Stewart FILMSCREEN

The Reference for Stunning™

Harmony G2 Weave

Color Spectrum and Gain Plot Analysis

Screen Material Name: Stewart's Harmony G2

Screen Material Type: Weave

Testing Conducted by: Stewart Filmscreen

Problem Statement: Screen gain does not vary much in textile screens. The transparent nature of weave screens allows for significant light transmission/loss through the fabric. Competing screen companies will claim unity gain (1.0), or even 0.9 – *but we've measured their goods*. A gain of 0.7 or 70% of unity gain, is the real achievable number. Unless a glossy, large thread is used, which shows distracting texture in solid white and color fields, a gain of 0.7 is the real number.

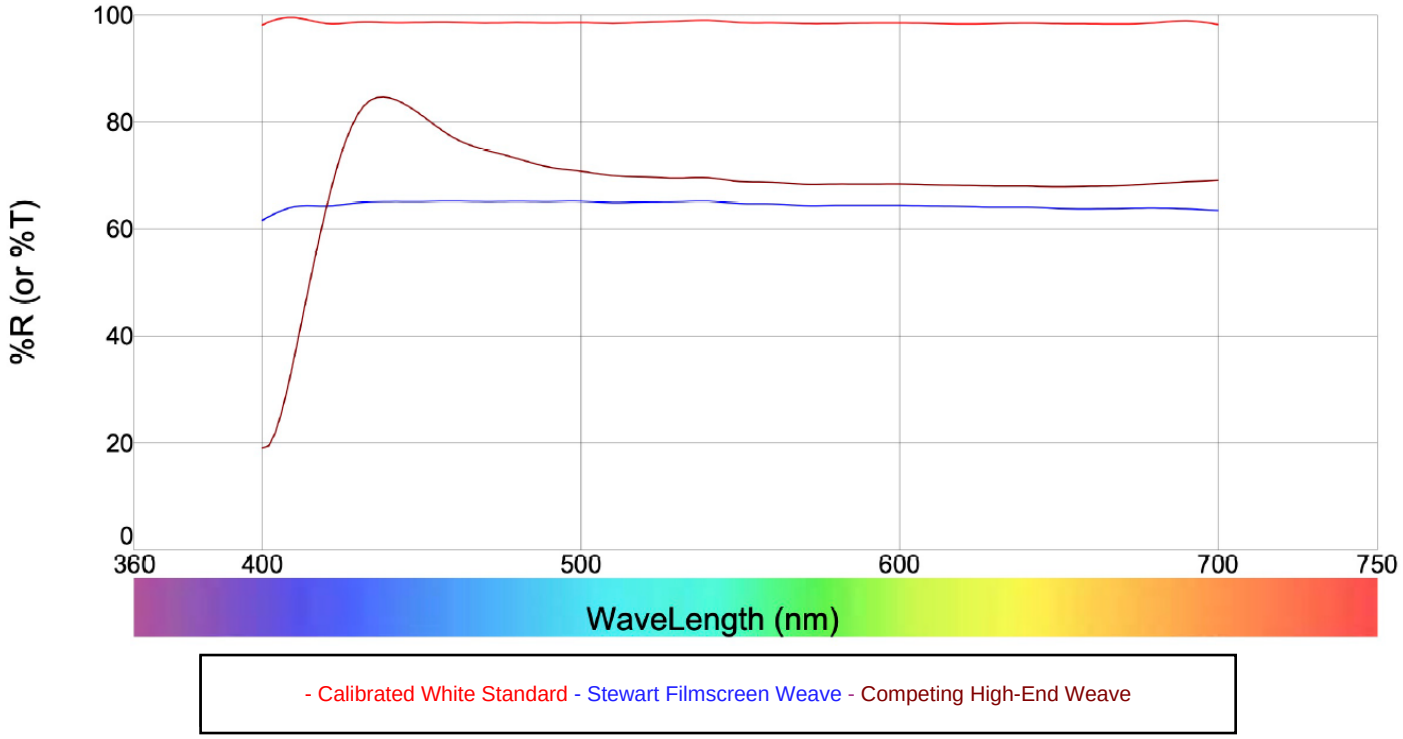
Test Summary: Harmony G2 neutral colored weave screen material, outperforms the competition in image accuracy. Key areas of superior performance include:

- 0.7 gain on-axis, with a very slight fall off when viewed off-axis
- The material has a very wide viewing cone with half gain beyond 80 degrees off-axis
- Exemplary color behavior on and off-axis – a claim several competitors cannot truthfully make

Graph 1

Color Spectrum Analysis

(Calibrated White Standard vs. Stewart's Harmony G2 vs. Leading Competitor)



Graph Details

- X axis shows reflectance color measurements (%R)
- Y axis shows wavelengths of visible light in nanometers (nm) – the range limit of visible light for humans is 400 nm to 700 nm
- Many weaves have the characteristic "blue bump" which is prevalent in many competitors' woven screen fabrics
- Harmony G2 does *not* skew blue

Conclusion

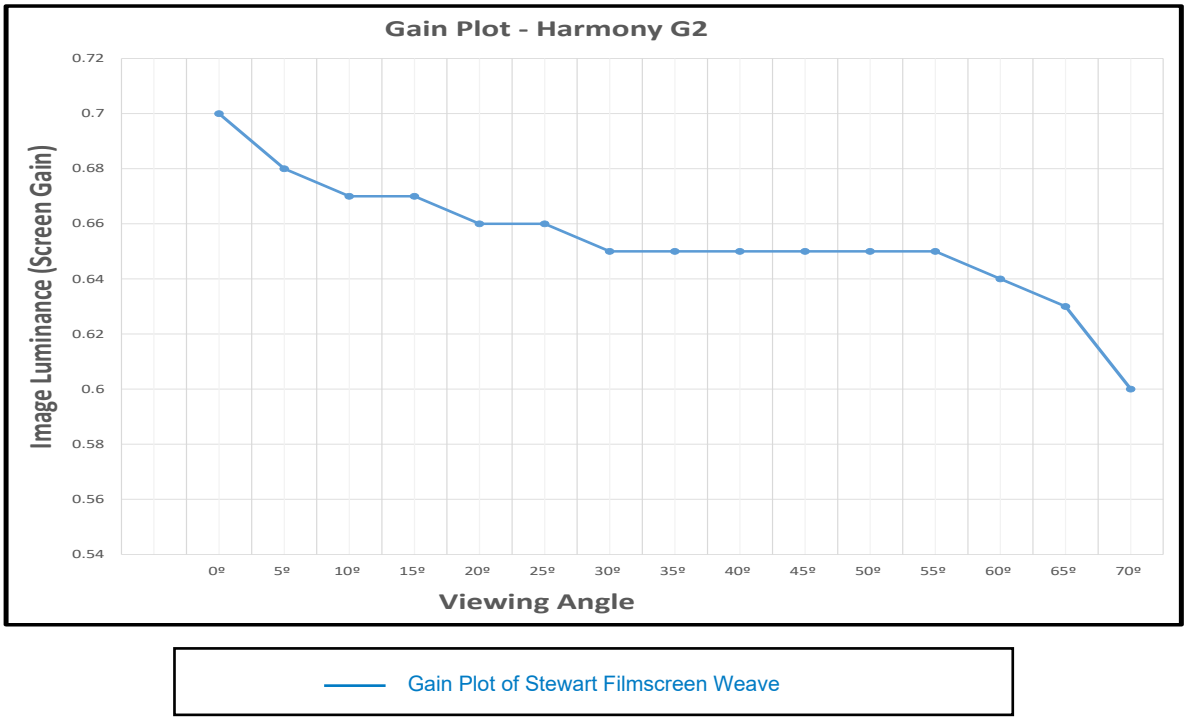
- **Whites will look punchy when they skew blue, but other colors will suffer as the spectral fidelity is compromised. Skin tones can look gray. The color of grass is not the expected shade of green. The color of cars looks a bit odd, etc.**
- **When primary colors are off, and attempts are made to digitally correct them, the secondary colors become affected. For instance, the blues might improve with digital color correction, but the greens and violets can suffer as a result of color correcting the blue.**
- **In developing Stewart's new weave material, we went further by locating a preferred neutral-colored thread to produce perfect neutrality for primary and secondary color reproduction.**
- **Stewart goes the extra mile to find the *right* yarn and determine the best way to make the fabric to produce an exceptional weave screen — resulting in superior visual and acoustic performance.**

Graph 2

Gain Plot
(Stewart Filmscreen Harmony G2, on and Off-Axis) with Black Liner

Material	Harmony G2
Standard	PTFE
B. Scatter	N/A
Gain	0.70
1/2 Gain	80º

Degrees	Gain
0º	0.7
5º	0.68
10º	0.67
15º	0.67
20º	0.66
25º	0.66
30º	0.65
35º	0.65
40º	0.65
45º	0.65
50º	0.65
55º	0.65
60º	0.64
65º	0.63
70º	0.6



Graph Details

- X axis shows image luminance (screen gain)
- Y axis shows viewing angle
- Blue line plots the gain level of Harmony G2 from 0 degrees on-axis to varying degrees (up to 70 degrees off-axis)
- Weave screens do not provide much variance in screen gain
- The trade-off for improved audio performance is decreased screen gain
- Competitors may claim unity gain of 1.0 or 0.9, but 0.7 is the real number

Conclusion

- **The Harmony G2 provides exceptional color presence on and off-axis with minimal drop off from off-axis viewing angles.**