

Cambridge Audio Azur 650R 7.1 A/V Receiver Reviewed

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To say that the staff at [Cambridge Audio](#) is proud of their latest A/V receiver would be an understatement of epic proportions. They are so proud that they proclaim the AUD\$2,200 Azur 650R 7.1 receiver as the best sounding A/V receiver, ever. Considering the ultra-competitive receiver marketplace, where the Azur 650R competes against legendary names such as [Denon](#), [Marantz](#), [Onkyo](#), [Sony](#) and many others, Cambridge Audio must have packed some very special electronic wizardry inside its handsome black box to warrant such a claim.

At the heart of the Azur 650R is its [massive audiophile grade](#) low flux toroidal transformer, which is mounted far away from its input and processing stages to keep interference at a minimum. A pair of very large capacitors within the power supply circuit helps provide stable and pure energy, even under demanding playback loads. The muscle comes from seven fully discrete 100-Watt amplifier circuits, again optimally placed in the enclosure for maximum sonic purity. The 650R provides the ability to bi-amp the front main speakers providing that you are using it for a 5.1 channel or less system. Bi-amping can pay sonic dividends such as improved headroom and bass performance, assuming your speakers are designed for it. To contend with the heat created by the amplifier circuitry Cambridge uses its own proprietary X-Tract forced-convection cooling tunnel. Major heat-producing components, such as transistors, are mounted to this metal tunnel and generated heat into it. A silent fan draws cool air into the unit and down through the tunnel, evacuating the heat into the atmosphere from the X-Tract tunnel. It's a very efficient design and greatly reduces the mass of the unit compared to traditional heat sink designs.

The brains of the unit include the decoding, surround processing circuitry as well as the analog output circuitry. It is comprised of a pair of powerful 32 bit core DSP processors with 24/192 capable digital-to-analog converters. These processors support the latest codecs including Dolby Digital Plus, DTS-HD High Resolution, Dolby Digital 5.1 and EX, DTS 5.1 and ES in 5.1, 6.1 or 7.1 variants. Also supported are true lossless [Dolby True HD](#) and [DTS-HD Master Audio](#) formats for unprecedented performance from Blu-ray source material. Legacy Dolby Pro Logic II or IIx and DTS Neo:6 are also available in 5.1, 6.1 or 7.1 variants, as is DTS 96/24. The 650R also includes various DSP modes such as movie, music, room, theatre and hall. For stereo playback the 650R offers stereo or stereo and subwoofer. These modes sample an analog input and convert it to a digital signal via 24 bit A/D converters. Once in the digital domain DSP is used to "create" a subwoofer channel. Should the user wish, an analog input can bypass the digital conversion via the analog Stereo Direct mode. This mode offers the purest possible recreation of the original input signal. Should you own a source component capable of decoding the above surround formats and outputting the audio as multi-channel PCM or native unencoded multi-channel PCM, the 650R can receive them over HDMI in multi-channel PCM mode. Traditional analog inputs are also available up to 7.1 should you decide to let the source do the decoding and D/A conversion.

With all of the processing power available, I was disappointed to find that there is no room correction algorithm which most of the 650R's competitors offer. The 650R does offer an auto-setup feature however, which utilizes test tones along with the supplied microphone to determine the correct delay and level settings for each speaker location. Another useful feature is dynamic range control that can limit the difference between loud and quiet passages on [Dolby Digital material](#). This is very useful for nighttime viewing when wanting to keep from disturbing others. Lip sync correction is also offered to correct differences between on-screen action and the associated soundtrack. Both of these features are easily accessed from the remote control.

The casework of the 650R is very high quality, especially for a receiver, and is more indicative of a higher-end component. The feel is solid, and was designed by Cambridge Audio to provide an acoustically damped, low resonance enclosure for additional sonic performance. The rounded edges of the case add another level of refinement versus the competitions' decidedly budget oriented sharp folded seams. The top of the unit is covered with ventilation slots that serve to help ventilate radiant heat, as well as feed the intake of the cooling fan that feeds the X-Tract. The receiver's face is formed from a thick piece of beautifully machined aluminum, finished in a striking brushed black treatment reminiscent of older [Krell equipment](#). The center of the face is dominated by a decidedly high-tech blue dot-matrix display, which is not only extremely legible but also quite stylish. The button layout is intuitive with the source input selection directly under the display. Beneath the source selection are buttons for the various surround formats. To the left of the display reside the power button, as well as tuner functions and a headphone jack. To the right, you find a handy input for audio and video signals for a device such as a video camera. Last but not least is a large volume knob right where it ought to be, on the right hand side of the 650R's facade. Continuing the theme of quality, all of the buttons operate with a solid, direct feel, and the volume knob rotates with precise motion.

Turning one's attention to the rear of the unit, the most obvious and unexpected feature is the large cooling fan mounted in the center of the rear panel. This is the exhaust portion of the X-Tract cooling tunnel and care should be given to avoid obstructing the airflow. The most important connection for today's high-resolution consumer is obviously the HDMI ports. Cambridge Audio included three [HDMI 1.3c inputs](#), which is probably the fewest one feasibly gets away with. Analog video connections include five composite, five s-video, and three component inputs. The receiver offers analog video up-conversion, which will transcode any analog signal to HDMI. The 650R is also equipped with eight two-channel analog, one 7.1 analog, five digital coax and six digital optical inputs.

The Hookup

The Cambridge Audio receiver arrived in a sturdy double box with form-fitting Styrofoam supports, which enclosed the unit for safe transport. Included was a stylish silver remote control, ergonomically designed with commonly used buttons positioned close to the center touch pad. The remote has a solid feel and fits well in the hand. One complaint I have however is the lack of backlighting, or even glow-in-the-dark buttons, which would be quite useful in a dark theater.

Lifting the 650R from the box, I immediately felt that this unit was of higher grade than I normally expect from a receiver. The sheet metal seemed a bit thicker than the competitors, and it was finished to a higher standard too. The faceplate quality was above reproach and beyond anything I have seen on a receiver. In fact, it felt much more like a handcrafted high-end component than a mass-produced one. The bottom of the receiver included substantial vibration damping feet, again seeming out of place on a receiver. The rear of the chassis was equally well finished and logically laid out. I was especially pleased to see large, color-coded speaker terminals to make wiring simpler. Needless to say, I was very impressed with the level of build quality and refinement the 650R offered.

The Cambridge Audio 650R was powered through an Audioquest NRG-5 power cord. Video source components included the [Cambridge Audio 650 BD Blu-ray player](#) as well as a [DirectTV H21 HD/DVR](#) and a [Sony Playstation 3](#), all connected with [Audioquest HDMI cables](#). The HDMI output from the 650R was connected to my Sony SXR60 60-inch 120 Hz display. My reference audio source was an Esoteric DV-50 SACD/DVD-Audio/CD player and was connected to the CD input using Audioquest Colorado cables. The speaker configuration was five Focal Dome speakers with the matching Focal subwoofer, again wired with Audioquest cables.

Once all the connections were made something unexpected happened when the power button was pressed, that being all the lights in the room dimmed. Obviously, I concluded that there was one serious power supply inside the 650R and my wall circuit noticed when it was powered up. Normally, I use the dedicated twenty amp circuits for review items, but due to a recent back injury I thought it was not wise to crawl under my rack to access them. To be honest, I didn't think the receiver really needed them either. I was wrong.

After powering up my next step was to bring up the on-screen display and run the auto-setup. Unfortunately I was absolutely unable to get the display to show on my display through the HDMI cable. Apparently, my display did not like the 480i HDMI signal, which the OSD is output on. As a work around, I used a component connection between the receiver and the monitor, problem solved.

Once in the setup menu, I noticed that the options were surprisingly sparse, offering what was necessary, but not much more. Those who love to tweak will probably be disappointed, as the 650Rs menu seems designed for those who prefer to set it and forget it. The setup structure was very simple to navigate and intuitive to use without needing the manual for reference. After selecting the number and size of the speakers I was ready to run the auto-setup program. Unfortunately, the system was unable to complete this function, as it was unable to recognize the subwoofer. I spoke with the Cambridge Audio technical staff and was told that I had stumbled upon a known bug in the firmware, which they were already addressing. The new firmware wasn't ready prior to this review so I calibrated the system manually and was off and running. I was assured that existing 650R owners would be able to update the firmware without having to send the unit in. Since the review was performed the new firmware to address this issue has been approved for release.

Performance

I began listening in 2.1-channel mode and cued up the Esoteric with the ballad "The Only Exception" by Paramore from the Brand New Eyes album (Fueled by Ramen). The track begins with a guitar and the vocals of singer Hayley Williams. I was pleasantly surprised by the organic nature in which her voice was reproduced by the Cambridge Audio 650R. It was presented with fullness and warmth that is not typically associated with a receiver, sounding more like high quality integrated or even separate components. I also heard subtle vocal inflections of her performance, showing that the 650R is very capable of passing even the smallest of details that it is given. The sounds staging performance of the receiver was excellent, placing her voice center stage and well in front of the speakers as the other instruments were carefully placed around her. Nearly half way through the track the drums slowly make their presence known. The kick drum played quick and deep and I was very impressed with the musicality of the 650R.

Next, I loaded up the album In Between Dreams (Brushfire Records) by Jack Johnson. During "Good People" I was again impressed with the vocal quality that the 650R is capable of reproducing. His voice was open, clear and richly textured. As he sung in the center of the stage, my attention was drawn by the occasional cymbal crash and by just how far its image was thrown outside of my right speaker. My first thought was, receivers aren't supposed to image this well, but this one did. After the initial cymbal strike, it exhibited excellent decay and seemed to hang in space far longer than it should. The snare drum cracked a steady rhythm and maintained composure and accuracy even at very high volume levels. My will to turn the loud knob higher gave out well before the Cambridge Audio receiver did.

Finally, I cued up "One" from Metallica's And Justice for All (Elektra) album. The track builds slowly from a beautiful melodic lone guitar sequence from Kirk Hammett to an all out attack on the senses. Lars' trademark double bass pedals were no problem for the 650R to keep up with even during a screaming solo from Hammett. This speaks to the 650R's ability to dump large amounts of current for powerful bass notes while also keeping extremely fast guitar notes clear, separated and non-distorted. Throughout the track James Hetfields vocals were angry and rough as they properly should be. All musicians were clearly placed around the soundstage. The 650R was as happy playing acoustic ballads, as it was pounding thrash metal.

Very pleased with the 2.1 channel performance I decided to test the 650R with some movie content and played The Hurt Locker (Summit Entertainment) on Blu-ray through the Cambridge Audio 650BD. The film places the viewer directly in the action as you follow an explosive ordinance disposal team

through battle torn Iraq. As to be expected with such a storyline there was no shortage of explosions, all of which were recreated with startling power and force. What was not expected from the film was just how terrifying the quiet passages were, which always seemed to precede the explosions. The 650R's processing of the DTS 5.1 HD soundtrack created an environment, which immersed me in the action and even placed me in the bomb suit. For example, the everyday sound of a boot scraping across gravel took on new meaning as it marked the distance shrinking between the technician and the explosive. An unexpected flurry of rifle fire in the distance, as the ordinance technician is about to touch a bomb was enough to rattle my nerves. The explosions were actually a bit too much for my wife in the adjacent room, so I was happy to be able to add up to ten decibels of attenuation to the LFE channel from the remote. The 650R performed flawlessly during the playback allowing me to focus on the screen, and get lost in the story.

Competition and Comparison

The A/V receiver market is one of the quickest moving segments in the A/V marketplace today. New products are released almost weekly as manufacturers try to keep current and relevant. If you are considering a receiver with streaming ability and energy efficiency you may want to consider the [Sherwood R-904N Netboxx](#). If you split your preferences equally between sound quality and high-tech features you may want to consider the [Onkyo TX-SR706](#). On the high end of the spectrum you might also consider the ultra-high end [Marantz SR8002](#). To learn more about A/V receivers please check the [AV Receiver section](#).

The Downside

At the time of this review, the Cambridge Audio 650R is lacking a few very popular features, which nearly all of its competitors have at this price point. A glaring example is the lack of room correction which when implemented properly can provide significant improvements in terms of sound quality.

I was disappointed to see a receiver ship with a known firmware problem with something as crucial as the setup function. I imagine consumers who found the same issue were even more disappointed than I was after making the purchase.

However, Cambridge Audio has since addressed the issue with the new firmware update.

Conclusion

The Cambridge Audio 650R 7.1 A/V receiver was boldly claimed to be the best sounding receiver ever. In my experience, it may very well be an accurate statement. Its nearly limitless amount of power coupled with true musicality made it a music lovers dream. Its two-channel performance is much closer to a high-end integrated amp than it is a traditional receiver. Couple that fact with the excellent theater surround processing, video switching and stunning build quality and it makes for a very compelling product. If you are the type of consumer who places audio performance over bells and whistles, then you must consider the Cambridge Audio 650R and be prepared to redefine your expectations of a receiver.