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(54) **Title:** SPECTROMETER AND METHOD OF DETECTING A SPECTRUM

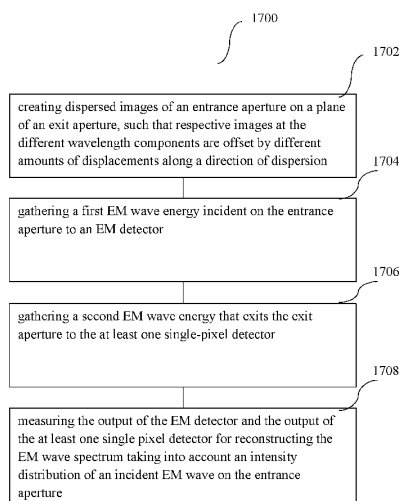


Figure 17

(57) **Abstract:** A spectrometer for detecting an electromagnetic (EM) wave spectrum having one or more wavelength components within a spectral band of interest, a method of detecting an electromagnetic (EM) wave spectrum having one or more wavelength components within a spectral band of interest, and a method of constructing the spectrometer. The method comprises the steps of creating dispersed images of an entrance aperture on a plane of an exit aperture, such that respective images at the different wavelength components are offset by different amounts of displacements along a direction of dispersion; gathering a first EM wave energy incident on the entrance aperture to an EM detector; gathering a second EM wave energy that exits the exit aperture to the at least one single-pixel detector; and measuring the output of the EM detector and the output of the at least one single pixel detector for reconstructing the EM wave spectrum taking into account an intensity distribution of an incident EM wave on the entrance aperture.

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