DIGITAL PRODUCTION CHALLENGE II

- ANALYSE OF RECORDING FILE PARAMETERS & CAMERA SPECIFICITES ON ARRI AND SONY CAMERAS

- RED CINEMA CAMERA LINEUP (selection of files of the RED website)

ATHENS

Tuesday 28 November to Saturday 1 December 2018

V1 Friday December 1st 2018 – Philippe Ros

Some tips

During preparation, regarding the camera and the workflow, we do recommand to choose as soon as possible the type of lenses: anamorphic or spherical. It will lead to choose the camera, to deal with some constraints (sensor mode, media, speed) and some further choices in post.
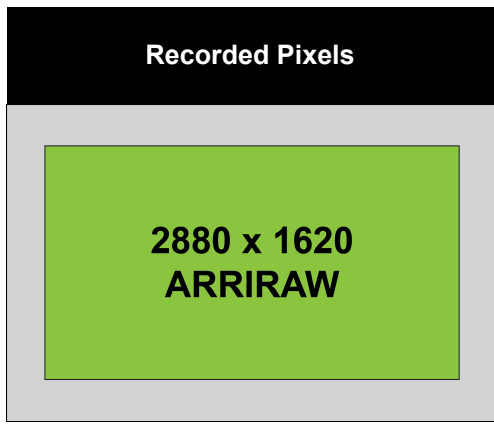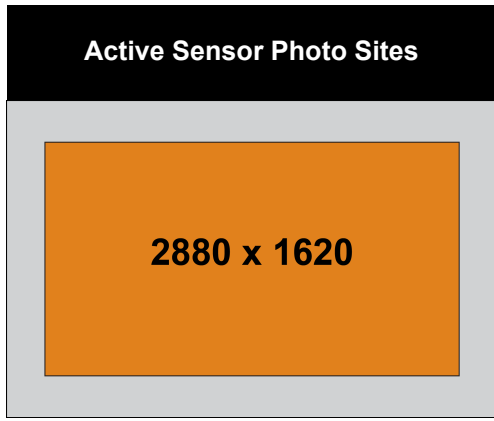
_____ ARRI RECORDING FILE PARAMETERS _____
AND CAMERA SPECIFICITES

FOLLOWING SLIDE FROM ARRI WEBSITE

SOME TIPS TO READ

Delivery Format	Lens Type
HD Television Series	Spherical
UHD Television Series	Spherical
2K Feature	Spherical
4K Feature	Anamorphic
Commercial	Anamorphic

Recording Format (ALEXA XT)

Sensor Mode	Recording File Type	Recording Resolution	Recording File Setting
16:9	ProRes	HD	422 422 HQ 4444 4444 XQ
16:9	ProRes	2K	422 422 HQ 4444 4444 XQ
16:9	ProRes	3.2K	422 422 HQ 4444 4444 XQ
16:9	DNxHD	HD	145 220x 444
16:9	ARRIRAW	2.8K	Full
4:3	ProRes	2K	422 422 HQ 4444 4444 XQ
4:3	ARRIRAW	2.8K 2.6K	Full Cropped
Open Gate	ARRIRAW	3.4K	Full

Active Sensor Photo Sites

2880 x 1620

Recorded Pixels

2880 x 1620 ARRIRAW

Post Production

120 fps

ARRI XT

SENSOR MODE
The setting of this paremeter depend on the type of camera but must be known and approved by the post

PARAMETER: THIS IS NOT THE FINAL ASPECT RATIO OF THE RELEASED FILM BUT THE ASPECT RATIO OF THE CAPTURE

PARAMETER:
CODEC OR RAW

PARAMETER: RESOLUTION

PARAMETER:
COLOR SAMPLING

TYPE OF LENSES
Better to know which type before starting the prep
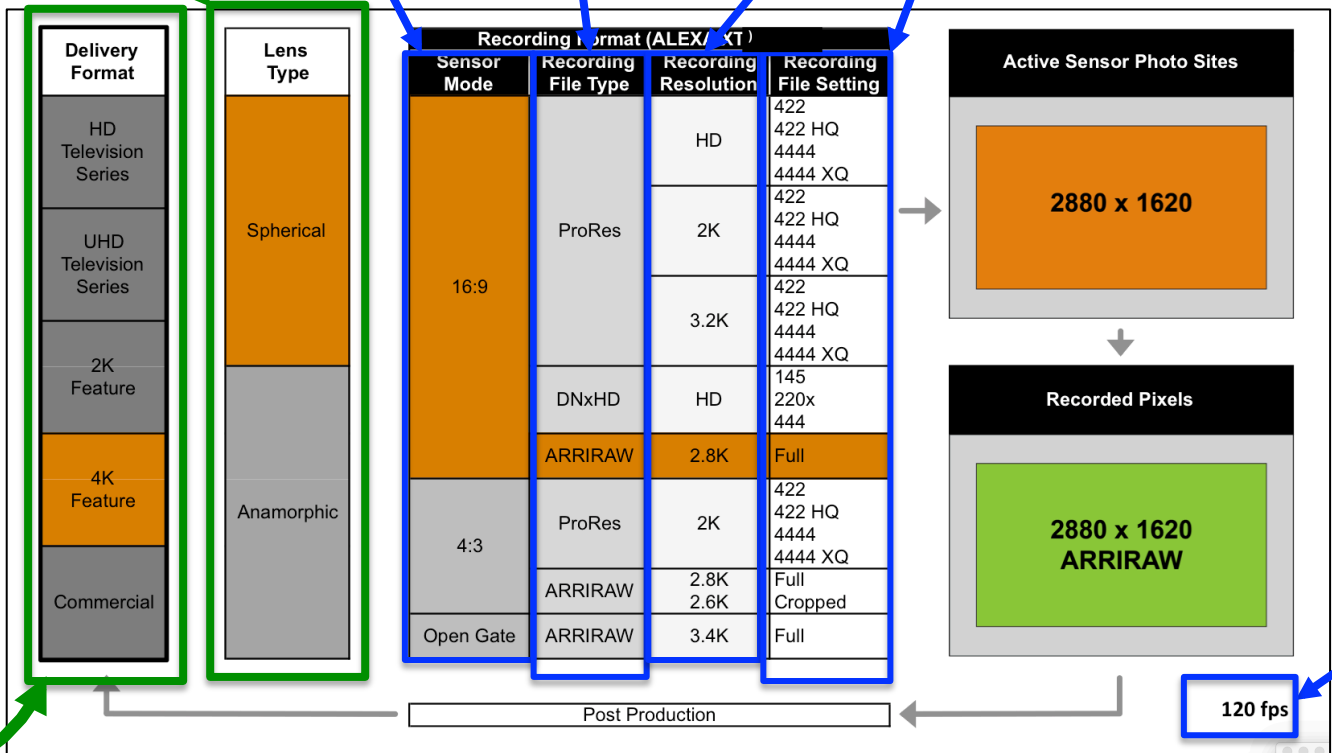
PARAMETER:
FREQUENCY
FPS
MAXIMUM

Delivery Format
HD Television Series
UHD Television Series
2K Feature
4K Feature
Commercial

Lens Type
Spherical
Anamorphic

Recording Format (ALEXA XT)

Sensor Mode	Recording File Type	Recording Resolution	Recording File Setting
16:9	ProRes	HD	422 / 422 HQ / 4444 / 4444 XQ
		2K	422 / 422 HQ / 4444 / 4444 XQ
		3.2K	422 / 422 HQ / 4444 / 4444 XQ
	DNxHD	HD	145 / 220x / 444
	ARRIRAW	2.8K	Full
4:3	ProRes	2K	422 / 422 HQ / 4444 / 4444 XQ
	ARRIRAW	2.8K 2.6K	Full Cropped
Open Gate	ARRIRAW	3.4K	Full

Active Sensor Photo Sites
2880 x 1620

Recorded Pixels
2880 x 1620 ARRIRAW

Post Production

120 fps

ARRI XT

Delivery Format

Delivery Format
HD Television Series
UHD Television Series
2K Feature
4K Feature
Commercial

In the ARRI diagram, the delivery format is at the first place.

The questions of camera and workflow choice are often answered in the program production chronological order:

We prefer answering questions in the opposite order

SHOOT ← POSTPRODUCTION ← EXHIBITION
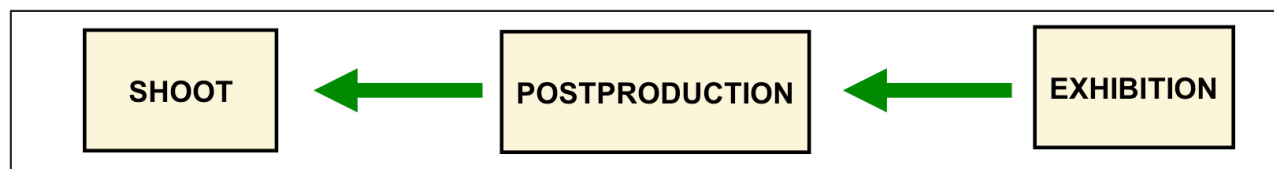
___ SONY RECORDING FILE PARAMETERS AND ___
CAMERA SPECIFICITES OF THE VENICE

SONY VENICE

Recording

Recording Format (Video)	XAVC 4K Class480: 23.98p, 24p, 25p, 29.97p
	XAVC 4K Class300: 23.98p, 24p, 25p, 29.97p, 50p, 59.94p
	XAVC QFHD Class480: 23.98p, 25p, 29.97p
	XAVC QFHD Class300: 23.98p, 25p, 29.97p, 50p, 59.94p
	MPEG HD422(1920x1080): 23.98p, 24p, 25p, 29.97p, 50i, 59.94i
	HD ProRes 422HQ*: 23.98p, 24p, 25p, 29.97p, 50p, 59.94p, 50i, 60i
	HD ProRes 422*: 23.98p, 24p, 25p, 29.97p, 50p, 59.94p, 50i, 59.94i
	HD ProRes 422 Proxy*: 23.98p, 24p, 25p, 29.97p, 50p, 59.94p, 50i, 59.94i
Recording Format (RAW/X-OCN) ***required AXS-R7**	RAW SQ:
	4K 17:9 (4096 x 2160): 23.98p, 24p, 25p, 29.97p, 50p, 59.94p
	3.8K 16:9 (3840 x 2160): 23.98p, 25p, 29.97p, 50p, 59.94p
	X-OCN ST/LT:
	6K 3:2(6048 x 4032)*: 23.98p, 24p,
	6K 2.39:1 (6048 x 2530)*: 23.98p, 24p, 25p, 29.97p
	6K 1.85:1 (6048 x 3270)*: 23.98p, 24p, 25p, 29.97p
	6K 17:9 (6048 x 3190)*: 23.98p, 24p, 25p, 29.97p
	5.7K 16:9 (5672 x 3190)*: 23.98p, 25p, 29.97p
	4K 6:5(4096x3432)*:23.98p, 24p, 25p, 29.97p
	4K 4:3(4096x3024) :23.98p, 24p, 25p*, 29.97p*
	4K 17:9 (4096 x 2160): 23.98p, 24p, 25p, 29.97p, 50p, 59.94p
	3.8K 16:9 (3840 x 2160): 23.98p, 24p, 25p, 29.97p, 50p, 59.94p
Recording Format (Audio)	LPCM 4ch , 24-bit 48-kHz

SONY VENICE

VENICE

Overview   Features   **Specifications**   Resources

Recording

PARAMETER: TYPE OF BITRATE

PARAMETER:
CODEC OR RAW: CODEC

PARAMETER:
COLOR SAMPLING

PARAMETER: TYPE OF CODEC

PARAMETER: RESOLUTION

Recording Format (Video)

XAVC 4K Class480: 23.98p, 24p, 25p,
XAVC 4K Class300: 23.98p, 24p, 25p, 29.97p, 50p, 59.94p
XAVC QFHD Class480: 23.98p, 25p, 29.97p
XAVC QFHD Class300: 23.98p, 25p, 29.97p, 50p, 59.94p
MPEG HD422(1920x1080): 23.98p, 24p, 25p, 29.97p, 50i, 59.94i
HD ProRes 422HQ: 23.98p, 24p, 25p, 29.97p, 50p, 59.94p, 50i, 60i
HD ProRes 422*: 23.98p, 24p, 25p, 29.97p, 50p, 59.94p, 50i, 59.94i
HD ProRes 422 Proxy*: 23.98p, 24p, 25p, 29.97p, 50p, 59.94p, 50i, 59.94i

PARAMETER:
CODEC OR RAW: RAW

PARAMETER:
FREQUENCY
FPS

Recording Format (RAW/X-OCN)
***required AXS-R7**

RAW SQ:
4K 17:9 (4096 x 2160): 23.98p, 24p, 25p, 29.97p,
3.8K 16:9 (3840 x 2160): 23.98p, 25p, 29.97p, 50
X-OCN ST/LT:
6K 3:2(6048 x 4032)*: 23.98p, 24p,
6K 2.39:1 (6048 x 2530)*: 23.98p, 24p, 25p, 29.97p
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6K 17:9 (6048 x 3190)*: 23.98p, 24p, 25p, 29.97p
5.7K 16:9 (5672 x 3190)*: 23.98p, 25p, 29.97p
4K 6:5(4096x3432)*:23.98p, 24p, 25p, 29.97p
4K 4:3(4096x3024) :23.98p, 24p, 25p*, 29.97p*
4K 17:9 (4096 x 2160): 23.98p, 24p, 25p, 29.97p, 50p, 59.94p
3.8K 16:9 (3840 x 2160): 23.98p, 24p, 25p, 29.97p, 50p, 59.94p

Recording Format (Audio)   LPCM 4ch , 24-bit 48-kHz

RED CAMERAS LINEUP

RED Cinema Camera Lineup.

https://www.cinema5d.com/red-red-camera-line-explained-confusion-obsolete/

THE BODY - RED DSMC2

The current RED body you can buy is called the RED DSMC2. The same as ARRI have the Alexa Mini, and Canon have the C300 – REDs camera is called the DSMC2.

Nearly all the features of the camera across the board are now the same, all shoot a minimum of 5K, can shoot ProRes simultaneously to R3D raw, all compatible with REDs current DSMC2 accessories.

We are keeping things simple here and won't go in to full specs. For that go here.

After selecting your RED DSMC2 camera, you then have a choice of/

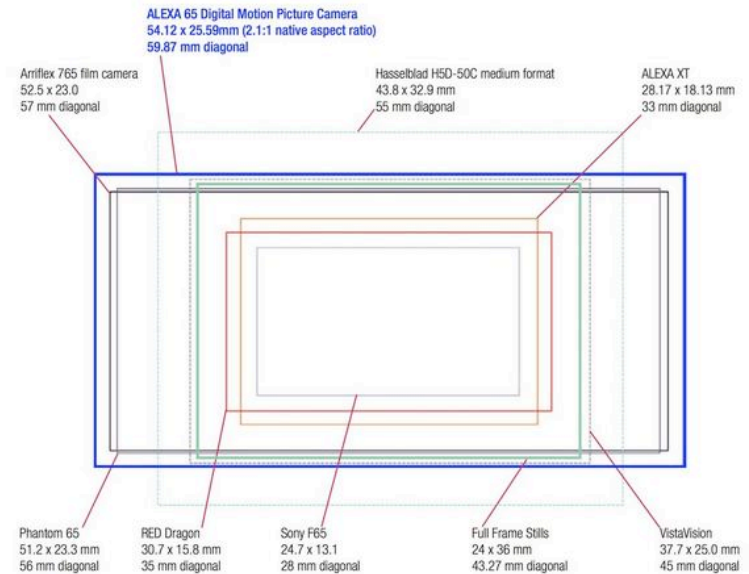 **3 sensors – Monstro, Helium or Gemini.**

SENSOR 1

MONSTRO (THE FULL FRAME ONE)

The Monstro sensor offers 8K resolution in VistaVision format (VV) up to 60fps. VistaVision is circa Full Frame 35mm territory (sensor chart here).
So think of this as the full frame version.
This is the largest RED sensor on offer

The RED DSMC2 MONSTRO 8K VV.

Sensor Size Comparisons

ALEXA 65 Digital Motion Picture Camera
54.12 x 25.59mm (2.1:1 native aspect ratio)
59.87 mm diagonal

Arriflex 765 film camera
52.5 x 23.0
57 mm diagonal

Hasselblad H5D-50C medium format
43.8 x 32.9 mm
55 mm diagonal

ALEXA XT
28.17 x 18.13 mm
33 mm diagonal

Phantom 65
51.2 x 23.3 mm
56 mm diagonal

RED Dragon
30.7 x 15.8 mm
35 mm diagonal

Sony F65
24.7 x 13.1
28 mm diagonal

Full Frame Stills
24 x 36 mm
43.27 mm diagonal

VistaVision
37.7 x 25.0 mm
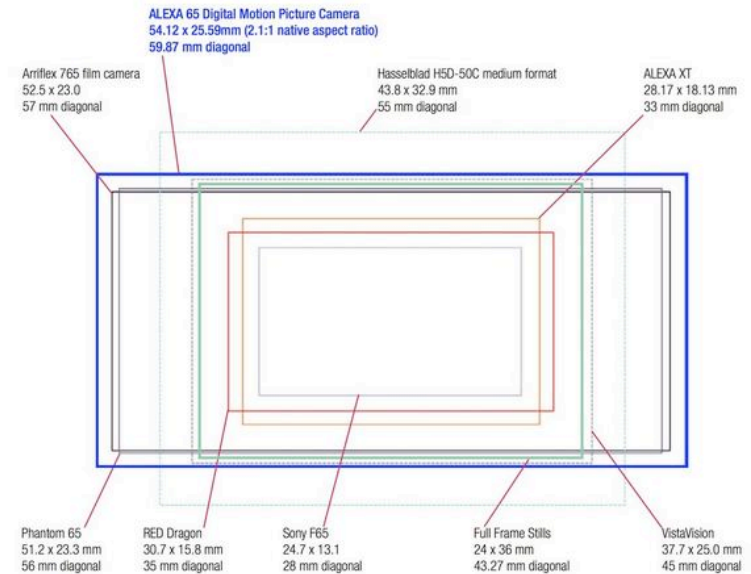45 mm diagonal

SENSOR 2

HELIUM (THE SUPER35 ONE)

The Helium also offers 8K resolution up to 60fps, but this time in Super35mm format – a more industry standard sensor format.

If the Helium is the Alexa, the Monstro is the Alexa LF.

THE RED DSMC2 HELIUM 8K S35.

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Sensor Size Comparisons

ALEXA 65 Digital Motion Picture Camera
54.12 x 25.59mm (2.1:1 native aspect ratio)
59.87 mm diagonal

Arriflex 765 film camera
52.5 x 23.0
57 mm diagonal

Hasselblad H5D-50C medium format
43.8 x 32.9 mm
55 mm diagonal

ALEXA XT
28.17 x 18.13 mm
33 mm diagonal

Phantom 65
51.2 x 23.3 mm
56 mm diagonal

RED Dragon
30.7 x 15.8 mm
35 mm diagonal

Sony F65
24.7 x 13.1
28 mm diagonal

Full Frame Stills
24 x 36 mm
43.27 mm diagonal

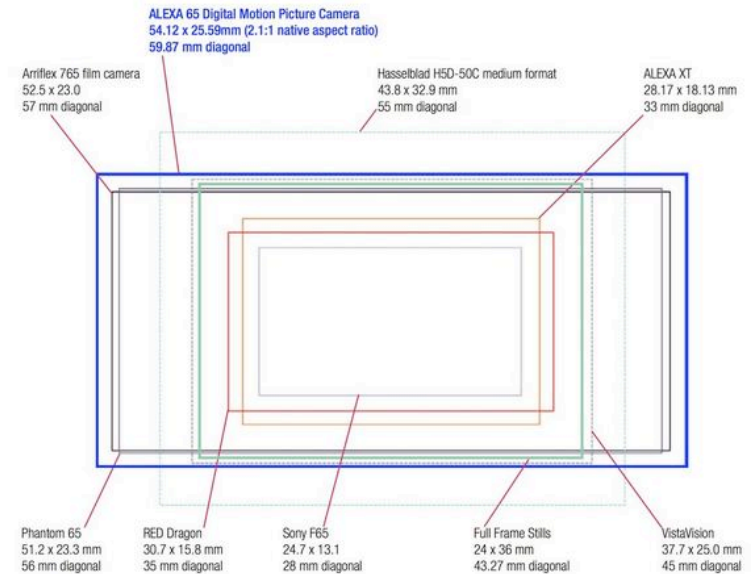VistaVision
37.7 x 25.0 mm
45 mm diagonal

SENSOR 3

GEMINI 5K (THE LOWLIGHT ONE)

The Gemini is REDs latest sensor announcement, it has a dual sensitivity modes for darker environments. You trade off for better low-light for resolution. The Gemini shoots super35mm images in 5K up to 96fps.

THE RED DSMC2 GEMINI 5K S35.

Sensor Size Comparisons

ALEXA 65 Digital Motion Picture Camera
54.12 x 25.59mm (2.1:1 native aspect ratio)
59.87 mm diagonal

Arriflex 765 film camera
52.5 x 23.0
57 mm diagonal

Hasselblad H5D-50C medium format
43.8 x 32.9 mm
55 mm diagonal

ALEXA XT
28.17 x 18.13 mm
33 mm diagonal

Phantom 65
51.2 x 23.3 mm
56 mm diagonal

RED Dragon
30.7 x 15.8 mm
35 mm diagonal

Sony F65
24.7 x 13.1
28 mm diagonal

Full Frame Stills
24 x 36 mm
43.27 mm diagonal

VistaVision
37.7 x 25.0 mm
45 mm diagonal

DSMC2 BRAIN

The camera BRAIN is the primary building block of the RED system, housing the image sensor and advanced computing components. A DSMC2 ® BRAIN is capable of data write speeds of 300 MB/s, can simultaneously record in REDCODE RAW and Apple ProRes or Avid DNxHR/HD, and is offered with three sensor options - delivering incredible dynamic range and up to 8K resolution. With features like cable-free peripherals, integrated media bay, wireless control, DSMC2 is the most powerful and intuitive camera to date. It is also compatible with a growing arsenal of modules and accessories—from RED and other Third-Party manufacturers. Tack on interchangeable OLPFs and lens mounts and DSMC2 gives you the ultimate control over your footage.

CHOOSE YOUR SENSOR:

MONSTRO 8K VV

35.4 Megapixel CMOS Sensor
40.96 mm x 21.60 mm (Diag: 46.31 mm)
60 fps at 8K Full Format (8192 × 4320)
75 fps at 8K 2.4:1 (8192 × 3456)

$54,500

HELIUM 8K S35

35.4 Megapixel CMOS Sensor
29.90 mm x 15.77 mm (Diag: 33.80 mm)
60 fps at 8K Full Format (8192 × 4320)
75 fps at 8K 2.4:1 (8192 × 3456)

$24,500

GEMINI 5K S35

15.4 Megapixel Dual Sensitivity CMOS Sensor
30.72 mm x 18 mm (Diagonal: 35.61 mm)
96 fps at 5K Full Format (5120 × 2700)
75 fps at 5K Full Height 1.7:1 (5120 × 3000)

$19,500

THE OLDER MODELS

At the time of writing, RED only sells the DSMC2, the Scarlet-W and Raven. All other RED cameras are considered legacy cameras.

It's easy to spot a legacy camera, if it doesn't have the below Pogo mount (cable-less connection), it is an older legacy RED camera body.

This is where the terms EPIC, Dragon, Mysterium will get thrown about. There's a little bit of a cross over (i.e Scarlet-W has a Dragon sensor). But ultimately all terms outside of the DMSC2 body, 3 sensors & 2 lower cameras are being binned.

KEY TO LEGACY NAMING:

Weapon – Rebranded with the DSMC2 update
Epic-W – Rebranded with the DSMC2 update
Epic – Legacy camera body
Dragon – Legacy name for a sensor format
Mysterium – Legacy name for a sensor format
RED One – Legacy camera body

THE OLDER MODELS

There are still specialist variants you can get of the RED DSMC2 with each sensor.
Some of these include – Monochrome (black and white), Carbon Fibre (physically lighter) and Xenomorph (A David Fincher special).