RECORDING GUIDELINES

SEPTEMBER, 2006

GENERAL

We use ArriSpeed Laser Recorders to filmout data on to 5242 fine grain intermediate stock. Since these recorders only work in lobit/log using cineon or DPX files it is preferable that we are supplied with material in that format. If other file types are used they would have to be converted and since we cannot know exactly what your images originally looked like or are meant to look like, it is preferable that the conversions are done by those at the point of origin. Although we use the control software of the Arri we use our own super2k imaging software to control the picture quality, size and colour.

Material to be filmed out can be supplied on any carrier such as tape or disk but our preference is to use portable hard disks such as firewire or USB.

We are also happy to use large SCSI disks of either the copper or fibre interconnect variety.

We will accept any frame size, aspect ratio or geometry and will resize it to provide the appropriate final film format.

**It is important that incoming material to be recorded should be very clearly marked externally and that the data should be clearly named and layed out to provide a timely turnaround.

OUTPUT FORMATS

Basically film output will be in one of three formats: full frame width (flat), sound width also called academy (flat) or scope (squeezed).

Full frame width has picture all the way from the sprocket holes or perforations (perfs) on either side of the frame. Full width is variously called full aperture (full ap), silent gate, open gate or formats that use it may be referred to as "super". Thus super35 is a flat 2.35:1 aspect ratio image stretched across the entire width of the frame. Super185 is an image of aspect ratio 1.85:1 stretched across the entire width of film. Even though the image may be framed in the camera for a given aspect ratio (e.g. 1.85:1) it may still be left as a full ap. (i.e. unmasked). It is increasingly unusual to find that during original photography the image has been masked so that parts of the frame outside the chosen ratio are obscured by black. If masking is introduced during post-production by either blanking out the non-intended image areas or even reducing the file to just the required area this will generally be described as "cropping", as opposed to "masking", the favoured term for where it is done in-camera. An even earlier name for this was "matting".

The sound or academy format stretches between the sprocket holes on the right of frame to the edge of the so-called "sound" area. This is the narrow strip down the left hand side of frame where the soundtrack is situated on a composite print carrying sound.

Finally 'scope, short for cinemaScope and also known as anamorphic or squeezed format, sits within the sound area but has more height than other academy formats and has an image which is squeezed by a ratio of 2:1.
Unsqueezed formats are referred to as flat.

The "super" or "full ap" formats were designed solely for production and are not used in theatrical release since they do not allow space for the soundtrack and cinema projectors therefore do not have gates extending beyond this part of the film frame. The only reason that a "super" format would be filmed out would be where visual effects have to be cut into original camera negative shot in this format. Thus all the film could be treated in the same way further down the line where super35, for instance, may be optically squeezed so as to provide conventional anamorphic 'scope prints to the theatres. An alternative is where VFX are being "finalled" on film and being projected alongside the camera rushes and must necessarily maintain the same "super" format as used for shooting.

SEE: see format document (this is in the Downloads section of the Scanning and Recording website section).

PRINTS FROM DIGITAL NEGATIVES

Negative generated in a production camera is generally referred to as camera or camera original negative (O-neg) and negative created by a film recorder as digital negative (D-neg). Printing of digital negative is controlled by the measurement of "densities" rather than by the older system of printer lights. A standard grey patch is recorded on the front of every film-out and the recorders are calibrated to the individual labs so that when this standard grey patch is recorded out readings by a densitometer should read a set of standard values for Red Green Blue. At Cinesite these Laboratory Aim Densities (LAD) for a print made from a digital negative should be 1.09 1.06 1.03 for RGB respectively. In common parlance these are referred to as 109 106 103 (i.e. with the decimal point dropped). Since these refer to densities they behave in the opposite way to might be expected. If the density of red goes up (e.g. 115) then the film is more dense and therefore permits LESS light to pass through the red layer and hence is LESS red. So 115 would be less red by 6 density points or would appear to be visually more "cyan" (the complimentary colour to red).

There are a number of advantages to using densities over the traditional printer lights. Firstly the laboratory knows what way it's bath is changing over time and it is their responsibility to AIM for the LAD so if it is beyond the accepted tolerances for that lab then they will automatically reprint and keep doing so until a satisfactory print is achieved. Contrarily if we were to call printer lights then these may not, on the one hand take into consideration a swing in the colorimetric of the bath, and on the other hand, whatever the print turned out would be the responsibility of whoever called the light since the lab would obviously have simply dialed in the lights they were asked to.

At the other end of the process the LAD system means that from the readings taken it is possible to predict how the print will look and therefore as long as it is known that the negative is good then misalignments can be taken into consideration. For example, if a print were 115 106 103 then we would know that less red could pass through it and therefore given that the other two channels are ok it would visually appear to be cyan. An alternative way of thinking about this is to say that as there is less red going through but the green and blue are allowing the correct quantities so there will be an imbalance in their favour and therefore the image will have more green and blue light respectively - since blue plus green make cyan the same conclusion can be drawn as before but from a different viewpoint.

Although it varies with batches of film and lab, and even a given lab on different evenings, one can assume that approximately 8 density values are equivalent to one printer light (the minimum adjustment in a laboratory).
Thus if we had say 112 106 103 reprinting with one printer light of red to compensate would end up with a worse print than this slightly dense one. 112-8 = 104 which is 5 density values below 109 rather than the 112 which is only over by 3. The labs maintain that since Kodak only guarantee their film stocks to be plus or minus two printer lights across all three channels that their tolerances cannot be better than this. Therefore each channel needs to be more than 0.15 (or 015 in slang) density out to be considered out of tolerance and therefore eligible for an automatic reprint.

Returning to the subject of prediction - because the readings will indicate exactly how the print is varying from the norm it is possible to say that for instance this print should be about half a printer light dark and slightly cyan. If the projected image on the screen does look a little dark and slightly cyan then everyone can safely assume that the neg is good and that the grade is correct - without having to make a reprint. This is particularly useful where filmouts are being used to test or final VFX shots - since the idea is to assess the effects and after this has been accomplished the print will be destroyed anyway.

To check the densities and to observe a known image with easily recognizable attributes a standard chart known as "Marcie" or "the girl head" is used. This has a picture of a girl with a wide range of colours and including skin tones plus the grey patch for reading LAB AIMS.

Kodak grading test image:
http://www.kodak.com/US/en/motion/support/dlad/