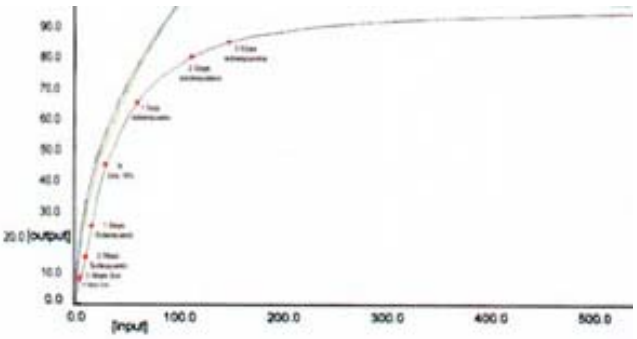
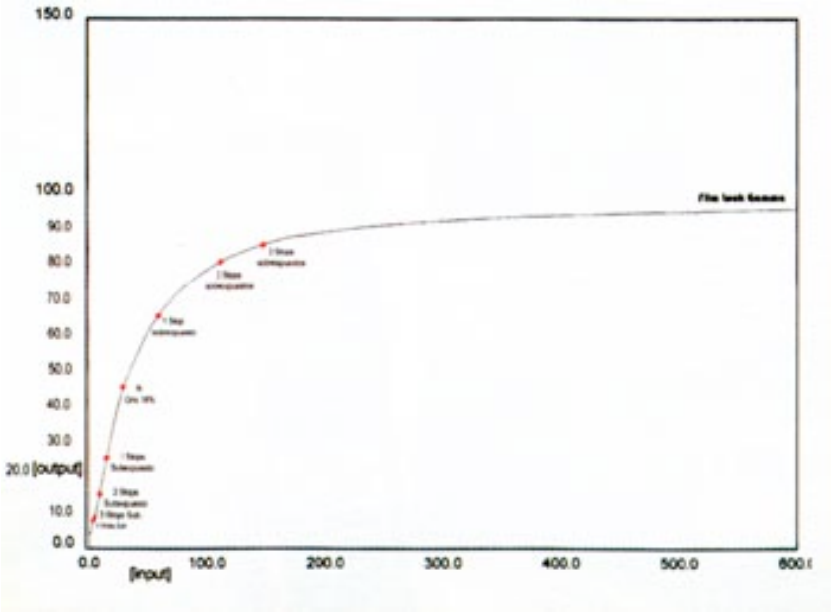
Modificaciones de la curva de gamma en la cámara Sony F-900



The Sony F-900 camera has gone through several updates both in its hardware and software. It would be interesting to point at the development of the Film Look Gamma curve, accessible through the CvpFile Editor software. This program enables the user to personalize the gamma curves for the F-900 in his/her PC. It also comes with customized curves in its files, among them the Film Look Gamma curve. This is the curve we have used for the shooting of the feature "Plauto", directed by David Gordon and produced by IUNO Films. The software also comes with ITU, SMPTE and 5.0 curves. This curves can be modified by the user and once recorded onto a memory stick can be read by the camera. On the other hand the Film Look Gamma curve cannot be modified and once transferred to the camera will block certain parameters, the Knee function among them.

In * (ej.1), you can see the shape of the curve as well as the overexposed and underexposed spots. It is particularly interesting to look at the shape in the highlights, something we tried to achieve with the prior model to the F-900 by modifying the Knee, the White Clip and the Slope functions in the Menu. This ?compression? of the curve in that zone allows for an extension of the latitude of the camera to register finer detail and achieve a soft and gradual fade in it.

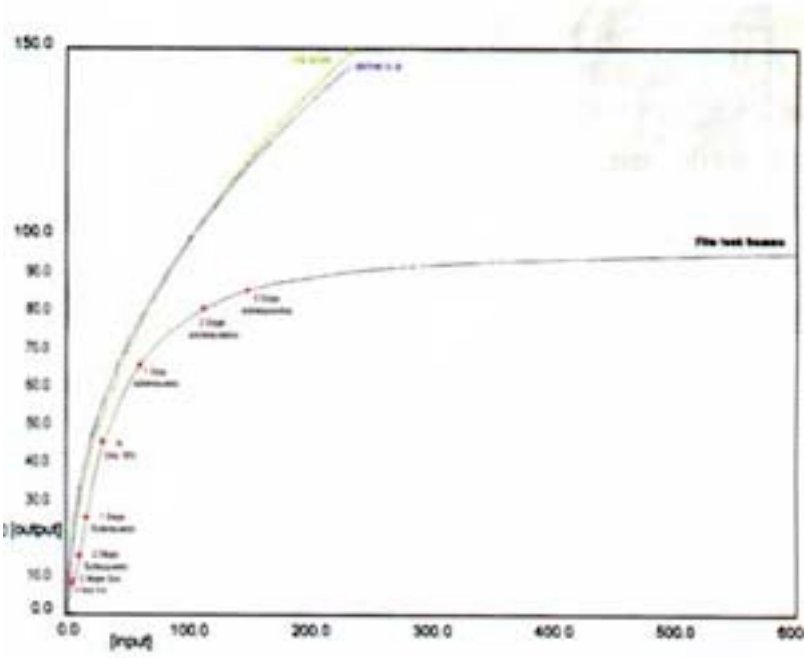


ej.1

It is also interesting to see how the registration of detail has increased in lowlights. The curve reveals that the camera can reasonably register scenes with a contrast ratio of 250:1 (about eight T-stops ofaperture). That is a little over three T-stops higher than the normal value and over four below, in the shadow area. This contrast ratio is more than enough for the margins found in a film positive. The amount of detail registered in the shadows is not surprising, given the usual capacity of the camera, but now with the updates purer (less noisy) blacks and a better colour balance are achieved.

With this curve, at 24 Fps and 1/48 shutter speed, we got a relative ASA value of 250. At the time of testing we found we could go to 320 ASA. Seeing the camera's response in the highlights I chose to slightly overexpose the image working between 160 and 200 ASA.

La modificaciones de la curva pueden verse mejor comparándolas con otras curvas como muestra la figura * (ej.2) La curva ITU así como las 5.0 están creadas con las correcciones propias para el visionado en monitores (correcciones de gamma).



ej.2

ITU Comparison The changes in the curve can be properly attested by comparison with the other curves shown in* (ej.2). The ITU curve as well as the 5.0 curve are created with proper corrections for monitor screening (gamma corrections). In the comparison, you can see how the ITU and the 5.0 curve loose detail rapidly in the highlights. The Film Look Gamma curve still holds acceptable values for the signal when the others have lost them and surpassed 100. You can also see how both of the other curves mantain a much lower latitude than the Film Look Gamma. The latter offers about 8 T-stops while the former only have a bit more than 6 T-stops of iris, with a rapid decrease in detail in highlights.

* (ej.2) Comparation between film look gamma and the usual curves ITU and Initial5.0 It should be said that the monitor screening of images with the Film Look Gamma curve will not be representative of its quality due to the inability of the monitor to show detail, particularly in highlights, presenting an image with a general lack of contrast and brightness.

In* (ej.3) and * (ej.4) you can see the curve of a 5242 Intermediate filmed with Arrilaser and the corresponding positive with 34, 34, 21 lights. You can see in the negative curve the typical shape restricted to the values determined by the Film Look Gamma curve. We see how the shoulder is fixed at three T-stops of overexposal and the toe at four. The difference in latitude with negative emulsions is clear. It should be said again, however, that the comparison should be made between the camera and the film positive. The camera only generates a positive, not a negative, and it is important thus to look at the positive curve. The obtained values in density are quite similar to those used in film.

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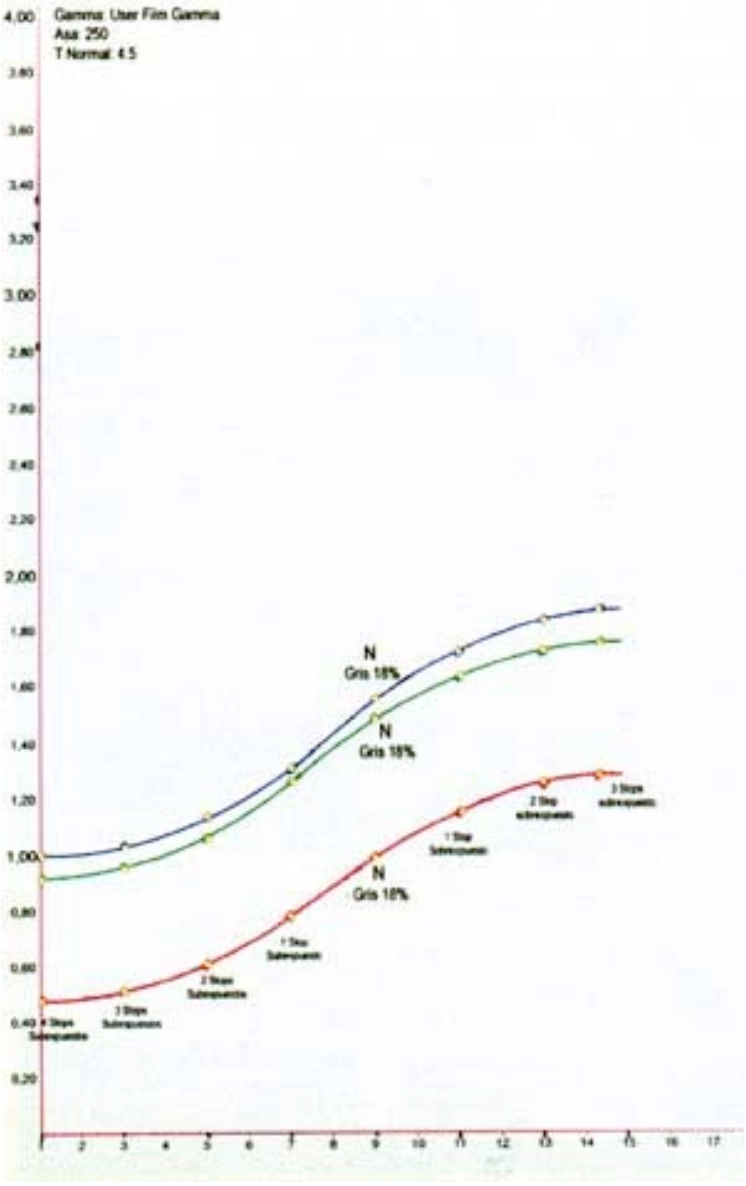
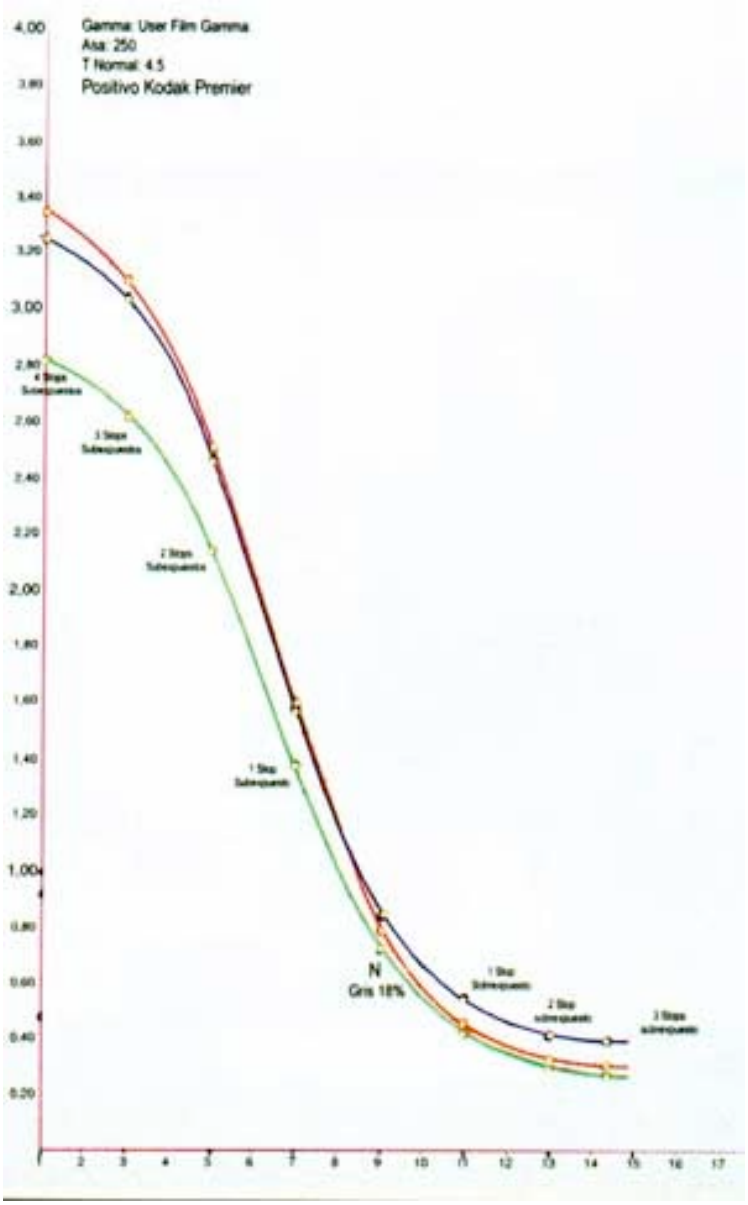
ej.3



ej.4



PLAUTO
Densidades intermediate 5242
filmado con ArriLaser (Molinare).
Asa relativa 250.

Diafragma T	R	G	B	%
16	0.49	0.93	1.01	0.6
13	0.52	0.97	1.05	0.9
9	0.62	1.07	1.15	15
6.3	0.79	1.27	1.32	25
4.5 N	1.00	1.50	1.57	45
3.2	1.16	1.65	1.74	65
2.2	1.26	1.74	1.85	80
1.7	1.29	1.77	1.89	85

PLAUTO
Densidades Positivo Kodak Premier.
Madrid Film (34,34,21)

Diafragma T	R	G	B	%
16	3.36	2.82	3.26	0.6
13	3.13	2.64	3.05	0.9
9	2.53	2.16	2.49	15
6.3	1.61	1.39	1.59	25
4.5 N	0.80	0.73	0.85	45
3.2	0.47	0.43	0.56	65
2.2	0.33	0.31	0.42	80
1.7	0.31	0.28	0.40	85

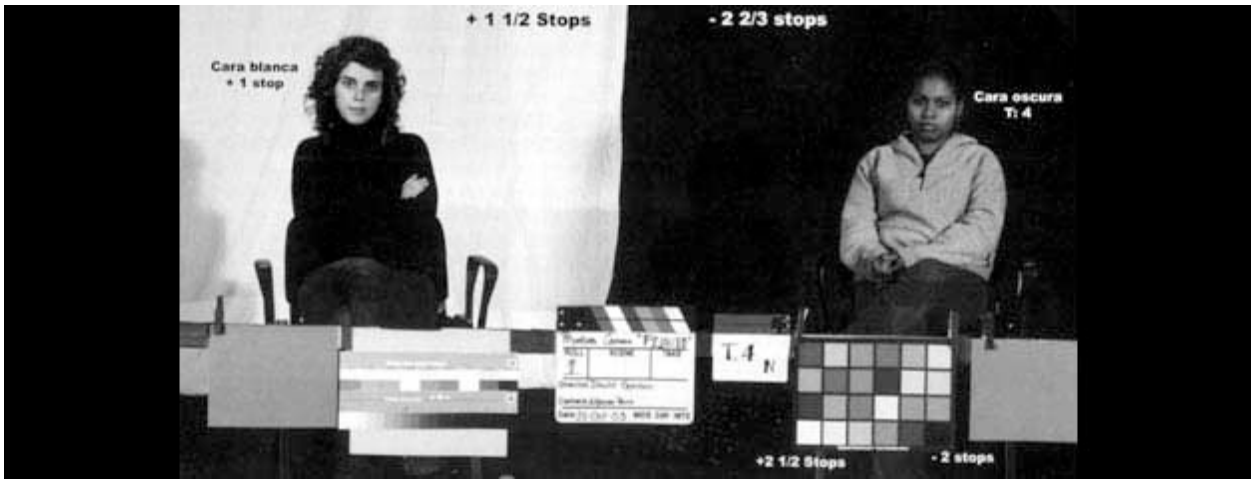
The exposal in digital filmmaking is still critical despite having increased the latitude and due to the positive nature of the image. It leaves place for very little error. Full and constant attention should be paid to the contrast ratio and the exposal.

The new hardware and software also achieves a difference in colour reproduction. I have observed a better colour balance in projection and a more natural look, particularly affecting reds and oranges which seem to have lost that intensely saturated look of before. The increase of quality in skin tones is substantial, achieving softer and more naturals tones for dark skins as well as light skins.In the following stills you can see how the F-900 reacts to highlights and shadows. Its reaction is comparable to 35mm, although at a certain value of overexposal (four stops) the whites in Cinealta become slightly "plastic" with poor detail.

F-900 MKII Film look Gamma Positivo Kodak Premier

F 250D 8562

During the shooting of ?Plauto? I asserted the necessity of lighting the shadows exposing for the highlights, although in a lesser degree than with the old F-900 software. The highlights with the new software also tend to be less agressive in their ? brightness?. On the other hand the detailing in shadows of the F-900 should be mentioned again. In the stills you can see colour in the Macbeth scale with 3 stops underexposed. You can also differenciate grays in a Kodak Grayscale and still see detail in white skin. A still with 4 stops underexposed is included. Detail was still appreciated in projection.



I adjusted my spot meter after these tests to a range of eight spots, 3 _ above the average and 4 _ below, assuming a midvalue of 40% on a 18% grayscale.

The new Film Look Gamma curve is definitively a step further in the taping of images intended for film projecting. It is a highly recommended option for theatrical projections
Alfonso Parra (a.e.c) Credits on HD: Feature Films: "Carlos contra el mundo" HDCam for 35mm positive. 1:1.85 "El regalos de Silvia" HDCam for 35mm positive. 1:1.85 "La flaqueza del bolchevique" HDCam for 35mm positive. 1:1.85 "Plauto" HDCam for 35mm positive. 1: 2.35

Technical Notes:
Cámara HDCAM Sony F-900 MKII v3.0
www.cinealta.com
Curva Film Look Gamma (CvpFileEditor)
24 psf 1/48 1:1.85
Wave Monitor Astro LCD
www.astro-systems.com
Monitor HD 20 Zoom Cooke HD S4
www.cookoptics.com

Filmado con Arrilaser sobre Kodak 5242
Positivado sobre Kodak Premier
www.kodak.com