^{85}Rb(n,γ) E=thermal 1969Da15,1969Ra10

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Alexandru Negret, Balraj Singh	NDS 124, 1 (2015)	30-Nov-2014

Measured Eγ, Iγ.
Other: 1968Ir02: Eγ and Iγ of 18 primary γ rays.
For n resonances see ^{85}Rb(n,n),(n,γ):resonances dataset.
The level scheme is essentially that proposed by 1969Da15, with the addition of proposed (in a previous evaluation 1978Te01) placements of several other γ rays based on energy sums.

^{86}Rb Levels

E(level)	J$^{\pi}$†	T$_{1/2}$	E(level)	J$^{\pi}$†
0.0	2$^-$		1926.1 *18*	
488.1 *4*	1$^+$		1953.1 *16*	
555.4 *5*	6$^-$	1.017 min *3*	2130.5 *5*	($^-$)
557.0 *3*	(3)$^-$		2148.4 *6*	(1,2,3)$^+$
779.3?& *11*	(7)$^-$		2179.7 *6*	(1$^+$,2$^+$,3$^+$)
873.2# *4*	3$^-$,4$^-$		2265.9 *7*	
978.5 *4*	3$^-$,4$^-$		2298.9 *6*	
1027.1 *3*	1$^+$,2$^+$,3$^+$		2331.8 *18*	
1032.7?‡ *5*	(3,4)$^-$		2352.7 *9*	
1092.4 *5*	(5)$^-$		2403.4 *19*	
1105.9 *4*	(2,3)$^+$		2462.2 *6*	
1196.2 *4*	(3,4)$^-$		2476.3 *9*	
1247.2 *10*	4$^-$		2508.2 *9*	(3$^+$)
1305.0 *3*	3$^+$		2569.9 *8*	
1309.5?& *13*			2586.3 *5*	
1389.5 *4*	(3)$^+$		2598.1 *8*	1$^+$
1439.0 *4*	3$^-$,4$^-$		2671.0 *5*	(1,2,3)$^+$
1470.6 *5*	(2,3)$^+$		2719.0 *7*	
1501.0 *10*	(3)$^+$		2765.5 *5*	
1666.7?‡ *4*	(1,2,3)$^+$		2810.4 *9*	
1708.3 *7*	(1,2,3)$^+$		2827.9? *20*	
1819.7 *4*	(3$^+$,4,5$^-$)		2850.4 *7*	
1890.0 *9*	1$^+$,2$^+$,3$^+$		2890.1 *5*	
1916.2 *13*			(8651.0 *10*)	2$^-$,3$^-$@

† From Adopted Levels.
‡ Level added (evaluator) based on particle-transfer results.
\# Possible multiplet (1969Da15).
@ s-wave capture in ^{85}Rb (g.s. J$^{\pi}$=5/2$^-$).
& Level population is considered as uncertain (evaluator) due to very weak γ rays connecting these two levels.

γ(^{86}Rb)

E$_{\gamma}$†	I$_{\gamma}$‡b	E$_i$(level)	J$^{\pi}_i$	E$_f$	J$^{\pi}_f$
53.9&d *15*	1.4 *6*	1032.7?	(3,4)$^-$	978.5	3$^-$,4$^-$
60.9&d *15*	2.3 *10*	1092.4	(5)$^-$	1032.7?	(3,4)$^-$
85.9 *15*	1.2 *5*	1389.5	(3)$^+$	1305.0	3$^+$
89.6 *15*	0.2 *1*	1196.2	(3,4)$^-$	1105.9	(2,3)$^+$

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^{85}Rb(n,γ) E=thermal 1969Da15,1969Ra10 (continued)

γ(^{86}Rb) (continued)

Eγ[†]	Iγ[‡b]	Ei(level)	$J^π_i$	Ef	$J^π_f$	Mult.
96.3[&d] 15	0.6 2	1916.2		1819.7	(3+,4,5−)	
114.1 5	1.3 4	1092.4	(5)−	978.5	3−,4−	
120.3[&d] 5	0.7 3	2298.9		2179.7	(1+,2+,3+)	
[x]139.3 10	0.8 3					
165.7[d] 5	2.0 5	1470.6	(2,3)+	1305.0	3+	
176.1[&d] 15	0.7 3	2508.2	(3+)	2331.8		
198.8 10	0.7 3	1305.0	3+	1105.9	(2,3)+	
223.9 10	0.8 3	779.3?	(7)−	555.4	6−	
232.4 10	0.2 1	1105.9	(2,3)+	873.2	3−,4−	
240.4[&d] 10	1.0 3	2130.5	(−)	1890.0	1+,2+,3+	
284.4 10	0.3 1	1389.5	(3)+	1105.9	(2,3)+	
315.9 5	0.3 1	873.2	3−,4−	557.0	(3)−	
323.1 5	0.5 2	1196.2	(3,4)−	873.2	3−,4−	
361.8[c] 5	1.4[c] 5	1389.5	(3)+	1027.1	1+,2+,3+	
361.8[c&d] 5	1.4[c] 5	1666.7?	(1,2,3)+	1305.0	3+	
421.5 5	5.7 15	978.5	3−,4−	557.0	(3)−	
[x]436.6[@]	0.32[@]					
[x]444.6[@]	0.25[@]					
[x]448.5[@]	0.32[@]					
[x]453.9[@]	0.20[@]					
[x]476.0[@]	7.2[@]					
487.9 5	11 3	488.1	1+	0.0	2−	
514.8[&d] 5	1.5 5	1819.7	(3+,4,5−)	1305.0	3+	
525.2[ad] 10	0.4 2	1305.0	3+	779.3?	(7)−	[M4]
530.0[d] 10	0.7 3	1309.5?		779.3?	(7)−	
536.7 5	3.1 10	1092.4	(5)−	555.4	6−	
538.9 5	3.1 10	1027.1	1+,2+,3+	488.1	1+	
555.3[#] 5	8.0 20	555.4	6−	0.0	2−	(E4)
557.0[#] 5	19 5	557.0	(3)−	0.0	2−	
564.9 10	0.6 2	1439.0	3−,4−	873.2	3−,4−	
639.4[c] 5	2.9[c] 8	1196.2	(3,4)−	557.0	(3)−	
639.4[c&d] 5	2.9[c] 8	1666.7?	(1,2,3)+	1027.1	1+,2+,3+	
669.1[&d] 10	0.8 3	1916.2		1247.2	4−	
691.9 10	2.3 6	1247.2	4−	555.4	6−	
[x]709.2[@]	0.96[@]					
727.8[&d] 10	1.2 3	1819.7	(3+,4,5−)	1092.4	(5)−	
748.6 10	0.6 2	1305.0	3+	557.0	(3)−	
817.3 15	0.7 2	1305.0	3+	488.1	1+	
[x]856.4[@]	0.48[@]					
873.3 5	7.5 20	873.2	3−,4−	0.0	2−	
882.0 5	1.4 5	1439.0	3−,4−	557.0	(3)−	
[x]899.2[@]	0.60[@]					
913.8 10	1.9 5	1470.6	(2,3)+	557.0	(3)−	
945.6 10	0.8 3	1501.0	(3)+	557.0	(3)−	
[x]964.1[@]	0.46[@]					
[x]981.9[@]	0.39[@]					
1026.9 5	7.5 18	1027.1	1+,2+,3+	0.0	2−	
1032.8[&d] 5	5.9 18	1032.7?	(3,4)−	0.0	2−	
1105.7 10	4.7 15	1105.9	(2,3)+	0.0	2−	

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^{85}Rb(n,γ) E=thermal 1969Da15,1969Ra10 (continued)

γ(^{86}Rb) (continued)

Eγ[†]	Iγ[‡b]	Ei(level)	J^π_i	Ef	J^π_f
[x]1139.5[@]	0.46[@]				
[x]1162.1[@]	0.44[@]				
1177.8[&d] 10	1.0 3	1666.7?	(1,2,3)$^+$	488.1	1$^+$
1221.0[&d] 10	1.1 3	1708.3	(1,2,3)$^+$	488.1	1$^+$
1305.4 5	4.9 15	1305.0	3$^+$	0.0	2$^-$
1390.2 10	2.0 5	1389.5	(3)$^+$	0.0	2$^-$
[x]1404.2[@]	2.4[@]				
1440.0 10	1.0 3	1439.0	3$^-$,4$^-$	0.0	2$^-$
[x]1486.4[@]	2.1[@]				
[x]1575.5[@]	1.8[@]				
[x]1587.2[@]	1.2[@]				
[x]1631.7[@]	1.8[@]				
1667.9[&d] 15	2.0 5	1666.7?	(1,2,3)$^+$	0.0	2$^-$
[x]1714.6[@] 10	0.66[@]				
[x]1781.8[@] 10	1.0[@]				
[x]1806.1[@] 10	0.8[@]				
[x]1857.0[@] 10	0.9[@]				
[x]1871.9[@] 10	0.43[@]				
1889.3[@&d] 10	3.8[@] 8	1890.0	1$^+$,2$^+$,3$^+$	0.0	2$^-$
[x]1973.0[@] 10	0.45[@]				
[x]1984.6[@] 10	0.5[@]				
[x]2006.9[@] 10	0.6[@]				
[x]2037.5[@] 10	0.5[@]				
[x]2082.0[@] 10	0.3[@]				
2130.0[@&d] 10	0.7[@] 1	2130.5	($^-$)	0.0	2$^-$
2149.7[@&d] 10	0.7[@] 1	2148.4	(1,2,3)$^+$	0.0	2$^-$
[x]2170.2[@] 10	0.28[@]				
[x]2176.8[@] 10	1.9[@]				
[x]2303.1[@] 10	0.27[@]				
[x]2310.2[@] 10	0.30[@]				
[x]2320.8[@] 10	0.43[@]				
[x]2346.5[@] 10	0.28[@]				
2352.5[@&d] 10	0.3[@] 1	2352.7		0.0	2$^-$
[x]2364.0[@] 10	0.34[@]				
[x]2387.0[@] 10	0.36[@]				
2475.7[@&d] 10	0.3[@] 1	2476.3		0.0	2$^-$
[x]2500.0[@] 10	0.34[@]				
[x]2532.0[@] 10	0.27[@]				
[x]2548.1[@] 10	0.36[@]				
2570.4[@&d] 10	0.4[@] 1	2569.9		0.0	2$^-$
2585.7[@&d] 10	0.5[@] 1	2586.3		0.0	2$^-$
2598.1[@&d] 10	0.20[@] 4	2598.1	1$^+$	0.0	2$^-$
[x]2615.6[@] 10	0.15[@]				
[x]2642.3[@] 10	0.16[@]				
[x]2661.8[@] 10	0.16[@]				

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^{85}Rb(n,γ) E=thermal 1969Da15,1969Ra10 (continued)

γ(^{86}Rb) (continued)

E_γ†	I_γ^{‡b}	E_i(level)	J_i^π	E_f
^{x}2688.0$^{@}$ 10	0.20$^{@}$			
^{x}2708.2$^{@}$ 10	0.39$^{@}$			
^{x}2728.4$^{@}$ 10	0.12$^{@}$			
^{x}2759.2$^{@}$ 10	0.13$^{@}$			
^{x}2784.0$^{@}$ 10	0.20$^{@}$			
^{x}2797.0$^{@}$ 10	0.12$^{@}$			
^{x}2858.9$^{@}$ 10	0.30$^{@}$			
^{x}2877.4$^{@}$ 10	0.44$^{@}$			
^{x}2924.8$^{@}$ 10	0.11$^{@}$			
^{x}2977.6$^{@}$ 10	0.22$^{@}$			
^{x}3054.5$^{@}$ 10	0.12$^{@}$			
^{x}3067.5$^{@}$ 10	0.21$^{@}$			
^{x}3106.0$^{@}$ 10	0.36$^{@}$			
^{x}3130.2$^{@}$ 10	0.18$^{@}$			
^{x}3136.2$^{@}$ 10	0.12$^{@}$			
^{x}3157.3$^{@}$ 10	0.20$^{@}$			
^{x}3198.2$^{@}$ 10	0.11$^{@}$			
^{x}3222.3$^{@}$ 10	0.37$^{@}$			
^{x}3245.7$^{@}$ 10	0.27$^{@}$			
^{x}3284.3$^{@}$ 10	0.20$^{@}$			
^{x}3310.7$^{@}$ 10	0.12$^{@}$			
^{x}3332.8$^{@}$ 10	0.09$^{@}$			
^{x}3354.5$^{@}$ 10	0.13$^{@}$			
^{x}3391.0$^{@}$ 10	0.24$^{@}$			
^{x}3413.7$^{@}$ 10	0.11$^{@}$			
^{x}3431.1$^{@}$ 10	0.15$^{@}$			
^{x}3485.6$^{@}$ 10	0.18$^{@}$			
^{x}3542.4$^{@}$ 10	0.21$^{@}$			
^{x}3602.1$^{@}$ 10	0.15$^{@}$			
^{x}3620.7$^{@}$ 10	0.16$^{@}$			
^{x}3644.2$^{@}$ 10	0.16$^{@}$			
^{x}3659.1$^{@}$ 10	0.20$^{@}$			
^{x}3708.0$^{@}$ 10	0.39$^{@}$			
^{x}3733.3$^{@}$ 10	0.12$^{@}$			
^{x}3762.7$^{@}$ 10	0.13$^{@}$			
^{x}3796.9$^{@}$ 10	0.20$^{@}$			
^{x}3808.1$^{@}$ 10	0.12$^{@}$			
^{x}3824.4$^{@}$ 10	0.30$^{@}$			
^{x}3877.3$^{@}$ 10	0.44$^{@}$			
^{x}3932.7$^{@}$ 10	0.11$^{@}$			
^{x}3980.0$^{@}$ 10	0.22$^{@}$			
^{x}3992.6$^{@}$ 10	0.12$^{@}$			
^{x}4027.3$^{@}$ 10	0.21$^{@}$			
^{x}4150.3$^{@}$ 10	0.36$^{@}$			
^{x}4248.6$^{@}$ 10	0.18$^{@}$			
^{x}4287.8$^{@}$ 10	0.12$^{@}$			
^{x}4319.0$^{@}$ 10	0.20$^{@}$			
^{x}4360.7$^{@}$ 10	0.11$^{@}$			
^{x}4386.0$^{@}$ 10	0.37$^{@}$			
^{x}4403.2$^{@}$ 10	0.27$^{@}$			
^{x}4450.7$^{@}$ 10	0.20$^{@}$			
^{x}4497.2$^{@}$ 10	0.12$^{@}$			
^{x}4515.3$^{@}$ 10	0.09$^{@}$			
^{x}4532.0$^{@}$ 10	0.13$^{@}$			
^{x}4551.3$^{@}$ 10	0.24$^{@}$			
^{x}4570.9$^{@}$ 10	0.11$^{@}$			
^{x}4586.4$^{@}$ 10	0.15$^{@}$			
^{x}4598.6$^{@}$ 10	0.16$^{@}$			
^{x}4620.9$^{@}$ 10	0.09$^{@}$			
^{x}4641.6$^{@}$ 10	0.09$^{@}$			
^{x}4656.0$^{@}$ 10	0.12$^{@}$			
^{x}4690.5$^{@}$ 10	0.15$^{@}$			
^{x}4735.5$^{@}$ 10	0.13$^{@}$			
^{x}4759.6$^{@}$ 10	0.11$^{@}$			
^{x}4784.2$^{@}$ 10	0.12$^{@}$			
^{x}4844.0$^{@}$ 10	0.12$^{@}$			
^{x}4875.3$^{@}$ 10	0.06$^{@}$			
^{x}4966.0$^{@}$ 10	0.07$^{@}$			
^{x}4985.3$^{@}$ 10	0.13$^{@}$			
^{x}5012.7$^{@}$ 10	0.06$^{@}$			
^{x}5029.5$^{@}$ 10	0.12$^{@}$			
^{x}5049.3$^{@}$ 10	0.15$^{@}$			
^{x}5130.0$^{@}$ 10	0.06$^{@}$			
^{x}5159.2$^{@}$ 10	0.18$^{@}$			
^{x}5222.1$^{@}$ 10	0.15$^{@}$			
^{x}5255.8$^{@}$ 10	0.06$^{@}$			
^{x}5309.4$^{@}$ 10	0.10$^{@}$			
^{x}5353.1$^{@}$ 10	0.06$^{@}$			
^{x}5384.3$^{@}$ 10	0.37$^{@}$			
^{x}5401.5$^{@}$ 10	0.30$^{@}$			
^{x}5424.7$^{@}$ 10	0.10$^{@}$			
^{x}5473.1$^{@}$ 10	0.31$^{@}$			
^{x}5517.5$^{@}$ 10	0.39$^{@}$			
^{x}5617.1$^{@}$ 10	0.06$^{@}$			
^{x}5637.5$^{@}$ 10	0.21$^{@}$			
^{x}5678.0$^{@}$ 10	0.12$^{@}$			
^{x}5697.3$^{@}$ 10	0.06$^{@}$			
^{x}5702.4$^{@}$ 10	0.09$^{@}$			
^{x}5728.2$^{@}$ 10	0.30$^{@}$			
5760.7 5	0.97 25	(8651.0)	$2^-,3^-$	2890.1

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^{85}Rb(n,γ) E=thermal 1969Da15,1969Ra10 (continued)

γ(^{86}Rb) (continued)

E_γ[†]	I_γ[‡b]	E_i(level)	J^π_i	E_f	J^π_f
5800.4 *7*	0.33 *10*	(8651.0)	2⁻,3⁻	2850.4	
5823.2[d] *20*	0.03 *1*	(8651.0)	2⁻,3⁻	2827.9?	
5840.8 *9*	0.15 *7*	(8651.0)	2⁻,3⁻	2810.4	
5885.7 *5*	0.40 *10*	(8651.0)	2⁻,3⁻	2765.5	
5932.3 *7*	0.12 *4*	(8651.0)	2⁻,3⁻	2719.0	
5980.2 *5*	0.72 *15*	(8651.0)	2⁻,3⁻	2671.0	(1,2,3)⁺
x6032.2[@] *10*	0.06[@]				
6052.9 *8*	0.26 *7*	(8651.0)	2⁻,3⁻	2598.1	1⁺
6064.5 *5*	0.84 *15*	(8651.0)	2⁻,3⁻	2586.3	
6081.9 *12*	0.11 *4*	(8651.0)	2⁻,3⁻	2569.9	
6142.7 *8*	0.18 *5*	(8651.0)	2⁻,3⁻	2508.2	(3⁺)
6173.3 *15*	0.12 *4*	(8651.0)	2⁻,3⁻	2476.3	
6188.7 *5*	0.68 *15*	(8651.0)	2⁻,3⁻	2462.2	
x6234.7[@] *10*	0.09[@]				
6247.5 *18*	0.07 *3*	(8651.0)	2⁻,3⁻	2403.4	
x6274.1[@] *10*	0.13[@]				
6297.7 *15*	0.09 *3*	(8651.0)	2⁻,3⁻	2352.7	
6319.1 *17*	0.07 *3*	(8651.0)	2⁻,3⁻	2331.8	
6352.0 *5*	0.38 *10*	(8651.0)	2⁻,3⁻	2298.9	
6385.0 *6*	0.43 *10*	(8651.0)	2⁻,3⁻	2265.9	
x6418.4[@] *10*	0.24[@]				
6471.2 *5*	0.67 *16*	(8651.0)	2⁻,3⁻	2179.7	(1⁺,2⁺,3⁺)
6503.2 *7*	0.32 *8*	(8651.0)	2⁻,3⁻	2148.4	(1,2,3)⁺
6520.3 *5*	1.17 *25*	(8651.0)	2⁻,3⁻	2130.5	(⁻)
x6550.4[@] *10*	0.13[@]				
x6567.4[@] *10*	0.12[@]				
x6601.3[@] *10*	0.11[@]				
x6619.9[@] *10*	0.25[@]				
6697.8 *15*	0.19 *5*	(8651.0)	2⁻,3⁻	1953.1	
x6706.9[@] *10*	0.09[@]				
6724.8 *17*	0.17 *4*	(8651.0)	2⁻,3⁻	1926.1	
6735.5 *25*	0.11 *4*	(8651.0)	2⁻,3⁻	1916.2	
6759.4 *15*	0.17 *5*	(8651.0)	2⁻,3⁻	1890.0	1⁺,2⁺,3⁺
6831.4 *5*	1.10 *25*	(8651.0)	2⁻,3⁻	1819.7	(3⁺,4,5⁻)
x6915.8[@] *10*	0.28[@]				
6943.0 *7*	0.20 *5*	(8651.0)	2⁻,3⁻	1708.3	(1,2,3)⁺
x7151.0[@] *10*	0.11[@]				
7180.7 *10*	0.11 *4*	(8651.0)	2⁻,3⁻	1470.6	(2,3)⁺
7211.8 *6*	0.30 *7*	(8651.0)	2⁻,3⁻	1439.0	3⁻,4⁻
7261.2 *6*	0.24 *6*	(8651.0)	2⁻,3⁻	1389.5	(3)⁺
x7278.2[@] *10*	0.15[@]				
x7306.8[@] *10*	0.22[@]				
7345.8 *5*	1.10 *25*	(8651.0)	2⁻,3⁻	1305.0	3⁺
x7415.3[@] *10*	0.51[@]				
x7438.5[@] *10*	0.09[@]				
7455.3 *10*	0.13 *4*	(8651.0)	2⁻,3⁻	1196.2	(3,4)⁻
7544.0 *7*	0.24 *6*	(8651.0)	2⁻,3⁻	1105.9	(2,3)⁺
7623.9 *4*	2.05 *40*	(8651.0)	2⁻,3⁻	1027.1	1⁺,2⁺,3⁺
7672.2 *9*	0.12 *4*	(8651.0)	2⁻,3⁻	978.5	3⁻,4⁻
7776.1 *20*	0.04 *2*	(8651.0)	2⁻,3⁻	873.2	3⁻,4⁻
8093.8 *5*	0.30 *10*	(8651.0)	2⁻,3⁻	557.0	(3)⁻

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^{85}Rb(n,γ) E=thermal 1969Da15,1969Ra10 (continued)

γ(^{86}Rb) (continued)

E_γ[†]	I_γ[‡b]	E_i(level)	J_i^π	E_f	J_f^π
8161.5 *15*	0.08 *3*	(8651.0)	$2^-,3^-$	488.1	1^+
8650.7 *7*	0.35 *8*	(8651.0)	$2^-,3^-$	0.0	2^-

† Weighted average of 1969Da15 and 1969Ra10 for primary Eγ values. Secondary Eγ values are from 1969Da15. As noted in an earlier evaluation (1971Au13), large differences exist between the γ-ray data from 1969Da15 and 1969Ra10.

‡ Photons per 100 neutron captures (from 1969Da15).

Doublet observed with a separation of 1.5 keV *2* (1969Da15).

@ γ from 1969Ra10 only. Intensities are multiplied by 1.5 to bring them into approximate agreement with those of 1969Da15. Existence of this γ ray may be considered as uncertain for lack of confirmatory published data.

& Tentative placement proposed by evaluator. The transition is either unplaced in 1969Da15 or it is singly placed.

[a] Transition to $(7)^-$ with implied multipolarity of M4 is considered highly suspect.

[b] Intensity per 100 neutron captures.

[c] Multiply placed with undivided intensity.

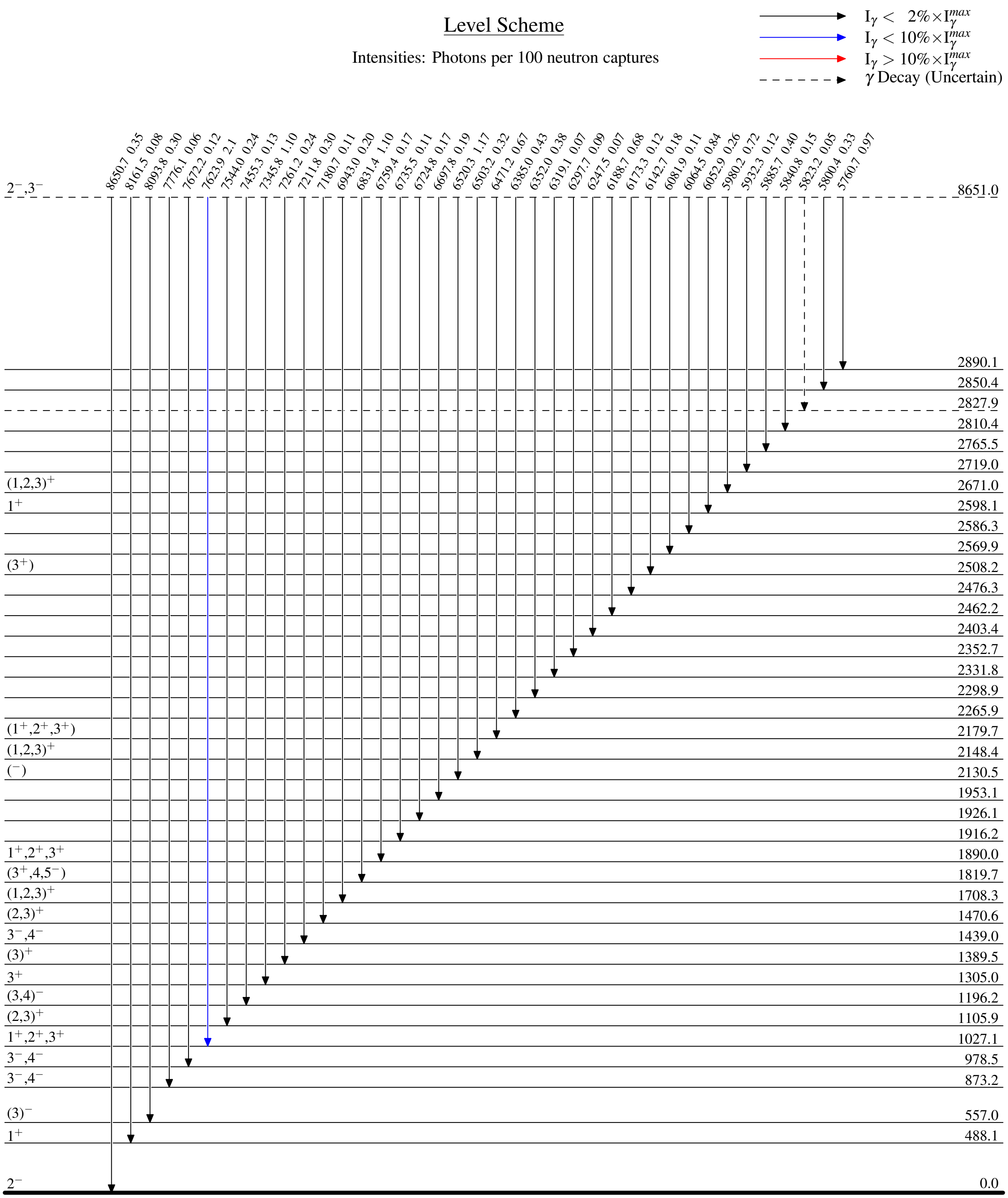
[d] Placement of transition in the level scheme is uncertain.

[x] γ ray not placed in level scheme.

^{85}Rb(n,γ) E=thermal 1969Da15,1969Ra10

Level Scheme

Intensities: Photons per 100 neutron captures

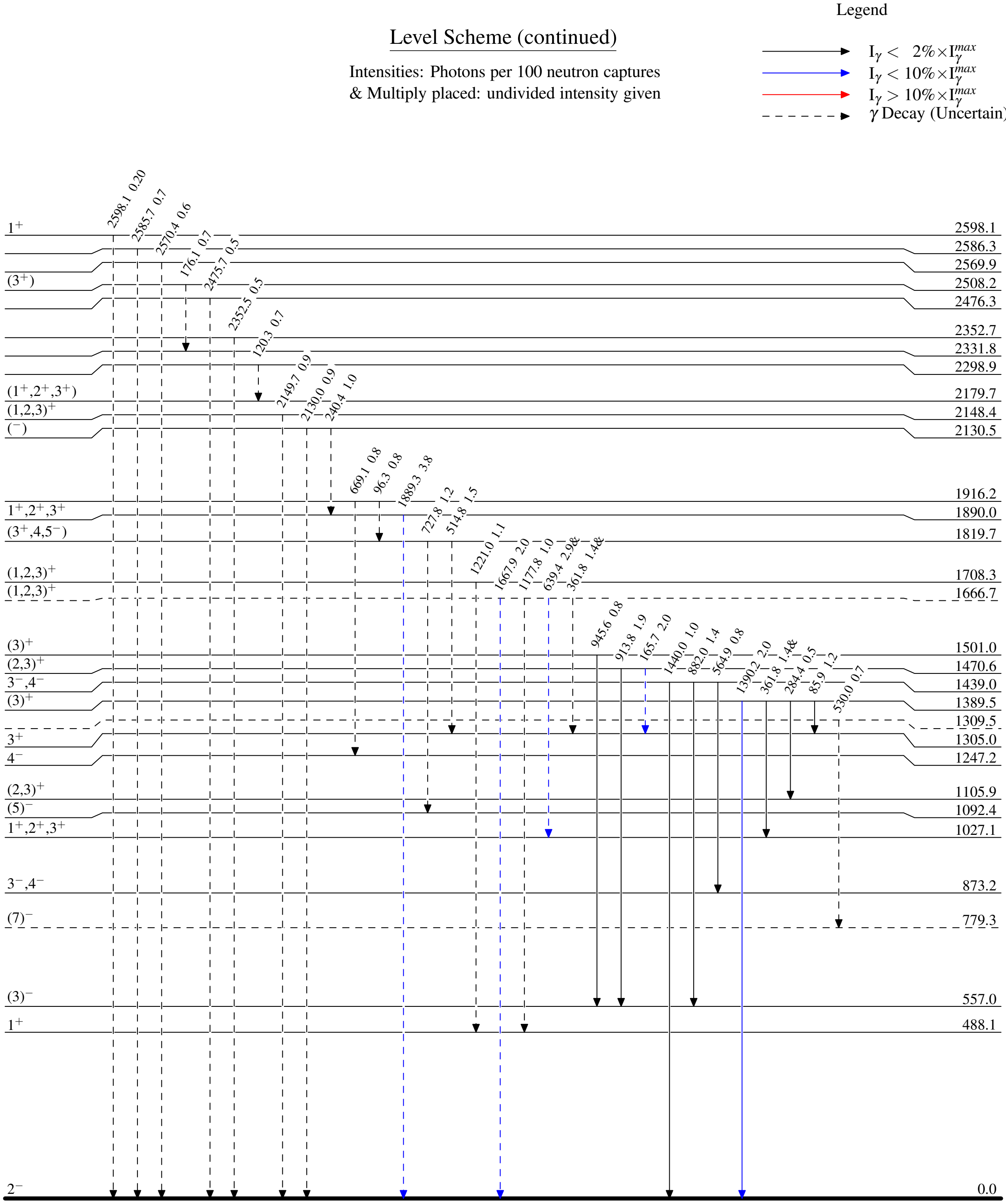


$^{86}_{37}Rb_{49}$

^{85}Rb(n,γ) E=thermal 1969Da15,1969Ra10

Level Scheme (continued)

Intensities: Photons per 100 neutron captures
& Multiply placed: undivided intensity given



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Level Scheme (continued)

Intensities: Photons per 100 neutron captures
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