C₈H₁₀O₂S
300 MHz ¹H NMR spectrum in CDCl₃
Source: Paul Gold/Amanda Jones/Reich g
Exercise: Assign the seven protons indicated and determine all coupling constants in the spectrum of the furyl-substituted oxathiane ring. All multiplets are basically first order, except for a little leaning. The multiplets present are listed to help out with the analysis.
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Analysis on next page
There is no symmetry here, so the higher multiples identified (t, q) are only apparent triplets or apparent quartettes. The two or three couplings are certainly slightly different.

H^4 parses as a ddq, but the three quartet couplings of 2.6 Hz are probably slightly different (really a ddd or dt), as seen from small mismatches with coupling to H^1 (2.4), H^2 (2.9) and H^6 (2.9).

H^1 is hard to parse on its own, but the couplings to it are clear from the other protons. Its a dddd, J = 12.1, 3.9, 2.6, 1.6 to protons H^2, H^3, H^4, H^5. The 1.6 Hz coupling to H^5 is a 4J equatorial-equatorial W-coupling.

dddd
12.1, 3.9, 2.4, 1.6