

Revue Du Son

Test CD Number 17



Test CDs fill a basic need to evaluate system and room performance. They come in various flavors—some with lots of test signals, others with mostly music. Each has its place.

A CD with properly designed and recorded/produced signals can save a lot of money otherwise spent on specialized test equipment. However, at the end of the day it's all about music, so picking recordings that can reveal your system's performance in various categories is invaluable.

There is no shortage of musical test CDs. I have quite a few and use them extensively. Some are commercially available, others were custom made.

A test CD should have a wide variety of music to test frequency response, transient response, dynamic range, freedom from distortion, and spatial characteristics. By the way, it should be listenable. If the music sounds like test tones, I'd rather use test tones.

Test CD No. 17 was produced by the French magazine *Revue Du Son*. Usually I first read the track descriptions to get an idea of what to expect. In this case, I not only had liner notes, but also an article in the January/February 2005 *Revue Du Son* that gave more complete descriptions.



PHOTO 1: Revue du Son.

Great! Well, maybe not. Everything is in French, which I can't read. I've done blind equipment tests, but this is my first blind CD test. I would like to have provided insight from the magazine descriptions, but not being able to read them certainly minimized any listener bias.

My response to a quick run-through was quite positive. The CD has 22 tracks and runs a total of 71:26. Deciphering what I could from the notes written by Jean Hiraga, the disc was mastered at Le Studio Acoustique de Passavant and is

the 17th in a series that started in October 1993. The music is highlighted by female and male vocals (soloists and groups), old woodwind instruments, strings, piano, orchestra, organ, bells, large drums, and gongs. Tracks 16, 21, and 22 are not musical, but include applause, street sounds, and the killer helicopter.

Track 1: The Magic of Kasarova—"Deh! Tu, Bell'anima"

This track opens with very smooth woodwinds and strings. The vocalist is mezzo-soprano Vesselina Kasarova, whose dynamic range is very large. Your speakers must be able to handle very sotto-voce inflections all the way to huge peaks.

My Tenma sound level meter measured from 61-to-88dBsplA. If you have any midrange or tweeter peaks or distortions, this recording will sound very harsh. On a good system it will sound hugely powerful and engrossing.

Track 2: Kari Bremnes: Svarta Bjorn—"Sangen om fyrer ved Tornehamn"

Close-miking can make recordings sound in-your-face, especially with mikes that have a presence peak. However, done properly it can impart a sense of immediacy and detail. This track walks the fine line in between.

The voice is very clean and detailed without being overly bright. It is a great test piece because there are some high-level low-frequency drums in the background that center around 40Hz and hit peaks of 102dBsplC, while the average is 78dBsplA. Anyone for an IM distortion test? A small two-way speaker will be hard-pressed to handle the high low-frequency levels while simultaneously keeping the voices clean.

Track 3: Kari Bremnes: Svarta Bjorn—"Byssan lull"

Strong, but not very deep-bass percussion opens this track. Peaks of around 95dBsplC centered around 50Hz provide a backdrop for more smooth vocals. The vocals are clear and separate from the background, resulting in a very intimate feeling. There are also some delicately struck bells that float above the vocals.

At the end of the cut, Kari's voice evolves to what sounds like quiet synthesized surf. This is a good test of separation of a clean vocal from a strong per-

cussive background.

Track 4: Trésors Moyen-Age: Musique sacrée et Profane ensemble Sequentia—"Bonne amourette me tient gai"

This is a short vocal track that was recorded in a hall with good acoustics. A solo voice provides the chance to hear its definition along with hall reflections. Other voices join, adding to the complexity and testing the ability of your system to separate the voices and their harmonics not only from each other, but from the hall reverberance. Each voice should sound rich and spacious, yet distinct.

Track 5: Trésors Moyen-Age: Musique sacrée et Profane ensemble Peceval—"Aïso es viadera"

Ancient instruments add distinctive flavors to this track. The opening woodwinds have a strong reedy sound. A female vocal enters and is accompanied by background percussion. The separation of the voice from the percussion is excellent.

Track 6: Trésors Moyen-Age: Musique sacrée et Profane ensemble Peceval—"Ja nulls om pres"

The opening strings are quite distinct with well-defined plucking and delicate harmonics. A male voice with realistic tonal balance and clear vibrato separates cleanly from the accompaniment. Sibilants are well controlled. A flute enters solo and is later added to the mix. During the vocals it should be audible, though in the background.

Track 7: J. Brahms: Sonate Nr 1 op 1 pour piano, M.J. Jude—"Scherzo"

This is an OK piano recording that shows good spatial and tonal balance. Harmonics are well presented. However, I have heard recordings with a much greater sense of dynamics. It's a good recording, but would not be my primary reference.

Track 8: Stefano Bollani: Smat-smat—"La Vita Intensa"

This is a good track to show how demanding a piano can be to reproduce. It is quite dynamic with excellent hammer sounds and natural resonances from the lower strings. Being able to separate the chords' harmonics while sounding tonally balanced is a definite challenge. All this happens in an atmosphere of transients

and rhythms that can easily lead to a sense of musical confusion if your system cannot resolve all that is going on. It may not be everyone's choice in music, but it is a great test piece.

Track 9: Chopin: Ballades et Scherzos, A. Rubinstein—"Scherzo nr 2 op 31, Siminear"

This piano piece is all about dynamics, transients, high- and low-level detail, and room acoustics. There is a good sense of the instrument while still having hall ambience that is not overly reverberant. Attacks are good. Low-level detail is excellent.

Track 10: Orchestre de Contrebasses: CH. Genet—"Bass, Bass, Bass, Bass, Bass & Bass"

As you might gather from the title, this is all about bass. And bass there is, plucked, bowed, and struck—string bass heaven! The detail is extraordinary. Harmonics extend to all frequency ranges. This is clean bass with enough higher frequencies to add spice. It is a great test of the ability to separate transients from the background bass lines.

I ran it through my Behringer DEQ2496 RTA and found some of the bass line centered around 28Hz. There is quite a bit of energy all across the audio band with an interesting change from bass to midrange at one point. At a little over three minutes into the track several voices appear that move around the stage. It's an entertaining change of pace. The piece ends with a sharp impact.

Track 11: Vivaldi: Concerto nr 2, La Stravaganza, C. Todorovski—"Largo"

As with a piano, it is often very difficult to make an organ recording that really sounds right. This one does justice to the instrument—a complex, powerful, subtle combination of tones that separates the organ from all other instruments. Balance is very good with a sense of position that is neither too close nor too far. The hall sounds believable.

Upper registers are clean with good separation of upper-midrange and treble, especially in the presence of bass. The notes seem to float above the ambience. This is not a fireworks piece, but a believable simulation of being with the instrument.

Track 12: Beethoven: Concerto pour violon, Heifetz/Munch—"Larghetto"

Strings, beautiful strings. How they can make your spirit soar. Though if reproduced badly, they can send you running for the door.

Here they are done well. The strings are very smooth without sounding soggy. Ambience adds to the realism. The violin is clean and well defined. Massed strings sound like massed strings, not some fur-ball of strident sound. Individual harmonics are easily heard. The violin's intonation, bow sounds, and vibrato are excellent and well separated from background instruments. Plucked strings are believable.

There is a lot going on in this recording. It is an excellent test of definition in which the result is a composite rich in texture rather than a lot of impressive, individually dramatic sounds. Detail is important to producing a realistic image even if not accompanied by striking dynamics. This is an excellent piece to see how well your system performs. It's either right or the magic will be gone. Quad speaker owners will love this track.

Track 13: Rachmaninoff: Concertos Nr 3 pour piano, Horowitz/Ormandy—"Allegro ma non tanto"

I'm torn over this track. As I review my notes, I see the phrase "can't put my finger on the problem." There is something about this recording that I don't like.

The sound of the solo piano is good and clean, except for weakness in the lower register. However, when listening over speakers or headphones, there seems to be some glare when it is going full tilt with other instruments. Dynamic range also does not seem to be as wide as other piano recordings. This is the weakest track as a reference recording. If not in such strong company as the other tracks, it might be considered very good, but it pales in comparison.

Track 14: CD Test Nr 7: "Presentation des Grandes Orgues de Saint Eustache à Paris par Jean Guillou"

This is another great organ recording, not only because of the instrument, but also because of the hall and the ability to hear a male voice so clearly and with great intonation. Ambience is excellent. The different voices of the organ are

explained with short excerpts following each spoken section.

There is first-rate definition in a highly reverberant space, displaying good high-frequency clarity and tremolo. The low pedals provide a nice rumble. The article mentions a stop capable of producing a 16Hz fundamental, but if it is there, it is at a low level.

Never fear, this track is not about earth shaking bass, but rather about definition and ambience. The house shaker comes in track 22. Enjoy this one for its realism.

Track 15: CD Test Nr 10: “clochettes”

The bells are an extreme test of the high-frequency system performance. It is ripe with harmonics that can easily smear together into high-frequency oatmeal. The strikes produce strong transients and the decay sounds natural with gobs of harmonics and beat frequencies. Good luck if you have tweeter or crossover problems.

Track 16: CD Test Nr 10: “applaudissements”

The first of the non-musical tracks, this one features almost three minutes of applause in a large hall, with an ability to identify individuals yelling at different distances from the mikes. It is a very complex sound that will lose its realism if the playback system is lacking in any critical aspect.

At a little over a minute into the track there is so much going on that the sound almost produces pink noise. However, through it all, the handclaps have a sharp attack, the voices are real and distinct, the hall size palpable, and the enthusiasm of the audience apparent. This should not sound overly sharp or muted. Pay special attention to how the voices separate from the applause.

Track 17: Percussions XX—CD Test Nr 14: “Appendice alla perfezione”

Delicate bells introduce this track. While the level is low, the attack and decay should be quite clear. The intensity increases and the sound, especially the attacks, should become louder without becoming harsh.

With the harder strikes, note the increase in the ratio of the initial impact to the decay. There is extended harmonic content. You should also hear movement across the stage. As the track ends, there

are complex sounds at high volume. Regardless of the volume, they should always sound like bells.

Track 18: Percussions XX—CD Test Nr 14: “Towards”

Drums, cymbals, gongs! A friend once said I would stop while walking down the street to listen to a garbage can fall down a flight of stairs. I guess that is because highly dynamic, wide-bandwidth sounds can tell a lot about what is right and wrong with your system.

This track is a great broadband transient test. I played it back at average levels around 100dBspl and peaks as high as 111dBspl, where everything must be right. Your speakers need a lot of linear displacement at all frequencies, you need enough clean power to avoid clipping the peaks, and a good radiation pattern will help it sound realistic. Use caution when playing this track because it can damage wimpy speakers, and your hearing if you play it for extended periods.

Track 19: CD Test Nr 10: “Gongs”

This is the gong show. They can really sound nasty if you have problems anywhere in the frequency band. The transients are brutal. There is energy over much of the audio spectrum. Harmonics are abundant.

Check out the levels of the strikes at 23 and 32 seconds. Also check out the shimmering effects later in the track. If your system has good low-level resolution, you will hear voices close to the end.

Track 20: CD Test Nr 10: “Grosse caisse”

Forget the dog, beware of the drum! This track is brutal. There is a huge drum-strike impact. At my listening position, I recorded a peak level of 115dBsplC. If your speakers survive, listen for the detail in the decay before the next hit.

Track 21: CD Test Nr 12: “Bruits de rue et de moto”

This is one of only a few recordings I have of an outdoor venue that sounds real. It was made on a street and the sounds are amazingly real in terms of the image width and depth. The superimposition of the voices with the footsteps sounds uncannily real.

At around 23 seconds there is some

kind of mechanical sound I cannot identify that is clearly separate from the rest of the foot and voice traffic. The placement of different voices is excellent. At around 1:06 a motorcycle starts up in the background. It comes into the foreground moving to the left and across to the right, with low and high frequencies as the rider blips the throttle.

As with the earlier applause track, the sound of footsteps is the delineating factor in the realism. The heel attacks are crisp without being overly sharp, and you can hear the slap of the soles as they hit pavement. The natural voices float above the foot sounds providing the frosting on the cake. This is a very good test track.

Track 22: CD Test Nr 8: “hélicoptère, decollage”

OK, you have been warned about other tracks, but if you have not paid attention before, do so now. This track is brutal. If you value your speakers, please use restraint when setting the volume. I suggest extra caution if you have a small two-way speaker because it just won't cut it. In fact, it will be a total letdown; you will probably hear nothing partway through the cut except gobs of distortion and the sound of your speakers self-destructing.

This track sneaks up on you because it starts out pretty normal. You hear the sounds of a turbine-powered helicopter preparing to lift off. The compressor whine is realistic, plus the hiss characteristic of gobs of air being drawn into a jet engine. The hiss becomes dominated by the sound of the rotors.

If you cannot reproduce frequencies below 20Hz, you will miss the action. There are very high levels at low frequencies. To determine just how low, I ran the signal from my preamp to my Tektronix oscilloscope and recorded the waveform. **Figure 1** shows a large low-frequency component around 19Hz.

This is serious low-frequency energy. Even with my two very long-excursion 15" woofers, I started to get ugly noises at 107dBspl. Death to small speakers! I needed to reduce the peak levels to around 105dBspl to stop the really serious uglies.

After running the tests, I consulted the calibration chart for my sound level meter and saw that the response at 20Hz was 5dB down. Therefore, the sustained

level was really 110dBspl. The sub I had built into my former house would have been a better match for this track. It had eight 12" drivers (see "True Bass," 5/96 *Speaker Builder*). That is the kind of volume displacement necessary to reproduce serious bass at high levels.

At around 2:55 there are some high frequencies that are either the rotor tips exceeding Mach 1 or the digital recording instruments exceeding 0dBFS. In any case, this track is an interesting high-frequencies test if you are familiar with compressor whine. It is certainly a source of

very high levels of low frequencies from the rotors. Small woofers need not apply.

SUMMARY

The real question is did it pass as a useful musical test disk? The answer is definitely yes. There are enough different musical and non-musical but natural sounds to provide a wide range of stress tests for any system. More important, there are many pieces that have sufficient content quality to test not only whether it sounds real, but real enough to elicit emotional responses. Highly recommended! *aX*

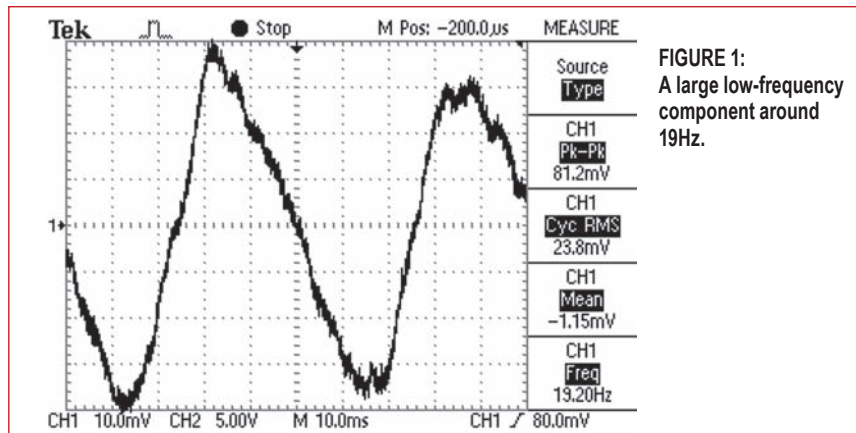


FIGURE 1:
A large low-frequency
component around
19Hz.

Appendix

Home System:

CD player	Sony 707ESD
Preamp	Custom-built, based on AD797 op amps and BUF03 output buffers
EQ	Behringer DEQ2496
Crossover	Behringer DCX2496 (Linkwitz-Riley 48dB/octave slopes at 71 and 303Hz)
Amps-high	One two-channel Crown Macro Reference amp
Amps-mid	Three-AudioSource Amp3
Amps-low	Two-KG-5230 "plate" amp
Speakers-mid/high	Two-each consists of a Bohlender-Graebener RD75 in a custom baffle. See "On Angel's Wings" in the January 2001 <i>audioXpress</i> .
Speakers-mid bass	Two-each consists of six Peerless 831727 10" woofers in a custom baffle. See "A Dipole Midbass" in the June 2004 <i>audioXpress</i> .
Speakers-sub bass	Two-each consists of a Dayton 15" DVC woofer in a 5ft ³ sealed box

Portable System:

CD player	Panasonic SL-CT520
Headphone Amp	Headroom Total Airhead amp
Headphones	Etymotic Research ER4S

Test Equipment:

Sound level meter	Tenma 72-860, calibrated against an ACO 7012 microphone
RTA	Behringer DEQ2496
Oscilloscope	Tektronix TDS210



DRIVERS:

- ATC
- AUDAX
- ETON
- FOSTEX
- LPG
- MAX FIDELITY
- MOREL
- PEERLESS
- SCAN-SPEAK
- SEAS
- SILVER FLUTE
- VIFA
- VISATON
- VOLT

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