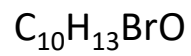
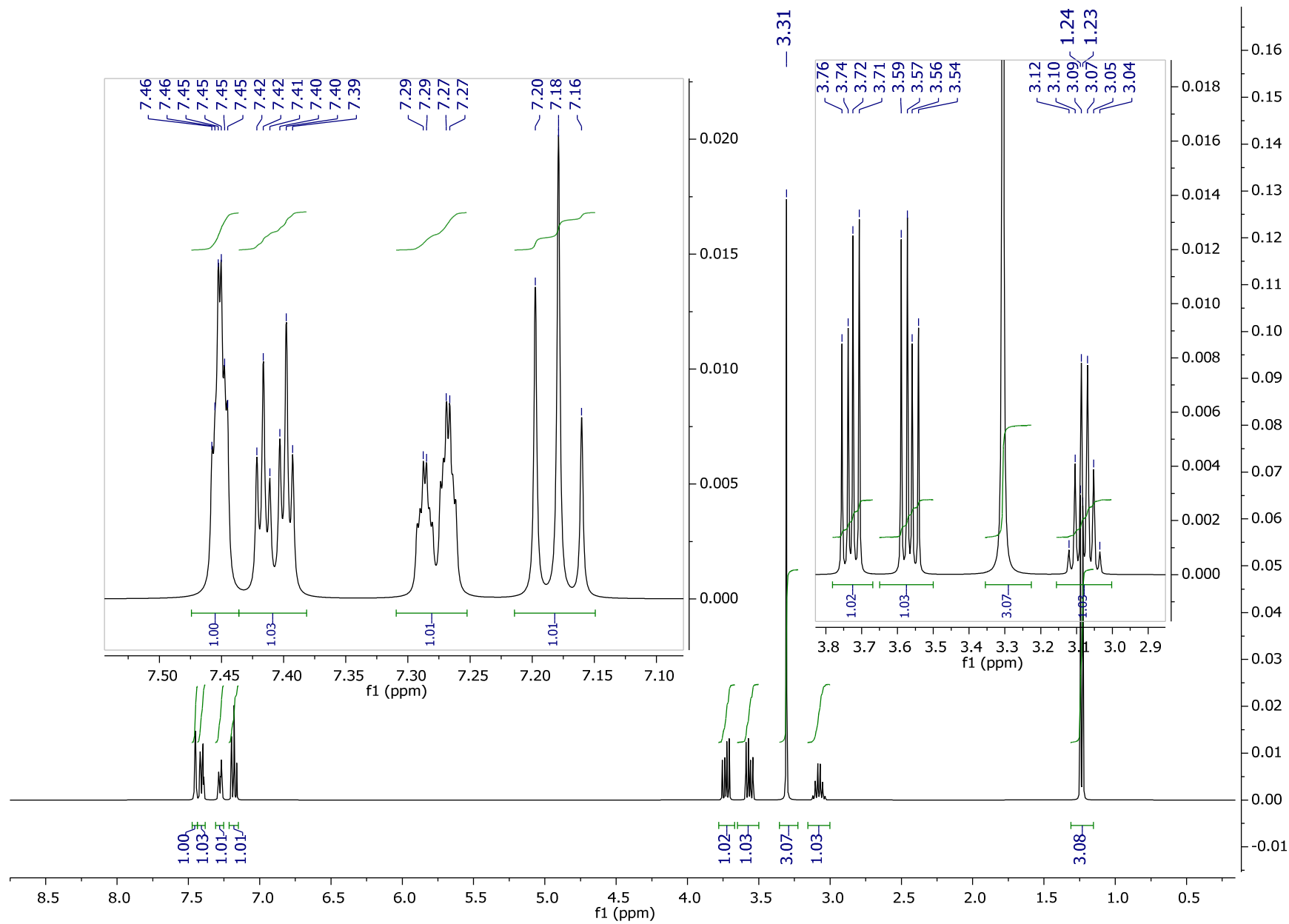


Zadanie 1. Na podstawie widm ^1H (400 MHz), $^{13}\text{C}\{^1\text{H}\}$ NMR (100 MHz) oraz ewentualnie $^{19}\text{F}\{^1\text{H}\}$ (375 MHz) zmierzonych na aparacie Bruker (CDCl_3) określ strukturę związku chemicznego.

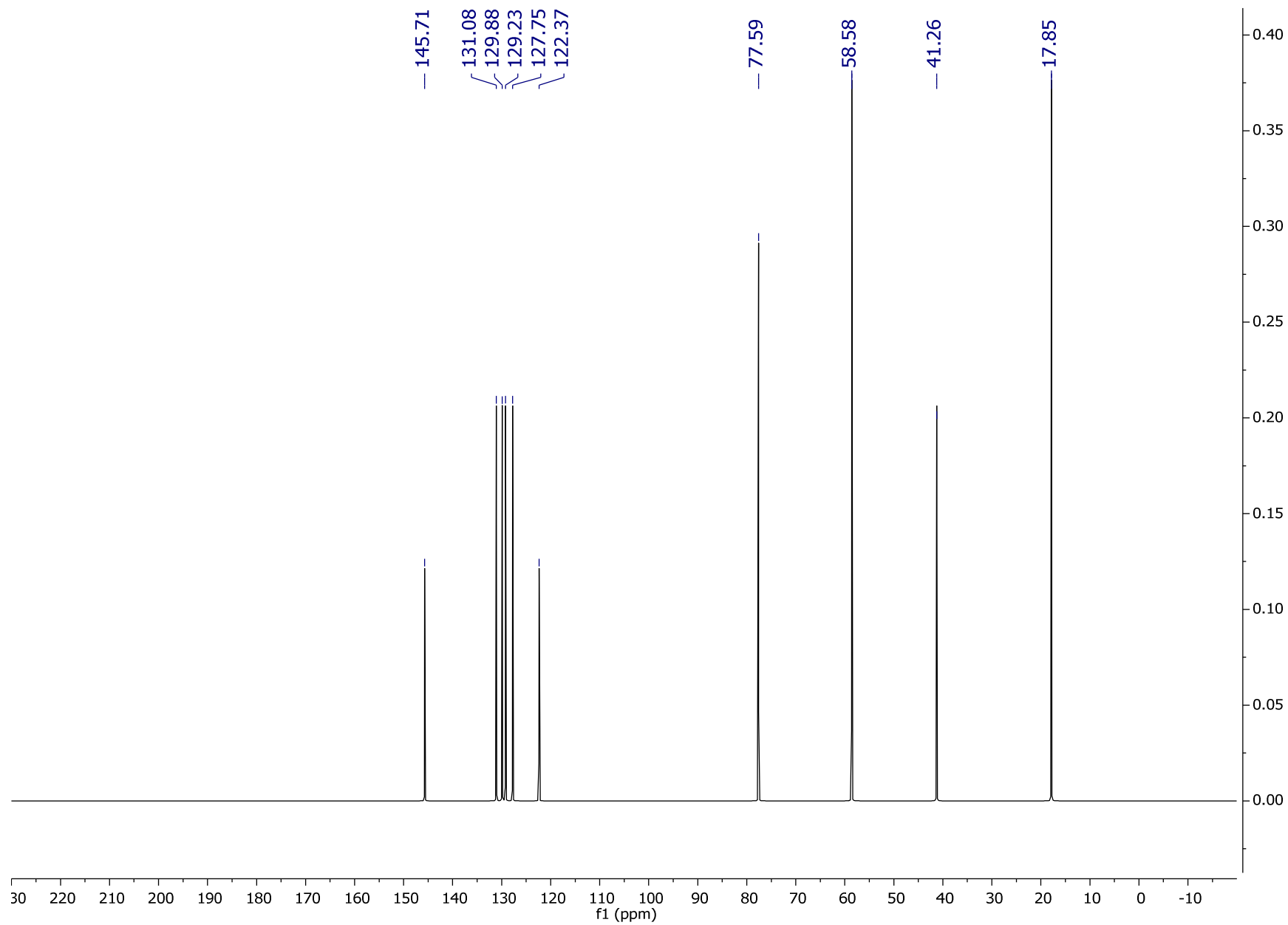
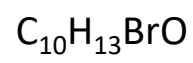
(a)



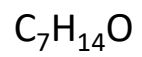
Cząsteczka jest chiralna



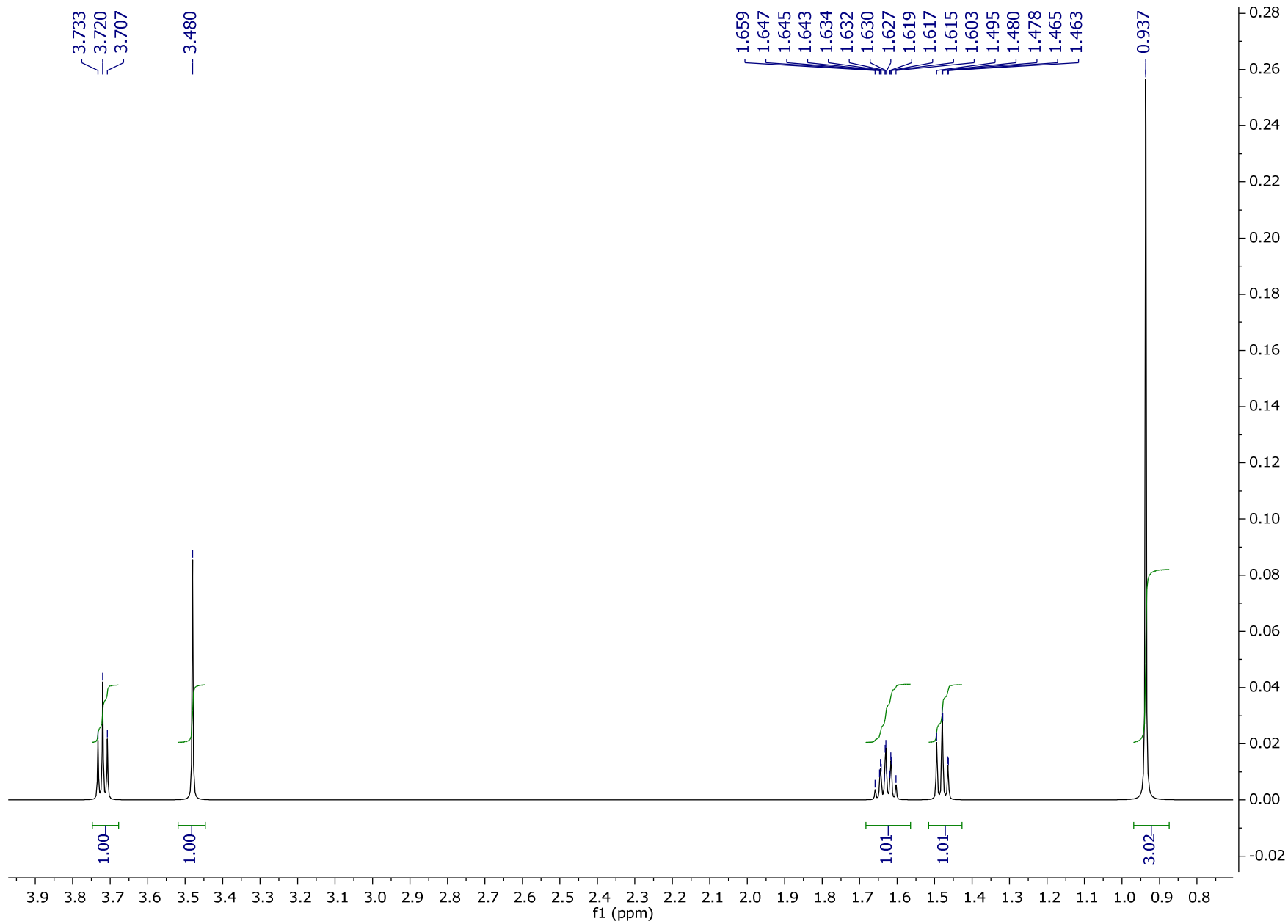
(a)

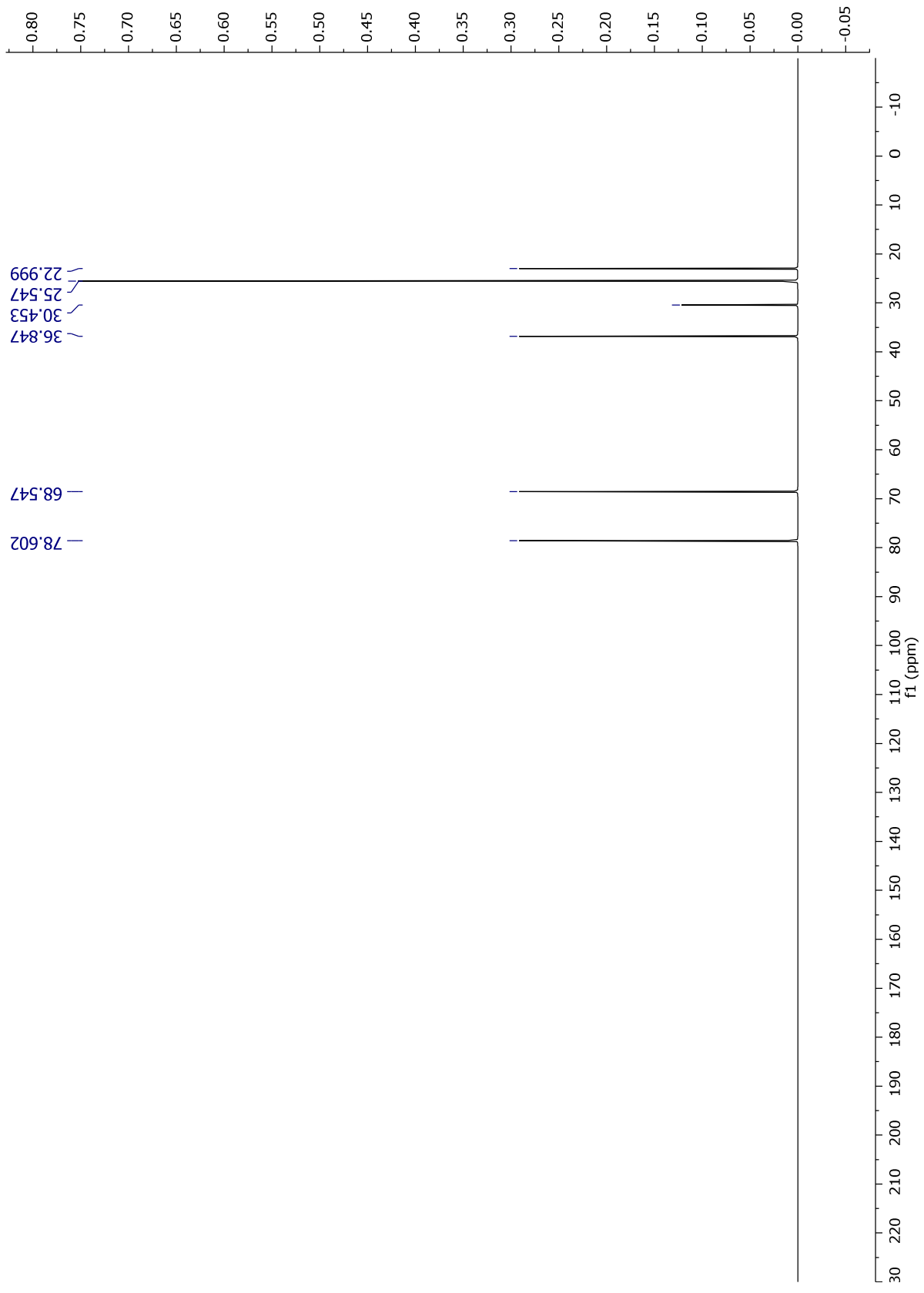


(b)

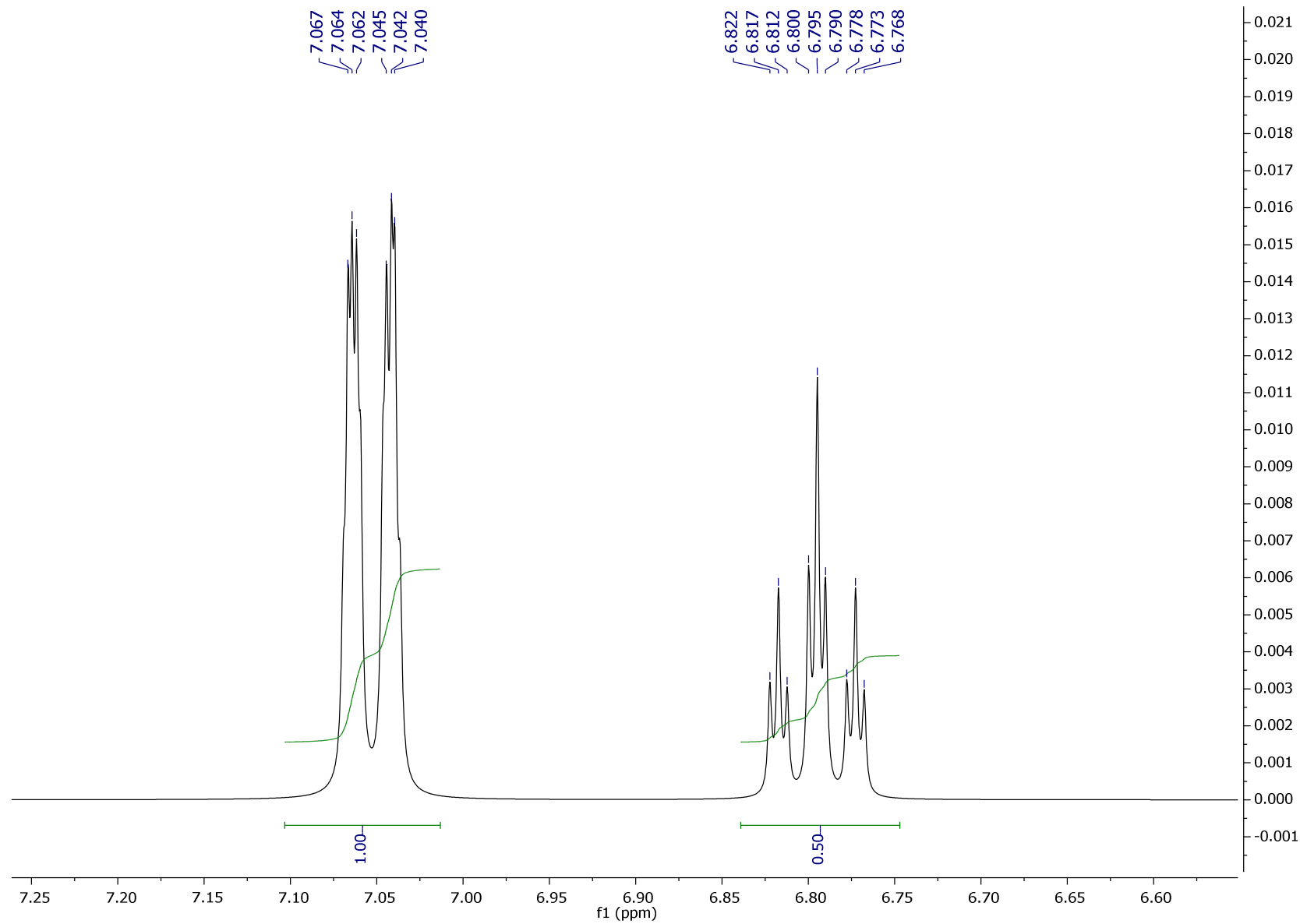
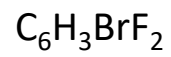


Cykliczny eter

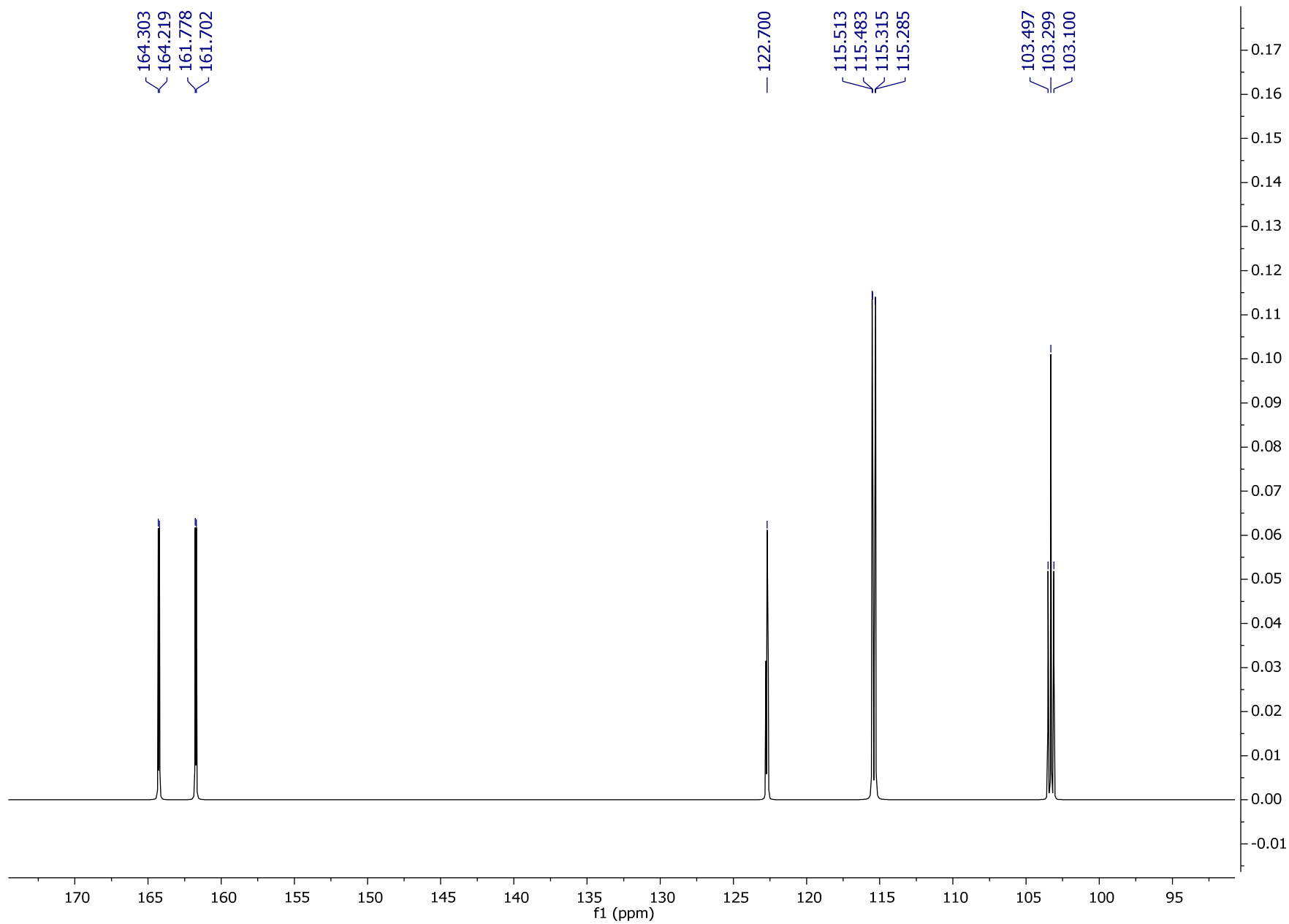




(c)

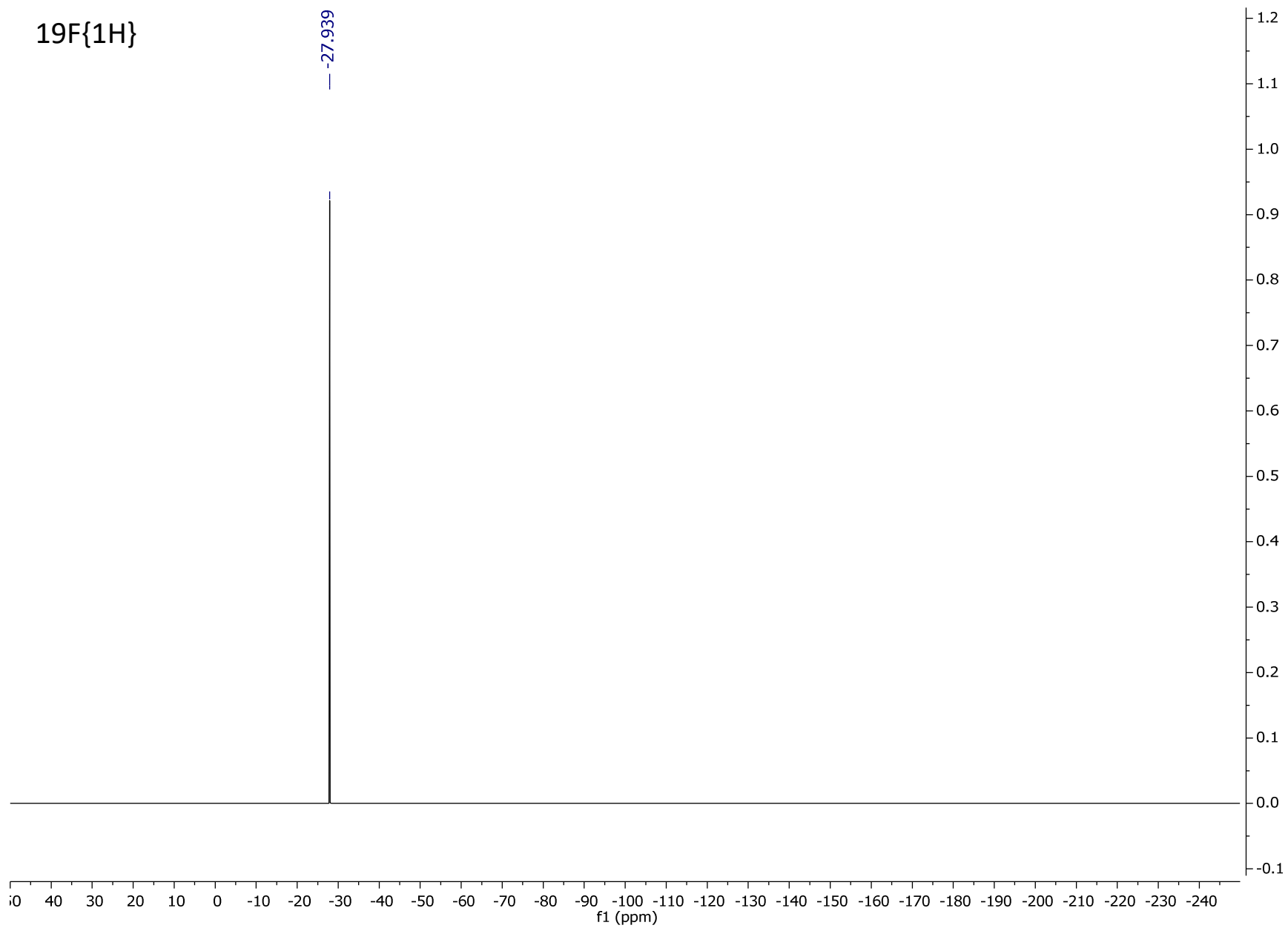


(c)

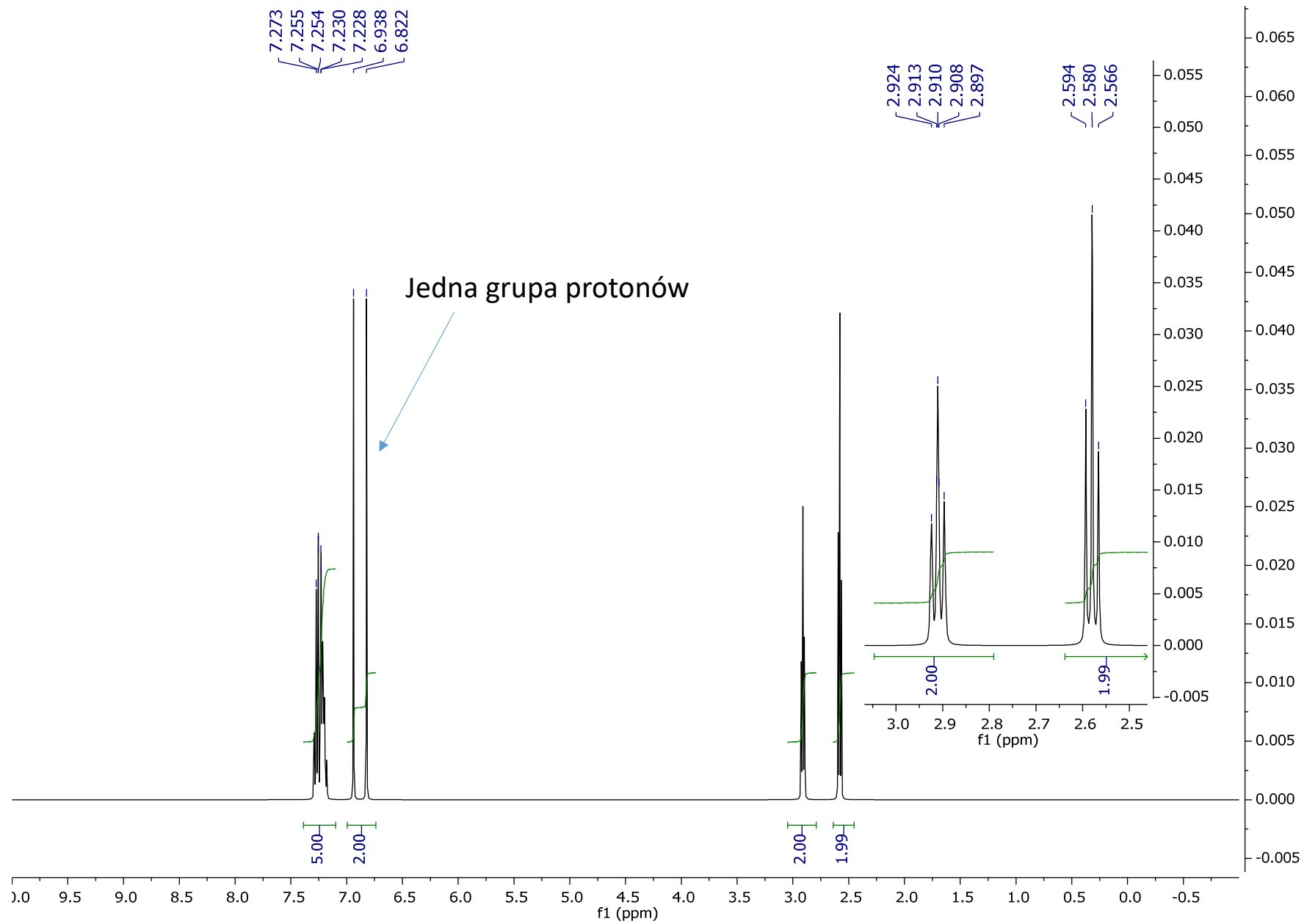
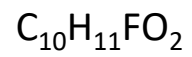


(c)

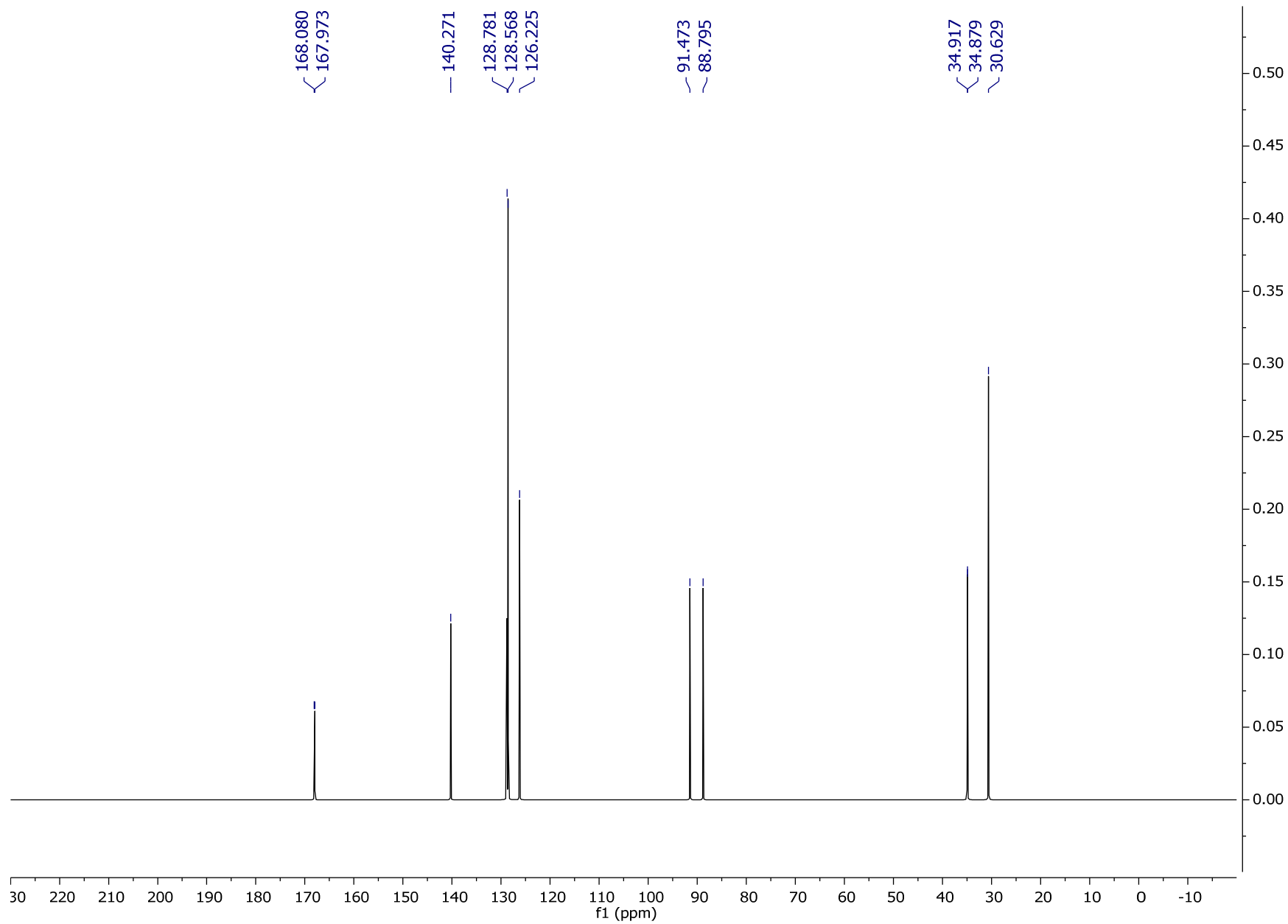
$^{19}\text{F}\{^1\text{H}\}$



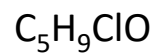
(d)



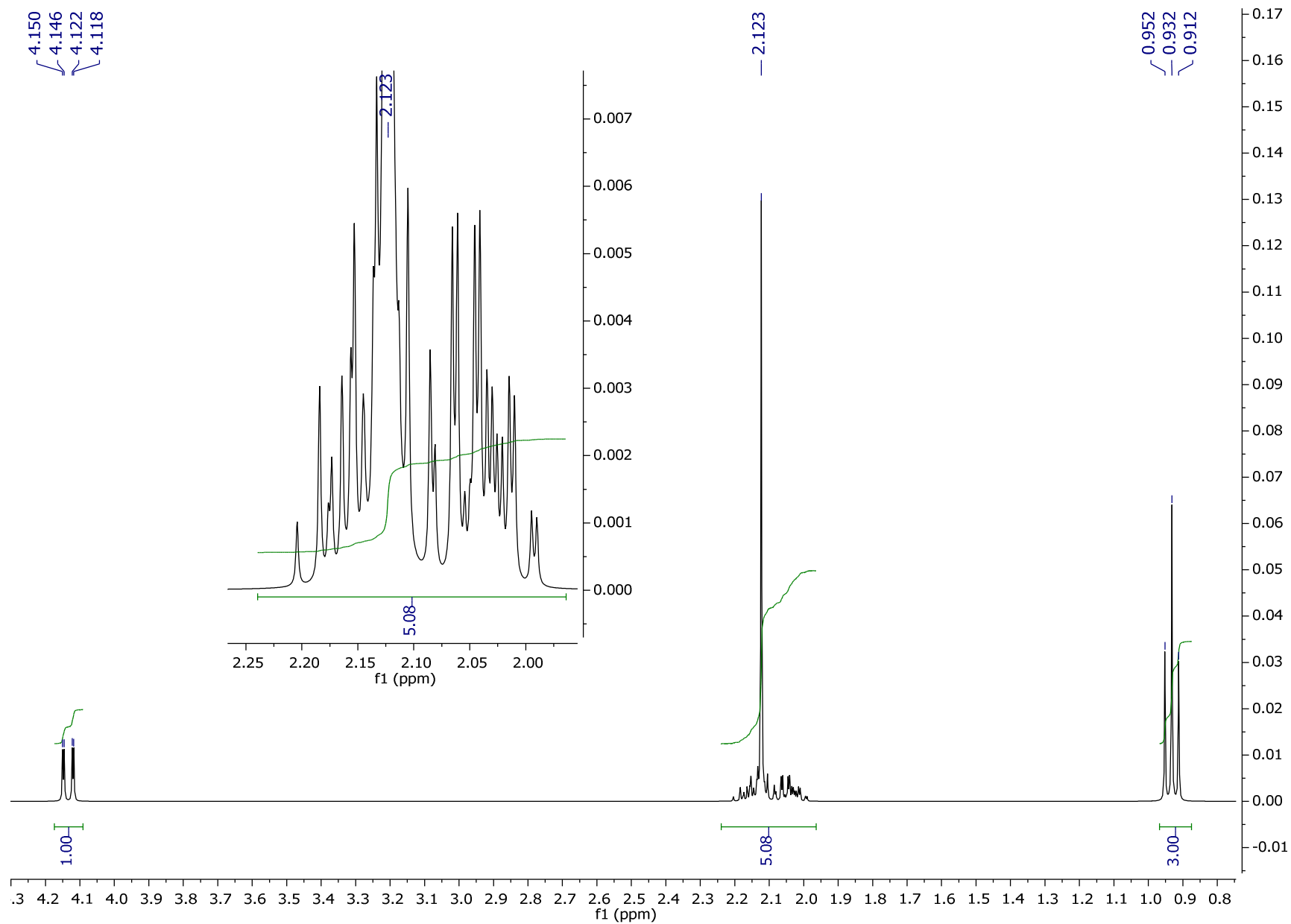
(d)



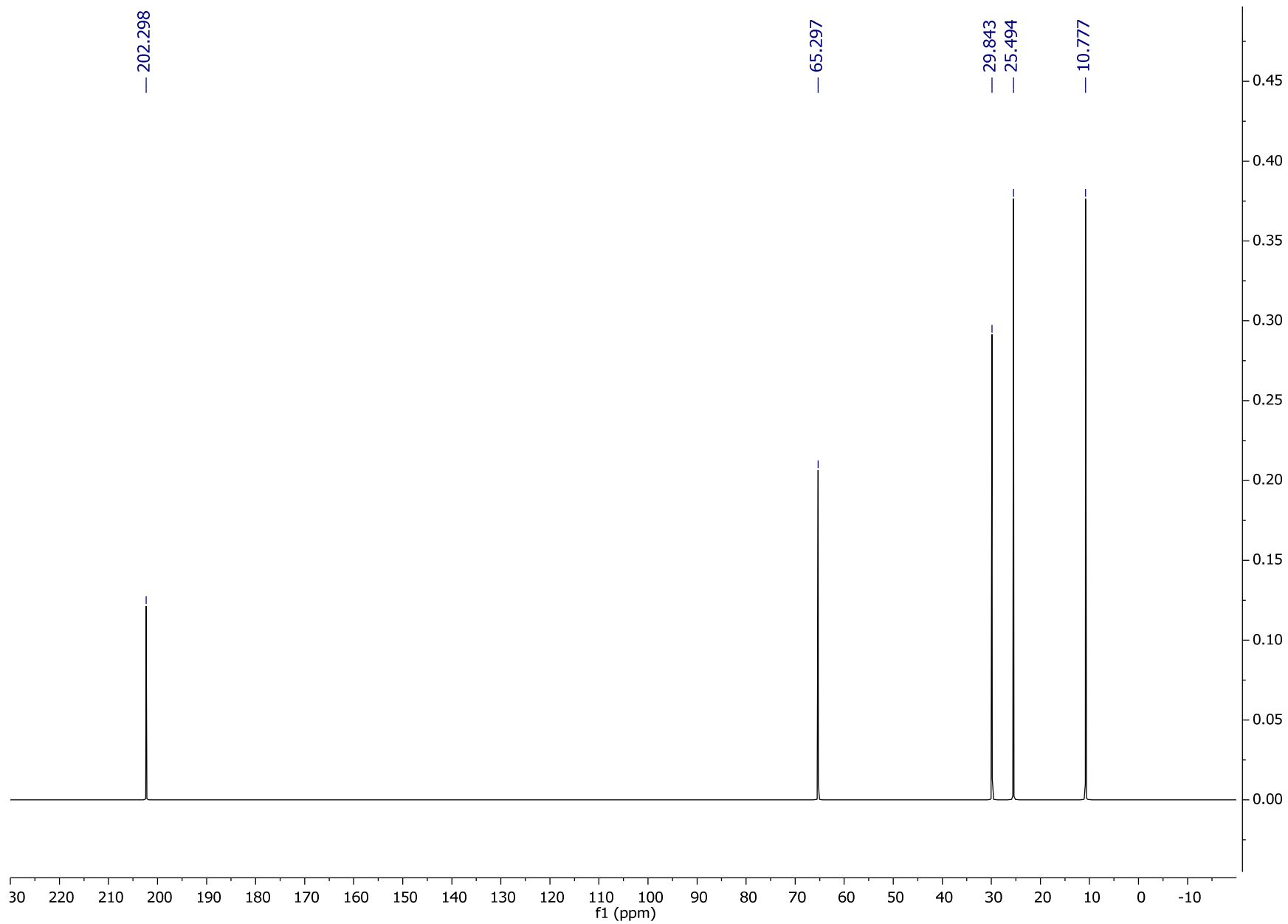
(e)



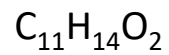
Cząsteczka jest chiralna



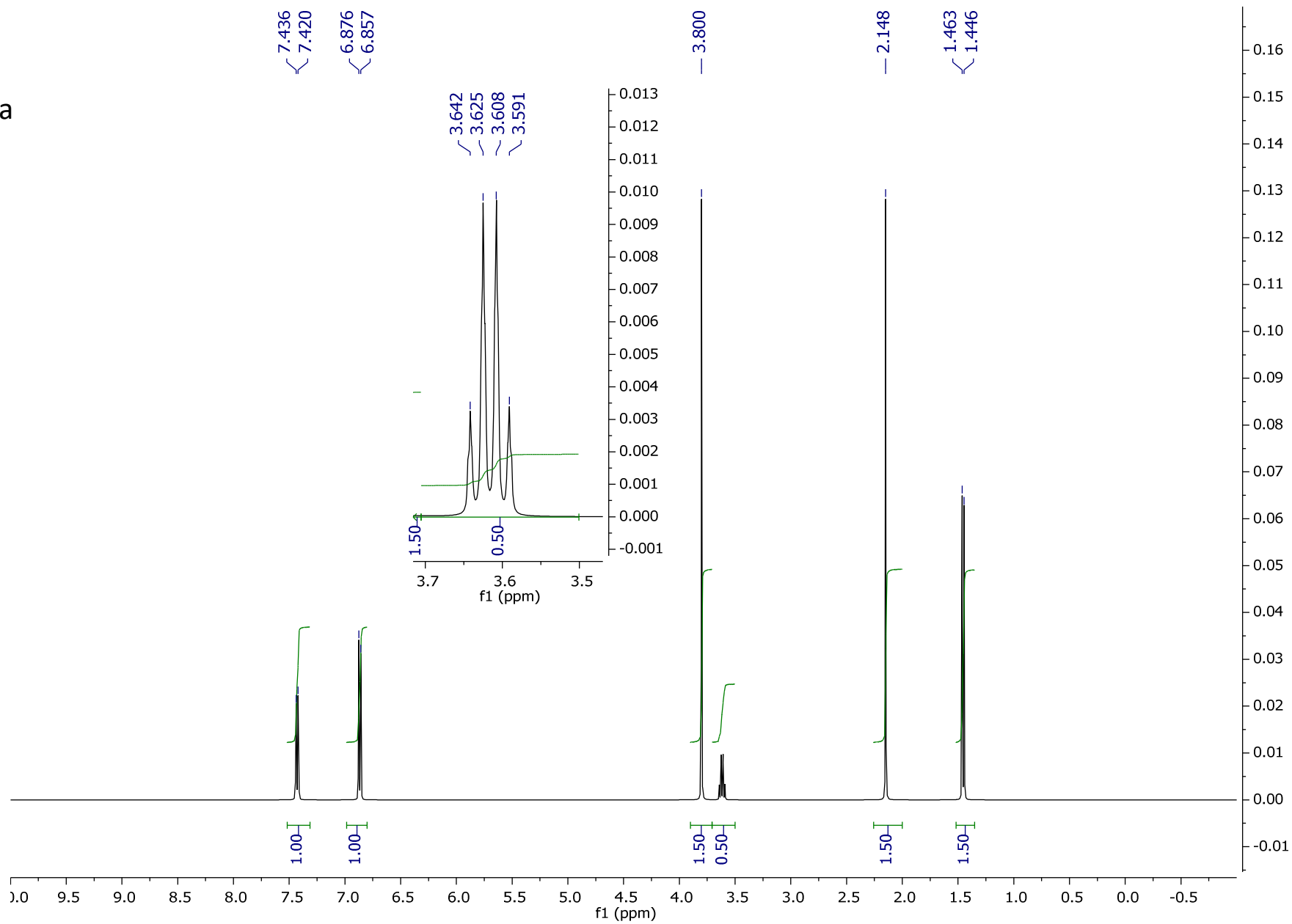
(e)



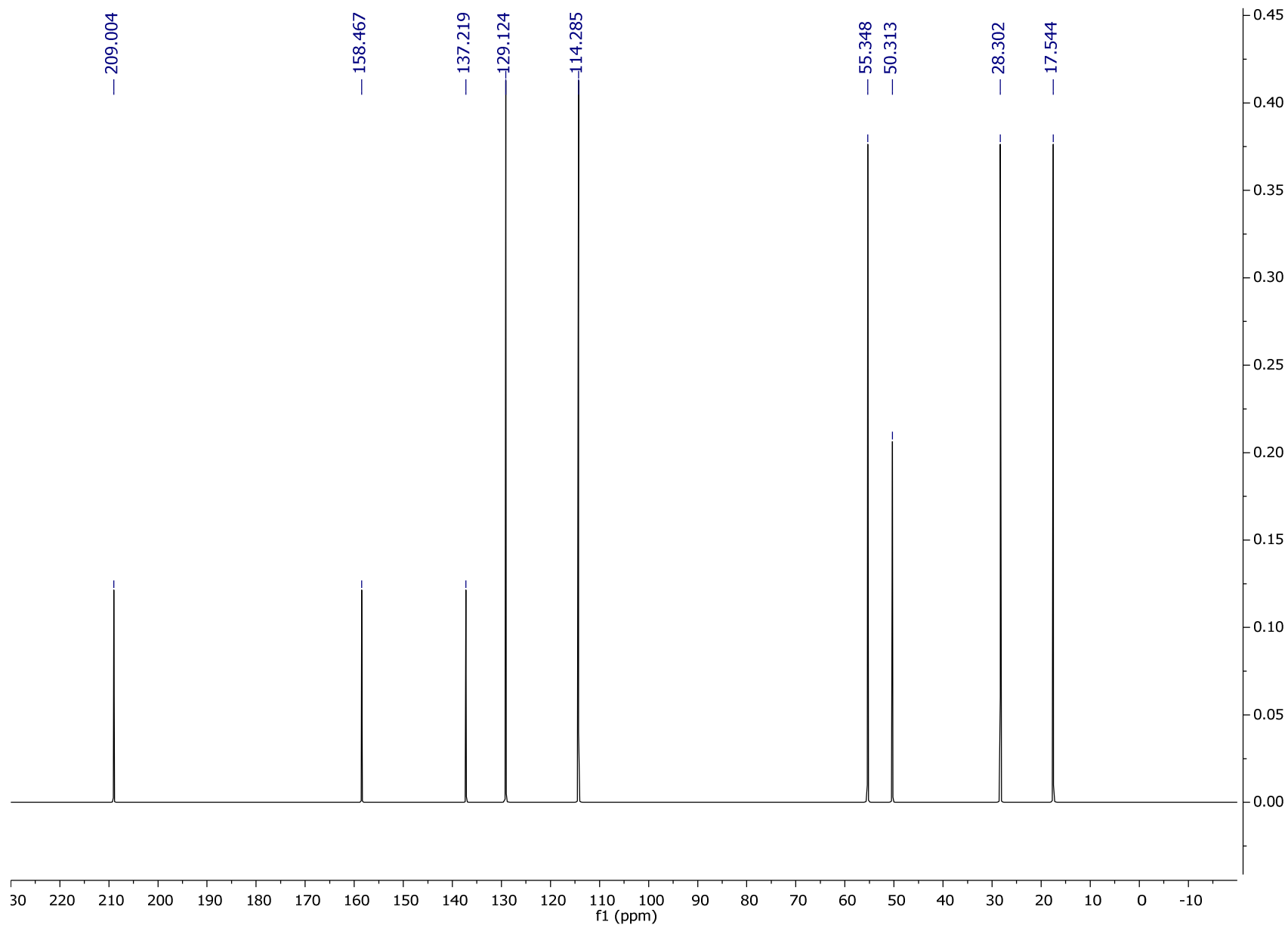
(f)



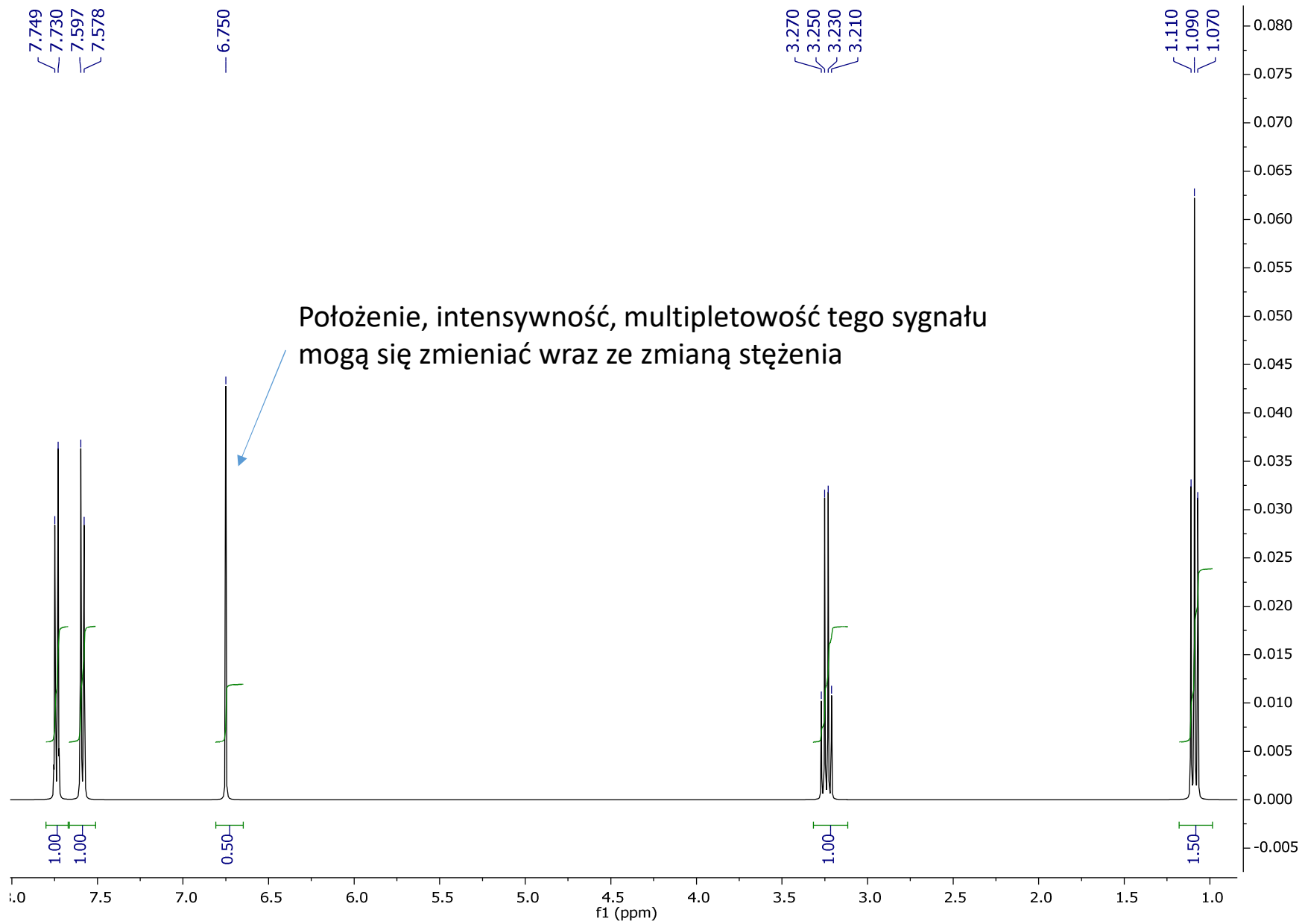
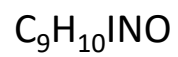
Cząsteczka jest chiralna



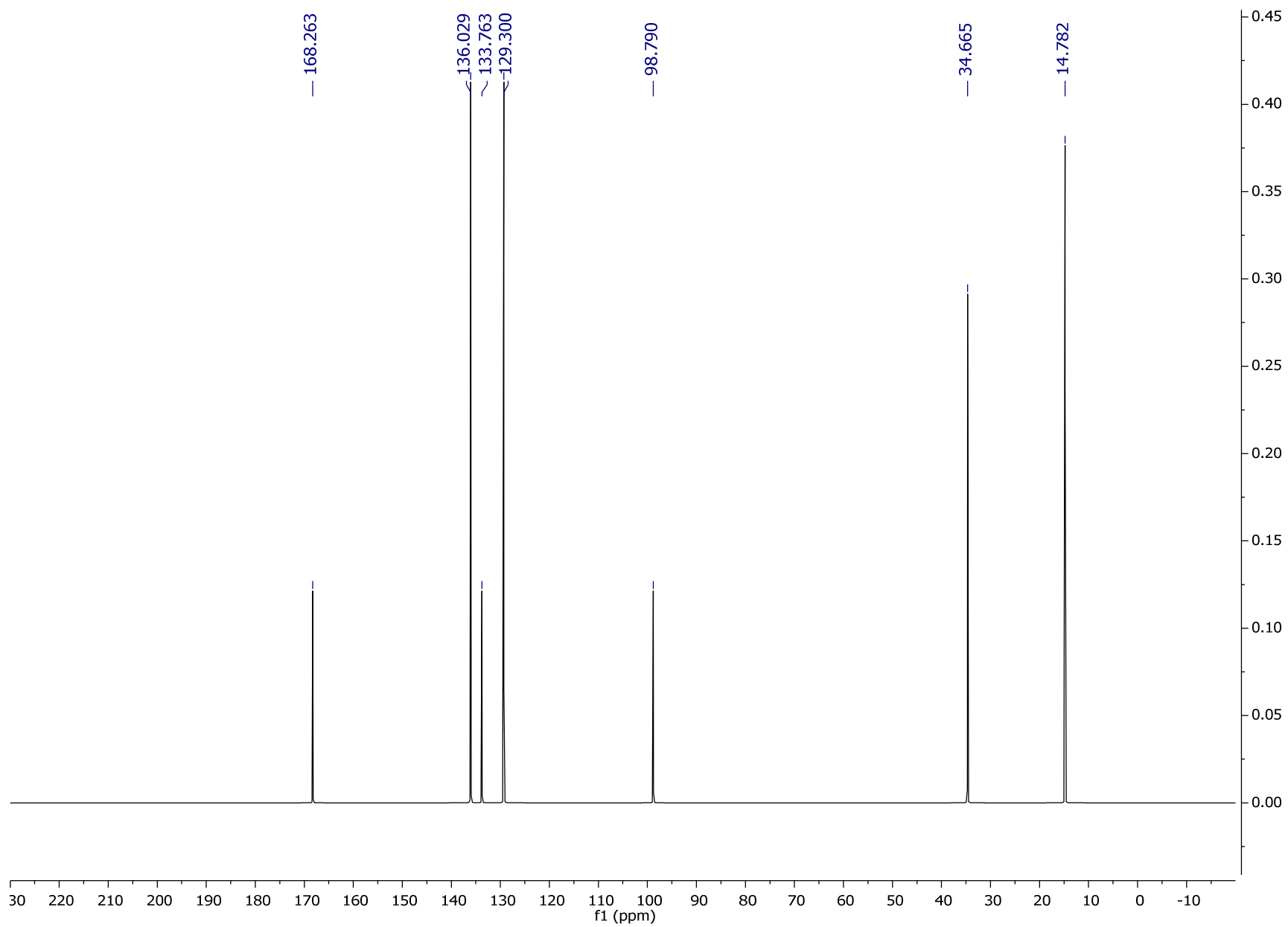
(f)



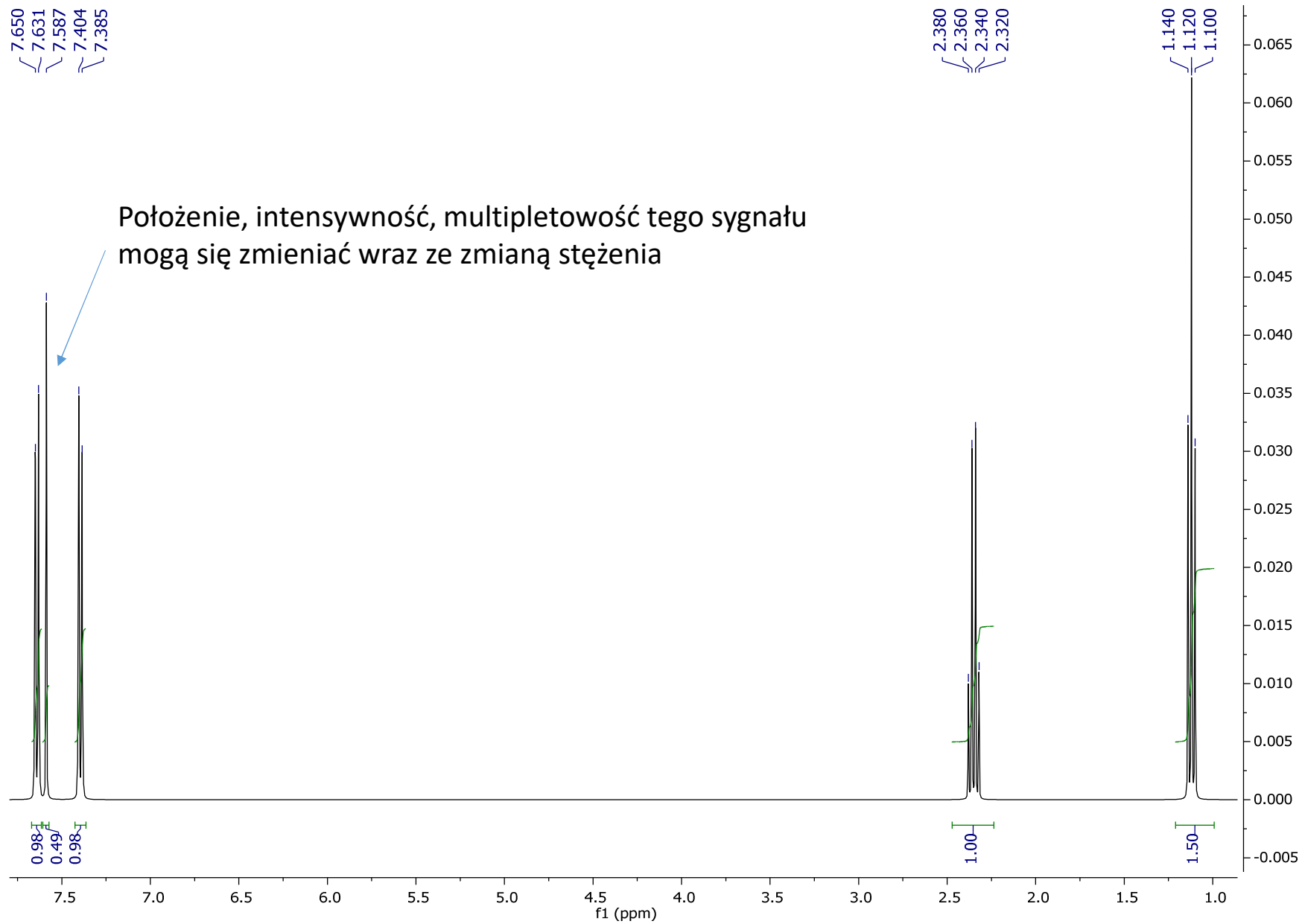
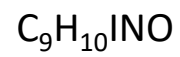
(g)



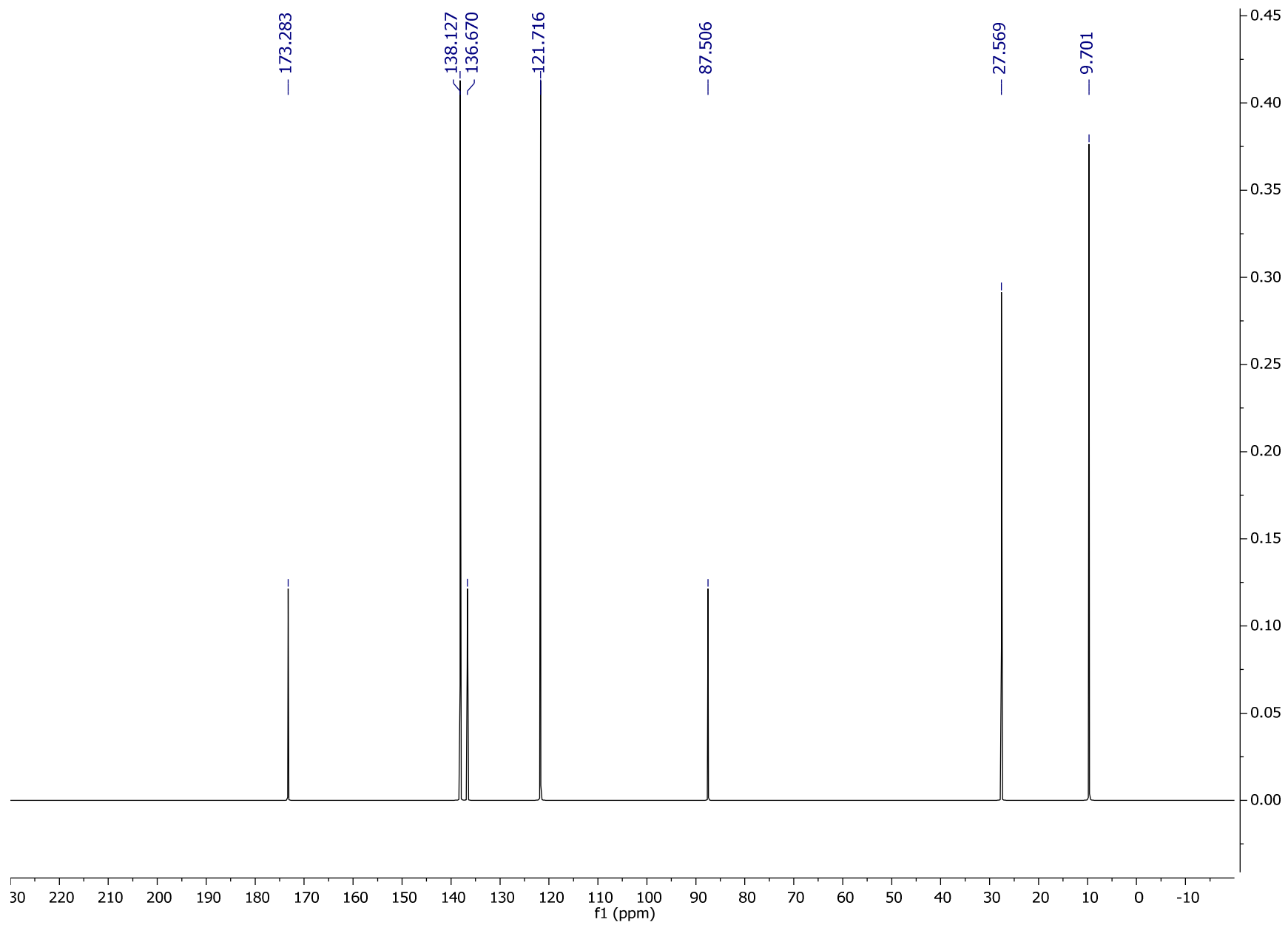
(g)



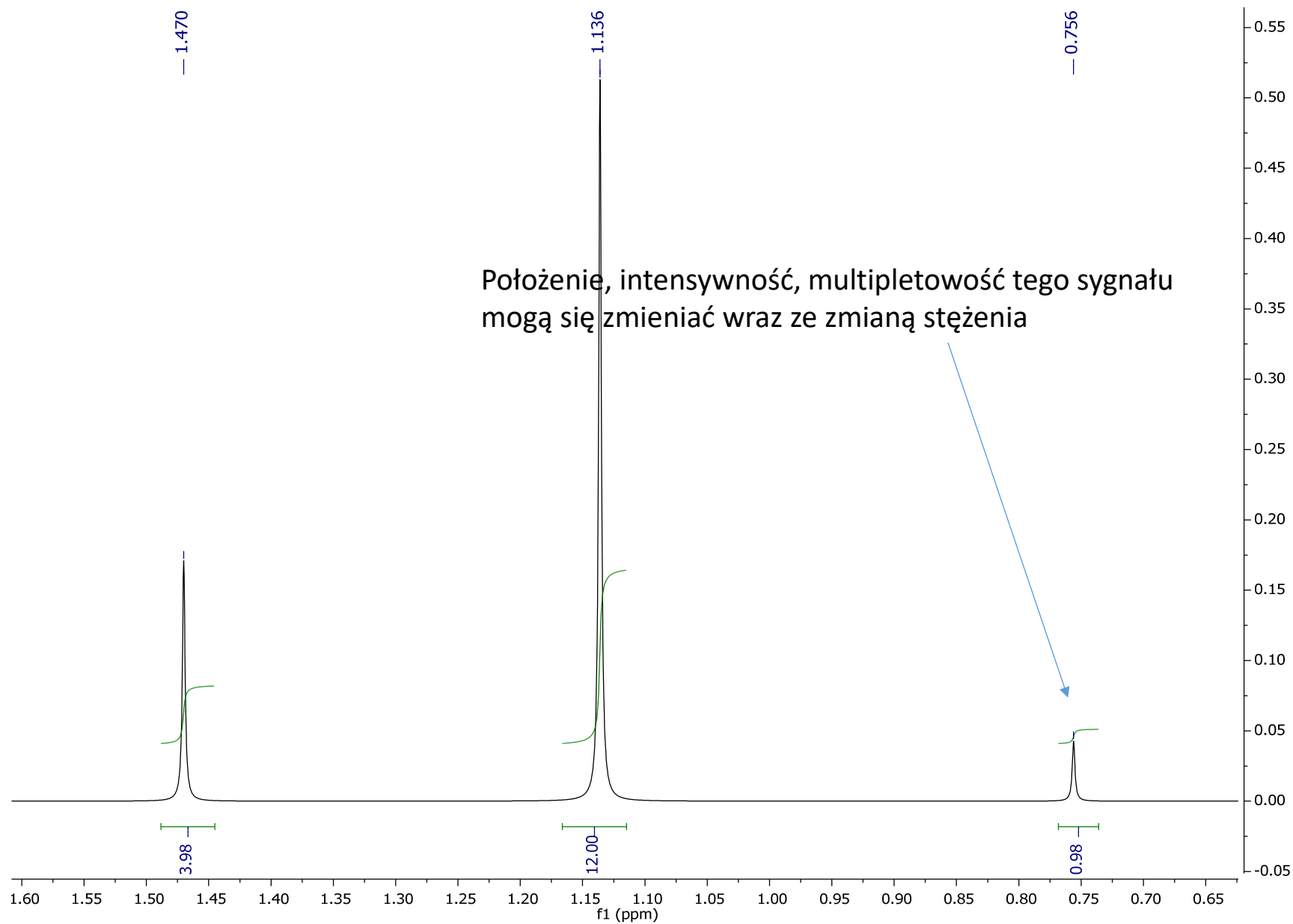
(h)



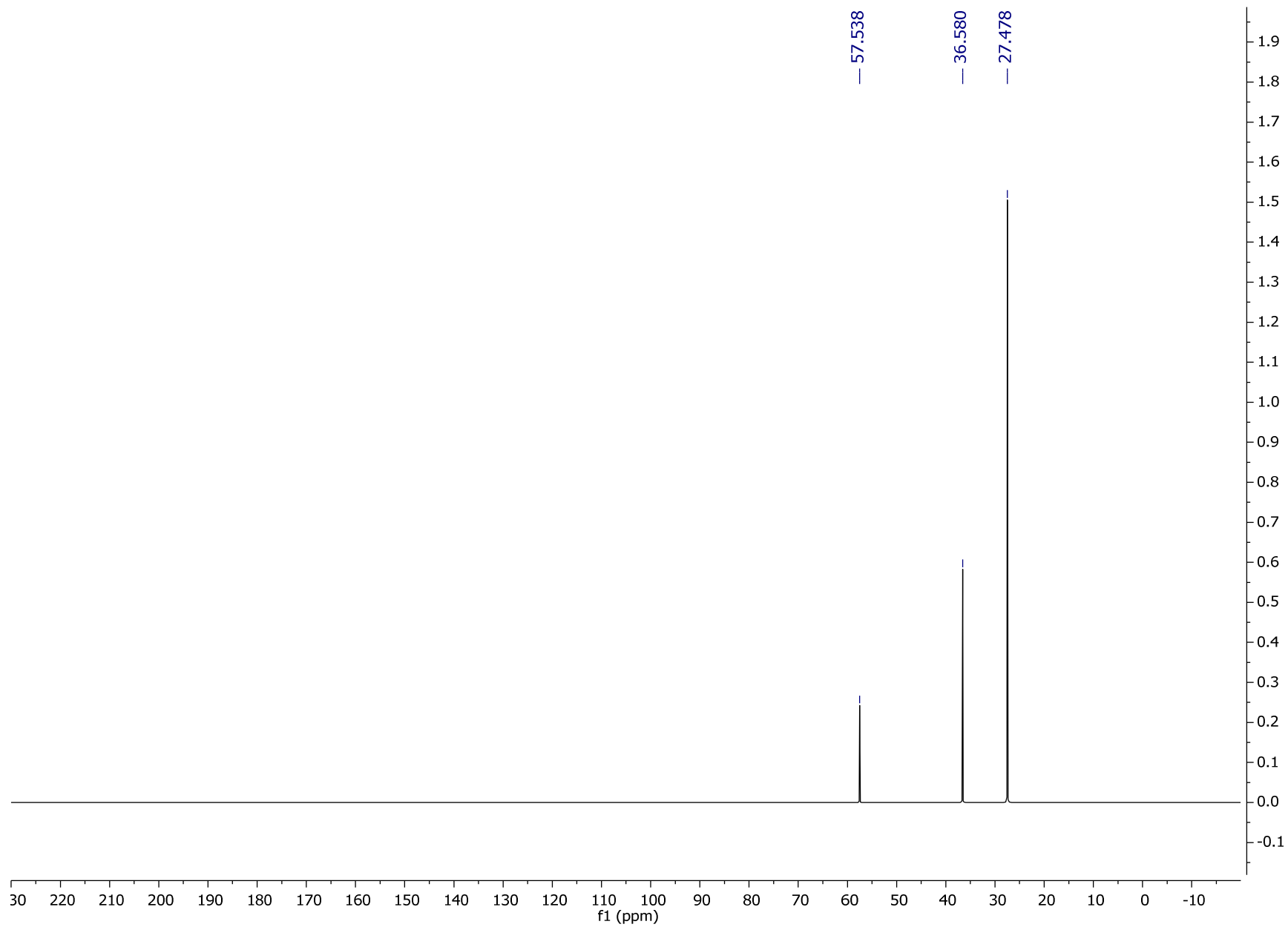
(h)



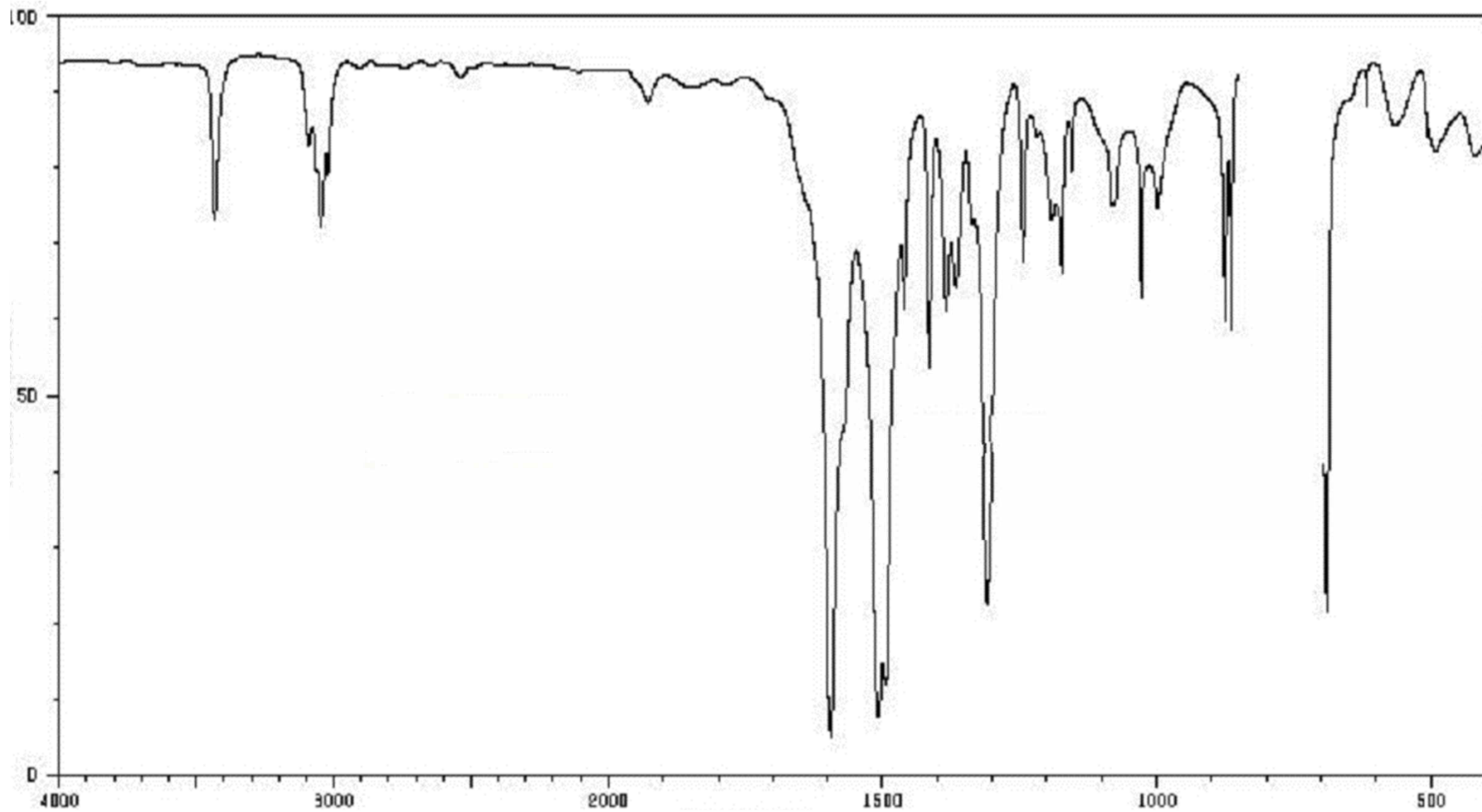
(i) $C_8H_{17}N$



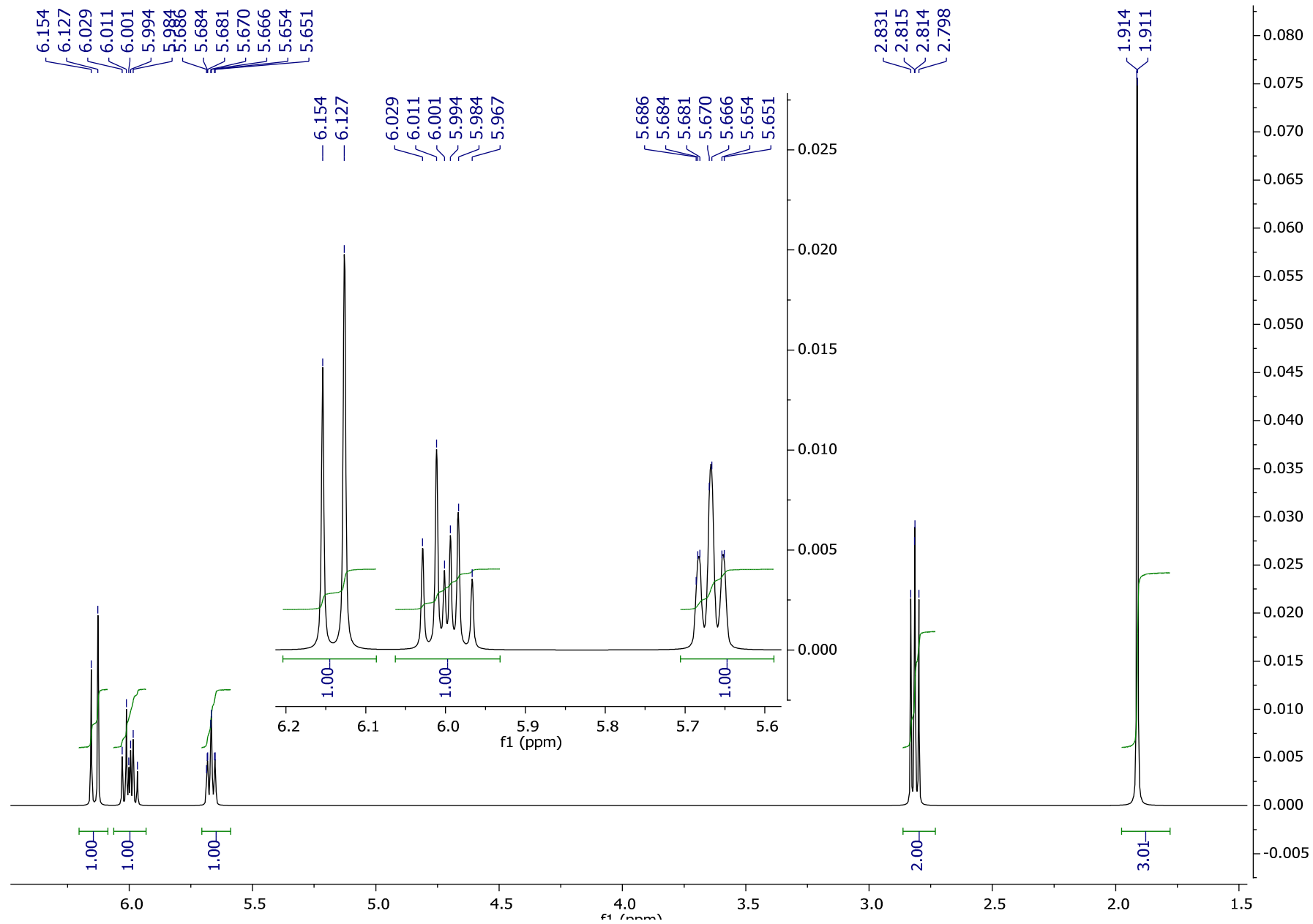
(i)



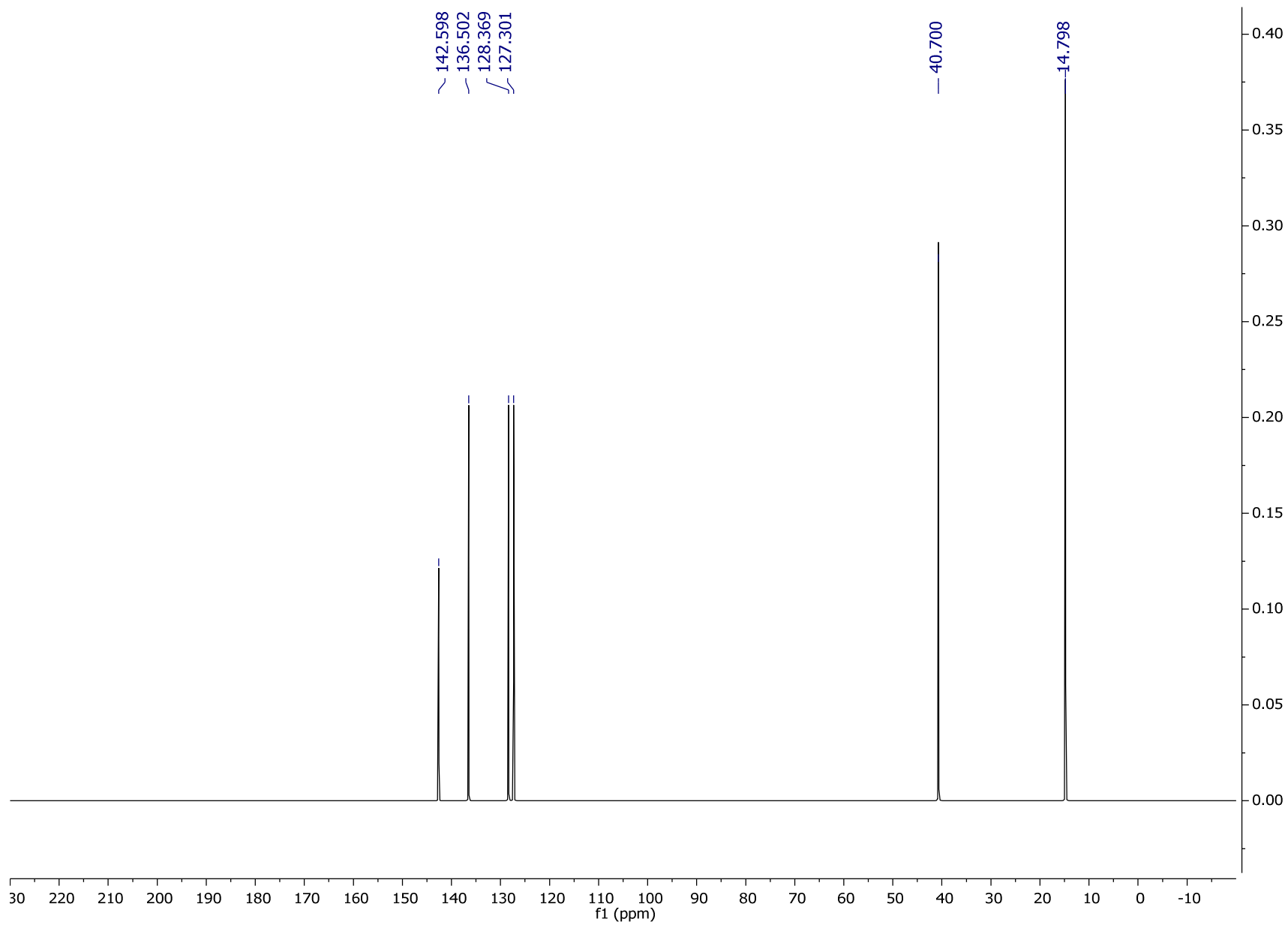
(i)



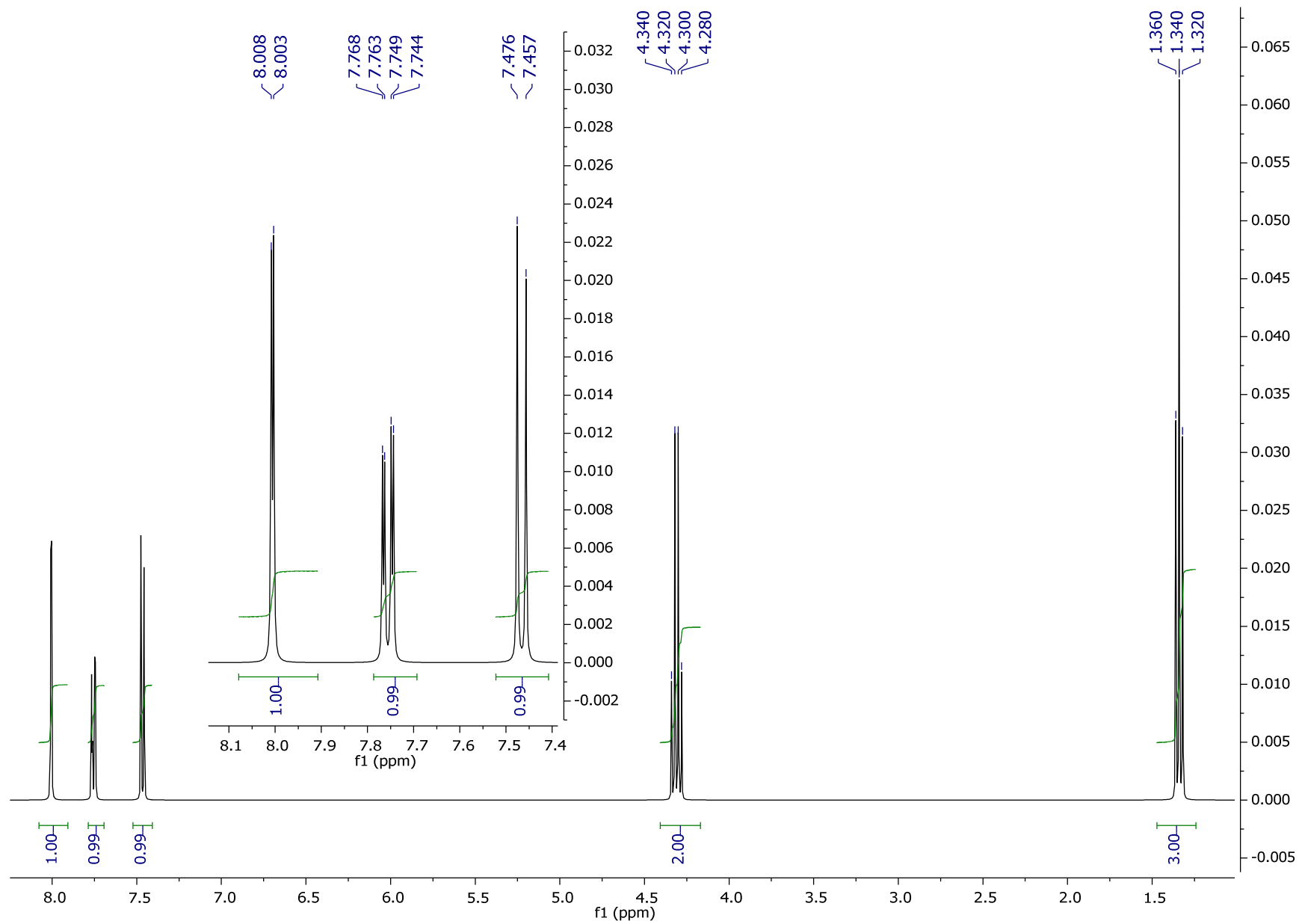
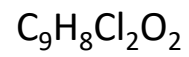
(j)



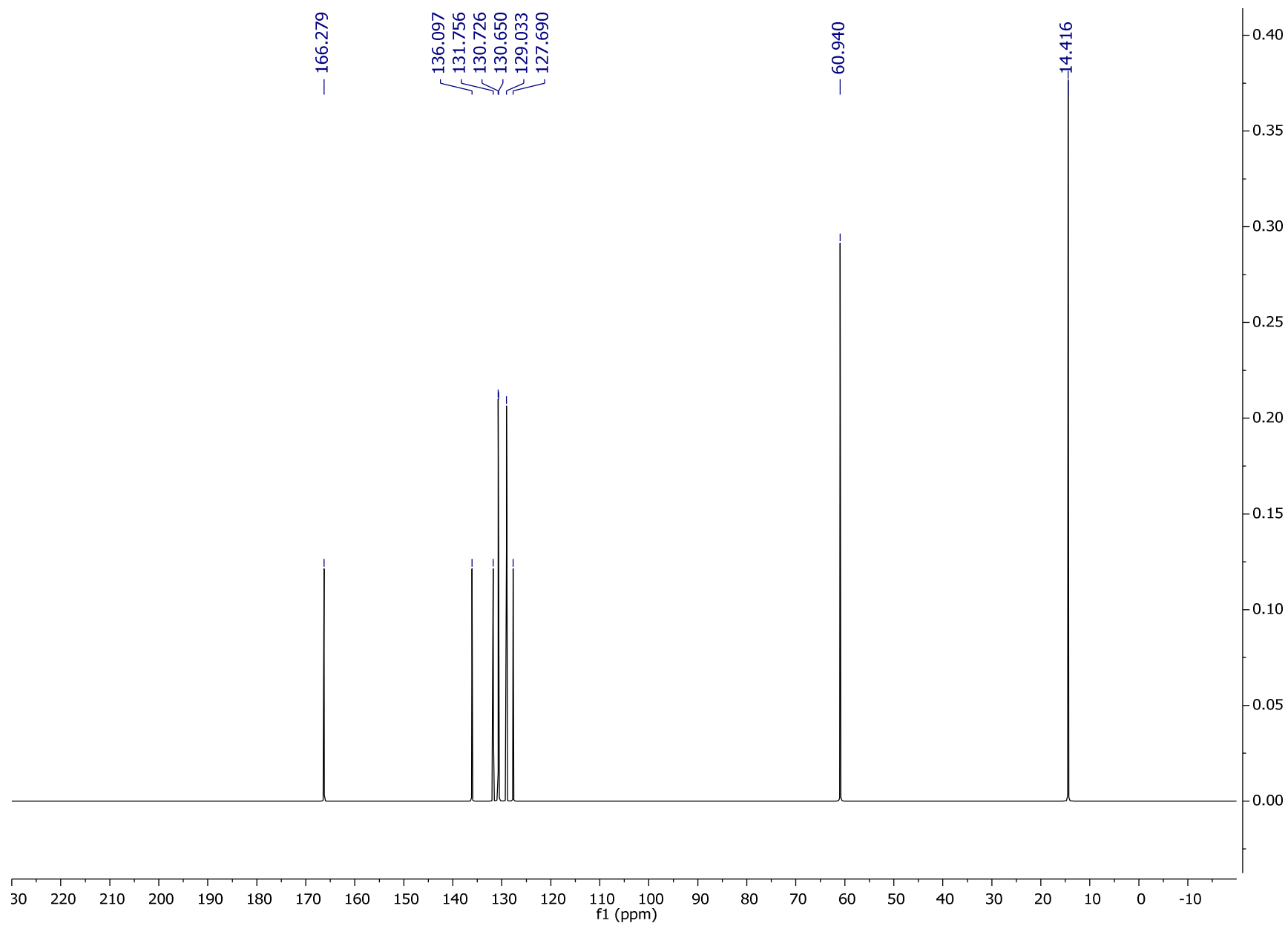
(j)



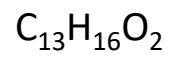
(k)



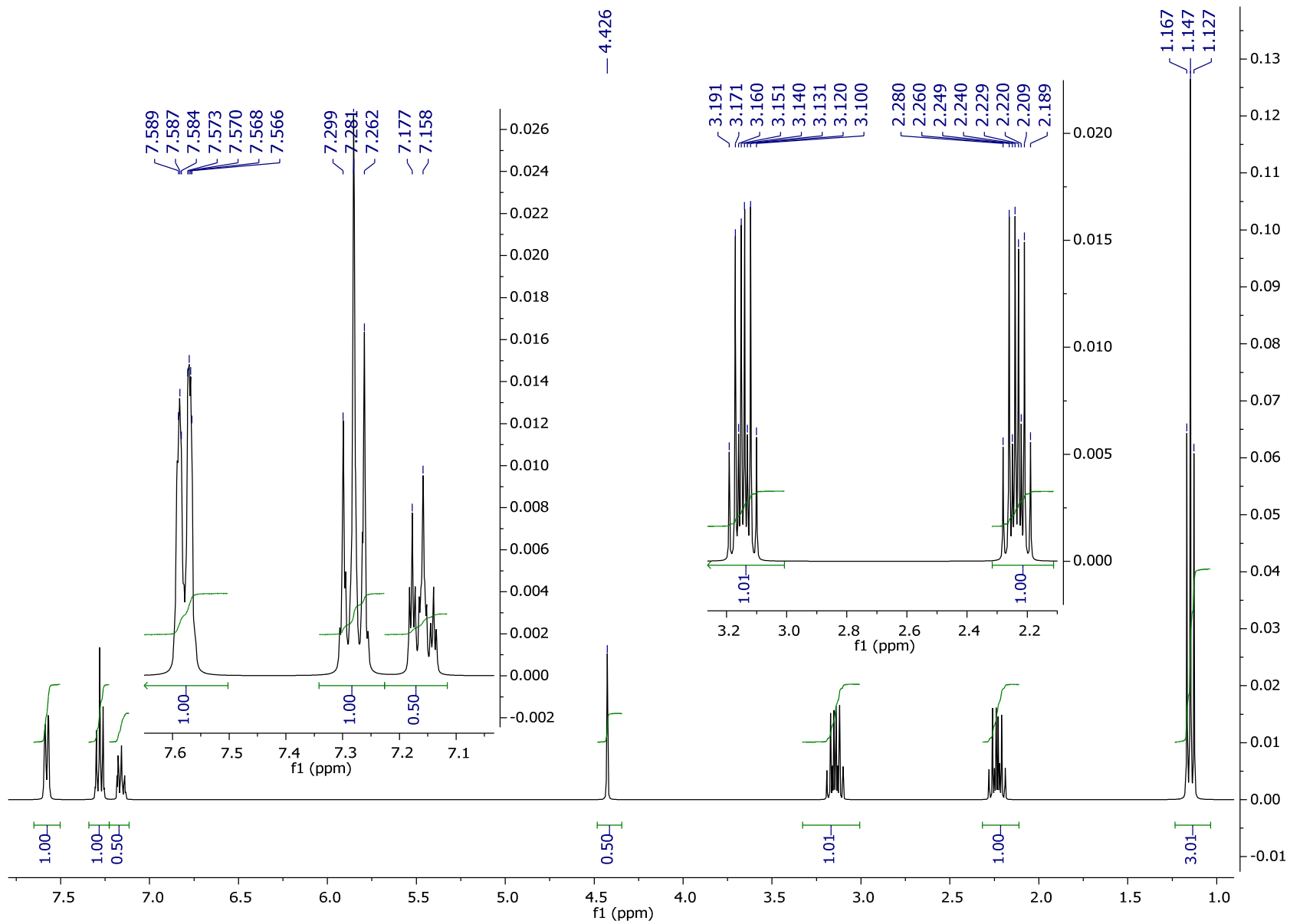
(I)



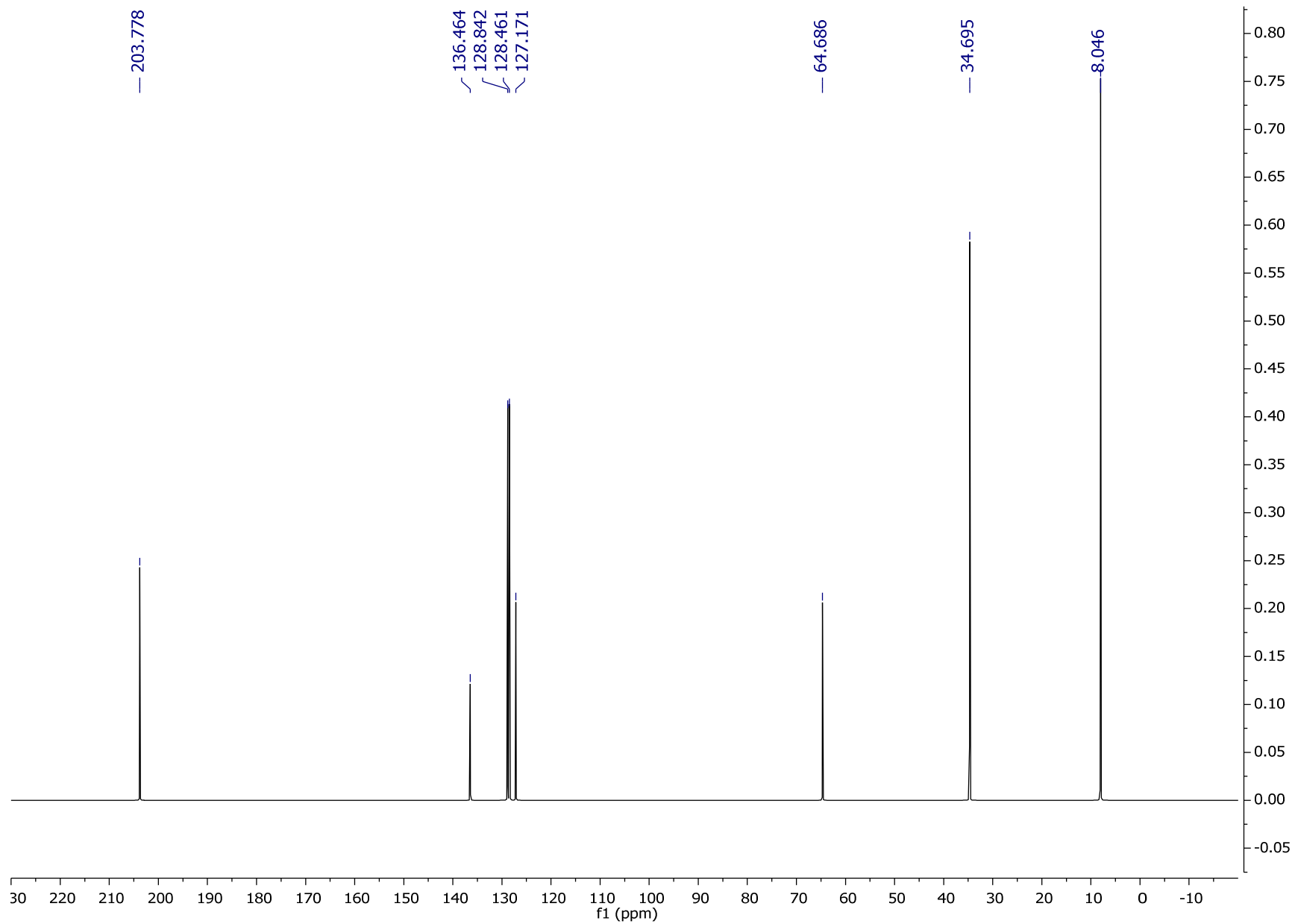
(I)



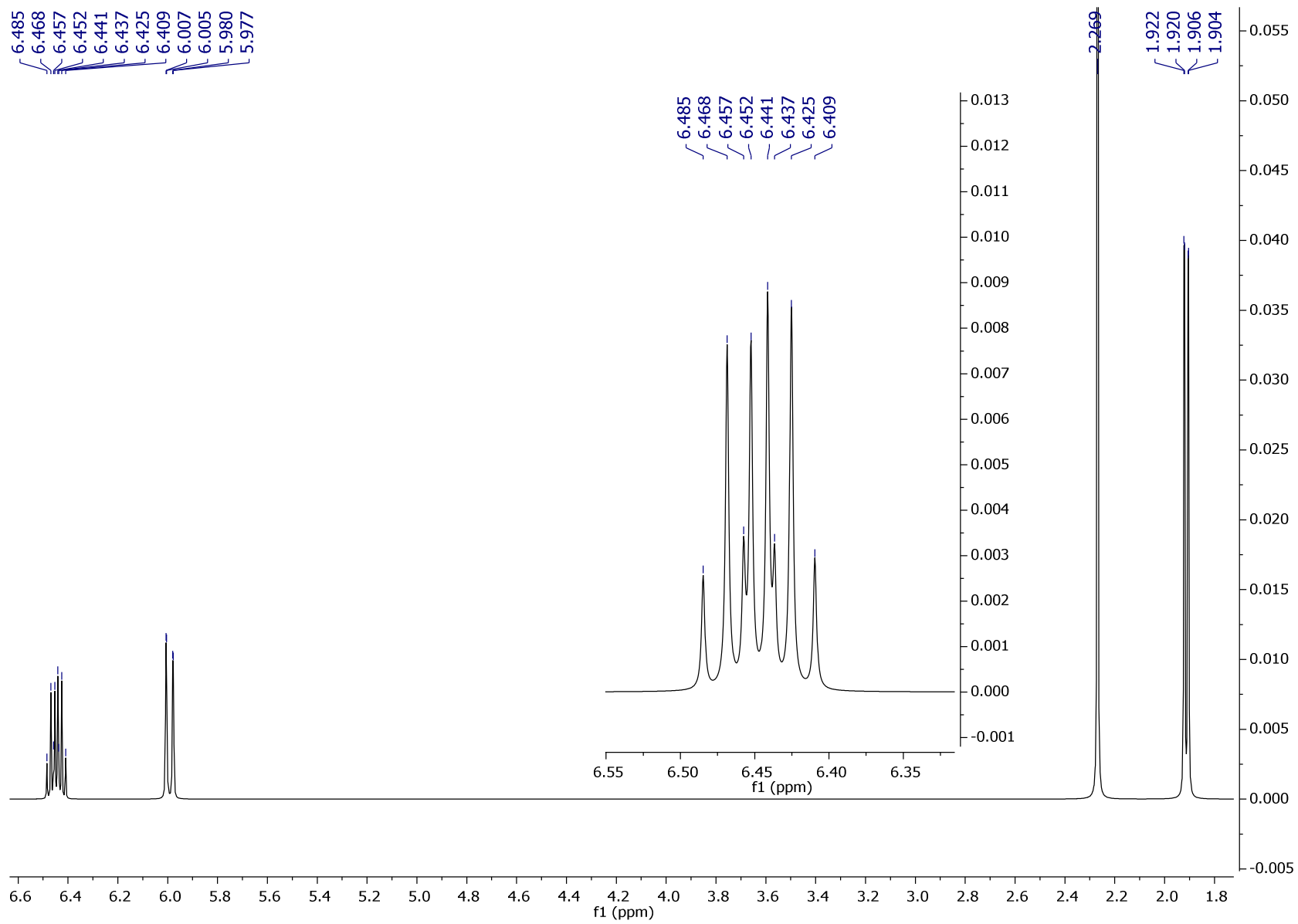
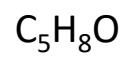
Związek jest achiralny



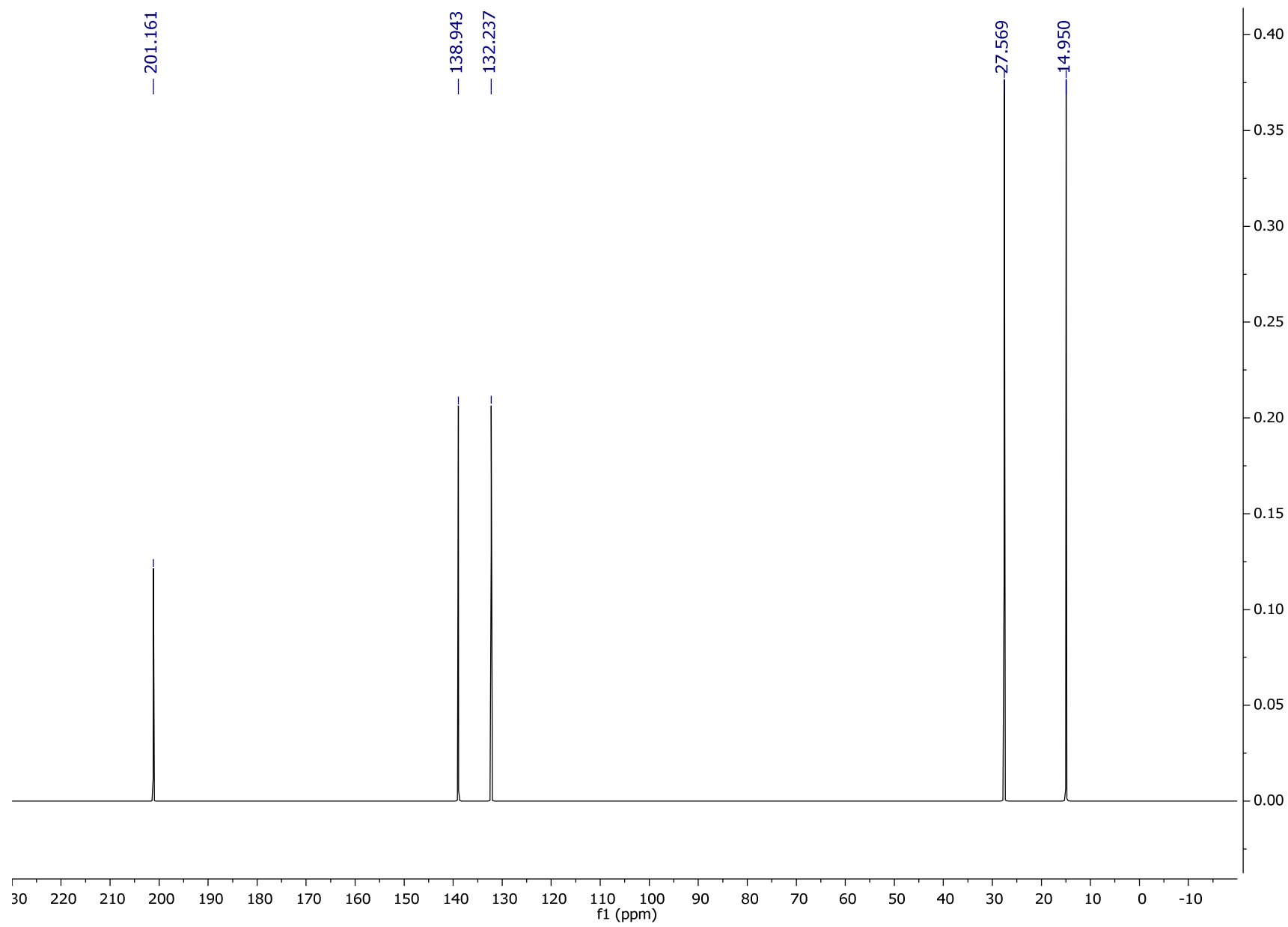
(I)



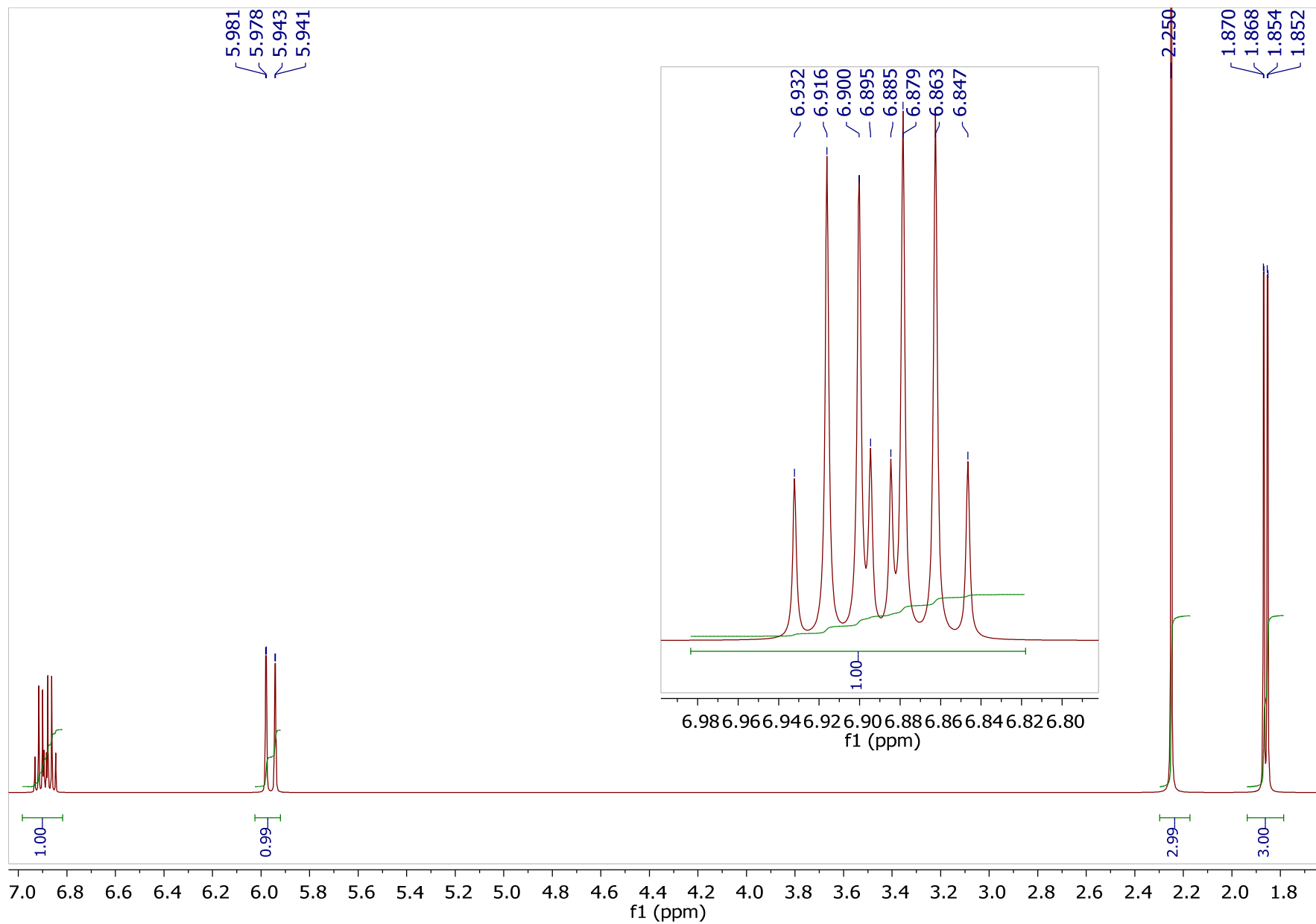
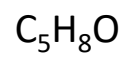
(m)



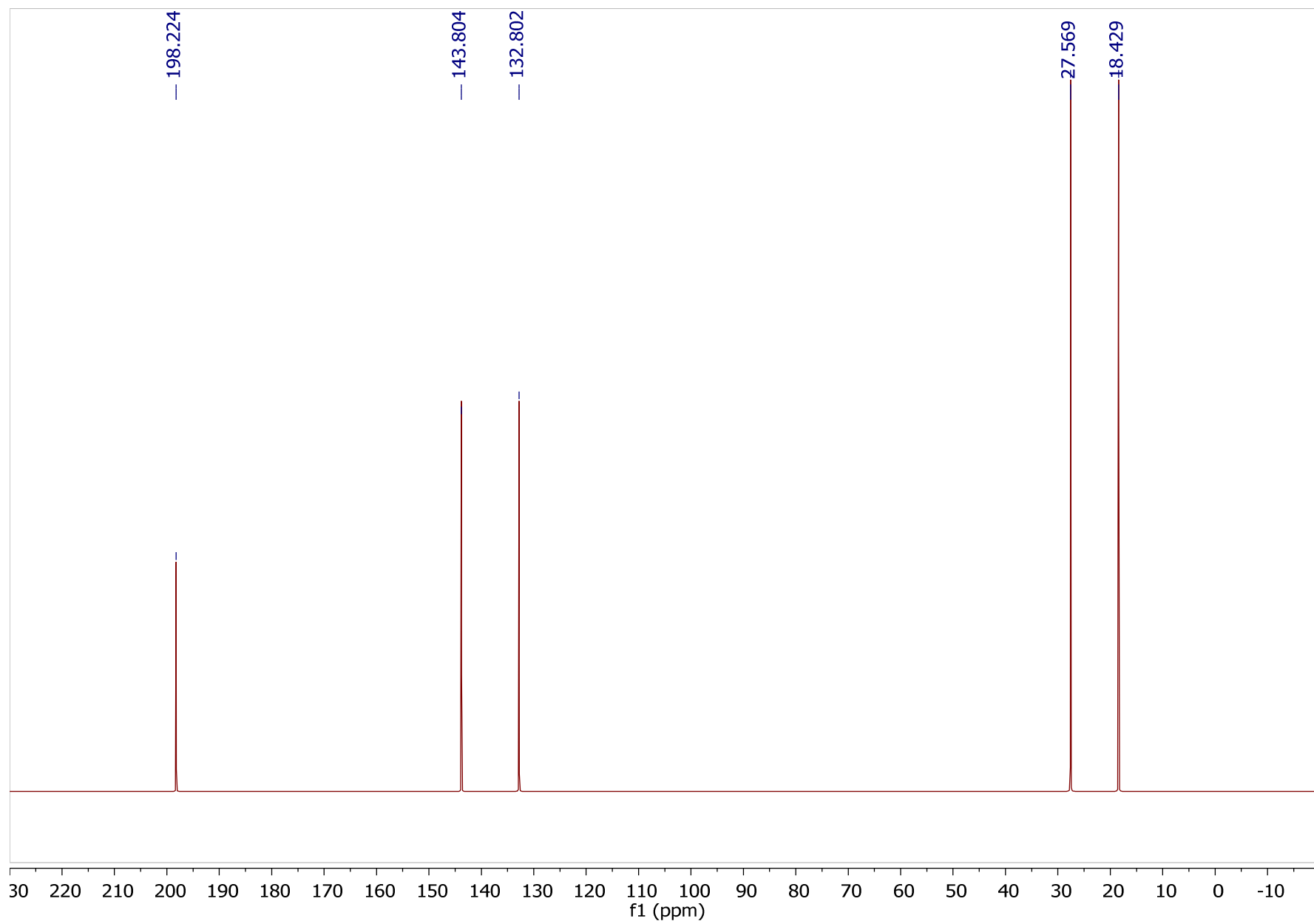
(m)



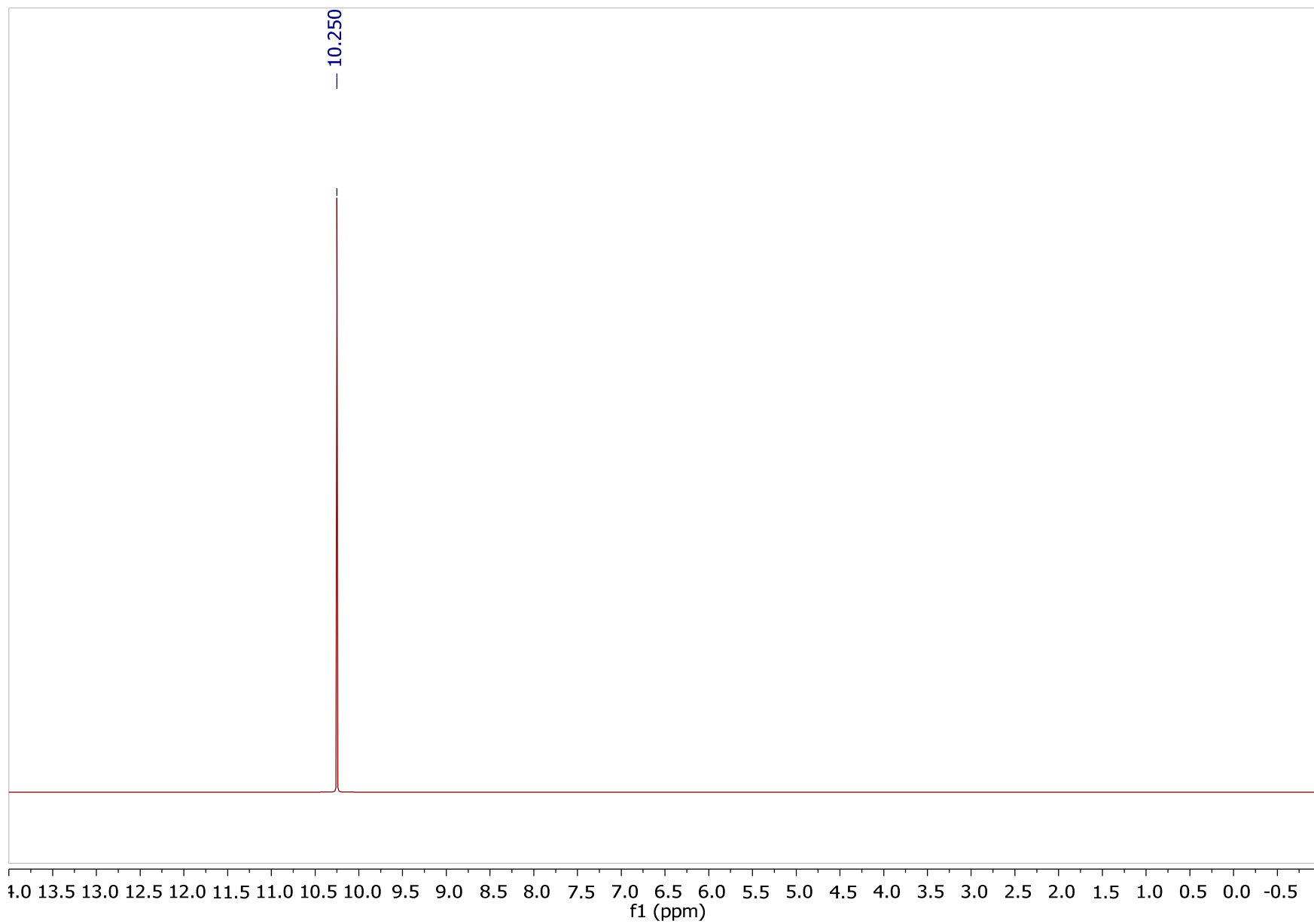
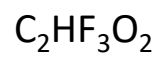
(n)



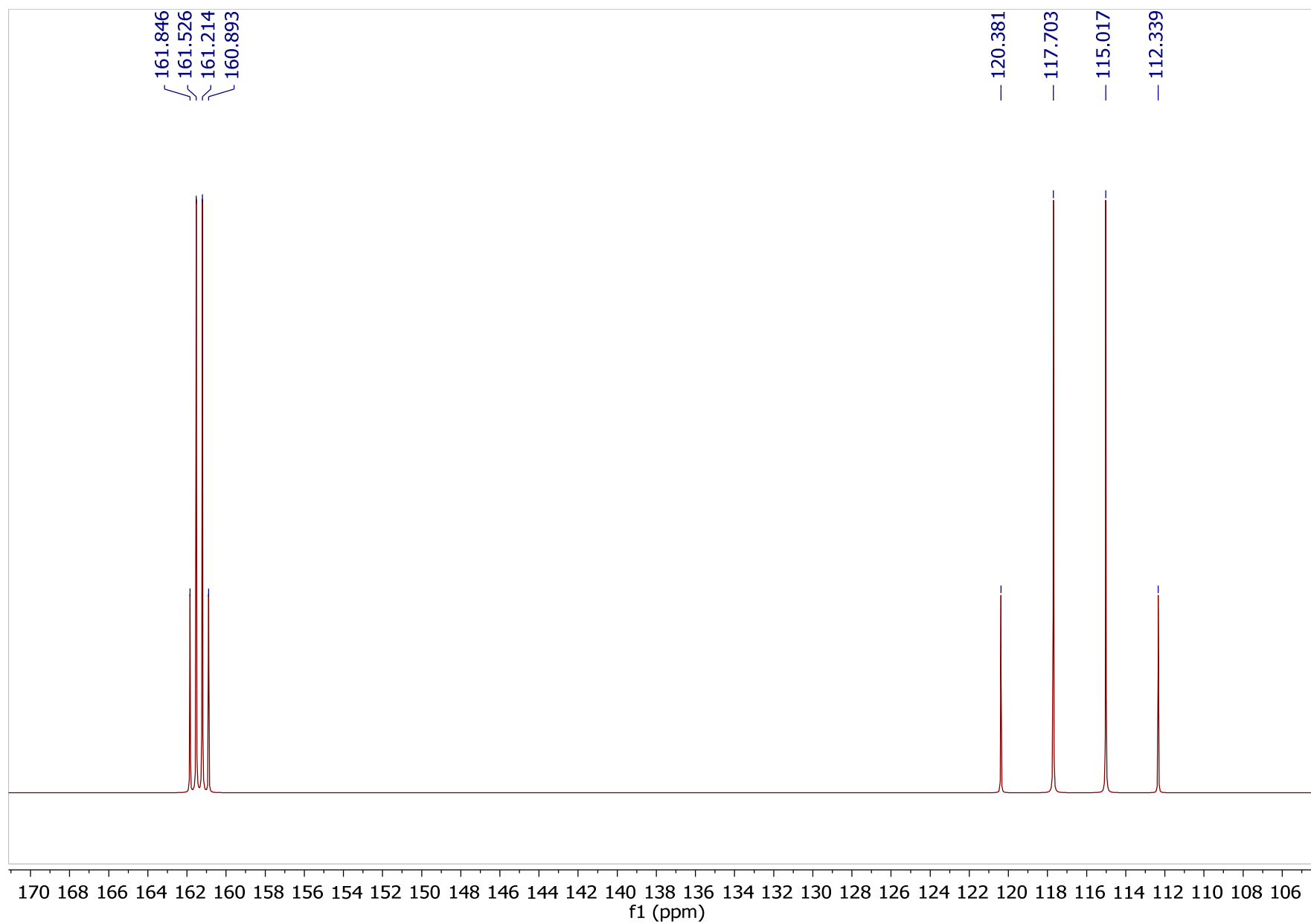
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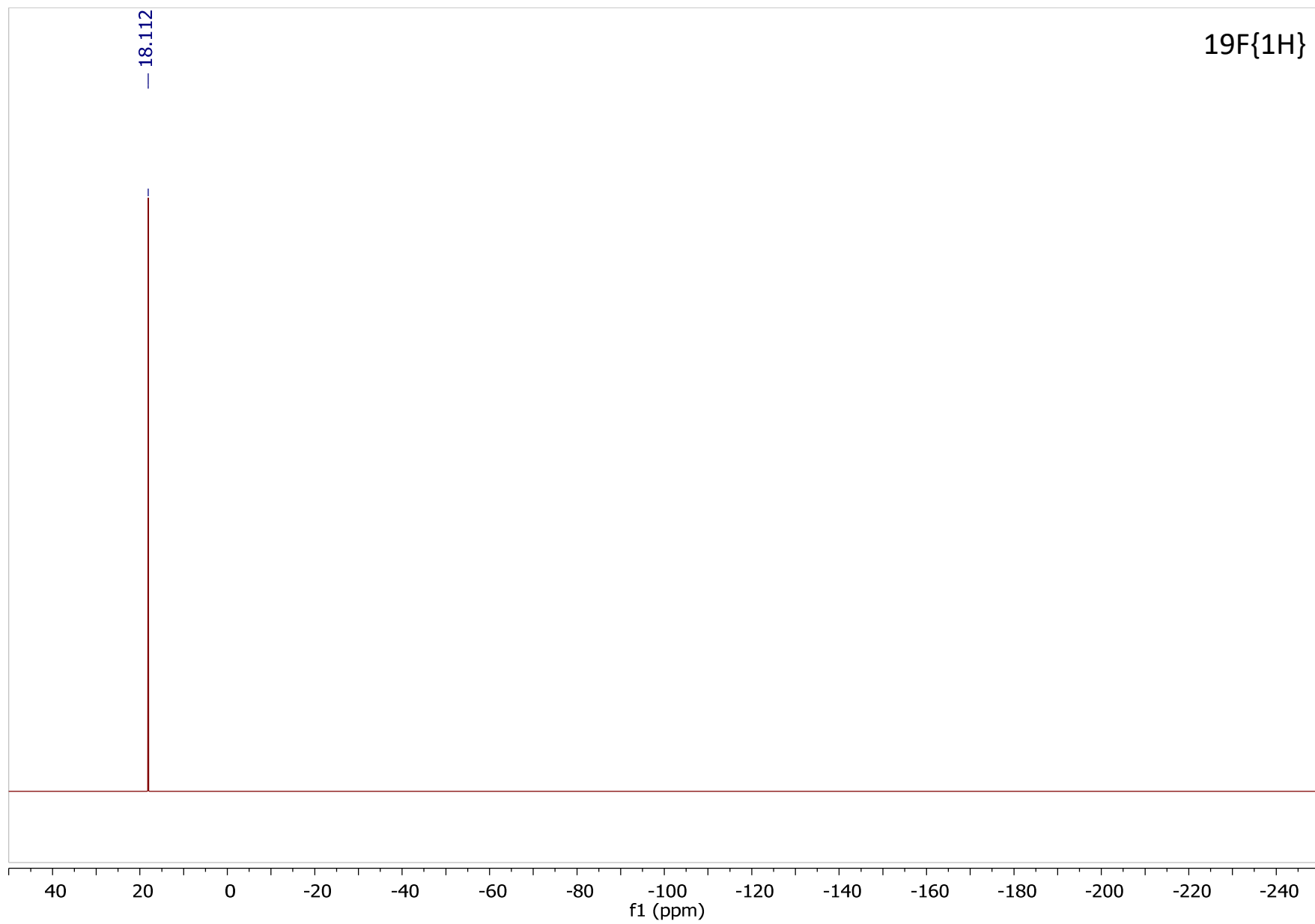
(o)



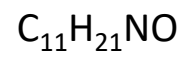
(o)



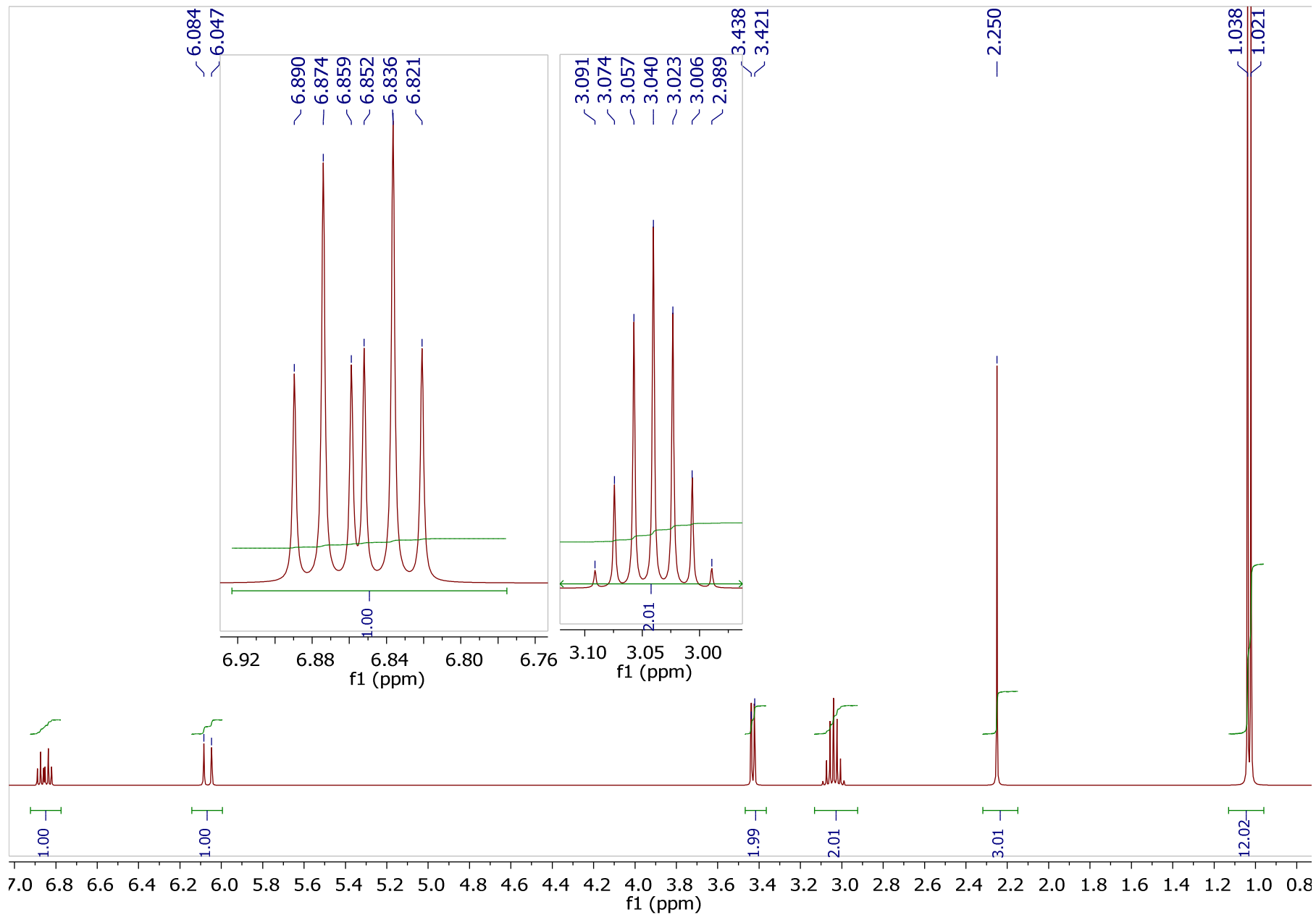
(o)



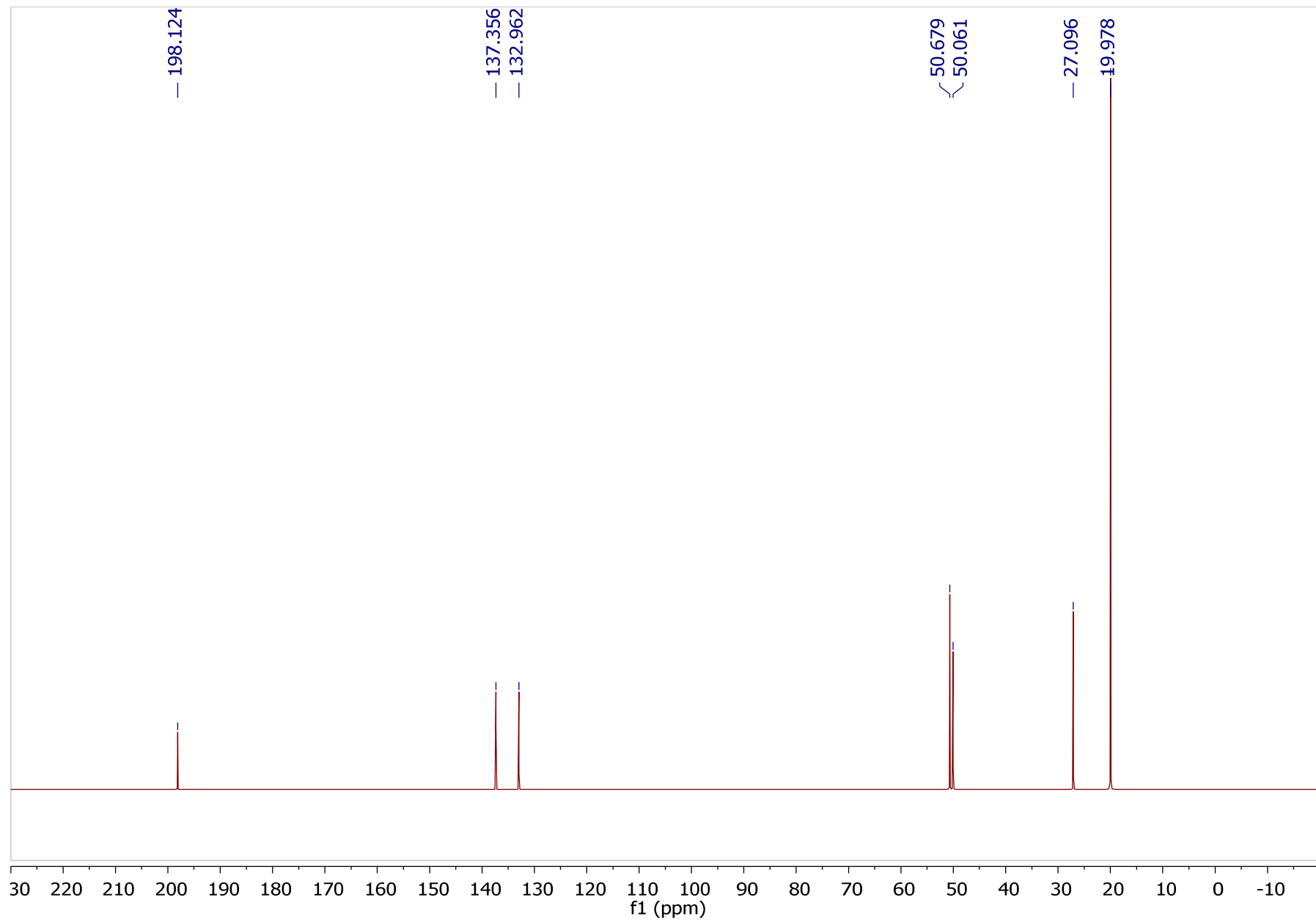
(p)



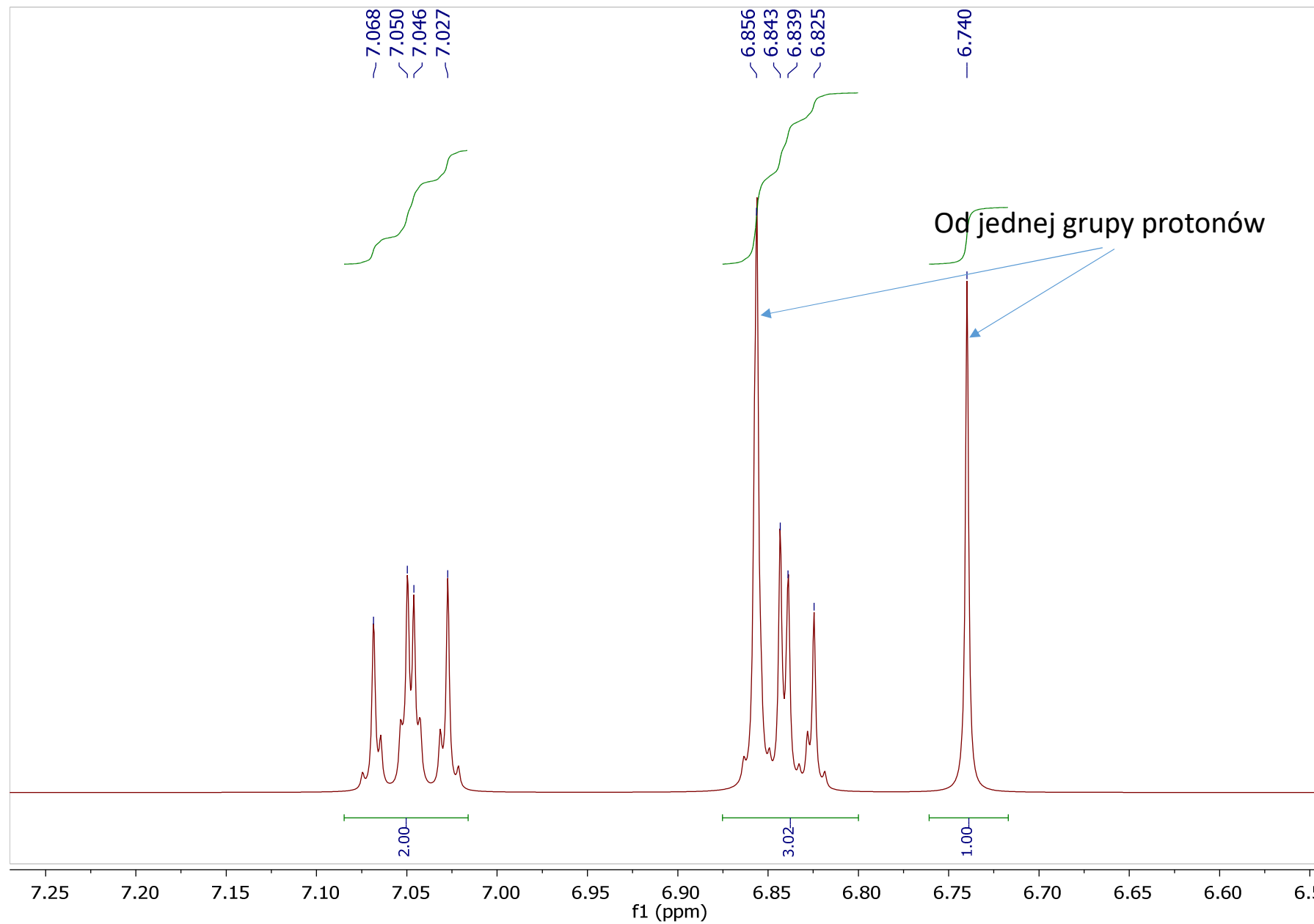
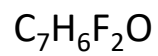
3-rzędowa amina



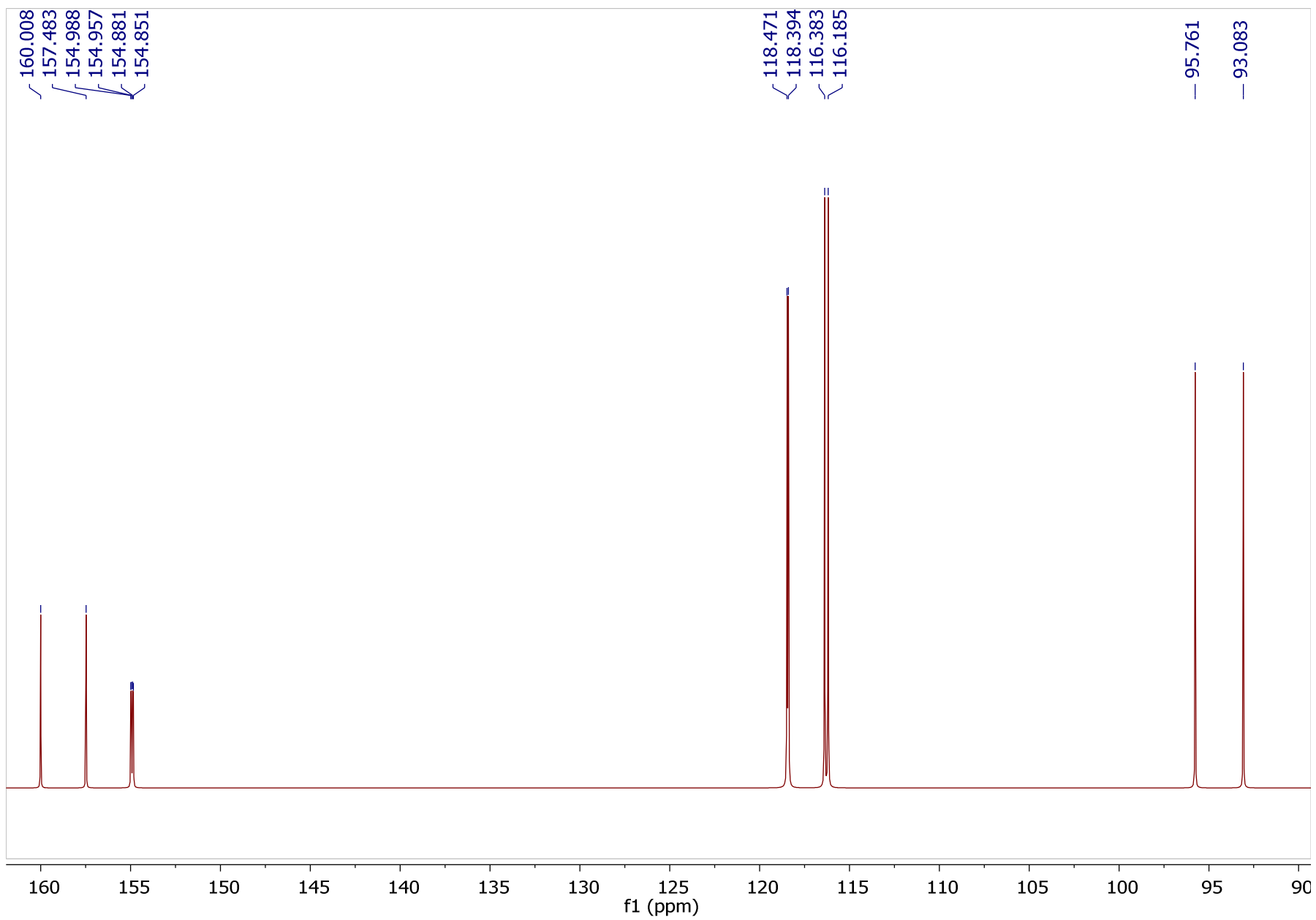
(p)



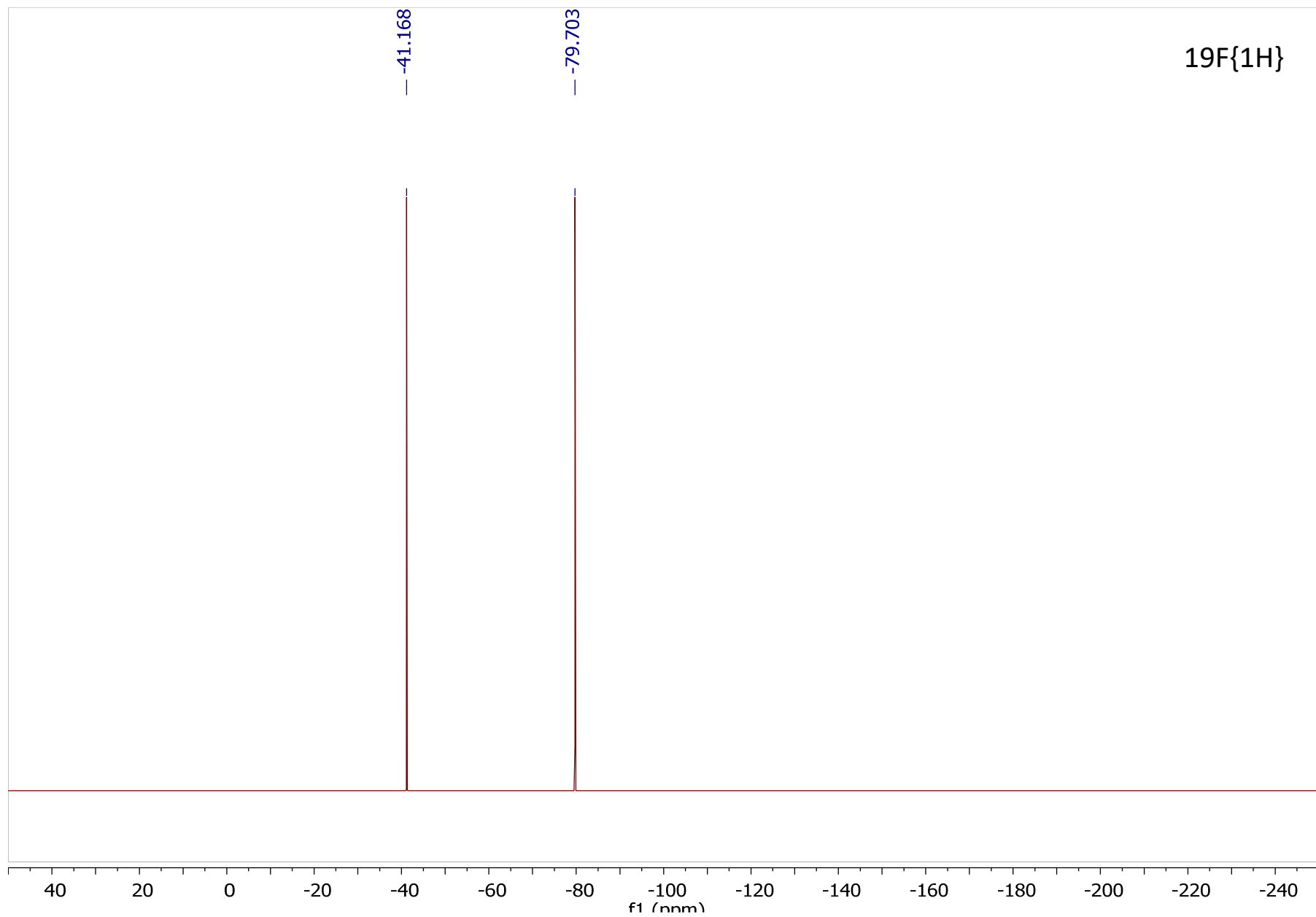
(r)



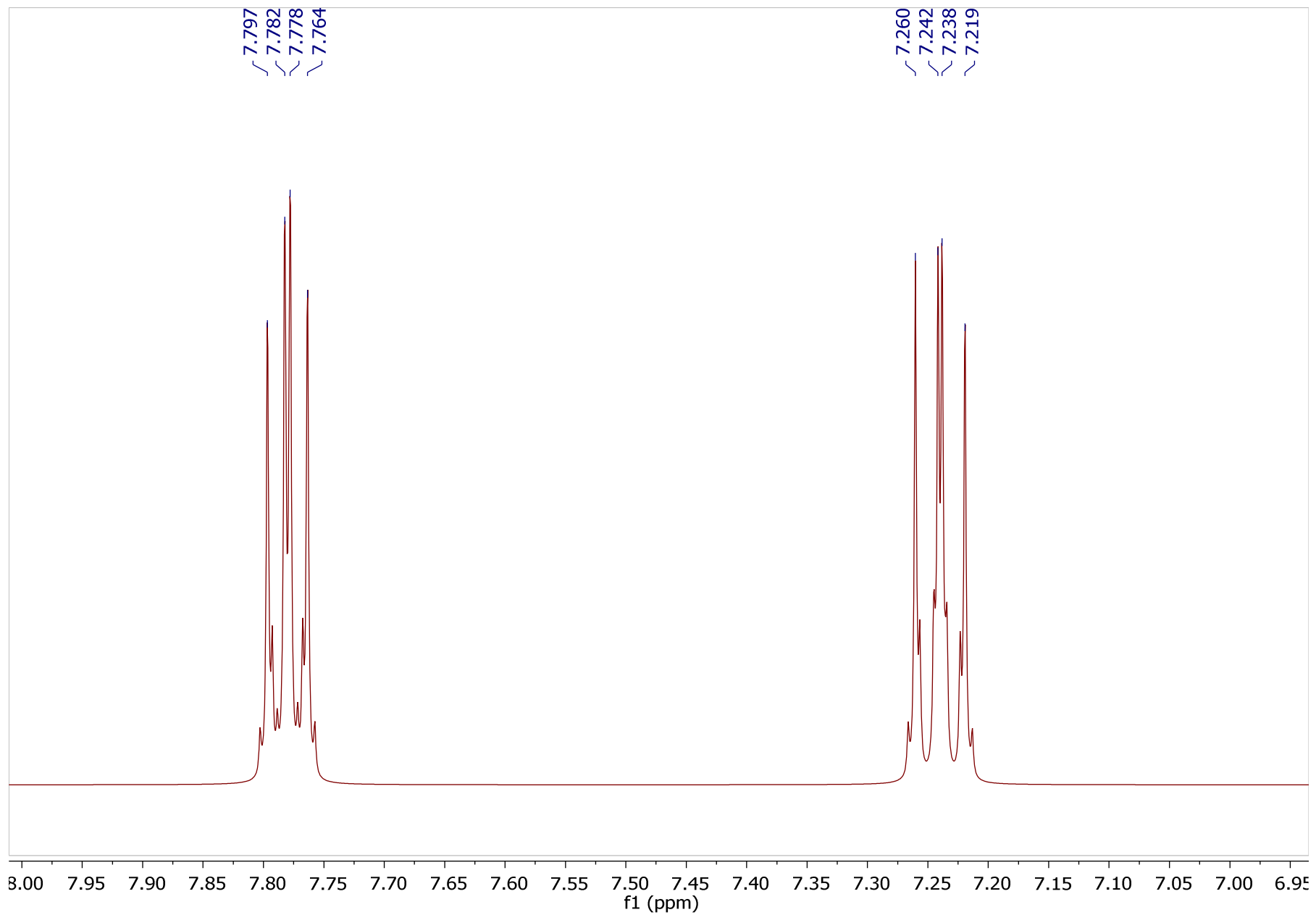
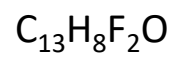
(r)



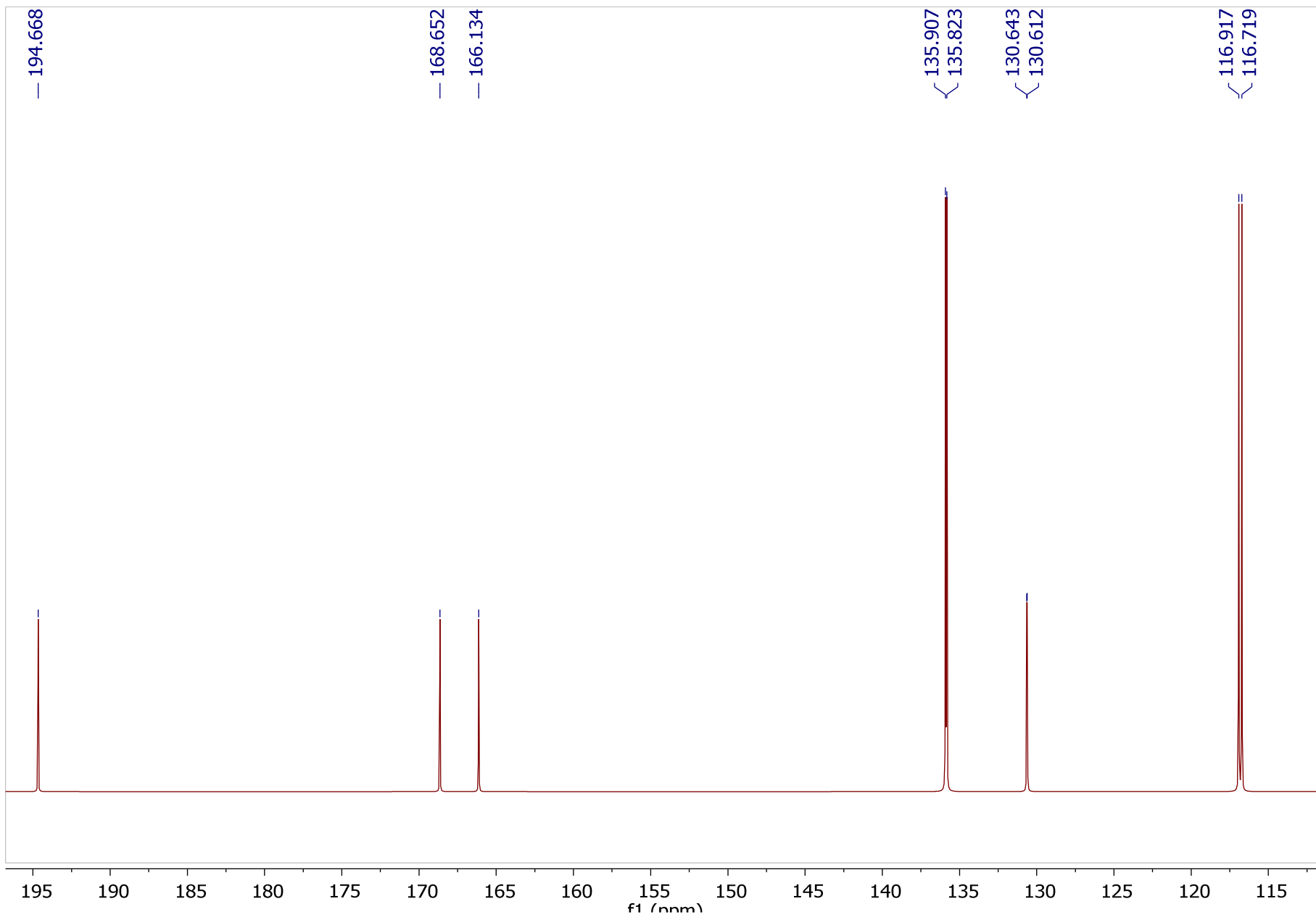
(r)



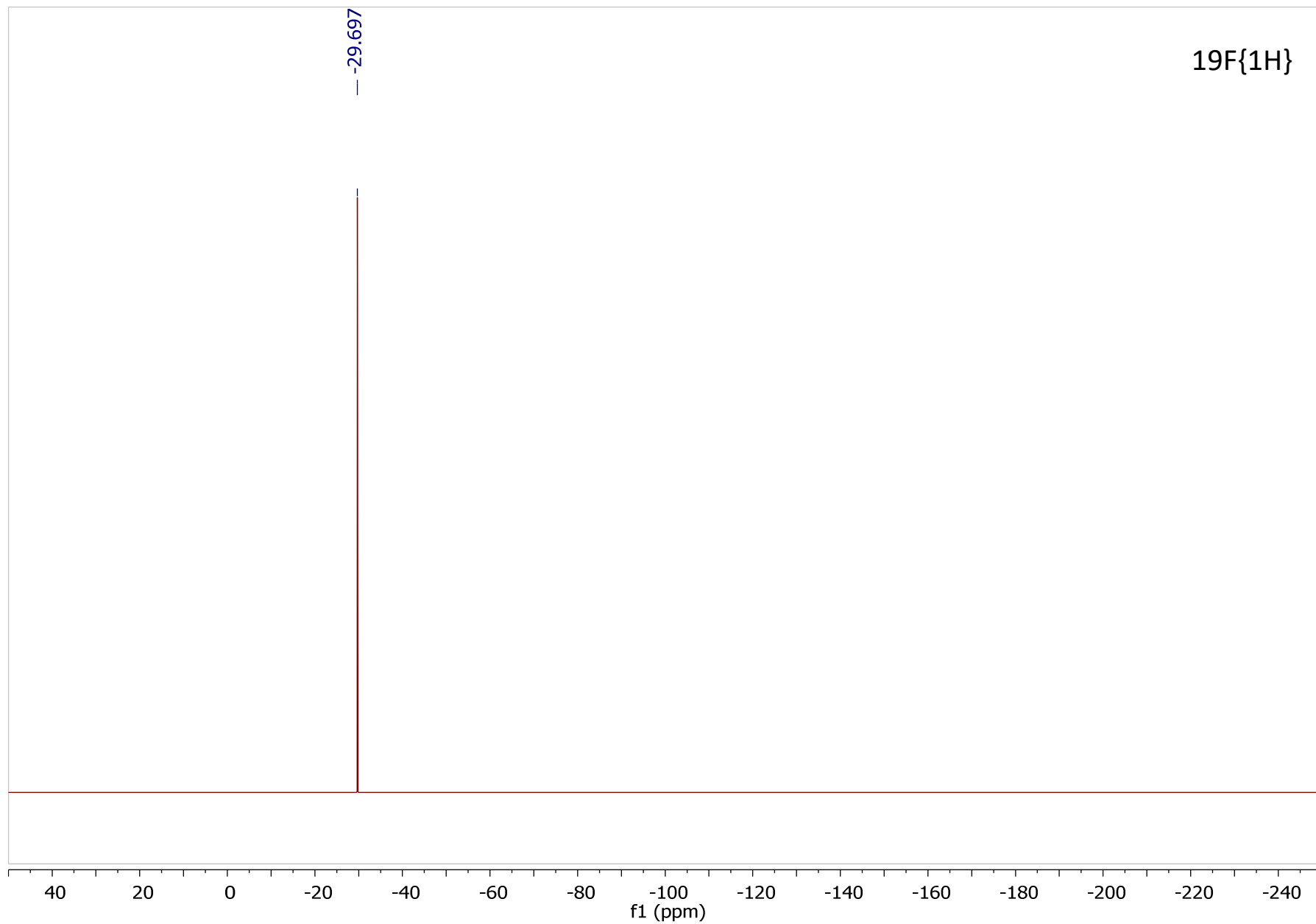
(s)



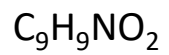
(s)



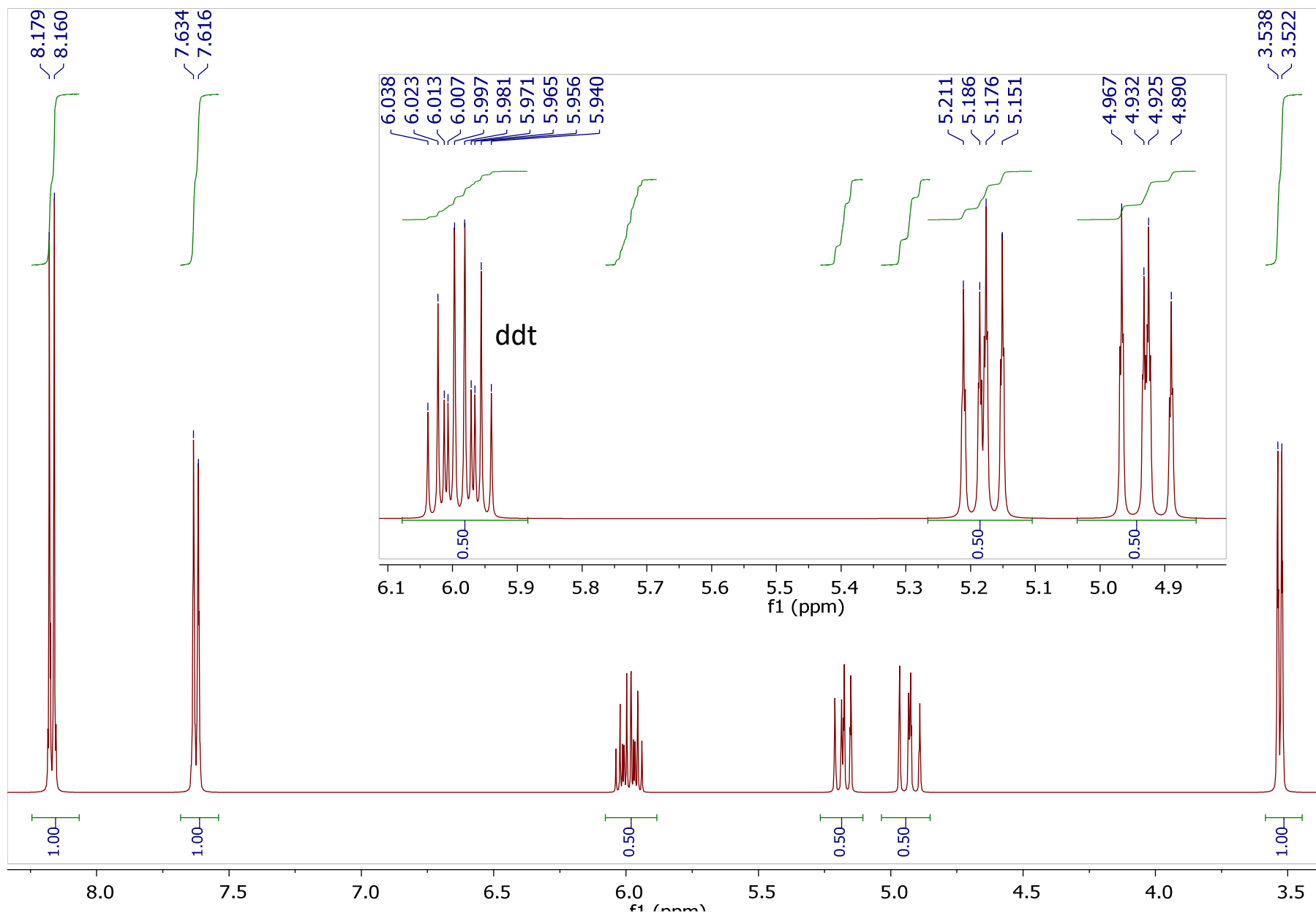
(s)



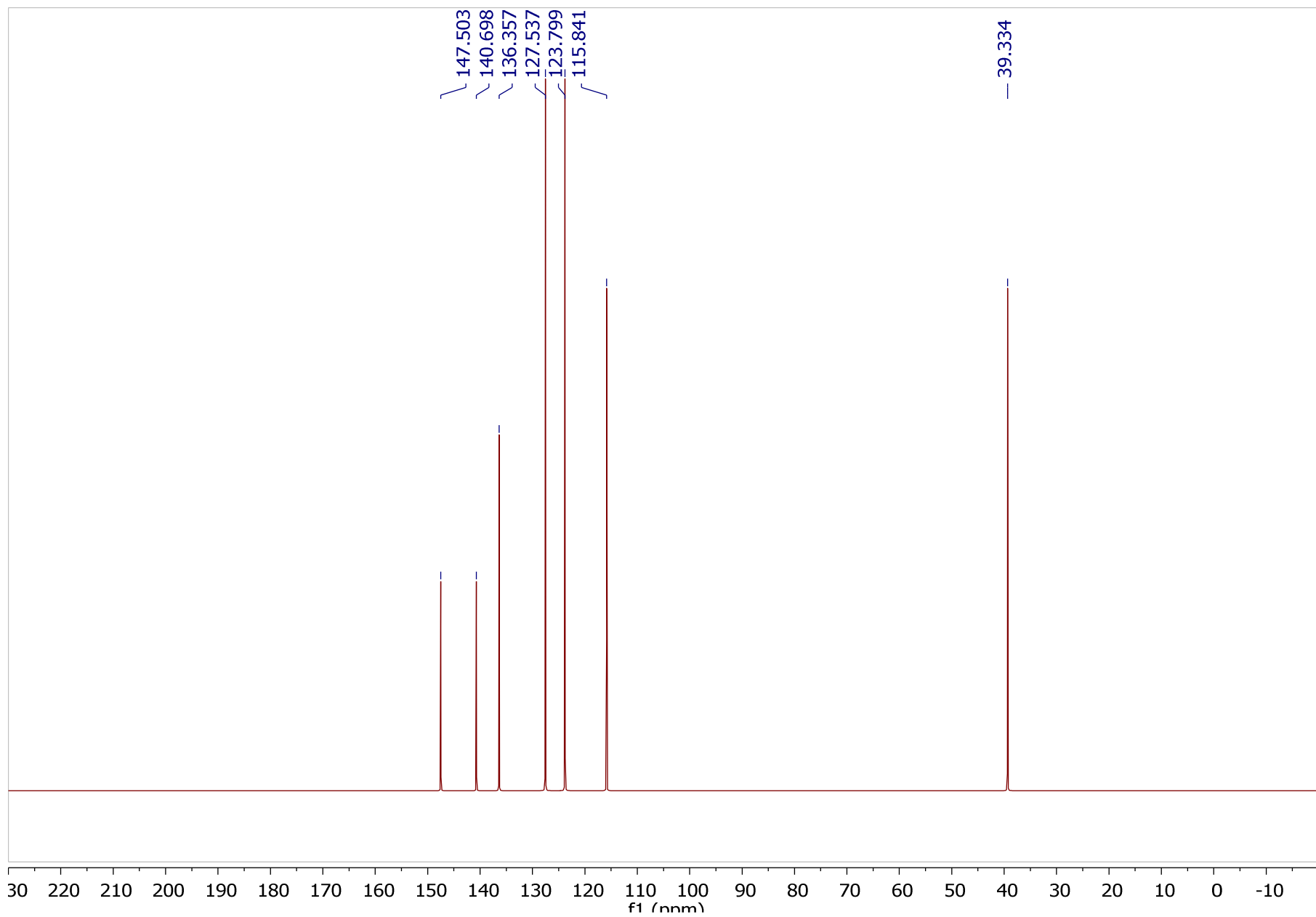
(t)



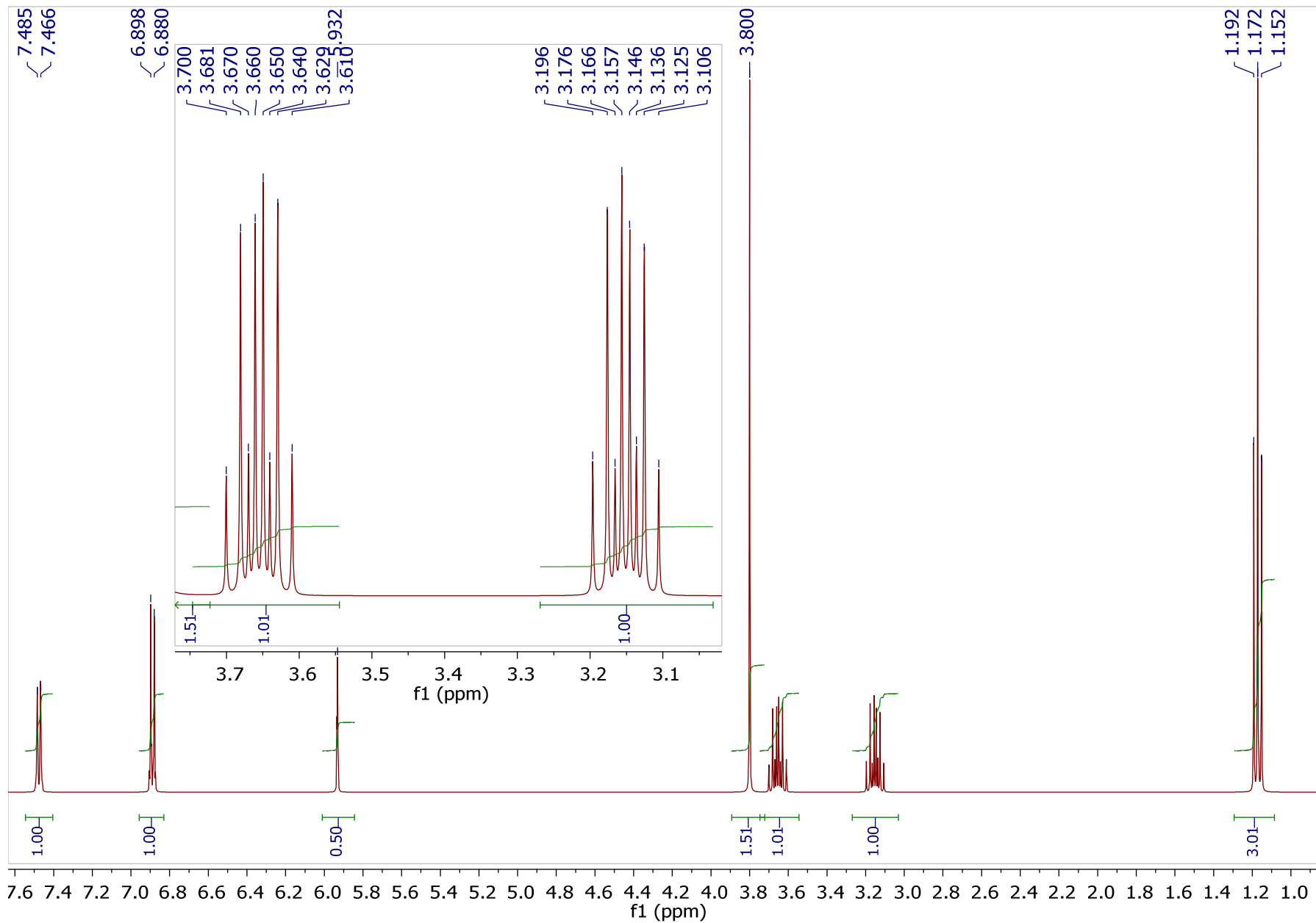
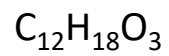
IR: Intensywne pasma
1650 cm^{-1} , 1535 cm^{-1} ,
1350 cm^{-1}



(t)

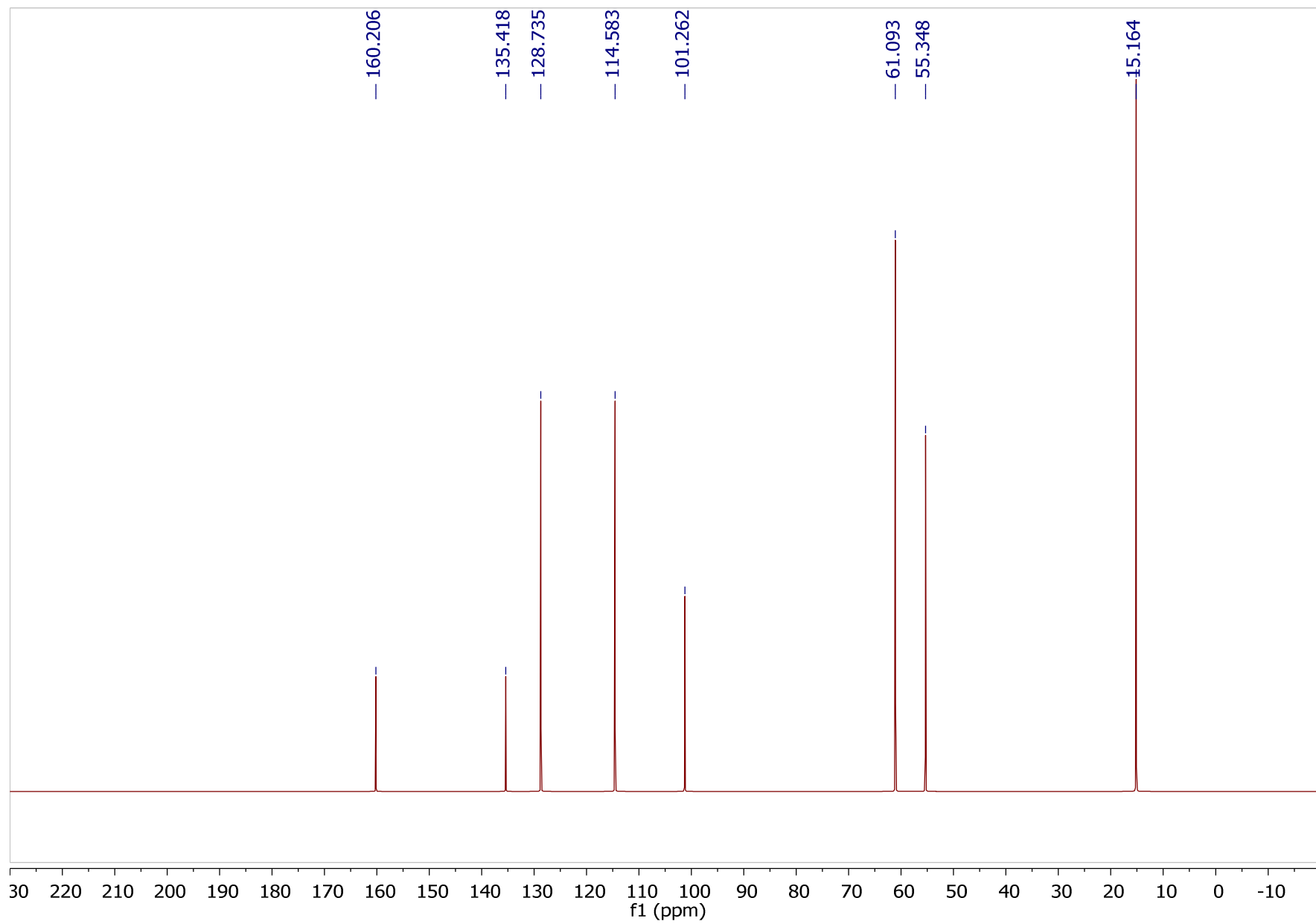


(u)

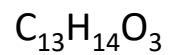


Związek jest achiralny

(u)

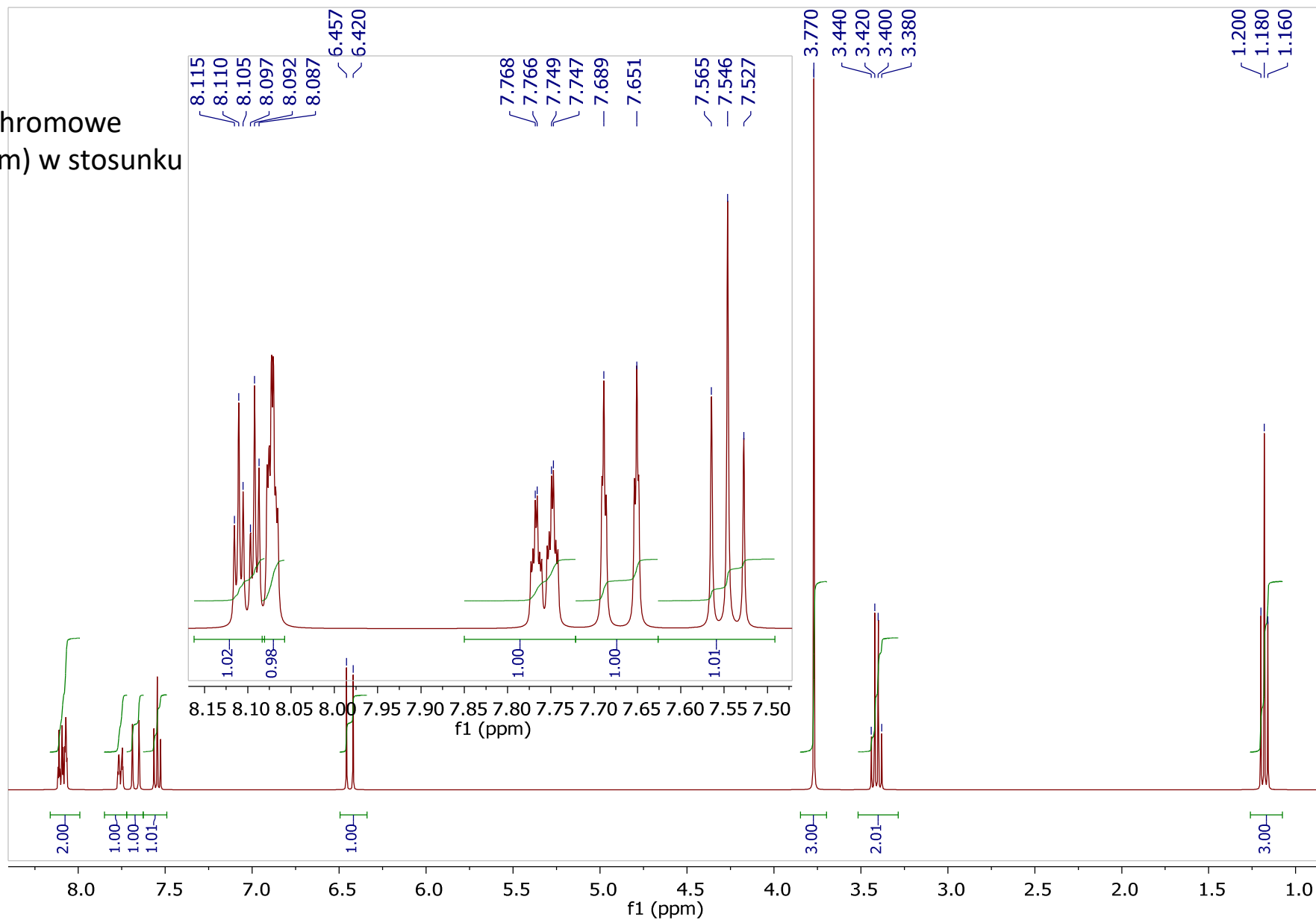


(w)

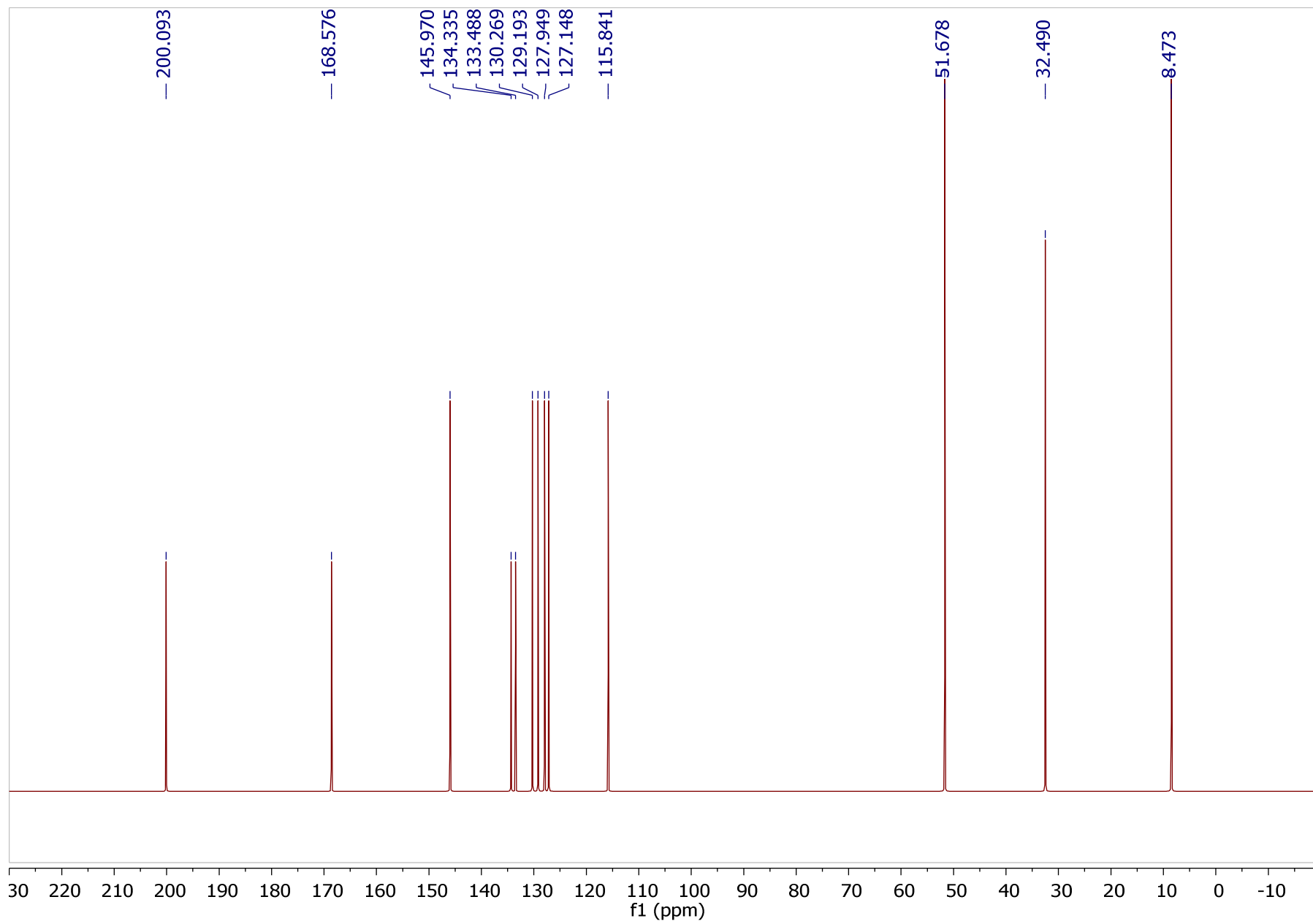


Silne przesunięcie batochromowe
w widmie UV-Vis (380 nm) w stosunku
do benzenu

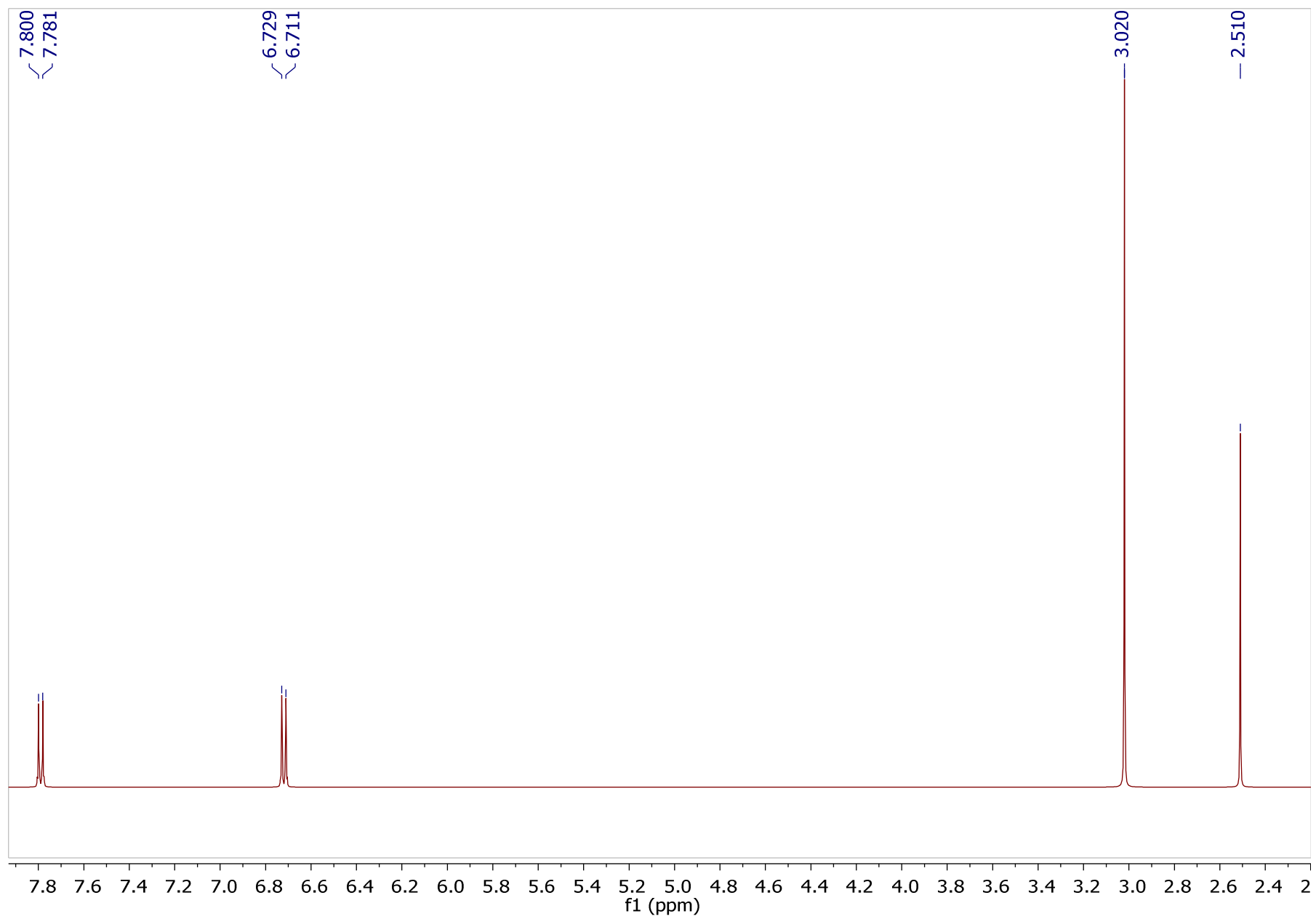
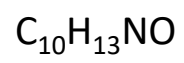
o, m, p?



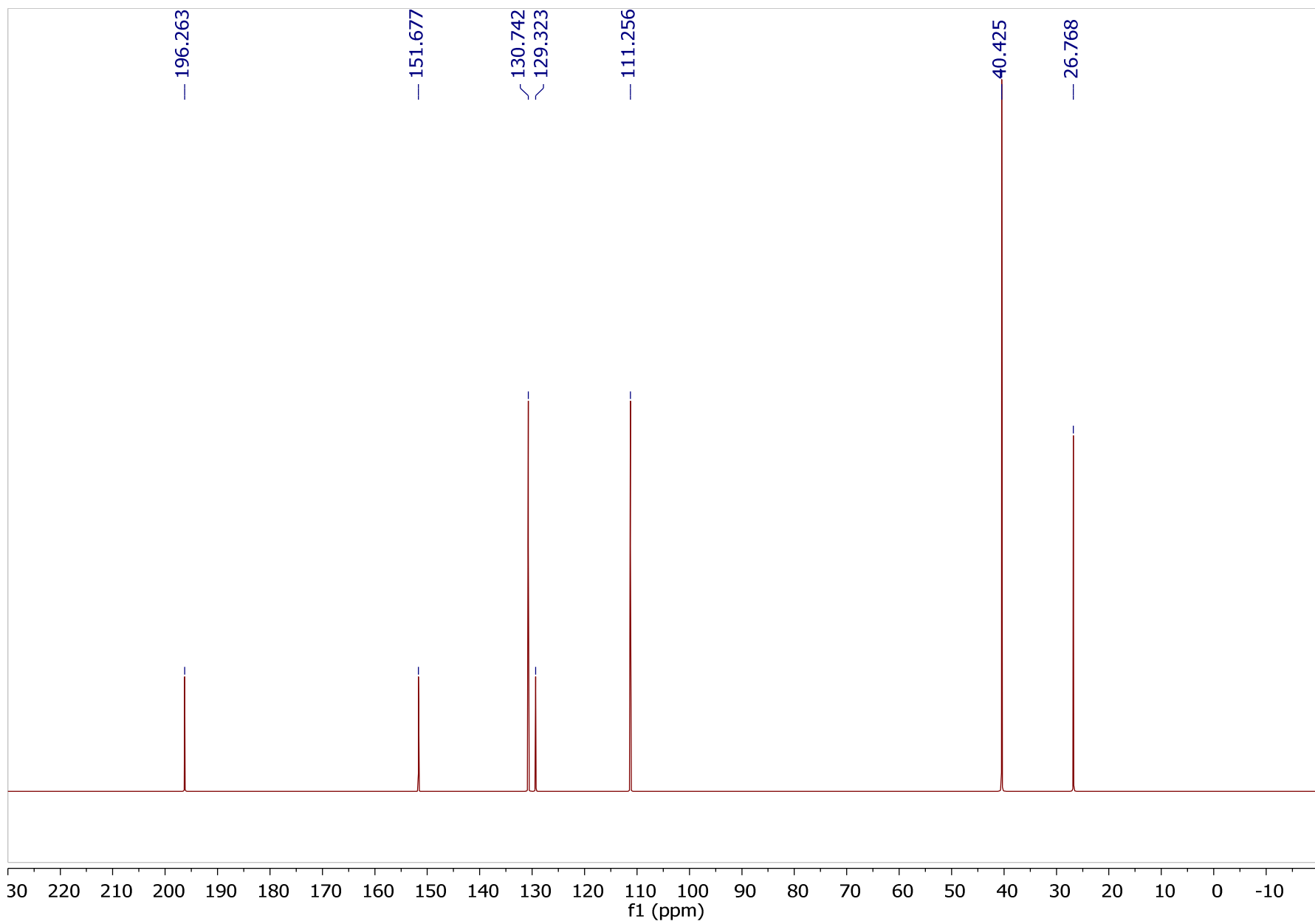
(w)



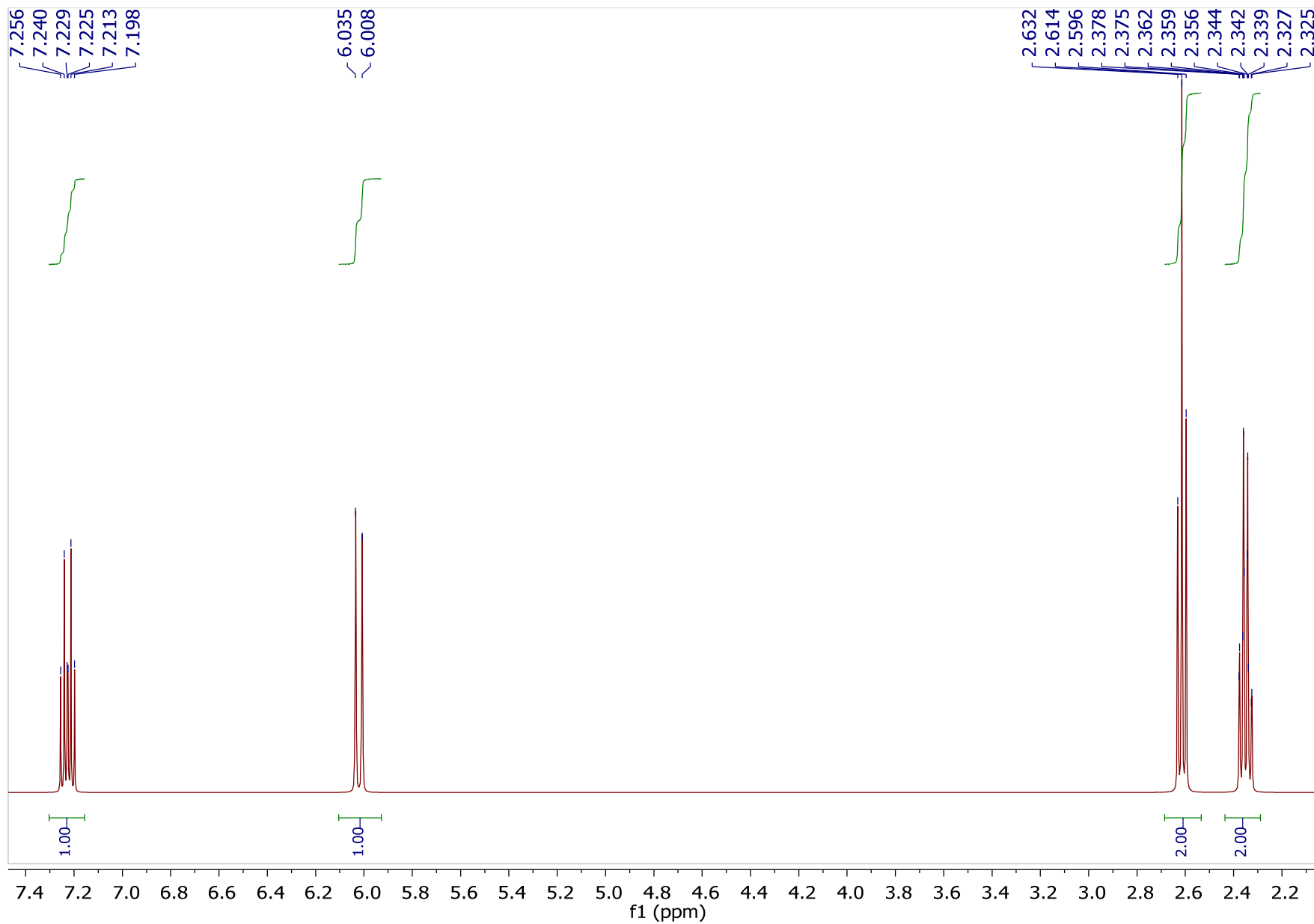
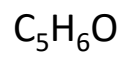
(x)



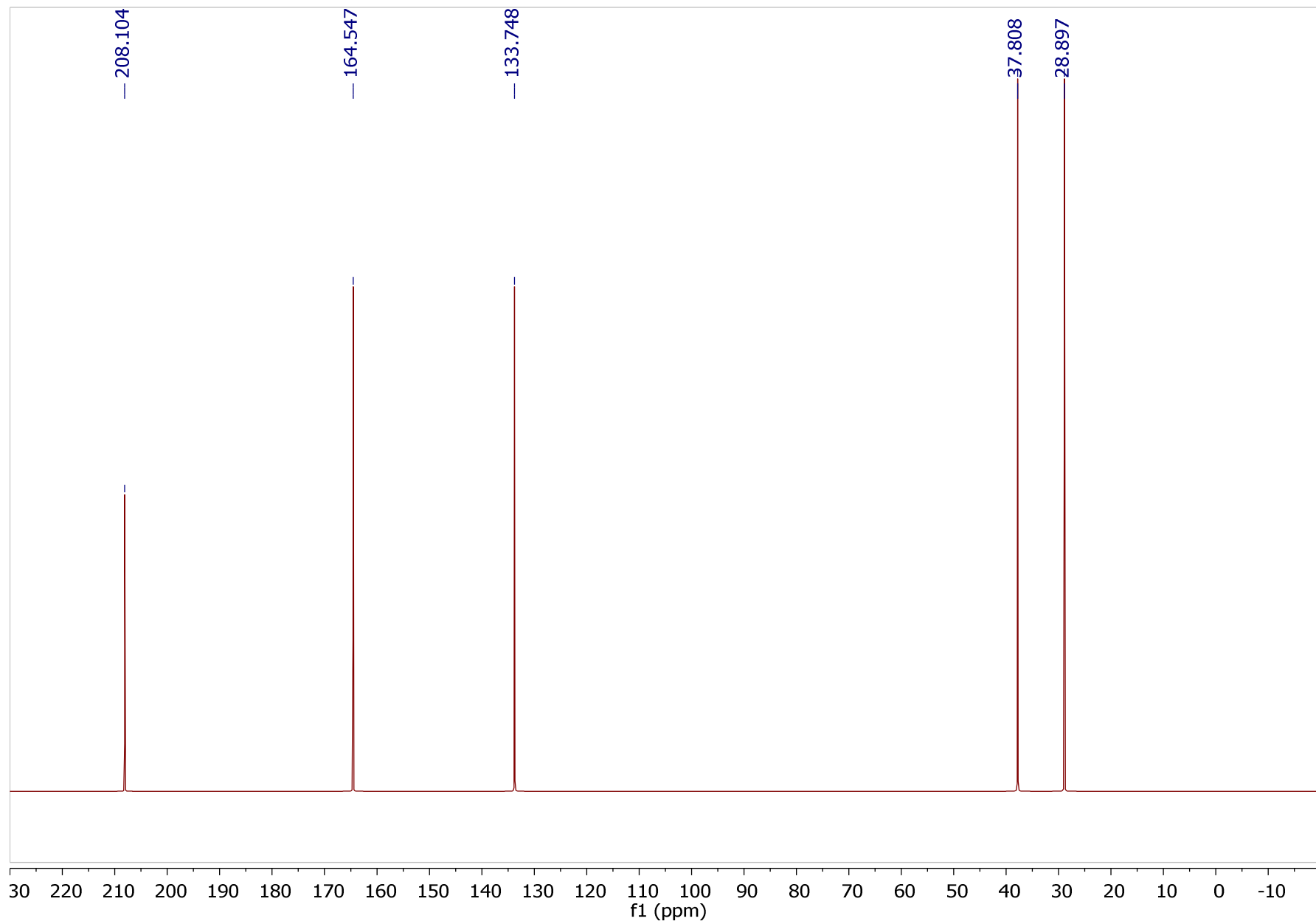
(x)



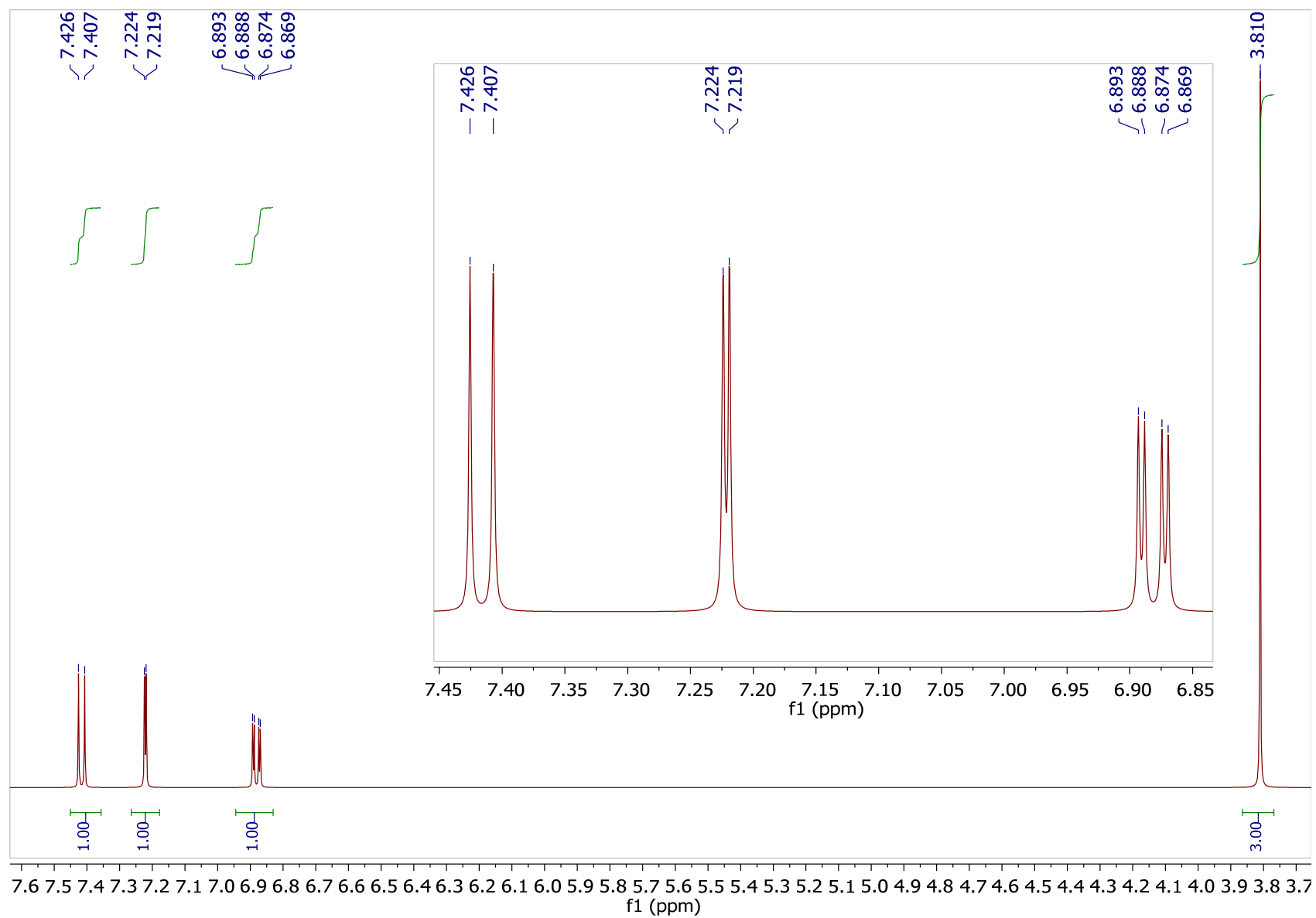
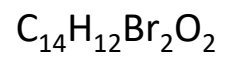
(y)



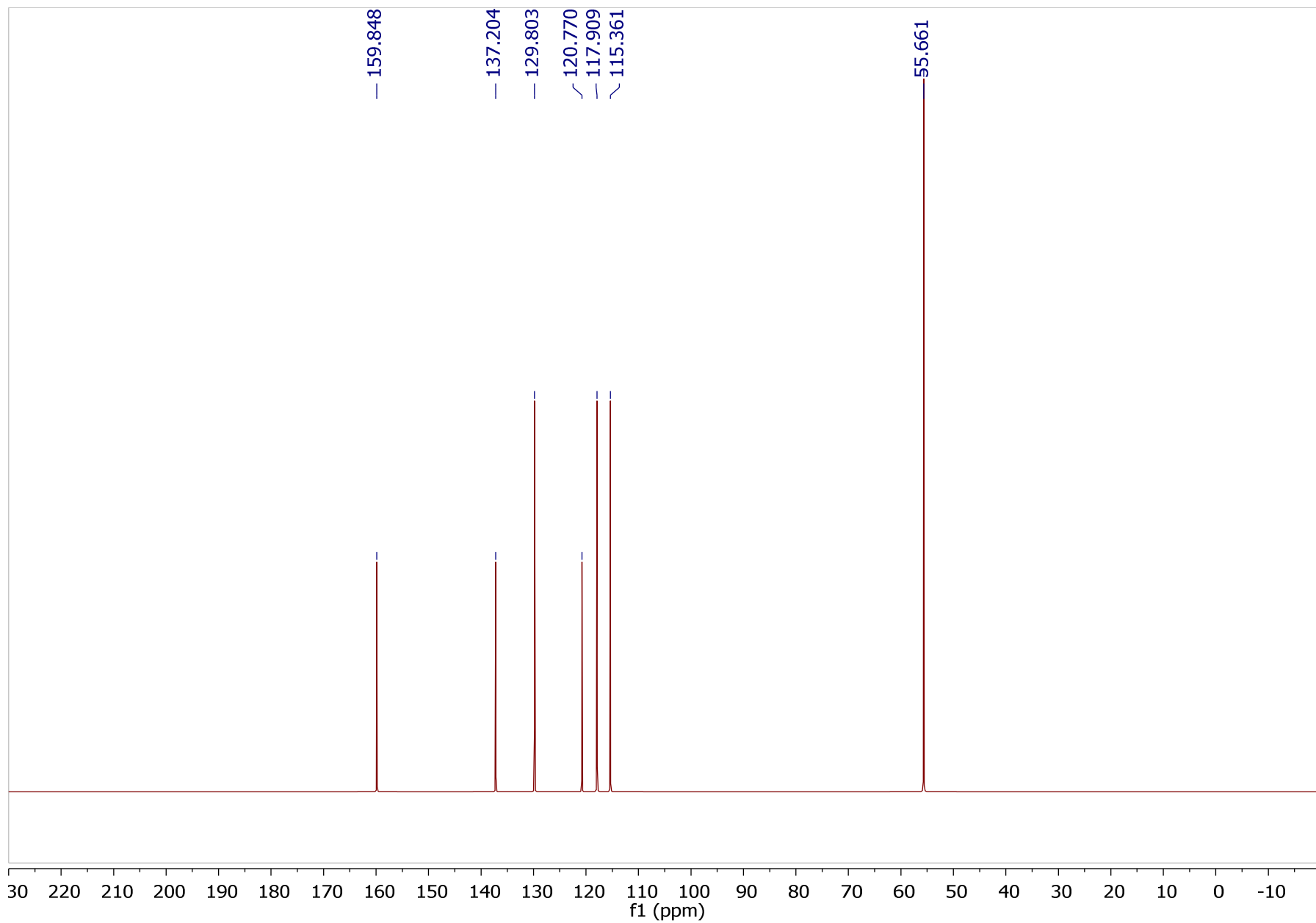
(y)



(z)

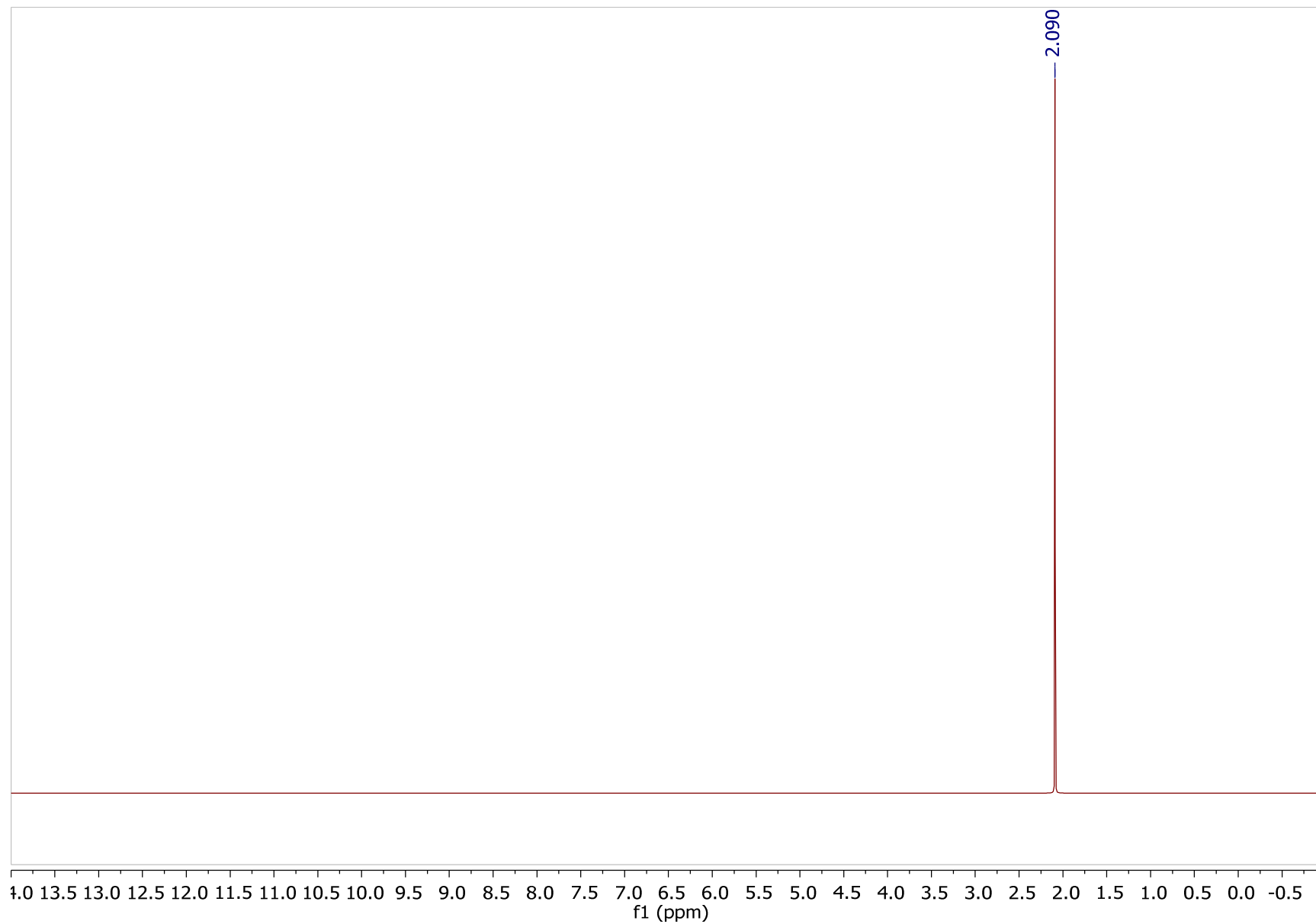


(z)

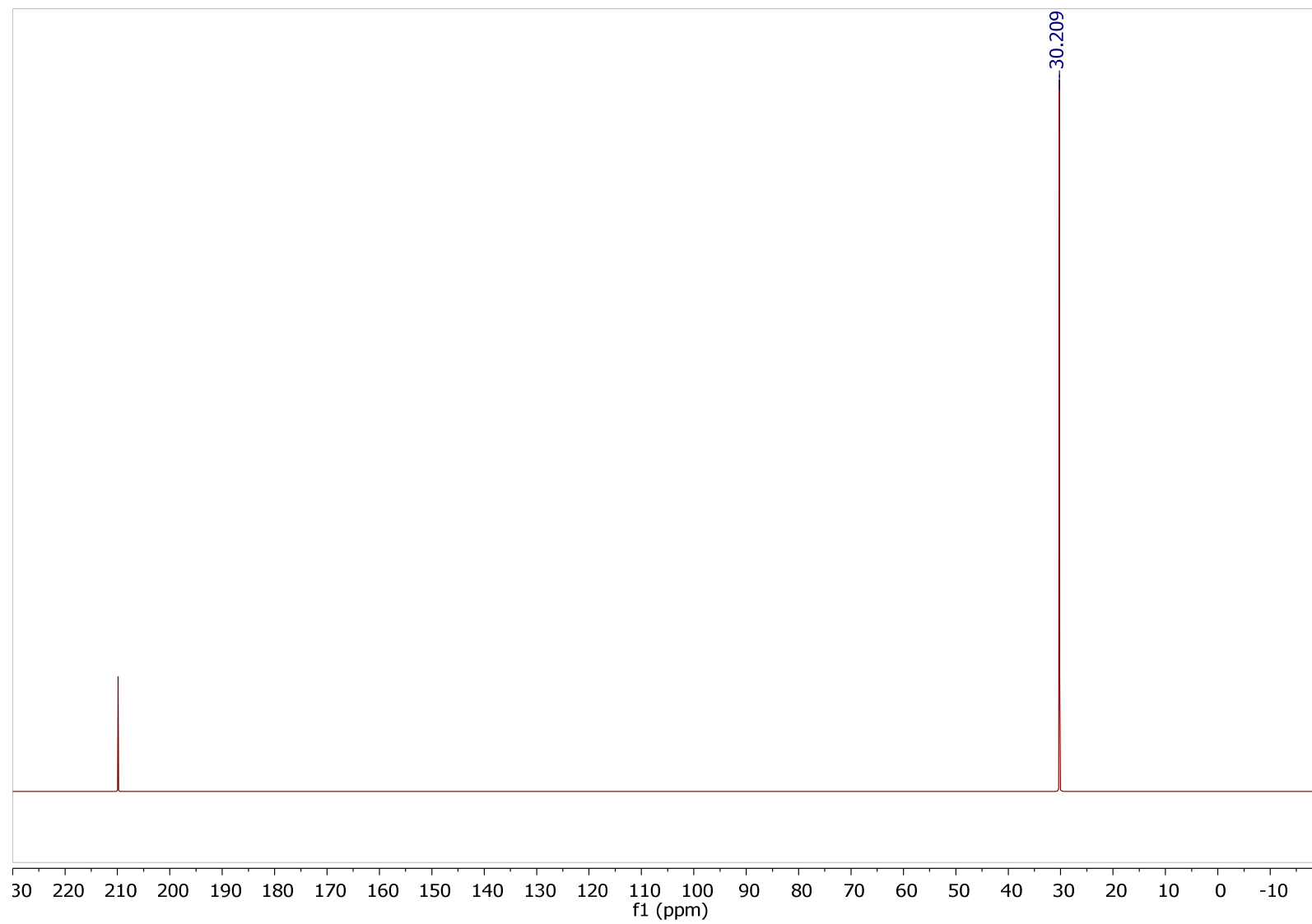


Zadanie 2. Na podstawie widm ^1H (400 MHz), $^{13}\text{C}\{^1\text{H}\}$ NMR (100 MHz) określ struktury izomerycznych związków chemicznych o wzorze sumarycznym $\text{C}_3\text{H}_6\text{O}$. Przypisz sygnały odpowiednim grupą protonów, określ stosunek intensywności sygnałów, oraz intensywność sygnałów w multiplicie, zapisz skrótową wersję widma. Widma zmierzono na aparacie Agilent 400 MHz.

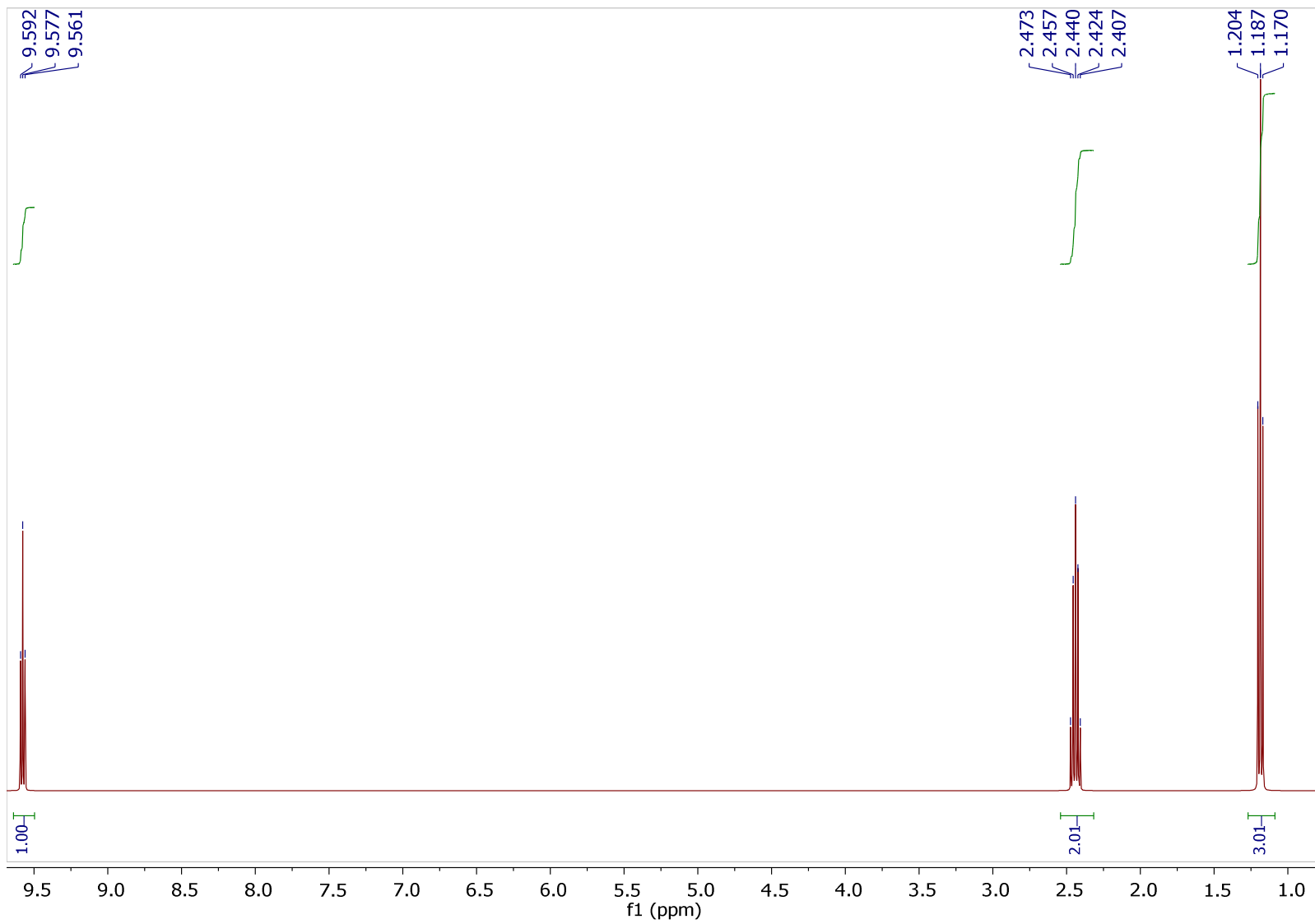
I



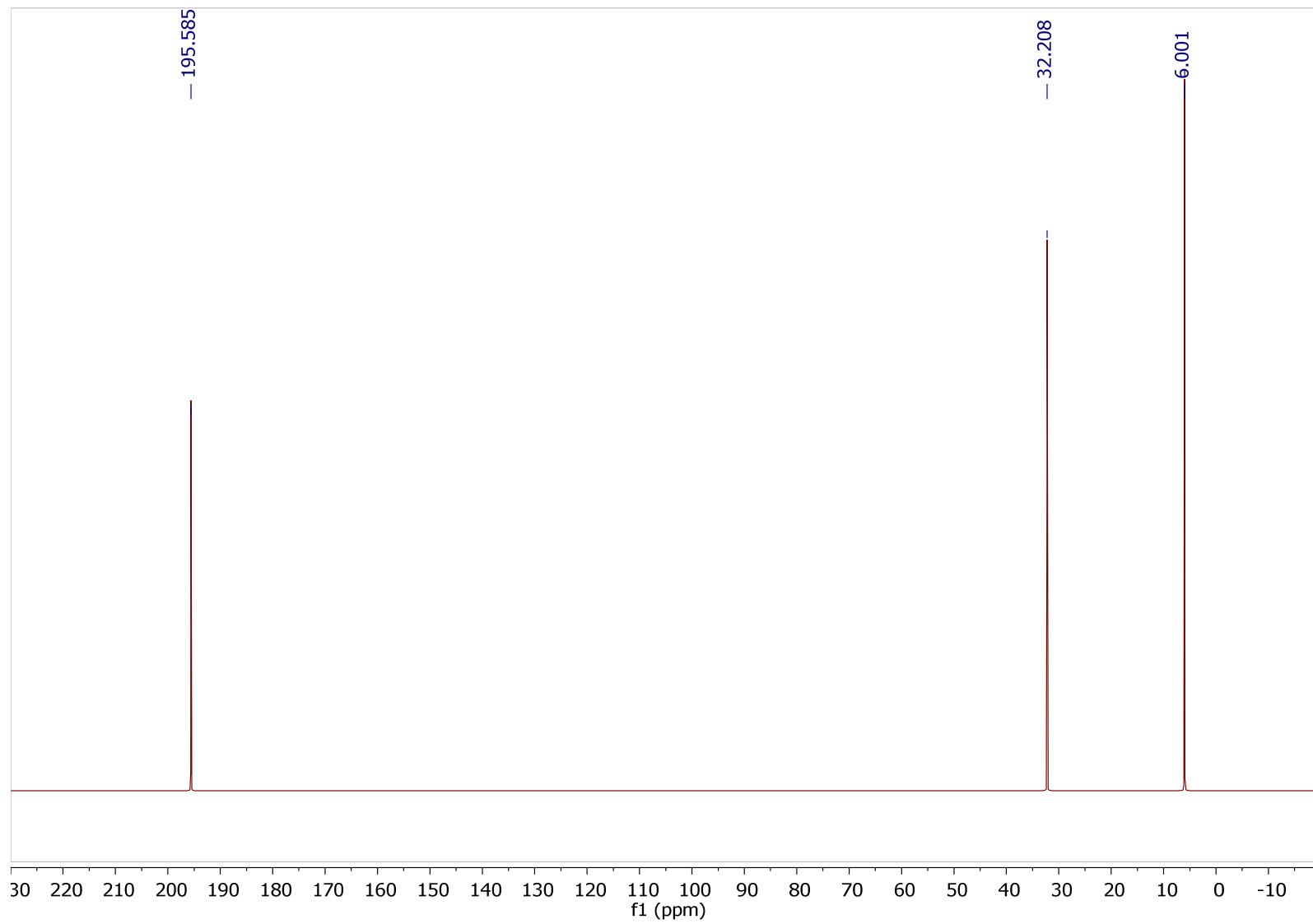
I



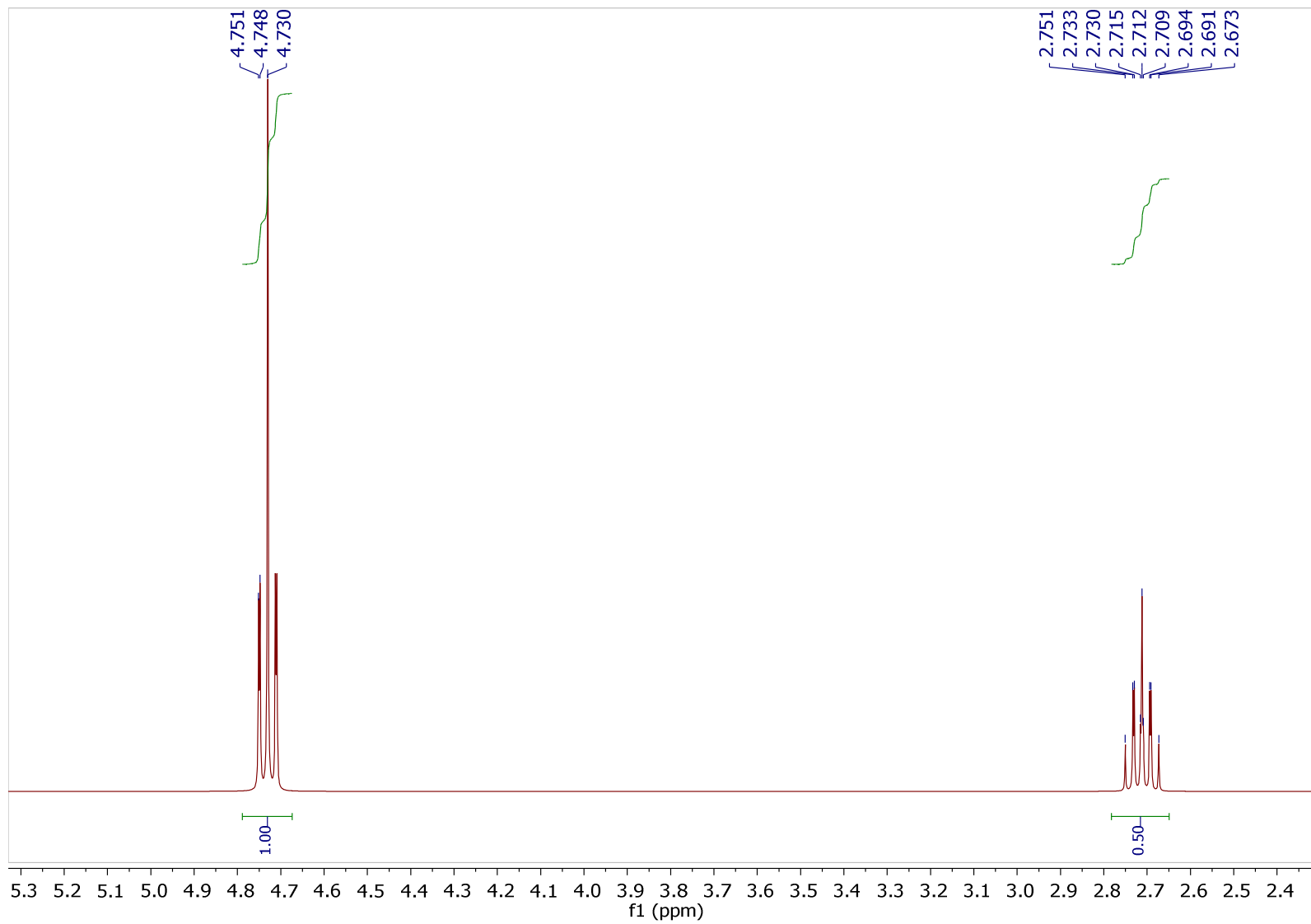
II



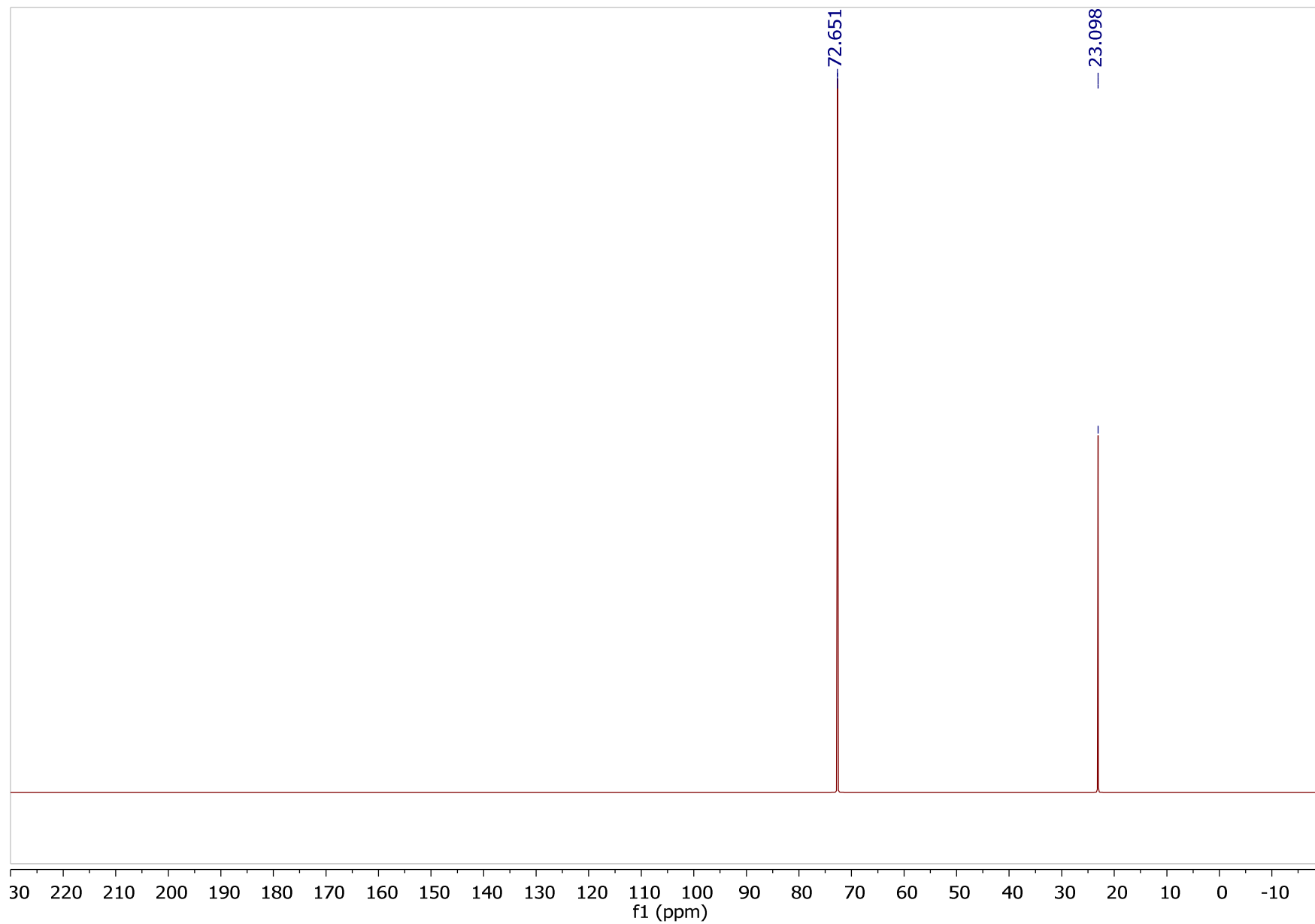
II



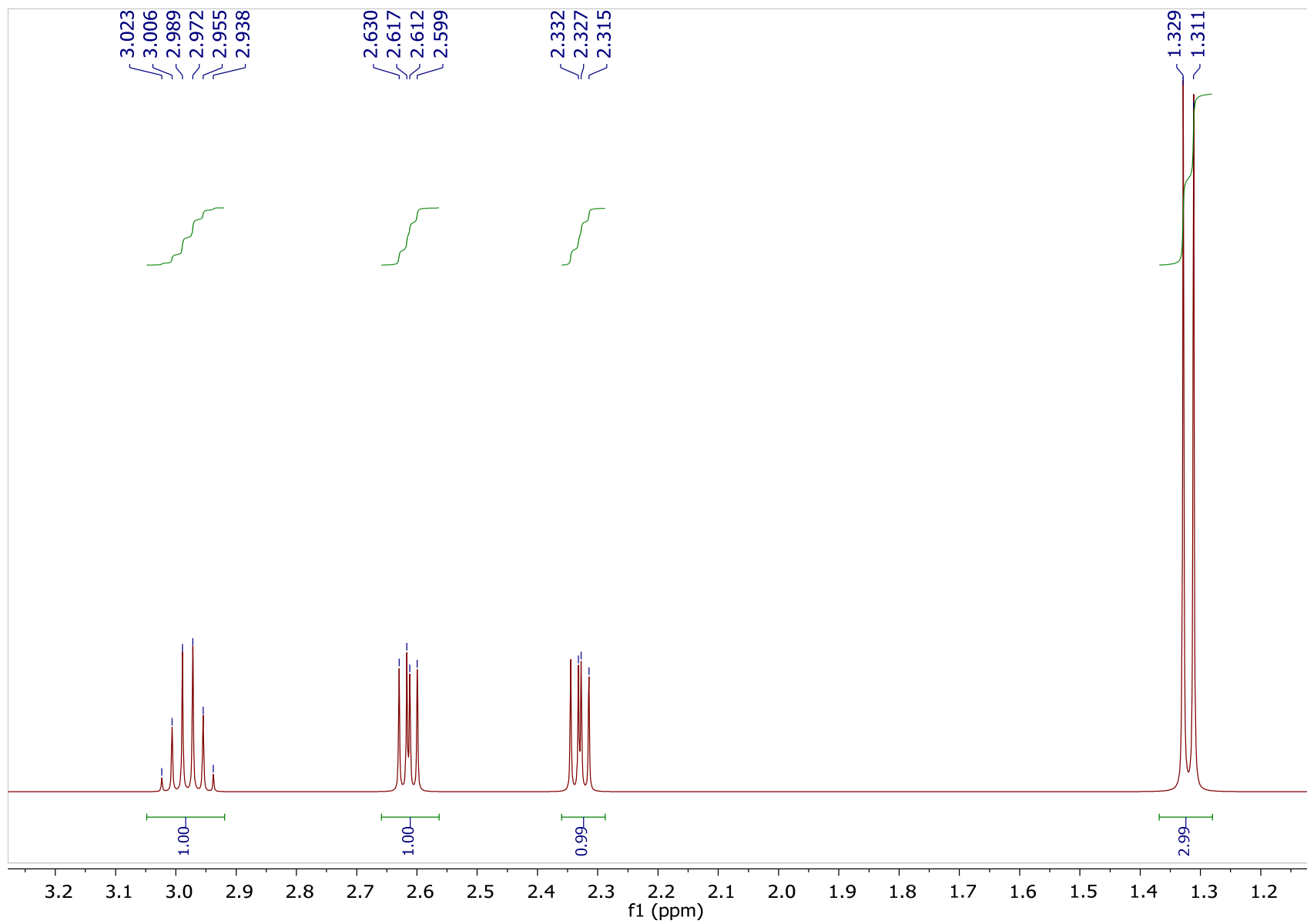
III



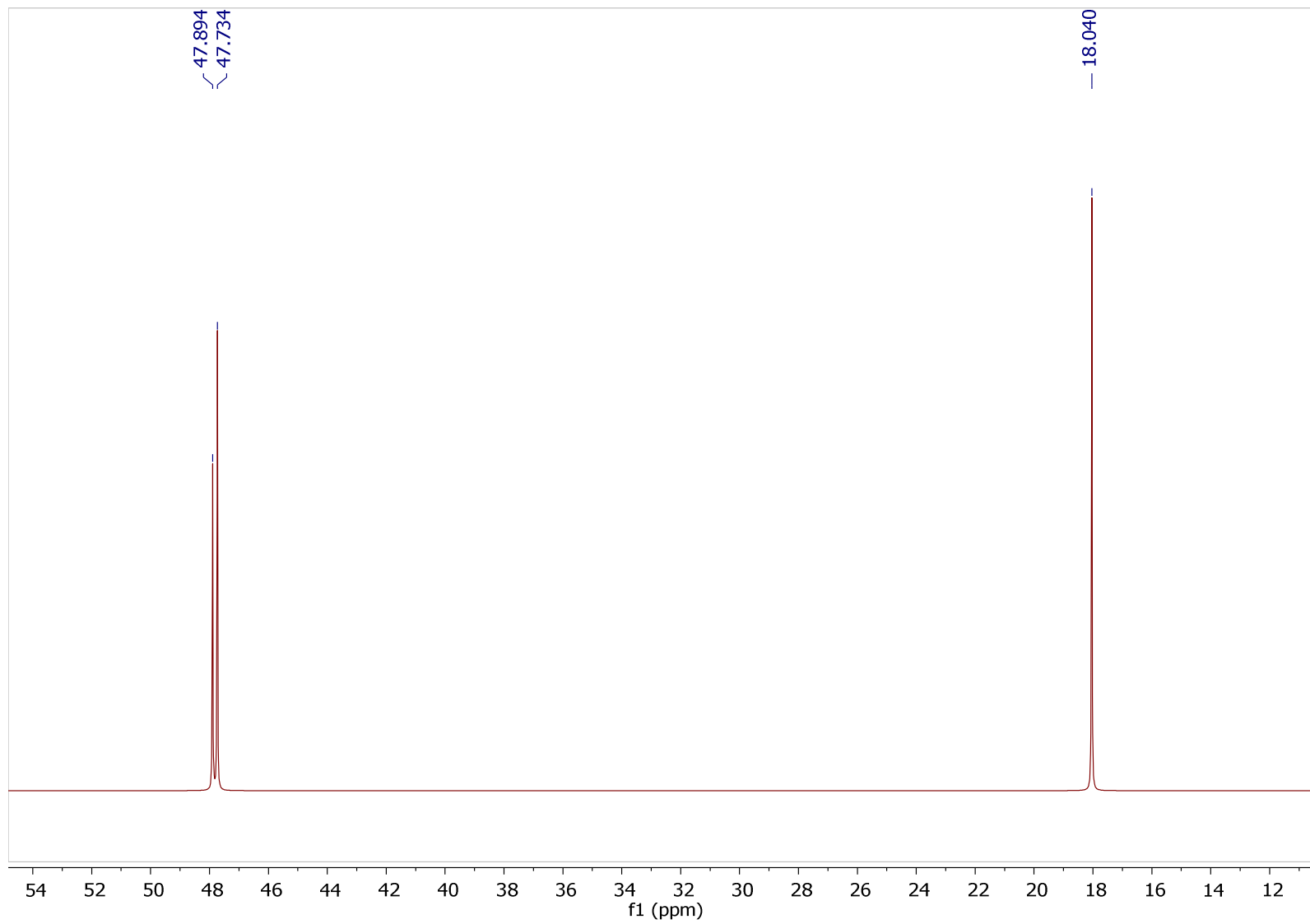
III



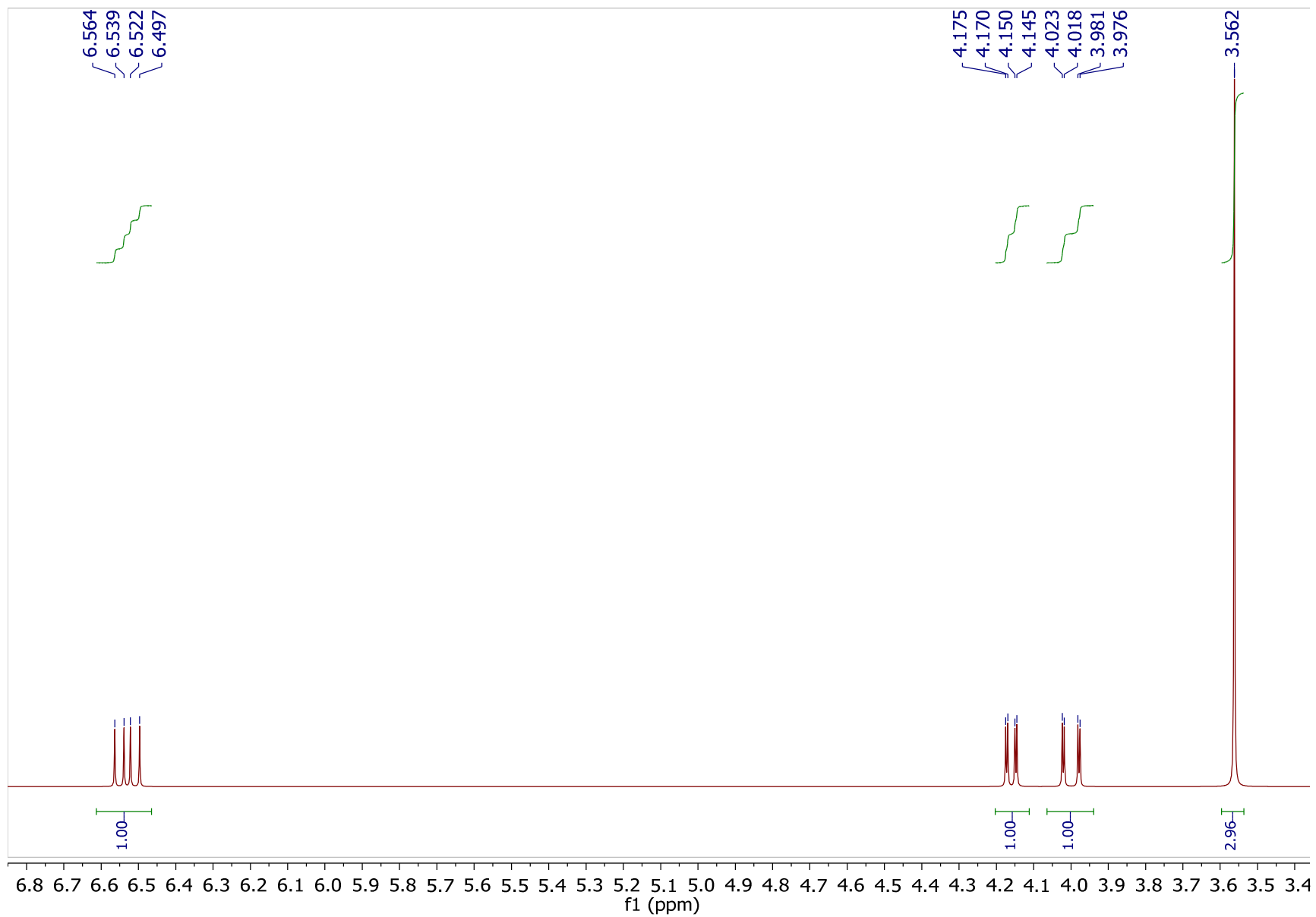
IV



IV



V



V

