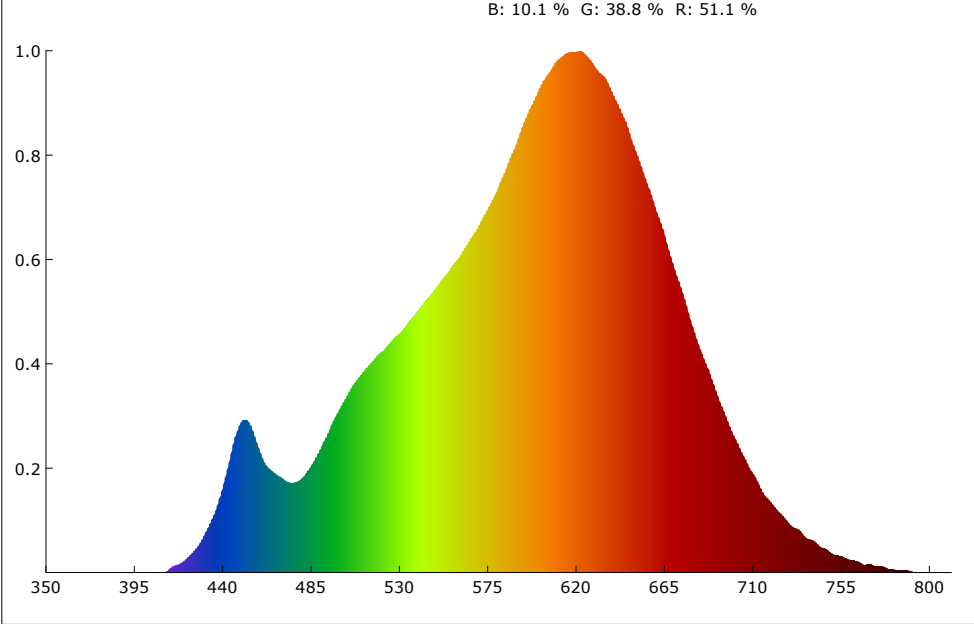
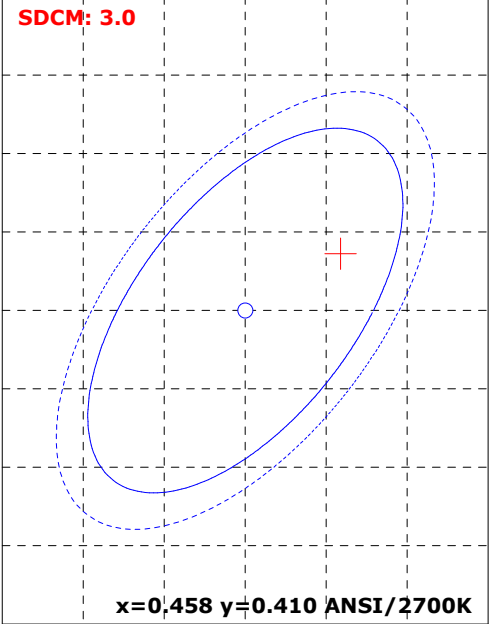


Spectrogram



SDCM



Color Parameter:

x: 0.4637	y: 0.4137	u: 0.2636	v: 0.3527	u': 0.2636	v': 0.5290		
R_ratio: 51.1 %	G_ratio: 38.8 %	B_ratio: 10.1 %	RedRatio: 25.7 %	GreenRatio: 72.9 %	BlueRatio: 1.4 %		
Ra: 92.0		AvgR: 89.2					
R1: 91.5	R2: 96.0	R3: 99.2	R4: 92.8	R5: 92.5	R6: 97.3	R7: 89.8	R8: 77.0
R9: 50.7	R10: 90.7	R11: 94.6	R12: 87.8	R13: 92.6	R14: 99.0	R15: 85.9	
CCT: 2670 K		Flux: 546.986 lm	PeakWave: 621.6 nm	SDCM: 3.0			
S/P: 1.2		CentralWave: 608.5 nm	DominantWave: 584.1 nm	CentroidWave: 596.9 nm			
HalfWidth: 136.4 nm		duv: 0.00079	purity: 63.4 %	CQS: 87.7			
LER(TM-30): 295.1		Ep: 1853.6 mw	Rg: 98.1	Rf: 91.4			
Red Ep: 904.2 mw		Near red Ep: 82.4 mw	Near infrared Ep: 0.9 mw				

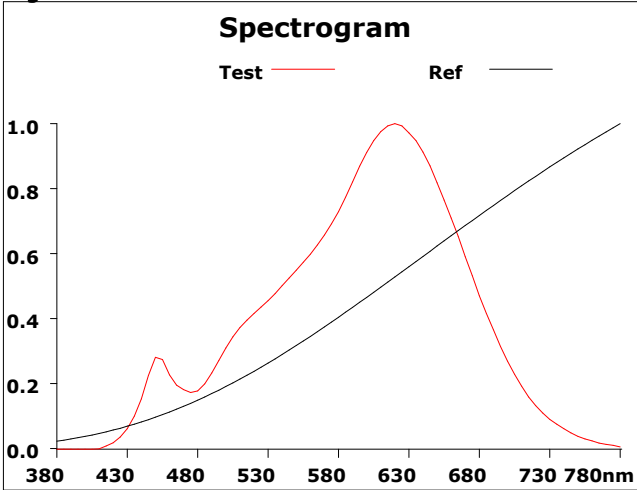
Electrical parameters:

Effic: 12.5 Lm/W	Energy: 13.6	Effi: G	
U: 222.7 V	I: 0.335 A	P: 43.810 W	Pf: 0.586

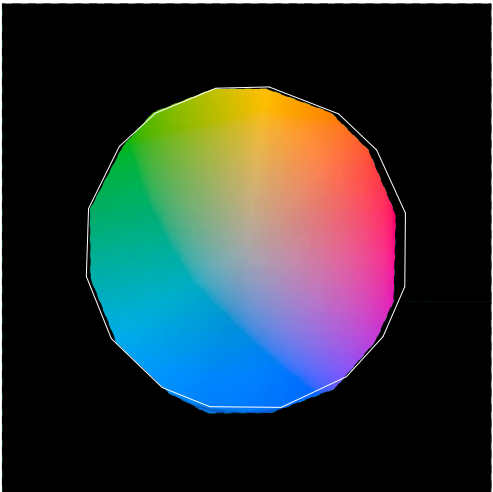
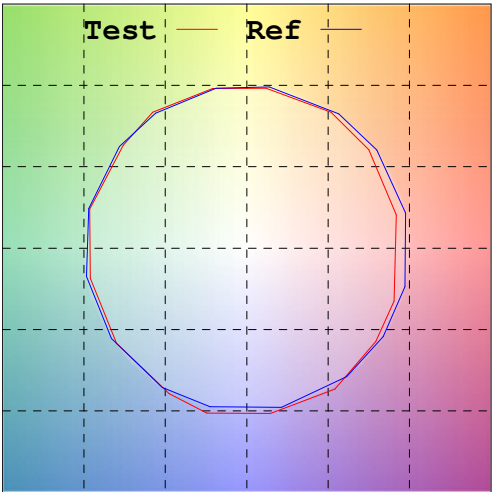
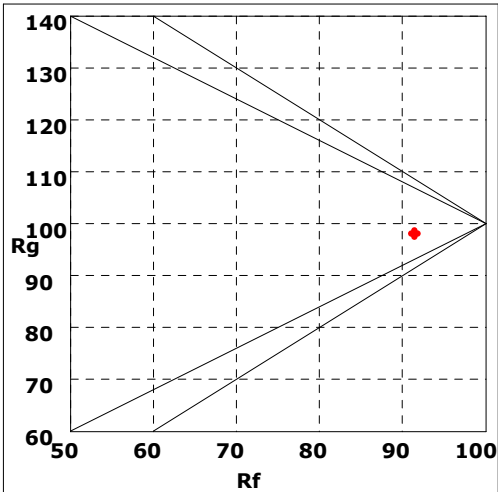
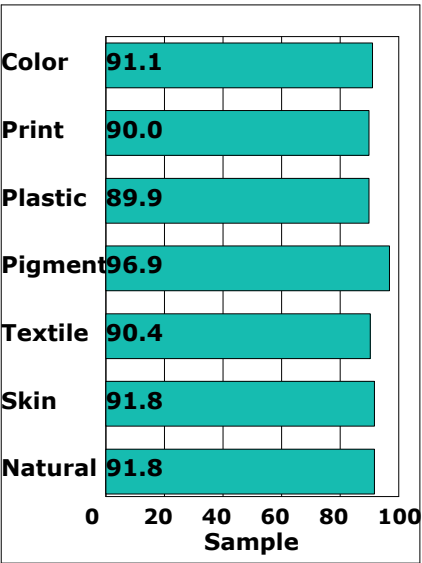
Product model:
Product number:
Tester:
Remarks:

Manufacturer:
Test unit:
Date of observation: 09/11/23

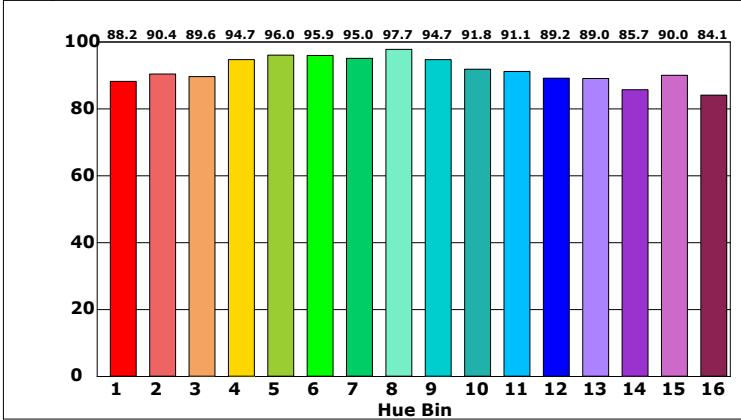
Rf: 91.4 CCT: 2670K u': 0.2636
Rg: 98.1 LER: 295.1 Duv: 0.00079 v': 0.5290



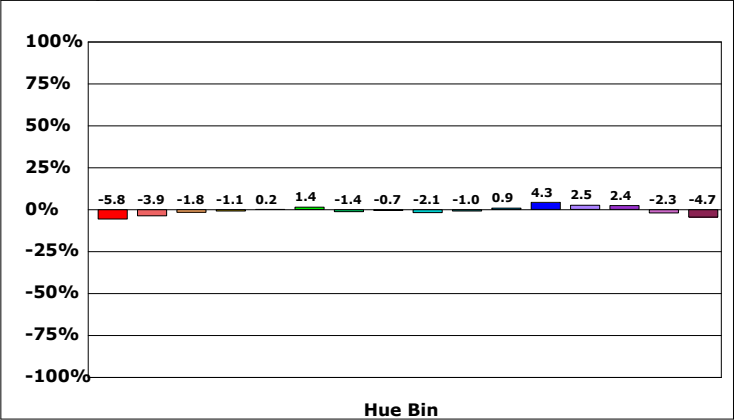
500			
Hue Bin	Rf	Chroma	Hue
1	88.2	-5.8%	0.0%
2	90.4	-3.9%	2.9%
3	89.6	-1.8%	4.6%
4	94.7	-1.1%	1.7%
5	96.0	0.2%	2.3%
6	95.9	1.4%	1.1%
7	95.0	-1.4%	-2.0%
8	97.7	-0.7%	0.3%
9	94.7	-2.1%	1.7%
10	91.8	-1.0%	4.3%
11	91.1	0.9%	5.6%
12	89.2	4.3%	-1.2%
13	89.0	2.5%	-7.2%
14	85.7	2.4%	-10.3%
15	90.0	-2.3%	-4.9%
16	84.1	-4.7%	-9.8%



Rf by Bue

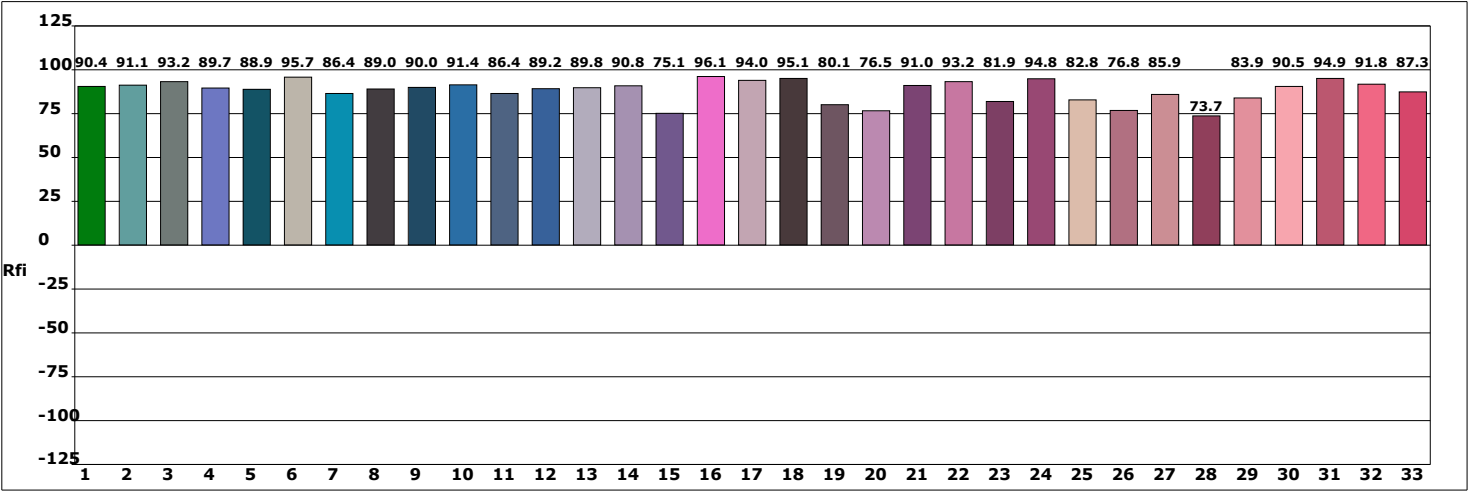
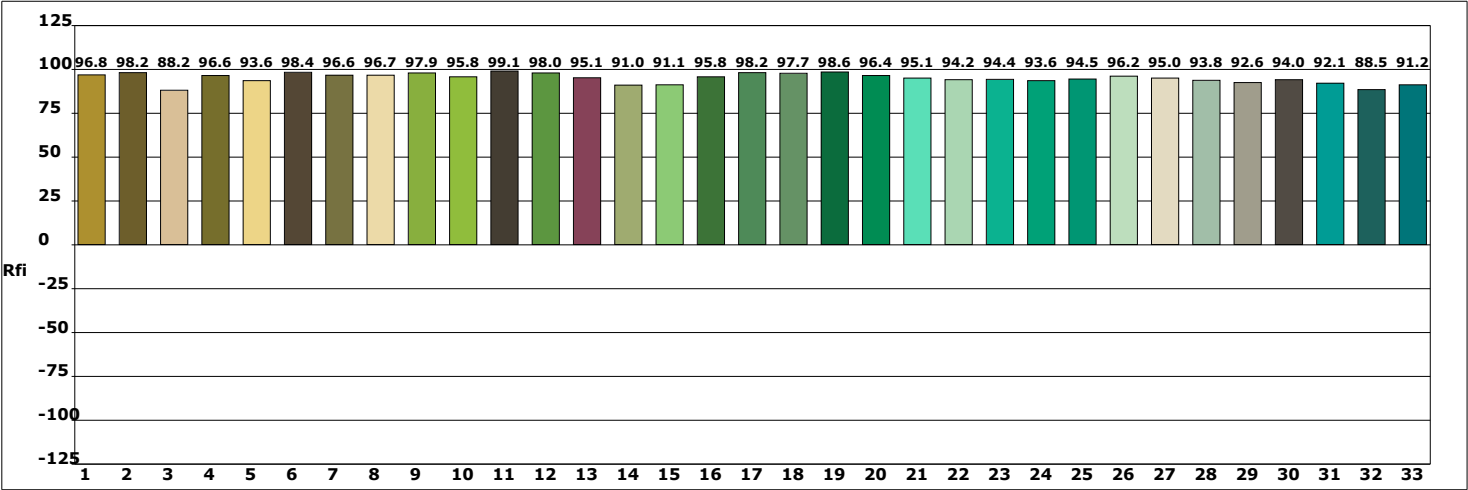
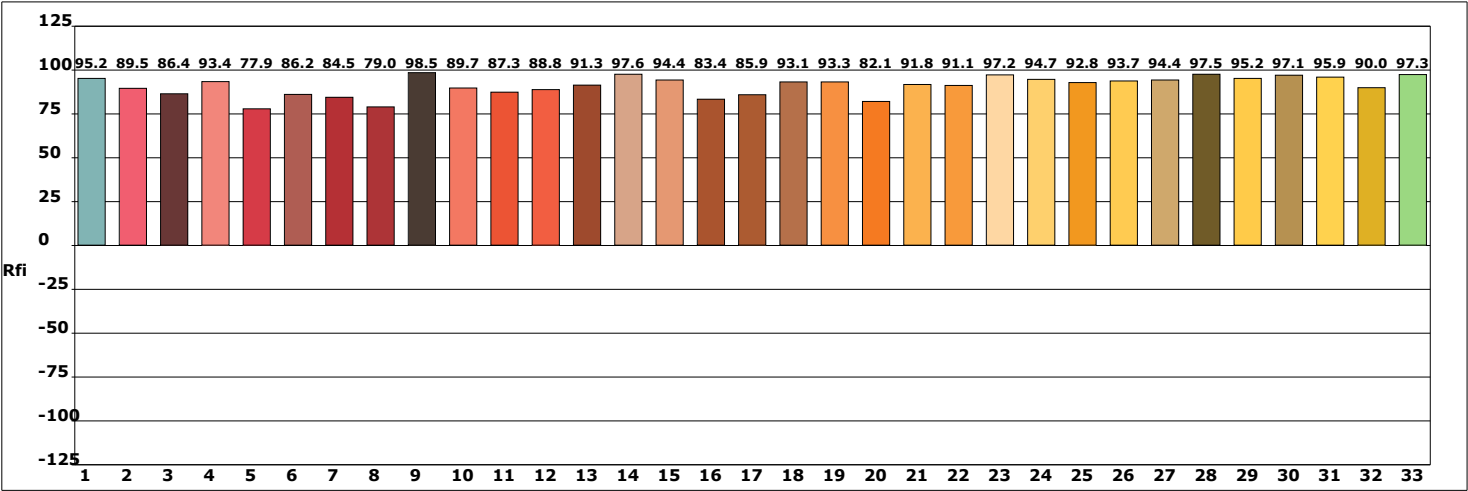


Chroma by Bue



Product model:
Product number:
Tester:
Remarks:

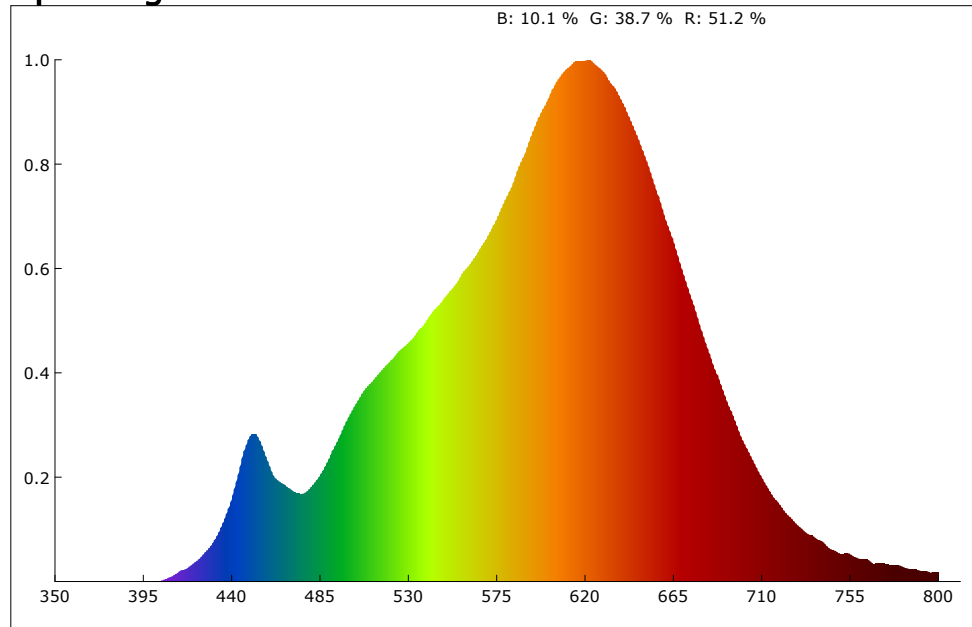
Manufacturer:
Test unit:
Date of observation: 09/11/23



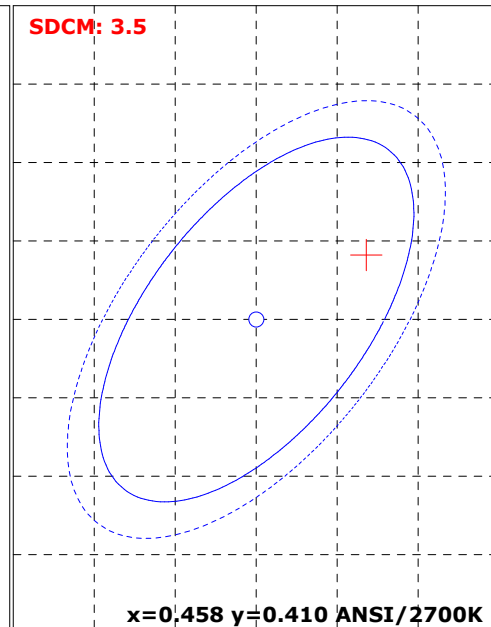
Product model:
Product number:
Tester:
Remarks:

Manufacturer:
Test unit:
Date of observation: 09/11/23

Spectrogram



SDCM



Color Parameter:

x: 0.4646	y: 0.4142	u: 0.2639	v: 0.3530	u': 0.2639	v': 0.5295
R_ratio: 51.2 %	G_ratio: 38.7 %	B_ratio: 10.1 %	RedRatio: 25.8 %	GreenRatio: 72.8 %	BlueRatio: 1.4 %

Ra: 92.0	AvgR: 89.3						
R1: 91.8	R2: 96.2	R3: 99.4	R4: 92.8	R5: 92.3	R6: 96.9	R7: 90.0	R8: 77.3
R9: 50.9	R10: 91.0	R11: 94.6	R12: 88.1	R13: 92.9	R14: 99.1	R15: 86.1	

CCT: 2663 K	Flux: 884.437 lm	PeakWave: 621.6 nm	SDCM: 3.5
S/P: 1.2	CentralWave: 608.9 nm	DominantWave: 584.1 nm	CentroidWave: 598.6 nm
HalfWidth: 137.2 nm	duv: 0.00099	purity: 63.8 %	CQS: 87.9
LER(TM-30): 291.3	Ep: 3036.2 mw	Rg: 98.1	Rf: 91.7
Red Ep: 1470.5 mw	Near red Ep: 156.8 mw	Near infrared Ep: 9.5 mw	

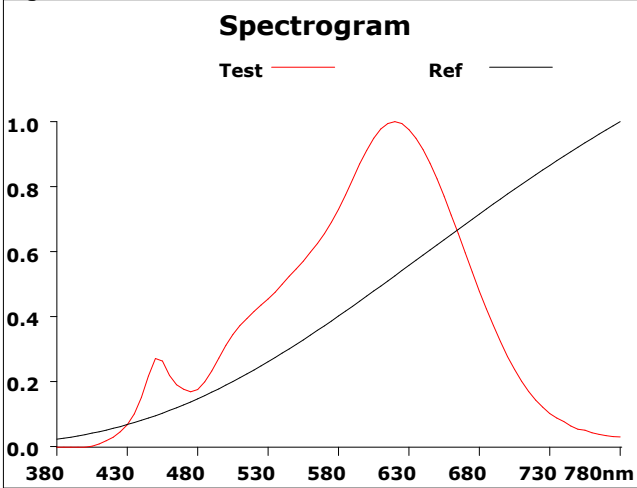
Electrical parameters:

Effic: 20.2 Lm/W	Energy: 22.0	Effi: G	
U: 222.7 V	I: 0.336 A	P: 43.870 W	Pf: 0.586

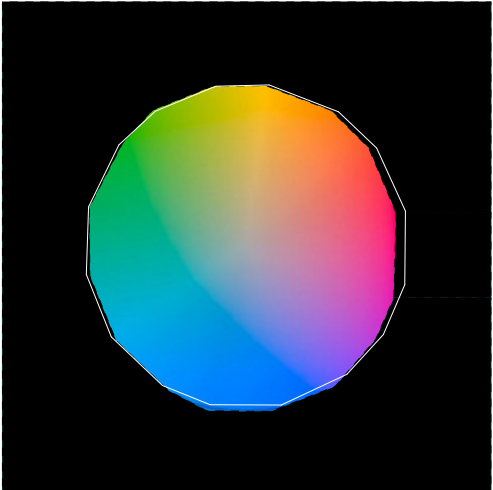
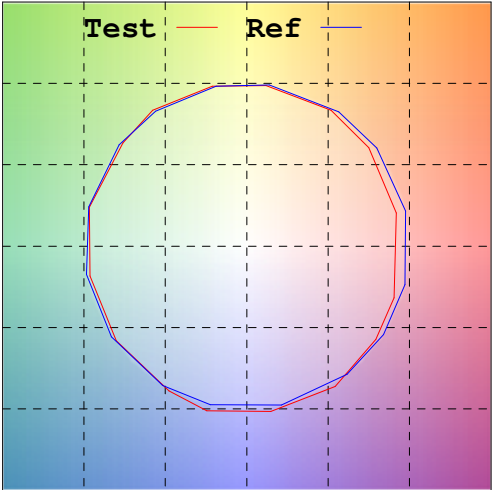
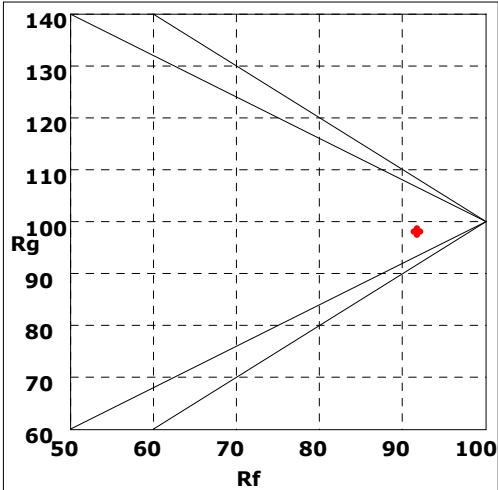
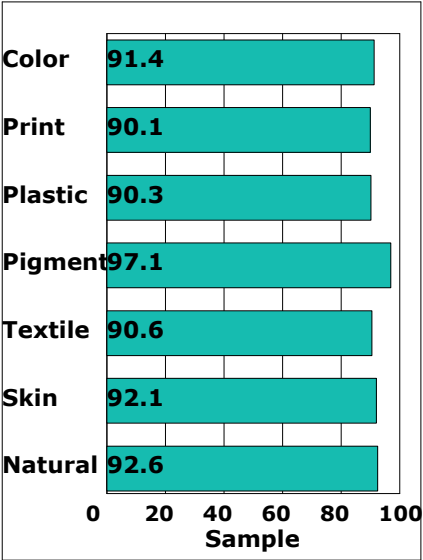
Product model:
Product number:
Tester:
Remarks:

Manufacturer:
Test unit:
Date of observation: 09/11/23

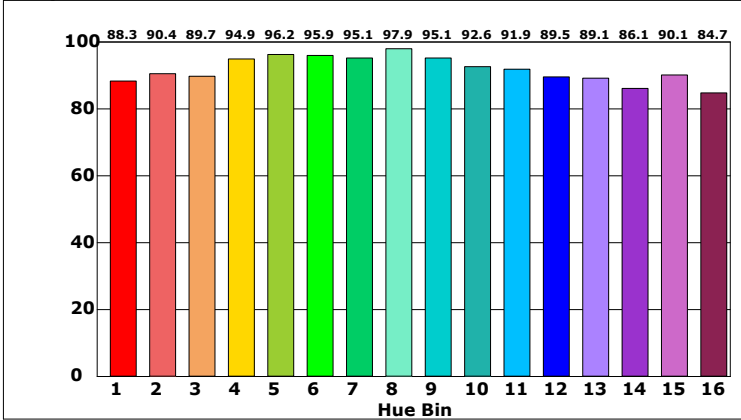
Rf: 91.7 CCT: 2663K u': 0.2639
Rg: 98.1 LER: 291.3 Duv: 0.00099 v': 0.5295



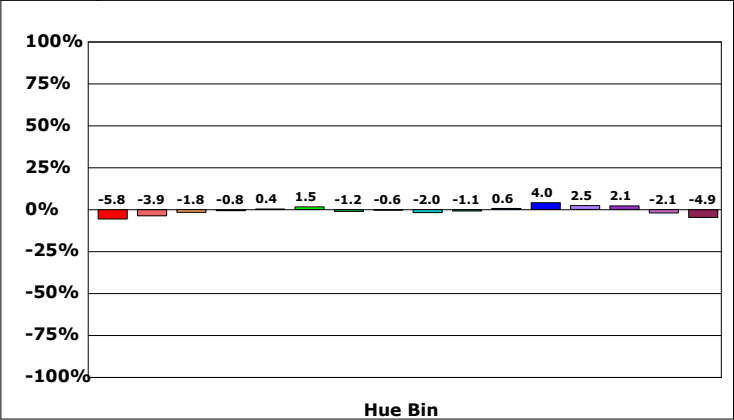
500			
Hue Bin	Rf	Chroma	Hue
1	88.3	-5.8%	-0.1%
2	90.4	-3.9%	2.9%
3	89.7	-1.8%	4.5%
4	94.9	-0.8%	1.9%
5	96.2	0.4%	2.3%
6	95.9	1.5%	1.1%
7	95.1	-1.2%	-2.2%
8	97.9	-0.6%	0.1%
9	95.1	-2.0%	1.3%
10	92.6	-1.1%	3.8%
11	91.9	0.6%	5.1%
12	89.5	4.0%	-1.4%
13	89.1	2.5%	-7.1%
14	86.1	2.1%	-10.1%
15	90.1	-2.1%	-5.0%
16	84.7	-4.9%	-9.2%



Rf by Bue

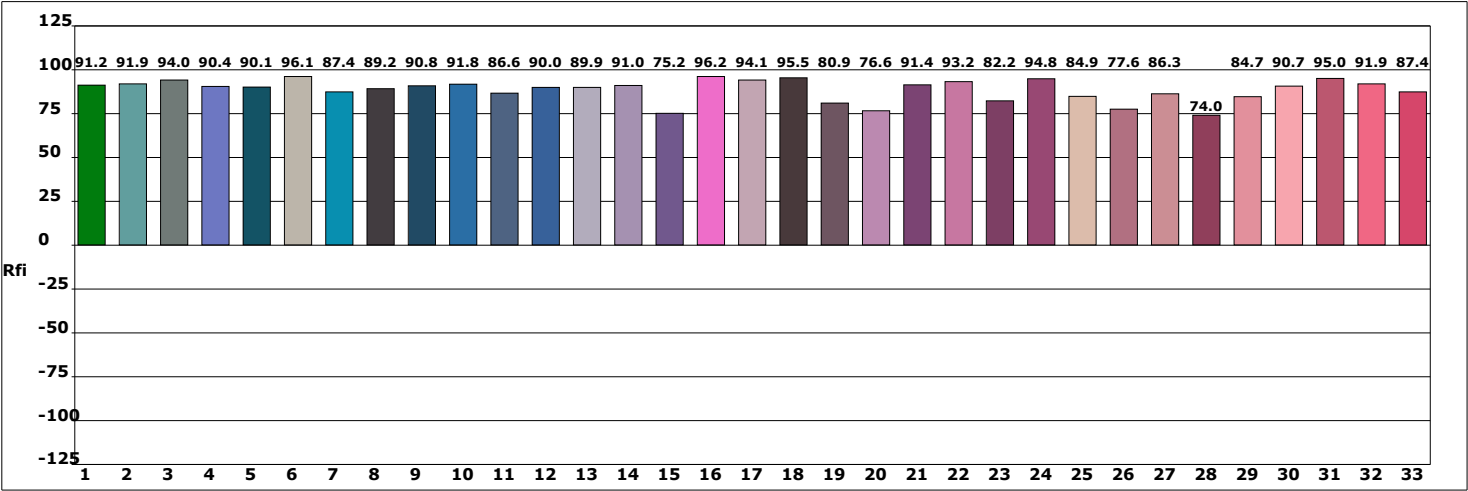
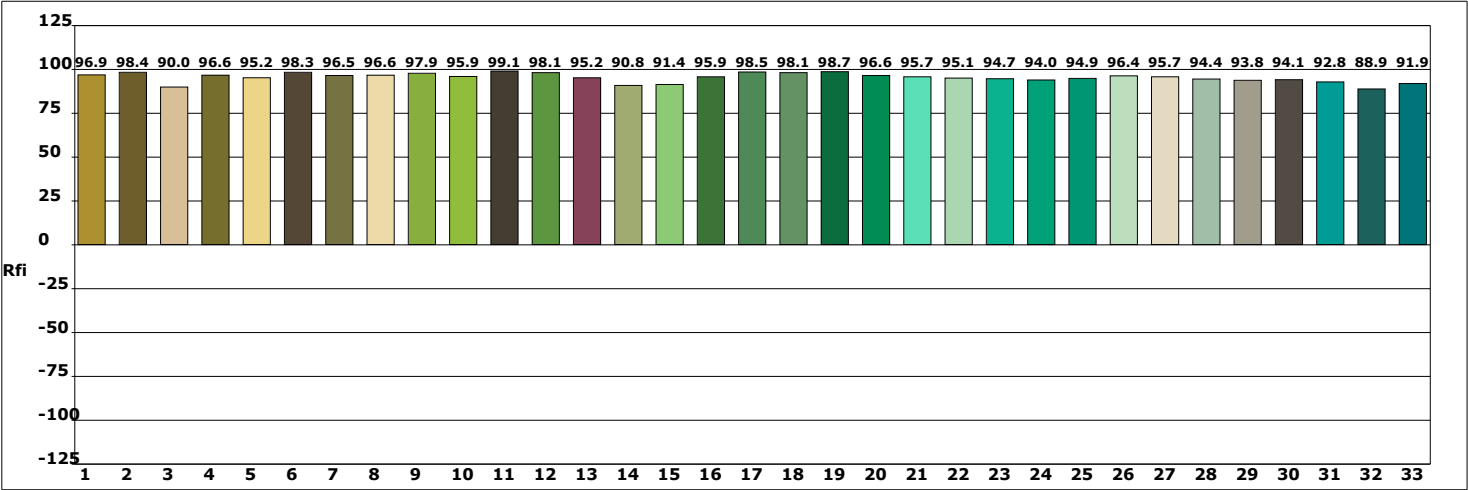
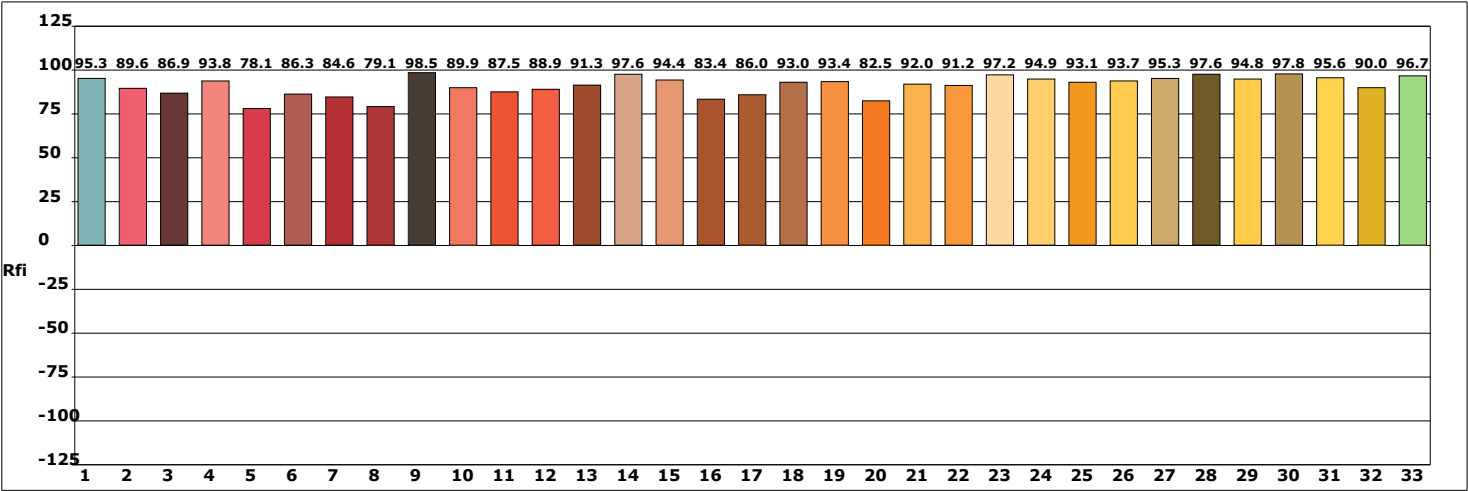


Chroma by Bue



Product model:
Product number:
Tester:
Remarks:

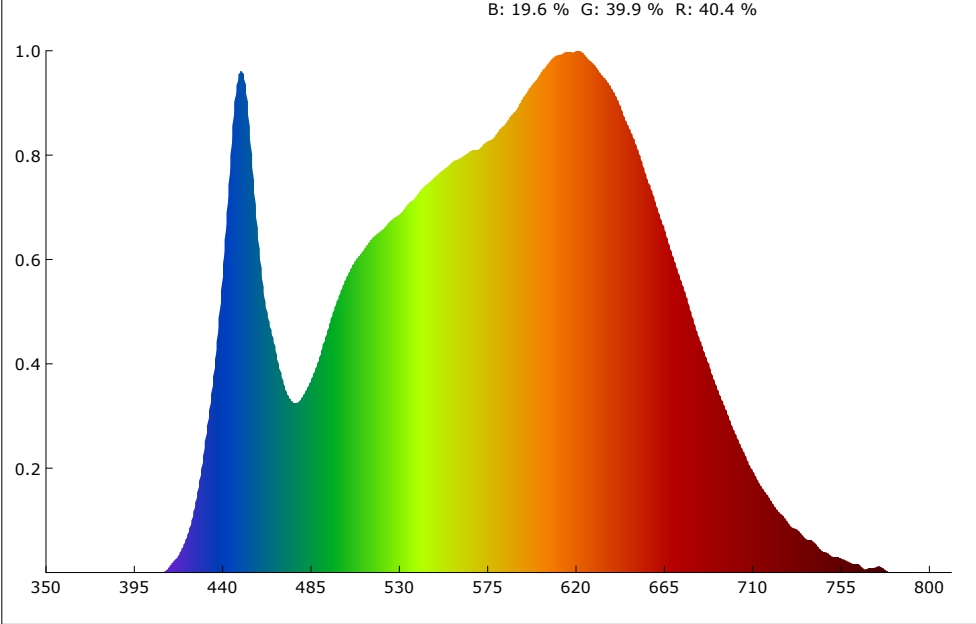
Manufacturer:
Test unit:
Date of observation: 09/11/23



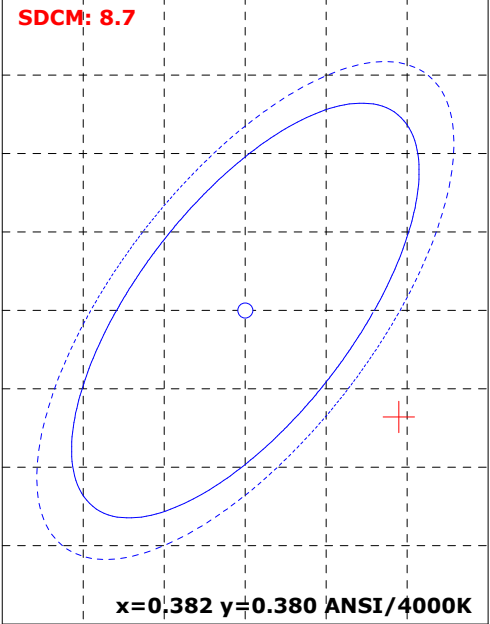
Product model:
Product number:
Tester:
Remarks:

Manufacturer:
Test unit:
Date of observation: 09/11/23

Spectrogram



SDCM



Color Parameter:

x: 0.3913 y: 0.3729 u: 0.2339 v: 0.3343 u': 0.2339 v': 0.5015
R_ratio: 40.4 % G_ratio: 39.9 % B_ratio: 19.6 % RedRatio: 20.9 % GreenRatio: 76.6 % BlueRatio: 2.5 %

Ra: 95.0 AvgR: 93.1
R1: 96.7 R2: 97.1 R3: 95.6 R4: 95.1 R5: 96.8 R6: 95.2 R7: 94.3 R8: 89.8
R9: 75.9 R10: 92.5 R11: 94.9 R12: 83.3 R13: 97.0 R14: 97.0 R15: 95.5

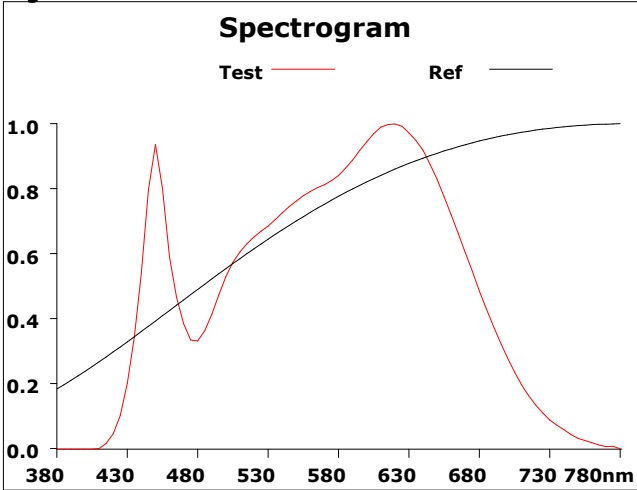
CCT: 3681 K Flux: 497.806 lm PeakWave: 621.6 nm SDCM: 8.7
S/P: 1.7 CentralWave: 587.3 nm DominantWave: 582.8 nm CentroidWave: 576.0 nm
HalfWidth: 180.9 nm duv: -0.00482 purity: 29.3 % CQS: 85.5
LER(TM-30): 290.4 Ep: 1713.9 mw Rg: 102.1 Rf: 91.4
Red Ep: 669.2 mw Near red Ep: 59.0 mw Near infrared Ep: 0.1 mw

Electrical parameters:

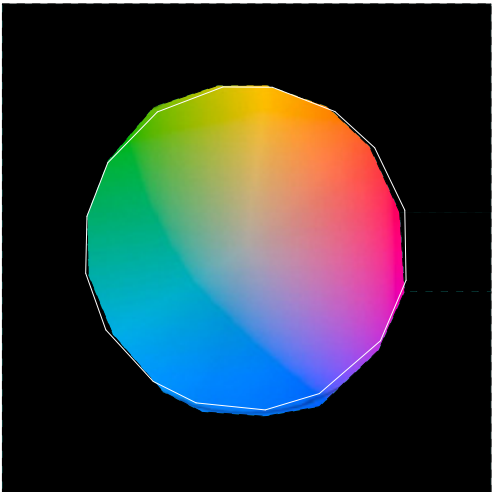
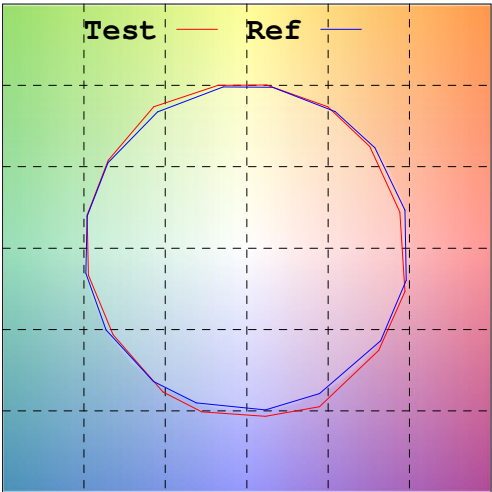
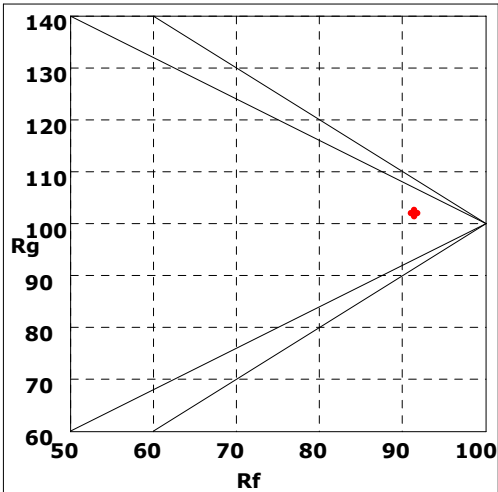
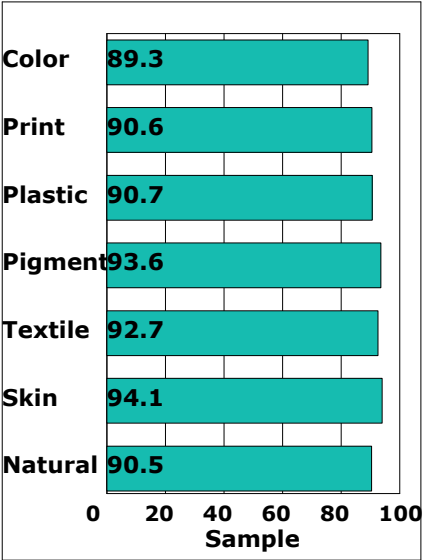
Effic: 14.2 Lm/W Energy: 15.4 Effi: G
U: 222.7 V I: 0.275 A P: 35.160 W Pf: 0.573

Product model: Manufacturer:
Product number: Test unit:
Tester: Date of observation: 09/11/23
Remarks:

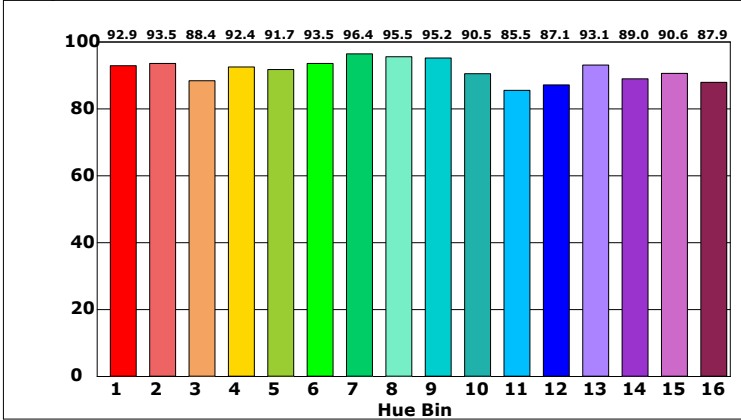
Rf: 91.4 CCT: 3681K u': 0.2339
Rg: 102.1 LER: 290.4 Duv: -0.00482 v': 0.5015



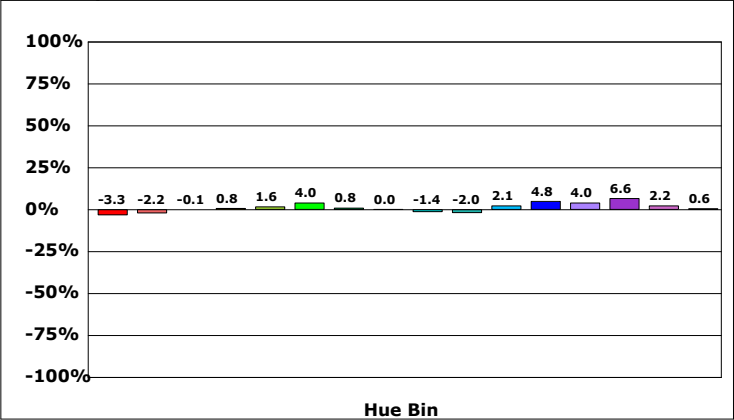
500			
Hue Bin	Rf	Chroma	Hue
1	92.9	-3.3%	-0.7%
2	93.5	-2.2%	2.4%
3	88.4	-0.1%	5.3%
4	92.4	0.8%	3.7%
5	91.7	1.6%	2.7%
6	93.5	4.0%	0.2%
7	96.4	0.8%	-1.5%
8	95.5	0.0%	-0.9%
9	95.2	-1.4%	1.4%
10	90.5	-2.0%	4.9%
11	85.5	2.1%	8.6%
12	87.1	4.8%	4.2%
13	93.1	4.0%	-0.9%
14	89.0	6.6%	-4.4%
15	90.6	2.2%	-5.6%
16	87.9	0.6%	-7.0%



Rf by Bue

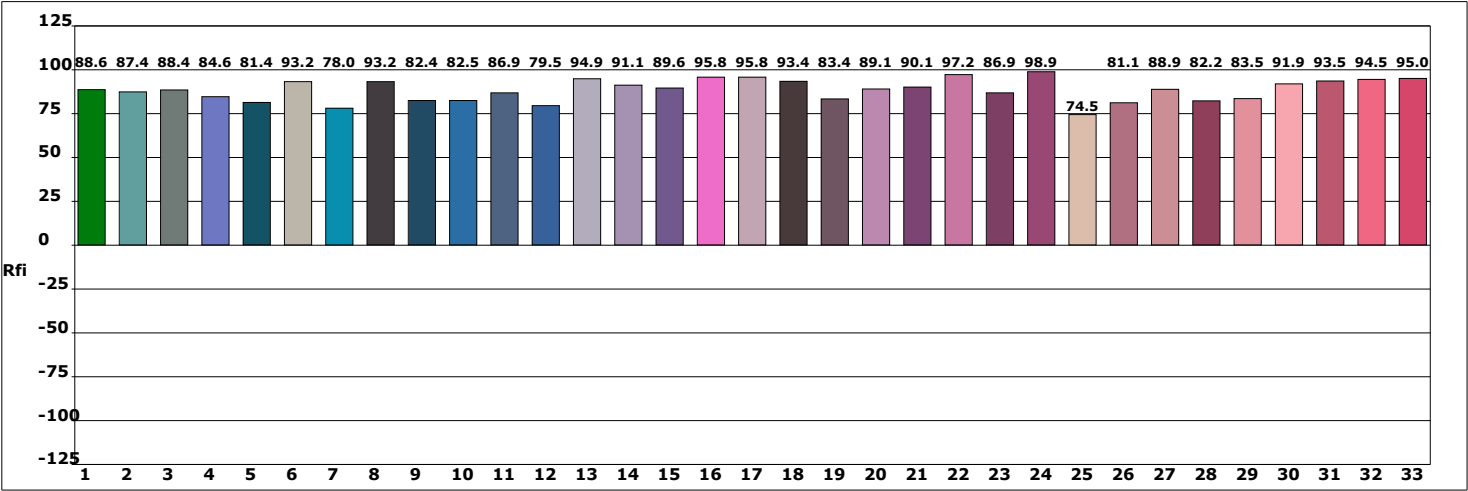
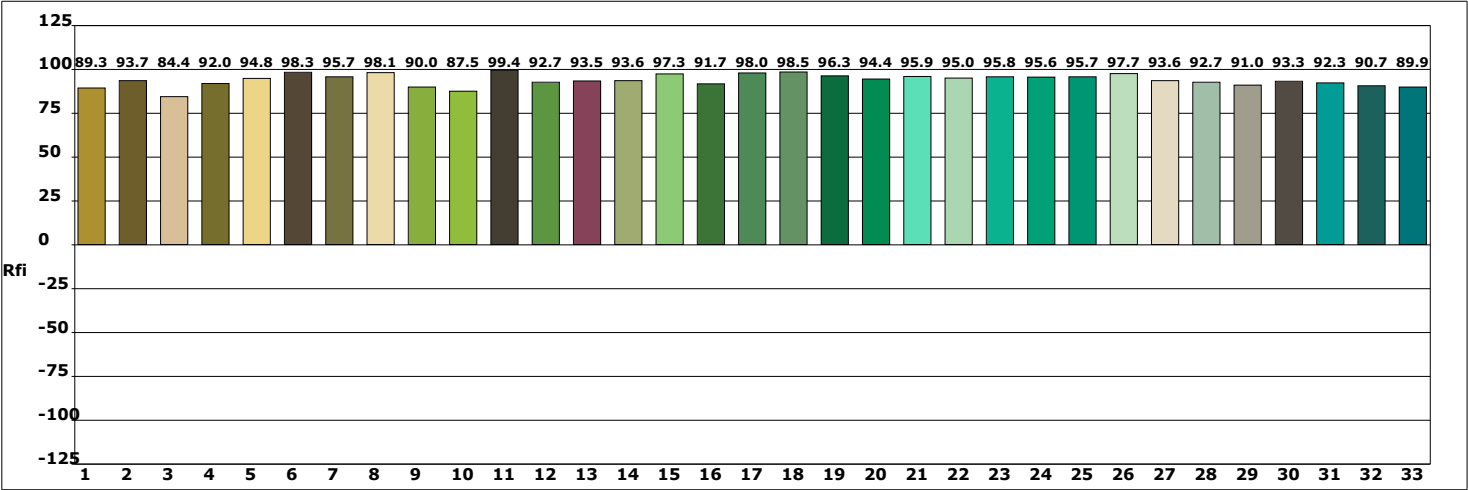
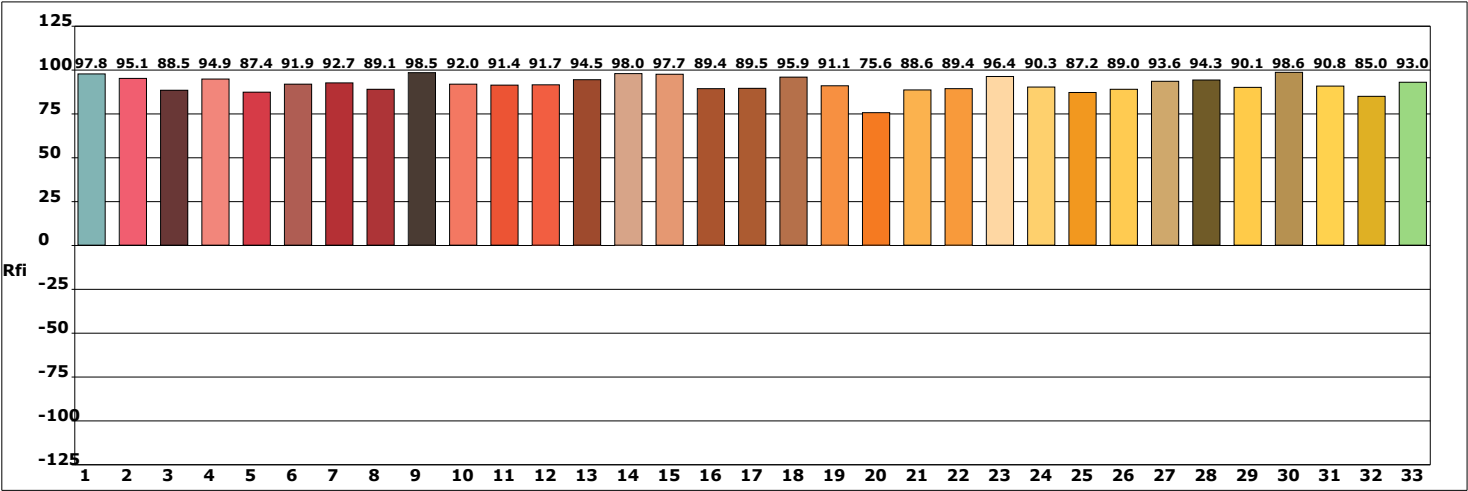


Chroma by Bue



Product model:
Product number:
Tester:
Remarks:

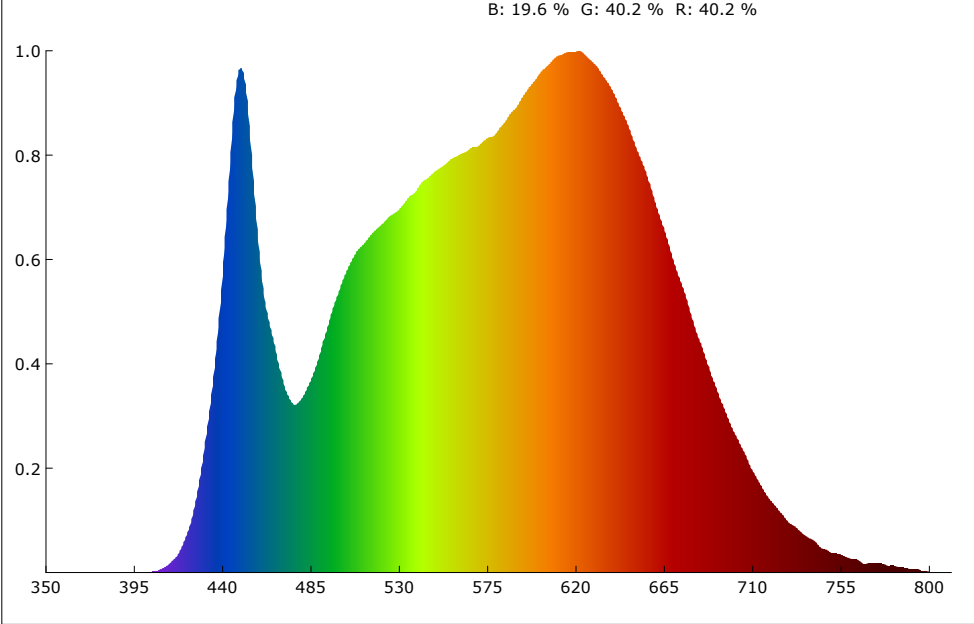
Manufacturer:
Test unit:
Date of observation: 09/11/23



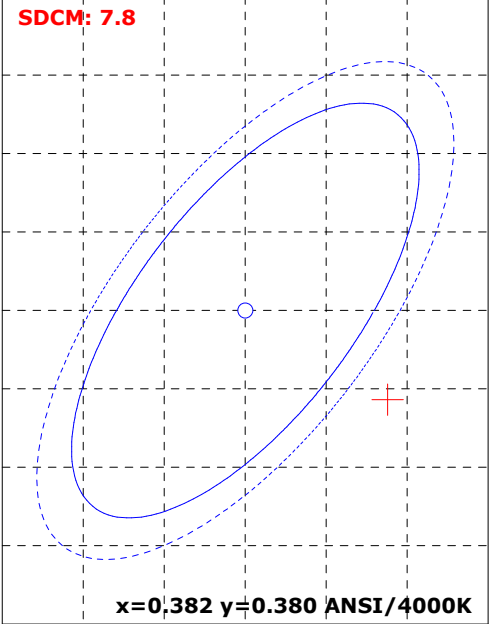
Product model:
Product number:
Tester:
Remarks:

Manufacturer:
Test unit:
Date of observation: 09/11/23

Spectrogram



SDCM



Color Parameter:

x: 0.3906	y: 0.3740	u: 0.2330	v: 0.3346	u': 0.2330	v': 0.5019
R_ratio: 40.2 %	G_ratio: 40.2 %	B_ratio: 19.6 %	RedRatio: 20.7 %	GreenRatio: 76.8 %	BlueRatio: 2.5 %
Ra: 94.9	AvgR: 92.8				
R1: 96.5	R2: 96.9	R3: 95.4	R4: 95.3	R5: 96.5	R6: 94.8
R7: 94.3	R8: 89.7	R9: 75.2	R10: 91.8	R11: 95.1	R12: 82.4
R13: 96.8	R14: 96.8	R15: 95.1			
CCT: 3708 K	Flux: 819.887 lm	PeakWave: 621.6 nm	SDCM: 7.8		
S/P: 1.7	CentralWave: 586.7 nm	DominantWave: 582.3 nm	CentroidWave: 576.1 nm		
HalfWidth: 181.5 nm	duv: -0.00410	purity: 29.5 %	CQS: 86.1		
LER(TM-30): 290.7	Ep: 2820.3 mw	Rg: 101.9	Rf: 91.4		
Red Ep: 1091.0 mw	Near red Ep: 101.7 mw	Near infrared Ep: 2.5 mw			

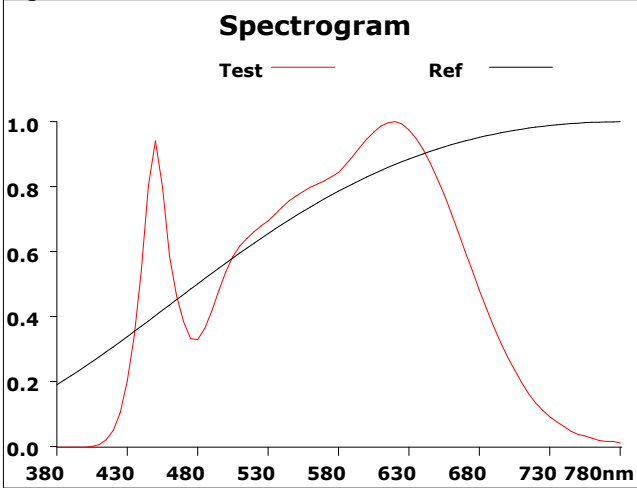
Electrical parameters:

Effic: 23.3 Lm/W	Energy: 25.4	Effi: G	
U: 222.7 V	I: 0.275 A	P: 35.220 W	Pf: 0.574

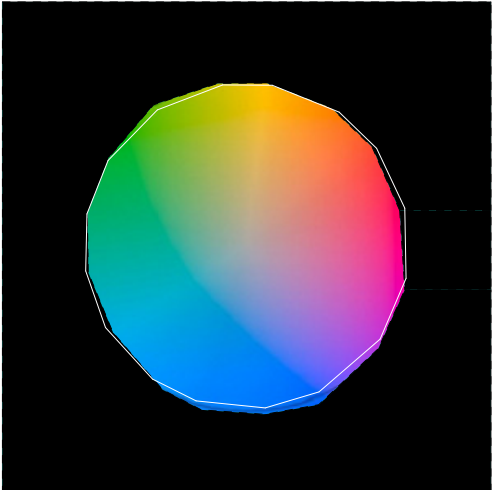
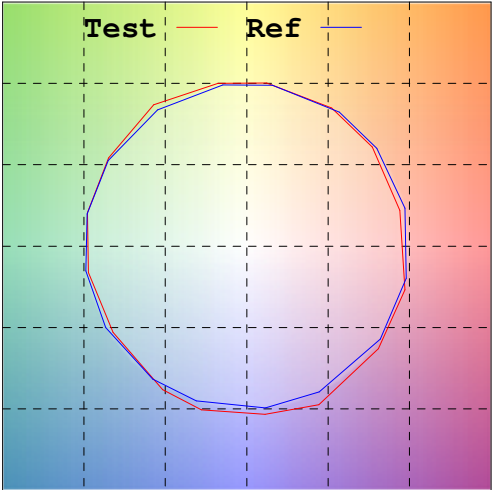
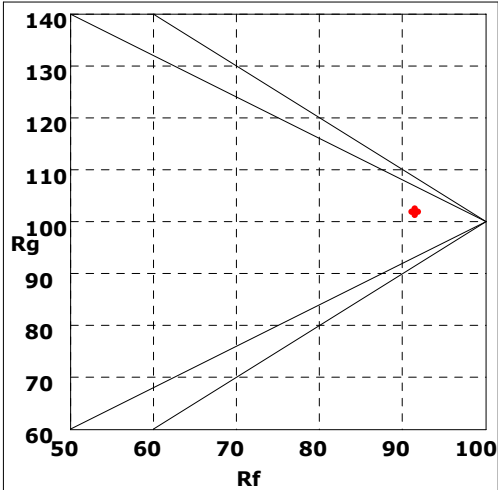
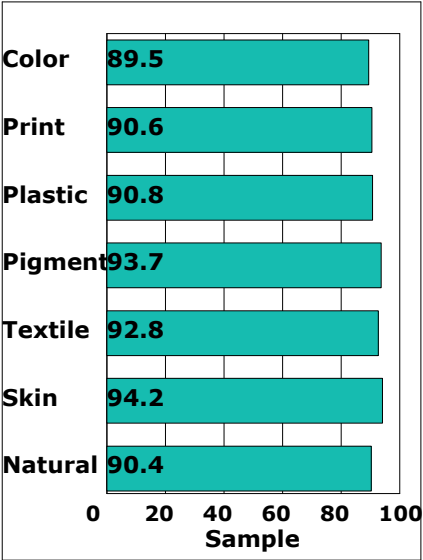
Product model:
Product number:
Tester:
Remarks:

Manufacturer:
Test unit:
Date of observation: 09/11/23

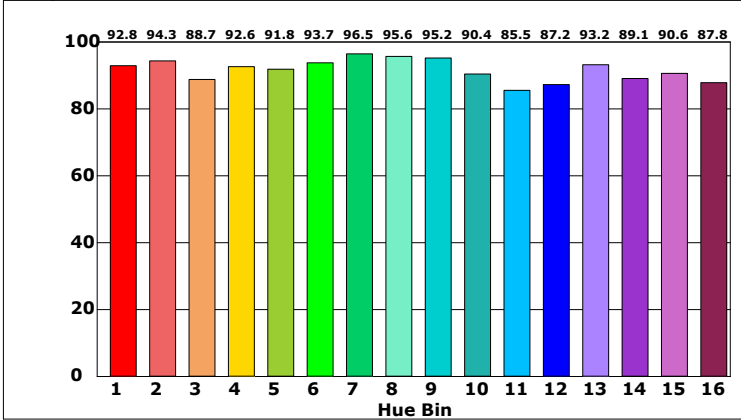
Rf: 91.4 CCT: 3708K u': 0.2330
Rg: 101.9 LER: 290.7 Duv: -0.00410 v': 0.5019



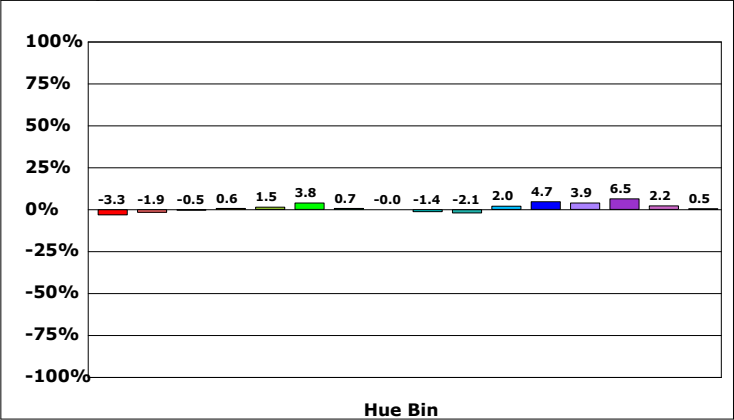
500			
Hue Bin	Rf	Chroma	Hue
1	92.8	-3.3%	-0.7%
2	94.3	-1.9%	2.1%
3	88.7	-0.5%	5.2%
4	92.6	0.6%	3.6%
5	91.8	1.5%	2.7%
6	93.7	3.8%	0.3%
7	96.5	0.7%	-1.5%
8	95.6	-0.0%	-0.9%
9	95.2	-1.4%	1.4%
10	90.4	-2.1%	4.9%
11	85.5	2.0%	8.6%
12	87.2	4.7%	4.2%
13	93.2	3.9%	-0.8%
14	89.1	6.5%	-4.4%
15	90.6	2.2%	-5.6%
16	87.8	0.5%	-7.0%



Rf by Bue

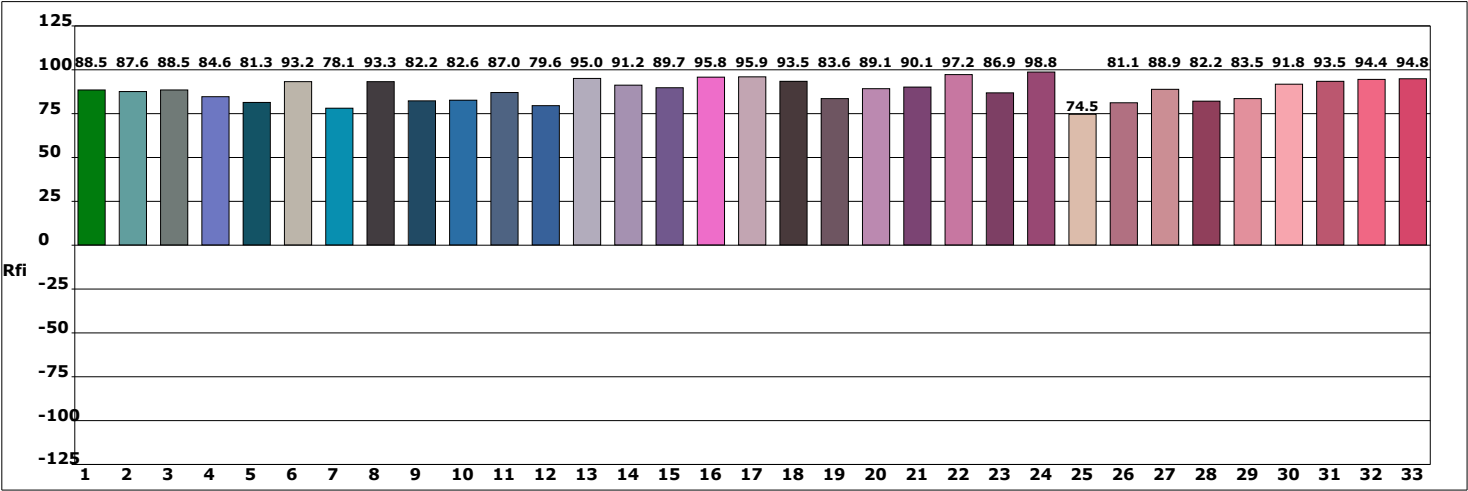
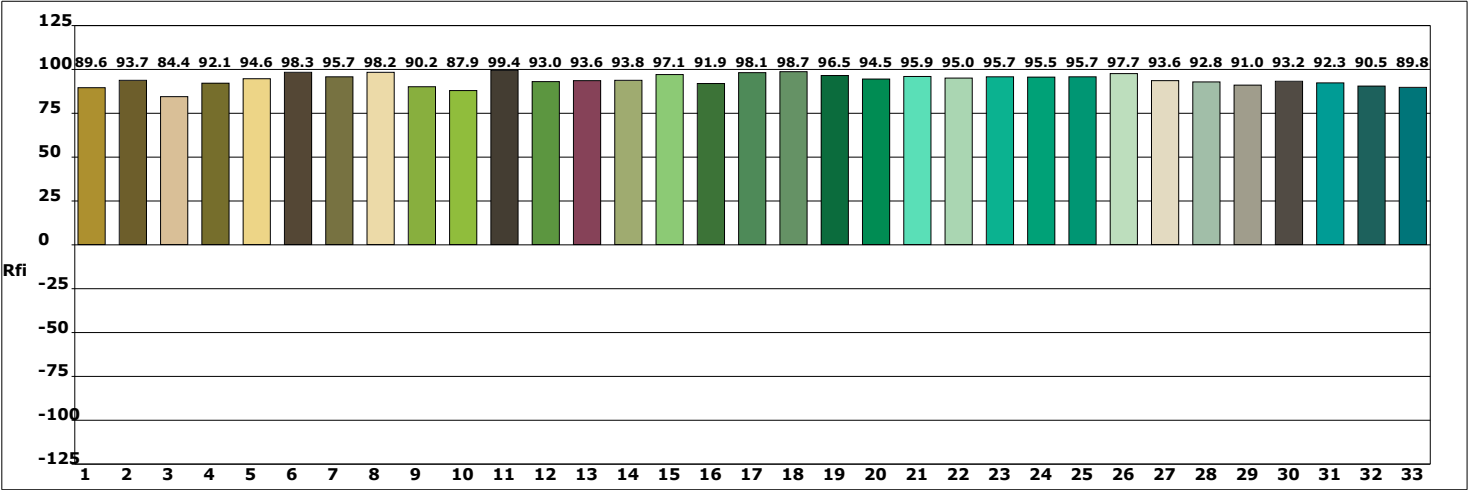
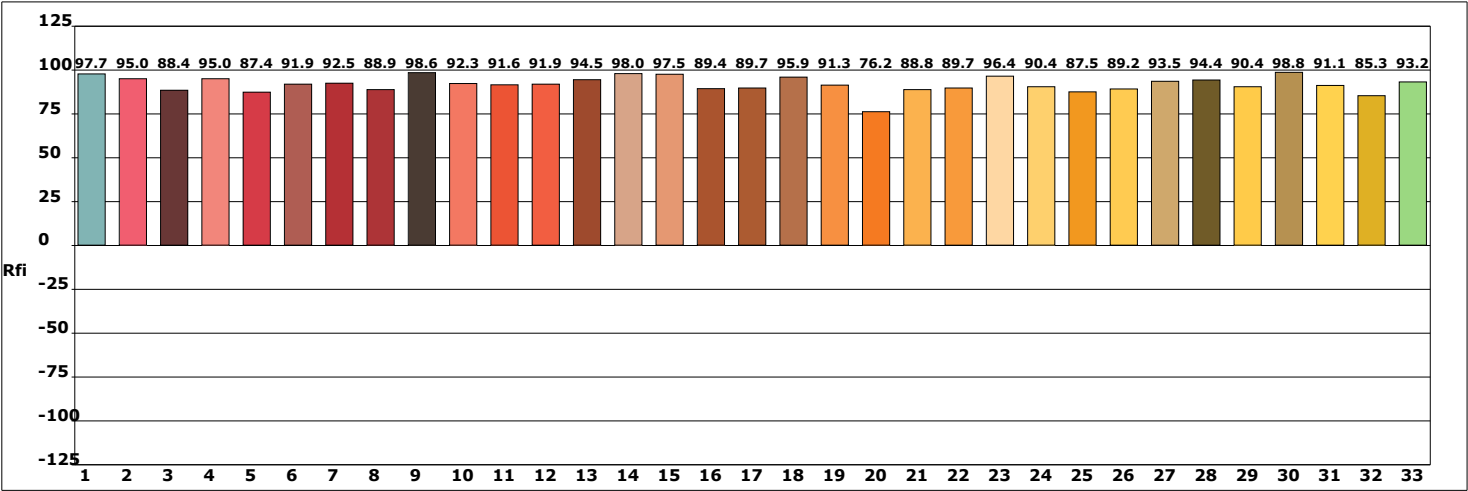


Chroma by Bue



Product model:
Product number:
Tester:
Remarks:

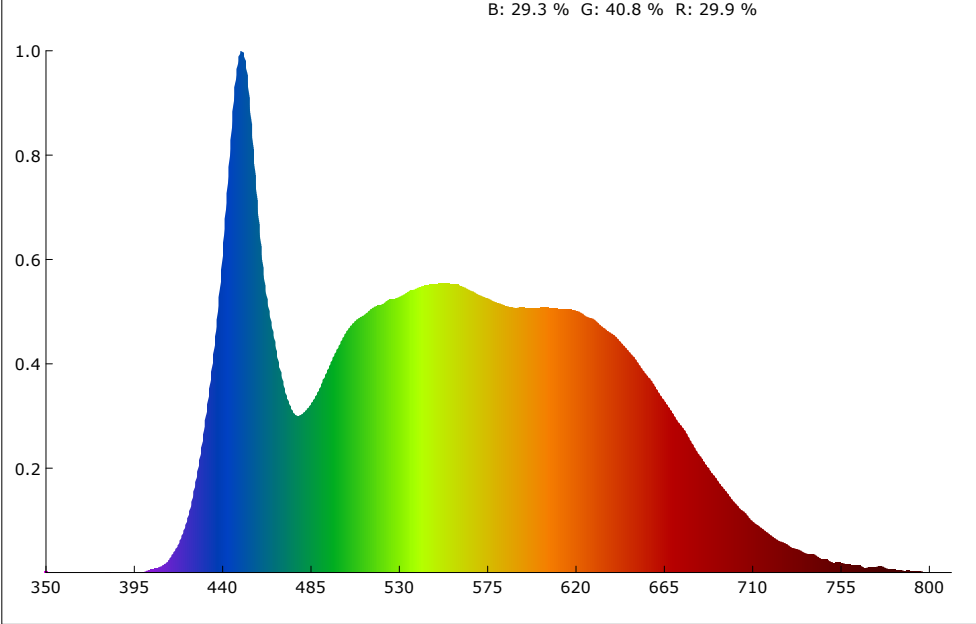
Manufacturer:
Test unit:
Date of observation: 09/11/23



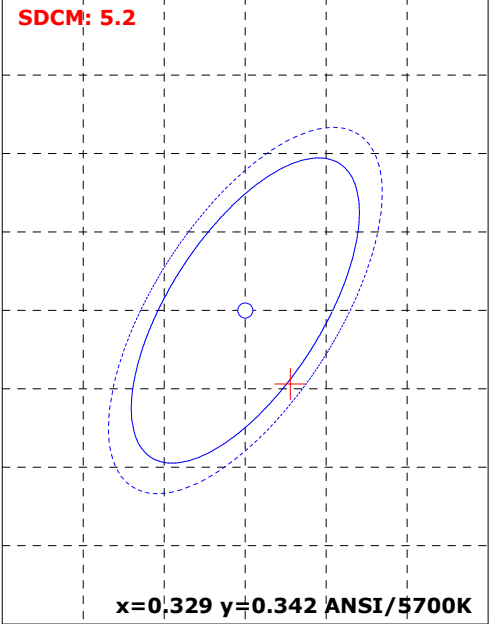
Product model:
Product number:
Tester:
Remarks:

Manufacturer:
Test unit:
Date of observation: 09/11/23

Spectrogram



SDCM



Color Parameter:

x: 0.3315 y: 0.3370 u: 0.2078 v: 0.3169 u': 0.2078 v': 0.4754
R_ratio: 29.9 % G_ratio: 40.8 % B_ratio: 29.3 % RedRatio: 16.0 % GreenRatio: 80.3 % BlueRatio: 3.7 %

Ra: 93.1 AvgR: 90.7
R1: 94.8 R2: 93.9 R3: 90.9 R4: 93.8 R5: 94.8 R6: 90.3 R7: 94.4 R8: 92.2
R9: 77.6 R10: 84.5 R11: 93.7 R12: 75.8 R13: 94.5 R14: 94.6 R15: 95.4

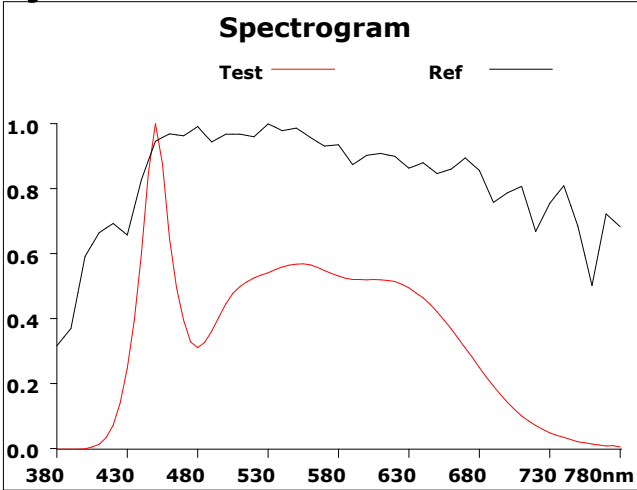
CCT: 5540 K Flux: 525.747 lm PeakWave: 449.6 nm SDCM: 5.2
S/P: 2.1 CentralWave: 451.0 nm DominantWave: 522.0 nm CentroidWave: 555.4 nm
HalfWidth: 25.1 nm duv: -0.00167 purity: 0.7 % CQS: 87.4
LER(TM-30): 283.9 Ep: 1852.1 mw Rg: 101.6 Rf: 89.5
Red Ep: 536.9 mw Near red Ep: 52.2 mw Near infrared Ep: 1.3 mw

Electrical parameters:

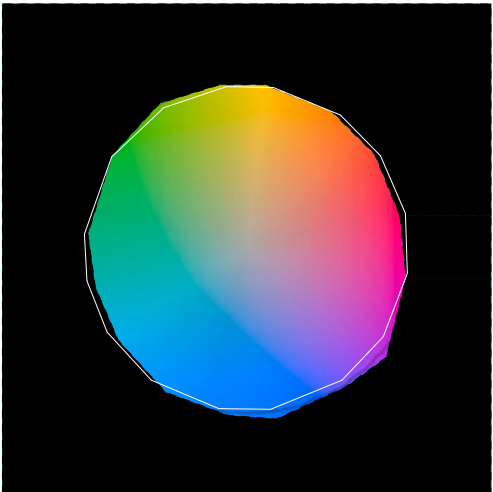
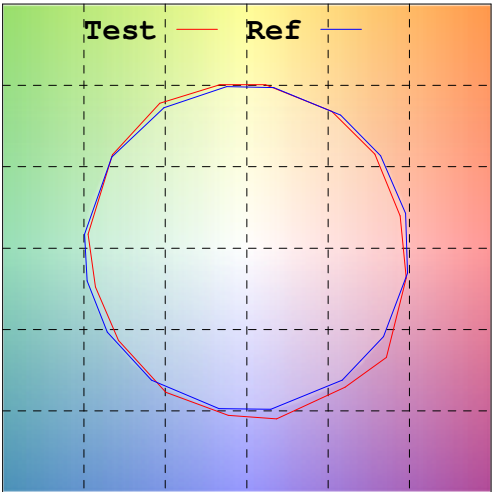
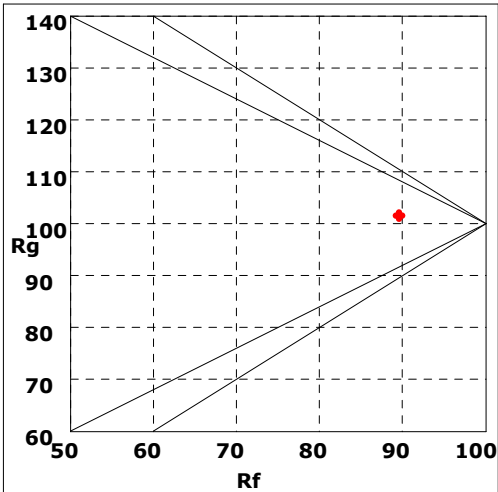
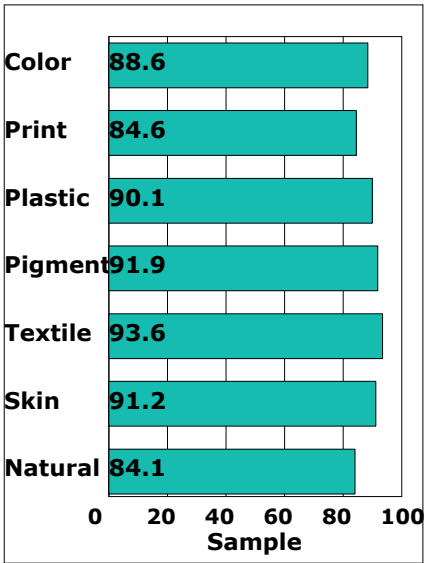
Effic: 14.4 Lm/W Energy: 15.7 Effi: G
U: 222.7 V I: 0.285 A P: 36.550 W Pf: 0.576

Product model: Manufacturer:
Product number: Test unit:
Tester: Date of observation: 09/11/23
Remarks:

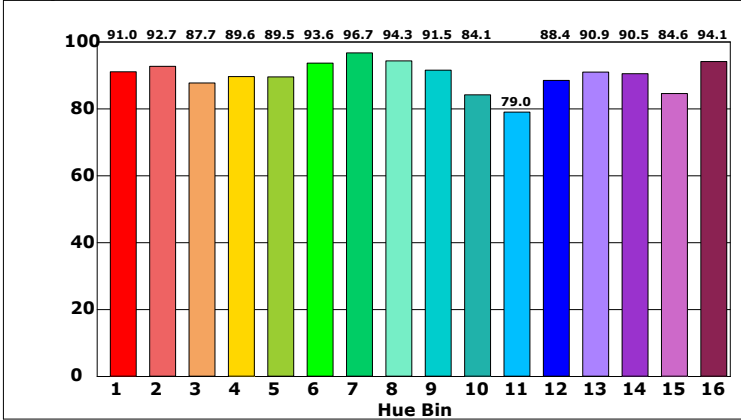
Rf: 89.5 CCT: 5540K u': 0.2078
Rg: 101.6 LER: 283.9 Duv: -0.00167 v': 0.4754



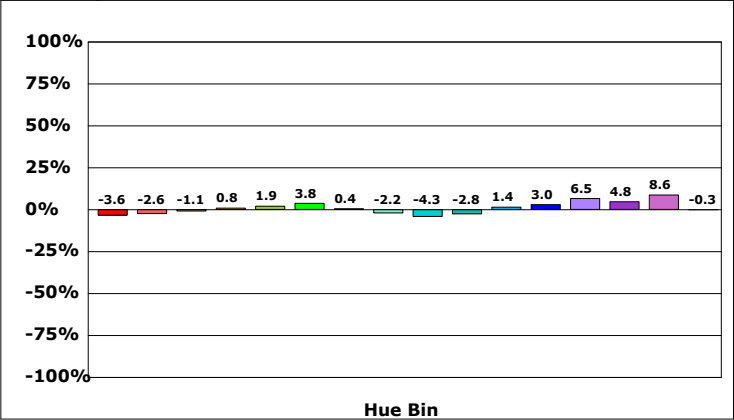
500			
Hue Bin	Rf	Chroma	Hue
1	91.0	-3.6%	-0.8%
2	92.7	-2.6%	2.7%
3	87.7	-1.1%	6.0%
4	89.6	0.8%	5.4%
5	89.5	1.9%	3.7%
6	93.6	3.8%	0.6%
7	96.7	0.4%	-1.4%
8	94.3	-2.2%	-0.3%
9	91.5	-4.3%	4.5%
10	84.1	-2.8%	8.2%
11	79.0	1.4%	11.6%
12	88.4	3.0%	6.3%
13	90.9	6.5%	2.3%
14	90.5	4.8%	-0.9%
15	84.6	8.6%	-9.6%
16	94.1	-0.3%	-3.0%



Rf by Bue

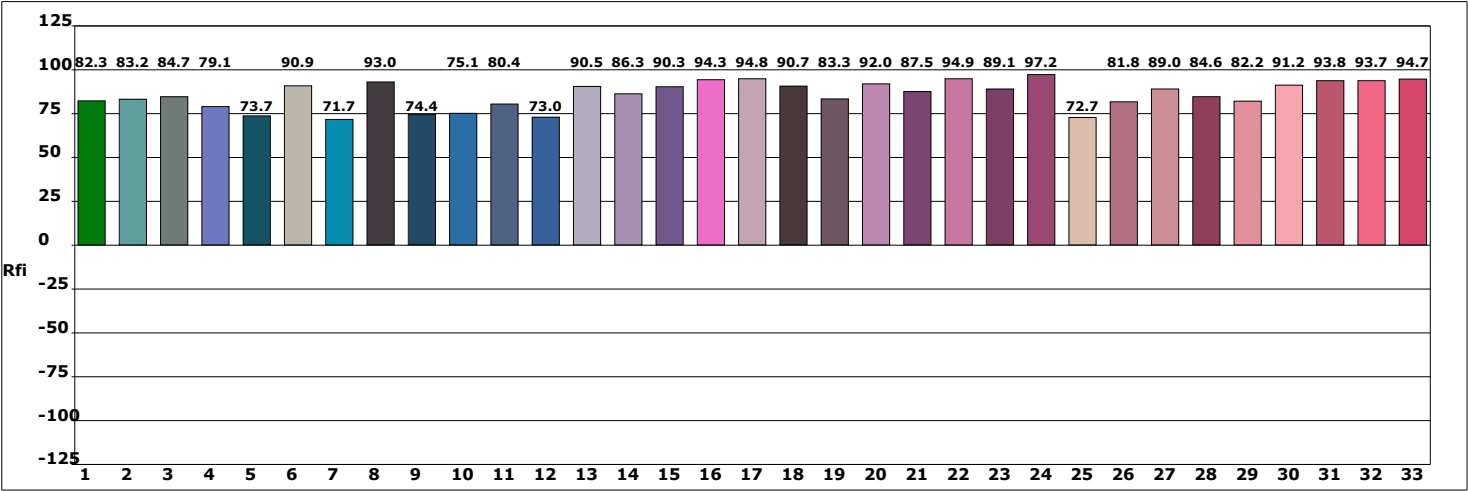
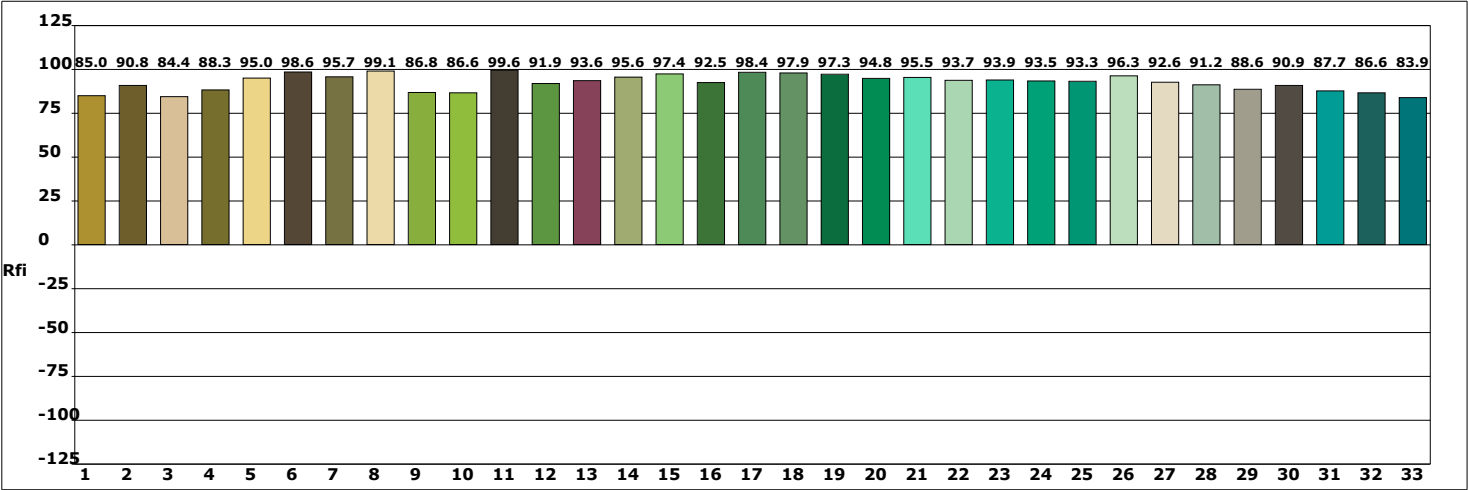
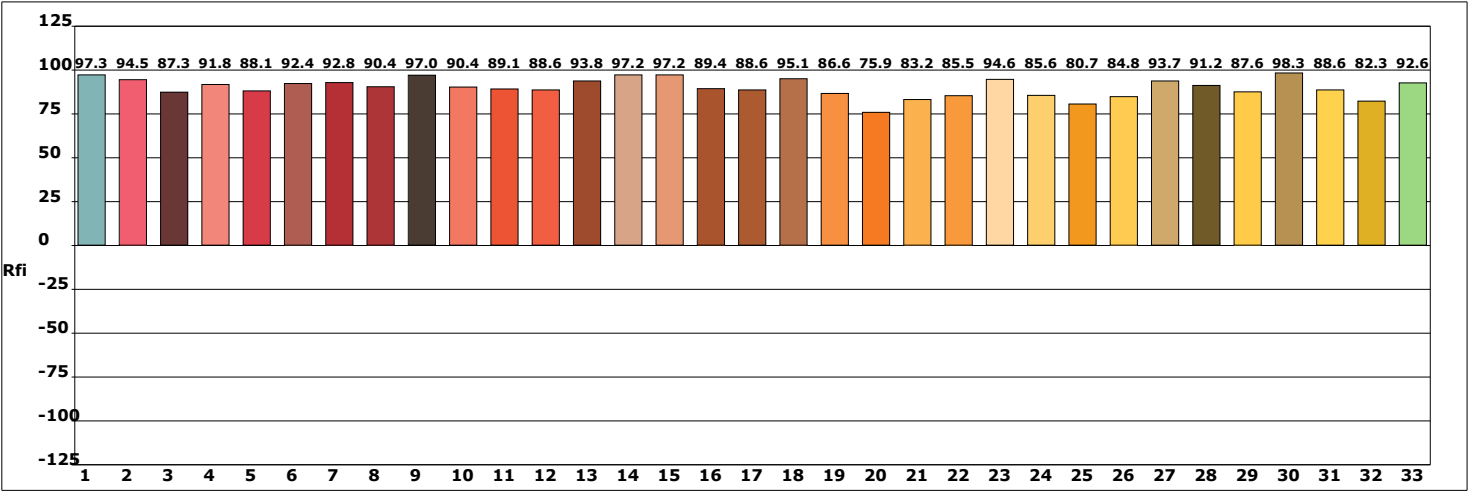


Chroma by Bue



Product model:
Product number:
Tester:
Remarks:

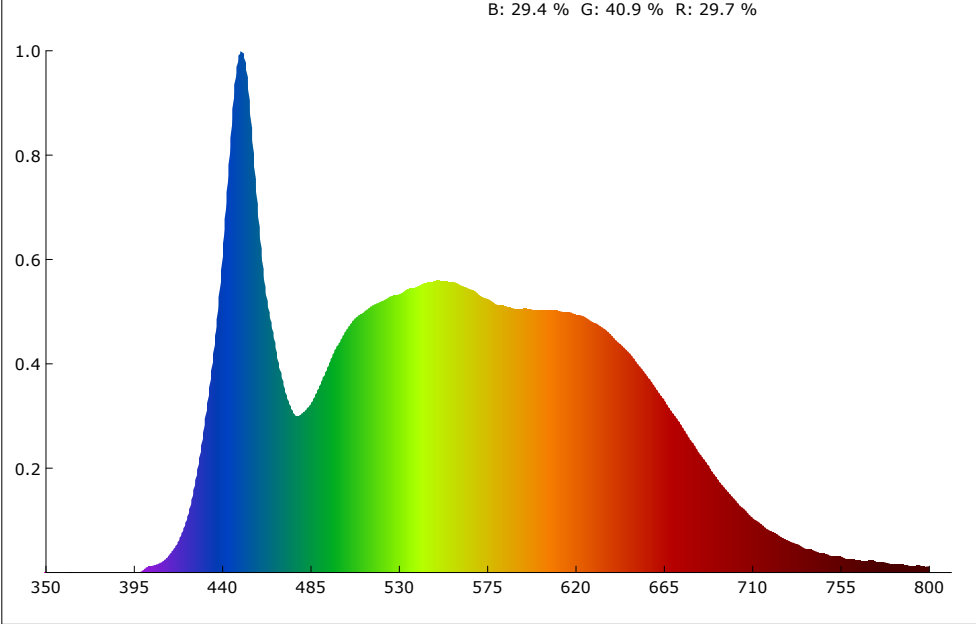
Manufacturer:
Test unit:
Date of observation: 09/11/23



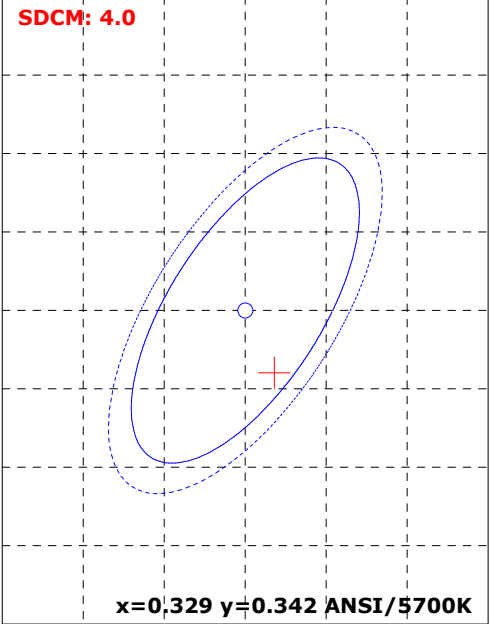
Product model:
Product number:
Tester:
Remarks:

Manufacturer:
Test unit:
Date of observation: 09/11/23

Spectrogram



SDCM



Color Parameter:

x: 0.3305 y: 0.3377 u: 0.2068 v: 0.3170 u': 0.2068 v': 0.4755
R_ratio: 29.7 % G_ratio: 40.9 % B_ratio: 29.4 % RedRatio: 15.8 % GreenRatio: 80.4 % BlueRatio: 3.7 %

Ra: 92.9 AvgR: 90.4
R1: 94.5 R2: 93.7 R3: 90.8 R4: 93.5 R5: 94.2 R6: 90.0 R7: 94.5 R8: 92.2
R9: 76.6 R10: 83.9 R11: 93.4 R12: 75.3 R13: 94.2 R14: 94.6 R15: 95.0

CCT: 5591 K	Flux: 888.881 lm	PeakWave: 449.6 nm	SDCM: 4.0
S/P: 2.1	CentralWave: 451.0 nm	DominantWave: 514.1 nm	CentroidWave: 556.5 nm
HalfWidth: 25.1 nm	duv: -0.00085	purity: 0.9 %	CQS: 87.9
LER(TM-30): 281.9	Ep: 3153.3 mw	Rg: 101.4	Rf: 89.6
Red Ep: 902.0 mw	Near red Ep: 105.2 mw	Near infrared Ep: 7.2 mw	

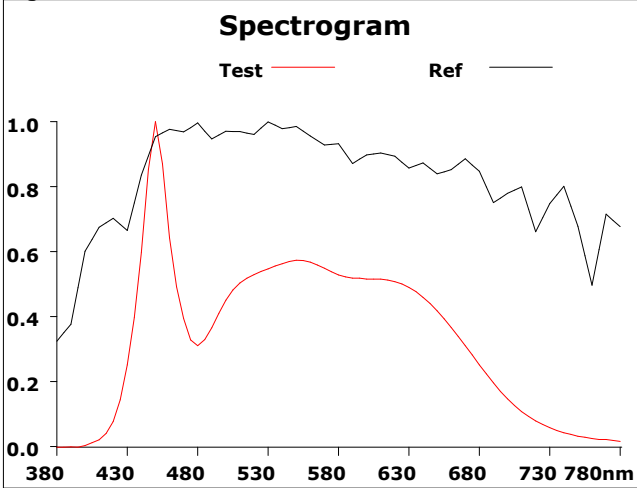
Electrical parameters:

Effic: 24.3 lm/W	Energy: 26.4	Effi: G	
U: 222.6 V	I: 0.285 A	P: 36.630 W	Pf: 0.576

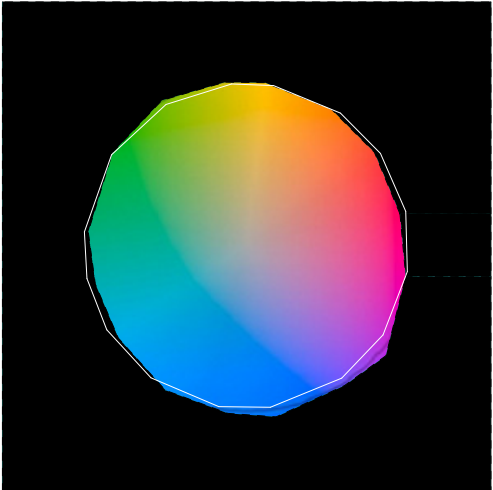
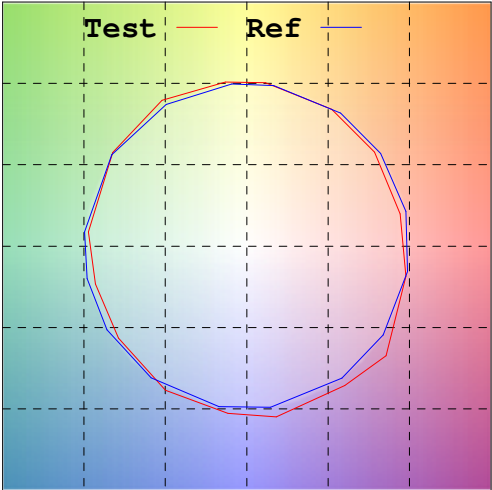
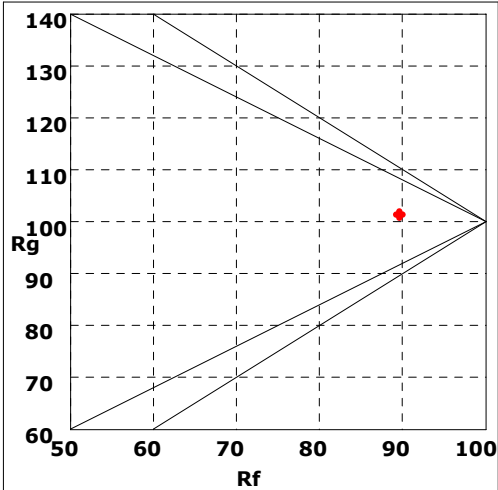
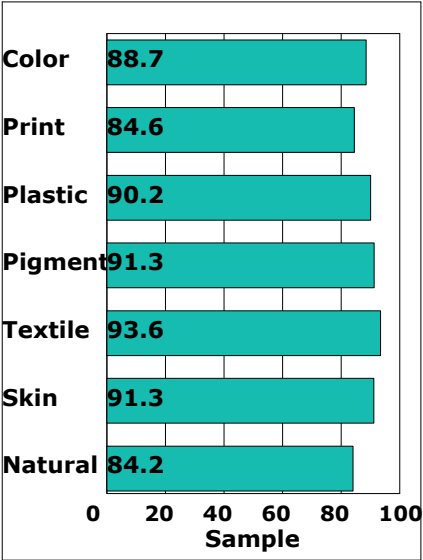
Product model:
Product number:
Tester:
Remarks:

Manufacturer:
Test unit:
Date of observation: 09/11/23

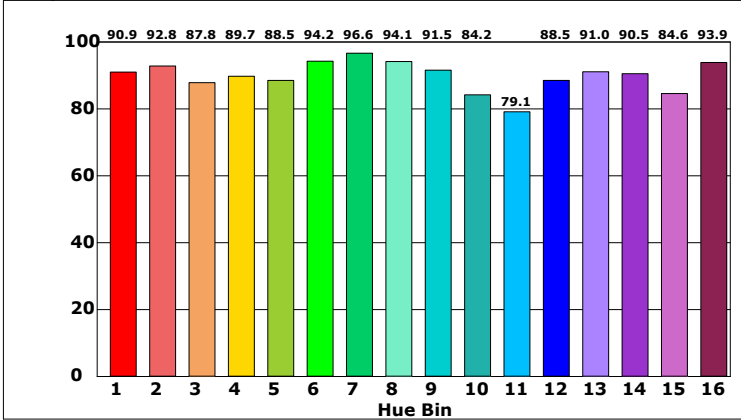
Rf: 89.6 CCT: 5591K u': 0.2068
Rg: 101.4 LER: 281.9 Duv: -0.00085 v': 0.4755



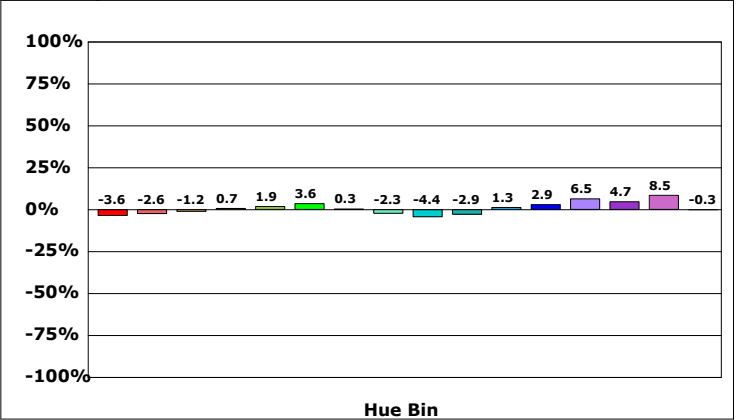
500			
Hue Bin	Rf	Chroma	Hue
1	90.9	-3.6%	-0.9%
2	92.8	-2.6%	2.6%
3	87.8	-1.2%	5.9%
4	89.7	0.7%	5.4%
5	88.5	1.9%	3.8%
6	94.2	3.6%	0.6%
7	96.6	0.3%	-1.5%
8	94.1	-2.3%	-0.5%
9	91.5	-4.4%	4.4%
10	84.2	-2.9%	8.2%
11	79.1	1.3%	11.6%
12	88.5	2.9%	6.3%
13	91.0	6.5%	2.3%
14	90.5	4.7%	-1.1%
15	84.6	8.5%	-9.6%
16	93.9	-0.3%	-3.2%



Rf by Bue

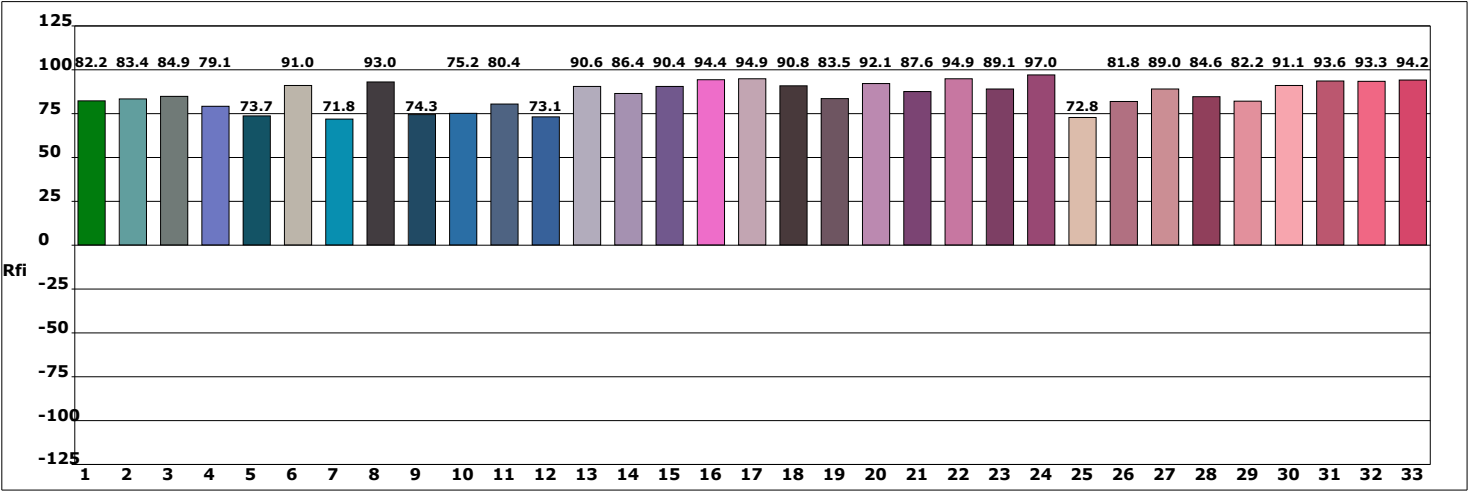
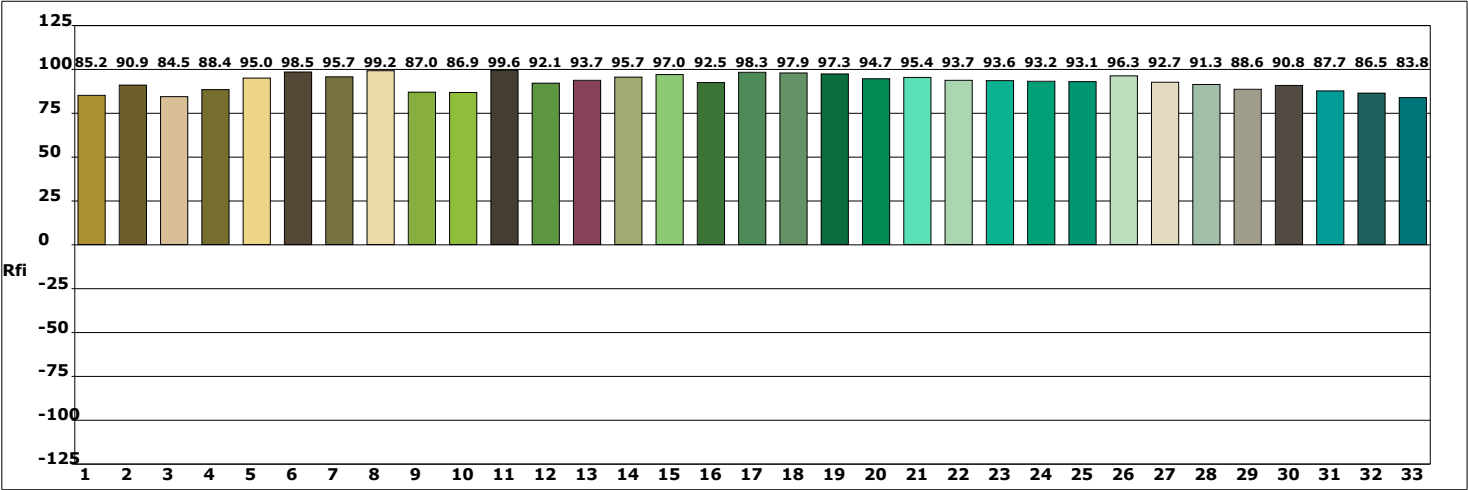
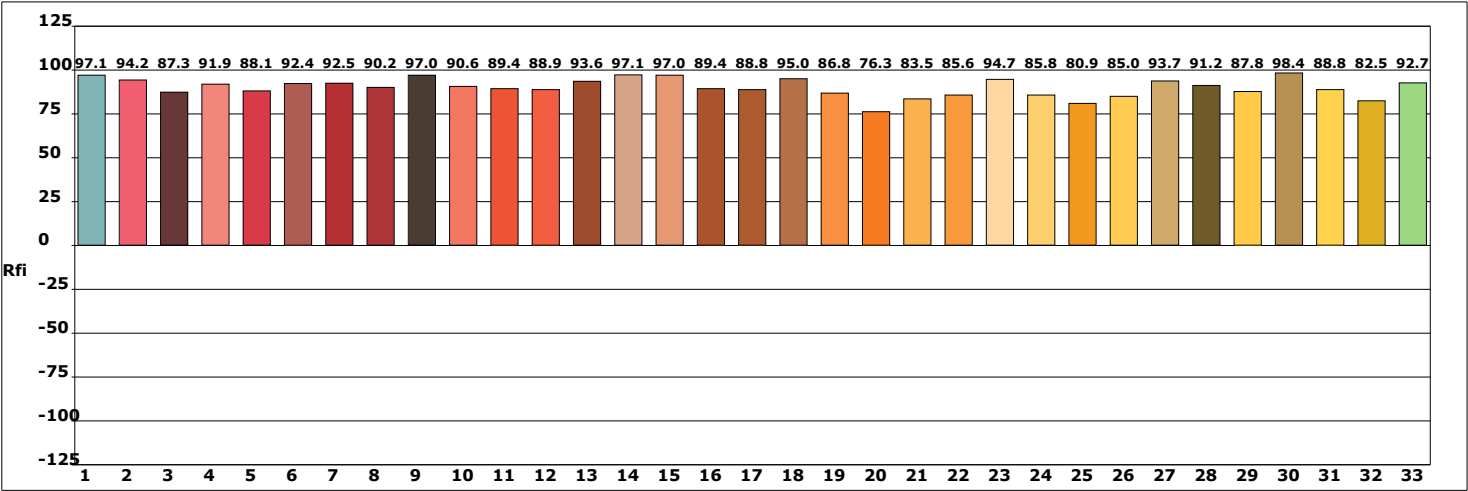


Chroma by Bue



Product model:
Product number:
Tester:
Remarks:

Manufacturer:
Test unit:
Date of observation: 09/11/23



Product model:
Product number:
Tester:
Remarks:

Manufacturer:
Test unit:
Date of observation: 09/11/23