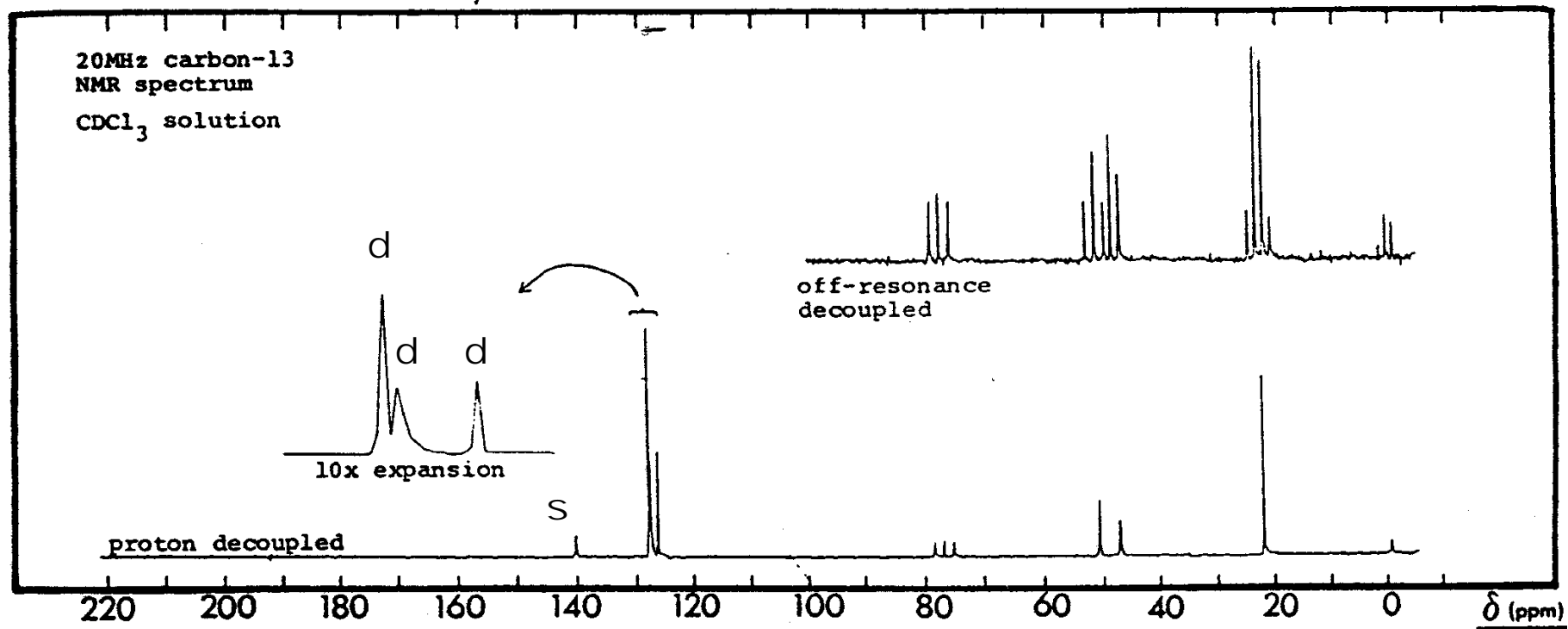
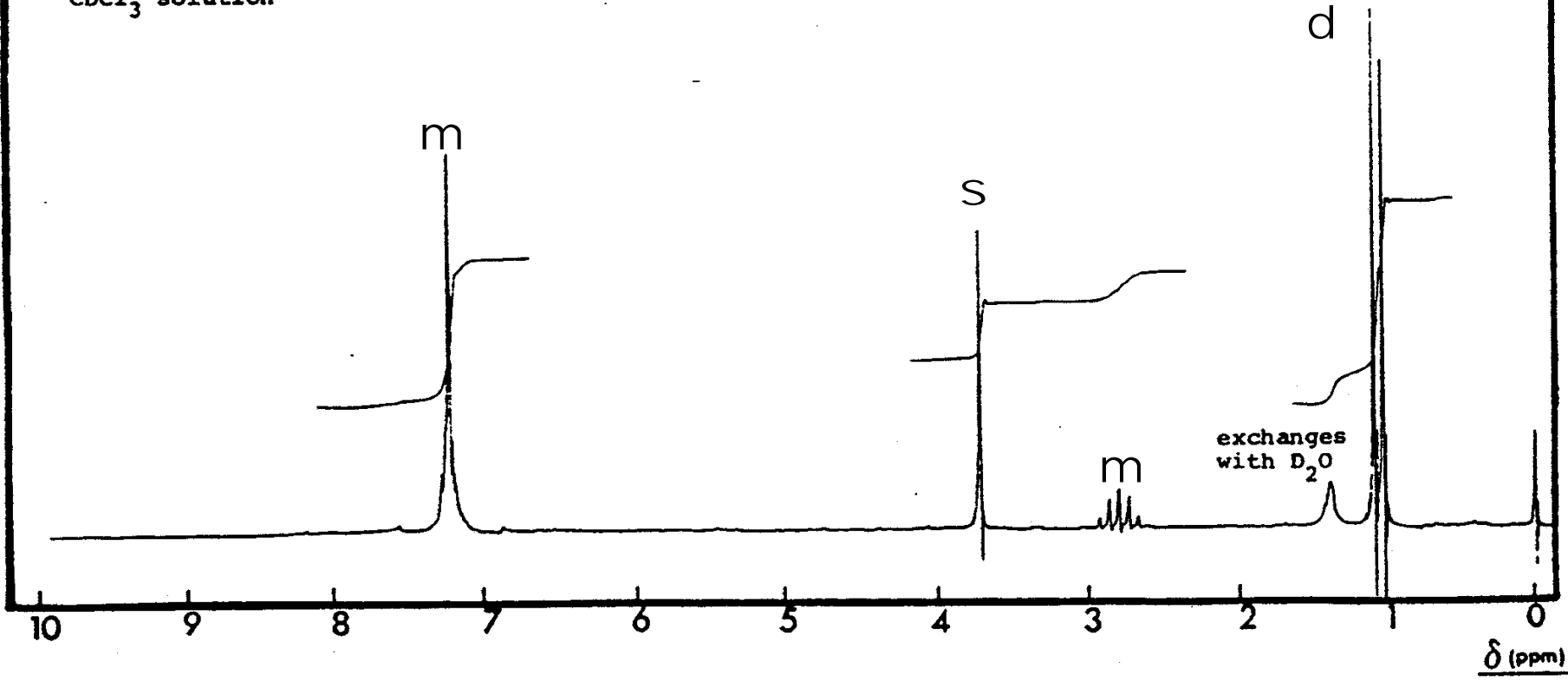
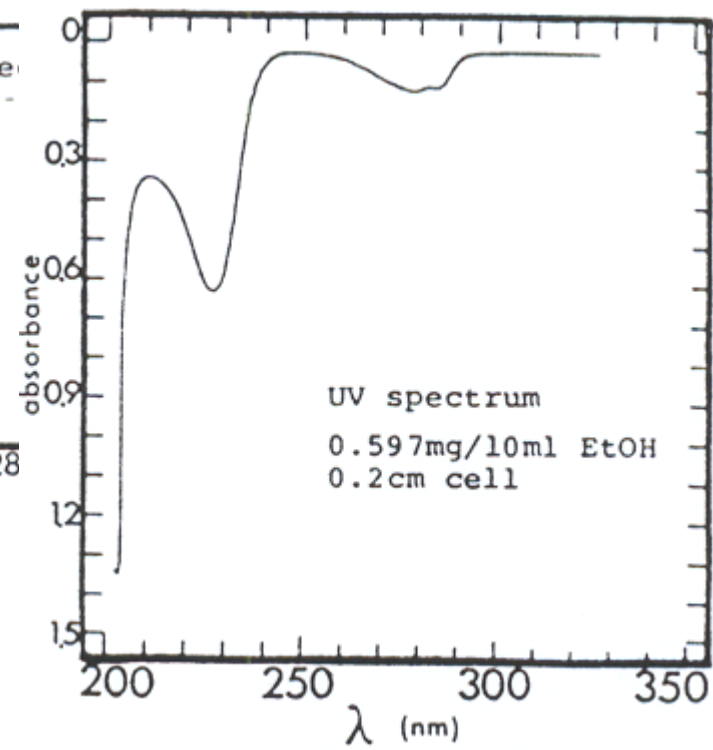
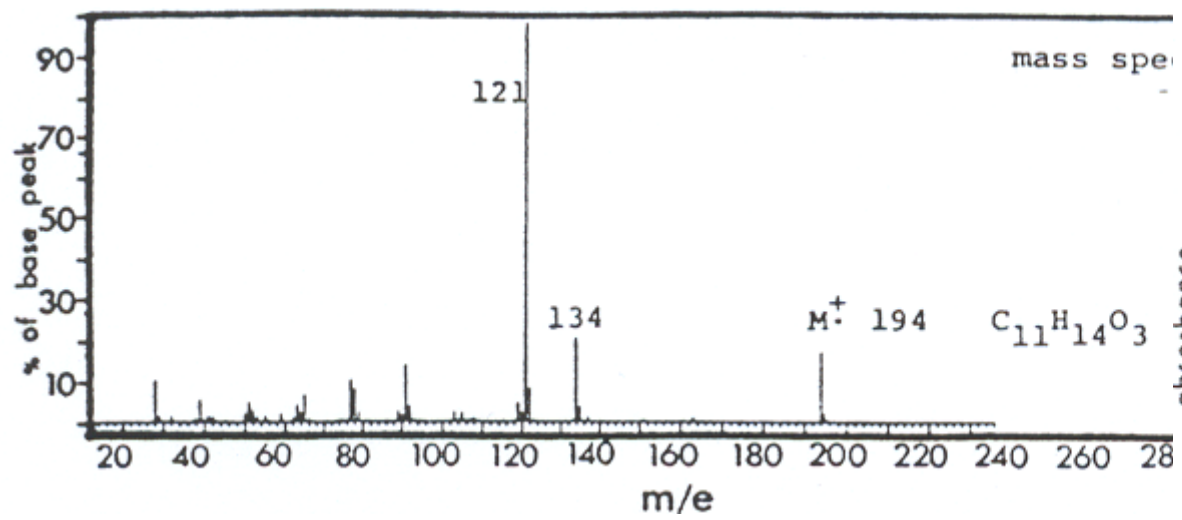


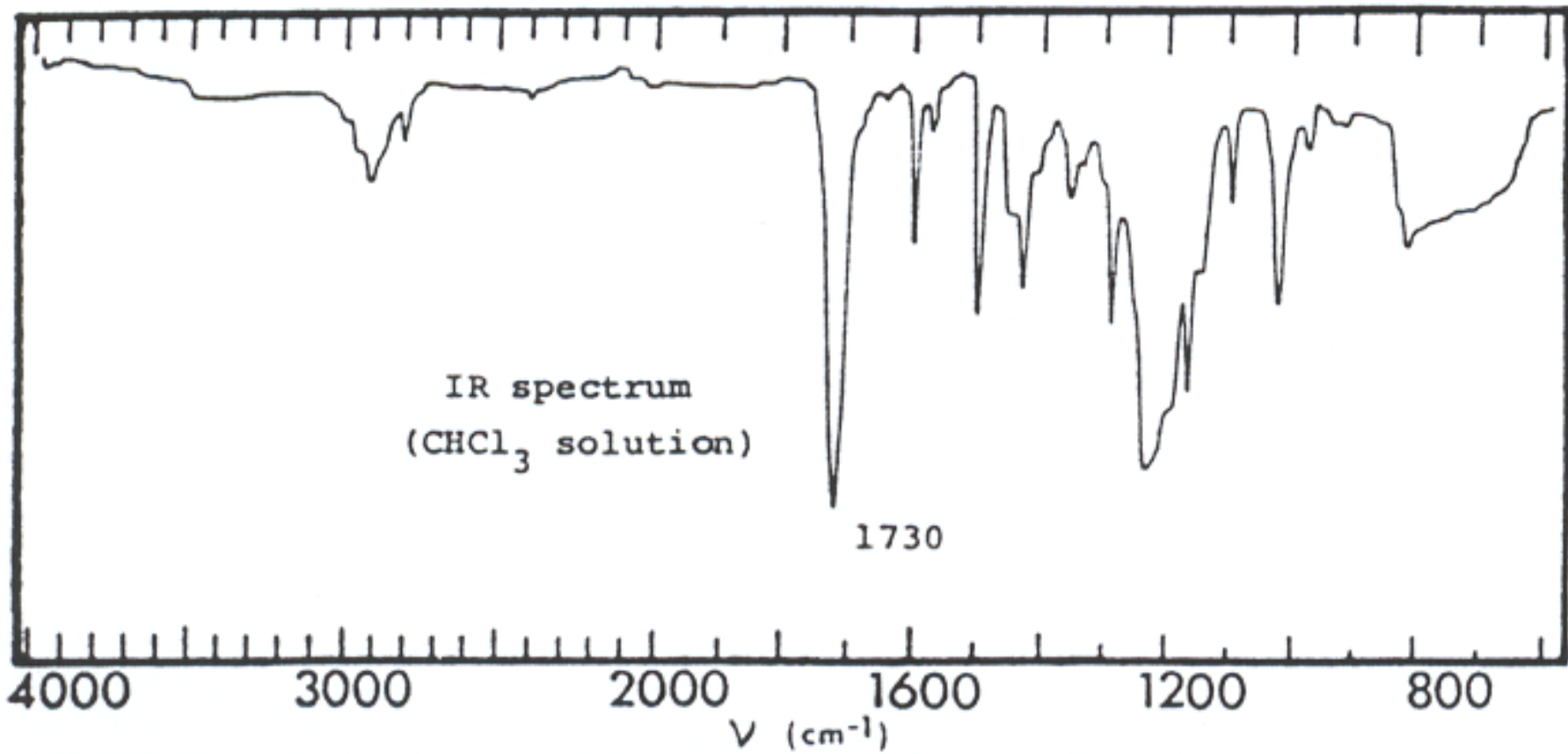
20MHz carbon-13
NMR spectrum
CDCl₃ solution



100MHz proton NMR spectrum
CDCl₃ solution







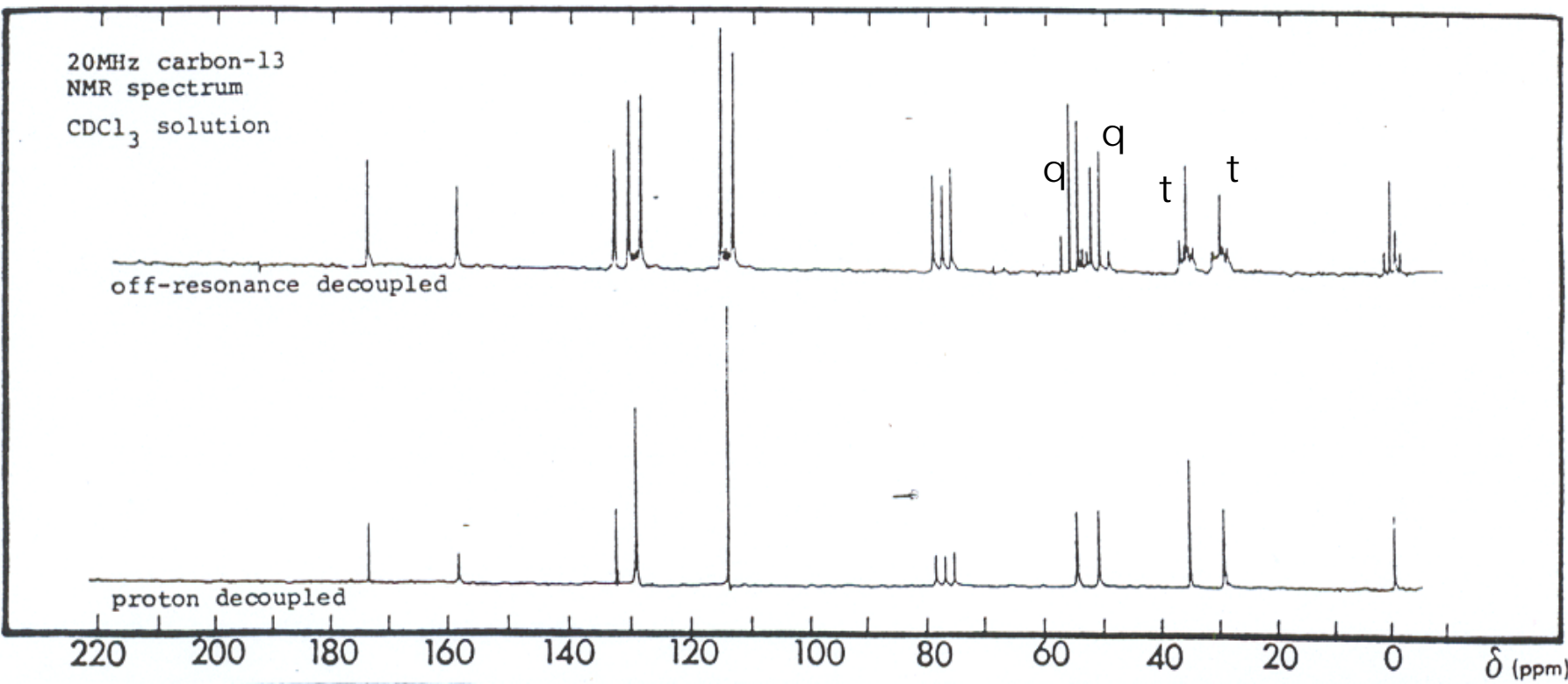
20MHz carbon-13
NMR spectrum
CDCl₃ solution

off-resonance decoupled

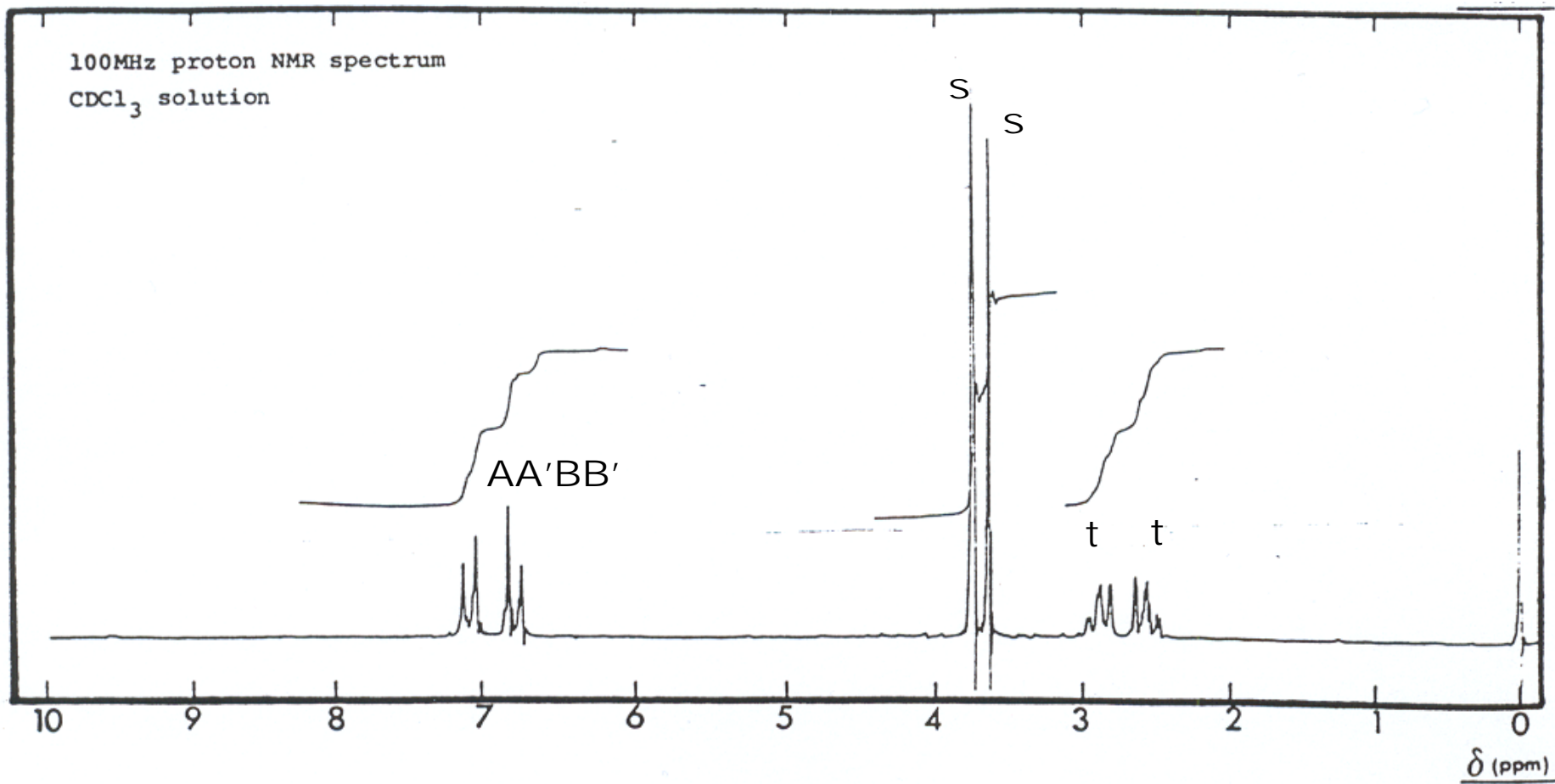
proton decoupled

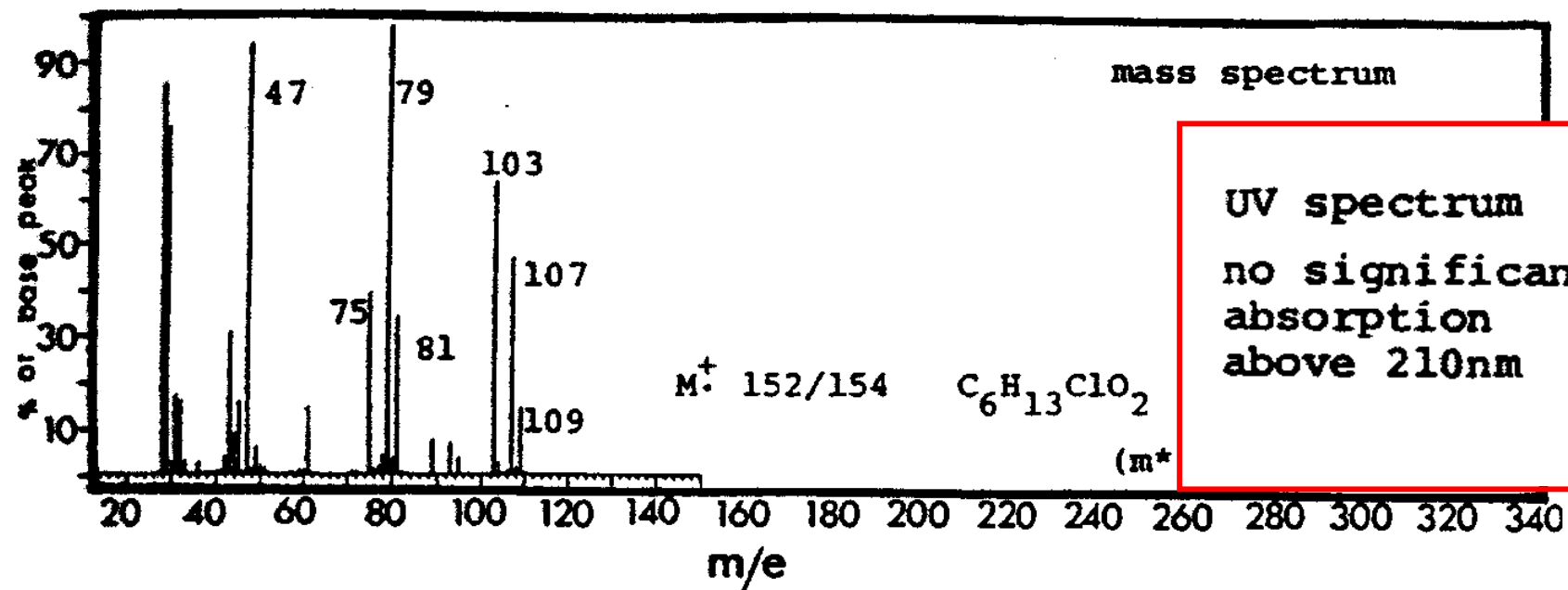
q q t t

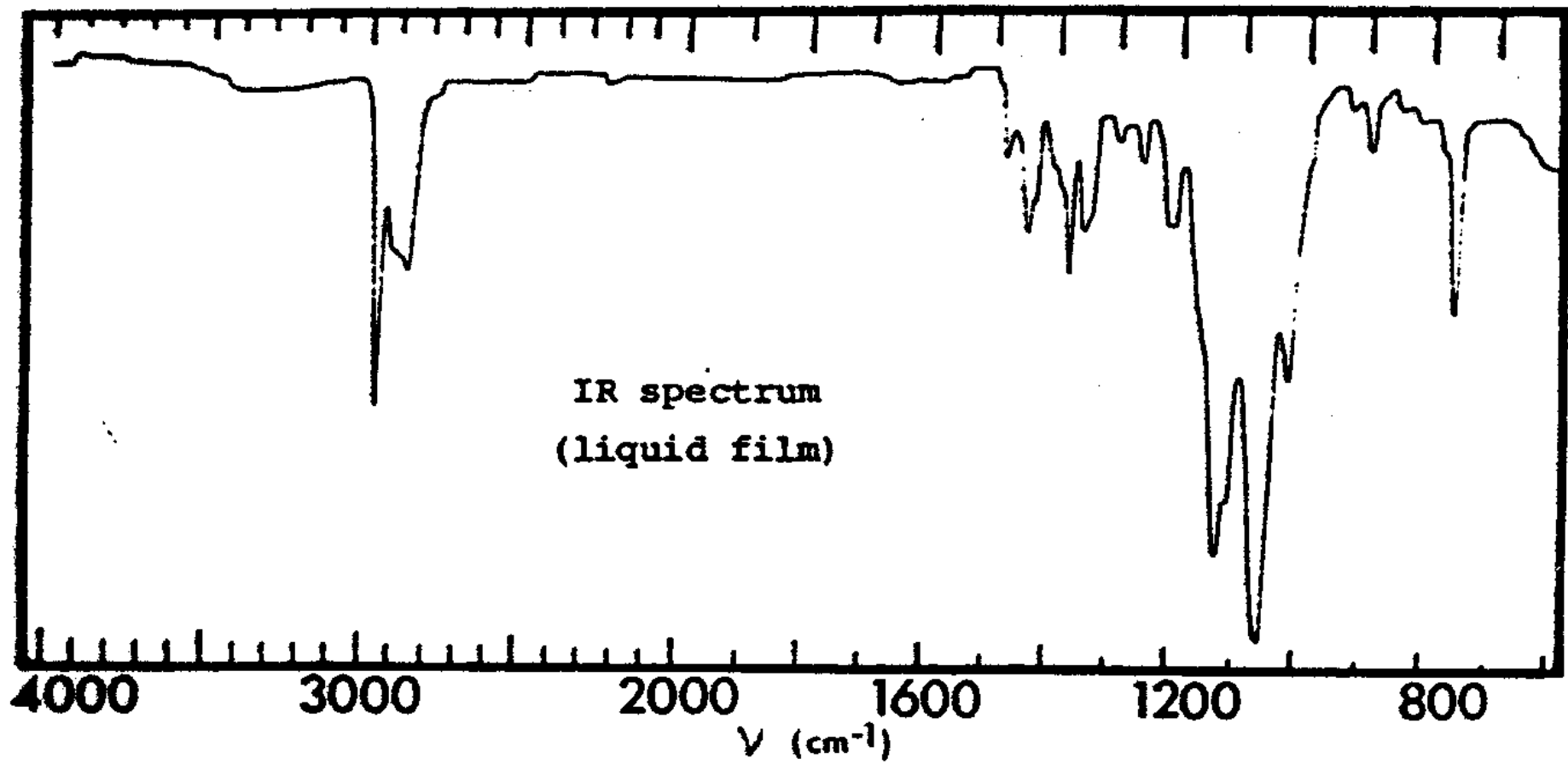
220 200 180 160 140 120 100 80 60 40 20 0 δ (ppm)



100MHz proton NMR spectrum
CDCl₃ solution





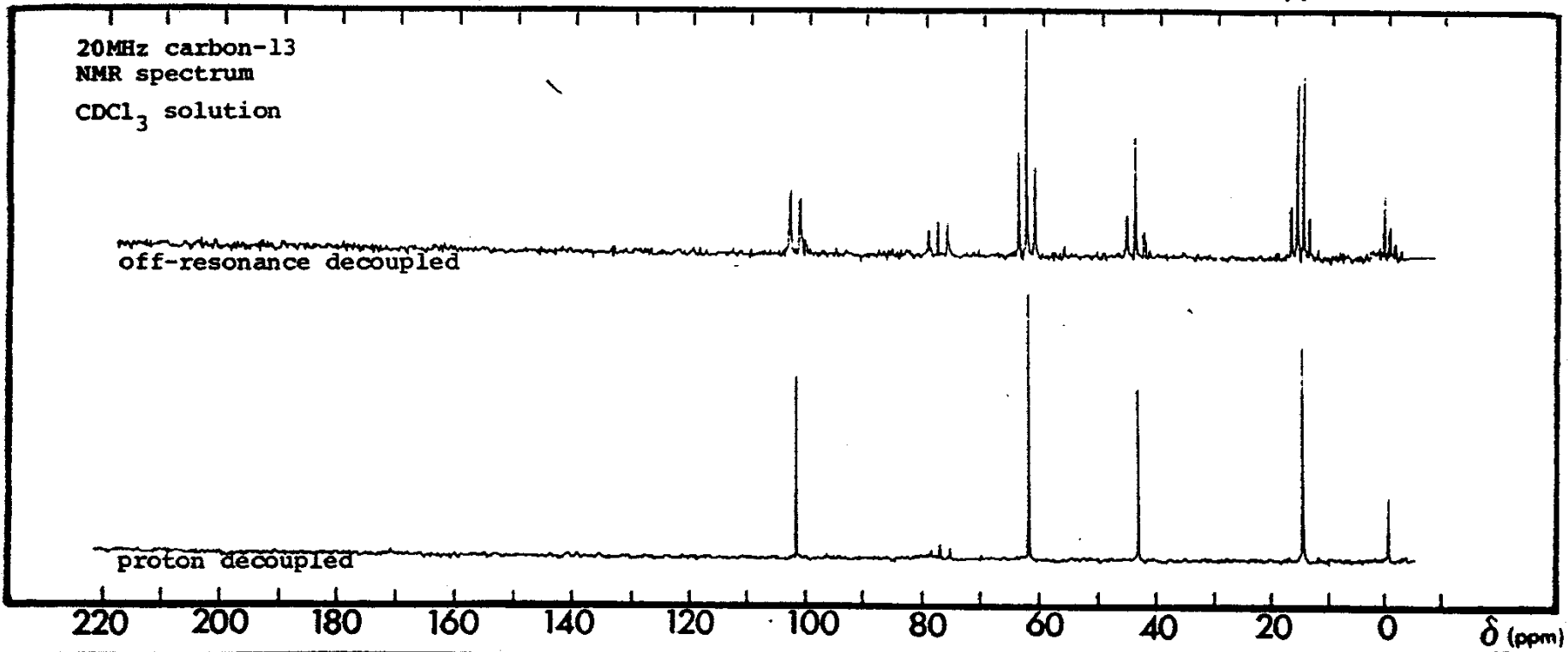


20MHz carbon-13
NMR spectrum
CDCl₃ solution

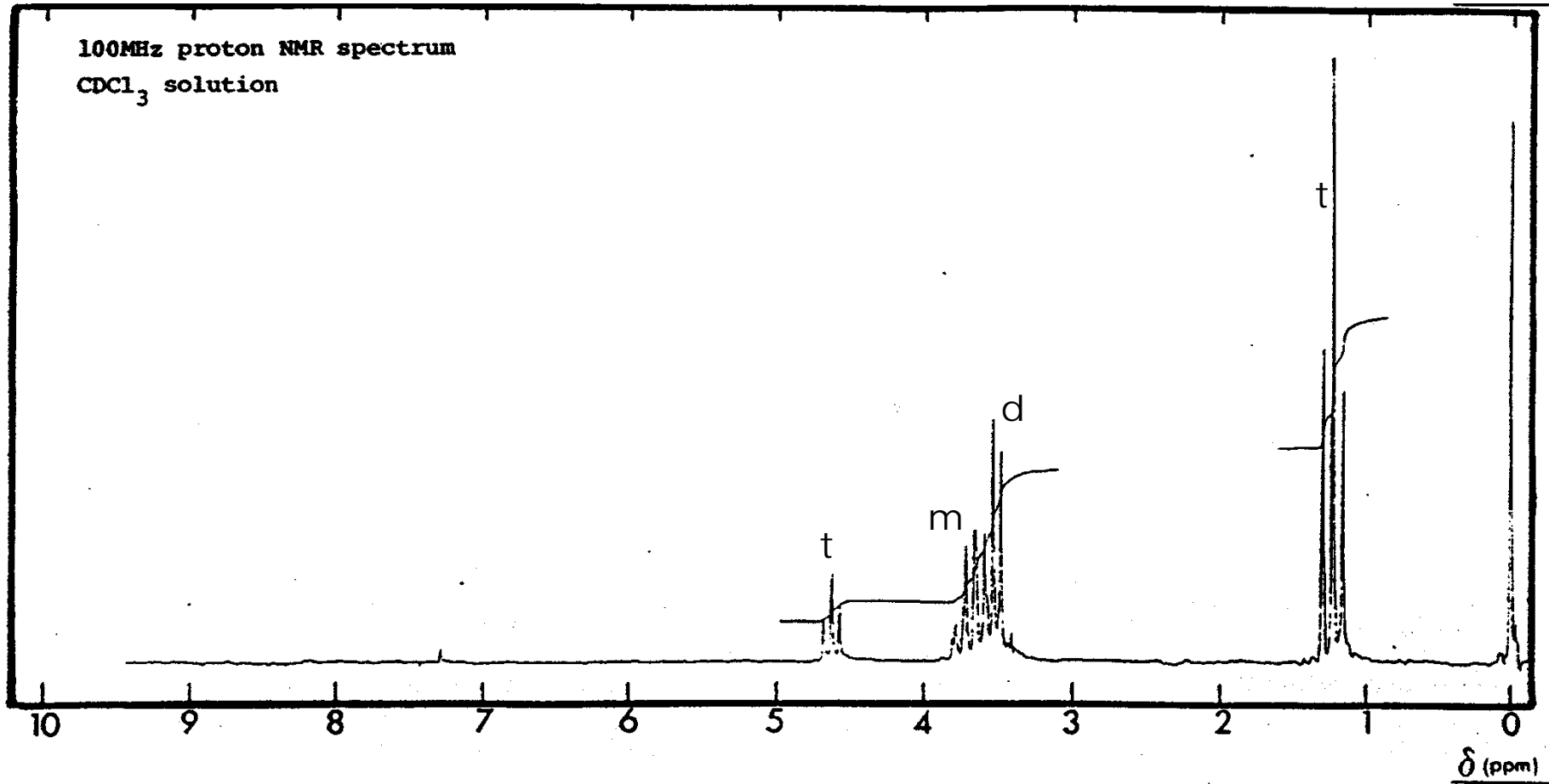
off-resonance decoupled

proton decoupled

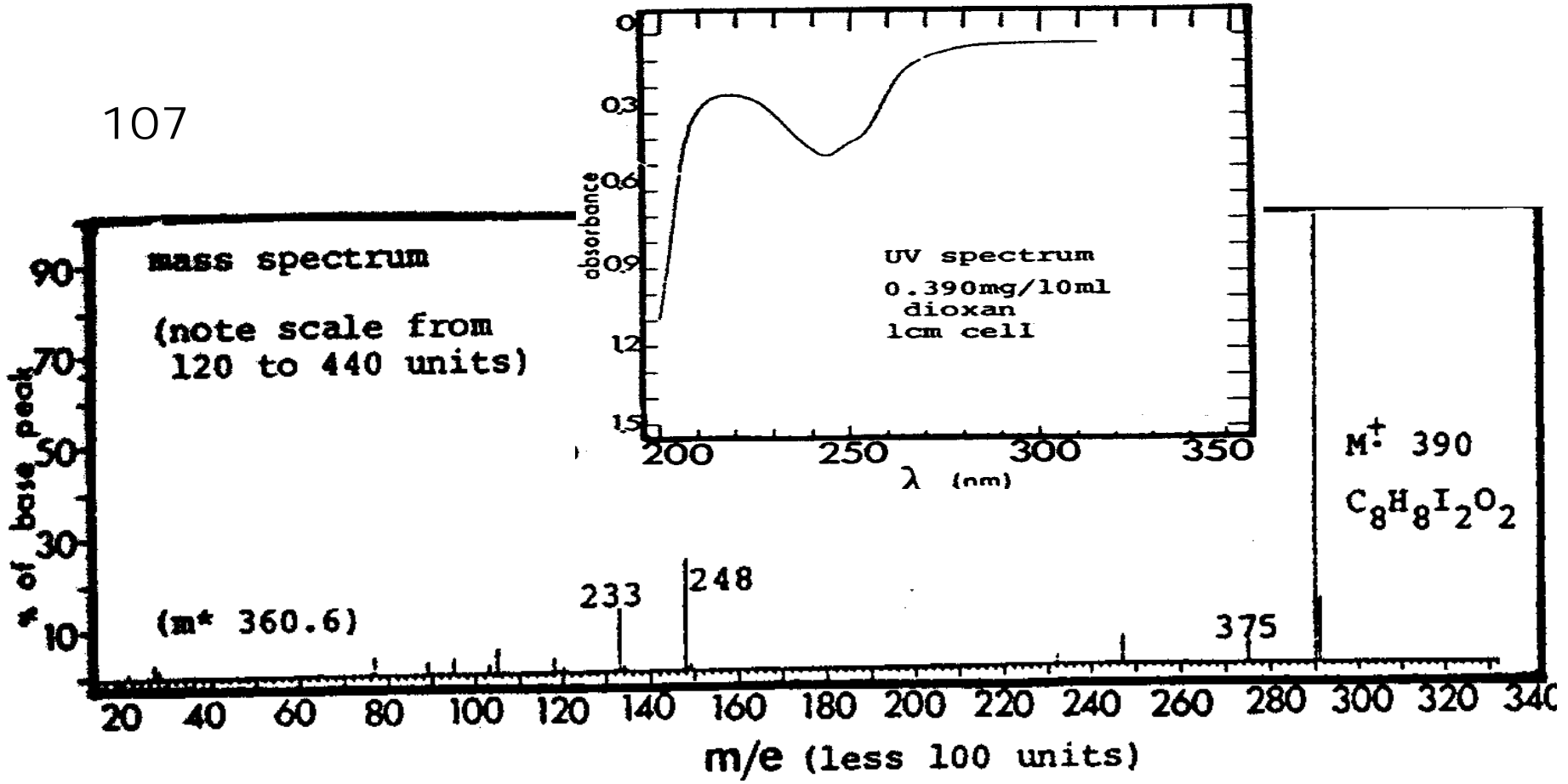
220 200 180 160 140 120 100 80 60 40 20 0 δ (ppm)

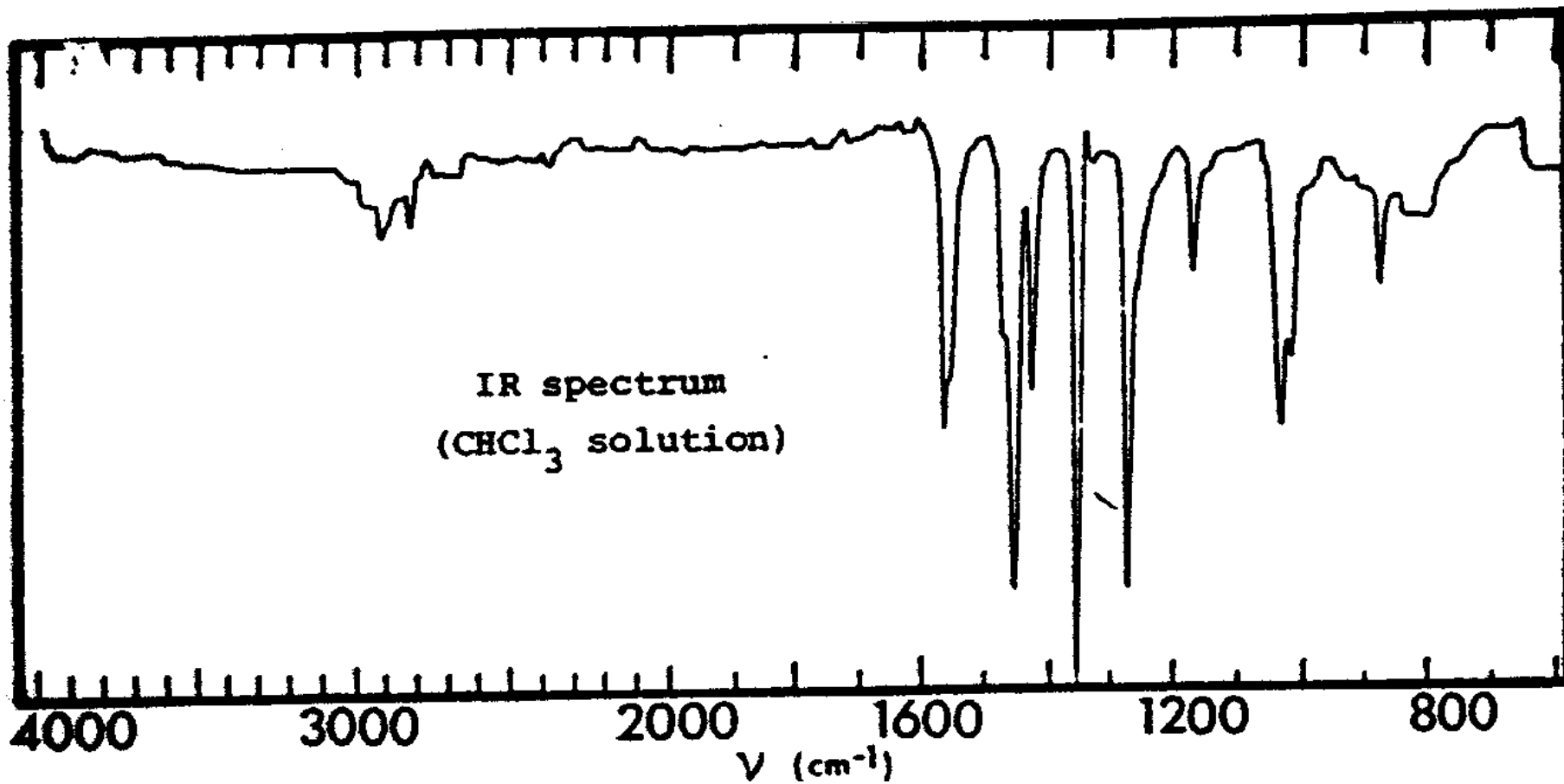


100MHz proton NMR spectrum
CDCl₃ solution



107

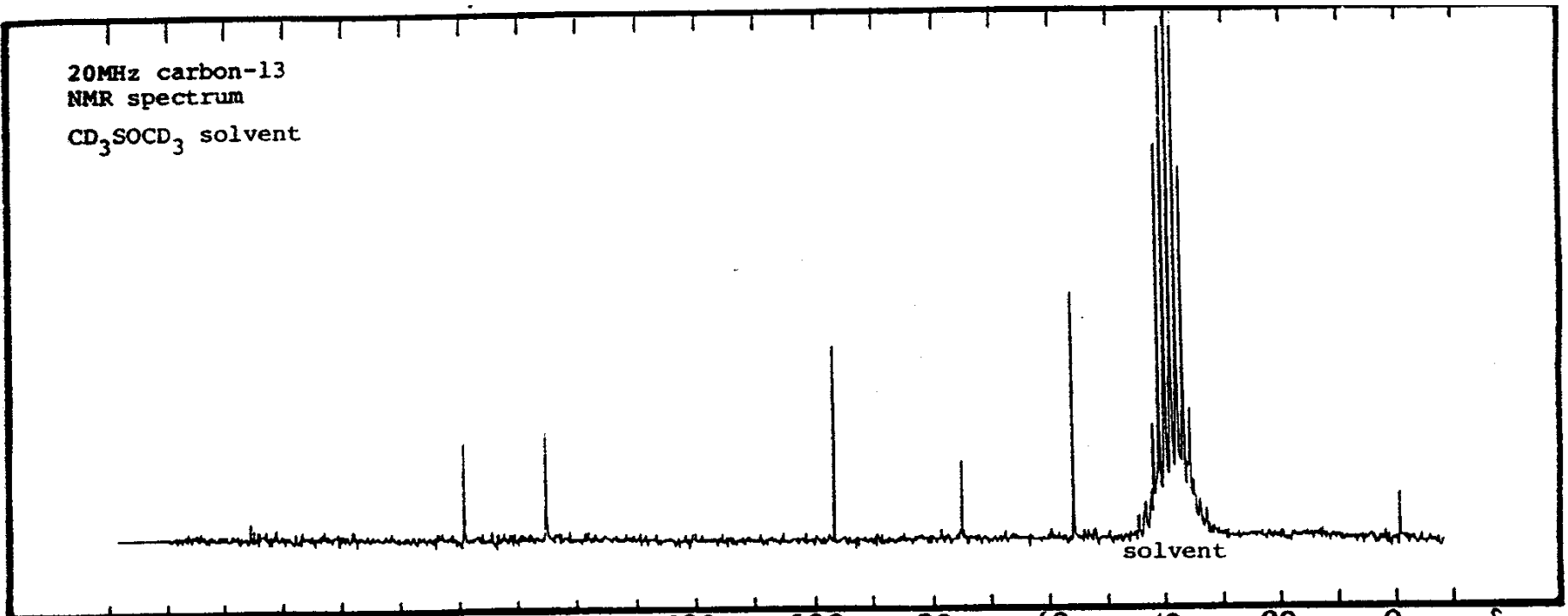




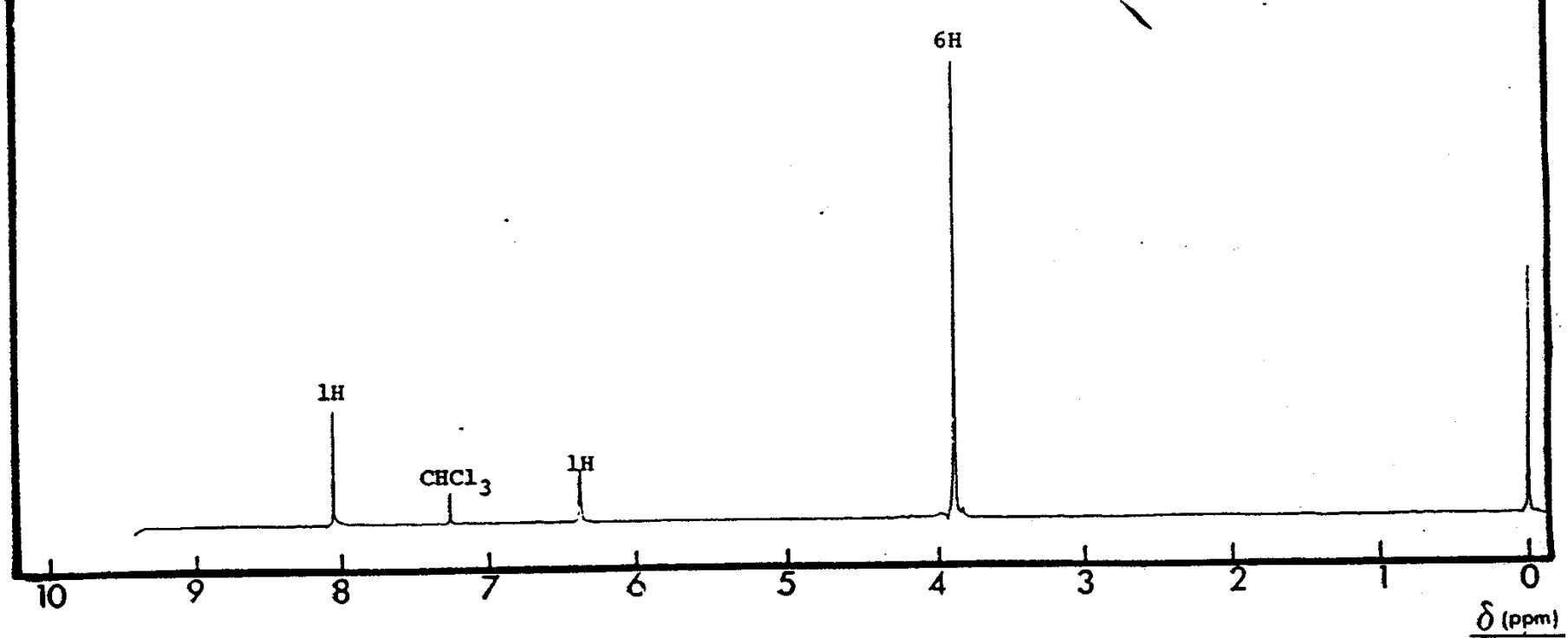
20MHz carbon-13
NMR spectrum
CD₃SOCD₃ solvent

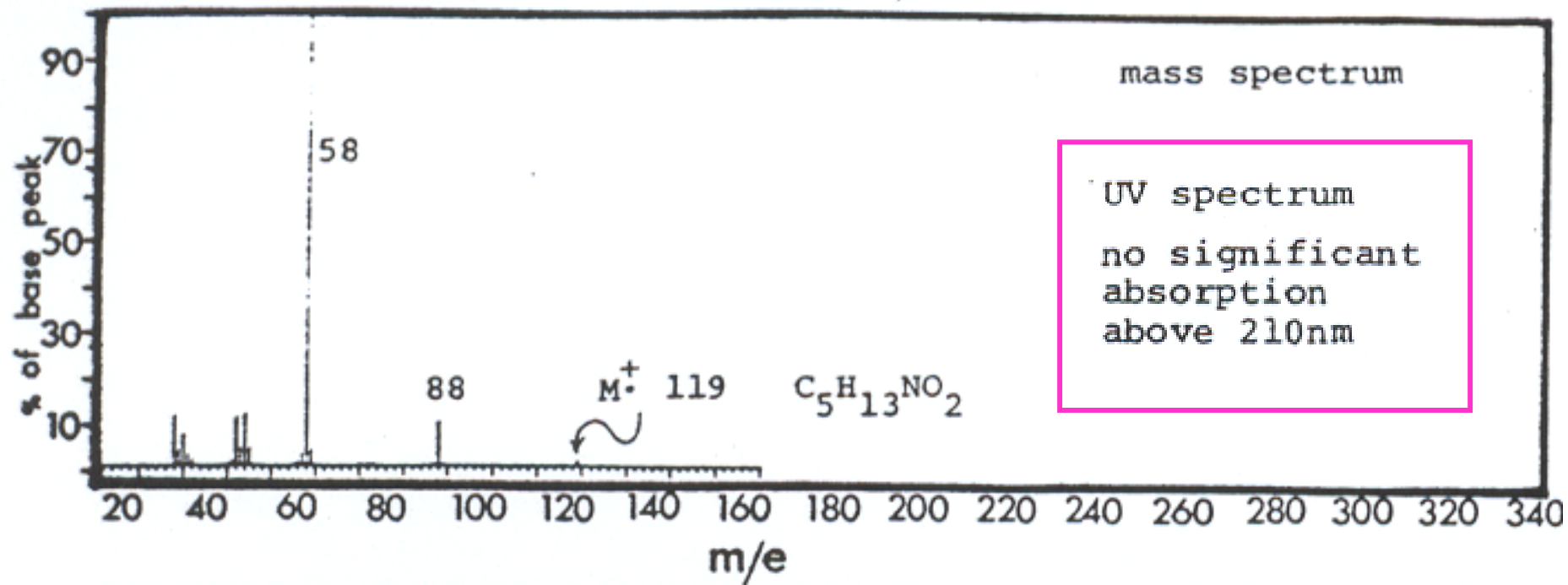
220 200 180 160 140 120 100 80 60 40 20 0 δ (ppm)

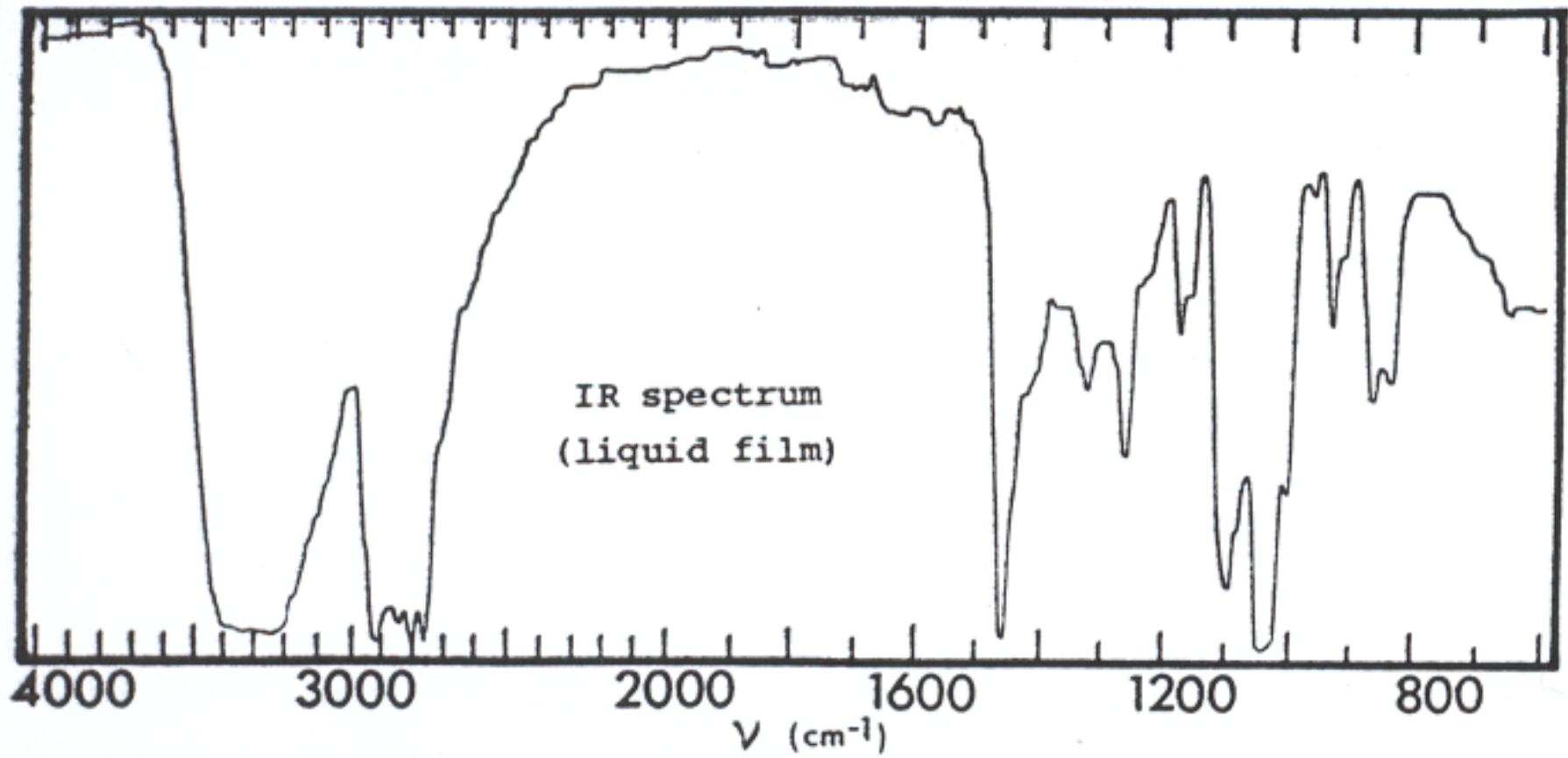
solvent



100MHz proton NMR spectrum
CDCl₃ solvent







20MHz carbon-13
NMR spectrum
D₂O solution
TMS capillary

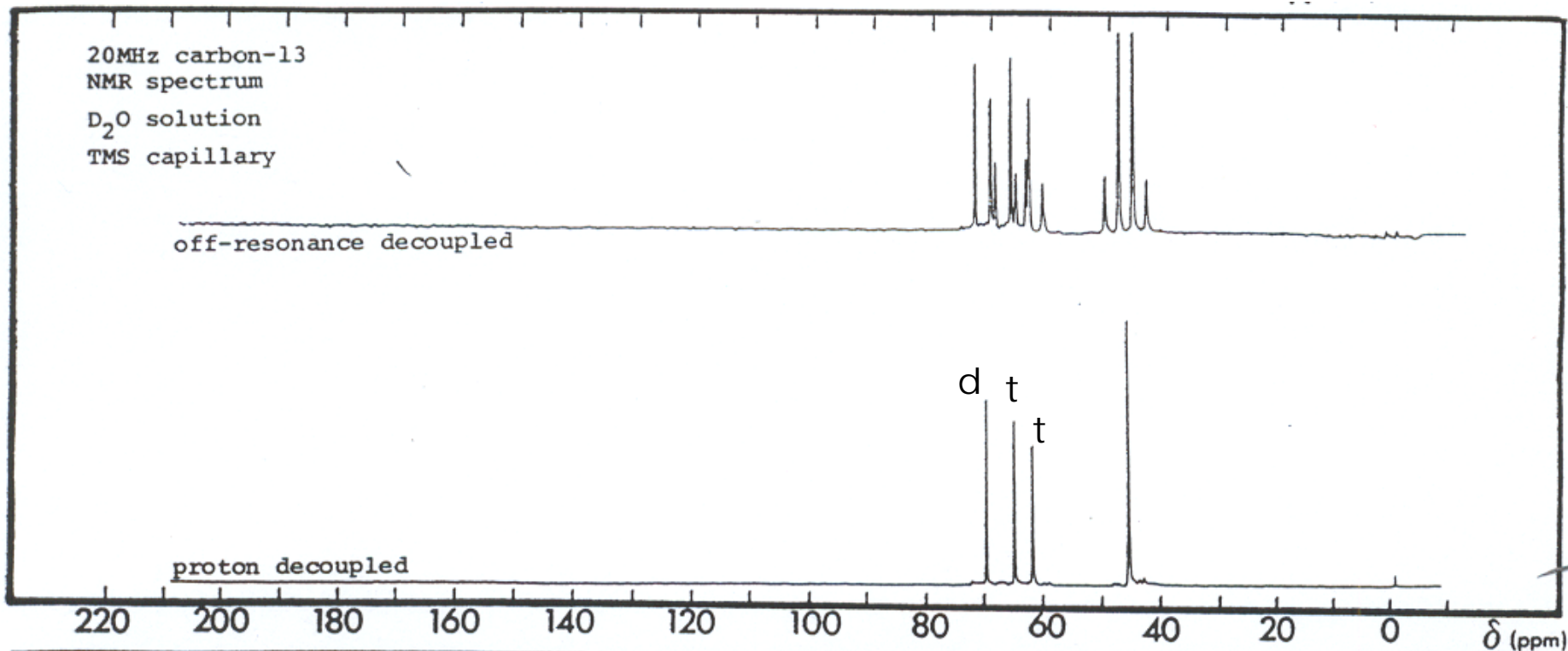
off-resonance decoupled

proton decoupled

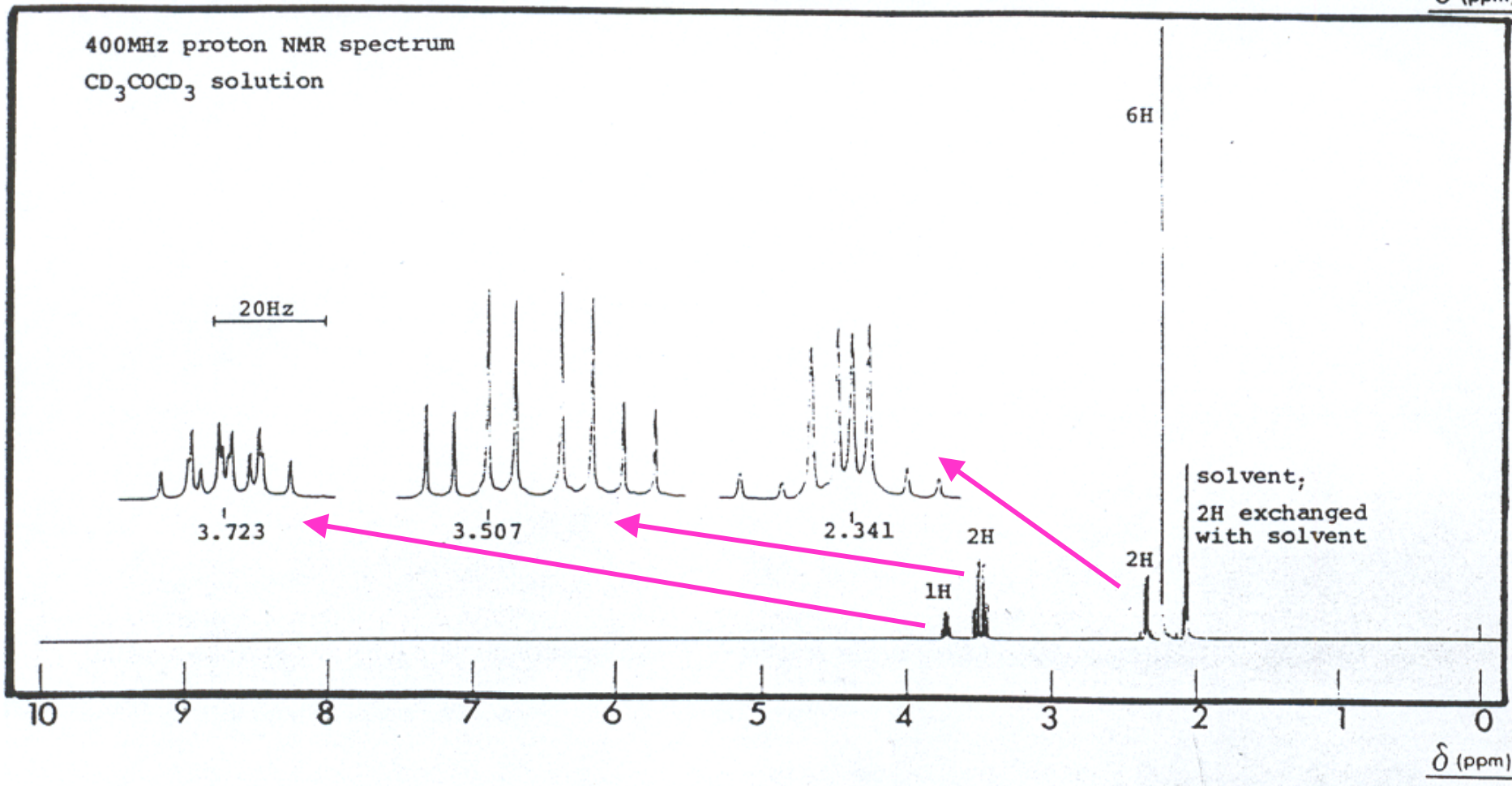
220 200 180 160 140 120 100 80 60 40 20 0 δ (ppm)

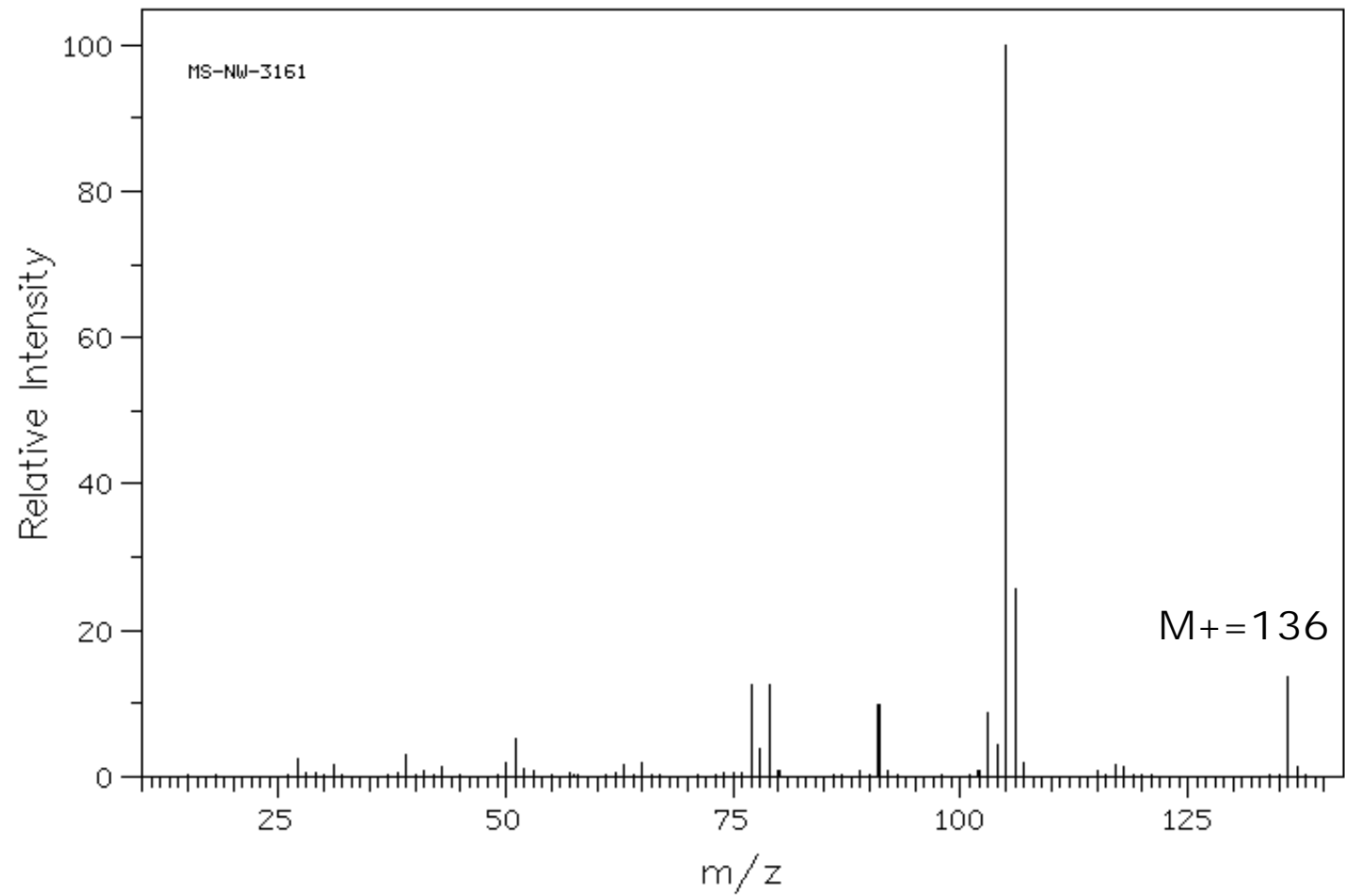
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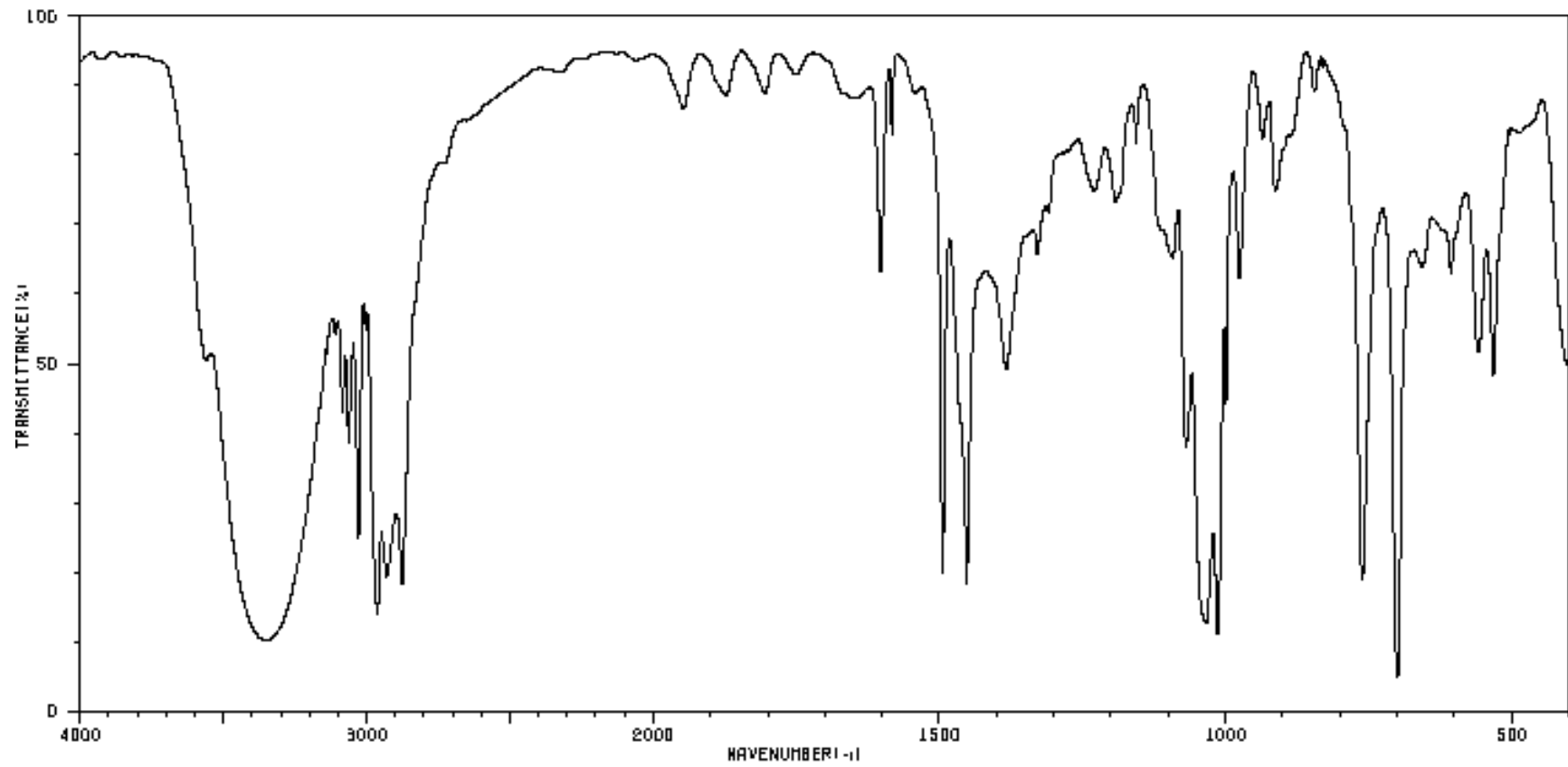
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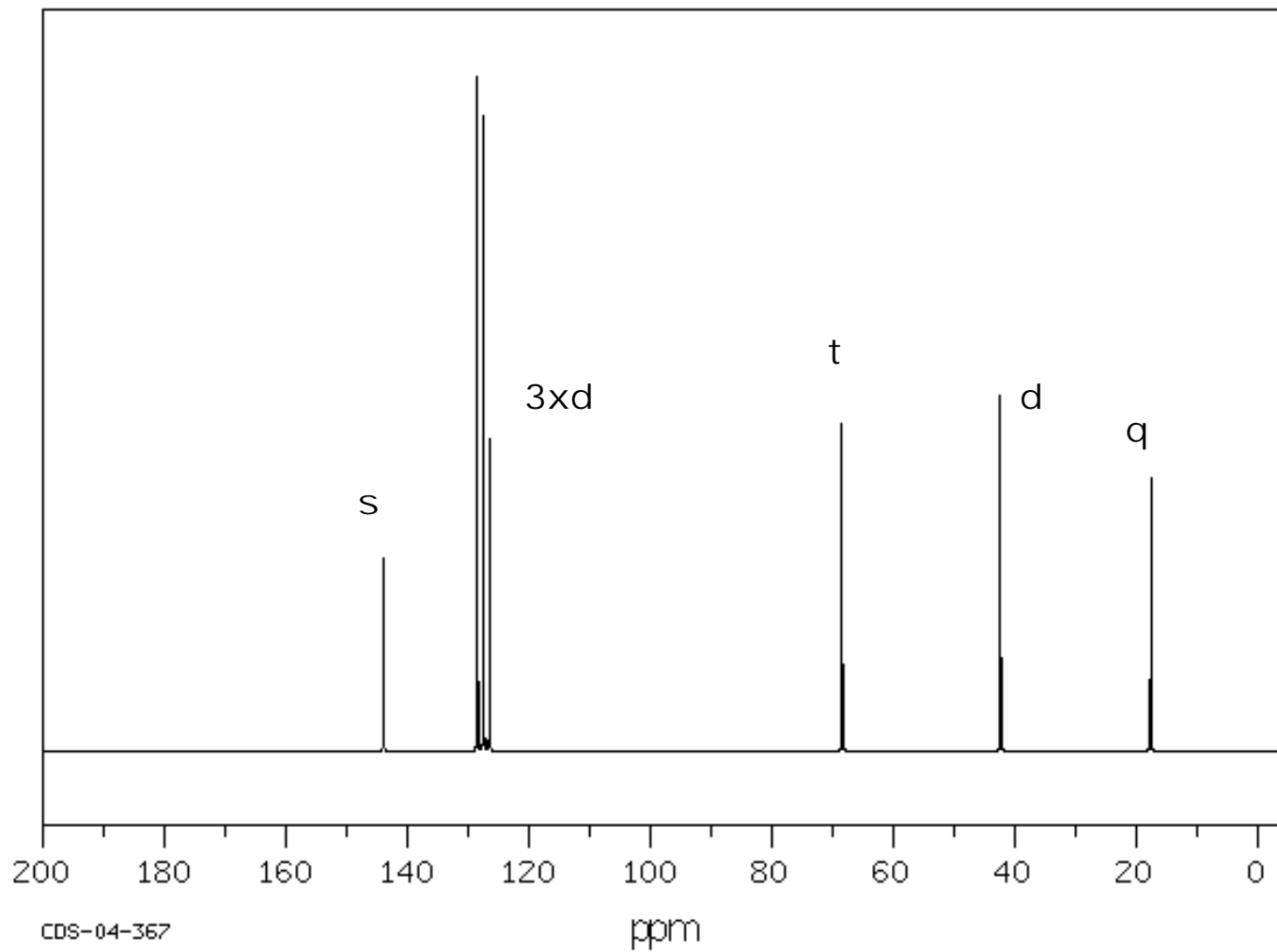


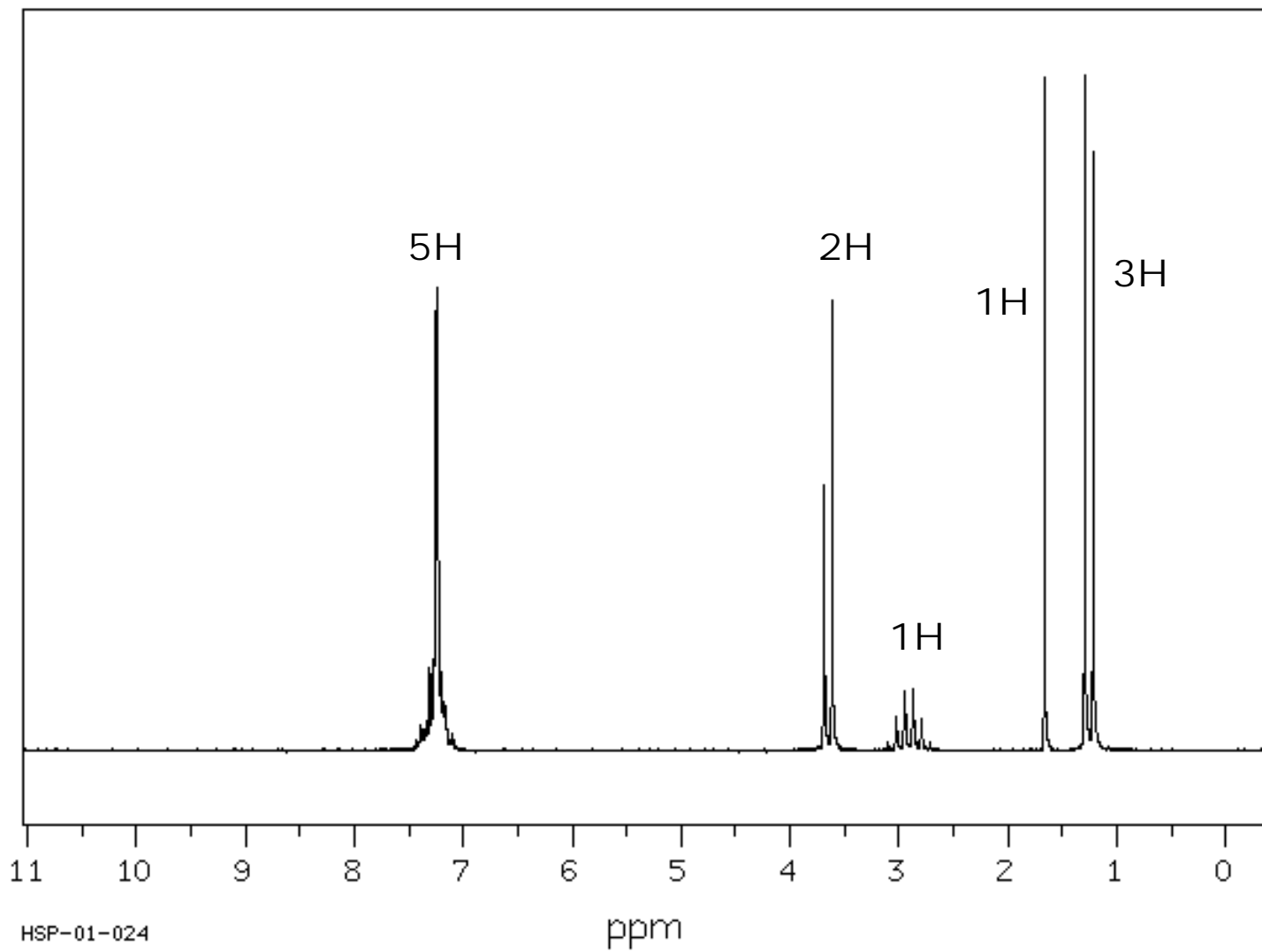
400MHz proton NMR spectrum
CD₃COCD₃ solution

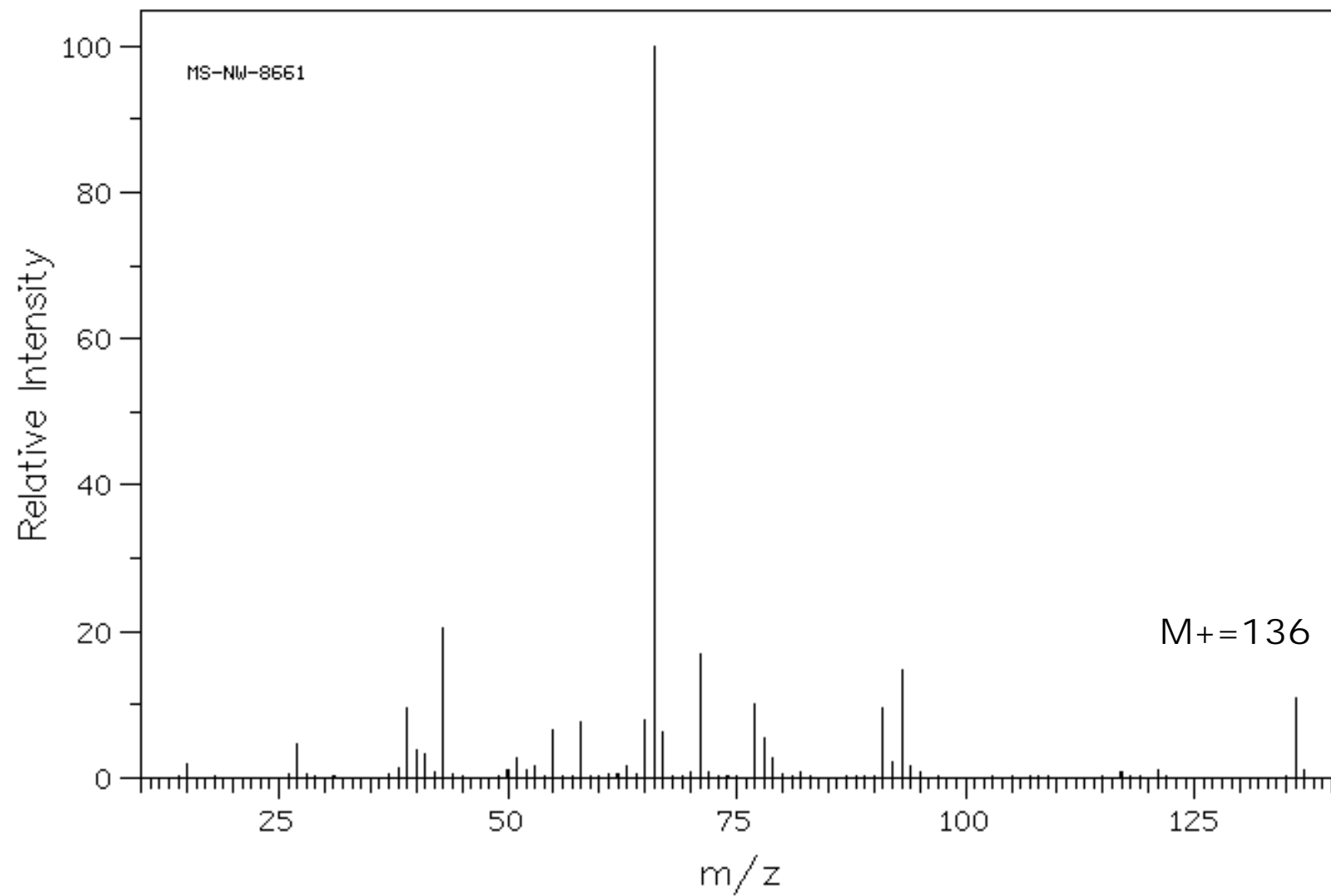


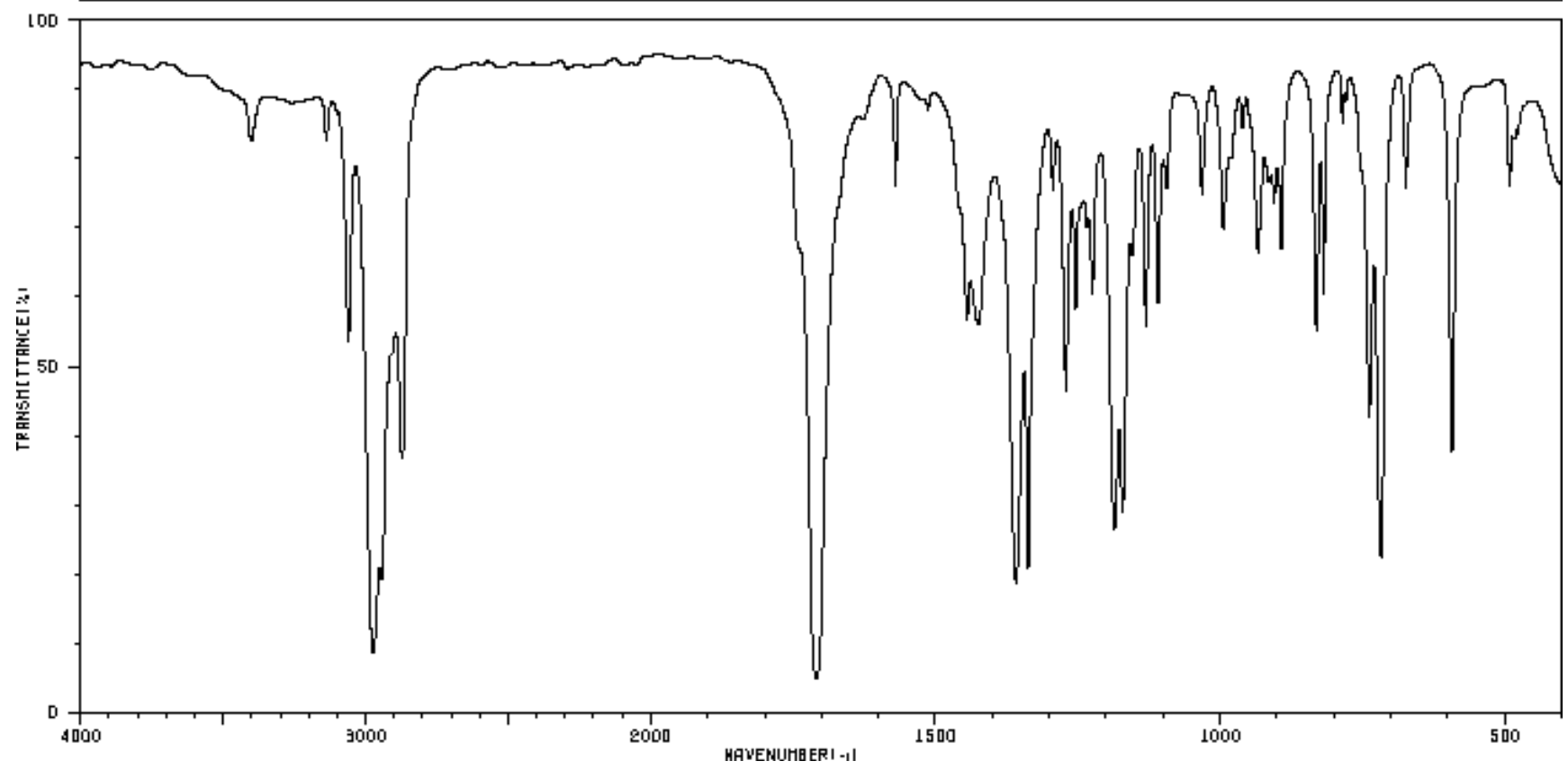


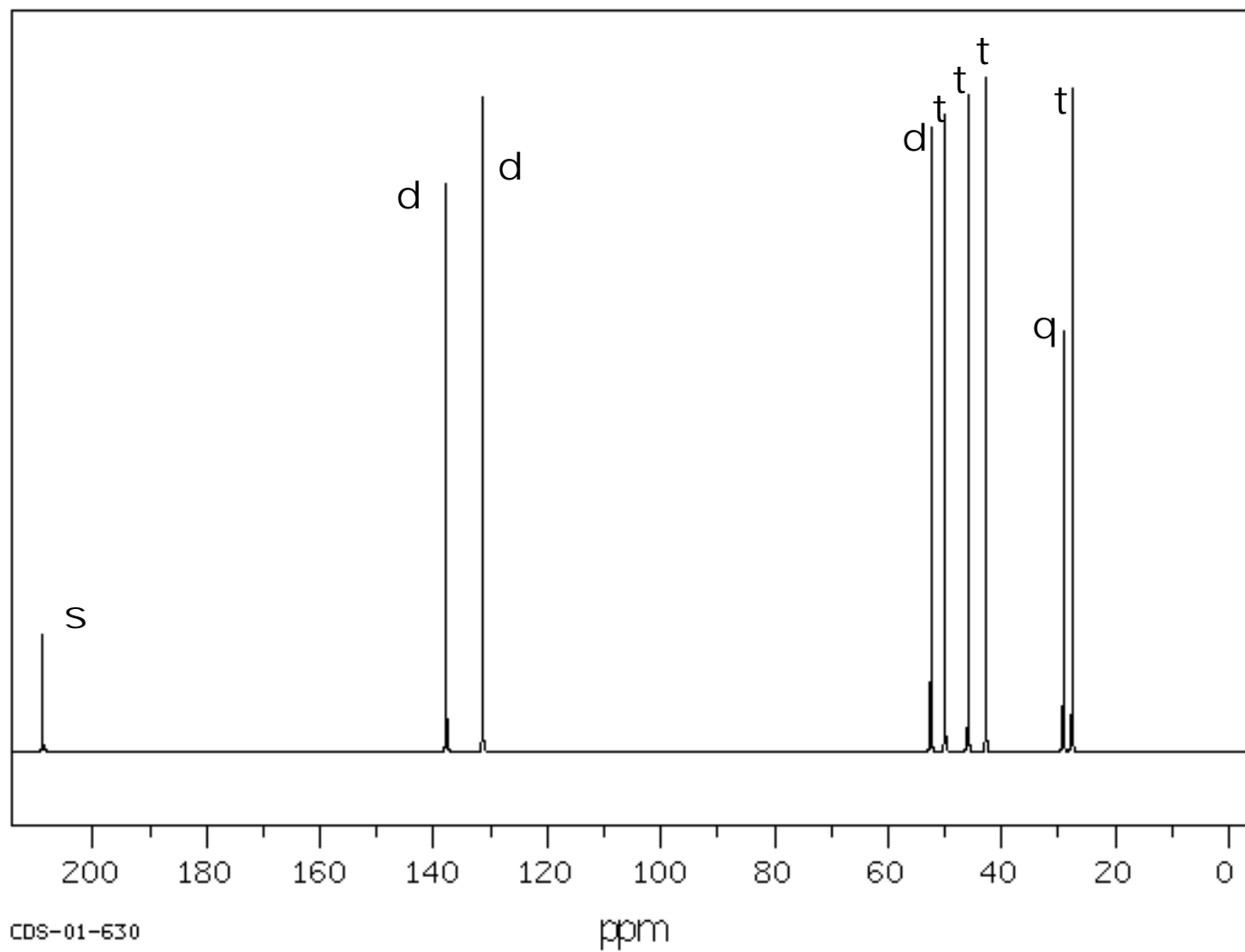


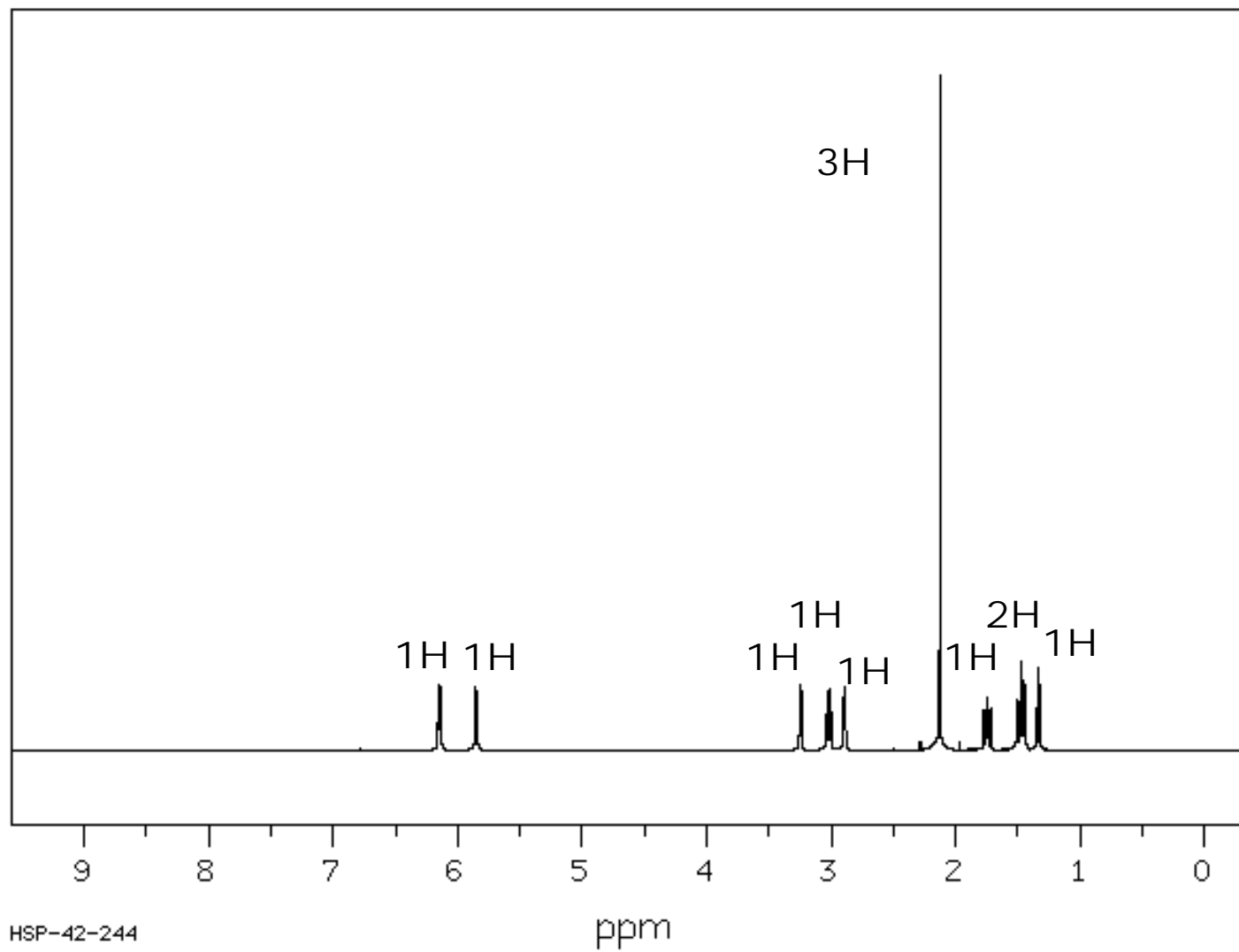












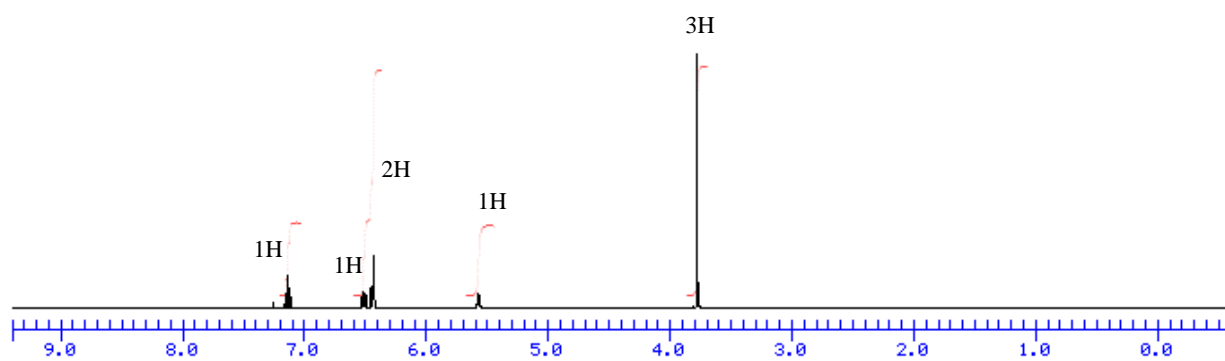
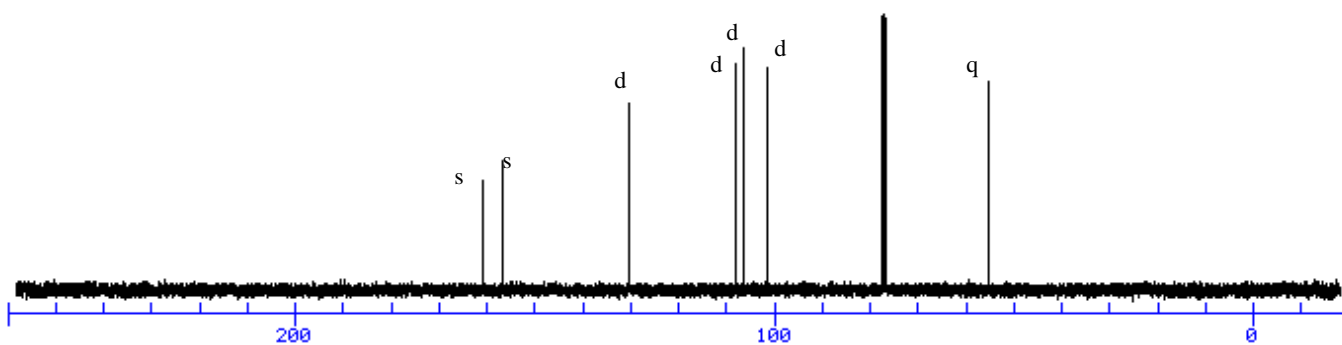
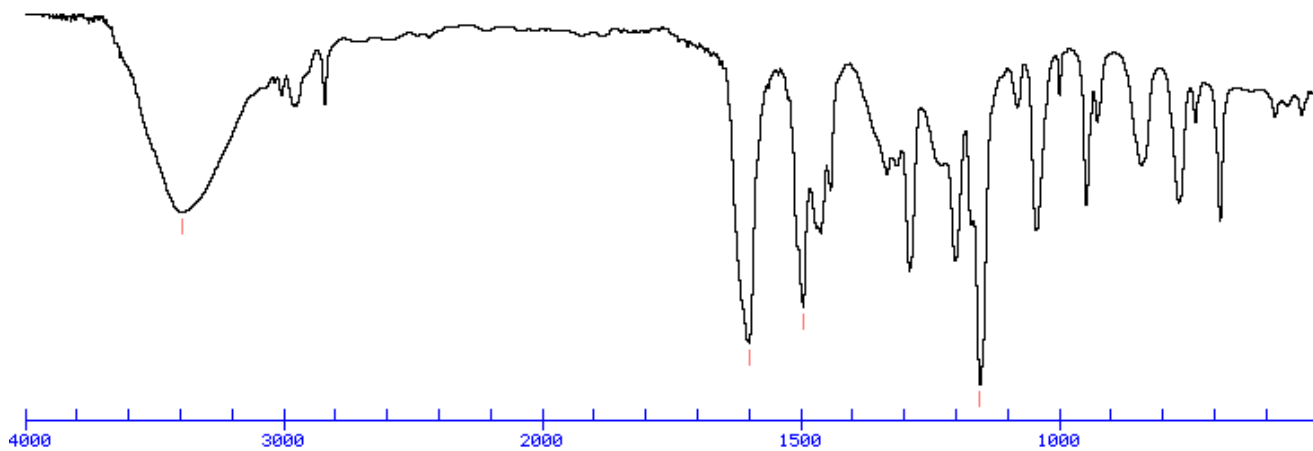
$C_7H_8O_2$

NMR Solvent: $CDCl_3$

IR Solvent: neat

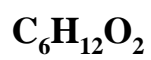
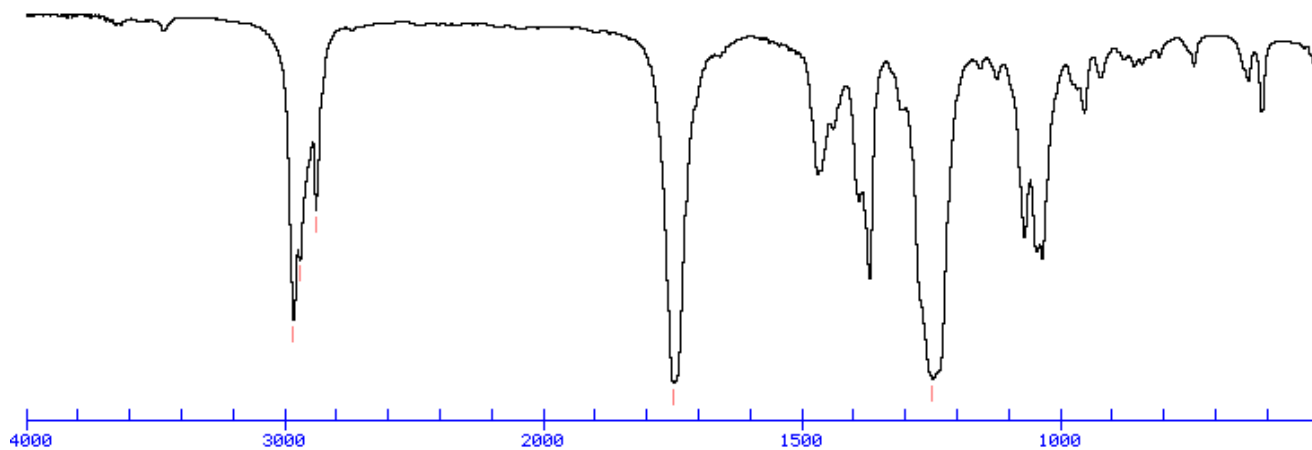
3-1

BP-5



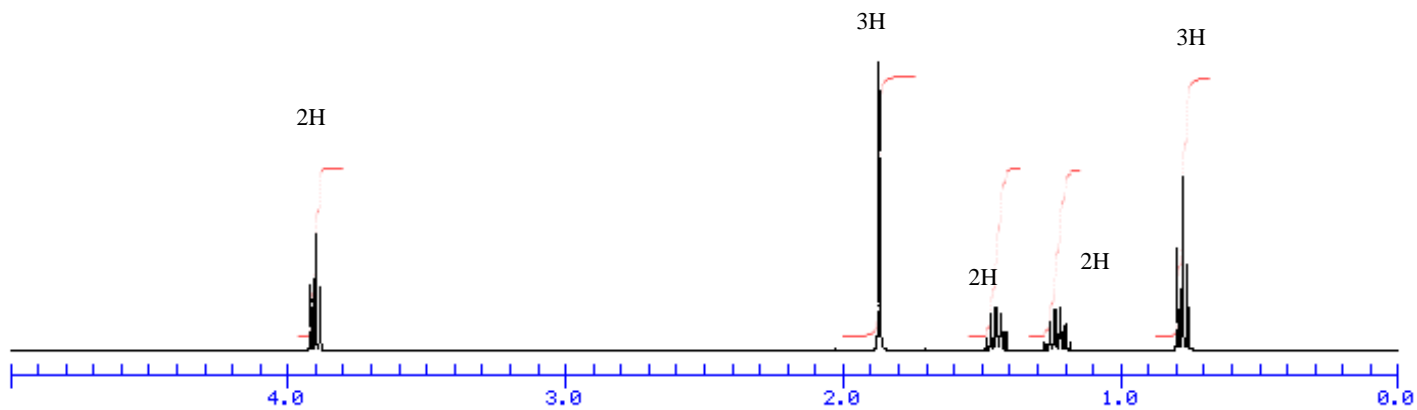
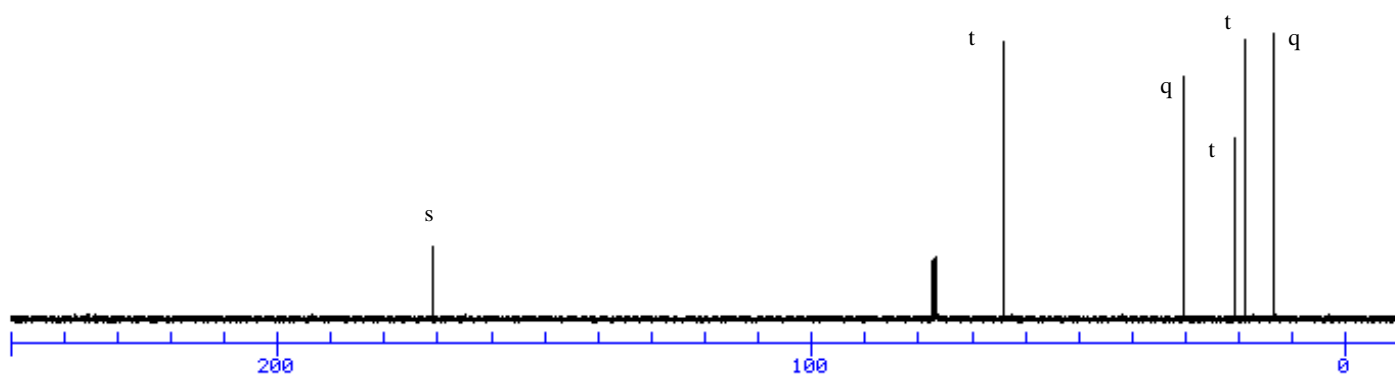
3-2

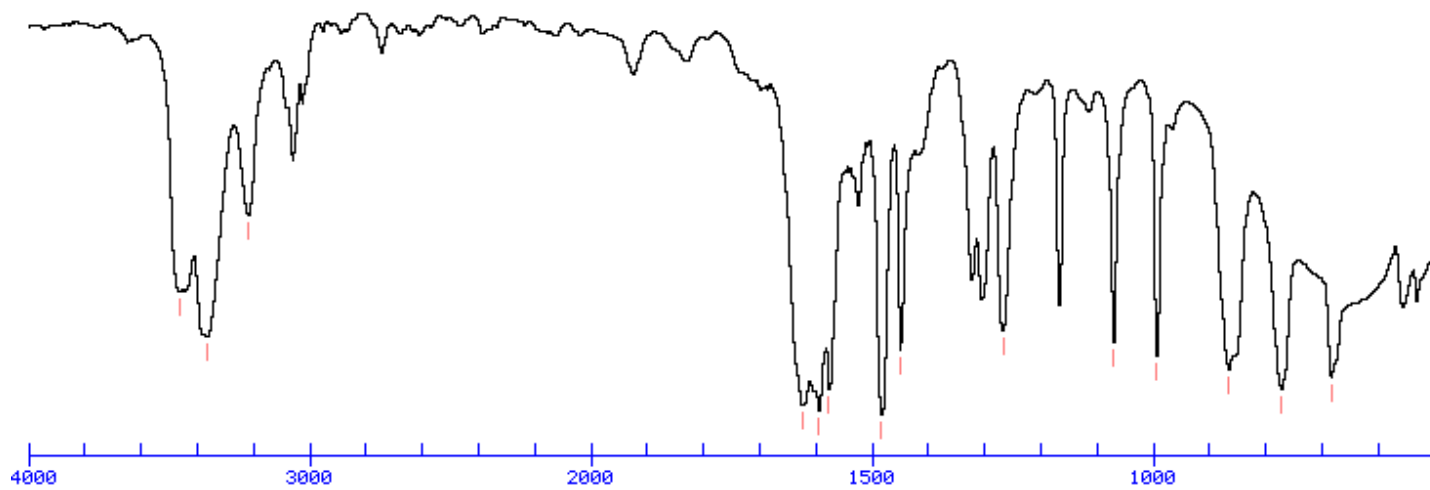
BP-12



NMR Solvent: $CDCl_3$

IR Solvent: neat

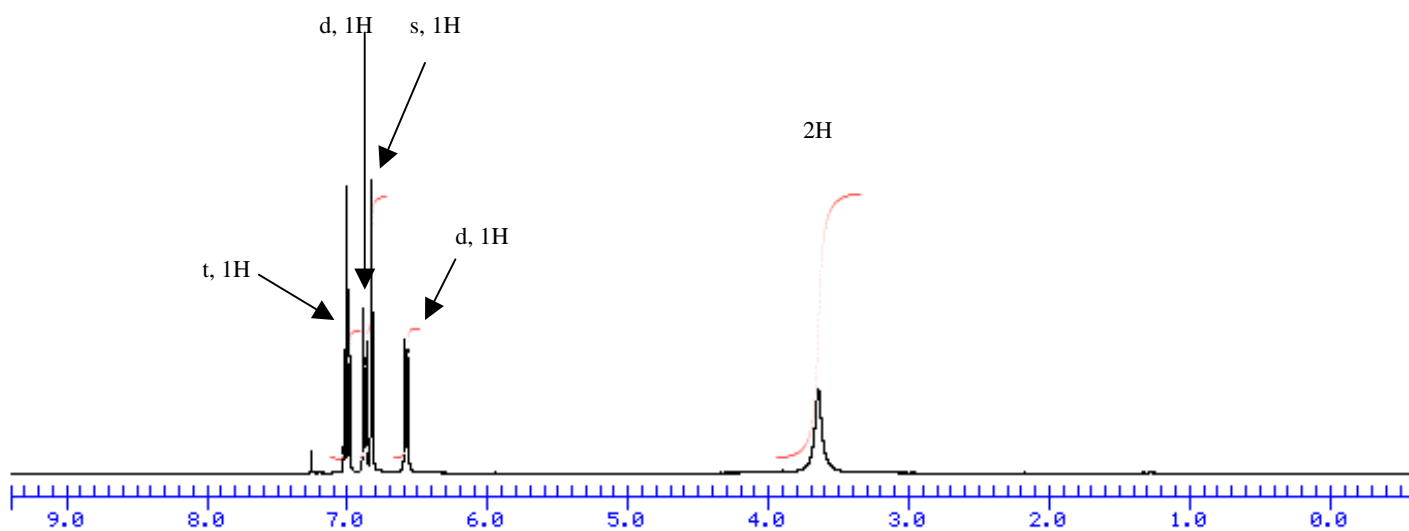
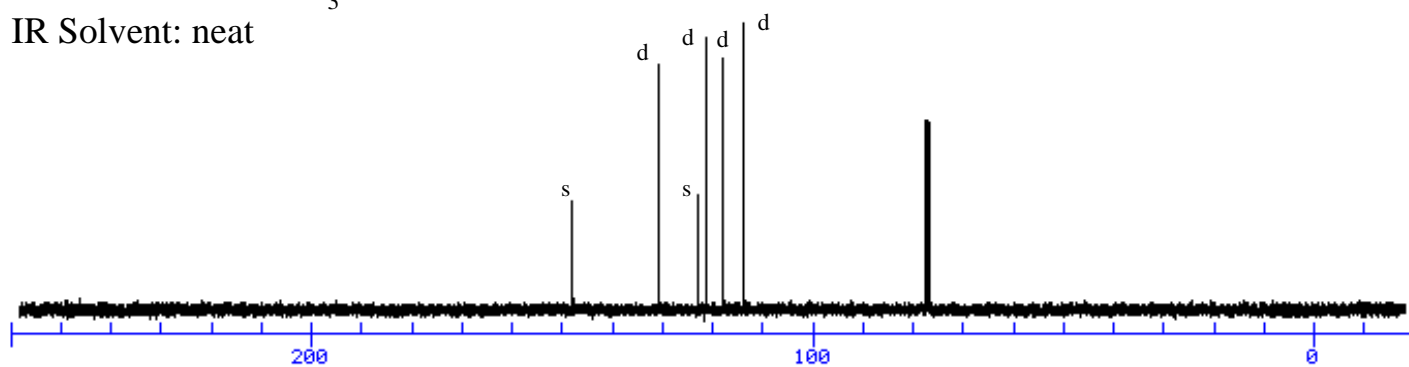


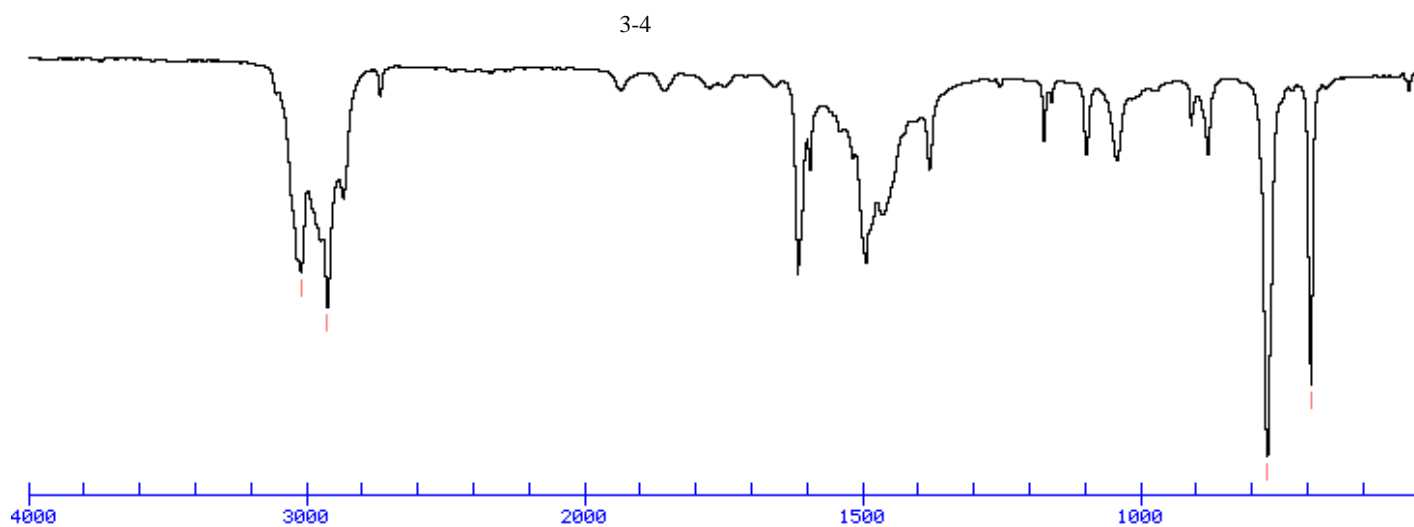


BP-14

 C_6H_6NBr NMR Solvent: $CDCl_3$

IR Solvent: neat



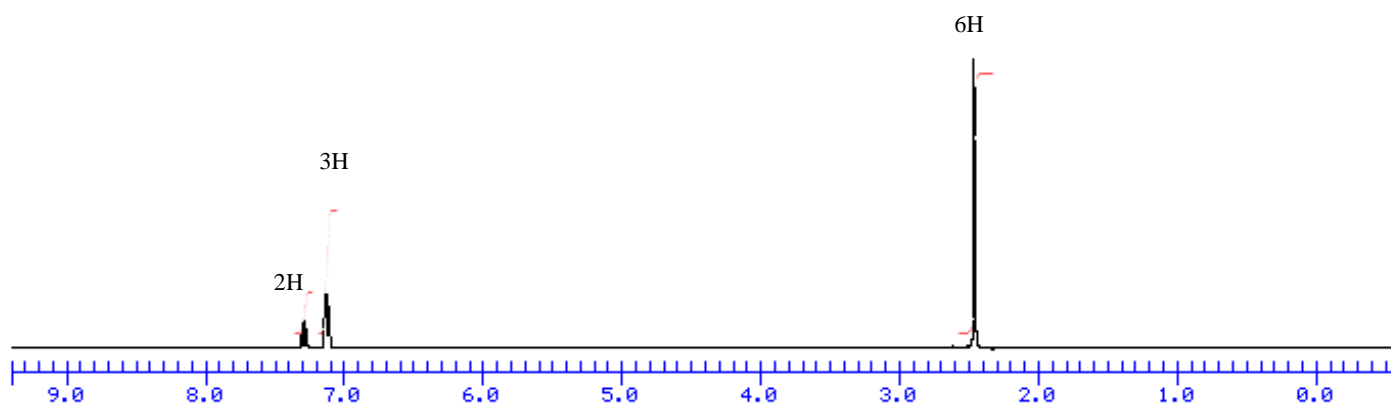
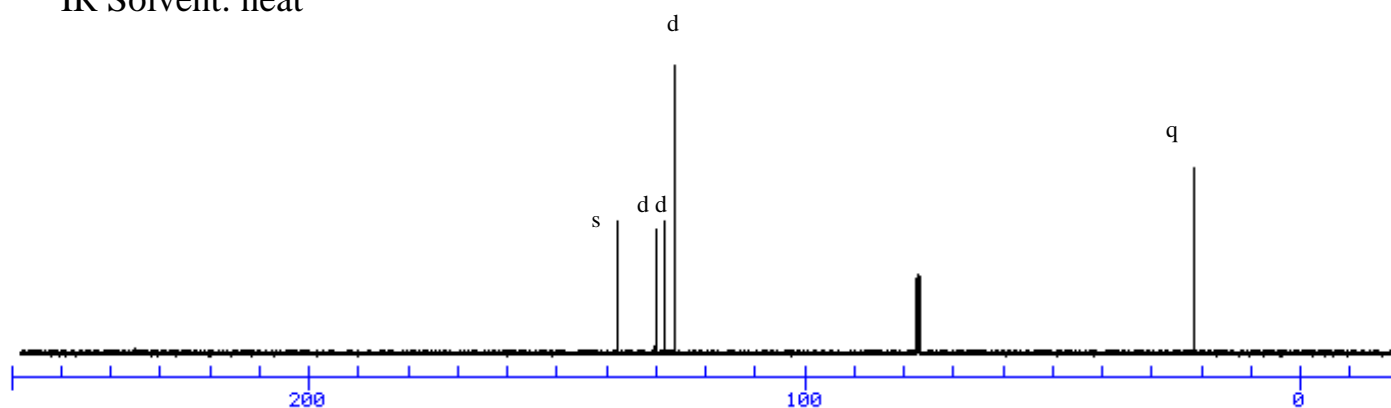


BP-22

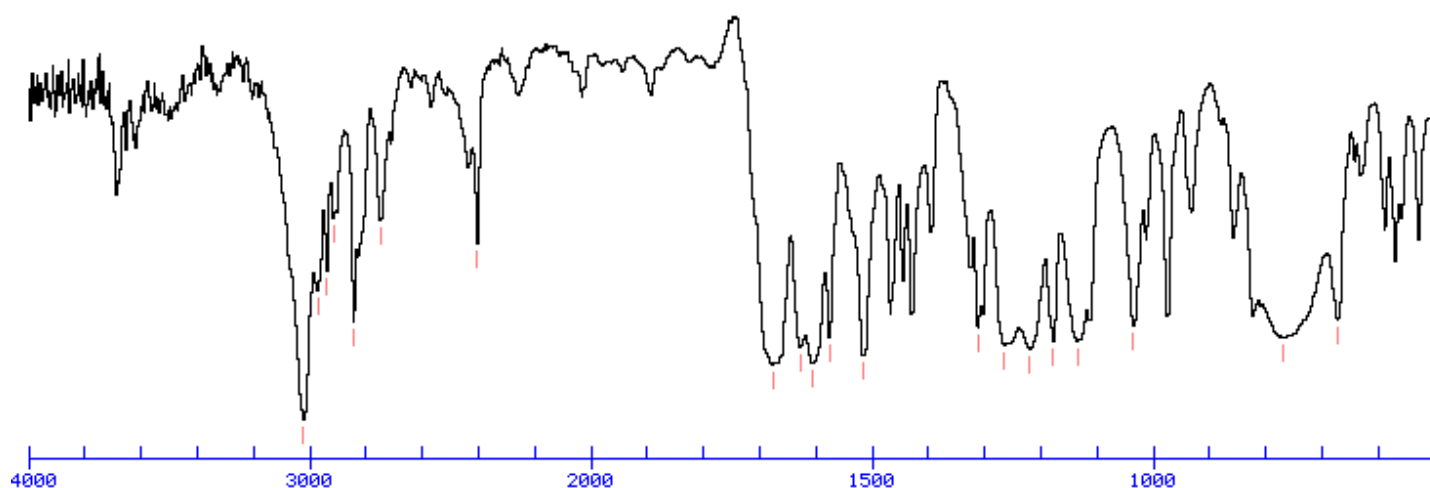
C_8H_{10}

NMR Solvent: $CDCl_3$

IR Solvent: neat



3-5



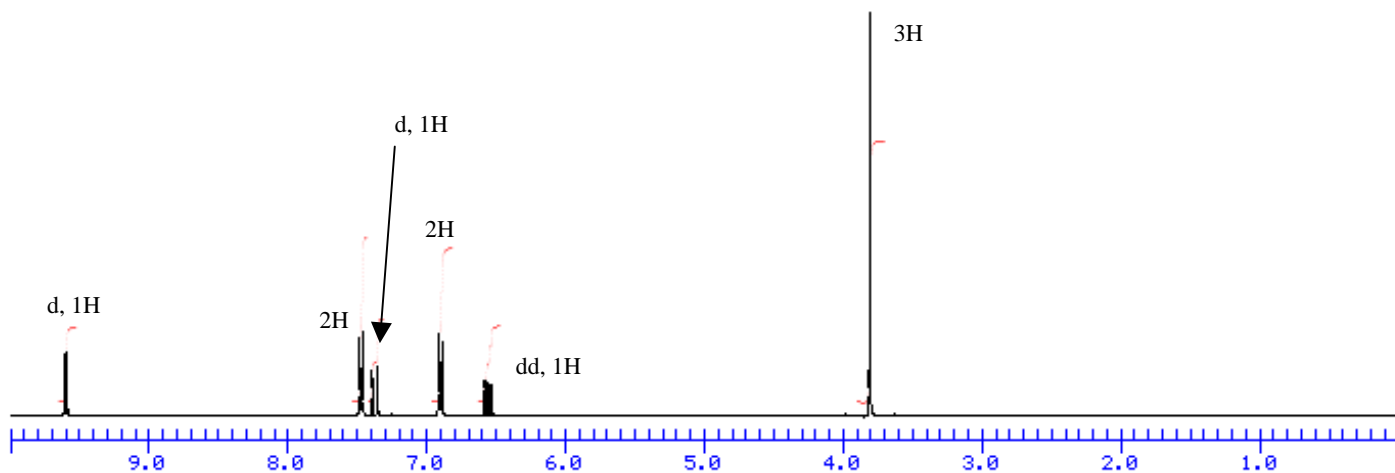
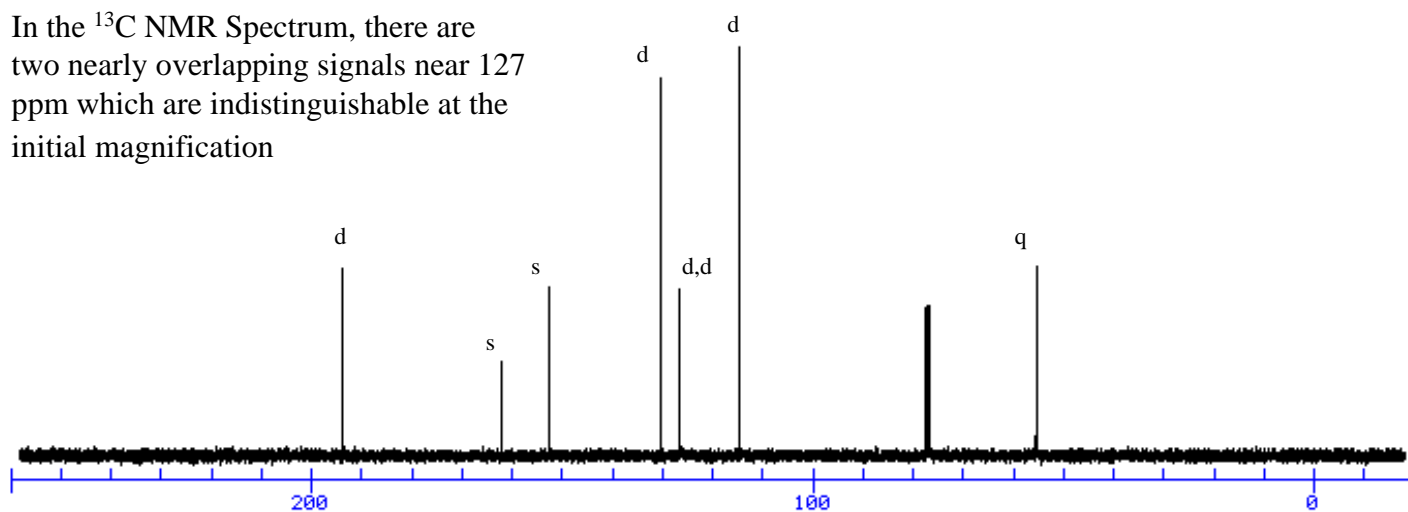
BP-30

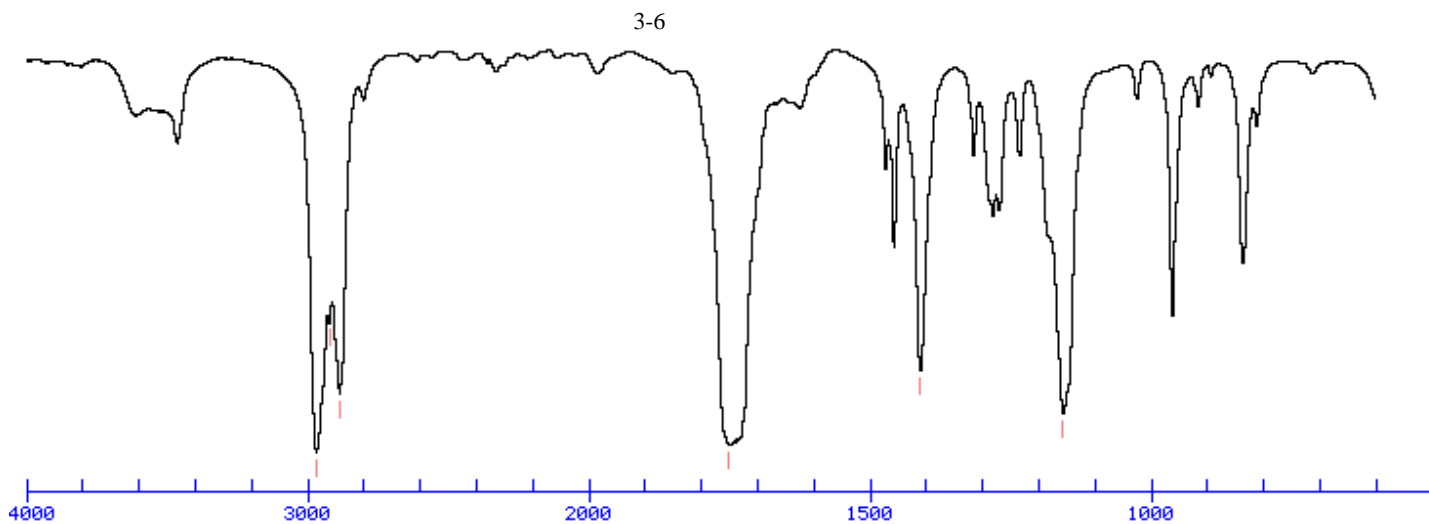
$C_{10}H_{10}O_2$

NMR Solvent: $CDCl_3$

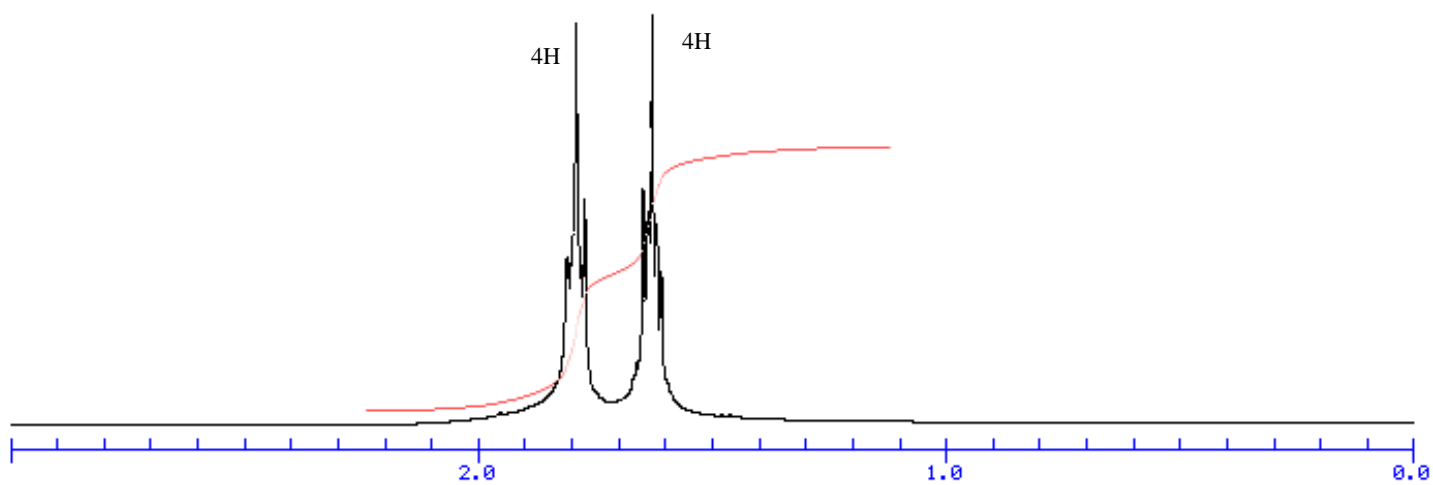
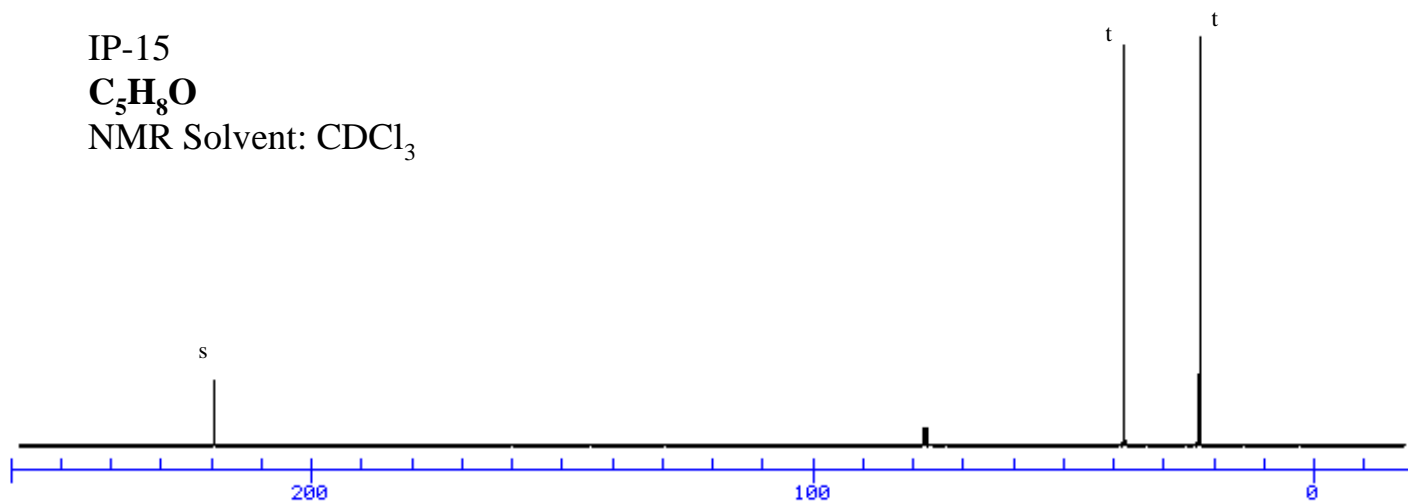
Note:

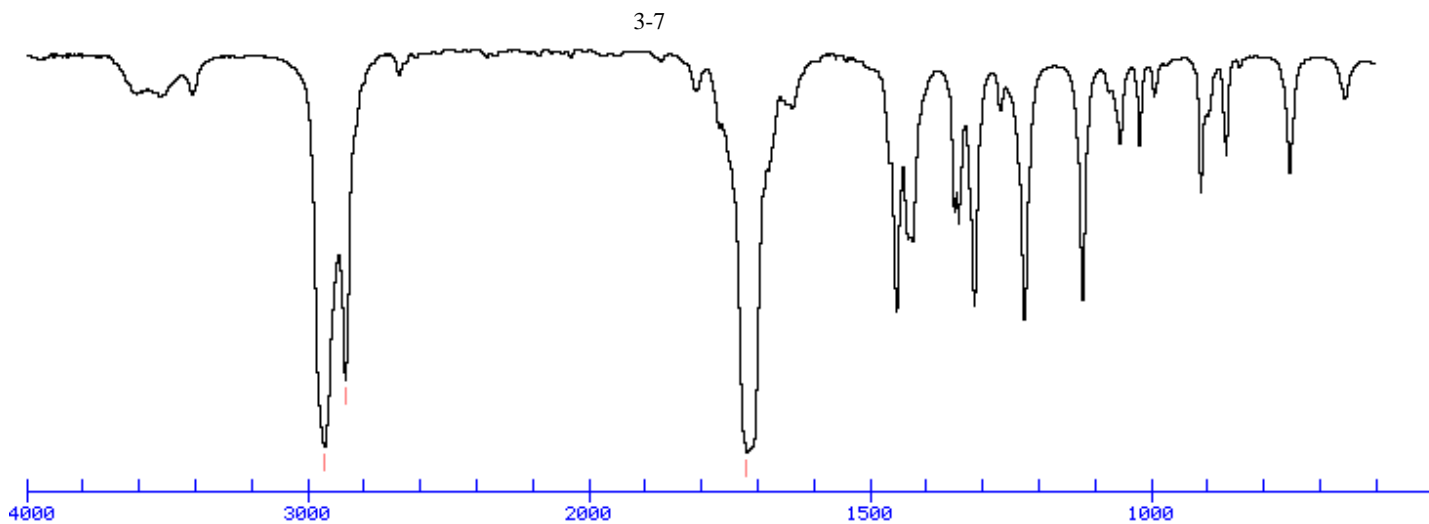
In the ^{13}C NMR Spectrum, there are two nearly overlapping signals near 127 ppm which are indistinguishable at the initial magnification





IP-15
 C_5H_8O
NMR Solvent: $CDCl_3$

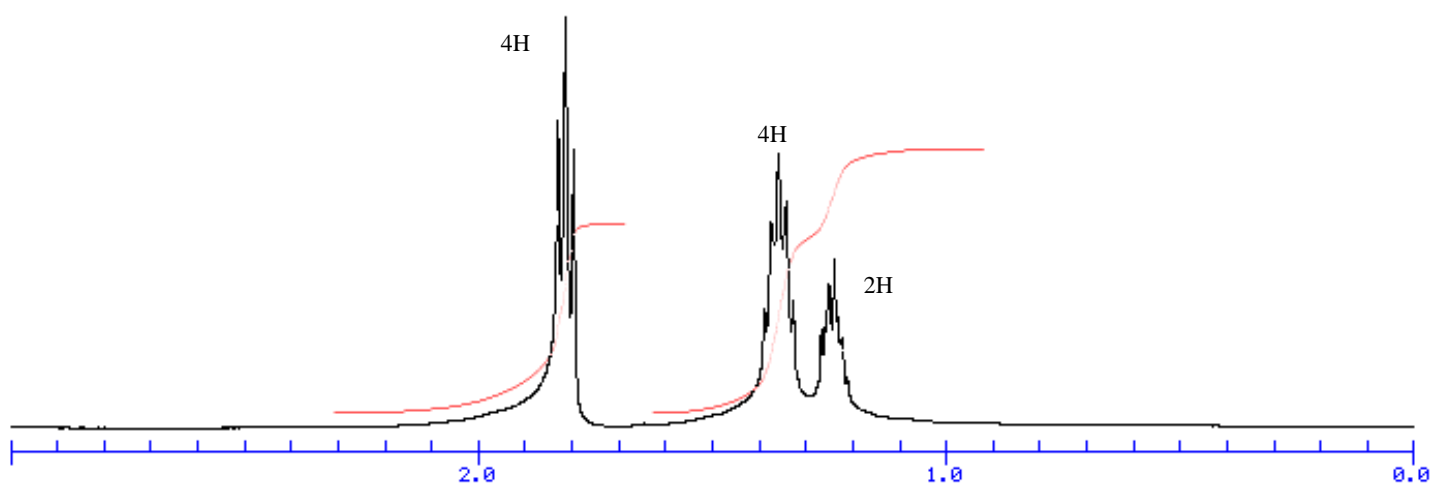
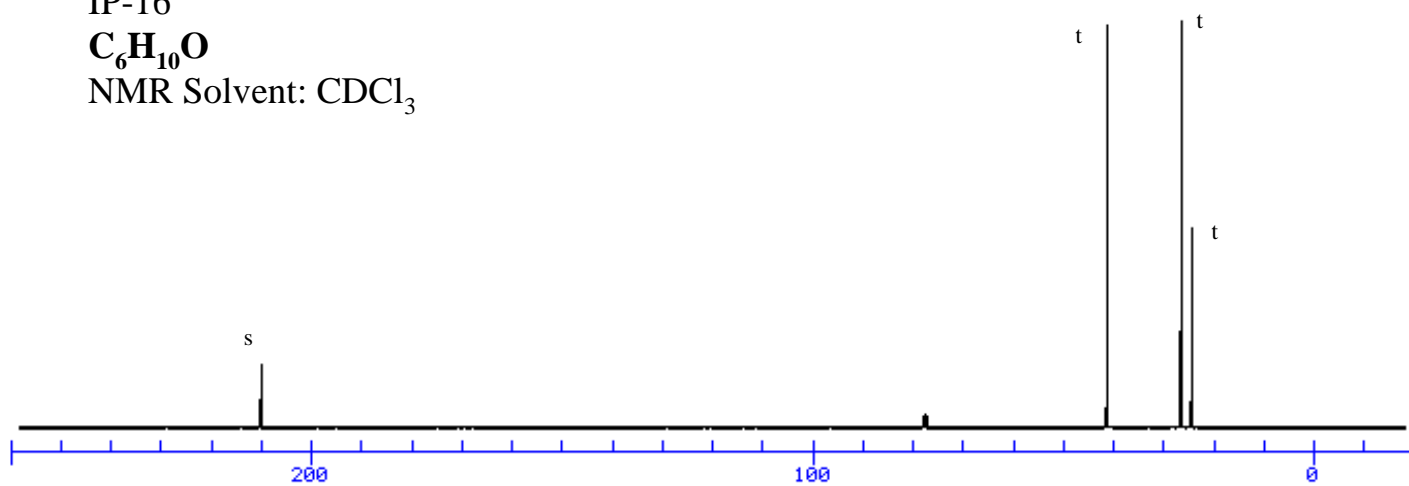




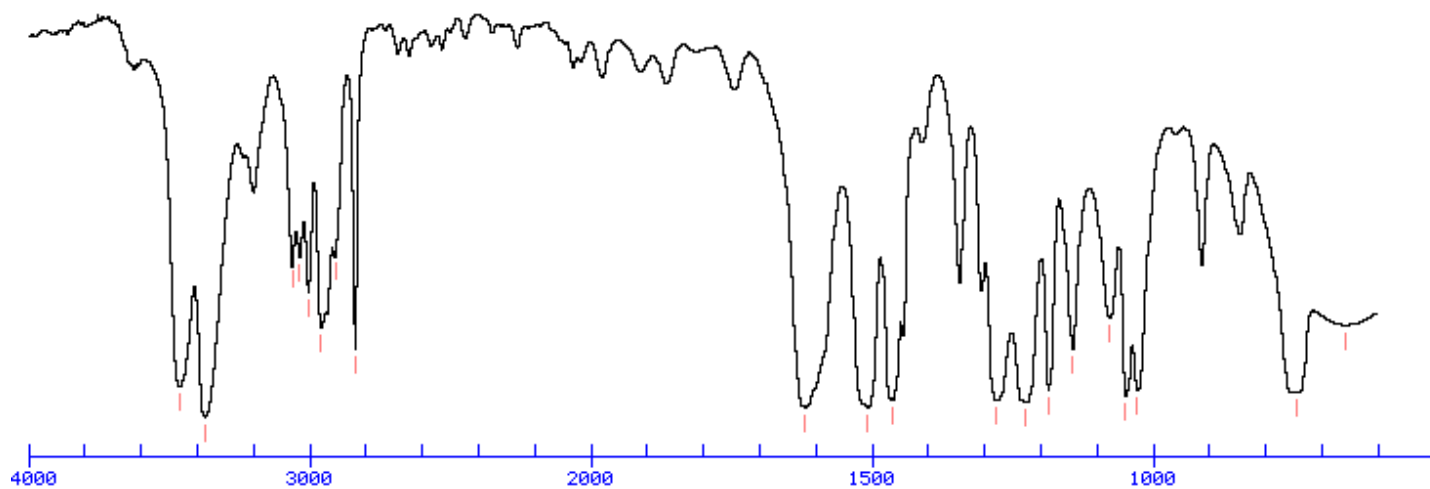
IP-16

$C_6H_{10}O$

NMR Solvent: $CDCl_3$



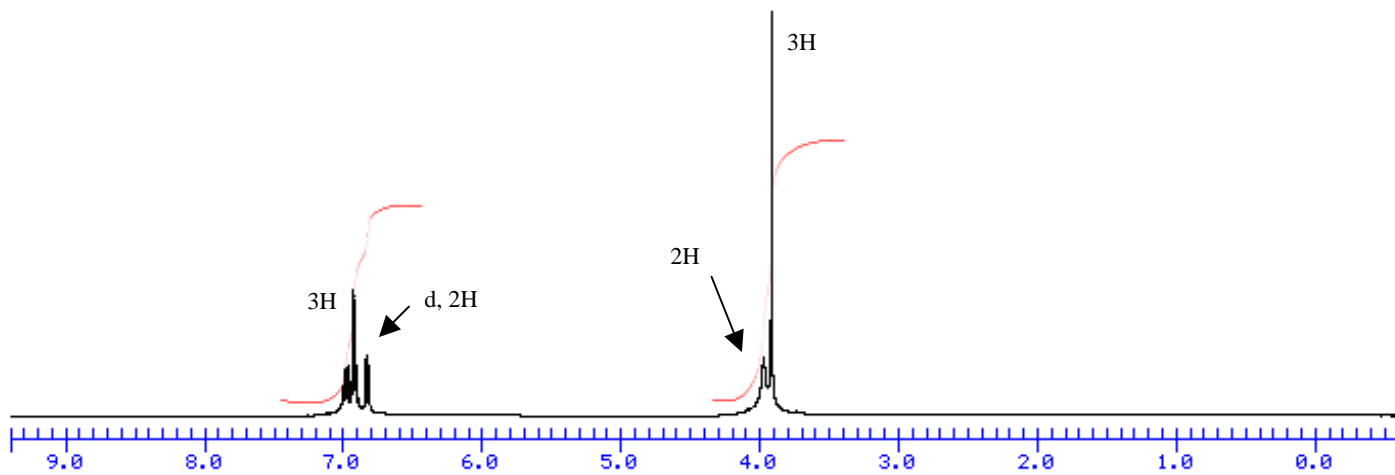
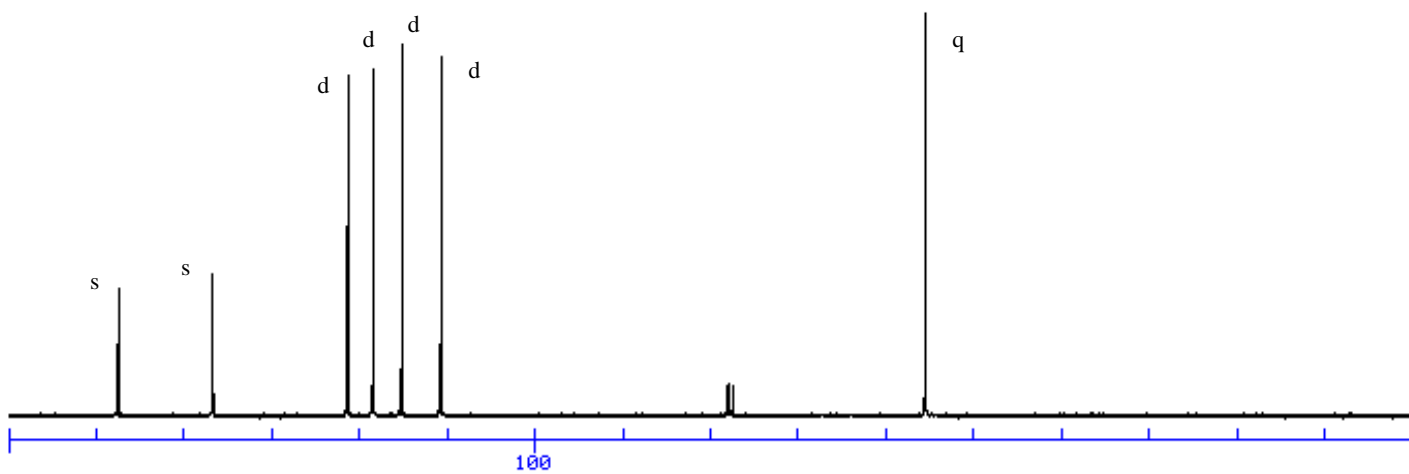
3-8

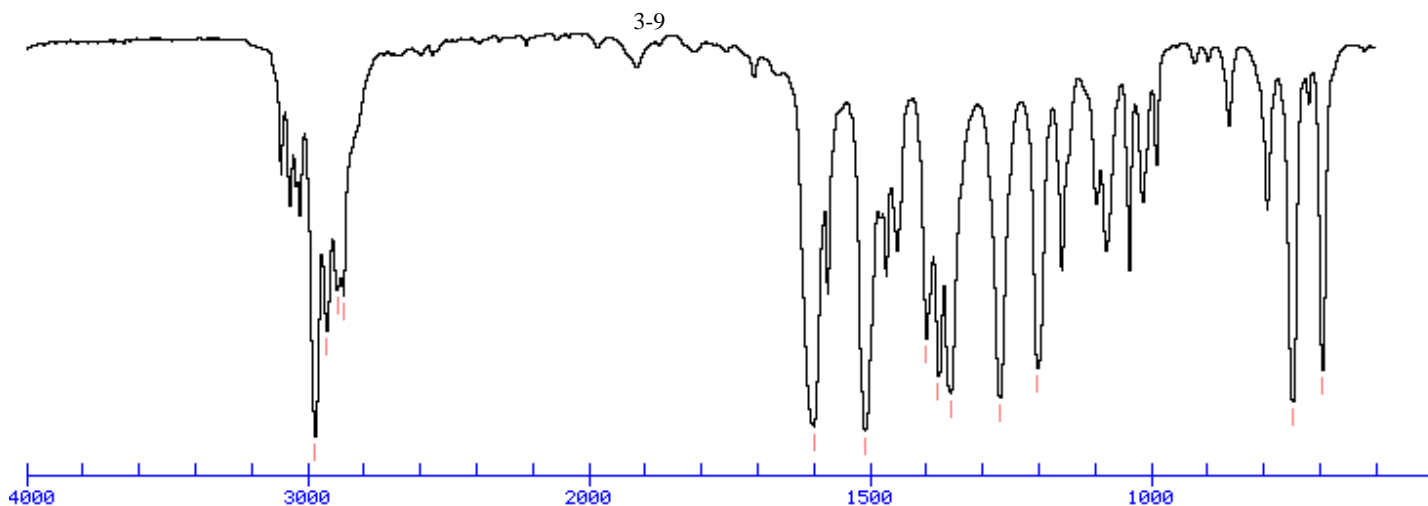


IP-2-12

C_7H_9NO

NMR Solvent: $CDCl_3$

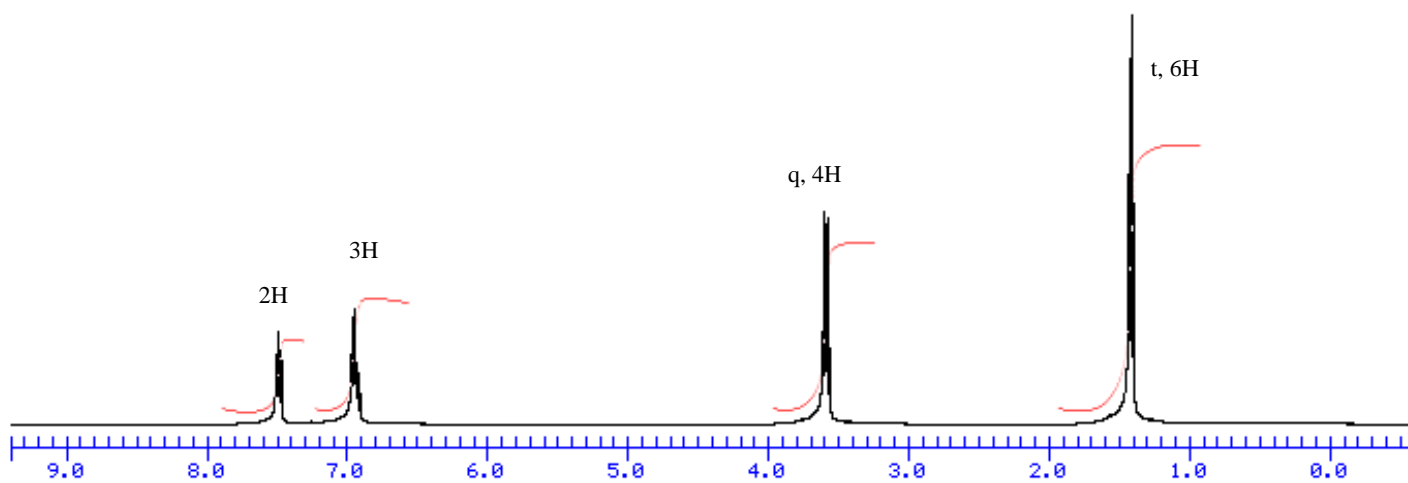
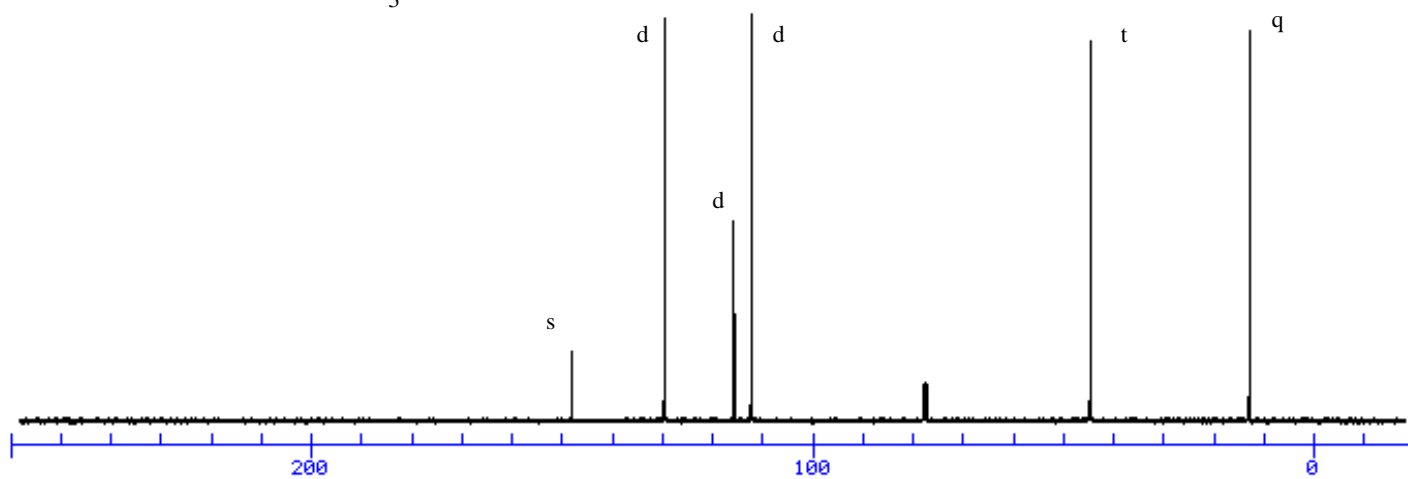


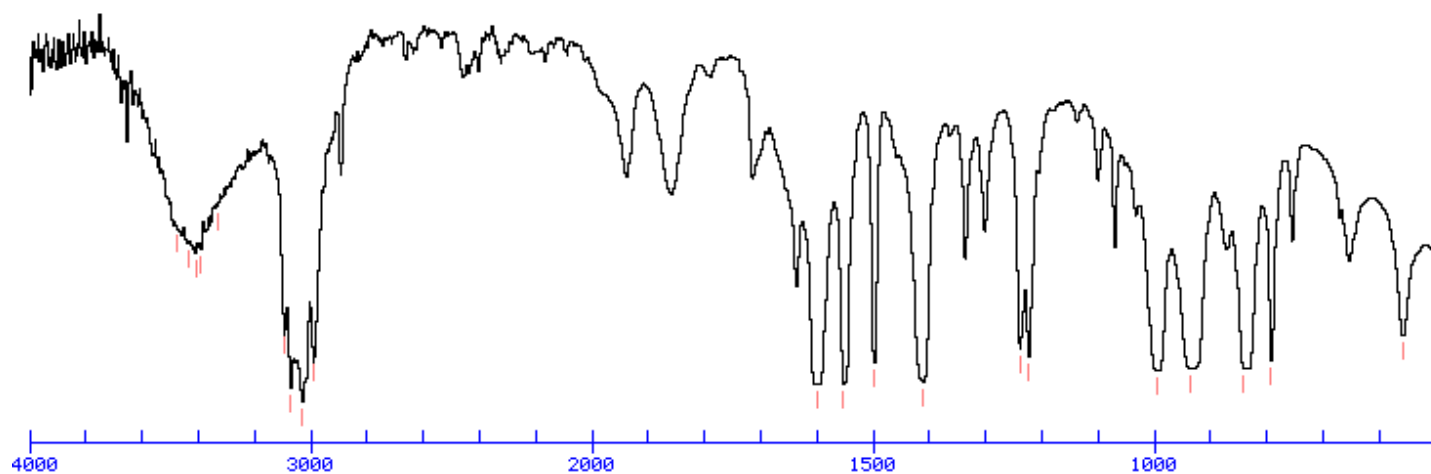


IP-2-13

C₁₀H₁₅N

NMR Solvent: CDCl₃





IP-2-9

 C_7H_7N NMR Solvent: $CDCl_3$

E' un eterociclo

