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(71) Applicant: **ELTA SYSTEMS LTD.** [IL/IL]; 100 Yitzchak Hanassi Blvd., P.O.B. 330, 7710201 Ashdod (IL).

(72) Inventors: **ROSENZWEIG, Yossi**; c/o Elta Systems Ltd., 100 Yitzchak Hanassi Blvd., P.O.B. 330, 7710201 Ashdod

(IL). **SHCHERBACK, Igor**; 5 Dov Ron'el St., 8425637 Beer Sheva (IL). **TOKAR, Dima**; c/o Elta Systems Ltd., 100 Yitzchak Hanassi Blvd., P.O.B. 330, 7710201 Ashdod (IL).

(74) Agent: **STERN, Guillaume**; REINHOLD COHN GROUP, 26A Habarzel St., 6971037 Tel Aviv (IL).

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(54) Title: OPTICALLY PUMPED MAGNETOMETER

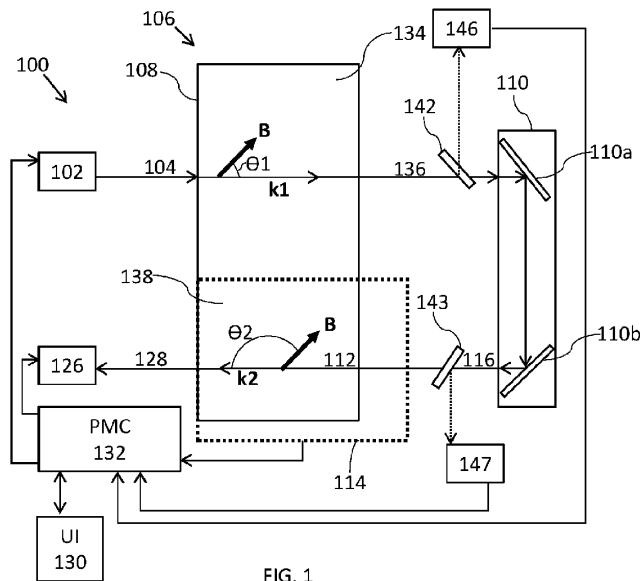


FIG. 1

(57) Abstract: A magnetic field strength measurement system including: a vapor chamber holding alkali metal vapor; a light source unit configured to supply circularly polarized laser light and positioned to feed a first pass beam of the circularly polarized light into the vapor chamber; a retroreflection unit including least one optical element and configured to reverse a direction, while maintaining polarization, of the first pass beam upon exit from the vapor chamber to provide a second pass beam to the vapor chamber, the second pass beam having an opposite direction, and same circular polarization as the first pass beam; a detector positioned to measure light emitted from the vapor chamber; and circuitry configured to: provide a modulating signal to the source, the modulating signal configured to modulate the first pass beam; receive a measurement signal from the detector; demodulate the measurement signal using the modulating signal to provide a demodulated measurement signal; and determine a resonance frequency from one or both of the modulating signal and

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the demodulated measurement signal.