

Light efficiency:



Light quality:



Color temperature:

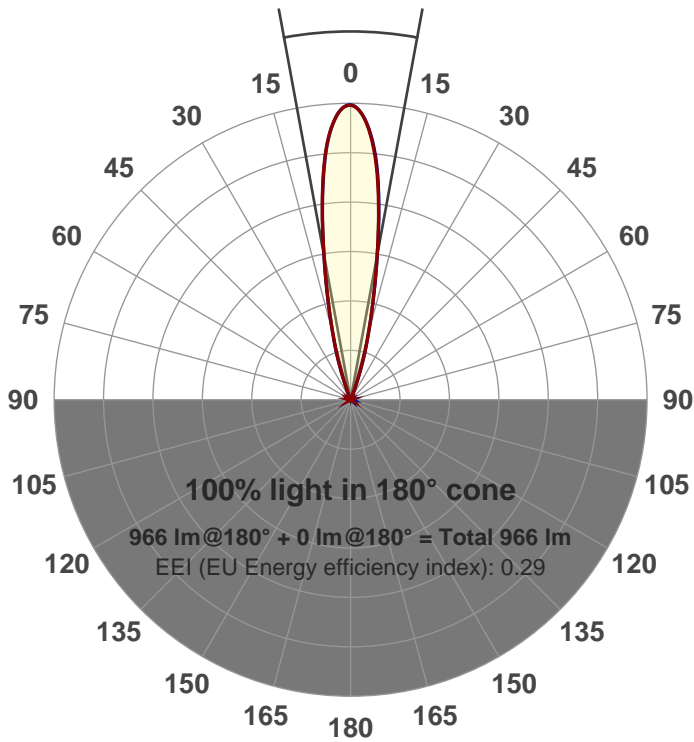


Output: 966 lm
Peak: 6557 cd
Power: 21.2 W
PF: 0.99



Beam angle

20.8°



Product name:
GRF-CZ20-NF-RD
Item number:
GRF-CZ20-NF-RD
Date and time:
6/6/2017 11:15:56 AM
Description:
V6

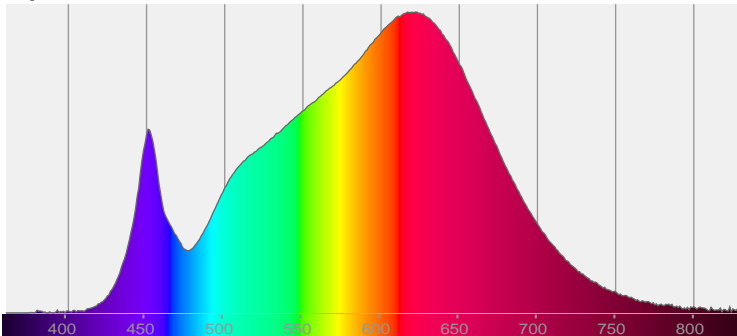
LUM: 966

PPF: 16.8

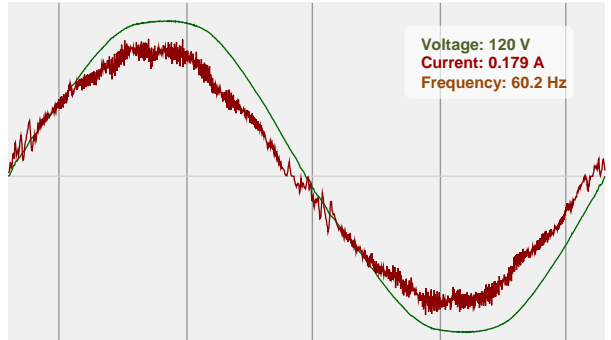


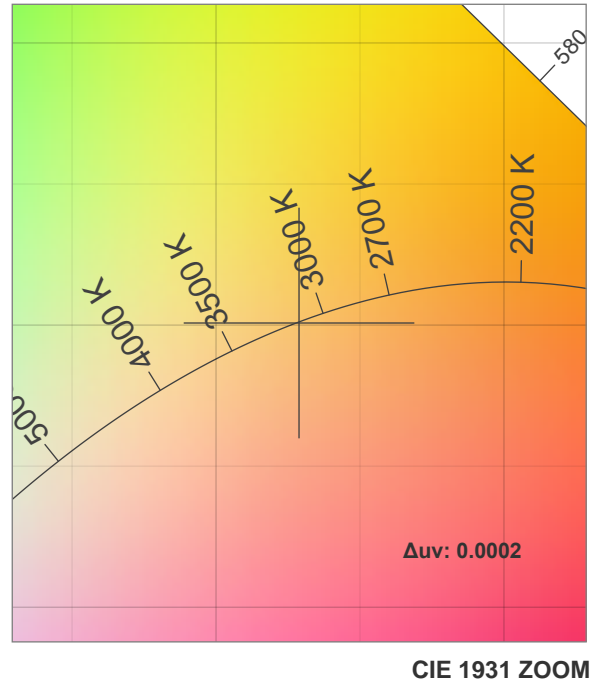
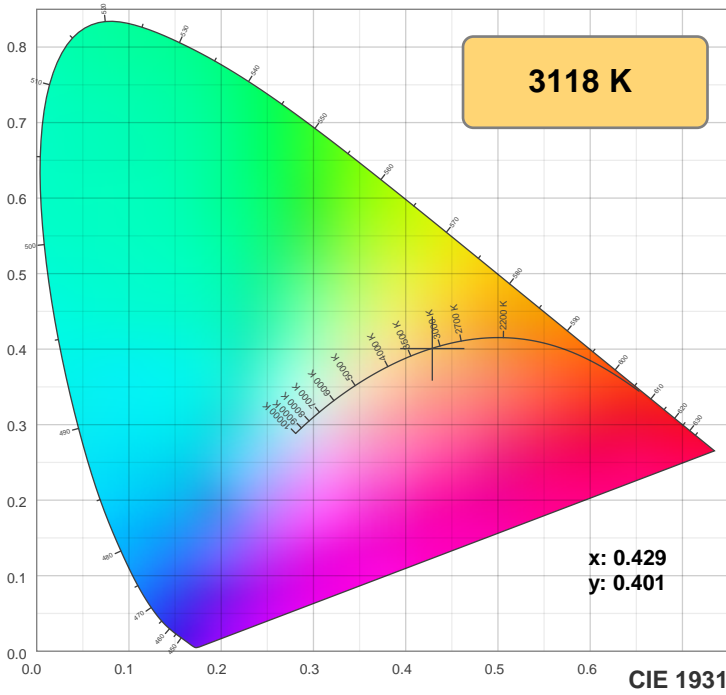
CIE 1931
x: 0.429
y: 0.401

Spectra

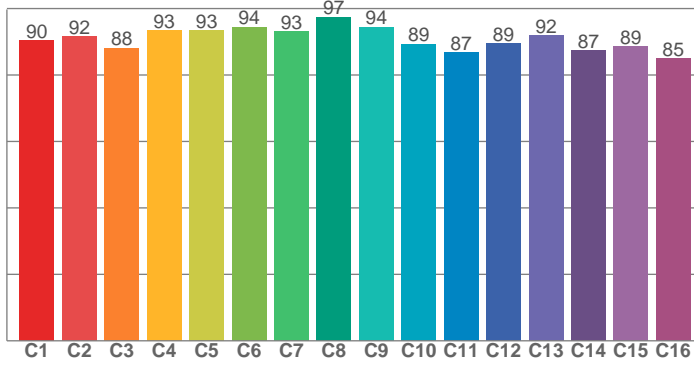


Power

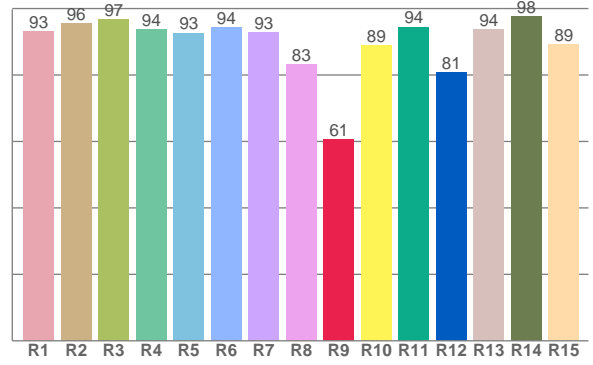




TM30: 91.0



CRI: 92.8 (R1-R8)



CRI R values, only R1-R8 are used to calculate final CRI value

R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
93.0	95.6	96.8	93.6	92.7	94.3	93.0	83.2	60.5	88.9	94.5	80.8	93.7	97.6	89.1

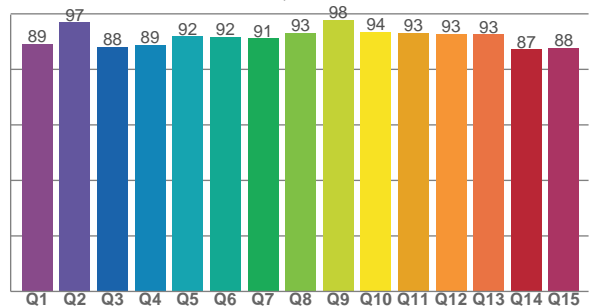
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
90.3	91.6	88.2	93.4	93.3	94.5	93.2	97.5	94.5	89.4	86.8	89.4	92.0	87.4	88.5	85.1

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
89.1	96.9	88.0	88.8	91.8	91.7	91.1	93.0	97.7	93.5	93.0	92.7	92.6	87.2	87.7

CQS: 91.0



Color parameters

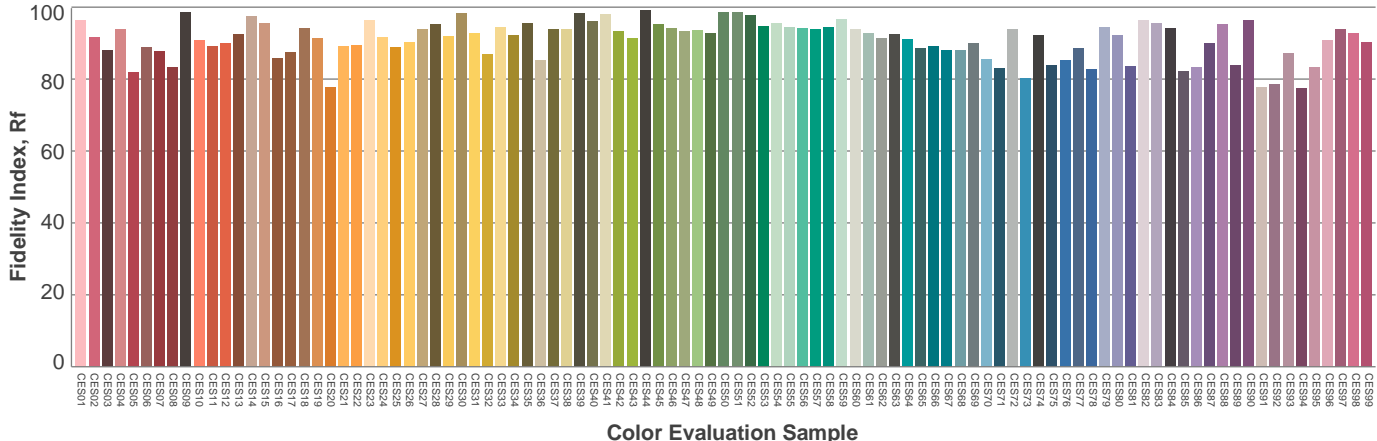
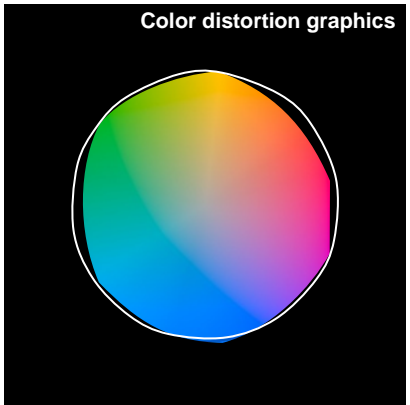
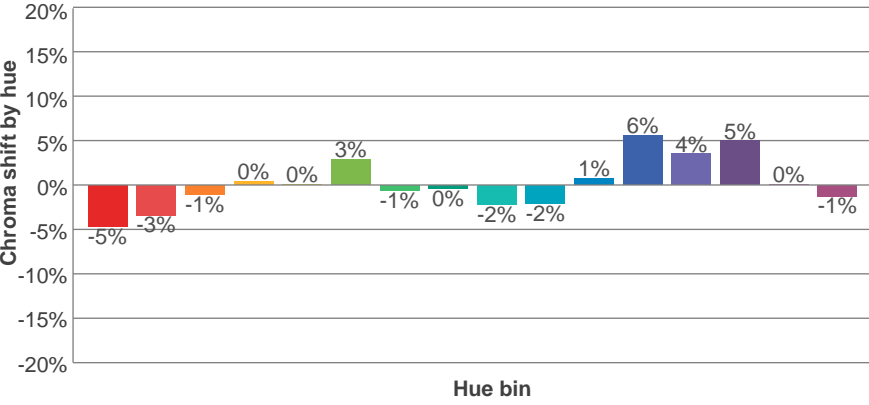
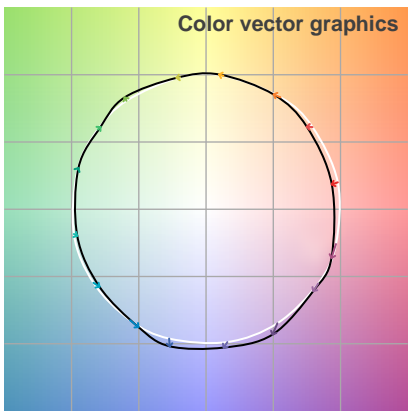
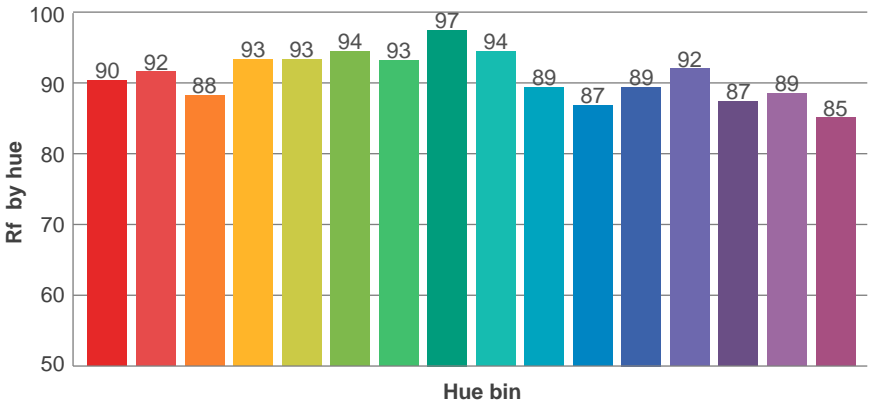
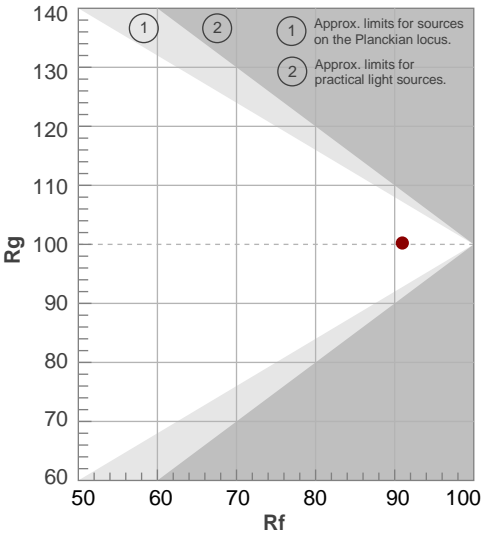
Color temperature	Color rendering index	Red component	Color fidelity	Color gamut	Color quality scale	Color coordinate cie 1931	Color coordinate cie 1931	Color coordinate	Color coordinate	Color deviation from black body
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	x	y	u	v	Δuv
3118 K	92.8	60.5	91.0	100.2	91.0	0.429	0.401	0.247	0.346	0.0002

TM30 details

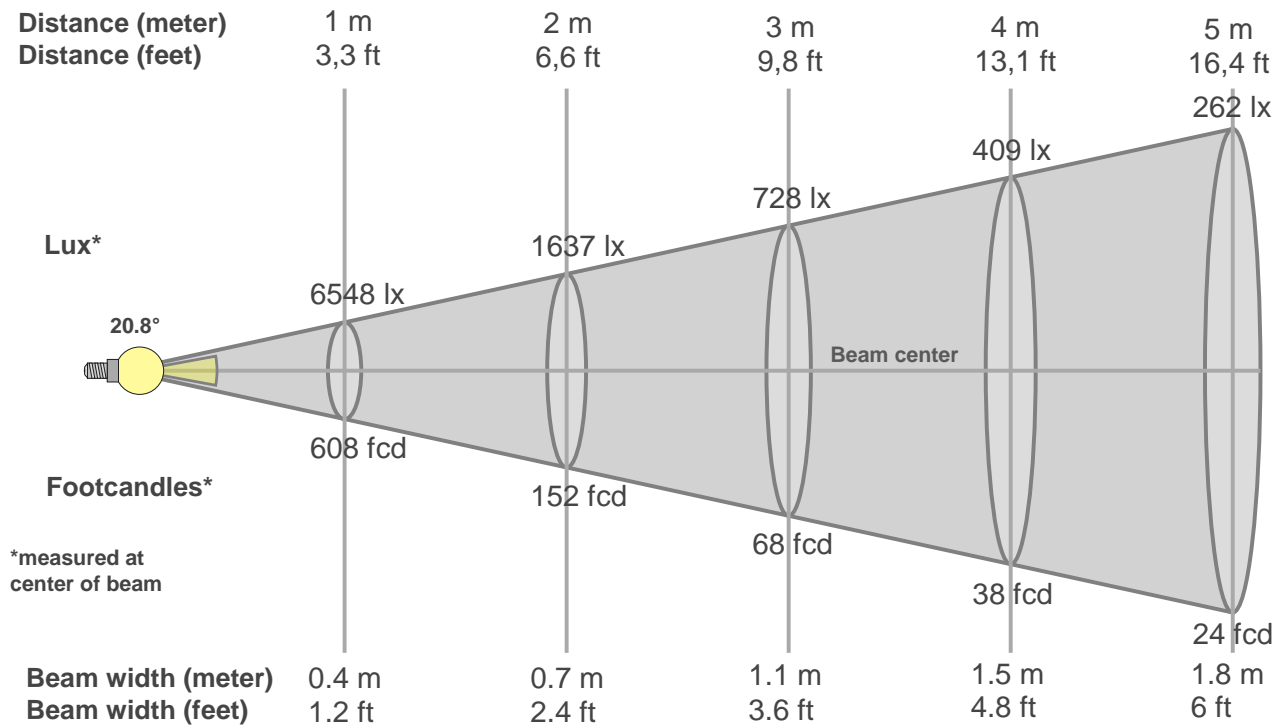
Rf 91.0
Fidelity index Rf

Rg 100.2
Gammut index Rg

Hue Bin	R _f	Graphic shifts (%)	
		Chroma	Hue
1	90	-5%	-1%
2	92	-3%	3%
3	88	-1%	5%
4	93	0%	3%
5	93	0%	3%
6	94	3%	0%
7	93	-1%	-3%
8	97	0%	-1%
9	94	-2%	2%
10	89	-2%	5%
11	87	1%	8%
12	89	6%	2%
13	92	4%	-3%
14	87	5%	-8%
15	89	0%	-7%
16	85	-1%	-11%



Beam details



Beam intensities from 1-20m

1m	2m	3m	4m	5m	6m	7m	8m	9m	10m	11m	12m	13m	14m	15m	16m	17m	18m	19m	20m
3.3ft	6.6ft	9.8ft	13.1ft	16.4ft	19.7ft	23ft	26.2ft	29.5ft	32.8ft	36.1ft	39.4ft	42.7ft	45.9ft	49.2ft	52.5ft	55.8ft	59.1ft	62.3ft	65.6ft
6548lx	1637lx	728lx	409lx	262lx	182lx	134lx	102lx	81lx	65lx	54lx	45lx	39lx	33lx	29lx	26lx	23lx	20lx	18lx	16lx
608.4fc	152.1fc	67.6fcd	38fcd	24.3fcd	16.9fcd	12.4fcd	9.5fcd	7.5fcd	6.1fcd	5fcd	4.2fcd	3.6fcd	3.1fcd	2.7fcd	2.4fcd	2.1fcd	1.9fcd	1.7fcd	1.5fcd

Intensities in 0° c-plane

0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°
6548	6523	6438	6286	6072	5795	5437	5003	4516	4005	3487	3008	2573	2179	1831	1522	1255	992	734	504
100%	100%	98%	96%	93%	88%	83%	76%	69%	61%	53%	46%	39%	33%	28%	23%	19%	15%	11%	8%

Intensities in 90° c-plane

0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°
6548	6529	6441	6285	6063	5773	5400	4960	4484	3986	3482	3019	2590	2197	1845	1538	1279	1022	770	540
100%	100%	98%	96%	93%	88%	82%	76%	68%	61%	53%	46%	40%	34%	28%	23%	20%	16%	12%	8%

Intensities in 180° c-plane

0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°
6548	6502	6394	6219	5980	5687	5336	4921	4453	3963	3471	2997	2567	2190	1847	1540	1277	1033	787	552
100%	99%	98%	95%	91%	87%	81%	75%	68%	61%	53%	46%	39%	33%	28%	24%	20%	16%	12%	8%

Intensities in 270° c-plane

0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°
6548	6507	6394	6225	5999	5718	5380	4969	4497	3994	3485	3014	2573	2182	1839	1525	1255	996	746	518
100%	99%	98%	95%	92%	87%	82%	76%	69%	61%	53%	46%	39%	33%	28%	23%	19%	15%	11%	8%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
20.8°	36.9°	42.4°	1.0%	1.0%

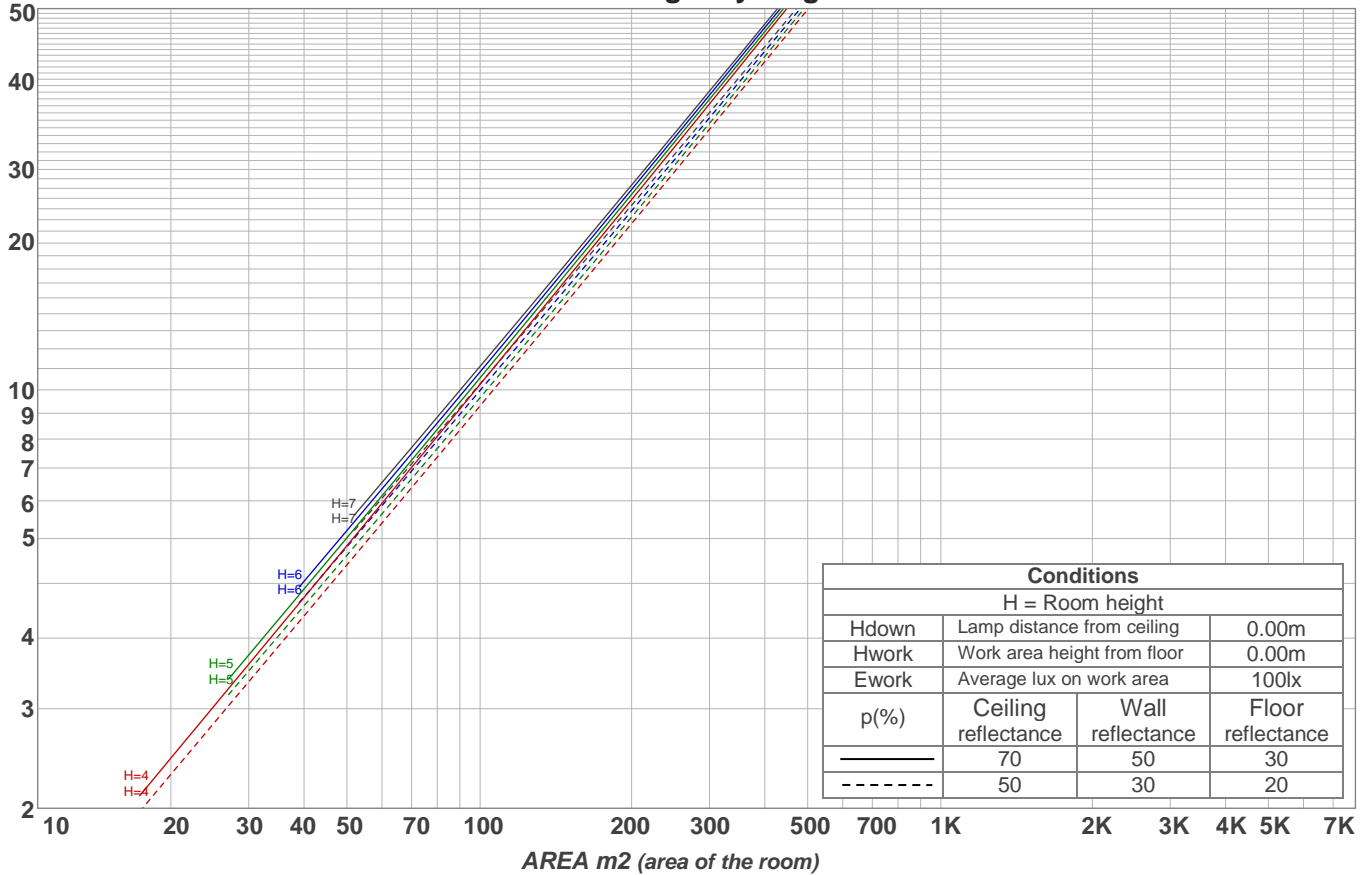
Light planning

Coefficients of Utilization

Ceiling reflectance	80				70				50			30			10			0
Wall reflectance	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
Floor reflectance	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	0
RCR	(RCR: Room Cavity Ratio)																	
	Room Values are expressed as percentage of Lumens delivered to the task surface																	
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	115	113	111	109	113	111	109	108	107	106	104	103	102	101	100	99	98	97
2	112	108	105	103	110	107	104	102	104	102	100	101	99	98	98	97	96	94
3	109	104	101	98	107	103	100	98	101	98	96	98	96	95	96	95	93	92
4	106	101	98	95	104	100	97	94	98	95	93	96	94	92	95	93	91	90
5	103	98	95	92	102	97	94	91	96	93	91	94	92	90	93	91	89	88
6	101	96	92	89	100	95	92	89	94	91	89	93	90	88	91	89	87	87
7	99	93	90	87	98	93	89	87	92	89	87	91	88	86	90	88	86	85
8	97	91	88	85	96	91	87	85	90	87	85	89	86	85	88	86	84	83
9	95	89	86	84	94	89	86	83	88	85	83	88	85	83	87	85	83	82
10	93	88	84	82	93	87	84	82	87	84	82	86	83	82	86	83	81	81

LAMPS (number of lamps)

Luminaire budgetary diagram



Zonal Lumen Summary

