

measurement within its quoted uncertainty. The clean single features labeled R(1) and R(2) in Ref. [5] were also measured for the first time to this level of accuracy and are reported in Table 1. No attempt was made to reassess the systematic errors in the spectrometer, and therefore the uncertainty of our new measurement is not reduced.

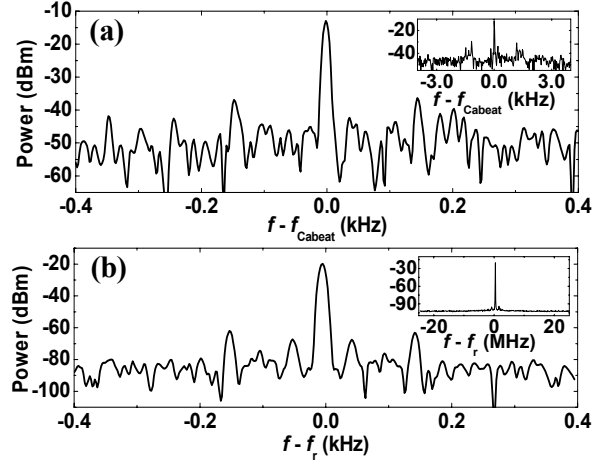


Figure 2: Electrical signals used for locking, shown while comb is phase-locked. a) Ca beat with doubled comb, centered on $f_{\text{Ca beat}} = 20.6$ kHz. b) Repetition rate, centered on $f_r = 433.435 2$ MHz.

Table 1. Measured optical frequencies of ro-vibrational transitions at two pressures in THz, with an expanded uncertainty of 2.3 MHz. Also, the resulting pressure shift in MHz/kPa and MHz/torr. Cell 1 has a pressure of 1.44 ± 0.13 kPa (10.8 ± 1.0 torr), and Cell 2 a pressure of 8.21 ± 0.76 kPa (61.6 ± 5.8 torr).

$\text{CH}_3 \nu_2 + 2\nu_3$	Cell 1 (1.44 kPa)	Cell 2 (8.21 kPa)	Pressure shift	
	(± 2.6 MHz)	(± 2.6 MHz)	MHz/kPa	MHz/torr
R(1)	225 786 217.3 MHz	225 786 175.5 MHz	-6.17	-0.822
R(2)	226 105 467.1 MHz	226 105 466.7 MHz	-0.059 0	-0.007 86
R(8)	228 050 528.7 MHz	228 050 482.8 MHz	-6.773	-0.903

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