

Suppression of Aliasing by Convolutional
Gridding Schemes

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1. INTRODUCTION

A practical means of projecting visibility measurements onto a rectangular grid, in preparation for mapping, while at the same time suppressing the response to sources outside the region of interest, is to be discussed. The method consists in evaluating, at the grid points, the discrete convolution of the data with an appropriately chosen real, separable function, $C(u,v,w) = C_u(u)C_v(v)C_w(w)$. We assume C to be even in each of the spatial frequency coordinates (u,v , and w), to integrate to unity, and to vanish outside of a box of small dimensions. This latter assumption, regarding small support, is most crucial, as the time required to grid the data is proportional to the volume of the support box. The separability assumption and the restriction of the domain of C to a box permit a simpler and somewhat faster implementation than would otherwise be the case; and these assumptions, in fact, are not very restrictive.

Consider a set of N measurements $\{V_i\}$ of the visibility function V , obtained at spatial frequencies $\{U_i = (u_i, v_i, w_i)\}$, all lying within a support box of C whose center has been translated to a grid point at (u,v,w) . Denote the volume of the box by A . Then we might expect the summation

$$I = \frac{A}{N} \sum_i C(u-u_i, v-v_i, w-w_i) V_i$$

to be a fair approximation to $(V*C)(u,v,w)$, the convolution of V and C evaluated at (u,v,w) ¹. In fact, if we take the V_i to be error-free, and U , above, to be a random variable uniformly distributed in the box, then $\text{Re}I$ and $\text{Im}I$ are approximately normally distributed random variables whose means are the real and imaginary parts of the integral convolution evaluated at (u,v,w) , and whose standard deviations go to zero like $1/\sqrt{N}$.² Instead of I , above, we might take

$$J = \frac{\sum C_i V_i}{\sum C_i}$$

where we have abbreviated $C_i = C(u-u_i, v-v_i, w-w_i)$. J also tends to $(V*C)(u,v,w)$, but it leads to greater absurdities, in the instances of sparse sampling, than does I .

When the uniformity assumption is valid, a discrete Fourier transform applied to the gridded data produces a map whose features, including aliased features, have been tapered beforehand by a function resembling \hat{C} , the Fourier transform of C . One chooses C by balancing its merits as a low-pass filter against the computational constraints.

As the distribution of observations becomes nonrandom or sparse, the effectiveness of the filtering, or the resemblance of the filter transfer function to \hat{C} , diminishes. Even though the VLA $u-v$ distributions are comprised of points spaced out along elliptical tracks, experience to date, along with evidence presented in J. A. Hudson's Ph.D. thesis, suggests that the filtering response bears a fair resemblance to \hat{C} .

1 An analogy can be drawn with the 1-dimensional case of approximating $\int_a^b f(x)dx$. Here our estimate would be $I = \frac{b-a}{N} \sum f(x_i)$.

2 A similar statement holds if the V_i have only random errors.

The convolutional scheme, allowing varied choices of C , has been implemented in the mapping programs in use at the site and in Charlottesville. There has been some confusion and controversy in the treatments of weighting and of the gross cases of non-uniformity. One such case is that of the isolated measurement. Another is the non-uniformity that occurs at the edges of the u - v distribution, where the distribution within a support box is always skewed.

The remainder of the development here presents analyses of various choices of C , along with tabulations of their Fourier transforms.

2. DERIVATION

Since C is assumed to be separable, we consider only a single spatial frequency variable, u , and omit the subscript u from C_u . Subscripts on C now denote the parameters of particular choices of C . Subscript m , not necessarily an integer, defines the support by denoting a function C_m which vanishes for $|u| > m\Delta u/2$, where Δu is the grid spacing. We do not bother to normalize C_m to integrate to unity, in order to minimize the number of constants which must be carried along. Define a variable, a , to be the map position in units of $1/(2\Delta u)$, so that $a = \pm 1$ is the edge of the field of view. Now we can write the Fourier transform of C_m as:

$$\hat{C}_m(a) = \frac{2\Delta u}{\pi} \int_0^{\pi m/2} C\left(\frac{t\Delta u}{\pi}\right) \cos(at) dt.$$

Tables of two other functions, more useful for visualization, are presented below. $\tilde{C}_m(a) = \hat{C}_m(a)/\hat{C}_m(0)$ is the properly normalized version of \hat{C}_m . Another function, $\dot{C}_m(a) = \hat{C}_m(a)/\hat{C}_m((a+1) \bmod 2-1)$, where defined,

represents the strength of an alias, from position, a , relative to its strength if it actually lay within the field of view; i.e., if $|a|$ were less than 1.

3. PARTICULAR CHOICES OF C

Specific details for some functions which have been proposed for use are presented in this section. Their Fourier transforms are worked out in terms of familiar functions when possible.

3.1 PILLBOX

Here, take $C_m(u) = \begin{cases} 1 & |u| < m\Delta u/2 \\ 0 & \text{otherwise.} \end{cases}$

Then $\hat{C}_m(a) = \frac{2\Delta u}{\pi a} \sin\left(\frac{\pi a m}{2}\right)$. This function is included in order to furnish historical perspective. C_1 has long been used in the mapping program of the Green Bank interferometer package. Table I is a tabulation of \tilde{C}_1 and \dot{C}_1 .

3.2 TRUNCATED GAUSSIAN

Here, $C_{mw}(u) = \begin{cases} e^{-(u/w\Delta u)^2} & |u| < m\Delta u/2 \\ 0 & \text{otherwise.} \end{cases}$

C_{mw} is a Gaussian of width $2w$ at the $1/e$ point, truncated $m/2$ cells from the origin. Its Fourier transform can be expressed in terms of the error function of complex argument:

$$\hat{C}_{mw}(a) = \Delta u w \sqrt{\pi} e^{-(aw\pi/2)^2} \operatorname{Re} \left\{ \operatorname{erf} \left(\frac{m}{2w} + i \frac{aw\pi}{2} \right) \right\} .$$

Note that $\hat{C}_{\infty w}(a) = \Delta u w \sqrt{\pi} e^{-(aw\pi/2)^2}$, and $\hat{C}_{\infty w}(2/w\pi) = 1/e$.

Convolution by the truncated Gaussian recently has been made available in Jerry Hudson's MAPPER program at the VLA site. It has also been used in the Westerbork reduction package, with a default choice of $w = 2\sqrt{2 \ln 2}/\pi$, so that $\hat{C}_{\infty w}(1) = .25$. Tabulations for the truncated Gaussian appear in Table II.

3.3 TRUNCATED $\sin u/u$

$$\text{Take } C_{mw}(u) = \begin{cases} \frac{\sin(\pi u/w\Delta u)}{\pi u/w\Delta u} & |u| < m\Delta u/2 \\ 0 & \text{otherwise.} \end{cases}$$

A motivation for examining this function is that $\hat{C}_{\infty w}$ is a pillbox. \hat{C}_{mw} can be expressed in terms of the sine integral¹:

$$\hat{C}_{mw}(a) = \frac{w\Delta u}{\pi} \left\{ \text{Si}\left(\frac{\pi m(1-aw)}{2w}\right) + \text{Si}\left(\frac{\pi m(1+aw)}{2w}\right) \right\}.$$

The relevant question is whether, for m a reasonable number, say 6 or 8, \hat{C}_{m1} is at all nice. Tabulations, in Table III, reveal that there is a nice edge for such m , but relatively large undulations.

¹ $\text{Si}(t) = \int_0^t \frac{\sin x}{x} dx.$

3.4 TAPERED, TRUNCATED $\sin u/u$

Here, we take

$$C_{mw\alpha w'}(u) = \begin{cases} \frac{e^{-|u/w'\Delta u|^\alpha} \sin(\pi u/w\Delta u)}{\pi u/w\Delta u} & |u| < m\Delta u/2 \\ 0 & \text{otherwise.} \end{cases}$$

The present motivation is to smooth out the undulations in the \hat{C} of the previous section, while preserving a reasonable edge. We have,

$$\hat{C}_{mw\alpha w'}(a) = \frac{2w\Delta u}{\pi} \int_0^{\pi m/2} t^{-1} e^{-(t/\pi w')^\alpha} \sin(t/w) \cos(at) dt.$$

Tables, derived by numerical quadrature, look quite pleasing for, say, $\alpha = 3$. They are presented in Table IV.

4. REMARKS

In areas of sparse sampling the gridding scheme ought to preserve the data reasonably well, in order not to degrade the resolution, but in these areas (or in areas with a skewed distribution of U) there is little chance of effectively filtering the data. Use of the estimator J is discouraged because its denominator easily can be near zero in sparsely sampled regions. Estimator I generally ought to behave well. It's definition might be modified, or a compensatory weighting scheme might accompany its use, in order to obtain consistent performance (similar beam shapes for fixed C) for varied choices of cell-size.

The definition $I_\alpha = AN^{\alpha-1} \sum C_i V_i$, $0 \leq \alpha \leq 1$, yields a continuum of gridding schemes in the range between "uniform" and "natural" weighting. Choice of $\alpha = 1$ corresponds to weighting in proportion to the reciprocal of the variance in the estimate that $AN^{-1} \sum C_i$ provides of $\hat{C}(0)$.

Table I. Pillbox

a	$\tilde{c}_1(a)$	$\tilde{c}_2(a)$	a	$\tilde{c}_1(a)$	$\tilde{c}_2(a)$
0.00	1.00000	1.00000	3.00	-0.21271	-0.33333
0.05	0.99997	1.00000	3.05	-0.20808	-0.31148
0.10	0.99989	1.00000	3.10	-0.20283	-0.29032
0.15	0.99977	1.00000	3.15	-0.19652	-0.26984
0.20	0.99963	1.00000	3.20	-0.18921	-0.25000
0.25	0.99945	1.00000	3.25	-0.18097	-0.23077
0.30	0.99924	1.00000	3.30	-0.17189	-0.21212
0.35	0.99903	1.00000	3.35	-0.16203	-0.19403
0.40	0.99879	1.00000	3.40	-0.15148	-0.17647
0.45	0.99852	1.00000	3.45	-0.14032	-0.15942
0.50	0.99822	1.00000	3.50	-0.12862	-0.14286
0.55	0.99789	1.00000	3.55	-0.11647	-0.12676
0.60	0.99753	1.00000	3.60	-0.10394	-0.11111
0.65	0.99715	1.00000	3.65	-0.09113	-0.09589
0.70	0.99675	1.00000	3.70	-0.07811	-0.08108
0.75	0.99632	1.00000	3.75	-0.06497	-0.06667
0.80	0.99587	1.00000	3.80	-0.05177	-0.05263
0.85	0.99540	1.00000	3.85	-0.03860	-0.03896
0.90	0.99491	1.00000	3.90	-0.02554	-0.02564
0.95	0.99440	1.00000	3.95	-0.01265	-0.01266
1.00	0.99387	1.00000	4.00	-0.00000	-0.00000
1.05	0.60444	0.90476	4.05	0.01233	0.01235
1.10	0.57162	0.81818	4.10	0.02429	0.02439
1.15	0.53829	0.73913	4.15	0.03581	0.03614
1.20	0.50455	0.66667	4.20	0.04684	0.04762
1.25	0.47053	0.60000	4.25	0.05732	0.05882
1.30	0.43633	0.53846	4.30	0.06721	0.06977
1.35	0.40208	0.48148	4.35	0.07647	0.08046
1.40	0.36788	0.42857	4.40	0.08504	0.09091
1.45	0.33385	0.37931	4.45	0.09291	0.10112
1.50	0.30011	0.33333	4.50	0.10004	0.11111
1.55	0.26674	0.29032	4.55	0.10639	0.12088
1.60	0.23387	0.25000	4.60	0.11196	0.13043
1.65	0.20160	0.21212	4.65	0.11673	0.13978
1.70	0.17001	0.17647	4.70	0.12069	0.14894
1.75	0.13921	0.14286	4.75	0.12382	0.15789
1.80	0.10929	0.11111	4.80	0.12614	0.16667
1.85	0.08033	0.08108	4.85	0.12764	0.17526
1.90	0.05242	0.05263	4.90	0.12832	0.18367
1.95	0.02561	0.02564	4.95	0.12821	0.19192
2.00	0.00000	0.00000	5.00	0.12732	0.20000
2.05	-0.02437	-0.02439	5.05	0.12567	0.18812
2.10	-0.04742	-0.04762	5.10	0.12329	0.17647
2.15	-0.06912	-0.06977	5.15	0.12020	0.16505
2.20	-0.08942	-0.09091	5.20	0.11643	0.15385
2.25	-0.10828	-0.11111	5.25	0.11203	0.14286
2.30	-0.12566	-0.13043	5.30	0.10702	0.13208
2.35	-0.14155	-0.14894	5.35	0.10146	0.12150
2.40	-0.15591	-0.16667	5.40	0.09538	0.11111
2.45	-0.16876	-0.18367	5.45	0.08882	0.10092
2.50	-0.18006	-0.20000	5.50	0.08185	0.09091
2.55	-0.18984	-0.21569	5.55	0.07450	0.08108
2.60	-0.19809	-0.23077	5.60	0.06682	0.07143
2.65	-0.20483	-0.24528	5.65	0.05887	0.06195
2.70	-0.21009	-0.25926	5.70	0.05071	0.05263
2.75	-0.21388	-0.27273	5.75	0.04237	0.04348
2.80	-0.21624	-0.28571	5.80	0.03392	0.03448
2.85	-0.21720	-0.29825	5.85	0.02540	0.02564
2.90	-0.21682	-0.31036	5.90	0.01688	0.01695
2.95	-0.21514	-0.32203	5.95	0.00839	0.00840
3.00	-0.21271	-0.33333	6.00	0.00000	0.00000

Table II.A. $\tilde{C}_{m,n}(a)$ for the Truncated Gaussian, $e^{-6(n/na)^2}$

$n=6$

a	$m=1$	$m=2$	$m=3$	$m=4$	$m=5$
0.00	1.00000	1.00000	1.00000	1.00000	1.00000
0.05	0.99915	0.99805	0.99779	0.99778	0.99778
0.10	0.99660	0.99720	0.99120	0.99116	0.99116
0.15	0.99236	0.99253	0.98032	0.98021	0.98021
0.20	0.98644	0.96912	0.96527	0.96509	0.96509
0.25	0.97887	0.95210	0.94626	0.94600	0.94600
0.30	0.96967	0.93165	0.92732	0.92317	0.92317
0.35	0.95887	0.90797	0.89734	0.89690	0.89690
0.40	0.94650	0.88128	0.86804	0.86752	0.86752
0.45	0.93262	0.85184	0.83598	0.83538	0.83538
0.50	0.91726	0.81993	0.80152	0.80087	0.80086
0.55	0.90048	0.78585	0.76506	0.76438	0.76437
0.60	0.88233	0.74591	0.72701	0.72632	0.72631
0.65	0.86287	0.71243	0.68776	0.68709	0.68709
0.70	0.84218	0.67375	0.64773	0.64711	0.64710
0.75	0.82031	0.63421	0.60731	0.60674	0.60674
0.80	0.79734	0.59413	0.56686	0.56638	0.56638
0.85	0.77335	0.55384	0.52674	0.52636	0.52636
0.90	0.74841	0.51366	0.48727	0.48700	0.48700
0.95	0.72260	0.47389	0.44874	0.44858	0.44858
1.00	0.69601	0.43482	0.41141	0.41137	0.41137
1.05	0.66873	0.39673	0.37551	0.37557	0.37557
1.10	0.64083	0.35884	0.34122	0.34137	0.34137
1.15	0.61241	0.32439	0.30869	0.30890	0.30890
1.20	0.59356	0.29057	0.27803	0.27829	0.27825
1.25	0.55437	0.25854	0.24932	0.24960	0.24960
1.30	0.52492	0.22844	0.22260	0.22287	0.22287
1.35	0.49531	0.20036	0.19788	0.19813	0.19812
1.40	0.46563	0.17440	0.17515	0.17535	0.17535
1.45	0.43596	0.15059	0.15436	0.15450	0.15450
1.50	0.40639	0.12896	0.13547	0.13553	0.13553
1.55	0.37701	0.10948	0.11838	0.11836	0.11836
1.60	0.34790	0.09214	0.10301	0.10291	0.10290
1.65	0.31914	0.07686	0.08926	0.08907	0.08907
1.70	0.29082	0.06358	0.07702	0.07676	0.07676
1.75	0.26300	0.05218	0.06617	0.06585	0.06585
1.80	0.23577	0.04255	0.05660	0.05625	0.05625
1.85	0.20910	0.03457	0.04820	0.04783	0.04783
1.90	0.18332	0.02808	0.04085	0.04049	0.04049
1.95	0.15824	0.02295	0.03447	0.03413	0.03413
2.00	0.13399	0.01903	0.02893	0.02864	0.02864
2.05	0.11065	0.01614	0.02416	0.02392	0.02392
2.10	0.08824	0.01415	0.02006	0.01989	0.01990
2.15	0.06683	0.01290	0.01656	0.01647	0.01647
2.20	0.04645	0.01223	0.01358	0.01358	0.01358
2.25	0.02713	0.01203	0.01106	0.01115	0.01114
2.30	0.00992	0.01215	0.00895	0.00911	0.00911
2.35	-0.00817	0.01248	0.00719	0.00741	0.00741
2.40	-0.02411	0.01291	0.00577	0.00600	0.00600
2.45	-0.03888	0.01335	0.00454	0.00484	0.00484
2.50	-0.05248	0.01377	0.00357	0.00388	0.00388
2.55	-0.06489	0.01397	0.00279	0.00310	0.00310
2.60	-0.07612	0.01404	0.00219	0.00247	0.00247
2.65	-0.08616	0.01389	0.00171	0.00195	0.00195
2.70	-0.09502	0.01350	0.00136	0.00154	0.00154
2.75	-0.10273	0.01286	0.00109	0.00121	0.00121
2.80	-0.10928	0.01158	0.00090	0.00094	0.00095
2.85	-0.11471	0.01087	0.00076	0.00073	0.00074
2.90	-0.11903	0.00954	0.00066	0.00057	0.00057
2.95	-0.12228	0.00804	0.00060	0.00044	0.00044
3.00	-0.12449	0.00640	0.00055	0.00034	0.00034

Table II A, cont'd. $\tilde{C}_{m,n}(a)$ for the Truncated Gaussian, $e^{-(\ln(as+1))^2}$.

$$w = 2\sqrt{2 \ln 2} / \pi$$

a	m=1	m=2	m=3	m=4	m=5	m=6
0.00	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
0.05	0.99909	0.99747	0.99668	0.99655	0.99654	0.99654
0.10	0.99636	0.98992	0.98679	0.98627	0.98623	0.98623
0.15	0.99182	0.97742	0.97051	0.96936	0.96929	0.96929
0.20	0.98548	0.96014	0.94817	0.94617	0.94606	0.94606
0.25	0.97738	0.93026	0.92005	0.91717	0.91701	0.91700
0.30	0.96753	0.91204	0.88678	0.88291	0.88271	0.88270
0.35	0.95597	0.88177	0.84890	0.84406	0.84382	0.84382
0.40	0.94274	0.84781	0.80706	0.80134	0.80107	0.80107
0.45	0.92790	0.81053	0.76195	0.75552	0.75524	0.75524
0.50	0.91148	0.77035	0.71431	0.70738	0.70711	0.70711
0.55	0.89354	0.72771	0.66490	0.65771	0.65747	0.65747
0.60	0.87416	0.68306	0.61444	0.60730	0.60710	0.60710
0.65	0.85338	0.63689	0.56367	0.55686	0.55671	0.55671
0.70	0.83130	0.58967	0.51327	0.50707	0.50698	0.50698
0.75	0.80798	0.54187	0.46387	0.45853	0.45850	0.45850
0.80	0.78350	0.49358	0.41606	0.41177	0.41179	0.41180
0.85	0.75794	0.44645	0.37031	0.36723	0.36729	0.36729
0.90	0.73139	0.39972	0.32706	0.32524	0.32534	0.32534
0.95	0.70395	0.35420	0.28663	0.28609	0.28618	0.28618
1.00	0.67565	0.31028	0.24926	0.24990	0.25000	0.25000
1.05	0.64672	0.26829	0.21512	0.21601	0.21689	0.21688
1.10	0.61713	0.22854	0.18428	0.18681	0.18686	0.18686
1.15	0.58702	0.19130	0.15674	0.15987	0.15988	0.15987
1.20	0.55648	0.15680	0.13242	0.13588	0.13584	0.13584
1.25	0.52562	0.12519	0.11120	0.11471	0.11463	0.11463
1.30	0.49453	0.09660	0.09288	0.09617	0.09606	0.09605
1.35	0.46331	0.07117	0.07726	0.08008	0.07994	0.07994
1.40	0.43206	0.04876	0.06407	0.06672	0.06606	0.06606
1.45	0.40088	0.02952	0.05305	0.05437	0.05422	0.05422
1.50	0.36985	0.01334	0.04392	0.04432	0.04419	0.04419
1.55	0.33907	0.00017	0.03661	0.03587	0.03577	0.03577
1.60	0.30864	-0.01028	0.03026	0.02881	0.02875	0.02876
1.65	0.27865	-0.01803	0.02523	0.02296	0.02295	0.02296
1.70	0.24917	-0.02333	0.02108	0.01816	0.01820	0.01820
1.75	0.22029	-0.02638	0.01763	0.01425	0.01433	0.01433
1.80	0.19209	-0.02745	0.01477	0.01110	0.01120	0.01120
1.85	0.16465	-0.02677	0.01272	0.00857	0.00870	0.00870
1.90	0.13803	-0.02462	0.01001	0.00658	0.00671	0.00671
1.95	0.11230	-0.02175	0.00803	0.00507	0.00514	0.00514
2.00	0.08754	-0.01854	0.00627	0.00381	0.00391	0.00391
2.05	0.06378	-0.01494	0.00457	0.00288	0.00295	0.00295
2.10	0.04109	-0.01051	0.00306	0.00218	0.00221	0.00221
2.15	0.01952	-0.00607	0.00169	0.00166	0.00165	0.00165
2.20	-0.00090	0.00475	0.00048	0.00127	0.00122	0.00122
2.25	-0.02012	0.01017	-0.00056	0.00098	0.00089	0.00090
2.30	-0.03812	0.01520	-0.00141	0.00076	0.00065	0.00065
2.35	-0.05486	0.01970	-0.00206	0.00059	0.00047	0.00047
2.40	-0.07033	0.02355	-0.00250	0.00046	0.00034	0.00034
2.45	-0.08457	0.02666	-0.00272	0.00035	0.00024	0.00024
2.50	-0.09740	0.02895	-0.00273	0.00025	0.00017	0.00017
2.55	-0.10899	0.03040	-0.00255	0.00017	0.00012	0.00012
2.60	-0.11927	0.03098	-0.00221	0.00010	0.00009	0.00009
2.65	-0.12825	0.03072	-0.00177	0.00004	0.00006	0.00006
2.70	-0.13596	0.02965	-0.00114	-0.00001	0.00004	0.00004
2.75	-0.14239	0.02782	-0.00050	-0.00005	0.00003	0.00003
2.80	-0.14758	0.02531	0.00016	-0.00008	0.00002	0.00002
2.85	-0.15155	0.02220	0.00079	-0.00009	0.00001	0.00001
2.90	-0.15433	0.01861	0.00137	-0.00009	0.00001	0.00001
-2.95	-0.15596	0.01464	0.00185	-0.00008	0.00001	0.00001
3.00	-0.15647	0.01040	0.00221	-0.00006	0.00000	0.00000

Table II, cont'd. $\tilde{C}_{m\omega}(a)$ for the truncated Gaussian, $e^{-(a/x)^2}$

$\omega = 1$

a	$m=1$	$m=2$	$m=3$	$m=4$	$m=5$	$m=6$	$m=7$	$m=8$
0.00	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
0.05	0.99904	0.99687	0.99498	0.99410	0.99388	0.99385	0.99385	0.99385
0.10	0.99616	0.98753	0.98005	0.97461	0.97575	0.97564	0.97563	0.97563
0.15	0.99137	0.97210	0.95556	0.94608	0.94626	0.94602	0.94600	0.94600
0.20	0.98469	0.95075	0.92210	0.90943	0.90643	0.90605	0.90602	0.90602
0.25	0.97615	0.92385	0.88049	0.86187	0.85764	0.85713	0.85709	0.85709
0.30	0.96577	0.89165	0.83170	0.80688	0.80152	0.80090	0.80086	0.80086
0.35	0.95359	0.85459	0.77686	0.74609	0.73984	0.73919	0.73915	0.73915
0.40	0.93965	0.81315	0.71723	0.68125	0.67449	0.67386	0.67383	0.67383
0.45	0.92401	0.76785	0.65413	0.61417	0.60731	0.60674	0.60674	0.60674
0.50	0.90672	0.71926	0.58991	0.54644	0.54005	0.53965	0.53964	0.53964
0.55	0.88783	0.66797	0.52294	0.47920	0.47431	0.47407	0.47408	0.47408
0.60	0.86743	0.61460	0.45751	0.41565	0.41141	0.41136	0.41137	0.41137
0.65	0.84558	0.55679	0.39384	0.35518	0.35246	0.35257	0.35258	0.35258
0.70	0.82235	0.50419	0.33304	0.29935	0.29876	0.29848	0.29849	0.29849
0.75	0.79783	0.44844	0.27606	0.24085	0.24032	0.24055	0.24060	0.24060
0.80	0.77211	0.39314	0.22370	0.20408	0.20590	0.20616	0.20615	0.20615
0.85	0.74527	0.33890	0.17655	0.16519	0.16800	0.16820	0.16818	0.16818
0.90	0.71741	0.28629	0.13504	0.13209	0.13547	0.13555	0.13553	0.13553
0.95	0.68862	0.23583	0.09939	0.10448	0.10795	0.10789	0.10787	0.10787
1.00	0.65900	0.18799	0.06963	0.08192	0.08502	0.08482	0.08480	0.08480
1.05	0.62865	0.14319	0.04562	0.06385	0.06617	0.06587	0.06585	0.06585
1.10	0.59768	0.10180	0.02706	0.04963	0.05087	0.05052	0.05051	0.05051
1.15	0.56619	0.06411	0.01353	0.03861	0.03862	0.03826	0.03827	0.03827
1.20	0.53428	0.03035	0.00449	0.03015	0.02893	0.02862	0.02864	0.02864
1.25	0.50206	0.00070	-0.00071	0.02367	0.02135	0.02115	0.02117	0.02117
1.30	0.46964	-0.02477	-0.00271	0.01866	0.01551	0.01544	0.01545	0.01545
1.35	0.43711	-0.04601	-0.00227	0.01468	0.01106	0.01113	0.01114	0.01114
1.40	0.40459	-0.06308	0.00006	0.01142	0.00774	0.00793	0.00794	0.00794
1.45	0.37218	-0.07607	0.00350	0.00865	0.00530	0.00559	0.00558	0.00558
1.50	0.33998	-0.08514	0.00748	0.00621	0.00357	0.00389	0.00388	0.00388
1.55	0.30808	-0.09090	0.01147	0.00404	0.00237	0.00268	0.00266	0.00266
1.60	0.27659	-0.09243	0.01506	0.00211	0.00158	0.00181	0.00181	0.00181
1.65	0.24561	-0.09122	0.01788	0.00046	0.00105	0.00122	0.00121	0.00121
1.70	0.21521	-0.08771	0.01971	-0.00089	0.00080	0.00081	0.00080	0.00080
1.75	0.18549	-0.08078	0.02041	-0.00189	0.00064	0.00052	0.00052	0.00052
1.80	0.15654	-0.07230	0.01995	-0.00251	0.00055	0.00033	0.00034	0.00034
1.85	0.12842	-0.06217	0.01837	-0.00276	0.00040	0.00020	0.00022	0.00022
1.90	0.10123	-0.05080	0.01579	-0.00264	0.00026	0.00012	0.00014	0.00014
1.95	0.07502	-0.03858	0.01241	-0.00222	0.00013	0.00007	0.00008	0.00008
2.00	0.04987	-0.02590	0.00845	-0.00155	0.00023	0.00004	0.00005	0.00005
2.05	0.02582	-0.01314	0.00416	-0.00072	0.00011	0.00003	0.00003	0.00003
2.10	0.00295	-0.00062	-0.00010	0.00016	-0.00001	0.00002	0.00002	0.00002
2.15	-0.01871	0.01132	-0.00434	0.00100	-0.00012	0.00002	0.00001	0.00001
2.20	-0.03710	0.02241	-0.00807	0.00171	-0.00020	0.00002	0.00001	0.00001
2.25	-0.05820	0.03240	-0.01117	0.00222	-0.00024	0.00002	0.00000	0.00000
2.30	-0.07596	0.04105	-0.01349	0.00249	-0.00024	0.00001	0.00000	0.00000
2.35	-0.09237	0.04832	-0.01493	0.00250	-0.00021	0.00001	0.00000	0.00000
2.40	-0.10740	0.05397	-0.01545	0.00224	-0.00014	0.00000	0.00000	0.00000
2.45	-0.12105	0.05797	-0.01504	0.00177	-0.00005	-0.00001	0.00000	0.00000
2.50	-0.13329	0.06030	-0.01378	0.00113	0.00005	-0.00001	0.00000	0.00000
2.55	-0.14413	0.06097	-0.01176	0.00040	0.00013	-0.00001	0.00000	0.00000
2.60	-0.15358	0.06003	-0.00914	-0.00035	0.00019	-0.00001	0.00000	0.00000
2.65	-0.16164	0.05757	-0.00608	-0.00104	0.00022	-0.00001	-0.00000	0.00000
2.70	-0.16833	0.05373	-0.00277	-0.00161	0.00022	-0.00000	-0.00000	0.00000
2.75	-0.17367	0.04864	0.00098	-0.00199	0.00019	0.00000	-0.00000	0.00000
2.80	-0.17768	0.04245	0.00378	-0.00216	0.00011	0.00001	-0.00000	0.00000
2.85	-0.18040	0.03540	0.00666	-0.00211	0.00003	0.00001	-0.00000	-0.00000
2.90	-0.18186	0.02780	0.00907	-0.00184	-0.00006	0.00001	-0.00000	-0.00000
2.95	-0.18210	0.01968	0.01088	-0.00140	-0.00013	0.00001	0.00000	-0.00000
3.00	-0.18117	0.01133	0.01201	-0.00083	-0.00018	0.00001	0.00000	-0.00000

Table II B. $\hat{C}_m(a)$ for the Truncated Gaussian, $e^{-6u(wam)^2}$.

$w = .6$

a	m=1	m=2	m=3	m=4	m=5
1.00	1.00000	1.00000	1.00000	1.00000	1.00000
1.05	0.95644	0.83717	0.93682	0.83723	0.83723
1.10	0.95626	0.70055	0.70028	0.70096	0.70096
1.15	0.79190	0.58572	0.58604	0.58687	0.58687
1.20	0.73189	0.48907	0.49048	0.49134	0.49134
1.25	0.67580	0.40766	0.41053	0.41137	0.41137
1.30	0.62329	0.33905	0.34365	0.34441	0.34441
1.35	0.57403	0.28124	0.28771	0.28836	0.28835
1.40	0.52773	0.23256	0.24071	0.24142	0.24142
1.45	0.48414	0.19163	0.20177	0.20213	0.20212
1.50	0.44305	0.15729	0.16901	0.16923	0.16922
1.55	0.40425	0.12853	0.14161	0.14168	0.14168
1.60	0.36756	0.10455	0.11367	0.11862	0.11862
1.65	0.33283	0.08465	0.09947	0.09931	0.09931
1.70	0.29992	0.06824	0.08339	0.08315	0.08315
1.75	0.26868	0.05480	0.06992	0.06961	0.06961
1.80	0.23901	0.04391	0.05863	0.05828	0.05828
1.85	0.21080	0.03518	0.04916	0.04879	0.04880
1.90	0.18395	0.02830	0.04127	0.04085	0.04085
1.95	0.15837	0.02300	0.03454	0.03420	0.03420
2.00	0.13399	0.01903	0.02893	0.02864	0.02864
2.05	0.11074	0.01617	0.02421	0.02397	0.02398
2.10	0.08854	0.01426	0.02024	0.02007	0.02007
2.15	0.06734	0.01312	0.01689	0.01681	0.01681
2.20	0.04709	0.01262	0.01407	0.01407	0.01407
2.25	0.02772	0.01263	0.01169	0.01178	0.01178
2.30	0.00920	0.01304	0.00969	0.00986	0.00986
2.35	-0.00852	0.01374	0.00901	0.00876	0.00926
2.40	-0.02547	0.01465	0.00660	0.00657	0.00691
2.45	-0.04169	0.01567	0.00543	0.00579	0.00579
2.50	-0.05721	0.01674	0.00445	0.00485	0.00485
2.55	-0.07206	0.01778	0.00365	0.00406	0.00406
2.60	-0.08627	0.01872	0.00301	0.00340	0.00340
2.65	-0.09985	0.01945	0.00245	0.00294	0.00284
2.70	-0.11283	0.02002	0.00200	0.00238	0.00238
2.75	-0.12523	0.02028	0.00179	0.00199	0.00199
2.80	-0.13706	0.02016	0.00158	0.00167	0.00167
2.85	-0.14833	0.01962	0.00144	0.00139	0.00140
2.90	-0.15905	0.01858	0.00136	0.00117	0.00117
2.95	-0.16922	0.01697	0.00133	0.00098	0.00098
3.00	-0.17886	0.01471	0.00133	0.00082	0.00082
3.05	-0.17394	0.00981	0.00113	0.00057	0.00057
3.10	-0.16826	0.00553	0.00096	0.00040	0.00040
3.15	-0.16195	0.00184	0.00082	0.00028	0.00028
3.20	-0.15511	-0.00130	0.00069	0.00020	0.00020
3.25	-0.14785	-0.00392	0.00055	0.00014	0.00014
3.30	-0.14024	-0.00607	0.00042	0.00010	0.00010
3.35	-0.13235	-0.00776	0.00030	0.00007	0.00007
3.40	-0.12425	-0.00905	0.00018	0.00005	0.00005
3.45	-0.11597	-0.00956	0.00008	0.00004	0.00003
3.50	-0.10757	-0.01053	-0.00001	0.00003	0.00002
3.55	-0.09909	-0.01107	-0.00009	0.00002	0.00002
3.60	-0.09055	-0.01107	-0.00016	0.00001	0.00001
3.65	-0.08199	-0.01050	-0.00021	0.00001	0.00001
3.70	-0.07342	-0.01000	-0.00024	0.00000	0.00001
3.75	-0.06487	-0.00971	-0.00026	0.00000	0.00000
3.80	-0.05636	-0.00944	-0.00026	0.00000	0.00000
3.85	-0.04791	-0.00944	-0.00025	0.00000	0.00000
3.90	-0.03952	-0.00970	-0.00022	-0.00000	0.00000
3.95	-0.03121	-0.00950	-0.00018	-0.00000	0.00000
4.00	-0.02299	-0.00977	-0.00014	-0.00000	0.00000

Table II, cont'd. $\hat{C}_{m,n}$ for the Truncated Gaussian, $e^{-\frac{1}{2}x^2/\sigma^2}$.

$$\sigma = \sqrt{2\sigma_0^2/\pi}$$

R	$m=1$	$m=2$	$m=3$	$m=4$	$m=5$	$m=6$
1.00	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
1.05	0.91971	0.75743	0.75053	0.75786	0.75786	0.75786
1.10	0.84378	0.57175	0.56745	0.57438	0.57436	0.57435
1.15	0.77459	0.42850	0.42326	0.43534	0.43528	0.43528
1.20	0.71026	0.31741	0.31928	0.33000	0.32988	0.32988
1.25	0.65056	0.23107	0.23971	0.25017	0.25000	0.25000
1.30	0.59489	0.16382	0.18097	0.18967	0.18947	0.18946
1.35	0.54291	0.11166	0.13706	0.14380	0.14359	0.14359
1.40	0.49426	0.07139	0.10427	0.10903	0.10882	0.10882
1.45	0.44964	0.04057	0.07979	0.08266	0.08247	0.08247
1.50	0.40757	0.021732	0.06149	0.06266	0.06250	0.06250
1.55	0.36542	0.00015	0.04779	0.04747	0.04736	0.04737
1.60	0.32739	-0.01213	0.03750	0.03595	0.03589	0.03550
1.65	0.29148	-0.02045	0.02971	0.02721	0.02720	0.02720
1.70	0.25753	-0.02558	0.02377	0.02057	0.02062	0.02062
1.75	0.22539	-0.02812	0.01917	0.01554	0.01563	0.01563
1.80	0.19492	-0.02859	0.01553	0.01173	0.01184	0.01184
1.85	0.16600	-0.02739	0.01259	0.00885	0.00898	0.00857
1.90	0.13853	-0.02487	0.01014	0.00667	0.00680	0.00680
1.95	0.11241	-0.02131	0.00805	0.00503	0.00516	0.00515
2.00	0.08754	-0.01694	0.00622	0.00381	0.00391	0.00391
2.05	0.06394	-0.01197	0.00459	0.00299	0.00296	0.00296
2.10	0.04124	-0.00657	0.00310	0.00221	0.00224	0.00224
2.15	0.01960	-0.00089	0.00174	0.00171	0.00170	0.00170
2.20	-0.00091	0.000495	0.00059	0.00134	0.00125	0.00129
2.25	-0.02059	0.01084	-0.00061	0.00107	0.00097	0.00058
2.30	-0.03940	0.01667	-0.00160	0.00086	0.00074	0.00074
2.35	-0.05736	0.02234	-0.00243	0.00070	0.00056	0.00056
2.40	-0.07461	0.02778	-0.00306	0.00057	0.00043	0.00043
2.45	-0.09109	0.03285	-0.00356	0.00046	0.00032	0.00032
2.50	-0.10686	0.03758	-0.00382	0.00036	0.00024	0.00024
2.55	-0.12197	0.04177	-0.00384	0.00026	0.00019	0.00019
2.60	-0.13644	0.04536	-0.00359	0.00016	0.00014	0.00014
2.65	-0.15029	0.04824	-0.00306	0.00007	0.00011	0.00011
2.70	-0.16355	0.05028	-0.00223	-0.00003	0.00008	0.00008
2.75	-0.17623	0.05134	-0.00108	-0.00012	0.00006	0.00006
2.80	-0.18836	0.05123	0.00038	-0.00020	0.00005	0.00005
2.85	-0.19995	0.04977	0.00214	-0.00026	0.00004	0.00004
2.90	-0.21101	0.04656	0.00419	-0.00029	0.00003	0.00003
2.95	-0.22155	0.04133	0.00646	-0.00024	0.00002	0.00002
3.00	-0.23157	0.03353	0.00888	-0.00024	0.00001	0.00002
3.05	-0.22148	0.01701	0.00851	-0.00011	0.00000	0.00001
3.10	-0.21100	0.00406	0.00769	-0.00000	-0.00000	0.00001
3.15	-0.20024	-0.00663	0.00660	0.00008	-0.00000	0.00000
3.20	-0.18926	-0.01378	0.00537	0.00014	-0.00000	0.00000
3.25	-0.17815	-0.02156	0.00409	0.00017	-0.00000	0.00000
3.30	-0.16695	-0.02983	0.00285	0.00018	0.00000	0.00000
3.35	-0.15571	-0.03871	0.00169	0.00017	0.00000	0.00000
3.40	-0.14448	-0.04848	0.00065	0.00015	0.00000	0.00000
3.45	-0.13328	-0.05929	-0.00025	0.00011	0.00000	0.00000
3.50	-0.12213	-0.07131	-0.00099	0.00007	0.00000	0.00000
3.55	-0.11107	-0.08465	-0.00156	0.00003	0.00000	0.00000
3.60	-0.10012	-0.09942	-0.00198	-0.00001	0.00000	0.00000
3.65	-0.08927	-0.12572	-0.00224	-0.00004	0.00000	0.00000
3.70	-0.07956	-0.16361	-0.00234	-0.00006	-0.00000	0.00000
3.75	-0.06799	-0.21118	-0.00235	-0.00008	-0.00000	0.00000
3.80	-0.05756	-0.26847	-0.00221	-0.00009	-0.00000	-0.00000
3.85	-0.04729	-0.33556	-0.00198	-0.00009	-0.00000	-0.00000
3.90	-0.03718	-0.41247	-0.00166	-0.00008	-0.00000	-0.00000
3.95	-0.02724	-0.49927	-0.00127	-0.00006	-0.00000	-0.00000
4.00	-0.01747	-0.60558	-0.00083	-0.00004	-0.00000	-0.00000

Table II B, cont'd. $\hat{C}_{m,n}(a)$ for the Truncated Gaussian, $e^{-b(|x-a|)^m}$.

$n=1$

a	m=1	m=2	m=3	m=4	m=5	m=6	m=7	m=8
1.00	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
1.05	0.91292	0.60718	0.45899	0.61117	0.61293	0.61049	0.61049	0.61050
1.10	0.87711	0.35558	0.20041	0.37575	0.37554	0.37268	0.37270	0.37271
1.15	0.75971	0.18917	0.07666	0.23373	0.22990	0.22748	0.22753	0.22754
1.20	0.69197	0.07771	0.02005	0.14775	0.14051	0.13884	0.13891	0.13891
1.25	0.62928	0.00155	-0.00256	0.09512	0.08565	0.08473	0.08481	0.08481
1.30	0.57109	-0.04912	-0.00914	0.06232	0.05195	0.05171	0.05177	0.05177
1.35	0.51694	-0.08220	-0.00565	0.04133	0.03138	0.03157	0.03161	0.03161
1.40	0.46643	-0.10264	0.00014	0.02748	0.01981	0.01928	0.01930	0.01930
1.45	0.41920	-0.11388	0.00669	0.01802	0.01118	0.01179	0.01178	0.01178
1.50	0.37495	-0.11837	0.01269	0.01136	0.00661	0.00721	0.00719	0.00719
1.55	0.33342	-0.11787	0.01754	0.00657	0.00391	0.00442	0.00439	0.00439
1.60	0.29436	-0.11367	0.02099	0.00310	0.00235	0.00271	0.00268	0.00268
1.65	0.25756	-0.10674	0.02302	0.00062	0.00147	0.00166	0.00164	0.00164
1.70	0.22284	-0.09781	0.02370	-0.00110	0.00100	0.00101	0.00100	0.00100
1.75	0.19007	-0.08744	0.02319	-0.00219	0.00074	0.00061	0.00061	0.00061
1.80	0.15897	-0.07604	0.02164	-0.00276	0.00060	0.00036	0.00037	0.00037
1.85	0.12954	-0.06356	0.01922	-0.00291	0.00051	0.00021	0.00023	0.00023
1.90	0.10162	-0.05144	0.01611	-0.00271	0.00043	0.00012	0.00014	0.00014
1.95	0.07509	-0.03970	0.01247	-0.00223	0.00033	0.00007	0.00009	0.00009
2.00	0.04987	-0.02590	0.00845	-0.00155	0.00023	0.00004	0.00005	0.00005
2.05	0.02585	-0.01318	0.00418	-0.00073	0.00011	0.00003	0.00003	0.00003
2.10	0.00296	-0.00063	-0.00019	-0.00014	-0.00001	0.00002	0.00002	0.00002
2.15	-0.01887	0.01164	-0.00454	0.00105	-0.00012	0.00002	0.00001	0.00001
2.20	-0.03971	0.02357	-0.00875	0.00188	-0.00028	0.00002	0.00001	0.00001
2.25	-0.05762	0.03507	-0.01268	0.00258	-0.00042	0.00002	0.00000	0.00000
2.30	-0.07866	0.04608	-0.01622	0.00309	-0.00031	0.00002	0.00000	0.00000
2.35	-0.09569	0.05654	-0.01922	0.00335	-0.00028	0.00001	0.00000	0.00000
2.40	-0.11439	0.06637	-0.02153	0.00329	-0.00021	0.00000	0.00000	0.00000
2.45	-0.13100	0.07550	-0.02295	0.00289	-0.00008	-0.00001	0.00000	0.00000
2.50	-0.14700	0.08284	-0.02339	0.00207	0.00005	-0.00002	0.00000	0.00000
2.55	-0.16234	0.08912	-0.02249	0.00093	0.00028	-0.00003	0.00000	0.00000
2.60	-0.17705	0.09376	-0.01997	-0.00025	0.00034	-0.00003	0.00000	0.00000
2.65	-0.19116	0.10285	-0.01563	-0.00294	0.00063	-0.00003	-0.00000	0.00000
2.70	-0.20469	0.10656	-0.00932	-0.00537	0.00073	-0.00001	-0.00000	0.00000
2.75	-0.21767	0.10847	0.00099	-0.00800	0.00071	0.00001	-0.00000	0.00000
2.80	-0.23012	0.10800	0.01690	-0.01059	0.00054	0.00004	-0.00000	0.00000
2.85	-0.24205	0.10469	0.03376	-0.01276	0.00017	0.00007	-0.00000	-0.00000
2.90	-0.25349	0.09710	0.06716	-0.01395	-0.00001	0.00000	-0.00000	-0.00000
2.95	-0.26444	0.08344	0.10766	-0.01341	-0.00010	0.00010	0.00000	-0.00000
3.00	-0.27491	0.06027	0.17252	-0.01014	-0.00021	0.00008	0.00000	-0.00000
3.05	-0.28010	0.01261	0.12502	-0.00185	-0.00188	0.00001	0.00000	-0.00000
3.10	-0.28531	-0.01810	0.08975	0.00337	-0.00142	-0.00003	0.00000	-0.00000
3.15	-0.29058	-0.03820	0.06307	0.00619	-0.00091	-0.00005	0.00000	0.00000
3.20	-0.29597	-0.05121	0.04269	0.00725	-0.00043	-0.00006	-0.00000	0.00000
3.25	-0.30150	-0.05928	0.02704	0.00714	-0.00006	-0.00005	-0.00000	0.00000
3.30	-0.30721	-0.06380	0.01509	0.00630	0.00000	-0.00003	-0.00000	0.00000
3.35	-0.31311	-0.06568	0.00600	0.00505	0.00000	-0.00000	-0.00000	-0.00000
3.40	-0.31922	-0.06558	-0.00077	0.00372	0.00001	0.00000	-0.00000	-0.00000
3.45	-0.32555	-0.06356	-0.00568	0.00238	0.00005	0.00001	-0.00000	-0.00000
3.50	-0.33212	-0.06116	-0.00999	0.00115	0.00002	0.00002	0.00000	-0.00000
3.55	-0.33891	-0.05746	-0.01126	0.00011	0.00002	0.00000	0.00000	-0.00000
3.60	-0.34596	-0.05305	-0.01242	-0.00071	0.00011	0.00001	0.00000	0.00000
3.65	-0.35324	-0.04805	-0.01276	-0.00130	0.00001	0.00001	0.00000	0.00000
3.70	-0.36077	-0.04271	-0.01242	-0.00169	0.00000	0.00000	0.00000	0.00000
3.75	-0.36854	-0.03702	-0.01153	-0.00185	-0.00014	-0.00000	0.00000	0.00000
3.80	-0.37656	-0.03105	-0.01021	-0.00183	-0.00017	-0.00001	-0.00000	-0.00000
3.85	-0.38483	-0.02500	-0.00855	-0.00166	-0.00018	-0.00001	-0.00000	-0.00000
3.90	-0.39333	-0.01880	-0.00662	-0.00136	-0.00016	-0.00001	-0.00000	-0.00000
3.95	-0.40207	-0.01256	-0.00451	-0.00096	-0.00012	-0.00001	-0.00000	-0.00000
4.00	-0.41105	-0.00632	-0.00229	-0.00049	-0.00006	-0.00000	-0.00000	-0.00000

Table III A. Error for Truncated series, $\sin(\frac{h}{2})$ function.

$n=1$

h	$m=1$	$m=2$	$m=3$	$m=4$	$m=5$	$m=6$	$m=7$	$m=8$	$m=9$	$m=10$
0.01	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
0.05	0.99999	0.99999	1.00077	1.00550	0.99923	0.99309	1.00073	1.01020	0.99930	0.99857
0.10	0.99636	0.99155	1.00295	1.02154	0.99125	0.97376	1.00228	1.03703	0.99873	0.96086
0.15	0.99181	0.98105	1.00621	1.04678	0.99504	0.94598	1.00298	1.07052	0.99910	0.93287
0.20	0.98548	0.96651	1.00909	1.07907	0.99397	0.91556	1.00095	1.09801	1.00360	0.92113
0.25	0.97737	0.94805	1.01355	1.11561	0.99551	0.89900	0.99508	1.10870	1.01100	0.93370
0.30	0.96757	0.92584	1.01602	1.15313	1.00085	0.87231	0.98587	1.09763	1.01776	0.96304
0.35	0.95595	0.90012	1.01642	1.18811	1.01054	0.86976	0.97553	1.06776	1.01897	0.99382
0.40	0.94272	0.87110	1.01374	1.21698	1.02424	0.88259	0.96804	1.02939	1.01126	1.00701
0.45	0.92786	0.83507	1.00694	1.23639	1.04048	0.91050	0.96753	0.99690	0.99555	0.99275
0.50	0.91144	0.80477	0.99510	1.24341	1.05672	0.94769	0.97704	0.98387	0.97822	0.95731
0.55	0.89349	0.76719	0.97738	1.23573	1.06949	0.99740	0.99693	0.99811	0.96854	0.91932
0.60	0.87410	0.72758	0.95311	1.21179	1.07470	1.02093	1.02093	1.03811	0.95651	0.90249
0.65	0.85337	0.68706	0.92183	1.17089	1.06810	1.03935	1.05037	1.09226	1.00342	0.92155
0.70	0.83122	0.64479	0.88331	1.11323	1.04584	1.03481	1.06633	1.14109	1.04196	0.97241
0.75	0.80788	0.60157	0.83760	1.03990	1.00497	1.00183	1.06020	1.16208	1.07404	1.03038
0.80	0.78339	0.55764	0.78499	0.95282	0.94377	0.93915	1.02189	1.13569	1.07549	1.05917
0.85	0.75782	0.51348	0.72605	0.85459	0.86243	0.84517	0.94510	1.05083	1.02390	1.02077
0.90	0.73125	0.46941	0.66162	0.74836	0.76283	0.72782	0.82782	0.90842	0.90716	0.90047
0.95	0.70379	0.42577	0.59273	0.63765	0.64865	0.59393	0.68090	0.72162	0.72955	0.70610
1.00	0.67551	0.38288	0.52064	0.52609	0.52511	0.45321	0.51184	0.51306	0.51282	0.47095
1.05	0.64657	0.34105	0.44672	0.41729	0.39845	0.31594	0.33854	0.30955	0.26063	0.24151
1.10	0.61691	0.30056	0.37246	0.31456	0.27539	0.19168	0.17854	0.13614	0.09540	0.06093
1.15	0.58678	0.26168	0.29437	0.22080	0.16744	0.09804	0.04743	0.01028	-0.03273	-0.04545
1.20	0.55622	0.22462	0.22806	0.13833	0.06534	0.00952	-0.04413	-0.09408	-0.06113	-0.07719
1.25	0.52533	0.19090	0.16265	0.06881	-0.01168	-0.04095	-0.09226	-0.08238	-0.05200	-0.05519
1.30	0.49421	0.15680	0.10172	0.01316	-0.06612	-0.06610	-0.10025	-0.06659	-0.04005	-0.01127
1.35	0.46296	0.12633	0.04728	-0.02844	-0.09749	-0.06545	-0.07757	-0.03146	0.00540	0.02545
1.40	0.43148	0.09837	0.00024	-0.05648	-0.10731	-0.05650	-0.03752	0.00561	0.04578	0.03060
1.45	0.40046	0.07286	-0.03878	-0.07208	-0.09988	-0.01515	0.00571	0.03165	0.05778	0.02776
1.50	0.36940	0.04907	-0.06941	-0.07694	-0.07666	-0.01065	0.04007	0.04050	0.04154	0.00448
1.55	0.33859	0.02646	-0.09156	-0.07278	-0.04615	0.01105	0.05778	0.03296	0.00892	-0.01649
1.60	0.30912	0.01192	-0.10542	-0.06207	-0.01284	0.02631	0.05659	0.01501	-0.02315	-0.02433
1.65	0.27809	-0.00329	-0.11146	-0.04696	0.01871	0.03328	0.03945	-0.00510	-0.04047	-0.01748
1.70	0.24357	-0.01603	-0.11034	-0.02965	0.04288	0.03206	0.01313	-0.01993	-0.03716	-0.00225
1.75	0.21065	-0.02642	-0.10304	-0.01209	0.05942	0.02427	-0.01401	-0.02516	-0.01717	0.01173
1.80	0.17940	-0.03455	-0.09054	0.00405	0.06361	0.01256	-0.03432	-0.02049	0.00862	0.01711
1.85	0.14902	-0.04065	-0.07409	0.01749	0.05877	-0.00009	-0.04285	-0.00907	0.02790	0.01228
1.90	0.11976	-0.04476	-0.05487	0.02738	0.04558	-0.01097	-0.03836	0.00404	0.03251	0.00134
1.95	0.11149	-0.04710	-0.03417	0.03330	0.02670	-0.01810	-0.02328	0.01392	0.02165	-0.00886
2.00	0.08667	-0.04784	-0.01319	0.03522	0.00538	-0.02051	-0.00280	0.01747	0.00173	-0.01234
2.05	0.06287	-0.04716	0.00697	0.03346	-0.01508	-0.01830	0.01688	0.01422	-0.01745	-0.00920
2.10	0.04013	-0.04574	0.02520	0.02865	-0.03174	-0.01251	0.03023	0.00617	-0.02708	-0.00088
2.15	0.01951	-0.04272	0.04080	0.02160	-0.04251	-0.00474	0.03395	-0.00320	-0.02343	0.00697
2.20	-0.00106	-0.03856	0.05308	0.01322	-0.04616	0.00317	0.02767	-0.01037	-0.00914	0.01006
2.25	-0.02123	-0.03412	0.06163	0.00444	-0.04267	0.00956	0.01385	-0.01297	0.00846	0.00720
2.30	-0.03927	-0.02922	0.06621	-0.00387	-0.03302	0.01328	-0.00307	-0.01055	0.02100	0.00061
2.35	-0.05607	-0.02400	0.06698	-0.01097	-0.01902	0.01382	-0.01807	-0.00451	0.02257	-0.00565
2.40	-0.07159	-0.01863	0.06379	-0.01633	-0.00299	0.01139	-0.02698	0.00259	0.01410	-0.00813
2.45	-0.08582	-0.01326	0.05735	-0.01961	0.01257	0.00679	-0.02761	0.00807	-0.00085	-0.00581
2.50	-0.09976	-0.00791	0.04909	-0.02069	0.02540	0.00118	-0.02025	0.01007	-0.01457	-0.00044
2.55	-0.11039	-0.00301	0.03664	-0.01967	0.03375	-0.00417	-0.00744	0.00619	-0.02074	0.00469
2.60	-0.12071	0.00165	0.02376	-0.01685	0.03661	-0.00818	0.00685	0.00346	-0.01688	0.00673
2.65	-0.12974	0.00588	0.01021	-0.01264	0.03384	-0.01011	0.01845	-0.00214	-0.00571	0.00481
2.70	-0.13749	0.00962	-0.00326	-0.00756	0.02614	-0.00974	0.02415	-0.00048	0.00419	0.00034
2.75	-0.14397	0.01282	-0.01592	-0.00216	0.01849	-0.00734	0.02261	-0.00007	0.01720	-0.00396
2.80	-0.14920	0.01547	-0.02717	0.00302	0.00192	-0.00358	0.01460	-0.00056	0.01773	-0.00567
2.85	-0.15320	0.01745	-0.03635	0.00750	-0.01075	0.00065	0.00273	-0.00275	0.00991	-0.00405
2.90	-0.15602	0.01888	-0.04318	0.01092	-0.01092	0.00441	-0.00441	0.00179	-0.00222	-0.00026
2.95	-0.15768	0.01971	-0.04774	0.01304	-0.02914	0.00696	-0.01831	0.00532	-0.01279	0.00339
3.00	-0.15823	0.01998	-0.04972	0.01376	-0.03051	0.00784	-0.02154	0.00663	-0.01691	0.00485

(11)

Table III B. $C_{ms}(a)$ for Truncated $\text{sin } m/a$, $\frac{\text{sin}(m/a \cos a)}{m/a \cos a}$.

$w=1$

k	$m=1$	$m=2$	$m=3$	$m=4$	$m=5$	$m=6$	$m=7$	$m=8$	$m=9$	$m=10$
1.00	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
1.05	0.91863	0.80102	0.75366	0.65441	0.61428	0.53195	0.49717	0.42901	0.39834	0.34703
1.10	0.84364	0.64029	0.56295	0.42032	0.36102	0.26336	0.21526	0.14986	0.10956	0.06767
1.15	0.77430	0.50941	0.41233	0.25837	0.18838	0.10417	0.05018	0.00978	-0.03197	-0.04457
1.20	0.71001	0.40291	0.29167	0.14518	0.06927	0.01057	-0.04319	-0.05383	-0.08747	-0.07295
1.25	0.65025	0.31521	0.19418	0.06617	-0.01162	-0.04092	-0.08702	-0.07089	-0.08565	-0.05356
1.30	0.59456	0.24217	0.11515	0.01182	-0.06322	-0.06387	-0.09401	-0.05836	-0.04712	-0.01158
1.35	0.54254	0.18388	0.05129	-0.02429	-0.09127	-0.06687	-0.07385	-0.02881	0.00538	0.02762
1.40	0.49386	0.13507	0.00025	-0.04661	-0.04985	-0.05574	-0.03664	0.00540	0.04488	0.04278
1.45	0.44820	0.09497	-0.03068	-0.05873	-0.09241	-0.03860	0.00574	0.03171	0.05963	0.03020
1.50	0.40529	0.06212	-0.06975	-0.06181	-0.07254	-0.01128	0.04101	0.04117	0.04246	0.00458
1.55	0.36491	0.03535	-0.09093	-0.05887	-0.04436	0.01214	0.05972	0.03306	0.00896	-0.01660
1.60	0.32604	0.01369	-0.10399	-0.05100	-0.01253	0.02980	0.05845	0.01459	-0.02289	-0.02416
1.65	0.29090	-0.00364	-0.10966	-0.03953	0.01802	0.03927	0.04044	-0.00477	-0.03971	-0.01759
1.70	0.25691	-0.01722	-0.10862	-0.02571	0.04285	0.03675	0.01332	-0.01815	-0.03652	-0.00234
1.75	0.22473	-0.02788	-0.10166	-0.01084	0.05868	0.02730	-0.01407	-0.02269	-0.01659	0.01257
1.80	0.19427	-0.03578	-0.08966	0.00375	0.06400	0.01372	-0.03429	-0.01865	0.00859	0.01858
1.85	0.16527	-0.04143	-0.07362	0.01671	0.05906	-0.00010	-0.04273	-0.00847	0.02752	0.01316
1.90	0.13776	-0.04514	-0.05671	0.02481	0.04570	-0.01127	-0.03827	0.00389	0.03257	0.00140
1.95	0.11159	-0.04720	-0.04414	0.03312	0.02672	-0.01822	-0.02327	0.01378	0.02171	-0.00897
2.00	0.08667	-0.04784	-0.03119	0.03522	0.00538	-0.02051	-0.00298	0.01747	0.00177	-0.01284
2.05	0.06293	-0.04726	0.00692	0.03328	-0.01505	-0.01843	0.01686	0.01408	-0.01746	-0.00931
2.10	0.04028	-0.04565	0.02513	0.02905	-0.03185	-0.01284	0.03016	0.00595	-0.02713	-0.00091
2.15	0.01866	-0.04315	0.04055	0.02064	-0.04277	-0.00501	0.03385	-0.00299	-0.02345	0.00748
2.20	-0.00198	-0.03989	0.05255	0.01225	-0.04644	0.00346	0.02764	-0.00544	-0.00911	0.01092
2.25	-0.02172	-0.03600	0.06080	0.00399	-0.04286	0.01076	0.01392	-0.01170	0.00977	0.00771
2.30	-0.04059	-0.03156	0.06518	-0.00735	-0.03295	0.01522	-0.00312	-0.00562	0.00069	0.00063
2.35	-0.05765	-0.02666	0.06588	-0.00924	-0.01982	0.01489	-0.01852	-0.00473	0.02254	-0.00567
2.40	-0.07594	-0.02130	0.06293	-0.01342	-0.00292	0.01290	-0.02787	0.01354	-0.00808	-0.00080
2.45	-0.09249	-0.01580	0.05695	-0.01586	0.01209	0.00746	-0.02854	0.00809	-0.00085	-0.00585
2.50	-0.10835	-0.00956	0.04832	-0.01664	0.02404	0.00124	-0.02073	0.01023	-0.01400	-0.00040
2.55	-0.12354	-0.00292	0.03749	-0.01592	0.03156	-0.00474	-0.00746	0.00820	-0.01141	0.00516
2.60	-0.13810	0.00227	0.02493	-0.01390	0.03406	-0.00801	0.00669	0.00333	-0.01720	0.00746
2.65	-0.15205	0.00856	0.01108	-0.01079	0.03169	-0.00972	0.01756	-0.00196	-0.00525	0.00522
2.70	-0.16541	0.01492	-0.00369	-0.00679	0.02500	-0.00941	0.02561	-0.00567	0.00034	0.00034
2.75	-0.17820	0.02131	-0.00901	-0.00208	0.01482	-0.00732	0.02132	-0.00655	0.01602	-0.00384
2.80	-0.19045	0.02767	-0.01456	0.00317	0.00204	-0.00381	0.01427	-0.00578	0.01645	-0.00576
2.85	-0.20217	0.03399	-0.02007	0.00978	-0.01247	0.00077	0.00289	-0.00261	0.00068	-0.00397
2.90	-0.21336	0.04021	-0.02526	0.01459	-0.02788	0.00606	-0.01135	0.00197	-0.00245	-0.00029
2.95	-0.22405	0.04629	-0.02986	0.02044	-0.04338	0.01172	-0.02689	0.00738	-0.01753	0.00490
3.00	-0.23423	0.05219	-0.03459	0.02612	-0.05810	0.01731	-0.04209	0.01292	-0.02397	0.01031
3.05	-0.24407	0.04772	-0.03992	0.03209	-0.07448	0.01179	-0.02702	0.00747	-0.01765	0.00490
3.10	-0.25353	0.04047	-0.04571	0.03455	-0.02853	0.00650	-0.01212	0.00246	-0.00320	0.00023
3.15	-0.26270	0.03467	-0.05142	0.03978	-0.01426	0.00191	0.00093	-0.00145	0.00077	-0.00288
3.20	-0.27166	0.02915	-0.05742	0.04516	-0.00143	-0.00174	0.01091	-0.00393	0.01365	-0.00397
3.25	-0.28049	0.02392	-0.06392	0.04018	0.00935	-0.00431	0.01678	-0.00478	0.01333	-0.00291
3.30	-0.28924	0.01905	-0.07137	0.030210	0.01754	-0.00571	0.01784	-0.00395	0.00685	-0.00107
3.35	-0.29796	0.01455	0.00022	-0.00466	0.02267	-0.00551	0.01401	-0.00170	-0.00308	0.00290
3.40	-0.30667	0.01044	0.01059	-0.00647	0.02442	-0.00455	0.00613	0.00126	-0.01182	0.00408
3.45	-0.31543	0.00672	0.01952	-0.00755	0.02268	-0.00300	-0.00371	0.00381	-0.01472	0.00285
3.50	-0.32424	0.00339	0.02696	-0.00791	0.01769	-0.00039	-0.01255	0.00480	-0.01039	0.00014
3.55	-0.33314	0.00044	0.03213	-0.00757	0.01010	0.00236	-0.01755	0.00385	-0.00141	-0.00229
3.60	-0.34214	-0.00212	0.03610	-0.00658	0.00098	0.00460	-0.01717	0.00153	0.00705	-0.00323
3.65	-0.35125	-0.00414	0.03778	-0.00502	-0.00326	0.00575	-0.01172	-0.00107	0.01265	-0.00233
3.70	-0.36049	-0.00621	0.03745	-0.00300	-0.01614	0.00552	-0.00314	-0.00298	0.01165	-0.00012
3.75	-0.36989	-0.00874	0.03514	-0.00067	-0.02138	0.00407	-0.00592	-0.00367	0.00516	0.00217
3.80	-0.37947	-0.01186	0.03099	0.00172	-0.02321	0.00187	0.01288	-0.00301	-0.00367	0.00314
3.85	-0.38921	-0.01558	0.02524	0.00396	-0.02143	-0.00047	0.01589	-0.00126	-0.01050	0.00221
3.90	-0.39906	-0.01992	0.01821	0.00580	-0.01647	0.00246	0.01422	0.00097	-0.01290	0.00010
3.95	-0.40908	-0.02489	0.01033	0.00659	-0.00920	-0.00376	0.00847	0.00283	-0.00812	-0.00184
4.00	-0.41917	-0.03051	0.00207	0.00740	-0.00078	-0.00420	0.00039	0.00355	-0.00074	-0.00259

Table IXA. $\tilde{C}_{m,n}(a)$ for the Tapered, Truncated Sine(m).

$a=2 \quad n=1$

a	$m=4$ $n'=2$	$m=5$ $n'=2$	$m=5$ $n'=3$	$m=6$ $n'=2$	$m=6$ $n'=3$	$m=7$ $n'=2$	$m=7$ $n'=3$	$m=8$ $n'=2$	$m=8$ $n'=3$	$m=9$ $n'=5$
0.00	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
0.05	1.00190	1.00040	1.00020	0.99930	0.99730	0.99582	0.99962	1.00008	1.00162	1.00531
0.10	1.00754	1.00159	1.00091	0.99739	0.98980	0.99933	0.99847	1.00040	1.00581	1.01922
0.15	1.01621	1.00345	1.00242	0.99473	0.97920	0.99861	0.99658	1.00076	1.01086	1.03639
0.20	1.02690	1.00597	1.00509	0.99196	0.96798	0.99781	0.99408	1.00093	1.01467	1.05009
0.25	1.03828	1.00875	1.00923	0.98972	0.95881	0.99707	0.99138	1.00072	1.01559	1.05471
0.30	1.04876	1.01138	1.01489	0.98842	0.95406	0.99632	0.98906	0.99999	1.01309	1.04795
0.35	1.05667	1.01320	1.02177	0.98807	0.95517	0.99552	0.98811	0.99859	1.00805	1.03181
0.40	1.06030	1.01328	1.02903	0.98813	0.96228	0.99423	0.98908	0.99631	1.00263	1.01221
0.45	1.05803	1.01051	1.03528	0.98748	0.97402	0.99166	0.99231	0.99268	0.99907	0.99699
0.50	1.04847	1.00354	1.03862	0.98443	0.98751	0.98664	0.99719	0.98687	0.99900	0.99313
0.55	1.03050	0.99099	1.03675	0.97693	0.99873	0.97761	1.00194	0.97756	1.00223	1.00388
0.60	1.00338	0.97144	1.02716	0.96276	1.00296	0.96273	1.00352	0.96298	1.00616	1.02688
0.65	0.96679	0.94369	1.00742	0.93981	0.99552	0.94005	0.99783	0.94109	1.00586	1.05382
0.70	0.92086	0.90680	0.97544	0.90643	0.97241	0.90781	0.98027	0.90983	0.95485	1.07198
0.75	0.86615	0.86031	0.92982	0.86163	0.93093	0.86467	0.94648	0.86754	0.96663	1.06717
0.80	0.80365	0.80432	0.87002	0.80533	0.87017	0.81007	0.89329	0.81336	0.91597	1.02744
0.85	0.73472	0.73944	0.79656	0.73840	0.79121	0.74437	0.81921	0.74748	0.84071	0.94645
0.90	0.66099	0.66708	0.71110	0.66265	0.69708	0.66901	0.72653	0.67139	0.74247	0.82550
0.95	0.58431	0.58908	0.61632	0.58071	0.59241	0.58644	0.61834	0.58773	0.62667	0.67376
1.00	0.50663	0.50779	0.51581	0.49573	0.48294	0.49957	0.50128	0.49141	0.48764	0.49146
1.05	0.42990	0.42585	0.41372	0.41113	0.37479	0.41325	0.38313	0.41251	0.37765	0.34187
1.10	0.35598	0.34600	0.31446	0.33023	0.27382	0.33022	0.27200	0.32907	0.26400	0.19701
1.15	0.28655	0.27088	0.22230	0.25596	0.18495	0.25418	0.17509	0.25323	0.16839	0.08456
1.20	0.22302	0.20280	0.14094	0.19061	0.11165	0.18795	0.09760	0.18756	0.09523	0.01043
1.25	0.16649	0.14360	0.07376	0.13562	0.05568	0.13285	0.04201	0.13344	0.04531	-0.02675
1.30	0.11770	0.09447	0.02100	0.09157	0.01705	0.08568	0.00785	0.09105	0.01612	-0.03435
1.35	0.07703	0.05593	-0.01531	0.05818	-0.00582	0.05779	-0.00782	0.05956	0.00285	-0.02332
1.40	0.04449	0.02778	-0.03638	0.03448	-0.01572	0.03574	-0.00997	0.03740	-0.00012	-0.00515
1.45	0.01977	0.00920	-0.04401	0.01894	-0.01615	0.02157	-0.00424	0.02263	0.00170	-0.01080
1.50	0.00226	-0.00118	-0.04088	0.00980	-0.01082	0.01311	0.00404	0.01327	0.00427	0.01901
1.55	-0.00888	-0.00505	-0.03018	0.00519	-0.00311	0.00835	0.01072	0.00759	0.00528	0.01871
1.60	-0.01466	-0.00433	-0.01532	0.00342	0.00424	0.00562	0.01344	0.00421	0.00417	0.01034
1.65	-0.01618	-0.00087	0.00048	0.00309	0.00941	0.00381	0.01166	0.00220	0.00159	0.00041
1.70	-0.01456	0.00360	0.01447	0.00319	0.01155	0.00278	0.00644	0.00099	-0.00127	-0.00822
1.75	-0.01083	0.00772	0.02463	0.00311	0.01067	0.00084	-0.00027	0.00032	-0.00314	-0.01238
1.80	-0.00611	0.01054	0.02982	0.00258	0.00747	-0.00041	-0.00627	-0.00009	-0.00356	-0.01129
1.85	-0.00111	0.01152	0.02976	0.00164	0.00302	-0.00128	-0.00983	-0.00020	-0.00252	-0.00615
1.90	0.00345	0.01057	0.02499	0.00047	-0.00150	-0.00162	-0.01012	-0.00013	-0.00064	0.00055
1.95	0.00710	0.00797	0.01670	-0.00065	-0.00510	-0.00140	-0.00735	0.00002	0.00124	0.00615
2.00	0.00953	0.00425	0.00647	-0.00149	-0.00712	-0.00074	-0.00260	0.00016	0.00243	0.00875
2.05	0.01065	0.00008	-0.00399	-0.00188	-0.00731	0.00011	0.00257	0.00023	0.00254	0.00779
2.10	0.01049	-0.00382	-0.01305	-0.00180	-0.00587	0.00089	0.00661	0.00021	0.00167	0.00406
2.15	0.00922	-0.00688	-0.01947	-0.00131	-0.00330	0.00135	0.00841	0.00010	0.00026	-0.00075
2.20	0.00711	-0.00865	-0.02246	-0.00057	-0.00030	0.00138	0.00761	-0.00003	-0.00109	-0.00474
2.25	0.00447	-0.00894	-0.02180	0.00023	0.00246	0.00098	0.00461	-0.00014	-0.00189	-0.00655
2.30	0.00163	-0.00781	-0.01784	0.00090	0.00439	0.00031	0.00044	-0.00019	-0.00189	-0.00574
2.35	-0.00123	-0.00551	-0.01140	0.00131	0.00518	-0.00042	-0.00361	-0.00016	-0.00118	-0.00289
2.40	-0.00346	-0.00248	-0.00359	0.00138	0.00476	-0.00098	-0.00637	-0.00007	-0.00009	0.00075
2.45	-0.00525	0.00075	0.00433	0.00114	0.00336	-0.00123	-0.00711	0.00004	0.00093	0.00377
2.50	-0.00633	0.00376	0.01116	0.00066	0.00133	-0.00110	-0.00572	0.00013	0.00151	0.00511
2.55	-0.00668	0.00600	0.01593	0.00008	-0.00077	-0.00064	-0.00272	0.00015	0.00147	0.00443
2.60	-0.00632	0.00720	0.01803	-0.00047	-0.00023	-0.00001	0.00092	0.00012	0.00088	0.00217
2.65	-0.00534	0.00723	0.01729	-0.00088	-0.00360	0.00059	0.00411	0.00004	0.00001	-0.00070
2.70	-0.00391	0.00615	0.01396	-0.00105	-0.00380	0.00099	0.00594	-0.00005	-0.00080	-0.00307
2.75	-0.00220	0.00416	0.00867	-0.00098	-0.00317	0.00108	0.00595	-0.00011	-0.00123	-0.00411
2.80	-0.00041	0.00162	0.00230	-0.00070	-0.00190	0.00085	0.00422	-0.00013	-0.00117	-0.00354
2.85	0.00129	-0.00106	-0.00413	-0.00029	-0.00033	0.00037	0.00133	-0.00009	-0.00068	-0.00170
2.90	0.00273	-0.00346	-0.00965	0.00016	0.00120	-0.00020	-0.00182	-0.00003	0.00004	0.00063
2.95	0.00379	-0.00524	-0.01348	0.00054	0.00236	-0.00068	0.00431	0.00004	0.00068	0.00255
3.00	0.00440	-0.00614	-0.01511	0.00077	0.00292	-0.00095	-0.00544	0.00427	0.00787	0.01080

Table II A_j cont'd. Summary (a) for the Tapered, Truncated \sin/π .
 $\alpha = 3$ $\nu = 1$

α	$m=4$ $\nu'=2$	$m=5$ $\nu'=2$	$m=5$ $\nu'=3$	$m=6$ $\nu'=2$	$m=6$ $\nu'=3$	$m=7$ $\nu'=2$	$m=7$ $\nu'=3$	$m=8$ $\nu'=2$	$m=8$ $\nu'=3$	$m=8$ $\nu'=5$
0.00	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
0.05	1.00236	1.00110	1.00043	1.00049	0.99777	1.00058	0.99930	1.00060	1.00072	1.00613
0.10	1.00918	1.00431	1.00185	1.00197	0.98973	1.00231	0.99734	1.00239	1.00254	1.02218
0.15	1.01975	1.00938	1.00457	1.00448	0.97926	1.00517	0.99451	1.00532	1.00464	1.04194
0.20	1.03292	1.01556	1.00902	1.00802	0.96854	1.00906	0.99148	1.00927	1.00609	1.05763
0.25	1.04719	1.02310	1.01555	1.01243	0.96050	1.01375	0.98920	1.01399	1.00640	1.06277
0.30	1.06080	1.03026	1.02421	1.01734	0.95769	1.01877	0.98862	1.01902	1.00573	1.05473
0.35	1.07185	1.03625	1.03464	1.02205	0.96169	1.02342	0.99086	1.02363	1.00515	1.03593
0.40	1.07841	1.03980	1.04590	1.02550	0.97259	1.02667	0.99647	1.02680	1.00679	1.01336
0.45	1.07867	1.03949	1.05638	1.02629	0.98883	1.02710	1.00533	1.02718	1.01035	0.99627
0.50	1.07103	1.03380	1.06389	1.02272	1.00715	1.02318	1.01618	1.02319	1.01769	0.99298
0.55	1.05422	1.02124	1.06580	1.01296	1.02317	1.01313	1.02650	1.01313	1.02690	1.00750
0.60	1.02736	1.00044	1.05922	0.99517	1.03153	0.99519	1.03249	0.99521	1.03454	1.03734
0.65	0.99007	0.97029	1.04135	0.96776	1.02703	0.96780	1.02947	0.96787	1.03532	1.07307
0.70	0.94243	0.93005	1.00979	0.92958	1.00517	0.92980	1.01241	0.92993	1.02295	1.10008
0.75	0.88505	0.87947	0.96290	0.88009	0.96292	0.88059	0.97687	0.88078	0.99138	1.10199
0.80	0.81899	0.81885	0.90005	0.81950	0.89922	0.82030	0.91979	0.82052	0.93616	1.06491
0.85	0.74571	0.74921	0.82173	0.74880	0.81521	0.74983	0.84034	0.75004	0.85572	0.98132
0.90	0.66702	0.67195	0.72987	0.66575	0.71420	0.67088	0.74037	0.67105	0.75204	0.85249
0.95	0.58495	0.58914	0.62747	0.58479	0.60133	0.58585	0.62442	0.58595	0.63064	0.68871
1.00	0.50167	0.50323	0.51857	0.49681	0.48293	0.49763	0.49935	0.48904	0.48240	0.49089
1.05	0.41933	0.41691	0.40789	0.40893	0.36588	0.40929	0.37343	0.40936	0.36953	0.32891
1.10	0.34002	0.33794	0.30042	0.32425	0.25671	0.32423	0.25518	0.32425	0.24727	0.17300
1.15	0.26561	0.25396	0.20096	0.24562	0.16096	0.24535	0.15214	0.24528	0.14696	0.05388
1.20	0.19770	0.18230	0.11374	0.17534	0.08259	0.17486	0.06982	0.17482	0.06761	-0.02188
1.25	0.13752	0.11979	0.04197	0.11510	0.02363	0.11456	0.01094	0.11459	0.01274	-0.05607
1.30	0.08594	0.06770	-0.01239	0.06582	-0.01586	0.06539	-0.02477	0.06547	-0.01936	-0.05737
1.35	0.04339	0.02660	-0.04878	0.02765	-0.03758	0.02746	-0.04027	0.02757	-0.03206	-0.03852
1.40	0.00991	-0.00360	-0.06804	0.00006	-0.04465	0.00016	-0.04047	0.00028	-0.03354	-0.01282
1.45	-0.01483	-0.02359	-0.07228	-0.01805	-0.04103	-0.01768	-0.03124	-0.01752	-0.02694	0.00899
1.50	-0.03149	-0.03462	-0.06458	-0.02818	-0.03091	-0.02764	-0.01825	-0.02762	-0.01795	0.02066
1.55	-0.04102	-0.03830	-0.04863	-0.03207	-0.01824	-0.03150	-0.00615	-0.03154	-0.00992	0.02094
1.60	-0.04453	-0.03646	-0.02833	-0.03147	-0.00618	-0.03102	0.00212	-0.03111	-0.00450	0.01264
1.65	-0.04327	-0.03099	-0.00741	-0.02803	0.00307	-0.02781	0.00544	-0.02792	-0.00191	0.00080
1.70	-0.03850	-0.02364	0.01107	-0.02314	0.00842	-0.02321	0.00436	-0.02331	-0.00141	-0.00946
1.75	-0.03147	-0.01593	0.02463	-0.01790	0.00580	-0.01822	0.00053	-0.01829	-0.00191	-0.01461
1.80	-0.02329	-0.00901	0.03213	-0.01306	0.00792	-0.01356	-0.00040	-0.01357	-0.00243	-0.01361
1.85	-0.01497	-0.00366	0.03374	-0.00905	0.00400	-0.00960	-0.00745	-0.00954	-0.00241	-0.00779
1.90	-0.00727	-0.00024	0.02855	-0.00602	-0.00060	-0.00649	-0.00857	-0.00639	-0.00177	0.00000
1.95	-0.00079	0.00125	0.01960	-0.00395	-0.00464	-0.00471	-0.00716	-0.00410	-0.00078	0.00664
2.00	0.00413	0.00110	0.00810	-0.00266	-0.00726	-0.00266	-0.00384	-0.00258	0.00013	0.00986
2.05	0.00731	-0.00021	-0.00386	-0.00193	-0.00802	-0.00168	0.00025	-0.00165	0.00061	0.00695
2.10	0.00878	-0.00211	-0.01440	-0.00155	-0.00699	-0.00112	0.00381	-0.00115	0.00055	0.00477
2.15	0.00873	-0.00404	-0.02201	-0.00134	-0.00462	-0.00085	0.00581	-0.00092	0.00003	-0.00074
2.20	0.00744	-0.00552	-0.02573	-0.00118	-0.00158	-0.00112	0.00577	-0.00085	-0.00063	-0.00540
2.25	0.00576	-0.00624	-0.02529	-0.00101	0.00135	-0.00075	0.00385	-0.00084	-0.00116	-0.00758
2.30	0.00258	-0.00606	-0.02103	-0.00083	0.00366	-0.00079	0.00078	-0.00085	-0.00134	-0.00674
2.35	-0.00022	-0.00503	-0.01384	-0.00065	0.00481	-0.00084	-0.00247	-0.00084	-0.00111	-0.00352
2.40	-0.00281	-0.00334	-0.00501	-0.00050	-0.00050	0.00472	-0.00086	-0.00082	-0.00058	0.00067
2.45	-0.00493	-0.00129	0.00405	-0.00042	0.00354	-0.00086	-0.00579	-0.00077	0.00003	0.00418
2.50	-0.00640	0.00078	0.01194	-0.00041	0.00164	-0.00081	-0.00499	-0.00071	0.00048	0.00580
2.55	-0.00712	0.00253	0.01755	-0.00046	-0.00049	-0.00072	-0.00281	-0.00065	0.00063	0.00509
2.60	-0.00709	0.00370	0.02015	-0.00055	-0.00237	-0.00062	0.00004	-0.00059	0.00045	0.00255
2.65	-0.00637	0.00414	0.01952	-0.00064	-0.00360	-0.00051	0.00269	-0.00053	0.00004	-0.00074
2.70	-0.00510	0.00382	0.01592	-0.00071	-0.00397	-0.00041	0.00438	-0.00048	-0.00041	-0.00349
2.75	-0.00346	0.00275	0.01005	-0.00071	-0.00348	-0.00034	0.00465	-0.00043	-0.00072	-0.00472
2.80	-0.00164	0.00136	0.00289	-0.00066	-0.00230	-0.00031	0.00350	-0.00039	-0.00078	-0.00411
2.85	0.00017	-0.00036	-0.00043	-0.00055	-0.00074	-0.00030	0.00133	-0.00036	-0.00058	-0.00203
2.90	0.00177	-0.00159	-0.01071	-0.00040	0.00084	-0.00032	-0.00117	-0.00033	-0.00022	0.00063
2.95	0.00304	-0.00331	-0.01515	-0.00025	0.00210	-0.00034	-0.00325	-0.00030	0.00016	0.00286
3.00	0.00387	-0.00411	-0.01711	-0.00014	0.00279	-0.00035	-0.00432	0.00377	0.00908	0.01196

Table IV B. Coefficients for the tapered, truncated sine wave.

$\alpha = 2 \quad n = 1$

a	m=4 n'=2	m=5 n'=2	m=5 n'=3	m=6 n'=2	m=6 n'=3	m=7 n'=2	m=7 n'=3	m=8 n'=2	m=8 n'=3	m=8 n'=5
1.00	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
1.05	0.73574	0.72290	0.67127	0.70797	0.63264	0.70472	0.61961	0.70188	0.60264	0.50741
1.10	0.53856	0.51868	0.44222	0.49834	0.39281	0.49355	0.37438	0.49013	0.35557	0.23866
1.15	0.39002	0.36633	0.27907	0.34665	0.23375	0.34148	0.21365	0.33878	0.20025	0.08935
1.20	0.27751	0.25214	0.16200	0.23669	0.12831	0.23202	0.10925	0.23060	0.10397	0.01015
1.25	0.19222	0.16691	0.07879	0.15740	0.05981	0.15364	0.04438	0.15381	0.04687	-0.07506
1.30	0.12782	0.10418	0.02153	0.10103	0.01754	0.09879	0.00805	0.10008	0.01621	-0.03204
1.35	0.07968	0.05927	-0.01520	0.06191	-0.00584	0.06147	-0.00783	0.06329	0.00288	-0.02213
1.40	0.04434	0.02860	-0.03542	0.03581	-0.01568	0.03712	-0.00994	0.03884	-0.00011	-0.00501
1.45	0.01919	0.00928	-0.04245	0.01939	-0.01618	0.02206	-0.00423	0.02315	0.00170	0.01076
1.50	0.00716	-0.00117	-0.03935	0.00995	-0.01095	0.01329	0.00405	0.01345	0.00427	0.01914
1.55	-0.00840	-0.00500	-0.02915	0.00525	-0.00319	0.00842	0.01080	0.00764	0.00525	0.01826
1.60	-0.01383	-0.00427	-0.01488	0.00346	0.00441	0.00566	0.01359	0.00423	0.00416	0.01050
1.65	-0.01531	-0.00086	0.00047	0.00313	0.00985	0.00382	0.01180	0.00221	0.00158	0.00040
1.70	-0.01388	0.00356	0.01426	0.00323	0.01210	0.00228	0.00651	0.00099	-0.00121	-0.00784
1.75	-0.01043	0.00766	0.02441	0.00314	0.01113	0.00084	-0.00027	0.00032	-0.00310	-0.01174
1.80	-0.00595	0.01048	0.02967	0.00260	0.00772	-0.00041	-0.00631	-0.00009	-0.00350	-0.01075
1.85	-0.00109	0.01148	0.02969	0.00165	0.00308	-0.00128	-0.00986	-0.00020	-0.00750	-0.00594
1.90	0.00343	0.01055	0.02497	0.00047	-0.00152	-0.00162	-0.01014	-0.00013	-0.00064	0.00054
1.95	0.00708	0.00796	0.01670	-0.00065	-0.00512	-0.00140	-0.00735	0.00002	0.00124	0.00612
2.00	0.00953	0.00425	0.00647	-0.00149	-0.00712	-0.00074	-0.00260	0.00016	0.00243	0.00875
2.05	0.01063	0.00008	-0.00398	-0.00189	-0.00733	0.00011	0.00258	0.00023	0.00253	0.00775
2.10	0.01041	-0.00382	-0.01304	-0.00180	-0.00593	0.00089	0.00662	0.00021	0.00166	0.00398
2.15	0.00908	-0.00685	-0.01942	-0.00132	-0.00337	0.00135	0.00844	0.00010	0.00076	-0.00077
2.20	0.00693	-0.00860	-0.02234	-0.00057	-0.00031	0.00138	0.00765	-0.00003	-0.00108	-0.00452
2.25	0.00431	-0.00987	-0.02160	0.00074	0.00256	0.00099	0.00665	-0.00014	-0.00186	-0.00621
2.30	0.00155	-0.00772	-0.01758	0.00092	0.00460	0.00032	0.00044	-0.00019	-0.00187	-0.00548
2.35	-0.00116	-0.00544	-0.01116	0.00133	0.00542	-0.00042	-0.00366	-0.00016	-0.00117	-0.00280
2.40	-0.00327	-0.00244	-0.00345	0.00140	0.00495	-0.00099	-0.00644	-0.00007	-0.00009	0.00074
2.45	-0.00496	0.00078	0.00419	0.00115	0.00345	-0.00124	-0.00716	0.00004	0.00003	0.00378
2.50	-0.00604	0.00375	0.01075	0.00067	0.00135	-0.00111	-0.00573	0.00013	0.00151	0.00515
2.55	-0.00648	0.00606	0.01537	0.00008	-0.00077	-0.00065	-0.00272	0.00016	0.00147	0.00442
2.60	-0.00629	0.00741	0.01756	-0.00049	-0.00253	-0.00001	0.00091	0.00012	0.00087	0.00212
2.65	-0.00553	0.00767	0.01716	-0.00093	-0.00362	0.00063	0.00412	0.00005	0.00001	-0.00066
2.70	-0.00425	0.00678	0.01431	-0.00116	-0.00391	0.00109	0.00606	-0.00005	-0.00000	-0.00286
2.75	-0.00254	0.00483	0.00932	-0.00114	-0.00341	0.00125	0.00629	-0.00013	-0.00128	-0.00385
2.80	-0.00051	0.00201	0.00265	-0.00087	-0.00219	0.00104	0.00473	-0.00015	-0.00128	-0.00344
2.85	0.00176	-0.00143	-0.00518	-0.00039	-0.00041	0.00050	0.00163	-0.00012	-0.00081	-0.00179
2.90	0.00413	-0.00515	-0.01358	0.00024	0.00172	-0.00029	-0.00251	-0.00004	0.00005	0.00077
2.95	0.00649	-0.00809	-0.02188	0.00093	0.00398	-0.00116	-0.00697	0.00007	0.00105	0.00379
3.00	0.00868	-0.01209	-0.02930	0.00156	0.00605	-0.00189	-0.01085	0.00868	0.01613	0.02198
3.05	0.00774	-0.01029	-0.02335	0.00142	0.00475	-0.00157	-0.00797	0.00818	0.00153	0.00430
3.10	0.00634	-0.00756	-0.01619	0.00104	0.00303	-0.00094	-0.00413	0.00011	0.00072	0.00165
3.15	0.00472	-0.00450	-0.00880	0.00034	0.00127	-0.00021	-0.00033	0.00002	-0.00007	-0.00060
3.20	0.00305	-0.00143	-0.00186	0.00008	-0.00028	0.00042	0.00273	-0.00005	-0.00064	-0.00210
3.25	0.00145	0.00131	0.00411	-0.00032	-0.00146	0.00084	0.00458	-0.00009	-0.00090	-0.00266
3.30	0.00001	0.00348	0.00870	-0.00059	-0.00217	0.00097	0.00499	-0.00010	-0.00080	-0.00225
3.35	-0.00119	0.00490	0.01142	-0.00070	-0.00237	0.00082	0.00402	-0.00006	-0.00044	-0.00106
3.40	-0.00212	0.00550	0.01265	-0.00066	-0.00208	0.00045	0.00197	-0.00001	0.00006	0.00049
3.45	-0.00275	0.00527	0.01192	-0.00048	-0.00138	-0.00001	-0.00055	0.00004	0.00051	0.00184
3.50	-0.00307	0.00429	0.00946	-0.00022	-0.00045	-0.00005	-0.00045	0.00007	0.00074	0.00243
3.55	-0.00308	0.00274	0.00570	0.00007	0.00058	-0.00074	-0.00426	0.00008	0.00068	0.00205
3.60	-0.00281	0.00085	0.00117	0.00033	0.00143	-0.00080	-0.00438	0.00005	0.00036	0.00093
3.65	-0.00230	-0.00111	-0.00345	0.00050	0.00193	-0.00062	-0.00321	0.00001	-0.00007	-0.00044
3.70	-0.00159	-0.00284	-0.00746	0.00055	0.00198	-0.00027	-0.00113	-0.00004	-0.00044	-0.00153
3.75	-0.00076	-0.00410	-0.01026	0.00048	0.00159	0.00015	0.00121	-0.00006	-0.00063	-0.00197
3.80	0.00012	-0.00470	-0.01142	0.00031	0.00088	0.00052	0.00312	-0.00007	-0.00057	-0.00168
3.85	0.00096	-0.00457	-0.01082	0.00008	0.00004	0.00071	0.00405	-0.00004	-0.00030	-0.00077
3.90	0.00167	-0.00375	-0.00858	-0.00015	-0.00075	0.00070	0.00377	-0.00000	0.00007	0.00040
3.95	0.00218	-0.00237	-0.00509	-0.00034	-0.00133	0.00048	0.00240	0.00003	0.00040	0.00139
4.00	0.00245	-0.00067	-0.00093	-0.00044	-0.00159	0.00013	0.00038	0.00006	0.00056	0.00182

Table II B, cont'd. $C_{m,n}(a)$ for the Tapered, Truncated sin/m. $\alpha=3$ $\omega=1$

a	m=4 $\omega'=2$	m=5 $\omega'=2$	m=5 $\omega'=3$	m=6 $\omega'=2$	m=6 $\omega'=3$	m=7 $\omega'=2$	m=7 $\omega'=3$	m=8 $\omega'=2$	m=8 $\omega'=3$	m=8 $\omega'=5$
1.00	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
1.05	0.71696	0.70765	0.65006	0.69927	0.68845	0.69880	0.59805	0.69862	0.58596	0.47757
1.10	0.50776	0.49545	0.41161	0.48414	0.35943	0.48343	0.34466	0.48320	0.33145	0.20793
1.15	0.35619	0.33858	0.24456	0.32802	0.19745	0.32721	0.18104	0.32702	0.17174	0.05490
1.20	0.24139	0.22262	0.12637	0.21396	0.09184	0.21316	0.07591	0.21307	0.07227	-0.02055
1.25	0.15538	0.13621	0.04355	0.13079	0.02454	0.13010	0.01120	0.13010	0.01285	-0.05088
1.30	0.09119	0.07279	-0.01227	0.07080	-0.01577	0.07033	-0.02447	0.07040	-0.01893	-0.05215
1.35	0.04382	0.02741	-0.04684	0.02857	-0.03659	0.02837	-0.03912	0.02848	-0.03184	-0.03590
1.40	0.00965	-0.00359	-0.06424	0.00006	-0.04329	0.00016	-0.03920	0.00028	-0.03242	-0.01236
1.45	-0.01406	-0.02310	-0.06782	-0.01781	-0.04010	-0.01745	-0.03043	-0.01730	-0.02623	0.00892
1.50	-0.02940	-0.03348	-0.06070	-0.02755	-0.03069	-0.02702	-0.01796	-0.02499	-0.01764	0.02081
1.55	-0.03903	-0.03684	-0.04603	-0.03124	-0.01944	-0.03067	-0.00612	-0.03071	-0.00881	0.02102
1.60	-0.04130	-0.03507	-0.02709	-0.03069	-0.00635	-0.03021	0.00212	-0.03030	-0.00445	0.01248
1.65	-0.04077	-0.02990	-0.00716	-0.02742	-0.00315	-0.02717	0.00549	-0.02728	-0.00190	0.00077
1.70	-0.03627	-0.02225	0.01075	-0.02275	0.00875	-0.02278	0.00441	-0.02287	-0.00140	0.00097
1.75	-0.03005	-0.01557	0.02425	-0.01768	0.01020	-0.01797	0.00054	-0.01804	-0.00190	-0.01375
1.80	-0.02255	-0.00887	0.03185	-0.01296	0.00818	-0.01344	-0.00407	-0.01344	-0.00241	-0.01287
1.85	-0.01468	-0.00363	0.03309	-0.00901	0.00409	-0.00955	-0.00749	-0.00549	-0.00240	-0.00747
1.90	-0.00720	-0.00024	0.02854	-0.00601	-0.00060	-0.00647	-0.00859	-0.00637	-0.00050	0.00000
1.95	-0.00070	0.00125	0.01959	-0.00395	-0.00366	-0.00421	-0.00717	-0.00410	-0.00078	0.00060
2.00	0.00413	0.00110	0.00810	-0.00266	-0.00726	-0.00266	-0.00384	-0.00259	0.00013	0.00086
2.05	0.00729	-0.00021	-0.00386	-0.00193	-0.00804	-0.00168	0.00025	-0.00165	0.00061	0.00099
2.10	0.00370	-0.00210	-0.01438	-0.00155	-0.00707	-0.00112	0.00382	-0.00115	0.00055	0.00466
2.15	0.00856	-0.00400	-0.02191	-0.00133	-0.00472	-0.00084	0.00584	-0.00092	0.00003	-0.00071
2.20	0.00720	-0.00543	-0.02550	-0.00117	-0.00117	-0.00111	0.00582	-0.00084	-0.00067	-0.00510
2.25	0.00502	-0.00610	-0.02490	-0.00100	0.00145	-0.00074	0.00389	-0.00083	-0.00116	-0.00713
2.30	0.00244	-0.00488	-0.02053	-0.00081	0.00382	-0.00078	0.00079	-0.00083	-0.00132	-0.00639
2.35	-0.00020	-0.00485	-0.01338	-0.00063	0.00000	-0.00050	-0.00002	-0.00002	-0.00110	-0.00340
2.40	-0.00261	-0.00321	-0.00479	-0.00049	0.00485	-0.00084	-0.00490	-0.00080	-0.00057	0.00066
2.45	-0.00457	-0.00124	0.00383	-0.00041	0.00358	-0.00083	-0.00576	-0.00075	0.00003	0.00420
2.50	-0.00598	0.00075	0.01127	-0.00040	0.00163	-0.00079	-0.00491	-0.00070	0.00047	0.00584
2.55	-0.00675	0.00247	0.01666	-0.00046	-0.00048	-0.00072	-0.00274	-0.00064	0.00061	0.00506
2.60	-0.00690	0.00370	0.01902	-0.00056	-0.00029	-0.00062	0.00004	-0.00059	0.00047	0.00245
2.65	-0.00643	0.00427	0.01875	-0.00067	-0.00035	-0.00053	0.00201	-0.00059	0.00004	-0.00069
2.70	-0.00541	0.00410	0.01577	-0.00076	-0.00039	-0.00044	0.00432	-0.00051	-0.00040	-0.00317
2.75	-0.00391	0.00317	0.01043	-0.00081	-0.00036	-0.00039	0.00476	-0.00049	-0.00072	-0.00429
2.80	-0.00200	0.00166	0.00322	-0.00080	-0.00025	-0.00037	0.00380	-0.00048	-0.00083	-0.00386
2.85	0.00022	-0.00048	-0.00575	-0.00073	-0.00020	-0.00040	0.00158	-0.00048	-0.00068	-0.00207
2.90	0.00266	-0.00297	-0.01468	-0.00060	0.00118	-0.00047	-0.00158	-0.00049	-0.00029	0.00074
2.95	0.00520	-0.00562	-0.02414	-0.00043	0.00349	-0.00058	-0.00521	-0.00052	0.00026	0.00415
3.00	0.00772	-0.00818	-0.03300	-0.00028	0.00578	-0.00070	-0.00865	0.00772	0.00882	0.02437
3.05	0.00721	-0.00778	-0.02616	-0.00006	0.00467	-0.00058	-0.00656	-0.00044	0.00075	0.00482
3.10	0.00613	-0.00657	-0.01817	-0.00001	0.00308	-0.00046	-0.00364	-0.00035	0.00041	0.00187
3.15	0.00473	-0.00378	-0.01003	-0.00004	0.00140	-0.00035	-0.00069	-0.00030	0.00001	-0.00062
3.20	0.00320	-0.00178	-0.00241	-0.00012	-0.00012	-0.00024	0.00175	-0.00025	-0.00032	-0.00230
3.25	0.00169	0.00006	0.00415	-0.00021	-0.00011	-0.00016	0.00330	-0.00022	-0.00050	-0.00295
3.30	0.00029	0.00160	0.00023	-0.00029	-0.00026	-0.00011	0.00377	-0.00019	-0.00050	-0.00254
3.35	-0.00092	0.00265	0.01252	-0.00034	-0.00024	-0.00009	0.00317	-0.00017	-0.00034	-0.00124
3.40	-0.00190	0.00326	0.01382	-0.00035	-0.00021	-0.00010	0.00165	-0.00016	-0.00009	0.00051
3.45	-0.00261	0.00330	0.01310	-0.00032	-0.00015	-0.00012	-0.00024	-0.00014	0.00017	0.00206
3.50	-0.00302	0.00282	0.01051	-0.00025	-0.00006	-0.00015	-0.00208	-0.00013	0.00032	0.00277
3.55	-0.00314	0.00195	0.00644	-0.00017	-0.00004	-0.00018	-0.00329	-0.00012	0.00035	0.00236
3.60	-0.00297	0.00075	0.00146	-0.00008	0.00128	-0.00019	-0.00352	-0.00011	0.00022	0.00108
3.65	-0.00254	-0.00047	-0.00365	-0.00000	0.00184	-0.00017	-0.00271	-0.00011	-0.00001	-0.00048
3.70	-0.00190	-0.00166	-0.00827	-0.00005	0.00196	-0.00014	-0.00112	-0.00010	-0.00023	-0.00172
3.75	-0.00110	-0.00258	-0.01144	0.00006	0.00163	-0.00010	0.00075	-0.00010	-0.00036	-0.00224
3.80	-0.00023	-0.00311	-0.01284	0.00004	0.00095	-0.00006	0.00232	-0.00009	-0.00036	-0.00192
3.85	0.00063	-0.00317	-0.01225	-0.00001	0.00012	-0.00003	0.00315	0.00001	-0.00024	-0.00090
3.90	0.00138	-0.00274	-0.00990	-0.00008	-0.00009	-0.00001	0.00303	-0.00008	-0.00004	0.00043
3.95	0.00196	-0.00191	-0.00591	-0.00014	-0.00012	-0.00002	0.00201	-0.00008	-0.00015	0.00157
4.00	0.00230	-0.00081	-0.00123	-0.00019	-0.00016	-0.00005	0.00044	-0.00007	0.00027	0.00207