Roksan Caspian CD Player

Reviewed by Charles Hansen
Listening Tests by Betty Jane & Richard Honeycutt

Roksan, 30 St. Peter's Rd., Huntingdon, UK PE18 7DB, www.roksan.co.uk, info@roksan.co.uk. Imported by May Audio Marketing, 2150 Liberty Drive Unit 7, Niagra Falls, NY 14304, 716-283-4434. $1750. Dimensions: 43.5cm W × 33cm D × 8cm H; net weight: 9.5 kg, 21 lbs. Limited two-year warranty.

PHOTO 1:
CD player front view.

The Roksan Caspian is one of the Caspian family of products, which includes a power amplifier, integrated amplifier, and tuner. *Photo 1* shows the front panel, with its combination front-loading door and fluorescent display. This panel swings down, and the CD loading drawer slides out with a push of the open/close button. Three push-button controls flank each side of the display, with play/pause buttons on each side.

CONSTRUCTION

The rugged chassis is black-painted steel with a thick aluminum front panel, and the door/display is also aluminum. The display itself is covered with a thin plastic film that gives it a ghostly green out-of-focus look. The user's manual did not say to remove it. Track information and total time are displayed for about 10 seconds after loading a CD, but the unit does not display index marks.

The optional remote control supplied with the review unit (with the all-too-common tiny buttons) can also operate the Caspian-series Tuner and Integrated Amplifier. Making quick track changes is not easy, due to the nonstandard number pad with the buttons arranged in two vertical columns. The CD-only remote control (not supplied) has the more familiar touch-tone telephone layout.

The rear panel (*Photo 2*) has the switched IEC power receptacle, two pairs of high-quality gold-plated Teflon™-insulated RCA analog output jacks, and a 75Ω BNC connector for the S/PDIF coax digital output. An optical output is not provided.

The unit is furnished with a power cord, but not with analog or digital interconnects. The power can be connected for 120V or 240V mains, and a line fuse is located in a drawer in the IEC receptacle. The third pin of the AC receptacle is connected to the chassis.

TOPOLOGY

A schematic was not supplied with the unit, and I did not attempt to open the unit for inspection. The Caspian uses a Philips TDA 1305T BCC-DAC2 with continuous calibration. The unit does not perform HDCD decoding.

The Caspian information sheet describes its patented Laser Environment Enhancer Light, which is a green laser that bathes the CD in green light. The Enhancer is supposed to produce an effect similar to painting the edges of your CDs with green paint, such as Audioprism's CD StopLight.

PRELIMINARY TEST

Unfortunately, the Caspian arrived inoperative. The front door/display panel was flopped open and the loading tray was not fully retracted. When I powered it up and pressed the open/close button, the tray retracted, made some noises and opened up again. The unit appeared to be a (probably well-used) review sample. I returned the unit to May Audio Marketing, and they promptly furnished a new replacement.

MEASUREMENTS

I operated the Caspian for one hour with a loud music CD before making any tests. I performed all tests using the CBS Labs CD-1 and Pierre Verany test CDs (both available from Old Colony Sound Lab). The output impedance at 1kHz was 127Ω, and channel balance was better than 0.1dB.

The frequency response for the Caspian was within ±0.68dB from 17Hz-20kHz. The 0dBFS output was 2.12V RMS at 1kHz, or 0.51dB higher than the CD standard of 2V

PHOTO 2:
CD player rear view.

TABLE 1
MEASURED PERFORMANCE

PARAMETER	MANUFACTURER'S RATING	MEASURED RESULTS
Output	2V RMS	2.12V RMS
Frequency response	20Hz–20kHz ±1dB	8Hz–20kHz ±0.68dB
Total harmonic distortion	0.003% (1kHz)	0.012% (see text)
IMD-CCIF (19 + 20kHz)	N/S	–70.5dB, 1kHz
Output impedance	N/S	127Ω
Signal to noise ratio	105dB (IHF-A)	
Channel separation	100dB (1kHz)	unmeasurable
Power requirements	<15W	

RMS. Crosstalk between channels to 16kHz was excellent and was below the noise floor of my test equipment.

THD+N versus frequency results are shown in *Fig. 1*. Normal practice when testing devices with digital-analog converter outputs is to engage a 22kHz six-pole, low-pass filter to remove out-of-band noise. My HP-339A distortion test set has two three-pole LP filters, at 80kHz and 30kHz.

With both filters engaged, the combined effect is a slightly better than three-pole LP filter at 28kHz. As such, my THD+N readings are somewhat higher than they would be if they were measured with the specified LP six-pole filter at half the 44.1kHz digital sampling rate. (When I repeated the THD measurements with just the 80kHz LP filter engaged, the THD+N was 0.02% higher across the graph.) The spikes in THD above 2kHz are the result of noise and distortion cross-products with the 44.1kHz sampling frequency and are not unusual in digital equipment.

The spectrum of a 50Hz sine wave at 0dBFS is shown in *Fig. 2*, from DC to 1.3kHz. The calculated THD+N was 0.0025%. There were no significant harmonics and only extremely low-level noise artifacts.

Figure 3 shows the spectrum of response to equal level 19kHz and 20kHz signal, each at –6dBFS, from DC to 20.8kHz. The 1kHz intermodulation difference product measured –70.5dB, while the 18kHz and 21kHz products measured –38dB. The spectrum analyzer FFT was still processing the data, and the IMD spectrum was decreasing when the 30-second CD test track ran out. The actual IMD is probably lower than it appears.

Figure 4 shows the reproduction of an undithered 1kHz sine wave at –90.31dBFS. At this level, the signal consisted of ±1 bit of data, producing two different voltage levels that are symmetrical about the horizontal axis (time). These discrete voltage steps were not obvious, probably due to out-of-band high frequency noise. The ringing after each vertical transition can be explained by the Gibbs Phenomenon[1].

The Caspian ignored defects on the Pierre Verany Test CD#2 out to track 32, which has a 1.25mm long section of blank data. At track 33 (1.5mm defect), the unit emitted a series of audible clicks at each pass through the defect. The unit easily met the Red Book requirement of 0.2mm max. ❖

REFERENCES

1. Arfken, G. *Gibbs Phenomenon*, "Mathematical Methods for Physicists," 3rd Ed., pp. 783–787, Academic Press, 1985.

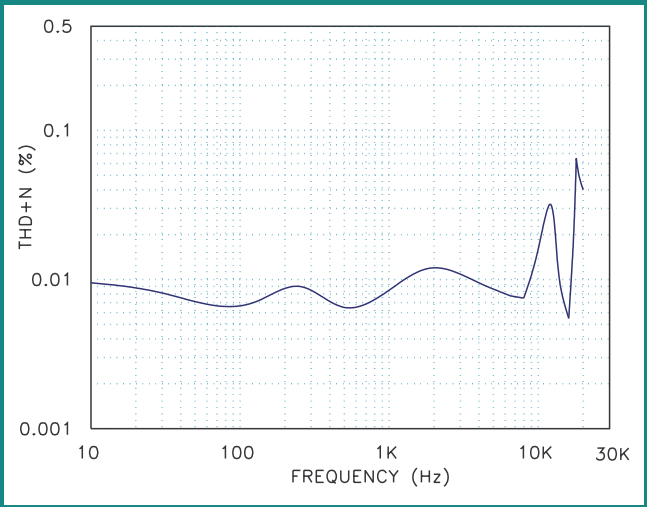

FIGURE 1: THD+N versus output power.

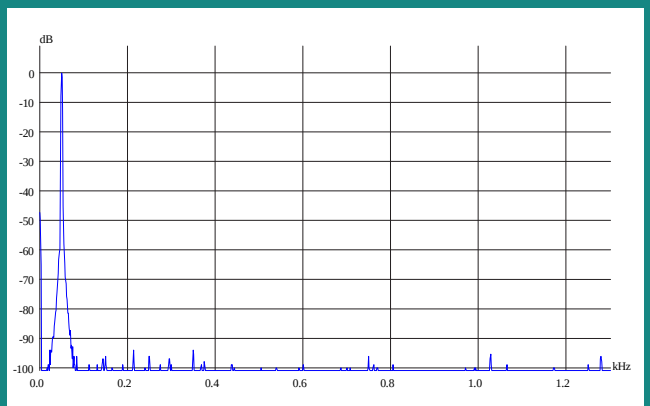

FIGURE 2: Spectrum of 50Hz sine wave.

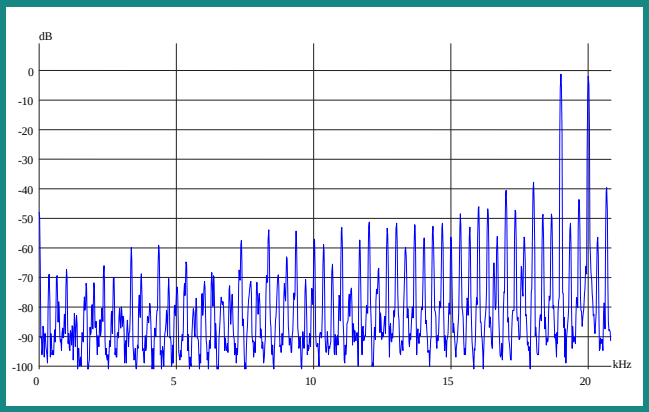

FIGURE 3: Spectrum of 19kHz + 20kHz intermodulation.

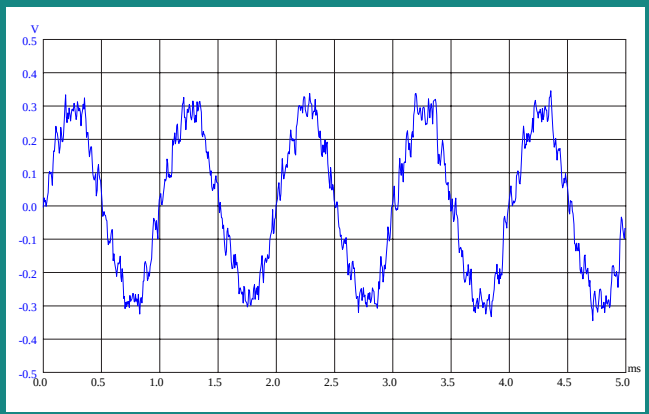

FIGURE 4: Undithered 1kHz sine wave at –90.31dBFS.

CRITIQUE

Reviewed by Betty Jane and Richard Honeycutt

It's usually the little things...The elegant front panel. The solid (and heavy) feel. The smooth, silent glide of the door as it opens and closes. The fact that it is a single-CD player, not a changer. The gold plating on the RCA connectors. The heavy rocker switch on the back panel. The heavy, removable power cord. And, of course, the name. (We're Narnia fans from way back!) By the time you actually start to listen to the Roksan Caspian, you're already impressed by the quality.

On the other hand, it is this very sort of first impression that makes it doubly important to be on your guard, especially when not testing double-blind against some standard. So between the Caspian's arrival in our home and our actual listening session, I did some thinking about just what sort of sonic differences you could reasonably expect among professionally designed CD players. My mind went back to the horrid first impression I had of compact discs.

A friend of mine had purchased an early CD player and several "Best of the Beach" or some such CDs. Those of us who were in radio back in the '60s used to comment that 45 RPM records were pressed on a mixture of chicken manure and sawdust. This first CD sounded even worse. Obviously the engineer thought you could overdrive a CD master by 10 or 15dB, just as he always overdrove 45 RPM record masters. The distortion was hideous.

Fast-forward to the '90s. By now, the requirements of proper digital recording were well understood by the professionals. Overdriving simply did not occur. But listening to a slow fadeout, you could sometimes hear graininess, especially near the "silent" end of the fade. This seemed to vary with the CD player.

Such graininess could arise from improper resistor tolerances in the D/A converters, causing amplitude errors. And since all CD players have analog sections, the usual bugaboos of hum, noise, high-order harmonic distortion, IM distortion, and slight frequency-response aberrations could rear their heads. As a result, the sound could be a bit thin or edgy, or inner voices could be somewhat muddy.

All that said, I must admit that I own a fairly low-priced five-CD changer, and have been generally pleased with its performance. In fact, my cassette recorder cost over twice what my CD player did. But now you know what we were looking for in our audition of the Caspian.

We listened to the following selections from *Hi-Fi News and Record Review*'s CD Test Disk III, with comments as appropriate.

TEST 1
Track 2—Jerusalem/Parry
BJH: The performers sounded very close to the listener. Because of the recording venue being outdoors, I could not tell much about the original acoustic environment.
RH: The outdoor recording, reproduced in our fairly acoustically dead living room, sounded cramped to me. Not the best environment for listening to this recording!

TEST 2
Track 4—Trumpet Concerto in C/Vivaldi
BJH: Excellent presentation! Very natural.
RH: The trumpets (which are very difficult to properly record) are superb. See note below on a further test.

TEST 3
Tracks 5/6—Peter and the Wolf (narr)/Prokofiev
BJH: Not quite the presence of the Vivaldi, but the sonority and locations of the various instruments are very well-defined.
RH: The narrator, especially, could have had a bit more presence, but the soundstage was excellent.

TEST 4
Track 7—Welcome, Welcome/Purcell
BJH: Generally good ensemble. However, the harpsichord's position seemed to roam according to the register in which it was played: lower register to the left, upper register to the right. The apparent change in position was twice the length of the typical instrument, so the instrument's orientation could not explain this effect.
RH: The overall sound would be wonderful for a Romantic composition, but the room sounds too large for a Purcell chamber piece. But then the equipment accurately conveys the size of the room. Singers sounded somewhat blanketed and lacking the intimacy that should characterize this type of music. But I believe this is all in the recording.

TEST 5
Track 10—Corkhill (Piece 2)
BJH: Crisp, lots of presence.
RH: The silent sections are truly silent. The full dynamic range of the piece (*pp* to *f*, I would guess) is reproduced effortlessly.

TEST 6
Track 14—Rio Napo RSS Demo
BJH: Presence and stereo effect are exceptional.
RH: Fine studio recording.

Notice that by far most of our comments on these tracks did not relate to the ways any professionally designed CD player might conceivably affect the music; rather, they pertained to the recordings. Consequently, the accompanying chart of sonic characteristics ratings, based on these tests, should be taken with a grain of salt. So, to focus on any possible graininess, edginess, hum, noise, or distortion, and thereby give an honest and useful rating of the sound of the Caspian, we made...

FURTHER TESTS
First, we played the Vivaldi back on our own CD player, A/B-ing the two. The Caspian definitely produces a rounder, more perfect trumpet sound. My CD player has a slight edginess on that sound. As a trumpet player myself, I (Richard) definitely considered the Caspian to deliver superior reproduction in this test.

Second, we listened to Chadwick's "Noel" from *Symphonic Sketches*, on the CD *HDCD Sample, Vol. 2* (Reference Recordings RR-905CD). This silken choral performance would easily reveal any artifacts in frequency response as a deviation from the absolutely perfect balance and sonority of the choir, and the wide dynamic range provides a fine test of low-level imperfections in the D/A converter. No flaws in the Caspian were found.

Third, we listened to Chesnokov's "Spaséñiye Sodélal" ("Salvation is Created"), also from the *HDCD Sample* CD. On this one you could hear the colors of the singers' dental fillings. No distortion could hide from this test.

Finally, we auditioned several tracks from Michael Card and John Michael Talbot's *Brother to Brother*, which contains some of the best-recorded blends of nylon-string guitar, electric bass, percussion, and male voice we have heard. Again, the Caspian performed flawlessly.

CONCLUSION
We had only one minor concern: the operation of the remote control was not exactly as we expected. In our experience, when you press a button on the remote corresponding to a track number, the CD player immediately begins playing that track. On this one, you must first stop the current selection, then select the new track, then press play. Of course, we had no manual with the unit, so there may be a simpler mode, but we did not find it.

We were not told the price of the Caspian; perhaps that's a good thing. But if you, like myself (Richard) prefer a single-disk CD player, I don't see how you could do better than the Caspian. Even the remote-control issue is minor, because I seldom use a remote with a CD player anyway. And the appearance, construction, and sonic performance are superb.

ABOUT THE AUTHORS

Richard Honeycutt is an accomplished musician and author. He is Chief Engineer at Electroacoustic Development Company and EDC Sound Services, where he is engaged in acoustical and electroacoustical consulting and design. Betty Jane Honeycutt is a professional composer and musician with a BA in Music from Greensboro College. She and Richard have three grown children. In her spare time, Betty Jane helps operate EDC Sound Services and also teaches literacy and English as a second language.