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## DVE Q&A

### Categories of Questions

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### Audio

*When playing the audio test tones from DVE, how do I adjust each speaker's level?*

We would start by suggesting that you purchase something like the Radio Shack sound level meter for measuring the level of audio coming from each speaker if you don't already own one. It's much easier to use the meter to determine levels than just listening for a similar volume level from each speaker. This particular device is well respected in the audio industry even though it is inexpensive. Once you have it the object is to balance the volume among all of the channels so that they are equal, then turn up the main volume control until it reaches + 75 dB on the meter to obtain the reference volume level used to mix the program.

We should mention that we seldom listen at reference level, finding that point about 10 dB louder than we need to hear the program. The real objective is to make all of the channels equal in level then set the main volume control wherever it is comfortable for you.

How do you accomplish that? Setting the volume of each channel should be something easy to do but you'll have to determine how from the owner's manual. My amplifier has a small button for each channel on the front panel. I just press it and turn the main volume control knob to set the level of the individual channel. I can also get at these adjustments from the menu system of

the amplifier, but I have to see the video output of the audio amplifier on my TV set in order to know what adjustment has been selected.

Next comes the choice of pink noise for setting the level. We provide both band limited and full band pink noise for speaker setup, and we provide it for Lt Rt, 5.1, and 6.1 systems. We feel the band limited pink noise is the best choice for matching levels. It should sound nearly the same coming from each speaker.

The full band pink noise will allow you to listen for any fidelity differences among the loudspeakers in your system. In theory they should all sound the same. In the audio section of DVE we point out that the design of an individual loudspeaker may be different, depending on its position and application. As an example the center loudspeaker may not look like the left or right loudspeaker, but it should sound the same.

By the way a “speaker” is a person, as in our featured speaker for the evening or the person presiding over a deliberative assembly. A loudspeaker is the sound reproducing device in an audio system. If we can get passed that we’ll go back to using the word speaker to mean the object in your audio system.

The next step is to find out how to make the individual channel volume adjustments on your amplifier. If you are having trouble trying to figure that out after reading the owner’s manual go to the service or installation department of the retail outlet from which the product was purchased. Ask them for help, including the possibility of hiring them to come out and set it up for you.

DVE shows you how to place the meter for reading the volume level of each channel. It also tells you how to set the meter. You may want to balance the levels at a lower volume level than the + 75 dB we suggest as a final level. Remember the object is to get them all equal.

*In setting audio levels we’ve discovered that there is a difference between the LFE channel in VE and DVE. Which is correct?*

Measuring low bass information turned out to be more complicated than we thought when we created Video Essentials back in 1996. In all of the other channels we can trust the metering used in the editing system, but not with the low bass information found in the LFE channel. In VE we used the editing systems’ meter to determine the level in the LFE channel. In DVE, with the help of Dolby Laboratories in Los Angeles we made careful spectral measurements of that audio, applying the C weighting curve that is used in acoustic meters to measure the audio level in that track. The level on DVE is designed to be correct when you are measuring the band limited noise in a room with an acoustic meter. The meter should be in the C weighting position with a slow response. The difference between the two discs is 2 dB, with DVE being higher than VE.

*Several e-mails have reported differences as large as 5 dB between the two discs. Why would it be different than what has been measured between the two DVD master tapes?*

Our measurements were made at the output of the Dolby Digital decoder with C weighting applied. They do not account for anything that might be going on in the amplifier or in the room itself. As much as you might think the amplifier and the room would be consistent when playing the two discs there is a potential for a difference. The spectrum of the noise is slightly wider in DVE than in VE. This was done to be more inclusive of the capability of the channel. There are three places where this could make a difference. The extra energy might be a factor if the crossover is set above 80 Hz. If the response time of the meter is fast you might be seeing larger peaks from DVE than VE. Last, but not least, is the room bass response at your listening position. If it has not been equalized the slightly larger bandwidth in the LFE signal in DVE could be reaching your listening position at a higher level. Move the meter to the left or right of the listening position and see if it shifts in level.

*My amplifier has been set for a crossover of 80Hz and the subwoofer connected to the LFE output. When I play the Bass Management tests in Title 10 my subwoofer is active for the full range of the 15Hz to 150Hz sweep. Why is this happening?*

The crossover is a transition point, not a brick wall. You should notice that the levels in your main speakers are going up as you approach 80 Hz and continue to go higher in level as the frequency in the sweep continues to increase. The volume level in your subwoofers should be going down once you cross the 80 Hz point in the sweep. It may not be gone completely by 150 Hz but should be significantly lower in volume level than at 80Hz. If you listen to the 15 Hz to 300 Hz sweep earlier in the title you should notice that the majority of level at the top end of that sweep is coming from your main speakers.

If this is not what you are experiencing there may be a problem with the settings in the amplifier or the crossover itself. The sweeps in the disc represent the standard performance capability of the audio channels and in no way can cause your DVD player or amplifier to act in a different way than they would with any other Dolby or DTS encoded disc.

## DVE versus VE

### *Who can benefit from using Digital Video Essentials?*

We get this question a lot, especially from VE owners, whom we appreciate. DVE provides a clearer message for our intended audience, anyone interested in good audio and video. When an artist tells a story in audio and video the program contents are usually produced on a well defined canvas of image and aural capability. The story telling often takes advantage of everything the canvas has to offer. If the program is played back in your home on something less than the canvas on which it was created there is a high probability that parts of the story won't be presented in the way they were intended.

From a time shortly after color television was introduced to consumers its capability, while improving in many ways, has been drifting from the defined canvas for properly reproducing video. It's been a tug-of-war for a manufacture to decide to make TV's right and tell consumers they must control their viewing environment or make them really bright, sacrificing picture quality in the process. We're confident you know which side has had the upper hand.

Joe Kane Productions has been trying to change that trend since the 1989 introduction of A Video Standard (AVS) on laserdisc. With each new program, Video Essentials in 1996 and now Digital Video Essentials, we've gained ground in challenging product quality and providing consumers with an opportunity to understand what they should be getting from their TV set.

DVE provides a more detailed statement about the canvas we call television. Some of the motivation fro this comes from the additional requirements of newer audio and video formats. The source quality is better, but also more complex than it was when the prior two programs were assembled. We also believe a much larger effort has to be made to provide this information and make it work if you are going to find any significant advantage to HDTV.

### *Is DVE just for videophiles?*

The intention of program is to let everyone know that while most moves in the direction of HDTV might show a noticeable difference in picture quality the goal is reaching system specification capability. We're trying to help you understand what it should be like. DVE tries to support that with reference quality test and demonstration materials. It will hopefully help everyone learn how to judge the quality of a system. Doing a good job of installing a high quality audio and video system may require the assistance of outside help. Here DVE should help you with reference materials to determine that the job has been done right.

### *Knowing Video Essentials, what changes should consumers expect in DVE?*

Digital Video Essentials is much larger in scope than VE. The amount of tutorial information has almost doubled. There are other differences. Just as VE covered the transition from composite to component, DVE discusses the transition from standard definition to high definition television. It addresses solid state display devices and their individual setup requirements. The DVD versions of the program will help qualify the quality of DVD players as well as the display. There is more information about the general state of the industry as well as an introduction to high definition video. The program also has more to say about audio.

## General

*What is the most common problem in home audio/video systems and how can Digital Video Essentials fix it?*

Title 2 in DVE answers this by telling the viewer that the most important place to start a discussion of aural and visual quality is with the room itself. Really good equipment can look and sound bad in a bad room just as inexpensive equipment can do much better in a well set up room. DVE provides some basic aural and visual tune-up tips for the room environment and, later in the program, talks about finding qualified help if you'd like to have the room set up for you.

*Will the DVD version of DVE work to set up my high definition set?*

While the method of setting up each the controls for standard definition and high definition has been standardized in DVE you'll need test signals in each of the formats for the setup of that format. You'll need both the DVD and HD versions of DVE to set up a display that will take both sources as an input.

*At the end of Title 7 you talk about using a screen to attenuate the light of solid state projectors. How do you determine when it is necessary to use such a screen?*

The answer to this is individual to the display device itself. We tell you that it would be nice to get the black level down below 0.05 foot-Lamberts. Of course we'd like to see it lower than that as long as you can still get at least 10 foot-Lamberts for a peak white in video. In figuring out what screen size and type is right for your installation you need to start by measuring the individual projector's ambient light level at video black on a screen of known size and gain. We are not aware of many manufacturers providing this type of information to installers, let alone consumers. It's something we hope to see change in the near future. If nothing more magazines doing reviews of a projector should provide such information. Knowing the ambient level you can calculate the screen size and gain that would be required to bring the appearance of that level to a point below 0.05 foot-Lamberts.

*Some of the menu examples in Title 4 don't exactly match the real menus. What happened?*

When we first scripted DVE we had ideas of how the menu system might look and function. Images of these menus were created at 1080p so that they could be edited into the program. Once we finished the body of the program and started the DVD authoring process we discovered that some of our original ideas could be simplified, making the menu system easier to use. As a result the actual menus don't exactly match the examples we created for the program. You'll see the differences when you go from the real menu to the descriptions of the menu in the program.

*DVE talks about being progressively mastered. Did that happen?*

No. Progressive forms of standard definition video are part of the suggested digital video formats in our ATSC DTV system so we thought it would be possible to master the DVD from these formats. What we found was that they are options in name only. While many companies told us they could help us accomplish "True Progressive Mastering" no one was able to do it at a level that was good enough for DVE.

We've struggled for nearly two years to make it happen for both 480p/24 and 576p/25. There are still reports that the capability of doing it is just around the corner. In the mean time we needed to get DVE on the market. We are still pushing for "True Progressive Mastering" but are now not sure how it will applied to the standard definition version of DVE. Our primary focus for this capability is now on high definition DVD. Even there support for the 720p/24 format is difficult to find, yet it's critical to bringing high quality HDTV to a red laser DVD format.

*On the internet forms we've seen a number of reports saying that DVE has a lot of vertical edge enhancement. Is that true?*

If you are seeing a lot of vertical edge enhancement in images from DVE, chances are that it is coming from video processing after the disc.

In converting the 1080p/24 frame master to the 480i/60 that was used to master the program we attempted to preserve all of the detail that an interlaced system would allow. We've noticed that there is a slight amount of vertical edge on some of our information screens. The majority of vertical edge enhancement that is being reported in the forums is coming from the DVD player or video processing or the display itself. We've been able to confirm this by looking at the test signals on the waveform monitor, directly from the generator versus out of the DVD player. We've found DVD players that closely match the generator and others that add vertical enhancement in the process of converting the signal to 480p

The test signals are as clean as an expensive generator can make them. We've used the digital output of the generator to ensure that analog enhancement wasn't being accidentally added and confirmed the condition of the test signals from a DVD player we consider capable of the task.

Some of the reports talk about seeing the edge enhancement in DVE but not from other DVD's. We know from experience this is a case of the video signal in other discs being filtered in the vertical direction, eliminating any signal that might cause a video processor to ring.

DVE is pushing the limits of the video system capability much more so than VE. We justify taking this position because a high quality down conversion from HD of any program source should occupy every bit of space available to standard definition video. That didn't happen when we were producing VE in standard definition. In using DVE test patterns in our consulting efforts we've found several examples of circuits that weren't up to the full capability of standard definition. Once the manufacturer saw the problem it was easy to fix.

## Navigation

*Are there general navigation tips that would make it easier to make our way around DVE?*

The WAMO, now Cinram, people have done a great job of creating the navigation for this disc. There are several shortcuts integrated into the menu systems that might not be obvious. Here are a few that we find handy.

Finding the Program Menu system.

Some DVD player remote controls don't provide a Title key or upper menu select key. They do all provide a menu key that will get you to the lower menu system in DVE. We've included an option in the first page of every Chapter menu that will take you to the Program Menu. If you are willing to wait, the disc will also take you to the Program Menu after the introduction to the program.

By the way, we recently encountered a dealer created remote control system where the Title key was on the system but not the Menu key. Watch out for this in systems that might be created for your use. Integrated remote controls should have both the Title and Menu keys. Even in this case DVE is designed so that you can get to all of the lower menus through the upper menu system.

Finding the contents list for each title.

Each of the titles in DVE has its own menu system that lists the contents of each title. If you press the Menu key while in an individual title it will provide you with a list of that title's contents. You can also get to this menu from within the Title Index option of the Program Guide menu. First select the Title Index option in the Program Guide menu then select the individual title for which you'd like to view the index. Pressing the Enter key on the remote will take you directly to that index.

Once inside the title's index select the chapter you'd like to view and press Enter. Where there are multiple frames describing the contents of a title pressing the up arrow key will get you to the forward or back button, allowing you to more quickly move among the frames.

Quickly moving forward to the next menu frame in the Program Menu system.

Several of the Program menu categories have multiple pages of options in them. The Title index is one example. Reference Materials is another. Getting to the next page is as easy as pressing the up arrow key followed by the enter button on the remote. There is no need to scroll through all of the options.

Using the Return function.

In the Program menu system the Return function takes you up a level in the menu system. In many of the Program menu frames you'll find that the word "Return" as an option for going up a level. You can also press the Return key on the remote control to accomplish the same thing. Using the Return key on the remote control you can quickly go back up to the highest level in the menu system without having to navigate to the word Return in each of the menus.

Repeating sequences of test materials.

Individual motion video and audio reference materials have been put in their own chapter. Use the chapter repeat function to make them stay up longer than the time provided in the program.

If you want to repeat a particular portion of a chapter or more than one chapter in a title, but not all of the title, use the A-B repeat capability of the DVD player. In most DVD players the A-B repeat mode will not cross a title boundary.

Moving among Program Notes frames.

Program notes can be found on the top page of the Program menu system. They are individual frames of notes, some of which can be found in the program, others providing additional information about topics covered in the program. The enter key will move you forward among these frames, including advancing from one category of notes to another. Within a particular category you can use the skip back button to go back among the frames. The skip forward button will also take you forward in the note frames, up to the boundary of a category. The Enter or Return key is needed to get out of a category.

Finding test patterns in the Reference Material section of the program.

We've provided a list of test materials and their location in the program in the DVE packaging. That list can also be found on the DVE web site. <http://www.videoessentials.com> The fastest way to get to any one of these patterns is to search for it by Title and Chapter. Each of the patterns can also be reached through the menu system. There is a brief overview of how to search for a Title and Chapter in Title 4 of DVE. One of the things that it illustrates is that the

search function is different in many DVD players so you may have to read the owner's manual for the player to find out how this function works.

*In navigating the video test patterns by pressing skip forward my player won't let me step to the next title. How do I get to the next title?*

The way the DVD has been designed all DVD players should allow you to use the skip forward button to advance among the individual chapters in each title. When you are in the video test signal section you should be able to not only advance from pattern to pattern within a title, but jump to the next title once you've reached the end of the current title. You can also skip back within a title but once you've skipped all the way back to the beginning of a title one more skip back will take you to the beginning of the previous title.

We've found DVD players that won't skip over title boundaries as you are reporting. The Title search function in those players should allow you to get to the next Title. You may need to look up how to do that in your DVD player's owner's manual.

We've provided a Title and Chapter index for the disc as an insert in the DVE package. That information is also listed on this web site.

*There appear to be two menu systems in DVE. How do they work and how do we get to each?*

DVE Title 4 begins this explanation. The upper level system, call the Program Menu can be reached by pressing the Title key or Top Menu key on the remote control. While in an individual Title a list of its contents can be displayed by pressing the Menu key on the remote.

There are five options listed in the opening frame of the Program Menu. Three of the options, Introduction, DVD Navigation, and Playback Options, go directly to their part of the program or in the case of Program Options to a selection of the audio track to be played. The other two, Program Guide and Program Notes, lead you to additional menus with sub-menus to follow.

Most of the menu pages that come up in regular DVD's don't require you to know much about navigation to get to every point they've listed in the program. Use the arrow keys to get to where you want to go and press Enter on the remote control. DVE is more complex. Using it you'll find out more about what can be done in a DVD.

You may want to read the manual for your DVD player for some additional hints on how to find capabilities in your DVD player.

## Video

*I just adjusted my set using DVE and the picture looks completely different from anything I've seen before. Is the new picture right?*

If you followed the instruction, including going through the Troubleshooting section of Title 7, it is likely that the image quality is much improved.

Is it "right"? The new picture is better, within the limitation of the set's ability to be adjusted from the front panel controls. One of the things we suggest is that you write down the original settings, prior to making any adjustments. Once you've learned how to use the set up patterns in the disc, put the set back to the original adjustments then look at the test patterns to learn what distortions were in the original picture and have been removed by the adjustments. That might help you understand a little more about the improvements that have been made.

If the resulting picture after calibration looks a little dim to you, you'll understand the need to control ambient light in the room. Most sets, when properly set up, can not compete with a lot of ambient light.

The most important thing about calibration is that it will change your expectations of a display device. That's good for now and in the future. When the time comes to replace the set you'll have a much better idea of what to purchase.

*I've owned and used VE for a number of years and just recently purchased DVE and a new TV. When I set it up using DVE I get a different result than when I use VE. What's going on?*

DVE has been designed to be easier to use and at the same time provide more resolution in some of the adjustments. The test signals should help you accomplish the same results from either disc. We are adhering to the same standard in both programs.

*(Show the PLUGE w/Gray Scale from VE and the PLUGE w/Gray Scale from DVE.)*

The differences you're seeing probably come from trying to make the new test patterns work exactly as they did in the prior program. As an example, there are now three steps in the PLUGE, two above black and one below black. The extra stripe above black was added to accommodate DVD players that don't pass information below black. The program explains the differences in Title 7. Now there are two strips above black instead of the one in VE and the PLUGE is on either side of the gray scale.

The principle behind our new color bar pattern is the same. The bars on the gray background are larger to make it easier to see the difference. There isn't the unnecessary information found in the SMPTE color bars plus this pattern makes it much easier to see what's going on in the other two channels, red and green. The older SMPTE bar patten is still there if you are more comfortable using it.

The blue filter we provide in DVE is slightly smaller in size than with VE but is actually better at filtering out the red and green than the old blue filter so that should be a help, not a problem. The slightly smaller size was necessary to fit all three filters on a single card.

We are now providing the red and green filters so you can get a better idea of how well your color decoder is functioning.

You might try looking at the differences between the two discs for just one parameter, say setting the Brightness control. Start with DVE, Title 12, Chapter 2, the new PLUGE pattern with three stripes on either side of the gray scale. (There may only be two on each side if your DVD player doesn't pass information below black.) The instructions for using this pattern are in Title 7, Chapter 2. Once you've finished setting Brightness go back to VE, Title 15, Chapter 2. You should see only one strip above black and it should be at the same level as the brighter of the two stripes in DVE.

The advantage of the PLUGE pattern in DVE is that you get to look at black level in two places in the picture, potentially compensating for picture uniformity issues, and you now have more detail near black level. This is just part of the extra detail in DVE and why it is more valuable than VE.

We hope that you'll take the time to go through the entire tutorial in Title 7.

*When displaying the Overscan test pattern in Title 12, Chapter 17, I get different centering and overscan information, depending on the DVD player. Why is this happening?*

In the NTSC DVD format the Overscan pattern has been built to the program production standards as specified in the SMPTE Recommended Practice (RP) document number 187. It specifies that the digital pixel area is 720 by 486. The digital pixel specification for DVD is 720 by 480. That suggests that at least six lines in the vertical direction are going to be lost between the production format and the DVD itself. In the horizontal direction DVD players may not show the entire width of the picture. We see as few as 704 pixels from some players. Of course 704 by 480 is one of the ATSC rates for DTV.

The SMPTE RP-187 is specific about the location of the center of the image and that's where you'll find the center of our Overscan pattern. What this means in setting up the TV is that the center of the Overscan pattern should go in the center of the screen. Depending on how much of the horizontal and vertical information is cut off by the DVD player, and which edge of the image is lost you may not see as much information on one edge as the other. Over scanning the image may be necessary to cover up the fact that more is lost on one side rather than the other. In most cases you shouldn't have to push the image out beyond the 2.5% markers.

We are suggesting that not all DVD players will show this signal the same way and this is what we are finding. As an example, six lines in the vertical direction will probably get lost from the 486 of our original pattern to the 480 of the DVD. Six lines might come off the top and none off the bottom or six lines could come off the bottom and none off the top or it could be one and five or two and four or three and three. We've seen all of the combinations in various DVD players. In the horizontal direction the difference between 720 and 704 can come from either side, although it usually comes off each side equally.

JKP has offered an amendment to the DVD player specifications stating that the player should follow the SMPTE RP-187 for image centering and pixel aspect ratio in NTSC. That suggestion still leaves the manufacturers freedom to trim the edges as they would like but suggests they properly place what's left of in the active picture area of the video output signal.

The PAL DVD format is better specified than NTSC. In it both the program production and DVD format are the same, 720 by 576. That doesn't say that all player manufacturers conform to that number but at least the specification are consistent.

*Why is there a difference between the number used for the NTSC production format and the DVD player format, and or the ATSC format of 704 by 480?*

The reason is that the digital format for production was based on our analog system. In the vertical direction the analog system has 482 and ½ active lines in the picture. Additional lines were added to the digital video count to accommodate closed captioning. When MPEG encoding came along for digital video it worked on even multiples of 16. The number 480 is the closest multiple of 16 to the production format of 486.

In the horizontal direction the number 720 for digital samples includes all of the analog formats. Some of the analog formats only go out to 713 or less. The two numbers that are even multiples of 16 for MPEG are 704 and 720. In the PAL world the number 576 fell right into their production standard and that of MPEG encoding. It's an even multiple of 16 as is 720. That doesn't say that we don't expect problems with individual PAL DVD players, just that it shouldn't be as much of a problem as we are seeing in NTSC players.

*When I properly adjust the Color and Tint controls using the blue filter the red and green don't look right. My set has controls for red, green and blue. Can I use those controls to correct the errors in the red and green?*

No. The controls you have most likely found are for setting the color of gray, not fixing the errors in the color decoder. The fix for the decoder may be in the user menu system where there might be a choice of ways to decode the color information. Some TV sets have a fix for these

errors in the service menu. A well trained technician should be brought in to make these adjustments.

*DVE doesn't seem to work when adjusting my solid state projector.  
What's going wrong?*

Most of the comments like this are far more forceful than what we've written, often times just stating that DVE doesn't work without providing any additional information. Since it's nearly impossible to answer such a statement we've added something to it to give us room to respond. Oh how tempting it would be to paraphrase Mark Twain when he received news of his demise.

We think what has happened is that either the results of the adjustments were much different than what the viewer expected or the set itself just isn't capable of a good picture. We also know that some of the cases come from people jumping to conclusions before going through the entire program. Answers to their questions may be in the troubleshooting section of Title 7. We try to look into every set of circumstances presented by comments from viewers, at least as far as our resources allow. Don't be afraid to ask questions but please include enough detail so we can help. Just keep in mind that we just may not take you seriously if you start by telling us that the test patterns in the DVD are defective.

We know from our experience at helping manufacturers build higher quality products that the patterns in DVE work well. Companies like Samsung have been the proving ground for what we are doing. Patterns from DVE were used to finalize the design of their new DLP front screen projector. We discovered many things about the projector that would have gone unnoticed had it not been for our new test patterns.

In the way of providing background on why DVE is better than VE, the test patterns in VE were designed for CRT based technology since that was the majority of what was in use when that program was written. In theory a solid state display must emulate a CRT since the direct view CRT is the model for all video display specifications. If all manufacturers were to adhere to this idea there would be no need for the consumer to go beyond the signals in VE. Unfortunately that isn't the case.

There is another issue addressed in DVE. Much of the standard definition material on DVD has been down converted from HDTV. If it is done right the down converted signal has the potential of more completely filling the capability of the standard definition signal that would happen if the program were produced in standard definition. Some of our new test signals have been designed to fill that space.

Now on the solid state display issue that we added to this question.

In an effort to make it easier to recognize where many solid state devices go wrong we've included additional test patterns in DVE that address those issues. The test patterns have been designed specifically to help point out the errors that are found in digital signal processing or

digital display that are not common to analog CRT displays. Descriptions of how to use many of them can be found in the Troubleshooting section of Title 7. We are also providing additional information in the form of descriptions of how to use the test signals on the DVE web site. You'll also find general notes on video from the lectures we've been presenting to video system installers. In looking at the components in your system you may find that one of more of them is as much at fault for errors seen in the picture as the display itself.

By properly using these new patterns in DVE it is far more effective in helping you set up digital video devices than VE. The lecture notes will explain where most equipment manufacturers are missing many important points being made in our program.

*My DVD player's menu system doesn't make it easy to choose the right level for black in video, or at least the names they are using for the two choices don't mean anything to me. How do I figure out which level of black in video is correct for my system?*

DVD players often give you a choice of the level of black in the video signal. The reason for this option is that in North America we have been using a higher level of black in our composite and S video signals than is used elsewhere in the world. Component video can also have this higher level of black but our digital production standard for component video uses the lower level of black used. The DVD player choices, as we would like to see them in the player's menu system, are illustrated in the DVE Program Notes under Video then Waveforms. The menu options may or may not affect the composite and S video outputs and must also change the color levels if it changes the level of black for video.

Even if you take the time to look at the DVD player's manual for help in determining which of the options is best for your system, you'll probably find the descriptions vague. Manufacturers appear to be reluctant to clearly define what they are providing as options.

If you want to be sure of which position is higher or lower properly set the Brightness control on your set using the PLUGE with Gray Scale pattern in Title 12, Chapter 2. Once it is set change the option in the menu system then go back and look at the setting for black on your set. It is either going to look brighter or darker. That will define which position is brighter, the one with the setup on black, and which is darker, the one most likely to have black at zero.

You may not see a change in black level if your player is connected to the composite or S video output of the player. You may also notice that the below black information is missing in the lower position of video black.

Making the choice of one level of black over the other is going to be system dependent. If your display device or video processor doesn't have independent memory for black being at a lower level from the DVD player then it must be set at the higher level.

DVE was produced to the SMPTE specifications for digital component video, which put black at zero volts DC. It was recorded on the DVD at that level. If you select the option of the higher level of black, the change in the video signal is being done in your player. It has to reduce the amplitude of the color signal in addition to adding setup to the lower black level recorded on the disc.

*Joe Kane*