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(54) Title: MULTI-STATIC SYNTHETIC APERTURE RADAR USING LOW EARTH ORBIT COLLECTION

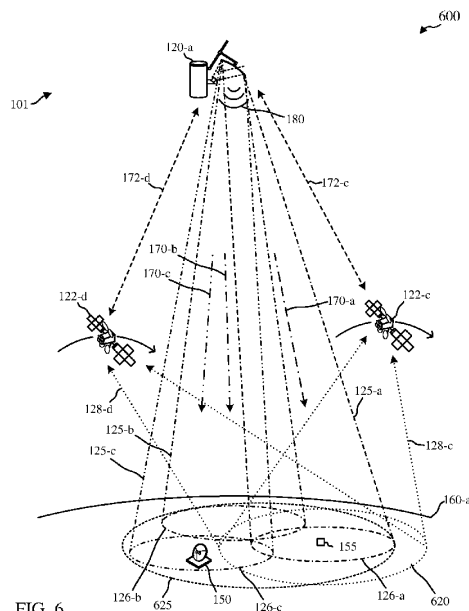


FIG. 6

(57) Abstract: A multi-static synthetic aperture radar using beam-formed illumination beams and multiple collection satellites is described. An illumination satellite may be in first orbit and multiple collection satellites may be in a second orbit. The illumination satellite may transmit beam signals (e.g., communication signals carrying modulated data to user terminals) from an antenna array to different beam coverage areas according to a beamforming matrix. Each of the collection satellites may receive reflections of the beam signals. The reflected signals received at the collection satellites may be processed according to the beam signals and beamforming matrix used to transmit the beam signals to obtain an image of a geographical area. In some cases, the collection satellites may relay the received signals for processing via the illumination satellite.