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BRYSTON
A Lifetime of Music

This Issue

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More Feathers For The Bryston PMC Cap P.1

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Bryston is pleased to announce that both SONY MASTERING New York City and ROBBIE ROBERTSON of DREAMWORKS STUDIOS in Los Angeles, California have chosen Bryston Amplifiers and PMC Loudspeakers for their facilities.

Mr. Vlado Meller of Sony Music Studios in New York is having a Bryston/PMC-BB5/XBD Active Monitoring System installed in his mastering studio. Vlado has numerous platinum records to his credit and is the mastering engineer for many of the world's top artists.

Robbie Robertson of DreamWorks Studios has purchased PMC-IB-1S loudspeaker and a Bryston 4B-ST power amplifier. DreamWorks Studios is developing a recording division and will be auditioning all new artists and recordings utilizing this monitoring system.

It is very gratifying to know that Bryston and PMC are

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Hands Up, You're Surrounded

Ever feel like throwing your hands in the air while attempting to understand the various multi-channel formats? I asked Mike Poston of Equipment Pool in Nashville to contribute an article for our newsletter on this very subject. Mike has extensive experience recording surround sound in the various formats available.

Dolby Surround/Dolby Pro Logic

Dolby Surround was first introduced in 1982 for playing videos of theatrical films originally produced with Colby encoded sound tracks. The Original four-channel Dolby encoding remains intact when such films are transferred to stereo videocassettes and laser disc, or broadcast on stereo TV. Dolby Surround (Pro Logic) was specifically developed to enhance the viewing experience. In very simple terms, through an analog matrix, the encode process preserves the original left and right information, equally distributes the center channel to the left and right without level increase, and then adds the surround channel in 90 degrees out of phase. The result is an analog stereo track that when, played through a Dolby decoder will distribute the channels accordingly. The consumer version of the decoder introduced in 1987 is termed Dolby Pro Logic. Most feature length films released on VHS today are Dolby Surround encoded. The broadcast industry uses Dolby Surround encoding in many TV shows and live sporting events. If it is not played through a decoder, it will play as a normal stereo analog track. A point of confusion arises when a non-Dolby Surround track is played through a decoder and some of the information is routed to the center or surround channels. This is nothing more than an anomaly of the decoder trying to decode non-encoded material. Unless your music CDs specifically say that they are Dolby Surround encoded, don't attempt to play them through a Pro-Logic decoder. The results might be strange.

Dolby Digital

In the late 1980s Dolby undertook to apply digital audio technology to 35mm film in response to growing interest from the film industry. In order to retain an analog track so that release prints could continue to play in any cinema, it was decided to place a separate new Dolby Digital optical track between the sprocket holes, Dolby engineers were faced with a great challenge. This 'perceptual coding' method (a 'lossy compression scheme) basically puts 10 gallons of information into a I gallon container. The result is nothing short of remarkable. It was also decided to provide "5.1" channels, which by now had been documented by various film industry groups as best satisfying the requirements for theatrical film presentation. The consumer equivalent of Dolby Digital film sound was introduced on laser disc in 1995 and was chosen as the multi-channel delivery format for DVD. It provides separate channels for left, right, and center at the front, two independent surround channels for true stereo surround effects at the side or rear, and a low-frequency effects channel that can be fed to a subwoofer at the listener's option. A specific Dolby Digital decoder is required for playback. Colby Digital also incorporates several features to accommodate and optimize the sound for many listening environments. Decoders can provide optimum down mixes (5.1 mix to 2-channel stereo) from multichannel programming, such as a matrix-encoded two-track mix for analog Dolby Surround decoding, a conventional

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making the same dramatic impact in the music recording business as they have already attained in the movie scoring business - becoming the standard.

As I have previously stated, owning a Bryston/PMC audio system gets you that one step closer to hearing your movies and recordings on a system equal to what they were actually mastered on.

Bryston/PMC Some More Movies

The movie and television industry continues to use Bryston Amplifiers and PMC Loudspeakers in the production of feature length movies and TV programs.

Recent movie releases include:

The General's Daughter

Inspector Gadget

Runaway Bride

The Sixth Sense

American Beauty

Bowfinger

Broke Down Palace

Viva Rock Vegas

Mumford

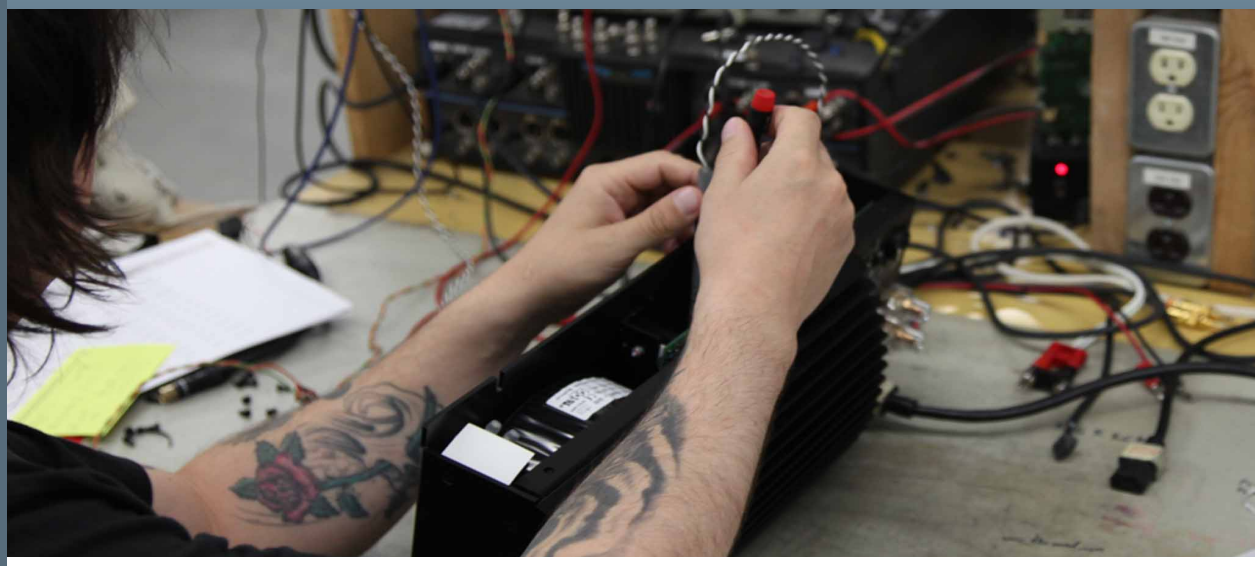
Stir of Echoes

Mystery Alaska

Three Kings

End of Days

Detroit Rock City



also can play dynamic compression to preserve low-level content and prevent dramatic passages from getting to loud when it's necessary to keep overall playback volume low.

What's more, through bass management, the listener can program the decoder to route low frequency effects only to those channels in the systems which have wide range speakers or subwoofers. The listener can also re-direct some of the low frequency information of the surround channels back to the .1 or "sub-channel". We'll get to this in a few minutes.

DTS - Digital Theater Systems

Another lossy audio coding scheme that puts a lot of information into a smaller space. In the film world, DTS sound tracks are provided to the theatres on the separate CD-ROM and synchronized with the film for playback. There simply wasn't enough real estate on the print to place the information along with all of the other sound tracks.

Film makers like Steven Spielberg (who is a majority stockholder in DTS) wanted more control over the sound/compression scheme used in the final print. Compression rates directly affect the audio quality and DTS rates are less than that of Dolby. But compression rates are also directly proportional to the space required for the file. DTS files are much larger than Dolby Digital files. That's a large reason that very few DTS tracks show up on DVD releases.

By the time the video compression is acceptable for the filmmaker, there's not much room left for the audio. Mr. Spielberg has stated that his films will not be released on DVD without the DTS sound track option. Most films have DTS, Dolby Digital, Dolby Surround, and SSDS tracks available. Like Dolby, a special decoder is required for the DTS track with down mixing capability. (One item of note here - when both DTS and Dolby do the down mix, the left and right channels are preserved, while the center and surrounds are added in through a mathematical algorithm and the .1 channel is removed.)

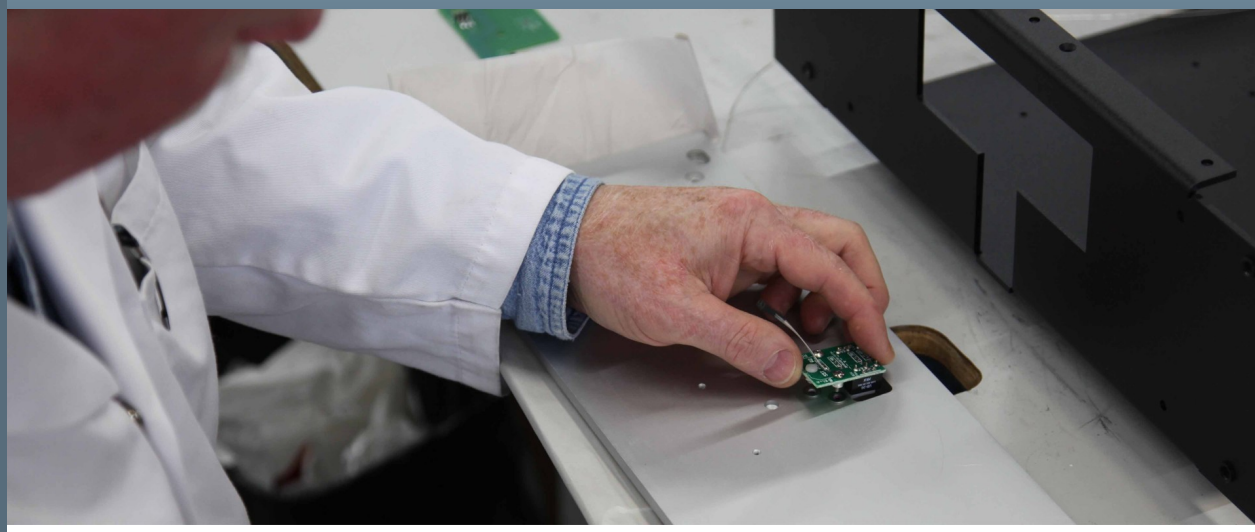
Each theatre will play the soundtrack of the system that they have installed in that particular theatre. If you are curious, you should ask the theatre manager which track of the film is playing. Many multi-theatre complexes have the same film playing in 2 or more rooms with different systems playing in each of the rooms. If you're still curious, you should see the film several times to listen to the various sound tracks and judge for yourself which one is best for you.

THX

This is NOT any kind of coding on the film. It is performance specification of the equipment and room pioneered by George Lucas and named after his first feature film, THX 1138. It is one of the best ideas for theatre performance on the planet. Too often you watch a film in a theatre and the sound in that theatre is nothing short of awful. Poor speaker/amp/room performance can leave you with a very bad feeling about the film. Films that have the THX logo means that they were mixed in a THX environment and if played in a THX theatre, you will experience exactly or very near what the filmmaker wanted you to. If the film does not have a THX logo, but the theatre has a THX certification, you can still be assured of the best possible audio performance. Also, if home theatre equipment has the THX certification, it will be good. But that also means that if it doesn't carry the THX logo, it's not necessarily bad. Comparing specifications would be prudent at this point. THX certification is a licensing thing, and some manufacturers aren't willing to pay for the rights to display the THX logo even though their equipment meets the requirements. Also, some speaker manufacturers disagree on the THX spec for home theatre use. In all cases, good monitoring principles, including room considerations, common sense, and a little homework applies when selecting components for home theatre use.

SDDS (Sony Dynamic Digital Sound)

Yet another coding scheme that places 2 additional speakers/channels (7.1) in the mix. In some large theatres, the distance between the center channel and either the left or right channels can be quite great. Because of this, an additional channel is inserted in this space to provide additional point source imaging of the sound. SDDS is not really an issue with home theatre unless you have an 80 foot wide screen.



Is it LFE or LFE or LFE?

In other words, is it Low Frequency Energy, Low Frequency Extension, or Low Frequency Effects? In terms of 5.1 mixing, the winner is Low Frequency Effects. The .1 channel is designed as a Low Frequency Effects channel. Filmmakers wanted a way to "move a lot of air" in large theatres giving more impact in a theatre when you add more 20- information to it. Some people also refer to this as the "subwoofer" channel. But again, it contains, or should contain low frequency effects information and was never intended for use with primary information.

It shouldn't contain the bass guitar of a music mix. If turned off, everything shouldn't sound 'thin'. But at this point, we're assuming a full range monitoring system without "bass management". For the sake of this discussion, let's assume for a moment that a full range system has a response of 20Hz - 20kHz. Many systems don't have the capability of reproducing low frequency information in the 20 - 80 Hz range and need some help in that area. Some systems are designed so that a separate passive bass cabinet can be used to extend the bottom end of that speaker. Using this method, putting a subwoofer on each of 5 channels requires both lots of money and real estate. Besides, it's just not very practical. It's more economical to make non-full range speakers and use a system of redirecting the bass frequencies to a common subwoofer. Redirecting the ass is called Bass Management, or providing a Low Frequency Extension to the system. A good 5.1 system with bass management will redirect the bass requirements of each or some of the 5 channels to a subwoofer cabinet and use the same cabinet to reproduce the sounds from the . 1, or Effects channel. Since many systems use full range speakers for the L, C, R and smaller satellites for the surround channels, it's quite common to re-direct the bass frequencies from the surrounds to the sub-woofer. Using bass management like this also removes the load and stress from each of the 5 channels trying to reproduce all that low frequency energy while improving the headroom and clarity of the system. An important note here is that bass energy requires power. And when you're redirecting the bass of 5 channels plus providing a low frequency effects channel, it will require quite a bit more power. If you're re-directing all 5 channels, figure 3 times that of each of the 5 channels. If you're redirecting just the surrounds, figure 2 times that of each of the front channels. An additional side note here is to don't under power your system. Your system, including your speakers, will last longer and sound better if the amplifiers are "loafing" most of the time. More tweeters are blown by under powered amplifiers than anything else.

In Summary..

The various formats can be confusing but proper understanding of each is essential for obtaining the proper performance of both the equipment and the sound track. Doing some homework is a definite requirement of installing a proper home theatre system. Also, you'll know what to do when you visit a neighbour and he has each speaker of his 5.1 system in a different room.

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Bryston Ltd.
677 Neal Drive
Peterborough, Ontario
CANADA
K9J 6X7
Phone: 705-742-5325 or 1-800-632-8217
Fax: 705-742-0882
Email: contact@bryston.com
Web: http://www.bryston.com

Editor: James Tanner, Vice President of Sales and Marketing
Email: jamestanner@bryston.com