

## SINGLE-PARTICLE ENERGY LEVELS IN A NILSSON WELL

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**Abstract:** A comprehensive table of energy levels of a single particle in a Nilsson well has been computed, using as a basis the coupled representation  $|j, j_3\rangle$ . The energy levels are also shown in graphs as a function of the nuclear deformation. Tables relating the various deformation parameters in common use and giving the energy levels for very small deformation are also presented. The decoupling parameter is also computed for all  $K = \frac{1}{2}$  states.

## 1. Introduction

In 1955 S. G. Nilsson<sup>1)</sup> published a tabulation of energy levels of a single spin- $\frac{1}{2}$  particle moving in a spheroidally-deformed harmonic oscillator well subject to  $l \cdot s$  coupling and  $l \cdot l$  centrifugal corrections. The calculation was done in an uncoupled representation  $|l_3 s_3\rangle$  in which components of the orbital and spin angular momentum along the axis of symmetry (3-axis) were diagonal. Since that time these results have enjoyed a wide application in the interpretation of single-particle energy levels in strongly deformed nuclei. A subsequent paper by Mottelson and Nilsson<sup>2)</sup> extended the calculation to the heaviest regions of the atomic table as well as modified some of the earlier results to fit experimental observations on the heavier nucleides.

For most purposes it is found that these results are more convenient if expressed directly in a coupled representation  $|j, j_3\rangle$ , where the total angular momentum and its component along the axis of symmetry are diagonal. The present tables are in this form and span the entire range discussed earlier in refs.<sup>1, 2)</sup>

For extremely small deformations the energy levels are susceptible to a perturbation solution. A table of these solutions is also presented.

## 2. Discussion

The Hamiltonian introduced by Nilsson<sup>1)</sup> is

$$H = \frac{p^2}{2m} + V(r) + Cl \cdot s + Dl \cdot l, \quad (1)$$

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where

$$V(\mathbf{r}) = \frac{1}{2}m \sum_{k=1}^3 \omega_k^2 x_k^2. \quad (2)$$

Here  $p$  and  $m$  are the momentum and mass of the particle while  $\mathbf{r}$  is its position, and  $\mathbf{l}$  and  $\mathbf{s}$  its orbital and spin angular momentum.  $C$  and  $D$  are parameters adjusted to reproduce the shell-model levels when the deformation vanishes.

Take

$$\begin{aligned} \omega_1^2 &= \omega_2^2 \equiv \omega_0^2(1 + \frac{2}{3}\delta), \\ \omega_3^2 &\equiv \omega_0^2(1 - \frac{4}{3}\delta). \end{aligned} \quad (3)$$

Thus  $\delta$  gives the degree of deformation;  $V(\mathbf{r})$  becoming spherically symmetric when  $\delta = 0$ . On noting that

$$r^2 Y_{20}(\theta, \varphi) = \frac{1}{4} \sqrt{\frac{5}{\pi}} (3x_3^2 - r^2), \quad (4)$$

one finds that

$$V(\mathbf{r}) = \frac{1}{3}m\omega_0^2 r^2 [1 - 2\beta Y_{20}(\theta, \varphi)], \quad (5)$$

where

$$\beta \equiv \frac{4}{3} \sqrt{\frac{1}{5}} \pi \delta, \quad (6)$$

the deformation parameter introduced by A. Bohr<sup>3)</sup>.

Let

$$\begin{aligned} \rho^2 &\equiv \frac{m\omega_0}{\hbar} r^2, \\ \nabla^2 &\equiv \frac{\hbar}{m\omega_0} \sum_{k=1}^3 \frac{\partial^2}{\partial x_k^2}. \end{aligned} \quad (7)$$

Then

$$\frac{H}{\hbar\omega_0} = \frac{1}{2}(-\nabla^2 + \rho^2) - \beta\rho^2 Y_{20}(\theta, \varphi) - 2\kappa \mathbf{l} \cdot \mathbf{s} - \mu \kappa \mathbf{l} \cdot \mathbf{l}, \quad (8)$$

where

$$\kappa = -\frac{C}{2\hbar\omega_0}, \quad \mu = \frac{2D}{C}. \quad (9)$$

We require the volume enclosed by any given spheroidal equipotential surface to remain constant under changes of  $\delta$ . If  $R_k$  are the semi-axes of such a surface, the potential at the intercepts with the surface is

$$V(R_1) = V(R_2) = V(R_3) \equiv V_0, \quad (10)$$

or

$$\omega_1^2 R_1^2 = \omega_2^2 R_2^2 = \omega_3^2 R_3^2 = \frac{2}{m} V_0. \quad (11)$$

Requiring the volume to be constant means that

$$R_1^2 R_2^2 R_3^2 = \text{const.} \quad (12)$$

or

$$\omega_1^2 \omega_2^2 \omega_3^2 = \text{const.} \equiv \omega_{00}^6, \quad (13)$$

but

$$\omega_1^2 \omega_2^2 \omega_3^2 = \omega_0^6 (1 + \frac{2}{3}\delta)^2 (1 - \frac{4}{3}\delta), \quad (14)$$

so

$$\omega_0 = \omega_{00} (1 - \frac{4}{3}\delta^2 - \frac{16}{27}\delta^3)^{-\frac{1}{6}} \quad (15)$$

and is a function of  $\delta$ . A choice of  $\delta > 0$  corresponds to a prolate shape,  $\delta < 0$  an oblate shape.

A related parameter  $\eta$  is defined to be  $\eta = \delta/\kappa$ . (This differs slightly ( $\lesssim 2\%$ ) from Nilsson's definition

$$\eta = \frac{\delta}{\kappa} \frac{\omega_0}{\omega_{00}} \quad (16)$$

in that his  $\kappa$  is  $\omega_0/\omega_{00}$  times ours). A table of  $\beta$ ,  $\eta$ ,  $\omega_0(\delta)/\omega_{00}$  and  $\omega_0(-\delta)/\omega_{00}$  is given for values of  $\delta$  from 0.0 to 0.3 in table 3.

The Hamiltonian matrix is calculated in a representation labelled by quantum numbers  $N$ ,  $l$ ,  $j$ ,  $K$  where

$$j = l + s, \quad (17)$$

$$\frac{1}{2}(-\nabla^2 + \rho^2)|NljK\rangle = (N + \frac{1}{2})|NljK\rangle, \quad N = 0, 1, 2, \dots, \quad (18)$$

$$l \cdot l |NljK\rangle = l(l+1)|NljK\rangle, \quad l = N, N-2, N-4, \dots, 1 \text{ or } 0, \quad (19)$$

$$j \cdot j |NljK\rangle = j(j+1)|NljK\rangle, \quad j = l \pm \frac{1}{2}, \quad (20)$$

$$j_3 |NljK\rangle = K |NljK\rangle, \quad K = -j, -j+1, \dots, j-1, j, \quad (21)$$

where  $K$  is Nilsson's  $\Omega$ . These base vectors are the eigenvectors of the isotropic harmonic oscillator. Since  $N-l$  must be even, each  $l$  corresponds to exactly one  $j$ , and vice versa.

Nonzero matrix elements of  $\rho^2 Y_{20}$  arise between states with  $N$  differing by an even integer. These are ignored. Thus the Hamiltonian mixes states of different  $l$  and  $j$ , but  $N$  and  $K$  remain constants of the motion.

Our choice of phases for the radial wave functions  $R_{Ni}(r)$  and therefore for the  $|NljK\rangle$  agrees with that of Morse and Feshbach<sup>4)</sup> and of de-Shalit and Talmi<sup>5)</sup> but differ from Nilsson's<sup>†</sup> by a factor  $(-1)^n$  where  $n = \frac{1}{2}(N-l)$ .

<sup>†</sup> See Nilsson, ref. <sup>1)</sup>, p. 35.

For very small deformations ( $\delta \approx 0$ ) deviations  $\Delta E$  from the spherical energy levels

$$E_{Nljk} = \hbar\omega_0[N + \frac{3}{2} - \kappa(2\mathbf{l} \cdot \mathbf{s} + \mu\mathbf{l} \cdot \mathbf{l})] \quad (22)$$

are given approximately by the diagonal matrix elements of the operator  $-\beta\rho^2 Y_{20}(\theta, \varphi)$ :

$$\Delta E_{Nljk} = \hbar\omega_0\beta(N + \frac{3}{2})G(j, K), \quad (23)$$

where

$$G(j, K) = -\langle ljK | Y_{20}(\theta, \varphi) | ljK \rangle \quad (24)$$

$$= \sqrt{\frac{5}{\pi}} \frac{[j(j+1) - 3K^2][\frac{3}{2} - j(j+1)]}{2(2j-1)j(j+1)(2j+3)}. \quad (25)$$

The function  $G(j, K)$  is tabulated in table 4. This result can also be used to find the slope of the energy levels at  $\delta = 0$ .

For very large deformations, on the other hand, the number of phonons corresponding to vibrations along the axis of symmetry as well as the component of orbital angular momentum along this axis become constants of the motion with quantum numbers  $n_3$  and  $\Lambda$  respectively. Every energy level corresponds to a unique combination of the numbers  $N, n_3, \Lambda$ ; this serves as an alternative means of labelling the levels.

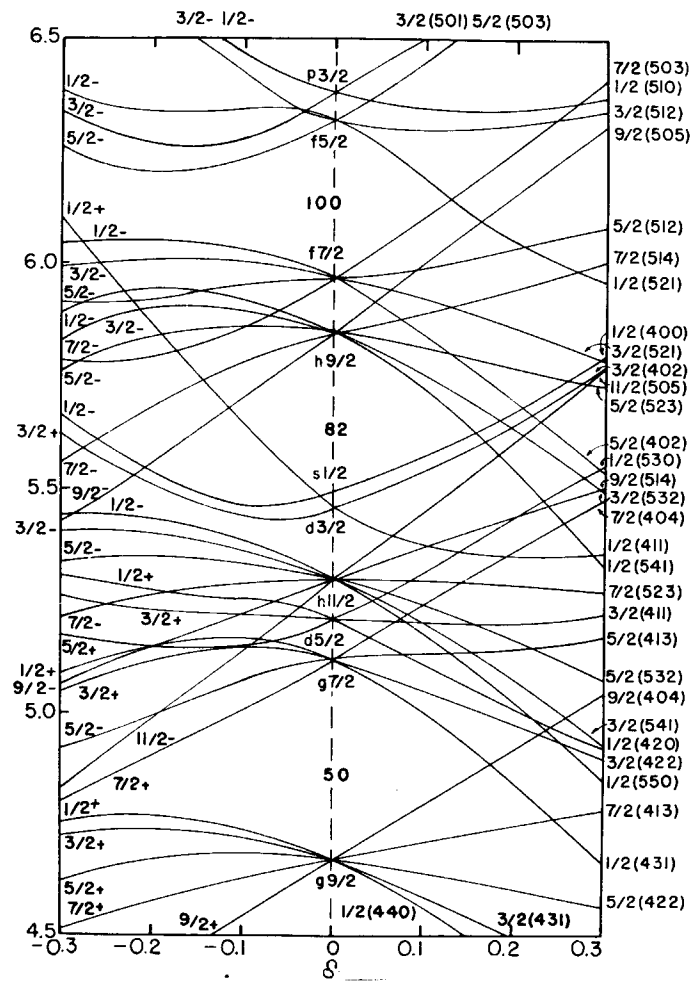
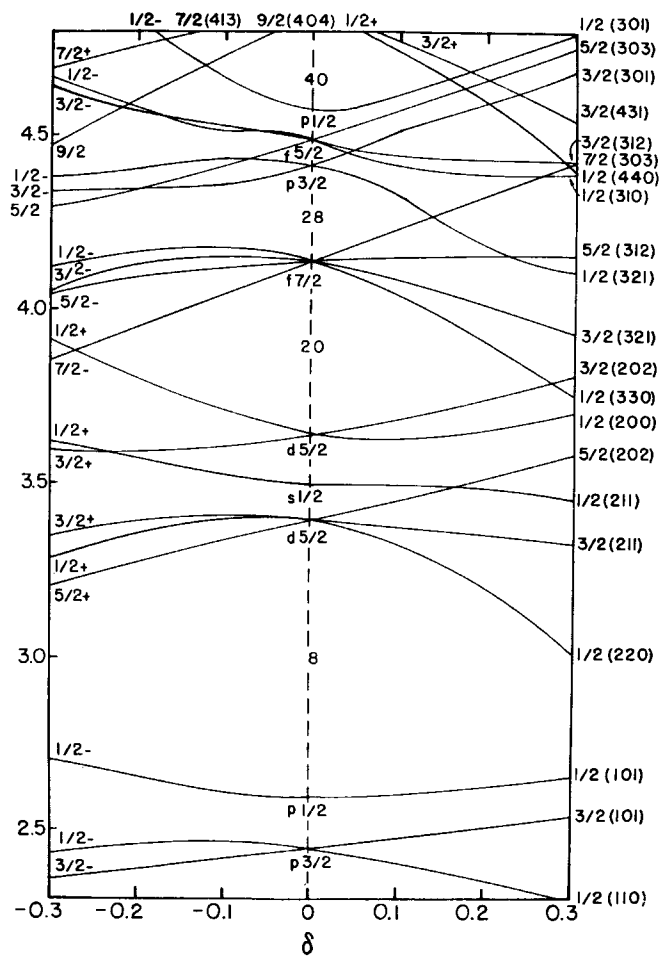
### 3. Computational Procedures

The matrix elements were computed and the Hamiltonian matrix diagonalized by the Jacobi method. As the latter does not yield the eigenstates in any particular ordering, it was necessary to determine which eigenstates (for given  $N, K$ ) correspond to which for adjacent values of  $\delta$ . The scheme devised was to first permute the eigenstates for given  $\delta$  into all possible orderings. For each ordering, the absolute value of the inner product of each eigenstate with the corresponding eigenstate for  $\delta = 0.1$  was computed. The final ordering chosen was the one that maximized the sum of these products over all eigenstates. Effectively, the ordering chosen was the one in which the eigenstates changed most slowly with  $\delta$ . The procedure is time-consuming for large  $N$  (up to 8! permutations of eigenstates) but seems to be entirely reliable.

The asymptotic quantum numbers ( $N, n_3, \Lambda$ ) were assigned as follows: For given  $N, K$ , the most energetic state has  $n_3 = 0$ , the next highest  $n_3 = 1$  etc. Then  $\Lambda$  can be determined, being equal to  $K \pm \frac{1}{2}$  and such that  $N + n_3 + \Lambda$  is even.

### 4. Results

Energy eigenvalues and eigenvectors of the Nilsson potential were obtained for the values of the parameter  $\mu$  indicated in table 1. These results are displayed in table 5. Graphs of the energy levels, labelled by  $K$ , the parity and asymptotic quantum numbers are shown in figs. 1-5, as indicated in table 2. The energy is in units of  $\hbar\omega_0$ . The





eigenvalues appear to be in complete agreement with Nilsson's wherever the same parameters are used. The parameter  $\kappa$  is taken as 0.05 throughout.

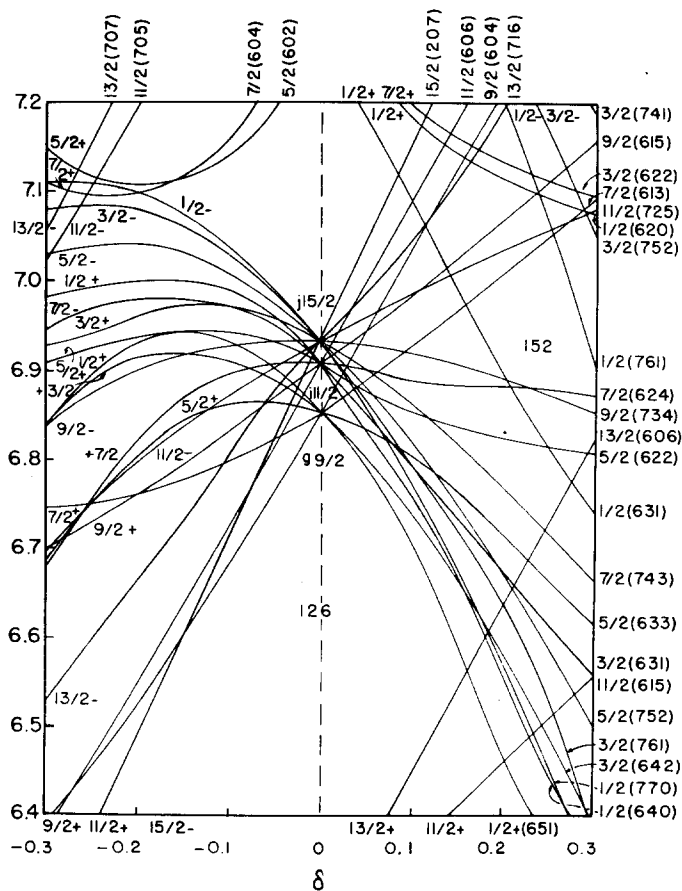


Fig. 5.

TABLE 1  
Values of  $\mu$  used for each principal quantum number  $N$

$N$	$\mu$
0	0
1	0
2	0
3	0.350
4	0.450, 0.625
5	0.450, 0.630, 0.700
6	0.448, 0.620
7	0.434

Table 5 gives the eigenstates for each  $N$  and  $K$ , the eigenvalues being those of  $H/\hbar\omega_0$ . Each eigenvalue is followed by its corresponding eigenvector components  $C_{JK}$ . If  $K = \frac{1}{2}$ , the decoupling parameter <sup>1)</sup>

$$a = - \sum_{j=\frac{1}{2}}^{N+\frac{1}{2}} (-)^{j+\frac{1}{2}} (j+\frac{1}{2}) C_{j\frac{1}{2}}^2 \quad (26)$$

is also shown. Along with the  $K$ -value of each eigenstate is given the asymptotic quantum numbers  $N$ ,  $n_3$ ,  $A$ , in parentheses. The  $C_{JK}$  are normalized.

TABLE 2  
Key to graphs of energy eigenvalues

Fig	$N$	Application
1	1, 2( $\mu = 0$ ), 3( $\mu = 0.35$ )	1p, 2s-1d, 2p-1f shells
2	4( $\mu = 0.625$ ), 5( $\mu = 0.630$ )	50 < $Z$ < 82
3	5( $\mu = 0.450$ ), 6( $\mu = 0.448$ )	82 < $N$ < 126
4	5( $\mu = 0.700$ ), 6( $\mu = 0.620$ )	$Z > 82$
5	6( $\mu = 0.448$ ), 7( $\mu = 0.434$ )	$N > 126$

A FORTRAN-IV programme for computing these results is available from the author.

The use of the Univac 1107 computer at the Case Computing Center is gratefully acknowledged.

### References

- 1) S. G. Nilsson, Mat. Fys. Medd. Dan. Vid. Selsk. **29**, No. 16 (1955)
- 2) B. R. Mottelson and S. G. Nilsson, Mat. Fys. Skr. Dan. Vid. Selsk. **1**, No. 8 (1959)
- 3) A. Bohr, Mat. Fys. Medd. Dan. Vid. Selsk. **26**, No. 14 (1952)
- 4) P. M. Morse and H. Feshbach, Methods of theoretical physics, vol. II (McGraw-Hill, New York, 1953) p. 1662
- 5) A. de-Shalit and I. Talmi, Nuclear shell theory (Academic Press, New York, 1963) p. 40



TABLE 3  
Relations among  $\delta$ ,  $\beta$ ,  $\eta$  and  $\omega_0/\omega_{00}$

 $G(j, K)$ 

$K$ $j$	1/2	3/2	5/2	7/2	9/2	11/2	13/2	15/2
1/2	.00000							
3/2	-.12616	.12616						
5/2	-.14418	-.03604	.18022					
7/2	-.15019	-.09011	.03004	.21026				
9/2	-.15292	-.11469	-.03823	.07646	.22938			
11/2	-.15439	-.12792	-.07499	.00441	.11028	.24261		
13/2	-.15527	-.13586	-.09704	-.03882	.03882	.13586	.25231	
15/2	-.15584	-.14100	-.11131	-.06679	-.00742	.06679	.15584	.25973

TABLE 4  
Solutions of the Nilsson Hamiltonian for  $\delta \cong 0$

$\delta$	$\beta$	$\eta$	$\omega_0(+\delta)/\omega_{00}$	$\omega_0(-\delta)/\omega_{00}$
.00	.000000	.00000	1.00000	1.00000
.01	.010372	.20000	1.00002	1.00002
.02	.020743	.40000	1.00009	1.00009
.03	.031115	.60000	1.00020	1.00020
.04	.041486	.80000	1.00036	1.00035
.05	.051858	1.00000	1.00057	1.00054
.06	.062229	1.20000	1.00082	1.00078
.07	.072601	1.40000	1.00113	1.00106
.08	.082972	1.60000	1.00148	1.00138
.09	.093344	1.80000	1.00188	1.00174
.10	.103716	2.00000	1.00234	1.00214
.11	.114087	2.20000	1.00285	1.00258
.12	.124459	2.40000	1.00341	1.00306
.13	.134830	2.60000	1.00403	1.00358
.14	.145202	2.80000	1.00470	1.00414
.15	.155573	3.00000	1.00544	1.00474
.16	.165945	3.20000	1.00623	1.00538
.17	.176317	3.40000	1.00708	1.00606
.18	.186688	3.60000	1.00800	1.00678
.19	.197060	3.80000	1.00897	1.00754
.20	.207431	4.00000	1.01002	1.00834
.21	.217803	4.20000	1.01114	1.00917
.22	.228174	4.40000	1.01232	1.01005
.23	.238546	4.60000	1.01358	1.01096
.24	.248917	4.80000	1.01491	1.01192
.25	.259289	5.00000	1.01633	1.01291
.26	.269661	5.20000	1.01782	1.01394
.27	.280032	5.40000	1.01940	1.01501
.28	.290404	5.60000	1.02106	1.01613
.29	.300775	5.80000	1.02281	1.01728
.30	.311147	6.00000	1.02466	1.01847

TABLE 5  
Eigenstates of the Nilsson Hamiltonian

$N = 0$							
$\delta =$							
	-0.3	-0.2	-0.1	0.0	0.1	0.2	0.3
$K = 1/2, (000)$							
$E$	1.500000	1.500000	1.500000	1.500000	1.500000	1.500000	1.500000
$a$	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
$l \quad j$							
0 $1/2$	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
$N = 1$							
$\delta =$							
	-0.3	-0.2	-0.1	0.0	0.1	0.2	0.3
$K = 3/2, (101)$							
$E$	2.350000	2.383333	2.416667	2.450000	2.483333	2.516667	2.550000
$l \quad j$							
1 $3/2$	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
$K = 1/2, (110)$							
$E$	2.431386	2.455256	2.466667	2.450000	2.405256	2.348052	2.286254
$a$	-.761115	-1.106337	-1.666665	-2.000000	-1.833945	-1.631504	-1.493398
$l \quad j$							
1 $1/2$	.642621	.545791	.333334	.000000	-.235269	-.350474	-.410935
1 $3/2$	.766184	.837921	.942809	1.000000	.971930	.936572	.911665
$K = 1/2, (101)$							
$E$	2.718614	2.661411	2.616667	2.600000	2.611411	2.635281	2.663746
$a$	-.238885	.106337	.666665	1.000000	.833945	.631504	.493398
$l \quad j$							
1 $1/2$	.766184	.837921	.942809	1.000000	.971930	.936572	.911665
1 $3/2$	-.642621	-.545791	-.333334	.000000	.235269	.350474	.410935
$N = 2$							
$\delta =$							
	-0.3	-0.2	-0.1	0.0	0.1	0.2	0.3
$K = 5/2, (202)$							
$E$	3.200000	3.266666	3.333333	3.400000	3.466667	3.533334	3.600000
$l \quad j$							
2 $5/2$	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
$K = 3/2, (211)$							
$E$	3.350000	3.388589	3.405256	3.400000	3.381589	3.356777	3.328778
$l \quad j$							
2 $3/2$	.600001	.429773	.197946	.000000	-.125942	-.202661	-.251796
2 $5/2$	.799999	.902937	.980213	1.000000	.992038	.979249	.967780

TABLE 5 (continued)

 $K = 3/2$ , (202)

$E$	3.600000	3.594744	3.611411	3.650000	3.701745	3.759890	3.821222
$l \quad j$							
2 3/2	.799999	.902937	.980213	1.000000	.992038	.979249	.967780
2 5/2	-.600001	-.429773	-.197946	.000000	.125942	.202661	.251796

 $K = 1/2$ , (220)

$E$	3.285635	3.346382	3.398255	3.400000	3.312473	3.196958	3.072907
$a$	1.537405	1.742824	2.220935	3.000000	2.599129	2.217936	1.962159
$l \quad j$							
0 1/2	.781036	.745359	.611466	.000000	-.395920	-.496583	-.532956
2 3/2	-.220255	-.170912	-.079099	.000000	-.132186	-.240364	-.306515
2 5/2	.584355	.644382	.787307	1.000000	.908721	.834045	.788674

 $K = 1/2$ , (211)

$E$	3.628406	3.584660	3.533333	3.500000	3.506007	3.488141	3.457374
$a$	.884746	1.199178	1.400000	1.000000	.800406	.142953	-.113242
$l \quad j$							
0 1/2	-.357242	-.490690	.730296	1.000000	.805854	.529234	.370421
2 3/2	.609920	.513667	-.326599	.000000	.424450	.677771	.753501
2 5/2	.707373	.703825	-.600001	.000000	.412844	.510429	.543162

 $K = 1/2$ , (200)

$E$	3.935960	3.818958	3.718412	3.650000	3.631520	3.664900	3.719718
$a$	-.422151	-.942002	-1.620936	-2.000000	-1.399535	-.360889	.151084
$l \quad j$							
0 1/2	.512212	.451290	.304594	.000000	-.440279	-.687980	-.760754
2 3/2	.761240	.840794	.941847	1.000000	.895750	.694875	.581622
2 5/2	-.397685	-.299001	-.141938	.000000	-.061526	-.209361	-.288043

 $N = 3$  $\kappa = .0500, \mu = .3500$ 

$\delta =$	-0.3	-0.2	-0.1	0.0	0.1	0.2	0.3
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 $K = 7/2$ , (303)

$E$	3.839999	3.939999	4.040000	4.140000	4.240000	4.340001	4.440001
$l \quad j$							
3 7/2	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000

 $K = 5/2$ , (312)

$E$	4.040000	4.090000	4.121386	4.140000	4.151400	4.158826	4.163960
$l \quad j$							
3 5/2	.478093	.292771	.122758	.000000	-.082190	-.137916	-.177162
3 7/2	.878309	.956183	.992437	1.000000	.996617	.990444	.984182

 $K = 5/2$ , (303)

$E$	4.290000	4.340000	4.408614	4.490000	4.578600	4.671174	4.766041
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TABLE 5 (continued)

$l$	$j$							
3	5/2	.878309	.956183	.992437	1.000000	.996617	.990444	.984182
3	7/2	-.478093	-.292771	-.122758	.000000	.082190	.137916	.177162
$K = 3/2, (321)$								
	$E$	4.044778	4.120514	4.159075	4.140000	4.082418	4.006398	3.921189
$l$	$j$							
1	3/2	.753784	.620333	.319279	.000000	-.178331	-.269492	-.319783
3	5/2	-.088085	-.026147	.034524	.000000	-.087570	-.165749	-.223985
3	7/2	.651192	.783902	.947032	1.000000	.980066	.948631	.920635
$K = 3/2, (301)$								
	$E$	4.347307	4.343786	4.361758	4.415000	4.519044	4.604558	4.698359
$l$	$j$							
1	3/2	-.486654	.677093	.901363	1.000000	.754177	.879894	.900123
3	5/2	.591069	-.486615	-.319601	.000000	-.651904	-.442708	-.375197
3	7/2	.643276	-.552042	-.292232	.000000	.078980	.172613	.221375
$K = 3/2, (312)$								
	$E$	4.652915	4.580700	4.524167	4.490000	4.443538	4.434044	4.425452
$l$	$j$							
1	3/2	.441562	.395893	.292583	.000000	.631993	.391356	.295835
3	5/2	.801797	.873225	.946923	1.000000	.753228	.881213	.899477
3	7/2	-.402672	-.284160	-.133160	.000000	.182298	.265148	.321595
$K = 1/2, (330)$								
	$E$	4.111032	4.166684	4.181206	4.140000	4.040209	3.895684	3.725660
	$a$	-2.221912	-3.082847	-3.771187	-4.000000	-3.795338	-3.328256	-2.856686
$l$	$j$							
1	1/2	.423652	.258272	.075277	.000000	.055656	.152180	.228333
1	3/2	.582605	.511303	.312364	.000000	-.292521	-.467301	-.550308
3	5/2	.169800	.093174	.027613	.000000	-.050761	-.130499	-.198910
3	7/2	.672501	.814361	.946573	1.000000	.953288	.861070	.778113
$K = 1/2, (321)$								
	$E$	4.376761	4.399385	4.436239	4.415000	4.325982	4.208606	4.096700
	$a$	.024958	.414982	-.306177	-2.000000	-.390035	.529431	.600188
$l$	$j$							
1	1/2	-.674927	.731584	.644561	.000000	-.429092	-.505209	-.501222
1	3/2	.009670	.220830	.627811	1.000000	.709353	.402150	.229377
3	5/2	-.499591	.484233	.343975	.000000	.490335	.646949	.680214
3	7/2	.542945	-.426072	-.268468	.000000	.268830	.405581	.483188
$K = 1/2, (310)$								
	$E$	4.681000	4.588942	4.512864	4.490000	4.418220	4.392454	4.381338
	$a$	-.214396	-.083091	.899380	3.000000	1.168900	-.054873	-.462268
$l$	$j$							
1	1/2	-.135218	-.029407	.253520	.000000	-.131971	-.040122	-.125483
1	3/2	-.601714	-.665492	-.600198	.000000	-.579931	.702035	.697431

TABLE 5 (continued)

3	5/2	.651379	.657574	.742346	1.000000	.793652	-.649326	-.595960
3	7/2	.441997	.351926	.156245	.000000	-.127989	.289676	.377724

 $K = 1/2, (301)$ 

$E$	5.041208	4.854989	4.679692	4.565000	4.625588	4.713255	4.806300
$a$	.411350	.750957	1.177984	1.000000	1.016473	.853698	.718766

 $l \quad j$ 

1	1/2	-.588820	.630251	.717357	1.000000	.891833	.848526	.825163
1	3/2	.546276	-.496914	-.384766	.000000	.273733	.356443	.397664
3	5/2	.545235	-.569590	-.574318	.000000	.356527	.377892	.377590
3	7/2	-.239984	.177279	.086676	.000000	.050913	.100749	.135626

 $N = 4$  $\kappa = .0500, \mu = .4500$ 

$\delta =$	-0.3	-0.2	-0.1	0.0	0.1	0.2	0.3
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 $K = 9/2, (404)$ 

$E$	4.449999	4.583333	4.716666	4.850000	4.983334	5.116667	5.250001
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 $l \quad j$ 

4	9/2	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
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 $K = 7/2, (413)$ 

$E$	4.681385	4.748255	4.802921	4.850000	4.892580	4.932434	4.970564
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 $l \quad j$ 

4	7/2	.350475	.200388	.083544	.000000	-.059232	-.102164	-.134216
4	9/2	.936572	.979717	.996504	1.000000	.998244	.994768	.990952

 $K = 7/2, (404)$ 

$E$	4.968613	5.068411	5.180412	5.300000	5.424087	5.550900	5.679437
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 $l \quad j$ 

4	7/2	.936572	.979717	.996504	1.000000	.998244	.994768	.990952
4	9/2	-.350475	-.200388	-.083544	.000000	.059232	.102164	.134216

 $K = 5/2, (422)$ 

$E$	4.747743	4.826534	4.858351	4.850000	4.818622	4.774675	4.723494
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 $l \quad j$ 

2	5/2	.674482	.462740	.194412	.000000	-.114983	-.183759	-.227251
4	7/2	-.001969	.050240	.053448	.000000	-.066606	-.125001	-.171559
4	9/2	.738289	.885069	.979463	1.000000	.991132	.974991	.958605

 $K = 5/2, (402)$ 

$E$	5.035890	5.082024	5.161008	5.265000	5.389151	5.513832	5.641917
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 $l \quad j$ 

2	5/2	.624261	.812647	.939659	1.000000	.917707	.943207	.946762
4	7/2	-.532376	-.422981	-.296702	.000000	-.389054	-.301684	-.269417
4	9/2	-.571728	-.400865	-.170321	.000000	.080319	.139091	.176226

TABLE 5 (continued)

 $K = 5/2$ , (413)

$E$	5.331367	5.306442	5.295641	5.300000	5.307228	5.326493	5.349590
$l \quad j$							
2 5/2	.394173	.354228	.281505	.000000	.380254	.276753	.228031
4 7/2	.846505	.904745	.953473	1.000000	.918804	.945178	.947619
4 9/2	-.357849	-.236558	-.107905	.000000	.105860	.173339	.223651

 $K = 3/2$ , (431)

$E$	4.852377	4.894469	4.894811	4.850000	4.764685	4.650284	4.517533
$l \quad j$							
2 3/2	.293329	.134674	.031105	.000000	.019555	.057190	.094098
2 5/2	.540864	.423806	.227361	.000000	-.190175	-.319063	-.399654
4 7/2	.121056	.068732	.035460	.000000	-.054168	-.115632	-.170428
4 9/2	.778954	.893044	.972667	1.000000	.980060	.938913	.895754

 $K = 3/2$ , (411)

$E$	5.388046	5.333418	5.283275	5.265000	5.277172	5.290003	5.311742
$l \quad j$							
2 3/2	-.150352	-.052430	.358294	.000000	-.006847	-.082433	-.128893
2 5/2	-.660689	-.739161	.906519	1.000000	.781344	.838286	.833217
4 7/2	.602519	.594093	-.003007	.000000	-.612829	-.487492	-.445948
4 9/2	.421728	.312962	-.223247	.000000	.117881	.229852	.300445

 $K = 3/2$ , (422)

$E$	5.144036	5.223938	5.310008	5.300000	5.207697	5.123806	5.043334
$l \quad j$							
2 3/2	.779632	.769355	.433939	.000000	-.248646	-.325148	-.353038
2 5/2	.024220	.248212	-.170142	.000000	.573421	.380839	.276917
4 7/2	.491873	.521013	.884708	1.000000	.764362	.828324	.834649
4 9/2	-.386843	-.273913	-.006359	.000000	.158476	.251235	.319440

 $K = 3/2$ , (402)

$E$	5.745542	5.611509	5.508573	5.515000	5.613780	5.732574	5.857390
$l \quad j$							
2 3/2	-.532471	.622259	.826048	1.000000	.968373	.940326	.921898
2 5/2	.519970	-.460891	-.312380	.000000	.156600	.224580	.263331
4 7/2	.616746	-.608995	-.464786	.000000	.193024	.250717	.274673
4 9/2	-.256376	.171753	.063547	.000000	.021734	.049919	.072905

 $K = 1/2$ , (440)

$E$	4.876315	4.920820	4.912354	4.850000	4.735181	4.572078	4.370674
$a$	3.716392	4.442313	4.868215	5.000000	4.871825	4.496887	3.959992
$l \quad j$							
0 1/2	.376959	.196359	.050467	.000000	.040573	.127893	.213472
2 3/2	-.096767	-.022172	.003452	.000000	.017764	.076258	.153049
2 5/2	.562286	.447219	.245502	.000000	-.239430	-.423303	-.532632
4 7/2	-.043889	-.000944	.010392	.000000	-.022919	-.065497	-.118492
4 9/2	.728317	.872322	.968020	1.000000	.969632	.891265	.795781





TABLE 5 (continued)

$K = 7/2, (413)$								
$E$	4.681385	4.748255	4.802921	4.850000	4.892580	4.932434	4.970564	
$l$	$j$							
4	7/2	.350475	.200388	.083544	.000000	-.059232	-.102164	-.134216
4	9/2	.936572	.979717	.996504	1.000000	.998244	.994768	.990952
$K = 7/2, (404)$								
$E$	4.968613	5.068411	5.180412	5.300000	5.424087	5.550900	5.679437	
$l$	$j$							
4	7/2	.936572	.979717	.996504	1.000000	.998244	.994768	.990952
4	9/2	-.350475	-.200388	-.083544	.000000	.059232	.102164	.134216
$K = 5/2, (422)$								
$E$	4.747743	4.826534	4.858351	4.850000	4.818622	4.774675	4.723494	
$l$	$j$							
2	5/2	.674482	.462740	.194412	.000000	-.114983	-.183759	-.227251
4	7/2	-.001969	.050240	.053448	.000000	-.066606	-.125001	-.171559
4	9/2	.738289	.885069	.979463	1.000000	.991132	.974991	.958605
$K = 5/2, (402)$								
$E$	5.035890	5.082024	5.161008	5.265000	5.389151	5.513832	5.641917	
$l$	$j$							
2	5/2	.624261	.812647	.939659	1.000000	.917707	.943207	.946762
4	7/2	-.532376	-.422981	-.296702	.000000	-.389054	-.301684	-.269417
4	9/2	-.571728	-.400865	-.170321	.000000	.080319	.139091	.176226
$K = 5/2, (413)$								
$E$	5.331367	5.306442	5.295641	5.300000	5.307228	5.326493	5.349590	
$l$	$j$							
2	5/2	.394173	.354228	.281505	.000000	.380254	.276753	.228031
4	7/2	.846505	.904745	.953473	1.000000	.918804	.945178	.947619
4	9/2	-.357849	-.236558	-.107905	.000000	.105860	.173339	.223651
$K = 3/2, (431)$								
$E$	4.852377	4.894469	4.894811	4.850000	4.764685	4.650284	4.517533	
$l$	$j$							
2	3/2	.293329	.134674	.031105	.000000	.019555	.057190	.094098
2	5/2	.540864	.423806	.227361	.000000	-.190175	-.319063	-.399654
4	7/2	.121056	.068732	.035460	.000000	-.054168	-.115632	-.170428
4	9/2	.778954	.893044	.972667	1.000000	.980060	.938913	.895754
$K = 3/2, (411)$								
$E$	5.388046	5.333418	5.283275	5.265000	5.277172	5.290003	5.311742	
$l$	$j$							
2	3/2	-.150352	-.052430	.358294	.000000	-.006847	-.082433	-.128893
2	5/2	-.660689	-.739161	.906519	1.000000	.781344	.838286	.833217
4	7/2	.602519	.594093	-.003007	.000000	-.612829	-.487492	-.445948
4	9/2	.421728	.312962	-.223247	.000000	.117881	.229852	.300445

TABLE 5 (continued)

 $K = 3/2$ , (422)

$E$	5.144036	5.223938	5.310008	5.300000	5.207697	5.123806	5.043334
$l \quad j$							
2 3/2	.779632	.769355	.433939	.000000	-.248646	-.325148	-.353038
2 5/2	.024220	.248212	-.170142	.000000	.573421	.380839	.276917
4 7/2	.491873	.521013	.884708	1.000000	.764362	.828324	.834649
4 9/2	-.386843	-.273913	-.006359	.000000	.158476	.251235	.319440

 $K = 3/2$ , (402)

$E$	5.745542	5.611509	5.508573	5.515000	5.613780	5.732574	5.857390
$l \quad j$							
2 3/2	-.532471	.622259	.826048	1.000000	.968373	.940326	.921898
2 5/2	.519970	-.460891	-.312380	.000000	.156600	.224580	.263331
4 7/2	.616746	-.608995	-.464786	.000000	.193024	.250717	.274673
4 9/2	-.256376	.171753	.063547	.000000	.021734	.049919	.072905

 $K = 1/2$ , (440)

$E$	4.876315	4.920820	4.912354	4.850000	4.735181	4.572078	4.370674
$a$	3.716392	4.442313	4.868215	5.000000	4.871825	4.496887	3.959992
$l \quad j$							
0 1/2	.376959	.196359	.050467	.000000	.040573	.127893	.213472
2 3/2	-.096767	-.022172	.003452	.000000	.017764	.076258	.153049
2 5/2	.562286	.447219	.245502	.000000	-.239430	-.423303	-.532632
4 7/2	-.043889	-.000944	.010392	.000000	-.022919	-.065497	-.118492
4 9/2	.728317	.872322	.968020	1.000000	.969632	.891265	.795781

 $K = 1/2$ , (431)

$E$	5.163383	5.226768	5.291784	5.265000	5.135347	4.947776	4.760352
$a$	.148627	.211029	1.456364	3.000000	.485887	-.914972	-1.046560
$l \quad j$							
0 1/2	-.566893	.633240	.530649	.000000	-.324055	-.353253	-.322460
2 3/2	.516655	-.446563	-.233422	.000000	-.335096	-.510414	-.560705
2 5/2	-.098672	.343313	.713563	1.000000	.693380	.381413	.192764
4 7/2	.431780	-.415444	-.336244	.000000	.510609	.605641	.610609
4 9/2	.464253	-.330350	-.204191	.000000	.202984	.320020	.414280

 $K = 1/2$ , (420)

$E$	5.428135	5.383374	5.348131	5.300000	5.191859	5.097179	5.014237
$a$	-.536874	-1.043599	-2.419859	-4.000000	-1.461699	.082037	.522625
$l \quad j$							
0 1/2	.410688	.315652	.090480	.000000	.157457	.321271	-.393749
2 3/2	.341786	.367361	.359814	.000000	-.200077	-.124081	.071292
2 5/2	.359573	.450573	.406232	.000000	-.560400	-.630821	.579937
4 7/2	.648580	.690760	.826694	1.000000	.778476	.632584	-.591513
4 9/2	-.405670	-.291966	-.117901	.000000	-.122901	-.288603	.392000

 $K = 1/2$ , (400)

$E$	5.775402	5.628275	5.509392	5.500000	5.601940	5.720149	5.844851
$a$	.073739	.030505	.031299	1.000000	.042497	.226205	.347410

TABLE 5 (continued)

$l$	$j$							
0	1/2	.325997	-.433357	.650439	1.000000	.790413	.785650	.778586
2	3/2	-.434607	.436012	-.484976	.000000	-.556496	-.511240	-.486791
2	5/2	-.599750	.583448	-.445973	.000000	.204976	.290253	.334919
4	7/2	.522769	-.495169	.370017	.000000	-.151528	-.184617	-.195705
4	9/2	.268059	-.191026	.076951	.000000	.024154	.055292	.079790
$K = 1/2, (411)$								
$E$		6.186767	5.937431	5.701672	5.515000	5.432339	5.426150	5.439882
$a$		-.401885	-.640248	-.936018	-2.000000	-.938510	-.890157	-.783467
$l$	$j$							
0	1/2	.511464	.522509	.533486	.000000	.493758	.372015	.298688
2	3/2	.646532	.689224	.762125	1.000000	.733264	.675944	.648180
2	5/2	-.430238	-.372429	-.258148	.000000	.325322	.439496	.480257
4	7/2	-.343070	-.324135	-.257870	.000000	.331313	.441206	.474266
4	9/2	.132664	.090487	.037707	.000000	.054068	.129943	.187278
$N = 5$								
$\delta =$		-0.3	-0.2	-0.1	0.0	0.1	0.2	0.3
$K = 11/2, (505)$								
$E$		5.074999	5.241666	5.408333	5.575000	5.741667	5.908334	6.075001
$l$	$j$							
5	11/2	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
$K = 9/2, (514)$								
$E$		5.324999	5.415110	5.497484	5.575000	5.649452	5.721913	5.793030
$l$	$j$							
5	9/2	.254825	.144135	.061060	.000000	-.045360	-.079796	-.106565
5	11/2	.966987	.989558	.998134	1.000000	.998971	.996811	.994306
$K = 9/2, (505)$								
$E$		5.674999	5.818222	5.969182	6.125000	6.283882	6.444755	6.606972
$l$	$j$							
5	9/2	.966987	.989558	.998134	1.000000	.998971	.996811	.994306
5	11/2	-.254825	-.144135	-.061060	.000000	.045360	.079796	.106565
$K = 7/2, (523)$								
$E$		5.430149	5.518607	5.561996	5.575000	5.571353	5.558289	5.539509
$l$	$j$							
3	7/2	.608690	.372200	.146740	.000000	-.088767	-.144674	-.181890
5	9/2	.041626	.070955	.050350	.000000	-.053148	-.099470	-.137603
5	11/2	.792316	.925436	.987893	1.000000	.994633	.984467	.973643
$K = 7/2, (503)$								
$E$		5.723873	5.813851	5.937214	6.080000	6.239081	6.397301	6.558785

TABLE 5 (continued)

$l$	$j$							
3	7/2	.724456	.885299	.966306	1.000000	.925885	.957242	.961554
5	9/2	-.436348	-.326610	-.220805	.000000	-.372561	-.265965	-.232062
5	11/2	-.533632	-.331015	-.132279	.000000	.062724	.113800	.146835
$K = 7/2, (514)$								
$E$		6.025977	6.047541	6.080790	6.125000	6.169567	6.224412	6.281708
$l$	$j$							
3	7/2	.323513	.278770	.211471	.000000	.367228	.250514	.205741
5	9/2	.898814	.942492	.974017	1.000000	.926484	.958837	.962919
5	11/2	-.295757	-.184381	-.081054	.000000	.082280	.133695	.174522
$K = 5/2, (532)$								
$E$		5.558017	5.603131	5.608830	5.575000	5.509241	5.421647	5.320039
$l$	$j$							
3	5/2	.196138	.081354	.017424	.000000	.010365	.030947	.052574
3	7/2	.517286	.378087	.188929	.000000	-.148029	-.250605	-.319444
5	9/2	.096425	.065238	.038123	.000000	-.049015	-.099174	-.143830
5	11/2	.827434	.919878	.981096	1.000000	.987713	.962499	.935150
$K = 5/2, (512)$								
$E$		6.087094	6.071566	6.062529	6.080000	6.129193	6.175570	6.230587
$l$	$j$							
3	5/2	.104028	.164244	.136848	.000000	-.000108	-.062070	-.100600
3	7/2	.720663	-.702589	.950525	1.000000	.800574	.882940	.886378
5	9/2	-.548322	.653805	-.215428	.000000	-.592347	-.425689	-.376047
5	11/2	-.411297	.227883	-.177101	.000000	.090588	.188023	.250602
$K = 5/2, (523)$								
$E$		5.920677	6.035791	6.127918	6.125000	6.069661	6.024968	5.980368
$l$	$j$							
3	5/2	.814929	.719006	.386995	.000000	-.171350	-.240247	-.272450
3	7/2	.081917	.469865	.137543	.000000	.571793	.365382	.276245
5	9/2	.488269	.424266	.909175	1.000000	.792219	.878289	.888147
5	11/2	-.301287	-.286801	-.068687	.000000	.126807	.193356	.246282
$K = 5/2, (503)$								
$E$		6.444212	6.366179	6.344055	6.430000	6.568572	6.721149	6.879006
$l$	$j$							
3	5/2	-.535349	.670399	.911704	1.000000	.985156	.968231	.955451
3	7/2	.454256	-.377684	-.204669	.000000	.101098	.155275	.189677
5	9/2	.672041	-.623122	-.354314	.000000	.138243	.193810	.221578
5	11/2	-.235402	.140137	.036989	.000000	.011674	.029268	.045158
$K = 3/2, (541)$								
$E$		5.613658	5.653436	5.639217	5.575000	5.465398	5.318261	5.143707
$l$	$j$							
1	3/2	.332472	.147684	.033072	.000000	.021480	.064311	.106927
3	5/2	.001378	.021449	.010296	.000000	.013418	.048487	.091702

TABLE 5 (continued)

3	7/2	.542246	.407379	.213662	.000000	-.194832	-.343047	-.442110
5	9/2	.011602	.030399	.023022	.000000	-.035139	-.079198	-.124204
5	11/2	.771554	.900471	.976022	1.000000	.979880	.932502	.877080

 $K = 3/2$ , (532)

$E$		5.938348	6.035061	6.106163	6.080000	5.988483	5.850991	5.706137
$l$	$j$							
1	3/2	.698920	.707162	.447906	.000000	-.190101	-.204870	-.195516
3	5/2	-.404870	-.288553	-.064406	.000000	-.240179	-.395918	-.460196
3	7/2	.187986	.458668	.835776	1.000000	.730359	.436782	.285319
5	9/2	-.358518	-.336302	-.244883	.000000	.585314	.737507	.751517
5	11/2	-.428622	-.305258	-.191682	.000000	.173665	.258035	.322194

 $K = 3/2$ , (521)

$E$		6.182146	6.178219	6.171720	6.125000	6.041809	5.981256	5.932174
$l$	$j$							
1	3/2	.339116	.213352	.027765	.000000	.126737	-.257967	-.323225
3	5/2	.499172	.482690	.345800	.000000	-.123148	.050140	-.001613
3	7/2	.276976	.357867	.256248	.000000	-.603739	.742026	.727213
5	9/2	.660855	.734202	.898490	1.000000	.771710	-.568138	-.504654
5	11/2	-.349833	-.233176	-.081878	.000000	-.093461	.239906	.334676

 $K = 3/2$ , (501)

$E$		6.490465	6.386289	6.336186	6.405000	6.545915	6.697332	6.854863
$l$	$j$							
1	3/2	-.380011	-.531234	.803538	1.000000	.874115	.879228	.875366
3	5/2	.365975	.359176	-.389278	.000000	-.451235	-.398147	-.372620
3	7/2	.635077	.605969	-.378516	.000000	.151971	.230691	.275300
5	9/2	-.492924	-.434579	.237875	.000000	-.094994	-.118330	-.127654
5	11/2	.274512	-.180902	.054130	.000000	.013828	.034882	.052935

 $K = 3/2$ , (512)

$E$		6.890384	6.695328	6.528381	6.430000	6.406728	6.433825	6.478118
$l$	$j$							
1	3/2	.376251	.387791	.389669	.000000	.428090	.338088	.282134
3	5/2	.673028	.744500	.851252	1.000000	.850503	.824538	.800601
3	7/2	-.436569	-.358329	-.216539	.000000	.202535	.296175	.344242
5	9/2	-.437753	-.397575	-.275015	.000000	.227184	.336196	.385778
5	11/2	.152473	.094198	.031706	.000000	.027387	.071320	.110051

 $K = 1/2$ , (550)

$E$		5.653002	5.679849	5.654247	5.575000	5.442396	5.258286	5.028204
$a$		-4.918689	-5.550132	-5.891694	-6.000000	-5.893001	-5.568547	-5.043627
$l$	$j$							
1	1/2	.143798	.047588	.006086	.000000	-.005072	-.032821	-.082498
1	3/2	.278158	.145647	.039753	.000000	.037838	.131480	.239158
3	5/2	.065981	.021448	.004400	.000000	.007260	.037276	.091462
3	7/2	.536594	.413842	.224575	.000000	-.222178	-.405079	-.524935
5	9/2	.033073	.015051	.007875	.000000	-.013110	-.035777	-.069768
5	11/2	.780109	.896978	.973585	1.000000	.974143	.902705	.804492

TABLE 5 (continued)

 $K = 1/2$ , (541)

$E$	6.006633	6.107475	6.143242	6.080000	5.936562	5.713419	5.462903
$a$	.774817	-.117946	-3.646783	-4.000000	-2.707595	.309965	1.043090
$l$	$j$						
1	1/2	.601616	.498809	.138631	.000000	.113595	.268673
1	3/2	.338084	.453905	.409341	.000000	-.365483	-.421196
3	5/2	.494581	.404012	.049878	.000000	-.183711	-.443339
3	7/2	.098325	.392100	.873282	1.000000	.828155	.438607
5	9/2	.376972	.374135	-.008598	.000000	.300354	.517102
5	11/2	-.356890	-.297010	-.219175	.000000	.209081	.306738

 $K = 1/2$ , (530)

$E$	6.201605	6.186085	6.184555	6.125000	5.983786	5.823124	5.671472
$a$	.075890	1.097200	4.651683	5.000000	3.707976	.629170	-.308999
$l$	$j$						
1	1/2	-.085907	.044839	.136816	.000000	.049090	-.012262
1	3/2	-.487193	-.371161	.004614	.000000	.101877	.353135
3	5/2	.357909	.387996	.361688	.000000	-.292479	-.279978
3	7/2	-.376082	-.463541	-.035930	.000000	-.331956	-.539452
5	9/2	.575171	.656954	.921492	1.000000	.887248	.663448
5	11/2	.393579	.251453	-.001844	.000000	-.065292	-.256098

 $K = 1/2$ , (510)

$E$	6.915253	6.708743	6.528839	6.405000	6.392558	6.417308	6.460968
$a$	-.047784	-.007903	.148121	-2.000000	.158452	-.169750	-.340259
$l$	$j$						
1	1/2	-.093309	-.054446	.026100	.000000	-.003597	.058870
1	3/2	-.530813	-.607888	-.695401	1.000000	-.709728	-.675959
3	5/2	.550389	.567905	.620036	.000000	.631999	.568661
3	7/2	.488947	.427659	.275042	.000000	-.237492	-.371500
5	9/2	-.376555	-.333685	-.233107	.000000	.199065	.268312
5	11/2	-.160439	-.103697	-.036129	.000000	-.028648	-.078960

 $K = 1/2$ , (521)

$E$	7.360358	7.047595	6.750870	6.430000	6.256575	6.151957	6.084591
$a$	.497630	.711557	.959257	3.000000	.774754	.946972	.892163
$l$	$j$						
1	1/2	-.526997	-.572387	.674719	.000000	-.479054	-.508181
1	3/2	.528630	.510973	-.454269	.000000	.501268	.286177
3	5/2	.553404	.565440	-.551941	1.000000	.588345	.485940
3	7/2	-.291794	-.233091	.134739	.000000	.304053	.443300
5	9/2	-.215144	-.187721	.123960	.000000	.280094	.456606
5	11/2	.071676	.044569	-.015257	.000000	.046767	.136798

 $K = 1/2$ , (501)

$E$	6.533152	6.440256	6.408249	6.555000	6.658123	6.805903	6.961858
$a$	.618136	.867223	.779417	1.000000	.959415	.852191	.757631
$l$	$j$						
1	1/2	-.568830	-.645231	.711406	1.000000	.868997	.815398
1	3/2	.098785	-.066142	.375360	.000000	.315639	.376544

TABLE 5 (continued)

3	5/2	-.117275	-.208650	.421415	.000000	.367534	.405166	.413878
3	7/2	.486569	.472120	-.303068	.000000	.075832	.134161	.171424
5	9/2	.581288	.530681	-.284626	.000000	.065773	.103351	.122131
5	11/2	-.279779	-.176768	.050532	.000000	.007706	.022372	.036192

$N = 5$   $\kappa = .0500, \mu = .6300$

$\delta =$             -0.3            -0.2            -0.1            0.0            0.1            0.2            0.3

$K = 11/2, (505)$

$E$	4.804999	4.971666	5.138333	5.305000	5.471667	5.638334	5.805001
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$l$	$j$						
5	11/2	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000

$K = 9/2, (514)$

$E$	5.054999	5.145110	5.227484	5.305000	5.379452	5.451913	5.523030
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$l$	$j$						
5	9/2	.254825	.144135	.061060	.000000	-.045360	-.079796
5	11/2	.966987	.989558	.998134	1.000000	.998971	.996811

$K = 9/2, (505)$

$E$	5.404999	5.548222	5.699183	5.855000	6.013882	6.174755	6.336972
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$l$	$j$						
5	9/2	.966987	.989558	.998134	1.000000	.998971	.996811
5	11/2	-.254825	-.144135	-.061060	.000000	.045360	.079796

$K = 7/2, (523)$

$E$	5.203932	5.263793	5.294453	5.305000	5.302379	5.291131	5.274142
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$l$	$j$						
3	7/2	.434295	.249720	.103250	.000000	-.071294	-.121250
5	9/2	.092639	.091434	.053203	.000000	-.052535	-.098309
5	11/2	.895994	.963992	.993231	1.000000	.996071	.987742

$K = 7/2, (514)$

$E$	5.545788	5.663990	5.785474	5.855000	5.906367	5.959816	6.016155
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$l$	$j$						
3	7/2	.754227	.789502	-.528090	.000000	.110269	.132161
5	9/2	-.581224	-.595630	.849136	1.000000	.992076	.984625
5	11/2	-.305485	-.148024	.009413	.000000	.060217	.114222

$K = 7/2, (503)$

$E$	5.782279	5.804216	5.852073	5.972000	6.123254	6.281054	6.441706
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$l$	$j$						
3	7/2	.492473	.560648	.842888	1.000000	.991341	.983785
5	9/2	.808453	.798038	.525488	.000000	-.114129	-.144390
5	11/2	-.322294	-.220928	-.115769	.000000	.064936	.106393

TABLE 5 (continued)

 $K = 5/2$ , (532)

$E$	5.327950	5.351635	5.343169	5.305000	5.242059	5.160171	5.064567
$l \quad j$							
3 5/2	.136163	.053975	.011526	.000000	.007616	.024166	.043127
3 7/2	.420860	.289015	.140526	.000000	-.116900	-.206758	-.273278
5 9/2	.102394	.071762	.040332	.000000	-.047767	-.096426	-.140732
5 11/2	.890984	.953104	.989188	1.000000	.991965	.973329	.950607

 $K = 5/2$ , (523)

$E$	5.746910	5.834273	5.864582	5.855000	5.818421	5.773359	5.728355
$l \quad j$							
3 5/2	.702988	.460618	.167617	.000000	-.118245	-.186757	-.226332
3 7/2	.021806	-.094306	-.197487	.000000	.144342	.180763	.175313
5 9/2	.683241	.880268	.965778	1.000000	.980277	.955761	.937163
5 11/2	-.196253	-.063766	-.013275	.000000	.065122	.137721	.199408

 $K = 5/2$ , (512)

$E$	5.911569	5.925181	5.955741	5.972000	6.001951	6.045694	6.097097
$l \quad j$							
3 5/2	.344592	.431977	.239985	.000000	-.086447	-.123152	-.146638
3 7/2	.732087	.846621	.948257	1.000000	.977127	.948207	.925591
5 9/2	-.476637	-.154864	.150279	.000000	-.161483	-.229586	-.258454
5 11/2	-.343690	-.269529	-.143635	.000000	.108039	.181735	.234477

 $K = 5/2$ , (503)

$E$	6.267570	6.209577	6.223841	6.322000	6.458236	6.608110	6.763981
$l \quad j$							
3 5/2	.607062	.773507	.956127	1.000000	.989185	.974357	.961983
3 7/2	-.535210	-.436818	-.205083	.000000	.103547	.159622	.194589
5 9/2	-.543613	-.442714	-.207515	.000000	.103436	.156566	.187405
5 11/2	.222509	.121988	.026455	.000000	.009589	.025227	.040042

 $K = 3/2$ , (541)

$E$	5.400790	5.407718	5.375001	5.305000	5.200273	5.064764	4.903882
$l \quad j$							
1 3/2	.195483	.081761	.018412	.000000	.013391	.043617	.078484
3 5/2	.024099	.022346	.007768	.000000	.009304	.035379	.071258
3 7/2	.451692	.318020	.162054	.000000	-.151387	-.278454	-.375536
5 9/2	.037208	.039286	.024694	.000000	-.033643	-.074792	-.118484
5 11/2	.869365	.943470	.986270	1.000000	.987767	.955885	.913070

 $K = 3/2$ , (532)

$E$	5.816059	5.897258	5.908716	5.855000	5.754598	5.623511	5.481434
$l \quad j$							
1 3/2	.577653	-.368459	-.074793	.000000	-.040295	-.094732	-.122833
3 5/2	-.451088	.390105	.219757	.000000	-.193681	-.323909	-.397806
3 7/2	.266922	-.290918	-.131167	.000000	.144750	.204411	.188572
5 9/2	-.581503	.787200	.963794	1.000000	.967783	.907064	.859018
5 11/2	-.231181	.087973	-.002914	.000000	.057518	.146829	.230632



TABLE 5 (continued)

 $K = 3/2$ , (521)

$E$		6.002460	6.005892	6.012955	5.972000	5.904065	5.840473	5.786021
$l$	$j$							
1	3/2	.519489	.547999	.327386	.000000	-.191149	-.282289	-.330616
3	5/2	.302420	.169054	.079854	.000000	-.083497	-.106882	-.115786
3	7/2	.390173	.632000	.918263	1.000000	.951412	.869528	.801919
5	9/2	.601145	.437883	.131682	.000000	-.175482	-.303485	-.362897
5	11/2	-.353643	-.282759	-.160918	.000000	.143216	.246389	.320184

 $K = 3/2$ , (512)

$E$	6.770011	6.585249	6.434115	6.322000	6.302773	6.318119	6.353675	
$l$	$j$							
1	3/2	.449774	.493476	.586610	.000000	.269627	.257659	.230158
3	5/2	.666954	.720755	.754036	1.000000	.932798	.884554	.849418
3	7/2	-.467338	-.389780	-.246929	.000000	.164965	.271634	.329661
5	9/2	-.339854	-.279543	-.159929	.000000	.172121	.272509	.329144
5	11/2	.137735	.083189	.027687	.000000	.018704	.055955	.092223

 $K = 3/2$ , (501)

$E$		6.351681	6.278217	6.276880	6.387000	6.512624	6.660798	6.815987
$l$	$j$							
1	3/2	-.394890	.560117	.736732	1.000000	.942847	.918176	.903589
3	5/2	.509562	-.547040	-.613758	.000000	-.292091	-.316184	-.318992
3	7/2	.595053	-.512716	-.228807	.000000	.154046	.225424	.267699
5	9/2	-.428480	.329980	.166052	.000000	-.042959	-.072638	-.089554
5	11/2	-.216161	.123500	.024518	.000000	.012116	.029789	.045707

 $K = 1/2$ , (550)

$E$	5.439559	5.435680	5.390752	5.305000	5.178770	5.012704	4.808431	
$\alpha$	-5.385961	-5.743680	-5.937786	-6.000000	-5.937864	-5.744947	-5.404100	
$l$	$j$							
1	1/2	.076501	.023241	.002867	.000000	-.002504	-.017618	-.049831
1	3/2	.185289	.089507	.023340	.000000	.022516	.083109	.165135
3	5/2	.038070	.013188	.003074	.000000	.004629	.023391	.061145
3	7/2	.455545	.328972	.171933	.000000	-.170604	-.323735	-.445209
5	9/2	.026383	.015023	.008365	.000000	-.012284	-.031214	-.059825
5	11/2	.866111	.939588	.984788	1.000000	.984992	.941518	.874482

 $K = 1/2$ , (541)

$E$	5.880768	5.943534	5.930982	5.855000	5.720990	5.527782	5.291829	
$\alpha$	2.648233	4.219942	4.862987	5.000000	4.795251	3.871355	2.910893	
$l$	$j$							
1	1/2	.469158	.247502	.053930	.000000	.046958	.158107	.247549
1	3/2	.230585	.087237	-.007775	.000000	-.042019	-.169529	-.250406
3	5/2	.536672	.452855	.242743	.000000	-.239371	-.425823	-.520015
3	7/2	.112848	.063564	-.027733	.000000	.081720	.184511	.170576
5	9/2	.623566	.847827	.968153	1.000000	.965011	.846457	.722319
5	11/2	-.192707	-.056600	-.004112	.000000	.028393	.120008	.234010

TABLE 5 (continued)

 $K = 1/2$ , (530)

$E$	6.046947	6.050207	6.042852	5.972000	5.840530	5.676885	5.517017
$a$	-.894273	-2.703562	-3.768088	-4.000000	-3.711297	-2.604716	-1.638498
$l$	$j$						
1	1/2	-.289642	.289096	.096790	.000000	.064402	.141404
1	3/2	-.539235	.533281	.335150	.000000	-.312682	-.472101
3	5/2	.135520	.036107	.048721	.000000	-.047126	-.021281
3	7/2	-.471344	.698449	.920435	1.000000	.925049	.747824
5	9/2	.499614	-.230898	.010731	.000000	-.111670	-.335917
5	11/2	.367678	-.299310	-.169166	.000000	.166362	.290846

 $K = 1/2$ , (521)

$E$	6.398805	6.334454	6.341380	6.322000	6.172961	6.043102	5.956489
$a$	.447059	.933320	1.755454	3.000000	1.871431	1.363816	1.087853
$l$	$j$						
1	1/2	-.594580	.673906	.633024	.000000	-.415034	-.482186
1	3/2	.102279	.070521	.240790	.000000	.339112	.242824
3	5/2	-.288134	.430160	.680690	1.000000	.790430	.644563
3	7/2	.503709	-.430289	-.183403	.000000	.204884	.387968
5	9/2	.493217	-.392978	-.209147	.000000	.212923	.364349
5	11/2	-.236656	.127513	.024122	.000000	.025621	.099009

 $K = 1/2$ , (510)

$E$	6.812456	6.621326	6.464839	6.387000	6.335506	6.346052	6.380036
$a$	-.013559	-.039644	-.430810	-2.000000	-.827511	-.595717	-.594492
$l$	$j$						
1	1/2	-.180292	-.186486	.249724	.000000	-.168742	-.165144
1	3/2	-.535313	-.615370	.751666	1.000000	.818916	.724019
3	5/2	.592974	.601063	-.534828	.000000	-.478985	-.526634
3	7/2	.468993	.401819	-.267728	.000000	.248014	.367265
5	9/2	-.302744	-.238895	.118676	.000000	-.096677	-.178555
5	11/2	-.133071	-.082069	.028862	.000000	.024853	.066446

 $K = 1/2$ , (501)

$E$	7.299469	6.992801	6.707195	6.537000	6.629243	6.771473	6.924192
$a$	.198501	.333623	.518244	1.000000	.809990	.710209	.638344
$l$	$j$						
1	1/2	-.551467	-.604732	.724316	1.000000	.890457	.833619
1	3/2	.569827	.562437	-.513894	.000000	.338136	.397878
3	5/2	.507473	.497121	-.435100	.000000	.293689	.353369
3	7/2	-.289657	-.230865	.130978	.000000	.070801	.128479
5	9/2	-.161053	-.127070	.068318	.000000	.038074	.071155
5	11/2	.061755	.037265	-.012019	.000000	.005892	.018234

 $N = 5$  $\kappa = .0500$ ,  $\mu = .7000$ 

$\delta =$	-0.3	-0.2	-0.1	0.0	0.1	0.2	0.3
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 $K = 11/2$ , (505)

$E$	4.699999	4.866666	5.033333	5.200000	5.366667	5.533334	5.700001
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TABLE 5 (continued)

$l$	$j$							
5	11/2	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
$K = 9/2, (514)$								
$E$		4.949999	5.040110	5.122484	5.200000	5.274452	5.346913	5.418030
$l$	$j$							
5	9/2	.254825	.144135	.061060	.000000	-.045360	-.079796	-.106565
5	11/2	.966987	.989558	.998134	1.000000	.998971	.996811	.994306
$K = 9/2, (505)$								
$E$		5.299999	5.443222	5.594182	5.750000	5.908882	6.069755	6.231972
$l$	$j$							
5	9/2	.966987	.989558	.998134	1.000000	.998971	.996811	.994306
5	11/2	-.254825	-.144135	-.061060	.000000	.045360	.079796	.106565
$K = 7/2, (523)$								
$E$		5.109401	5.162252	5.190054	5.200000	5.197676	5.187002	5.170619
$l$	$j$							
3	7/2	.381964	.219745	.092498	.000000	-.066213	-.114029	-.149220
5	9/2	.107442	.096264	.053894	.000000	-.052354	-.097938	-.135885
5	11/2	.917911	.970796	.994253	1.000000	.996431	.988638	.979423
$K = 7/2, (514)$								
$E$		5.475116	5.592374	5.690305	5.750000	5.801963	5.855742	5.912132
$l$	$j$							
3	7/2	.717068	-.655063	-.284815	.000000	.085738	.111130	.116666
5	9/2	-.661035	.751970	.958245	1.000000	.994631	.987626	.981174
5	11/2	-.221014	.073712	-.025445	.000000	.057956	.110656	.153903
$K = 7/2, (503)$								
$E$		5.695482	5.725373	5.799640	5.930000	6.080361	6.237257	6.397250
$l$	$j$							
3	7/2	.583024	.722914	.954109	1.000000	.994115	.987242	.981897
5	9/2	.742623	.652130	.280825	.000000	-.089270	-.122485	-.137230
5	11/2	-.329534	-.228300	-.103985	.000000	.061369	.101734	.130558
$K = 5/2, (532)$								
$E$		5.234297	5.251595	5.239306	5.200000	5.137858	5.057724	4.964124
$l$	$j$							
3	5/2	.119258	.046998	.010082	.000000	.006867	.022169	.040159
3	7/2	.389019	.263494	.127646	.000000	-.108006	-.193356	-.258350
5	9/2	.104654	.073708	.040922	.000000	-.047404	-.095547	-.139644
5	11/2	.907463	.960692	.990924	1.000000	.992996	.976213	.955061
$K = 5/2, (523)$								
$E$		5.670251	5.741253	5.762839	5.750000	5.715182	5.672057	5.628048
$l$	$j$							
3	5/2	.636625	.387838	.152980	.000000	-.105632	-.171451	-.211833

TABLE 5 (continued)

3	7/2	-.016627	-.115208	-.131320	.000000	.106885	.147330	.151204
5	9/2	.753474	.912696	.979144	1.000000	.986854	.965721	.947004
5	11/2	-.163432	-.057400	-.025076	.000000	.059467	.127595	.188274
$K = 5/2, (512)$								
	$E$	5.849924	5.877963	5.911704	5.930000	5.958011	5.998917	6.048029
$l$	$j$							
3	5/2	.431469	.461219	.224098	.000000	-.092689	-.133206	-.156947
3	7/2	.731542	.845890	.961610	1.000000	.982883	.956575	.933784
5	9/2	-.418273	-.104719	.090629	.000000	-.122505	-.192526	-.229072
5	11/2	-.322069	-.246536	-.129893	.000000	.101699	.173648	.225700
$K = 5/2, (503)$								
	$E$	6.205528	6.155856	6.179484	6.280000	6.415617	6.564636	6.719799
$l$	$j$							
3	5/2	.627950	.796649	.962432	1.000000	.990052	.975894	.963785
3	7/2	-.559673	-.449185	-.204370	.000000	.104171	.160845	.196061
5	9/2	-.496360	-.388056	-.177168	.000000	.094151	.145555	.176660
5	11/2	.214644	.114000	.023850	.000000	.008978	.023943	.038340
$K = 3/2, (541)$								
	$E$	5.310906	5.309144	5.271543	5.200000	5.096621	4.964540	4.808082
$l$	$j$							
1	3/2	.161771	.067299	.015236	.000000	.011429	.038070	.070079
3	5/2	.027959	.021482	.007027	.000000	.008245	.031724	.064998
3	7/2	.420088	.292142	.148032	.000000	-.139204	-.258871	-.353587
5	9/2	.043744	.041413	.025128	.000000	-.033224	-.073428	-.116452
5	11/2	.891438	.952863	.988521	1.000000	.989606	.961841	.923190
$K = 3/2, (532)$								
	$E$	5.756077	5.813891	5.807471	5.750000	5.652716	5.527297	5.388956
$l$	$j$							
1	3/2	-.479942	-.236145	-.046446	.000000	-.027726	-.073117	-.103103
3	5/2	.461355	.373086	.195773	.000000	-.171835	-.296265	-.373352
3	7/2	-.245199	-.191778	-.084317	.000000	.099470	.158595	.160432
5	9/2	.687630	.876027	.975828	1.000000	.978493	.930460	.883949
5	11/2	.154433	.028992	-.012855	.000000	.048595	.126382	.207061
$K = 3/2, (521)$								
	$E$	5.943574	5.962323	5.972256	5.930000	5.860682	5.792813	5.734238
$l$	$j$							
1	3/2	.595768	.579323	.300777	.000000	-.182725	-.277187	-.327475
3	5/2	.209430	.088550	.071891	.000000	-.095168	-.132815	-.143815
3	7/2	.455604	.708799	.936183	1.000000	.961093	.888165	.820964
5	9/2	.517452	.282640	.078843	.000000	-.126239	-.247445	-.320325
5	11/2	-.354778	-.272510	-.147345	.000000	.133858	.235503	.309011
$K = 3/2, (512)$								
	$E$	6.301659	6.240208	6.250788	6.280000	6.261264	6.273724	6.306470

TABLE 5 (continued)

$l$	$j$							
1	3/2	-.401028	.564721	.677529	.000000	.233541	.235627	.214922
3	5/2	.554814	-.600569	-.696730	1.000000	.946759	.898869	.862742
3	7/2	.574870	-.467186	-.174781	.000000	.156342	.264663	.325261
5	9/2	-.403195	.302292	.157145	.000000	.156159	.252610	.310135
5	11/2	-.195746	.103752	.016690	.000000	.016650	.051543	.086640

 $K = 3/2, (501)$ 

$E$	6.727785	6.547769	6.404609	6.380000	6.502051	6.648292	6.802253
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$l$	$j$							
1	3/2	.477203	.534024	.669401	1.000000	.954553	.927821	.911607
3	5/2	.659311	.701300	.686311	.000000	-.254941	-.292602	-.302287
3	7/2	-.474714	-.396503	-.252964	.000000	.150282	.221246	.263556
5	9/2	-.308104	-.244124	-.127344	.000000	-.033552	-.061738	-.079260
5	11/2	.131549	.078648	.025922	.000000	.011113	.027761	.043028

 $K = 1/2, (550)$ 

$E$	5.350255	5.337694	5.287504	5.200000	5.075494	4.914444	4.717894
$a$	-5.491838	-5.786479	-5.947978	-6.000000	-5.947885	-5.785701	-5.495688

$l$	$j$							
1	1/2	.060947	.018241	.002238	.000000	-.001980	-.014203	-.041337
1	3/2	.159689	.075836	.019592	.000000	.018968	.070959	.143995
3	5/2	.031717	.011398	.002742	.000000	.004010	.020035	.052827
3	7/2	.426713	.303709	.157462	.000000	-.156367	-.299359	-.417558
5	9/2	.025108	.015194	.008502	.000000	-.012068	-.030003	-.056744
5	11/2	.887166	.949377	.987288	1.000000	.987433	.950708	.892809

 $K = 1/2, (541)$ 

$E$	5.816386	5.855106	5.829533	5.750000	5.619713	5.438626	5.214965
$a$	3.382537	4.510596	4.895904	5.000000	4.873540	4.319623	3.459961

$l$	$j$							
1	1/2	.391805	.181643	.041397	.000000	.035726	.124810	.213841
1	3/2	.164077	.037972	-.006420	.000000	-.025986	-.115452	-.202120
3	5/2	.527472	.408769	.214947	.000000	-.211716	-.389397	-.497699
3	7/2	.081051	.016749	-.021636	.000000	.049490	.124690	.143218
5	9/2	.718780	.892875	.975471	1.000000	.974847	.892468	.780797
5	11/2	-.134635	-.031079	-.005513	.000000	.021182	.086115	.188570

 $K = 1/2, (530)$ 

$E$	5.997527	6.013500	6.003142	5.930000	5.799763	5.632994	5.465296
$a$	-1.433707	-2.953375	-3.802071	-4.000000	-3.785377	-3.003084	-2.060657

$l$	$j$							
1	1/2	-.354404	.292206	.084702	.000000	.060095	.150594	.189668
1	3/2	-.555628	.519227	.312179	.000000	-.294233	-.468565	-.526594
3	5/2	.037507	.085324	.045927	.000000	-.056441	-.072977	-.019999
3	7/2	-.512190	.733677	.932248	1.000000	.936867	.783025	.626378
5	9/2	.417226	-.144116	.008140	.000000	-.073200	-.249685	-.403397
5	11/2	.357566	-.280514	-.155268	.000000	.153467	.277439	.362279

 $K = 1/2, (521)$ 

$E$	6.352104	6.298826	6.311332	6.280000	6.137350	6.002691	5.909555
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TABLE 5 (continued)

$N = 6$		$\kappa = .0500, \mu = .6200$						
$\delta =$		-0.3	-0.2	-0.1	0.0	0.1	0.2	0.3
$K = 13/2, (606)$								
	$E$	5.297999	5.497999	5.698000	5.898000	6.098001	6.298001	6.498002
$l$	$j$							
6	13/2	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
$K = 11/2, (615)$								
	$E$	5.559399	5.676778	5.789054	5.898000	6.004727	6.109933	6.214062
$l$	$j$							
6	11/2	.190623	.108871	.046975	.000000	-.036202	-.064645	-.087428
6	13/2	.981663	.994056	.998896	1.000000	.999344	.997908	.996171
$K = 11/2, (606)$								
	$E$	5.986599	6.169221	6.356945	6.548000	6.741273	6.936069	7.131940
$l$	$j$							
6	11/2	.981663	.994056	.998896	1.000000	.999344	.997908	.996171
6	13/2	-.190623	-.108871	-.046975	.000000	.036202	.064645	.087428
$K = 9/2, (624)$								
	$E$	5.735541	5.809964	5.861559	5.898000	5.924451	5.944190	5.959311
$l$	$j$							
4	9/2	.351778	.196297	.081085	.000000	-.057317	-.098742	-.129481
6	11/2	.106435	.086666	.046013	.000000	-.043232	-.080925	-.112824
6	13/2	.930013	.976707	.995645	1.000000	.997420	.991817	.985142
$K = 9/2, (615)$								
	$E$	6.139173	6.298686	6.450055	6.548000	6.634855	6.723319	6.813969
$l$	$j$							
4	9/2	.813997	.808581	-.430309	.000000	.087642	.109116	.112783
6	11/2	-.525375	-.577774	.902657	1.000000	.994987	.989797	.985383
6	13/2	-.247769	-.111239	-.006671	.000000	.048163	.091623	.127675
$K = 9/2, (604)$								
	$E$	6.351283	6.417349	6.514385	6.680000	6.866695	7.058493	7.252721
$l$	$j$							
4	9/2	.462234	.554675	.899032	1.000000	.994502	.989113	.985147
6	11/2	.844188	.811582	.427894	.000000	-.090176	-.117270	-.127639
6	13/2	-.271453	-.183492	-.092992	.000000	.053241	.088905	.114864
$K = 7/2, (633)$								
	$E$	5.879896	5.913190	5.918005	5.898000	5.858203	5.803522	5.737972
$l$	$j$							
4	7/2	.088377	.033869	.007065	.000000	.004631	.014879	.027030
4	9/2	.376117	.247258	.116373	.000000	-.094744	-.168331	-.224457
6	11/2	.096734	.070622	.038797	.000000	-.042093	-.083072	-.120183
6	13/2	.917261	.965779	.992422	1.000000	.994601	.982111	.966667

TABLE 5 (continued)

 $K = 7/2$ , (624)

$E$	6.401507	6.488098	6.532131	6.548000	6.544701	6.535581	6.526111
$l$	$j$						
4	7/2	.601543	.291094	.117407	.000000	-.087783	-.143356
4	9/2	-.067204	-.273962	-.216372	.000000	.115378	.149818
6	11/2	.787877	.916602	.969134	1.000000	.988003	.972054
6	13/2	-.113490	-.007094	-.013351	.000000	.053213	.110071

 $K = 7/2$ , (613)

$E$	6.511204	6.572859	6.627544	6.680000	6.748339	6.827578	6.913115
$l$	$j$						
4	7/2	.407825	.405110	.158236	.000000	-.062919	-.095322
4	9/2	.797503	.870770	.960598	1.000000	.986092	.967114
6	11/2	-.291682	.129700	.193625	.000000	-.125534	-.180320
6	13/2	-.335544	-.246625	-.121337	.000000	.088914	.151952

 $K = 7/2$ , (604)

$E$	6.863391	6.881852	6.978319	7.130000	7.304758	7.489320	7.678805
$l$	$j$						
4	7/2	.681186	.866027	.980371	1.000000	.994140	.984957
4	9/2	-.466915	-.324913	-.129971	.000000	.073039	.117943
6	11/2	-.533680	-.371527	-.147593	.000000	.079492	.125282
6	13/2	.182105	.079981	.014031	.000000	.005693	.015890

 $K = 5/2$ , (642)

$E$	5.980816	5.988166	5.959559	5.898000	5.807083	5.691364	5.555822
$l$	$j$						
2	5/2	.139688	.054959	.011780	.000000	.008023	.025850
4	7/2	.041911	.024187	.006766	.000000	.006530	.023615
4	9/2	.410639	.280640	.139310	.000000	-.125362	-.229581
6	11/2	.059667	.049817	.028861	.000000	-.034996	-.073285
6	13/2	.898079	.956637	.989735	1.000000	.991440	.969895

 $K = 5/2$ , (633)

$E$	6.498027	6.579329	6.588210	6.548000	6.473268	6.377900	6.274144
$l$	$j$						
2	5/2	-.552044	-.257200	-.046780	.000000	-.021853	-.052463
4	7/2	.396275	.329042	.170979	.000000	-.144939	-.247253
4	9/2	-.336223	-.289154	-.142717	.000000	.122619	.172777
6	11/2	.626867	.860121	.973720	1.000000	.980232	.944425
6	13/2	.179459	.046493	-.008918	.000000	.051237	.119676

 $K = 5/2$ , (622)

$E$	6.645540	6.682991	6.700696	6.680000	6.649020	6.623371	6.604452
$l$	$j$						
2	5/2	.521627	.498723	.233660	.000000	-.137164	-.214029
4	7/2	.325161	.179983	.095719	.000000	-.065640	-.095437
4	9/2	.425859	.730060	.948147	1.000000	.971029	.920820
6	11/2	.576507	.340038	.132098	.000000	-.140471	-.231752



TABLE 5 (continued)

6	13/2	-.329331	-.265081	-.140744	.000000	.119366	.208482	.274758
$K = 5/2, (613)$								
	$E$	7.369945	7.248402	7.172384	7.130000	7.160810	7.215086	7.284748
$l$	$j$							
2	5/2	.404649	.456250	.585020	.000000	.199052	.208164	.195816
4	7/2	.702467	.768100	.773638	1.000000	.964533	.933665	.908892
4	9/2	-.441526	-.346188	-.200241	.000000	.111174	.192072	.243792
6	11/2	-.361804	-.277593	-.136906	.000000	.132585	.216610	.269789
6	13/2	.130201	.070382	.019925	.000000	.010774	.033551	.057889
$K = 5/2, (602)$								
	$E$	6.975673	6.971112	7.049151	7.214000	7.379818	7.562280	7.750834
$l$	$j$							
2	5/2	.489796	.688432	.775131	1.000000	.970063	.952596	.941427
4	7/2	-.491956	-.518435	-.602531	.000000	-.210518	-.239728	-.246571
4	9/2	-.584831	-.429880	-.145416	.000000	.118288	.180663	.220261
6	11/2	.374452	.255003	.121834	.000000	-.024697	-.045403	-.058416
6	13/2	.189306	.086388	.011809	.000000	.007621	.019782	.031475
$K = 3/2, (651)$								
	$E$	6.048619	6.037434	5.986930	5.898000	5.772185	5.611965	5.421117
$l$	$j$							
2	3/2	.046394	.013013	.001484	.000000	-.001106	-.007237	-.019378
2	5/2	.149752	.069230	.017202	.000000	.014981	.052833	.101680
4	7/2	.036816	.017076	.004744	.000000	.005814	.024169	.053542
4	9/2	.424361	.299244	.153348	.000000	-.147565	-.277676	-.382707
6	11/2	.040058	.030357	.017702	.000000	-.023200	-.051802	-.084287
6	13/2	.890157	.950935	.987851	1.000000	.988649	.957489	.912606
$K = 3/2, (642)$								
	$E$	6.612250	6.649669	6.624800	6.548000	6.423493	6.258464	6.067899
$l$	$j$							
2	3/2	.374942	.137911	.029361	.000000	.022149	.069204	.113549
2	5/2	.060246	-.048896	-.026434	.000000	-.031550	-.097910	-.146310
4	7/2	.532219	.388377	.199969	.000000	-.188190	-.335730	-.430955
4	9/2	.020758	-.081391	-.076857	.000000	.103508	.174393	.175303
6	11/2	.750339	.906120	.975965	1.000000	.975084	.910738	.843249
6	13/2	-.095351	-.008615	-.006102	.000000	.039940	.114248	.195392
$K = 3/2, (631)$								
	$E$	6.733142	6.763543	6.748346	6.680000	6.573594	6.452914	6.333503
$l$	$j$							
2	3/2	.350608	.224923	.050433	.000000	.025637	.063001	.090221
2	5/2	.580257	.492388	.273396	.000000	-.226993	-.364130	-.437144
4	7/2	.005153	.117443	.063532	.000000	-.049506	-.057887	-.046309
4	9/2	.564483	.781397	.943887	1.000000	.953598	.852679	.751997
6	11/2	-.288361	.009456	.066246	.000000	-.124573	-.260564	-.346022
6	13/2	-.372231	-.287228	-.152852	.000000	.143170	.255214	.336735

TABLE 5 (continued)

 $K = 3/2, (622)$ 

$E$	7.082550	7.100648	7.159776	7.130000	7.040167	6.963667	6.912689
$l$	$j$						
2	3/2	-.694439	.753032	.492339	.000000	-.250170	-.340338
2	5/2	.128299	.055330	-.009999	.000000	.263426	.254043
4	7/2	-.249041	.473552	.845996	1.000000	.904925	.812585
4	9/2	.416679	-.289593	-.065318	.000000	.136865	.262628
6	11/2	.477020	-.339856	-.193509	.000000	.173716	.295524
6	13/2	-.195199	.079143	.008979	.000000	.014912	.055051

 $K = 3/2, (611)$ 

$E$	7.447772	7.314524	7.236759	7.214000	7.218597	7.266325	7.333357
$l$	$j$						
2	3/2	-.184778	.218894	.374835	.000000	-.116874	-.134882
2	5/2	-.576966	.684546	.863103	1.000000	.918067	.853169
4	7/2	.558405	-.535651	-.219298	.000000	-.319722	-.386349
4	9/2	.471635	-.389437	-.253952	.000000	.196053	.303141
6	11/2	-.286778	.198928	.037186	.000000	-.050809	-.104011
6	13/2	-.128337	.072986	.024216	.000000	.015908	.043941

 $K = 3/2, (602)$ 

$E$	7.909671	7.668183	7.477391	7.464000	7.605963	7.780664	7.965433
$l$	$j$						
2	3/2	-.466852	-.561471	.783386	1.000000	.960524	.925833
2	5/2	.536559	.527926	-.423337	.000000	.187121	.250192
4	7/2	.584400	.569127	-.438352	.000000	.202454	.271645
4	9/2	-.323705	-.240252	.104386	.000000	.031493	.067477
6	11/2	-.206021	-.151198	.062947	.000000	.019876	.042732
6	13/2	.073485	.039460	-.009032	.000000	.002215	.008216

 $K = 1/2, (660)$ 

$E$	6.081494	6.061787	6.000522	5.898000	5.754448	5.570194	5.345967
$a$	6.496018	6.782838	6.946652	7.000000	6.946712	6.783239	6.497495
$l$	$j$						
0	1/2	.059565	.017965	.002218	.000000	-.001974	-.014180
2	3/2	-.002906	.001279	.000421	.000000	-.000834	-.007610
2	5/2	.163586	.077167	.019939	.000000	.019620	.074411
4	7/2	.005591	.005059	.001664	.000000	.002380	.011664
4	9/2	.432363	.308100	.160055	.000000	-.159365	-.305379
6	11/2	.010214	.009842	.005953	.000000	-.008142	-.019364
6	13/2	.884652	.947984	.986885	1.000000	.986986	.948913

 $K = 1/2, (651)$ 

$E$	6.645912	6.679807	6.642734	6.548000	6.398119	6.191720	5.929115
$a$	-3.750784	-5.456367	-5.894264	-6.000000	-5.875624	-5.275144	-4.078327
$l$	$j$						
0	1/2	.276867	-.077094	-.008305	.000000	.007508	.055310
2	3/2	-.295958	.147177	.038012	.000000	.036985	.138486
2	5/2	.222819	-.066129	-.010918	.000000	-.018552	-.100122
4	7/2	-.495823	.398327	.212982	.000000	-.211635	-.392253

TABLE 5 (continued)

$l$	$j$							
6	11/2	.981663*	.994056	.998896	1.000000	.999344	.997908	.996171
6	13/2	-.190623	-.108871	-.046975	.000000	.036202	.064645	.087428
$K = 9/2, (624)$								
$E$		6.060871	6.160090	6.221000	6.259200	6.284873	6.303172	6.316804
$l$	$j$							
4	9/2	.528245	.296542	.114619	.000000	-.071681	-.118752	-.151291
6	11/2	.066924	.074593	.044461	.000000	-.043601	-.081680	-.113728
6	13/2	.846451	.952102	.992414	1.000000	.996474	.989559	.981925
$K = 9/2, (604)$								
$E$		6.370753	6.506714	6.672008	6.852000	7.046186	7.237629	7.432514
$l$	$j$							
4	9/2	.806820	.928941	.980044	1.000000	.919844	.964430	.969893
6	11/2	-.350189	-.253915	-.168384	.000000	-.389194	-.246529	-.208854
6	13/2	-.475825	-.269435	-.105647	.000000	.049140	.095387	.125247
$K = 9/2, (615)$								
$E$		6.688773	6.753594	6.827392	6.909200	6.989342	7.079601	7.171084
$l$	$j$							
4	9/2	.264573	.221655	.162410	.000000	.385679	.236163	.190835
6	11/2	.934285	.964346	.984718	1.000000	.920124	.965687	.971312
6	13/2	-.238981	-.144588	-.062873	.000000	.068004	.108050	.141901
$K = 7/2, (633)$								
$E$		6.204260	6.258437	6.275715	6.259200	6.217245	6.158131	6.087747
$l$	$j$							
4	7/2	.130374	.051235	.010533	.000000	.006227	.018996	.033084
4	9/2	.482779	.332568	.157731	.000000	-.120022	-.205104	-.264797
6	11/2	.085543	.063782	.037136	.000000	-.042852	-.084792	-.122269
6	13/2	.861748	.939524	.986727	1.000000	.991826	.974875	.955949
$K = 7/2, (613)$								
$E$		6.742483	6.755590	6.795531	6.852000	6.938791	7.017967	7.106320
$l$	$j$							
4	7/2	.011391	.246715	.086575	.000000	.008536	-.046990	-.080125
4	9/2	.762816	.894767	.965939	1.000000	.784084	.904901	.914717
6	11/2	-.525261	-.195137	-.193782	.000000	-.616840	-.392752	-.333617
6	13/2	-.376937	-.316932	-.148039	.000000	.068178	.157137	.213478
$K = 7/2, (624)$								
$E$		6.661536	6.811134	6.893759	6.909200	6.888009	6.881227	6.872010
$l$	$j$							
4	7/2	.809546	.607461	.270233	.000000	-.127524	-.188220	-.219840
4	9/2	.185780	-.023028	.156209	.000000	.604697	.354646	.268505
6	11/2	.484448	.790114	.947912	1.000000	.778779	.902344	.916457
6	13/2	-.274646	-.078615	-.063530	.000000	.107623	.156765	.199202

TABLE 5 (continued)

 $K = 7/2$ , (604)

$E$	7.114120	7.097239	7.157395	7.302000	7.478356	7.665076	7.856324
$l$	$j$						
4	7/2	-.572283	.753324	.958837	1.000000	.991779	.980818
4	9/2	.387970	-.297087	-.132974	.000000	.071758	.115382
6	11/2	.694329	-.577558	-.250065	.000000	.105714	.155987
6	13/2	-.199696	.103289	.020432	.000000	.007025	.018731

 $K = 5/2$ , (642)

$E$	6.289847	6.327891	6.315784	6.259200	6.164424	6.039784	5.893711
$l$	$j$						
2	5/2	.260915	.103849	.021538	.000000	.012849	.038338
4	7/2	.035090	.029208	.009322	.000000	.009103	.031493
4	9/2	.511910	.366438	.185087	.000000	-.160775	-.283424
6	11/2	.039533	.042881	.027403	.000000	-.035997	-.075954
6	13/2	.816748	.923172	.982060	1.000000	.986209	.954694

 $K = 5/2$ , (633)

$E$	6.668307	6.792430	6.862245	6.852000	6.800837	6.705428	6.599134
$l$	$j$						
2	5/2	.763134	.688461	.334918	.000000	-.136867	-.140974
4	7/2	-.300684	-.166867	.001733	.000000	-.177337	-.312598
4	9/2	.284033	.579488	.905024	1.000000	.767005	.450777
6	11/2	-.301796	-.280650	-.197561	.000000	.582329	.796105
6	13/2	-.394283	-.289149	-.172417	.000000	.149715	.213134

 $K = 5/2$ , (622)

$E$	6.902297	6.932687	6.945157	6.909200	6.850978	6.822912	6.807483
$l$	$j$						
2	5/2	.252446	.116457	.017761	.000000	.093696	-.207110
4	7/2	.564642	.498288	.285663	.000000	-.096543	.027284
4	9/2	.244898	.294826	.185378	.000000	-.592886	.796242
6	11/2	.687318	.786099	.937866	1.000000	.791042	-.530781
6	13/2	-.291667	-.182406	-.064209	.000000	-.068111	.201572

 $K = 5/2$ , (602)

$E$	7.163604	7.109023	7.136180	7.265600	7.444250	7.629233	7.819911
$l$	$j$						
2	5/2	-.436903	.633676	.891582	1.000000	.902990	.917000
4	7/2	.315628	-.310377	-.314711	.000000	-.407654	-.340712
4	9/2	.661569	-.589904	-.292367	.000000	.117027	.188095
6	11/2	-.447832	.360295	.139135	.000000	-.068257	-.084213
6	13/2	-.266962	.155954	.034653	.000000	.008585	.023555

 $K = 5/2$ , (613)

$E$	7.563944	7.425968	7.328634	7.302000	7.327511	7.390643	7.467761
$l$	$j$						
2	5/2	.308117	.316433	.303531	.000000	.396148	.308014
4	7/2	.699940	.791629	.905132	1.000000	.890487	.885698

TABLE 5 (continued)

4	9/2	-.399531	-.308233	-.163800	.000000	.143685	.217003	.261430
6	11/2	-.488146	-.414286	-.247522	.000000	.170851	.267634	.319754
6	13/2	.145345	.080949	.022530	.000000	.016280	.044129	.071093

 $K = 3/2$ , (651)

$E$		6.355277	6.374180	6.342113	6.259200	6.127914	5.953334	5.743449
$l$	$j$							
2	3/2	.092168	.027090	.003108	.000000	-.002110	-.012658	-.030772
2	5/2	.236296	.116798	.029892	.000000	.024825	.082063	.146580
4	7/2	.051537	.022862	.006462	.000000	.008436	.034365	.072504
4	9/2	.514027	.382176	.201404	.000000	-.191251	-.347168	-.457662
6	11/2	.036126	.027065	.016757	.000000	-.024116	-.054988	-.089379
6	13/2	.816997	.915593	.978882	1.000000	.980892	.931867	.868831

 $K = 3/2$ , (642)

$E$		6.815963	6.912744	6.912255	6.852000	6.732971	6.558231	6.357373
$l$	$j$							
2	3/2	-.637342	.327115	.060595	.000000	.047795	.124238	.169457
2	5/2	-.335349	.558192	.347755	.000000	-.261309	-.304603	-.282853
4	7/2	-.468509	.150544	.005778	.000000	-.165079	-.381980	-.484920
4	9/2	-.169423	.654147	.905065	1.000000	.856726	.517619	.309005
6	11/2	-.360688	.044322	-.135244	.000000	.366441	.635184	.673931
6	13/2	.320990	-.359000	-.194751	.000000	.184186	.272918	.326288

 $K = 3/2$ , (631)

$E$		6.927575	6.955197	6.975264	6.909200	6.785834	6.658678	6.541981
$l$	$j$							
2	3/2	.010485	.280174	.089571	.000000	.019568	-.008708	.047164
2	5/2	.519720	-.119424	.034761	.000000	.097651	.303316	-.414106
4	7/2	-.363252	.506608	.304192	.000000	-.205293	-.178507	.129077
4	9/2	.410561	-.182078	.110164	.000000	-.381843	-.635448	.631227
6	11/2	-.545588	.784358	.940386	1.000000	.894041	.651542	-.545446
6	13/2	-.362770	.047110	-.042118	.000000	-.053134	-.218536	.337153

 $K = 3/2$ , (611)

$E$		7.602206	7.441913	7.324861	7.265600	7.301021	7.359594	7.435265
$l$	$j$							
2	3/2	-.072614	-.024939	.204098	.000000	.010576	-.044599	-.080010
2	5/2	-.570875	-.675201	-.676645	1.000000	.778212	.787121	.765486
4	7/2	.486300	.495974	.638371	.000000	-.584253	-.496636	-.462771
4	9/2	.519580	.440220	.203721	.000000	.180869	.307667	.378951
6	11/2	-.366231	-.306030	-.225788	.000000	-.141122	-.185566	-.206497
6	13/2	-.168082	-.100219	-.022250	.000000	.017147	.052064	.085012

 $K = 3/2$ , (622)

$E$		8.039682	7.784418	7.565427	7.302000	7.191668	7.129596	7.093170
$l$	$j$							
2	3/2	-.424847	-.500200	.689771	.000000	-.312280	-.387613	-.411914
2	5/2	.466920	.446541	-.366127	.000000	.533148	.363419	.260700
4	7/2	.639734	.658884	-.600378	1.000000	.723212	.687623	.641121

TABLE 5 (continued)

4	9/2	-.319703	-.239828	.114699	.000000	.222839	.328243	.377933
6	11/2	-.287333	-.237491	.128030	.000000	.211523	.361324	.437122
6	13/2	.086380	.048511	-.012837	.000000	.028264	.080982	.131973

 $K = 3/2$ , (602)

$E$		7.262901	7.235150	7.283682	7.515600	7.664191	7.844166	8.032360
$l$	$j$							
2	3/2	-.631999	.750295	.686189	1.000000	.948524	.912193	.889965
2	5/2	.132982	.072270	.533916	.000000	.178058	.238430	.270354
4	7/2	-.011961	.200109	.373391	.000000	.257188	.318704	.343134
4	9/2	.407845	-.376258	-.271108	.000000	.035631	.073139	.100878
6	11/2	.595187	-.481694	-.172425	.000000	.034250	.063410	.081248
6	13/2	-.249330	.134877	.037784	.000000	.003111	.010630	.018771

 $K = 1/2$ , (660)

$E$		6.383718	6.396760	6.355165	6.259200	6.109163	5.905960	5.652391
$a$		6.100445	6.618999	6.907258	7.000000	6.907877	6.626625	6.150141

$l$	$j$							
0	1/2	.124199	.039482	.004973	.000000	-.004246	-.028587	-.075894
2	3/2	-.018136	-.000264	.000681	.000000	-.001786	-.015887	-.051535
2	5/2	.257509	.128120	.034105	.000000	.033342	.121287	.233346
4	7/2	-.002846	.005057	.002200	.000000	.003598	.018607	.050813
4	9/2	.518917	.390417	.209132	.000000	-.207903	-.385699	-.511211
6	11/2	.003491	.008112	.005616	.000000	-.008539	-.021522	-.041621
6	13/2	.805381	.910774	.977261	1.000000	.977526	.913590	.819441

 $K = 1/2$ , (651)

$E$		6.817805	6.923852	6.934425	6.852000	6.693209	6.454971	6.156878
$a$		.552801	2.590852	4.707566	5.000000	4.505055	1.363751	-.631635

$l$	$j$							
0	1/2	.543106	.404286	.113040	.000000	.083527	.215767	.266648
2	3/2	-.354535	-.178893	-.006940	.000000	.051365	.232112	.361424
2	5/2	.438260	.540204	.371058	.000000	-.355153	-.474815	-.408352
4	7/2	-.360656	-.209575	-.012737	.000000	-.081486	-.331863	-.474534
4	9/2	.186863	.543406	.896092	1.000000	.892233	.543200	.241702
6	11/2	-.313447	-.263035	-.066128	.000000	.141314	.408434	.461480
6	13/2	-.352178	-.323002	-.204873	.000000	.203868	.319533	.367361

 $K = 1/2$ , (640)

$E$		6.980893	6.996590	6.990658	6.909200	6.748079	6.535464	6.319711
$a$		-1.449545	-3.573588	-5.722664	-6.000000	-5.515403	-2.352359	-.247060

$l$	$j$							
0	1/2	.188233	.016249	-.017694	.000000	.002394	-.072069	-.174713
2	3/2	.231507	.229247	.084404	.000000	.068685	.105276	.054288
2	5/2	.380951	.211279	.015811	.000000	.045473	.290761	.449364
4	7/2	.479841	.480514	.309315	.000000	-.292936	-.380720	-.349132
4	9/2	.285969	.299147	.065695	.000000	-.155840	-.428689	-.414864
6	11/2	.586897	.744294	.944401	1.000000	.939400	.729663	.591258
6	13/2	-.330720	-.167890	-.020703	.000000	-.025276	-.195066	-.347862

TABLE 5 (continued)

 $K = 1/2, (631)$ 

$E$	8.060492	7.794874	7.563990	7.265600	7.079871	6.878630	6.726132
$a$	.032774	.002960	-.015994	3.000000	-.165559	-.877258	-.957674
$l$	$j$						
0	1/2	-.285444	-.371224	.559612	.000000	-.368567	-.373444
2	3/2	.321882	.330153	-.389464	.000000	-.444338	-.545153
2	5/2	.577063	.592080	-.529004	1.000000	.549634	.238557
4	7/2	-.534906	-.530071	.472302	.000000	.490463	.366969
4	9/2	-.352983	-.277764	.140644	.000000	.281915	.422479
6	11/2	.250738	.204172	-.110647	.000000	.207577	.420606
6	13/2	.091214	.053092	-.014640	.000000	.038806	.127960

 $K = 1/2, (620)$ 

$E$	7.646236	7.494012	7.379665	7.302000	7.177757	7.109639	7.071430
$a$	-.697285	-.961114	-1.592837	-4.000000	-.772719	.019338	.281823
$l$	$j$						
0	1/2	.378013	.331790	.180562	.000000	.217812	.340993
2	3/2	.416450	.433611	.423528	.000000	-.232866	-.193746
2	5/2	.231452	.359895	.473842	.000000	-.603722	-.550372
4	7/2	.421545	.506310	.673842	1.000000	.663450	.537641
4	9/2	-.462794	-.392758	-.217805	.000000	-.215188	-.387621
6	11/2	-.454186	-.388486	-.247320	.000000	.216204	.310508
6	13/2	.178723	.104126	.028764	.000000	-.025207	-.086914

 $K = 1/2, (600)$ 

$E$	7.278496	7.237789	7.278602	7.500000	7.652671	7.832172	8.020202
$a$	.037014	.093694	.714223	1.000000	-.006506	.139680	.244771
$l$	$j$						
0	1/2	-.467641	-.599285	.621376	1.000000	.769659	.753608
2	3/2	.415201	.440030	-.361078	.000000	-.552506	-.511181
2	5/2	.135552	-.103691	.515826	.000000	.241281	.320156
4	7/2	.029809	.159902	-.333503	.000000	-.203832	-.241340
4	9/2	.491535	.461915	-.278558	.000000	.041151	.084357
6	11/2	-.521303	-.416748	.164729	.000000	-.029889	-.052687
6	13/2	-.276212	-.154489	.038503	.000000	.003345	.011476

 $K = 1/2, (611)$ 

$E$	8.535966	8.159726	7.801098	7.515600	7.442848	7.486760	7.556850
$a$	-.576204	-.771803	-.997552	-2.000000	-.952747	-.919777	-.840366
$l$	$j$						
0	1/2	.459476	.477174	.504983	.000000	.466199	.351811
2	3/2	.609056	.651765	.728966	1.000000	.660087	.582025
2	5/2	-.437661	-.395336	-.300757	.000000	.381958	.461497
4	7/2	-.418280	-.402822	-.340295	.000000	.430428	.512449
4	9/2	.183432	.134233	.064437	.000000	.094525	.191155
6	11/2	.127982	.102407	.056189	.000000	.082217	.155597
6	13/2	-.037426	-.021101	-.005928	.000000	.009441	.033792

TABLE 5 (continued)

4	9/2	.145882	-.070356	-.026350	.000000	.045123	.121256	.153916
6	11/2	-.710207	.896706	.975863	1.000000	.975265	.891075	.753352
6	13/2	-.120782	.018076	-.001749	.000000	.016257	.071817	.171568

 $K = 1/2, (640)$ 

$E$	6.775600	6.798651	6.771196	6.680000	6.530146	6.331526	6.112956
$a$	2.163485	4.210150	4.847361	5.000000	4.827705	4.061243	2.702222

$l$	$j$							
0	1/2	.400515	.260307	.067879	.000000	.053904	.160404	.234334
2	3/2	-.027170	-.029254	.004868	.000000	.025068	.086257	.112571
2	5/2	.547689	.514003	.295480	.000000	-.287589	-.481786	-.546507
4	7/2	.170260	.033736	.018188	.000000	-.020955	-.007032	.075585
4	9/2	.478766	.753023	.939125	1.000000	.940878	.779685	.585563
6	11/2	.381318	.115087	.024798	.000000	-.057539	-.209869	-.383402
6	13/2	-.367802	-.292845	-.158614	.000000	.157341	.287591	.371686

 $K = 1/2, (631)$ 

$E$	7.119125	7.129836	7.185541	7.130000	6.957304	6.739764	6.558201
$a$	-.296083	-.831842	-2.625438	-4.000000	-2.943390	-1.931178	-1.478013

$l$	$j$							
0	1/2	-.480297	.553898	-.327458	.000000	-.185927	-.292081	-.285660
2	3/2	.509866	-.519620	.425149	.000000	-.410576	-.546210	-.565077
2	5/2	.056990	.179815	-.259636	.000000	.259333	.208241	.067048
4	7/2	.255287	-.424856	.774886	1.000000	.821705	.593307	.448833
4	9/2	.464138	-.330430	.091579	.000000	.128601	.317314	.415696
6	11/2	-.430705	.307314	-.188915	.000000	.194055	.338234	.441592
6	13/2	-.200607	.082035	-.009219	.000000	.014510	.076653	.159165

 $K = 1/2, (620)$ 

$E$	7.492620	7.361237	7.275889	7.214000	7.082383	6.992627	6.937755
$a$	-.364786	-.324248	1.373371	3.000000	1.793666	.879456	.720319

$l$	$j$							
0	1/2	.453877	.460335	.489791	.000000	-.347540	-.405373	-.429400
2	3/2	.320914	.275406	.080576	.000000	-.052897	.023444	.048887
2	5/2	.268604	.413069	.712601	1.000000	.812044	.625117	.514124
4	7/2	.513149	.566013	.411323	.000000	-.383520	-.505090	-.504786
4	9/2	-.459906	-.384409	-.261173	.000000	.252349	.385343	.461102
6	11/2	-.350135	-.258403	-.087773	.000000	-.075174	-.188782	-.258165
6	13/2	.146397	.081878	.026661	.000000	.024169	.071478	.121774

 $K = 1/2, (611)$ 

$E$	8.470455	8.101355	7.754323	7.464000	7.380887	7.403360	7.460673
$a$	-.256594	-.379033	-.507607	-2.000000	-1.102323	-.902392	-.795053

$l$	$j$							
0	1/2	.501624	.533463	.594171	.000000	.389640	.304376	.251825
2	3/2	.608050	.643553	.693447	1.000000	.773006	.670694	.618105
2	5/2	-.459699	-.419707	-.324234	.000000	.357676	.460955	.485228
4	7/2	-.358134	-.324129	-.238174	.000000	.339073	.452569	.491495
4	9/2	.173880	.125477	.058614	.000000	.075662	.170450	.233932
6	11/2	.088874	.063445	.027974	.000000	.044467	.102664	.143472
6	13/2	-.030516	-.016523	-.004353	.000000	.006089	.025166	.046989



TABLE 5 (continued)

 $K = 1/2, (600)$ 

$E$	7.948800	7.701332	7.503797	7.500000	7.630711	7.804805	7.989328
$a$	.008745	-.001497	-.140075	1.000000	.353254	.384776	.431357
$l$	$j$						
0	1/2	-.266587	-.350256	.543281	1.000000	.830579	.792923
2	3/2	.423070	.466333	-.574820	.000000	-.478637	-.473918
2	5/2	.580438	.588524	-.481494	.000000	.248922	.325124
4	7/2	-.518060	-.483983	.357692	.000000	-.132323	-.184404
4	9/2	-.324642	-.245728	.108160	.000000	.037034	.076812
6	11/2	.184658	.131670	-.053534	.000000	-.013977	-.031378
6	13/2	.071814	.039180	-.009069	.000000	.002492	.008899

 $N = 7$  $\kappa = .0500, \mu = .4340$ 

$\delta =$	-0.3	-0.2	-0.1	0.0	0.1	0.2	0.3
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 $K = 15/2, (707)$ 

$E$	6.234798	6.468132	6.701466	6.934800	7.168134	7.401468	7.634802
$l$	$j$						
7	15/2	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000

 $K = 13/2, (716)$ 

$E$	6.503625	6.650515	6.793863	6.934800	7.074057	7.212113	7.349287
$l$	$j$						
7	13/2	.147679	.085560	.037525	.000000	-.029774	-.053796
7	15/2	.989035	.996333	.999296	1.000000	.999557	.998552

 $K = 13/2, (707)$ 

$E$	7.015972	7.235750	7.459069	7.684800	7.912210	8.140822	8.370316
$l$	$j$						
7	13/2	.989035	.996333	.999296	1.000000	.999557	.998552
7	15/2	-.147679	-.085560	-.037525	.000000	.029774	.053796

 $K = 11/2, (725)$ 

$E$	6.669672	6.785302	6.868951	6.934800	6.990722	7.040644	7.086663
$l$	$j$						
5	11/2	.461460	.246634	.094908	.000000	-.060760	-.101737
7	13/2	.076016	.070194	.038578	.000000	-.036604	-.068732
7	15/2	.883898	.966563	.994738	1.000000	.997481	.992434

 $K = 11/2, (705)$ 

$E$	7.000262	7.179118	7.383157	7.599000	7.832614	8.053822	8.281829
$l$	$j$						
5	11/2	.862075	.954102	.988542	1.000000	.812473	.961559
7	13/2	-.273677	-.192429	-.121468	.000000	-.582320	-.262569
7	15/2	-.426531	-.229480	-.089606	.000000	.028121	.080387

TABLE 5 (continued)

 $K = 11/2$ , (716)

$E$	7.348664	7.454178	7.566492	7.684800	7.795264	7.924136	8.050112
$l$	$j$						
5	11/2	.209480	.169887	.117372	.000000	.579824	.255057
7	13/2	.958813	.978797	.991845	1.000000	.812135	.973967
7	15/2	-.191822	-.114432	-.049664	.000000	.065122	.092803

 $K = 9/2$ , (734)

$E$	6.826179	6.895168	6.929612	6.934800	6.918972	6.889077	6.849808
$l$	$j$						
5	9/2	.091476	.034810	.006995	.000000	.004153	.012868
5	11/2	.451640	.297635	.136376	.000000	-.102094	-.175456
7	13/2	.079331	.060917	.034532	.000000	-.037423	-.073252
7	15/2	.883946	.952098	.990030	1.000000	.994062	.981674

 $K = 9/2$ , (725)

$E$	7.363396	7.427278	7.504759	7.599000	7.687376	7.724402	7.751052
$l$	$j$						
5	9/2	.519982	.149451	.065211	.000000	-.095523	-.156853
5	11/2	.736405	.925358	.978703	1.000000	.785069	.391445
7	13/2	.023488	-.205108	-.144666	.000000	.603142	.896036
7	15/2	-.432174	-.281617	-.130231	.000000	.103735	.138881

 $K = 9/2$ , (714)

$E$	7.397251	7.551466	7.642510	7.684800	7.732549	7.837683	7.958716
$l$	$j$						
5	9/2	.580226	.539103	.199009	.000000	-.035535	-.027818
5	11/2	-.388612	.068998	.123286	.000000	-.608539	.898843
7	13/2	.711864	.834056	.970807	1.000000	.792060	-.417667
7	15/2	.074624	-.094645	-.052250	.000000	-.032532	.129850

 $K = 9/2$ , (705)

$E$	7.780771	7.827020	7.957384	8.149000	8.362037	8.583106	8.808026
$l$	$j$						
5	9/2	-.620153	.828143	.977801	1.000000	.994784	.987146
5	11/2	.320483	-.224422	-.091339	.000000	.054073	.089816
7	13/2	.697427	-.508498	-.188184	.000000	.086366	.131561
7	15/2	-.162161	.072413	.012237	.000000	.004649	.012931

 $K = 7/2$ , (743)

$E$	6.935331	6.979411	6.977086	6.934800	6.859737	6.759946	6.642557
$l$	$j$						
3	7/2	.206812	.076942	.015235	.000000	.008700	.026004
5	9/2	.044893	.027440	.007555	.000000	.006482	.022040
5	11/2	.484597	.335293	.164543	.000000	-.138163	-.243595
7	13/2	.051564	.046955	.028178	.000000	-.033980	-.069586
7	15/2	.847183	.937390	.985821	1.000000	.989767	.966777

TABLE 5 (continued)

 $K = 7/2$ , (734)

$E$		7.367419	7.511260	7.584107	7.599000	7.592102	7.543697	7.475689
$l$	$j$							
3	7/2	.786386	.628425	.256562	.000000	-.118918	-.119293	-.108758
5	9/2	-.208025	-.074335	.026988	.000000	-.123904	-.256219	-.318288
5	11/2	.368309	.685936	.942030	1.000000	.875417	.509532	.339606
7	13/2	-.246649	-.220344	-.145962	.000000	.429977	.789158	.848188
7	15/2	-.376611	-.283719	-.157233	.000000	.138819	.194236	.228275

 $K = 7/2$ , (723)

$E$		7.610110	7.670722	7.701528	7.684800	7.648293	7.644212	7.660791
$l$	$j$							
3	7/2	.157726	.029507	.008256	.000000	.054127	-.164353	-.222010
5	9/2	.594861	.481285	.238469	.000000	-.104887	.038419	-.013860
5	11/2	.227983	.233817	.131229	.000000	-.439694	.792013	.836285
7	13/2	.714005	.832290	.960838	1.000000	.889832	-.563748	-.435325
7	15/2	-.243893	-.141834	-.051323	.000000	-.030618	.162528	.248271

 $K = 7/2$ , (703)

$E$		7.815386	7.814257	7.911804	8.089600	8.307188	8.525176	8.749124
$l$	$j$							
3	7/2	-.497890	.729071	.938849	1.000000	.894596	.931322	.935074
5	9/2	.256178	-.254239	-.239075	.000000	-.433521	-.321161	-.283925
5	11/2	.676054	-.547059	-.231859	.000000	.089363	.156518	.197276
7	13/2	-.406081	.296740	.084197	.000000	-.061176	-.068674	-.073079
7	15/2	-.254025	.128412	.023616	.000000	.005350	.016765	.027666

 $K = 7/2$ , (714)

$E$		8.228953	8.148217	8.116007	8.149000	8.216547	8.317503	8.429040
$l$	$j$							
3	7/2	.257011	.258354	.228993	.000000	.427260	.301198	.250123
5	9/2	.731590	.835134	.940845	1.000000	.886377	.910629	.903426
5	11/2	-.347115	-.251250	-.120522	.000000	.115059	.171046	.209136
7	13/2	-.511665	-.410465	-.218181	.000000	.135728	.223290	.273915
7	15/2	.128187	.064777	.015603	.000000	.011160	.030308	.049930

 $K = 5/2$ , (752)

$E$		7.021437	7.041677	7.012157	6.934800	6.814010	6.656472	6.470255
$l$	$j$							
3	5/2	.059606	.016300	.001746	.000000	-.001064	-.006226	-.015096
3	7/2	.207263	.096403	.023199	.000000	.017463	.056384	.100264
5	9/2	.046010	.022704	.006445	.000000	.007128	.026993	.054587
5	11/2	.494736	.357384	.183538	.000000	-.167764	-.303046	-.402220
7	13/2	.041591	.034019	.020699	.000000	-.027101	-.058293	-.090328
7	15/2	.839570	.927925	.982498	1.000000	.985273	.949114	.903770

 $K = 5/2$ , (743)

$E$	7.583059	7.638483	7.643570	7.599000	7.513264	7.385488	7.227712
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TABLE 5 (continued)

$l$	$j$							
3	5/2	.536722	.153315	.033721	.000000	.024570	.072213	.104943
3	7/2	.524031	.545109	.299748	.000000	-.211772	-.256223	-.232468
5	9/2	.302234	.005326	.014974	.000000	-.121442	-.312813	-.419594
5	11/2	.379216	.736371	.928438	1.000000	.909353	.600421	.372888
7	13/2	.170741	-.152269	-.122792	.000000	.291236	.636821	.731181
7	15/2	-.415954	-.337482	-.178088	.000000	.167507	.255415	.291917

 $K = 5/2, (732)$ 

$E$	7.636549	7.727420	7.743442	7.684800	7.580787	7.477993	7.392695
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$l$	$j$							
3	5/2	-.266472	.280242	.054568	.000000	.014211	-.001466	.025852
3	7/2	.366539	.036642	.022985	.000000	.061156	-.238298	-.353505
5	9/2	-.499629	.495650	.263413	.000000	-.176802	.159122	.096835
5	11/2	.326723	.048093	.104744	.000000	-.304006	.641077	.701935
7	13/2	-.629298	.816905	.956225	1.000000	.933654	-.690920	-.535359
7	15/2	-.205543	-.069328	-.042080	.000000	-.025872	.171878	.292688

 $K = 5/2, (712)$ 

$E$	8.264785	8.152327	8.081790	8.089600	8.173600	8.265633	8.374396
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$l$	$j$							
3	5/2	-.039686	.050330	.219429	.000000	.031576	-.024043	-.058409
3	7/2	-.615385	-.725422	.915223	1.000000	.768291	.832087	.827038
5	9/2	.426935	.448296	-.166878	.000000	-.612866	-.467224	-.418840
5	11/2	.537659	.422823	-.288721	.000000	.133738	.256013	.327665
7	13/2	-.346471	-.289150	.044488	.000000	-.123031	-.147952	-.161005
7	15/2	-.168324	-.088735	.032092	.000000	.010238	.036354	.062305

 $K = 5/2, (723)$ 

$E$	7.985616	8.027310	8.140579	8.149000	8.084761	8.067018	8.066243
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$l$	$j$							
3	5/2	-.692946	.802511	.586475	.000000	-.224621	-.305966	-.340531
3	7/2	.089292	.160452	-.007872	.000000	.589476	.392529	.296399
5	9/2	.013606	.237330	.771499	1.000000	.735026	.768220	.742781
5	11/2	.352144	-.323075	-.060764	.000000	.185038	.262960	.307992
7	13/2	.586093	-.398782	-.238688	.000000	.164801	.299913	.375879
7	15/2	-.210136	.102477	.010462	.000000	.020032	.055208	.091205

 $K = 5/2, (703)$ 

$E$	8.705355	8.509583	8.375263	8.439600	8.630378	8.844195	9.065497
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$l$	$j$							
3	5/2	-.394487	-.501135	.777033	1.000000	.973520	.948974	.932050
3	7/2	.401758	.374484	-.267187	.000000	.115562	.167140	.197723
5	9/2	.688803	.704622	-.554336	.000000	.195125	.260077	.290575
5	11/2	-.302657	-.211103	.079335	.000000	.019660	.044582	.065092
7	13/2	-.330990	-.256297	.105721	.000000	.021006	.043040	.058301
7	15/2	.085822	.043358	-.008483	.000000	.001517	.005777	.010878

 $K = 3/2, (761)$ 

$E$	7.075024	7.082461	7.035301	6.934800	6.782781	6.582747	6.340808
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TABLE 5 (continued)

$l$	$j$							
1	3/2	.099644	.028480	.003235	.000000	-.002248	-.013796	-.034208
3	5/2	.011443	.007168	.001260	.000000	-.001470	-.010684	-.030168
3	7/2	.231585	.110988	.028520	.000000	.025676	.089594	.167784
5	9/2	.019341	.013402	.004234	.000000	.005632	.024128	.054452
5	11/2	.503692	.371087	.195383	.000000	-.189088	-.348805	-.466079
7	13/2	.021313	.020169	.012613	.000000	-.017500	-.039640	-.065214
7	15/2	.825696	.921155	.980216	1.000000	.981449	.931585	.863320

 $K = 3/2$ , (752)

$E$	7.585463	7.684610	7.681229	7.599000	7.455213	7.256804	7.013557
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$l$	$j$							
1	3/2	.593651	.344308	.077395	.000000	.042965	.105073	.130796
3	5/2	-.210714	-.042742	.012842	.000000	.034598	.136840	.228434
3	7/2	.515282	.553827	.330789	.000000	-.289731	-.406053	-.370219
5	9/2	-.247965	-.090557	.002635	.000000	-.091909	-.299220	-.456411
5	11/2	.277479	.649597	.916764	1.000000	.916276	.647314	.365902
7	13/2	-.249156	-.177435	-.085264	.000000	.172371	.447088	.570739
7	15/2	-.370272	-.333528	-.191547	.000000	.187863	.311319	.354555

 $K = 3/2$ , (741)

$E$	7.742324	7.781365	7.770820	7.684800	7.532219	7.345232	7.161376
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$l$	$j$							
1	3/2	.088026	-.034006	-.006042	.000000	-.003373	-.046627	.111713
3	5/2	.335544	.230264	.062745	.000000	.038804	.060111	-.021656
3	7/2	.277031	.099468	.018182	.000000	.047234	.242567	-.415800
5	9/2	.539461	.488320	.276768	.000000	-.238883	-.310571	.261688
5	11/2	.236555	.180523	.075057	.000000	-.185432	-.459272	.529783
7	13/2	.620660	.807917	.955311	1.000000	.951029	.777316	-.608381
7	15/2	-.265933	-.110243	-.029038	.000000	-.018582	-.154171	.308031

 $K = 3/2$ , (732)

$E$	8.000013	8.018300	8.106611	8.089600	7.972328	7.833496	7.718974
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$l$	$j$							
1	3/2	-.581068	.725299	.610580	.000000	-.233689	-.250282	-.236994
3	5/2	.337652	-.333823	-.167159	.000000	-.322941	-.474296	-.521506
3	7/2	.125698	.188156	.670613	1.000000	.667463	.381787	.223159
5	9/2	.000154	-.152516	-.252133	.000000	.550726	.557367	.488085
5	11/2	.501138	-.437152	-.274425	.000000	.251867	.353510	.396982
7	13/2	-.460333	.309976	.097694	.000000	.167224	.351344	.452455
7	15/2	-.263638	.129041	.033220	.000000	.029866	.087012	.146726

 $K = 3/2$ , (721)

$E$	8.364179	8.266881	8.209633	8.149000	8.058403	8.026361	8.021192
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$l$	$j$							
1	3/2	.315311	.247057	.045366	.000000	.157439	-.283088	-.341930
3	5/2	.562558	.573005	.488910	.000000	-.182831	.127677	.089760
3	7/2	.142740	.289237	.335059	.000000	-.610600	.665914	.619971
5	9/2	.353764	.495997	.750954	1.000000	.714046	-.538032	-.476020
5	11/2	-.411129	-.334454	-.152236	.000000	-.154220	.327909	.422217
7	13/2	-.490811	-.401388	-.243204	.000000	.187350	-.244069	-.272890

TABLE 5 (continued)

7	15/2	.169297	.089360	.019703	.000000	-.014408	.059554	.106450
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$K = 3/2$ , (701)

$E$	8.733653	8.517050	8.360467	8.406600	8.602504	8.815159	9.036031
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$l$	$j$						
1	3/2	-.307227	-.425062	.699549	1.000000	.852352	.851210
3	5/2	.239840	.237662	-.298524	.000000	-.468046	-.415381
3	7/2	.617021	.638365	-.509031	.000000	.183392	.264624
5	9/2	-.493972	-.479639	.375880	.000000	-.141007	-.169094
5	11/2	-.383904	-.288824	.117519	.000000	.024518	.056567
7	13/2	.256941	.197502	-.084748	.000000	-.017594	-.032229
7	15/2	.099823	.053384	-.011072	.000000	.001673	.006580

$K = 3/2$ , (712)

$E$	9.202747	8.886070	8.606006	8.439600	8.433284	8.510263	8.611458
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$l$	$j$						
1	3/2	.313769	.334230	.360177	.000000	.438448	.345336
3	5/2	.595714	.669958	.799878	1.000000	.800318	.750832
3	7/2	-.432686	-.380122	-.261412	.000000	.247375	.330192
5	9/2	-.527223	-.503821	-.393174	.000000	.318450	.429770
5	11/2	.213993	.146116	.058647	.000000	.049772	.112677
7	13/2	.182830	.138477	.063853	.000000	.046393	.101338
7	15/2	-.047674	-.024312	-.005424	.000000	.004321	.017339

$K = 1/2$ , (770)

$E$	7.102821	7.102758	7.046806	6.934800	6.766905	6.543664	6.266652
$a$	-7.190603	-7.652542	-7.914837	-8.000000	-7.915212	-7.656583	-7.214083

$l$	$j$						
1	1/2	.038101	.008072	.000511	.000000	.000443	.006044
1	3/2	.094629	.031621	.004209	.000000	-.004039	-.029006
3	5/2	.017570	.004260	.000513	.000000	-.000775	-.007644
3	7/2	.235631	.117111	.031164	.000000	.030794	.114098
5	9/2	.012058	.005042	.001478	.000000	.002167	.010655
5	11/2	.506910	.377341	.201083	.000000	-.200346	-.374651
7	13/2	.009351	.006875	.004235	.000000	-.006058	-.014422
7	15/2	.822540	.918010	.979059	1.000000	.979211	.919435

$K = 1/2$ , (761)

$E$	7.656278	7.724840	7.700185	7.599000	7.423385	7.173694	6.849175
$a$	-1.621979	-5.108852	-5.800580	-6.000000	-5.758466	-4.196699	-.895624

$l$	$j$						
1	1/2	.405556	.140685	.017716	.000000	-.014815	-.094579
1	3/2	.402590	.286086	.085558	.000000	.080147	.246410
3	5/2	.304791	.067451	.007778	.000000	.021014	.138062
3	7/2	.471519	.558256	.343178	.000000	-.337876	-.525910
5	9/2	.278679	.038654	.001477	.000000	-.036651	-.183774
5	11/2	.276466	.671939	.913340	1.000000	.913533	.656105
7	13/2	.238271	.013838	-.028886	.000000	.059424	.222485
7	15/2	-.383860	-.359132	-.198767	.000000	.198336	.347776

TABLE 5 (continued)

 $K = 1/2$ , (750)

$E$	7.750645	7.798729	7.784155	7.684800	7.505965	7.256120	6.977995	
$a$	2.509031	6.101282	6.810044	7.000000	6.765958	5.185244	1.799647	
$l$	$j$							
1	1/2	-.095911	.126069	.016994	.000000	-.011511	-.042923	-.010504
1	3/2	.190525	.010510	.002204	.000000	.000970	-.037724	-.182630
3	5/2	-.300098	.245647	.068084	.000000	.063633	.180989	.185477
3	7/2	.341439	-.033051	.007507	.000000	.017736	.158231	.380715
5	9/2	-.501652	.495673	.283088	.000000	-.278040	-.451100	-.442186
5	11/2	.269371	-.063419	.023728	.000000	-.066848	-.250783	-.343653
7	13/2	-.596369	.820057	.956147	1.000000	.955861	.813571	.625154
7	15/2	-.260750	.018810	-.009729	.000000	-.007646	-.103239	-.287657

 $K = 1/2$ , (741)

$E$	8.058472	8.091458	8.162036	8.089600	7.892831	7.619233	7.381246	
$a$	.863104	.495495	-2.968026	-4.000000	-1.816248	.425090	.863313	
$l$	$j$							
1	1/2	-.578543	.606238	.283990	.000000	.190276	.344050	.375931
1	3/2	-.213262	.388733	.506119	.000000	-.439616	-.435053	-.347294
3	5/2	-.329829	.419407	.164871	.000000	-.297619	-.487809	-.488337
3	7/2	.158962	.122059	.720313	1.000000	.681672	.245401	.002925
5	9/2	.072557	.146861	.110269	.000000	.333140	.289190	.142546
5	11/2	.403215	-.373741	-.317962	.000000	.297555	.408550	.440322
7	13/2	.509016	-.339297	-.047959	.000000	.127914	.360062	.489391
7	15/2	-.242499	.119120	.040007	.000000	.037362	.118277	.214183

 $K = 1/2$ , (730)

$E$	8.375595	8.268004	8.213936	8.149000	7.967815	7.810396	7.691025	
$a$	.015524	.322790	3.823563	5.000000	2.739374	.440626	-.092517	
$l$	$j$							
1	1/2	-.040435	-.037093	.226224	.000000	.075476	.008567	.040478
1	3/2	-.495750	.461709	-.093585	.000000	.174119	.400575	-.466823
3	5/2	.410507	-.422958	.493123	.000000	-.385608	-.359240	.336550
3	7/2	-.199373	.376915	-.234589	.000000	-.423345	-.451893	.328555
5	9/2	.307072	-.415390	.753122	1.000000	.746274	.499154	-.405008
5	11/2	.476022	-.390446	.077006	.000000	-.144043	-.366656	.462731
7	13/2	-.434704	.360299	-.262050	.000000	.241132	.339893	-.395544
7	15/2	-.185668	.098375	-.008326	.000000	-.015939	-.084185	.156898

 $K = 1/2$ , (710)

$E$	9.218559	8.892056	8.601143	8.406600	8.418040	8.492805	8.593204	
$a$	-.022975	.008328	.102755	-2.000000	.227517	-.042873	-.194547	
$l$	$j$							
1	1/2	-.048217	-.017618	.045279	.000000	-.029602	.022989	.054515
1	3/2	-.480460	-.558052	-.668783	1.000000	-.681276	-.627819	-.581733
3	5/2	.467155	.492484	.560579	.000000	.603864	.532426	.500509
3	7/2	.512909	.475737	.346789	.000000	-.291291	-.414898	-.466500
5	9/2	-.448584	-.419380	-.328649	.000000	.284068	.353998	.377263
5	11/2	-.235929	-.167528	-.069644	.000000	-.052890	-.126828	-.182270
7	13/2	.161429	.121433	.057191	.000000	.044436	.089199	.117030
7	15/2	.050735	.026656	.006072	.000000	-.004333	-.018427	-.035190

TABLE 5 (continued)

 $K = 1/2, (721)$ 

$E$	9.718342	9.278063	8.856860	8.439600	8.239939	8.175545	8.159057
$a$	.671129	.858175	1.066517	3.000000	.749385	.927588	.900030
$l$	$j$						
1	1/2	-.478290	-.520223	.612633	.000000	-.505553	-.507176
1	3/2	.497344	.490551	-.457683	.000000	.444062	.223864
3	5/2	.562333	.581165	-.589460	1.000000	.473923	.323800
3	7/2	-.320488	-.267793	.170956	.000000	.382378	.472547
5	9/2	-.294820	-.265980	.192439	.000000	.402055	.530077
5	11/2	.109544	.073099	-.028849	.000000	.092465	.217754
7	13/2	.075266	.055456	-.025440	.000000	.078303	.185786
7	15/2	-.019307	-.009859	.002260	.000000	.008924	.039948

 $K = 1/2, (701)$ 

$E$	8.779294	8.570764	8.428215	8.556600	8.711785	8.921872	9.141638
$a$	.776769	.975324	.880563	1.000000	1.007693	.917607	.833782
$l$	$j$						
1	1/2	-.507385	-.569567	.700143	1.000000	.837428	.782928
1	3/2	.152395	.026340	.266456	.000000	.329624	.378172
3	5/2	.070560	-.001002	.251473	.000000	.411077	.439076
3	7/2	.418043	.467484	-.397278	.000000	.098064	.159664
5	9/2	.531822	.558610	-.442111	.000000	.105335	.153429
5	11/2	-.370414	-.276678	.110003	.000000	.014673	.037664
7	13/2	-.328167	-.253986	.100206	.000000	.012239	.027378
7	15/2	.108918	.057028	-.011356	.000000	.001067	.004619