



## Chiral Cu(II) salen complexes catalyzed aerobic oxidative biaryl coupling- probing the reaction by EPR

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### KEYWORDS

Biaryl coupling

Chiral copper salen complexes

Cross coupling

BINOL

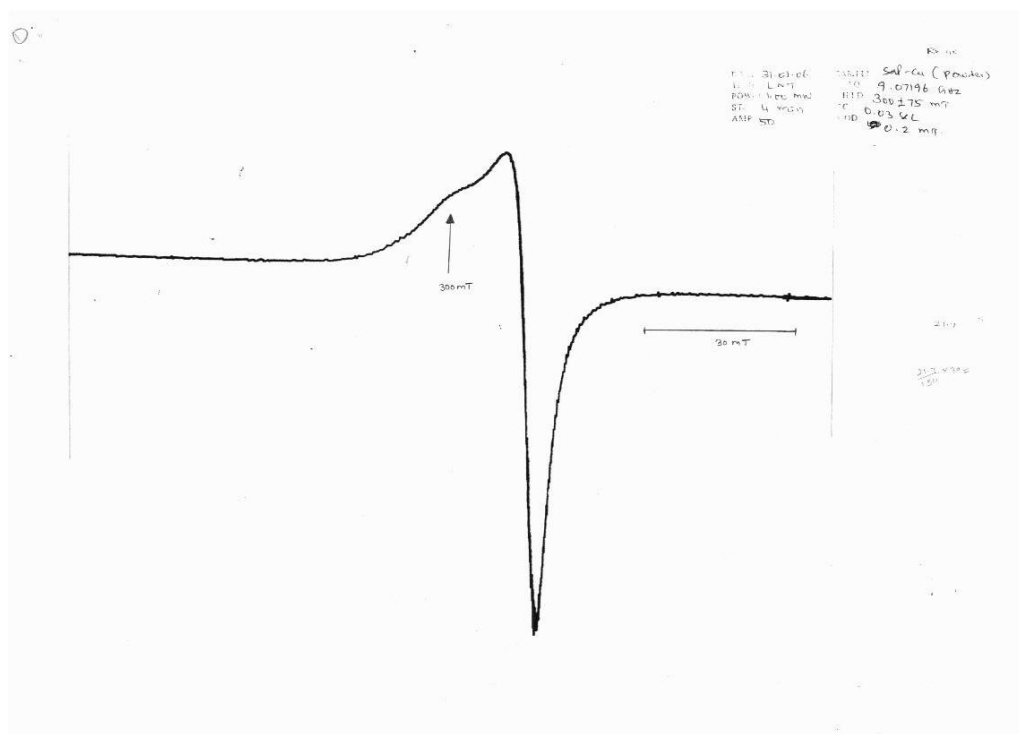
Aerobic oxidation

EPR

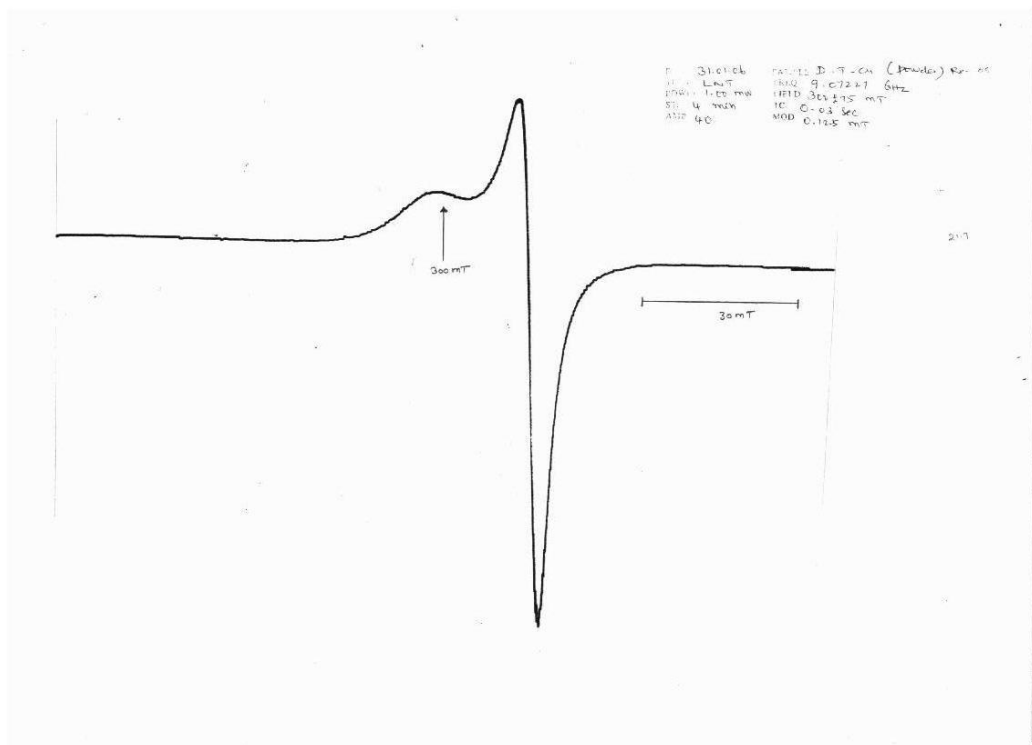
### ABSTRACT

Aerobic oxidative coupling of 2-naphthol to 1,1'-binaphthyl-2,2'-diol has been achieved using chiral/achiral copper salen complexes as catalyst. Moderate enantioselectivity was obtained for the reaction of 2-naphthol with a coordinating substituent with a chiral salen complex. Unsubstituted 2-naphthol resulted in racemic 1,1'-binaphthyl-2,2'-diol only with all chiral complexes. Electron paramagnetic resonance spectroscopy has been used to understand the factors influencing the asymmetric induction.

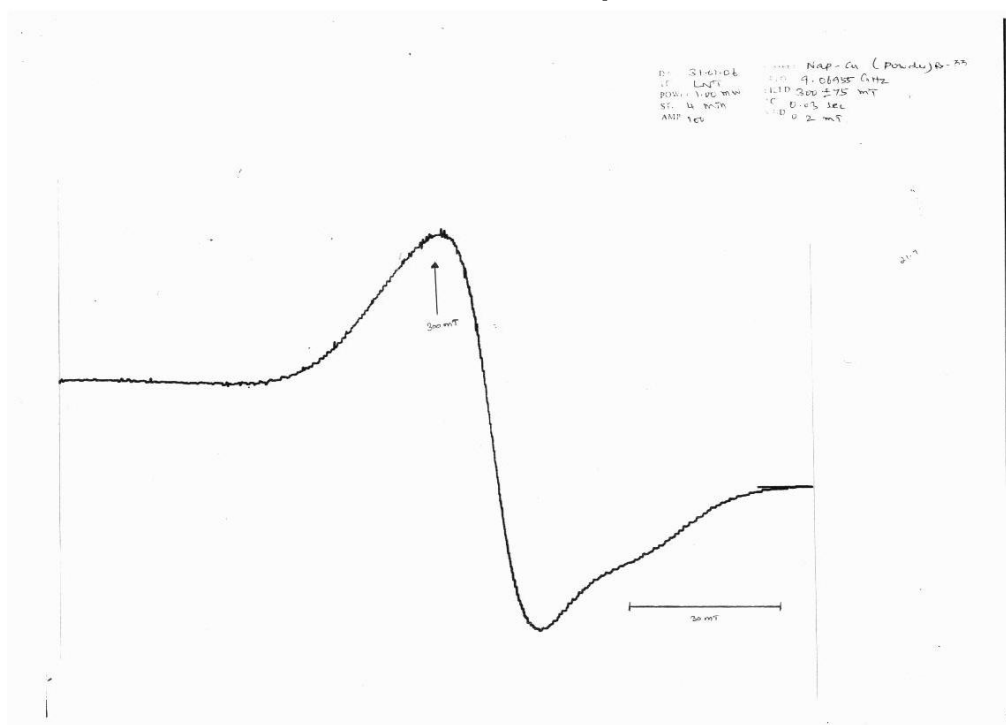
### Supplementary Materials



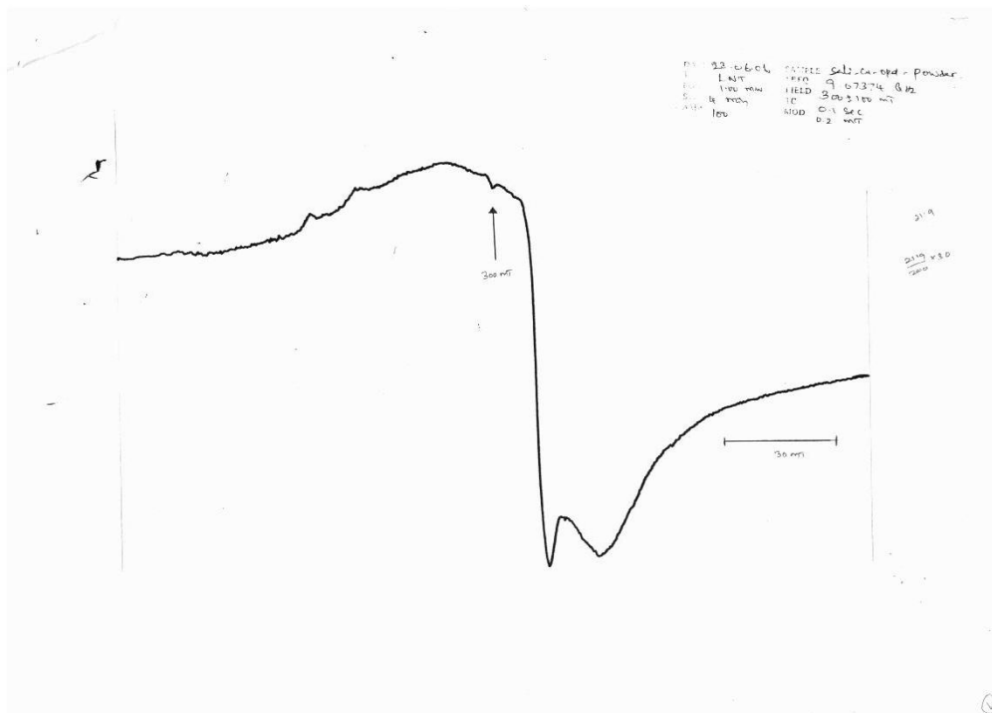
Powder EPR at LNT of complex 1



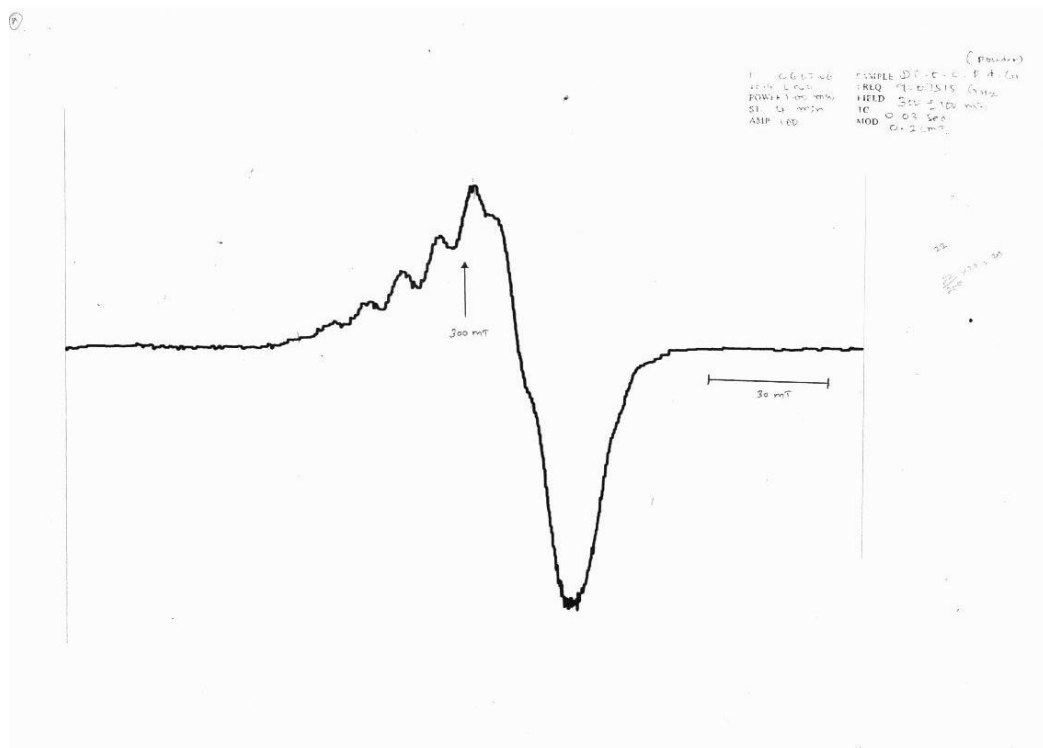
Powder EPR at LNT of complex 2



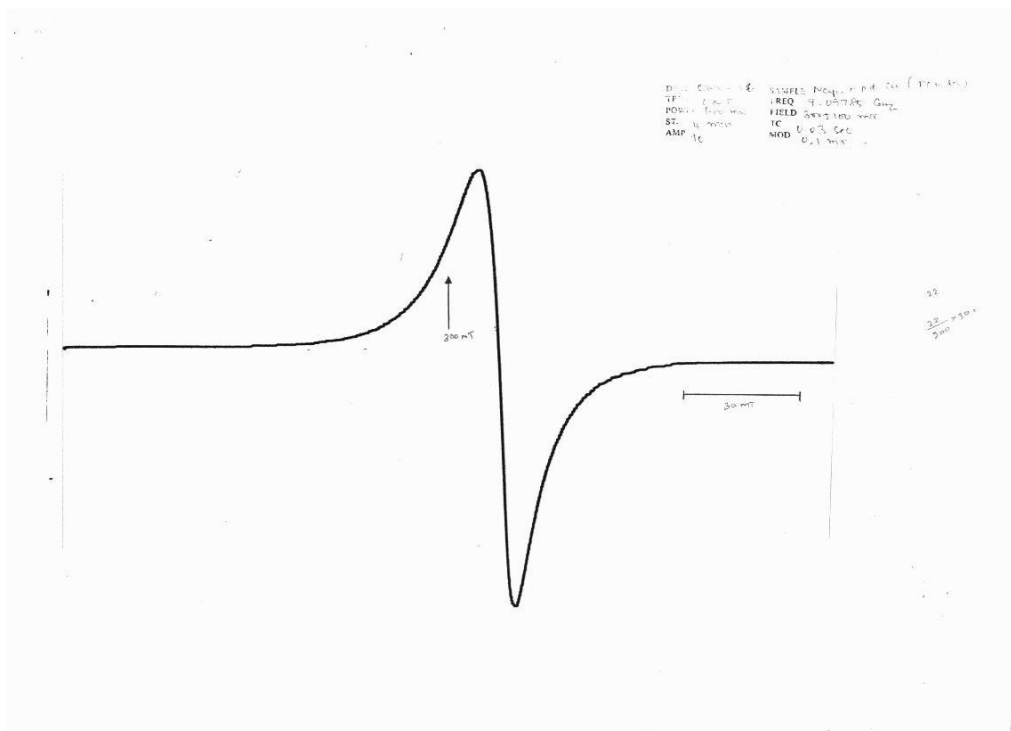
Powder EPR at LNT of complex



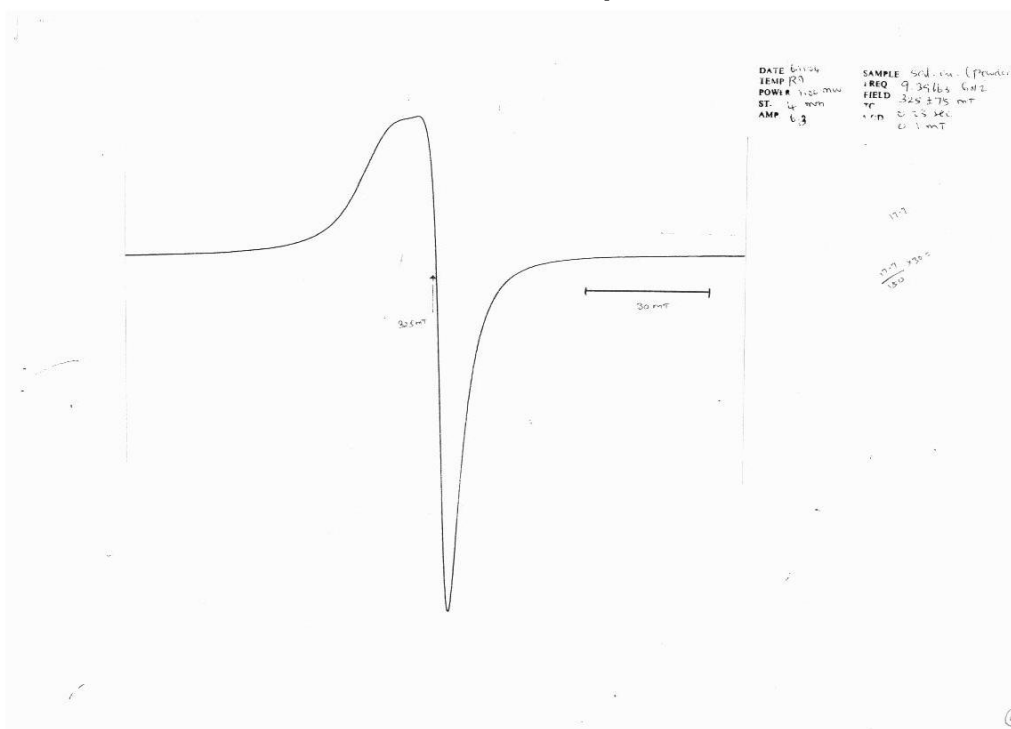
Powder EPR at LNT of complex 4



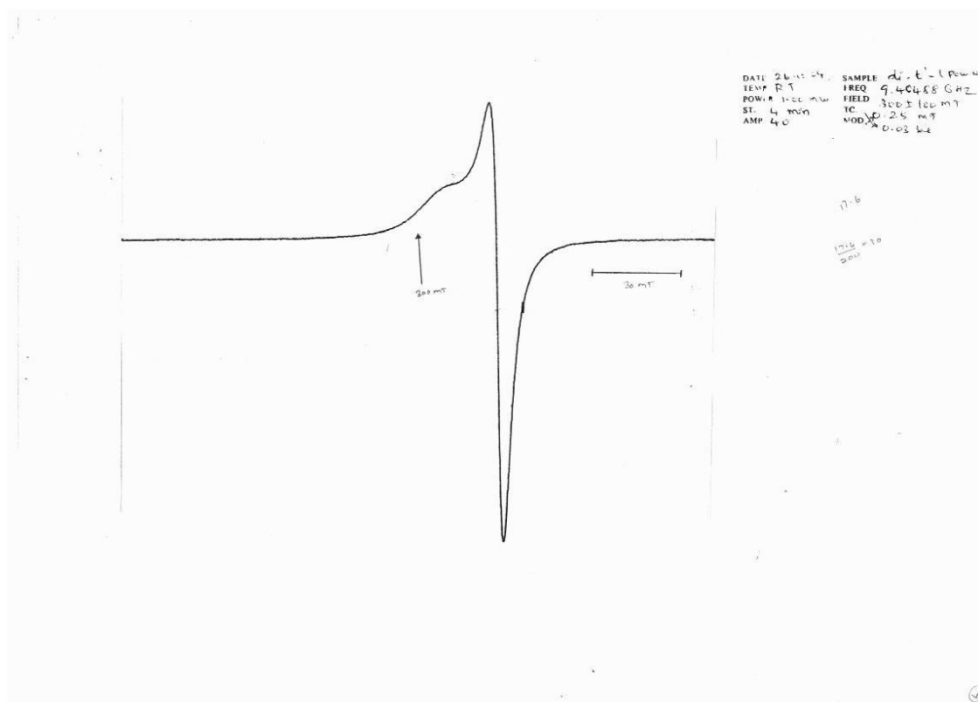
Powder EPR at LNT of complex 5



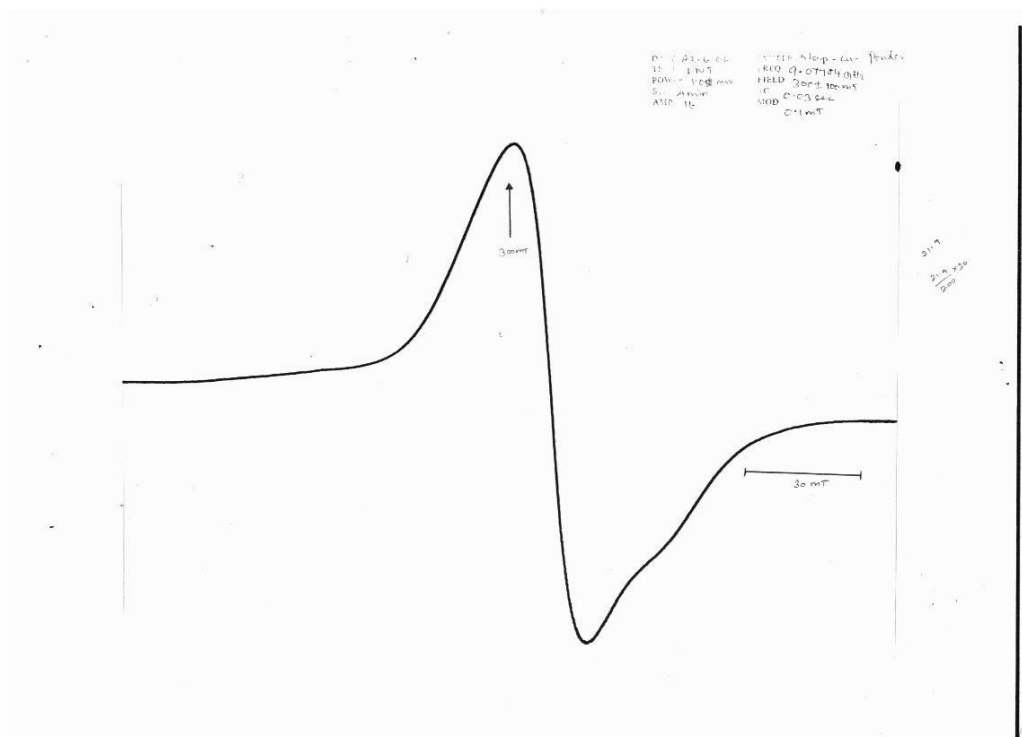
Powder EPR at LNT of complex 6



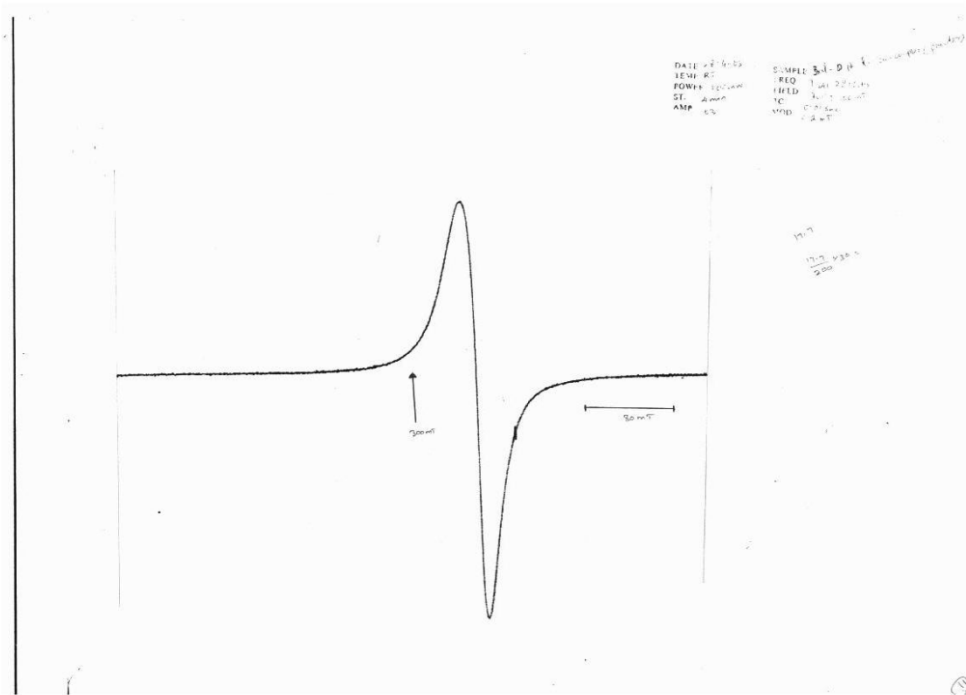
Powder EPR at RT of complex 1



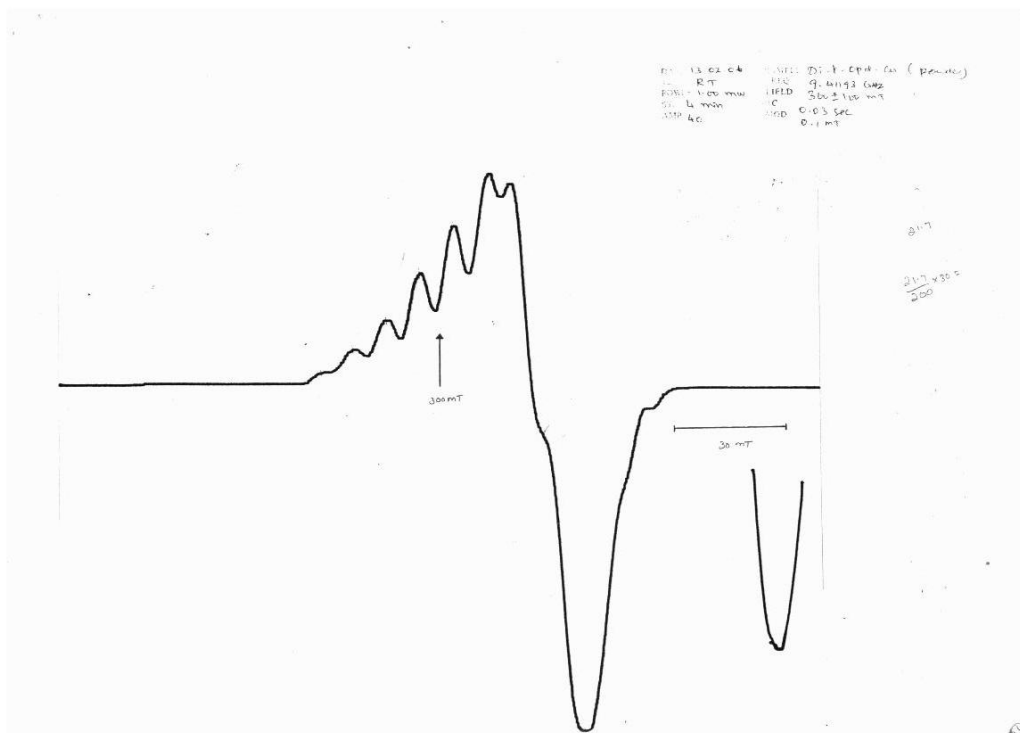
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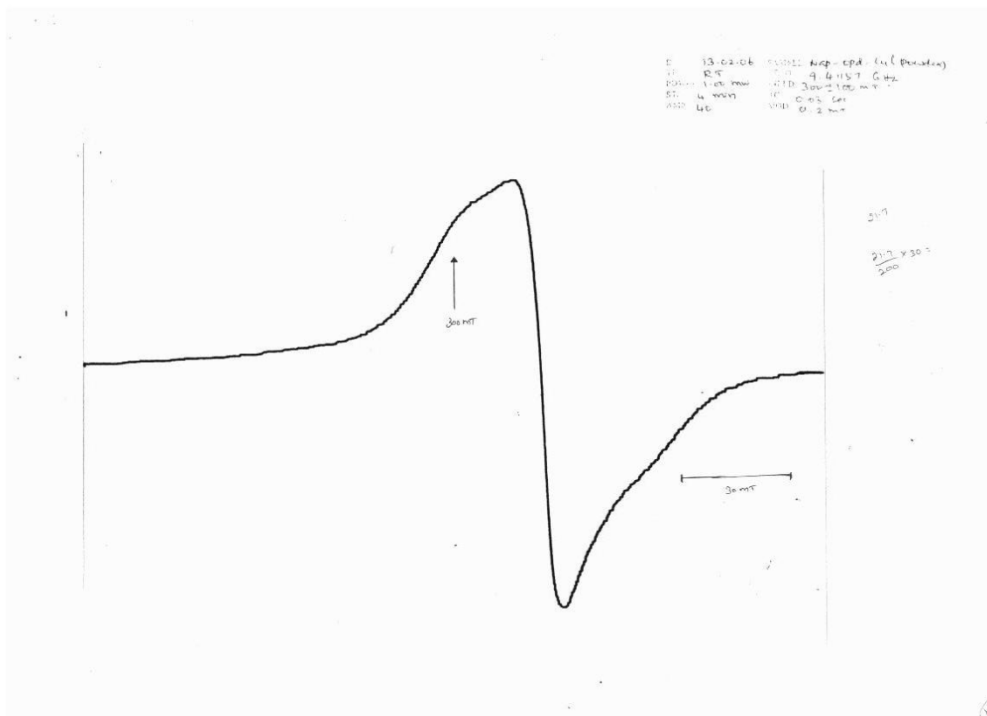
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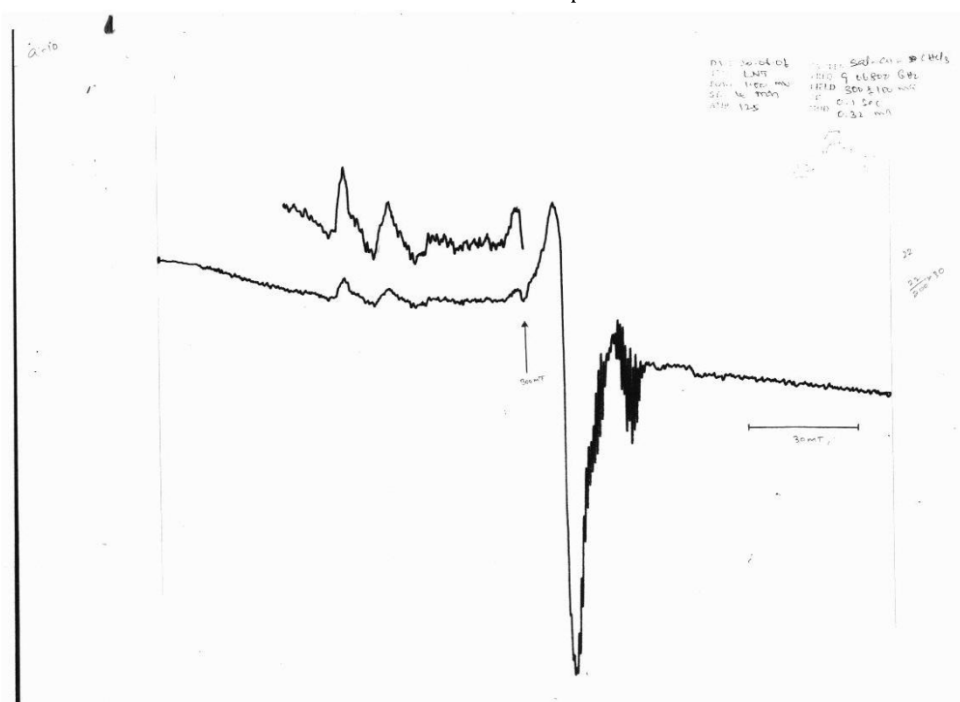
Powder EPR at RT of complex 4



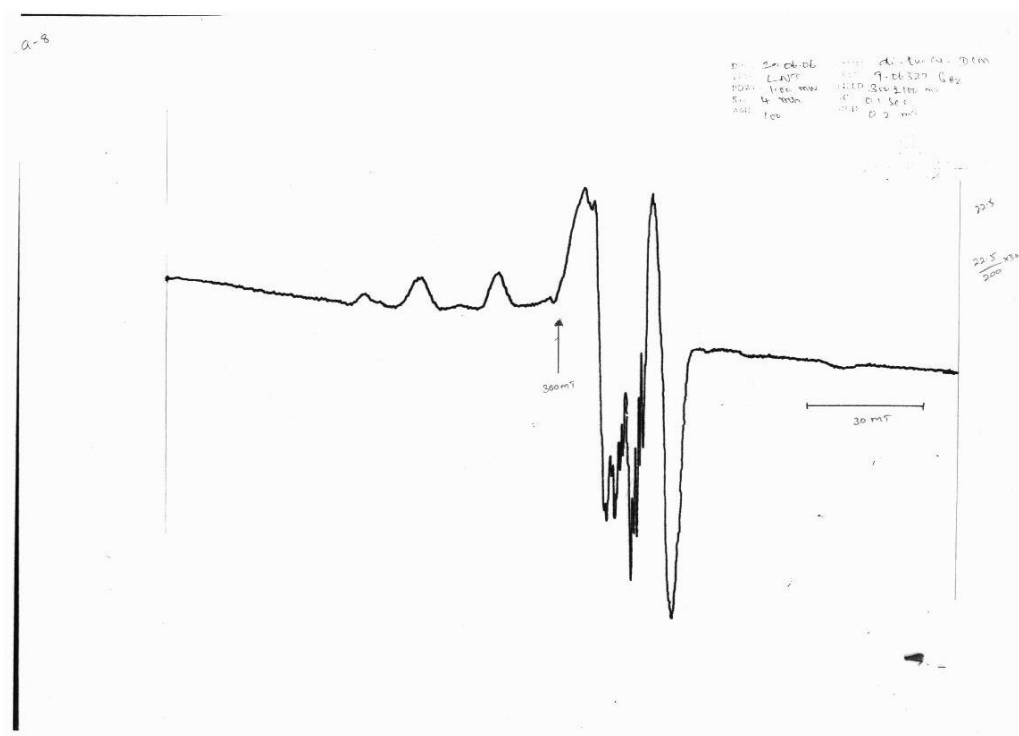
Powder EPR at RT of complex 5



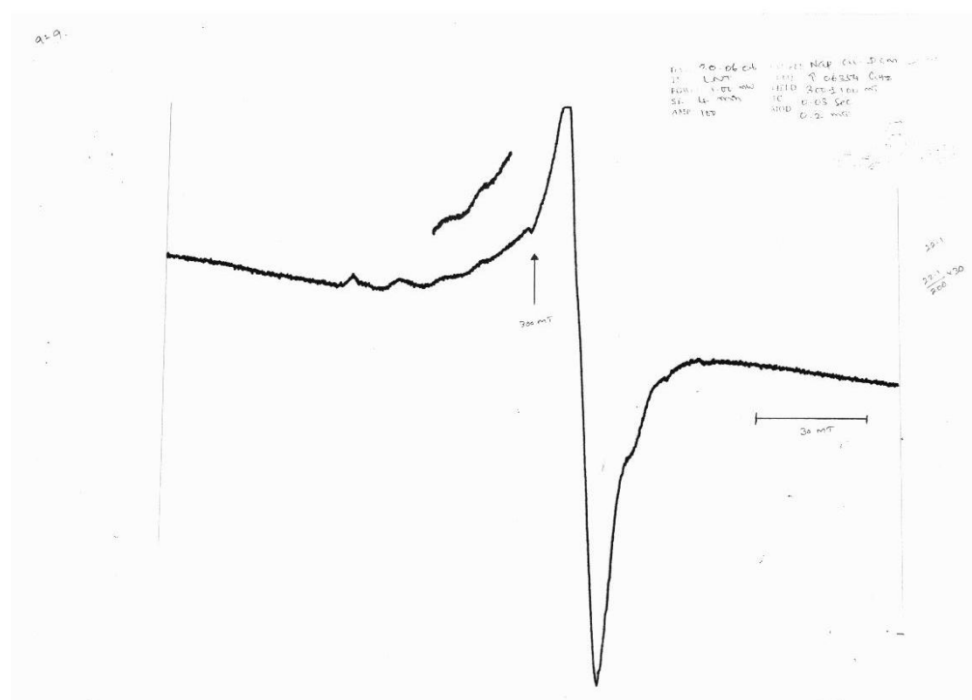
Powder EPR at RT of complex 6



Solution EPR at LNT of complex 1

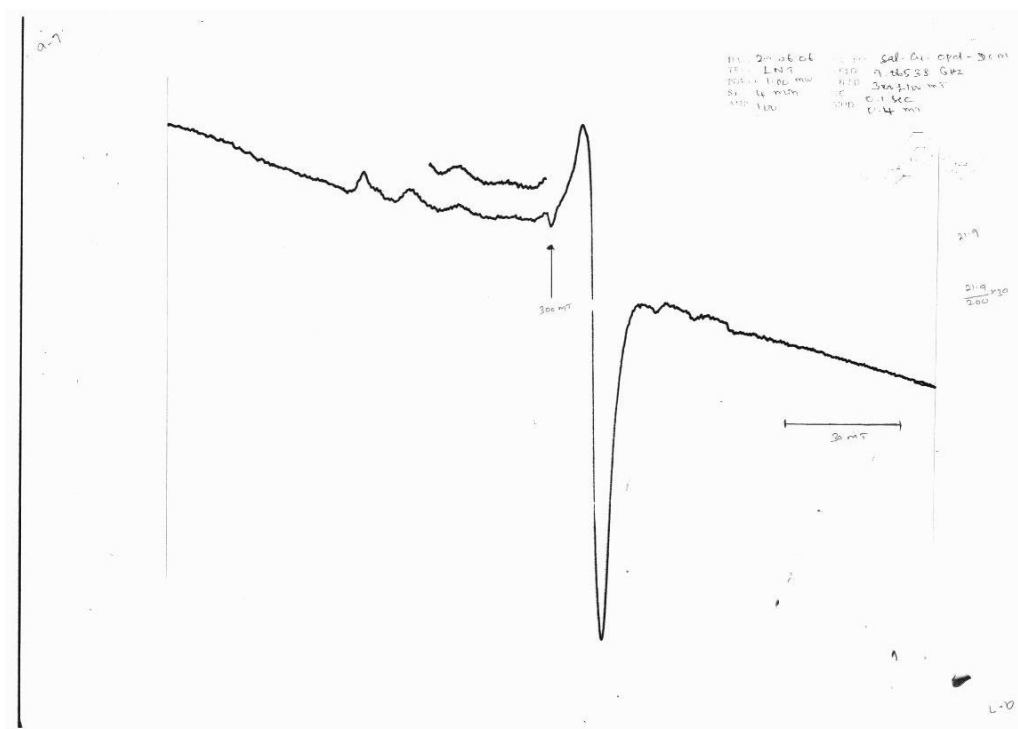


Solution EPR at LNT of complex 2

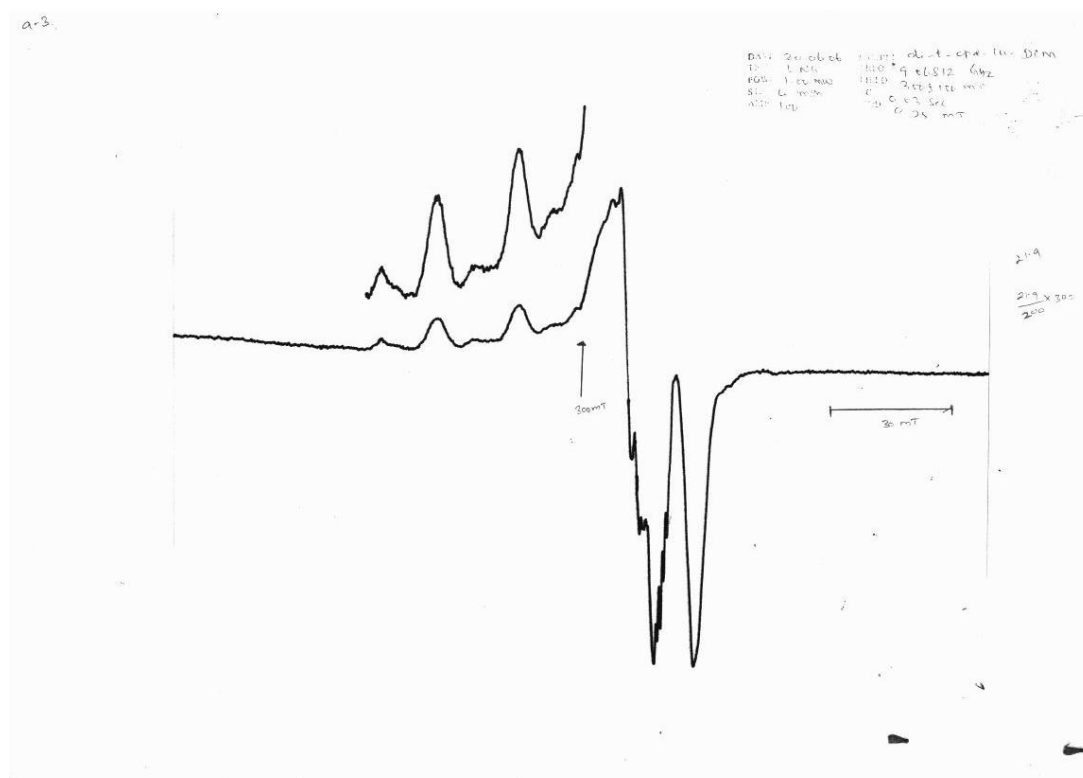


Solution EPR at LNT of complex 3

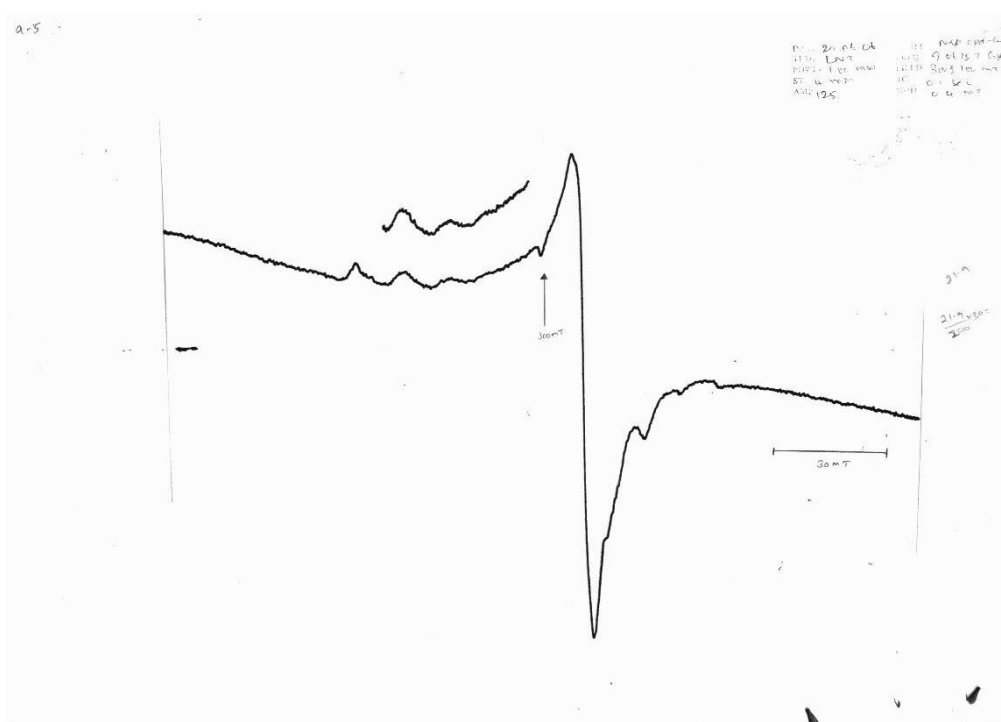




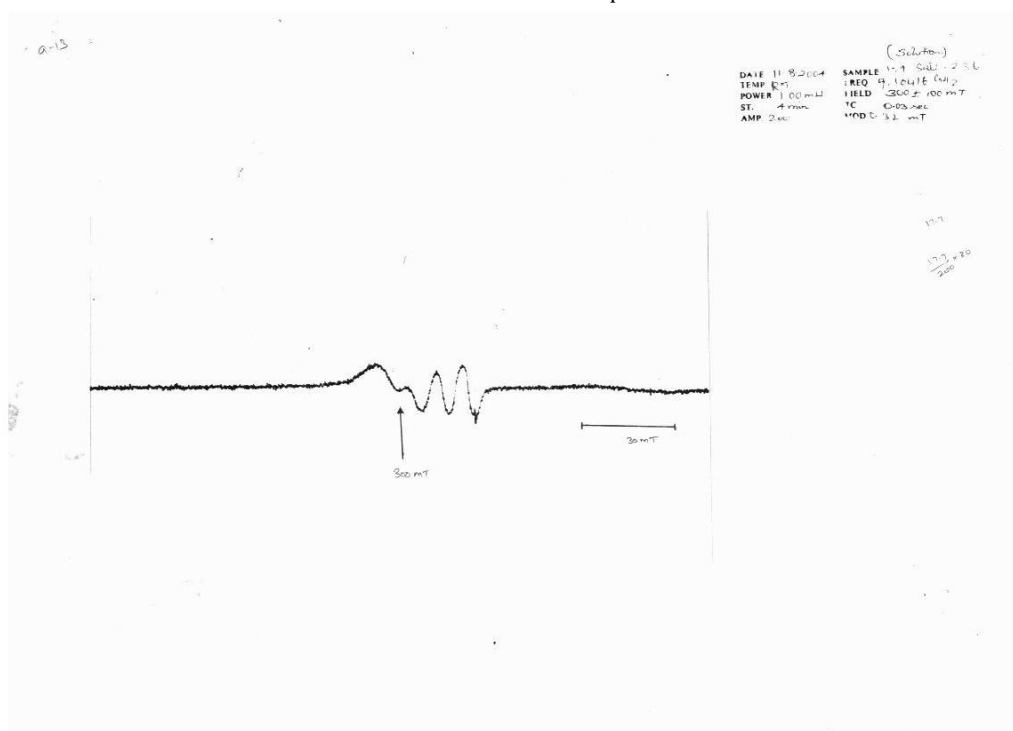
Solution EPR at LNT of complex 4



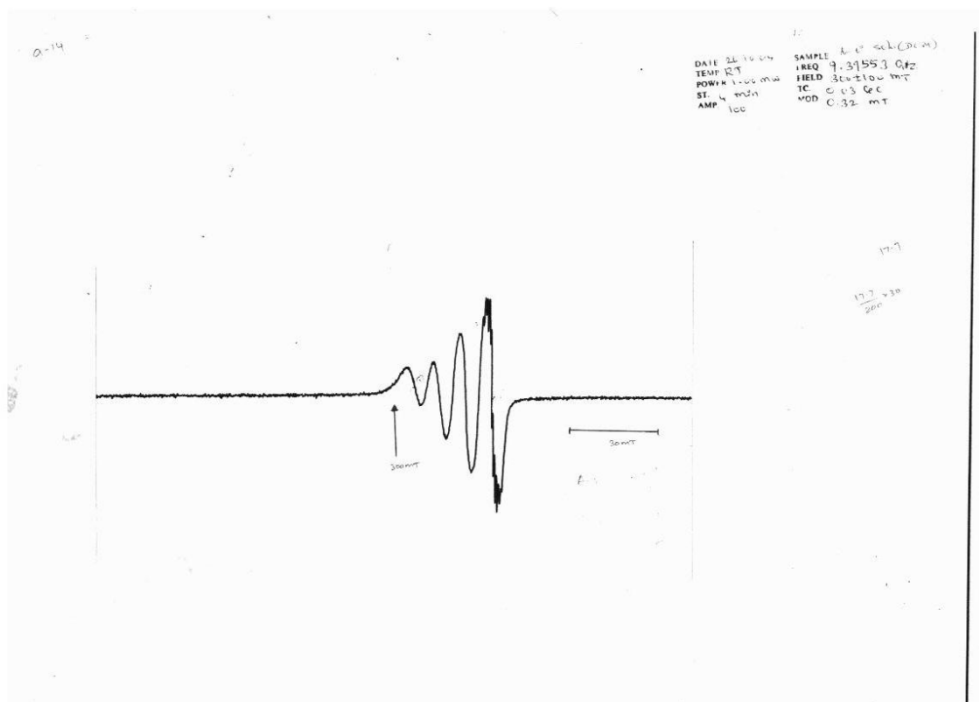
Solution EPR at LNT of complex 5



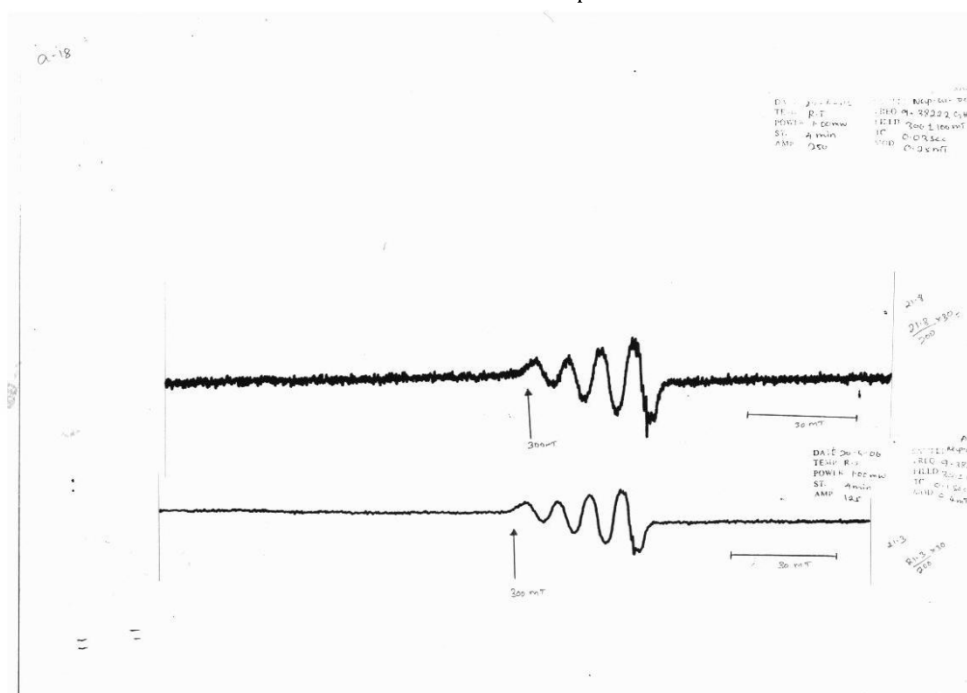
Solution EPR at LNT of complex 6



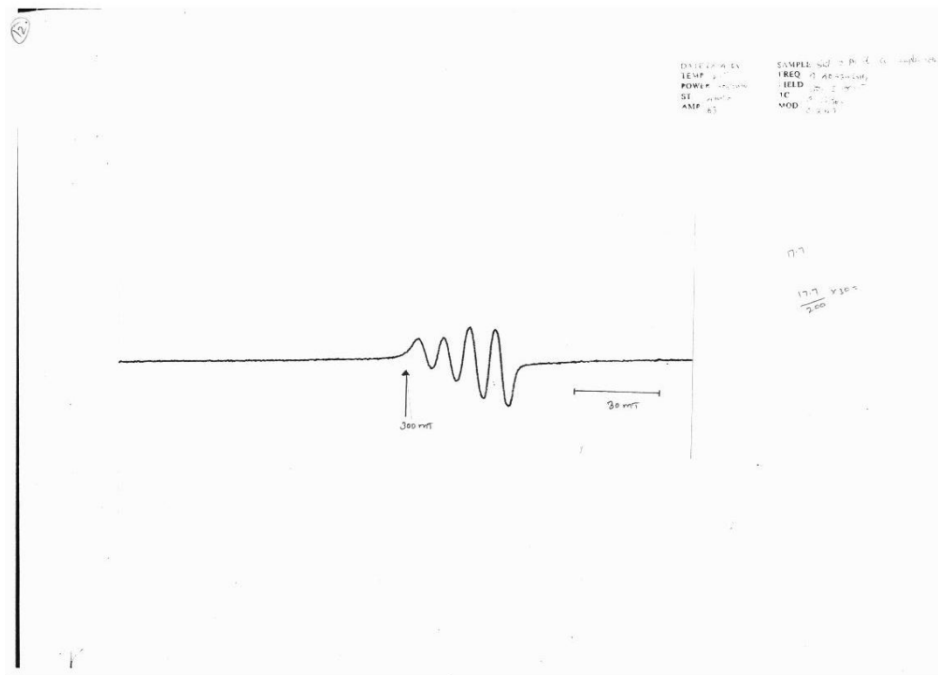
Solution EPR at RT of complex 1



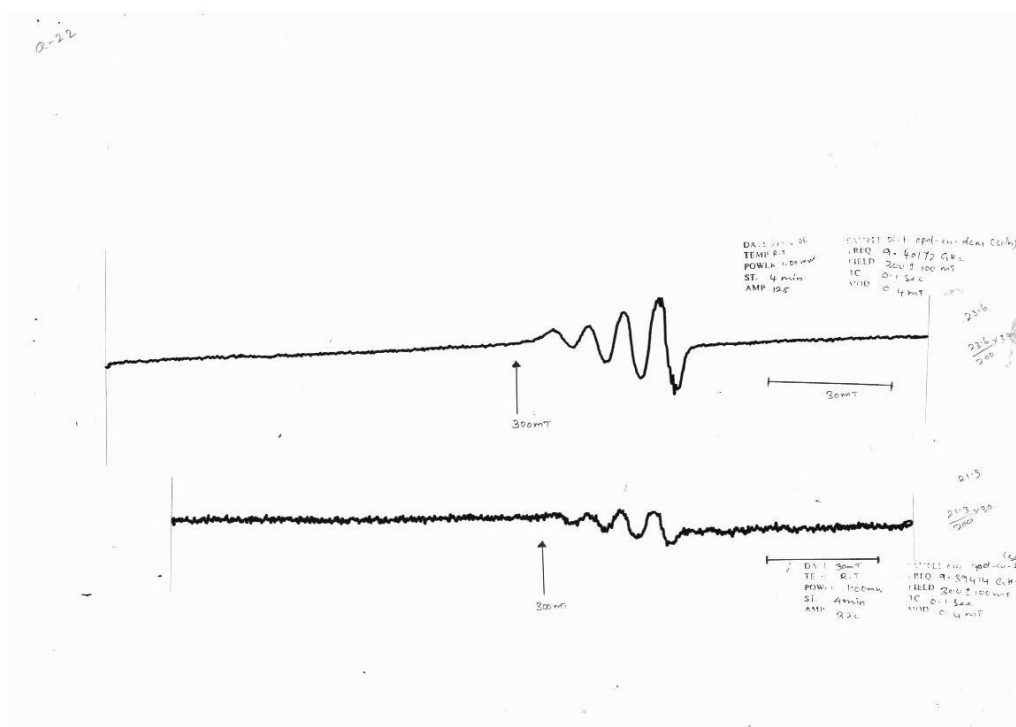
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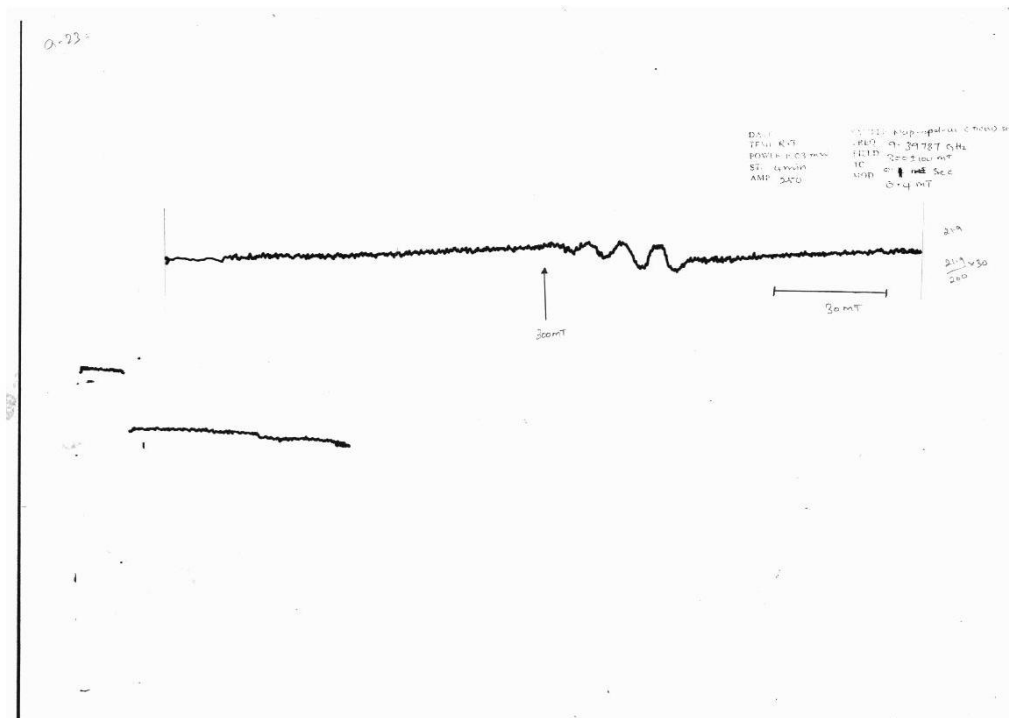
Solution EPR at RT of complex 3



Solution EPR at RT complex 4

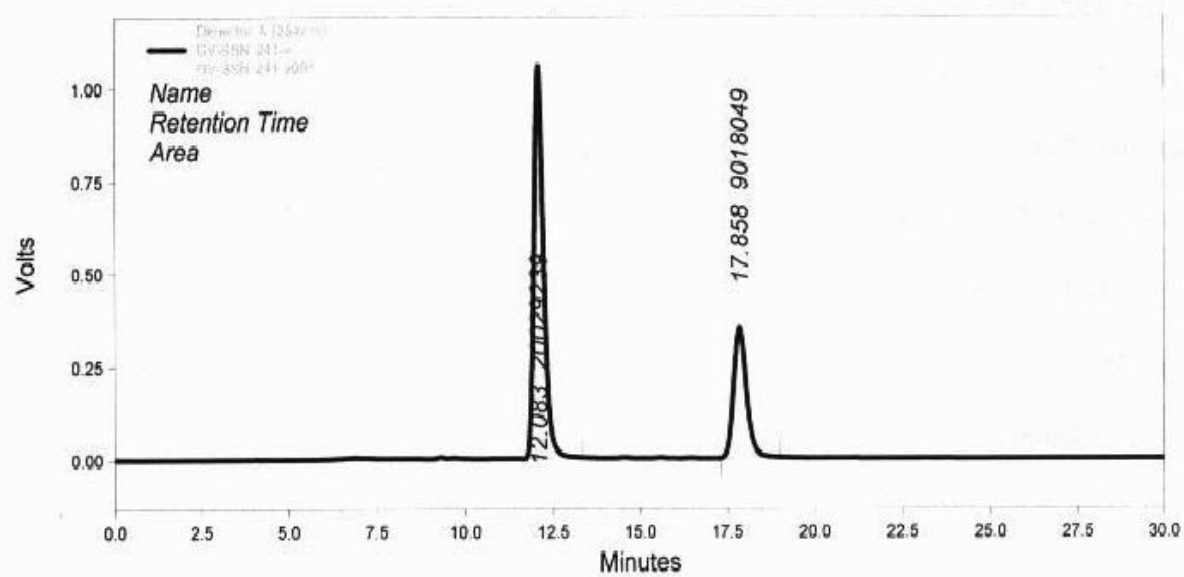


Solution EPR at RT complex 5



Solution EPR at RT complex 6

### Data Graph



### Run Report

Detector A  
(254nm)

Pk #	Retention Time	Area	Height	Area Percent	Integration Codes
1	12.083	20029239	1056732	68.95	MM
2	17.858	9018049	348147	31.05	MM

Chiral HPLC of 3, 3'-Bismethoxycarbonyl-1, 1'-naphthyl-2,2'-diol (**D**) from the coupling of (**B**) catalyzed by Complex 1