

Sound in Film Technical Issues

The Film EQ

A **+2 dB bump at 2.5K** and
a **treble boost +2dB starting at 6K**

Increases dialog intelligibility and perceived crispness. Also called the “academy curve” or the “X curve.”

Originally made up for the poor sound systems in most theaters from the late 30s to the 70s.

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If it is Hard to Understand the Words!

High Pass at 200Hz

Low Pass at 8KHz

Up +6dB at 1750Hz - one octave wide
(the “Q”)

+2dB at 250Hz for warmth

Tell the talent not to mumble.

Relative Levels

Environmental/Ambience sounds don't have to be loud.

Fade-ins and fade-outs should be un-noticed, not abrupt.

“Masking”

- One sound covering another
 - Great in an office, usually bad for sound designer
 - Caused by similar frequency, similar volume, similar placement
 - Fix by changing EQ, moving, or making room for it by reducing the other track levels.

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“Cancellation”

- A technical mixing problem
- Sounds with similar waveforms that are out of phase. Cancel each other out in the mix or in the air.

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How Much Compression?

- Not as much as for music
- Often used on dialog recorded in the field, but listen carefully to what happens with background noise.
- Need a more powerful voice? Try a three-band compressor.

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How Many Tracks at One Time?

- One may be enough if you want everyone’s attention on it...
- Four is about the maximum you can expect viewers to process.

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What to do with Noise?

- Hiss
 - Can often be reduced effectively with an EQ cut.
 - But, some overtones in other tracks may be lost also.

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What to do with Noise?

- Hum
 - Can often be reduced effectively with an EQ cut or a high-pass filter.
 - Often based on 60Hz so most of it will be below voice EQ range.
 - But, often hum has overtones, too. You may have to add a notch filter at 120 Hz and 240 Hz.

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What to do with Noise?

- Occasional sounds
 - Can often be clipped out. But remember to keep the background sounds in the gap.
 - When recording dialog in the field, always get a few minutes of background noise
 - Adobe Audition has a spectrum tool that cuts and “heals” the gap. Pretty good!

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What to do with Noise?

- Even Audacity has a *click removal* tool.
- Even Audacity has a *noise-learning* tool.
- A *noise gate* might do the trick if the noise is not noticeable during the dialog.
- Audacity/Apple has a *AUDynamics Processor* that has a gate setting.
- Some compression tools have an “*expand down*” soft gate.

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What to do with Noise?

- **Downward Expander** is a reverse compressor
- *A little below threshold? -a little reduction*
- *A lot below threshold? -more reduction*
- You don't hear the pumping that might be produced with a gate on a fairly loud noise.

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What to do with Noise?

- **Gated Low Pass** is a reverse compressor
- *Instead of cutting the full frequency range, it applies a filter.*
- *In some cases this would be a lot less noticeable.*

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Sounds Fine in Stereo, But Not in Mono?

- **Something is out of phase!**
- *Two mics picking up the same sound?*

- *Flip one track. (Audacity: Effect > Invert)*
- *Slide one track and match to the other.*
- *Use a different mic system next time.*

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Effect Clip is Not the Right Length?

- DAWs have *Change Pitch/Speed with Time Stretch*.
- Audacity has *Change Tempo* (does not change pitch!).
- Audacity has *Change Pitch* (does not change the duration).
- Audacity has *Sliding Time Scale/Pitch Shift* to change the speed of a clip over time.

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Edit for Consistent Levels

- Get used to checking the output meters. Put them on RMS rather than Peak.
- Go back and listen to beginning, middle, end and see if one is inappropriately louder/quieter.
- See *Normalize* option in *Export*.
- Final Cut Pro has *Soft Normalize* and *Gain*.

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Production Recording

- Too much room sound?
- Dampen the room with sound blankets, including the floor.
- Use a shotgun mic
- Put the mic close to the talent
- Notice where prop movement is heard. Arrange the dialog around it.

Barrier &
Quilted
Fiberglass
Absorber
Composites



Production Recording

- Rumble noise? Record an extra channel at the same time, with mic aimed only at rumble source. Use phase to cancel it out in your mix.
- Wireless mics are unpredictable. Can easily start to pick up noise. Bring a wired one too.
- You can make a close mic sound distant later, but you can't make a distant one sound close later.
- Automatic level control on a camera will bring up the noise between dialog lines.

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Production Recording

- Use headphones that seal and allow you to hear the noises while you are there.
- Record some of the room noise by itself. Use it to fill in gaps later.
- Keep as many variables as possible the same from take to take. Same mic. Same location re the talent. Same level, etc. Make notes.

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