

Report No.: 103821-7001

Test Time: 22.05.2017 08:30

## Luminaire Property

Luminaire Manufacturer:

Luminaire Category: LED-MML

Lamp Catalog: LED-MML-M9R-12-CW

Number of Lamps: 1

Luminous Length (mm): 400

Luminous Height (mm): 60

Current: 0.691 A

Power Factor: 0.699

Luminaire Description: LED-MML

Lamp Description: LED-MML-M9R-12-CW

Lumens per Lamp: 1100

Luminous Width (mm): 60

Voltage: 23.7 V

Power: 11.48 W

## Photometric Results

CIE Class: Direct

Measurement Flux: 1095.1 lm

Downward Ratio: 98.60%

Field Angle: H154.4 V144.8

Luminaire Efficacy Rating (LER): 95

Max. Intensity: 443.18 cd

Total Rated Lamp Lumens: 1100.0 lm

Efficiency: 99.56%

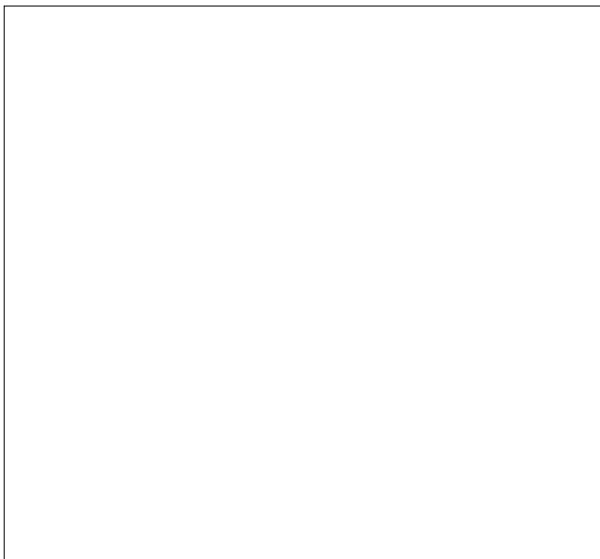
Upward Ratio: 0.96%

Beam Angle: H114.2 V87.1

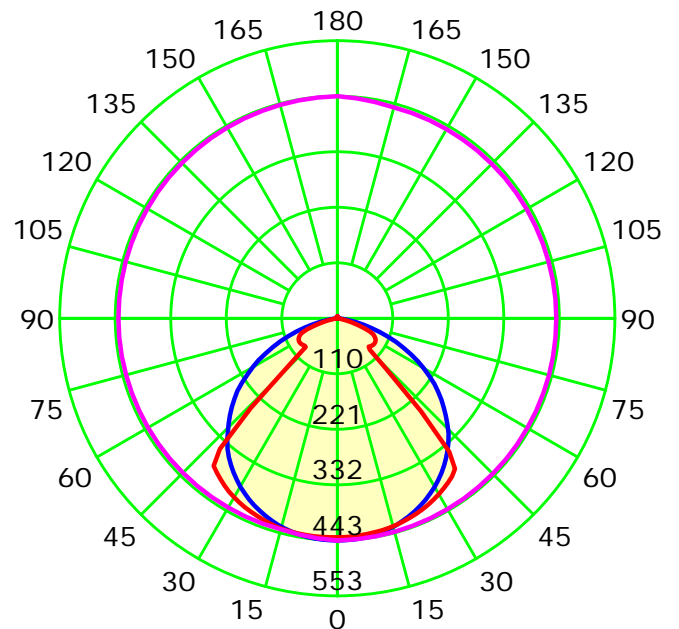
Central Intensity: 443.17 cd

Pos of Max. Intensity: H0 V0

Picture Of Luminaire



Luminous Intensity Distribution Curve



Average Diffuse Angle(50%): 100.6° <sup>Unit: cd</sup>

— C0-C180 — C90-C270 — G0

C Plane (°):0.0-360.0: 15.0

Test Lab: Metolight

Test Type: TYPE C

Temperature: 22,4

Operator: BFR

Gamma Plane (°):0.0-180.0:2.0

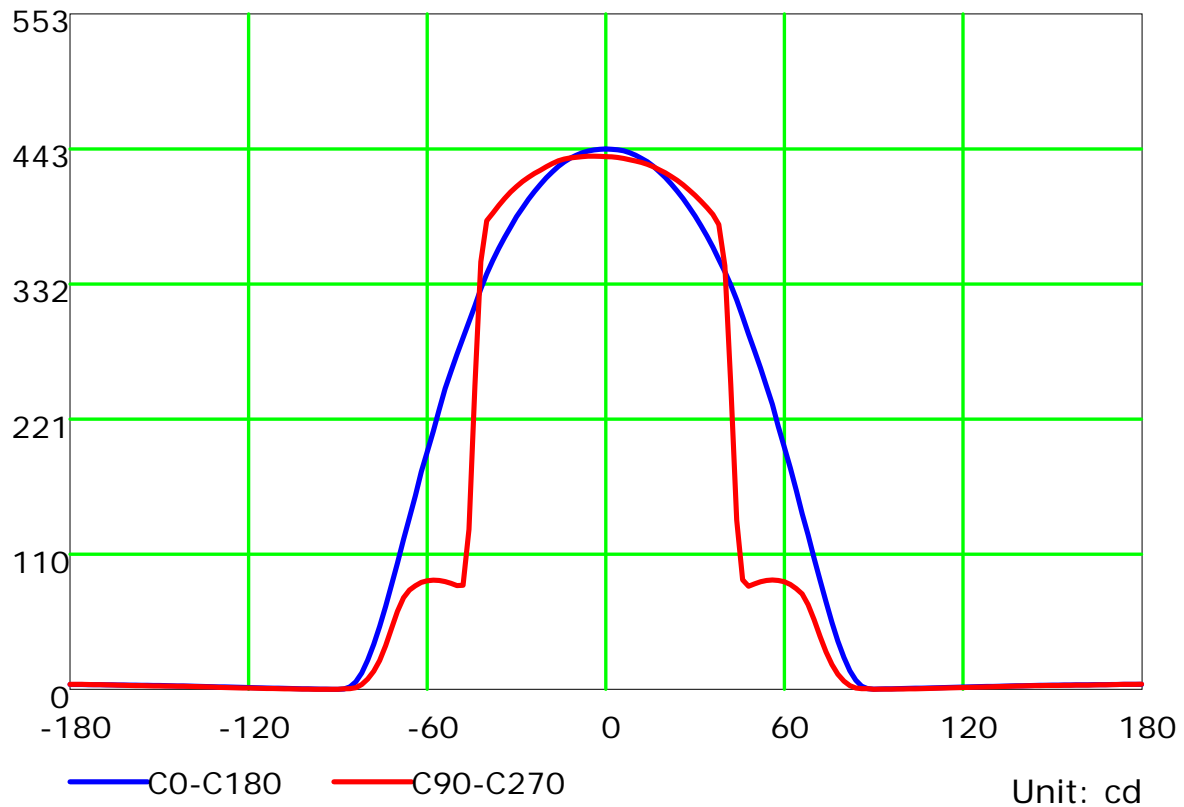
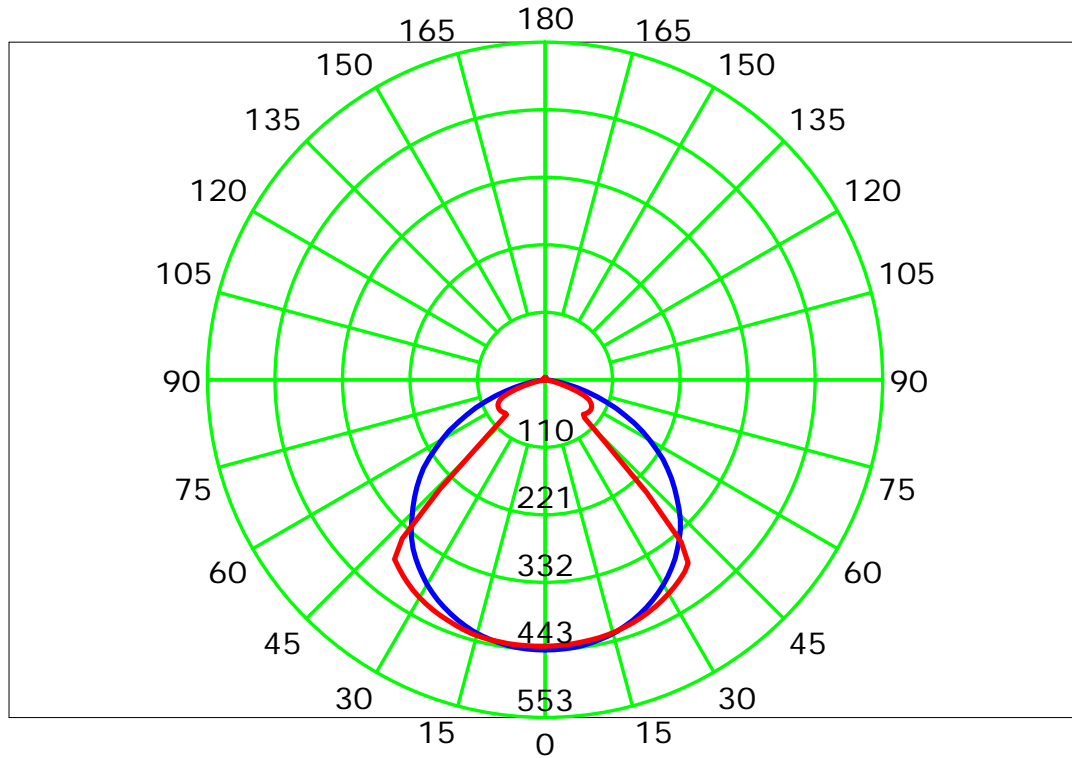
Test Device: LSG-1800B

Distance: 6.500 m

Humidity: 45,6

Inspector:

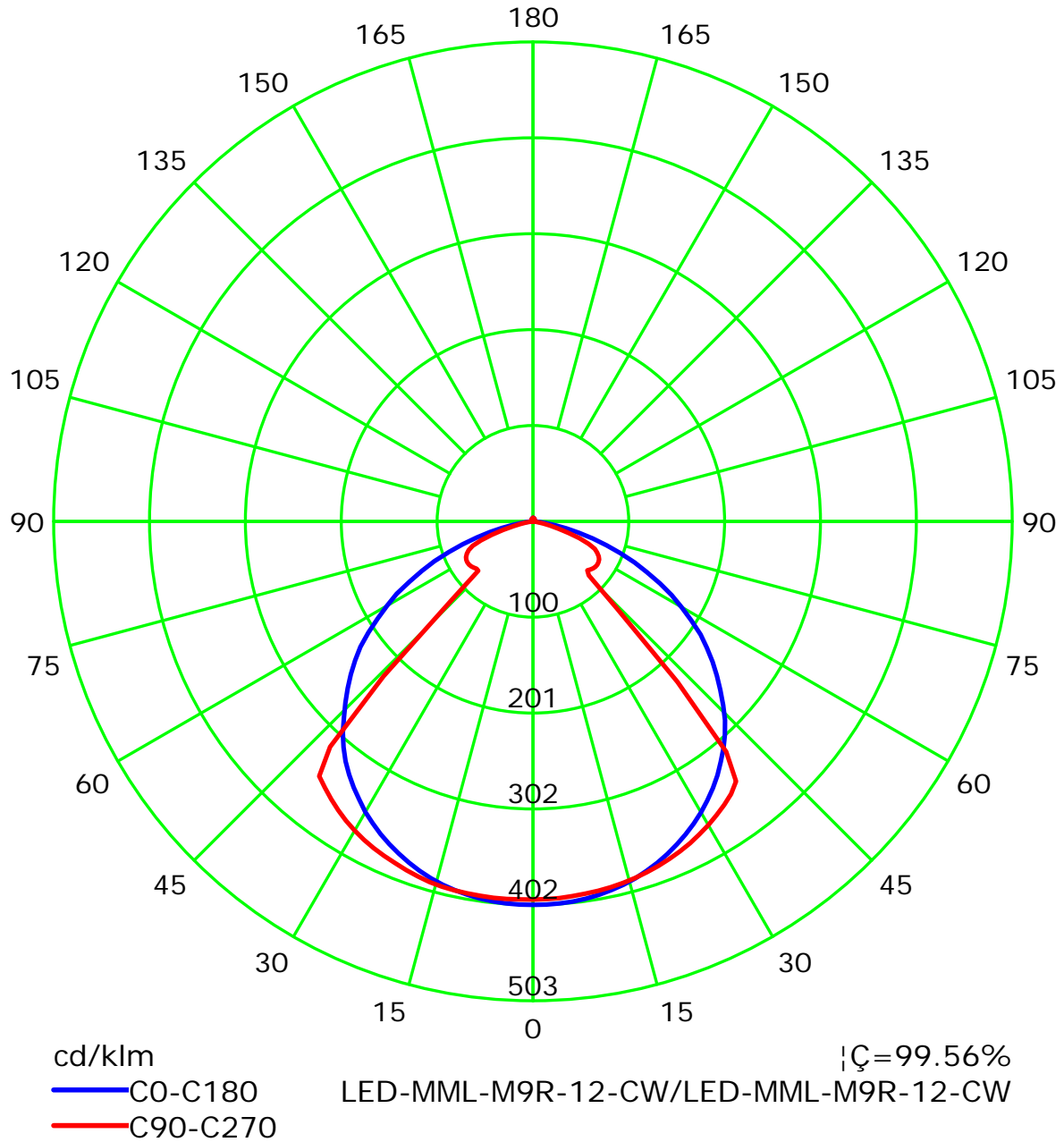
## Luminous Intensity Distribution Curve



C Plane (°): 0.0-360.0: 15.0  
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 Test Type: TYPE C  
 Temperature: 22,4  
 Operator: BFR

Gamma Plane (°): 0.0-180.0: 2.0  
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 Humidity: 45,6  
 Inspector:

## Luminous Intensity Distribution Curve(cd/klm)



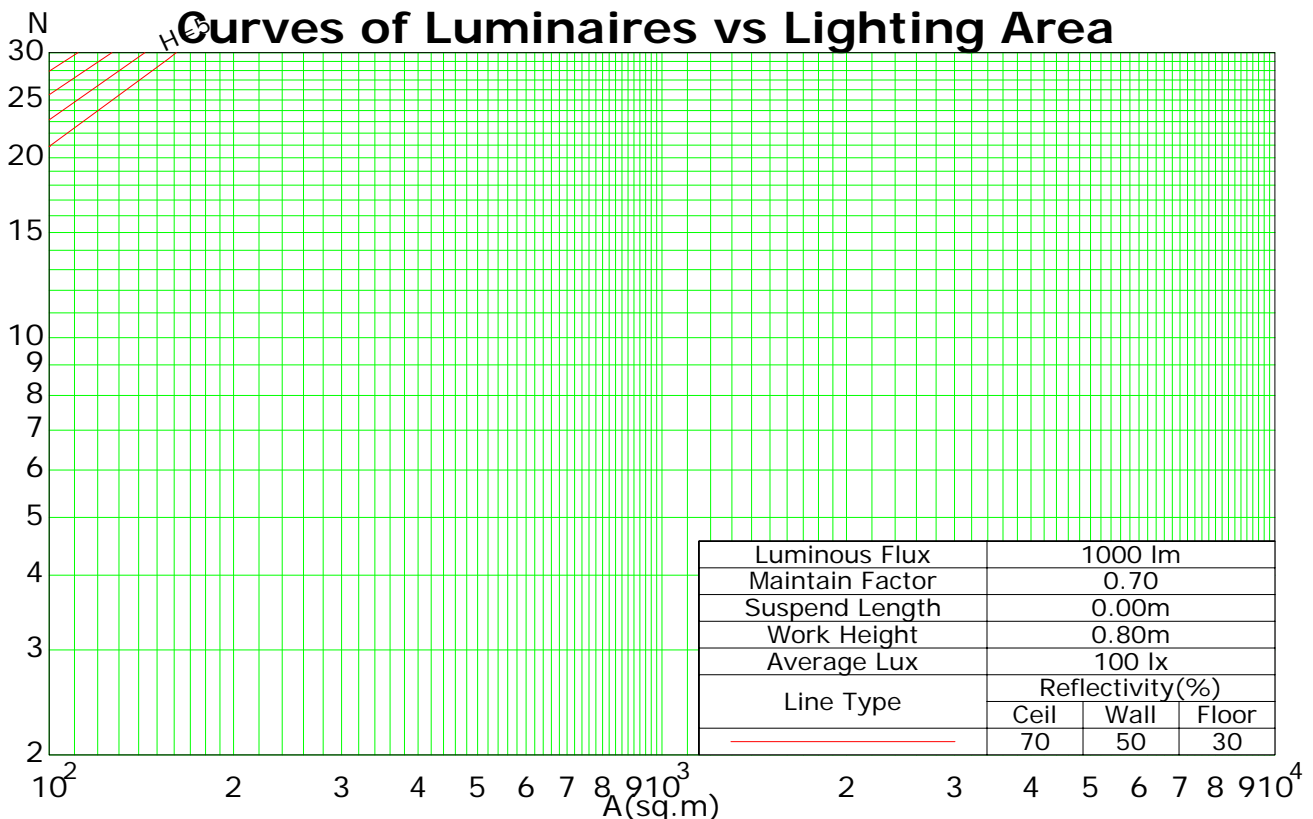
C Plane (°): 0.0-360.0: 15.0  
 Test Lab: Metolight  
 Test Type: TYPE C  
 Temperature: 22,4  
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## Coefficients Of Utilization - Zonal Cavity Method

RC	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.5	0.5	0.5	0.3	0.3	0.3	0.1	0.1	0.1	0
RW	0.7	0.5	0.3	0.1	0.7	0.5	0.3	0.1	0.5	0.3	0.1	0.5	0.3	0.1	0.5	0.3	0.1	0
RCR	RF = 0.2																	
0	118	118	118	118	115	115	115	115	110	110	110	105	105	105	101	101	101	99
1	110	106	102	99	107	103	100	97	99	96	94	95	93	91	91	90	88	86
2	101	94	88	83	98	92	86	82	88	84	80	85	81	78	82	79	76	74
3	93	83	76	70	90	82	75	70	79	73	68	76	71	67	73	69	66	64
4	86	75	67	61	83	73	66	60	71	64	59	68	63	58	66	61	58	55
5	79	67	59	53	77	66	58	53	64	57	52	62	56	51	60	55	51	49
6	73	61	53	47	71	60	52	46	58	51	46	56	50	45	55	49	45	43
7	68	55	47	41	66	55	47	41	53	46	41	51	45	41	50	44	40	38
8	63	51	43	37	62	50	42	37	49	42	37	47	41	36	46	40	36	34
9	59	47	39	33	58	46	38	33	45	38	33	44	37	33	43	37	33	31
10	56	43	35	30	54	42	35	30	41	35	30	40	34	30	40	34	30	28

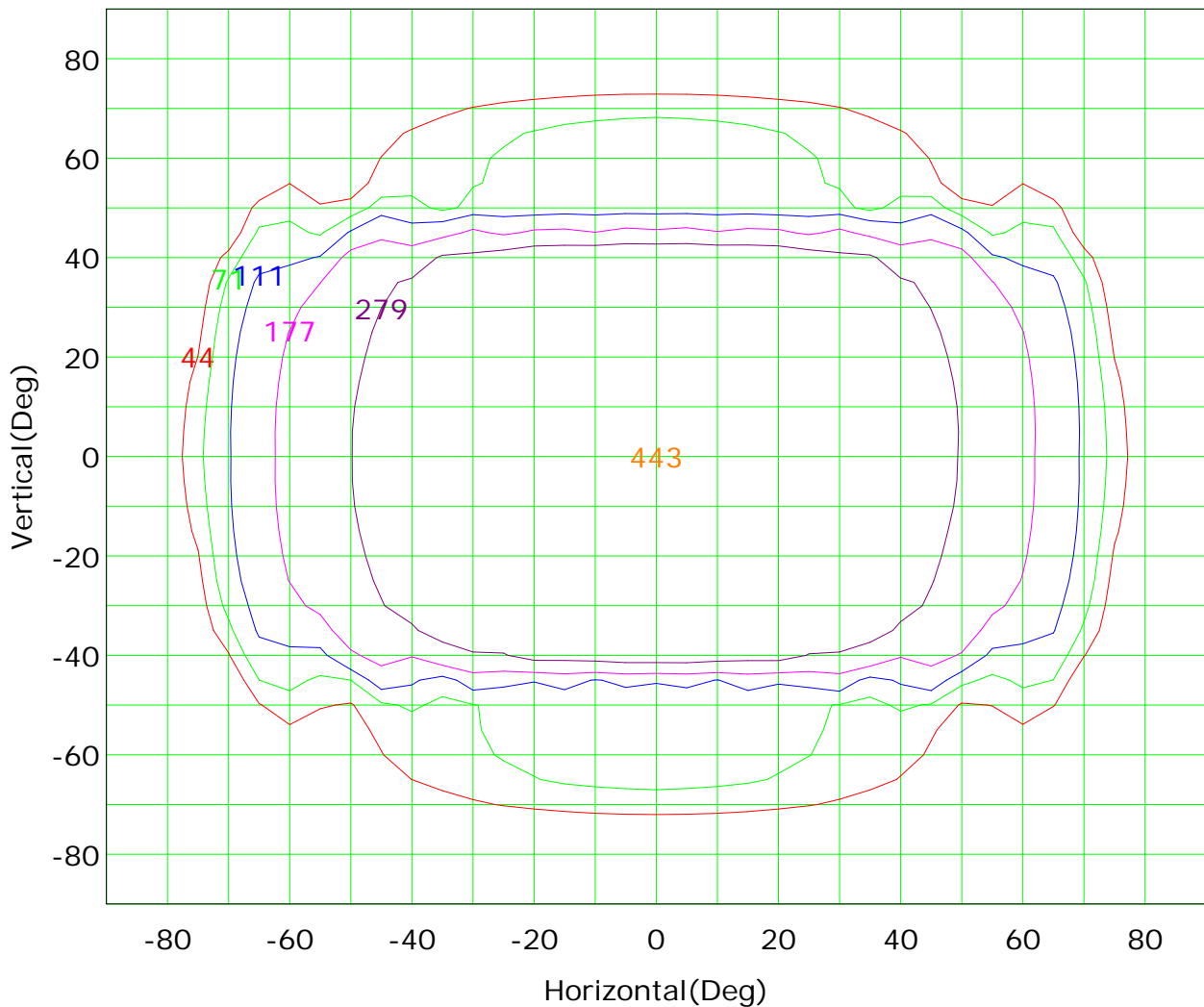
Spacing Criteria (0-180): 1.30  
 Spacing Criteria (90-270): 1.40  
 Spacing Criteria (Diagonal): 1.47



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 Inspector:

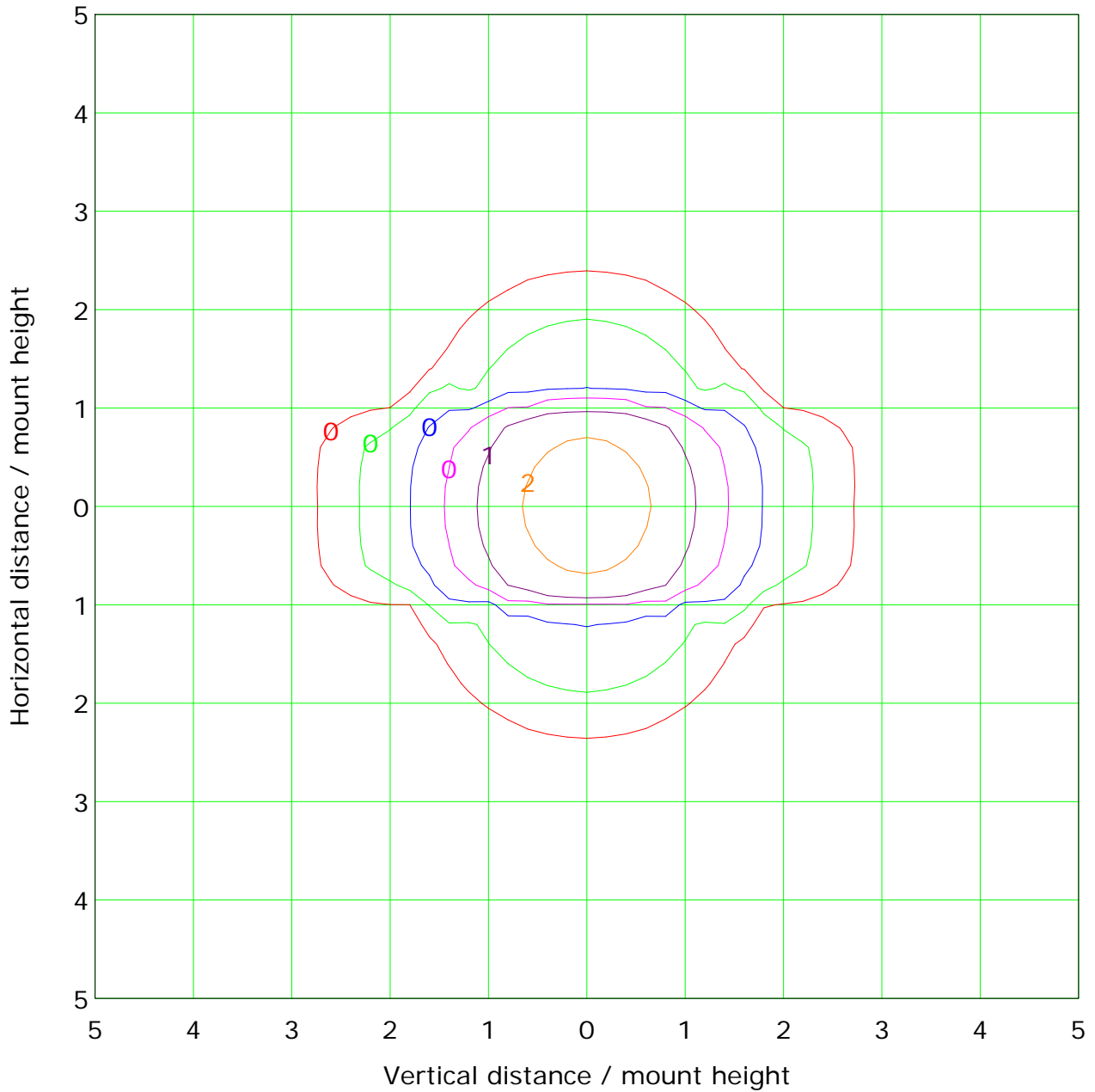
## Isocandela (rectangle)



Imax (100%): 443 cd

— ( 10%):	44 cd	— ( 16%):	71 cd
— ( 25%):	111 cd	— ( 40%):	177 cd
— ( 63%):	279 cd	— (100%):	443 cd

## IsoLux Plot



Mounting Height: 10.0m		Max Lux(100%): 4.4 lx	
— ( 1%):	0.0 lx	— ( 2%):	0.1 lx
— ( 5%):	0.2 lx	— (10%):	0.4 lx
— (20%):	0.9 lx	— (50%):	2.2 lx
— (100%):	4.4 lx		

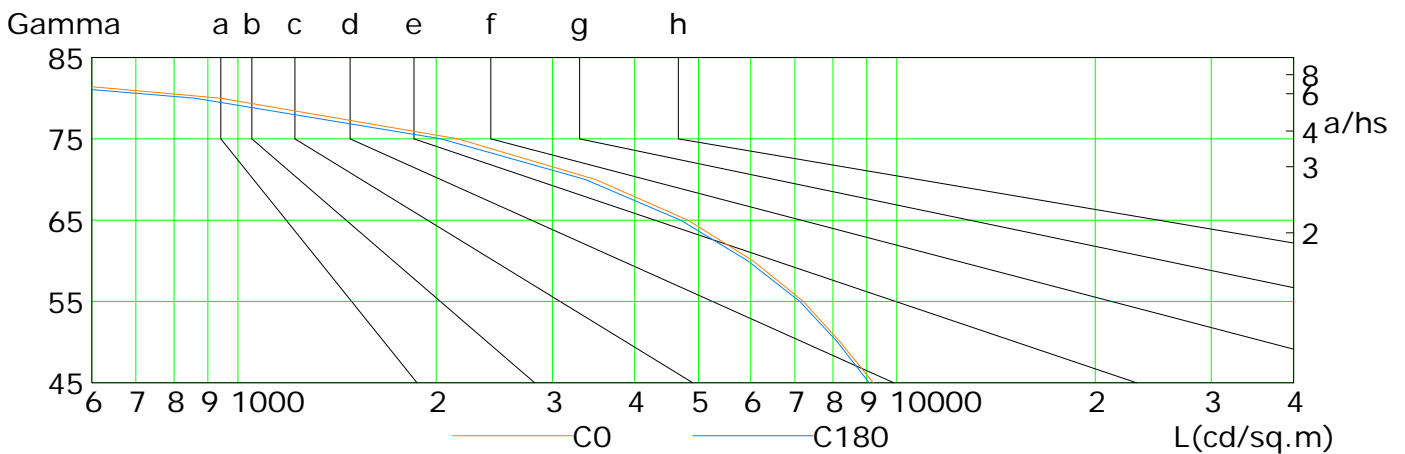
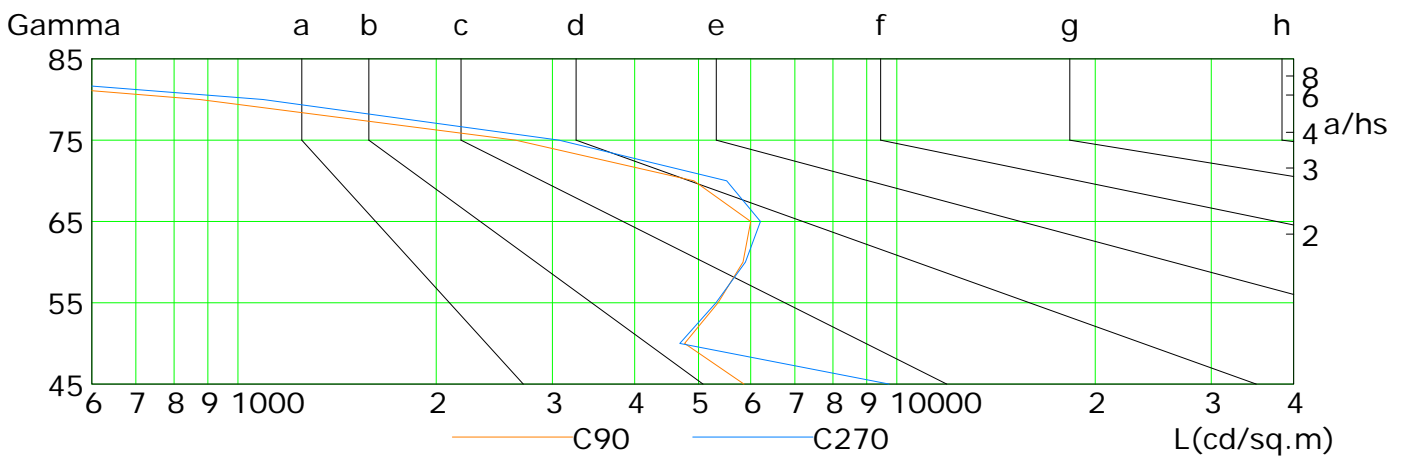
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 Humidity: 45,6  
 Inspector:

## Lum Limit Curve

Dazzle	Quality	Illuminance (lx)								
		2000	1000	500	<=300					
1.15	A									
1.50	B		2000	1000	500	<=300				
1.85	C			2000	1000	500	<=300			
2.20	D				2000	1000	500	<=300		
2.55	E					2000	1000	500	<=300	

a b c d e f g h

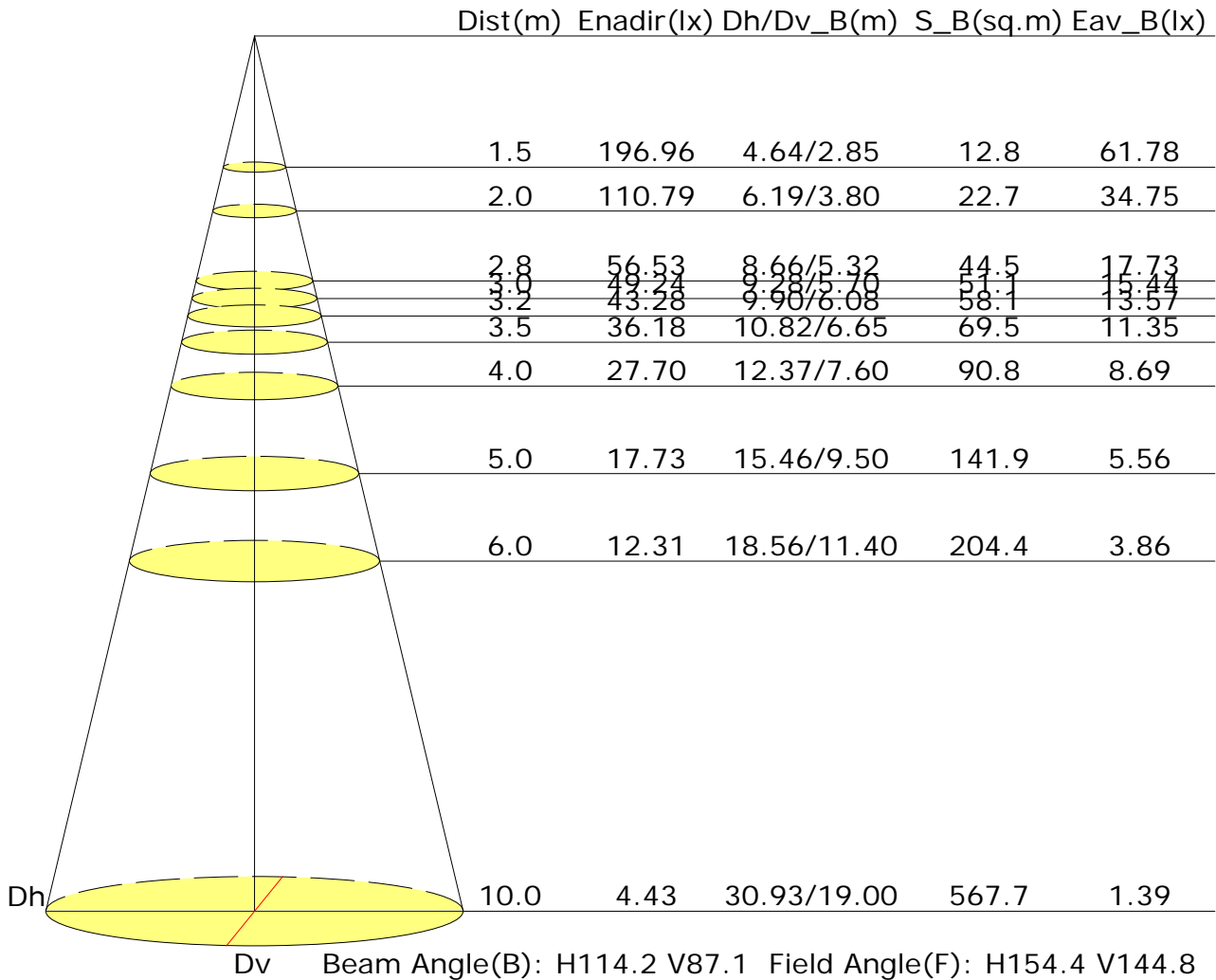


L(cd/sq.m)	G45	G50	G55	G60	G65	G70	G75	G80	G85
C0	9209	8207	7213	6051	4818	3488	2158	942	195
C90	5860	4763	5353	5841	6000	4921	2639	875	157
C180	9076	8129	7124	5938	4697	3366	2034	861	158
C270	9732	4683	5316	5890	6209	5517	3072	1092	179

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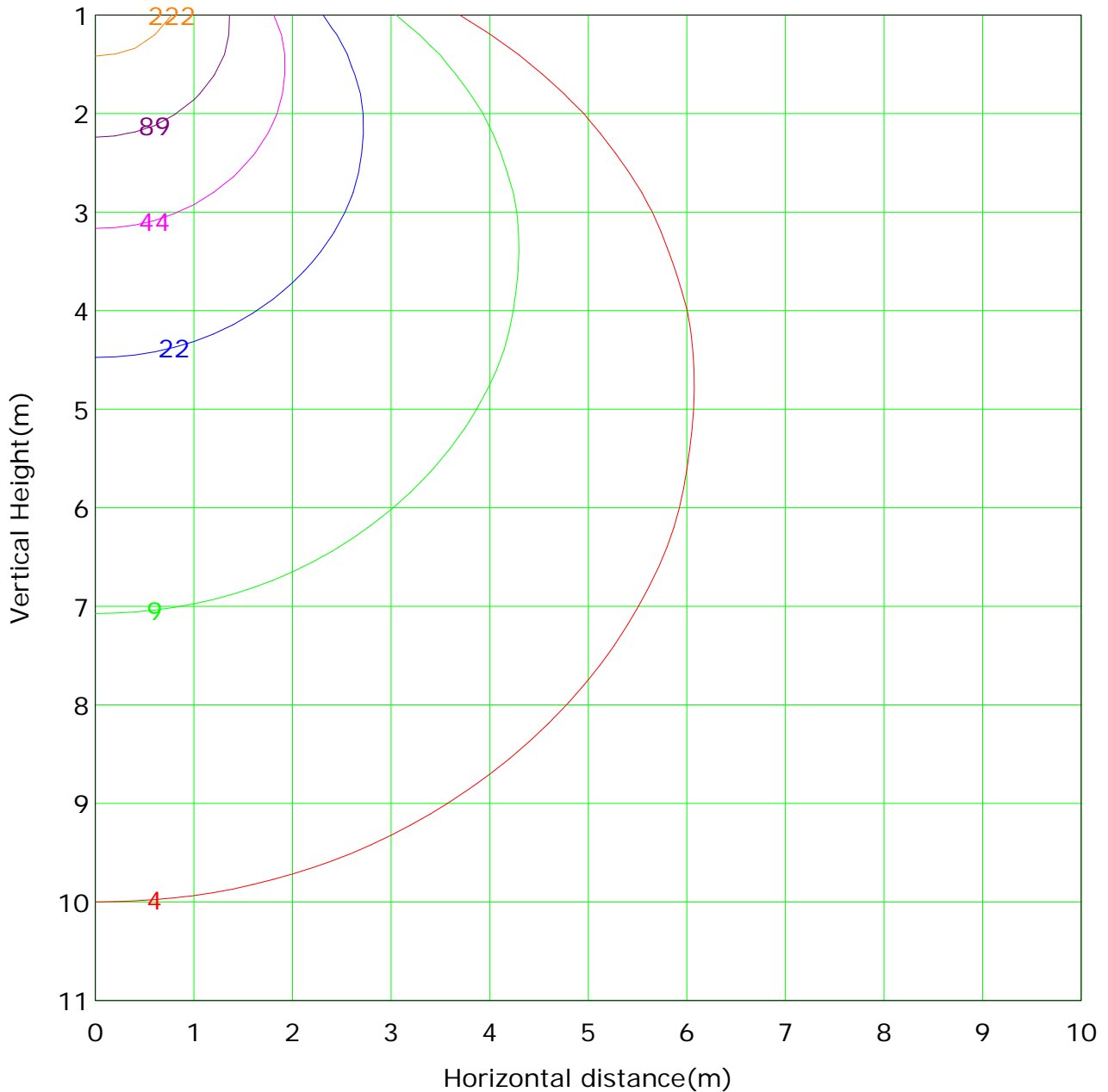
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 Test Device: LSG-1800B  
 Distance: 6.500 m  
 Humidity: 45,6  
 Inspector:

## Illuminance at a Distance





## Vertical IsoLux Plot



Lowest(m): 1.0m	Highest(m): 11.0m	Max Lux: 443.2 lx
— ( 1%): 4.4 lx	— ( 2%): 8.9 lx	
— ( 5%): 22.2 lx	— ( 10%): 44.3 lx	
— ( 20%): 88.6 lx	— ( 50%): 221.6 lx	
— (100%): 443.2 lx		

C Plane (°):0.0-360.0: 15.0  
 Test Lab: Metolight  
 Test Type: TYPE C  
 Temperature: 22,4  
 Operator: BFR

Gamma Plane (°):0.0-180.0:2.0  
 Test Device: LSG-1800B  
 Distance: 6.500 m  
 Humidity: 45,6  
 Inspector:

**Area Flux Table**

		Vertical plane																				
		-90	-80	-70	-60	-50	-40	-30	-20	-10	0	10	20	30	40	50	60	70	80	90		
Flux(E)	Flux(T)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Flux(E)	Flux(T)
		2.4	3.7	17.0	34.9	59.6	82.2	102.3	117.1	124.6	124.6	117.1	1102.5	82.3	60.0	35.2	17.2	3.8	0.2	1084		
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1059	
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1059	
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1059	
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1059	
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1059	
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1059	
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1059	
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1059	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1059	
0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1059	
-10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1059	
-20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1059	
-30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1059	
-40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1059	
-50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1059	
-60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1059	
-70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1059	
-80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1059	
-90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1059	

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 Humidity: 45,6  
 Inspector:

## UGR Table

Reflectance:										
Ceiling (cavity)	0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall	0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Reference 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	20.9	22.4	21.3	22.7	23.1	12.5	14.0	12.9	14.3	14.7
3H	22.3	23.6	22.7	24.0	24.4	14.6	15.9	15.0	16.2	16.6
4H	22.6	23.8	23.0	24.2	24.6	14.8	16.0	15.2	16.4	16.8
6H	22.6	23.7	23.0	24.1	24.5	14.8	15.9	15.2	16.3	16.7
8H	22.6	23.7	23.0	24.1	24.5	14.8	15.8	15.2	16.2	16.7
12H	22.6	23.6	23.0	24.0	24.4	14.7	15.7	15.2	16.2	16.6
X=4H Y=2H	20.8	22.0	21.2	22.4	22.8	12.9	14.2	13.4	14.5	14.9
3H	22.2	23.2	22.6	23.6	24.1	15.2	16.2	15.6	16.6	17.0
4H	22.5	23.4	22.9	23.8	24.3	15.4	16.4	15.9	16.8	17.3
6H	22.5	23.3	23.0	23.7	24.2	15.5	16.3	15.9	16.7	17.2
8H	22.5	23.2	23.0	23.7	24.2	15.4	16.2	15.9	16.6	17.1
12H	22.5	23.1	23.0	23.6	24.1	15.4	16.0	15.9	16.5	17.0
X=8H Y=4H	22.4	23.1	22.9	23.6	24.1	15.5	16.3	16.0	16.7	17.2
6H	22.4	23.0	22.9	23.5	24.0	15.5	16.1	16.1	16.7	17.2
8H	22.4	22.9	22.9	23.5	24.0	15.5	16.0	16.0	16.6	17.1
12H	22.4	22.8	22.9	23.3	23.9	15.5	15.9	16.0	16.5	17.0
X=12H Y=4H	22.4	23.0	22.9	23.5	24.0	15.5	16.2	16.0	16.7	17.2
6H	22.4	22.9	22.9	23.4	24.0	15.5	16.1	16.1	16.5	17.1
8H	22.4	22.8	22.9	23.3	23.9	15.5	16.0	16.0	16.5	17.1

Calculate in accordance with CIE 190:2010

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