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# **MOTION PICTURE SOUND LEVELS**

**BY**

**JOHN F. ALLEN**

HIGH PERFORMANCE STEREO™



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*FIRST IN DIGITAL STEREO*

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# ***MOTION PICTURE SOUND LEVELS***

**By  
John F. Allen**

**It seems that it is virtually impossible for one to attend a movie theatre these days without the risk of being offended by excessive sound levels. Most often the problem is with the trailers being recorded significantly louder than the feature. Pre-show commercials can be equally unpleasant. Customer complaints about excessive sound levels remain all too common. Unfortunately, the only way to avoid this problem is to run the features and trailers at different fader settings. This is essential if one truly wants to run a good show. However, it is unrealistic to expect this to be manually done by staff. While there are some projectionists who are conscientious enough to make sure faders are changed at the beginning of every feature, there are others who will simply set the sound levels low enough to stop the complaints during the trailers, and leave them there for the features. This can be especially true in booths with no full time projectionist.**

**Unfortunately, leaving the faders at reduced settings all the time ruins the feature presentations. A movie soundtrack that is played just 1 dB too low, will lack punch. This is a mere 1/4 point on a Dolby fader. A fader set 2 dB low can cause problems with dialog intelligibility. When features are played 4 or 5 dB too low, as is often the case, it seems to me that the entire reason to experience a film in a movie theatre comes into question. Too loud or too soft, take your pick. One way or another, patrons fail to get what they paid for and leave with one more reason to watch their films at home.**

**Luckily, with digital processors such as the Dolby CP-500, CP-650 or the Sony DFP-3000, it is very easy to automate separate levels for trailers and features. One simply assigns a fader setting to the feature's digital format and then assigns a lower fader setting to a duplicate digital format to be used for trailers. In non digital theatres, one assigns the trailers to a duplicate analog format. Since so many processors were once setup to begin a show in mono, it's usually most convenient to assign the trailer format, along with its fader setting, to the location typically used for mono. Figure 1 shows how this would look with a Dolby CP-500. The trailer format is placed in the upper left.**

**For older analog processors such as the Dolby CP-55 or CP-65, a separate fader control can be connected to the remote fader terminals and programmed to be active only during the trailers. The wiring from the automation is modified to select the remote fader at the**

start of the show, and switch to the main fader at the feature cue. A more complete description of this setup can be found at [www.film-tech.com](http://www.film-tech.com). Click on "TIPS" at the bottom of the screen. Finally, click on "BATTLING LOUD TRAILERS." The methods shown allow separate levels to be set for both trailers and features automatically. If needed, these levels can be easily readjusted. By employing such means, every element of every show is presented with proper levels every time. Similar schemes can also be designed for other cinema processors. While these methods are readily available, very few theatres are setup to take advantage of such relatively simple and inexpensive solutions. Consequently, the problems caused by differing sound levels with trailers and features continue to diminish presentation quality in a very large number of movie theatres, either by forcing the features to be played at excessively low levels, or subjecting audiences to offensively loud trailers.

1 0	5.7		1 1	7.0
DOLBY DIGITAL			EXTERNAL	
0 4	7.0		0 1	7.0
DOLBY A-TYPE			MONO	
0 5 s	7.0		6 0	7.0
DOLBY SR			NON SYNC	
1 0 a	7.0		6 1	7.0
DOLBY DIGITAL			NON SYNC 2	

Figure 1.

Fader and sound system calibration issues are also important. There are several reasons that sound systems calibrated with the fader at 7.0 (0.0 for SDDS), cannot play films at these settings without being excruciatingly loud. The accumulation of the (avoidable) calibration and measurement errors responsible for this were summarized in a previous article, **IF THEY KNEW WHAT YOU WERE MISSING, PART 4**, in the February 1998 issue of **BOXOFFICE**. For those interested, this article can also be downloaded at [www.hps4000.com/pages/special/missing.pdf](http://www.hps4000.com/pages/special/missing.pdf). However, I should note that no matter what

the fader position is, films are being played at the proper level when the dialog is heard at the proper level in the theatre.

**Returning to the soundtracks themselves:** As we all know, loud trailers are not a new problem. Indeed, it's hard to imagine a more utterly ridiculous situation than trailers being regularly and deliberately recorded at offensively high levels as well as delivering consistently poor sound quality - all with the intention of attracting the audience to see the picture being promoted. One of the main reasons that loud trailers still sound so poorly mixed, even when they are turned down enough to be played at more comfortable levels, is that they are so compressed. Their average levels are increased at the expense of dynamic range. When done moderately, compression is a necessary and useful tool for sound engineers. When used to compress the dynamics as much as we often encounter in trailers, the sound can acquire an annoying characteristic that I like to call compression distortion. (Compression corruption might be a better description). While one may not actually be able to measure distortion in the classic sense, the listening fatigue effect on our ears from compression distortion can be equally irritating.

**Whatever the standard needs to be, it must be low enough so that trailers can be played at the same fader settings as properly recorded features without offending an audience.**

Overly compressed trailers often sound no better than screaming television commercials. They can simply be very unpleasant things to have to sit through. Trailers can sound wonderful when they are well mixed and playable at the same levels as features. Such trailers are far more interesting and do a much better job selling a film. They become more successful as marketing tools because they are lively and entertaining, without being offensive.

In an attempt to improve the situation, the National Association of Theatre Owners, along with the studios and other interested parties, revitalized the Trailer Audio Standards Association or TASA. This group is the successor to the one originally formed to introduce stereo trailers. Faced with an avalanche of complaints and negative publicity about loud trailers, TASA produced an agreement among the studios to live within a standard for audio levels when producing trailers. This was made practical by the helpful introduction of the Dolby L-eqm sound level meter, designed to measure average movie sound levels over a long period. Once this agreement had been completed, TASA and the Motion Picture Association of America agreed that trailers with audio levels exceeding the

TASA standard, would not be granted an MPAA approval. Dolby Laboratories' Ioan Allen and Robin Bransbury, along with Mark Harrah of the Walt Disney Co., were presented an Award Of Commendation by the Academy Of Motion Picture Arts And Sciences for their work in creating TASA's Trailer Loudness Standard.

The original TASA standard was 87 dB L-eqm. At the time this was implemented, roughly 40 percent of the trailers playing in theatres exceeded this level. While the 40 percent of the really egregious trailers were clearly improved, in reality this early standard had little practical effect on the loud trailer problem. This was because virtually all trailers, while meeting the new standard, were still much louder than well recorded features. As a result, trailers continued to require faders to be turned down around 5 dB. However, it was a beginning.

Only when the standard was reduced to 86 dB L-eqm did things noticeably improve. However, even at this standard, trailers are still typically 3 to 4 dB too loud. It is interesting to note that a maximum trailer level of 85 dB L-eqm was adopted in Europe. This would bring trailer sound levels even closer to feature sound levels. Whatever the standard needs to be, it must be low enough that trailers can be played at the same fader settings as properly recorded features, without offending an audience. The more methods are learned to make trailers too loud and still get passed the TASA standard, the lower the L-eqm limit must be.

Of course, none of this silliness would be necessary if those responsible for loud trailers were indeed responsible, and produced trailers with pleasing high quality soundtracks, recorded at tolerable levels. If such were the case, producers as well as distributors would have far more assurance that both trailers and features would be played in the theatres at the levels they intended. Any insistence that trailers be louder than features or that one trailer must be the loudest of all trailers, guarantees that this will not happen.

As mentioned earlier, pre-show commercials also suffer from excessive sound levels, not to mention distortion. As trailer levels have been reduced, these commercials, as well as some poorly produced institutional snipes, have continued to force operators to reduce fader settings. It would be most helpful if TASA standards were extended to cover these snipes and advertisements as well. Better still, it would be a major enhancement to the movie theatre experience if the organizations producing pre-show commercials would revamp their sound facilities and reinvent themselves as deliverers of quality sound. Currently, far too many rolling stock advertisements and snipes sound so bad, they do not qualify for presentation to an audience.

Unfortunately, just as progress has been seen on the issue of loud trailers, it needs to be acknowledged that the long and admirable record of consistent feature levels has begun to fall apart. For the past quarter century, one of the major contributions to this industry from Dolby Laboratories has been the work of their consultants in the mixing facilities. Thanks to the cooperation of the studios, this has resulted in a quality control service that has benefited us all with very consistent sound levels from film to film. The majority of films can indeed be played at the same fader setting. However, in recent years, particularly the last two, this level consistency has faltered. As an example, several of the summer features in 1999 needed to be played with faders 2 to 3 dB lower than normal. In the summer of 2000, almost all of the highest grossing major releases required fader reductions of 2 and 3 dB. One film required a fader setting of -5 dB. It was actually recorded louder than most trailers. The resulting soundtrack for this action picture had almost no dynamic range.

It would be unfair to lay the blame for this on any one person or group, nor is it my purpose to do so in any way. With four soundtrack formats to produce and particularly some filmmakers wanting louder movies, movie sound has become more complicated. Nonetheless, it seems fair to say that post production executives need to develop tighter controls throughout the post production community and, with the cooperation of producers, ensure consistent recording levels for motion picture soundtracks.

When both features and trailers end up about 3 dB too loud, leaving faders at 6.0 (-3.0 for SDDS) for the entire show can work pretty well. However, such nonstandard levels are not ideal because, in practice, they result in widely varying fader settings from theatre to theatre. Also, as mentioned earlier, any increase in average levels results in reduced overall dynamic range and therefore less exciting movies.

Maintaining consistent, correct, dynamic and exciting sound levels throughout every show in every theatre is essential to creating the quality experience patrons deserve when they elect to see a film in a theatre. Solving the problems of excessive and inconsistent sound levels is one of the more critical presentation issues that must be addressed as exhibition strives for a successful and profitable future.

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# ***SOUND LEVELS, EPISODE II***

## ***ATTACK OF THE TRAILERS***

**BY**

**JOHN F. ALLEN**

I an article entitled **SOUND LEVELS** published in the April, 2001 issue of **BOXOFFICE**, I reviewed the problem of excessively loud sound levels in movie theatres. Typically, auditorium faders get set in one of three ways: They can be set in one position that assures that the loudest parts of the show, usually trailers, are not too loud. This means that the sound level of the feature will be too low, effectively ruining the presentation. Faders can be set so that the feature is played at the correct level. This assures that the audience will be subjected to offensively high levels from any trailers and commercials that are recorded too loud. Some faders are set in between, so that the trailers are played a little too loud and the feature runs a little too soft.

Ideally, every part of every show should be played at the proper level, just as every part should be projected in frame and in focus. Some projectionists do make the effort to play trailers and features at different fader settings. But this requires them to be at the projector at the precise beginning of the feature -- something that can often be impossible and in any case is always a nuisance. In my April, 2001 article, I outlined ways to automate the fader settings so that the trailers and features could always be played at their best levels without anyone needing to do anything. Theatres where this has been done run with virtually no complaints about sound levels. What's even more important, features are always played at their calibrated level. After all, why should people who buy tickets to see movies in theatres deserve to be punished by loud trailers?

To address this problem, the National Association of Theatre Owners, along with the studios and other interested parties, revitalized the Trailer Audio Standards Association or TASA. TASA produced an agreement among the studios to live within a standard for audio levels when producing trailers. This was made practical by the helpful introduction of the Dolby L-eqm sound level meter, designed to measure average movie sound levels over a long period. Once this agreement had been completed, TASA and the Motion Picture Association of America agreed that trailers with audio levels exceeding the TASA standard, would not be granted an MPAA approval.

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roughly 40 percent of the trailers playing in theatres exceeded this level. In reality this early standard had little practical effect on the loud trailer problem. This was because virtually all trailers, while meeting the new standard, were still much louder than well recorded features. As a result, trailers continued to require faders to be turned down around 5 dB. However, it was a beginning.

Only when the standard was reduced to 86 dB L-eqm did things noticeably improve. Today the TASA standard for maximum trailer sound levels is 85 dB L-eqm. It is very interesting to note that the standard in Europe is 82 dB L-eqm, a full 3 dB lower.

Every few weeks I sit through a series of trailers in my reference theatre with the fader set at "7." While I find that most trailers are tolerable at this level, they are often still too loud and offensive. Some trailers are still way too loud, and the commercials are typically just terrible -- badly mixed and/or too loud. As a result, I am still recommending setting trailer levels about 3 dB below the features. This results in trailers and features producing about the same sound levels in the theatres.

If the American standard for trailer sound levels was made the same as the European standard, things would be much improved and the entire issue of loud trailers might indeed be solved. However, there doesn't seem to be any desire for this to occur. At a meeting I attended at ShoWest 2002, it was reported that the number of complaints about loud trailers had come way down since the TASA standard was adopted. Further, there was resistance in the trailer production community to any further reduction in the TASA standard. It was even reported that there were some who felt that trailers should indeed be louder than features.

I take strong exception to such a notion. What are these people thinking? Every time audiences are subjected to trailers and commercials that are too loud, it reflects badly on every one of us involved with motion picture sound and theatrical exhibition. People really have the right to wonder if anyone in the industry knows what they are doing. Perhaps it's a good question. When commercial and snipe producers have been approached about reducing their sound levels, some have been reported to say "Why should we?"

Upon hearing the report that some trailer producers actually felt that trailers should be louder than features, I responded to the contrary. I have spent years mixing live outdoor concerts for the Boston Symphony and many other orchestras. At my mix position I was literally surrounded by thousands of people. One of the many lessons I learned during this period is that if one wants to get the attention of the audience, the best way is to bring

down the sound level. This encourages them to pay closer attention and quiet down. Excessive levels do just the opposite -- which is the last thing advertisers would seem to want.

Everyone involved with the work of TASA and implementing its standard deserves to be commended for tackling an enormous problem and making significant progress. However, more needs to be done as the problem of loud trailers is still with us and commercials remain out of control.

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