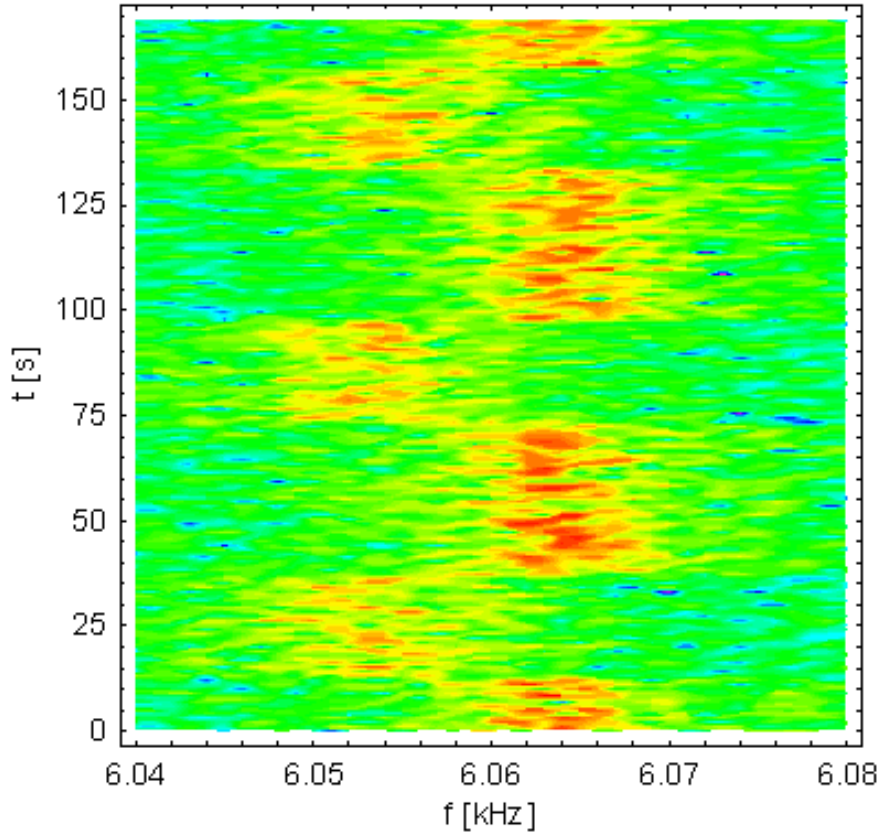


Collimator MDs #2 (11-12/10/04)

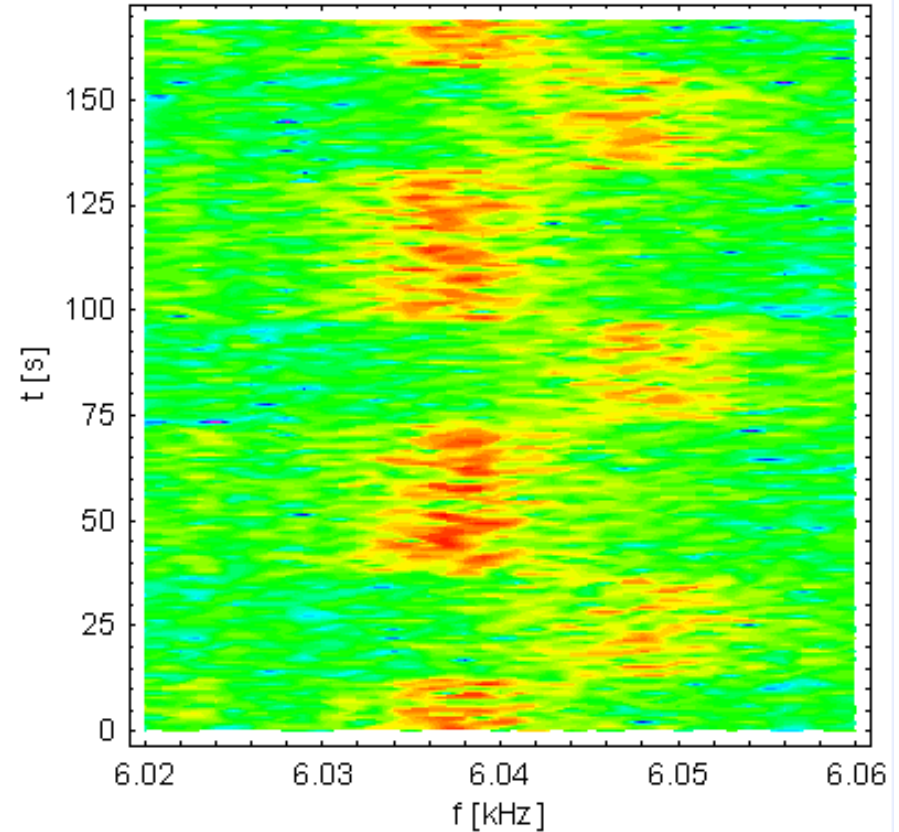
Results from the Base-Band Q (BBQ) Measurement

M. Gasior, R. Jones, CERN-AB-BDI

BBQ system

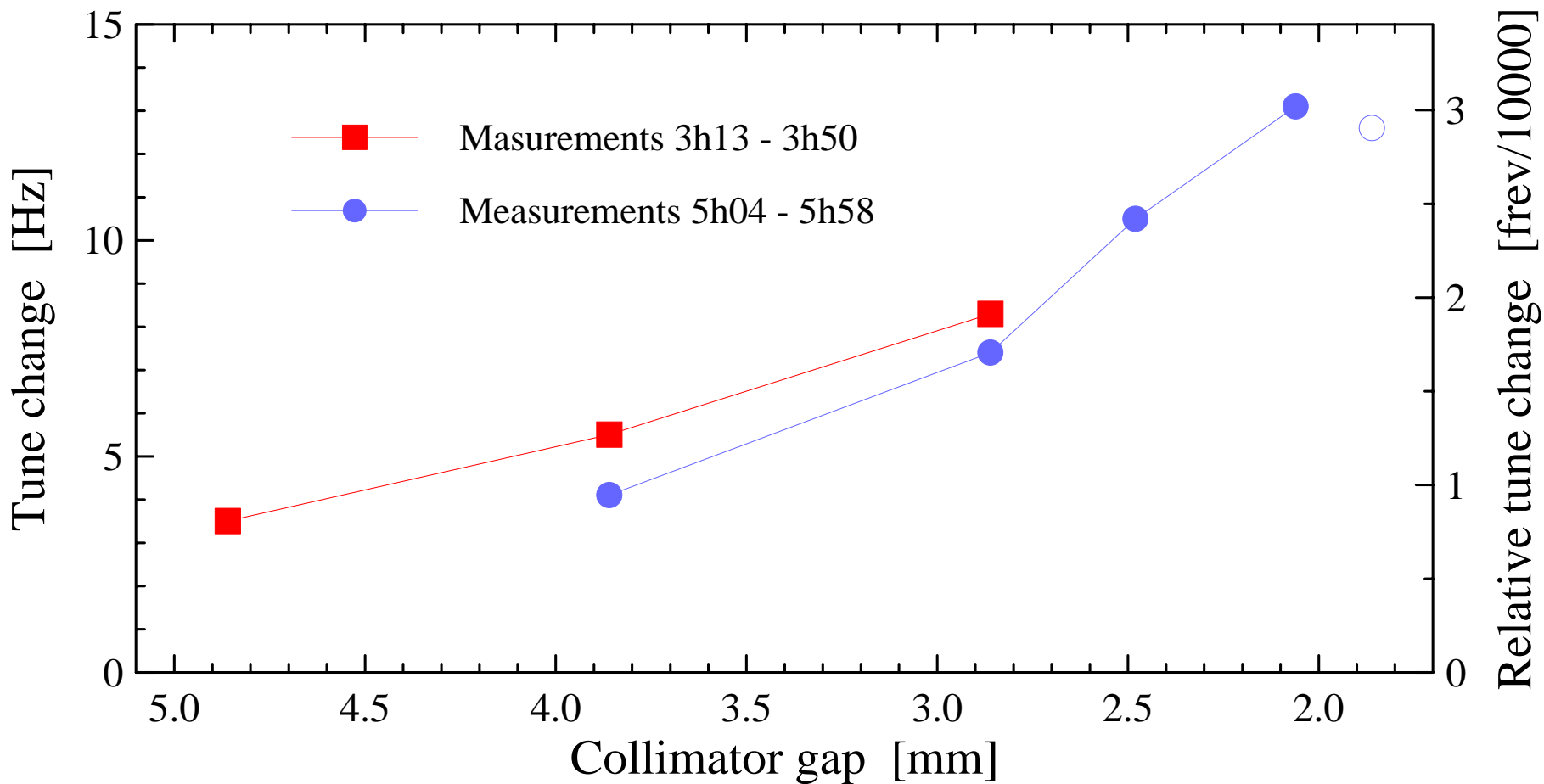


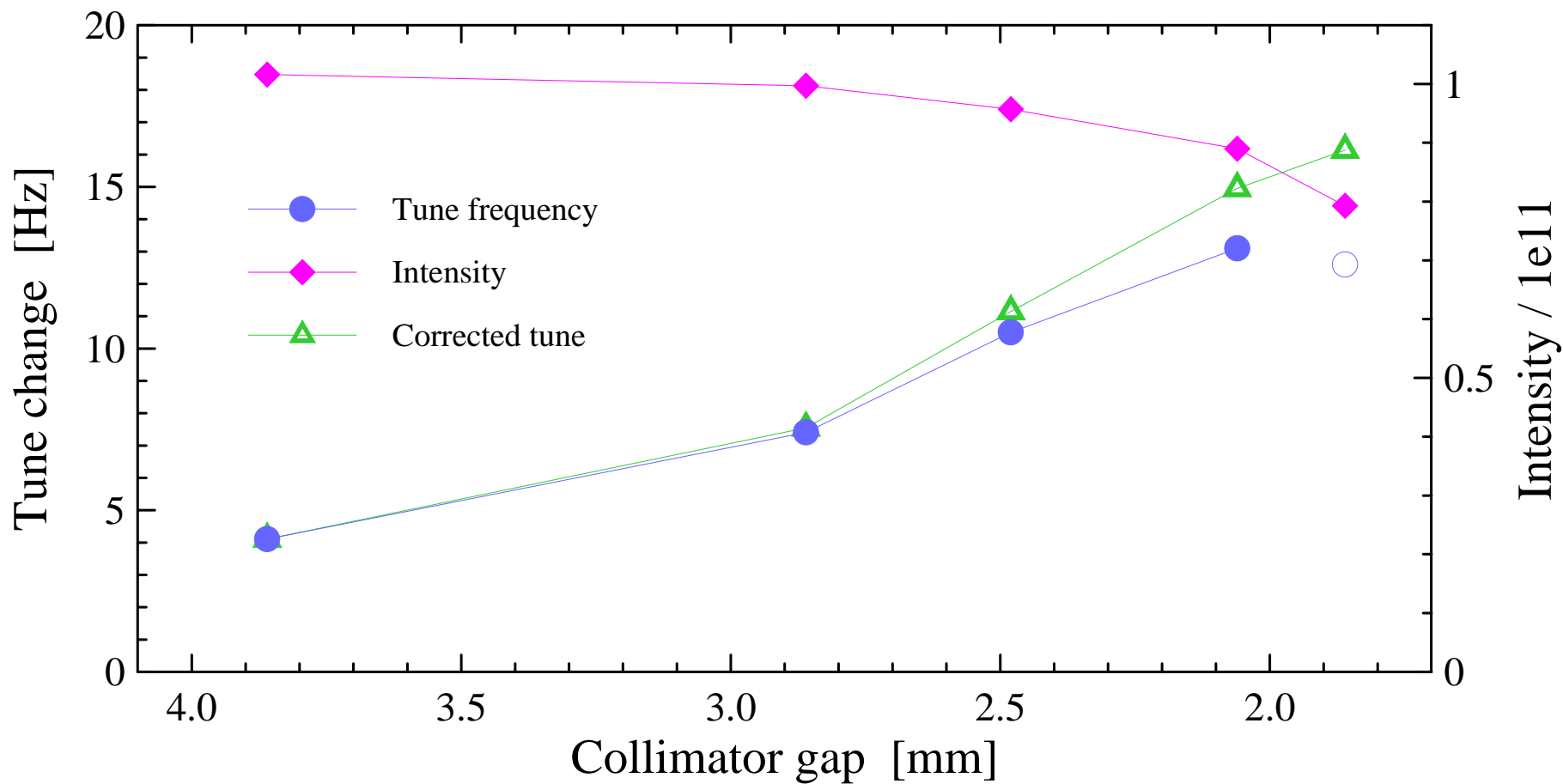
245 MHz system

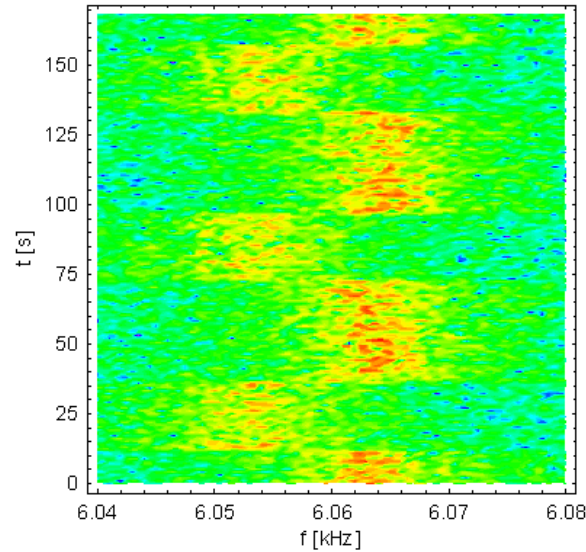
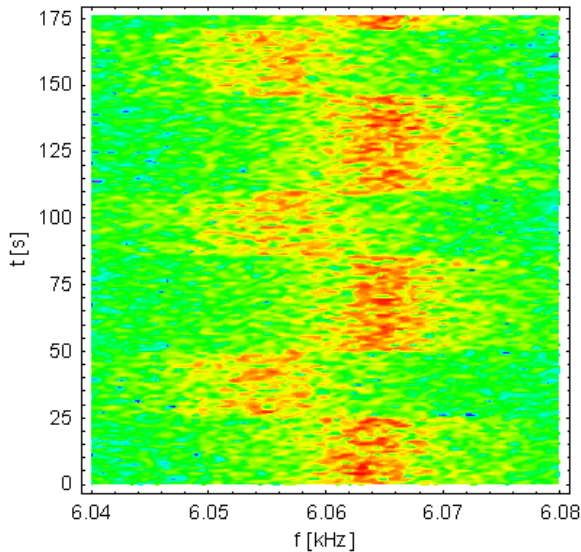
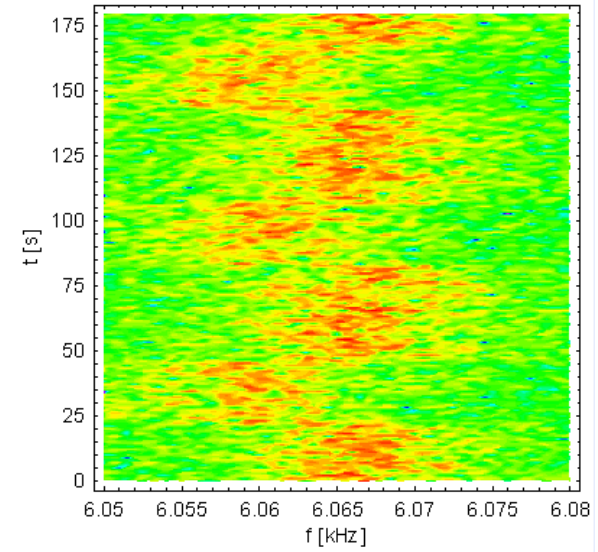
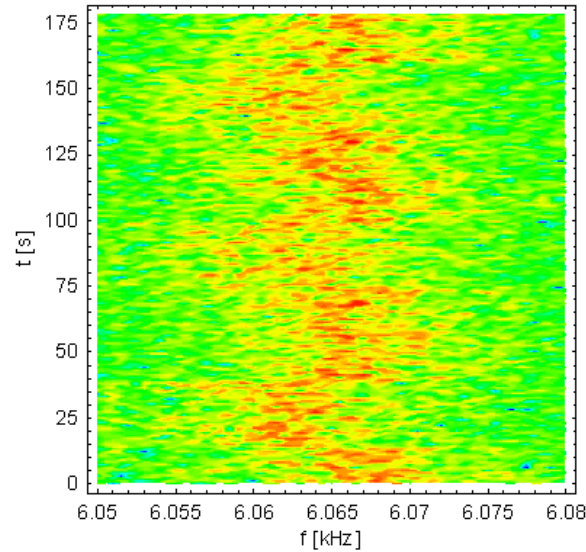
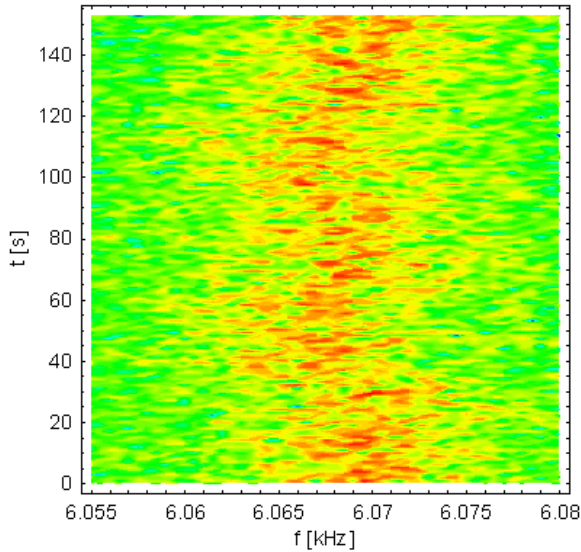


F. Caspers, T. Kroyer

- Collimator cycled (at ca 4h33) between the gap of 51 mm and 2 mm.
- Tune frequency was changing by 10 Hz, i.e. $2.3 \times 10^{-4} (\times f_{rev})$

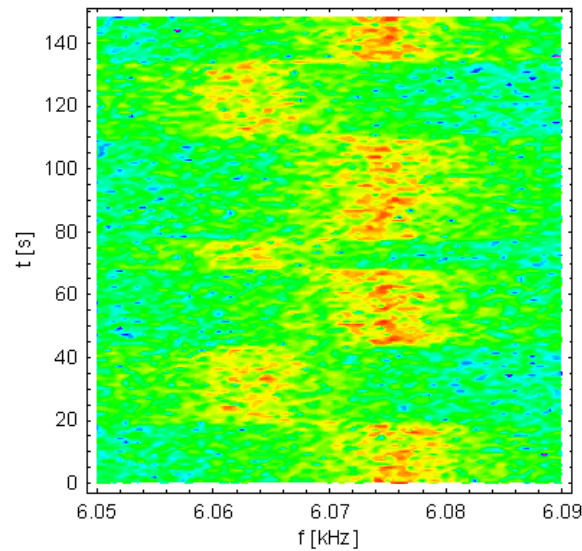
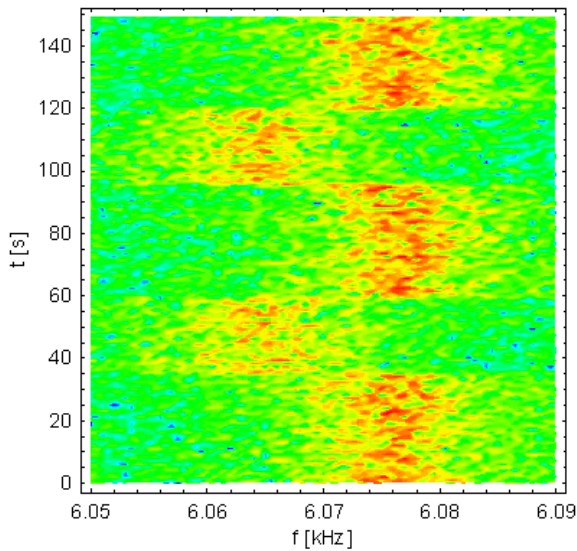
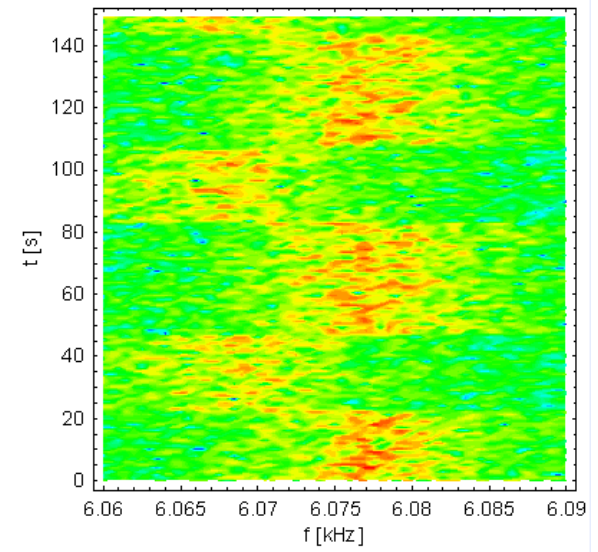
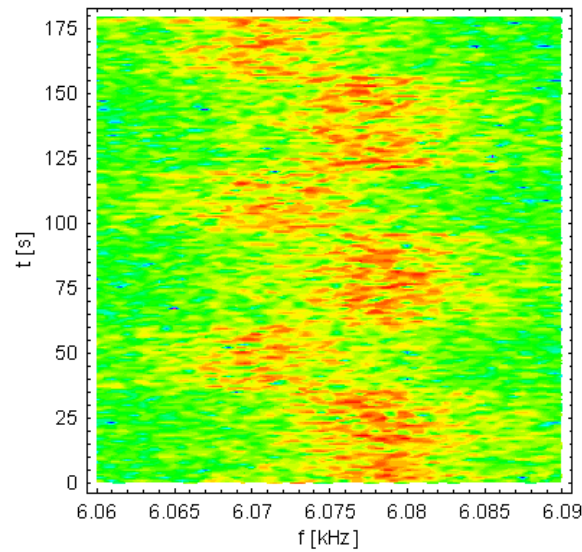
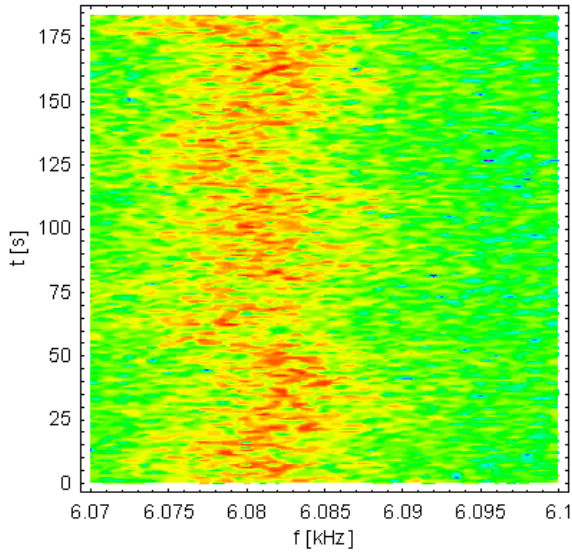






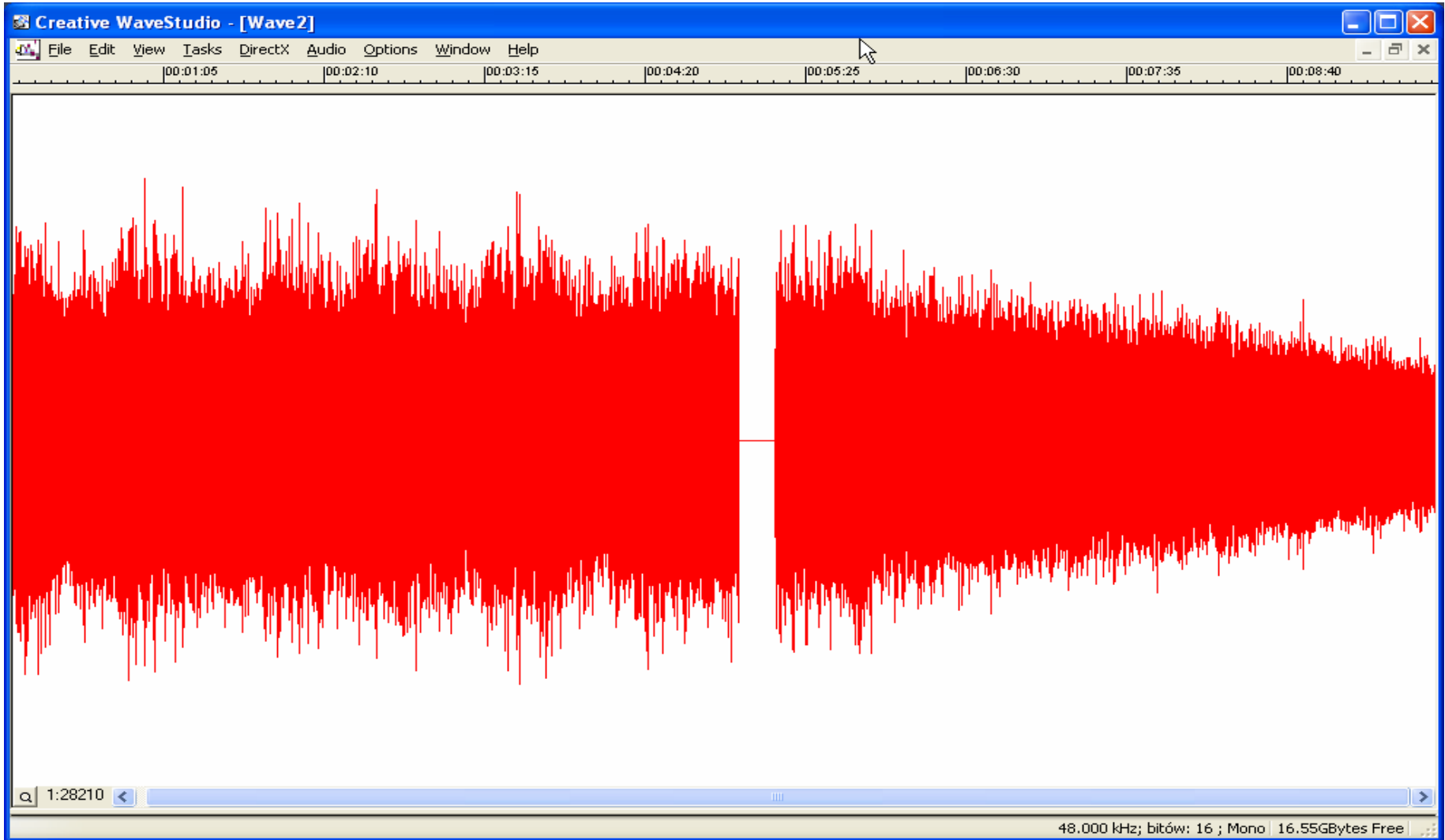
Collimator gap @ time

- 4.86 mm @ 3:36
- 3.86 mm @ 3:45
- 2.86 mm @ 4:01
- 2.26 mm @ 4:22
- 1.96 mm @ 4:40

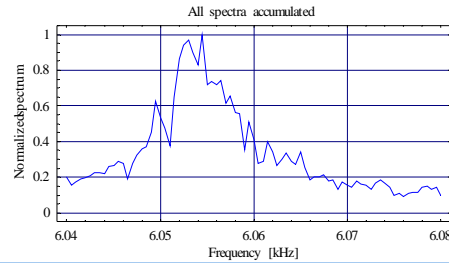
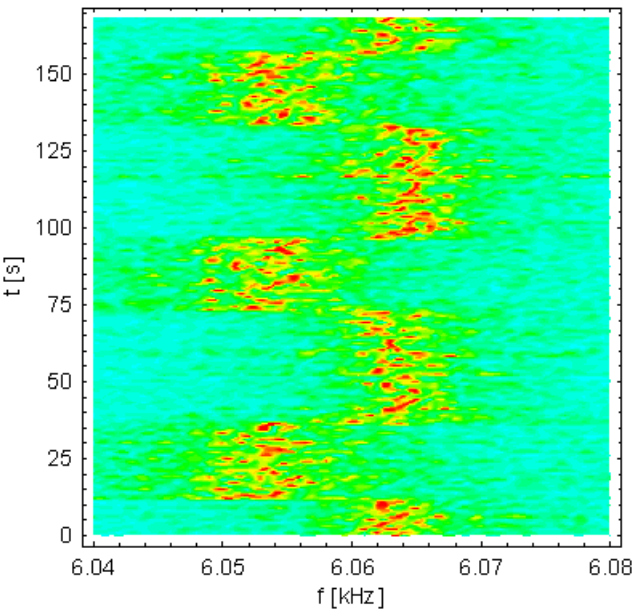
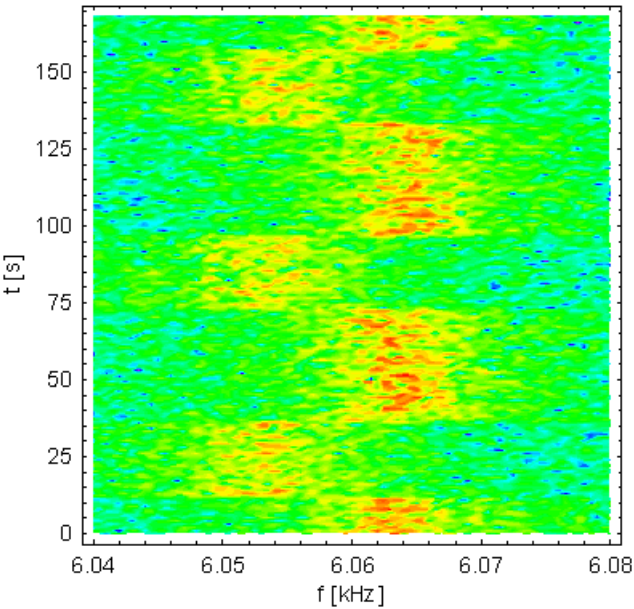


Collimator gap @ time

- 3.86 mm @ 5:30
- 2.86 mm @ 5:38
- 2.46 mm @ 5:46
- 2.06 mm @ 5:53
- 1.86 mm @ 6:05

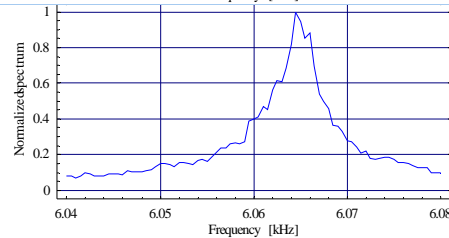


This is the time domain BBQ signal; before the “silence” – with the gap of 1.86, after – with still smaller gaps. During a few minutes the beam current decreased significantly, affecting the measured tune changes. Signal amplitude was changing for the collimator “in” and “out”.



f [Hz] Δf [Hz]

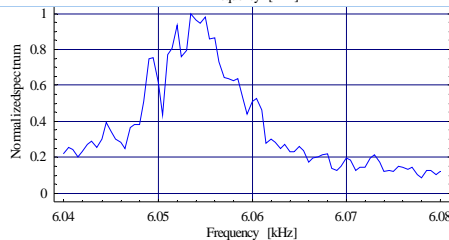
6053.39



10.50

6063.89

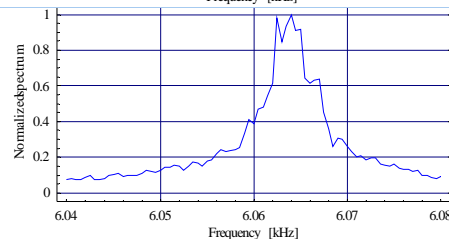
mean
10.5 Hz
 $2.4 \times 10^{-4} f_r$



9.92

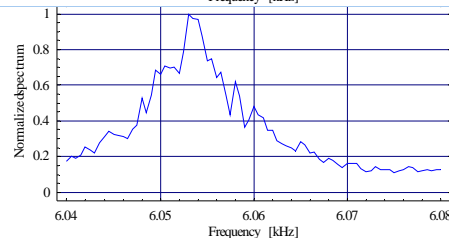
6053.97

st. dev.
0.4 Hz
 $0.9 \times 10^{-5} f_r$



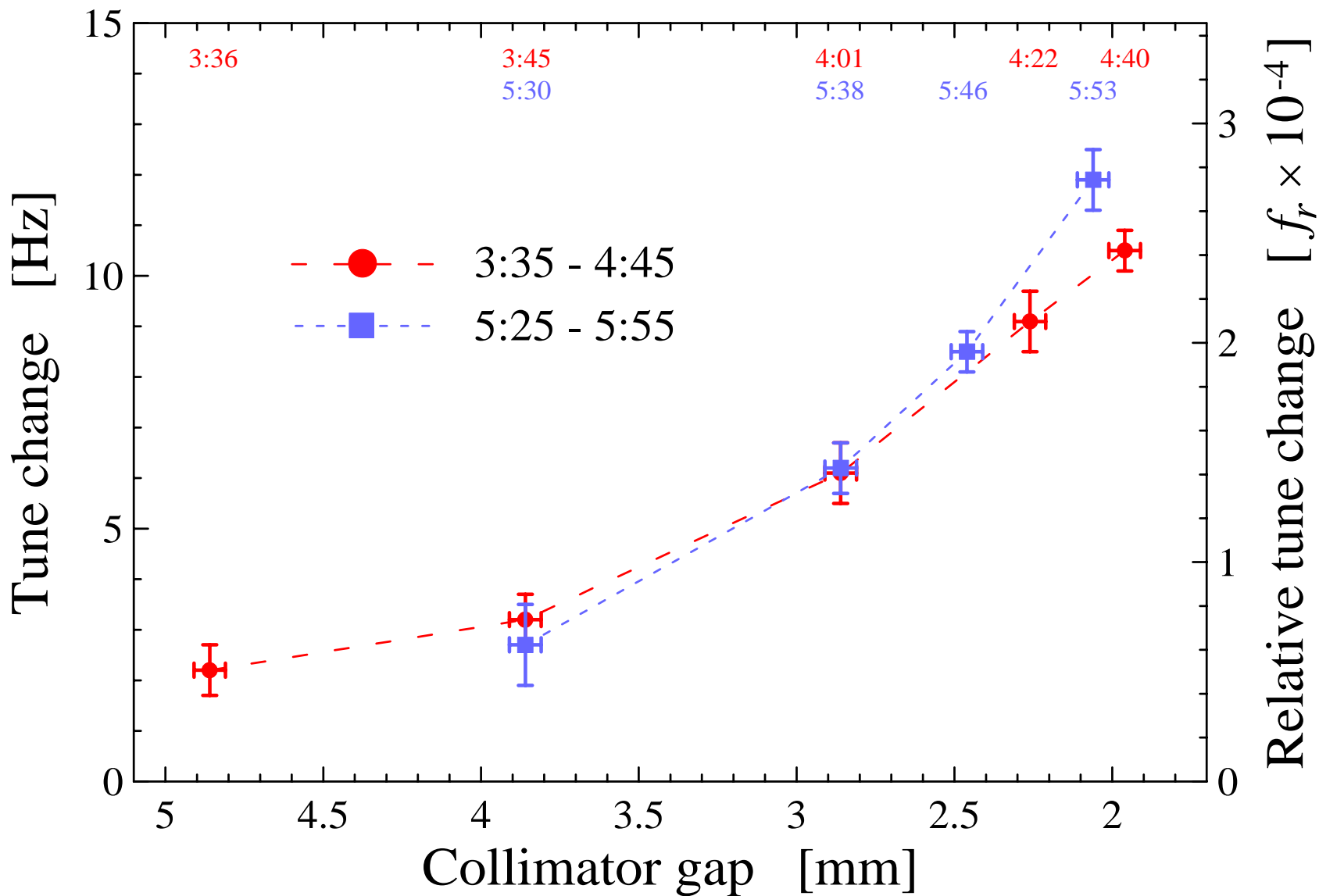
10.76

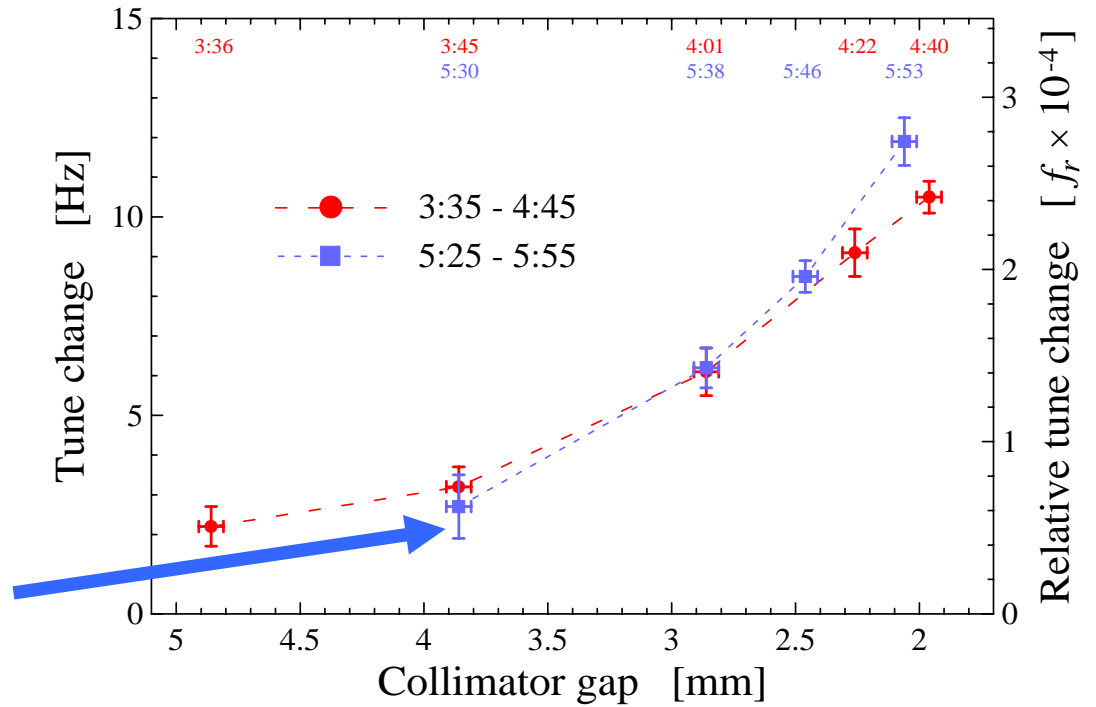
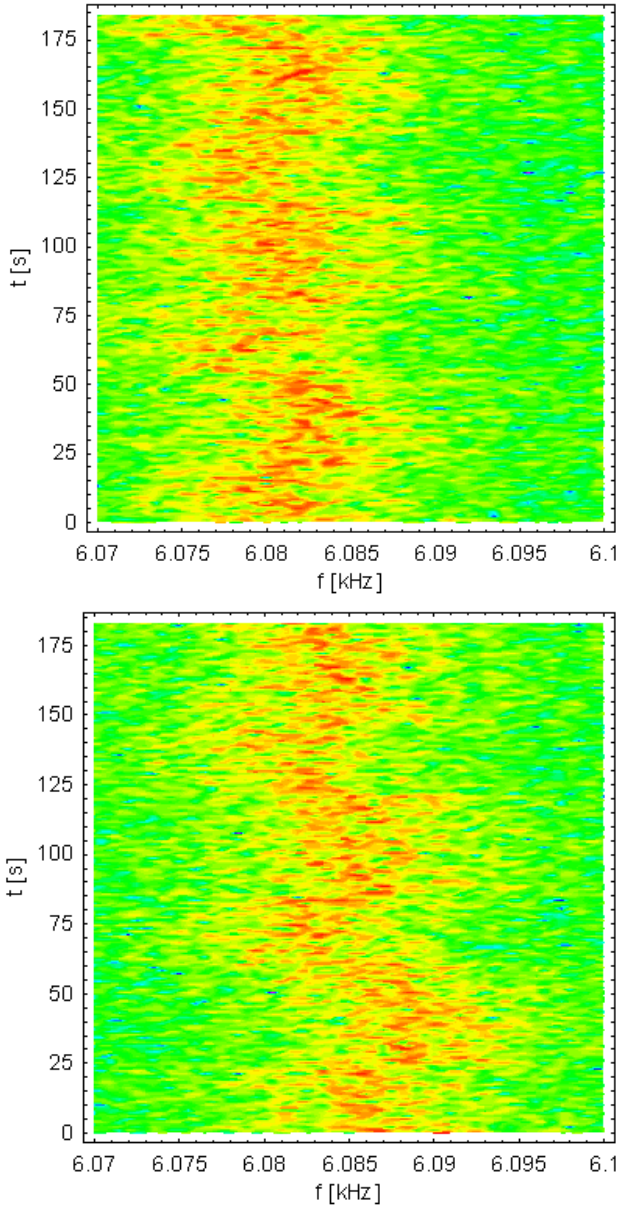
6064.72



10.81

6053.91





Measurement resolution was defined by

- Slow tune frequency drifts
- Tune peak width
- Acquired amount of data
- Available computing power

There is still potential for improvements

