

RSC Advances

Electronic Supplementary Information

Three-Component Microwave-Assisted Synthesis of 3,5-Disubstituted Pyrazolo[3,4-*d*]pyrimidin-4-ones

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Molecular packing in 5-benzyl-3-(4-methylphenylamino)-1,5-dihydro-4*H*-pyrazolo[3,4-*d*]pyrimidin-4-one (**4d**)

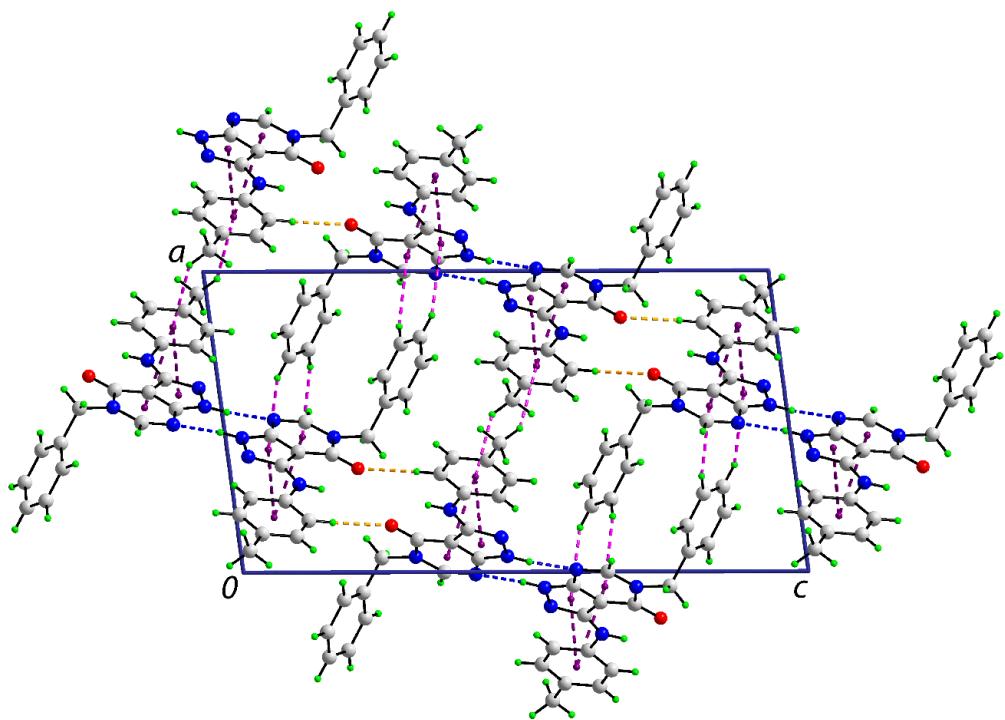


Figure S1. Molecular packing in **4d**: a view in projection down the *b*-axis of the unit cell contents. The N–H···N, C–H···O, C–H···π and π···π interactions are shown as blue, orange, pink and purple dashed lines, respectively.

Geometric parameters (Å, °) characterizing the identified intermolecular interactions

Interaction (A–H···B)	H···B	A···B	A–H···B	Symmetry operation
N31–H31···O1	2.589(12)	3.2035(12)	128.0(11)	<i>x, y, z</i>
N1–H1n···N7	2.061(12)	2.9215(12)	164.4(12)	1- <i>x</i> , 1- <i>y</i> , - <i>z</i>
C32–H32···O1	2.33	3.2751(14)	178	½- <i>x</i> , ½+ <i>y</i> , ½- <i>z</i>
C37–H37b···Cg3	2.71	3.5213(13)	141	- <i>x</i> , 3- <i>y</i> , - <i>z</i>
C54–H54···Cg(N5,N7,C3a,C4,C6,C7a)	2.76	3.5913(18)	146	½- <i>x</i> , -½+ <i>y</i> , ½- <i>z</i>
C55–H55···Cg(N1,N2,C3,C3a,C7a)	2.91	3.7465(15)	147	½2- <i>x</i> , -½+ <i>y</i> , ½- <i>z</i>
Cg(N1,N2,C3,C3a,C7a)···Cg(C31-C36)		3.5566(6)	3.46(6)	<i>x</i> , -1+ <i>y</i> , <i>z</i>
Cg(N5,N7,C3a,C4,C6,C7a)···Cg(C31-C36)		3.3616(6)	5.03(5)	<i>x</i> , -1+ <i>y</i> , <i>z</i>

Molecular packing in 3-(4-bromophenylamino)-5-(4-methoxylphenyl)-1,5-dihydro-4*H*-pyrazolo[3,4-*d*]pyrimidin-4-one (4p**)**

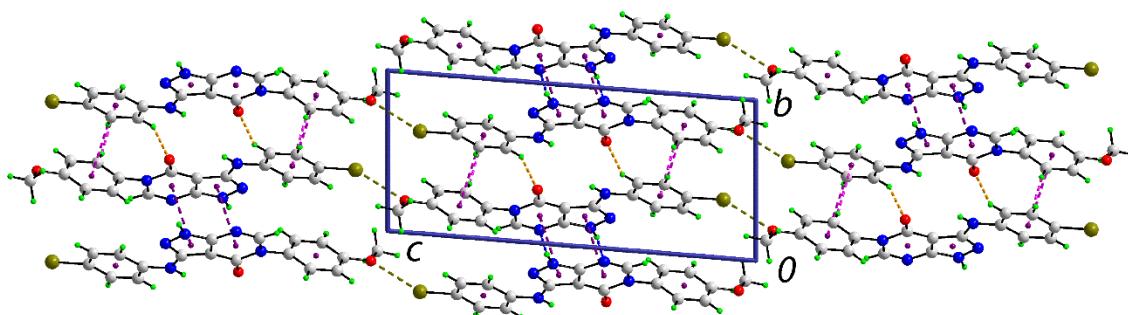


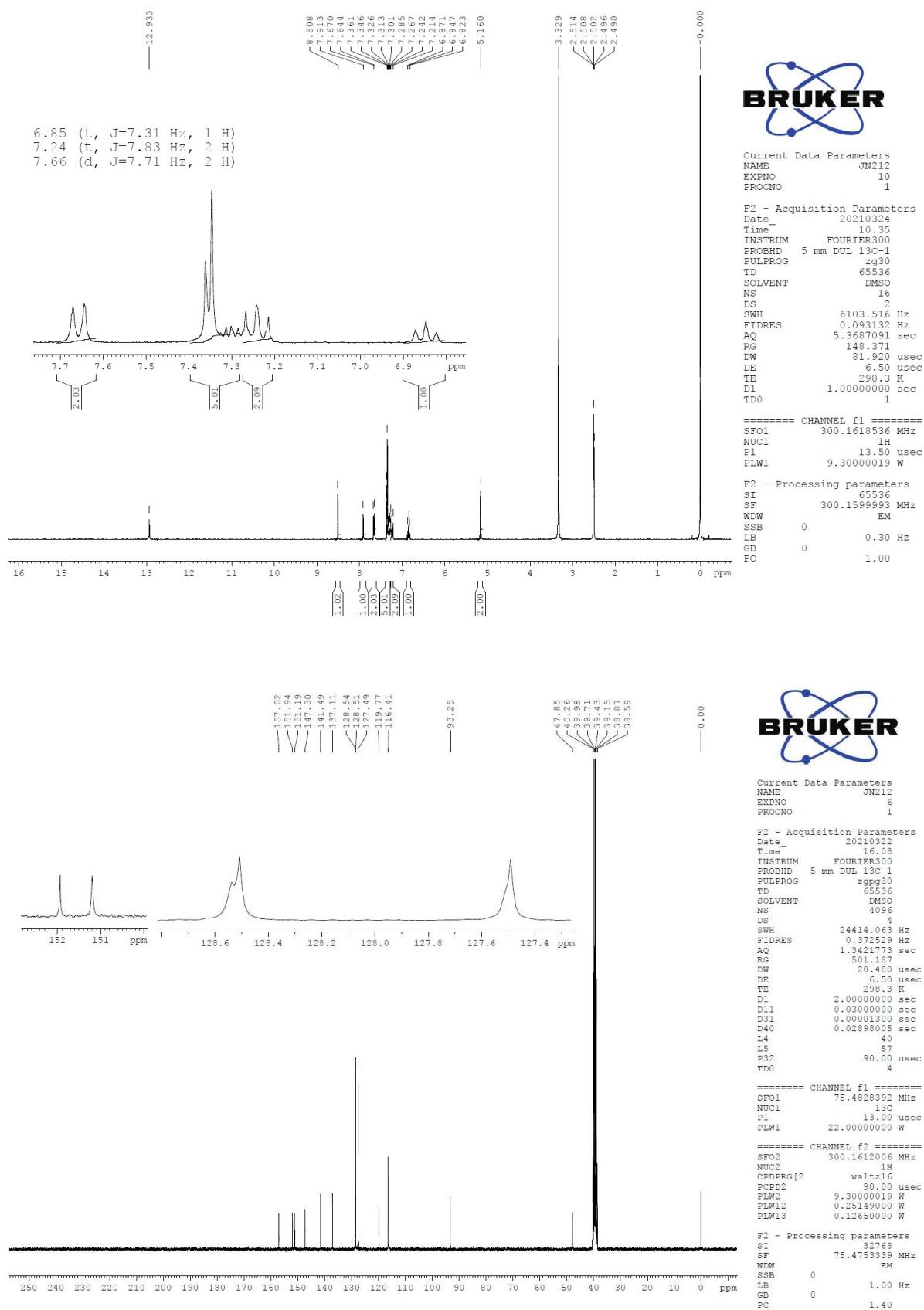
Figure S2. Molecular packing in **4p**: a view in projection down the *a*-axis of the unit-cell contents. The N–H···N, C–H···O, C–H···π, π···π and Br···O interactions are shown as blue, orange, pink, purple and olive dashed lines, respectively.

Geometric parameters (Å, °) characterizing the identified intermolecular interactions:

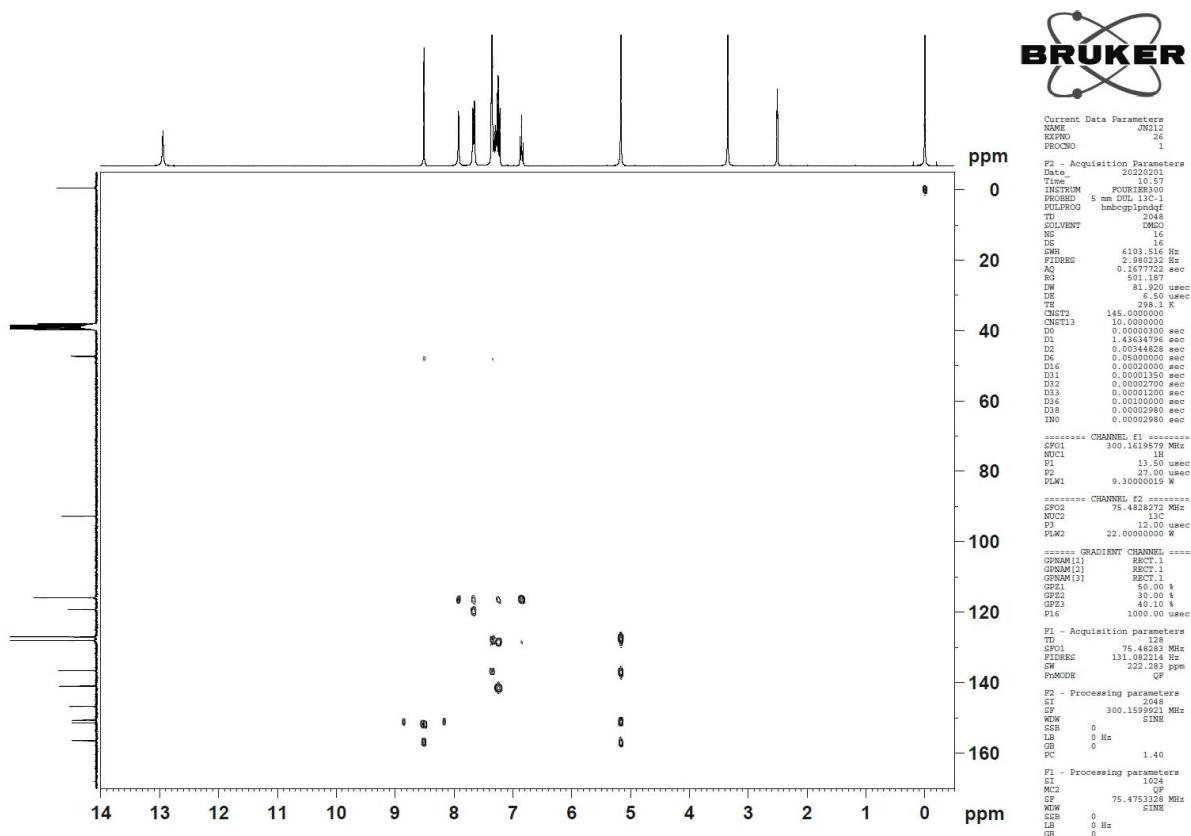
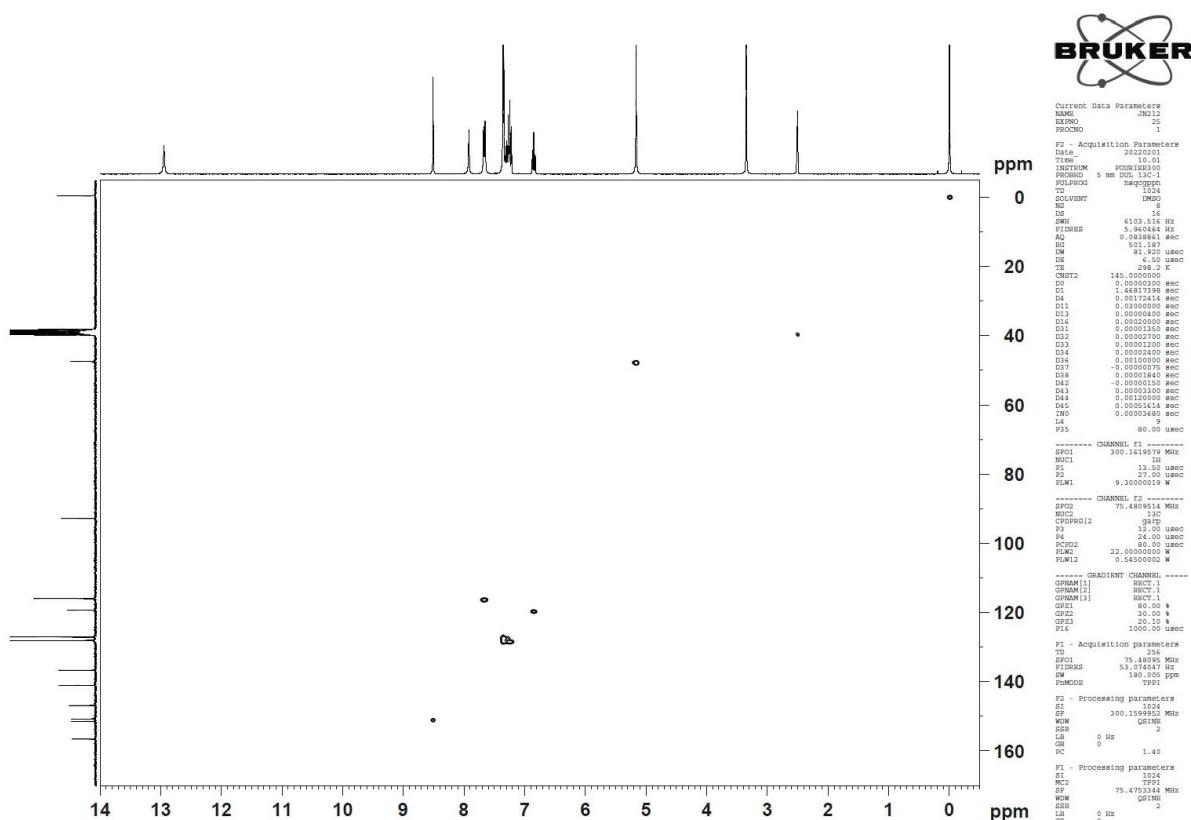
Interaction (A–H···B)	H···B	A···B	A–H···B	Symmetry operation
N1–H1n···N7	2.039(18)	2.9005(18)	170.3(19)	3– <i>x</i> , 2– <i>y</i> , 1– <i>z</i>
C32–H32···O1	2.37	3.2264(18)	150	1– <i>x</i> , 1– <i>y</i> , 1– <i>z</i>
C33–H33···Cg(C51–C56)	2.86	3.6487(16)	142	1– <i>x</i> , 1– <i>y</i> , 1– <i>z</i>
C52–H52···Cg(C31–C36)	2.51	3.2868(16)	139	2– <i>x</i> , 1– <i>y</i> , 1– <i>z</i>
Cg(N1,N2,C3,C3a,C7a)···Cg(N5,N7,C3a,C4,C6,C7a)		3.4144(8)	4.52(8)	2– <i>x</i> , 2– <i>y</i> , 1– <i>z</i>
C34–Br31···O51		3.1620(11)	154.75(6)	–1+ <i>x</i> , <i>y</i> , 1+ <i>z</i>

**Copies of ^1H and ^{13}C NMR spectra for prepared
3,5-disubstituted pyrazolo[3,4-*d*]pyrimidin-4-ones (4a-t)**

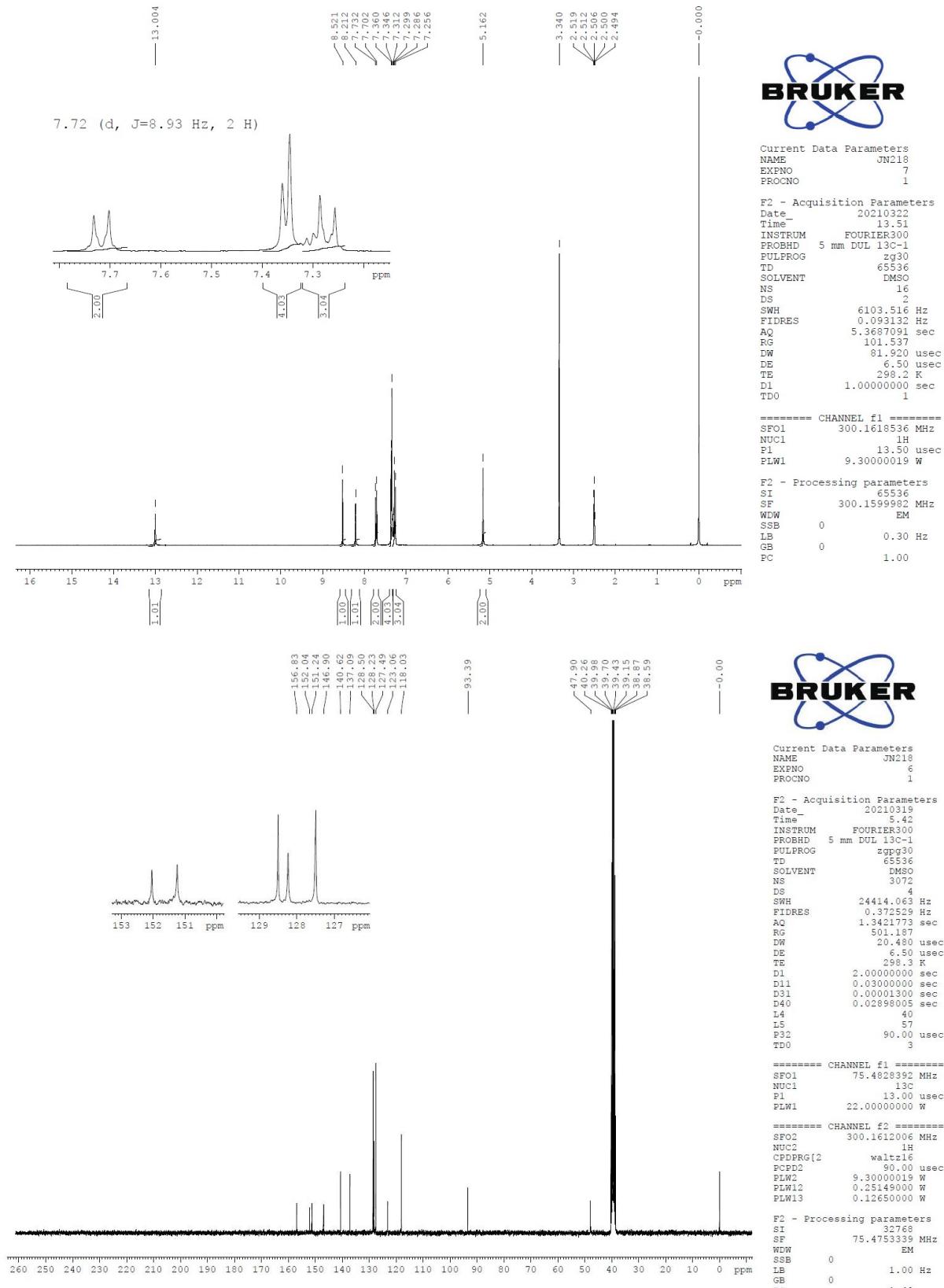
5-Benzyl-3-(phenylamino)-1,5-dihydro-4H-pyrazolo[3,4-d]pyrimidin-4-one (4a)



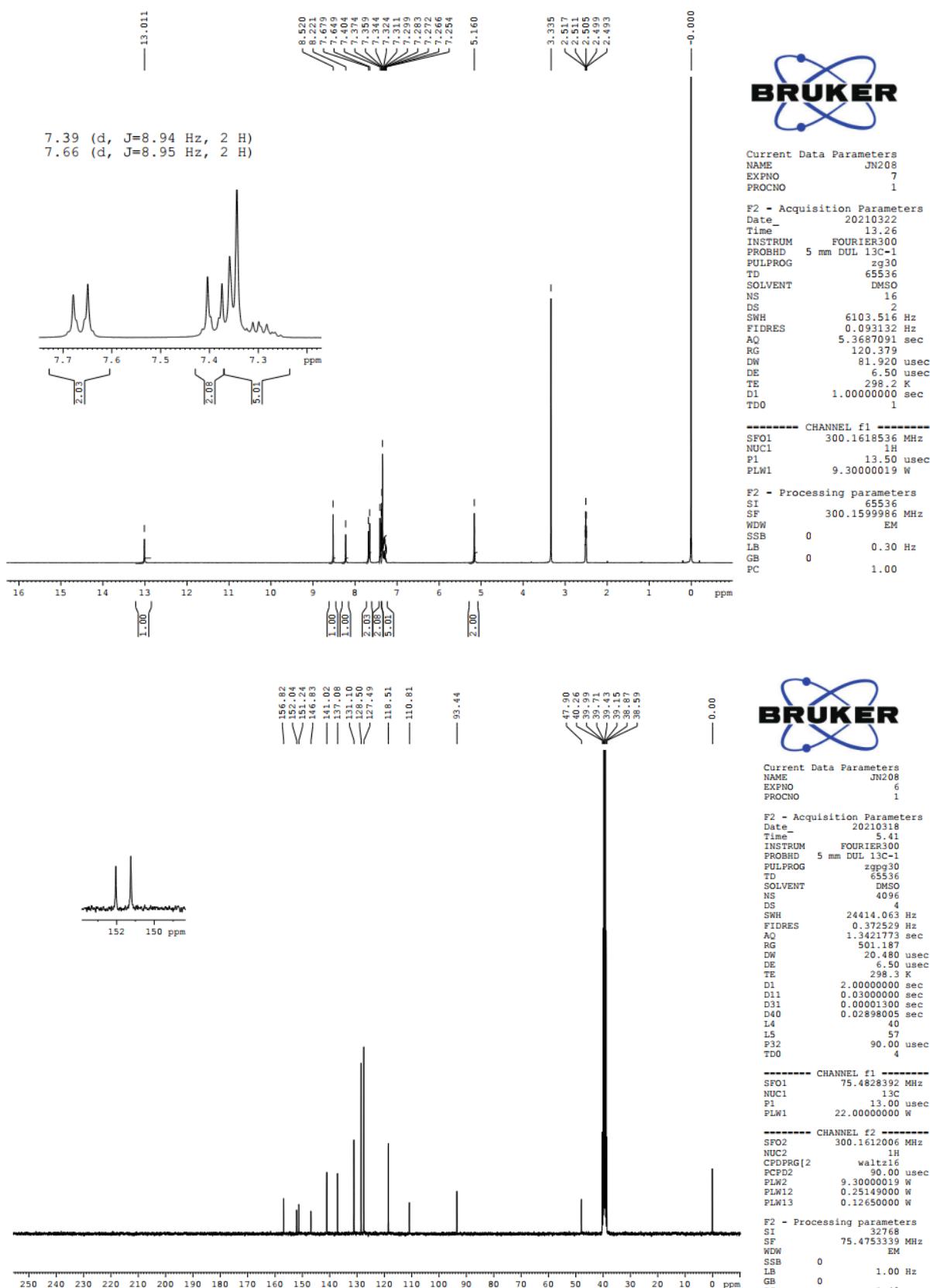
5-Benzyl-3-(phenylamino)-1,5-dihydro-4*H*-pyrazolo[3,4-*d*]pyrimidin-4-one (4a)



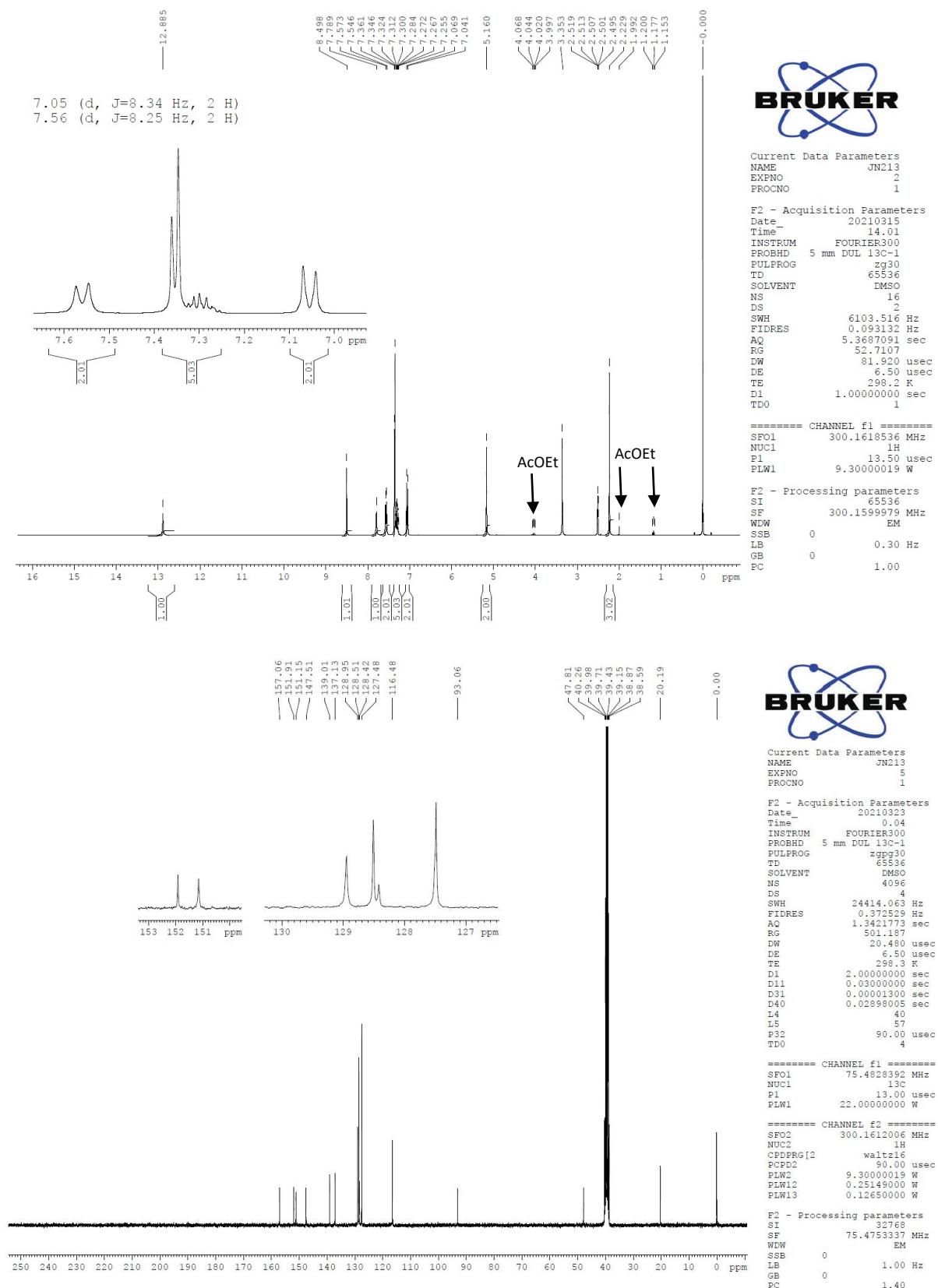
5-Benzyl-3-(4-chlorophenylamino)-1,5-dihydro-4*H*-pyrazolo[3,4-*d*]pyrimidin-4-one (4b)



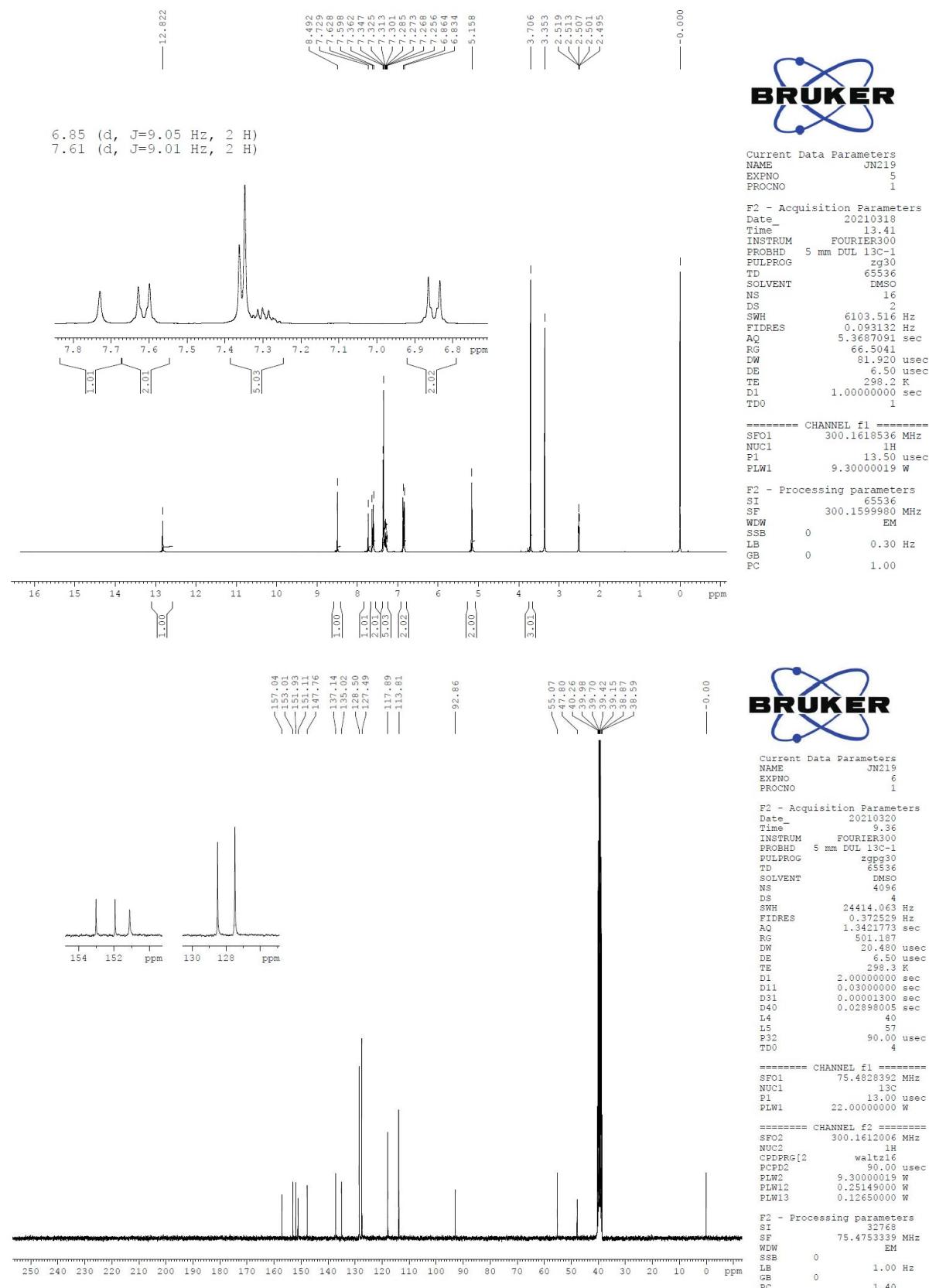
5-Benzyl-3-(4-bromophenylamino)-1,5-dihydro-4H-pyrazolo[3,4-d]pyrimidin-4-one (4c)



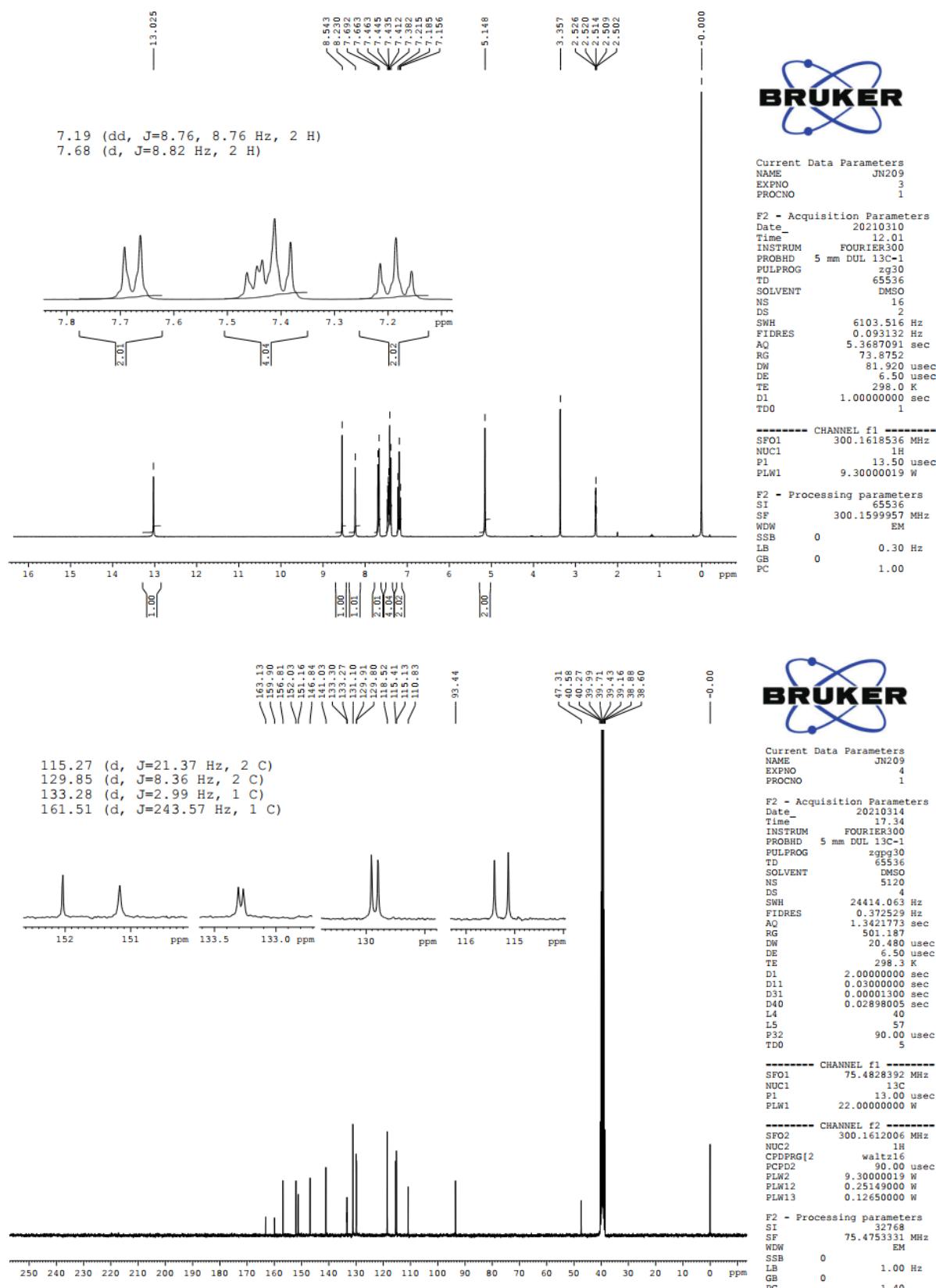
5-Benzyl-3-(4-methylphenylamino)-1,5-dihydro-4*H*-pyrazolo[3,4-*d*]pyrimidin-4-one (4d)



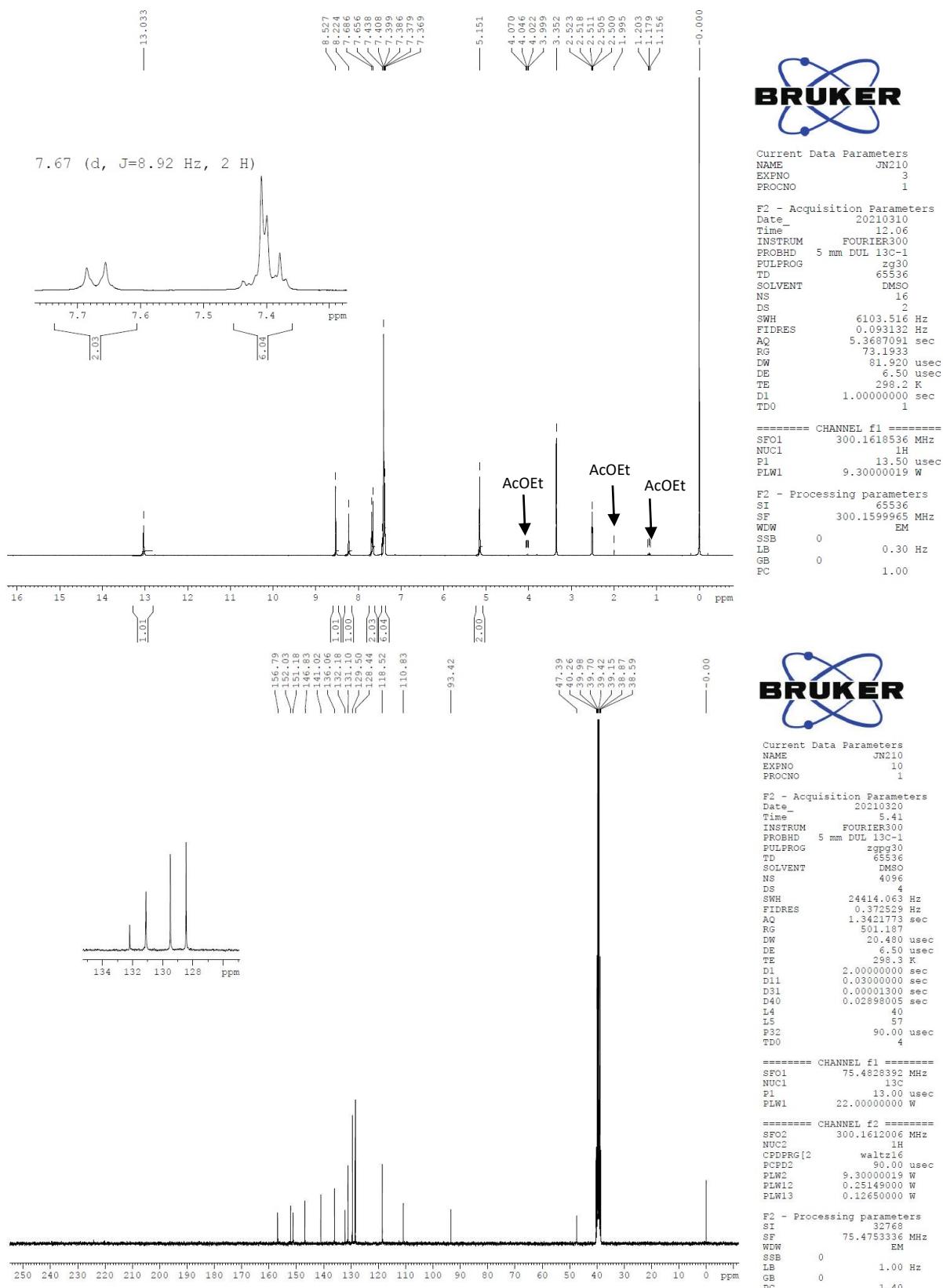
5-Benzyl-3-(4-methoxyphenylamino)-1,5-dihydro-4H-pyrazolo[3,4-d]pyrimidin-4-one (4e)



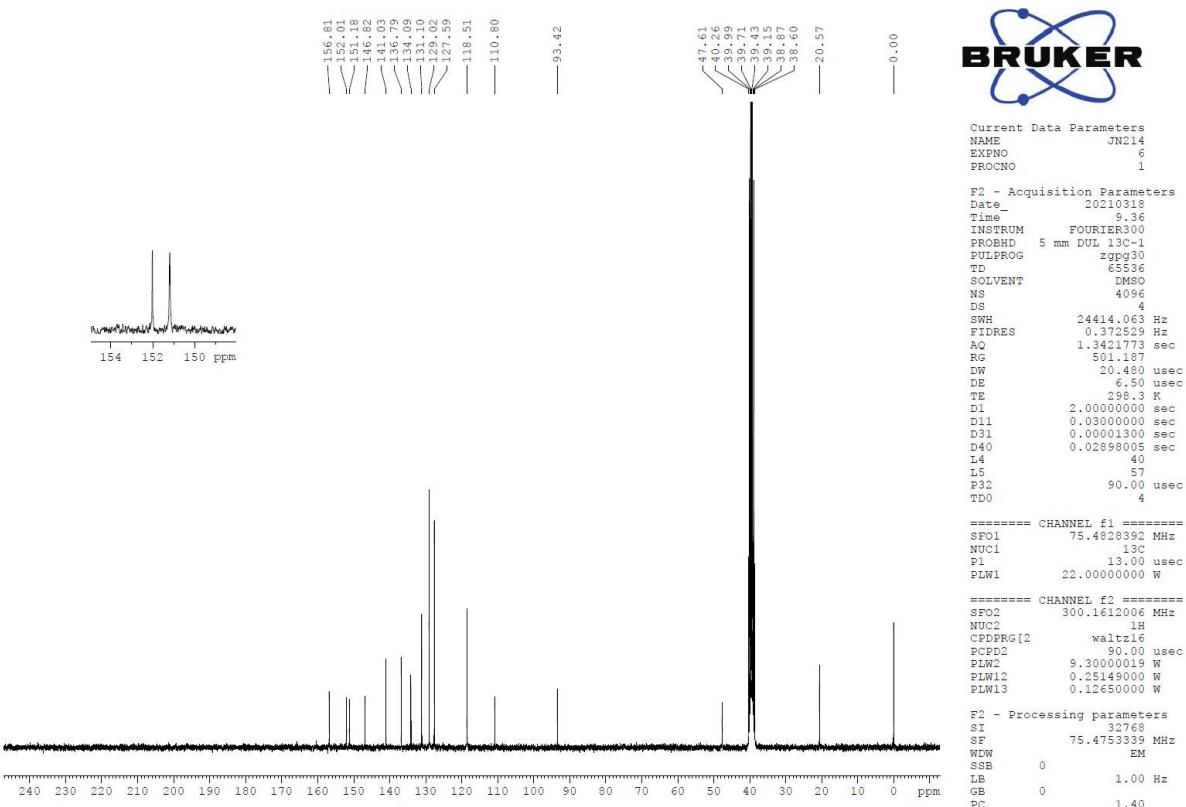
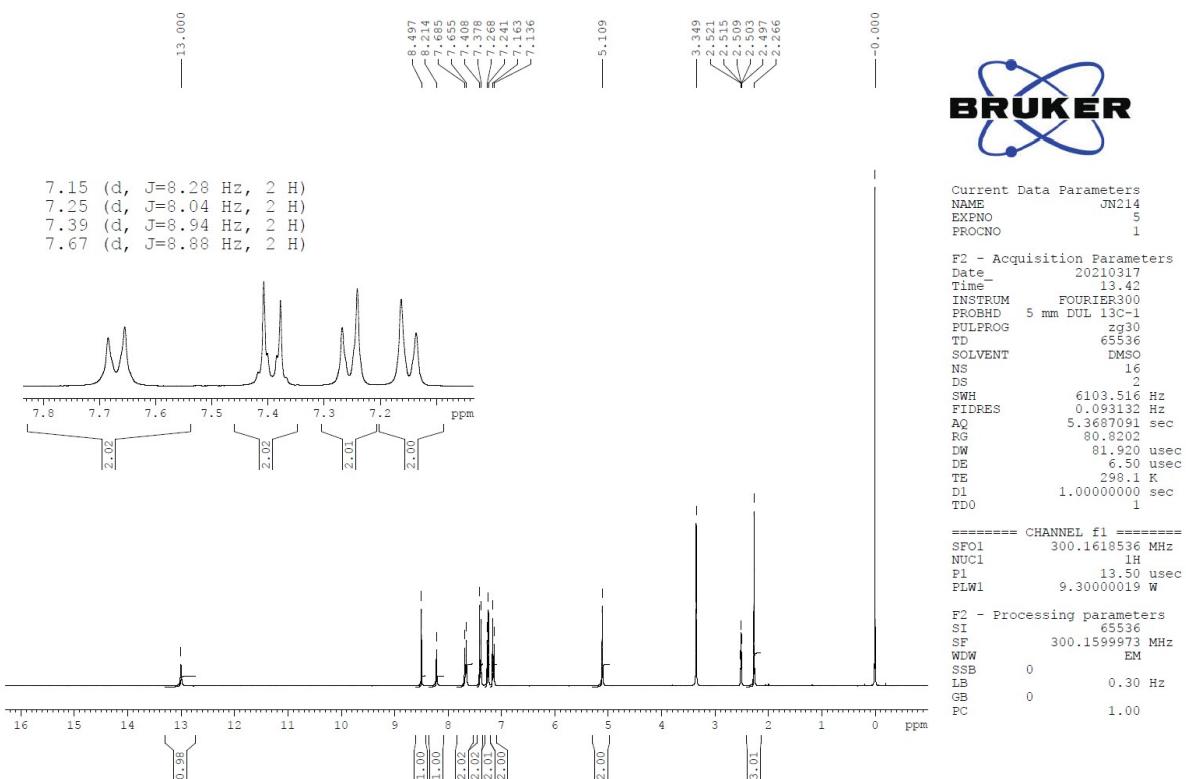
3-(4-Bromophenylamino)-5-(4-fluorobenzyl)-1,5-dihydro-4H-pyrazolo[3,4-d]pyrimidin-4-one (4f)



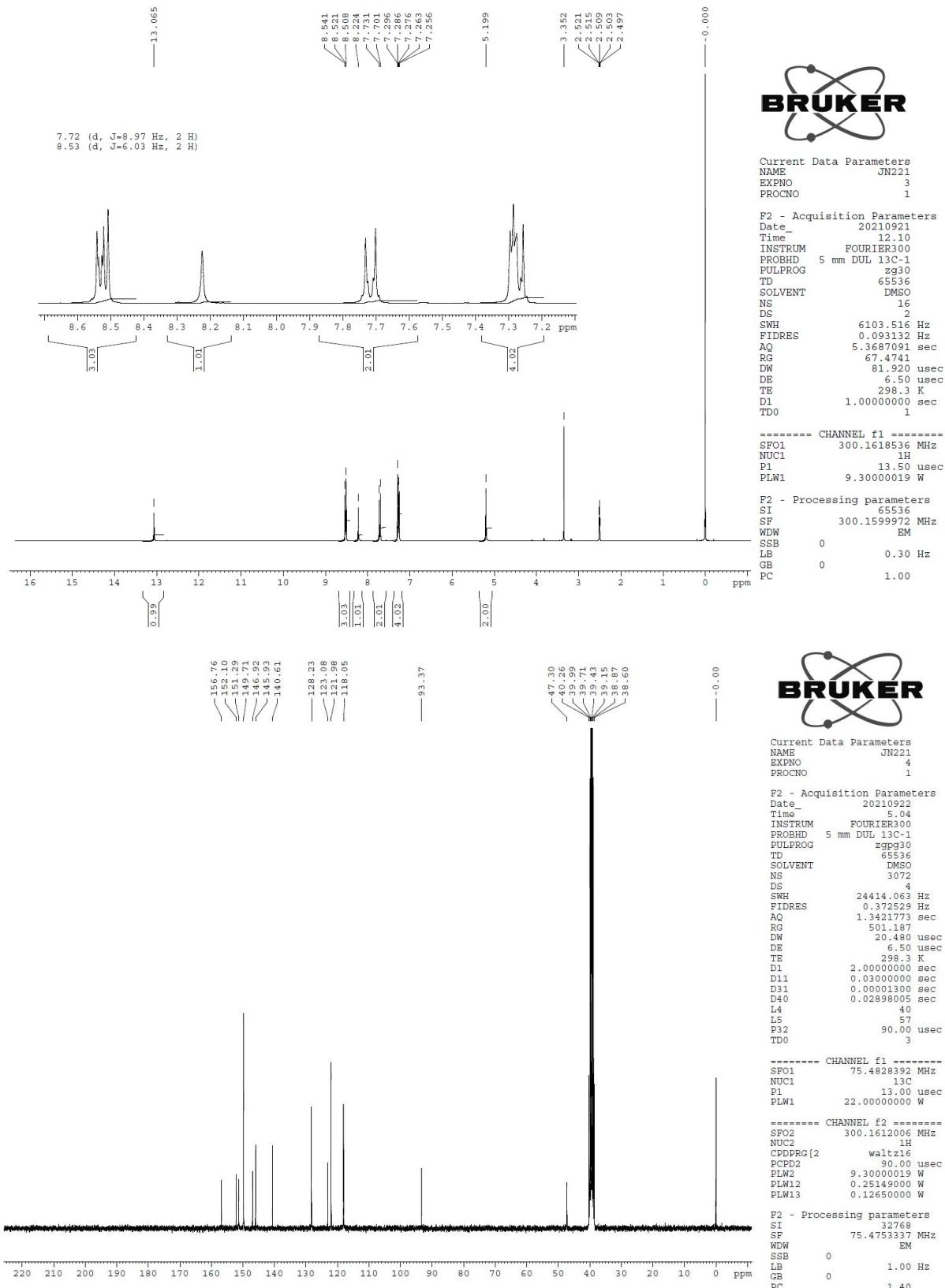
3-(4-Bromophenylamino)-5-(4-chlorobenzyl)-1,5-dihydro-4*H*-pyrazolo[3,4-*d*]pyrimidin-4-one (4g)



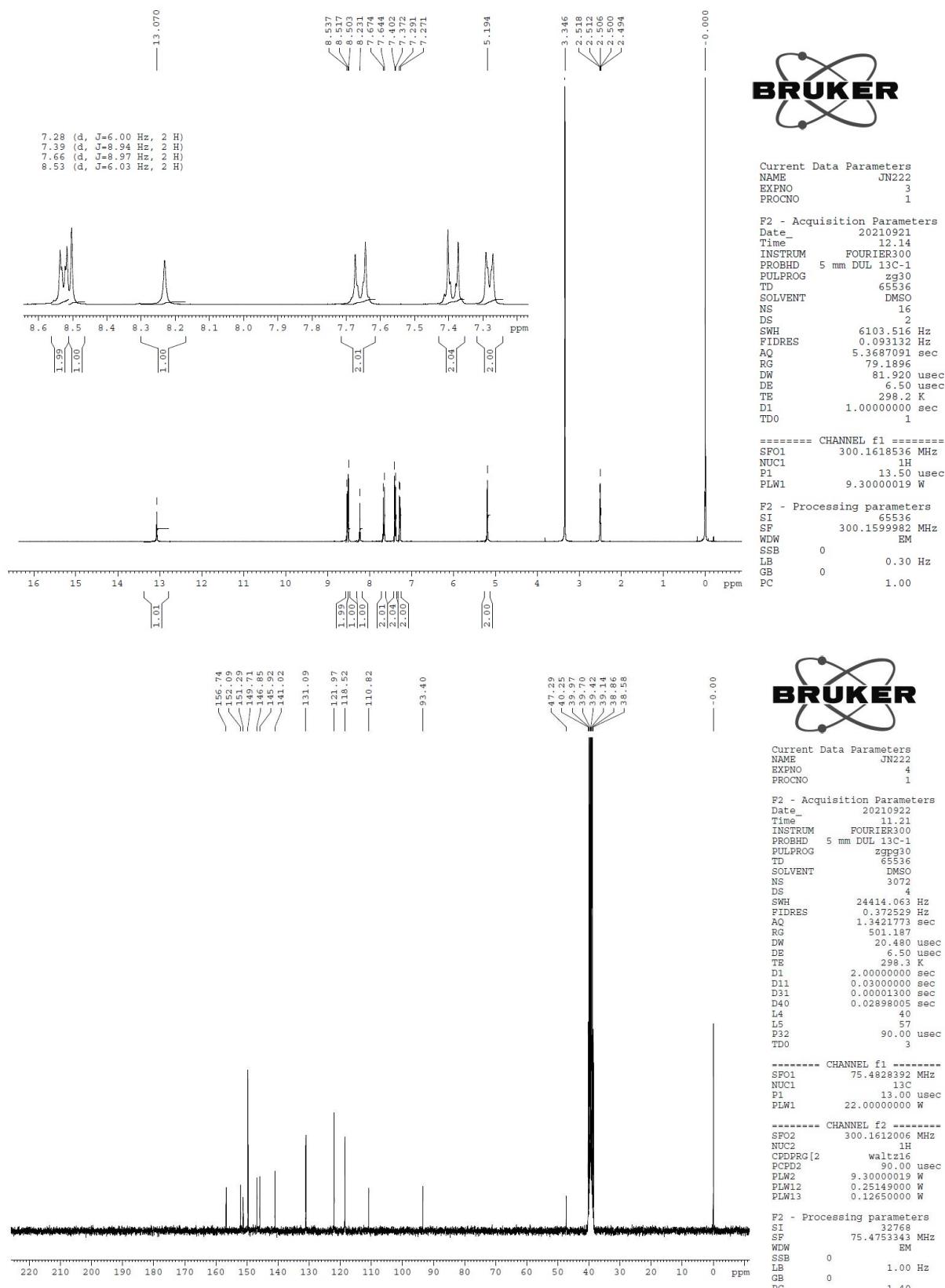
3-(4-Bromophenylamino)-5-(4-methylbenzyl)-1,5-dihydro-4H-pyrazolo[3,4-d]pyrimidin-4-one (4h)



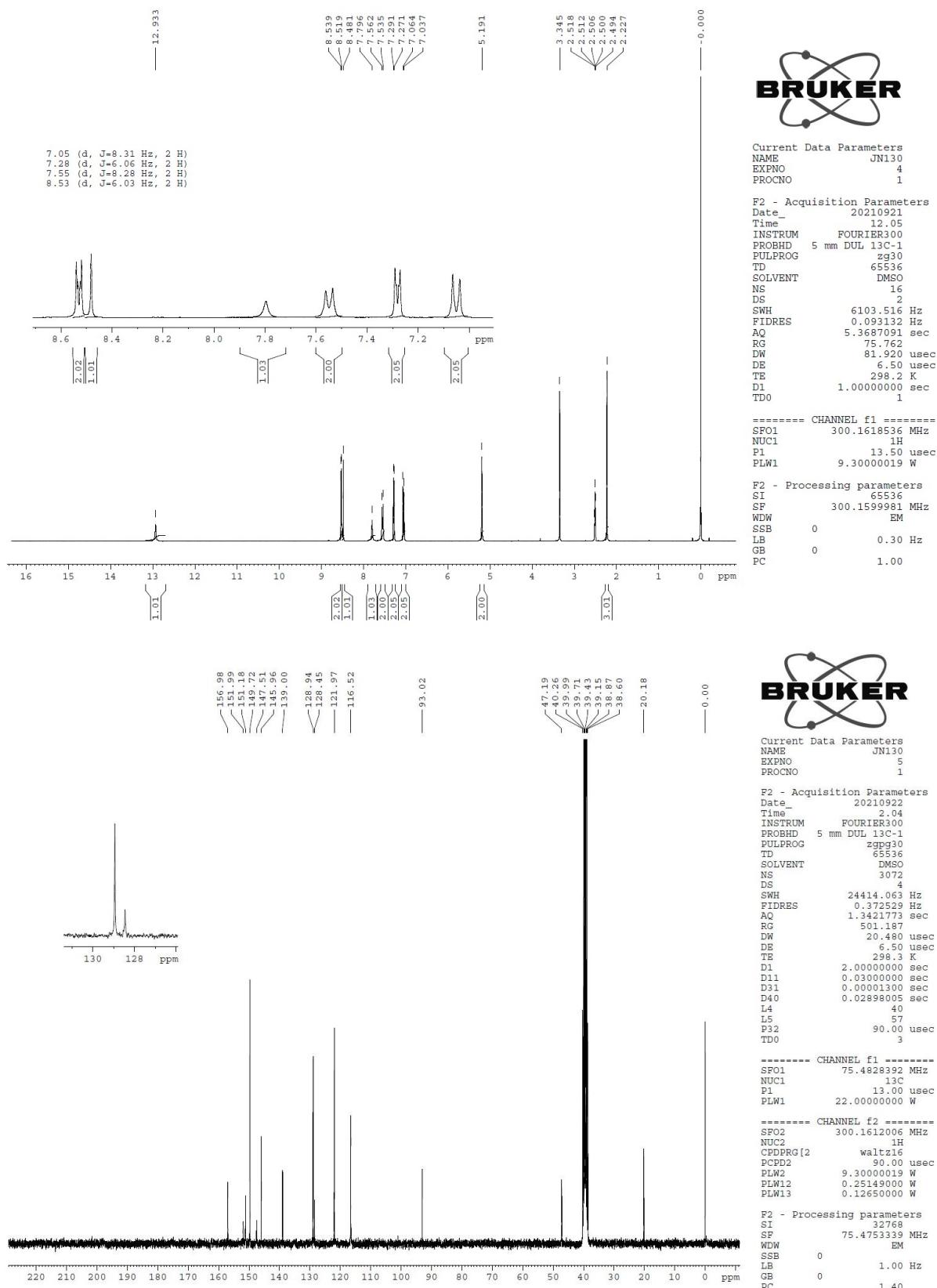
3-(4-Chlorophenylamino)-5-(4-picolyl)-1,5-dihydro-4*H*-pyrazolo[3,4-*d*]pyrimidin-4-one (4i)



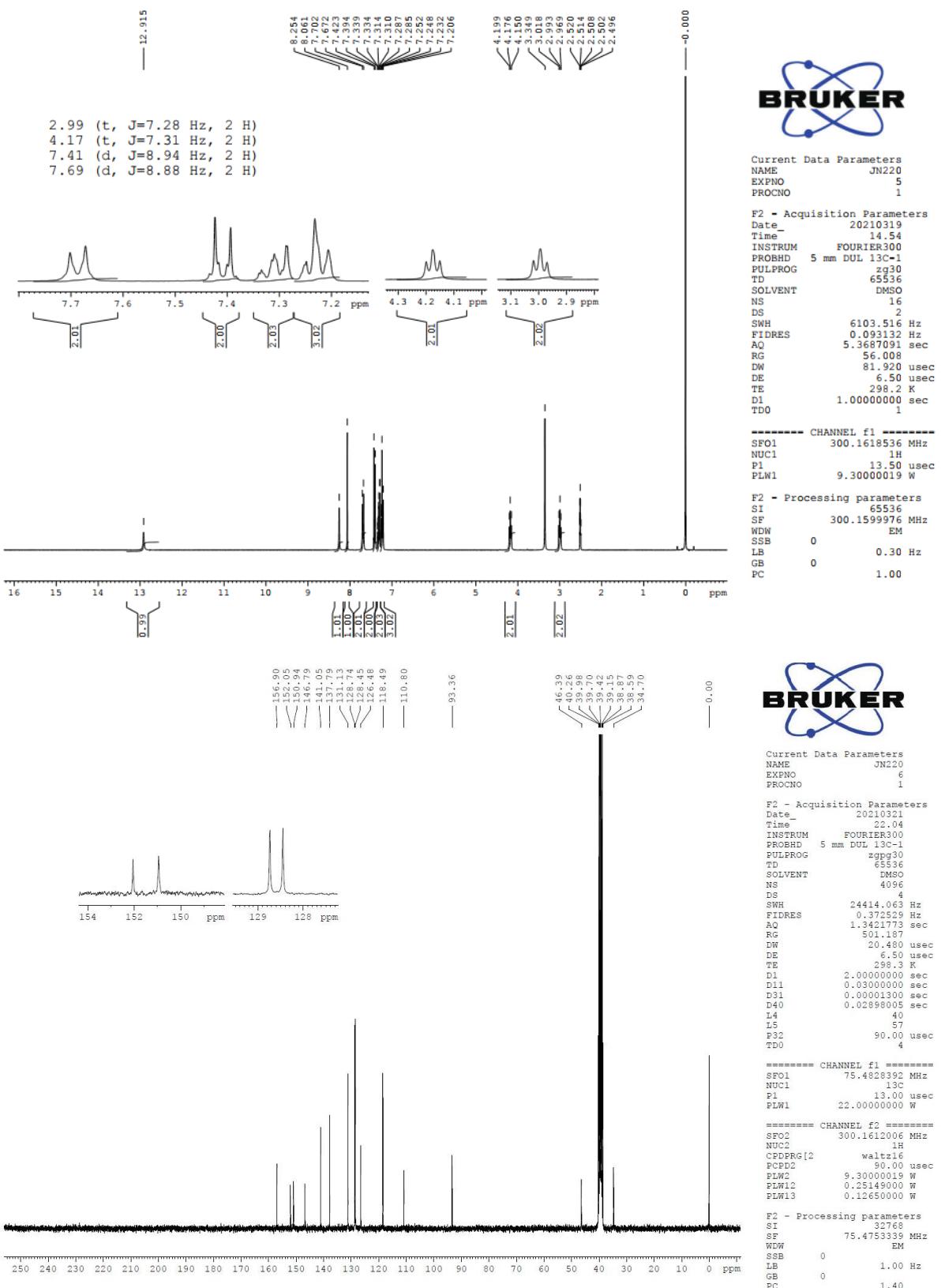
3-(4-Bromophenylamino)-5-(4-picoly)-1,5-dihydro-4H-pyrazolo[3,4-d]pyrimidin-4-one (4j)



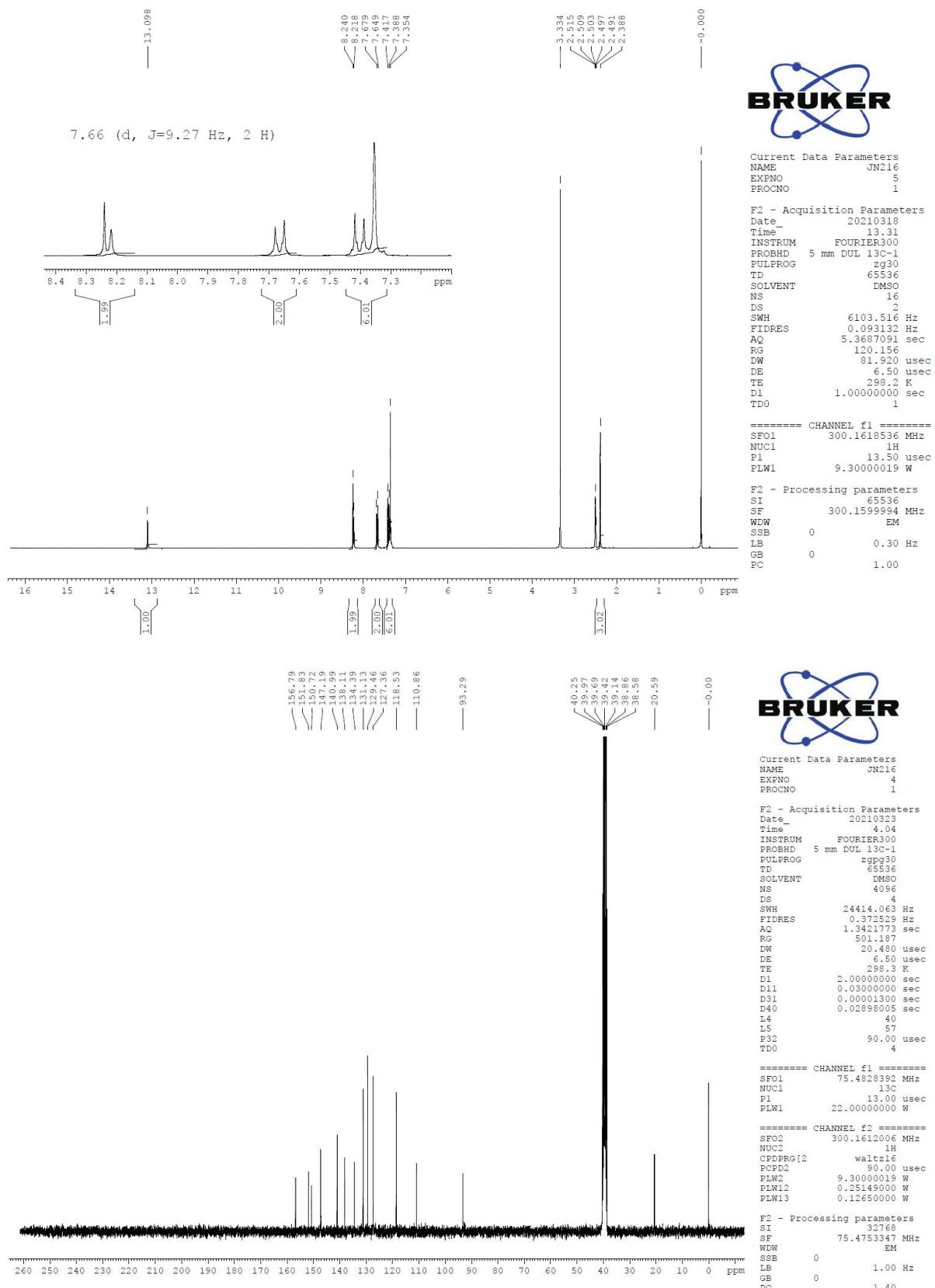
3-(4-Methylphenylamino)-5-(4-picoly)-1,5-dihydro-4*H*-pyrazolo[3,4-*d*]pyrimidin-4-one (4k)



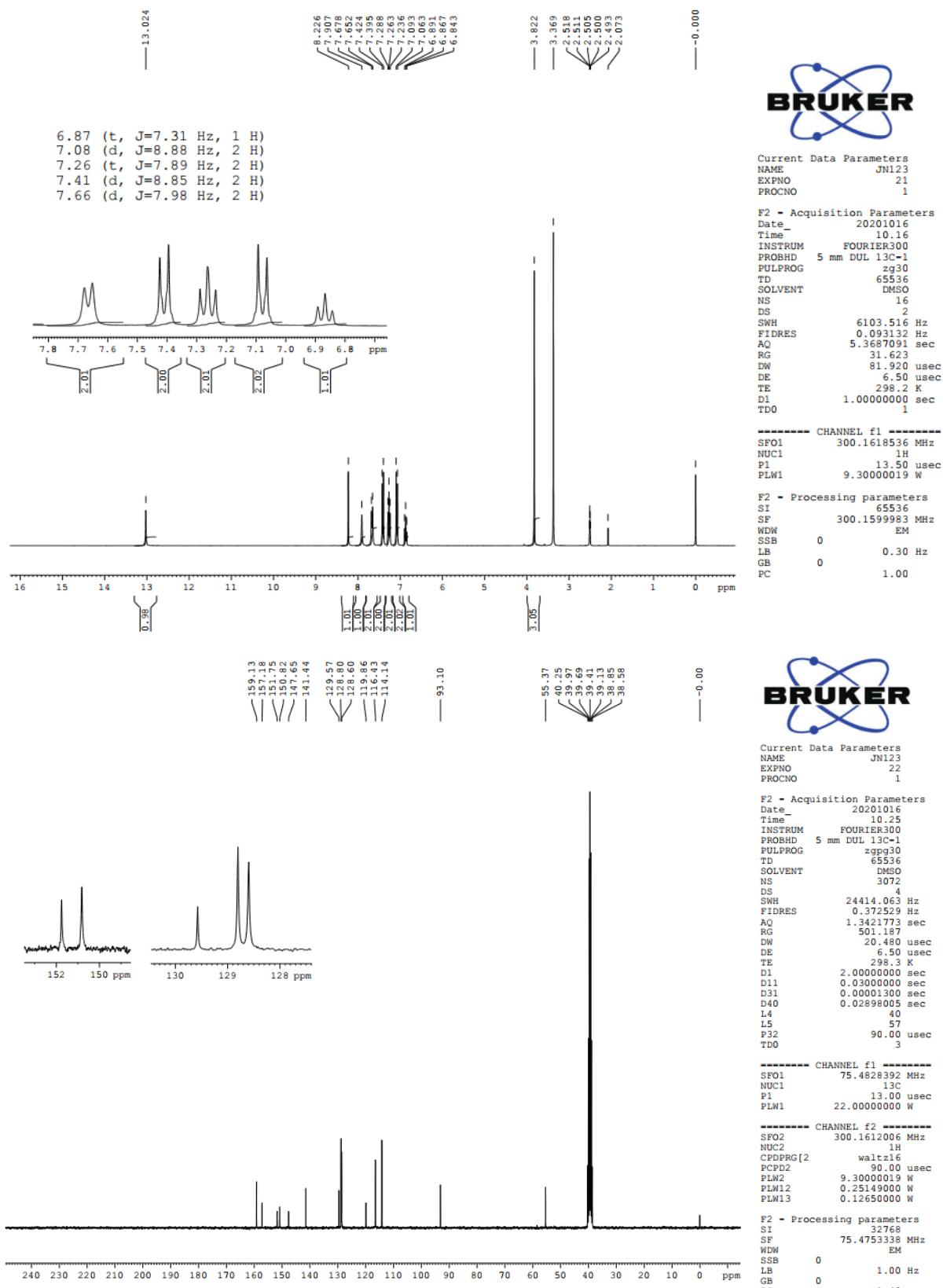
3-(4-Bromophenylamino)-5-(4-phenethyl)-1,5-dihydro-4*H*-pyrazolo[3,4-*d*]pyrimidin-4-one (41)



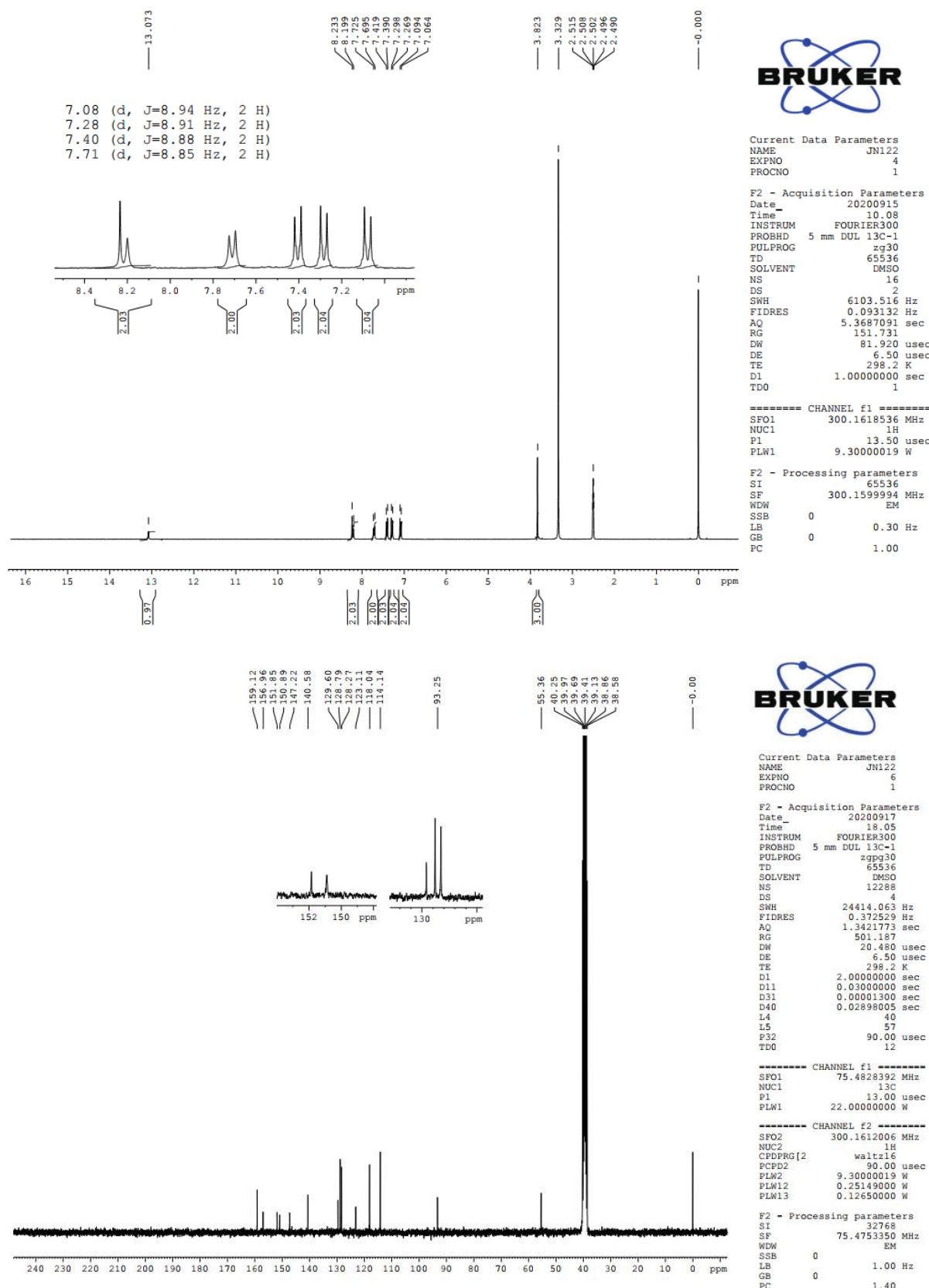
3-(4-Bromophenylamino)-5-(4-methylphenyl)-1,5-dihydro-4*H*-pyrazolo[3,4-*d*]pyrimidin-4-one (4m)



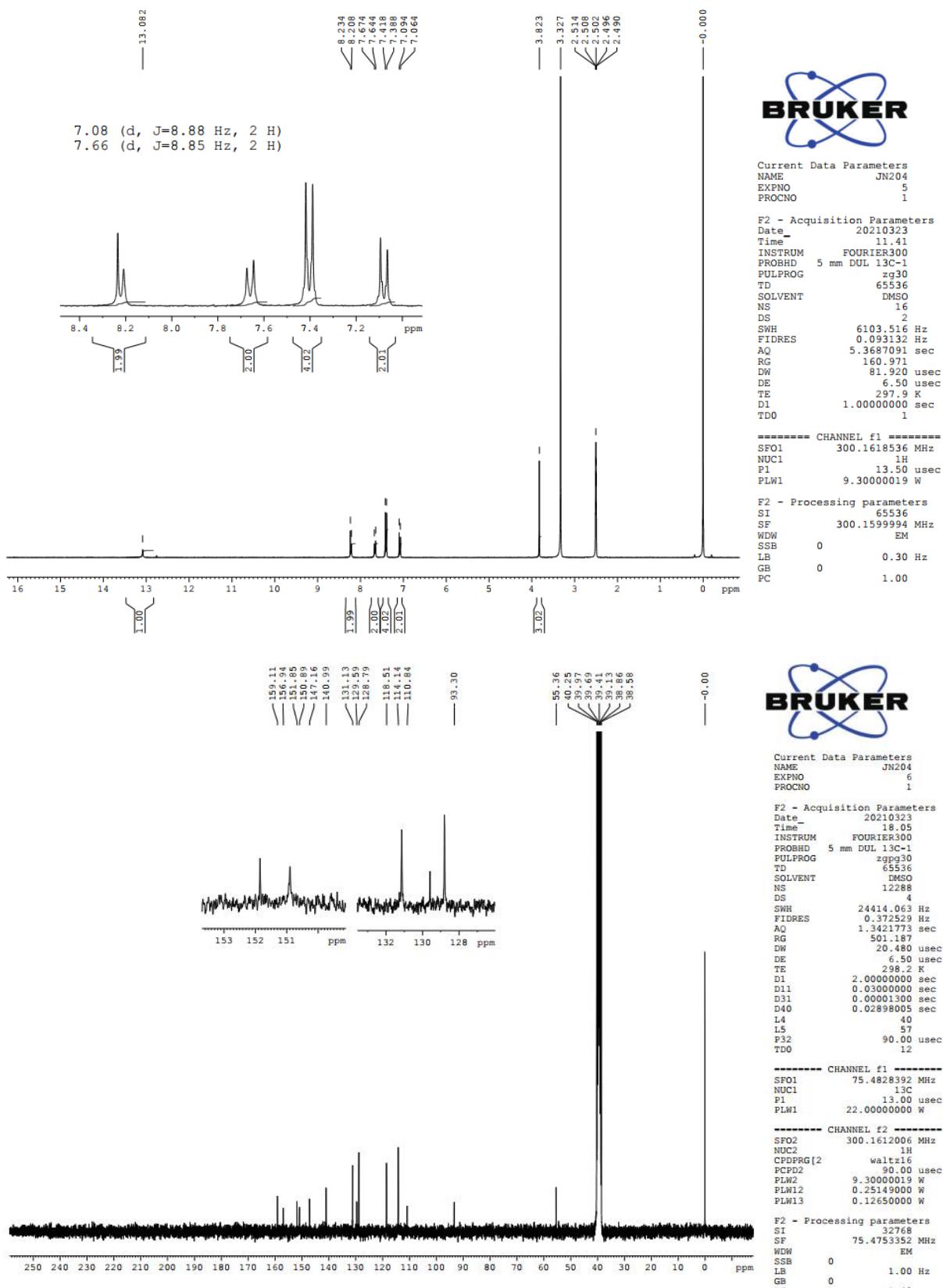
5-(4-Methoxylphenyl)-3-phenylamino-1,5-dihydro-4H-pyrazolo[3,4-d]pyrimidin-4-one (4n)



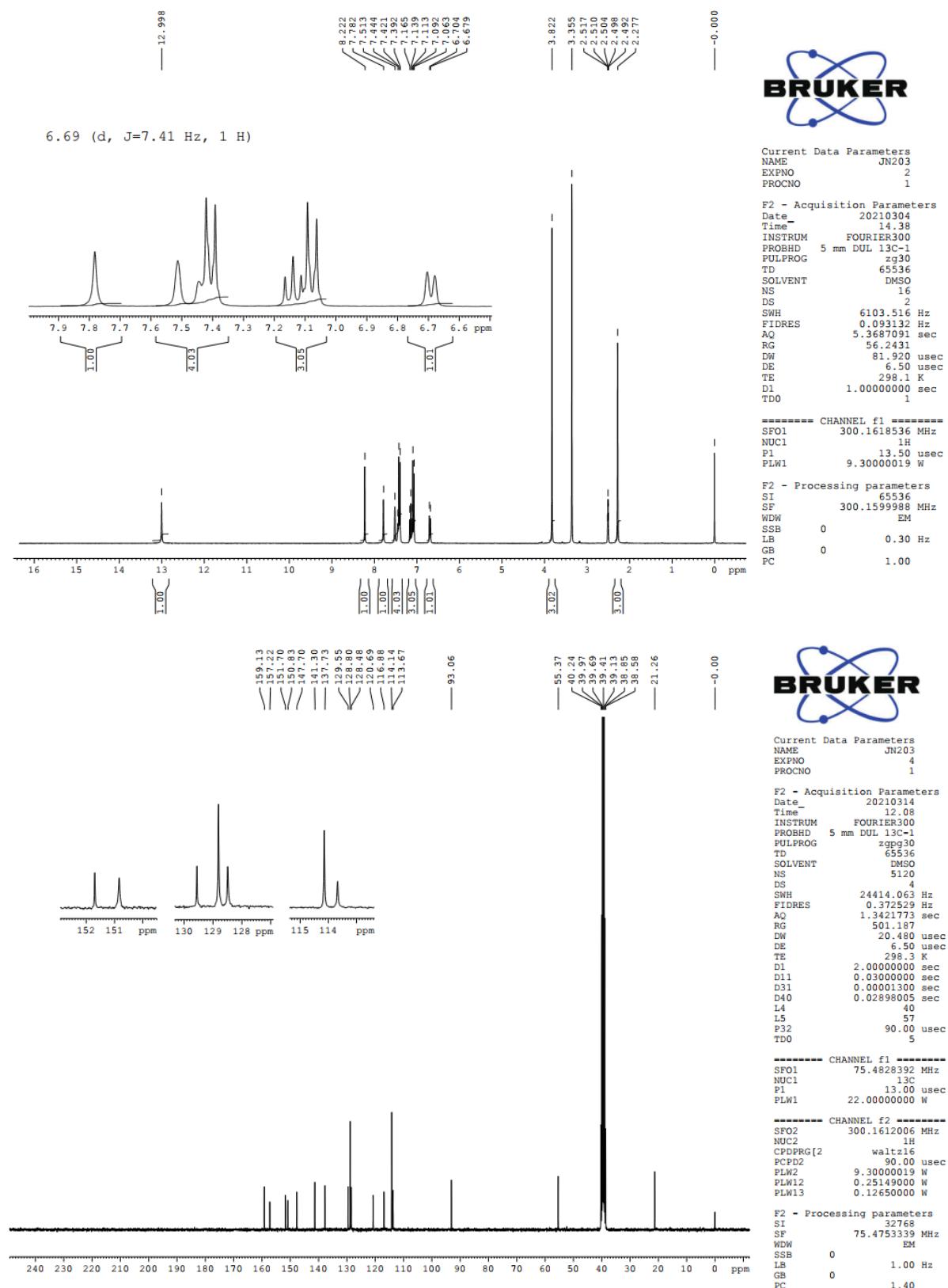
3-(4-Chlorophenylamino)-5-(4-methoxylphenyl)-1,5-dihydro-4H-pyrazolo[3,4-d]pyrimidin-4-one (4o)



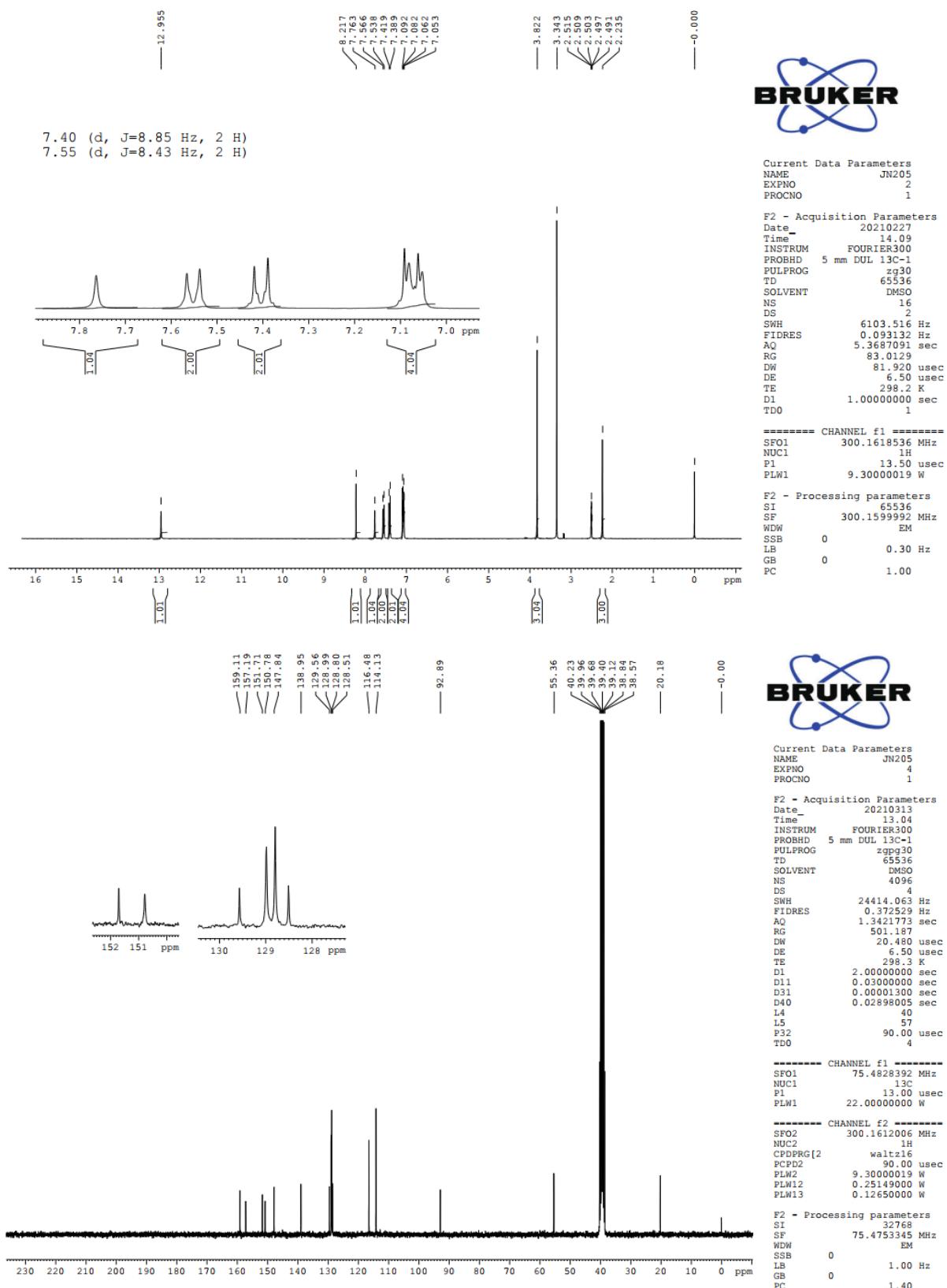
3-(4-Bromophenylamino)-5-(4-methoxyphenyl)-1,5-dihydro-4H-pyrazolo[3,4-d]pyrimidin-4-one (4p)



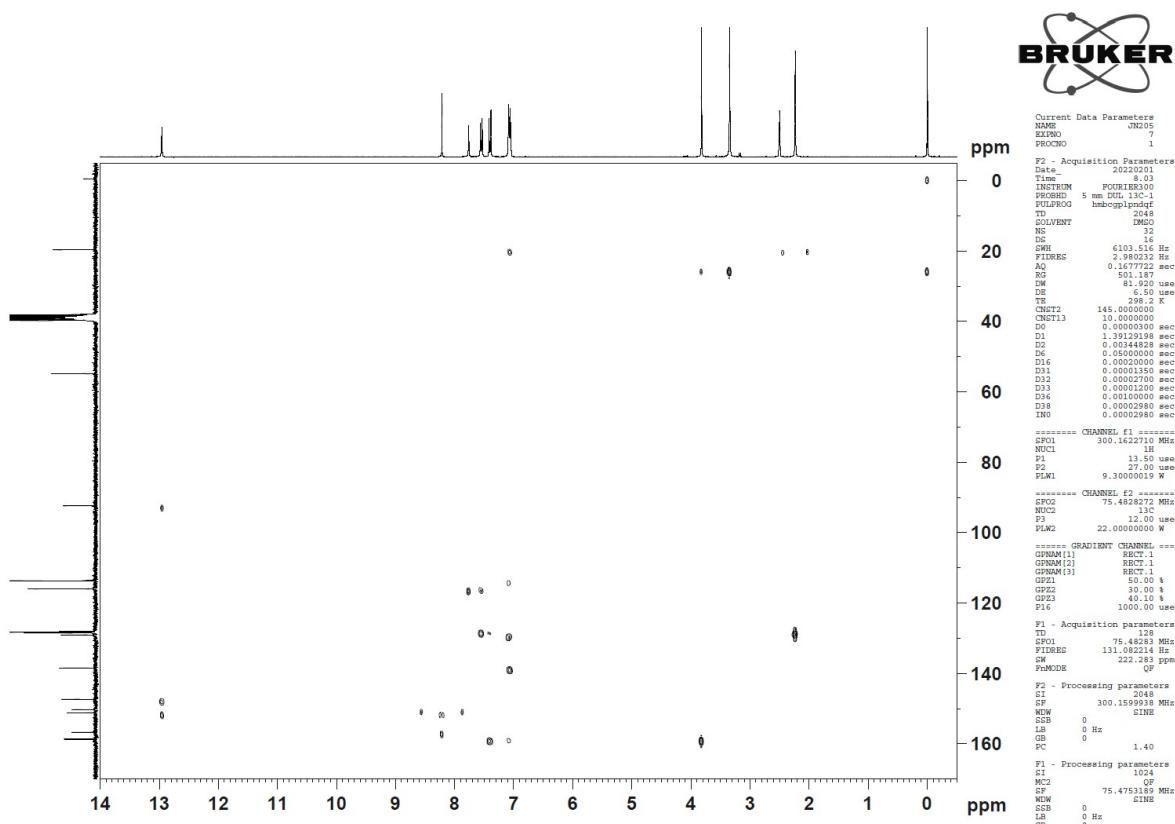
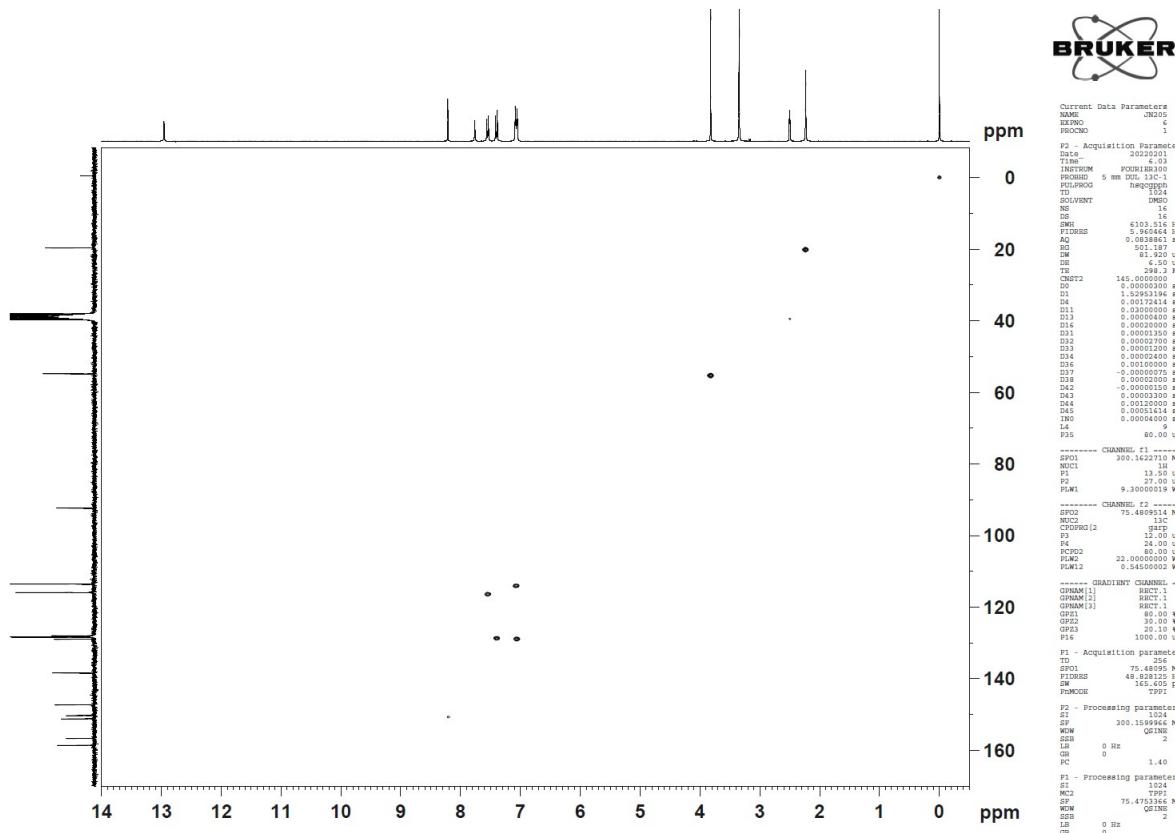
5-(4-Methoxylphenyl)-3-(3-methylphenylamino)-1,5-dihydro-4H-pyrazolo[3,4-d]pyrimidin-4-one (4q)



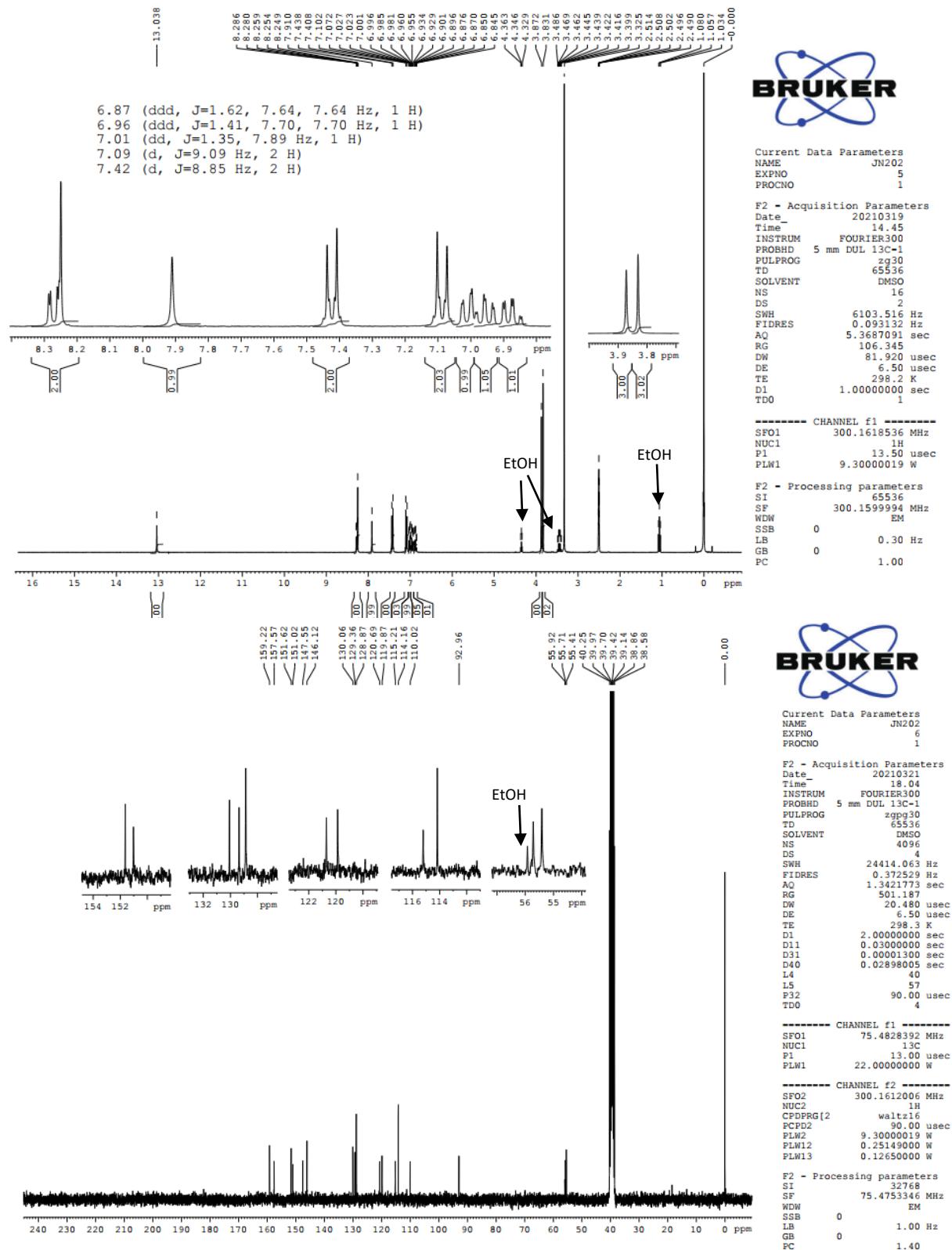
5-(4-Methoxylphenyl)-3-(4-methylphenylamino)-1,5-dihydro-4H-pyrazolo[3,4-d]pyrimidin-4-one (4r)



5-(4-Methoxylphenyl)-3-(4-methylphenylamino)-1,5-dihydro-4H-pyrazolo[3,4-d]pyrimidin-4-one (4r)



3-(2-Methoxylphenylamino)-5-(4-methoxyphenyl)-1,5-dihydro-4H-pyrazolo[3,4-d]pyrimidin-4-one (4s)



3-(4-Methoxylphenylamino)-5-(4-methoxyphenyl)-1,5-dihydro-4H-pyrazolo[3,4-d]pyrimidin-4-one (4t)

