

Test report: 2024000018

Test type	Measurement of the luminaire light distribution in C-Gamma
Test date	24/06/2024/MILAB
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	24.9
Relative humidity	70
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	Chapeaux Tavolo diffusore metallo
Manufacturer	Foscarini S.p.A.
Luminaire dimensions (mm)	Diameter: 440 x H 480
Luminous area dimensions (mm)	440 x 0
Type of light source	8W LED 2700K CRI90
Correlated Colour Temperature (CCT)	2649
Colour Rendering Index (CRI)	92
Total luminous flux of the light source (lm)	848.1
Output luminous flux of the luminaire (lm)	848.1
Source power (W)	8
Power included ballast (W)	10.8

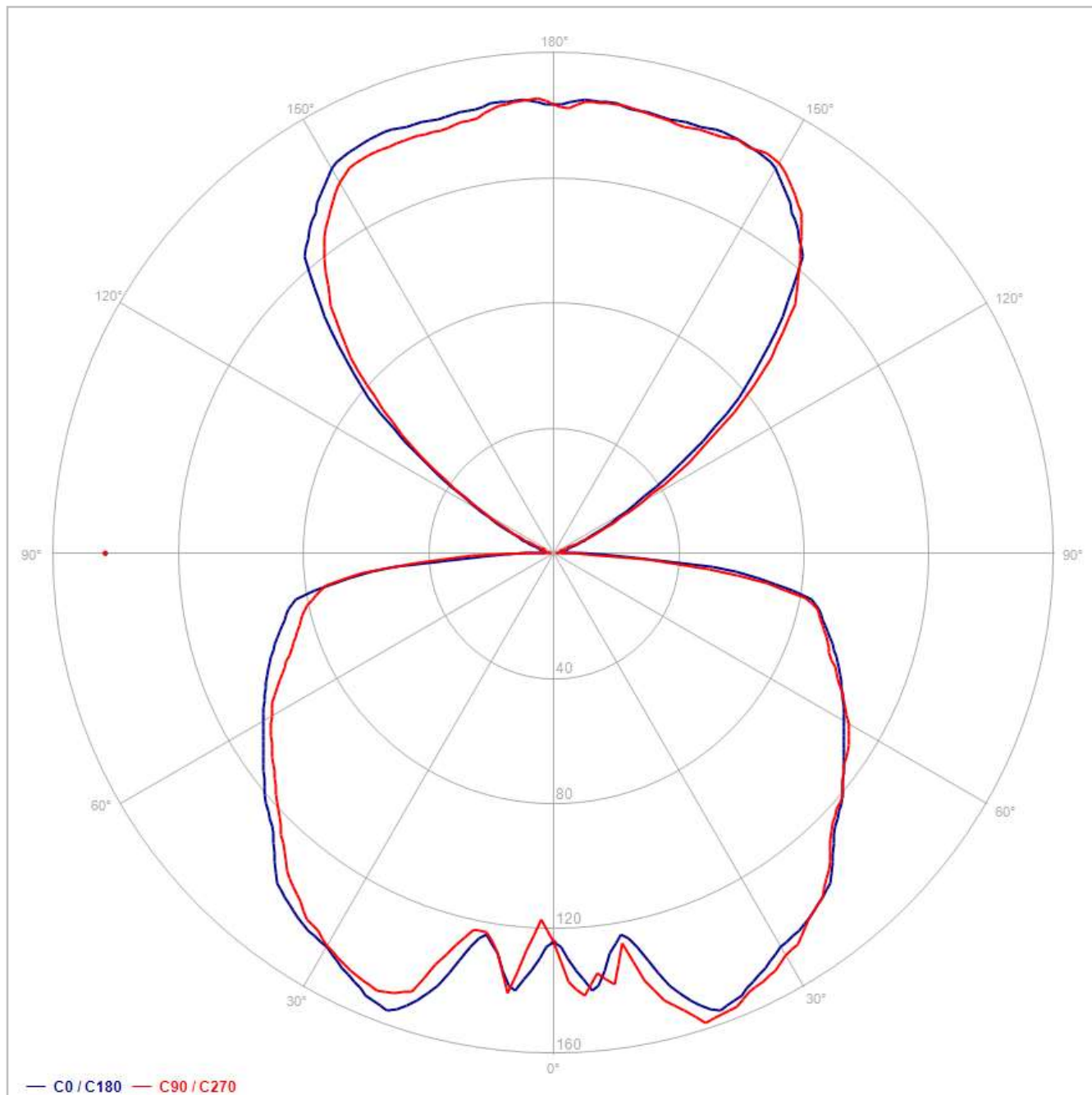
Luminaire efficiency

Light Output Ratio of luminaire (LOR)	100
Downward Flux Fraction (DFF)	65
Upward Flux Fraction (UFF)	35.00

Luminaire efficacy

LED module efficacy (lm/W)	106.01
System light efficacy (lm/W)	78.53
Luminaire light efficacy (lm/W)	78.53

Photometric Polar Diagram



Photometric Cartesian Diagram



Light Emission Photo



Light intensities distribution values (cd/klm)

Gamma	C0°	C15°	C30°	C45°	C60°	C75°	C90°	C105°	C120°	C135°	C150°	C165°
0°	124.30	124.30	124.30	124.30	124.30	124.30	124.30	124.30	124.30	124.30	124.30	124.30
1°	125.95	127.39	128.63	129.67	130.43	130.83	130.81	130.83	130.43	129.67	128.63	127.39
2°	129.75	131.74	133.37	134.69	135.76	136.87	137.31	136.87	135.76	134.69	133.37	131.74
3°	133.52	135.39	137.03	138.35	138.20	138.71	139.53	138.71	138.20	138.35	137.03	135.39
4°	136.59	138.01	138.96	138.24	138.26	139.87	141.75	139.87	138.26	138.24	139.83	138.01
5°	140.30	140.70	139.39	137.58	137.14	137.65	138.31	137.65	137.14	137.58	139.39	140.70
6°	138.90	139.32	137.94	136.25	135.15	135.21	134.86	135.21	135.15	136.25	137.94	139.32
7°	134.66	135.11	134.30	135.38	133.95	135.28	137.08	135.28	133.95	135.38	134.30	135.11
8°	129.23	130.39	130.98	135.19	132.95	135.76	139.28	135.76	132.95	135.19	130.98	130.39
9°	126.41	127.32	130.88	134.16	130.64	133.54	133.03	133.54	130.64	134.16	130.88	127.32
10°	123.85	124.51	130.48	132.17	130.33	131.00	126.77	131.00	130.33	132.17	130.48	124.51
11°	125.46	124.93	130.43	131.15	132.51	133.61	133.31	133.61	132.51	131.15	130.43	124.93
12°	128.51	128.49	132.51	133.76	135.76	138.69	139.83	138.69	135.76	133.76	132.51	128.49
13°	133.76	133.82	136.46	136.84	139.91	142.56	143.58	142.56	139.91	136.84	136.46	133.82
14°	138.52	139.28	140.46	138.26	143.45	145.56	147.32	145.56	143.45	139.00	140.46	139.28
15°	142.96	144.15	144.00	141.58	146.71	148.67	149.67	148.67	146.71	141.58	144.00	144.15
16°	146.18	148.00	147.19	144.23	150.03	151.91	152.00	151.91	150.03	144.23	147.19	148.00
17°	149.46	150.60	150.39	147.43	152.48	154.56	154.94	154.56	152.48	147.43	150.39	150.60
18°	152.06	152.78	152.85	151.70	154.66	156.36	157.88	156.36	154.66	151.70	152.85	152.78
19°	154.16	154.45	154.47	154.94	155.62	157.40	157.29	157.40	155.62	154.94	154.47	154.45
20°	155.77	155.72	155.38	155.96	156.21	157.50	156.68	157.50	156.21	155.96	155.38	155.72
21°	155.03	156.32	155.74	155.81	156.29	157.12	156.65	157.12	156.29	155.81	155.74	156.32
22°	154.41	155.64	155.77	155.30	155.57	155.87	156.61	155.87	155.57	155.30	155.77	155.64
23°	153.50	154.73	155.55	154.86	154.67	154.62	155.09	154.62	154.67	154.86	155.55	154.73
24°	152.23	153.61	154.71	154.28	153.29	153.46	153.56	153.46	153.29	154.28	154.71	153.61
25°	151.13	152.46	153.63	153.33	151.96	152.46	152.93	152.46	151.96	153.33	153.63	152.46
26°	149.92	151.34	152.36	152.34	151.30	151.77	152.31	151.77	151.30	152.34	152.36	151.34
27°	148.85	150.28	151.24	151.53	150.71	151.09	151.68	151.09	150.71	151.53	151.24	150.28
28°	147.72	149.39	150.14	150.73	150.09	150.33	151.03	150.33	150.09	150.73	150.14	149.39
29°	146.58	148.44	148.82	149.88	149.46	149.59	149.82	149.59	149.46	149.88	148.82	148.44
30°	145.29	147.11	147.55	148.91	148.36	148.67	148.59	148.67	148.36	148.91	147.55	147.11
31°	144.84	145.65	146.41	148.10	146.96	147.70	147.96	147.70	146.96	148.10	146.41	145.65
32°	144.31	144.70	145.25	147.22	145.97	146.54	147.32	146.54	145.97	147.22	145.25	144.70
33°	143.77	143.74	144.13	145.82	145.27	145.29	145.65	145.29	145.27	145.82	144.13	143.74
34°	143.19	142.69	142.96	144.27	144.34	144.17	143.96	144.17	144.34	144.27	142.96	142.69
35°	142.56	141.61	141.48	142.98	143.09	143.00	142.73	143.00	143.09	142.98	141.48	141.61
36°	141.54	140.46	140.44	142.11	141.82	141.58	141.50	141.58	141.82	142.11	140.44	140.46
37°	140.49	139.57	139.36	140.99	140.55	140.23	140.51	140.23	140.55	140.99	139.36	139.57
38°	139.55	138.85	138.01	139.03	139.28	138.58	139.53	138.58	139.28	139.03	138.01	138.85
39°	138.66	138.11	136.61	137.18	138.03	136.93	137.67	136.93	138.03	137.18	136.61	138.11
40°	137.67	137.29	134.90	135.32	136.74	135.32	135.81	135.32	136.74	135.32	134.90	137.29
41°	135.43	136.12	133.03	133.48	134.48	133.67	134.11	133.67	134.48	133.48	133.03	136.12
42°	133.16	134.30	131.38	131.32	132.17	131.41	132.40	131.41	132.17	131.32	131.38	134.30
43°	131.02	131.77	130.05	128.93	130.73	129.21	129.97	129.21	130.73	128.93	130.05	131.77
44°	128.84	129.82	128.82	126.81	129.21	127.89	127.55	127.89	129.21	126.81	128.82	129.82

45°	126.83	127.72	127.87	125.33	127.51	126.47	125.84	126.47	127.51	125.33	127.87	127.72
46°	125.44	125.40	126.77	124.25	125.86	124.74	124.12	124.74	125.86	124.25	126.77	125.40
47°	124.29	123.15	125.61	123.00	124.49	123.07	123.02	123.07	124.49	123.00	125.61	123.15
48°	123.03	121.90	124.59	121.76	123.24	122.01	121.90	122.01	123.24	121.76	124.59	121.90
49°	121.78	121.12	123.15	120.25	121.67	120.95	121.25	120.95	121.67	120.25	123.15	121.12
50°	120.55	120.23	121.88	118.77	120.15	119.55	120.59	119.55	120.15	118.77	121.88	120.23
51°	119.03	119.24	120.34	117.92	119.22	118.22	118.92	118.22	119.22	117.92	120.34	119.24
52°	117.52	118.26	118.50	116.87	118.26	117.35	117.23	117.35	118.26	116.87	118.50	118.26
53°	116.06	117.04	116.85	115.43	116.70	116.42	116.00	116.42	116.70	115.43	116.85	117.04
54°	114.75	115.49	115.51	114.01	115.17	115.49	114.77	115.49	115.17	114.01	115.51	115.49
55°	113.35	113.93	114.45	113.25	114.39	114.54	114.11	114.54	114.39	113.25	114.45	113.93
56°	111.98	112.46	113.25	112.68	113.57	113.04	113.44	113.04	113.57	112.68	113.25	112.46
57°	110.66	111.26	111.79	112.53	112.44	111.62	112.36	111.62	112.44	112.53	111.79	111.26
58°	109.46	110.18	110.66	111.81	111.36	110.56	111.28	110.56	111.36	111.81	110.66	110.18
59°	108.36	108.93	109.73	110.37	110.33	109.42	110.18	109.42	110.33	110.37	109.73	108.93
60°	107.30	107.66	108.72	109.39	109.02	108.02	109.08	108.02	109.02	109.39	108.72	107.66
61°	106.35	106.03	107.70	108.53	107.17	106.60	107.24	106.60	107.17	108.53	107.70	106.03
62°	105.18	104.38	106.26	107.43	105.57	105.25	105.40	105.25	105.57	107.43	106.26	104.38
63°	103.93	103.13	104.61	106.35	104.23	104.00	104.15	104.00	104.23	106.35	104.61	103.13
64°	102.71	102.07	102.98	105.06	102.75	102.92	102.88	102.92	102.75	105.06	102.98	102.07
65°	101.71	100.78	101.63	103.72	101.20	101.75	101.06	101.75	101.20	103.72	101.63	100.78
66°	100.57	99.36	100.23	102.09	99.77	100.36	99.22	100.36	99.77	102.09	100.23	99.36
67°	99.43	97.90	98.33	100.72	98.45	98.92	98.12	98.92	98.45	100.72	98.33	97.90
68°	98.35	96.74	96.74	99.47	96.85	97.27	97.02	97.27	96.85	99.47	96.74	96.74
69°	97.37	96.11	95.36	97.73	95.38	95.74	95.36	95.74	95.38	97.73	95.36	96.11
70°	96.32	94.58	94.43	96.49	94.43	94.50	93.67	94.50	94.43	96.49	94.43	94.58
71°	95.00	93.46	93.37	95.57	93.37	93.29	93.01	93.29	93.37	95.57	93.37	93.46
72°	93.78	92.55	91.77	94.37	91.91	92.13	92.34	92.13	91.91	94.37	91.77	92.55
73°	92.48	91.96	90.28	93.12	90.64	91.02	91.24	91.02	90.64	93.12	90.28	91.96
74°	91.15	90.84	89.35	91.89	89.71	89.90	90.12	89.90	89.71	91.89	89.35	90.84
75°	89.88	90.09	88.78	90.58	88.61	88.74	88.93	88.74	88.61	90.58	88.78	90.09
76°	88.85	90.01	88.04	89.29	87.43	87.53	87.72	87.53	87.43	89.29	88.04	90.01
77°	87.85	88.51	86.81	87.87	86.48	86.58	87.07	86.58	86.48	87.87	86.81	88.51
78°	86.58	87.36	85.44	86.92	85.48	85.86	86.41	85.86	85.48	86.92	85.44	87.36
79°	85.14	85.75	84.25	85.63	84.19	84.25	83.98	84.25	84.19	85.63	84.25	85.75
80°	83.81	83.51	82.71	83.98	81.86	82.05	81.54	82.05	81.86	83.34	82.71	83.51
81°	77.48	80.49	79.58	80.00	78.12	76.70	75.17	76.70	78.12	80.00	79.58	80.49
82°	71.70	76.06	74.31	73.84	70.83	69.84	68.78	69.84	70.83	73.84	74.31	76.06
83°	65.65	67.77	65.95	65.63	61.82	61.14	59.43	61.14	61.82	65.63	65.95	67.77
84°	58.81	59.00	56.29	55.55	52.36	51.87	50.07	51.87	52.36	55.55	56.29	59.00
85°	51.24	49.33	46.58	45.76	42.79	42.09	39.96	42.09	42.79	45.76	46.58	49.33
86°	33.78	39.77	37.73	35.85	32.93	32.08	29.86	32.08	32.93	35.85	37.73	39.77
87°	23.37	30.28	27.45	25.01	23.07	22.31	20.06	22.31	23.07	25.01	27.45	30.28
88°	15.66	19.34	17.31	15.55	13.40	12.47	10.26	12.47	13.40	15.55	16.85	19.34
89°	9.69	10.39	8.61	8.28	7.98	7.58	6.69	7.58	7.98	8.28	8.28	10.39
90°	5.65	5.35	3.37	3.81	4.17	3.01	3.11	3.01	4.17	3.81	3.37	5.35
91°	4.47	3.51	2.14	3.17	2.46	2.50	2.03	2.50	2.46	3.17	2.03	3.51
92°	3.34	2.52	1.08	2.52	1.18	1.99	0.95	1.99	1.18	2.52	1.00	2.52

93°	2.71	2.29	1.31	2.01	1.00	1.29	0.95	1.29	1.00	2.01	1.31	2.29
94°	2.43	2.56	0.74	2.01	0.93	0.76	0.95	0.76	0.93	2.01	0.74	2.56
95°	2.33	2.29	1.29	1.91	0.97	1.35	1.12	1.35	0.97	1.91	1.29	2.29
96°	2.60	2.56	1.10	1.91	1.50	1.84	1.27	1.84	1.50	1.91	1.10	2.56
97°	2.77	2.73	1.14	2.16	2.10	1.99	1.59	1.99	2.10	2.16	1.14	2.73
98°	2.79	3.51	1.44	2.73	2.12	2.07	1.91	2.07	2.12	2.73	1.44	3.51
99°	2.86	3.36	2.27	3.18	2.16	1.95	2.07	1.95	2.16	3.18	2.27	3.36
100°	3.00	4.09	2.50	3.55	2.22	2.10	2.22	2.10	2.22	3.17	2.50	4.09
101°	3.39	4.63	2.37	3.49	2.54	2.81	2.67	2.81	2.54	3.49	2.37	4.63
102°	3.79	4.46	2.33	3.45	3.05	3.39	3.11	3.39	3.05	3.45	2.33	4.46
103°	4.17	4.89	2.45	3.39	3.17	3.81	3.11	3.81	3.17	3.39	2.45	4.89
104°	4.59	4.78	2.62	3.47	3.18	3.81	3.11	3.81	3.18	3.47	2.62	4.78
105°	5.08	4.82	2.75	3.56	3.09	3.34	2.67	3.34	3.09	3.56	2.75	4.82
106°	4.93	4.40	2.79	3.73	2.92	3.09	2.22	3.09	2.92	3.73	2.79	4.40
107°	4.93	4.08	2.79	4.08	2.62	3.05	2.82	3.05	2.62	4.08	2.79	4.08
108°	5.29	3.72	3.20	4.42	2.84	3.43	3.41	3.43	2.84	4.42	3.20	3.72
109°	6.01	4.11	3.96	4.85	3.56	4.13	3.92	4.13	3.56	4.85	3.96	4.11
110°	7.01	4.89	4.28	6.27	4.85	5.33	4.44	5.33	4.85	6.27	4.28	4.89
111°	8.13	5.80	5.97	7.83	6.37	6.79	6.14	6.79	6.37	7.83	5.97	5.80
112°	9.33	7.60	7.58	9.55	8.25	8.55	7.85	8.55	8.25	9.55	7.58	7.60
113°	10.62	9.21	9.35	11.66	10.20	10.46	10.05	10.46	10.20	11.66	9.35	9.21
114°	11.81	10.64	11.53	13.95	12.04	12.66	12.23	12.66	12.04	13.95	11.53	10.64
115°	13.16	12.78	14.03	16.34	14.24	14.98	15.30	14.98	14.24	16.34	14.03	12.78
116°	15.43	15.15	16.68	18.77	17.38	17.71	18.35	17.71	17.38	18.77	16.68	15.15
117°	17.97	17.57	19.13	21.46	20.42	20.55	21.33	20.55	20.42	21.46	19.13	17.57
118°	20.64	20.44	22.01	24.13	23.37	23.72	24.28	23.72	23.37	24.13	22.01	20.44
119°	23.51	24.28	25.52	26.94	26.82	27.00	28.19	27.00	26.82	26.94	25.52	24.28
120°	26.50	28.25	29.02	30.75	30.75	31.17	32.08	31.17	30.75	30.75	29.02	28.25
121°	30.09	31.98	32.80	34.75	35.07	35.45	36.87	35.45	35.07	34.75	32.80	31.98
122°	34.24	36.17	36.74	38.71	39.58	40.19	41.67	40.19	39.58	38.71	36.74	36.17
123°	38.92	40.74	41.25	42.94	44.19	44.95	46.96	44.95	44.19	42.94	41.25	40.74
124°	44.06	45.71	46.37	47.56	48.80	50.14	52.23	50.14	48.80	47.56	46.37	45.71
125°	49.80	51.17	51.87	52.66	54.45	55.39	56.93	55.39	54.45	52.66	51.87	51.17
126°	54.71	56.55	57.44	57.95	60.10	60.55	61.63	60.55	60.10	57.95	57.44	56.55
127°	59.91	61.95	63.17	63.28	65.40	65.73	67.39	65.73	65.40	63.28	63.17	61.95
128°	65.27	67.11	69.01	68.57	70.73	71.22	73.14	71.22	70.73	68.57	69.01	67.11
129°	71.02	72.02	74.45	73.90	76.21	76.63	78.43	76.63	76.21	73.90	74.45	72.02
130°	77.46	77.12	79.81	79.26	81.80	81.97	83.70	81.97	81.80	79.26	79.81	77.12
131°	81.93	82.48	85.52	84.25	86.98	87.43	88.65	87.43	86.98	84.25	85.52	82.48
132°	86.47	88.04	91.53	89.16	92.06	91.85	93.59	91.85	92.06	89.16	91.53	88.04
133°	91.03	93.61	95.94	93.69	96.74	96.21	97.67	96.21	96.74	93.69	95.94	93.61
134°	95.72	98.35	100.10	98.16	101.33	101.08	101.75	101.08	101.33	98.16	100.10	98.35
135°	100.70	103.02	104.27	102.71	105.92	106.05	106.37	106.05	105.92	102.71	104.27	103.02
136°	105.31	107.75	108.30	107.11	110.35	109.25	110.98	109.25	110.35	107.11	108.30	107.75
137°	109.97	112.38	111.72	111.32	113.76	112.34	113.95	112.34	113.76	111.32	111.72	112.38
138°	114.41	117.01	114.77	115.30	116.91	115.68	116.93	115.68	116.91	115.30	114.77	117.01
139°	119.02	119.96	117.90	118.56	119.91	119.03	119.77	119.03	119.91	118.56	117.90	119.96
140°	123.85	122.30	120.93	121.29	122.86	122.50	122.62	122.50	122.86	121.29	120.93	122.30

141°	125.67	124.57	123.76	124.12	125.80	125.97	125.56	125.97	125.80	124.12	123.76	124.57
142°	127.66	126.71	126.31	127.38	128.57	128.29	128.49	128.29	128.57	127.38	126.31	126.71
143°	129.61	128.80	128.91	130.62	131.09	130.58	131.57	130.58	131.09	130.62	128.91	128.80
144°	131.34	130.86	131.53	133.14	133.63	133.03	134.62	133.03	133.63	133.14	131.53	130.86
145°	132.95	132.89	133.59	135.55	135.74	135.51	136.36	135.51	135.74	135.55	133.59	132.89
146°	135.02	134.88	135.64	137.88	137.69	137.27	138.09	137.27	137.69	137.88	135.64	134.88
147°	137.03	136.93	137.50	139.98	139.68	138.96	139.79	138.96	139.68	139.98	137.50	136.93
148°	138.54	138.83	139.62	141.86	141.71	140.38	141.50	140.38	141.71	141.86	139.62	138.83
149°	140.29	140.55	141.65	143.34	143.05	141.69	142.73	141.69	143.05	143.34	141.65	140.55
150°	141.95	142.05	143.41	144.82	143.77	143.00	143.96	143.00	143.77	144.82	143.41	142.05
151°	142.94	143.36	144.76	145.97	144.61	144.27	144.46	144.27	144.61	145.97	144.76	143.36
152°	143.41	144.32	145.44	146.56	145.48	144.72	144.93	144.72	145.48	146.56	145.44	144.32
153°	143.79	144.87	145.78	146.94	145.95	144.93	144.48	144.93	145.95	146.94	145.78	144.87
154°	144.19	145.42	145.86	146.86	145.44	144.89	144.02	144.89	145.44	146.86	145.86	145.42
155°	144.70	145.48	145.86	146.60	144.85	144.80	144.32	144.80	144.85	146.60	145.86	145.48
156°	144.84	145.54	145.71	146.11	144.80	144.49	144.63	144.49	144.80	146.11	145.71	145.54
157°	144.85	145.65	145.56	145.31	144.72	144.08	144.17	144.08	144.72	145.31	145.56	145.65
158°	145.06	145.59	145.25	144.44	144.46	143.91	143.72	143.91	144.46	144.44	145.25	145.59
159°	144.99	145.27	145.04	143.98	144.21	143.79	143.57	143.79	144.21	143.98	145.04	145.27
160°	144.74	144.82	144.82	143.85	143.89	143.77	143.41	143.77	143.89	143.85	144.82	144.82
161°	144.21	144.49	144.48	143.62	143.62	143.83	143.09	143.83	143.62	143.62	144.48	144.49
162°	144.23	144.23	144.10	143.49	143.47	143.83	142.77	143.83	143.47	143.49	144.10	144.23
163°	144.21	144.02	143.83	143.43	143.57	143.81	142.66	143.81	143.57	143.43	143.83	144.02
164°	143.98	143.77	143.64	143.41	143.58	143.72	142.52	143.72	143.58	143.41	143.64	143.77
165°	143.62	143.62	143.53	143.34	143.49	143.51	142.98	143.51	143.49	143.34	143.53	143.62
166°	143.77	143.49	143.72	143.38	143.47	143.51	143.41	143.51	143.47	143.24	143.72	143.49
167°	144.04	143.45	143.87	143.36	143.62	143.76	143.57	143.76	143.62	143.36	143.87	143.45
168°	144.06	143.57	144.04	143.58	143.76	144.08	143.72	144.08	143.76	143.58	144.04	143.57
169°	144.04	143.81	144.13	144.04	144.06	144.38	144.06	144.38	144.06	144.04	144.13	143.81
170°	144.06	144.19	144.29	144.78	144.51	144.68	144.38	144.68	144.51	144.78	144.29	144.19
171°	144.55	144.67	144.51	145.52	144.89	144.97	144.67	144.97	144.89	145.52	144.51	144.67
172°	145.18	145.12	144.59	145.76	145.08	145.14	144.93	145.14	145.08	145.76	144.59	145.12
173°	145.20	145.31	145.01	145.21	145.16	144.97	144.82	144.97	145.16	145.21	145.01	145.31
174°	145.12	145.56	145.25	144.57	144.70	144.78	144.68	144.78	144.70	144.57	145.25	145.56
175°	145.10	145.63	145.39	144.53	144.51	144.72	144.68	144.72	144.51	144.53	145.39	145.63
176°	145.33	145.37	144.76	144.51	144.44	144.65	144.68	144.65	144.44	144.51	145.58	145.37
177°	144.89	144.78	144.49	144.12	143.85	143.70	143.45	143.70	143.85	144.12	144.49	144.78
178°	144.25	144.12	143.87	143.51	143.05	142.66	142.22	142.66	143.05	143.51	143.87	144.12
179°	143.36	143.30	143.24	143.15	143.03	142.90	142.79	142.90	143.03	143.15	143.24	143.30
180°	143.36	143.36	143.36	143.36	143.36	143.36	143.36	143.36	143.36	143.36	143.36	143.36
Gamma	C180°	C195°	C210°	C225°	C240°	C255°	C270°	C285°	C300°	C315°	C330°	C345°
0°	124.30	124.30	124.30	124.30	124.30	124.30	124.30	124.30	124.30	124.30	124.30	124.30
1°	125.95	125.18	124.30	123.34	122.35	121.46	120.74	121.46	122.35	123.34	124.30	125.18
2°	129.75	128.15	126.12	123.72	121.12	119.03	117.16	119.03	121.12	123.72	126.12	128.15
3°	133.52	131.72	128.93	125.97	125.65	124.25	122.31	124.25	125.65	125.97	128.93	131.72
4°	136.59	135.87	136.49	133.52	132.53	129.99	127.47	129.99	132.53	133.52	130.03	135.87
5°	140.30	140.65	139.98	140.53	137.59	134.96	134.48	134.96	137.59	140.53	139.98	140.65
6°	138.90	139.51	142.88	142.96	136.59	137.94	141.50	137.94	136.59	142.96	142.88	139.51

7°	134.66	134.35	137.76	137.56	132.25	133.50	135.24	133.50	132.25	137.56	137.76	134.35
8°	129.23	129.46	132.08	129.56	128.13	127.77	128.99	127.77	128.13	129.56	132.08	129.46
9°	126.41	126.85	127.83	125.78	124.91	124.97	125.90	124.97	124.91	125.78	127.83	126.85
10°	123.85	124.40	124.46	123.96	123.98	123.45	122.81	123.45	123.98	123.96	124.46	124.40
11°	125.46	124.29	121.63	122.69	124.36	123.60	122.96	123.60	124.36	122.69	121.63	124.29
12°	128.51	127.19	121.75	124.40	125.61	124.65	123.11	124.65	125.61	124.40	121.75	127.19
13°	133.76	131.55	125.78	126.83	126.92	126.69	125.94	126.69	126.92	126.83	125.78	131.55
14°	138.52	135.77	130.05	129.14	128.25	129.35	128.74	129.35	128.25	128.61	130.05	135.77
15°	142.96	139.66	135.07	131.07	131.81	133.14	132.80	133.14	131.81	131.07	135.07	139.66
16°	146.18	143.47	140.34	133.56	135.94	138.11	136.84	138.11	135.94	133.56	140.34	143.47
17°	149.46	146.49	145.14	136.46	139.70	142.43	142.09	142.43	139.70	136.46	145.14	146.49
18°	152.06	148.85	147.93	141.18	143.00	145.63	147.32	145.63	143.00	141.18	147.93	148.85
19°	154.16	150.79	149.31	145.16	145.23	147.85	148.46	147.85	145.23	145.16	149.31	150.79
20°	155.77	152.55	149.94	147.77	146.98	148.87	149.59	148.87	146.98	147.77	149.94	152.55
21°	155.03	153.35	150.43	149.27	148.29	149.69	150.20	149.69	148.29	149.27	150.43	153.35
22°	154.41	152.80	151.03	149.90	149.06	150.12	150.81	150.12	149.06	149.90	151.03	152.80
23°	153.50	152.10	151.19	150.12	149.52	150.18	150.20	150.18	149.52	150.12	151.19	152.10
24°	152.23	151.26	150.71	149.94	149.33	149.52	149.59	149.52	149.33	149.94	150.71	151.26
25°	151.13	150.26	150.03	149.35	148.99	148.76	149.10	148.76	148.99	149.35	150.03	150.26
26°	149.92	149.39	149.42	148.72	148.08	147.85	148.59	147.85	148.08	148.72	149.42	149.39
27°	148.85	148.51	148.61	148.32	147.22	146.98	147.51	146.98	147.22	148.32	148.61	148.51
28°	147.72	147.57	147.60	147.41	146.47	146.16	146.43	146.16	146.47	147.41	147.60	147.57
29°	146.58	146.52	146.83	146.31	145.76	145.27	145.65	145.27	145.76	146.31	146.83	146.52
30°	145.29	145.14	145.73	145.37	144.78	144.42	144.85	144.42	144.78	145.37	145.73	145.14
31°	144.84	143.79	144.38	144.63	143.60	143.57	143.66	143.57	143.60	144.63	144.38	143.79
32°	144.31	142.90	143.11	143.74	142.43	142.62	142.47	142.62	142.43	143.74	143.11	142.90
33°	143.77	142.12	141.92	142.62	141.33	141.61	141.80	141.61	141.33	142.62	141.92	142.12
34°	143.19	141.40	140.36	141.50	140.40	140.36	141.14	140.36	140.40	141.50	140.36	141.40
35°	142.56	140.65	138.90	140.29	139.58	139.11	139.47	139.11	139.58	140.29	138.90	140.65
36°	141.54	139.74	137.59	139.00	138.54	137.48	137.78	137.48	138.54	139.00	137.59	139.74
37°	140.49	138.81	136.68	137.61	137.21	135.93	136.68	135.93	137.21	137.61	136.68	138.81
38°	139.55	137.99	135.91	136.00	135.85	134.77	135.57	134.77	135.85	136.00	135.91	137.99
39°	138.66	137.25	135.13	134.37	134.67	133.58	134.01	133.58	134.67	134.37	135.13	137.25
40°	137.67	136.32	133.59	132.57	133.40	131.89	132.46	131.89	133.40	132.57	133.59	136.32
41°	135.43	135.11	131.91	130.37	131.58	130.22	130.60	130.22	131.58	130.37	131.91	135.11
42°	133.16	133.50	130.31	128.29	129.76	128.63	128.74	128.63	129.76	128.29	130.31	133.50
43°	131.02	131.26	128.78	126.28	128.02	127.02	127.03	127.02	128.02	126.28	128.78	131.26
44°	128.84	129.12	127.17	124.27	126.14	125.08	125.33	125.08	126.14	124.27	127.17	129.12
45°	126.83	127.05	126.07	122.41	124.63	123.21	123.47	123.21	124.63	122.41	126.07	127.05
46°	125.44	125.06	125.29	121.04	123.15	121.59	121.59	121.59	123.15	121.04	125.29	125.06
47°	124.29	123.45	124.51	119.74	121.63	120.02	120.34	120.02	121.63	119.74	124.51	123.45
48°	123.03	122.43	123.76	118.62	120.23	118.52	119.07	118.52	120.23	118.62	123.76	122.43
49°	121.78	121.08	122.48	117.97	118.83	117.01	117.52	117.01	118.83	117.97	122.48	121.08
50°	120.55	119.79	120.59	117.29	117.40	115.64	115.96	115.64	117.40	117.29	120.59	119.79
51°	119.03	118.56	118.64	116.29	116.36	114.35	114.73	114.35	116.36	116.29	118.64	118.56
52°	117.52	117.44	116.91	115.36	115.21	113.40	113.50	113.40	115.21	115.36	116.91	117.44
53°	116.06	116.38	115.39	114.16	113.54	112.44	112.40	112.44	113.54	114.16	115.39	116.38
54°	114.75	115.07	113.93	112.93	111.85	111.49	111.28	111.49	111.85	112.93	113.93	115.07

55°	113.35	113.52	112.57	112.19	111.00	110.54	110.07	110.54	111.00	112.19	112.57	113.52
56°	111.98	111.81	111.57	111.38	110.18	108.91	108.84	108.91	110.18	111.38	111.57	111.81
57°	110.66	110.20	111.00	110.26	108.87	107.34	107.74	107.34	108.87	110.26	111.00	110.20
58°	109.46	108.85	110.22	109.18	107.57	106.50	106.62	106.50	107.57	109.18	110.22	108.85
59°	108.36	107.96	109.25	108.04	106.43	105.56	105.39	105.56	106.43	108.04	109.25	107.96
60°	107.30	106.94	107.72	107.28	105.14	104.32	104.15	104.32	105.14	107.28	107.72	106.94
61°	106.35	105.48	105.92	106.62	103.62	103.07	103.05	103.07	103.62	106.62	105.92	105.48
62°	105.18	104.06	104.97	105.18	102.30	101.67	101.93	101.67	102.30	105.18	104.97	104.06
63°	103.93	102.66	103.57	103.85	101.16	100.23	100.11	100.23	101.16	103.85	103.57	102.66
64°	102.71	101.20	101.86	103.24	99.70	98.56	98.28	98.56	99.70	103.24	101.86	101.20
65°	101.71	100.29	100.36	102.31	97.97	96.95	96.57	96.95	97.97	102.31	100.36	100.29
66°	100.57	99.17	98.96	100.80	96.70	95.62	94.86	95.62	96.70	100.80	98.96	99.17
67°	99.43	97.78	97.04	98.98	95.55	94.37	93.61	94.37	95.55	98.98	97.04	97.78
68°	98.35	96.30	95.91	97.20	94.12	93.23	92.34	93.23	94.12	97.20	95.91	96.30
69°	97.37	94.73	94.77	95.74	92.80	91.91	90.67	91.91	92.80	95.74	94.77	94.73
70°	96.32	93.99	93.18	94.50	91.34	90.24	88.99	90.24	91.34	94.50	93.18	93.99
71°	95.00	93.25	91.81	93.23	89.80	88.95	87.89	88.95	89.80	93.23	91.81	93.25
72°	93.78	92.34	90.90	92.10	88.23	88.34	86.77	88.34	88.23	92.10	90.90	92.34
73°	92.48	91.38	90.16	90.92	87.00	87.28	85.67	87.28	87.00	90.92	90.16	91.38
74°	91.15	90.77	89.25	89.57	86.12	85.59	84.55	85.59	86.12	89.57	89.25	90.77
75°	89.88	90.16	87.96	88.78	85.14	84.51	83.77	84.51	85.14	88.78	87.96	90.16
76°	88.85	89.69	87.05	87.77	84.11	84.02	82.98	84.02	84.11	87.77	87.05	89.69
77°	87.85	88.53	85.52	86.50	83.11	82.92	81.76	82.92	83.11	86.50	85.52	88.53
78°	86.58	87.58	84.29	84.97	82.11	81.27	80.53	81.27	82.11	84.97	84.29	87.58
79°	85.14	85.99	83.43	83.36	81.04	79.98	78.86	79.98	81.04	83.36	83.43	85.99
80°	83.81	84.85	82.22	81.10	79.83	78.92	77.18	78.92	79.83	81.75	82.22	84.85
81°	77.48	81.90	80.25	80.29	78.41	76.85	75.43	76.85	78.41	80.29	80.25	81.90
82°	71.70	77.20	75.51	76.27	74.16	74.28	73.69	74.28	74.16	76.27	75.51	77.20
83°	65.65	69.95	68.51	69.74	68.55	68.11	67.79	68.11	68.55	69.74	68.51	69.95
84°	58.81	61.82	59.83	60.46	60.04	60.68	61.88	60.68	60.04	60.46	59.83	61.82
85°	51.24	51.89	49.82	51.22	51.39	52.15	53.19	52.15	51.39	51.22	49.82	51.89
86°	33.78	42.01	40.49	42.01	42.71	43.24	44.49	43.24	42.71	42.01	40.49	42.01
87°	23.37	32.25	31.43	32.74	33.19	34.39	35.47	34.39	33.19	32.74	31.43	32.25
88°	15.66	21.97	20.23	22.24	22.86	25.46	26.43	25.46	22.86	22.24	20.87	21.97
89°	9.69	13.08	11.58	13.25	14.62	16.91	17.74	16.91	14.62	13.25	11.94	13.08
90°	5.65	6.09	5.93	6.92	7.22	8.32	9.04	8.32	7.22	6.92	5.93	6.09
91°	4.47	4.15	2.37	4.87	4.28	5.42	5.63	5.42	4.28	4.87	2.54	4.15
92°	3.34	2.52	1.00	3.07	2.09	2.71	2.22	2.71	2.09	3.07	1.12	2.52
93°	2.71	2.31	1.31	1.80	1.90	2.35	1.59	2.35	1.90	1.80	1.31	2.31
94°	2.43	2.60	0.70	1.99	1.54	2.03	0.95	2.03	1.54	1.99	0.70	2.60
95°	2.33	2.65	0.70	2.05	1.06	2.03	0.95	2.03	1.06	2.05	0.70	2.65
96°	2.60	2.52	1.29	2.27	1.10	2.12	0.95	2.12	1.10	2.27	1.29	2.52
97°	2.77	2.67	1.14	2.88	1.25	2.54	1.55	2.54	1.25	2.88	1.14	2.67
98°	2.79	3.37	1.14	3.01	1.63	2.86	2.16	2.86	1.63	3.01	1.14	3.37
99°	2.86	3.17	2.18	3.17	1.95	2.88	2.77	2.88	1.95	3.17	2.18	3.17
100°	3.00	4.44	2.45	3.17	2.12	3.11	3.36	3.11	2.12	3.45	2.45	4.44
101°	3.39	4.59	2.45	3.36	2.50	3.70	3.24	3.70	2.50	3.36	2.45	4.59
102°	3.79	4.44	2.62	3.39	3.05	3.81	3.11	3.81	3.05	3.39	2.62	4.44

103°	4.17	4.87	3.18	3.51	3.28	3.22	3.11	3.22	3.28	3.51	3.18	4.87
104°	4.59	4.72	3.75	4.13	3.41	3.07	3.11	3.07	3.41	4.13	3.75	4.72
105°	5.08	4.55	3.58	4.44	3.51	3.41	3.26	3.41	3.51	4.44	3.58	4.55
106°	4.93	4.32	2.96	4.51	3.39	3.37	3.41	3.37	3.39	4.51	2.96	4.32
107°	4.93	3.91	2.82	4.25	2.65	3.00	3.26	3.00	2.65	4.25	2.82	3.91
108°	5.29	3.72	3.36	4.27	2.73	3.03	3.11	3.03	2.73	4.27	3.36	3.72
109°	6.01	3.77	4.27	4.51	3.58	3.37	3.15	3.37	3.58	4.51	4.27	3.77
110°	7.01	4.32	5.38	6.35	4.49	4.08	3.17	4.08	4.49	6.35	5.38	4.32
111°	8.13	5.74	6.37	7.94	5.42	5.00	4.40	5.00	5.42	7.94	6.37	5.74
112°	9.33	7.18	7.60	9.25	6.75	6.45	5.63	6.45	6.75	9.25	7.60	7.18
113°	10.62	8.78	9.02	10.82	8.19	8.09	7.79	8.09	8.19	10.82	9.02	8.78
114°	11.81	10.56	10.65	12.46	10.50	10.14	9.95	10.14	10.50	12.46	10.65	10.56
115°	13.16	12.38	12.47	15.15	12.74	12.30	11.96	12.30	12.74	15.15	12.47	12.38
116°	15.43	14.77	14.67	17.25	15.01	14.62	13.97	14.62	15.01	17.25	14.67	14.77
117°	17.97	17.48	17.59	19.03	17.50	17.02	16.64	17.02	17.50	19.03	17.59	17.48
118°	20.64	20.47	20.28	21.91	20.25	19.98	19.30	19.98	20.25	21.91	20.28	20.47
119°	23.51	23.47	23.05	24.93	23.24	23.09	22.28	23.09	23.24	24.93	23.05	23.47
120°	26.50	26.67	26.52	27.60	26.41	26.14	25.23	26.14	26.41	27.60	26.52	26.67
121°	30.09	30.26	30.24	30.83	30.12	29.18	29.40	29.18	30.12	30.83	30.24	30.26
122°	34.24	34.35	34.26	35.20	34.12	33.10	33.57	33.10	34.12	35.20	34.26	34.35
123°	38.92	38.60	38.35	39.30	38.60	37.10	37.78	37.10	38.60	39.30	38.35	38.60
124°	44.06	43.17	42.67	43.01	43.13	41.44	41.97	41.44	43.13	43.01	42.67	43.17
125°	49.80	48.11	47.64	47.17	47.85	45.82	47.11	45.82	47.85	47.17	47.64	48.11
126°	54.71	53.38	53.01	51.60	52.63	51.28	52.23	51.28	52.63	51.60	53.01	53.38
127°	59.91	59.09	58.47	56.85	57.65	56.82	56.91	56.82	57.65	56.85	58.47	59.09
128°	65.27	64.66	63.92	62.12	62.64	61.69	61.57	61.69	62.64	62.12	63.92	64.66
129°	71.02	69.74	69.59	67.05	67.64	66.48	66.29	66.48	67.64	67.05	69.59	69.74
130°	77.46	74.90	75.30	72.00	72.68	71.24	71.00	71.24	72.68	72.00	75.30	74.90
131°	81.93	80.17	81.04	77.04	77.92	75.96	75.68	75.96	77.92	77.04	81.04	80.17
132°	86.47	85.40	86.90	81.95	83.07	80.89	80.34	80.89	83.07	81.95	86.90	85.40
133°	91.03	90.69	91.20	86.92	87.91	85.86	85.27	85.86	87.91	86.92	91.20	90.69
134°	95.72	95.41	95.24	92.23	92.65	90.39	90.18	90.39	92.65	92.23	95.24	95.41
135°	100.70	100.15	99.22	96.65	97.02	94.94	94.11	94.94	97.02	96.65	99.22	100.15
136°	105.31	104.84	103.22	100.70	101.37	99.03	98.03	99.03	101.37	100.70	103.22	104.84
137°	109.97	109.59	106.88	104.72	105.48	103.05	102.20	103.05	105.48	104.72	106.88	109.59
138°	114.41	114.54	110.35	108.46	109.18	106.45	106.37	106.45	109.18	108.46	110.35	114.54
139°	119.02	118.07	113.56	112.02	112.21	109.84	109.21	109.84	112.21	112.02	113.56	118.07
140°	123.85	120.99	116.61	115.60	115.24	113.03	112.06	113.03	115.24	115.60	116.61	120.99
141°	125.67	123.55	119.68	118.96	118.67	116.25	115.60	116.25	118.67	118.96	119.68	123.55
142°	127.66	125.69	122.39	122.11	121.97	119.47	119.15	119.47	121.97	122.11	122.39	125.69
143°	129.61	127.76	124.99	125.10	124.46	122.71	122.09	122.71	124.46	125.10	124.99	127.76
144°	131.34	129.80	127.47	128.02	126.88	124.97	125.03	124.97	126.88	128.02	127.47	129.80
145°	132.95	131.77	130.14	130.83	129.14	127.15	126.92	127.15	129.14	130.83	130.14	131.77
146°	135.02	133.52	132.95	133.14	131.36	129.65	128.80	129.65	131.36	133.14	132.95	133.52
147°	137.03	135.24	135.62	135.26	133.52	132.27	131.00	132.27	133.52	135.26	135.62	135.24
148°	138.54	137.10	137.73	137.27	135.55	134.18	133.18	134.18	135.55	137.27	137.73	137.10
149°	140.29	138.96	139.57	138.94	137.31	135.91	135.02	135.91	137.31	138.94	139.57	138.96
150°	141.95	140.53	141.29	140.55	138.71	137.48	136.84	137.48	138.71	140.55	141.29	140.53



Standards & Safety

MILAB S.r.l.s.
Via San Giacomo, 14
20142 Milano

151°	142.94	141.86	142.64	141.76	139.74	139.02	138.07	139.02	139.74	141.76	142.64	141.86
152°	143.41	142.73	143.40	142.37	140.44	139.62	139.28	139.62	140.44	142.37	143.40	142.73
153°	143.79	143.68	144.21	142.83	140.91	140.02	139.77	140.02	140.91	142.83	144.21	143.68
154°	144.19	144.70	144.38	143.32	141.37	140.32	140.25	140.32	141.37	143.32	144.38	144.70
155°	144.70	144.82	144.17	143.57	141.73	140.67	140.25	140.67	141.73	143.57	144.17	144.82
156°	144.84	144.74	143.93	143.38	141.58	140.74	140.25	140.74	141.58	143.38	143.93	144.74
157°	144.85	144.49	143.53	142.83	141.39	140.68	140.25	140.68	141.39	142.83	143.53	144.49
158°	145.06	144.06	143.36	142.07	141.23	140.72	140.25	140.72	141.23	142.07	143.36	144.06
159°	144.99	143.79	143.40	141.65	141.01	140.74	140.25	140.74	141.01	141.65	143.40	143.79
160°	144.74	143.64	143.51	141.39	140.80	140.72	140.25	140.72	140.80	141.39	143.51	143.64
161°	144.21	143.58	143.24	141.31	140.89	140.65	140.25	140.65	140.89	141.31	143.24	143.58
162°	144.23	143.45	142.62	141.33	141.08	140.49	140.25	140.49	141.08	141.33	142.62	143.45
163°	144.21	143.24	142.14	141.33	141.29	140.38	140.13	140.38	141.29	141.33	142.14	143.24
164°	143.98	143.03	142.01	141.27	141.44	140.55	140.00	140.55	141.44	141.27	142.01	143.03
165°	143.62	143.05	141.92	141.18	141.42	140.93	140.00	140.93	141.42	141.18	141.92	143.05
166°	143.77	143.05	141.94	141.12	141.46	141.14	140.00	141.14	141.46	141.20	141.94	143.05
167°	144.04	143.03	141.95	141.59	141.88	141.20	140.49	141.20	141.88	141.59	141.95	143.03
168°	144.06	143.17	141.86	142.45	142.49	141.40	140.97	141.40	142.49	142.45	141.86	143.17
169°	144.04	143.45	142.28	143.28	142.94	141.76	141.01	141.76	142.94	143.28	142.28	143.45
170°	144.06	143.85	143.00	143.53	143.32	142.22	141.03	142.22	143.32	143.53	143.00	143.85
171°	144.55	144.36	143.81	143.81	143.72	143.00	142.22	143.00	143.72	143.81	143.81	144.36
172°	145.18	144.76	144.65	144.29	144.10	143.72	143.41	143.72	144.10	144.29	144.65	144.76
173°	145.20	144.97	144.91	144.68	144.46	144.04	143.91	144.04	144.46	144.68	144.91	144.97
174°	145.12	144.97	144.87	144.72	144.59	144.36	144.38	144.36	144.59	144.72	144.87	144.97
175°	145.10	145.01	145.03	144.91	144.76	144.61	144.67	144.61	144.76	144.91	145.03	145.01
176°	145.33	145.29	145.25	145.27	145.08	144.87	144.93	144.87	145.08	145.27	145.61	145.29
177°	144.89	145.14	145.39	145.59	145.27	145.12	145.25	145.12	145.27	145.59	145.39	145.14
178°	144.25	144.57	144.78	144.91	145.01	145.33	145.58	145.33	145.01	144.91	144.78	144.57
179°	143.36	143.60	143.85	144.06	144.25	144.40	144.48	144.40	144.25	144.06	143.85	143.60
180°	143.36	143.36	143.36	143.36	143.36	143.36	143.36	143.36	143.36	143.36	143.36	143.36