HSU/BAS Test CD 1 Track Listing

1. Saint-Saëns: Organ Symphony, excerpt from second movement (Poco Adagio)

WARNING: When playing this track for the first time, lower the volume, as your woofers may be at risk. The bottom octave of this recording may damage vented or planar loudspeakers. (The opening string passage should be quite soft.) Boston Civic Symphony conducted by Max Hobart, James David Christie, organist. Two AKG 414 ORTF cardioids, about the third row in Boston's Jordan Hall, spring 1983. This was one of the last times that the Jordan Hall organ, already showing signs of serious asthma, was heard in a public performance. [Micha Schattner]

This recording has the strongest and cleanest 16Hz of any recording I have come across. It's ideal for showing off the TN1220HO. [Dr. Hsu]

2. Brahms: Geistliches Lied, op. 30 ("Spiritual Song")

Soli Deo Gloria (the group's new name is New World Chorale), Holly Krafka conducting. This piece was written as an exercise in counterpoint; it is built as a double canon (soprano/tenor, alto/bass) at the interval of a ninth below (which would be very dissonant if the musical lines occurred simultaneously). Having set himself this formidable challenge, Brahms creates a remarkably expressive piece whose text begins "Lass dich nur nichts nicht dauren mit Trauren" ("let nothing afflict thee with grief"), dedicated to Clara Schumann after her husband, Robert, was confined to an asylum. (The introduction quotes from Robert Schumann's Fourth Symphony, which he had dedicated to Clara.) The final "Amen" abandons the canon and unfolds over a held low E-flat from the organ. [Steve Owades]

3. Bruckner: Symphony No. 4 (original version), conclusion

The New Hampshire Symphony Orchestra conducted by James Bolle in the Palace Theater, Manchester, NH on November 16, 1979. It was recorded with two Nakamichi CM-1000 cardioid mikes using Dolby A on analog tape. The venue is quite dry, but one hardly notices, since the music almost never stops. This version portrays

Bruckner before the revisions by well-meaning friends -- not the amicable bucolic peasant but a person with apocalyptic visions of angels and terrifying demons. I've been recording the NHSO since 1977. [David Hadaway]

4. Mahler: Das Lied von der Erde (arr. Schoenberg) ("The Song of the Earth")

Marian Dry, contralto, Arlene Zalman conducting. Recorded in Houghton Chapel, Wellesley College, Wellesley, Mass., in spring 1999, using two Schoeps CMC 56 omnis. This is Schoenberg's chamber reduction of the Mahler orchestral work. [MS]

5. Verdi: Requiem: Dies Irae; Mors stupebit ("Day of Wrath"; "Death Shall Be Stunned")

15 Boston Philharmonic Orchestra, Benjamin Zander conducting, Boston Symphony Hall, March 8, 1981. Four Nakamichi 700s -- two omnis for overall pickup and two cardioids used at lower levels as chorus accent mikes.

[Peter Mitchell, E. Brad Meyer]

We could not issue this CD without a recording by our late founder, Peter Mitchell. This work is one of the hardest to record with natural dynamic range. The original was captured on videotape using a PCM-1, an early 14-bit Sony professional encoder. Fearing that the quiet passages would be lost in the dithering noise of the processor, we had Rene Jaeger build a custom dbx I encoder with a mild 1.5:1 companding ratio. This type of signal processing actually works better with digital encoding than with analog, since digital is extremely consistent in frequency response and signal levels, eliminating the most common sources of decoding errors. The recording was later decoded and transferred to a 16-bit PCM-F1.

Even once it is captured, few systems can handle the true dynamic range of this work. Play the section from 4:30 to 5:00 and set your system so that the singer reaches a natural maximum level at 4:58 of around 76 dB SPL (broadband). Then, if you think your amplifier and speakers can take it, try playing the track from the beginning. (The BAS assumes no responsibility for any damages.) If your system survives, you will be able to hear the door open and close as the off-stage trumpeters rejoin the ensemble at 4:25--4:28. [EBM]

6. Stereo Pink Noise

Stereo pink noise will put flat energy into your room without interference between the channels as the listener's ear or microphone moves across the room, so it gives a better idea than mono noise of the overall performance of the system with both channels operating. [EBM]

7. Mono pink noise

Mono pink noise is useful when you're seated in the sweet spot on the center line between the speakers. The noise should appear to come from a single point at dead center. Any asymmetry in the system or room will reveal itself as a displacement or horizontal smearing of the apparent source. (Results in this test can be improved by getting out a tape measure and making the speakers truly equidistant from the center of your chair.)

With the mono noise you will also hear the 2kHz response error that is generated by a phantom center image, since the virtual source is being generated by two real sources neither of which is straight ahead of you. [EBM]

8. L-R Pink noise

This pink noise is mono but out of phase. It will produce an uncomfortable hollow-headed feeling in a system with accurate geometry and symmetrical response. In a surround system it will be entirely in the surround speakers. [EBM]

9-21 Third-octave-wide warble tones, 16-250Hz

These warble tones are at constant level, with frequency varied randomly over the space of one-third of an octave, centered on the standard ISO center frequencies. For example, the 20Hz warble tone varies between about 18 and 22.5Hz. The bandwidth is wide enough so the signals will not excite narrow room resonances too much, but narrow enough to give you a good idea of the overall bass response of your system. [EBM]

The sequence in hertz is: 16, 20 + beep, 25, 31.5, 40, 50 + beep, 63, 80, 100 + beep, 125, 160, 200 + beep, 250.

Track	9	10	11	12	13	14	15	16	17	18	19	20	21
Hz	16	20	25	31.5	40	50	63	80	100	125	160	200	250

22-23 Downward tone glide, 200-10Hz

Track 22 is a downward linear sweep from 200 to 80Hz 25 seconds long, joined directly to track 23, which is a slower (50 sec) linear sweep from 80 down to 10Hz. Tones mark all ISO third-octave center frequencies, with double tones at 2, 5 and 1 as above. The tones are at 200, 160, 125, 100, 80, 63, 50, 40, 31.5, 25, 20, 16, 12.5 and 10Hz. This slow glide will reveal any resonances or rattles in your system or room.

This sample CD is being provided at no charge to promote awareness of the Society's goals and activities. More than just a local hobbyist club, the Boston Audio Society has been providing a forum for thoughtful and entertaining commentary on the audio scene for 27 years. We are entirely dues-supported and include members from novice enthusiasts to practicing engineers. Our newsletter, the BAS Speaker, is available to members for $40 a year; a sample issue is $3. As a promotion, the complete 35-track BAS test CD (normally sold separately for $30) is yours for free by signing up for one year. Send a check for $40 made out to the Boston Audio Society to:

David Hadaway
PO 460
Rindge NH 03461
and mention the Hsu Research promotion.

More information on the CD and the BAS is on our website www.bostonaudiosociety.org.