Table 12.15 from (1975AJ02): States in ^{12}C from ^{11}B(d, n) and ^{11}B(^{3}He, d)

Peak number	E_x (MeV ± keV)	$J^\pi; T$	Γ_{lab} [a] (keV)	l_p [b]	l [c]	S_{rel} [d]	S_{rel} [e]	S_{rel} [f]	S_{rel} [g]	S_{rel} [h]	S_{rel} [i]	S_{rel} [j]	S_{rel} [k]
1	g.s.	$0^+; 0$		1	1	8.0 ± 2.6	3.30	5.4		5.8 ± 0.6	7.1 ± 1.5		
2	4.44	$2^+; 0$		1	1	3.1 ± 0.7	1.53	0.78	1.23 ± 0.20	2.2 ± 0.3	1.64 ± 0.17		
3	7.66	$0^+; 0$			1	< 0.5		0.078	0.08 ± 0.02				
4	9.629 ± 10 [l]	$3^-; 0$		2	2	0.73 ± 0.09	0.29	0.28	0.45 ± 0.08	0.35 ± 0.1	0.35	0.155 ± 0.01	0.191 ± 0.01
5	10.84 ± 20 [m]	$1^-; 0$	330 ± 30	0	0	0.13 ± 0.03		1.1	0.13 ± 0.02	0.17 ± 0.08	0.22 ± 0.10	0.038 ± 0.01	0.047 ± 0.01
				2		0.5 ± 0.2			$\leq 0.14 \pm 0.10$				
6	11.16 ± 50 [n]	$(2^+); 0$	550 ± 100		(1)			0.14					
7	11.82 ± 20 [m]	$2^-; 0$	300 ± 30	0	2	0.13 ± 0.03		0.17	0.11 ± 0.02	0.11 ± 0.04	0.20 ± 0.1	0.11 ± 0.01	0.073 ± 0.03
				2		0.5 ± 0.2			$\leq 0.28 \pm 0.10$				
8	12.70 ± 10 [m]	$1^+; 0$		1	1	$\equiv 1$	$\equiv 1$	$\equiv 1$	$\equiv 1$	$\equiv 1$	$\equiv 1$	$\equiv 1$	$\equiv 1$
9	13.38 ± 20 [m]	$(2^-); 0$	500 ± 80		(0)								
10	(14.71 ± 10) [m,o]		< 15		0 [g,o]				0.02 ± 0.01 [o,r]				
11	15.11	$1^+; 1$		1	1	0.63 ± 0.04 [p]	1.58	0.92	1.50 ± 0.20			0.87 ± 0.05	0.89 ± 0.05
12	16.11	$2^+; 1$		1	1	0.27 ± 0.05 [p] [q]		1.1	1.55 ± 0.50			0.58 ± 0.04	0.65 ± 0.04
13	16.58	$2^-; 1$											
14	17.23	$1^-; 1$		> 1									
15	18.27 ± 50 [n]	$(4^-; 0)$	350 ± 50		(2)								
16	18.36	$(3^-; 1)$	270 ± 50		(2)								
17	19.25	$(1^-; 1)$			(2)								
18	19.56 ± 50 [n]	$(4^-; 1)$	500 ± 80		(2)								
19	20.6	$(3^-; 0)$	250 ± 50		(2)								
20	22.40 ± 80 [n]	$(1^-; 1)$	350 ± 50		(2)								

[a] (1961HI08, 1971RE03).
[b] (d, n): see Table 12.12 in (1968AJ02).
[c] (^{3}He, d): see Table 12.13 in (1968AJ02) and (1971RE03).
[d] All S_{rel} are relative to ^{12}C*(12.71). $E_d = 6$ MeV (1967FU07).
[e] $E_d = 11.8$ MeV (1971MU18).
[f] $E(^3\text{He}) = 44$ MeV (1971RE03): values recomputed so that they are relative to ^{12}C*(12.71).
[g] $E(^3\text{He}) = 11.8$ MeV (1968BO26). Values shown are average when r (cutoff) is varied between 0 and 4 fm.
[h] $E(^3\text{He}) = 10 - 12$ MeV: deep potential, zero range, no cutoff (1969MI15).
[i] $E(^3\text{He}) = 10 - 12$ MeV: deep potential, finite range, no cutoff (1969MI15).
[j] $E(^3\text{He}) = 18$ MeV: deep potential, zero range, no cutoff (1969MI15).
[k] $E(^3\text{He}) = 18$ MeV: deep potential, finite range, no cutoff (1969MI15).
[l] Based on 7656 ± 7 keV for next lower level (1960FO01).
[m] (1961HI08).
[n] (1971RE03): (^{3}He, d).
[o] This state, reported by (1961HI08), is not seen by (1971RE03). At $E(^3\text{He}) = 44$ MeV, $\theta = 12.5°$, its yield is $< 2\%$ that of ^{12}C*(15.11). (1968BO26) report an angular distribution for ^{12}C*(14.71) but their paper does not give enough information to determine whether the group was a clearly resolved one.
[p] See also Table 12.13 (1974AN19).
[q] See (1974AN19).
[r] Assuming $J^\pi = (1)^-$.