



## DVR-110D Preview/Sneak Peak

*Pioneer* *sound.vision.soul*



<b>1.0</b>	<b>The SPL Preamble</b>	3
1.1	<i>Introduction</i>	3
<b>2.0</b>	<b>Specifications side by side</b>	5
<b>3.0</b>	<b>The package</b>	6
<b>4.0</b>	<b>Initial Tests</b>	7
4.1	<i>CD-R testing</i>	7
4.2	<i>DVD-R/+R testing</i>	7
4.2.1	<i>Parity Scanning Results</i>	7
4.2.2	<i>RPM test results</i>	10
<b>5.0</b>	<b>Advanced technical notes</b>	13
<b>6.0</b>	<b>Conclusion</b>	14



## 1.0 The SPL Preamble

We like to give our readers and users some credibility. We will not bore you with explanations of acronyms or condescending descriptions of terminology/testing procedures. If you feel you need a deeper understanding, please read our primer, as it will aid you in understanding analysis concepts. With this explained, please read on!

### 1.1 Introduction

At speedlabs.org, we have always enjoyed Pioneer hardware. It comes as no surprise that we anticipated the 110D and 110 very much, given the success Pioneer has achieved with the long line of DVR-x0x line of hardware. In the interim between testing the Pioneer DVR-110, we have decided to conduct a mini-preview of the Pioneer DVR-110D. This preview is simply intended to educate users on the variations that exist within the 110D and the previous drive, the 109. Given the hardware has been available in Oceania/Asia for well over a month now, we feel now is an appropriate time to give people an overall idea of what to look for, in their next DVD writer purchase.

Seemingly, on the forums of the world, a great deal of confusion exists discerning the differences between the 110 and the 110D. Simply put, the DVR-110D is a model with simple functionality, lacking DVD-RAM write capabilities.

To make things perfectly clear:

**DVR-110D:**

**Cannot write DVD-RAM**

**DVR-110:**

**Can write DVD-RAM**

At this stage, we are unsure as to the true nature of the 110 (non-D) chipset. Much speculation exists concerning its similarity to the 110D. The NEC chipset resident in the 110D is likely to also be used in the 110. The PUH/OPU hardware, at this stage, is unknown. The weapon of choice, DVDInfoPro, suggests the following functionality for the DVR-110D, as it currently stands:

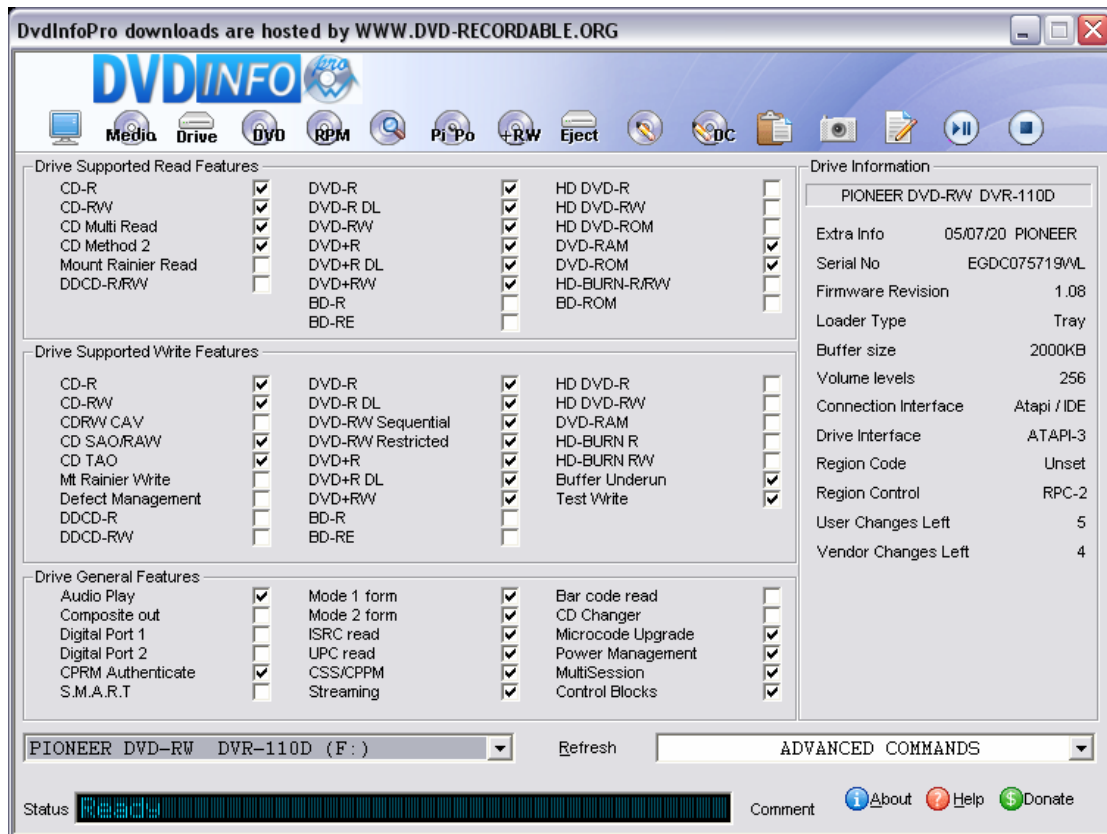
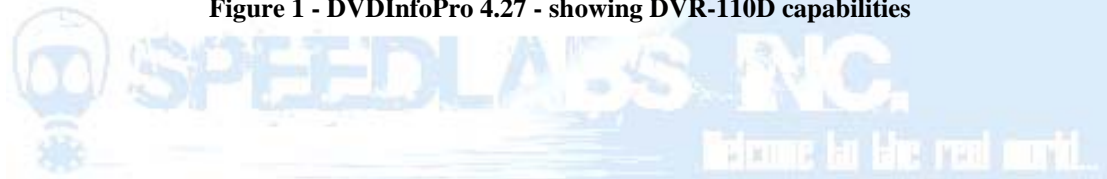


Figure 1 - DVDInfoPro 4.27 - showing DVR-110D capabilities



## 2.0 Specifications side by side

We have received many emails/posts/queries from users, asking what the difference between the DVR-109 and DVR-110D specifications are. For clarity, we present a table, taken directly from the Japanese Pioneer pack-in manuals, from both the DVR-109 and the DVR-110D.

Pioneer DVR-110D Specification	
<i>Media Format</i>	<i>Maximum Write Speed</i>
DVD-R	1x,2x,4x,6x,8x*,12x*,16x*
DVD-R DL	2x,4x,6x,8x^
DVD-RW	1x,2x,4x,6x
DVD+R	2.4x,4x,6x,8x*,12x*,16x*
DVD+R DL	2.4x,4x,6x,8x^
DVD+RW	2.4x,3.3x,4x,6x,8x
CD-R	4x,10x,16x,24x,32x*,40x*
CD-RW	4x,10x,16x,20x^,24x^,32x^
<i>Media Format</i>	<i>Maximum Read Speed</i>
DVD-ROM (single layer)	16x
DVD-ROM (dual layer)	12x
DVD-R, DVD+R	12x
DVD-R DL, DVD+R DL	8x
DVD-RW, DVD+RW	8x
DVD-RAM	2x
CD-ROM, CD-R	40x
CD-RW	32x

Pioneer DVR-109BK Specification	
<i>Media Format</i>	<i>Maximum Write Speed</i>
DVD-R	1x,2x,4x,6x,8x*,12x*,16x*
DVD-R DL	2x,4x,6x
DVD-RW	1x,2x,4x,6x
DVD+R	2.4x,4x,6x,8x*,12x*,16x*
DVD+R DL	2.4x,4x,6x
DVD+RW	2.4x,3.3x,4x,6x,8x
CD-R	4x,10x,16x,24x,32x*,40x*
CD-RW	4x,10x,16x,20x^,24x^
<i>Media Format</i>	<i>Maximum Read Speed</i>
DVD-ROM (single layer)	16x
DVD-ROM (dual layer)	12x
DVD-R, DVD+R	12x
DVD-R DL, DVD+R DL	8x
DVD-RW, DVD+RW	8x
DVD-RAM	2x
CD-ROM, CD-R	40x
CD-RW	32x

Specifications of significant difference are few, but interesting. The DVR-110D supports 8x writing, as opposed to the 6x limit, of the DVR-109. A less noticeable and perhaps overlooked addition is the implementation of newer CLV writing modes for CD-RW media, within the DVR-110D. The manual from the 109 suggests that a maximum of 24x CLV is available. The 110D manual suggests that upwards of 32x CLV write strategies are available.

For those concerned about operating tolerances (and lets face it, you wouldn't be reading *speedlabs* if you were a "normal" user), the MTBF, power consumption and harmonic distortion specifications are identical, for both models, according to the manuals.

### 3.0 The package

The Pioneer DVR-110D is a simple package. You are presented with the following:

- i. The bare drive
- ii. A plastic bag
- iii. A manual

No software is to be included with the DVR-110D package. The drive is oftentimes advertised as follows, from wholesalers:

*“Pioneer DVR-110D 16X DVD-/+R/RW Dual Layer(OEM Beige)(no software)”*

The Pioneer DVR-109 package was similar in its “bare bones” approach. The insert below compares the two drives side by side, zebra coded, for fun:



**Figure 2 - The two current DVR's, side by side - White{DVR-110D}, Black{DVR-109BK}**

A very interesting note has been made concerning the actual manufacturing of the components. The DVR-110D has a noticeably higher-raised eject/insert tray button, compared to the 109. Visual inspection suggests that the DVR-110D mechanism protrudes from the casing/bezel approximately 5mm more than the 109 button.

## 4.0 Initial Tests

We have settled upon performing some simple writing/reading tests for our mini-preview of the hardware, opting for a more complete, full bodied review in the coming weeks, reserved for the Pioneer DVR-110 (non-D).

### 4.1 CD-R testing

Simple CD-R writing under Nero 6.6.0.16 has been undertaken using both the 109 and 110D. Thus far, we find that the DVR-110D detects CD-R media at its rated speed more effectively than the 109 does. A Ritek 52x rated CD-R, of “unknown manufacturer code” will detect in the DVR-109 to write at 32x-CAV. In the 110D however, it detects and writes at 40x-CAV. This suggests that Pioneer’s 1.08 firmware for the 110D either uses updated write strategy tables, or, it uses hardware that Pioneer’s quality testing labs deem appropriate to write at 40x, to lesser quality media.

### 4.2 DVD-R/+R testing

Simple DVD writing under Nero 6.6.0.16 has been undertaken using both the 109 and 110D. Results are taken from DVDInfoPro for both RPM and Parity testing, using the SOHW-832S (VS0G). We have used separate scans, then the new Parity-comparator functionality of DVDInfoPro to overlay the resultants.

#### 4.2.1 Parity Scanning Results

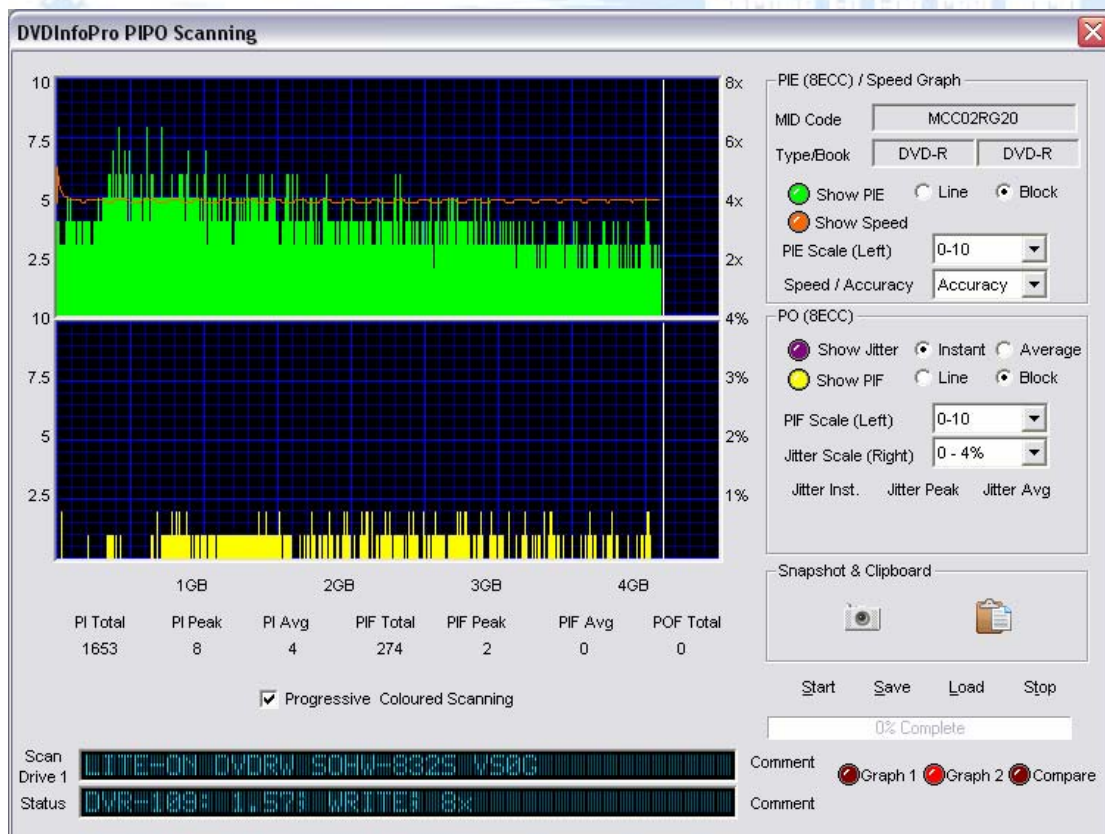


Figure 3 - DVR-109 parity test

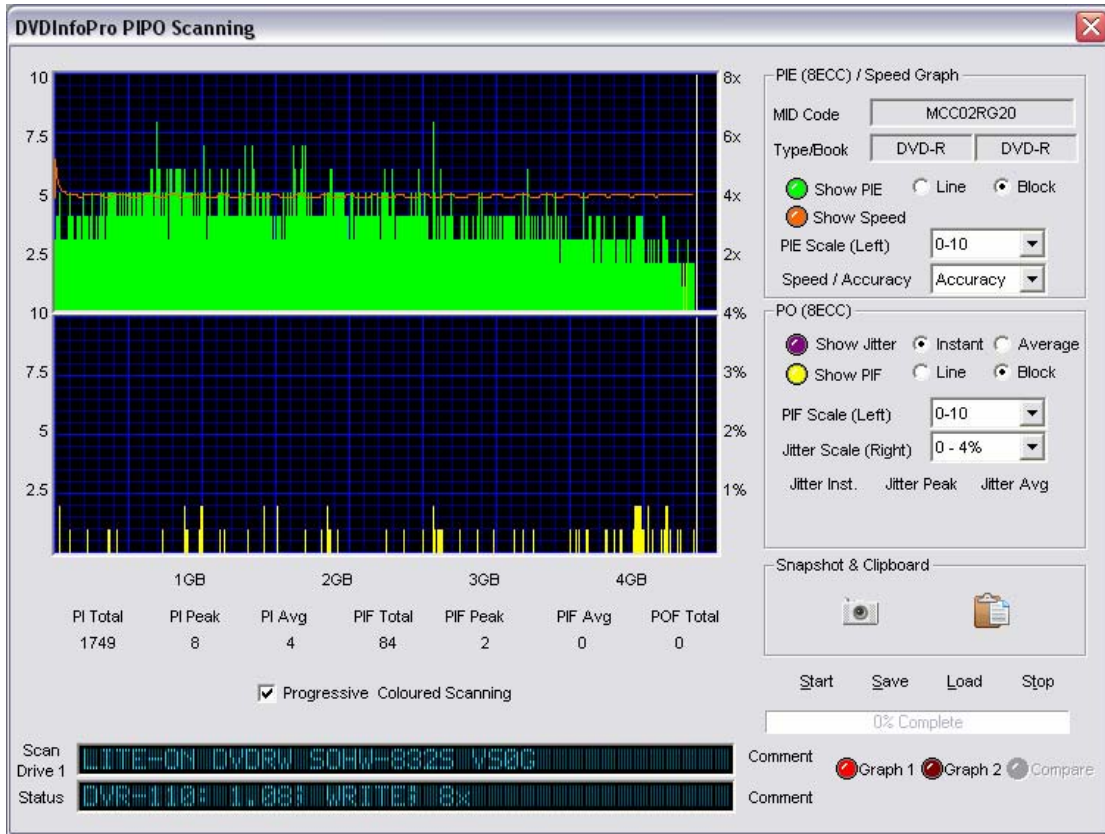


Figure 4 - DVR-110D parity test

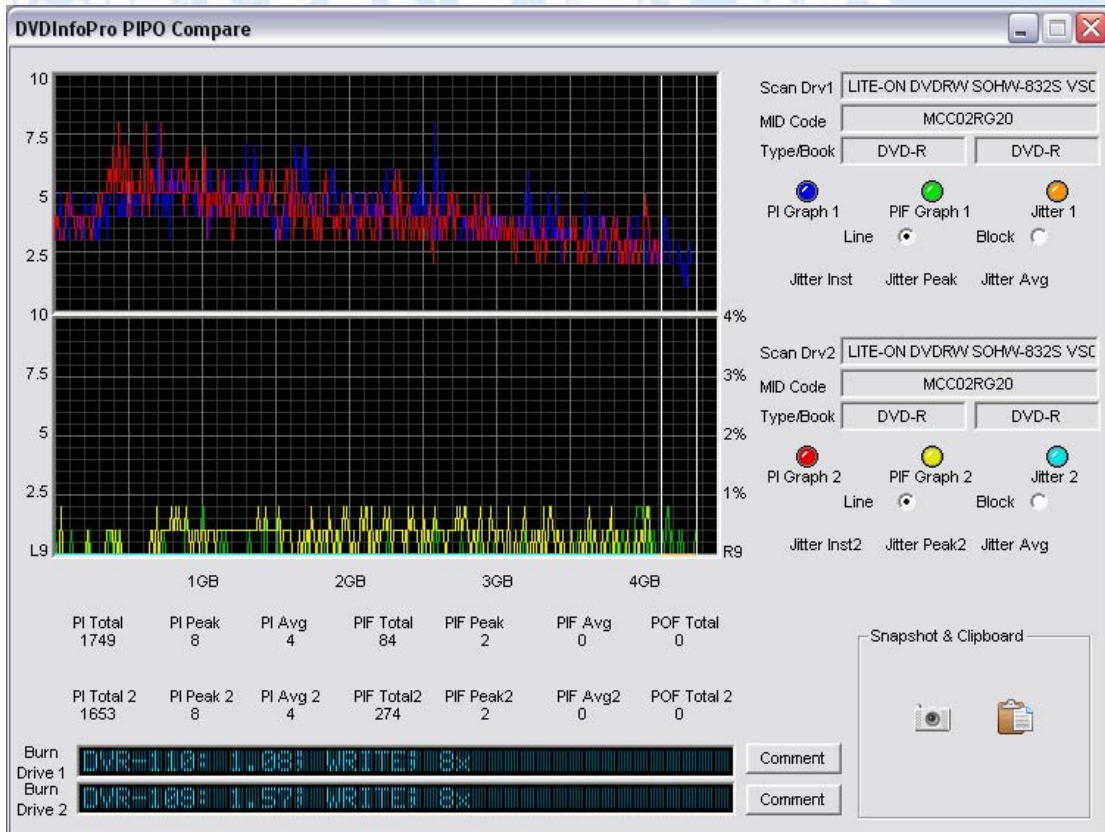


Figure 5 - DVR-109 & 110D comparator



We feel the Parity Inner measurement here is somewhat trivial, being only approximately 100 points apart. The Parity Inner Failure rate however, is somewhat startling in its difference. The DVR-110D is a clear winner here, showing its capabilities with a newer OPU/PUH generation. Granted, the limited test using MCC02RG20 are not at 16x, but we hope to test more 12x and 16x certified writes with the 110 at a later date.

Finally, we have tested the over speeding capability of the hardware, using an 8x MID, capable of 12x writing (MBIPG101R04). As follows, a 12x write to 8x media, showing a parity scan.

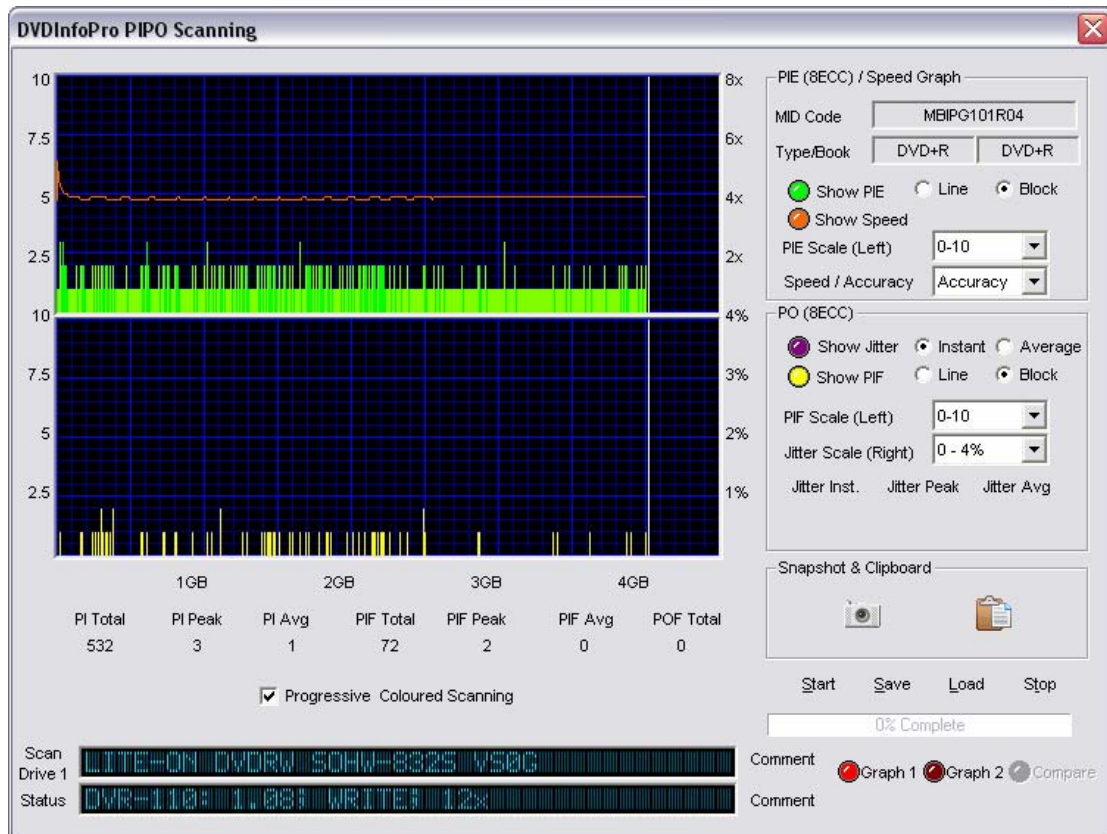


Figure 6 - Over speeding with the DVR-110D

### 4.2.2 RPM test results

RPM tests show a similar trend in advancement of hardware. Again, we compare the 109 and 110D, side by side, testing written/self-authored single layer media media:

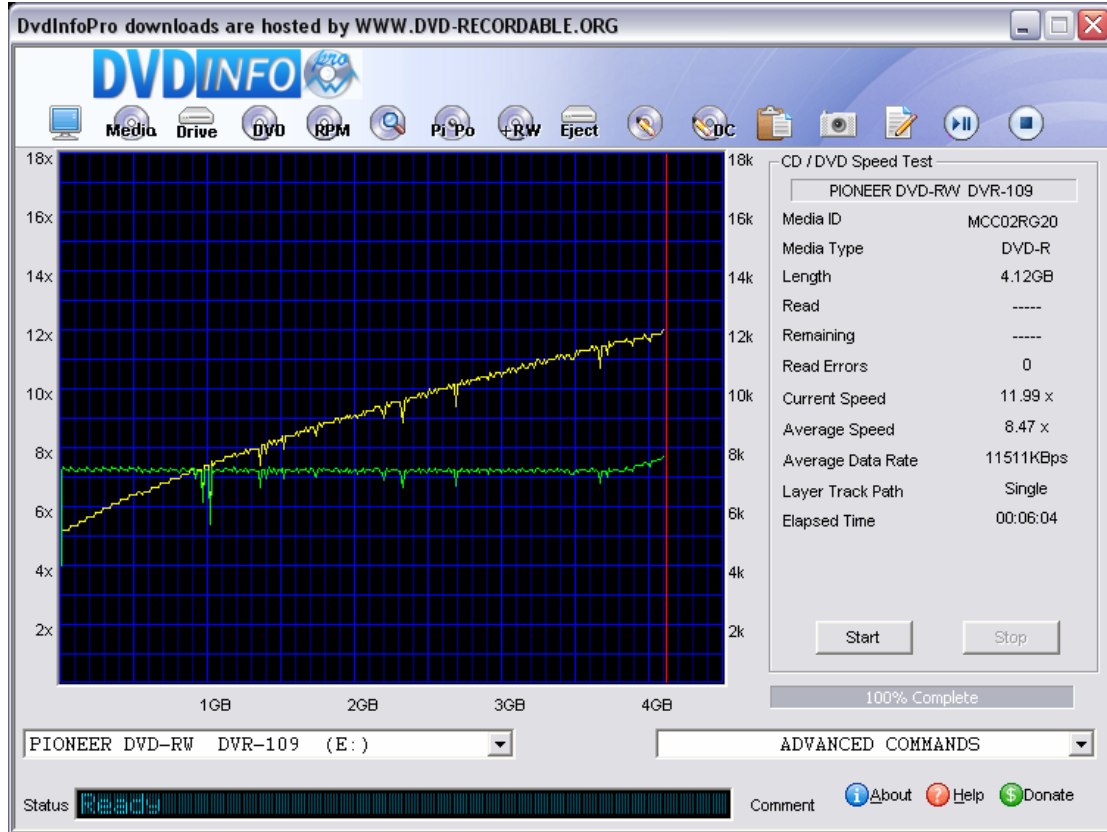


Figure 7 - RPM test for 109

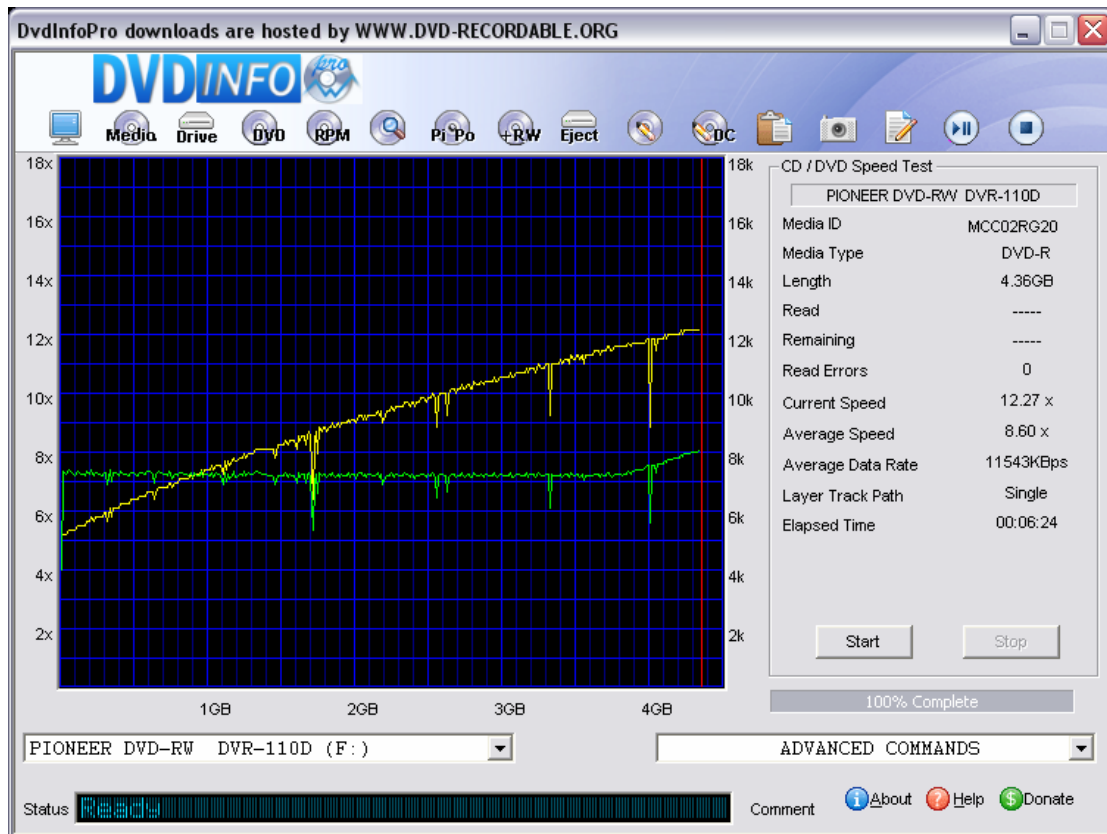


Figure 8 - RPM test for 110D

We thought it might be interesting to test some dual layer written media in the drives as well, for comparisons sake of read performance on MKM001/MKM002:

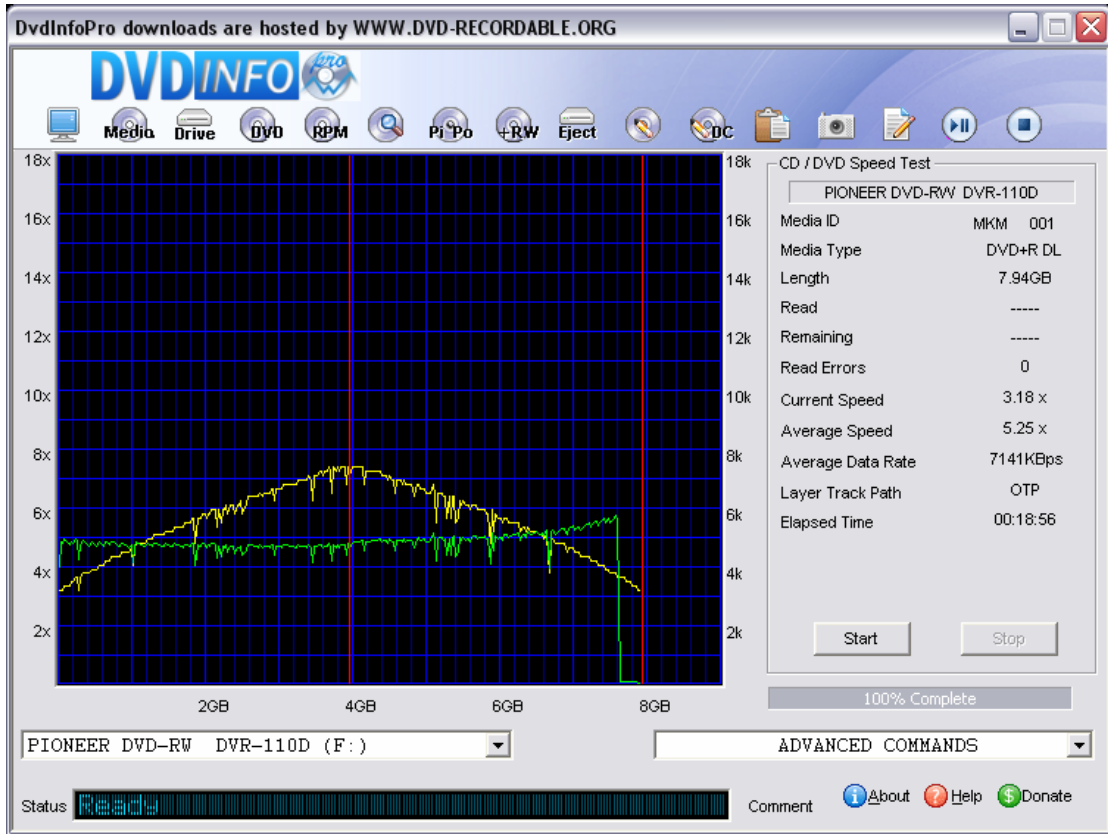


Figure 9 - RPM DL 110D

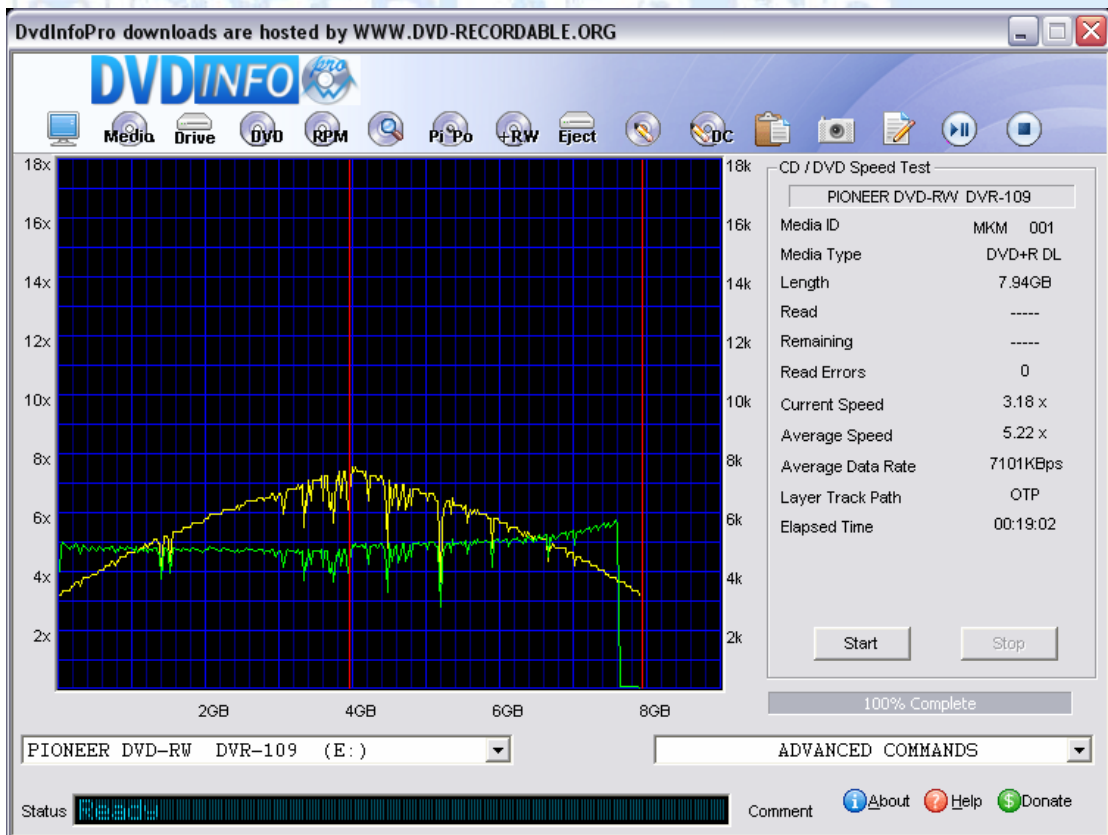


Figure 10 - RPM DL 109

DVD+R DL RPM testing has shown the 110D to, yet again, be marginally better at tracking and read-back. Again, a pattern exists in the ability of the 110D to slightly better its older brother.

## 5.0 Advanced technical notes

Speedlabs is famous for delving that little bit deeper, than the average review site. We like to analyse things a little bit further from time to time. With this in mind, we find it in the best interests of our readers to divulge some interesting results we have found, with our 109→110D comparison. These results primarily concern the calibration calculations and write-strategy implementation Pioneer use. Below is a table showing the average calibration time on first-sense, within Nero Burning ROM 6.6.0.16 (before lead-in-writing occurs):

Average Calibration time to MCC02RG20: DVR-109	
Run 1	13 seconds
Run 2	11.5 seconds
Run 3	14 seconds
Run 4	11 seconds
Run 5	9 seconds
Average Calibration time to MCC02RG20: DVR-110D	
Run 1	16 seconds
Run 2	14.5 seconds
Run 3	15 seconds
Run 4	13.5 seconds
Run 5	16 seconds

**Table 1 - Average Calibration time before leadin**

A simplistic conclusion one can draw from this is that lead-in and calibration sensing is more aggressive within the DVR-110D. Coupling this with a lower number of parity inner fail errors reported suggests that Pioneer have indeed changed their methodology for sensing geometric conditions of storage media.

## 6.0 Conclusion

Thus far, the DVR-110D is shaping up to be what the 109 should have been. Initially, there were some serious problems with the 109, upon its release, such as VERY poor compatibility with CD-R media and little or no 16x support. The 110D has seemingly eclipsed these few problems already. Granted, the small sample set we have utilised is not indicative of an entire population model. We feel with developmental time, the DVR-110D will be, once again, the king of write quality that we expect from Pioneer. The immediate question:

*“...but is it better than the BenQ 1640????”*

springs to mind. This drive has the potential to be better, yes. From early indications, it has an edge on write quality of both +R and –R media also. Breaking things down to the most simplistic level we can, we are presented with a simple set of positives and negative aspects to the hardware:

### **Positive aspects:**

- Fastest DVD+R DL/-R DL writer on the market
- Write quality that is equal to or better than the BenQ 1640, thus far
- A more robust reader for all formats of DVD media, than the previous model
- CD-R writing and write strategies vastly improved, with the first firmware revision (1.08)

### **Negative aspects:**

- Face facts – it will never booktype set using stock firmware to single layer media
- Not as “flexible” as some enthusiasts would hope, for firmware modification
- Not the fastest READER on the market
- CD-R speeds are still not what many would like to see (>48x)
- We are not going to belittle your intelligence by listing a lack of “Mt-Rainer” as a disadvantage

**Zebra and the speedlabs.org team.**