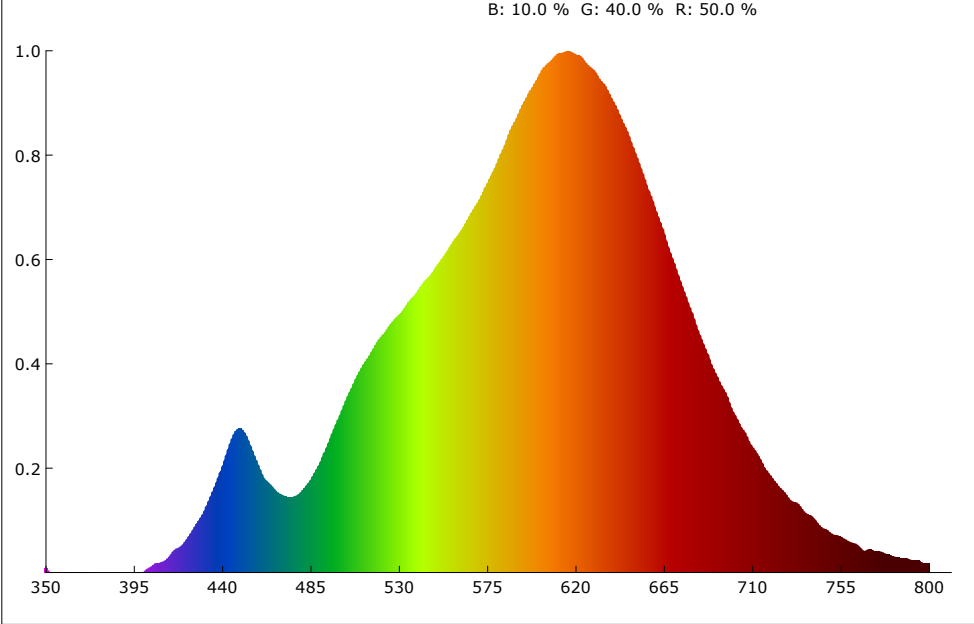
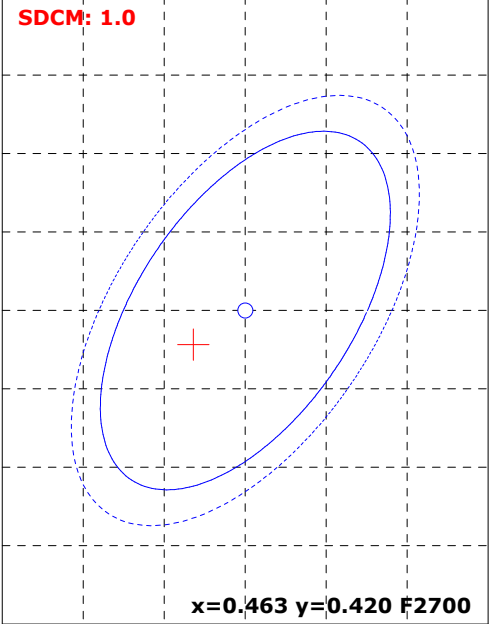


Spectrogram



SDCM



Color Parameter:

x: 0.4618      y: 0.4178      u: 0.2605      v: 0.3536      u': 0.2605      v': 0.5304  
R\_ratio: 50.0 %      G\_ratio: 40.0 %      B\_ratio: 10.0 %      RedRatio: 24.7 %      GreenRatio: 74.1 %      BlueRatio: 1.2 %

Ra: 88.9      AvgR: 85.0  
R1: 88.0      R2: 92.6      R3: 97.0      R4: 89.8      R5: 87.8      R6: 91.8      R7: 90.2      R8: 74.3  
R9: 41.7      R10: 82.9      R11: 90.4      R12: 80.2      R13: 88.8      R14: 97.6      R15: 82.4

CCT: 2729 K      Flux: 380.539 lm      PeakWave: 616.6 nm      SDCM: 1.0  
S/P: 1.2      CentralWave: 605.3 nm      DominantWave: 583.3 nm      CentroidWave: 599.2 nm  
HalfWidth: 146.7 nm      duv: 0.00251      purity: 64.0 %      CQS: 87.8  
LER(TM-30): 292.9      Ep: 1299.4 mw      Rg: 98.2      Rf: 89.4  
Red Ep: 606.9 mw      Near red Ep: 81.5 mw      Near infrared Ep: 4.4 mw

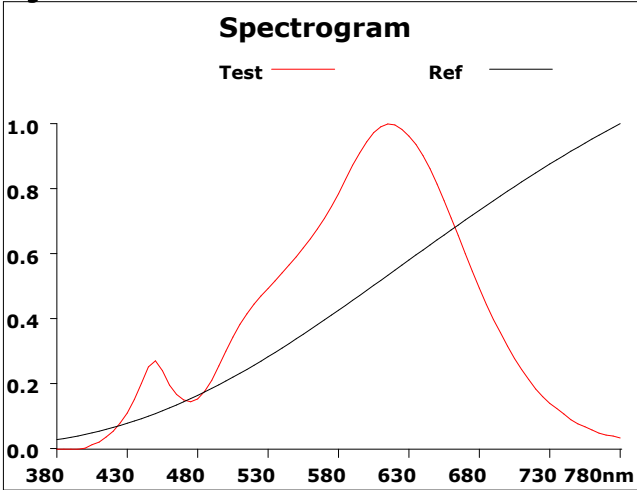
Electrical parameters:

Effic: 8.5 Lm/W      Energy: 9.3      Effi: G  
U: 220.8 V      I: 0.339 A      P: 44.520 W      Pf: 0.594

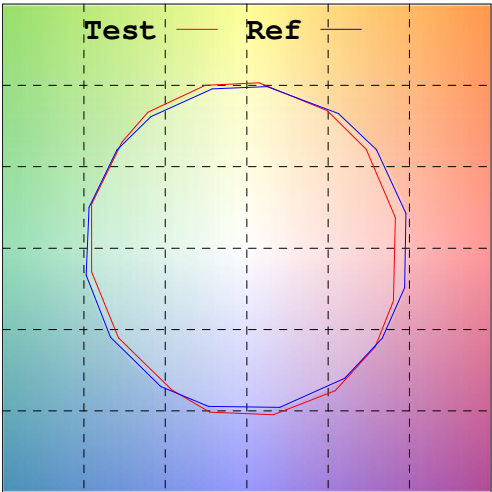
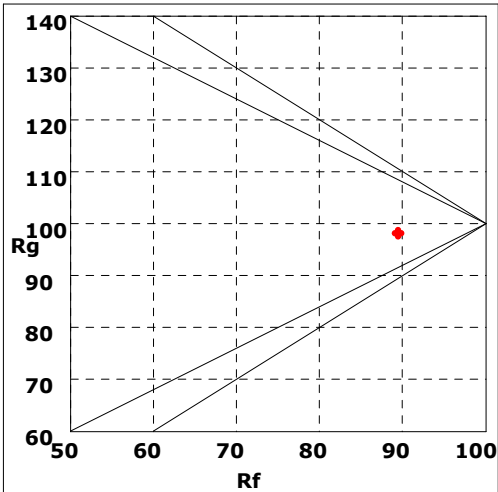
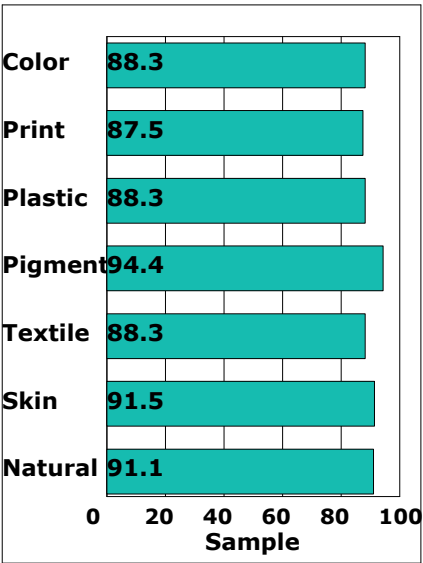
Product model:  
Product number:  
Tester:  
Remarks:

Manufacturer:  
Test unit:  
Date of observation: 10/13/23

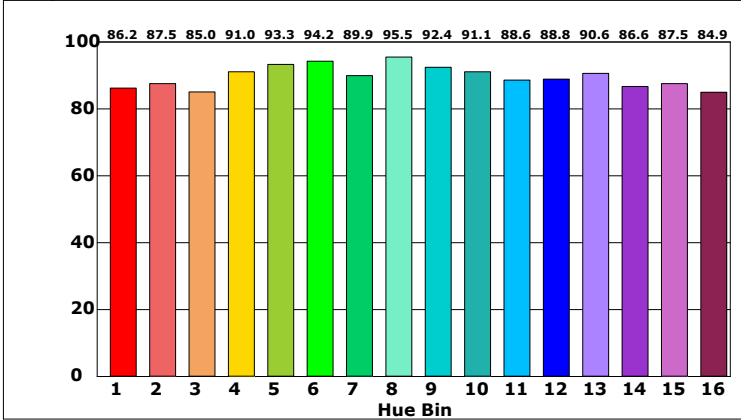
Rf: 89.4 CCT: 2729K u': 0.2605  
Rg: 98.2 LER: 292.9 Duv: 0.00251 v': 0.5304



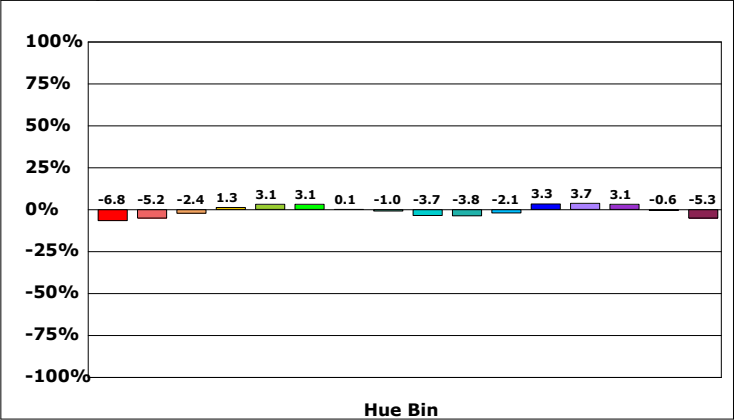
| 500     |      |        |       |
|---------|------|--------|-------|
| Hue Bin | Rf   | Chroma | Hue   |
| 1       | 86.2 | -6.8%  | -1.3% |
| 2       | 87.5 | -5.2%  | 3.7%  |
| 3       | 85.0 | -2.4%  | 6.7%  |
| 4       | 91.0 | 1.3%   | 5.1%  |
| 5       | 93.3 | 3.1%   | 3.9%  |
| 6       | 94.2 | 3.1%   | -0.0% |
| 7       | 89.9 | 0.1%   | -5.9% |
| 8       | 95.5 | -1.0%  | -2.3% |
| 9       | 92.4 | -3.7%  | -1.3% |
| 10      | 91.1 | -3.8%  | 3.0%  |
| 11      | 88.6 | -2.1%  | 6.7%  |
| 12      | 88.8 | 3.3%   | 1.5%  |
| 13      | 90.6 | 3.7%   | -4.8% |
| 14      | 86.6 | 3.1%   | -9.1% |
| 15      | 87.5 | -0.6%  | -6.9% |
| 16      | 84.9 | -5.3%  | -9.1% |



Rf by Bue

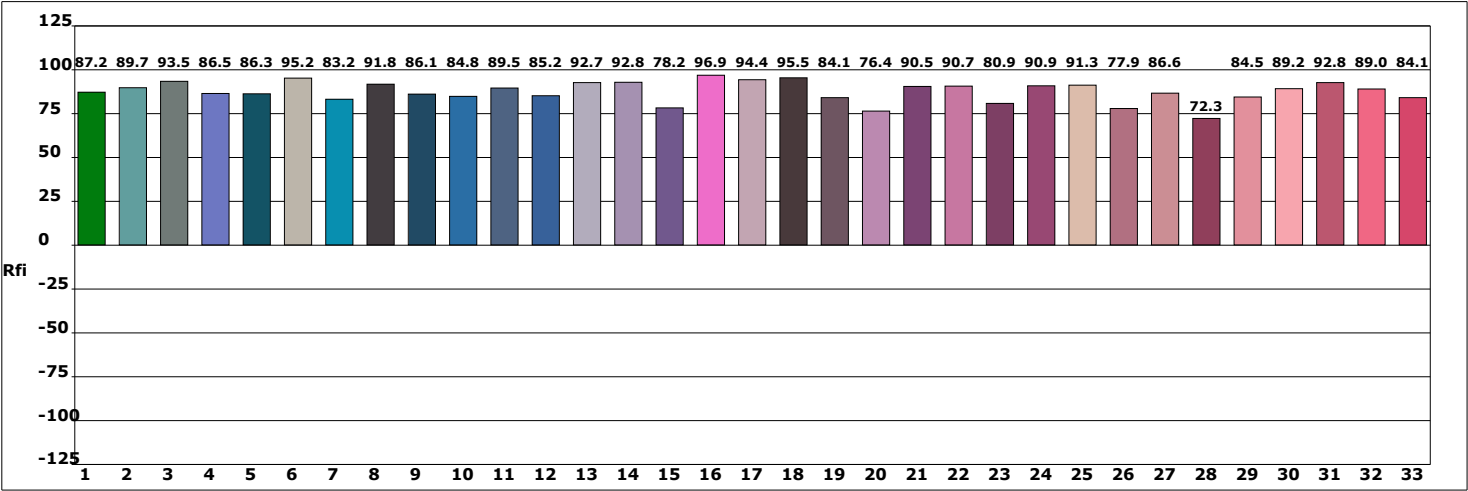
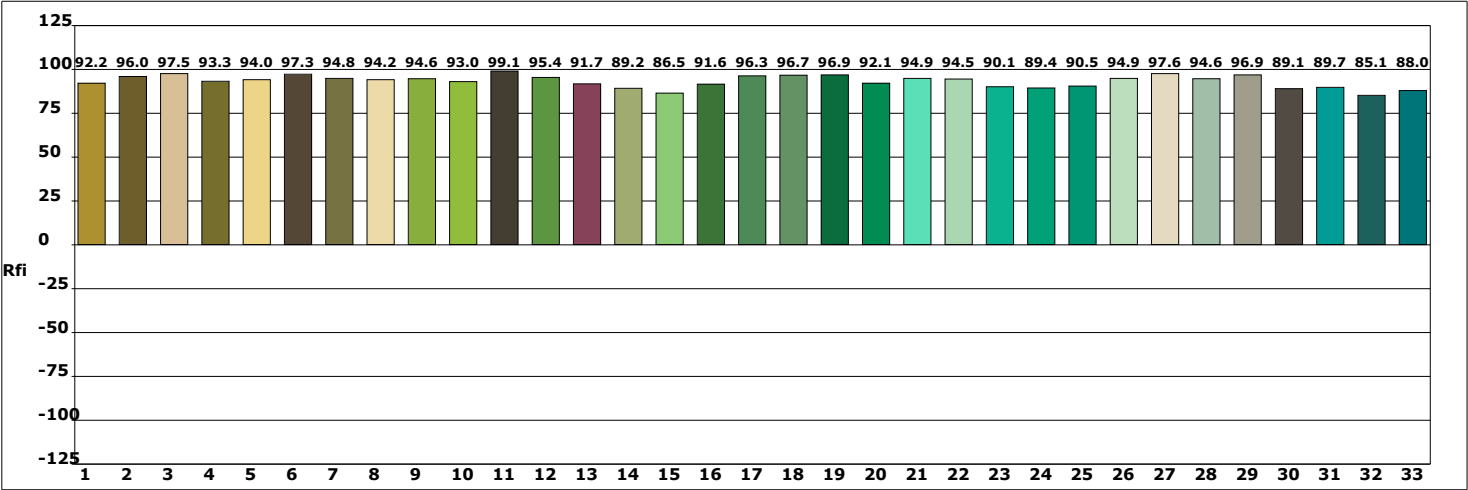
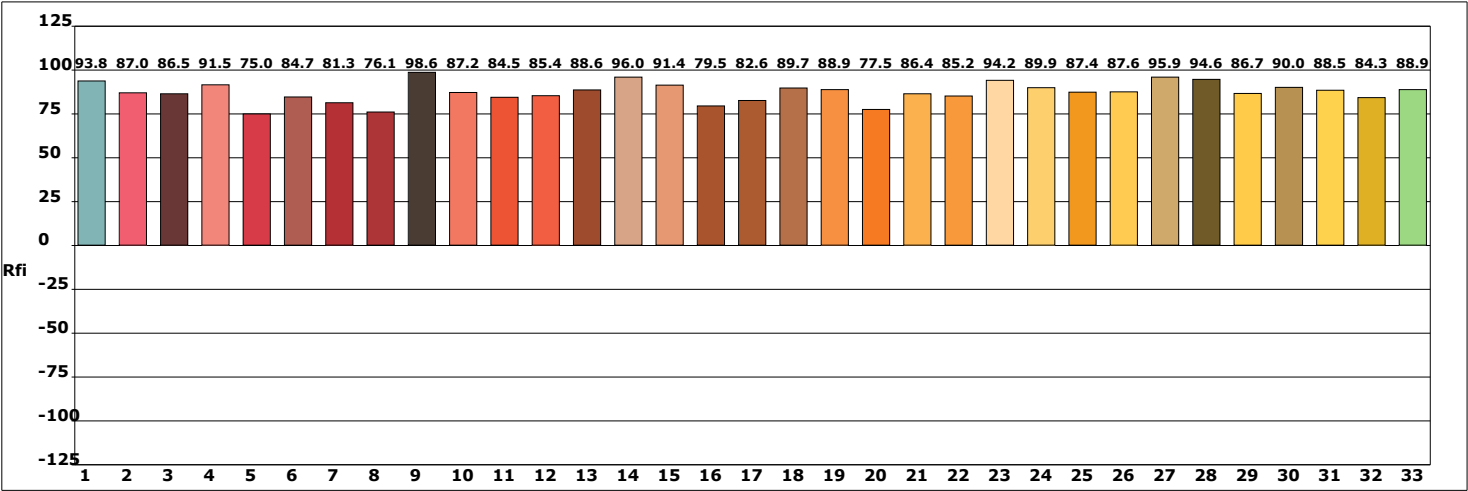


Chroma by Bue



Product model:  
Product number:  
Tester:  
Remarks:

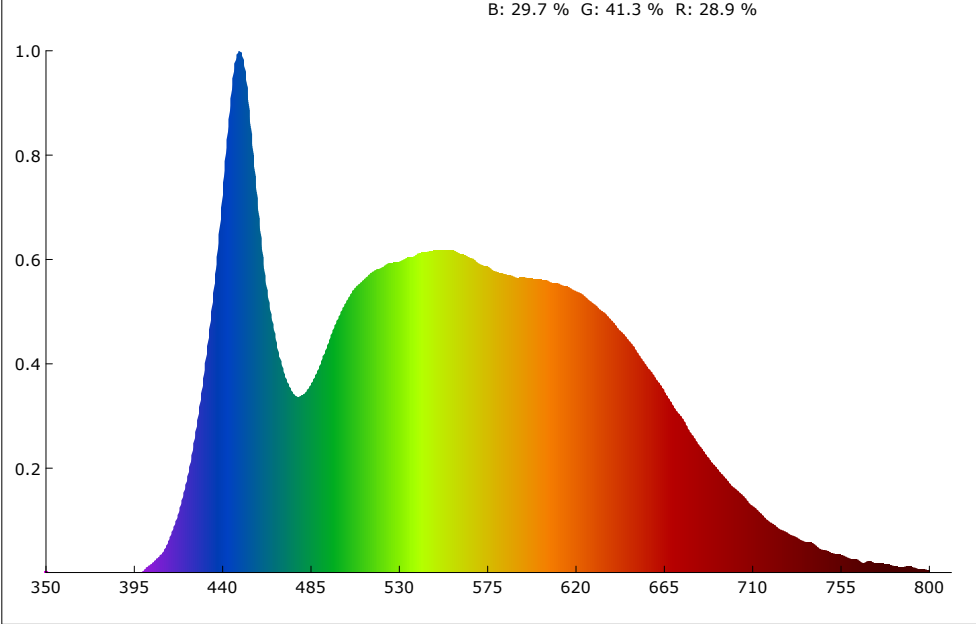
Manufacturer:  
Test unit:  
Date of observation: 10/13/23



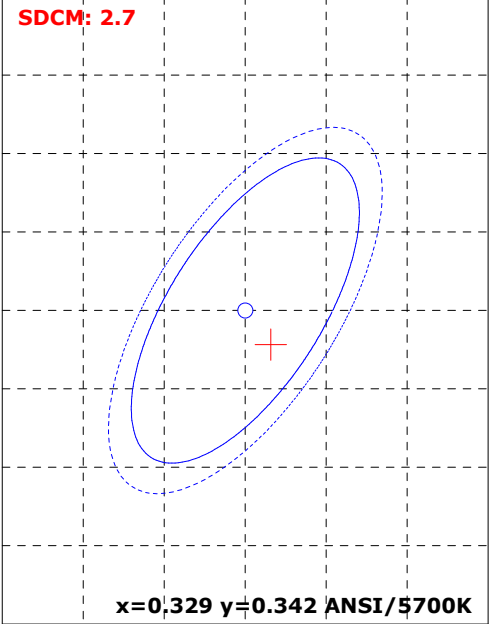
Product model:  
Product number:  
Tester:  
Remarks:

Manufacturer:  
Test unit:  
Date of observation: 10/13/23

Spectrogram



SDCM



Color Parameter:

x: 0.3303      y: 0.3395      u: 0.2060      v: 0.3176      u': 0.2060      v': 0.4764  
R\_ratio: 28.9 %      G\_ratio: 41.3 %      B\_ratio: 29.7 %      RedRatio: 15.5 %      GreenRatio: 80.8 %      BlueRatio: 3.6 %

Ra: 91.6      AvgR: 88.8  
R1: 92.9      R2: 92.5      R3: 90.7      R4: 92.2      R5: 92.9      R6: 89.4      R7: 93.4      R8: 89.4  
R9: 68.0      R10: 81.6      R11: 92.7      R12: 77.4      R13: 92.5      R14: 94.6      R15: 92.2

CCT: 5597 K      Flux: 467.204 lm      PeakWave: 448.6 nm      SDCM: 2.7  
S/P: 2.1      CentralWave: 449.8 nm      DominantWave: 522.2 nm      CentroidWave: 555.3 nm  
HalfWidth: 29.6 nm      duv: 0.00015      purity: 1.2 %      CQS: 88.3  
LER(TM-30): 282.9      Ep: 1651.7 mw      Rg: 101.2      Rf: 89.2  
Red Ep: 460.4 mw      Near red Ep: 58.7 mw      Near infrared Ep: 2.4 mw

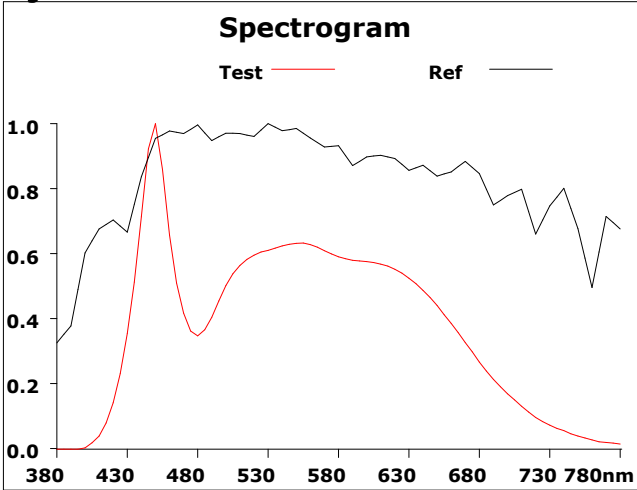
Electrical parameters:

Effic: 11.0 lm/W      Energy: 12.0      Effi: G  
U: 220.9 V      I: 0.323 A      P: 42.440 W      Pf: 0.593

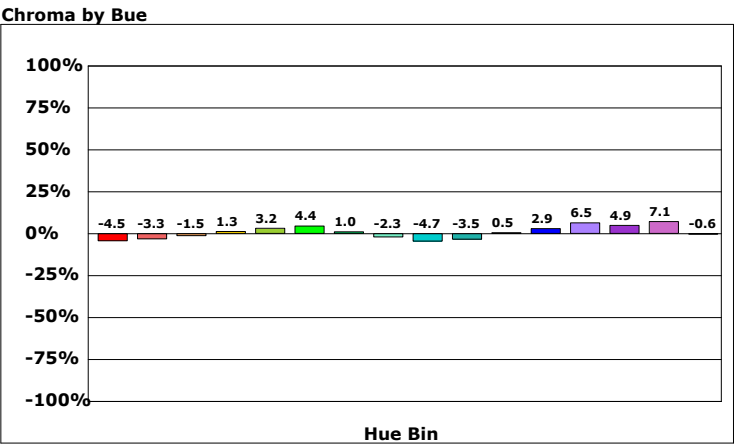
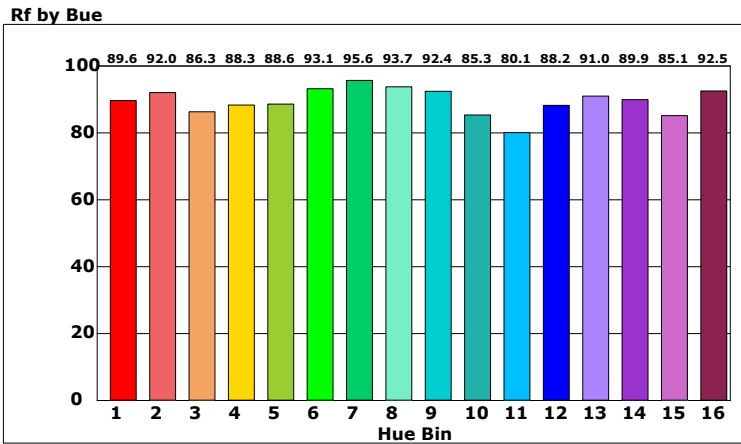
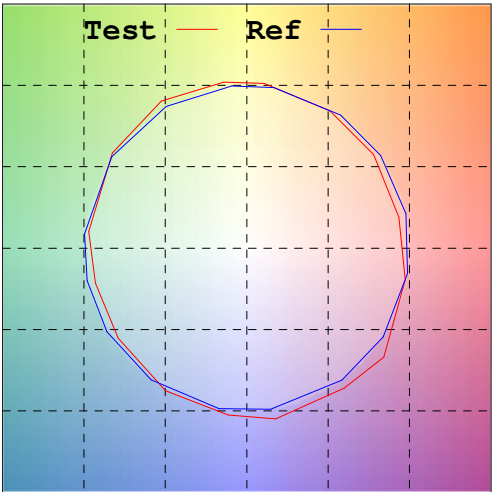
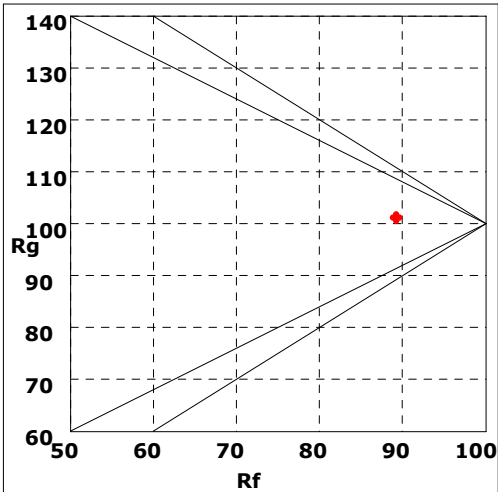
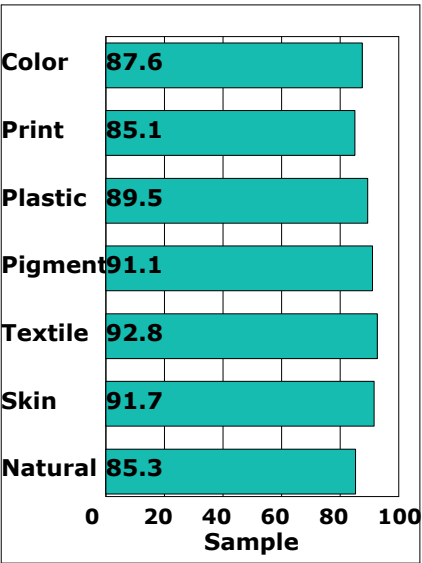
Product model:  
Product number:  
Tester:  
Remarks:

Manufacturer:  
Test unit:  
Date of observation: 10/13/23

Rf: 89.2 CCT: 5597K u': 0.2060  
Rg: 101.2 LER: 282.9 Duv: 0.00015 v': 0.4764

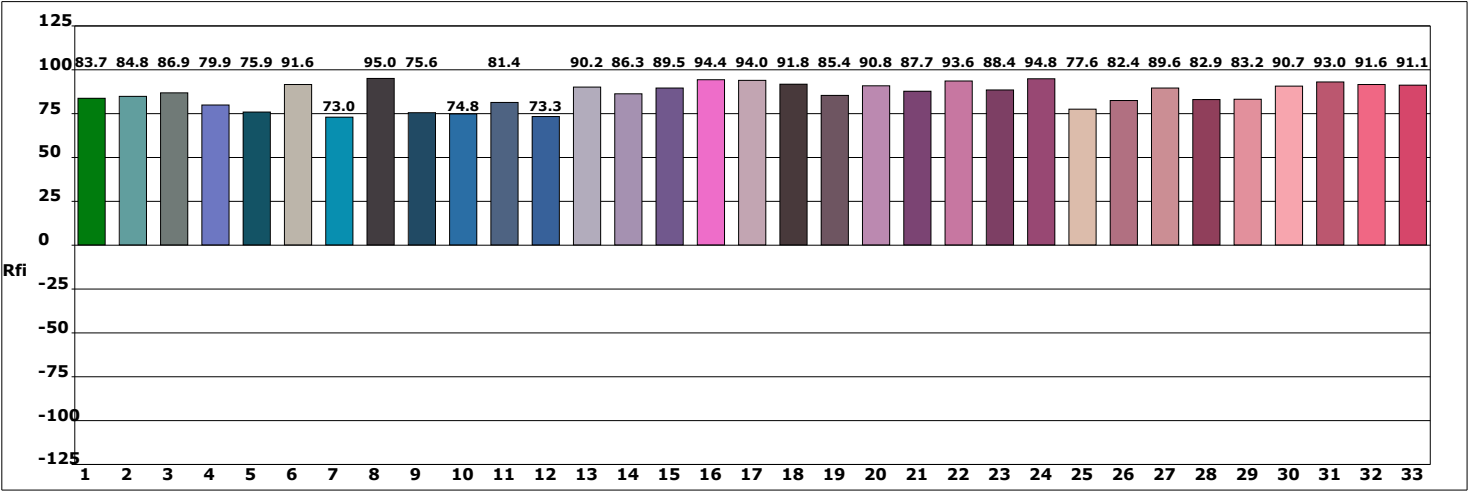
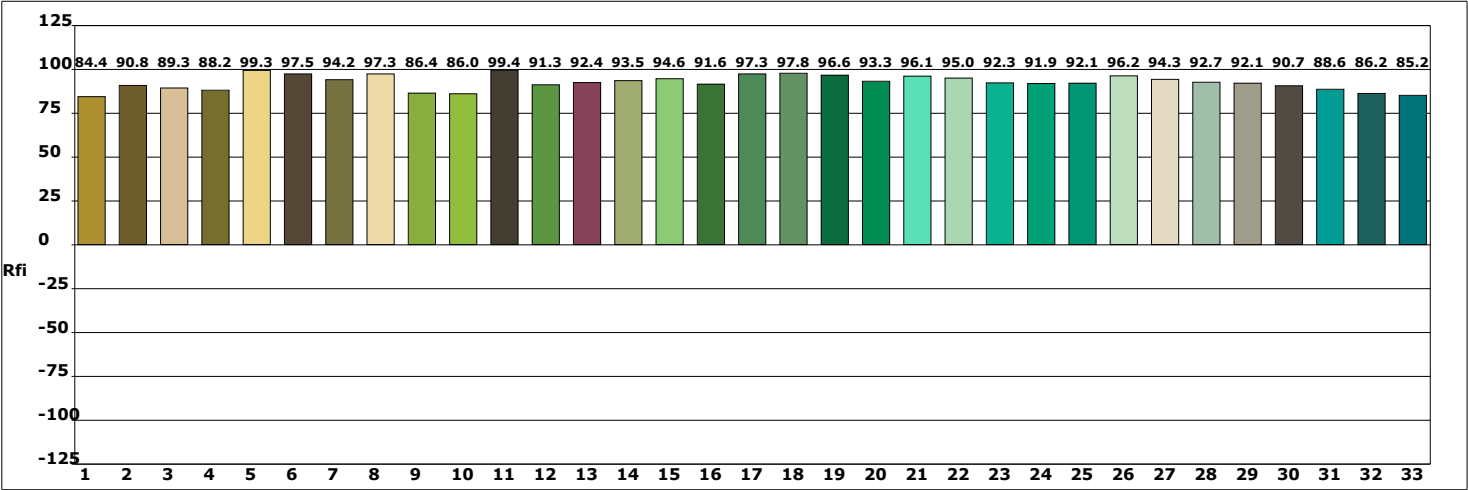
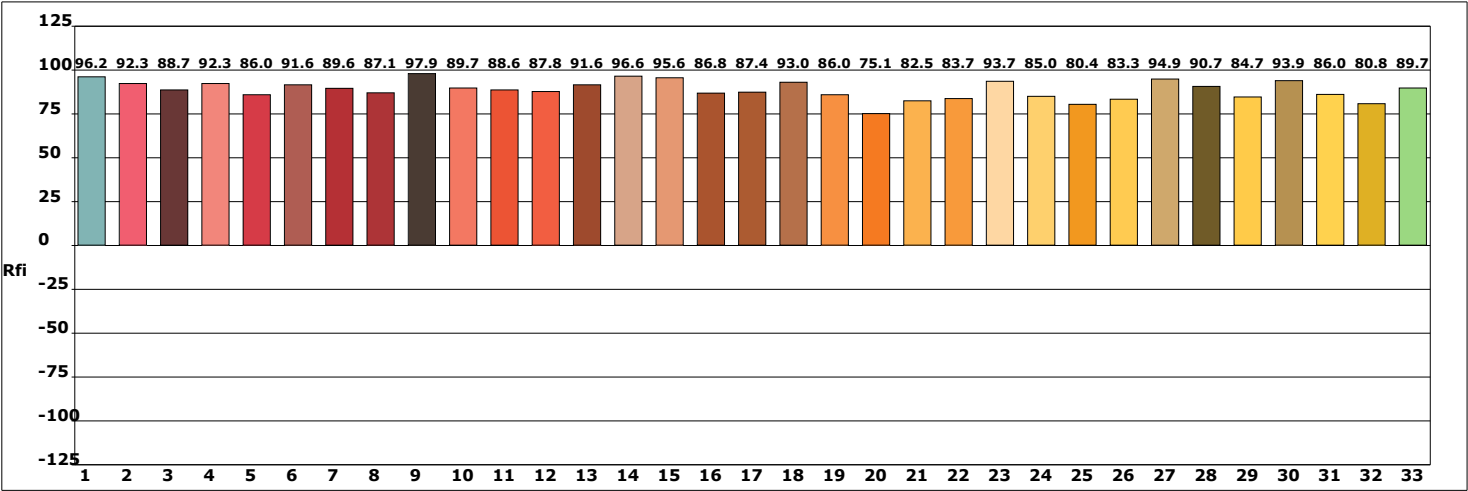


| 500     |      |        |        |
|---------|------|--------|--------|
| Hue Bin | Rf   | Chroma | Hue    |
| 1       | 89.6 | -4.5%  | -1.3%  |
| 2       | 92.0 | -3.3%  | 2.8%   |
| 3       | 86.3 | -1.5%  | 6.9%   |
| 4       | 88.3 | 1.3%   | 6.3%   |
| 5       | 88.6 | 3.2%   | 4.3%   |
| 6       | 93.1 | 4.4%   | 0.6%   |
| 7       | 95.6 | 1.0%   | -2.2%  |
| 8       | 93.7 | -2.3%  | -1.8%  |
| 9       | 92.4 | -4.7%  | 2.6%   |
| 10      | 85.3 | -3.5%  | 7.1%   |
| 11      | 80.1 | 0.5%   | 11.1%  |
| 12      | 88.2 | 2.9%   | 6.5%   |
| 13      | 91.0 | 6.5%   | 2.0%   |
| 14      | 89.9 | 4.9%   | -1.5%  |
| 15      | 85.1 | 7.1%   | -10.0% |
| 16      | 92.5 | -0.6%  | -3.9%  |



Product model:  
Product number:  
Tester:  
Remarks:

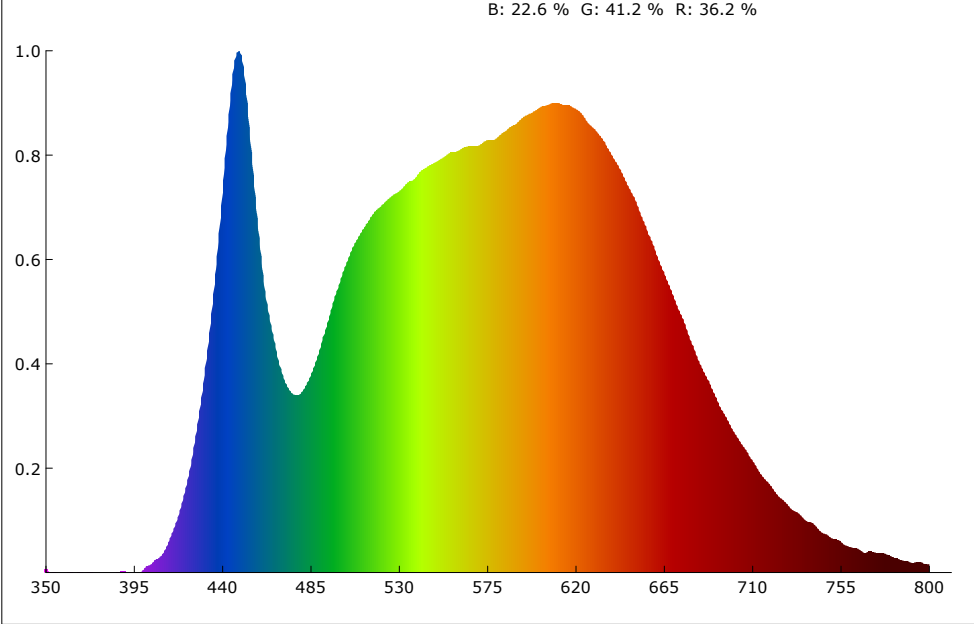
Manufacturer:  
Test unit:  
Date of observation: 10/13/23



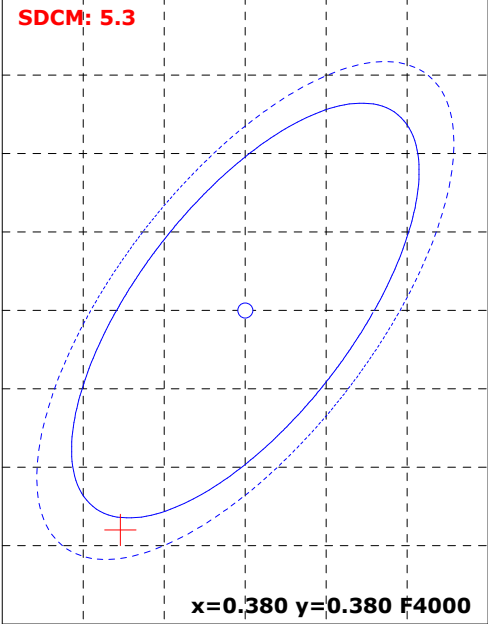
Product model:  
Product number:  
Tester:  
Remarks:

Manufacturer:  
Test unit:  
Date of observation: 10/13/23

Spectrogram



SDCM



Color Parameter:

x: 0.3723      y: 0.3660      u: 0.2240      v: 0.3304      u': 0.2240      v': 0.4956  
R\_ratio: 36.2 %      G\_ratio: 41.2 %      B\_ratio: 22.6 %      RedRatio: 18.7 %      GreenRatio: 78.6 %      BlueRatio: 2.7 %  
  
Ra: 92.3      AvgR: 89.6  
R1: 93.5      R2: 94.1      R3: 93.0      R4: 93.0      R5: 93.0      R6: 91.2      R7: 93.5      R8: 87.4  
R9: 66.5      R10: 85.0      R11: 93.2      R12: 78.7      R13: 93.6      R14: 95.7      R15: 91.9

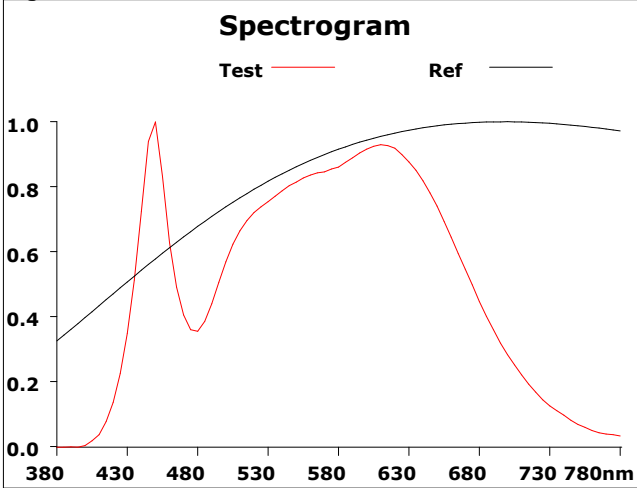
CCT: 4154 K      Flux: 405.044 lm      PeakWave: 448.6 nm      SDCM: 5.3  
S/P: 1.8      CentralWave: 449.4 nm      DominantWave: 580.3 nm      CentroidWave: 571.2 nm  
HalfWidth: 28.4 nm      duv: -0.00262      purity: 21.6 %      CQS: 85.5  
LER(TM-30): 287.8      Ep: 1407.2 mw      Rg: 101.3      Rf: 89.8  
Red Ep: 485.0 mw      Near red Ep: 64.3 mw      Near infrared Ep: 3.4 mw

Electrical parameters:

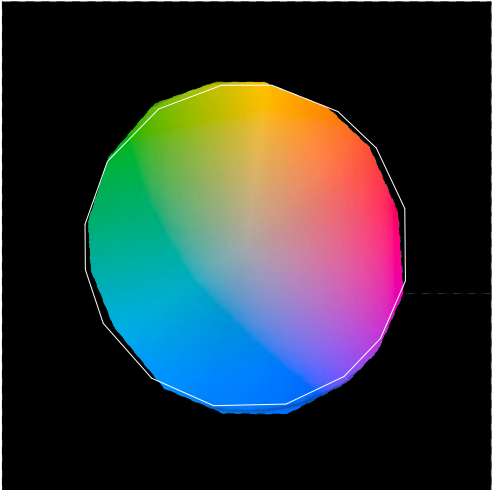
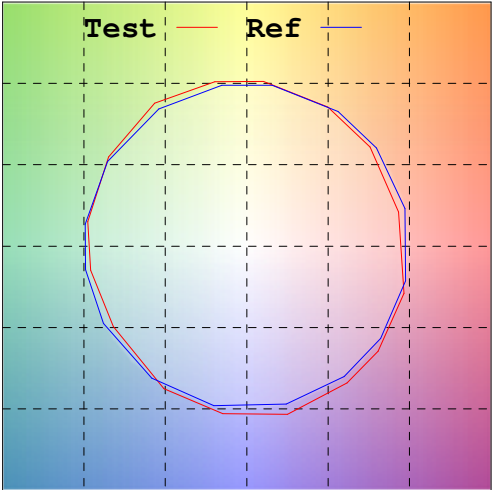
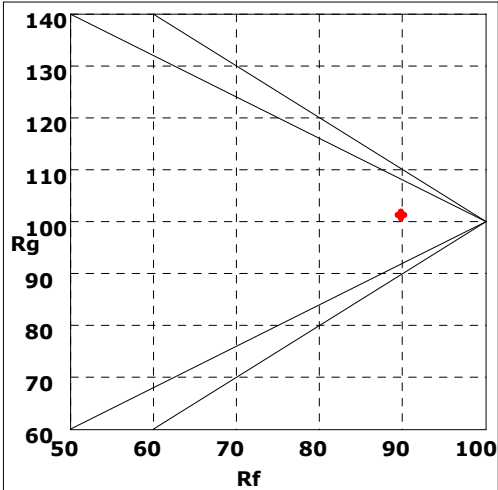
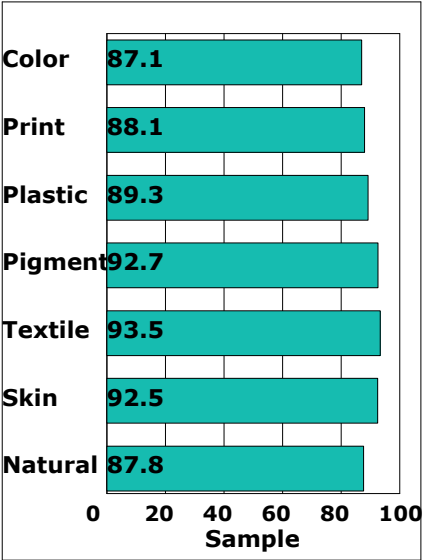
Effic: 10.5 Lm/W      Energy: 11.4      Effi: G  
U: 221.0 V      I: 0.298 A      P: 38.730 W      Pf: 0.586

Product model:      Manufacturer:  
Product number:      Test unit:  
Tester:      Date of observation: 10/13/23  
Remarks:

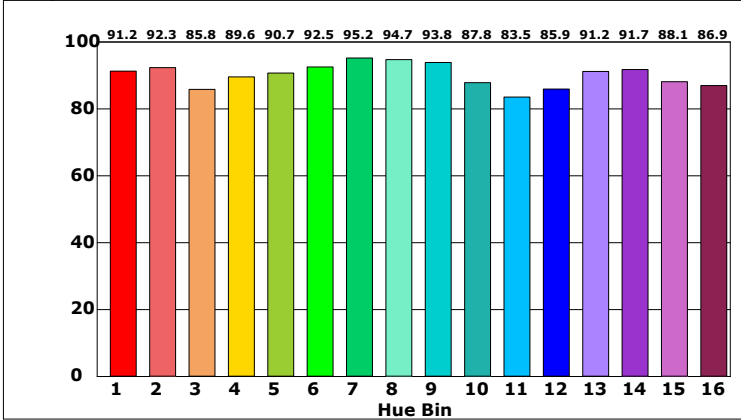
Rf: 89.8 CCT: 4154K u': 0.2240  
Rg: 101.3 LER: 287.8 Duv: -0.00262 v': 0.4956



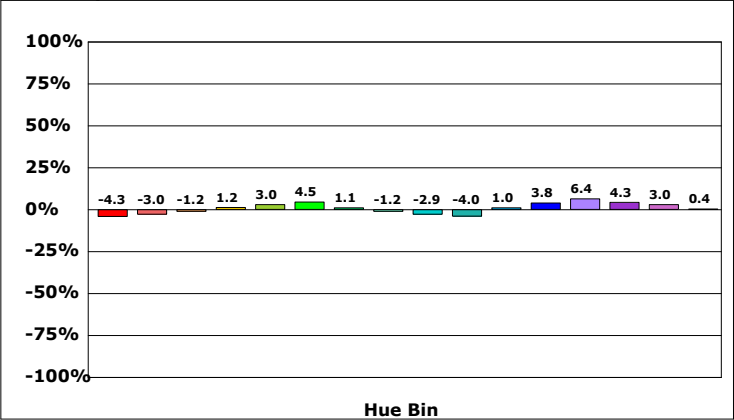
| 500     |      |        |       |
|---------|------|--------|-------|
| Hue Bin | Rf   | Chroma | Hue   |
| 1       | 91.2 | -4.3%  | -1.3% |
| 2       | 92.3 | -3.0%  | 2.6%  |
| 3       | 85.8 | -1.2%  | 6.7%  |
| 4       | 89.6 | 1.2%   | 5.6%  |
| 5       | 90.7 | 3.0%   | 3.8%  |
| 6       | 92.5 | 4.5%   | 0.1%  |
| 7       | 95.2 | 1.1%   | -2.5% |
| 8       | 94.7 | -1.2%  | -1.9% |
| 9       | 93.8 | -2.9%  | 0.9%  |
| 10      | 87.8 | -4.0%  | 5.1%  |
| 11      | 83.5 | 1.0%   | 9.9%  |
| 12      | 85.9 | 3.8%   | 6.4%  |
| 13      | 91.2 | 6.4%   | -0.5% |
| 14      | 91.7 | 4.3%   | -0.8% |
| 15      | 88.1 | 3.0%   | -7.5% |
| 16      | 86.9 | 0.4%   | -7.7% |



Rf by Bue

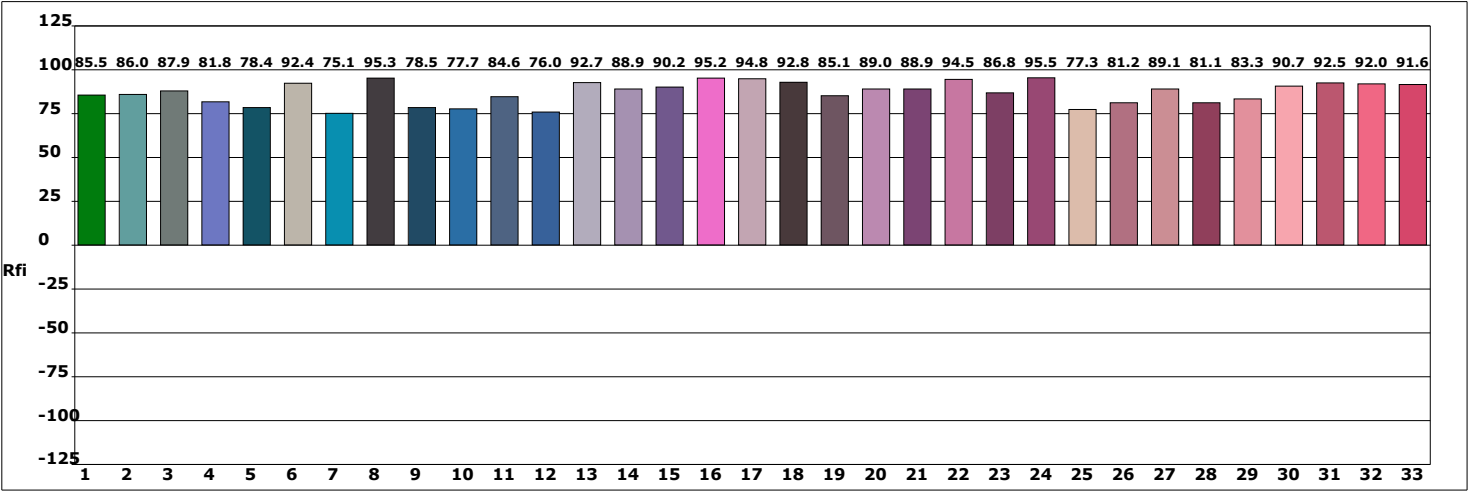
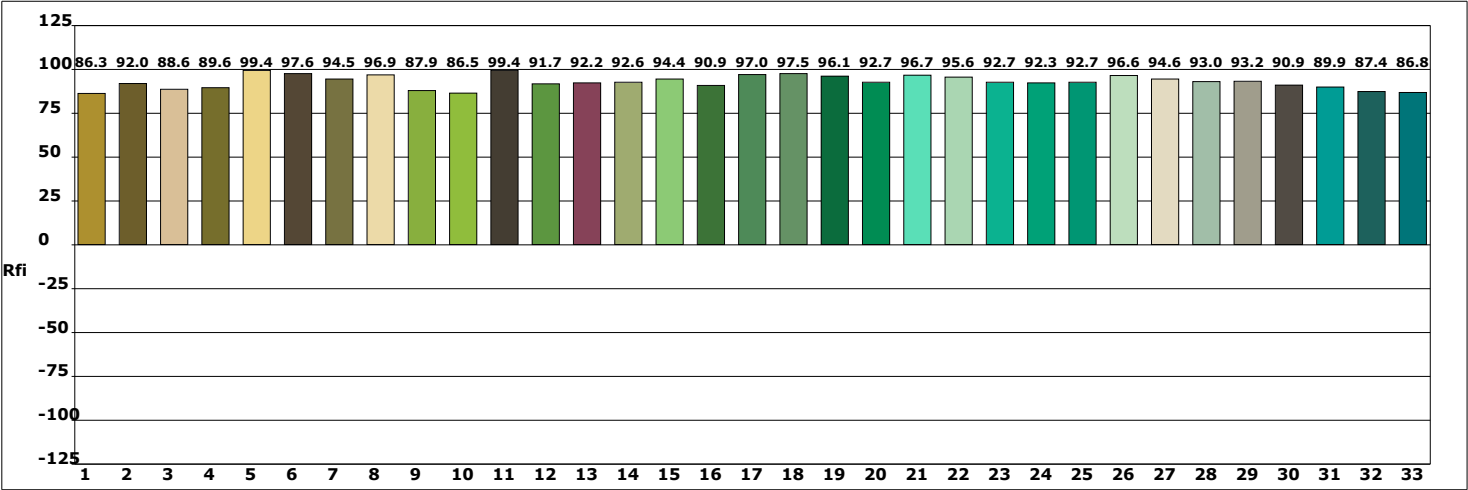
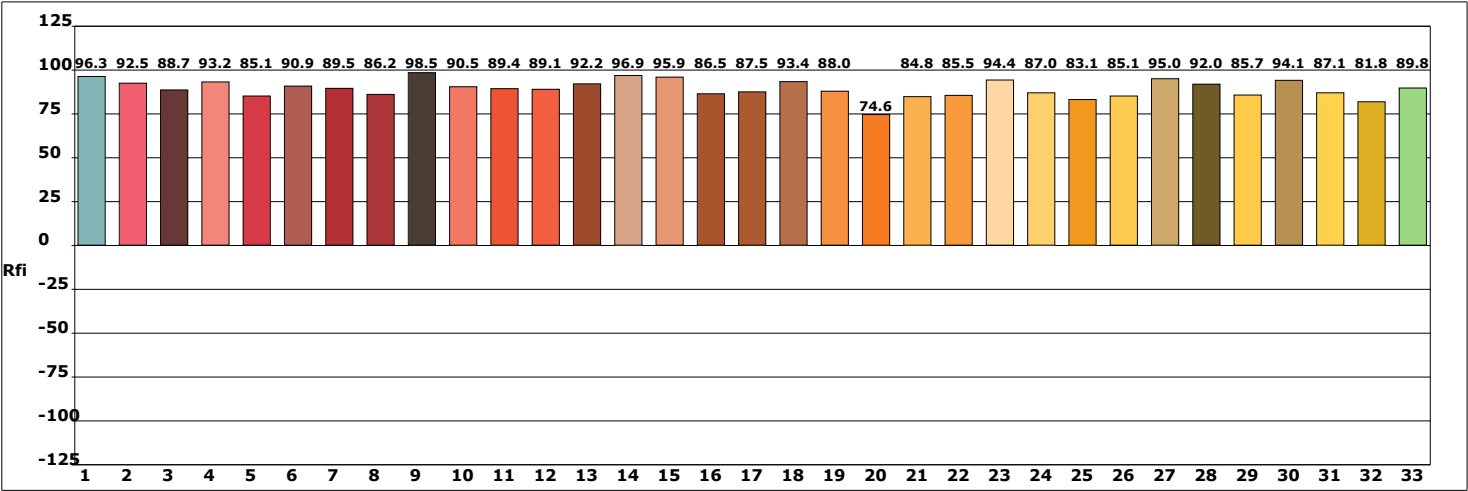


Chroma by Bue



Product model:  
Product number:  
Tester:  
Remarks:

Manufacturer:  
Test unit:  
Date of observation: 10/13/23



Product model:  
Product number:  
Tester:  
Remarks:

Manufacturer:  
Test unit:  
Date of observation: 10/13/23