USING THE SUPER TV FRAMING CHART

The idea for the pre-made-up 1.33:1 framing chart came about because I was tired of having to make up new charts for all of the SuperTV commercials that I worked on. “Super,” as in Super35, implies utilizing the negative area once reserved for the soundtrack area. This also means that the lens mount has been physically moved so that it is now centered on full aperture instead of “academy.” Most new professional 35mm film cameras are designed so that it is relatively easy to change the lens mount over to the “Super” setting. The Panavision Millennium camera is switched to Super by changing the film movement. “SuperTV” means you are shooting an oversized 1.33:1 format, centered on full aperture.

It’s mandatory that one shoot a framing chart if one is composing with a SuperTV ground glass, or even a standard TV ground glass that has been centered on full aperture, and one is transferring to video. **Since SuperTV is a non standardized format, the transfer person will not know what you want transferred unless you provide a framing chart. This also holds true if you are shooting Super 16 or any none standard TV ground glass not centered on Academy.** It is a good idea to provide a framing chart for every days dailies, either by filming this handy chart at the start of everyday or by shooting extra footage of the chart and sending in 30’ every day. (Some older transfer machines require a moving piece of film to accurately set framing, thus you must shoot and send in 30’ to 40’ and not just one frame.) On a multi day shoot the transfer person might forget to save his framing settings or someone else might end up doing the next days dailies. The daily chart will eventually “save” you.

Unlike shooting a gray scale, the framing chart can be easily and quickly filmed by the camera assistant without having to have the director of photography and electricians carefully balancing light and color temperature levels. Obviously, correct exposure and neatness still count!

I often barely had time to make up a framing chart since I was having to prep three cameras in one day on some commercials. I could save time by simply drawing a 12” X 9” (1.33:1) rectangle on a piece of show card, add a few arrows, scrawl the name of the production company and the message “Transfer to fit TV Transmission” on it. I started to use the same card over and over again, just taping over the companies name but the card started to look ratty pretty quickly. And taking the bow out of the cardboard was becoming a time consuming hassle. Thus came about the plexiglass chart.

Different rental houses and different DP’s have there own versions of SuperTV dimensions. Some are just a line smaller then full aperture (around 35% more negative area compared to SMPTE TV Transmission, and the main reason to shoot SuperTV), others are barely 10% larger then regular TV. The smaller SuperTV ground glasses virtually guarantees you that you will not have any problems with certain lenses (some older, very wide primes, certain zooms, usually only at the widest focal length) vignetting. With the maxi-sized SuperTV ground you will want your assistant to check to see if any of your lenses vignette. But this chart will actually give you a solution to that vignetting “problem.”

Some directors of photography don’t consider vignetting a problem. It might even be a creative feather in their cap! If you have a lens that is vignetting you can photograph this chart, framing it in such a way that the vignetting will be outside of the frame lines. This way your transfer person will know how much you want the image enlarged. (Note that with some lenses vignetting is only a problem if you stop down. Using an ND

filter and opening up the stop might get rid of the problem.) We've had directors tell us not to worry about the vignetting; they would simply fill it in digitally. Depending on your background the vignetting might not be noticeable or objectionable. If you are photographing a perfect blue sky it might be very noticeable and bad. Or it might just remind you to add a grad. If you've ever used the original Nikon 8mm fisheye lens, you've probably lived with the sharply defined vignetting in the corners even if you were shooting SMPTE TV .

The Oppenheimer 8mm Nikkor Fisheye lens has been redesigned so that it will not vignette with Super 35, and vignettes only slightly using Super TV. Other lens designs (Angenieux 17/102 zoom) are being modified so as to provide Super 35 coverage.

Some DP's, especially car shooters, find it advantageous to shoot with a standard sized TV ground glass, but to have it and the lens mount centered on full aperture. This gives them a lot of repositioning capability during the transfer, a big advantage when you need perfect framing of a car sliding into the end mark and your losing the light. With a framing chart you'll be certain that that transfer person is going to realize that you shot centered and do your work justice at 5AM in the morning!

This chart was designed to be either hung by it's 3/8th inch hole (on a "C" stand knuckle or a push-pin) or grabbed by a "C" stand knuckle. The original chart was printed on a large enough piece of plexi so that the "C" stand knuckle wouldn't protrude into the frame area. We found it was better, handier, to go with a smaller plexi, 9.5" X 12.5" and it really didn't matter if the "C" stand knuckle protruded into the framing area.

To keep the chart from keystoning, level the chart and camera, and make sure the chart is squared to the camera. Obviously it's usually easier to raise and lower the chart then move the camera. (Tilting or panning the camera will introduce keystoning!) Even if someone is helping you, try to have a video monitor set up to help position the chart. Although you will typically get some distortion (either pin cushion or barrel), using a zoom lens makes it easier to size the chart. As long as you can place the corners of the ground glass over the corners of the chart you don't have to worry that the lines might be bowing.

It's much easier to frame the chart using a 100mm or longer lens. With wider lenses the chart must be closer and much more perfectly squared to the lens in order to correctly frame. With a longer lens it is even possible to film the chart while it is being handheld. With a wide lens it will be much more difficult and time consuming to correctly line up the chart. If the chart does not seem to be lining up with your ground glass you are most likely not perfectly aligned.

Some people have suggested that it is always better to make a framing chart for a specific camera and ground glass. This usually entails one person looking through the camera while guiding another person who is putting down tape marks on a board. Even with video this is tedious and time consuming. And if the camera and board aren't perfectly level and square the framing chart will not be accurate even though the chart coincided with the ground glass. With the precision made SuperChart, you are forced you to make sure that chart and camera are perfectly squared.

The size of the chart was selected so you can fill the frame using normal to moderately telephoto primes and most common zooms without running out of minimum focus.

I've never seen this, but there is a chance that the chart does not line up perfectly with the ground glass. Some SuperTV ground glasses are still being hand drawn. (Make sure the chart is perfectly squared to the lens!) One piece of tape, to form a new line on the chart is probably all you would need to correct this. If the cross hairs don't match perfectly, you can easily cover up the correct ones on the chart and match the imperfectly positioned ground glass cross hairs/dot with one marked on tape. Still easier then making up a chart from scratch.

Actually since originally writing this, we did come across a ground glass that didn't fit the chart. In our quest to have the largest possible amount of negative area we went to an Arri Silent Gate ground glass. I was puzzled why this ground glass didn't perfectly coincide with the framing chart. We checked the Arri catalog and it turns out that Silent Gate is not 1.33:1! It's 1.34:1. We still use it; close enough considering consumer television cut off.

Being made of plexiglass you can simply use your dry eraser marker to label the chart, or if it's a longer production you might want to make up some nice labels with tape or a Ptouch label maker. The best dry eraser markers for this application seem to be the RiteOn/RiteOff markers. The EXPO markers tend to leave a residue.

Typically the chart is labeled with the production companies name, the title of the shoot, perhaps the date, and a message that typically says "Transfer to fit TV Transmission." Unless you are shooting one of the smaller SuperTV formats it can not say "Transfer to fit TV Safe Action." The (intentional) lack of space beyond the SuperTV format will mean that if one transferred to fit SMPTE Safe Action that there is a chance that one would be transmitting the none image negative area beyond full aperture. You might want to add the reminder "Save Framing Chart" if it is a multi day shoot.

Here's a trick. If you frame the chart "normally" and ask that it be transferred to fit TV transmission you will end up not seeing the tips of the frame line arrow pointers on a consumer television. This is the normal cut off that results from framing with TV Transmission. This is the reason why you have a SMPTE Safe Action area on a normal TV ground glass. In order to get as much of the negative area as possibly on to that consumer TV, and see your arrow tips, you should try over framing the chart by a good 1/8th of an inch (3mm). I then make sure that I have an equal amount of space between ground glass line and framing chart line all the way around before rolling on the chart. This <u>usually</u> assures that you will see the tips of the arrows on a consumer TV.

There are now Super TV ground glasses that incorporate an inner Safe Action area. If you are using such a ground glass and framing for the inner Super TV Safe Action area, you should then place the outer Super TV ground glass markings directly on to the framing chart lines. You will miss the arrow tips but that won't

matter since you framed for a smaller inner area. Note that you are not taking full advantage of Super TV with this type of Safe Action ground glass.

The original Super Framing chart had the printing on the front surface. Because of that the epoxy ink that was used to silk screen the chart onto the plexi was especially chosen to be resistant to mild cleaning solvents. If need be, you could use solvents such as denatured alcohol (Do not rub too vigorously) or lighter fluid. Strong solvents such as acetone and lacquer thinner would definitely remove the chart! The latest chart has the printing on the back side of the plexi so the printing will probably last as long as the chart stays in one piece. I would have like to have used Lexan instead of Plexi but although Lexan is very strong and crack resistant, it's surface scratches much more easily. The back printed chart is over layed with white ink plus a protective plastic overlay.

The original 1.33:1 Super Chart also contained 1.78:1 (16:9, HDTV) markings. The new chart has added 1.85:1 and 2.40:1 markings. Why 2.4 and not 2.35:1? 2.40:1 is Panavision's Super35 aspect ratio. It is also the agreed upon SMPTE theatrical release aspect ratio. Arriflex and Arriflex rental houses tend to use the older 2.35:1 aspect ratio for their ground glasses. But it's very simple to use the SuperChart for 2.35:1 ground glasses. Instead of placing the ground glass lines inside of the 2.40:1 markings, place them on the outside of the lines to get the correct 2.35:1 size.

It is very easy to use this basic chart to create a framing chart for other format ratios. Simply divide the width of the chart, twelve inches, by the ratio. For instance, the HDTV, 1.78:1 marks where arrived at by dividing twelve by 1.78 (16:9). The result is 6.74 inches. Subtract 6.74 from the heights of the chart, 9 inches, and you get 2.26 inches. You divide that by 2 and you get 1.13 inches. The 1.78:1 markings need to be 1.13 inches in from the top and bottom of the 1.33 chart.

Once you have your new dimensions marked you simply connect them with black tape and add new arrow points for the new top and bottom frame lines. You can cut the arrow tips out of tape or you can just use your dry erasable marker.

To convert decimal inches into fractions, multiple the desired fractional denominator (16th, 32nd, etc.) by the decimal part of the number, i.e. 1.26" = 1 and (.26 * 16) / 16, or 1 and 4.16/16th, which rounds off and reduces to 1 and 1/4 inch.

Or if you have a metric ruler handy, you can multiple your decimal fraction by 25.4 to get millimeters. 1.26" X 25.4 = 32 millimeter.

I've been asked why the chart isn't metric. Being 1.33:1, the dimensions were never going to be nice round (metric) numbers. In fact 12" X 9" (actually 9.02") is about as "round" as you are going to get. Translated to metric you get 304 mm X 228.6 mm, or we could have made it 300 mm X 225.56 mm, or 299.25 mm X 225 mm ....

Yes, when one needs to make calculations to create a different aspect ratio within the 1.33:1 chart, it might be easier to work metric. Since I'm going to be using a calculator when ever I have to make those

calculations I can easily switch to metric by starting off multiplying the length, 12" by 25.4 to create 304.8 millimeters. But I usually can't find a handy metric ruler on the set or at the rental house to measure out the results.

Another use for the Super Chart ...

It one wanted a very grainy image, instead of adding a 16mm or Super 8 system to ones package, one could have a small 1.33:1 ground glass made up for ones 35mm camera. (Or use the frame line generator found on many of the newer video taps and operate off of a monitor. Or just mask off the monitor) Shoot with something like 5298 (better then the Vision stocks for grain) pushed two stop. By filming the chart to fit your mini size ground glass marking (or the masked off monitor) you will then have your transfer person blow up the image, and grain, to fill regular TV.

If you must use an Arri 3 with it's PL lens mount centered to shoot SuperTV/35, be careful. Note that many standard speed Zeiss primes cannot be used. The spinning mirror will hit the back of the lens! The rental house should have a chart showing you which lenses you cannot use.

Arri 3 cameras set to Super 35 that have adjustable shutters can have a problem with the hub of the shutter casting a slight shadow onto the film with certain lenses. Most noticeable, many zoom lenses, including the Arri Zeiss VP3, especially 25/250 zooms and the 32, 40, 50 75 and 100mm Cooke S-4 prime lenses. Some rental houses are actually milling down the hub to eliminate this problem. Again, best to avoid Arri 3's for Super 35/TV unless you understand all of the potential problems.

The rental house might have a chart that you can consult on which lenses will cover SuperTV/Full Aperture. Note that these charts might be conservative. See the earlier discussion on vignetting.

A Sample of 35mm Super TV Dimensions by Manufacturer or Rental House *****

Panavision, conservative[1]	.832" X .624," .519 sq. in.	10.4% larger then TV Trans.
Panavision, large	.900" X .676," .608 sq. in.	29.4% larger then TV Trans.
Arriflex, Silent Gate[2]	.925" X .689," .637 sq. in.	35.5% larger then TV Trans.
Clairmont Camera, Super TV	Five different Super TV	formats to choose from.
Otto Nemenz Int., Super TV	.894" X .670," .599 sq. in.	27.4% larger then TV Trans.
EBU R.86 Standard, Super TV[3]	.945" X .709," .670 sq. in.	42.6% larger the TV Trans.
SMPTE Full Aperture, 1.33:1	.981" X .735," .721 sq. in.	53.4% larger then TV Trans.
SMPTE TV Transmission	.792" X .594," .470 sq. in.	23.4% larger then TV SafeAction

***** In fact many rental houses will create custom ground glasses to whatever specifications you provide. These might be hand drawn at no addition charge, or you may incurr a fee and 2 weeks of manufacturing time for a custom ground glass.

1) Allows the use of the Panavision 17.5/75 Primo Zoom without vignetting. We recently used the large size Panavision Super TV with the 17.5/75 Primo zoom with very minimal vignetting at the wide end.

2) Arriflex Super TV is TV Safe Action, centered on full aperture. Arri users have been know to use the Arri Silent Gate ground glass as an oversized Super TV ground glass. Note that Silent Gate is actually 1.34:1.

3) EBU - European Broadcast Union