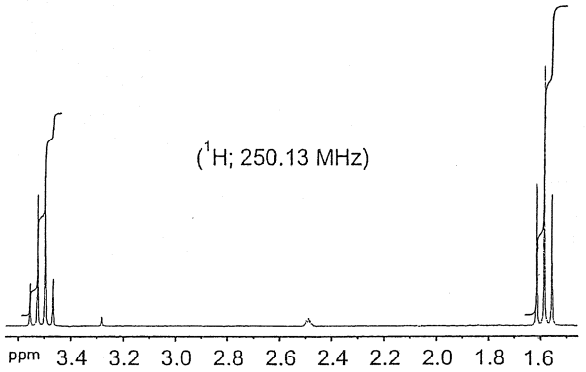
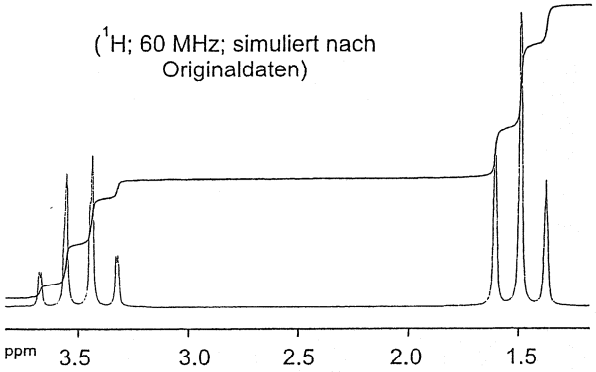
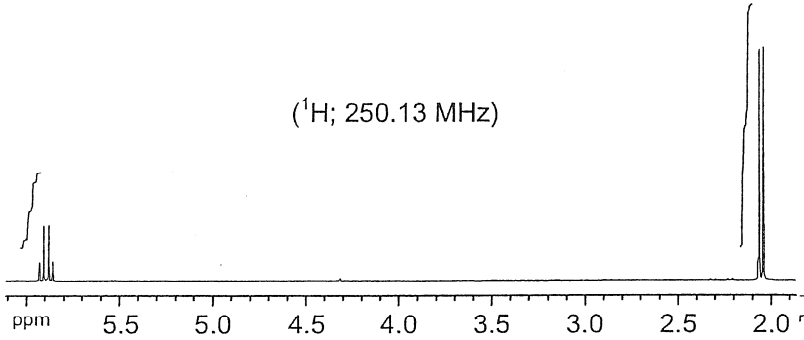
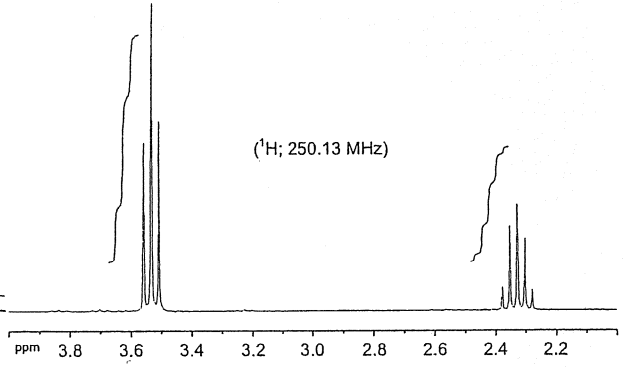
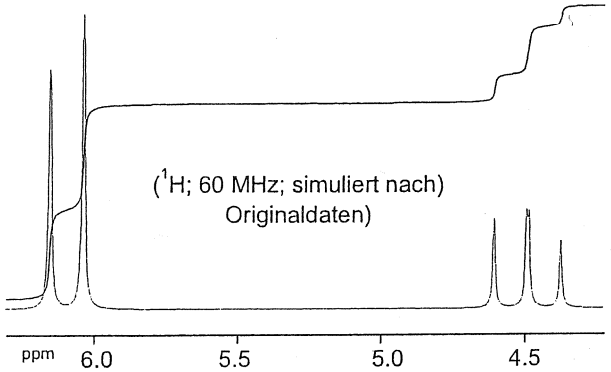
# E-A-12

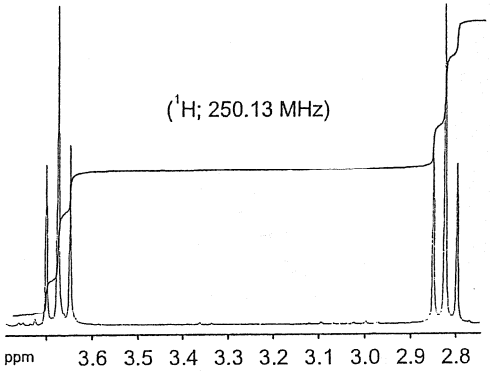



$H_3C\text{-}CH_2\text{-}OH$

$Cl_2CH\text{-}CH_2\text{-}CHCl_2$

$(H_3C)_2\text{-}CH\text{-}CN$

$Cl_2CH\text{-}CHCl\text{-}CHCl_2$

$Cl_2CH\text{-}CHO$

$NC\text{-}CH_2\text{-}CH_2Cl$

$Cl_2CH\text{-}CHCl_2$

$H_3C\text{-}CH_2\text{-}Cl$

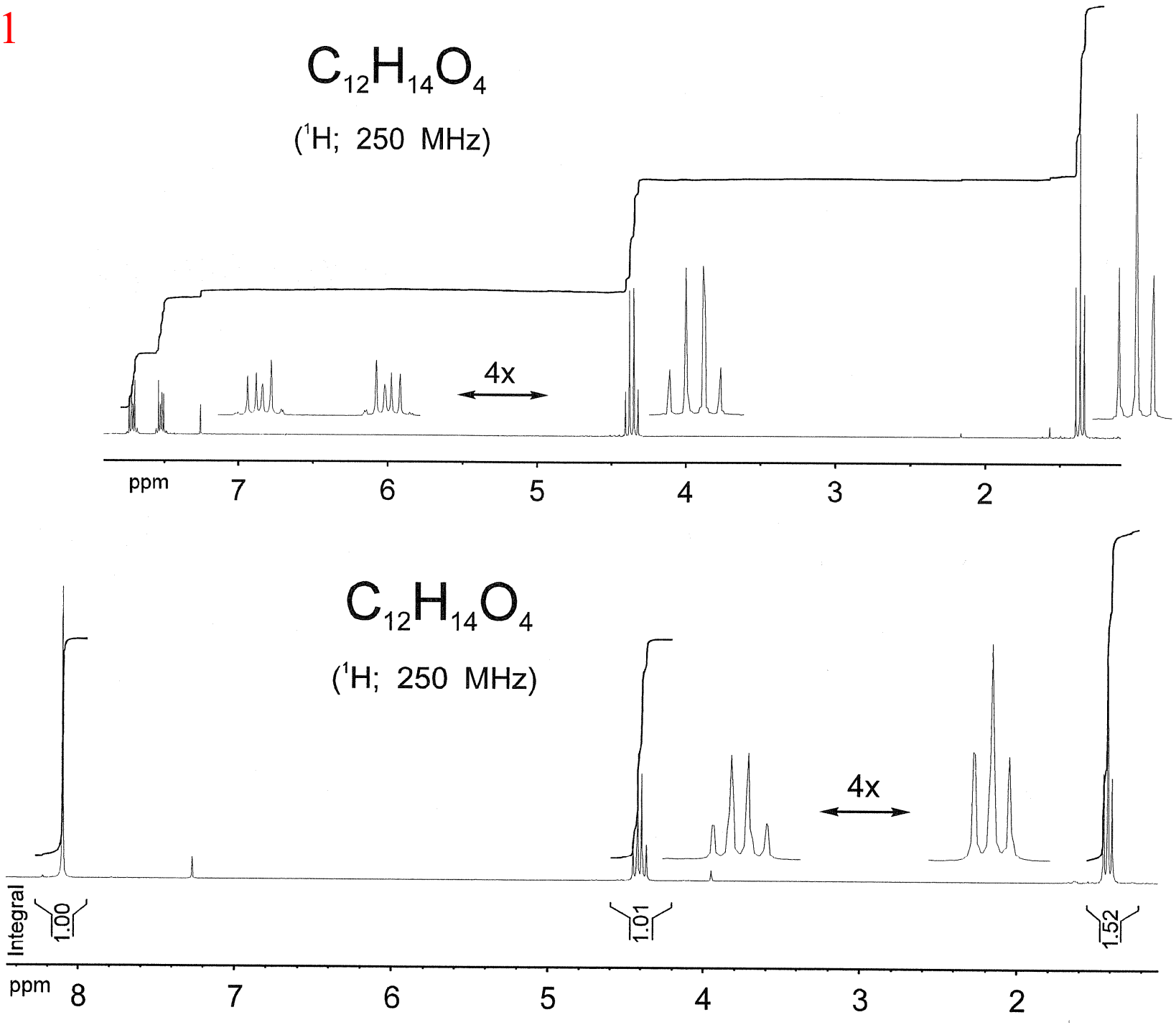
$BrCH_2\text{-}CH_2\text{-}CH_2Br$

$H_3C\text{-}CH_2\text{-}Br$

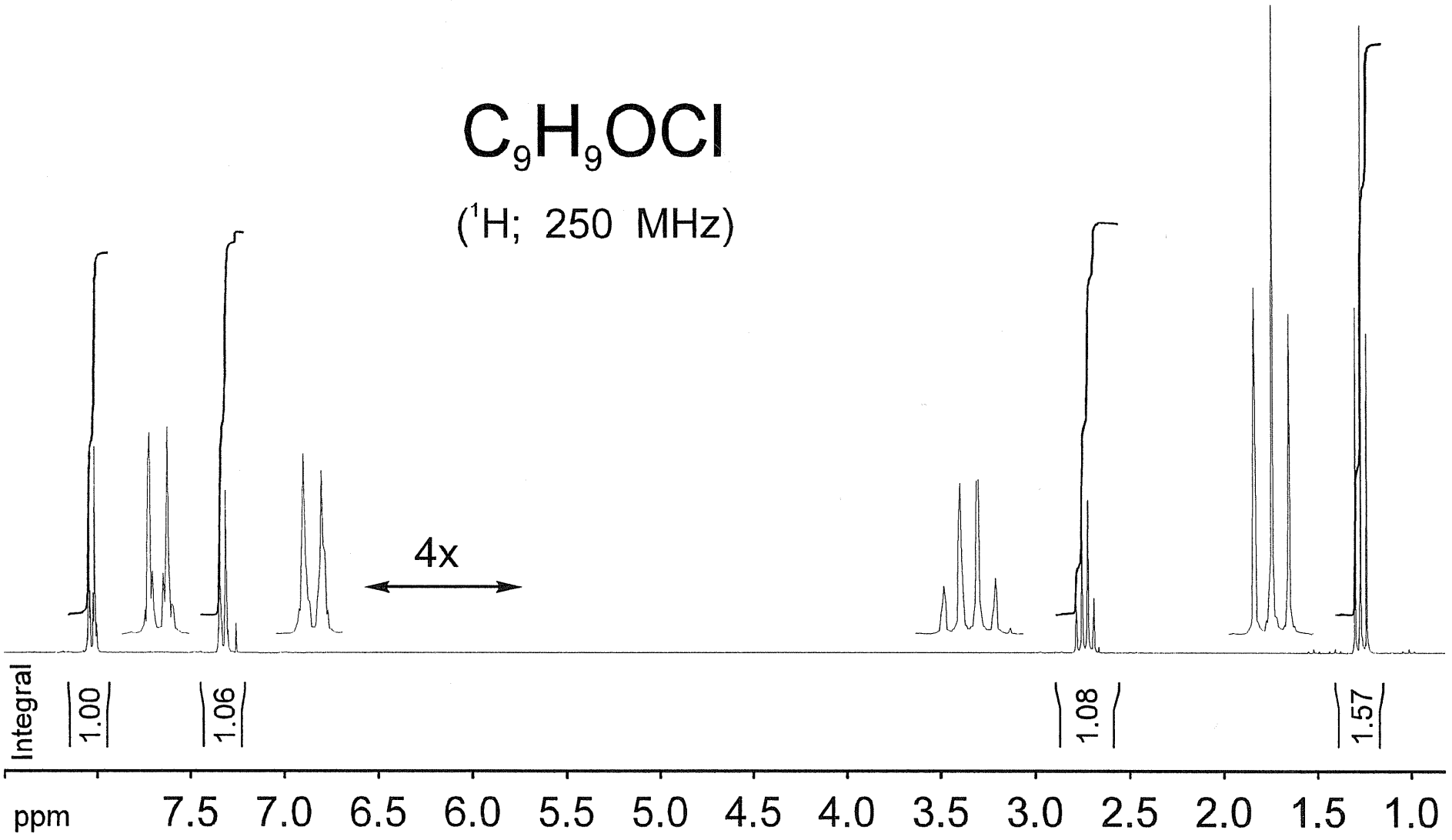
$H_3C\text{-}CHCl_2$

$(H_3C)_2\text{-}CHCl$

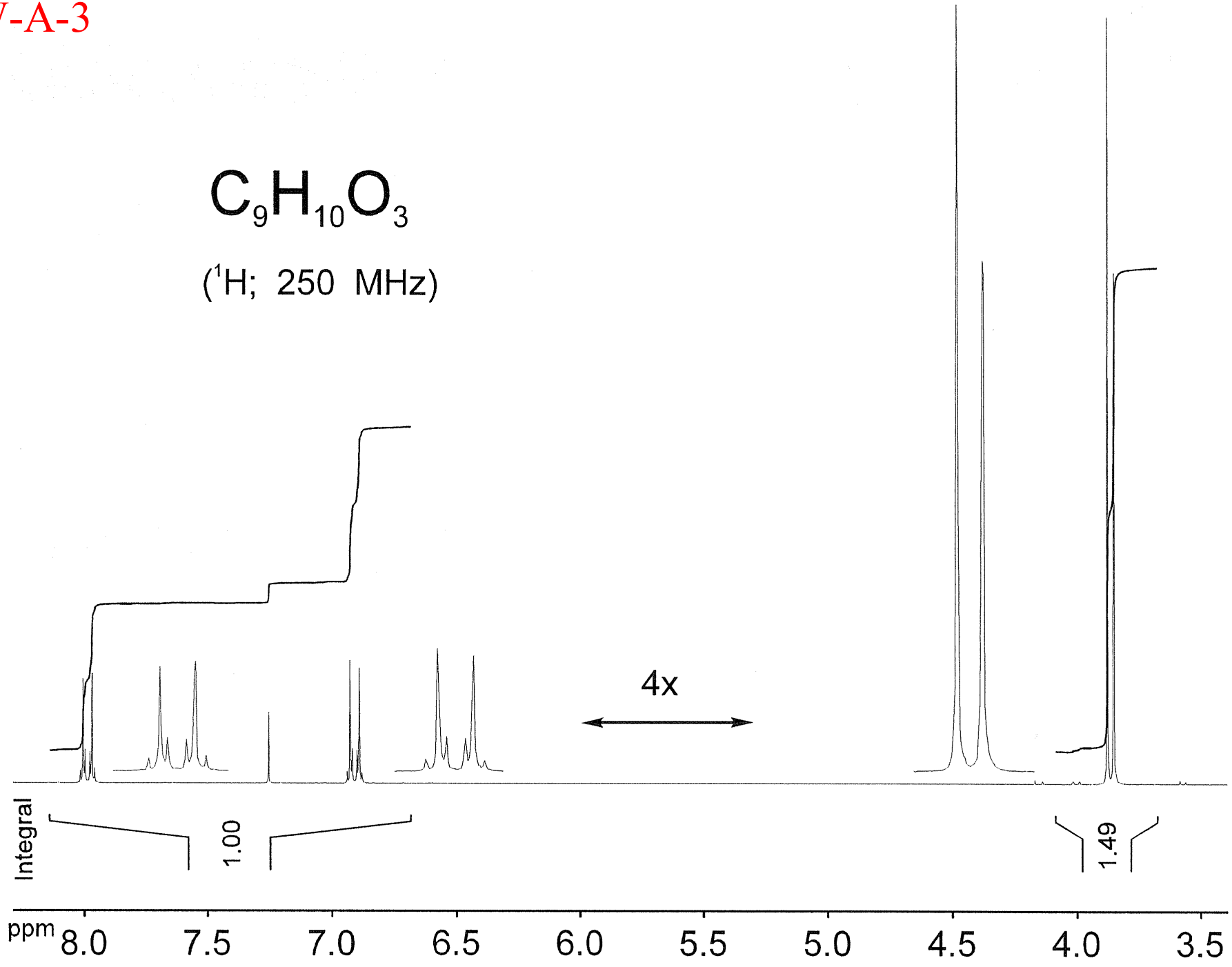
W-A-1


C12H14O4
(1H; 250 MHz)
4x
ppm
7
6
5
4
3
2
C12H14O4
(1H; 250 MHz)
4x
Integral
1.00
1.01
1.52
ppm
8
7
6
5
4
3
2

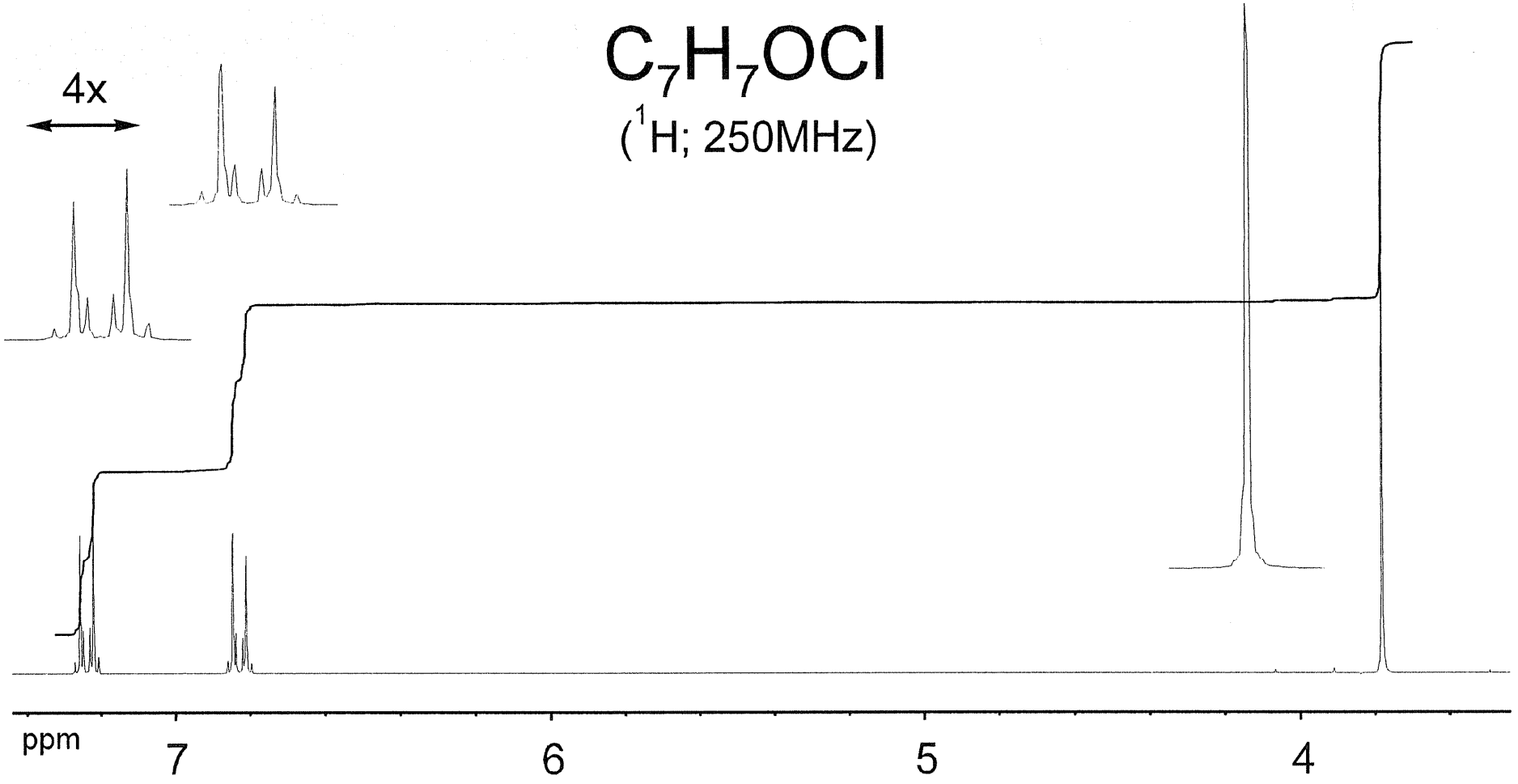
W-A-2


C9H9OCl
(1H; 250 MHz)
4x
Integral
1.00
1.06
1.08
1.57
ppm
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0

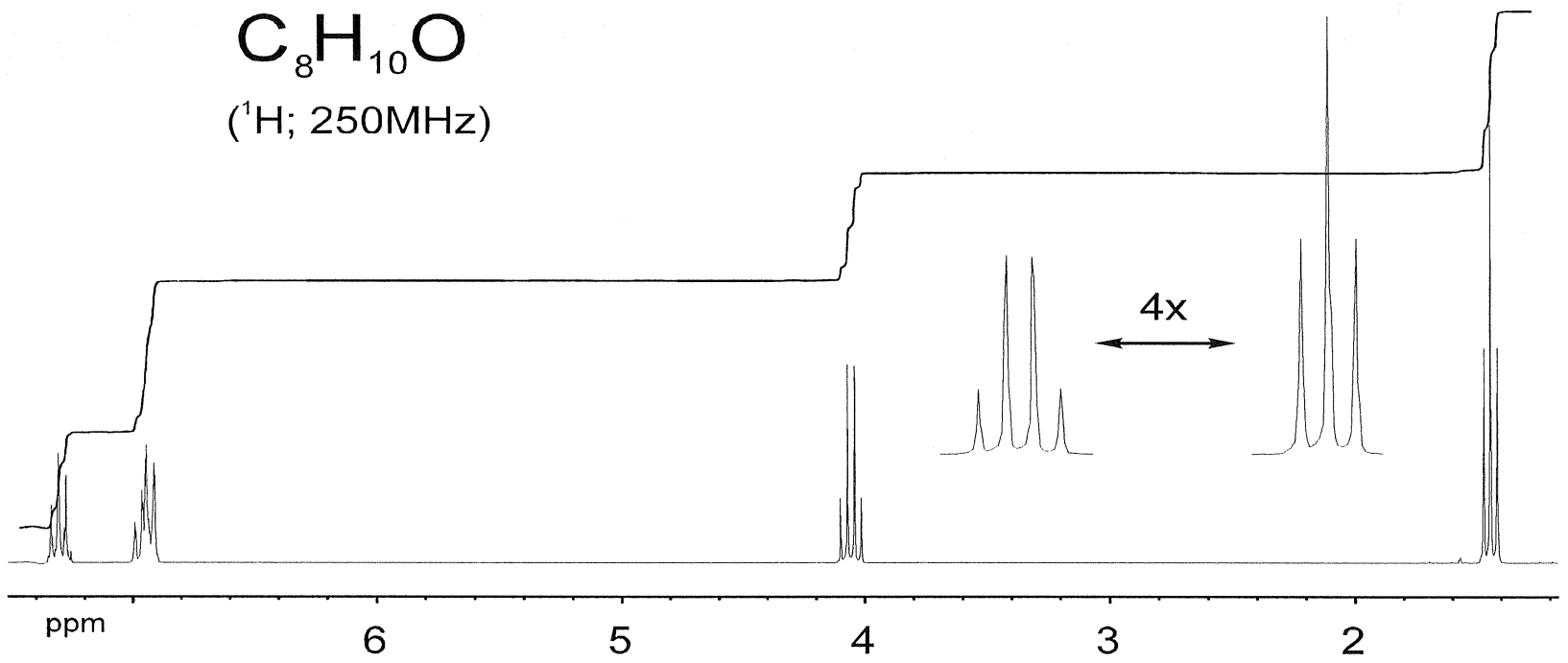
W-A-3


$C_9H_{10}O_3$
($^1$H; 250 MHz)
4x
Integral
1.00
1.49
ppm
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5

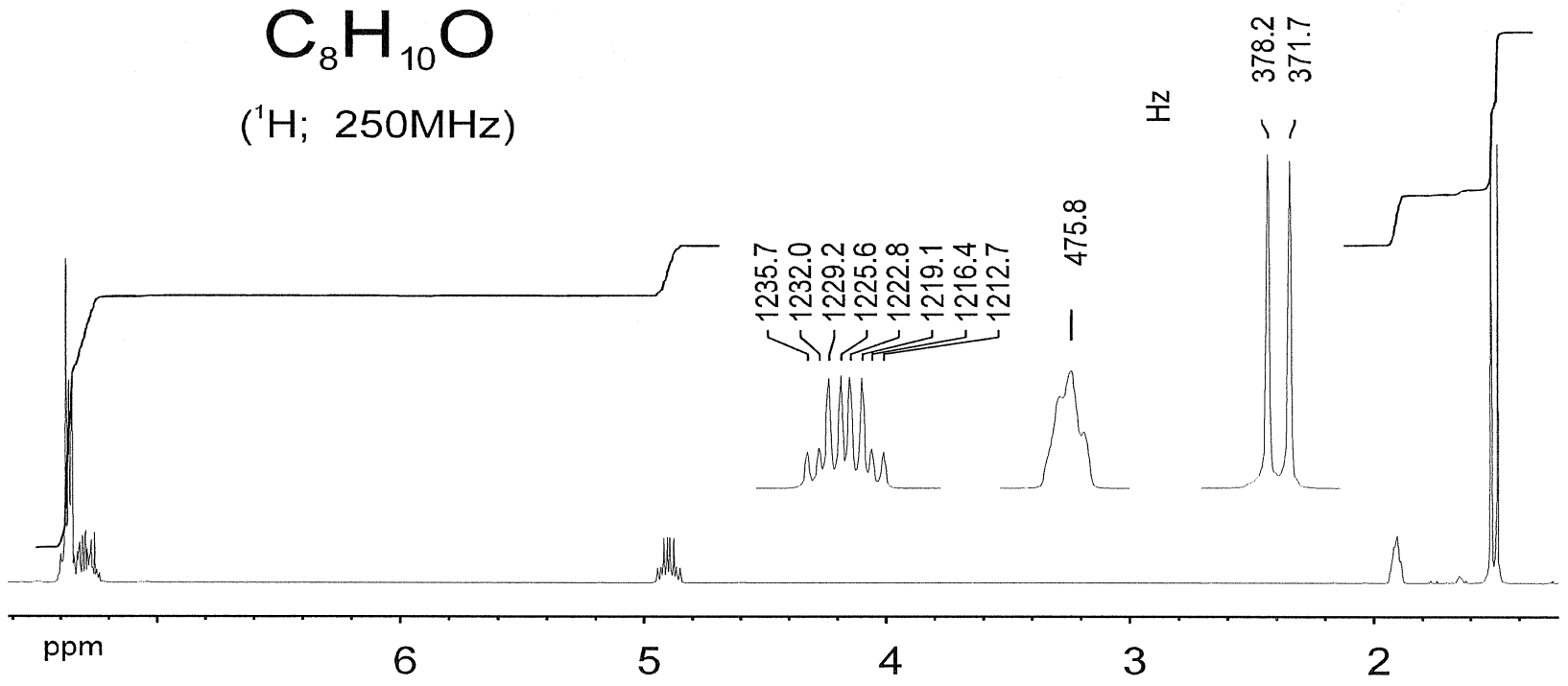
W-A-4



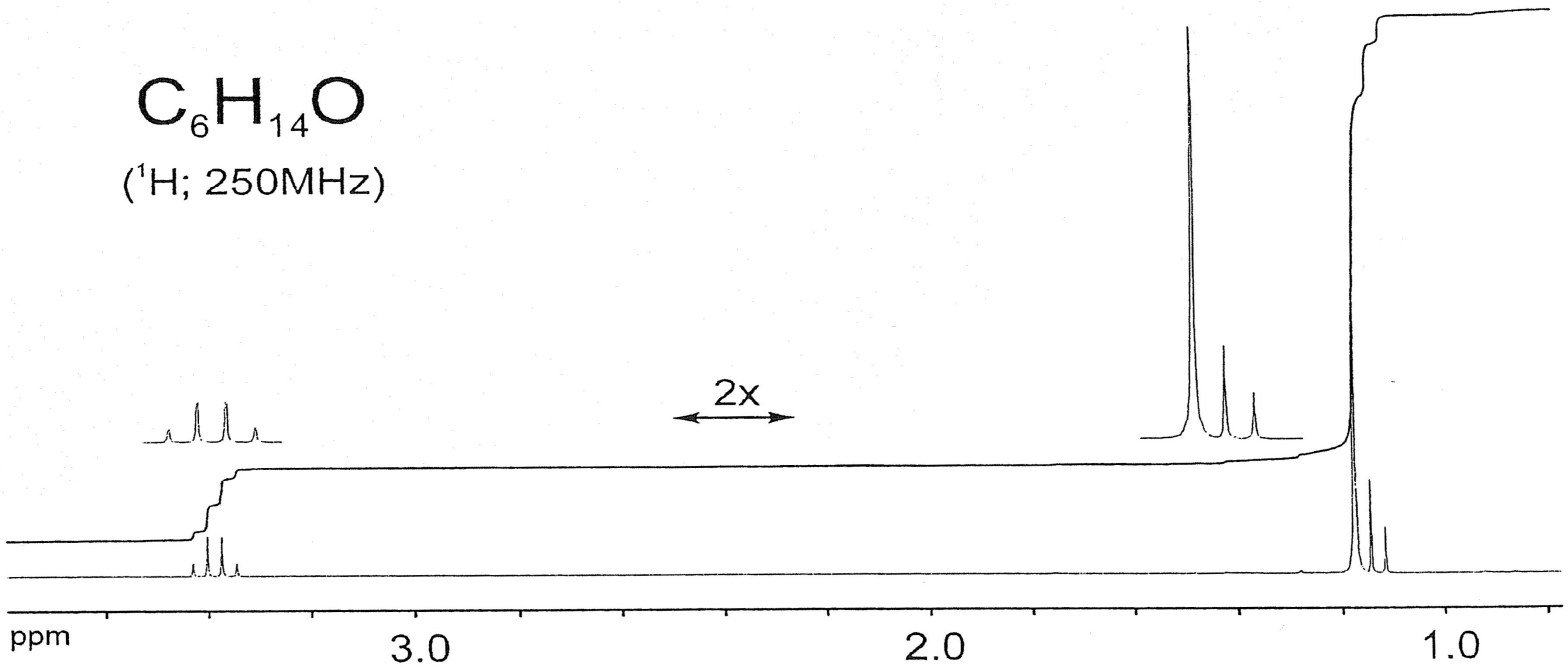
W-A-5


C8H10O
(1H; 250MHz)
4x
ppm
6
5
4
3
2

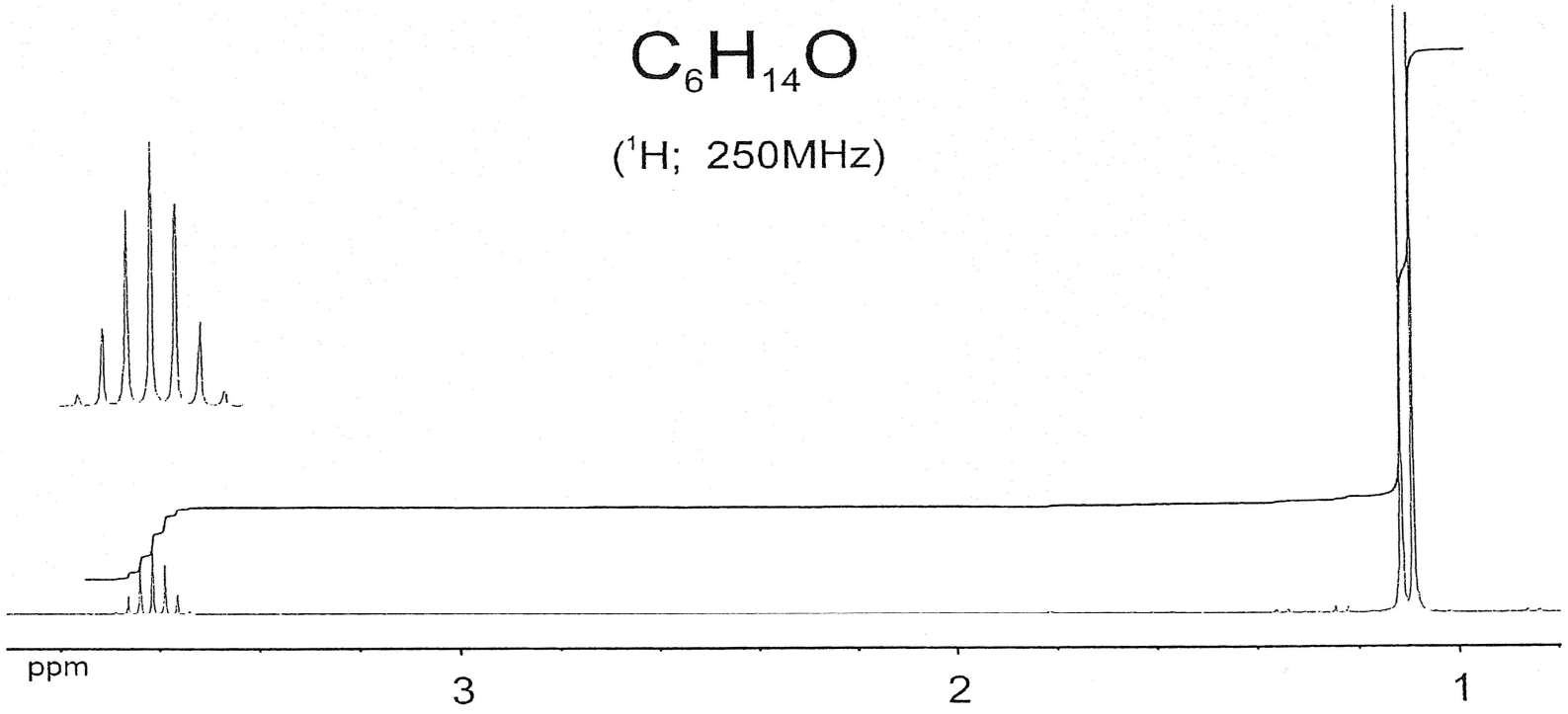
W-A-10


C8H10O
(1H; 250MHz)
1235.7
1232.0
1229.2
1225.6
1222.8
1219.1
1216.4
1212.7
475.8
Hz
378.2
371.7
ppm
6
5
4
3
2

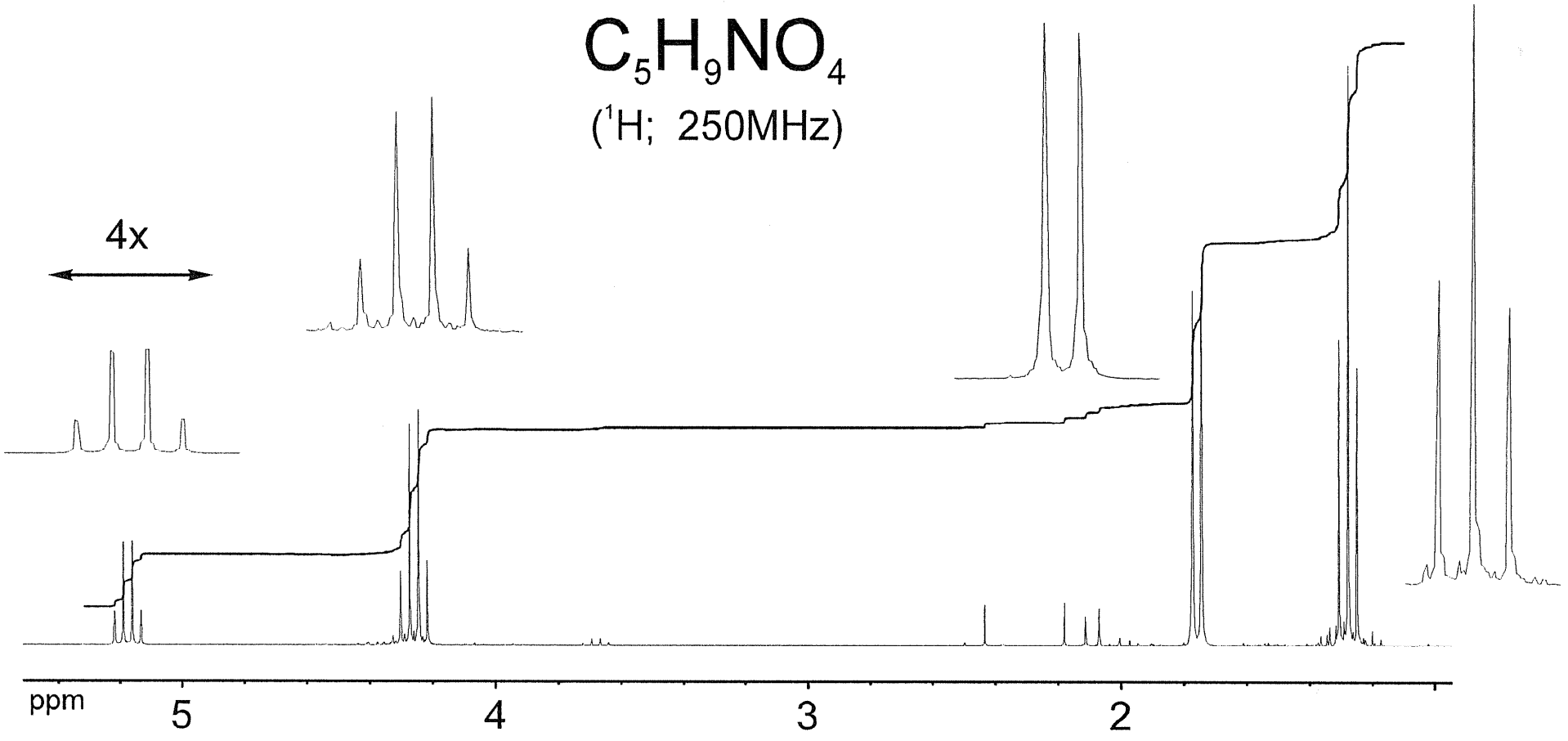
W-A-6



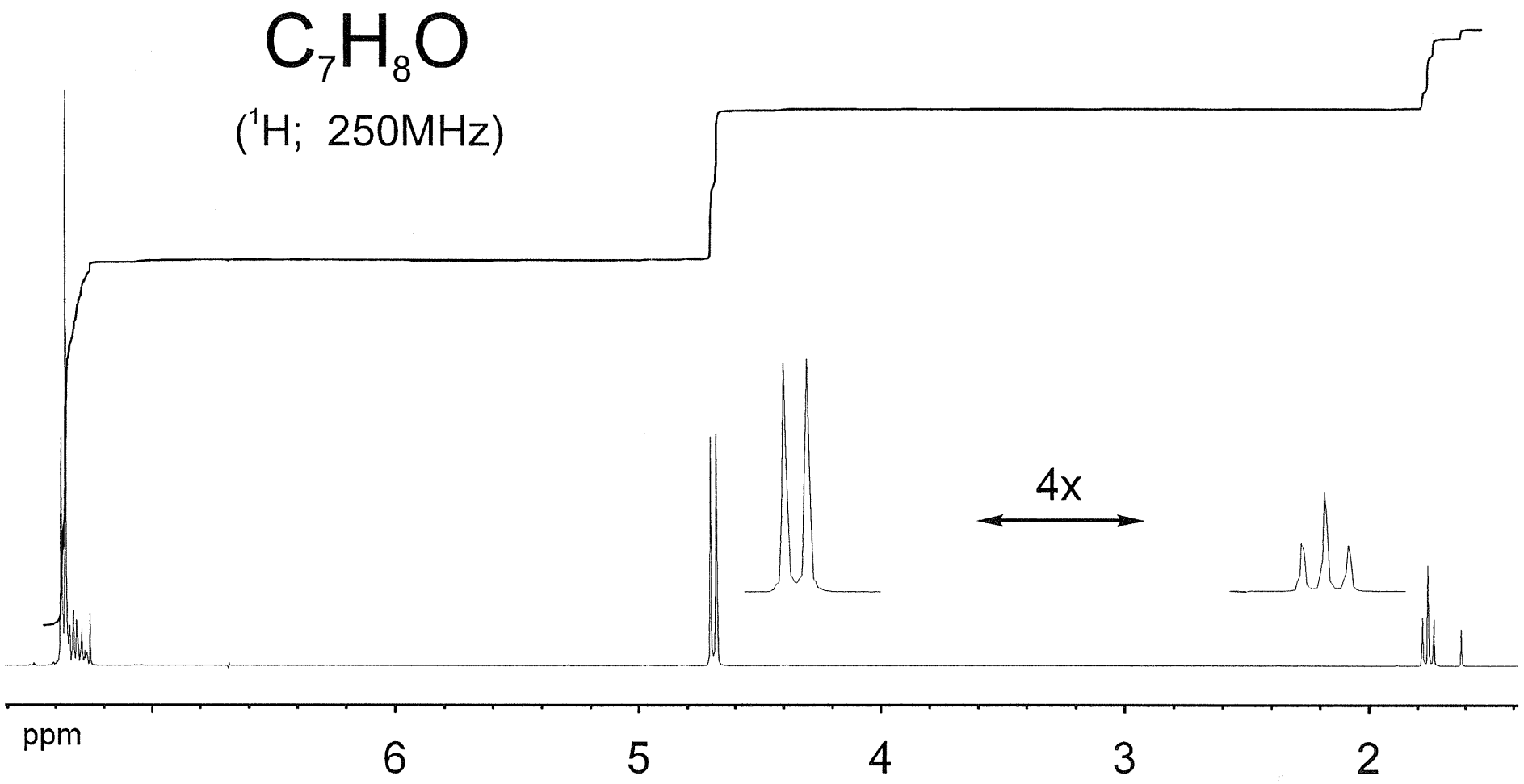

W-A-7



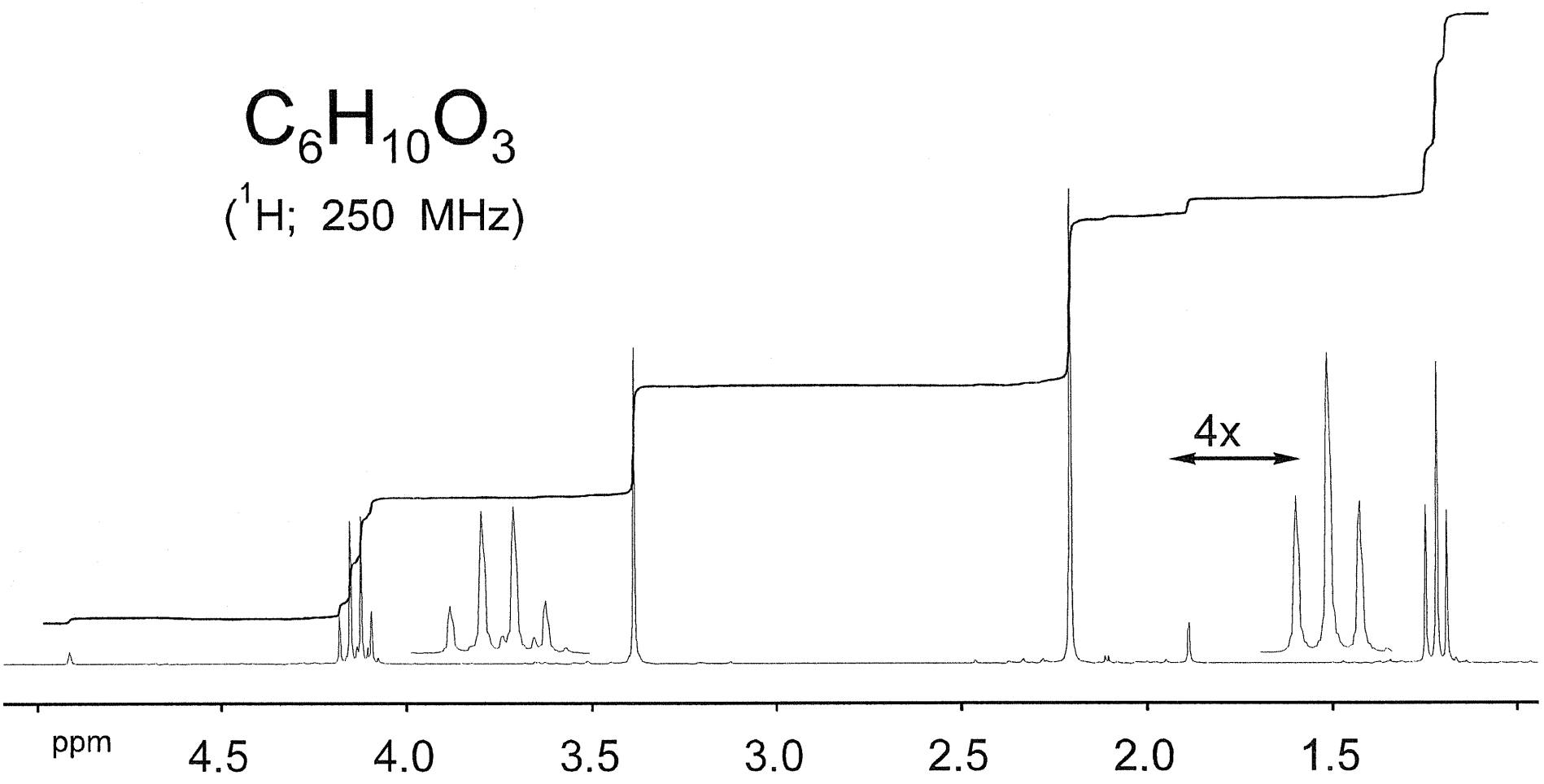
W-A-8



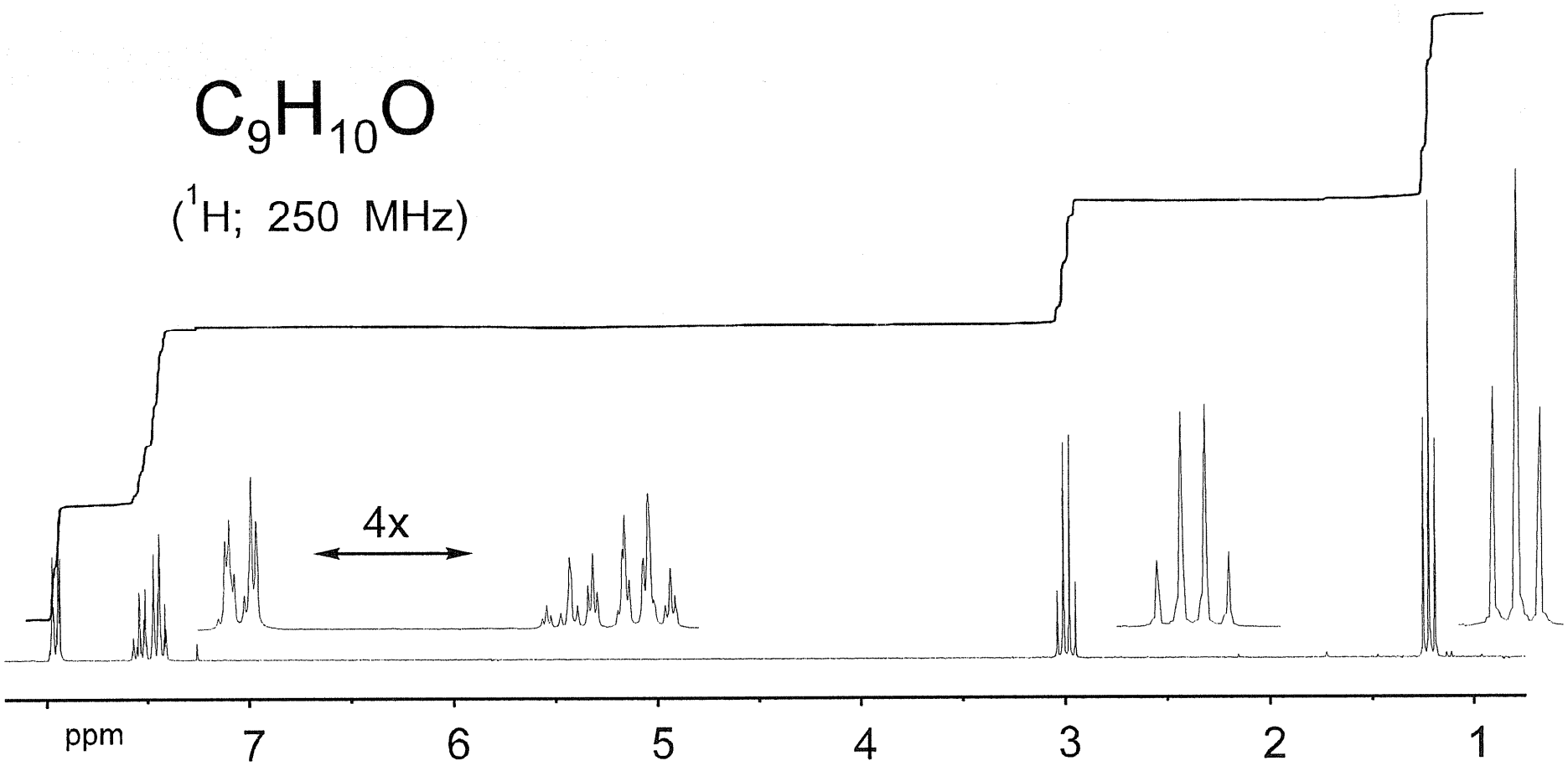
W-A-9



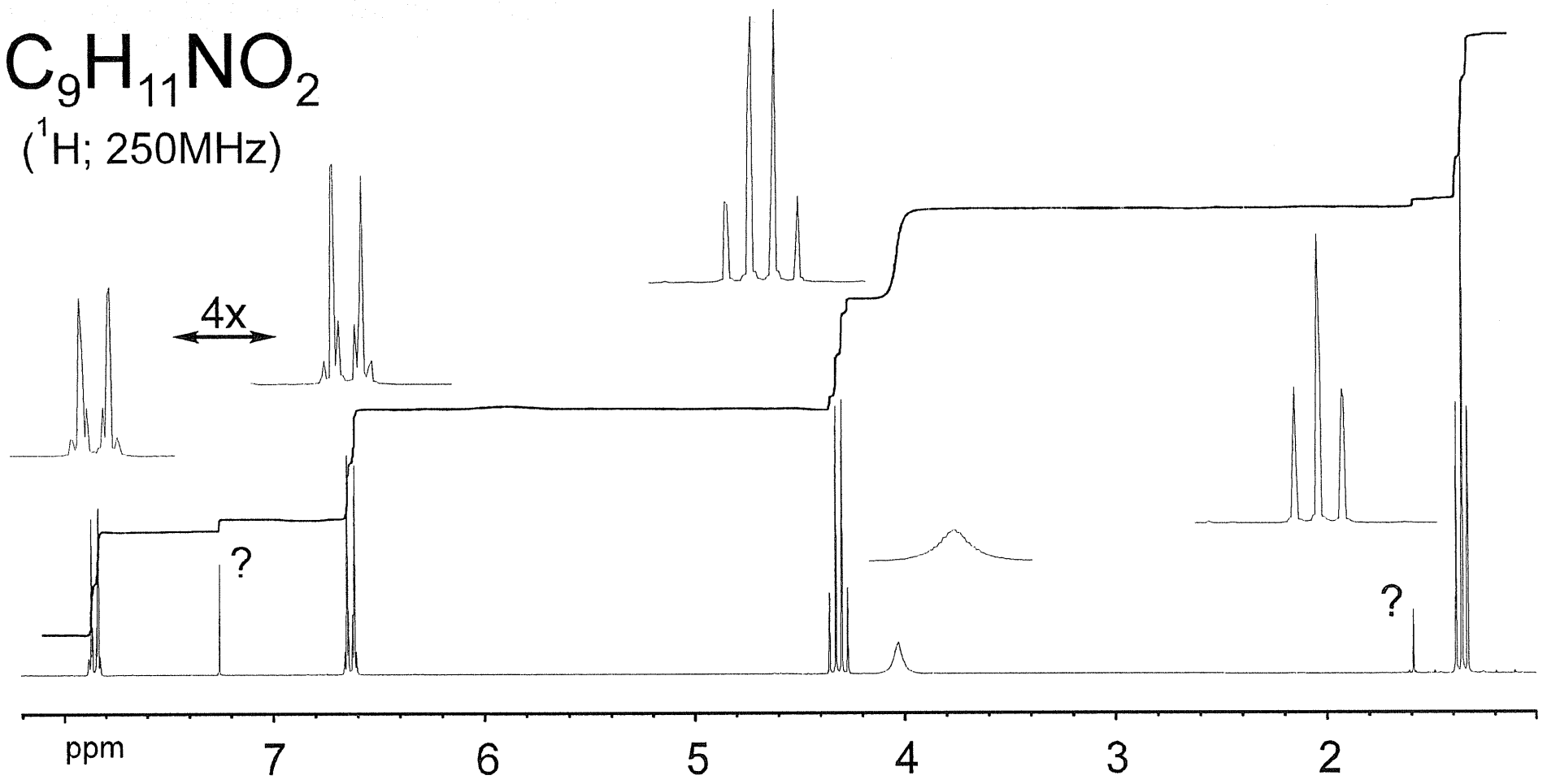
S-A-2



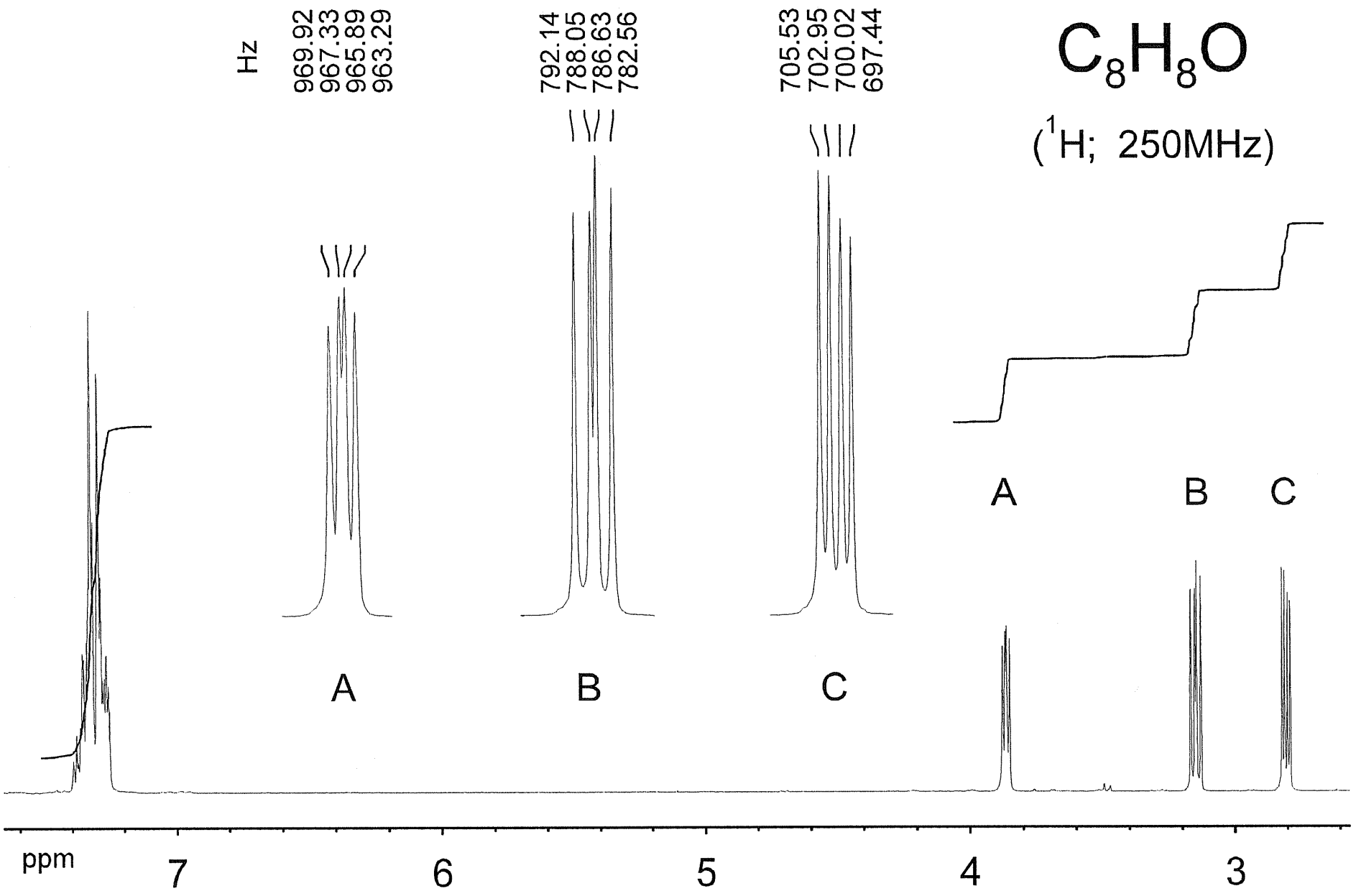
S-A-3



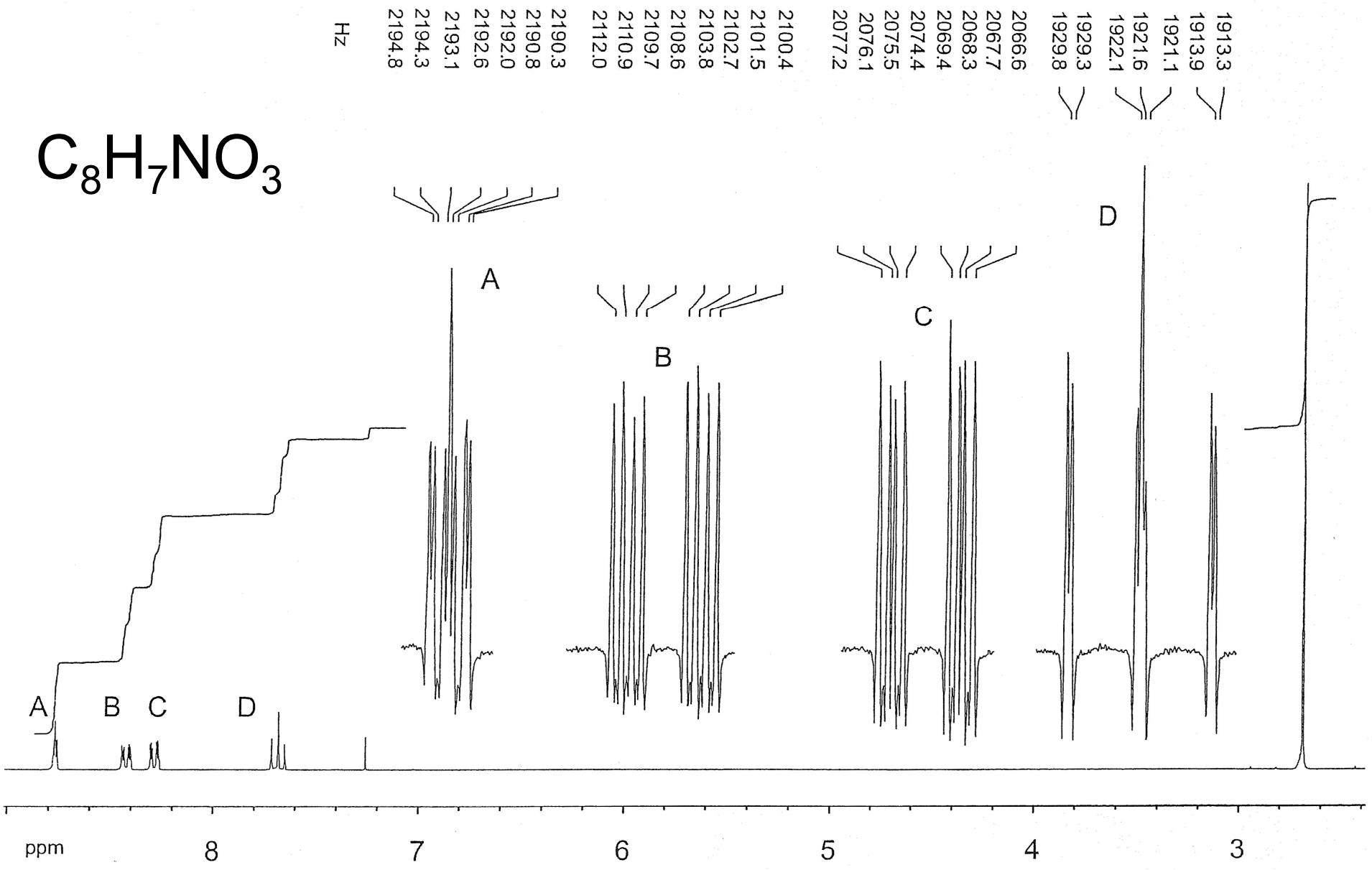
S-A-4



S-A-5

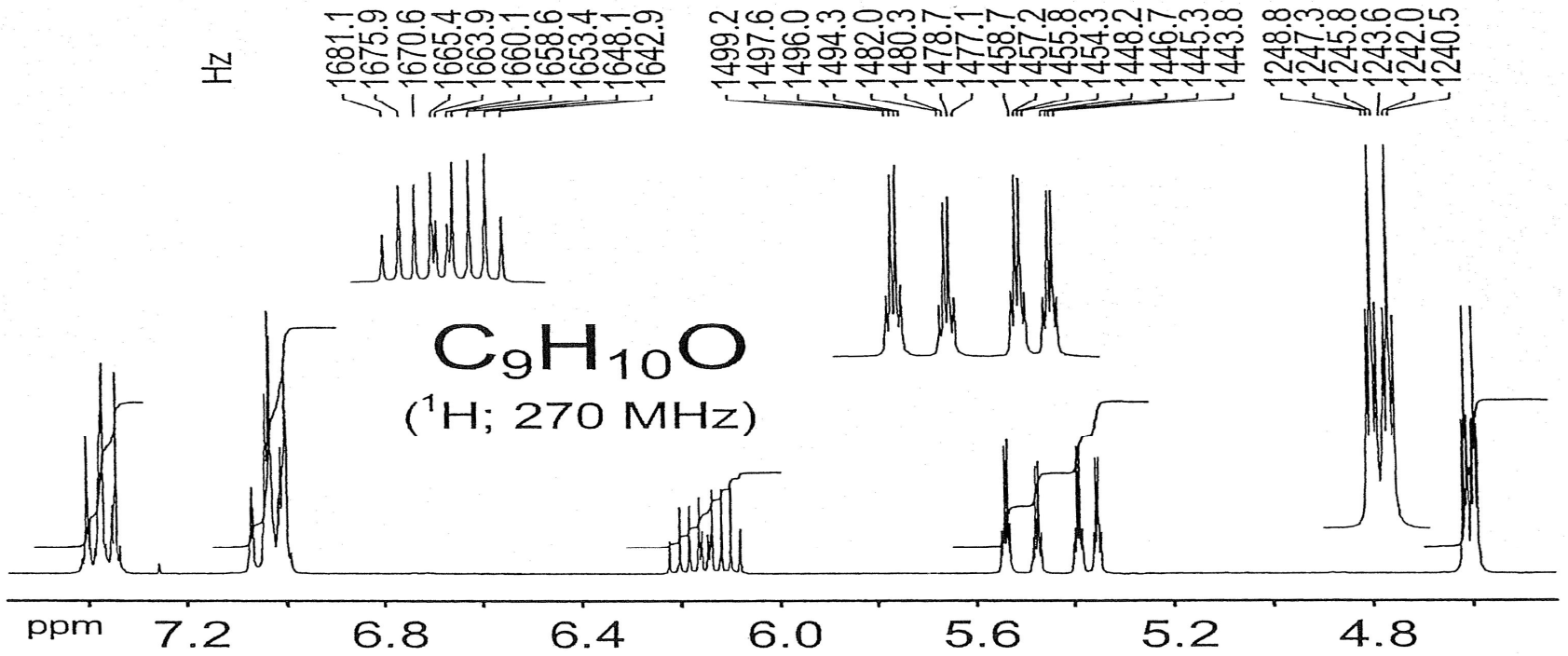

Hz
969.92
967.33
965.89
963.29
792.14
788.05
786.63
782.56
705.53
702.95
700.02
697.44
$C_8H_8O$
($^1$H; 250MHz)
A
B
C
A
B
C
ppm
7
6
5
4
3

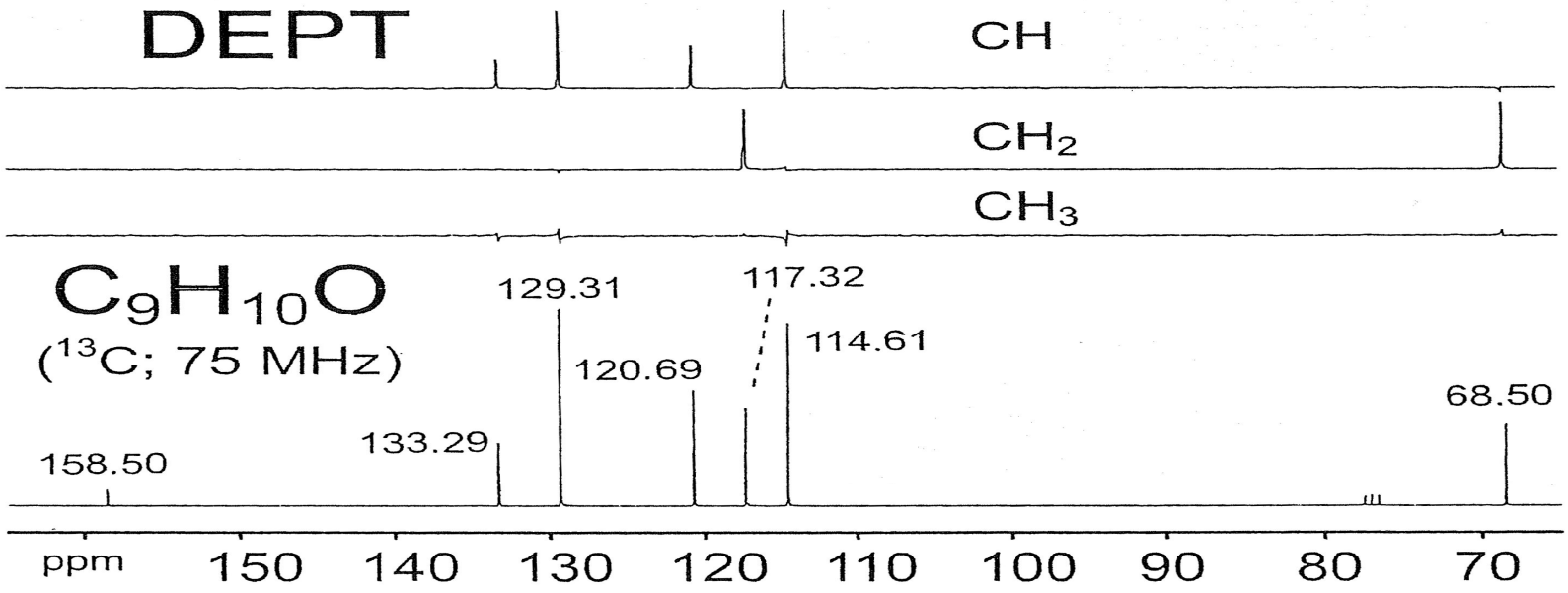
K-A-5


Hz
2194.8
2194.3
2193.1
2192.6
2192.0
2190.8
2190.3
2112.0
2110.9
2109.7
2108.6
2103.8
2102.7
2101.5
2100.4
2077.2
2076.1
2075.5
2074.4
2069.4
2068.3
2067.7
2066.6
1929.8
1929.3
1922.1
1921.6
1921.1
1913.9
1913.3
A
B
C
D
A
B
C
D
ppm
8
7
6
5
4
3

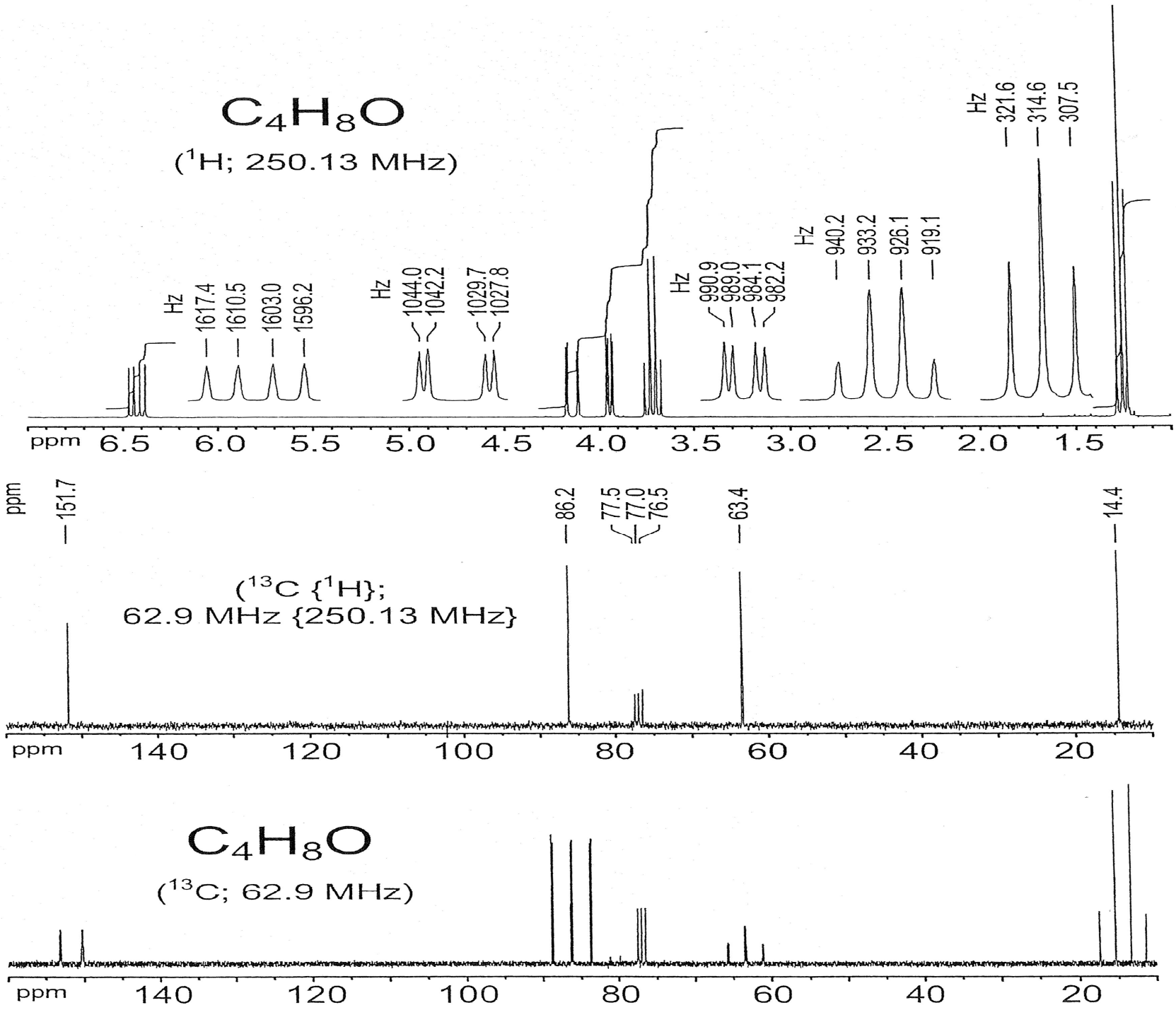
$C_8H_7NO_3$

K-A-7

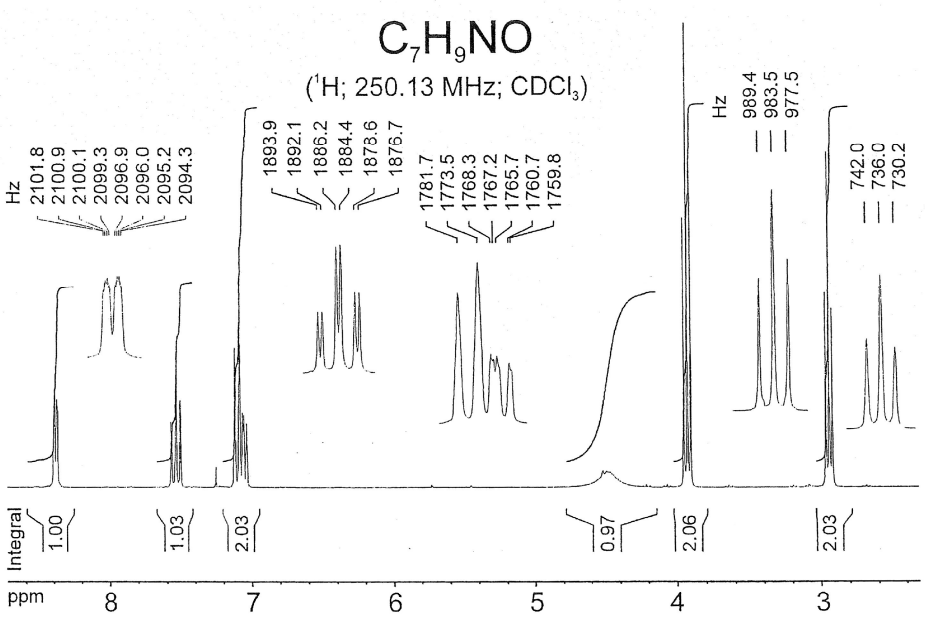

Hz
1681.1
1675.9
1670.6
1665.4
1663.9
1660.1
1658.6
1653.4
1648.1
1642.9
1499.2
1497.6
1496.0
1494.3
1482.0
1480.3
1478.7
1477.1
1458.7
1457.2
1455.8
1454.3
1448.2
1446.7
1445.3
1443.8
1248.8
1247.3
1245.8
1243.6
1242.0
1240.5
C9H10O
(1H; 270 MHz)
ppm
7.2
6.8
6.4
6.0
5.6
5.2
4.8

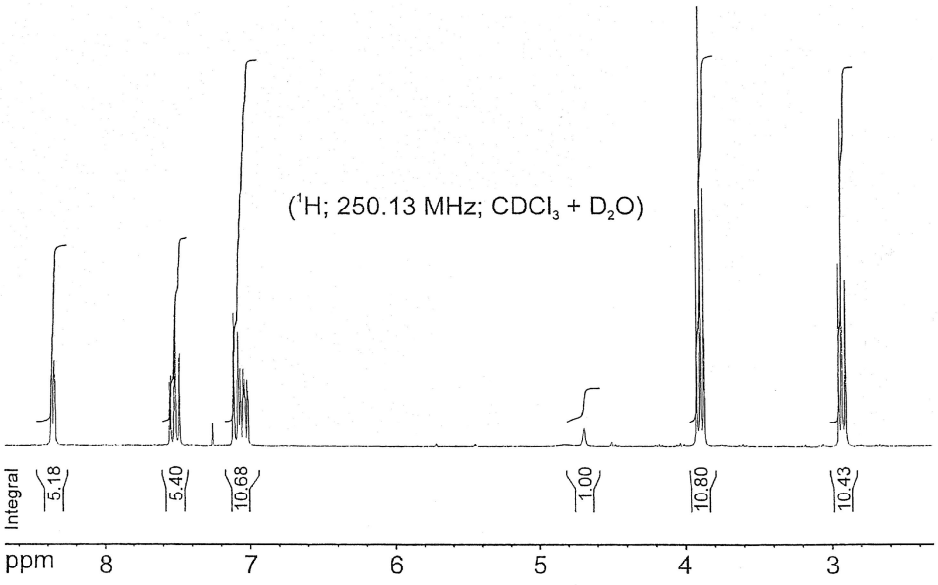

DEPT
CH
CH2
CH3
C9H10O
(13C; 75 MHz)
129.31
117.32
114.61
120.69
68.50
133.29
158.50
ppm
150
140
130
120
110
100
90
80
70

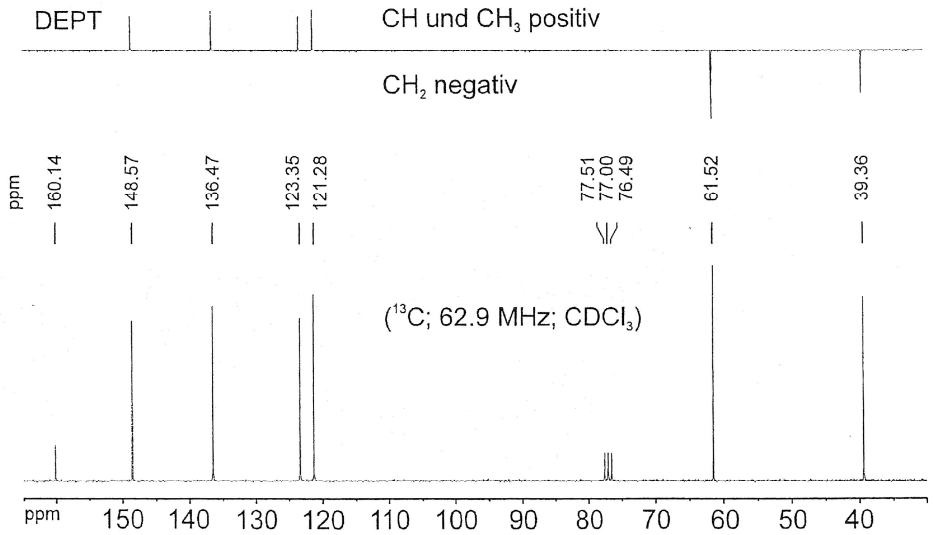
K-A-12

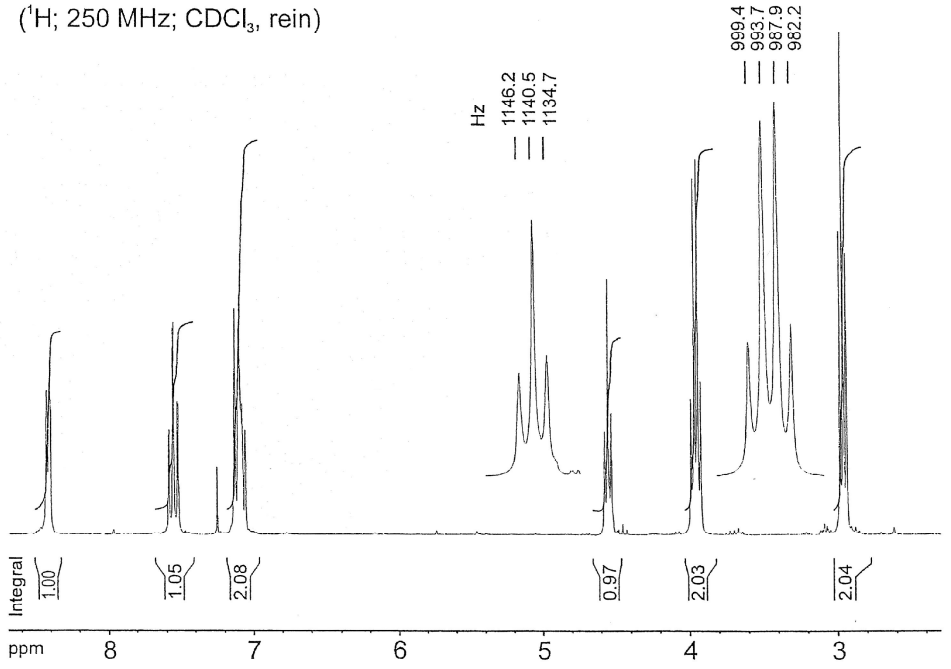

C4H8O
(1H; 250.13 MHz)
Hz
1617.4
1610.5
1603.0
1596.2
Hz
1044.0
1042.2
1029.7
1027.8
Hz
990.9
989.0
984.1
982.2
Hz
940.2
933.2
926.1
919.1
Hz
321.6
314.6
307.5
ppm
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
ppm
151.7
86.2
77.5
77.0
76.5
63.4
14.4
(13C {1H};
62.9 MHz {250.13 MHz}
ppm
140
120
100
80
60
40
20
C4H8O
(13C; 62.9 MHz)
ppm
140
120
100
80
60
40
20

# A-A-14


C7H9NO
(1H; 250.13 MHz; CDCl3)
Hz
2101.8
2100.9
2100.1
2099.3
2096.9
2096.0
2095.2
2094.3
1893.9
1892.1
1886.2
1884.4
1878.6
1876.7
1781.7
1773.5
1768.3
1767.2
1765.7
1760.7
1759.8
Hz
989.4
983.5
977.5
742.0
736.0
730.2
Integral
1.00
1.03
2.03
0.97
2.06
2.03
ppm
8
7
6
5
4
3


(1H; 250.13 MHz; CDCl3 + D2O)
Integral
5.18
5.40
10.68
1.00
10.80
10.43
ppm
8
7
6
5
4
3


DEPT
CH und CH3 positiv
CH2 negativ
ppm
160.14
148.57
136.47
123.35
121.28
77.51
77.00
76.49
61.52
39.36
(13C; 62.9 MHz; CDCl3)
ppm
150
140
130
120
110
100
90
80
70
60
50
40


(1H; 250 MHz; CDCl3, rein)
Hz
1146.2
1140.5
1134.7
999.4
993.7
987.9
982.2
Integral
1.00
1.05
2.08
0.97
2.03
2.04
ppm
8
7
6
5
4
3