

Test report: 2024000275

Test type	Measurement of the luminaire light distribution in C-Gamma
Test date	05/11/2024
Laboratory	MILAB S.r.l.s. - Viale della Resistenza, 48 - 20094 Corsico (MI)
Operator	Manuel O

The measurement have been performed in the following laboratory ambient conditions

Temperature	24.7
Relative humidity	60
Air turbulence	0.02

Used instruments

Photogoniometer	Model: Photoglobe P4FASC S.N: 2407-71
Photogoniometer classification	Type 4 according to EN 13032-1 Type C according to IES LM 75-19

Applied standards

Photometric measurement	EN 13032-1; EN 13032-4; IES LM 79-08; IES LM 79-19
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Tested luminaire data

Luminaire name	ANOOR PICCOLA PARETE SOFFITTO
Manufacturer	Foscarini S.p.A.
Luminaire dimensions (mm)	90 x 360 x 360
Luminous area dimensions (mm)	90 x 200
Type of light source	18.5W LED
Correlated Colour Temperature (CCT)	2637
Colour Rendering Index (CRI)	93
Total luminous flux of the light source (lm)	1622.7
Output luminous flux of the luminaire (lm)	1622.7
Source power (W)	18.5
Power included ballast (W)	18.5

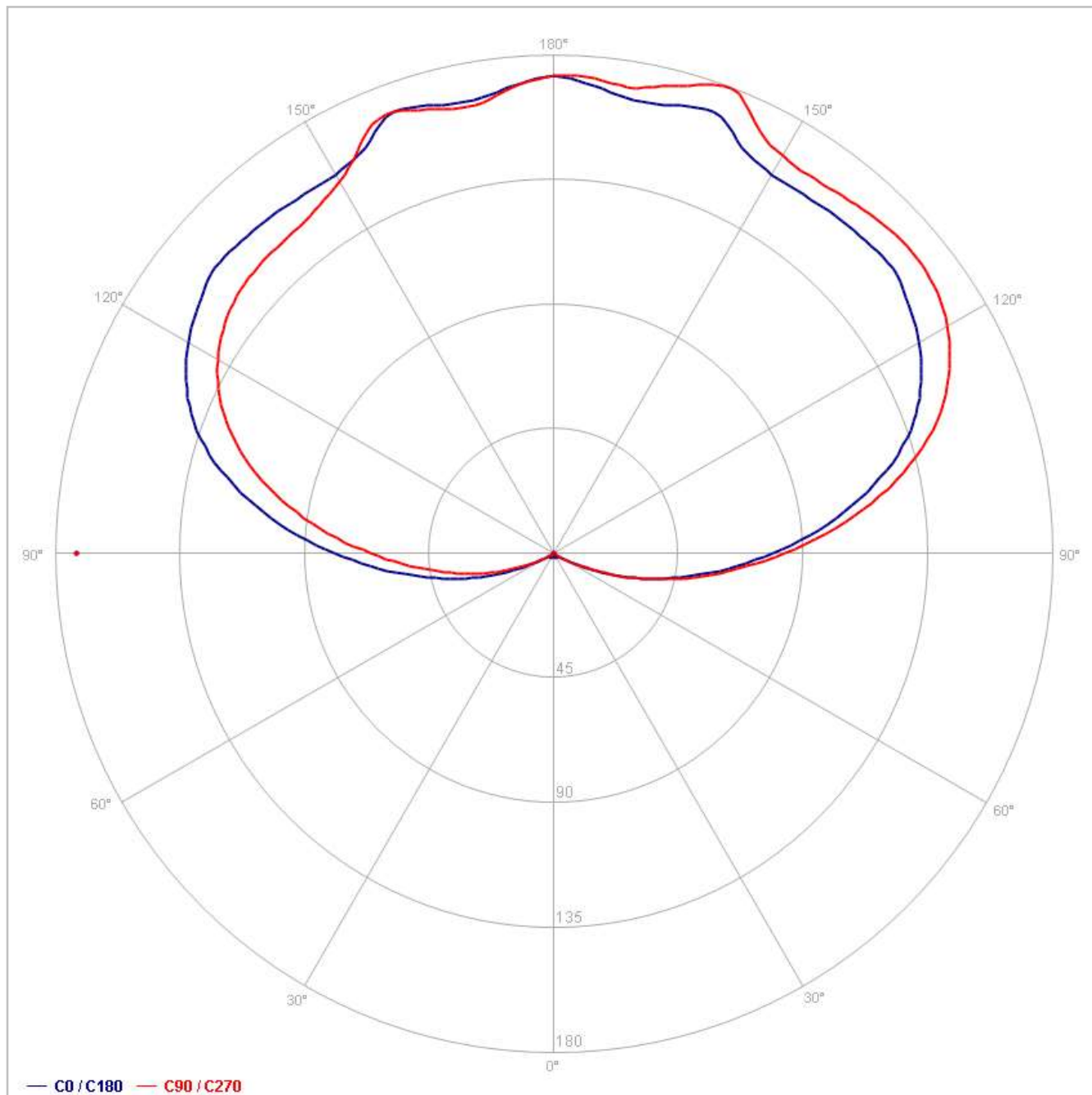
Luminaire efficiency

Light Output Ratio of luminaire (LOR)	100
Downward Flux Fraction (DFF)	12.52
Upward Flux Fraction (UFF)	87.48

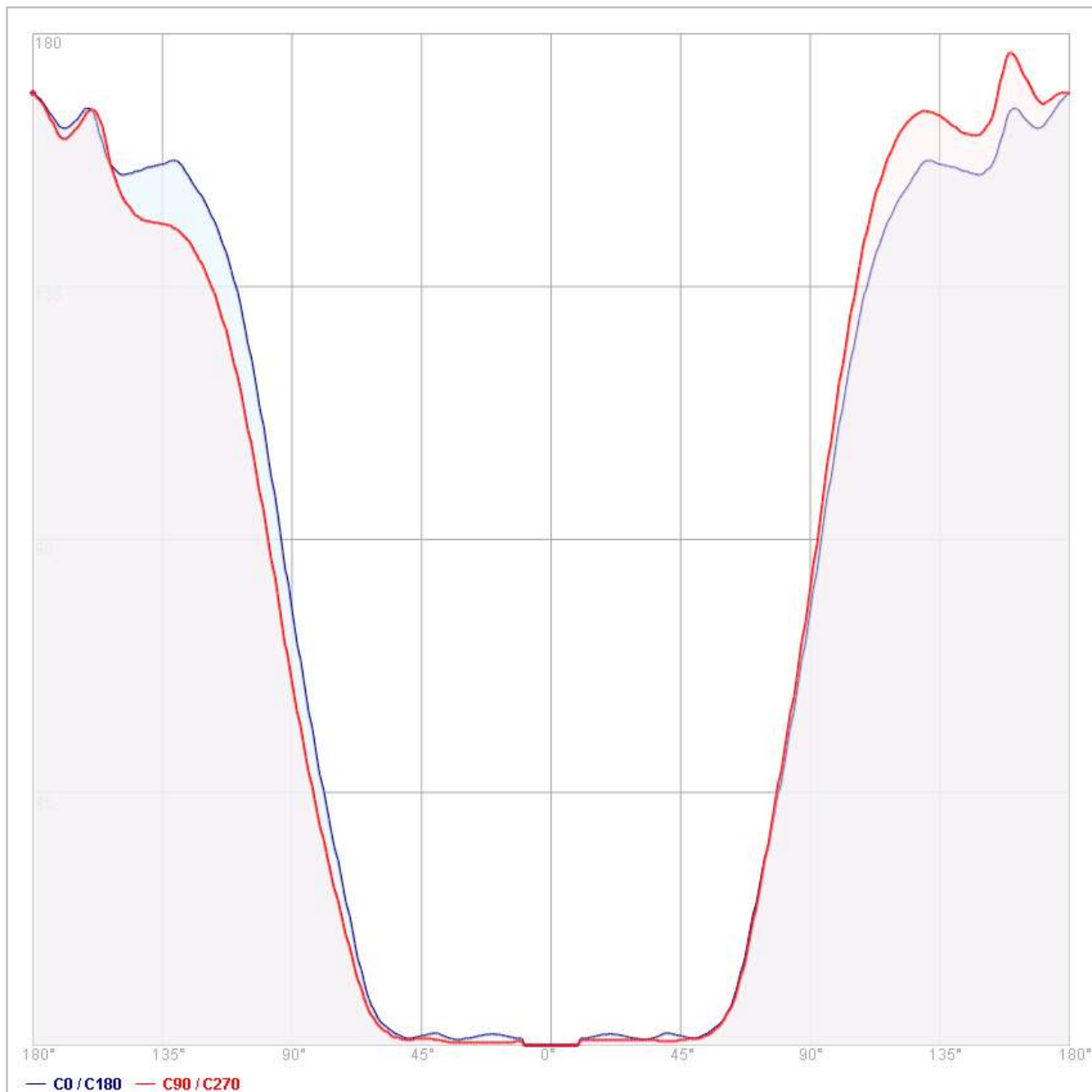
Luminaire efficacy

LED module efficacy (lm/W)	87.71
System light efficacy (lm/W)	87.71
Luminaire light efficacy (lm/W)	87.71

Photometric Polar Diagram



Photometric Cartesian Diagram



Light Emission Photo



Light intensities distribution values (cd/klm)

Gamma	C0°	C10°	C20°	C30°	C40°	C50°	C60°	C70°	C80°	C90°	C100°	C110°
0°	0	0	0	0	0	0	0	0	0	0	0	0
1°	0	0	0	0	0	0	0	0	0	0	0	0
2°	0	0	0	0	0	0	0	0	0	0	0	0
3°	0	0	0	0	0	0	0	0	0	0	0	0
4°	0	0	0	0	0	0	0	0	0	0	0	0
5°	0	0	0	0	0	0	0	0	0	0	0	0
6°	0	0	0	0	0	0	0	0	0	0	0	0
7°	0	0	0	0	0	0	0	0	0	0	0	0
8°	0	0	0	0	0	0	0	0	0	0	0	0
9°	0	0	0	0	0	0	0	0	0	0	0	0
10°	1.14	1.13	1.10	1.08	1.08	1.08	1.09	1.07	1.04	1.00	1.04	1.07
11°	1.20	1.18	1.15	1.10	1.08	1.08	1.09	1.08	1.04	1.00	1.04	1.08
12°	1.27	1.25	1.21	1.14	1.09	1.08	1.09	1.09	1.04	1.00	1.04	1.09
13°	1.36	1.34	1.29	1.20	1.11	1.08	1.09	1.09	1.04	1.00	1.04	1.09
14°	1.46	1.43	1.38	1.27	1.15	1.08	1.09	1.09	1.04	1.00	1.04	1.09
15°	1.56	1.52	1.47	1.35	1.20	1.09	1.09	1.09	1.04	1.00	1.04	1.09
16°	1.66	1.62	1.56	1.43	1.26	1.12	1.08	1.07	1.05	1.00	1.05	1.07
17°	1.77	1.73	1.66	1.51	1.33	1.14	1.05	1.03	1.05	1.00	1.05	1.03
18°	1.90	1.85	1.76	1.58	1.41	1.14	0.97	0.98	1.05	1.00	1.05	0.98
19°	1.97	1.94	1.87	1.65	1.48	1.12	0.87	0.94	1.06	1.00	1.06	0.94
20°	1.98	1.97	1.95	1.73	1.52	1.09	0.80	0.90	1.07	1.00	1.07	0.90
21°	1.96	1.95	1.98	1.81	1.54	1.07	0.77	0.87	1.07	1.00	1.07	0.87
22°	1.91	1.91	1.98	1.88	1.55	1.08	0.76	0.84	1.08	1.00	1.08	0.84
23°	1.84	1.85	1.98	1.94	1.59	1.11	0.76	0.81	1.08	1.00	1.08	0.81
24°	1.73	1.77	1.99	1.99	1.67	1.16	0.78	0.79	1.08	1.00	1.08	0.79
25°	1.60	1.65	2.00	2.03	1.78	1.22	0.81	0.76	1.08	1.00	1.08	0.76
26°	1.46	1.52	1.92	2.06	1.87	1.29	0.85	0.74	1.08	1.00	1.08	0.74
27°	1.32	1.38	1.77	2.09	1.93	1.37	0.89	0.72	1.09	1.00	1.09	0.72
28°	1.20	1.26	1.60	2.04	1.98	1.46	0.94	0.70	1.09	1.00	1.09	0.70
29°	1.11	1.16	1.43	1.92	2.02	1.57	0.99	0.68	1.09	1.00	1.09	0.68
30°	1.06	1.09	1.28	1.75	2.05	1.70	1.04	0.68	1.08	1.00	1.08	0.68
31°	1.03	1.05	1.17	1.57	2.08	1.81	1.09	0.68	1.07	1.00	1.07	0.68
32°	1.02	1.03	1.10	1.41	2.07	1.89	1.14	0.69	1.06	1.00	1.06	0.69
33°	1.02	1.03	1.06	1.27	1.97	1.95	1.20	0.70	1.04	1.00	1.04	0.70
34°	1.06	1.04	1.04	1.16	1.83	1.96	1.25	0.72	1.02	1.00	1.02	0.72
35°	1.16	1.10	1.03	1.09	1.68	1.94	1.31	0.74	1.00	0.95	1.00	0.74
36°	1.31	1.21	1.04	1.05	1.53	1.90	1.38	0.76	0.99	0.84	0.99	0.76
37°	1.54	1.35	1.09	1.03	1.39	1.85	1.45	0.78	0.97	0.74	0.97	0.78
38°	1.91	1.61	1.19	1.02	1.26	1.81	1.52	0.80	0.95	0.67	0.95	0.80
39°	2.12	1.94	1.34	1.02	1.16	1.77	1.60	0.82	0.94	0.62	0.94	0.82
40°	2.16	2.12	1.56	1.04	1.09	1.72	1.69	0.84	0.92	0.59	0.92	0.84
41°	2.09	2.14	1.89	1.09	1.05	1.65	1.77	0.86	0.91	0.59	0.91	0.86
42°	1.97	2.07	2.08	1.18	1.02	1.57	1.81	0.89	0.90	0.61	0.90	0.89
43°	1.83	1.95	2.10	1.31	1.01	1.48	1.83	0.92	0.89	0.69	0.89	0.92
44°	1.68	1.81	2.04	1.48	1.01	1.39	1.82	0.95	0.88	0.82	0.88	0.95
45°	1.53	1.67	1.96	1.73	1.02	1.31	1.81	0.98	0.87	0.93	0.87	0.98

46°	1.40	1.55	1.85	2.05	1.03	1.24	1.81	1.02	0.86	1.01	0.86	1.02
47°	1.29	1.46	1.74	2.22	1.05	1.22	1.83	1.12	0.88	1.05	0.88	1.12
48°	1.20	1.42	1.66	2.27	1.09	1.22	1.87	1.26	0.96	1.05	0.96	1.26
49°	1.17	1.41	1.60	2.27	1.17	1.21	1.93	1.38	1.08	1.06	1.08	1.38
50°	1.22	1.46	1.56	2.24	1.30	1.23	1.99	1.49	1.24	1.09	1.24	1.49
51°	1.34	1.56	1.54	2.21	1.51	1.34	2.10	1.64	1.40	1.20	1.40	1.64
52°	1.53	1.72	1.56	2.21	1.81	1.51	2.25	1.82	1.53	1.37	1.53	1.82
53°	1.83	1.96	1.64	2.28	2.18	1.73	2.46	1.98	1.69	1.58	1.69	1.98
54°	2.15	2.26	1.83	2.44	2.63	2.01	2.71	2.14	1.92	1.81	1.92	2.14
55°	2.48	2.58	2.13	2.68	3.13	2.33	2.97	2.41	2.20	2.13	2.20	2.41
56°	2.84	2.91	2.55	2.96	3.61	2.69	3.25	2.80	2.51	2.53	2.51	2.80
57°	3.25	3.26	3.05	3.28	4.13	3.10	3.62	3.31	2.89	3.00	2.89	3.31
58°	3.72	3.71	3.63	3.76	4.69	3.61	4.08	3.90	3.37	3.51	3.37	3.90
59°	4.27	4.25	4.29	4.40	5.33	4.20	4.66	4.55	3.96	4.13	3.96	4.55
60°	4.95	4.91	5.07	5.17	6.05	4.95	5.37	5.30	4.65	4.85	4.65	5.30
61°	5.82	5.77	6.01	6.05	6.87	5.87	6.22	6.18	5.53	5.74	5.53	6.18
62°	6.93	6.88	7.10	7.05	7.86	6.98	7.24	7.25	6.62	6.78	6.62	7.25
63°	8.28	8.24	8.35	8.34	9.05	8.27	8.45	8.54	7.91	8.02	7.91	8.54
64°	9.85	9.84	9.87	9.92	10.44	9.72	9.90	10.07	9.37	9.43	9.37	10.07
65°	11.63	11.72	11.65	11.67	12.06	11.44	11.59	11.82	11.03	11.13	11.03	11.82
66°	13.64	13.80	13.63	13.61	13.97	13.43	13.48	13.78	12.89	13.06	12.89	13.78
67°	15.91	16.03	15.72	15.75	16.03	15.65	15.52	15.94	14.99	15.24	14.99	15.94
68°	18.44	18.37	17.92	18.09	18.23	18.06	17.77	18.29	17.31	17.61	17.31	18.29
69°	20.96	20.80	20.23	20.48	20.58	20.61	20.19	20.81	19.81	20.10	19.81	20.81
70°	23.43	23.34	22.67	22.90	23.06	23.28	22.69	23.41	22.44	22.68	22.44	23.41
71°	25.91	25.99	25.25	25.38	25.64	26.01	25.27	26.02	25.16	25.31	25.16	26.02
72°	28.42	28.61	27.89	27.91	28.28	28.76	27.93	28.65	27.94	27.96	27.94	28.65
73°	30.97	31.17	30.53	30.45	30.93	31.50	30.61	31.30	30.73	30.69	30.73	31.30
74°	33.44	33.74	33.15	33.00	33.57	34.21	33.27	33.99	33.51	33.49	33.51	33.99
75°	35.86	36.32	35.78	35.61	36.18	36.97	35.94	36.71	36.25	36.38	36.25	36.71
76°	38.27	38.90	38.47	38.24	38.84	39.79	38.63	39.43	38.94	39.33	38.94	39.43
77°	40.73	41.46	41.13	40.87	41.59	42.63	41.34	42.18	41.65	42.25	41.65	42.18
78°	43.29	44.06	43.89	43.55	44.40	45.44	44.09	45.02	44.42	45.13	44.42	45.02
79°	45.91	46.69	46.65	46.26	47.22	48.22	46.90	47.94	47.31	48.05	47.31	47.94
80°	48.58	49.34	49.49	49.05	50.06	51.02	49.72	50.90	50.32	51.02	50.32	50.90
81°	51.34	52.04	52.37	51.90	52.94	53.89	52.52	53.91	53.36	54.02	53.36	53.91
82°	54.23	54.84	55.28	54.71	55.89	56.86	55.39	56.95	56.38	57.03	56.38	56.95
83°	57.27	57.75	58.18	57.55	58.96	59.91	58.36	60.05	59.48	60.07	59.48	60.05
84°	60.32	60.75	61.18	60.39	62.08	62.98	61.44	63.20	62.67	63.13	62.67	63.20
85°	63.36	63.76	64.22	63.35	65.19	66.05	64.64	66.38	65.94	66.36	65.94	66.38
86°	66.43	66.82	67.34	66.49	68.32	69.25	67.94	69.57	69.28	69.76	69.28	69.57
87°	69.55	69.92	70.53	69.63	71.51	72.52	71.31	72.82	72.65	73.18	72.65	72.82
88°	72.72	73.08	73.72	72.89	74.80	75.79	74.71	76.13	76.04	76.59	76.04	76.13
89°	75.80	76.32	76.94	76.20	78.12	79.11	78.03	79.48	79.50	80.02	79.50	79.48
90°	79.03	79.55	80.21	79.58	81.53	82.52	81.32	82.88	83.01	83.47	83.01	82.88
91°	82.39	83.00	83.62	82.85	85.01	86.05	84.71	86.35	86.60	87.08	86.60	86.35
92°	85.80	86.43	87.00	86.24	88.52	89.59	88.19	89.90	90.26	90.83	90.26	89.90
93°	89.23	89.85	90.37	89.61	92.06	93.13	91.70	93.50	93.93	94.60	93.93	93.50
94°	92.68	93.35	93.74	93.01	95.60	96.70	95.21	97.10	97.58	98.35	97.58	97.10

95°	96.11	96.80	97.07	96.51	99.10	100.24	98.72	100.66	101.23	102.07	101.23	100.66
96°	99.44	100.15	100.40	99.87	102.56	103.73	102.30	104.19	104.86	105.76	104.86	104.19
97°	102.64	103.54	103.68	103.28	106.06	107.15	105.91	107.69	108.47	109.38	108.47	107.69
98°	105.76	106.83	106.94	106.60	109.47	110.50	109.47	111.16	112.04	112.93	112.04	111.16
99°	108.93	109.93	110.13	109.84	112.75	113.81	112.91	114.58	115.47	116.42	115.47	114.58
100°	112.14	112.91	113.25	113.01	115.92	117.12	116.21	117.92	118.77	119.88	118.77	117.92
101°	115.30	115.88	116.35	116.10	119.08	120.33	119.40	121.17	122.01	123.16	122.01	121.17
102°	118.31	118.89	119.34	119.12	122.17	123.38	122.50	124.34	125.24	126.28	125.24	124.34
103°	121.16	121.86	122.26	122.07	125.15	126.33	125.50	127.44	128.44	129.36	128.44	127.44
104°	123.90	124.69	125.07	124.99	128.02	129.17	128.43	130.44	131.57	132.46	131.57	130.44
105°	126.58	127.34	127.76	127.85	130.78	131.87	131.31	133.34	134.48	135.47	134.48	133.34
106°	129.18	129.87	130.34	130.63	133.42	134.46	134.11	136.14	137.20	138.40	137.20	136.14
107°	131.65	132.33	132.78	133.28	135.95	137.00	136.76	138.85	139.85	141.17	139.85	138.85
108°	134.03	134.70	135.11	135.75	138.34	139.44	139.33	141.40	142.45	143.80	142.45	141.40
109°	136.22	136.94	137.42	138.17	140.57	141.74	141.84	143.81	144.95	146.26	144.95	143.81
110°	138.24	139.05	139.67	140.57	142.66	143.88	144.19	146.05	147.34	148.60	147.34	146.05
111°	140.10	141.03	141.73	142.93	144.68	145.89	146.39	148.14	149.58	150.75	149.58	148.14
112°	141.84	142.86	143.58	145.20	146.65	147.81	148.42	150.09	151.65	152.74	151.65	150.09
113°	143.47	144.61	145.31	147.39	148.54	149.62	150.30	151.90	153.52	154.55	153.52	151.90
114°	145.00	146.27	146.93	149.50	150.36	151.31	152.04	153.58	155.22	156.21	155.22	153.58
115°	146.43	147.79	148.45	151.51	152.13	152.89	153.64	155.18	156.77	157.76	156.77	155.18
116°	147.79	149.20	149.87	153.36	153.83	154.34	155.09	156.75	158.22	159.25	158.22	156.75
117°	149.07	150.51	151.22	154.94	155.41	155.67	156.42	158.25	159.57	160.65	159.57	158.25
118°	150.29	151.71	152.52	156.26	156.90	156.85	157.68	159.62	160.85	161.98	160.85	159.62
119°	151.38	152.83	153.84	157.39	158.21	157.91	158.89	160.87	162.06	163.14	162.06	160.87
120°	152.37	153.84	155.20	158.29	159.35	158.94	160.04	162.00	163.18	164.16	163.18	162.00
121°	153.29	154.73	156.58	159.01	160.43	159.92	161.08	163.00	164.19	165.11	164.19	163.00
122°	154.12	155.55	157.88	159.61	161.38	160.74	161.98	163.87	165.09	166.03	165.09	163.87
123°	154.86	156.40	159.09	160.11	162.17	161.40	162.73	164.63	165.88	166.74	165.88	164.63
124°	155.57	157.31	160.08	160.57	162.81	161.94	163.35	165.30	166.55	167.25	166.55	165.30
125°	156.34	158.28	160.80	161.09	163.27	162.39	163.93	165.83	167.08	167.70	167.08	165.83
126°	157.21	159.27	161.31	161.70	163.59	162.79	164.49	166.22	167.49	168.14	167.49	166.22
127°	158.12	160.23	161.60	162.34	163.84	163.16	164.91	166.53	167.80	168.53	167.80	166.53
128°	159.01	160.88	161.72	162.91	164.03	163.56	165.20	166.80	168.04	168.87	168.04	166.80
129°	159.61	161.23	161.75	163.40	164.15	163.93	165.44	167.02	168.19	169.02	168.19	167.02
130°	159.93	161.35	161.80	163.81	164.22	164.21	165.67	167.21	168.27	168.99	168.27	167.21
131°	160.02	161.31	161.91	164.04	164.22	164.38	165.83	167.30	168.30	168.92	168.30	167.30
132°	159.91	161.18	162.04	164.05	164.09	164.44	165.90	167.30	168.28	168.85	168.28	167.30
133°	159.69	161.05	162.14	163.87	163.84	164.43	165.85	167.19	168.18	168.70	168.18	167.19
134°	159.48	160.96	162.19	163.56	163.54	164.35	165.72	166.98	167.99	168.47	167.99	166.98
135°	159.33	160.91	162.18	163.19	163.20	164.21	165.55	166.71	167.70	168.14	167.70	166.71
136°	159.20	160.88	162.02	162.79	162.82	164.00	165.35	166.41	167.34	167.73	167.34	166.41
137°	159.08	160.86	161.74	162.39	162.45	163.75	165.08	166.10	166.95	167.32	166.95	166.10
138°	158.99	160.79	161.33	162.00	162.18	163.50	164.77	165.76	166.56	166.93	166.56	165.76
139°	158.89	160.61	160.84	161.63	161.99	163.26	164.47	165.40	166.17	166.54	166.17	165.40
140°	158.79	160.36	160.38	161.28	161.83	163.11	164.20	165.04	165.79	166.15	165.79	165.04
141°	158.62	160.02	160.05	160.93	161.69	163.07	163.95	164.69	165.41	165.74	165.41	164.69
142°	158.39	159.63	159.84	160.62	161.60	163.01	163.71	164.35	165.04	165.30	165.04	164.35
143°	158.16	159.25	159.64	160.39	161.57	162.93	163.52	164.02	164.71	165.03	164.71	164.02

144°	158.00	158.96	159.39	160.29	161.58	162.87	163.39	163.73	164.45	164.92	164.45	163.73
145°	157.87	158.73	159.13	160.25	161.60	162.84	163.29	163.52	164.31	164.80	164.31	163.52
146°	157.71	158.57	158.97	160.31	161.67	162.82	163.20	163.38	164.25	164.63	164.25	163.38
147°	157.54	158.49	159.10	160.46	161.84	162.81	163.13	163.32	164.22	164.58	164.22	163.32
148°	157.43	158.55	159.43	160.67	162.11	162.88	163.11	163.40	164.21	164.65	164.21	163.40
149°	157.52	158.80	159.82	160.94	162.46	163.06	163.19	163.63	164.26	164.94	164.26	163.63
150°	157.74	159.19	160.27	161.34	162.84	163.30	163.46	163.99	164.45	165.42	164.45	163.99
151°	158.07	159.68	160.83	161.83	163.22	163.62	163.93	164.54	164.89	166.02	164.89	164.54
152°	158.52	160.25	161.53	162.43	163.70	164.06	164.59	165.37	165.59	166.71	165.59	165.37
153°	159.17	160.96	162.43	163.22	164.41	164.69	165.39	166.48	166.58	167.90	166.58	166.48
154°	160.11	161.90	163.56	164.23	165.39	165.62	166.75	167.94	168.00	169.58	168.00	167.94
155°	161.44	163.14	164.93	165.47	166.65	166.92	168.78	169.81	170.14	171.71	170.14	169.81
156°	163.16	164.79	166.57	166.92	168.22	168.74	171.05	172.16	172.71	174.17	172.71	172.16
157°	165.14	166.71	168.30	168.55	170.11	170.99	173.20	174.68	175.11	176.49	175.11	174.68
158°	167.10	168.55	169.79	170.14	172.16	173.15	175.02	176.55	177.10	178.58	177.10	176.55
159°	168.53	169.91	170.95	171.53	173.99	174.73	176.43	177.73	178.33	179.58	178.33	177.73
160°	169.34	170.75	171.75	172.57	175.25	175.63	177.31	178.13	178.80	179.56	178.80	178.13
161°	169.50	171.02	172.05	173.00	175.57	175.80	177.29	177.82	178.45	178.88	178.45	177.82
162°	169.18	170.74	171.80	172.77	175.02	175.28	176.53	176.98	177.51	177.80	177.51	176.98
163°	168.58	170.07	171.17	172.14	173.91	174.32	175.50	175.81	176.39	176.67	176.39	175.81
164°	167.91	169.24	170.33	171.25	172.60	173.20	174.39	174.58	175.25	175.58	175.25	174.58
165°	167.27	168.39	169.41	170.21	171.31	172.15	173.32	173.40	174.21	174.59	174.21	173.40
166°	166.73	167.60	168.51	169.16	170.26	171.27	172.36	172.42	173.28	173.70	173.28	172.42
167°	166.33	166.92	167.71	168.34	169.48	170.51	171.48	171.67	172.47	172.82	172.47	171.67
168°	166.03	166.40	167.17	167.85	168.94	169.81	170.63	171.02	171.73	171.92	171.73	171.02
169°	165.89	166.19	166.94	167.65	168.58	169.24	169.86	170.40	171.02	171.14	171.02	170.40
170°	165.99	166.29	167.00	167.69	168.41	168.84	169.38	169.93	170.39	170.48	170.39	169.93
171°	166.37	166.69	167.33	167.92	168.46	168.75	169.24	169.80	170.18	170.32	170.18	169.80
172°	166.96	167.30	167.89	168.35	168.76	169.00	169.46	169.98	170.37	170.62	170.37	169.98
173°	167.69	168.02	168.56	168.93	169.26	169.51	169.91	170.37	170.74	171.03	170.74	170.37
174°	168.49	168.79	169.27	169.76	169.92	170.14	170.48	170.86	171.18	171.43	171.18	170.86
175°	169.31	169.58	169.99	170.46	170.62	170.81	171.06	171.36	171.61	171.81	171.61	171.36
176°	170.06	170.29	170.62	171.02	171.18	171.36	171.57	171.80	172.00	172.17	172.00	171.80
177°	170.74	170.92	171.16	171.46	171.60	171.75	171.91	172.08	172.24	172.37	172.24	172.08
178°	171.31	171.44	171.60	171.79	171.89	172.00	172.11	172.22	172.33	172.42	172.33	172.22
179°	171.83	171.90	171.98	172.07	172.12	172.18	172.23	172.29	172.34	172.39	172.34	172.29
180°	172.35	172.35	172.35	172.35	172.35	172.35	172.35	172.35	172.35	172.35	172.35	172.35
Gamma	C120°	C130°	C140°	C150°	C160°	C170°	C180°	C190°	C200°	C210°	C220°	C230°
0°	0	0	0	0	0	0	0	0	0	0	0	0
1°	0	0	0	0	0	0	0	0	0	0	0	0
2°	0	0	0	0	0	0	0	0	0	0	0	0
3°	0	0	0	0	0	0	0	0	0	0	0	0
4°	0	0	0	0	0	0	0	0	0	0	0	0
5°	0	0	0	0	0	0	0	0	0	0	0	0
6°	0	0	0	0	0	0	0	0	0	0	0	0
7°	0	0	0	0	0	0	0	0	0	0	0	0
8°	0	0	0	0	0	0	0	0	0	0	0	0
9°	0	0	0	0	0	0	0	0	0	0	0	0
10°	1.09	1.08	1.08	1.08	1.10	1.13	1.14	1.12	1.10	1.08	1.08	1.08

11°	1.09	1.08	1.08	1.10	1.15	1.18	1.20	1.18	1.15	1.10	1.08	1.08
12°	1.09	1.08	1.09	1.14	1.21	1.25	1.27	1.25	1.21	1.14	1.08	1.04
13°	1.09	1.08	1.11	1.20	1.29	1.34	1.36	1.34	1.28	1.19	1.08	0.96
14°	1.09	1.08	1.15	1.27	1.38	1.43	1.46	1.43	1.37	1.25	1.07	0.86
15°	1.09	1.09	1.20	1.35	1.47	1.52	1.56	1.52	1.45	1.30	1.04	0.80
16°	1.08	1.12	1.26	1.43	1.56	1.62	1.66	1.61	1.53	1.32	1.01	0.77
17°	1.05	1.14	1.33	1.51	1.66	1.73	1.77	1.69	1.61	1.32	1.01	0.76
18°	0.97	1.14	1.41	1.58	1.76	1.85	1.90	1.78	1.69	1.33	1.04	0.78
19°	0.87	1.12	1.48	1.65	1.87	1.94	1.97	1.86	1.78	1.38	1.09	0.81
20°	0.80	1.09	1.52	1.73	1.95	1.97	1.98	1.93	1.86	1.47	1.16	0.86
21°	0.77	1.07	1.54	1.81	1.98	1.95	1.96	1.98	1.93	1.61	1.24	0.92
22°	0.76	1.08	1.55	1.88	1.98	1.91	1.91	2.02	1.98	1.73	1.34	0.99
23°	0.76	1.11	1.59	1.94	1.98	1.85	1.84	2.06	2.02	1.81	1.45	1.05
24°	0.78	1.16	1.67	1.99	1.99	1.77	1.73	2.03	2.06	1.84	1.57	1.12
25°	0.81	1.22	1.78	2.03	2.00	1.65	1.60	1.91	2.06	1.84	1.67	1.19
26°	0.85	1.29	1.87	2.06	1.92	1.52	1.46	1.73	1.95	1.82	1.73	1.26
27°	0.89	1.37	1.93	2.09	1.77	1.38	1.32	1.54	1.78	1.79	1.75	1.34
28°	0.94	1.46	1.98	2.04	1.60	1.26	1.20	1.37	1.59	1.72	1.74	1.43
29°	0.99	1.57	2.02	1.92	1.43	1.16	1.11	1.23	1.41	1.62	1.72	1.53
30°	1.04	1.70	2.05	1.75	1.28	1.09	1.06	1.13	1.26	1.50	1.69	1.64
31°	1.09	1.81	2.08	1.57	1.17	1.05	1.03	1.07	1.15	1.38	1.65	1.72
32°	1.14	1.89	2.07	1.41	1.10	1.03	1.02	1.04	1.08	1.27	1.60	1.75
33°	1.20	1.95	1.97	1.27	1.06	1.03	1.02	1.03	1.05	1.17	1.53	1.75
34°	1.25	1.96	1.83	1.16	1.04	1.04	1.06	1.05	1.03	1.10	1.45	1.72
35°	1.31	1.92	1.68	1.09	1.03	1.10	1.16	1.11	1.03	1.05	1.37	1.68
36°	1.38	1.88	1.53	1.05	1.04	1.21	1.31	1.21	1.04	1.03	1.29	1.64
37°	1.45	1.84	1.39	1.03	1.09	1.45	1.54	1.45	1.09	1.02	1.21	1.60
38°	1.52	1.80	1.26	1.02	1.19	1.72	1.91	1.71	1.19	1.02	1.12	1.56
39°	1.60	1.76	1.16	1.02	1.34	2.03	2.12	2.01	1.34	1.02	0.99	1.52
40°	1.69	1.71	1.09	1.04	1.56	2.18	2.16	2.13	1.56	1.04	0.86	1.46
41°	1.77	1.64	1.05	1.09	1.89	2.18	2.09	2.07	1.90	1.09	0.76	1.39
42°	1.81	1.56	1.02	1.18	2.08	2.09	1.97	1.91	2.08	1.18	0.68	1.31
43°	1.83	1.48	1.01	1.31	2.10	1.96	1.83	1.70	2.10	1.31	0.63	1.23
44°	1.82	1.39	1.01	1.48	2.04	1.81	1.68	1.49	2.03	1.48	0.59	1.15
45°	1.81	1.31	1.02	1.73	1.96	1.67	1.53	1.34	1.94	1.72	0.60	1.10
46°	1.81	1.24	1.03	2.05	1.85	1.55	1.40	1.26	1.83	2.04	0.68	1.08
47°	1.83	1.22	1.05	2.22	1.74	1.46	1.29	1.23	1.73	2.20	0.80	1.08
48°	1.87	1.22	1.09	2.27	1.66	1.42	1.20	1.25	1.65	2.22	0.93	1.09
49°	1.93	1.21	1.17	2.27	1.60	1.41	1.17	1.30	1.62	2.18	1.08	1.10
50°	1.99	1.23	1.30	2.24	1.56	1.46	1.22	1.40	1.65	2.14	1.27	1.11
51°	2.10	1.34	1.51	2.21	1.54	1.56	1.34	1.55	1.74	2.13	1.53	1.12
52°	2.25	1.51	1.81	2.21	1.56	1.72	1.53	1.72	1.85	2.17	1.88	1.18
53°	2.46	1.73	2.18	2.28	1.64	1.96	1.83	1.90	1.99	2.29	2.28	1.34
54°	2.71	2.01	2.63	2.44	1.83	2.26	2.15	2.10	2.16	2.45	2.69	1.59
55°	2.97	2.33	3.13	2.68	2.13	2.58	2.48	2.38	2.39	2.62	3.14	1.90
56°	3.25	2.69	3.61	2.96	2.55	2.91	2.84	2.74	2.73	2.90	3.60	2.32
57°	3.62	3.10	4.13	3.28	3.05	3.26	3.25	3.19	3.21	3.36	4.11	2.86
58°	4.08	3.61	4.69	3.76	3.63	3.71	3.72	3.73	3.80	3.92	4.70	3.45
59°	4.66	4.20	5.33	4.40	4.29	4.25	4.27	4.38	4.42	4.59	5.31	4.08

60°	5.37	4.95	6.05	5.17	5.07	4.91	4.95	5.17	5.22	5.39	6.00	4.86
61°	6.22	5.87	6.87	6.05	6.01	5.77	5.82	6.15	6.30	6.33	6.87	5.81
62°	7.24	6.98	7.86	7.05	7.10	6.88	6.93	7.33	7.53	7.42	7.90	6.94
63°	8.45	8.27	9.05	8.34	8.35	8.24	8.28	8.70	8.89	8.72	9.08	8.25
64°	9.90	9.72	10.44	9.92	9.87	9.84	9.85	10.29	10.42	10.20	10.45	9.71
65°	11.59	11.44	12.06	11.67	11.65	11.72	11.63	12.14	12.06	11.87	12.02	11.36
66°	13.48	13.43	13.97	13.61	13.63	13.80	13.64	14.11	13.82	13.76	13.79	13.18
67°	15.52	15.65	16.03	15.75	15.72	16.03	15.91	16.18	15.77	15.84	15.71	15.18
68°	17.77	18.06	18.23	18.09	17.92	18.37	18.44	18.38	17.87	18.00	17.75	17.32
69°	20.19	20.61	20.58	20.48	20.23	20.80	20.96	20.78	20.12	20.21	19.92	19.52
70°	22.69	23.28	23.06	22.90	22.67	23.34	23.43	23.35	22.53	22.51	22.17	21.76
71°	25.27	26.01	25.64	25.38	25.25	25.99	25.91	26.03	25.02	24.86	24.43	24.02
72°	27.93	28.76	28.28	27.91	27.89	28.61	28.42	28.57	27.48	27.18	26.64	26.30
73°	30.61	31.50	30.93	30.45	30.53	31.17	30.97	30.99	29.92	29.53	28.93	28.59
74°	33.27	34.21	33.57	33.00	33.15	33.74	33.44	33.36	32.46	31.84	31.26	30.91
75°	35.94	36.97	36.18	35.61	35.78	36.32	35.86	35.78	34.98	34.14	33.55	33.23
76°	38.63	39.79	38.84	38.24	38.47	38.90	38.27	38.29	37.53	36.47	35.88	35.55
77°	41.34	42.63	41.59	40.87	41.13	41.46	40.73	40.79	40.03	38.86	38.25	37.89
78°	44.09	45.44	44.40	43.55	43.89	44.06	43.29	43.38	42.61	41.29	40.69	40.31
79°	46.90	48.22	47.22	46.26	46.65	46.69	45.91	46.05	45.27	43.76	43.24	42.82
80°	49.72	51.02	50.06	49.05	49.49	49.34	48.58	48.72	47.90	46.34	45.81	45.40
81°	52.52	53.89	52.94	51.90	52.37	52.04	51.34	51.41	50.65	48.89	48.41	48.01
82°	55.39	56.86	55.89	54.71	55.28	54.84	54.23	54.17	53.43	51.60	51.12	50.62
83°	58.36	59.91	58.96	57.55	58.18	57.75	57.27	56.98	56.22	54.34	53.98	53.22
84°	61.44	62.98	62.08	60.39	61.18	60.75	60.32	59.93	59.12	57.04	56.81	55.92
85°	64.64	66.05	65.19	63.35	64.22	63.76	63.36	62.83	62.06	59.83	59.72	58.80
86°	67.94	69.25	68.32	66.53	67.34	66.82	66.43	65.79	65.00	62.64	62.62	61.67
87°	71.31	72.52	71.51	69.67	70.53	69.92	69.55	68.82	67.95	65.54	65.45	64.51
88°	74.71	75.79	74.80	72.93	73.72	73.08	72.72	71.85	70.92	68.55	68.29	67.38
89°	78.03	79.11	78.12	76.18	76.94	76.32	75.80	74.96	73.97	71.66	71.34	70.30
90°	81.32	82.52	81.53	79.48	80.21	79.55	79.03	78.19	77.13	74.67	74.47	73.28
91°	84.71	86.05	85.01	82.76	83.62	83.00	82.39	81.39	80.34	77.70	77.62	76.35
92°	88.19	89.59	88.52	86.17	87.00	86.43	85.80	84.64	83.54	80.90	80.81	79.51
93°	91.70	93.13	92.06	89.56	90.37	89.85	89.23	88.03	86.76	84.03	84.05	82.70
94°	95.21	96.70	95.60	92.97	93.74	93.35	92.68	91.39	89.99	87.17	87.33	85.85
95°	98.72	100.24	99.10	96.48	97.07	96.80	96.11	94.75	93.17	90.45	90.59	88.98
96°	102.30	103.73	102.56	99.86	100.40	100.15	99.44	98.03	96.41	93.66	93.81	92.09
97°	105.91	107.15	106.06	103.28	103.68	103.54	102.64	101.31	99.61	96.79	96.97	95.16
98°	109.47	110.50	109.47	106.60	106.94	106.83	105.76	104.53	102.76	99.86	100.03	98.18
99°	112.91	113.81	112.75	109.84	110.13	109.93	108.93	107.61	105.83	102.90	103.03	101.14
100°	116.21	117.12	115.92	113.01	113.25	112.91	112.14	110.66	108.84	105.92	106.00	103.97
101°	119.40	120.33	119.08	116.10	116.35	115.88	115.30	113.65	111.69	108.87	108.84	106.74
102°	122.50	123.38	122.17	119.12	119.34	118.89	118.31	116.53	114.47	111.75	111.62	109.52
103°	125.50	126.33	125.15	122.07	122.26	121.86	121.16	119.33	117.23	114.59	114.36	112.27
104°	128.43	129.17	128.02	124.99	125.07	124.69	123.90	122.07	119.90	117.34	117.04	114.95
105°	131.31	131.87	130.78	127.85	127.76	127.34	126.58	124.72	122.43	119.99	119.60	117.56
106°	134.11	134.46	133.42	130.63	130.34	129.87	129.18	127.30	124.97	122.52	122.04	120.03
107°	136.76	137.00	135.95	133.28	132.78	132.33	131.65	129.78	127.43	124.92	124.38	122.36
108°	139.33	139.44	138.34	135.75	135.11	134.70	134.03	132.17	129.72	127.24	126.65	124.57

109°	141.84	141.74	140.57	138.17	137.42	136.94	136.22	134.44	131.85	129.53	128.85	126.67
110°	144.19	143.88	142.66	140.57	139.67	139.05	138.24	136.55	133.94	131.80	130.92	128.69
111°	146.39	145.89	144.68	142.93	141.73	141.03	140.10	138.49	136.01	134.04	132.86	130.60
112°	148.42	147.81	146.65	145.20	143.58	142.86	141.84	140.24	137.96	136.26	134.76	132.40
113°	150.30	149.62	148.54	147.39	145.31	144.61	143.47	141.85	139.72	138.38	136.65	134.08
114°	152.04	151.31	150.36	149.50	146.93	146.27	145.00	143.39	141.29	140.37	138.43	135.65
115°	153.64	152.89	152.13	151.51	148.45	147.79	146.43	144.92	142.72	142.27	140.10	137.12
116°	155.09	154.34	153.83	153.36	149.87	149.20	147.79	146.41	144.08	144.10	141.71	138.50
117°	156.42	155.67	155.41	154.94	151.22	150.51	149.07	147.73	145.32	145.76	143.22	139.80
118°	157.68	156.85	156.90	156.26	152.52	151.71	150.29	148.87	146.54	147.15	144.62	141.08
119°	158.89	157.91	158.21	157.39	153.84	152.83	151.38	149.87	147.82	148.31	145.94	142.36
120°	160.04	158.94	159.35	158.29	155.20	153.84	152.37	150.77	149.13	149.32	147.20	143.48
121°	161.08	159.92	160.43	159.01	156.58	154.73	153.29	151.59	150.45	150.20	148.36	144.44
122°	161.98	160.74	161.38	159.61	157.88	155.55	154.12	152.38	151.86	150.93	149.34	145.33
123°	162.73	161.40	162.17	160.11	159.09	156.40	154.86	153.30	153.30	151.56	150.13	146.15
124°	163.35	161.94	162.81	160.57	160.08	157.31	155.57	154.36	154.49	152.17	150.75	146.87
125°	163.93	162.39	163.27	161.09	160.80	158.28	156.34	155.47	155.32	152.81	151.24	147.52
126°	164.49	162.79	163.59	161.70	161.31	159.27	157.21	156.55	155.88	153.46	151.68	148.14
127°	164.91	163.16	163.84	162.34	161.60	160.23	158.12	157.56	156.31	154.10	152.10	148.70
128°	165.20	163.56	164.03	162.91	161.72	160.88	159.01	158.27	156.65	154.70	152.46	149.17
129°	165.44	163.93	164.15	163.40	161.75	161.23	159.61	158.68	156.90	155.27	152.74	149.59
130°	165.67	164.21	164.22	163.81	161.80	161.35	159.93	158.85	157.09	155.78	152.94	149.97
131°	165.83	164.38	164.22	164.04	161.91	161.31	160.02	158.84	157.25	156.13	153.06	150.33
132°	165.90	164.44	164.09	164.05	162.04	161.18	159.91	158.70	157.37	156.25	153.13	150.66
133°	165.85	164.43	163.84	163.87	162.14	161.05	159.69	158.54	157.44	156.16	153.11	150.95
134°	165.72	164.35	163.54	163.56	162.19	160.96	159.48	158.44	157.46	155.89	152.99	151.19
135°	165.55	164.21	163.20	163.19	162.18	160.91	159.33	158.41	157.46	155.49	152.81	151.33
136°	165.35	164.00	162.82	162.79	162.02	160.88	159.20	158.41	157.35	155.00	152.63	151.32
137°	165.08	163.75	162.45	162.39	161.74	160.86	159.08	158.42	157.11	154.54	152.52	151.22
138°	164.77	163.50	162.18	162.00	161.33	160.79	158.99	158.34	156.71	154.18	152.50	151.18
139°	164.47	163.26	161.99	161.63	160.84	160.69	158.89	158.24	156.19	153.88	152.51	151.20
140°	164.20	163.11	161.83	161.28	160.38	160.44	158.79	157.96	155.65	153.60	152.49	151.26
141°	163.95	163.03	161.69	160.93	160.05	160.08	158.62	157.58	155.15	153.33	152.42	151.36
142°	163.71	162.97	161.60	160.62	159.84	159.67	158.39	157.15	154.73	153.09	152.33	151.49
143°	163.52	162.90	161.57	160.39	159.64	159.28	158.16	156.78	154.43	152.88	152.28	151.64
144°	163.39	162.85	161.58	160.29	159.39	158.97	158.00	156.54	154.24	152.72	152.24	151.86
145°	163.29	162.83	161.60	160.25	159.13	158.74	157.87	156.37	154.12	152.57	152.15	152.14
146°	163.20	162.82	161.67	160.31	158.97	158.57	157.71	156.24	154.06	152.50	152.03	152.42
147°	163.13	162.81	161.84	160.46	159.10	158.49	157.54	156.16	154.21	152.55	151.95	152.62
148°	163.11	162.88	162.11	160.67	159.43	158.55	157.43	156.23	154.54	152.76	151.93	152.77
149°	163.19	163.06	162.46	160.94	159.82	158.80	157.52	156.48	154.97	153.13	152.02	152.82
150°	163.46	163.30	162.84	161.34	160.27	159.19	157.74	156.84	155.45	153.65	152.30	152.79
151°	163.93	163.62	163.22	161.83	160.83	159.68	158.07	157.24	156.03	154.33	152.83	152.90
152°	164.59	164.06	163.70	162.43	161.53	160.25	158.52	157.69	156.79	155.17	153.75	153.26
153°	165.39	164.69	164.41	163.22	162.43	160.96	159.17	158.34	157.81	156.16	155.17	154.08
154°	166.75	165.62	165.39	164.23	163.56	161.90	160.11	159.37	159.18	157.35	157.23	155.55
155°	168.78	166.92	166.65	165.47	164.93	163.14	161.44	160.84	161.00	158.88	159.52	157.57
156°	171.05	168.74	168.22	166.92	166.57	164.79	163.16	162.71	163.22	160.90	161.77	160.11
157°	173.20	170.99	170.11	168.55	168.30	166.71	165.14	164.81	165.45	163.16	163.90	162.93

158°	175.02	173.15	172.16	170.14	169.79	168.55	167.10	166.82	167.28	165.33	166.03	165.36
159°	176.43	174.73	173.99	171.53	170.95	169.91	168.53	168.33	168.58	167.12	167.83	166.89
160°	177.31	175.63	175.25	172.57	171.75	170.75	169.34	169.22	169.27	168.32	168.95	167.62
161°	177.29	175.80	175.57	173.00	172.05	171.02	169.50	169.47	169.37	168.85	169.28	167.92
162°	176.53	175.28	175.02	172.77	171.80	170.74	169.18	169.25	169.12	168.75	169.01	167.87
163°	175.50	174.32	173.91	172.14	171.17	170.07	168.58	168.78	168.67	168.26	168.40	167.53
164°	174.39	173.20	172.60	171.25	170.33	169.24	167.91	168.22	168.13	167.62	167.66	167.05
165°	173.32	172.15	171.31	170.21	169.41	168.39	167.27	167.67	167.55	167.04	166.91	166.63
166°	172.36	171.27	170.26	169.16	168.51	167.60	166.73	167.15	167.00	166.57	166.28	166.25
167°	171.48	170.51	169.48	168.34	167.71	166.92	166.33	166.67	166.50	166.16	165.80	165.86
168°	170.63	169.81	168.94	167.85	167.17	166.40	166.03	166.28	166.08	165.79	165.42	165.47
169°	169.86	169.24	168.58	167.65	166.94	166.19	165.89	166.06	165.83	165.51	165.14	165.13
170°	169.38	168.84	168.41	167.69	167.00	166.29	165.99	166.09	165.83	165.43	165.05	164.85
171°	169.24	168.75	168.46	167.92	167.33	166.69	166.37	166.38	166.09	165.64	165.21	164.90
172°	169.46	169.00	168.76	168.35	167.89	167.30	166.96	166.85	166.55	166.06	165.64	165.32
173°	169.91	169.51	169.26	168.93	168.56	168.02	167.69	167.46	167.16	166.72	166.32	166.02
174°	170.48	170.14	169.92	169.51	169.27	168.79	168.49	168.20	167.93	167.47	167.23	166.95
175°	171.06	170.81	170.62	170.21	169.99	169.58	169.31	169.02	168.78	168.42	168.28	168.05
176°	171.57	171.36	171.18	170.83	170.62	170.29	170.06	169.81	169.62	169.36	169.29	169.14
177°	171.91	171.75	171.60	171.33	171.16	170.92	170.74	170.55	170.41	170.23	170.19	170.10
178°	172.11	172.00	171.89	171.71	171.60	171.44	171.31	171.19	171.09	170.98	170.96	170.90
179°	172.23	172.18	172.12	172.03	171.98	171.90	171.83	171.77	171.72	171.67	171.66	171.63
180°	172.35	172.35	172.35	172.35	172.35	172.35	172.35	172.35	172.35	172.35	172.35	172.35
Gamma	C240°	C250°	C260°	C270°	C280°	C290°	C300°	C310°	C320°	C330°	C340°	C350°
0°	0	0	0	0	0	0	0	0	0	0	0	0
1°	0	0	0	0	0	0	0	0	0	0	0	0
2°	0	0	0	0	0	0	0	0	0	0	0	0
3°	0	0	0	0	0	0	0	0	0	0	0	0
4°	0	0	0	0	0	0	0	0	0	0	0	0
5°	0	0	0	0	0	0	0	0	0	0	0	0
6°	0	0	0	0	0	0	0	0	0	0	0	0
7°	0	0	0	0	0	0	0	0	0	0	0	0
8°	0	0	0	0	0	0	0	0	0	0	0	0
9°	0	0	0	0	0	0	0	0	0	0	0	0
10°	1.08	0.94	0.78	0.67	0.78	0.94	1.08	1.08	1.08	1.08	1.10	1.12
11°	1.05	0.95	0.75	0.62	0.75	0.95	1.05	1.08	1.08	1.10	1.15	1.18
12°	1.00	0.98	0.74	0.59	0.74	0.98	1.00	1.04	1.08	1.14	1.21	1.25
13°	0.94	1.01	0.74	0.57	0.74	1.01	0.94	0.96	1.08	1.19	1.28	1.34
14°	0.89	1.03	0.74	0.56	0.74	1.03	0.89	0.86	1.07	1.25	1.37	1.43
15°	0.84	1.02	0.75	0.56	0.75	1.02	0.84	0.80	1.04	1.30	1.45	1.52
16°	0.80	1.00	0.77	0.56	0.77	1.00	0.80	0.77	1.01	1.32	1.53	1.61
17°	0.76	0.98	0.79	0.56	0.79	0.98	0.76	0.76	1.01	1.32	1.61	1.69
18°	0.73	0.95	0.81	0.56	0.81	0.95	0.73	0.78	1.04	1.33	1.69	1.78
19°	0.71	0.92	0.83	0.56	0.83	0.92	0.71	0.81	1.09	1.38	1.78	1.86
20°	0.70	0.89	0.85	0.56	0.85	0.89	0.70	0.86	1.16	1.47	1.86	1.93
21°	0.71	0.86	0.87	0.56	0.87	0.86	0.71	0.92	1.24	1.61	1.93	1.98
22°	0.73	0.83	0.89	0.56	0.89	0.83	0.73	0.99	1.34	1.73	1.98	2.02
23°	0.75	0.81	0.91	0.56	0.91	0.81	0.75	1.05	1.45	1.81	2.02	2.06
24°	0.78	0.78	0.93	0.56	0.93	0.78	0.78	1.12	1.57	1.84	2.06	2.03

25°	0.81	0.75	0.96	0.56	0.96	0.75	0.81	1.19	1.67	1.84	2.06	1.91
26°	0.85	0.73	0.99	0.56	0.99	0.73	0.85	1.26	1.73	1.82	1.95	1.73
27°	0.89	0.71	1.02	0.56	1.02	0.71	0.89	1.34	1.75	1.79	1.78	1.54
28°	0.94	0.69	1.05	0.56	1.05	0.69	0.94	1.43	1.74	1.72	1.59	1.37
29°	0.99	0.68	1.06	0.56	1.06	0.68	0.99	1.53	1.72	1.62	1.41	1.23
30°	1.04	0.68	1.06	0.56	1.06	0.68	1.04	1.64	1.69	1.50	1.26	1.13
31°	1.09	0.68	1.06	0.56	1.06	0.68	1.09	1.72	1.65	1.38	1.15	1.07
32°	1.14	0.69	1.05	0.56	1.05	0.69	1.14	1.75	1.60	1.27	1.08	1.04
33°	1.19	0.70	1.03	0.56	1.03	0.70	1.19	1.75	1.53	1.17	1.05	1.03
34°	1.24	0.72	1.01	0.56	1.01	0.72	1.24	1.72	1.45	1.10	1.03	1.05
35°	1.29	0.74	0.99	0.57	0.99	0.74	1.29	1.70	1.37	1.05	1.03	1.11
36°	1.35	0.76	0.98	0.60	0.98	0.76	1.35	1.66	1.29	1.03	1.04	1.21
37°	1.38	0.78	0.97	0.68	0.97	0.78	1.38	1.62	1.21	1.02	1.09	1.34
38°	1.38	0.80	0.96	0.82	0.96	0.80	1.38	1.57	1.12	1.02	1.19	1.60
39°	1.38	0.82	0.94	0.93	0.94	0.82	1.38	1.52	0.99	1.02	1.34	1.93
40°	1.39	0.84	0.93	1.01	0.93	0.84	1.39	1.46	0.86	1.04	1.56	2.07
41°	1.41	0.87	0.92	1.06	0.92	0.87	1.41	1.39	0.76	1.09	1.90	2.03
42°	1.42	0.90	0.90	1.09	0.90	0.90	1.42	1.31	0.68	1.18	2.08	1.88
43°	1.43	0.93	0.89	1.11	0.89	0.93	1.43	1.23	0.63	1.31	2.10	1.68
44°	1.44	0.96	0.88	1.12	0.88	0.96	1.44	1.15	0.59	1.48	2.03	1.48
45°	1.45	0.99	0.88	1.13	0.88	0.99	1.45	1.10	0.60	1.72	1.94	1.34
46°	1.47	1.02	0.89	1.13	0.89	1.02	1.47	1.08	0.68	2.04	1.83	1.26
47°	1.52	1.05	0.92	1.06	0.92	1.05	1.52	1.08	0.80	2.20	1.73	1.23
48°	1.58	1.07	0.96	0.91	0.96	1.07	1.58	1.09	0.93	2.22	1.65	1.25
49°	1.65	1.08	1.00	0.86	1.00	1.08	1.65	1.10	1.08	2.18	1.62	1.30
50°	1.75	1.10	1.02	0.92	1.02	1.10	1.75	1.11	1.27	2.14	1.65	1.40
51°	1.85	1.20	1.07	1.05	1.07	1.20	1.85	1.12	1.53	2.13	1.74	1.55
52°	1.94	1.38	1.18	1.23	1.18	1.38	1.94	1.18	1.88	2.17	1.85	1.72
53°	2.06	1.62	1.35	1.38	1.35	1.62	2.06	1.34	2.28	2.29	1.99	1.90
54°	2.22	1.90	1.57	1.49	1.57	1.90	2.22	1.59	2.69	2.45	2.16	2.10
55°	2.44	2.21	1.86	1.72	1.86	2.21	2.44	1.90	3.14	2.62	2.39	2.38
56°	2.74	2.56	2.20	2.08	2.20	2.56	2.74	2.32	3.60	2.90	2.73	2.74
57°	3.17	3.01	2.57	2.45	2.57	3.01	3.17	2.86	4.11	3.36	3.21	3.19
58°	3.70	3.56	2.95	2.79	2.95	3.56	3.70	3.45	4.70	3.92	3.80	3.73
59°	4.30	4.21	3.41	3.25	3.41	4.21	4.30	4.08	5.31	4.59	4.42	4.38
60°	5.01	4.95	3.98	3.82	3.98	4.95	5.01	4.86	6.00	5.39	5.22	5.17
61°	5.90	5.79	4.72	4.51	4.72	5.79	5.90	5.81	6.87	6.33	6.30	6.15
62°	6.97	6.79	5.63	5.28	5.63	6.79	6.97	6.94	7.90	7.42	7.53	7.33
63°	8.23	7.98	6.69	6.28	6.69	7.98	8.23	8.25	9.08	8.72	8.89	8.70
64°	9.64	9.34	7.86	7.50	7.86	9.34	9.64	9.71	10.45	10.20	10.42	10.29
65°	11.15	10.81	9.21	8.90	9.21	10.81	11.15	11.36	12.02	11.87	12.06	12.14
66°	12.79	12.43	10.77	10.42	10.77	12.43	12.79	13.18	13.79	13.76	13.82	14.11
67°	14.53	14.20	12.50	12.14	12.50	14.20	14.53	15.18	15.71	15.84	15.77	16.18
68°	16.41	16.08	14.36	14.02	14.36	16.08	16.41	17.32	17.75	18.00	17.87	18.38
69°	18.42	18.04	16.33	16.00	16.33	18.04	18.42	19.52	19.92	20.21	20.12	20.78
70°	20.49	20.08	18.41	18.04	18.41	20.08	20.49	21.76	22.17	22.51	22.53	23.35
71°	22.59	22.18	20.55	20.12	20.55	22.18	22.59	24.02	24.43	24.86	25.02	26.03
72°	24.68	24.30	22.74	22.21	22.74	24.30	24.68	26.30	26.64	27.18	27.48	28.57
73°	26.77	26.42	24.86	24.31	24.86	26.42	26.77	28.59	28.93	29.53	29.92	30.99

74°	28.86	28.56	26.88	26.42	26.88	28.56	28.86	30.91	31.26	31.84	32.46	33.36
75°	31.01	30.71	28.93	28.52	28.93	30.71	31.01	33.23	33.55	34.14	34.98	35.78
76°	33.25	32.91	31.06	30.60	31.06	32.91	33.25	35.55	35.88	36.47	37.53	38.29
77°	35.53	35.16	33.27	32.76	33.27	35.16	35.53	37.89	38.25	38.86	40.03	40.79
78°	37.84	37.43	35.53	35.01	35.53	37.43	37.84	40.31	40.69	41.29	42.61	43.38
79°	40.17	39.75	37.83	37.29	37.83	39.75	40.17	42.82	43.24	43.76	45.27	46.05
80°	42.58	42.16	40.16	39.58	40.16	42.16	42.58	45.40	45.81	46.34	47.90	48.72
81°	45.11	44.61	42.59	41.95	42.59	44.61	45.11	48.01	48.41	48.89	50.65	51.41
82°	47.62	47.03	45.12	44.40	45.12	47.03	47.62	50.62	51.12	51.60	53.43	54.17
83°	50.09	49.52	47.70	46.95	47.70	49.52	50.09	53.22	53.98	54.34	56.22	56.98
84°	52.61	52.14	50.30	49.57	50.30	52.14	52.61	55.92	56.81	57.04	59.12	59.93
85°	55.22	54.83	52.94	52.27	52.94	54.83	55.22	58.80	59.72	59.83	62.06	62.83
86°	57.91	57.54	55.62	55.02	55.62	57.54	57.91	61.67	62.62	62.59	65.00	65.79
87°	60.71	60.29	58.37	57.79	58.37	60.29	60.71	64.51	65.45	65.44	67.95	68.82
88°	63.60	63.08	61.18	60.56	61.18	63.08	63.60	67.38	68.29	68.46	70.92	71.85
89°	66.49	65.91	64.05	63.34	64.05	65.91	66.49	70.30	71.34	71.54	73.97	74.96
90°	69.39	68.79	66.97	66.11	66.97	68.79	69.39	73.28	74.47	74.60	77.13	78.19
91°	72.41	71.78	69.92	69.04	69.92	71.78	72.41	76.35	77.62	77.66	80.34	81.39
92°	75.51	74.86	72.89	72.13	72.89	74.86	75.51	79.51	80.81	80.88	83.54	84.64
93°	78.62	77.96	76.01	75.34	76.01	77.96	78.62	82.70	84.05	84.02	86.76	88.03
94°	81.74	81.07	79.24	78.62	79.24	81.07	81.74	85.85	87.33	87.16	89.99	91.39
95°	84.87	84.17	82.43	81.82	82.43	84.17	84.87	88.98	90.59	90.44	93.17	94.75
96°	87.97	87.27	85.55	84.91	85.55	87.27	87.97	92.09	93.81	93.66	96.41	98.03
97°	91.04	90.37	88.62	87.97	88.62	90.37	91.04	95.16	96.97	96.79	99.61	101.31
98°	94.12	93.43	91.66	91.03	91.66	93.43	94.12	98.18	100.03	99.86	102.76	104.53
99°	97.16	96.43	94.70	94.06	94.70	96.43	97.16	101.14	103.03	102.90	105.83	107.61
100°	100.13	99.36	97.72	97.06	97.72	99.36	100.13	103.97	106.00	105.92	108.84	110.66
101°	103.07	102.20	100.68	100.02	100.68	102.20	103.07	106.74	108.84	108.87	111.69	113.65
102°	106.00	105.04	103.59	102.93	103.59	105.04	106.00	109.52	111.62	111.75	114.47	116.53
103°	108.81	107.90	106.42	105.76	106.42	107.90	108.81	112.27	114.36	114.59	117.23	119.33
104°	111.49	110.65	109.17	108.51	109.17	110.65	111.49	114.95	117.04	117.34	119.90	122.07
105°	114.05	113.26	111.81	111.24	111.81	113.26	114.05	117.56	119.60	119.99	122.43	124.72
106°	116.51	115.73	114.36	113.97	114.36	115.73	116.51	120.03	122.04	122.52	124.97	127.30
107°	118.90	118.09	116.81	116.53	116.81	118.09	118.90	122.36	124.38	124.92	127.43	129.78
108°	121.27	120.42	119.18	118.92	119.18	120.42	121.27	124.57	126.65	127.24	129.72	132.17
109°	123.62	122.72	121.43	121.20	121.43	122.72	123.62	126.67	128.85	129.53	131.85	134.44
110°	125.81	124.91	123.59	123.41	123.59	124.91	125.81	128.69	130.92	131.80	133.94	136.55
111°	127.85	126.98	125.69	125.55	125.69	126.98	127.85	130.60	132.86	134.04	136.01	138.49
112°	129.80	128.93	127.71	127.65	127.71	128.93	129.80	132.40	134.76	136.26	137.96	140.24
113°	131.67	130.77	129.57	129.60	129.57	130.77	131.67	134.08	136.65	138.38	139.72	141.85
114°	133.40	132.47	131.28	131.41	131.28	132.47	133.40	135.65	138.43	140.37	141.29	143.39
115°	135.00	134.03	132.86	133.08	132.86	134.03	135.00	137.12	140.10	142.27	142.72	144.92
116°	136.46	135.48	134.37	134.65	134.37	135.48	136.46	138.50	141.71	144.10	144.08	146.41
117°	137.83	136.86	135.87	136.13	135.87	136.86	137.83	139.80	143.22	145.76	145.32	147.73
118°	139.14	138.18	137.33	137.54	137.33	138.18	139.14	141.08	144.62	147.15	146.54	148.87
119°	140.35	139.40	138.68	138.81	138.68	139.40	140.35	142.36	145.94	148.31	147.82	149.87
120°	141.48	140.49	139.91	139.96	139.91	140.49	141.48	143.48	147.20	149.32	149.13	150.77
121°	142.53	141.52	141.03	141.05	141.03	141.52	142.53	144.44	148.36	150.20	150.45	151.59
122°	143.52	142.52	142.04	142.12	142.04	142.52	143.52	145.33	149.34	150.93	151.86	152.38

123°	144.45	143.45	142.95	143.10	142.95	143.45	144.45	146.15	150.13	151.56	153.30	153.30
124°	145.33	144.29	143.78	144.00	143.78	144.29	145.33	146.87	150.75	152.17	154.49	154.36
125°	146.14	145.07	144.53	144.82	144.53	145.07	146.14	147.52	151.24	152.81	155.32	155.47
126°	146.89	145.81	145.22	145.57	145.22	145.81	146.89	148.14	151.68	153.46	155.88	156.55
127°	147.59	146.47	145.85	146.22	145.85	146.47	147.59	148.70	152.10	154.10	156.31	157.56
128°	148.24	147.04	146.42	146.79	146.42	147.04	148.24	149.17	152.46	154.70	156.65	158.27
129°	148.77	147.53	146.91	147.24	146.91	147.53	148.77	149.59	152.74	155.27	156.90	158.68
130°	149.20	147.96	147.34	147.60	147.34	147.96	149.20	149.97	152.94	155.78	157.09	158.85
131°	149.58	148.32	147.72	147.92	147.72	148.32	149.58	150.33	153.06	156.13	157.25	158.84
132°	149.92	148.63	148.05	148.23	148.05	148.63	149.92	150.66	153.13	156.25	157.37	158.70
133°	150.21	148.88	148.32	148.43	148.32	148.88	150.21	150.95	153.11	156.16	157.44	158.54
134°	150.43	149.07	148.51	148.51	148.51	149.07	150.43	151.19	152.99	155.89	157.46	158.44
135°	150.52	149.23	148.59	148.60	148.59	149.23	150.52	151.33	152.81	155.49	157.46	158.41
136°	150.51	149.40	148.62	148.73	148.62	149.40	150.51	151.32	152.63	155.00	157.35	158.41
137°	150.44	149.56	148.63	148.81	148.63	149.56	150.44	151.22	152.52	154.54	157.11	158.42
138°	150.35	149.67	148.65	148.81	148.65	149.67	150.35	151.18	152.50	154.18	156.71	158.34
139°	150.35	149.74	148.69	148.92	148.69	149.74	150.35	151.20	152.51	153.88	156.19	158.13
140°	150.42	149.77	148.76	149.14	148.76	149.77	150.42	151.26	152.49	153.60	155.65	157.85
141°	150.59	149.82	148.88	149.30	148.88	149.82	150.59	151.39	152.42	153.33	155.15	157.49
142°	150.88	149.94	149.07	149.37	149.07	149.94	150.88	151.52	152.33	153.09	154.73	157.09
143°	151.17	150.20	149.32	149.63	149.32	150.20	151.17	151.67	152.28	152.88	154.43	156.74
144°	151.37	150.56	149.63	150.09	149.63	150.56	151.37	151.88	152.24	152.72	154.24	156.51
145°	151.48	150.93	150.04	150.65	150.04	150.93	151.48	152.15	152.15	152.57	154.12	156.36
146°	151.55	151.30	150.58	151.26	150.58	151.30	151.55	152.42	152.03	152.50	154.06	156.23
147°	151.68	151.73	151.28	151.95	151.28	151.73	151.68	152.62	151.95	152.55	154.21	156.16
148°	151.98	152.28	152.09	152.72	152.09	152.28	151.98	152.77	151.93	152.76	154.54	156.23
149°	152.45	152.96	152.93	153.66	152.93	152.96	152.45	152.82	152.02	153.13	154.97	156.48
150°	153.04	153.71	153.80	154.76	153.80	153.71	153.04	152.79	152.30	153.65	155.45	156.84
151°	153.72	154.55	154.71	156.05	154.71	154.55	153.72	152.90	152.83	154.33	156.03	157.24
152°	154.52	155.64	155.81	157.50	155.81	155.64	154.52	153.26	153.75	155.17	156.79	157.69
153°	155.52	157.03	157.37	159.42	157.37	157.03	155.52	154.08	155.17	156.16	157.81	158.34
154°	156.98	158.68	159.39	161.77	159.39	158.68	156.98	155.55	157.23	157.35	159.18	159.37
155°	158.82	160.56	161.79	164.08	161.79	160.56	158.82	157.57	159.52	158.88	161.00	160.84
156°	160.99	162.77	164.29	166.25	164.29	162.77	160.99	160.11	161.77	160.90	163.22	162.71
157°	163.32	165.09	166.38	167.85	166.38	165.09	163.32	162.93	163.90	163.16	165.45	164.81
158°	165.41	166.78	167.91	168.91	167.91	166.78	165.41	165.36	166.03	165.33	167.28	166.82
159°	166.94	167.77	168.72	169.37	168.72	167.77	166.94	166.89	167.83	167.12	168.58	168.33
160°	167.86	168.15	168.93	169.36	168.93	168.15	167.86	167.62	168.95	168.32	169.27	169.22
161°	168.13	168.06	168.64	168.85	168.64	168.06	168.13	167.92	169.28	168.85	169.37	169.47
162°	167.93	167.62	168.03	167.97	168.03	167.62	167.93	167.87	169.01	168.75	169.12	169.25
163°	167.47	166.99	167.33	167.13	167.33	166.99	167.47	167.53	168.40	168.26	168.67	168.78
164°	166.86	166.28	166.61	166.43	166.61	166.28	166.86	167.05	167.66	167.62	168.13	168.22
165°	166.33	165.56	165.91	165.76	165.91	165.56	166.33	166.63	166.91	167.04	167.55	167.67
166°	165.98	165.00	165.26	165.08	165.26	165.00	165.98	166.25	166.28	166.57	167.00	167.15
167°	165.68	164.65	164.80	164.55	164.80	164.65	165.68	165.86	165.80	166.16	166.50	166.67
168°	165.32	164.46	164.51	164.16	164.51	164.46	165.32	165.47	165.42	165.79	166.08	166.28
169°	164.99	164.40	164.44	164.05	164.44	164.40	164.99	165.13	165.14	165.51	165.83	166.06
170°	164.84	164.53	164.56	164.19	164.56	164.53	164.84	164.85	165.05	165.43	165.83	166.09
171°	164.96	164.91	165.00	164.74	165.00	164.91	164.96	164.90	165.21	165.64	166.09	166.38



172°	165.40	165.53	165.73	165.64	165.73	165.53	165.40	165.32	165.64	166.06	166.55	166.85
173°	166.09	166.32	166.61	166.65	166.61	166.32	166.09	166.02	166.32	166.72	167.16	167.46
174°	167.00	167.25	167.56	167.69	167.56	167.25	167.00	166.95	167.23	167.71	167.93	168.20
175°	168.07	168.29	168.55	168.71	168.55	168.29	168.07	168.05	168.28	168.65	168.78	169.02
176°	169.18	169.35	169.55	169.71	169.55	169.35	169.18	169.14	169.29	169.53	169.62	169.81
177°	170.14	170.26	170.41	170.54	170.41	170.26	170.14	170.10	170.19	170.34	170.41	170.55
178°	170.93	171.01	171.11	171.20	171.11	171.01	170.93	170.90	170.96	171.05	171.09	171.19
179°	171.64	171.68	171.73	171.78	171.73	171.68	171.64	171.63	171.66	171.70	171.72	171.77
180°	172.35	172.35	172.35	172.35	172.35	172.35	172.35	172.35	172.35	172.35	172.35	172.35