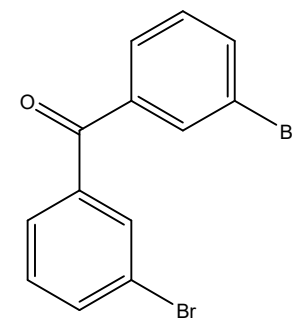
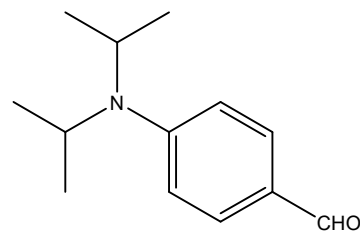
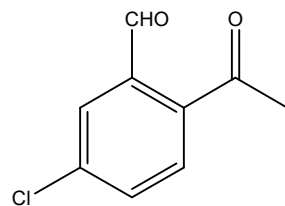
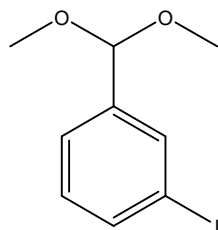
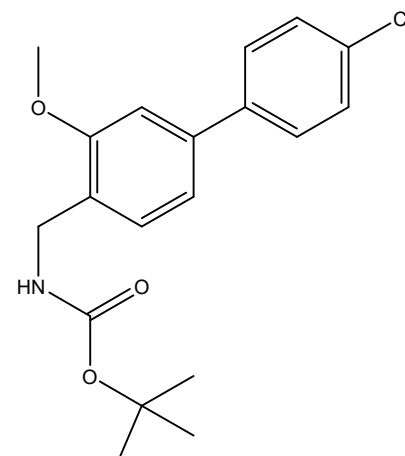
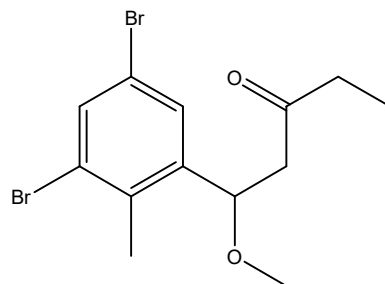
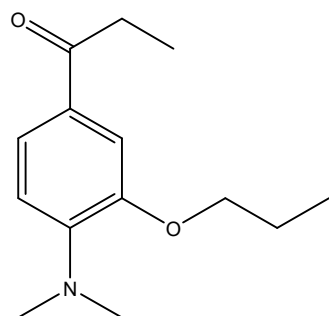
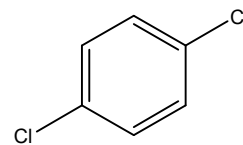
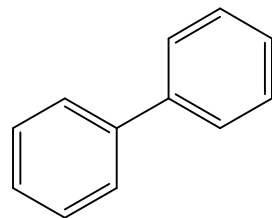
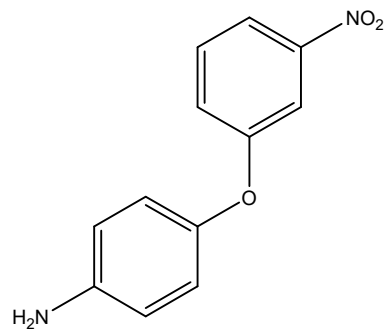
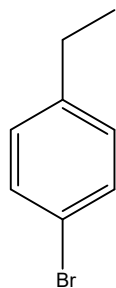
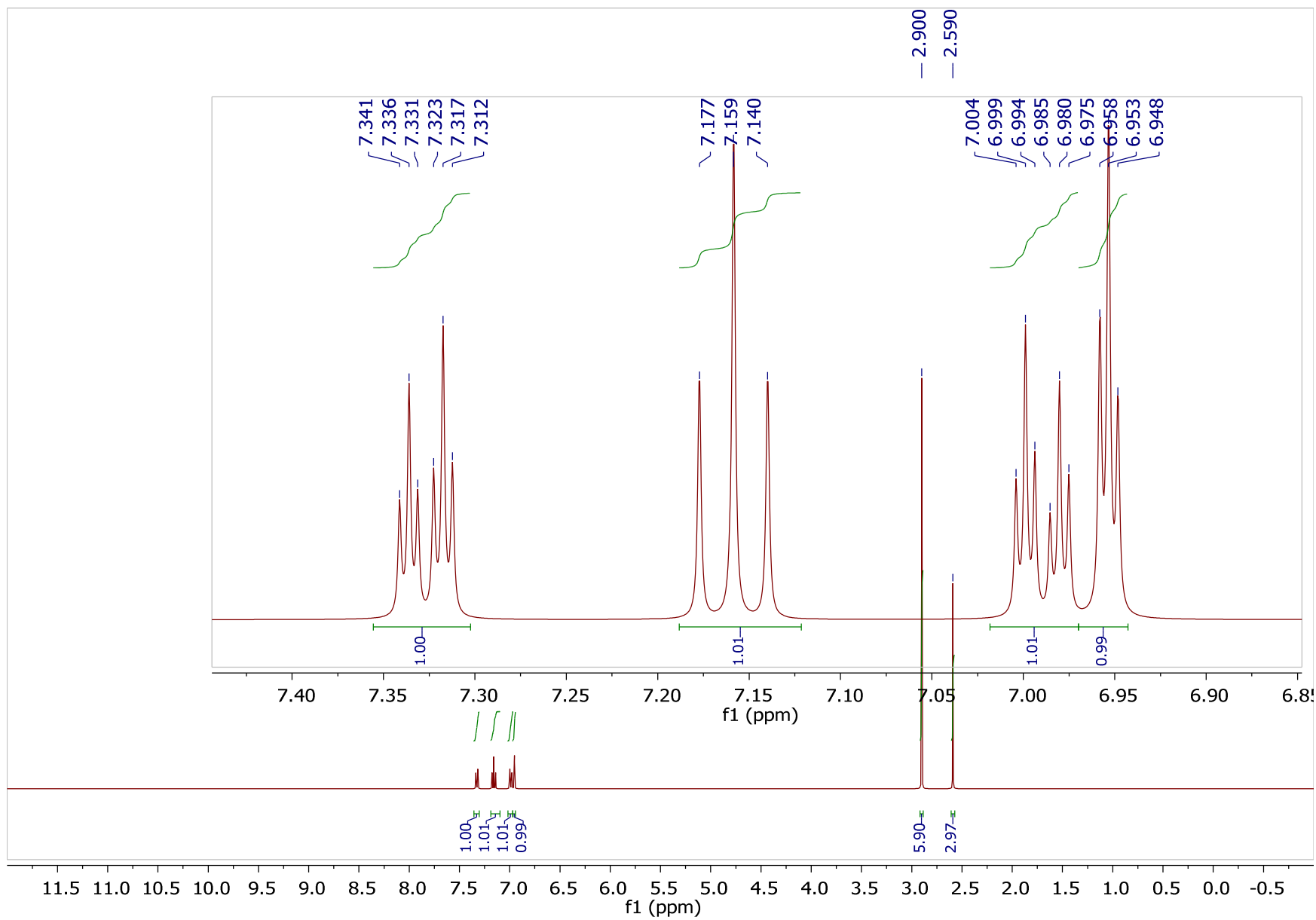
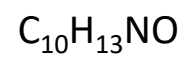


Zadanie 1. Narysuj przewidywane widma $^1\text{H-NMR}$ dla następujących struktur

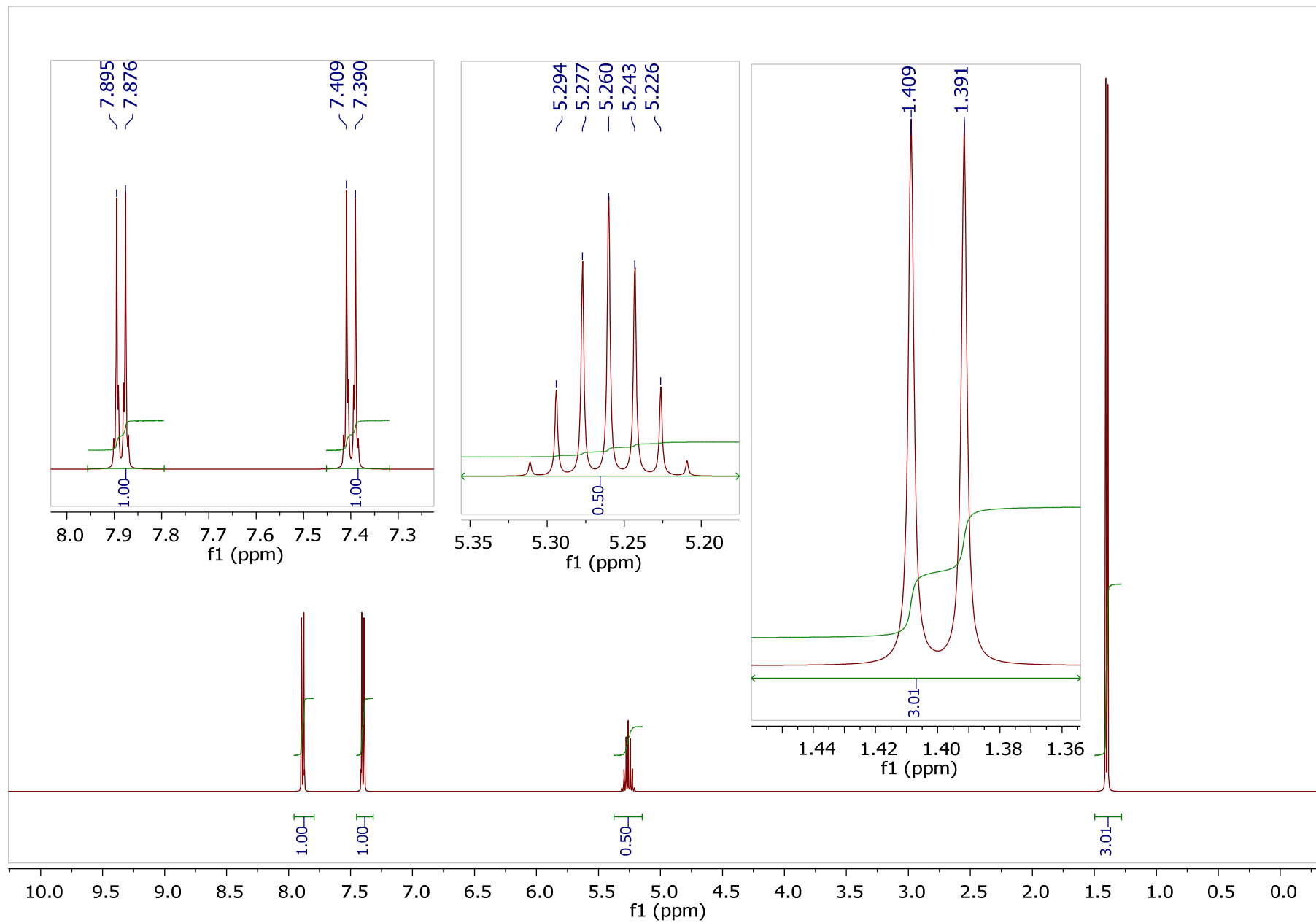
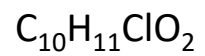


Zadanie 2. Na podstawie widma ^1H NMR zmierzonych na aparacie Bruker 400 MHz (CDCl_3) określ strukturę związku chemicznego.

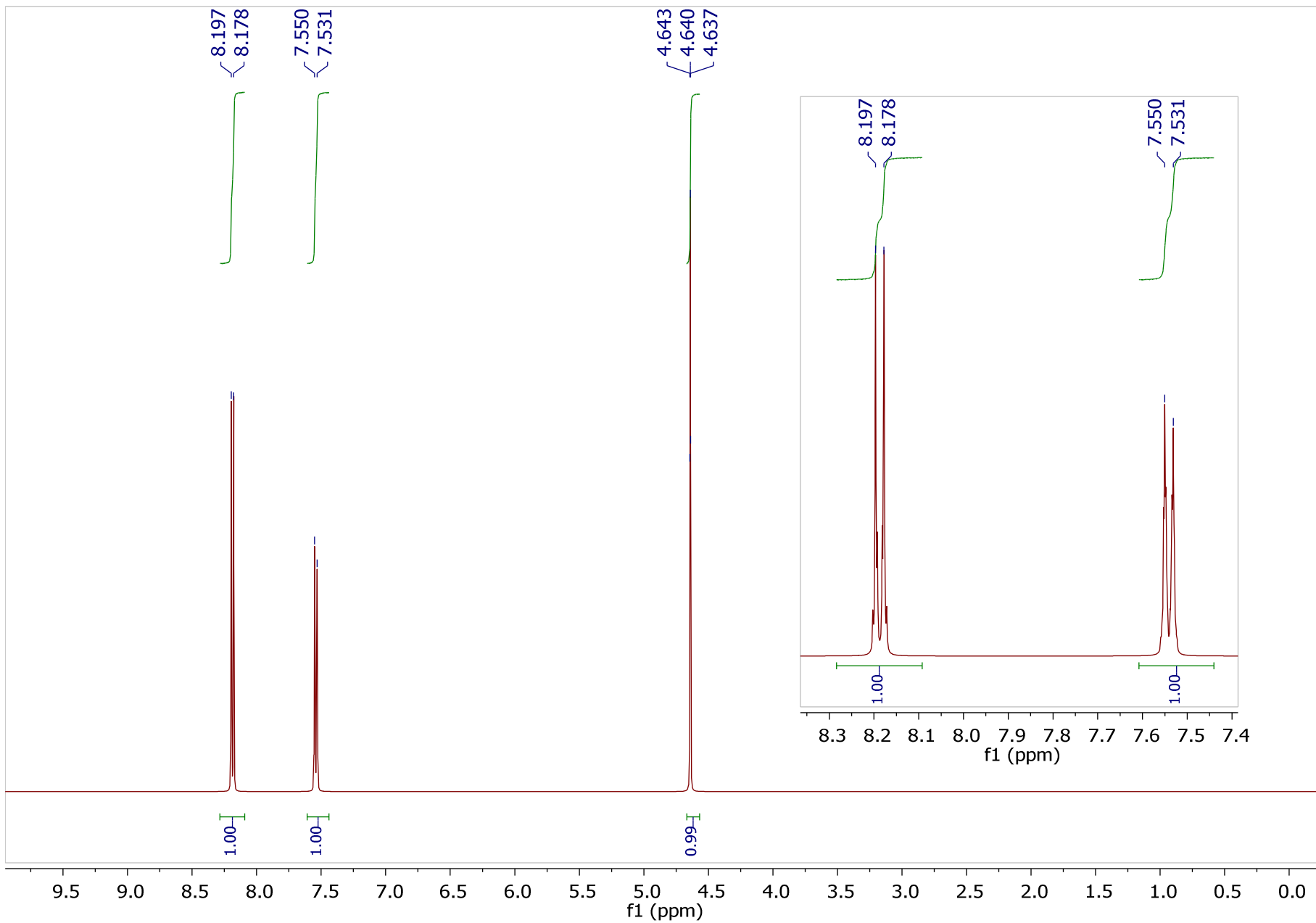
(a)



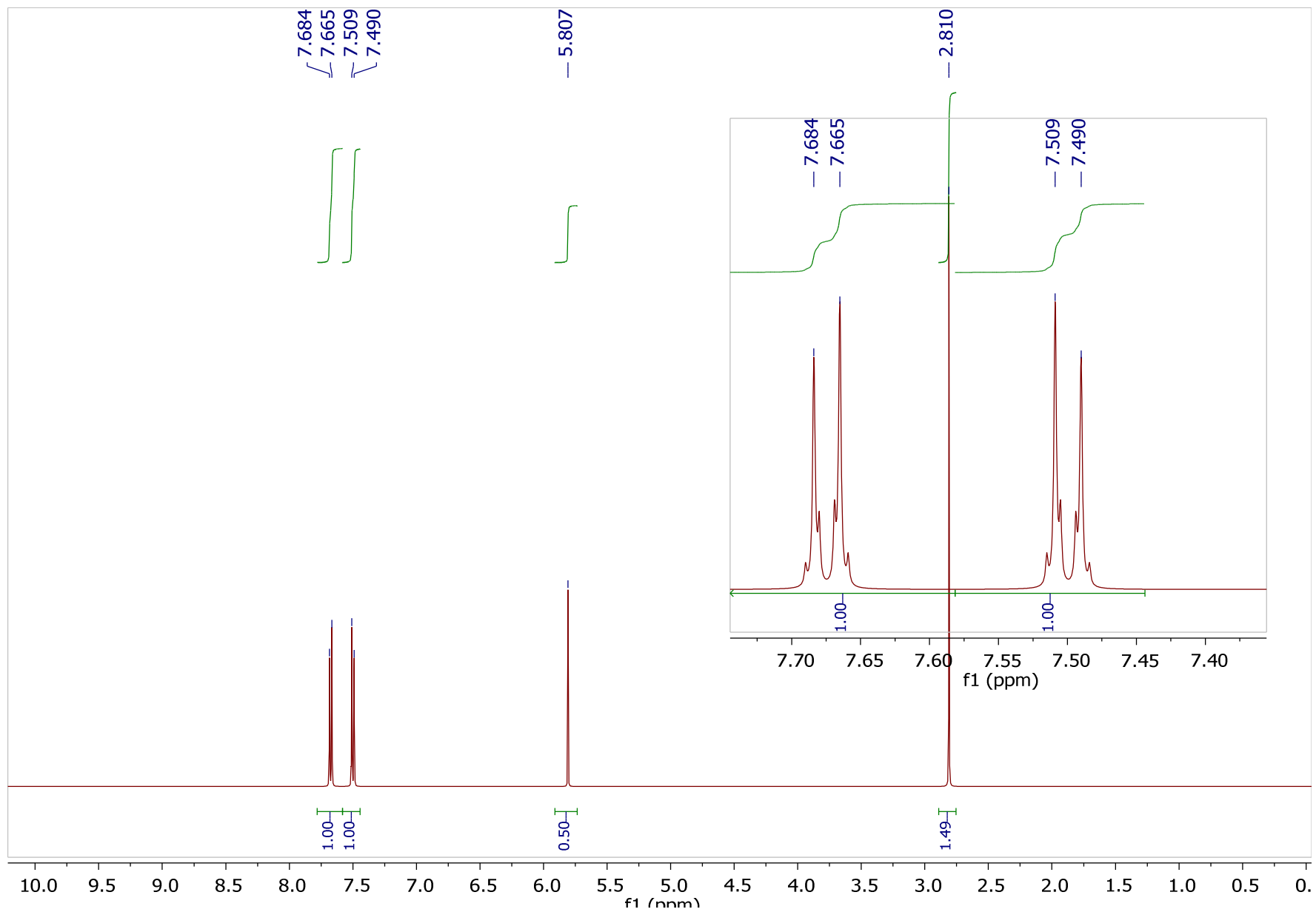
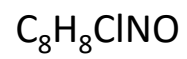
(b)



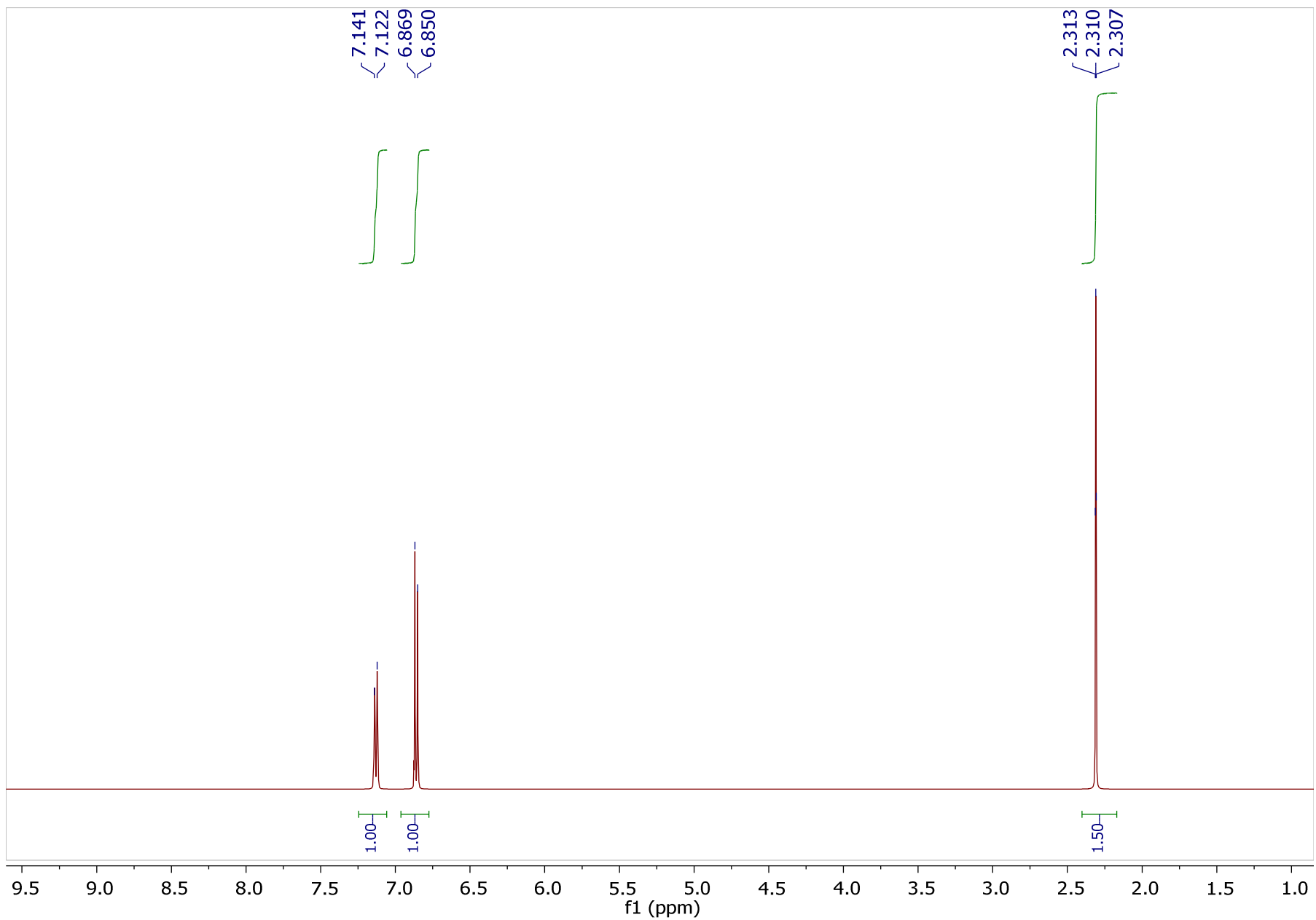
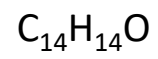
(c)



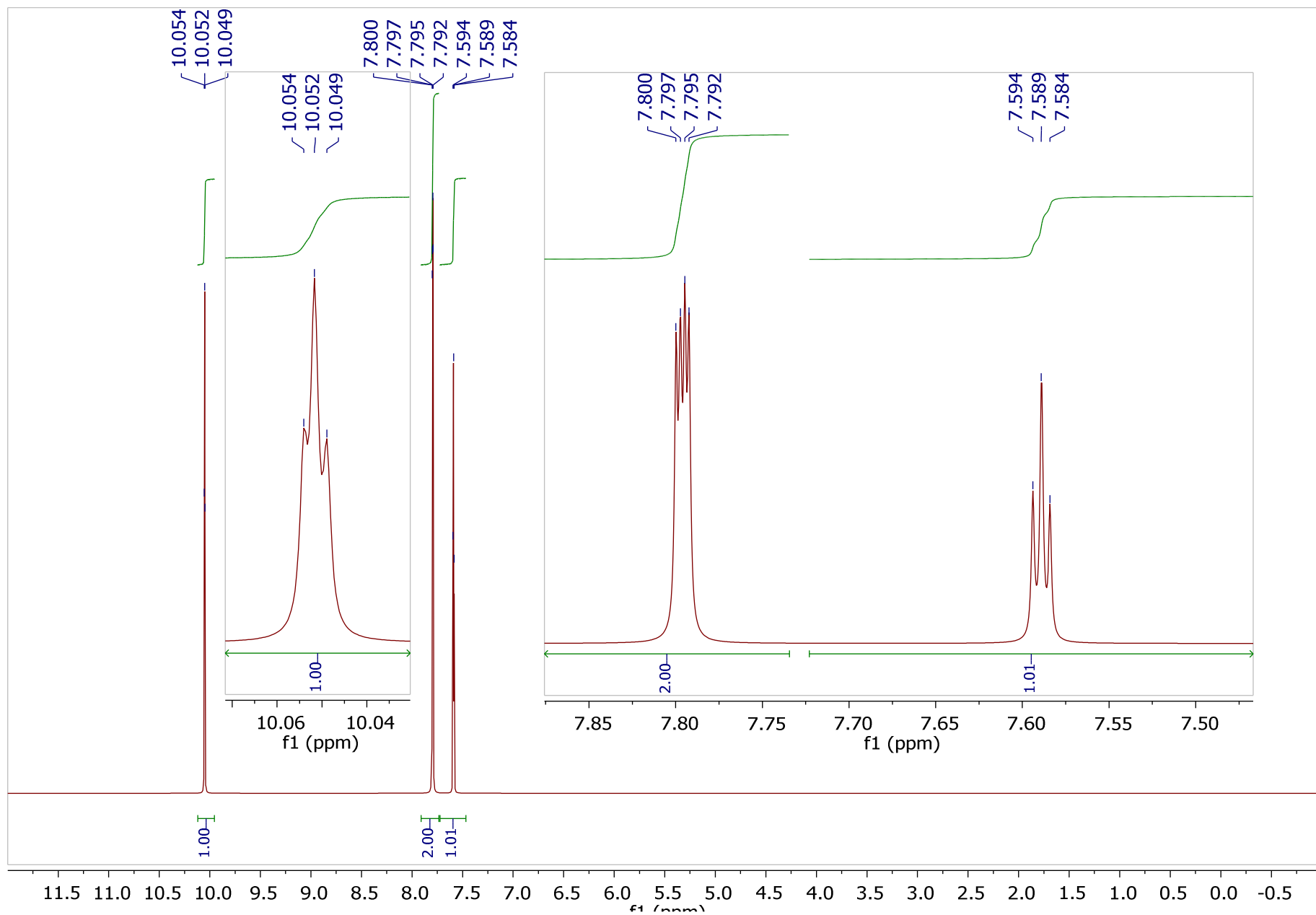
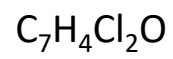
(d)



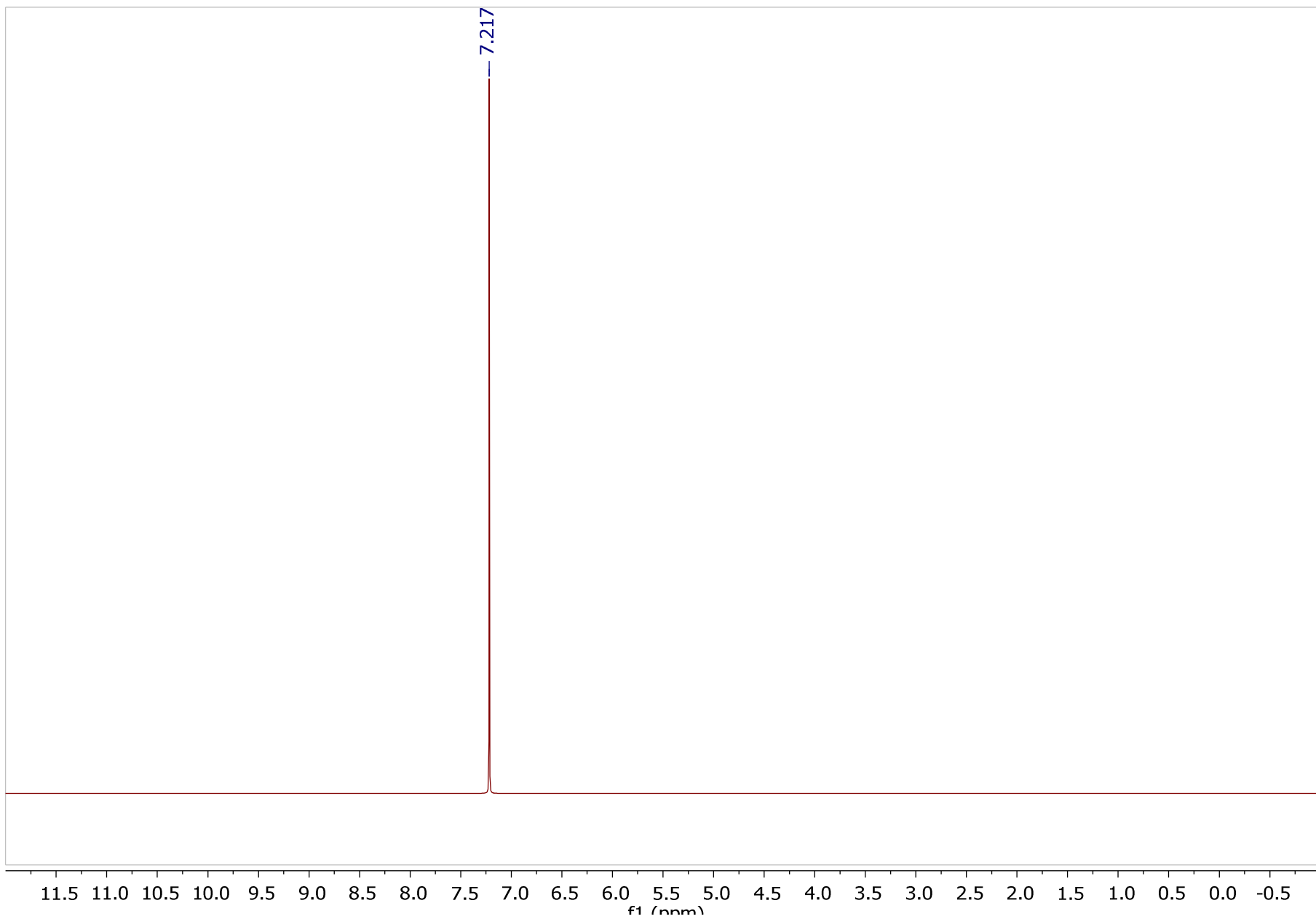
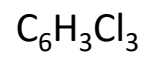
(e)



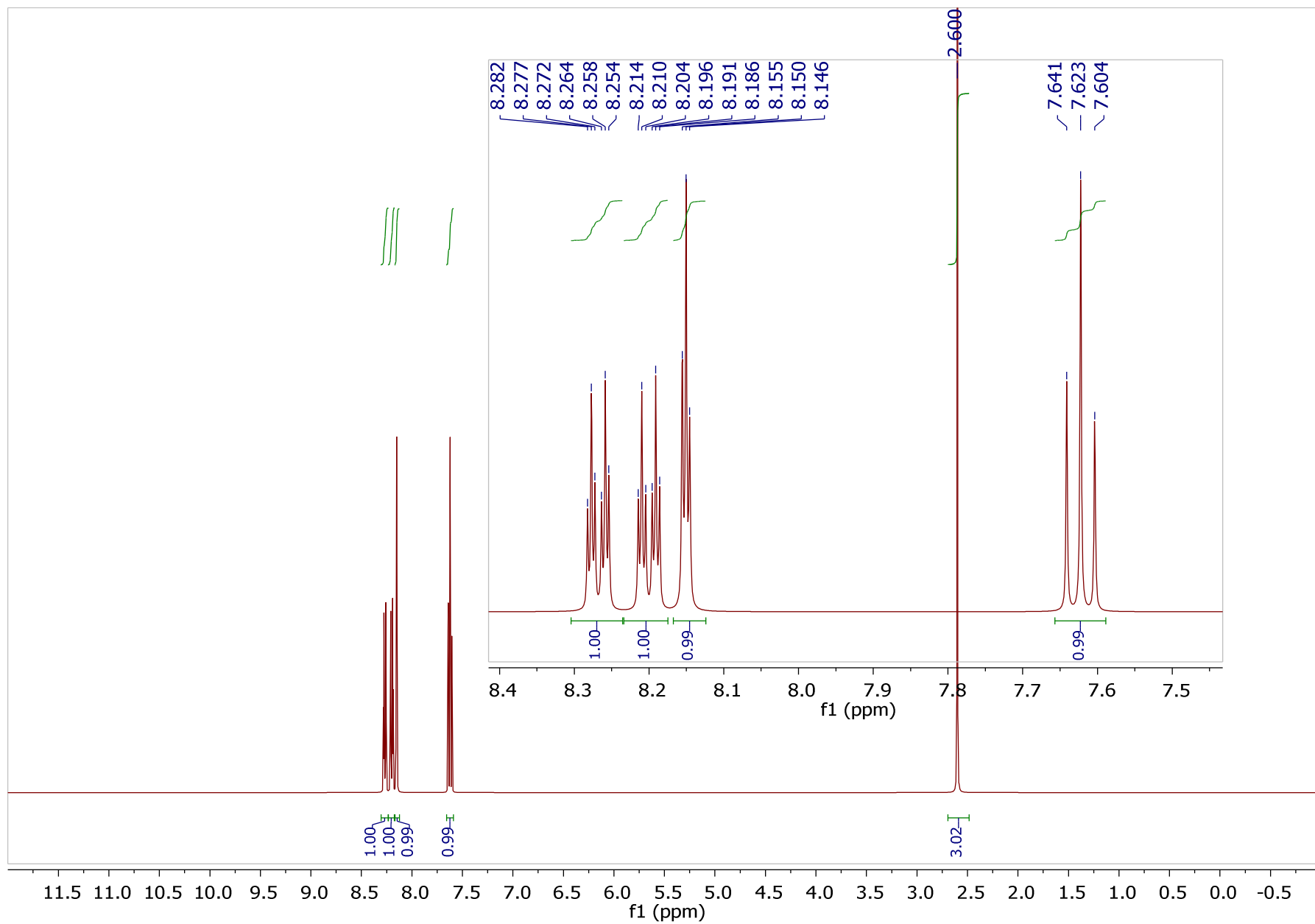
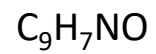
(f)



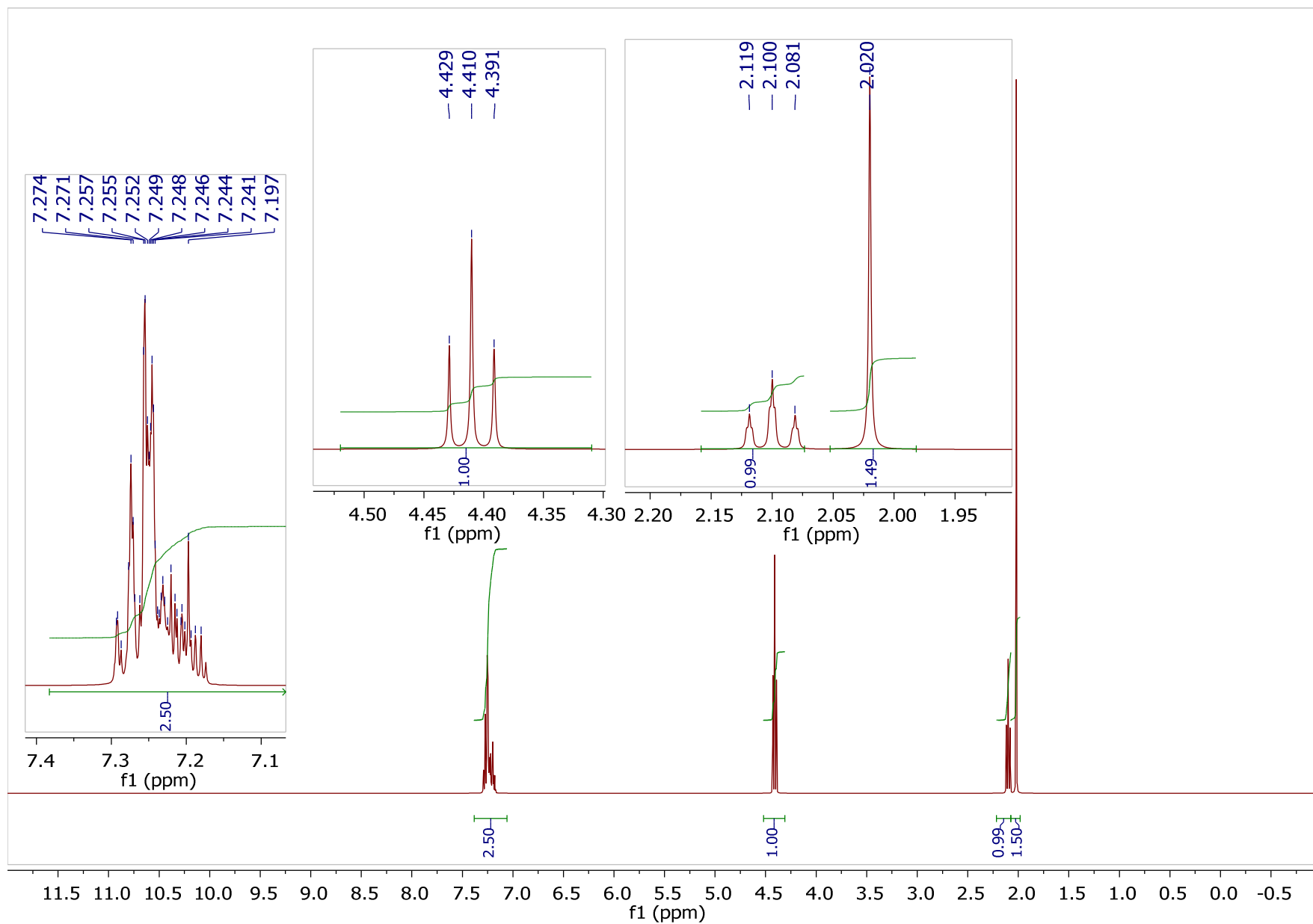
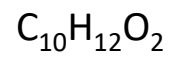
(g)



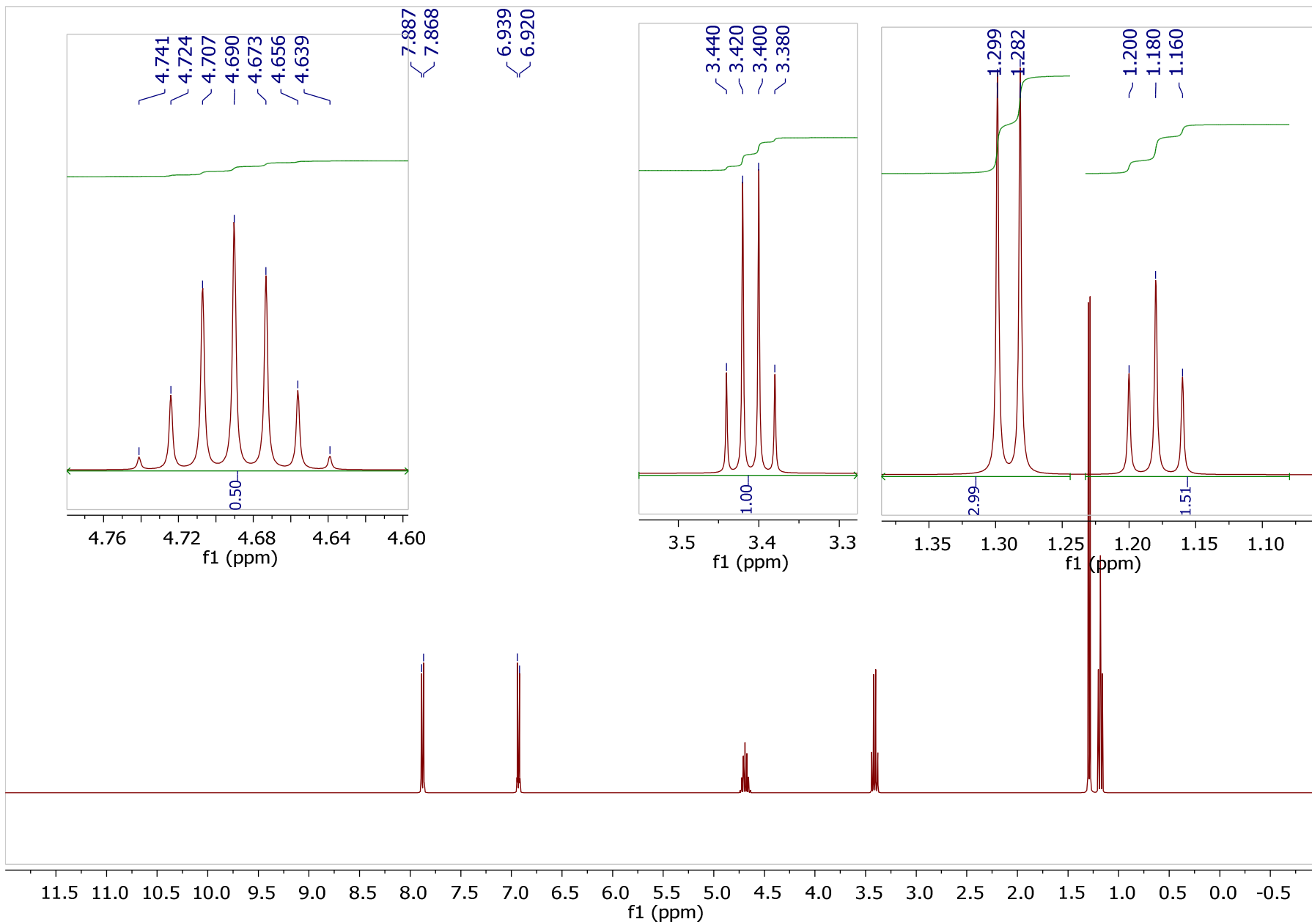
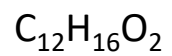
(h)



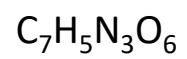
(i)



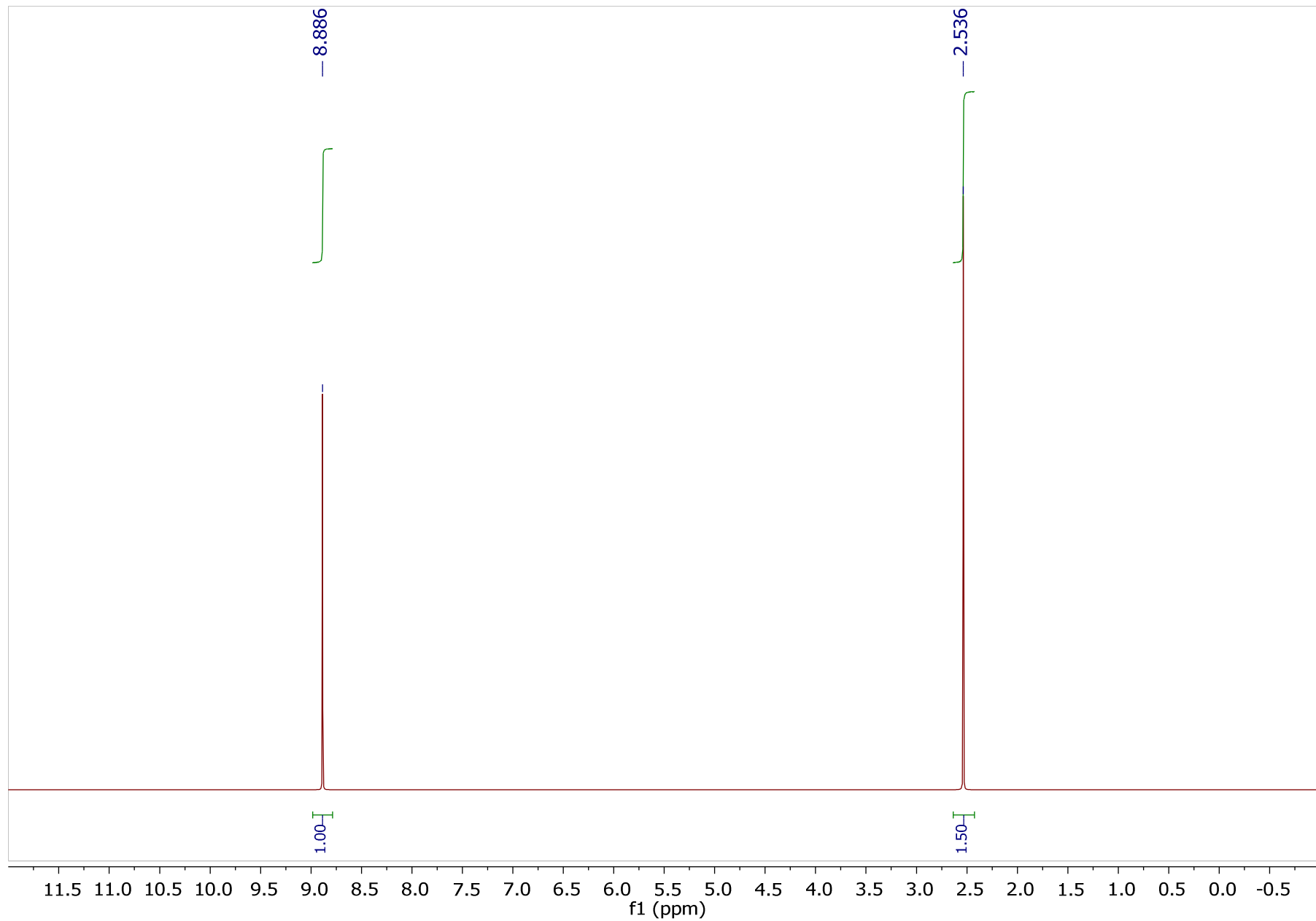
(j)



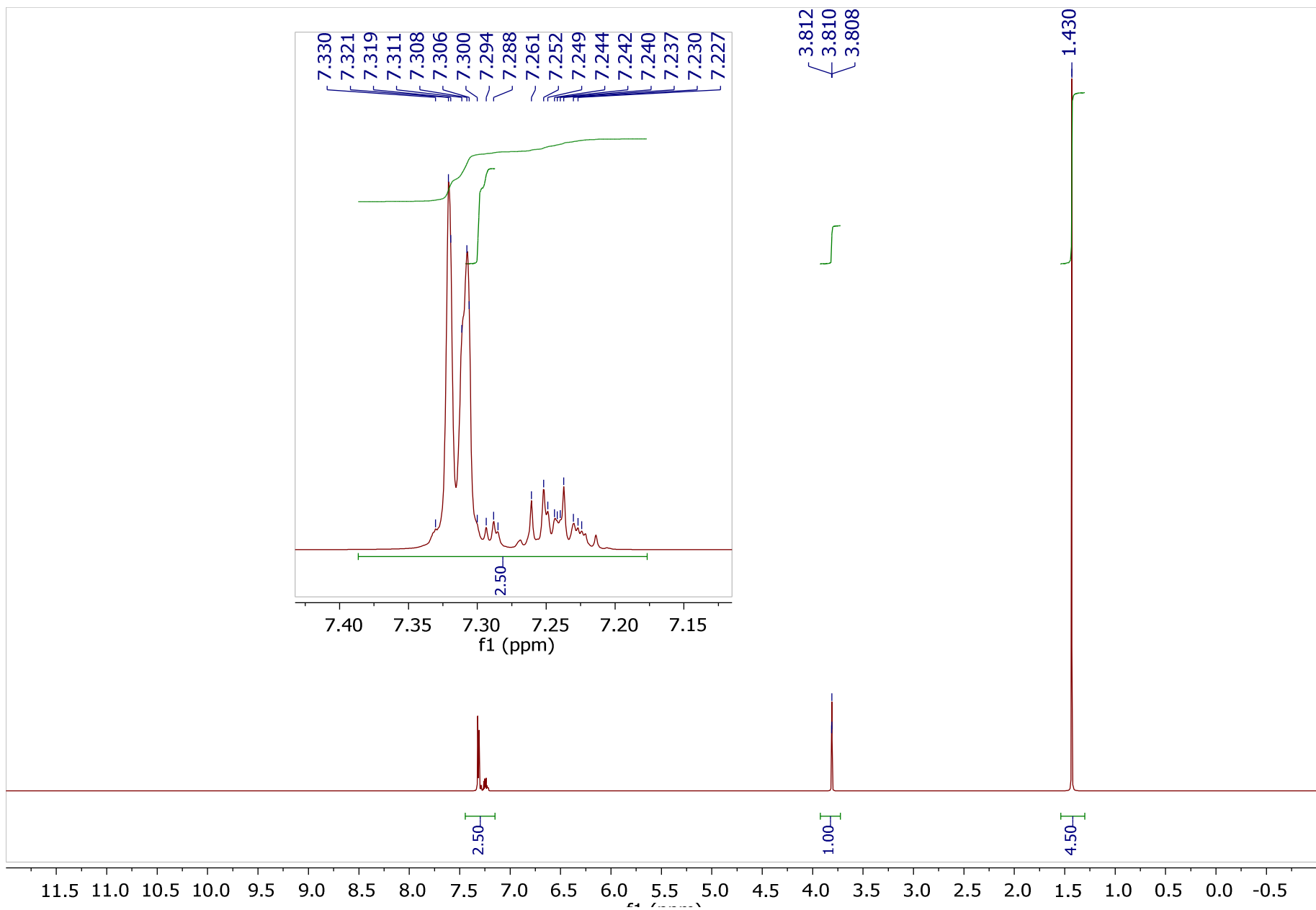
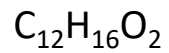
(k)



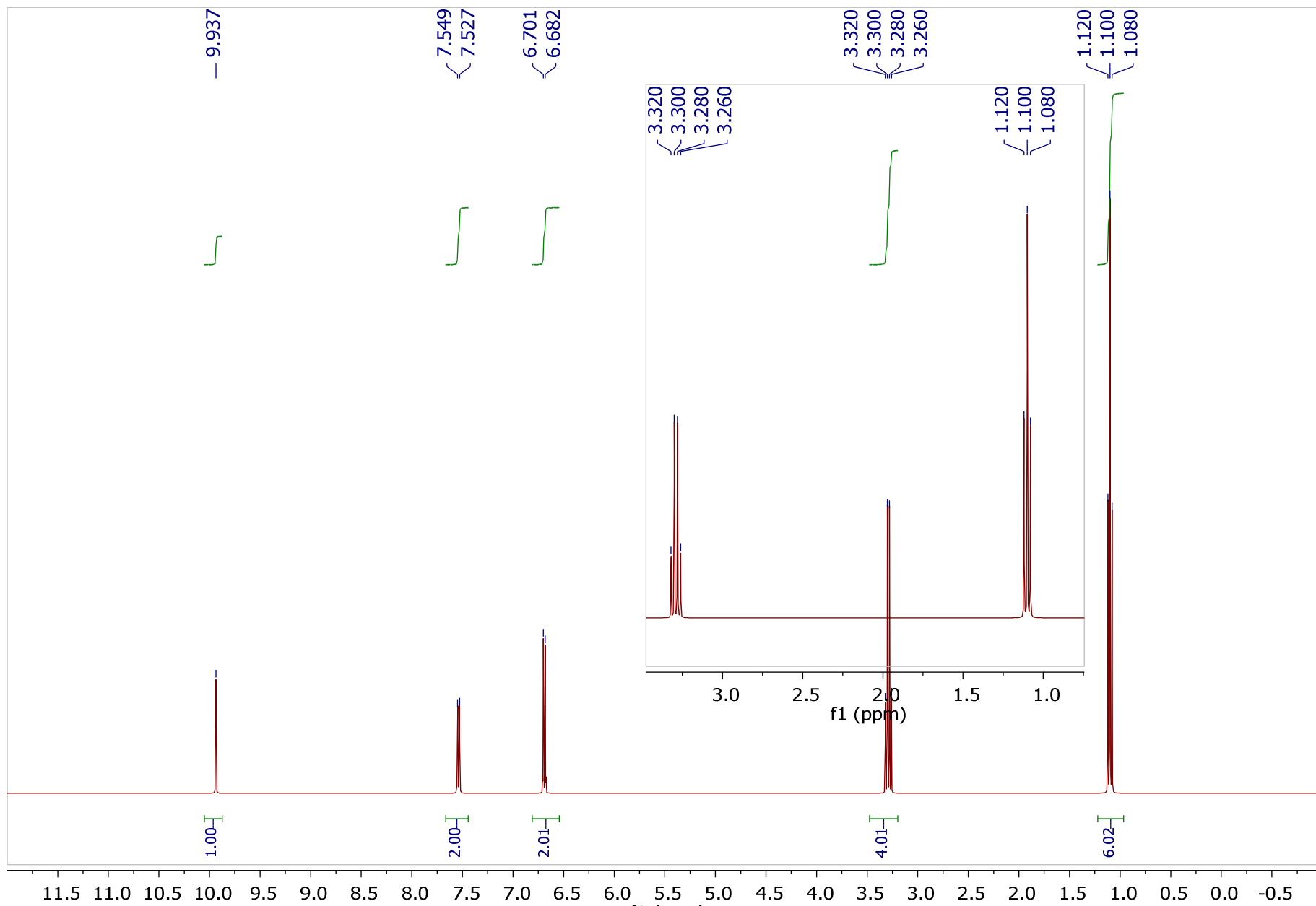
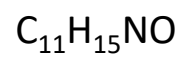
Związek ten jest wybuchowy



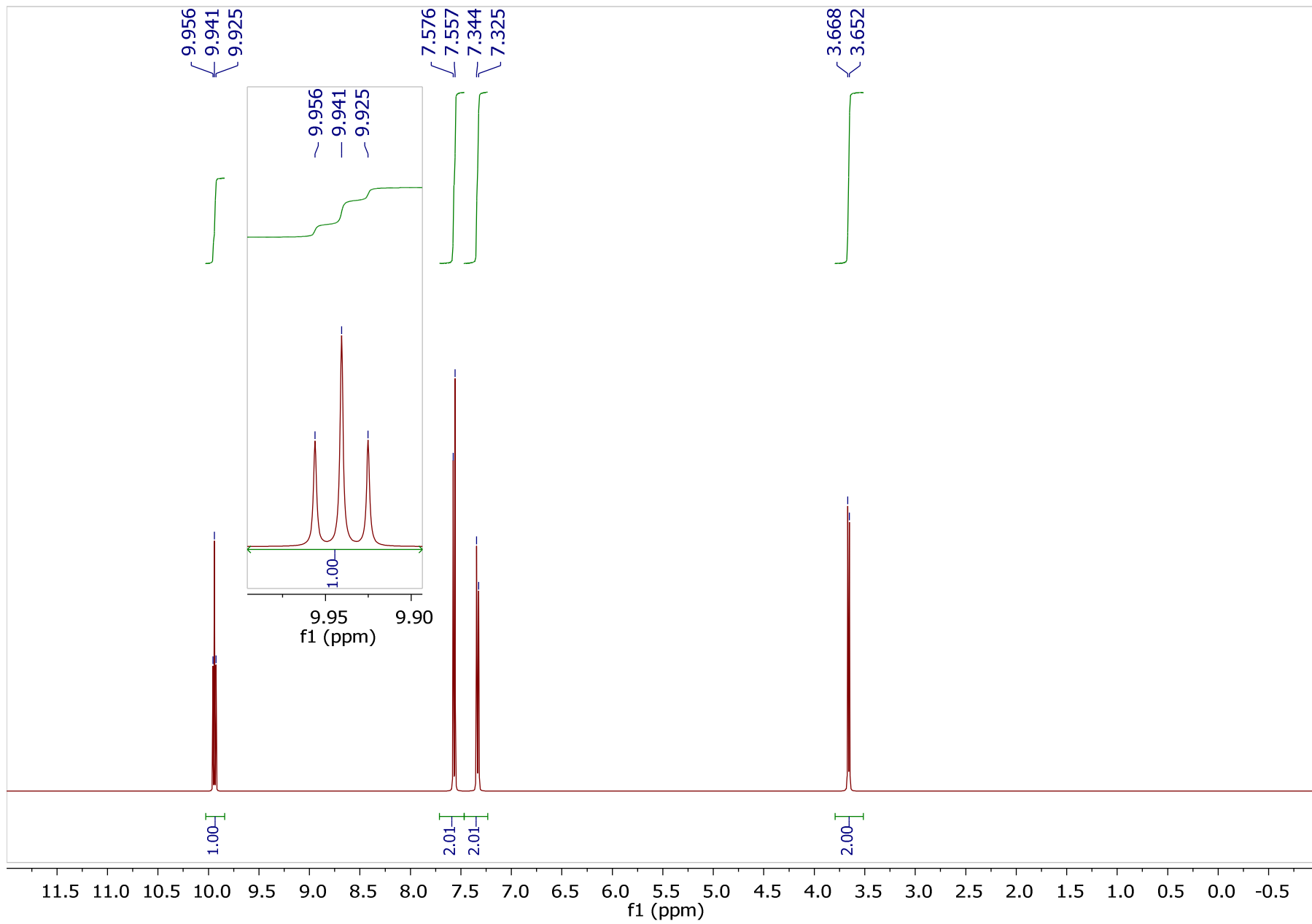
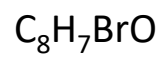
(I)



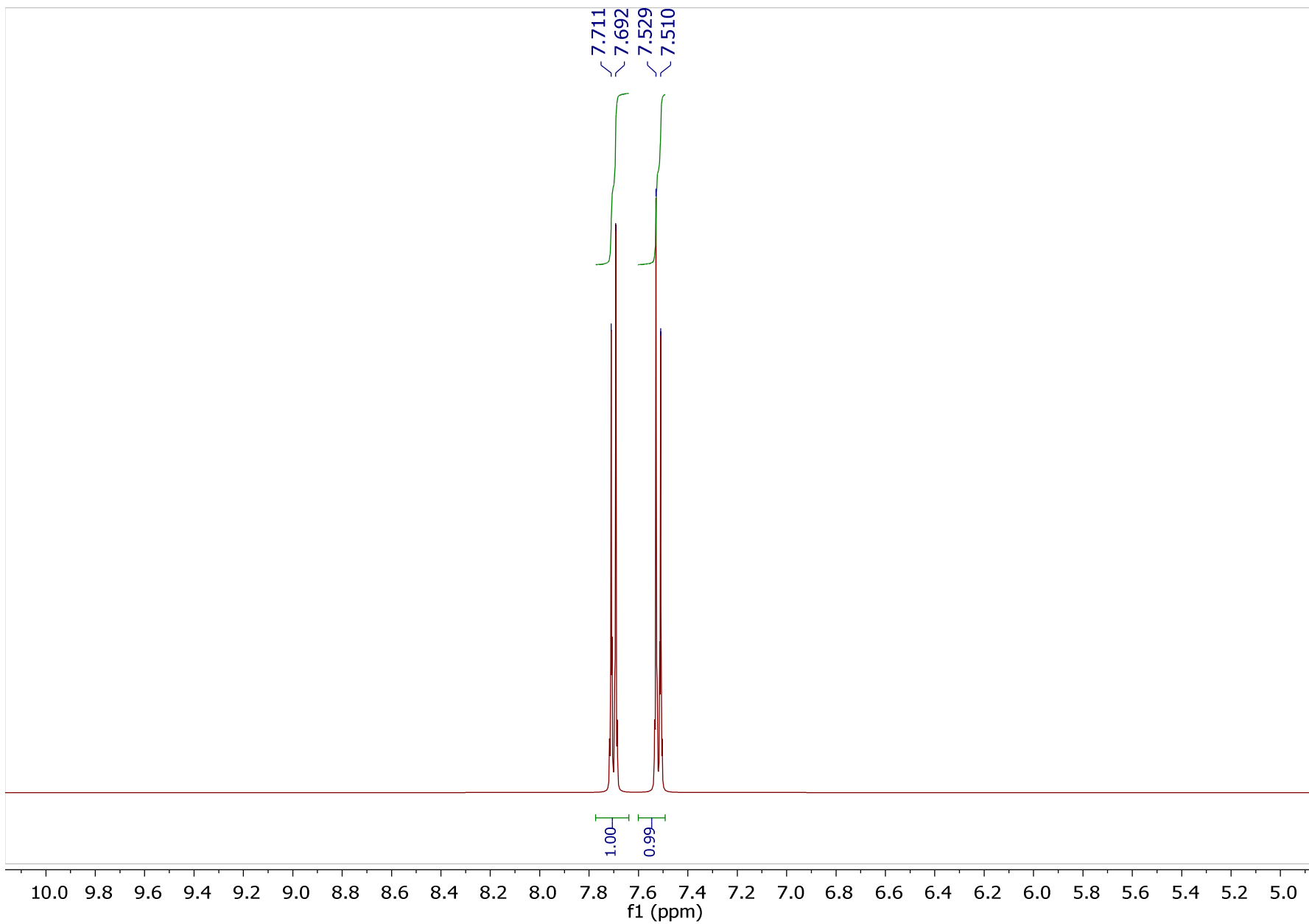
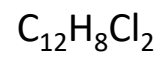
(m)



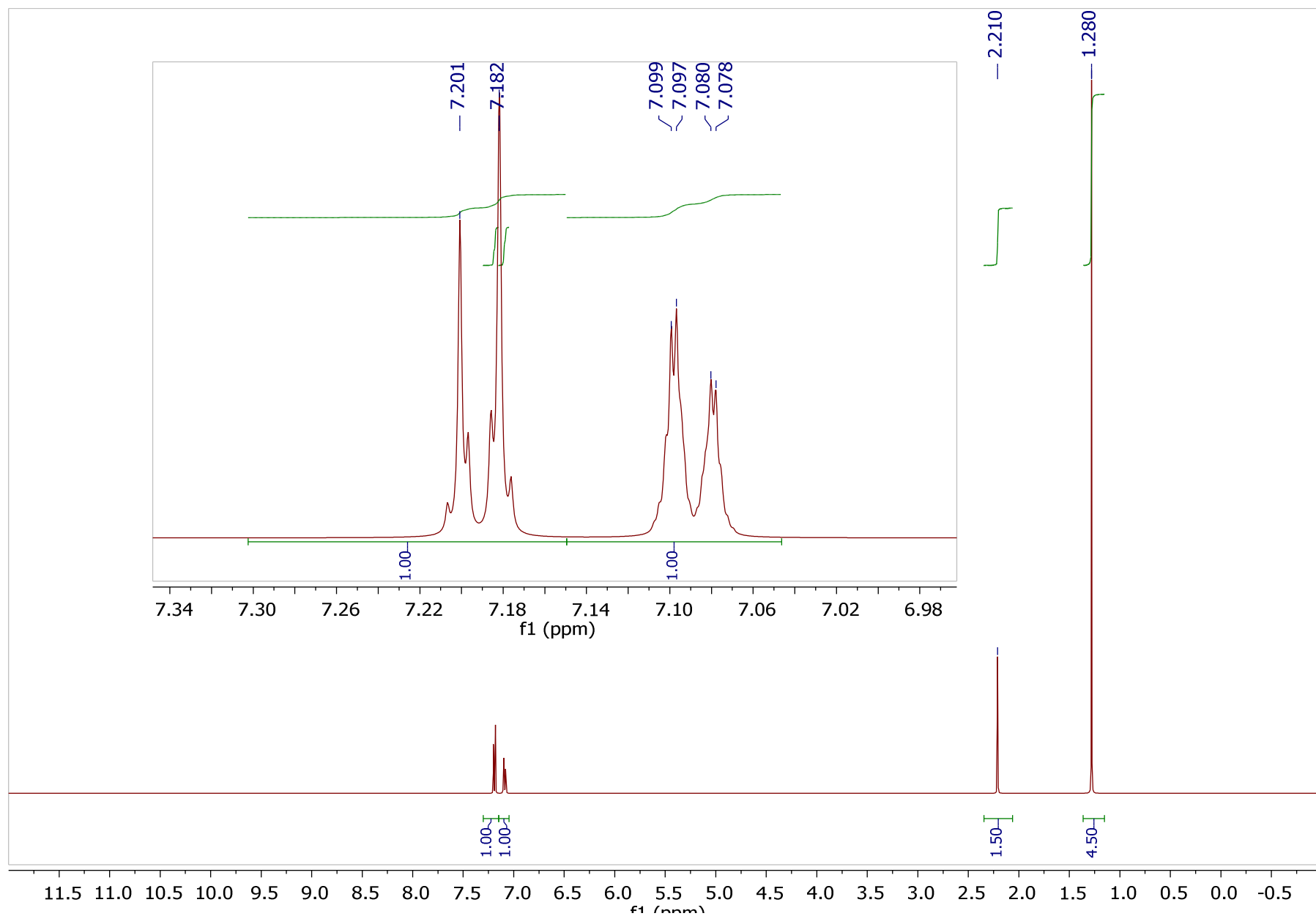
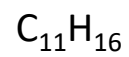
(n)



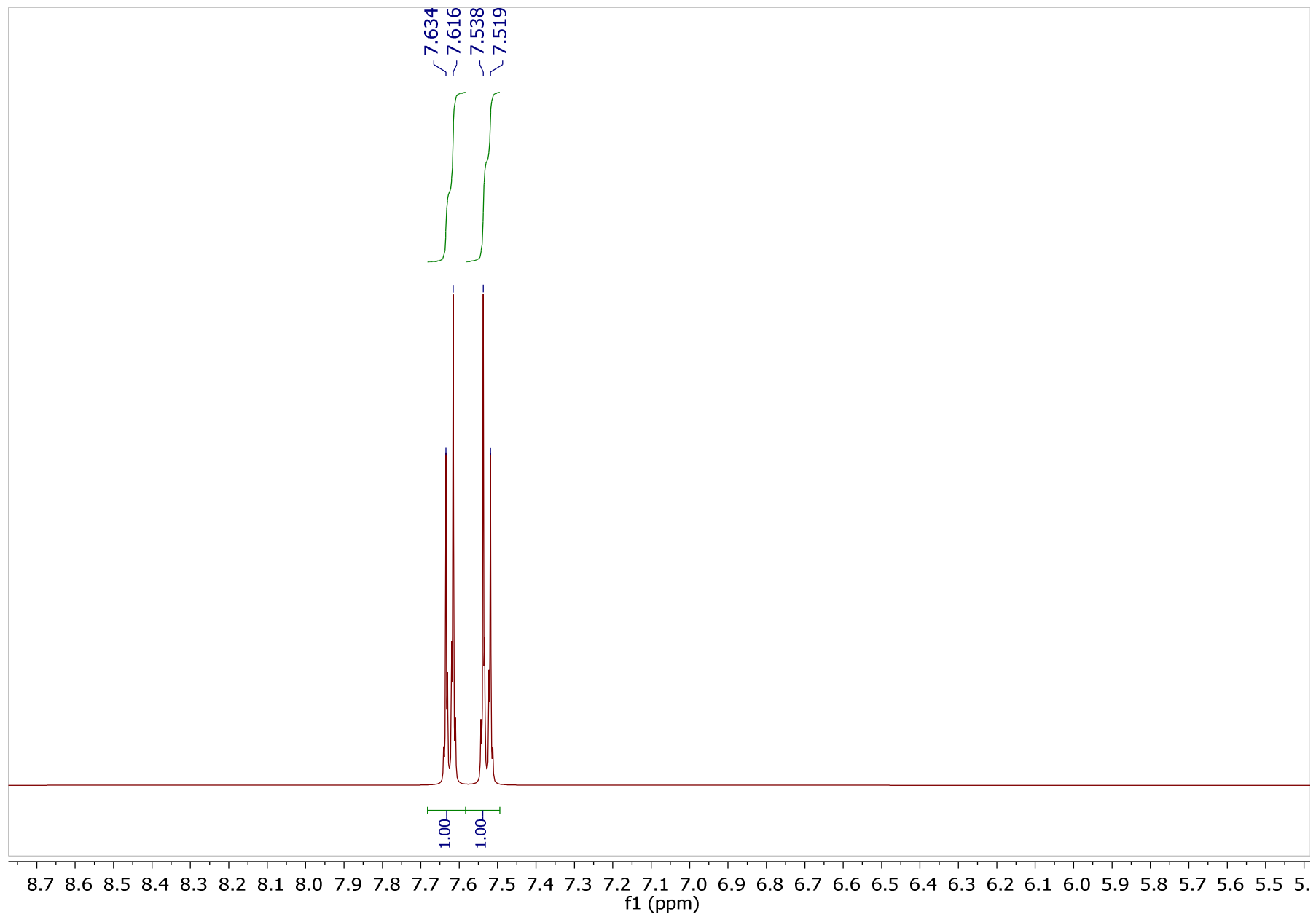
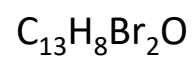
(o)



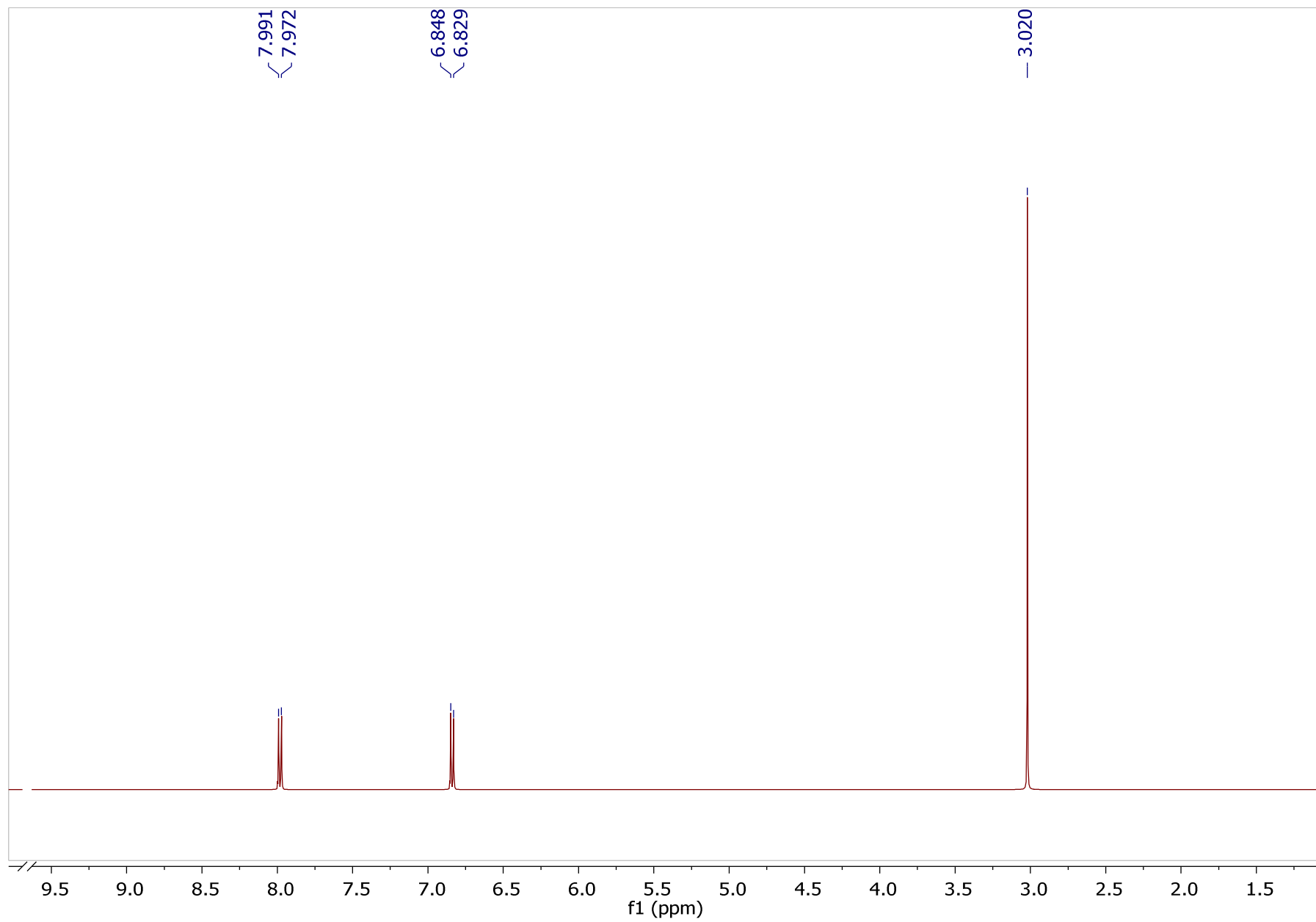
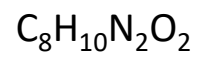
(p)



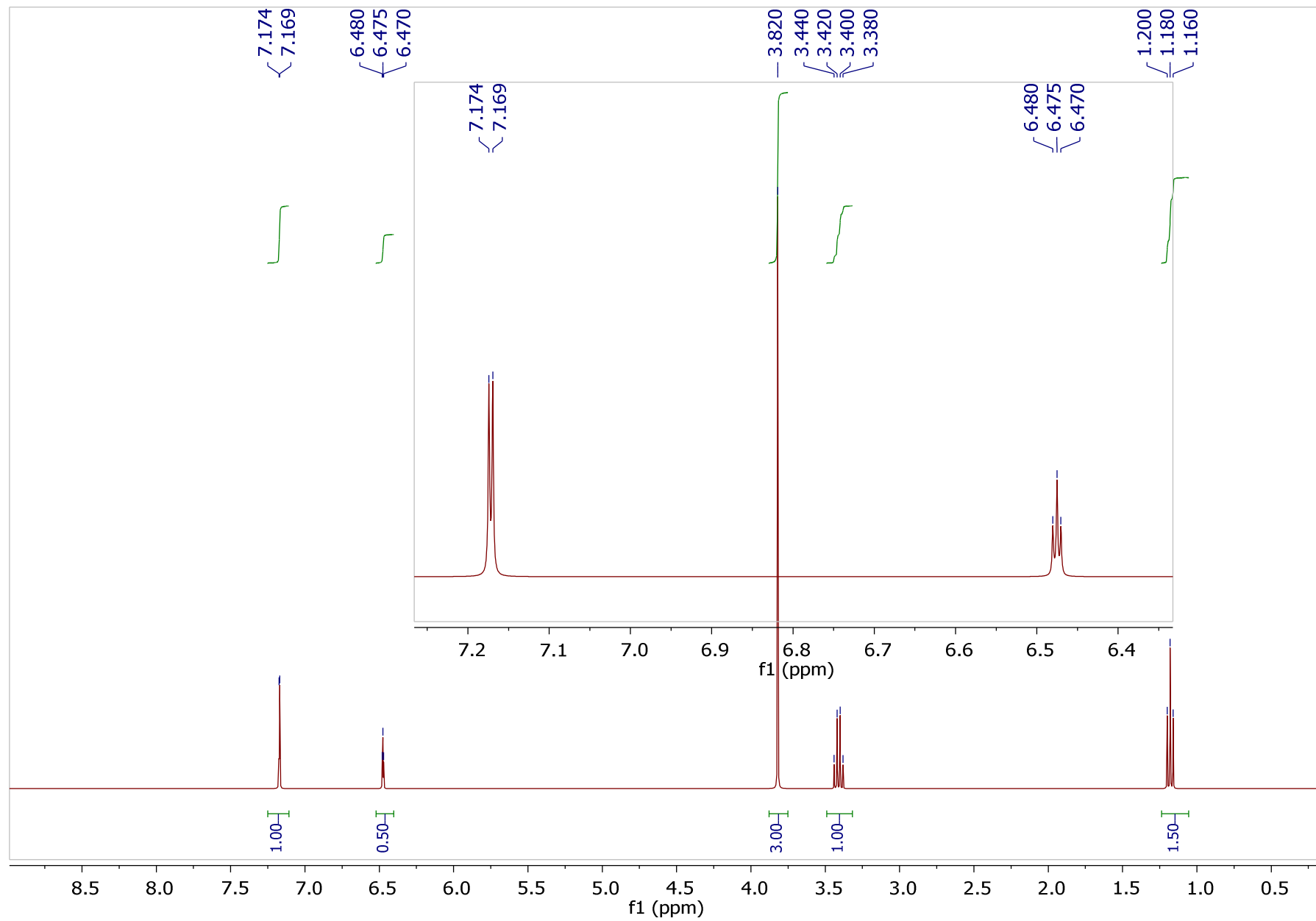
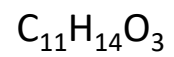
(r)



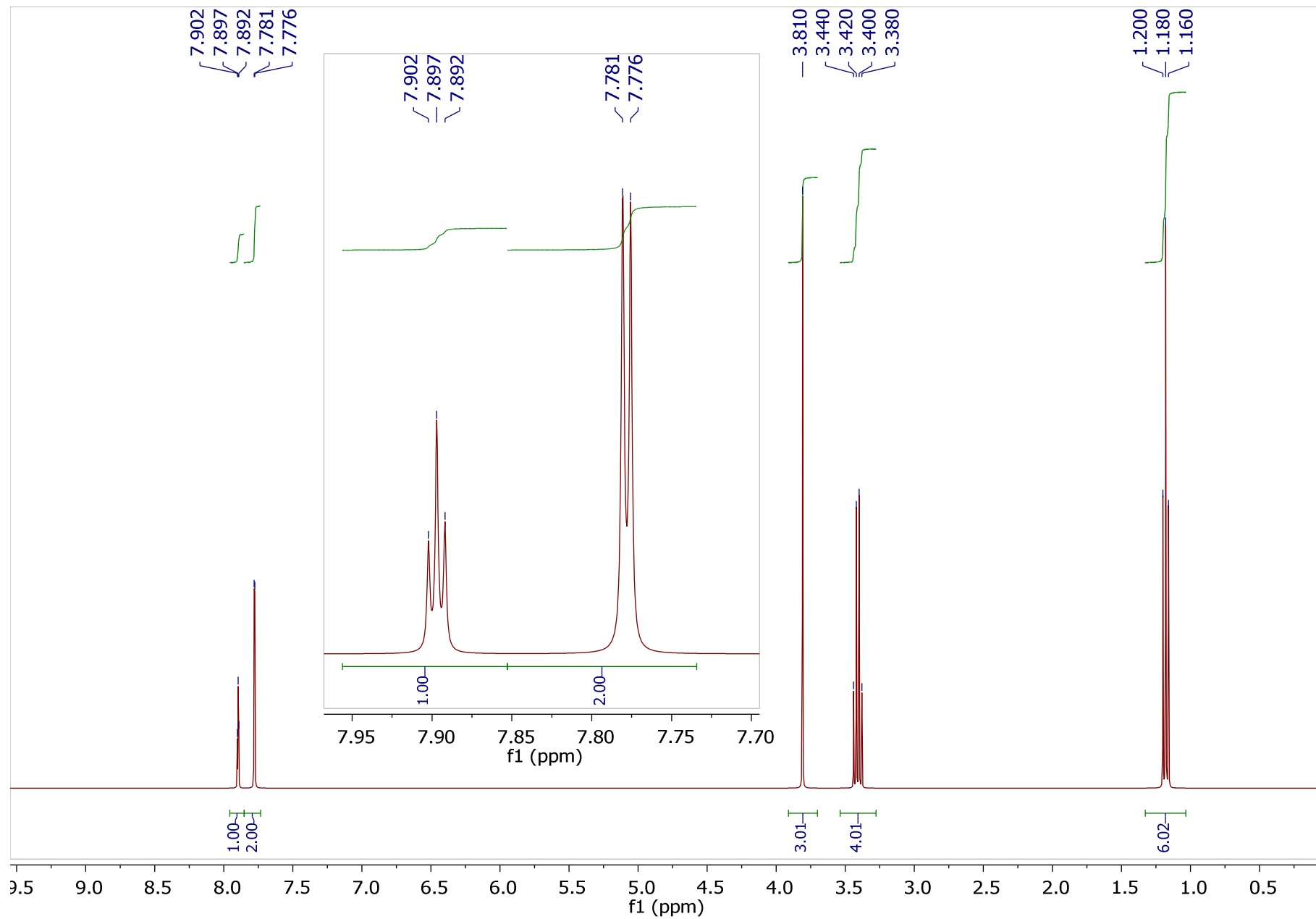
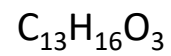
(s)



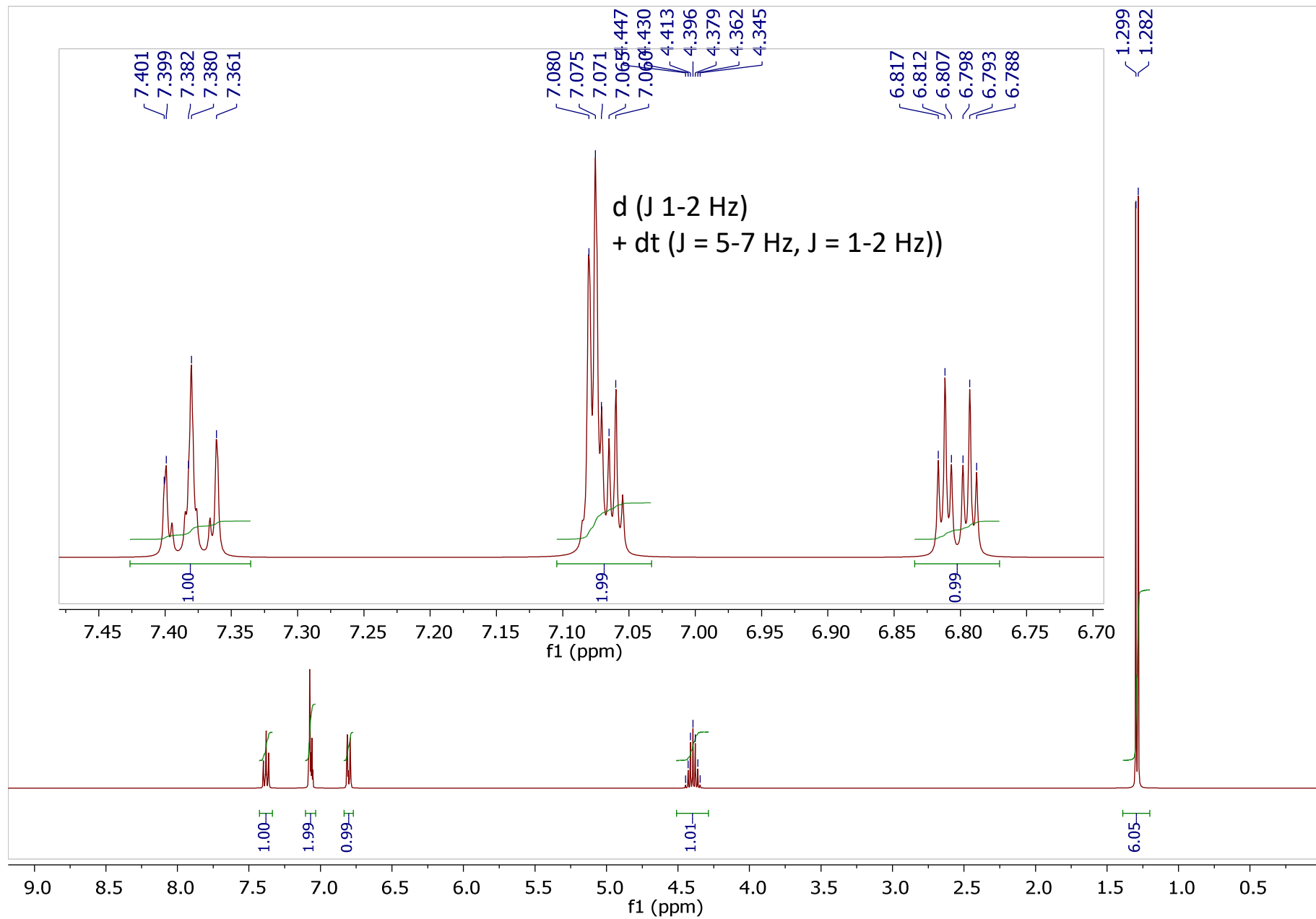
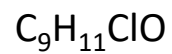
(t)



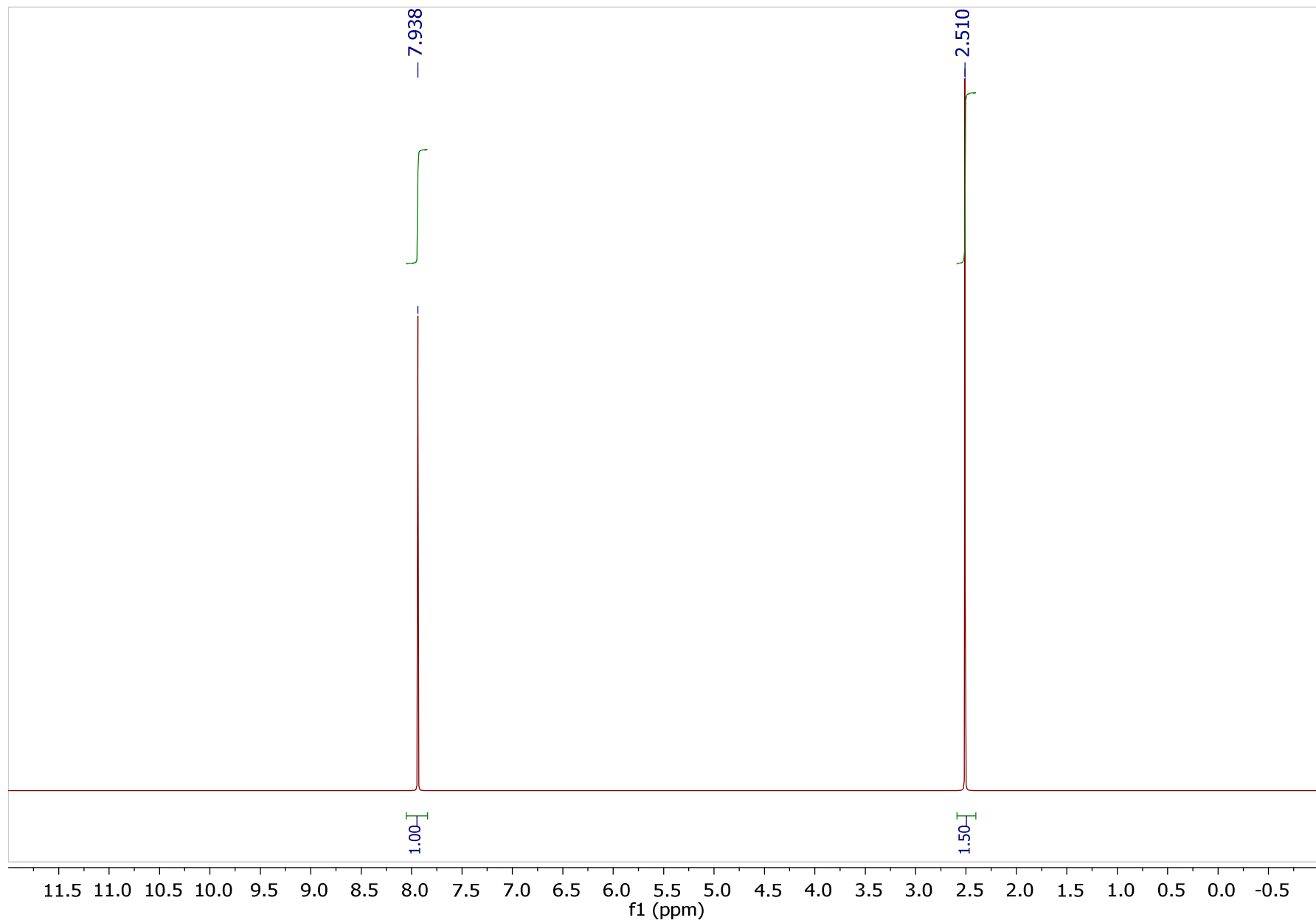
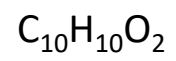
(u)



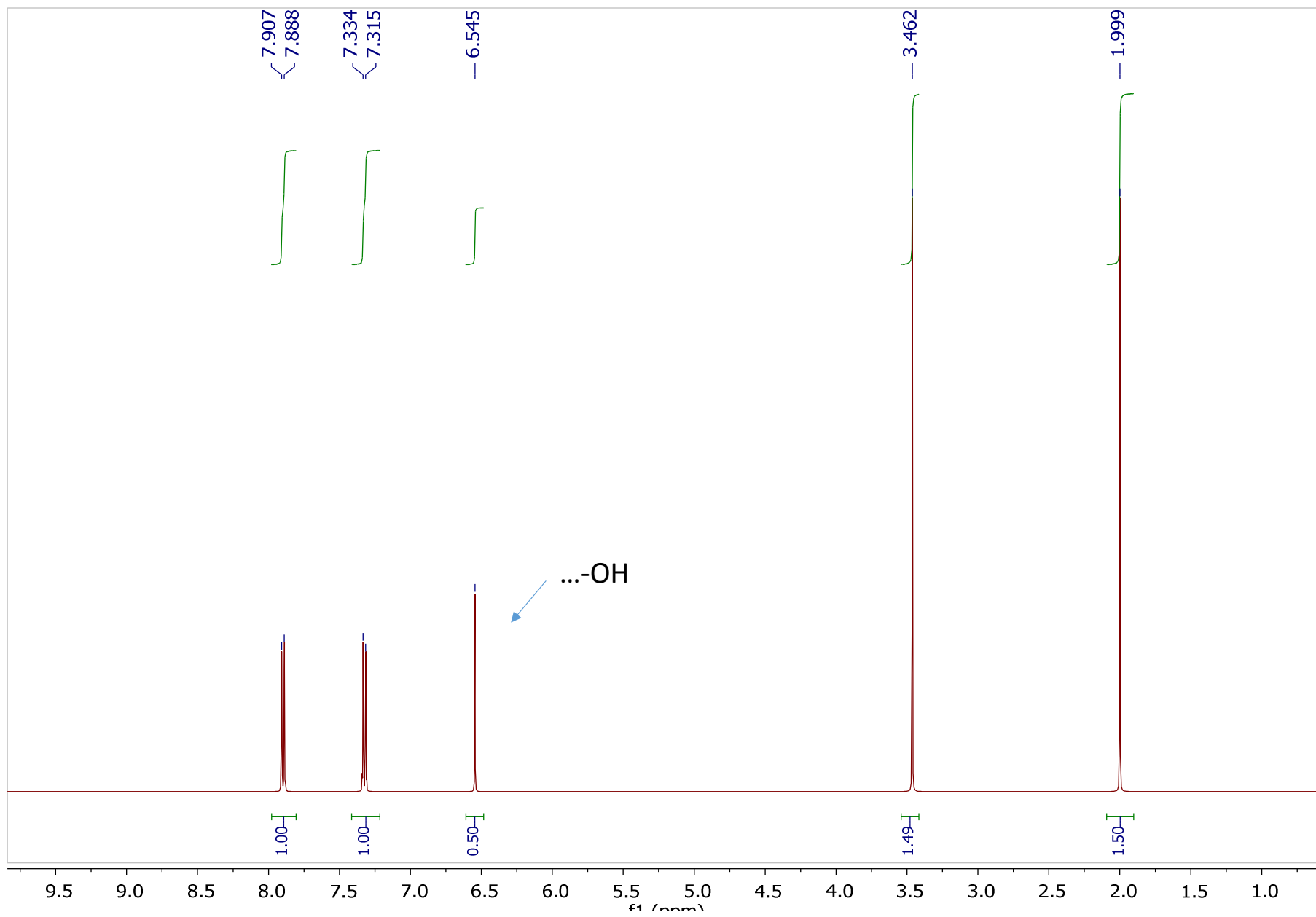
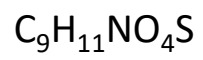
(w)



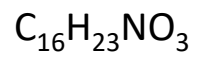
(x)



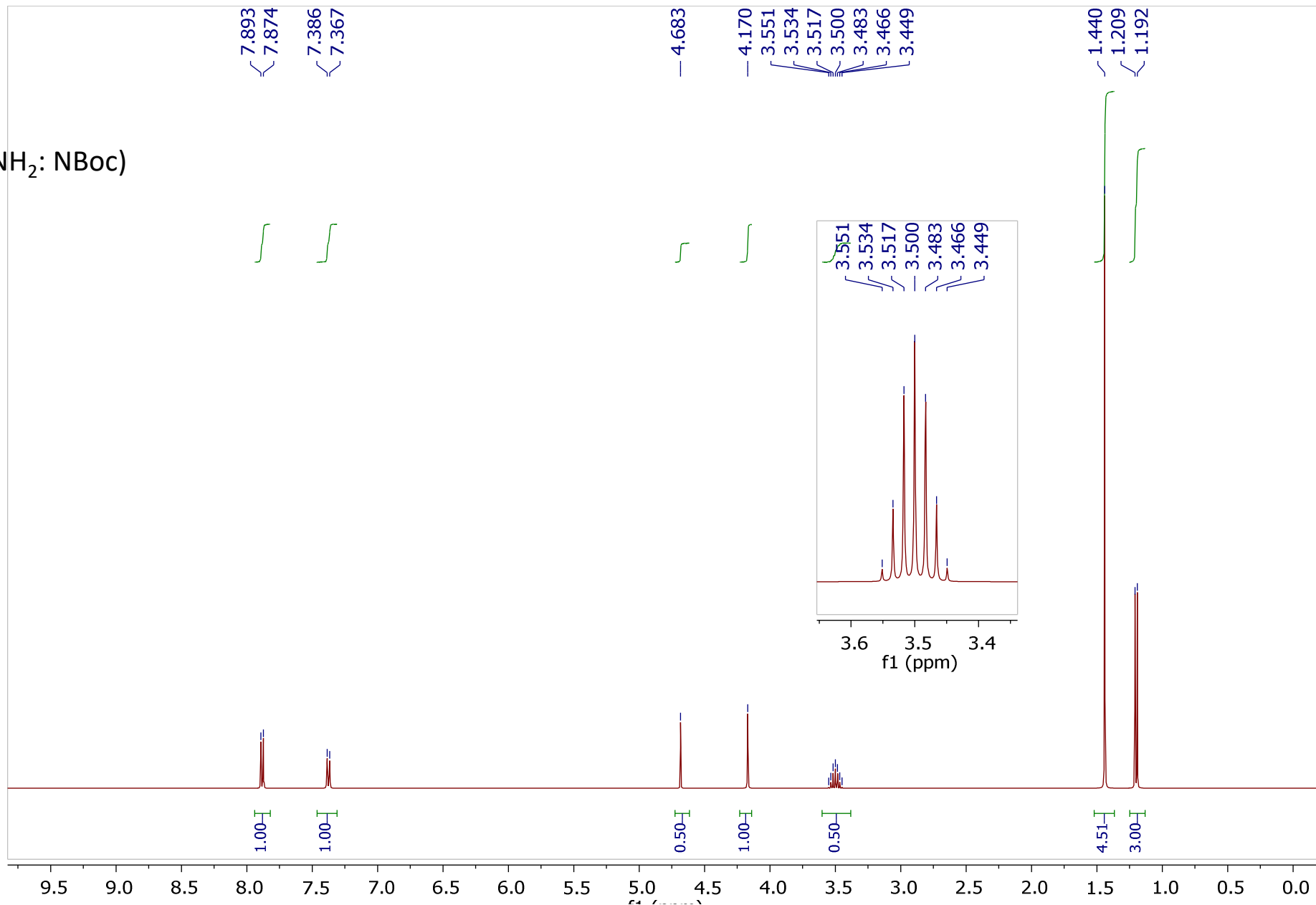
(y)



(z)

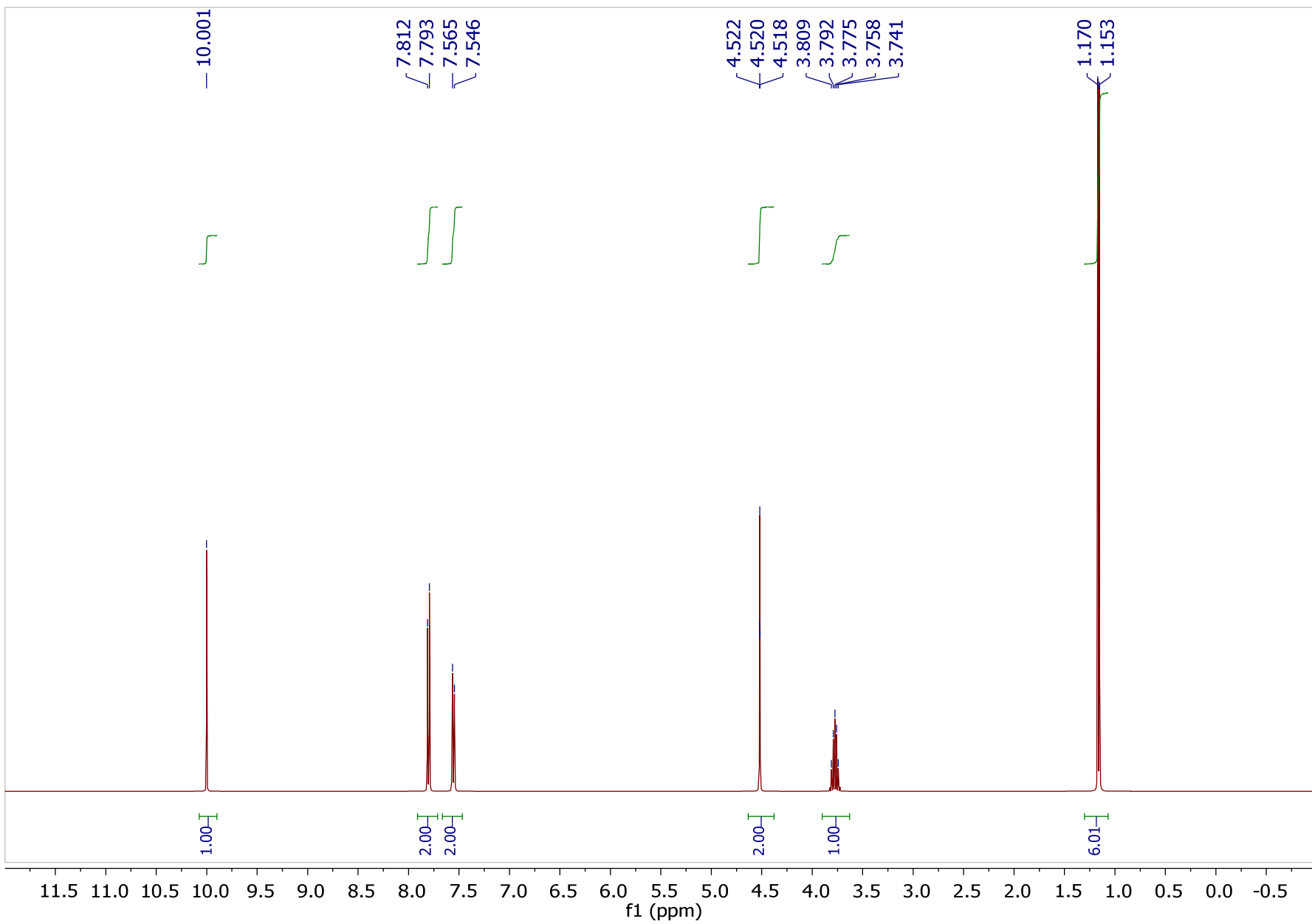


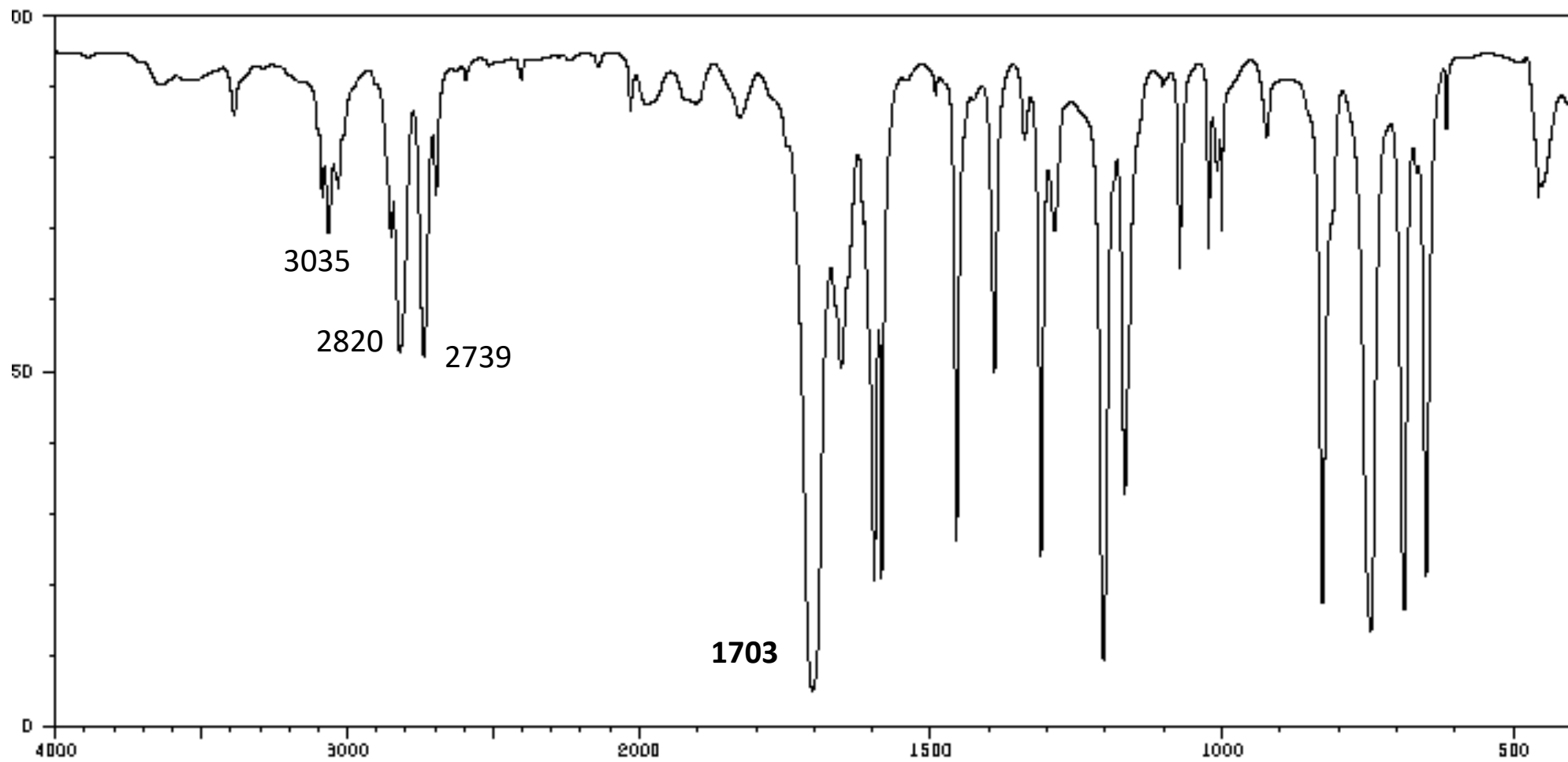
(zabezpieczenie NH_2 : NBoc)



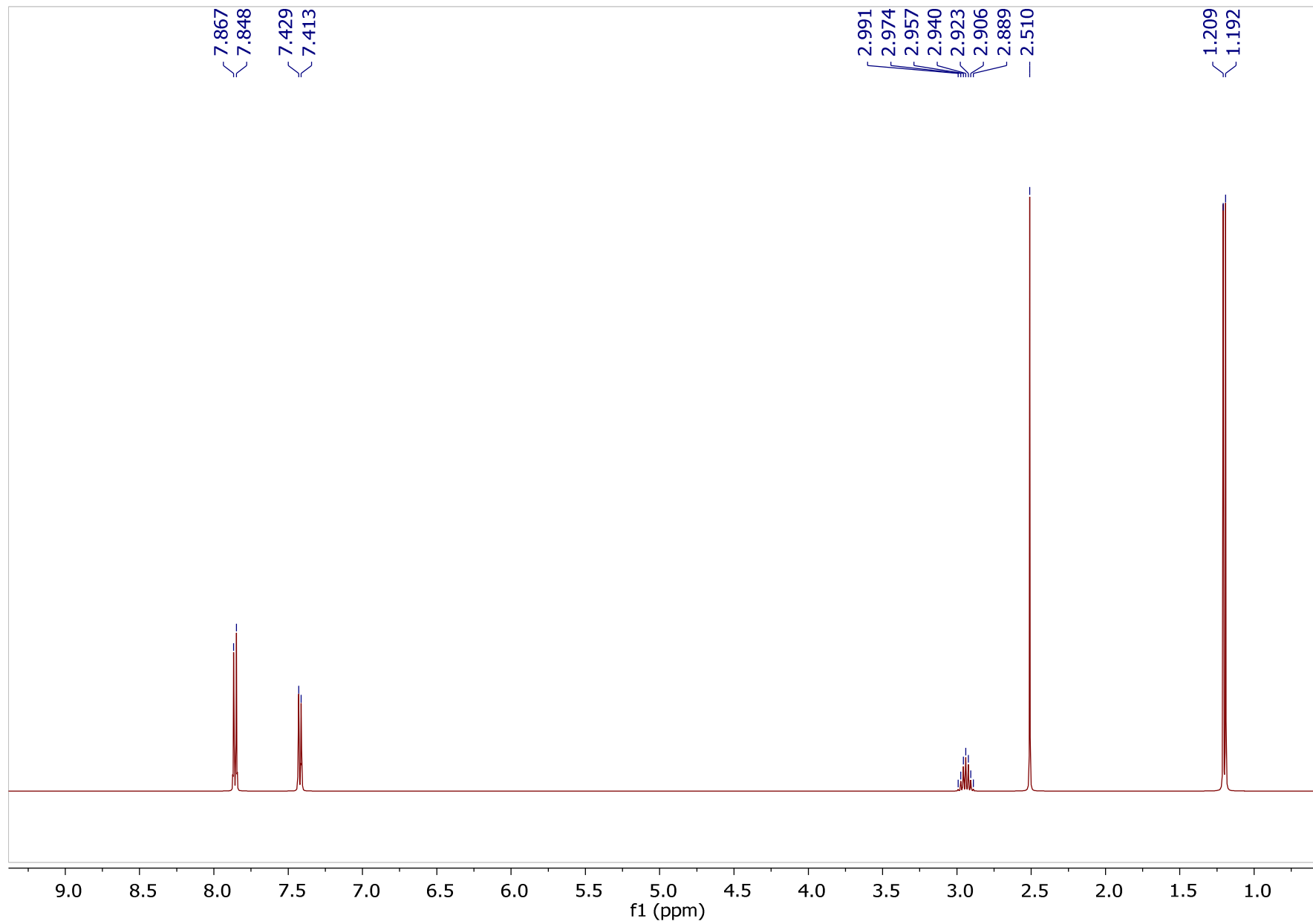
Zadanie 3. Na podstawie widm ^1H NMR zmierzonych na aparacie Bruker 400 MHz (CDCl_3) oraz widm IR określ strukturę związku chemicznego. (Tylko atomy z II okresu układu okresowego bez fluoru)

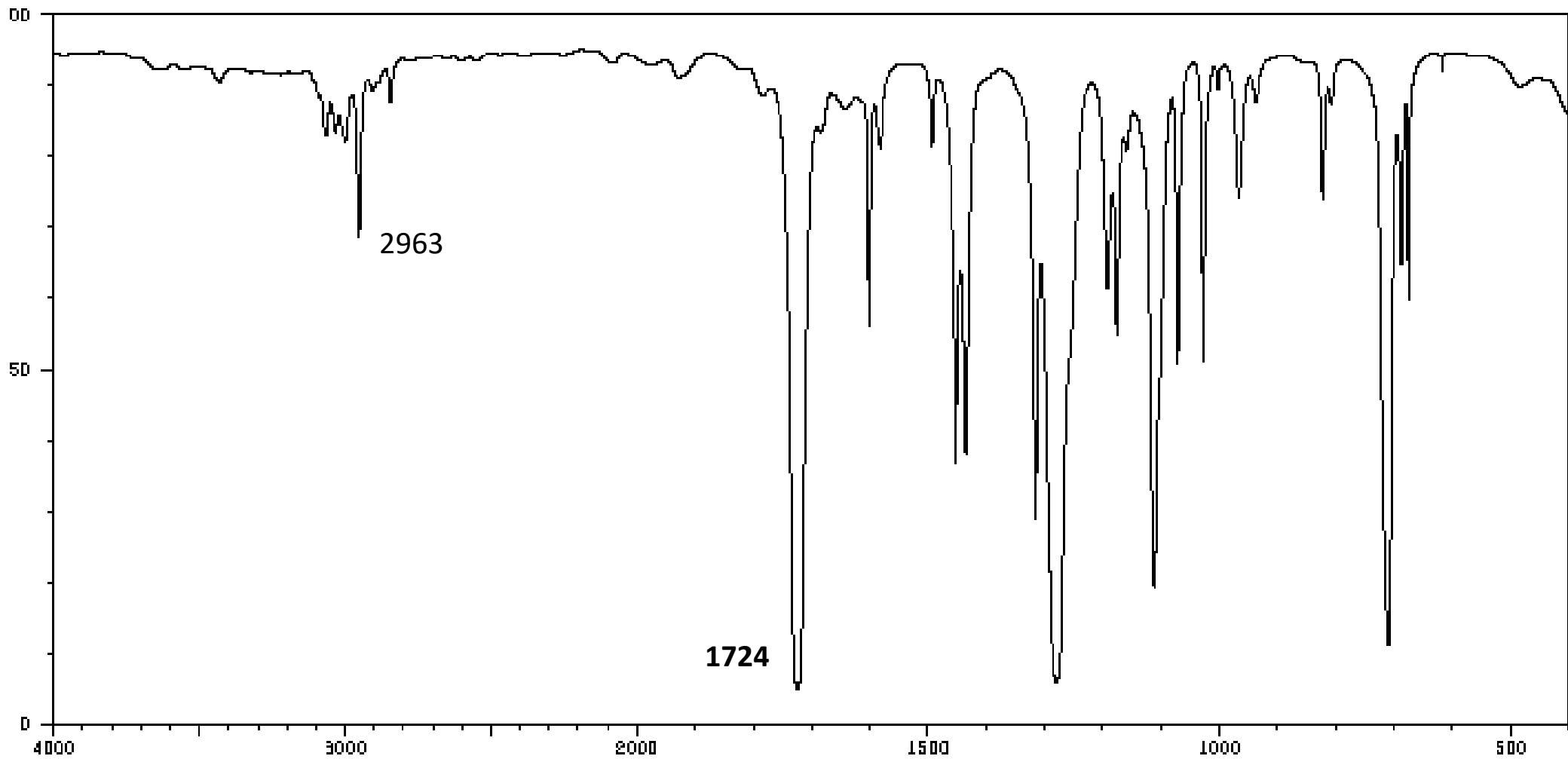
(a)



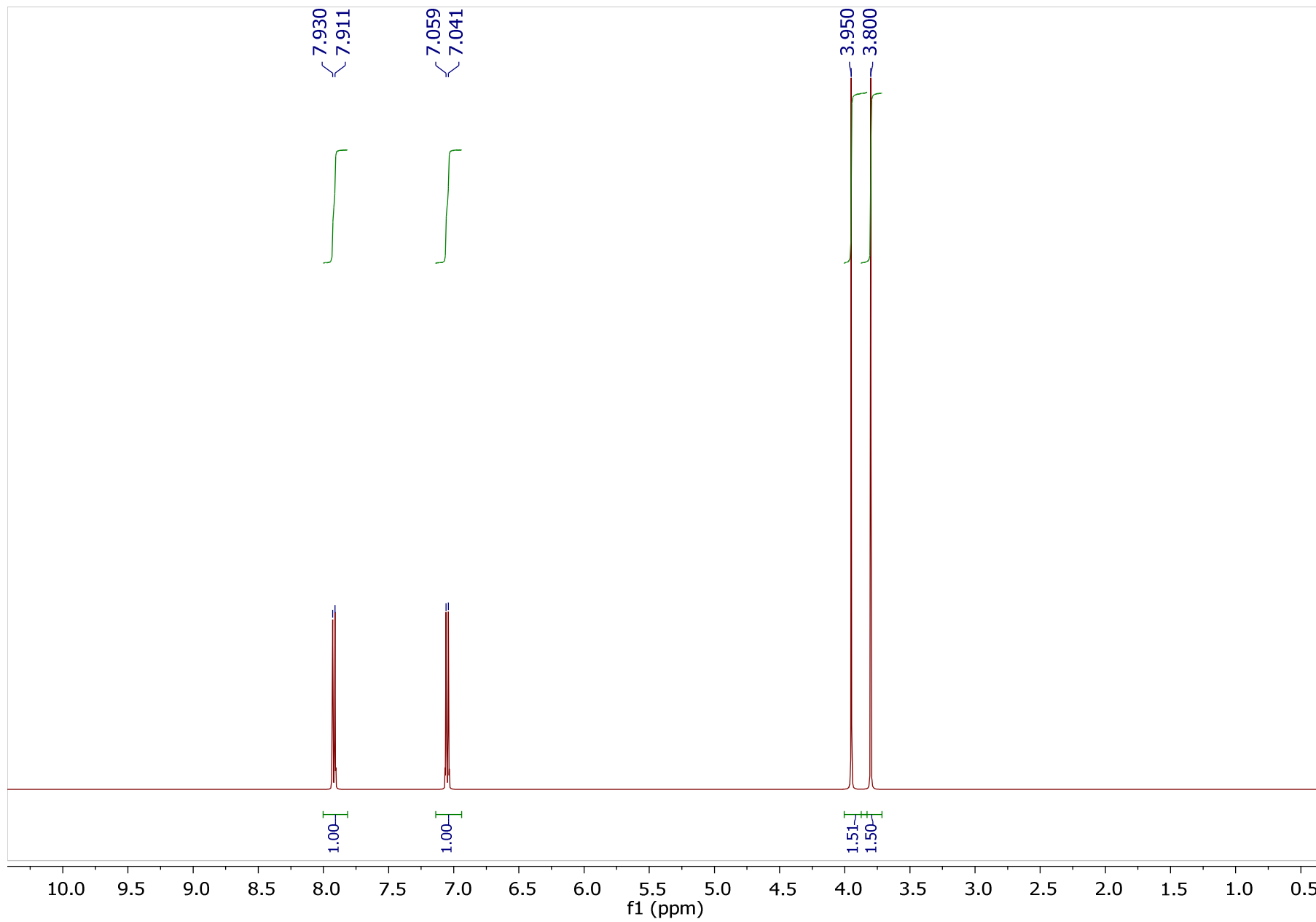


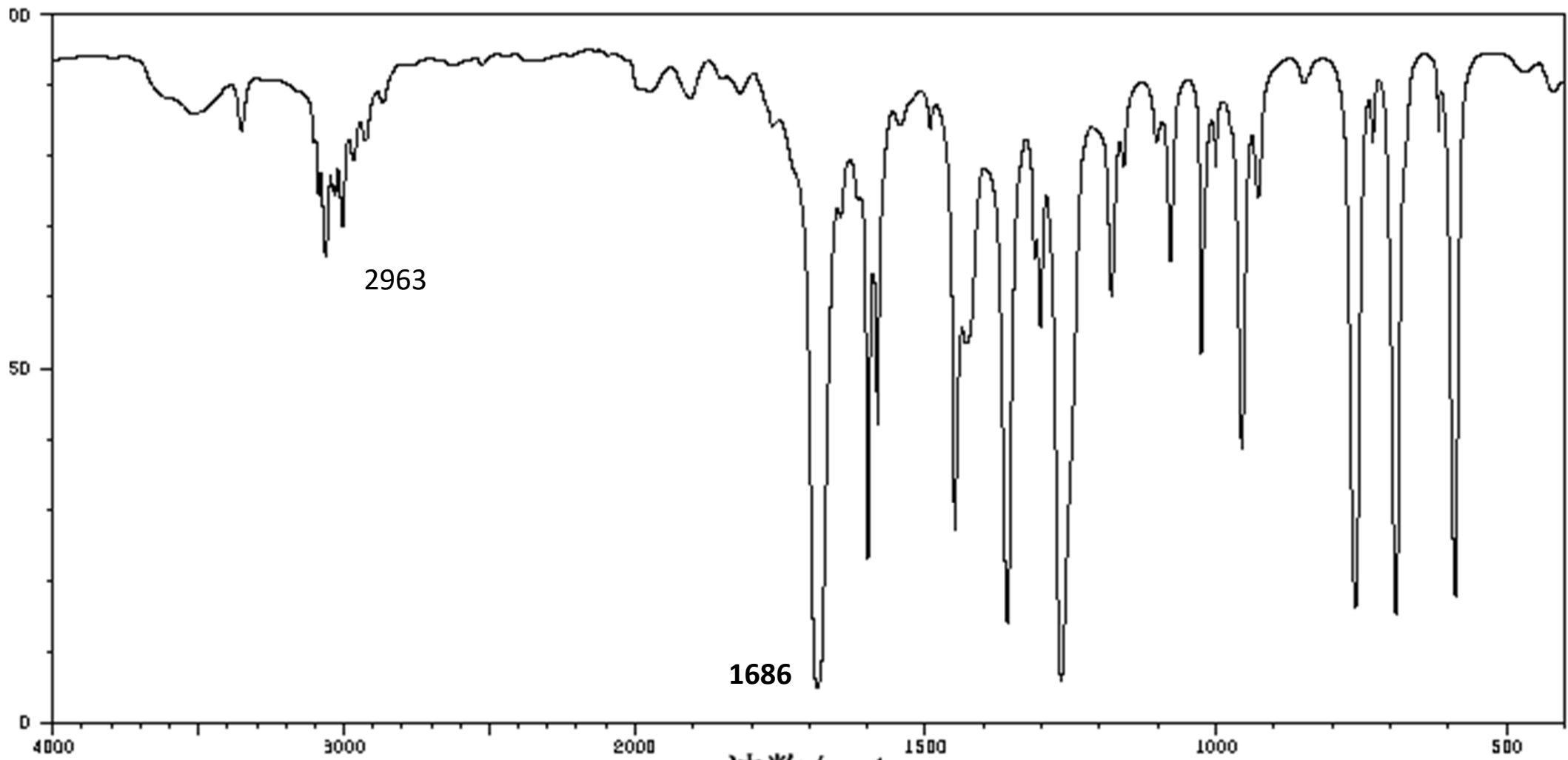
(b)



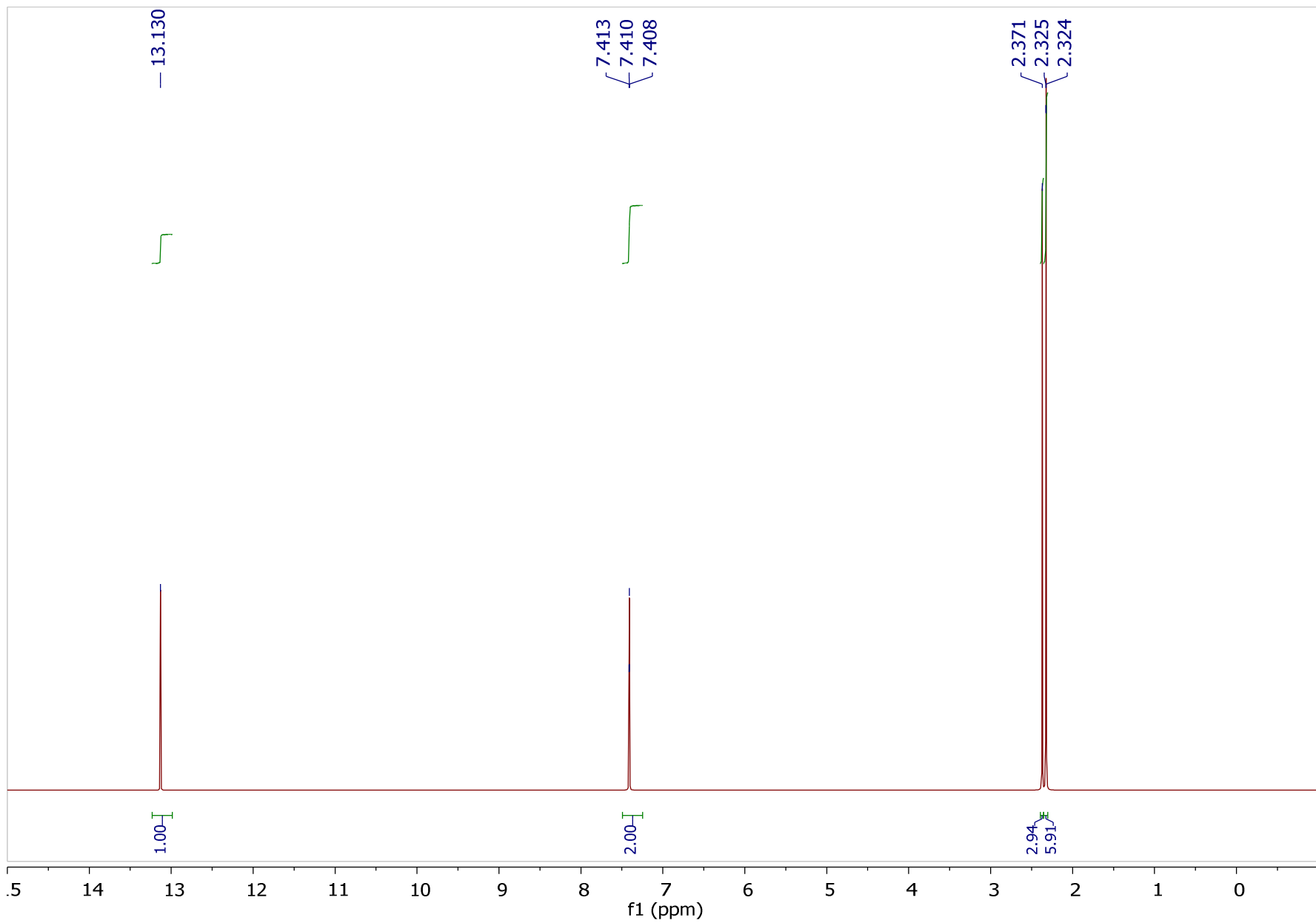


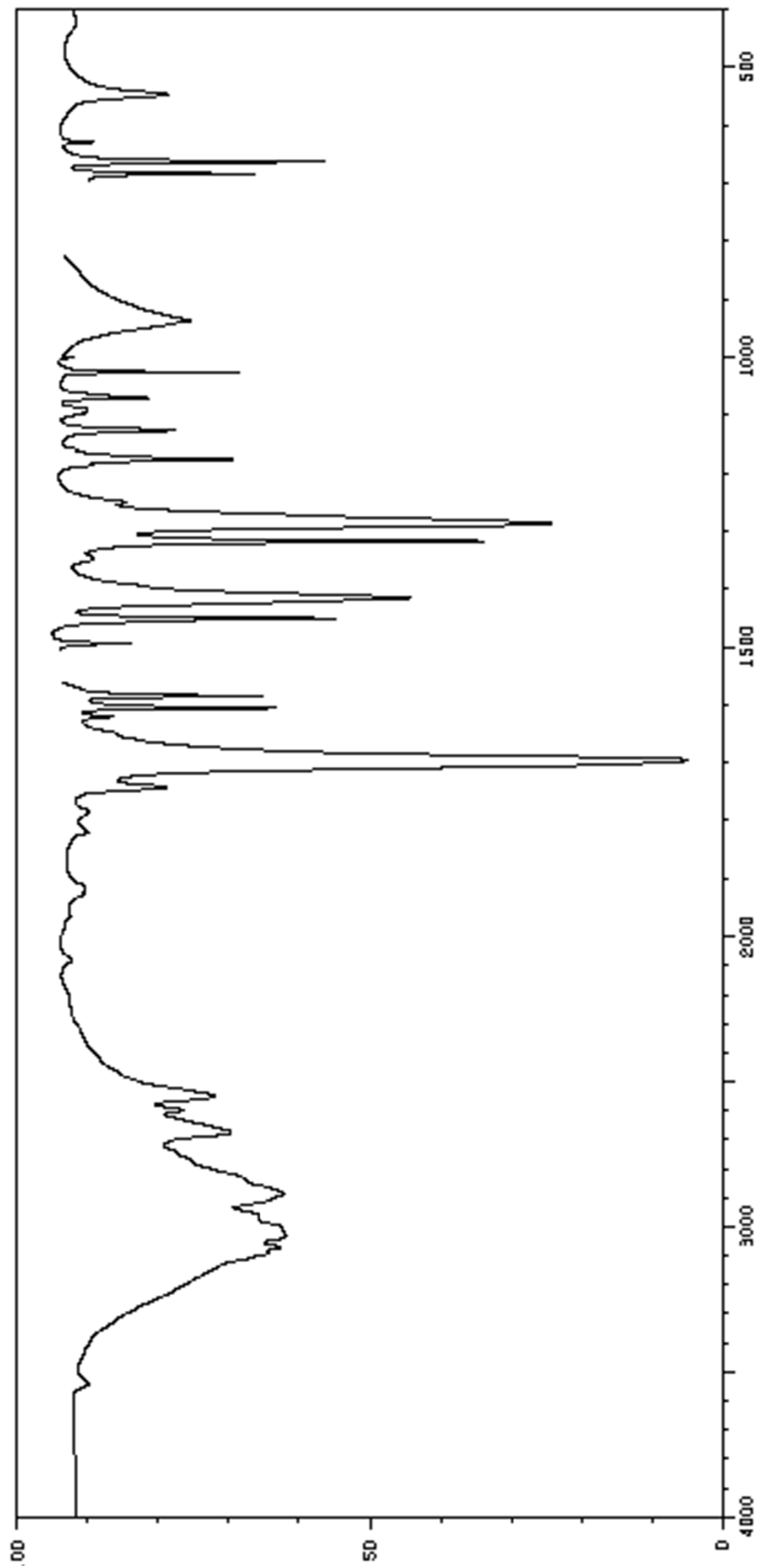
(c)



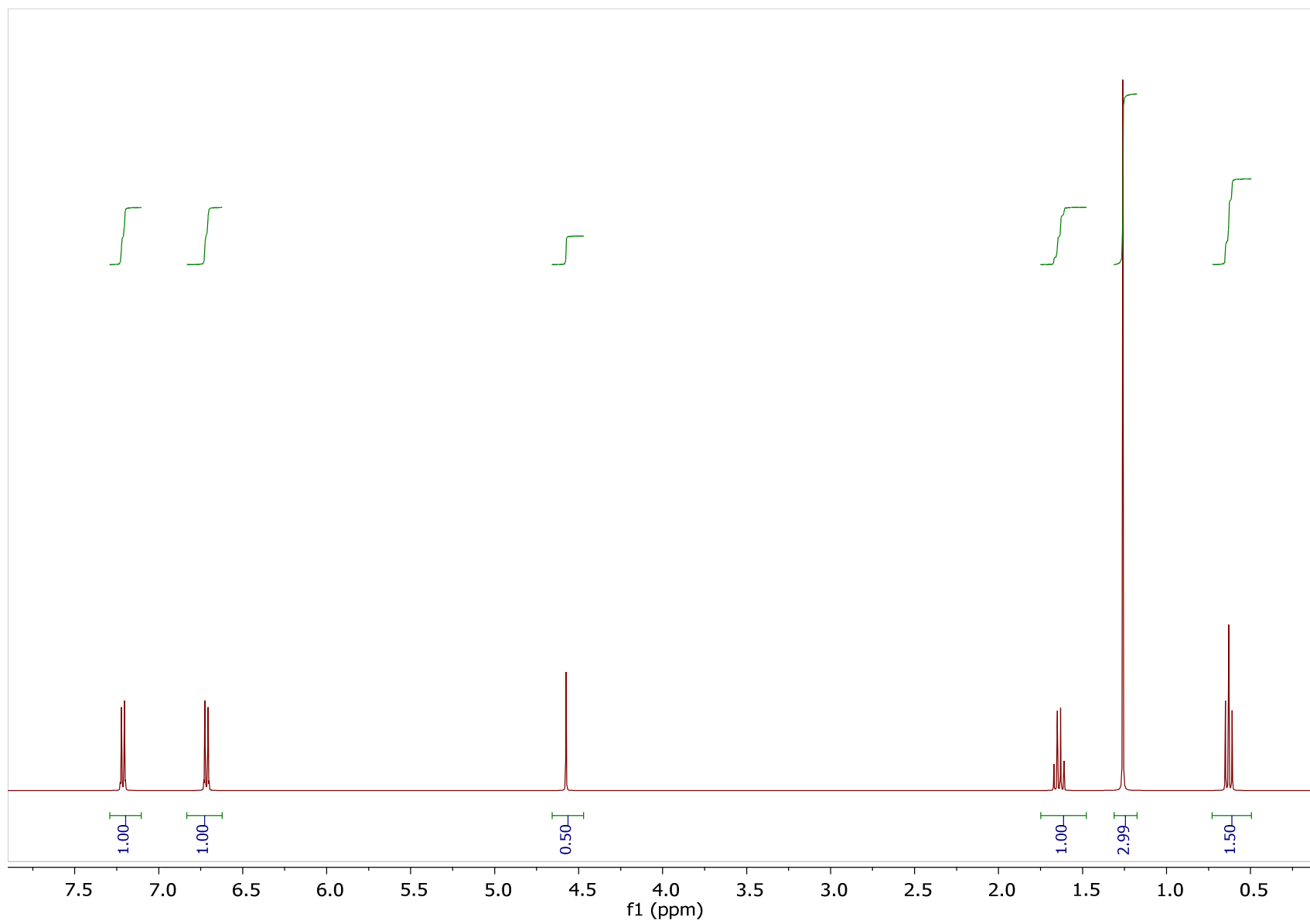


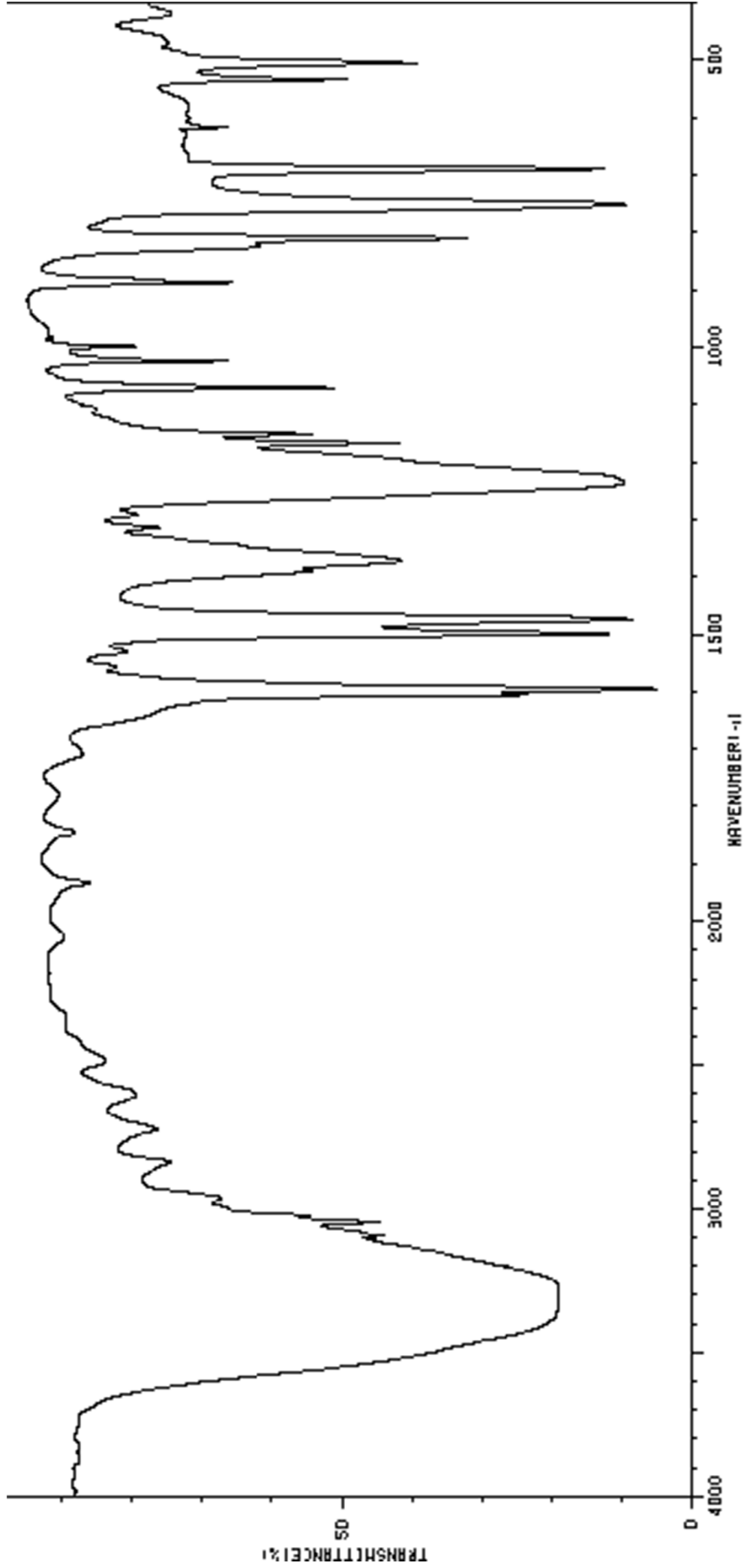
(d)



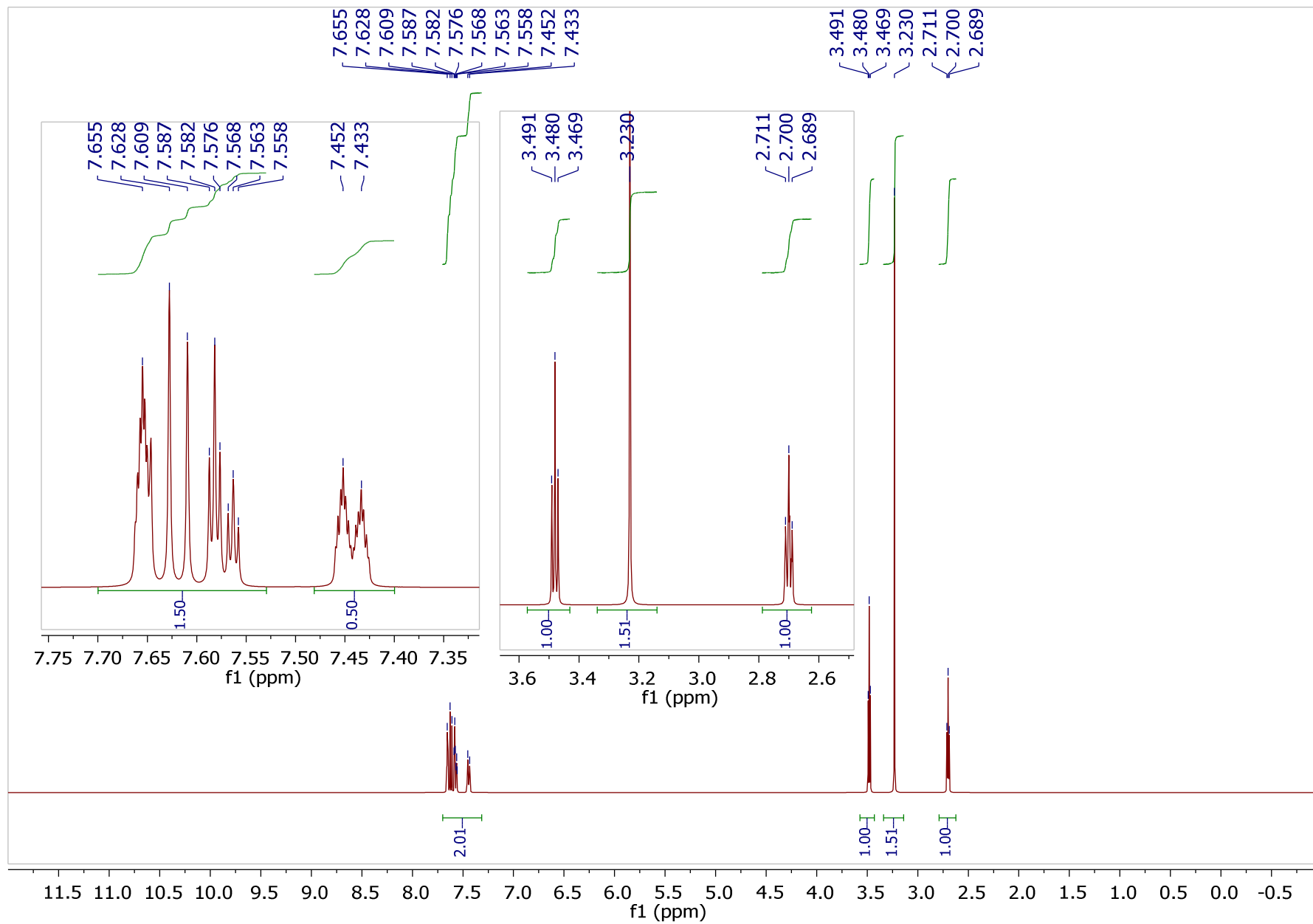


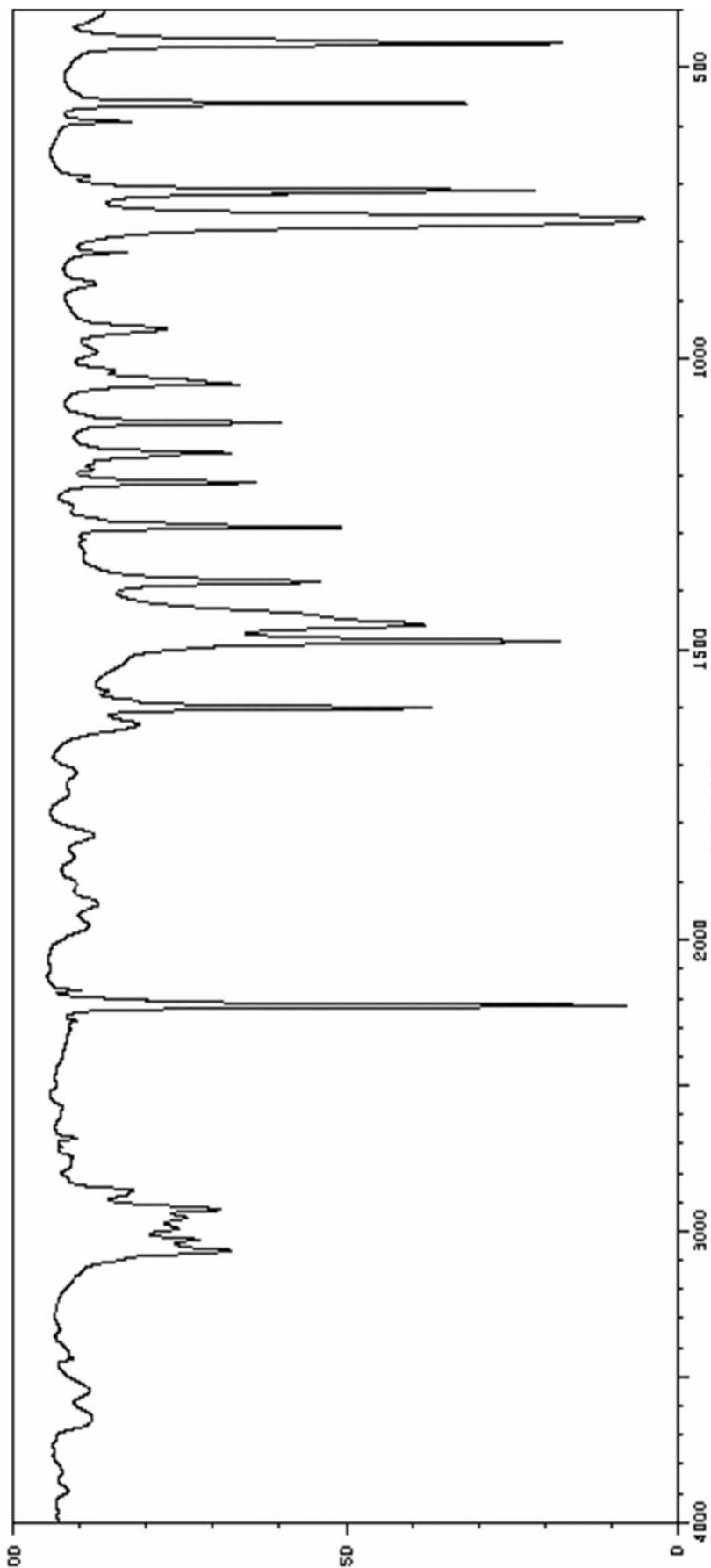
(e)





(f)





(g)

