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Subject: Burn Time vs Accuracy  
Posted by [Kateeba](#) on Fri, 02 Jun 2006 12:37:36 GMT  
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Here is a question that has been bothering me for some time and maybe some of you can shed some light on it.

They make these CD/DVD burners so much faster now days. But then we are told not to use the fastest speeds to burn because the results won't be as accurate. I have a 16X DVD burner, but a friend of mine that does video for a living told me not to go over 4X. I can burn CD's at 48X, but I found that anything over 12X produces CD's that dont' play well in my stereo.

So WHEN would you use the "fastest" speeds these machines offer? Just data with verification? Or never?

Just for the record, I have a built in Super drive in my Mac duo core iMac that has a MATSHITA DVD-R UJ-846 and I also have a Lacie external firewire D2 DVD +/-RW drive.

Any good articles someone can link me to that explains all this better?

Thanks

Lou

---

---

Subject: Re: Burn Time vs Accuracy  
Posted by [rick](#) on Fri, 02 Jun 2006 13:56:19 GMT  
[View Forum Message](#) <> [Reply to Message](#)

---

just data and dailies for me. finished product at 2-4x

On 2 Jun 2006 22:37:36 +1000, "Louis Guarino Jr." <kateeba@snet.net> wrote:

>  
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>Thanks  
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Subject: Re: Burn Time vs Accuracy  
Posted by [TCB](#) on Fri, 02 Jun 2006 14:55:47 GMT  
[View Forum Message](#) <> [Reply to Message](#)

---

It doesn't really matter Lou, you can burn pretty much any speed you want. It's just ones and zeros and your audio data is no different than your other data. Some people still burn slower when they are sending things to be duplicated but as far as I'm concerned that's like clicking slower because the link goes to your bank account balance. As long as your burner isn't generating errors it's all the same.

TCB

"Louis Guarino Jr." <kateeba@snet.net> wrote:

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>of you can shed some light on it.  
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>Thanks  
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>Lou

---

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Subject: Re: Burn Time vs Accuracy  
Posted by [gene lennon](#) on Fri, 02 Jun 2006 15:38:19 GMT  
[View Forum Message](#) <> [Reply to Message](#)

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"TCB" <nobody@ishere.com> wrote:  
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>errors it's all the same.  
>  
>TCB  
>

TCB

Here is the catch. Almost all burners do generate errors and the error rate is far worse at higher rates.

The primary difference between data CDs and audio CDs is that data CDs will error check and keep recalling the same data in an attempt to get perfect copies. In most cases a few retries will succeed and the only negative effect is a slight delay in transfer.

Reed-Solomon Error Correction is the most common for CDs and DATs. A good

(but highly technical) explanation is here:  
<http://www.ddj.com/184410107>

Error correction is better than nothing, but does deteriorate the audio and sometimes it murders the audio.

that give detailed and accurate error rates and can certify disks for use as masters.

All this is much more important for dealing with critical masters than just normal CD copies for clients, but the issues remain.

If you care about the quality of your audio copies and their longevity, you should:

1. Qualify your burner by checking errors using a trusted method.
2. Burn at slower speeds.
3. Use high quality blanks.

for most of my non-critical work.

---

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Subject: Re: Burn Time vs Accuracy  
Posted by [TCB](#) on Fri, 02 Jun 2006 19:08:44 GMT  
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Yes, a burn at 40X when analyzed will show higher error rates than one burned at 4X. But the 40X CD will still have error rates below what industry standards accept for pressed CDs, and the error correction in those (actually quite rare) situations will work fine. Does a CD with a little dust on it sound different? Does a CD in a smoky room sound different?

When prepping CDs for duplication I usually burn slower, at 4X or 8X, but I think that's largely superstition.

TCB

"gene lennon" <glennon@NOSPmyrealbox.com> wrote:

>

>"TCB" <nobody@ishere.com> wrote:

>>

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>>data. Some people still burn slower when they are sending things to be duplicated

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>  
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>for most of my non-critical work.

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---

Subject: Re: Burn Time vs Accuracy  
Posted by [DC](#) on Fri, 02 Jun 2006 19:14:48 GMT  
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"TCB" <nobody@ishere.com> wrote:

>When prepping CDs for duplication I usually burn slower, at 4X or 8X, but  
>I think that's largely superstition.

It's not. Most people can clearly hear the difference between a  
CD written at 24 or higher and one written at 4 or lower.

DC

---

Subject: Re: Burn Time vs Accuracy  
Posted by [TCB](#) on Fri, 02 Jun 2006 19:22:10 GMT  
[View Forum Message](#) <> [Reply to Message](#)

I can't.

"DC" <dc@spamyermama.com> wrote:

>

>"TCB" <nobody@ishere.com> wrote:

>

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>>I think that's largely superstition.

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>CD written at 24 or higher and one written at 4 or lower.

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>DC

>

---

Subject: Re: Burn Time vs Accuracy  
Posted by [Aaron Allen](#) on Fri, 02 Jun 2006 20:15:29 GMT  
[View Forum Message](#) <> [Reply to Message](#)

Whether or not I can hear anything, here is all the proof I need: My car  
deck is slowly making it's way to the graveyard. Faster burns won't play in

it. Slower ones do. That says to me w/o any doubts that the faster burns are either mishapen (more elliptical) or they have higher errors or both. I burn 'em slow for masters.

AA

"TCB" <nobody@ishere.com> wrote in message news:44808fe2\$1@linux...  
>  
> I can't.  
>  
> "DC" <dc@spamyermama.com> wrote:  
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I choose Polesoft Lockspam to fight spam, and you?  
<http://www.polesoft.com/refer.html>

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Subject: Re: Burn Time vs Accuracy  
Posted by [TCB](#) on Fri, 02 Jun 2006 21:04:32 GMT  
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I'd say this means you have a nearly faulty CD player, but that's me.

Remember Derek, who used to hang out here? We went over this once ad infinitum and Derek and I tested this way. We ripped and burned the same track over and over again. Like twenty rips and then twenty burns, one was burned at 2X and one at 32X. After the last rip we did the flip the phase trick and heard . . . nothing. These days I could probalby run a diff on the audio files to compare them bit for bit, but that's enough proof to me that a properly functioning CD player will get the same data off of CDs that are properly burned, regardless of speed.

Also, if this is true, why don't faster hard drives involve more errors that slower ones? They have to write data just like CD burners do.

TCB

"Aaron Allen" <nospam@not\_here.dude> wrote:

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>deck is slowly making it's way to the graveyard. Faster burns won't play  
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>"TCB" <nobody@ishere.com> wrote in message news:44808fe2\$1@linux...

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Subject: Re: Burn Time vs Accuracy

Posted by [DC](#) on Fri, 02 Jun 2006 21:54:15 GMT

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Ok, but if it is his player that explains this, why would it consistently



pick out the CD's burned at high speed instead of randomly if they are all the same?

And of course, the pickup head on an HD is vastly different than a laser in a CD writer or player isn't it? Consider that they must do very different tasks, including the writer creating a burn mark in a dye. So how could your comparison of CD writing speed and HD rotational speed be valid?

Now I suspect that transfer speed to a flash-memory MP3 player makes no difference at all, but writing speed to a CD that will be played in an audio CD player does make a difference. It must relate to the clarity of the leading edge of the burn and the burn length.

My Yamaha F1

CD writer has a function called AAMQ which lengthens the burns and test the disc to optimize the laser strength. It works. When using it on something I know really well, that I have been mixing and mastering for weeks, I can hear the difference when playing back CD's of the sessions, and I could do so in a double-blind test.

How do you explain this?

"TCB" <nobody@ishere.com> wrote:

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>

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Subject: Re: Burn Time vs Accuracy

Posted by [Martin Harrington](#) on Sat, 03 Jun 2006 01:36:15 GMT

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---

For the past 2 years, I've been recording and producing a fortnightly radio program that is sent out to all the South Pacific islands around Australia, (34 copies each month).

I burn them myself 2 at a time at 48x and have not had one rejected by myself, the client or, indeed, the radio stations.

I think the newer burners and discs are fine for high speed work.

My 2c (AUS)

--

Martin Harrington

www.lendaneer-sound.com

"Louis Guarino Jr." <kateeba@snet.net> wrote in message  
news:44803110\$1@linux...

>

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> Any good articles someone can link me to that explains all this better?

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> Thanks

>

> Lou

---

Subject: Re: Burn Time vs Accuracy

Posted by [DC](#) on Sat, 03 Jun 2006 01:48:02 GMT

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Well OF COURSE, they're \*radio\* guys....

heh heh Just kidding Martin.

Louis, the answer is that good engineers disagree on this.

Try it yourself, both ways, (say 48x and 2x) have a friend play the CD's without telling you which is which and see if you can spot the hi speed one and the lo-speed one.

We would love to get your opinions after doing this.

DC

"Martin Harrington" <lendan@bigpond.net.au> wrote:

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>program that is sent out to all the South Pacific islands around Australia,

>(34 copies each month).

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>www.lendanear-sound.com

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Subject: Re: Burn Time vs Accuracy  
Posted by [Aaron Allen](#) on Sat, 03 Jun 2006 04:30:09 GMT  
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Well, it is faulting.. I established that already. However, regarding that fact, why am I consistently seeing the errors on 'only' the fast burned CDs? The obvious fact is that there are more errors. My burner is at best a year old, and this seems to be consistent across several of my burners, using a multitude of different programs. While not exactly scientific, it's just not worth it when it's proven in my mind that it creates problems. The other factor I'm thinking here is you are likely using good CD players and convertors. Have you tried this test with a cheapo player to see if it's still the same result?

AA

"TCB" <nobody@ishere.com> wrote in message news:4480a7e0\$1@linux...  
>  
> I'd say this means you have a nearly faulty CD player, but that's me.  
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Subject: Re: Burn Time vs Accuracy  
Posted by [Dubya Mark Wilson](#) on Sat, 03 Jun 2006 05:14:48 GMT

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No science talkin here but I have a gut theory that slower speeds (2x, 4x) might actually lend to less optimal writing that say 8x or 12x for the same reason that a faster spinning frisbee flies farther and with more predictability than one which is just kinda safely hurled. I just think there's more at play than a laser and the writable substrate in the medium. I burn at 12x for almost everything; 8x if I feel like particularly safe one day. Lite-On burner, no problems.

Dubya

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**Subject: Re: Burn Time vs Accuracy**  
Posted by [Tom Bruhl](#) on Sat, 03 Jun 2006 06:13:10 GMT  
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This is a multi-part message in MIME format.

-----=\_NextPart\_000\_0045\_01C686B3.431A68B0  
Content-Type: text/plain;  
charset="iso-8859-1"  
Content-Transfer-Encoding: quoted-printable

Mark,  
I am doing exactly that here. I usually burn at 8x and that seems=20 fast compared to real time which is where we both came from. I haven't=20 been checking for errors though. I do have best results finding the = right media for the given burner. Mitsui has been very good for me with = Plextor,=20 Yamaha and Lite-On drives. I like the Plextor best though. Not sure = why. =20 They replace any disk that doesn't burn in there drive. I've never = tried to=20 get them replaced but the words instill confidence!

I used to burn at 2x back when this technology was new. I still have a Marantz CDR 620 stand alone burner. It's hard to find stock that it likes these days. Cost me \$2,600. . .

The Times They Are A Changin'  
Tom

"Dubya Mark Wilson" <mark.xspam@avidrecording.com> wrote in message = news:448119b5\$1@linux...

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Dubya=20

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-----=\_NextPart\_000\_0045\_01C686B3.431A68B0

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charset="iso-8859-1"

Content-Transfer-Encoding: quoted-printable

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charset=3Diso-8859-1">
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<STYLE></STYLE>
</HEAD>
<BODY bgColor=3D#ffffff>
<DIV><FONT face=3DArial size=3D2>Mark,</FONT></DIV>
<DIV><FONT face=3DArial size=3D2>I am doing exactly that =
here.&nbsp;<FONT face=3DArial=20
size=3D2>I usually burn at 8x and that seems </FONT></FONT></DIV>
<DIV><FONT face=3DArial size=3D2><FONT face=3DArial size=3D2>fast =
compared to=20
</FONT><FONT face=3DArial size=3D2>real time which is where we both came =
from.&nbsp;<=20
</FONT>I haven't </FONT></DIV>
<DIV><FONT face=3DArial size=3D2>been checking for </FONT><FONT =
face=3DArial=20
size=3D2>errors though.&nbsp;<FONT face=3DArial size=3D2>I do have best results finding the=20
right</FONT></DIV>
<DIV><FONT face=3DArial size=3D2>media for the given burner.&nbsp;<FONT =
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```



very good

for me with Plextor,

Yamaha and Lite-On drives. I like the Plextor best though. Not sure why.

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The Times They Are A Changin'

Tom

**"Dubya Mark Wilson" &lt;**

**=**

**href="mailto:mark.xspam@avidrecording.com">mark.xspam@avidrecording.com**

**>**

wrote in message

**href="news:448119b5\$1@linux">news:448119b5\$1@linux**... No science talkin here but I have a gut theory that slower speeds (2x, 4x) might actually lend to less optimal writing that say 8x or 12x for the same reason that a faster spinning frisbee flies farther and with more predictability than one which is just kinda safely hurled. I just

think <BR>there's more at play than a laser and the writable substrate =  
in the=20  
medium. <BR>I burn at 12x for almost everything; 8x if I feel like=20  
particularly safe one <BR>day.&nbsp; Lite-On burner, no =  
problems.<BR><BR>Dubya=20  
<BR><BR></BLOCKQUOTE>  
<DIV><FONT size=3D2><BR><BR>I choose Polesoft Lockspam to fight spam, =  
and=20  
you?<BR><A=20  
href=3D"http://www.polesoft.com/refer.html">http://www.polesoft.com/refer=  
.html</A>&nbsp;&nbsp;&nbsp;&nbsp;</FONT></DIV></BODY ></HTML>

-----=\_NextPart\_000\_0045\_01C686B3.431A68B0--

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**Subject: Re: Burn Time vs Accuracy**  
Posted by [Warren](#) on Sat, 03 Jun 2006 10:59:09 GMT  
[View Forum Message](#) <> [Reply to Message](#)

---

Call me superstitious but I will only ever burn important masters at 1x on an old scsi burner. I have some old masters burnt on a 16x ide drive burnt at speeds ranging from 4x to 16x that sound like 2nd generation cassette copies in comparison to the 1x. Maybe it's just my particular gear but I can hear the difference between 1x and 2x burns, not significant but I can hear it .. blind. I used to think this whole argument was rubbish until I compared these old discs with newer ones I burnt of the same files. Instantly converted.

"TCB" <nobody@ishere.com> wrote:

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>Yes, a burn at 40X when analyzed will show higher error rates than one burned  
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>  
>TCB

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>>>but as far as I'm concerned that's like clicking slower because the link  
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>>

>>Error correction is better than nothing, but does deteriorate the audio  
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>>

>>that give detailed and accurate error rates and can certify disks for use  
>>as masters.

>>

>>All this is much more important for dealing with critical masters than  
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>>normal CD copies for clients, but the issues remain.

>>

>>If you care about the quality of your audio copies and their longevity,  
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>>should:

>>1. Qualify your burner by checking errors using a trusted method.

>>2. Burn at slower speeds.

>>3. Use high quality blanks.

>>

>>for most of my non-critical work.

>>

>

---

Subject: Re: Burn Time vs Accuracy

Posted by [John \[1\]](#) on Sat, 03 Jun 2006 12:19:00 GMT

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---

You might consider getting a new burner like this killer 52x

[http://www.plextor.com/english/products/product\\_cdrw\\_drives.html](http://www.plextor.com/english/products/product_cdrw_drives.html)

"Warren" <tonetemple@hotmail.com> wrote:

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>an old scsi burner. I have some old masters burnt on a 16x ide drive burnt

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>>  
>

---

Subject: Re: Burn Time vs Accuracy  
Posted by [Rod Lincoln](#) on Sat, 03 Jun 2006 12:21:03 GMT  
[View Forum Message](#) <> [Reply to Message](#)

---

I've got a Plextor Premium burner (BT recommendation) and I've done several tests with it's diagnostic error checking. Believe it or not, I get consistantly less errors when burning at faster speeds than slower. Go figure.

Rod

"Aaron Allen" <nospam@not\_here.dude> wrote:

>Well, it is faulting.. I established that already. However, regarding that

>fact, why am I consistently seeing the errors on 'only' the fast burned CDs?

>The obvious fact is that there are more errors. My burner is at best a year

>old, and this seems to be consistent across several of my burners, using a

>multitude of different programs. While not exactly scientific, it's just not

>worth it when it's proven in my mind that it creates problems. The other

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Subject: Re: Burn Time vs Accuracy  
Posted by [Dedric Terry](#) on Sat, 03 Jun 2006 16:15:56 GMT  
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---

Sequoia installed it's own burn routines and limited my Plextor DVD/CD drive to 12x or higher (in every application, not just Sequoia). Frustrating, and a bit perplexing. I had 1-8x before in other apps (including Nero) and never burned anything faster than 4 or 8x. Masters have always been at 1 or 2x on Apogee discs. (I had to install another Plextor CD writer to get 1x (no 2x) until I sort out the dll issues).

I have no doubt that the data from any speed disc will cancel when phase reversed with the original in a DAW as a DAW should be able to rip data without errors since there is no synced streaming requirement, but that doesn't account for reading, error correction/failure due to elliptical burns, etc. when a CD player is attempting to translate in realtime.

Regards,  
Dedric

On 6/3/06 4:59 AM, in article 44816b7d\$1@linux, "Warren"  
<[tonetemple@hotmail.com](mailto:tonetemple@hotmail.com)> wrote:

>  
> Call me superstitious but I will only ever burn important masters at 1x on  
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---

Subject: Re: Burn Time vs Accuracy  
Posted by [TCB](#) on Sun, 04 Jun 2006 16:30:18 GMT  
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---

When I see statistically significant results in a double blind test I'll start to get interested. All I'm saying is that the test Derek and I did is satisfying enough to me until I see factual evidence to the contrary. I haven't yet.

TCB

"DC" <dc@spammerstothemoon.com> wrote:

>

>Ok, but if it is his player that explains this, why would it consistently

>

>pick out the CD's burned at high speed instead of randomly if they

>are all the same?

>

>And of course, the pickup head on an HD is vastly different than a

>laser in a CD writer or player player isn't it? Consider that they must

>do very different tasks, including the writer creating a burn mark in a

>dye. So how could your comparison of CD writing speed and HD

>rotational speed be valid?

>

>Now I suspect that transfer speed to a flash-memory MP3 player

>makes no difference at all, but writing speed to a CD that will be

>played in an audio CD player does make a difference. It must relate

>to the clarity of the leading edge of the burn and the burn length.

>

>My Yamaha F1

>CD writer has a function called AAMQ which lengthens the burns and

>test the disc to optimize the laser strength. It works. When using it

>on something I know really well, that I have been mixing and

>mastering for weeks, I can hear the difference when playing back

>CD's of the sessions, and I could do so in a double-blind test.

>

>How do you explain this?

>

>

>"TCB" <nobody@ishere.com> wrote:

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---

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Subject: Re: Burn Time vs Accuracy

Posted by [TCB](#) on Sun, 04 Jun 2006 16:44:18 GMT

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My point is that you can't take a faulty instrument and extrapolate from it how non-faulty gear will work. I've seen CD drives that won't boot off a CD that boots on 90% of the machines I deal with at work, I don't extrapolate from this that my bootable ISO image or my CD burner isn't working, I extrapolate that the drive in the machine that won't boot the CD is FUBAR.

I never said that every burner will produce the exact same number of errors at all different speeds. It's doubtless that some produce more errors at different speeds, though it's not always 'slower is better.' My point was that any correctly working burner will produce errors that are statistically and audibly meaningless, at whatever speed is being used.

If other people want to wait longer for CDs that's absolutely fine with me. I just gave an example that I used that, while not precisely scientific, I think is rigorous. That's the rip and burn and flip the phase test. That test dovetailed with my understanding of how CD readers, writers, and players should work in the real world. So, if Don or someone else can produce repeatable double blind tests in which the fast burned CD can be ABY picked with statistically significant variance from the expected 50/50 result, I'll get interested again. But everyone should use whatever burn speed they think is best which in my case is the one that spits it out of the computer the fastest.

TCB

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Subject: Re: Burn Time vs Accuracy  
Posted by [DC](#) on Sun, 04 Jun 2006 21:49:33 GMT  
[View Forum Message](#) <> [Reply to Message](#)

---

"TCB" <nobody@ishere.com> wrote:

>My point is that you can't take a faulty instrument and extrapolate from  
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That wasn't your point. Your point was that the discs written at  
different speeds are identical. They are not.

>My point was  
>that any correctly working burner will produce errors that are statistically  
>and audibly meaningless, at whatever speed is being used.

And having heard the difference I can say that you are wrong.  
I cannot say which writers produce errors at what speed, but I  
can tell you that it happens and it is most certainly audible.

Most recently, the master from my live session was duped at 48x  
on a Microboards CD duplicator. Sounded awful. To everyone.  
Slower sounded better. To everyone. You cannot account for this  
evidence so you dismiss it. Ok.

>So, if Don or someone else can produce repeatable  
>double blind tests in which the fast burned CD can be ABY picked with statistically

>significatn variance from the expected 50/50 result, I'll get interested  
>again.

It's like the 1db cut at 1250 that dropped the vocal right in the track. You don't have to hear it, and I do not wish to convince you if you can't hear it. You're not the client.

I might do the double blind test as an article at one point if I think I can produce something people would want to read.

What I reject out of hand is the practice of coming up with some test and telling others, including some very experienced and capable engineers that they are fooling themselves. Now, I don't mind the implied insult nearly as much as the loss of important data and evidence that comes from from listening. In the end there must be a test and an explanation of the phenomenon, but we always devise these tests to explain something we hear that we cannot currently measure.

Those who tell themselves it is not there because their test did not show it, could be right of course, or they could also be wrong, in which case they are much worse off for having trained themselves not to hear reality.

DC

---

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Subject: Re: Burn Time vs Accuracy  
Posted by [TCB](#) on Mon, 05 Jun 2006 15:05:12 GMT  
[View Forum Message](#) <> [Reply to Message](#)

---

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>different speeds are identical. They are not.

Nonsense, I have written more than once that different write speeds will produce different error reports. The question then become if that matters, since errors appear in printed CDs as well, so some accomodations were made for errors in the first place. So I said something completely different than this.



>>My point was  
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>evidence so you dismiss it. Ok.

That's not the kind of evidence I'm looking for. We all know that our perceptive hardware is imperfect. Witnesses routinely identify the wrong person in lineups, illusions of movement can be created with surround sound, etc and so on. So the entire basis of scientific inquiry is to try to establish facts that, as much as possible, take our perceptive apparatus out of the equation. If there is a fault in my test tell me what it is and I'll see if I can come up with a better one. And, as I've repeatedly said, if someone can do blind ABY tests and show a statistically significant result I'll be happy to revisit the issue.

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>  
>It's like the 1db cut at 1250 that dropped the vocal right in the  
>track. You don't have to hear it, and I do not wish to convince you  
>if you can't hear it. You're not the client.

Actually it's not like that at all, what we're trying to establish is if the speed of burning a CD degrades the audio or degrades the quality of the data. That's a question that should have a (provable) yes or no answer. People can disagree about whether the 1db cut should be at 1250 or if it should be 2db at 1400 and both be right, but the issue at hand should be provable

>I might do the double blind test as an article at one point if I think  
>I can produce something people would want to read.

I think that's an excellent idea.

>What I reject out of hand is the practice of coming up with some

>test and telling others, including some very experienced and capable  
>engineers that they are fooling themselves. Now, I don't mind the  
>implied insult nearly as much as the loss of important data and  
>evidence that comes from from listening. In the end there must be  
>a test and an explanation of the phenomenon, but we always  
>devise these tests to explain something we hear that we cannot  
>currently measure.

>

>Those who tell themselves it is not there because their test did  
>not show it, could be right of course, or they could also be wrong,  
>in which case they are much worse off for having trained  
>themselves not to hear reality.

>

>DC

I'll skip over the implied insult that I'm willfully deaf and don't understand how audio (and other kinds of) data works and await either a better test than the one I used or proof that goes beyond 'everyone hear the difference' when there would be obvious pressure to agree with that fact.

TCB

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Subject: Re: Burn Time vs Accuracy  
Posted by [dc\[3\]](#) on Mon, 05 Jun 2006 15:56:17 GMT  
[View Forum Message](#) <> [Reply to Message](#)

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"TCB" <nobody@ishere.com> wrote:

>We all know that our perceptive  
>hardware is imperfect. Witnesses routinely identify the wrong person in  
lineups,  
>illusions of movement can be created with surround sound, etc and so on.

And so, upon this extrapolation you derive your view that all these people are fooling themselves? Ok...

In this case everyone ID's the same guy. How do you account for this?

>So the entire basis of scientific inquiry is to try to establish facts that,  
>as much as possible, take our perceptive apparatus out of the equation.

And the great scientists I have known start to take seriously the observations of so many credible witnesses and suspect something

might actually be happening here.

Others use "science" as a way to establish their own view as the only one not based on illusion.

>If

>there is a fault in my test tell me what it is and I'll see if I can come

>up with a better one. And, as I've repeatedly said, if someone can do blind

>ABY tests and show a statistically significant result I'll be happy to revisit

>the issue.

One huge fault is that you have not done anything resembling an even minor sample of what CD players actually DO with your CD's. No one in your camp has ever done this. You simply rip and burn and cancel and go "there, you are all deluded".

Phenomena that appears clear and indisputable in the domain of data comparisons becomes disputable indeed when put in a CD player. What constitutes an error and how error correction responds to it, can change, don't you think? Well you don't know, because your test doesn't show it. Well it's not there then...

This is not science.

What do you want to bet that Sony 1630/1640 machines all produced data that cancelled perfectly? Yet, they almost single-handedly destroyed the reputation of CD's for decades and the terrible sound they produced has created myths about digital audio that persist to this day. They sounded so bad that they created the opportunity for Apogee to start an entire business creating convertors that don't sound awful. It started when people stopped listening to the people telling them that what they were hearing was not there, and instead trying to figure out what was happening.

>Actually it's not like that at all, what we're trying to establish is if

>the speed of burning a CD degrades the audio or degrades the quality of the

>data.

And there is your answer. You simply do not understand the question. What we are actually trying to determine is whether different burn speeds can affect the audio quality. You simply extrapolate from the data and assert that the audio quality cannot be affected. But you should know that "data" is not something inherent in a bunch of burns in dye, but rather it is something derived from them, and your test did not include the domain in

which the data is actually made into audio! Burns in dye are totally an optical/mechanical and analog phenomenon. There are no digits there, there is no data there, there is only polycarbonate, dye, and laser light. The data only becomes apparent and meaningful when read by a CD player. Your test totally ignored the most important factor of the whole process and assumed the presence of adequate data, regardless of the CD player's ability to properly recognize and convert burns in dye to audio. That ability is unknown in this regard, the phenomenon that may affect it is unknown, and your test has not shown any light on this issue.

>I'll skip over the implied insult that I'm willfully deaf

But that is the inevitable response isn't it? You call experienced engineers deluded and then hope no one calls you deaf! In the end, your assertions are not supported by your test, and so they are opinions of how things work, not facts.

I suspect that the real test to resolve this would require resources beyond any of us. Nonetheless, it will happen some day. There is something there.

>and don't understand

>how audio (and other kinds of) data works and await either a better test  
>than the one I used or proof that goes beyond 'everyone hear the difference'  
>when there would be obvious pressure to agree with that fact.

But you are wrong again. The pressure, and there was a lot of it, was to make hundreds of CD's by the weekend for an upcoming conference. The client was highly motivated to hear no difference between my master CD and the high speed copies so they could get them out in time. But they did hear a difference and they hated what the high speed burn did to the sound.

But you "know" they are deluded. Ok...

DC

---

Subject: Re: Burn Time vs Accuracy  
Posted by [TCB](#) on Mon, 05 Jun 2006 17:36:16 GMT  
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Our perception and memory are not nearly as good as we think, particularly when they're put together. Many convicts have been identified by multiple people and sent to jail on that evidence and we have found after the fact

with DNA testing that the person COULDN'T have done the crime. Ideas can be introduced into memory very easily. One study was done of college students who had been to Disneyland. They were interviewed about what they saw and then shown things like advertisements that had Bugs Bunny (a non Disney character) with Disney characters and so on. Nearly a third when interviewed again said they saw Bugs Bunny at Disneyland, which could never have happened.

All of which is only to say that I don't trust even my own perceptions and memory as being perfect or anything close to it. So if someone says to me 'these two things sound different' and I flip the phase on the file and it cancels perfectly I guess the problem is my perception, I'm not about to override what I consider proof. You obviously think differently, which is fine, we're Americans and we're still allowed minor freedoms like the right to disagree about sensory proof.

In any case, now we're on to CD players. Obviously they will sound different--different electronics, connections, motherboards, and so on. But you're arguing that playing CDs made at different speeds will actually sound different on the same CD player. Assuming the player works, I still don't buy it, because if the errors are sufficiently high to be perceivable then the disk should get spit out as a bad disk. That, and I return to my example about dusty CDs--they generate slightly more errors than non-dusty CDs but I don't think they sound different. I might be wrong, and good ABY testing would show that, so it seems to me that's the way to go.

TCB

"DC" <dc@spammersinhell.com> wrote:

>

>"TCB" <nobody@ishere.com> wrote:

>

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>>hardware is imperfect. Witnesses routinely identify the wrong person in

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>>illusions of movement can be created with surround sound, etc and so on.

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>hated what the high speed burn did to the sound.

>  
>But you "know" they are deluded. Ok...

>  
>DC

---

Subject: Re: Burn Time vs Accuracy  
Posted by [DC](#) on Mon, 05 Jun 2006 19:57:46 GMT

"TCB" <nobody@ishere.com> wrote:

>Nearly a third when interviewed again said  
>they saw Bugs Bunny at Disneyland, which could never have happened.

Ok, taking your analogy, at least 2/3's of us do hear something.  
I can live with that. The idea that all those who hear what you do  
not are deluded, is quite a leap from that study... It only takes one.

>All of which is only to say that I don't trust even my own perceptions and  
>memory as being perfect or anything close to it. So if someone says to me  
>'these two thing sound different' and I flip the phase on the file and it  
>cancels perfectly I guess the problem is my perception, I'm not about to  
>override what I consider proof.

Unless, like I said, the phenomena is being generated somewhere you  
are not looking. In which case, you are being silly in telling someone  
it is not there.

>You obviously think differently, which is  
>fine, we're Americans and we're still allowed minor freedoms like the right  
>to disagree about sensory proof.

Oh-hey, we're even allowed to disagree about the definition of  
adequacy in Thad's testing criteria. What a country!

>In any case, now we're on to CD players. Obviously they will sound different--different  
>electronics, connections, motherboards, and so on. But you're arguing that  
>playing CDs made at different speeds will actually sound different on the  
>same CD player. Assuming the player works, I still don't buy it, because  
>if the errors are sufficiently high to be perceivable then the disk should  
>get spit out as a bad disk.

Or not. How do you know? Perhaps the threshold of audible  
degradation is higher than the "spit out" threshold?

Do you know? Anyone tested this?

Looks like an area for further research to me...



>That, and I return to my example about dusty  
>CDs--they generate slightly more errors than non-dusty CDs but I don't think  
>they sound different. I might be wrong, and good ABY testing would show  
that,  
>so it seems to me that's the way to go.

I await your results.

DC

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Subject: Re: Burn Time vs Accuracy  
Posted by [TCB](#) on Mon, 05 Jun 2006 21:47:39 GMT  
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"DC" <dc@spammersonvh1.com> wrote:

>  
>"TCB" <nobody@ishere.com> wrote:  
>  
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>I can live with that. The idea that all those who hear what you do  
>not are deluded, is quite a leap from that study... It only takes one.

This is a complete non sequitor, I have no idea how this relates to anything.  
I was saying that non only do we not always perceive things perfectly but  
that humans actually modify the memories of perceptions after the fact. In  
fact, some cognitions actually believe that's one of the primary things our  
memory does and re-write past experiences to get them to be more cohesive.  
A more accurate comparison would be that the research shows that in a group  
of people who couldn't hear a difference between two CDs it's a decent bet  
that at least 1/3 of them could be convinced after the fact that they did  
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>degradation is higher than the "spit out" threshold?  
>  
>Do you know? Anyone tested this?  
>  
>Looks like an area for further research to me...  
>

Well, I've already done that research which is why I'm pretty confident about this. Of course, because I don't agree with you you assume I'm a uninformed idiot, like everyone else who has ever disagreed with you. Here's a short summary of how CD error correction works.

<http://www.ee.washington.edu/conselec/CE/kuhn/cdaudio2/95x7.htm>

I read much more complex descriptions of CIRC and the red book about two years ago. I also had a computer geek buddy with more programming skill than me sit down and go over some of it. The basis of the interest was not audio CDs per se but why data error correction was so much more robust than audio error correction. (by the way, your description of hard drives and CDs being wildly different is wildly wrong, very similar schemes are used and hard disk write errors and bad sectors are suprisingly common, which is why the error correction for data is both deeper and wider). The error \_correction\_ is designed to take a pretty fair number of errors for almost 2.5 mm on the disk. It can't be completely blank but it can be pretty bad. The correction

will get vanishingly close to bit for bit correct. We tested this by editing .iso images of audio CDs with a hex editor or with, believe it or not, Perl. Burning the images with the errors and then ripping the files would generate an audio file that matched perfectly to the original.

Longer runs of errors means the CD players start to interpolate, and this is where the believers always make their final stand. There were two things we found fairly surprising when we made CDs with enough errors that we're pretty sure the drives were interpolating. Our first discovery was that the interpolation was mathematically surprisingly good, so I wondered if we were hearing a lot of interpolation and not knowing it.

It was then that I remembered something that I did back in the good old days when I still played a lot of physical CDs. Sometimes, when I had a (commercial, printed) CD that was skipping or not playing in my fairly finicky car CD player, I would rip it, burn it to a CD-R and it would play fine in the car again. Then I remembered a time when I had a copy of Mule Variations by Tom Waits that got a massive scuff on it, and worse yet the scuff was in track 4, Hold On, my favorite song on the record. In my CD players it would just stick zz-zz-zz-zz-zz-zz-zz-zz. All of them. Not wanting to pay for a CD twice I took a flier and tried to rip the disk. I couldn't make an ISO of it, that failed. But I did manage to rip to .wav files. All of this surprised me until I listened to the .wav of Hold On. Right at the place where it stuck before there were 5-6 seconds with subtle crackles in the background. Then I ripped it to MP3s and the exact same thing happened, crackles in that section of the CD. I can't prove this but I think the software or the drive is doing whatever it can to interpolate a section of the CD while the CD player decides it's faulty. So, me and my computer geek buddy went back to the ISOs and burned some of the CDs with enough errors that we expected the players to start interpolating. They chunked very quickly. This answered the question that been going on in the back of my head for some time, why do computer drives often read CDs that CD players won't deal with? I think that's the answer, but I can't prove it--CD players are designed to be less error tolerant than data/audio drives in CDs. This makes sense because drives in computers are designed to deal with the deeper and wider error correction that a data disk would include so they would deal with more bad data because of the higher error correction. However, I can say with confidence that most CD players appear to bomb out very quickly when they start interpolating.

All of this is why I think the burden of proof is on the slow burning crowd. For a while the problem was the pits weren't deep enough until someone pointed out that the pits can easily be between 65 and 130 nm and work just fine. Now we're on to elliptical burns and other such like. My ears say no, the data says no, the theory says no, so I'm going to stick with no until someone can convince me yes on one of the three. I'm certainly not going to go against all three.

TCB

>>That, and I return to my example about dusty  
>>CDs--they generate slightly more errors than non-dusty CDs but I don't think  
>>they sound different. I might be wrong, and good ABY testing would show  
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>  
>  
>DC  
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Subject: Re: Burn Time vs Accuracy  
Posted by [DC](#) on Mon, 05 Jun 2006 22:54:31 GMT  
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"TCB" <nobody@ishere.com> wrote:

>This is a complete non sequitor, I have no idea how this relates to anything.  
>I was saying that non only do we not always perceive things perfectly but  
>that humans actually modify the memories of perceptions after the fact.

Except that 2/3 of them perceived the situation accurately.

Non sequitor? By your standards all of them should have seen Bugs. Yet, 2/3's were totally accurate in their perceptions. And of course there's always the remote possibility that some wiseguy put on a Bugs costume at Disneyland that day just for a laugh, in which case who is the bigger fool, the subjects of the test or those drawing the conclusions?

It only takes one correct observation to make your model useless. You have to assert that everyone, every single person, who hears sonic degradation with high burn speeds is deluding themselves, and, well, I think you are likely to be wrong about that, and worse, your test does not resolve the issue.

>A more accurate comparison would be that the research shows that in a group  
>of people who couldn't hear a difference between two CDs it's a decent bet  
>that at least 1/3 of them could be convinced after the fact that thy \_did\_  
>hear something.

Which leaves umm, what's the word? Oh here it is: \*evidence\* on the part of the remainder who did hear something. Unless, of course, you know better...

I said:

>>Or not. How do you know? Perhaps the threshold of audible  
>>degradation is higher than the "spit out" threshold?  
>>Do you know? Anyone tested this?  
>>Looks like an area for further research to me...

>Well, I've already done that research which is why I'm pretty confident about  
>this. Of course, because I don't agree with you you assume I'm a uninformed  
>idiot, like everyone else who has ever disagreed with you.

Looks like you are getting desperate here. Unfortunate personal attacks will not make your case.

The test I specified is one wherein CD's that were not "spit out" by your theoretical player are nonetheless shown to have degraded audio. The thesis is that the point at which CD's are "spit out" is not the same as the one at which they clearly do not sound good. I suspect the two thresholds are different. You have not proven otherwise. Your cancellation test doesn't begin to answer these questions and you offer no other.

>The basis of the interest was not audio  
>CDs per se but why data error correction was so much more robust than audio  
>error correction.

And perhaps, the two processes being different, they produce artifacts at different thresholds than your data test reveals?

Did your friend identify what audio data correction sounds like? After all, it is an extrapolation between missing sections of information and is bound to have characteristics and may even impact audio quality.

(by the way, your description of hard drives and CDs being  
>wildly different is wildly wrong, very similar schemes are used

The crucial difference is that one is magnetic and one is a laser burning a section of dye. This is extremely different, and potentially important, no matter how much you dismiss it.

>The error \_correction\_  
>is designed to take a pretty fair number of errors for almost 2.5 mm on the  
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>iso images of audio CDs with a hex editor or with, believe it or not, Perl.  
>Burning the images with the errors and then ripping the files would generate  
>an audio file that matched perfectly to the original.

On the hard drive, not in actual playback on a CD player.  
Once again you are extrapolating from this to presume that the same things happens in playback. You have no proof because you have not formulated a test that will ask the right question.

The right question is whether or not higher burn speeds degrade the audio output of CD players.

>Then I remembered a time when I had a copy of Mule Variations by Tom  
>Waits that got a massive scuff on it, and worse yet the scuff was in track  
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higher  
>error correction. However, I can say with confidence that most CD players  
>appear to bomb out very quickly when they start interpolating.

>

>All of this is why I think the burden of proof is on the slow burning crowd.

Well, there is certainly more work to be done. But the case is not yet closed. There is a reason, beyond delusion, why these things sound different, but I suspect it will be resolved above our pay grade.

>For a while the problem was the pits weren't deep enough until someone pointed  
>out that the pits can easily be between 65 and 130 nm and work just fine.  
>Now we're on to elliptical burns and other such like. My ears say no, the  
>data says no, the theory says no, so I'm going to stick with no until someone  
>can convince me yes on one of the three. I'm certainly not going to go against  
>all three.

My ears say yes, the data does not make your case, (since you haven't addressed the most important question yet) and the theory is largely an extrapolation on your part since the basic research has yet to be done. You test with data, but the problem is with sound not data, so you extrapolate from the data to sound, then draw conclusions without looking at the box which is likely to be the culprit itself. I remain unconvinced.

When we finally looked at the lousy filters in the 1630/40 A-D's we found that there was signal getting through above the point where the system could convert it to digital. This, as you probably remember, caused very bad sound indeed. Then all the fish-heads telling everyone they were deluded, got real quiet... My guess is that fast writing causes poorly-defined burns which cause a different sort of problem than you tested for by editing errors in. If all the burns are poorly written, you may indeed have a different situation than you tested for in that there is a continuing stream of correction going on that is audible, yet the disc still plays.

I wish we had the time and money to research this.

DC

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Subject: Hey TCB, here's a weird one...  
Posted by [DC](#) on Mon, 05 Jun 2006 23:16:15 GMT  
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Check out

<http://www.kusc.org/>

Log into their 96K feed. Doesn't that sound great? Imagine how many nodes and routers, etc etc that signal went through, and it sounds great. Now, I have played CD's through the Mac Mini here and I must say that my Adcom CD player sounds better than the Mini when playing the the same CD, so it's not like the Mini has super good D-A's or killer analog electronics, etc. But the KUSC feed, which uses the same D-A and analog electronics in the Mini sounds terrific. I suspect that the Mini makes a better internet radio tuner than it does a CD player. Ideas?

Even when KUSC is playing discs which I own and know well, the compressed feed sounds really good, (though I haven't been quick on the draw enough to get a CD in there so I can A-B them when one comes up)

There's no agenda here, I'm just amazed at how the artifacts associated with compression are much less audible than those associated with, say an analog FM reciever. I can tune KUSC in on my Technics tuner and A-B that with the feed and the feed just \*murders\* the FM broadcast.

DC

---

---

Subject: Re: Burn Time vs Accuracy  
Posted by [Aaron Allen](#) on Mon, 05 Jun 2006 23:44:46 GMT  
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---

This is a multi-part message in MIME format.

-----=\_NextPart\_000\_0033\_01C688D0.1DDC26A0  
Content-Type: text/plain;  
charset="iso-8859-1"  
Content-Transfer-Encoding: quoted-printable

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Dokan

Look it up for a laugh,=20

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<http://www.polesoft.com/refer.html>

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Subject: Re: Burn Time vs Accuracy..Masterlink?

Posted by [tonehouse](#) on Tue, 06 Jun 2006 23:07:46 GMT

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---

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Posted by [Aaron Allen](#) on Tue, 06 Jun 2006 23:28:20 GMT

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Subject: Re: Burn Time vs Accuracy..Masterlink?  
Posted by [Tom Bruhl](#) on Wed, 07 Jun 2006 03:31:29 GMT  
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This is a multi-part message in MIME format.

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charset="iso-8859-1"

Content-Transfer-Encoding: quoted-printable

Probably doesn't matter scientifically but my Masterlink and Paris burns from a Yamaha 1x burn direct from 24bit wavs out of Paris had exactly the same data after being checked with some high falutin' software my mastering engineer has. This test was five years ago when we both questioned the quality of everything in my studio.

I'll have to find out what he was using.

Tom

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> certification from both Sony and Pioneer in laser disc technology ) =  
it  
> becomes less tolerant of read errors? I can remember tweaking up the =  
  
> output  
> on the early designs, before they had comparator circuits to do it =  
for ya.  
> Boy, don't screw that one up at \$150-\$225 per diode assembly by over  
> cranking and burning it.  
>  
> This has nothing to do with interpolation IMO, with exception to  
> interpolations ability to take those read errors and extract =  
something  
> usable. By proxy that it can't (remember - I posted that =  
consistently it's  
> the fast burns that won't play/skip around) make the faster burns =  
read  
> correctly and the slower ones do.. I just don't see how you're =  
getting to  
> the conclusion you proclaim man. Read further if you still don't see =  
what  
> I'm trying to say.  
>  
>>  
>>>>My point was  
>>>>that any correctly working burner will produce errors that are  
> statistically  
>>>>and audibly meaningless, at whatever speed is being used.  
>  
> ok, I have to point this out again. There is nothing wrong with my=20  
> burners.  
> Not unless 4 different ones of different ages and using different =  
software  
> with differing brands of cd blanks somehow all colluded against me =  
to show  
> the same kind of errors. And that'd just be plain silly :)  
>  
> From another post on this subject:  
>  
>>>Most recently, the master from my live session was duped at 48x  
>>>on a Microboards CD duplicator. Sounded awful. To everyone.  
>>>Slower sounded better. To everyone. You cannot account for this  
>>>evidence so you dismiss it. Ok.

>>  
>> That's not the kind of evidence I'm looking for. We all know that =  
our  
> perceptive  
>> hardware is imperfect. Witnesses routinely identify the wrong =  
person in  
> lineups,  
>> illusions of movement can be created with surround sound, etc and =  
so on.  
>> So the entire basis of scientific inquiry is to try to establish =  
facts  
> that,  
>> as much as possible, take our perceptive apparatus out of the =  
equation.=20  
>> If  
>> there is a fault in my test tell me what it is and I'll see if I =  
can come  
>> up with a better one. And, as I've repeatedly said, if someone can =  
do  
> blind  
>> ABY tests and show a statistically significant result I'll be happy =  
to  
> revisit  
>> the issue.  
>  
> It seems that we are all revisiting this issue. And I'm not afraid =  
of that  
> at all, it's the best way to learn if you have the time to do it. =  
However,  
> facts for me are facts. I can consistently make a coaster for =  
listening in  
> my car by pushing the burn speed up. This is not an interpolation =  
issue  
> directly, so for me it's not about phase, coherency of D/A =  
convertors or  
> anything to do with sound even. It doesn't sound good if it won't =  
play.=20  
> It's  
> about making a disc that'll play at all due to the amount of errors =  
I see=20  
> in  
> fast burns. This addresses the original question of (see topic) burn =  
time  
> versus accuracy. To that end I say, absolutely it matters.  
>  
> BTW, did you try the same test scenario in a cheapo blaster box or =  
two=20  
> with

> low grade parts? Let's face it, in a world of MP3 players, it ain't =  
about  
> quality for most of the listening public. Here is where that error =  
rate  
> matters the most, because it's your largest audience. Pile in that a =  
lot=20  
> of  
> CD players now do MP3 (already heavily compressed data) audio and =  
you have=20  
> a  
> recipe for big problems.  
>  
>  
> skipy skip snipy snip  
>  
>  
>>  
>> I'll skip over the implied insult that I'm willfully deaf and don't  
> understand  
>> how audio (and other kinds of) data works and await either a better =  
test  
>> than the one I used or proof that goes beyond 'everyone hear the  
> difference'  
>> when there would be obvious pressure to agree with that fact.  
>>  
>  
> I'm officially getting frustrated and I'll probably just drop out of =  
this  
> thread pretty quick. This is not what the original poster asked, nor =  
does=20  
> it  
> address his concerns fully. Just to be clear - I'm not trying to =  
insult  
> anyone man, but seriously you are not listening to what I'm saying =  
or you  
> couldn't be taking a stand that speed doesn't matter. You said you =  
did a  
> phase reverse test. I am telling you it does NOT matter in relation =  
to=20  
> read  
> errors up to a point. That's the interpolation circuit's job. You =  
tested  
> audio stream out. I'm talking about read errata. Unless you built a =  
high  
> impedance (and I mean HIGH so as not to suck down the laser output) =  
test  
> rig, hooked an oscilloscope up to the laser output and counted the =  
errors



> with a capture device, your theory isn't 100% sound. That's a fact. =  
I have  
> built such a rig, and I still have it around here somewhere from =  
when I=20  
> used  
> to do this for a living.  
>  
> There is the output of the audio and then there's what is actually =  
coming  
> off the disc, and believe me... it is positively not the same thing, =  
and=20  
> it  
> won't read the same each pass, either.  
>  
> On another note, and kind of a geek humor one, a Sony rep told me =  
years  
> back that the Japanese invented a word over the sound from the =  
speakers=20  
> the  
> first CD players made that didn't have interpolation. I cannot =  
verify it,  
> but it sure was funny at the time to all us geeksters talking about =  
the  
> newer (at that time) sony interp circuits and why everyone under the =  
sun  
> used them including Philips.  
>       Dokan  
> Look it up for a laugh,  
>  
> AA  
>  
>  
>  
>  
>  
>  
> I choose Polesoft Lockspam to fight spam, and you?  
> <http://www.polesoft.com/refer.html>  
>  
>=20

-----=\_NextPart\_000\_0063\_01C689C1.56405D30

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charset=3Diso-8859-1">
<META content=3D"MSHTML 6.00.2800.1400" name=3DGENERATOR>
<STYLE></STYLE>
</HEAD>
<BODY bgColor=3D#ffffff>
<DIV><FONT face=3DArial size=3D2>Probably doesn't matter scientifically =
but my=20
Masterlink</FONT></DIV>
<DIV><FONT face=3DArial size=3D2>and Paris burns from a Yamaha 1x burn =
direct from=20
24bit wavs</FONT></DIV>
<DIV><FONT face=3DArial size=3D2>out of Paris had exactly the same data =
after being=20
checked</FONT></DIV>
<DIV><FONT face=3DArial size=3D2>with some high falutin' software my =
mastering=20
engineer has.</FONT></DIV>
<DIV><FONT face=3DArial size=3D2>This test was five years ago when we =
both=20
questioned the</FONT></DIV>
<DIV><FONT face=3DArial size=3D2>quality of everything in my =
studio.</FONT></DIV>
<DIV><FONT face=3DArial size=3D2></FONT>&nbsp;</DIV>
<DIV><FONT face=3DArial size=3D2>I'll have to find out what he was=20
using.</FONT></DIV>
<DIV><FONT face=3DArial size=3D2>Tom</FONT></DIV>
<BLOCKQUOTE=20
style=3D"PADDING-RIGHT: 0px; PADDING-LEFT: 5px; MARGIN-LEFT: 5px; =
BORDER-LEFT: #000000 2px solid; MARGIN-RIGHT: 0px">
  <DIV>"Aaron Allen" &lt;<A=20
  href=3D"mailto:nospam@not_here.dude">nospam@not_here.dude</A>&gt; =
wrote in=20
  message <A=20
  =
href=3D"news:44860e73$1 @linux">news:44860e73$1 @linux</A>...</DIV>Masterli=
nk..=20
  never been in one, but I have seen/heard nothing but great <BR>things =
about=20
  them. Being a closed end system designed for / by pros I bet <BR>that =
it's a=20
  pretty solid burn.<BR>That is, however, only a guess since I've never =
cracked=20
  one open (at least <BR>not yet) to check it =
out.<BR>AA<BR><BR>"tonehouse"=20
  &lt;<A href=3D"mailto:zmcleod@comcast.net">zmcleod@comcast.net</A>&gt; =
wrote in=20
  message <A =
```

[news:448607f0\\$1@linux](news:448607f0$1@linux)...<BR>&gt;=20  
How does an Alesis Masterlink compare to all this? I think it burns a =  
4X=20  
<BR>&gt; ...<BR>&gt; I have never had any problems with it....<BR>&gt; =  
"Aaron=20  
Allen" &lt;<A =  
[mailto:nospam@not\\_here.dude](mailto:nospam@not_here.dude)>&gt;=20  
wrote in message <BR>&gt; <A=20  
=  
<news:4484c0d1@linux>>&gt;...<BR>&gt;&gt;&gt;=20  
t;My=20  
point is that you can't take a faulty instrument and extrapolate=20  
from<BR>&gt;&gt;&gt;it<BR>&gt;&gt;&gt;&gt;how non-faulty gear will=20  
work.<BR>&gt;<BR>&gt; Thad, you do realize that as a CD player laser =  
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snip<BR>&gt;<BR>&gt;<BR>&gt;&gt;<BR>&gt;&gt;<BR>&gt;&gt; I'll skip over the =  
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