

Video reporting on missions using mobile phones and *entry-level* cameras

A digital cinematography rig for learning and practice

Although it falls outside the scope of this site, cinematography production inspires much enthusiasm for so many. Then this paper presents a few aspects of a “cinema rig” based on a R100 camera, for the purpose of *learning and practice*.

Lenses used in digital cinematography

Prime lenses are used most of the time in high-end digital cinematography (as in narrative film productions). Cinema lenses feature manual focus, for better control and more accurate adjustments, as the 325-degree stepless 0.8 MOD geared focus ring.



7Artisans *DREAM* 35mm T1.5 cine lens

Prime cine lenses are not necessarily better than photo lenses counterparts, as glass is concerned. But for slow-paced scripted cinematic narrative production, it is, most of the time, the lenses to adopt.



7Artisans 35mm f/1.4 Mark III photo lens

In digital cinema, a follow focus isn't always used. So, a “photo lens” (in the same price range, from the same manufacturer) will produce the same results in terms of image quality.

Difference between f-stop and T-stop

Both *f* (for focal length) and *T* (for Transmission – on cine lenses) are metrics for the light going to the sensor.

f-stop – on photo lenses - is a simple mathematical division being the focal length ÷ the aperture diameter.

T-stop – on cine lenses - considers light loss from glass elements and reflections.

Sweet spot

The sweet spot of a lens is the aperture (range) at which this lens offers the sharpest image, which typically is 2 to 3 stops down from the lens's maximum aperture.

Video reporting on missions using mobile phones and *entry-level* cameras

Matte Box



A matte box from SmallRig

A matte box, in front of the lens, is attached to standard 15mm camera support rails. It protects the lens from overhead and side light sources to prevent lens flares.

The flaps (top and side) are also called "French flags".

Follow Focus (SmallRig)



A device to control (with a side knob) the focus of a camera lens, smoothly and precisely, without touching the lens.

Rod clamps and rods (SmallRig)



2

These items (often offered together) are used to support the follow focus (on the side of the lens) and the matte box.

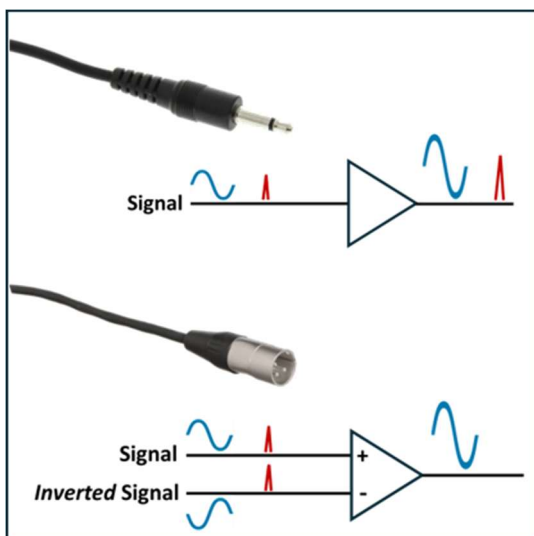
Zoom recorder and Audio Technica mic.



In film production, the audio is recorded separately, with an audio field recorder.

Video reporting on missions using mobile phones and *entry-level* cameras

The recorder uses XLR 3 professional balanced audio connectors instead of 3.5mm connectors, for better noise (cause by external signal interference) cancellation.



External monitor



External monitor from FeelWorld

This monitor includes histogram and video scopes (like vectorscope, waveform and zebra). Also included, 1/4" to camera shoe adapter and a sunshade, which is essential (in bright light).

It is connected to the camera using a micro-HDMI to HDMI cable.

Tripod, head, dolly, and boom pole



Magnus video tripod and head, and dolly and Rode microphone boom pole

A stable tripod, a fluid head specially made for video and film production, and a dolly to move the camera easily. A boom pole is essential for the microphone.



Proaim dolly and tracks

As for smooth camera movements dolly and tracks are often used.

Video reporting on missions using mobile phones and *entry-level* cameras

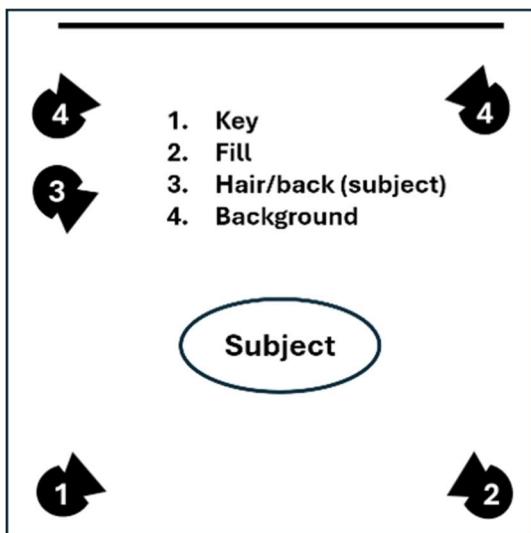
And lighting



Genaray Torpedo Portable Focusing LED Kit

Lighting is much more important in film production than in reporting (where our possibilities are often limited).

1,2,3,4 light setup



See the **Photo and video image technology paper** (1, 2, 3 light setup)

Light **1** (Key) Providing the main illumination, it is placed at a 45-degree

angle to one side of the camera and slightly above the subject.

Light **2** (Fill) This lower intensity light softens shadows created by the key light.

Light **3** (Hair/back) behind the subject, over the head, to separate the subject from the background.

Lights **4** (Background) to add distance, dimension and brightness to the scene.

If there are multiple subjects, this principle must be applied to the group.

Cinema standards set by the DCI (Digital Cinema Initiatives) for production and theatrical presentation:

Picture

DCI resolutions (minimum for capture):

2048×1080 (2K) at 24 fps or

4096×2160 (4K) at 24 fps

DCI resolutions (for presentation):

2K, “Scope” (AR 2.39:1) 2048×858 pixels

or

2K, “Flat” (AR 1.85:1) 1998×1080 pixels

12 bits per colour component (4:4:4)

CIE XYZ colour space

TIFF container, JPEG 2000 codec

Audio

24 bits per sample, 48 kHz or 96 kHz,

minimum surround 3.0 up to 16 channels (as Dolby Atmos™), uncompressed PCM

My camera delivery format

(with a manual focus prime lens)

FHD, AR 1920 X 1080 pixels

8 Bits, 4:2:0

AVC/H.264 video codec

in an MP4 container

AAC stereo audio codec

48kHz, 16 bits

Manual aperture and focus.

Video reporting on missions using mobile phones and *entry-level* cameras

Frame rate: 1/60 for 29-97 fps video
Auto ISO: set at 1200 max.

To set the focus with precision, use the *Focus Magnifier* at 10X for adjustment and then, return to 1X for shooting. Also, set *Release shutter w/o lens*.

Upscale or not

Don't assume that we can upscale (convert format) a video recorded by my camera and turn it into a movie of truly acceptable technical quality. This rig is for *learning and practice*.

The slate



Production slate (from Filmsticks)

A slate, or clapperboard, is used to synchronize the video and audio (when recorded on separate devices), and offers (to the camera) information for every shot.

Time code

Using time code is a frame accurate process to align precisely video footage and audio (if the editing software offers

the possibility). It is formatted in hours, minutes, seconds, and frames.

A time code generator

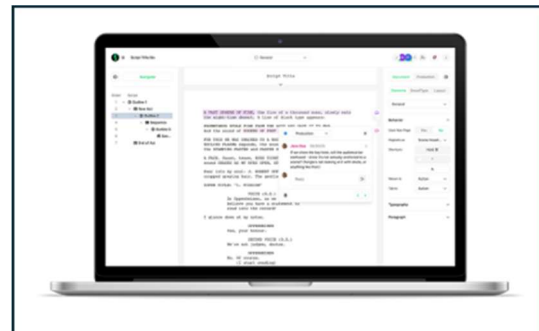


5

Tentacle Time code generator

There are 3 types of time code. Our example uses LTC (Linear Time Code). The “time code data” is recorded on one of the audio tracks.

Scripting software



Final Draft scripting software

When it comes to writing the story, rather than using the video script template, we usually use the *screenplay template*. There are several free templates available for download online, but it is common practice, in film production, to use

Video reporting on missions using mobile phones and *entry-level* cameras

software specifically designed for this purpose.

A real cinema camera and lens

Not in entry level anymore



Canon C400 cine camera and cine lens

It is to be understood that “the real thing” used in professional cinematic productions would be ten times the price of our rig, and it's worth it.

The essential part:

Learning and practice

What's next: read screenplays, watch films, read books, attend training and seminary classes, have a coach as well as practice, practice and practice ...

6

In the service of our Lord,

Pierre

Pierre Robidoux

info@probidouxeng.ca

“... how can they believe in the one
of whom they have not heard...”.

Romans 10:14