

## Tweaking the Z4

By Rone V1.1 19/12/05 compiled from AVS Z4 Tweak-Thread

### Basic Tips for the Z4:

There are several presets on the Z4: the most useful for us are CREATIVE CINEMA & LIVING – both offer the best compromise of contrast and transparency of dynamic iris, both operate with AUTO lamp iris, if you turn the auto lamp iris to CLOSED or OPEN you will half contrast ratio!

CREATIVE CINEMA has better shadow detail and Colour.

LIVING has better contrast ratio, but colour needs to be worked on.

Contrast ratios for both come in at between 1100-1350:1 depending where contrast is set and how much you are prepared to let D65 run off at high intensities.

The presets such as DYNAMIC, POWERFUL & VIVID offer greater on/off contrast ratio but the greyscale is difficult to tweak and the iris makes far from transparent in operation. (Though we do have a tweak later on for limiting this.)

Most of the presets are pre-configured with some pretty irrelevant adjustments set to "on" – you need to turn these off as they either add noise to the picture or make calibration difficult. AUTO BLACK STRETCH, CONTRAST ENHANCEMENT, TRANSIENT IMPROVEMENT.

TURN OFF!

The other presets such as PURE, NATURAL could be quite useful as they exhibit a decent greyscale and gamma response. PURE – though comes with the LAMP IRIS CLOSED, which halves the CR. With NATURAL I have not had time to explore it's potential.

It is possible with DYNAMIC or POWERFUL presets to achieve that 7000:1 contrast ratio but the picture is impossible to tune without a filter and even still the IRIS is far too active in damaging the picture content.

Don't forget you must start with a specified preset if you want to follow any of my tweaks, you can't just jump settings between starting presets – if in doubt do a machine reset and start afresh.

## Manual Iris, Lamp Iris and Lamp modes:

There are several ways to alter light-output from the Z4:

**A Manual Iris** that is fixed dependant upon user adjustment (-63 to 0) - allows you to match light level of the projector to your room conditions.

**A Lamp Iris** – with three modes: AUTO - Dynamic or Adaptive, CLOSED & OPEN: This iris operates in auto on the basis of screen intensity. The idea being it will close down when average picture level gets below a certain threshold – to create a better "black". AUTO works well on CREATIVE CINEMA & LIVING, but on DYNAMIC and upwards – the Iris works too well and closes down too much in a dim scene.

**Lamp Modes** – Low (Cinema, Eco) A2, A1, FULL – Low gives the best black & lowest noise. A2,A1 are adaptive, light output increases with APL, this does not effect the lower end of the picture intensity so contrast ratio is boosted between 100:1 – 250:1. The downside is more fan noise.

You will find that you need to experiment with these settings to get the best combination of black level and light output with regard to your room characteristics and your personal preference.

For instance in a dark film with no ambient light level its best to close the manual iris right down to -63 and turn on the adaptive lamp mode A1. This gives the best contrast and best black level. The downside is a bit more fan noise in bright scenes.

A good compromise though is to set the lamp mode to LOW and select a manual iris of about -40 to -30, this way you will get a reasonable black level and contrast without the fan noise.

Be aware if you open the iris up too much black will turn to a blue/green fog, this is panel leakage and should be avoided.

In some cases it will look like the black level is too LOW (I kid you not!) when using the lowest settings if you have anything but a dark room, in this case have play with the iris settings until you are happy. Maybe a tweak of gamma between (-1 and +1) will help also.

Be aware that the iris affects both greyscale and colour uniformity. The more closed the iris the more the uniformity suffers; you've got to balance this with a decent light level. Greyscale is a little bit more difficult to offer advice with when implementing iris settings, if you start with my iris numbers – then deviate too much be aware that you will be slipping away from D65. You've got to find a happy compromise.

## Source

The following settings have been calibrated with AVIA, SPYDER2PRO and a SMARTIII light meter.

I am using a plain white 80" wide screen with 1.0 gain, the projector is 13ft from the screen and I have total light control (though my walls could be a better colour!).

My source is a HTPC feeding HDMI to the Z4, playback software is based around the Nvidia Decoders – VMR using TT 2.2 and WMCE. My graphics card is a Radeon fanless 9600se running CAT 5.11 on default settings.

The picture chain used PC Levels which is the HDMI L2 setting on the Z4. L1 uses video levels and crops RGB 16 and below.

**IMPORTANT:** My settings will not work for OVERLAY – for me, it's much inferior to VMR.

As yet I have yet to calibrate any other source for the Z4, but in principle a HDMI enabled DVD player could follow these tweaks. (There is some feed-back in the AVS Z4 tweak thread for the OPPO DVD player.)

## D65 LIVING Settings with Colour management notes for HDMI – HTPC – Nvidia VMR

Unfiltered

Contrast Ratio 1350:1

Preset: LIVING

B: -3 (I set this on AVIA on just black bars without 50% grey, this may be too low for some)

C: +6

Sat: +2 \*(See colour management)

Tint: 0

*Set your own of the above unless you are on HDMI then they should be close if you have same hardware as myself.*

Color temp: Low1

R: +10

G: -1

B: -8

Sharpness: -6

Lamp: A1 (for bright image, doesn't effect black level)

Gamma: -1

Lens Iris: -40 (you will need dark room)

Lamp Iris: AUTO

Auto Black Stretch: off

Contrast Enhancement: off

Transient: Off (DOUBLE CHECK, MAIN CAUSE OF EE!)

Gain R: +2

Gain G: +3

Gain B: -5

Offset: R -15

Offset: G -13

Offset: B -6

Gamma R,G,B 0,0,0

HDMI: L2 for pc levels using VMR

On top of all of this you will need to adjust the colour using colour management feature as the saturation may be too orange.

**\*COLOUR MANAGEMENT ADJUSTMENT:** All you need to do is load up a good screen with a close-up face on it that looks too orange-red, a nice clear outdoor shot. Select the colour management tool from the menu, the screen will freeze - then a target will appear - pick an area of the flesh tone depress the okay button you will then get a further menu which allows you to adjust the colour of that particular tone. I would suggest you change the colour level a couple of notches and you will see the skin tone come back to a natural level.

Have a mess with it - don't forget to store it within your preset. It also allows you to AB it. It works great!

You can then set overall saturation as you require.

You can also use this tool to fix colour decoder imbalances.

## Creative Cinema D65 Settings for HDMI – HTPC – Nvidia VMR

Colour management IS NOT needed.

Unfiltered

Contrast Ratio 1200:1 (approx)

Preset: CREATIVE CINEMA

B: -10  
C: +4  
sat: +4  
Tint: 0  
R: +12  
G: -1  
B: -1  
Sharpness -5  
Lamp: Low  
Gamma: 0  
Lens iris: -44  
Lamp iris: auto  
Gain R: +13  
Gain G: +11  
Gain B: -5  
Offset: R -15  
Offset: G -11  
Offset: B +3  
Gamma R: 0  
Gamma G: 0  
Gamma B: -1  
HDMI L2

Do be aware that these settings are for HDMI L2 - it tracks to D65 beautifully, and colour management is not needed to sort the colour out as with Living.

### Service Menu Adjustments

Dynamic Iris adjustment for DYNAMIC, POWERFUL & VIVID preset.

First: Make sure you are in one of the above modes.

GROUP 105 on the service menu (AUTO LAMP IRIS)

Item 4: Lamp Iris POINT C: +4 (default) 0-255 (range)

*reduce to 0: this effectively lifts the AUTO LAMP IRIS's CLOSED limit.*

Item 10: LAMP IRIS ave time range: +4 (default) 0-8 (range)

*8 being the slowest, 0 being the fastest - decrease of iris-reaction speed setting slowing it down so that it is more gradual in scenes and much less noticeable*

*I set it on 8, though you can experiment with these numbers as they are real-time settings, do be aware though that the on-screen menu influences iris while you are adjusting.*

Normal service menu warnings apply.