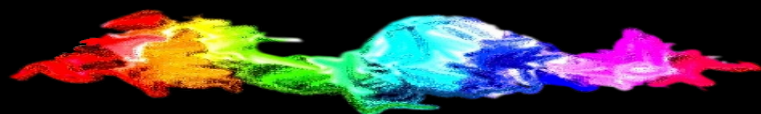Canon

EOS C700ₓ

4K

CINEMA EOS

TELL YOUR STORY IN TRUE COLOR

RAW 14-Bit YCrCb/RGB-4:4:4 and Compressed 14-Bit AVCx/MP4/MPEG2-4:4:4 Video with Global Shutter and Extended Metadata

TELL YOUR STORY IN TRUE COLOR

-BE BOLD AND CAPTURE THE RAINBOW

Built-in GPS Location Sensor:

The GPS Location Sensor allows you to retrieve the current Date, Time, Longitude, Latitude and Elevation for EVERY FRAME in your recorded video so that you know when and where every scene, shot and frame was captured. This is a valuable addition for your VFX post-production team who want to know WHERE the camera is within any given 3D-space.

Extended-size CMOS Sensor with Global Shutter:

The 34.2 x 18.0 mm sensor has a cell pitch of 8.2 microns allowing each photosite to gather more light than Super-35 sensors for unparalleled contrast ratio and dynamic range giving you 15 Stops of latitude that exceeds some of the most expensive cameras today. The Global Shutter also makes jello-cam a thing of the past!

Talent and Object Location Sensor:

The ZigBee network server module with a range of up to 40 meters within cluttered indoor spaces and up to 500 meters line-of-sight outdoors allows the camera to know where and how far key talent and in-scene objects are from the camera within 3D-XYZ space.

When coupled with Canon's discreet but powerful ZigBee radio tags, up to 128 tags can be monitored for their current 3D-XYZ Orientation, GPS Location and Distance-to-Camera. This gives your production and post-production teams precise information on what people and what objects were positioned where, when and how far from the camera during every frame in your shot. This extended metadata for ALL TAGS is saved into the output video files and is also sent out live through the USB port metadata stream.

802.11ac Wireless Web Server with Proxy Video:

The 802.11ac (5GHz) wireless web server has 40 meters indoor and 200 meter outdoor range with peak throughput of 1700 Mbps and a sustained throughput of 1200 Mbps per second.

When coupled with the extended range/extended throughput antenna, the EOS C700x on-board web server can support 8 users where each can receive a 4k/1080p/720p/540p combined video/audio/metadata proxy stream up to 100 Mbps per user. The camera can also send an internet streaming compatible real-time video proxy via wireless connection or via the on-board RJ-45-Cat-6 Gigabit Ethernet connector. This is ideal for using the EOS C700x for live 4k single-camera or multi-camera production for broadcast and web-streaming.

3D-XYZ MEMS Orientation Sensor:

We have included a highly accurate micro-electromechanical system (MEMS) sensor which measures Roll, Pitch and Yaw of the camera's current orientation in Decimal Degrees along the X, Y and Z axis. The sensor is sampled at the frame rate of each output file so that every frame knows where the lens was pointed to on any axis! This makes the VFX and Special Effects department's job very easy now that they know how the camera was panned, tilted and rotated for every single frame!

EFx Lenses with Extended MetaData Information:

With Canon EFx Prime Lenses and EFx Zoom Lenses you get crystal clear sharp imagery at fixed and variable focal lengths with extended lens metadata information recorded to both the video files and sent out through the USB port metadata stream giving you superior information for your on-set production and post-production systems.

CAPTURE THE FIRE
-WE SEE FACES IN THE DARK

4K

Extended Dynamic Range

15 Stops of Latitude

Every Lash • Every Glow • Every Sparkle • The Night is Yours!
Each photosite is 1.3x larger than Super-35 sensors for the
lowest noise and finest detail even at high ISO settings.

3-Slot Compact Flash or 3 HD Drives:
A removable ThunderBolt cartridge that can contain either 3 High-speed CF cards (128GB/256GB/512GB each) or 3 Hard Disks (15mm 2.5" 1TB/2TB/3TB each) for the longest possible full-resolution recording times out to Full RAW 14-bit 4:4:4 Rec.2020 color space YCrCb or Compressed 14-bit/12-bit/10-bit/8-bit AVCx/MP4/MPEG2 CBR or VBR files containing Extended Metadata tracks.

Capture 3 Backups or 3 Different Versions of Your Videos:
The Slot Select button can cycle through menu options that allow video to be recorded sequentially onto each of the 3 CF or HD drives, or have one stream be recorded 3 times for safety/backup purposes, or each drive can contain a different file format (MOV/AVI/AVCx/MP4), frame resolution, frame rate and color bit depth.

Extended Camera Setup and Menu Options:
We have given your more resolutions, more frame rates and more output file options than ever! From over-cranking at up to 600 fps 512p, 60 fps 4k or 120 fps 1080p and down to under-cranking at various frames-per-time-unit rates for your time-lapse imaging needs. Raw YCrCb and RGB or Compressed Interframe Long GOP or Intraframe AVCx and MP4/ MPEG2 format files at 14-bit, 12-bit, 10-bit or 8-bit color depths for helping you make the best decision regarding desired length-of-recording and final video/audio capture quality. We also allow you to setup your camera EXACTLY the way you like it and SAVE AND RETRIEVE those settings for instant setup and transferability between all other EOS C700x and newer Canon EOS Cinema cameras!

DisplayPort with DockPort Extensions:
Clean Output at 4:4:4 RAW 14-bits REC. 2020 color space with embedded 4-channel 24-bit 192 kHz uncompressed PCM Audio and Extended Metadata Streams at Cinema 4096x2160p 60Hz and Bi-Directional USB. 802.11ac wireless web server for video/audio/metadata proxy streaming (up to 8 users using AVCx, MP4/MPEG2 proxy stream each at up to 100Mbps) and RJ45-Cat-6 connector for hardwired Ethernet connectivity.

ThunderBolt & HDMI with **HEC/ARC/CEC Extensions:**
Clean Output at 4:4:4 RAW 14-bits REC. 2020 color space with embedded 4-channel 24-bit 192kHz uncompressed PCM Audio and Extended Metadata Streams at Cinema 4096x2160p 60Hz. ThunderBolt is a 20 Gbps/Sec data transfer interface connecting external hard disks, video recording systems and high-speed peripherals.

Extended-Life Battery:
Get 4 full hours of recording time with all ports active using Canon Lithium Ion Extended Life Batteries. These allow maximum recording time and can power microphones and external USB 3.0, HDMI and DisplayPort peripherals.

4 XLR, USB 3.0 and Ethernet Audio Inputs:
Four balanced XLR inputs with user-selectable 24-bit/20-bit/16-bit 48/96/192 kHz uncompressed PCM or compressed MP3/AVCx conversion. Menu-selectable Line or Mic input levels. Audio level control via smartphone/tablet or on-camera controls. Audio can also be input from an external source via USB-3 or RJ45 Gigabit Ethernet.

Powered USB 3.0 Port:
Sends live output of XML-format Extended Metadata streams and allows realtime control of all camera settings and options via external controller smartphone or tablet. Powered port can also provide power to external hard drives and other USB peripherals.

3

NEW RECORDING CARTRIDGE OPTIONS

-REMOVABLE THUNDERBOLT 3-CF CARD OR 3-HARD DISK CARTRIDGE WITH MULTI-FORMAT OR SEQUENTIAL RECORDING

4K

Canon now offers our removable ThunderBolt cartridge system in two storage configurations which contains either three High-speed Compact Flash Cards each in 128GB, 256GB or 512GB sizes or three 2.5" Hard Disks each in 1TB, 2TB or 3TB sizes.

Using the camera menu system, you can set the cartridge to record three copies of the same video to ensure maximum data safety and backup ability, or you can record onto each CF card or Hard Disk on a sequential basis for the longest recording times, or you can record a DIFFERENT container format (MOV/AVI/AVCx/MP4/MPEG-2), video resolution and frame rate on each separate drive.

And as CF and Hard Disk capacities and recording speeds increase, each cartridge can have it's firmware upgraded to take advantage of the latest Compact Flash cards and Hard Disks.

The ThunderBolt cartridge is also Hot-Swappable giving you 20 seconds when recording at 4K resolution to swap out the currently inserted cartridge for a new one while the EOS C700x camera's internal memory and cartridge's battery-backed internal video buffer memory keeps recording incoming video and then switches recording over back to the cartridge once a pre-formatted cartridge is inserted and accepted.

ThunderBolt's 20 Gbits/second throughput coupled with the internal cartridge disk buffer allows for up to 800 Megabytes per Second maximum data transfer rate out to each Compact Flash card or each 2.5" Hard Disk within the removable cartridge.

CTH-702 2.5" Hard Disk ThunderBolt Cartridge:
Contains Three 2.5" Hard Drives with individual drive capacities of 1 TB, 2TB or 3TB for maximum video length at the following sequential recording times:

4K at 200 Mbps = 110 minutes using three 1 TB 2.5" hard disks.
4K at 200 Mbps = 220 minutes using three 2 TB 2.5" hard disks.
4K at 200 Mbps = 330 minutes using three 3 TB 2.5" hard disks.

* 4096x2160p (60fps) at 4:4:4 YCrCb Rec.2020 AVCx with Metadata Cartridge can accept three 15mm height 2.5" Hard disks.

CTF-701 Compact Flash ThunderBolt Cartridge:
Contains Three Compact Flash Cards with individual drive capacities of 128GB, 256GB or 512GB cards at the following sequential recording times:

4K at 100 Mbps = 30 minutes using three 128 GB CF Cards
4K at 100 Mbps = 60 minutes using three 256 GB CF Cards
4K at 100 Mbps = 120 minutes using three 512 GB CF Cards

* 4096x2160p (30fps) at 4:2:2 YCrCb AVCx with Metadata

High-Speed ThunderBolt Connector:
The Hot-Swappable Cartridge can be directly plugged into the Canon EOS C700x camera or be plugged into an external computer for easily copying of media files to Macintosh, Windows and other compatible hardware for fast editing, VFX, broadcast and internet streaming.

EVERY RESOLUTION AND RAW TOO
-CAPTURE AND OUTPUT TO YOUR HEART'S DELIGHT

EOS C700x

4K

You wanted external RAW output video and internal RAW file recording resolution and frame rate flexibility and WE LISTENED!

You get RAW YCrCb or RAW RGB using 4:4:4, 4:2:2, 4:2:0 and 4:1:1 color sampling with user-selectable combinations of 14-bit, 12-bit, 10-bit or 8-bit color and AVCx, MPEG-4, MPEG-2 Long-or-Short GOP VBR and CBR with user-selectable combinations of bit-rates, output resolutions and supported playback frame rates: All RAW/AVXc/MP4/MPEG-2 resolutions allow undercranking and time lapse imaging with user-selectable frame capture at 15 fps / 10 fps / 5 fps / 3 fps / 2 fps / 1 fps and frames-per-hour or frames-per-day settings.

You wanted compressed video resolution and frame rate flexibility and NOW YOU HAVE IT!

Apple Quicktime,® Microsoft AVI® and MPEG-4/MPEG-2/AVCx® container file formats are ALL available.

User Selectable Frame Rates
Higher Frame Rates and Resolution Require Higher Bit Rates
(progressive scan=p or Interlaced=i)

Frame Size in Pixels	600p	300p	240p	150p	120p	60p	50p	50i	30p	25p	24p	59.94p	59.94i	29.97p	29.97i	23.98p
4096 x 2160	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
3840 x 2160	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
2048 x 1080	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
1920 x 1080	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
1440 x 1080	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
1280 x 720	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
1024 x 768	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
960 x 540	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
640 x 480	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
512 x 512	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Compressed AVCx/MP4/MPEG-2 allows user selectable bit rates of 800, 600, 400, 200, 100, 75, 50, 35, 25, 17, 9 Megabits per Second.
Uncompressed 4k RAW YCrCb/RGB 4:4:4 with 24-bit/192KHz Audio requires 1.59 Gigabytes per Second throughput for Thunderbolt/SDI interfaces.

Wireless CTLRX-700 Programmable Camera Controller with Manual Focus, Zoom and Iris Control with Smartphone Connectivity and USB/HDMI/DisplayPort/RJ-45/RS-232/RS-422 External Controller Input/Output and Monitoring Connections.

Wireless ZigBee RFID Talent and Object Tag with built-in 3D-XYZ Orientation Sensor, GPS Location Sensor and Real Time Clock and Distance Calculator 40 meters indoors/500 meters outdoors range up to 128 Tags can have their metadata embedded into every frame of every shot.

Each tag can have a unique identifier and text description assigned to embed as metadata into all output video streams and files. Every frame is tagged with the RFID tag's Date, Clock Time, GPS location in decimal degrees, current 3D-XYZ roll, pitch and yaw orientation, and distance-to-camera measurement with up to two centimeter accuracy. RFID Tag metadata can be streamed live out of EOS C700x camera's USB port and saved into the final output video files as a separate metadata track. Comes with sturdy clips and metal ring inserts for quick and secure fastening to talent and on-set objects. 1.5 volt button-type battery for 18 hours of connectivity.

METADATA EVERYWHERE ON EVERY FRAME
-SAVE THE WHAT, WHEN, WHERE, HOW AND THE WHO INTO YOUR OUTPUT FILES AND LIVE STREAMS

EOS C700x

4K

We asked ourselves and YOU what do on-set production personnel, post-production, VFX and Editing NEED FROM OUR CAMERA in order to do their jobs quickly and effortlessly?
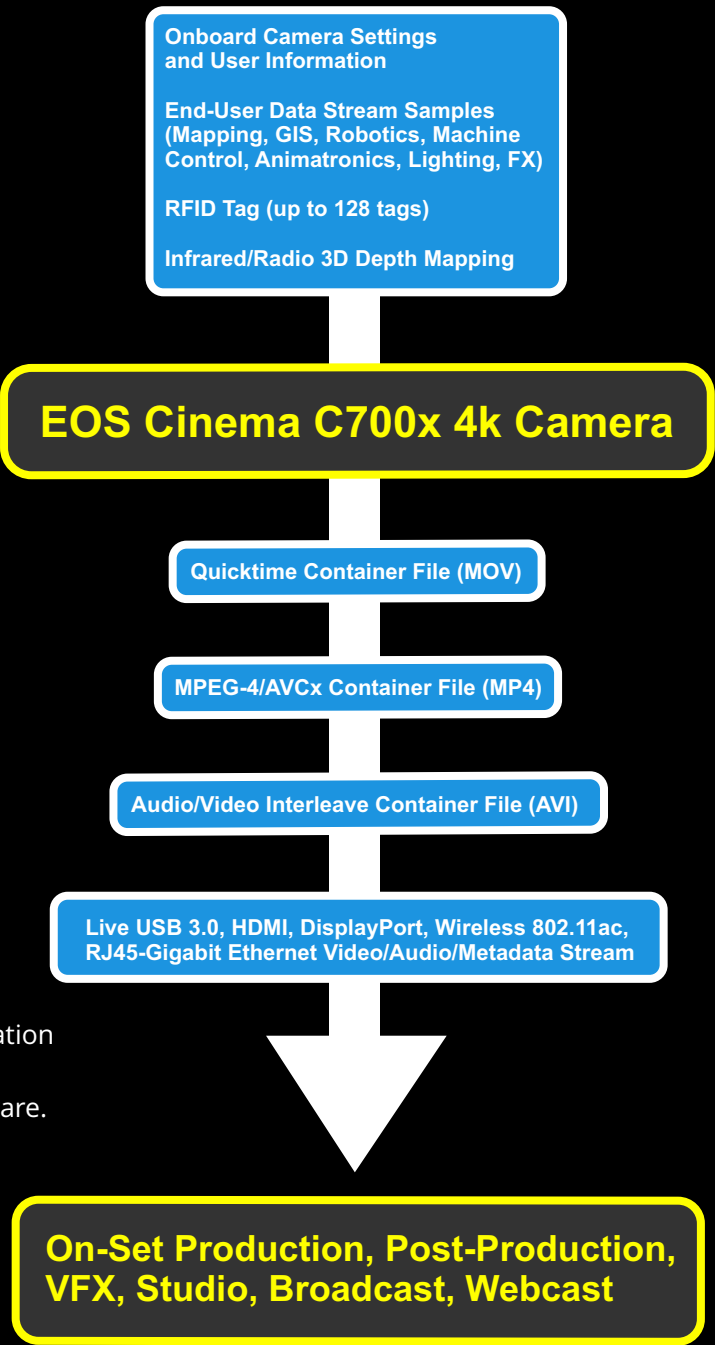
The answer is METADATA and lots of it!

Canon introduces the EOS Extended Metadata XML Format Specification which is an OPEN FORMAT XML SPECIFICATION which is currently on the EOS C700x camera but will be built-into all future versions and made available as an add-on accessory for legacy hardware Canon DSLR, Cinema series and production video camera products.

For EVERY frame you can keep track of current camera settings, GPS location, Current Date and Clock time, Elapsed time, SMPTE Timecode, 3D-XYZ orientation data and 3D Distance-to-Camera information. We also include production information data which is added as a header and footer to your final MOV/AVI/AVCx/MP4/MPEG2 container file formats AND that metadata can be streamed LIVE out via the camera's USB/HDMI/DisplayPort or via the Wireless 802.11ac or RJ45-Cat-6 Gigabit Ethernet connections.

Canon EOS Extended Metadata XML Specification Field Group Definitions:

<GPS_GROUP>	GPS Location with Latitude, Longitude, Elevation, Heading
<3DXYZ_ORIENT_GROUP>	3D-XYZ Camera head orientation with Roll, Pitch and Yaw
<3DXYZ_DEPTH_GROUP>	3D Scene Depth Infrared or Radio Scanning with X, Y and Z axis distance from camera head.
<DATE_GROUP>	Current Date in formay Year-Month-Day DayOfWeek
<CLOCK_TIME_GROUP>	Current Clock Time in 24 hour format Hours:Minutes:Seconds.Milliseconds and Current Frame Number.
<ELAPSED_TIME_GROUP>	Elapsed time from press of record button in Hours:Minutes:Seconds.Milliseconds and Current Frame Number.
<SMPTE_GROUP>	Drop-Frame or Non-Drop-Frame SMPTE timecode in format Hours:Minutes:Seconds.Frames
<FRAME_NUMBER_GROUP>	Shot, Scene, Free Run and User Frame Number and Frame Markers for end-user and editing applications.
<RFID_TAG_GROUP>	Wearable RFID tags for talent and on-set objects with Tag ID, Tag Group, Date, Time, GPS, Orientation and Distance.
<MAP_GROUP>	Contains 3D-XYZ coordinate information, icon data, description, object velocity, ID tags for moving maps and navigation
<CAMERA_SETTINGS_GROUP>	Current Camera Iris, Focus, Zoom, ISO, Gamma, Log, Filter ID, CPU Temp, Shutter speed settings at current frame.
<USER_DATA_GROUP>	End-user defined and extensible XML data identifiers for custom applications and custom 3rd party external hardware.
<PRODUCTION_INFO>	Production information including names, addresses, key people, descriptions and basic output file information.
<VIDEO_INFO>	Video Stream and Track information about the current shot - set at every press of record button.
<AUDIO_INFO>	Audio Stream and Track information about the current shot - set at every press of record button.

Onboard Camera Settings and User Information

End-User Data Stream Samples (Mapping, GIS, Robotics, Machine Control, Animatronics, Lighting, FX)

RFID Tag (up to 128 tags)

Infrared/Radio 3D Depth Mapping

EOS Cinema C700x 4k Camera

Quicktime Container File (MOV)

MPEG-4/AVCx Container File (MP4)

Audio/Video Interleave Container File (AVI)

Live USB 3.0, HDMI, DisplayPort, Wireless 802.11ac, RJ45-Gigabit Ethernet Video/Audio/Metadata Stream

On-Set Production, Post-Production, VFX, Studio, Broadcast, Webcast

NEW EFx SERIES LENSES
-FUSING GLASS AND METADATA TOGETHER ON OUR PRIMES AND ZOOMS

Our newest EFx series lenses contain an advanced metadata chip which is sent to the camera head for inclusion into the saved and live metadata streams which will give on-set and post-production personnel detailed information on current lens settings such as iris, focus, horizontal and vertical field-of-view, type and name of lens, description and other important lens-specific data recorded for every frame.

We have included TWO STOP POSTS for the focus and iris rings allowing the rings to be STOPPED at a specific setting for those perfect manual rack focus and iris setups.

Prime Lenses and Zoom EFx series lenses will be rolled out on a scheduled basis through 2016 with the 24mm, 50mm, 85mm and 100mm lenses first.

EOS C700x Specifications

IMAGING SENSOR
Effective Pixels: 4096 x 2160 pixels; Approx. 8.85 megapixels
Total Pixels: 4206 x 2340 pixels; Approx. 9.84 megapixels
Sensor Type: CMOS Global Shutter
Sensor Size: Extended Super 35; 34.2mm x 18.0mm (38.6mm diagonal); 8.2µm cell pitch
Scanning System: Progressive
Number of Sensors: 1
Filter: RGB Primary Color Filter (Bayer Array)
Imaging Processor: DIGIC DV IIIa

LENS SYSTEM
Interchangeable Lens System: EFx-mounts for extended metadata streaming.
Zoom/Focus Preset: 4 user-defined presets set and saved in menu and recalled from preset button.
Digital Teleconverter: 2x and 4x Digital Zoom
ND Filter: Mechanical ND filter system with option of Clear, 2, 4, and 6 stops
Iris: Iris Dial located on camera body for use with EOS EFx Lenses with
electronic full auto/full manual iris control and user-set manual Stop Post.
Peripheral Illumination Correction: Available with multi-level Backlight compensation (set from menu).

EXPOSURE AND METERING
Exposure Modes: Manual or 36-point sampling auto-exposure
Gain: Normal Setting -6 dB to 30 dB / Fine Setting 0 dB to 24 dB in 0.5 dB increments
ISO: 320 to 32000
Auto Gain Control (AGC): User-set and Auto Gain for Center or specified 3rds of Frame.
Exposure Compensation/AE Shift: User-set and Auto Backlight Compensation
Shutter Modes: 5 Modes: OFF; Speed; Angle; Slow Shutter; Clear Scan
Speed Mode is selected in 1/3- or 1/4-stop increments
Shutter Speed Range:
600p: 1/600th to 1/2000th; CS: 600Hz – 250.27Hz
300p: 1/300th to 1/2000th; CS: 300Hz – 250.27Hz
240p: 1/240th to 1/2000th; CS: 240Hz – 250.27Hz
150p: 1/150th to 1/2000th; CS: 150Hz – 250.27Hz
120p: 1/120 to 1/2000 in 1/4 or 1/3 stops; SLS: 1/4, 1/8, 1/15, 1/30; CS: 120Hz – 250.27Hz
59.94i/59.94p: 1/60 to 1/2000 in 1/4 or 1/3 stops; SLS: 1/4, 1/8, 1/15, 1/30; CS: 59.94Hz – 250.27Hz
29.97p: 1/30 to 1/2000 in 1/4 or 1/3 stops; SLS: 1/4, 1/8, 1/15; CS: 29.97Hz – 250.27Hz
23.98p/24p: 1/24 to 1/2000 in 1/4 or 1/3 stops; SLS: 1/3, 1/6, 1/12; CS: 23.97Hz – 250.27Hz
50i/50p: 1/50 to 1/2000 in 1/4 or 1/3 stops; SLS: 1/3, 1/6, 1/12 1/25; CS: 50.00Hz – 250.78Hz
25p: 1/25 to 1/2000 in 1/4 or 1/3 stops; SLS: 1/3, 1/6, 1/12; CS: 25.00Hz – 250.78Hz
Shutter Angle Settings:
120p: 360, 240, 216, 180, 120, 90, 60, 45, 30, 22.5, 15, 11.25
59.94i/59.94p: 360, 240, 216, 180, 120, 90, 60, 45, 30, 22.5, 15, 11.25
29.97p: 360, 240, 216, 180, 120, 108, 90, 60, 45, 30, 22.5, 15, 11.25
23.98p/24p: 360, 345.6, 288, 240, 180, 172.8, 144, 120, 90, 86.4, 72, 60, 45, 30, 22.5, 15, 11.25
50i/50p: 360, 300, 240, 180, 150, 120, 90, 60, 45, 30, 22.50, 15, 11.25
25p: 360, 300, 240, 180, 150, 120, 90, 75, 60, 45, 30, 22.50, 15, 11.25
Iris (Aperture) Range: 1/2, 1/3-stop or fine setting can be selected or
Smooth Manual Control on Cinema Lenses and with user-set manual stop post.

FOCUS
Focus Settings: Manual, Full Auto-Focus and Momentary Auto-Focus
Autofocus System: 36 point with center-point and user-set focus region assignments

INPUT/OUTPUT
3G-SDI/HD-SDI: 2x BNC Yes (with embedded audio);
HD/UHD/4K:
14-bit/12-bit/10-bit/8-bit 4:4:4/4:2:2 (RAW/YPbPr/YCrCb)
4096x2160, 3840x2160, 2048x1080, 1920x1080, 1280/720 @ 60p/59.94i/50i/23.98/24.00
SD 8-bit 4:2:2 (YPbPr) 480: 59.94i, 576: 50i BNC Connector, output only
NTSC 480i/PAL 576i: Compliant with SMTPE 259M
Embedded Audio: Compliant with SMTPE 272M
Timecode Standard: (VITC/LTC) SMTPE 12M
HD/3G SDI: Compliant with SMTPE424M
1080i/720p: Compliant with SMTPE 292M
Embedded Audio: Compliant with SMTPE 299M
Timecode Standard: (VITC/LTC) SMTPE 12M
Video Monitor Out: Available; 2x BNC, 1x DisplayPort, 1x HDMI, 1x ThunderBolt
Output Resolutions: 4096x2160p, 3840x2160p, 2048x1080p, 1920x1080p, 1280x720p, 480i/p with user-selectable color spaces.
Output Frame Rates: 23.98p/24.00p/25.00p/29.97p/30p/59.94p/50p/60p/120p (DisplayPort/ThunderBolt Only for 120p)
Timecode In/Out: Yes; BNC Connector (Input and Output)
Genlock: Yes; BNC Connector Adjustment range: -1023 to +1023 Synch Out: Yes, BNC Connector
(1) HD tri-level signal (HD Sync) 1920 x 1080: 59.94i/50i/23.98/24.00, 1280 x 720: 59.94p/50p/ 23.98, 24.00;
    The HD standard analog component Y signal with the black muted is output.
(2) HD-Y signals (HD-Y) 1920 x 1080: 60i, 59.94i/50i, 1280 x 720: 60p/59.94p/50p; Only HD analog component Y signal is output.
(3) Black burst signal 480: 59.94i, 576: 50i; The SD standard analog composite signal with the black muted is output.
(4) Composite 480: 59.94i, 576: 50i; The SD standard analog composite signals are output.
HDMI: Yes (Type A)
HD output: 14-bit/12-bit/10-bit/8-bit (YCrCb/YPbPr) @ 4096x2160, 3840x2160, 1920x1080, 1280x720 : 60p/59.94p/50p/30p/24p
SD output: 8-bit 4:2:2 (YPbPr) 480: 59.94i, 576: 50i
Remote Monitoring Terminal: Available (Fully LANC-compatible) with RS-232/RS-422/USB-3 and HDMI/DisplayPort/USB-3/RJ-45
Camera Control Unit (CCU): Model CTLRX-700 with RS-232/RS-422/HDMI/DisplayPort/USB-3/Wifi/RJ-45
File Transfer:
Built-in Wireless 802.11ac Web Server (8 users for Live Video/Audio/Metadata Streaming/File Upload and Download)
RJ-45-Cat-6 Gigabit Ethernet connector, Powered USB-3 port

EVF
Type: 0.52-inch Color (1,555,000 dots: 960x540)
Aspect Ratio: 16:9
Viewing Angle Adjustment: Available; Viewing Angle can be adjusted up and down 60°
Diopter Adjustment Range: +2.0 to -5.5 Field of View Coverage: 100%
EVF Adjustments: Brightness, Contrast, Color, and Backlight (Normal or Bright)
Special Features: Black and White Display, Zebra-Stripes, Peaking and setting for viewing concurrent images on display

LCD MONITOR
Type: Rotating 5.4-inch Wide Screen Color Fine-Pitch OLED Display (2,073,600 dots: 1920x1080) on detachable controller
Aspect Ratio: 16:9
Field of View Coverage: 100% Display Adjustments: Brightness, Contrast, Color, Sharpness, and Backlight (Normal or Bright)
Special Features:
Black and White Display, and setting for viewing concurrent images on display
On-screen RGB/YCrCb and Luminance-Only Waveform monitoring and
RGB/YCrCb Vectorscope monitoring with Zebra-Stripes and Peaking indicators

POWER
Supply: DC 7.4V (Battery Pack) / DC 8.4V (DC-in)
Power Terminal: DC-in on camera (no need for "Dummy Battery")
Battery: EBP-9 Series (Thin Film Lithium Ion)
Compact Adapter: WFT-E6B

ACCESSORIES
Tripod Adapter: Canon TA-100
Tripod Adapter Base: Canon TB-1
Focus, Iris, Zoom Remote Controller: CTLRX-700 (wireless and hardwired connection)

EOS C700x Specifications

EXTERNAL RECORDING OUTPUT
Available RAW YCrCb/RGB Mode Resolutions:
4096 x 2160 YCrCb/RGB 4:4:4 14-bit/12-bit/10-bit/8-bit @ 60 fps, 59.94 fps, 50 fps, 30 fps, 29.98 fps, 25 fps, 24 fps, 23.98 fps
3840 x 2160 YCrCb/RGB 4:4:4 14-bit/12-bit/10-bit/8-bit @ 60 fps, 59.94 fps, 50 fps, 30 fps, 29.98 fps, 25 fps, 24 fps, 23.98 fps
2048 x 1080 YCrCb/RGB 4:4:4 14-bit/12-bit/10-bit/8-bit @ 120 fps, 60 fps, 59.94 fps, 50 fps, 30 fps, 29.98 fps, 25 fps, 24 fps, 23.98 fps
1920 x 1080 YCrCb/RGB 4:4:4 14-bit/12-bit/10-bit/8-bit @ 120 fps, 60 fps, 59.94 fps, 50 fps, 30 fps, 29.98 fps, 25 fps, 24 fps, 23.98 fps

 *other RAW resolutions are sub-sampled from the above resolutions.

Available Color Spaces: user selectable 4:4:4, 4:2:2, 4:2:0, 4:1:1
Log Files: Canon and User Loadable.

RECORDING/CODEC (INTERNAL)
Signal System: 600Hz, 300Hz, 300Hz, 240Hz, 150Hz, 120Hz, 59.94Hz and 50Hz
Compression: user selectable 14-bit, 12-bit, 10-bit 8-bit AVCx/MP4/MPEG2 Long GOP or Intra-Frame
Color Space: user selectable 4:4:4; 4:2:2; 4:2:0; 4:1:1
Maximum Bit rate: 800 Mbps (CBR) or 800 Mbps (VBR average-rate)
Log Files: Canon and user-loadable

Recording Options:
All modes allow user selection of 4:4:4, 4:2:2, 4:2:0, 4:1:1 pixel sampling
but lower bit-rates will require lower color pixel sampling values.

Following resolutions are available at User Selectable bit rates:
(higher frame rates will require higher bit rates)
4096 x 2160   (CBR Only) @ 800 Mbps, 600 Mbps, 400 Mbps, 200 Mbps, 100 Mbps, 75 Mbps, 50 Mbps, 35 Mbps
3840 x 2160   (CBR Only) @ 800 Mbps, 600 Mbps, 400 Mbps, 200 Mbps, 100 Mbps, 75 Mbps, 50 Mbps, 35 Mbps
2048 x 1080   (CBR/VBR) @ 800 Mbps, 600 Mbps, 400 Mbps, 200 Mbps, 100 Mbps, 75 Mbps, 50 Mbps, 35 Mbps, 25 Mbps
1920 x 1080   (CBR/VBR) @ 800 Mbps, 600 Mbps, 400 Mbps, 200 Mbps, 100 Mbps, 75 Mbps, 50 Mbps, 35 Mbps, 25 Mbps, 17 Mbps, 9 Mbps
1440 x 1080   (CBR/VBR) @ 800 Mbps, 600 Mbps, 400 Mbps, 200 Mbps, 100 Mbps, 75 Mbps, 50 Mbps, 35 Mbps, 25 Mbps, 17 Mbps, 9 Mbps
1280 x 720   (CBR/VBR) @ 800 Mbps, 600 Mbps, 400 Mbps, 200 Mbps, 100 Mbps, 75 Mbps, 50 Mbps, 35 Mbps, 25 Mbps, 17 Mbps, 9 Mbps
1024 x 768   (CBR/VBR) @ 800 Mbps, 600 Mbps, 400 Mbps, 200 Mbps, 100 Mbps, 75 Mbps, 50 Mbps, 35 Mbps, 25 Mbps, 17 Mbps, 9 Mbps
960 x 540   (CBR/VBR) @ 800 Mbps, 600 Mbps, 400 Mbps, 200 Mbps, 100 Mbps, 75 Mbps, 50 Mbps, 35 Mbps, 25 Mbps, 17 Mbps, 9 Mbps
640 x 480   (CBR/VBR) @ 800 Mbps, 600 Mbps, 400 Mbps, 200 Mbps, 100 Mbps, 75 Mbps, 50 Mbps, 35 Mbps, 25 Mbps, 17 Mbps, 9 Mbps
512 x 512   (CBR/VBR) @ 800 Mbps, 600 Mbps, 400 Mbps, 200 Mbps, 100 Mbps, 75 Mbps, 50 Mbps, 35 Mbps, 25 Mbps, 17 Mbps, 9 Mbps

The following frame rates are available for each resolution.
(higher frames rates require higher bit rates)
4096 x 2160   @ 60 fps, 59.94 fps, 50 fps, 30 fps, 29.98 fps, 25 fps, 24 fps, 23.98 fps
3840 x 2160   @ 60 fps, 59.94 fps, 50 fps, 30 fps, 29.98 fps, 25 fps, 24 fps, 23.98 fps
2048 x 1080   @ 120 fps, 60 fps, 59.94 fps, 50 fps, 30 fps, 29.98 fps, 25 fps, 24 fps, 23.98 fps
1920 x 1080   @ 120 fps, 60 fps, 59.94 fps, 50 fps, 30 fps, 29.98 fps, 25 fps, 24 fps, 23.98 fps
1440 x 1080   @ 120 fps, 60 fps, 59.94 fps, 50 fps, 30 fps, 29.98 fps, 25 fps, 24 fps, 23.98 fps
1280 x 720   @ 150 fps, 120 fps, 60 fps, 59.94 fps, 50 fps, 30 fps, 29.98 fps, 25 fps, 24 fps, 23.98 fps
1024 x 768   @ 150 fps, 120 fps, 60 fps, 59.94 fps, 50 fps, 30 fps, 29.98 fps, 25 fps, 24 fps, 23.98 fps
960 x 540   @ 240 fps, 150 fps, 120 fps, 60 fps, 59.94 fps, 50 fps, 30 fps, 29.98 fps, 25 fps, 24 fps, 23.98 fps
640 x 480   @ 300 fps, 240 fps, 150 fps, 120 fps, 60 fps, 59.94 fps, 50 fps, 30 fps, 29.98 fps, 25 fps, 24 fps, 23.98 fps
512 x 512   @ 600 fps, 300 fps, 240 fps, 150 fps, 120 fps, 60 fps, 59.94 fps, 50 fps, 30 fps, 29.98 fps, 25 fps, 24 fps, 23.98 fps

Recording Media and Approximate Recording Times (With Metadata):
Using a three 256 GB CF Card cartridge at 1920 x 1080 at 4:4:4 at 29.98p:
17 Mbps   = 13 hrs 18 mins
25 Mbps   = 10 hrs 40 mins
35 Mbps   = 6 hrs 38 mins
50 Mbps   = 5 hrs 20 mins
75 Mbps   = 3 hrs 13 mins
100 Mbps   = 2 hrs 40 mins
200 Mbps   = 1 hr 20 mins
Using three 1 TB Hard disk cartridge at 4096 x 2160 at 4:4:4 @ 59.94p:
35 Mbps   = 146 mins
50 Mbps   = 160 mins
75 Mbps   = 120 mins
100 Mbps   = 80 mins
200 Mbps   = 40 mins
Recording Media:
CF Card (Type 1 Only); 3 Slots (MOV/AVI/MP4/MPG/AVCx Files); UDMA supported
SD Card (Still Images (JPEG, Uncompressed PNG), Extended Metadata, and menu settings);
SD/SDHC/SDXC Supported; MMC Cards are not supported
Hard Disks; 2.5" up to 15mm thick.
File Format: MXF (OP-1a)
File System:
User-selectable FAT 32 (4 gigabyte file segments)
or EXT4 (Linux: 16 TeraByte+ file segments)
Maximum Clip Number: 999999 per card or drive

AUDIO
Recording Formats:
Linear PCM: 4 Channel 24-bit, 20-bit, 16-bit at 192kHz, 96kHz, 48kHz, 44.1kHz, 32Khz;
Compressed AVCx/MP4/MP3: 4 Channel 24-bit, 20-bit, 16-bit at 192kHz, 96kHz, 48kHz, 44.1kHz, 32Khz;
Built-in Microphone: Detachable Stereo Microphone (on upper grip); Cardioid pickup pattern.
External Audio Inputs: 4 – Line and Mic-level XLR inputs (Auto and Manual level settings)
External Microphone Terminal: (3.5mm diameter)
Recording Channel Selection: 4 and 2 channel selections set from menu
XLR Mic Trim and Pad: Available; -12 dB, -6 dB, 0 dB or +6, +12 dB
Audio Limiter: Available
Recording Level Adjustment Range: - Infinity to +18 dB
Phantom Power: Available; +48V
Headphone Adjustment: 16 Settings; Volume is muted at lowest setting
1KHz Tone: Available; -12, -18, or -20 dB

STILL IMAGING AND TIME LAPSE:
Photo Recording Mode: Available; JPG, PNG Images captured to SD Card
Waveform Monitor: Available; 2 Modes (Standard and RGB Component)
Vectorscope: Available
Exposure / Focus Aids:
Peaking with Zebra Pattern, Magnify, Edge Monitor Focus Assist, Black and White Mode.
Zebra Stripes: Available with pre-sets at 90%, 80%, 75% luminance and 2 user-set luminance values.
Time Lapse / Interval Record: Available; ability to set time interval and number of frames to record
Interval can be set in 25 levels ranging from 15 fps, 10 fps, 5 fps, 3 fps, 2 fps, 1 fps, 1 second
to user-set frames per minute, frames per hour and frames per day and capture at user-specified clock-time-of-day
HDR Frame Record: Available;
Records a set number of frames each time the record button is pressed
Selectable between 1, 3, 6, 9 and 12 frames with user-selectable F-Stop/T-Stop increments

EOS C700x Specifications

OTHER
Dimensions: (W x H x D): C700x Approx. 7.6 x 8.3 x 7.4 in. (193 x 210 x 188mm)
C700x Body: Approx. 5.3 lb. (2404g),
Monitor Unit: Approx. 1.6 lb. (726g),
Handle Unit: Approx. 6.8 oz. (193g)
Total Equipped Weight: C700x: Approx. 7.3 lb. (3323g)
Temperature and Humidity: Performance requirements: 0°C to 50°C, 90% (relative humidity)
Operating requirements: -10°C to 50°C, 60% (relative humidity)
Language Support: English, Japanese, Chinese, German, Spanish, French, Italian, Polish, Russian
Time and Date:
Automatic Calendar Range: January 1st, 2012 through December 31, 2031
selectable in American, Japanese and European Date formats.
World Clock: 24 hour World Clock support (UTC) and with Local +/- Offset time
Pre-Record: Yes, 20 seconds cache (Audio and Video)
buffer is split at 10 seconds in-camera and 10 seconds on recording cartridge.
Scan Flip: When using a Depth-of-Field Converter or other lens adapters image can be flipped
horizontally, vertically or both for special recording applications.
Timecode: Drop Frame (DF) and Non-Drop Frame (NDF)
Drop Frame works with 59.94Hz mode only and is not available in 24P
Timecode Modes: Regeneration, Record Run, Free Run and External Source
Auto White Balance (AWB): Available
White Balance: Kelvin Setting 2,000K to 20,000K in 100K increments
White Balance Presets: HMI (10,000K); Daylight (5,400K); Fluorescent (4,600K); Tungsten (3,200K) and 3 user-presets;
Auto Black Balance: Available
Custom Picture Settings: 30 Custom Picture settings from in-camera menus and external application controller
Custom pictures can be adjusted using the following settings and saved for later recall:
Gamma, Black, Black Gamma, Low Key Saturation, Knee, Sharpness, Noise Reduction, Skin
Detail, Selective Noise Reduction, Color Matrix, White Balance, Color Correction, Cinema, Setup Level
Custom Filter and Image Overlay Functions: Available;
20 Preset Color, Grad and light Point Filters;
Loadable User defined PNG overlay bitmap patterns
and filters with full alpha-channel support.
User-loadable single-frame or multi-frame filter software plug-in for all frame sizes; each filter must complete entire frame within
one frame delay time (1/600th/sec, 1/300th/sec, 1/240th/sec, 1/150th/sec, 1/120th/sec, 1/60th/sec, 1/50th/sec, 1/30th/sec or 1/25th/sec)
Custom Display: Yes;
LCD panel, external monitors and EVF information display can be customized with
user-set metadata fields to be burned-in on output for special applications.
All metadata fields and icons that can be turned on and off from external
control application or in-camera menus.
Color Bars: Color bars compliant with SMPTE, EBU, or ARIB standards can be selected.
Minimum Subject Illumination:
59.94Hz Mode: 0.25 Lux (f/1.2, 24 dB, 59.94p, 1/60 sec.)
50.00Hz Mode: 0.23 Lux (f/1.2, 24 dB, 50p, 1/50 sec.)
Sensitivity:
59.94Hz Mode: F9 (4096 x 2160/59.94i, ISO 800 (0 db), 2000 lux, 92.2% Reflection)
50.00Hz Mode: F10 (4096 x 2160/50i, ISO 800 (0 db), 2000 lux, 92.2% Reflection)
S/N Ratio:
59.94Hz Mode: 67 dB (Typical) (4096 x 2160/59.94p, Canon Log, ISO 800, Dynamic Range 1100%)
50.00Hz Mode: 67 dB (Typical) (4096 x 2160/25p, Canon Log, ISO 800, Dynamic Range 1100%)
Dynamic Range: During Normal Shooting: 500%
With Canon Log Gamma: 1100% ISO 800 or above – gain 3.0 dB or above

EOS C700x System

EFx Cinema Zoom and Compact Zoom Lenses
To Be Announced 2016

EFx Cinema Zoom and Compact Zoom Lenses
To Be Announced 2016

EF Lenses with EF-to-EFx Adapter
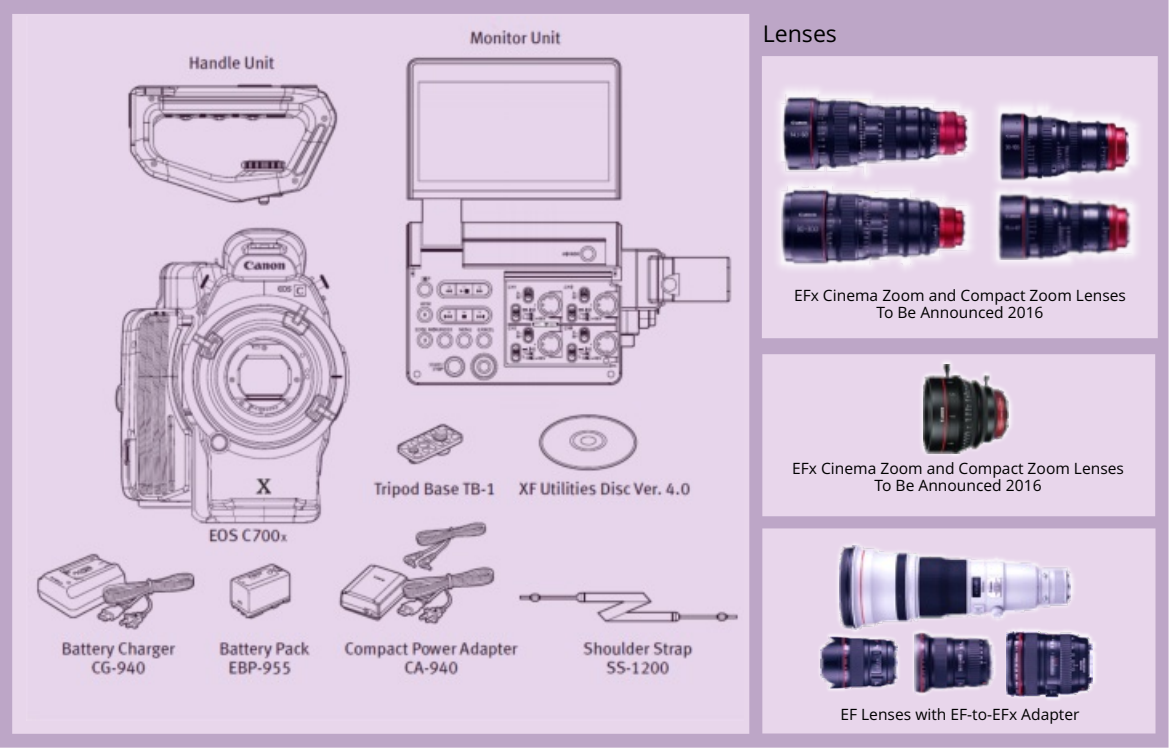
EOS C700x Kit Contents

• EOS C700x Body (with Camera Cover)
• Monitor Unit (with Microphone Holder Unit and Screws for MHU)
• Handle Unit
• Thumb Rest
• WFT Adapter
• Tripod Base
• Eye Cup
• EVF Cap
• SS-1200 Shoulder Strap
• EBP-955 Battery Pack† (with Terminal Cover)
• CG-940x Battery Charger†
• CA-940 Compact Power Adapter†
• DC Cable for CA-940x
• AC Cable
• XF Utilities Disc Ver.4.1
• Instruction Manual

† Also available as optional accessory

December 2014

This XML field definitions list is the current Version 1.0 specification as of December 2014 for the extended metadata that is output from the Canon EOS C700x and other Canon cameras and related peripherals.

These XML-formatted UTF-8 Character String field names can be interpreted by external applications and hardware for On-Set production, Post-production, Visual FX and Special FX, Final Program Editing, and for Live Narrowcast or Broadcast purposes.

Some XML fields are saved into the output container files or output live through HDMI, DisplayPort and/or USB data streams for every single recorded frame while some fields are output only at the press of the record button.

All XML metadata is saved within MOV/AVI/MPEG output container files as a separate track which can be extracted and saved to a text file, spreadsheet file or database file by our Canon camera control software or using another end-user application.

EOS C700x

Extended Metadata Stream

```
(*
------------------------------------------------------------------
These fields get saved for EVERY FRAME into the MOV/AVI/MPEG
file as a separate extended MetaData track that can be extracted
and then saved to an XML, Delimited Text, Spreadsheet and Database
format by Canon Controller Application or 3rd party applications.
------------------------------------------------------------------
*)
<GPS_GROUP>
    <LAT>      33.770519   </LAT>      (* Latitude in Decimal Degrees.                                    *)
    <LONG>   -118.203526   </LONG>     (* Longitude in Decimal Degrees.                                   *)
    <ELEV>     +4.20       </ELEV>     (* Elevation in Meters decimal above and below sea level.          *)
    <HEADING> 182.00       </HEADING> (* Compass Heading in -179.99999 to + 179.99999 Degrees from True North. *)
</GPS_GROUP>


<3DXYZ_ORIENT_GROUP>
    <ROLL>  23.00000000687   </ROLL>  (* Camera Head Clockwise/Camera Head Counter-clockwise Range from 0.0-to-359.99999999999 Degrees *)
    <PITCH> 23.87649999634   </PITCH> (* Lens-Nose-Up/Lens-Nose-Down Pitch Range from 0.0-to-359.99999999999 Degrees              *)
    <YAW>   79.94569539899   </YAW>   (* Lens-Nose-Pan-Left/Lens-Nose-Pan-Right Yaw Range from 0.0-to-359.99999999999 Degrees     *)
</3DXYZ_ORIENT_GROUP>


<3DXYZ_DEPTH_GROUP>
    <X_AXIS>  1.745 </X_AXIS>         (* Number of Meters Subject is from 3D InfraRed/Radio Scanner on X-Axis - Left/Right  *)
    <Y_AXIS>  7.834 </Y_AXIS>         (* Number of Meters Subject is from 3D InfraRed/Radio Scanner on Y-Axis - Up/Down     *)
    <Z_AXIS>  8.678 </Z_AXIS>         (* Number of Meters Subject is from 3D InfraRed/Radio Scanner on Z-Axis - Front/Back  *)
</3DXYZ_DEPTH_GROUP>


<DATE_GROUP>
    <YEAR>  2014  </YEAR>             (* Year is 4 digits  = 0-to-9999 *)
    <MONTH> 07    </MONTH>            (* Month is 2 digits = 1-to-12  where 1=January and 12=December *)
    <DAY>   28    </DAY>             (* Day is 2 digits   = 1-to-31   *)
    <DOW>   1     </DOW>             (* Day Of Week is 1 digit = 1-to-7 where Monday=Day 1 to Sunday=Day 7 *)
</DATE_GROUP>
```

```
<CLOCK_TIME_GROUP>
   <HOURS>    23   </HOURS>            (* Hours is 2 digits = 0-to-23 for 24 hour military time *)
   <MINUTES> 01   </MINUTES>          (* Minutes is 2 digits = 0-to-59 *)
   <SECONDS> 23   </SECONDS>          (* Seconds is 2 digits = 0-to-59 *)
   <MILL>    997 </MILL>              (* Milliseconds is 3 digits = 0-to-999 for current Milliseconds-portion of clock time count      *)
   <FRAME>    059 </FRAME>            (* Frame Number is up to 5 digits = 0-to-99999 for current Frame Number depending upon FPS setting *)
</CLOCK_TIME_GROUP>

<ELAPSED_TIME_GROUP>
   <HOURS>    00   </HOURS>            (* Total Hours is up to 5 digits = 0-to-99999 for long duration shots or time-lapse imaging *)
   <MINUTES> 01   </MINUTES>          (* Minutes is 2 digits = 0-to-59 *)
   <SECONDS> 23   </SECONDS>          (* Seconds is 2 digits = 0-to-59 *)
   <MILL>    997 </MILL>              (* Milliseconds is 3 digits = 0-to-999 for current Milliseconds-portion of clock time count      *)
   <FRAME>    059 </FRAME>            (* Frame Number is up to 5 digits = 0-to-99999 for current Frame Number depending upon FPS setting *)
</ELAPSED_TIME_GROUP>

<SMPTE_GROUP>
   <SMPTE_IS_DROP_FRAME> or <SMPTE_IS_NON_DROP_FRAME>        (* SMPTE timecode unit identifier for Drop-Frame or Non-Drop-Frame timecode *)
   <HOURS>    23 </HOURS>            (* 2 digits = 0-to-23 *)
   <MINUTES> 02 </MINUTES>          (* 2 digits = 0-to-59 *)
   <SECONDS> 12 </SECONDS>          (* 2 digits = 0-to-59 *)
   <FRAME>    26 </FRAME>            (* up to 5 digits = 0-to-99999 Current Frame Number depends upon FPS setting *)
</SMPTE_GROUP>

<FRAME_NUMBER_GROUP>
   <SHOT_FRAME_NUM>       </SHOT_FRAME_NUM>       (* Starts at 0 and increments when record button starts.              *)
   <SCENE_FRAME_NUM>      </SCENE_FRAME_NUM>      (* Starts at 0 and increments when scene number is set in app or menu. *)
   <USER_FRAME_NUM>       </USER_FRAME_NUM>       (* Starts at any user-defined number and increments when free run frame number is set in app or menu. *)
   <FREE_RUN_FRAME_NUM> </FREE_RUN_FRAME_NUM>  (* Resets to 0 and increments when free-run reset button on Camera or outboard controller is pressed. *)
   <FRAME_MARKER>         </FRAME_MARKER>         (* Marker Number from 0-to-9999999 used to mark edit-in-points, edit-out-points or other important areas of a shot *)
</FRAME_NUMBER_GROUP>

<CAMERA_SETTINGS_GROUP>
   <IRIS>             </IRIS>             (* Lens Iris Setting at current frame number. Using F-Stop or T-Stop                    *)
   <FOCUS>            </FOCUS>            (* Lens Focus Setting at current frame number.                                         *)
   <ZOOM>             </ZOOM>             (* Lens Zoom-In or Zoom-Out Setting at current frame number in millimeters             *)
   <ISO>              </ISO>              (* Camera ISO Setting at current frame number from 100 ISO to 32,000 ISO.              *)
   <GAMMA>            </GAMMA>            (* Current Gamma Setting set during shot from camera controller application or on Camera. *)
   <WHITE_BALANCE>    </WHITE_BALANCE>    (* Camera White Balance Setting at current frame number in Degrees Kelvin.             *)
   <LOG_FILE>         </LOG_FILE>         (* Log File identifier such as Canon S-Log, Uncompressed LOG, REC-2020 LOG, etc.       *)
   <FILTER_ID>        </FILTER_ID>        (* Camera Neutral Density and OTHER Built-in Filter Identifiers and Setting Values at current frame number. *)
   <CPU_TEMPERATURE>  </CPU_TEMPERATURE>  (* Current internal temperature for the CPU in degrees Celcius.                        *)
   <SHUTTER_SPEED>    </SHUTTER_SPEED>    (* 1/15th second up to 1/25000th of a second.                                          *)
</CAMERA_SETTINGS_GROUP>
```

```
<RFID_TAG_GROUP>
    <TAG_NUMBER>          </TAG_NUMBER>          (* Numeric value from 0 to 127 *)
    <TAG_GROUP_ID>        </TAG_GROUP_ID>        (* Numeric value from 0 to 127 used to logically group together single tags. eg. arms, legs, car, boat        *)
    <TAG_NAME>            </TAG_NAME>            (* Name of talent or object. eg Angelina, StuntCar3, BreakAwayGlass                                              *)
    <TAG_DESCRIPTION>     </TAG_DESCRIPTION>     (* 100 characters of text usually location description of tag. eg. "Left Wrist of Motion Cap Orc"               *)
    <TAG_DATE>            </TAG_DATE>            (* Current date of RFID tag in format: YYYY/MM/DD Day-of-Week                                                    *)
    <TAG_TIME>            </TAG_TIME>            (* Current clock time of RFID tag in format HH:MM:SS:MILLISECONDS (ZULU time)                                    *)
    <TAG_ORIENTATION>     </TAG_ORIENTATION>     (* 3D-XYZ orientation of RFID from in decimal degrees format R:XXX.XXXXXXX; P:XXX.XXXXXXX; Y:XXX.XXXXXXX        *)
    <TAG_GPS_LOCATION>    </TAG_GPS_LOCATION>    (* GPS Location of tag in decimal degrees and meters format: Lat:XXX.XXXXXXX; Long:XXX.XXXXXXX; Elev:XXX.XXXXXXX *)
    <TAG_DISTANCE>        </TAG_DISTANCE>        (* Distance to camera in metres decimal using format XXXX.XXXXXXX                                                *)
</RFID_TAG_GROUP>

<MAP_GROUP>
    <MAP_ID>             </MAP_ID>             (* Numeric or Text Identifier for the type of moving map or navigational chart to display or use.          *)
    <OBJECT_TYPE>        </OBJECT_TYPE>        (* Numeric or Text ID of type of object within the map. Car, boat, plane, person, building, etc.           *)
    <OBJECT_NAME>        </OBJECT_NAME>        (* Up to 255 characters for a text description of object icon being displayed.                             *)
    <XYZ_COORDINATE>     </XYZ_COORDINATE>     (* 3D-XYZ position or coordinate within the map to display object icon on map.                             *)
    <XYZ_ORIENTATION>    </XYZ_ORIENTATION>    (* 3D-XYZ orientation or heading for the object icon to be pointing when displayed on map.                 *)
    <VELOCITY>           </VELOCITY>           (* Current speed or velocity of object in Meters per Second, KPH or user defined velocity.                 *)
    <ICON>               </ICON>               (* Numeric or Text Identifier for type of object icon to display - can be pre-defined or user-defined.     *)
    <ICON_SIZE>          </ICON_SIZE>          (* Width, Height and Depth of Icon in Pixels or other measurement unit.                                    *)
    <ICON_STATE>         </ICON_STATE>         (* Current State of object icon to display on map - Highlighted, unhighlighted, blinking, greyed-out, etc. *)
    <ICON_INFO>          </ICON_INFO>          (* Text and/or Numeric information to display near object icon.                                            *)
</MAP_GROUP>

<USER_DATA_GROUP>
    (* Text and Numeric data that can come from external hardware/software made by Canon or other manufacturers  *)
    (* Field Names can be extended to custom values by keeping those new field names within this USER_DATA_GROUP *)
    <USER_DATA_TYPE>        </USER_DATA_TYPE>        (* Numeric or Text identifying the data source or data type/format                                      *)
    <USER_DATA_INDEX>       </USER_DATA_INDEX>       (* Index number or sample number for the current external data sample numbered from 0-to-N              *)
    <USER_DATA_GROUP>       </USER_DATA_GROUP>       (* Group number used to organize single samples into functional groups numbered from 0-to-N            *)
    <USER_DATA_NAME>        </USER_DATA_NAME>        (* Any text name identifying the user data source or an explanation what the data is                    *)
    <USER_DATA_TARGET>      </USER_DATA_TARGET>      (* Numeric or text value identifying the target application, hardware or end-user for this data          *)
    <USER_DATA_ID_NUMBER>   </USER_DATA_ID_NUMBER>   (* Who or what created this data and/or identifier indicating what format data is in or what to do with data. *)
    <USER_DATA_SAMPLE_1>    </USER_DATA_SAMPLE_1>    (* 1st External Hardware or End-user Defined data stream - Can be a Text or Numeric value. *)
    <USER_DATA_SAMPLE_2>    </USER_DATA_SAMPLE_1>    (* 2nd External Hardware or End-user Defined data stream - Can be a Text or Numeric value. *)
    <USER_DATA_SAMPLE_3>    </USER_DATA_SAMPLE_1>    (* 3rd External Hardware or End-user Defined data stream - Can be a Text or Numeric value. *)
    <USER_DATA_SAMPLE_4>    </USER_DATA_SAMPLE_1>    (* 4th External Hardware or End-user Defined data stream - Can be a Text or Numeric value. *)
</USER_DATA_GROUP>
```

December 2014

```
(*
---------------------------------------------------------------------------------------------------------
These fields get saved into the BEGINNING of the MOV/AVI/MPEG file in an extended MetaData Header and Footer at every press of the Record Button
for the start of a shot AND then gets sent out to the USB port LIVE at every press of the Record Button in the following XML UTF-8 string format:
---------------------------------------------------------------------------------------------------------
*)
<PRODUCTION_INFO>
    <Filename>          LA_River_Set_014V0009.MOV                      </Filename>          (* Current Internal Name of output video file                    *)
    <Format_Profile>    QuickTime                                      </Format_Profile>    (* Container Format: MOV, AVI, MPEG, USER, etc.                  *)
    <Codec_ID>          AVCx                                           </Codec_ID>          (* FOUR-CC CODEC Identifier Code                                 *)
    <Lens_Type>         CNx-E50mm T1.3                                 </Lens_Type>         (* Sampled from lens containing Lens ID and Characteristics Chip *)
    <Make>              Canon                                          </Make>              (* Up to 255 characters for manufacturer or unit servicer       *)
    <Model>             Canon EOS C700x                                </Model>             (* Up to 255 characters for camera text description and model number *)
    <Production>        C700x Camera Prototype Test                    </Production>        (* Up to 255 characters for production name, company and studio *)
    <Producers>         C-DEV-LA                                       </Producers>         (* Up to 255 characters for producers and executive producers  *)
    <Director>          C-DEV-LA                                       </Director>          (* Up to 255 characters for name of Director and any Unit Directors *)
    <DOP>               C-DEV-LA                                       </DOP>               (* Up to 255 characters for name of Director of Photography     *)
    <1st_AD>            C-DEV-LA                                       </1st_AD>            (* Up to 255 characters for First Assistant Director and Assistants *)
    <Camera_OP>         C-DEV-LA                                       </Camera_OP>         (* Up to 255 characters for name of Camera Operator and assistants *)
    <Sound_OP>          C-DEV-LA                                       </Sound_OP>          (* Up to 255 characters for Sound Operator and assistants       *)
    <Key_Gaff_CLT>      C-DEV-LA                                       </Key_Gaff_CLT>      (* Up to 255 characters for Electric, Lighting Chief and assistants *)
    <Continuity>        C-DEV-LA                                       </Continuity>        (* Up to 255 characters for key set and production continuity people *)
    <Set_Dressers>      C-DEV-LA                                       </Set_Dressers>      (* Up to 255 characters for Set Dressers and assistants         *)
    <Keys_And_Grips>    C-DEV-LA                                       </Keys_And_Grips>    (* Up to 255 characters for Other Key Personnel and Set Grips   *)
    <Data_Wranglers>    C-DEV-LA                                       </Data_Wranglers>    (* Up to 255 characters for On-set Data Wranglers and Assistants *)
    <Post_and_VFX>      C-DEV-LA                                       </Post_and_VFX>      (* Up to 255 characters for On-set Post/Edit/VFX/SFX and Assistants *)
    <Talent>            C-DEV-LA                                       </Talent>            (* Up to 255 characters for On-set Talent and Hero Objects      *)
    <Stunts_And_Pract>  C-DEV-LA                                       </Stunts_And_Pract>  (* Up to 255 characters for On-set Stunt and Practical FX personnel *)
    <Contact_Info>      C-DEV-LA                                       </Contact_Info>      (* Up to 255 characters for phone numbers, set address and key info *)
    <Location_Info>     In-Park to Road Shot Through Trees             </Location_Info>     (* Up to 255 characters set description and location information *)
    <Camera_Number>     2                                              </Camera_Number>     (* Numeric value from 0-to-99999 used to identify a single camera *)
    <Camera_Group>      5                                              </Camera_Group>      (* Numeric value from 0-to-99999 used to group cameras into teams *)
    <Roll_Number>       3                                              </Roll>              (* Used to track which media container or roll this file is part of *)
    <Shot>              4                                              </Shot>              (* Up to 7 digits Shot Number value                             *)
    <Scene>             1                                              </Scene>             (* Up to 7 digits Scene Number value                            *)
    <Description>       LA River Set - Full Wide - Handheld            </Description>       (* Up to 255 characters for overall shot or scene description   *)
    <Time_Lapse>        NO : 0.000000 FPS                              </Time_Lapse>        (* YES or NO text value plus Decimal value for time lapse FPS    *)
    <Time_Lapse_Mode>   5 HDR Frames Per Interval                      </Time_Lapse_Mode>   (* How many frames to take at every time lapse interval         *)
    <Lens_Additions>    Grad-1/3rd Sky Blue - Matte Box                </Lens_Additions>    (* Up to 255 Characters for lens or matte box description       *)
    <Lighting_Desc>     80W LED, Soft Spun w/Reflector - High Overhead </Lighting_Desc>     (* Up to 255 Characters for scene or lighting description       *)
</PRODUCTION_INFO>
```

```
(*
For each video track there is the following header and footer added to the
beginning and end of the final output file or live USB/HDMI/DisplayPort port output.
*)
<VIDEO_INFO>
   <Track_ID>           1                  </Track_ID>          (* Depending upon container format, there can be multiple video tracks up to 99999 *)
   <Format>             Canon AVCx         </Format>            (* Up to 255 Character CODEC description text            *)
   <Codec_ID>           AVCx               </Codec_ID>          (* FOUR-CC standard four-character Video CODEC identifier  *)
   <AVC_MPEG_Profile>   Hi444PP            </AVC_MPEG_Profile>  (* Text Identifier of AVCx, AVC-MPEG4 or MPEG2 profile level  *)
   <Bitrate_Mode>       CBR                </Bitrate_Mode>      (* CBR or VBR bit rate control mode identifier            *)
   <Bitrate>            1217 Mbps          </Bitrate>           (* Output Bit-rate in Megabits Per Second                 *)
   <Width>              4096 pixels        </Width>             (* Width in Pixels: 512/640/1024/1280/1440/1920/3840/4096/8192 *)
   <Height>             2160 pixels        </Height>            (* Frame Height: 512/480/768/720/1080/2160/4320           *)
   <Aspect_Ratio>       1.896              </Aspect_Ratio>      (* Frame Aspect Ratio: 3:2/16:9/2.35:1, etc               *)
   <Frame_Rate_Mode>    Constant           </Frame_Rate_Mode>   (* Constant/Variable/Time Lapse modes                     *)
   <Frame_Rate>         59.94              </Frame_Rate>        (* 1/2/3/5/10/15/24/25/30/50/60/120/150/240/300/600 FPS and fractional frame rates *)
   <Color_Space>        YCrCb              </Color_Space>       (* YCrCb/RGB/YUV/YCC                                      *)
   <Chroma_SubSampling> 4:4:4              </Chroma_SubSampling> (* 4:4:4/4:2:2/4:2:0/4:1:1                                *)
   <Bit_Depth>          14 bits            </Bit_Depth>         (* 14-Bits/12-Bits/10-Bits/8-Bits                         *)
   <Compression_Mode>   Lossy              </Compression_Mode>  (* LOSSY/RAW/ZIP/USER                                     *)
   <Color_Primaries>    Rec.2020           </Color_Primaries>   (* Rec.2020/REC.709/ITUR-601/FullRGB                      *)
   <Luma_Coefficients>  Rec.2020 - 4:4:4   </Luma_Coefficients> (* Pre-defined or user-defined luma tables                *)
   <Matrix_Coefficients> User-Set 2        </Matrix_Coefficients> (* Pre-defined or user-defined matrices                  *)
   <LogFile_Settings>   User-Set 1         </LogFile_Settings>  (* Pre-defined or user-defined log files                  *)
   <Language>           English            </Language>          (* English/Spanish/German/Japanase/French, etc.           *)

   <Start_Date>         UTC 2014-09-26 Fri                      </Start_Date>        (* UTC-ZULU date format YYYY-MM-DD DOW                     *)
   <Start_Time>         UTC 14:31:18.087                        </Start_Time>        (* UTC-ZULU 24 hour clock format in HH:MM:SS.MILLISECONDS  *)
   <Start_Location>     Lat: 33.770519; Long: -118.203526; Elev: 4.20m </Start_Location>  (* Starting Camera GPS Latitude, Longitude and Elevation in Decimal Degrees *)
   <Start_Orientation>  R: 0.00978338; P: 12.95839459; Y:140.78323500  </Start_Orientation> (* Starting Camera 3D-XYZ Roll Pitch and Yaw orientation in decimal degrees *)
   <Start_Compass>      113.09685                               </Start_Compass>     (* Starting Camera Heading In decimal degrees -179.99999 to +179.99999 from True North *)
   <End_Date>           UTC 2014-09-26 Fri                      </End_Date>          (* UTC-ZULU date format YYYY-MM-DD DOW                     *)
   <End_Time>           UTC 14:32:19.080                        </End_Time>          (* UTC-ZULU 24 hour clock format in HH:MM:SS.MILLISECONDS  *)
   <End_Location>       Lat: 33.770525; Long: -118.203421; Elev: 4.27m </End_Location>  (* Final Camera GPS Latitude, Longitude and Elevation in Decimal Degrees *)
   <End_Orientation>    R: 1.00278306; P: 11.95839350; Y:141.48323500  </End_Orientation> (* Final Camera 3D-XYZ Roll Pitch and Yaw orientation in decimal degrees *)
   <End_Compass>        115.07683                               </End_Compass>       (* Final Camera Heading In decimal degrees -179.99999 to +179.99999 from True North *)
   <Video_Stream_Size>  31.04 GiB                               </Video_Stream_Size> (* Total Video stream size in Gigabytes                    *)
   <Overall_Bit_Rate>   1593.46 Mbps (AVG)                      </Overall_Bit_Rate>  (* Average VBR or Constant Bit Rate in Megabits per Second *)
   <Print_Shot_YES_NO>  NO                                      </Print_Shot_YES_NO> (* YES or NO marker indicating whether Video take is good or not *)
</VIDEO_INFO>
```

```
(*
For each audio track there is the following header or footer added to
the beginning and end of the final output file or live USB/HDMI/DisplayPort
port output. Each Track ID number can contain up to 4 audio sub-channels.
Handy for multi-language programs or multi-person interviews.
*)
<AUDIO_INFO>
    <Track_ID>        2              </Track_ID>            (* Depending upon container format, there can be multiple audio tracks up to 99999 *)
    <Format>          PCM            </Format>              (* PCM/MPEG/MP3, etc                                                         *)
    <Format_Endianness> Little       </Format_Endianness>   (* Integer format Big Endian or Little Endian used for multi-platform conversion   *)
    <Format_Sign>     Signed         </Format_Sign>         (* Are Integers Signed or Unsigned numbers used for multi-platform conversion      *)
    <Codec_ID>        LPCM           </Codec_ID>            (* FOUR-CC standard four-character audio CODEC identifier                    *)
    <Bit_Rate_Mode>   CBR            </Bit_Rate_Mode>       (* CBR or VBR bit rate control mode identifier                               *)
    <Bit_Rate>        9216 Kbps      </Bit_Rate>            (* Output Bit-rate in Kilobits Per Second                                    *)
    <Channels>        4 channels     </Channels>            (* Number of recorded channels = 1, 2, 3 or 4                                *)
    <Channel_Positions> FL;FR;RL;RR  </Channel_Positions>   (* Text ID of channels positions = Front-Left/Right and Back-Right/Left       *)
    <Sample_Rate>     96.0 KHz       </Sample_Rate>         (* Output Bit-rate in Megabits Per Second                                    *)
    <Bit_Depth>       24 bits        </Bit_Depth>           (* Output Bit Depth 16-Bits/20-Bits/24-bits                                  *)
    <Language>        English        </Language>            (* English/Spanish/German/Japanase/French, etc.                             *)

    <Start_Date>      UTC 2014-09-26 Fri                 </Start_Date>       (* UTC-ZULU date format YYYY-MM-DD DOW                              *)
    <Start_Time>      UTC 14:31:18.087                   </Start_Time>       (* UTC-ZULU 24 hour clock format in HH:MM:SS.MILLISECONDS           *)
    <Start_Location>  Lat: 33.770519; Long: -118.203526; Elev: 4.20m  </Start_Location>   (* Starting Mic GPS Latitude, Longitude and Elevation in Decimal Degrees *)
    <Start_Orientation> R: 0.00978338; P: 12.95839459; Y:140.78323500  </Start_Orientation> (* Starting Mic 3D-XYZ Roll Pitch and Yaw orientation in decimal degrees *)
    <Start_Compass>   113.09685                          </Start_Compass>    (* Starting Mic heading In decimal degrees -179.99999 to +179.99999 from True North *)
    <End_Date>        UTC 2014-09-26 Fri                 </End_Date>         (* UTC-ZULU date format YYYY-MM-DD DOW                              *)
    <End_Time>        UTC 14:31:18.087                   </End_Time>         (* UTC-ZULU 24 hour clock format in HH:MM:SS.MILLISECONDS           *)
    <End_Location>    Lat: 33.770310; Long: -118.203721; Elev: 4.28m  </End_Location>   (* Final Mic GPS Latitude, Longitude and Elevation in Decimal Degrees *)
    <End_Orientation> R: 2.00978300; P: 11.90839400; Y:143.08323200  </End_Orientation>  (* Final Mic 3D-XYZ Roll Pitch and Yaw orientation in decimal degrees *)
    <End_Compass>     115.02685                          </End_Compass>      (* Final Mic Heading In decimal degrees -179.99999 to +179.99999 from True North *)
    <Audio_Stream_Size> 6.01 GiB                         </Audio_Stream_Size> (* Total Audio stream size in Gigabytes                            *)
    <Overall_Bit_Rate> 8192.46 Kbps                      </Overall_Bit_Rate> (* Average VBR or Constant Bit Rate in Kilobits per Second         *)
    <Print_Shot_YES_NO> NO                               </Print_Shot_YES_NO> (* YES or NO marker indicating whether Audio take is good or not  *)
</AUDIO_INFO>
```

Canon

*i*mageANYWHERE