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Gear & Software Reviews For The End-User

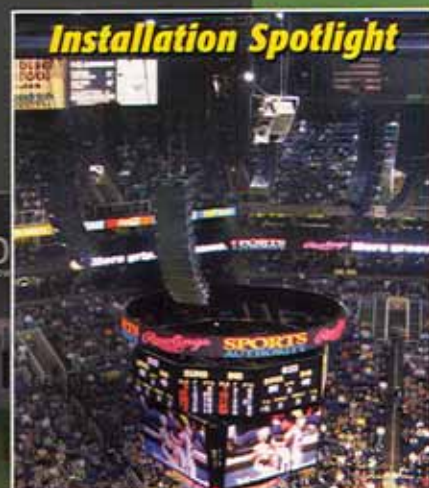


Carolina Girls
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July 2005

Exclusive Bench Test!

TASCAM DV-RA1000



America West Arena

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BY DR. FREDERICK J. BASHOUR

How do you spell "early adopter?" Well, in my case, I guess the answer would be "TEAC," since the last three months I spent with their new high-definition stereo master recorder parallel my experiences from 1969, 1971, and 1973! In late fall, 1969, as a first-year grad student torn between music theory and recording, I fondly remember the day I drove up from New Haven, Conn. to Bradley Airport to receive delivery of the first TEAC A-7030 to arrive on the east coast. It was designed like a miniature Ampex, and touted as a better portable master recorder than the (Studer) Revox A77. I remember picking it up in baggage claim, and then having to throw out the huge cardboard box it came in, since there was no way I could get something that size into my '68 Dodge Coronet 440!

Well, I still have that TEAC, and another 7030GSL as well, and they both still work just fine! I subsequently purchased one of the first TEAC 3340s as well as the very first TASCAM Model 70 four-track (based on that same, amazingly reliable 7030 transport) that NYC's Martin Audio received. And I still have that machine, too!

What does all this ancient history have to do with the new DV-RA1000? Well, as soon news of it was revealed at the AES show last fall, I knew I had to have one, since it was advertised as being able to do things that no other stereo master recorder could do — and they were all functions I needed! Of course,

TASCAM DV-RA1000 DVD/DSD Recorder



I had to wait, and wait, and wait... and then TASCAM wasn't even shipping review units out by the time that the first batch arrived at Sweetwater. So I just called up Brad Lyons and ordered one. It arrived a couple of days later.

The past three months have been an extended romance (with all the typical ups and downs new relationships usually have) between Dr. Fred and his new TEAC. It wasn't that there was a big learning curve. No, it was more like a paradigm shift of sorts. And throughout a lot of that time, I had the guidance of a wonderful gentleman from TASCAM (who modestly requested his name not be mentioned) giving me all sorts of cool tips on its care and feeding — tips I'll now pass on to you, my readers. Oh, and he was around when the TEAC A-7030 was king, so we got to swap stories about the old days of analog.

FEATURES

First, think of the best standalone CD recorder you can imagine (TASCAM makes several, for example). The DV-RA1000 (\$1,499) does all that. But then, consider that if, instead of recording 16-bit/44.1 kHz audio onto a 650MB CD-R, you could record up to 192 kHz, 24-bit PCM and DSD onto a 4.7GB DVD+RW — and the thing sells in the neighborhood of \$1,500 — well, do you get the picture yet? It has AES/EBU (and S/PDIF) I/O for every PCM digital format known to man (including double-wire, high-speed connections for 176.4 kHz and 192 kHz), and also has the necessary complement of data and word BNC connectors to transfer DSD recordings back and forth between high-end DSD converters (Genex, Meitner, etc.) as well as DSD DAWs (Sonoma, Pyramix, SADIe, etc.). Yes, folks, you can play DSD refs on it! We're not talking SACD here,

we're talking raw DSD data!

What else? Let's see, among its feature set are a $\pm 6\%$ pitch control, fade in/out, power on play, various play and record modes such as auto track increment, auto cue, auto ready, single/continuous play and program A/B play. And then there's a rear panel port for RS-232C serial control, a PS/2 keyboard connector for title editing, as well as user-definable function keys on its large, backlit LCD display of the same size — and with about the same number of nested menu choices — as on my Kurzweil K-2600XS and KSP-8.

There's even a "virtual front panel" page on that bright blue display which provides access to many of the unit's functions by providing a graphical representation of many of the keys and controls which are usually hardware switches on other units — and on its own remote.

And a fine remote it is! Wired, connected by very long thin cable, it expands by about a factor of 10 the controls accessible through hardware pushbuttons on the front of the DV-RA1000, and actually adds ones not available on the front panel, such as dedicated buttons for cue and review. Thus, the operator can use the front panel pushbuttons, the "virtual front panel" page on the display, or the wired remote or all three together to control the DV-RA1000.

The easiest way to get a handle on all its features is to download the 46-page owner's manual from TASCAM's website. There's no way I can outline any more of them here and still stay within my limit of 2,000 words! Instead, let's talk about all the things I've learned about it in the past three months as I've recorded literally hundreds of hours at various sample rates, including several dozen "live to DVD+RW" sessions.

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Fast Facts

Applications:

Post production, studio, live sound

Key Features:

CD-R, DVD+RW media; 44.1 kHz - 192 kHz sample rates; DSD-compatible; USB port; AES/EBU, S/PDIF; two built-in mastering effects processors (multiband compression/expansion and three-band EQ); tape-style transport controls.

Price:

\$1,499

Contact:

*TASCAM at 323-726-0303,
www.tascam.com.*

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IN USE

Think of a TASCAM DTRS recorder, like my workhorse DA-78HR. To record on it, you have to format each tape for almost two hours (although you can record long concerts while formatting, as long as you don't stop the tape). Well, to record on the DV-RA1000 you must first format each DVD+RW for about thirty minutes, although you can start recording after about three minutes. This works okay at the lower sample rates, but is not reliable in my experience at the highest ones, or DSD, due to RAM buffer exigencies. Better to just format a whole pancake stack of disks one day when you can "feed the machine" every half hour, and then you won't have to worry about formatting for a long time afterwards! That's what I finally decided to do. Sooner

or later, I'm sure some enterprising company will sell "pre-formatted" DVDs, just like the DTRS tapes that used to be available in the days of the DA-88.

The next part of the paradigm shift involves the fact that there is no hard disk, so you're recording directly to the DVD. Just as a CD recorder won't work too well recording your band if you put it on top of the bass player's amp, similarly, the DV-RA1000 needs a little TLC to produce consistently reliable recordings. Although it's a two-rack space unit, put it in a four-rack space case, with air space above and below. It gets hot, and works better when it's not about to melt. And of course, don't bump into it while recording.

Oh, the media! I don't mean paparazzi either. The higher the sample rate, the fussier the DV-RA1000 is about what you feed it with. Just as the shift from the 16-bit

DA-88 to the 24-bit DA-78HR meant that your tape stock choices had just diminished considerably (Fuji DPD is the best, by the way, for DTRS HR recording), similarly, at 176.4 kHz and 192 kHz, and DSD (with so much more data flowing per unit of time than at the lower rates), you'd better stick to the choices mentioned in the owner's manual: Ricoh, Philips, Maxell, TDK, or Sony — and only up to 4x speed.

I've found the best price/performance ratio with Ricoh media, which you can buy directly from Ricoh in Jersey, over the net. I've not yet found Sony, Maxell, or TDK DVD+RWs on spindles, but perhaps they'll exist one of these days; in individual boxes, they cost about twice as much as the Ricohs, and aren't any better. For the lower rates, Ridata media (Ricoch's cheaper line) works fine, and you can get them for around 50 cents each!

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Second Opinion

TASCAM DV-RA1000

Master Recorder

I spent a couple of weeks, with the TASCAM DV-RA1000 and concur with Dr. Fred Bashour's conclusion. The DV-RA1000 is an amazing recorder/playback unit for \$1,300 on the street (the Chinese manufacturing formula certainly gets the price way down on electronic products).

Like the popular, but aging Alesis MasterLink, the DV-RA1000 is very easy to use. A cursory read of the manual, format the DVD+RW disc, and away you go. Unlike the MasterLink, the DV-RA1000 records its data straight to the disc. There is no internal no hard drive.

Since this is the first low-cost machine that can record DSD audio files (but not SACDs that can play in consumer SACD players however, boo-hoo), I wanted to see the quality of recordings it made direct-to-disc. I set up a pair of Audix SCX-25s using a Night Pro mic preamp and grabbed my Martin 000-28VS 12-fret acoustic. I recorded a number of cuts in DSD on one disc and 24-bit, 192 kHz sampling on another. The DVD+RW disc has to be formatted for PCM or DSD; you can't put both types of the audio data files on the same disc.

The result was impressive. The DSD versions of the acoustic guitar cuts were incredible sounding when played back through my reference system, which included Legacy Focus monitors and a Bryston amplifier. The DV-RA1000 A/D-D/A converters are indeed very good. You could even hear how good it sounded via the TASCAM's internal headphone amp, which is a pretty good one. The DSD had that slight bit of analog warmth signature that has characterized the bitstream recording technology from the beginning. The PCM, at 192 kHz sounded a touch brighter, but a lot smoother than at 44.1 kHz.

In another test to see how good the TASCAM converters were, I recorded some of Tom Jung's DSD jazz recordings from the discrete analog outputs of an Esoteric DV-50 "universal" DSD/DVD-Audio player into the DV-RA1000. I then did a simultaneous play-

back between the DV-RA1000's just-recorded version of the jazz SACD and the original SACD on the Esoteric. During the A/B comparison, it was very difficult to hear the difference. It came down to the Esoteric having just a slight bit of increase in the resolution on a jazz piano. Remember though that the TASCAM costs \$4,000 less than the Esoteric.

I liked the ease of which I could make 96 kHz recordings on the RA1000. After recording them, I removed the audio data DVD+RW from the RA-1000 and inserted it into my Mac G5. Thanks to the utilization of the UDF data format, any computer can easily read the recorded disc. I transferred the music from the DVD to the G5's hard drive, edited the cuts in Peak and then burned DVD-As from the Minnetonka DiscWelder bronze program.

Like Dr. Fred, I found that the DV-RA1000 liked certain discs better than others. The recommended Sony discs worked great for DSD and PCM up to 24-bit, 96 kHz. On the 24-bit, 192 kHz recordings, the discs "errored" a couple of times.

And on one disc, in particular, I discovered that when working with DV-RA1000 files on the G5, the BIAS Peak editing program would open and play only two minutes of a 6-minute 24-bit, 192-kHz track that I had copied from the TASCAM DVD+RW. When I replayed the DVD back in the DV-RA1000, that track played all six minutes of music. I put the disc in the computer a second time, copied it to the hard drive and opened it in Peak again. The same result — only two minutes of music was recognized by Peak. That malady never happened again with any other DVD-to-computer-transfers, but it certainly was odd.

All in all, the TASCAM DV-RA1000 is a much-needed step forward in the world of professional stand-alone record and playback. Despite the uncertainty and confusion about high resolution delivery formats for consumer playback, it is good to see that TASCAM makes use of existing high-res technologies in its professional gear. Being the type that likes to record through a dedicated recorder, the DV-RA1000 gets a big ole' grade A in my book.

—John Gatski

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Otherwise, that's about all there is to it. Stick in a formatted disk, name your "project" (or not; it'll increment titles automatically) via the tedious up, down and sideways cursors or, better, with a spare PS2 keyboard (cool!), and hit the record button. If a disk is

Product Points

- **Plus:**
 - + High-end sound quality
 - + Multiple sample rates
 - + Mastering functions
 - + Digital I/O
- **Minus:**
 - No internal hard disk
 - DVDs must be formatted before use
- **The Score:**
The successor to the MasterLink.

new, it might be a few seconds before the record and pause buttons stop flashing, but once they stop, hit play, and you're in record. It's nice that you can press the record button while recording to add track markers, but if your recording is done unattended, there's still the typical CD recorder problem of having to manually enter "mark" points (to which you can locate later on) or you might end up having to FF or REW through an hour-long file at 10X speed. After recording, you can divide and/or combine files, erase unwanted stuff and, generally, clean up a concert recording without using a computer.

Files? Yes, the DV-RA1000 writes Broadcast Wave (BWF) and DSDIFF formatted files. Which is also why I was able to open my 176.4 kHz, hour-long files in BIAS Peak. Thus, another part of the paradigm shift is to understand that you're not making "audio" recordings, you're recording audio data, in formats that any PC or Mac — or the TASCAM itself, can read. And you use your computer to quickly back up the DV-RA1000s recordings (an especially good idea if you intend to do substantial editing on the unit itself), not the other way around!

And how does it sound? Amazingly good. As the sample rate goes up, so does the "air" and general relaxedness of the sound. DSD, as usual, sounded different, but considerably better when I surrounded the DV-RA1000 with a stereo pair from my eight-channel Genex GX-A8 and D8 con-

verters (which, of course, cost about five times as much as the DV-RA1000 does). The sound of the unit itself has a tiny bit of constricted, "electronic" quality to it, but that might also be due to the analog electronics. At any rate, it disappears with digital I/O, and then you hear what this recorder can really do. 176.4 kHz PCM recordings, played back through my Weiss DAC1-Mk.II converter sound really smooth, so that means that the TASCAM's ADC and analog input electronics (the latter can even be bypassed for extra purity via a menu choice) are really quite good. And again, please bear in mind that I'm exaggerating the sonic anomalies for the purpose of comparison. I still can't believe that a \$1,300 recorder sounds this awesome, all by itself.

Speaking of digital I/O, one really cool thing that the DV-RA1000 has done for my system is given me a way to easily transfer 176.4 kHz master recordings into my MOTU DAW. The (single) digital input of my MOTU HD192 functions only up to 96 kHz, but when I connect the TASCAM DV-RA1000 to one of the USB 2.0 inputs in my hot-rodged dual 1.8 GHz G4 Mac, and transfer the file that way (and yes, USB 2.0 is faster than FireWire 400 — almost 500 MB/minute — and much faster than doing sneaker net and simply reading one of its DVDs on the Mac's SuperDrive), I can open the file in Peak, or import it into Digital Performer, and then route it to any of the HD192's analog outputs. Thus, in this manner, the DV-RA1000 has added high-speed, dual-wire AES/EBU I/O capability to my MOTU DAW, and enabled me to easily import high sample rate PCM files (made elsewhere) into a MOTU project. I'm sure it would do the same thing in a Pro Tools|HD system.

SUMMARY

What more can I say? TEAC has continued the tradition begun with its A-7030 in 1969, providing the audio community a master recorder unmatched in features and sound quality — in this case, one might say — at any price! But for \$1,300? Simply incredible!

*Dr. Fred Bashour holds a Yale Ph.D. in Music Theory, and currently performs as a jazz pianist and church organist. During the past 25 years, he has received credits on hundreds of recordings released on over a dozen labels. He has also been a regular contributor to **Pro Audio Review** since its second issue.*