

Venice in Cartagena de Indias

An approach to the new Sony camera

by Alfonso Parra AEC, ADFC

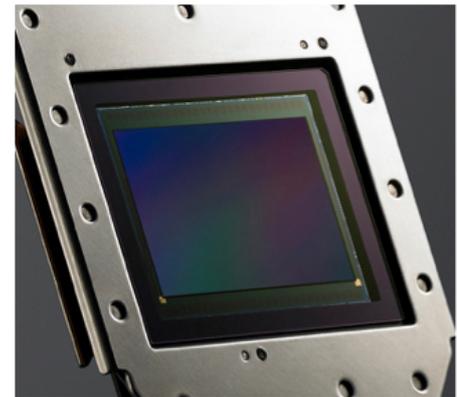
We are going to report our experience with the new Sony Venice camera during a film shooting in Cartagena de Indias (Colombia), which at the same time served as the presentation of the camera at FICCI (International Film Festival of Cartagena de Indias in its Spanish acronym). Before, we had already had the opportunity to put in contact with the camera although not to shoot with it because at that time the camera was its own 0 version. However, in this occasion, under the tropical heat, we could endeavour with the camera v.1.0, being the first time for this camera to be used in Latin America. Venice is a camera which leaves definitively any relation with the broadcast world; and you can feel it in its design. All of the typical menus of the previous Sony cameras have disappeared, the management is extremely easy and the access to the parameters in order to configure according to DoP's necessities is clear. We lead our project at format X-OCN ST RGB 16 bits linear, 24 fps with the 500 nominal ISO and the curve SLog3-SgamutCine (the only one available) at format 4K 17:9 regarding the aspect 2.40:1. We used the sensor to 4K 4:3 with the Kowa anamorphic lenses (x2). Beside we recorded the Proxi at XVAC-I during the editing process.



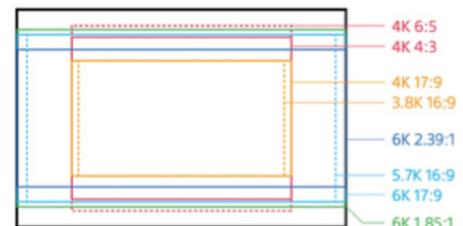
Alfonso Parra AEC, ADFC

We used mostly the spherical lenses SIGMA Cine Lenses FF, but also the LEICA lenses Summilux-c, as well as the upper mentioned anamorphic KOWA lenses (really vintage). In postproduction we used Davinci Estudio colouring at ACES TO HDR 2020. We did the visualization with the Sony 4K BVM-X300 monitor through the curve PQ to 1000 nits. We shot also some frames at 6K.

From the whole features of the camera we would like to begin emphasizing its versatility regarding the available formats. It is the first time Sony uses in its cameras the Full Frame (FF) format, 39x24 mm, in other words, the sensor has the same size as the used in still photography and the double that the traditional S35 of 4-perforation. The pixel size is around 6 μm with an excellent noise signal. With Venice we can shoot at S35mm 4K, to both spherical formats with different aspect ratios and 4:3 anamorphic ones. At 6K we can shoot in 3:2 to 2.39:1 to anamorphic formats and we can also use at 6K regarding different aspect ratios, 16:9, 17:9 o 1.85. It should be pointed out that the FF format has two significant features: firstly, the increase of the resolution and the consequent increase of texture; such increase builds an image with a much more natural appearance, more organic; secondly, it shows less depth of field in such way that we had a determined depth of field with the S35 at T 2.8, with the FF we get the same depth of field close to T 5.6. In the end, the FF offers more image quality. Next, I will present two frames at two different formats and several aspect ratios.



6K 3:2 (Full Frame)



4K (4096x2160).1:1.85 Sigma Cine lenses FF 20mm



6K (6048x4032) 3:2. Sigma Cine lenses FF 20mm

I have marked in red two projective lines on the frames which coincide in the same point to show that changing the format does not entail the change of the perspective which in both cases alike. If we use equivalent lenses to a suitable distance regarding the related T value to get the same image at both formats, we cannot see any significant difference between the two images with regard to the perspective, the apparent size of the foreground and the unfocused; although there will be difference in the resolution and texture. It should be pointed out that Venice will need lenses which cover the sensor diagonal working at FF, for instance, as we did in the Rafael Núñez's house to shoot the upper frames. In such frames, to both 4K and 6K we can see vignetting neither on corners nor sides, but it occurs with lenses like Kowa, anamorphic lenses designed for covering the S35 of 4-perforation. Bellow, we show an example



4K (4096x2160) 4:3 to 2.7:1. Kowa lens 40mm



6K(6048x4032) 3:2 Kowa lens 40mm

In the 6K image we can see the vignetting on the image corners, something that does not happen in the case of 4K.

The film shooting in Cartagena de Indias was mainly carried out on market, on the beaches as well as the Rafael Núñez Memorial House. During shooting in none of the locations we used any kind of light, we just relied on the natural lightening conditions controlled by the exposure- The set of neutrals filters of the camera is awesome, it has two filter turrets that allows filtering in steps of 1 stop, from 0.3 up to 2.4, that is, 8 stops. The neutrals have great quality and do not show any change of color while using them. The camera is very simple to manage with an easy accessible menu; every adjustment we needed were possible to be done in a fast and uncomplicated way.

Other interesting consideration about the camera is that the sensor can be replaced in a very easy way, so, when Sony announces a new one, there will not be needed of leaving the camera on the shelves. The Venice ventilation system is isolated from all electronic components and it can be disassembled by the user to clean it if it was needed. The ventilation system worked perfectly under the sun and humidity of the Caribbean; during the whole shooting we had not any kind of problem of operating, it should be also pointed out how fast the camera is turning on, with unnecessary delays or adjustments.

Let us focus on some outstanding aspects of the camera. Let us begin with the noise.

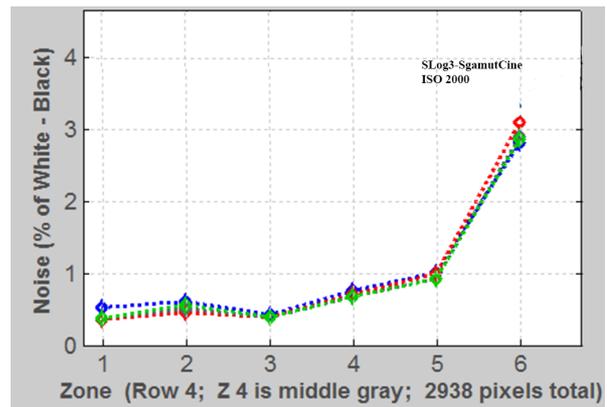
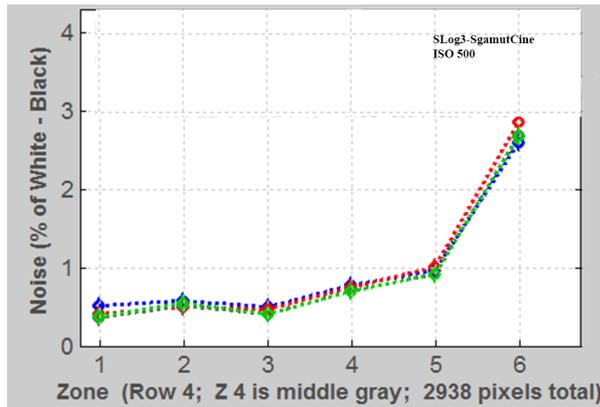
The difference of noise regarding the earlier models like F55 is based on two aspects. Firstly, the noise in the three RGB channels is practically alike, with similar values among them as well as with the luminance value. Secondly, the increase of the ISO values does not entail significant increase of noise. We could check the second aspect when we tested F55, however, now it is really improved. As a reference I show the values we got from the analysis of the Macbeth chart through Imatest.

AVERAGE OF THE NOISE FROM 2 TROUGH 5 ZONES IN % REGARDING THE VALUES OF THE WHITE AND BLACK TO THE MACBETH CHART. Sample 2-5 of the chart. Slog3-SGamutCine

ISO Value	R	G	B	Y
500	0.68	0.64	0.71	0.64
800	0.65	0.64	0.70	0.63
1250	0.67	0.64	0.73	0.64
2000	0.64	0.64	0.70	0.63
3200	0.64	0.65	0.71	0.63
4000	0.63	0.65	0.74	0.64
5000	0.63	0.64	0.72	0.63
6400	0.67	0.69	0.78	0.67

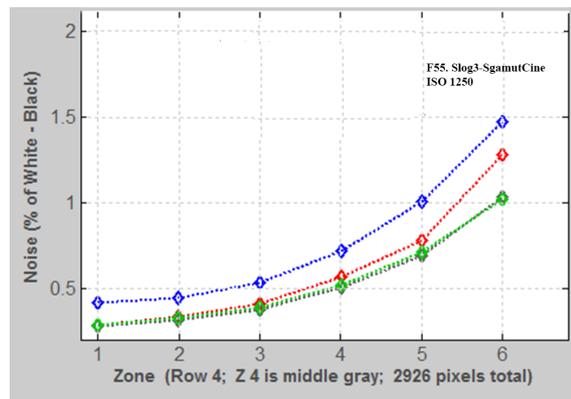
The table shows how the values of the noise average to different ISO values keep quite constant

than in the other ones. Next, in the graph we can compare the relation between different channels, as well as the difference to two different ISO values, 500, and 2000.



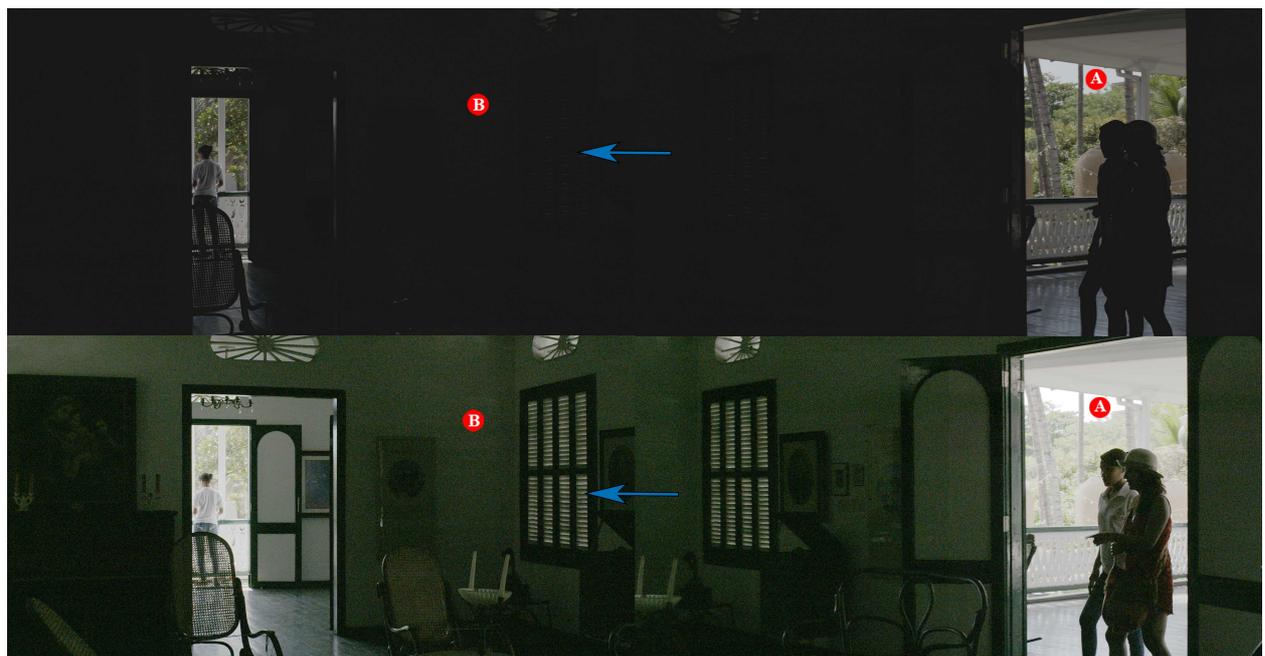
In order to give a more precise picture of the results we show the curves we got with F55. We can see how the noise changes through the three channels.

Such difference is already a clear improvement to Venice—because the noise will have less “color”, and so, the noise will keep uniform and clean, above all on the shadows and middle-tones. We could see the effect in the images we shot in outdoor locations. Such continuity regarding the noise is kept up to enough high values. In the first version, the 1.0, we can use ISO values from 500 up to 2000, for the next update, the camera will show the ability to use a dual ISO value, of 500 and 2500, with the same image quality.

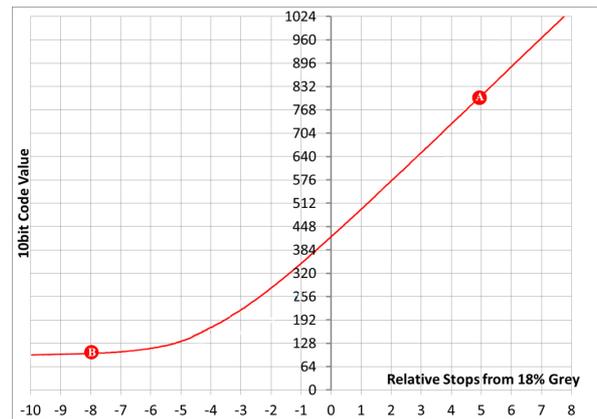


Relative values of the noise at RGBY to F55

Let us see the next frame which belongs to a panoramic, with an exposure fitted to the outdoor sky in such way that the indoor house is underexposed around 6 stops. The different parts of the indoor room are between -7 and 9 stops. Not moving the indoor blacks we could see that the blacks had depth, in addition the different foregrounds show different black values; despite the so deep underexposures even with noise, we could see the details, and what it is also important, the noise distribution is very similar through the three channels as well as its movement is very organic.

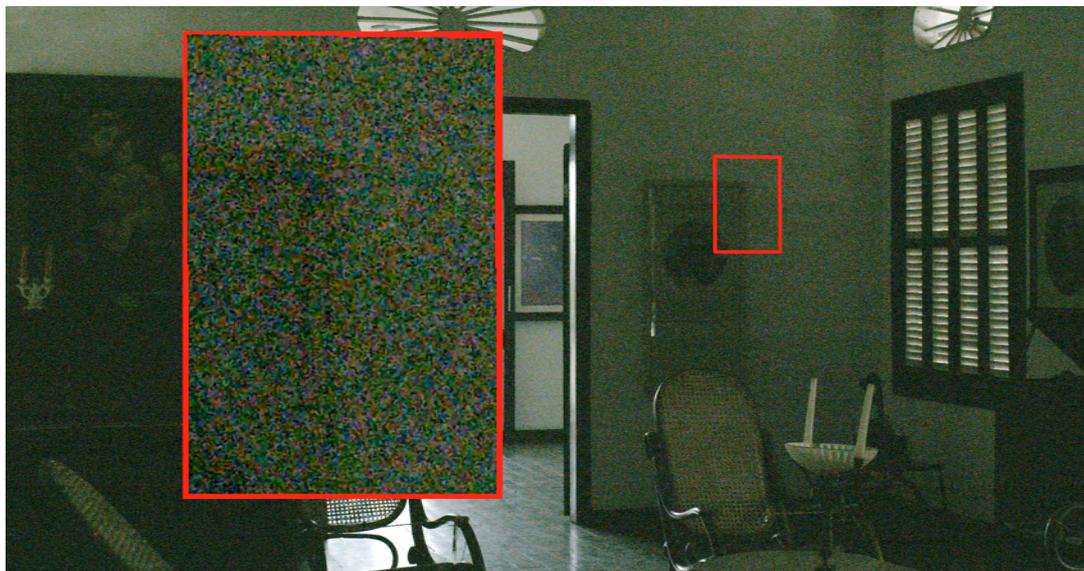


We show the two more significant values in the graph, the sky which determines the exposure and the walls of the room. For example, we can see the detail of the plaster on the left or certain texture in the wood of the furniture. The sky A value is around 5 stops above the middle gray, whereas the wall B value is 8 stops below the gray. The range of the shadows from the different objects is between the -7 and -9 stops.



The lower image of the panoramic is risen around 4 1/3 stops (10000 ISO) with RawViewer.

The increase of the dynamic range of the Venice camera regarding the earlier cameras provides a much better management of the noise. Next image, I show an enlargement of the same.



Venice uses as a support of the dynamic range the Slog3 curve, such curve is broadly known by all users of the Sony cameras. On account of this, the effective range, in other words, that one which keeps both the detail and texture to the limits of the highlights and the shadows is related to the waited for the curve. However, as the noise is improved in the shadows, we gain at least 1 stop of detail regarding, for example, F55. Therefore, the effective range is 6 stops above the middle gray and 6 1/2 below.

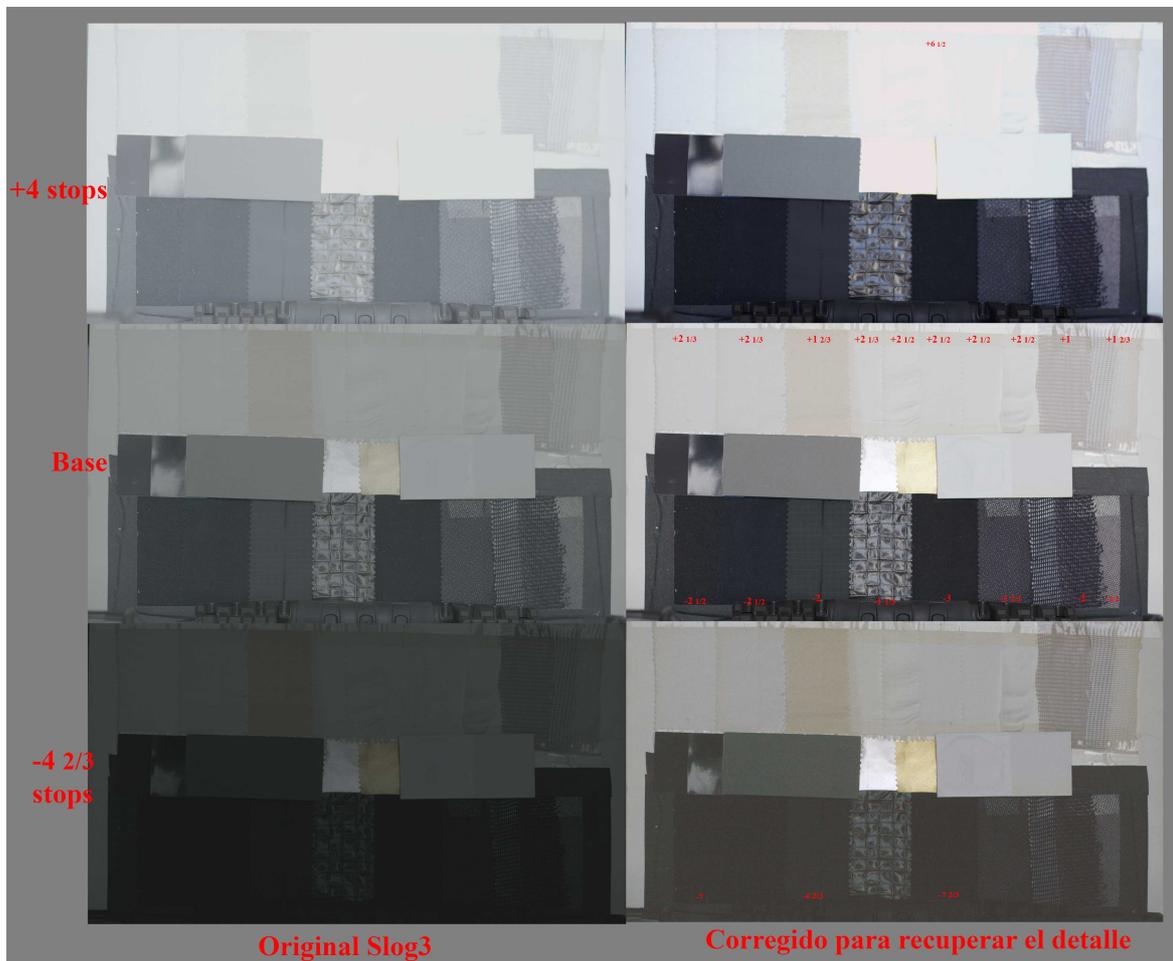


Film crew ~~in~~ at the Rafael Nuñez's Memorial House

Let us see the effect with the multi-exposures through the Death chart.

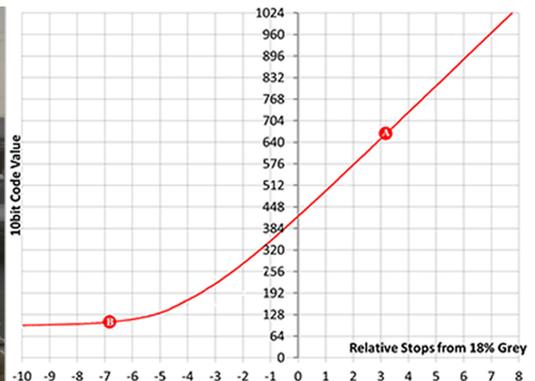
With the overexposure of 4 stops the white fabrics which are at 6 1/2 (PB6, PB7 and PB8) have already lost the detail and with that one which are 6 1/3 we can see a bit of

detail, but with a certain compression. I think that the limit of 6 stops is the best to keep the detail and texture. With the underexposure near to 5 stops, the sample PN1 which is at -7 does not show the texture, neither the samples PN3 nor the PN5 which are between -6 2/3 and -7 2/3. Indeed we saw with the overexposure of -4 we could still see the texture of the samples, that is, they are around 6 1/2, but there is noise although significantly *clean*.



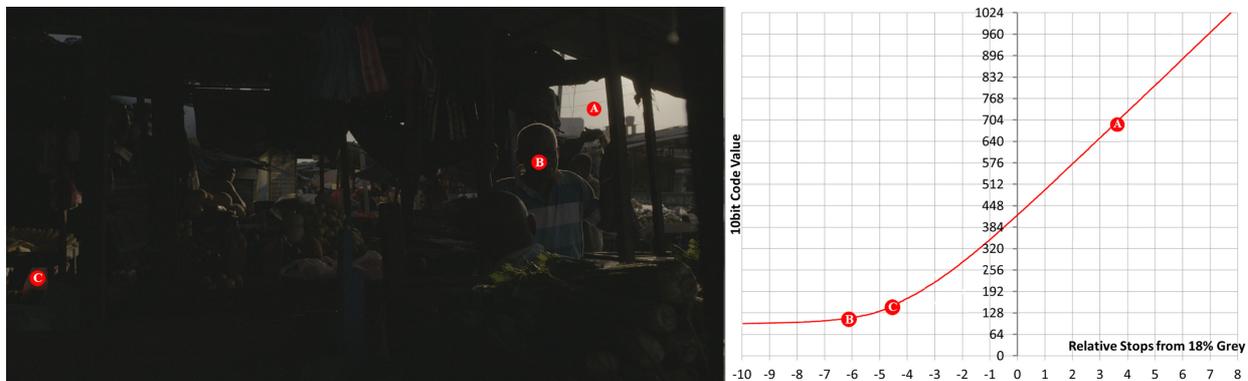
In this way the total effective range is around the 13 stops, practically 1 2/3 stops more than provided by F55. It should be pointed out two aspects regarding the detail over the range ends that we saw. Firstly, the lost of the range to highlight is softer than with the earlier cameras. The curve shoulder is more delicate and the decrease of the detail is more progressive. Secondly, the detail to the blacks is vanishing with much more *softness* and *deepness*.

Next, we show some frames where we can see the dynamic range.



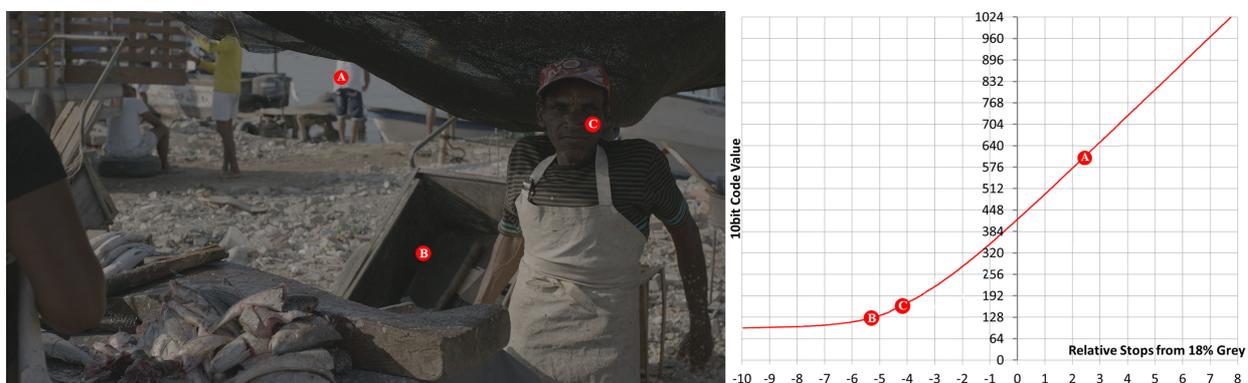
Basurto Marketplace. Cartagena de Indias. Colombia. 4KDCI 24fps 180°. X-OCN ST 16 bit. SIGMA Cine lenses FF 24mm T 5.6. ISO 500. Filter ND 1/64 (6 Stops). Slog3-Sgamut.Cine. Original

In the frame we exposed to get the whole texture of both the sky which is near to 3 stops above the middle gray and the awning which is at -7; under such shadow we can still see certain texture of awning plastic as well as in the darkest zones.



Bazarto Marketplace. Cartagena de Indias. Colombia. 4KDCI 24fps 180°. X-OCN ST 16 bit. SIGMA Cine lenses FF 24mm T 2.8. ISO 500. Filter ND 1/128 (7 Stops). Slog3- Sgamut.Cine. Original

In this case we wanted to reach the limit of the underexposure contrasting the sky, the face and the indoor atmosphere of the marketplace which is between -5 and -8 stops. We could check the *elegance* of the blacks, plenty of nuances, tones and deepness.



Bazarto Marketplace. Cartagena de Indias. Colombia. 4KDCI 24fps 180°. X-OCN ST 16 bit. SIGMA Cine lenses FF 50mm T 5.6. ISO 500. Filter ND 1/64 (6 Stops). Slog3- Sgamut.Cine. Original

Fish sale on the beach. The face is at -4 stops and the yellow t-shirt in the background at $+21/2$. With the -4 stops value we can keep the whole detail and texture without seeing noise. It occurs the same with the cart which is a bit larger than -5 . Lastly, we show a frame with soft nuances.



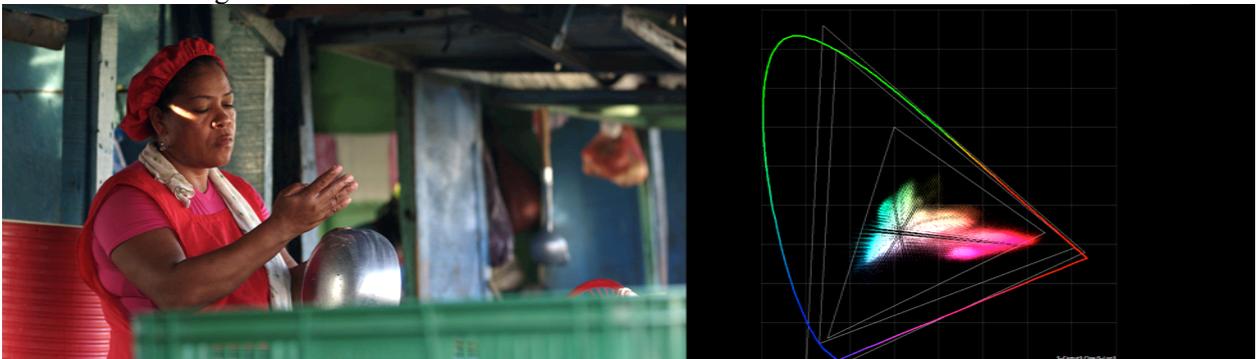
Rafael Núñez's house. Cartagena de Indias. Colombia. 4KDCI 24fps 180°. X-OCN ST 16 bit. SIGMA Cine lenses FF 35mm T 2.8. ISO 500. Filter ND 1/2 (1 Stops). Slog3- Sgamut.Cine. Original

Unquestionably, the color and the skin tones are particularly interesting. The camera colorimetry is due to the new sensor. Despite the Sgamut space color does not change, we could see the improvement of both the natural appearance of the color and the tonal subtleness, with degradation very soft and kind. We could check it through recording and postproduction. Next, we show some examples.



Bazurto Marketplace. Cartagena de Indias. Colombia. 4KDCI 24fps 180°. X-OCN ST 16 bit. SIGMA Cine lenses FF 85mm T 4. ISO 500. Filter ND 1/16 (4 Stops). Slog3- Sgamut.Cine. Lut LC709TypeA to the frame.

In the next images we show an adjusted frame with LUT LC709TypeA, on the right there is an XY graph where the spaces of color SGamut, SGamutCine and 709 are marked. The graph shows the original color, that is, at Slog3-Sgamut3. We think that it is interesting the image; not only the skin tone but also the background color set, above all the different brightness of the red regarding the blue as well as the yellow. It is also subtle the color gradation in the next frame, the green and the cyan put in contrast with the red and the magenta.



Bazurto Marketplace. Cartagena de Indias. Colombia. 4KDCI 24fps 180°. X-OCN ST 16 bit. SIGMA Cine lenses FF 85mm T 4. ISO 500. Filter ND 1/8(3 Stops). Slog3- Sgamut.Cine .Lut LC709TypeA to the frame.

Or the tones which have totally a pictorial form, tones which bring back the Ana Mercedes Hoyos' works

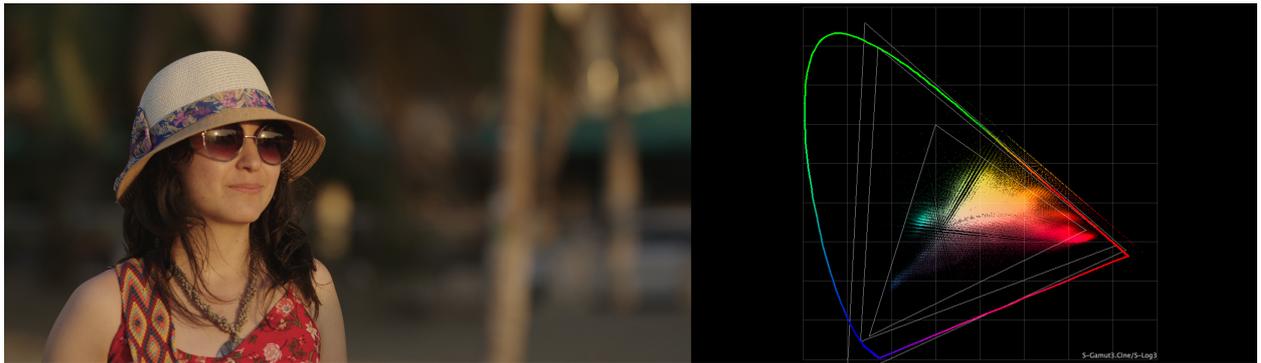


Bazurto Marketplace.. Cartagena de Indias. Colombia. 4KDCI 24fps 180°. X-OCN ST 16 bit. Lens SIGMA Cine lenses FF 50mm T 5.6. ISO 500. Filter ND 1/32 (5 Stops). Slog3- Sgamut.Cine Lut LC709TypeA to the frame



Bazurto Marketplace. Cartagena de Indias. Colombia. 4KDCI 24fps 180°. X-OCN ST 16 bit. SIGMA Cine lenses FF 50mm T 5.6. ISO 500. Filter ND 1/32 (5 Stops). Slog3- Sgamut.Cine Lut LC709TypeA to the frame

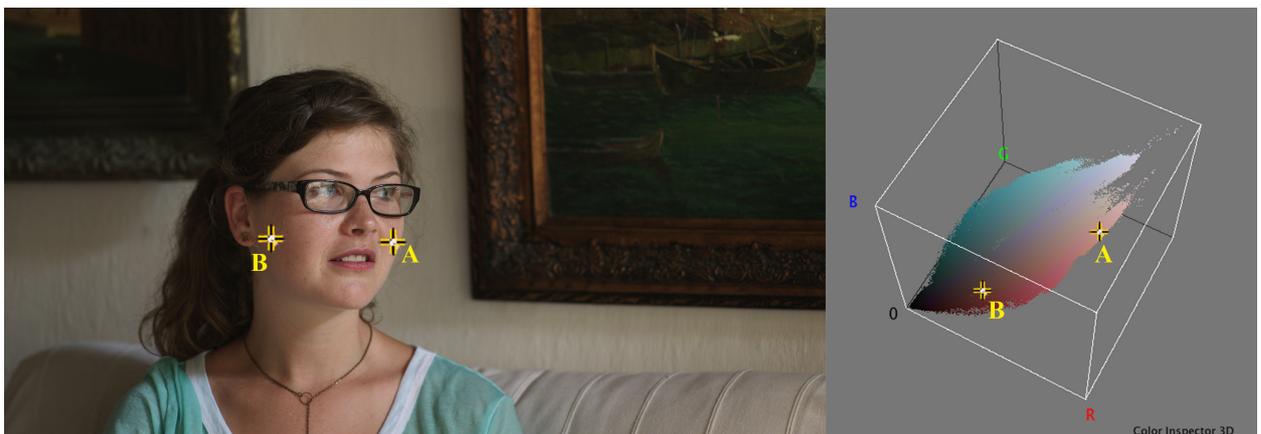
Colors are intense although they are neither artificial nor “electronics”, they are utterly natural, plenty of textures, nuances and deepness. The camera can capture all of the nuances which exceed the usual 709 space. As we have already pointed out earlier, we used an HDR monitor which allowed us to see more color than we used to see. Lastly, in the next frame we can see a warm tone during the sunset.



Bocagrande Beach. Cartagena de Indias. Colombia. 4KDCI 24fps 180°. X-OCN ST 16 bit. SIGMA Cine lenses FF 85mm T 5.6. ISO 500. Filter ND 1/64 (6 Stops). Slog3- Sgamut.Cine. Lut LC709TypeA to the frame.

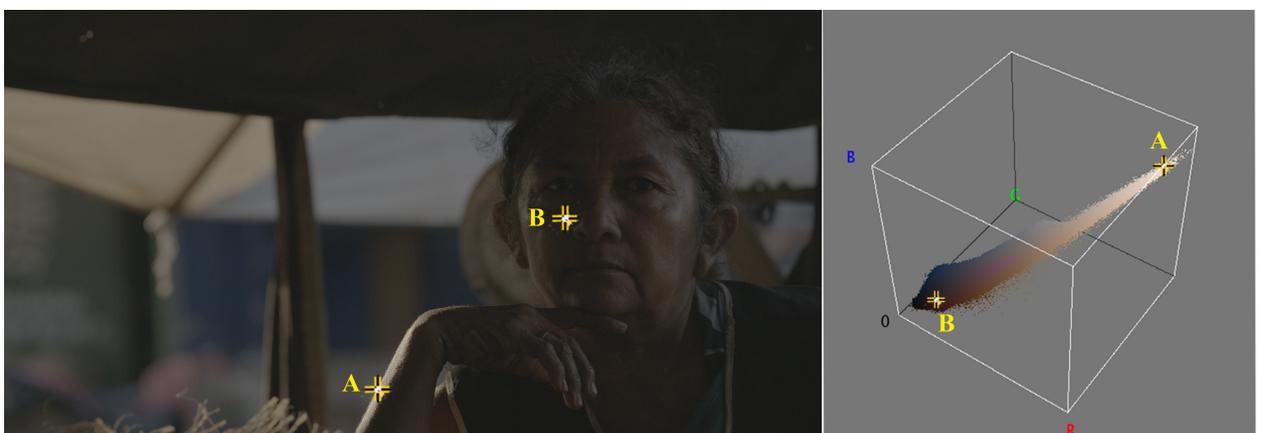
In the frames we showed the color surpasses very much the usual 709, even the 2020. The camera can capture all of these colors although we cannot see.

Venice manages the color subtly, above all the skin tones. As we know such tones are very difficult to recreate due to their softness, their fineness and transitions. We show some examples.



Cartagena de Indias. Colombia. House. Indoor/Daylight. 4KDCI 24fps 180°. X-OCN ST 16 bit. Lens Leica Summilux-C 100mm T 2.8 ISO 500. Filter ND Clear. Slog3- Sgamut.Cine .Lut LC709TypeA to the frame.

The caucasian skin tone of our model is depicted in RGB. We have marked two points of that tone, the brightest and that placed at the shadow. X-OCN to 16 bit shows a great ability to recreate the skin tones with the whole nuances.



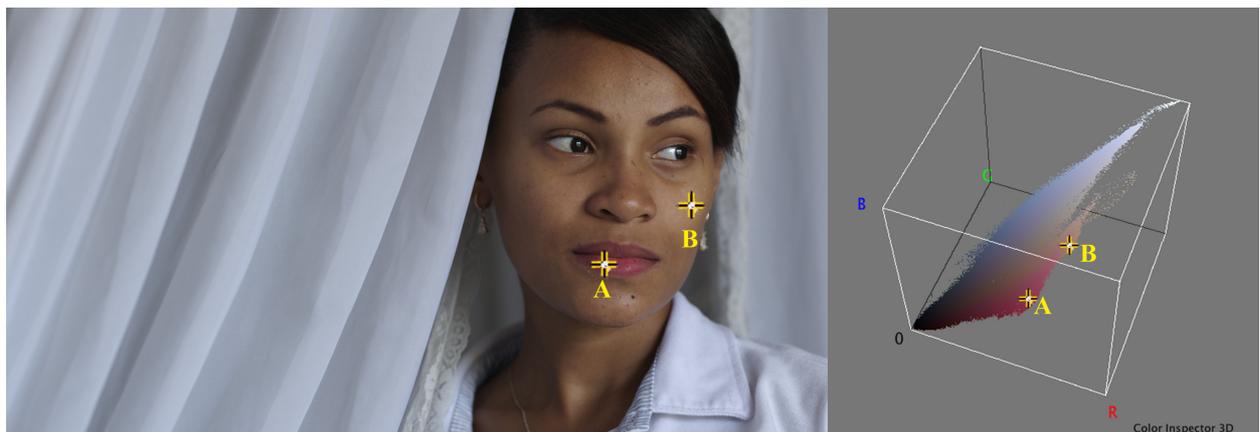
Bazurto Marketplace.. Cartagena de Indias. Colombia. 4KDCI 24fps 180°. X-OCN ST 16 bit. SIGMA Cine lenses FF 85mm T 4. ISO 500. Filter ND 1/32 (5 Stops). Slog3- Sgamut.Cine. Lut LC709 TypeA to the frame.

In the example, the camera shows its ability to recreate the skin tone over the two luminance ends, the dark shadow of the face and the bright on her arm in a backlight. In both ends, we can see the natural texture of the skin as well as the persistence of the color.



Bocagrande Beach. Cartagena de Indias. Colombia. 4KDCI 24fps 180°. X-OCN ST 16 bit. Leica Summilux-C 100mm T 5.6. ISO 500. Filter ND 1/2 (1 Stops). Slog3- Sgamut.Cine. Lut LC709TypeA to the frame.

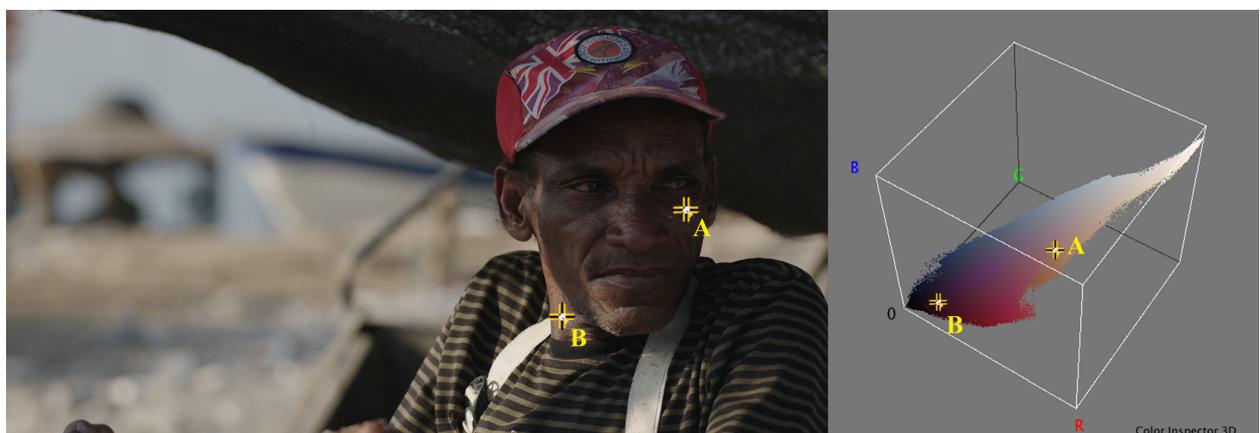
A close-up of Janeth at sunset. The intense orange-like tones, which are not easy to recreate, are completely natural on her face; we can see the blue over the other spectrum end. The most orange-like extreme values are related to the reflection from the sun on the glasses.



Rafael Núñez's house. Cartagena de Indias. Colombia. 4KDCI 24fps 180°. X-OCN ST 16 bit. Lens SIGMA Cine lenses FF 85mm T 2.8 ISO 500. Filter ND 1/4 (2 Stops). Slog3- Sgamut.Cine. Original.

The darkest tones of skin are recreated with an excellent naturalness. We can see the contrast between the skin tones with the red-like color of the lips.

A tone of kin even darker.



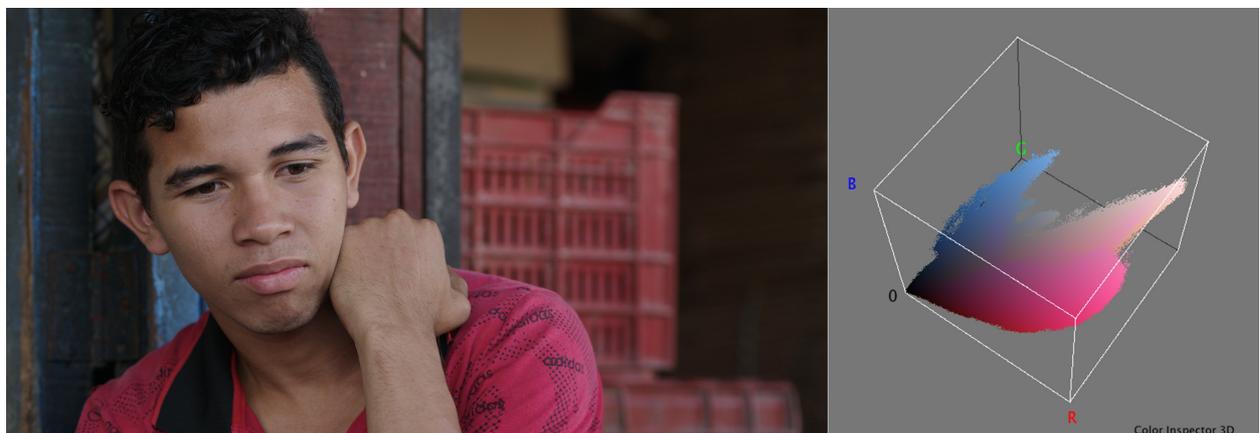
Bazurto Marketplace. Cartagena de Indias. Colombia. 4KDCI 24fps 180°. X-OCN ST 16 bit. SIGMA Cine lenses FF 85mm T 4. ISO 500. Filter ND 1/64 (6 Stops). Slog3- Sgamut.Cine . Lut LC709TypeA to the frame.

The recreation between the lighted tone of the neck and the darkest part of the face below his cheek in the shadow is superb. Both the skin tone and the texture are kept.

Finally, two more examples.



Bazurto Marketplace. Cartagena de Indias. Colombia. 4KDCI 24fps 180°. X-OCN ST 16 bit. SIGMA Cine lenses FF 85mm T 4. ISO 500. Filter ND 1/8 (3 Stops). Slog3- Sgamut.Cine. Lut LC709TypeA to the frame.



Bazurto Marketplace. Cartagena de Indias. Colombia. 4KDCI 24fps 180°. X-OCN ST 16 bit. Lens SIGMA Cine lenses FF 85mm T 4. ISO 500. Filter ND 1/8 (3 Stops). Slog3- Sgamut.Cine. Lut LC709TypeA to the frame.

Consequently, we can conclude that Venice takes a further step regarding the quality of digital images. It is in the way to get every time more texture, more detail and more color. I would like to think that the Venice denomination and the image provided by it evoke the painting of Venetian school in the 16th century, Titian, Veronese, Tintoretto or Giorgione. Here, I leave one of the well-known painting of Paolo Veronese, The Wedding Feast at Cana, 1563. The color of the painting, with their contrasts among its complementaries and the softness of the tones and textures is the way where the new Sony camera wants to move.



Test video can be watched on <https://vimeo.com/272088733>

Acknowledgements:

To Joan Altimira, Sergio Preciado, Adriana Bernal, Javier Serrano and all those who collaborated with their professionalism to implement the test.

They made be possible the test:



Film crew



SIGMA

