Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	NDS 105,223 (2005)	22-Jun-2005

Q(β^-)=2004.3 *14*; S(n)=7892.28 *13*; S(p)=7260.6 *13*; Q(α)=−6022.6 *16* 2012Wa38
Note: Current evaluation has used the following Q record 2003.0 247892.28 *13* 7260.8 *17*−6024.9 *18* 2003Au03.
^{80}Se(d,2nγ) reaction includes ^{78}Se(α,pnγ) and ^{76}Ge(^{7}Li,3nγ).
Additional information 1.
Nuclear structure calculations (levels, band structure): 1994Sa12.

^{80}Br Levels

Cross Reference (XREF) Flags

A	^{80}Br IT decay (4.4205 h)	F	^{80}Se(p,n)
B	^{76}Ge(^{7}Li,3nγ)	G	^{80}Se(p,nγ)
C	^{79}Br(n,γ) E=thermal	H	^{80}Se(d,2nγ),^{78}Se(α,pnγ)
D	^{79}Br(n,γ) E=1.8,2.8,58 keV	I	^{81}Br(p,d)
E	^{79}Br(d,p)		

E(level)[†]	J$^\pi$[‡]	T$_{1/2}$[#]	XREF	Comments
0.0[b]	1$^+$	17.68 min *2*	ABCDEFGHI	%β^-=91.7 *2*; %ε+%β^+=8.3 *2* μ=0.5140 *6* (1964Wh05,1989Ra17) Q=0.185 *2* (1964Wh05,2001Bi17) μ: atomic-beam (1964Wh05). Q: atomic-beam (1964Wh05). Value recalculated by 1978Ta24 as 0.196 *3*, 0.181 *4* by 2000Ha64 and 0.185 *2* by 2001Bi17. 1989Ra17 quoted value from 1978Ta24. J$^\pi$: atomic-beam (1959Li21) and L(p,d)=L(d,p)=1 from 3/2$^-$. T$_{1/2}$: from 1972Co26. Configuration=(π2p$^{-1}_{3/2}$)(ν2p$^{-1}_{1/2}$) (1978Do06).
37.0526[d] *18*	2$^-$	7.43 ns *6*	ABCD FGH	μ=−1.67 *12* (1973Pl07,1989Ra17) Q=0.159 *7* (1978Ta24,2000Ha64) μ: differential PAD in (p,nγ) (1973Pl07). Q: 0.173 *6* from differential PAC in ^{80}Br IT decay (1978Ta24); recalculated as 0.159 *7* by 2000Ha64 and 0.163 by 2001Bi17. 1989Ra17 quoted value from 1978Ta24. J$^\pi$: M3 γ from 5$^-$, and E1 γ to 1$^+$. T$_{1/2}$: from $\gamma\gamma$(t) in ^{80}Br IT decay (1978Ta24). Other: 7.8 ns *5* from $\gamma\gamma$(t) in (p,nγ) (1977Do08). Configuration=(π(2p$_{3/2}$)$^{-1}$)((ν(1g$_{9/2}$)^3)$_{7/2}$) (1978Do06).
85.843[d] *4*	5$^-$	4.4205 h *8*	ABC E GHI	%IT=100 μ=+1.3177 *6* (1964Wh05,1989Ra17) Q=+0.69 *2* (1964Wh05,2000Ha64) μ: atomic-beam (1964Wh05). Q: atomic−beam (1964Wh05). Value recalculated as +0.751 *10* by 1978Ta24, +0.69 *2* by 2000Ha64 and +0.709 by 2001Bi17. 1989Ra17 quoted value from 1978Ta24. J$^\pi$: from atomic-beam (1959Li21) and L(d,p)=L(p,d)=4 from 3/2$^-$. T$_{1/2}$: from 1990Ab06. Others: 4.754 h *32* at room temperature and 4.791 h *34* at 77°K (2003Al36); 4.42 *1* (1969Ka06), 4.42 *1* (1968Re04), 4.37 *4* (1961Ha32), 4.40 *5* (1960Sc04), 4.38 *2* (1957Ki21), 1958Gu09, 1951Mi16, 1938Bu04, 1937Sn02, 1937Bo10. It should be noted that the value obtained by 2003Al36 is quoted with 0.7% uncertainty but is about 7.5% too high as compared to the other values in the literature; thus not used in deducing the

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Adopted Levels, Gammas (continued)

^{80}Br Levels (continued)

E(level)[†]	J$^{\pi}$[‡]	$T_{1/2}$[#]	XREF	Comments
				adopted value. Weighted average of all the values quoted above but with uncertainty increased to 0.01 for the value from 1990Ab06, is 4.43 h *3*. Configuration=$\pi 2p_{3/2}^{-1} \nu 1g_{9/2}^{+1}$ (1978Do06).
256.431 *3*	(2)$^-$		CD FGH	J$^{\pi}$: M1 γ to 2$^-$; $\gamma(\theta)$ and excitation function in (p,nγ) disfavor J=1,3.
271.3745[b] *25*	(2)$^+$		CDEfGHI	XREF: E(266)f(269)I(271). J$^{\pi}$: M1 γ to 1$^+$ and E1 γ to 2$^-$. 271$\gamma(\theta)$ in (p,nγ) disfavors J=1.
281.292[d] *3*	(3)$^-$		CD fGHI	XREF: f(269)I(271). J$^{\pi}$: M1 γ to 2$^-$. $\gamma(\theta)$ and excitation function in (p,nγ) disfavor J=1,2.
299.891 *5*	(0$^+$,1$^+$,2$^+$)		C G	Uncertain in (p,nγ). J$^{\pi}$: possible M1 γ to 1$^+$.
309.471[c] *4*	(4)$^-$		CDEfGHI	XREF: E(314)I(314). J$^{\pi}$: M1 γ to 5$^-$. 223$\gamma(\theta)$ in (p,nγ) disfavors J=5,6.
314.982 *4*	(1)$^+$		CDEfGHI	XREF: E(314)I(314). J$^{\pi}$: M1 γ to 1$^+$. 315$\gamma(\theta)$ and excitation function in (p,nγ) disfavor J=0,2.
331.048[f] *5*	5$^+$	0.7 ns *2*	BC fGH	$T_{1/2}$: γ(t) in (α,pnγ) (1984Do02). J$^{\pi}$: E1 γ to 5$^-$. $\gamma(\theta)$ in (α,pnγ) rules out J=4,6.
331.404 *4*	(3)$^-$		CD fGH	J$^{\pi}$: M1 γ to 2$^-$; dipole γ to (3)$^-$; average resonance capture in (n,γ). Additional information 2.
357.23[@e] *3*	(6$^+$)	0.4 ns *2*	BC fGH	$T_{1/2}$: γ(t) in (α,pnγ) (1984Do02). J$^{\pi}$: dipole γ to 5$^+$ and possible band member.
366.608 *3*	(1,2)$^-$		CD fGH	J$^{\pi}$: E1 γ to 1$^+$. Excitation function of 367γ in (p,nγ) disfavors J=0.
379.91[ch] *3*	(6$^-$)		BC fGH	J$^{\pi}$: γ to 5$^-$ and probable shell-model configuration.
380.459 *3*	(3)$^-$		CDEfGHI	XREF: E(368). J$^{\pi}$: D+Q transition to 2$^-$ and L(d,p)=L(p,d)=4 ($g_{9/2}$ orbit) from 3/2$^-$.
385.731 *5*	(4$^-$)		C fGH	J$^{\pi}$: from $\gamma(\theta)$ in (d,2nγ); D(+Q) γ's to 5$^-$ and (3)$^-$. Positive parity less likely since it would give large M2 admixture.
390.519 *4*	(4)$^-$		CD fGH	J$^{\pi}$: E1 γ to 5$^+$ and γ from (3$^-$). $\gamma(\theta)$ in (d,2nγ) gives ΔJ=1.
447.87[@f] *4*	(7$^+$)		BC GH	J$^{\pi}$: D(+Q) γ to (6$^+$) (from $\gamma(\theta)$ in (d,2nγ)) and probable band assignment.
456.375 *4*	(4)$^-$		CD GH	J$^{\pi}$: M1 γ to (3)$^-$; average-resonance capture in (n,γ).
468.983 *3*	(2)$^+$		CdefGHi	XREF: e(461)i(462). J$^{\pi}$: M1 γ to 1$^+$ and M1(+E2) γ to (2)$^+$; γ to (3)$^-$.
469.274[c] *4*	(3)$^-$		CdefGHi	XREF: e(461)i(462). J$^{\pi}$: ΔJ=1, E2(+M1) γ to 2$^-$; and ΔJ=1 γ to (4)$^-$.
492.886 *3*	(2)$^-$		CD FGHI	XREF: I(497). J$^{\pi}$: M1 γ to (3)$^-$, γ to 1$^+$. Also L(p,d)=2+4 from 3/2$^-$.
500.20[@d] *4*	(4)$^-$		CD GHi	XREF: i(512). J$^{\pi}$: in (d,2nγ), 414$\gamma(\theta)$ and 219$\gamma(\theta)$ give ΔJ=0,1 γ's to 5$^-$ and (3)$^-$. M1+E2 γ to (3)$^-$.
523.289[@c] *19*	(5$^-$)		CD GHi	XREF: i(512). J$^{\pi}$: from $\gamma(\theta)$ in (d,2nγ), ΔJ=0,1 γ's to (4)$^-$ and (6$^-$). Negative parity suggested by L(p,d)=4 from 3/2$^-$ for 512 group. Additional information 3.
547 *8*	(3 to 6)$^-$		e	J$^{\pi}$: L(d,p)=4+1 ($g_{9/2}$ orbit for L=4) from 3/2$^-$ for a doublet.
549.563[a] *3*	(3)$^+$		CDeFGHI	J$^{\pi}$: M1 γ to (2)$^+$; ΔJ=2 γ to 1$^+$; (E1) γ to (4)$^-$. Positive parity also suggested by L(p,d)=(3) from 3/2$^-$.
572.933[@] *25*	(3,4,5)$^-$		C GHI	XREF: I(570). J$^{\pi}$: ΔJ=0,1 γ's to (4)$^-$ from $\gamma(\theta)$ in (d,2nγ) and L(p,d)=4 from 3/2$^-$.
586.122[&] *5*	(3$^+$)		CD FGH	J$^{\pi}$: (E1) γ to (4)$^-$. $\gamma(\theta)$ in (d,2nγ) gives ΔJ=1.
608.818? *11*			C	
615.32[e] *4*	(8$^+$)		B fGH	J$^{\pi}$: 167$\gamma(\theta)$ in (d,2nγ) (γ to (7$^+$)) gives 6,7,8; but probable band

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Adopted Levels, Gammas (continued)

^{80}Br Levels (continued)

E(level)†	Jπ‡	XREF	Comments
			assignment favors 8$^+$.
615.51? *18*	(4$^-$)	D f I	E(level),Jπ: from ARC data in (n,γ) E=1.8, 2.8, 58 keV. Jπ: L(p,d)=(2) from 3/2$^-$.
646.45@& *7*	(3 to 7)	C GH	Jπ: γ's to 5$^+$.
660.566 *4*	(2)$^+$	CDEFGHI	Jπ: γ to 1$^+$. 661γ(θ) in (d,2nγ) and L(p,d)=1+3 from 3/2$^-$ give 1$^+$, 2$^+$. But γ to 586 level would rule out 1$^+$ for 661 and 5$^-$ for 586 level.
682.91@ *3*	(3,4$^-$,5$^-$)	CdefGHi	Jπ: γ to (3)$^-$ and γ(θ) in (d,2nγ) for γ to (4)$^-$. L(p,d)=2+4 from 3/2$^-$ gives negative parity for 683 and/or 685.
685.27@ *10*	(3$^-$)	CdefGHi	Jπ: γ to (4)$^-$; average resonance capture in (n,γ); L(p,d)=2+4 and L(d,p)=(2) give negative parity for 683 and/or 685.
694.8? *4*	(4)	D	Jπ: from ARC data in (n,γ).
717.55@ *7*	(3,4$^-$,5)	C efGHi	Jπ: γ(θ) in (d,2nγ) for γ to (4)$^-$. L(p,d)=1+3 from 3/2$^-$ gives positive parity for 718 and/or 724.
723.989 *5*	(1,2)	CdefG i	Jπ: γ's to 1$^+$, 2$^-$ and (2)$^+$. L(p,d)=1+3 and from 3/2$^-$ supports positive parity for 718 and/or 724. Excitation function in (p,nγ) disfavors J=3. Average resonance capture gives 0$^-$,3$^-$ for 724+727 doublet.
727.077 *13*	(1$^-$,2,3)	CdefG	Jπ: γ's to 2$^-$, (2)$^+$, and (3)$^-$; 0$^-$,3$^-$ for 724+727 from average resonance capture in (n,γ).
731.152 *5*	(2)$^+$	CD FG	Jπ: γ to 1$^+$; E2 γ to (2)$^+$; average-resonance capture in (n,γ).
737.140? *6*	(1$^-$,2$^-$)	CD	Jπ: primary γ from 1$^-$,2$^-$; average resonance capture in (n,γ).
754.8? *7*	(4$^-$)	D	Jπ: from ARC data in (n,γ).
765.891 *5*	(1,2)$^+$	CDEFG i	Uncertain in (p,nγ). Jπ: L(d,p)=1; L(p,d)=1+4 from 3/2$^-$; average resonance capture in (n,γ).
771.20@ *5*	(4$^-$,5$^-$,6$^-$)	C GHi	Jπ: ΔJ=0,1 from γ(θ) in (d,2nγ) for γ to (5$^-$) and L(p,d)=1+4 from 3/2$^-$ for a probable doublet.
774.16h *4*	(7$^-$)	B H	Jπ: γγ(θ) in (^{7}Li,3nγ).
805.126 *12*	(1,2,3)	C efG	Jπ: γ's to (2)$^-$ and (2)$^+$.
813.892 *7*	(2,3)$^+$	CDefG I	XREF: I(819). Jπ: γ's to (2)$^+$ and (4)$^+$; L(p,d)=1+(3) from 3/2$^-$.
821.9?		C	
825.27@ *5*	(6,7$^+$)	C fGH	Jπ: γ's to 5$^+$ and (7$^+$). γ(θ) in (d,2nγ) gives ΔJ=0,1 for γ to (7$^+$).
830.877 *12*	(2)$^+$	C EfG	Jπ: L(d,p)=1 from 3/2$^-$. γ(θ) in (p,nγ) for γ to 1$^+$ gives ΔJ=0,1. Excitation function in (p,nγ) disfavors J=1. Additional information 4.
852.350 *10*	(3)$^+$	C FG I	Jπ: L(p,d)=1 from 3/2$^-$ and γ's to 2$^-$ and (2)$^+$. γ(θ) in (p,nγ) for γ to 2$^-$ disfavors Jπ=2$^+$. Excitation function in (p,nγ) disfavors J=1.
860.655 *7*	(2$^+$)	C GH	Jπ: M1 γ to (3$^+$); γ to (1)$^+$. γ(θ) in (d,2nγ) for γ to (3$^+$) gives ΔJ=0,1.
883.59? *9*	(≤3)	C FG	Jπ: possible γ to 1$^+$.
908.054 *7*	(1$^-$,2,3)	C f i	Jπ: γ's to (2)$^+$ and (3)$^-$. Primary γ (in (n,γ)) from 1$^-$,2$^-$. L(p,d)=2+4 from 3/2$^-$ gives negative parity for 908 and/or 915.
914.581 *7*	(0$^+$,1,2)	C fG i	Jπ: γ's to 1$^+$ and (2)$^+$. γ(θ) in (p,nγ) for γ to 1$^+$ gives ΔJ=0,1. L(p,d)=2+4 from 3/2$^-$ gives negative parity for 908 and/or 915.
918.5?		C	
958.460 *7*	(1,2,3)$^+$	C G I	Jπ: L(p,d)=1+3 from 3/2$^-$.
971.733 *9*	(1 to 4)	C E G	Jπ: γ's to (2$^+$) and (3)$^-$.
987.7?		C	
997.318 *13*	(2,3)$^+$	C G I	XREF: I(1006). Jπ: L(p,d)=1+(3) from 3/2$^-$ and γ to (3)$^-$.
1021.326 *10*	(≤4)	C e G	Jπ: primary γ from 1$^-$,2$^-$. Jπ=4$^+$ is unlikely.
1022.394 *8*	(1$^-$,2,3$^+$)	C e G	Jπ: γ's to 1$^+$ and (3)$^-$.
1033.06 *8*	(8$^+$)	GH	Jπ: γ's to (6$^+$) and (8$^+$) and probable band assignment.
1051.59 *4*	(≤3)	C e G	Jπ: γ to 1$^+$.
1053.602 *15*	(1,2,3)	C e	Jπ: γ's to (2)$^-$ and (2)$^+$. Also primary γ from 1$^-$,2$^-$.
1065.205 *11*	(2$^-$,3,4$^-$)	C e i	Jπ: γ's to (2$^-$) and (4)$^-$. L(p,d)=1+(3) from 3/2$^-$ gives Jπ=(1,2,3)$^+$ for 1065 and/or

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Adopted Levels, Gammas (continued)

^{80}Br Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[#]	XREF	Comments
				1075.
1075.57 *3*	(1 to 4)		C e i	Jπ: γ's to (2)$^+$ and (3$^-$,4$^-$). L(p,d)=1+(3) from 3/2$^-$ gives Jπ=(1,2,3)$^+$ for 1065 and/or 1075.
1116.923 *19*	(1,2,3)$^+$		C E G I	XREF: I(1107). Jπ: L(p,d)=1+(3) from 3/2$^-$.
1130.1[i] *6*	(5$^-$,7$^-$)		B	
1141.02[f] *11*	(9$^+$)		B H	Jπ: 526γ(θ) and probable band assignment.
1143.428 *15*	(1$^-$,2,3$^+$)		C e i	Jπ: γ's to 1$^+$ and (3)$^-$. L(p,d)=1+3 from 3/2$^-$ and L(d,p)=(1) give positive parity for 1143, 1146, and/or 1148 levels.
1146.386 *10*	(1,2,3)$^+$		C e i	Jπ: M1+E2 γ to (2)$^+$. See also comment for 1143 level.
1148.047 *25*	(1$^-$,2,3$^+$)		C G	Jπ: γ's to 1$^+$ and (3$^-$). See also comment for 1143 level.
1190.73 *6*	(1$^-$,2,3$^+$)		C E i	XREF: E(1174)i(1196). Jπ: γ's to 1$^+$ and (3)$^-$. See also comment for 1198 level.
1198.221 *10*	(≤4)		C e i	XREF: e(1201)i(1196). Jπ: primary γ from 1$^-$,2$^-$. L(p,d)=1+3 from 3/2$^-$ gives (1,2,3)$^+$ whereas L(d,p)=2 from 3/2$^-$ gives (1 to 4)$^-$ for 1191, 1198 and/or 1203. Jπ=4$^+$ is unlikely.
1203.04 *4*	(1$^-$,2,3$^+$)		C e i	XREF: e(1201)i(1196). Jπ: γ's to (1)$^+$ and (3)$^-$. See also comment for 1198 level.
1212.33 *3*	(1 to 4)		C	Jπ: γ's to 2$^-$ and (3)$^-$.
1223.97 *11*	(≤3)		C	Jπ: γ to (1)$^+$.
1248.813 *12*	(≤3)$^+$		C E I	Jπ: γ to 1$^+$ and L(p,d)=1 from 3/2$^-$.
1260.5?			C	
1274 *4*	(1,2,3)$^+$		I	Jπ: L(p,d)=1+(3) from 3/2$^-$.
1279.4? *3*			C	
1301 *4*			E	Jπ: L(d,p)=(1,2) from 3/2$^-$ suggests (0$^+$ to 3$^+$) or (1$^-$ to 4$^-$).
1320.256 *25*	(≤3)		C i	XREF: i(1313). Jπ: γ to 1$^+$. L(p,d)=1+(3) from 3/2$^-$ gives positive parity for 1320 and/or 1322.
1322.09 *9*	(1$^-$,2,3$^+$)		C i	XREF: i(1313). Jπ: γ's to 1$^+$ and (3$^-$,4$^-$).
1346.8? *3*			H	Jπ: 6 to 10 from γ to (8$^+$).
1357.8?			C	
1358.85 *3*	(3$^-$)		C	Jπ: γ's to 5$^-$, (2)$^+$ and (2)$^-$.
1383 *4*	(1,2,3)$^+$		I	Jπ: L(p,d)=1+3 from 3/2$^-$.
1401 *4*	(1$^+$ to 5$^+$)		E	Jπ: L(d,p)=(3) from 3/2$^-$.
1405.9? *3*			H	Jπ: 6 to 10 from γ to (8$^+$).
1428 *4*	(1,2,3)$^+$		I	Jπ: L(p,d)=1+3 from 3/2$^-$.
1445 *4*			I	E(level): L(p,d)=1+4 from 3/2$^-$ suggests a doublet with Jπ=(≤4)$^+$ and (3,4,5,6)$^-$.
1499 *4*	(≤3)$^+$		I	Jπ: L(p,d)=1 from 3/2$^-$.
1520 *4*	(1,2,3)$^+$		I	Jπ: L(p,d)=1+(3) from 3/2$^-$.
1534.30[g] *21*	(7$^+$,9$^+$)		B H	Jπ: γγ(θ) in (^{7}Li,3nγ).
1576 *4*	(≤3)$^+$		I	Jπ: L(p,d)=1 from 3/2$^-$.
1588.11[e] *15*	(10$^+$)	0.76 ps *+27−21*	B H	
1598 *4*	(3$^-$ to 6$^-$)		E I	XREF: E(1594). Jπ: L(p,d)=(4) from 3/2$^-$.
1637 *4*			E	
1665 *4*			E	
1702 *4*	(1$^-$ to 4$^-$)		E	Jπ: L(d,p)=(2) from 3/2$^-$.
1724 *4*	(1,2,3)$^+$		I	Jπ: L(p,d)=1+(3) from 3/2$^-$.
1746 *8*	(1 to 4)$^-$		E	Jπ: L(d,p)=2 from 3/2$^-$.
1759 *4*	(1$^+$,2$^+$,3$^+$)		I	Jπ: L(p,d)=(1+3) from 3/2$^-$.
1851.1[h] *3*	(9$^-$)		B	
1857 *4*			E	Jπ: L(d,p)=(1,2) from 3/2$^-$ suggests (0$^+$ to 3$^+$) or (1$^-$ to 4$^-$).

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Adopted Levels, Gammas (continued)

^{80}Br Levels (continued)

E(level)[†]	J^{π}[‡]	$T_{1/2}$[#]	XREF	Comments
1880 *8*	(1^- to 4^-)		E	J^{π}: L(d,p)=(2) from $3/2^-$.
1953 *4*			E	J^{π}: L(d,p)=(2,3) from $3/2^-$ suggests (1^- to 4^-) or (1^+ to 5^+).
1954.2[i] *7*	(7^-,9^-)		B	
2001.72[g] *15*	(8^+,10^+)		B	
2257.02[f] *18*	(11^+)	0.35 ps *14*	B	
2379.0 *6*			B	
2796.8[g] *4*	(9^+,11^+)		B	
2914.9[i] *8*	(9^-,11^-)		B	
2944.13[e] *18*	(12^+)	0.63 ps *+21−14*	B	
3212.0 *4*			B	
3605.0[f] *11*	(13^+)		B	
3658.1 *7*			B	
4450.1[e] *11*	(14^+)		B	

[†] From least squares fit to Eγ′s. About 60 additional levels from 1424 to 4625 are given in (n,γ) E=thermal, each level decaying by one or two γ rays. These levels are proposed in the γ-γ cascade work of 2002Va29. See ^{79}Br(n,γ) E=thermal dataset for details.

[‡] For high-spin states (J>5), the assignments are based on γ(q) and γγ(θ) data in (p,nγ); (d,2nγ) and (^{7}Li,3nγ) reactions.

[#] For levels above 358, values are from Doppler-shift attenuation method in (^{7}Li,3nγ) (2000Ra25).

[@] Population uncertain in (n,γ). γ rays are taken from (p,nγ) and/or (d,2nγ).

[&] Member of $\pi g_{9/2}\nu f_{5/2}$ multiplet (1984Do02).

[a] Member of $\pi p_{3/2}\nu f_{5/2}$ multiplet (1984Do02).

[b] Member of $\pi p_{3/2}\nu p_{1/2}$ multiplet (1984Do02).

[c] Member of $\pi p_{3/2}\nu g_{9/2}$ multiplet (1984Do02).

[d] Member of $\pi p_{3/2}((\nu g_{9/2})^3)_{7/2}$ multiplet (1984Do02).

[e] Band(A): $\pi g_{9/2}\nu g_{9/2}$, α=0. The assignment from 1984Do02 and 2000Ra25.

[f] Band(a): $\pi g_{9/2}\nu g_{9/2}$, α=1. The assignment from 1984Do02 and 2000Ra25.

[g] Band(B): γ cascade based on (7^+,9^+).

[h] Band(C): γ cascade based on (6^-).

[i] Band(D): γ cascade based on (5^-,7^-).

$\gamma(^{80}Br)$

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	α[&]	Comments
37.0526	2^-	37.052 *2*	100	0.0	1^+	E1	1.56	B(E1)(W.u.)=3.77×10^{-4} *8* E_γ: from ^{80}Br IT decay (1970Ne11,bent-crystal measurement). Mult.: from ce data in ^{80}Br IT decay and (n,γ).
85.843	5^-	48.786 *5*	100	37.0526	2^-	M3	308	B(M3)(W.u.)=0.0597 *18* Mult.: from ce data in ^{80}Br IT decay and (n,γ).
256.431	$(2)^-$	219.375 *5*	100	37.0526	2^-	M1		δ(Q/D)=+0.15 *10* (1977Do08).
271.3745	$(2)^+$	234.318 *5*	46 *5*	37.0526	2^-	E1		δ(M2/E1)=+0.015 *50* (1977Do08).
		271.372 *5*	100 *6*	0.0	1^+	M1+E2		I_γ: from (n,γ), where all the intensity was assigned to 271 level. From (p,nγ) reaction, it seems some of this intensity may belong with 357 level. δ(E2/M1)=−0.10 (1973MeZM).
281.292	$(3)^-$	244.238 *5*	100	37.0526	2^-	M1+E2		δ(E2/M1)=−0.03 *1* (1977Do08).
299.891	$(0^+,1^+,2^+)$	299.890[a] *5*	100	0.0	1^+	(M1)		
309.471	$(4)^-$	223.626 *5*	100	85.843	5^-	M1	0.0139	δ(E2/M1)=+0.10 *4* (1977Do08).
314.982	$(1)^+$	43.609 *6*	0.82 *11*	271.3745	$(2)^+$			
		278.2[d]		37.0526	2^-			
		314.986 *5*	100 *5*	0.0	1^+	M1		δ(E2/M1)=+0.12 (1973MeZM).
331.048	5^+	245.198 *5*	100	85.843	5^-	E1		B(E1)(W.u.)=3.5×10^{-5} *10*
331.404	$(3)^-$	50.111 *5*	41 *3*	281.292	$(3)^-$	D		
		74.973 *5*	17 *2*	256.431	$(2)^-$	M1	0.256	
		294.348 *9*	100 *9*	37.0526	2^-	M1		
357.23	(6^+)	26.18 *3*	100 *11*	331.048	5^+	D	5.4	If M1, B(M1)(W.u.)=0.43 *24*. Mult.: $\gamma(\theta)$ in (d,2nγ). Transition rates and ΔJ^π give M1 (1984Do02). α for M1.
		271.4[#] *1*	140[#]	85.843	5^-	D		E_γ,I_γ: 271.372 and 271.4 form a doublet. Intensity given here is from (d,2nγ). If E1, B(E1)(W.u.)=8×10^{-6} *5*.
366.608	$(1,2)^-$	95.228 *5*	1.4 *1*	271.3745	$(2)^+$			
		110.173 *5*	1.8 *2*	256.431	$(2)^-$			
		329.57 *2*	6.3 *8*	37.0526	2^-	D		Placement from (p,nγ).
		366.616 *5*	100 *8*	0.0	1^+	E1		
379.91	(6^-)	294.1 *1*	100	85.843	5^-	D+Q		
380.459	$(3)^-$	99.164 *5*	8 *1*	281.292	$(3)^-$	M1(+E2)		
		109.063 *11*	0.8 *2*	271.3745	$(2)^+$			
		124.026 *5*	30 *1*	256.431	$(2)^-$	(M1)		
		343.404 *5*	100 *7*	37.0526	2^-	D+Q		Mult.: $\gamma(\theta)$ in (p,nγ) and (d,2nγ). From (p,nγ): δ=−1.6 *1* (1977Do08) or +0.10 (1973MeZM).
385.731	(4^-)	104.437 *5*	3.9 *3*	281.292	$(3)^-$			
		299.890[a] *5*	100 *20*	85.843	5^-	M1		

$^{80}_{35}Br_{45}$-6

γ(^{80}Br) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[&]	Comments
390.519	(4)$^-$	59.465 5	100	331.048	5$^+$	E1		0.396	
447.87	(7$^+$)	90.64[#] 2	100[#] 3	357.23	(6$^+$)	D(+Q)	−0.07 +5−8		δ: from (^{7}Li,3nγ).
		116.8[#d] 10	≈0.4[#]	331.048	5$^+$				
456.375	(4)$^-$	75.914 5	17 3	380.459	(3)$^-$	D			
		146.905 5	94 10	309.471	(4)$^-$				
		156.47 2	5 2	299.891	(0$^+$,1$^+$,2$^+$)				
		175.085 5	100 3	281.292	(3)$^-$	M1			
		370.531[c] 5	79[c] 10	85.843	5$^-$				
468.983	(2)$^+$	137.577 5	0.67 7	331.404	(3)$^-$				
		154.008 9	0.54 7	314.982	(1)$^+$				
		187.65 5	0.35 11	281.292	(3)$^-$				
		197.606 5	5.4 7	271.3745	(2)$^+$	M1(+E2)			
		468.980 5	100 9	0.0	1$^+$	M1			δ=−2.2 5 (1977Do08) or −0.01 (1973MeZM).
469.274	(3)$^-$	78.753 6	0.66 25	390.519	(4)$^-$				
		88.809 5	1.8 3	380.459	(3)$^-$				
		159.800 5	29 2	309.471	(4)$^-$				
		187.991 10	2.4 3	281.292	(3)$^-$				
		432.236 8	100 5	37.0526	2$^-$	E2(+M1)			
492.886	(2)$^-$	112.424 5	8 1	380.459	(3)$^-$				
		126.278 5	47 5	366.608	(1,2)$^-$				
		161.47 2	2.2 6	331.404	(3)$^-$				
		193.10 8	1.1 6	299.891	(0$^+$,1$^+$,2$^+$)				
		211.596 5	100 7	281.292	(3)$^-$	M1		0.0160	
		221.508 10	8.9 9	271.3745	(2)$^+$				
		236.454 5	87 5	256.431	(2)$^-$				
		455.84 1	71 5	37.0526	2$^-$	E2			
		492.89 2	64 12	0.0	1$^+$	D			
500.20	(4)$^-$	190.6[#] 2	13[#] 4	309.471	(4)$^-$				
		218.9[#] 1	58[#] 20	281.292	(3)$^-$	M1+E2	0.7 3		Mult.,δ: from (n,γ).
		414.37[#] 4	100[#] 6	85.843	5$^-$	D			
523.289	(5$^-$)	137.5[#] 1	28[#] 4	385.731	(4$^-$)	D			
		143.40[#] 3	15[#] 3	379.91	(6$^-$)				
		213.81[#] 2	100[#] 4	309.471	(4)$^-$				
		437.5[#] 1	13[#] 3	85.843	5$^-$				
549.563	(3)$^+$	80.581 5	12 1	468.983	(2)$^+$	M1			
		159.041 5	33 2	390.519	(4)$^-$	(E1)			
		240.091 7	17 4	309.471	(4)$^-$				
		278.205 8	20 2	271.3745	(2)$^+$				
		512.5[#] 2	105[#] 18	37.0526	2$^-$				

$^{80}_{35}Br_{45}$-7

$\gamma(^{80}$Br) (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	δ[‡]	α[&]	Comments
549.563	$(3)^+$	549.553 7	100 5	0.0	1^+				
572.933	$(3,4,5)^-$	187.24[#] 4	12[#] 3	385.731	(4^-)	D			
		263.44[#] 3	100[#] 3	309.471	$(4)^-$	D			
586.122	(3^+)	195.602 5	100	390.519	$(4)^-$	(E1)		0.0118	
608.818?		608.815[d] 11	100	0.0	1^+				
615.32	(8^+)	167.45 2	100 6	447.87	(7^+)	D(+Q)	−0.02 4		δ: from (^{7}Li,3nγ).
		258.1 10	<1	357.23	(6^+)				
646.45	(3 to 7)	315.4[#] 1	100[#] 20	331.048	5^+				
		560.6[#] 1	7[#] 2	85.843	5^-				
660.566	$(2)^+$	74.444 5	3.2 3	586.122	(3^+)				
		111.02 1	1.0 3	549.563	$(3)^+$				
		191.579 9	3.0 4	468.983	$(2)^+$				
		345.586 5	28 3	314.982	$(1)^+$				
		389.190 7	66 7	271.3745	$(2)^+$				
		660.59 2	100 16	0.0	1^+	D			
682.91	$(3,4^-,5^-)$	182.8[#] 1	≈9[#]	500.20	$(4)^-$				
		226.51[#] 4	55[#] 11	456.375	$(4)^-$	D			
		302.99[#] 5	60[#] 22	379.91	(6^-)				
		373.6 1	100 12	309.471	$(4)^-$	D+Q			
685.27	(3^-)	299.5[#] 3	≈70[#]	385.731	(4^-)				
		375.8[#] 1	100[#] 14	309.471	$(4)^-$				
717.55	$(3,4^-,5)$	331.8[#] 1	36[#] 14	385.731	(4^-)				
		408.1[#] 1	100[#] 14	309.471	$(4)^-$	D			
723.989	(1,2)	255.02 2	1.9 8	468.983	$(2)^+$				
		357.39 2	6.5 22	366.608	$(1,2)^-$				
		409.04 6	22 3	314.982	$(1)^+$				
		452.611 5	100 10	271.3745	$(2)^+$				
		687.0 4	20 5	37.0526	2^-				
		724.00 5	26[@] 9	0.0	1^+				
727.077	$(1^-,2,3)$	257.79 4	2.4 3	469.274	$(3)^-$				
		346.53 8	4.1 16	380.459	$(3)^-$				
		360.44 2	4.4 11	366.608	$(1,2)^-$				
		395.7 2	2.8 9	331.404	$(3)^-$				
		445.7 2	2.4 16	281.292	$(3)^-$				
		470.66 6	23 8	256.431	$(2)^-$				
		690.05 2	100 6	37.0526	2^-				
731.152	$(2)^+$	181.588 5	11 1	549.563	$(3)^+$				
		262.170 9	9 1	468.983	$(2)^+$				

γ(^{80}Br) (continued)

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f	Mult.‡	Comments
731.152	(2)$^+$	364.6 *3*	8 *5*	366.608	(1,2)$^-$		
		399.8 *5*	5 *3*	331.404	(3)$^-$		
		459.776 *6*	100 *10*	271.3745	(2)$^+$	E2	
		731.1 *2*	28 *6*	0.0	1$^+$		
737.140?	(1$^-$,2$^-$)	370.531[c] *5*	100[c]	366.608	(1,2)$^-$		
765.891	(1,2)$^+$	105.330 *5*	12 *1*	660.566	(2)$^+$		
		296.905 *6*	100 *11*	468.983	(2)$^+$		
		450.89 *2*	53 *13*	314.982	(1)$^+$		
		766.2[d]		0.0	1$^+$		
771.20	(4$^-$,5$^-$,6$^-$)	247.91# *4*	100# *6*	523.289	(5$^-$)		
		461.8#[d]	25# *19*	309.471	(4)$^-$		
774.16	(7$^-$)	394.25 *3*	100 *12*	379.91	(6$^-$)	D+Q	I_γ,Mult.: from (^{7}Li,3nγ).
		688.4 *1*	75 *13*	85.843	5$^-$	Q	E_γ,I_γ,Mult.: from (^{7}Li,3nγ).
805.126	(1,2,3)	81.08 *2*	9 *2*	723.989	(1,2)		
		144.58 *2*	7 *2*	660.566	(2)$^+$		
		312.20 *5*	14 *9*	492.886	(2)$^-$		
		438.56 *2*	100 *27*	366.608	(1,2)$^-$		
813.892	(2,3)$^+$	227.74 *5*	1.1 *2*	586.122	(3$^+$)		
		344.92 *2*	6.5 *12*	468.983	(2)$^+$		
		423.33 *4*	2.4 *9*	390.519	(4)$^-$		
		542.515 *7*	100 *7*	271.3745	(2)$^+$		
		557.4[d]		256.431	(2)$^-$		
821.9?		786.9[d]		37.0526	2$^-$		
825.27	(6,7$^+$)	377.39# *3*	100# *7*	447.87	(7$^+$)	D	
		494.2# *1*	44# *5*	331.048	5$^+$		
830.877	(2)$^+$	170.30 *6*	2.4 *4*	660.566	(2)$^+$		
		361.86 *2*	10 *2*	468.983	(2)$^+$		
		464.3 *3*	9 *3*	366.608	(1,2)$^-$		
		794.3 *4*	12 *4*	37.0526	2$^-$		
		830.74 *9*	100 *15*	0.0	1$^+$		
852.350	(3)$^+$	485.74 *2*	31 *4*	366.608	(1,2)$^-$		
		581.4 *2*	21 *6*	271.3745	(2)$^+$		
		595.94 *5*	37 *5*	256.431	(2)$^-$		
		815.4 *1*	100 *13*	37.0526	2$^-$	D	
860.655	(2$^+$)	274.532 *5*	100 *18*	586.122	(3$^+$)	M1	
		311.08 *3*	4.5 *9*	549.563	(3)$^+$		
		494.05 *5*	6 *3*	366.608	(1,2)$^-$		
		529.28 *3*	12 *6*	331.404	(3)$^-$		
		545.6 *3*	6 *3*	314.982	(1)$^+$		

$^{80}_{35}$Br$_{45}$-9

Adopted Levels, Gammas (continued)

$\gamma(^{80}Br)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f
860.655	(2^+)	589.23 *6*	2.7 *14*	271.3745	$(2)^+$
		823.7[d]		37.0526	2^-
		860.8[d]		0.0	1^+
883.59?	(≤3)	883.58[#d] *9*	100[#]	0.0	1^+
908.054	$(1^-,2,3)$	184.16 *10*	5.2 *12*	723.989	(1,2)
		247.495 *10*	29 *4*	660.566	$(2)^+$
		321.912 *9*	67 *12*	586.122	(3^+)
		358.50 *9*	27 *15*	549.563	$(3)^+$
		636.70 *6*	100 *12*	271.3745	$(2)^+$
		870.2[d]		37.0526	2^-
914.581	$(0^+,1,2)$	190.595 *5*	18 *3*	723.989	(1,2)
		254.01 *2*	5.2 *10*	660.566	$(2)^+$
		583.17 *6*	17 *5*	331.404	$(3)^-$
		643.1 *2*	10 *4*	271.3745	$(2)^+$
		914.47 *7*	100 *16*	0.0	1^+
918.5?		662.0[d]		256.431	$(2)^-$
958.460	$(1,2,3)^+$	50.402 *5*	3.3 *9*	908.054	$(1^-,2,3)$
		106.12 *2*	0.6 *2*	852.350	$(3)^+$
		127.58 *2*	1.0 *3*	830.877	$(2)^+$
		702.06 *2*	100 *9*	256.431	$(2)^-$
971.733	(1 to 4)	140.64 *12*	2.3 *8*	830.877	$(2)^+$
		205.80 *6*	2.8 *15*	765.891	$(1,2)^+$
		247.74 *10*	15 *3*	723.989	(1,2)
		385.61 *2*	100 *10*	586.122	(3^+)
		422.14 *2*	44 *12*	549.563	$(3)^+$
		502.69 *6*	15 *8*	468.983	$(2)^+$
987.7?		731.2[d]		256.431	$(2)^-$
		987.7[d]		0.0	1^+
997.318	$(2,3)^+$	144.970 *9*	3.6 *10*	852.350	$(3)^+$
		504.48 *5*	41 *18*	492.886	$(2)^-$
		630.6 *2*	14 *6*	366.608	$(1,2)^-$
		716.18 *12*	100 *14*	281.292	$(3)^-$
		959.8 *6*	36 *15*	37.0526	2^-
		995.6[d]		0.0	1^+
1021.326	(≤4)	49.591 *5*	3.4 *8*	971.733	(1 to 4)
		106.80 *2*	1.2 *3*	914.581	$(0^+,1,2)$
		255.46 *3*	10 *2*	765.891	$(1,2)^+$
		721.46 *4*	100 *9*	299.891	$(0^+,1^+,2^+)$
1022.394	$(1^-,2,3^+)$	63.932 *5*	1.5 *5*	958.460	$(1,2,3)^+$

$\gamma(^{80}Br)$ (continued)

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f	Mult.‡	δ‡	Comments
1022.394	(1⁻,2,3⁺)	256.63 *9*	2.2 *9*	765.891	(1,2)⁺			
		285.1 *2*	3.0 *9*	737.140?	(1⁻,2⁻)			
		436.31 *2*	7.7 *14*	586.122	(3⁺)			
		707.4 *2*	11 *5*	314.982	(1)⁺			
		751.05 *4*	49 *12*	271.3745	(2)⁺			
		765.91 *4*	100 *7*	256.431	(2)⁻			
		1022.2 *2*	24 *3*	0.0	1⁺			
1033.06	(8⁺)	207.7 *1*	8 *4*	825.27	(6,7⁺)			
		417.8 *1*	16 *4*	615.32	(8⁺)			
		676.0 *2*	100 *10*	357.23	(6⁺)			
1051.59	(≤3)	684.90 *6*	100 *10*	366.608	(1,2)⁻			
		1051.0 *6*	56 *15*	0.0	1⁺			
1053.602	(1,2,3)	138.98 *2*	13 *4*	914.581	(0⁺,1,2)			
		222.6 *2*	19 *16*	830.877	(2)⁺			
		392.8 *2*	38 *12*	660.566	(2)⁺			
		560.63 *10*	100 *60*	492.886	(2)⁻			
		799.2[d]		256.431	(2)⁻			
1065.205	(2⁻,3,4⁻)	204.59 *4*	2.6 *8*	860.655	(2⁺)			
		341.0 *3*	13 *7*	723.989	(1,2)			
		479.08 *1*	100 *15*	586.122	(3⁺)			
		755.53 *12*	70 *30*	309.471	(4)⁻			
1075.57	(1 to 4)	223.20 *6*	28 *24*	852.350	(3)⁺			
		619.3 *3*	100 *40*	456.375	(4)⁻			
		818.9 *4*	100 *30*	256.431	(2)⁻			
1116.923	(1,2,3)⁺	119.62 *2*	2.0 *6*	997.318	(2,3)⁺			
		303.02 *3*	5.0 *11*	813.892	(2,3)⁺			
		567.2 *2*	21 *4*	549.563	(3)⁺			
		860.38 *8*	100 *5*	256.431	(2)⁻			
1130.1	(5⁻,7⁻)	355.9 *6*	100	774.16	(7⁻)			Mult.: ΔJ=0, dipole or ΔJ=2, Q.
1141.02	(9⁺)	525.7 *1*	100 *11*	615.32	(8⁺)	D+Q	−0.15 *4*	δ: from (^{7}Li,3nγ).
		693.1 *10*	<2	447.87	(7⁺)			
1143.428	(1⁻,2,3⁺)	171.66 *2*	1.7 *4*	971.733	(1 to 4)			
		235.3 *3*	2.0 *16*	908.054	(1⁻,2,3)			
		483.1 *2*	39 *6*	660.566	(2)⁺			
		557.34 *2*	100 *6*	586.122	(3⁺)			
		871.9[d]		271.3745	(2)⁺			
		886.8[d]		256.431	(2)⁻			
		1106.2[d]		37.0526	2⁻			
		1143.36 *12*	56 *4*	0.0	1⁺			
1146.386	(1,2,3)⁺	92.73 *2*	1.2 *4*	1053.602	(1,2,3)			

$^{80}_{35}Br_{45}$-11

Adopted Levels, Gammas (continued)

$\gamma(^{80}$Br) (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]
1146.386	$(1,2,3)^+$	125.11 2	1.2 4	1021.326	(≤4)	
		238.47 8	4.3 18	908.054	$(1^-,2,3)$	
		294.03[b] 1	<2.9[b]	852.350	$(3)^+$	
		315.48 2	100 16	830.877	$(2)^+$	M1+E2
		419.25 6	7 2	727.077	$(1^-,2,3)$	
		890.0 3	43 9	256.431	$(2)^-$	
1148.047	$(1^-,2,3^+)$	233.32 6	11 4	914.581	$(0^+,1,2)$	
		382.21 3	26 8	765.891	$(1,2)^+$	
		678.6 2	38 5	469.274	$(3)^-$	
		876.4 3	62 10	271.3745	$(2)^+$	
		1148.06 9	100 15	0.0	1^+	
1190.73	$(1^-,2,3^+)$	276.1 2	21 6	914.581	$(0^+,1,2)$	
		604.61 6	91 12	586.122	(3^+)	
		919.5 2	100 12	271.3745	$(2)^+$	
		1190.5 3	82 15	0.0	1^+	
1198.221	(≤4)	51.832 5	27 7	1146.386	$(1,2,3)^+$	
		226.50 2	76 14	971.733	(1 to 4)	
		283.67 2	39 9	914.581	$(0^+,1,2)$	
		290.1 2	31 18	908.054	$(1^-,2,3)$	
		345.89 2	100 17	852.350	$(3)^+$	
1203.04	$(1^-,2,3^+)$	476.1 2	7 4	727.077	$(1^-,2,3)$	
		823.2 7	26 13	380.459	$(3)^-$	
		888.0 4	100 26	314.982	$(1)^+$	
		921.8 7	48 17	281.292	$(3)^-$	
		1201.5[d] 3	57 9	0.0	1^+	
1212.33	(1 to 4)	136.764 2	21 1	1075.57	(1 to 4)	
		158.74 4	3.1 16	1053.602	(1,2,3)	
		160.72 3	2.0 7	1051.59	(≤3)	
		297.78 7	9 3	914.581	$(0^+,1,2)$	
		845.69 12	100 8	366.608	$(1,2)^-$	
		930.8 9	13 8	281.292	$(3)^-$	
		1174.7 3	33 5	37.0526	2^-	
1223.97	(≤3)	908.89 13	100 8	314.982	$(1)^+$	
		924.2 6	36 16	299.891	$(0^+,1^+,2^+)$	
		952.7 2	76 8	271.3745	$(2)^+$	
		967.9 4	44 12	256.431	$(2)^-$	
1248.813	$(\leq3)^+$	277.05 11	5.0 16	971.733	(1 to 4)	
		334.233 10	8 5	914.581	$(0^+,1,2)$	
		933.7 4	19 4	314.982	$(1)^+$	
		977.3 3	25 5	271.3745	$(2)^+$	
		1248.75 8	100 14	0.0	1^+	

$^{80}_{35}$Br$_{45}$-12

$\gamma(^{80}Br)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	δ[‡]	Comments
1260.5?		1004.0[d]		256.431	(2)$^-$			
1279.4?		1241.8[d] *6*	100	37.0526	2$^-$			
1320.256	(≤3)	117.22 *3*	5.5 *15*	1203.04	(1$^-$,2,3$^+$)			
		176.83 *2*	10 *3*	1143.428	(1$^-$,2,3$^+$)			
		827.2 *2*	100 *15*	492.886	(2)$^-$			
		850.0 *9*	55 *40*	469.274	(3)$^-$			
		1319.9 *5*	75 *20*	0.0	1$^+$			
1322.09	(1$^-$,2,3$^+$)	205.4 *2*	5 *2*	1116.923	(1,2,3)$^+$			
		594.95 *11*	45 *27*	727.077	(1$^-$,2,3)			
		865.5 *3*	64 *27*	456.375	(4)$^-$			
		1286.4[d]		37.0526	2$^-$			
		1322.4 *5*	100 *18*	0.0	1$^+$			
1346.8?		731.5[d] *3*	100	615.32	(8$^+$)			
1357.8?		1320.2[d]		37.0526	2$^-$			
		1357.8[d]		0.0	1$^+$			
1358.85	(3$^-$)	210.88 *7*	3.3 *17*	1148.047	(1$^-$,2,3$^+$)			
		305.29 *11*	7.8 *20*	1053.602	(1,2,3)			
		498.18 *3*	100 *11*	860.655	(2$^+$)			
		808.9 *3*	25 *6*	549.563	(3)$^+$			
		1087.6 *8*	33 *25*	271.3745	(2)$^+$			
		1273.6 *5*	22 *8*	85.843	5$^-$			
1405.9?		790.6[d] *3*	100	615.32	(8$^+$)			
1534.30	(7$^+$,9$^+$)	919.1 *3*	95 *19*	615.32	(8$^+$)	D+Q		I_γ,Mult.: from (^{7}Li,3nγ).
		1086.3 *3*	100 *20*	447.87	(7$^+$)			E_γ,I_γ: from (^{7}Li,3nγ). Mult.: ΔJ=0, dipole or ΔJ=2, Q.
1588.11	(10$^+$)	447.1 *1*	100 *11*	1141.02	(9$^+$)	(M1+E2)	−0.12 *+8−5*	B(M1)(W.u.)=0.16 *5*; B(E2)(W.u.)=15 *+20−15*
		972.6 *1*	96 *9*	615.32	(8$^+$)	(E2)		B(E2)(W.u.)=20 *6*
1851.1	(9$^-$)	1076.9 *3*	100	774.16	(7$^-$)	(Q)		
1954.2	(7$^-$,9$^-$)	824.2 *10*	78 *20*	1130.1	(5$^-$,7$^-$)	(Q)		
		1180.0 *10*	100 *25*	774.16	(7$^-$)			Mult.: ΔJ=0, D or ΔJ=2, Q.
2001.72	(8$^+$,10$^+$)	467.4 *10*	13 *3*	1534.30	(7$^+$,9$^+$)	(D+Q)		
		860.7 *1*	100 *14*	1141.02	(9$^+$)	D+Q		
2257.02	(11$^+$)	668.9 *1*	100 *17*	1588.11	(10$^+$)	(M1(+E2))	−0.04 *5*	B(M1)(W.u.)=0.16 *8*; B(E2)(W.u.)=0.7 *+19−7*
		1116.0 *6*	29 *7*	1141.02	(9$^+$)	[E2]		B(E2)(W.u.)=10 *5*
2379.0		1238.0 *6*	100	1141.02	(9$^+$)			
2796.8	(9$^+$,11$^+$)	795.1 *3*	100	2001.72	(8$^+$,10$^+$)	D+Q		
2914.9	(9$^-$,11$^-$)	960.6 *10*	70 *26*	1954.2	(7$^-$,9$^-$)			
		1063.8 *10*	100 *33*	1851.1	(9$^-$)			Mult.: ΔJ=0, D or ΔJ=2, Q.
2944.13	(12$^+$)	687 *1*	<6	2257.02	(11$^+$)			
		1356.0 *1*	100 *16*	1588.11	(10$^+$)	(E2)		B(E2)(W.u.)=9 *+3−4*

Adopted Levels, Gammas (continued)

$\gamma(^{80}Br)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f
3212.0		955.0 *3*	100	2257.02	(11^+)
3605.0	(13^+)	1348 *1*	100	2257.02	(11^+)
3658.1		714.0 *6*	100	2944.13	(12^+)
4450.1	(14^+)	1506 *1*	100	2944.13	(12^+)

† Primarily from $^{79}Br(n,\gamma)$. For levels not populated in (n,γ), values are from $(p,n\gamma)$ and/or $(d,2n\gamma)$.

‡ From ce study in (n,γ) for low-spin (J<6) levels. For high−spin states the assignments (D, Q or D+Q) are from $\gamma(\theta)$ $\gamma\gamma(\theta)$ in $(p,n\gamma)$; $(d,2n\gamma)$ and $(^7Li,3n\gamma)$ reactions. RUL is used to assign parity when level lifetimes are known. For mult=D, small admixture of mult=Q is possible but not quoted here.

From $(p,n\gamma)$ and/or $(d,2n\gamma)$.

@ Average of (n,γ) and $(p,n\gamma)$ and/or $(d,2n\gamma)$.

& Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

[a] Multiply placed.

[b] Multiply placed with undivided intensity.

[c] Multiply placed with intensity suitably divided.

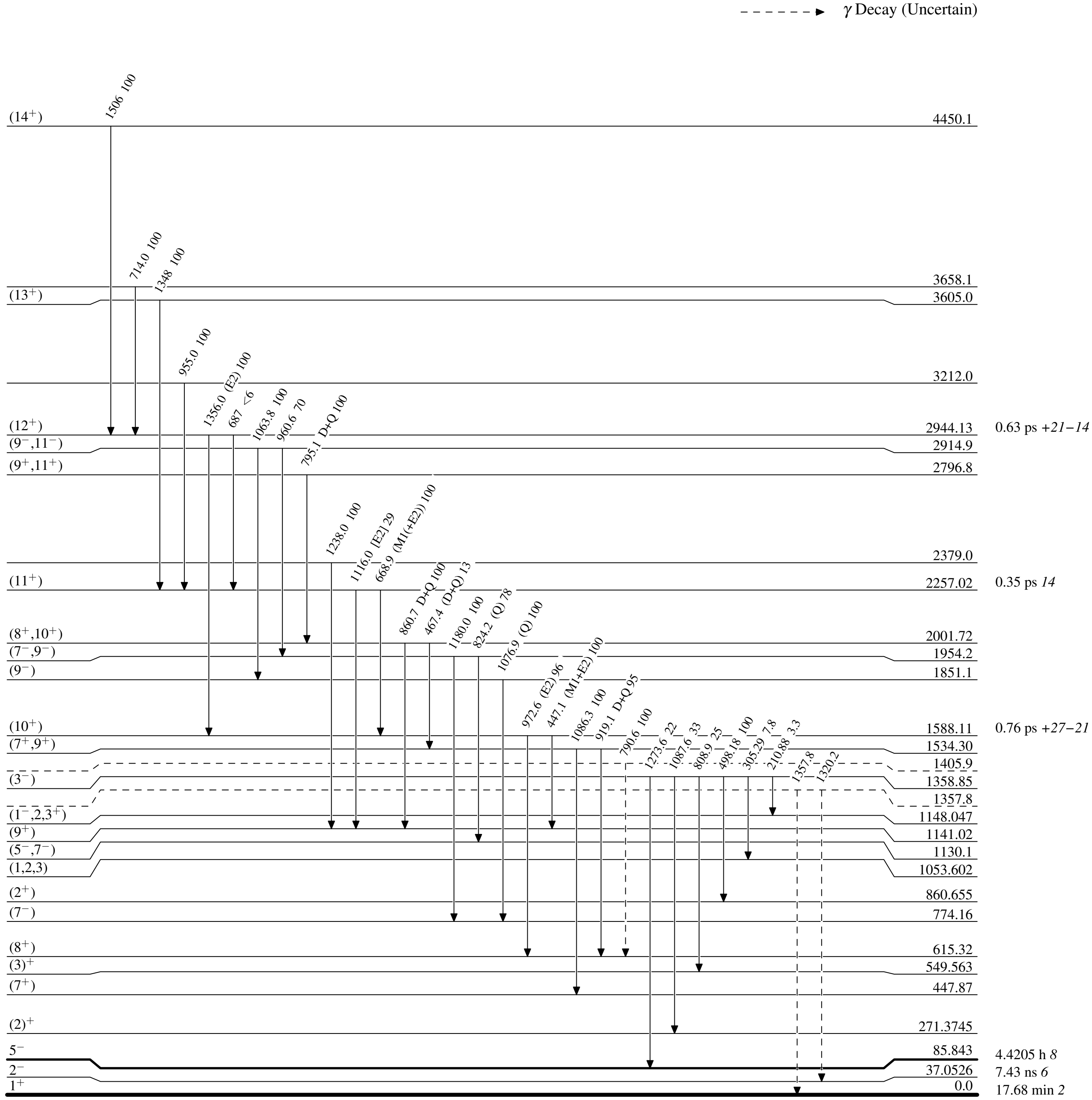
[d] Placement of transition in the level scheme is uncertain.

$^{80}_{35}Br_{45}$-14

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level



$^{80}_{35}Br_{45}$

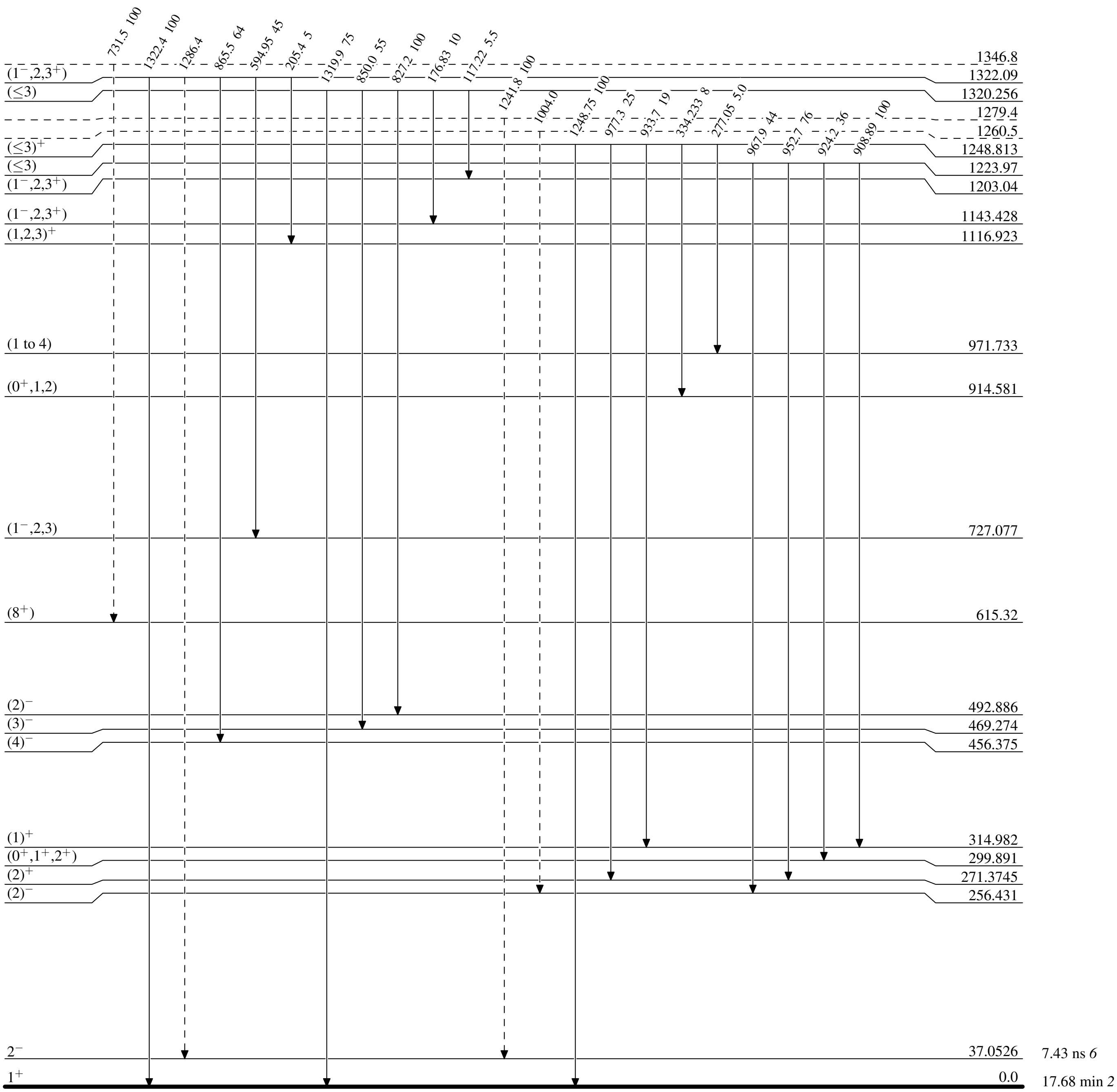
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

- - - - ▶ γ Decay (Uncertain)



$^{80}_{35}Br_{45}$

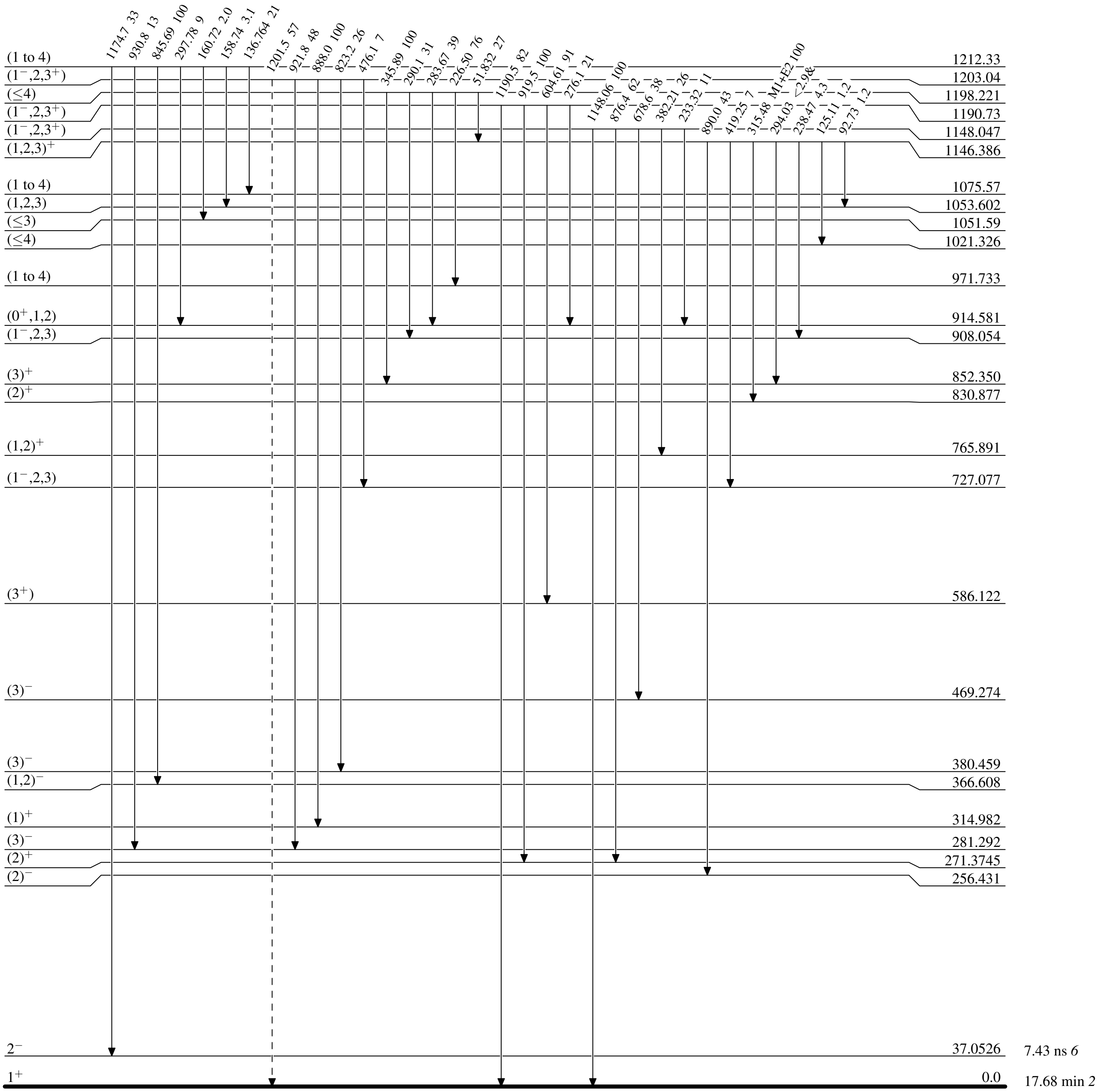
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

Legend

- - - - - - ► γ Decay (Uncertain)

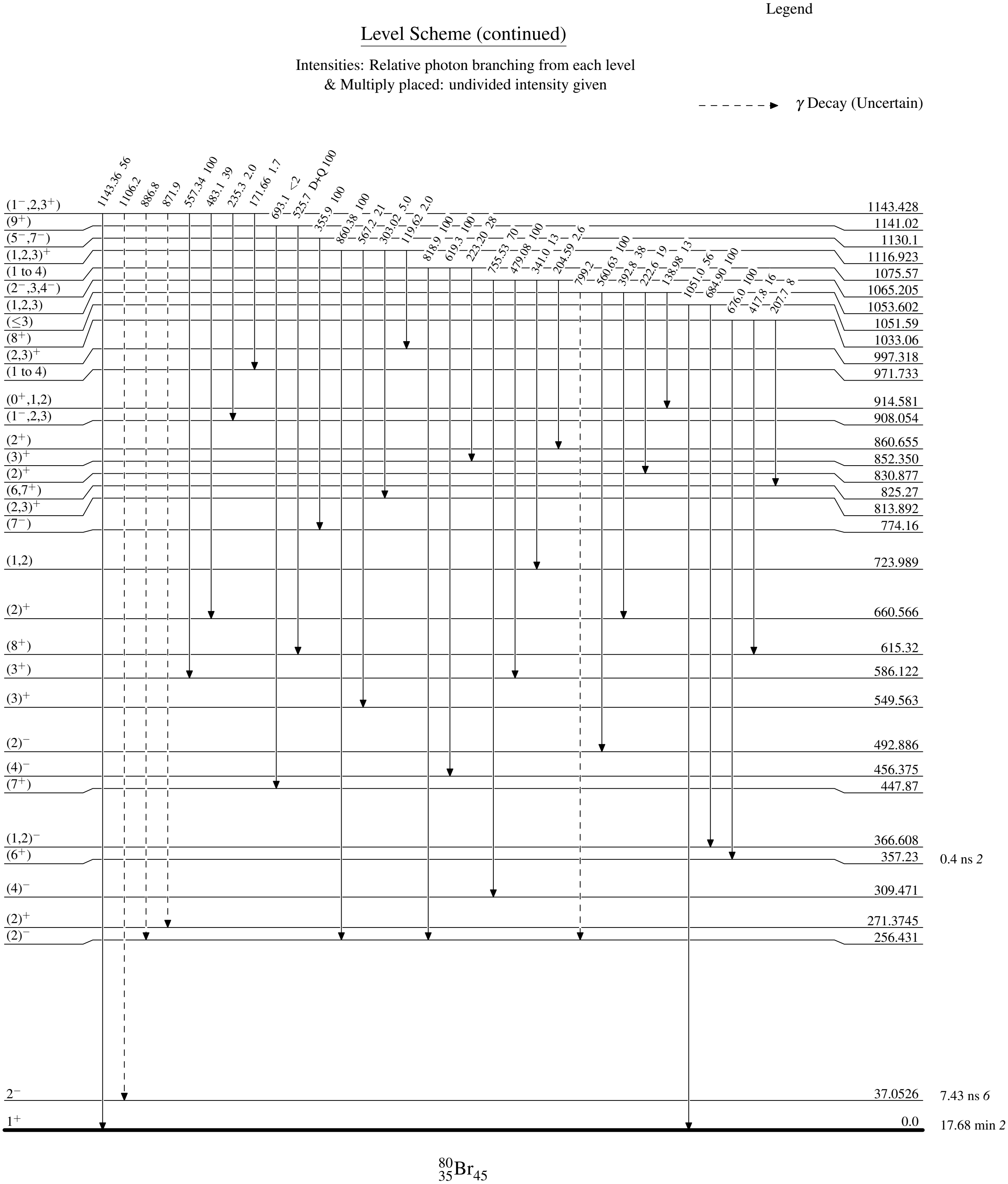


$^{80}_{35}Br_{45}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given



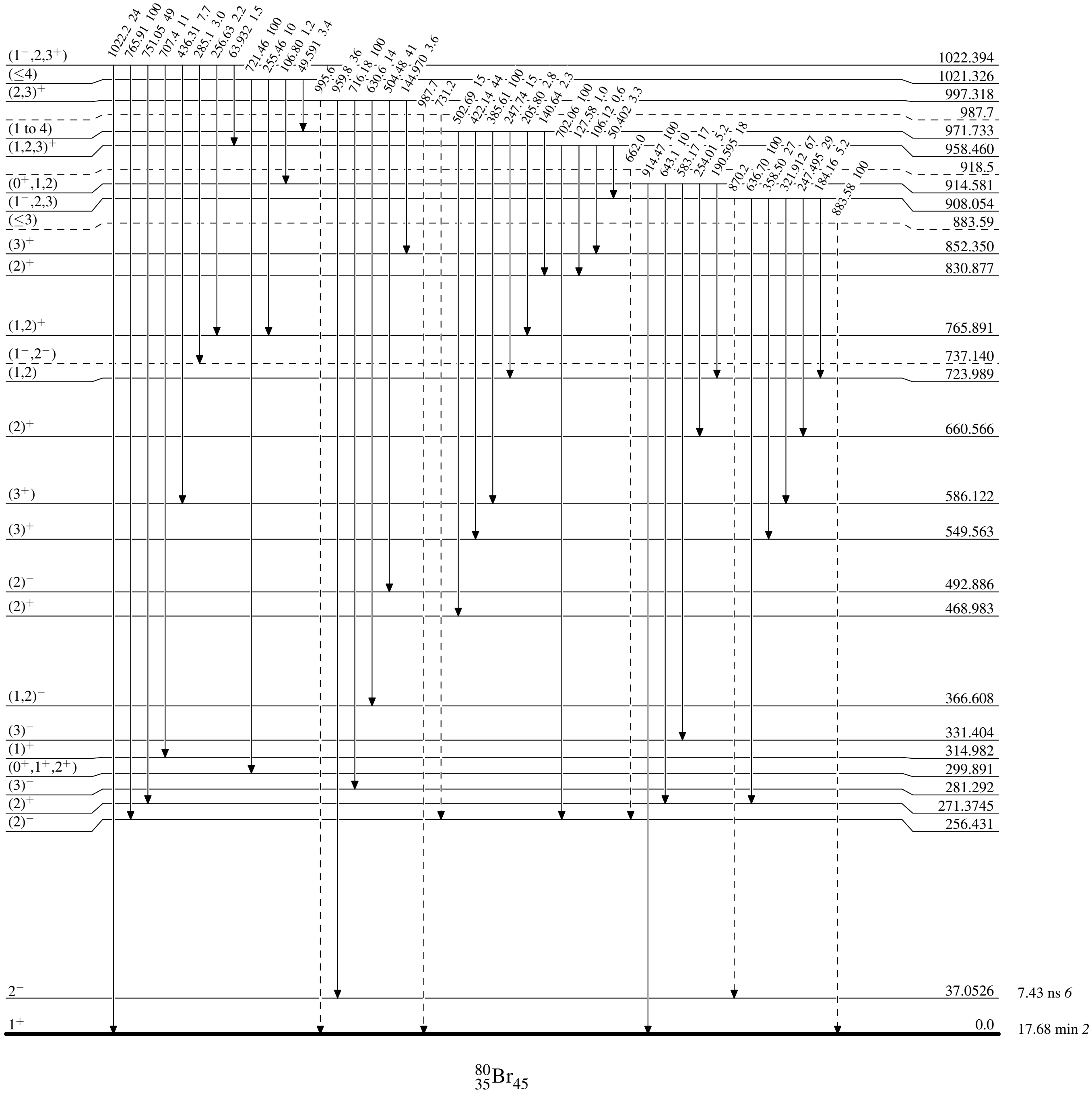
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

Legend

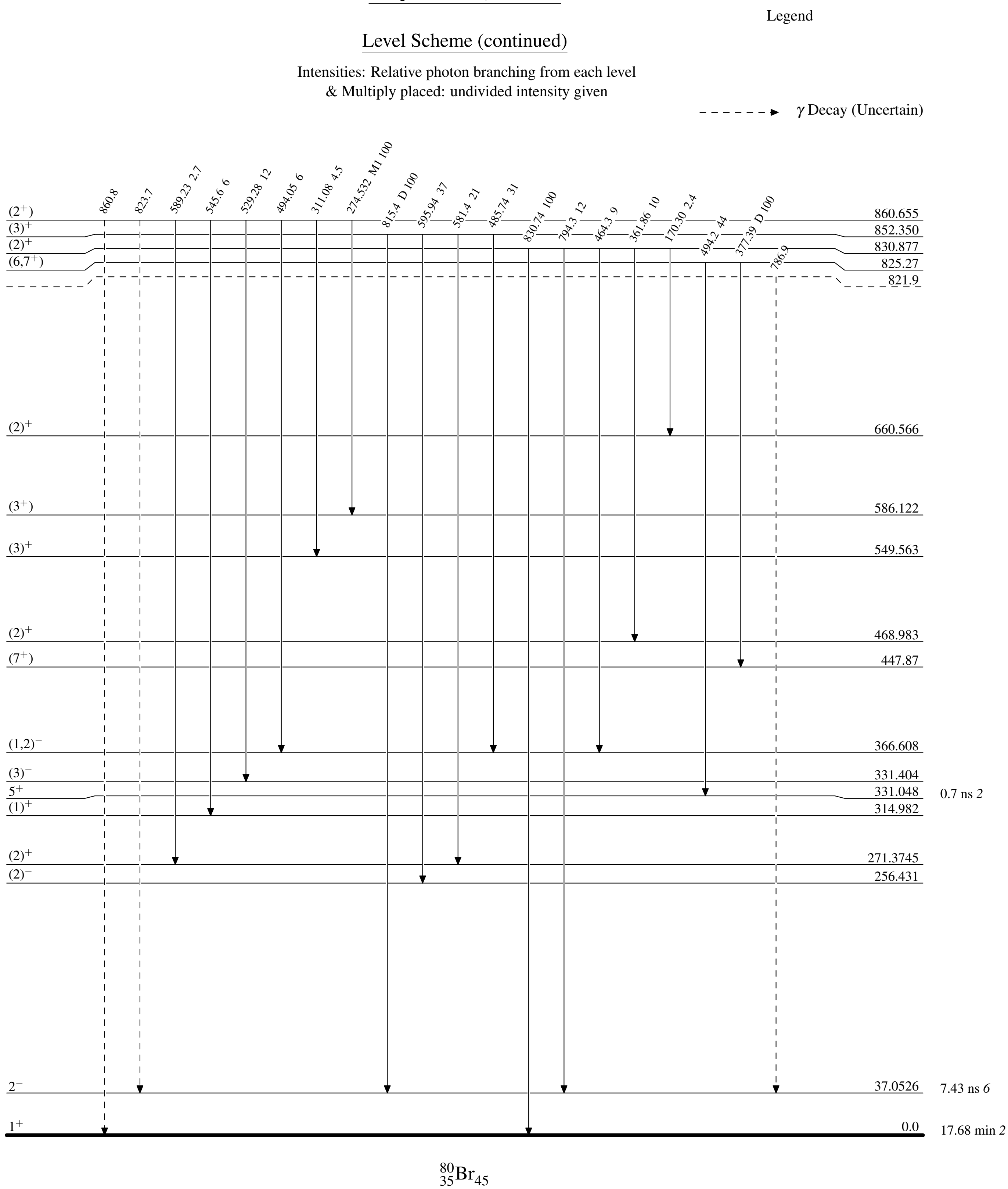
γ Decay (Uncertain)



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given



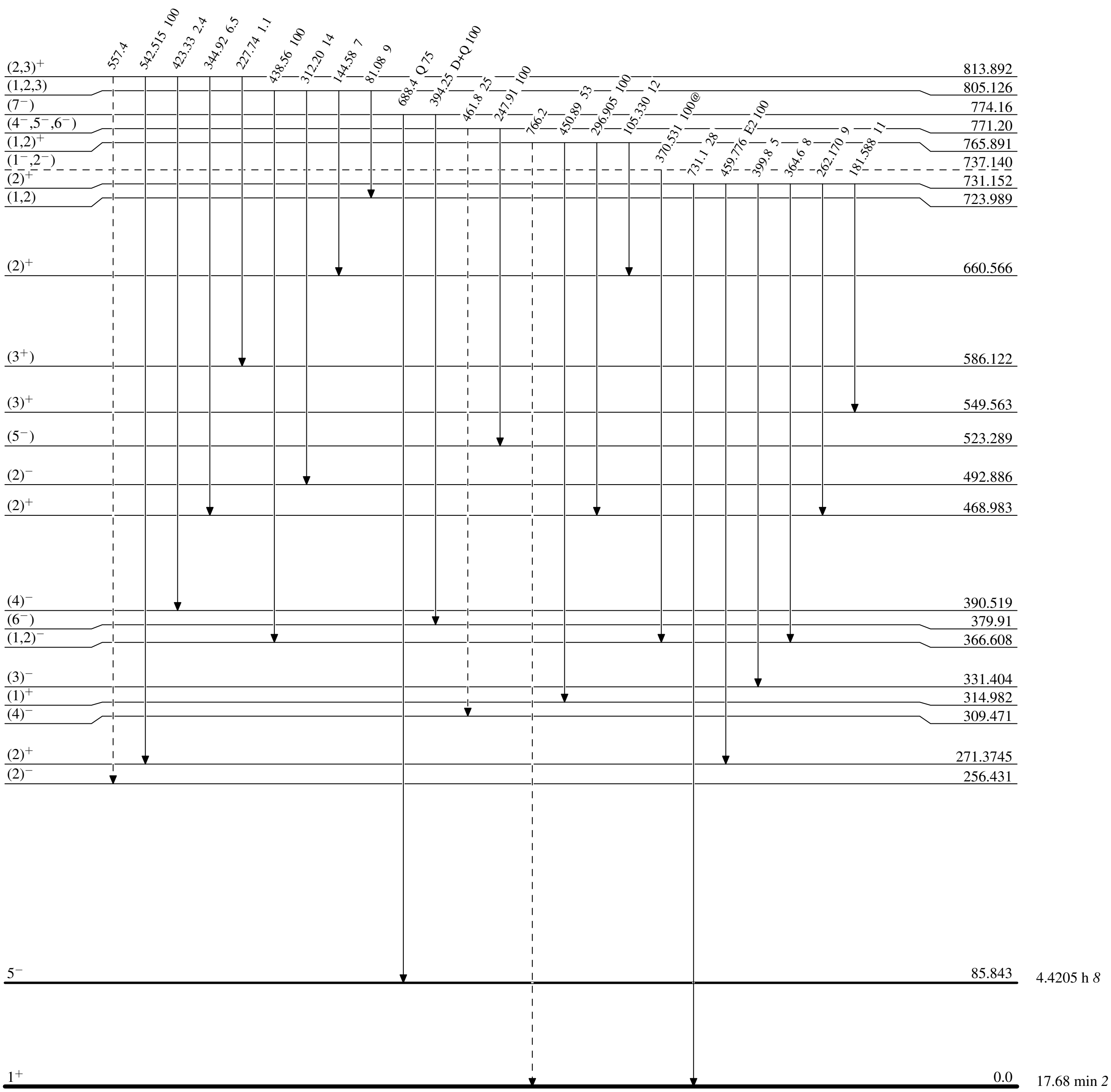
Adopted Levels, Gammas

Level Scheme (continued)

Legend

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided

γ Decay (Uncertain)



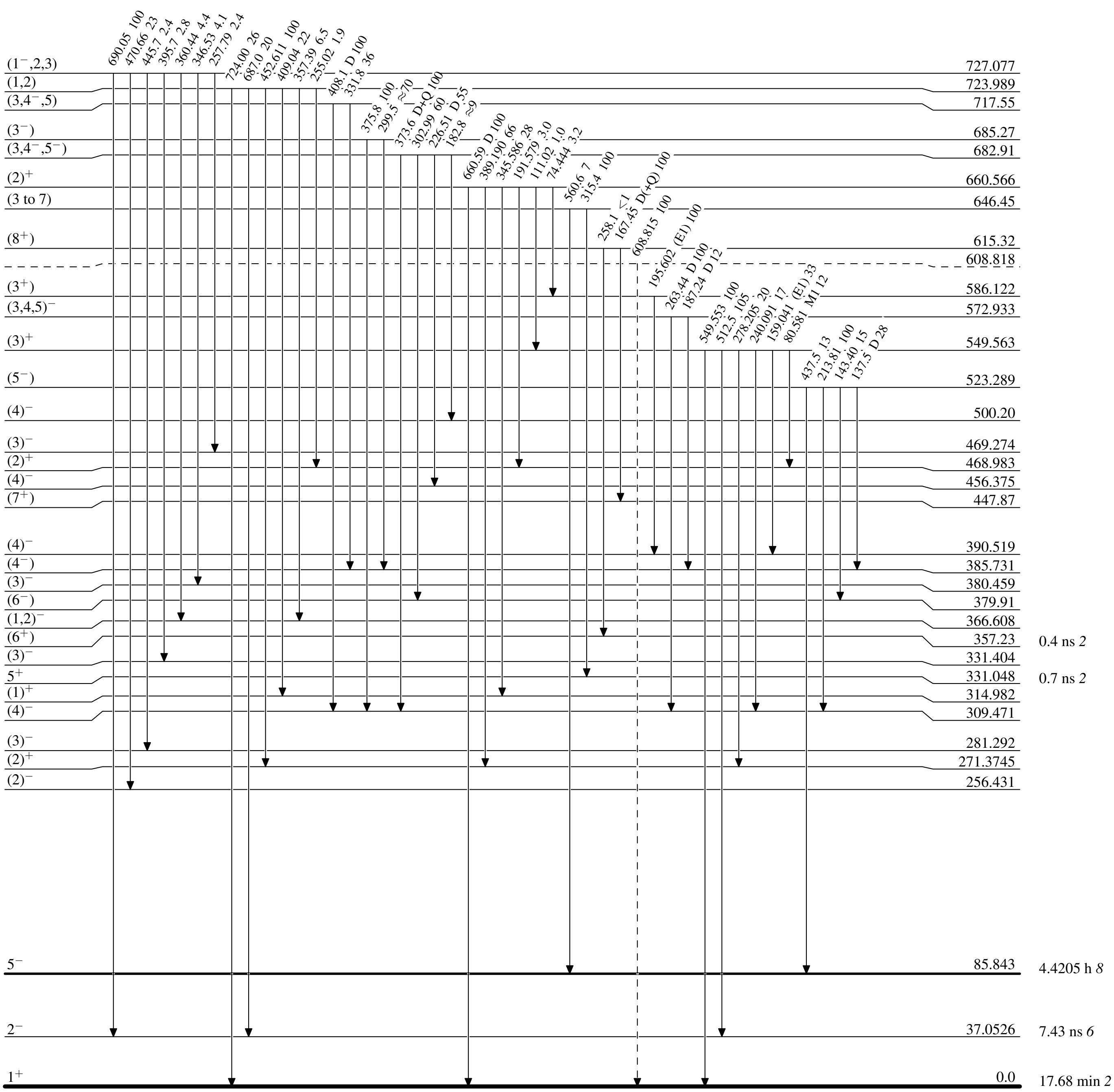
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided

Legend

γ Decay (Uncertain)



$^{80}_{35}Br_{45}$

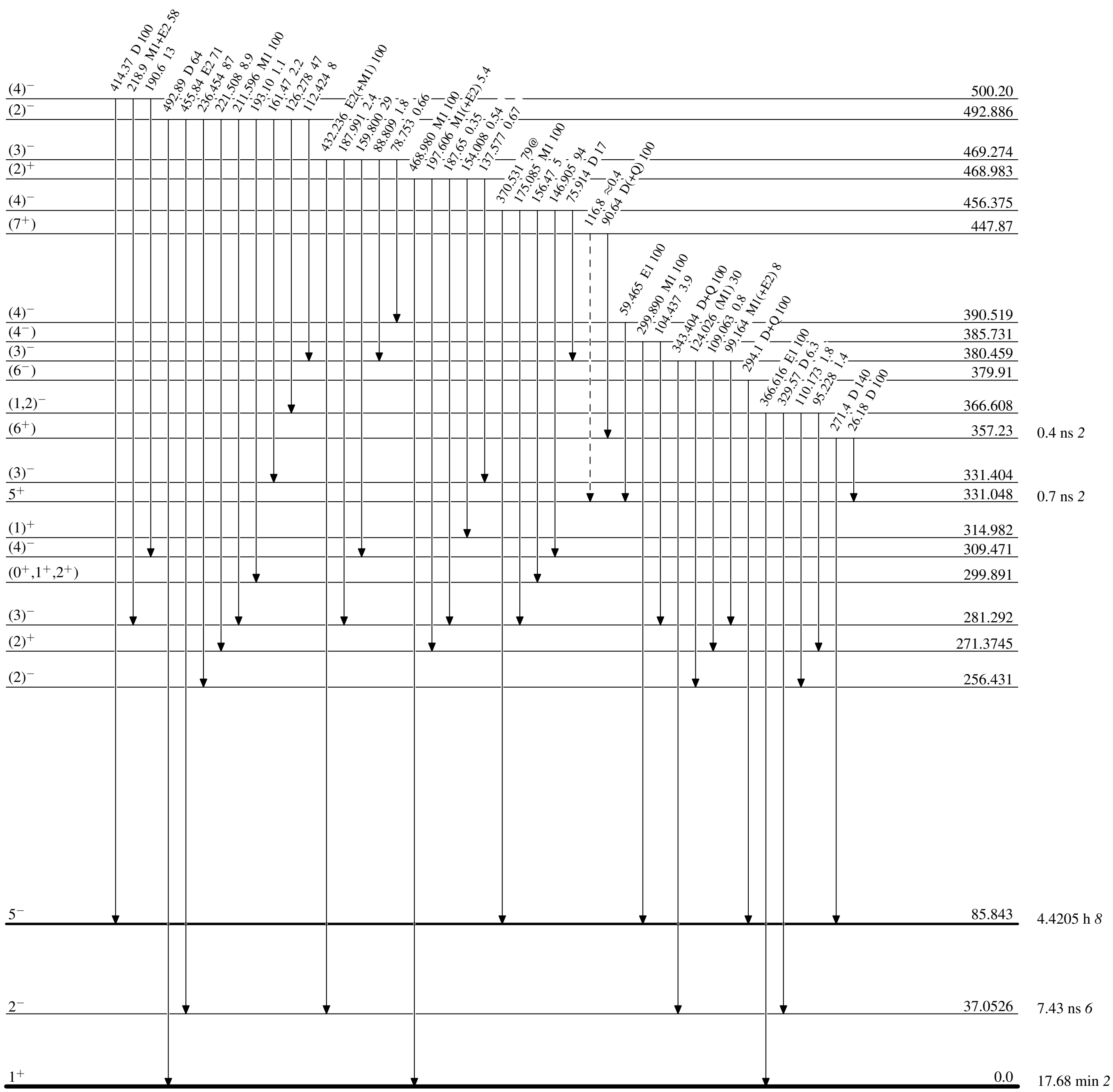
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided

Legend

γ Decay (Uncertain)

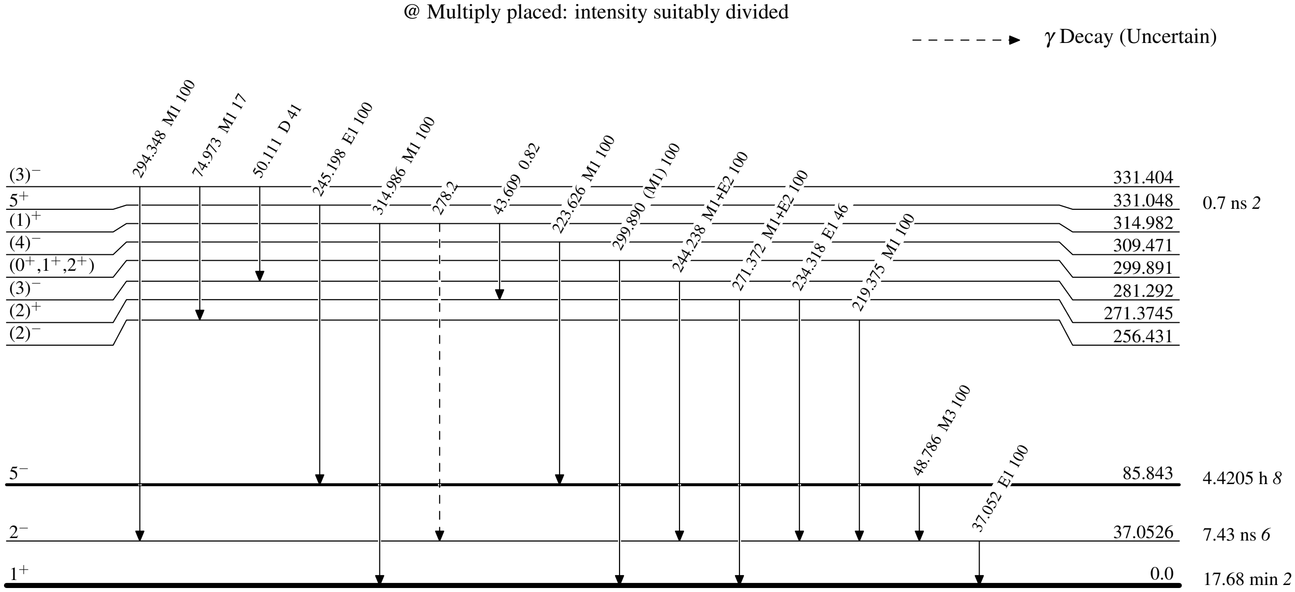


$^{80}_{35}Br_{45}$

Adopted Levels, Gammas

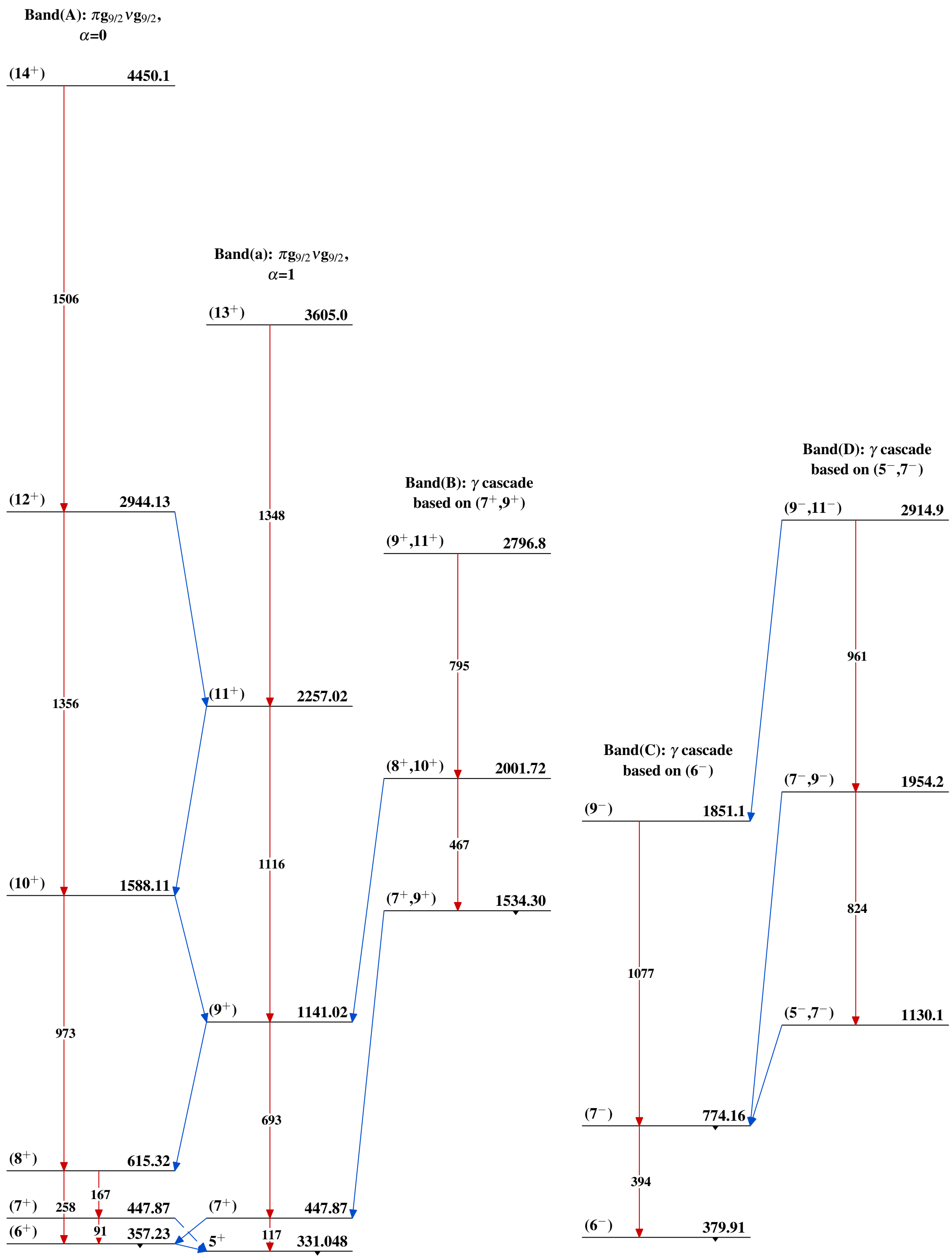
Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided



$^{80}_{35}Br_{45}$

Adopted Levels, Gammas



$^{80}_{35}Br_{45}$