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(54) Title: RADAR USING END-TO-END RELAY

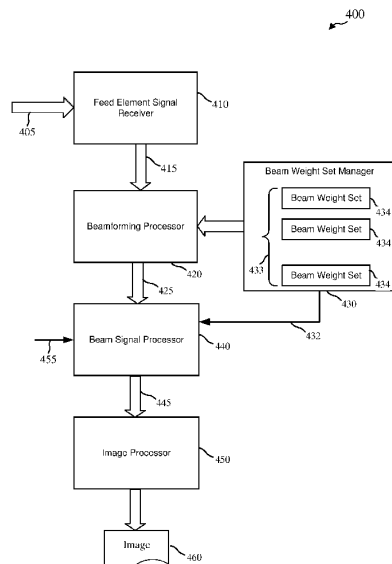


FIG. 4

(57) Abstract: A multi-static synthetic aperture radar using beamforming processing is described. A reception processing system may process feed element signals (e.g., from feed elements on a satellite or from access node terminals in an end-to-end relay system) according to multiple beam weight sets, each corresponding to a beam coverage pattern including one or more radar image pixel beams to generate a set of beam signals. The feed element signals may represent signal energy from a reflected illumination signal (e.g., beacon signal, communication signal), or passively received signal energy (e.g., without a corresponding illumination signal). The multiple sets of beam signals obtained from processing the feed element signals may then be processed to obtain image pixel values, and the image pixel values combined to obtain an image. Multiple sets of feed element signals (e.g., each corresponding to a time period) may be processed and combined to form the image.

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