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(54) **DOPPLER COMPLEX FFT POLICE RADAR WITH DIRECTION SENSING CAPABILITY**

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(57) **ABSTRACT**

A series of police doppler single mode radars and a multi-mode police doppler radar, all with direction sensing capability are disclosed. A quadrature front end which mixes received RF with a local oscillator to generate two channels of doppler signals, one channel being shifted by an integer multiple of 90 degrees in phase relative to the other by shifting either the RF or the local oscillator signal being fed to one mixer but not the other. The two doppler signals are digitized and the samples are processed by a digital signal processor programmed to find one or more selected target speeds. Single modes disclosed are: stationary strongest target; stationary, fastest target; stationary, strongest and fastest targets; moving, strongest, opposite lane; moving, strongest, same lane; moving, fastest, opposite lane; moving, fastest and strongest, opposite lane; moving, fastest, same lane; moving fastest and strongest, same lane.

43 Claims, 37 Drawing Sheets