Title (en)

OPTICAL MEASURING METHOD AND MEASURING DEVICE HAVING A MEASURING HEAD FOR CAPTURING A SURFACE TOPOGRAPHY BY CALIBRATING THE ORIENTATION OF THE MEASURING HEAD

Title (de)

OPTISCHE MESSVERFAHREN UND MESSVORRICHTUNG MIT EINEM MESSKOPF ZUM ERFASSEN EINER OBERFLACHENTOPOGRAPHIE MITTELS KALIBRIERUNG DER ORIENTIERUNG DES MESSKOPFS

Title (fr)

PROCÉDÉS DE MESURE OPTIQUES ET DISPOSITIF DE MESURE COMPRENANT UNE TÊTE DE MESURE POUR APPRÉHENDER UNE TOPOGRAPHIE DE SURFACE PAR CALIBRAGE DE L'ORIENTATION DE LA TÊTE DE MESURE

Publication

EP 2920544 A1 20150923 (DE)

Application

EP 13814625 A 20131114

Priority

- DE 102012111008 A 20121115
- IB 2013060127 W 20131114

Abstract (en)

[origin: WO2014076649A1] The invention relates to an optical measuring method for capturing a surface topography (1) of a measured object (2). To this end, a measuring device (3) is provided, comprising a measuring head (4) in a measuring head guiding device (5), for chromatic confocal capture of the surface topography (1) or for a spectral interferometric OCT distance measurement to the surface topography (1). Spectral light of a light source (6) is applied to the measured object (2) from a fibre array (7) comprising i fibres (8) from i measurement spots (12 to 15) via a common measuring head lens (10), forming a spot array (11) from i measurement spots (12 to 15). The i reflection spectra of the i measurement channels are then captured and digitalised. The digitalised reflection spectra are evaluated by calculating temporal variations of systematic measurement errors and temporally induced deviation movements of the measuring head guiding device (5), comprising the following steps: - capture of geometric distance values (a, b, c) of the i measurement channels and of the three-dimensional position values for the i measurement spots on a measured object surface at the time t(j); - capture of a local inclination of the measured object surface (16) relative to the measuring head (4) comprising at least three measurement spots (12, 13, 14) of a triangle (17), which are projected onto the measured object surface (16) for correction of the measurement values; - correlation of the local topographies by separating temporally induced deviation movements of the measuring head guiding device (5) by means of a three-dimensional acceleration sensor on the measuring head (4); - creation of the correct local topographies.

IPC 8 full level

G01B 9/02 (2006.01); **G01B 11/25** (2006.01)

CPC (source: EP US)

G01B 9/02027 (2013.01 - US); **G01B 9/02091** (2013.01 - EP US); **G01B 11/026** (2013.01 - EP US); **G01B 11/14** (2013.01 - US); **G01B 11/24** (2013.01 - EP US); **G01B 11/2441** (2013.01 - US); G01B 2210/50 (2013.01 - EP US)

Citation (search report)

See references of WO 2014076649A1

Citation (examination)

- DE 102006007170 A1 20070816 - SIRONA DENTAL SYSTEMS GMBH [DE]
- WO 2010074279 A1 20100701 - CANON KK [JP], et al

Cited by

CN108362222A

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

DE 102012111008 A1 20140515; **DE 102012111008 B4 20140522**; CN 104797903 A 20150722; CN 104797903 B 20180105; EP 2920544 A1 20150923; US 2015260504 A1 20150917; US 2017234678 A1 20170817; US 9677871 B2 20170613; US 9982994 B2 20180529; WO 2014076649 A1 20140522

DOCDB simple family (application)

DE 102012111008 A 20121115; CN 201380059958 A 20131114; EP 13814625 A 20131114; IB 2013060127 W 20131114; US 201514713150 A 20150515; US 201715588021 A 20170505