Coherent lidar modulated with frequency stepped pulse trains for unambiguous high duty cycle range and velocity sensing in the atmosphere

Range unambiguous high duty cycle coherent lidars can be constructed based on frequency stepped pulse train modulation, even continuously emitting systems could be envisioned. Such systems are suitable for velocity sensing of dispersed targets, like the atmosphere, at fast acquisition rates. The lightwave synthesized frequency sweeper is a suitable generator yielding fast pulse repetition rates and stable equidistant frequency steps. Theoretical range resolution profiles of modulated lidars are presented.

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