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(71) Applicant: **LYTEN, INC.** [US/US]; 933 Kifer Rd., Suite B, Sunnyvale, California 94086 (US).

(72) Inventors: **STOWELL, Michael**; 933 Kifer Rd., Suite B, Sunnyvale, California 94086 (US). **LANNING, Bruce**; 933 Kifer Road, Suite B, Sunnyvale, California 94086 (US). **LIM, Sung**; 933 Kifer Road, Suite B, Sunnyvale, 94086

(US). **SINGH, Shreeyukta**; 933 Kifer Rd., Suite B, Sunnyvale, California 94086 (US). **CHMIOLA, John**; 933 Kifer Road, Suite B, Sunnyvale, California 94086 (US).

(74) Agent: **SLOTNICK, Heather et al.**; MLO, 12707 High Bluff Drive, Suite 200, San Diego, California 92130 (US).

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(54) Title: RESONANT GAS SENSOR

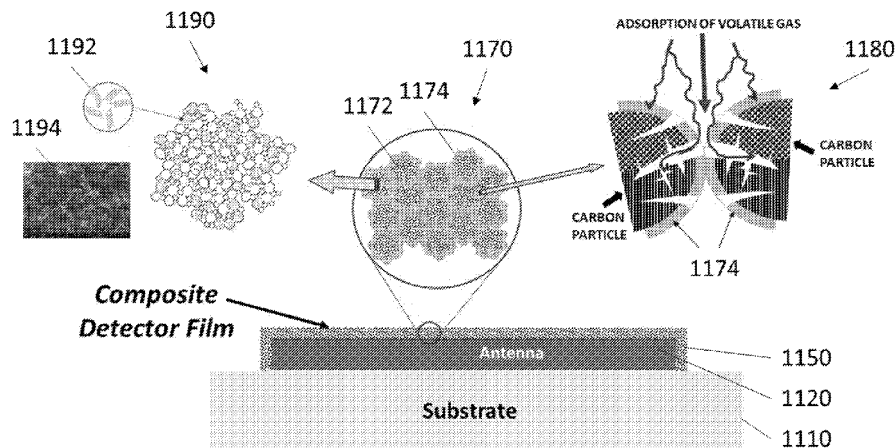


FIG. 11E

(57) Abstract: A method for detecting an analyte comprises providing a first carbon-based material comprising reactive chemistry additives, providing conductive electrodes connected to the first carbon-based material, exposing the first carbon-based material to an analyte, applying a plurality of alternating currents having a range of frequencies across the conductive electrodes, and measuring the complex impedance of the first carbon-based material using the plurality of alternating currents.

[Continued on next page]

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