

Supporting Information

Additive Free Fe-Catalyzed Conversion of Nitro to Aldehyde under Continuous Flow Module

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Table S1. Optimization for the Nef reaction^a

entry	catalyst	mol %	solvent	yield (%)
1	Pd(PPh ₃) ₂ Cl ₂	5	DCE	No reaction
2	CrCl ₃	5	DCE	No reaction
3	ZnCl ₂	5	DCE	No reaction
4	CoCl ₂ .6H ₂ O	5	DCE	No reaction
5	CuCl ₂ .2H ₂ O	5	DCE	No reaction
6	IrCl ₃	5	DCE	No reaction
7	Ru-NHC	5	DCE	No reaction
8	FeCl ₃ .6H ₂ O	5	DMF	No reaction
9	FeCl ₃ .6H ₂ O	5	1,4-Dioxane	No reaction
10	FeCl ₃ .6H ₂ O	10	THF	No reaction
11	FeCl ₃ .6H ₂ O	10	1,2-Diethoxy ethane	No reaction
12	FeCl ₃ .6H ₂ O	5	Chlorobenzene	trace
13	FeCl ₃ .6H ₂ O	5	Chloroform	No reaction
14	FeCl ₃ .6H ₂ O	5	Methanol	No reaction
15 ^b	FeCl ₃ .6H ₂ O	5	H ₂ O	No reaction
16	FeCl ₃ .6H ₂ O	10	ACN	No reaction

^aNitro compound (1mmol), catalyst (see table S1) and 1,2-dichloroethane (1 mL) were stirred at 100 °C for 3 h under sealed condition; ^bNitro compounds completely consumed and only benzyl alcohol was found.

2. Continuous flow Setup



Figure S1. Reaction set up (Vapoutec R-series) for flow reaction

3. NMR Spectra

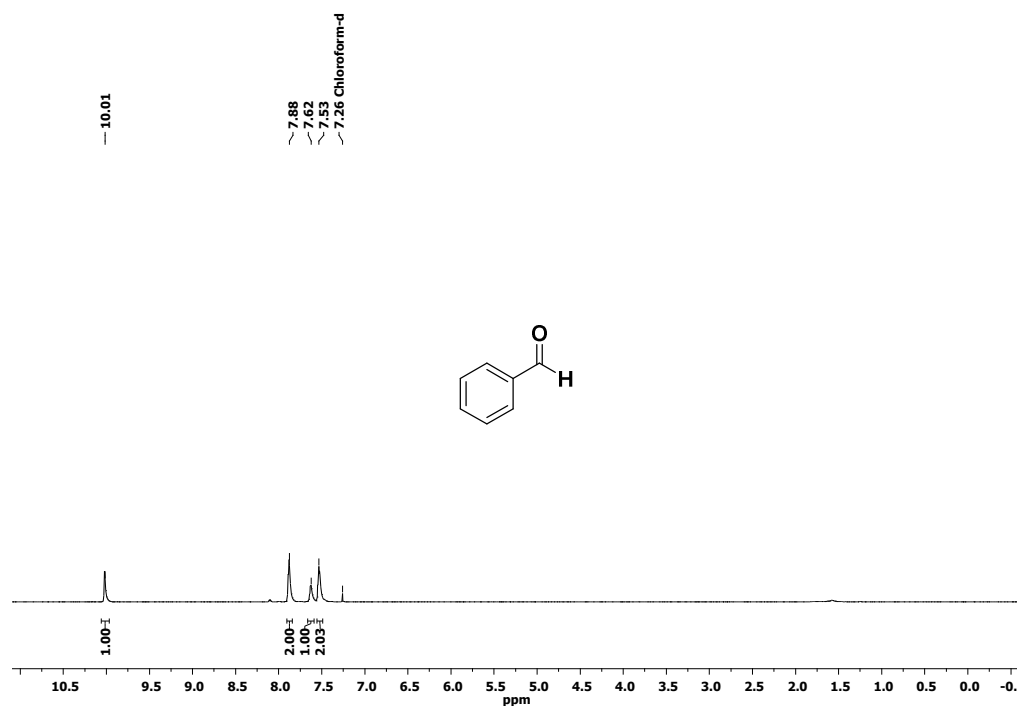


Figure S2. ¹H NMR spectrum (400 MHz, CDCl₃) of compound **2a**

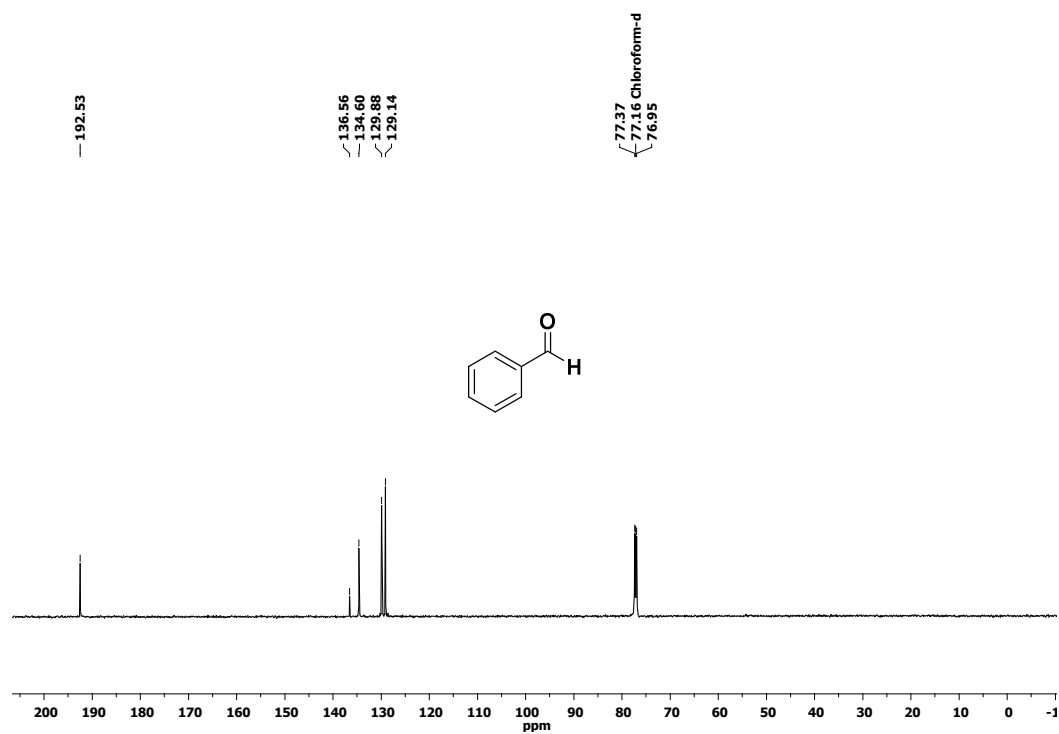


Figure S3. ¹³C NMR spectrum (101 MHz, CDCl₃) of compound **2a**

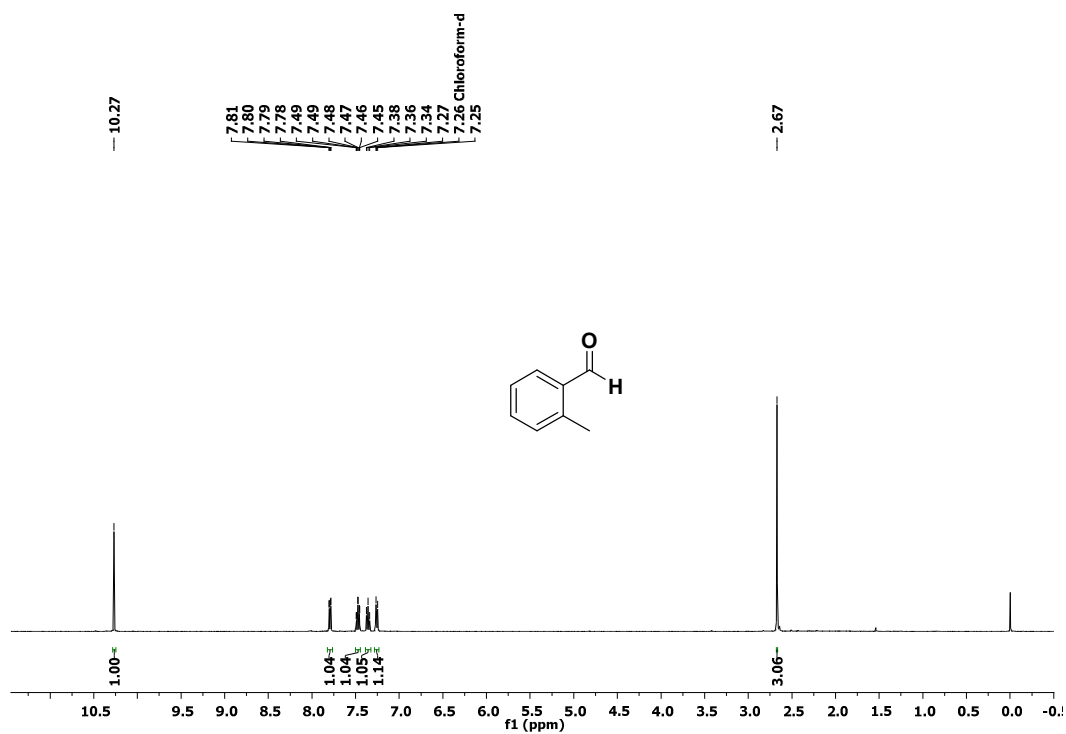


Figure S4. ¹H NMR spectrum (400 MHz, CDCl₃) of compound **2b**

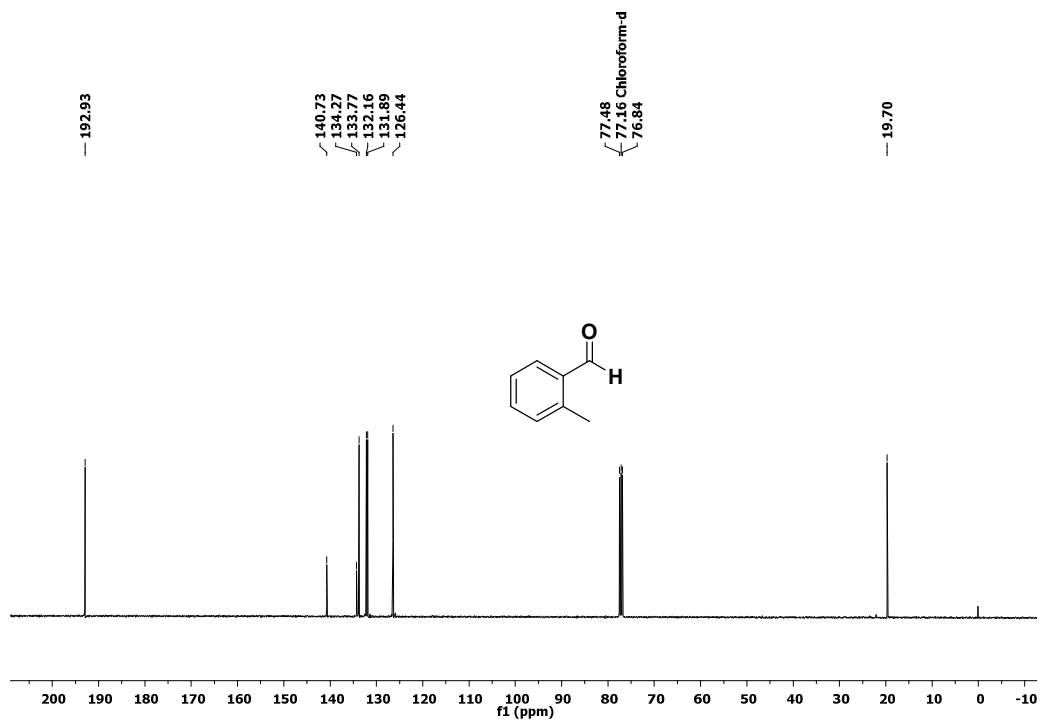


Figure S5. ¹³C NMR spectrum (101 MHz, CDCl₃) of compound **2b**

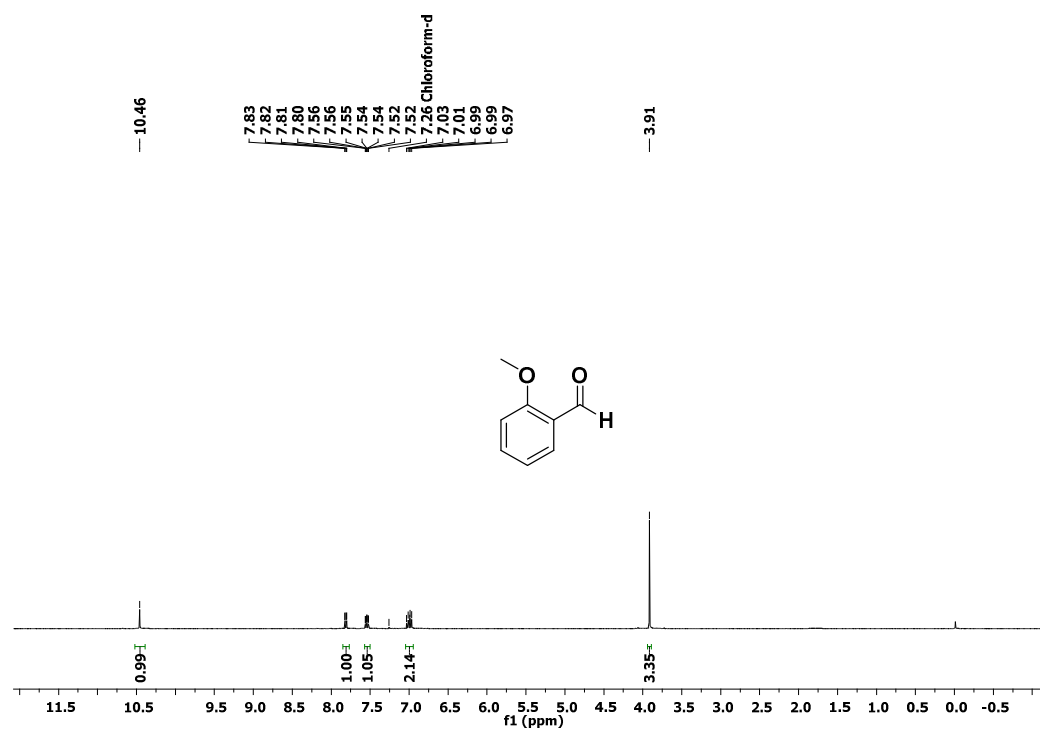


Figure S6. ¹H NMR spectrum (400 MHz, CDCl₃) of compound **2c**

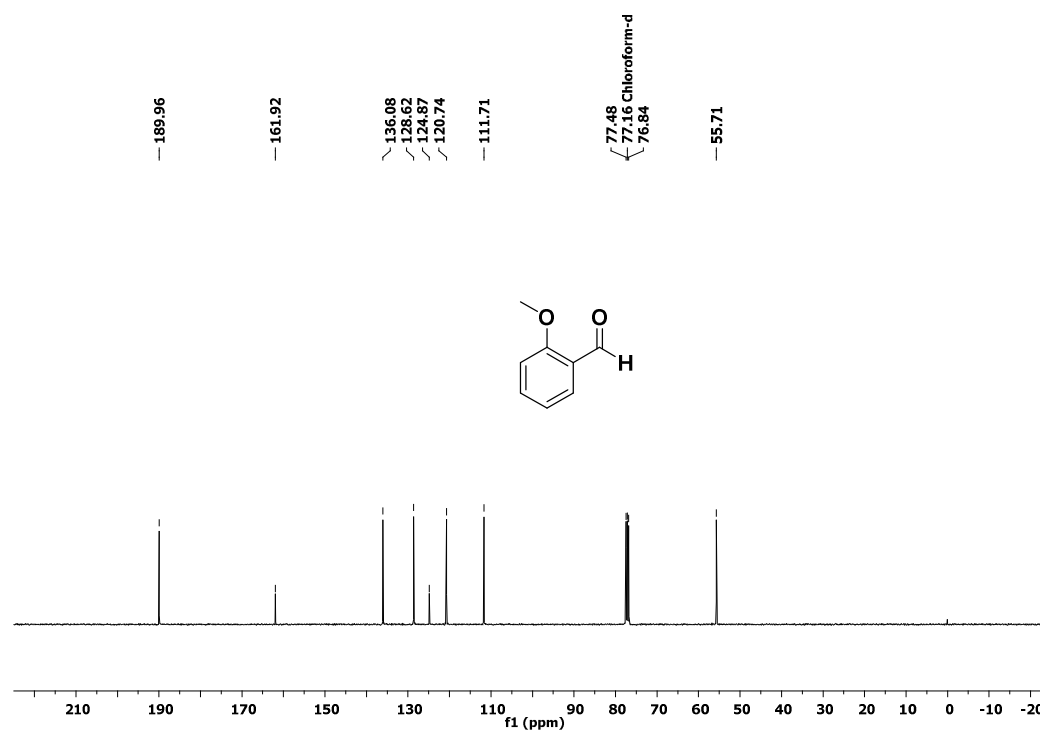


Figure S7. ¹³C NMR spectrum (101 MHz, CDCl₃) of compound **2c**

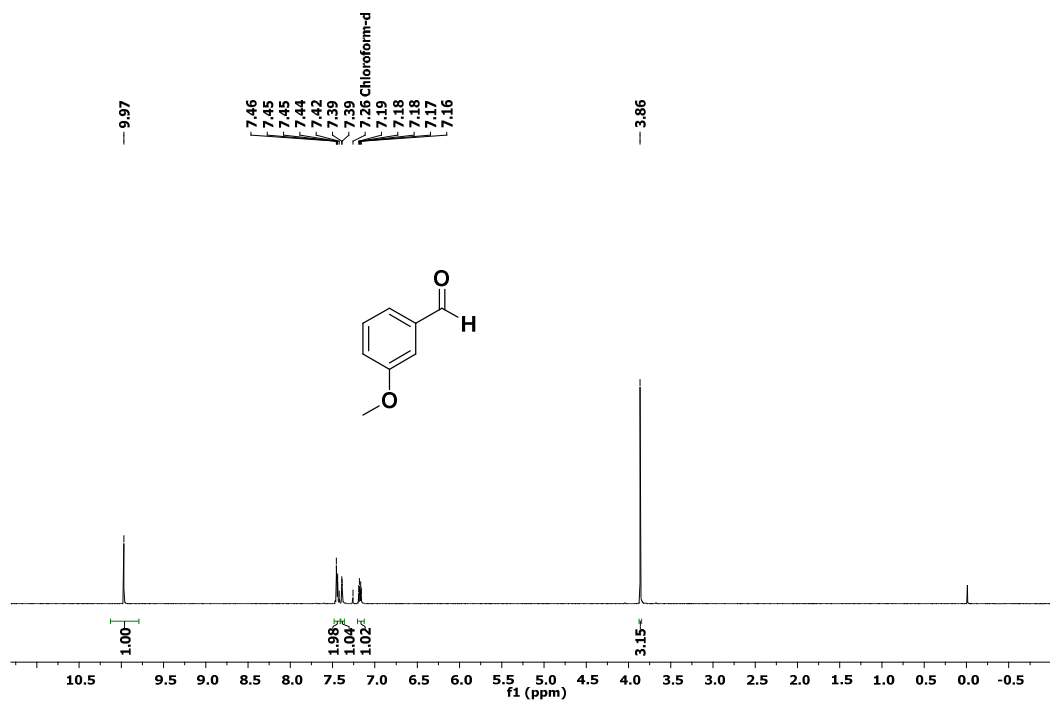


Figure S8. ¹H NMR spectrum (400 MHz, CDCl₃) of compound **2d**

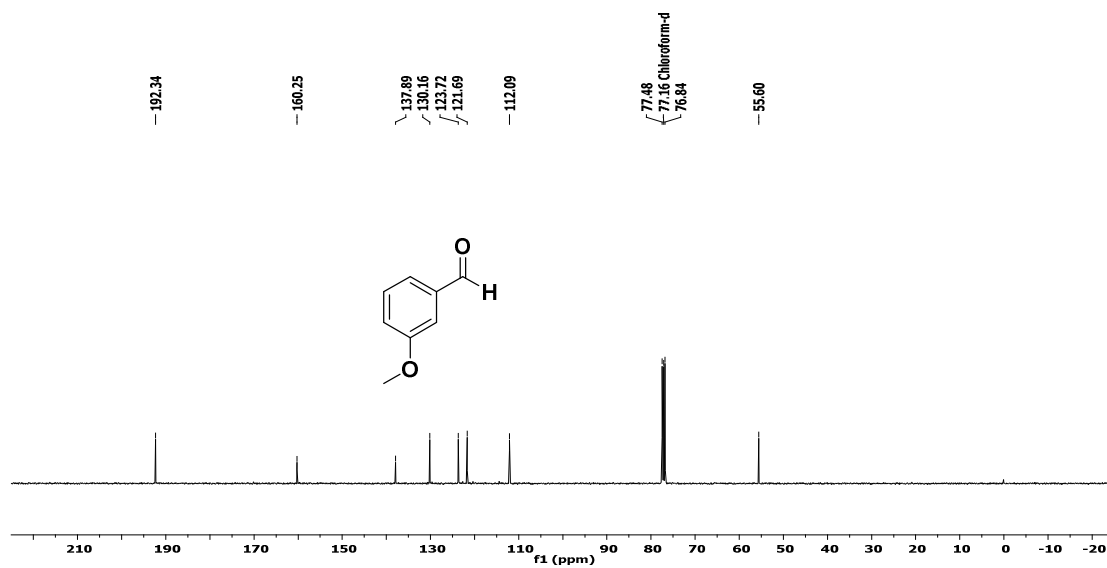


Figure S9. ¹³C NMR spectrum (101 MHz, CDCl₃) of compound **2d**

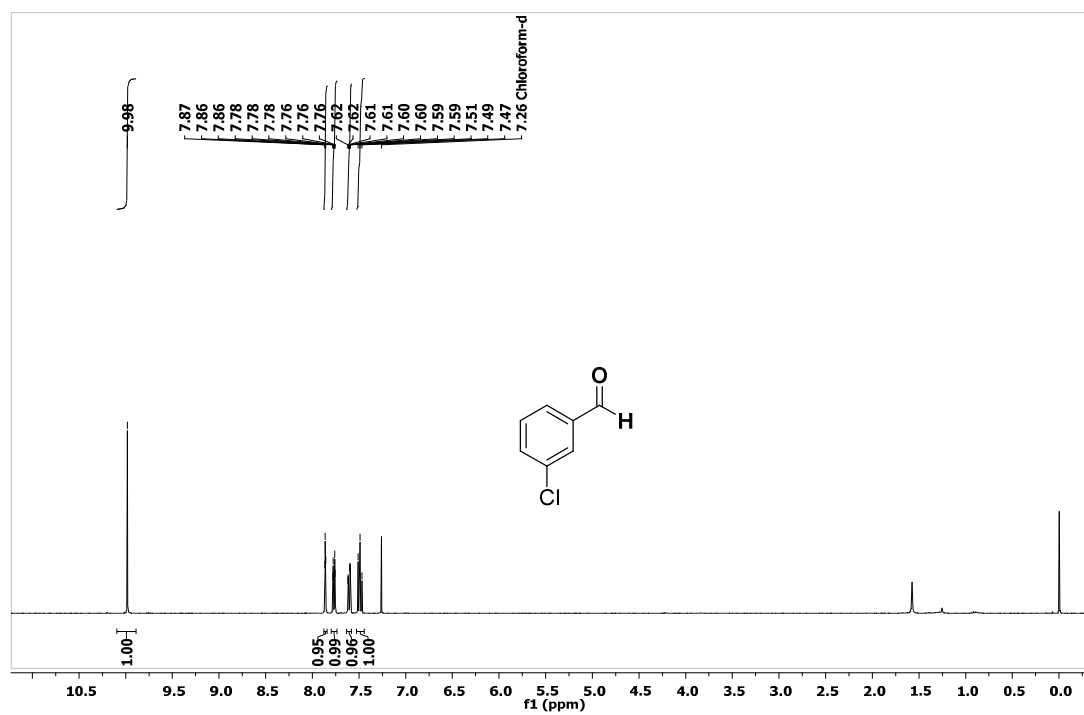


Figure S10. ¹H NMR spectrum (400 MHz, CDCl₃) of compound **2e**

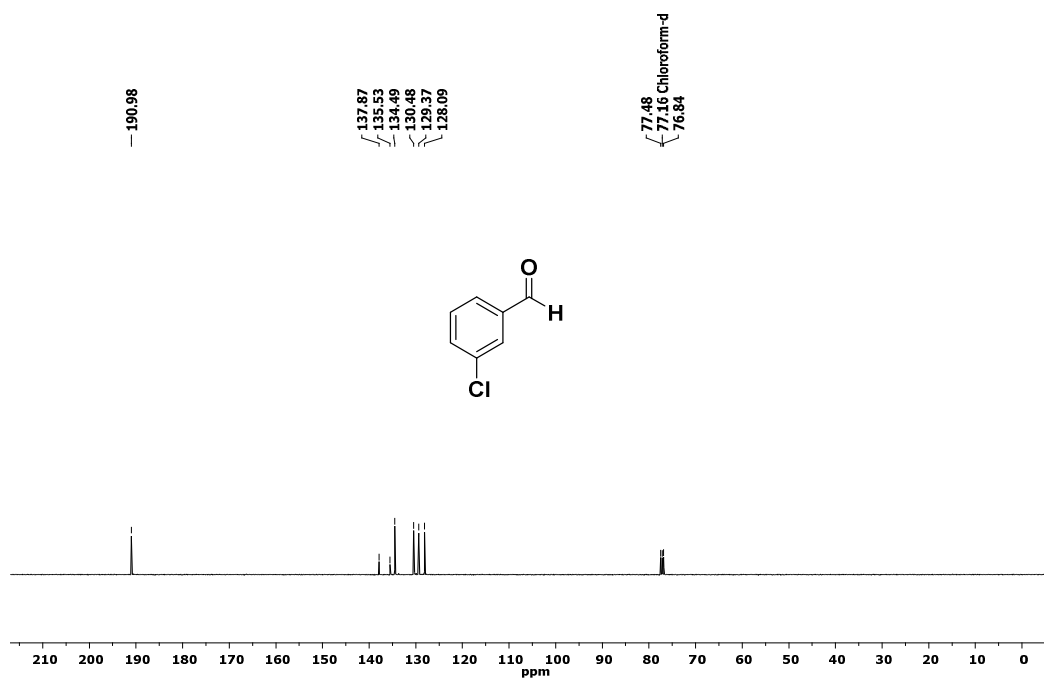


Figure S11. ¹³C NMR spectrum (101 MHz, CDCl₃) of compound **2e**

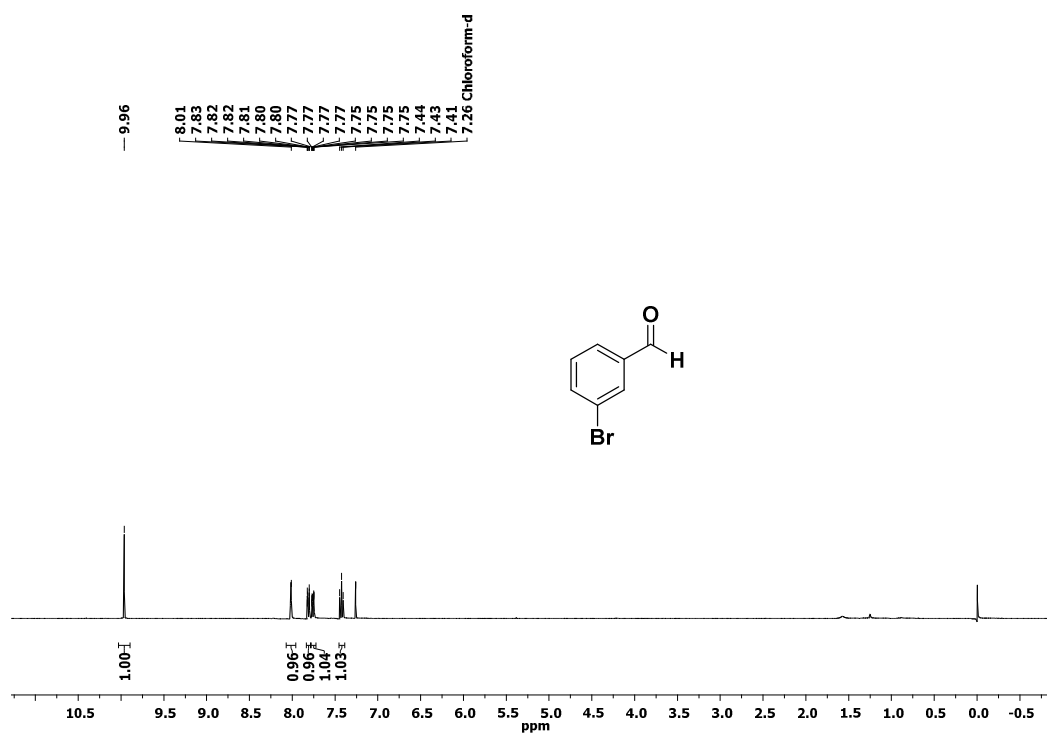


Figure S12. ¹H NMR spectrum (400 MHz, CDCl₃) of compound **2f**

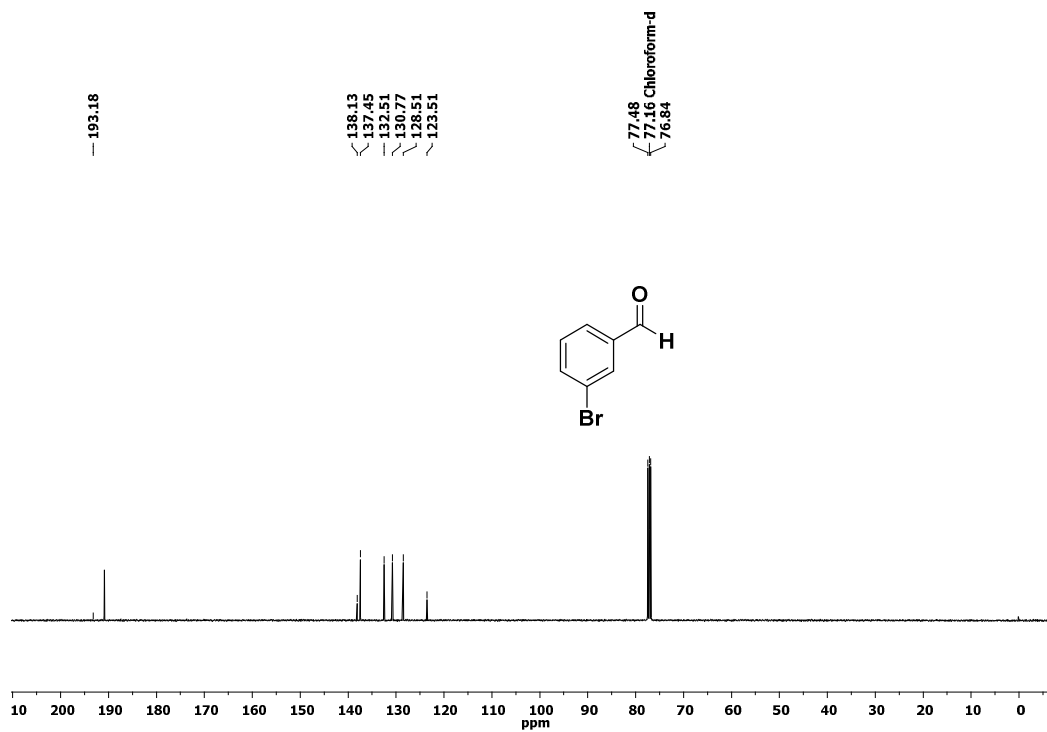


Figure S13. ¹³C NMR spectrum (101 MHz, CDCl₃) of compound **2f**

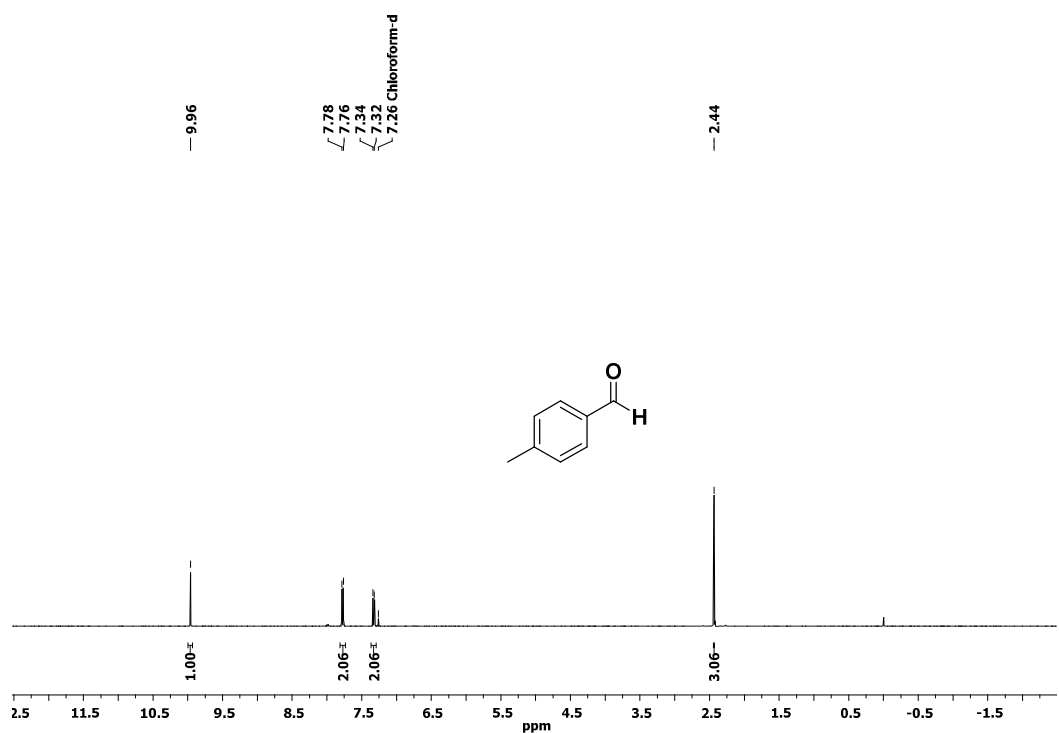


Figure S14. ¹H NMR spectrum (400 MHz, CDCl₃) of compound **2g**

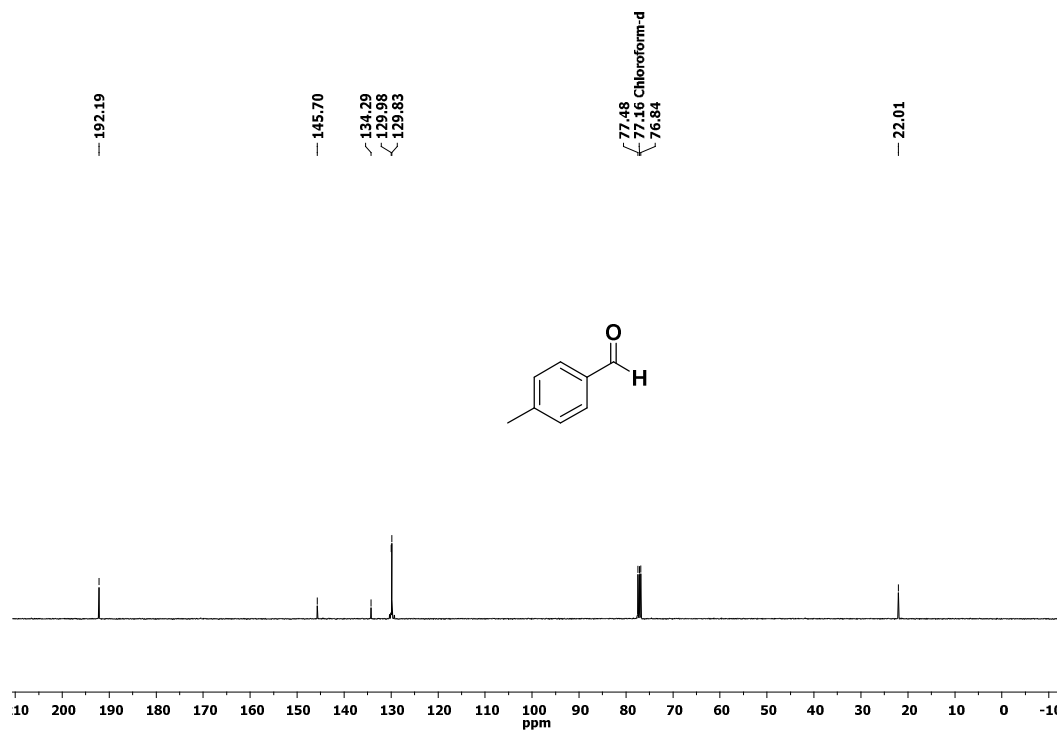


Figure S15. ¹³C NMR spectrum (101 MHz, CDCl₃) of compound **2g**

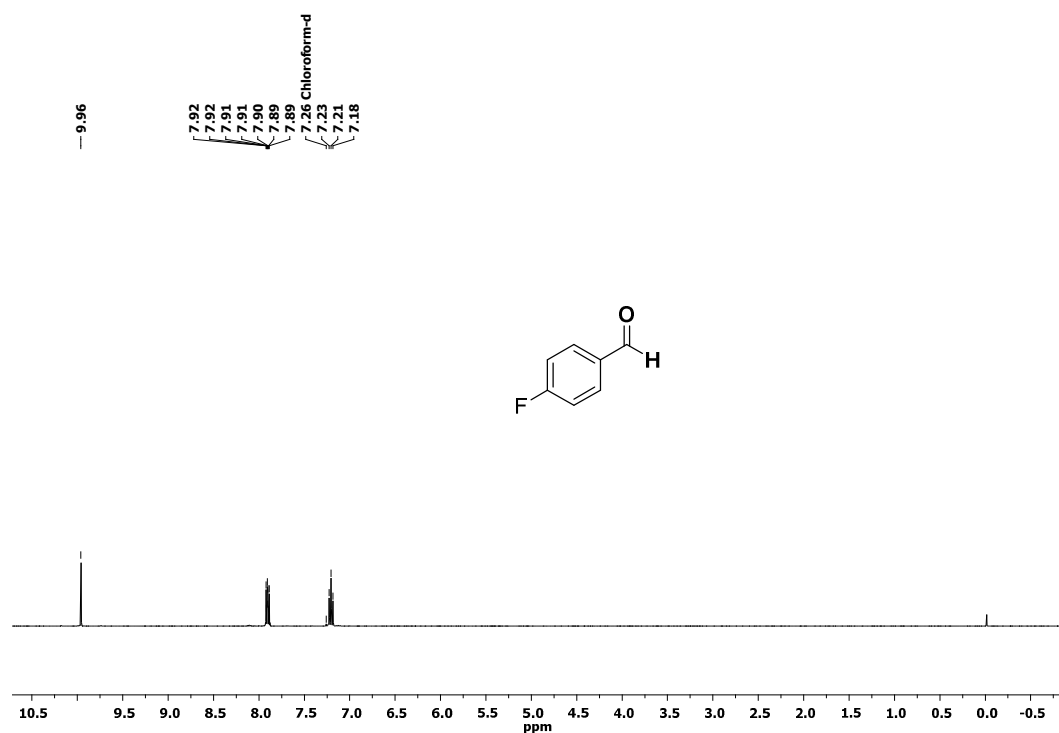


Figure S16. ¹H NMR spectrum (400 MHz, CDCl₃) of compound **2h**

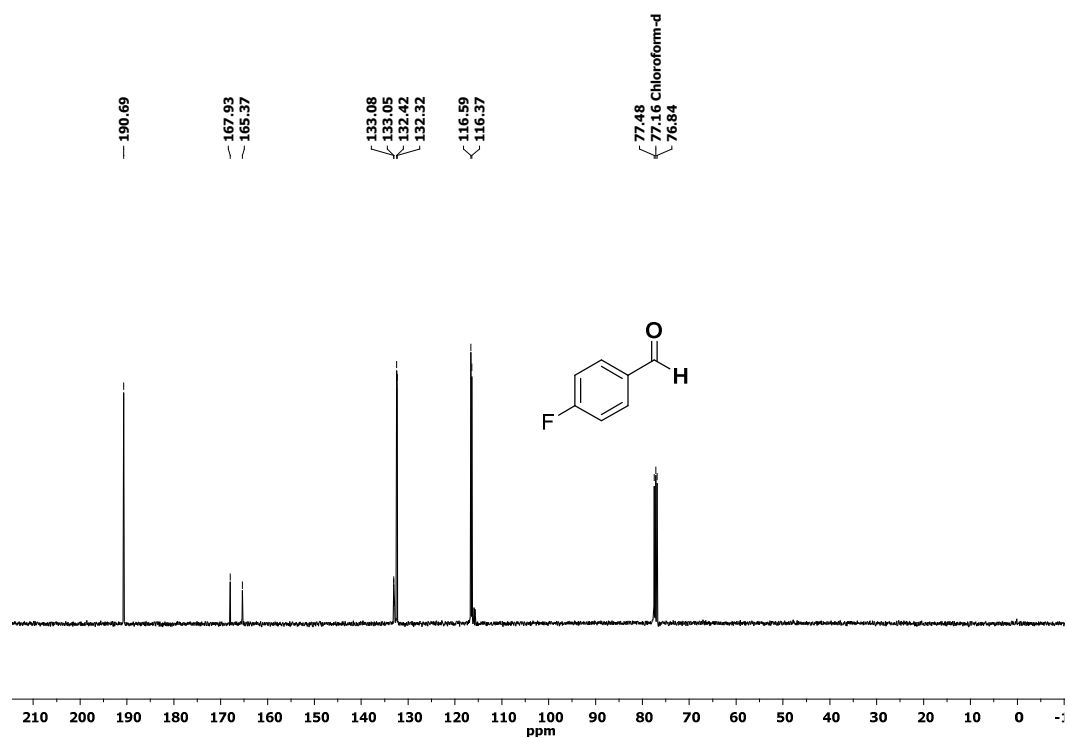


Figure S17. ¹³C NMR spectrum (101 MHz, CDCl₃) of compound **2h**

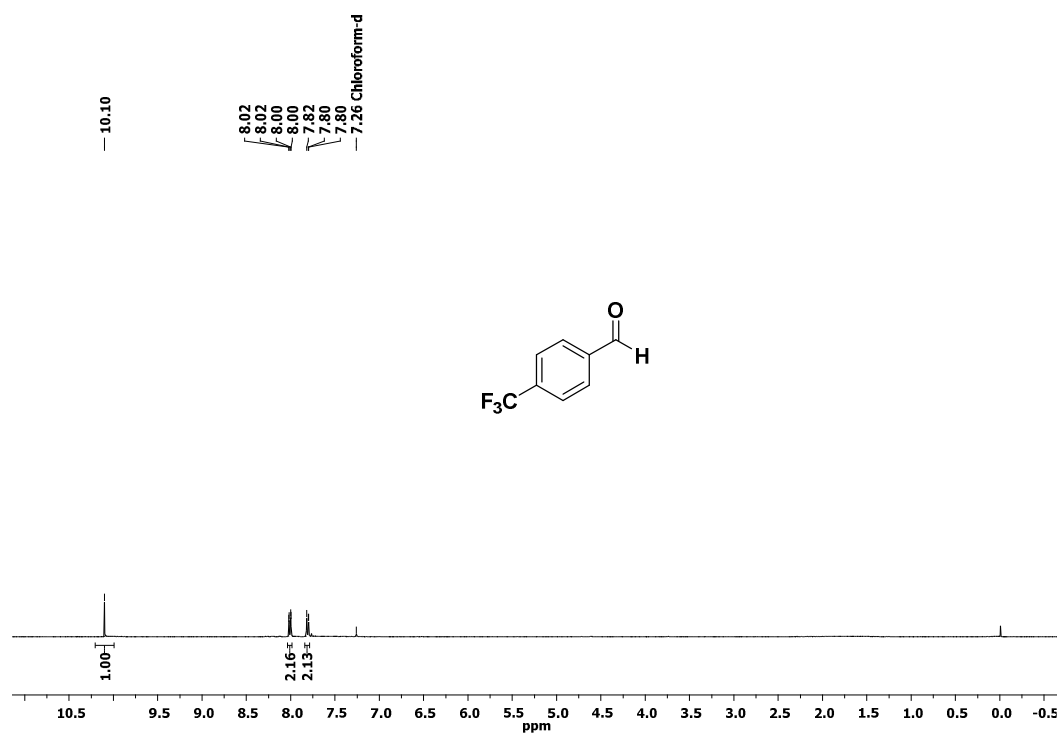


Figure S18. ¹H NMR spectrum (400 MHz, CDCl₃) of compound **2i**

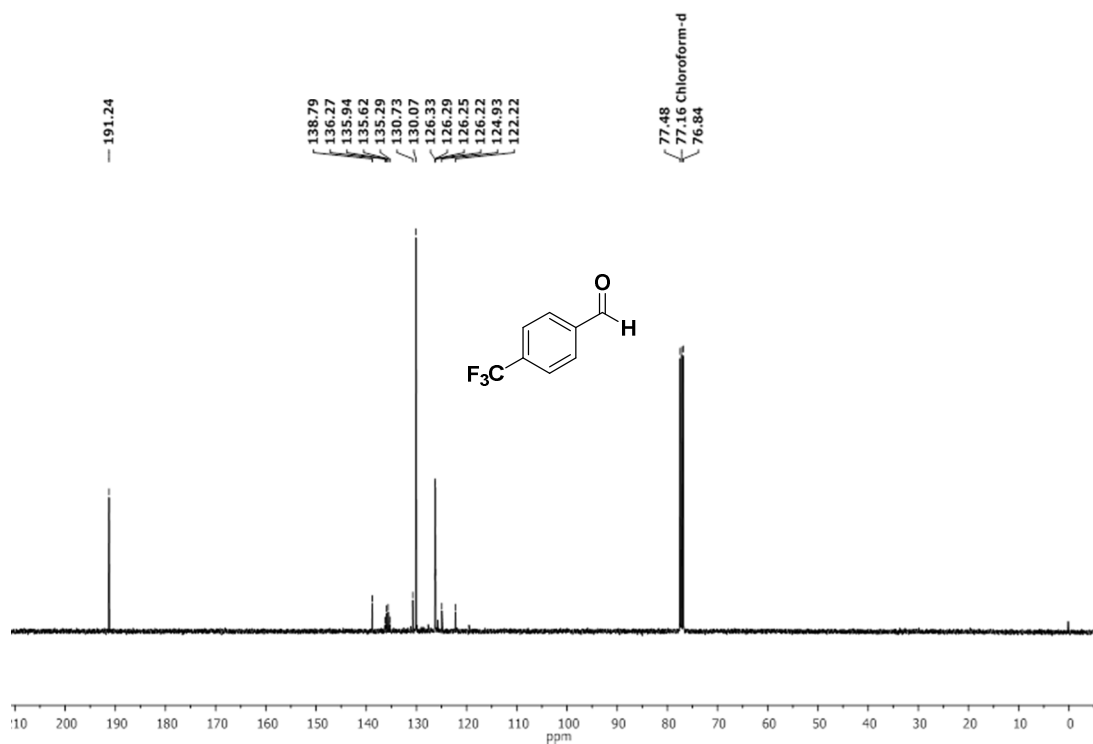


Figure S19. ¹³C NMR spectrum (101 MHz, CDCl₃) of compound **2i**

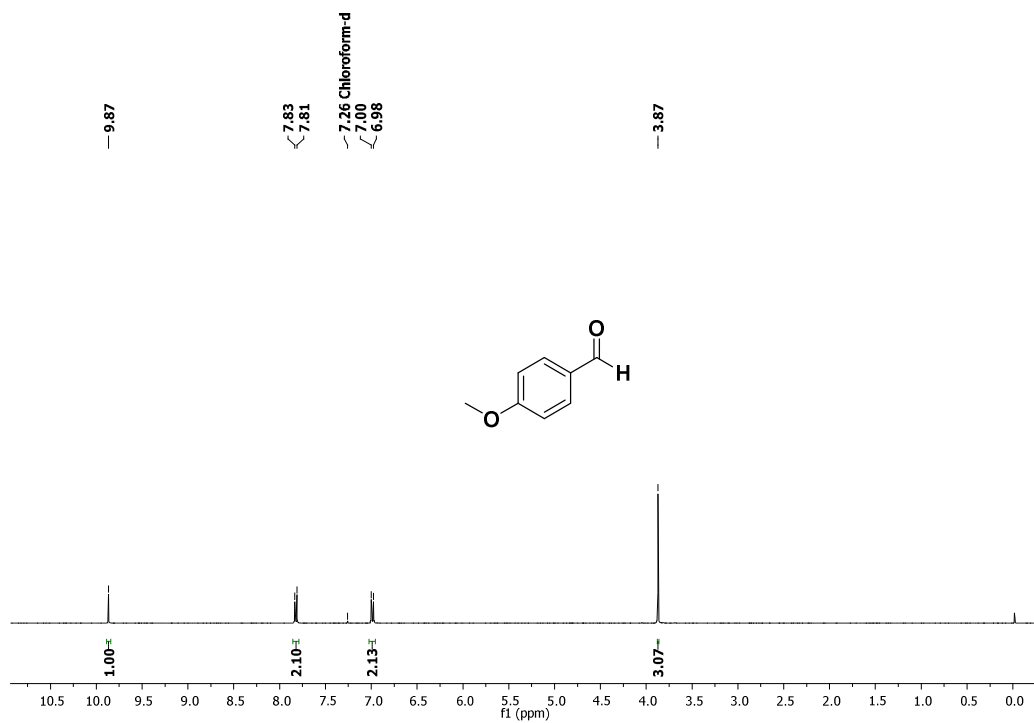


Figure S20. ¹H NMR spectrum (400 MHz, CDCl₃) of compound **2j**

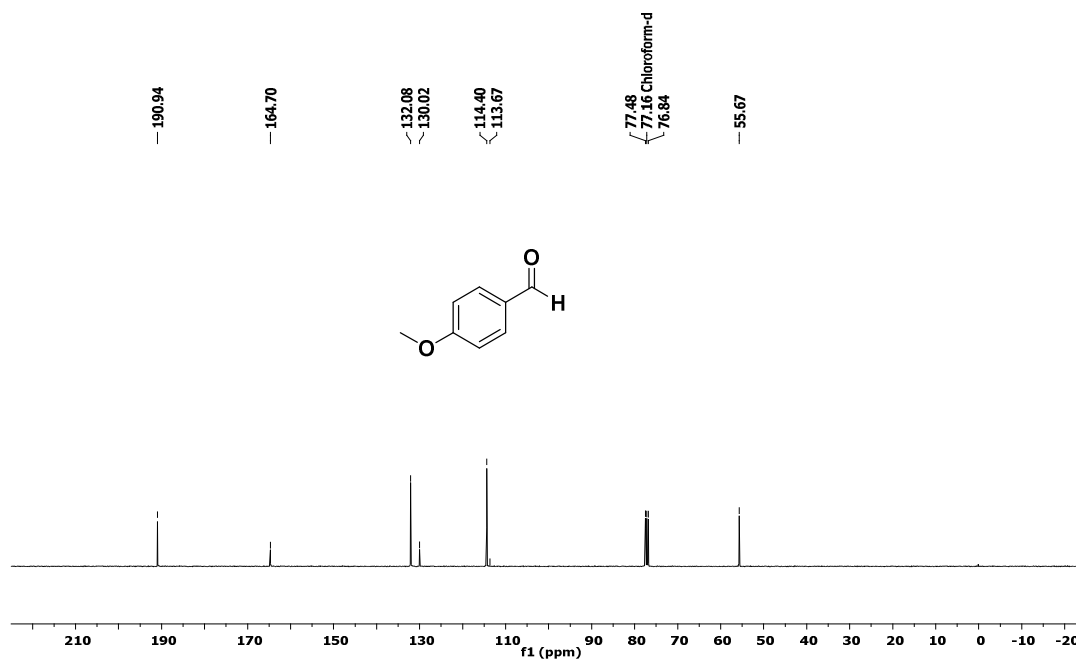


Figure S21. ¹³C NMR spectrum (101 MHz, CDCl₃) of compound **2j**

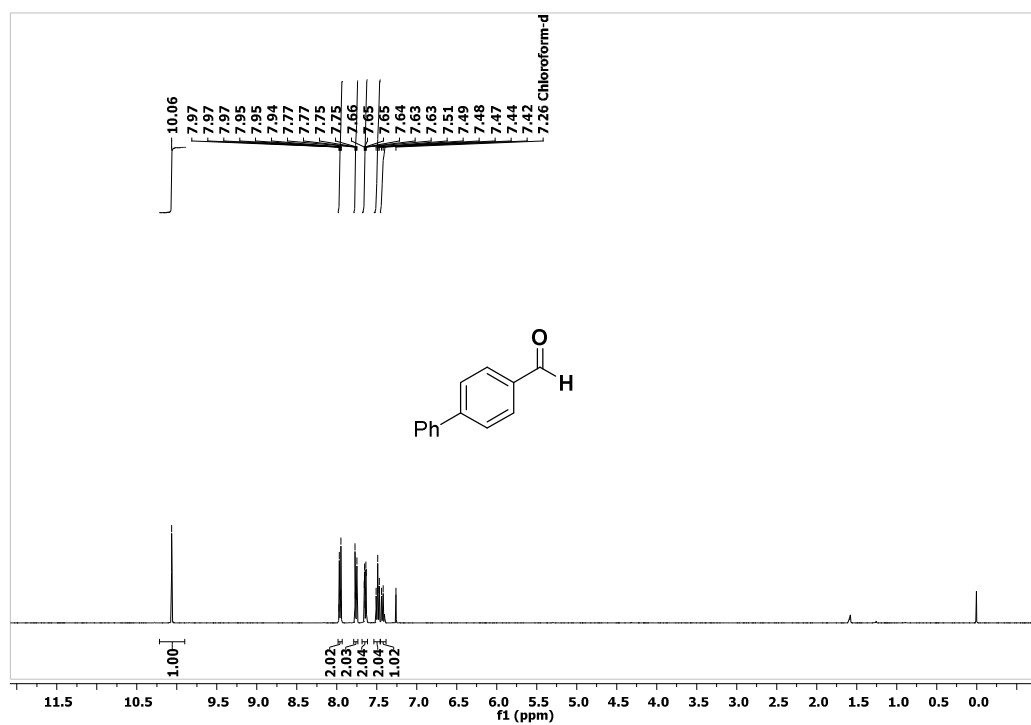


Figure S22. ¹H NMR spectrum (400 MHz, CDCl₃) of compound **2k**

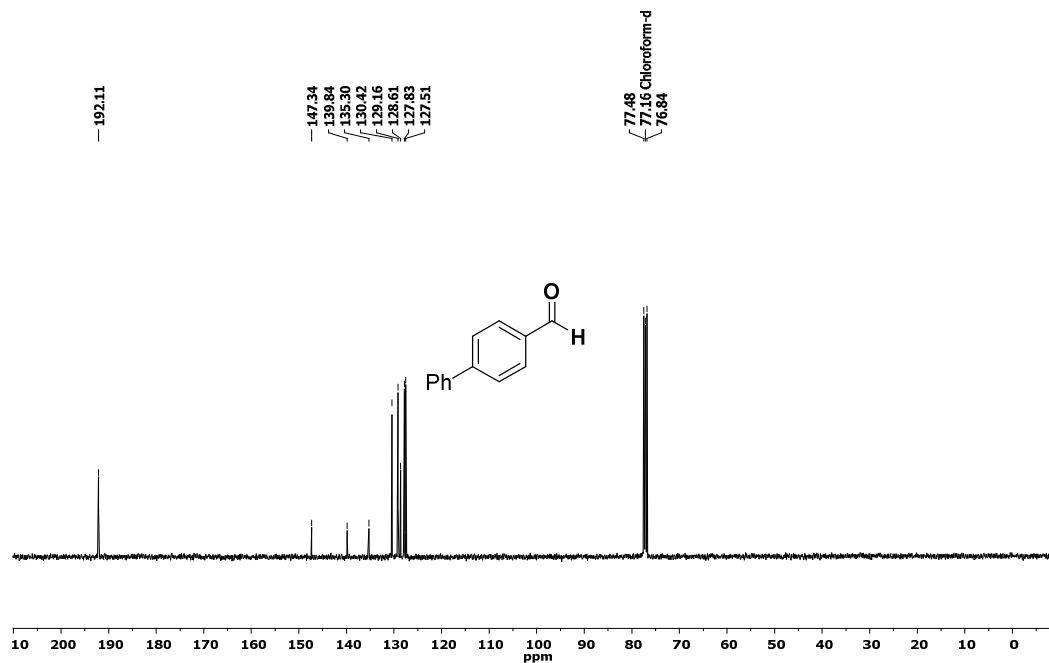


Figure S23. ¹³C NMR spectrum (101 MHz, CDCl₃) of compound **2k**

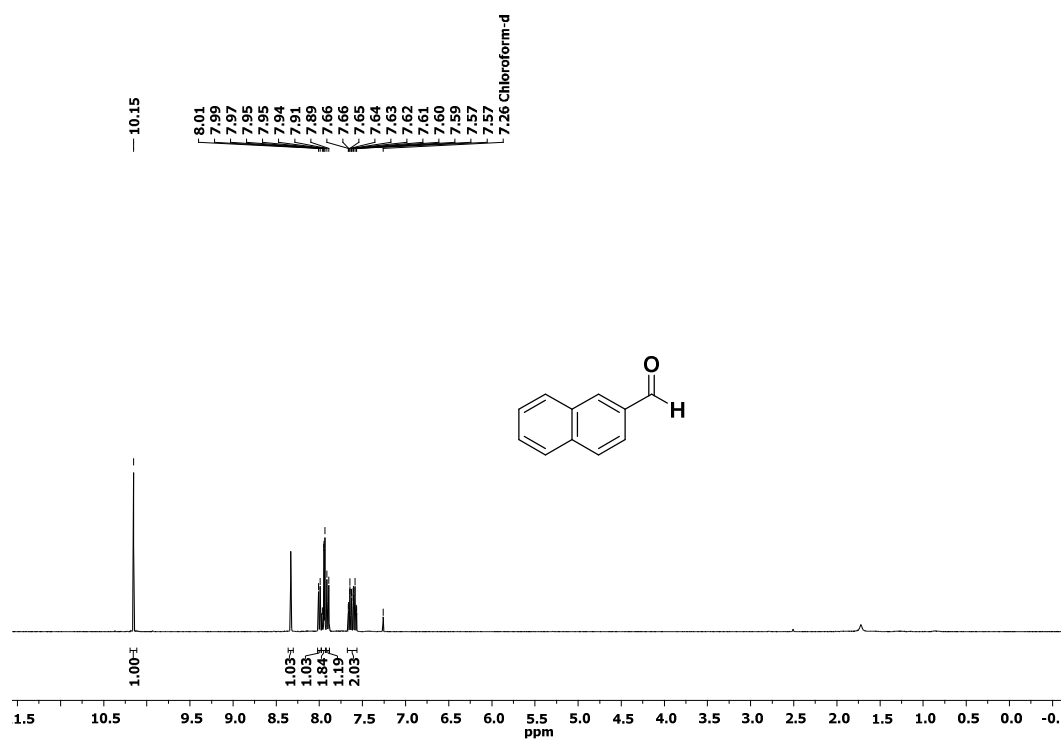


Figure S24. ¹H NMR spectrum (400 MHz, CDCl₃) of compound **21**

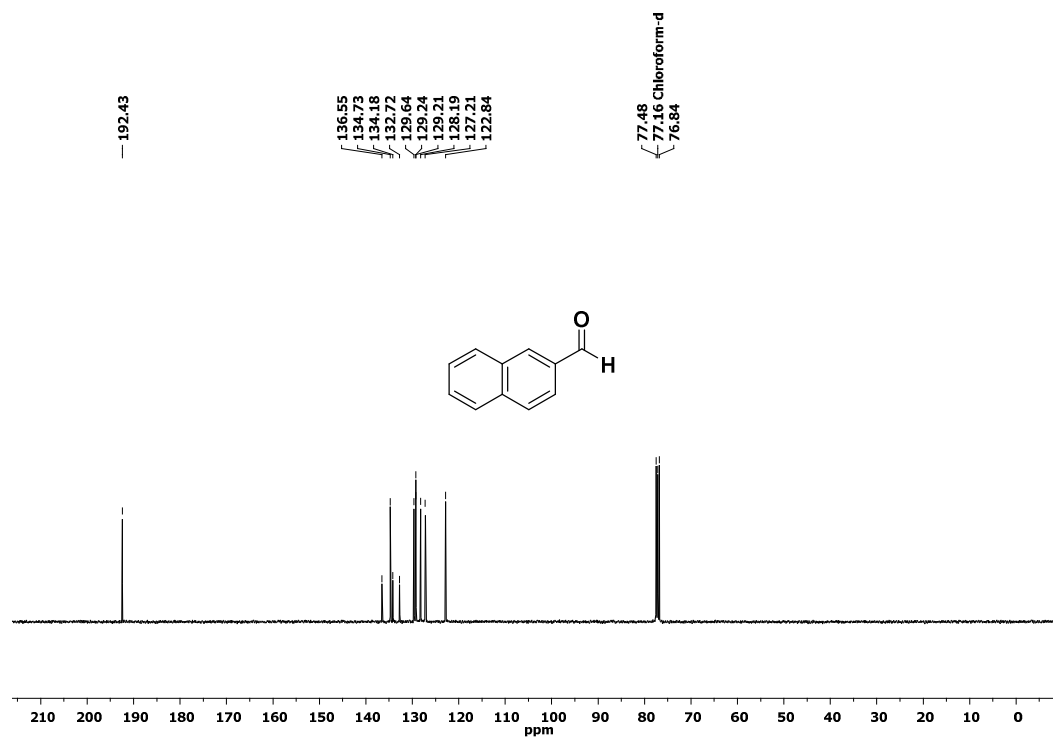


Figure S25. ¹³C NMR spectrum (101 MHz, CDCl₃) of compound **21**

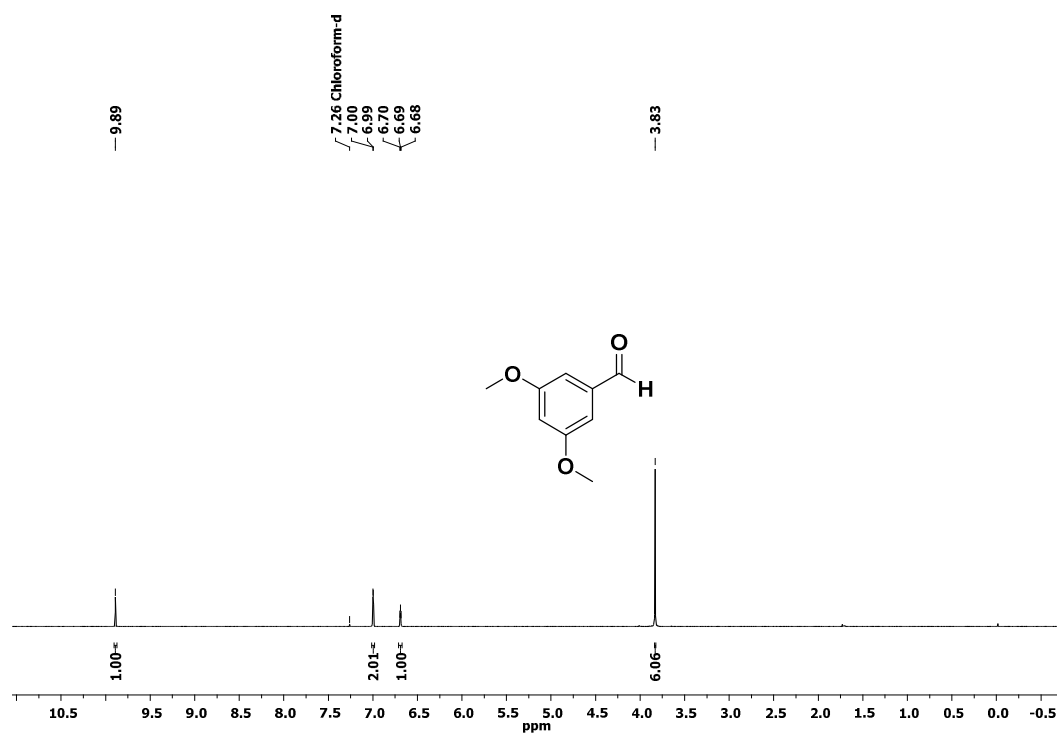


Figure S26. ¹H NMR spectrum (400 MHz, CDCl₃) of compound **2m**

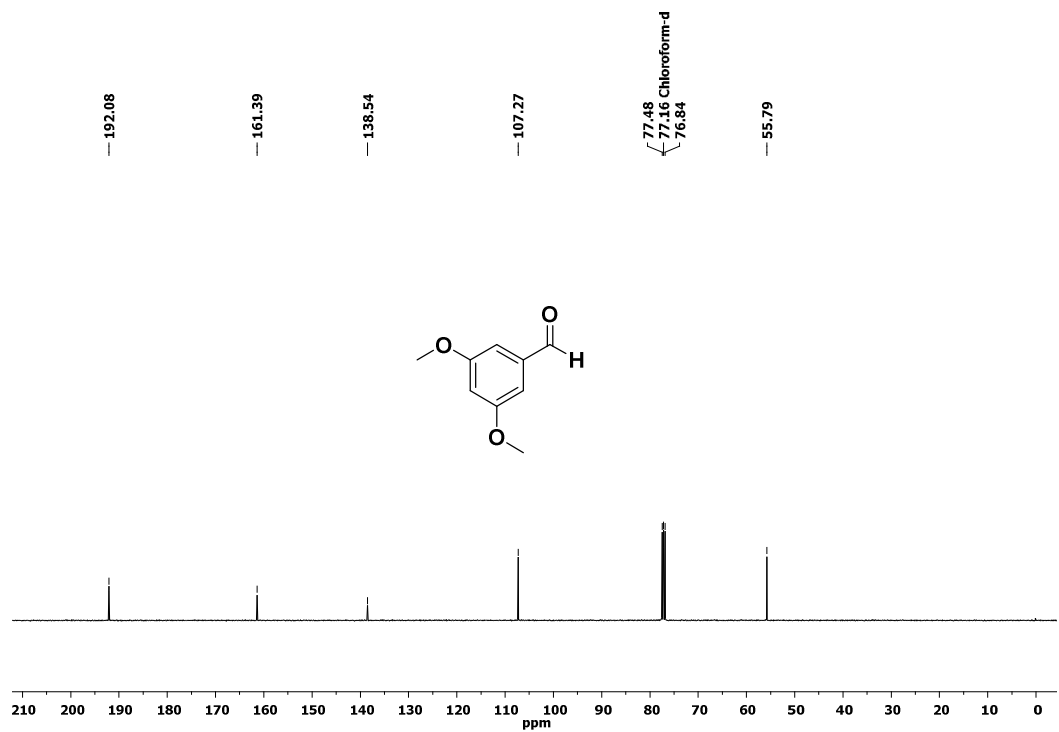


Figure S27. ¹³C NMR spectrum (101 MHz, CDCl₃) of compound **2m**

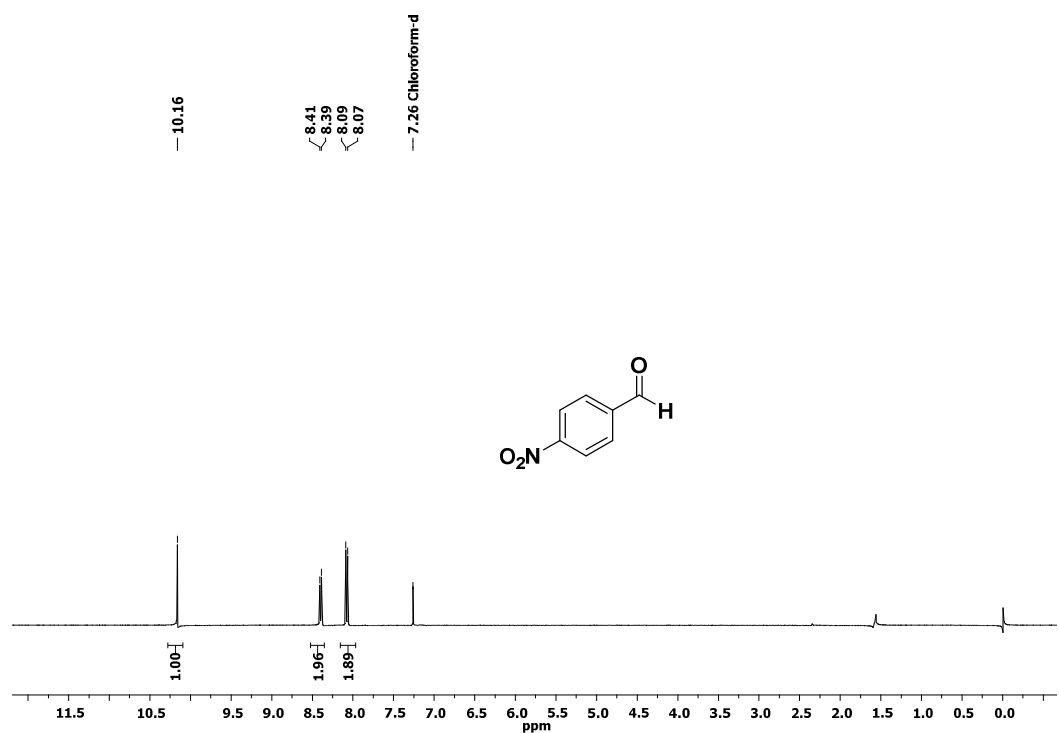


Figure S28. ¹H NMR spectrum (400 MHz, CDCl₃) of compound **2n**

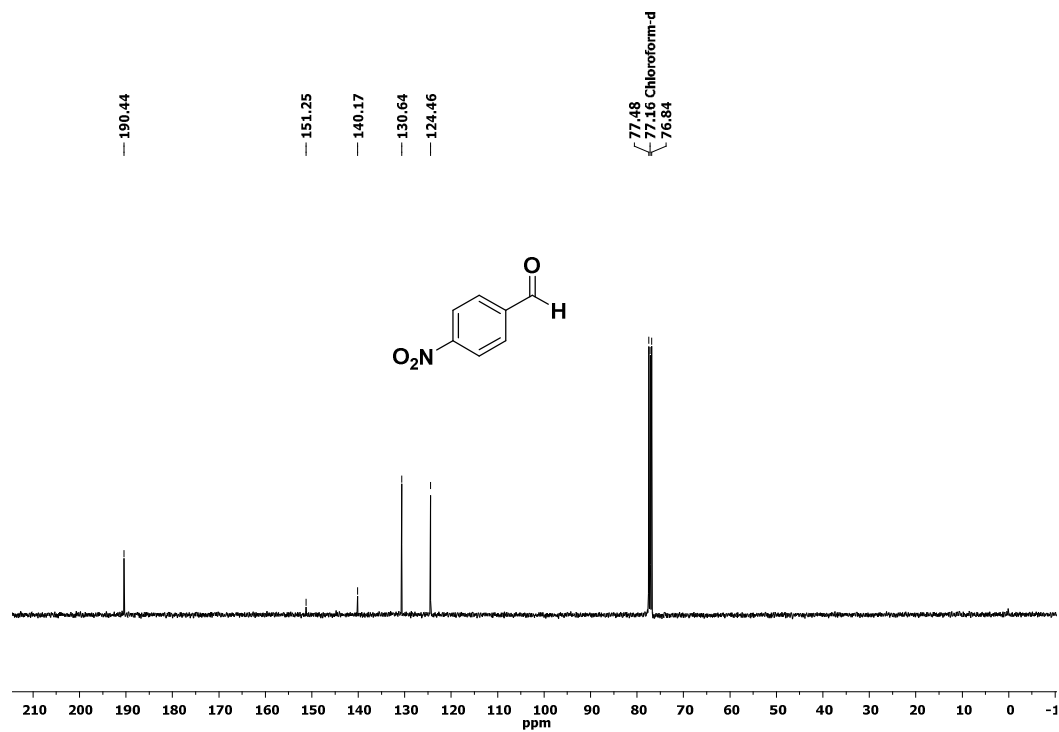


Figure S29. ¹³C NMR spectrum (101 MHz, CDCl₃) of compound **2n**

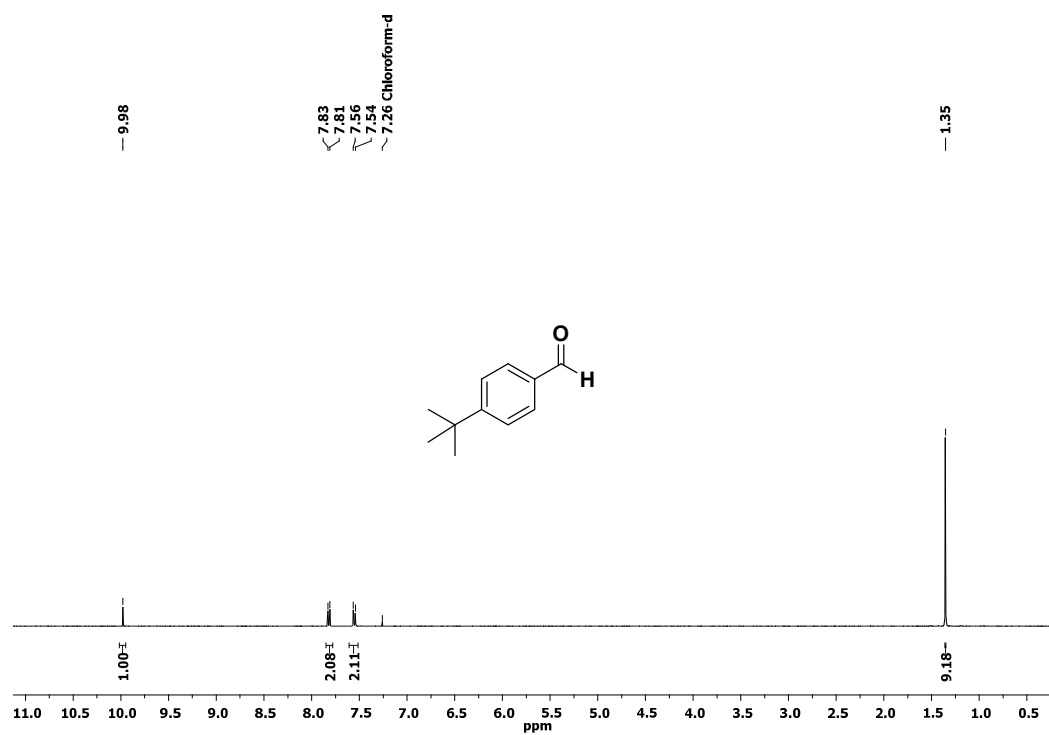


Figure S30. ¹H NMR spectrum (400 MHz, CDCl₃) of compound **2o**

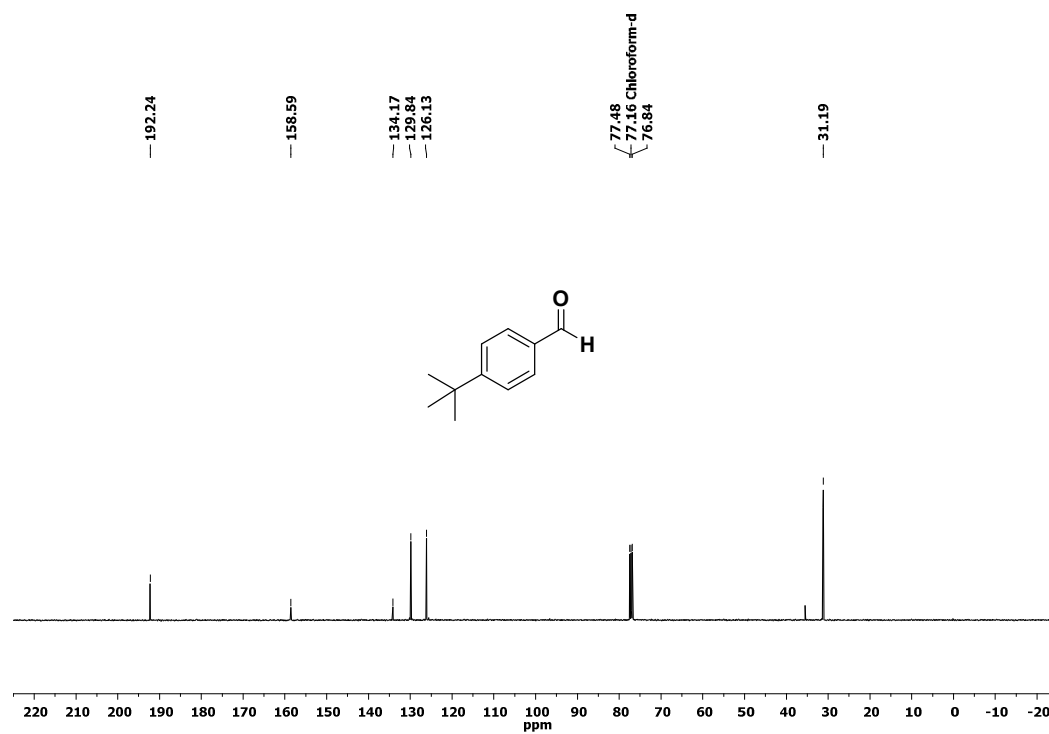


Figure S31. ¹³C NMR spectrum (101 MHz, CDCl₃) of compound **2o**

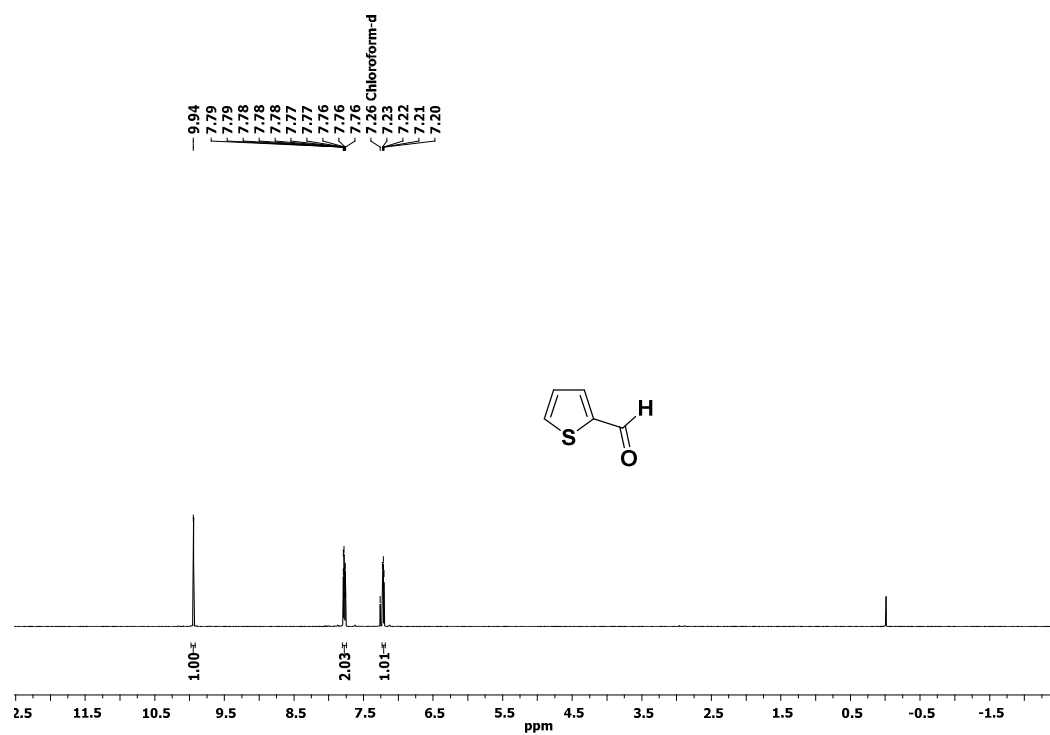


Figure S32. ¹H NMR spectrum (400 MHz, CDCl₃) of compound **2p**

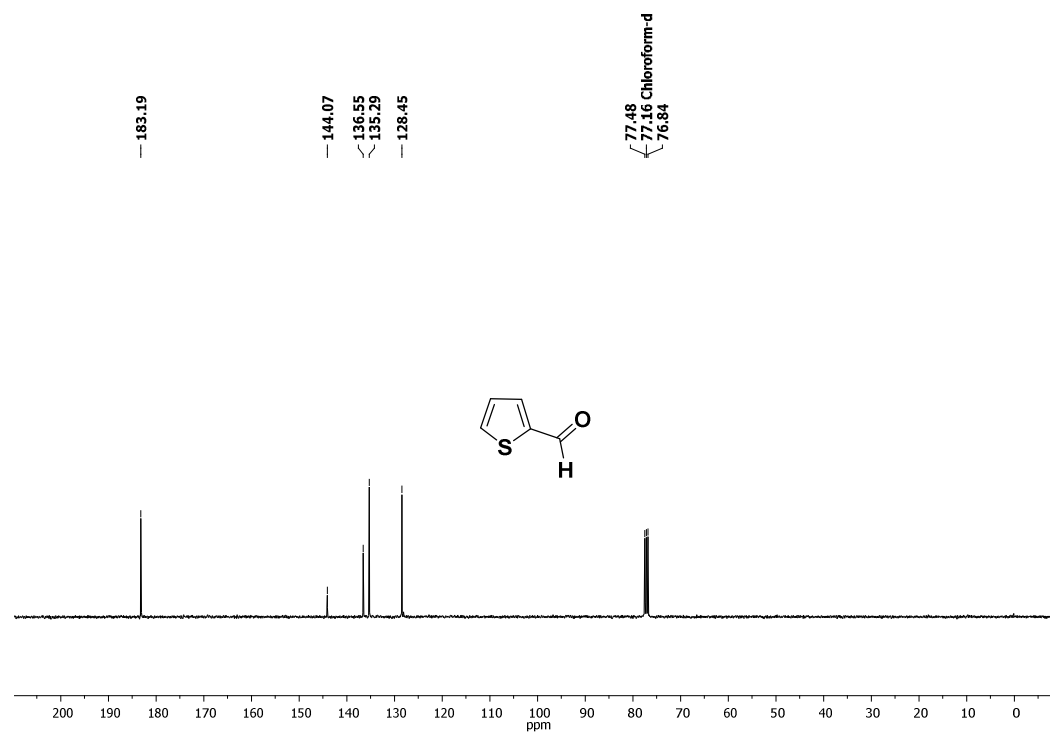


Figure S33. ¹³C NMR spectrum (101 MHz, CDCl₃) of compound **2p**

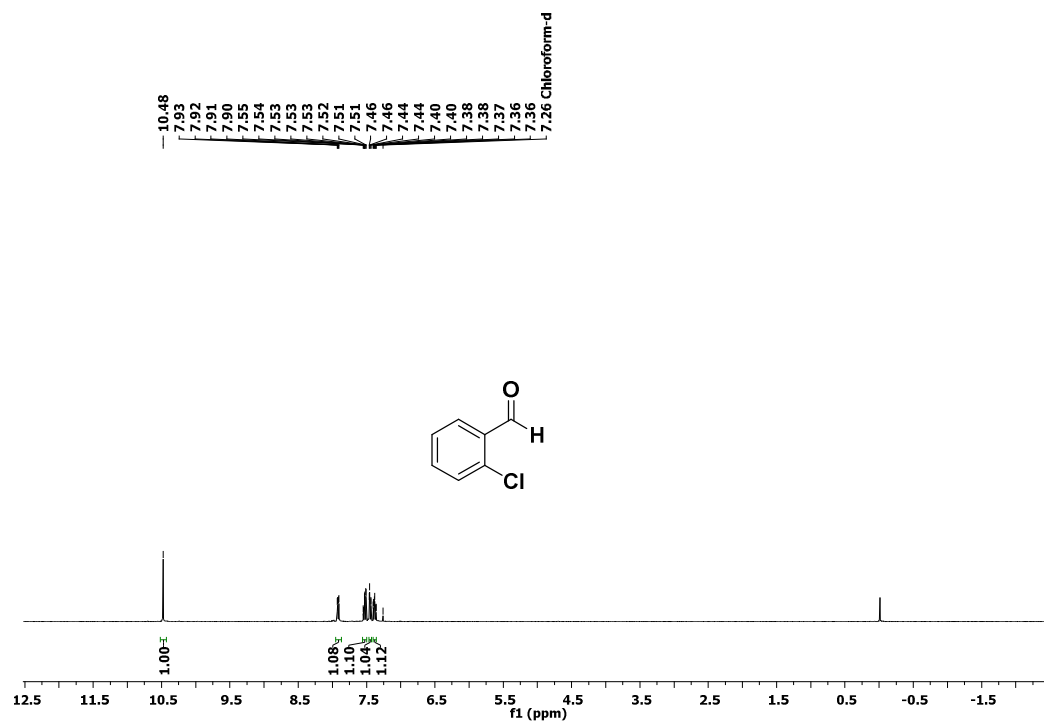


Figure S34. ¹H NMR spectrum (400 MHz, CDCl₃) of compound **2q**

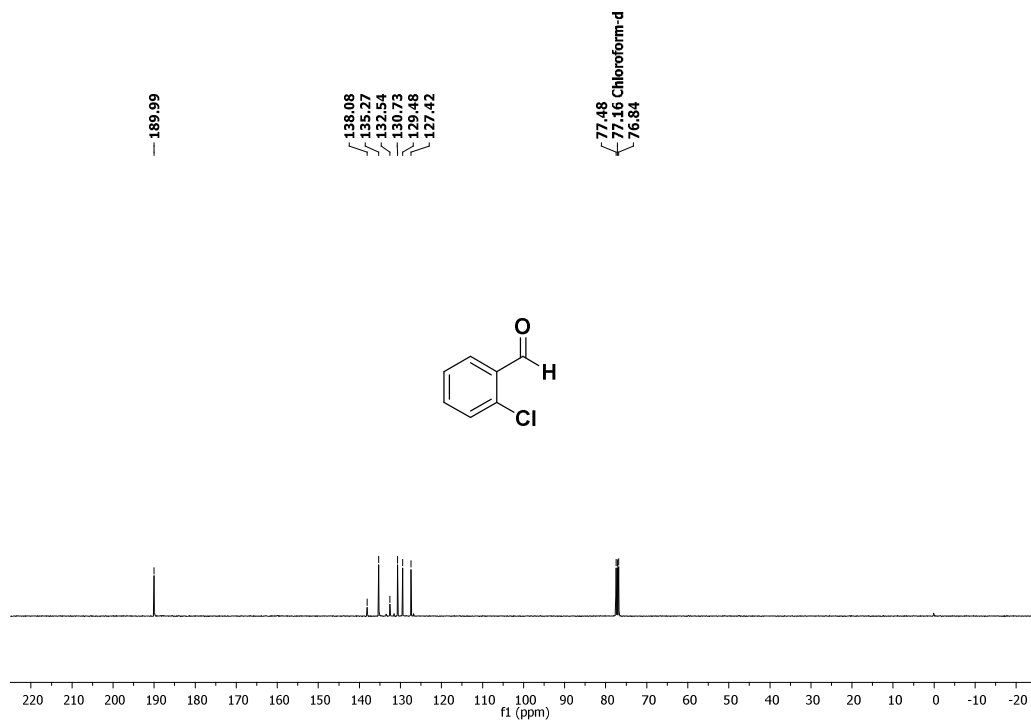


Figure S35. ¹³C NMR spectrum (101 MHz, CDCl₃) of compound **2q**