

# Aberdeen Digital Delivery Guidelines

Broadcast requirements vary from network to network. The following standards are good baselines that meet the majority of U.S. broadcaster's production and delivery requirements as well as conform to ATSC and SMPTE standards. To preserve the quality of your digital delivery content, please review and adjust programming to the following standards.

	Format	Standard Def. Media			High Def. Media			
VIDEO	Resolution	720x480 (4:3/16:9)	720x486 (4:3)	640x480 (4:3)	1280x720 (720P)	1440x1080 (1080i)	1920x1080 (1080i)	1920x1080 (1080P)
	Field Dominance	Lower Field First			Upper Field First or None for Progressive			
	Closed Captioning	EIA-608B + .SCC File			EIA-608 and EIA-708B + .SCC File			
	NLE Export Formats	ProRes (LT) / XDCAM / MPEG-2 / MPEG-4 / H.264 / DV / DVCPRO (25/50/HD)						
	Minimum Bit Rate	MPEG-2/DV/DVCPRO SD-25Mb/s HD-50Mb/s; MPEG-4/H.264 SD-8Mb/s HD-15Mb/s						
	Frame Rates	29.97 or 59.94 FPS (Drop Frame)						
	Color Sample Rate	4:2:2 (Preferred)						
	Luma (Y)	Waveform (0-100 IRE) / RGB Value (8bit) 16-235 (Black =16, White=235)						
	Chroma (UV)	Waveform (0-100 IRE) / RGB Value (8bit) 16-240						
AUDIO	Phasing	IN Phase; Stereo audio must be fully mono capable						
	Audio Bit Depth	16 Bits						
	Sample Rate	48kHz						
	Audio Channels	2 (L/R Stereo)						
	Headroom	Program Audio Peaks no more than -8dBFS						
	Loudness	-24 LKFS (+/- 2dBFS)						
	Bars and Tone	SMPTE 75% or 100% Bars and Tone at 1 kHz -20dBFS						
*	File Naming	ProgramIdentifier_Episode#_Airdate						

\* To submit media outside of these specifications, please notify Aberdeen in advance of delivery.

## Broadcast Legal Programing

Due to the transmission nature of television signals, programs for DTV broadcast are subject to strict threshold specifications by FCC law. If a program has values outside of these "legal" limits, most notably maximum values of Luminance (brightness), Chroma (color), and peak audio levels it is likely that digital distortion, color bleeding, audio clipping, and/or sync issues will result. Most of today's cameras, NLE systems, and motion-graphics machines will capture/create signals that are outside the range of broadcast legal levels. In a tape-based workflow, the final correction of these errant signals to broadcast safe standards was commonly done upon ingest by a television station's deck or proc amp. In a digital delivery workflow, the best place for these corrections, if correction is necessary, is right before project export. This leaves the final picture/sound quality approval in the hands of the client.

## Submitting Broadcast Legal Programs

It is recommended that each clip in your program be inspected and if necessary color corrected to remain within the above broadcast safe standards. However, there are some useful filters included in most NLE and graphics software that can make most of these corrections easily for you. Please make sure if these filters are employed that a check is made for any unwanted color variances to the program before export.

Applying the following color correction filters to your video clips, nested sequence, or graphics prior to export can ensure you are delivering a program ready for air.

Software	Filter	Notes
Apple-Final Cut Pro	Broadcast Safe Filter	Very Conservative Preset
Avid Media Composer	Color Safe Limiter	Input settings from above chart
Adobe Premiere Pro	Color Correction/Video Limiter	Clip Level set to 100 IRE (SMPTE)
Grass Valley Edius	Color Safe Filter	
Sony Vegas	Broadcast Colors	
Photoshop	NTSC Colors Filter	
Apple-Motion	Broadcast Safe Filter	

Field dominance errors are common broadcast issues when recording and playing back interlaced video material from mixed sources. With progressive video, there is only one way to play back a video frame: start at line 1 and scan until the end of the last line. With interlaced video, the video player must know whether to scan the odd lines first, or the even lines. When mixed field dominance clips play together there will be noticeable flicker on the clips that do not conform to the dominance setting of the sequence/player. Make sure all clips match the sequence settings field dominance before export to avoid field flicker on interlaced monitors (TVs).

Bars and tone are still important leader elements for your video files which tell a station a lot about the signal quality of the program. Whenever possible bars and tone should originate from the capture equipment, bars from the camera and tone from the audio mixer. Program audio should peak at no more than -12dBFS. This allows enough digital headroom to eliminate all peaking and provide significant dynamic range. If audio clipping occurs during capture it will not be possible to remove the distortion. Checks for audio accuracy should also be made when completing the post process. Performing a peak sweep can ensure no audio clipping was introduced during editing (Example: in FCP 7 this tool is under Mark>Audio Clips>Audio Peak>Mark tool). These tools can help identify any areas of your audio tracks that have peaked, allowing adjustment prior to export.

### **More resources from our blog:**

[The Importance of 4:3 Center-cut Safe](#)

[Being Mindful of Broadcast Down Conversion](#)

[Broadcast Leader Elements](#)

[5 Ways to \(Not\) Screw Up Your Digital Video for Broadcast Television](#)

*Thank you for trusting Aberdeen with your digital file delivery.*



30211 Avenida de las Banderas, Suite 110  
Rancho Santa Margarita, CA 92688  
[phone] 949.858.4463  
[aberdeen.io](http://aberdeen.io)