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(54) Title (EN): SWITCHABLE COHERENT PIXEL ARRAY FOR FREQUENCY MODULATED CONTINUOUS WAVE LIGHT DETECTION AND RANGING

(54) Title (FR): RÉSEAU DE PIXELS COHÉRENTS COMMUTABLES POUR LA DÉTECTION ET LA TÉLÉMÉTRIE DE LUMIÈRE À ONDE ENTRETENUE MODULÉE EN FRÉQUENCE

(57) Abstract:

(EN): A FMCW LiDAR transceiver includes an input port, optical antennas, an optical switch, splitters, and mixers. The optical switch switchably couples an input port to the optical antennas, thereby forming optical paths between the input port and the optical antennas. For each optical path from the input port to one of the optical antennas, a splitter is coupled along the optical path. The splitter splits a received portion of a laser signal into a local oscillator signal and a transmitted signal and outputs a return signal that is a portion of the reflected signal. The transmitted signal is emitted via the optical antenna and a reflection of the transmitted signal is received via the optical antenna as a reflected signal. For each splitter, a mixer receives the return signal and the local oscillator signal and mixes the return signal and the local oscillator signal to generate output signals.

(FR): Un émetteur-récepteur LiDAR FMCW comprend un port d'entrée, des antennes optiques, un commutateur optique, des séparateurs et des mélangeurs. Le commutateur optique couple de manière commutable un port d'entrée aux antennes optiques, formant ainsi des chemins optiques entre le port d'entrée et les antennes optiques. Pour chaque trajet optique allant du port d'entrée à l'une des antennes optiques, un séparateur est couplé le long du chemin optique. Le séparateur divise une partie reçue d'un signal laser en un signal d'oscillateur local et un signal émis et produit un signal de retour qui est une partie du signal réfléchi. Le signal

transmis est émis par l'antenne optique et une réflexion du signal transmis est reçue par l'intermédiaire de l'antenne optique comme un signal réfléchi. Pour chaque séparateur, un mélangeur reçoit le signal de retour et le signal de l'oscillateur local et mélange le signal de retour et le signal de l'oscillateur local pour générer des signaux de sortie.

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