

BEDANKINGS

Hiermee wil ek graag die volgende persone bedank:

My ouers en sus, vir al jul ondersteuning, liefde en vertrouwe wat my aan die gang gehou het.

Mnr. A. Joubert, vir al die raad en idees met die KMR-eksperimente.

Dr. J. Jordaan, my studieleier, vir al die leiding, geduld en motivering gedurende die studie.

Prof. M. Vosloo, my mede-studieleier, vir die geleentheid om in die Katalise en Sintese groep navorsing te kon doen.

Dr. C. Williams, Mnr. A. Fouche en Me. L. Van der Walt vir al hul moeite met apparaat en chemikalieë.

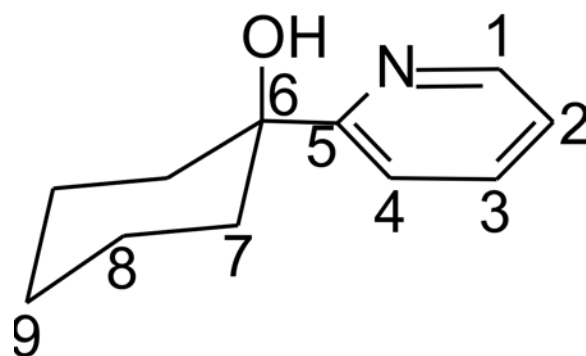
Prof. A.L. Combrink baie dankie vir die taalversorging.

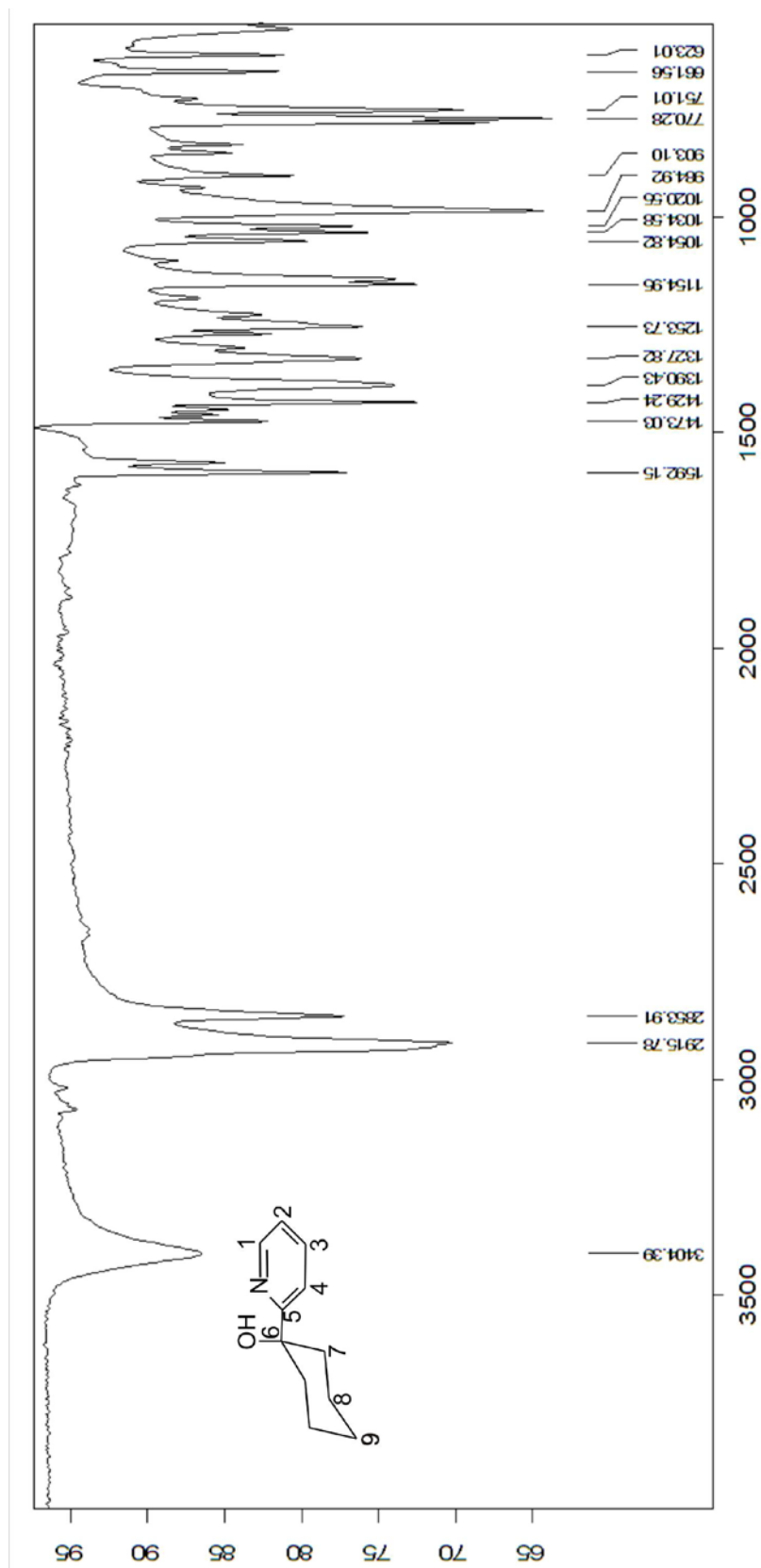
Vir almal wat my lewe verryk het met vriendskap, lewenswysheid, herinneringe en goeie tye.

Die CRB, NRF en NWU vir finansiële ondersteuning.

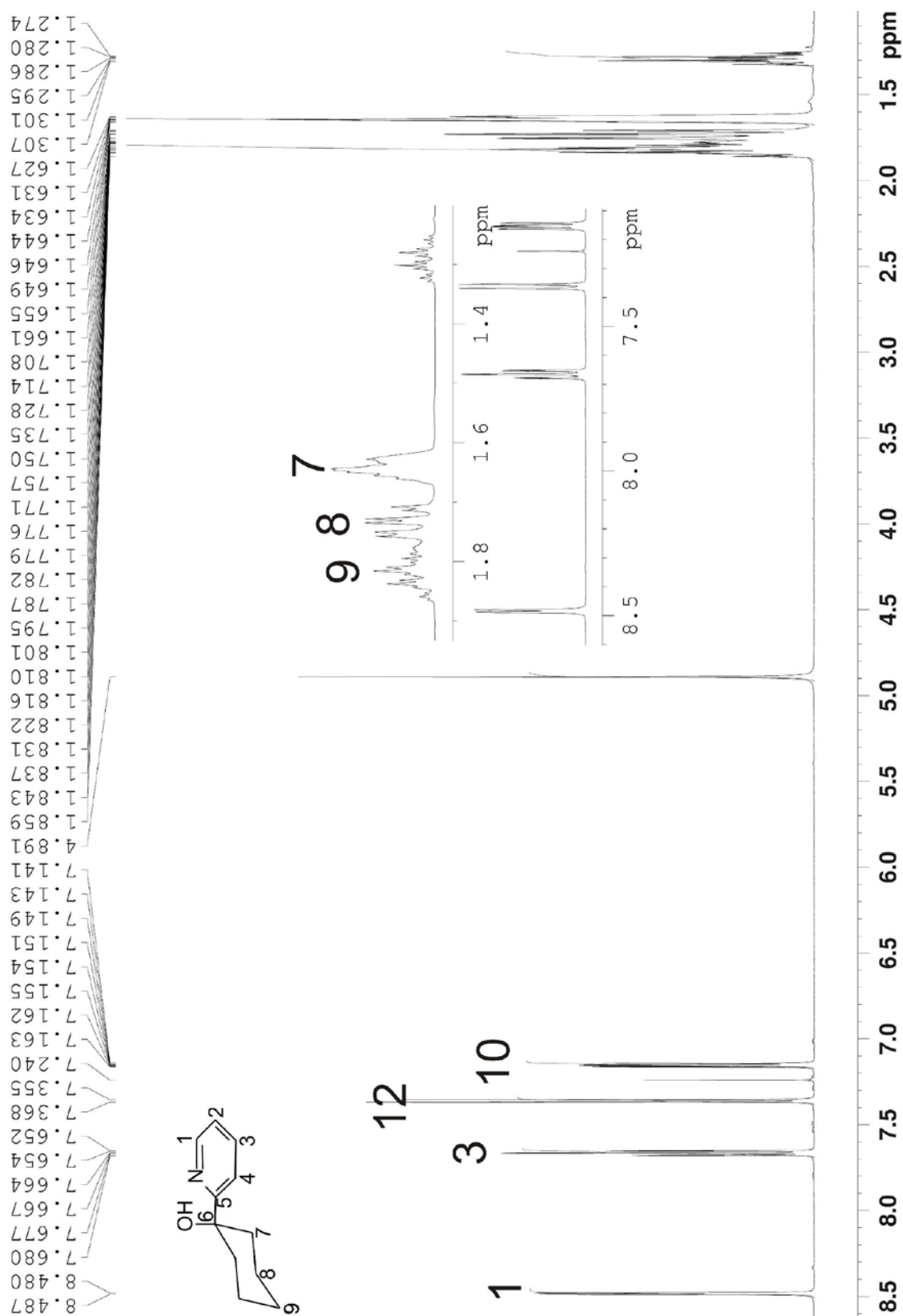
MEMOR SIS MORTALIS. DV8!

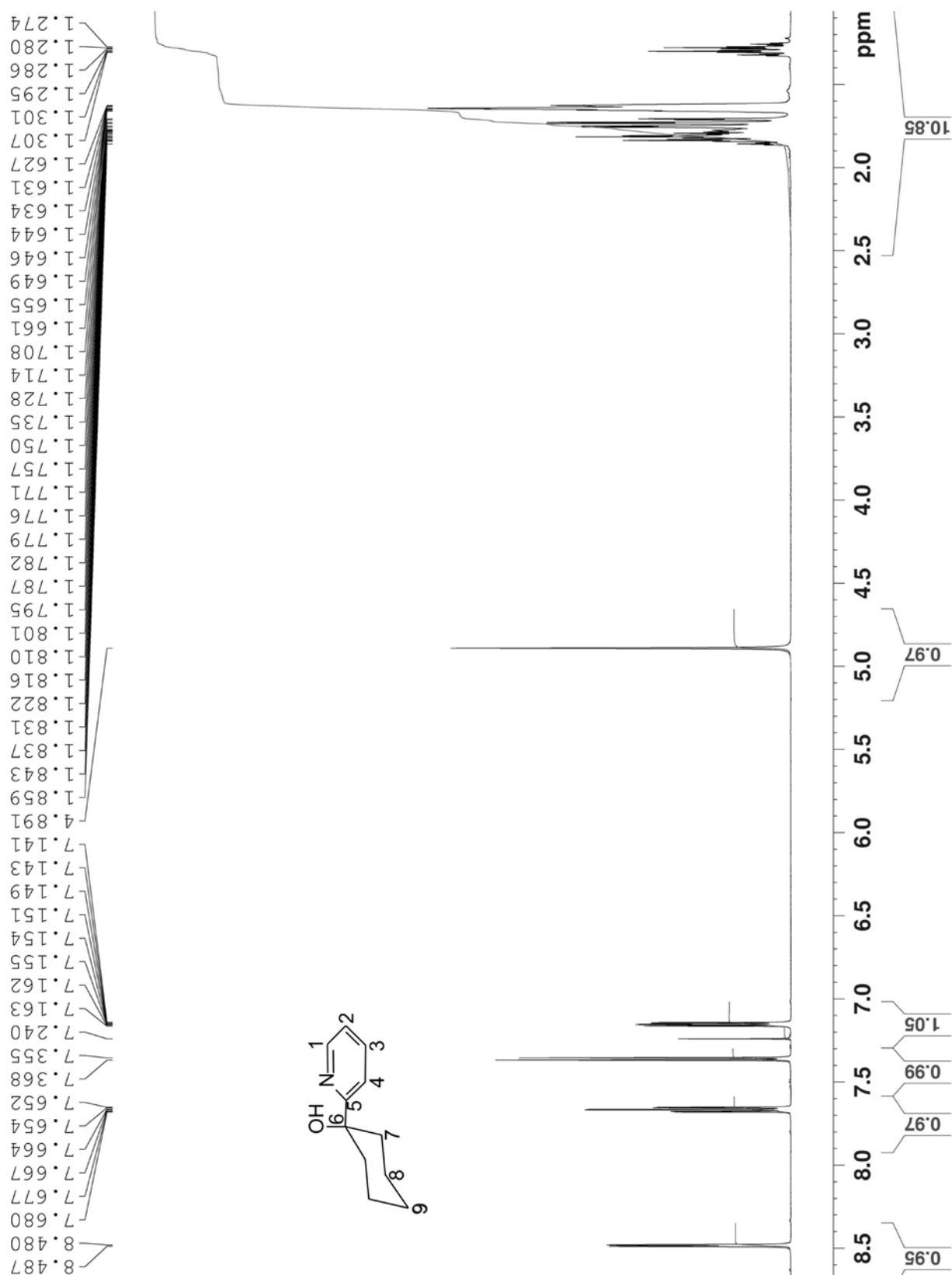
BYLAAG 1:
1(2-PIRIDINIEL)
SIKLOHEKSAN-1-OLATO



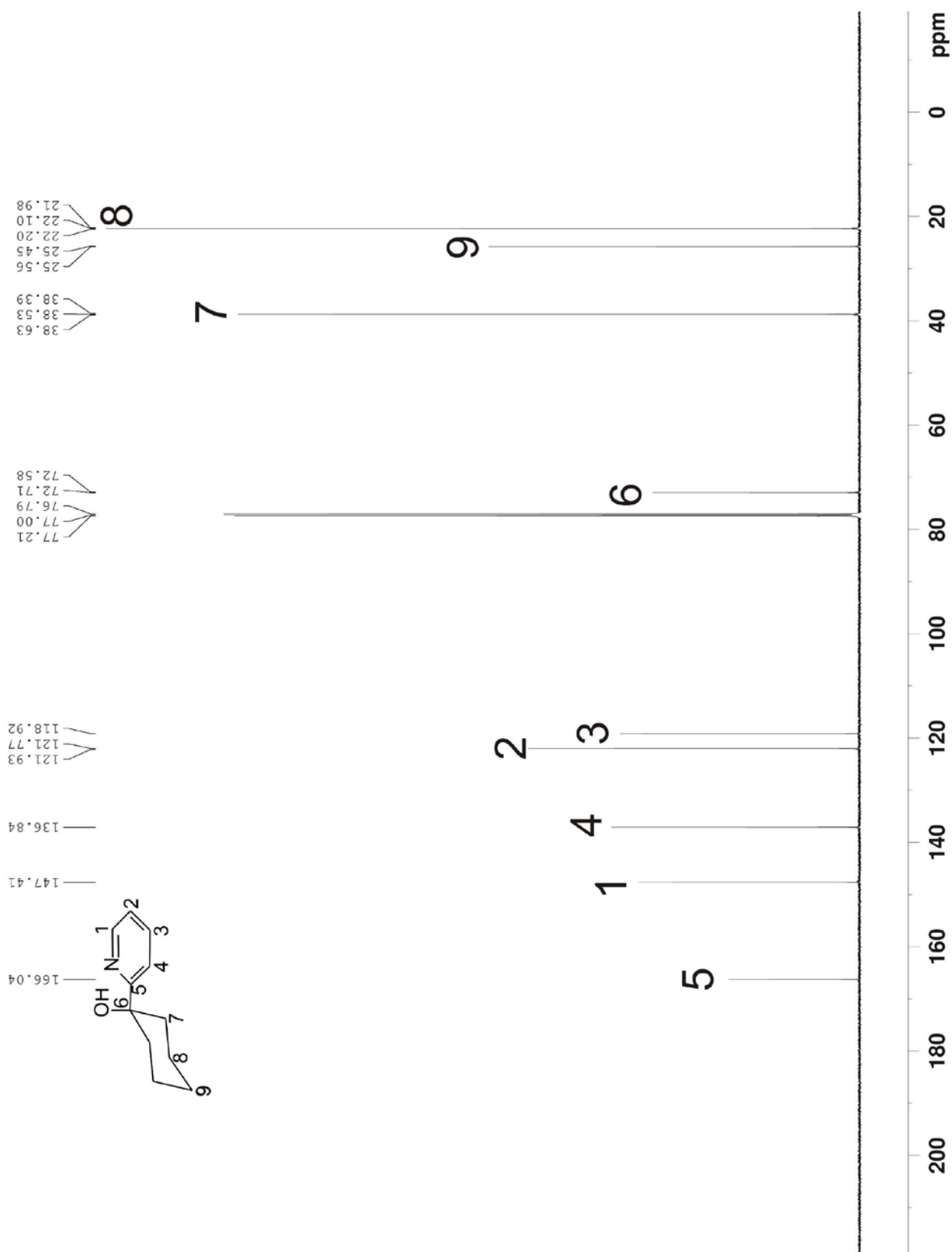


Spektrum 1.1 ATR-IR

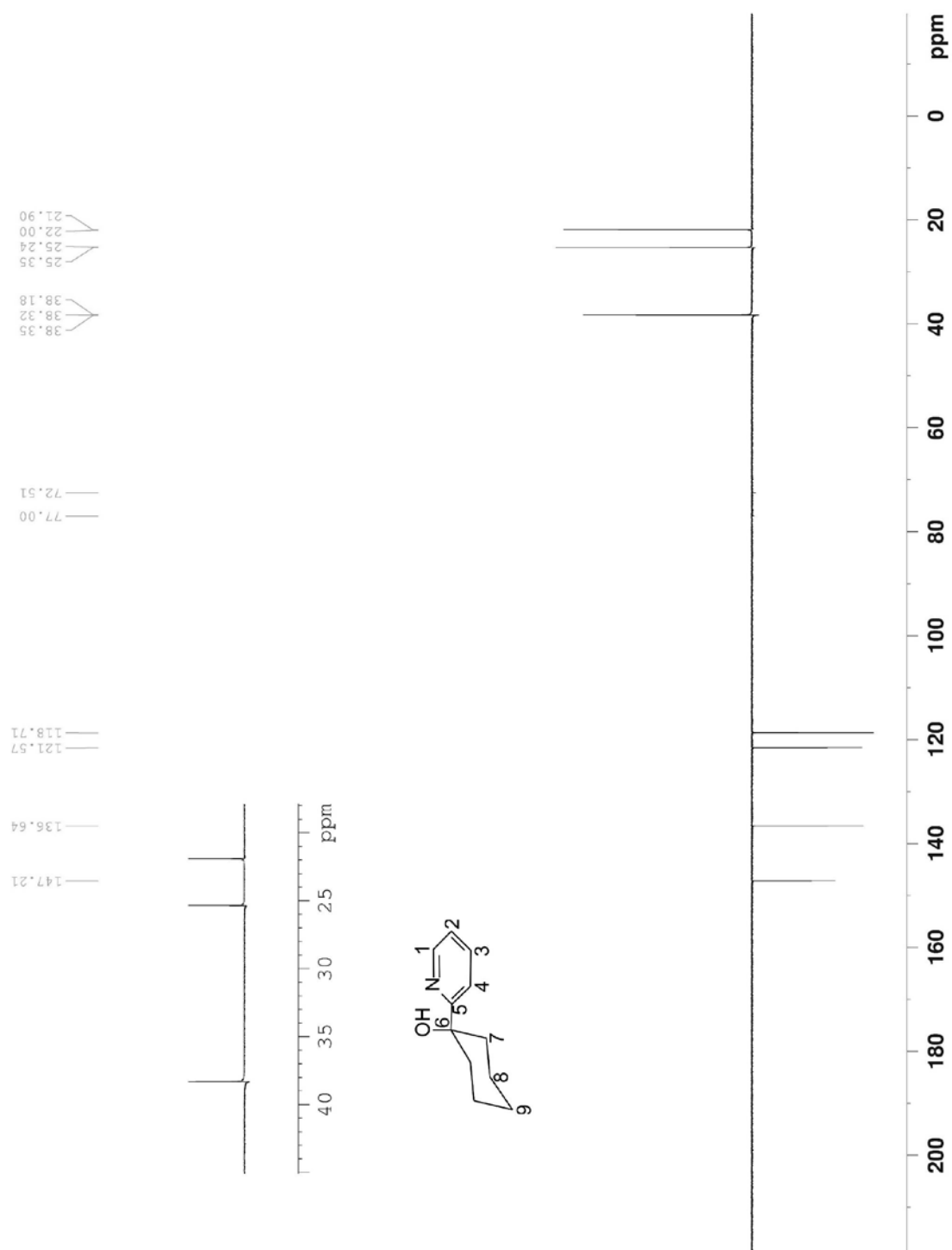




Spektrum 1.3 ¹H (CDCl₃) 600 MHz

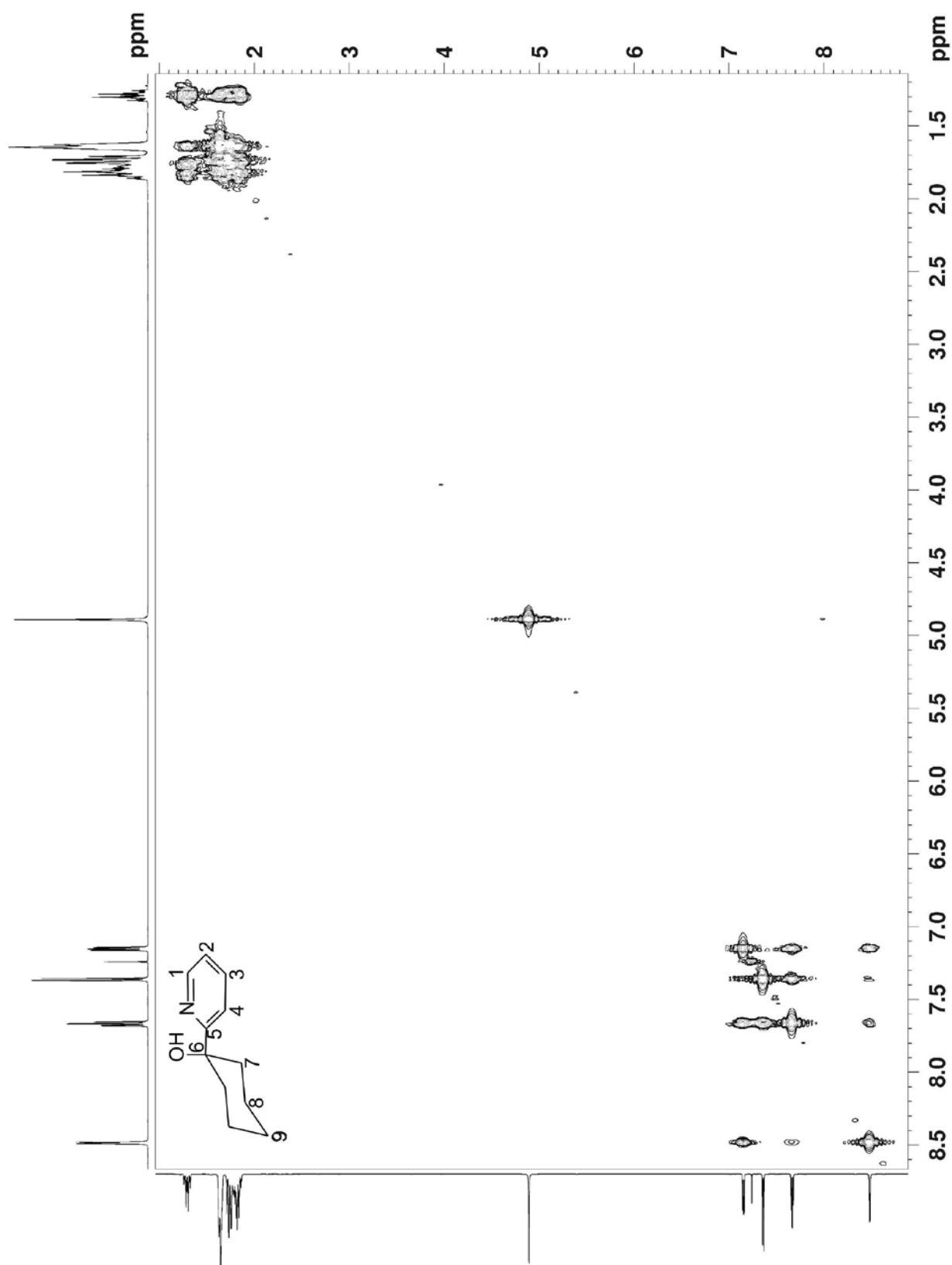


Spektrum 1.4 ^{13}C (CDCl_3) 600 MHz

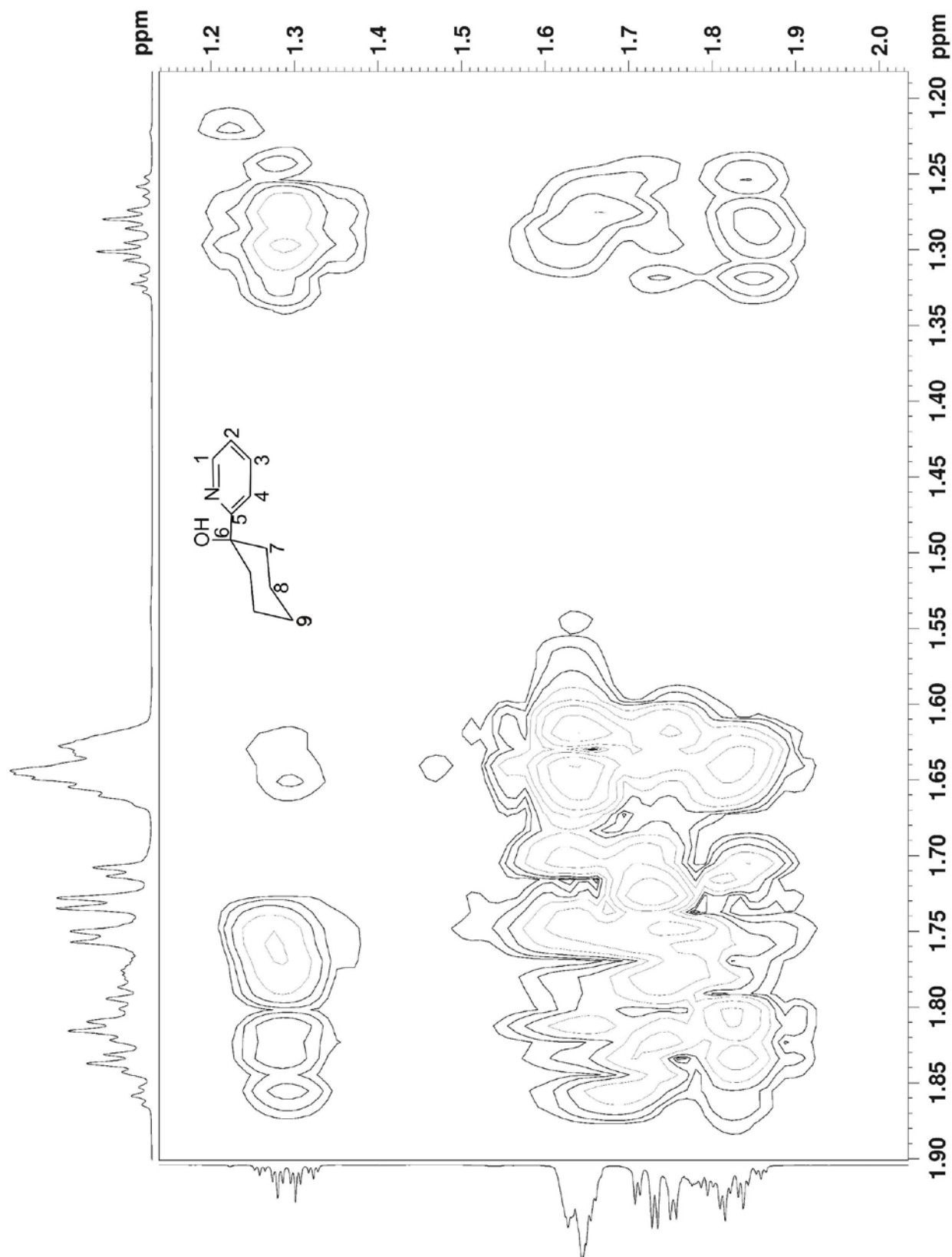


Spektrum 1.5

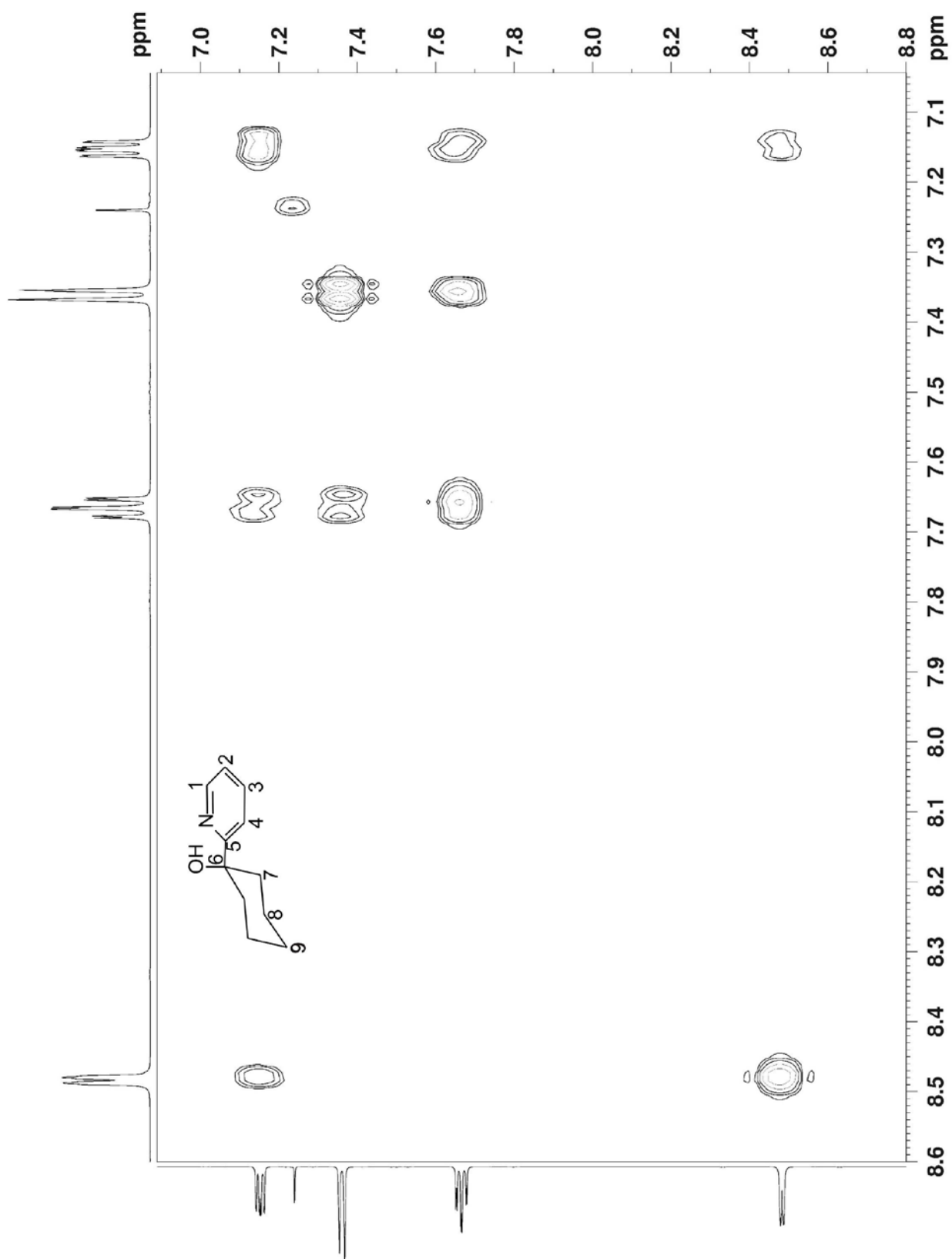
DEPT135 (CDCl₃) 150 MHz



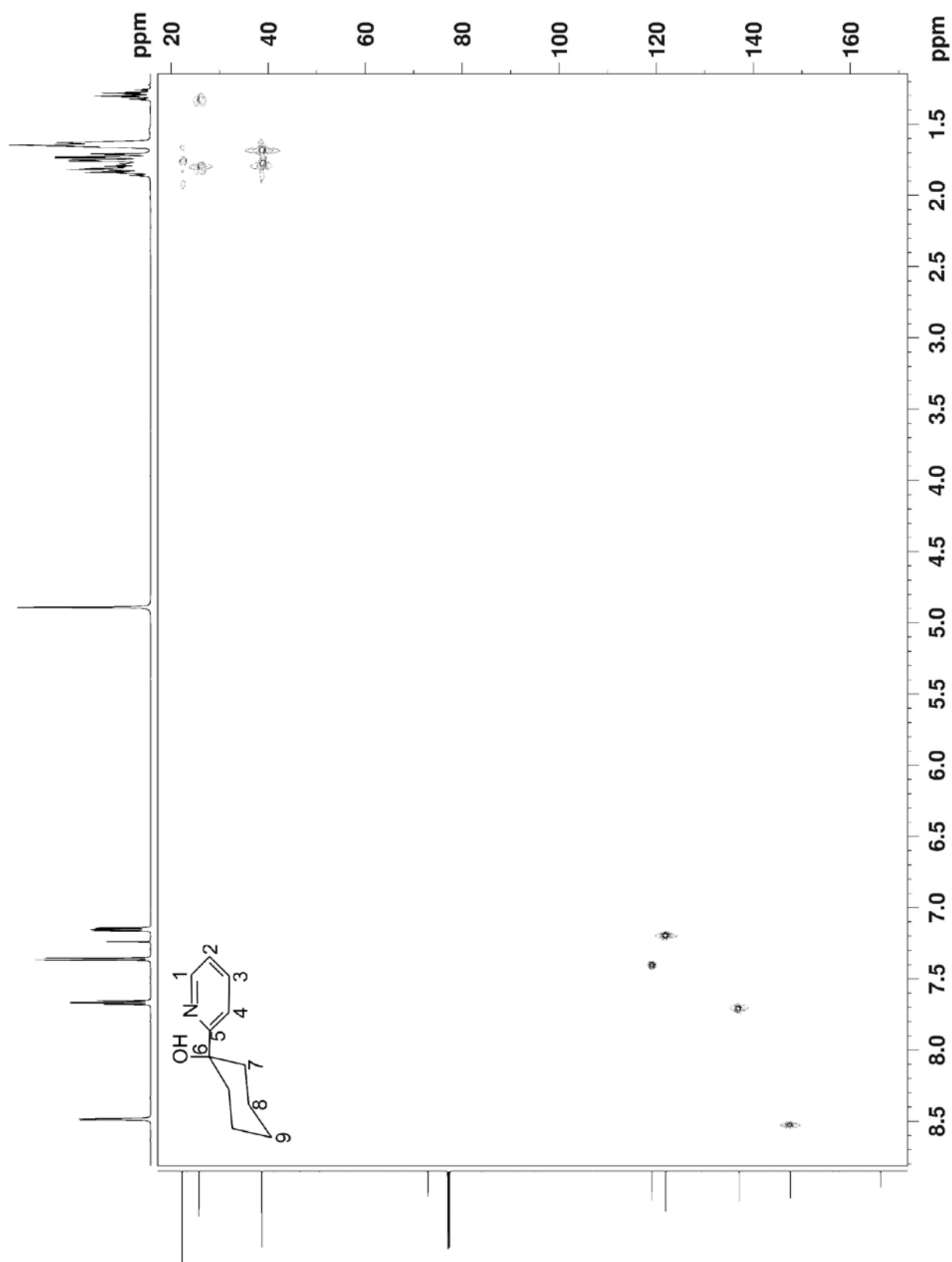
Spektrum 1.6 COSY (CDCl₃) 600 MHz



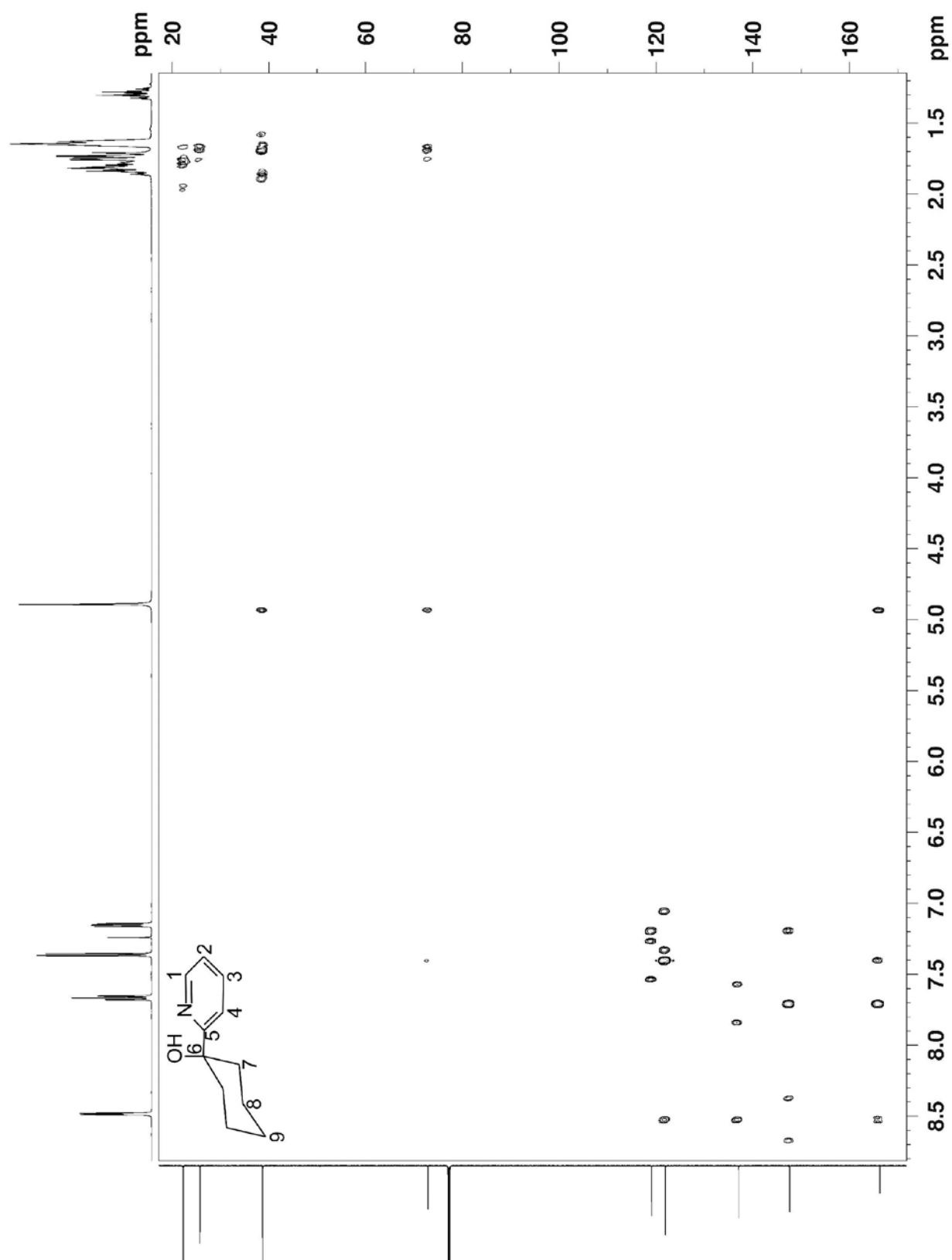
Spektrum 1.7 COSY (CDCl₃) 600 MHz



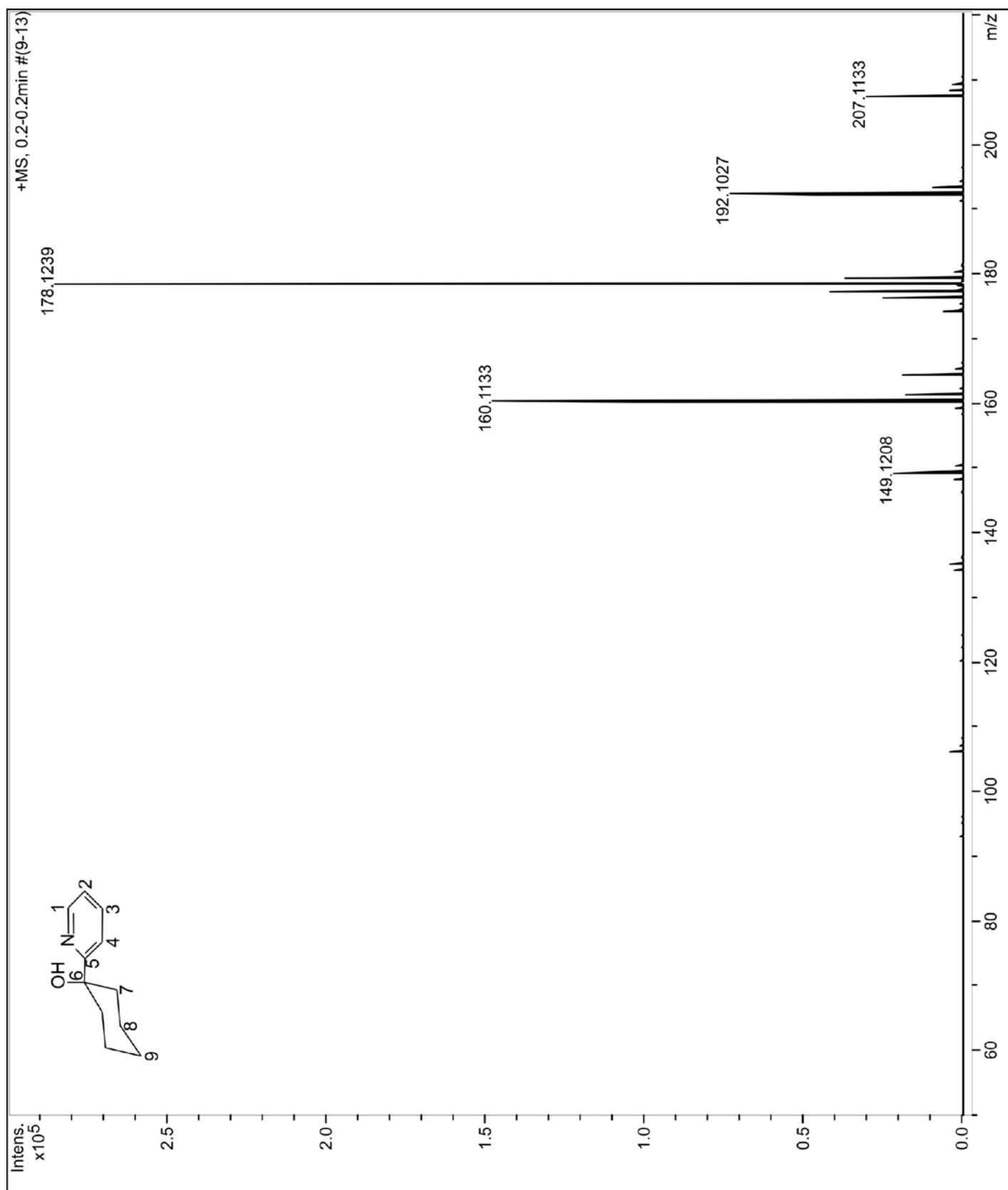
Spektrum 1.8 COSY (CDCl₃) 600 MHz



Spektrum 1.9 HSQC (CDCl_3) 600 MHz en 150 Mhz



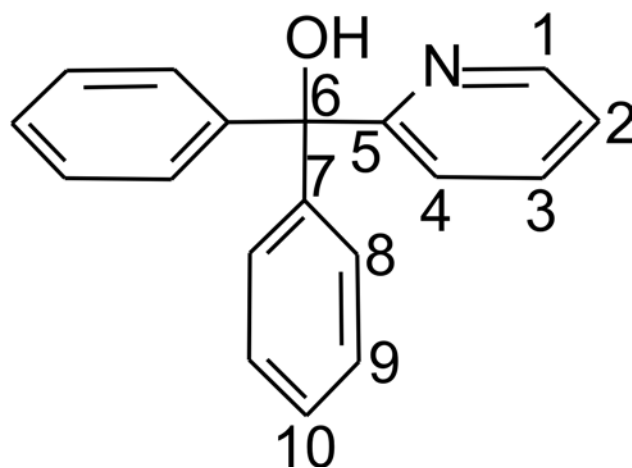
Spektrum 1.10 HMBC (CDCl_3) 600 MHz en 150 MHz

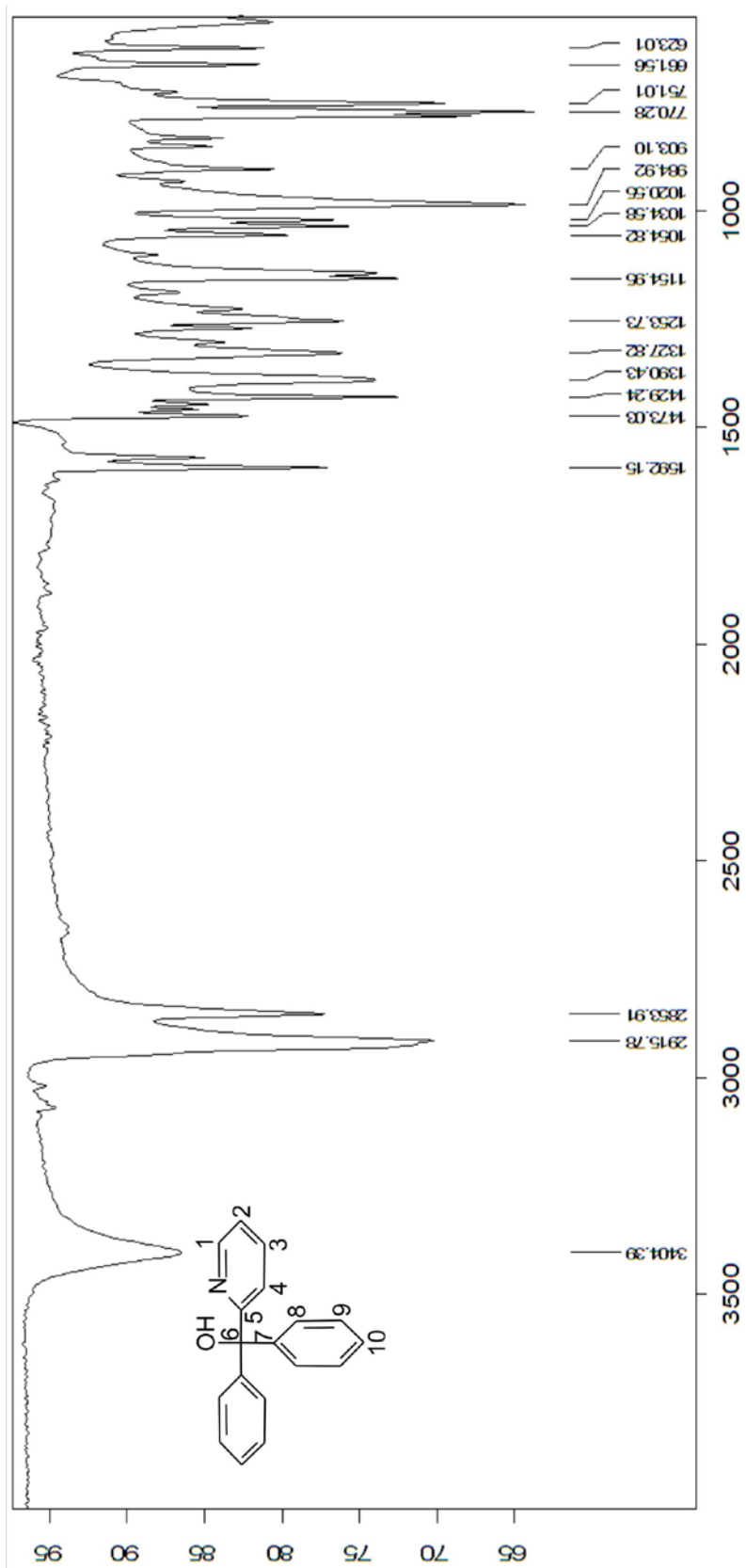


Spektrum 1.11 MS (APCI):([M⁺+H])

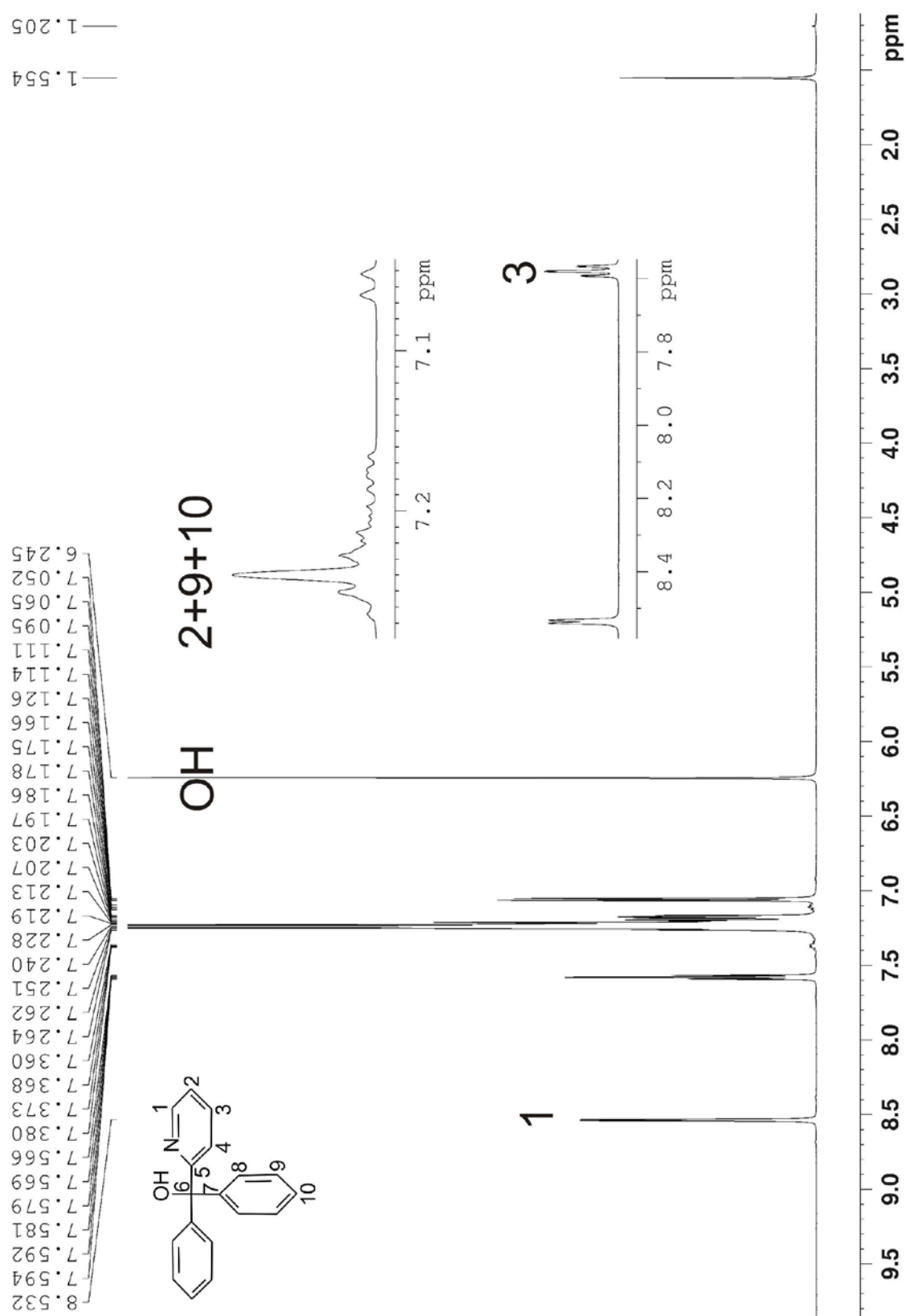
BYLAAG 2:

2-PIRIDINIEL-1,1-DIFENIEL-METANOLATO

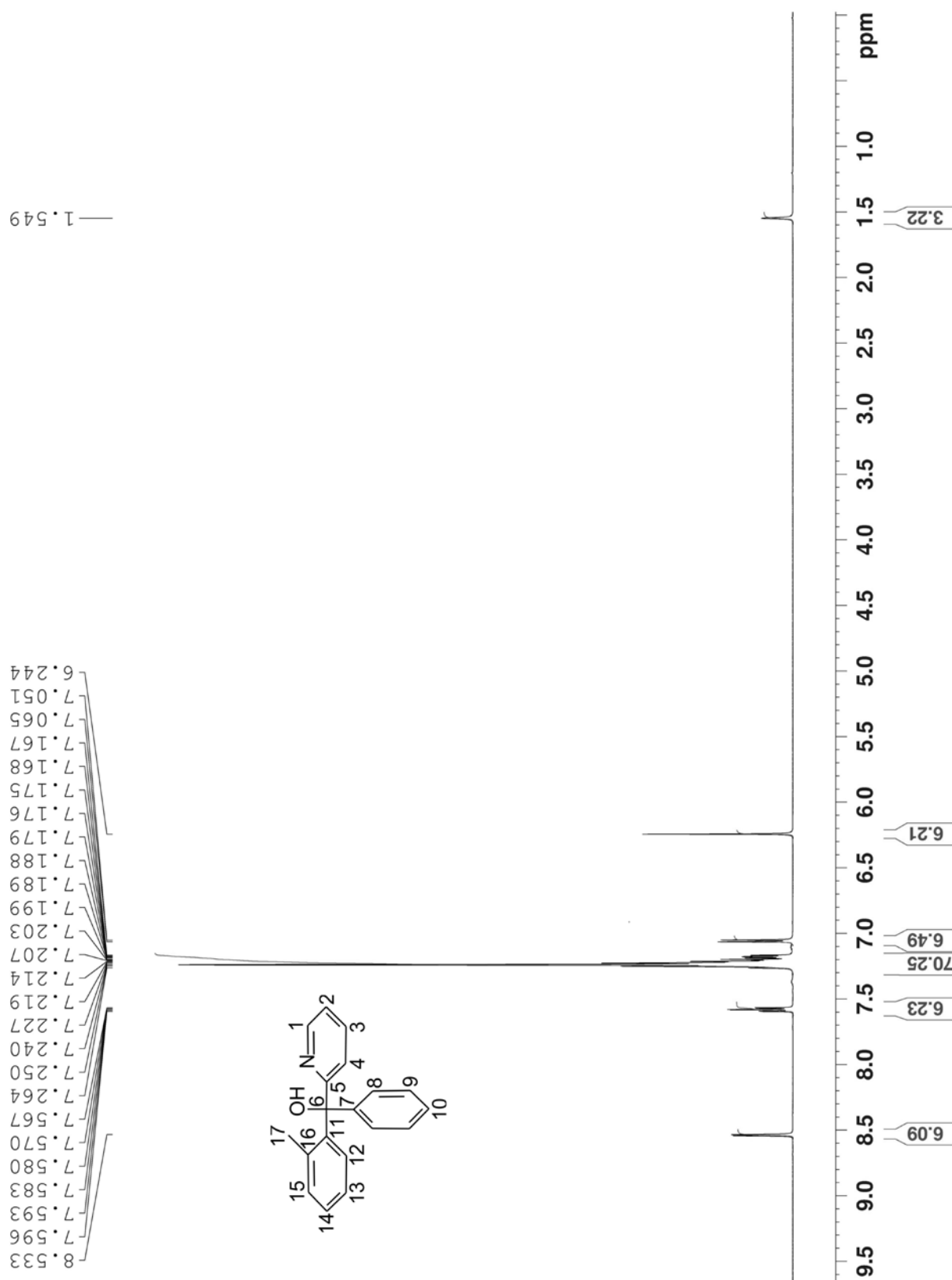




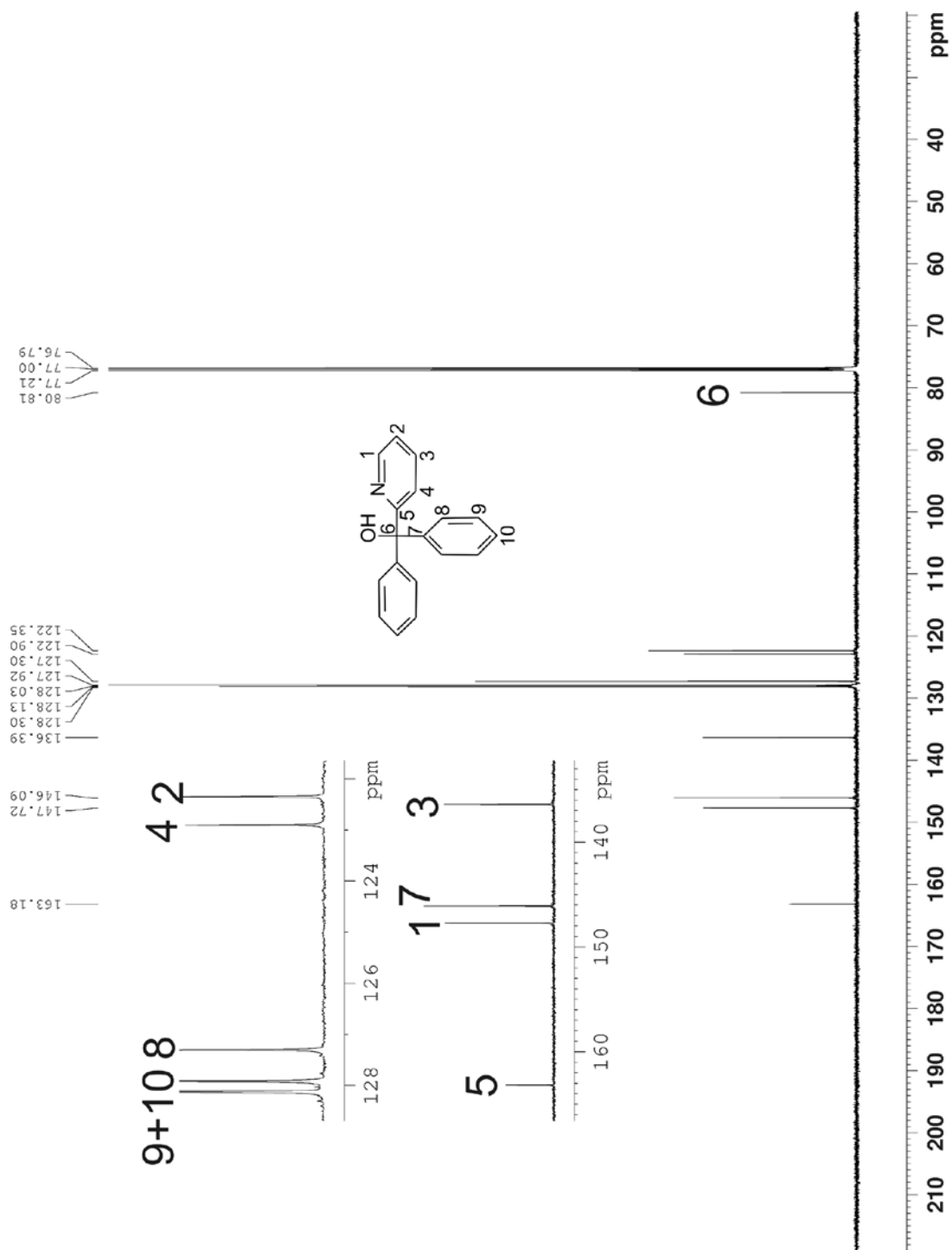
Spektrum 2.1 ATR-IR



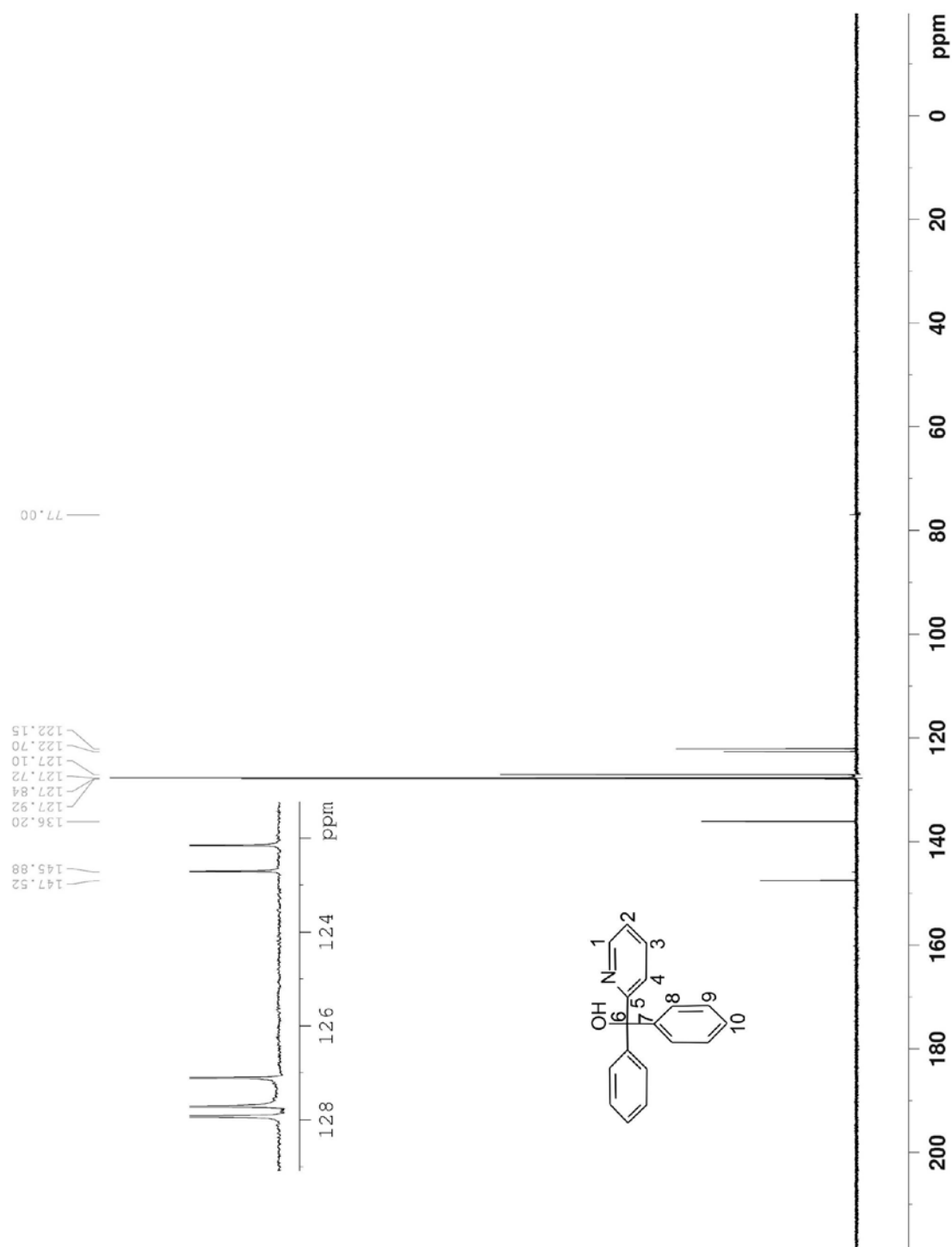
Spektrum 2.2 ^1H (CDCl_3) 600 MHz



Spektrum 2.3 ¹H (CDCl₃) 600 MHz

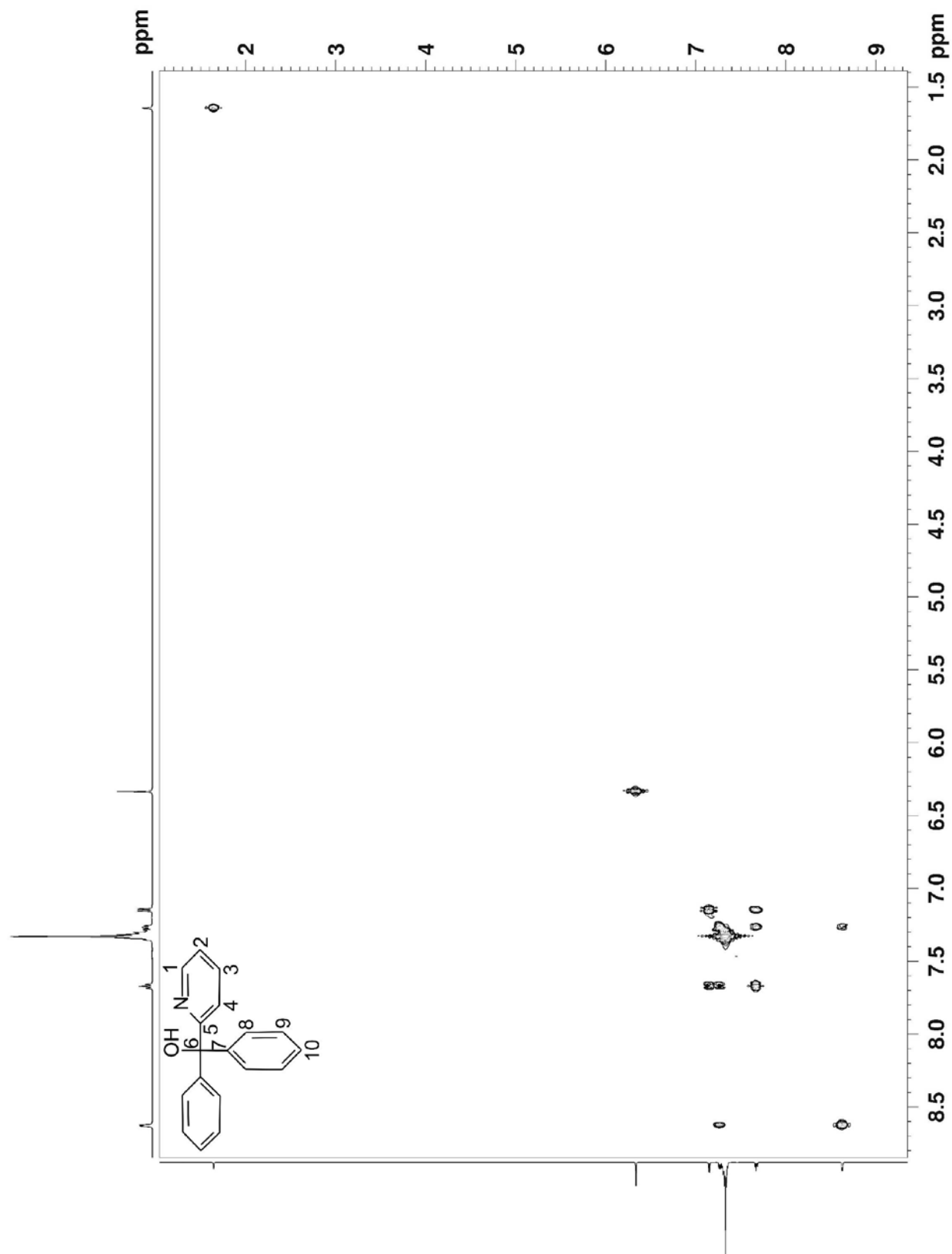


Spektrum 2.4 ^{13}C (CDCl_3) 600 MHz

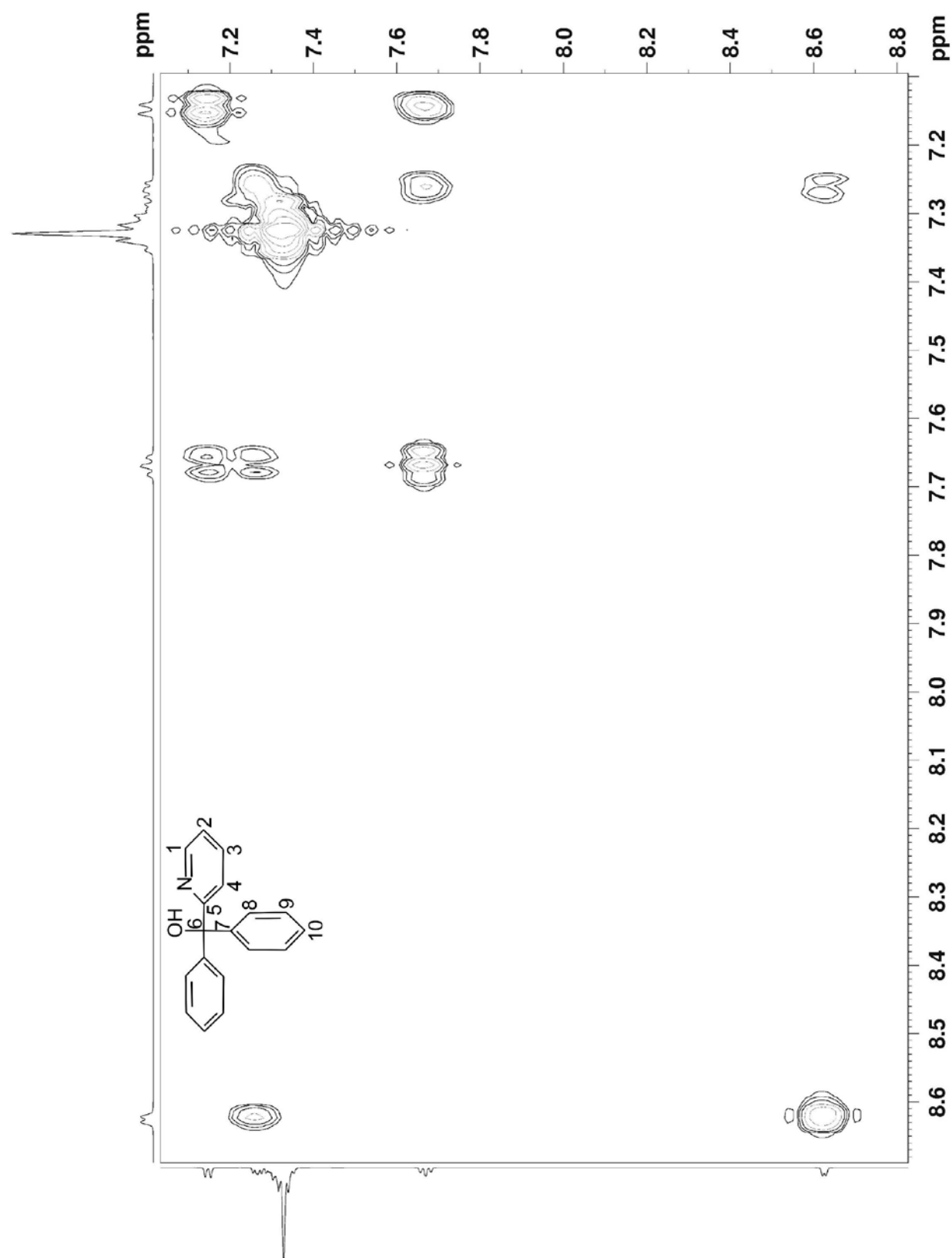


Spektrum 2.5

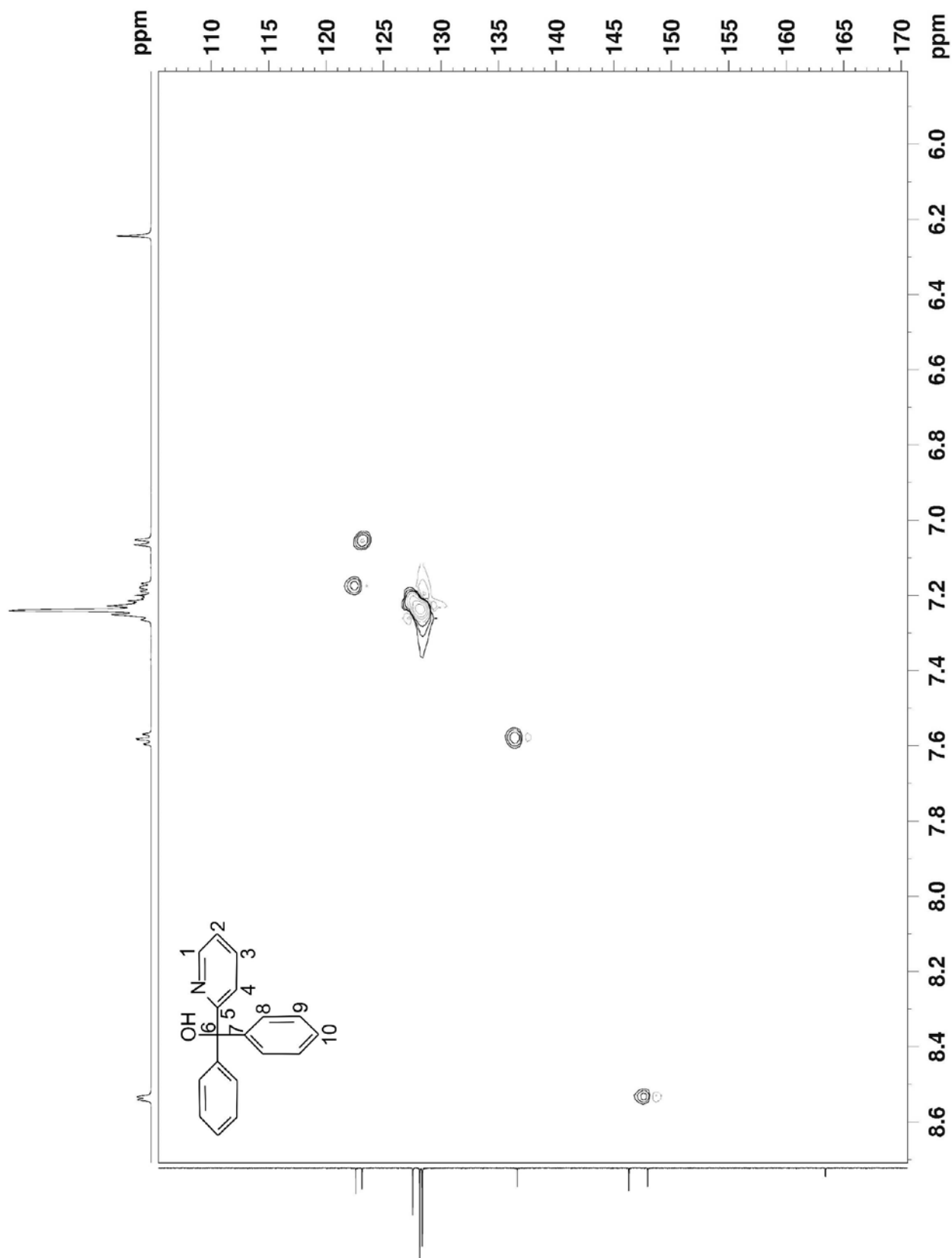
DEPT135 (CDCl₃) 150 MHz



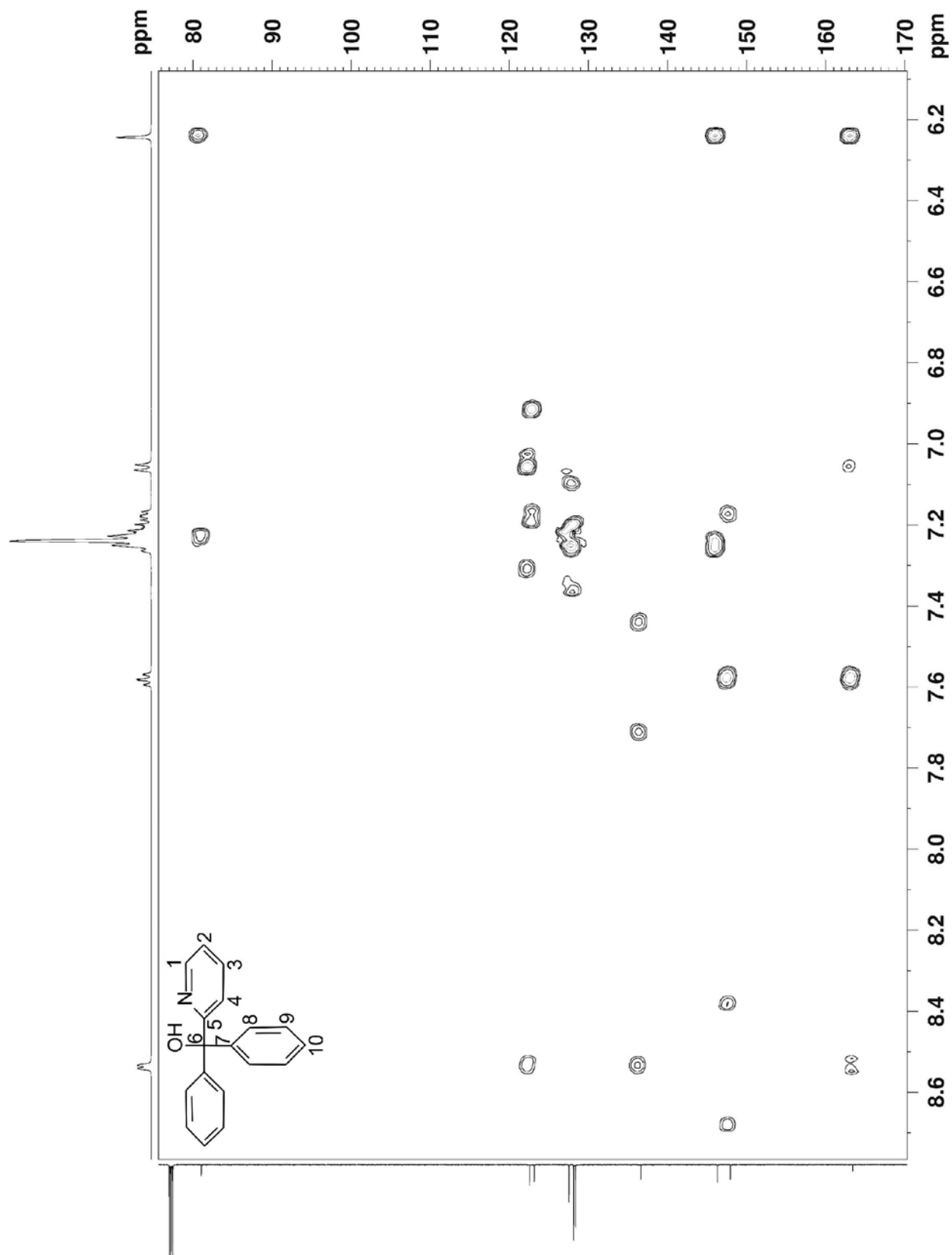
Spektrum 2.6 COSY (CDCl_3) 600 MHz



Spektrum 2.7 COSY (CDCl₃) 600 MHz

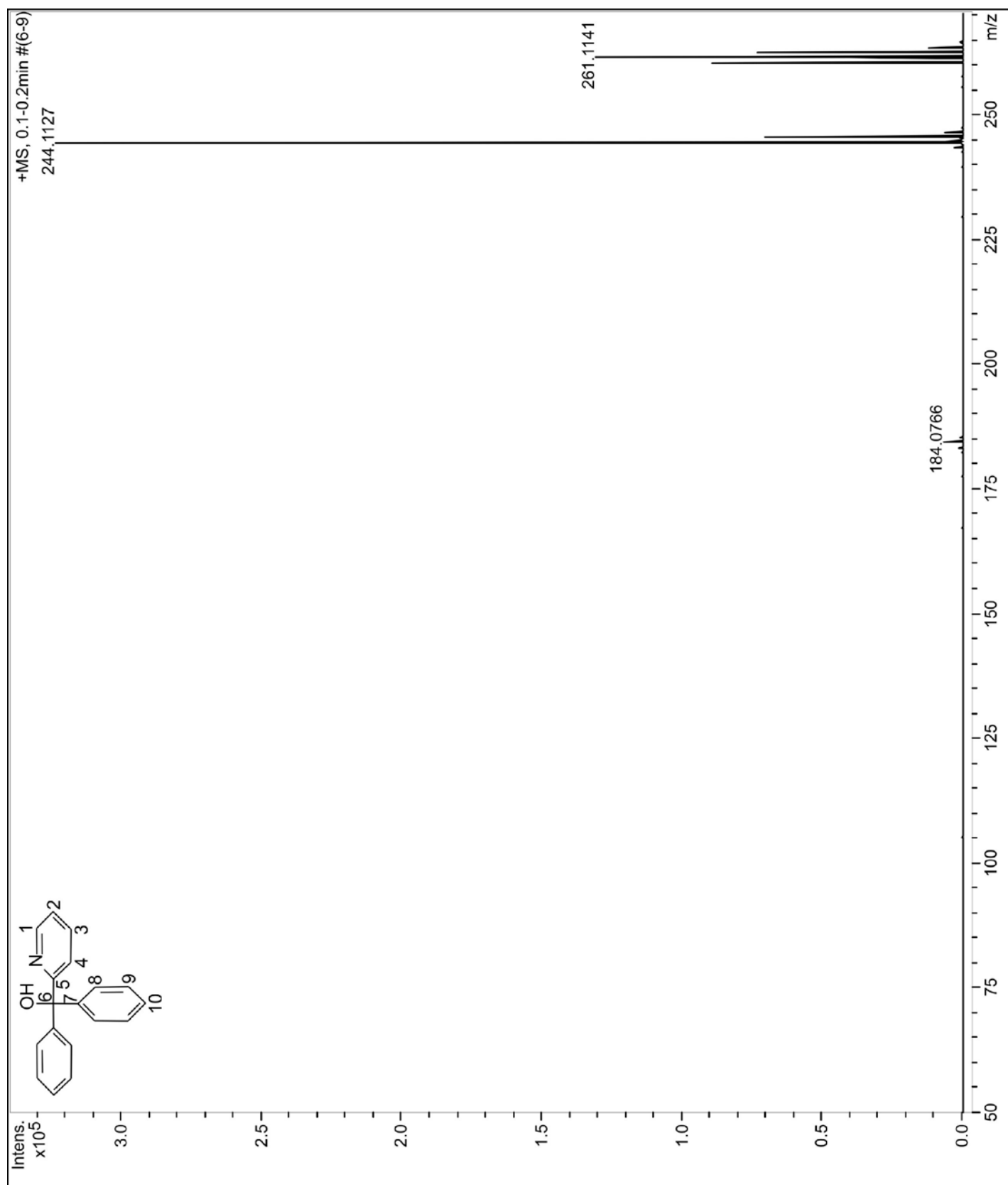


Spektrum 2.8 HSQC (CDCl_3) 600 MHz en 150 MHz



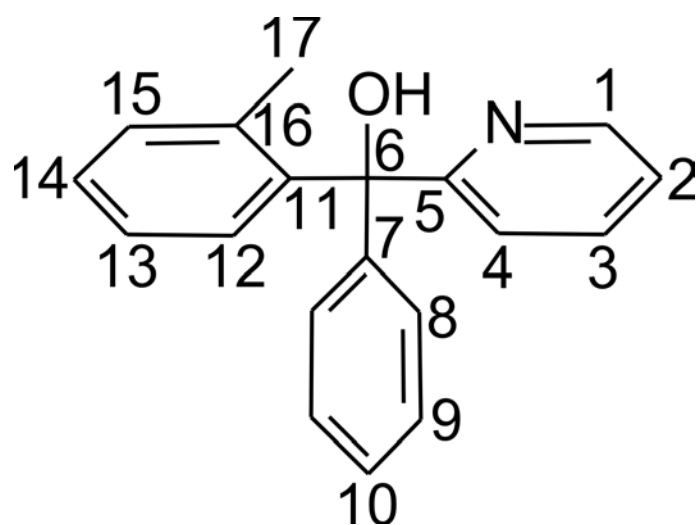
Spektrum 2.9

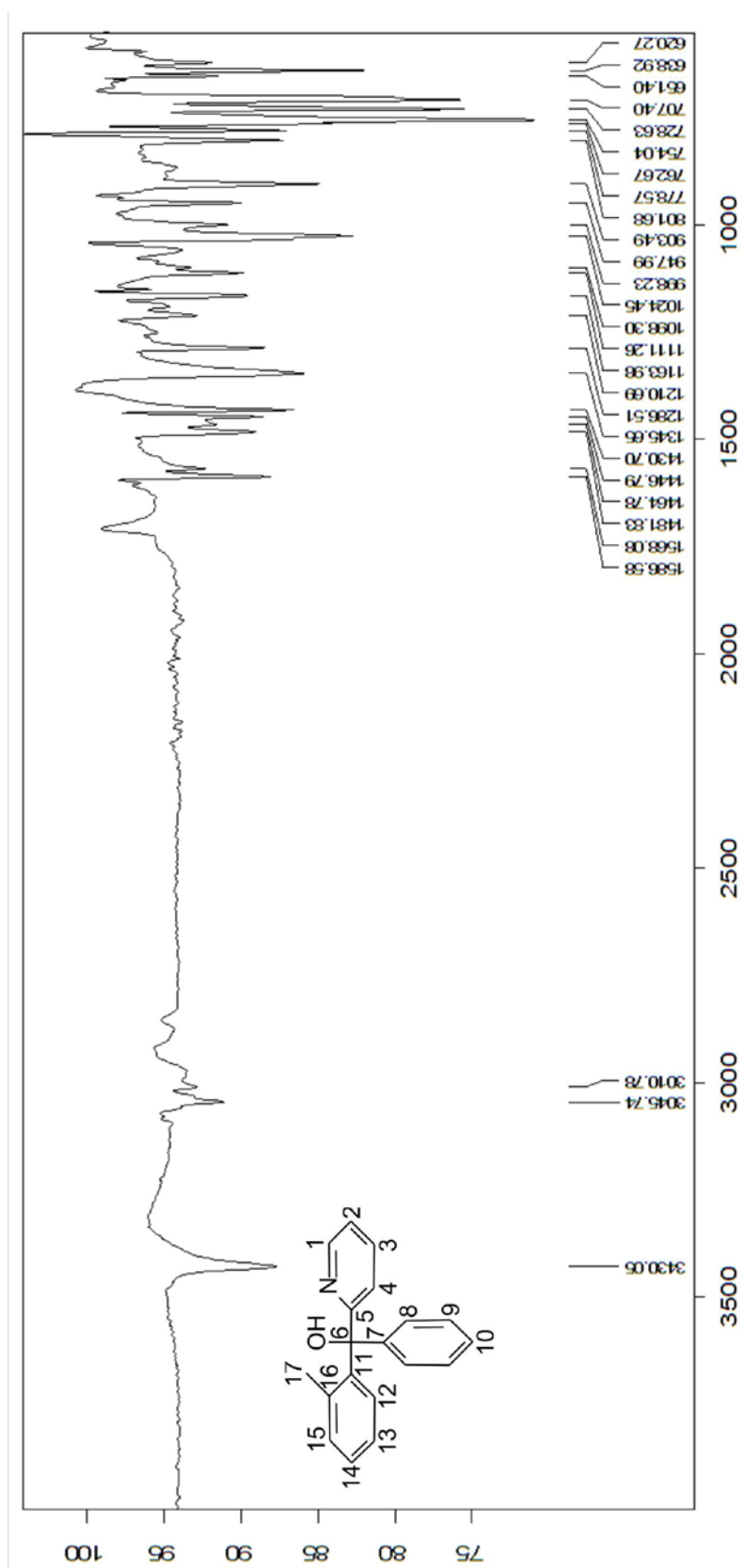
HMBC (CDCl₃) 600 MHz en 150 MHz



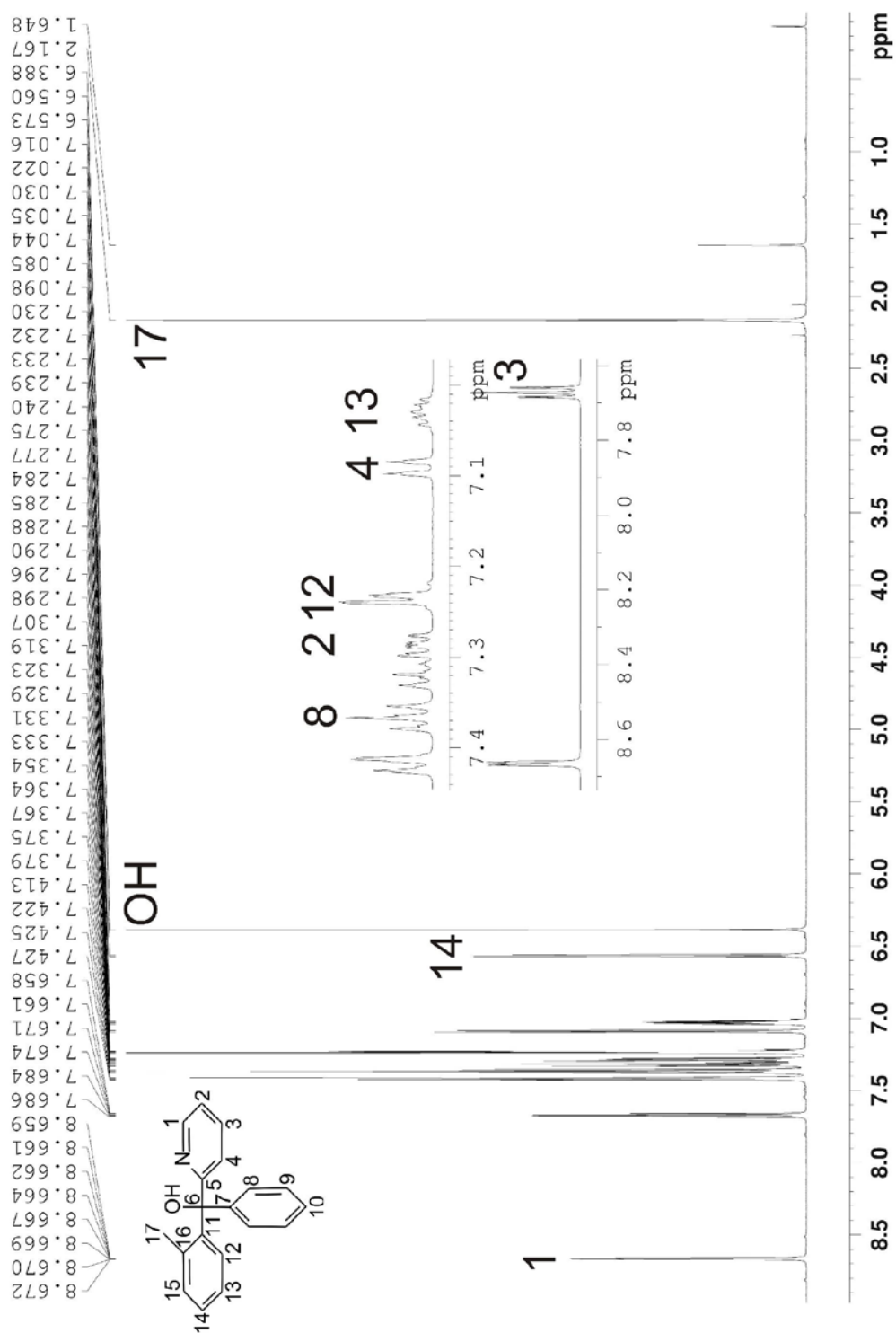
Spektrum 2.10 MS (APCI):([M⁺+H])

BYLAAG 3:
2-PIRIDINIEL-1-FENIEL-O-
TOLIELMETANOLATO

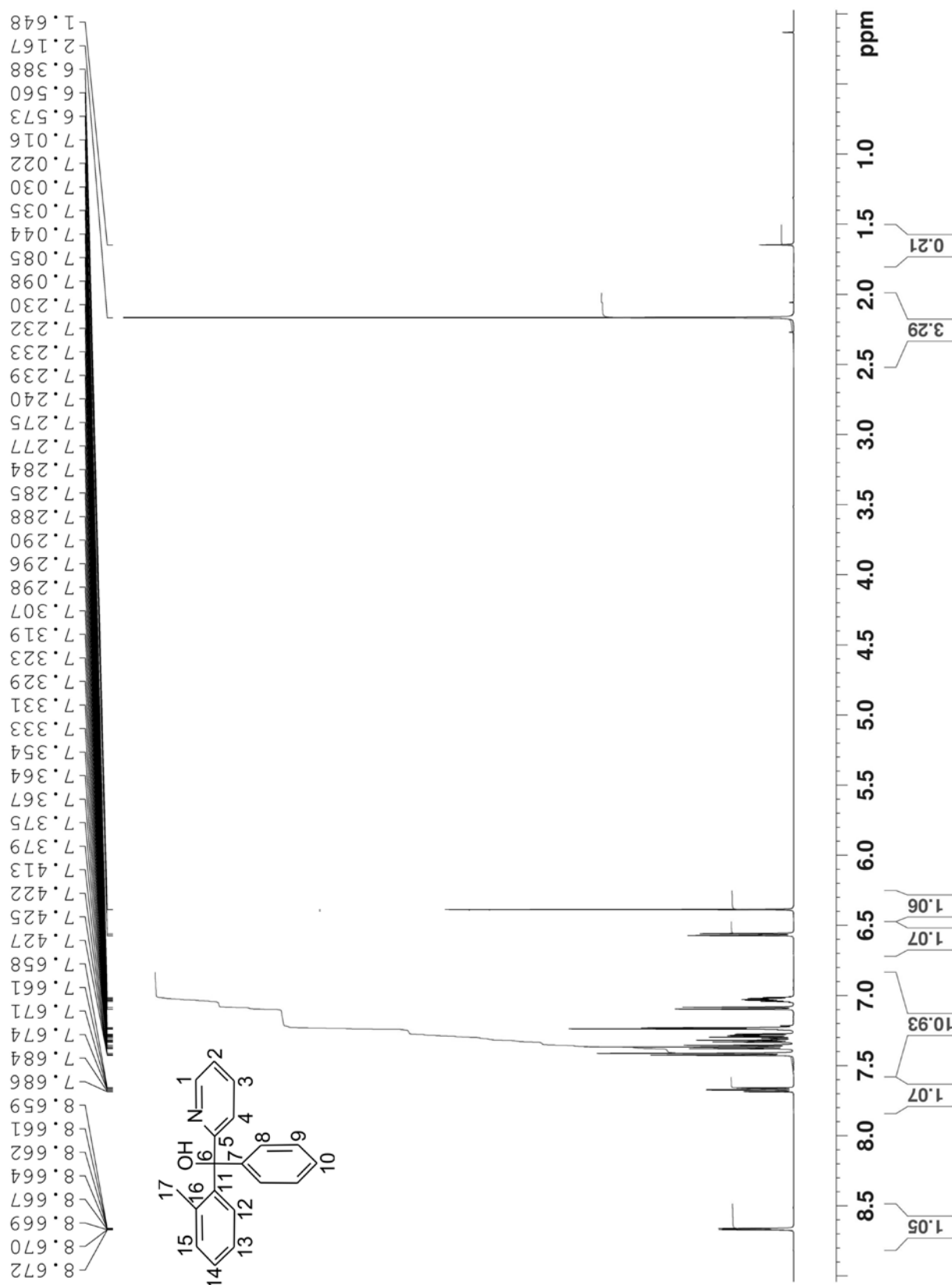




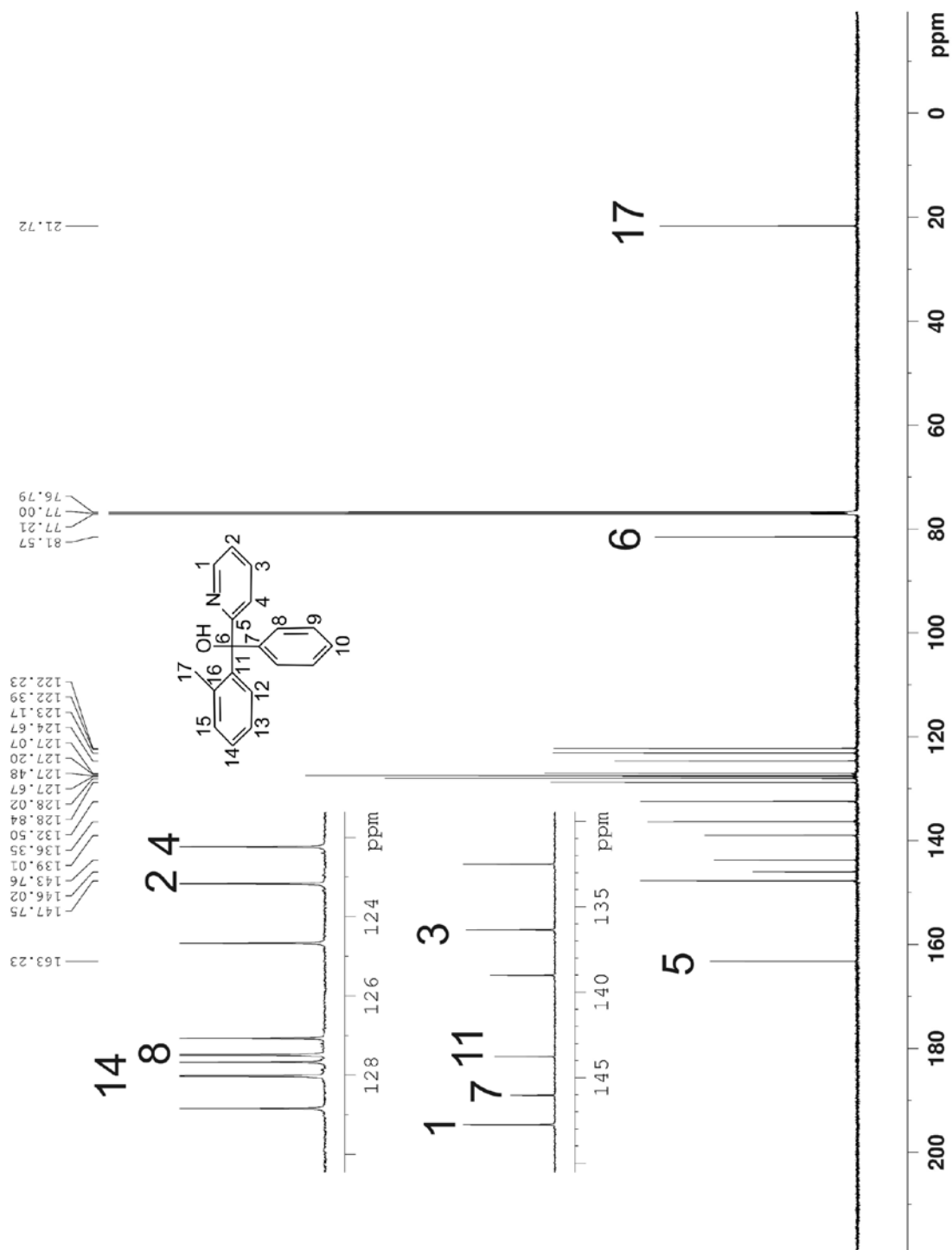
Spektrum 3.1 ATR-IR



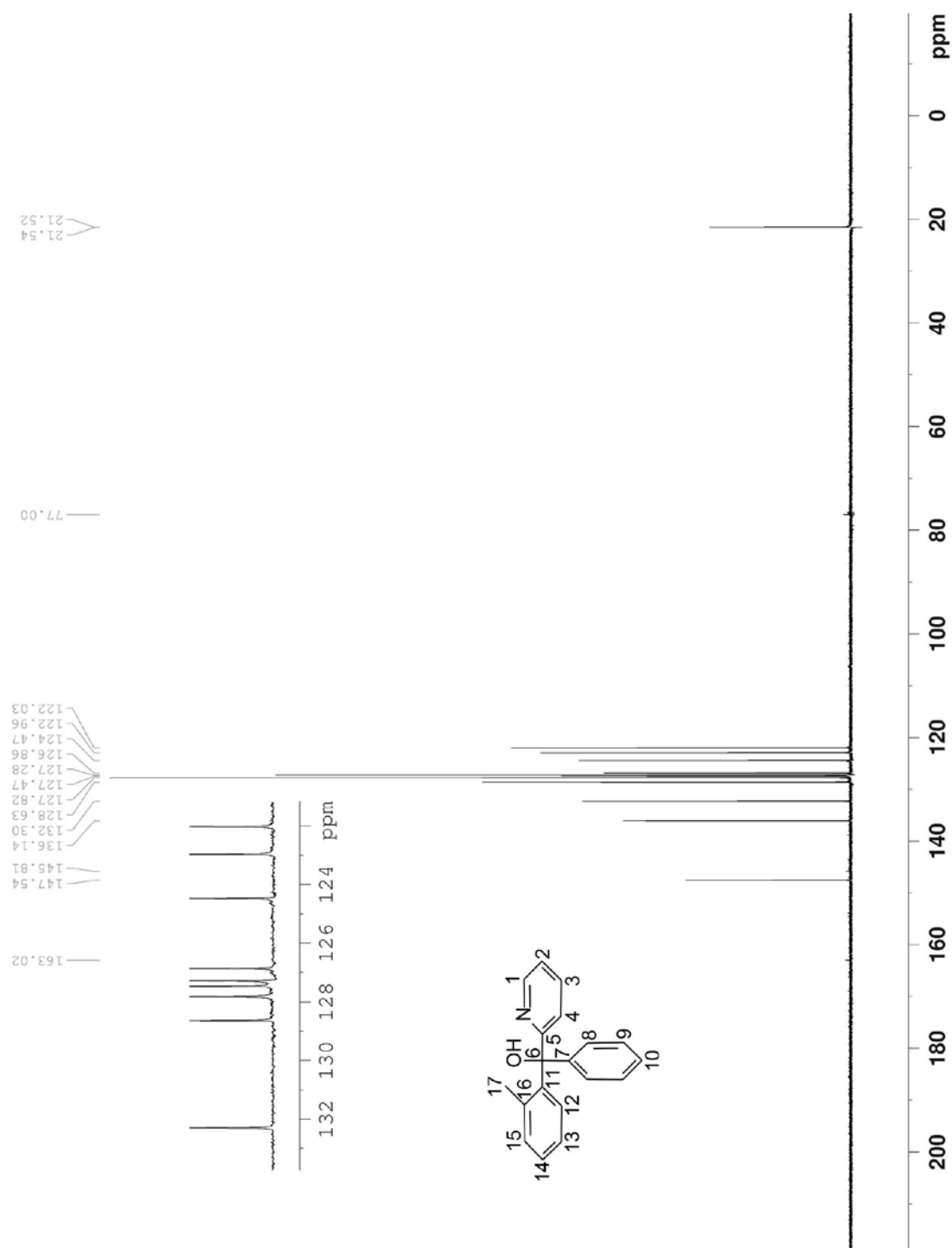
Spektrum 3.2 ^1H (CDCl_3) 600 MHz



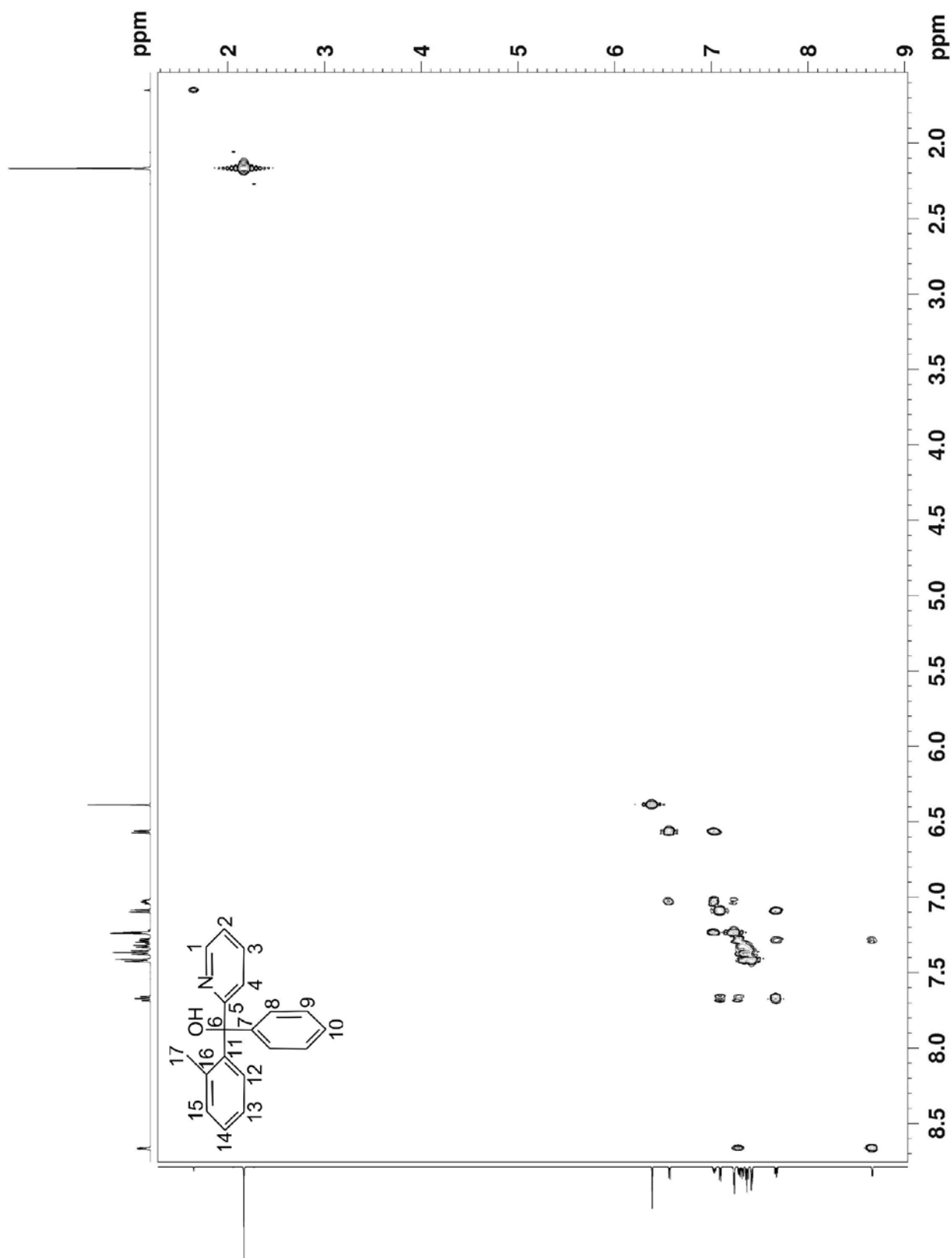
Spektrum 3.3 ¹H (CDCl₃) 600 MHz



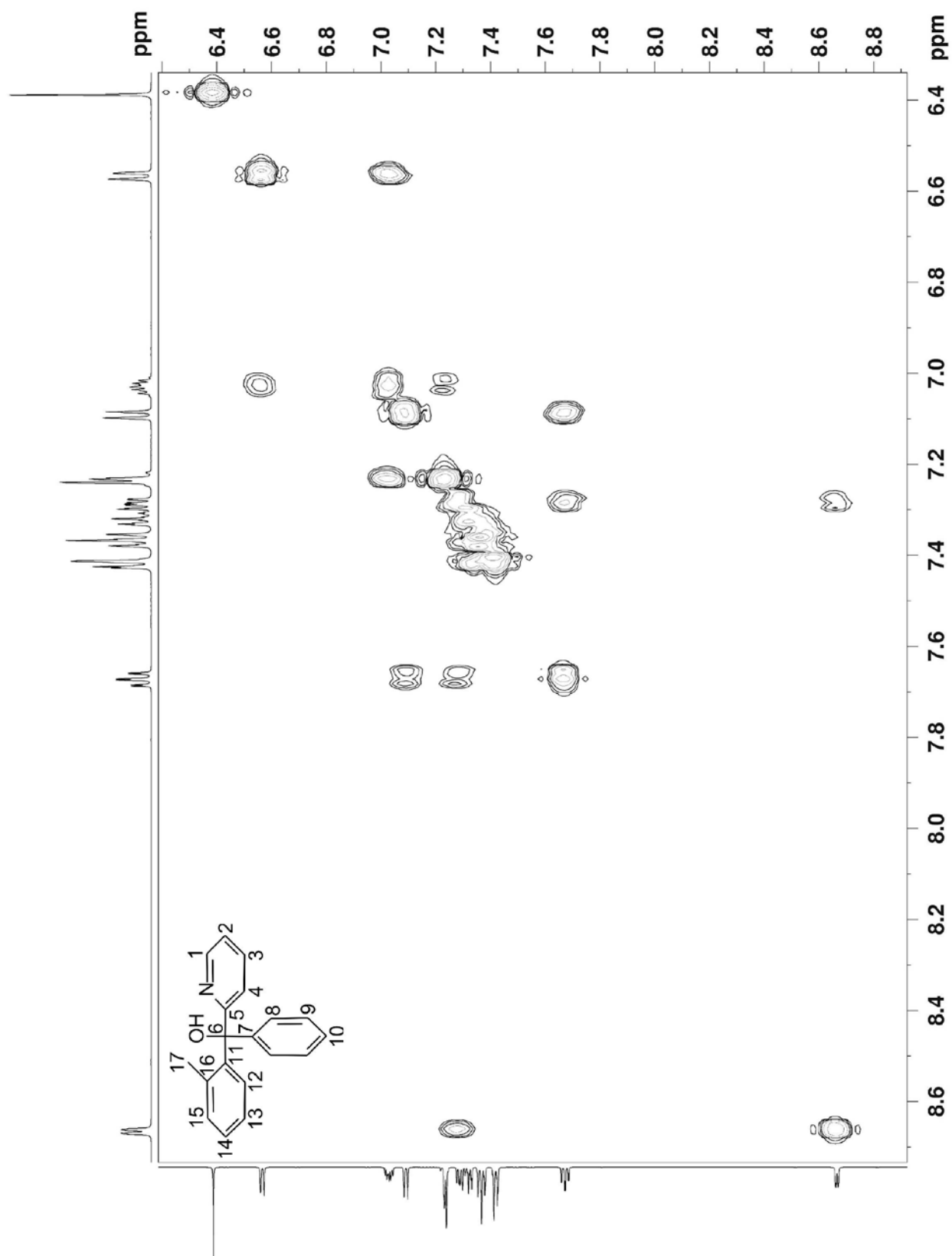
Spektrum 3.4 ^{13}C (CDCl₃) 600 MHz



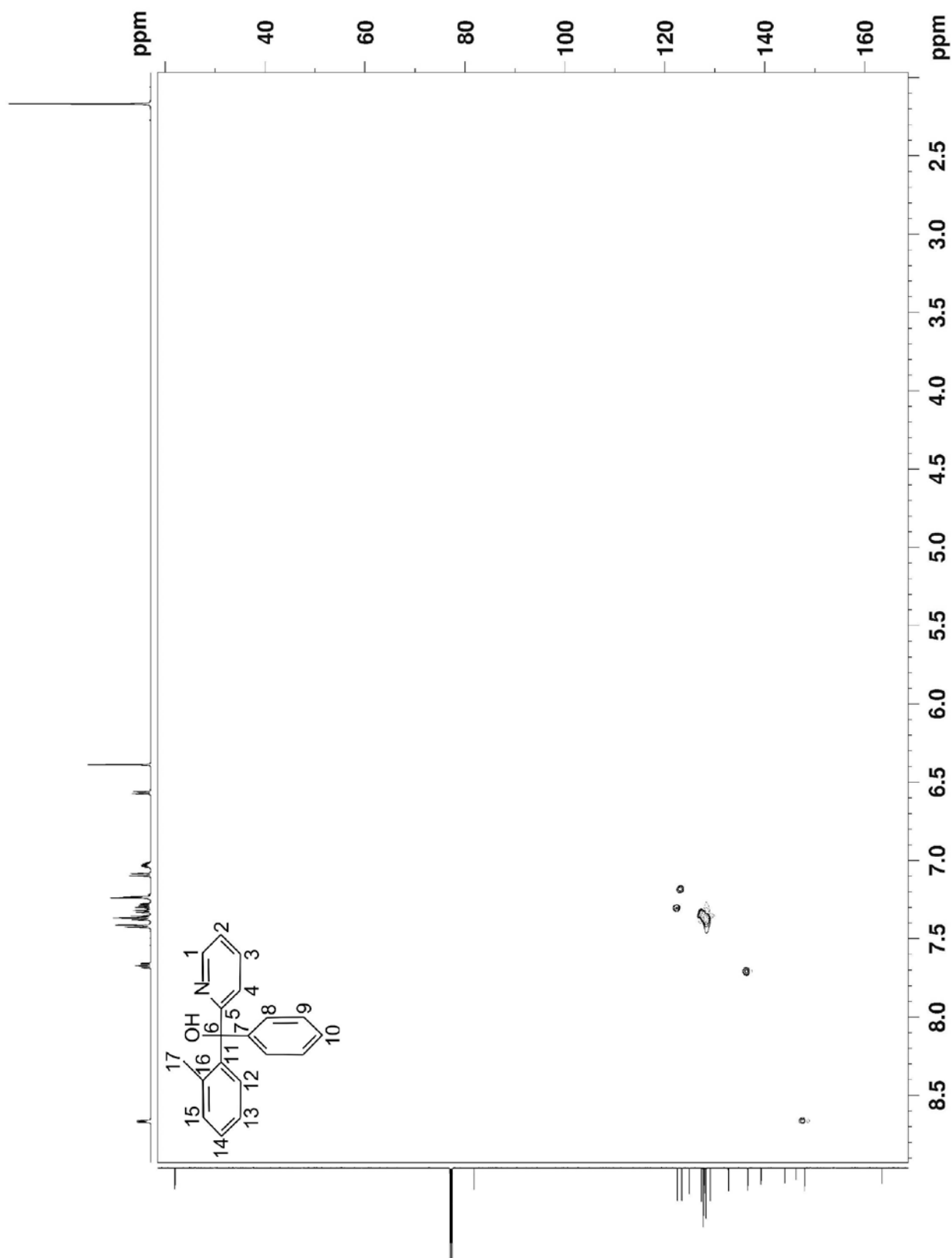
Spektrum 3.5 DEPT135 (CDCl₃) 600 MHz en 150 MHz



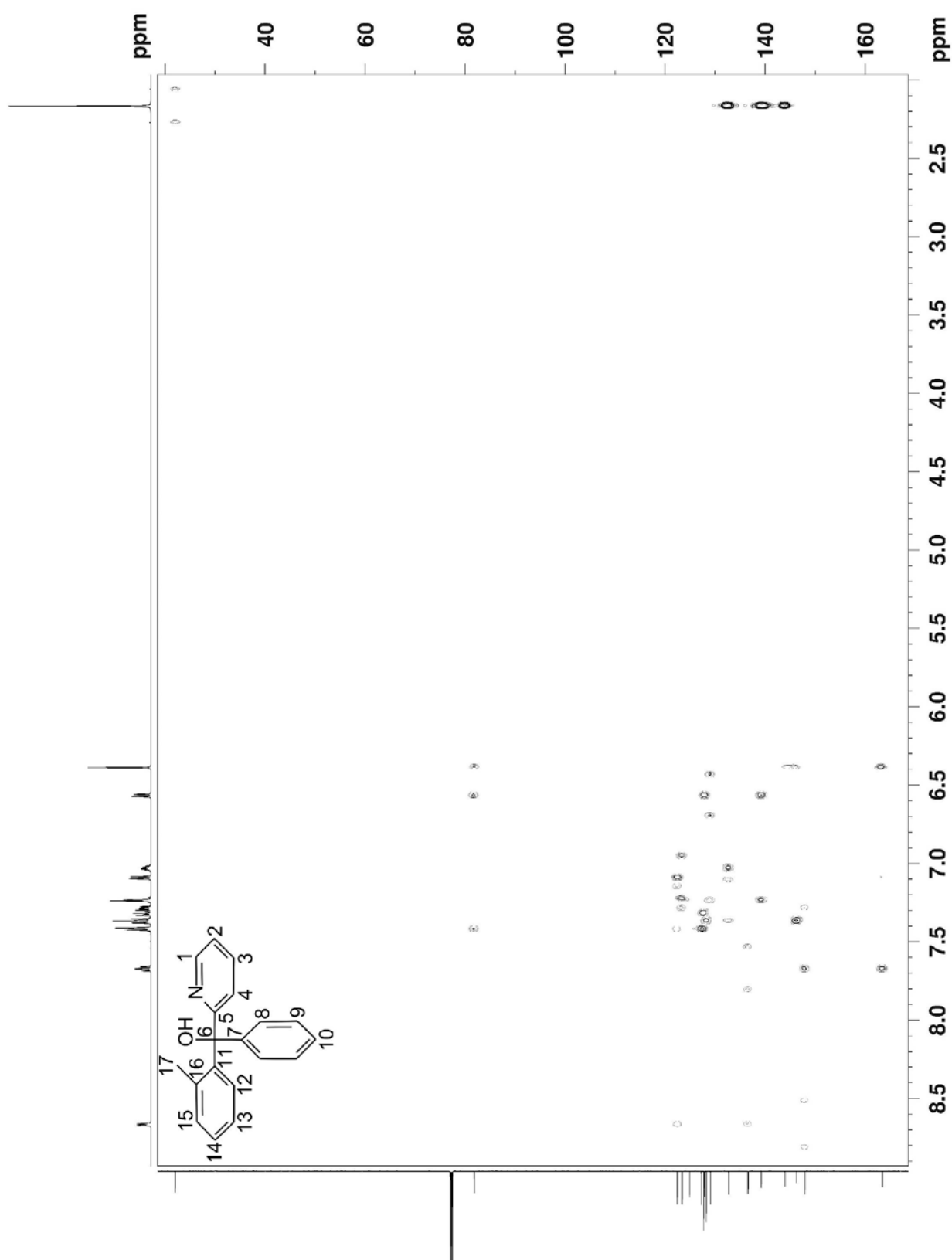
Spektrum 3.6 COSY (CDCl_3) 600 MHz



Spektrum 3.7 COSY (CDCl₃) 600 MHz

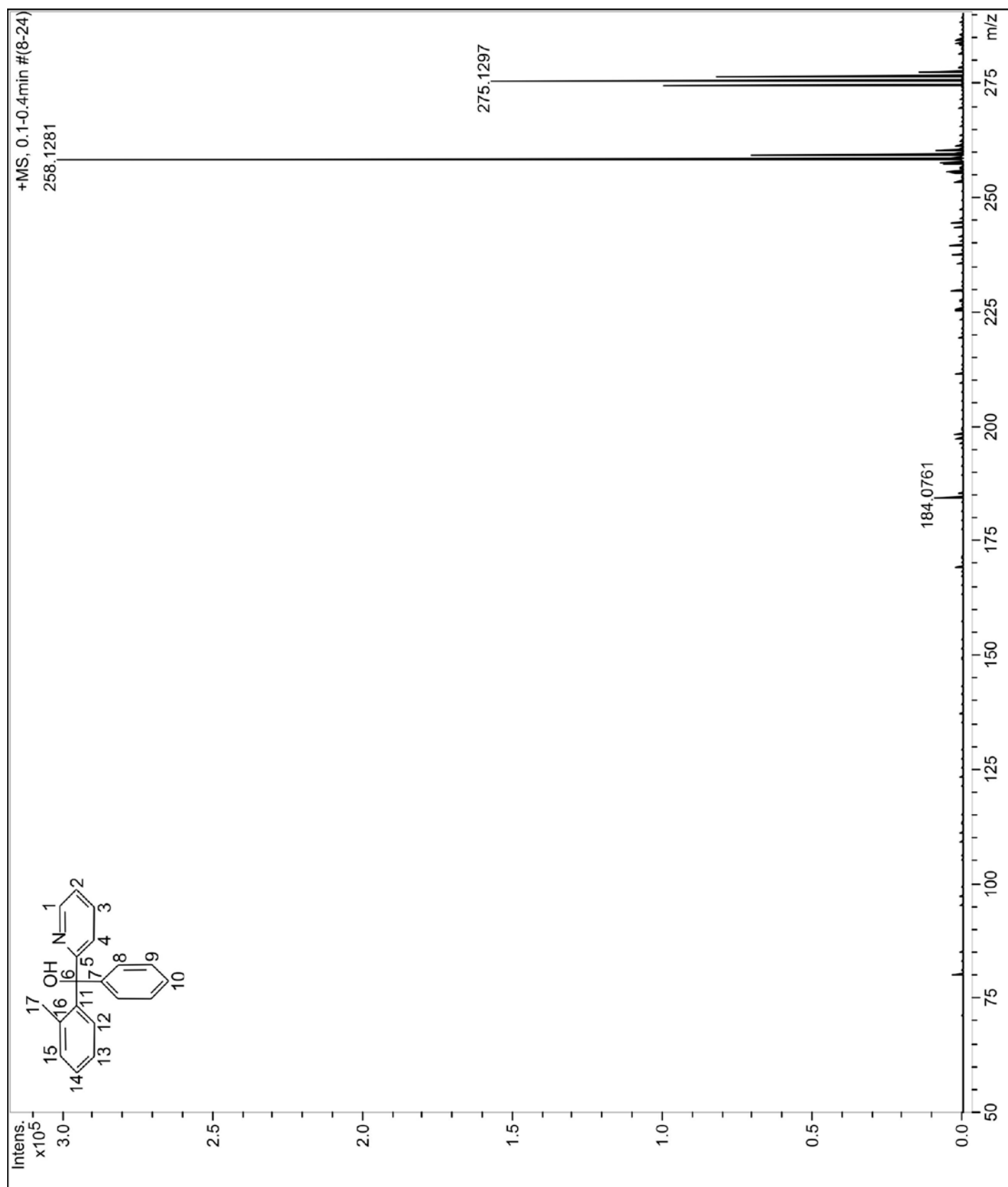


Spektrum 3.8 HSQC (CDCl₃) 600 MHz en 150 MHz



Spektrum 3.9

HMBC (CDCl₃) 600 MHz en 150 MHz

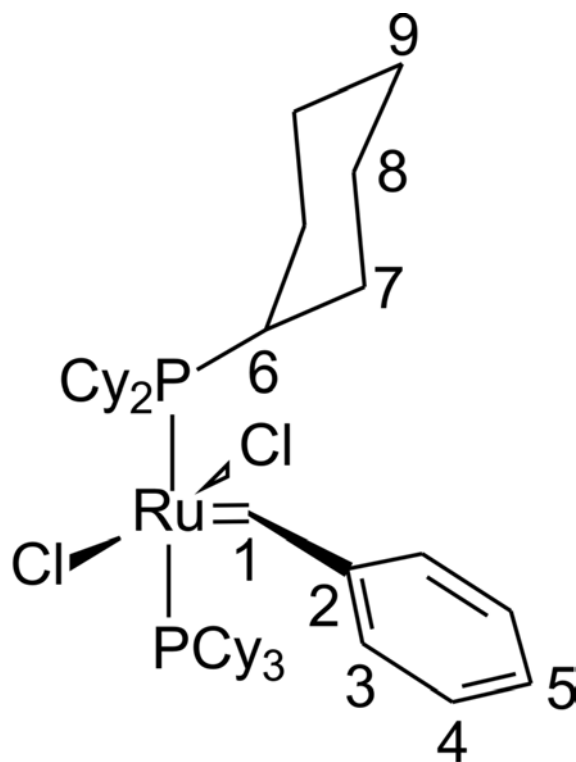


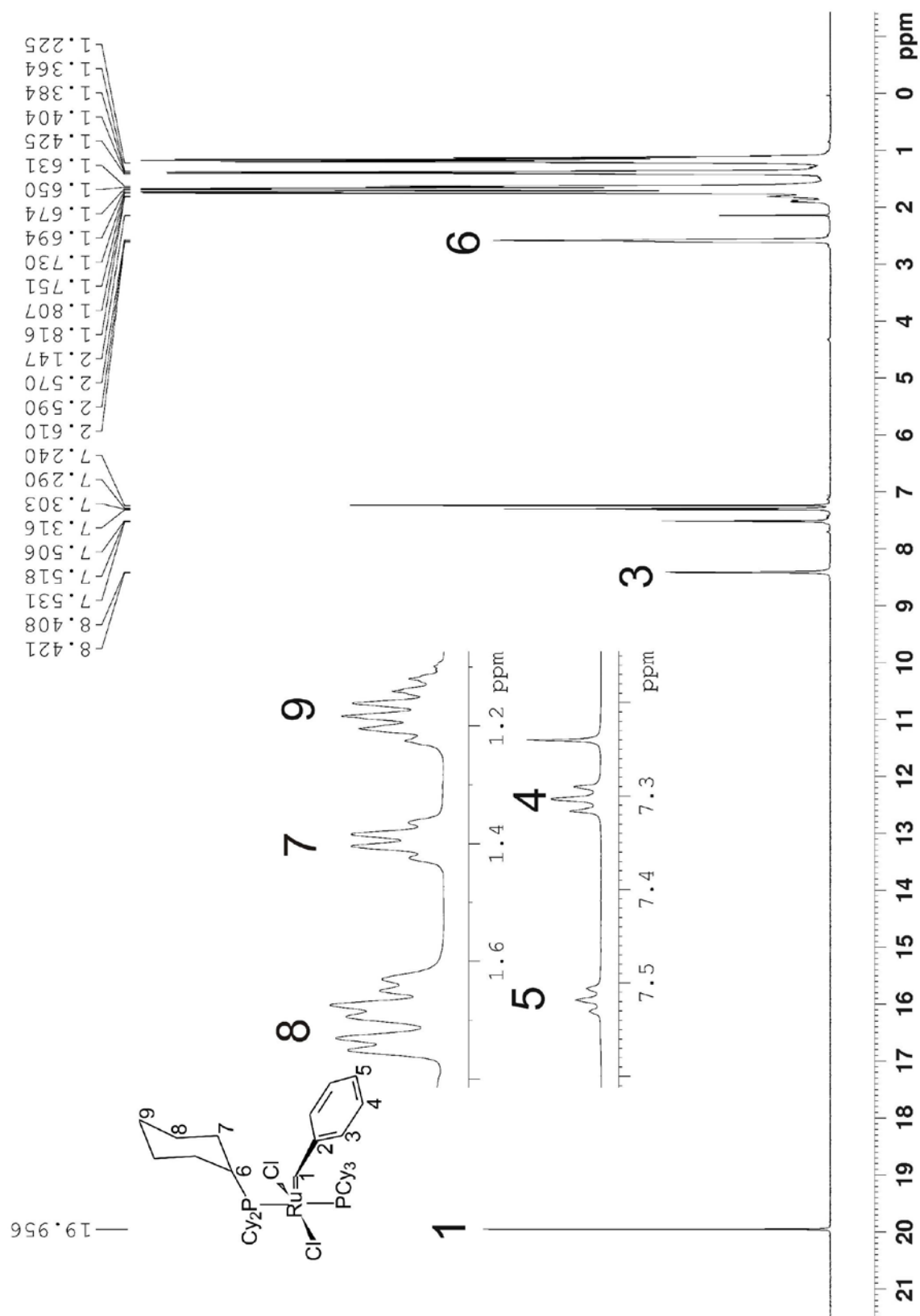
Spektrum 3.10

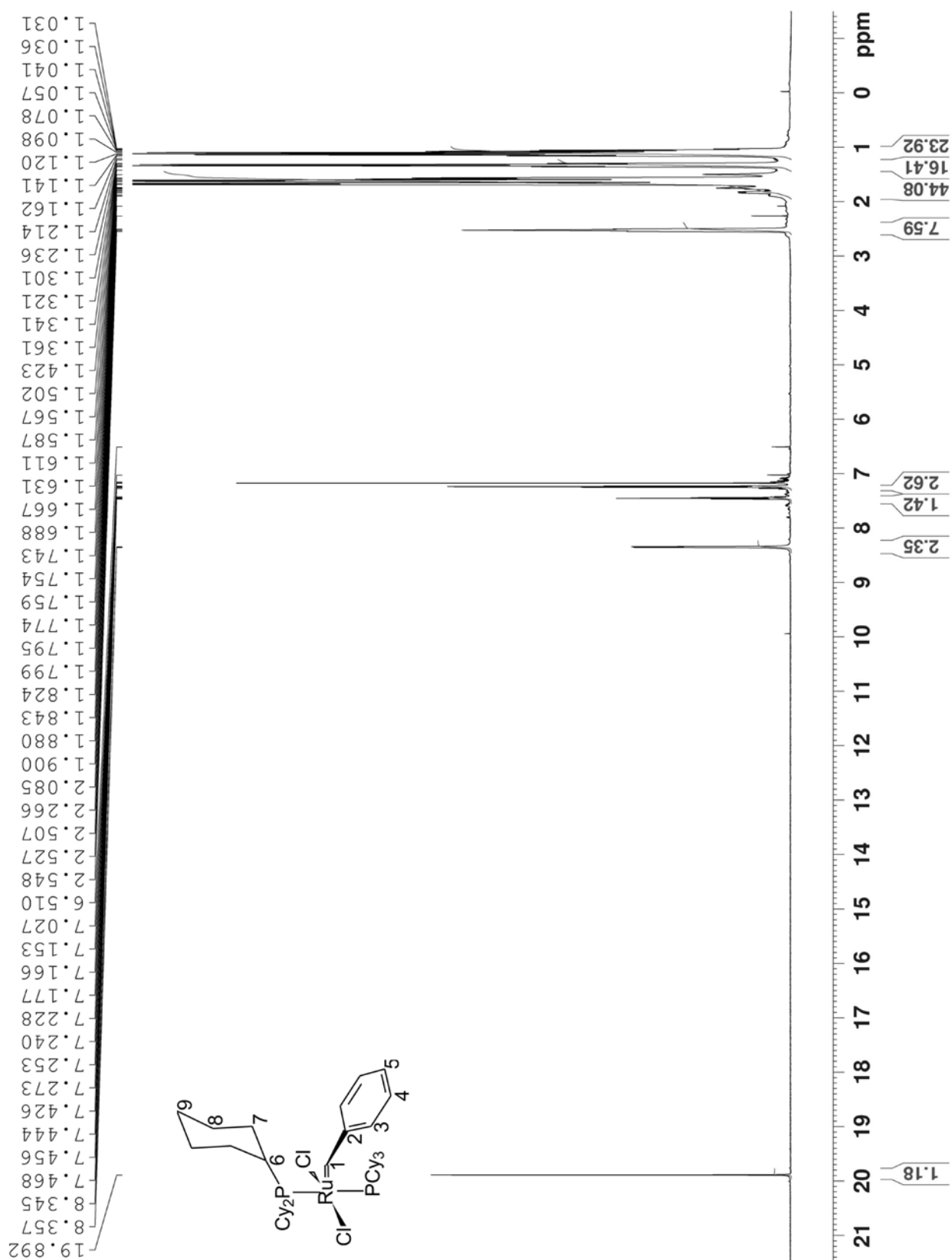
MS (APCI):([M⁺+H])

BYLAAG 4:

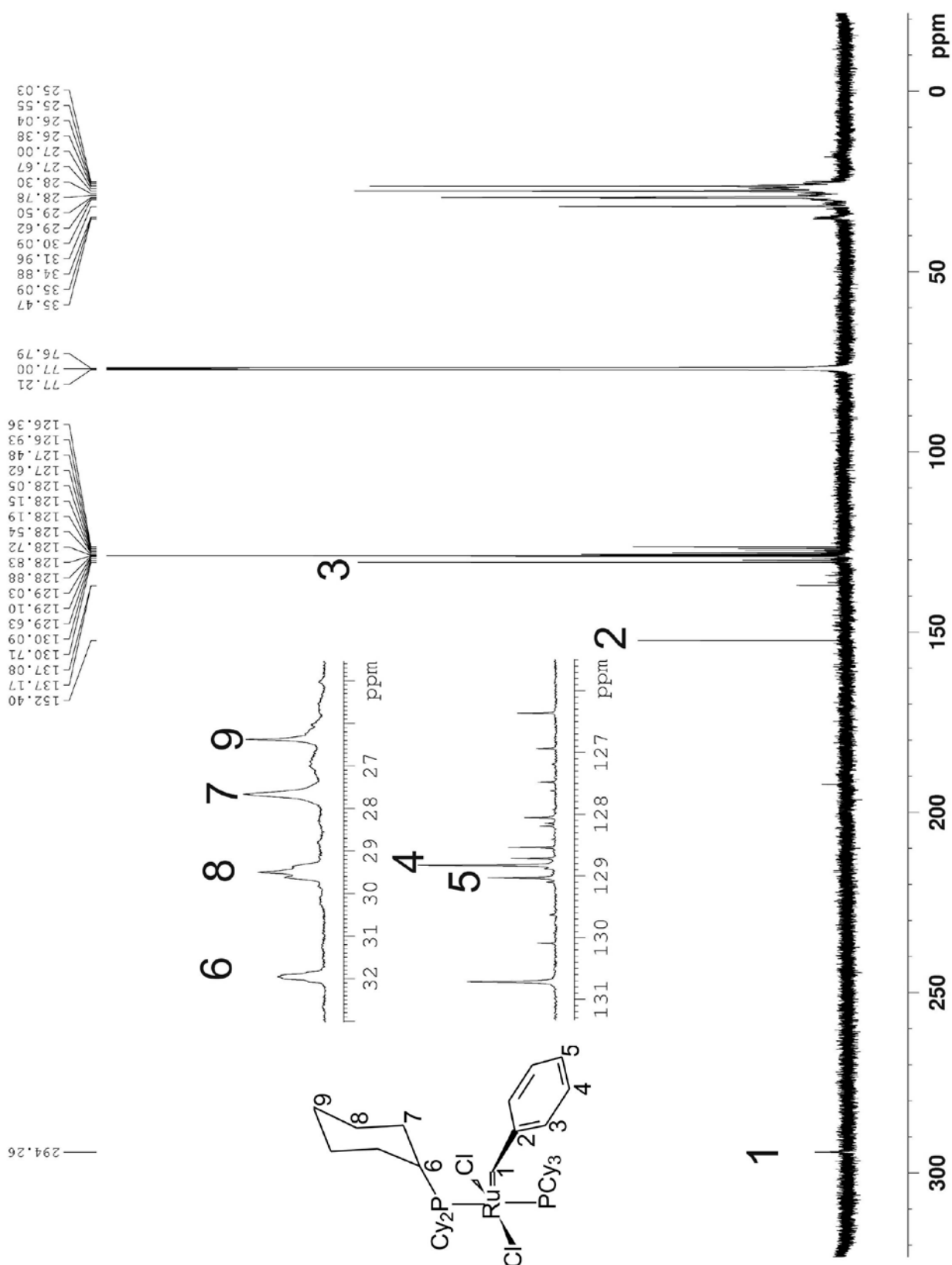
GRUBBS 1 PREKATALISATOR 1



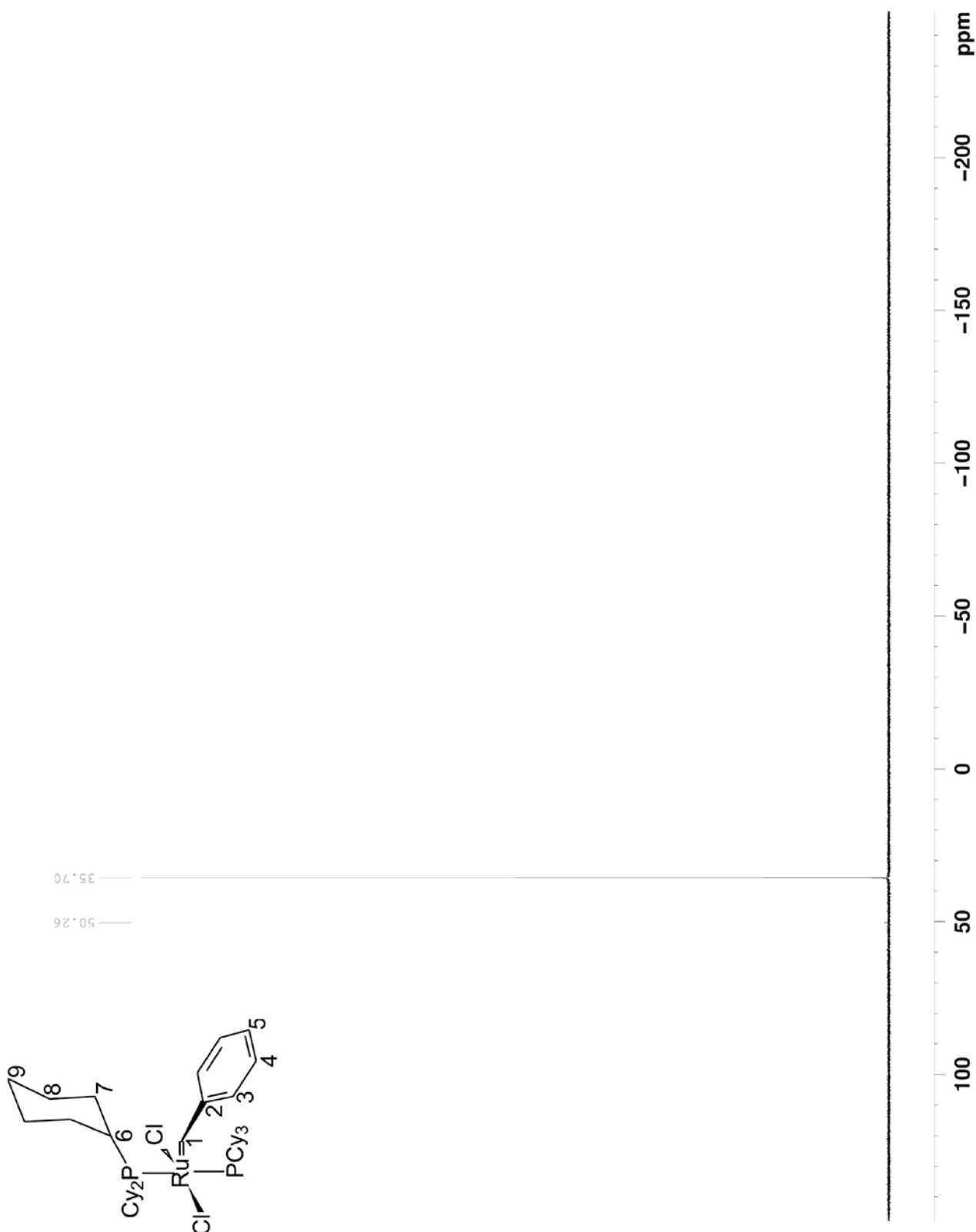
Spektrum 4.1 ¹H (CDCl₃) 600 MHz



Spektrum 4.2 ¹H (CDCl₃) 600 MHz

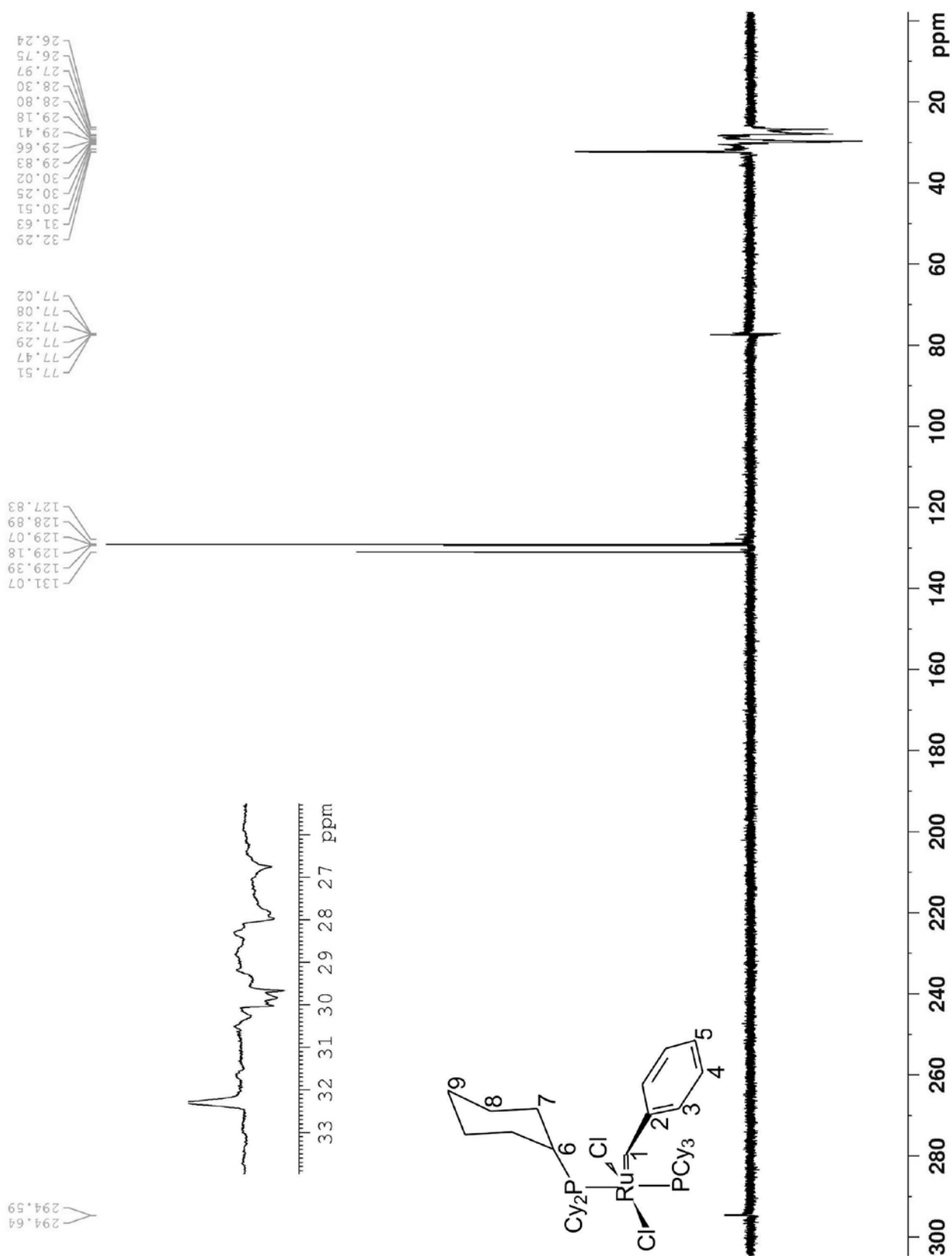


Spektrum 4.3 ¹³C (CDCl₃) 150 MHz



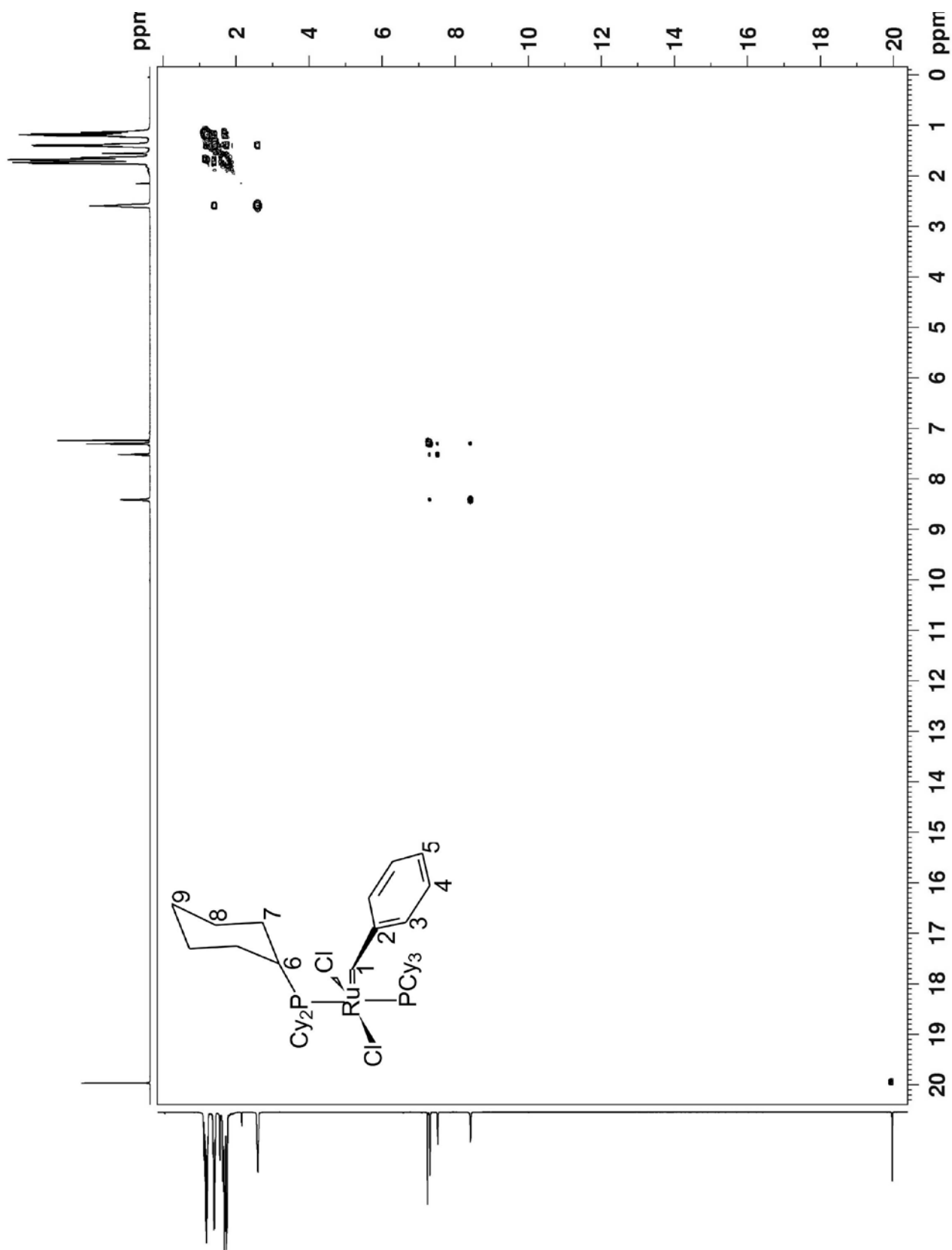
Spektrum 4.4

^{31}P (CDCl₃) 242 MHz



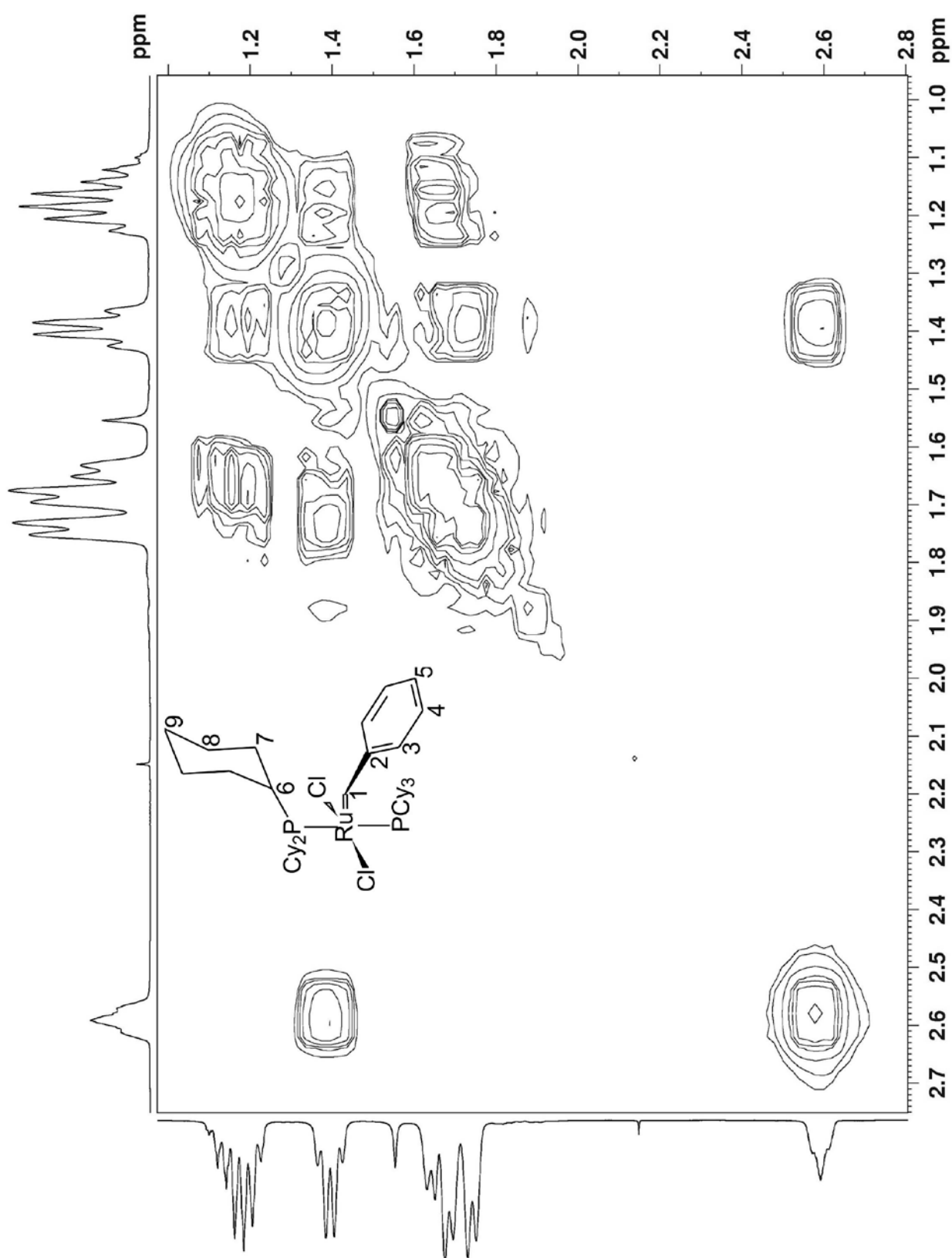
Spektrum 4.5

DEPT135 (CDCl₃) 150 MHz



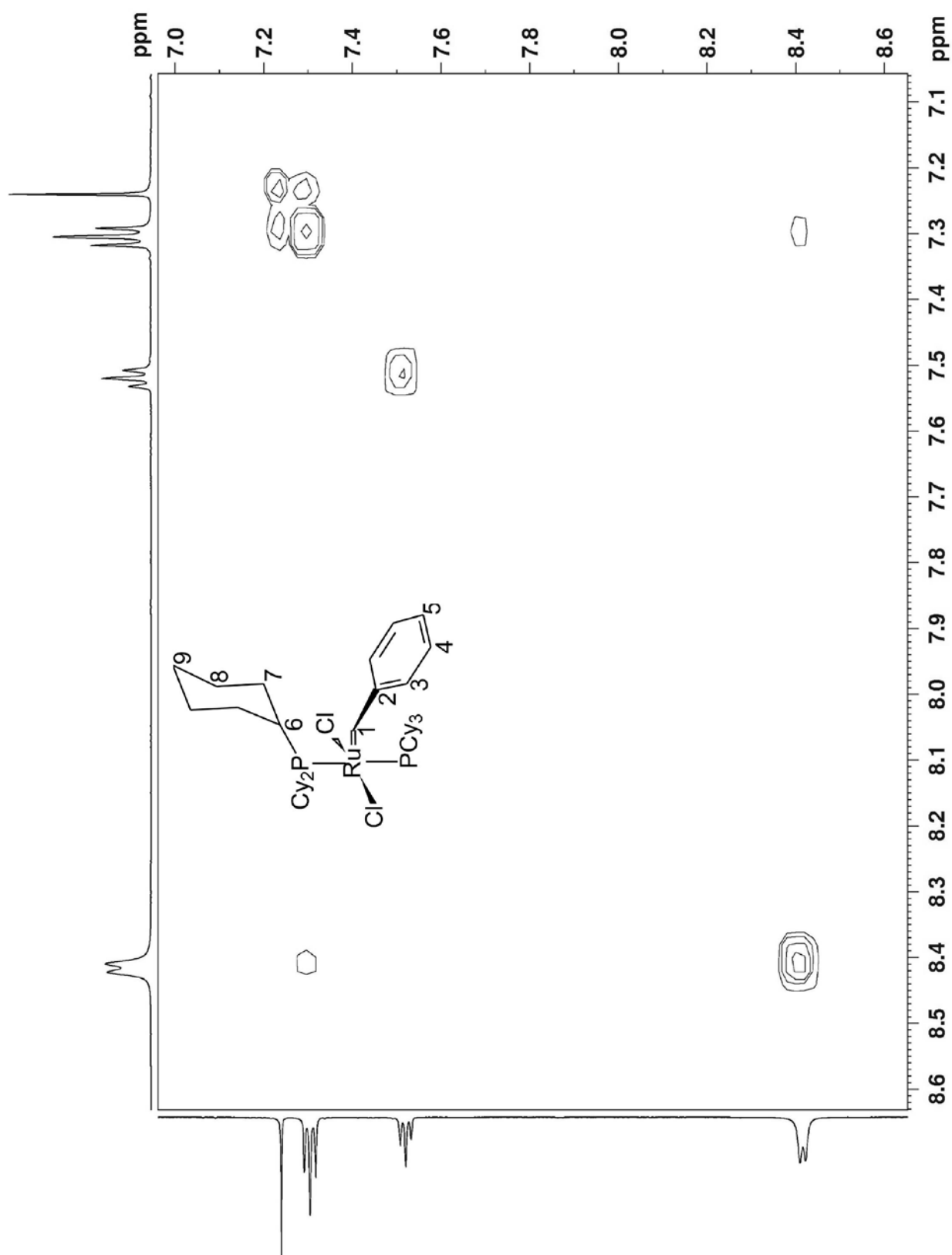
Spektrum 4.6

COSY (CDCl₃) 600 MHz



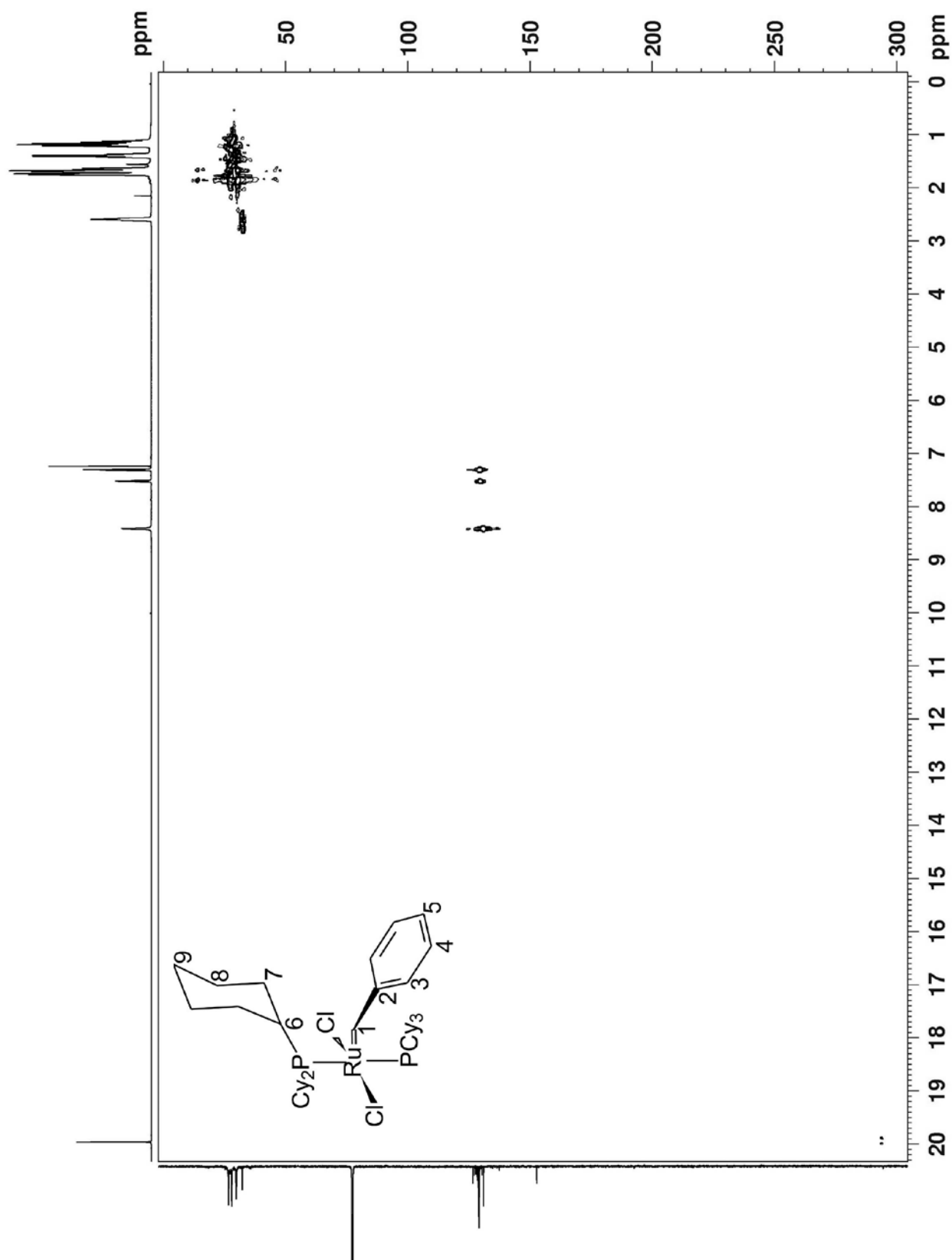
Spektrum 4.7

COSY (CDCl₃) 600 MHz



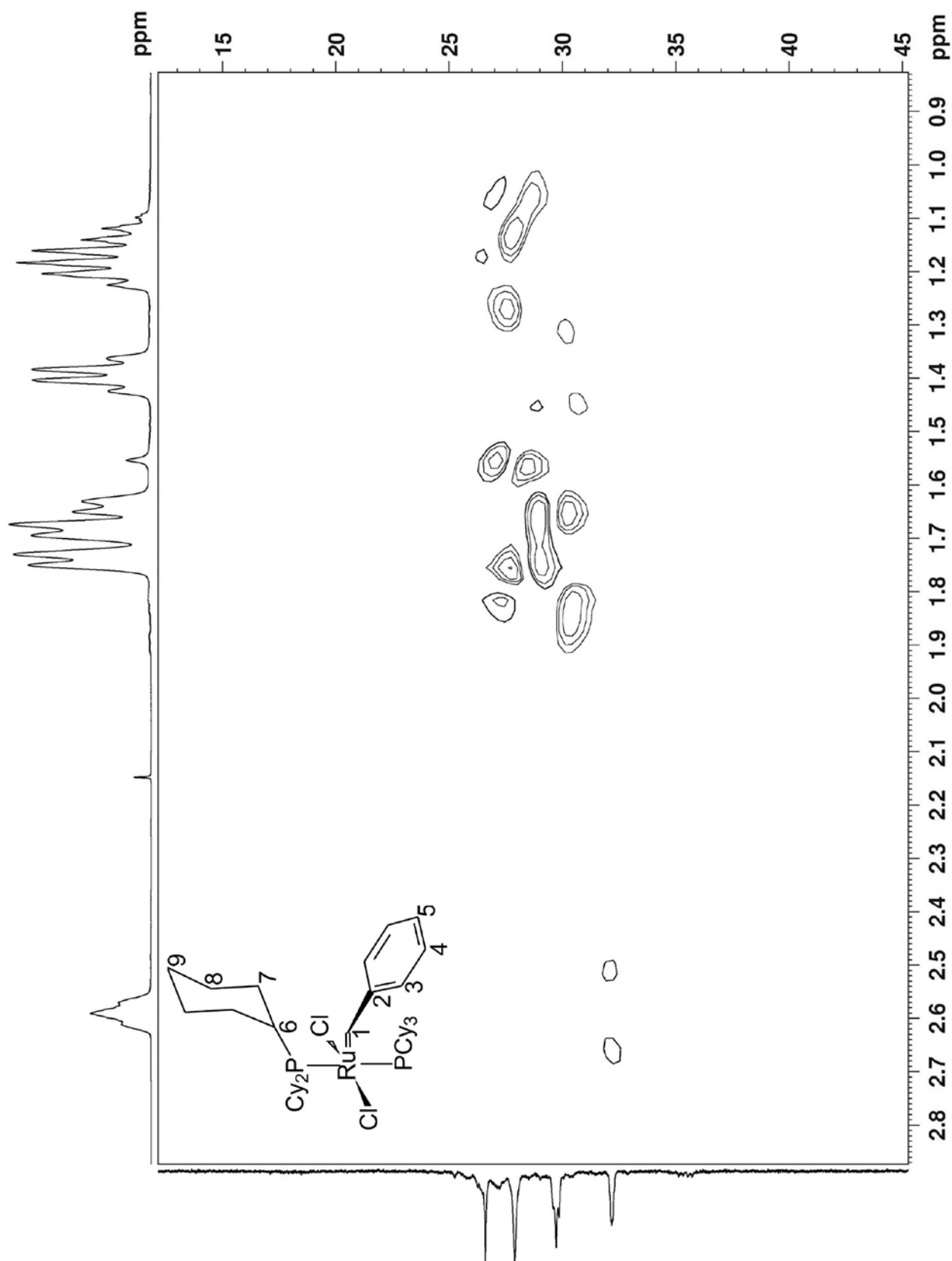
Spektrum 4.8

COSY (CDCl₃) 600 MHz

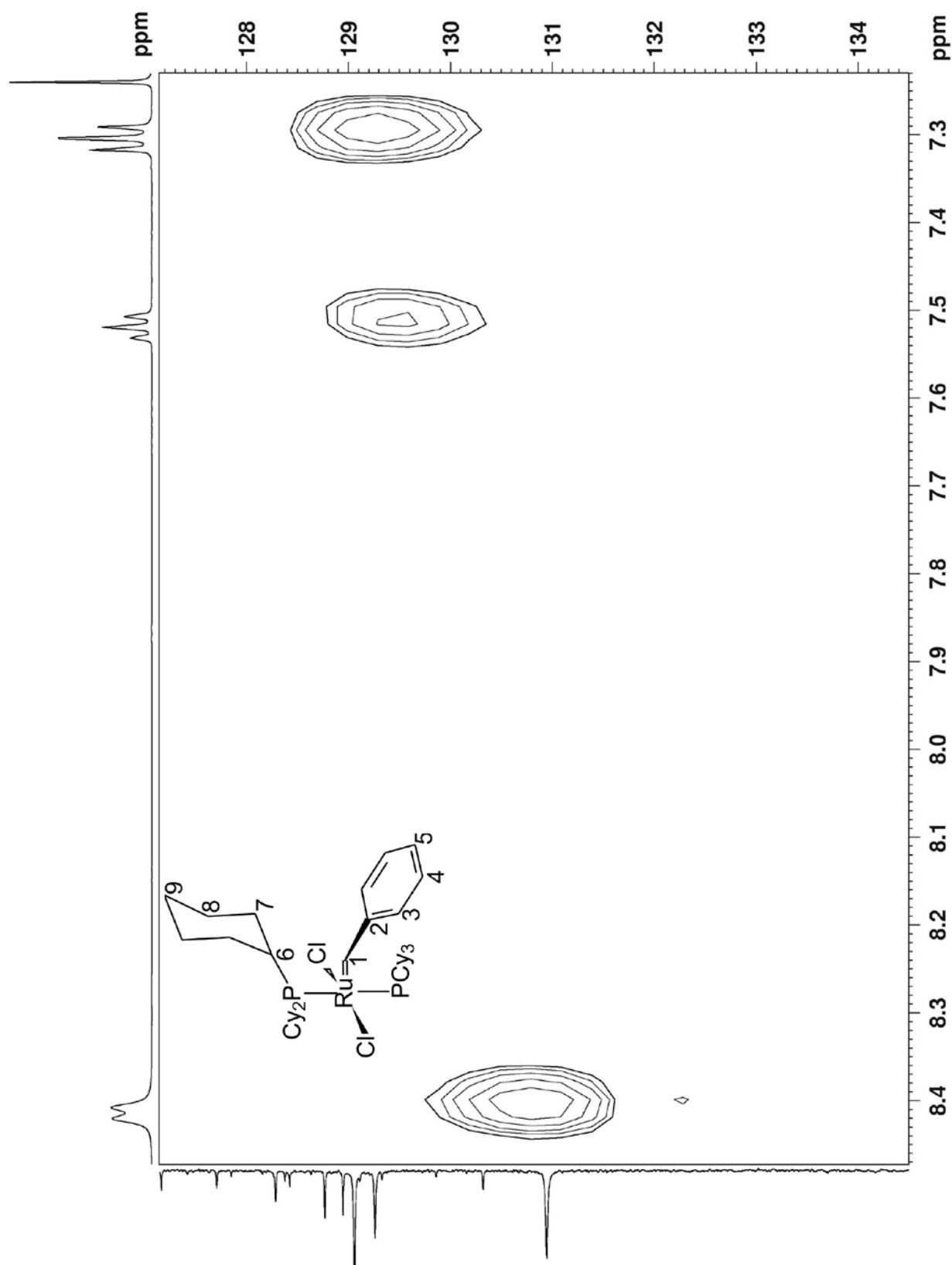


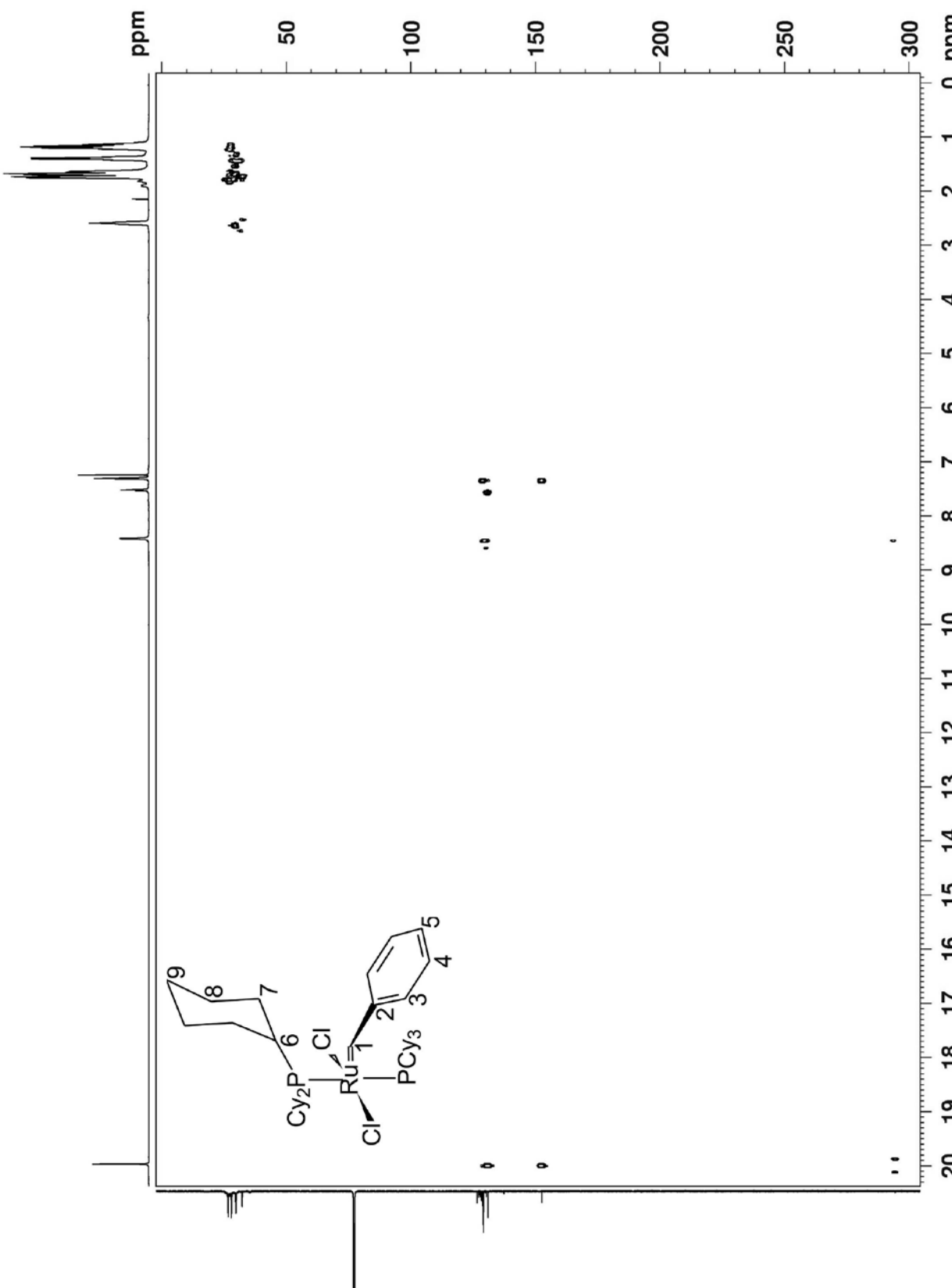
Spektrum 4.9

HSQC (CDCl_3) 600 MHz en 150 MHz



Spektrum 4.10 HSQC (CDCl_3) 600 MHz en 150 MHz

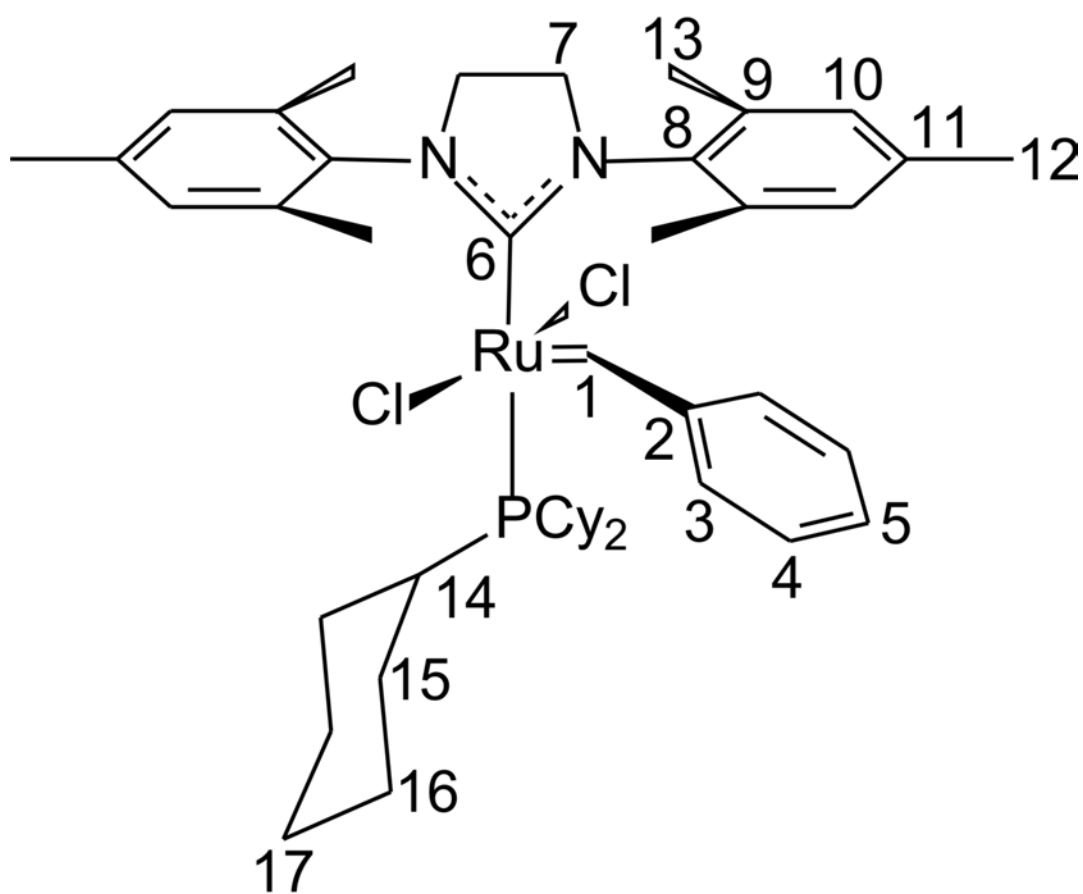
Spektrum 4.11 HSQC (CDCl₃) 600 MHz en 150 MHz

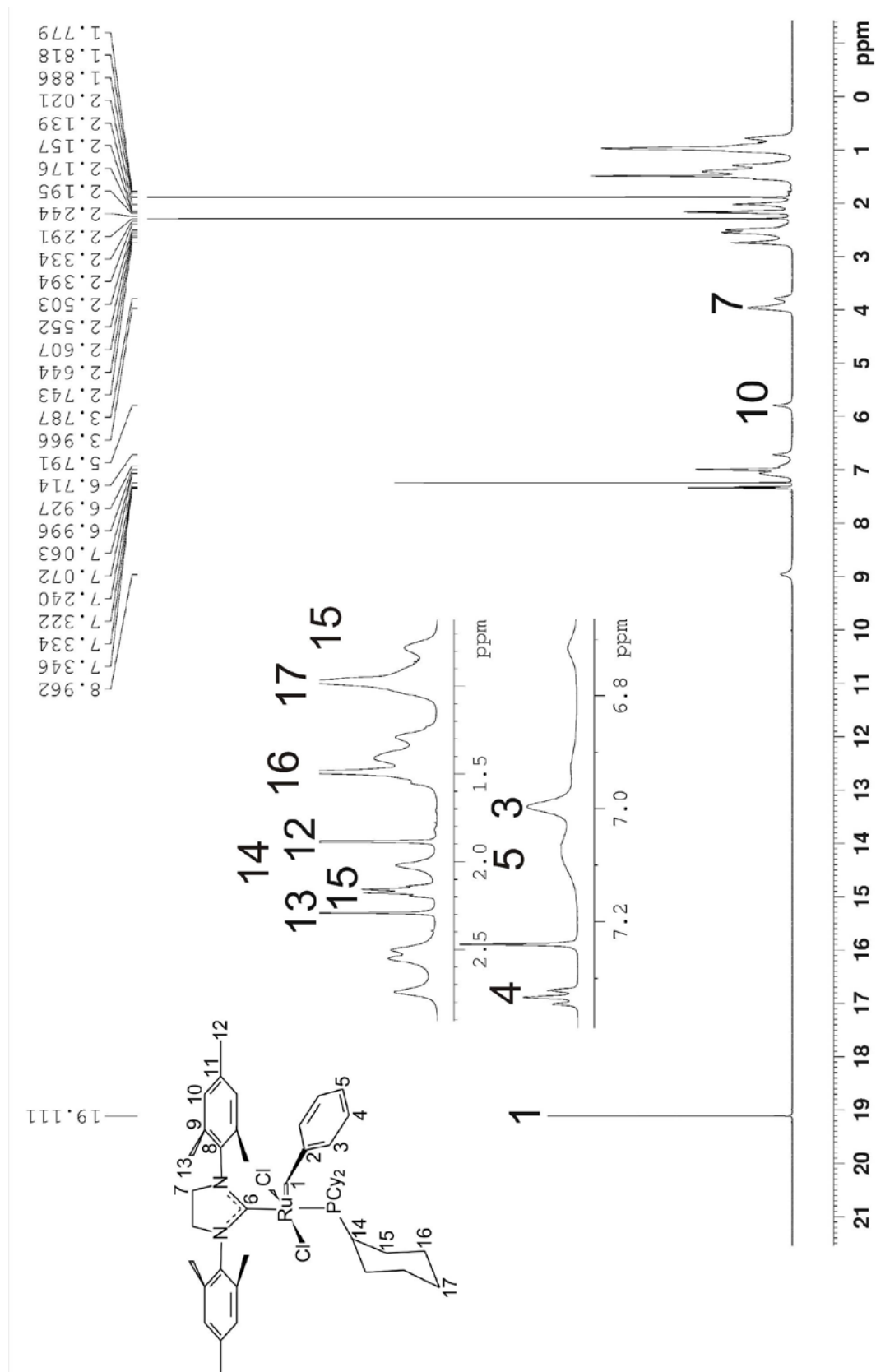


Spektrum 4.12 HMBC (CDCl₃) 600 MHz en 150 MHz

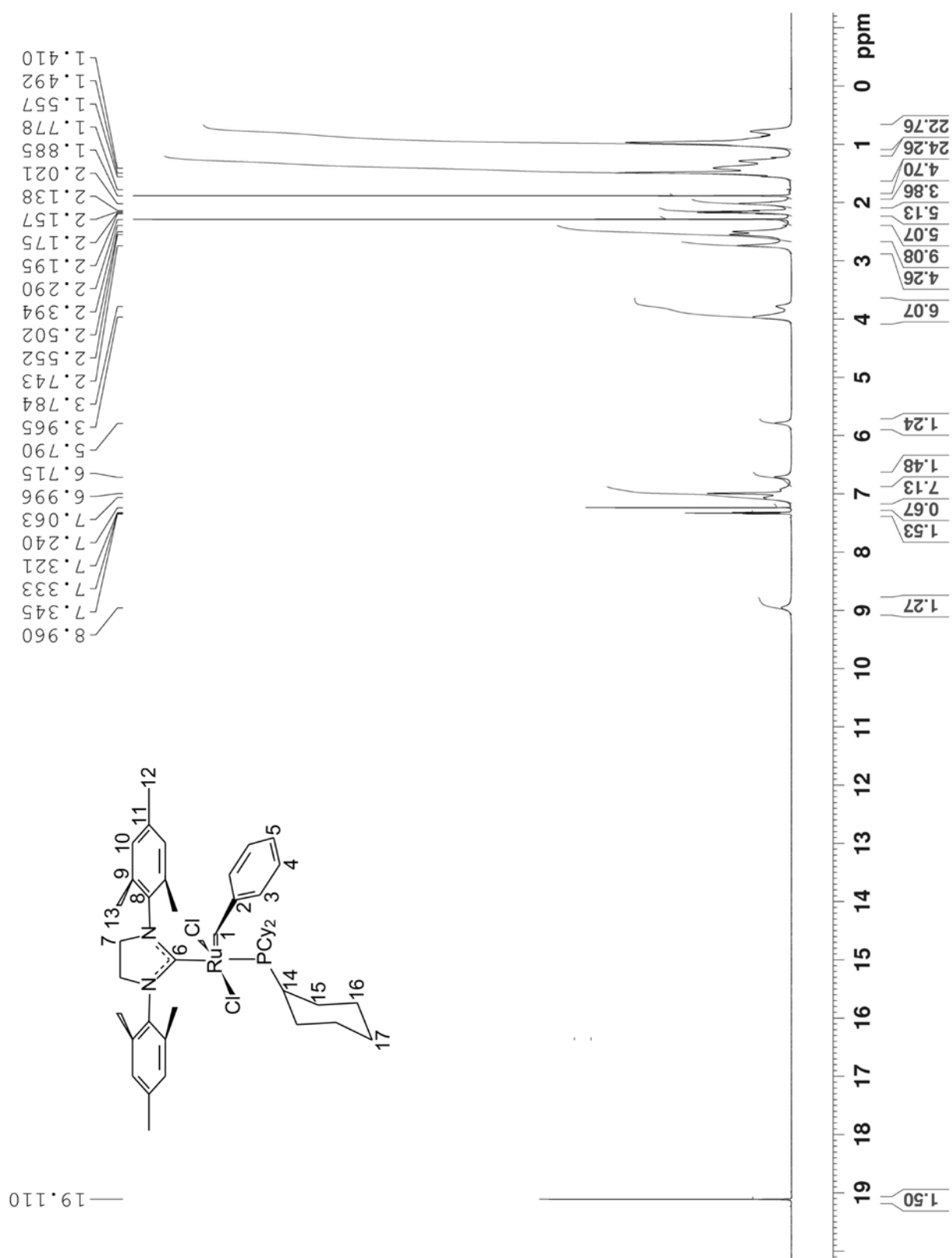
BYLAAG 5:

GRUBBS 2 PREKATALISATOR 2

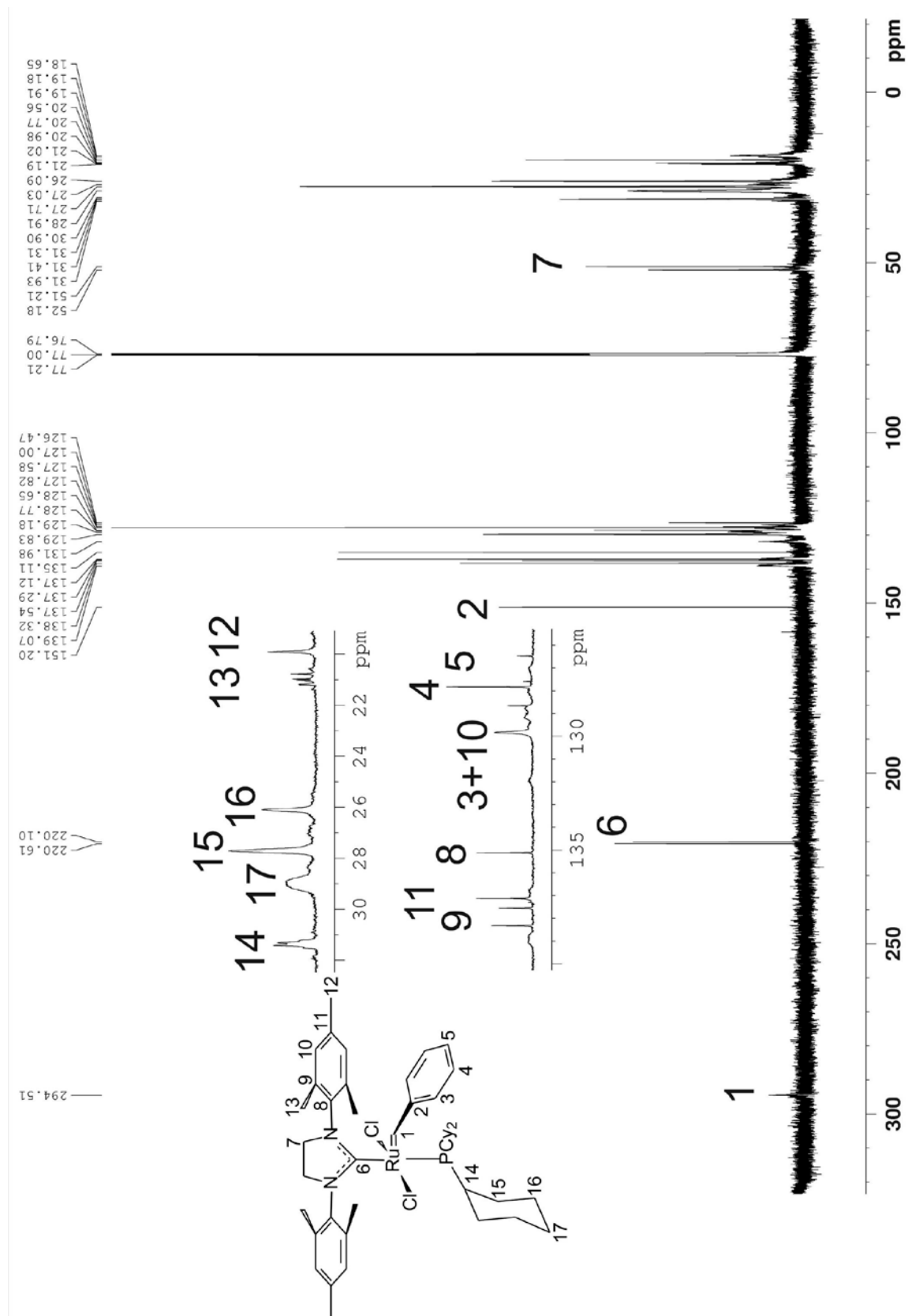




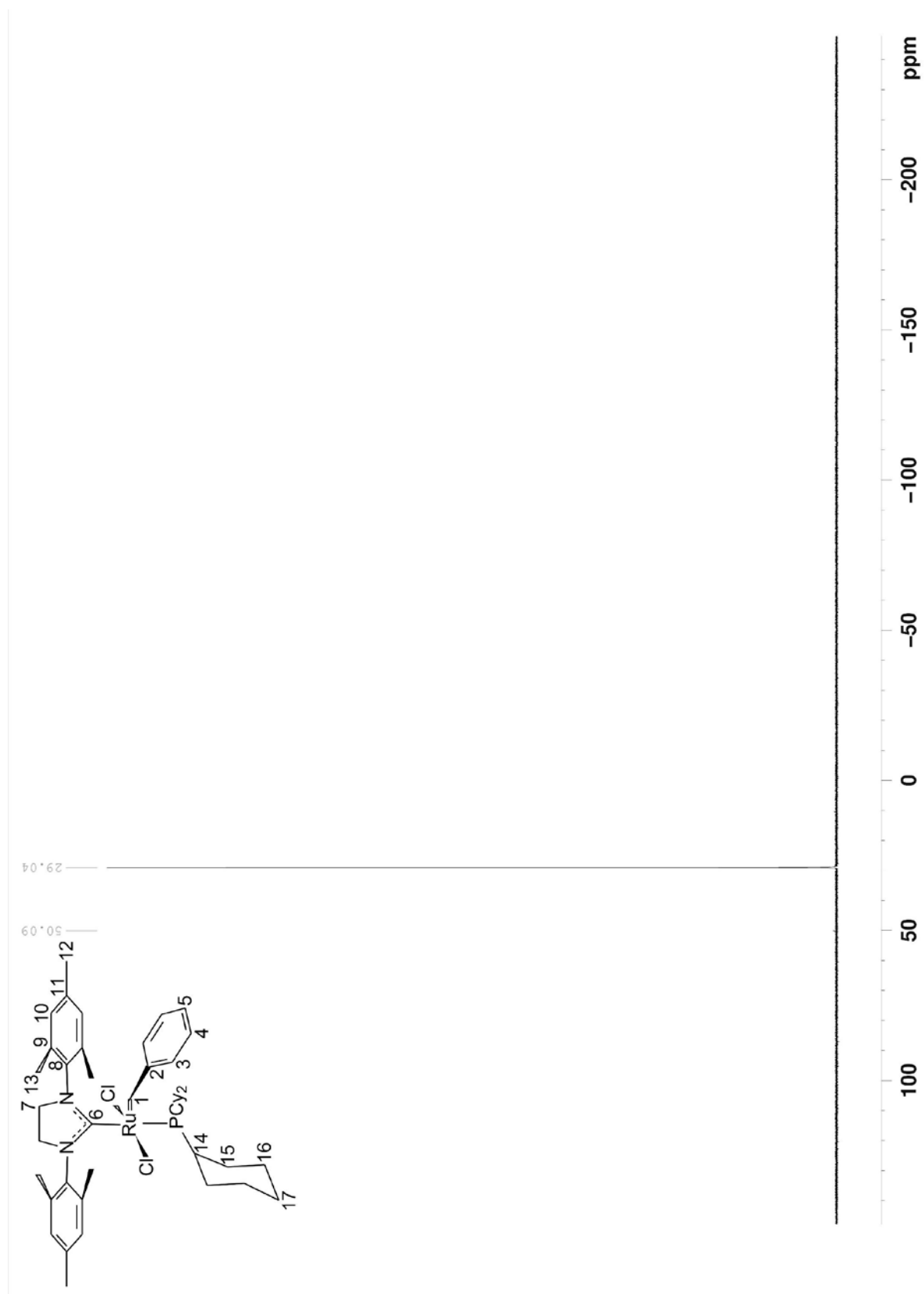
Spektrum 5.1 ¹H (CDCl₃) 600 MHz



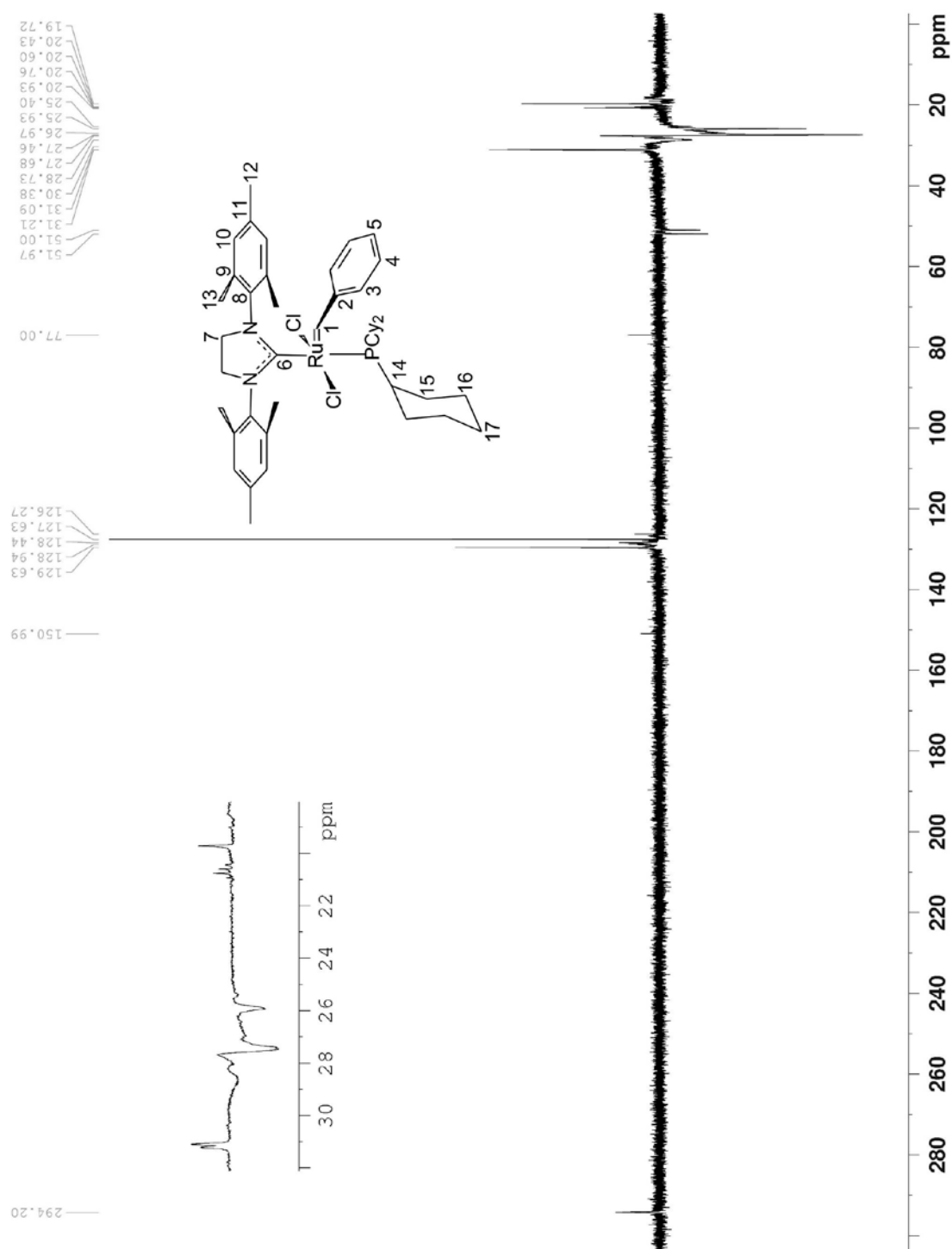
Spektrum 5.2 ¹H (CDCl₃) 600 MHz



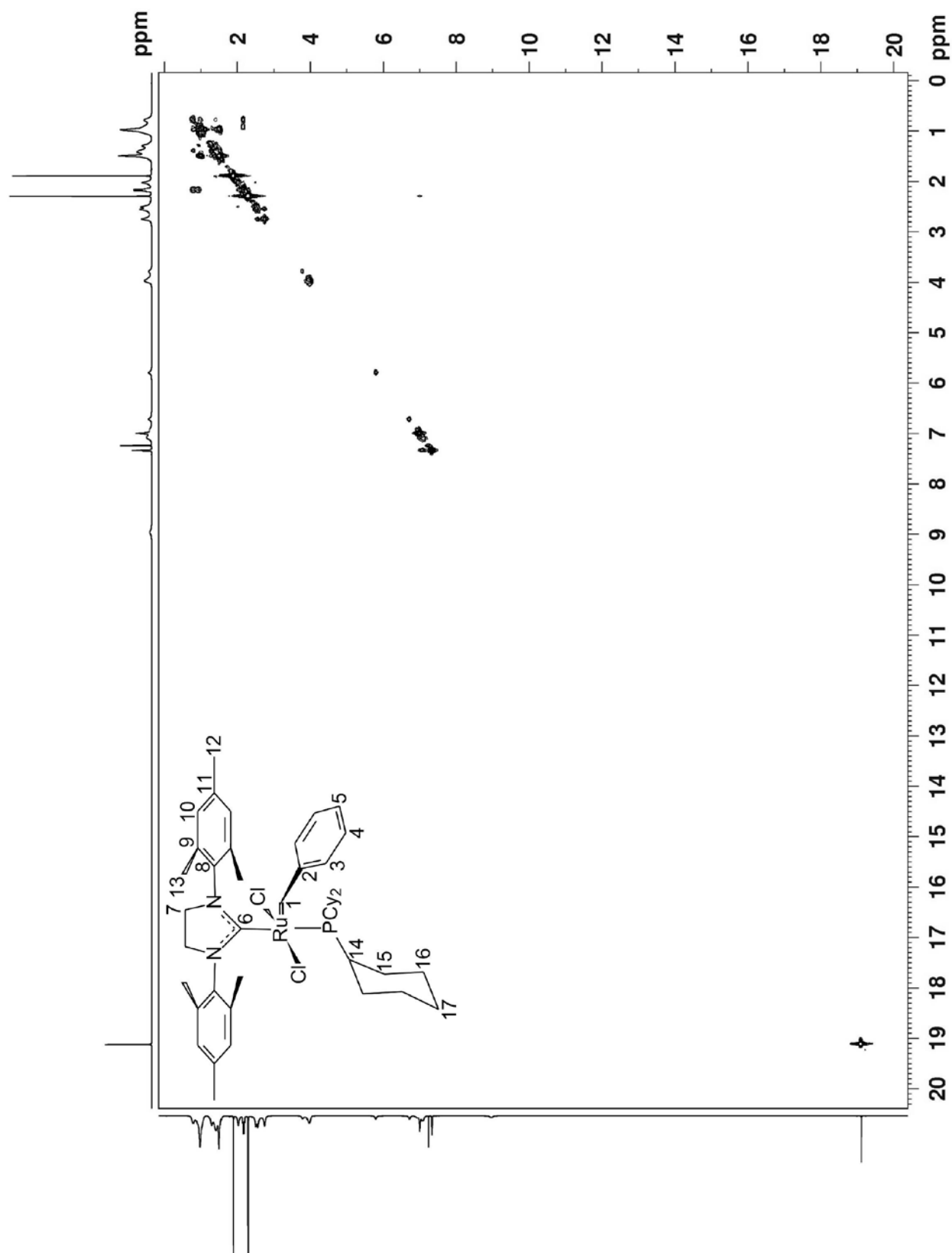
Spektrum 5.3 ¹³C (CDCl₃) 150 MHz



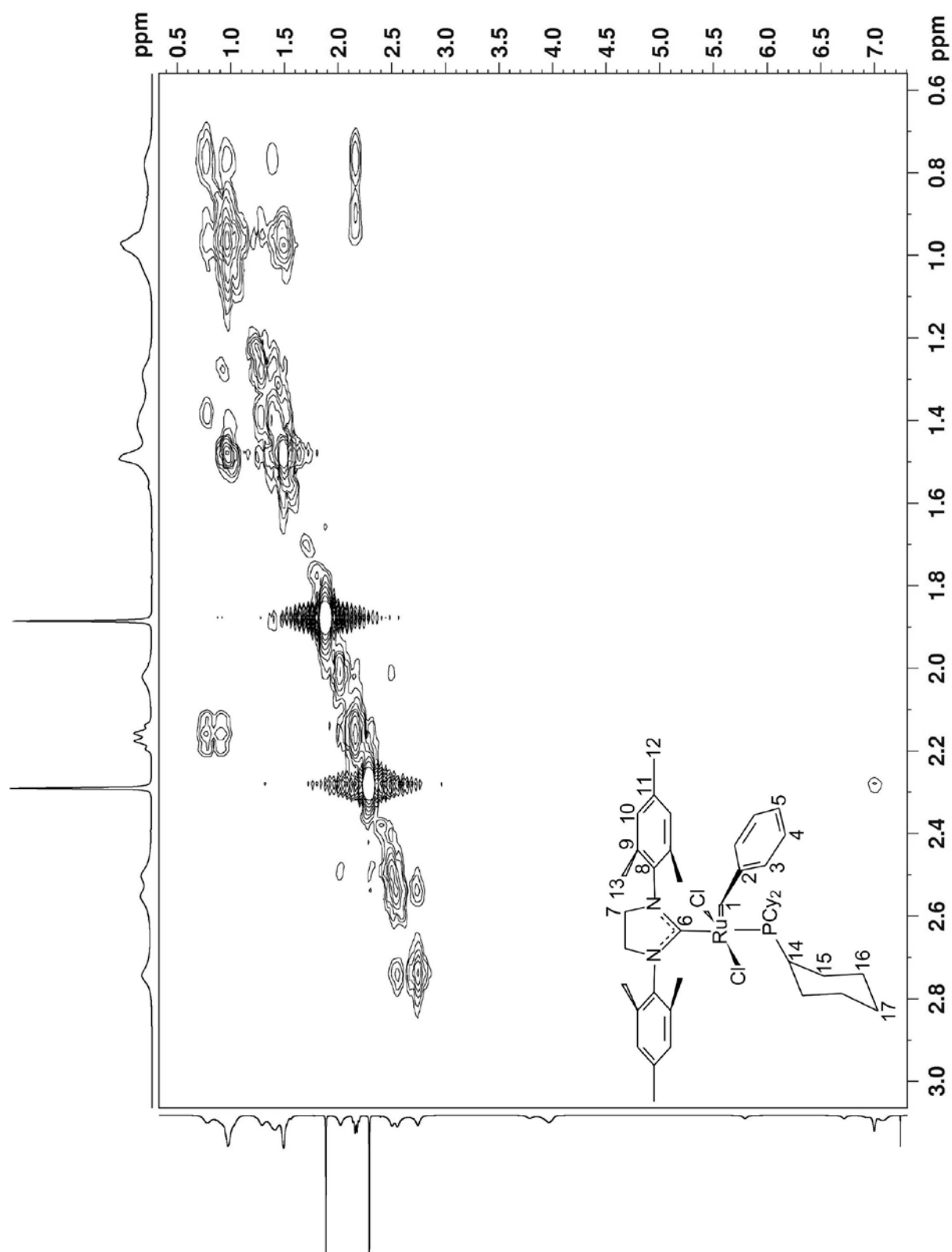
Spektrum 5.4 ^{31}P (CDCl_3) 242 MHz



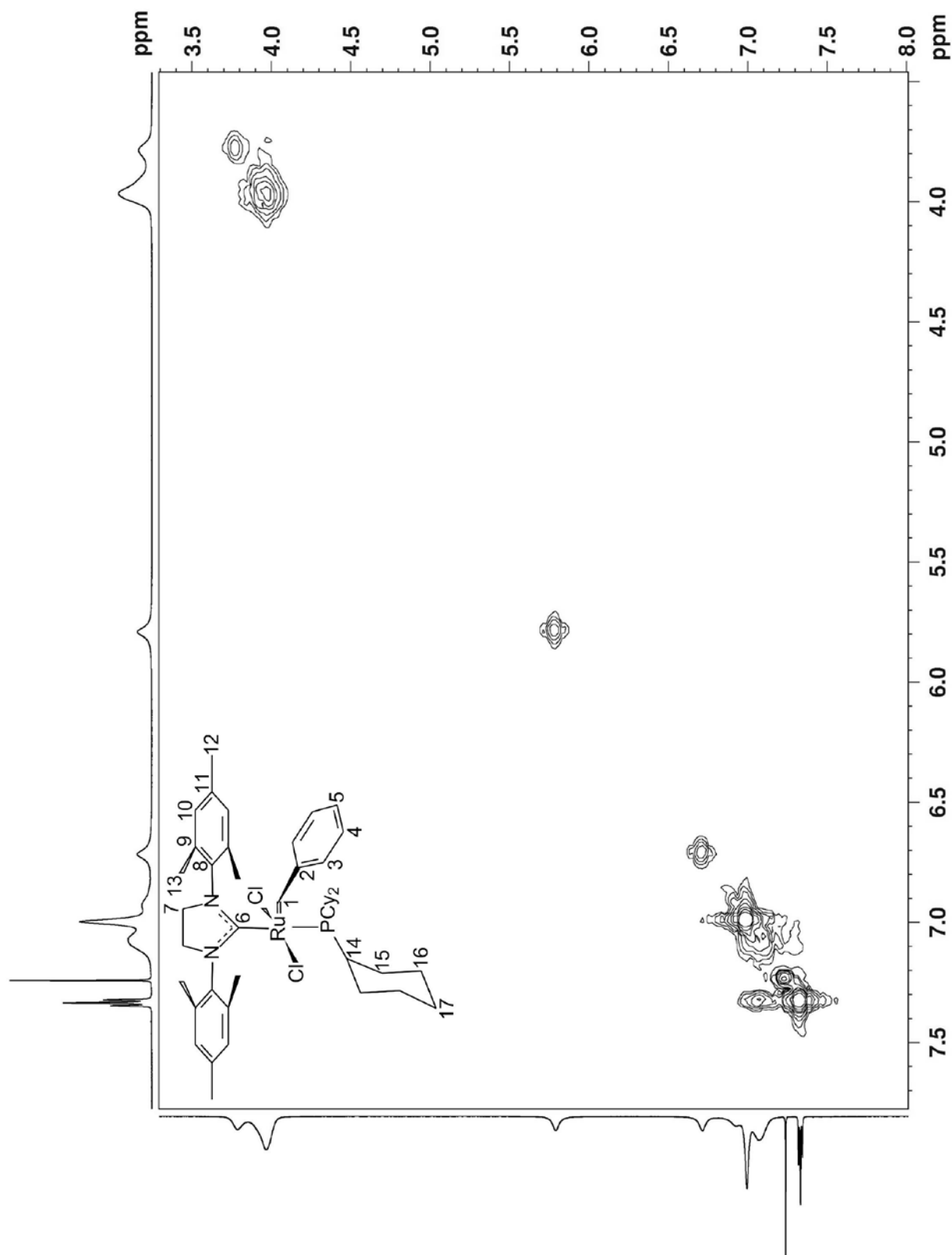
Spektrum 5.5 DEPT135 (CDCl₃) 150 MHz



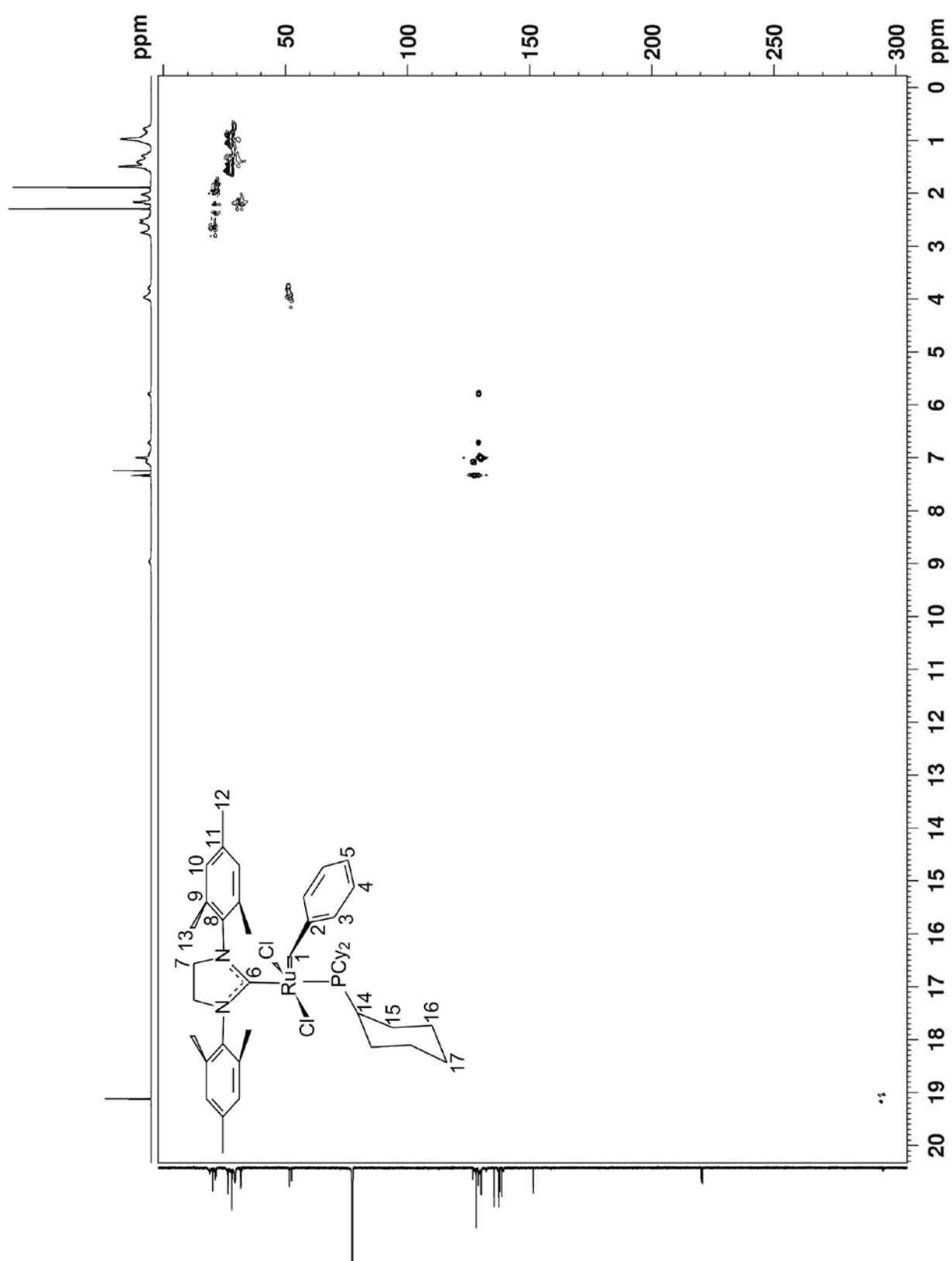
Spektrum 5.6 COSY (CDCl₃) 600 MHz



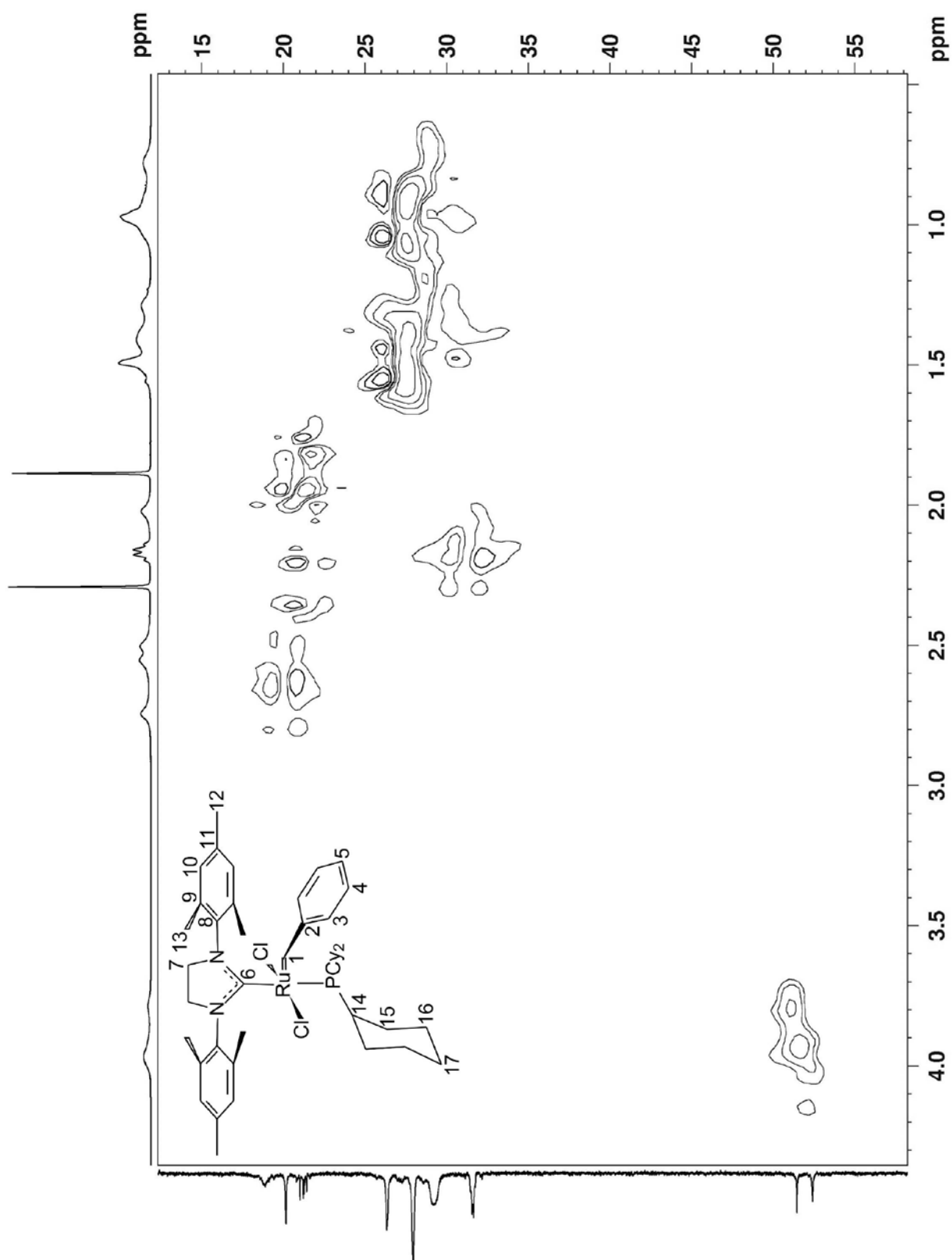
Spektrum 5.7 COSY (CDCl₃) 600 MHz



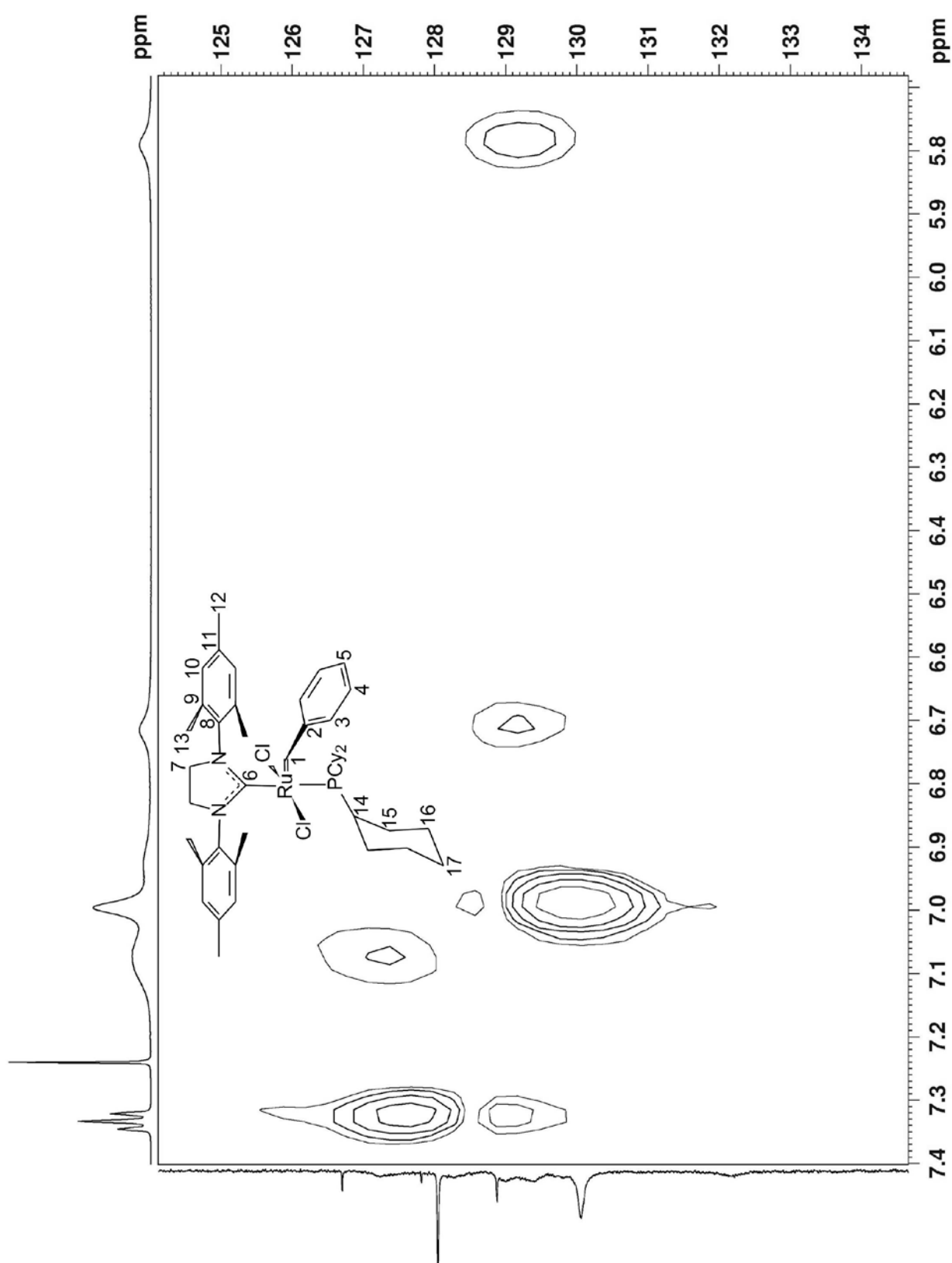
Spektrum 5.8 COSY (CDCl₃) 600 MHz



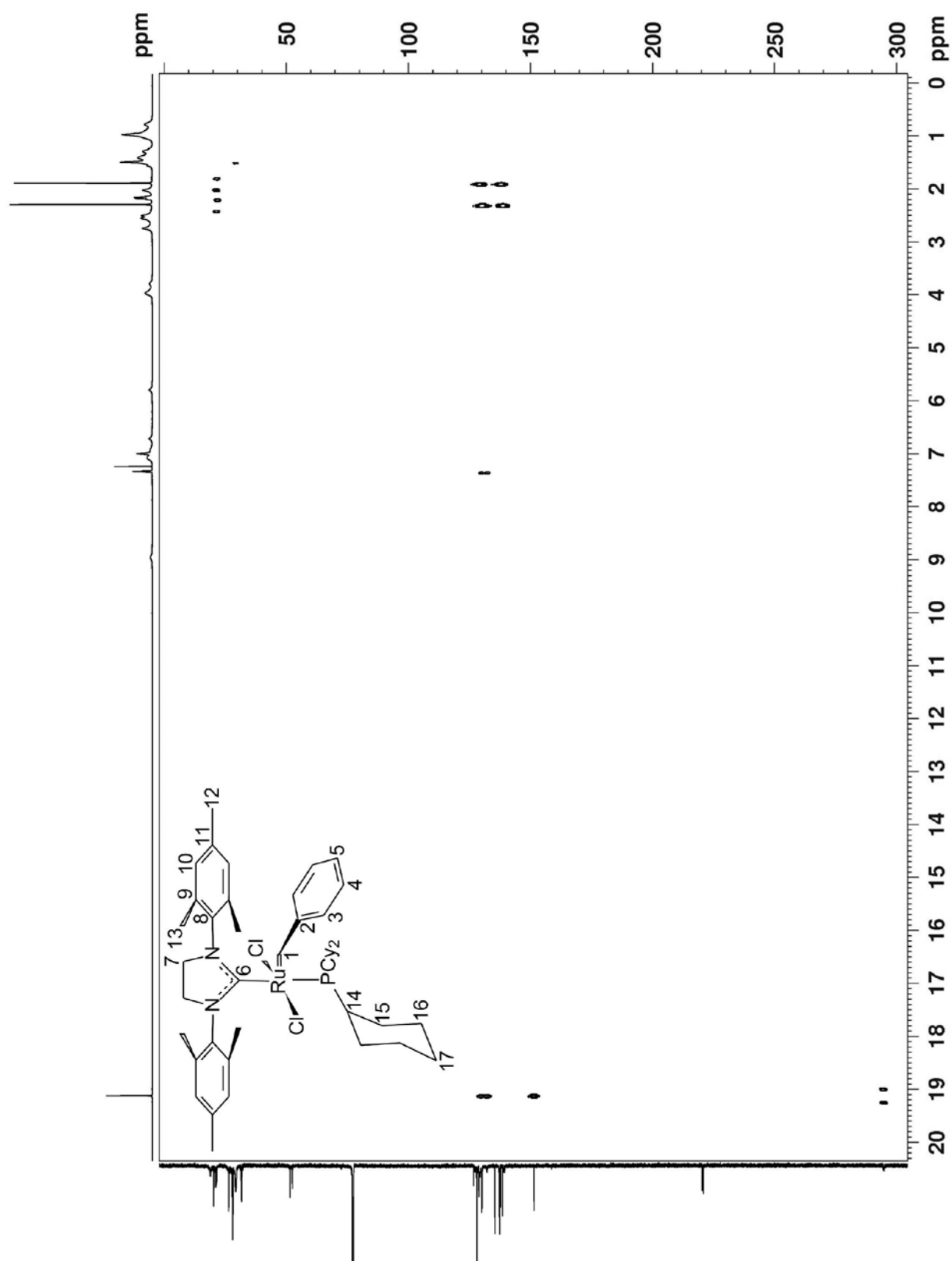
Spektrum 5.9 HSQC (CDCl₃) 600 MHz 5.n 150 MHz



Spektrum 5.10 HSQC (CDCl₃) 600 MHz 5.n 150 MHz

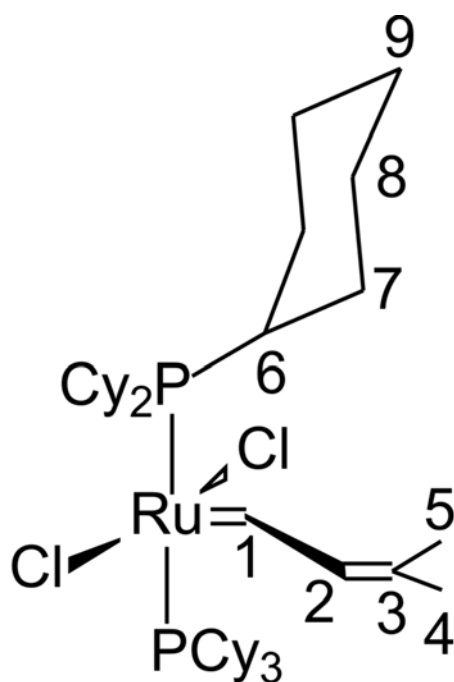


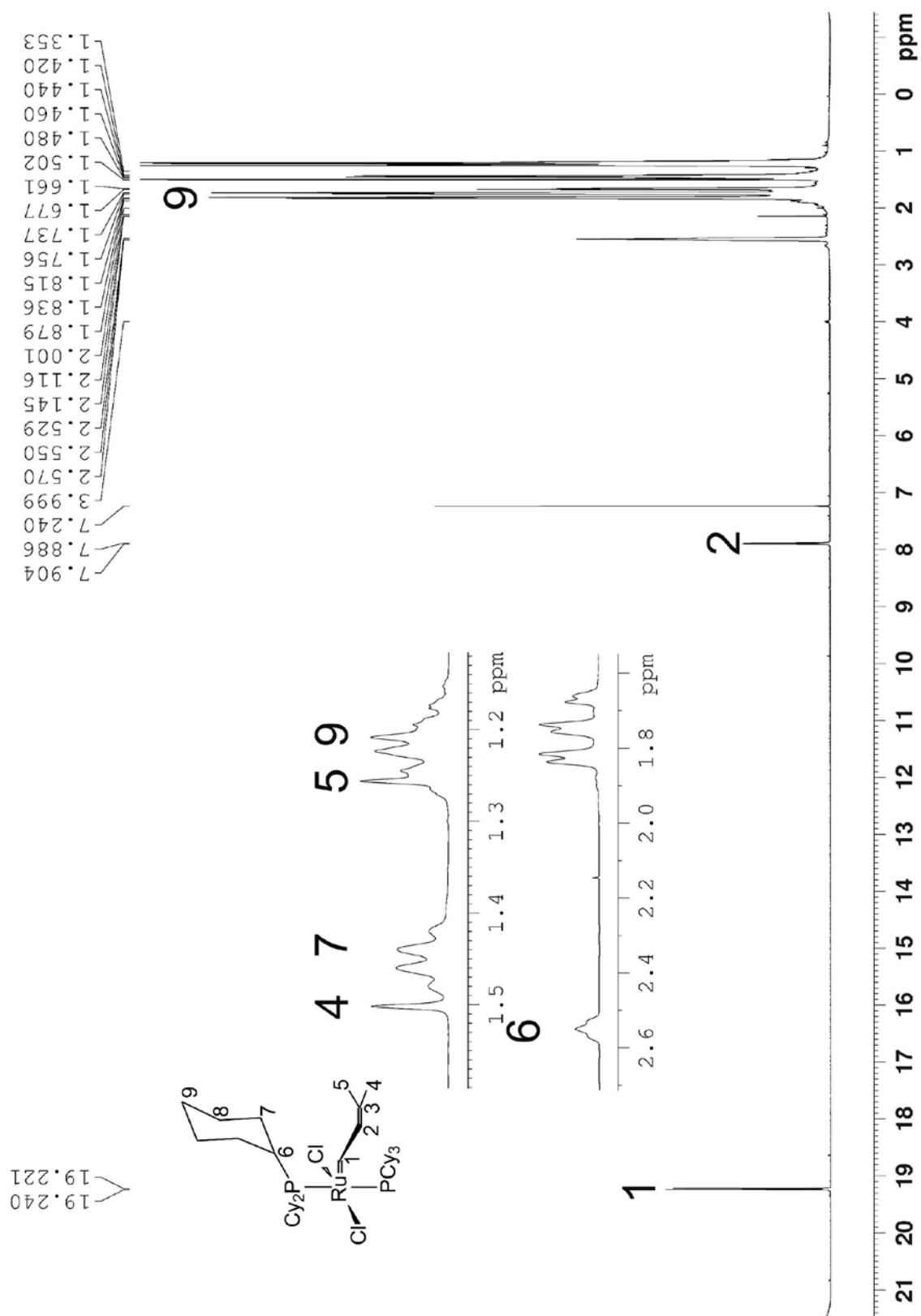
Spaktrum 5.11 HSQC (CDCl₃) 600 MHz 5.n 150 MHz

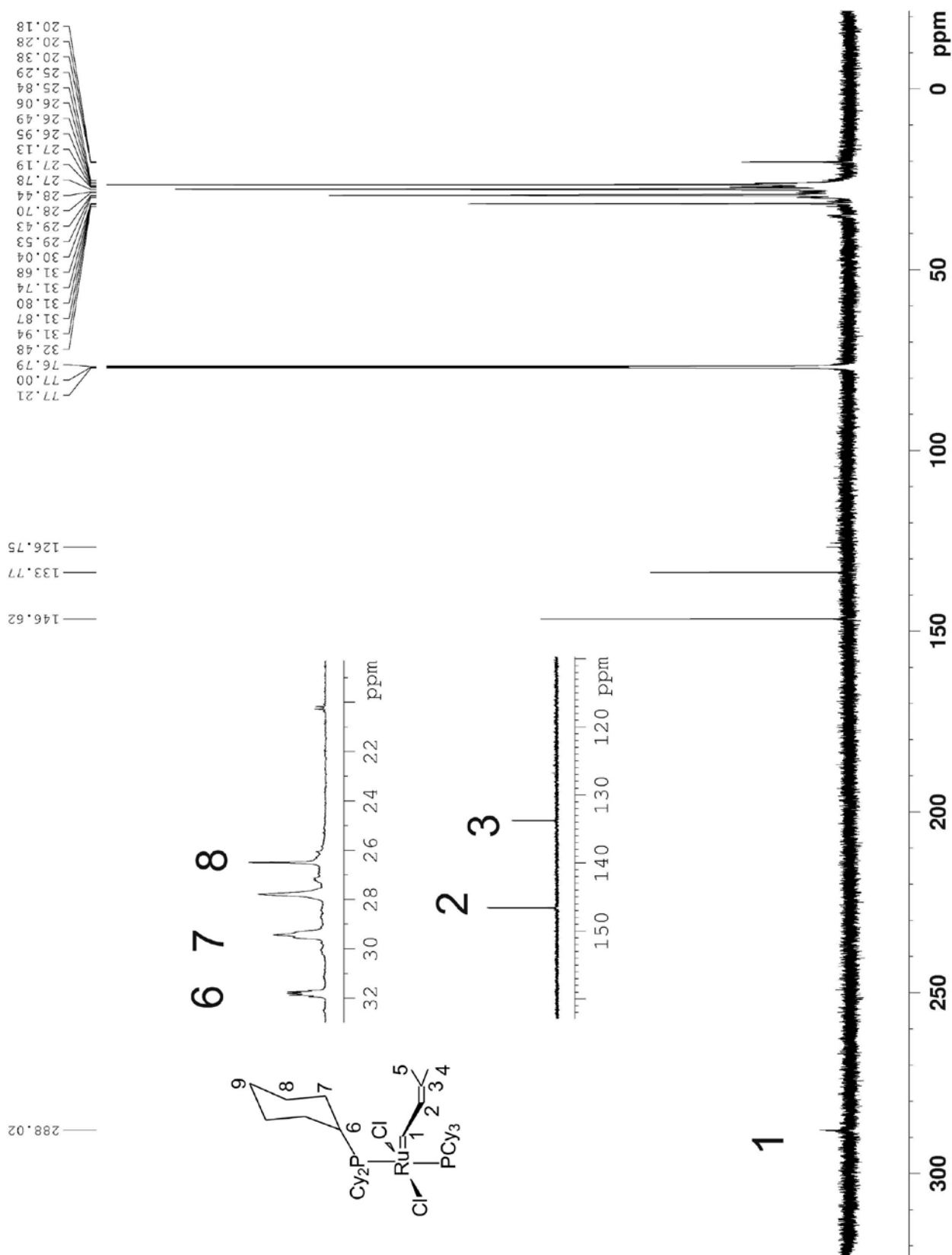


Spaktrum 5.12 HMBC (CDCl₃) 600 MHz 5.n 150 MHz

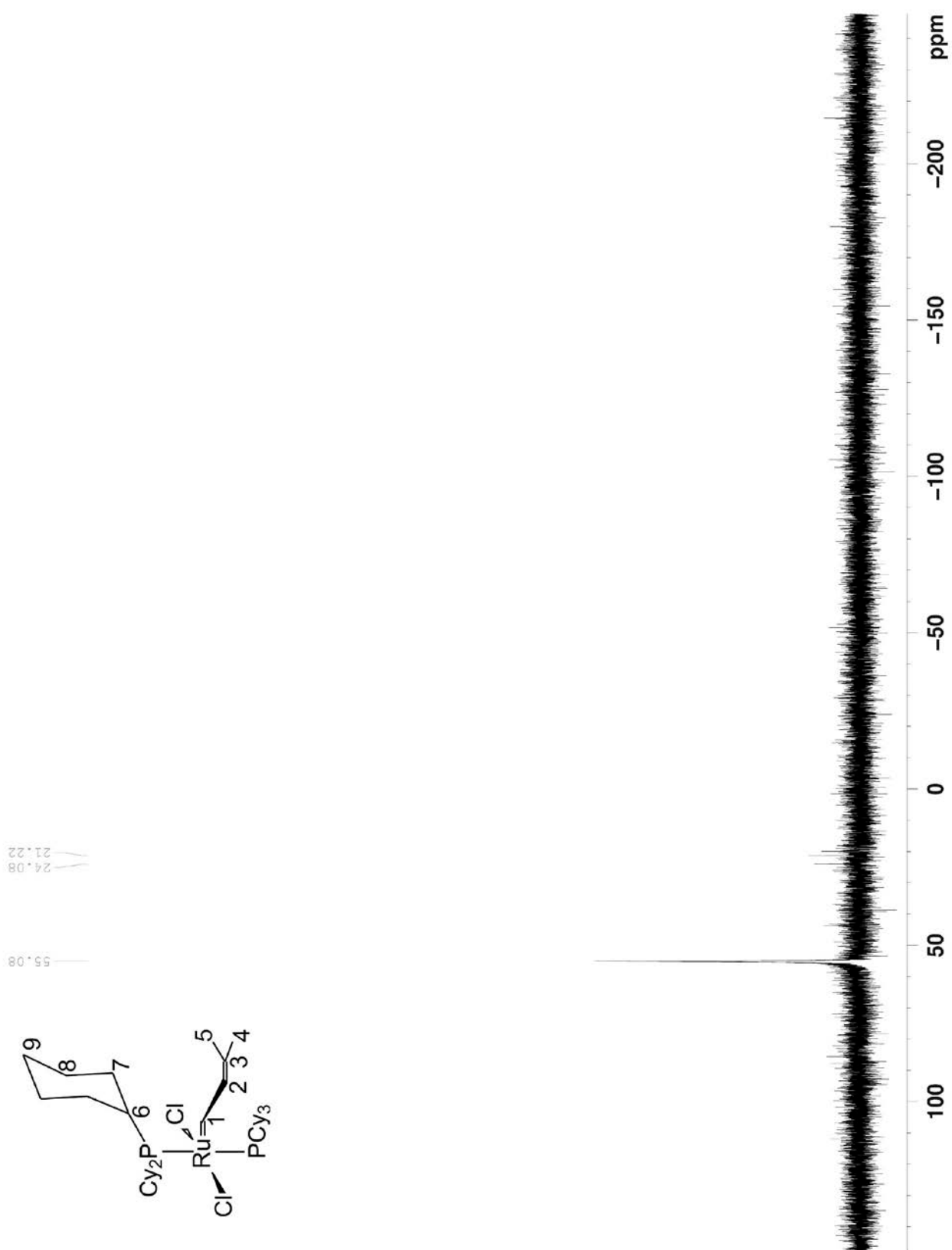
BYLAAG 6:
GRUBBS 1-TIPE
PREKATALISATOR 3



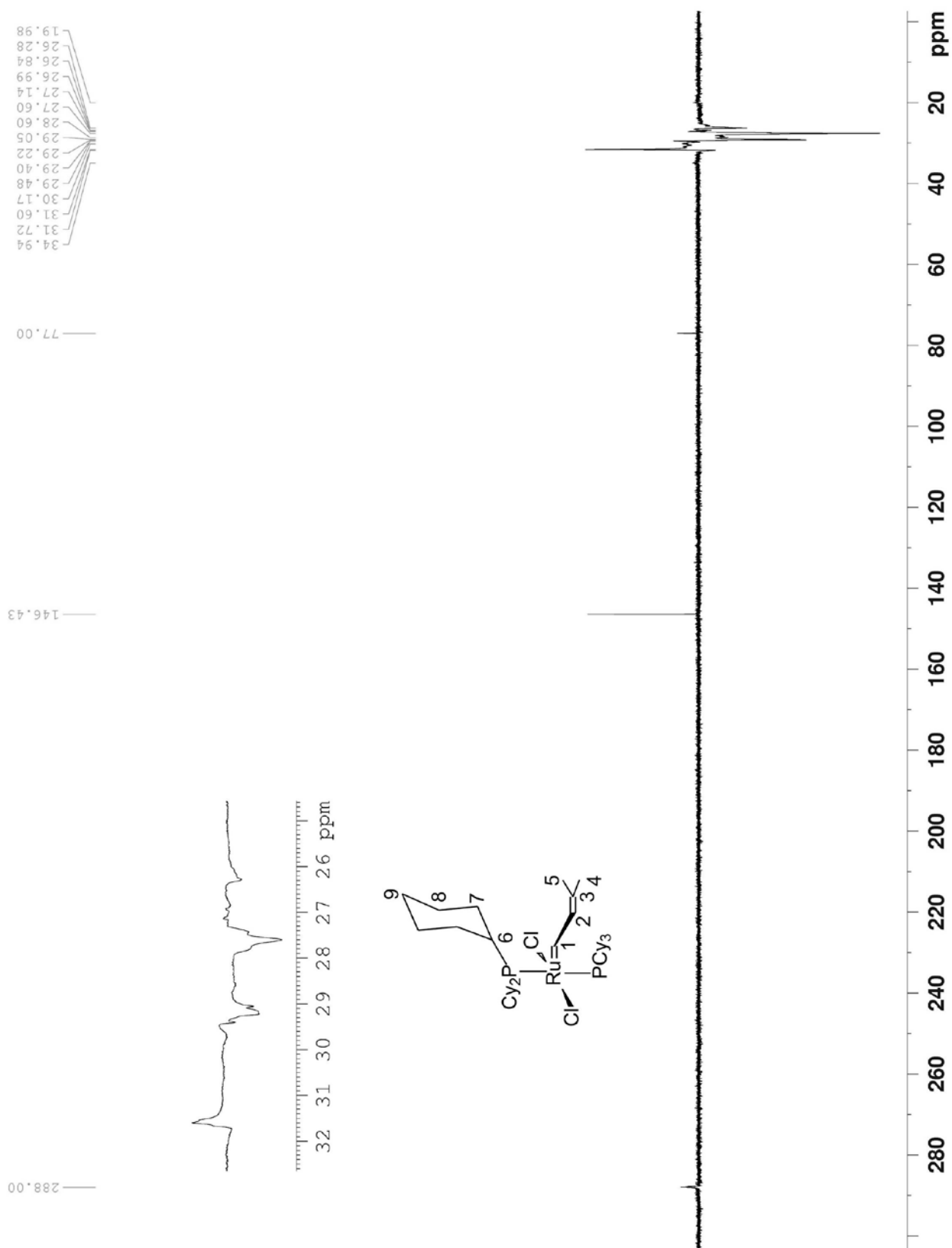

 Spektrum 6.1 ^1H (CDCl_3) 600 MHz



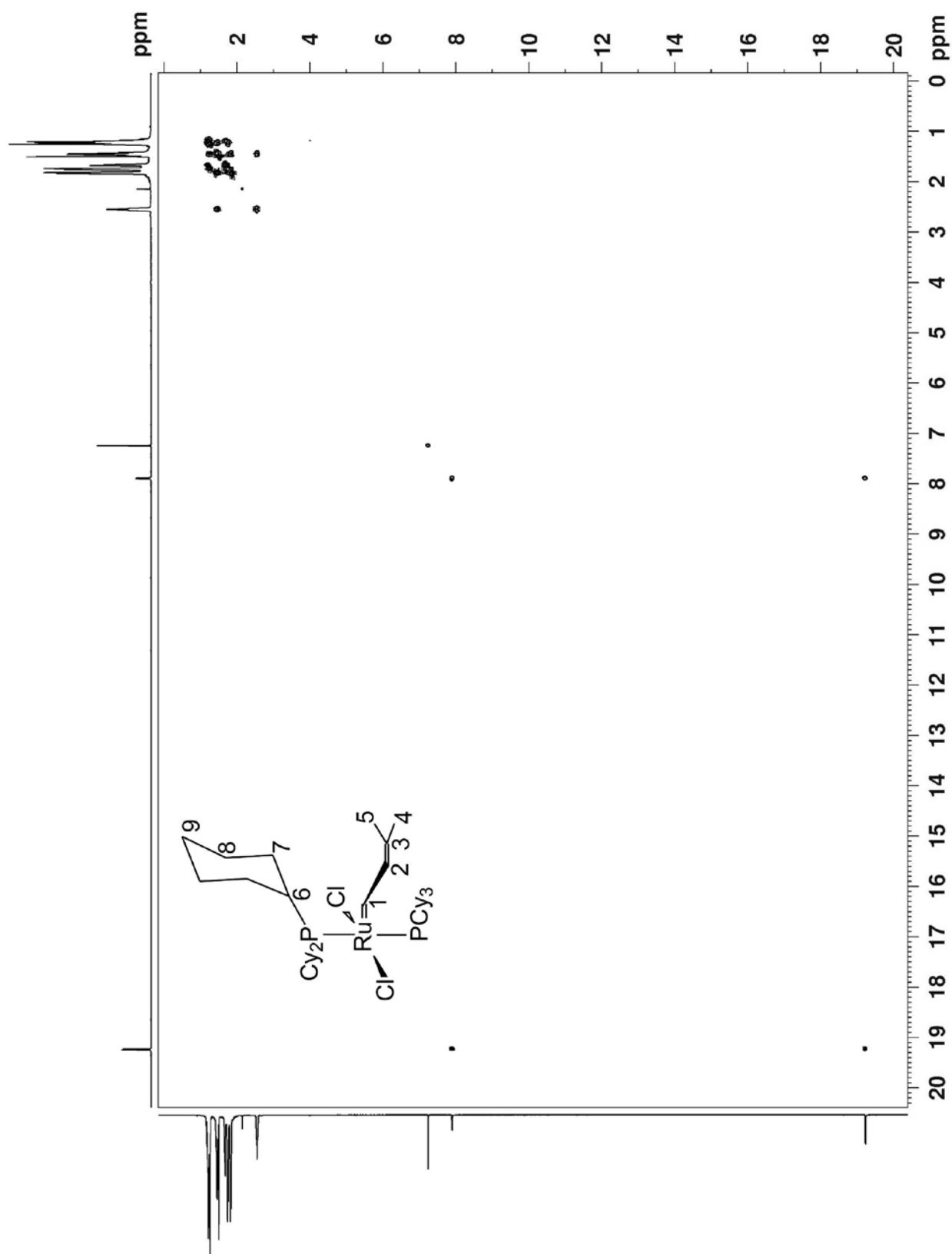
Spektrum 6. 3 ^{13}C (CDCl_3) 150 MHz



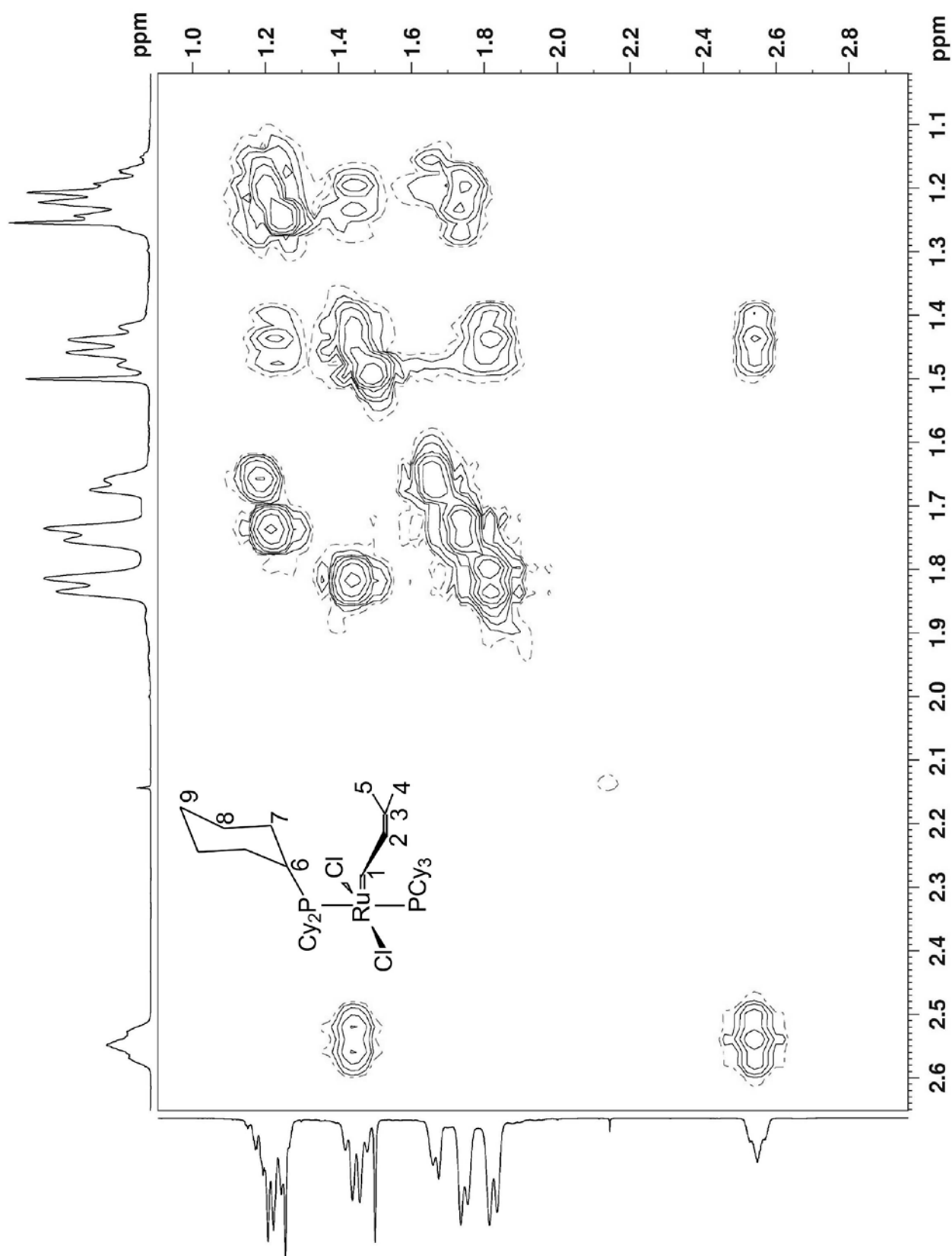
Spektrum 6. 4 ^{31}P (CDCl_3) 242 MHz



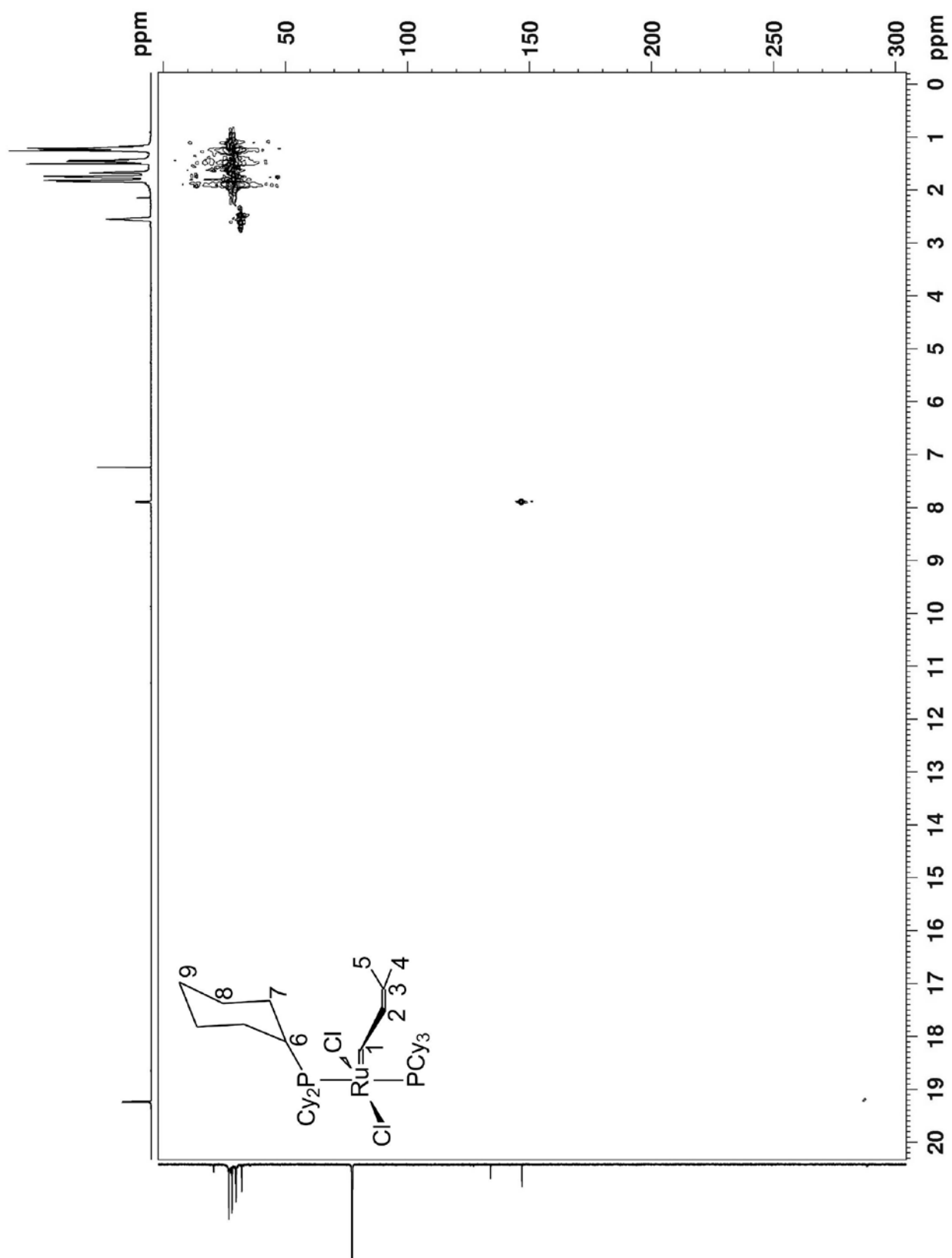
Spektrum 6. 5 DEPT135 (CDCl₃) 150 MHz



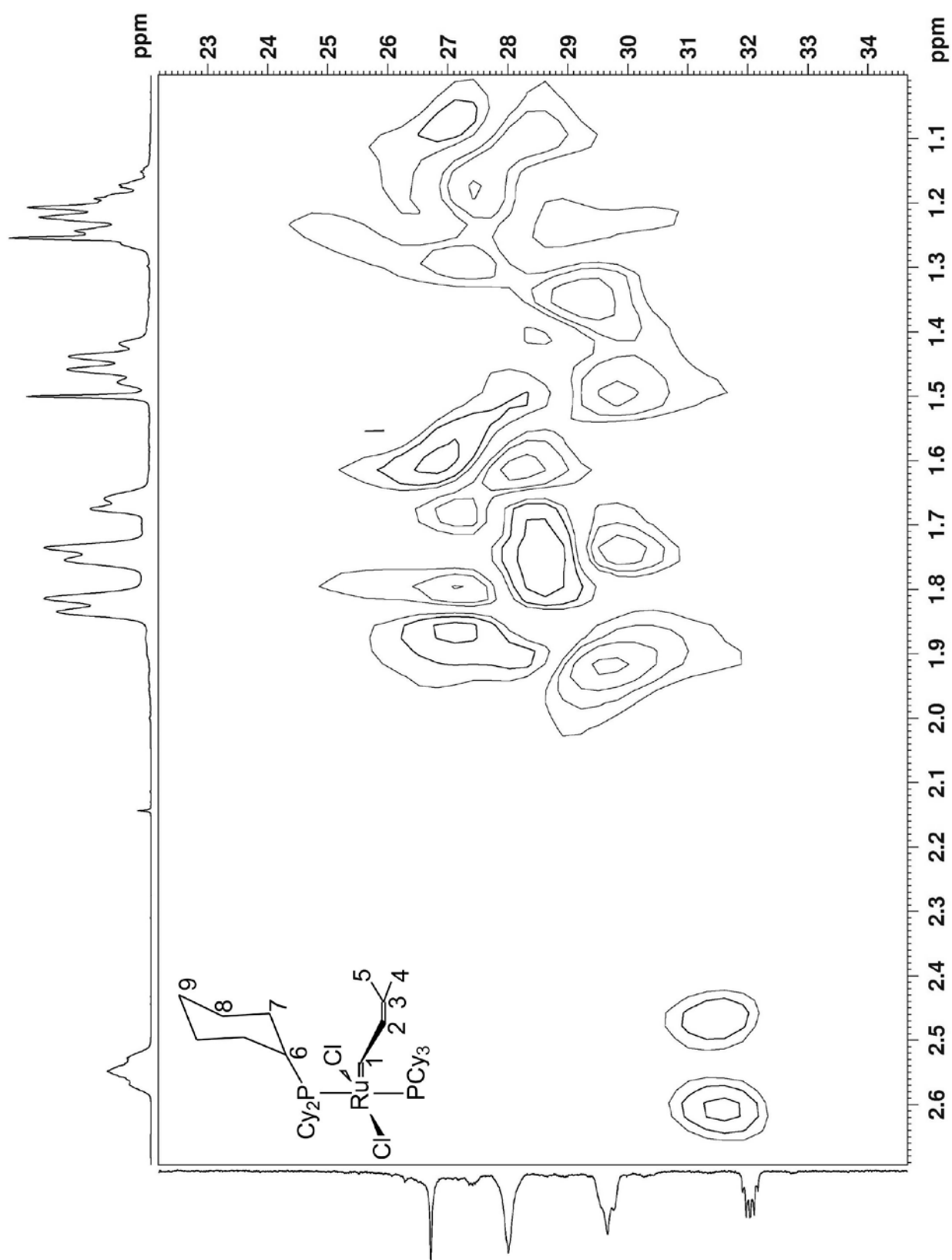
Spektrum 6. 6 COSY (CDCl₃) 600 MHz



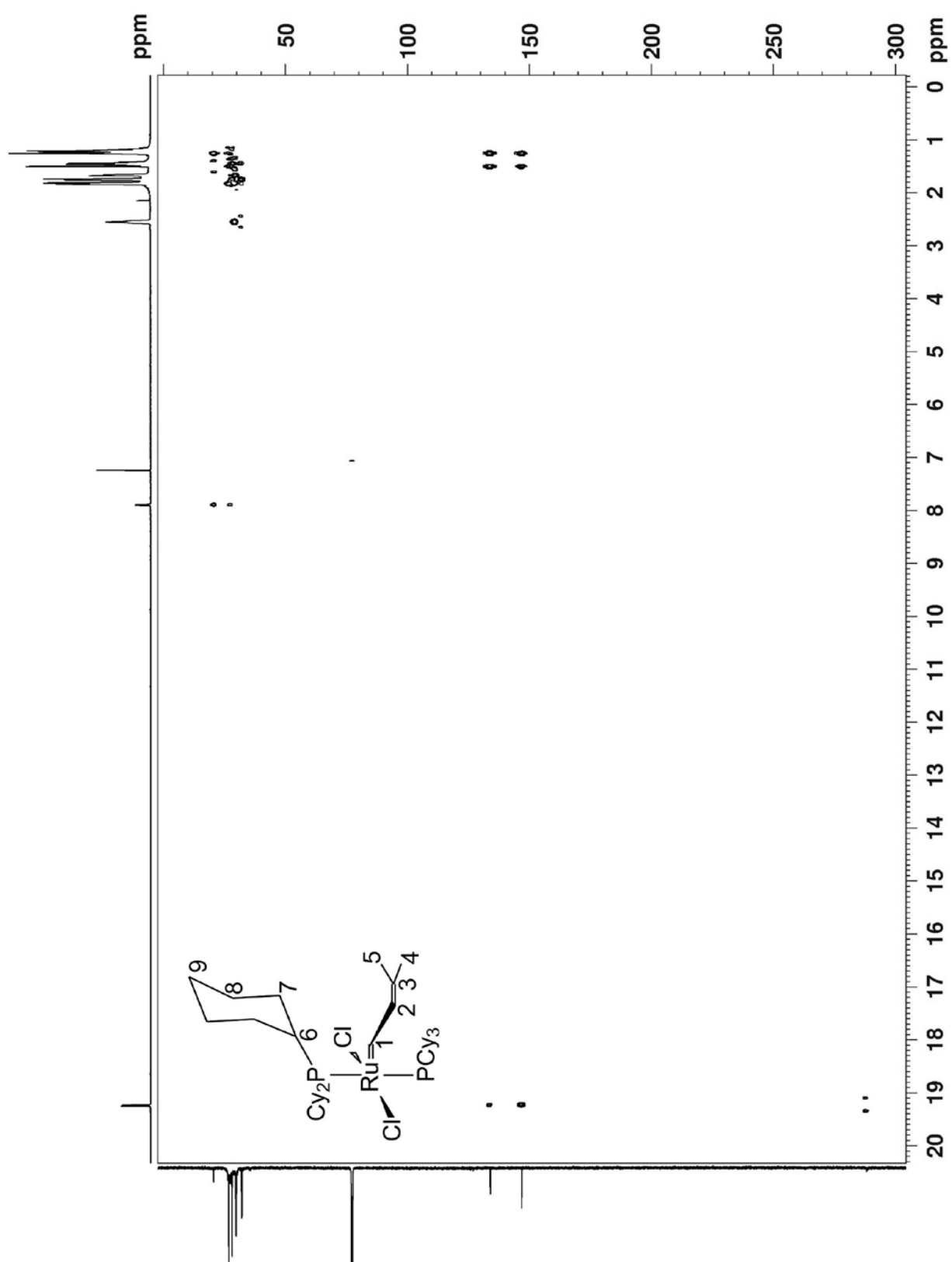
Spektrum 6. 7 COSY (CDCl₃) 600 MHz



Spektrum 6. 8 HSQC (CDCl₃) 600 MHz en 150 MHz



Spektrum 6. 9 HSQC (CDCl_3) 600 MHz en 150 MHz

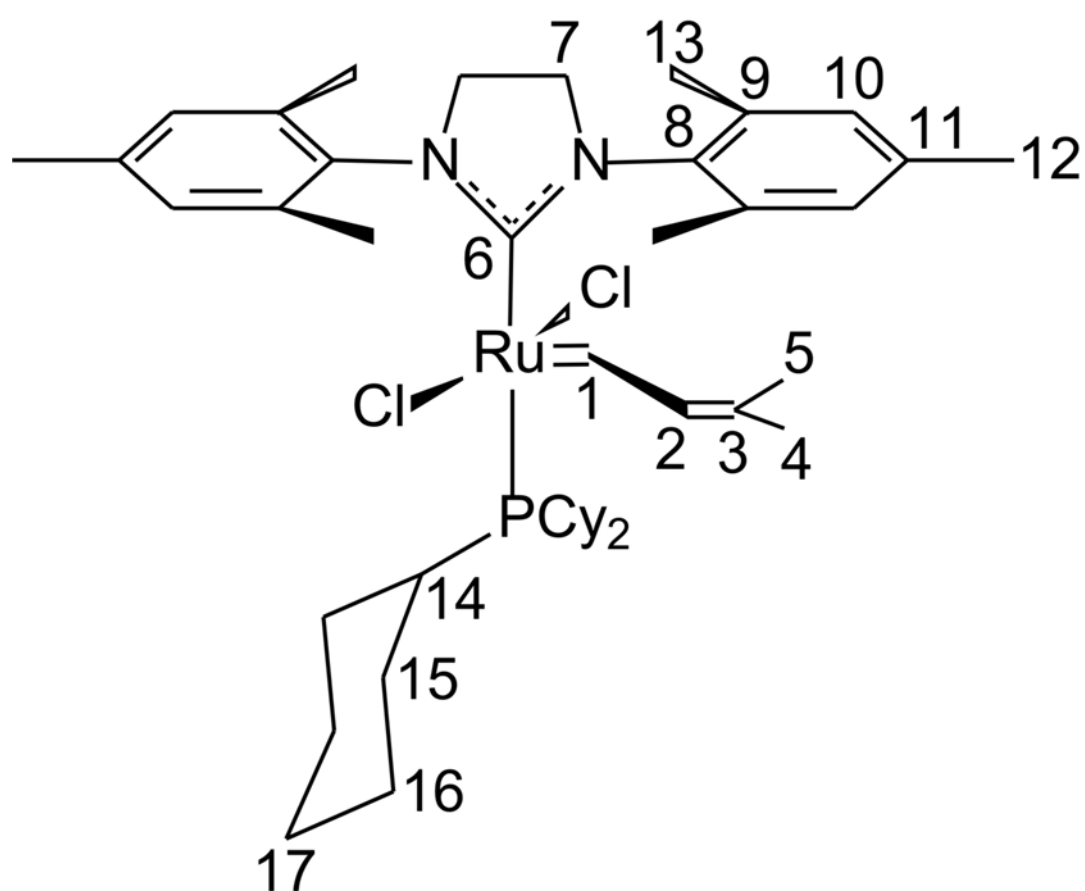


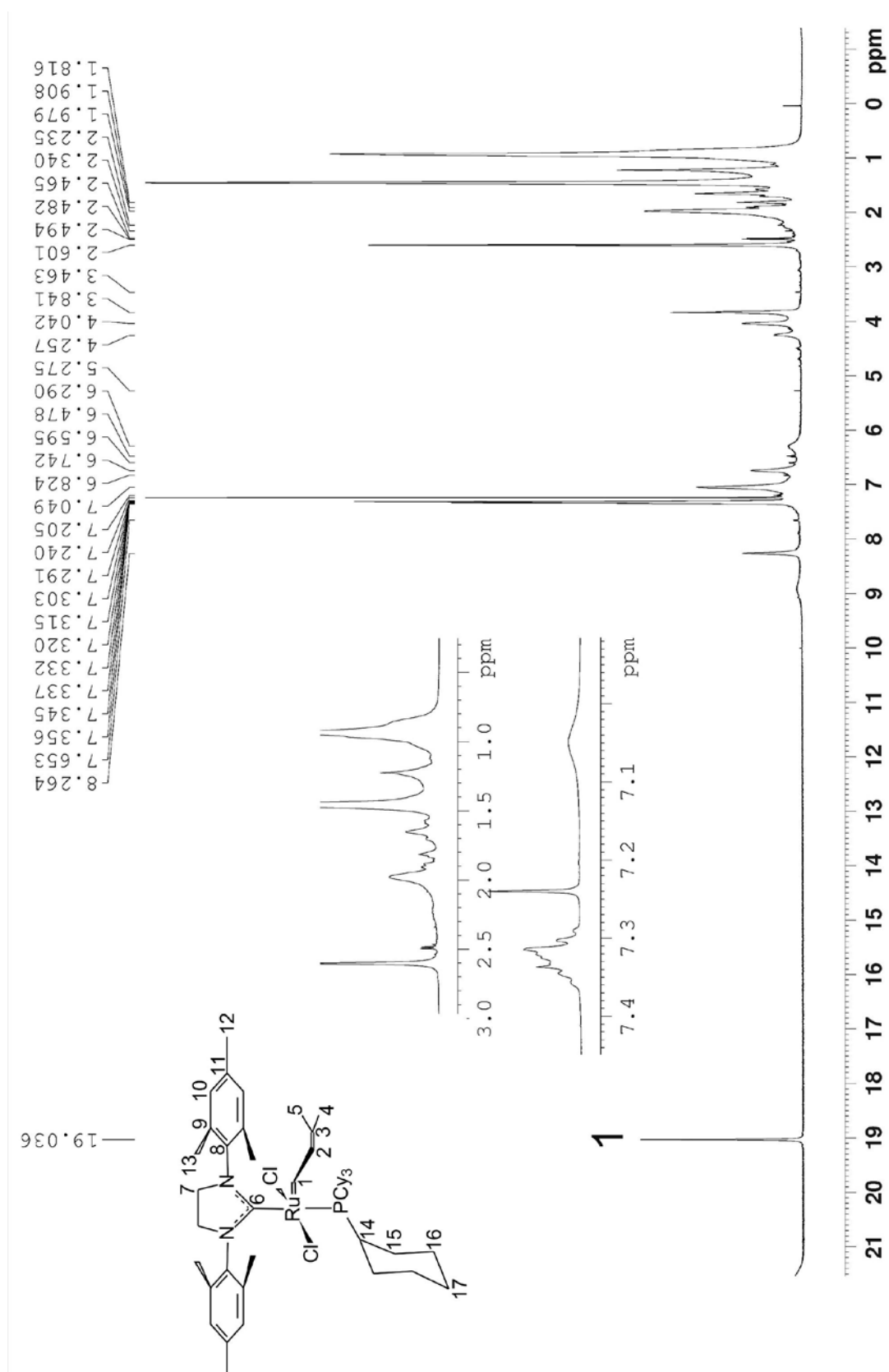
Spektrum 6.10 HMBC (CDCl₃) 600 MHz en 150 MHz

BYLAAG 7

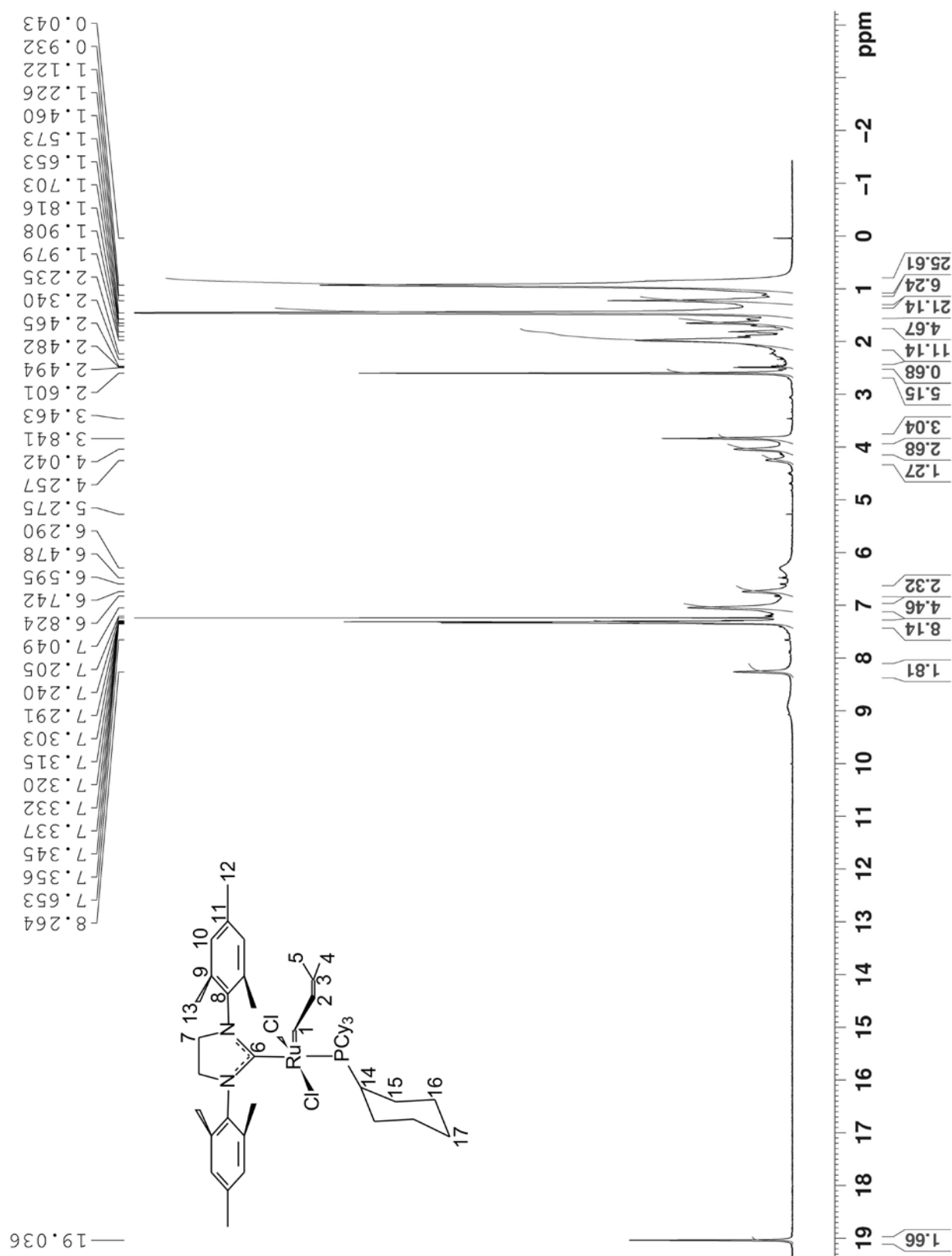
GRUBBS 2-TIPE

PREKATALISATOR 4

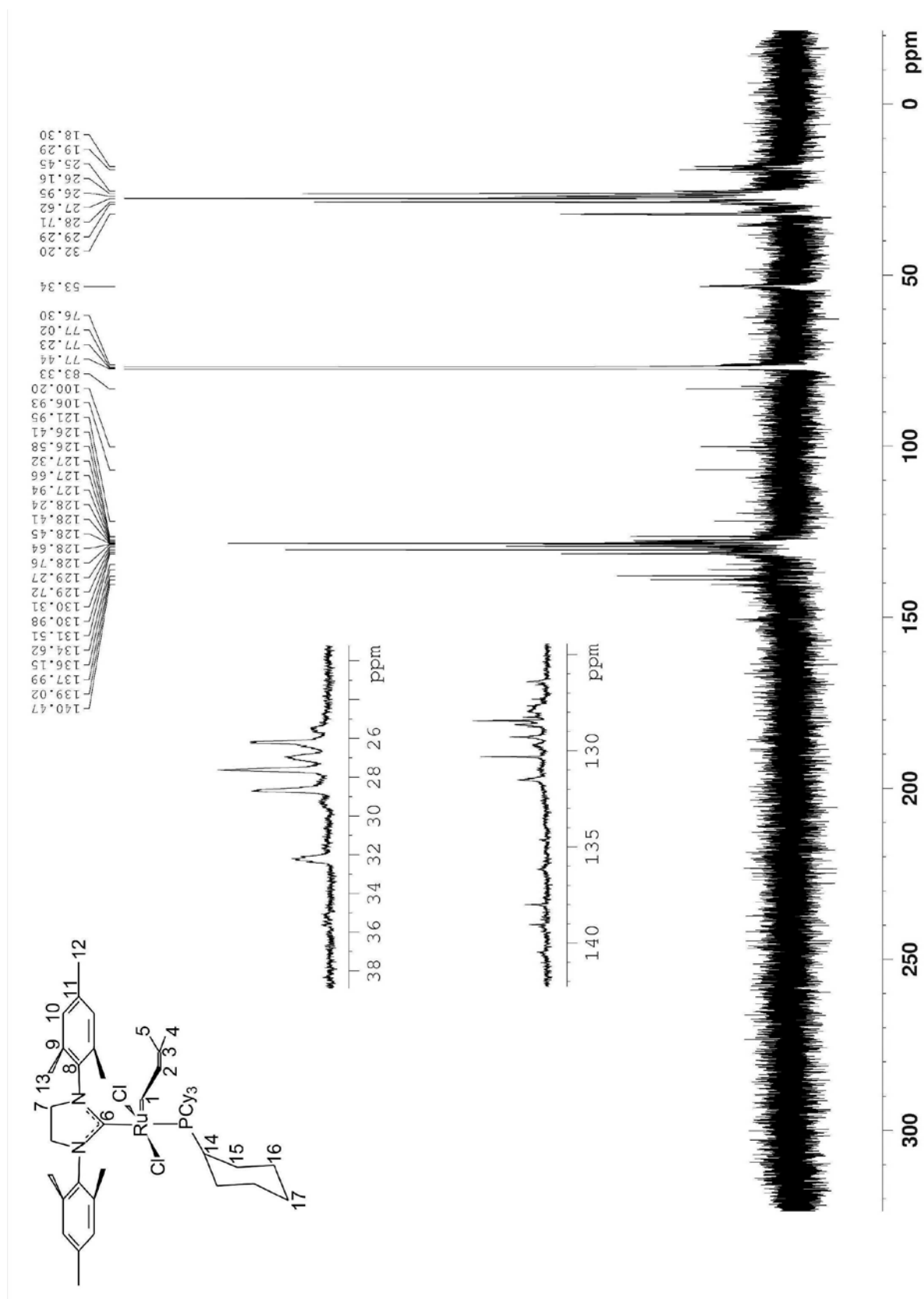




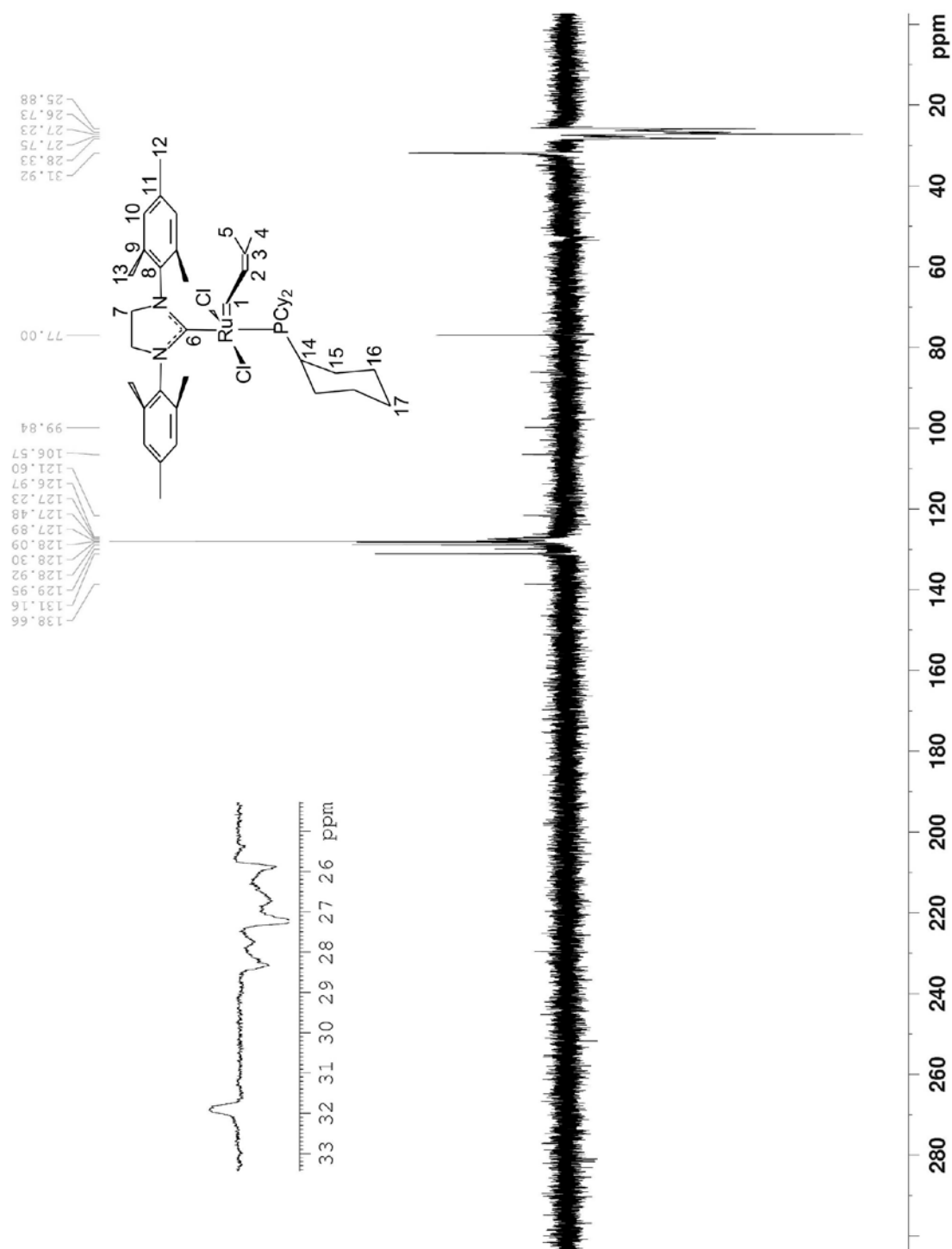
Spektrum 7.1 ¹H (CDCl₃) 600 MHz



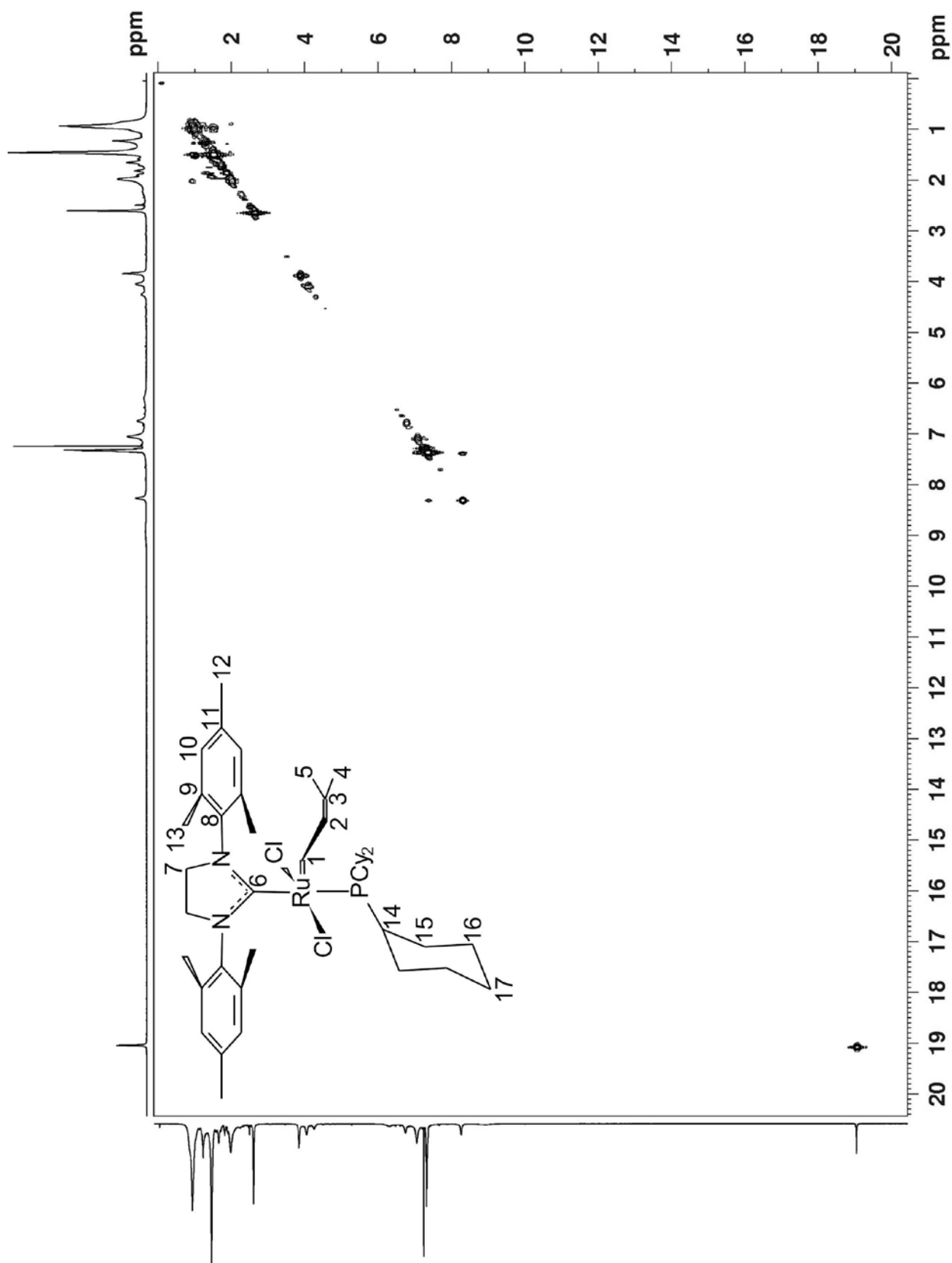
Spektrum 7.2 ¹H (CDCl₃) 600 MHz



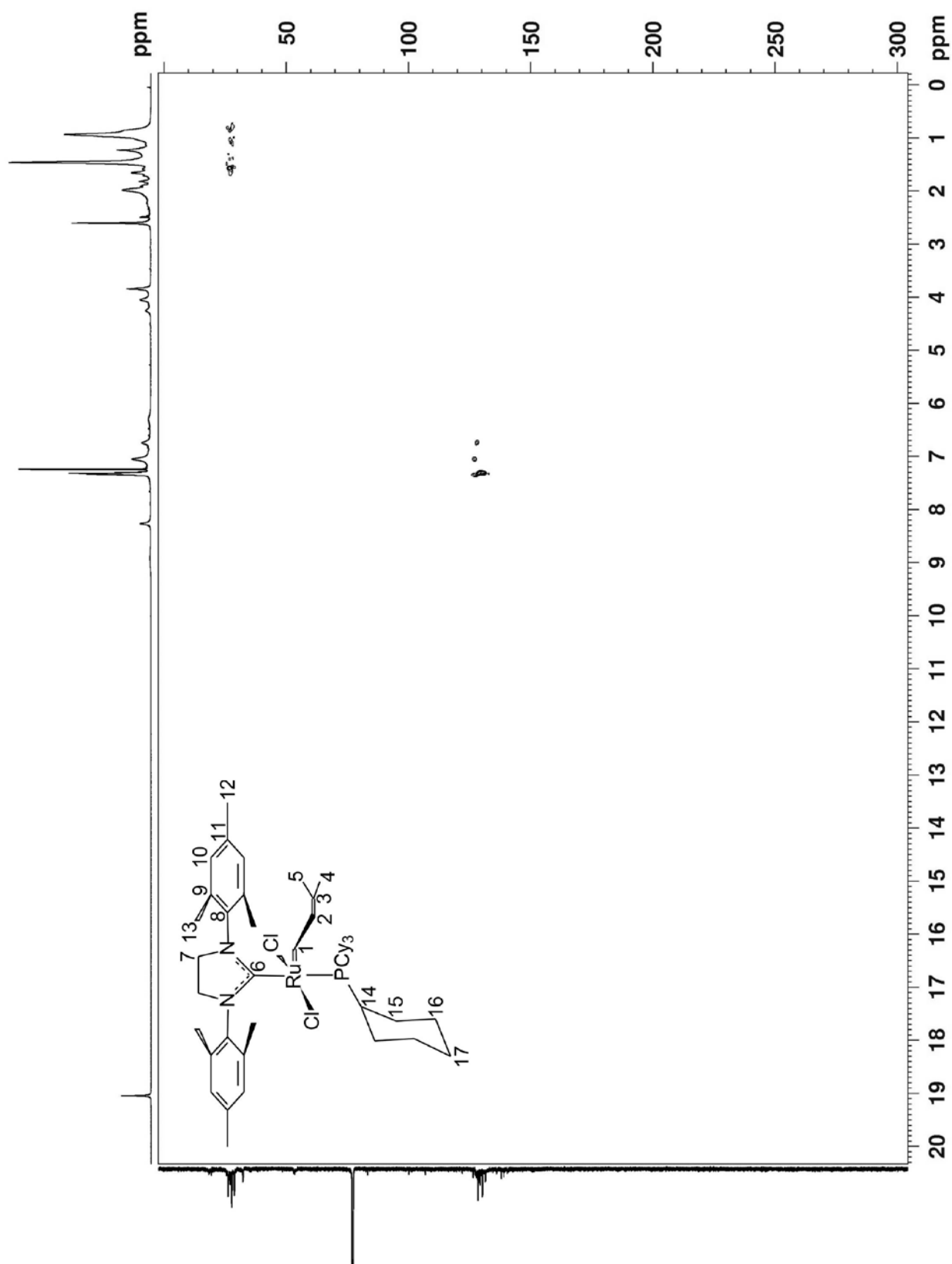
Spektrum 7.3 ¹³C (CDCl₃) 150 MHz



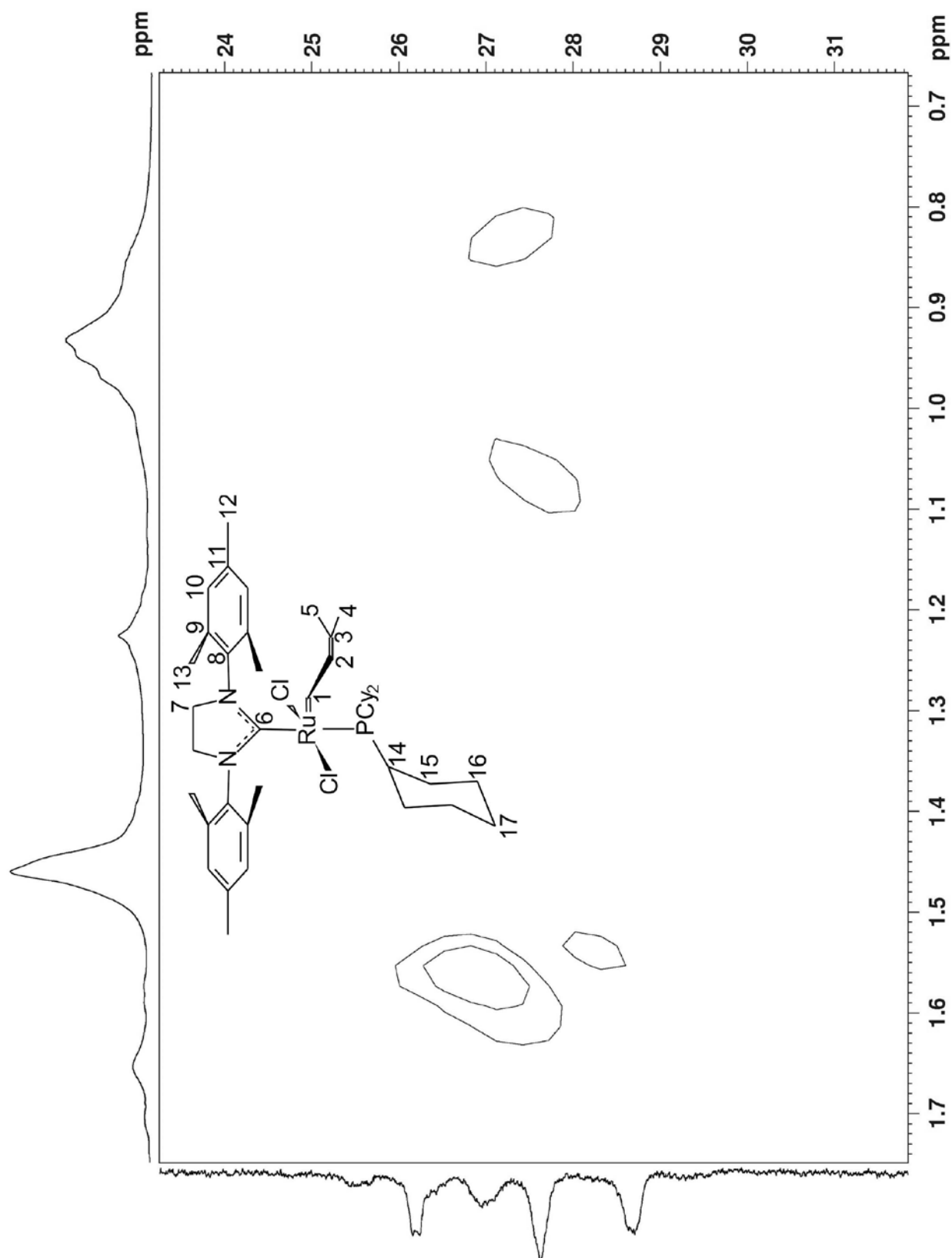
Spektrum 7.4 DEPT135 (CDCl_3) 150 MHz



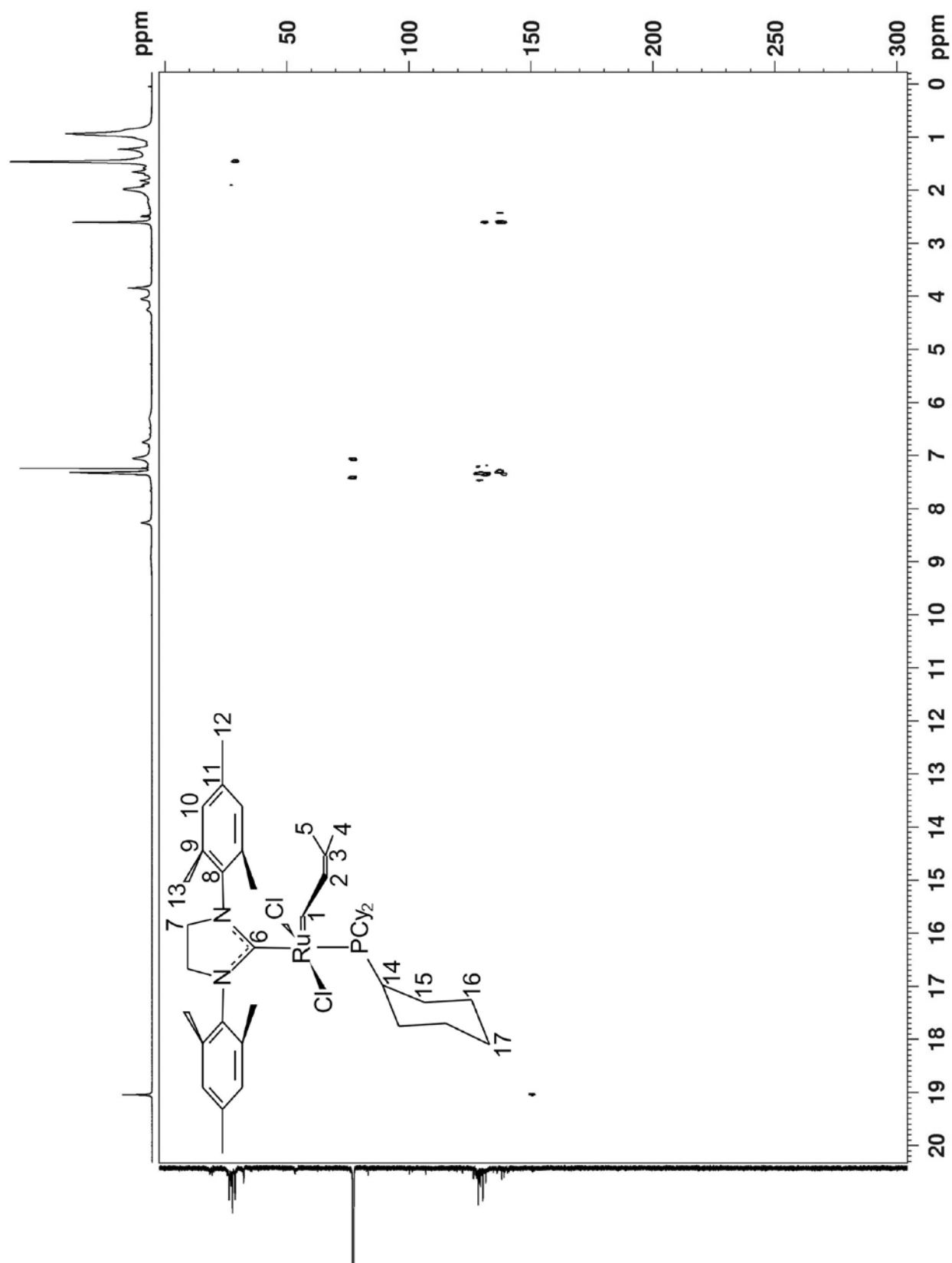
Spektrum 7.5 COSY (CDCl₃) 600 MHz



Spektrum 7.6 HSQC (CDCl₃) 600 MHz en 150 MHz



Spektrum 7.7 HSQC (CDCl₃) 600 MHz en 150 MHz

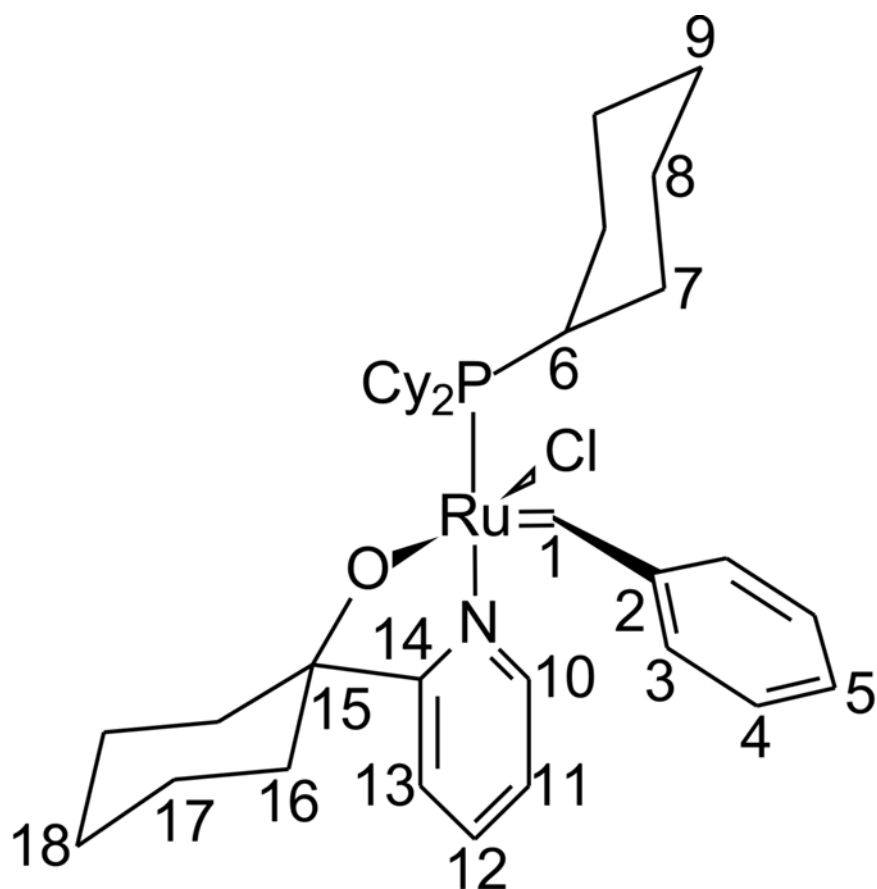


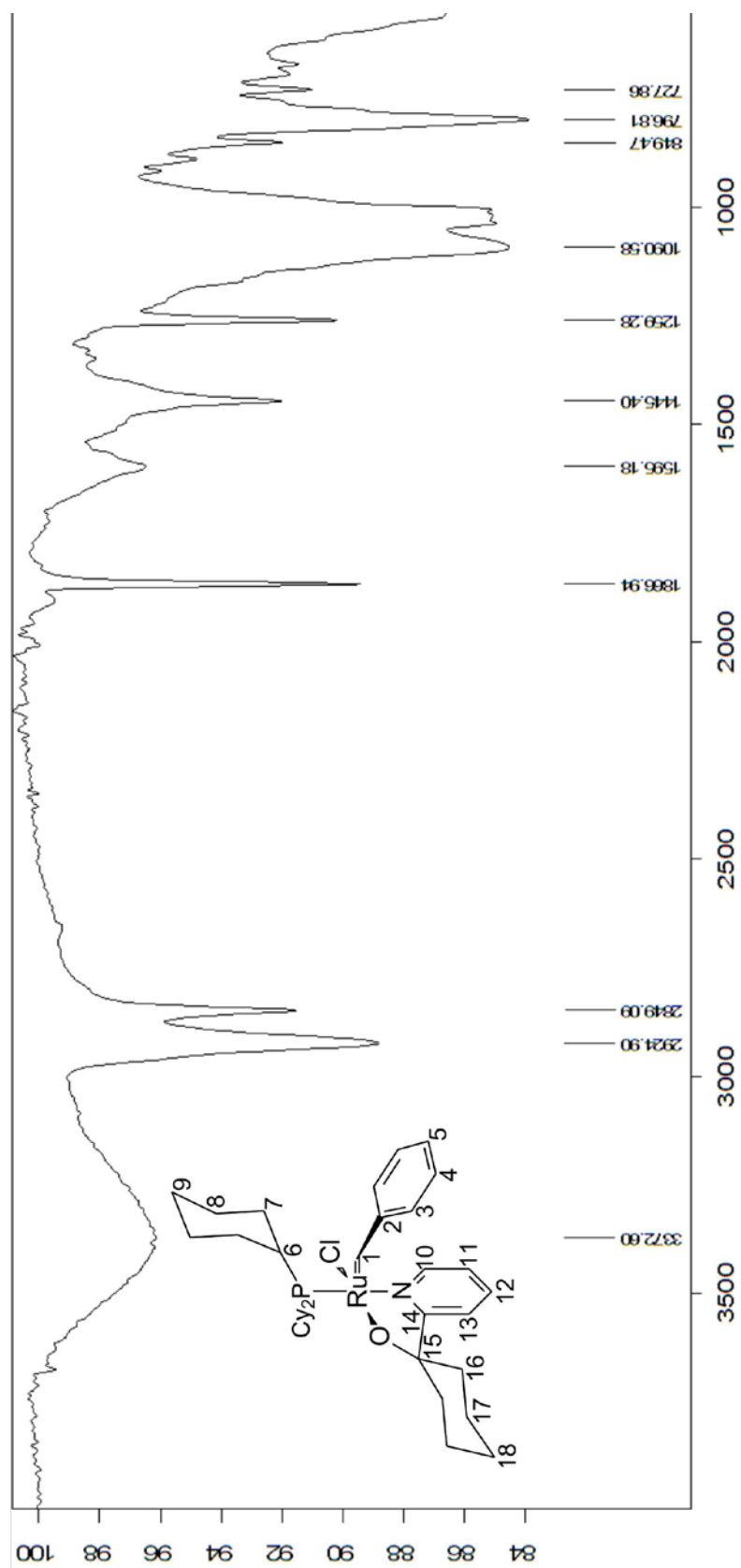
Spektrum 7.8 HMBC (CDCl₃) 600 MHz en 150 MHz

BYLAAG 8

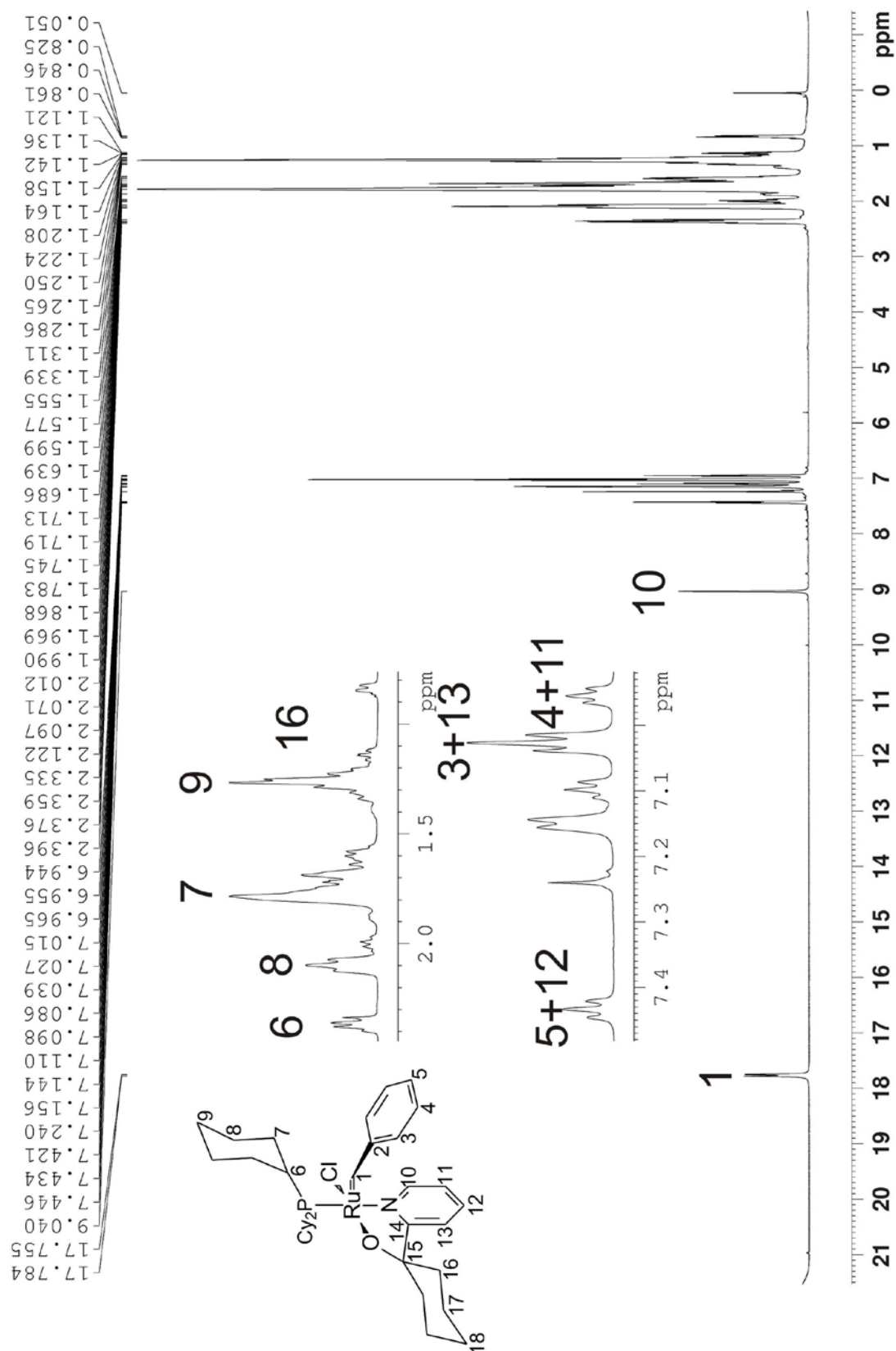
GRUBBS 1-TIPE

PREKATALISATOR 5

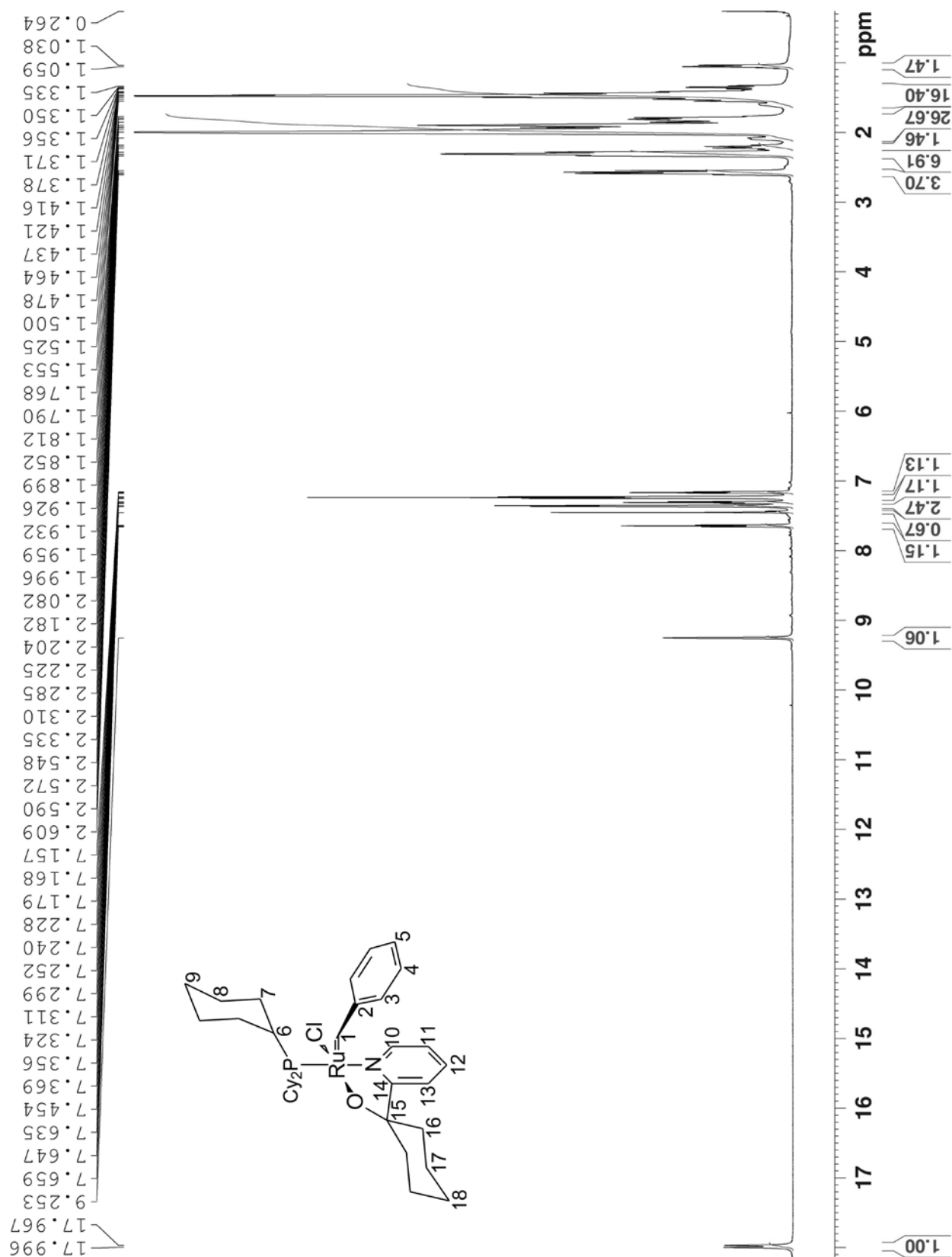




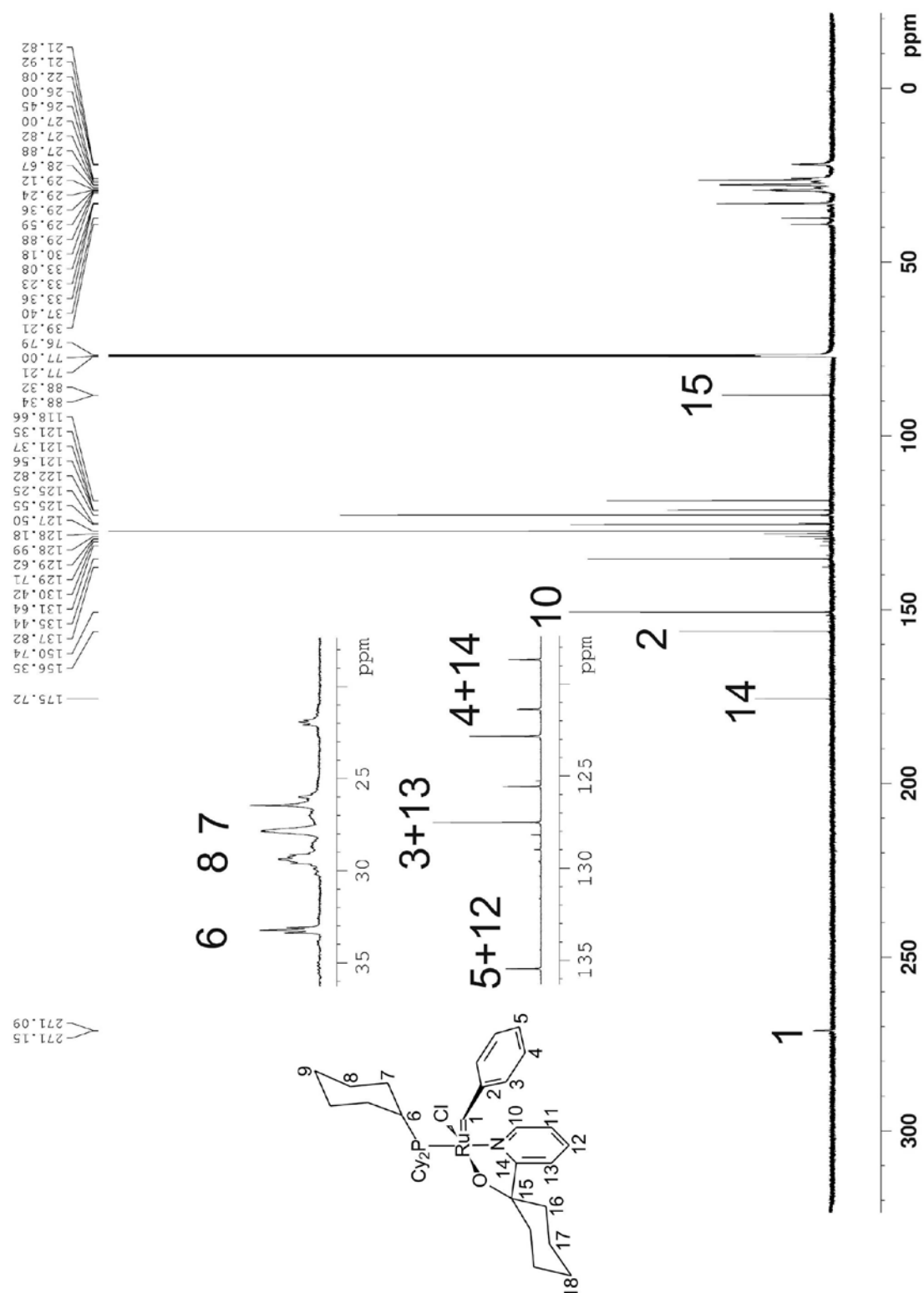
Spektrum 8.1 ATR-IR



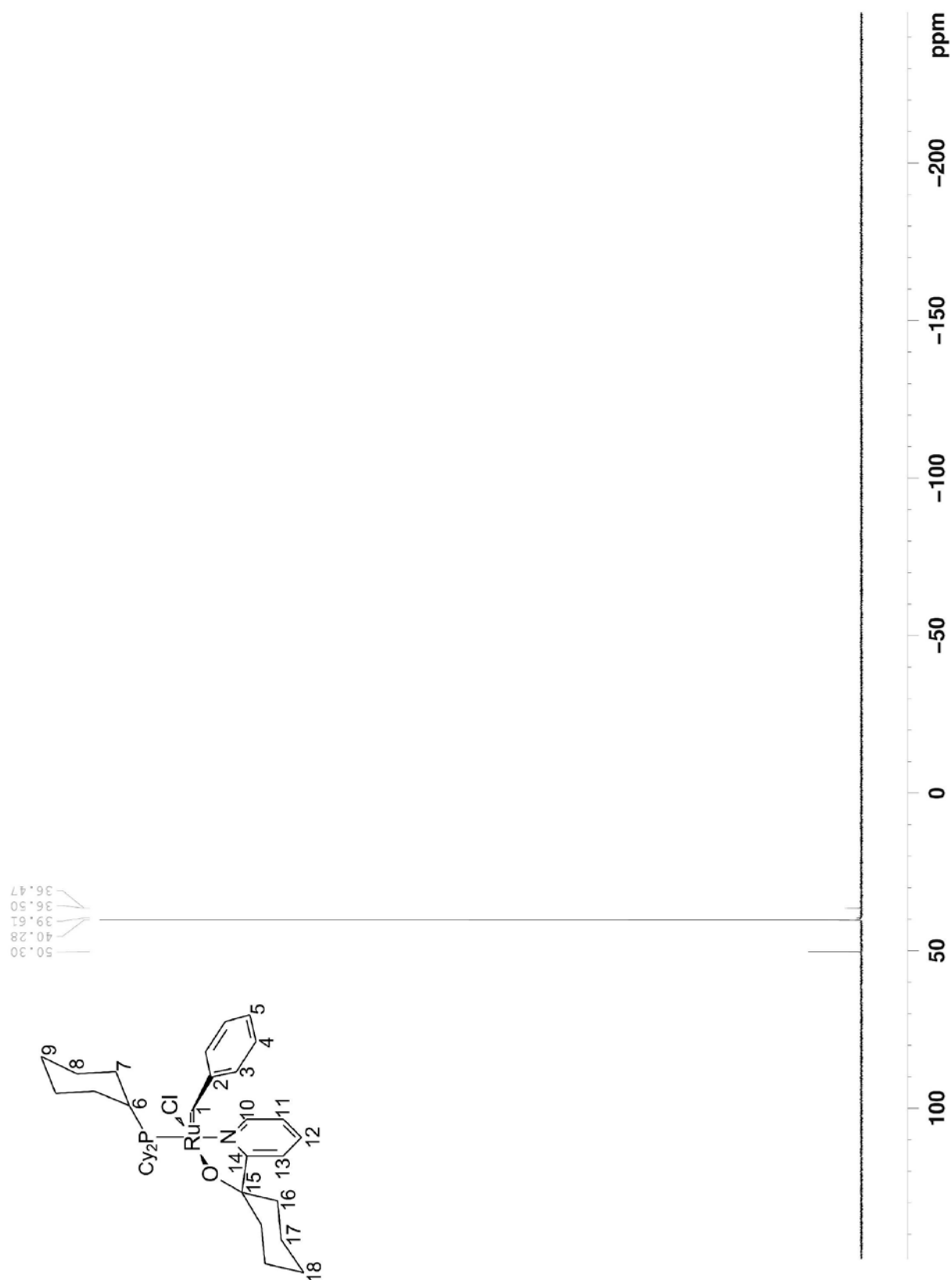
Spektrum 8.2 ¹H (CDCl₃) 600 MHz



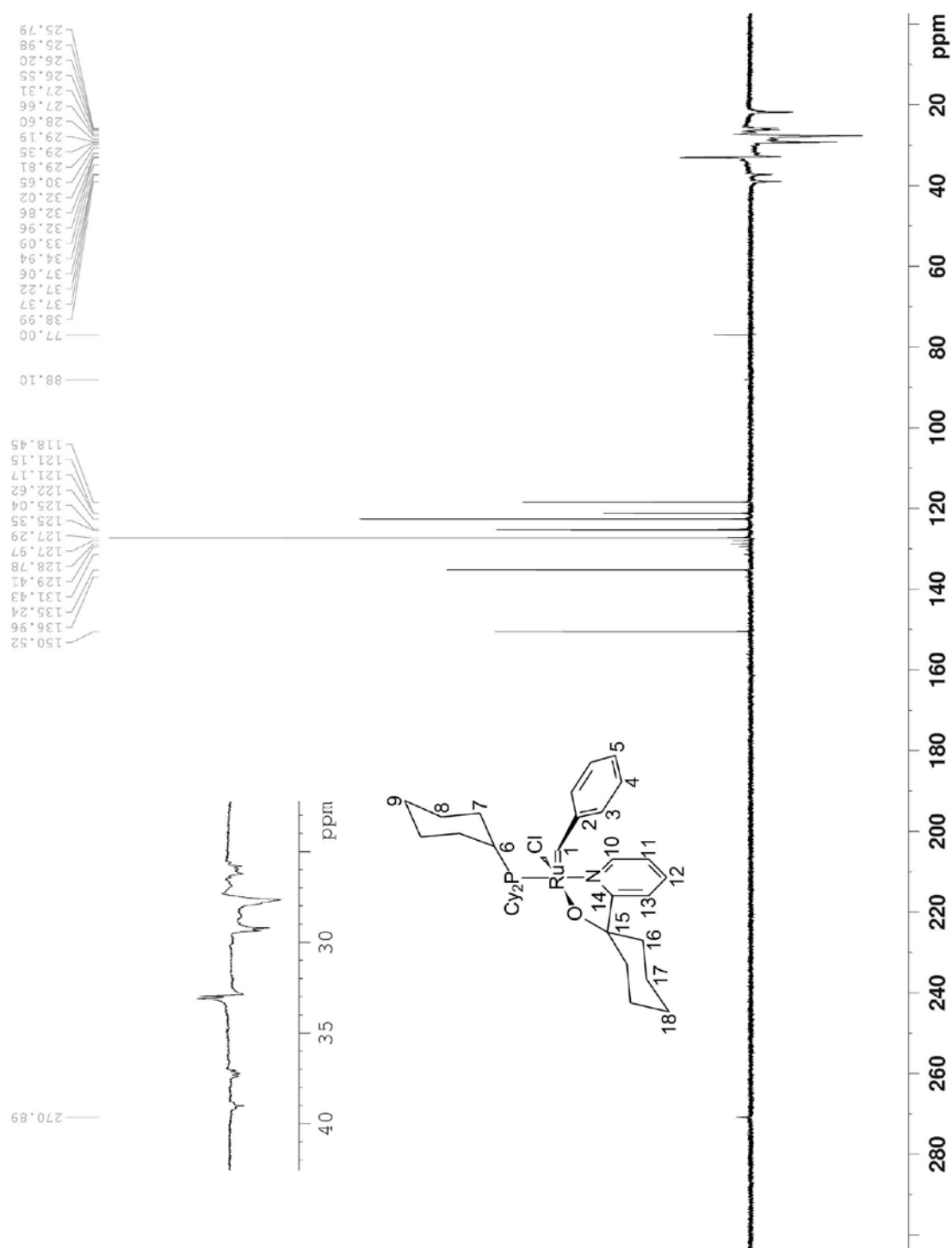
Spektrum 8.3 ¹H (CDCl₃) 600 MHz



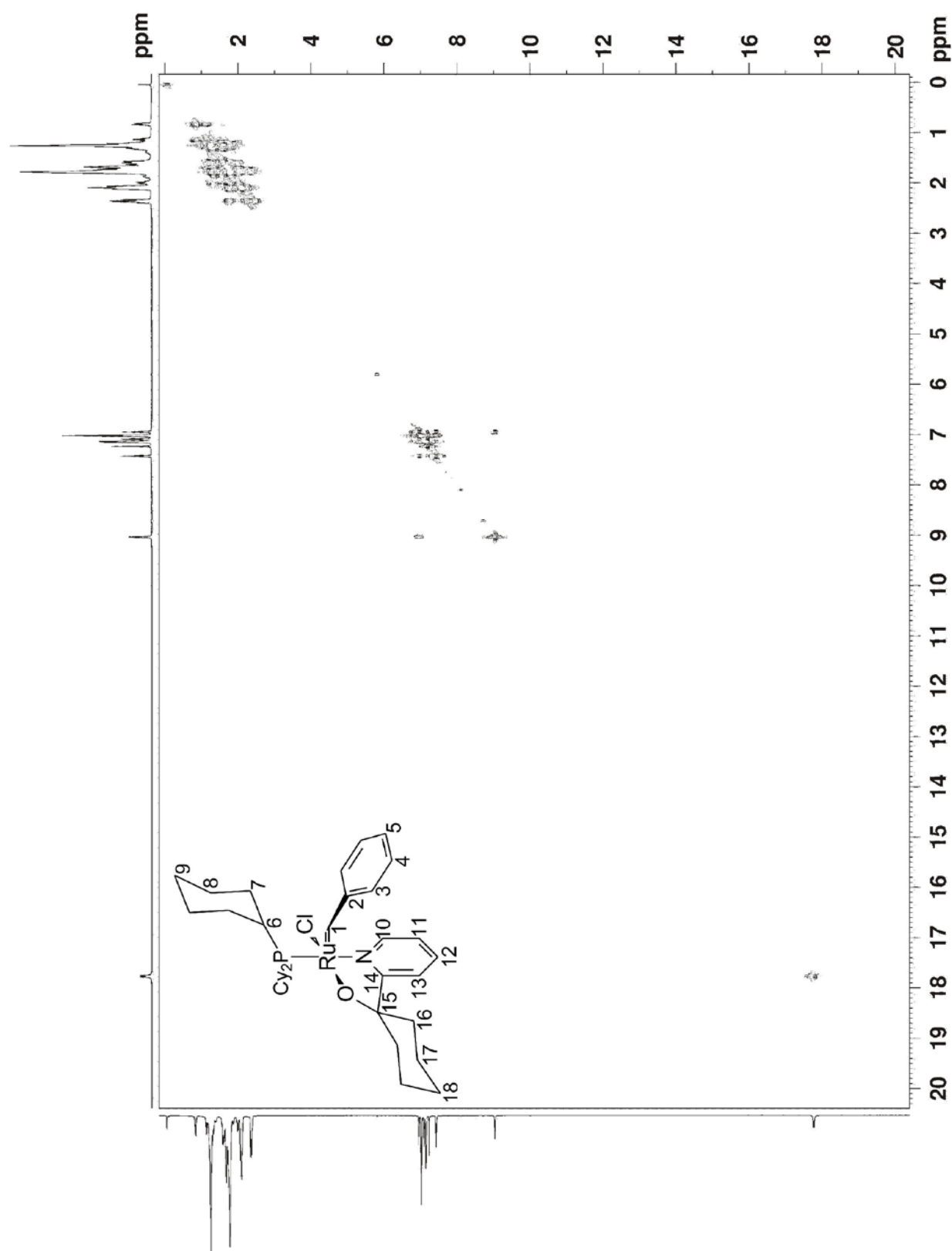
Spektrum 8.4 ^{13}C (CDCl₃) 150 MHz



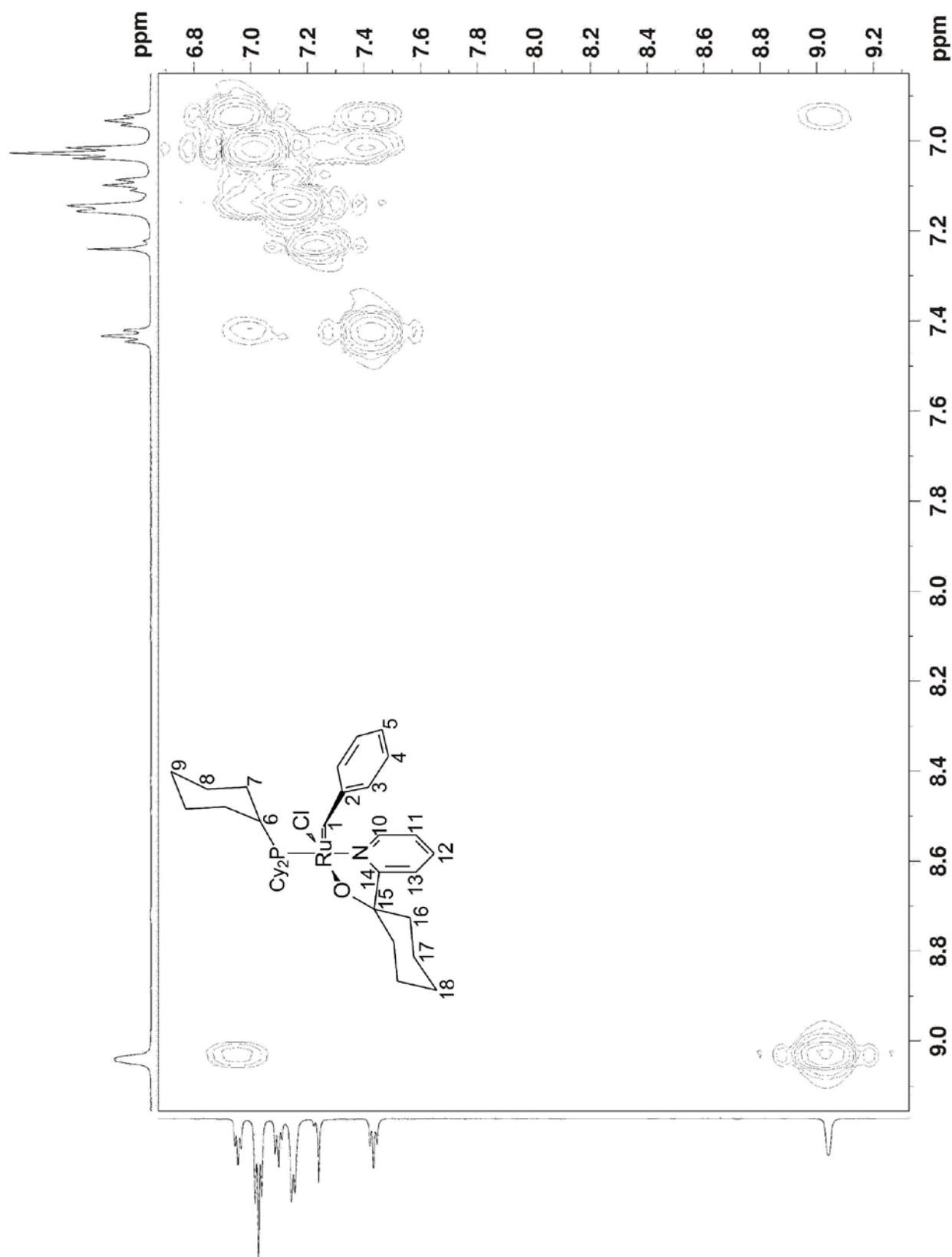
Spektrum 8.5 ^{31}P (CDCl_3) 242 MHz



Spektrum 8.6 DEPT135 (CDCl₃) 150 MHz

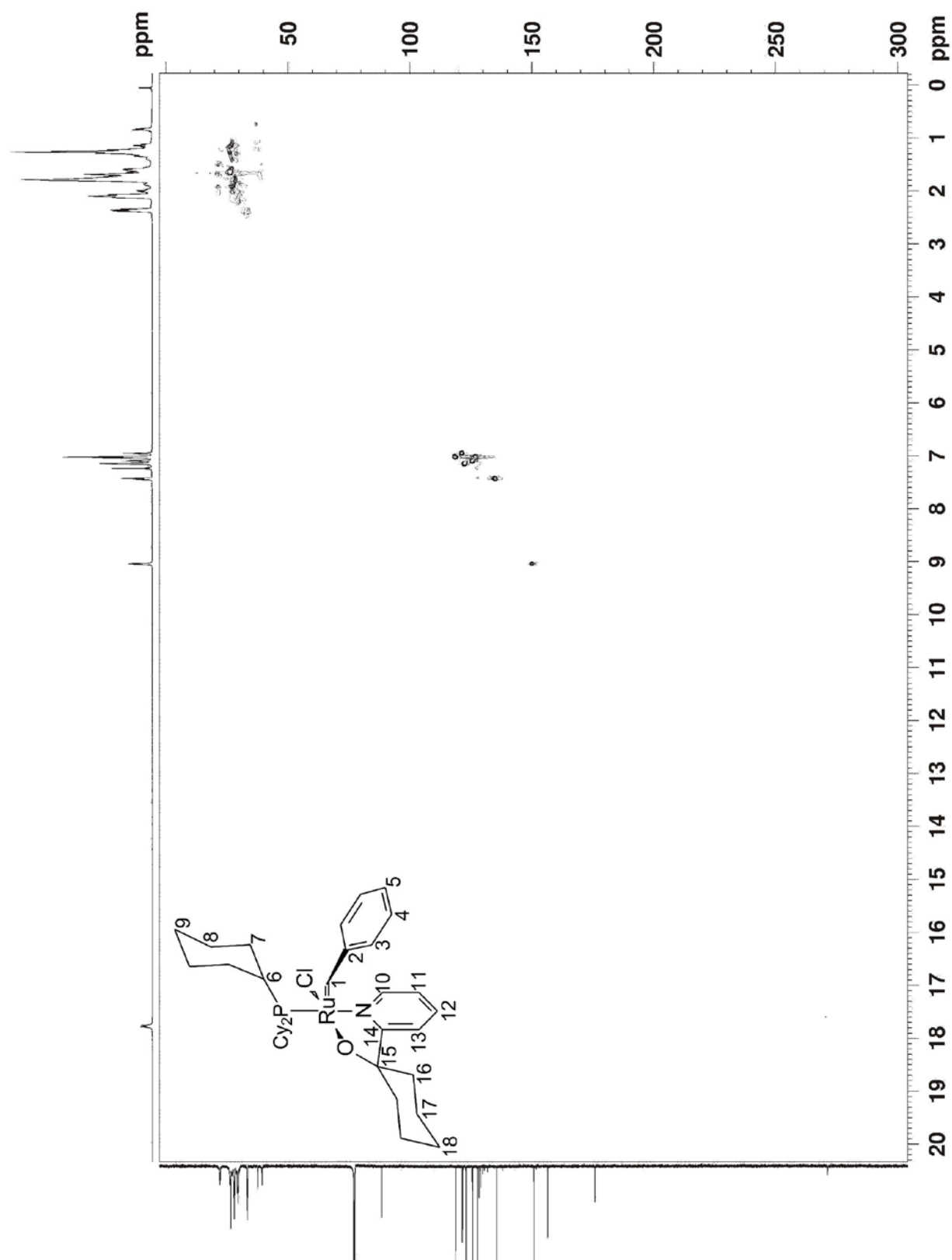


Spektrum 8.7 COSY (CDCl₃) 600 MHz

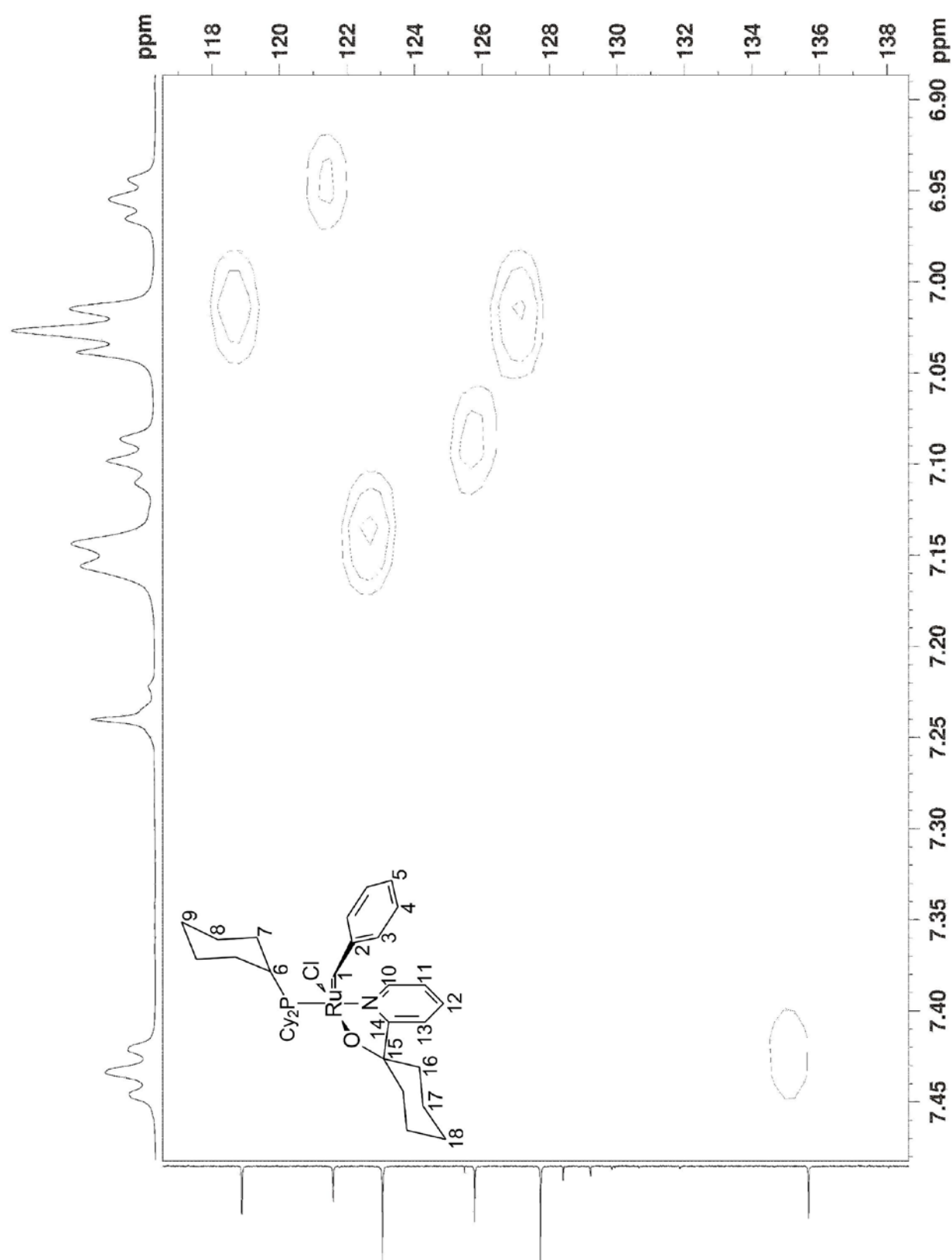


Spektrum 8.8

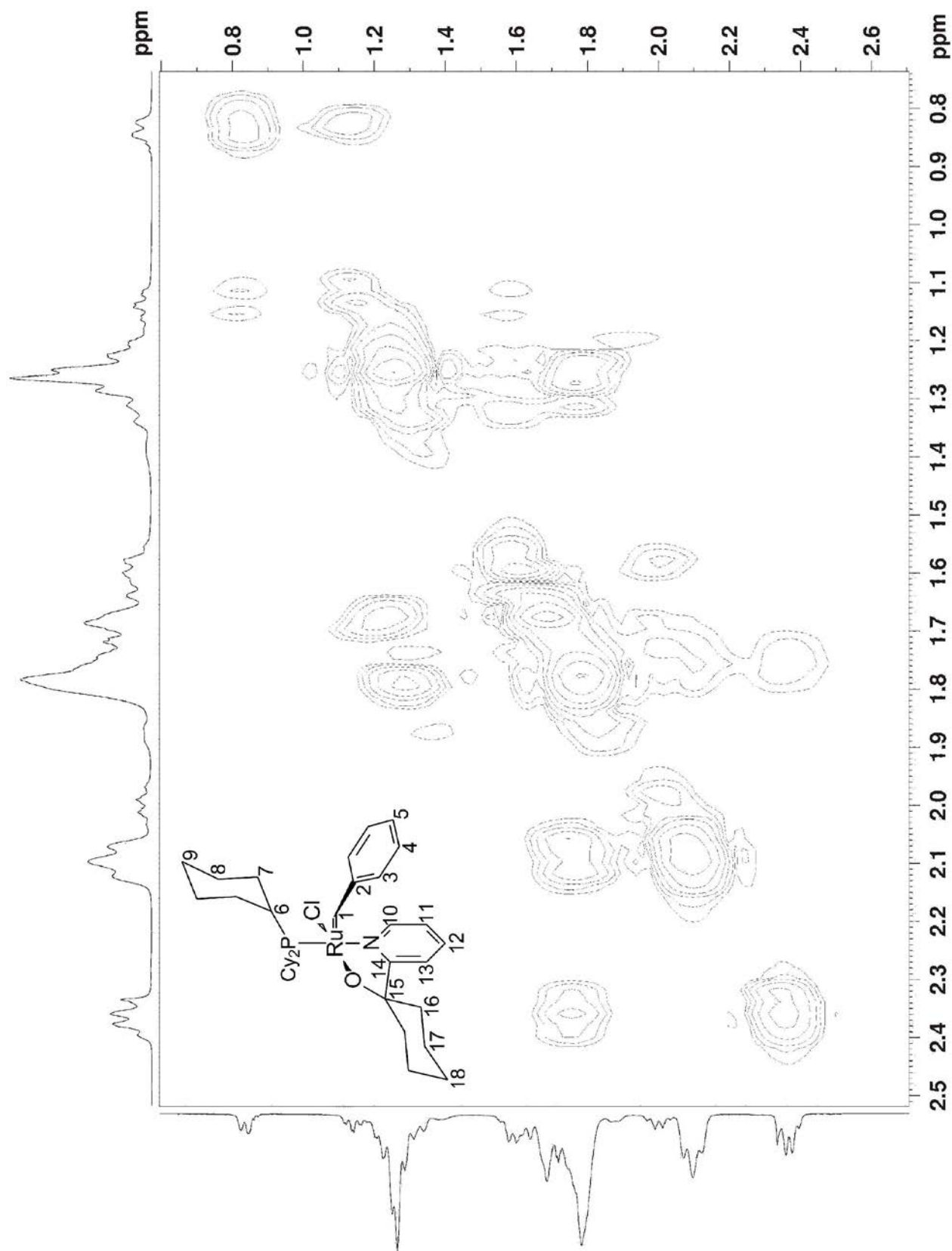
COSY (CDCl₃) 600 MHz



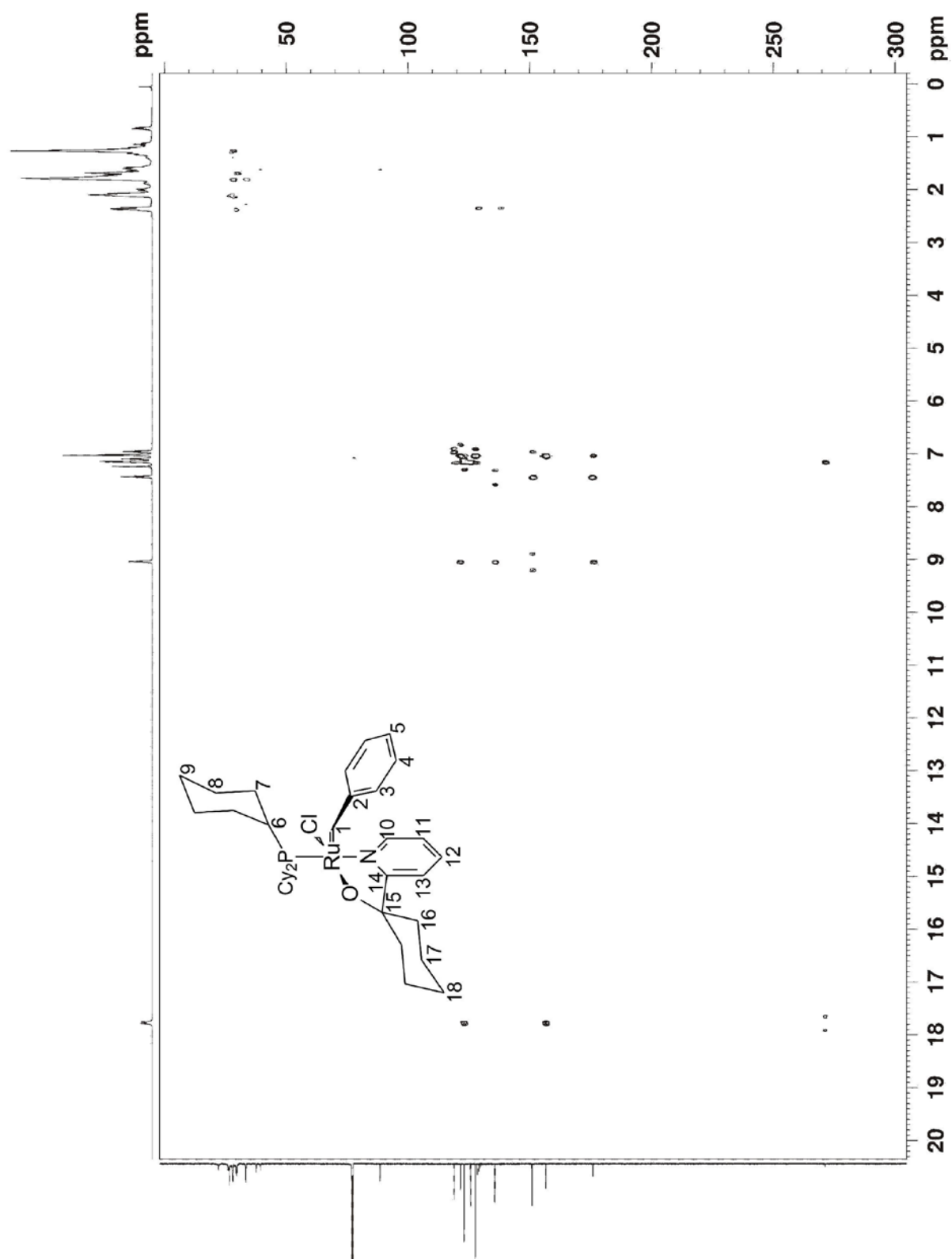
Spektrum 8.9 HSQC (CDCl₃) 600 MHz en 150 MHz



Spektrum 8.10 HSQC (CDCl_3) 600 MHz en 150 MHz



Spektrum 8.11 HSQC (CDCl_3) 600 MHz en 150 MHz

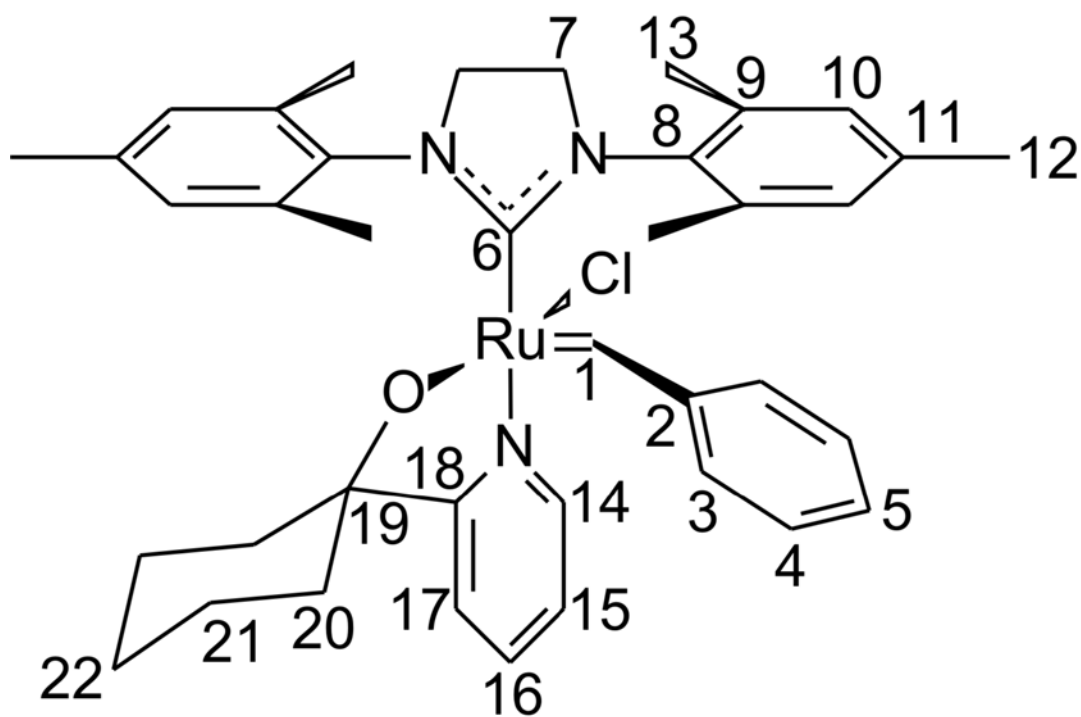


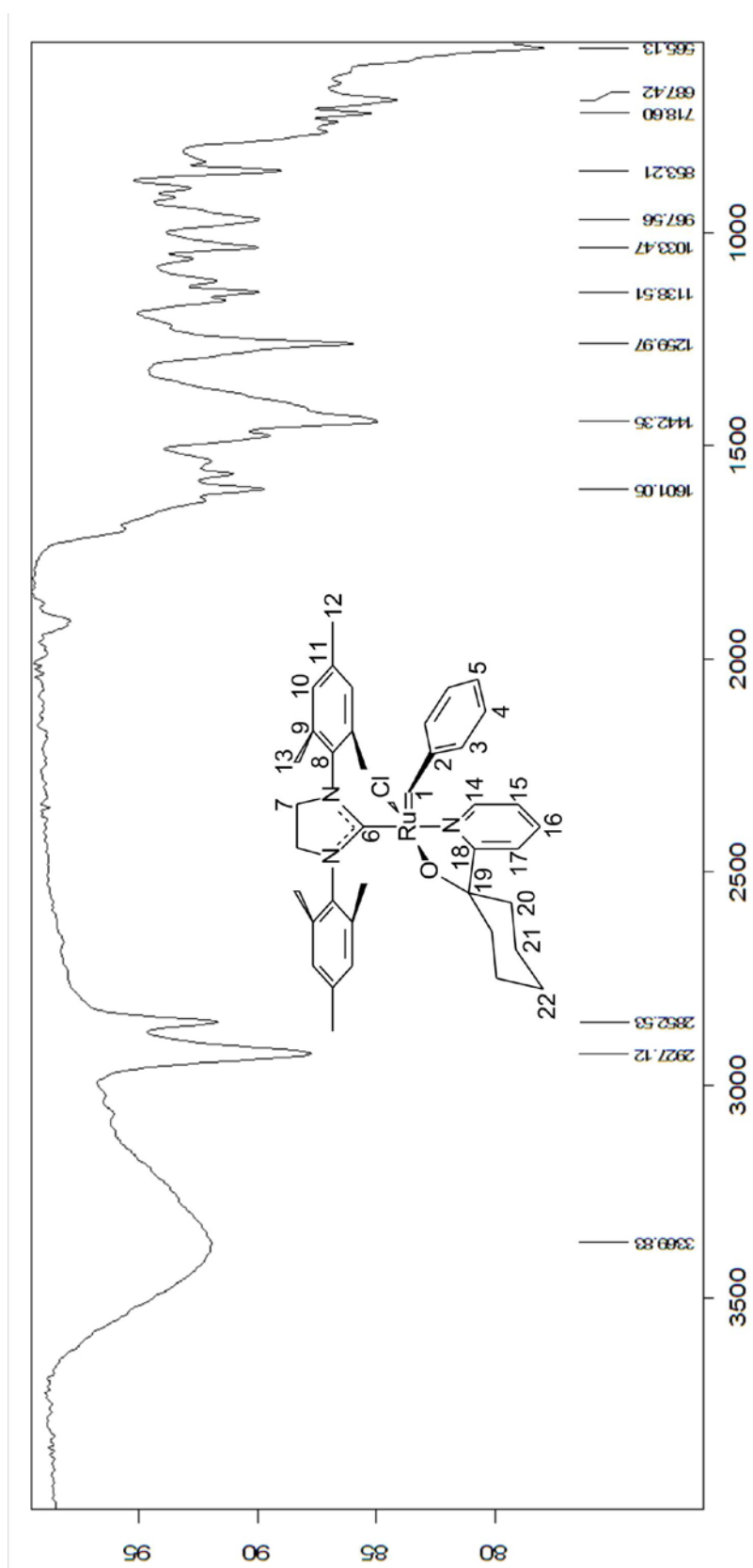
Spektrum 8. 12 HMBC (CDCl₃) 600 MHz en 150 MHz

BYLAAG 9

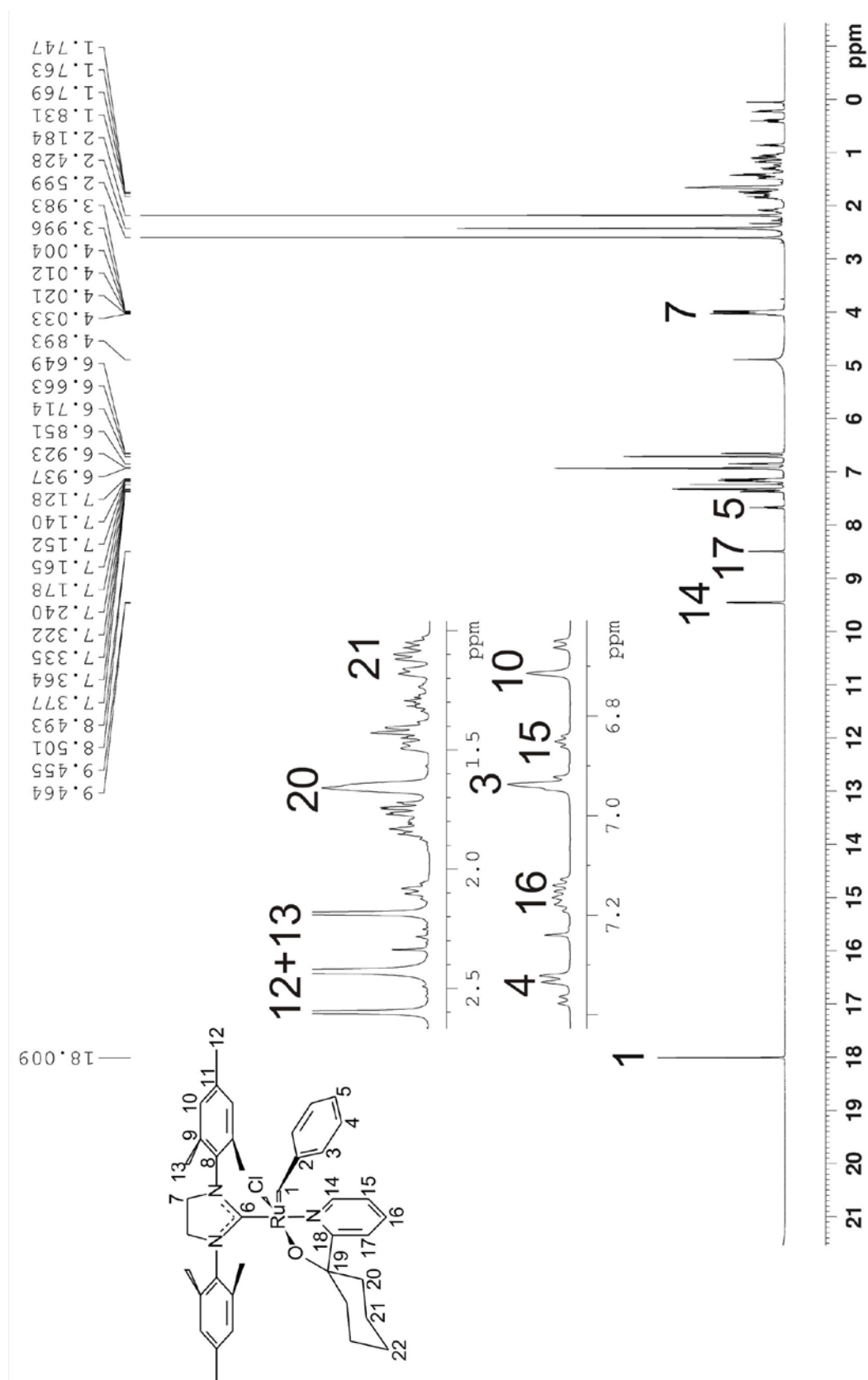
GRUBBS 2-TIPE

PREKATALISATOR 6

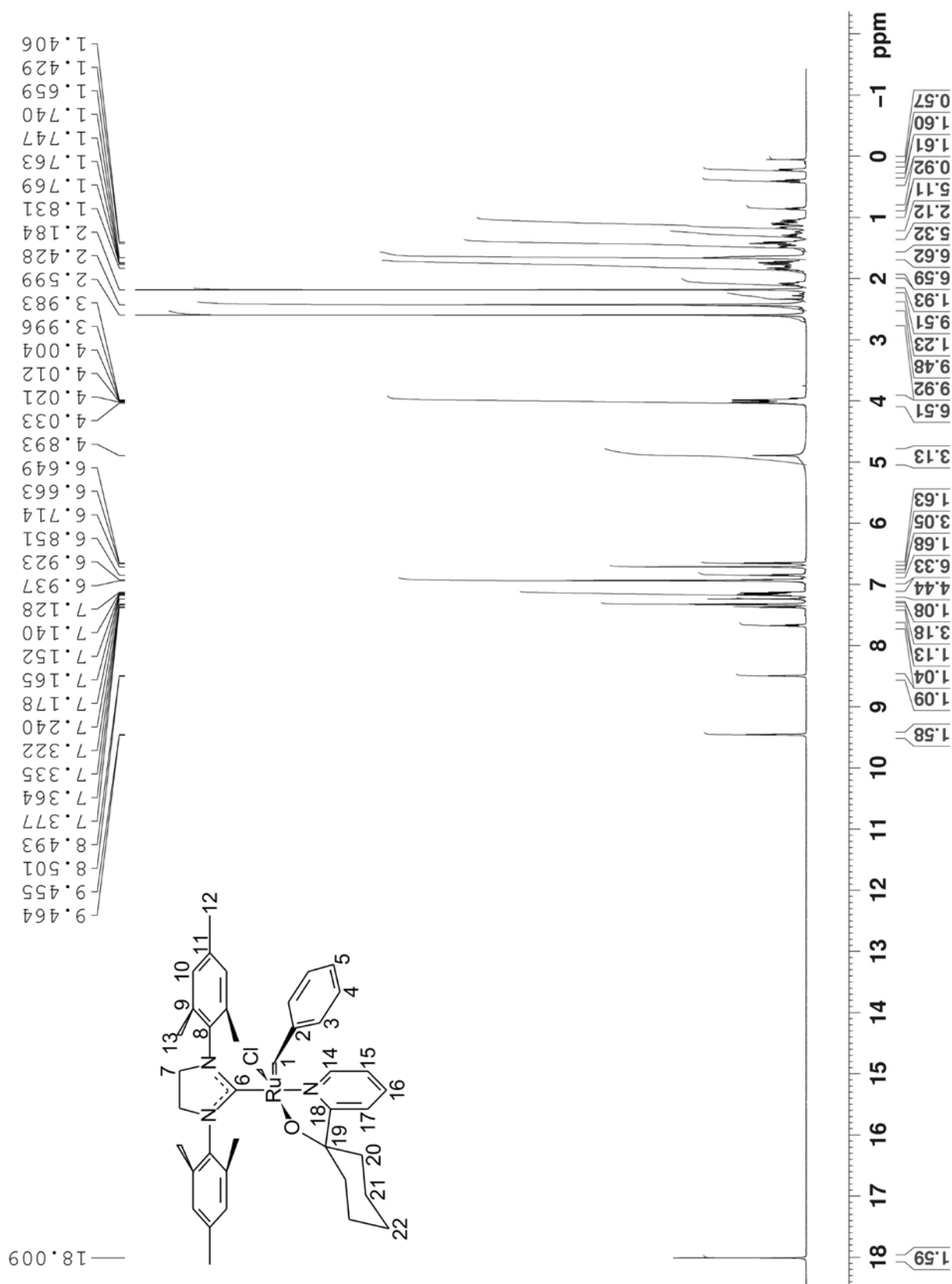


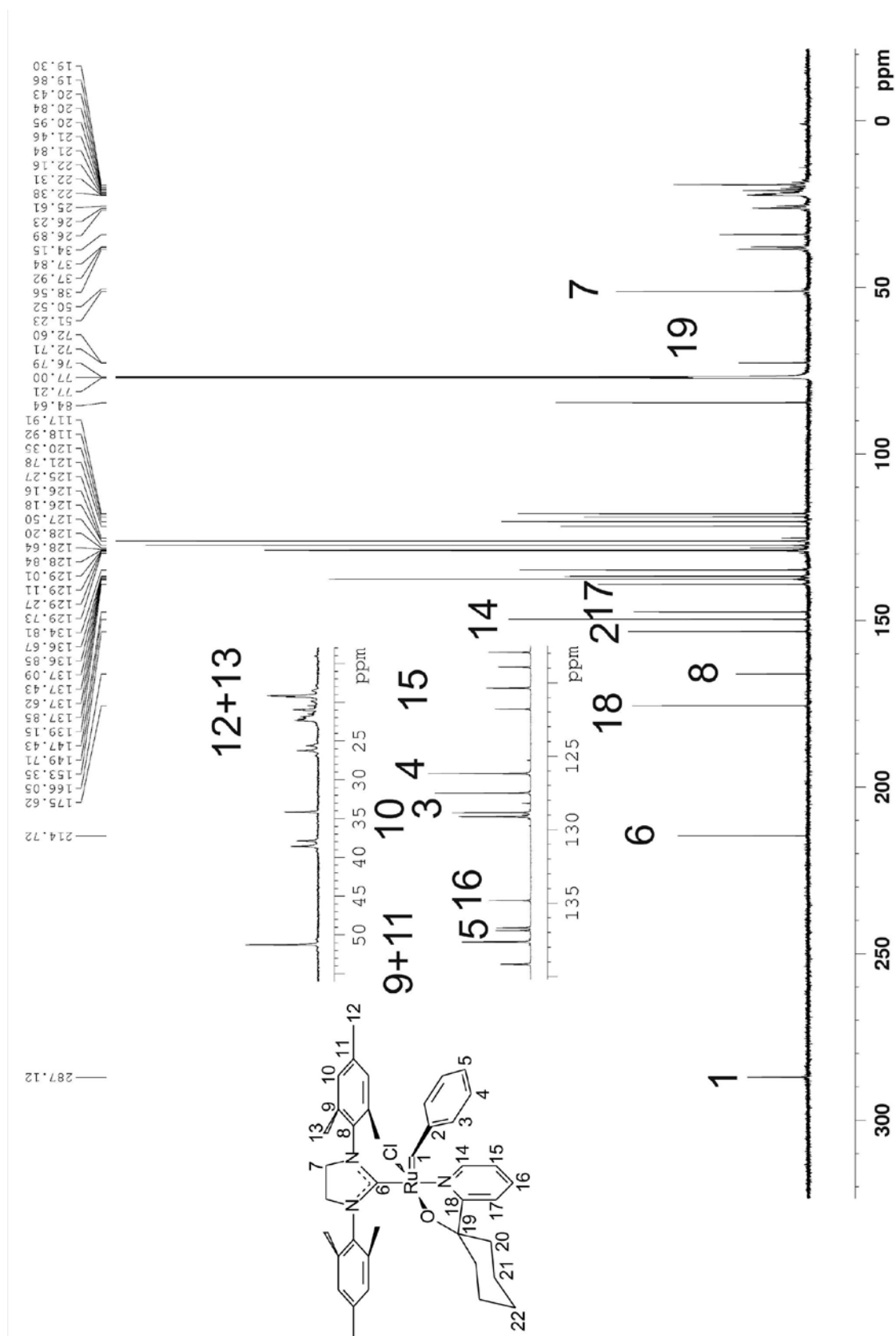


Spektrum 9.1 ATR-IR

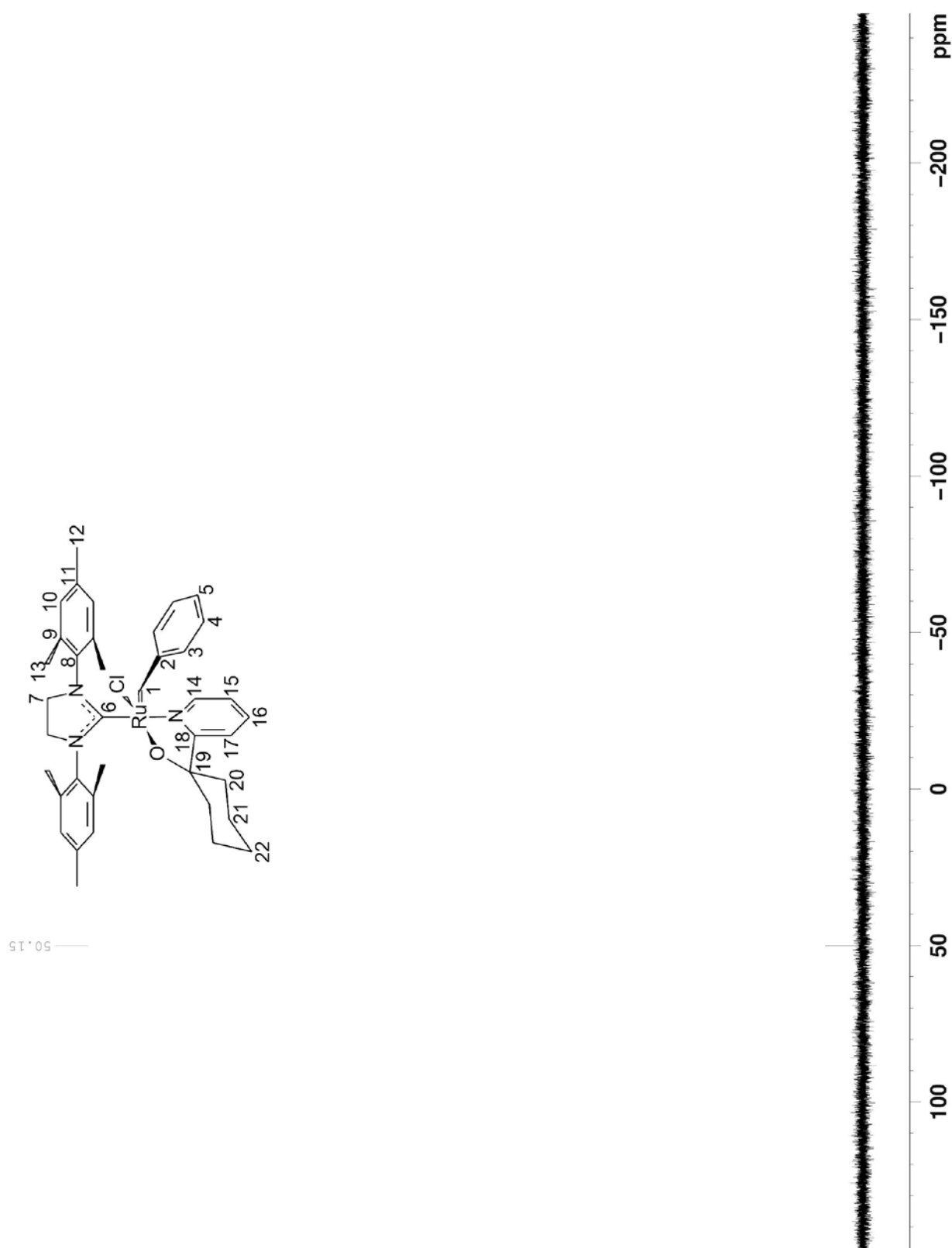


Spektrum 9.2 ¹H (CDCl₃) 600 MHz

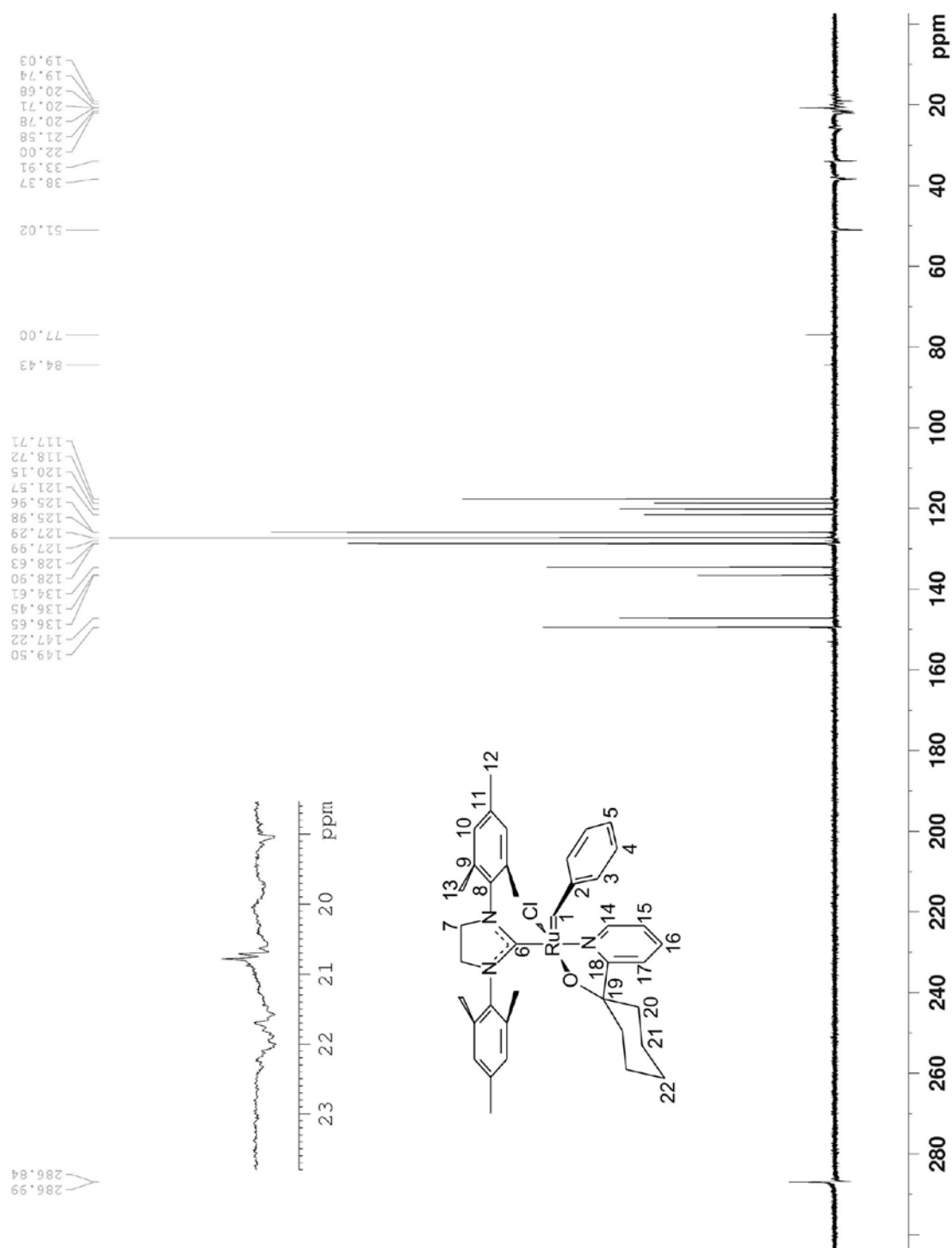




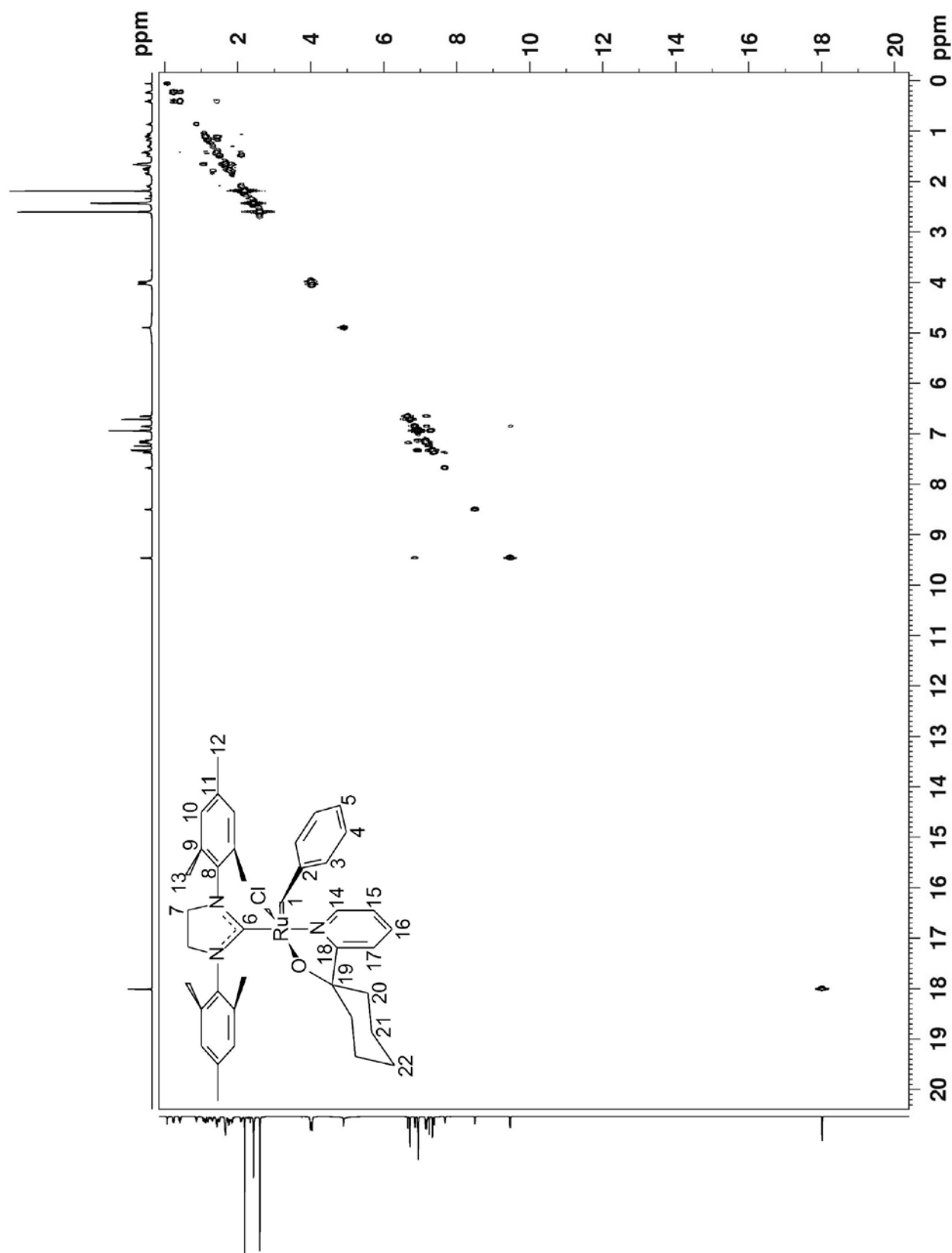
Spektrum 9.4 ¹³C (CDCl₃) 150 MHz



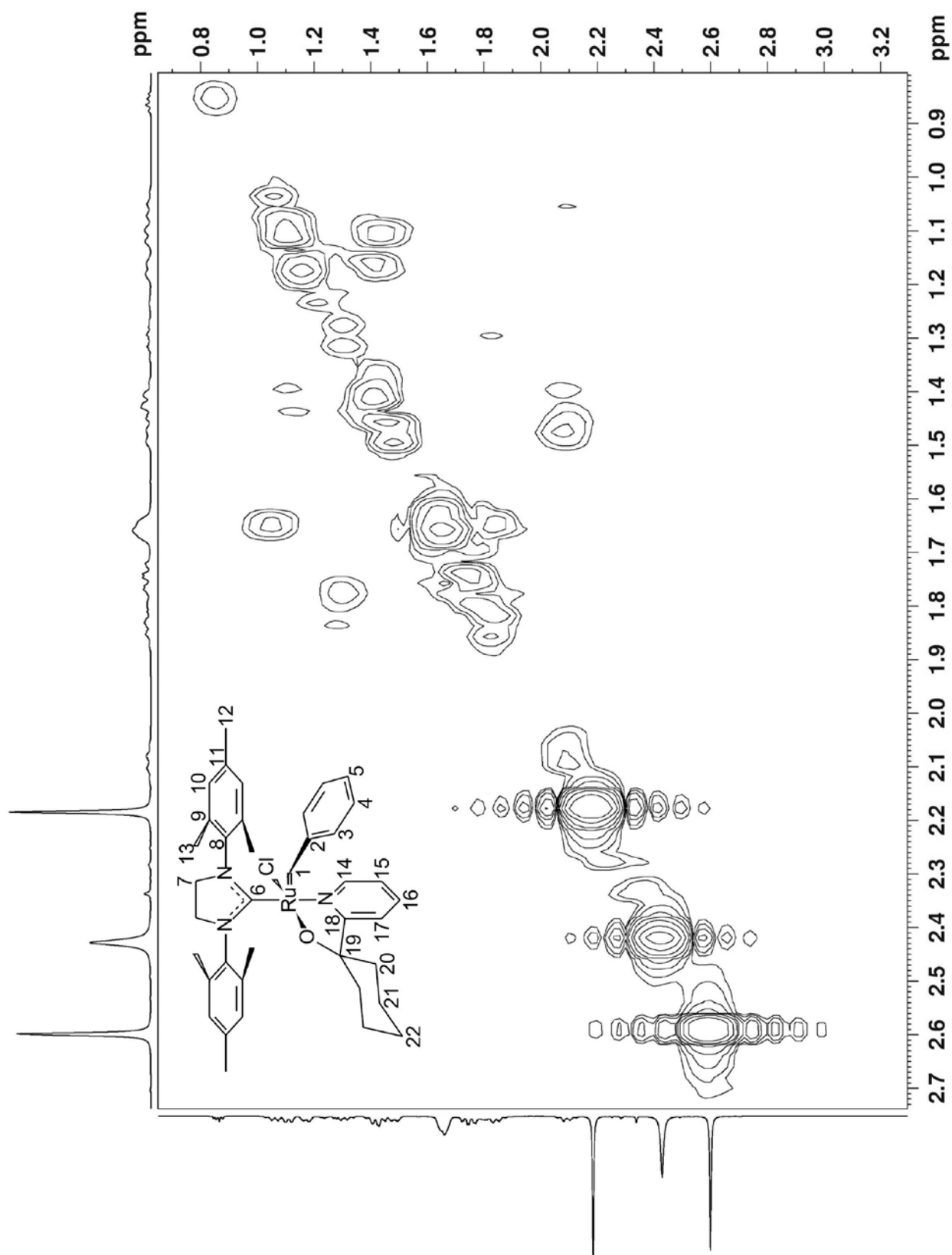
Spektrum 9.5 ^{31}P (CDCl_3) 242 MHz



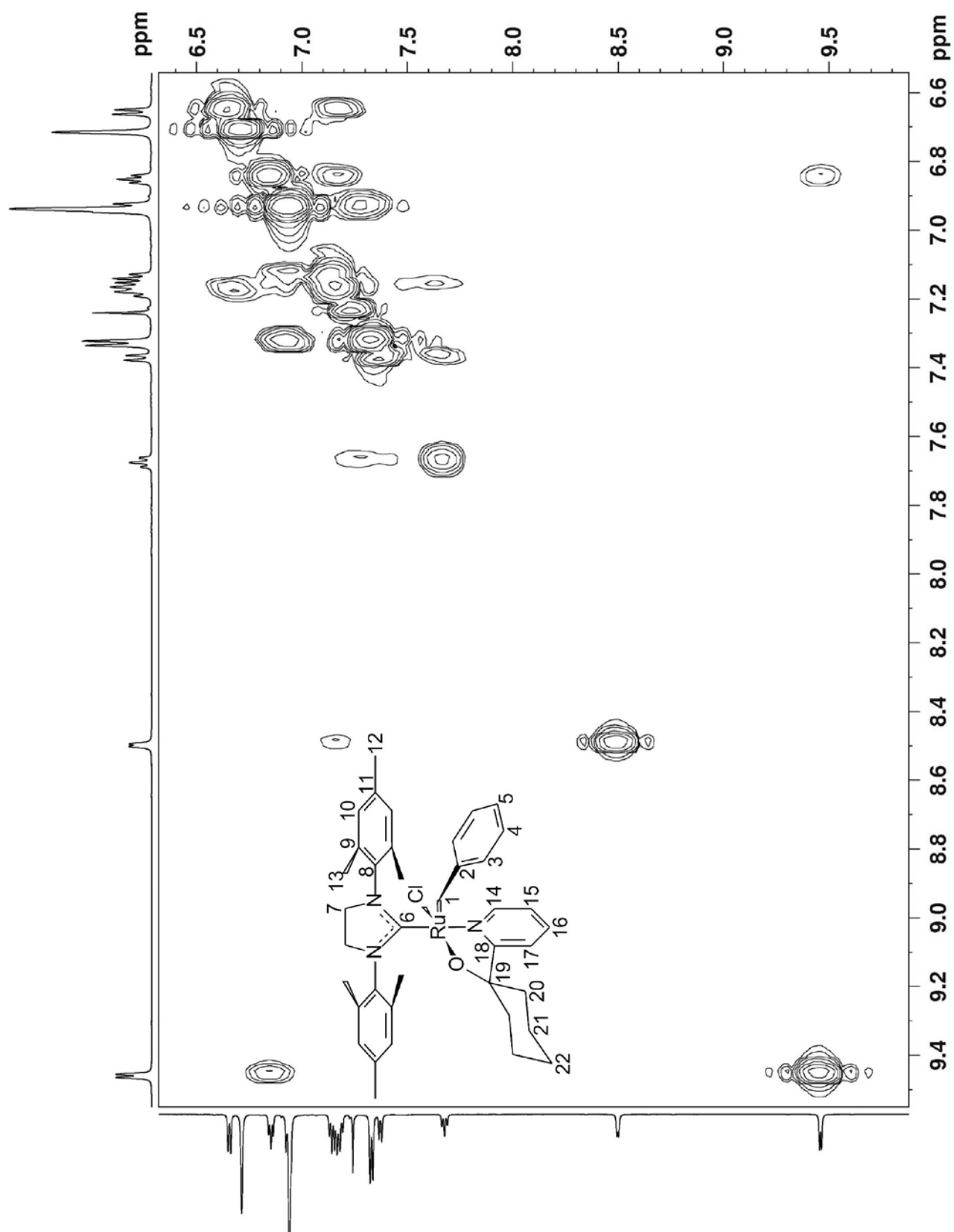
Spektrum 9.6 DEPT135 (CDCl₃) 150 MHz



Spektrum 9.7 COSY (CDCl_3) 600 MHz

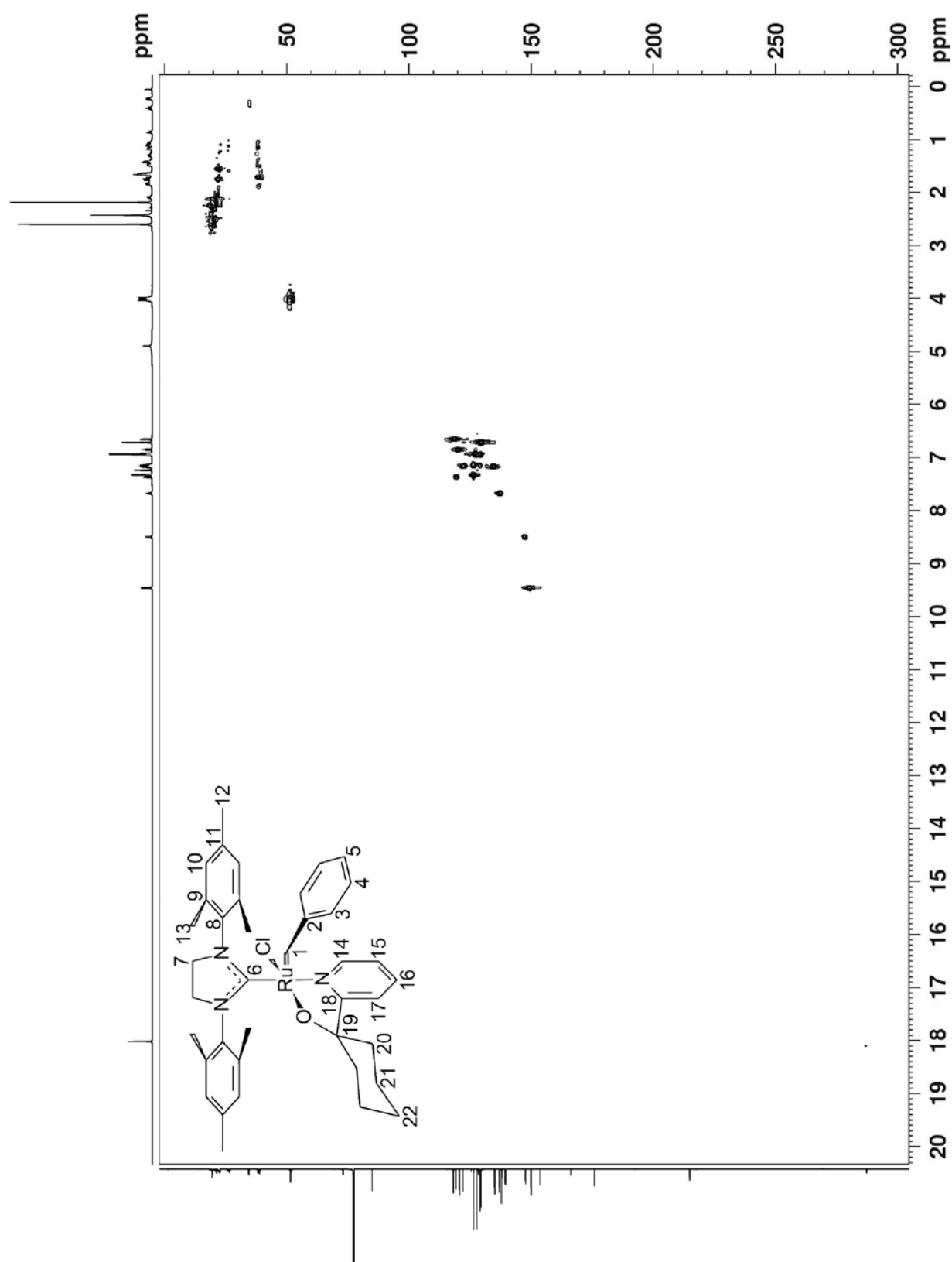


Spektrum 9.8 COSY (CDCl₃) 600 MHz

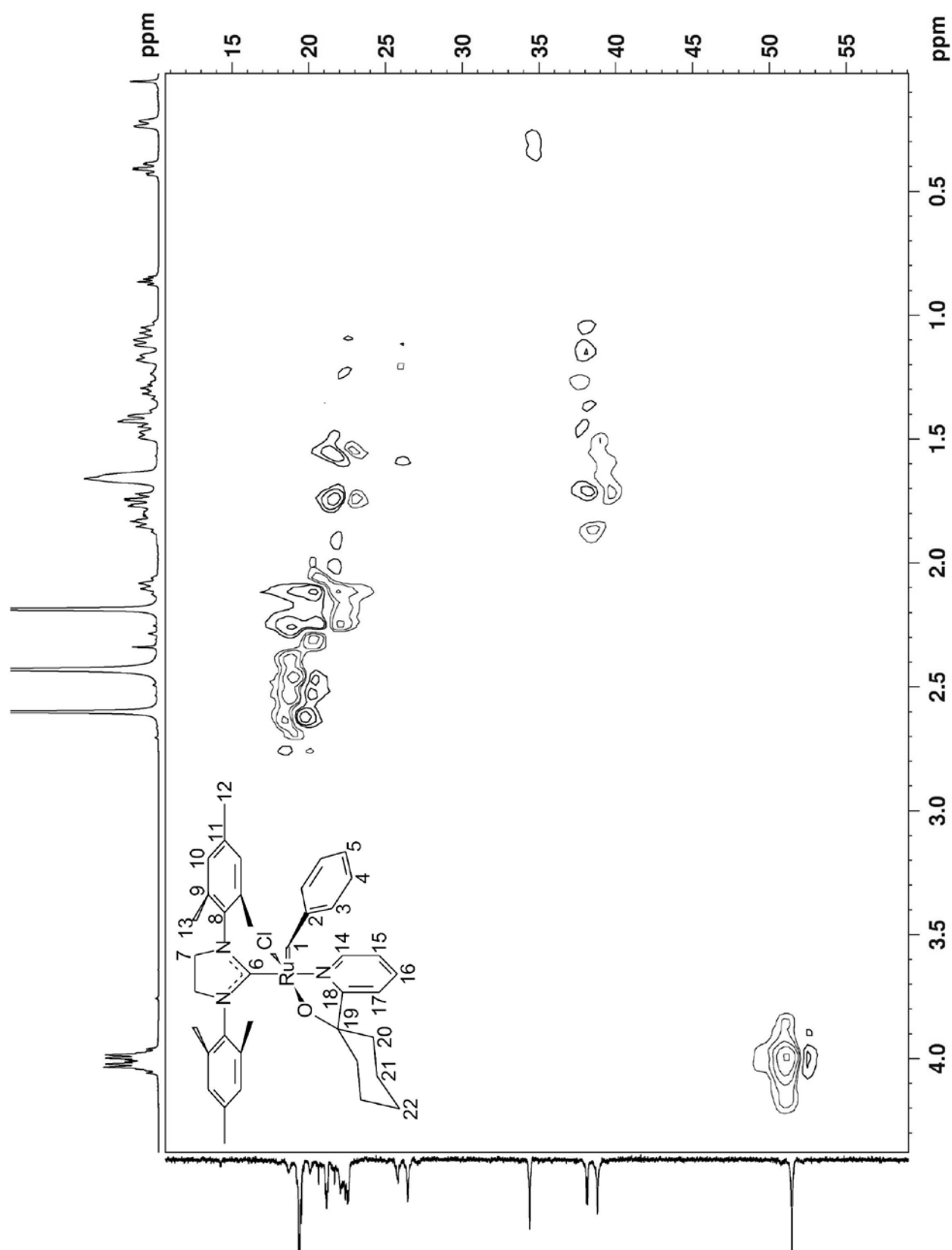


Spektrum 9.9

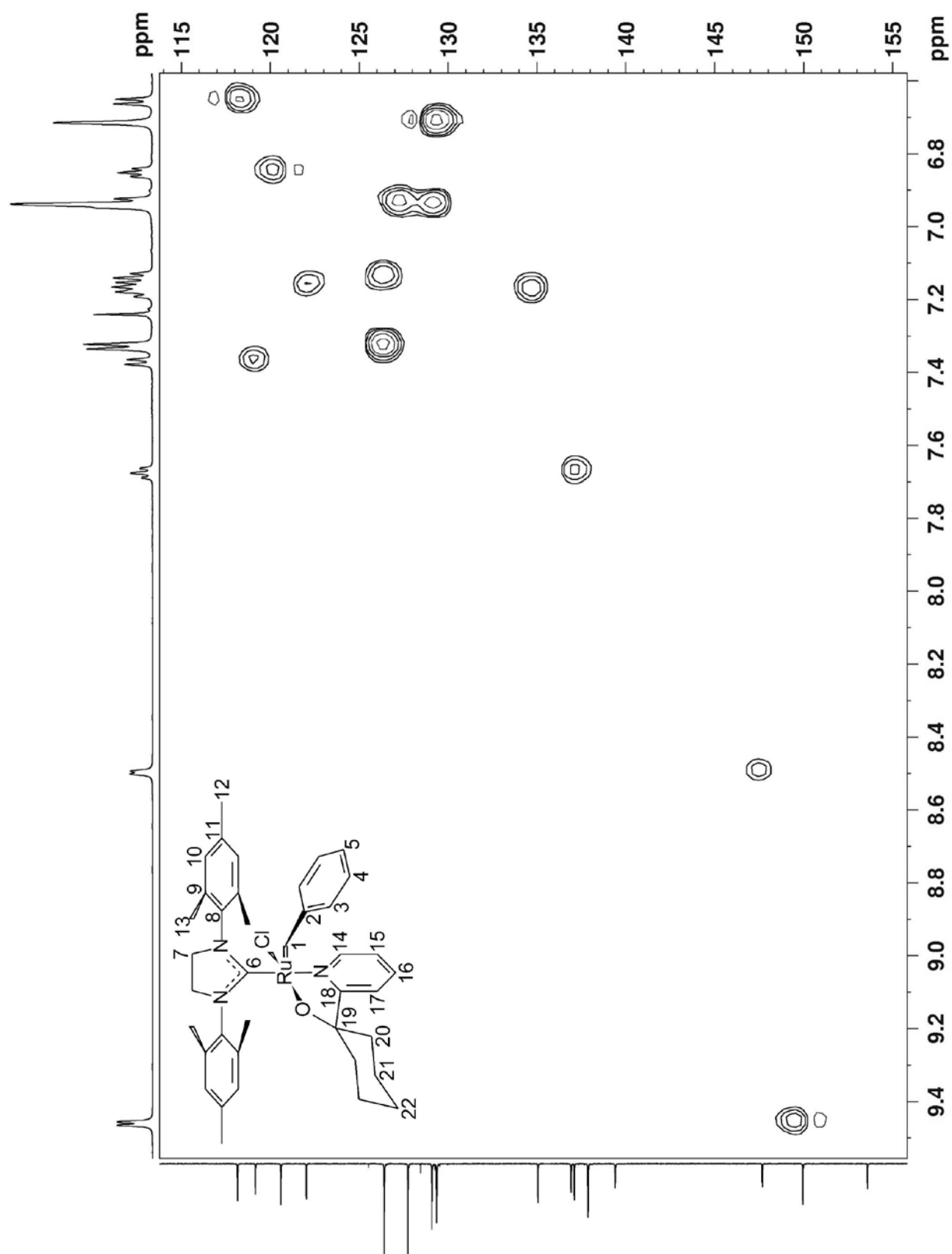
HSQC (CDCl_3) 600 MHz en 150 MHz



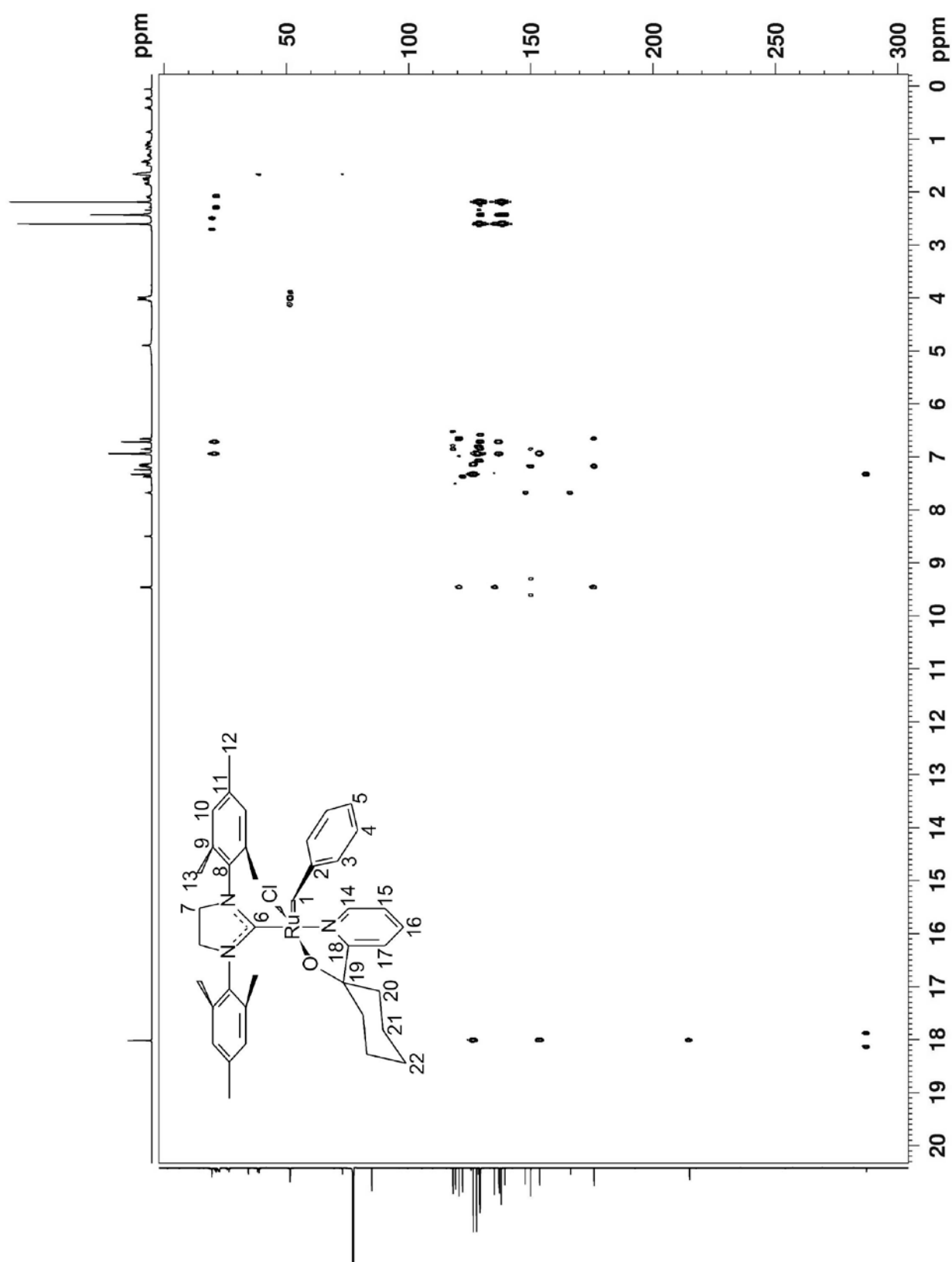
Spektrum 9.10 HSQC (CDCl_3) 600 MHz en 150 MHz



Spektrum 9.11 HSQC (CDCl_3) 600 MHz en 150 MHz

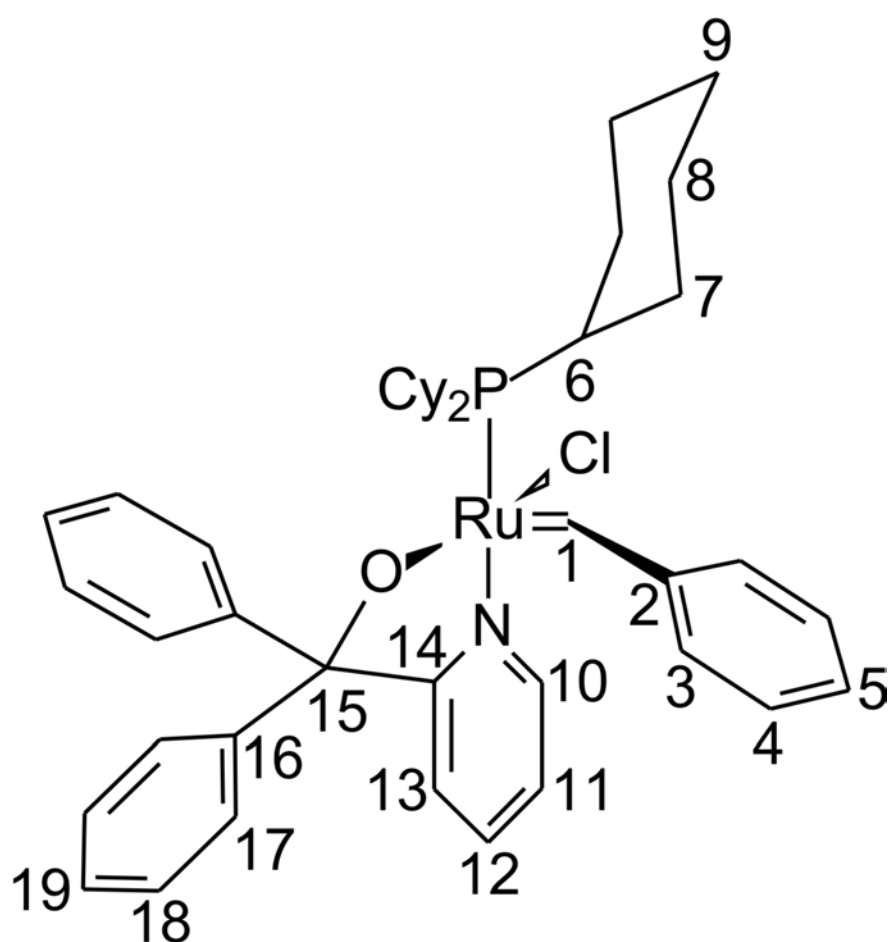


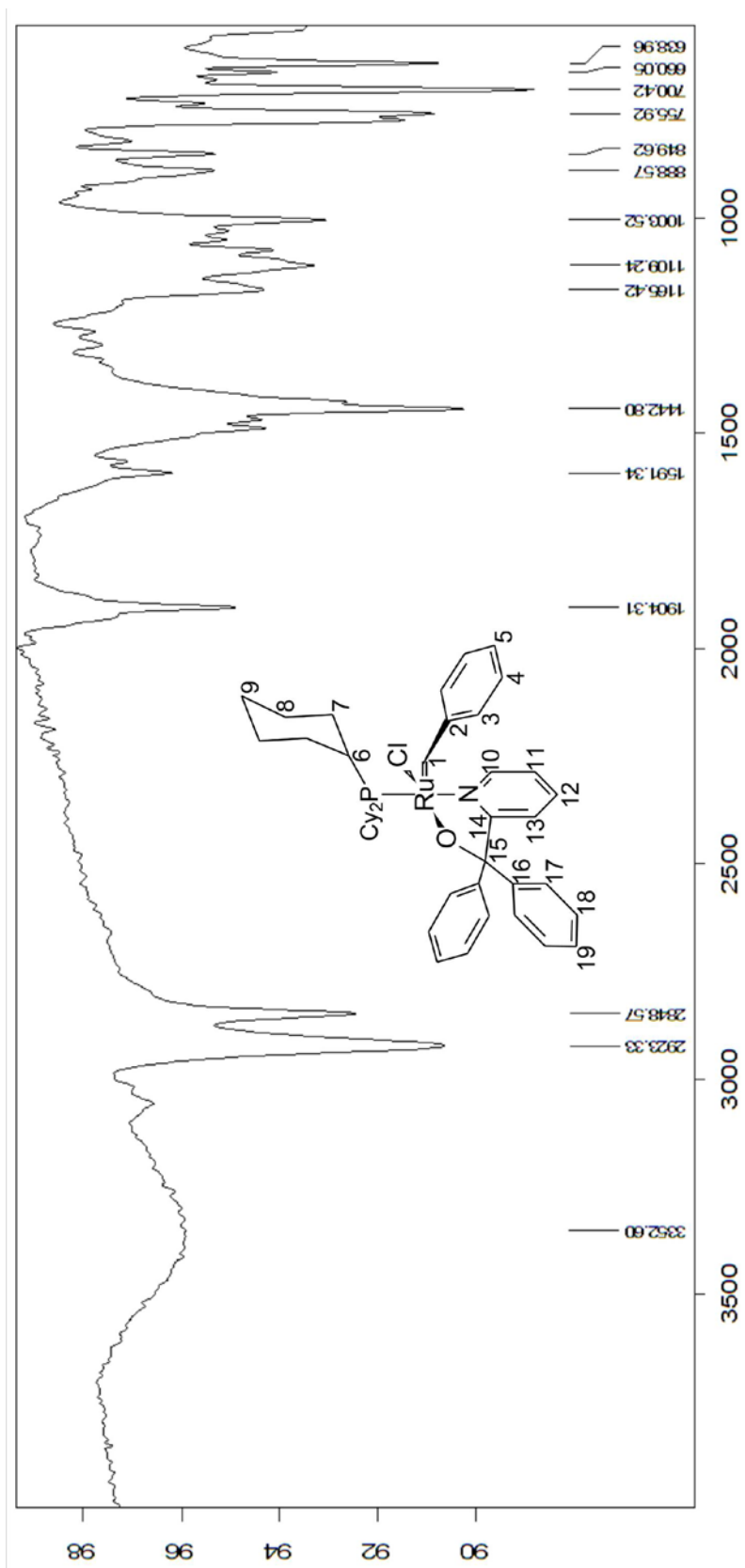
Spektrum 9.12 HSQC (CDCl₃) 600 MHz en 150 MHz



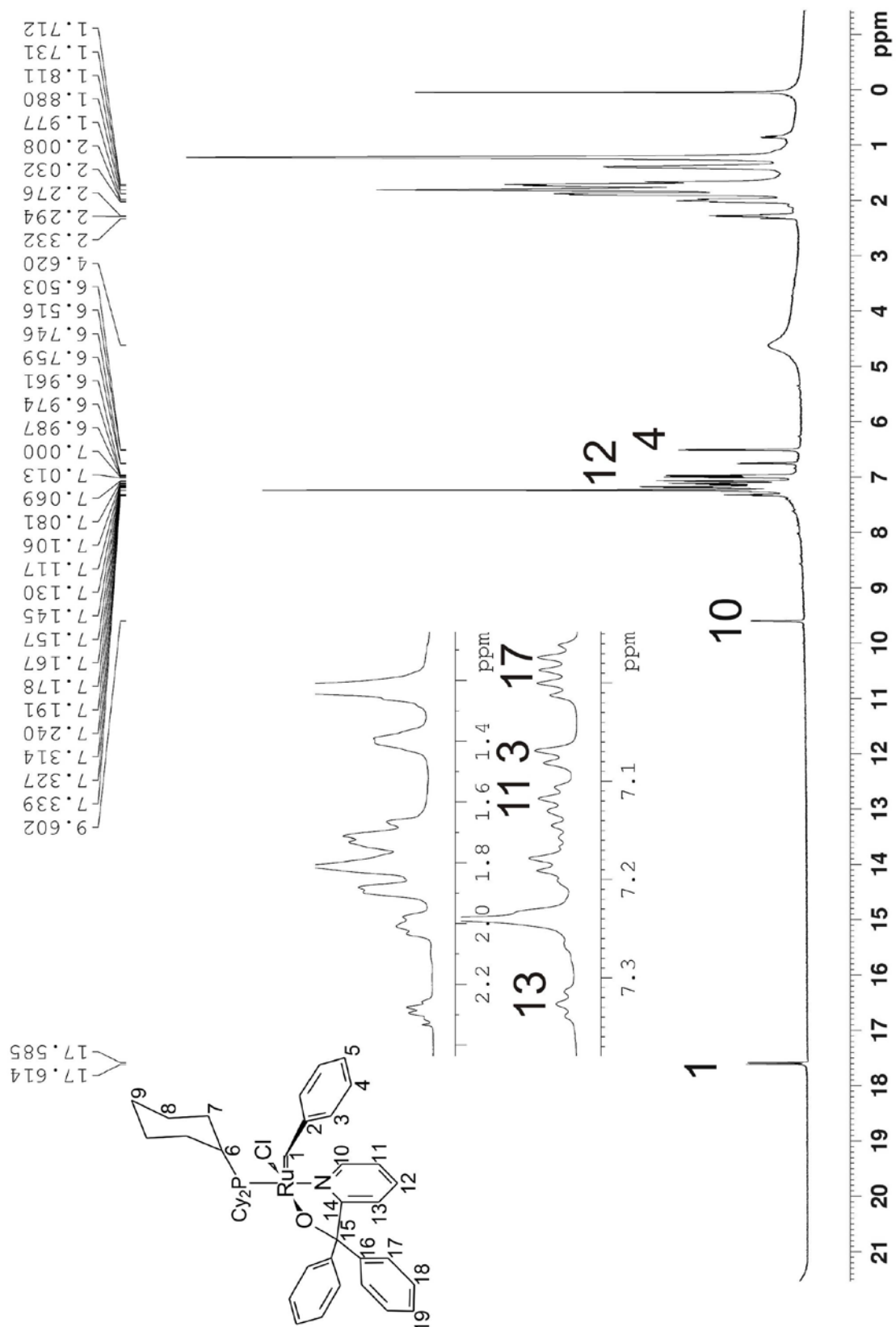
Spektrum 9.13 HMBC (CDCl_3) 600 MHz en 150 MHz

BYLAAG 10
GRUBBS 1-TIPE
PREKATALISATOR 7

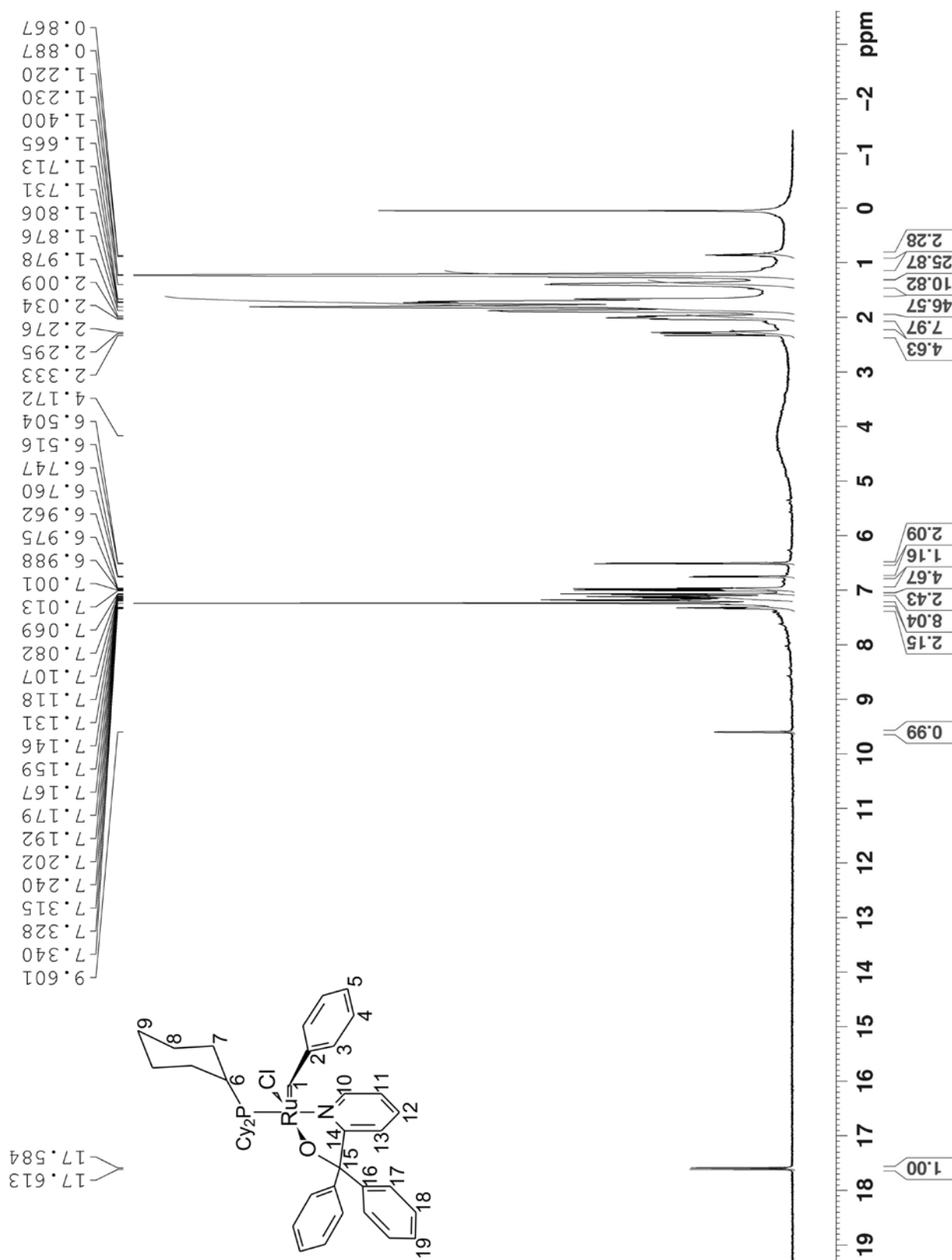




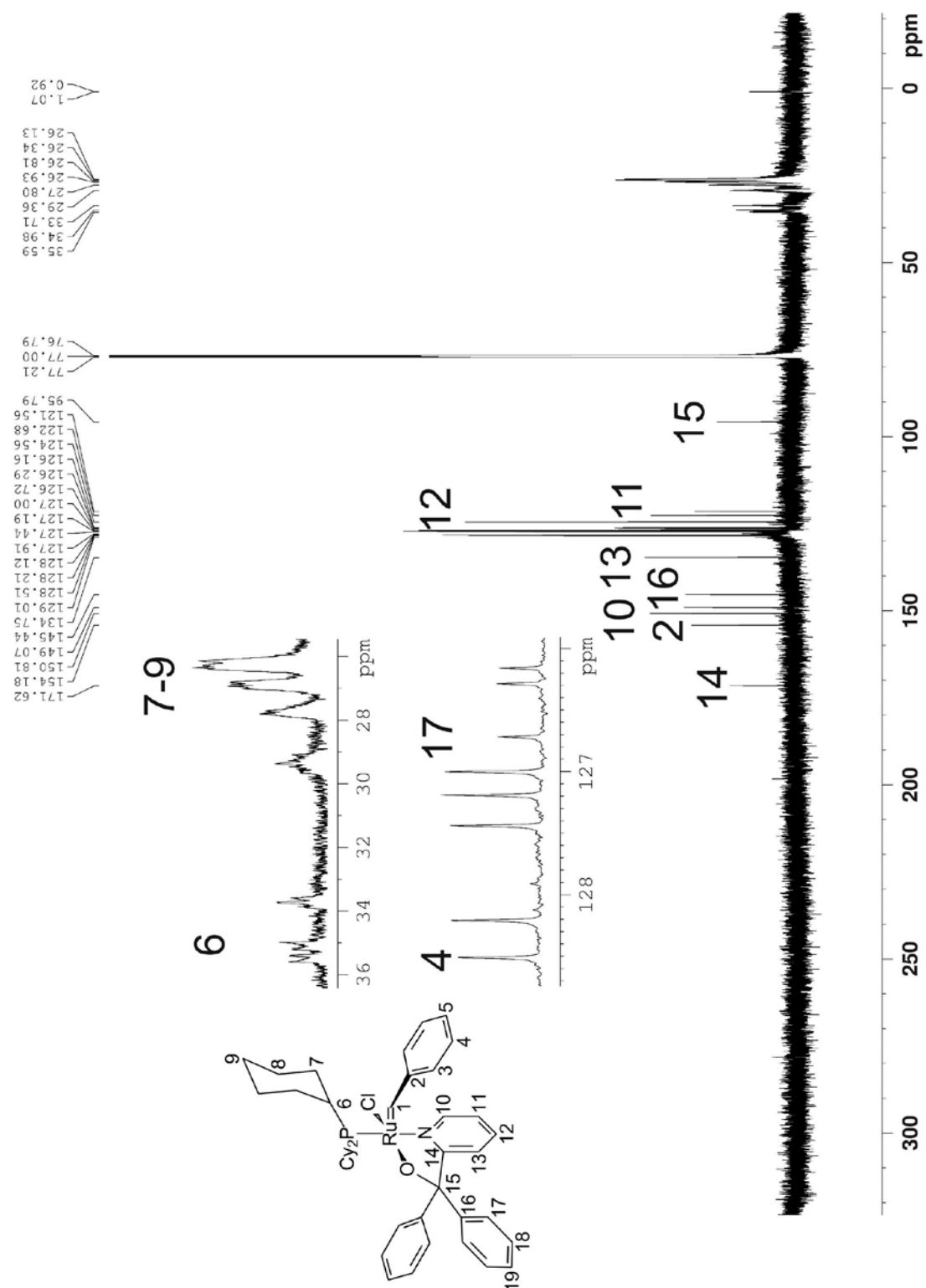
Spektrum 10.1 ATR-IR



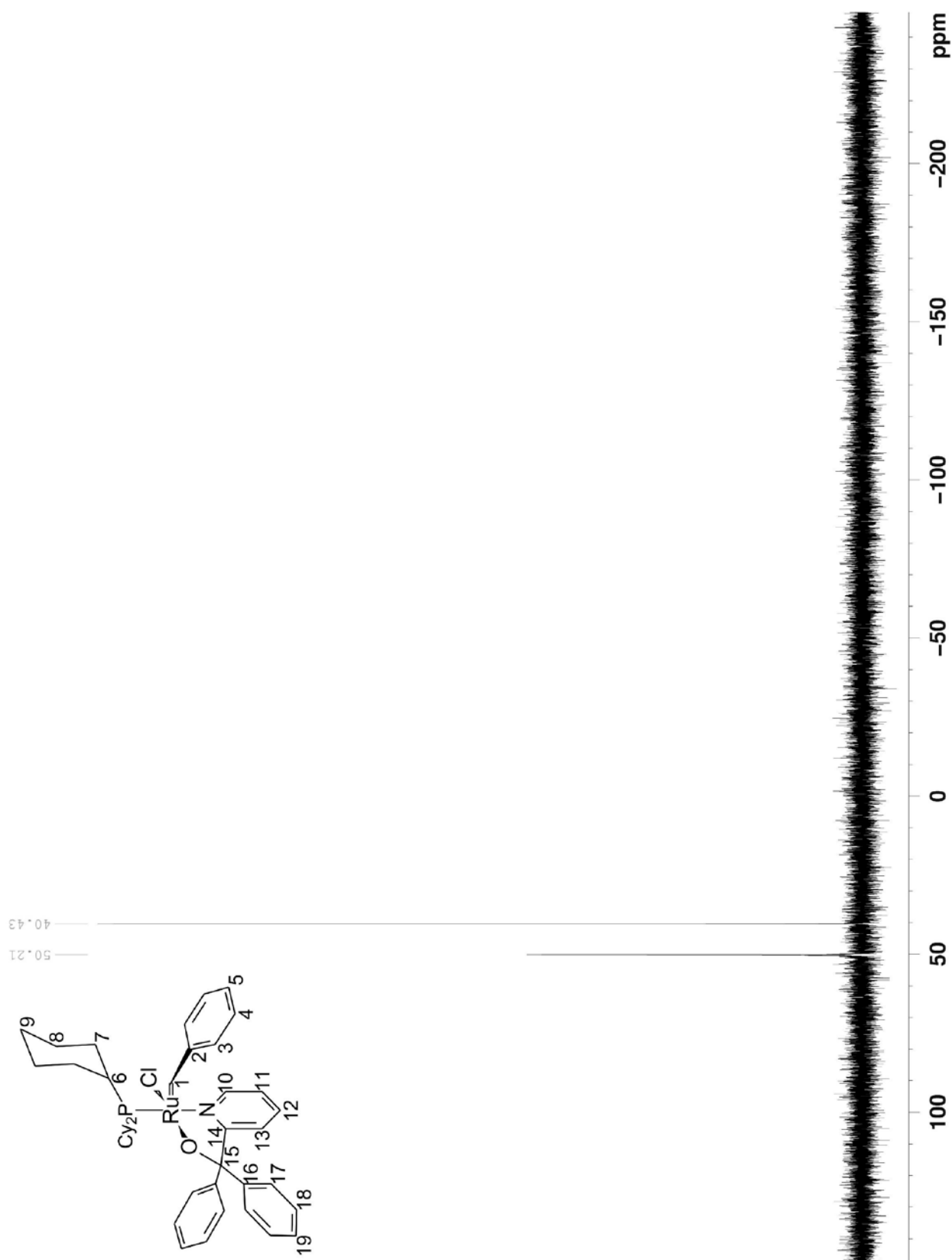
Spektrum 10.2 ¹H (CDCl₃) 600 MHz



Spektrum 10.3 ¹H (CDCl₃) 600 MHz

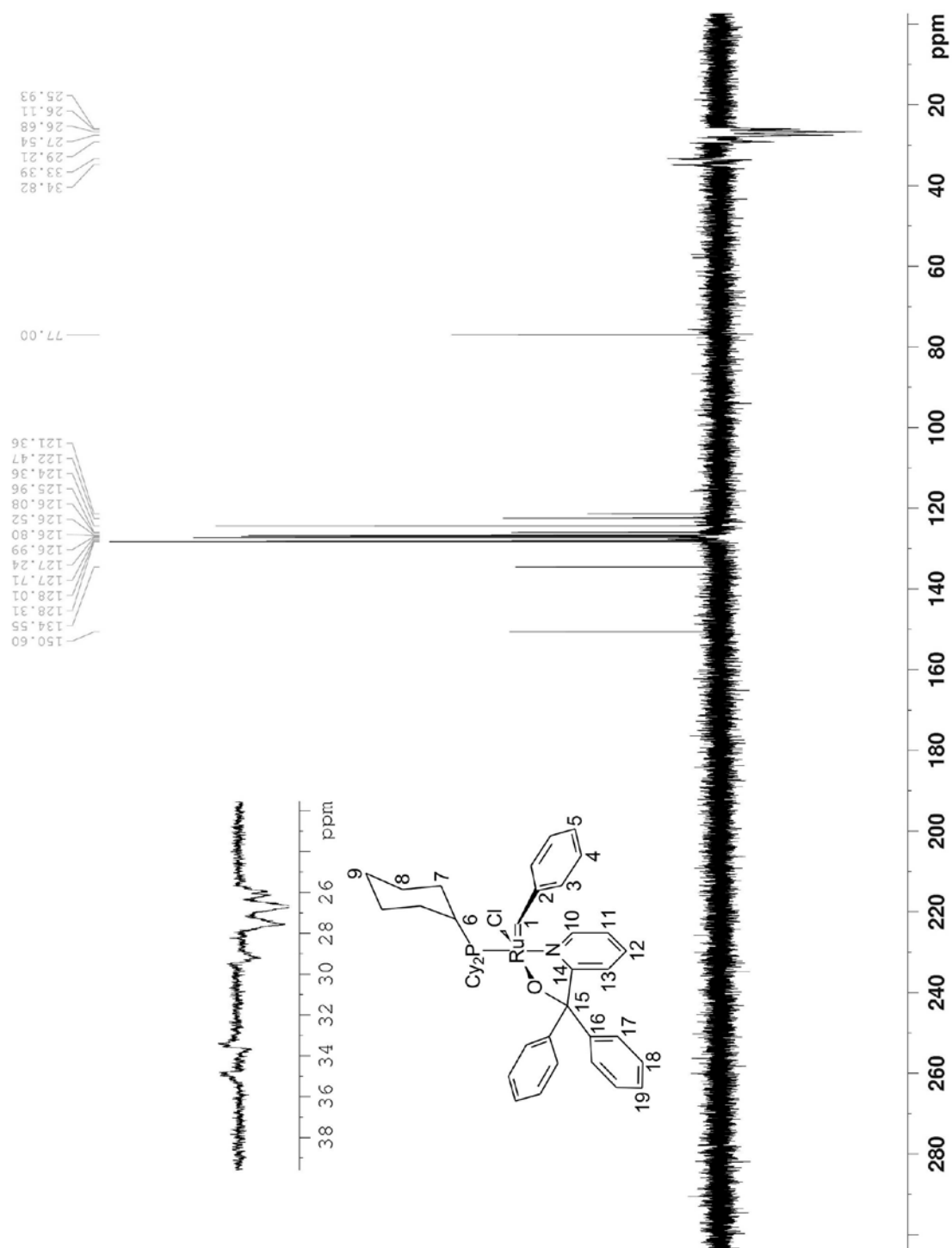


Spektrum 10.4 ^{13}C (CDCl_3) 150 MHz

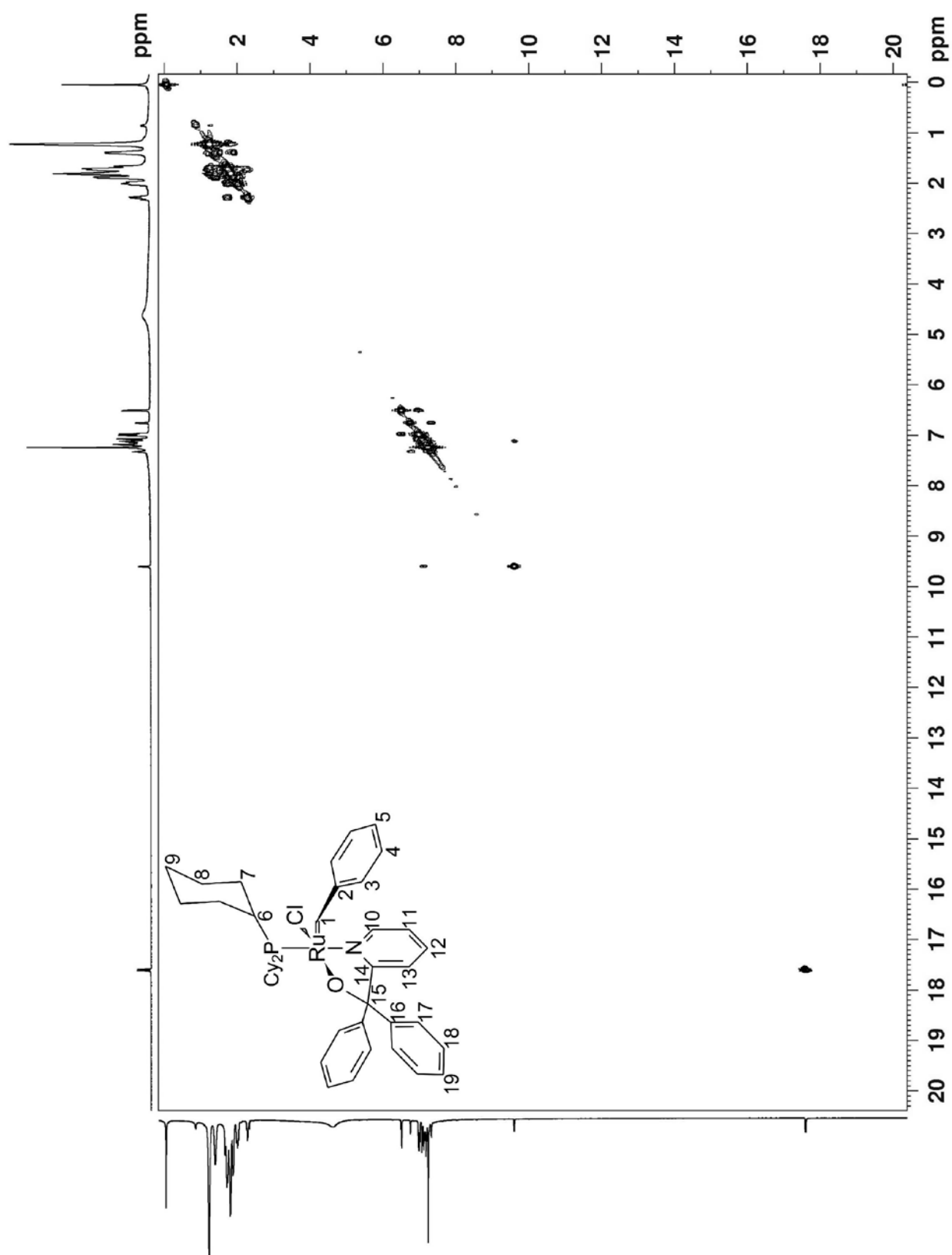


Spektrum 10.5

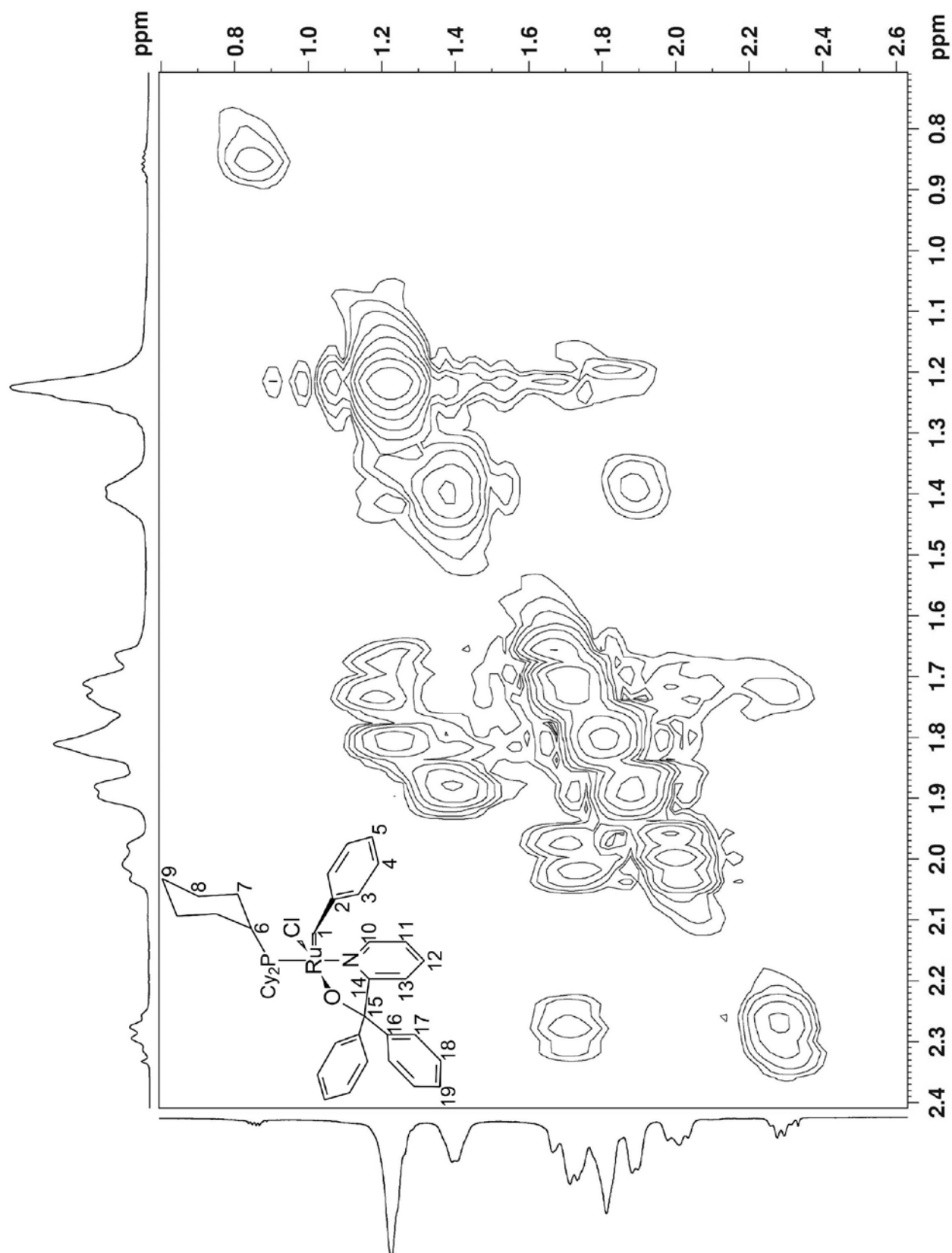
^{31}P (CDCl_3) 242 MHz



Spektrum 10.6 DEPT135 (CDCl₃) 150 MHz

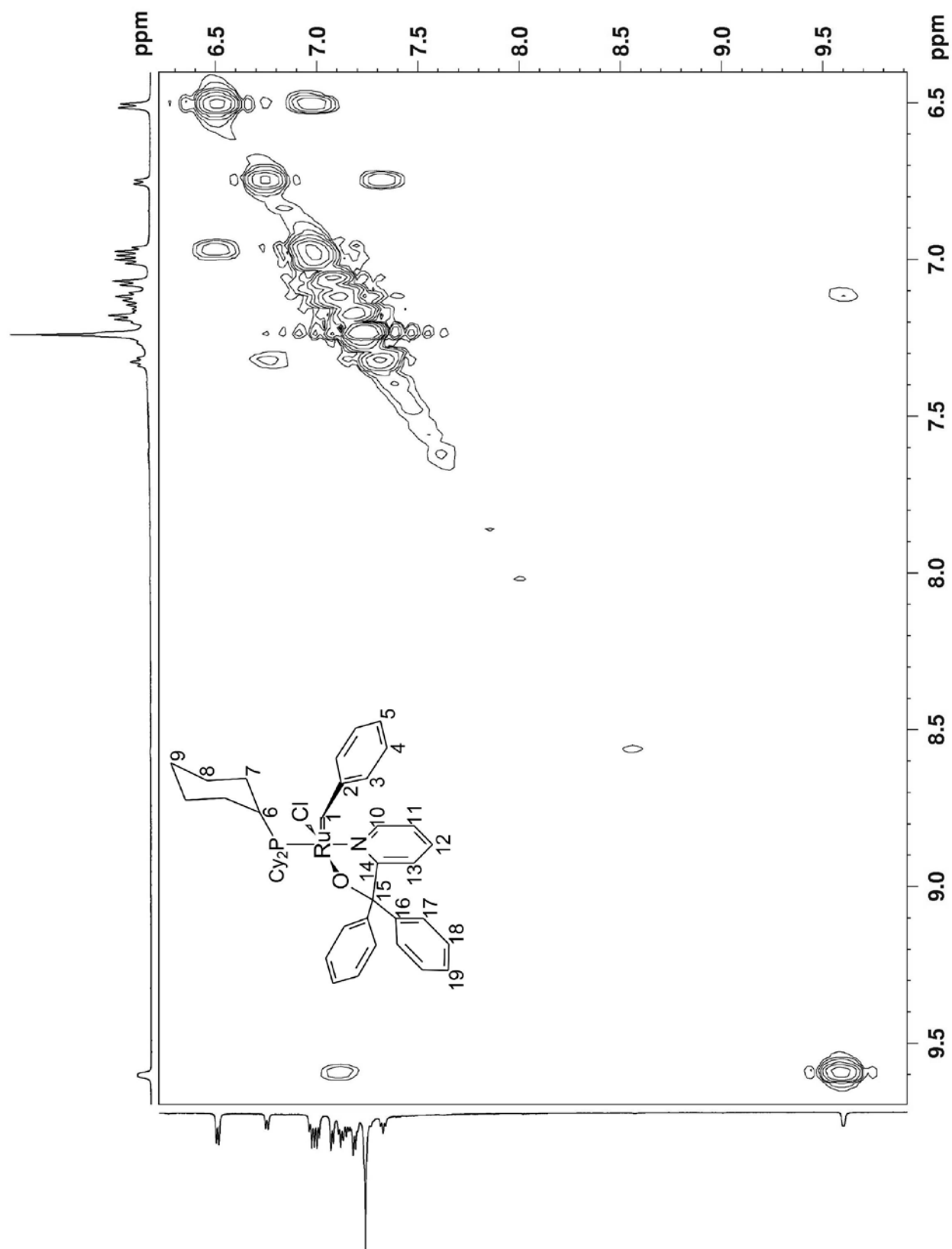


Spektrum 10.7 COSY (CDCl₃) 600 MHz



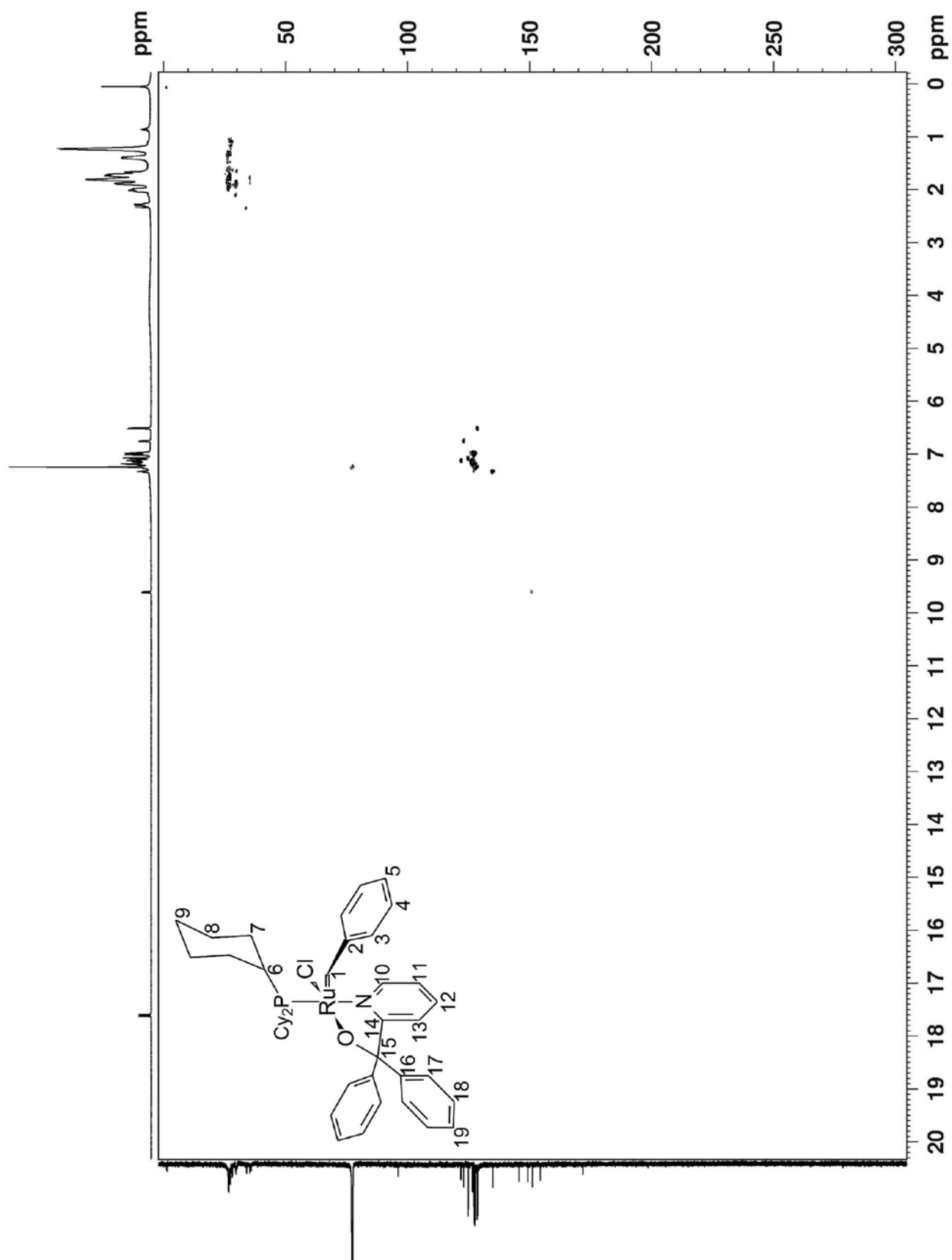
Spektrum 10.8

COSY (CDCl₃) 600 MHz

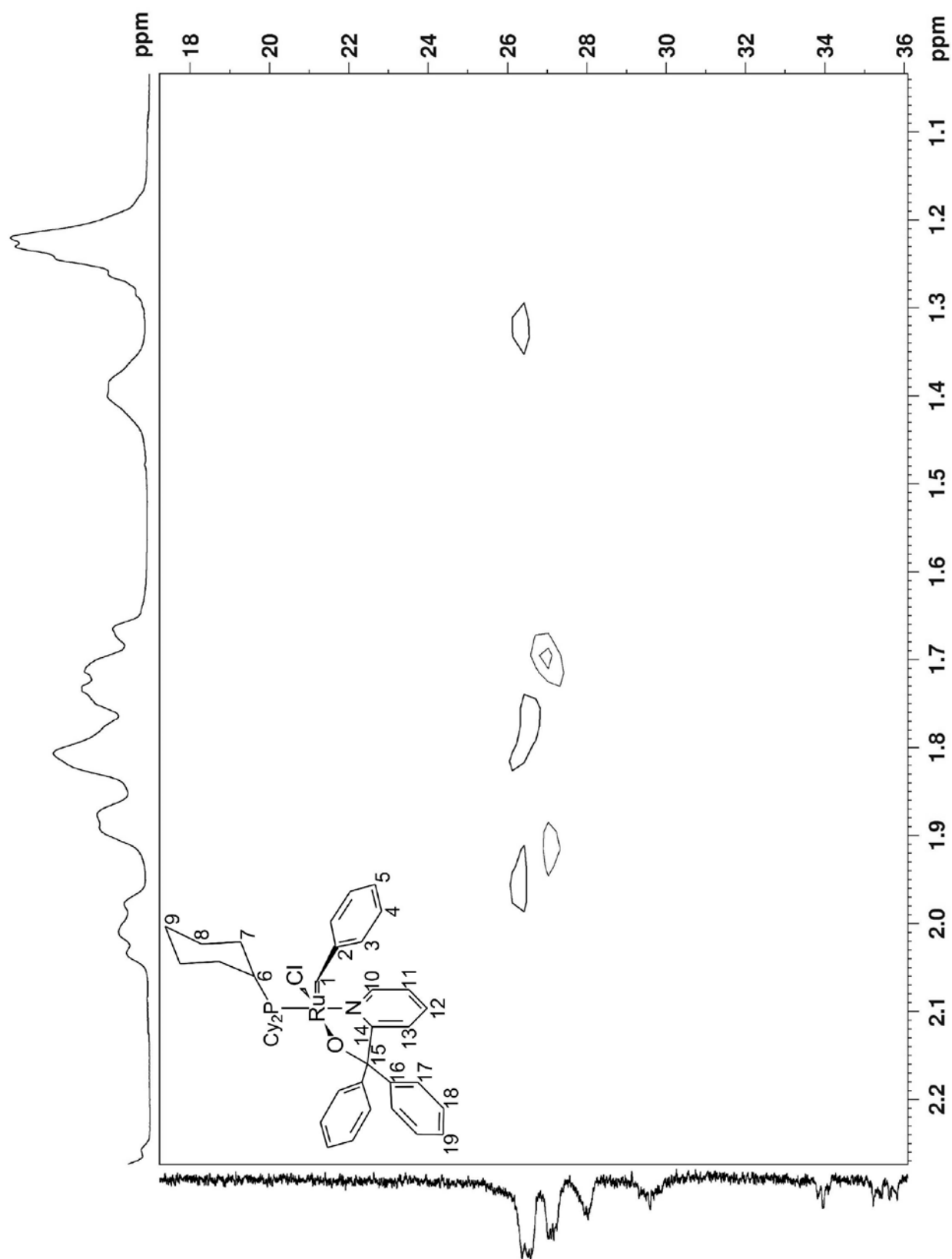


Spektrum 10.9

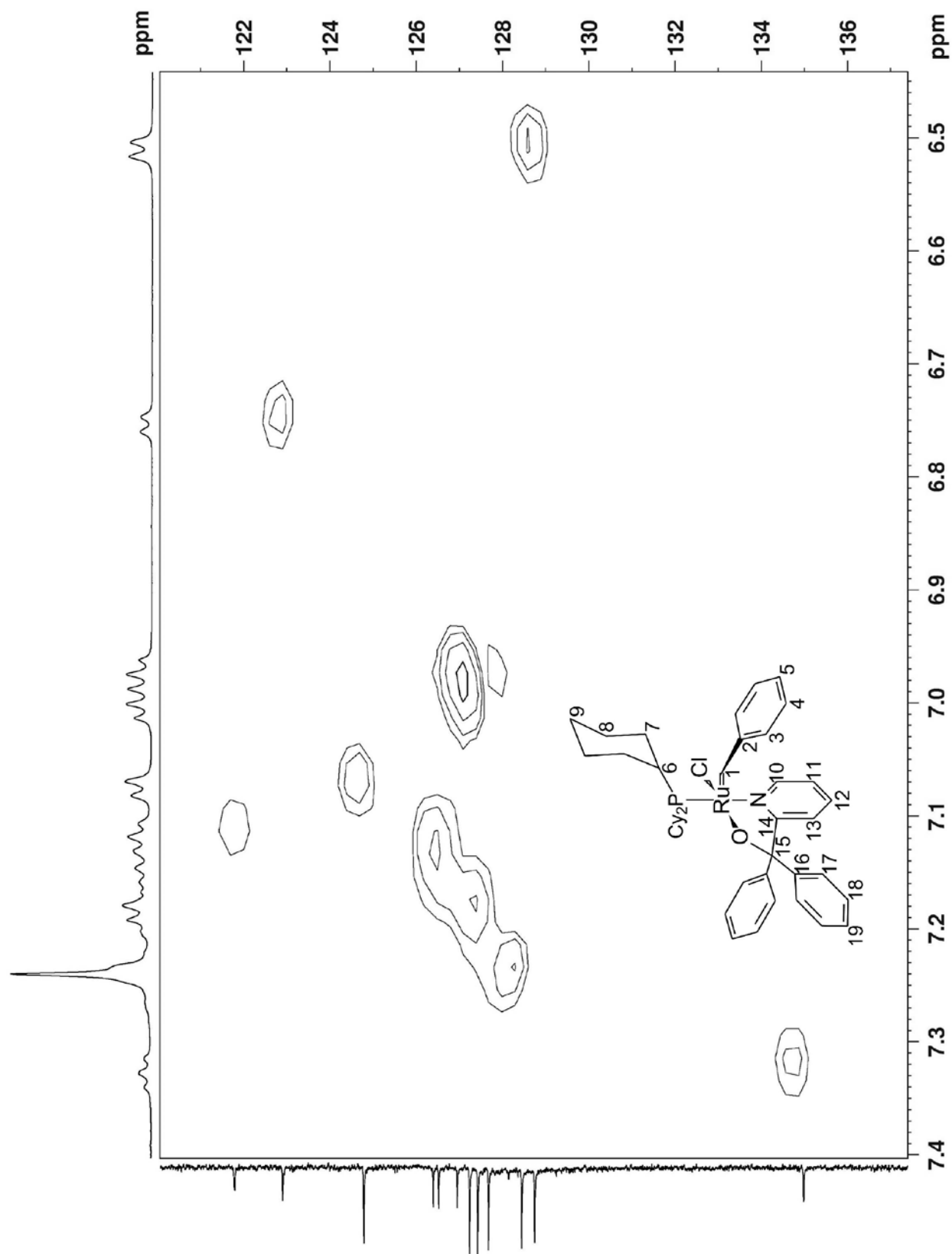
HSQC (CDCl_3) 600 MHz en 150 MHz



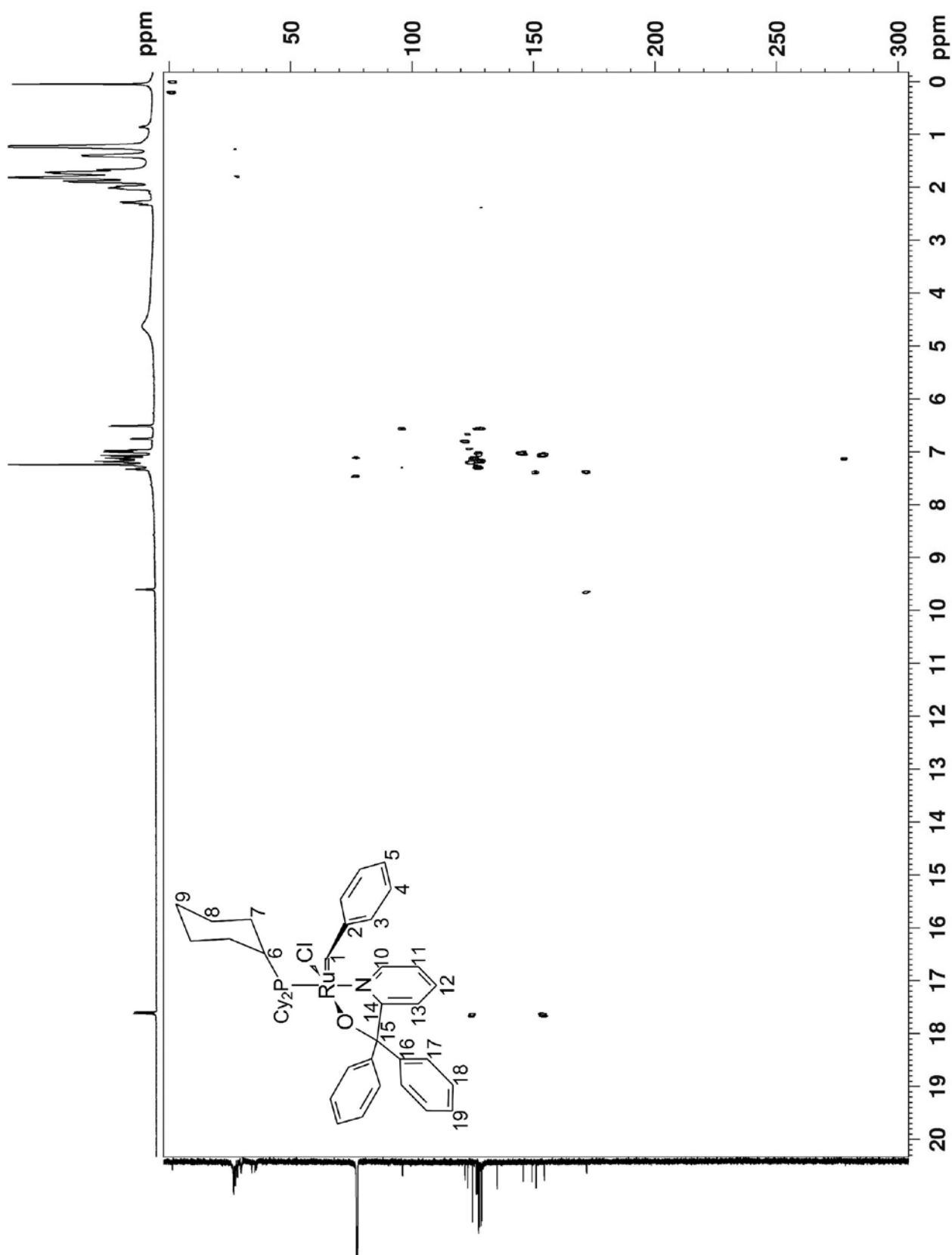
Spektrum 10.10 HSQC (CDCl_3) 600 MHz en 150 MHz



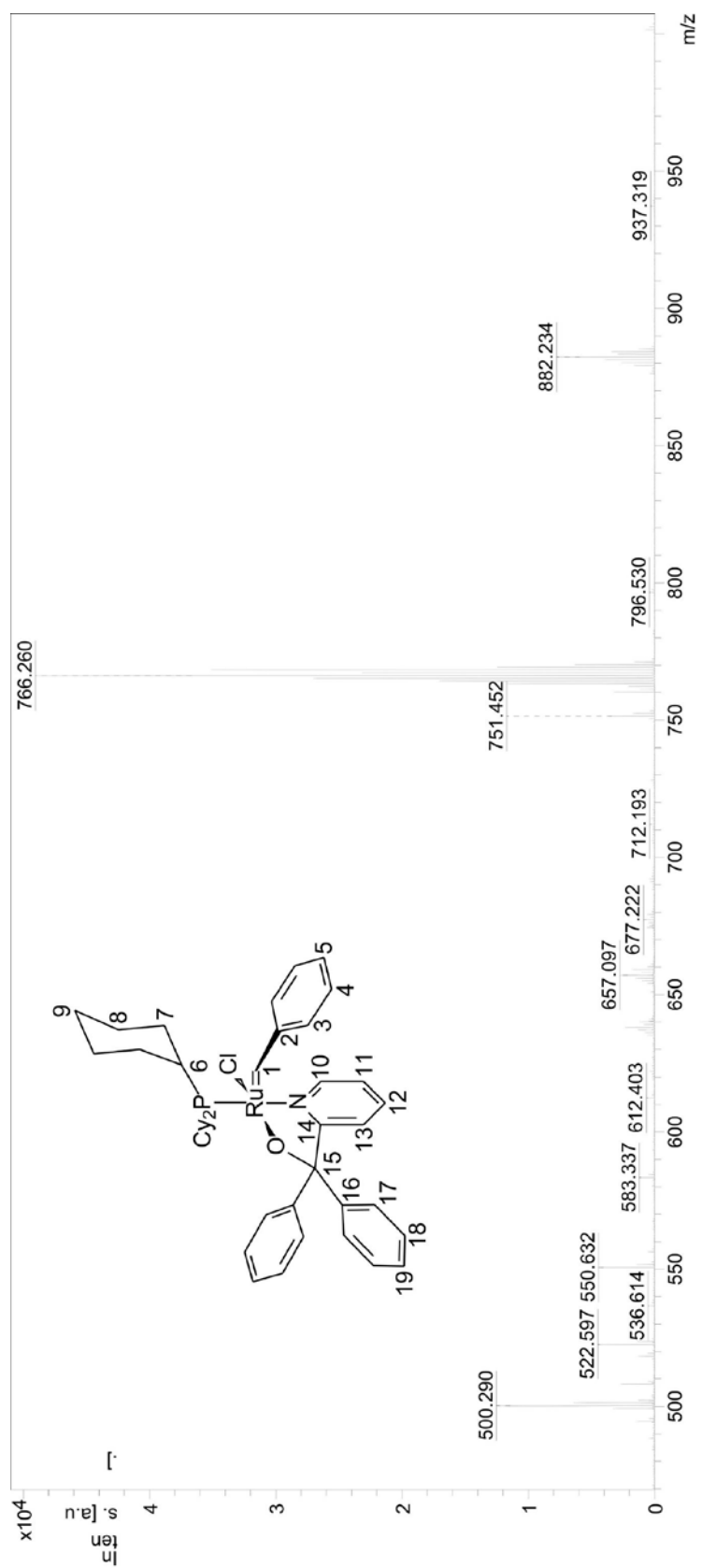
Spektrum 10.11 HSQC (CDCl_3) 600 MHz en 150 MHz



Spektrum 10.12 HSQC (CDCl_3) 600 MHz en 150 MHz

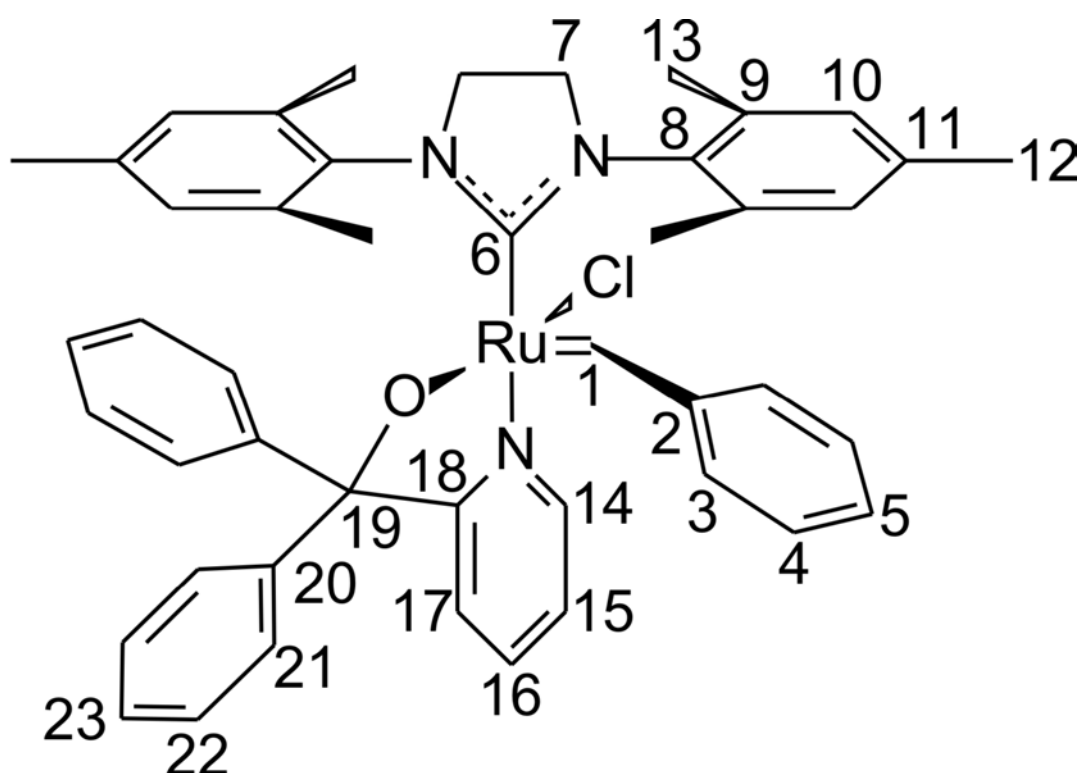


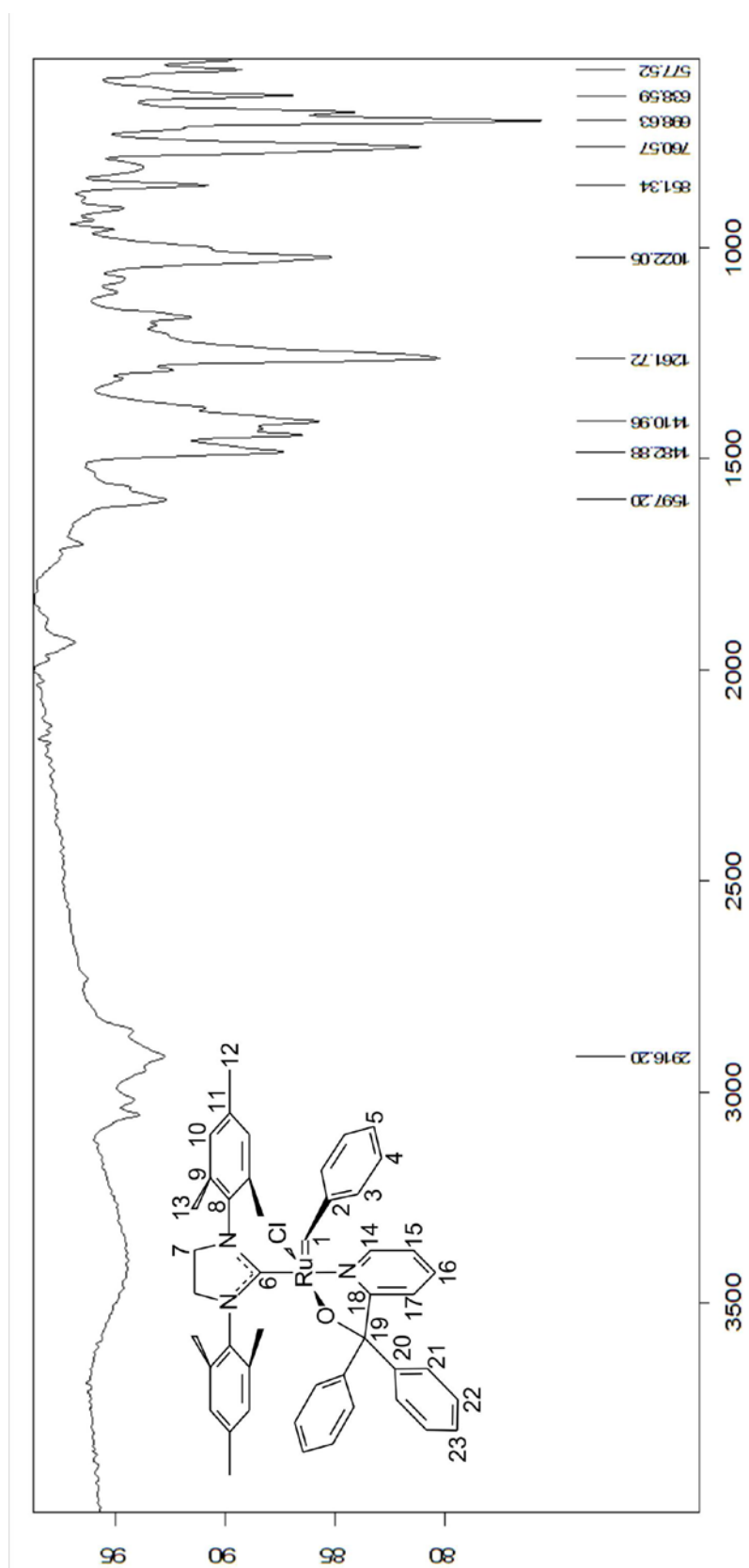
Spektrum 10.13 HMBC (CDCl₃) 600 MHz en 150 MHz



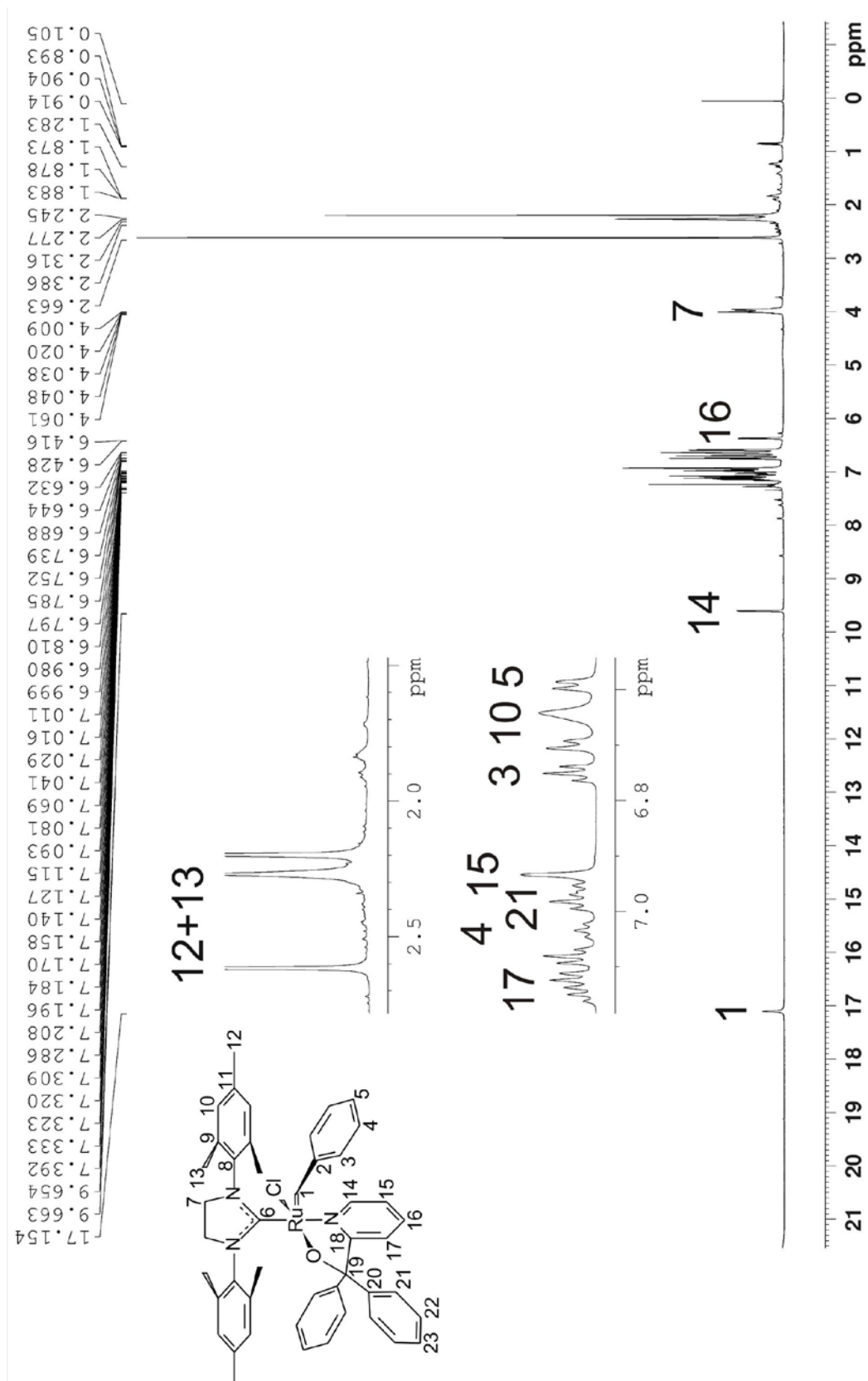
Spektrum 10.14 MS MALDI TOF ($M^+ - H$)

BYLAAG 11
GRUBBS 2-TIPE
PREKATALISATOR 8

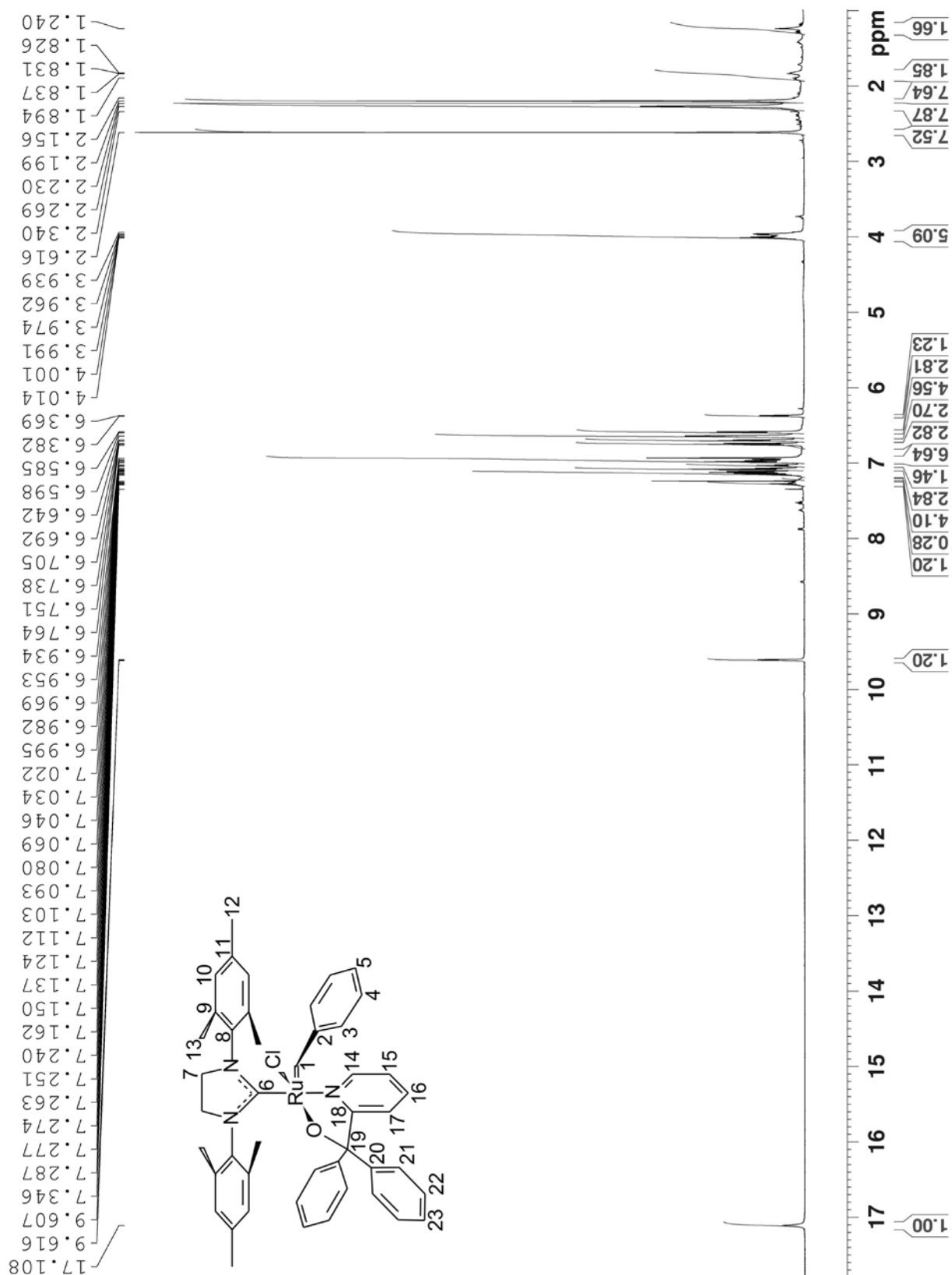


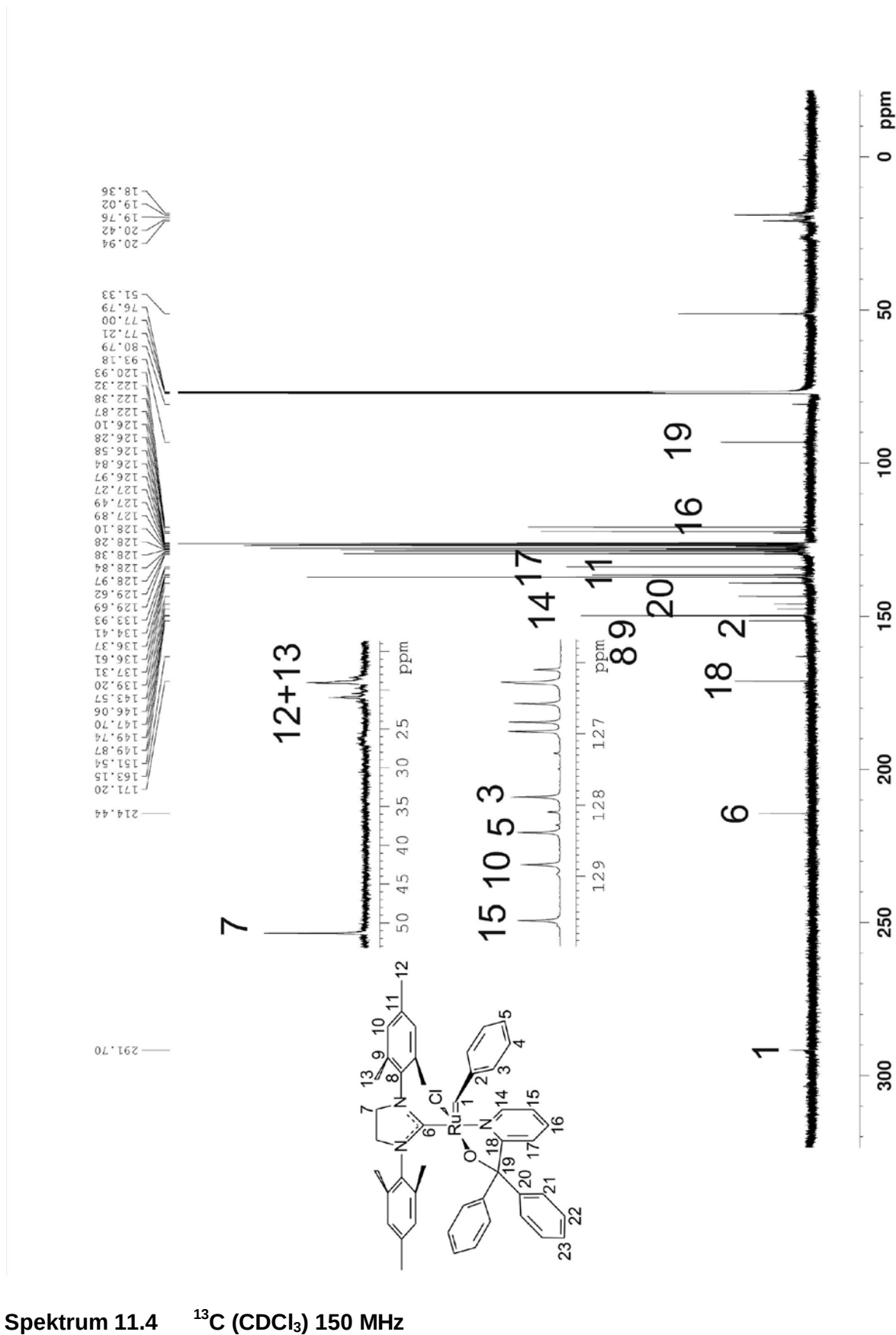


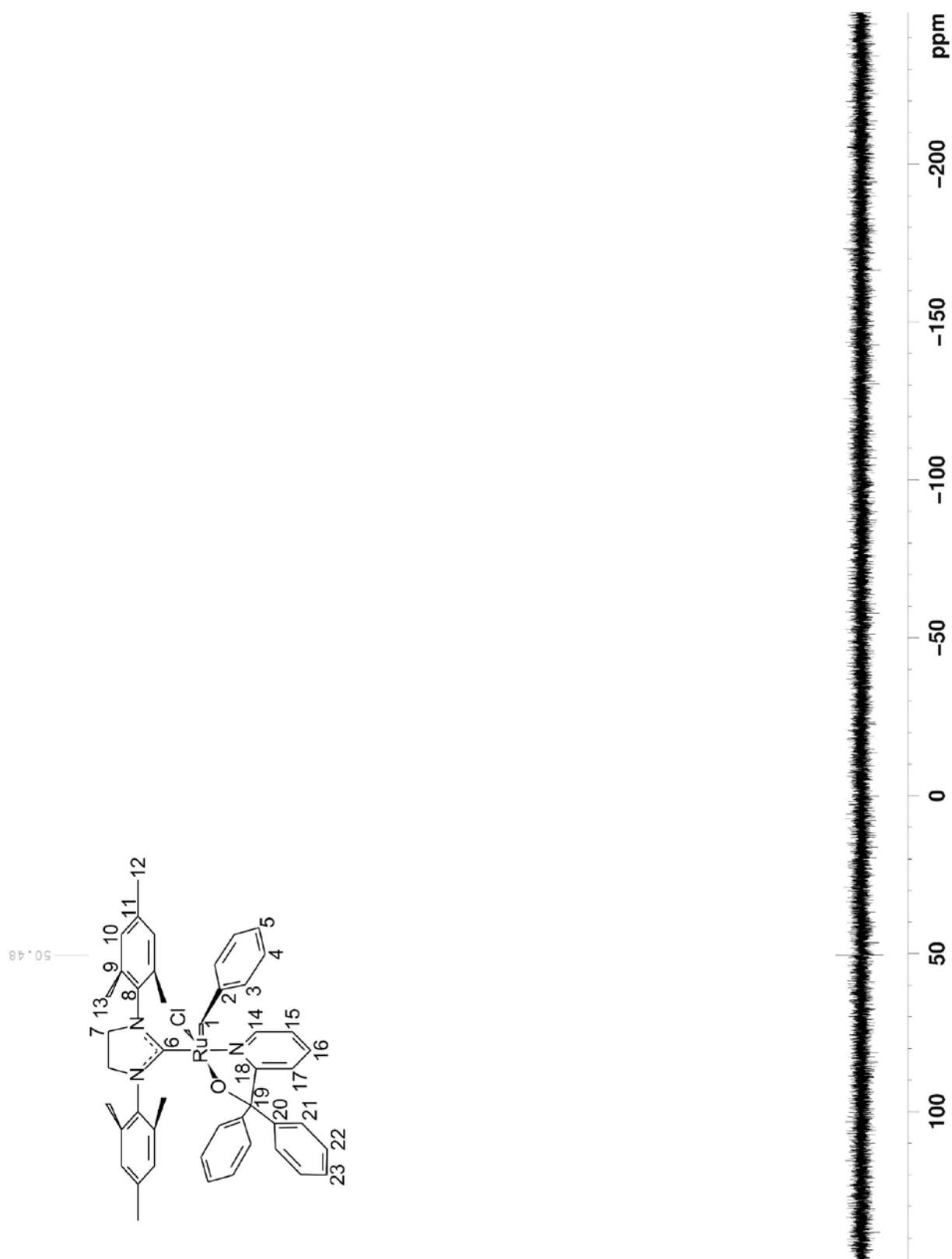
Spektrum 11.1 ATR-IR



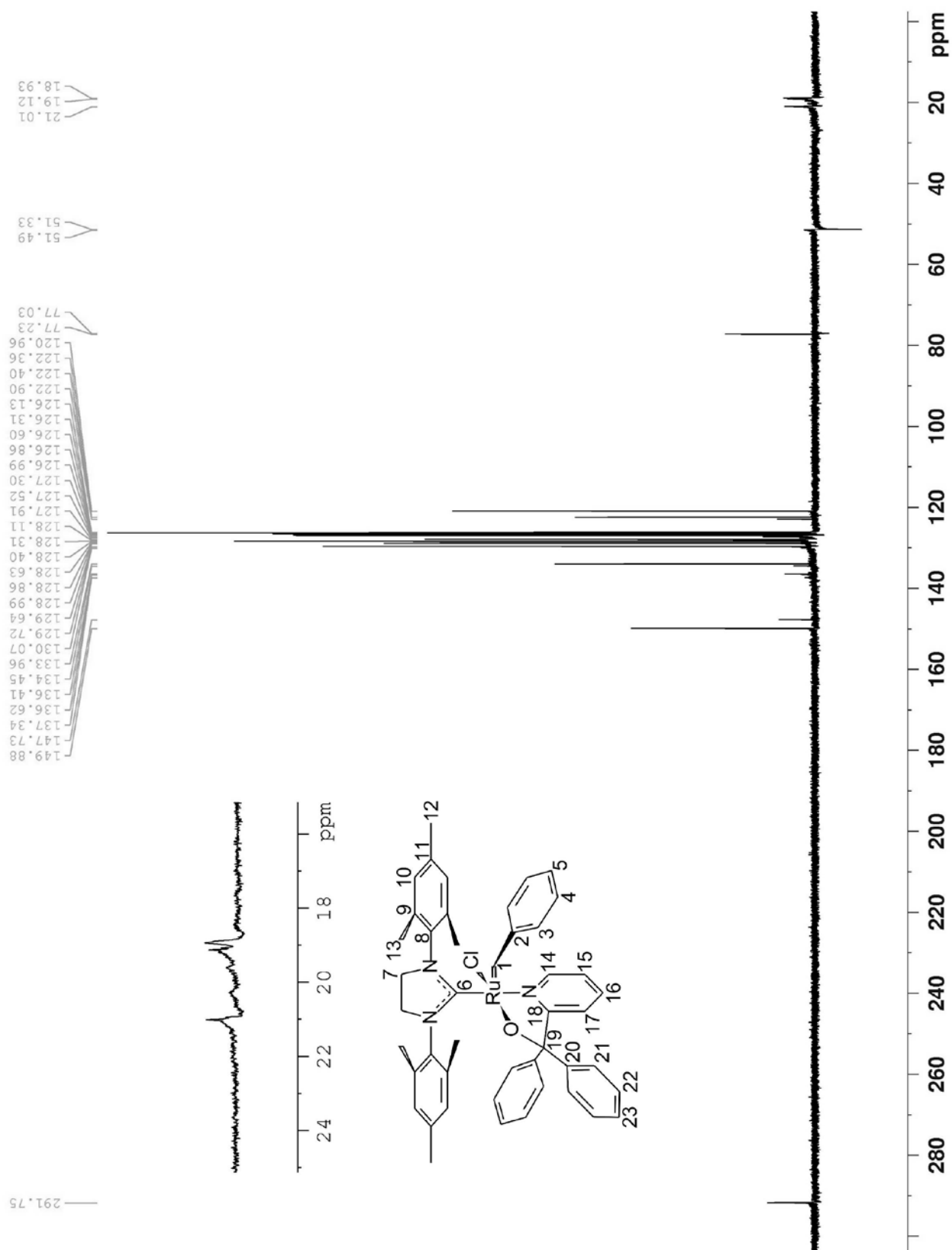
Spektrum 11.2 ¹H (CDCl₃) 600 MHz

Spektrum 11.3 ¹H (CDCl₃) 600 MHz

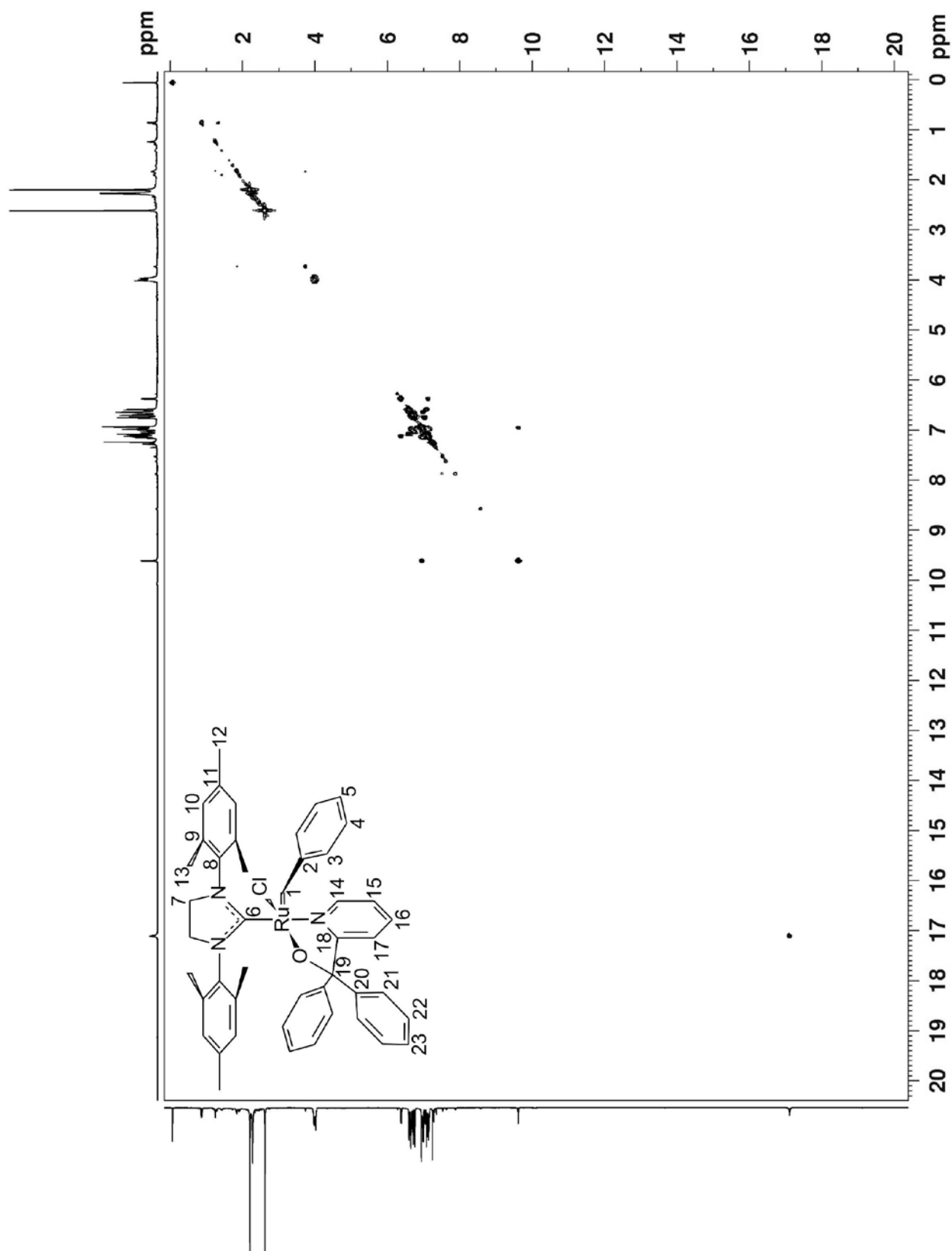




Spektrum 11.5 ^{31}P (CDCl_3) 242 MHz

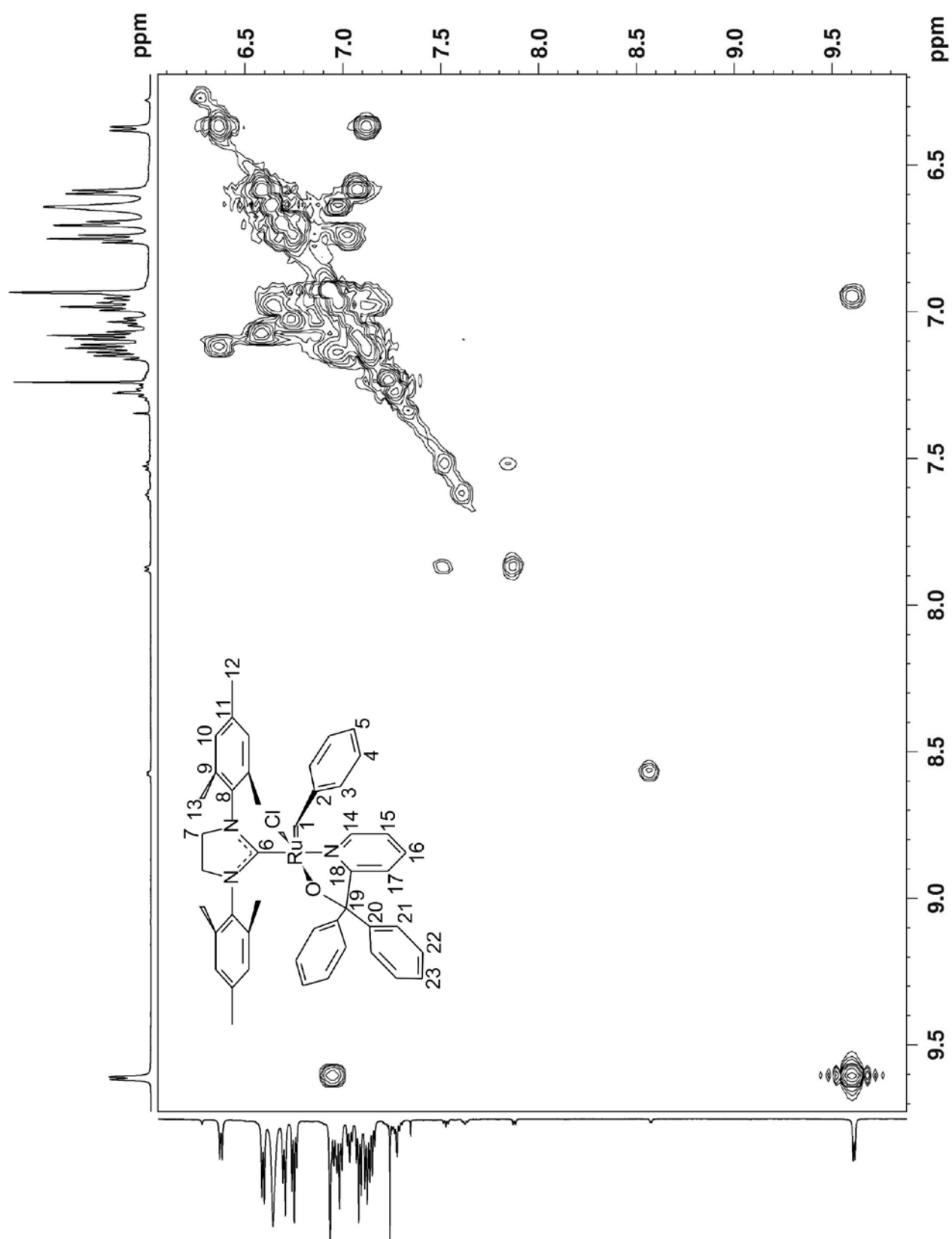


Spektrum 11.6 DEPT135 (CDCl₃) 150 MHz

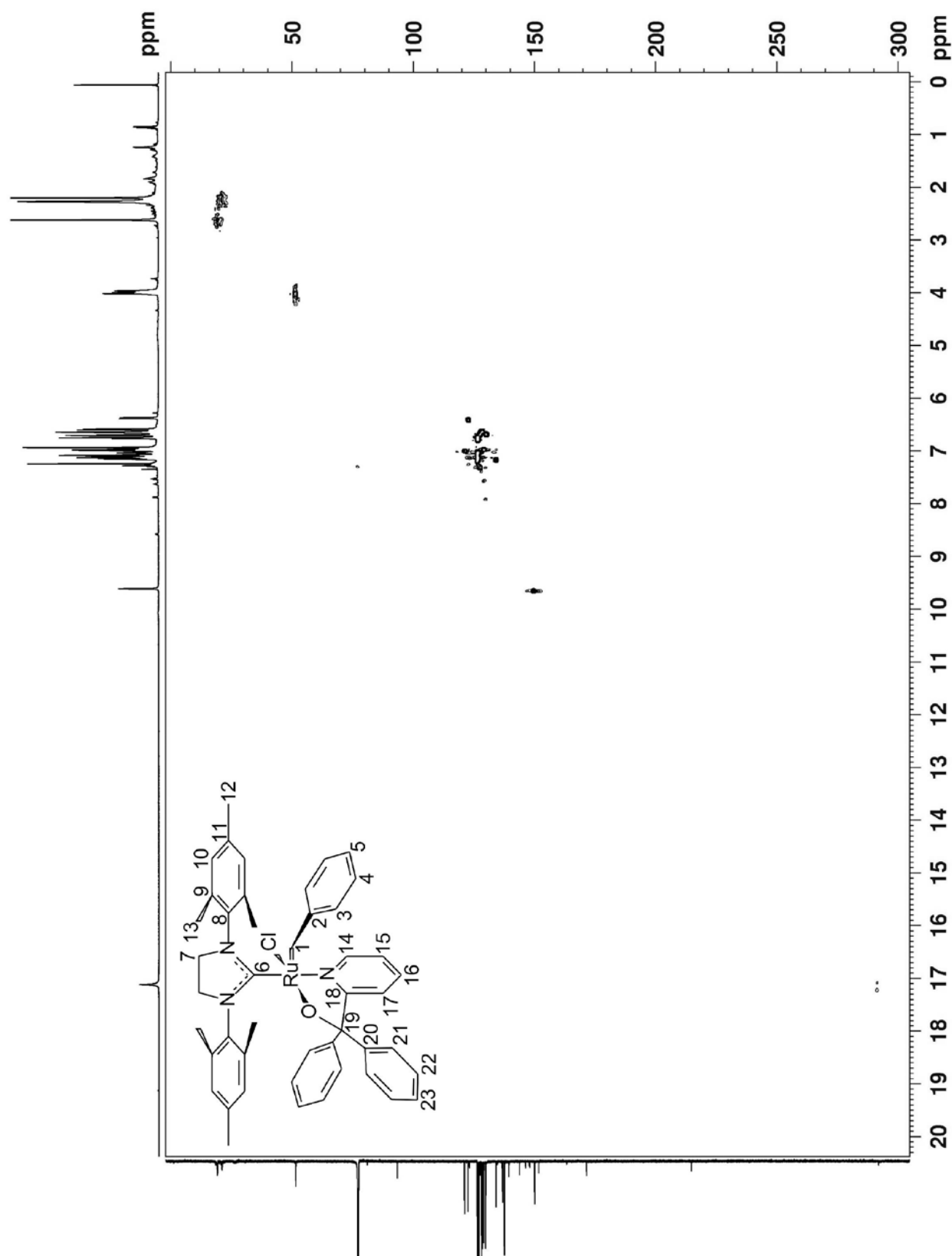


Spektrum 11.7

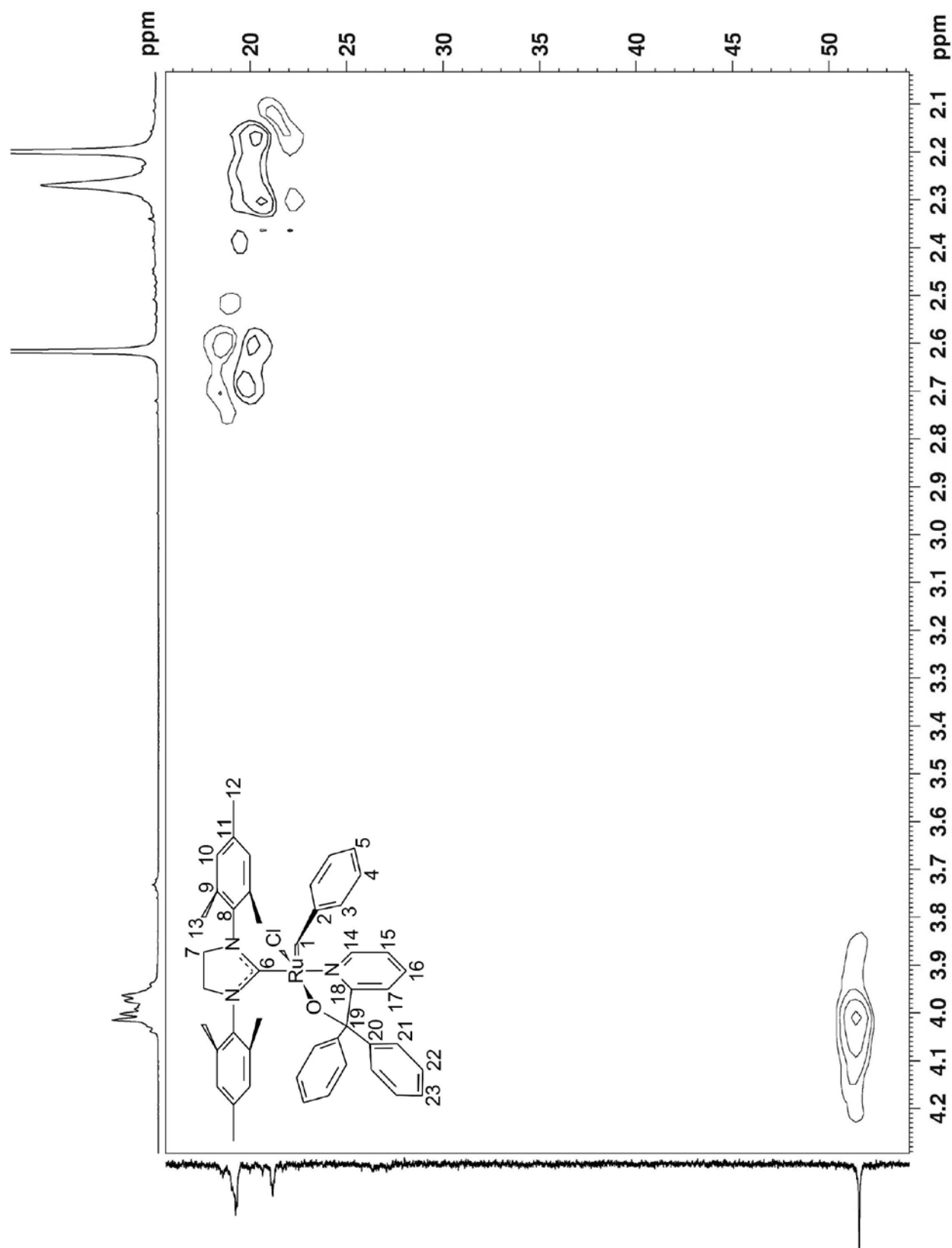
COSY (CDCl₃) 600 MHz



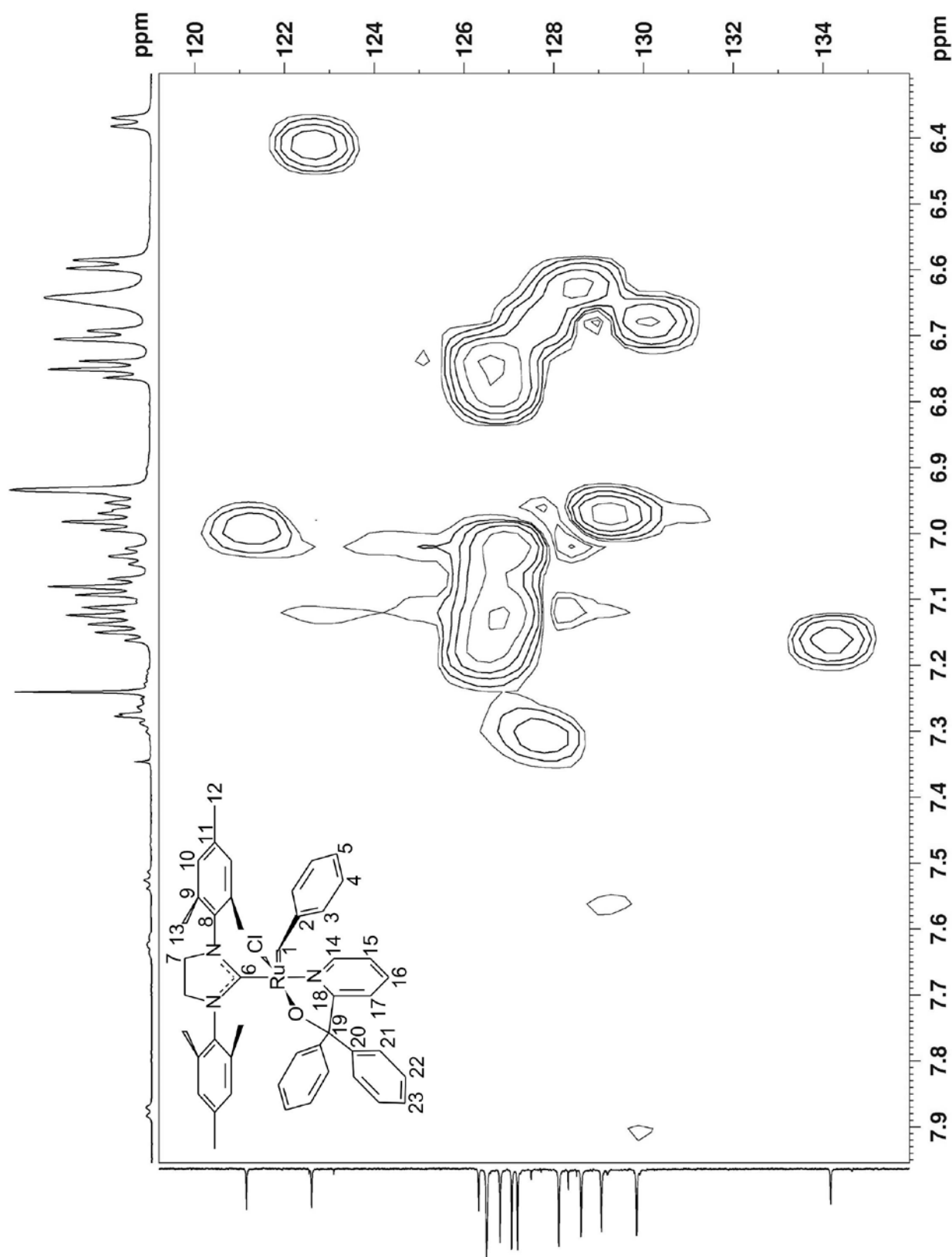
Spektrum 11.8 COSY (CDCl₃) 600 MHz



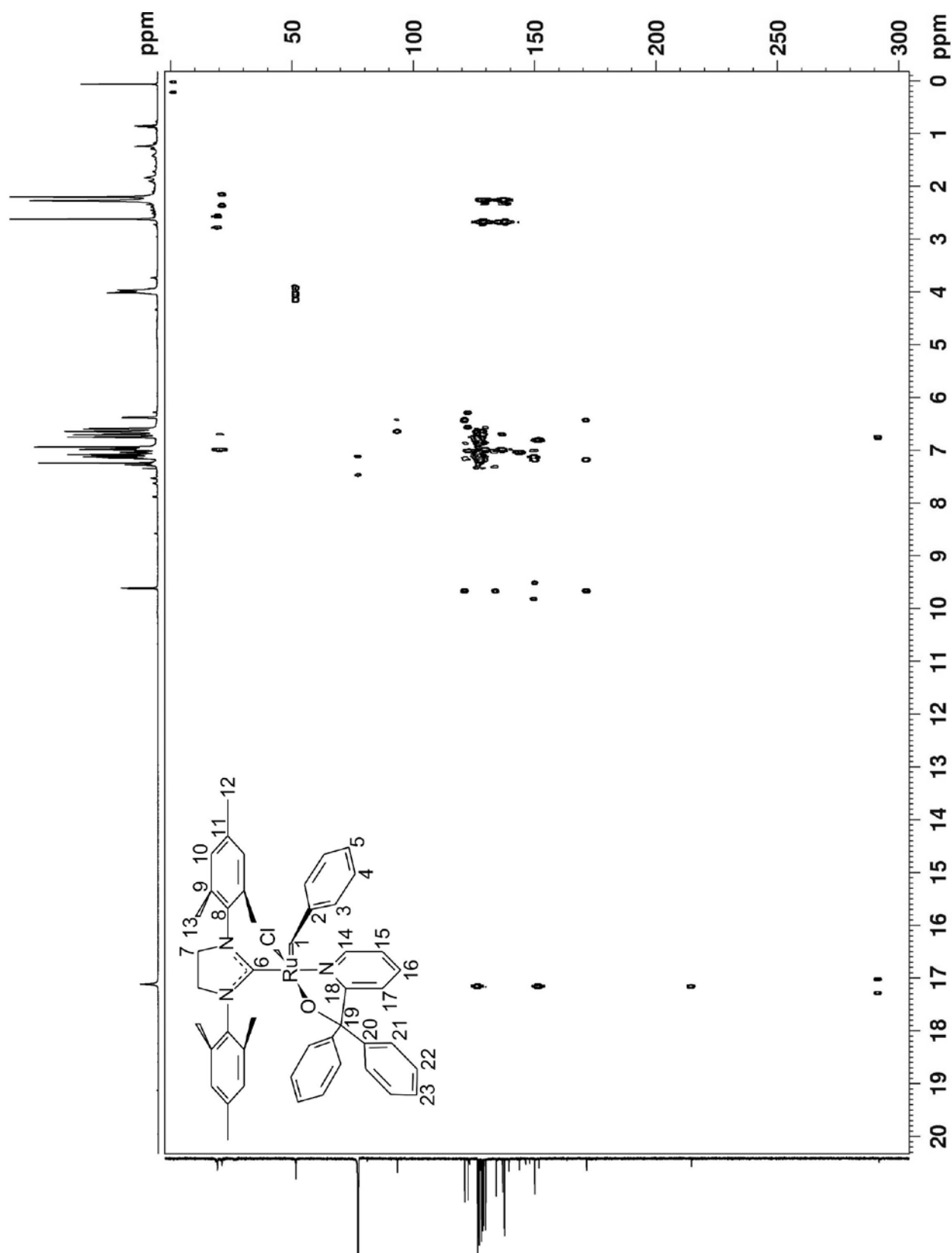
Spektrum 11.9 HSQC (CDCl_3) 600 MHz en 150 MHz



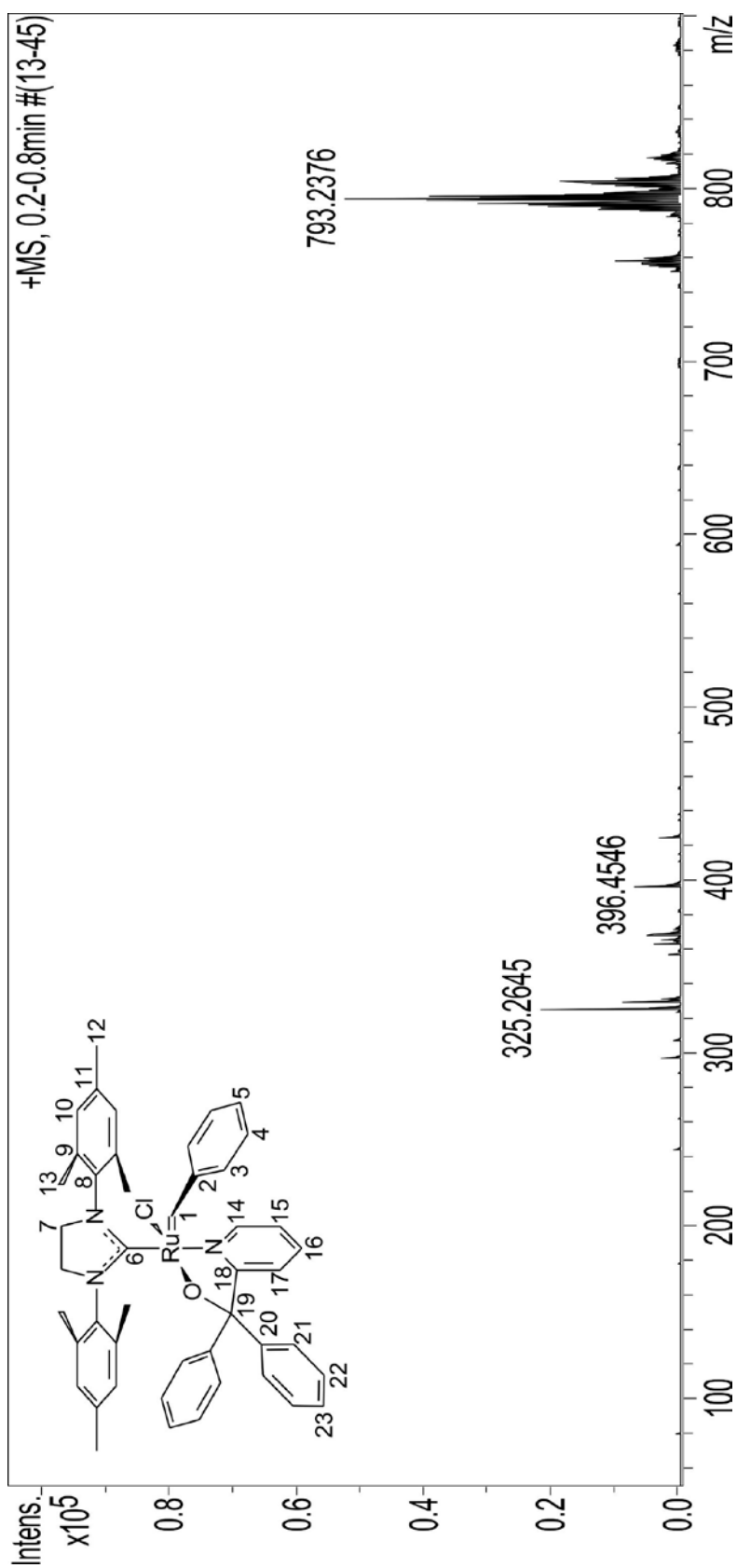
Spektrum 11.10 HSQC (CDCl_3) 600 MHz en 150 MHz



Spektrum 11. 11 HSQC (CDCl_3) 600 MHz en 150 MHz



Spektrum 11.12 HMBC (CDCl₃) 600 MHz en 150 MHz

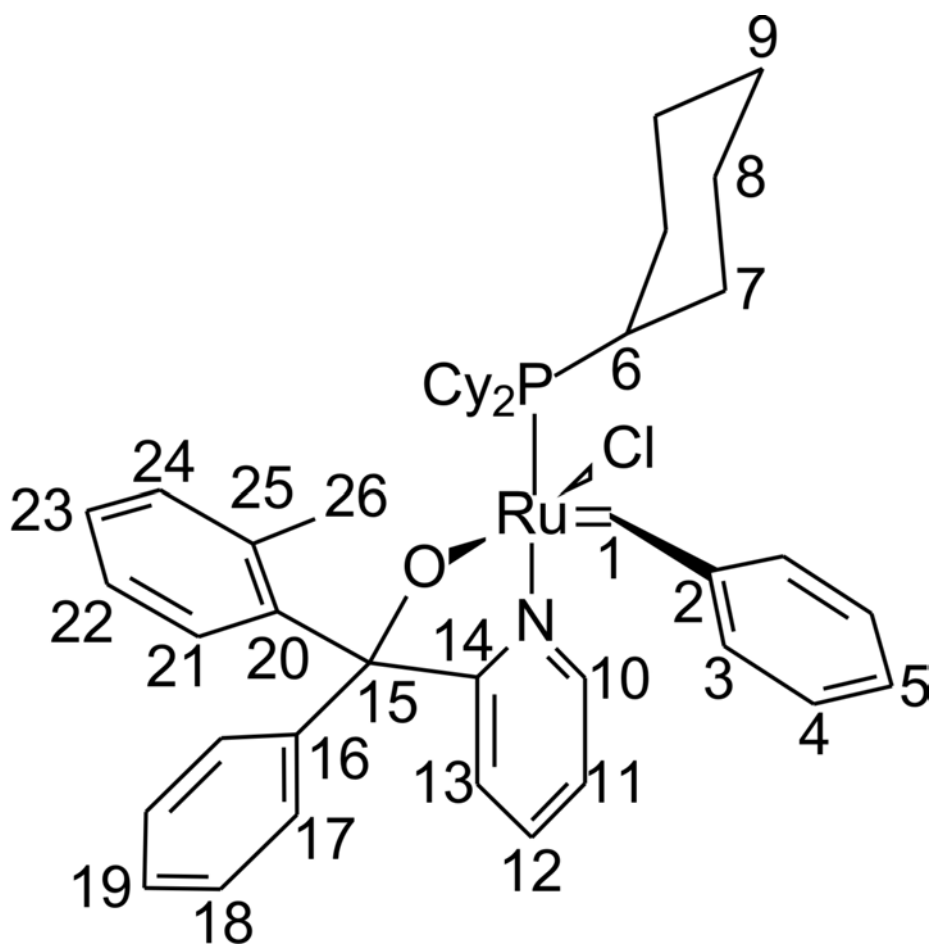


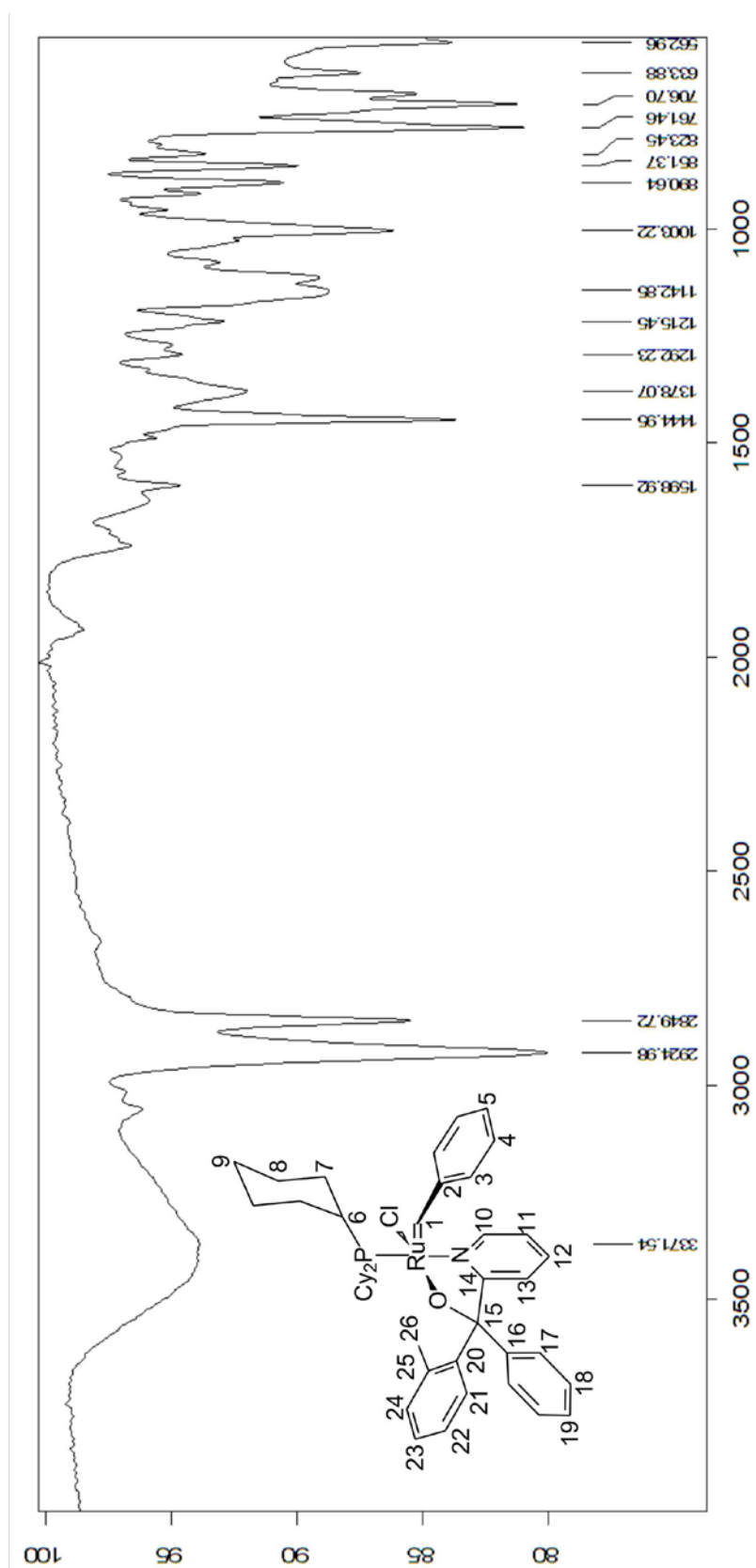
Spektrum 11.13 MS-APCI (M⁺)

BYLAAG 12

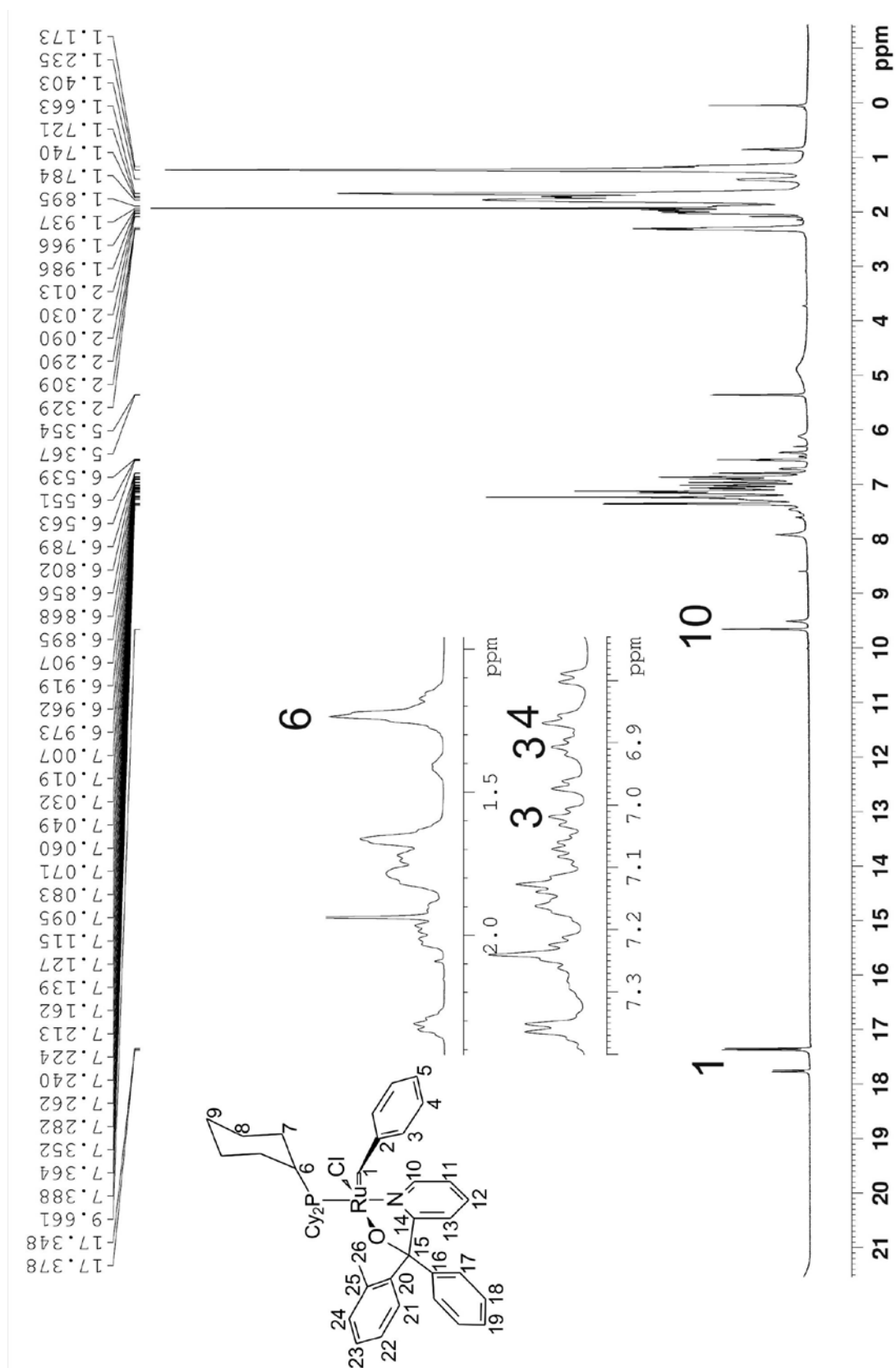
GRUBBS 1-TIPE

PREKATALISATOR 9

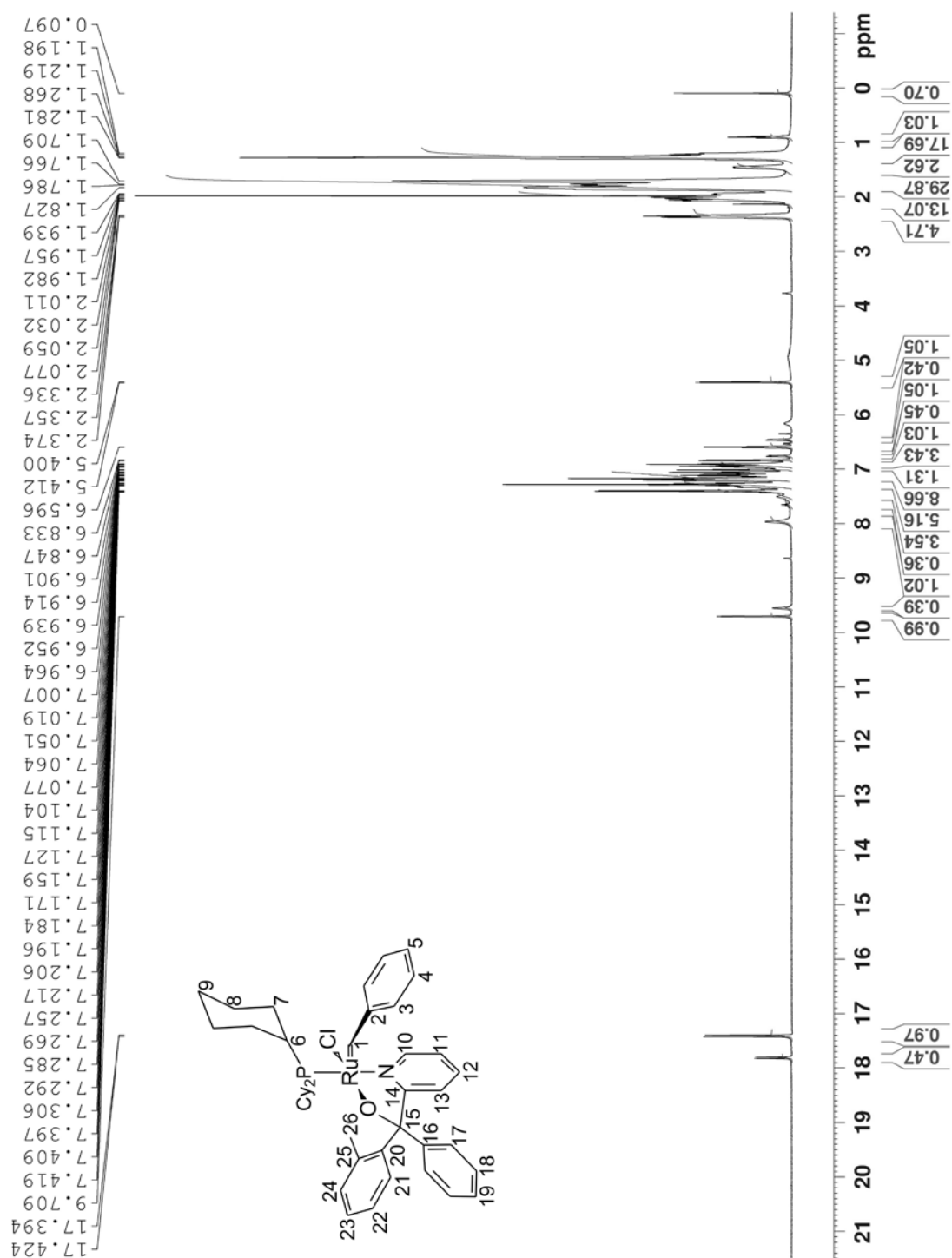




Spektrum 12.1 ATR-IR

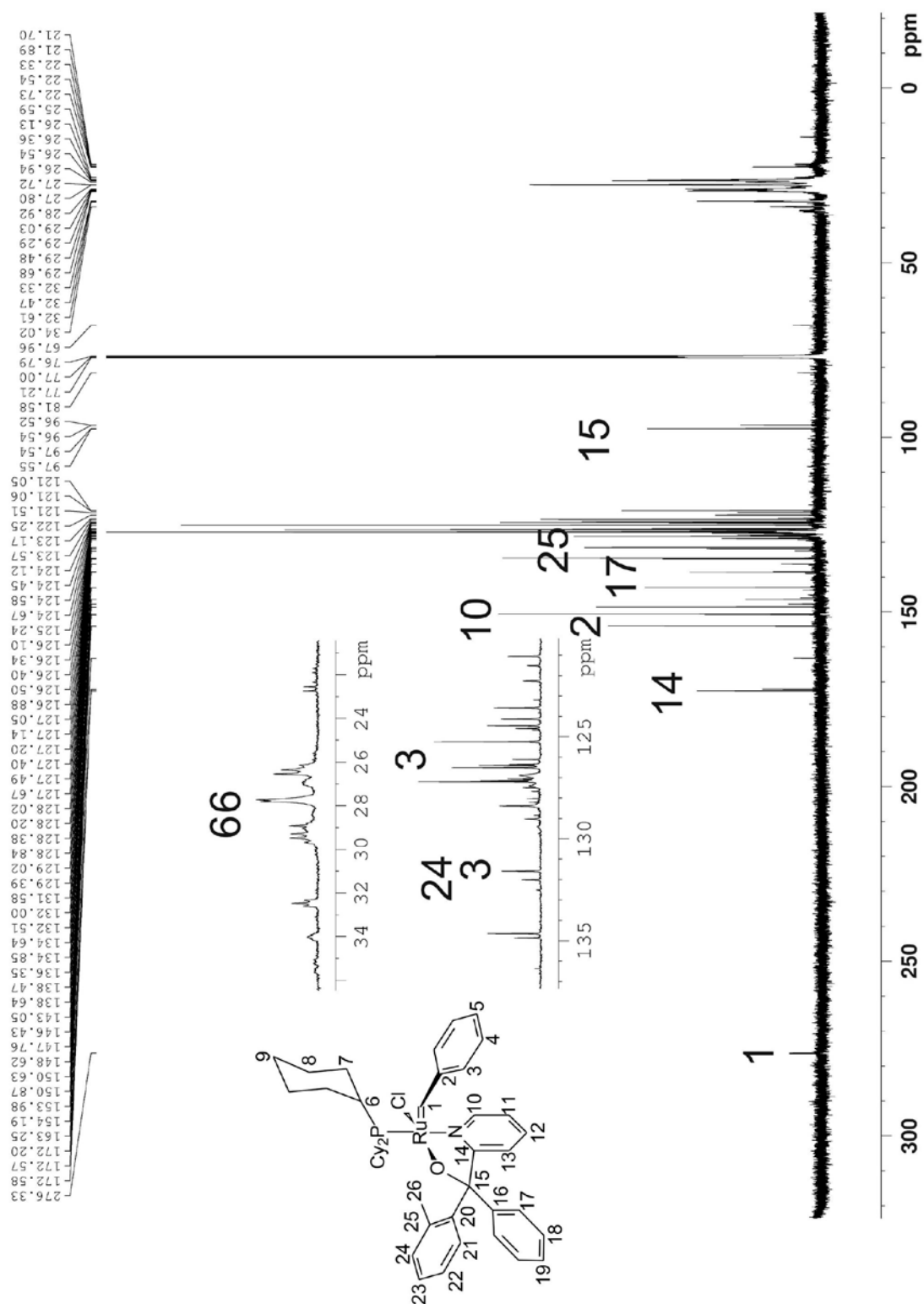


Spektrum 12.2 ^1H (CDCl_3) 600 MHz



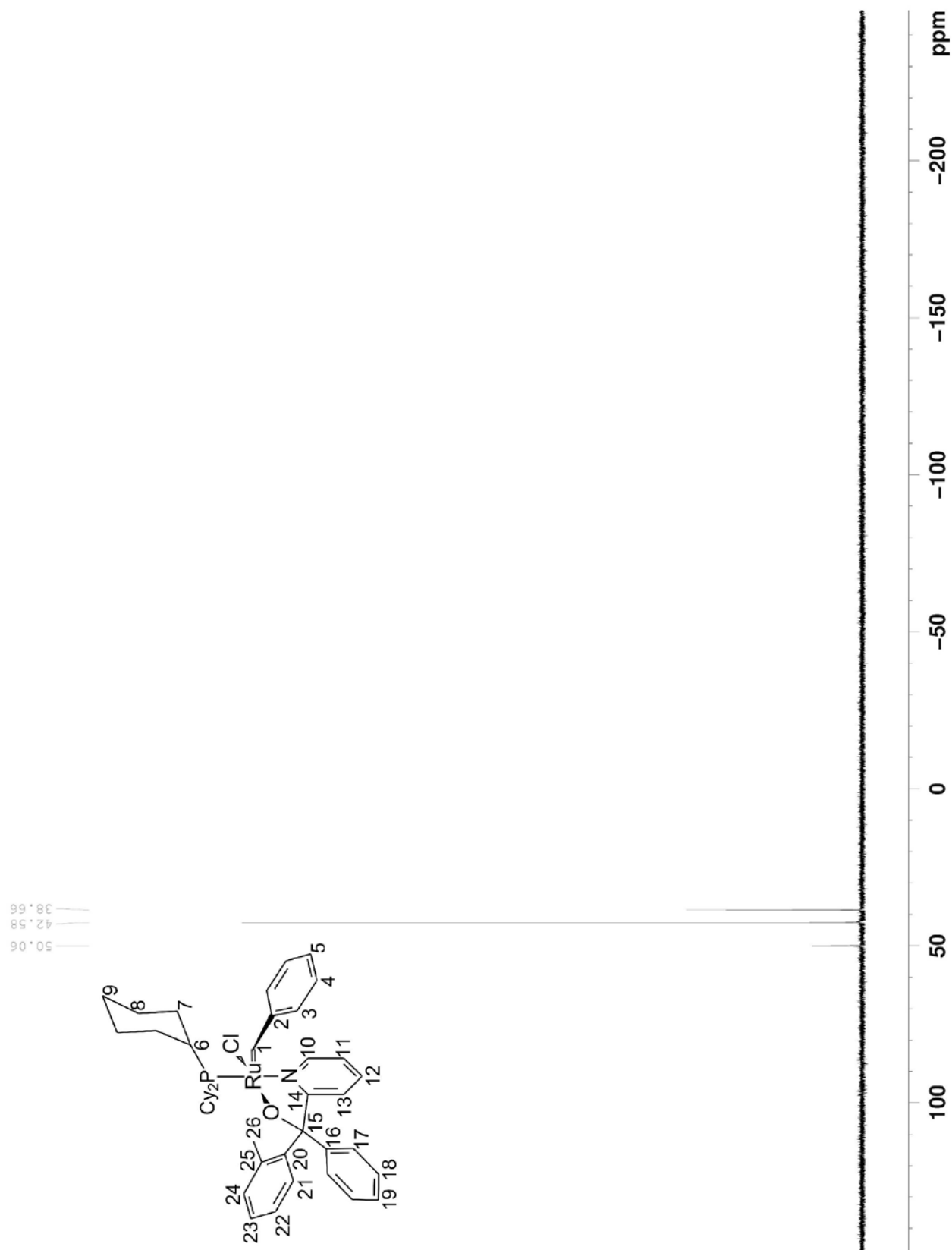
Spektrum 12.3

¹H (CDCl₃) 600 MHz



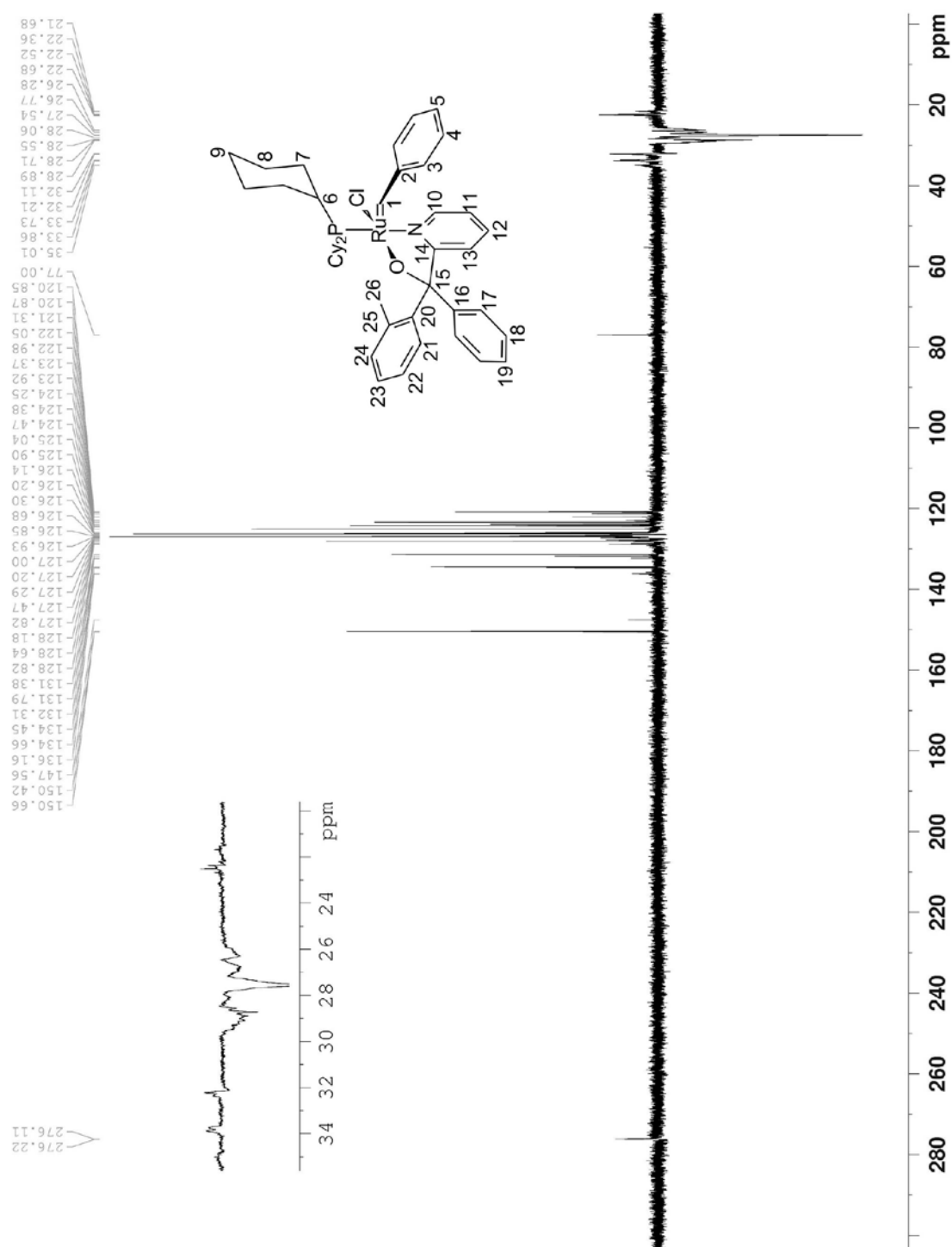
Spektrum 12.4

¹³C (CDCl₃) 150 MHz

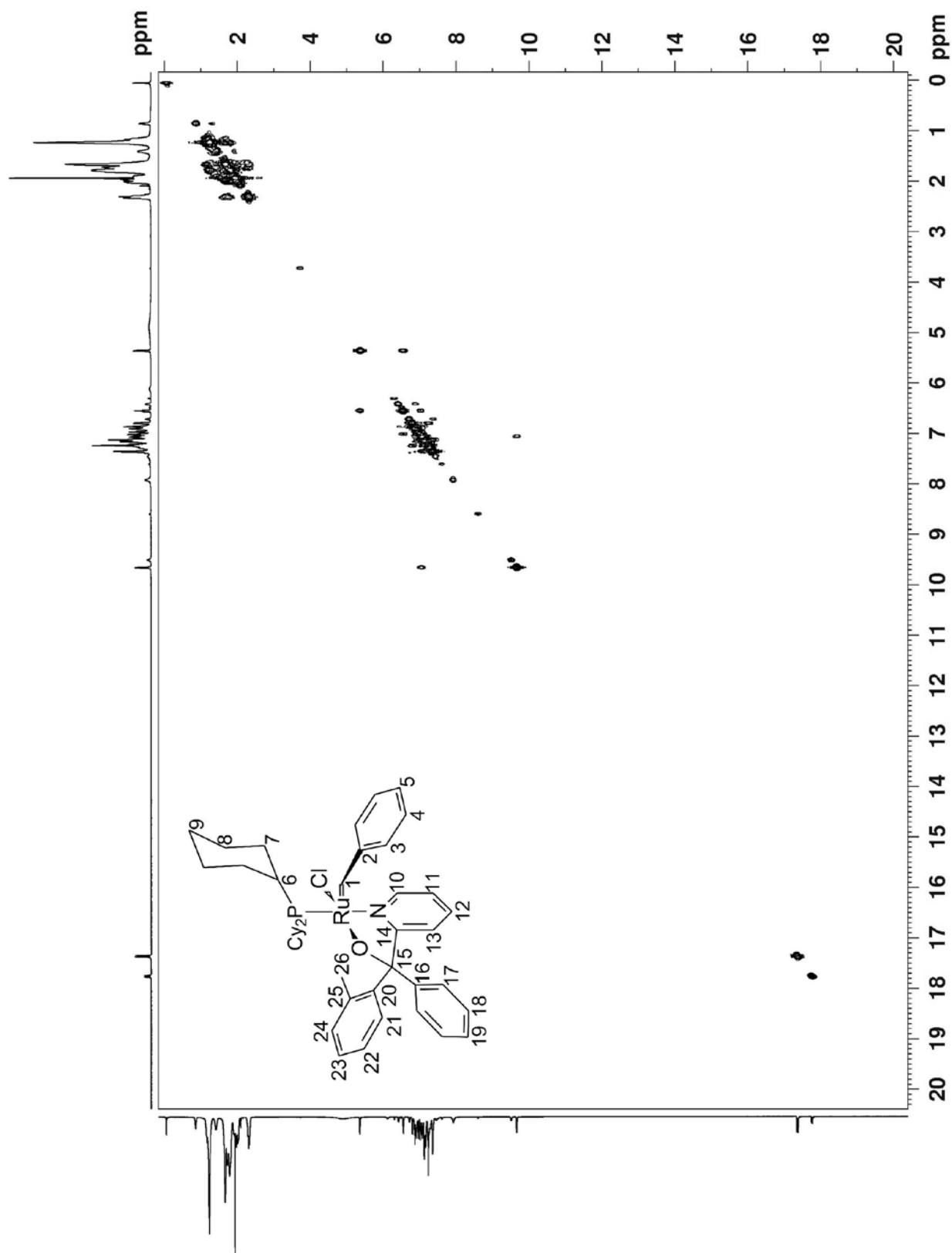


Spektrum 12.5

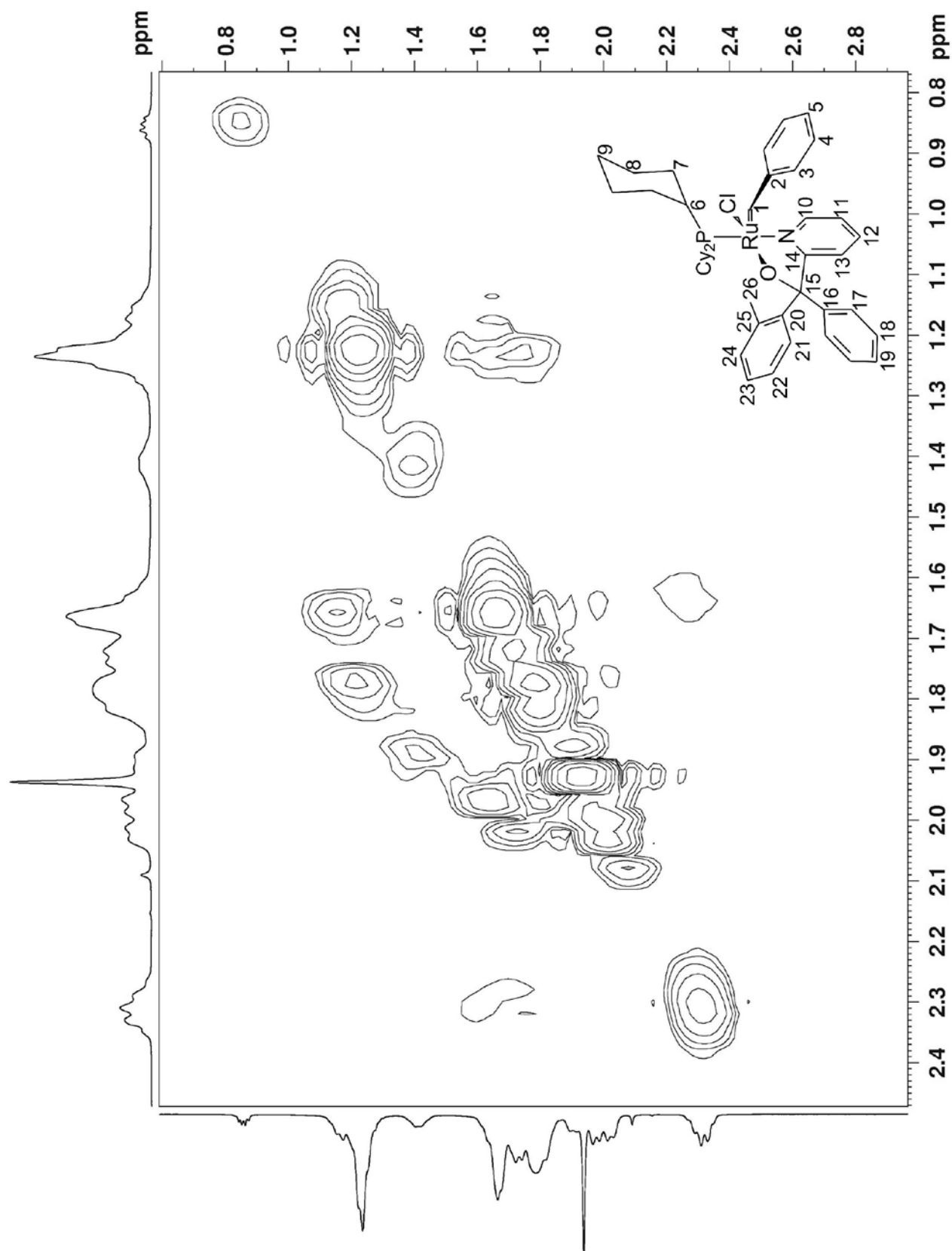
³¹P (CDCl₃) 242 MHz



Spektrum 12.6 DEPT135 (CDCl₃) 150 MHz

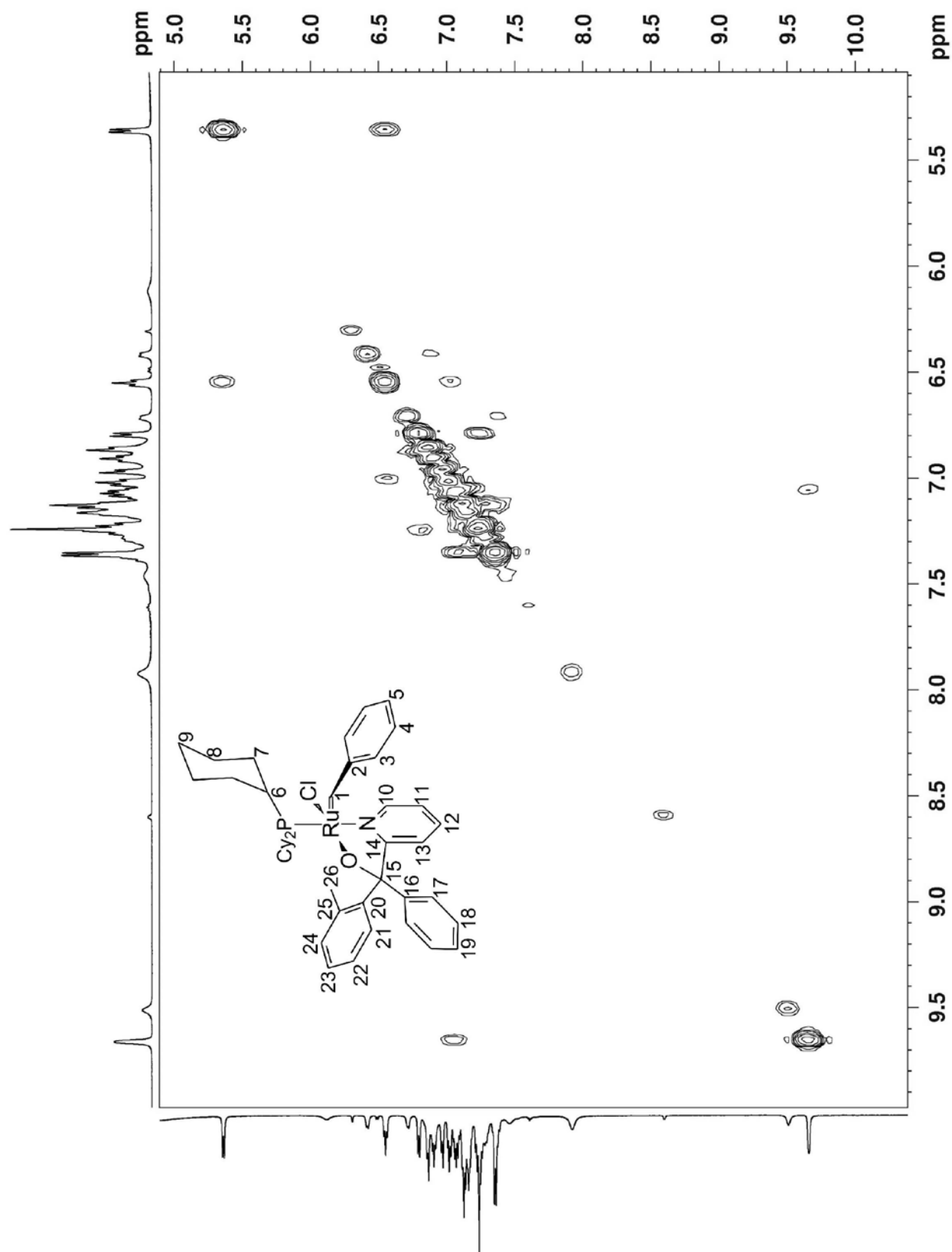


Spektrum 12.7 COSY (CDCl_3) 600 MHz

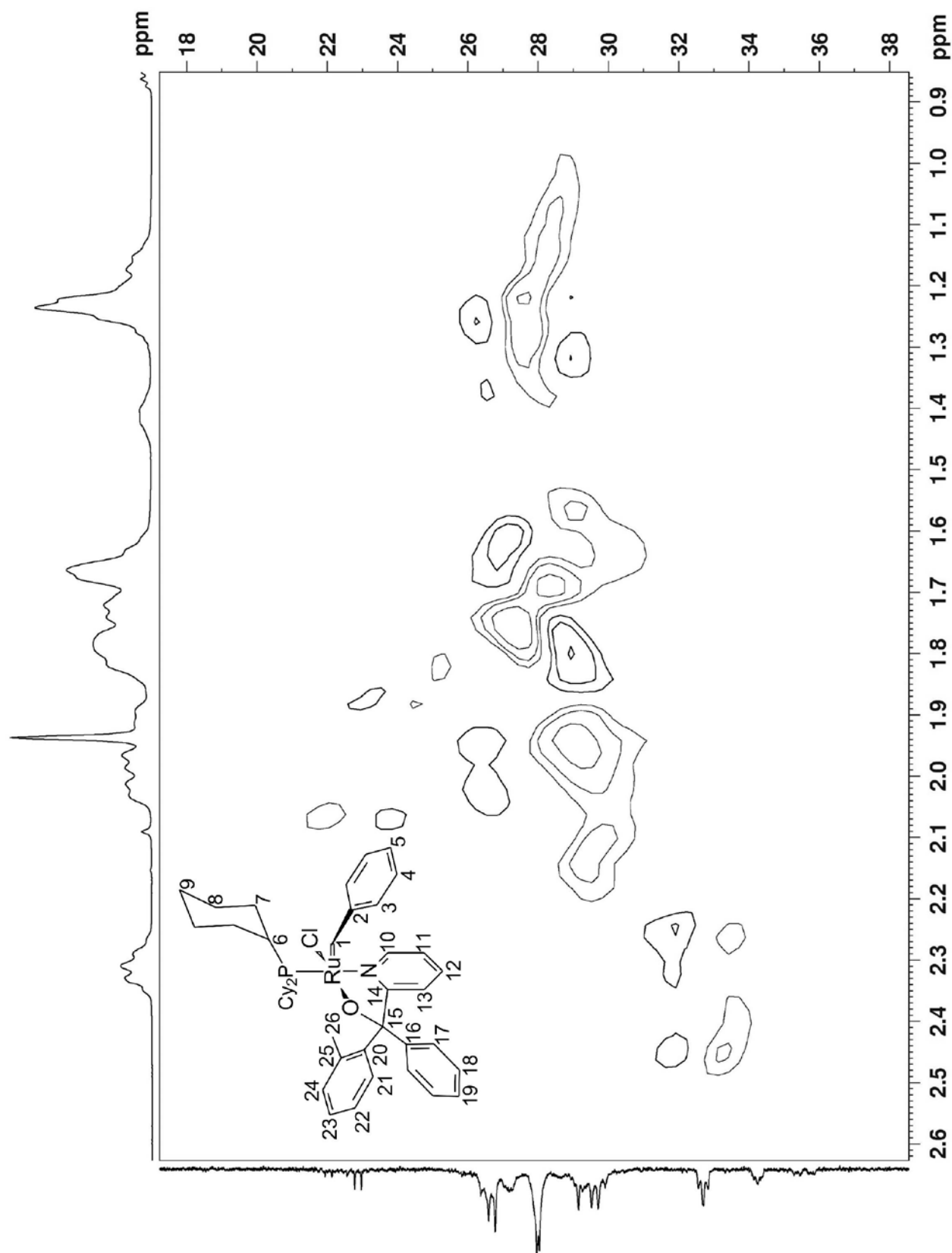


Spektrum 12.8

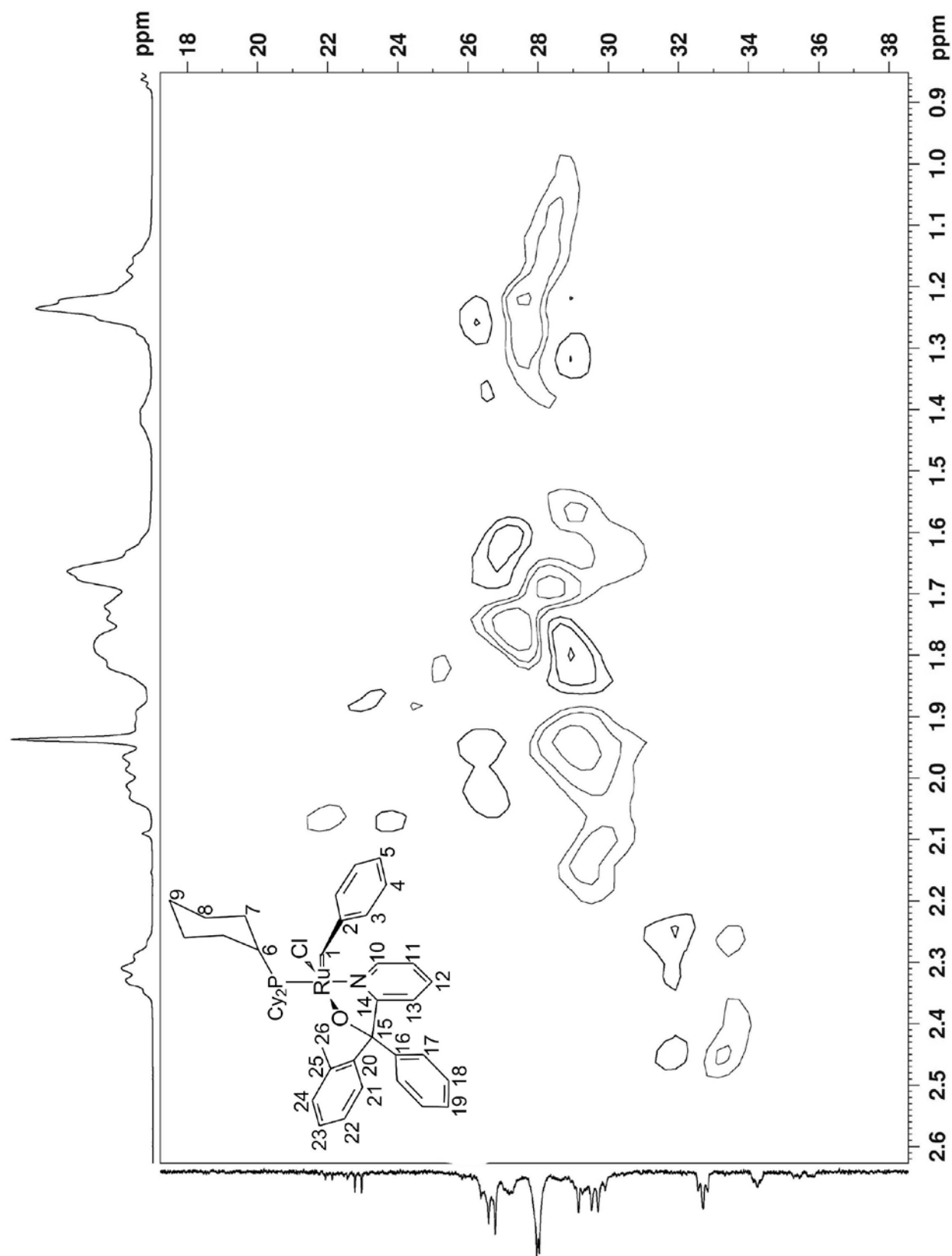
COSY (CDCl_3) 600 MHz



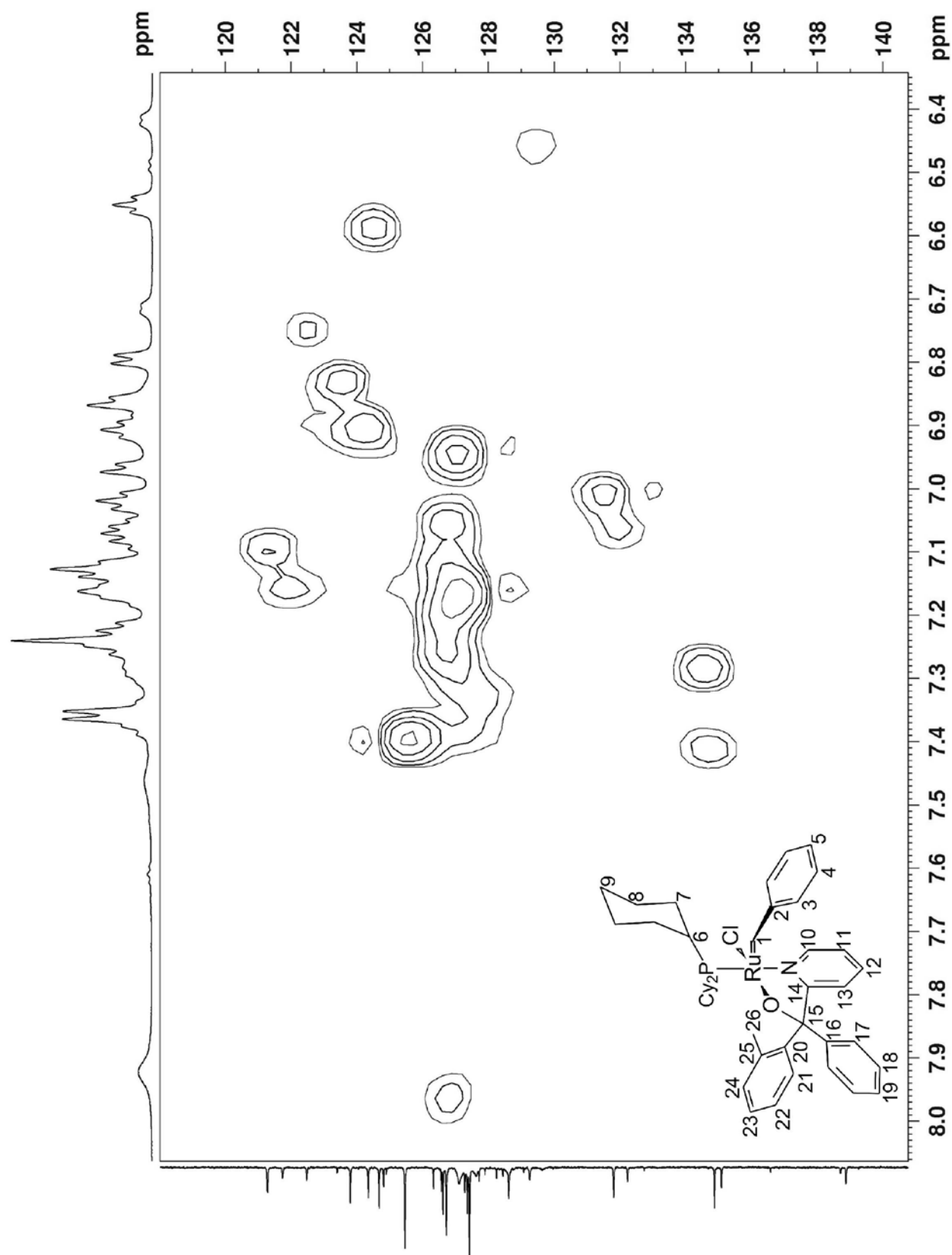
Spektrum 12.9 HSQC (CDCl_3) 600 MHz en 150 MHz



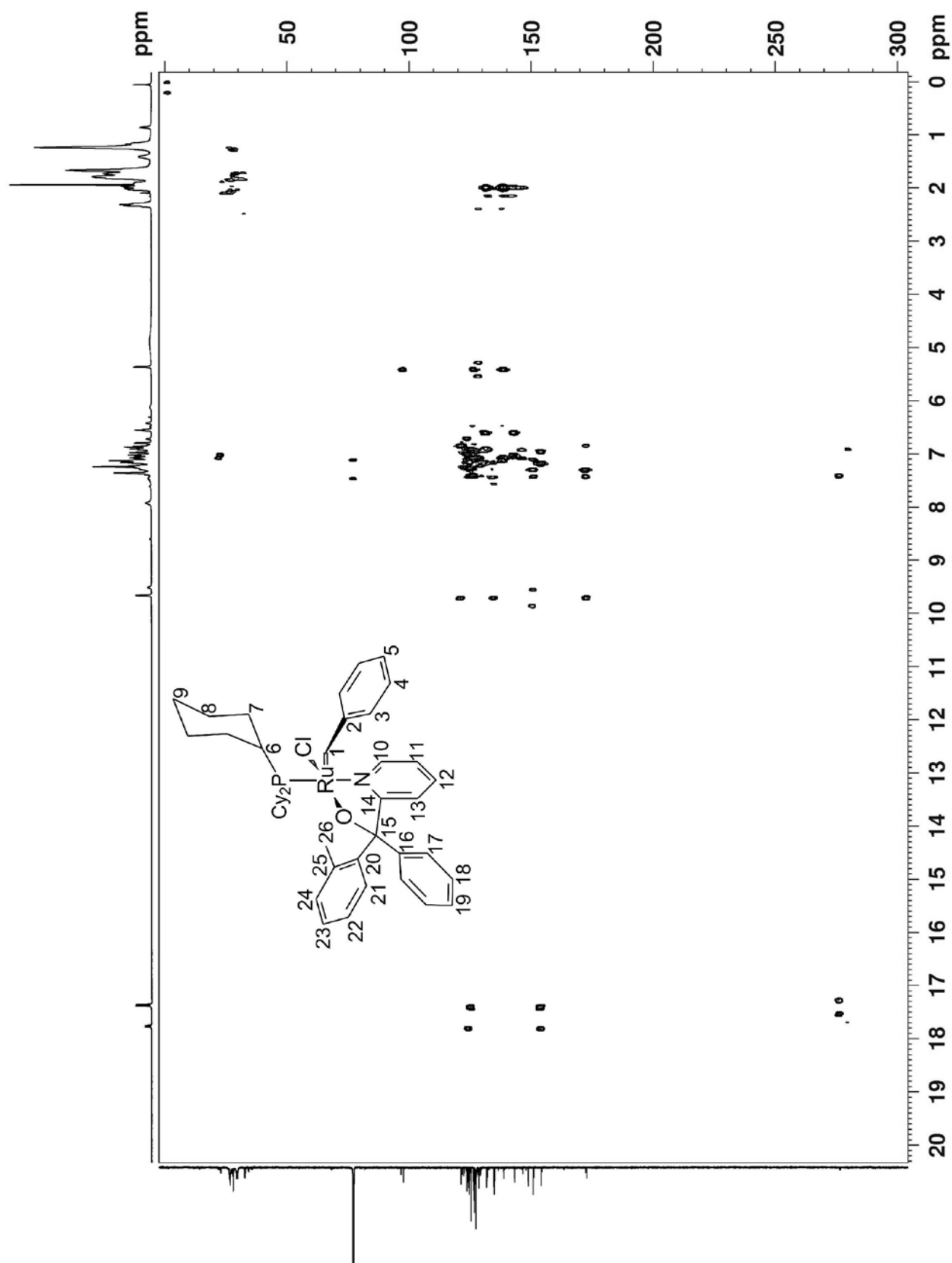
Spektrum 12.10 HSQC (CDCl₃) 600 MHz en 150 MHz



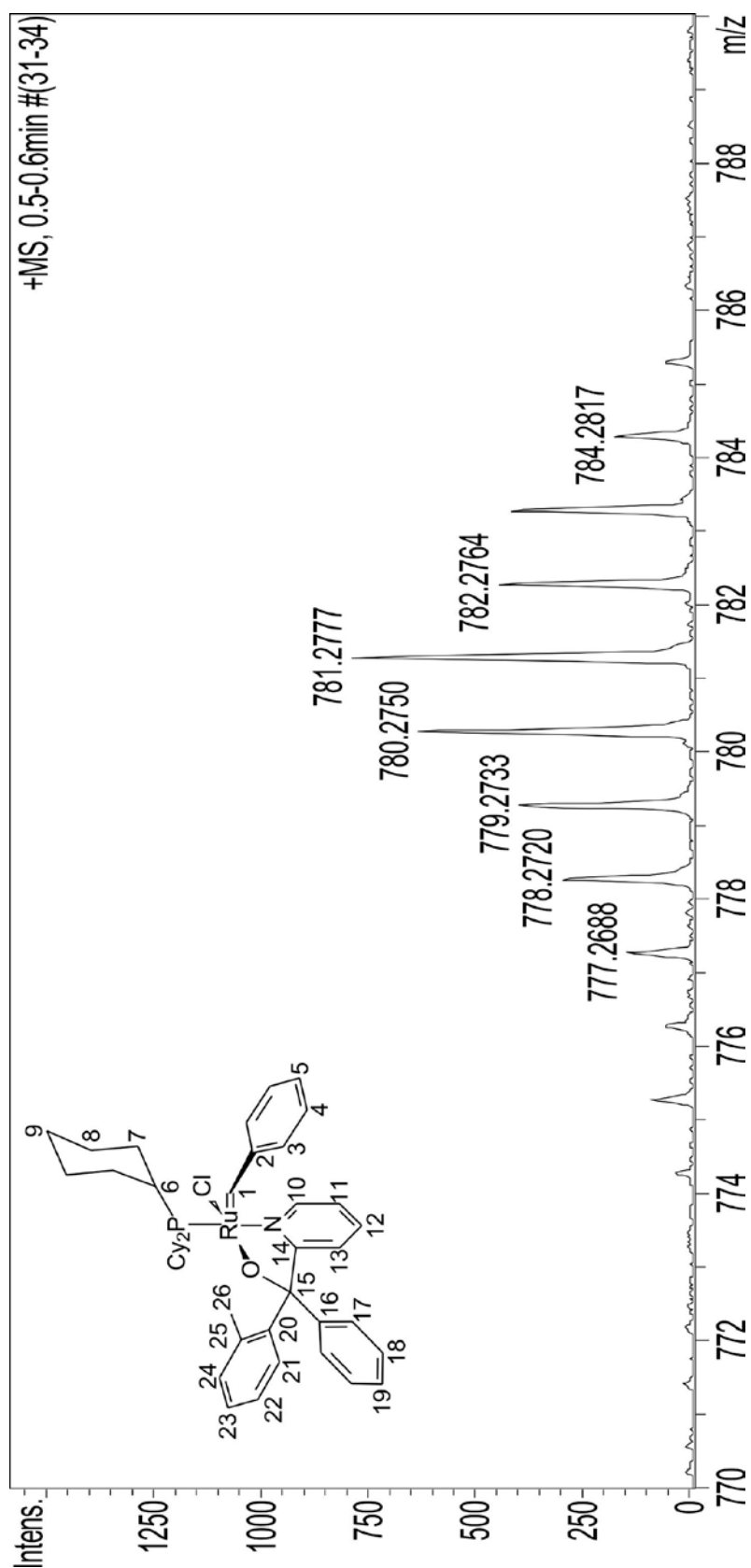
Spektrum 12.11 HSQC (CDCl_3) 600 MHz en 150 MHz



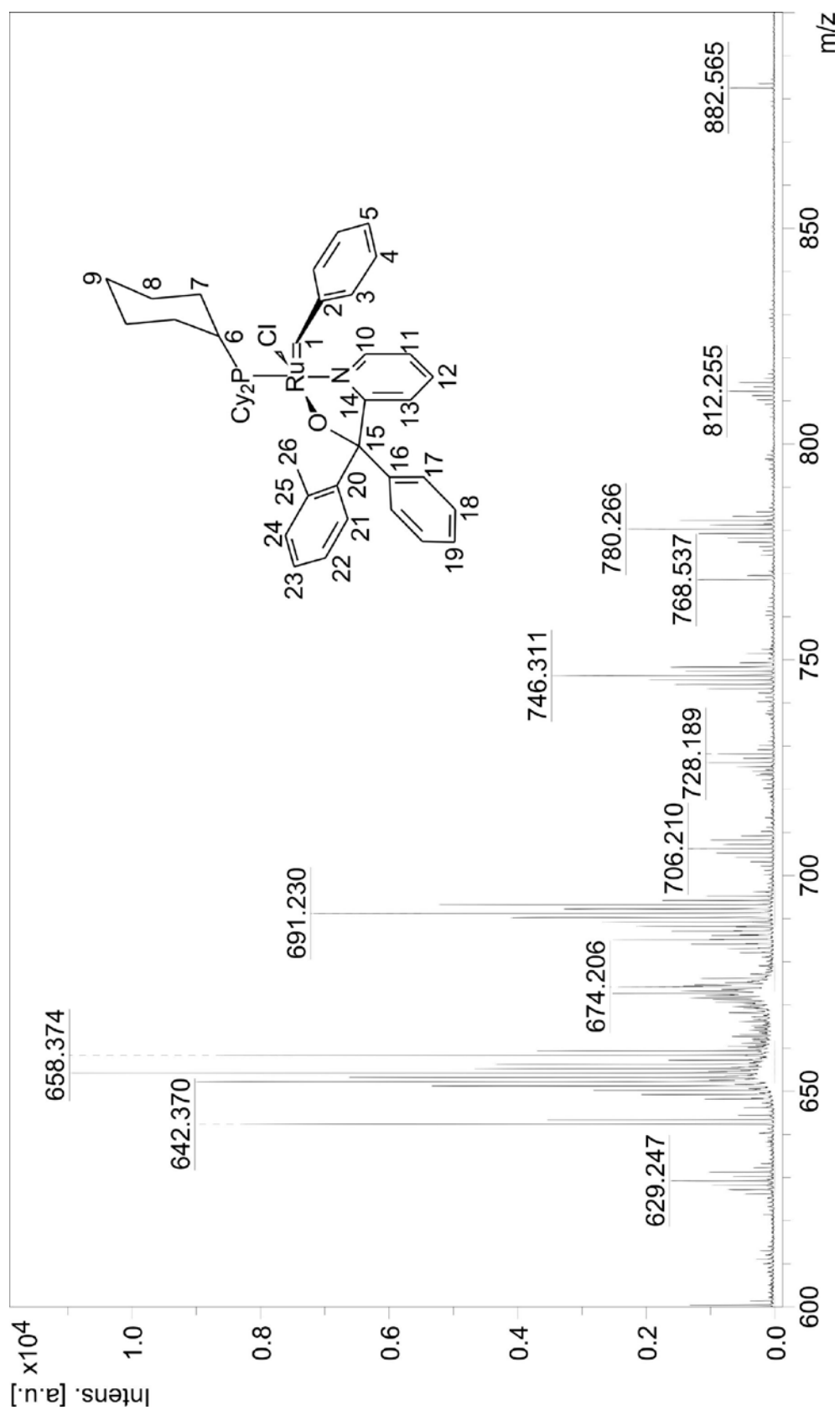
Spektrum 12.12 HSQC (CDCl_3) 600 MHz en 150 MHz



Spektrum 12.13 HMBC (CDCl₃) 600 MHz en 150 MHz

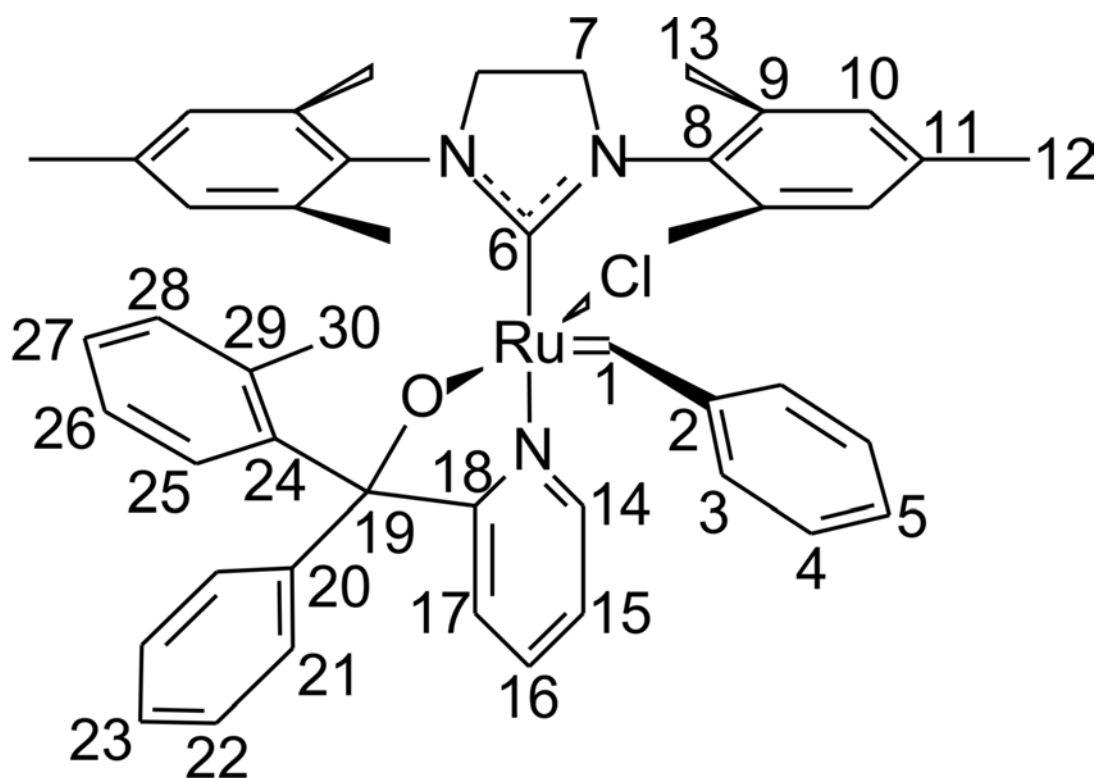


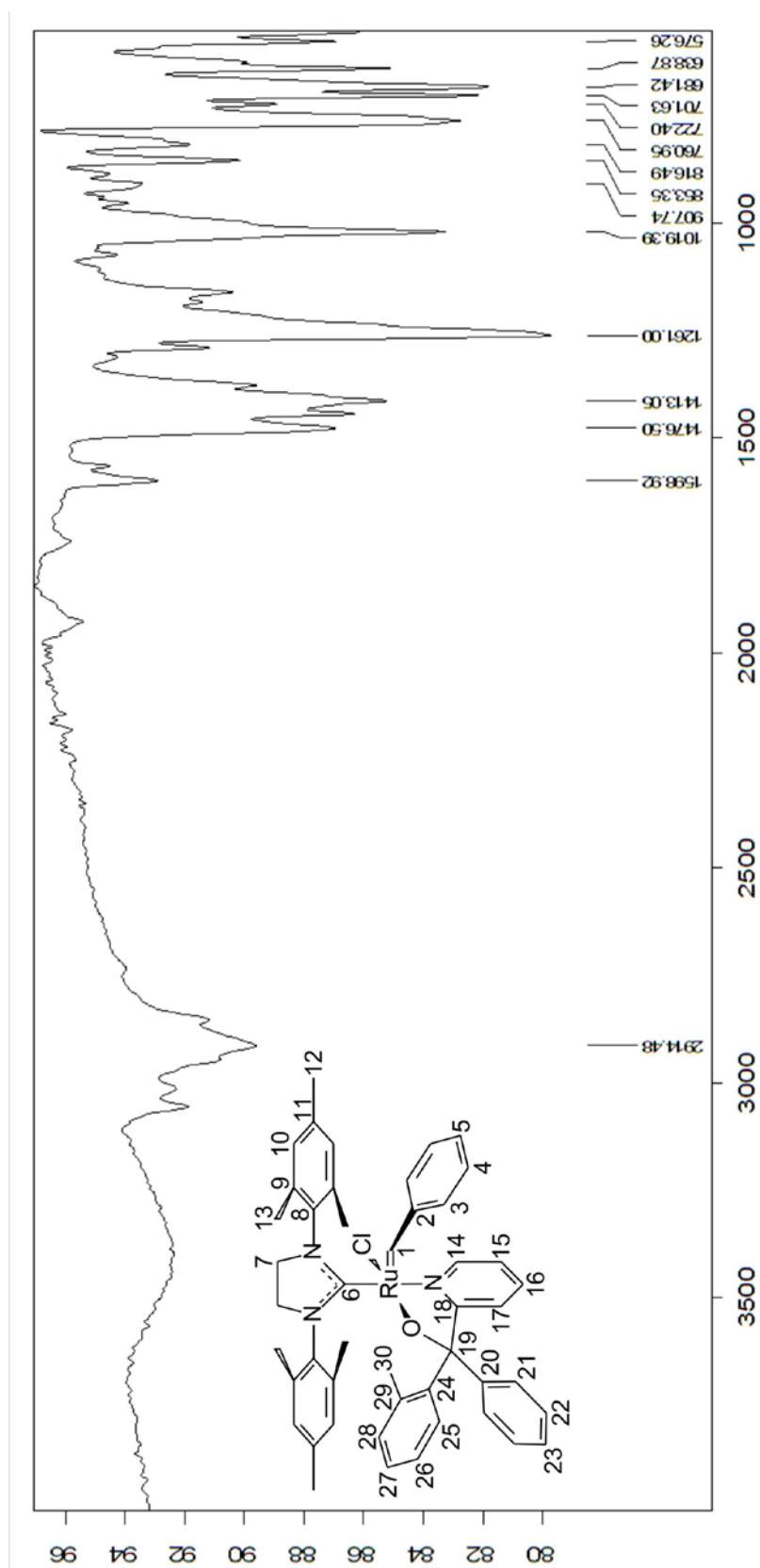
Spektrum 12.14 MS-APCI (M^+)



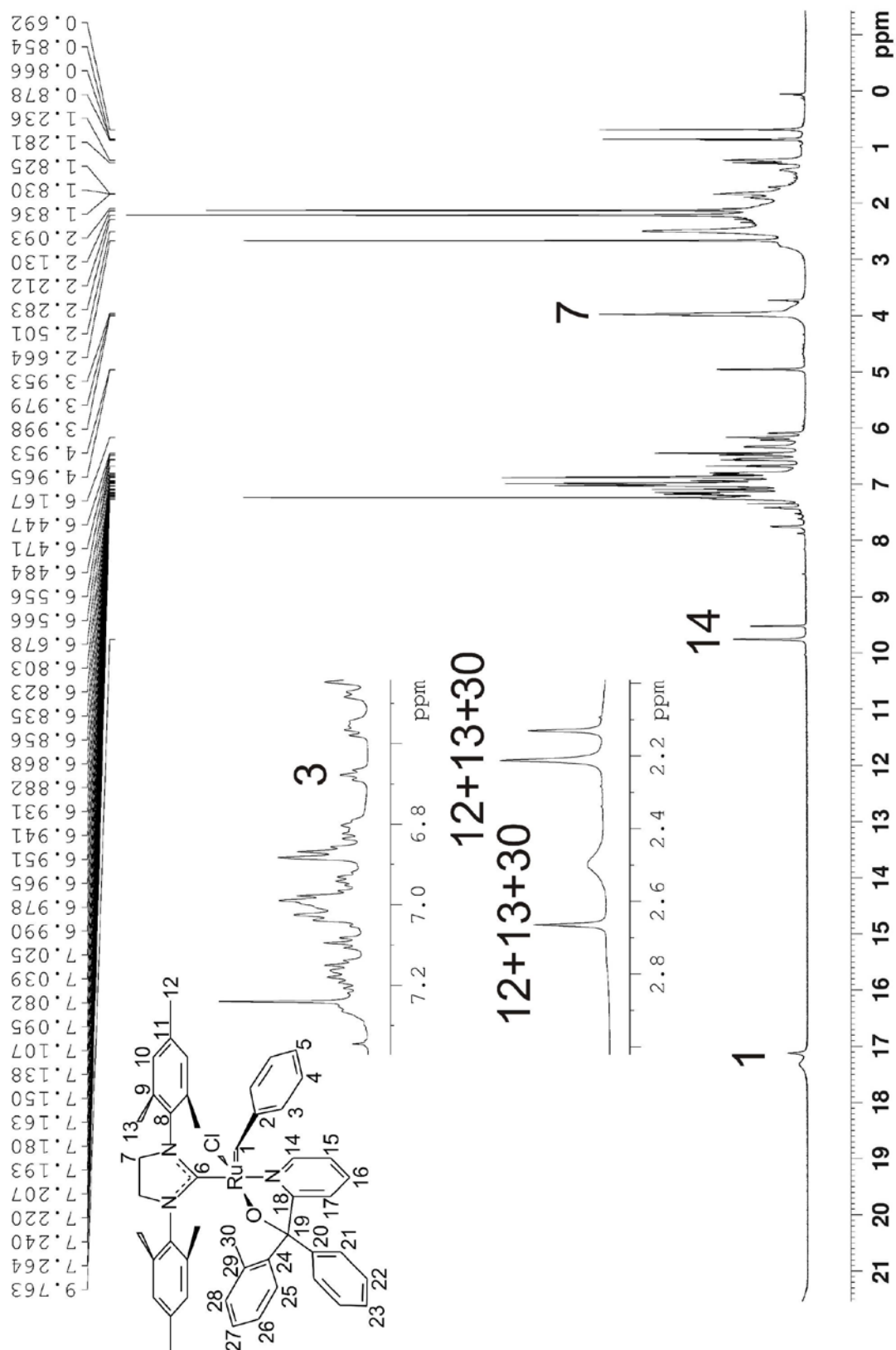
Spektrum 12.15 MS-MALDI TOF (M^+-H)

BYLAAG 13
GRUBBS 2-TIPE
PREKATALISATOR 10

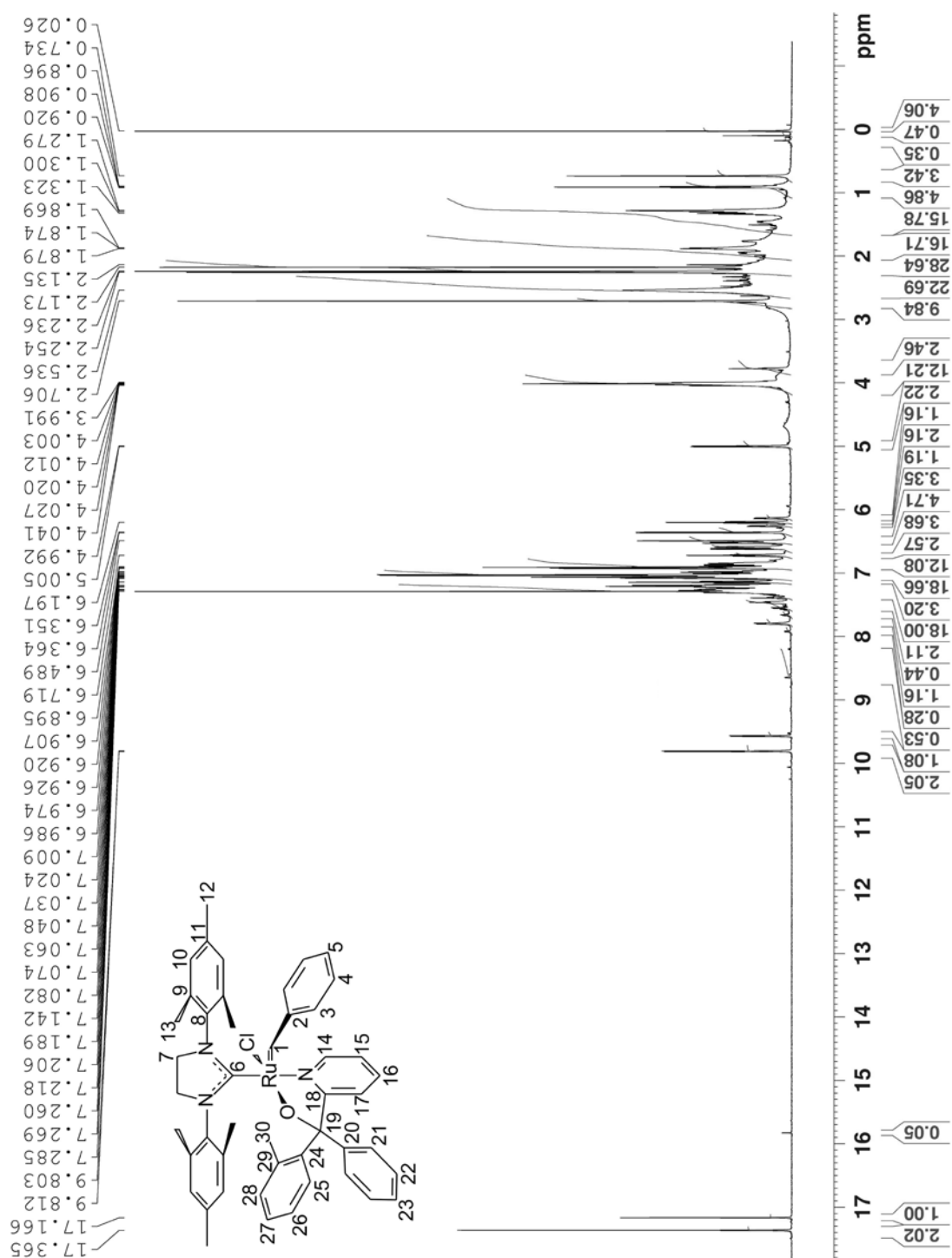




Spektrum 13.1 ATR-IR

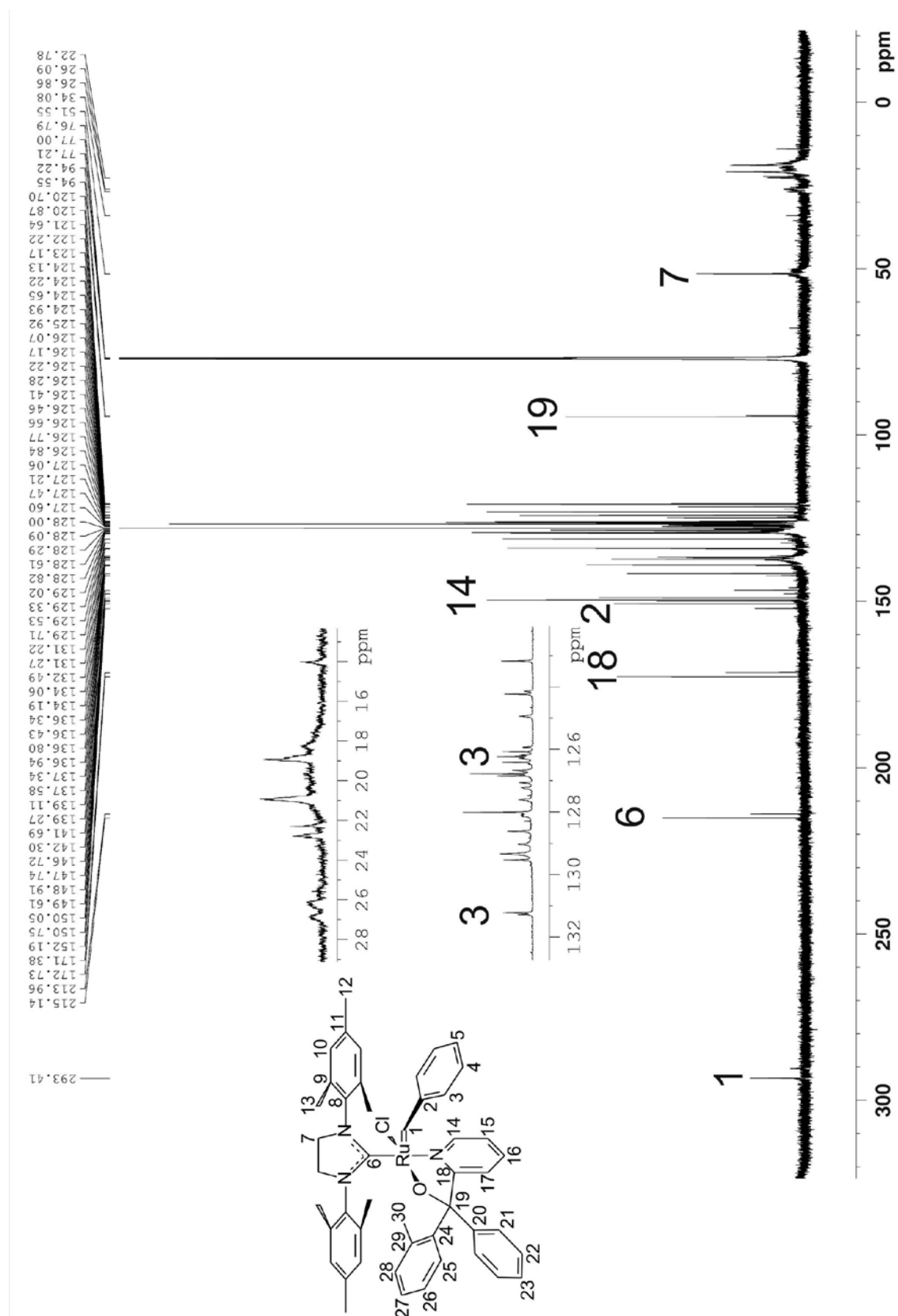


Spektrum 13.2 ¹H (CDCl₃) 600 MHz



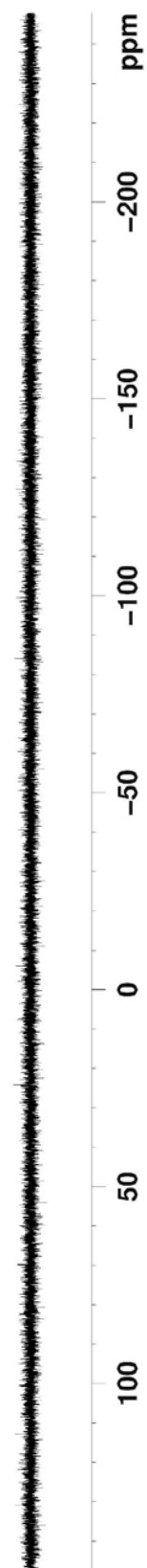
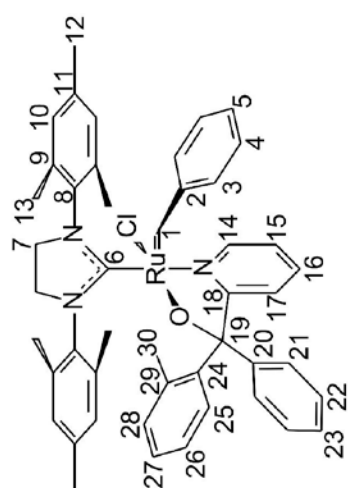
Spektrum 13.3

 ^1H (CDCl_3) 600 MHz

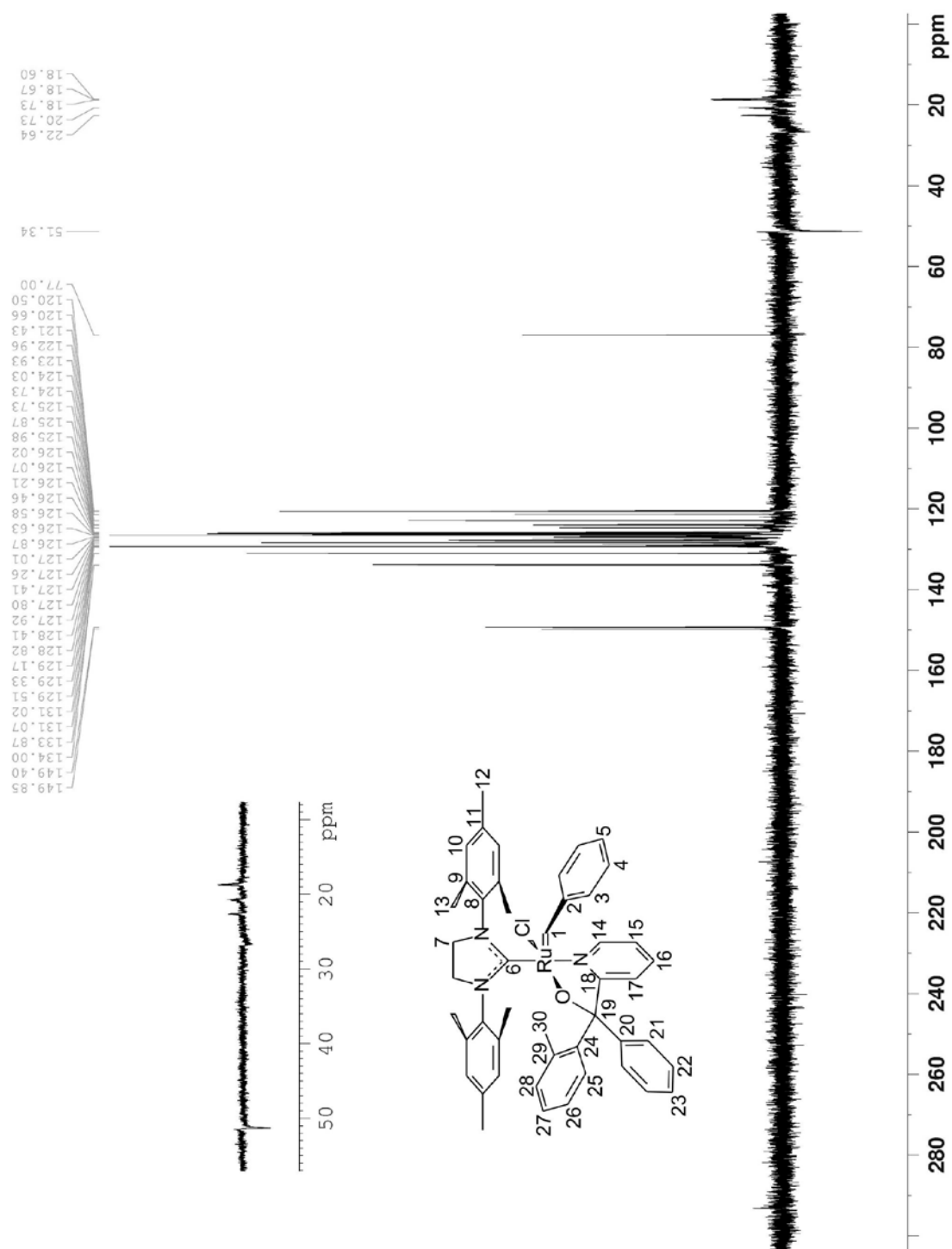


Spektrum 13.4

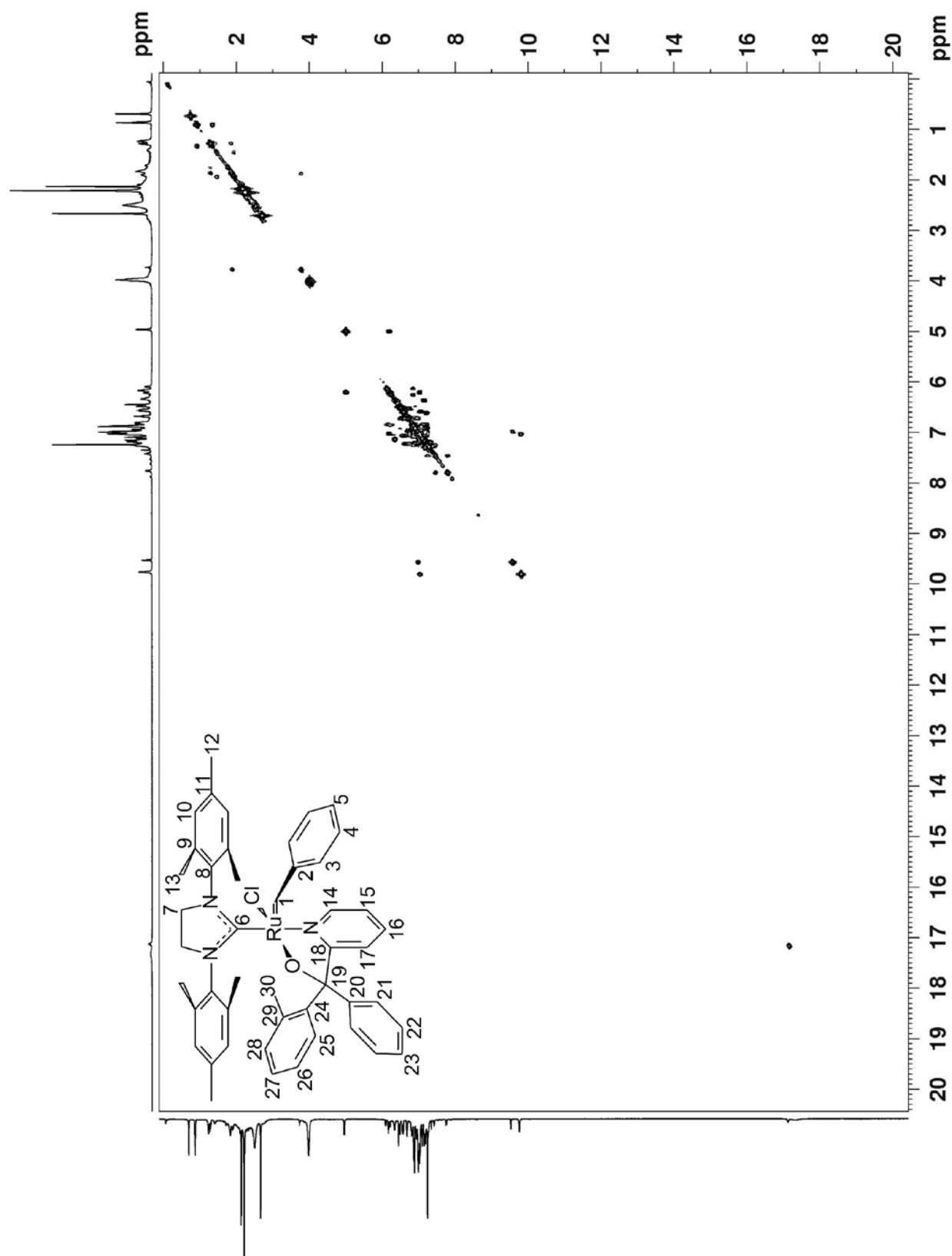
^{13}C (CDCl_3) 150 MHz



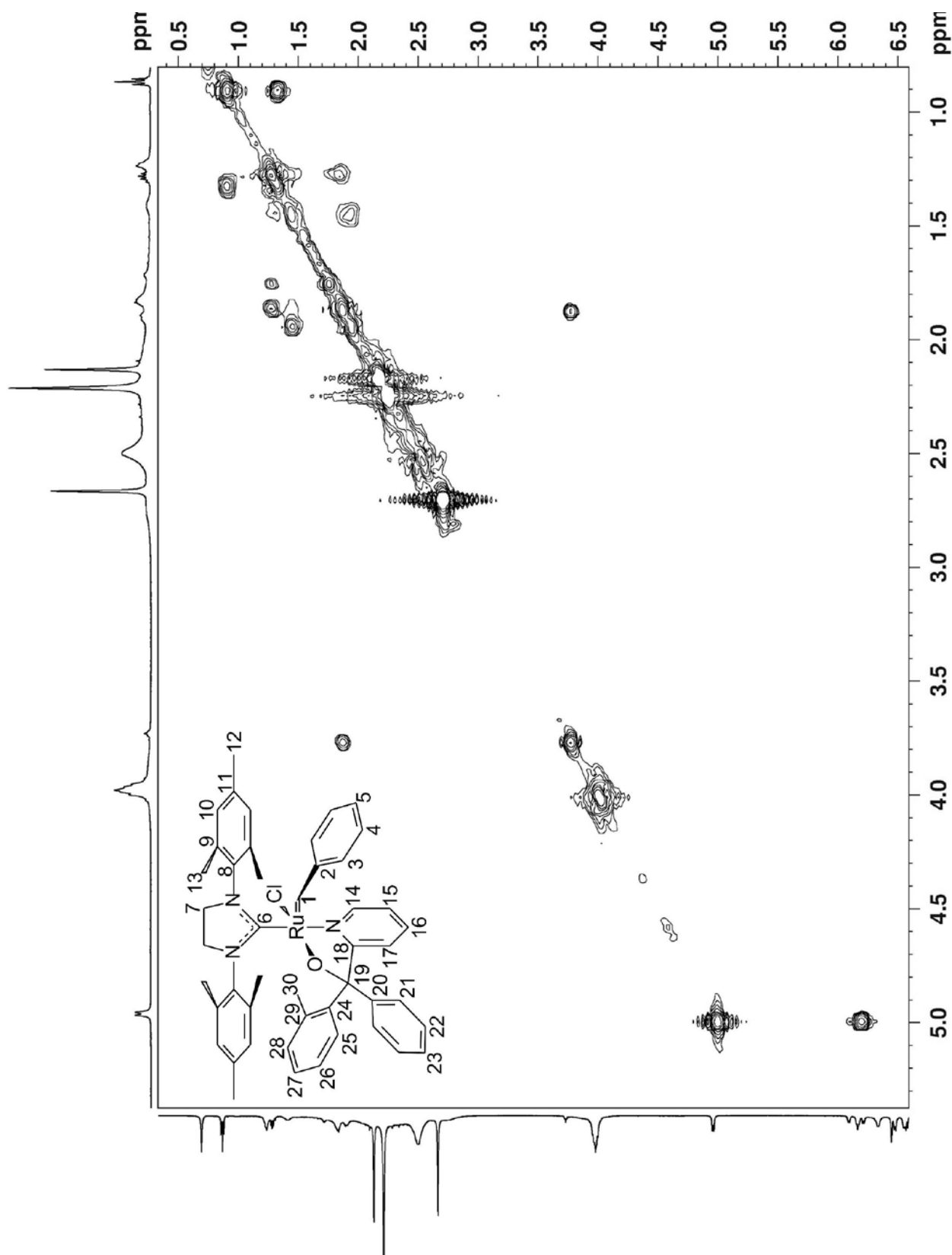
Spektrum 13.5 ^{31}P (CDCl_3) 242 MHz



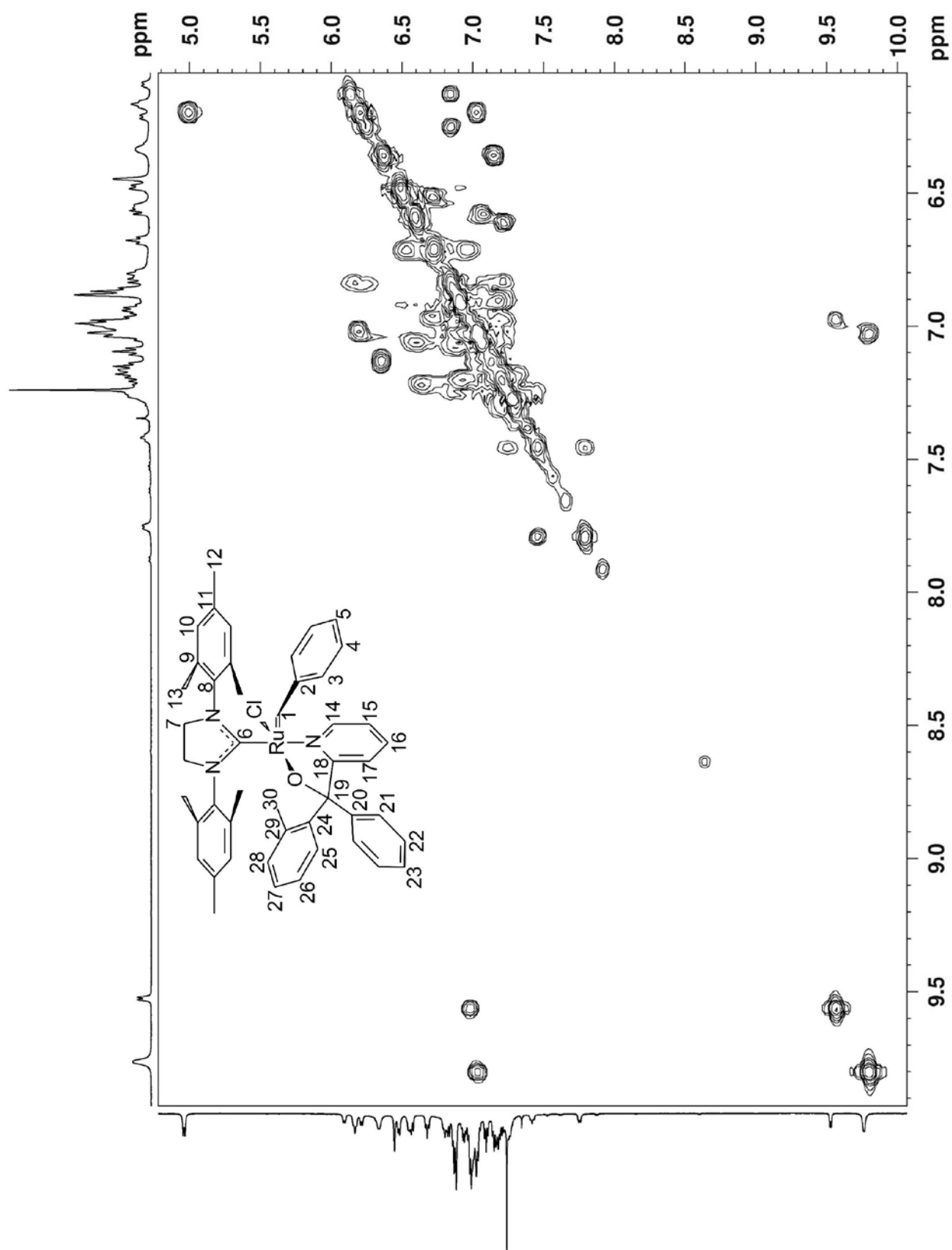
Spektrum 13.6 DEPT135 (CDCl₃) 150 MHz



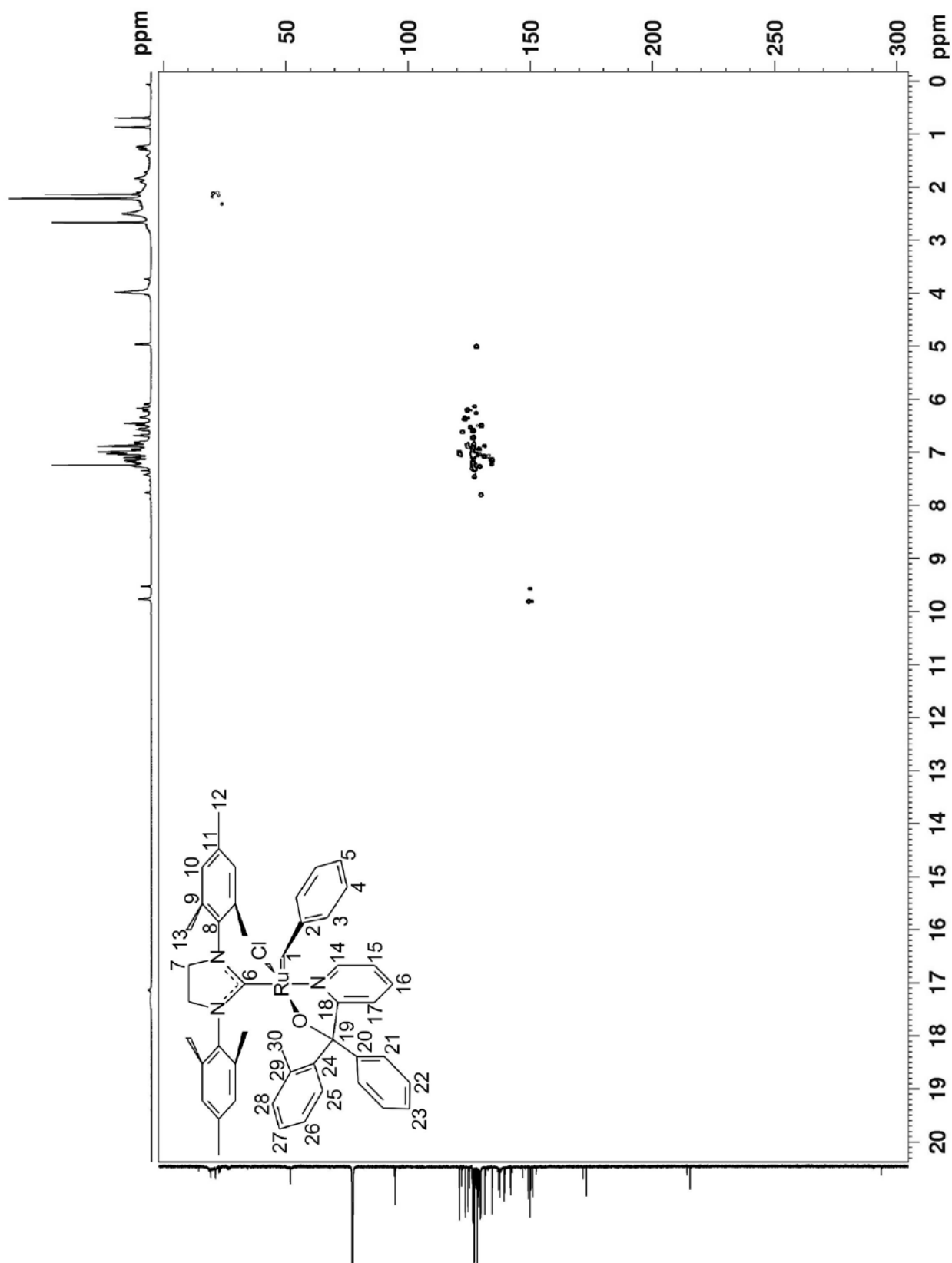
Spektrum 13.7 COSY (CDCl₃) 600 MHz



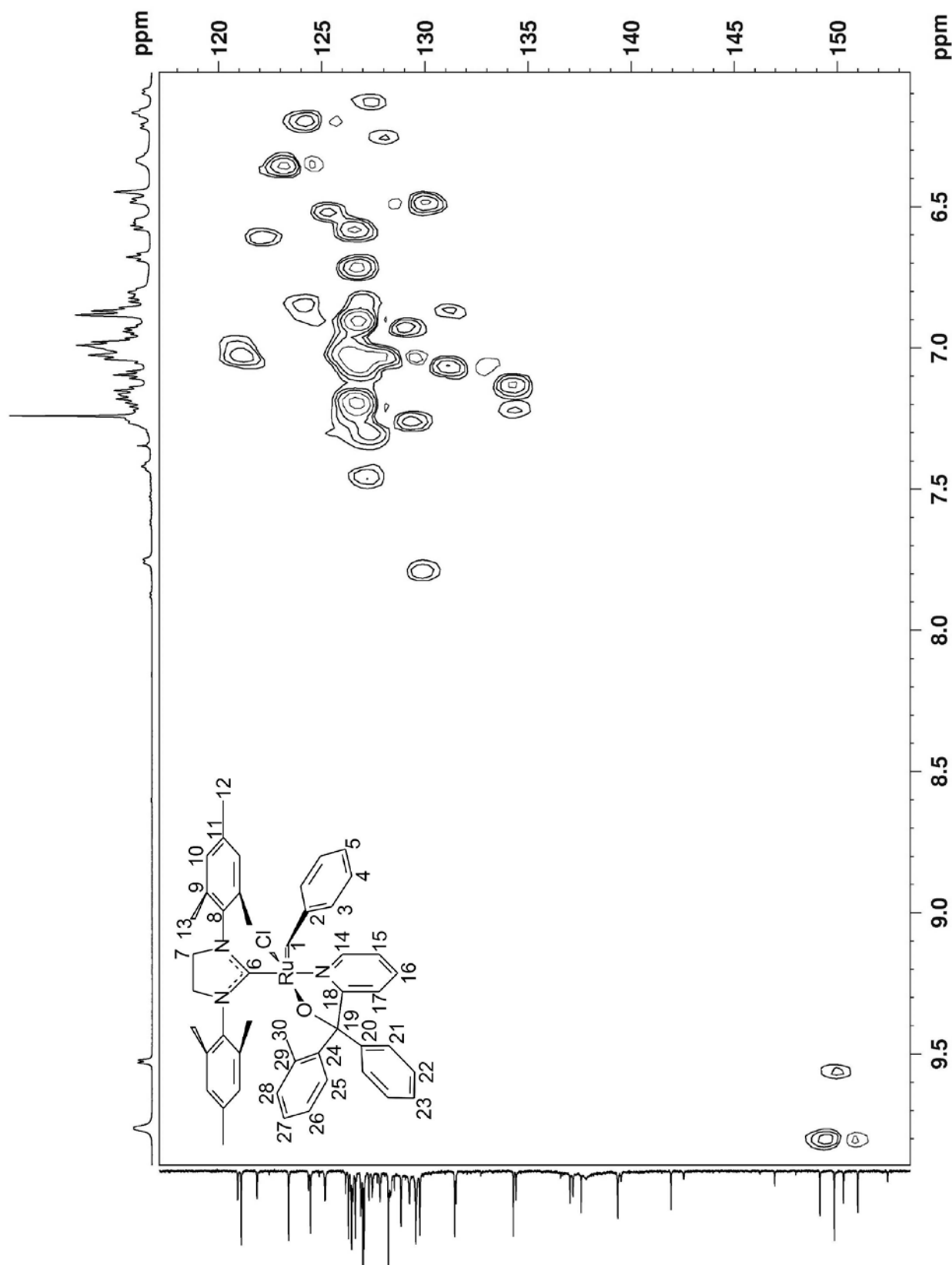
Spektrum 13.8 COSY (CDCl₃) 600 MHz



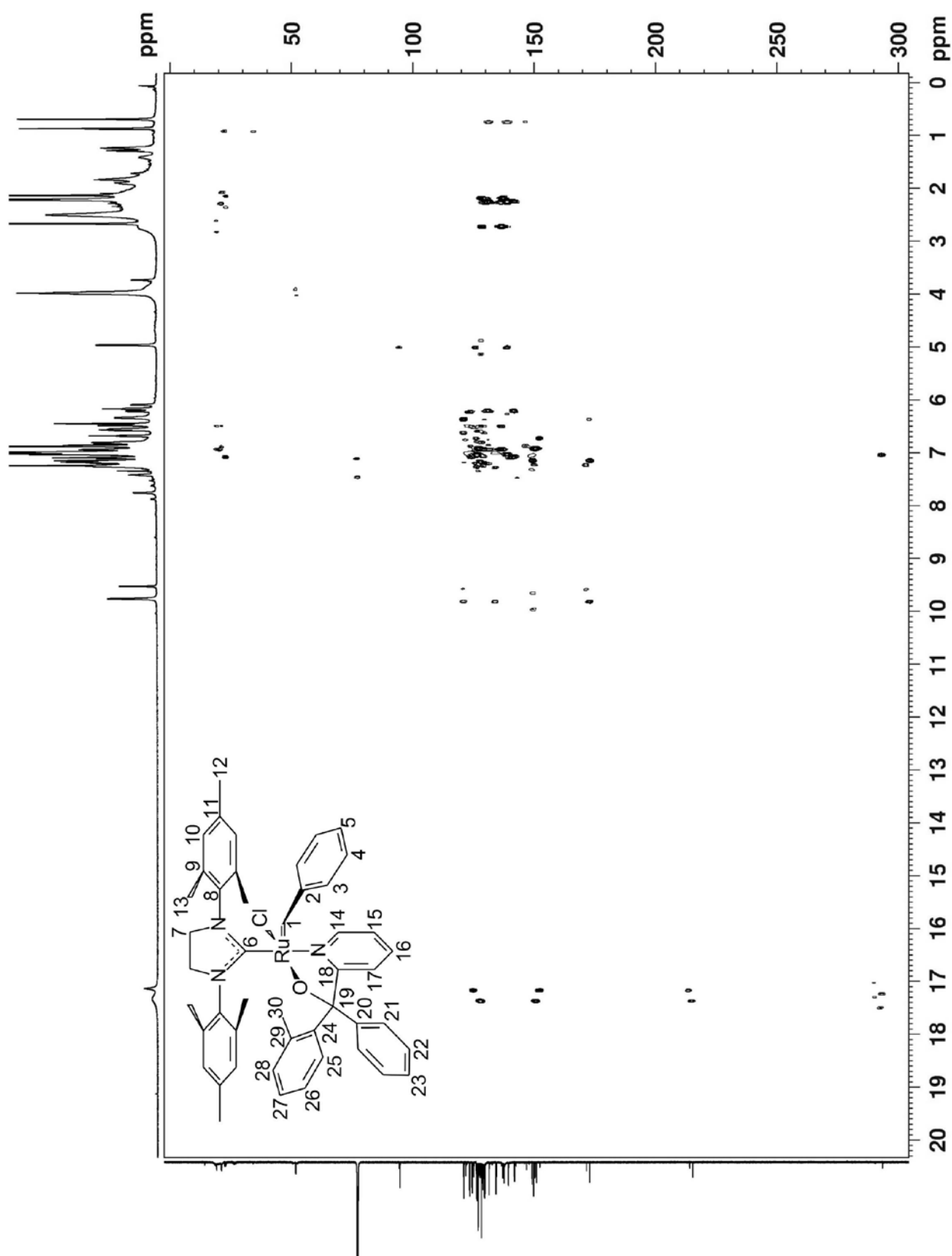
Spektrum 13.9 HSQC (CDCl_3) 600 MHz en 150 MHz



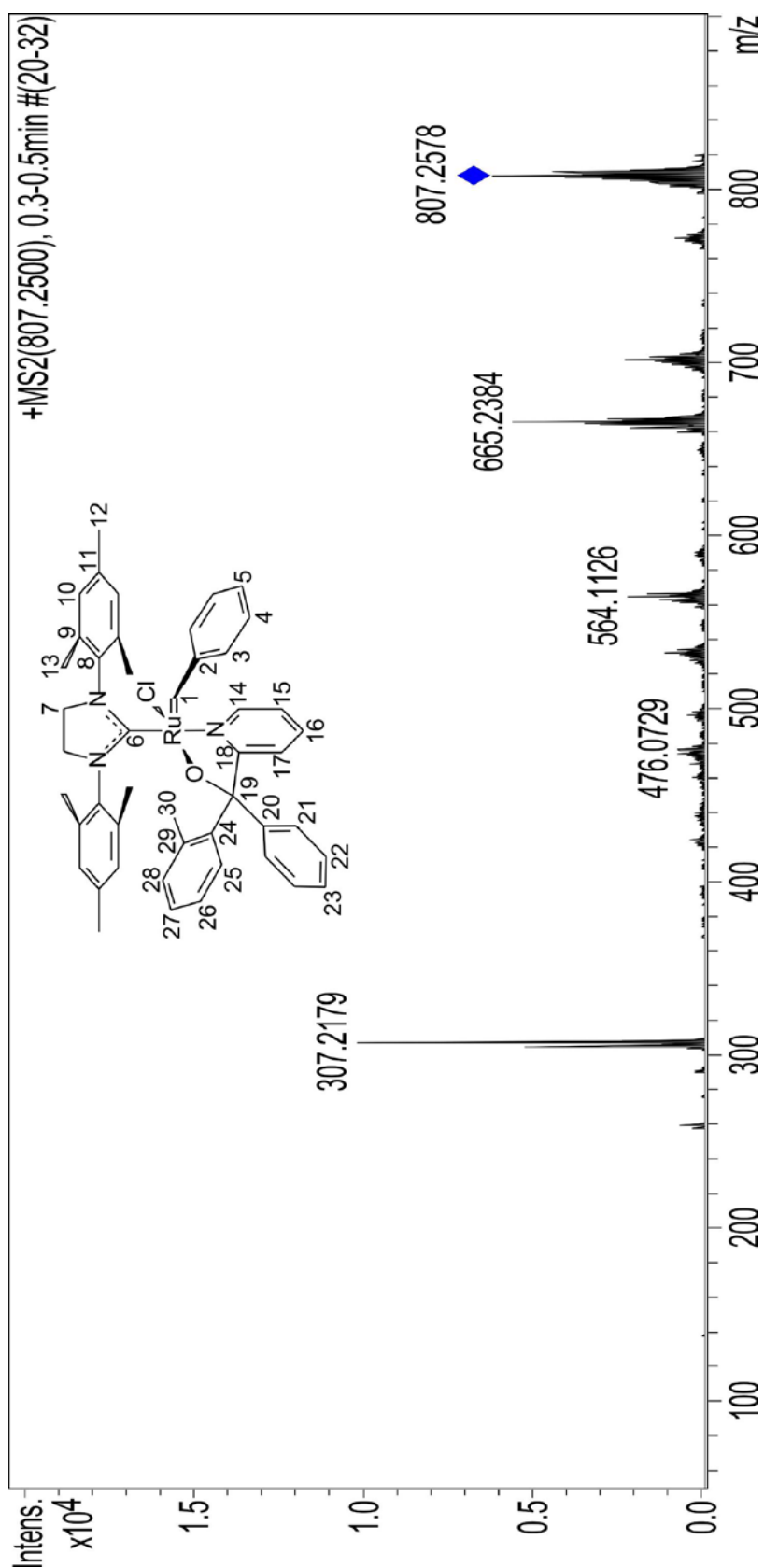
Spektrum 13.10 HSQC (CDCl_3) 600 MHz en 150 MHz



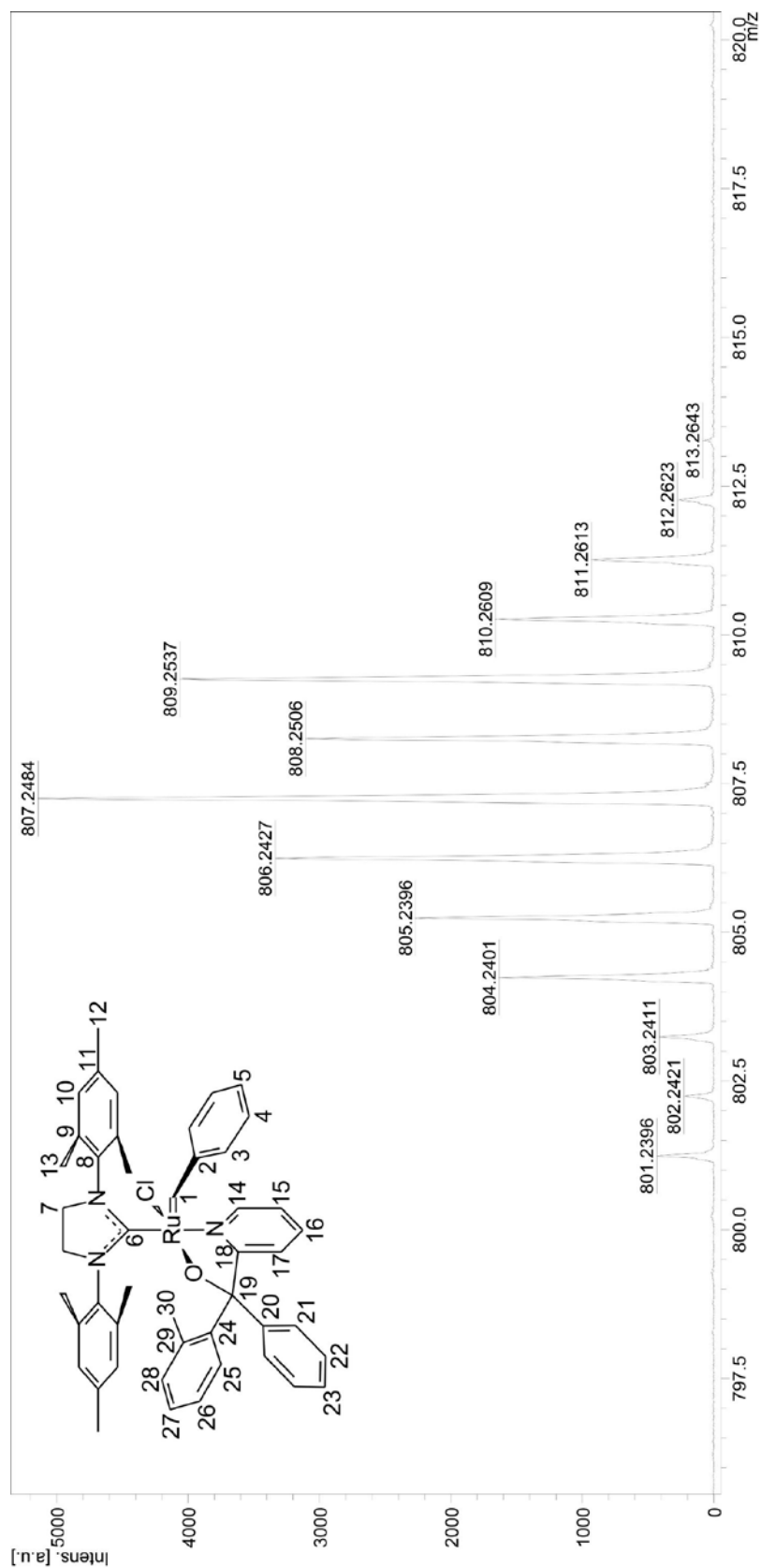
Spektrum 13.11 HSQC (CDCl_3) 600 MHz en 150 MHz



Spektrum 13.12 HMBC (CDCl_3) 600 MHz en 150 MHz



Spektrum 13.13 MS-ESI (M^+)



Spektrum 13.14 MS-MALDI TOF (M^+)