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【424】 SI-traceable frequency dissemination at 1572.06 nm in a stabilized fiber network with ring topology

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Frequency dissemination in phase-stabilized optical fiber networks for metrological frequency comparisons and precision measurements are promising candidates to overcome the limitations imposed by satellite techniques. However, network constraints restrict the availability of dedicated channels in the commonly-used *C-band*. Here, we demonstrate the dissemination of an SI-traceable ultrastable optical frequency in the *L-band* over a 456 km fiber network. We characterize the optical phase noise and evaluate a link instability of $4.7 \cdot 10^{-16}$ at 1 s and $3.8 \cdot 10^{-19}$ at 2000 s integration time, and a link accuracy of $2 \cdot 10^{-18}$. We demonstrate the application of the disseminated frequency by establishing the SI-traceability of a laser in a remote laboratory.

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