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(54) **Title:** WAVEGUIDE EXCITATION UNIFORMITY

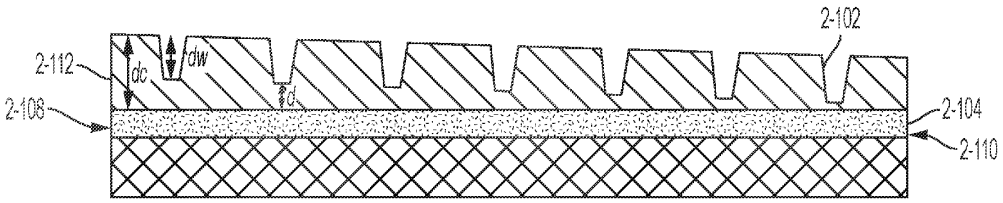


FIG. 2-2

(57) **Abstract:** Systems and methods for optical power distribution within an integrated device, in a substantially uniform manner, to a large number of sample wells and/or other photonic elements. The integrated device and related instruments and systems may be used to analyze samples in parallel. The integrated device may include a grating coupler configured to receive light from an excitation source and optically couple with multiple waveguides (2-104) configured to couple with sample wells (2-102). Vertical extents of optical modes of individual waveguides may be modulated to adjust confinement of light within the waveguides (2-104). This modulation may enable more uniform distribution of excitation light to the sample wells (2-102), improve excitation efficiency, and prevent overpower on regions of the integrated device.

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