Canon

WHITE PAPER

CINEMA EOS

SIGNIFICANT OPERATIONAL FEATURES OF EOS C700 CAMERA

Written by Larry Thorpe
Customer Experience Innovation Division, Canon U.S.A., Inc.

For more info:

cinemaeos.usa.canon.com

CINEMA EOS

Significant Operational Features of EOS C700 Camera

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Abstract

The Cinema EOS system has evolved briskly over the past five years and reached an important milestone in late 2016 with the debut of the EOS C700 A-Camera.

If there is a takeaway from this White Paper it is that the EOS C700 is amazingly strong in the multiple operational features embodied in this remarkable camcorder. Many of these features add significant empowerment to the creative aspirations of DPs and camera assistants who will undertake many forms of shooting configurations and on-set workflows.

4K / UHD has become an expanding production format for broadcast television production, OTT production, and theatrical motion picture production. The extensive experiences to date suggest that ensuring sharp focus in the very high resolution imagery of 4K continues to be a challenge. The EOS C700 offers broad options in 4K / UHD origination and capture – and a pivotal design strategy was to address this 4K focusing challenge. An innovative electronic viewfinder (EVF) uses a 0.7-inch OLED panel having full 1920 x 1080 resolution to offer the cinematographer a significant aid to focusing. The camera also embodies the latest in the Dual Pixel CMOS Auto Focus system which, in combination with face detection, supports a variety of options in precision auto focusing. A third alternative in dealing with focusing is the Focus Guide option – which deploys the same sensing within the image sensor as the AF system but deploys the calculations to signal in the viewfinder the direction the lens manual control should be turned followed by a precision signaling when precise focus has been achieved.

High Dynamic Range (HDR) and Wide Color Gamut (WCG) also constitute central design elements in the EOS C700. The 15-stop exposure latitude of the CMOS image sensor is carefully harnessed in the camera video processing with a variety of choices in logarithmic optoelectronic transfer functions (OETF) depending upon the nature of the scene being imaged. In addition, the camera creates a PQ (SMPTE standard ST-2084) rendition that is sent out on the MON output (3G-SDI interface) and the HDMI output terminal. A special LUT within the EVF creates a partial HDR simulation producing a view close to ST 2084.

Anamorphic lensing is resurging in the new era of digital motion imaging and the EOS C700 accommodates this by including appropriate video processing (de-squeezing and cropping) to manage monitoring of the widescreen imagery in the EVF and also in the on-set reference display. This accommodates both the 2.0:1 and the 1.3:1 anamorphic lenses.

Connectivity is of critical importance in an A-Camera. The EOS C700 design paid high attention to provision of an extensive range of system interfaces. These include multiple 3G-SDI outputs for transferring the 4K / UHD / 2K / HD video at various frame rates, AES / EBU audio interfaces, Genlock / Sync output, Time Code input/output, and HDMI output. A LAN connector provides support for IP streaming and a second GPS adaptor connector supports a wireless transmitter that offers an alternative method of IP streaming.

The EOS C700 gives equal priority to each of the four standardized 4K / UHD / 2K / HD production formats – because they are all in play in both movie and television production worldwide. In the case of 2K / HD production mode Canon offers an optional B4 mount adaptor that allows a range of long-zoom HD / UHD broadcast 2/3-inch lenses to be use with the EOS C700.

1.0 THE SUPER 35MM 4.5K CMOS IMAGE SENSOR

The image sensor in the EOS C700 / C700 PL has a total of 11.54 megapixels (4622 x 2496). This image sensor has been designed to support the standardized 4K (4096 x 2160) digital cinema format with an aspect ratio of 1.896:1 as well as the 4K UHD (3840 x 2160) format having a 16:9 aspect ratio. The additional pixels will also support a 4.5K RAW image format as shown in Figure 1.

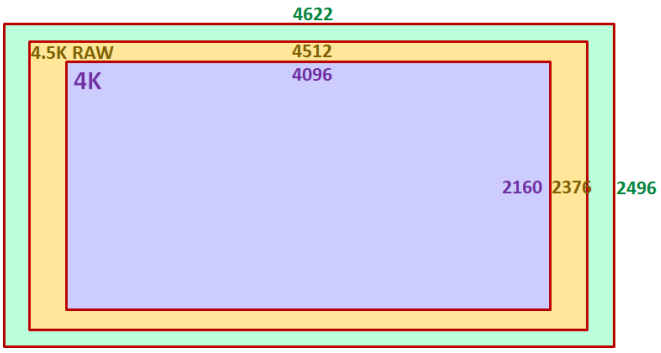


Figure 1 *Outlining the sampling lattices that constitute the 4K and the 4.5K formats*

The additional pixels offer a significant "surround view" area in the camera viewfinder. The imaging attributes of this image sensor are detailed in a companion white paper [1]. The physical dimensions of the active image areas are shown in Figure 2

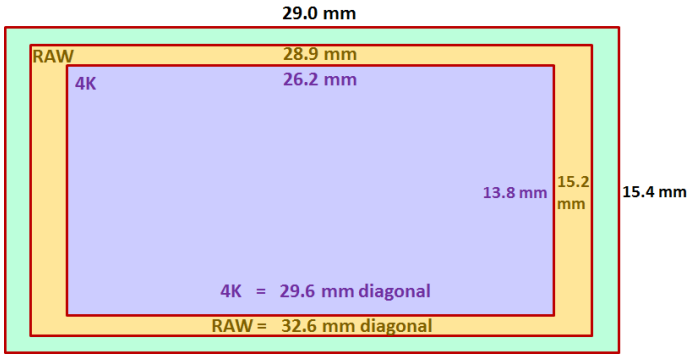


Figure 2 *Showing the relative dimensions of the two image formats – the 4K and the 4.5K RAW*

The separate EOS C700 GS PL Camera deploys a quite different CMOS image sensor that features global shutter technology. It has a total of 10.92 megapixels (4373 x 2496) that also supports both 4K digital cinema and 4K UHD production formats as well as 2K cine and HD.

2.0 WEIGHT

The EOS C700 body is made of a unique magnesium alloy that combines outstanding sturdiness with low weight. The basic body weighs less than 8 lbs. Competitive A-cameras are in excess of 15 lbs. This is a distinct advantage for mobile shooting configurations.

3.0 CHALLENGE OF SHOOTING 4K – *FOCUS, FOCUS, AND FOCUS*

With a sampling lattice of 4096 x 2160 the 4K production format has four times more spatial resolution than 2K. That is a very significant amount of spatial detail and as such it can pose sizeable challenges to ensuring sharp focus on selected subjects within a scene. A first unit camera cannot compromise here. Traditional electronic viewfinders (EVF) have far less resolution than 4K and as a consequence can cause ambiguities in deciding upon precise focus. In recognition of this challenge Canon has incorporated three operational features that offer important assistance to the diverse shooting practices found among professional DPs. They are:

1. High Resolution EVF – a totally new color EVF design that has a high contrast OLED panel having full 1920 x 1080 spatial samples specifically designed for the DP who prefers to use the viewfinder for focusing

2. Dual Pixel CMOS Auto Focus system [2] – unambiguous fast auto focus system that is based upon phase comparisons within the image sensor photosites achieving high precision on a subject selected within the viewfinder cursor

3. Focus Guide system [2] – a manual focusing system uses the image sensor phase comparison data to signal in the viewfinder the direction to manually move the lens focus control and also when precise focus is achieved

3.1 The OLED Electronic Viewfinder

This EVF was designed to offer as much operational assistance to the DP as possible in the form of built-in operational controls. The improvements of this EVF over that in the EOS C300 Mark II Camera are shown in Table 1.

Figure 3 *Showing the EVF-V70 for the EOS C700 and some of the incorporated operational functionality*

Table 1 Comparison between the EOS C700 EVF and that supplied with the EOS C300 Mark II camera

	C700 EVF	C300 Mark II
Panel Size	0.70 inch	0.46 inch
Resolution	Full HD 1920×1080	1024×576
Number of dots	6.22 million	1.77 million
Horizontal resolution	> 900 TV lines	500 TV lines
Contrast	○	○
Responsiveness	○	○
Display system	OLED	OLED
Eye sensor control (When eye is not on EVF)	Brightness reduced	Off

An indication of the actual sharpness of the EVF is shown in Figure 4 which is an actual reproduction of a test chart imaged by the EOS C700. The OLED EVF provides a high contrast richly colored image that adds to the subjective picture sharpness of real world imagery. There have been many positive comments on the striking sharpness of the image and the fact that there is minimum geometric distortion when viewed off-center.

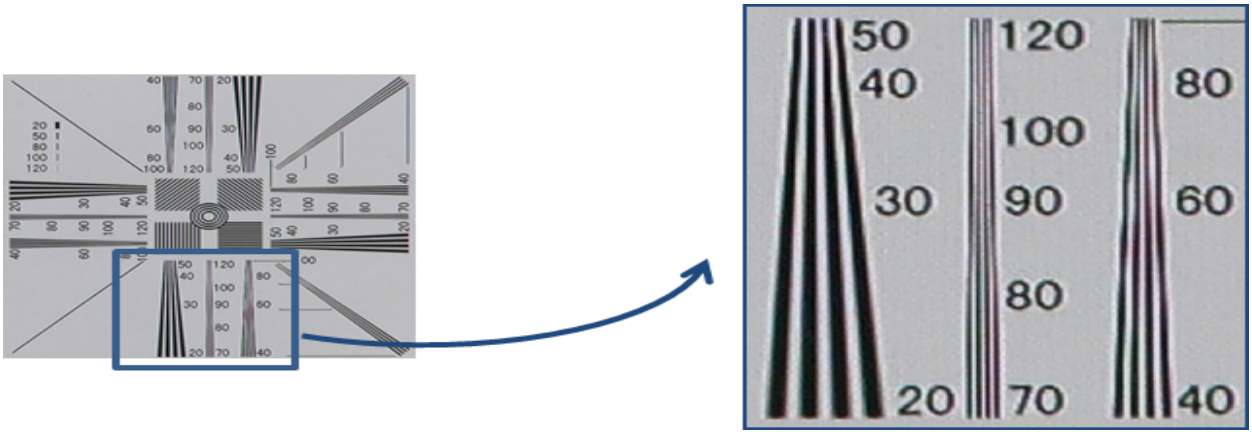


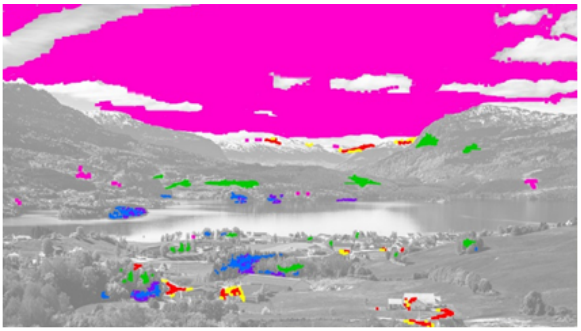
Figure 4 *Showing the resolution of the EVF in the vicinity of picture center exceeds 900 TVL/ph*

The EOS C700 supports HDR recording with the SMPTE ST 2084 standard. An EVF LUT having partial HDR simulation produces a subjective view close to ST 2084. In addition, several options are provided for EVF display dynamic range which users can switch according to their applications. This combination assists creative discussions between a camera operator and those who may be on-set monitoring the same images.

An especially important feature of the EVF-V70 is the proprietary connector that directly provides power, video feed, and camera controls without the need to access an SDI or an HDMI connector on the camera.

The EVF can be set to view the DCI 4K image (4096 x 2160) as well as the additional “Look Around” area provided by the 4.5K image sensor – which can be invaluable for detecting the possible intrusion of subjects not intended to be framed in the camera’s 4K active picture (behaves like the traditional optical viewfinder). The on screen display OSD can be set for perimeter display to ensure no unwanted information intrudes into the active picture area.

Figure 5 *With DCI viewing angle in record mode, the surround is displayed in letterbox on the 16:9 EVF panel.*



Signal Level	Color	
100% - 99%	Red	Overexposed
99% - 97%	Yellow	Just before overexposure
56% - 52%	Pink	Appropriate exposure+1 stop
42% - 38%	Green	Appropriate exposure
4.0% - 2.5%	Blue	Just before underexposure
2.5% - 0.0%	Purple	Underexposed

Figure 6 *The EVF has full 1920 x 1080 HD resolution and can use a false color indicator to support exposure on challenging outdoor scenes*

4.0 DUAL PIXEL CMOS AUTO FOCUS SYSTEM

The EOS C700 embodies a powerful auto focus system where the sensing of sharp focus takes place within the image sensor photosite itself. Dual photodiodes within each photosite create two separate images A and B that facilitate a phase detection system indicating the degree of defocusing. Both A and B data streams are fed to a processing system that makes all of the decision-making and data manipulation associated with the Auto Focus system.

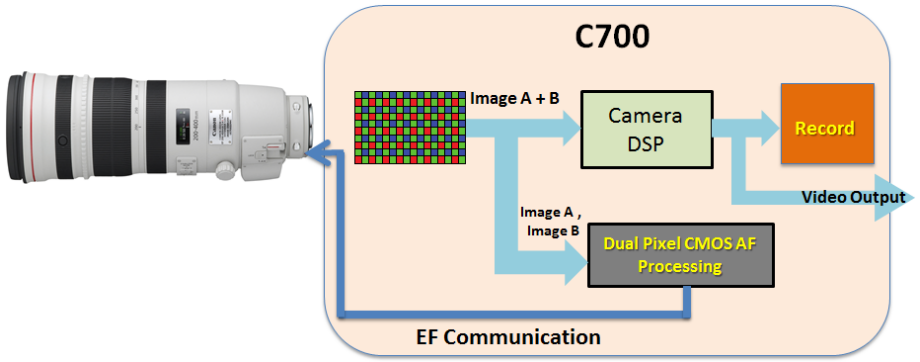


Figure 7 *Showing the separate processing of the dual pixel data from the image sensor – for both video and for Auto Focus*

While all of the eight million photosites are delivering the "dual pixel" data the operational aspects of Auto Focus dictate that only a select number of these are activated at any given time. This selection area is identified as a rectangular cursor in the camera viewfinder. The camera operator will make the decision on which particular subject within the overall picture frame is chosen for sharpest focus and a joystick operated cursor system facilitates the choice of where to place the AF selection area.

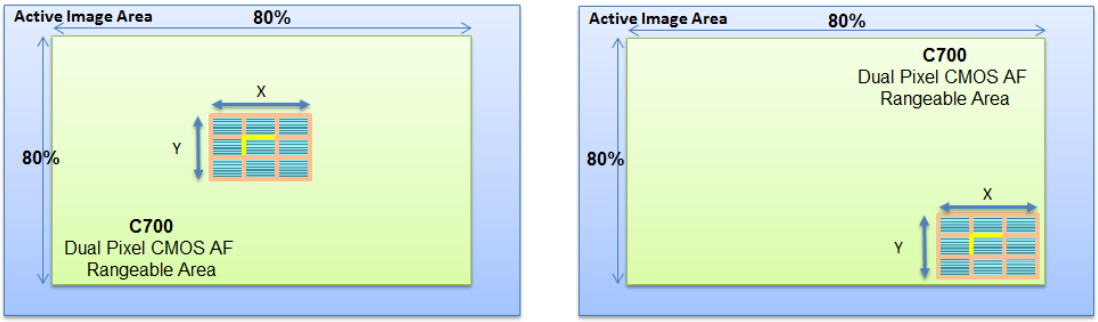


Figure 8 *The Dual Pixel CMOS AF selection area can be moved around 80% of the active image frame to allow selection of different subjects within the scene for sharp focus*

4.1 Data Processing for Dual Pixel CMOS Auto Focus

A variety of corrections and adjustments are applied to these sampled images A and B to aid the precision of the detection depending upon lens settings. The results are sent to a microcomputer that makes the calculations for the requisite correction signal.

Experiences gained with the first Dual Pixel CMOS AF system contributed to an improved algorithm design that tests the reliability of the detection data and makes appropriate adjustments. Early experiences also exposed the reality that there are a wide range of creative desires associated with acceptable actuation speed of the lens control loop. The Dual Pixel CMOS AF system in the EOS C700 camera embodies a menu that allows two degrees of freedom in "tuning" the response time. The focusing speed itself has a choice of ten speeds selected under SPEED in the menu – consisting of a Standard speed and then a choice of two faster speeds and a choice of seven slower speeds. This capability is only possible with those EF lenses that have slow-speed drive capabilities. Separately, what is termed the RESPONSE setting is a separate setting of the system that offers a choice in how quickly a focusing action is initiated – thus adding a creative dimension to a rack focus that has been decided between two subjects within the scene.

A singular merit of the system is that it entails zero "hunting" when actuated because the phase detection system has inherent knowledge of which direction the focus control must go.

4.2 Focus Guide System

For the cinematographer who prefers traditional creative manual focus operation the dual pixel system can alternatively be switched from the Auto Focus control loop encompassing the lens focus control to an open loop system that utilizes the Dual Pixel CMOS AF data processing to instead transfer precision signaling in the camera viewfinder.

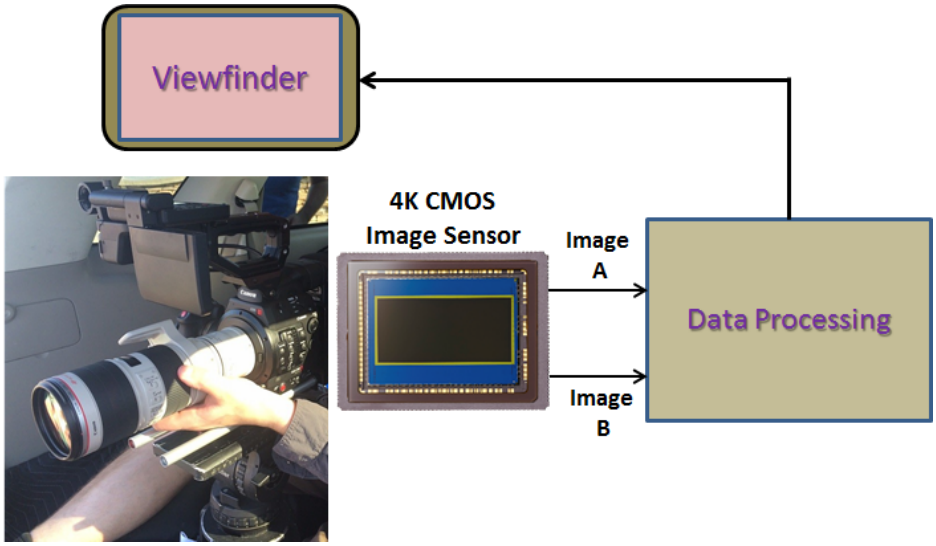


Figure 9 *Principle of the Focus Guide system – where manual actuation of the lens focus control is detected by the image sensor and the data processing signals the viewfinder*

In this mode three gray colored arrows appear around a box cursor that is centered on the subject chosen for precision focus – Figure 10. The arrow's direction signals the direction to turn the focus ring to achieve the sharpest look. When precision focus is reached the viewfinder cursor and the indicating arrows snap to a green color.

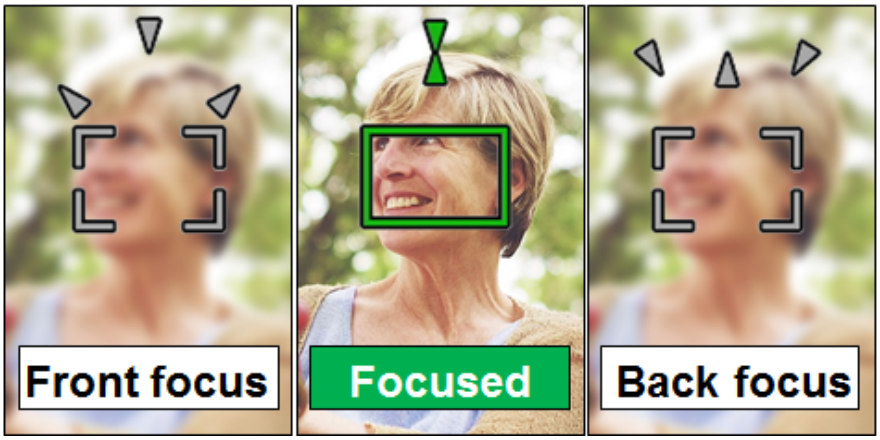


Figure 10 *The focus guide cursor detail uses three arrows to indicate to the camera operator the direction to manually rotate the focus control. At the point of precise focus on the chosen subject the cursor snaps to a green color.*

The implementation of the Focus Guide control system is outlined in Figure 11.

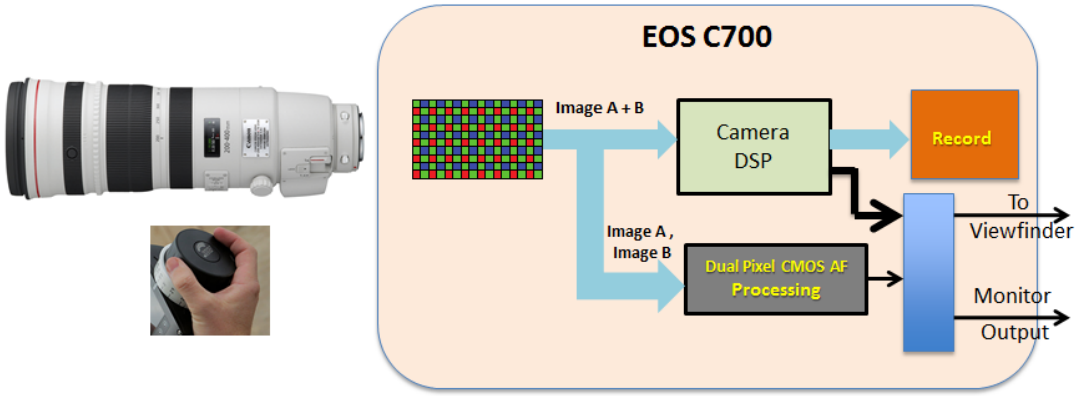


Figure 11 *Showing the Focus Guide mode of operation – that opens the control loop to the lens and instead the data processing sends signaling to the viewfinder and monitor output feed that guides the manual focus action*

4.3 Dual Pixel CMOS Auto Focus and Cinema EOS Lenses

The Dual Pixel CMOS AF system relies on the electronic connectivity of the EF mount to implement the necessary data transfer between the lens and the camera. The EF version of two Cine Servo lenses supplied by Canon – and shown in Figure 12 – provides the necessary connectivity and servo drive to the lens focus control. Accordingly, Dual Pixel Auto Focus can be invoked with these lenses. Focus Guide control will operate with all three Cine Servo lenses.

Figure 12 *The two Super 35mm 4K Cine Servo EF lenses on the left can be controlled by the Dual Pixel CMOS Auto Focus system. All three shown can operate in Focus Guide mode.*

5.0 ANAMORPHIC MODE

Anamorphic lenses were originally developed to allow much wider aspect ratio images to be captured on 35mm motion picture film. In addition to achieving such wide rectangular images a number of optical artifacts associated with the anamorphic optical subsystem have endeared themselves to many cinematographers. In these still early days of digital motion imaging the anamorphic lens has regained a broad popularity. This was recognized in the design of the EOS C700 camera.

There are two basic classes of anamorphic lenses available – those that horizontally compress by a factor of 2.0:1 and those that compress by a factor of 1.3:1 [3]. The former were the original classic embodiment that provided the necessary horizontal compression for the 1.33 aspect ratio of the Super 35mm motion picture film format. It supports the recording on film of an effective aspect ratio of 1.33 x 2.0 = 2.66:1 and a special lens in the final cinema projector optically stretches this to the standardized (by SMPTE) 2.39:1 aspect ratio [4].

The beauty of the anamorphic lens is that it allows the full height of the image format to be used and avoids any letterboxing – that adds up to increased overall image sharpness. Figure 13 simulates the standard 4:3 film image format – with the yellow box and the red circle representing what the lens is projecting into the film camera. There are a number of contemporary Super 35mm digital cinema cameras that emulate the S35mm film format by using image sensors having that same 4:3 aspect ratio – and accordingly they can readily use the older established 2.0x anamorphic lenses or the new generation of such lenses having the same 2x compression.

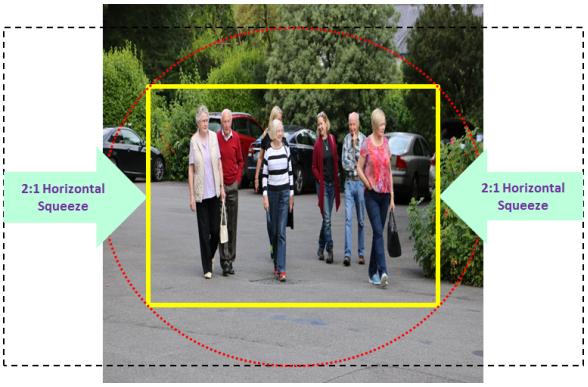


Figure 13 *Showing the 2:1 compressed optical image projected by the anamorphic lens onto the 4:3 aspect ratio S35mm film format or the 4:3 aspect ratio image sensor of some digital cinema cameras*

The nature of the optical design to achieve image compression in the horizontal dimension does mean that the focal length is different for the horizontal and vertical portions of the image. This imparts a unique look to the final image that has endeared itself to many directors in the world of cinematography. The subtle optical distortion and its subjective effect on the human face appeals to many. In addition, the horizontal compression will transform the circular bokeh on out of focus highlights into vertical ovals which also augment creative visions. Other optical effects associated with the anamorphic lens that are harnessed by directors who seek special optical effects such as horizontal blue flares that can accompany highlights.

5.1 The 2.0x Anamorphic Compression Lens and the 17:9 Image Sensor

Many directors and DPs elect to use the 2.0 anamorphic lenses with contemporary 4K digital cinema cameras having Super 35mm image sensors with a 17:9 (or 1.896:1) aspect ratio (photosite sampling of 4096 x 2160 for 4K). The EOS C700 is such a camera.

Figure 14 *The EOS C700 with a Cooke 2.0 Anamorphic lens*

If the same anamorphic 2.0 lens framing shown in Figure 13 is used on a 17:9 (or 1.896:1) image sensor it will have the effect shown in Figure 15 in terms of the image projected onto that wider image sensor. Horizontally, the active image width will be the same – but it will be vertically cropped as shown in Figure 16.

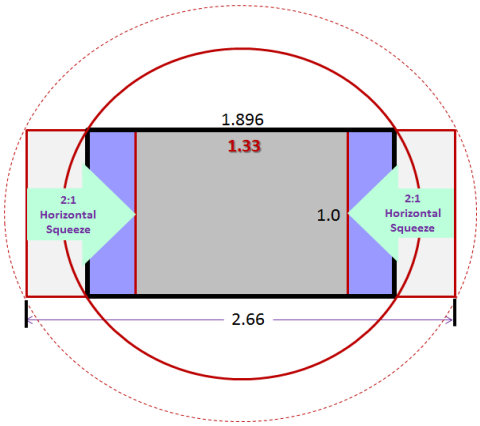


Figure 15 *The anamorphic 2.0 lens compresses a 2.66:1 aspect ratio input optical image to a 1.33: aspect ratio onto the 17:9 image sensor*

The EOS C700 image sensor can be selected to originate a 4K or a 4.5K image as shown earlier in Figure 1. The effect of this choice of production formats on the dimensions (and pixel count) of the anamorphic active image is shown on the right of Figure 16.

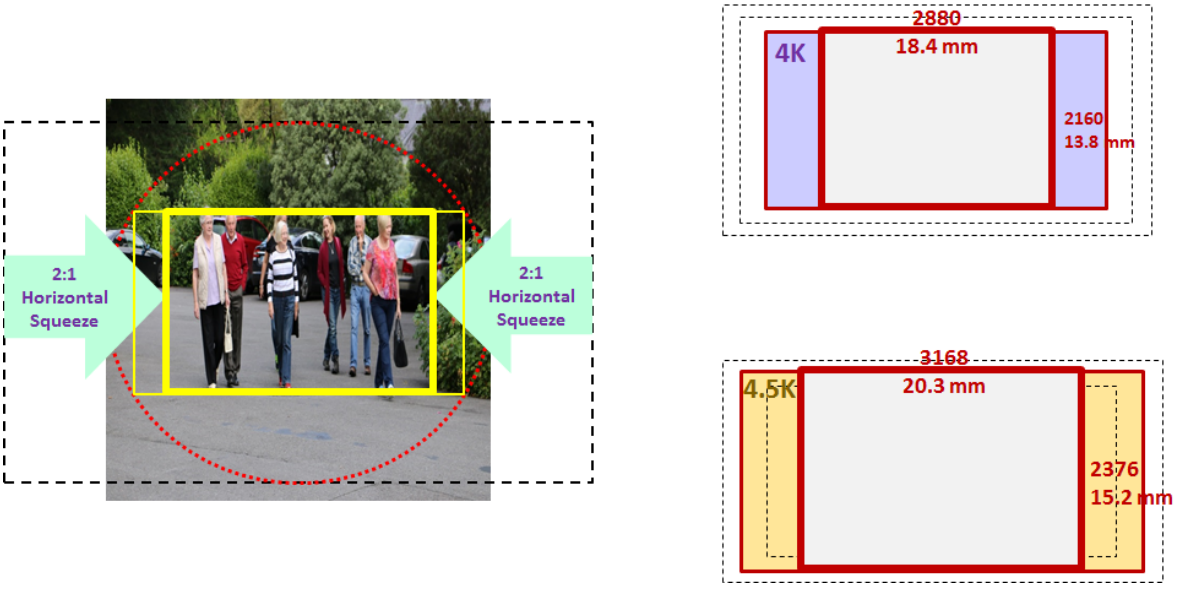


Figure 16 *Showing the active image (heavy yellow rectangle) projected by a 2.0 anamorphic lens on to the EOS C700 Super 35mm image sensor having a 17:9 aspect ratio (DCI specification) and its different dimensions for 4K and 4.5K origination*

When that digital image is desqueezed in postprocessing it will be wider (1.33 x 2.0 = 2.66:1) than the sought-for 2.39:1 aspect ratio – which does afford modest room for repositioning. Electronic cropping is used in the camera to re-establish that 2.39:1 aspect ratio and to letterbox presentation for both the on-set reference display and for the camera EVF – as illustrated in Figure 17.

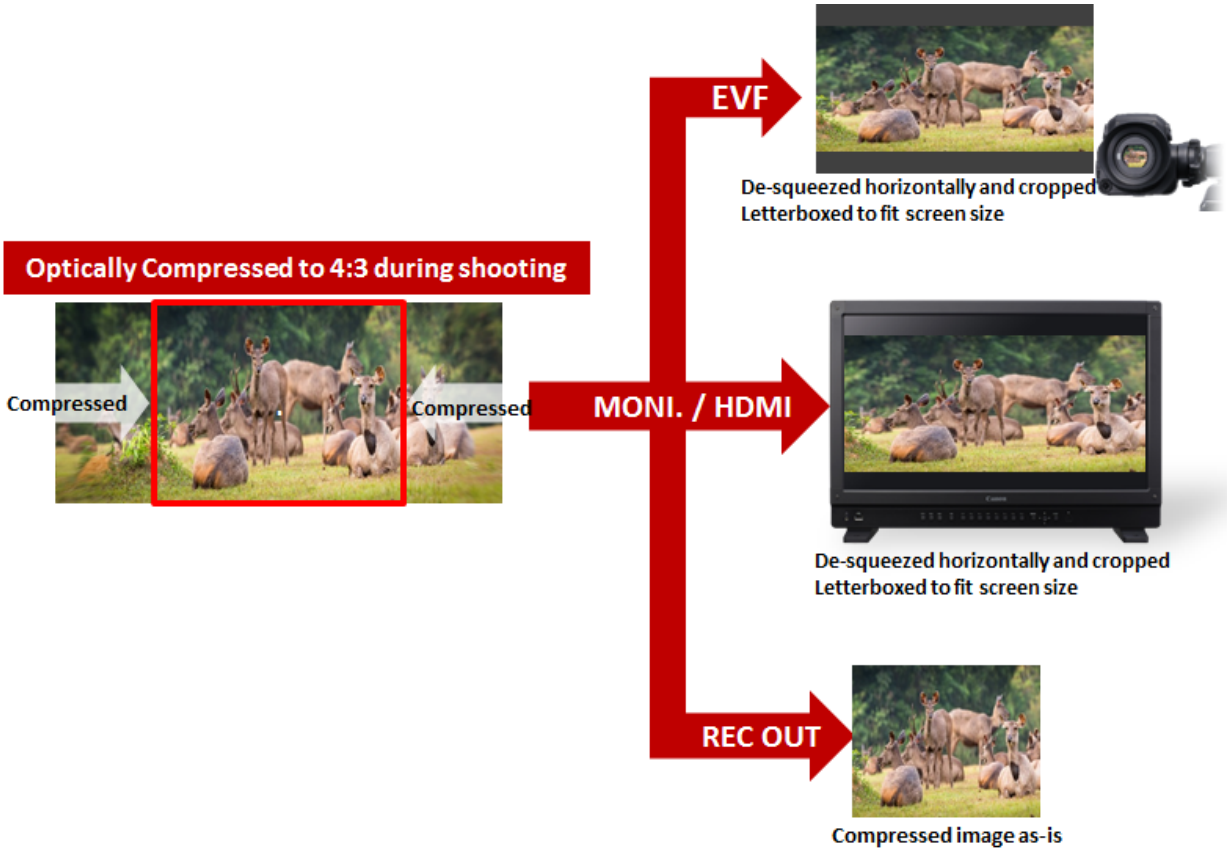


Figure 17 *De-squeeze and letterboxing in the EOS C700 EVF and in the optional DP-V2410 reference display*

The 1.3x compression anamorphic lens was developed more recently – specifically to accommodate the wider 1.896:1 aspect ratio specified by DCI. That lesser degree of compression means that the squeezed image that is sampled and recorded is very close to that DCI aspect ratio (2.39 / 1.3 = 1.84:1). For many this is a preferred approach as it utilizes almost all of the photosites on the image sensor and hence there is a gain in horizontal resolution. On the other hand the optical artifacts long associated with the 2.0:1 anamorphic lens will be different – and for some this is not acceptable. The good news is that it remains a creative choice and the EOS C700 accommodates both forms of anamorphic lens.

6.0 BUILT-IN CONTROL PANEL

The EOS C700 has a built-in control panel on the camera operator side of the camera (left side) that offers intuitive access to all of the primary operational settings for the camera using an industry-standard GUI. The panel is a high contrast 3-inch LCD that clearly portrays the modes even in bright sunlight. The six-button direct access to the central camera settings – which are highly visible as shown in Figure 18 – set up the six screen displays and the Select Dial then facilitates the individual setting selections for each and also navigates through associated menus.

Figure 18 *The camera operational panel on the left side of the EOS C700*

The early reports from some high profile DPs who have been exposed to the EOS C700 are extremely laudatory about the flawless coordination between the menus and the operator controls. This is an important operational advantage of this camcorder.

7.0 REMOTE OPERATIONAL UNIT OU-700

This control unit OU-700 was designed to be used by the Camera Assistant (1st AC) when shooting with a multi-member crew. The unit can be attached to the right side of the camera body and is hinged to facilitate lifting it up to allow access to the Cfast and SD memory card slots.

Alternatively, the unit can be detached from the camera and operated remotely when desired on certain productions – as shown in Figure 19. The dedicated unit cable is available in 75cm and 10 meter lengths for this remote operation capability.

Figure 19 *Showing the OU-700 remote operational unit cabled to the EOS C700*

8.0 EXTENDED CONNECTIVITY

The EOS C700 has been outfitted with a broad range of system interfaces that support various electronic field production (EFP) system configurations. Some of these are shown in Figure 20.

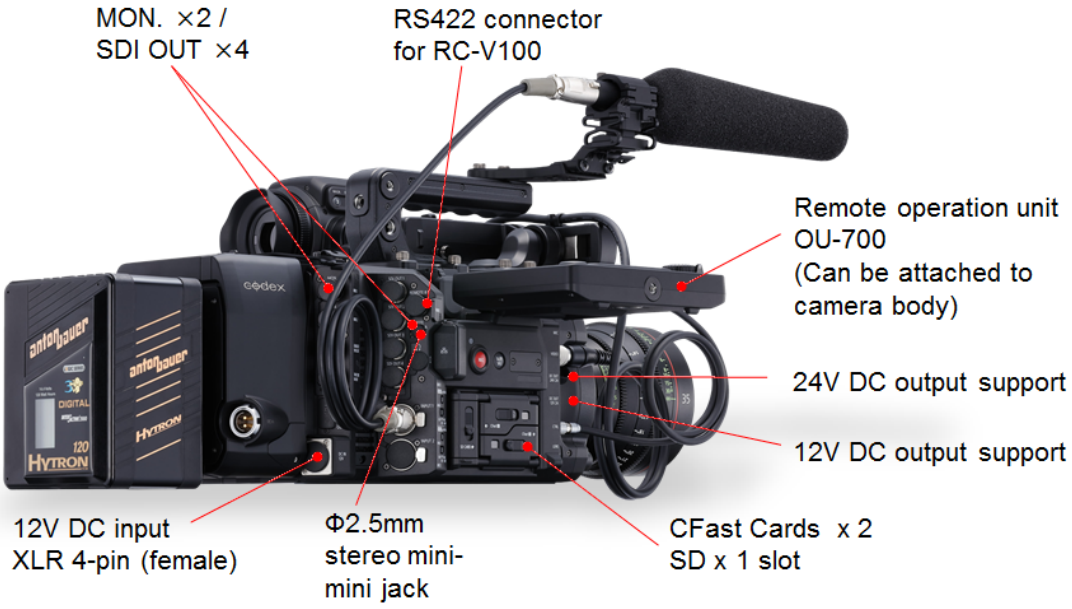


Figure 20 *Overview of the primary operational interfaces of the EOS C700*

The EOS C700 is endowed with a rich range of video, audio, and control interfaces expected of a first unit camera – Figure 21. The four SDI interfaces are each 3G-SDI

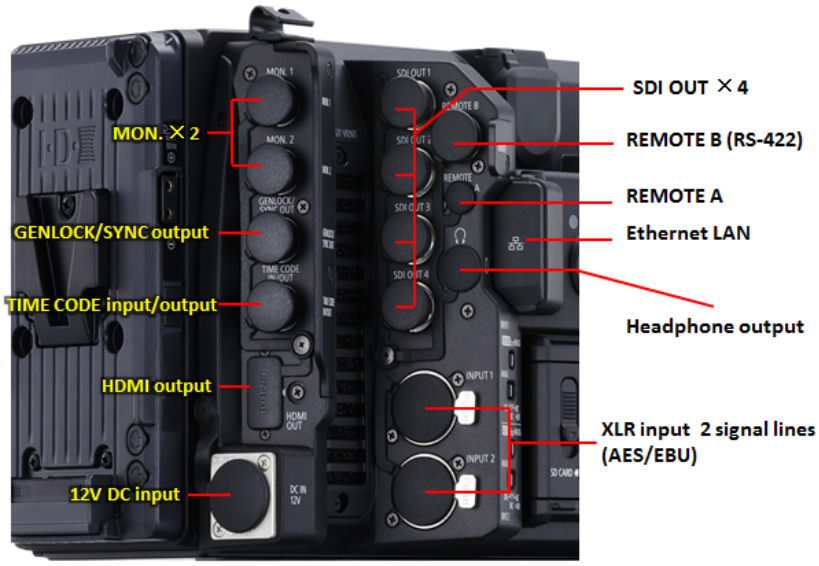


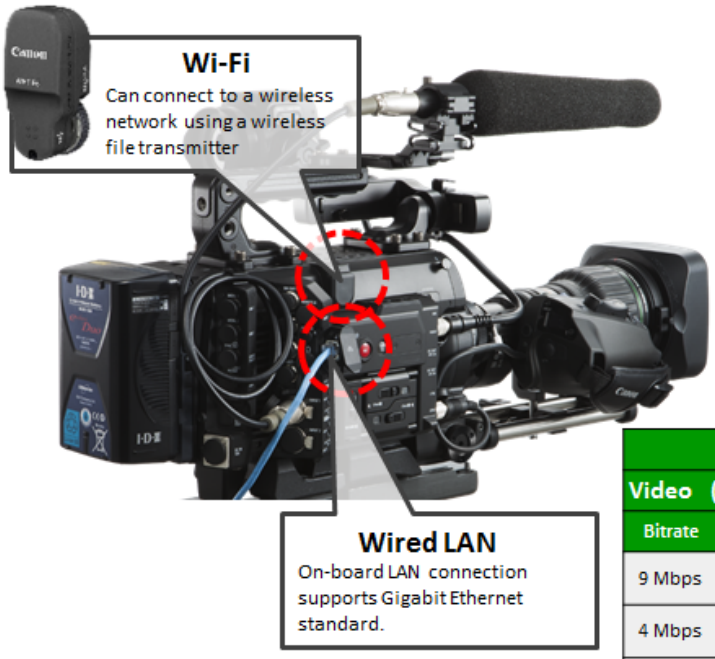
Figure 21 *Close-up of the primary system interfaces on the rear of the EOS C700*

Of special note is the Ethernet LAN connector that supports IP streaming.

Figure 22 *Showing additional key system interfaces and also the optional grip unit when operating the EOS C700 in shoulder mount*

9.0 IP STREAMING SUPPORT

The wired LAN interface on the camera body is in accordance with the Gigabit Ethernet standard and supports the streaming of real time video while the camera is live shooting. This streaming can be to video websites, or to allow a news clip to be structured during an actual television production. It can support an editing workflow at a location remote from the actual shoot. The system works when the camera is operating in the television mode – either HDTV or 4K UHDTV. In both cases the video that is streamed can be either the 1920 x 1080 or 1280 x 720 HD formats



Streaming Signal Format				
Video (H.264 / AVC)			Audio	
Bitrate	Resolution	Frame rate	Format	Bitrate
9 Mbps	1920x1080	59.94i, 50.00i	MPEG2-TS AAC 2ch	256K bps
4 Mbps	1920x1080			
2 Mbps	1280x720	29.97P, 25.00P		
1.5Mbps	59.94Hz:720x480 50.00Hz:720x576	59.94i, 50.00i		

Figure 23 *On-board IP streaming via Wi-Fi® or LAN Connection*

IP streaming is enabled in either the XF-AVC or ProRes recording mode. The service can only be started with camera recording settings (resolution / frame rate) set as follows:
3840x2160 or 1920x1080 @ 59.94P/50.00P and also 1920x1080 59.94i/50.00i.
The EOS 700 supports MPEG2-TS with UDP, RTP and RTSP+RTP protocols. The system works with compatible IP decoders, IP streaming software and other devices – presently approved encoders include Fujitsu IP-920D, Evertz 7880DEC, and NTT MVD5000.

The EOS C700 can also connect to a wireless network via the Canon Wireless file transmitter WFT-E6B/ WFT-E8.

10.0 OPERATION WITH 2/3-INCH BROADCAST ZOOM LENSES

Canon has developed an optional B4 mount optical adapter that blows up the 11 mm diagonal image projected by a 2/3-inch broadcast lens to a 16mm image that is projected onto the Super 35mm image sensor of the EOS C700. This image size activates sufficient photosites to enable a full 1920 x 1080 HDTV image format to be constructed. Because this is a cropping action within the larger image sensor it does allow a higher frame rate operation.

B4 mount adapter
- MO-4E (EF-mount)
- MO-4P (PL-mount)

Figure 24 *Showing the Canon-developed B4 mount adapter for the C700 – available in both PL and EF mounts*

Given that both 2K and HD remain important production formats for moviemaking and television production this greatly extends the shooting flexibilities of the EOS C700.

Figure 25 *The C700 offers a choice of between an EF and a PL version of a B4 mount adapter that enables the use of standard 2/3-inch broadcast zoom lenses*

11.0 OPERATION WITH CINEMA EOS LENSES

There are two basic considerations here. When the EOS C700 is employed to originate major theatrical motion pictures or high-end episodics for television programs then serious consideration should be given to deployment of our two Top-end Cinema EOS lenses – either the CN-E14.5 – 60mm or the CN-E 30 – 300mm. This is especially important if 4K or 4.5K RAW recording is used. The very high performance specifications of these lenses will do full justice to the extraordinary image-making capabilities of this camera. Digital Cinema by definition means large screen portrayal and the lens is critically important to ensuring preservation of the highest image quality across that entire image.

Figure 26 *Showing the EOS C700 with the Canon Top-end Cinema EOS lens*

In situations where high mobility and "run 'n gun" shooting is entailed the remarkable cine servo lens CN-E18 – 80 mm is tailor-made for the EOS C700. When mounted to this camcorder with all basic accessories the system is perfectly balanced. The functions of auto focus, auto iris, and image stabilization offer superb operational empowerment to the camera operator. The ability to move the auto focus cursor from the optional grip further enhances this empowerment.

Figure 27 *Showing a mobile EOS C700 configuration featuring the Compact Cine Servo CN-E18 – 800 mm lens*

12.0 SUMMARY

The EOS C700 reflects a multiplicity of recommendations received by Canon over the past few years as we engaged with Directors, Directors of Photography, Camera Operators, and Digital Imaging Technicians in our quest to carefully plan our first A-Camera. Both theatrical feature film production and television drama production were central to this search.

On the imaging front, the highest priority was given to considerations of HDR and WCG being layered over primary attributes of sensitivity and sharpness. The standardized production formats for HDTV and 2K Digital Cinema were given high attention because of their continuing universality. 4K Digital Cinema and 4K UHD were given equal attention because of their increasingly rapid adoption worldwide. All of the international standardized frame rates are accommodated for each of these four formats.

On the operational front, an extraordinary range of scene illuminations can be imaged – with two built-in ND wheels (that offer selection of 2 / 4 / 6 / 8 / 10 stops) to manage the brightest of scenes and a with stepped control of exposure index from ISO 100 to ISO 102, 400 to accommodate extremes of low scene illumination. Allied with a 15-stop dynamic range and a high Luma signal to noise ratio the sensitometric characteristic of the EOS C700 is formidable.

Canon clearly heard the widespread concern about the challenge of ensuring sharp focus – especially when shooting 4K / UHD – and responded by endowing the EOS C700 with impressive tools to assist in alleviating this challenge.

The EVF-V70 electronic viewfinder constituted a sizeable development program in its own right. A large 0.7-inch OLED panel of high contrast and wide color gamut and having the full HDTV spatial sampling of 1920 x 1080 offers a sharp and vivid image that should be much appreciated by the experienced camera operator. While auto focus has long been anathema to the cinematography world Canon nevertheless gave a priority to the incorporation of the now widely admired Dual Pixel CMOS Auto Focus system that remains unique to Canon in the EOS C700. The same technology is applied to the alternative Focus Guide mode of operation which supports the manual focusing action with EVF signaling that verifies the achievement of sharp focus on a chosen subject within a scene. The high precision achieved in both modes will be reassuring to many cinematographers – especially in high pressure and high mobility shooting situations.

Anamorphic shooting has expanded in recent years. The EOS C700 includes all of the video processing required to support proper widescreen image presentation on the EVF and on-set reference displays. The choice of the 2.0:1 or the 1.3:1 lens is a production choice influenced largely by the desire to achieve certain looks and creative artifacts associate with anamorphic – and both lenses are accommodated in the EOS C700.

Much thought went into the design of the operational panels for the EOS C700. The display was designed for clear identification of the selected functions – of which there are many. The associated menus were most carefully thought through and benefited from extended discussions with the industry. The addition of the detachable second panel on the right side of the camera is to empower the 1st AC depending upon the nature of the production.

Connectivity is pivotal to the multivariate needs of the A-Camera. Many different system configurations need to be anticipated for both theatrical motion picture production and for high-end episodic types of television origination. Canon listened closely to the many creative disciplines who consulted with us over the short life of the Cinema EOS system. The quite compact body of the EOS C700 fairly bristles with connectors that service the multiple system requirements.

IP streaming is facilitated via the built-in LAN connector that supports the Gigabit Ethernet standard. A Wi-Fi® connection is supported using the optional Wireless file transmitter WFT-E6B/ WFT-E8.

The EOS C700 offers outstandingly high 2K / HD image performance. The flexibility in shooting in these production formats is extended by the option of deploying a broad range of 2/3-inch B4 mount long zoom broadcast lenses using the special Canon-developed optical adaptors MO-4E / MO-4P (for either EF or PL mount).

Last but not least – the combination of robust mechanical sturdiness and remarkably low weight extends the shooting flexibilities of this A-camera.

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