

Supporting Information

Synthesis of Benzothiazole/Benzoxazole dendrimers with triazole as bridging unit and their application in Dye-sensitized solar cell

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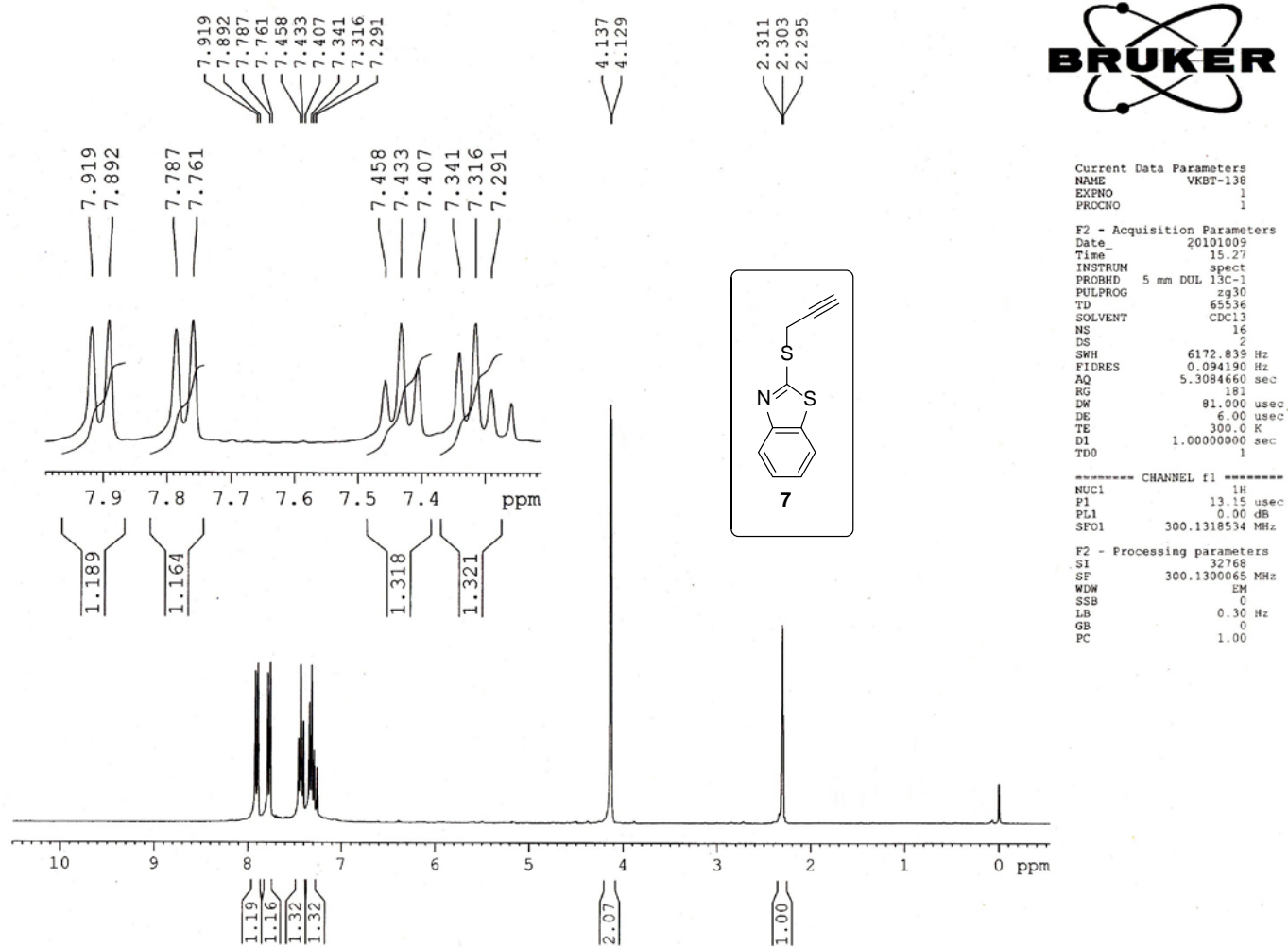
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Fabrication of cell assembly

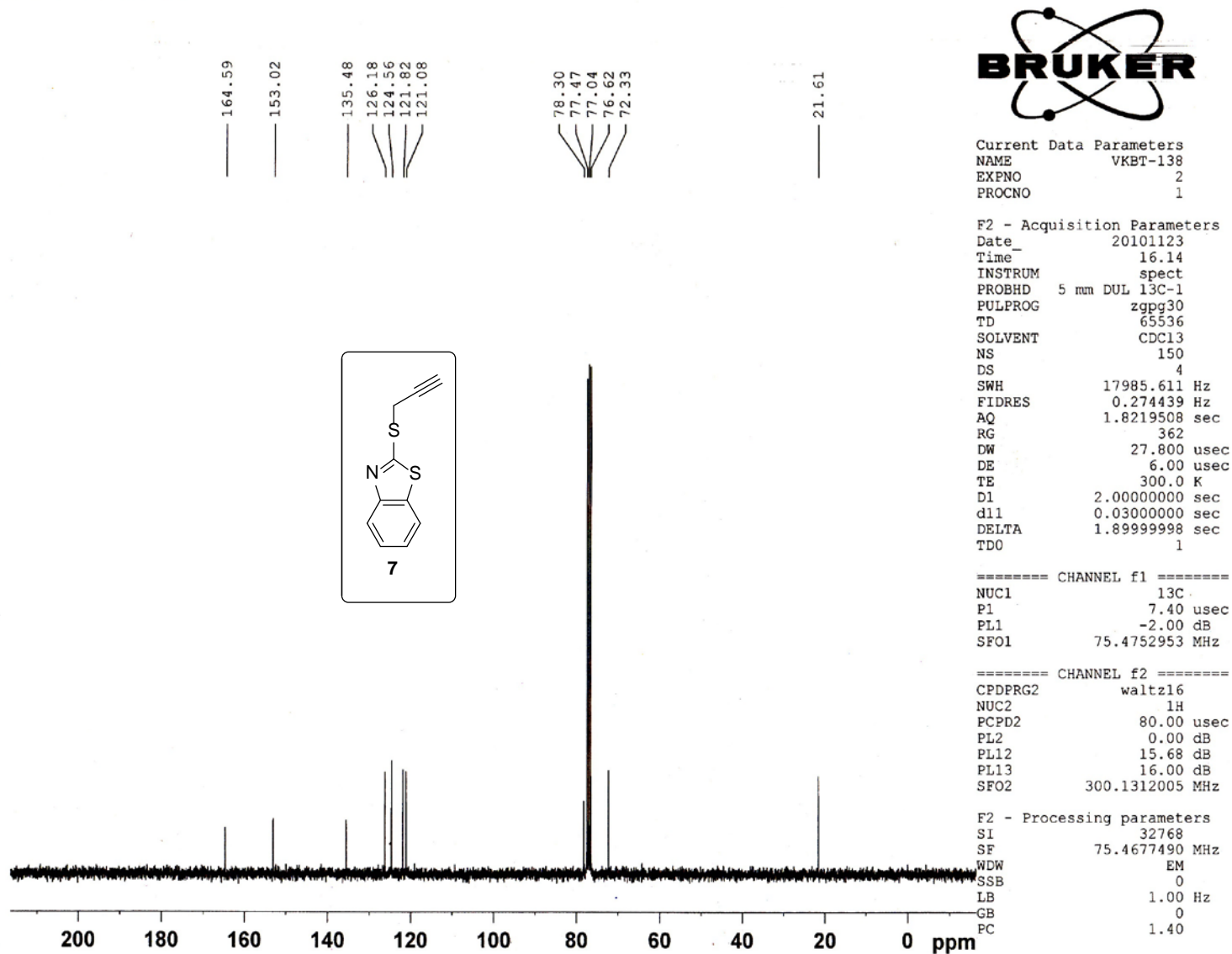
The DSSC, whose photo active area being 1 cm^2 ($1 \text{ cm} \times 1 \text{ cm}$), was fabricated on a conducting glass covered with Fluorinated Tin Oxide (F:SnO_2) (FTO) and nano-crystalline TiO_2 (degussa) cast by the procedure reported earlier.²⁶ The electrodes were immersed in a $5 \times 10^{-5} \text{ M}$ solution of the photo sensitizer namely, cis-dithiocyanato bis(2,2'-bipyridyl-4,4'-dicarboxylate)-ruthenium(II) (N3 dye) in ethanol for 20 h at room temperature before being washed with ethanol and dried in air. The dendrimer based electrolyte solution was injected into the space between two electrodes. The electrolyte solution was composed of $2.2 \times 10^{-4} \text{ M}$ of KI, $3 \times 10^{-5} \text{ M}$ of I_2 , $8.5 \times 10^{-6} \text{ M}$ of the dendrimer additives in DMF (10 mL) solvent. Subsequently, the platinum counter electrode was pressed on top of the polymer film without any special sealing. With the aid of a BAS 100A Electrochemical Analyzer, photovoltaic tests of the fabricated DSSCs were carried out by measuring the current–voltage (I–V) characteristics under illumination of 70 mWcm^{-2} condition using 150W Xe lamp as light source.

^1H and ^{13}C NMR spectra of compounds 7, 11, 13, 14, 16, 2, 4 and 5

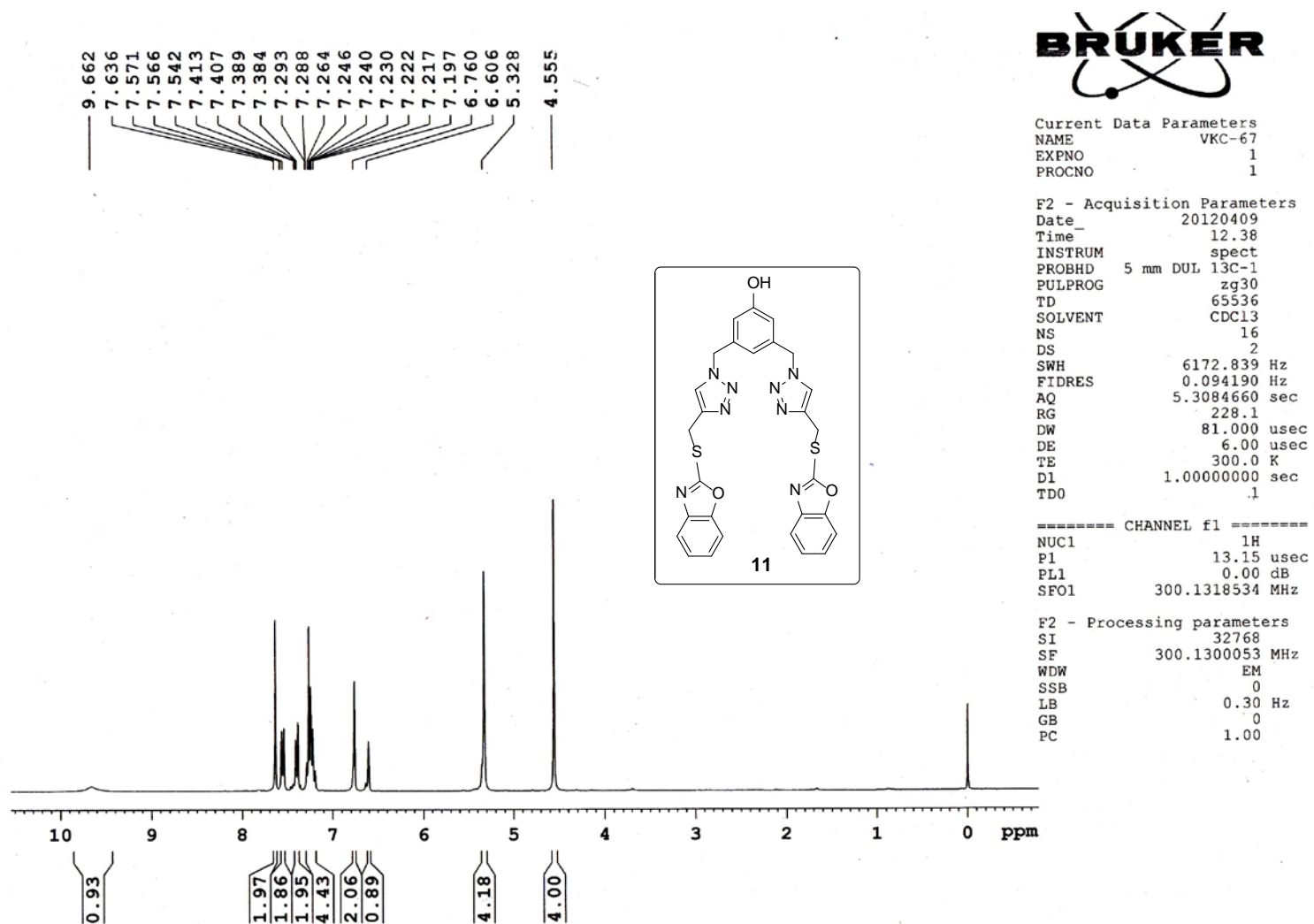
Spectroscopic data



¹H NMR Spectrum (CDCl₃, 300 MHz) of the compound 7

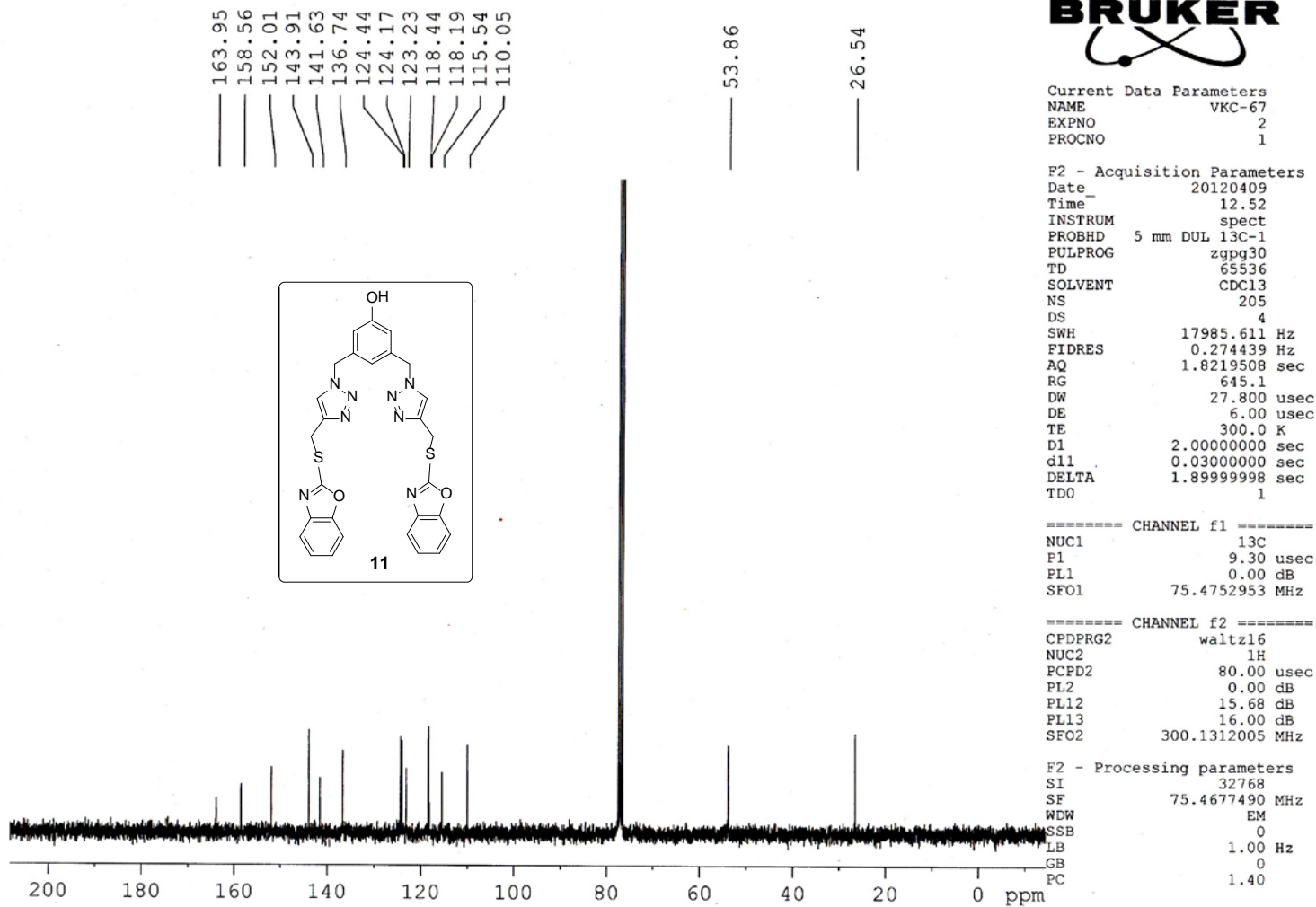


¹³C NMR Spectrum (CDCl₃, 75 MHz) of the compound 7

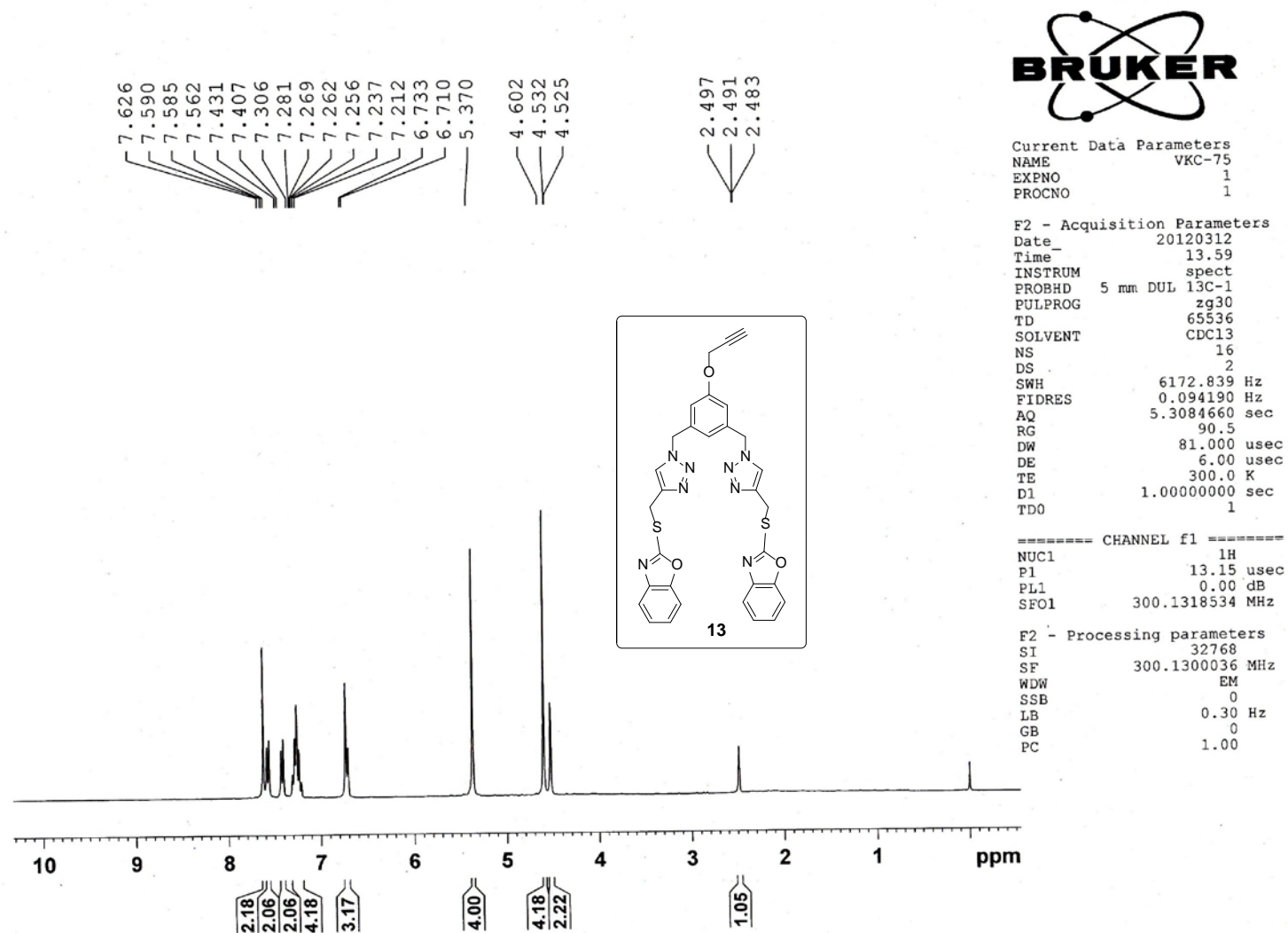


¹H NMR Spectrum (CDCl₃, 300 MHz) of the compound 11

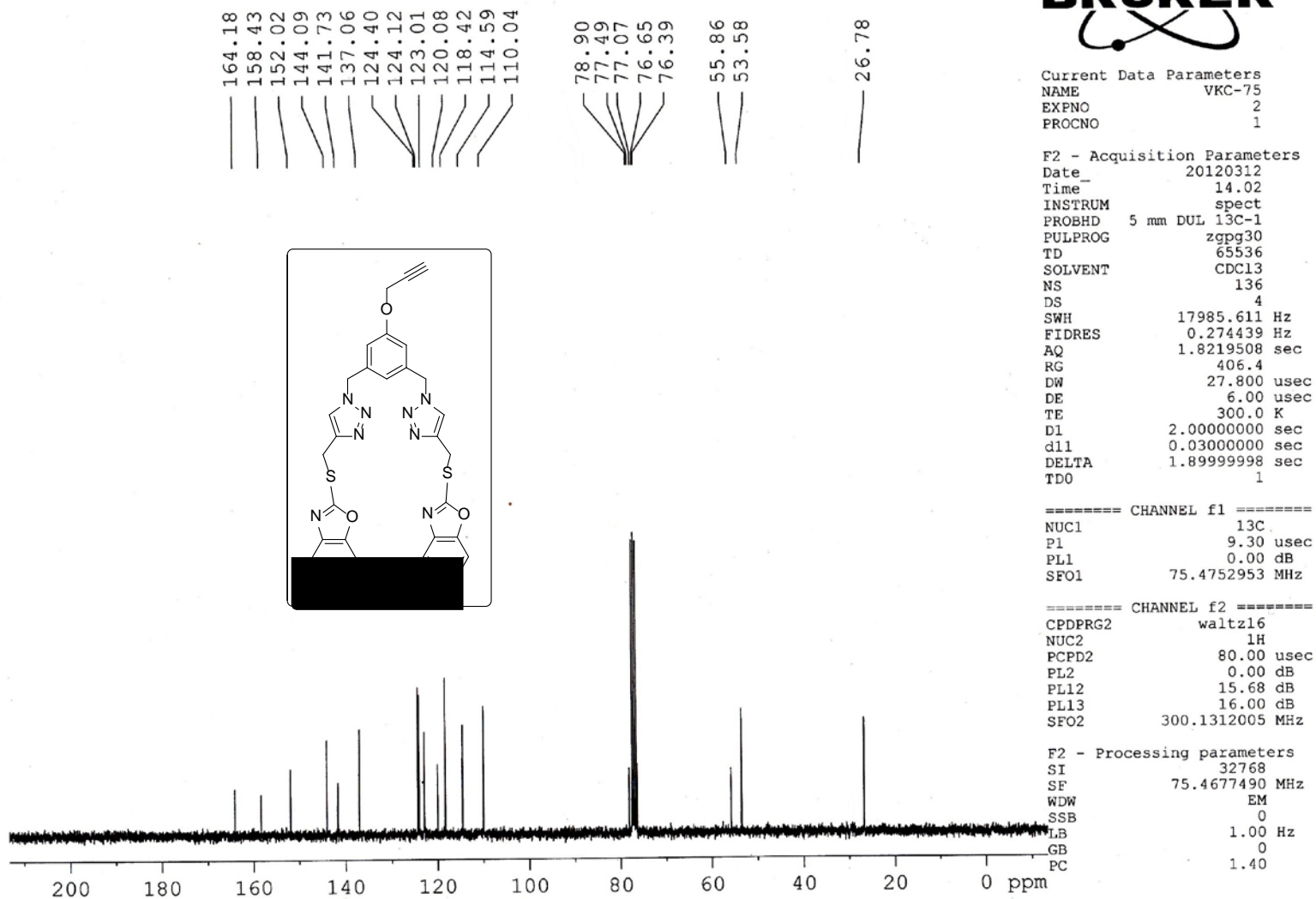
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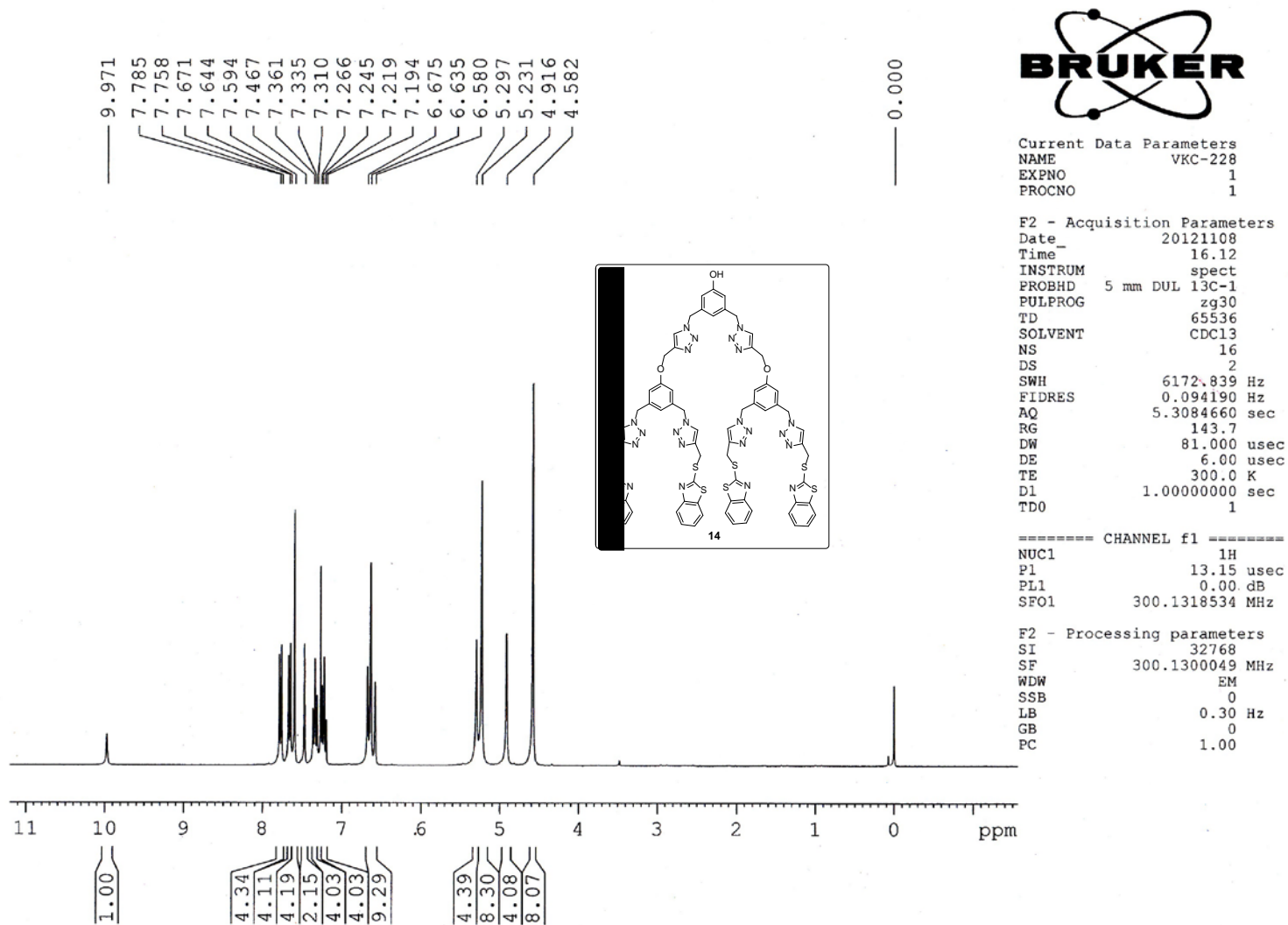
¹³C NMR Spectrum (CDCl₃, 75 MHz) of the compound 11

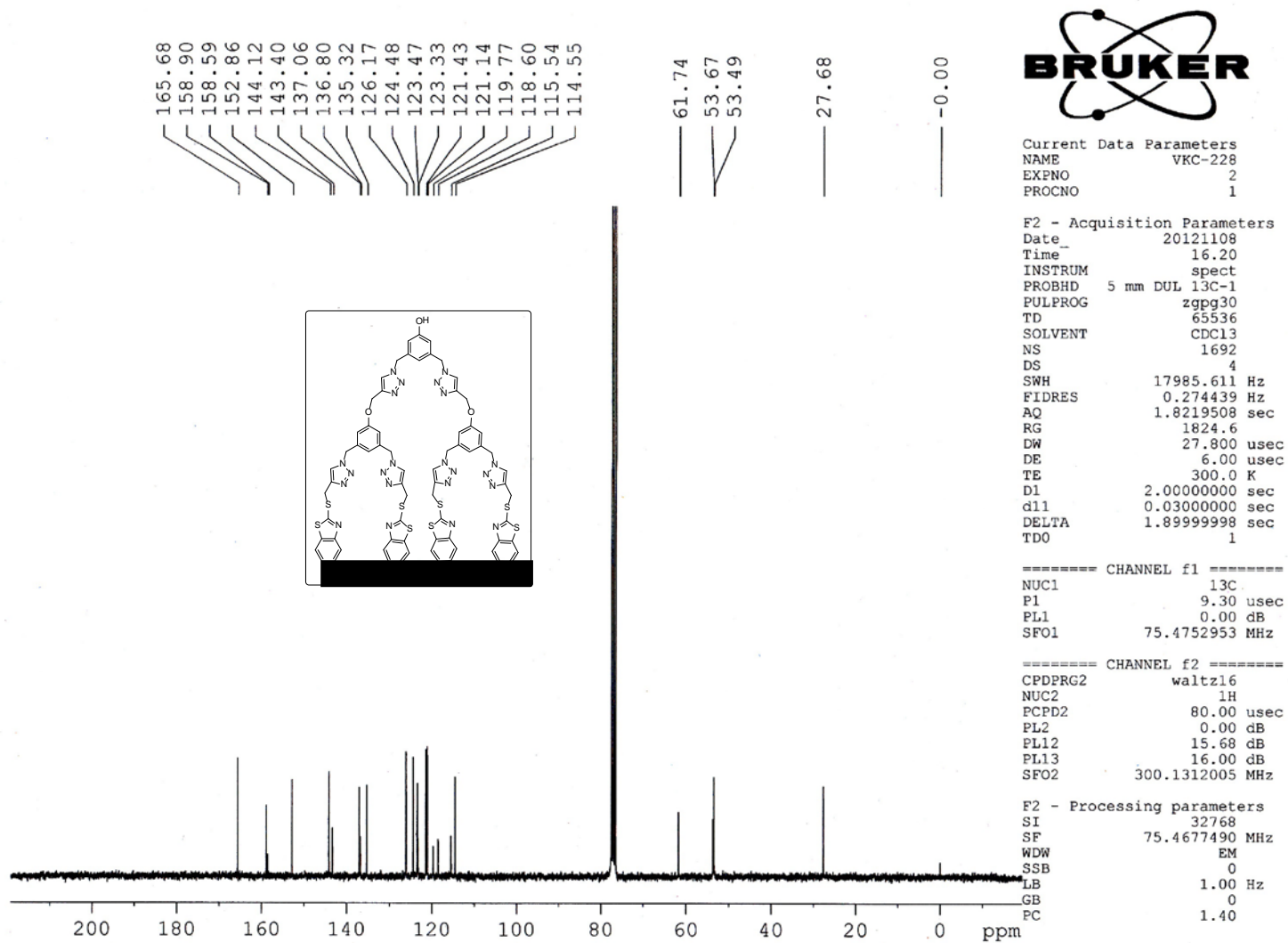


¹H NMR Spectrum (CDCl₃, 300 MHz) of the compound 13

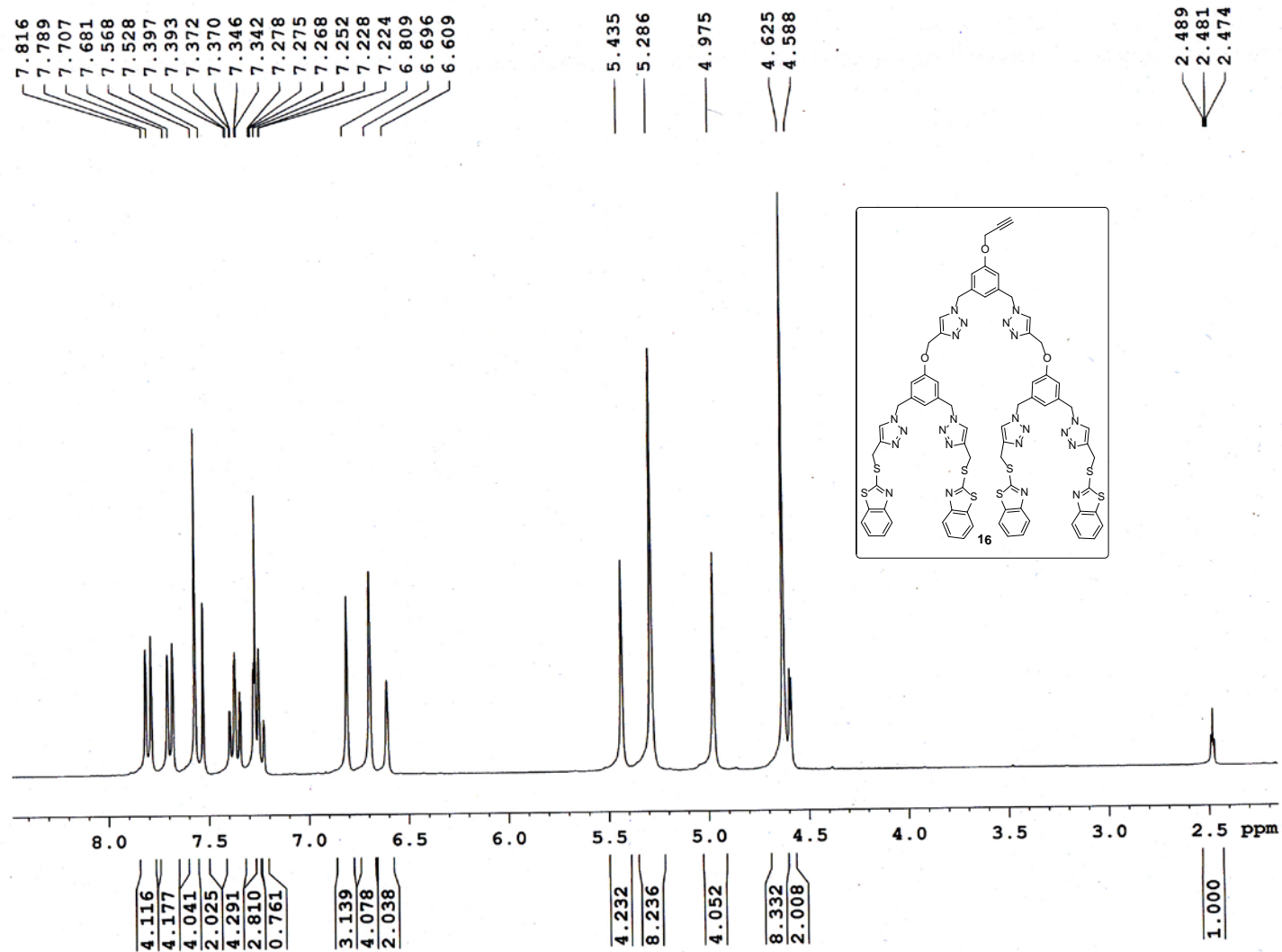


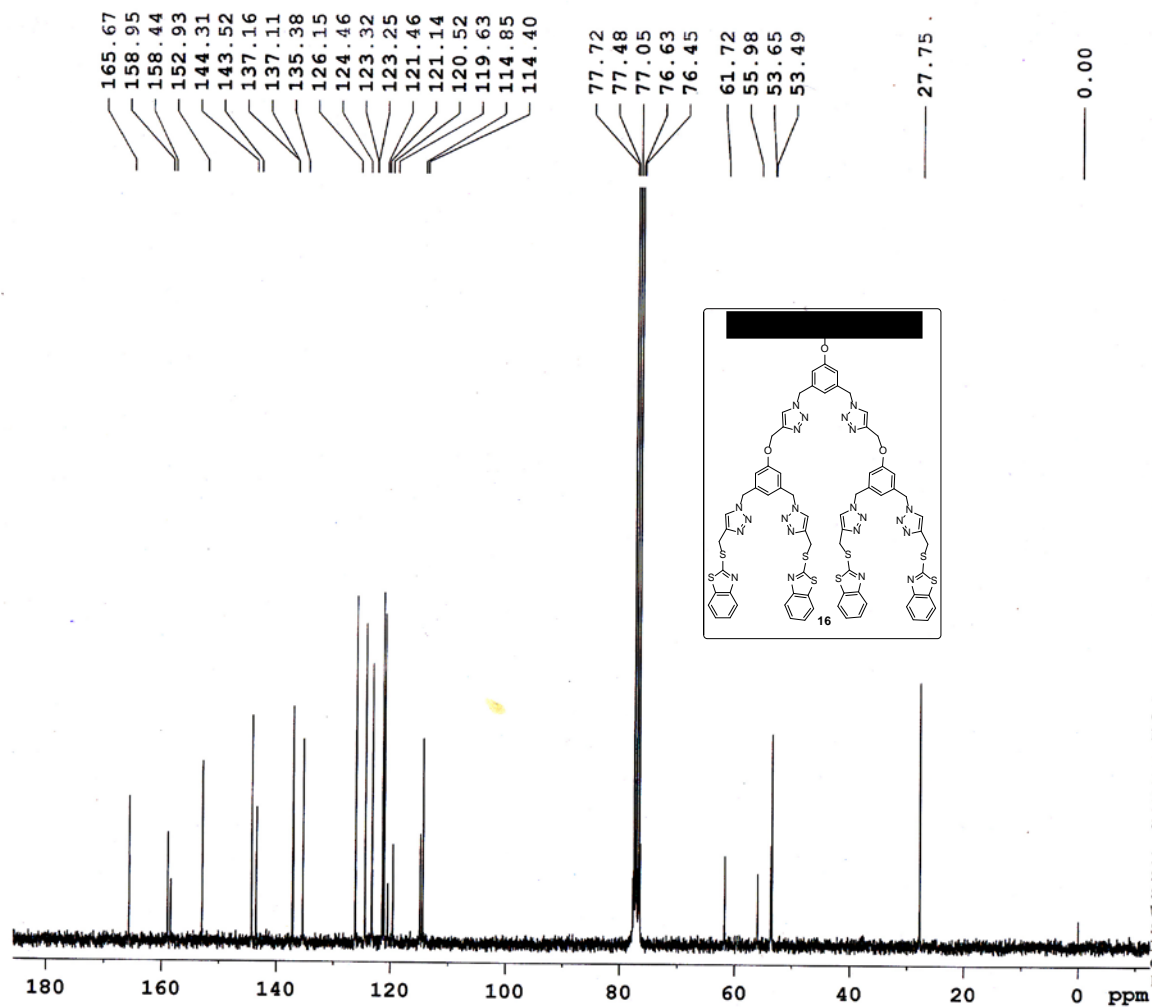
¹³C NMR Spectrum (CDCl₃, 75 MHz) of the compound 13





¹³C NMR Spectrum (CDCl₃, 75 MHz) of the compound 14





Current Data Parameters
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EXPNO 2
PROCNO 1

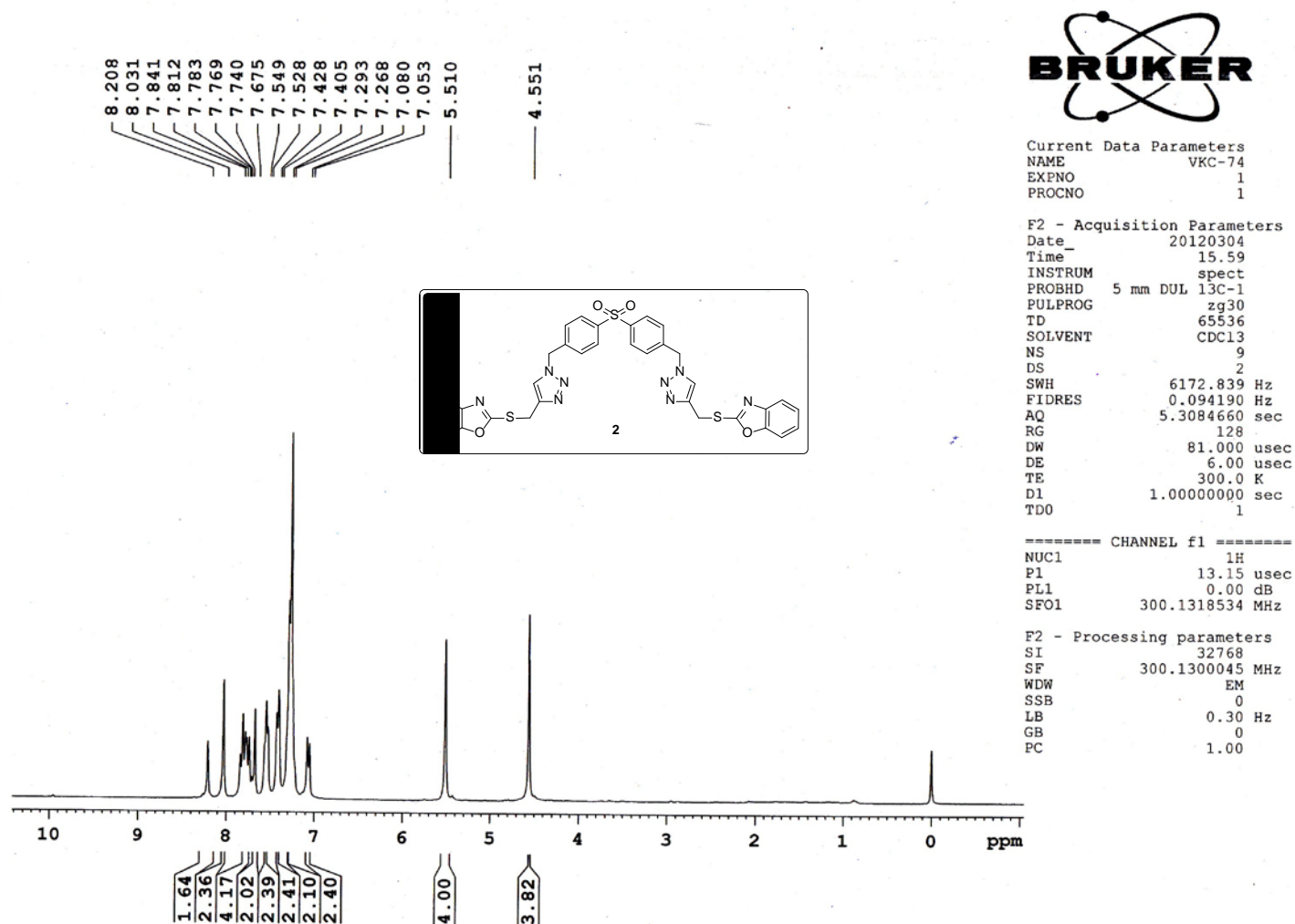
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Time_ 16.08
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PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 1453
DS 4
SWH 17985.611 Hz
FIDRES 0.274439 Hz
AQ 1.8219508 sec
RG 574.7
DW 27.800 usec
DE 6.00 usec
TE 300.0 K
D1 2.0000000 sec
d11 0.0300000 sec
DELTA 1.89999998 sec
TDO 1

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P1 9.30 usec
PL1 0.00 dB
SFO1 75.4752953 MHz

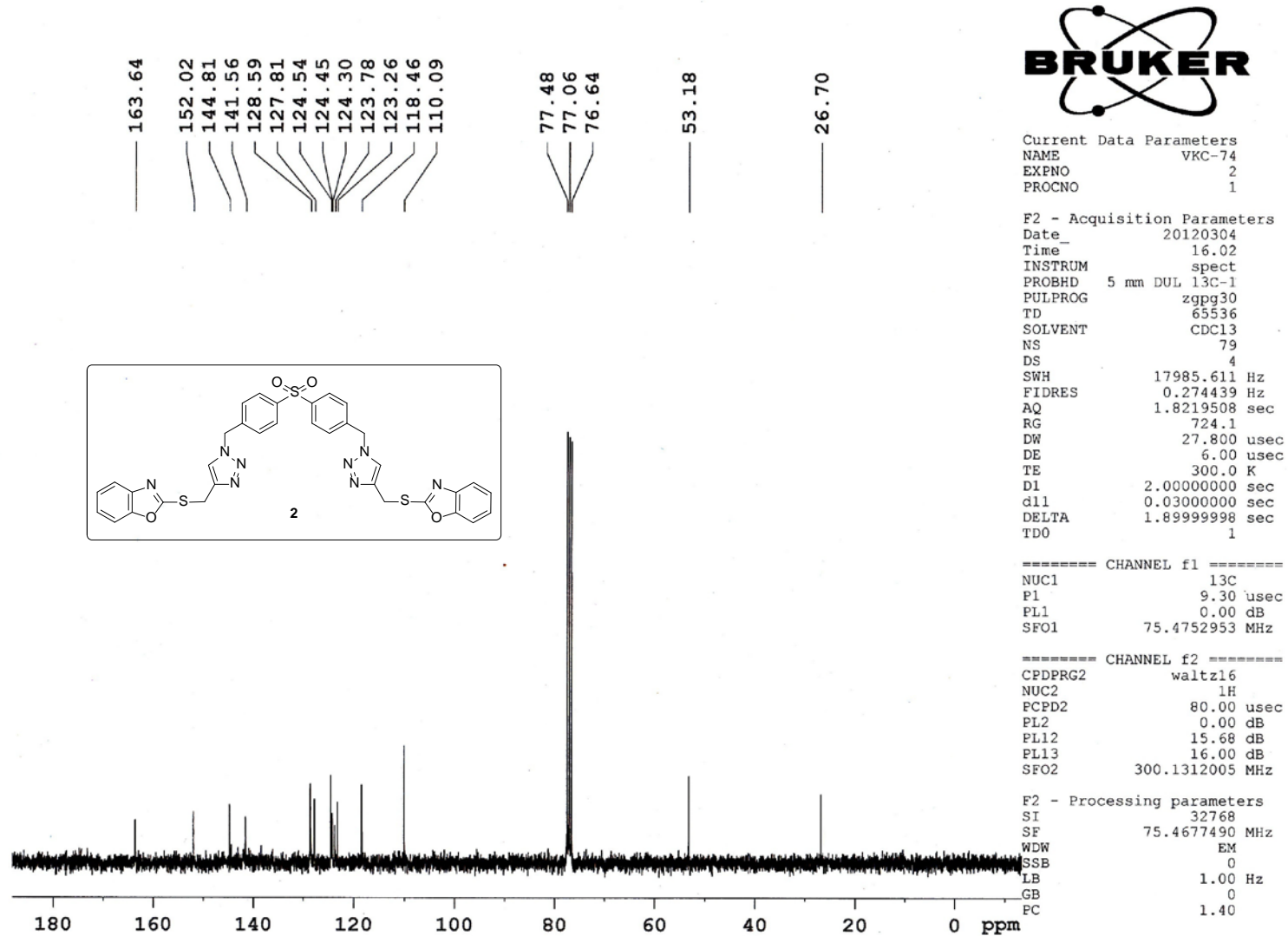
==== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 0.00 dB
PL12 15.68 dB
PL13 16.00 dB
SFO2 300.1312005 MHz

F2 - Processing parameters
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WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

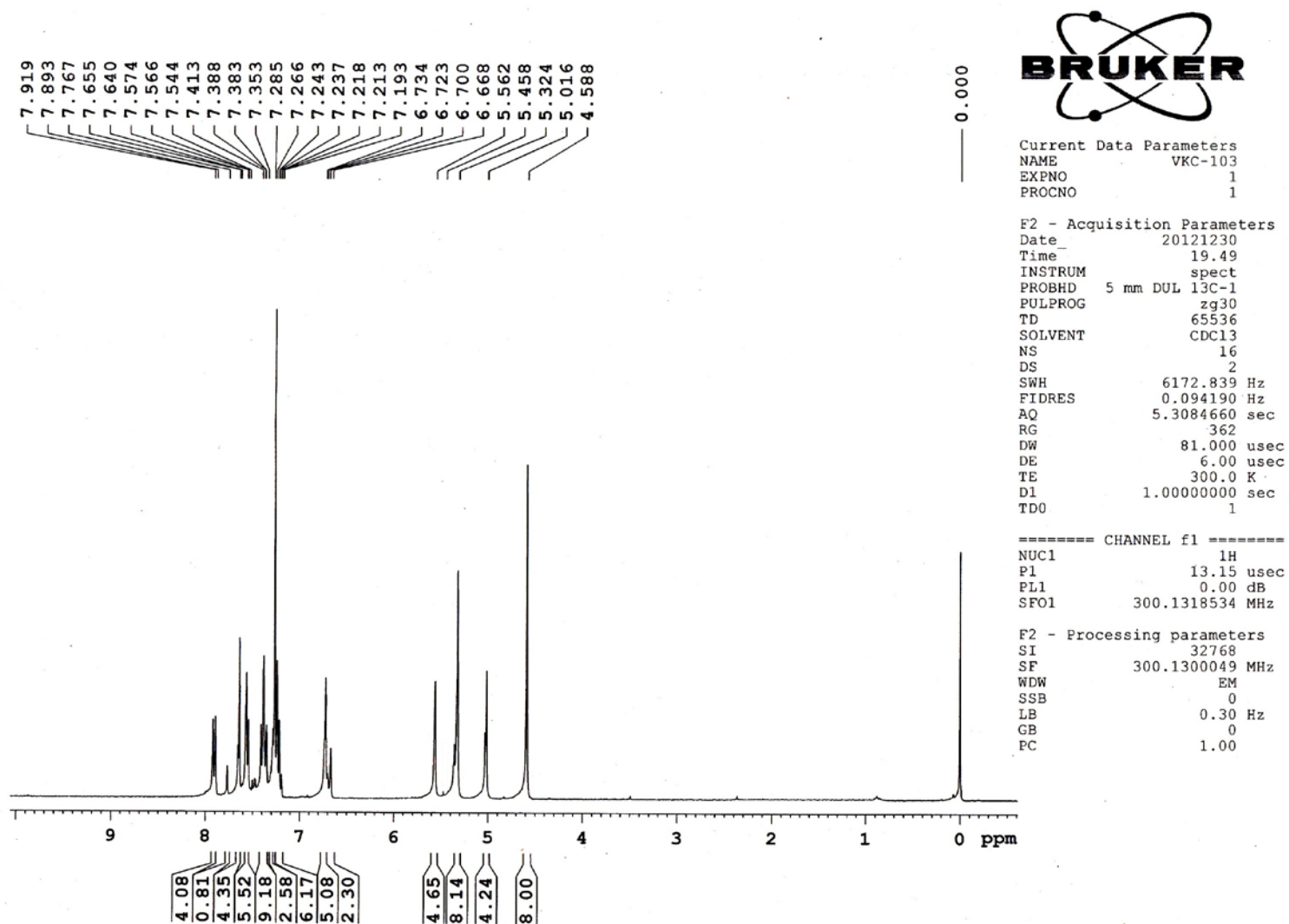
¹³C NMR Spectrum (CDCl₃, 75 MHz) of the compound 16



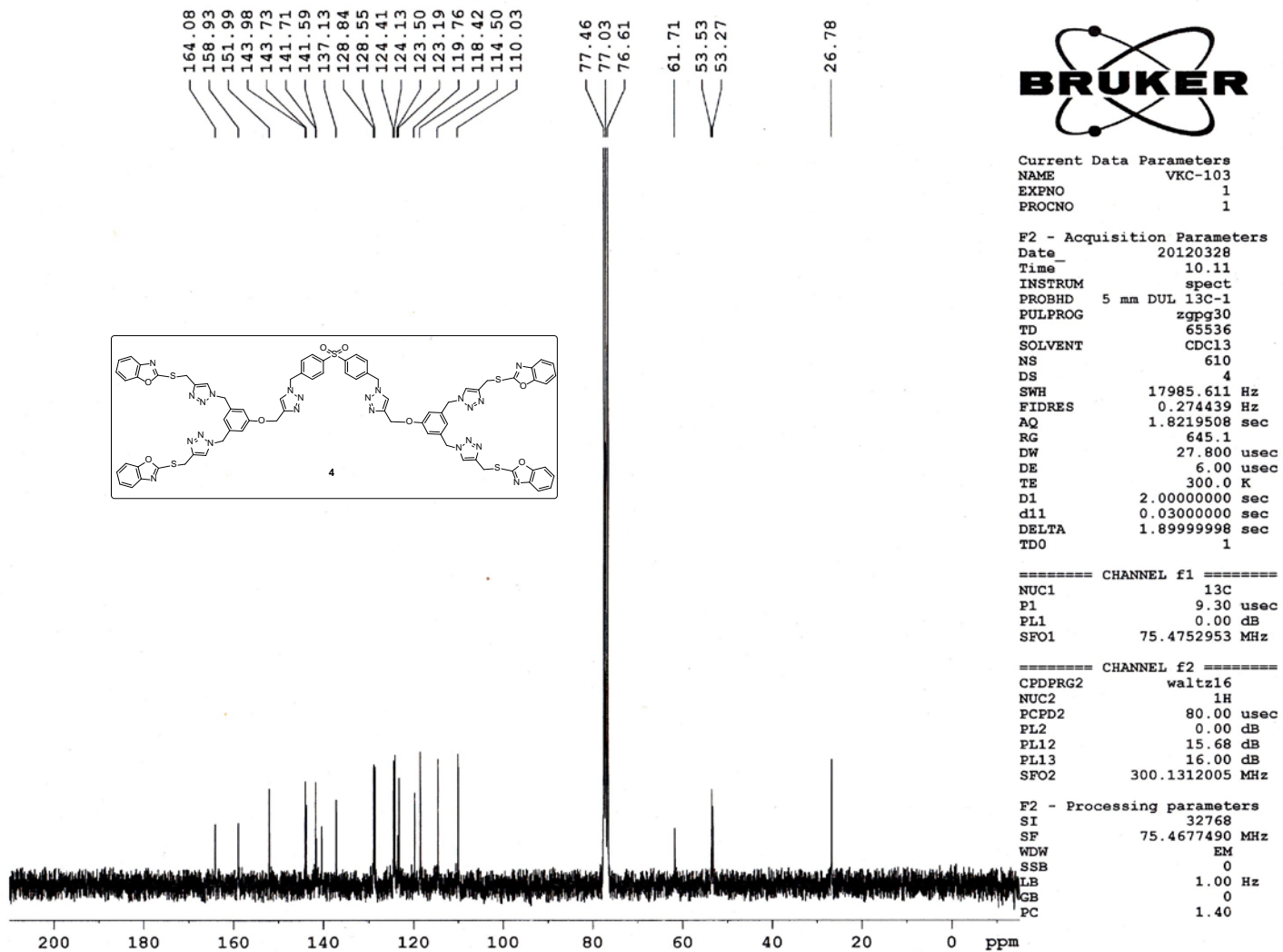
¹H NMR Spectrum (CDCl₃, 300 MHz) of the compound 2



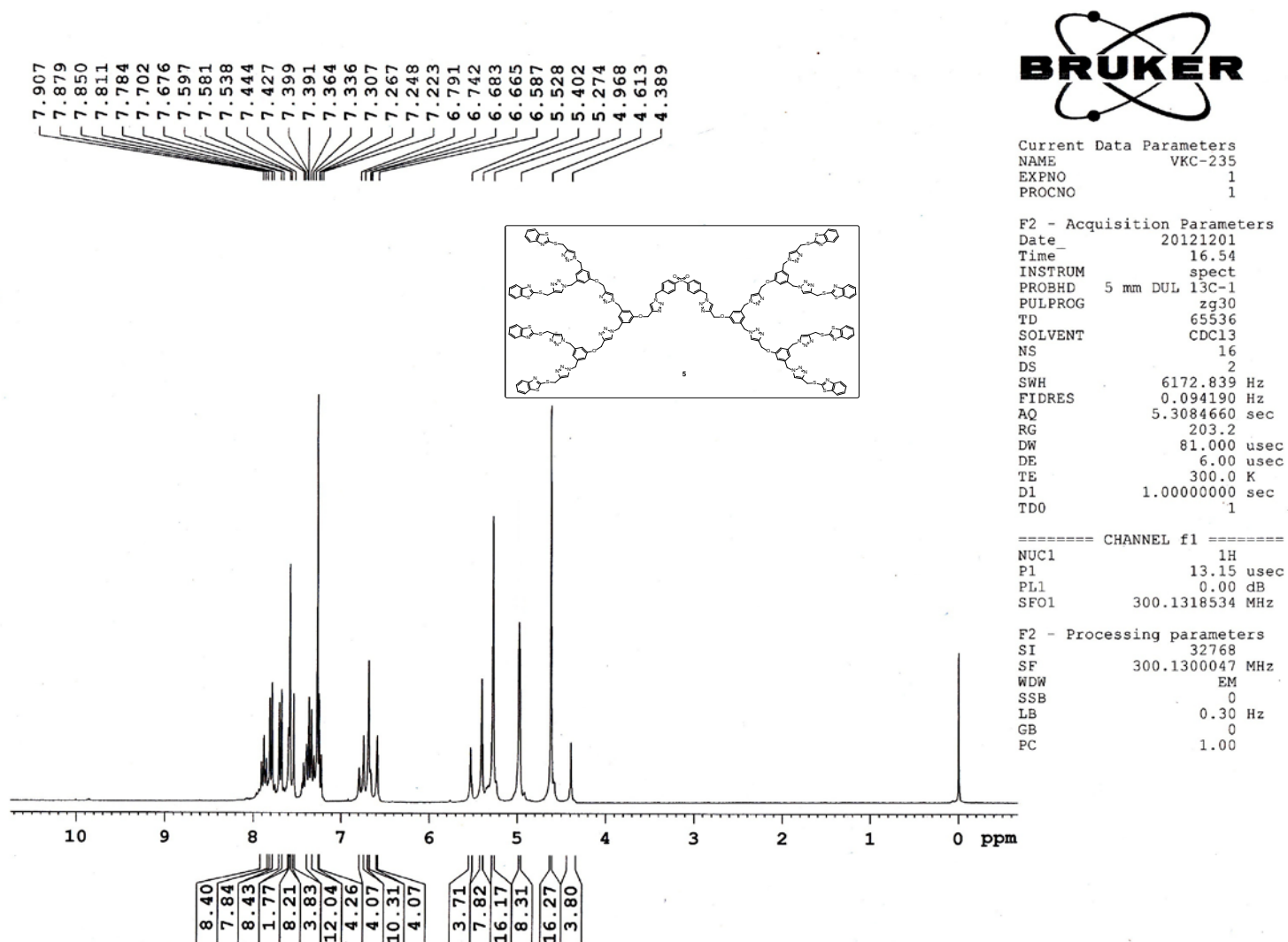
¹³C NMR Spectrum (CDCl₃, 75 MHz) of the compound 2



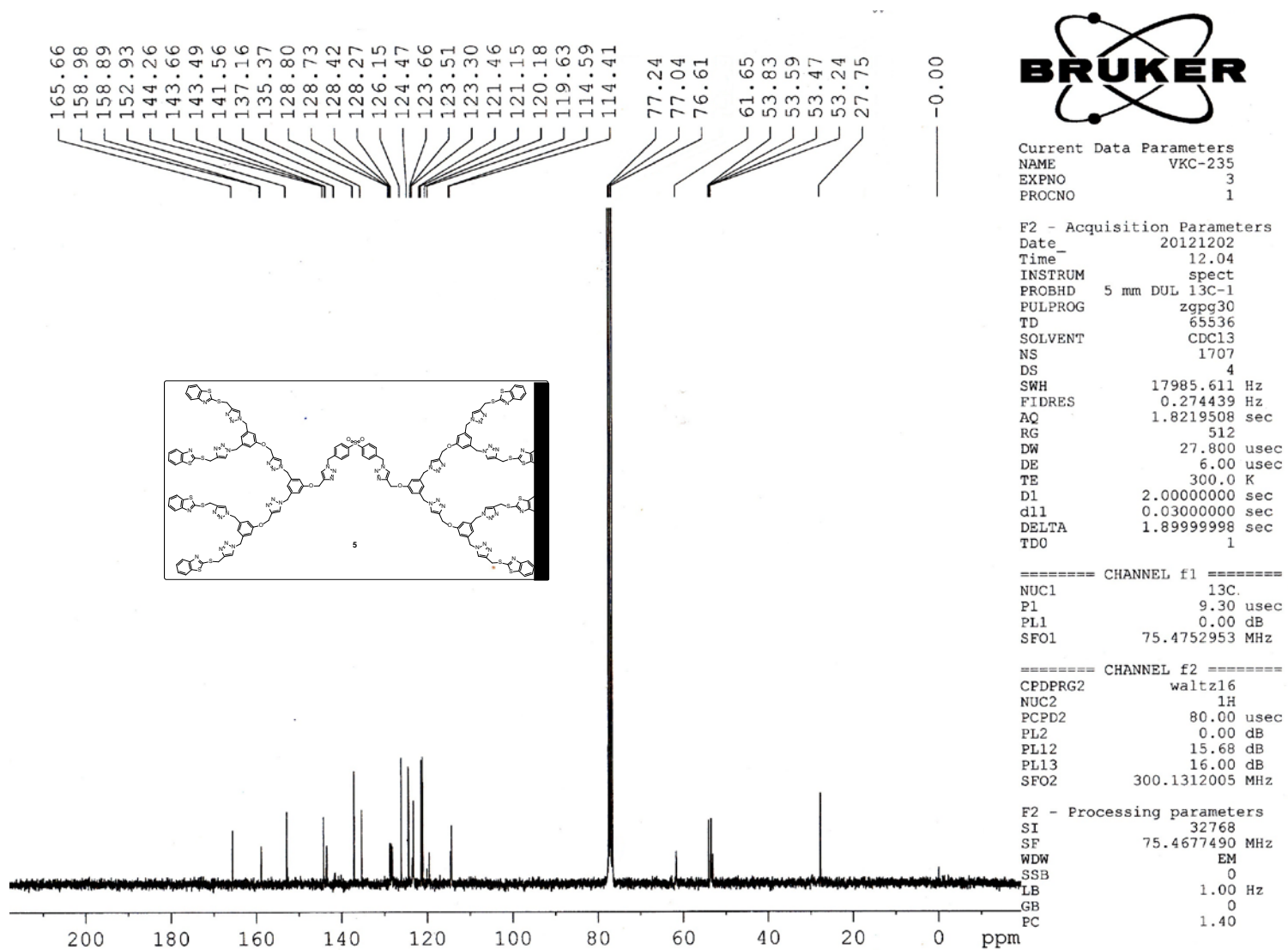
¹H NMR Spectrum (CDCl₃, 300 MHz) of the compound 4



¹³C NMR Spectrum (CDCl₃, 75 MHz) of the compound 4



¹H NMR Spectrum (CDCl₃, 300 MHz) of the compound 5



¹³C NMR Spectrum (CDCl₃, 75 MHz) of the compound 5