

<sup>169</sup>Tm(n,γ) E=res 2006MuZX

Type	Author	History	Citation	Literature Cutoff Date
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J<sup>π</sup>(<sup>169</sup>Tm)=1/2<sup>+</sup>.

All data are from the evaluation by 2006MuZX.

<sup>170</sup>Tm Levels

E(level) <sup>†</sup>	J <sup>π</sup>	L	E(lab) eV	Comments
S(n)+0.003883	1	0	3.906 1	Γ <sub>γ</sub> =0.1024 eV 12, 2gΓ <sub>n</sub> =0.0112 eV 3.
S(n)+0.014236	1	0	14.320 1	Γ <sub>γ</sub> =0.0971 eV 20, 2gΓ <sub>n</sub> =0.00456 eV 6.
S(n)+0.017318	1	0	17.420 1	Γ <sub>γ</sub> =0.0814 eV 30, 2gΓ <sub>n</sub> =0.00287 eV 3.
S(n)+0.0287	1	0	28.9 1	Γ <sub>γ</sub> =0.095 eV 20, 2gΓ <sub>n</sub> =0.00031 eV 3.
S(n)+0.03459	5	1	34.79 5	Γ <sub>γ</sub> =0.086 eV 3, 2gΓ <sub>n</sub> =0.0088 eV 5.
S(n)+0.03729	5	1	37.51 5	2gΓ <sub>n</sub> =0.00069 eV 7.
S(n)+0.04578	5	1	44.79 5	Γ <sub>γ</sub> =0.093 eV 5, 2gΓ <sub>n</sub> =0.0052 eV 3.
S(n)+0.05028	1	0	50.58 10	Γ <sub>γ</sub> =0.079 eV 5, 2gΓ <sub>n</sub> =0.0081 eV 8.
S(n)+0.05872	1	0	59.07 10	Γ <sub>γ</sub> =0.084 eV 5, 2gΓ <sub>n</sub> =0.0150 eV 9.
S(n)+0.06260	1	0	62.97 10	Γ <sub>γ</sub> =0.078 eV 15, 2gΓ <sub>n</sub> =0.0015 eV 2.
S(n)+0.06536	1	0	65.75 10	Γ <sub>γ</sub> =0.083 eV 4, 2gΓ <sub>n</sub> =0.0565 eV 15.
S(n)+0.08270	1	0	83.18 10	Γ <sub>γ</sub> =0.085 eV 5, 2gΓ <sub>n</sub> =0.0113 eV 6.
S(n)+0.0935	1	0	94.1 1	2gΓ <sub>n</sub> =0.048 eV 5.
S(n)+0.0948	1	0	95.4 1	Γ <sub>γ</sub> =0.071 eV 20, 2gΓ <sub>n</sub> =0.0019 eV 2.
S(n)+0.1009	1	0	101.5 1	2gΓ <sub>n</sub> =0.00130 eV 12.
S(n)+0.1133		0	114.0 1	2gΓ <sub>n</sub> =0.0048 eV 16.
S(n)+0.1144	1	0	115.1 1	Γ <sub>γ</sub> =0.101 eV 10, 2gΓ <sub>n</sub> =0.026 eV 4.
S(n)+0.1241	2	0	124.8 2	Γ <sub>γ</sub> =0.112 eV 13, 2gΓ <sub>n</sub> =0.017 eV 1.
S(n)+0.1310	2	1	131.8 2	2gΓ <sub>n</sub> =0.0010 eV 2.
S(n)+0.1348	1	0	135.6 2	Γ <sub>γ</sub> =0.091 eV 4, 2gΓ <sub>n</sub> =0.033 eV 3.
S(n)+0.1521	2	0	153.0 2	Γ <sub>γ</sub> =0.087 eV 4, 2gΓ <sub>n</sub> =0.089 eV 6.
S(n)+0.1593	2	1	160.2 2	2gΓ <sub>n</sub> =0.0021 eV 2.
S(n)+0.1628	2	1	163.8 2	2gΓ <sub>n</sub> =0.0089 eV 9.
S(n)+0.2058	2	1	207.0 2	2gΓ <sub>n</sub> =0.021 eV 2.
S(n)+0.2078	2	0	209.0 2	2gΓ <sub>n</sub> =0.0047 eV 5.
S(n)+0.2120	2	1	213.3 2	2gΓ <sub>n</sub> =0.041 eV 3.
S(n)+0.2217	2	0	223.0 2	2gΓ <sub>n</sub> =0.012 eV 1.
S(n)+0.2257	2	1	227.0 2	2gΓ <sub>n</sub> =0.0066 eV 6.
S(n)+0.2366	2	1	238.0 2	2gΓ <sub>n</sub> =0.021 eV 3.
S(n)+0.2416	2	1	243.0 2	2gΓ <sub>n</sub> =0.0080 eV 8.
S(n)+0.2486	2	1	250.1	2gΓ <sub>n</sub> =0.108 eV 20.
S(n)+0.2493	2	1	250.8 2	2gΓ <sub>n</sub> =0.540 eV 12.
S(n)+0.2580	2	1	259.5 2	Γ <sub>γ</sub> =0.067 eV 20, 2gΓ <sub>n</sub> =0.019 eV 1.
S(n)+0.2714	3	1	273.0 3	Γ <sub>γ</sub> =0.093 eV 10, 2gΓ <sub>n</sub> =0.026 eV 3.
S(n)+0.2810	3	1	282.7 3	Γ <sub>γ</sub> =0.087 eV 4, 2gΓ <sub>n</sub> =0.071 eV 4.
S(n)+0.2862	3	0	287.9 3	Γ <sub>γ</sub> =0.100 eV 7, 2gΓ <sub>n</sub> =0.069 eV 4.
S(n)+0.2937	3	0	295.4 3	2gΓ <sub>n</sub> =0.0093 eV 10.
S(n)+0.2947	3	1	296.4 3	Γ <sub>γ</sub> =0.107 eV 25, 2gΓ <sub>n</sub> =0.019 eV 2.
S(n)+0.3166	3	1	318.5 3	Γ <sub>γ</sub> =0.11 eV 3, 2gΓ <sub>n</sub> =0.072 eV 10.
S(n)+0.3173	3	0	319.2 3	Γ <sub>γ</sub> =0.112 eV 27, 2gΓ <sub>n</sub> =0.053 eV 6.
S(n)+0.3221	3	1	324.0 3	Γ <sub>γ</sub> =0.083 eV 20, 2gΓ <sub>n</sub> =0.012 eV 1.
S(n)+0.3303	3	1	332.3 3	Γ <sub>γ</sub> =0.111 eV 15, 2gΓ <sub>n</sub> =0.065 eV 4.
S(n)+0.3437	3	1	345.7 3	Γ <sub>γ</sub> =0.130 eV 30, 2gΓ <sub>n</sub> =0.028 eV 4.
S(n)+0.3547	4	0	356.8 4	Γ <sub>γ</sub> =0.102 eV 27, 2gΓ <sub>n</sub> =0.044 eV 2.
S(n)+0.3611	4	0	363.2 4	2gΓ <sub>n</sub> =0.0029 eV 2.
S(n)+0.3740	4	1	376.2 4	Γ <sub>γ</sub> =0.109 eV 50, 2gΓ <sub>n</sub> =0.017 eV 4.
S(n)+0.3755	4	0	377.7 4	2gΓ <sub>n</sub> =0.020 eV 4.
S(n)+0.3874	4	0	389.7 4	Γ <sub>γ</sub> =0.128 eV 26, 2gΓ <sub>n</sub> =0.056 eV 10.

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$^{169}\text{Tm}(n,\gamma)$  E=res 2006MuZX (continued) $^{170}\text{Tm}$  Levels (continued)

E(level) <sup>†</sup>	J <sup>π</sup>	L	E(lab) eV	Comments	
S(n)+0.3970	4	1	0	399.3 4	2gΓ <sub>n</sub> =0.0064 eV 7.
S(n)+0.4051	4	1	0	407.5 4	Γ <sub>γ</sub> =0.167 eV 39, 2gΓ <sub>n</sub> =0.230 eV 25.
S(n)+0.4112	4	0	0	413.6 4	Γ <sub>γ</sub> =0.150 eV 46, 2gΓ <sub>n</sub> =0.201 eV 12.
S(n)+0.4130	4	1	0	415.4 4	2gΓ <sub>n</sub> =0.048 eV 4.
S(n)+0.4372	4	1	0	439.8 4	Γ <sub>γ</sub> =0.081 eV 40, 2gΓ <sub>n</sub> =0.058 eV 6.
S(n)+0.4520	5	1	0	454.7 5	2gΓ <sub>n</sub> =0.0074 eV 9.
S(n)+0.4561	5	1	0	458.8 5	Γ <sub>γ</sub> =0.066 eV 35, 2gΓ <sub>n</sub> =0.014 eV 2.
S(n)+0.4641	5	1	0	466.8 5	Γ <sub>γ</sub> =0.056 eV 20, 2gΓ <sub>n</sub> =0.036 eV 4.
S(n)+0.4678	5	0	0	470.6 5	Γ <sub>γ</sub> =0.057 eV 35, 2gΓ <sub>n</sub> =0.016 eV 2.
S(n)+0.4889	5	1	0	491.8 5	2gΓ <sub>n</sub> =0.0082 eV 7.
S(n)+0.5080	5	0	0	518.1 5	Γ <sub>γ</sub> =0.145 eV 40, 2gΓ <sub>n</sub> =0.110 eV 6.
S(n)+0.5082	5	1	0	511.2 5	Γ <sub>γ</sub> =0.120 eV 15, 2gΓ <sub>n</sub> =0.058 eV 5..
S(n)+0.5383	5	1	0	541.5 5	2gΓ <sub>n</sub> =0.0084 eV 10.
S(n)+0.5452	5	1	0	548.4 5	Γ <sub>γ</sub> =0.085 eV 20, 2gΓ <sub>n</sub> =0.038 eV 4.
S(n)+0.5522	6	1	0	555.5 6	Γ <sub>γ</sub> =0.119 eV 20, 2gΓ <sub>n</sub> =0.075 eV 4.
S(n)+0.5608	6	1	0	564.1 6	Γ <sub>γ</sub> =0.110 eV 18, 2gΓ <sub>n</sub> =0.140 eV 10.
S(n)+0.5687	6	1	0	572.1 6	Γ <sub>γ</sub> =0.116 eV 30, 2gΓ <sub>n</sub> =0.103 eV 6.
S(n)+0.5739	6		0	577.3 6	2gΓ <sub>n</sub> =0.006 eV 1.
S(n)+0.5815	6	0	0	584.9 6	2gΓ <sub>n</sub> =0.290 eV 21.
S(n)+0.5875	6	1	0	591.0 6	Γ <sub>γ</sub> =0.115 eV 40, 2gΓ <sub>n</sub> =0.039 eV 4.
S(n)+0.5944	6	1	0	597.9 6	Γ <sub>γ</sub> =0.076 eV 14, 2gΓ <sub>n</sub> =0.127 eV 8.
S(n)+0.6025	6	1	0	606.1 6	Γ <sub>γ</sub> =0.101 eV 35, 2gΓ <sub>n</sub> =0.0320 eV 23.
S(n)+0.6200	6	1	0	623.7 6	Γ <sub>γ</sub> =0.093 eV 20, 2gΓ <sub>n</sub> =0.087 eV 5.
S(n)+0.6262	6	1	0	629.9 6	Γ <sub>γ</sub> =0.084 eV 30, 2gΓ <sub>n</sub> =0.0420 eV 24.
S(n)+0.6374	6	1	0	641.2 6	Γ <sub>γ</sub> =0.079 eV 35, 2gΓ <sub>n</sub> =0.032 eV 2.
S(n)+0.6536	7	0	0	657.5 7	2gΓ <sub>n</sub> =0.054 eV 4.
S(n)+0.6639	7		0	667.8 7	2gΓ <sub>n</sub> =0.0059 eV 36.
S(n)+0.6679	7	1	0	671.9 7	Γ <sub>γ</sub> =0.119 eV 23, 2gΓ <sub>n</sub> =0.200 eV 20.
S(n)+0.6722	7	1	0	676.2 7	Γ <sub>γ</sub> =0.092 eV 18, 2gΓ <sub>n</sub> =0.38 eV 4.
S(n)+0.6810	7	[1]	0	685.0 7	2gΓ <sub>n</sub> =0.017 eV 2.
S(n)+0.6896	7	1	0	693.7 7	2gΓ <sub>n</sub> =0.0210 eV 15.
S(n)+0.7013	7		0	705.5 7	2gΓ <sub>n</sub> =0.0073 eV 20.
S(n)+0.7079	7	0	0	712.1 7	2gΓ <sub>n</sub> =0.135 eV 15.
S(n)+0.7101	7	1	0	714.3 7	Γ <sub>γ</sub> =0.086 eV 17, 2gΓ <sub>n</sub> =0.275 eV 40.
S(n)+0.7187	7		0	723.0 7	2gΓ <sub>n</sub> =0.0113 eV 15.
S(n)+0.7260	7	[1]	0	730.3 7	Γ <sub>γ</sub> =0.118 eV 40, 2gΓ <sub>n</sub> =0.048 eV 3.
S(n)+0.7330	7	[1]	0	737.3 7	Γ <sub>γ</sub> =0.118 eV 40, 2gΓ <sub>n</sub> =0.0250 eV 24.
S(n)+0.7425	7		0	746.9 7	2gΓ <sub>n</sub> =0.0010 eV 4.
S(n)+0.7539	8	0	0	758.4 8	2gΓ <sub>n</sub> =0.049 eV 5.
S(n)+0.7591	8	1	0	763.6 8	2gΓ <sub>n</sub> =0.0081 eV 10.
S(n)+0.7805	8		0	785.1 8	2gΓ <sub>n</sub> =0.033 eV 11.
S(n)+0.7825	8		0	787.1 8	2gΓ <sub>n</sub> =0.0086 eV 17.
S(n)+0.7956	8		0	800.3 8	2gΓ <sub>n</sub> =0.026 eV 6.
S(n)+0.8016	8		0	806.3 8	2gΓ <sub>n</sub> =0.045 eV 8.
S(n)+0.8214	8	1	0	826.3 8	2gΓ <sub>n</sub> =0.032 eV 7.
S(n)+0.8270	8	1	0	831.9 8	2gΓ <sub>n</sub> =0.055 eV 15.
S(n)+0.8351	8	1	0	840.0 8	2gΓ <sub>n</sub> =0.25 eV 4.
S(n)+0.8432	8		0	848.2 8	2gΓ <sub>n</sub> =0.030 eV 10.
S(n)+0.8462	9		0	851.2 9	2gΓ <sub>n</sub> =0.030 eV 5.
S(n)+0.8597	9		0	864.8 9	2gΓ <sub>n</sub> =0.010 eV 1.
S(n)+0.8731	9	0	0	878.3 9	2gΓ <sub>n</sub> =0.125 eV 25.
S(n)+0.8830	9		0	888.2 9	2gΓ <sub>n</sub> =0.042 eV 10.
S(n)+0.8891	9	[1]	0	894.4 9	2gΓ <sub>n</sub> =0.010 eV 2.
S(n)+0.9032	9	[1]	0	908.5 9	2gΓ <sub>n</sub> =0.056 eV 20.
S(n)+0.9258	9	1	0	931.3 9	2gΓ <sub>n</sub> =0.077 eV 15.
S(n)+0.9338	9	1	0	937.3 9	2gΓ <sub>n</sub> =0.055 eV 15.
S(n)+0.9404	9	[1]	0	946.0 9	2gΓ <sub>n</sub> =0.032 eV 8.

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$^{169}\text{Tm}(n,\gamma)$  E=res 2006MuZX (continued) $^{170}\text{Tm}$  Levels (continued)

E(level) <sup>†</sup>	J <sup>π</sup>	L	E(lab) eV	Comments
S(n)+0.946 I		0	952 I	2gΓ <sub>n</sub> =0.0015 eV 5.
S(n)+0.954 I	[0]	0	960 I	2gΓ <sub>n</sub> =0.140 eV 20.
S(n)+0.955 I		0	961 I	2gΓ <sub>n</sub> =0.060 eV 30.
S(n)+0.976 I	0	0	982 I	2gΓ <sub>n</sub> =0.100 eV 15.
S(n)+0.980 I		0	986 I	2gΓ <sub>n</sub> =0.050 eV 15.
S(n)+0.989 I	[1]	0	995 I	2gΓ <sub>n</sub> =0.115 eV 20.
S(n)+0.997 I		0	1003 I	2gΓ <sub>n</sub> =0.29 eV 4.
S(n)+1.001 I		0	1006 I	2gΓ <sub>n</sub> =0.200 eV 20.
S(n)+1.0060 15		0	1012.0 15	2gΓ <sub>n</sub> =0.29 eV 7.
S(n)+1.017 I		0	1023 I	2gΓ <sub>n</sub> =0.028 eV 6.
S(n)+1.028 I	1	0	1034 I	2gΓ <sub>n</sub> =0.090 eV 15.
S(n)+1.034 I	1	0	1040 I	2gΓ <sub>n</sub> =0.110 eV 15.
S(n)+1.036 I		0	1042 I	2gΓ <sub>n</sub> =0.0028 eV 10.
S(n)+1.040 I		0	1046 I	2gΓ <sub>n</sub> =0.014 eV 2.
S(n)+1.048 I		0	1054 I	2gΓ <sub>n</sub> =0.020 eV 3.
S(n)+1.053 I		0	1059 I	2gΓ <sub>n</sub> =0.006 eV 2.
S(n)+1.059 I	1	0	1065 I	2gΓ <sub>n</sub> =0.100 eV 20.
S(n)+1.075 I		0	1081 I	2gΓ <sub>n</sub> =0.0048 eV 16.
S(n)+1.080 I		0	1086 I	2gΓ <sub>n</sub> =0.030 eV 10.
S(n)+1.089 I	1	0	1095 I	2gΓ <sub>n</sub> =0.120 eV 25.
S(n)+1.107 I		0	1114 I	2gΓ <sub>n</sub> =0.0048 eV 16.
S(n)+1.111 I		0	1118 I	2gΓ <sub>n</sub> =0.0063 eV 25.
S(n)+1.118 I		0	1125 I	2gΓ <sub>n</sub> =0.040 eV 15.
S(n)+1.124 I		0	1131 I	2gΓ <sub>n</sub> =0.045 eV 10.
S(n)+1.137 I	0	0	1144 I	2gΓ <sub>n</sub> =0.034 eV 4.
S(n)+1.146 I	0	0	1153 I	2gΓ <sub>n</sub> =0.080 eV 20.
S(n)+1.168 I		0	1175 I	2gΓ <sub>n</sub> =0.0088 eV 30.
S(n)+1.181 I	1	0	1188 I	2gΓ <sub>n</sub> =0.245 eV 60.
S(n)+1.189 I		0	1196 I	2gΓ <sub>n</sub> =0.140 eV 25.
S(n)+1.1929 15		0	1200.0 15	2gΓ <sub>n</sub> =0.265 eV 35.
S(n)+1.2069 15		0	1214.0 15	2gΓ <sub>n</sub> =0.082 eV 16.
S(n)+1.2248 15		0	1232.0 15	2gΓ <sub>n</sub> =0.010 eV 4.
S(n)+1.2526 15		0	1260.0 15	2gΓ <sub>n</sub> =0.041 eV 4.
S(n)+1.2576 15		0	1265.0 15	2gΓ <sub>n</sub> =0.016 eV 6.
S(n)+1.2655 15		0	1271.0 15	2gΓ <sub>n</sub> =0.019 eV 7.
S(n)+1.2695 15		0	1277.0 15	2gΓ <sub>n</sub> =0.135 eV 35.
S(n)+1.2764 15		0	1284.0 15	2gΓ <sub>n</sub> =0.015 eV 4.
S(n)+1.2824 15		0	1290.0 15	2gΓ <sub>n</sub> =0.100 eV 35.
S(n)+1.2973 15		0	1305.0 15	2gΓ <sub>n</sub> =0.265 eV 30.
S(n)+1.3083 15		0	1316.0 15	2gΓ <sub>n</sub> =0.013 eV 10.
S(n)+1.3142 15		0	1322.0 15	2gΓ <sub>n</sub> =0.115 eV 20.
S(n)+1.3440 15		0	1352.0 15	2gΓ <sub>n</sub> =0.180 eV 15.
S(n)+1.3520 15		0	1360.0 15	2gΓ <sub>n</sub> =0.63 eV 15.
S(n)+1.3729 15		0	1381.0 15	2gΓ <sub>n</sub> =0.41 eV 6.
S(n)+1.3798 15		0	1388.0 15	2gΓ <sub>n</sub> =0.65 eV 10.
S(n)+1.3947 15		0	1403.0 15	2gΓ <sub>n</sub> =0.034 eV 4.
S(n)+1.4087 15		0	1417.0 15	2gΓ <sub>n</sub> =0.320 eV 25.
S(n)+1.4126 15		0	1421.0 15	2gΓ <sub>n</sub> =0.21 eV 3.
S(n)+1.4196 15		0	1428.0 15	2gΓ <sub>n</sub> =0.29 eV 6.
S(n)+1.4226 15		0	1431.0 15	2gΓ <sub>n</sub> =0.049 eV 5.
S(n)+1.4415 15		0	1450.0 15	2gΓ <sub>n</sub> =0.220 eV 20.
S(n)+1.4474 15		0	1456.0 15	2gΓ <sub>n</sub> =0.035 eV 5.
S(n)+1.4534 15		0	1462.0 15	2gΓ <sub>n</sub> =0.045 eV 5.
S(n)+1.4604 15		0	1469.0 15	2gΓ <sub>n</sub> =0.21 eV 3.
S(n)+1.4939 15		0	1502.7 15	2gΓ <sub>n</sub> =0.159 eV 15.
S(n)+1.4991 15		0	1508.0 15	2gΓ <sub>n</sub> =0.020 eV 10.
S(n)+1.5043 15		0	1513.2 15	2gΓ <sub>n</sub> =0.094 eV 10.

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$^{169}\text{Tm}(n,\gamma)$  E=res 2006MuZX (continued) $^{170}\text{Tm}$  Levels (continued)

E(level) <sup>†</sup>	L	E(lab) eV	Comments
S(n)+1.5109 15	0	1519.8 15	2g $\Gamma_n=0.055$ eV 10.
S(n)+1.5317 15	0	1540.8 15	2g $\Gamma_n=0.081$ eV 10.
S(n)+1.5477 15	0	1556.9 15	2g $\Gamma_n=0.161$ eV 15.
S(n)+1.5633 15	0	1572.6 15	2g $\Gamma_n=0.032$ eV 8.
S(n)+1.5848 15	0	1594.2 15	2g $\Gamma_n=0.073$ eV 10.
S(n)+1.5903 15	0	1599.7 15	2g $\Gamma_n=0.51$ eV 5.
S(n)+1.6110 15	0	1620.5 15	2g $\Gamma_n=0.071$ eV 10.
S(n)+1.6228 15	0	1632.4 15	2g $\Gamma_n=0.056$ eV 10.
S(n)+1.6462 15	0	1655.9 20	2g $\Gamma_n=0.127$ eV 12.
S(n)+1.652 2	0	1662 2	2g $\Gamma_n=0.015$ eV 5.
S(n)+1.6565 20	0	1666.3 20	2g $\Gamma_n=0.025$ eV 8.
S(n)+1.6693 20	0	1679.2 20	2g $\Gamma_n=0.079$ eV 10.
S(n)+1.6872 20	0	1697.2 20	2g $\Gamma_n=0.256$ eV 20.
S(n)+1.6967 20	0	1706.7 20	2g $\Gamma_n=0.025$ eV 8.
S(n)+1.702 2	0	1712 2	2g $\Gamma_n=0.263$ eV 20.
S(n)+1.7286 20	0	1738.8 20	2g $\Gamma_n=1.18$ eV 11.
S(n)+1.7499 20	0	1760.3 20	2g $\Gamma_n=0.046$ eV 8.
S(n)+1.7733 20	0	1783.8 20	2g $\Gamma_n=0.142$ eV 12.
S(n)+1.7810 20	0	1791.5 20	2g $\Gamma_n=0.045$ eV 8.
S(n)+1.7897 20	0	1800.3 20	2g $\Gamma_n=0.144$ eV 12.
S(n)+1.8036 20	0	1814.3 20	2g $\Gamma_n=0.098$ eV 10.
S(n)+1.8208 20	0	1831.6 20	2g $\Gamma_n=0.064$ eV 10.
S(n)+1.8339 20	0	1844.8 20	2g $\Gamma_n=0.065$ eV 10.
S(n)+1.8577 20	0	1868.7 20	2g $\Gamma_n=0.040$ eV 10.
S(n)+1.869 2	0	1880 2	2g $\Gamma_n=0.030$ eV 10.
S(n)+1.8766 20	0	1887.7 20	2g $\Gamma_n=0.020$ eV 8.
S(n)+1.8834 20	0	1894.5 20	2g $\Gamma_n=0.020$ eV 8.
S(n)+1.906 2	0	1917 2	2g $\Gamma_n=0.60$ eV 4.
S(n)+1.909 2	0	1920 2	2g $\Gamma_n=0.107$ eV 15.
S(n)+1.9223 20	0	1933.7 20	2g $\Gamma_n=0.11$ eV 6.
S(n)+1.9305 20	0	1941.9 20	2g $\Gamma_n=0.331$ eV 25.
S(n)+1.9632 20		1974.8 20	
S(n)+1.9746 20		1986.3 20	
S(n)+1.9890 20		2000.8 20	
S(n)+2.0095 20		2021.4 20	
S(n)+2.0213 20		2033.3 20	
S(n)+2.027 2		2039 2	
S(n)+2.036 2		2048 2	
S(n)+2.048 2		2060 2	
S(n)+2.064 2		2076 2	
S(n)+2.076 2		2088 2	
S(n)+2.089 2		2101 2	
S(n)+2.104 2		2116 2	
S(n)+2.113 2		2126 2	
S(n)+2.123 2		2136 2	
S(n)+2.149 2		2162 2	
S(n)+2.162 2		2175 2	
S(n)+2.172 2		2185 2	
S(n)+2.182 2		2195 2	
S(n)+2.188 2		2201 2	
S(n)+2.205 2		2218 2	
S(n)+2.219 2		2232 2	
S(n)+2.236 2		2249 2	
S(n)+2.250 2		2263 2	
S(n)+2.261 2		2274 2	
S(n)+2.275 2		2288 2	
S(n)+2.281 2		2295 2	

Continued on next page (footnotes at end of table)

<sup>169</sup>Tm(n,γ) E=res 2006MuZX (continued)

<sup>170</sup>Tm Levels (continued)

E(level) <sup>†</sup>	J <sup>π</sup>	L	E(lab) eV	Comments
S(n)+2.291 3	(1)	0	3031 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.18 eV 4. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.113 eV 12.
S(n)+2.292 2			2306 2	
S(n)+2.307 2			2321 2	
S(n)+2.321 2			2335 2	
S(n)+2.343 2			2357 2	
S(n)+2.358 2			2372 2	
S(n)+2.374 2			2388 2	
S(n)+2.389 2			2403 2	
S(n)+2.420 2			2434 2	
S(n)+2.432 2			2446 2	
S(n)+2.450 2			2465 2	
S(n)+2.462 2			2477 2	
S(n)+2.485 2			2500 2	
S(n)+2.499 2			2514 2	
S(n)+2.511 2			2526 2	
S(n)+2.524 2			2539 2	
S(n)+2.553 2			2568 2	
S(n)+2.566 2			2581 2	
S(n)+2.583 2			2598 2	
S(n)+2.612 3	(1)	0	2627 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.031 eV 5. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.0234 eV 36.
S(n)+2.618 3	(1)	0	2633 3	Γ <sub>γ</sub> =0.172 eV 8, 2gΓ <sub>n</sub> =0.53 eV 6. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.174 eV 5.
S(n)+2.634 3	(0)	0	2650 3	Γ <sub>γ</sub> =0.202 eV 24, 2gΓ <sub>n</sub> =0.35 eV 5. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.079 eV 7.
S(n)+2.638 3	(1)	0	2654 3	Γ <sub>γ</sub> =0.163 eV 10, 2gΓ <sub>n</sub> =0.458 eV 20. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.159 eV 7.
S(n)+2.644 3	(0)	0	2660 3	Γ <sub>γ</sub> =0.160 eV 16, 2gΓ <sub>n</sub> =0.336 eV 28. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.065 eV 5.
S(n)+2.656 3	(1)	0	2672 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.136 eV 13. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.078 eV 4.
S(n)+2.667 3	(1)	0	2683 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.0064 eV 20. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.0062 eV 18.
S(n)+2.674 3	(1)	0	2690 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.119 eV 11. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.072 eV 4.
S(n)+2.681 3	(1)	0	2697 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.058 eV 6. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.044 eV 4.
S(n)+2.692 3	(1)	0	2708 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.101 eV 10. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.065 eV 4.
S(n)+2.700 3	(1)	0	2716 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.0124 eV 22. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.0116 eV 20.
S(n)+2.710 <sup>‡</sup> 3		0	2726 3	2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.211 eV 12.
S(n)+2.714 3			2730 3	
S(n)+2.730 <sup>‡</sup> 3		0	2746 3	2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.194 eV 10.
S(n)+2.742 3	(1)	0	2758 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.043 eV 5. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.035 eV 3.
S(n)+2.751 <sup>‡</sup> 3	(0)	0	2767 3	Γ <sub>γ</sub> =0.114 eV 15, 2gΓ <sub>n</sub> =0.75 eV 8. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.053 eV 6.
S(n)+2.755 <sup>‡</sup> 3	(1)	0	2771 3	Γ <sub>γ</sub> =0.110 eV 6, 2gΓ <sub>n</sub> =1.21 eV 6. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.145 eV 7.
S(n)+2.759 <sup>‡</sup> 3	(0)	0	2775 3	Γ <sub>γ</sub> =0.153 eV 15, 2gΓ <sub>n</sub> =0.088 eV 80. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.070 eV 6.
S(n)+2.768 3	(1)	0	2784 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.15 eV 6. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.0140 eV 16.
S(n)+2.779 3	(1)	0	2795 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.52 eV 4. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.1334 eV 26.
S(n)+2.794 3	(1)	0	2811 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.138 eV 20. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.083 eV 4.
S(n)+2.799 3	(1)	0	2816 3	Γ <sub>γ</sub> =0.180 eV 14, 2gΓ <sub>n</sub> =0.394 eV 20. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.113 eV 4.
S(n)+2.804 3	(1)	0	2821 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =2.100 eV 16. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.164 eV 4.
S(n)+2.813 3	(1)	0	2830 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.030 eV 3. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.0260 eV 24.
S(n)+2.821 <sup>‡</sup> 3		0	2838 3	2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.242 eV 6.
S(n)+2.838 <sup>‡</sup> 3	(0)	0	2855 3	Γ <sub>γ</sub> =0.157 eV 18, 2gΓ <sub>n</sub> =0.218 eV 18. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.058 eV 5.
S(n)+2.841 <sup>‡</sup> 3	(1)	0	2858 3	Γ <sub>γ</sub> =0.191 eV 24, 2gΓ <sub>n</sub> =0.174 eV 10. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.108 eV 5.
S(n)+2.852 3	(1)	0	2869 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.548 eV 12. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.136 eV 6.
S(n)+2.861 3	(1)	0	2878 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.382 eV 8. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.122 eV 3.
S(n)+2.867 3	(1)	0	2884 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.112 eV 8. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.070 eV 2.
S(n)+2.879 3	(1)	0	2896 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.016 eV 4. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.015 eV 3.
S(n)+2.897 3	(1)	0	2914 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.143 eV 18. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.080 eV 6.
S(n)+2.907 <sup>‡</sup> 3	(1)	0	2924 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.098 eV 20. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.063 eV 8.
S(n)+2.910 <sup>‡</sup> 3	(1)	0	2927 3	Γ <sub>γ</sub> =0.141 eV 13, 2gΓ <sub>n</sub> =0.450 eV 18. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.144 eV 9.
S(n)+2.924 3	(1)	0	2941 3	Γ <sub>γ</sub> =0.154 eV 23, 2gΓ <sub>n</sub> =0.498 eV 18. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.158 eV 6.

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<sup>169</sup>Tm(n,γ) E=res **2006MuZX (continued)**

<sup>170</sup>Tm Levels (continued)

E(level) <sup>†</sup>	J <sup>π</sup>	L	E(lab) eV	Comments
S(n)+2.939 <sup>‡</sup> 3			2956 3	2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.083 eV 11.
S(n)+2.943 <sup>‡</sup> 3			2960 3	
S(n)+2.954 3	(1) 0	0	2971 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.208 eV 16. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.097 eV 3.
S(n)+2.963 3	(1) 0	0	2981 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.108 eV 8. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.067 eV 3.
S(n)+2.970 3	(1) 0	0	2988 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.758 eV 20. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.145 eV 8.
S(n)+2.981 3	(1) 0	0	2999 3	Γ <sub>γ</sub> =0.123 eV 40, 2gΓ <sub>n</sub> =0.166 eV 30. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.099 eV 6.
S(n)+2.988 3	(0) 0	0	3006 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.14 eV 4. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.042 eV 5.
S(n)+2.997 3	(1) 0	0	3015 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.053 eV 7. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.041 eV 4.
S(n)+3.039 3	(1) 0	0	3057 3	Γ <sub>γ</sub> =0.133 eV 8, 2gΓ <sub>n</sub> =0.72 eV 3. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.156 eV 8.
S(n)+3.048 3	(1) 0	0	3066 3	Γ <sub>γ</sub> =0.173 eV 7, 2gΓ <sub>n</sub> =0.244 eV 30. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.126 eV 3.
S(n)+3.055 3	(1) 0	0	3073 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.144 eV 20. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.0134 eV 16.
S(n)+3.066 3	(0) 0	0	3084 3	Γ <sub>γ</sub> =0.138 eV 15, 2gΓ <sub>n</sub> =0.81 eV 10. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.0634 eV 24.
S(n)+3.072 3	(1) 0	0	3093 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.0400 eV 26. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.0328 eV 16.
S(n)+3.090 3	(1) 0	0	3108 3	Γ <sub>γ</sub> =0.170 eV 16, 2gΓ <sub>n</sub> =0.55 eV 6. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.174 eV 7.
S(n)+3.104 3	(1) 0	0	3122 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.076 eV 4. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.054 eV 5.
S(n)+3.123 3	(1) 0	0	3141 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.172 eV 22. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.088 eV 6.
S(n)+3.134 <sup>‡</sup> 3		0	3153 3	2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.234 eV 3.
S(n)+3.143 3	(1) 0	0	3162 3	Γ <sub>γ</sub> =0.12 eV 9, 2gΓ <sub>n</sub> =0.28 eV 5. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.109 eV 8.
S(n)+3.155 3	(1) 0	0	3174 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.086 eV 12. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.0582 eV 20.
S(n)+3.169 3	(1) 0	0	3188 3	Γ <sub>γ</sub> =0.12 eV 4, 2gΓ <sub>n</sub> =0.44 eV 3. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.128 eV 3.
S(n)+3.182 3	(0) 0	0	3201 3	Γ <sub>γ</sub> =0.121 eV 15, 2gΓ <sub>n</sub> =0.52 eV 6. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.070 eV 6.
S(n)+3.193 3	(1) 0	0	3212 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.097 eV 11. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.063 eV 5.
S(n)+3.214 3	(1) 0	0	3233 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.071 eV 14. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.055 eV 4.
S(n)+3.231 3	(1) 0	0	3250 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.110 eV 12. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.065 eV 5.
S(n)+3.245 3	(1) 0	0	3264 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.24 eV 3. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.102 eV 6.
S(n)+3.257 3	(1) 0	0	3276 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.090 eV 10. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.060 eV 5.
S(n)+3.269 <sup>‡</sup> 3		0	3288 3	2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.147 eV 7.
S(n)+3.282 3	(1) 0	0	3301 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.016 eV 4. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.015 eV 3.
S(n)+3.289 3	(1) 0	0	3308 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.012 eV 4. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.0112 eV 24.
S(n)+3.310 3	(1) 0	0	3330 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.274 eV 28. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.109 eV 6.
S(n)+3.324 3	(1) 0	0	3344 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.014 eV 3. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.0134 eV 26.
S(n)+3.339 3	(1) 0	0	3359 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.030 eV 5. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.026 eV 3.
S(n)+3.348 3	(1) 0	0	3368 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.220 eV 22. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.099 eV 5.
S(n)+3.364 3	(1) 0	0	3384 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.122 eV 14. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.072 eV 5.
S(n)+3.394 3	(1) 0	0	3414 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =1.08 eV 4. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.154 eV 7.
S(n)+3.411 <sup>‡</sup> 3	(1) 0	0	3431 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.34 eV 6. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.118 eV 7.
S(n)+3.417 <sup>‡</sup> 3	(1) 0	0	3437 3	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.046 eV 10. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.037 eV 6.
S(n)+3.436 4	(0) 0	0	3456 4	Γ <sub>γ</sub> =0.155 eV 10, 2gΓ <sub>n</sub> =0.706 eV 11. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.070 eV 4.
S(n)+3.444 4	(1) 0	0	3464 4	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.304 eV 28. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.113 eV 4.
S(n)+3.456 4	(1) 0	0	3476 4	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.238 eV 18. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.102 eV 3.
S(n)+3.470 4	(1) 0	0	3491 4	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.030 eV 4. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.025 eV 3.
S(n)+3.479 4	(1) 0	0	3500 4	Γ <sub>γ</sub> =0.077 eV 15, 2gΓ <sub>n</sub> =1.17 eV 6. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.105 eV 6.
S(n)+3.489 <sup>‡</sup> 4		0	3510 4	2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.136 eV 10.
S(n)+3.494 4			3515 4	
S(n)+3.505 4	(1) 0	0	3526 4	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.124 eV 12. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.073 eV 4.
S(n)+3.514 4	(1) 0	0	3535 4	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.078 eV 8. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.054 eV 4.
S(n)+3.527 4	(1) 0	0	3548 4	Γ <sub>γ</sub> =0.168 eV 14, 2gΓ <sub>n</sub> =0.268 eV 20. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.130 eV 6.
S(n)+3.547 4	(1) 0	0	3568 4	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =1.01 eV 3. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.149 eV 6.
S(n)+3.563 4	(1) 0	0	3584 4	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.306 eV 22. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.101 eV 5.
S(n)+3.575 4	(1) 0	0	3596 4	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.034 eV 4. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.028 eV 3.
S(n)+3.585 4	(1) 0	0	3606 4	Γ <sub>γ</sub> =0.166 eV 10, 2gΓ <sub>n</sub> =0.546 eV 22. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.171 eV 5.
S(n)+3.592 4	(1) 0	0	3613 4	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.082 eV 8. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.057 eV 4.
S(n)+3.612 4	(1) 0	0	3633 4	Γ <sub>γ</sub> =0.130 eV 23, 2gΓ <sub>n</sub> =0.104 eV 8. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.068 eV 10.
S(n)+3.620 4	(1) 0	0	3641 4	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.071 eV 8. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.051 eV 4.
S(n)+3.631 4	(1) 0	0	3652 4	Γ <sub>γ</sub> =(0.120 eV), 2gΓ <sub>n</sub> =0.020 eV 3. 2gΓ <sub>γ</sub> Γ <sub>n</sub> /Γ=0.0182 eV 24.

Continued on next page (footnotes at end of table)

$^{169}\text{Tm}(n,\gamma)$  E=res **2006MuZX** (continued) $^{170}\text{Tm}$  Levels (continued)

E(level) <sup>†</sup>	J <sup>π</sup>	L	E(lab) eV	Comments
S(n)+3.640 4		0	3662 4	$\Gamma_\gamma=(0.120\text{ eV})$ , $2g\Gamma_n=0.072\text{ eV}$ 7. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.052\text{ eV}$ 4.
S(n)+3.656 4	(1)	0	3678 4	$\Gamma_\gamma=0.120\text{ eV}$ 14, $2g\Gamma_n=0.17\text{ eV}$ 4. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.089\text{ eV}$ 5.
S(n)+3.668 4	(1)	0	3690 4	$\Gamma_\gamma=(0.120\text{ eV})$ , $2g\Gamma_n=0.008\text{ eV}$ 2. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.0076\text{ eV}$ 20.
S(n)+3.677 4	(1)	0	3699 4	$\Gamma_\gamma=0.083\text{ eV}$ , $2g\Gamma_n=0.66\text{ eV}$ 3. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.105\text{ eV}$ 6.
S(n)+3.687 4		1	3709 4	$2g\Gamma_n=0.004\text{ eV}$ 2. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.002\text{ eV}$ .
S(n)+3.694 4		1	3716 4	$2g\Gamma_n=0.006\text{ eV}$ 3. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.0029\text{ eV}$ .
S(n)+3.704 4	(1)	0	3726 4	$\Gamma_\gamma=0.194\text{ eV}$ 12, $2g\Gamma_n=0.230\text{ eV}$ 20. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.129\text{ eV}$ 6.
S(n)+3.714 4	(1)	0	3736 4	$\Gamma_\gamma=(0.120\text{ eV})$ , $2g\Gamma_n=0.36\text{ eV}$ 6. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.120\text{ eV}$ 6.
S(n)+3.723 <sup>‡</sup> 4		0	3745 4	$2g\Gamma_\gamma\Gamma_n/\Gamma=0.178\text{ eV}$ 7.
S(n)+3.741 4	(1)	0	3763 4	$\Gamma_\gamma=(0.120\text{ eV})$ , $2g\Gamma_n=0.080\text{ eV}$ 7. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.055\text{ eV}$ 4.
S(n)+3.756 4	(1)	0	3778 4	$\Gamma_\gamma=(0.120\text{ eV})$ , $2g\Gamma_n=0.150\text{ eV}$ 10. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.082\text{ eV}$ 3.
S(n)+3.764 4	(1)	0	3786 4	$\Gamma_\gamma=0.140\text{ eV}$ , $2g\Gamma_n=0.644\text{ eV}$ 14. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.158\text{ eV}$ 6.
S(n)+3.772 4	1	0	3794 4	$\Gamma_\gamma=0.120\text{ eV}$ 22, $2g\Gamma_n=0.090\text{ eV}$ 8. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.060\text{ eV}$ 3.
S(n)+3.778 4	(1)	0	3800 4	$\Gamma_\gamma=0.124\text{ eV}$ 10, $2g\Gamma_n=0.270\text{ eV}$ 28. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.110\text{ eV}$ 5.
S(n)+3.786 4	(1)	0	3808 4	$\Gamma_\gamma=0.150\text{ eV}$ , $2g\Gamma_n=0.442\text{ eV}$ 30. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.149\text{ eV}$ 5.
S(n)+3.796 4	(1)	0	3818 4	$\Gamma_\gamma=0.145\text{ eV}$ 13, $2g\Gamma_n=0.184\text{ eV}$ 20. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.100\text{ eV}$ 4.
S(n)+3.807 4	(1)	0	3830 4	$\Gamma_\gamma=0.120\text{ eV}$ 26, $2g\Gamma_n=0.508\text{ eV}$ 12. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.128\text{ eV}$ 5.
S(n)+3.818 4	(1)	0	3841 4	$\Gamma_\gamma=0.131\text{ eV}$ 9, $2g\Gamma_n=0.86\text{ eV}$ 6. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.160\text{ eV}$ 9.
S(n)+3.824 4	(1)	0	3847 4	$\Gamma_\gamma=0.121\text{ eV}$ 10, $2g\Gamma_n=0.32\text{ eV}$ 3. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.116\text{ eV}$ 6.
S(n)+3.830 4	(0)	0	3853 4	$\Gamma_\gamma=0.095\text{ eV}$ 12, $2g\Gamma_n=0.336\text{ eV}$ 9. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.042\text{ eV}$ 5.
S(n)+3.847 4	(1)	0	3870 4	$\Gamma_\gamma=(0.120\text{ eV})$ , $2g\Gamma_n=0.044\text{ eV}$ 8. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.036\text{ eV}$ 5.
S(n)+3.852 4	(1)	0	3875 4	$\Gamma_\gamma=(0.120\text{ eV})$ , $2g\Gamma_n=0.180\text{ eV}$ 18. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.090\text{ eV}$ 5.
S(n)+3.861 4	(1)	0	3884 4	$\Gamma_\gamma=(0.120\text{ eV})$ , $2g\Gamma_n=0.120\text{ eV}$ 12. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.072\text{ eV}$ 4.
S(n)+3.868 4	(1)	0	3891 4	$\Gamma_\gamma=(0.120\text{ eV})$ , $2g\Gamma_n=0.028\text{ eV}$ 5. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.024\text{ eV}$ 4.
S(n)+3.882 4	(1)	0	3905 4	$\Gamma_\gamma=(0.120\text{ eV})$ , $2g\Gamma_n=0.35\text{ eV}$ 8. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.119\text{ eV}$ 4.
S(n)+3.892 4	(1)	0	3915 4	$\Gamma_\gamma=(0.120\text{ eV})$ , $2g\Gamma_n=0.158\text{ eV}$ 16. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.084\text{ eV}$ 5.
S(n)+3.900 4	(1)	0	3923 4	$\Gamma_\gamma=(0.120\text{ eV})$ , $2g\Gamma_n=0.39\text{ eV}$ 7. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.123\text{ eV}$ 5.
S(n)+3.903 4	(1)	0	3926 4	$\Gamma_\gamma=(0.120\text{ eV})$ , $2g\Gamma_n=0.064\text{ eV}$ 6. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.047\text{ eV}$ 4.
S(n)+3.929 4	(1)	0	3952 4	$\Gamma_\gamma=(0.120\text{ eV})$ , $2g\Gamma_n=0.074\text{ eV}$ 6. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.053\text{ eV}$ 3.
S(n)+3.937 4	(1)	0	3960 4	$\Gamma_\gamma=(0.120\text{ eV})$ , $2g\Gamma_n=0.022\text{ eV}$ 4. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.0188\text{ eV}$ 22.
S(n)+3.945 4	(1)	0	3968 4	$2g\Gamma_n=0.146\text{ eV}$ 12. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.080\text{ eV}$ 3.
S(n)+3.954 4	(1)	0	3977 4	$\Gamma_\gamma=(0.120\text{ eV})$ , $2g\Gamma_n=0.026\text{ eV}$ 4. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.0232\text{ eV}$ 22.
S(n)+3.963 4	(1)	0	3986 4	$\Gamma_\gamma=(0.120\text{ eV})$ , $2g\Gamma_n=0.066\text{ eV}$ 6. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.0478\text{ eV}$ 26.
S(n)+3.975 4	(1)	0	3999 4	$\Gamma_\gamma=(0.120\text{ eV})$ , $2g\Gamma_n=0.252\text{ eV}$ 22. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.105\text{ eV}$ 4.
S(n)+3.987 4	(1)	0	4011 4	$\Gamma_\gamma=(0.120\text{ eV})$ , $2g\Gamma_n=0.090\text{ eV}$ 8. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.060\text{ eV}$ 3.
S(n)+4.005 4	(1)	0	4029 4	$\Gamma_\gamma=(0.120\text{ eV})$ , $2g\Gamma_n=0.0114\text{ eV}$ 20. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.0108\text{ eV}$ 20.
S(n)+4.013 4	(1)	0	4037 4	$\Gamma_\gamma=(0.120\text{ eV})$ , $2g\Gamma_n=0.018\text{ eV}$ 3. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.0166\text{ eV}$ 26.
S(n)+4.021 4	(1)	0	4045 4	$\Gamma_\gamma=(0.120\text{ eV})$ , $2g\Gamma_n=0.35\text{ eV}$ 6. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.118\text{ eV}$ 7.
S(n)+4.026 4	(1)	0	4050 4	$\Gamma_\gamma=0.120\text{ eV}$ 13, $2g\Gamma_n=0.20\text{ eV}$ 4. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.095\text{ eV}$ 5.
S(n)+4.040 4	(1)	0	4064 4	$\Gamma_\gamma=(0.120\text{ eV})$ , $2g\Gamma_n=0.126\text{ eV}$ 14. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.074\text{ eV}$ 5.
S(n)+4.052 4	(1)	0	4076 4	$\Gamma_\gamma=(0.120\text{ eV})$ , $2g\Gamma_n=0.042\text{ eV}$ 8. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.033\text{ eV}$ 5.
S(n)+4.060 4	(1)	0	4084 4	$\Gamma_\gamma=(0.120\text{ eV})$ , $2g\Gamma_n=1.16\text{ eV}$ 6. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.1558\text{ eV}$ 14.
S(n)+4.079 4	(1)	0	4103 4	$\Gamma_\gamma=(0.120\text{ eV})$ , $2g\Gamma_n=0.97\text{ eV}$ 4. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.1518\text{ eV}$ 14.
S(n)+4.089 4	(1)	0	4113 4	$\Gamma_\gamma=(0.120\text{ eV})$ , $2g\Gamma_n=0.037\text{ eV}$ 5. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.031\text{ eV}$ 3.
S(n)+4.100 4		0	4124 4	$2g\Gamma_\gamma\Gamma_n/\Gamma=0.323\text{ eV}$ 18.
S(n)+4.107 4		0	4131 4	
S(n)+4.119 4	(1)	0	4143 4	$\Gamma_\gamma=(0.120\text{ eV})$ , $2g\Gamma_n=0.58\text{ eV}$ 10. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.137\text{ eV}$ 7.
S(n)+4.135 4	(1)	0	4159 4	$\Gamma_\gamma=(0.120\text{ eV})$ , $2g\Gamma_n=0.015\text{ eV}$ 4. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.014\text{ eV}$ 4.
S(n)+4.148 <sup>‡</sup> 4	(1)	0	4173 4	$\Gamma_\gamma=0.249\text{ eV}$ , $2g\Gamma_n=5.56\text{ eV}$ 3. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.350\text{ eV}$ 12.
S(n)+4.161 4	(1)	0	4186 4	$\Gamma_\gamma=(0.120\text{ eV})$ , $2g\Gamma_n=0.104\text{ eV}$ 20. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.066\text{ eV}$ 8.
S(n)+4.169 4	(1)	0	4194 4	$\Gamma_\gamma=0.252\text{ eV}$ 11, $2g\Gamma_n=4.06\text{ eV}$ 26. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.345\text{ eV}$ 13.
S(n)+4.184 4	(1)	0	4209 4	$\Gamma_\gamma=(0.120\text{ eV})$ , $2g\Gamma_n=0.024\text{ eV}$ 4. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.0212\text{ eV}$ 24.
S(n)+4.194 4	(0)	0	4219 4	$\Gamma_\gamma=0.132\text{ eV}$ 18, $2g\Gamma_n=0.38\text{ eV}$ 6. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.056\text{ eV}$ 6.

Continued on next page (footnotes at end of table)

$^{169}\text{Tm}(n,\gamma)$  E=res 2006MuZX (continued) $^{170}\text{Tm}$  Levels (continued)

<u>E(level)<sup>†</sup></u>	<u>J<sup>π</sup></u>	<u>L</u>	<u>E(lab) eV</u>	<u>Comments</u>
S(n)+4.200 4	(1)	0	4225 4	$\Gamma_\gamma=(0.120 \text{ eV})$ , $2g\Gamma_n=0.622 \text{ eV}$ 28. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.1396 \text{ eV}$ 20.
S(n)+4.211 4	(0)	0	4236 4	$\Gamma_\gamma=0.121 \text{ eV}$ 17, $2g\Gamma_n=0.112 \text{ eV}$ 20. $2g\Gamma_\gamma\Gamma_n/\Gamma=0.039 \text{ eV}$ 4.

<sup>†</sup> Given here As S(n)+E(n)(c.m.), where S(n)( $^{170}\text{Tm}$ )=6591.96 17 (2017Wa10) and E(n)(c.m.)=E(n)(lab)(169/170).

<sup>‡</sup> Possible multiplet.