column 4, line 65 - column 6, line 40; abstrat and figure 2.	1-23
A	US 7488930 B2 (AJGAONKAR MAHESH et al.) 10 February 2009 See column 13, line 15 - column 14, line 67; abstrat and figure 4.	1-23
A	US 2009-0125242 A1 (WONSHIK CHOI et al.) 14 May 2009 See abstract and figure 1.	1-23

☐ Further documents are listed in the continuation of Box C.☒ 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

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"P" document published prior to the international filing date but later than the priority date claimed

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"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 the actual completion of the international search

07 AUGUST 2012 (07.08.2012)

Date of mailing of the international search report

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 05880841 A	09.03.1999	WO 99-13290 A1	18.03.1999
US 7488930 B2	10.02.2009	US 2007-0278389 A1	06.12.2007
		WO 2007-142814 A2	13.12.2007
		WO 2007-142814 A3	03.07.2008
US 2009-0125242 A1	14.05.2009	WO 2009-009081 A2	15.01.2009
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