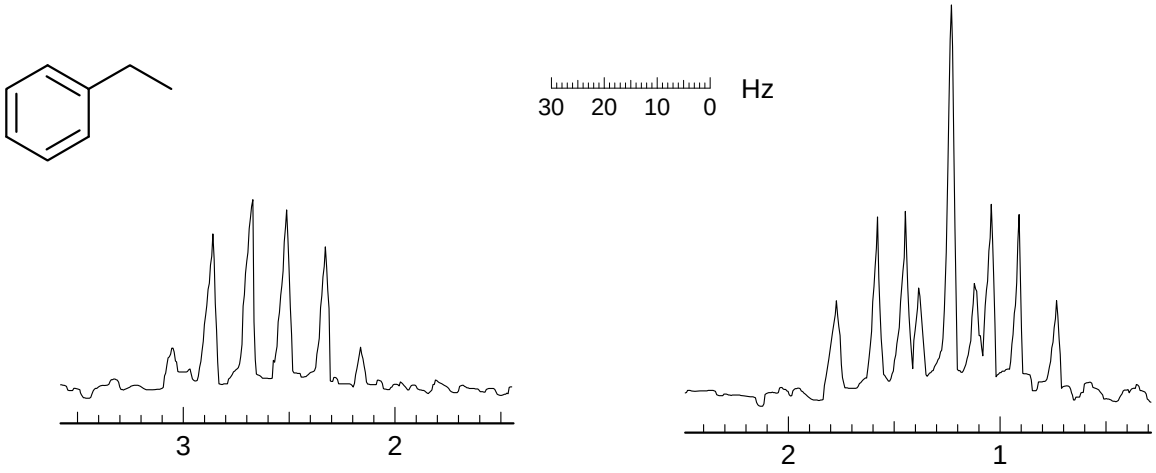
Problem R-308 (C_8H_{10}). Below is the tritium (^3H) NMR spectrum of the ethyl region of randomly tritium labeled ethylbenzene. Interpret the splitting pattern. Note: <1% of the molecules are labeled (Tiers,G. V. D.; Brown, C. A.; Jackson, R. A.; Lahr, T. N. J. Am. Chem. Soc. 1964, 86, 2526-7).



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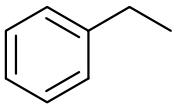
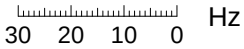
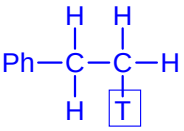


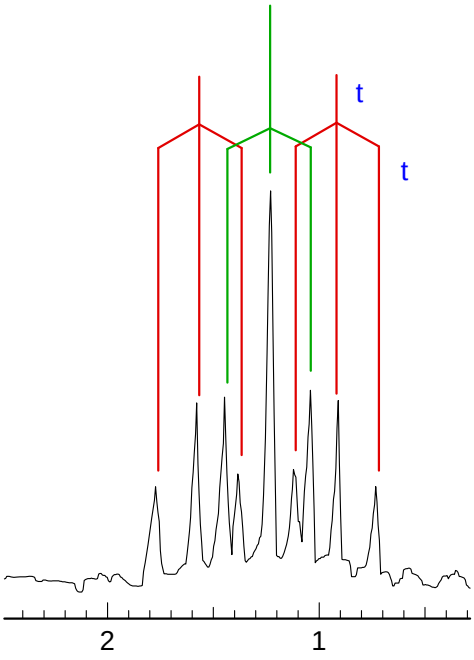


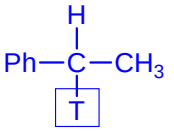
^1H *I* = 1/2 100 MHz

^3H *I* = 1/2 106.66 MHz



tt *J* = 13, 8 Hz





dq *J* = 14, 7 Hz