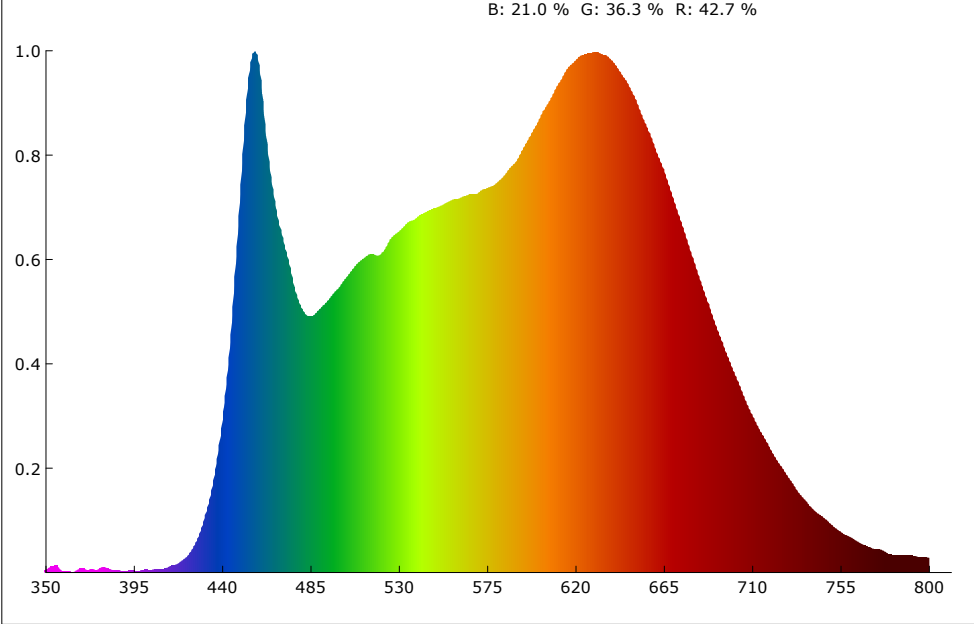
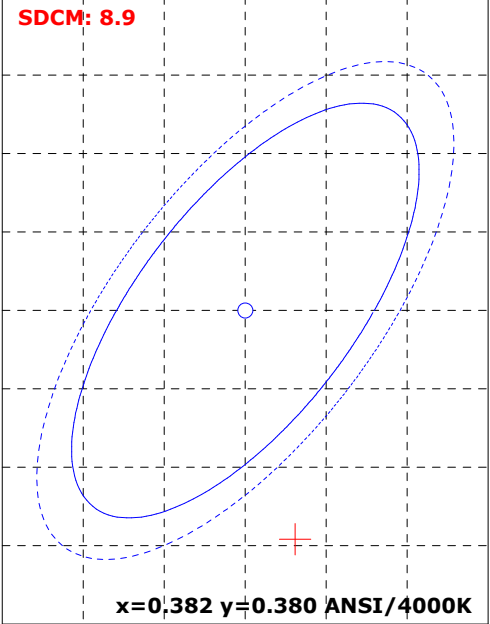


Spectrogram



SDCM



Color Parameter:

x: 0.3849 y: 0.3651 u: 0.2329 v: 0.3313 u': 0.2329 v': 0.4969
R_ratio: 42.7 % G_ratio: 36.3 % B_ratio: 21.0 % RedRatio: 21.8 % GreenRatio: 74.7 % BlueRatio: 3.5 %

Ra: 93.4 AvgR: 91.6
R1: 92.0 R2: 92.8 R3: 96.9 R4: 95.8 R5: 92.3 R6: 89.6 R7: 94.2 R8: 94.3
R9: 85.6 R10: 86.8 R11: 94.7 R12: 77.7 R13: 91.5 R14: 99.0 R15: 91.2

CCT: 3783 K Flux: 10567.127 lm PeakWave: 630.5 nm SDCM: 8.9
S/P: 1.9 CentralWave: 588.1 nm DominantWave: 584.1 nm CentroidWave: 583.1 nm
HalfWidth: 199.8 nm duv: -0.00686 purity: 25.1 % CQS: 88.9
LER(TM-30): 261.9 Ep: 40348.9 mw Rg: 100.1 Rf: 90.2
Red Ep: 16102.2 mw Near red Ep: 2453.8 mw Near infrared Ep: 135.7 mw

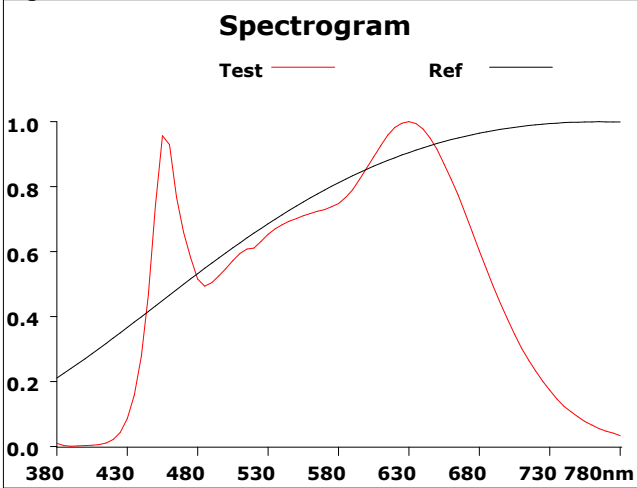
Electrical parameters:

Effic: 35.3 Lm/W Energy: 38.5 Effi: G
U: 221.6 V I: 1.382 A P: 299.000 W Pf: 0.976

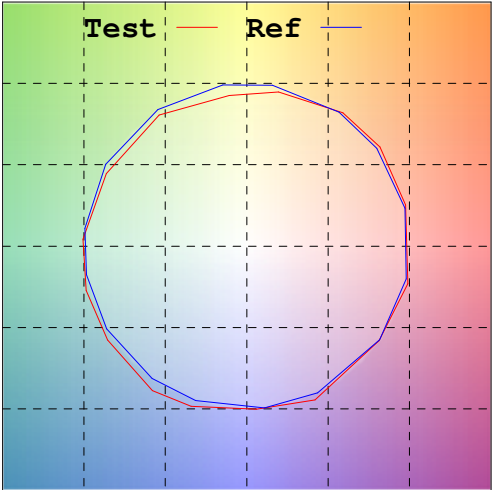
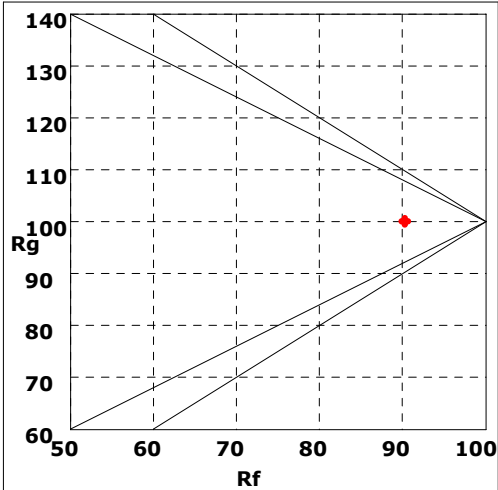
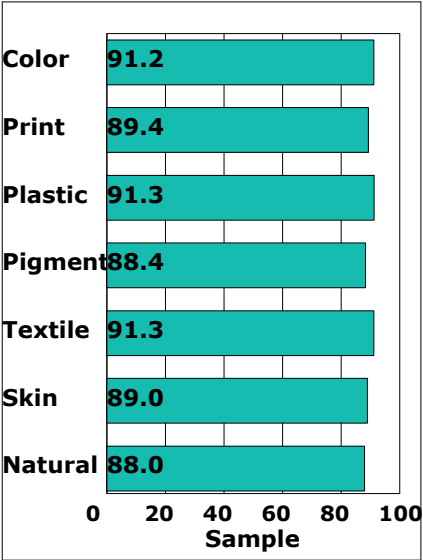
Product model:
Product number:
Tester:
Remarks:

Manufacturer:
Test unit:
Date of observation: 10/12/23

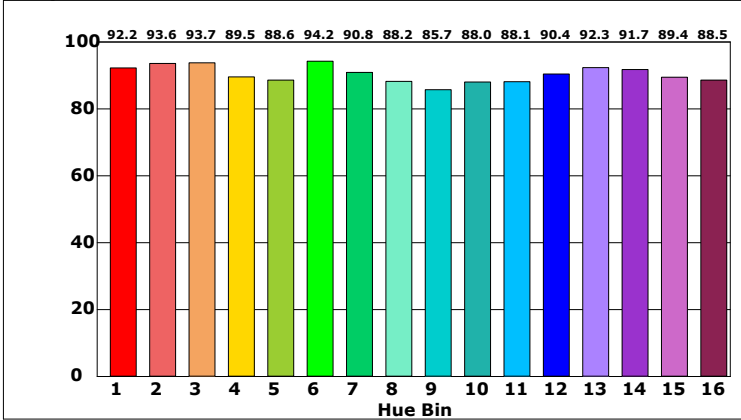
Rf: 90.2 CCT: 3783K u': 0.2329
Rg: 100.1 LER: 261.9 Duv: -0.00686 v': 0.4969



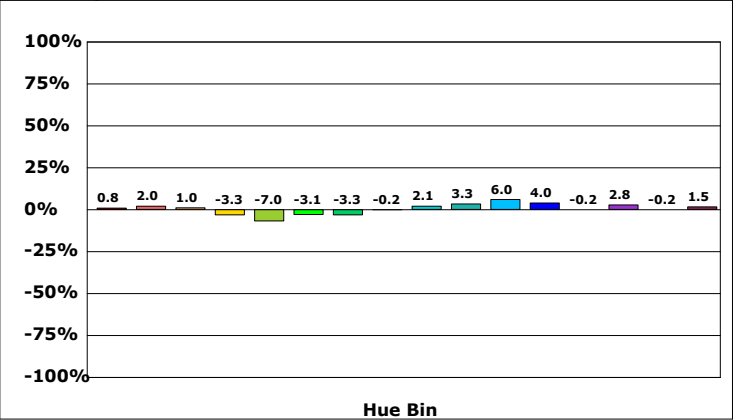
500			
Hue Bin	Rf	Chroma	Hue
1	92.2	0.8%	1.9%
2	93.6	2.0%	-0.5%
3	93.7	1.0%	-2.1%
4	89.5	-3.3%	-4.5%
5	88.6	-7.0%	-2.6%
6	94.2	-3.1%	1.1%
7	90.8	-3.3%	4.5%
8	88.2	-0.2%	6.7%
9	85.7	2.1%	9.4%
10	88.0	3.3%	6.0%
11	88.1	6.0%	4.2%
12	90.4	4.0%	-2.0%
13	92.3	-0.2%	-5.0%
14	91.7	2.8%	-3.7%
15	89.4	-0.2%	-0.8%
16	88.5	1.5%	-2.6%



Rf by Bue

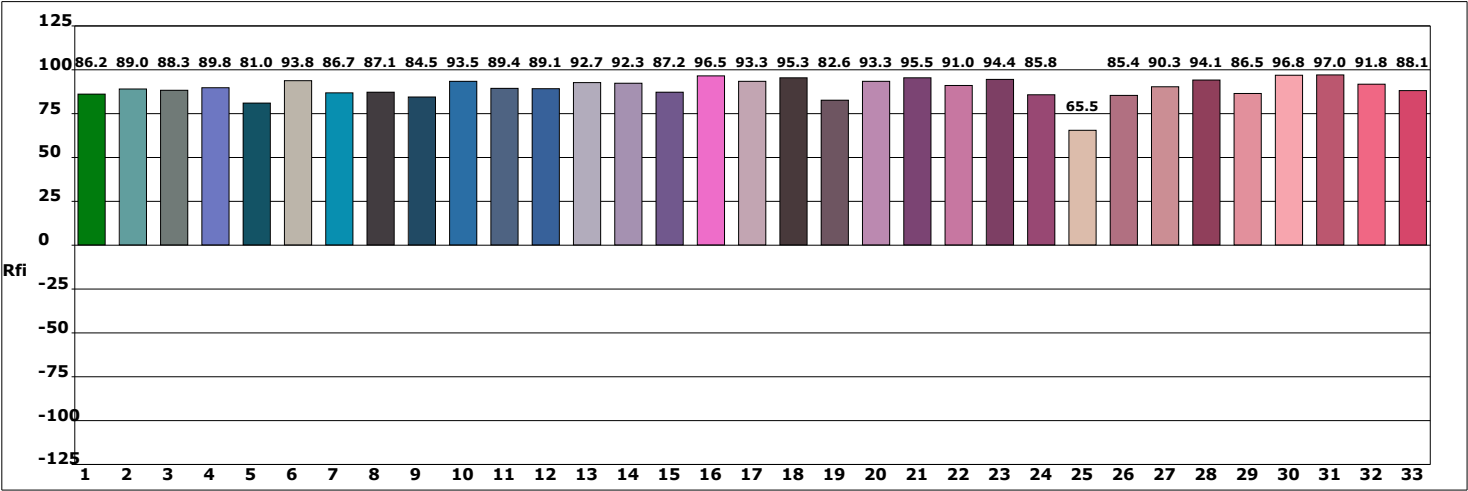
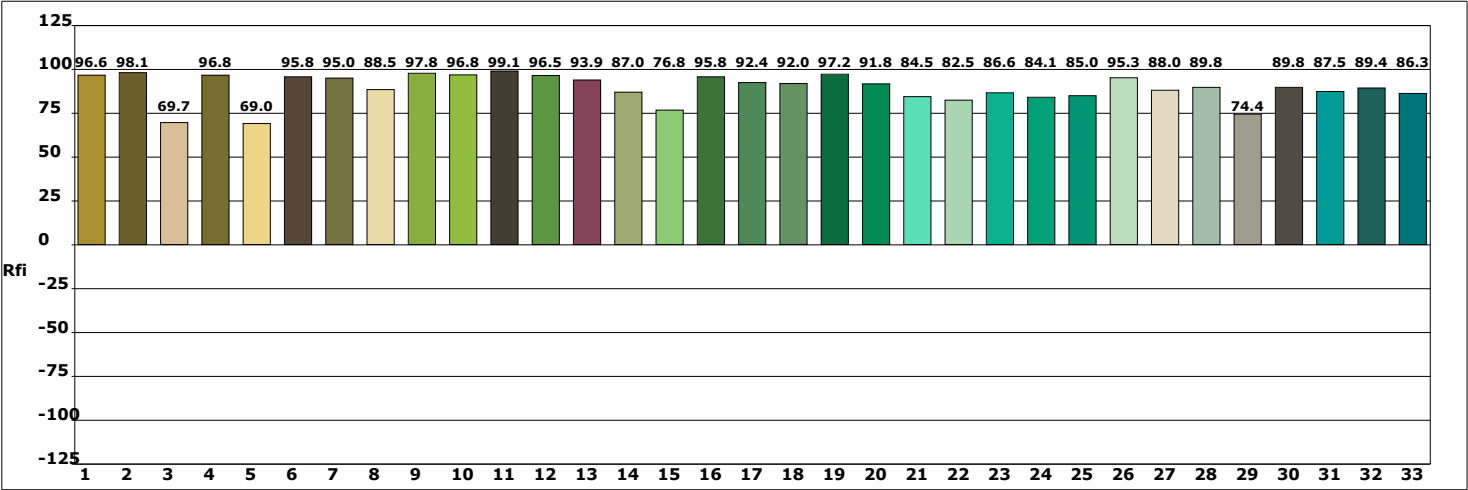
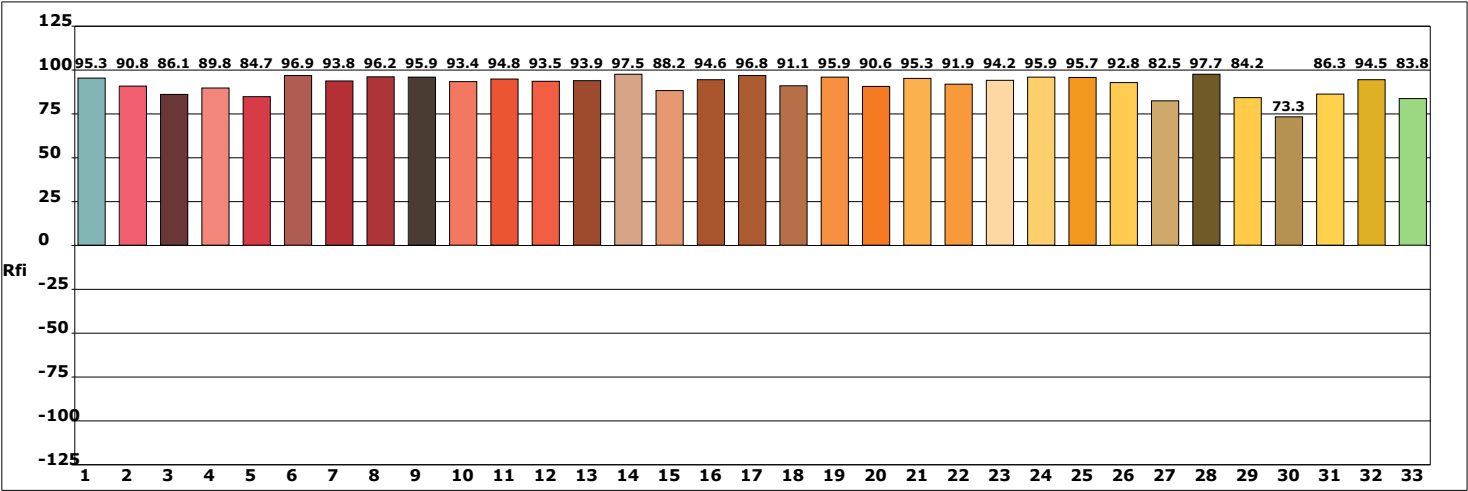


Chroma by Bue



Product model:
Product number:
Tester:
Remarks:

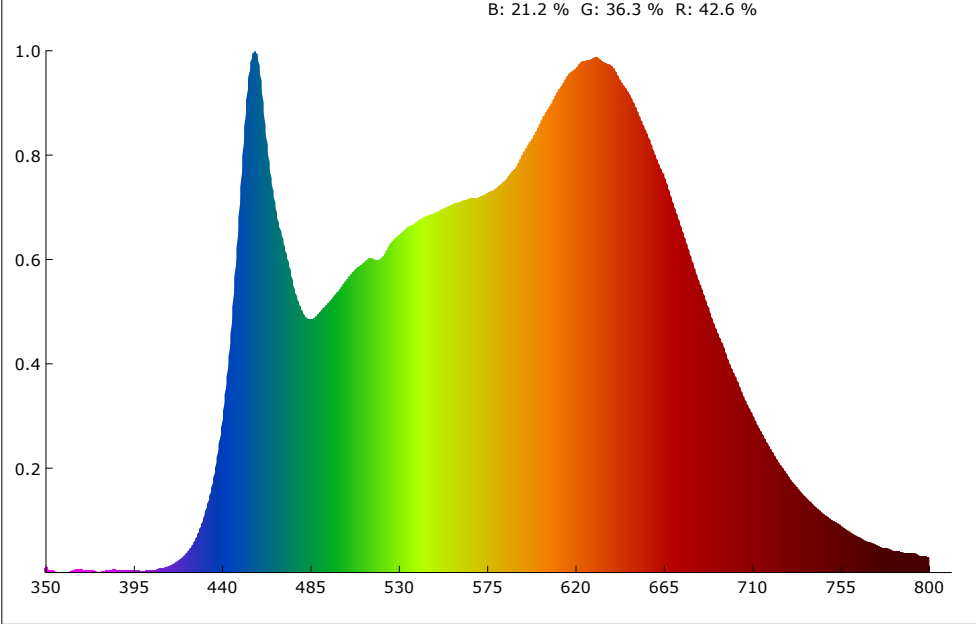
Manufacturer:
Test unit:
Date of observation: 10/12/23



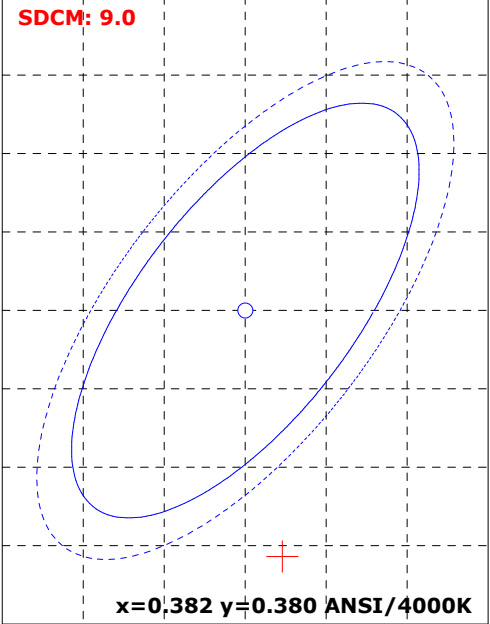
Product model:
Product number:
Tester:
Remarks:

Manufacturer:
Test unit:
Date of observation: 10/12/23

Spectrogram



SDCM



Color Parameter:

x: 0.3841	y: 0.3640	u: 0.2328	v: 0.3309	u': 0.2328	v': 0.4964
R_ratio: 42.6 %	G_ratio: 36.3 %	B_ratio: 21.2 %	RedRatio: 21.7 %	GreenRatio: 74.7 %	BlueRatio: 3.6 %
Ra: 93.5	AvgR: 91.6				
R1: 92.1	R2: 92.8	R3: 96.9	R4: 95.7	R5: 92.0	R6: 89.3
R7: 94.5	R8: 94.7	R9: 85.3	R10: 86.7	R11: 94.6	R12: 77.5
R13: 91.5	R14: 99.0	R15: 91.1			
CCT: 3795 K	Flux: 7396.301 lm	PeakWave: 457.4 nm	SDCM: 9.0		
S/P: 1.9	CentralWave: 463.2 nm	DominantWave: 584.3 nm	CentroidWave: 583.5 nm		
HalfWidth: 35.2 nm	duv: -0.00715	purity: 24.5 %	CQS: 88.7		
LER(TM-30): 260.4	Ep: 28407.3 mw	Rg: 100.3	Rf: 90.4		
Red Ep: 11266.1 mw	Near red Ep: 1806.9 mw	Near infrared Ep: 110.4 mw			

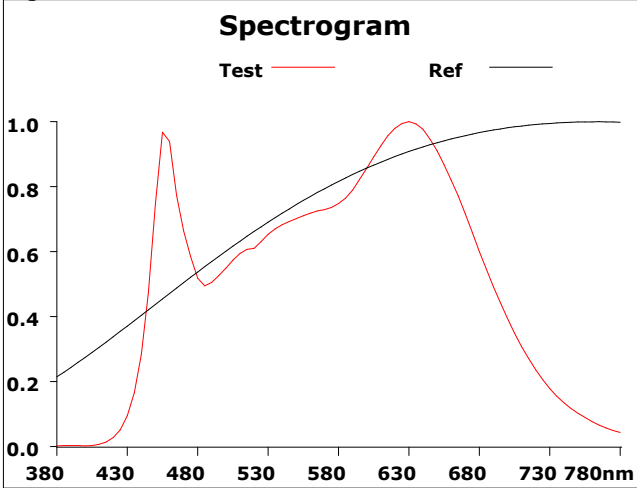
Electrical parameters:

Effic: 24.7 Lm/W	Energy: 26.9	Effi: G	
U: 222.2 V	I: 1.379 A	P: 299.000 W	Pf: 0.975

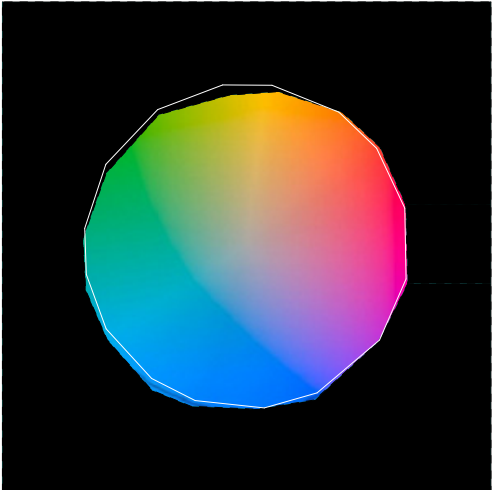
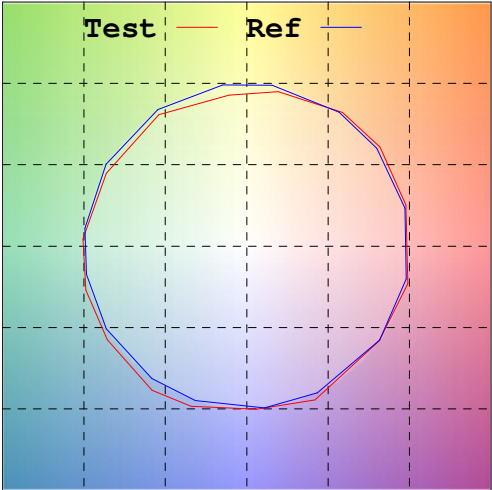
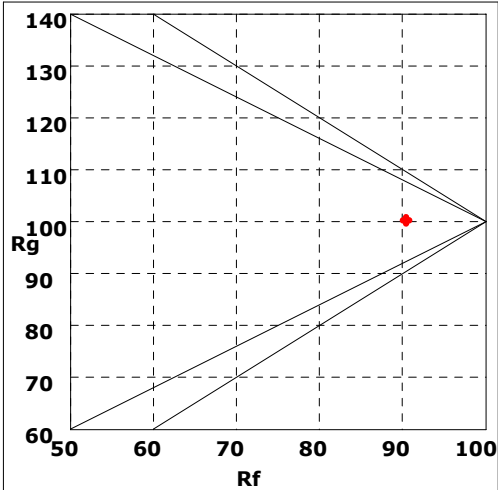
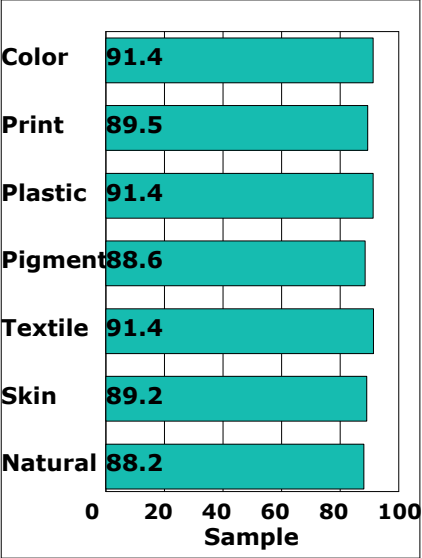
Product model:
Product number:
Tester:
Remarks:

Manufacturer:
Test unit:
Date of observation: 10/12/23

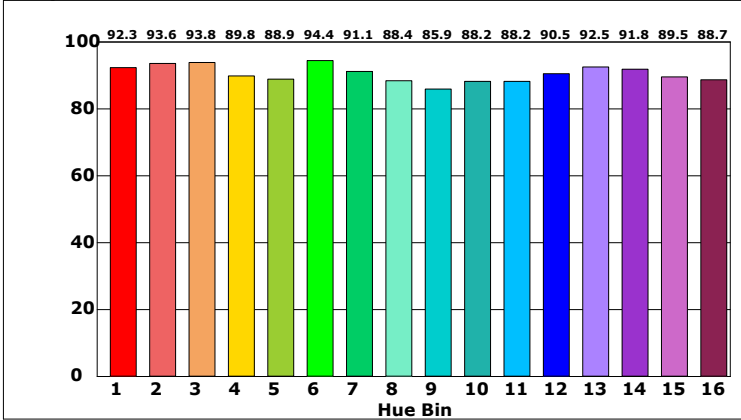
Rf: 90.4 CCT: 3795K u': 0.2328
Rg: 100.3 LER: 260.4 Duv: -0.00715 v': 0.4964



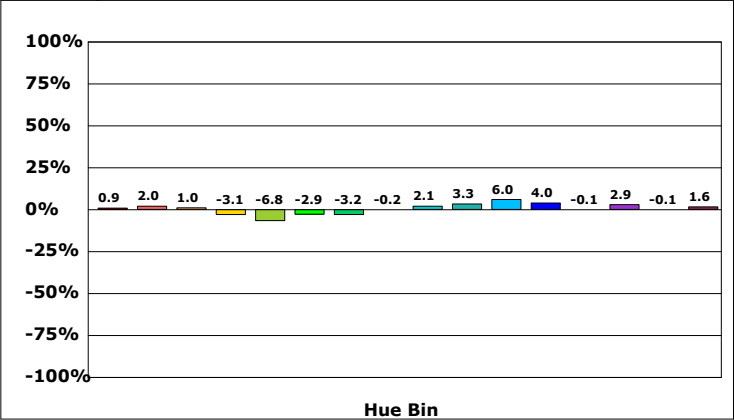
500			
Hue Bin	Rf	Chroma	Hue
1	92.3	0.9%	1.9%
2	93.6	2.0%	-0.5%
3	93.8	1.0%	-2.0%
4	89.8	-3.1%	-4.4%
5	88.9	-6.8%	-2.6%
6	94.4	-2.9%	1.1%
7	91.1	-3.2%	4.4%
8	88.4	-0.2%	6.5%
9	85.9	2.1%	9.2%
10	88.2	3.3%	5.9%
11	88.2	6.0%	4.2%
12	90.5	4.0%	-2.0%
13	92.5	-0.1%	-4.9%
14	91.8	2.9%	-3.6%
15	89.5	-0.1%	-0.7%
16	88.7	1.6%	-2.6%



Rf by Bue

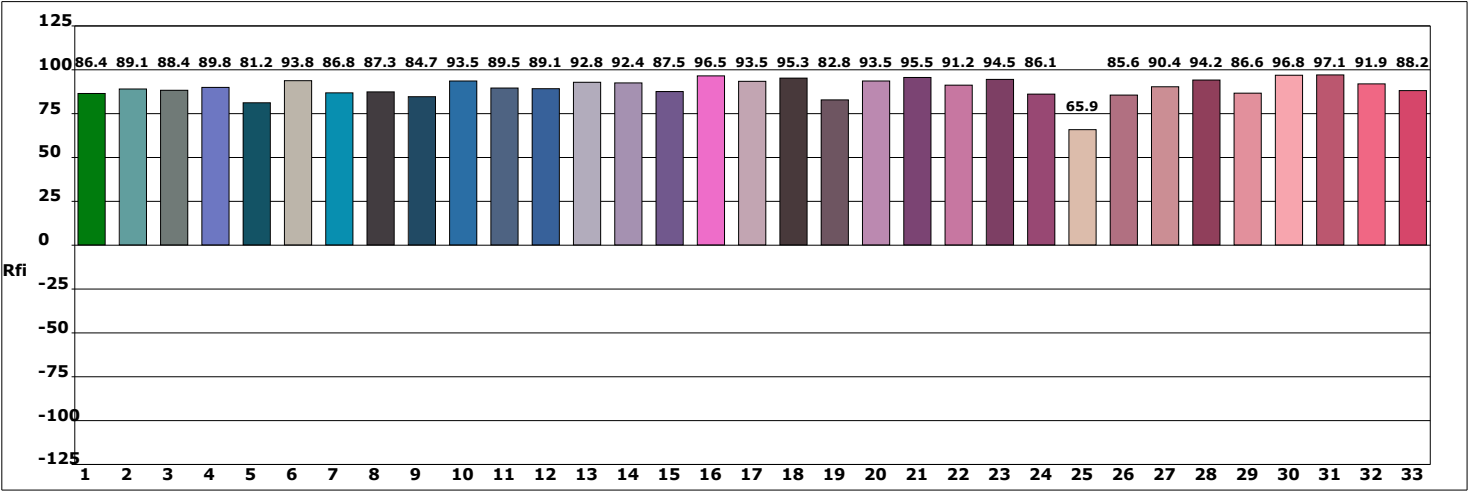
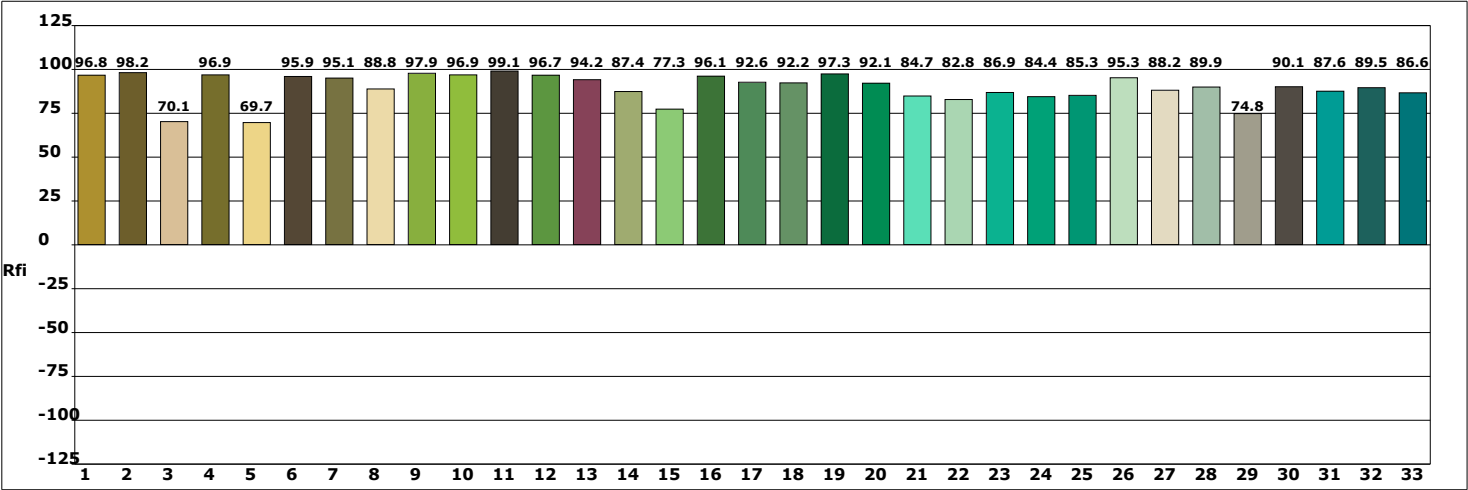
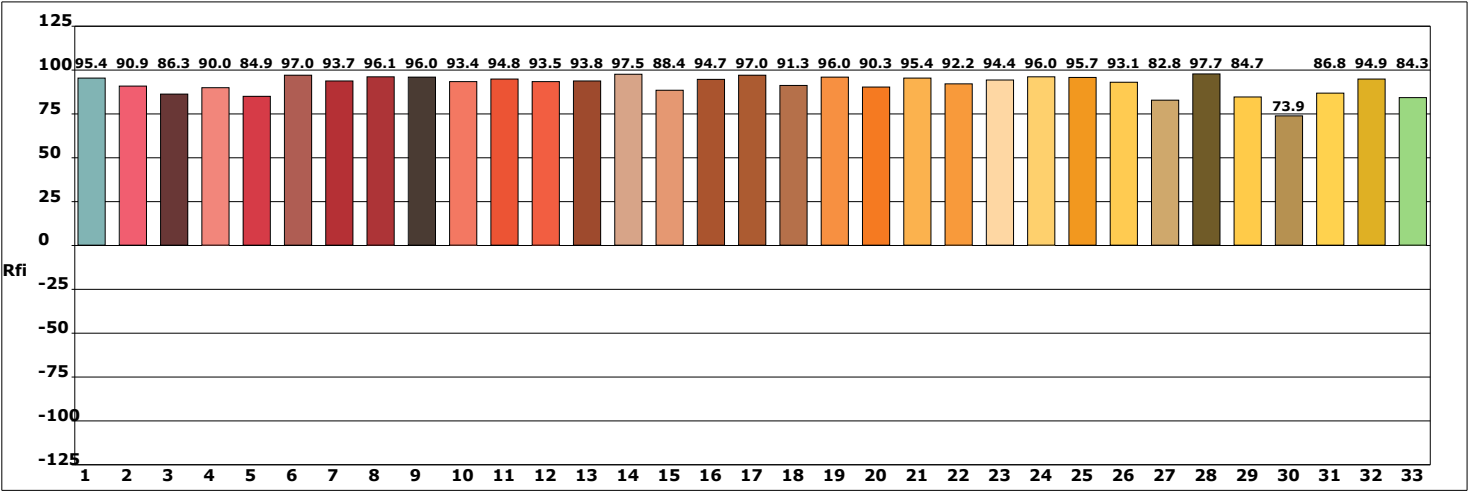


Chroma by Bue



Product model:
Product number:
Tester:
Remarks:

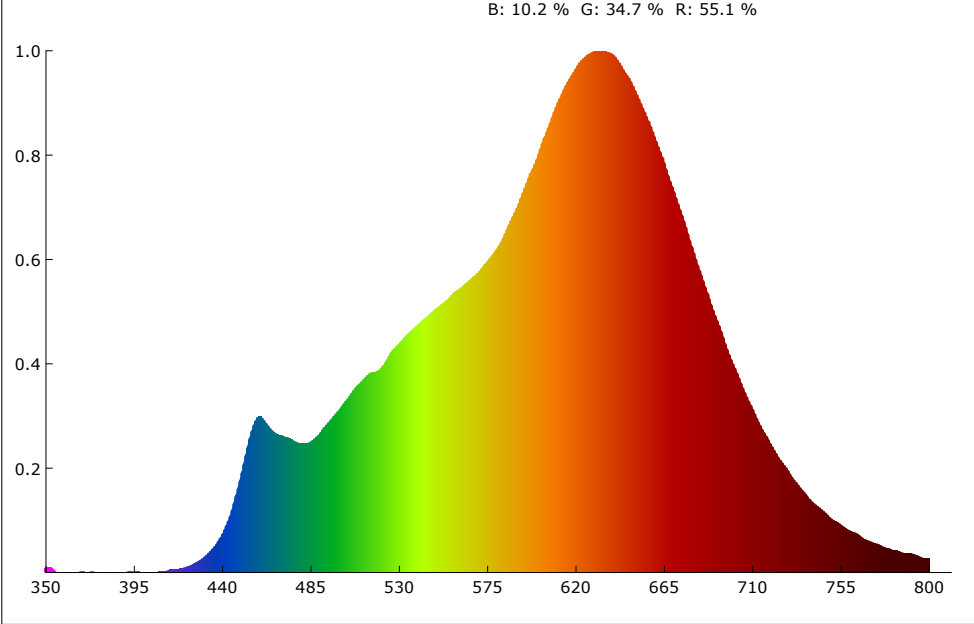
Manufacturer:
Test unit:
Date of observation: 10/12/23



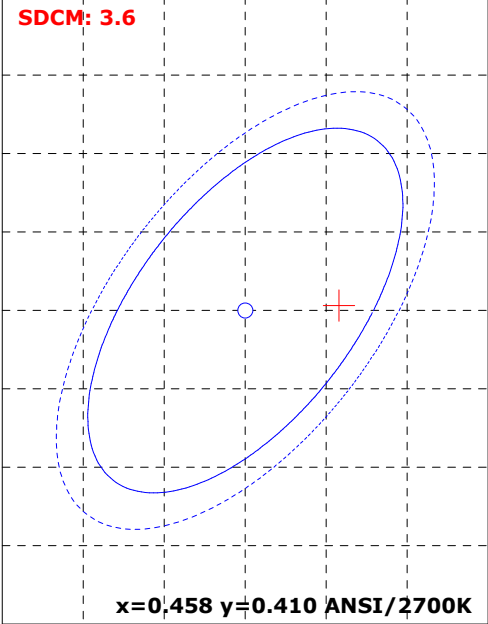
Product model:
Product number:
Tester:
Remarks:

Manufacturer:
Test unit:
Date of observation: 10/12/23

Spectrogram



SDCM



Color Parameter:

x: 0.4636	y: 0.4104	u: 0.2650	v: 0.3519	u': 0.2650	v': 0.5279		
R_ratio: 55.1 %	G_ratio: 34.7 %	B_ratio: 10.2 %	RedRatio: 27.2 %	GreenRatio: 71.0 %	BlueRatio: 1.8 %		
Ra: 95.8		AvgR: 95.0					
R1: 97.6	R2: 97.0	R3: 98.5	R4: 97.1	R5: 96.4	R6: 92.6	R7: 94.2	R8: 93.4
R9: 88.6	R10: 94.9	R11: 95.2	R12: 86.1	R13: 96.9	R14: 99.0	R15: 98.0	
CCT: 2646 K		Flux: 5902.750 lm	PeakWave: 630.5 nm	SDCM: 3.6			
S/P: 1.3		CentralWave: 618.6 nm	DominantWave: 584.6 nm	CentroidWave: 607.8 nm			
HalfWidth: 142.5 nm		duv: -0.00036	purity: 62.4 %	CQS: 86.6			
LER(TM-30): 258.0		Ep: 22875.1 mw	Rg: 97.6	Rf: 90.9			
Red Ep: 11495.9 mw		Near red Ep: 1893.9 mw	Near infrared Ep: 108.6 mw				

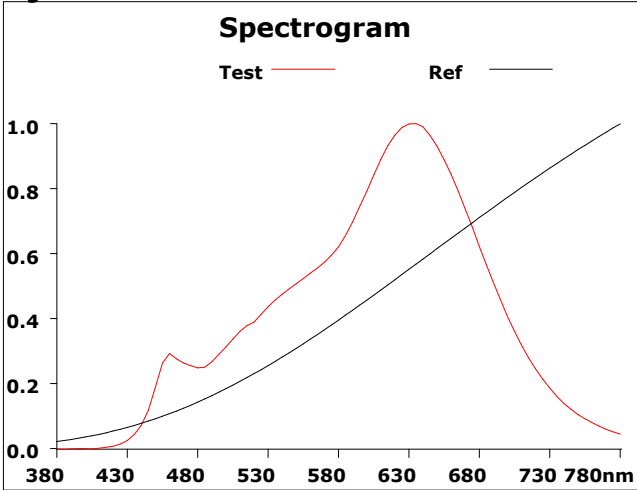
Electrical parameters:

Effic: 19.4 Lm/W	Energy: 21.2	Effi: G	
U: 221.9 V	I: 1.401 A	P: 303.600 W	Pf: 0.976

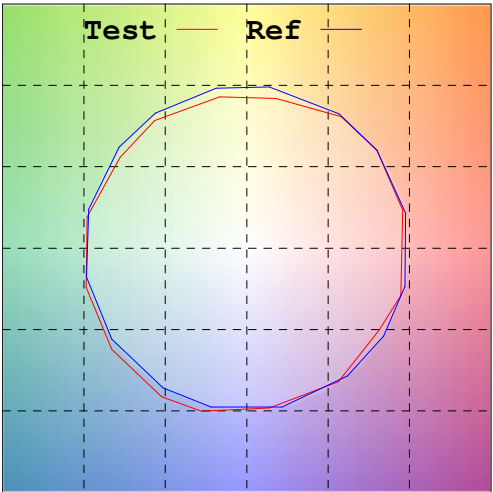
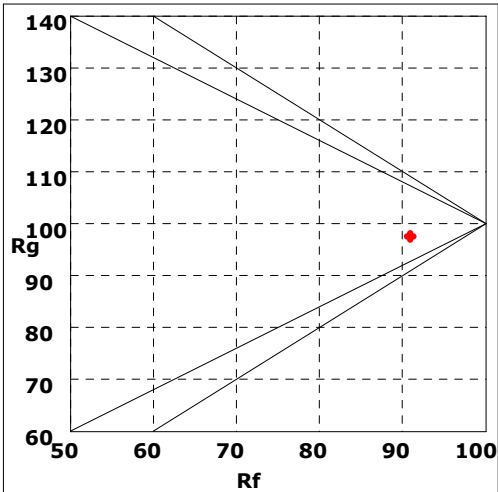
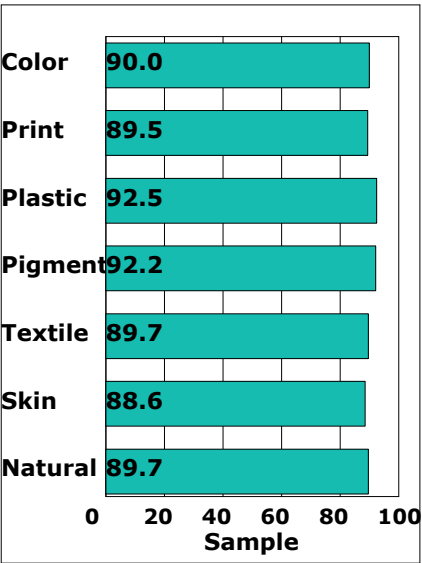
Product model:
Product number:
Tester:
Remarks:

Manufacturer:
Test unit:
Date of observation: 10/12/23

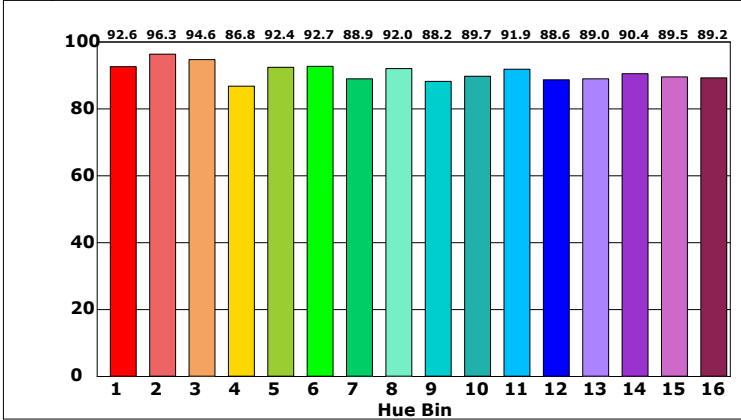
Rf: 90.9 CCT: 2646K u': 0.2650
Rg: 97.6 LER: 258.0 Duv: -0.00036 v': 0.5279



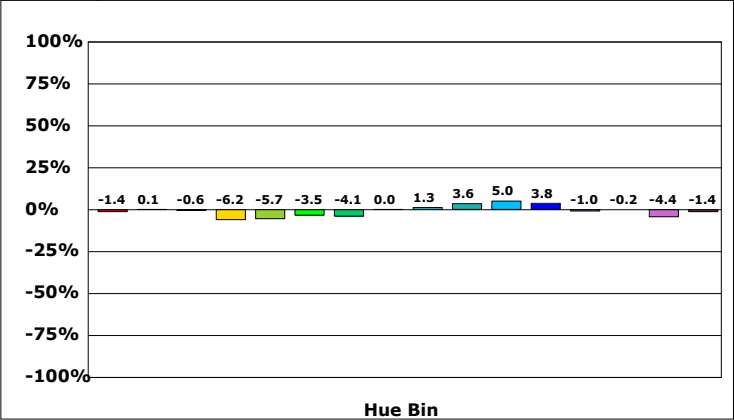
500			
Hue Bin	Rf	Chroma	Hue
1	92.6	-1.4%	2.1%
2	96.3	0.1%	-0.5%
3	94.6	-0.6%	-2.1%
4	86.8	-6.2%	-5.4%
5	92.4	-5.7%	-0.9%
6	92.7	-3.5%	2.9%
7	88.9	-4.1%	4.9%
8	92.0	0.0%	4.8%
9	88.2	1.3%	6.2%
10	89.7	3.6%	5.4%
11	91.9	5.0%	2.2%
12	88.6	3.8%	-5.2%
13	89.0	-1.0%	-7.8%
14	90.4	-0.2%	-6.5%
15	89.5	-4.4%	1.4%
16	89.2	-1.4%	-6.2%



Rf by Bue

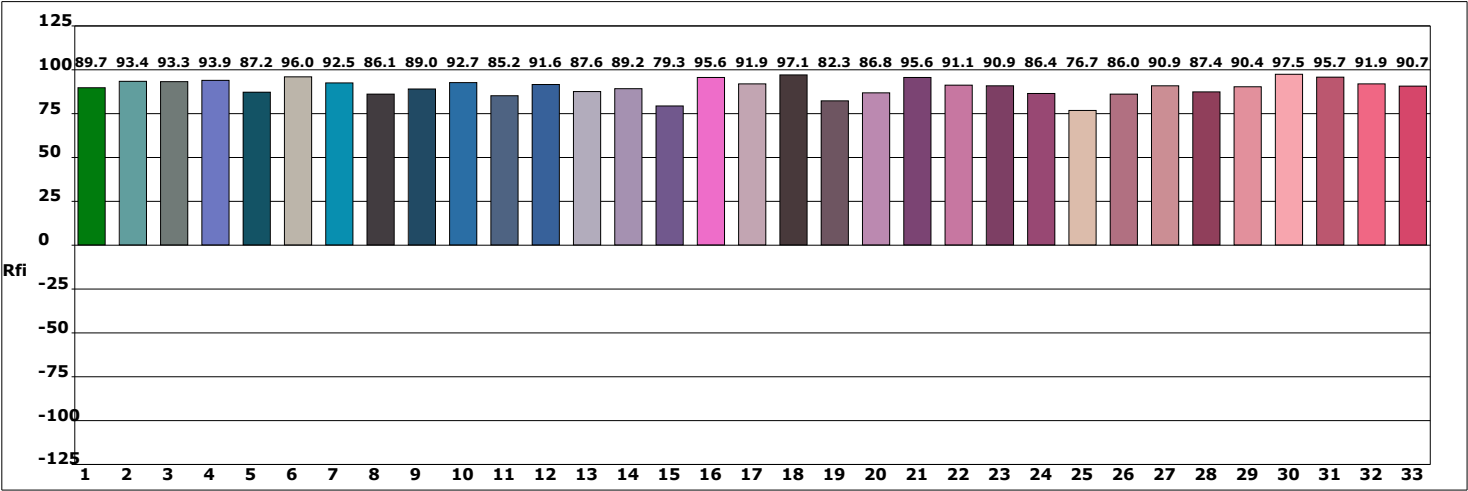
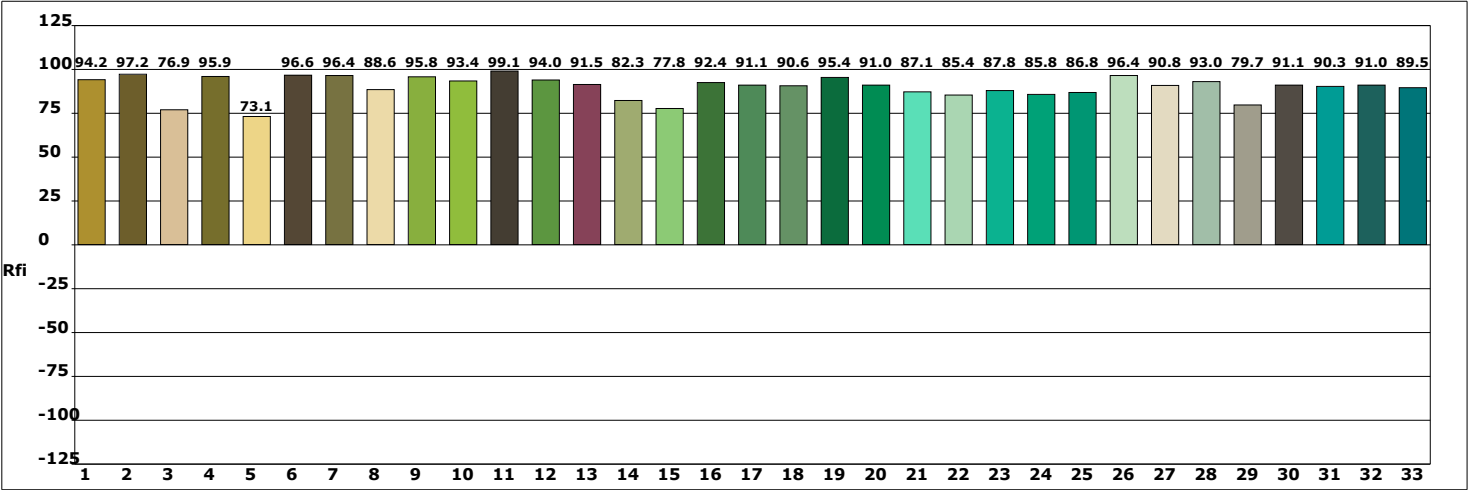
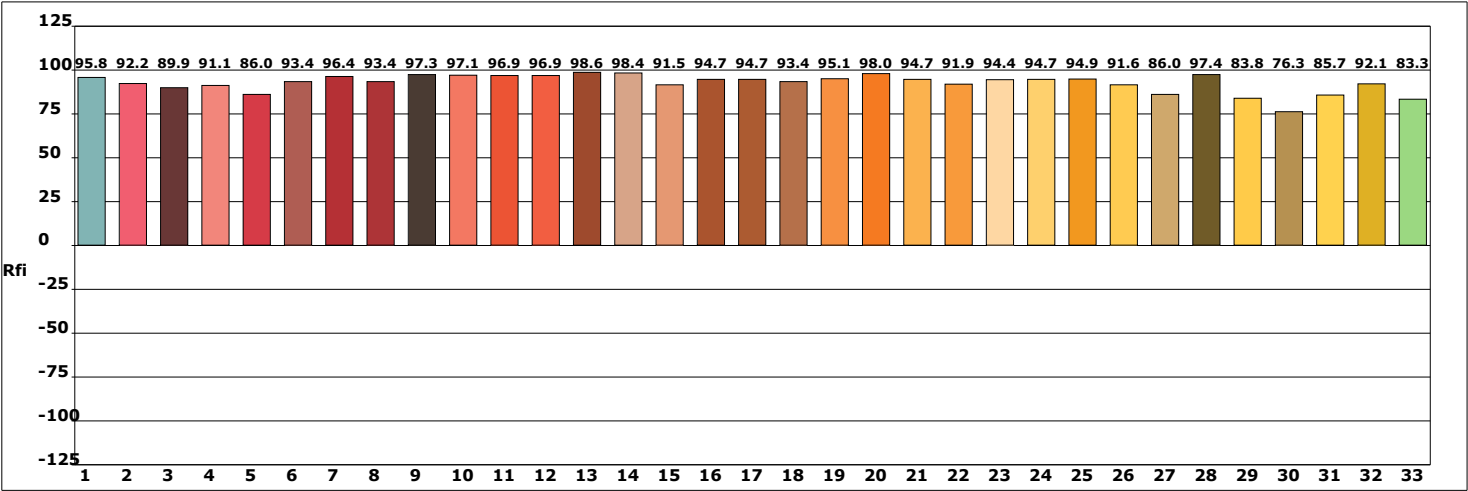


Chroma by Bue



Product model:
Product number:
Tester:
Remarks:

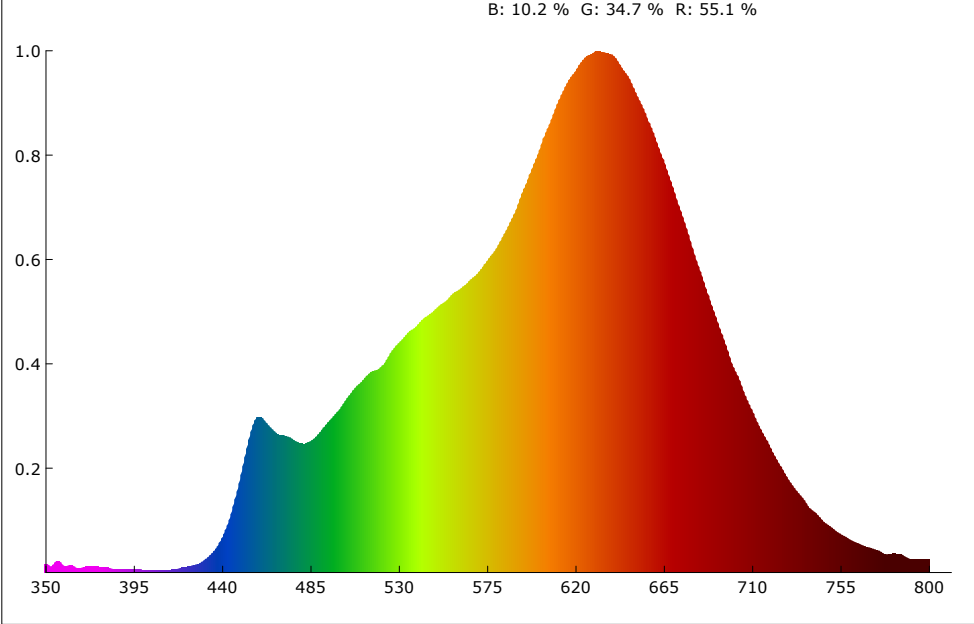
Manufacturer:
Test unit:
Date of observation: 10/12/23



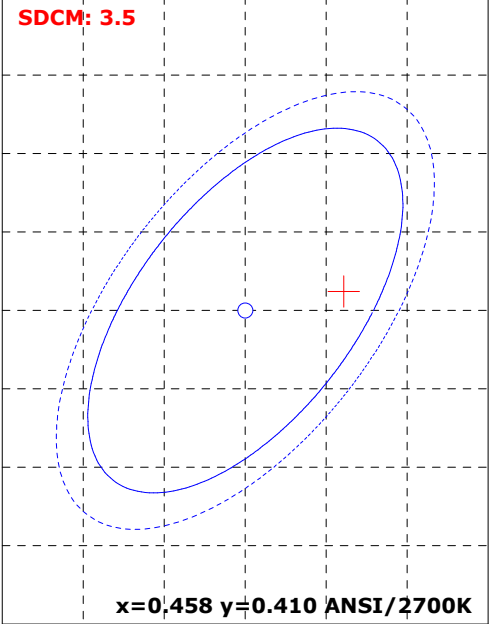
Product model:
Product number:
Tester:
Remarks:

Manufacturer:
Test unit:
Date of observation: 10/12/23

Spectrogram



SDCM



Color Parameter:

x: 0.4639	y: 0.4113	u: 0.2648	v: 0.3522	u': 0.2648	v': 0.5283
R_ratio: 55.1 %	G_ratio: 34.7 %	B_ratio: 10.2 %	RedRatio: 27.1 %	GreenRatio: 71.0 %	BlueRatio: 1.8 %

Ra: 95.8	AvgR: 95.0						
R1: 97.5	R2: 96.9	R3: 98.3	R4: 96.7	R5: 96.4	R6: 92.9	R7: 94.4	R8: 93.6
R9: 88.7	R10: 94.8	R11: 95.3	R12: 85.7	R13: 96.7	R14: 99.0	R15: 97.8	

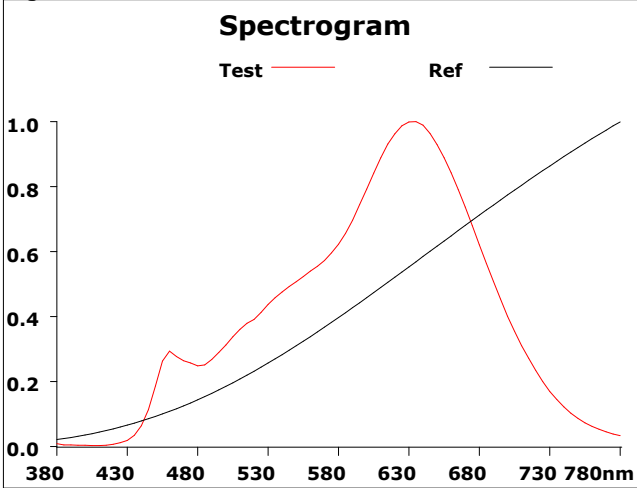
CCT: 2650 K	Flux: 8402.072 lm	PeakWave: 630.5 nm	SDCM: 3.5
S/P: 1.3	CentralWave: 619.0 nm	DominantWave: 584.5 nm	CentroidWave: 606.1 nm
HalfWidth: 141.7 nm	duv: -0.00002	purity: 62.7 %	CQS: 86.2
LER(TM-30): 259.6	Ep: 32366.4 mw	Rg: 97.2	Rf: 90.3
Red Ep: 16335.2 mw	Near red Ep: 2479.3 mw	Near infrared Ep: 127.6 mw	

Electrical parameters:

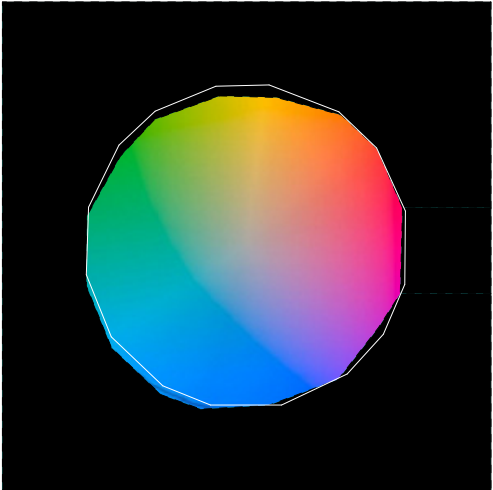
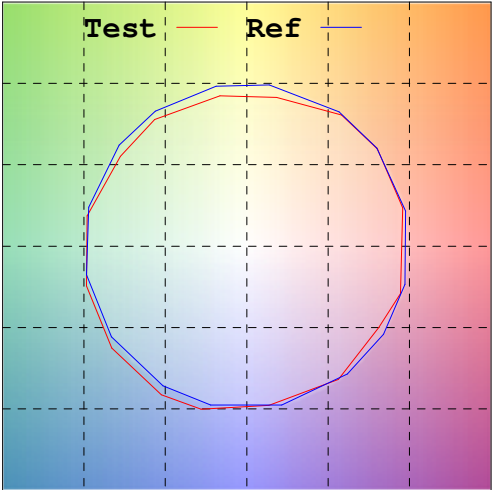
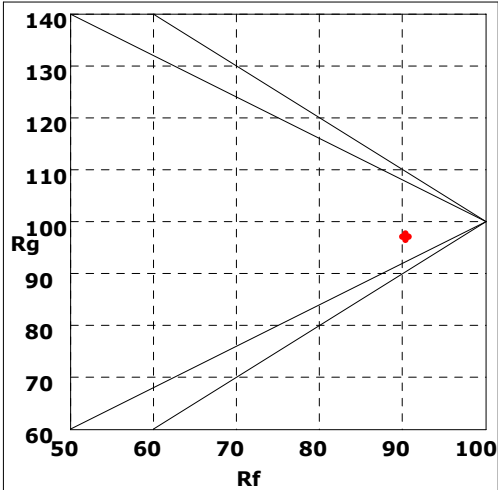
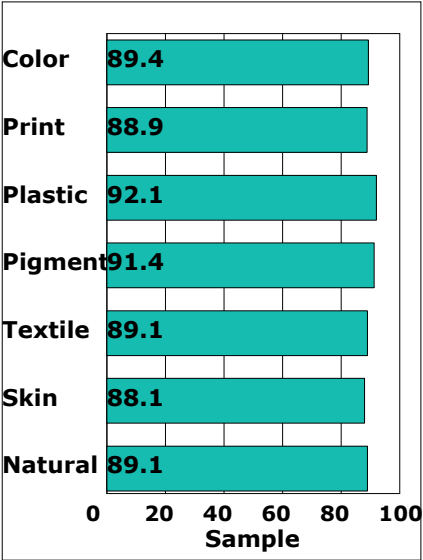
Effic: 27.7 Lm/W	Energy: 30.1	Effi: G	
U: 221.7 V	I: 1.402 A	P: 303.600 W	Pf: 0.976

Product model:	Manufacturer:
Product number:	Test unit:
Tester:	Date of observation: 10/12/23
Remarks:	

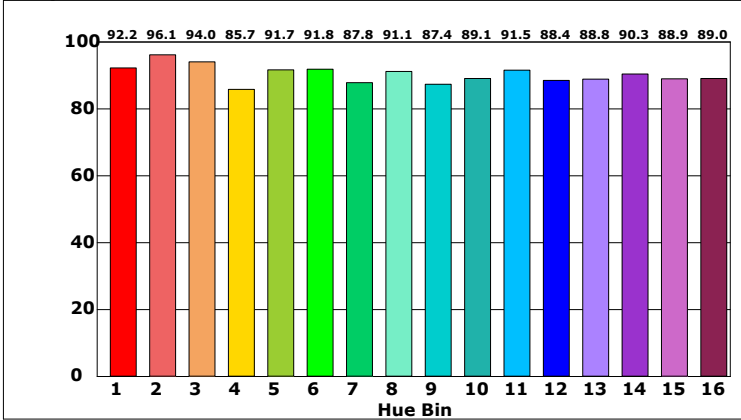
Rf: 90.3 CCT: 2650K u': 0.2648
Rg: 97.2 LER: 259.6 Duv: -0.00002 v': 0.5283



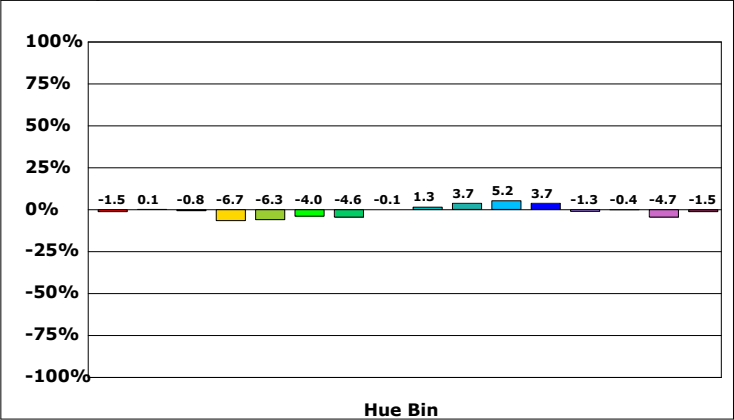
500			
Hue Bin	Rf	Chroma	Hue
1	92.2	-1.5%	2.3%
2	96.1	0.1%	-0.6%
3	94.0	-0.8%	-2.4%
4	85.7	-6.7%	-5.8%
5	91.7	-6.3%	-1.1%
6	91.8	-4.0%	3.1%
7	87.8	-4.6%	5.4%
8	91.1	-0.1%	5.3%
9	87.4	1.3%	6.7%
10	89.1	3.7%	5.7%
11	91.5	5.2%	2.3%
12	88.4	3.7%	-5.3%
13	88.8	-1.3%	-7.8%
14	90.3	-0.4%	-6.5%
15	88.9	-4.7%	1.7%
16	89.0	-1.5%	-6.1%



Rf by Bue

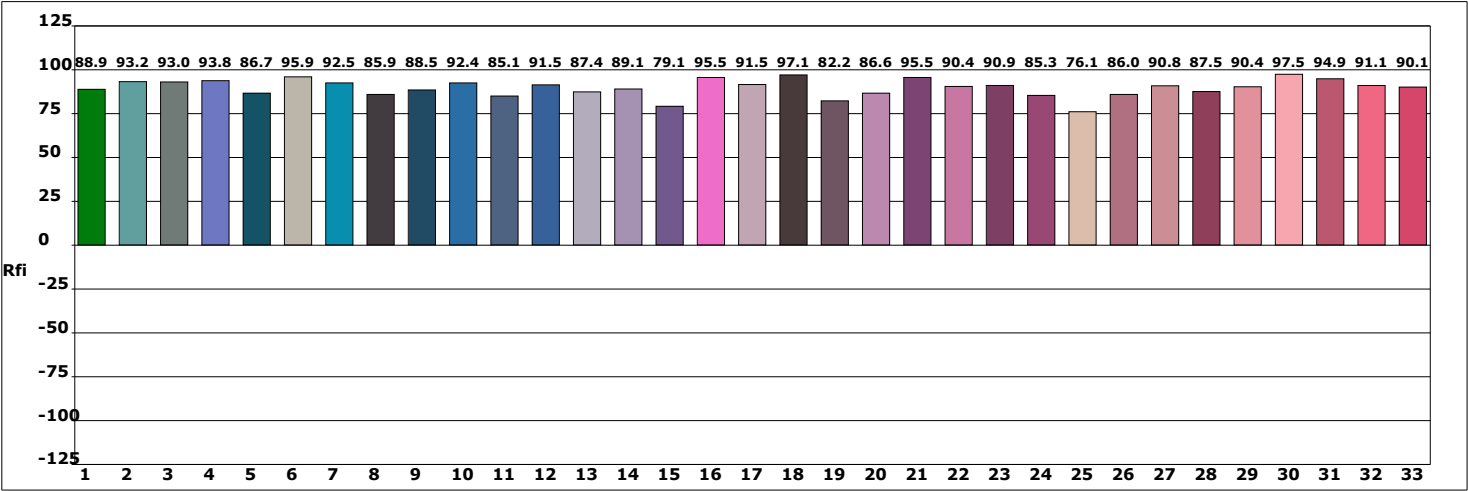
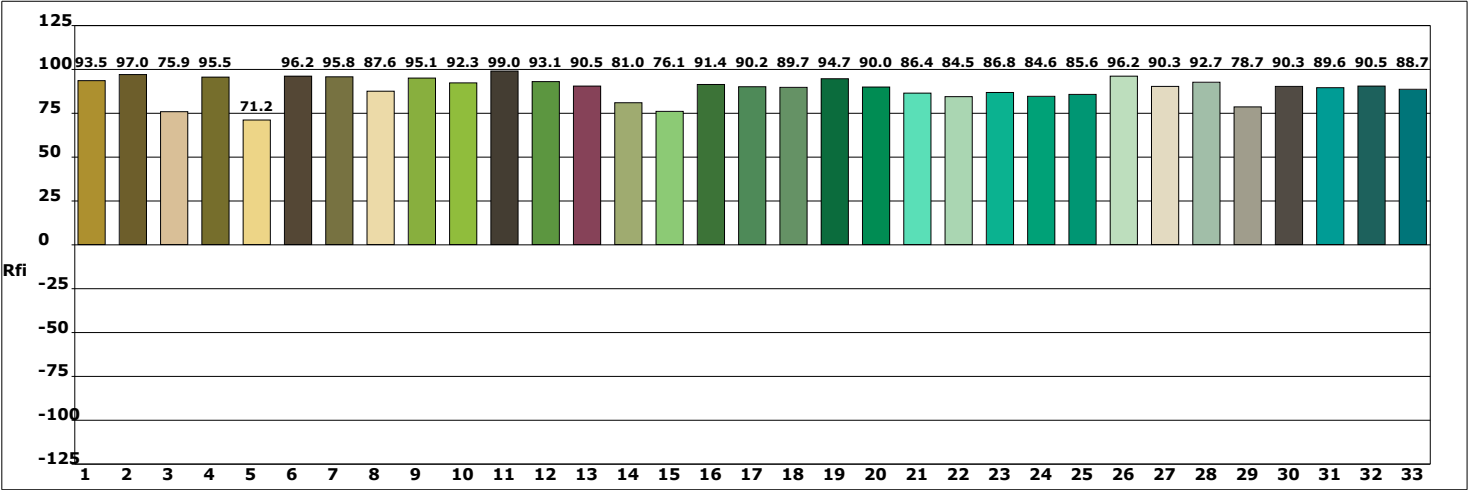
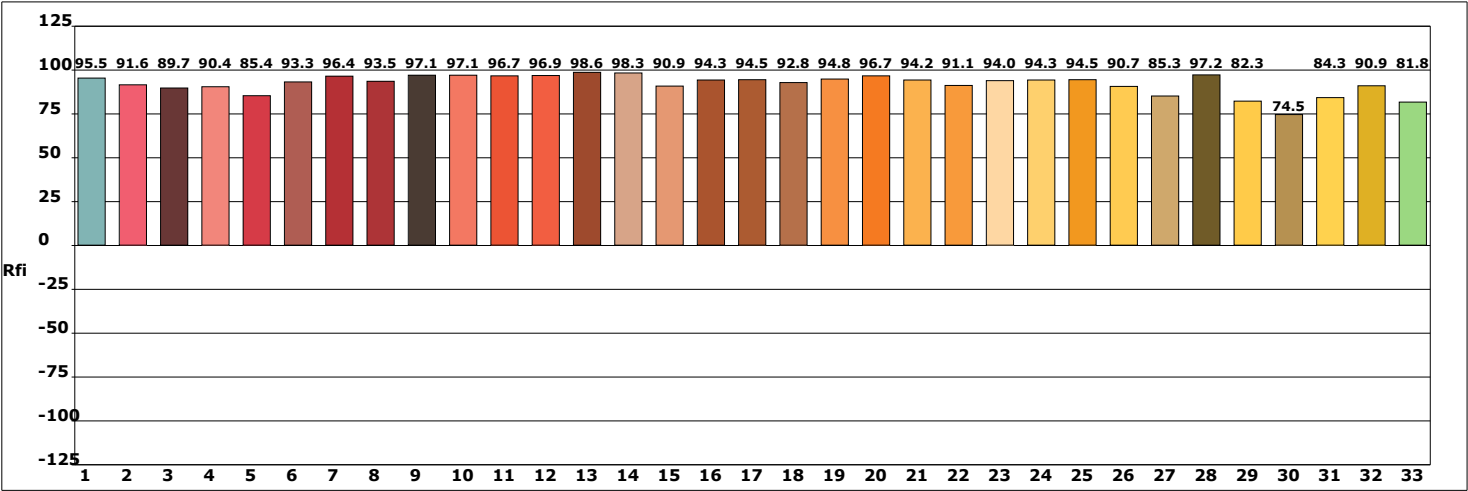


Chroma by Bue



Product model:
Product number:
Tester:
Remarks:

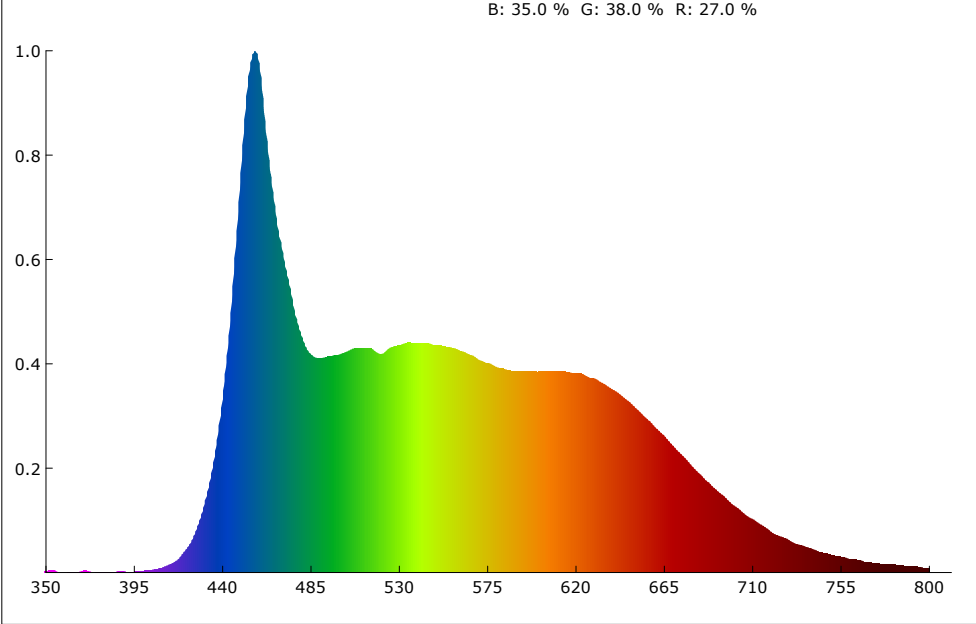
Manufacturer:
Test unit:
Date of observation: 10/12/23



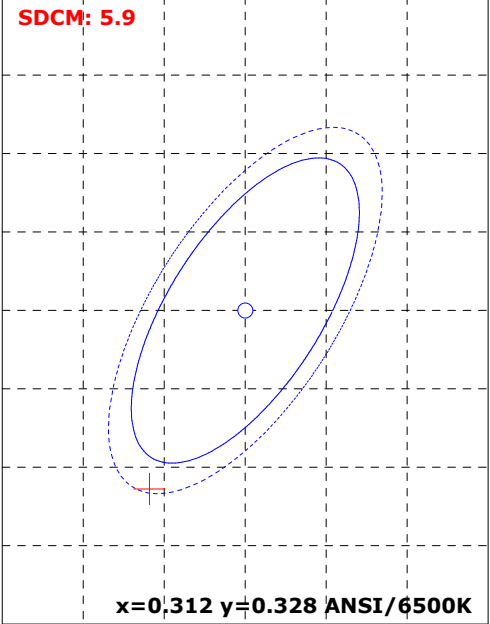
Product model:
Product number:
Tester:
Remarks:

Manufacturer:
Test unit:
Date of observation: 10/12/23

Spectrogram



SDCM



Color Parameter:

x: 0.3064	y: 0.3168	u: 0.1980	v: 0.3071	u': 0.1980	v': 0.4606		
R_ratio: 27.0 %	G_ratio: 38.0 %	B_ratio: 35.0 %	RedRatio: 15.1 %	GreenRatio: 79.1 %	BlueRatio: 5.8 %		
Ra: 93.3		AvgR: 92.4					
R1: 94.8	R2: 94.9	R3: 96.2	R4: 90.4	R5: 93.5	R6: 93.9	R7: 91.0	R8: 92.1
R9: 94.3	R10: 91.8	R11: 94.5	R12: 71.7	R13: 95.2	R14: 98.5	R15: 92.6	
CCT: 7003 K		Flux: 8102.368 lm	PeakWave: 457.4 nm	SDCM: 5.9			
S/P: 2.5		CentralWave: 460.9 nm	DominantWave: 483.4 nm	CentroidWave: 551.5 nm			
HalfWidth: 32.1 nm		duv: 0.00012	purity: 10.5 %	CQS: 89.0			
LER(TM-30): 263.5		Ep: 30746.1 mw	Rg: 96.7	Rf: 87.2			
Red Ep: 7973.0 mw		Near red Ep: 1165.2 mw	Near infrared Ep: 72.6 mw				

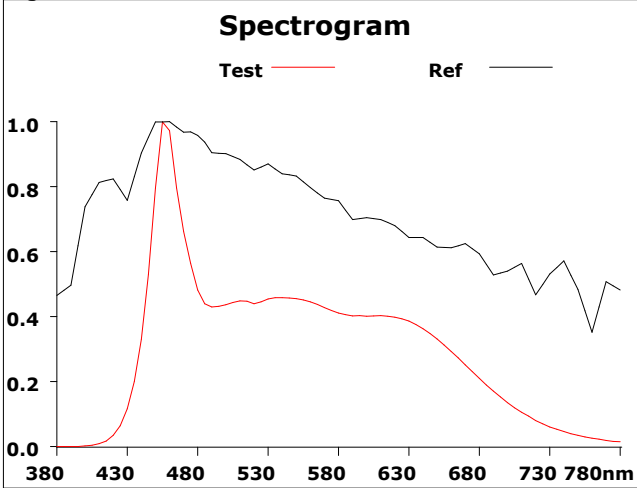
Electrical parameters:

Effic: 27.7 Lm/W	Energy: 30.2	Effi: G	
U: 221.9 V	I: 1.349 A	P: 292.000 W	Pf: 0.975

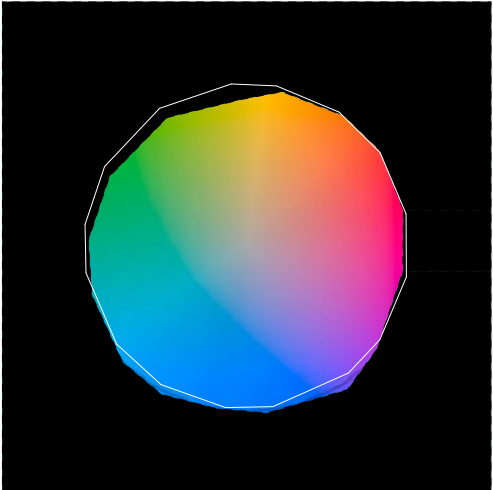
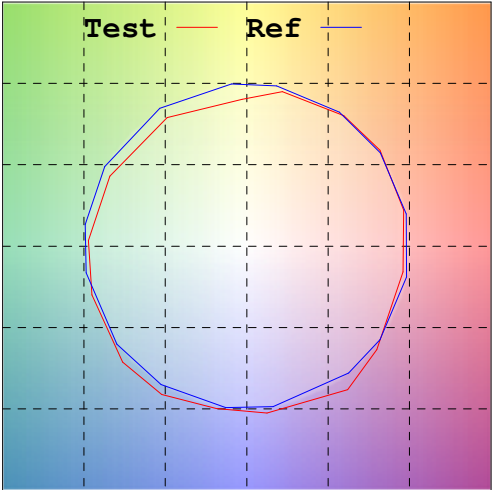
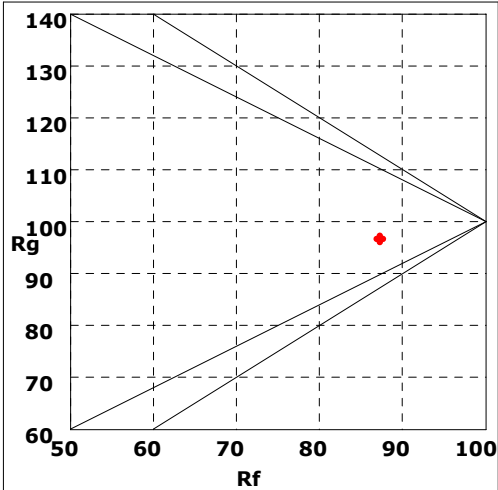
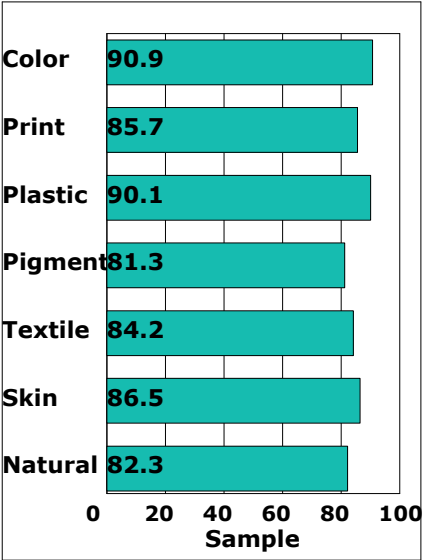
Product model:
Product number:
Tester:
Remarks:

Manufacturer:
Test unit:
Date of observation: 10/12/23

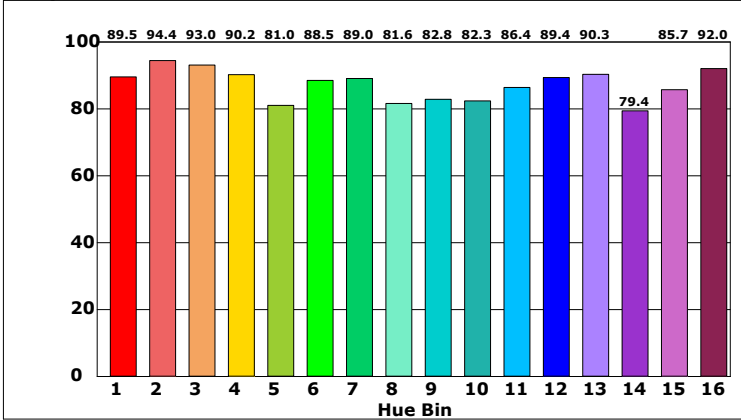
Rf: 87.2 CCT: 7003K u': 0.1980
Rg: 96.7 LER: 263.5 Duv: 0.00012 v': 0.4606



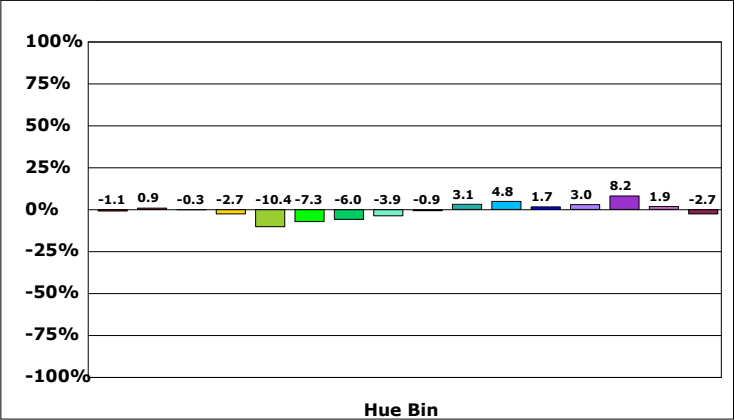
500			
Hue Bin	Rf	Chroma	Hue
1	89.5	-1.1%	2.6%
2	94.4	0.9%	1.5%
3	93.0	-0.3%	-3.5%
4	90.2	-2.7%	-4.2%
5	81.0	-10.4%	-4.4%
6	88.5	-7.3%	-0.5%
7	89.0	-6.0%	3.1%
8	81.6	-3.9%	9.2%
9	82.8	-0.9%	14.0%
10	82.3	3.1%	11.3%
11	86.4	4.8%	3.6%
12	89.4	1.7%	-5.6%
13	90.3	3.0%	-4.4%
14	79.4	8.2%	-6.3%
15	85.7	1.9%	-6.2%
16	92.0	-2.7%	2.7%



Rf by Bue

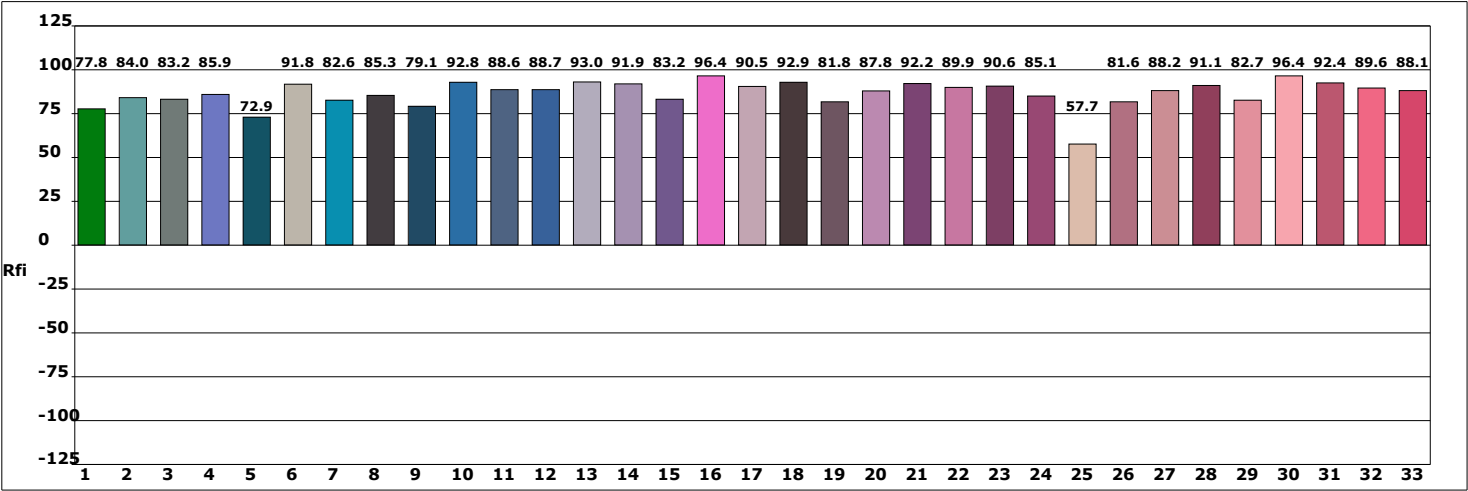
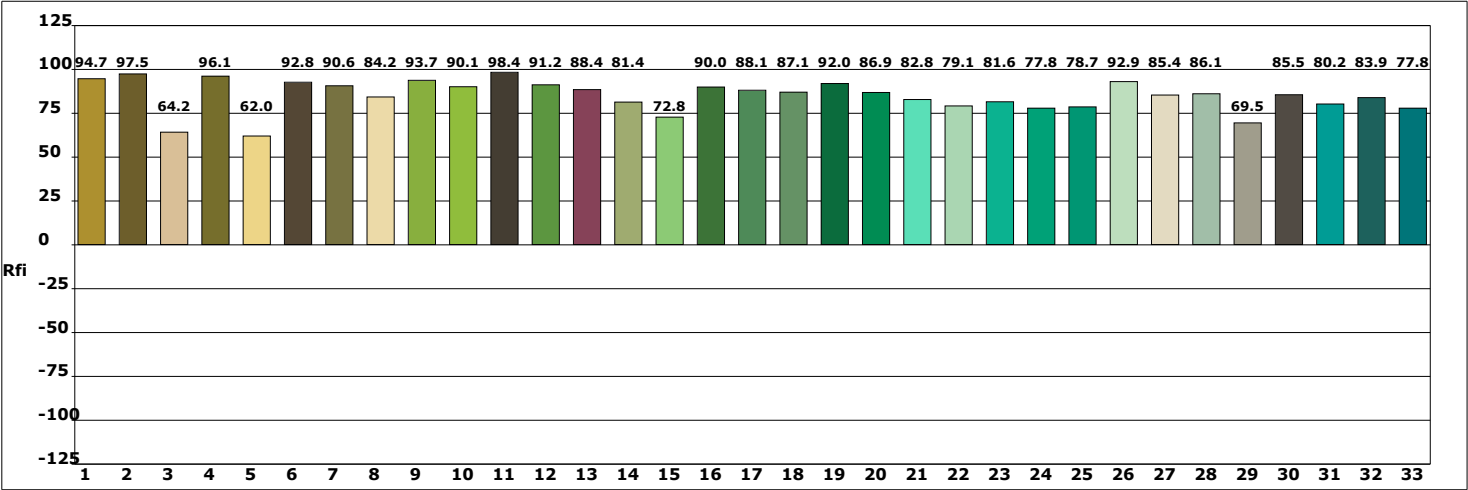
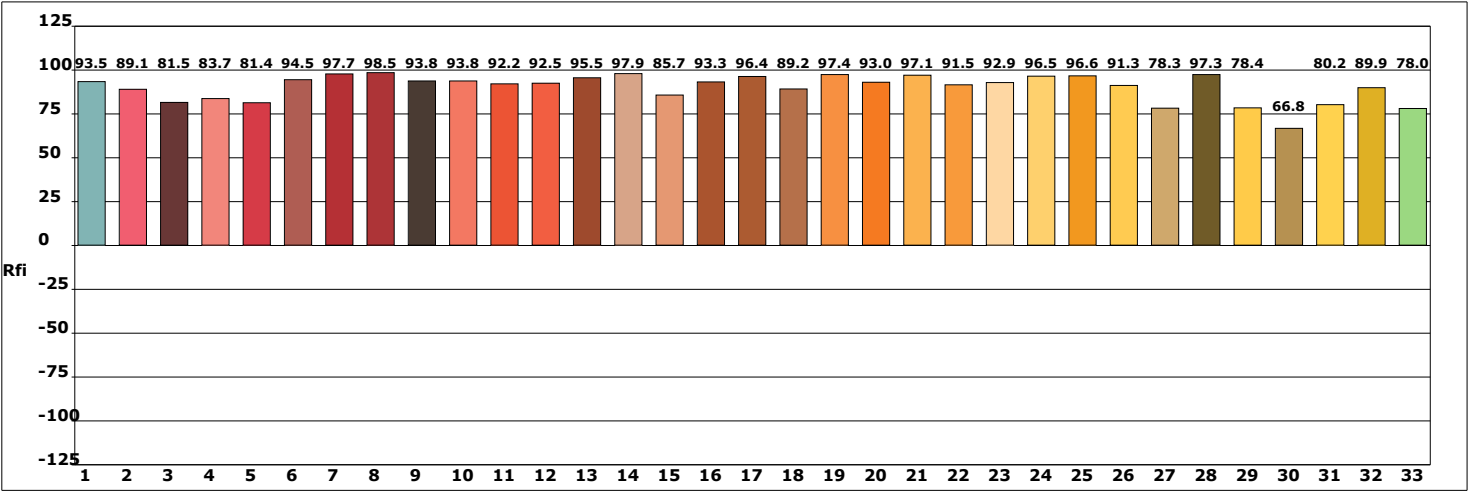


Chroma by Bue



Product model:
Product number:
Tester:
Remarks:

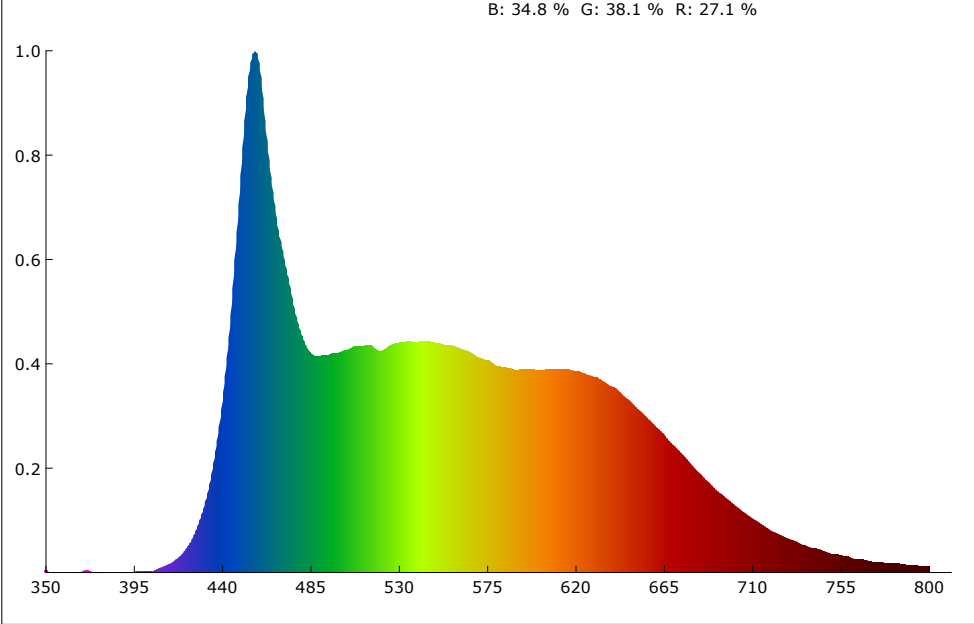
Manufacturer:
Test unit:
Date of observation: 10/12/23



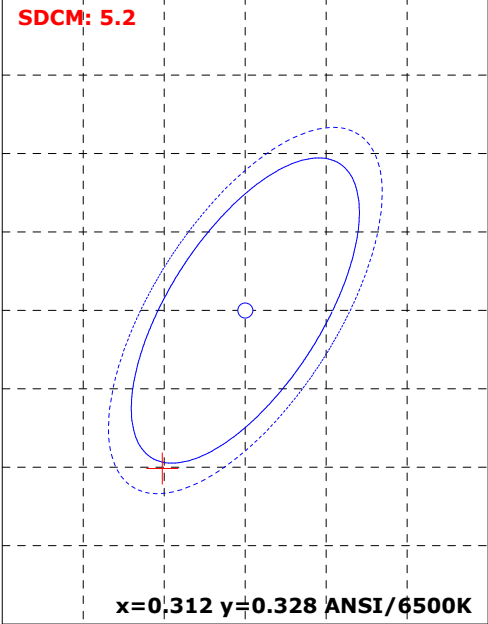
Product model:
Product number:
Tester:
Remarks:

Manufacturer:
Test unit:
Date of observation: 10/12/23

Spectrogram



SDCM



Color Parameter:

x: 0.3072 y: 0.3181 u: 0.1981 v: 0.3077 u': 0.1981 v': 0.4615
R_ratio: 27.1 % G_ratio: 38.1 % B_ratio: 34.8 % RedRatio: 15.1 % GreenRatio: 79.1 % BlueRatio: 5.8 %

Ra: 93.5 AvgR: 92.6
R1: 95.3 R2: 95.4 R3: 96.5 R4: 90.6 R5: 93.6 R6: 93.8 R7: 90.8 R8: 92.1
R9: 95.1 R10: 92.5 R11: 94.6 R12: 71.8 R13: 95.9 R14: 98.6 R15: 93.0

CCT: 6931 K Flux: 11574.815 lm PeakWave: 457.4 nm SDCM: 5.2
S/P: 2.5 CentralWave: 461.1 nm DominantWave: 483.8 nm CentroidWave: 552.3 nm
HalfWidth: 32.1 nm duv: 0.00038 purity: 10.1 % CQS: 89.2
LER(TM-30): 263.8 Ep: 43870.7 mw Rg: 96.6 Rf: 87.3
Red Ep: 11394.1 mw Near red Ep: 1726.8 mw Near infrared Ep: 122.6 mw

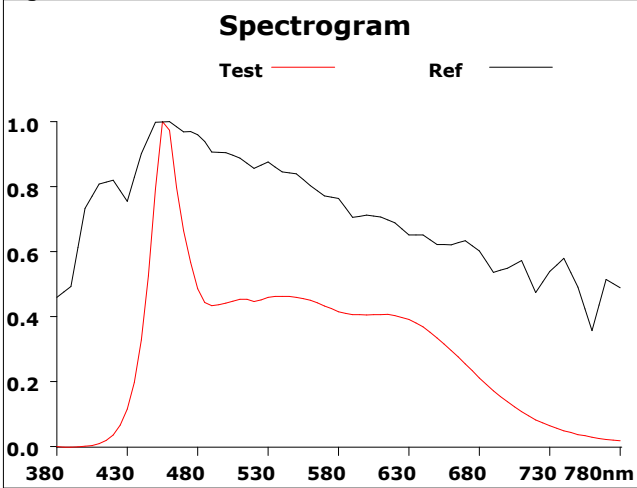
Electrical parameters:

Effic: 39.6 lm/W Energy: 43.1 Effi: G
U: 222.0 V I: 1.349 A P: 292.200 W Pf: 0.975

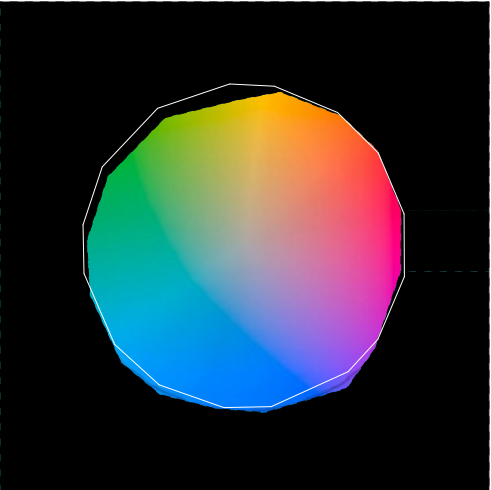
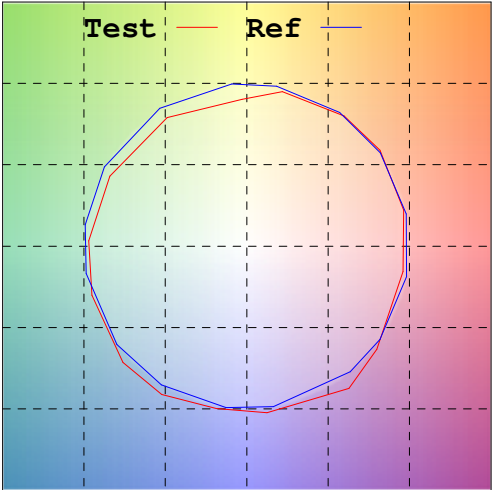
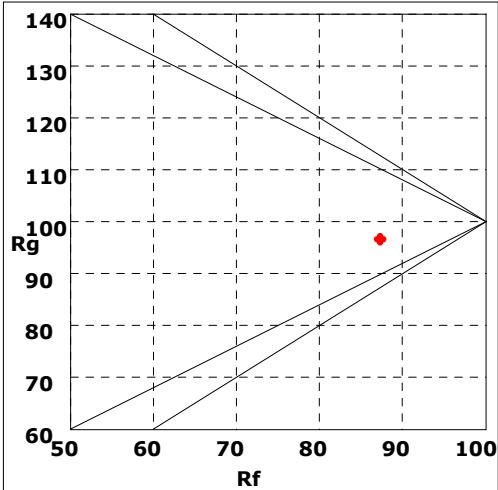
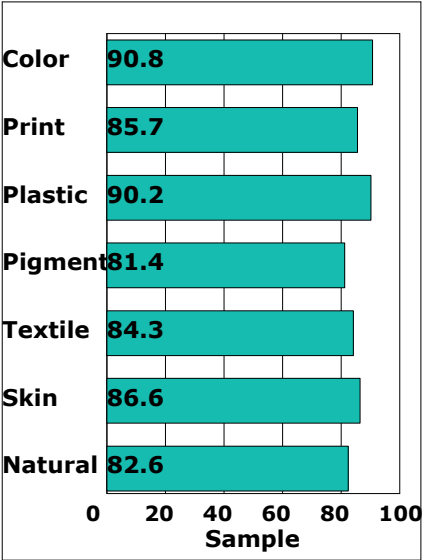
Product model:
Product number:
Tester:
Remarks:

Manufacturer:
Test unit:
Date of observation: 10/12/23

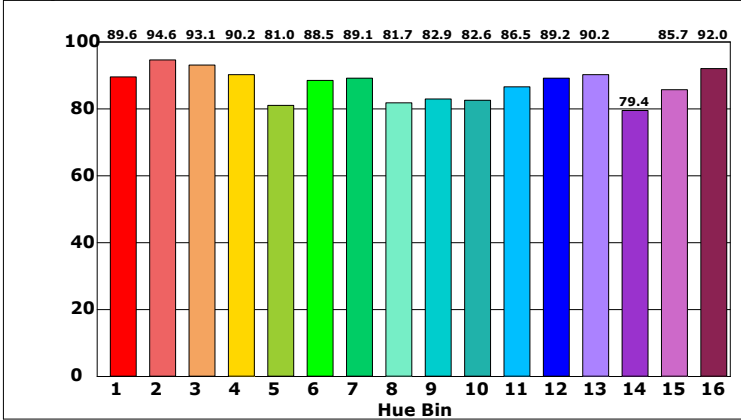
Rf: 87.3 CCT: 6931K u': 0.1981
Rg: 96.6 LER: 263.8 Duv: 0.00038 v': 0.4615



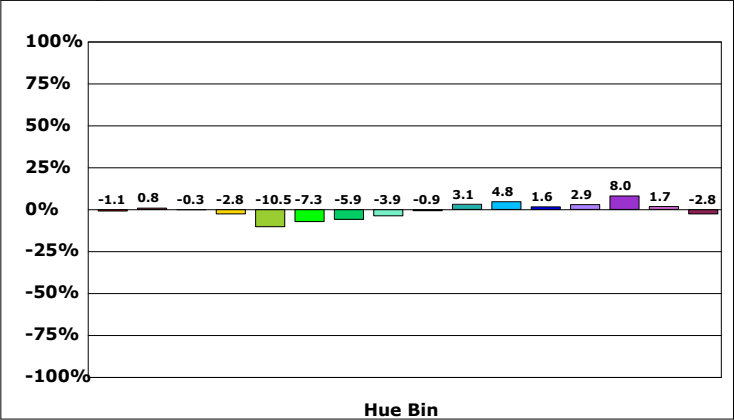
500			
Hue Bin	Rf	Chroma	Hue
1	89.6	-1.1%	2.5%
2	94.6	0.8%	1.4%
3	93.1	-0.3%	-3.5%
4	90.2	-2.8%	-4.2%
5	81.0	-10.5%	-4.4%
6	88.5	-7.3%	-0.5%
7	89.1	-5.9%	3.0%
8	81.7	-3.9%	9.1%
9	82.9	-0.9%	13.9%
10	82.6	3.1%	11.2%
11	86.5	4.8%	3.5%
12	89.2	1.6%	-5.7%
13	90.2	2.9%	-4.6%
14	79.4	8.0%	-6.4%
15	85.7	1.7%	-6.3%
16	92.0	-2.8%	2.6%



Rf by Bue

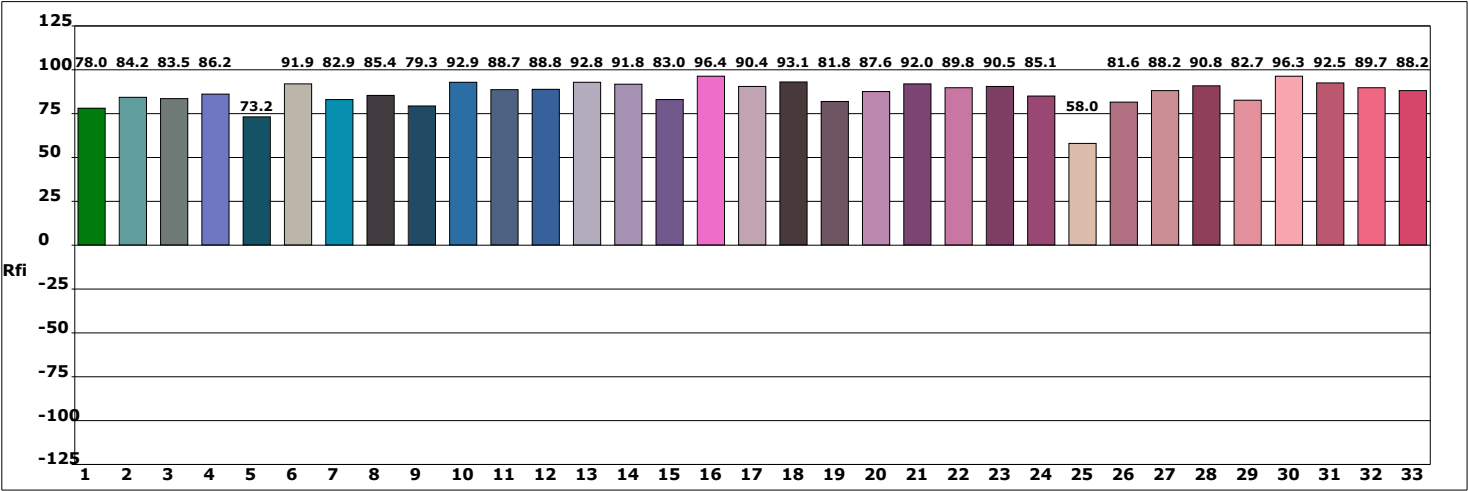
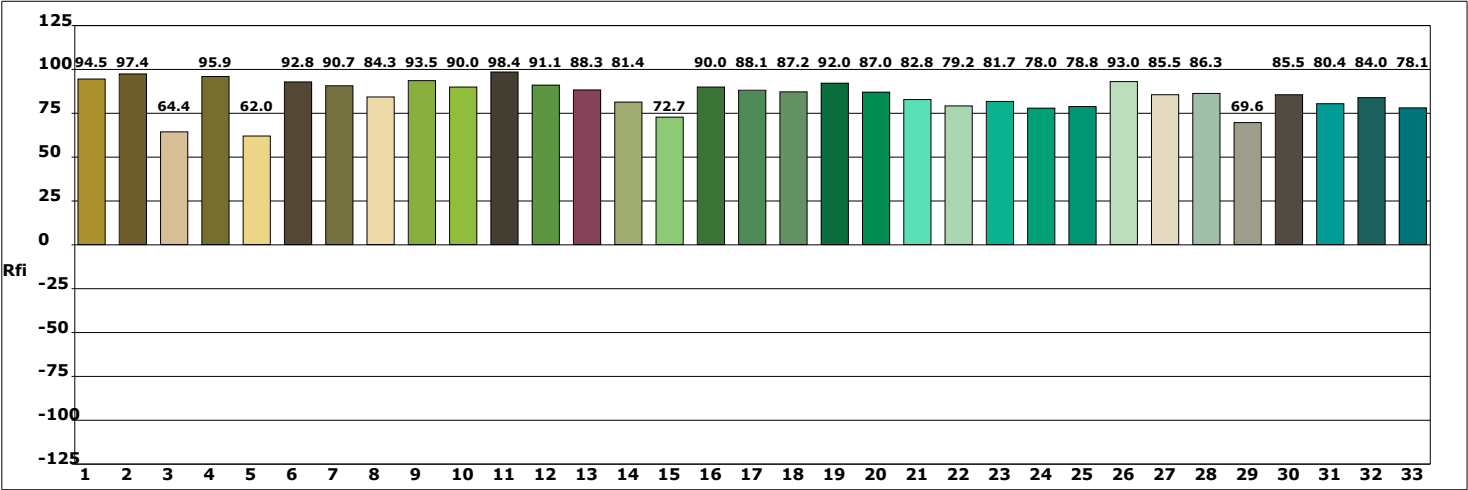
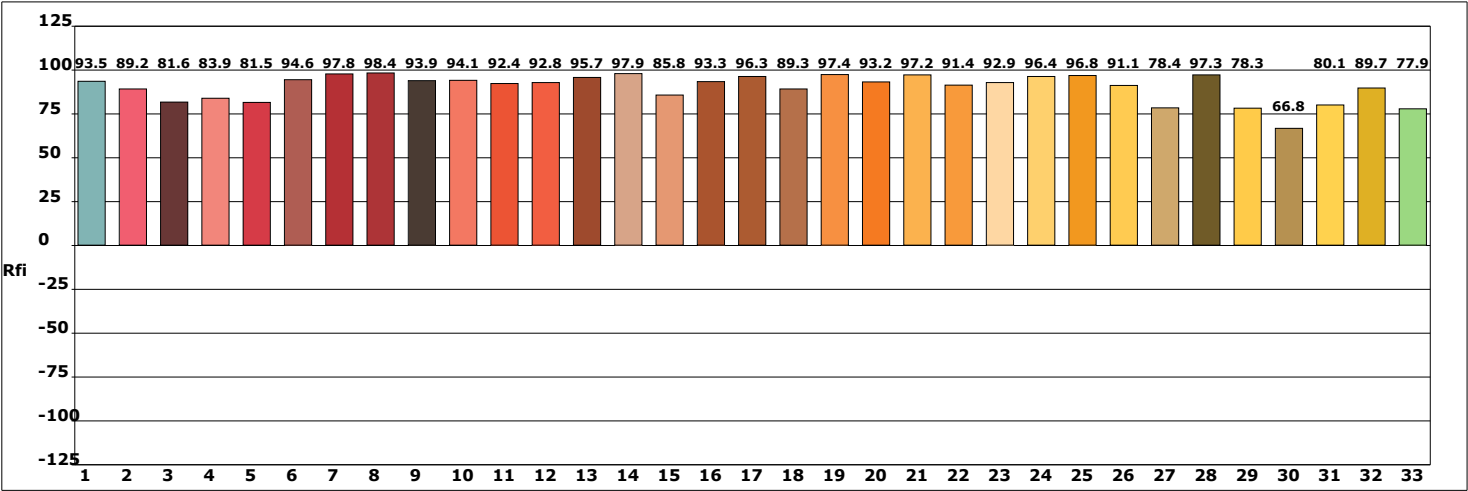


Chroma by Bue



Product model:
Product number:
Tester:
Remarks:

Manufacturer:
Test unit:
Date of observation: 10/12/23



Product model:
Product number:
Tester:
Remarks:

Manufacturer:
Test unit:
Date of observation: 10/12/23