

Title (en)

DEVICE FOR MEASURING LASER RADIATION BY PHOTOACOUSTIC EFFECT

Title (de)

VORRICHTUNG ZUR MESSUNG VON LASERSTRAHLUNG DURCH PHOTOAKUSTISCHEN EFFEKT

Title (fr)

DISPOSITIF DE MESURE D'UN RAYONNEMENT LASER PAR EFFET PHOTOACOUSTIQUE

Publication

EP 4264212 A1 20231025 (FR)

Application

EP 21836495 A 20211213

Priority

- FR 2013220 A 20201215
- EP 2021085448 W 20211213

Abstract (en)

[origin: WO2022128892A1] The invention relates to a device (D) for measuring the power and wavelength of laser radiation by photoacoustic effect, comprising: - a cell (C) containing at least one gas (G) having an absorption line with a central wavelength λ_c ; - an electroacoustic transducer (MP) arranged within the cell and suitable for generating a signal (Si) representative of the photoacoustic signal in the cell; - means (UT) for processing the signal generated by the electroacoustic transducer, in which an estimate of the concentration of the gas or gases is stored; - at least one laser source (L) suitable for emitting, into the cell, laser radiation (LL) at a wavelength suitable for exciting at least one gas contained in the cell, said laser radiation having a wavelength that is variable so as to oscillate about a mean wavelength λ_{moy} at a modulation frequency (f1) so that an interaction between the laser radiation and at least one gas contained in the cell induces the generation of a photoacoustic signal at a detection frequency of the electroacoustic transducer; said cell being sealed by a membrane (MB) so as to be impervious to the gas or gases contained in the cell and has an optical aperture that is transparent to laser radiation, the processing means being configured to determine a variation over time in the phase $\Phi(t)$ of the photoacoustic signal from said photoacoustic signal, the processing means being suitable for measuring the wavelength of the radiation from the photoacoustic signal.

IPC 8 full level

G01J 9/02 (2006.01); **G01N 21/17** (2006.01); **G01N 21/39** (2006.01); **G01N 29/24** (2006.01); **G01N 29/34** (2006.01)

CPC (source: EP US)

G01N 21/1702 (2013.01 - EP US); **G01N 29/2425** (2013.01 - EP); **G01N 29/341** (2013.01 - EP); **G01N 2021/1704** (2013.01 - EP US); **G01N 2201/0697** (2013.01 - US); **G01N 2291/021** (2013.01 - EP)

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

Designated validation state (EPC)

KH MA MD TN

DOCDB simple family (publication)

FR 3117590 A1 20220617; **FR 3117590 B1 20230630**; EP 4264212 A1 20231025; JP 2023554186 A 20231226; US 2024060876 A1 20240222; WO 2022128892 A1 20220623

DOCDB simple family (application)

FR 2013220 A 20201215; EP 2021085448 W 20211213; EP 21836495 A 20211213; JP 2023559157 A 20211213; US 202118267441 A 20211213