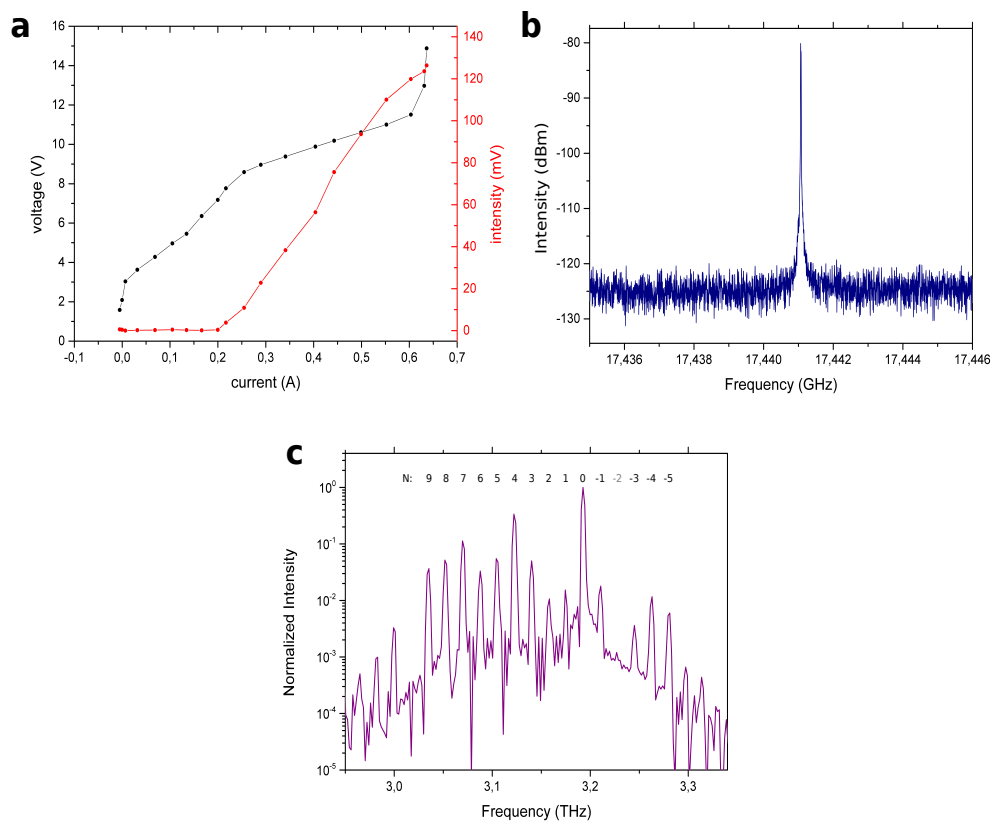


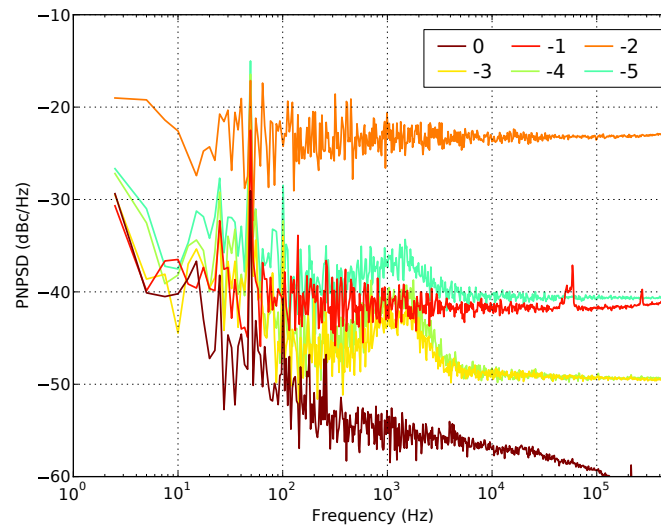
Supplementary Information

**Fully phase-stabilized quantum
cascade laser frequency comb**

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Supplementary Figure 1 Electrical and optical characterization of the QCL-comb. **a** current-voltage characteristics of the THz QCL-comb. **b** intermode beat-note (IBN) signal electrically retrieved. The IBN is 20 kHz wide at 20 ms integration time. **c** Fourier transform infrared spectrum measured at a heat sink temperature of 25 K and with QCL operating in continuous wave with a current of 0.32 A. The spectrum is acquired in rapid scan mode, in air, with a resolution of 0.125 cm^{-1} . The order N of each mode is labeled on the graph.



Supplementary Figure 2 Phase Noise Power Spectral Density analysis. Simultaneous retrieval of the PNPSP of the beat-notes from the Fourier-transform spectra of the RF-comb in 2-second-long acquisitions (see fig. 3a), for modes from 0 to -5.