Title (en)

GENERATION OF STABLE FREQUENCY RADIATION AT AN OPTICAL FREQUENCY.

Title (de)

ERZEUGEN STABILER FREQUENZSTRAHLUNGEN BEI EINER OPTISCHEN FREQUENZ.

Title (fr)

GENERATION D'UNE RADIATION DE FREQUENCE STABLE A UNE FREQUENCE OPTIQUE.

Publication

EP 0058160 A4 19860210 (EN)

Application

EP 81901559 A 19800821

Priority

US 8001075 W 19800821

Abstract (en)

[origin: WO8200736A1] Stable-frequency optical radiation is generated by use of an electro-optical modulator to produce from radiation of a power laser that has inherent frequency fluctuations, an optical side band of the radiation that has the stable frequency. A modulating signal is applied to the modulator (12), the signal based upon a difference-frequency signal that represents the difference in frequencies between the output of the power laser (10) and an optical signal obtained from a highly stable reference source (20). The reference radiation shown is the direct output radiation of a stable reference laser. In one embodiment the pulses of a high power CO<u2>u TEA laser operating on a single mode are synchronized with a pulsed broad band amplifier (22) which amplifies the difference-frequency signal to produce the modulating signal, and an optical delay (30) in the power laser output path, preceding the modulator, corrects for the delay provided by the amplifier and other sources of delay The invention provides chirp free pulsed lasers, and lasers having stable frequency from pulse to pulse. Improved doppler lidar and other lidar systems are provided that utilize the stabilized output as the probing radiation.

IPC 1-7

H01S 3/10; G01C 3/08

IPC 8 full level

G02F 1/01 (2006.01); **G02F 1/35** (2006.01); **H01S 3/10** (2006.01); **H01S 3/107** (2006.01); **H01S 3/13** (2006.01); **H01S 3/137** (2006.01); **H01S 3/139** (2006.01)

CPC (source: EP)

G02F 1/0121 (2013.01); **H01S 3/1394** (2013.01)

Citation (search report)

- [A] US 3471803 A 19691007 - FORSTER DONALD C
- [A] US 3975628 A 19760817 - GRAVES ROSS E, et al
- [A] US 4162398 A 19790724 - KAYANUMA KANJI [JP]
- [E] US 4329664 A 19820511 - JAVAN ALI
- [A] OPTICS LETTERS, vol. 4, no. 7, July 1979, pages 202-204, Optical Society of America, US; J. SOOHOO et al.: "Phase locking of a multimode to a single-mode He-Ne laser"

Designated contracting state (EPC)

DE FR GB NL SE

DOCDB simple family (publication)

WO 8200736 A1 19820304; EP 0058160 A1 19820825; EP 0058160 A4 19860210; JP S57501352 A 19820729

DOCDB simple family (application)

US 8001075 W 19800821; EP 81901559 A 19800821; JP 50200081 A 19800821