Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen	NDS 194,460 (2024)	31-Oct-2022

Q(β^-)=1285.7 *8*; S(n)=5715.96 *5*; S(p)=8796.3 *20*; Q(α)=−531.1 *15* 2021Wa16
S(2n)=13374.07 *9*, S(2p)=16801.6 *11* (2021Wa16).

Other reactions:
See ^{164}Dy(n,γ),(n,n):resonances dataset for 116 neutron resonances in E(n)=147 eV to 21.15 keV region, data taken from 2018MuZZ evaluation.

Hyperfine structure studies: 1968Ra03 (also 1967St27).

Additional information 1.

^{165}Dy Levels

Cross Reference (XREF) Flags

A	^{165}Tb β^- decay (2.11 min)	E	^{164}Dy(n,γ) E=2, 24 keV
B	^{165}Dy IT decay (1.257 min)	F	^{164}Dy(n,γ),(n,n):resonances
C	^{163}Dy(t,p)	G	^{164}Dy(d,p)
D	^{164}Dy(n,γ) E=thermal		

E(level)[†]	J$^\pi$	T$_{1/2}$[‡]	XREF	Comments
0.0[@]	7/2$^+$	2.331 h *4*	AB DE G	%β^-=100 μ=−0.518 *6* (1968Ra03,2019StZV) Q=+3.48 *7* (1968Ra03,2021StZZ) T$_{1/2}$: weighted average of 2.29 h *6* (2014Le22, decay curves for 94.7γ and 361.7γ); 2.334 h *1* (1989Ab05, decay curve for 94.7γ, three measurements, uncertainty increased to 0.004 h to decrease its weight to ≈50%, and to account for possible systematic uncertainties); 2.334 h *6* (1973Ha20, integral activity using a scintillation detector, average of five measurements); 2.317 h *8* (1963Pe11). Others: 2.4 h (1962Ma24); 2.373 h *8* (1960Ha34); 2.33 h *8* (1960Wi10); 2.355 h *2* (1959Cr80); 2.369 h *10* (1958Gu09); 2.38 h *4* (1954Ma62); 2.3195 h *23* (1952Sh42); 2.42 h *5* (1947Sl14); 2.33 h (1947Se33); 2.5 h (1947In08); 2.333 h *25* (1946Bo25); 2.5 h (1938Po05); 2.5 h (1935He03); 2.5 h *1* (1935Ma03). Weighted average of all the values listed with uncertainties, but with a minimum uncertainty of 0.010 h in pre-1960 measurements, is 2.338 h *5* with normalized χ^2=3.6 as compared to critical χ^2=2.1. Unweighted average is 2.358 h *15*. J$^\pi$: spin from atomic beam (1961Ca07); parity from allowed β^- to π=+ level at E=995. μ,Q: atomic beam method, deduced hyperfine structure constants a=±89.8 MHz *7* and b=∓1521 MHz *30*, μ=−0.50, Q=2.8, μ/Q<0 (1968Ra03). Experimentally, only the relative signs of μ and Q were determined in 1968Ra03, however, authors mentioned that sign of Q was chosen positive (probably based on agreement of measured and predicted Q=+3.2 for ν7/2[633] configuration), thereby fixing the negative sign of μ. In 1989Ra17 compilation, μ=−0.520 *5* and Q=−3.49 *7* were deduced with reference to ^{163}Dy, using hyperfine constants a and b from 1968Ra03 for ^{165}Dy, and hyperfine constants A=+162.754272 MHz *20*, B=+1152.8635 MHz *12* for ^{163}Dy from 1974Fe05. Note that relative signs of μ and Q in 1989Ra17 were inconsistent with those deduced in 1968Ra03. In 2019StZV evaluation, sign of Q is assigned positive, and the value of μ in 2019StZV evaluation is slightly different from that in 1989Ra17. In evaluator's opinion, while the signs of μ and Q are not known experimentally, systematics of neighboring odd-A Dy nuclei (^{155},^{157},^{159},^{161},^{163}Dy), N=99 isotones (7/2[633] g.s. in ^{167}Er, ^{169}Yb and ^{171}Hf), and experimental β_2 parameters in Fig. 12 of 1984Ta04 for several rare-earth nuclei strongly suggest positive sign for Q, thus negative sign for μ,

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Adopted Levels, Gammas (continued)

^{165}Dy Levels (continued)

E(level)[†]	J$^\pi$	T$_{1/2}$[‡]	XREF	Comments
				from experimental μ/Q<0 in 1968Ra03.
83.3954[@] *15*	(9/2)$^+$	<35 ps	D G	J$^\pi$: 83.398γ M1+E2 to 7/2$^+$; band assignment.
108.1562[b] *13*	1/2$^-$	1.257 min *6*	ABCDE G	%β^-=2.27 *9*; %IT=97.73 *9* J$^\pi$: 108.159 γ E3 to 7/2$^+$, 425.335γ M1,E2 from 5/2$^-$. T$_{1/2}$: from time scaling of γ rays from ^{165}Dy isomer decay (1964Ha19). Others: 1.263 min *16* (1960Ho16), 1.3 min *2* (1960Wi10). Additional information 2. %IT: from %IT+%β^-=%I(γ+ce)(108.6γ)(^{165}Dy)+ΣI(γ+ce to g.s.)(^{165}Ho)=100, using measured Iγ in 1972Ma06.
158.5895[b] *13*	(3/2)$^-$	1.8 ns *10*	A DE G	J$^\pi$: 50.434γ M1+E2 to 1/2$^-$; band assignment.
180.9237[b] *13*	(5/2)$^-$	2.5 ns *10*	A cDE G	XREF: c(183). J$^\pi$: 72.768 γ E2 to 1/2$^-$; band assignment. T$_{1/2}$: from (n,γ) (1978An22). Other from (n,γ): 10.7 ns *35* (1968Na21).
184.2552[&] *12*	5/2$^-$	1.0 ns *1*	A cD G	XREF: c(183). J$^\pi$: 184.252γ E1 to 7/2$^+$ and 354.38γ E1 from 3/2$^+$.
186.0949[@] *22*	(11/2$^+$)		D	J$^\pi$: 102.701γ to (9/2)$^+$; band assignment.
261.7712[&] *12*	(7/2)$^-$	<35 ps	D G	J$^\pi$: 178.374γ E1 to (9/2)$^+$, 77.514γ M1+E2 to 5/2$^-$.
297.6844[b] *14*	(7/2)$^-$	<35 ps	CD G	J$^\pi$: 139.096γ E2 to (3/2)$^-$, 116.76γ E2 (from ce data) to (5/2)$^-$; band assignment. T$_{1/2}$: this upper limit deduced in 1968Na21 results in larger B(E2)(W.u.) of 116.760γ and 139.096γ than allowed by RUL, which may indicate a T$_{1/2}$ greater than this upper limit.
307.74[@] *12*	(13/2$^+$)		G	J$^\pi$: band assignment.
337.1639[b] *15*	(9/2)$^-$		D G	J$^\pi$: 156.24γ E2 (from ce data) to 5/2$^-$, 39.48γ to 7/2$^-$; band assignment.
360.6312[&] *17*	(9/2)$^-$		CD G	J$^\pi$: 176.367γ to 5/2$^-$, 174.554γ to (11/2$^+$); 246.997γ M1,E2 from π=$-$; band assignment.
404.6 *9*			G	
479.98[&] *24*	(11/2$^-$)		G	J$^\pi$: band assignment.
518.65[b] *23*	(11/2$^-$)		G	J$^\pi$: band assignment.
530.6 *6*	(1/2$^+$,3/2$^+$,5/2)		E	J$^\pi$: from ARC in (n,γ) E=2, 24 keV.
533.4937 *13*	5/2$^-$		CD G	J$^\pi$: L(t,p)=0 from 5/2$^-$.
538.6356[a] *13*	3/2$^+$		A DE	J$^\pi$: 354.381γ E1 to 5/2$^-$, 430.478γ E1 to 1/2$^-$.
570.2619[d] *16*	(1/2)$^-$		DE	J$^\pi$: (1/2$^-$,3/2$^-$) from ARC in (n,γ) E=2, 24 keV; 386.011γ E2 (from ce data) to 5/2$^-$; band assignment.
573.5853[c] *16*	(3/2)$^-$		A DE G	XREF: A(?). J$^\pi$: 392.663γ M1(+E2) γ to (5/2)$^-$, 465.427γ M1(+E2) to 1/2$^-$.
583.9972[a] *13*	5/2$^+$		DE G	J$^\pi$: 583.994γ M1+E2 to 7/2$^+$, primary 5131.9γ from 1/2$^+$.
605.0967[d] *15*	(3/2)$^-$		cDE G	XREF: c(608). J$^\pi$: 496.942γ M1(+E2) to 1/2$^-$, 343.323γ E2 (from ce data) to (7/2)$^-$.
607.6252 *17*	(5/2,7/2)$^-$		cD	XREF: c(608). J$^\pi$: 423.366γ M1(+E2) to 5/2$^-$; 270.461γ to (9/2$^-$).
628.8384[c] *16*	(5/2)$^-$		DE G	J$^\pi$: 331.151γ M1(+E2) to (7/2)$^-$, 470.251γ M1(+E2) to (3/2)$^-$.
648.9741[a] *17*	(7/2)$^+$		D	J$^\pi$: 565.578γ E2 to (9/2)$^+$, 648.962γ M1+E2 to 7/2$^+$; 110.328γ to 3/2$^+$; 462.883γ to (11/2$^+$); band assignment.
657.9997[d] *15*	(5/2)$^-$		CD G	J$^\pi$: 477.072γ M1(+E2) γ to (5/2)$^-$, 549.81γ to 1/2$^-$, 297.370γ to (9/2$^-$); band assignment.
702.892 *6*	(5/2$^-$,7/2$^-$,9/2$^-$)		CD	E(level): probably a doublet with J$^\pi$=(5/2 to 11/2)$^-$ and (7/2,9/2)$^+$

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Adopted Levels, Gammas (continued)

^{165}Dy Levels (continued)

E(level)[†]	Jπ	XREF	Comments
			(1990Ka21) in (n,γ) E=thermal.
			Jπ: 441.12γ to 7/2⁻, 365.724γ to 9/2⁻; L(t,p)=(2) from 5/2⁻.
705.9112[c] *18*	(7/2)⁻	D G	Jπ: 368.749γ M1(+E2) to (9/2)⁻, 121.898γ to 5/2⁺.
730.4 *8*		G	
737.8585[d] *22*	(7/2)⁻	CD G	Jπ: 556.938γ E2(+M1) to (5/2)⁻; 377.221γ to (9/2⁻); band assignment.
771.4 *4*		G	
785.2 *8*		G	
803.2[c] *5*	(9/2⁻)	G	Jπ: possible band assignment.
818.8 *5*		G	
834.5 *8*		G	
877.2 *5*		G	
911.9734 *21*	5/2⁺	DE G	Jπ: 911.966γ M1+E2 to 7/2⁺, primary γ from 1/2⁺;
921.35[c] *22*	(11/2⁻)	G	Jπ: possible band assignment.
957.1 *5*		G	
976.785 *7*	(7/2,9/2)⁺	D G	Jπ: 893.421γ M1 to (9/2)⁺; 64.697γ to 5/2⁺.
988.1 *11*		G	
1016.0757 *21*	(5/2⁺)	D	Jπ: primary γ from 1/2⁺; 932.657γ to (9/2)⁺.
1031.6 *9*		G	
1051.9 *6*		G	
1064.9 *6*		G	
1080.0402 *17*	(1/2,3/2)⁻	DE	Jπ: (1/2⁻,3/2⁻) from ARC in (n,γ) E=2, 24 keV; 546.543γ M1,E2 to 5/2⁻.
1088.0114 *18*	(3/2⁻)	DE G	Jπ: (1/2⁻,3/2⁻) from ARC in (n,γ) E=2, 24 keV; 504.013γ 5/2⁺.
1103.0454 *17*	(3/2)⁻	DE G	Jπ: 474.212γ M1 to (5/2)⁻; primary γ from 1/2⁺.
1108.2015 *19*	(3/2)⁺	DE	Jπ: 524.202γ M1 to 5/2⁺, possible 537.99γ to (1/2)⁻; primary γ from 1/2⁺.
1135.8124 *28*	(5/2⁻)	D G	Jπ: 1027.8γ to 1/2⁻, 397.962γ to (7/2)⁻, 486.841γ to (7/2)⁺.
1140.8668 *27*	(3/2⁺)	DE	Jπ: (1/2⁺,3/2⁺,5/2⁺) from ARC in (n,γ) E=2, 24 keV; 1032.82γ to 1/2⁻, 512.00γ to (5/2)⁻.
1158.1192 *22*	(5/2⁺)	DE G	Jπ: primary γ from 1/2⁺, 1074.75γ to (9/2)⁺, 420.4γ and 452.208γ to (7/2)⁻, 509.139γ to (7/2)⁺. But (1/2,3/2) from ARC in (n,γ) E=2, 24 keV is inconsistent.
1166.8927 *23*	(3/2)⁻	DE	Jπ: 596.626γ E2 to (1/2)⁻; (1/2,3/2) from ARC in (n,γ) E=2,24 keV.
1169.4 *5*		G	
1174.9530 *26*	(3/2,5/2)⁻	D G	Jπ: 994.01γ M1(+E2) to (5/2)⁻, 636.41γ to 3/2⁺.
1197.0 *5*	5/2⁻	C G	E(level): weighted average of 1195 *2* from (t,p) and 1197.1 *5* from (d,p).
			Jπ: L(t,p)=0 from 5/2⁻ target.
1218.3554 *25*	(5/2⁺)	DE G	Jπ: (5/2) from ARC in (n,γ) E=2, 24 keV; primary γ from 1/2⁺.
1256.503 *4*	(3/2)	CDE G	Jπ: primary γ from 1/2⁺; 1072.212γ to 5/2⁻, 672.9γ 5/2⁺, 686.29γ to (1/2)⁻.
1283.0 *3*		G	
1309.302 *4*	(3/2⁻,5/2⁻)	CD G	Jπ: 1201.15γ to 1/2⁻, 1047.52γ to (7/2)⁻.
1316.7 *4*		G	
1320.811 *6*	(1/2⁻,3/2,5/2⁻)	DE	Jπ: 1212.51γ to 1/2⁻, 1136.43γ to 5/2⁻.
1327.7 *7*		G	
1337.103 *4*	(1/2⁺,3/2⁺)	A DE G	Jπ: (1/2⁺,3/2⁺,5/2⁺) from ARC in (n,γ) E=2, 24 keV; 1228.94γ to 1/2⁻.
1352.3 *4*		E	
1356.1 *7*		G	
1376.3381 *30*	(3/2⁺)	DE	Jπ: (1/2⁺,3/2⁺,5/2⁺) from ARC in (n,γ) E=2, 24 keV; 1268.13γ to 1/2⁻, 1192.18γ to 5/2⁻.
1380.886 *4*	(5/2⁺)	CDE G	XREF: C(1381).
			Jπ: (1/2⁺,3/2⁺,5/2⁺) from ARC in (n,γ) E=2, 24 keV; 674.87γ to (7/2)⁻.
1384.29 *24*		G	
1400.2743 *33*	(3/2⁺)	A DE G	Jπ: (1/2⁺,3/2⁺,5/2⁺) from ARC in (n,γ) E=2, 24 keV; 1292.03γ to 1/2⁻, 742.264γ to (5/2)⁻.
1416.3385 *19*	(3/2)	DE	Jπ: (1/2,3/2,5/2⁺) from ARC in (n,γ) E=2, 24 keV; 846.058γ to (1/2)⁻, 258.217γ to (5/2⁺), possible 882.833γ to 5/2⁻.
1440.470 *15*	(5/2⁺)	DE G	Jπ: (1/2,3/2,5/2⁺) from ARC in (n,γ) E=2, 24 keV; 791.34γ to (7/2)⁺, 1142.73γ

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Adopted Levels, Gammas (continued)

^{165}Dy Levels (continued)

E(level)[†]	Jπ	XREF	Comments
			to $(7/2)^-$.
1444.721 *11*	$(3/2^-,5/2^+)$	DE G	Jπ: $(1/2,3/2,5/2^+)$ from ARC in (n,γ) E=2, 24 keV; 1182.98γ to $(7/2)^-$.
1453.7 *6*		E	
1456.399 *5*	(3/2)	DE	Jπ: primary γ from $1/2^+$; 886.09γ to $(1/2)^-$, 798.398γ to $(5/2)^-$, 872.398γ to $(5/2)^+$.
1460.6 *10*		G	
1464.8488 *24*	$(3/2)^-$	DE	Jπ: (1/2,3/2) from ARC in (n,γ) E=2, 24 keV; 931.351γ M1(+E2) to $5/2^-$.
1477.29 *24*		G	
1479.1326 *24*	$(3/2^-,5/2^-)$	D G	Jπ: 1370.92γ to $1/2^-$, 1181.32γ to $(7/2)^-$.
1482.061 *5*	$(5/2^-)$	D	Jπ: 1373.53γ to $1/2^-$, 1121.57γ to $(9/2^-)$.
1501.25 *23*		D G	
1509.9 *4*		G	
1523.1 *3*		G	
1535.18 *21*		G	
1555.15 *23*		D G	
1560.09 *22*		D G	
1587.61 *30*		D	
1591.85 *22*	$(1/2^-,3/2^-)$	D G	Jπ: (E1) primary γ from $1/2^+$.
1607.5 *3*		G	
1623.24 *22*		D G	
1631.90 *22*		D	
1634.59 *23*		D	
1643.71 *18*		G	
1648.3 *4*		D	
1652.4 *5*	$5/2^-$	C G	XREF: C(1654). Jπ: L(t,p)=0 from $5/2^-$ target.
1671.13 *22*		D	
1693.88 *24*		D G	XREF: G(1699).
1730.42 *24*		D G	XREF: G(1723).
1754.87 *23*		D G	
1770.76 *22*		D g	XREF: g(1780).
1773.22 *16*	$(1/2,3/2,5/2^-)$	A g	XREF: g(1780). Jπ: 1664.8γ to $1/2^-$.
1795.84 *22*		D g	XREF: g(1805).
1814.19 *18*	(3/2)	A D g	XREF: A(?)g(1805). Jπ: 1632.74γ to $(5/2)^-$, primary γ from $1/2^+$, possible 1632.74γ to $1/2^-$.
1830.44 *22*	$(1/2^+,3/2^+,5/2^+)$	D g	XREF: g(1833). Jπ: (M1,E2) primary γ from $1/2^+$.
1834.54 *23*		D g	XREF: g(1833).
1872.66 *23*		D g	XREF: g(1861).
1875.79 *23*	$(1/2^+,3/2^+,5/2^+)$	D g	XREF: g(1861). Jπ: (M1,E2) primary γ from $1/2^+$.
1885.70 *23*		D g	XREF: g(1891).
1890.63 *23*		D g	XREF: g(1891).
1895.87 *23*	$(1/2^+,3/2^+,5/2^+)$	D g	XREF: g(1891). Jπ: (M1,E2) primary γ from $1/2^+$.
1915.45 *23*		D G	
1943.81 *23*		D G	XREF: G(1947).
1962.81 *23*	$(1/2^+,3/2^+,5/2^+)$	D	Jπ: (M1,E2) primary γ from $1/2^+$.
1968.98 *23*	$(1/2^+,3/2^+,5/2^+)$	D G	XREF: G(1970). Jπ: (M1,E2) primary γ from $1/2^+$.
1988.20 *23*		D	
2007.53 *23*	$(1/2^+,3/2^+,5/2^+)$	D G	XREF: G(2000). Jπ: (M1,E2) primary γ from $1/2^+$.
2041.82 *23*		D G	XREF: G(2027).
2063.47 *23*		D g	XREF: g(2069).

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Adopted Levels, Gammas (continued)

^{165}Dy Levels (continued)

E(level)[†]	Jπ	XREF	Comments
2065.80 *23*		D g	XREF: g(2069).
2088.08 *23*		D G	XREF: G(2076).
2107.07 *23*	(1/2$^+$,3/2$^+$,5/2$^+$)	D G	XREF: G(2097). Jπ: (M1,E2) primary γ from 1/2$^+$.
2112.64 *23*		D G	XREF: G(2121).
2160.38 *23*	(1/2$^+$,3/2$^+$,5/2$^+$)	D G	XREF: G(2152). Jπ: (M1,E2) primary γ from 1/2$^+$.
2178.55 *23*		D G	
2187.09 *23*		D	
2190.89 *23*		D	
2208		G	
2230		G	
2247		G	
2271.21 *25*	(1/2$^-$,3/2)[#]	D G	XREF: G(2268). Jπ: 2088.5γ to (5/2)$^-$, 2163.7γ to 1/2$^-$.
2294		G	
2320		G	
2371		G	
2432		G	
2445		G	
2459		G	
2475.79 *29*	(1/2,3/2)[#]	D	Jπ: 1904.2γ to (1/2)$^-$.
2495		G	
2524?		G	
2547.53 *25*	(1/2,3/2)[#]	D	Jπ: 2439.6γ to 1/2$^-$.
2576		G	
2596		G	
2610.04 *29*	(1/2,3/2)[#]	D G	XREF: G(2620). Jπ: 2501.5γ to 1/2$^-$.
2657		G	
2705.64 *25*	(1/2,3/2)[#]	D G	Jπ: 2134.7γ to (1/2)$^-$.
2741		G	
2765.37 *21*	(1/2$^-$,3/2)[#]	D	Jπ: 2657.6γ to 1/2$^-$, 2583.1γ to (5/2)$^-$.
2783.72 *29*	(1/2$^-$,3/2)[#]	D	Jπ: 2674.6γ to 1/2$^-$, 2603.4γ to (5/2)$^-$.
2793.14 *29*	(1/2,3/2)[#]	D G	Jπ: 2221.8γ to (1/2)$^-$.
2815		G	
2834		G	
2852.64 *25*	(1/2,3/2)[#]	D G	XREF: G(2859). Jπ: 2743.5γ to 1/2$^-$.
2874.43 *29*	(1/2,3/2)[#]	D	Jπ: 2765.2γ to 1/2$^-$.
2899		G	
2920		G	
2943.54 *29*	(1/2,3/2)[#]	D G	Jπ: 2834.7γ to 1/2$^-$.
2982.73 *22*	(1/2$^-$,3/2)[#]	D	Jπ: 2874.7γ to 1/2$^-$, 2803.5γ to (5/2)$^-$.
3006		G	
3014.02 *25*	(1/2$^-$,3/2,5/2$^+$)[#]	D G	Jπ: 2832.0γ to (5/2)$^-$.
3051.82 *25*	(1/2$^-$,3/2)[#]	D	Jπ: 2942.5γ to 1/2$^-$, 2871.2γ to (5/2)$^-$.
3123.44 *29*	(1/2,3/2)[#]	D	Jπ: 3015.5γ to 1/2$^-$.
3193.94 *29*	(1/2,3/2,5/2$^+$)[#]	D	
3257.61 *22*	(1/2$^-$,3/2)[#]	D	Jπ: 3152.5γ to 1/2$^-$, 3071.2γ to 5/2$^-$.
3379.40 *29*	(1/2$^-$,3/2)[#]	D	Jπ: 3271.3γ to 1/2$^-$, 3198.0γ to (5/2)$^-$.
3422.01 *25*	(1/2,3/2)[#]	D	Jπ: 3313.0γ to 1/2$^-$.

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Adopted Levels, Gammas (continued)

^{165}Dy Levels (continued)

E(level)[†]	J$^\pi$	XREF	Comments
3443.49 *29*	(1/2$^-$,3/2,5/2$^+$)[#]	D	J$^\pi$: 3261.7γ to (5/2)$^-$.
3455.39 *29*	(1/2,3/2)[#]	D	J$^\pi$: 3346.0γ to 1/2$^-$.
3473.72 *29*	(1/2,3/2)[#]	D	J$^\pi$: 2902.9γ to (1/2)$^-$.
3539.44 *29*	(1/2,3/2)[#]	D	J$^\pi$: 2969.4γ to (1/2)$^-$.
3587.41 *29*	(1/2$^-$,3/2,5/2$^+$)[#]	D	J$^\pi$: 3406.1γ to (5/2)$^-$.
3651.47 *25*	(1/2,3/2,5/2$^+$)[#]	D	
3849.24 *29*	(1/2,3/2,5/2$^+$)[#]	D	
3979.07 *29*	(1/2,3/2,5/2$^+$)[#]	D	
(5715.77 *4*)	1/2$^+$	D	E(level),J$^\pi$: s-wave capture state. S(n)=5715.96 *5* (2021Wa16).
(5717.96 *5*)	1/2,3/2$^-$	E	Additional information 3. E(level): S(n)=5715.96 *5* (2021Wa16), E(n)=2 keV. J$^\pi$: s- or p-wave capture in 0$^+$ g.s. of ^{164}Dy.
(5739.96 *5*)	1/2,3/2$^-$	E	Additional information 4. E(level): S(n)=5715.96 *5* (2021Wa16), E(n)=24 keV. J$^\pi$: s- or p-wave capture in 0$^+$ g.s. of ^{164}Dy.

[†] From a least-squares fit to Eγ data for levels populated in γ-ray studies and from (d,p) for other levels.
[‡] From $\gamma\gamma$(t) in (n,γ) E=thermal (1968Na21) for excited levels, except where noted otherwise.
[#] Primary γ from 1/2$^+$ plus additional arguments as given in comments.
[@] Band(A): ν7/2[633] band. A=9.3 keV.
[&] Band(B): ν5/2[512] band. A=11.0 keV.
[a] Band(C): K^π=3/2$^+$ band. K-2 γ vibration built on ν7/2[633], where K=7/2. A=9.2 keV.
[b] Band(D): ν1/2[521] band. A=11.0 keV, a=0.58.
[c] Band(E): K^π=3/2$^-$ band. 3/2[521]+(K−2 γ vibration built on ν1/2[521]; K=1/2) (1990Ka21). A=11.0 keV.
[d] Band(F): K^π=1/2$^-$ band. 1/2[510]+(K−2 γ vibration built on ν5/2[512]; K=5/2). A=11.0 keV, a=0.046.

Adopted Levels, Gammas (continued)

$\gamma(^{165}Dy)$

Band assignments are from 1990Ka21 in (n,γ) E=thermal and/or 1970Gr46 in (d,p).

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[#]	α[†]	Comments
83.3954	$(9/2)^+$	83.398 *2*	100	0.0	$7/2^+$	M1+E2	0.31 *+8−5*	4.16 *8*	B(M1)(W.u.)>0.18; B(E2)(W.u.)>900 α(K)=3.25 *9*; α(L)=0.71 *10*; α(M)=0.160 *25* α(N)=0.037 *6*; α(O)=0.0050 *6*; α(P)=0.000200 *7*
108.1562	$1/2^-$	108.159 *3*	100	0.0	$7/2^+$	E3		31.0 *4*	B(E3)(W.u.)=0.001757 *23* E_γ: weighted average of 108.160 *3* from ^{165}Dy IT decay and 108.157 *3* from (n,γ) E=thermal. Other: 108.28 *10* from ^{165}Tb β^- decay.
158.5895	$(3/2)^-$	50.434 *1*	100	108.1562	$1/2^-$	M1+E2	0.40 *+15−18*	8 *4*	B(M1)(W.u.)=0.009 *+16−4*; B(E2)(W.u.)=2.8×10^2 *+51−20* E_γ: from (n,γ) E=thermal. Other: 50.37 *12* from ^{165}Tb β^- decay.
180.9237	$(5/2)^-$	22.35[&] *2*		158.5895	$(3/2)^-$	(M1)		30.9 *4*	
		72.768 *1*	100	108.1562	$1/2^-$	E2		9.20 *13*	B(E2)(W.u.)=202 *+124−59* assuming no 22.35γ.
184.2552	$5/2^-$	184.252 *3*	100	0.0	$7/2^+$	E1		0.0604 *8*	B(E1)(W.u.)=3.4×10^{-5} *4* E_γ: weighted average of 184.08 *15* from ^{165}Tb β^- decay and 184.252 *2* from (n,γ) E=thermal.
186.0949	$(11/2^+)$	102.701 *2*	100 *21*	83.3954	$(9/2)^+$				
		186.100 *6*	48.5 *30*	0.0	$7/2^+$				
261.7712	$(7/2)^-$	77.514 *1*	100 *30*	184.2552	$5/2^-$	M1+E2	0.40 *+16−21*	5.29 *24*	B(M1)(W.u.)>0.12; B(E2)(W.u.)>426
		178.374 *4*	60 *6*	83.3954	$(9/2)^+$	E1		0.0658 *9*	B(E1)(W.u.)>6.2×10^{-5}
		261.771 *2*	78 *8*	0.0	$7/2^+$	E1		0.02424 *34*	B(E1)(W.u.)>2.5×10^{-5}
297.6844	$(7/2)^-$	116.760 *1*	54 *12*	180.9237	$(5/2)^-$	E2		1.535 *21*	Note that B(E2)(W.u.)>1740 exceeds RUL=1000.
		139.096 *2*	100 *22*	158.5895	$(3/2)^-$	E2		0.821 *11*	Note that B(E2)(W.u.)>1450 is larger than RUL=1000.
337.1639	$(9/2)^-$	39.480 *5*	1.2 *4*	297.6844	$(7/2)^-$				
		156.240 *1*	100 *10*	180.9237	$(5/2)^-$	E2		0.547 *8*	
360.6312	$(9/2)^-$	98.863 *2*	100 *43*	261.7712	$(7/2)^-$				
		174.554 *6*	1.7 *17*	186.0949	$(11/2^+)$				
		176.367 *5*	22.4 *17*	184.2552	$5/2^-$				
		277.238 *11*	17.2 *17*	83.3954	$(9/2)^+$				
533.4937	$5/2^-$	235.796 *12*	1.33 *11*	297.6844	$(7/2)^-$				
		271.721 *1*	22.3 *21*	261.7712	$(7/2)^-$	M1+E2	1.0 *+24−7*	0.117 *25*	
		349.241 *2*	100 *10*	184.2552	$5/2^-$	M1(+E2)	<1.2	0.065 *10*	
		352.574 *2*	10.6 *11*	180.9237	$(5/2)^-$	M1+E2	>0.3	0.055 *16*	
		374.903 *2*	8.7 *9*	158.5895	$(3/2)^-$	M1(+E2)	<0.6	0.059 *4*	
		425.335 *16*	8.7 *12*	108.1562	$1/2^-$	(E2)		0.02337 *33*	
		533.494 *9*	18.1 *16*	0.0	$7/2^+$				

$^{165}_{66}Dy_{99}$-7

Adopted Levels, Gammas (continued)

γ(^{165}Dy) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[#]	α[†]	Comments
538.6356	3/2$^+$	354.381 *1*	4.6 *4*	184.2552	5/2$^-$	E1		0.01143 *16*	
		357.714 *3*	3.44 *32*	180.9237	(5/2)$^-$	(E1)		0.01118 *16*	
		380.045 *1*	6.1 *7*	158.5895	(3/2)$^-$	E1		0.00967 *14*	
		430.478 *5*	6.1 *7*	108.1562	1/2$^-$	E1		0.00722 *10*	
		538.634 *4*	100 *11*	0.0	7/2$^+$	[E2]		0.01252 *18*	E_γ: weighted average of 538.85 *20* from ^{165}Tb β^- decay and 538.634 *3* from (n,γ) E=thermal.
570.2619	(1/2)$^-$	386.011 *2*	90 *8*	184.2552	5/2$^-$	E2		0.0307 *4*	
		411.679 *2*	100 *10*	158.5895	(3/2)$^-$	M1(+E2)	0.4 *4*	0.046 *6*	Poor-fit; level-energy difference=411.672.
		462.103 *3*	4.6 *5*	108.1562	1/2$^-$	[M1]		0.0364 *5*	
573.5853	(3/2)$^-$	311.812[@] *3*	<0.64[@]	261.7712	(7/2)$^-$				
		392.663 *2*	26.7 *29*	180.9237	(5/2)$^-$	M1(+E2)	<1.2	0.048 *8*	
		414.997 *3*	85 *10*	158.5895	(3/2)$^-$	M1(+E2)	<0.7	0.044 *4*	
		465.427 *3*	100 *12*	108.1562	1/2$^-$	M1(+E2)	<0.7	0.033 *3*	E_γ: from (n,γ) E=thermal. Other: 465.4 *3* from ^{165}Tb β^- decay.
583.9972	5/2$^+$	286.312 *2*	3.23 *32*	297.6844	(7/2)$^-$	E1		0.01933 *27*	
		322.224 *2*	1.16 *10*	261.7712	(7/2)$^-$				
		399.746 *3*	7.7 *10*	184.2552	5/2$^-$				
		403.073 *1*	12.9 *13*	180.9237	(5/2)$^-$	E1		0.00841 *12*	
		500.603 *7*	47 *5*	83.3954	(9/2)$^+$				E_γ: 1965Sc09 in (n,γ) E=thermal placed it also from 1158.4 level.
		583.994 *4*	100 *10*	0.0	7/2$^+$	M1+E2	0.7 *+5−4*	0.0200 *3*	
605.0967	(3/2)$^-$	34.849 *2*	0.010 *2*	570.2619	(1/2)$^-$	M1		8.28 *12*	Poor-fit; level-energy difference=34.835.
		343.323 *3*	7.7 *8*	261.7712	(7/2)$^-$	E2		0.0430 *6*	
		420.840 *3*	21.3 *23*	184.2552	5/2$^-$	E2		0.035 *11*	
		424.161 *8*	0.53 *5*	180.9237	(5/2)$^-$				
		446.506 *8*	0.52 *5*	158.5895	(3/2)$^-$				
		496.942 *3*	100 *12*	108.1562	1/2$^-$	M1(+E2)	<0.6	0.023 *7*	
607.6252	(5/2,7/2)$^-$	246.997 *2*	41 *4*	360.6312	(9/2)$^-$	M1,E2		0.15 *4*	
		270.461 *4*	10.6 *9*	337.1639	(9/2)$^-$				
		309.941 *2*	22.1 *18*	297.6844	(7/2)$^-$				
		345.849 *3*	93 *9*	261.7712	(7/2)$^-$	M1(+E2)	<1.1	0.068 *10*	
		423.366 *6*	100 *10*	184.2552	5/2$^-$	M1(+E2)	<1.5	0.038 *8*	
		426.696 *9*	42 *5*	180.9237	(5/2)$^-$				
		449.027 *9*	8.9 *9*	158.5895	(3/2)$^-$				
628.8384	(5/2)$^-$	90.208 *2*	0.08 *4*	538.6356	3/2$^+$				
		331.151 *10*	22.5 *25*	297.6844	(7/2)$^-$	M1(+E2)	<0.4	0.0841 *29*	
		444.564 *8*	0.20 *4*	184.2552	5/2$^-$				
		447.915 *2*	100 *10*	180.9237	(5/2)$^-$	M1(+E2)	0.5 *5*	0.036 *6*	
		470.251 *4*	51 *7*	158.5895	(3/2)$^-$	M1(+E2)	0.5 *+4−5*	0.031 *4*	
		520.679 *6*	1.02 *8*	108.1562	1/2$^-$				
648.9741	(7/2)$^+$	64.968 *5*	2.8 *8*	583.9972	5/2$^+$				

$^{165}_{66}Dy_{99}$-8

Adopted Levels, Gammas (continued)

γ(^{165}Dy) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[#]	α[†]	Comments
648.9741	(7/2)$^+$	110.328 *7*	1.0 *2*	538.6356	3/2$^+$				
		311.812[@] *3*	<6.6[@]	337.1639	(9/2)$^-$				
		351.283 *5*	5.8 *6*	297.6844	(7/2)$^-$				
		387.207 *4*	9.2 *8*	261.7712	(7/2)$^-$				
		462.883 *7*	16.8 *18*	186.0949	(11/2$^+$)				
		464.61 *6*	4 *1*	184.2552	5/2$^-$				
		565.578 *3*	100 *10*	83.3954	(9/2)$^+$	E2		0.01107 *15*	
		648.962 *5*	54 *10*	0.0	7/2$^+$	M1+E2	0.9 *+26−9*	0.012 *4*	
657.9997	(5/2)$^-$	52.906 *1*	2.1 *4*	605.0967	(3/2)$^-$				
		297.370 *3*	2.60 *25*	360.6312	(9/2)$^-$	(E2)		0.0663 *9*	
		396.222 *3*	15.0 *15*	261.7712	(7/2)$^-$	M1,E2		0.041 *13*	
		473.737 *3*	11.0 *11*	184.2552	5/2$^-$				
		477.072 *3*	100 *15*	180.9237	(5/2)$^-$	M1+E2		0.025 *8*	E_γ: 1965Sc09 placed this γ also from 1015.9 level.
		499.407 *4*	96 *11*	158.5895	(3/2)$^-$	M1,E2		0.022 *7*	
		549.81 *3*	0.50 *5*	108.1562	1/2$^-$				
702.892	(5/2$^-$,7/2$^-$,9/2$^-$)	342.269 *10*	42 *8*	360.6312	(9/2)$^-$				
		365.724 *7*	50 *8*	337.1639	(9/2)$^-$				
		441.120 *19*	100 *8*	261.7712	(7/2)$^-$				
705.9112	(7/2)$^-$	100.792[&] *2*	0.69 *35*	605.0967	(3/2)$^-$				Poor-fit; level-energy difference=100.815.
		121.898 *10*	2.4 *7*	583.9972	5/2$^+$				
		368.749 *2*	61 *7*	337.1639	(9/2)$^-$	M1(+E2)	<1.6	0.054 *11*	
		408.229 *3*	100 *10*	297.6844	(7/2)$^-$				
		444.139 *8*	5.17 *35*	261.7712	(7/2)$^-$				
		524.983 *4*	61 *6*	180.9237	(5/2)$^-$				
737.8585	(7/2)$^-$	79.866 *4*	3.6 *7*	657.9997	(5/2)$^-$	M1,E2		5.5 *9*	α(K)=2.9 *10*; α(L)=2.0 *15*; α(M)=0.48 *35* α(N)=0.11 *8*; α(O)=0.013 *9*; α(P)=1.6×10^{-4} *8*
		132.767 *5*	0.65 *32*	605.0967	(3/2)$^-$				
		377.221 *6*	4.84 *32*	360.6312	(9/2)$^-$				
		400.682 *4*	9.4 *10*	337.1639	(9/2)$^-$				
		440.169 *13*	17.7 *23*	297.6844	(7/2)$^-$				
		556.938 *6*	100 *10*	180.9237	(5/2)$^-$	E2(+M1)	>0.8	0.0149 *34*	
911.9734	5/2$^+$	253.556[&] *15*	0.13 *13*	657.9997	(5/2)$^-$				Poor-fit; level-energy difference=253.974.
		304.367[&] *4*	0.250 *31*	607.6252	(5/2,7/2)$^-$				Poor-fit; level-energy difference=304.348.
		378.487 *4*	1.91 *22*	533.4937	5/2$^-$				
		828.569 *17*	2.8 *6*	83.3954	(9/2)$^+$				
		911.966 *4*	100 *19*	0.0	7/2$^+$	M1+E2	>0.4	0.0050 *13*	
976.785	(7/2,9/2)$^+$	64.757 *12*	2 *1*	911.9734	5/2$^+$				Poor-fit; level-energy difference=64.811.
		790.58 *5*	3.7 *13*	186.0949	(11/2$^+$)				
		893.421 *9*	100 *20*	83.3954	(9/2)$^+$	M1		0.00698 *10*	Poor-fit; level-energy difference=893.387.

Adopted Levels, Gammas (continued)

γ(^{165}Dy) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[#]	α[†]	Comments
976.785	(7/2,9/2)$^+$	976.66 *19*	47 *13*	0.0	7/2$^+$			
1016.0757	(5/2$^+$)	104.104 *2*	5.5 *11*	911.9734	5/2$^+$			
		367.094 *4*	2.21 *19*	648.9741	(7/2)$^+$			
		408.453 *6*	3.5 *4*	607.6252	(5/2,7/2)$^-$			
		432.083 *6*	4.3 *5*	583.9972	5/2$^+$			
		442.55 *4*	0.77 *10*	573.5853	(3/2)$^-$			
		482.591 *6*	4.7 *5*	533.4937	5/2$^-$			
		754.298 *8*	21 *4*	261.7712	(7/2)$^-$			
		831.822 *9*	37 *8*	184.2552	5/2$^-$			
		932.657 *11*	65 *14*	83.3954	(9/2)$^+$			
		1016.100 *15*	100 *21*	0.0	7/2$^+$			
1080.0402	(1/2,3/2)$^-$	451.205 *3*	9.2 *10*	628.8384	(5/2)$^-$			
		474.945 *3*	46 *5*	605.0967	(3/2)$^-$			
		506.459 *4*	100 *10*	573.5853	(3/2)$^-$	(E2)	0.01466 *21*	
		509.772 *6*	5.7 *7*	570.2619	(1/2)$^-$			
		541.402 *5*	27.4 *28*	538.6356	3/2$^+$			
		546.543 *2*	47 *5*	533.4937	5/2$^-$	M1,E2	0.018 *6*	
		921.442 *22*	17 *4*	158.5895	(3/2)$^-$			
		971.85 *3*	5.5 *11*	108.1562	1/2$^-$			
1088.0114	(3/2$^-$)	459.168 *5*	4.6 *6*	628.8384	(5/2)$^-$			
		504.013 *6*	20.3 *20*	583.9972	5/2$^+$			
		514.426 *5*	19.4 *24*	573.5853	(3/2)$^-$			
		517.771 *11*	1.01 *10*	570.2619	(1/2)$^-$			
		549.371 *3*	25.3 *30*	538.6356	3/2$^+$			
		554.521 *11*	2.02 *30*	533.4937	5/2$^-$			
		903.736 *19*	12.9 *26*	184.2552	5/2$^-$			
		907.096 *18*	14.1 *30*	180.9237	(5/2)$^-$			
		929.399 *11*	48 *9*	158.5895	(3/2)$^-$			
		979.834 *21*	100 *20*	108.1562	1/2$^-$			
1103.0454	(3/2)$^-$	474.212 *4*	14.3 *16*	628.8384	(5/2)$^-$	M1	0.0340 *5*	
		495.429 *12*	0.44 *7*	607.6252	(5/2,7/2)$^-$			
		519.054 *4*	9.6 *10*	583.9972	5/2$^+$			
		529.451 *14*	17.7 *18*	573.5853	(3/2)$^-$	M1,E2	0.019 *6*	
		532.748 *23*	0.74 *15*	570.2619	(1/2)$^-$			
		564.409 *2*	35 *4*	538.6356	3/2$^+$			
		569.566[@] *6*	<66[@]	533.4937	5/2$^-$			
		805.32 *5*	1.25 *22*	297.6844	(7/2)$^-$			
		841.38 *5*	1.8 *4*	261.7712	(7/2)$^-$			
		918.803 *14*	11.8 *22*	184.2552	5/2$^-$			
		922.113 *13*	14.7 *30*	180.9237	(5/2)$^-$			
		944.433 *7*	60 *12*	158.5895	(3/2)$^-$			Ice(K)=0.0021 *11*.

$^{165}_{66}Dy_{99}$-10

Adopted Levels, Gammas (continued)

γ(^{165}Dy) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[#]	α[†]
1103.0454	$(3/2)^-$	994.870 *8*	100 *20*	108.1562	$1/2^-$		
1108.2015	$(3/2)^+$	196.231[@] *10*	<2.1[@]	911.9734	$5/2^+$		
		450.213 *12*	1.51 *14*	657.9997	$(5/2)^-$		
		479.372 *4*	27.7 *29*	628.8384	$(5/2)^-$		
		524.202 *2*	63 *7*	583.9972	$5/2^+$	M1	0.0263 *4*
		534.617 *4*	62 *6*	573.5853	$(3/2)^-$		
		537.99[@] *3*	<18[@]	570.2619	$(1/2)^-$		
		569.566[@] *6*	<123[@]	538.6356	$3/2^+$	M1	0.0213 *3*
		574.705 *6*	5.9 *6*	533.4937	$5/2^-$		
		923.96 *6*	8.0 *18*	184.2552	$5/2^-$		
		927.22 *3*	15.2 *32*	180.9237	$(5/2)^-$		
		949.622 *21*	12.1 *23*	158.5895	$(3/2)^-$		
		1108.204 *13*	100 *21*	0.0	$7/2^+$		
1135.8124	$(5/2^-)$	397.962 *9*	1.22 *21*	737.8585	$(7/2)^-$		
		486.841 *6*	18.0 *21*	648.9741	$(7/2)^+$		
		506.980 *15*	6.3 *10*	628.8384	$(5/2)^-$		
		551.814 *5*	11.2 *10*	583.9972	$5/2^+$		
		562.227 *5*	8 *1*	573.5853	$(3/2)^-$		
		597.167 *8*	25.9 *27*	538.6356	$3/2^+$		
		838.162 *25*	22 *5*	297.6844	$(7/2)^-$		
		951.60 *5*	10.6 *23*	184.2552	$5/2^-$		
		954.865 *11*	88 *18*	180.9237	$(5/2)^-$		
		977.18 *5*	100 *21*	158.5895	$(3/2)^-$		
		1027.80 *15*	4.9 *12*	108.1562	$1/2^-$		
1140.8668	$(3/2^+)$	228.922[@] *21*	1.2[@] *6*	911.9734	$5/2^+$		
		512.00 *5*	4.2 *7*	628.8384	$(5/2)^-$		
		535.767 *3*	100 *10*	605.0967	$(3/2)^-$		
		570.604 *6*	81 *8*	570.2619	$(1/2)^-$		
		602.244 *8*	5 *1*	538.6356	$3/2^+$		
		982.257 *24*	82 *16*	158.5895	$(3/2)^-$		
		1032.82 *5*	6.5 *14*	108.1562	$1/2^-$		
1158.1192	$(5/2^+)$	420.40 *5*	7 *6*	737.8585	$(7/2)^-$		
		452.208 *4*	16.8 *18*	705.9112	$(7/2)^-$		
		509.139 *7*	37 *8*	648.9741	$(7/2)^+$		
		529.282 *4*	22.4 *24*	628.8384	$(5/2)^-$		
		553.002 *10*	10.6 *9*	605.0967	$(3/2)^-$		
		574.122 *3*	46 *5*	583.9972	$5/2^+$		
		584.524 *17*	23.2 *32*	573.5853	$(3/2)^-$		
		619.480 *10*	56 *12*	538.6356	$3/2^+$		
		1074.75 *5*	33 *7*	83.3954	$(9/2)^+$		
		1158.08 *3*	100 *21*	0.0	$7/2^+$		

$^{165}_{66}Dy_{99}$-11

Adopted Levels, Gammas (continued)

γ(^{165}Dy) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[#]	α[†]	Comments
1166.8927	(3/2)$^-$	508.899 *3*	100 *11*	657.9997	(5/2)$^-$	(E2)		0.01447 *20*	
		537.99[@] *3*	<15.5[@]	628.8384	(5/2)$^-$				
		561.794 *4*	6.2 *6*	605.0967	(3/2)$^-$				
		593.282 *12*	3.3 *4*	573.5853	(3/2)$^-$				
		596.626 *3*	73 *8*	570.2619	(1/2)$^-$	E2		0.00970 *14*	
		1008.272 *17*	37 *7*	158.5895	(3/2)$^-$				
1174.9530	(3/2,5/2)$^-$	86.930 *6*	1.72 *35*	1088.0114	(3/2$^-$)				
		437.090 *6*	5.52 *35*	737.8585	(7/2)$^-$				
		469.045 *4*	54 *6*	705.9112	(7/2)$^-$				
		546.123 *6*	23.1 *24*	628.8384	(5/2)$^-$				
		567.318 *13*	13.5 *24*	607.6252	(5/2,7/2)$^-$				
		590.963 *14*	22.4 *21*	583.9972	5/2$^+$				
		601.366 *6*	15.2 *31*	573.5853	(3/2)$^-$				
		636.41 *4*	14.8 *28*	538.6356	3/2$^+$				
		641.441 *15*	9.3 *17*	533.4937	5/2$^-$				
		990.673 *25*	55 *10*	184.2552	5/2$^-$				
		994.01 *3*	100 *21*	180.9237	(5/2)$^-$	M1(+E2)	<1.2	0.0047 *7*	
		1016.53 *8*	62 *21*	158.5895	(3/2)$^-$				
1218.3554	(5/2$^+$)	130.370 *20*	4.9 *24*	1088.0114	(3/2$^-$)				
		480.491 *5*	52 *6*	737.8585	(7/2)$^-$				
		512.448 *5*	11.6 *11*	705.9112	(7/2)$^-$				
		560.352 *7*	5.14 *27*	657.9997	(5/2)$^-$				
		589.490 *13*	6.0 *6*	628.8384	(5/2)$^-$				
		610.79 *4*	2.7 *6*	607.6252	(5/2,7/2)$^-$				
		613.259 *3*	100 *19*	605.0967	(3/2)$^-$				
		644.768 *11*	8.4 *16*	573.5853	(3/2)$^-$				
		920.666 *11*	78 *16*	297.6844	(7/2)$^-$				
1256.503	(3/2)	598.56 *3*	0.35 *6*	657.9997	(5/2)$^-$				
		651.43 *3*	2.7 *10*	605.0967	(3/2)$^-$				
		672.90 *19*	1.06 *30*	583.9972	5/2$^+$				
		686.29 *4*	0.88 *18*	570.2619	(1/2)$^-$				
		717.80 *4*	2.3 *5*	538.6356	3/2$^+$				
		1072.212 *9*	100 *18*	184.2552	5/2$^-$				Poor-fit; level-energy difference=1072.244.
1309.302	(3/2$^-$,5/2$^-$)	704.29 *4*	2.7 *4*	605.0967	(3/2)$^-$				
		1047.52 *3*	100 *21*	261.7712	(7/2)$^-$				
		1125.032 *20*	60 *13*	184.2552	5/2$^-$				
		1128.40 *10*	12 *4*	180.9237	(5/2)$^-$				
		1150.55 *8*	6.7 *15*	158.5895	(3/2)$^-$				
		1201.15 *11*	8.5 *23*	108.1562	1/2$^-$				
1320.811	(1/2$^-$,3/2,5/2$^-$)	64.312 *6*	13.3 *33*	1256.503	(3/2)				
		212.611 *12*	1.7 *17*	1108.2015	(3/2)$^+$				

Adopted Levels, Gammas (continued)

γ(^{165}Dy) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Comments
1320.811	(1/2$^-$,3/2,5/2$^-$)	1136.43 *4*	100 *20*	184.2552	5/2$^-$	
		1139.77 *8*	45 *10*	180.9237	(5/2)$^-$	
		1161.83 *10*	95 *20*	158.5895	(3/2)$^-$	Poor-fit; level-energy difference=1162.217.
		1212.51 *21*	57 *13*	108.1562	1/2$^-$	
1337.103	(1/2$^+$,3/2$^+$)	196.231[@] *10*	<1.5[@]	1140.8668	(3/2$^+$)	
		228.922[@] *21*	<1.3[@]	1108.2015	(3/2)$^+$	
		234.065 *6*	0.49 *10*	1103.0454	(3/2)$^-$	
		249.082 *6*	0.69 *10*	1088.0114	(3/2$^-$)	
		257.052 *22*	0.69 *10*	1080.0402	(1/2,3/2)$^-$	
		1178.47 *4*	100 *5*	158.5895	(3/2)$^-$	E_γ: weighted average of 1178.53 *15* from ^{165}Tb β^- decay and 1178.46 *4* from (n,γ) E=thermal. I_γ: from ^{165}Tb β^- decay. Other: 100 *21* from (n,γ) E=thermal.
		1228.94 *5*	11.7 *32*	108.1562	1/2$^-$	E_γ: from (n,γ) E=thermal. Other: 1228.95 *30* from ^{165}Tb β^- decay. I_γ: weighted average of 9.2 *24* from ^{165}Tb β^- decay and 15.7 *30* from (n,γ) E=thermal.
1376.3381	(3/2$^+$)	296.293 *3*	4.8 *4*	1080.0402	(1/2,3/2)$^-$	
		360.278 *6*	5.7 *9*	1016.0757	(5/2$^+$)	
		718.21 *7*	9.6 *22*	657.9997	(5/2)$^-$	
		792.385 *20*	9.6 *18*	583.9972	5/2$^+$	
		837.710 *22*	100 *22*	538.6356	3/2$^+$	
		1192.18 *7*	31 *7*	184.2552	5/2$^-$	
		1195.44 *17*	91 *22*	180.9237	(5/2)$^-$	
		1217.72 *5*	65 *13*	158.5895	(3/2)$^-$	
		1268.13 *3*	100 *22*	108.1562	1/2$^-$	
1380.886	(5/2$^+$)	277.843 *5*	1.28 *26*	1103.0454	(3/2)$^-$	
		292.893 *10*	0.77 *26*	1088.0114	(3/2$^-$)	
		674.87 *9*	5.1 *10*	705.9112	(7/2)$^-$	
		731.871 *23*	10.0 *18*	648.9741	(7/2)$^+$	
		775.71 *4*	4.6 *10*	605.0967	(3/2)$^-$	
		807.34 *9*	6.4 *13*	573.5853	(3/2)$^-$	
		842.14 *6*	7.7 *15*	538.6356	3/2$^+$	
		847.44 *9*	4.6 *13*	533.4937	5/2$^-$	
		1083.175 *15*	100 *21*	297.6844	(7/2)$^-$	
		1199.97 *9*	17 *5*	180.9237	(5/2)$^-$	
		1222.32 *6*	54 *10*	158.5895	(3/2)$^-$	
1400.2743	(3/2$^+$)	320.236 *3*	2.08 *14*	1080.0402	(1/2,3/2)$^-$	
		742.264 *15*	5.1 *10*	657.9997	(5/2)$^-$	
		795.30 *6*	1.9 *4*	605.0967	(3/2)$^-$	
		816.272 *14*	12.2 *24*	583.9972	5/2$^+$	
		826.64 *5*	28 *24*	573.5853	(3/2)$^-$	E_γ: weighted average of 826.20 *25* from ^{165}Tb β^- decay and 826.65 *3* from

$^{165}_{66}Dy_{99}$-13

Adopted Levels, Gammas (continued)

γ(^{165}Dy) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Comments
						(n,γ) E=thermal.
						I_γ: unweighted average of 52 *9* from ^{165}Tb β^- decay and 3.8 *7* from (n,γ) E=thermal.
1400.2743	(3/2$^+$)	1219.23 *3*	36 *6*	180.9237	(5/2)$^-$	E_γ: from (n,γ) E=thermal. Other: 1219.2 *3* from ^{165}Tb β^- decay.
						I_γ: from ^{165}Tb β^- decay. Other: 35 *8* from (n,γ) E=thermal.
						Poor-fit; level-energy difference=1219.346.
		1241.64 *4*	44 *4*	158.5895	(3/2)$^-$	E_γ: from (n,γ) E=thermal. Other: 1241.65 *25* from ^{165}Tb β^- decay.
						I_γ: from ^{165}Tb β^- decay. Other: 44 *8* from (n,γ) E=thermal.
		1292.03 *4*	100 *9*	108.1562	1/2$^-$	E_γ: from (n,γ) E=thermal. Other: 1292.05 *20* from ^{165}Tb β^- decay.
						I_γ: from ^{165}Tb β^- decay. Other: 100 *20* from (n,γ) E=thermal.
1416.3385	(3/2)	258.217 *6*	0.88 *30*	1158.1192	(5/2$^+$)	
		313.293 *2*	10.6 *9*	1103.0454	(3/2)$^-$	
		328.328 *2*	18.5 *18*	1088.0114	(3/2$^-$)	
		336.299 *4*	17.7 *18*	1080.0402	(1/2,3/2)$^-$	
		811.248 *11*	50 *12*	605.0967	(3/2)$^-$	
		842.73 *3*	18 *4*	573.5853	(3/2)$^-$	
		846.058 *7*	71 *15*	570.2619	(1/2)$^-$	
		882.833[@] *13*	<44[@]	533.4937	5/2$^-$	
		1257.68 *5*	100 *21*	158.5895	(3/2)$^-$	
1440.470	(5/2$^+$)	131.145 *22*	2.2 *9*	1309.302	(3/2$^-$,5/2$^-$)	
		791.34 *6*	12.2 *26*	648.9741	(7/2)$^+$	
		856.526 *22*	34 *7*	583.9972	5/2$^+$	
		1142.73 *8*	19 *4*	297.6844	(7/2)$^-$	
		1256.10 *9*	100 *22*	184.2552	5/2$^-$	
1444.721	(3/2$^-$,5/2$^+$)	277.74 *4*	1.15 *33*	1166.8927	(3/2)$^-$	
		303.89 *7*	1.8 *8*	1140.8668	(3/2$^+$)	
		860.61 *4*	21 *4*	583.9972	5/2$^+$	
		871.09 *3*	4.4 *8*	573.5853	(3/2)$^-$	
		906.066 *20*	77 *17*	538.6356	3/2$^+$	
		1182.98 *5*	30 *7*	261.7712	(7/2)$^-$	
		1260.531 *19*	100 *21*	184.2552	5/2$^-$	Poor-fit; level-energy difference=1260.461.
1456.399	(3/2)	320.549[&] *5*	7.4 *6*	1135.8124	(5/2$^-$)	Poor-fit; level-energy difference=320.586.
		368.352 *14*	4.41 *30*	1088.0114	(3/2$^-$)	
		798.398 *7*	100 *21*	657.9997	(5/2)$^-$	
		827.57 *4*	11.8 *32*	628.8384	(5/2)$^-$	
		848.90 *11*	9 *4*	607.6252	(5/2,7/2)$^-$	
		851.38 *5*	12.9 *30*	605.0967	(3/2)$^-$	
		872.398 *11*	50 *9*	583.9972	5/2$^+$	
		882.833[@] *13*	<44[@]	573.5853	(3/2)$^-$	
		886.09 *3*	29 *6*	570.2619	(1/2)$^-$	

$^{165}_{66}Dy_{99}$-14

Adopted Levels, Gammas (continued)

γ(^{165}Dy) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[#]	α[†]
1456.399	(3/2)	1272.55 *24*	32 *7*	184.2552	$5/2^-$			
		1275.42 *12*	36 *7*	180.9237	$(5/2)^-$			
		1297.87 *4*	88 *18*	158.5895	$(3/2)^-$			
1464.8488	$(3/2)^-$	127.719 *14*	0.41 *21*	1337.103	$(1/2^+,3/2^+)$			
		155.547 *3*	0.41 *21*	1309.302	$(3/2^-,5/2^-)$			
		208.339 *4*	3.7 *4*	1256.503	(3/2)			
		306.733 *11*	3.9 *4*	1158.1192	$(5/2^+)$			
		323.994 *11*	0.20 *21*	1140.8668	$(3/2^+)$			
		329.041 *16*	1.02 *21*	1135.8124	$(5/2^-)$			
		356.659 *5*	11.0 *12*	1108.2015	$(3/2)^+$			
		376.832 *4*	4.1 *4*	1088.0114	$(3/2^-)$			
		384.813 *4*	2.25 *21*	1080.0402	$(1/2,3/2)^-$			
		835.987 *23*	8.6 *18*	628.8384	$(5/2)^-$			
		880.839 *22*	8.0 *16*	583.9972	$5/2^+$			
		891.319 *25*	31 *6*	573.5853	$(3/2)^-$			
		926.187 *11*	67 *14*	538.6356	$3/2^+$			
		931.351 *10*	100 *21*	533.4937	$5/2^-$	M1(+E2)	<0.8	0.0058 *5*
		1203.19 *6*	33 *6*	261.7712	$(7/2)^-$			
		1280.63 *4*	37 *10*	184.2552	$5/2^-$			
1479.1326	$(3/2^-,5/2^-)$	376.088 *2*	22.9 *22*	1103.0454	$(3/2)^-$			
		391.120 *4*	9.6 *11*	1088.0114	$(3/2^-)$			
		850.288 *12*	41 *8*	628.8384	$(5/2)^-$			
		905.527 *14*	100 *22*	573.5853	$(3/2)^-$			
		945.82 *12*	13.2 *29*	533.4937	$5/2^-$			
		1181.32 *6*	54 *11*	297.6844	$(7/2)^-$			
		1320.45 *4*	75 *14*	158.5895	$(3/2)^-$			
		1370.92 *3*	100 *22*	108.1562	$1/2^-$			
1482.061	$(5/2^-)$	101.175 *1*	2.9 *5*	1380.886	$(5/2^+)$			
		833.04 *4*	34 *7*	648.9741	$(7/2)^+$			
		943.55 *10*	18 *5*	538.6356	$3/2^+$			
		1121.57 *13*	39 *8*	360.6312	$(9/2)^-$			
		1184.31 *3*	100 *19*	297.6844	$(7/2)^-$			
		1220.32 *7*	47 *11*	261.7712	$(7/2)^-$			
		1301.34 *10*	46 *10*	180.9237	$(5/2)^-$			
		1323.44 *8*	71 *14*	158.5895	$(3/2)^-$			
		1373.53 *17*	28 *8*	108.1562	$1/2^-$			
1773.22	$(1/2,3/2,2,5/2^-)$	1234.9 *3*	23 *4*	538.6356	$3/2^+$			
		1614.65 *30*	42 *5*	158.5895	$(3/2)^-$			
		1664.80 *25*	100 *5*	108.1562	$1/2^-$			
1814.19	(3/2)	1632.74 *30*	100 *15*	180.9237	$(5/2)^-$			
		1705.5[&] *4*	56 *11*	108.1562	$1/2^-$			

$^{165}_{66}Dy_{99}$-15

Adopted Levels, Gammas (continued)

$\gamma(^{165}Dy)$ (continued)

E_i(level)	J_i^π	E_γ ‡	E_f	J_f^π	Comments
2271.21	(1/2⁻,3/2)	2088.5	180.9237	(5/2)⁻	Poor-fit; level-energy difference=2090.27.
		2113.4	158.5895	(3/2)⁻	
		2163.7	108.1562	1/2⁻	
2475.79	(1/2,3/2)	1904.2	570.2619	(1/2)⁻	
		2367.9	108.1562	1/2⁻	
2547.53	(1/2,3/2)	1972.9	573.5853	(3/2)⁻	
		2389.7	158.5895	(3/2)⁻	
		2439.6	108.1562	1/2⁻	
2610.04	(1/2,3/2)	2036.9	573.5853	(3/2)⁻	
		2501.5	108.1562	1/2⁻	
2705.64	(1/2,3/2)	2134.7	570.2619	(1/2)⁻	
		2167.9	538.6356	3/2⁺	
		2546.0	158.5895	(3/2)⁻	
2765.37	(1/2⁻,3/2)	2192.2	573.5853	(3/2)⁻	
		2227.8	538.6356	3/2⁺	
		2583.1	180.9237	(5/2)⁻	
		2606.0	158.5895	(3/2)⁻	
		2657.6	108.1562	1/2⁻	
2783.72	(1/2⁻,3/2)	2603.4	180.9237	(5/2)⁻	
		2674.6	108.1562	1/2⁻	
2793.14	(1/2,3/2)	2221.8	570.2619	(1/2)⁻	
		2634.6	158.5895	(3/2)⁻	
2852.64	(1/2,3/2)	2281.9	570.2619	(1/2)⁻	
		2314.6	538.6356	3/2⁺	
		2743.5	108.1562	1/2⁻	
2874.43	(1/2,3/2)	2304.2	570.2619	(1/2)⁻	
		2765.2	108.1562	1/2⁻	
2943.54	(1/2,3/2)	2370.7	573.5853	(3/2)⁻	
		2834.7	108.1562	1/2⁻	
2982.73	(1/2⁻,3/2)	2412.3	570.2619	(1/2)⁻	
		2803.5	180.9237	(5/2)⁻	
		2821.6	158.5895	(3/2)⁻	Poor-fit; level-energy difference=2824.12.
		2874.7	108.1562	1/2⁻	
3014.02	(1/2⁻,3/2,5/2⁺)	2475.8	538.6356	3/2⁺	
		2832.0	180.9237	(5/2)⁻	
		2855.7	158.5895	(3/2)⁻	
3051.82	(1/2⁻,3/2)	2478.9	573.5853	(3/2)⁻	
		2871.2	180.9237	(5/2)⁻	
		2942.5	108.1562	1/2⁻	
3123.44	(1/2,3/2)	2551.9	570.2619	(1/2)⁻	
		3015.5	108.1562	1/2⁻	
3193.94	(1/2,3/2,5/2⁺)	2655.9	538.6356	3/2⁺	

Adopted Levels, Gammas (continued)

γ(^{165}Dy) (continued)

E_i(level)	J_i^π	E_γ ‡	E_f	J_f^π	Comments
3193.94	(1/2,3/2,5/2$^+$)	3034.5	158.5895	(3/2)$^-$	
3257.61	(1/2$^-$,3/2)	2684.3	573.5853	(3/2)$^-$	
		3071.2	184.2552	5/2$^-$	Poor-fit; level-energy difference=3073.32.
		3098.3	158.5895	(3/2)$^-$	
		3152.5	108.1562	1/2$^-$	Poor-fit; level-energy difference=3149.42.
3379.40	(1/2$^-$,3/2)	3198.0	180.9237	(5/2)$^-$	
		3271.3	108.1562	1/2$^-$	
3422.01	(1/2,3/2)	2884.6	538.6356	3/2$^+$	
		3262.7	158.5895	(3/2)$^-$	
		3313.0	108.1562	1/2$^-$	
3443.49	(1/2$^-$,3/2,5/2$^+$)	2905.3	538.6356	3/2$^+$	
		3261.7	180.9237	(5/2)$^-$	
3455.39	(1/2,3/2)	3297.8	158.5895	(3/2)$^-$	
		3346.0	108.1562	1/2$^-$	
3473.72	(1/2,3/2)	2902.9	570.2619	(1/2)$^-$	
		3314.6	158.5895	(3/2)$^-$	
3539.44	(1/2,3/2)	2969.4	570.2619	(1/2)$^-$	
		2999.5	538.6356	3/2$^+$	
3587.41	(1/2$^-$,3/2,5/2$^+$)	3014.1	573.5853	(3/2)$^-$	
		3406.1	180.9237	(5/2)$^-$	
3651.47	(1/2,3/2,5/2$^+$)	3075.9	573.5853	(3/2)$^-$	Poor-fit; level-energy difference=3077.9.
		3115.4	538.6356	3/2$^+$	Poor-fit; level-energy difference=3112.8.
		3492.2	158.5895	(3/2)$^-$	
3849.24	(1/2,3/2,5/2$^+$)	3275.1	573.5853	(3/2)$^-$	
		3691.2	158.5895	(3/2)$^-$	
3979.07	(1/2,3/2,5/2$^+$)	3406.0	573.5853	(3/2)$^-$	
		3820.0	158.5895	(3/2)$^-$	
(5715.77)	1/2$^+$	1736.8	3979.07	(1/2,3/2,5/2$^+$)	
		1866.6	3849.24	(1/2,3/2,5/2$^+$)	
		2064.3	3651.47	(1/2,3/2,5/2$^+$)	
		2128.3	3587.41	(1/2$^-$,3/2,5/2$^+$)	
		2175.3	3539.44	(1/2,3/2)	
		2241.0	3473.72	(1/2,3/2)	
		2260.2	3455.39	(1/2,3/2)	
		2271.9	3443.49	(1/2$^-$,3/2,5/2$^+$)	
		2293.5	3422.01	(1/2,3/2)	
		2336.0	3379.40	(1/2$^-$,3/2)	
		2458.7	3257.61	(1/2$^-$,3/2)	
		2521.6	3193.94	(1/2,3/2,5/2$^+$)	
		2591.3	3123.44	(1/2,3/2)	
		2663.8	3051.82	(1/2$^-$,3/2)	
		2701.4	3014.02	(1/2$^-$,3/2,5/2$^+$)	

$^{165}_{66}Dy_{99}$-17

$\gamma(^{165}Dy)$ (continued)

E_i(level)	J^π_i	E_γ‡	I_γ‡	E_f	J^π_f	Mult.#
(5715.77)	1/2+	2732.2		2982.73	(1/2−,3/2)	
		2772.3		2943.54	(1/2,3/2)	
		2840.3		2874.43	(1/2,3/2)	
		2862.3		2852.64	(1/2,3/2)	
		2921.6		2793.14	(1/2,3/2)	
		2931.7		2783.72	(1/2−,3/2)	
		2950.2		2765.37	(1/2−,3/2)	
		3009.3		2705.64	(1/2,3/2)	
		3105.8		2610.04	(1/2,3/2)	
		3168.2		2547.53	(1/2,3/2)	
		3238.9		2475.79	(1/2,3/2)	
		3444.2		2271.21	(1/2−,3/2)	
		3524.84 *23*	2.8 *4*	2190.89		
		3528.64 *23*	9.0 *14*	2187.09		
		3537.18 *23*	6.9 *10*	2178.55		
		3555.34 *23*	6.5 *10*	2160.38	(1/2+,3/2+,5/2+)	(M1,E2)
		3603.08 *23*	1.20 *18*	2112.64		
		3608.65 *23*	7.3 *12*	2107.07	(1/2+,3/2+,5/2+)	(M1,E2)
		3627.64 *23*	5.1 *8*	2088.08		
		3649.92 *23*	1.77 *28*	2065.80		
		3652.25 *23*	0.41 *6*	2063.47		
		3673.90 *23*	0.61 *10*	2041.82		
		3708.19 *22*	7.3 *12*	2007.53	(1/2+,3/2+,5/2+)	(M1,E2)
		3727.52 *23*	0.61 *10*	1988.20		
		3746.74 *23*	6.3 *10*	1968.98	(1/2+,3/2+,5/2+)	(M1,E2)
		3752.91 *23*	4.3 *6*	1962.81	(1/2+,3/2+,5/2+)	(M1,E2)
		3771.91 *22*	6.7 *10*	1943.81		
		3800.27 *23*	0.53 *8*	1915.45		
		3819.85 *22*	6.1 *10*	1895.87	(1/2+,3/2+,5/2+)	(M1,E2)
		3825.09 *23*	0.92 *14*	1890.63		
		3830.02 *23*	0.82 *12*	1885.70		
		3839.93 *22*	8.0 *12*	1875.79	(1/2+,3/2+,5/2+)	(M1,E2)
		3843.06 *22*	2.06 *30*	1872.66		
		3881.18 *22*	1.43 *22*	1834.54		
		3885.28 *21*	10.0 *16*	1830.44	(1/2+,3/2+,5/2+)	(M1,E2)
		3901.25 *22*	2.14 *31*	1814.19	(3/2)	
		3919.88 *21*	1.39 *22*	1795.84		
		3944.96 *21*	5.1 *8*	1770.76		
		3960.84 *22*	8.6 *14*	1754.87		
		3985.29 *24*	0.39 *6*	1730.42		
		4021.83 *24*	0.65 *10*	1693.88		
		4044.58 *21*	0.98 *16*	1671.13		

Adopted Levels, Gammas (continued)

γ(^{165}Dy) (continued)

E_i(level)	J^{π}_i	E_{γ}[‡]	I_{γ}[‡]	E_f	J^{π}_f	Mult.[#]
(5715.77)	1/2$^+$	4067.4 *4*	5.9 *10*	1648.3		
		4081.12 *22*	1.67 *26*	1634.59		
		4083.81 *21*	7.1 *10*	1631.90		
		4092.47 *21*	1.57 *24*	1623.24		
		4123.86 *21*	29 *4*	1591.85	(1/2$^-$,3/2$^-$)	(E1)
		4128.1 *3*	0.43 *6*	1587.61		
		4155.62 *21*	5.1 *8*	1560.09		
		4160.56 *22*	0.65 *10*	1555.15		
		4214.46 *23*	0.41 *6*	1501.25		
		4250.89 *21*	2.4 *4*	1464.8488	(3/2)$^-$	(E1)
		4259.62[&] *11*	0.333 *20*	1456.399	(3/2)	
		4270.95 *22*	0.53 *6*	1444.721	(3/2$^-$,5/2$^+$)	
		4275.31 *21*	2.28 *33*	1440.470	(5/2$^+$)	(E2)
		4315.47 *21*	2.9 *4*	1400.2743	(3/2$^+$)	(M1,E2)
		4334.85 *22*	0.92 *14*	1380.886	(5/2$^+$)	
		4339.51 *21*	2.3 *4*	1376.3381	(3/2$^+$)	(M1,E2)
		4459.32 *22*	4.1 *6*	1256.503	(3/2)	
		4497.52 *21*	1.73 *26*	1218.3554	(5/2$^+$)	
		4548.96 *21*	2.8 *4*	1166.8927	(3/2)$^-$	
		4557.63 *21*	0.69 *10*	1158.1192	(5/2$^+$)	
		4607.65 *21*	4.5 *6*	1108.2015	(3/2)$^+$	
		4612.73 *21*	15.5 *24*	1103.0454	(3/2)$^-$	(E1)
		4635.82 *21*	3.2 *5*	1080.0402	(1/2,3/2)$^-$	
		4699.79 *21*	0.84 *12*	1016.0757	(5/2$^+$)	
		4803.86 *21*	0.53 *8*	911.9734	5/2$^+$	
		5110.70 *21*	17.8 *28*	605.0967	(3/2)$^-$	E1
		5131.9[&] *2*	0.0353 *16*	583.9972	5/2$^+$	(E2)
		5142.22 *21*	21.6 *33*	573.5853	(3/2)$^-$	(E1)
		5145.57 *21*	24 *4*	570.2619	(1/2)$^-$	(E1)
		5177.15 *21*	17.5 *26*	538.6356	3/2$^+$	M1,E2
		5557.11 *21*	82 *12*	158.5895	(3/2)$^-$	E1
		5607.51 *21*	100 *16*	108.1562	1/2$^-$	(E1)
(5717.96)	1/2,3/2$^-$	4252.8 *3*	18.4 *21*	1464.8488	(3/2)$^-$	
		4260.1 *4*	31 *4*	1456.399	(3/2)	
		4264.2 *6*	18 *4*	1453.7		
		4272.6 *6*	16.9 *33*	1444.721	(3/2$^-$,5/2$^+$)	
		4277.0 *6*	15.9 *31*	1440.470	(5/2$^+$)	
		4301.0 *3*	19.3 *21*	1416.3385	(3/2)	
		4317.6 *3*	15.6 *20*	1400.2743	(3/2$^+$)	
		4337.0 *5*	17.0 *27*	1380.886	(5/2$^+$)	
		4341.8 *5*	15.6 *27*	1376.3381	(3/2$^+$)	

$^{165}_{66}$Dy$_{99}$-19

Adopted Levels, Gammas (continued)

γ(^{165}Dy) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π
(5717.96)	1/2,3/2$^-$	4365.6 *4*	12.7 *18*	1352.3	
		4380.8 *2*	20.4 *21*	1337.103	(1/2$^+$,3/2$^+$)
		4461.0 *4*	12.4 *18*	1256.503	(3/2)
		4499.2 *6*	7.7 *16*	1218.3554	(5/2$^+$)
		4550.6 *2*	24.2 *23*	1166.8927	(3/2)$^-$
		4559.8 *3*	18 *2*	1158.1192	(5/2$^+$)
		4576.9 *2*	21.8 *20*	1140.8668	(3/2$^+$)
		4610.4 *6*	15 *4*	1108.2015	(3/2)$^+$
		4614.8 *2*	48 *4*	1103.0454	(3/2)$^-$
		4630.0 *1*	49.4 *24*	1088.0114	(3/2$^-$)
		4637.9 *1*	46.6 *24*	1080.0402	(1/2,3/2)$^-$
		4807.5 *4*	8.7 *14*	911.9734	5/2$^+$
		5087.7 *9*	5.8 *14*	628.8384	(5/2)$^-$
		5112.4 *1*	70.8 *25*	605.0967	(3/2)$^-$
		5133.7 *3*	18 *2*	583.9972	5/2$^+$
		5144.0 *7*	27 *4*	573.5853	(3/2)$^-$
		5147.8 *1*	85 *5*	570.2619	(1/2)$^-$
		5179.5 *2*	40.9 *21*	538.6356	3/2$^+$
		5188.1 *7*	6.9 *16*	530.6	(1/2$^+$,3/2$^+$,5/2)
		5535.7 *5*	5.1 *16*	180.9237	(5/2)$^-$
		5558.8 *1*	100 *3*	158.5895	(3/2)$^-$
		5609.4 *1*	74.3 *24*	108.1562	1/2$^-$
(5739.96)	1/2,3/2$^-$	4276.4 *8*	18 *4*	1464.8488	(3/2)$^-$
		4283.0 *4*	40 *4*	1456.399	(3/2)
		4294.8 *11*	30 *12*	1444.721	(3/2$^-$,5/2$^+$)
		4298.9 *11*	29 *12*	1440.470	(5/2$^+$)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π
(5739.96)	1/2,3/2$^-$	4323.5 *4*	30 *4*	1416.3385	(3/2)
		4340.4 *4*	29.3 *34*	1400.2743	(3/2$^+$)
		4358.5 *4*	39 *4*	1380.886	(5/2$^+$)
		4365.2 *5*	28 *4*	1376.3381	(3/2$^+$)
		4403.2 *4*	38 *4*	1337.103	(1/2$^+$,3/2$^+$)
		4419.0 *7*	14.6 *30*	1320.811	(1/2$^-$,3/2,5/2$^-$)
		4483.3 *8*	12.5 *27*	1256.503	(3/2)
		4522.4 *5*	21.7 *30*	1218.3554	(5/2$^+$)
		4571.8 *5*	22.6 *28*	1166.8927	(3/2)$^-$
		4581.7 *7*	16.4 *28*	1158.1192	(5/2$^+$)
		4599.8 *3*	37.0 *34*	1140.8668	(3/2$^+$)
		4631.8 *8*	28 *7*	1108.2015	(3/2)$^+$
		4637.0 *6*	39 *7*	1103.0454	(3/2)$^-$
		4650.7 *4*	30.0 *32*	1088.0114	(3/2$^-$)
		4659.8 *5*	24.0 *32*	1080.0402	(1/2,3/2)$^-$
		4828.0 *7*	12.5 *28*	911.9734	5/2$^+$
		5110.7 *7*	33 *6*	628.8384	(5/2)$^-$
		5135.0 *2*	55.4 *32*	605.0967	(3/2)$^-$
		5156.2 *5*	35 *4*	583.9972	5/2$^+$
		5164.1 *22*	15 *7*	573.5853	(3/2)$^-$
		5169.6 *4*	68 *8*	570.2619	(1/2)$^-$
		5200.8 *3*	64 *4*	538.6356	3/2$^+$
		5208.0 *9*	17.6 *34*	530.6	(1/2$^+$,3/2$^+$,5/2)
		5558.8 *4*	49 *5*	180.9237	(5/2)$^-$
		5581.0 *3*	87 *7*	158.5895	(3/2)$^-$
		5631.8 *2*	100 *4*	108.1562	1/2$^-$

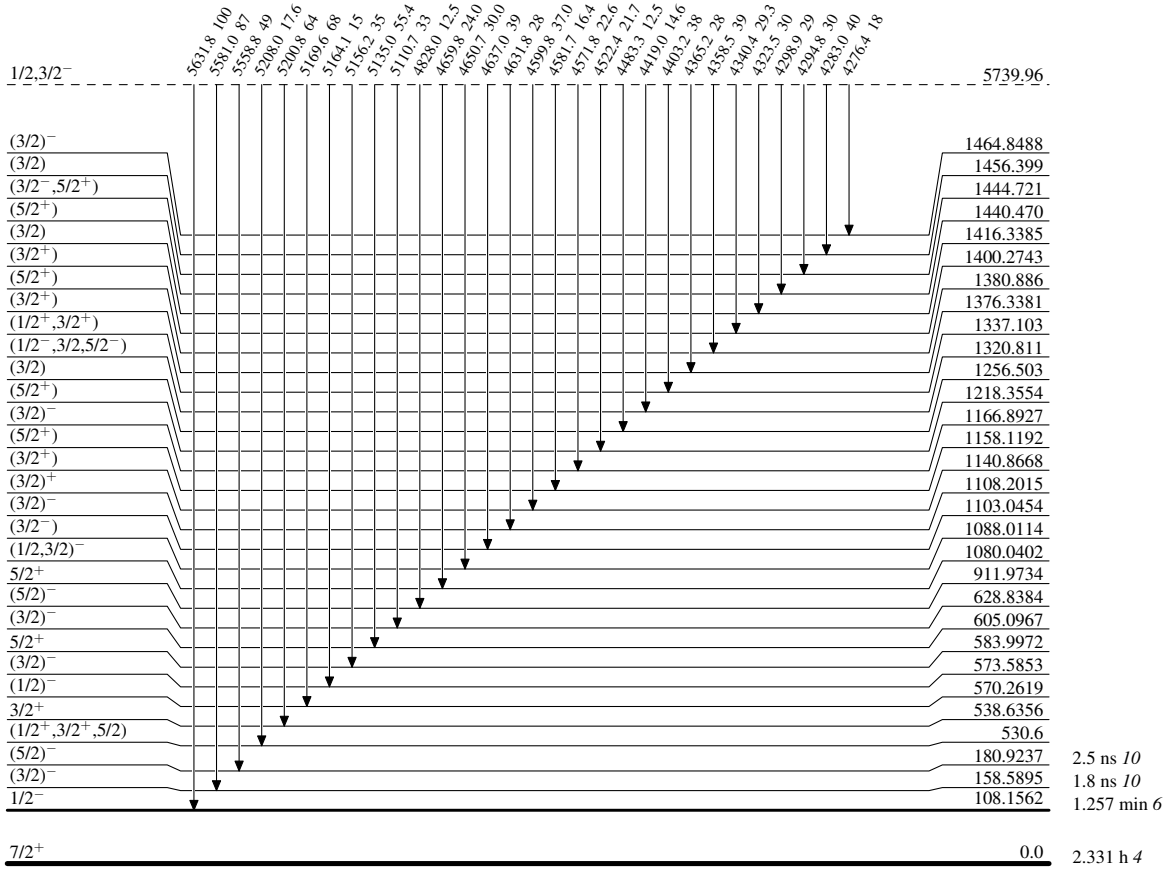
† Additional information 5.
‡ From ^{164}Dy(n,γ) E=thermal, unless otherwise noted.
# From ce data in ^{164}Dy(n,γ) E=thermal.
@ Multiply placed with undivided intensity.
& Placement of transition in the level scheme is uncertain.

$^{165}_{66}Dy_{99}$-20

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

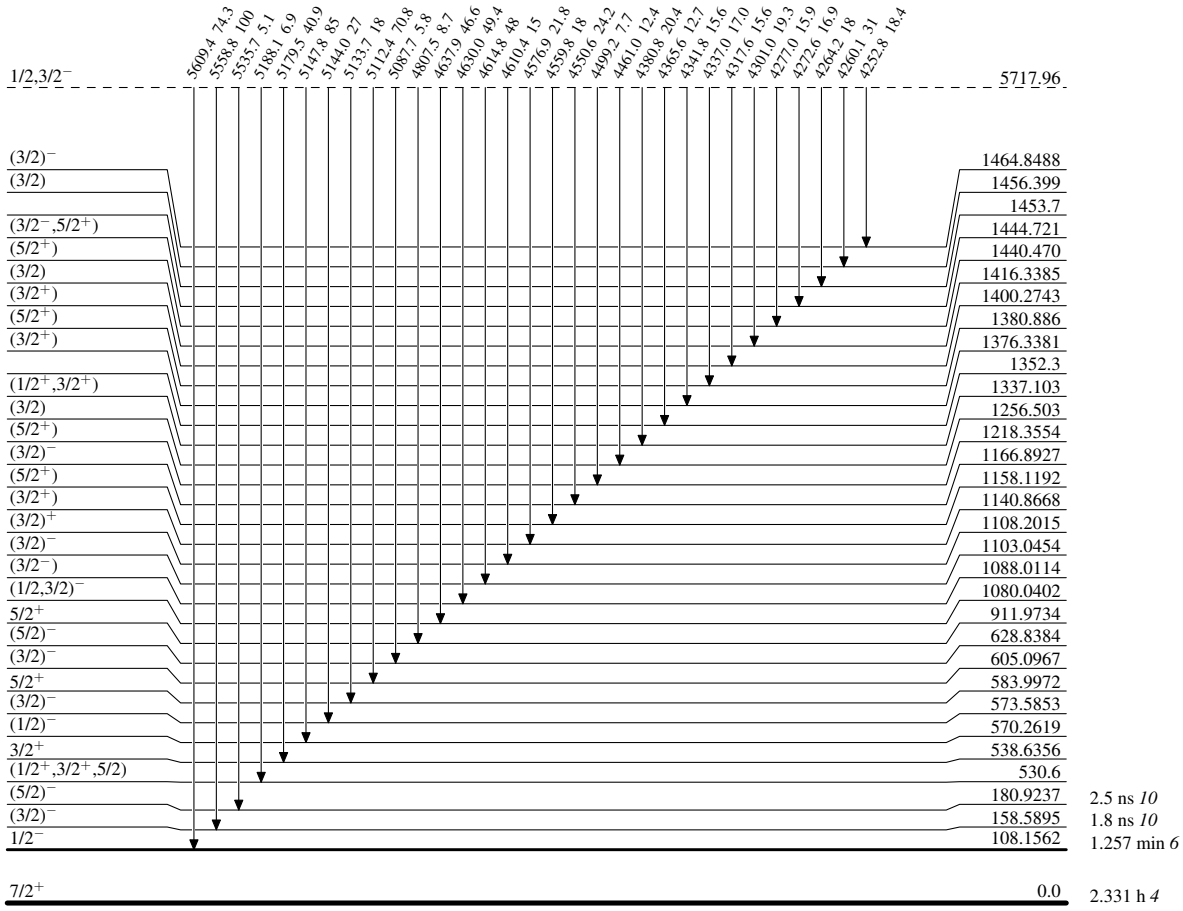


$^{165}_{66}Dy_{99}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



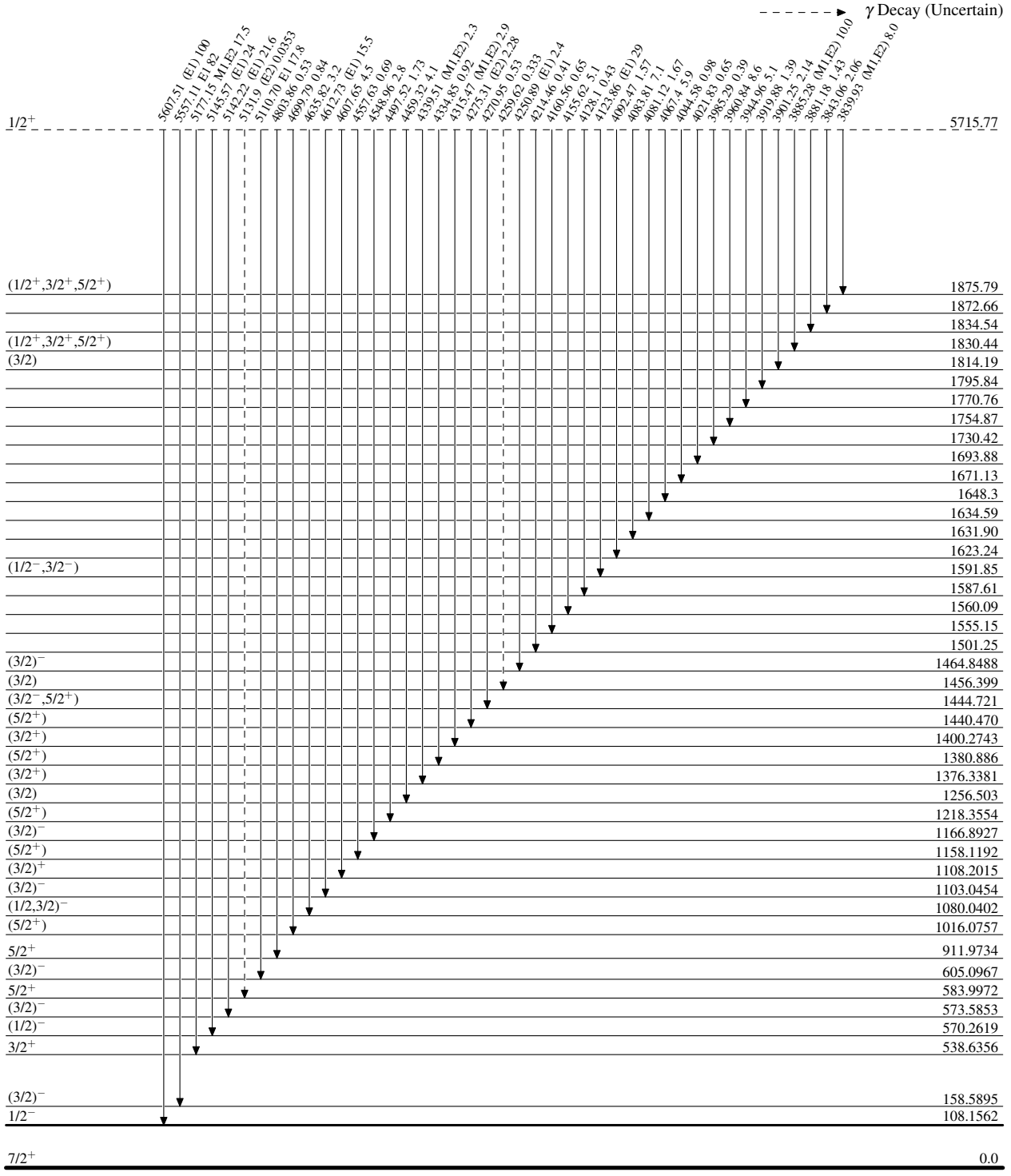
$^{165}_{66}Dy_{99}$

Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

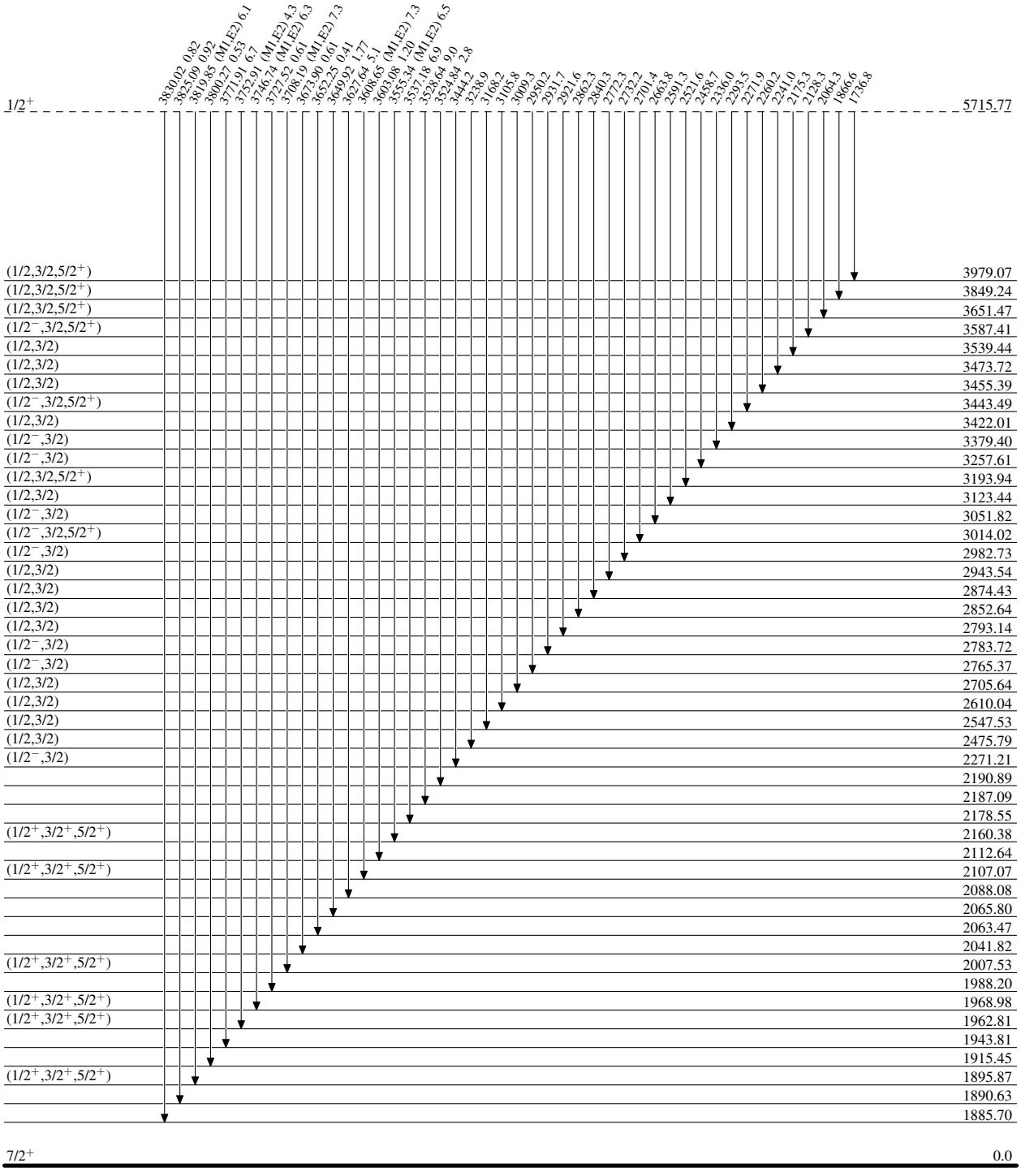


$^{165}_{66}Dy_{99}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

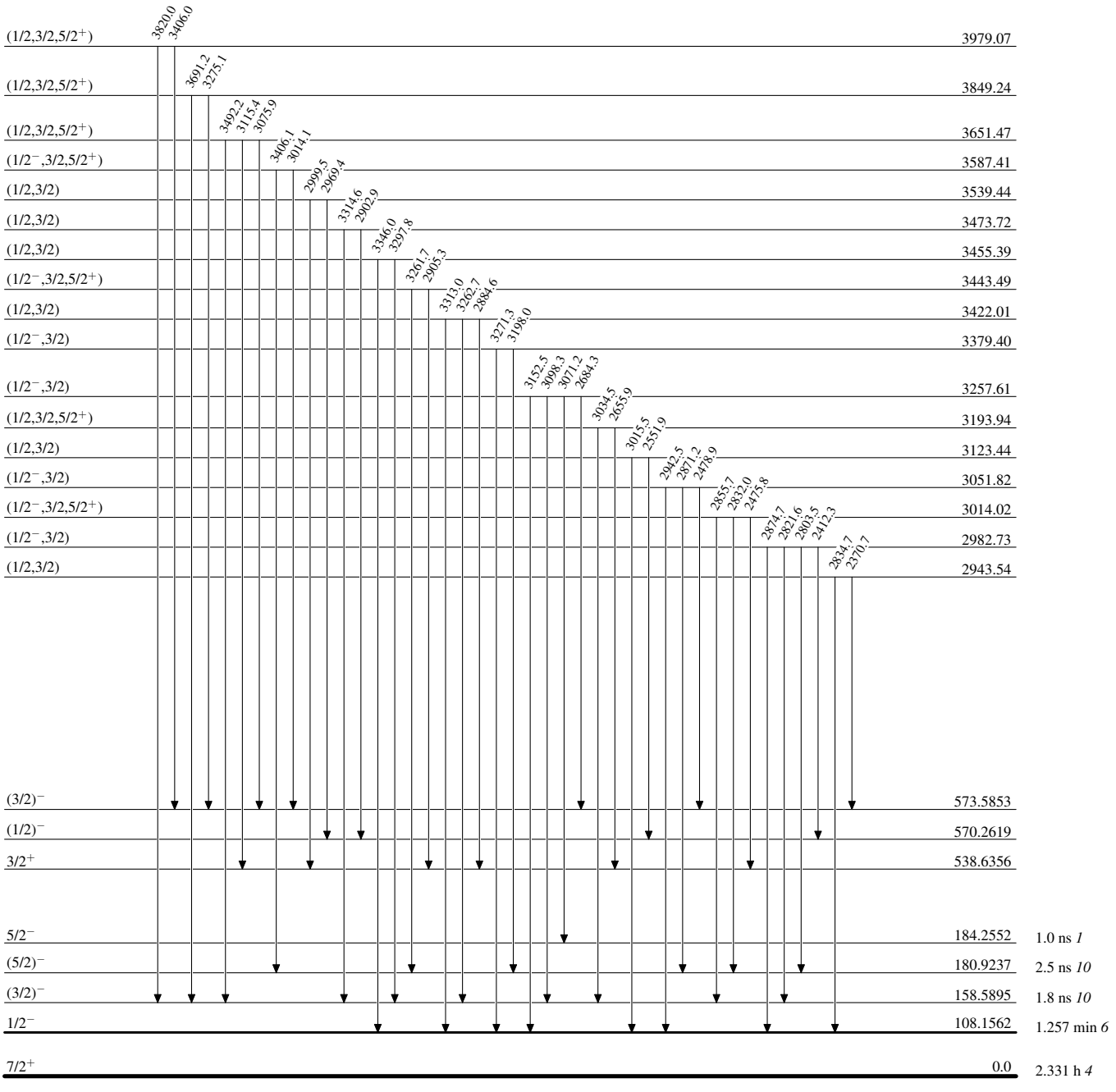


$^{165}_{66}Dy_{99}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{165}_{66}Dy_{99}$

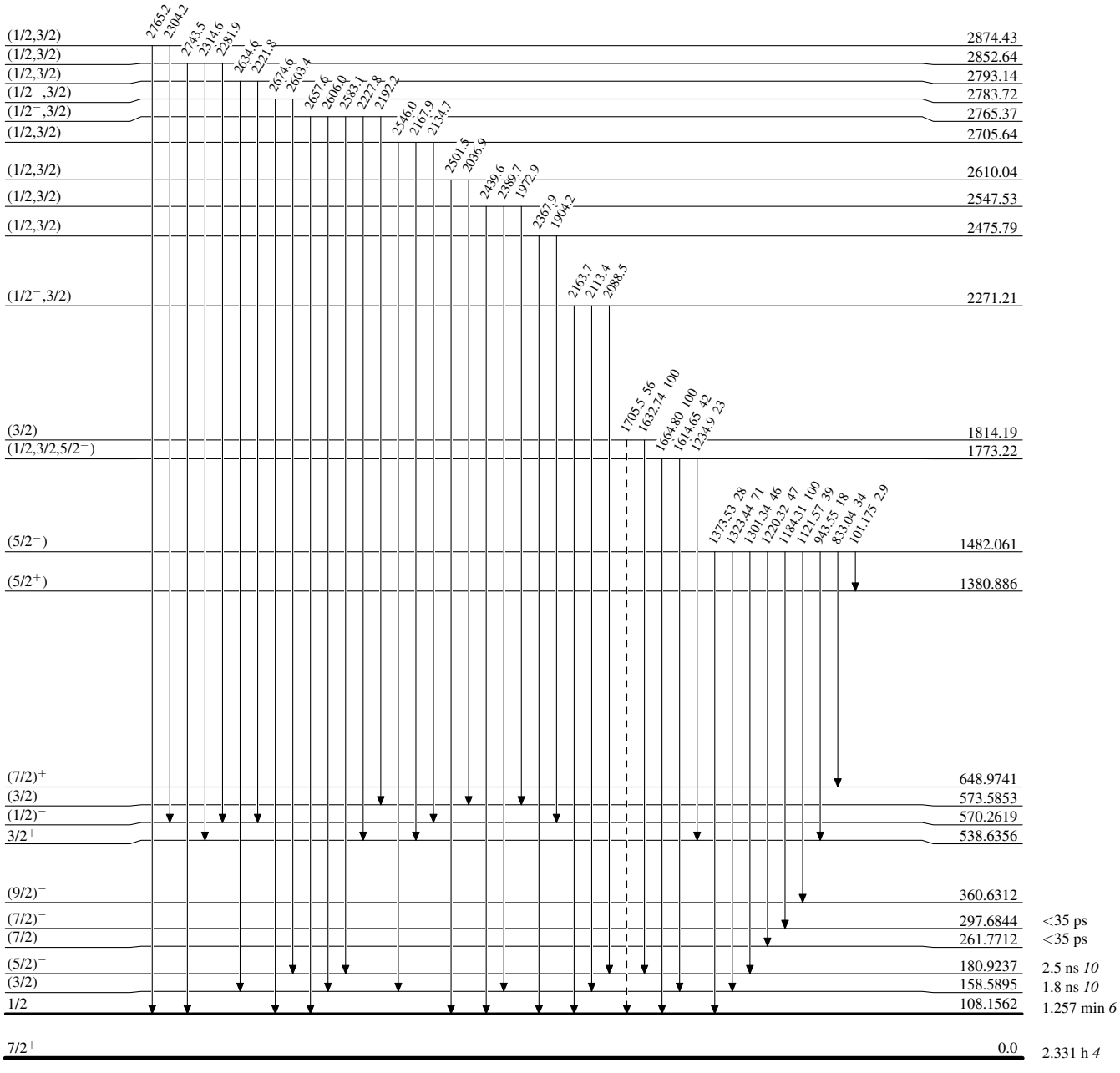
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

– – – – – – ► γ Decay (Uncertain)



$^{165}_{66}Dy_{99}$

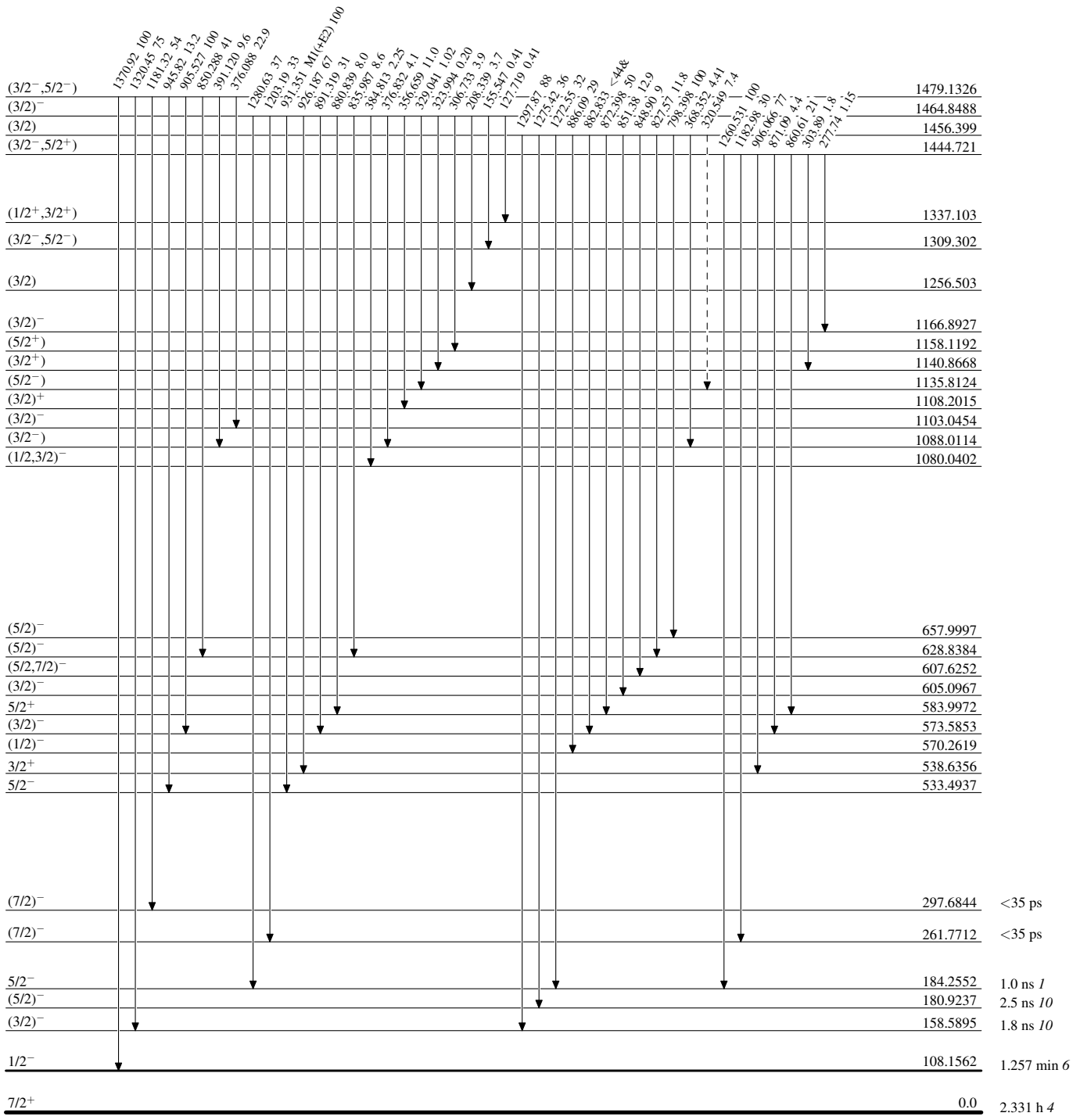
Adopted Levels, Gammas

Legend

Level Scheme (continued)

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

γ Decay (Uncertain)

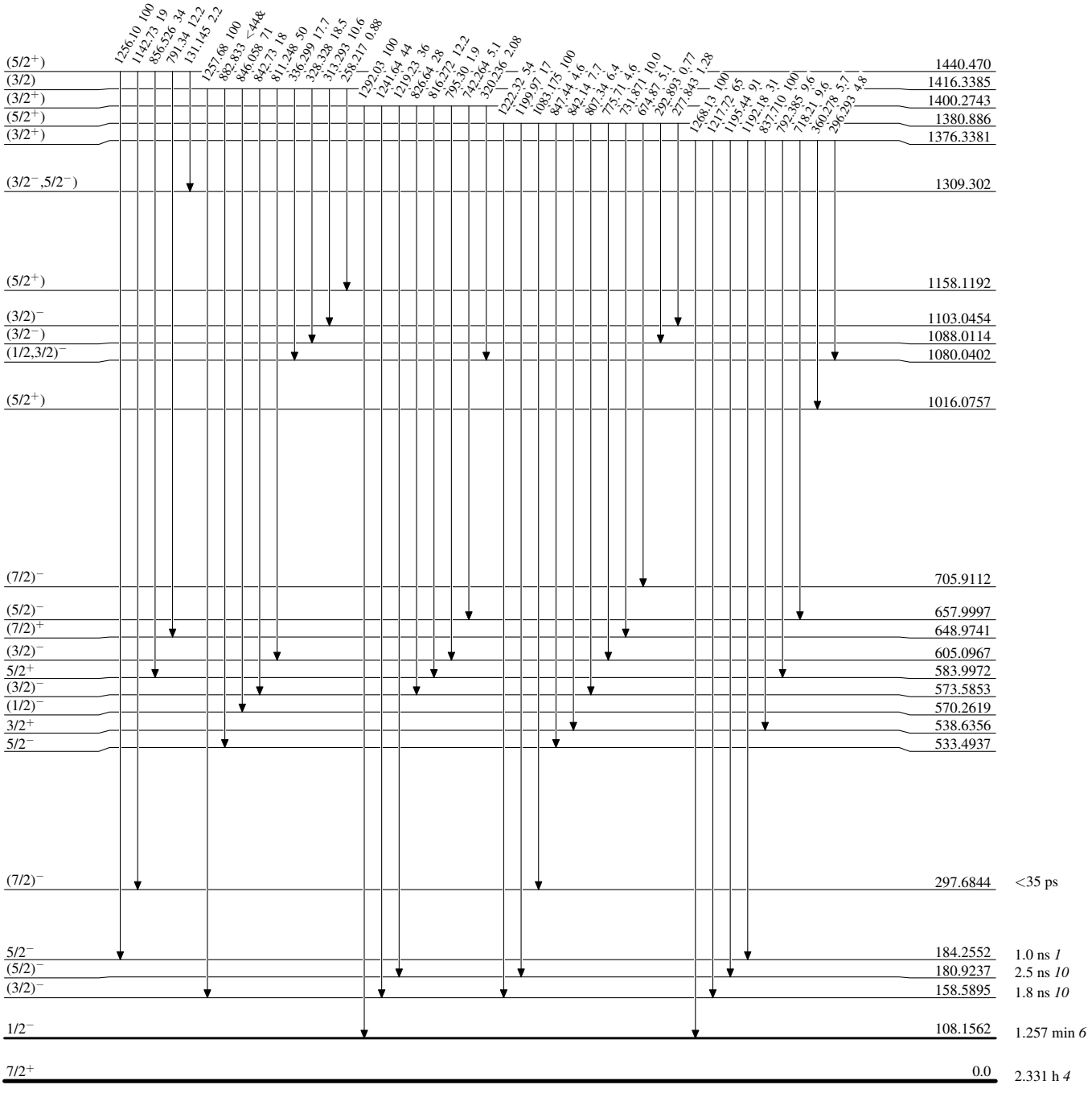


$^{165}_{66}Dy_{99}$

Adopted Levels, Gammas

Level Scheme (continued)

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

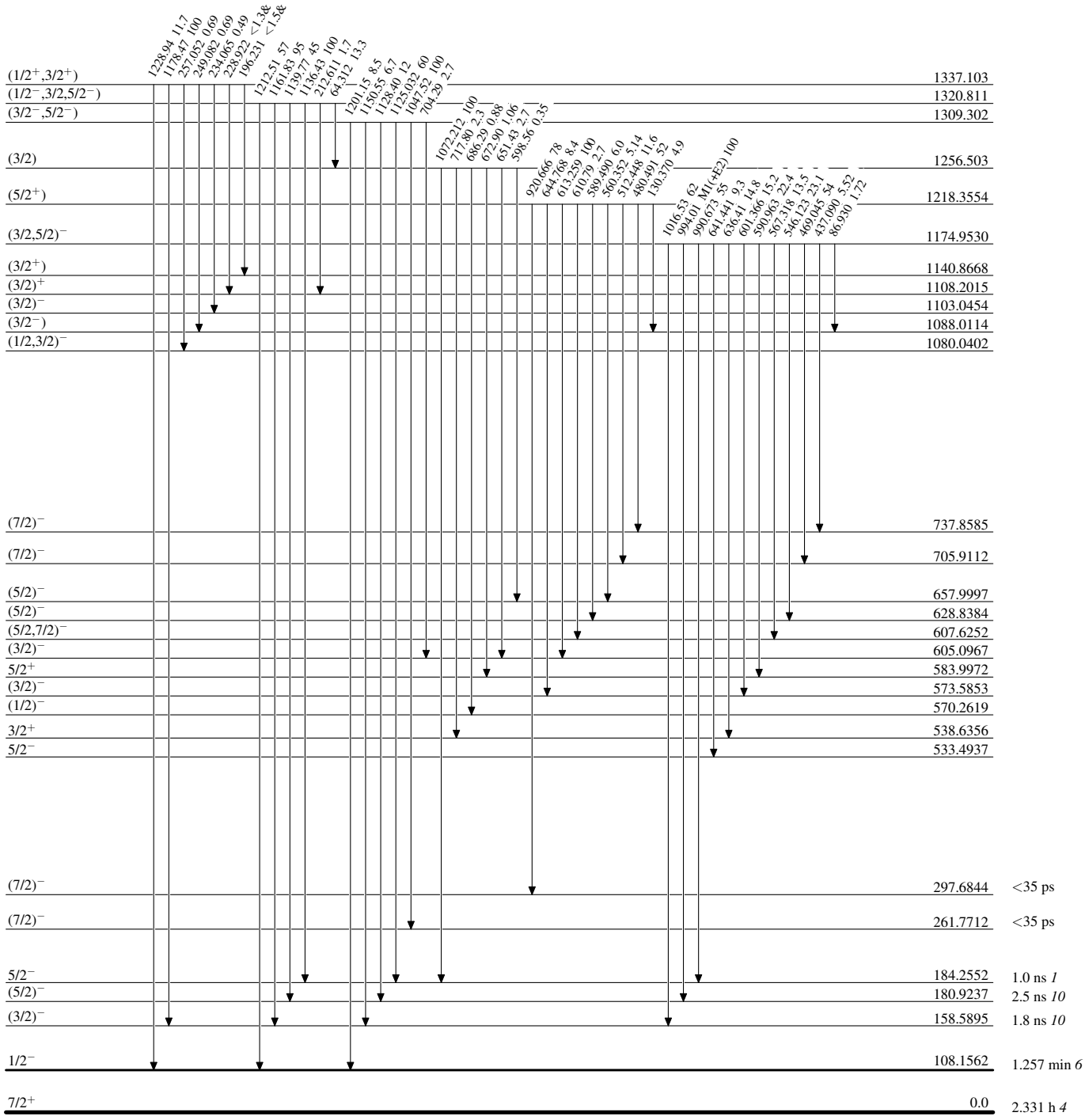


$^{165}_{66}Dy_{99}$

Adopted Levels, Gammas

Level Scheme (continued)

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

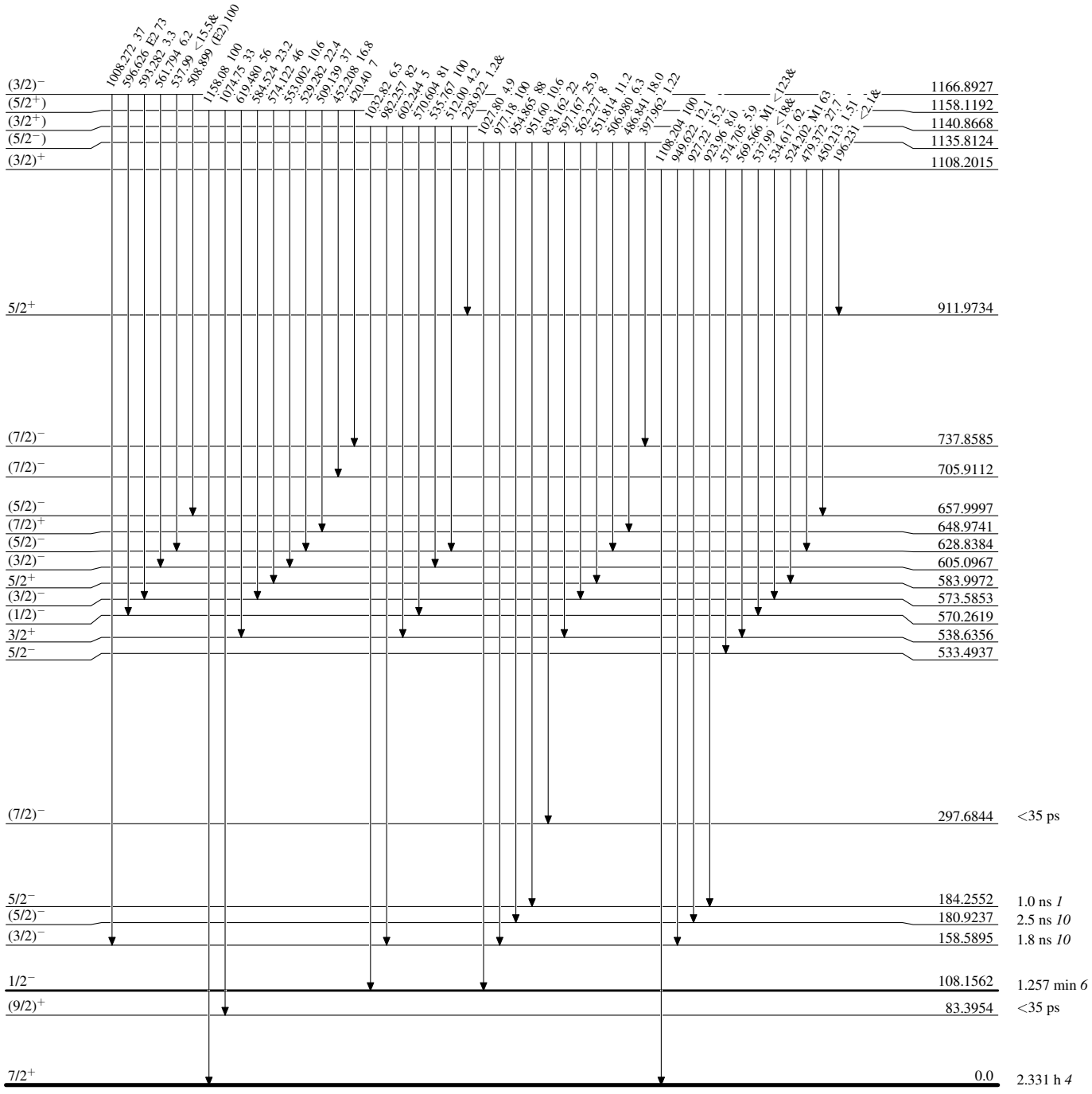


$^{165}_{66}Dy_{99}$

Adopted Levels, Gammas

Level Scheme (continued)

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

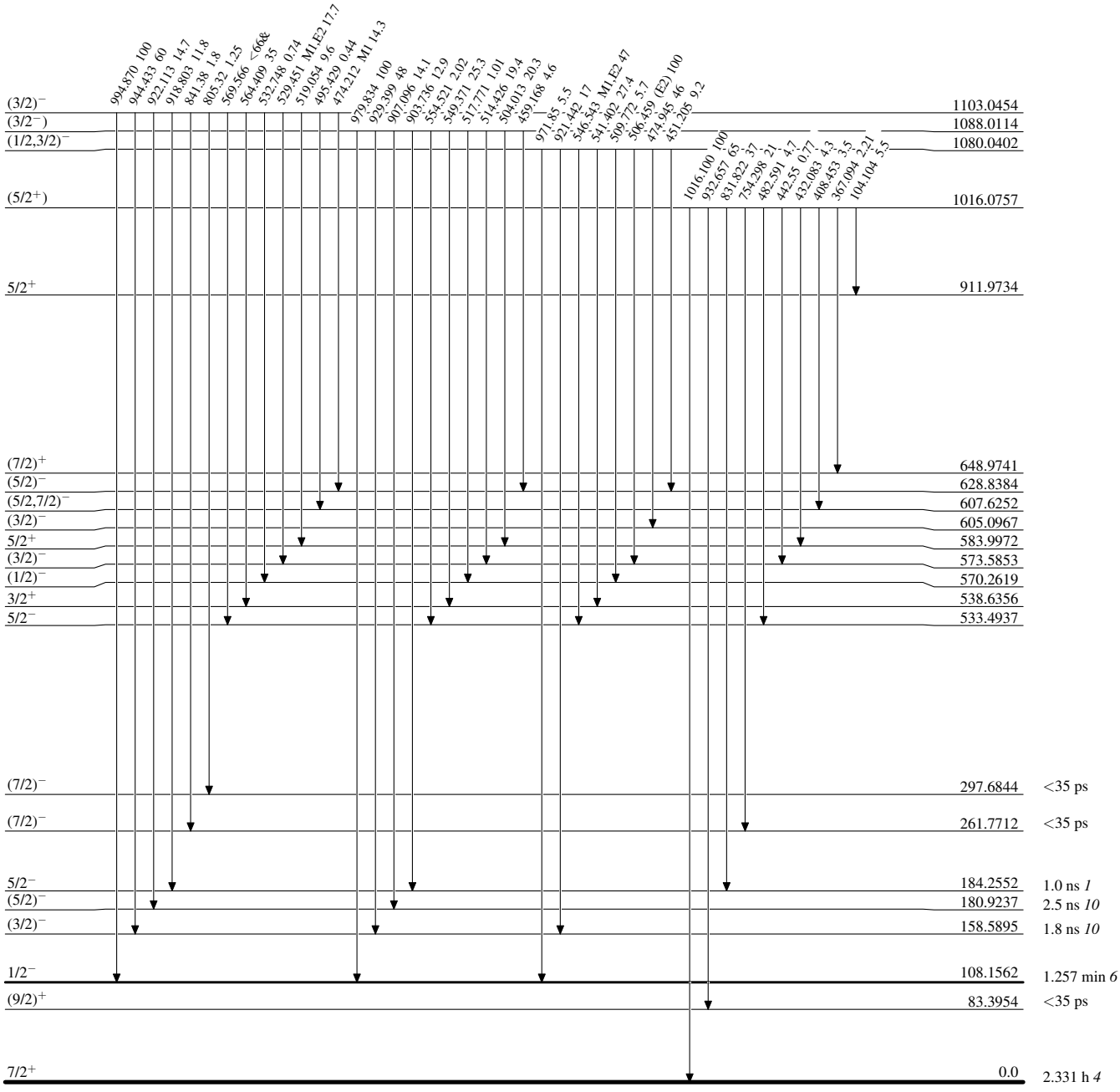


$^{165}_{66}Dy_{99}$

Adopted Levels, Gammas

Level Scheme (continued)

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



$^{165}_{66}Dy_{99}$

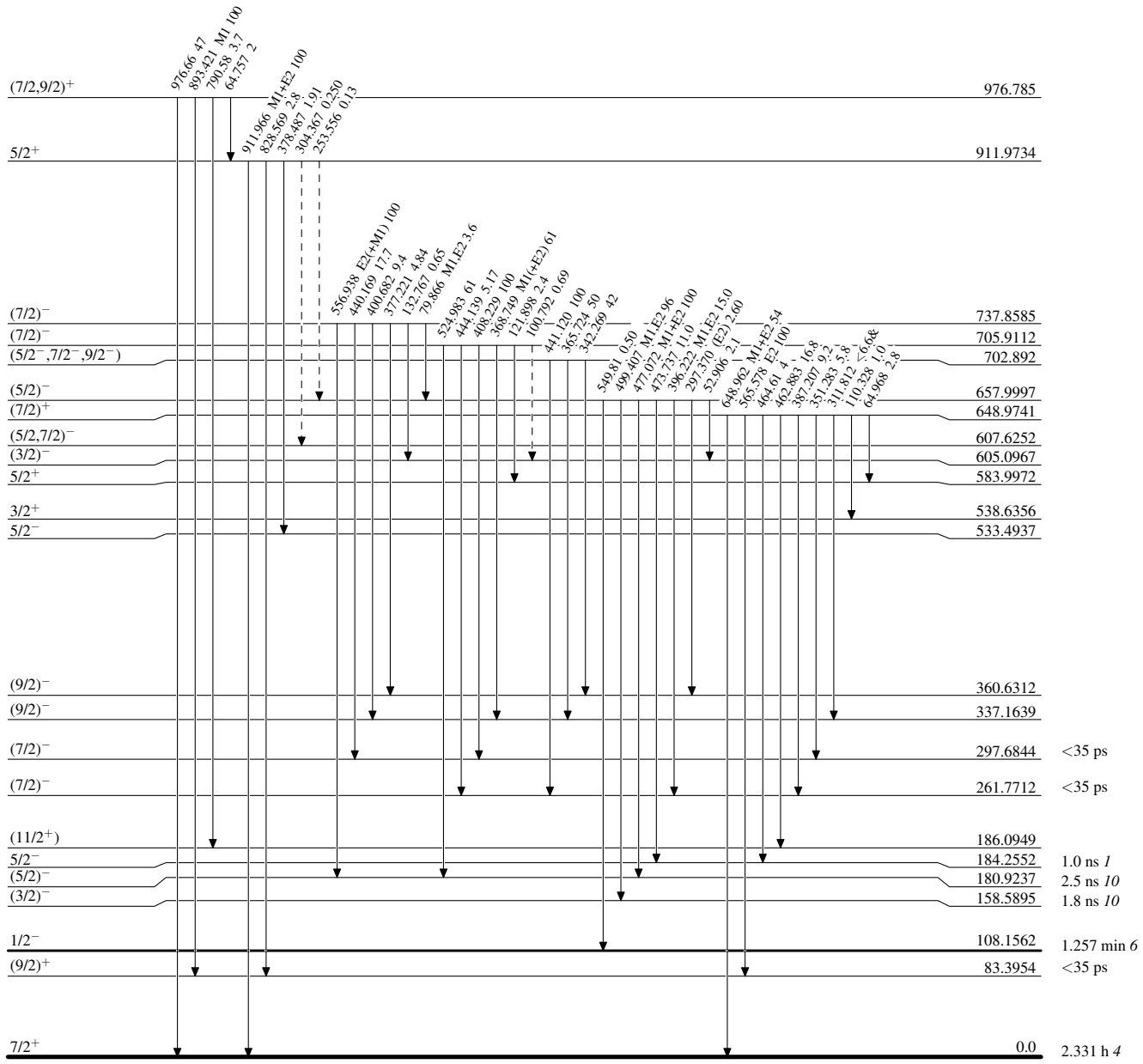
Adopted Levels, Gammas

Legend

Level Scheme (continued)

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

γ Decay (Uncertain)

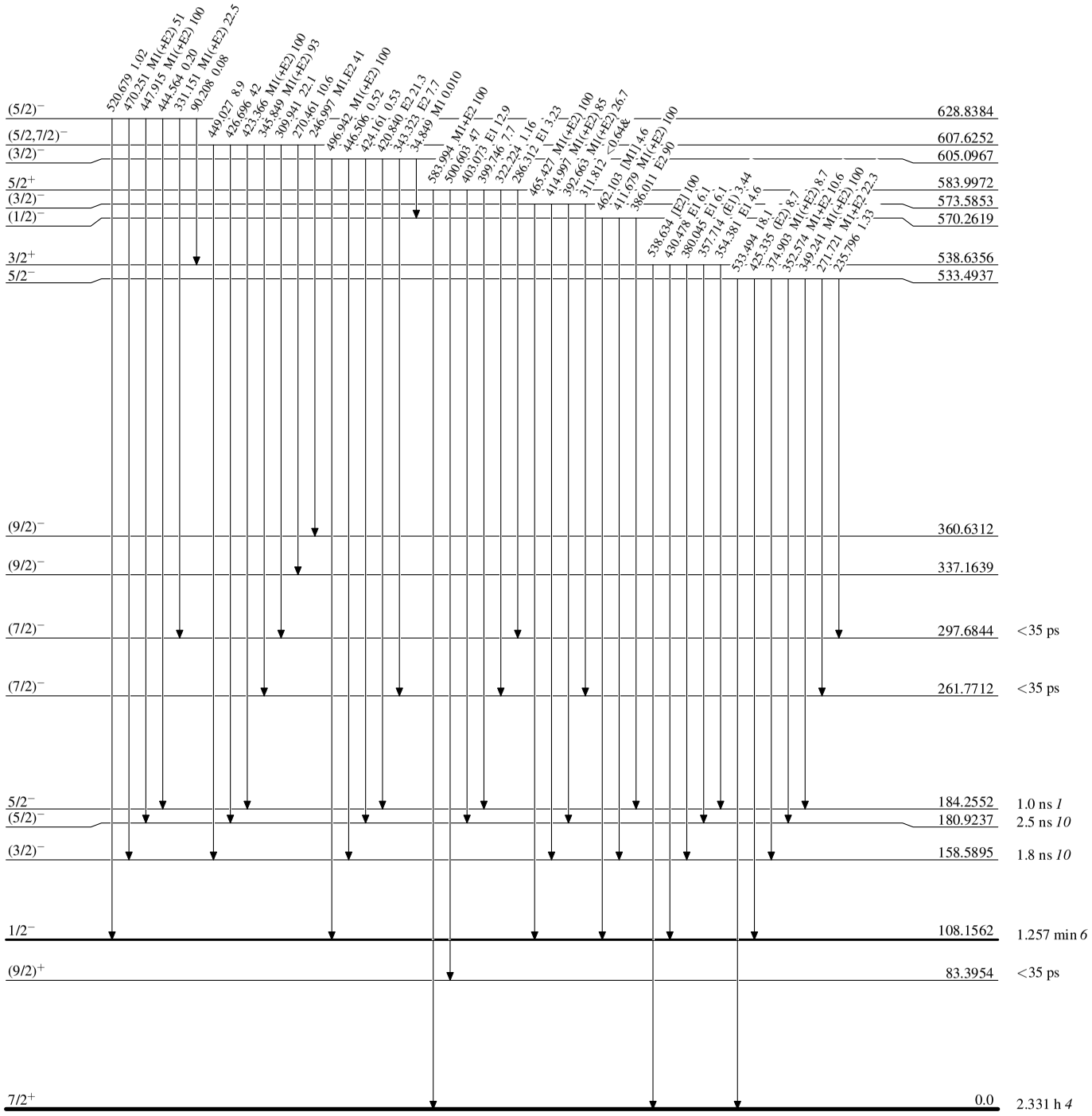


$^{165}_{66}Dy_{99}$

Adopted Levels, Gammas

Level Scheme (continued)

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



$^{165}_{66}Dy_{99}$

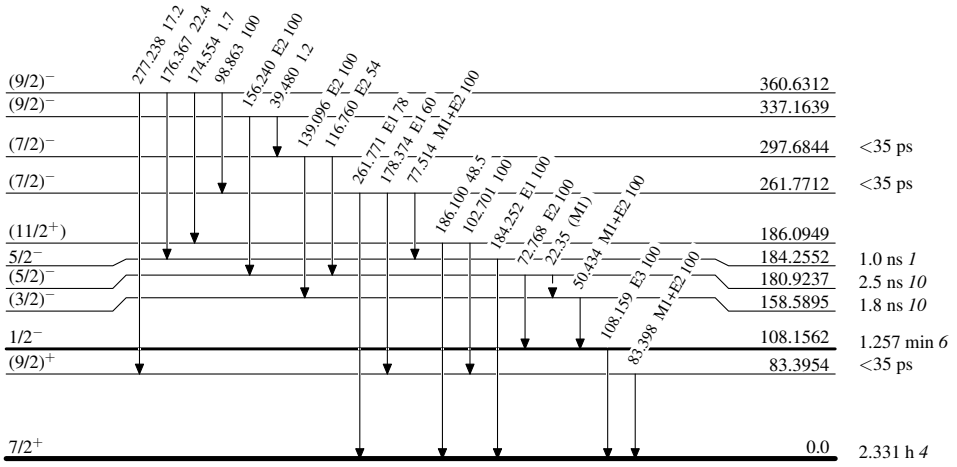
Adopted Levels, Gammas

Legend

Level Scheme (continued)

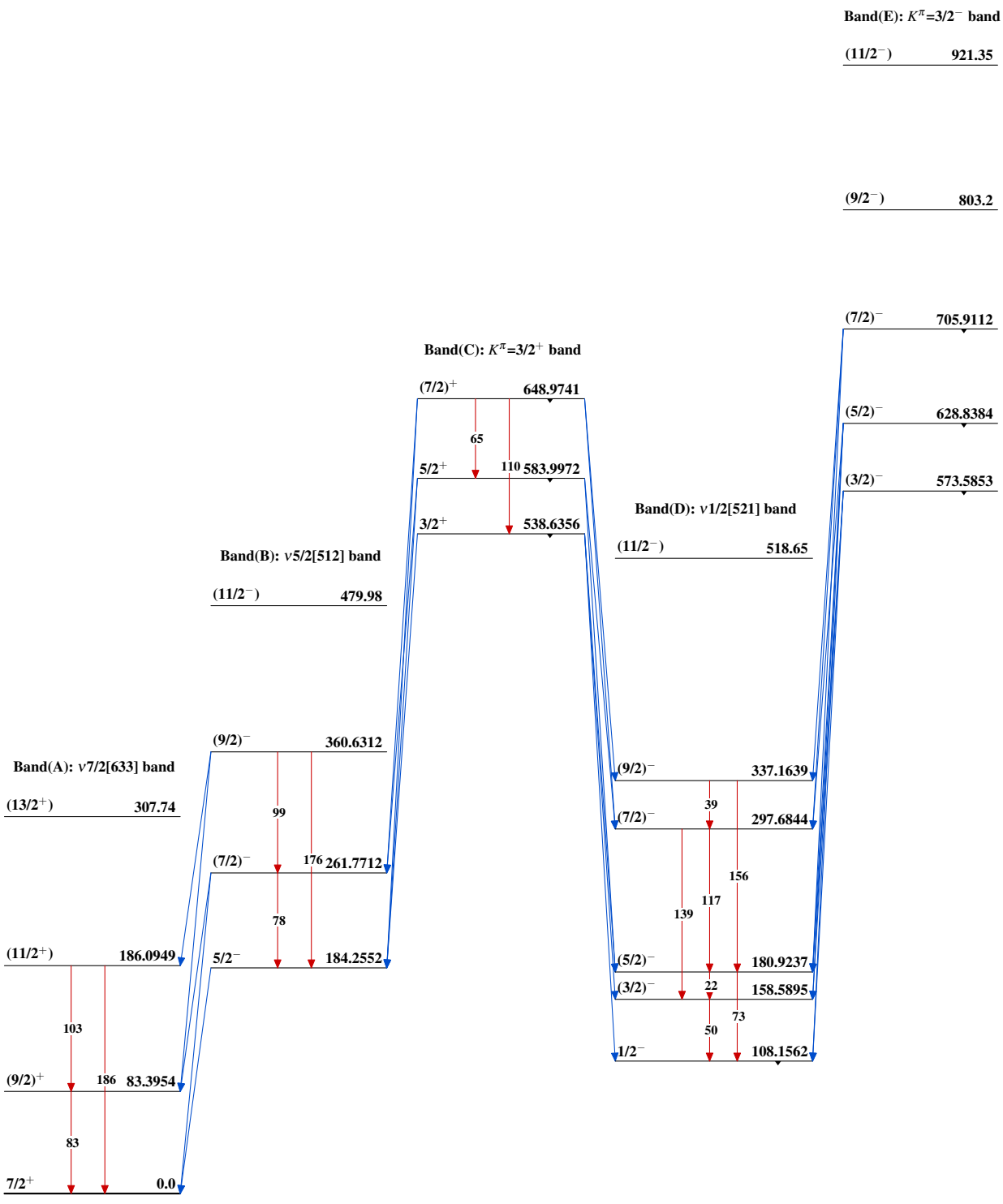
Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

- - - - - - ► γ Decay (Uncertain)



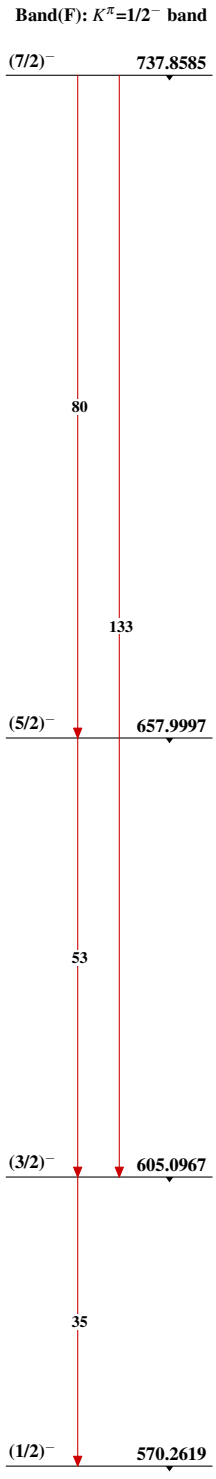
$^{165}_{66}Dy_{99}$

Adopted Levels, Gammas



$^{165}_{66}Dy_{99}$

Adopted Levels, Gammas (continued)



$^{165}_{66}Dy_{99}$