

NMR-Frequenzen und Messmöglichkeiten

Nucleus		Receptivity (rel,13C)	Spin	NMR-Frequency	
				(600 MHz)	(400 MHz)
1H	Hydrogen	5680	1/2	600,130000	400,130000
2H	Deuterium	0,00821	1	92,123609	61,422391
3H	Tritium	1,00E-09	1/2	640,122507	426,794559
3He	Helium	0,00326	1/2	457,175655	304,816781
6Li	Lithium	3,58	1	88,315647	58,883475
7Li	Lithium	1540	3/2	233,233305	155,505711
9Be	Beryllium	78,8	3/2	84,329145	56,225519
10B	Boron	22,1	3	64,475915	42,988599
11B	Boron	754	3/2	192,545553	128,377605
13C	Carbon	1	1/2	150,902809	100,612769
14N	Nitrogen	5,69	1	43,367296	28,914662
15N	Nitrogen	0,0219	1/2	60,833780	40,560246
17O	Oxygen	0,0611	5/2	81,356365	54,243451
19F	Fluorine	4730	1/2	564,686388	376,498366
21Ne	Neon	0,0359	3/2	47,376039	31,587447
23Na	Sodium	525	3/2	158,745787	105,841987
25Mg	Magnesium	1,54	5/2	36,737768	24,494498
27Al	Aluminum	1170	5/2	156,375028	104,261310
29Si	Silicon	2,09	1/2	119,228949	79,494575
31P	Phosphorus	377	1/2	242,937077	161,975593
33S	Sulfur	0,0973	3/2	46,065979	30,713979
35Cl	Chlorine	20,2	3/2	58,800191	39,204373
37Cl	Chlorine	3,77	3/2	48,944952	32,633502
39K	Potassium	2,69	3/2	28,004304	18,671558
41K	Potassium	0,0328	3/2	15,371160	10,248550
43Ca	Calcium	0,0527	7/2	40,388923	26,928865
45Sc	Scandium	1710	7/2	145,782061	97,198567
47Ti	Titanium	0,864	5/2	33,832533	22,557465
49Ti	Titanium	1,18	7/2	33,841553	22,563479
50V	Vanadium	0,755	6	59,834815	39,894197
51V	Vanadium	2160	7/2	157,851882	105,245986
53Cr	Chromium	0,49	3/2	33,922324	22,617332
55Mn	Manganese	994	5/2	148,767534	99,189098
57Fe	Iron	0,00419	1/2	19,430877	12,955321
59Co	Cobalt	1570	7/2	142,393289	94,939141
61Ni	Nickel	0,241	3/2	53,627923	35,755821
63Cu	Copper	365	3/2	159,127308	106,096362
65Cu	Copper	201	3/2	170,459083	113,651697
67Zn	Zinc	0,665	5/2	37,548952	25,035346
69Ga	Gallium	237	3/2	144,039326	96,036618
71Ga	Gallium	319	3/2	183,019870	122,026462
73Ge	Germanium	0,617	9/2	20,934425	13,957795
75As	Arsenic	143	3/2	102,757943	68,512715
77Se	Selenium	2,98	1/2	114,453871	76,310845
79Se	Selenium	2,98	7/2	31,313115	20,877671
79Br	Bromine	226	3/2	150,356450	100,248490
81Br	Bromine	277	3/2	162,074216	108,061180
83Kr	Krypton	1,23	9/2	23,090602	15,395402
85Rb	Rubidium	43,4	5/2	57,942209	38,632323
87Rb	Rubidium	277	3/2	196,365261	130,924353

rot markierte Kerne: außerhalb des Frequenzbereichs der Breitbandsonde
grün markierte Frequenzen: Diese Kerne sind eingerichtet.

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87Sr	Strontium	1,07	9/2	26,008566	17,340922
89Y	Yttrium	0,668	1/2	29,407558	19,607162
91Zr	Zirconium	6,04	5/2	55,789873	37,197277
93Nb	Niobium	2740	9/2	146,888839	97,936499
95Mo	Molybdenum	2,88	5/2	39,110028	26,076176
97Mo	Molybdenum	1,84	5/2	39,930820	26,623430
99Tc	Technetium	2130	9/2	135,079217	90,062565
99Ru	Ruthenium	0,83	5/2	27,636893	18,426591
101Ru	Ruthenium	1,56	5/2	30,974924	20,652186
103Rh	Rhodium	0,177	1/2	19,122824	12,749930
105Pd	Palladium	1,41	5/2	27,462549	18,310349
107Ag	Silver	0,195	1/2	24,292176	16,196538
109Ag	Silver	0,276	1/2	27,927248	18,620182
111Cd	Cadmium	6,93	1/2	127,320460	84,889500
113Cd	Cadmium	7,59	1/2	133,187901	88,801551
113In	Indium	83,8	9/2	131,222955	87,491445
115In	Indium	1890	9/2	131,504260	87,679002
115Sn	Tin	19,5	1/2	196,355028	130,917530
117Sn	Tin	19,5	1/2	213,839876	142,575358
119Sn	Tin	25,2	1/2	223,792270	149,211006
121Sb	Antimony	520	5/2	143,614572	95,753418
123Sb	Antimony	111	7/2	77,772149	51,853715
123Te	Tellurium	0,89	1/2	157,052473	104,712989
125Te	Tellurium	12,5	1/2	189,339629	126,240091
127I	Iodine	530	5/2	120,070926	80,055954
129Xe	Xenon	31,8	1/2	166,897269	111,276897
131Xe	Xenon	3,31	3/2	49,474243	32,986401
133Cs	Cesium	269	7/2	78,713903	52,481619
135Ba	Barium	1,83	3/2	59,619657	39,750743
137Ba	Barium	4,41	3/2	66,692015	44,466159
138La	Lanthanum	0,43	5	79,182953	52,794353
139La	Lanthanum	336	7/2	84,772209	56,520927
141Pr	Praseodymium	1650	5/2	183,759806	122,519806
143Nd	Neodymium	2,34	7/2	32,707085	21,807085
145Nd	Neodymium	0,37	7/2	20,164368	13,444368
147Sm	Samarium	1,26	7/2	25,025421	16,685421
149Sm	Samarium	0,59	7/2	20,644472	13,764472
151Eu	Europium	483	5/2	149,192318	99,472318
153Eu	Europium	45,3	5/2	65,894274	43,934274
155Gd	Gadolinium	0,233	3/2	18,423991	12,283991
157Gd	Gadolinium	0,484	3/2	24,185239	16,125239
159Tb	Terbium	331	3/2	144,271252	96,191252
161Dy	Dysprosium	0,447	5/2	20,644472	13,764472
163Dy	Dysprosium	1,58	5/2	28,926266	19,286266
165Ho	Holmium	1020	7/2	128,067742	85,387742
167Er	Erbium	0,659	7/2	17,283744	11,523744
169Tm	Thulium	3,21	1/2	49,750777	33,170777
171Yb	Ytterbium	4,44	1/2	105,018585	70,019973
173Yb	Ytterbium	1,22	5/2	28,932267	19,290267
175Lu	Lutetium	172	7/2	68,438825	45,630825
176Lu	Lutetium	5,47	7	48,796570	32,534570
177Hf	Hafnium	0,67	7/2	24,047209	16,033209

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179Hf	Hafnium	0,169	9/2	15,105272	10,071272
181Ta	Tantalum	204	7/2	71,953186	47,973986
183W	Tungsten	0,0589	1/2	25,003738	16,670964
185Re	Rhenium	280	5/2	135,176882	90,127682
187Re	Rhenium	490	5/2	136,539177	91,035977
187Os	Osmium	0,00114	1/2	13,696953	9,132291
189Os	Osmium	2,13	3/2	46,602495	31,071695
191Ir	Iridium	0,0536	3/2	10,310233	6,874233
193Ir	Iridium	0,116	3/2	11,228432	7,486432
195Pt	Platinum	19,1	1/2	129,008650	86,015082
197Au	Gold	0,143	3/2	10,376248	6,918248
199Hg	Mercury	5,42	1/2	107,488216	71,666572
201Hg	Mercury	1,08	3/2	39,678093	26,454927
203Tl	Thallium	289	1/2	342,813460	228,567060
205Tl	Thallium	769	1/2	346,178017	230,810341
207Pb	Lead	11,8	1/2	125,550791	83,709593
209Bi	Bismuth	777	9/2	96,436618	64,298042
235U	Uranium	0,00495	7/2	11,050794	7,367994

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