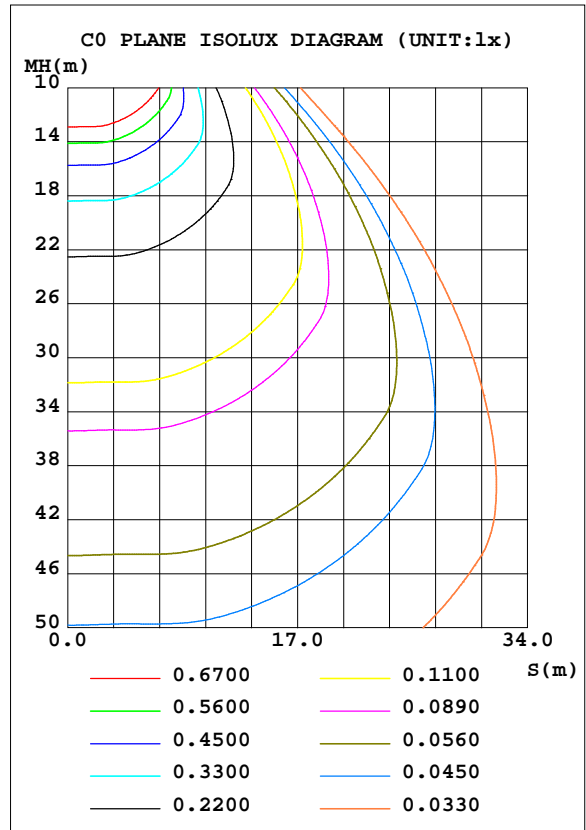
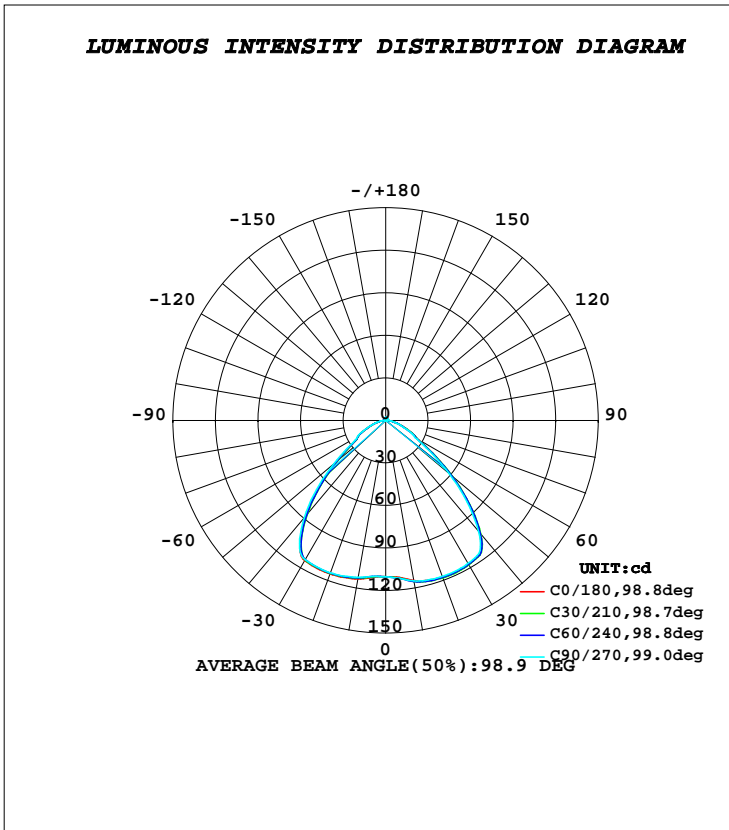


LUMINAIRE PHOTOMETRIC TEST REPORT

NAME: Midgard K831 emailliert	TYPE:	WEIGHT:
SPEC.:	DIM.: 178 mm	SERIAL No.:
MFR.: Midgard	SUR.:	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 35.70 lm/W			
MODEL		I _{max} (cd)	118.3	S/MH(C0/180)	1.35
NOMINAL POWER(W)	8.1259	LOR(%)	100.0	S/MH(C90/270)	1.37
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	290.11	η UP, DN(C0-180)	1.2, 49.6
NOMINAL FLUX(lm)	290.109	CIE CLASS	DIRECT	η UP, DN(C180-360)	1.1, 48.0
LAMPS INSIDE	1	η up(%)	2.3	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)	230	η down(%)	97.7	CIBSE SHR MAX	1.35



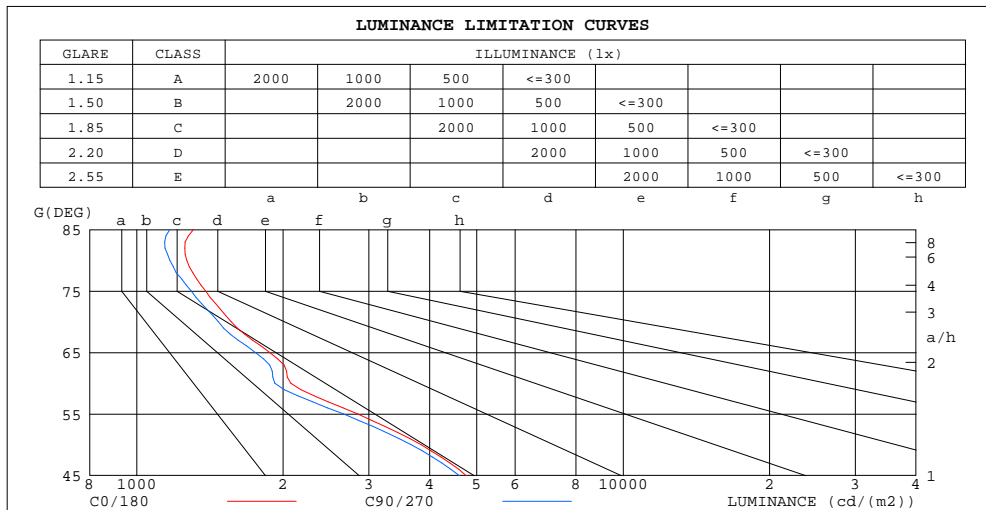
C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: JB
 Test Date: 02 January 2018

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.295
 Humidity: 65.0%
 Test Distance: 4.850m [K=1.0000]
 Remarks: Midgard K831 emailliert

ZONAL FLUX DIAGRAM
AND LUMINANCE LIMITATION CURVES

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum,lamp
10	114.7	115.4	114.9	114.0	113.5	113.0	112.4	112.8	0- 10	10.70	10.70	3.69,3.69
20	117.6	118.0	117.1	115.5	115.2	114.6	114.3	115.5	10- 20	32.68	43.38	15,15
30	117.1	117.4	116.3	114.5	114.2	113.6	113.4	115.3	20- 30	53.61	96.98	33.4,33.4
40	103.0	104.3	102.0	91.16	87.21	85.98	89.38	99.11	30- 40	67.84	164.8	56.8,56.8
50	60.72	61.54	58.71	47.98	45.32	44.69	48.10	57.99	40- 50	57.24	222.1	76.5,76.5
60	25.48	25.42	23.95	21.84	22.51	22.46	23.05	25.28	50- 60	31.87	253.9	87.5,87.5
70	13.15	13.10	12.56	11.16	11.51	11.49	12.03	13.62	60- 70	17.88	271.8	93.7,93.7
80	5.412	5.377	5.060	4.273	4.369	4.363	4.664	5.589	70- 80	8.786	280.6	96.7,96.7
90	0.8420	0.8211	0.6354	0.5600	0.5973	0.5873	0.5786	0.7962	80- 90	2.727	283.3	97.7,97.7
100	0.6615	0.6558	0.6683	0.7095	0.6326	0.6291	0.6173	0.5898	90-100	0.6616	284.0	97.9,97.9
110	0.8492	0.8404	0.8558	0.9127	0.7650	0.7647	0.7479	0.7008	100-110	0.7616	284.7	98.2,98.2
120	1.066	1.060	1.077	1.135	0.9659	0.9689	0.9473	0.8870	110-120	0.8984	285.6	98.5,98.5
130	1.284	1.277	1.292	1.350	1.189	1.192	1.170	1.107	120-130	1.006	286.6	98.8,98.8
140	1.481	1.474	1.485	1.534	1.381	1.384	1.362	1.303	130-140	1.029	287.7	99.2,99.2
150	1.639	1.636	1.646	1.681	1.545	1.541	1.516	1.466	140-150	0.9439	288.6	99.5,99.5
160	1.801	1.801	1.812	1.846	1.734	1.734	1.713	1.663	150-160	0.7682	289.4	99.8,99.8
170	1.993	1.998	2.004	2.022	1.960	1.966	1.952	1.911	160-170	0.5269	289.9	99.9,99.9
180	2.115	2.120	2.119	2.109	2.120	2.122	2.118	2.110	170-180	0.1940	290.1	100,100
DEG	LUMINOUS INTENSITY:cd								UNIT:lm			



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	1309	1169
80	1268	1168
75	1385	1295
70	1564	1472
65	1875	1751
60	2073	1921
55	2844	2662
50	3842	3662
45	4757	4604

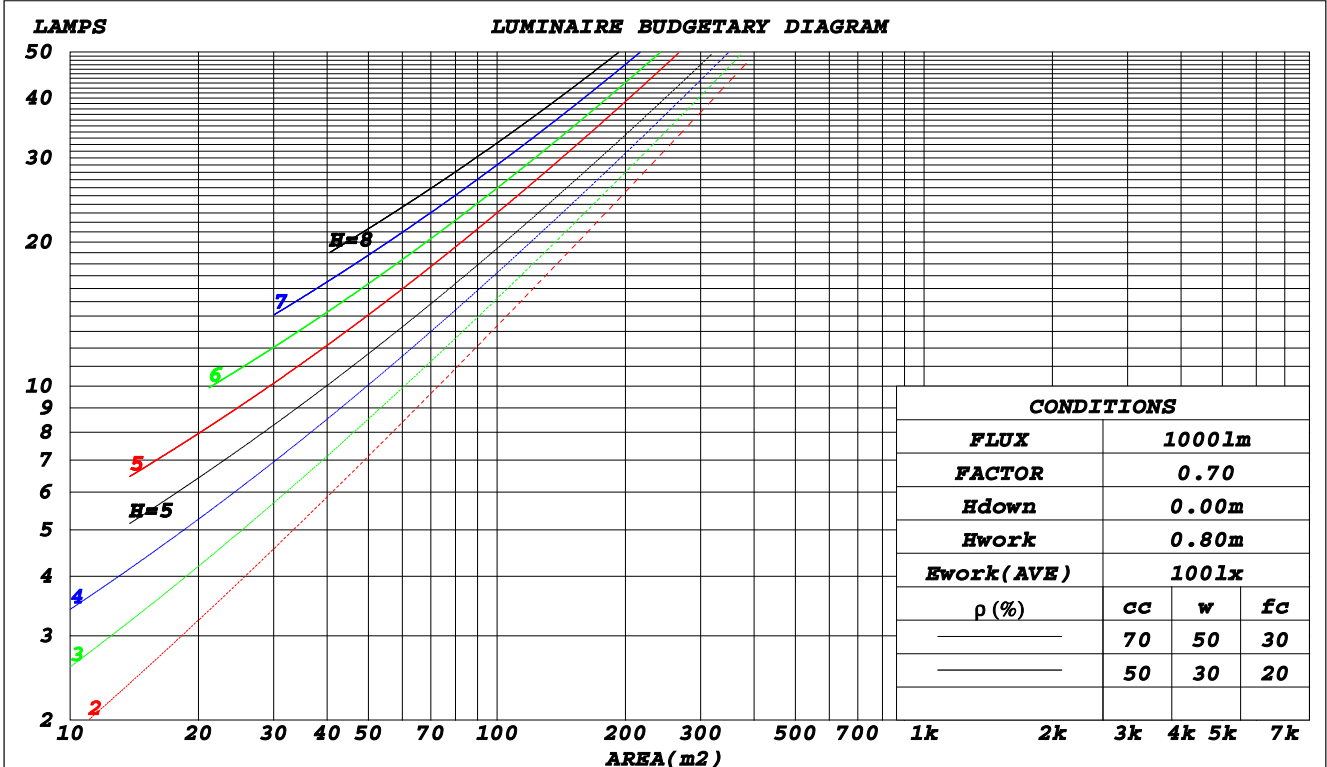
C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: JB
Test Date: 02 January 2018

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.295
Humidity: 65.0%
Test Distance: 4.850m [K=1.0000]
Remarks: Midgard K831 emailiert

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

NAME: Midgard K831 emailliert	TYPE:	WEIGHT:
SPEC.:	DIM.: 178 mm	SERIAL No.:
MFR.: Midgard	SUR.:	Shielding Angle:

ρ_{cc}	80%			70%			50%			30%			10%			0
ρ_w	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρ_{fc}	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Coefficients of Utilization(CU)									
0.0	1.18	1.18	1.18	1.15	1.15	1.15	1.10	1.10	1.10	1.05	1.05	1.05	.00	.00	.00	.98
1.0	1.06	1.02	.99	1.04	1.00	.97	.99	.96	.94	.95	.93	.91	.91	.89	.88	.85
2.0	.94	.89	.84	.92	.87	.83	.89	.84	.80	.85	.81	.78	.82	.79	.76	.74
3.0	.84	.77	.72	.83	.76	.71	.80	.74	.69	.77	.72	.68	.74	.70	.67	.64
4.0	.76	.68	.62	.74	.67	.62	.72	.65	.61	.69	.64	.59	.67	.62	.58	.56
5.0	.68	.60	.54	.67	.60	.54	.65	.58	.53	.63	.57	.53	.61	.56	.52	.50
6.0	.62	.54	.48	.61	.53	.48	.59	.52	.47	.57	.51	.47	.56	.50	.46	.44
7.0	.57	.49	.43	.56	.48	.43	.54	.47	.42	.52	.46	.42	.51	.46	.41	.39
8.0	.52	.44	.39	.51	.44	.38	.50	.43	.38	.48	.42	.38	.47	.41	.37	.35
9.0	.48	.40	.35	.47	.40	.35	.46	.39	.34	.45	.38	.34	.43	.38	.34	.32
10.0	.44	.37	.32	.43	.36	.32	.42	.36	.31	.41	.35	.31	.40	.35	.31	.29



C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: JB
 Test Date: 02 January 2018

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.295
 Humidity: 65.0%
 Test Distance: 4.850m [K=1.0000]
 Remarks: Midgard K831 emailliert

WEC AND CCEC

NAME: Midgard K831 emailliert	TYPE:	WEIGHT:
SPEC.:	DIM.: 178 mm	SERIAL No.:
MFR.: Midgard	SUR.:	Shielding Angle:

ρ_{cc}	80%			70%			50%			30%			10%			0
ρ_w	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρ_{fc}	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients(WEC)									
0.0																
1.0	.259	.147	.047	.251	.143	.045	.237	.136	.043	.224	.129	.041	.211	.123	.040	
2.0	.248	.136	.042	.241	.133	.041	.229	.127	.039	.217	.122	.038	.206	.117	.037	
3.0	.234	.124	.037	.228	.122	.037	.217	.118	.036	.207	.113	.035	.197	.109	.034	
4.0	.219	.114	.034	.214	.112	.033	.204	.108	.032	.195	.105	.032	.187	.102	.031	
5.0	.206	.105	.030	.201	.103	.030	.193	.100	.030	.184	.097	.029	.177	.094	.028	
6.0	.194	.097	.028	.189	.096	.028	.182	.093	.027	.174	.091	.027	.167	.088	.026	
7.0	.182	.090	.026	.178	.089	.025	.171	.087	.025	.165	.084	.025	.159	.082	.024	
8.0	.172	.084	.024	.168	.083	.023	.162	.081	.023	.156	.079	.023	.150	.077	.022	
9.0	.162	.079	.022	.159	.078	.022	.154	.076	.022	.148	.074	.021	.143	.073	.021	
10.0	.154	.074	.020	.151	.073	.020	.146	.071	.020	.141	.070	.020	.136	.068	.020	

ρ_{cc}	80%			70%			50%			30%			10%			0
ρ_w	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρ_{fc}	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Ceiling Cavity Exitance Coefficients(CCEC)									
0.0	.208	.208	.208	.178	.178	.178	.122	.122	.122	.070	.070	.070	.022	.022	.022	
1.0	.195	.175	.156	.167	.150	.135	.114	.103	.093	.066	.060	.054	.021	.019	.018	
2.0	.184	.150	.121	.158	.129	.105	.108	.089	.073	.062	.052	.043	.020	.017	.014	
3.0	.176	.132	.098	.151	.114	.085	.103	.079	.059	.060	.046	.035	.019	.015	.011	
4.0	.168	.119	.081	.144	.102	.070	.099	.071	.050	.057	.042	.029	.018	.014	.010	
5.0	.161	.108	.069	.138	.093	.060	.095	.065	.042	.055	.038	.025	.018	.013	.008	
6.0	.154	.099	.060	.132	.086	.053	.091	.060	.037	.053	.035	.022	.017	.012	.007	
7.0	.148	.093	.054	.127	.080	.047	.088	.056	.033	.051	.033	.020	.016	.011	.007	
8.0	.142	.087	.049	.122	.075	.043	.084	.053	.030	.049	.031	.018	.016	.010	.006	
9.0	.136	.082	.045	.117	.071	.039	.081	.050	.028	.047	.029	.017	.015	.010	.006	
10.0	.131	.078	.042	.113	.067	.037	.078	.047	.026	.046	.028	.016	.015	.009	.005	

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:JB
 Test Date:02 January 2018

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.295
 Humidity:65.0%
 Test Distance:4.850m [K=1.0000]
 Remarks: Midgard K831 emailliert

UGR(Unified Glare Rating) Table

NAME: Midgard K831 emailliert	TYPE:	WEIGHT:
SPEC.:	DIM.: 178 mm	SERIAL No.:
MFR.: Midgard	SUR.:	Shielding Angle:

ceiling/cavity	0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
walls	0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions	Viewed crosswise					Viewed endwise				
x = 2H y = 2H	16.3	17.7	16.6	17.9	18.2	16.2	17.5	16.5	17.7	18.0
3H	16.8	18.0	17.1	18.3	18.6	16.6	17.8	16.9	18.1	18.4
4H	17.0	18.2	17.4	18.5	18.7	16.8	17.9	17.1	18.2	18.5
6H	17.2	18.2	17.5	18.5	18.9	16.9	18.0	17.3	18.3	18.6
8H	17.2	18.2	17.6	18.6	18.9	17.0	18.0	17.3	18.3	18.6
12H	17.2	18.2	17.6	18.6	18.9	17.0	18.0	17.4	18.3	18.7
4H 2H	16.5	17.6	16.8	17.9	18.2	16.3	17.5	16.7	17.8	18.0
3H	17.1	18.1	17.5	18.4	18.8	16.9	17.9	17.3	18.3	18.6
4H	17.4	18.3	17.8	18.7	19.0	17.2	18.1	17.6	18.5	18.8
6H	17.7	18.5	18.1	18.8	19.2	17.4	18.2	17.9	18.6	19.0
8H	17.8	18.5	18.2	18.9	19.3	17.5	18.3	18.0	18.7	19.1
12H	17.8	18.5	18.3	18.9	19.4	17.6	18.3	18.1	18.7	19.1
8H 4H	17.5	18.2	17.9	18.6	19.0	17.3	18.0	17.7	18.4	18.9
6H	17.8	18.4	18.3	18.9	19.3	17.6	18.2	18.1	18.7	19.1
8H	18.0	18.5	18.5	19.0	19.5	17.8	18.3	18.3	18.8	19.3
12H	18.1	18.6	18.7	19.1	19.6	17.9	18.4	18.4	18.9	19.4
12H 4H	17.5	18.1	17.9	18.5	19.0	17.3	17.9	17.7	18.4	18.8
6H	17.8	18.4	18.3	18.8	19.3	17.6	18.2	18.1	18.6	19.1
8H	18.0	18.5	18.5	19.0	19.5	17.8	18.3	18.3	18.8	19.3
Variations with the observer position at spacings:										
S = 1.0H	+ 0.7 / - 0.9					+ 0.8 / - 1.0				
1.5H	+ 0.4 / - 0.6					+ 0.4 / - 0.6				
2.0H	+ 1.7 / - 1.3					+ 1.8 / - 1.4				

CIE Pub.117 Corrected 290.1 lm Total Lamp Luminous Flux.(8log(F/F0) = -4.3)

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: JB
 Test Date: 02 January 2018

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.295
 Humidity: 65.0%
 Test Distance: 4.850m [K=1.0000]
 Remarks: Midgard K831 emailliert

UTILIZATION FACTORS TABLE

NAME: Midgard K831 emailliert	TYPE:	WEIGHT:
SPEC.:	DIM.: 178 mm	SERIAL No.:
MFR.: Midgard	SUR.:	Shielding Angle:

REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	64	54	48	64	54	48	62	53	48	42
0.80	74	64	58	73	64	58	72	63	57	51
1.00	83	73	67	81	72	67	79	73	66	60
1.25	89	80	74	88	79	74	85	78	73	66
1.50	93	85	79	92	84	79	89	82	78	71
2.00	99	92	87	97	91	86	94	88	84	77
2.50	102	96	91	100	94	90	96	92	88	80
3.00	105	99	95	103	98	94	99	95	91	83
4.00	108	103	100	106	102	98	101	98	95	86
5.00	110	106	103	108	104	101	103	100	98	88
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: JB
Test Date: 02 January 2018

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.295
Humidity: 65.0%
Test Distance: 4.850m [K=1.0000]
Remarks: Midgard K831 emailliert

ISOCANDELA DIAGRAM

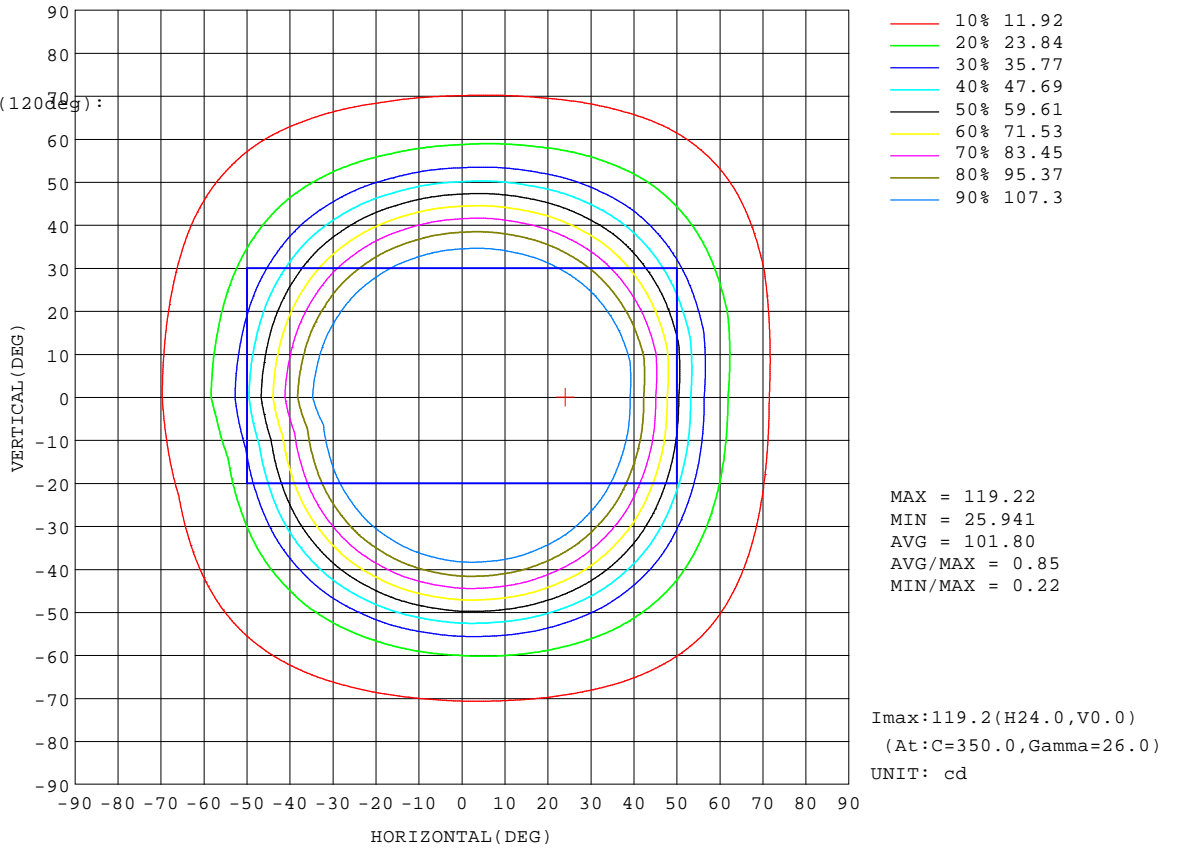
NAME: Midgard K831 emailliert	TYPE:	WEIGHT:
SPEC.:	DIM.: 178 mm	SERIAL No.:
MFR.: Midgard	SUR.:	Shielding Angle:

Conical surface Flux(90deg):

196.3 lm
 %lum = 67.7%
 %lamp = 67.7%

Conical surface Flux(120deg):

253.93 lm
 %lum = 87.5%
 %lamp = 87.5%



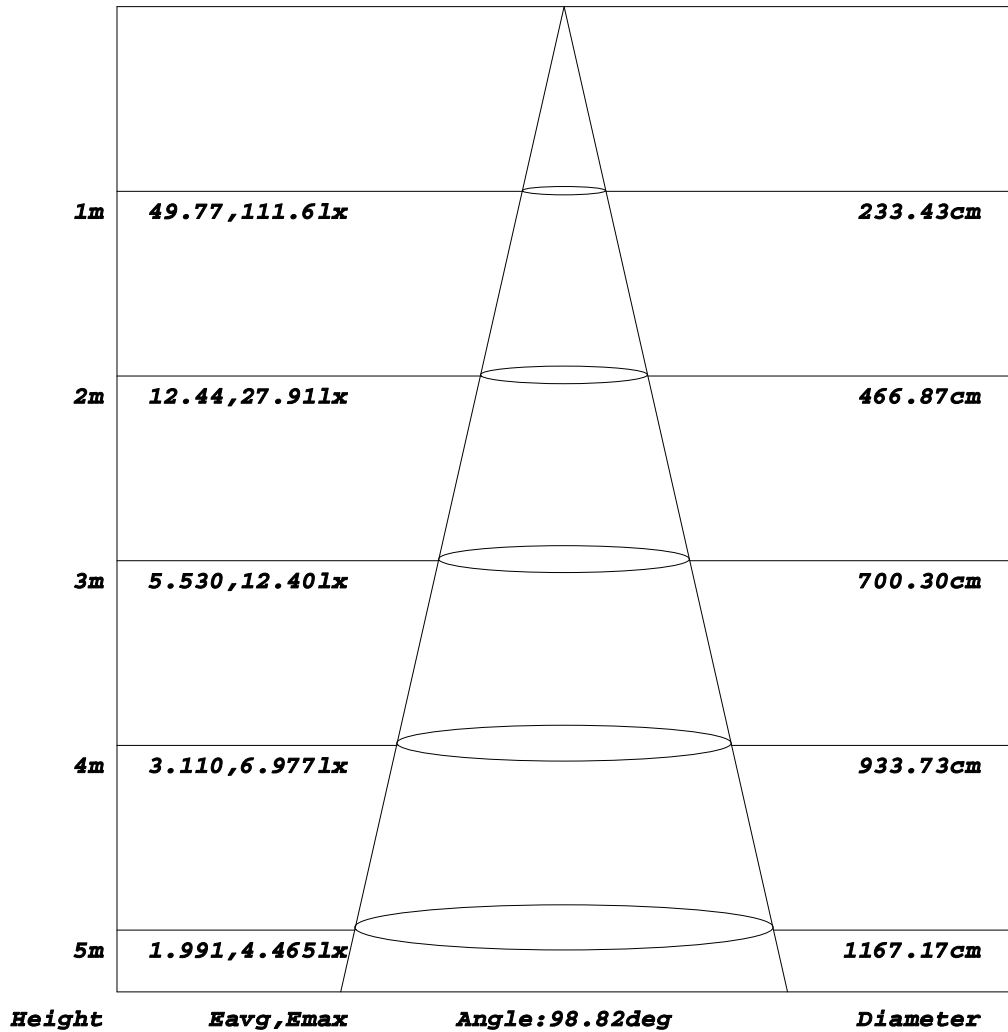
C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: JB
Test Date: 02 January 2018

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.295
Humidity: 65.0%
Test Distance: 4.850m [K=1.0000]
Remarks: Midgard K831 emailliert

AAI Figure

NAME: Midgard K831 emailliert	TYPE:	WEIGHT:
SPEC.:	DIM.: 178 mm	SERIAL No.:
MFR.: Midgard	SUR.:	Shielding Angle:

Flux out:222.1 lm



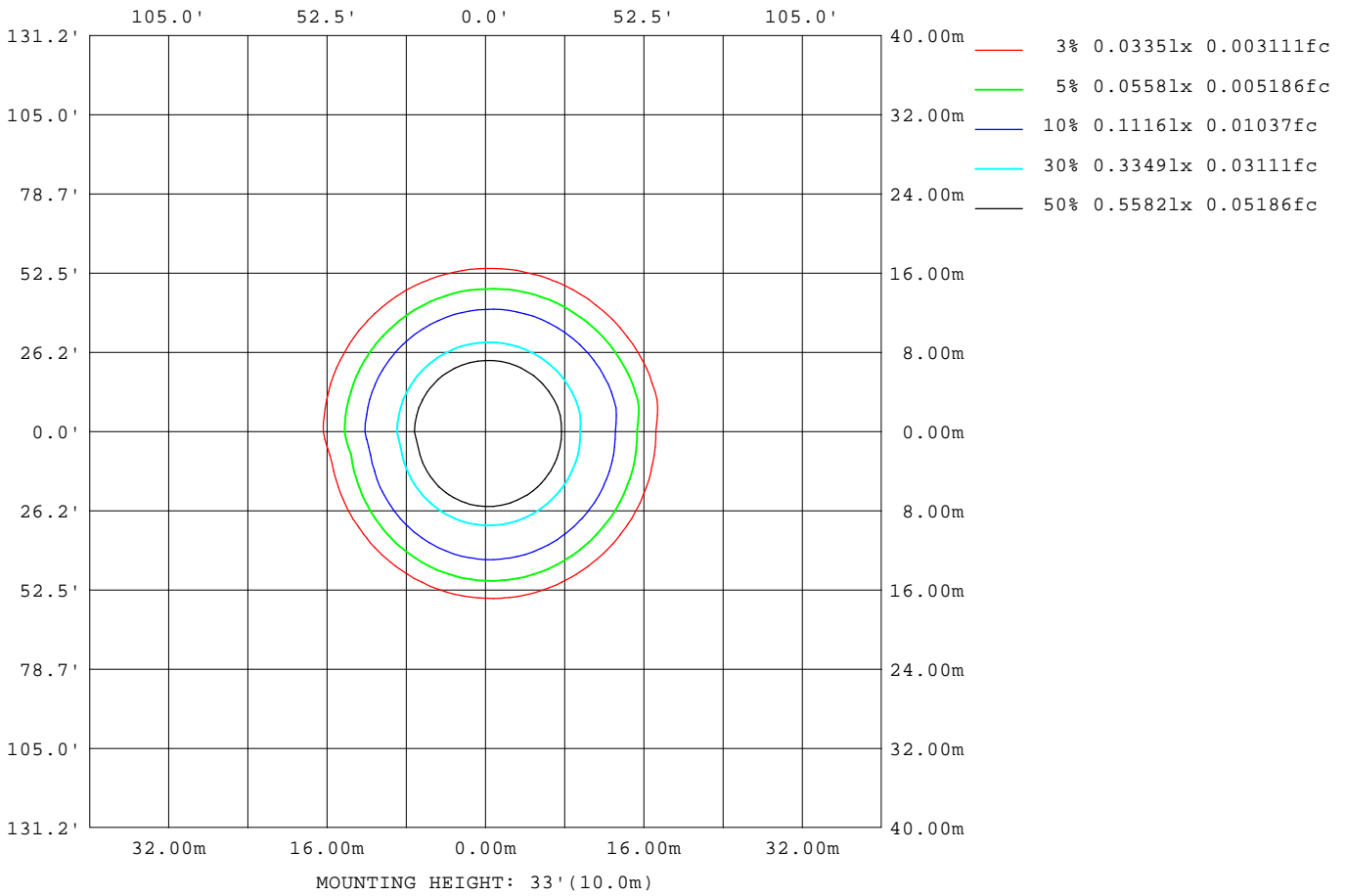
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: JB
Test Date: 02 January 2018

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.295
Humidity: 65.0%
Test Distance: 4.850m [K=1.0000]
Remarks: Midgard K831 emailliert

ISOLUX DIAGRAM

NAME: Midgard K831 emailliert	TYPE:	WEIGHT:
SPEC.:	DIM.: 178 mm	SERIAL No.:
MFR.: Midgard	SUR.:	Shielding Angle:



C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: JB
Test Date: 02 January 2018

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.295
Humidity: 65.0%
Test Distance: 4.850m [K=1.0000]
Remarks: Midgard K831 emailliert

LED Avg.L Report

NAME: Midgard K831 emailliert	TYPE:	WEIGHT:
SPEC.:	DIM.: 178 mm	SERIAL No.:
MFR.: Midgard	SUR.:	Shielding Angle:

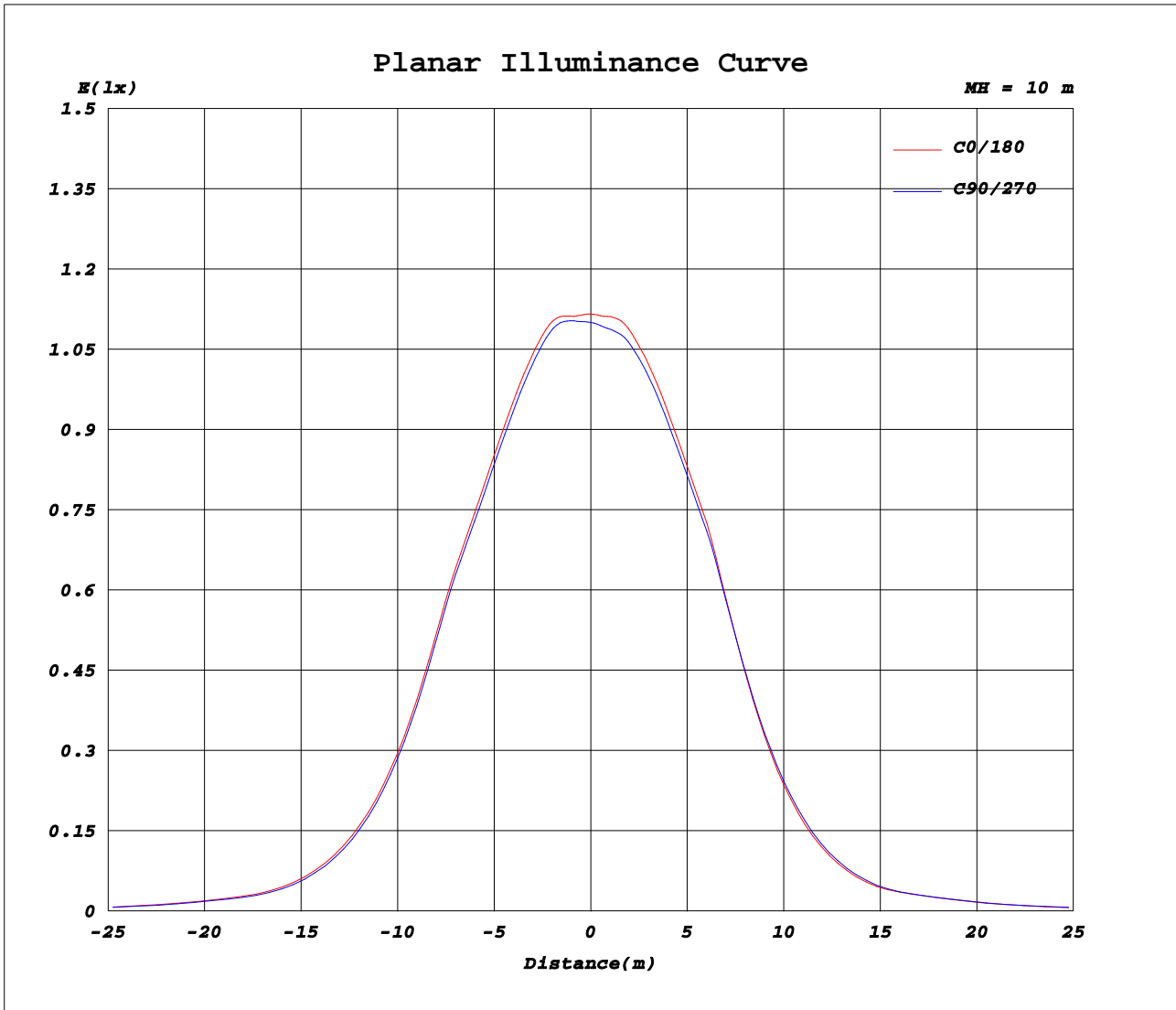
AvgL	cd/m2
L_0~180(65)av	1717
L_0~180(75)av	1267
L_0~180(85)av	1095
L_90~270(65)av	1703
L_90~270(75)av	1263
L_90~270(85)av	1085
L_45(65)av	1712
L_45(75)av	1269
L_45(85)av	1095

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: JB
Test Date: 02 January 2018

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.295
Humidity: 65.0%
Test Distance: 4.850m [K=1.0000]
Remarks: Midgard K831 emailliert

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: JB
Test Date: 02 January 2018

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.295
Humidity: 65.0%
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