

Light Measurement Report

Print date: 2024-04-26
Measurement date and time: 2024-04-26 1:07:04 PM – Measurement no. TR-0067-240426
Operator: NC
SKU: I24VCHAMBC27604802835 - 2700k & 6000k Combined



Laboratory and Equipment

Laboratory Owner and Location	Moss LED, Toronto, Ontario, Canada
Goniospectrometer System and Type	BaseSpion – Type C, horizontal
Sensor Name, Calibr. Date and Serial No.	BaseSensor – 2023-06-27 – 2807073281
Spectrometer Manufacturer and Model	Ibsen Photonics, Denmark – Freedom VIS (Custom Viso)

Measurement Conditions

Number of C-planes and Resolution	12 planes – 30°
γ (gamma)-Resolution	5°
Test Distance	4.50 m
Input Power per 1 meter	15.1 W
Input RMS Voltage and Current per 1 meter	24.0 V – 0.630 A
Frequency of Input Power	0 Hz

Tested Light Source

Product Name (-type of measurement if applicable)	I24VCHAMBC27604802835-WW+CW
Manufacturer	MossLED Inc.
Description and colour tested	96 lpm, WW+CW

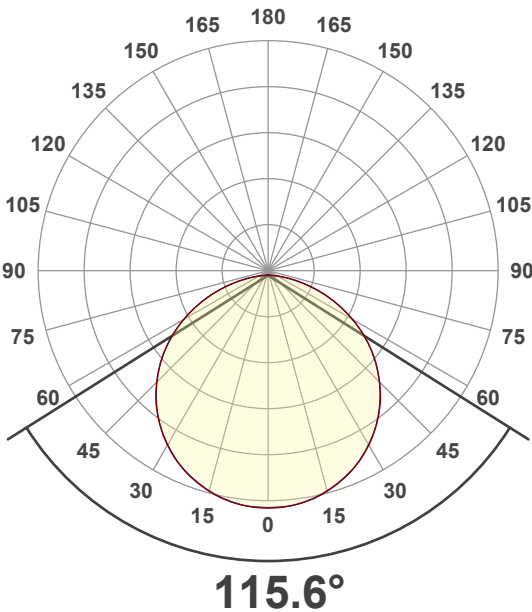
Main Light Measurement Results

Total Lumen Output per 1 meter	1580 lm
Efficiency (tested at 1 meter)	104 lm/W
Peak Intensity and Beam Angle	531 cd – 115.6°
Correlated Color Temperature, Target/Measured	CCT = 3899 K / 3899 K
Color Rendering Index	CRI 95
Color Rendering TM30-18	R _f 91.8 – R _g 100.9
Color Shift, CIE duv and MacAdam Steps	Duv -0.0045 – SDCM n/a
Flicker	SVM n/a – PstLM n/a

Product picture



50% Beam angle (absolute values)



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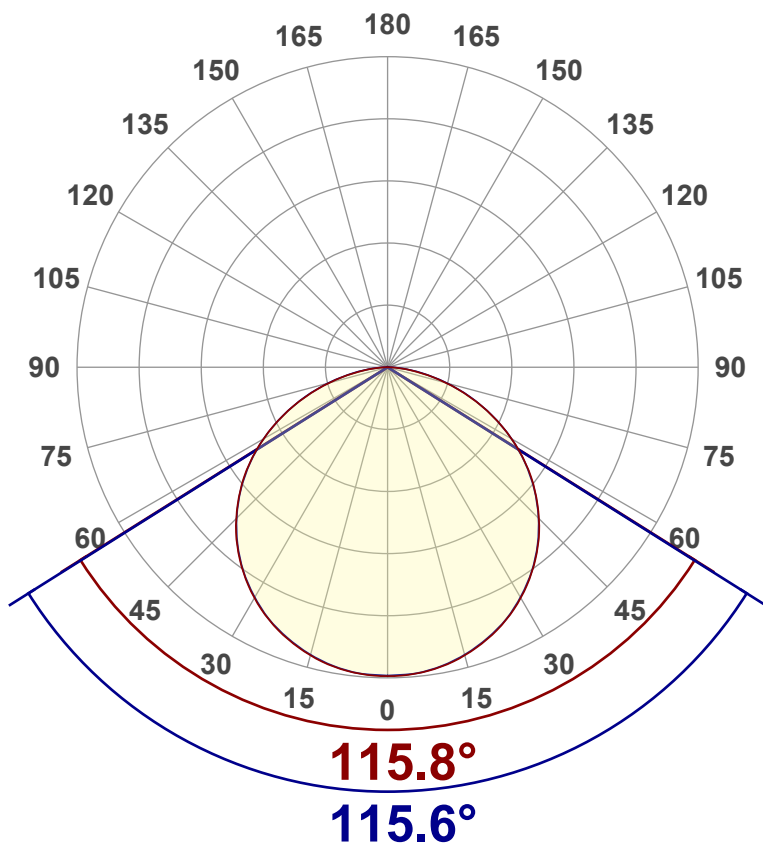
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Luminous Intensity diagram

Unit: 0-100% of peak intensity



Main Values

Output/m (total Lumen)	1580 lm
Lumen Up% / Down%	0.84% / 99.16%
Peak Intensity	531 cd
Beam Angle (50%)	115.6°
Beam Angle (90%)	115.6°
Beam Angle (10%)	115.8°

Cut-off Angle

Average 2,5%	174.3°
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Field Angle

Average 10%	162.3°
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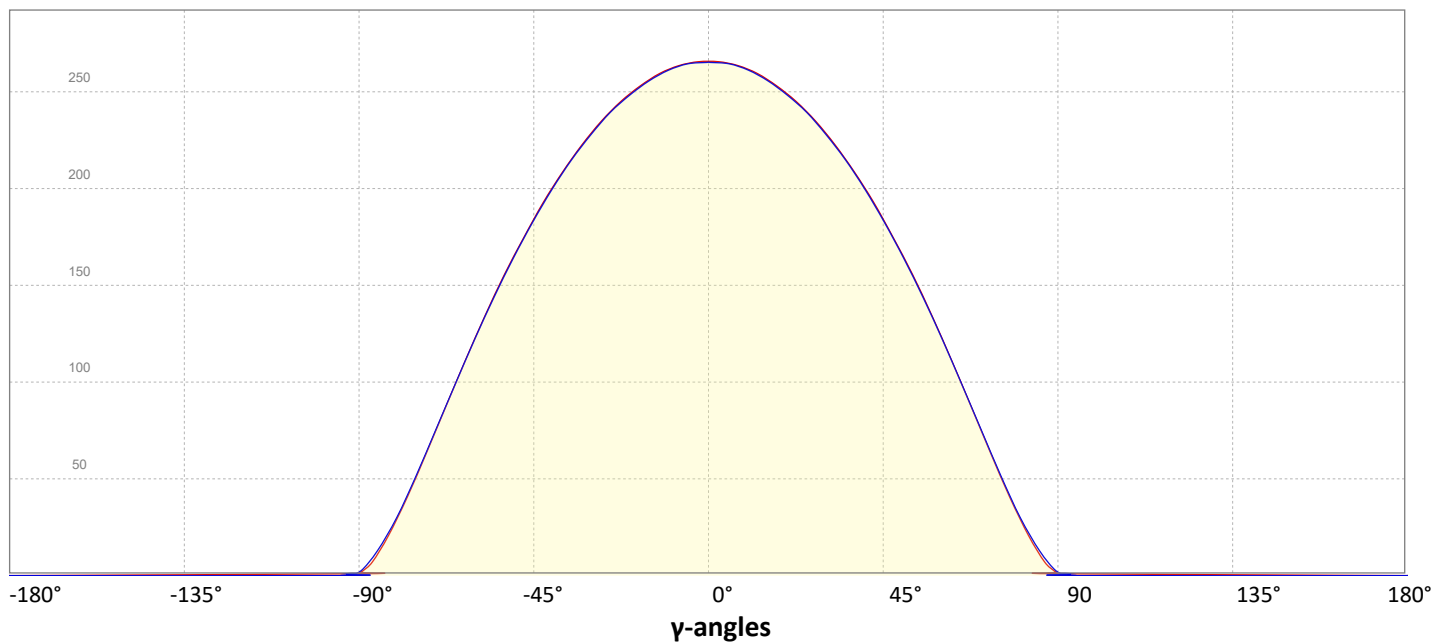
Intensity Ratio

In 120° cone	77.7%
In 90° cone	52.4%

C000-C180

C090-C270

Linear distribution diagram - Intensity (candela) vs γ-angle



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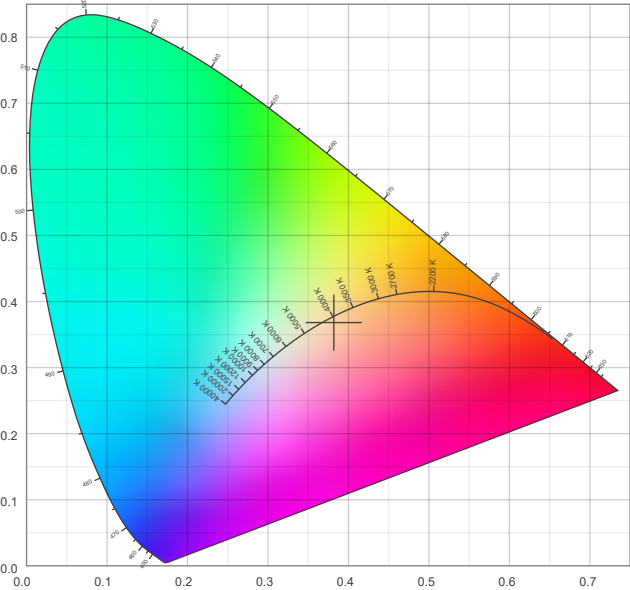


Color details

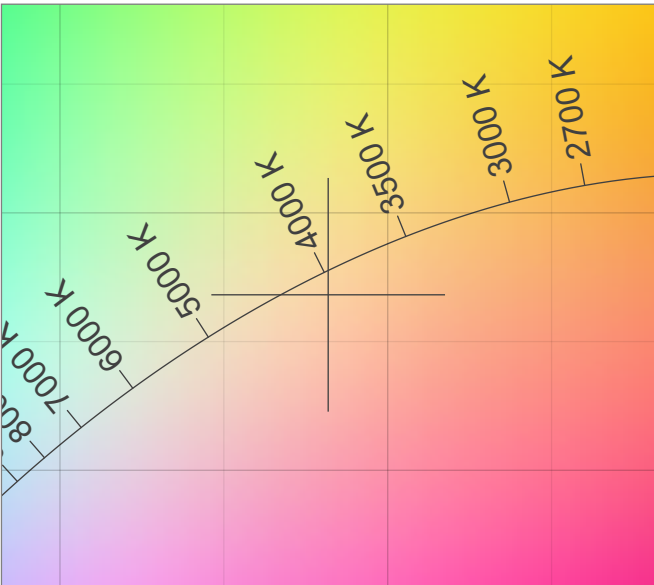
Correlated Color Temperature, Target CCT = 3899 K
Correlated Color Temperature, Measured CCT = 3899 K
Color Rendering Index CRI 95
Color Rendering Index, R9 (red component) R9 = 81.2
Color Rendering TM30-18 R_f 91.8 – R_g 100.9
Color Quality Scale CQS = 95.7

MacAdam Steps
Color coordinates CIE 1931 (x;y) = (0.382;0.368)
Color coordinate CIEs 1960 (u;v) = (0.230;0.332)
Color deviation from BBL Duv = -0.0045
Color coordinate CIEs 1976 (CIELUV) (u';v') = (0.230;0.498)

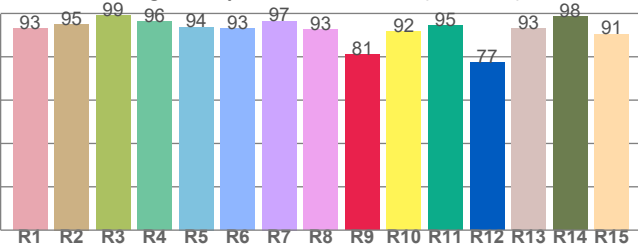
CIE 1931



CIE 1931 – zoomed on Planckian locus



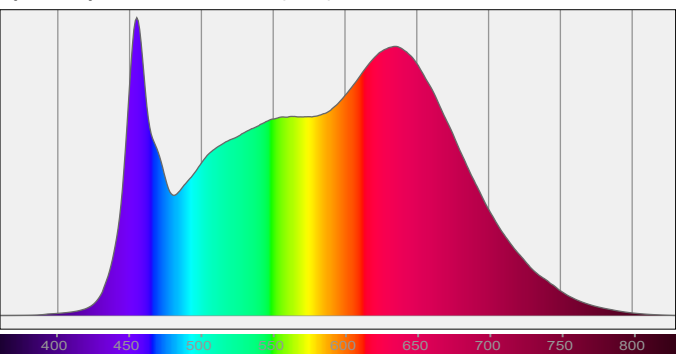
Color Rendering Index per reference color (CIE 1995)



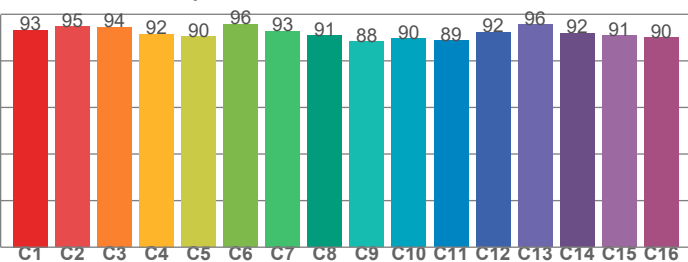
CRI R values, only R1-R8 are used to calculate final CRI value

R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
92.9	95.1	98.9	96.1	93.8	93.1	96.6	92.7	81.2	91.6	94.6	77.3	93.0	98.5	90.5

Spectral power distribution (SPD) – 0-100%



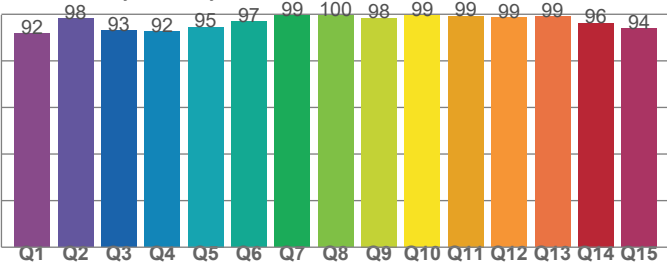
TM30-18 R_f-values per hue bin



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
93.2	94.8	94.4	91.5	90.4	95.7	92.8	90.8	88.2	89.5	88.7	92.2	95.6	91.8	90.8	90.0

Color Quality Scale by reference color

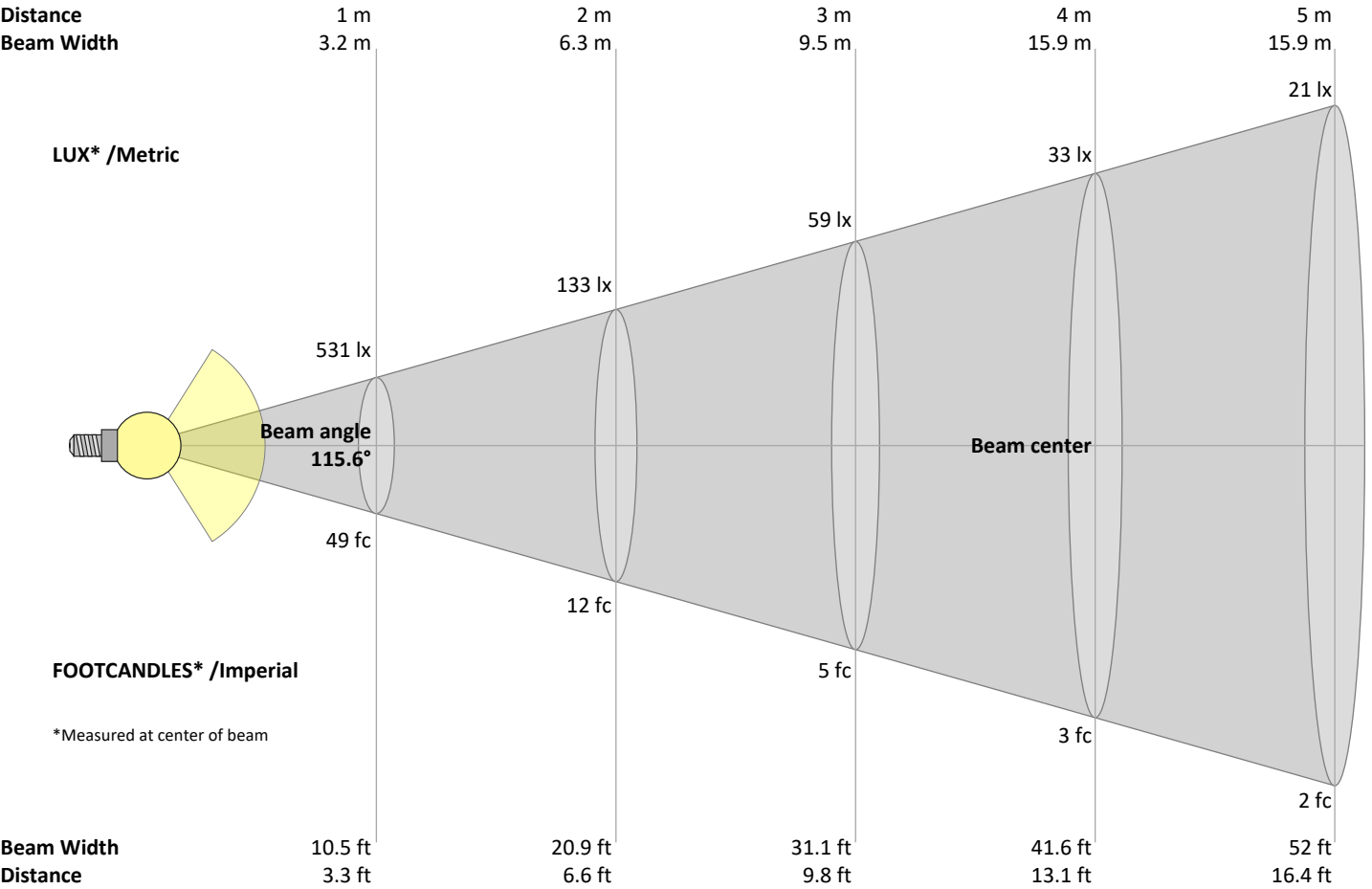


CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
91.7	98.2	93.0	92.5	94.6	96.8	99.5	99.5	98.5	99.4	99.3	98.7	98.9	96.3	93.9

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Beam intensities from 1 – 20 m

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	m
3.3	6.6	9.8	13.1	16.4	19.7	23	26.2	29.5	32.8	36.1	39.4	42.7	45.9	49.2	52.5	55.8	59.1	62.3	65.6	ft
531	133	59	33	21	15	11	8	7	5	4	4	3	3	2	2	2	2	1	1	lux
49.3	12.3	5.5	3.1	2	1.4	1	0.8	0.6	0.5	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.1	fc

Power Details

Input Power

RMS Input voltage feed, V_{RMS}
RMS Input current feed, I_{RMS}
Power feed to light source
Frequency of input power
Power factor of AC current feed

24.0 V
0.630 A
15.1 W
0 Hz
1.0

Efficiency

Radiated power efficiency 39.7%

Lumen efficiency 104 lm/W

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Light Planning – UGR table

Uncorrected, comprehensive UGR table according to 117-1995

Reflectances											
ρ Ceiling		70	70	50	50	30	70	70	50	50	30
ρ Walls		50	30	50	30	30	50	30	50	30	30
ρ Floor		20	20	20	20	20	20	20	20	20	20
Room size		Viewed Crosswise					Viewed Endwise				
H = mounting height above eye level		(Viewing direction orthogonal to lamp length axis)					(Viewing direction parallel to lamp length axis)				
X	Y										
2H	2H	25.8	27.0	26.0	27.3	27.5	27.5	28.7	27.7	29.0	29.2
	3H	26.8	28.0	27.2	28.3	28.5	28.9	30.2	29.3	30.5	30.7
	4H	27.1	28.3	27.5	28.6	28.9	29.5	30.8	30.0	31.0	31.3
	6H	27.4	28.4	27.7	28.7	29.1	30.0	31.1	30.4	31.4	31.8
	8H	27.4	28.4	27.7	28.7	29.2	30.2	31.2	30.5	31.5	31.9
	12H	27.4	28.4	27.7	28.7	29.2	30.2	31.3	30.6	31.6	32.0
4H	2H	26.4	27.6	26.8	27.9	28.1	27.7	29.0	28.1	29.2	29.5
	3H	27.6	28.6	28.0	29.0	29.4	29.5	30.5	29.8	30.8	31.2
	4H	28.0	28.9	28.4	29.3	29.9	30.1	31.0	30.5	31.4	32.0
	6H	28.3	29.1	28.8	29.5	29.9	30.6	31.5	31.1	31.8	32.2
	8H	28.3	29.1	28.8	29.5	29.9	30.7	31.6	31.3	31.9	32.3
	12H	28.3	29.0	28.8	29.4	29.9	30.9	31.5	31.4	32.0	32.4
8H	4H	28.2	29.0	28.7	29.4	29.8	30.1	30.9	30.6	31.3	31.7
	6H	28.6	29.2	29.1	29.7	30.2	30.7	31.4	31.2	31.8	32.4
	8H	28.7	29.2	29.2	29.8	30.4	31.0	31.5	31.5	32.0	32.7
	12H	28.7	29.2	29.3	29.7	30.3	31.1	31.6	31.7	32.1	32.7
12H	4H	28.2	28.9	28.7	29.3	29.8	30.1	30.8	30.6	31.2	31.7
	6H	28.6	29.2	29.1	29.7	30.3	30.7	31.3	31.3	31.8	32.4
	8H	28.7	29.2	29.3	29.7	30.3	31.0	31.4	31.6	31.9	32.5
Variations with the observer position for the luminaire spacings, S:											
S = 1.0H		0.1 / -0.2					0.1 / -0.2				
S = 1.5H		0.3 / -0.5					0.5 / -0.5				
S = 2.0H		0.7 / -1.0					1.0 / -1.1				

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 Lumen delivered to the task surface																
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	101	101	101	99
1	108	104	99	95	106	101	97	94	97	94	91	93	90	88	89	87	85	83
2	98	90	83	77	96	88	82	76	84	79	74	81	77	73	78	74	71	69
3	90	79	71	64	87	77	70	63	74	68	62	71	66	61	69	64	60	58
4	82	70	61	54	80	68	60	54	66	59	53	63	57	52	61	56	51	49
5	75	62	53	46	73	61	53	46	59	51	46	57	50	45	55	49	44	42
6	69	56	47	40	67	55	46	40	53	45	40	51	45	39	50	44	39	37
7	64	51	42	36	63	50	41	35	48	41	35	47	40	35	45	39	34	32
8	60	46	38	32	58	45	37	32	44	37	31	43	36	31	41	35	31	29
9	56	42	34	28	54	42	34	28	40	33	28	39	33	28	38	32	28	26
10	52	39	31	26	51	38	31	26	37	30	26	36	30	25	35	30	25	23