FUJI 8583 400 ETERNA EMULSION TEST

By Alfonso Parra AEC

We tested Fuji's new 8583 400 Eterna emulsion for the film "Mujeres en el parque" (Women in the park), directed by Felipe Vega and produced by Tornasol Films.

THE TEST

The test first consisted in carrying out wedge spectograms and their corresponding prints. Then, we carried out the usual overexposure and underexposure tests with color, grays, whites and black charts and white skin tones. We also shot in exterior days and nights.

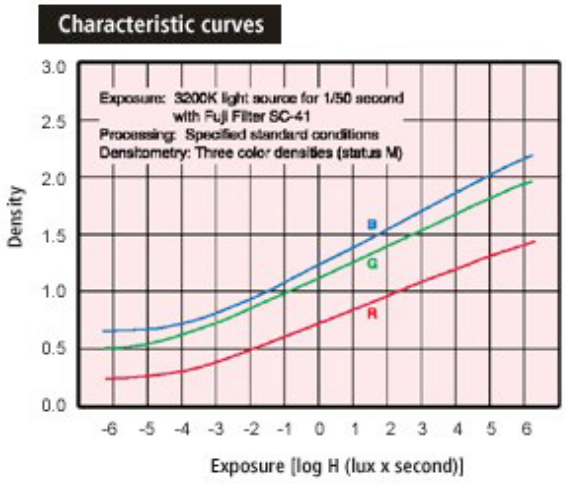
The curves presented here are wedge spectograms carried out by Fotofilm/Deluxe with the Fuji 8583 400 Eterna negative; these wedges were also printed on Fuji color print film. We used tungsten lights conveniently corrected at 3200ºK, using Minolta's Color meter IIIF colormeter. Exposure values were adjusted with a Sekonic L-558/Cine adequately calibrated. Two prints were made from the negative emulsion, the first one at one light adjusted at medium gray 18% value and the second one by grading the overexposures and underexposures, correcting the medium gray's normal value as much as possible. The exteriors were done without any lighting.

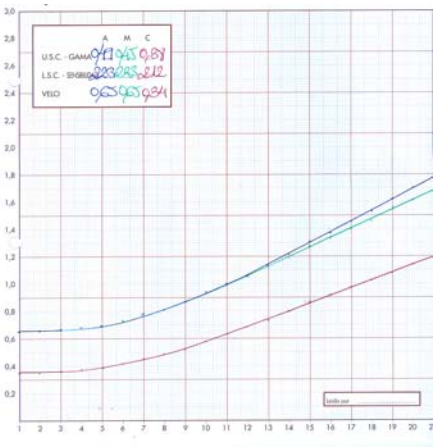


En esta imagen se pueden observar los valores de luz reflejada respecto del valor Normal (gris medio 18%).
24fps/ 172,8º / T 5.6

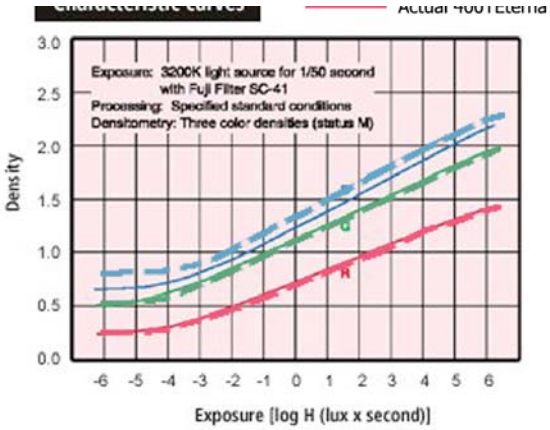
Here are the original frames with reserves typical of the step from CMYK to printing; but they'll serve as an approximation for later tests anyone deems opportune

Characteristic curves





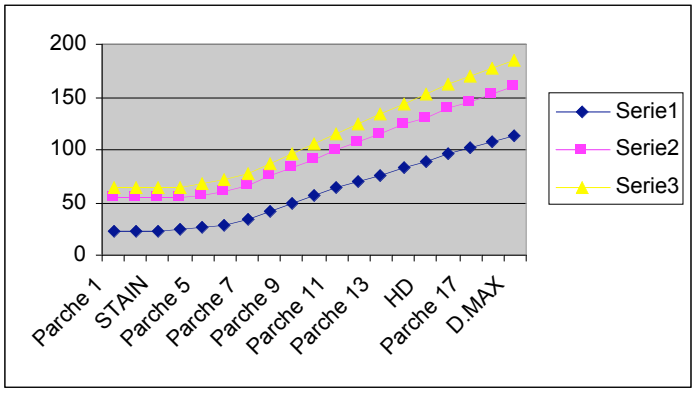
The first graph shows the information given by the manufacturer; the second is the wedge spectogram curve done by the lab. Notice the difference in the green and blue curve's path. They cross slightly in the shadows and maintain the same density in the mid-tones, which means there are color deviations in high or low lights when grading correctly for mid-tones. Notice also the emulsion's "softness", a characteristic also found in the previous Fuji 400T emulsion. The lower graph shows how the new emulsion gives much less density in the yellow layer, practically maintaining the magenta and the cyan equal. The gamma and latitude are also maintained.



Since our wedge did not coincide with the reference wedge published by Fuji, we contacted them and they sent us the following reference table indicating the values for step 12 (Average value):

Parche 12	70	108	125

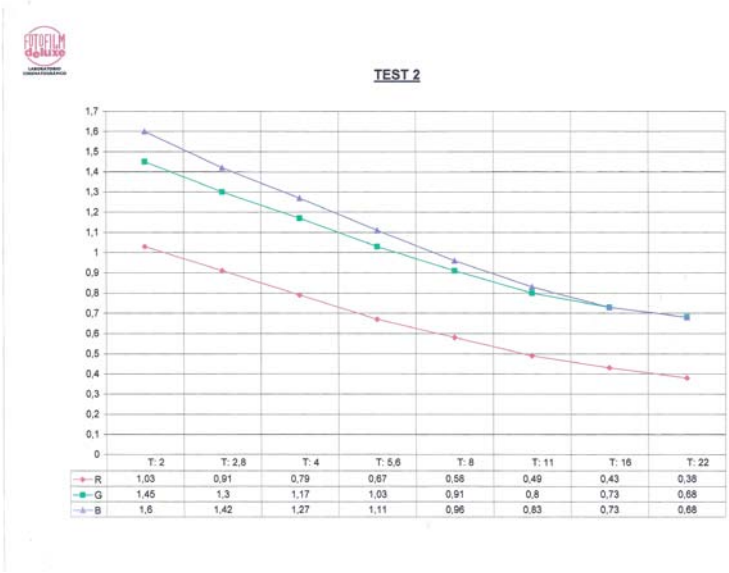
We made a wedge in camera overexposing and underexposing a grey chart of 18 %. Giving values for the normal exposition of 0.67R 1.03G 1.11B. We verified that in this proof the form of the curves was approaching more to the one belonging to the manufacturer than the accomplished for the laboratory.



Reference curve sent by the manufacturer together with the density values.

PARAMETERS READINGS

Step	R	G	B
Stain	23	54	64
LD	57	91	106
HD	89	131	152
HD-LD	32	40	46
D.MAX	113	160	185



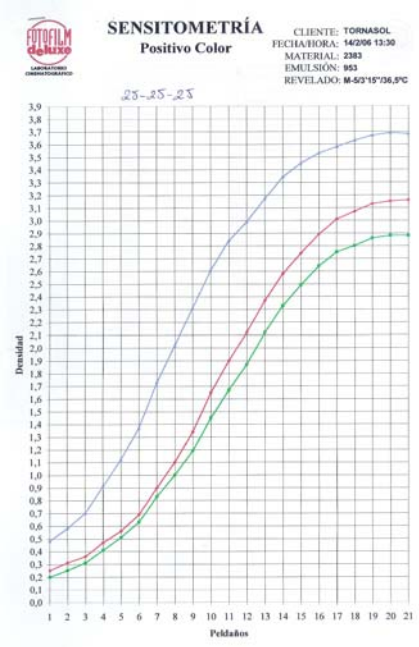
Wedge in camera with a grey chart 18%.

Parche 12 Referencia Fuji (Valor medio)	0,70	1,08	1,25
Parche 11 Referencia cuña Laboratorio (Valor medio)	0,63	0,99	0,99
Exp.Normal 24fps 172,8º 400Asa (Valor medio)	0,67	1,03	1,11

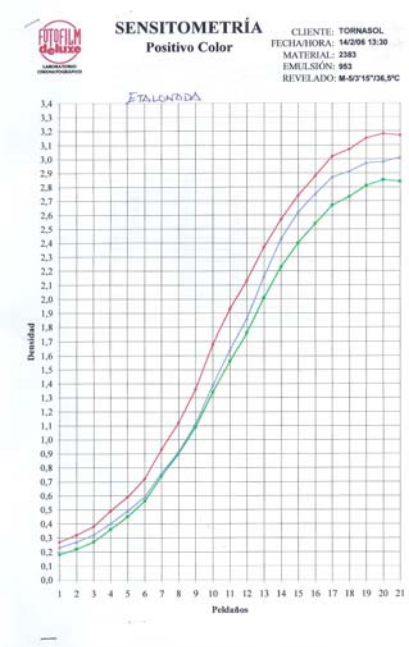
Comparison of the mean value in the three wedges

From a comparison of the values for the 3 references we concluded that the emulsion's nominal sensibility is lower than 400 Asa. A slight overexposure (1/3 stop) gives adequate density in the average value for reds and greens. However, you have to overexpose by 1 stop to obtain the adequate density in the blue. With the tests already filmed, we noticed the need to overexpose around 2/3 to obtain adequate density in the mid-values. For the movie, I used the emulsion at 320 in interiors and at 320 or 250 Asa in exteriors, depending on the light.

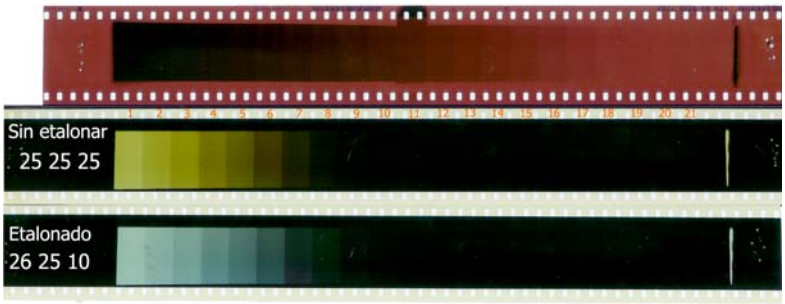
The lab wedge was printed at 2 lights, the standard and the corrected one. When printing at 25 25 25, a clear yellow deviation is visible typical of the low-density blue layer; so to get an adequate tone, you have to print the blues very low. This can be verified by looking at the wedge spectogram where you can see that the layer sensible to the blue maintains density values close to the green layer.



Wedge curves at 25 25 25



Wedge curves at 26 25 10



Contrast/Latitude:

The emulsion has an average gamma of 0.44, inferior, for example, to the 8573 500 ETERNA emulsion (0.52). The film has latitude of 10 stops, keeping in mind the curve's straight part and not including that the emulsion's toe extends up to one more stop. One more stop can be captured in high lights, since the emulsion is effective in a range of 12 stops and it manages high contrast ratios (more than 1000:1) well. The curve's slope, for the new emulsion, is equal to its predecessor's, so it does maintain a moderate contrast.

Color:

The emulsion has a very soft color reproduction, with slightly saturated colors. It maintains a good color balance when shooting at a color temperature of 3200K without blatant deviations although with a slight magenta deviation in shadows. In exteriors, with color temperatures at 5.600 and higher, a clear cyan/green deviation is visible, despite correction with filters. To achieve a good balance in skin tones, you have to work on the grading lights (with the blue always very much lower than the red and the blue) and the color temperature during shooting with adequate correction filters.



R27 G27 B16. Asa 400 25fps 172,8º
3.200kº. Without filters



R25 G26 B16. Asa 400 25fps 172,8º
Filter 85 in camera.

-Blacks:

The blacks are very soft, not very dense but they preserve their strength. Even with 2-point underexposures the black maintains certain body. This led us to use the emulsion in night exteriors in the city using the street lamps as the only source of light.



R25 G25 B25



R32 G30 B20

-Grain:

There is a considerable reduction in grain comparable to the 250 emulsion.

-Sharpness/Definition:

Both in sharpness and definition there is an improvement from the previous emulsion, considerably increasing the clip and the detail for high sensitivity emulsion.

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Test emulsión Fuji 8583 Eterna 400T

A una luz



R27 G27 B16 Sobrexpuesto 3 Stop | R27 G27 B16 Sobrexpuesto 2 Stop | R27 G27 B16 Sobrexpuesto 1 Stop | R27 G27 B16 Exp. normal | R27 G27 B16 Subexpuesto 1 Stop | R27 G27 B16 Subexpuesto 2 Stop | R27 G27 B16 Subexpuesto 3 Stop | R27 G27 B16 Subexpuesto 4 Stop

Etalonado



R39 G42 B33 Sobrexpuesto 3 Stop | R35 G37 B28 Sobrexpuesto 2 Stop | R31 G32 B22 Sobrexpuesto 1 Stop | R27 G27 B16 Exp. normal | R25 G24 B12 Subexpuesto 1 Stop | R23 G22 B10 Subexpuesto 2 Stop | R21 G20 B08 Subexpuesto 3 Stop | R19 G18 B06 Subexpuesto 4 Stop

Technical notes

Emulsión: Fuji 8583 400T Eterna
Positivo: Fuji
Cámara: Arricam ST 24fps 172,8°
1:1.85
Lente: Zeiss Ultra Prime 40mm
Laboratorio: Fotofilm-DeLuxe
Iluminación: Cherokee Lighting
Termocolorímetro: Minolta Color meter IIIF
Fotómetro: Sekonic L-558/Cine