

EOS C70 ADVANCED QUICK-START GUIDE - GAMMA/GAMUT SETTINGS



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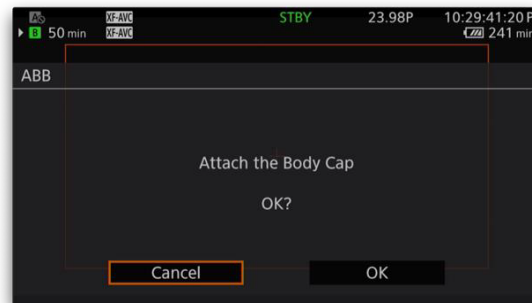
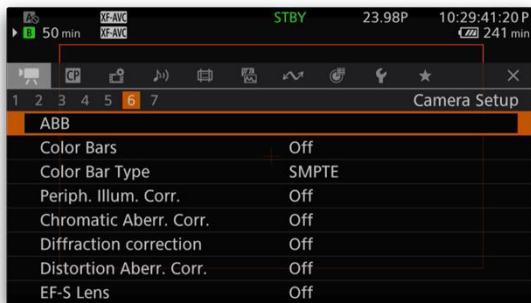
C70 Advanced Quick-Start Guide

Gamma/Gamut Settings

Obtain the optimal image performance for the EOS C70 camera out of the box.

1. Auto-Black Balance (ABB) - Perform this step first

Auto-Black Balance (ABB) is accessed in the MAIN MENU > CAMERA SETUP > SUB LEVEL 6 > ABB



Do not perform with a Lens attached. Ensure that a Body Cap is secured in the Lens Mount.

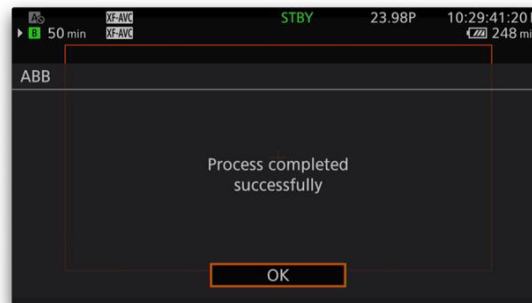
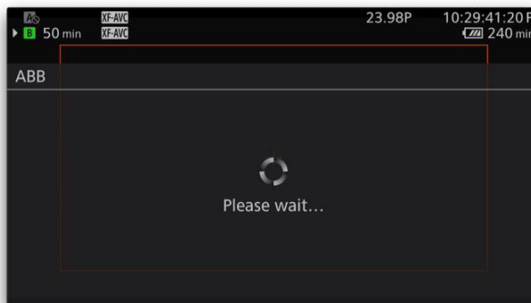


ABB is an essential process to help ensure proper pixel performance in all CMOS capture devices. For best results, it is advised to allow the camera to reach the ambient temperature of the shooting environment before performing ABB.

It takes approximately 40 seconds for the ABB process to be complete. **DO NOT POWER CYCLE THE CAMERA or REMOVE ITS POWER SOURCE DURING THE PROCESS.**

It is suggested that ABB be performed at regular intervals throughout your day.

[Please refer to the camera's user manual for additional information about ABB. You can find the manual here.](#)

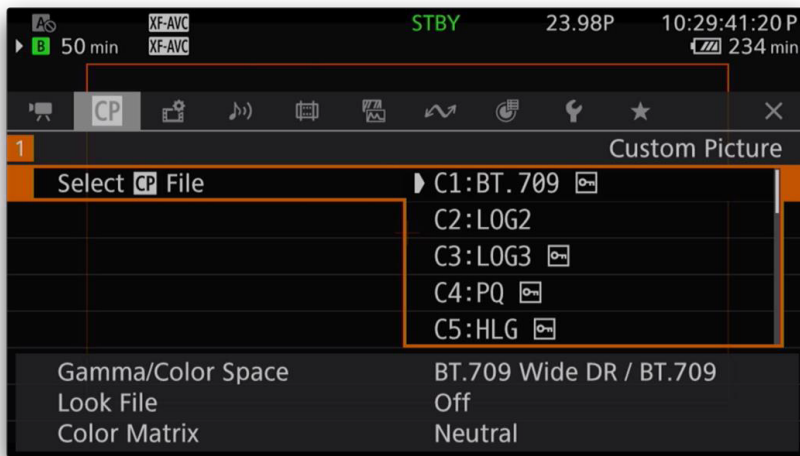
2. Gamma/Color Space Selection - Essential to creating the look of your captured image

The EOS C70 camera has several options and many combinations for selecting your Gamma and the associated Color Space. Your choice will most likely be determined by your post color correction workflow.

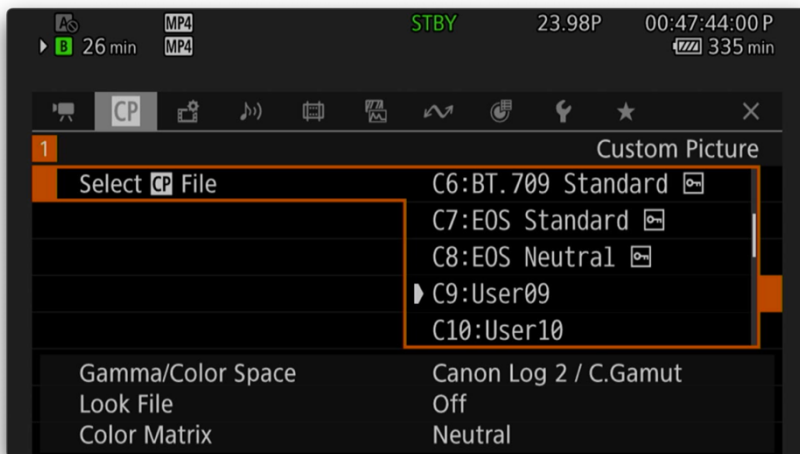
For example, a quick "what you see is what you get," with minimal color correction is possible by choosing a Rec. 709 Standard Gamma/709 Color Space. Conversely, for in-depth post color correction and manipulation, a Canon Log 2 gamma/Cinema Gamut color space would be an excellent choice.

The following details each of the camera's available Preset Gamma/Color Space Options and instructions for creating your own Custom Picture profile.

- Select your Preset by going into the Main Menu>Custom Picture>Select CP File



There are 20 Custom Picture Profile slots in the camera's memory. Numbers 1-8 are reserved for the Presets, while 9-20 are customizable and labeled as "USER" in the menu.



Let's concentrate now on each of the Preset Profiles:

BASE ISO = The ISO setting at which the maximum dynamic range of the chosen gamma is most proportional above and below 18% Grey exposure. ISO settings below the BASE ISO will result in increased shadow Dynamic Range, but decreased highlight protection.

Remember, BASE ISO does not necessarily denote the setting with the best noise performance and, in the case of shooting in Canon Log, you can achieve cleaner noise levels by selecting ISOs below the BASE ISO. The cost is reduced highlight protection, but with greater shadow detail.

C1: BT.709 (Wide DR)

Wide DR/Rec.709

Base ISO: 400

WIDE DR is a gamma created by Canon to further protect highlights within a Rec.709 gamma environment. Therefore, you can still use the image on your monitor for correctly setting exposure and evaluating color information.

This preset does allow for more latitude in post correction over Normal Rec. 709, but the look of the profile is pleasing and may not require any post correction. The gamma setting can be used in situations where you may normally use a standard Rec.709, then decide if the footage warrants post correction or not.

For information on setting up your own Gamma/Color/Space/Matrix environment, please refer to the "Create Your Own Custom Picture Profile" section below.

C2: Canon Log 2

Canon Log 2/Cinema Gamut

Base ISO: 800 (+6.3/-9.7Stops)

Canon Log 2 provides the maximum amount of Dynamic Range available from the sensor, in this case 16+ stops. Canon Cinema Gamut color space is the widest color space available and includes all standard output color spaces for easy scaling between color spaces. This preset is the best option to take full advantage of the sensor can offer while having plenty of post-production color time available.

This preset offers the most latitude and widest color space to work with and by using Canon's Post LUTS, Canon Log 2 can easily scale to various output environments. This is the optimal setting for high-end Cinema production, delivering the ultimate flexibility in post-production, for archival purposes and if an ACES workflow is used.

It is important to note that the proper monitoring tools must be used (such as a Waveform Monitor or False Color) to achieve the desired exposure. Much like shooting film, this is not a "What you see is what you get" shooting environment. If using an on-

set monitor, it is recommended to enable a Viewing LUT to preview how the Preset will scale to your output environment.

When using a Waveform Monitor, to set proper exposure for Canon Log 2:

- **0% Black: 9.3% IRE, 95 10-bit CV**
- **18% Grey: 39.8% IRE, 407 10-bit CV**

C3: Canon Log 3

Canon Log 3/Cinema Gamut

Base ISO: 800 (+6.3/-7.7 Stops)

Canon Log 3 is similar to Canon Log 2, but trims off some dynamic range in the shadow region making it a little easier and quicker to work with in post. The gamma setting still offers a very large amount of latitude (14 stops) making it an extremely versatile and popular gamma. Canon Log 3 is a good choice if you are experienced with the original Canon Log gamma, if you are looking for a faster post-production workflow, but still want expanded dynamic range and if you are trying to match footage to older Cinema EOS cameras that use only original Canon Log.

When using a Waveform Monitor, to set proper exposure for Canon Log 3:

- **0% Black: 12.5% IRE, 128 10-bit CV**
- **18% Grey: 34.3% IRE, 351 10-bit CV**

C4: PQ - Perceptual Quantization (Dolby Vision) PQ/Rec. 2020

Base ISO: 800

PQ, or Dolby Vision, is a display standard for High Dynamic Range (HDR) output capable of showing an extremely large dynamic range. When selecting this Preset, it is necessary to use a PQ compliant monitor to accurately view exposure and color information.

This is not a recommended shooting Preset if you do not have a compliant monitor. Only use if your shooting requirements explicitly require a native PQ production workflow.

C5: HLG - Hybrid Log Gamma (Broadcast HDR)

HLG/Rec.2020

Base ISO: 400

Hybrid Log Gamma is, like PQ, a display standard gamma. Also, like PQ, it is a "what you see is what you get" shooting environment. Therefore, it is necessary to use monitors that are compliant with the HLG/Rec.2020 standard in order to properly expose and view correct color information.

Unlike PQ, HLG is a modest step-up in dynamic range from Rec. 709, but also has the ability to scale properly onto Rec.709 display environments, without seeming too "washed out" in color and luminance information. Therefore, this Preset is useful if you are working in a live HLG production or shooting for a quick turnaround HLG broadcast environment. This preset could be helpful if you are shooting for both an HDR and SDR delivery, especially if the product is a live broadcast. If not, then, like the PQ Preset, it is recommended to use a traditional Log workflow in which you can easily scale to HLG in post color correction.

C6: Standard Rec.709 Workflow

BT. 709 Standard/Rec.709

Base ISO: 160

This is a good option if your workflow is dedicated to the standard 709 television/broadcast environment. Even more so than Wide DR, the adjustments you make to lighting and exposure will be accurately displayed on your standard monitors and, therefore, you should expect what you see on your monitor to be representative of the final image.

C7: EOS Standard (Look File)

BT.709 Wide DR/BT.709

Base ISO: 160

Preset 7 is a custom Look File created by Canon to match the gamma and color characteristics of the "Standard" Picture File on the EOS R Series of cameras. When recording alongside an EOS R, RP, R6, R5, R3, R7, and R10 and using the "Standard" Picture Style in those cameras, you should have an easier time matching footage by using this preset.

C8: EOS Neutral (Look File)

BT. 709 Wide DR/BT.709

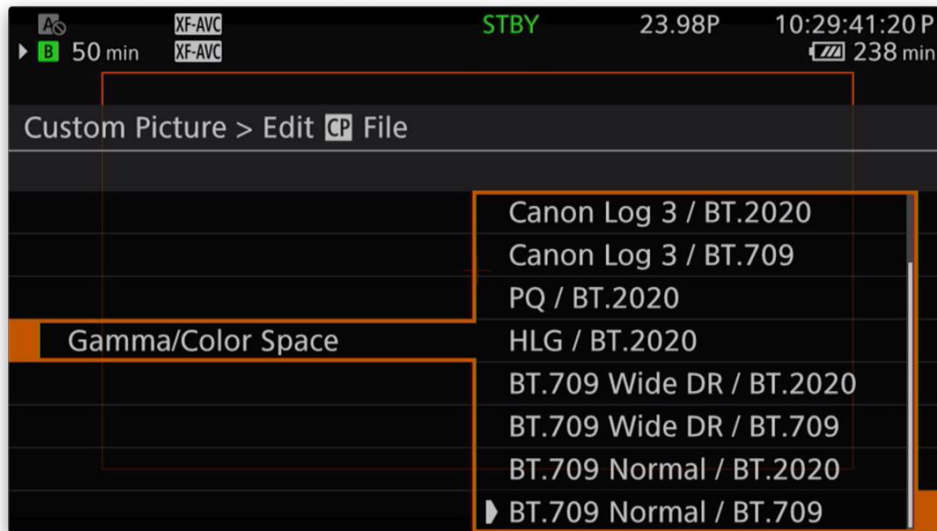
Base ISO: 160

Just like Preset #7, this preset follows the above convention except for being made to replicate the "Neutral" Picture Style.

3. Create Your Own Custom Picture Profile

If desired, you can easily create your own Custom Picture Profile.

Within the Custom Picture Menu Choose USER09-USER20, then: EDIT CP FILE > GAMMA/COLOR SPACE >



This gives you access to all combinations of Gamma and Color Space available within the camera:

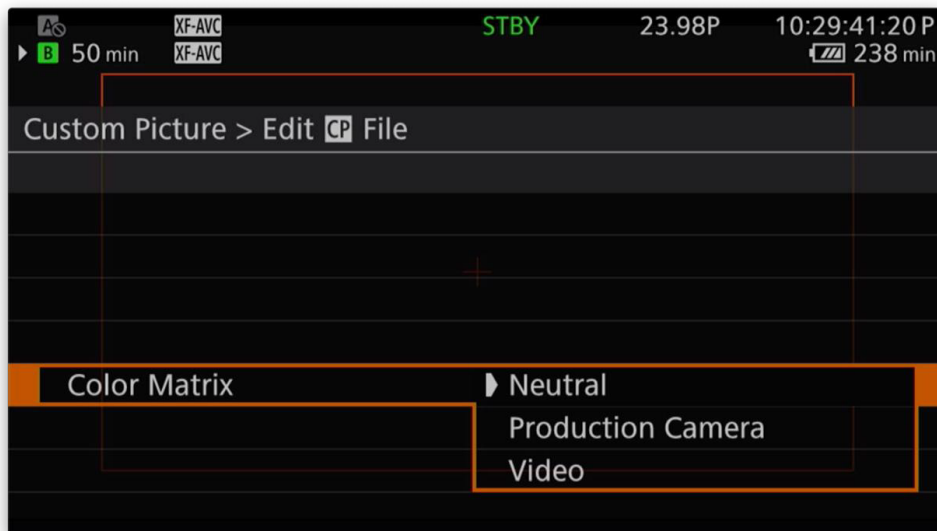
- Canon Log 2/Cinema Gamut
- Canon Log 2/BT.2020
- Canon Log 2/BT.709
- Canon Log 3/Cinema Gamut
- Canon Log 3/BT. 2020
- Canon Log 3/BT.709
- PQ/BT.2020
- HLG/BT.2020
- BT.709 Wide DR/BT.2020
- BT.709 Wide DR/BT.709
- BT.709 Normal/BT.2020
- BT.709 Normal/BT.709
- BT.709 Standard/BT.709

Once you have selected your Gamma/Color Space, you can save that to the Picture Profile and then modify it at will using the many engineering options within the CUSTOM PICTURE > EDIT CP FILE menu.

The Color Matrix - How Your Camera Interprets Color

After choosing your Gamma settings in the EDIT CP FILE menu, you then have the option to select your Color Matrix Presets. Note: C1-C5 Presets use the "Neutral" Color Matrix setting.

Custom Picture > EDIT CP FILE > Color Matrix



The following represent the available Preset Color Matrix options:

- Neutral - Faithful reproduction of color tones as we see them.
- Production Camera - A matrix designed with digital cinematography in mind. A nice choice for achieving a more cinema or "film" look.
- Video - This matches the matrix used by the first generation of Cinema EOS cameras (EOS C300, EOS C500, EOS C100mk1/2) when not using the Canon Log or CP Lock modes.

Remember that you also have the ability to freely modify the color matrix of the camera within the Custom Picture > EDIT CP FILE > COLOR MATRIX TUNING menu.

[You can find a basic EOS C70 Quick-Start Guide under "Resources" here.](#)

[Please refer to the camera's user manual for any additional information. You can find the manual here.](#)