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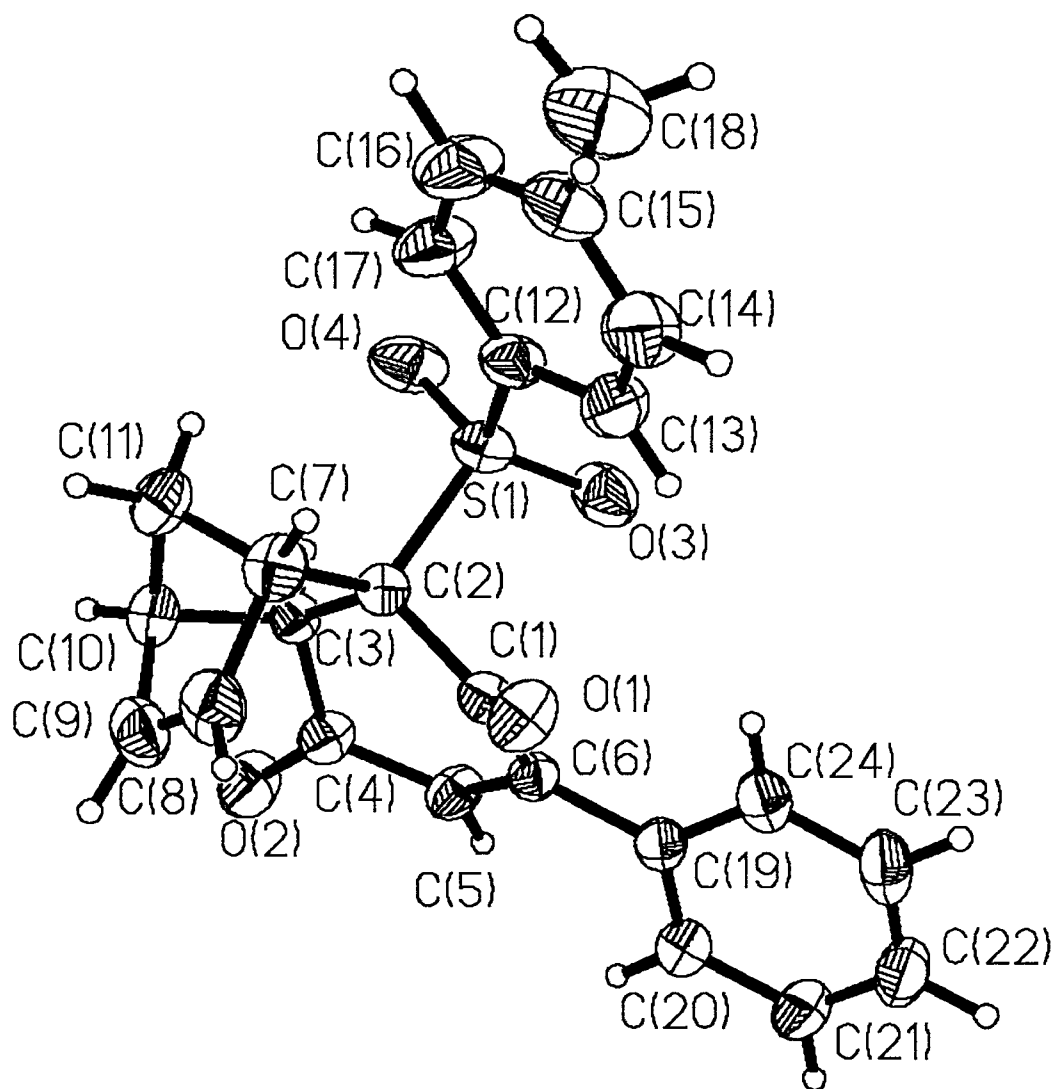


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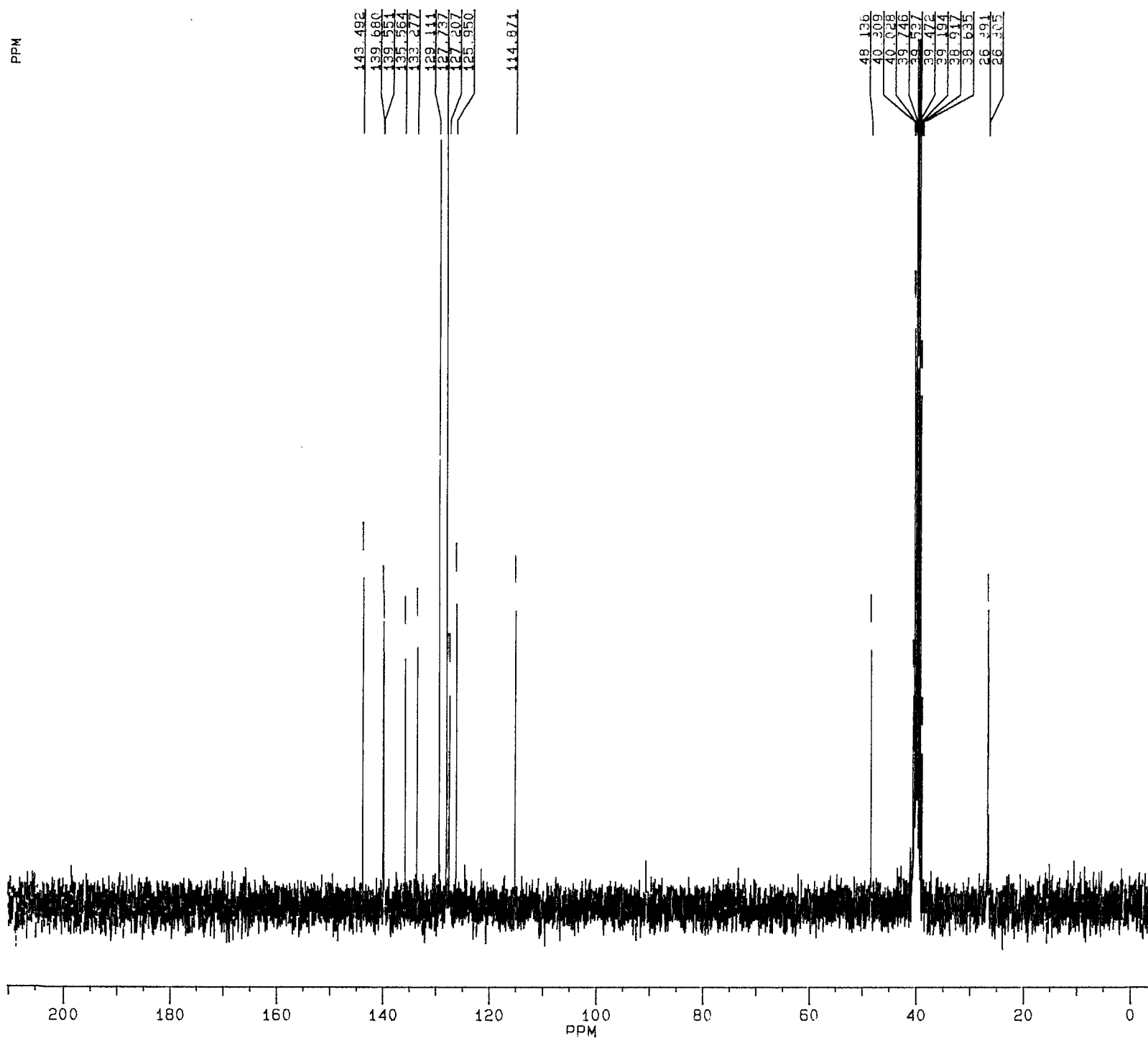
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G12550-1



1,4,8a-trihydro-6-phenyl-4a-toluenesulfonyl-1,4-methanonaphthalene-5,8-dione (7)

1,2,3,4-tetrahydro-6-phenyl-1,4-methanonaphthalene-5,8-diol  
 $^{13}\text{C}$  NMR in  $\text{DMSO}-d_6$ .



OC301F.112  
 AU PROG  
 X02.AU

SF 75.469  
 SY 75.0  
 Q1 6534.943  
 SI 65536  
 ID 65536  
 SW 18518.519  
 HZ/PT .565

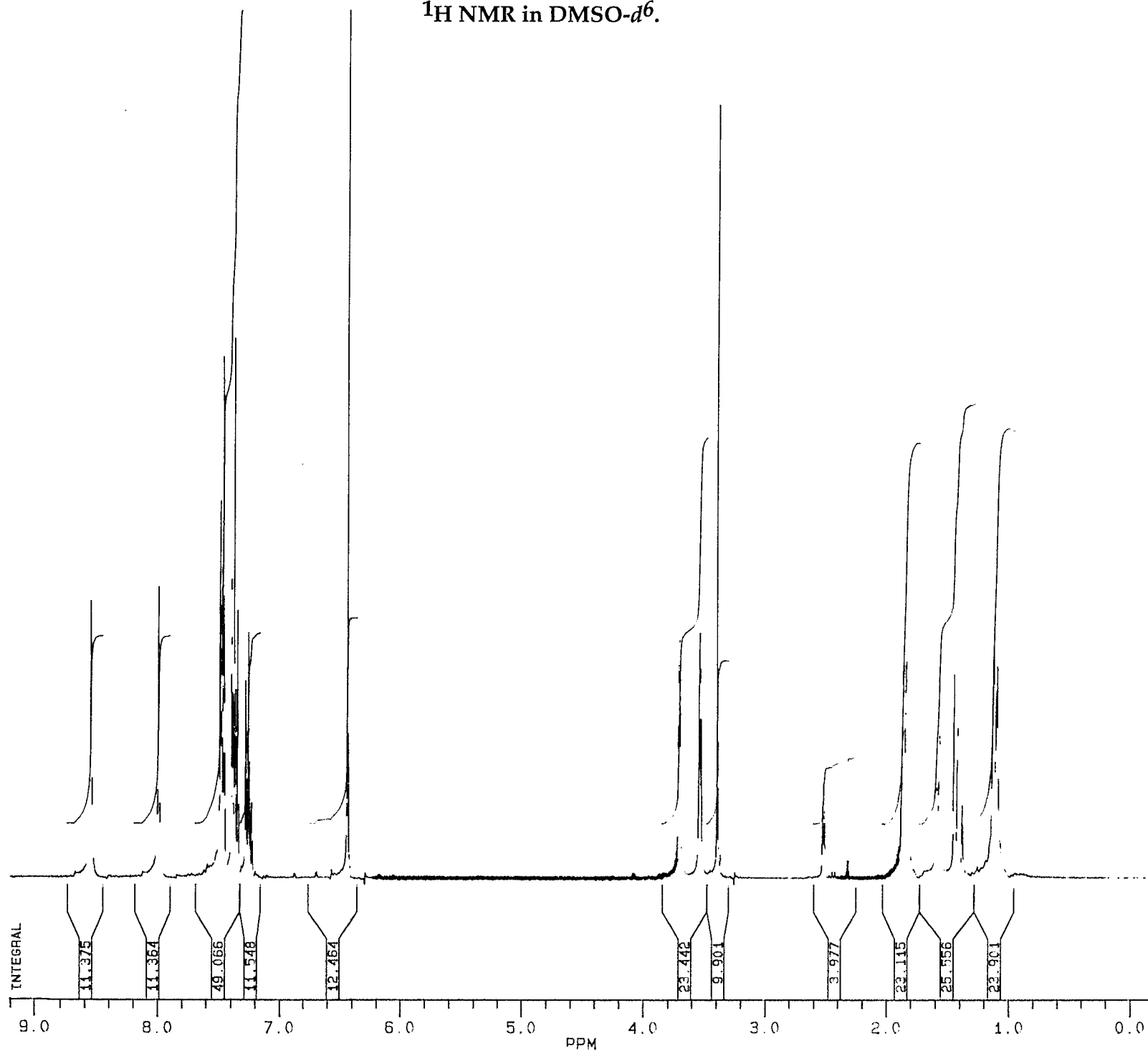
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FW 23200  
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LB 1.000  
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 CY 16.00  
 F1 210.010P  
 F2 -4.981P  
 HZ/CM 754.659  
 PPM/CM 10.000  
 SR -1010.81

672558-2

1,2,3,4-tetrahydro-6-phenyl-1,4-methanonaphthalene-5,8-diol  
<sup>1</sup>H NMR in DMSO-*d*<sub>6</sub>.



OC300F.112  
 AU PROG.  
 X00.4U

SF 300.135  
 SY 210.0  
 Q1 6584.520  
 SI 32768  
 ID 32768  
 SW 6024.096  
 HZ/PT .368

PW 0.0  
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 RG 10  
 NS 16  
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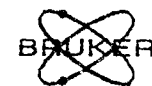
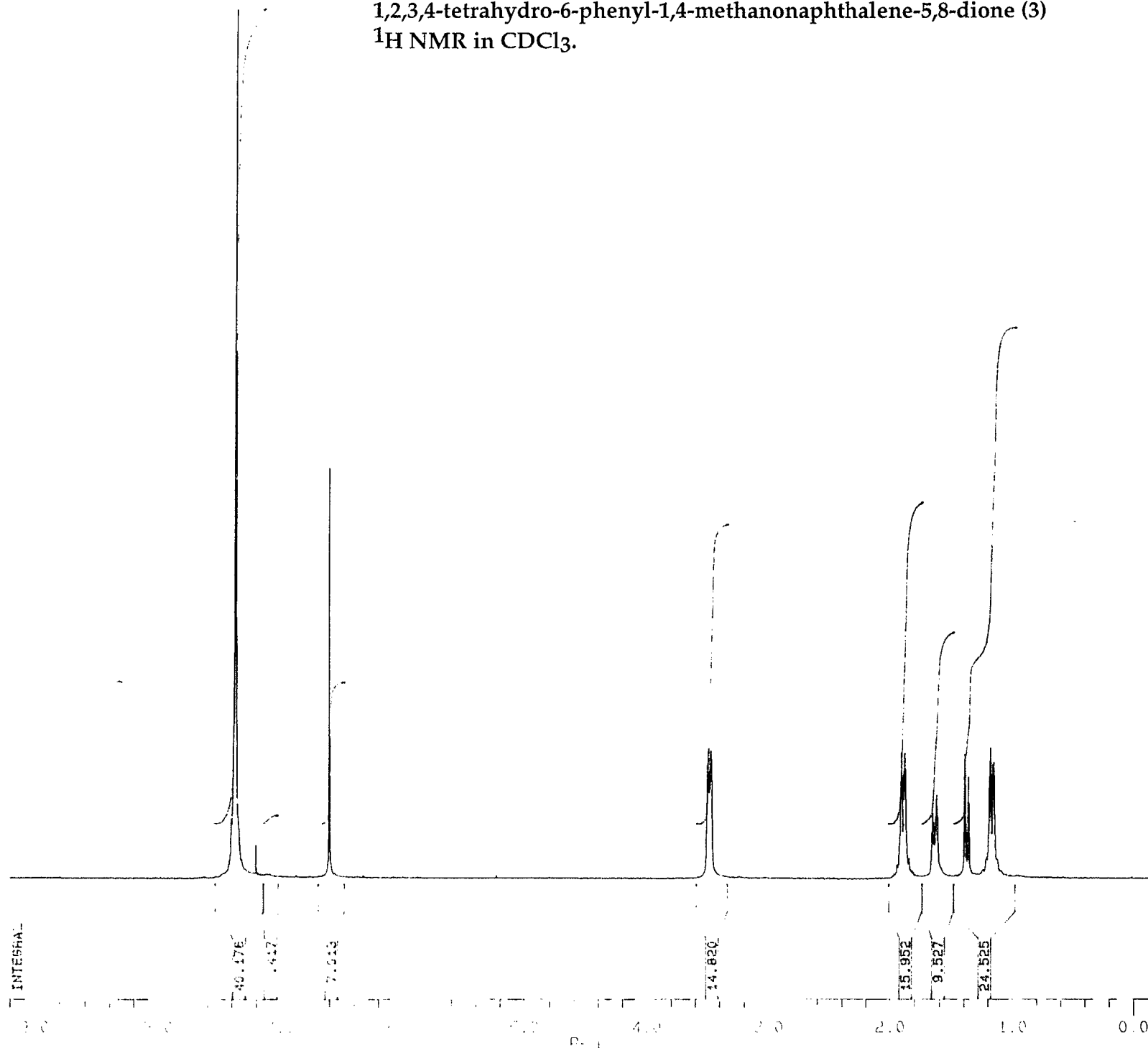
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 F2 -1.200P  
 HZ/CM 131.220  
 PPM/CM .437  
 SR 4784.72

62558-3

62558-4

1,2,3,4-tetrahydro-6-phenyl-1,4-methanonaphthalene-5,8-dione (3)  
<sup>1</sup>H NMR in CDCl<sub>3</sub>.



JU210F.122  
 AU PROG:  
 X00.AU  
 DATE 21-6-95

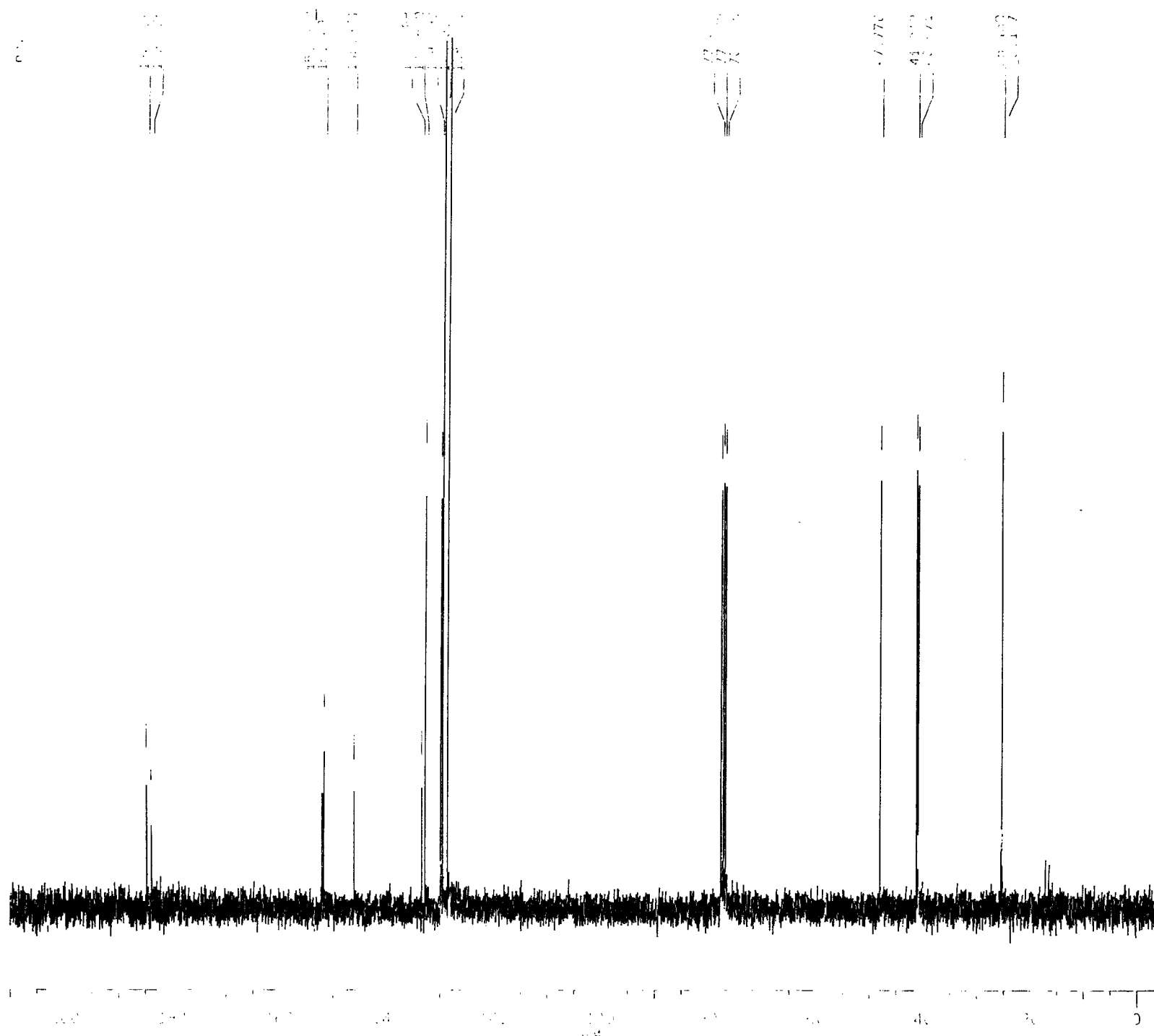
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 NS 16  
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LB .100  
 GB .100  
 CX 21.50  
 CY 16.00  
 F1 9.200P  
 F2 - .200P  
 HZ/CM 131.220  
 PPM/CM .437  
 SR 3385.32

1,2,3,4-tetrahydro-6-phenyl-1,4-methanonaphthalene-5,8-dione (3)  
<sup>13</sup>C NMR in CDCl<sub>3</sub>.



JU211F.122  
 AU PROG:  
 X02.AU  
 DATE 21-6-95

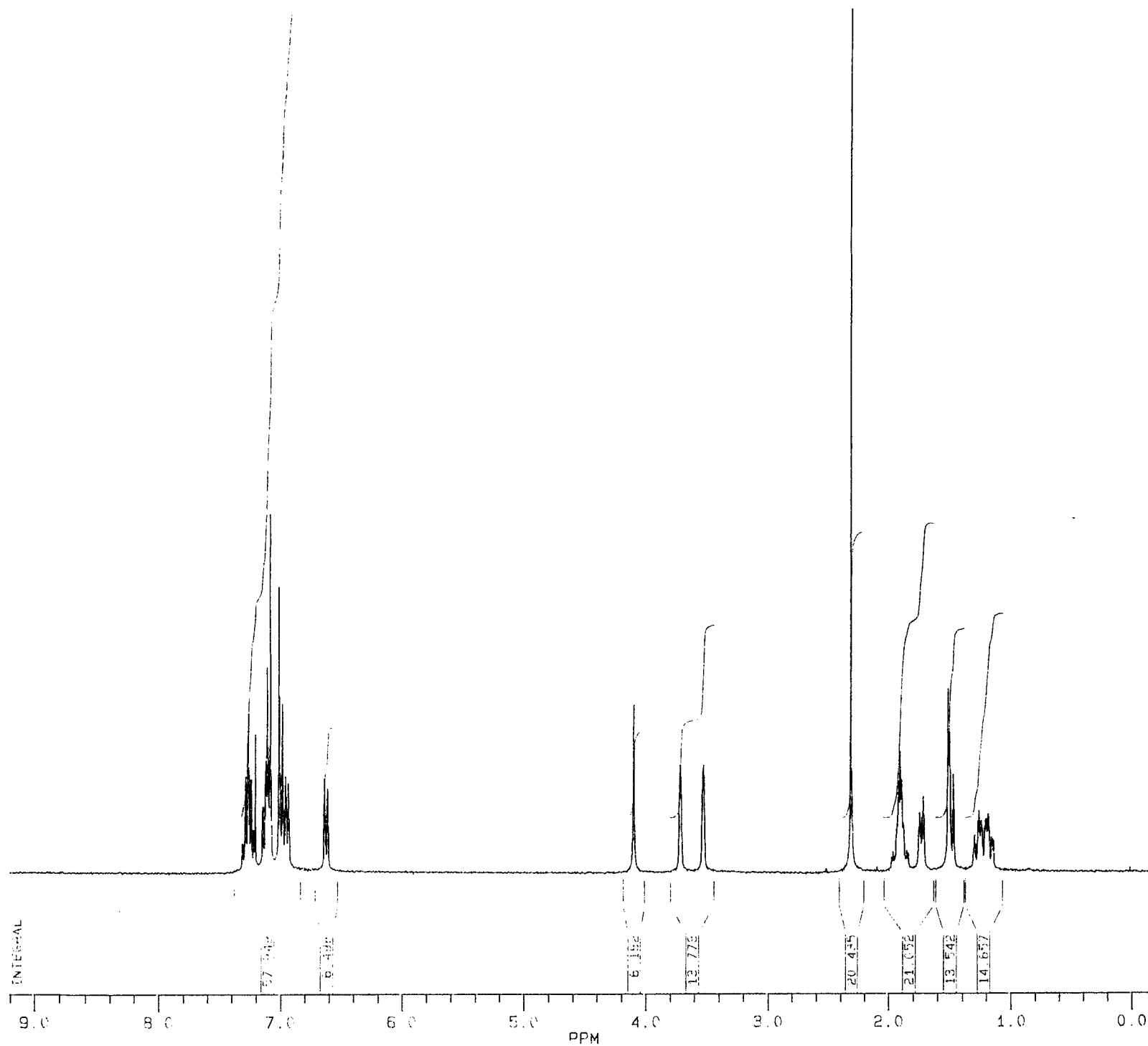
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 AQ 1.769  
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 NS 128  
 TE 297

FW 23200  
 O2 4588.000  
 DP 22H D0

LB 1.000  
 GB .100  
 CX 21.50  
 CY 16.00  
 F1 210.005P  
 F2 -4.987P  
 HZ/CM 754.659  
 PPM/CM 10.000  
 SR -1405.84

1,2,3,4-tetrahydro-6-phenyl-7-toluenesulfonyl-1,4-methanonaphthalene-5,8-diol (4),  $^1\text{H}$  NMR in  $\text{CDCl}_3$ .



SE010F.110  
AU PROG  
X00.AU  
DATE 1-9-95

SF 300.133  
SY 210.0  
O1 5173.724  
SI 32768  
ID 32768  
SW 6024.096  
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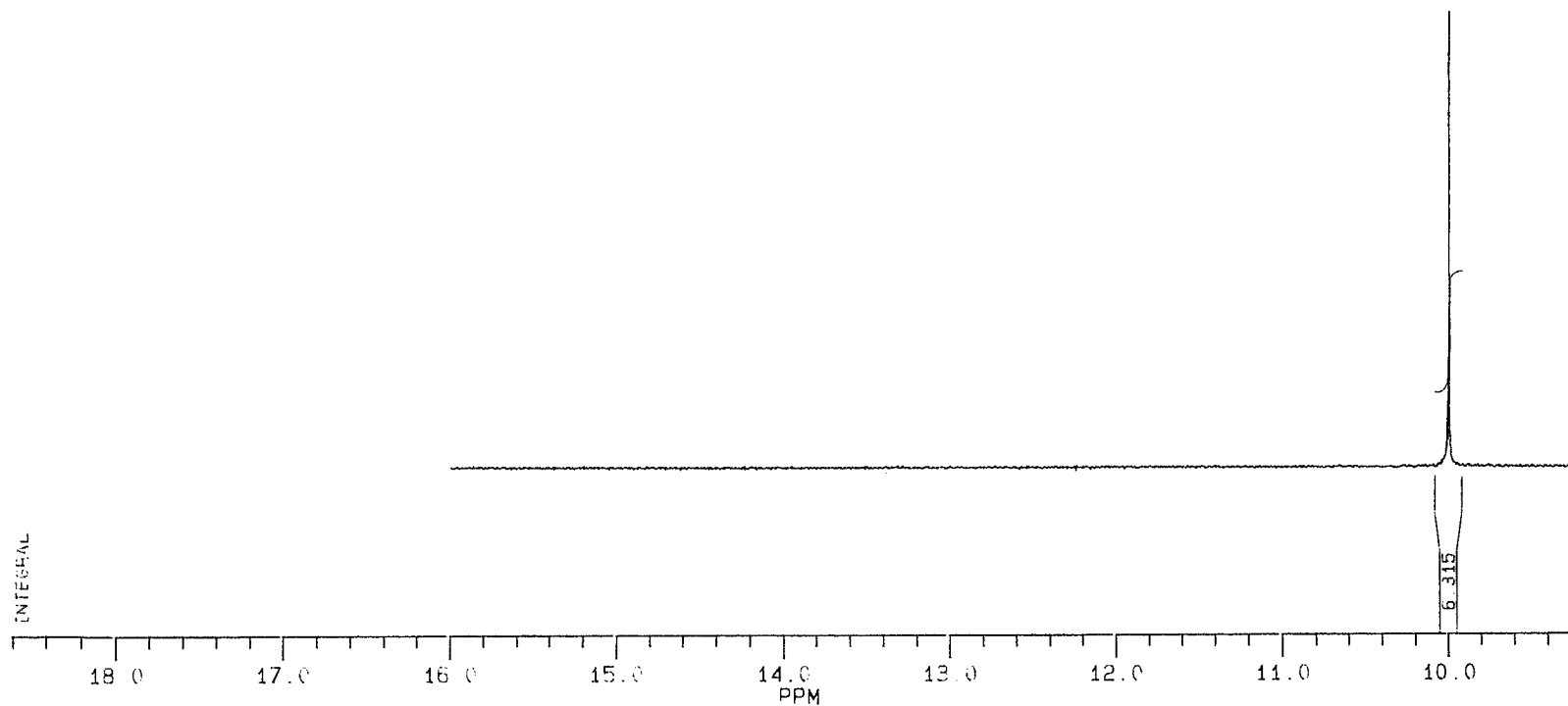
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HZ/CM 131.220  
PPM/CM .437  
SR 3385.32

612558-6

1,2,3,4-tetrahydro-6-phenyl-7-toluenesulfonyl-1,4-methanonaphthalene-5,8-diol (4),  $^1\text{H}$  NMR in  $\text{CDCl}_3$ .

INTEGRAL



SE010F.110  
AU PROG.  
X00. AU  
DATE 1-9-95

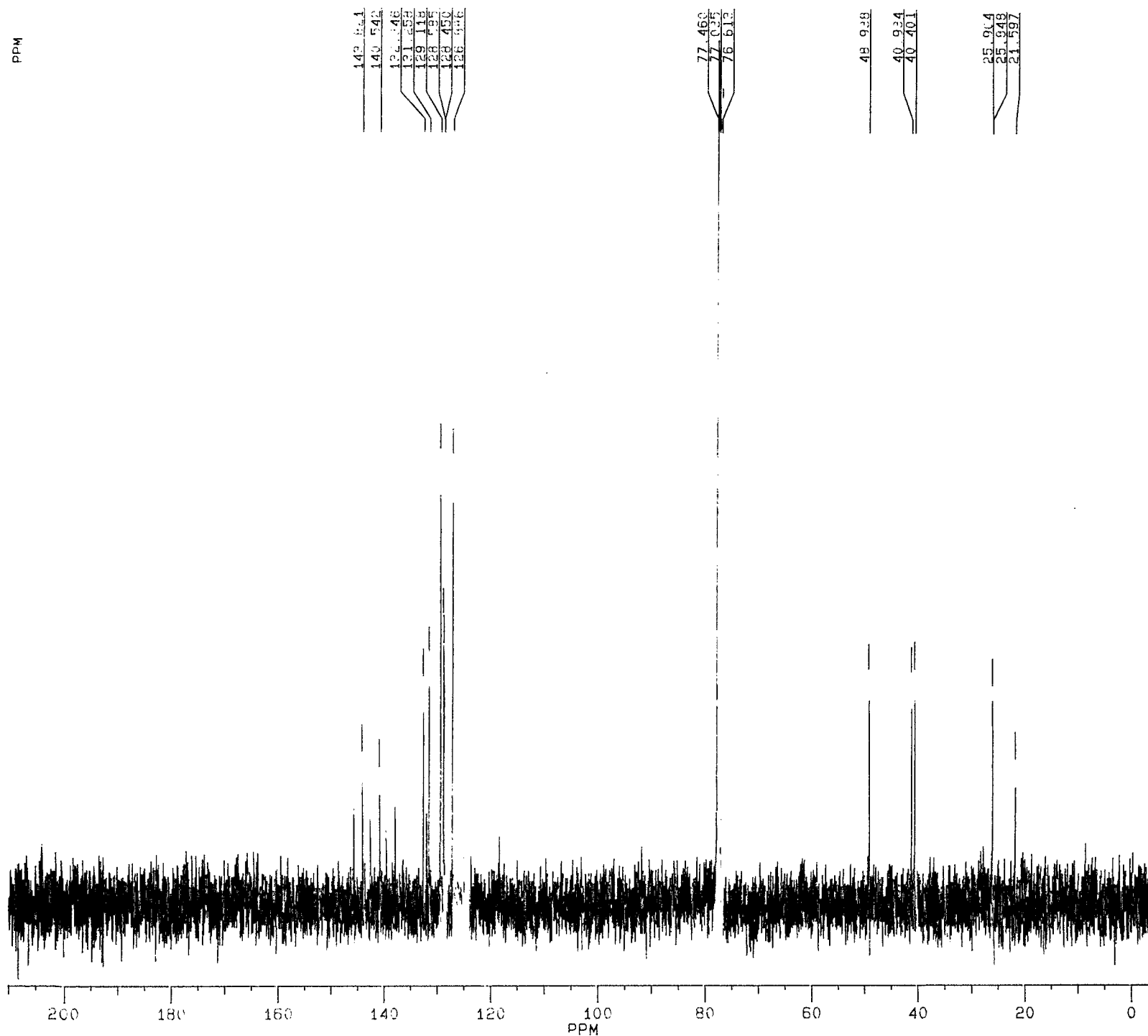
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AQ 2.720  
RG 20  
NS 16  
TE 297

FW 7600  
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DP 63L P0

LB .100  
GB .100  
CX 21.50  
CY 16.00  
F1 18.600P  
F2 9.200P  
HZ/CM 131.220  
PPM/CM .437  
SR 3385.32

1,2,3,4-tetrahydro-6-phenyl-7-toluenesulfonyl-1,4-methanonaphthalene-5,8-diol (4),  $^{13}\text{C}$  NMR in  $\text{CDCl}_3$ .



SE011F.110  
AU PROG.  
X02.AU  
DATE 1-9-95

SF 75.469  
SY 75.0  
O1 6341.100  
SI 65536  
TD 65536  
SW 18518 519  
HZ/PT .565

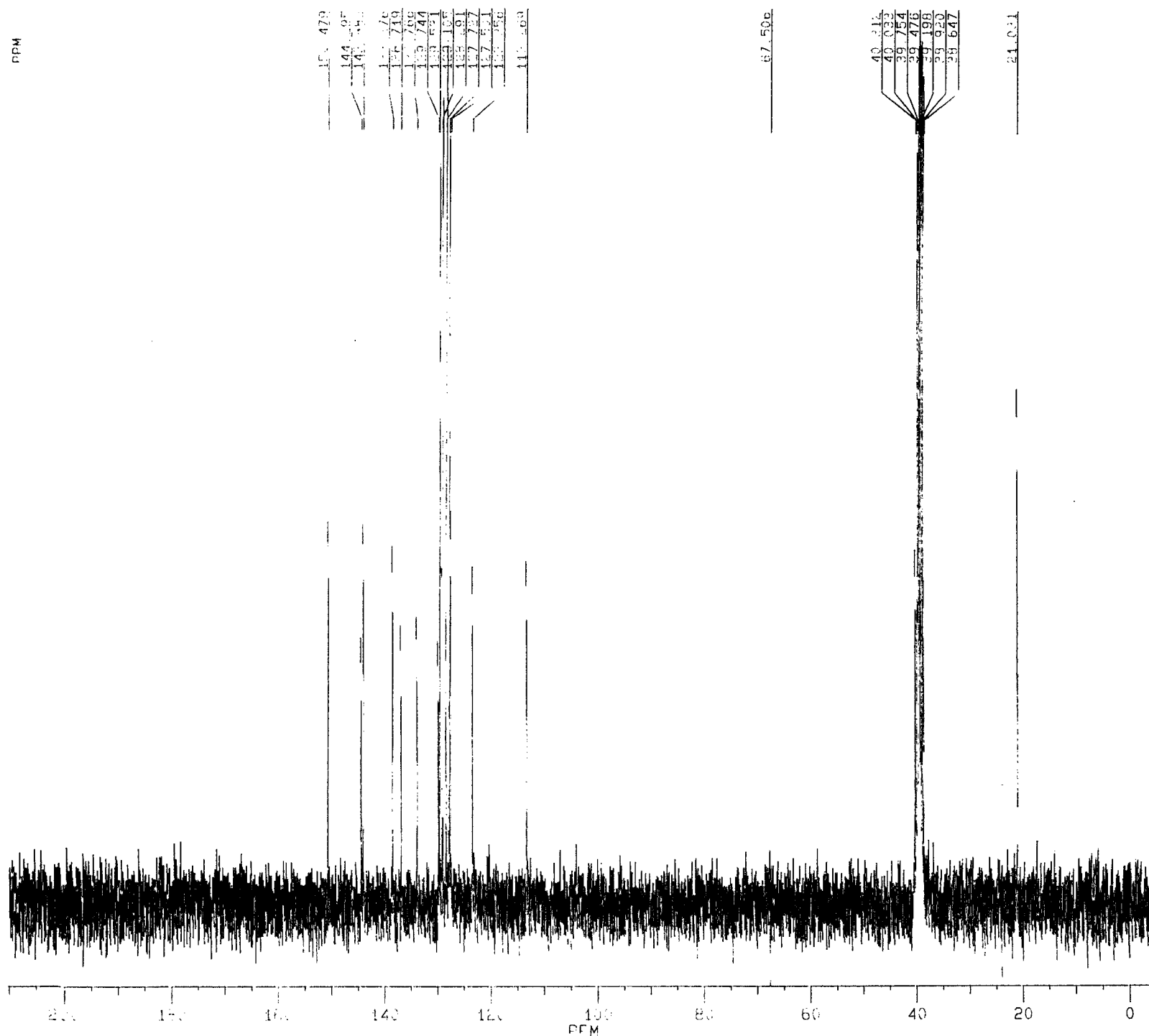
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FW 23200  
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DP 22H D0

LB 1.000  
GB .100  
CX 21.50  
CY 16.00  
F1 210.005P  
F2 -4.987P  
HZ/CM 754.659  
PPM/CM 10.000  
SR -1405.84

512558-9

2-Phenyl-6-toluenesulfonyl-benzene-1,4-diol  
<sup>13</sup>C NMR in DMSO-*d*<sub>6</sub>.



00061F.111  
 AU PROG.  
 X02.AU  
 DATE 6-10-95

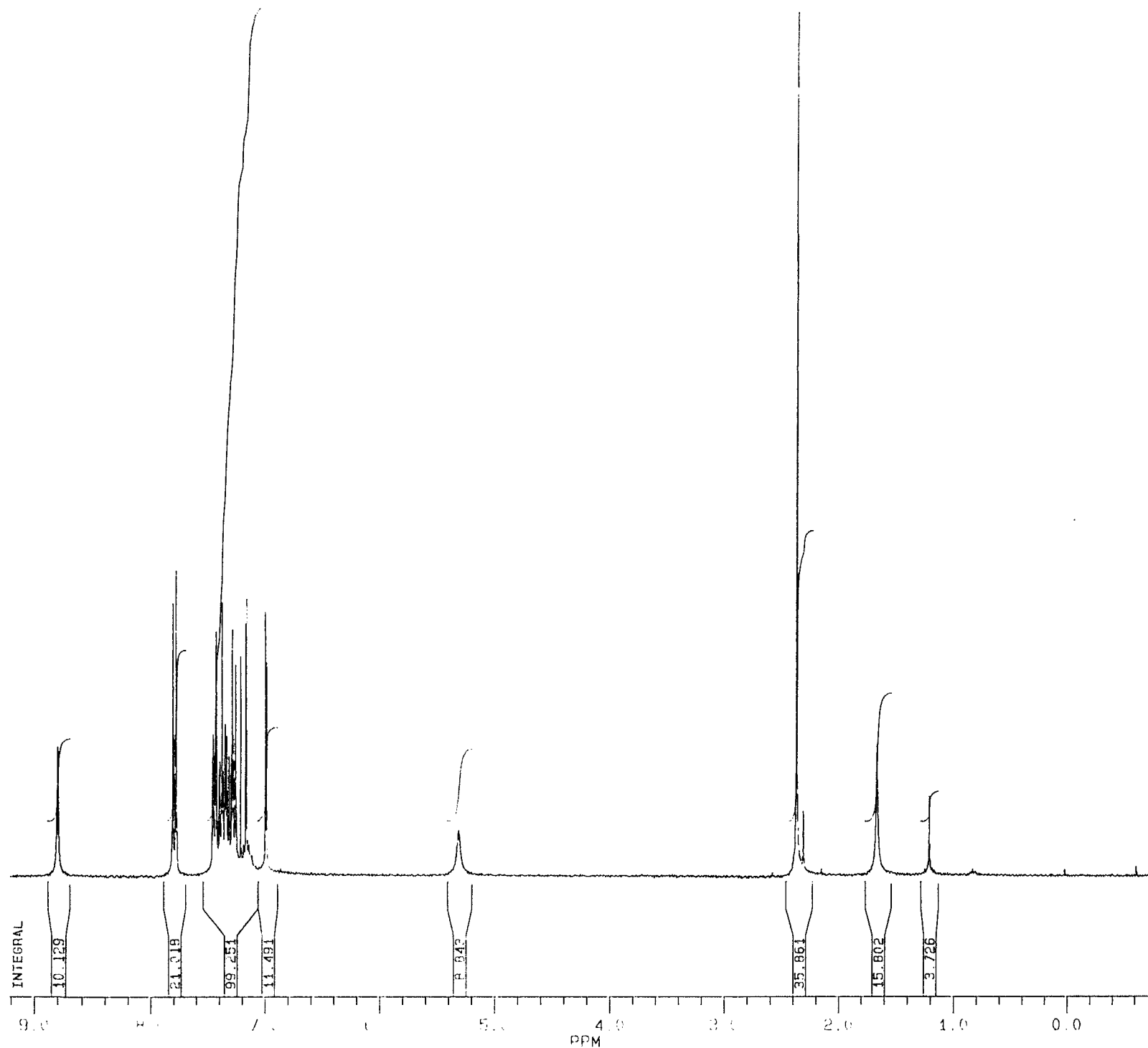
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 SI 65536  
 TD 65536  
 SW 18518.519  
 HZ/PT .565

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 AQ 1.769  
 RG 320  
 NS 128  
 TE 297

FW 23200  
 O2 6000.000  
 DP 22H D0

LB 1.000  
 GB .100  
 CX 21.50  
 CY 16.00  
 F1 210.010P  
 F2 -4.981P  
 HZ/CM 754.659  
 PPM/CM 10.000  
 SR -1010.81

2-Phenyl-6-toluenesulfonyl-benzene-1,4-diol  
<sup>1</sup>H NMR in CDCl<sub>3</sub>.



SE150F.106  
 AU PROG.  
 X00 AU  
 DATE 15-9-95

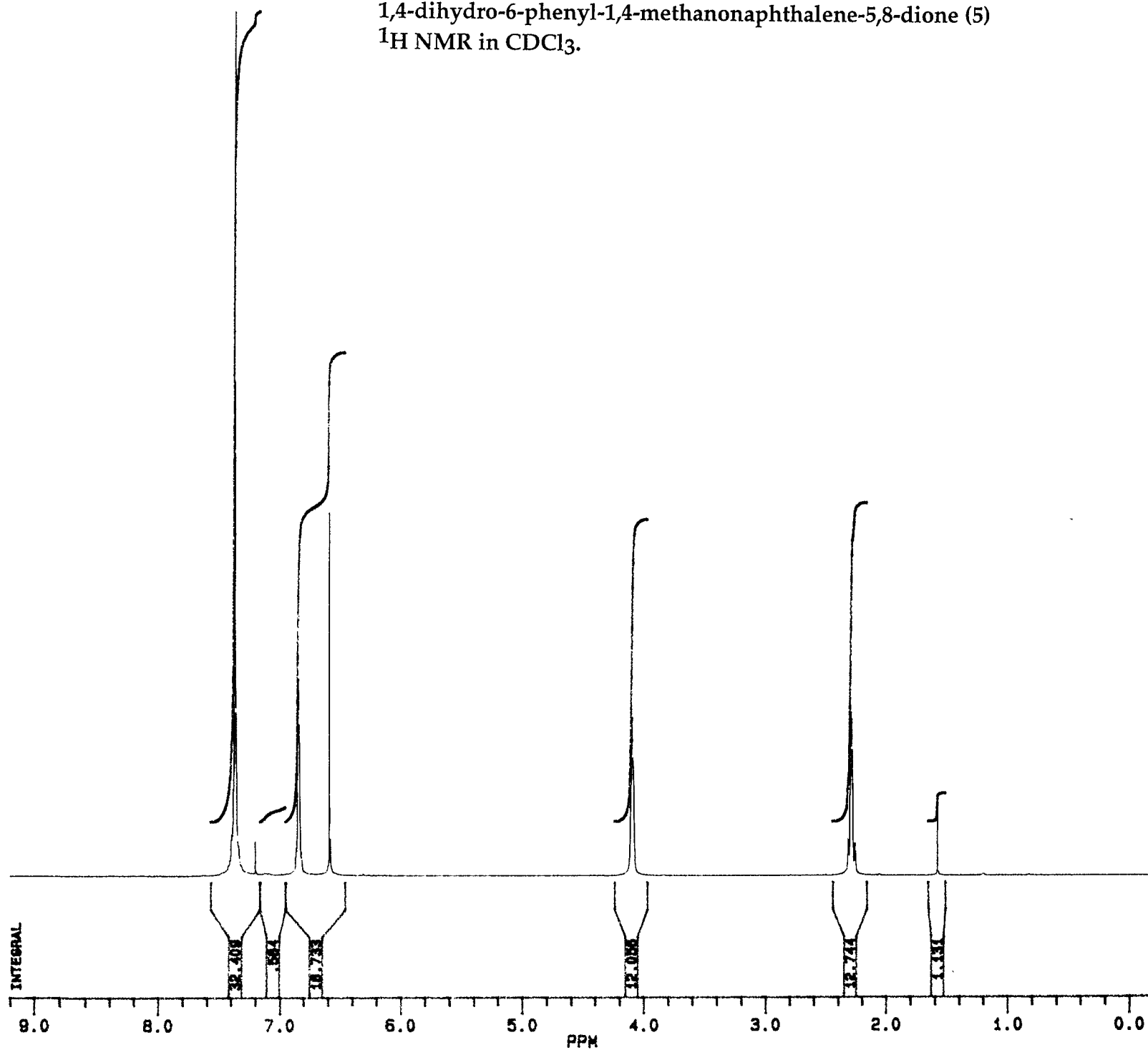
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 AQ 2.720  
 RG 40  
 NS 16  
 TE 297

FW 7600  
 O2 3200.000  
 DP 63L P0

LB .100  
 GB .100  
 CX 21.50  
 CY 16.00  
 F1 9.200P  
 F2 -.800P  
 HZ/CM 139.599  
 PPM/CM .465  
 SR 3385.32

1,4-dihydro-6-phenyl-1,4-methanonaphthalene-5,8-dione (5)  
<sup>1</sup>H NMR in CDCl<sub>3</sub>.



JU300F.107  
 AU PROG:  
 X00.AU  
 DATE 30-6-95

SF 300.133  
 SY 210.0  
 O1 5173.724  
 SI 32768  
 TD 32768  
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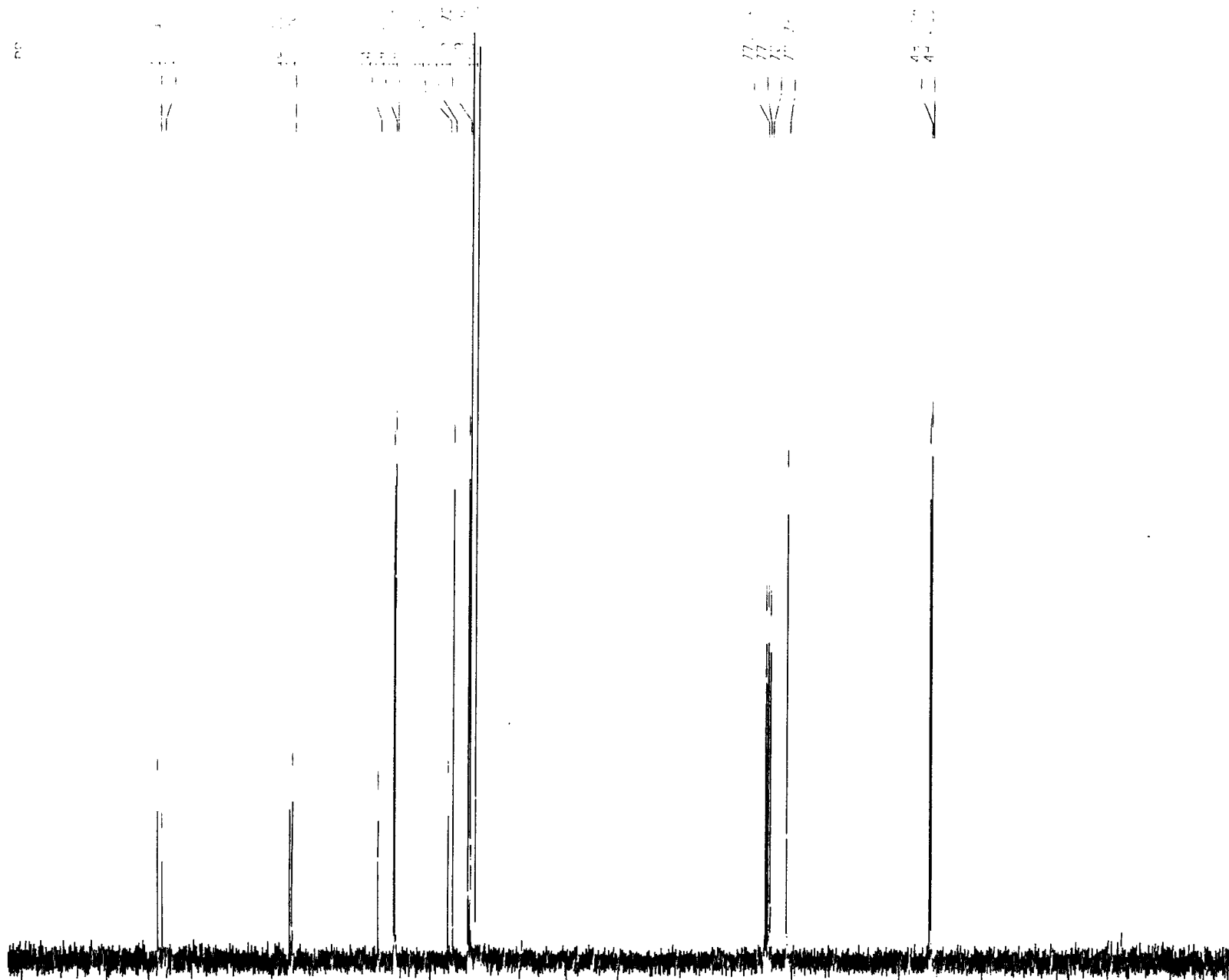
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 TE 297

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LB .100  
 GB .100  
 CX 21.50  
 CY 16.00  
 F1 9.200P  
 F2 .200P  
 HZ/CM 131.220  
 PPM/CM .437  
 SR 3385.32

G1558-11

1,4-dihydro-6-phenyl-1,4-methanonaphthalene-5,8-dione (5)  
<sup>13</sup>C NMR in CDCl<sub>3</sub>.



JU211F.124  
 AU PROG:  
 X02.AU  
 DATE 21-6-95

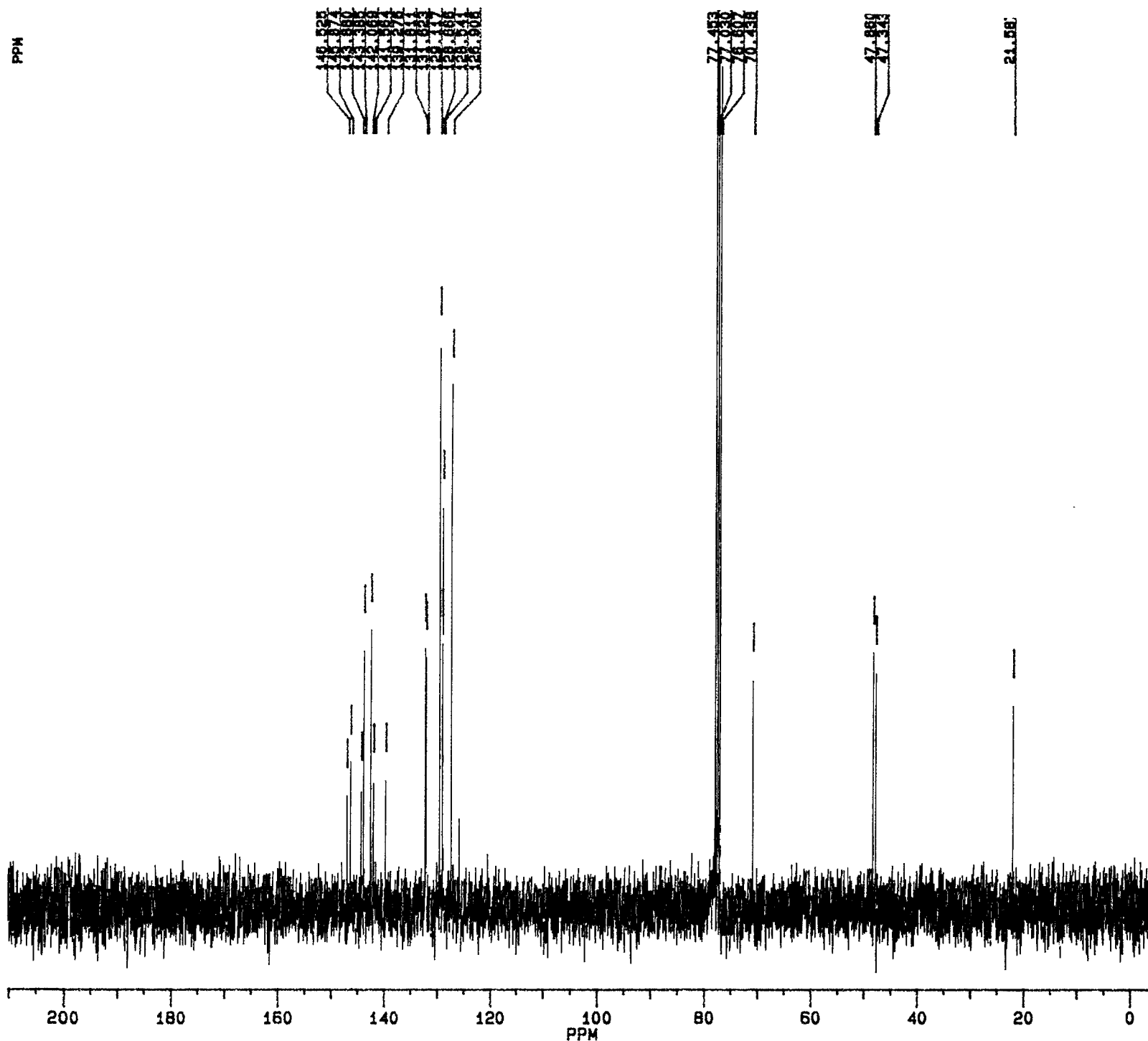
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 SI 65536  
 TD 65536  
 SW 18518.519  
 HZ/PT .565

PW 0.0  
 RD 0.0  
 AQ 1.769  
 RG 320  
 NS 128  
 TE 297

FW 23200  
 O2 4588.000  
 DP 22H 00

LB 1.000  
 GB .100  
 CX 21.50  
 CY 16.00  
 F1 210.005P  
 F2 -4.987P  
 HZ/CM 754.659  
 PPM/CM 10.000  
 SR -1405.84

1,4-dihydro-6-phenyl-7-toluenesulfonyl-1,4-methanonaphthalene-5,8-diol (6)  
<sup>13</sup>C NMR in CDCl<sub>3</sub>.



MY171F.113  
 AU PROS:  
 X02.AU  
 DATE 17-5-93

SF 75.469  
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 SI 65536  
 TD 65536  
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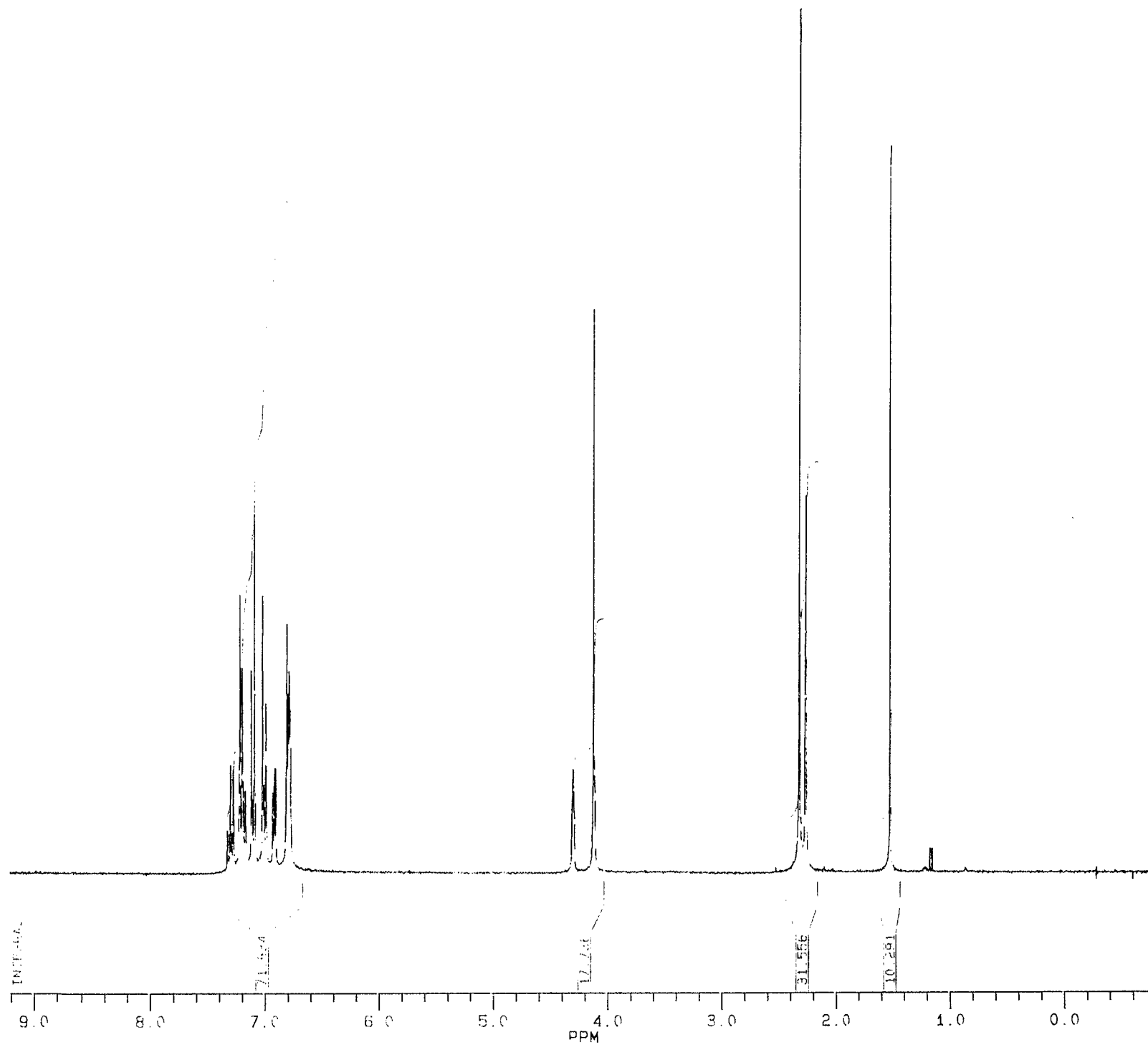
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 RS 320  
 NS 128  
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LB 1.000  
 GB .100  
 CX 21.50  
 CY 15.00  
 F1 210.005P  
 F2 -4.987P  
 HZ/CM 754.659  
 PPM/CM 10.000  
 SR -1405.84

G72558-13

1,4-dihydro-6-phenyl-7-toluenesulfonyl-1,4-methanonaphthalene-5,8-diol (6)  
<sup>1</sup>H NMR in CDCl<sub>3</sub>.



SE070F.114  
 AU PROG.  
 X00.AU  
 DATE 7-9-95

SF 300.133  
 SY 210.0  
 O1 5173.724  
 SI 32768  
 ID 32768  
 SW 6024.096  
 HZ/PT .368

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 NS 16  
 TE 297

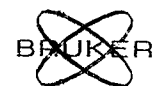
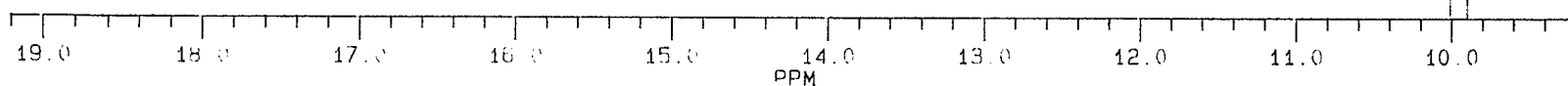
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 CX 21.50  
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 F2 -.800P  
 HZ/CM 139.599  
 PPM/CM .465  
 SR 3385.32

672558-15

1,4-dihydro-6-phenyl-7-toluenesulfonyl-1,4-methanonaphthalene-5,8-diol (6)  
<sup>1</sup>H NMR in CDCl<sub>3</sub>.

INTEGRAL



SE070F.114  
 AU PROG.  
 X00.AU  
 DATE 7-9-95

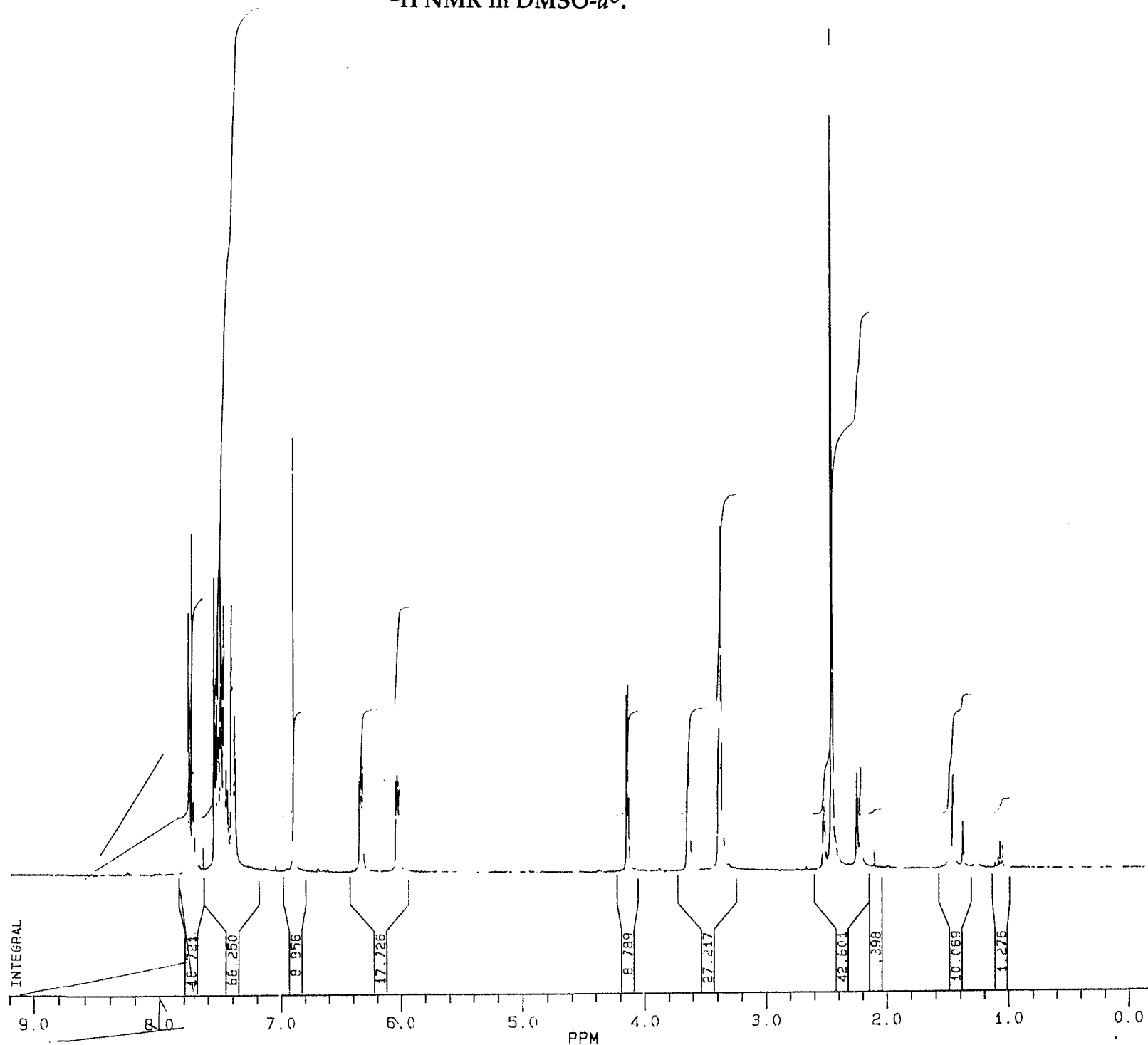
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 AQ 2.720  
 RG 64  
 NS 16  
 TE 297

FW 7600  
 Q2 3200.000  
 DP 63L P0

LB .100  
 GB .100  
 CX 21.50  
 CY 16.00  
 F1 19.200P  
 F2 9.200P  
 HZ/CM 139.599  
 PPM/CM .465  
 SR 3385 32

1,4,8a-trimethyl-6-phenyl-4a-toruenesulfonyl-1,4-methanonaphthalene-5,8-dione (7)  
<sup>1</sup>H NMR in DMSO-*d*<sub>6</sub>.



OC300F.111  
 AU PROG.  
 X00.AU

SF 300.135  
 SY 210.0  
 O1 6584.520  
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 TD 32768  
 SW 6024.096  
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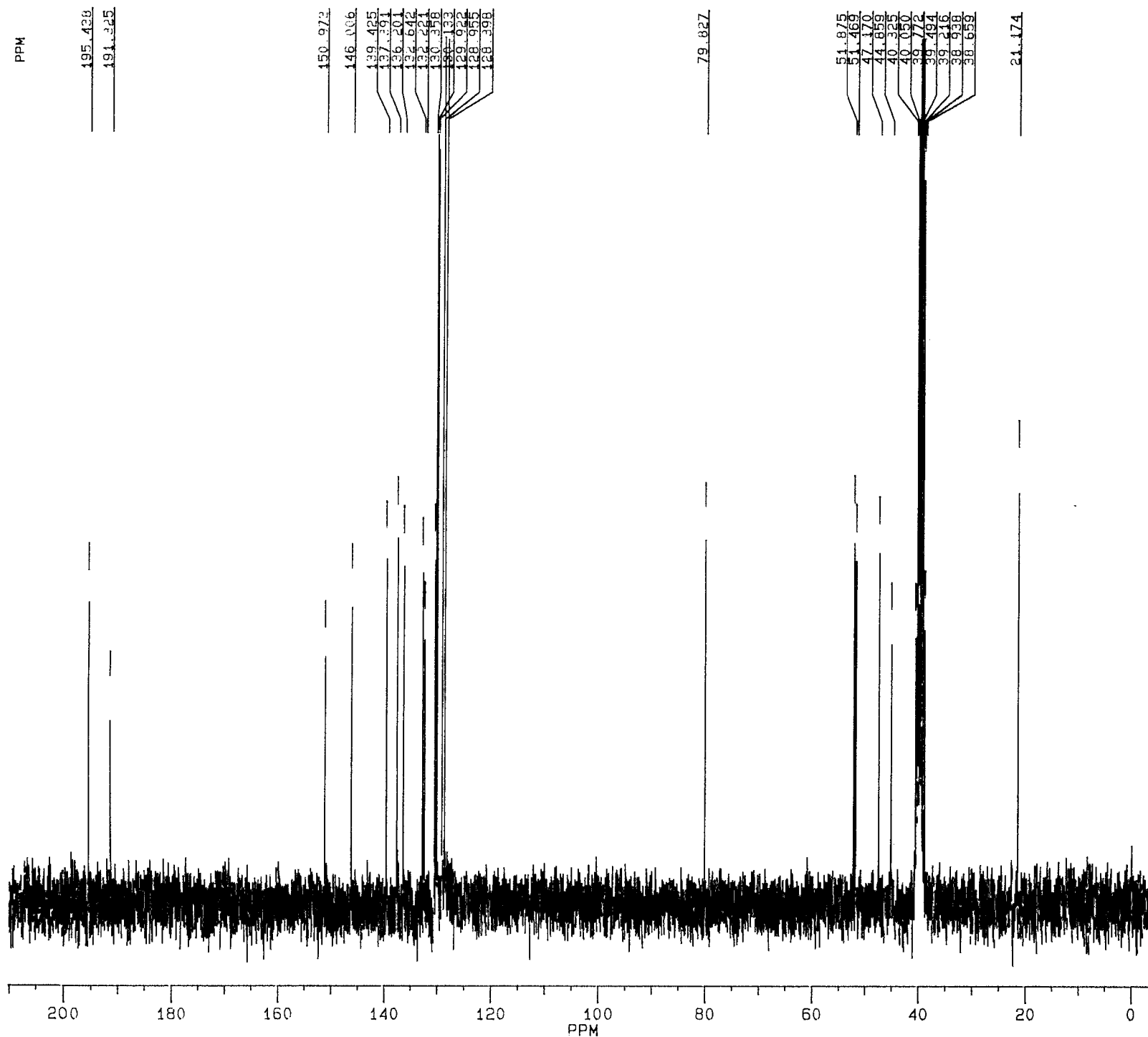
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 CX 21.50  
 CY 16.00  
 F1 9.200P  
 F2 -.200P  
 HZ/CM 131.220  
 PPM/CM .437  
 SR 4784.72

62558-16

1,4,8a-trimethyl-6-phenyl-4a-toluenesulfonyl-1,4-methanonaphthalene-5,8-dione (7)  
<sup>13</sup>C NMR in DMSO-*d*<sub>6</sub>.



OC301F.111  
 AU PROG.  
 X02.AU

SF 75.469  
 SY 75.0  
 O1 6534.943  
 SI 65536  
 TD 65536  
 SW 18518.519  
 HZ/PT .565

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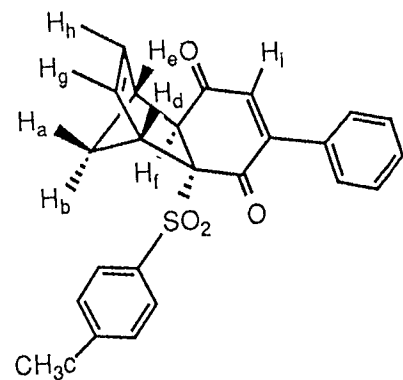
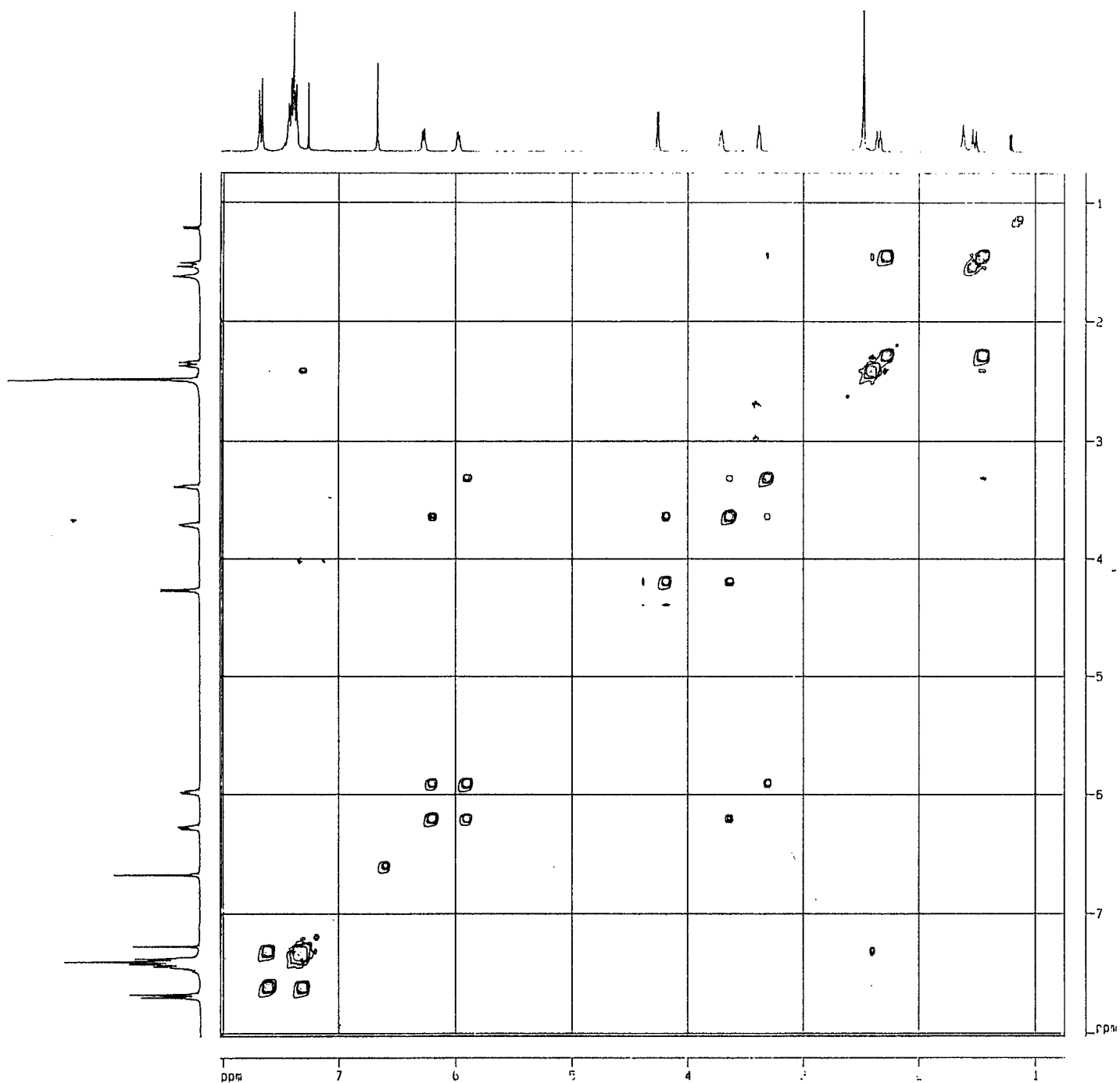
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 HZ/CM 754.659  
 PPM/CM 10.000  
 SR -1010.81

62558-17

62558-18

1,4,8a-trihydro-6-phenyl-4a-toluenesulfonyl-1,4-methanonaphthalene-5,8-dione (7), COSY NMR spectrum in DMSO- $d_6$ .



LOCKSHIN 5398-121-A CDCL3 PL 37170



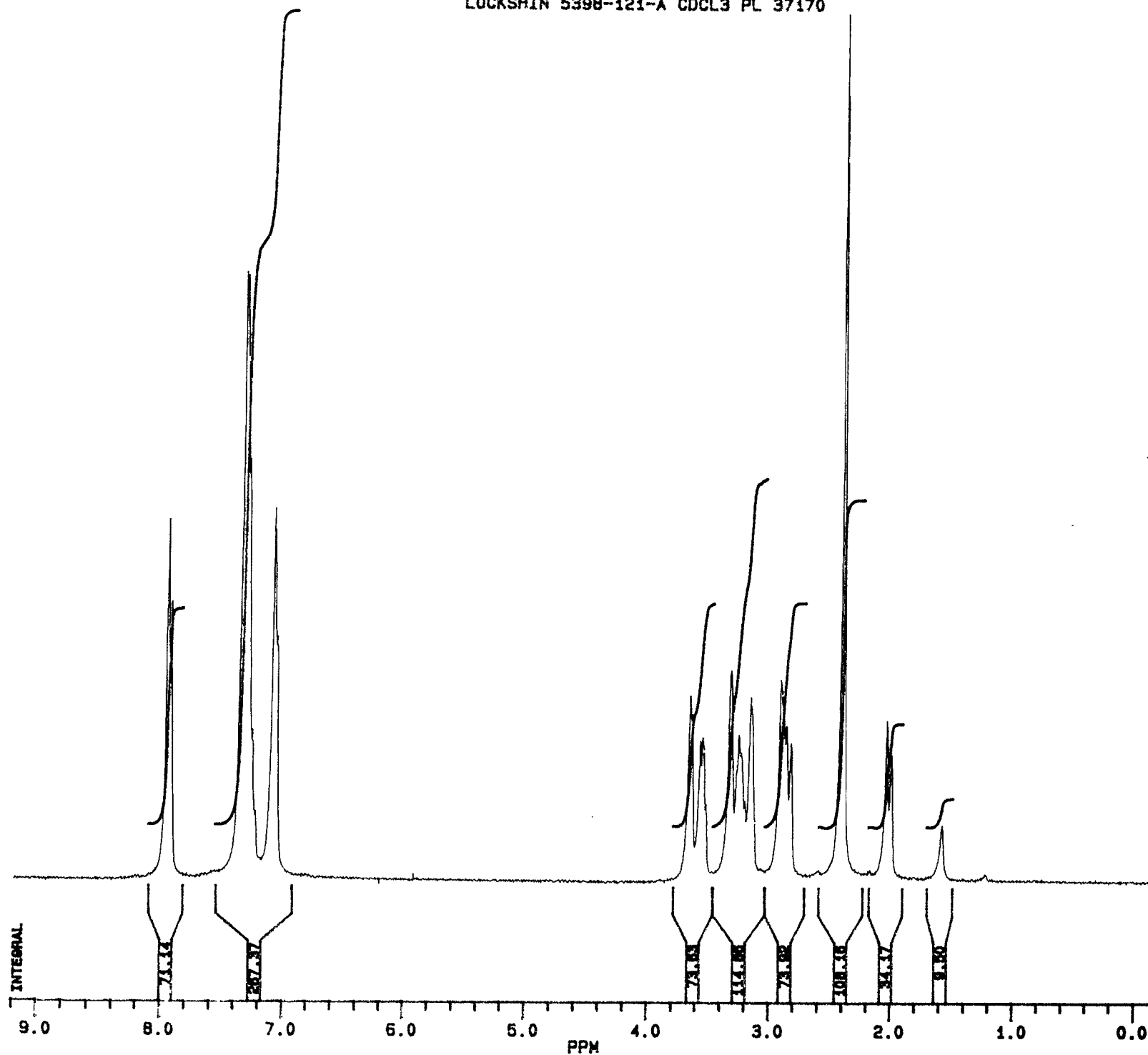
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DATE 30-1-95

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| SI    | 32768    |
| TD    | 32768    |
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| HZ/PT | .368     |

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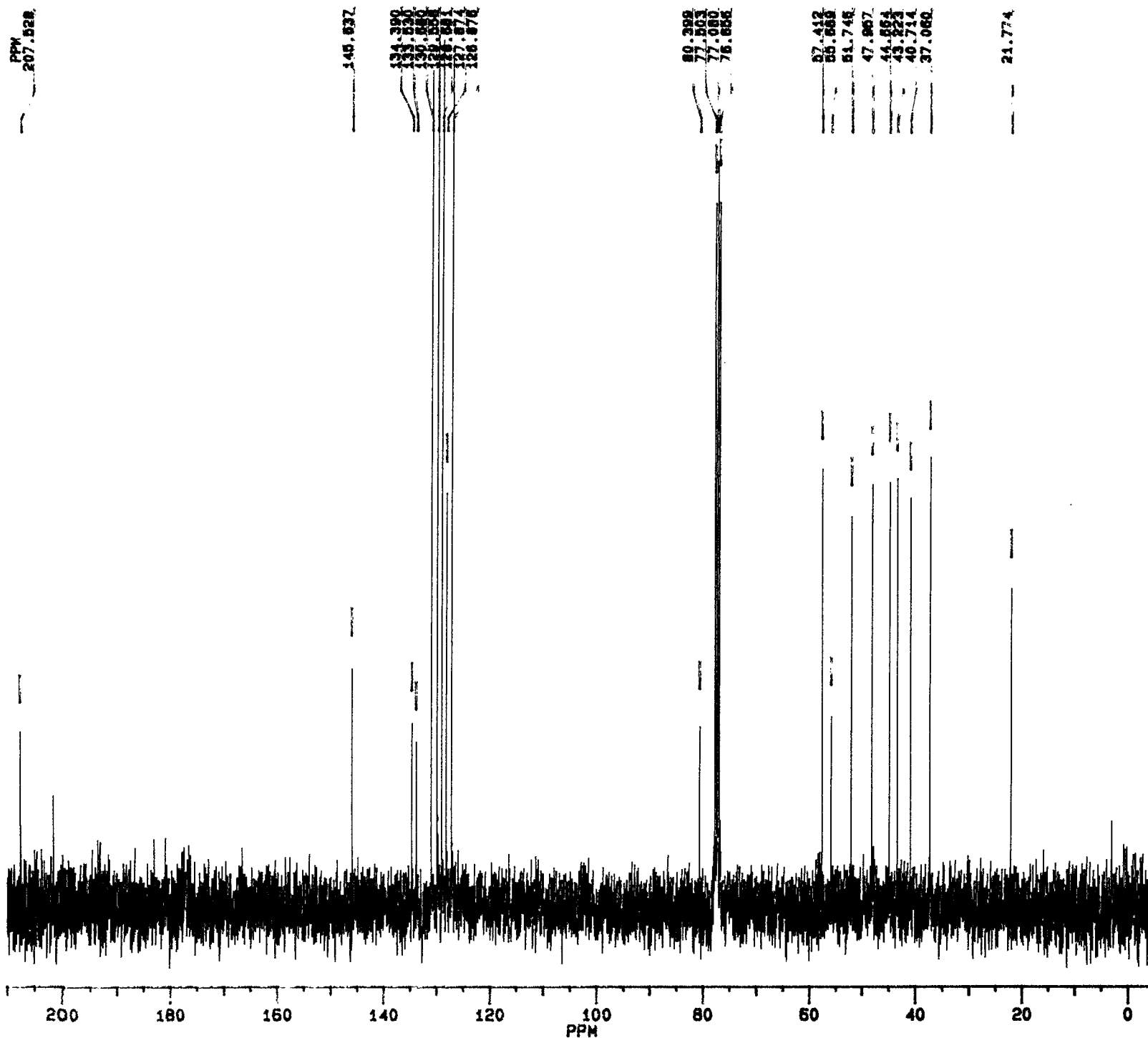
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| HZ/CM  | 131.220 |
| PPM/CM | .437    |
| SR     | 3385.32 |



612558-19

LOCKSHIN 5398-121-A CDCL3 PL 37170



JA301F.103  
AU PR06:  
X02.AU  
DATE 30-1-95

SF 75.469  
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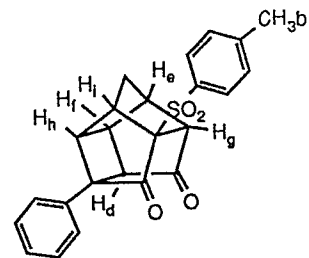
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SR -1405.84

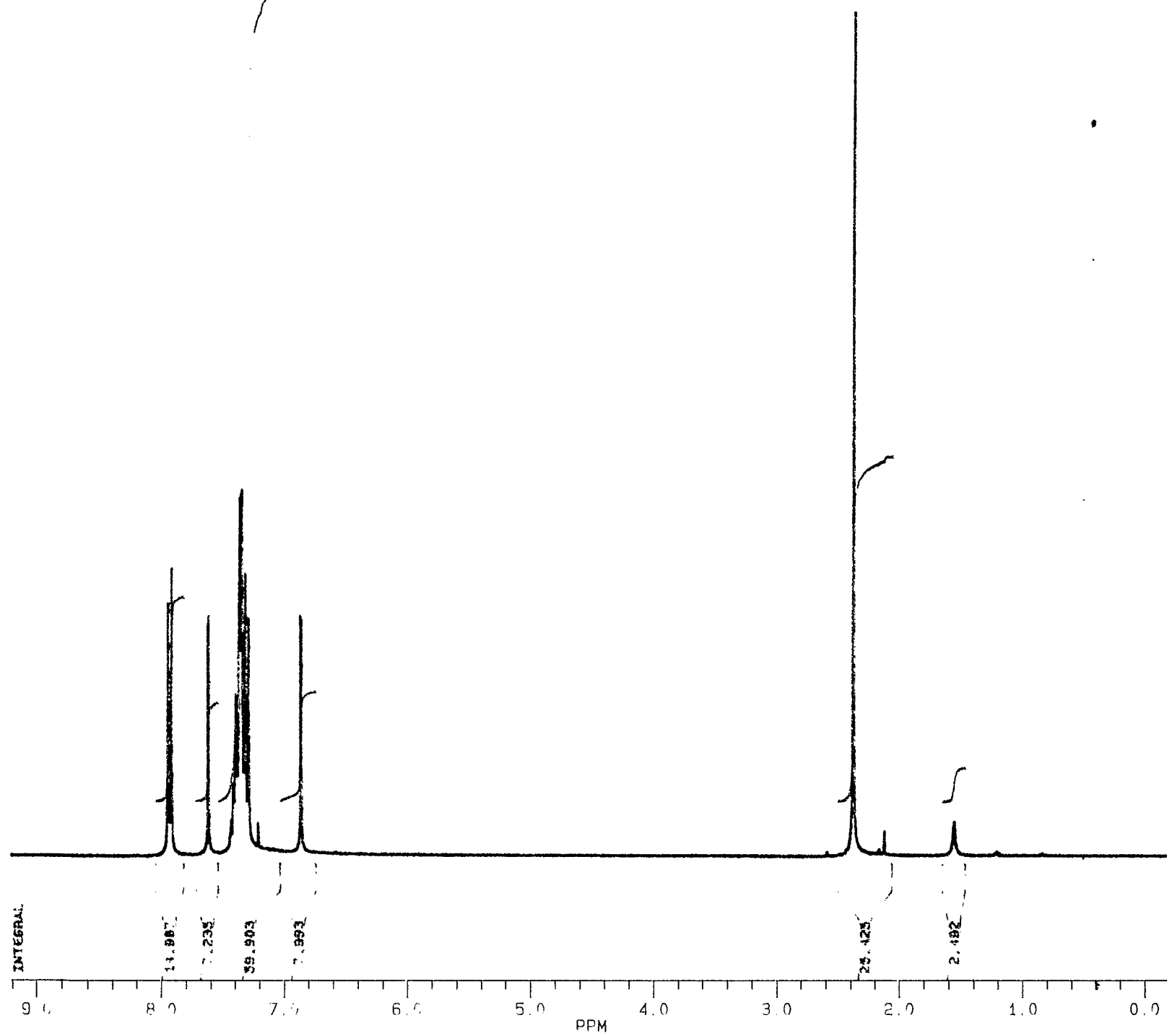
692558-20

<sup>1</sup>H NMR spectrum (400 MHz, CDCl<sub>3</sub>) of compound 8. The spectrum shows peaks in the aromatic region (7.0-7.5 ppm) and aliphatic region (1.0-2.0 ppm). The 2D COSY spectrum below shows correlations between protons. Key correlations include:
 

- Protons 'a' and 'b' (aliphatic) correlating with each other and with protons 'c' and 'd'.
- Protons 'e' and 'f' correlating with each other and with protons 'g' and 'h'.
- Protons 'i' and 'h' correlating with each other and with protons 'g' and 'f'.



2-phenyl-6-toluenesulfonyl-benzene-1,4-dione (9)  
<sup>1</sup>H NMR in CDCl<sub>3</sub>.



JA120F.119  
 AU PRO6:  
 X00.AU  
 DATE 12-1-95

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 S1 32768  
 TD 32768  
 SW 6024.096  
 HZ/PT .368

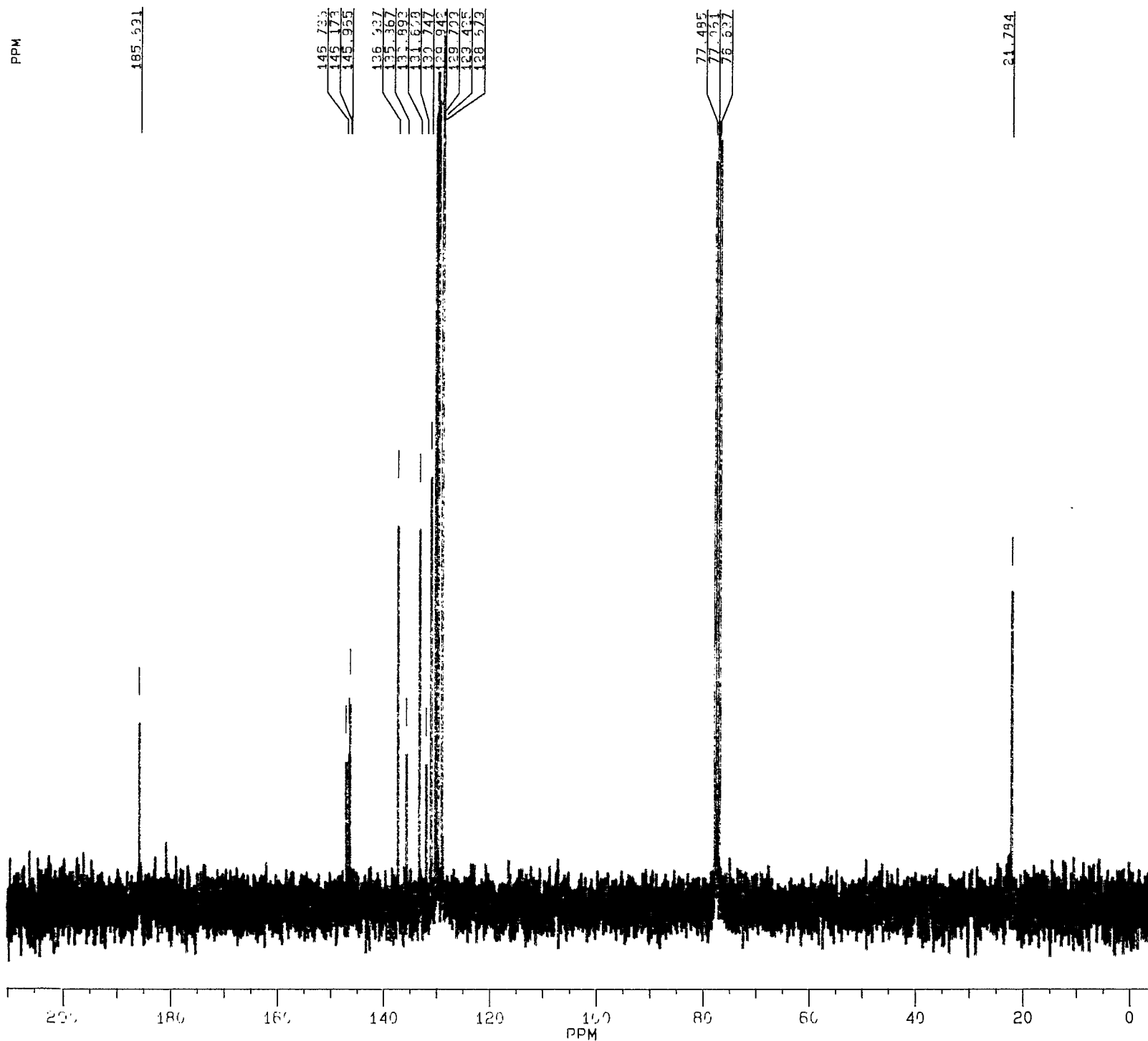
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FW 7600  
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 GB .100  
 CX 21.50  
 CY 16.00  
 FL 9.2000  
 FR 1.2000  
 HZ/CM 131.220  
 PPM/CM .437  
 SR 3385.32

GA 7558-22

2-phenyl-6-toluenesulfonyl-benzene-1,4-dione (9)  
<sup>13</sup>C NMR in CDCl<sub>3</sub>.



JA121F.119  
 AU PROG:  
 X02.AU  
 DATE 12-1-95

SF 75.469  
 SY 75.0  
 O1 6341.100  
 SI 65536  
 TD 65536  
 SW 18518.519  
 HZ/PT .565

PW 0.0  
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 AQ 1.769  
 RG 400  
 NS 128  
 TE 297

FW 23200  
 O2 4588.000  
 DP 22H D0

LB 1.000  
 GB .100  
 CX 21.50  
 CY 16.00  
 F1 210.005P  
 F2 14.987P  
 HZ/CM 754.659  
 PPM/CM 10.000  
 SR 1405.84

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