

System and Method for Tuning and Adjusting the Central Frequency of a Laser while Maintaining Frequency Stabilization to an External Reference

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DESCRIPTION

This technology is a method of stabilizing laser to frequency reference in spacecraft communication field. The method involves locking a sideband signal such as single sideband and double sideband signal generated by passing an incoming laser beam through a phase modulator to a frequency reference. A carrier frequency is adjusted relative to the locked sideband signal by changing a phase modulation frequency of a modulation signal input into the phase modulator.

FEATURES AND BENEFITS

- The carrier frequency is adjusted relative to the locked sideband signal by changing the phase modulation frequency of the modulation signal to stabilize laser to frequency reference to provide wide tuning range for the central frequency without sacrificing the in-band noise performance of the stabilization system and to operate on several frequencies without requiring multiple separate systems.
- The intrinsic stability of the frequency reference is not altered. Hence the flexibility is enhanced, the extra equipment and the overhead are avoided by using the same components for many projects using laser, and the frequency noise suppression is achieved by using the sideband technique.

APPLICATIONS

- Spacecraft Communications
- Measuring Distance of Machined Portions

FOR MORE INFORMATION

If you are interested in more information or want to pursue transfer of this technology, GSC-15583-1, please contact:

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