

# GET A HELPING HAND WITH CALIBRATION

Fed up with out-of-the-box presets, **Martin Pipe** fine-tunes his audio-visual entertainment with the aid of Spears & Munsil's new Blu-ray calibration platter



Spears & Munsil's new set features BD and DVD test discs, guide booklet and colour filters

**A FEW YEARS** ago, many purchasers of the Oppo BDP-93 and BDP-95 Blu-ray players got a little extra thrown in. This was the original version of *Spears & Munsil HD Benchmark*, a calibration Blu-ray designed to help you get the best out of your AV system. Now a second edition has been released, called, unsurprisingly, *Spears & Munsil HD Benchmark 2nd Edition*. Although Oppo doesn't now bundle this disc with its players, you can pick it up in the UK for £30. Having spent quality time with it, I can confirm it's a worthwhile purchase, because if you want the best pictures your equipment is capable of, some level of calibration is vital.

Why? Because out of the box, flatscreen TVs don't offer ideal results. Pictures on many presets can be excessively bright, with colour and contrast levels best described as aggressive. Even the Cinema or Natural settings can be off-kilter. The good news is that even entry-level screens typically offer menu-driven picture adjustments nowadays, and calibration helps you set them properly.

Then there are the upmarket sets with dedicated adjustment menus for professional ISF (Imaging Science Foundation) tweaking. An ISF-certified calibrator will extract every last ounce of

performance from your equipment, but this is a specialist activity and not exactly cheap.

Those who have blown their budgets on their Blu-ray collection – and are happy to fiddle themselves – are the target market for calibration discs. They can get surprisingly close to what professionals can achieve with colorimeters and other tech hardware, and in using one you'll learn more about what's involved. (It's interesting to note that when I attended an ISF Level 2 course a few years ago, the original Spears & Munsil disc featured quite heavily.)

### A potted history of tweaking

Calibration discs for home cinema have been around for nearly 20 years – one of the first was the *Video Essentials* Laserdisc. A version of this, *Digital Video Essentials*, was subsequently released on DVD, D-VHS and Blu-ray. Silicon Optix also released its *HQV* platter on HD DVD and Blu-ray in 2007. There are also basic calibration tools built into some DVDs and Blu-rays – most notably the THX Optimizer – which cover the barest essentials of picture adjustment, such as brightness, contrast, colour/tint and aspect ratio. If you have a poorly adjusted display, the transformation yielded by even a simple bundled tool like this can be amazing, but a dedicated disc can take you further in your goal of making the most of your hardware.

They're not the sort of thing you'd want to watch regularly, but it's worth using them every few months so that you can check your system and make any necessary tweaks; the performance of displays (projectors in particular) tends to alter over time.



The initial Video Calibration section covers contrast, brightness, sharpness, colour and tint

On any calibration disc, you'll find a number of test patterns designed specifically for optimising the settings of various controls on your display, sometimes with the aid of cards or glasses fitted with filters (Spears & Munsil's Blu-ray is supplied with these for colour saturation and hue adjustment). There will also be a series of test clips (typically filmed in exotic locations) of the highest possible quality. Play these before and after calibration, so you can see for yourself the difference that adjustments have made. After going through the step-by-step process, your favourite movies should look noticeably clearer, more natural and endowed with lifelike vibrancy; under some circumstances, it may seem as if you're using a new display.

### Bonus features

This second edition Blu-ray has been enhanced with additional features and many more test patterns. It now covers 3D displays, caters for audio and allows you to assess the motion performance of high-end LCD screens with 120Hz and 240Hz refresh rates. Even if you have the original, it might well be worth buying the new version.

In the box are two discs. One is the calibration Blu-ray; the second is a bonus DVD for use with older systems – in addition to more basic tests and display patterns, this offers features designed to assess the deinterlacing performance of your DVD player.

As with the Blu-ray, the DVD's disc menus are attractively designed and the content sensibly organised into sections; despite their sophistication, usage of both is straightforward. However, although region-free, the DVD is NTSC and therefore of limited interest to UK viewers. Deinterlacing of film-derived material is a lot more critical with NTSC than it is with our PAL system, owing to the 2:3 pulldown telecine tricks that Americans needed to convert the 24 frames-per-second of film to NTSC's 60Hz interlaced video. All we had to do here in PAL-land was speed up the film ever so slightly...

Such issues don't really affect the world of Blu-ray, as film-derived material is stored on the disc at 24p. Newer HD video, including the menus and most of the test material of the S&M Blu-ray, is also recorded at 24p. All modern players have a 24p HDMI output mode, and all modern hi-def displays will be able to accept that. If the 24p mode isn't set, then the Blu-ray player has to convert the film-based video into another standard like 1080p60 – ironically, the default mode of some Oppo players – and that could introduce nasties like motion judder.

This is an interesting point. The guide booklet that accompanies the S&M disc sensibly recommends that, prior to calibration, you turn off tweaks like 'noise reduction', 'shadow detail' and 'Motion Plus' in the menus, select an appropriate picture mode ('Cinema' or 'Custom', rather than 'Vivid' or 'Game') on your TV and choose an initial 'colour space' in the player's setup menu. However, it doesn't from the outset introduce more fundamental issues – like the best way to connect your source or check the output settings of your player. 24p is



Above: Spears & Munsil's eye-catching colour space pattern helps you hunt for banding errors

The Colour/Tint test is used in conjunction with a screen's blue-only mode (or the supplied filter) to ensure accurate luma and chroma levels



mentioned later on in the booklet, in an overview of the disc's sections, but I'd argue that it's important to get this right from the beginning.

Furthermore, although the booklet – aimed at beginners – is on the whole interesting and contains many nuggets of valuable advice, it does tend to dwell on terms like 4:2:2 colour space without explaining what they are. And little space has been devoted to the disc's 3D tests.

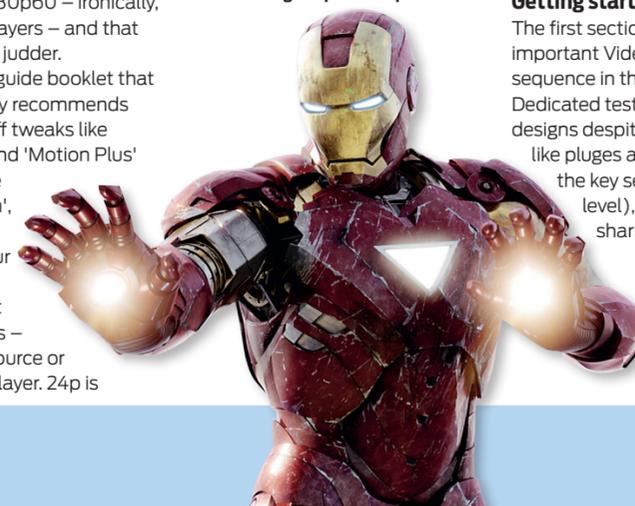
The booklet is, however, only one side of the story. Each test on the Blu-ray is given a brief guide onscreen. Then there's S&M's website ([www.spearsandmunsil.com](http://www.spearsandmunsil.com)), which is a treasure trove of information. There, the company can go into more detail – the articles on contrast and brightness adjustment are well worth reading. There's also a thorough explanation of colour space, but those 3D tests have still so far been overlooked.

### Getting started

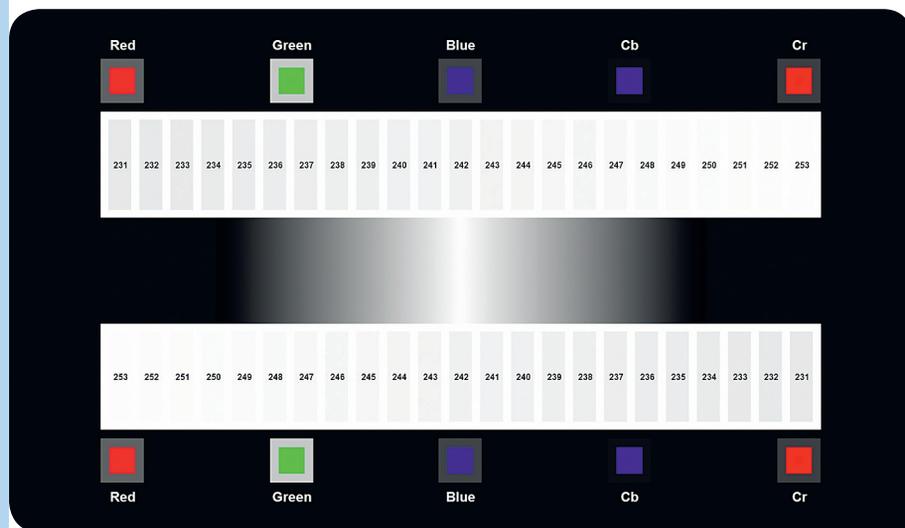
The first section on the S&M platter is the all-important Video Calibration. This is described in sequence in the booklet (and via an onscreen guide). Dedicated test patterns, sporting neat, original designs despite being based on industry standards like plugues and greyscale bars, take you through the key settings. These are contrast (video level), brightness (black level), colour/tint, sharpness and colour temperature.

Ideally, the colour tests require you to engage your TV's blue-only mode. Of course, not all sets have one; the 2D Samsung 40in LED set I regularly use does, but a Samsung 3D plasma that was in for review

Once calibration is finished, grab a favourite Blu-ray to see if your display is now offering a superheroic performance



## DISPLAY CALIBRATION



The Blu-ray offers a section to achieving your screen's optimum contrast performance

doesn't. If your display lacks such a facility, you'll need the blue filter supplied with the disc.

A final colour space evaluation pattern, which is rather busy, helps you verify that a full range of colour tones and shades are being reproduced correctly with no banding or misregistration; if there are any problems, the output mode of the disc player and any hidden display features should be examined and, after making any changes, the tests repeated.

Considering that no special measuring or test equipment is involved – you're relying on your eyes, essentially – it's amazing how good a job this disc does. Using the montage test clip featured on the Blu-ray (some breathtaking scenery, in 2D or 3D), the picture I eventually arrived at was far more balanced than it was out of the box. Colours were truer-to-life, greyscales more natural and finer details no longer exaggerated. The improvements were, of course, also evident with off-air HDTV and Blu-ray movies.

From the Advanced Video section, you can choose from an enormous range of other test patterns (including standard-def ones). Among them are patterns for detecting nasties like chroma-upsampling errors (which the S&M team 'discovered' over a decade ago), identifying scaling/cropping problems, evaluating contrast ratio, and assessing the effects of motion on resolution. Associated with this is a Video Measurements section that will appeal to those with light meters and other measuring tools.

The Video Processing section contains a comprehensive range of torture tests designed to identify problems with scalars – whether built into a disc player or TV, or in an external processor. But that's not all. A trio of sections entitled Equal Energy

is also available. The first of these is a cleverly designed series of patterns that will enable you to get an approximate value for the gamma (which expresses how much light is output for a given video signal level) of your display without professional gear. It involves making comparisons between patterns, and then reading off the gamma value when a visual match is obtained (a gamma of between 2.3 and 2.4 is recommended for home cinemas in dark rooms). Interestingly, Samsung's 3D plasma achieved this out of the box with no need for menu-setting changes. The other two sections are designed to assess gamma/greyscale and colour gamut (range) with the use of specialist test equipment like colorimeters. These have been designed with the pros in mind.

Finally, in video terms, S&M provides a Stereoscopic area – before using this, you need to switch the disc to 3D mode in its setup menu. Most of the aforementioned patterns on this disc are encoded in flat 3D, so they'll appear onscreen correctly when your glasses are on and the disc/equipment is set to 3D. Contrast, brightness and so on do, after all, need to be set for 3D as well as 2D – and the darkening properties of 3D spex mean that calibration will be different for each (most displays have a different picture setting for 3D mode). True 3D content on the disc is designed to help you check the polarity and synchronisation of your glasses and assess depth. Visual crosstalk can be determined, and with your display's 3D adjustments (if there are any...) you should be able to minimise this. Using these menus, I found that the Samsung TV's 3D defaults benefitted from a moderate downwards tweak of the '3D perspective' setting.

So *Spears & Munsil HD Benchmark 2nd Edition* is a comprehensive and well-considered collection for eking the best from your home cinema display. The audio tests, in comparison, are rather basic – although the essentials are there. They cover channel identification, speaker-phasing checks, level setting (Spears & Munsil suggests you might want an SPL meter here) and determining whether the video and sound are out of sync (and if so, by how much). 5.1 is the default configuration, but a 7.1 mode can be specified in the disc's setup menu.

### A bargain buy

Considering what's on offer here, the £30 asking price is something of a bargain. All readers of this magazine are by definition home cinema enthusiasts, and probably won't be disappointed if they invest in a copy. *Spears & Munsil HD Benchmark 2nd Edition* allows you to do a pretty good calibration job without additional test gear, and you could even earn yourself plenty of brownie points by setting up the TVs of your friends and demonstrating how a little fine-tuning can make a big difference. Effort and patience is required to get the best out of it – and you may feel you've been swamped by an information overload at times – but the results are undoubtedly worth it ■

*Spears & Munsil HD Benchmark 2nd Edition*, £30 approx, supplier: [www.oppo-bluray.co.uk](http://www.oppo-bluray.co.uk)

The Stereoscopic section can help you get to grips with your TV's adjustment options

