



dARTS 660 DCB-1.0-LR



dARTS 660 DCB-5.0-C

Phase Technology dARTS 660 Series

7.2 Precision Calibrated Loudspeaker System

Doug Blackburn

This is the first Phase Technology home theatre sound system I've reviewed. Phase Technology's family tree begins in the 1950s with United Speaker Systems, founded by Bill Hecht. In turn, United Speaker Systems (USS) is a subsidiary of MSE Audio whose other brands include: Induction Dynamics, Soundtube, Secret Sound, Soundsphere, Solid Drive, and Rockustics. United Speaker Systems made loudspeakers for many audio companies of the day, including Fisher. **Bill Hecht patented the soft dome tweeter in 1967, a design that has been the most widely manufactured type of tweeter over the last 50 years.** Phase Technology appeared in 1983 as a means for USS to get their own loudspeaker designs into the marketplace. The two series of dARTS (digital Audio Reference Theater System) loudspeakers (and amplifier) are Phase Technology's "statement" products. The two lines of dARTS loudspeakers are the 535 series, with 5.25-inch woofers for rooms up to 8,000 cubic feet. For rooms 5,000 to 18,000 cubic feet, the dARTS 660 series have 6.5-inch woofers. **No matter which dARTS system you choose, they all meet the THX requirement of 105 dB at any seat in the room while playing normal program material.** Both dARTS systems eliminate passive crossovers (resistors, inductors, and capacitor crossover networks, as found inside most loudspeakers). All the required crossovers plus precision tuning for tweeters and woofers are loaded into the dARTS DP4000 digital amplifier with up to 16 channels. The drivers are wired

directly to the signal input connectors. All crossovers, individual loudspeaker tuning, and room correction are handled inside the DP4000 amplifier. The factory loads driver-specific tuning data into the amplifier before all dARTS systems are shipped. Phase Technology provides correction for each tweeter (or pair of tweeters if the loudspeaker in question has two tweeters) and for each woofer or pair of woofers in a single enclosure. That means you can't move the loudspeakers around or connect them randomly to the amplifier. The left surround loudspeaker must remain in the left surround location, and the tweeters must be connected to a specific channel of the DP4000 dARTS amplifier, and the woofers must be connected to a different specific amplifier channel.

It is necessary to convert analog audio to digital and use DSP to perform all the needed processing operations in the amplifier. Since DSP was already required for loudspeaker signal processing, Phase Technology decided to incorporate a customized version of Audyssey MultEQ XT Pro in the amplifier. This custom version performs only room correction. Measurements are made with the Audyssey Pro calibration kit and software during system installation. That means your surround processor (doesn't make sense to use an AVR since the dARTS system is sold only with a dedicated amplifier) must not have Audyssey or any other room correction enabled. With many processors allowing you to turn various features on and off for each input, it's important to cycle through all your inputs, confirming that Audyssey is turned off for every input before you begin calibrating the dARTS system. Your dealer/installer/integrator will perform the Audyssey Pro calibration. That produces great results, but if you change the room, it will require a new calibration to re-balance the system for the new room configuration—that includes changing or moving furniture, or even if you hang a new piece of artwork or remove art that was on the wall when the system was calibrated. A single small change won't affect the sound much, but if you accumulate two or three small changes over time, you may want to bring your installer/calibrator/integrator back to re-measure the system and download the new measurement data to the dARTS amp. You don't disable everything in your processor, however. You get Audyssey Pro's calculated distances and levels for each loudspeaker and enter those distances and levels into the processor's manual loudspeaker setup menus. You don't use the crossover capabilities of the processor except to put the crossovers into a standard "known state" that the dARTS amplifier is set up to handle. In the processor, all loudspeaker channels are set to Small with 80 Hz crossover point. That insures that the signals arriving at the dARTS amplifier are processed correctly.

The driver technology, quality control, custom tuning for each loudspeaker, development effort, and the unique and dedicated amplifier mean the cost of ownership isn't exactly inexpensive. On the other hand, compared to statement loudspeaker products from many other companies that can run \$40,000 to \$200,000 (or more) for one pair of loudspeakers with no amplifier, the \$31,600 cost of the 660 Custom Box 7.2-channel review system is affordable in comparison. A "full boat" 660 dARTS system with four subwoofers, height loudspeakers, two amplifiers (needed when there are more than seven channels in the



dARTS 660 DCB-210-SUB Subwoofer

system) using floor-standing 660-Series for the left and right channels, would run close to \$48,000. The “smallest” dARTS system, a 5.1 535 system, would be in the \$17,000 range. Phase Technology doesn’t price each component of the dARTS system separately since everything must be purchased as a system. Your dealer/integrator will provide a custom quote for each dARTS system. Interestingly, Phase Technology isn’t trying to woo you into spending more money by offering the 535 and 660 dARTS systems. Most companies will offer higher-priced models that bring some measured or perceived improvement in sound quality or frequency response range, etc. Phase Technology differentiates the 535 series and 660 series only by the size of the room (in cubic feet) that the system will be installed in. The 660 system incorporates larger 6.5-inch woofers (vs. 5.25-inch in the 535 series) and is suited for rooms with more volume. Both series “sound” the same, but larger rooms require more drivers and/or larger drivers in order to meet the THX 105 dB spec on actual program material. There is some overlap in room volume between the top of the 535 range and the bottom of the 660 range, so in that gray area your dealer/integrator and/or Phase Technology will help determine which series would be best suited to your room.

The internal passive crossover in loudspeakers is a sonic bottleneck. Over the years, better inductors, better capacitors, and better resistors, along with better design using computer-based design tools, have improved passive crossovers considerably. But you are still passing

the input signal through those components in the passive crossover network. There is an inevitable interaction between the impedance of the driver and the components used in its passive crossover network. Removing the passive crossover, as Phase Technology has done here, takes away one fairly significant source of sonic “interference.” Customized digital crossovers inside the DP4000 amplifier perform their jobs transparently, delivering specific audio signals for the tweeter(s) only, woofer(s) only, and if so equipped, to the mid-range only. With the crossover slopes and filters done in the digital domain, the electrical properties of the driver can’t interact with the crossover circuit since there isn’t a physical crossover circuit/network any longer. The dARTS system replaces the physical components in passive crossovers with math performed at the binary level. Listening to the dARTS system reminds me of my first drive in an electric car. The electric car did everything a gas or diesel-powered car does, but it was completely silent and completely free of mechanical vibrations produced by an engine. It’s something that is very



dARTS 660 DCB-SURR Surround

SPECIFICATIONS

Features

- Loudspeakers available in high-gloss finish, custom box with utility black finish, or in-wall
- Loudspeakers cannot be used without a customized dARTS amplifier
- Custom calibration parameters for each driver of each loudspeaker is loaded into the amplifier at the factory, including customized crossovers
- The loudspeakers are crossover-less, relying on active crossovers in the amplifier
- The amplifier can have as many as 16 channels of 250 watts each, 500 watts per 2-way loudspeaker with 4-Ohm impedance
- Each dARTS system reaches the THX specification of 105 dB at every seat playing program content normally when the system is properly “sized” for the volume (in cubic feet) of the room
- 1.25-inch soft dome tweeter in LCR models, 1-inch soft dome tweeter in surround models; the 1-inch tweeter is amiable if needed
- All models in review system have two 6.5-inch woofers using aircraft-grade Nomex honeycomb sandwiched between two thin and stiff layers of glass fiber for exceptional cone stiffness
- DCB-115 Sub has a 15-inch woofer and 15-inch passive radiator, no port, cones are polypropylene
- Audyssey Pro room correction
- Enclosure sizes can be customized
- Handle grips at front of custom box models to help slide them into tight-fitting alcoves
- Removable grille covers

Specifications

Dimensions (WHD In Inches):
 Front—14 x 14 x 9 without stands
 Center—18.75 x 8.25 x 12
 Surrounds—10.5 x 19.25 x 5
 DCB-115 Subwoofer—15.25 x 19.5 x 22.4

Weight (In Pounds):
 Front—31
 Center—37
 Surrounds—28
 DCB-115 subwoofer—87
 DP4000 amplifier—27

DCB-115 subwoofer

Power requirement: 120/240 VAC 50/60 Hz
 Power consumption: Maximum 900 watts
 Amplifier power: 500 watts continuous, 1,500 watts peak

DP4000 Amplifier

Power requirement: 120/240 VAC 50/60 Hz
 Power consumption: Standby 0.46 watts, Maximum 1,800 watts
 Amplifier power: 125 watts @ 8 Ohms, 250 watts @ 4 Ohms
 Warranty: 10 years loudspeakers, 3 years electronics
 MSRP: approximately \$31,600 as reviewed (custom box dARTS systems from \$17,050 to \$48,000)

Manufactured In The USA By:

MSE Audio
 Phase Technology
 8005 West 110th Street Suite 208
 Overland Park, Kansas 66210
 Phone: 913 663 5600
 Website: phasetech.mseaudio.com

different the first time you experience it. Similarly, the first time you hear a dARTS system you realize you are hearing something different, but it’s not the addition of or alteration of anything... it’s the absence of the passive crossover in the signal path to the drivers that makes the dARTS system sound different. The drivers in the loudspeakers now have a direct connection to the audio signal creating a more immediate and “present” sound in your room. With digital crossovers via DSP, you eliminate all signal processing in the analog domain. I wouldn’t call the difference in sound without the passive crossovers wildly obvious, but it is clearly and easily audible if you listen to sources you know very well from many repeat listens/views. The difference is very obvious if you can switch back and forth, playing the same 30 seconds of well-recorded music on the dARTS system and over conventional loudspeakers. I also hear something very different going on when listening to music with the subwoofers active. The mid-bass, say 60 Hz to 150 Hz or so, is especially well integrat-

ed with lower and higher frequencies and sounds less “confused” or “uneven” than what I’m used to hearing from conventional systems.

I was concerned that the dARTS amplifier would be re-digitizing analog audio, something in the past that has really killed sound quality in AVRs and processors. However, like so many high-end audio and home theatre products from the last few years, analog-to-digital conversion at home has left the bad old days behind and sounds as close to “nothing” as is imaginable. Home A/D conversion used to sound thick, flat (dimensionally), gray/dull (lacking dynamics and clarity), and generally lifeless. It was almost like the sound of music with severely lossy compression. It seems we jumped from really bad-sounding A/D conversion in home products to “It’s perfect! How is that possible all of a sudden?” somewhere around 2012 or so, the first year I recall hearing A/D conversion done without hurting music or movie sound in any way. Frankly, A/D conversion sounded so bad for so long, I still find I have a mental bias against products that perform A/D conversion and offer no means of bypassing that conversion. I have to constantly remind myself when there is a product here that performs A/D conversion on everything that if I am not hearing any negative effects of the A/D conversion, there’s no reason to be biased against the product. I still spend a lot of critical listening time trying to hear any negative effects of the A/D conversion. I “know” in my head the A/D conversion process isn’t causing audible issues, but I just can’t let go of the old bias. Perhaps another four or five years of “perfect” A/D conversion will get me over the hump. The dARTS amplifier resolutely sounded “all analog” when it comes to sound quality, and that’s meant as high praise since the best analog amplifiers have a decades-long history of producing the best home sound quality you could get at most every price point from modest to crazy. There have been a lot of amplifiers claiming to be digital amplifiers without compromised sound over the years, but until the last few years I had never heard a digital amplifier that sounded as good as very good analog amplifiers. But that changed a few years ago when I began to get digital amplifiers that had no sonic fingerprint that set them apart from the best analog amplifiers.

The 660 Series dARTS System Components

The loudspeakers in the review system are the 660 “Custom Box” series. There are standard sizes and shapes, but Phase Technology will create enclosures with customized dimensions to fit most any size/space within reason. Because Phase Technology custom tunes every dARTS loudspeaker, even if the customer’s requested box dimensions make the interior volume of the enclosure larger or smaller, Phase Technology can tune the loudspeaker to make it sound like all the other dARTS loudspeakers. The custom box series is designed to be “hidden” from view. The finish is a black utility “soft texture” finish, not a high-gloss paint or wood. Phase Technology does offer the dARTS loudspeakers in a “finished” Freestanding series, designed to look great when they are out in the open. The Custom Box series would generally be placed either behind an acoustically transparent projection screen or inside alcoves, most often covered with some sort of fabric that keeps loudspeaker locations “hidden.” In-wall dARTS loudspeakers are also available and use Phase Technology’s resonance-free mounting system.

In keeping with the theme of mounting these custom box models in cabinet or wall alcoves, the port fires to the front and there are gripping handles near the front face of each loudspeaker to help with placing the loudspeaker in the alcoves that may not be much larger than the outside dimension of the enclosure. The grips/handles on the fronts of the custom box models are even “recessed” so you can still hold on to the enclosure, even if the alcove is barely wider than the dARTS loudspeaker. On these “main” front loudspeakers, connections to the crossover-less loudspeaker enclosure are made with four-conductor loudspeaker cable or a pair of two-conductor loudspeaker cables via two pairs of conventional multi-way binding posts.

In this nearly square loudspeaker, the two woofers are at the bottom, close together, while the tweeter sits above them. All of the woofers in 535 or 660 dARTS loudspeakers are made with a thin Nomex honeycomb between two thin and stiff layers of glass fiber, making the cone exceptionally stiff and resistant to cone breakup/resonance.

The center channel has the 1.25-inch tweeter placed between a pair of 6.5-inch woofers. The connections for the center channel are via three pairs of multi-way binding posts, making this the only three-way loudspeaker in the review system. The reason for it being three ways is so that only one woofer is taking the “hand-off” from the tweeter to avoid the fairly serious lobing (lobe-ing) or comb filtering you get from this driver arrangement in the horizontal axis when the driver array is oriented horizontally as it is in most center-channel loudspeakers. A two-way center channel is also available for applications where it can be placed vertically to avoid lobing/combing in the horizontal axis, say behind an acoustically transparent projection screen. When you have the Woofer-Tweeter-Woofer (or Midrange-Tweeter-Midrange) setup oriented vertically, the lobing/combing happens in the vertical axis where it is less of an issue, unless you have multiple seating rows on risers so that each row has a different ear height. For the three-way model, the tweeter crosses over to just one of the woofers. The second woofer doesn’t start working until much lower in the frequency range, so the second woofer does not interact directly with the tweeter. The whole issue of lobing/combing in either axis simply doesn’t exist with that arrangement. The two-way model has the tweeter crossing over to both woofers at the same center point. The design of the three-way, center-channel loudspeaker insures that all seats in the theatre room get the same great sound from the center channel.

The surround loudspeakers in the 660 custom box system (and 535 system) have five-sided enclosures with a V at the front of the loudspeaker. These are designed to be mounted on the wall surface, with the wall reinforcing the bass response. Each of the two forward-facing surfaces has a single tweeter and woofer, for a total of two tweeters and two woofers in each loudspeaker. A switch on the loudspeaker controls whether the loudspeaker operates as a dipole (when “front” drivers move outward, “rear” drivers move inward) or bipole (both pairs of drivers move inward and together). There is no preferred mode of operation. Phase Technology suggests listening to both modes before calibration to determine which mode works best in each room, then run the calibration using the selected operating mode. One consideration is how close the closest seats are to the surround loudspeakers. The closer people will sit, the more likely the dipole mode will be to produce the best listening experience since it would not direct a lot of sound straight towards those seated closest to the loudspeaker. The other consideration is, how localized do you want your surround sound to be? The bipole option will localize sounds like movement to the sides or back while the dipole option will make localized effects more “spread out” and less specific to a single location. There is no one right answer to the bipole/dipole question, it really depends on your room. All that said, I personally would use bipole mode unless any seats I want the sound to be good for are closer than, say six feet from a surround-channel loudspeaker. Loudspeaker cable connections to the surround loudspeakers are not multi-way binding posts, as with the LCR loudspeakers. Because the surround loudspeakers are designed to mount on the wall surface, Phase Technology chose to use a connector that allows you to connect the loudspeaker cables (bare wire) at a 90-degree angle, straight down so nothing “sticks out” of the back of the surround loudspeakers. Once you have the loudspeaker cable ends locked tightly into the connector, you plug the connector into the loudspeaker and you’re good to go.

The 1-inch soft dome tweeters used in some dARTS loudspeakers can be aimed to improve imaging or directionality. In most installations, straight forward is the ideal alignment of the tweeter, but for installations where less-than-ideal locations have to be used, the “aim-able” tweeter allows better results when the loudspeaker loca-

tions can't be ideal. The larger 1.25-inch tweeter is fixed in place, aimed straight forward.

The DP4000 amplifier provides up to 16 amplifier channels and up to 16 channels of DSP in a single chassis. Power ratings are 125 watts into 8 Ohms or 250 watts into 4 Ohms. Amplifier outputs must be carefully connected to each dARTS loudspeaker since there is only one amplifier channel that is correct for (as an example) the tweeter in the left, front loudspeaker. You wouldn't want to connect that amplifier output to the woofer of the surround back, right loudspeaker. Remember that the DP4000 amplifier does the crossovers and tuning for each loudspeaker and driver with data downloaded in the factory before your dARTS system ships. A USB port on the amplifier accepts the loudspeaker-specific data that Phase Technology installs as well as downloading the calibration information from the Audyssey Pro calibration. The actual version of Audyssey in the DP4000 amplifier is MultEQ XT Pro, but it is a custom version used only by Phase Technology for the dARTS system. I have had nothing but bad results from Audyssey calibrations in my theatre room since moving in here in 2013. I explained that to Ken Hecht from Phase Technology, who installed the dARTS system here. While Ken found the results with Audyssey in other products in my room "interesting," he was pretty confident that Phase Technology's

"overlap" zone would be 1,250 Hz to 5,000 Hz. So the tweeter would be -24 dB at 1,250 Hz, and the woofer would be -24 dB at 5,000 Hz. Over that frequency range (probably a larger range than that in the real world) Phase Technology tunes the system to have the same phase angle at all frequencies. Furthermore, Phase Technology observes proper absolute signal polarity for all drivers. That means every tweeter and woofer will move forward in response to positive signal voltages and backward in response to negative signal voltages. Many loudspeakers have some drivers connected with correct polarity while other drivers are connected with reversed electrical polarity.

The two subwoofers provided with the review system were placed in the front and rear of the room on a slight diagonal to produce what should be about a perfect bass response zone right at the main seat, and that did seem to be true based on basic measurements with a hand-held SPL meter. These subwoofers have one side-firing 15-inch driver with a 15-inch passive radiator on the opposite side. Like most subwoofers, a powerful internal amplifier with 500 watts is driven by a line level input from the DP4000 amplifier. The DP4000 amplifier doesn't provide any of the power to drive the subwoofer, it provides only the processing required to integrate the subwoofer with the other dARTS loudspeakers. Phase Technology optimizes the dARTS subwoofers for minimum distortion, but in doing so, they roll off a bit faster below

THE dARTS SYSTEM IS SIMPLY THE BEST HOME THEATRE SOUND SYSTEM I'VE HEARD SO FAR.

version of Audyssey would not produce the same negative results as numerous other products. And as it turned out, Ken was right. Phase Technology's Audyssey Pro calibration sounded far better than the uncorrected sound produced by the dARTS system. I used to get generally good (non-Pro) Audyssey results in the room I used from 2006 to 2012, so it has been a bit of a puzzle why so many Audyssey calibrations in the room I'm using now have not produced better results. The DP4000 can be turned on and off manually, via 12-volt trigger, or via built-in input signal sensing.

You don't get 16 audio channels into a single amplifier chassis without some heat being created, even if the amplifiers are far more efficient Class D (digital) circuits rather than the common Class AB analog amplifiers that produce far more heat due to using their input power less efficiently. So cooling is a definite concern with the DP4000 amplifier. It needs access to fresh air on all sides, and it has internal cooling fans that operate all the time. The fans do make some noise, similar to the fan noise made by projectors with UHP projection lamps. I'm a huge fan of theatre rooms that have the lowest practical noise floor, so eliminating noise sources like HVAC vents, projector fan noise, and such would be a feature of any permanent theatre room I'd want to use long term—that means the amplifier would need to be in a well-ventilated equipment closet or "control room." A built-in rack that exposes equipment faces and encloses everything else would also work.

The DP4000 amplifier's DSP uses FIR filters that allow separate processing/correction of time/phase errors and frequency errors. This allows full use of Audyssey's ability to "fix" a frequency response problem at one seat without making that frequency louder or softer at another seat that doesn't require an adjustment of that frequency. Because the time domain can also be tuned with FIR filters, Phase Technology adjusts the phase response of the drivers so they have the same phase angle at all frequencies to at least one octave above and below the frequency range the drivers overlap. 24-dB-per-octave crossover slopes are used, so the overlap zone for the drivers is fairly small. This means if the crossover frequency is 2,500 Hz, the

30 Hz than many other subwoofers, especially those that strive to achieve powerful response at 20 Hz and lower by using large ports and large cabinets. If it hadn't been for the opening deep bass event at the very beginning of *Edge Of Tomorrow* and test tones, I don't think I would have noticed that these subwoofers didn't quite make it to 20 Hz. For 99.99 percent of the running time of movies I watched with the dARTS system here, I heard everything on the soundtrack.

There are really too many options within the 535 and 660 series dARTS systems to describe all of them here, but there are some interesting options for the front left and right main loudspeakers. The standard, smaller main loudspeakers supplied with the review system require stands, but Phase Technology offers the tall-ish 210 subwoofer that is the same width as the standard main loudspeakers and is designed to "dock" with the main loudspeakers, completely eliminating the need for stands. Additionally, there is a three-way 660 tower (floor-standing) model with gloss black finish that could be a third option for the front main loudspeakers.

Listening Results—Movies

The first thing I noticed about the dARTS system is how loudly it will play with zero signs of distress. It would reach levels much louder than I normally listen with no hint of dynamic compression, stress, or clipping. I have absolutely no doubt that it will meet the THX 105 dB specification with a dB or two to spare. But playing loud is far from the only characteristic you want from a home theatre loudspeaker system. The loudspeakers also have to do the disappearing trick well, and the dARTS system certainly performed that critical function extremely well. Phantom images were solid and consistent without a hint of localization to two or more active loudspeakers. Sounds were well localized, and the precise positions/locations of the loudspeakers was never obvious (a very good thing).

Everything on the soundtrack of *Terminator Salvation* came through with excellent dynamics and detail. Various robot sounds were even more evil and ominous sounding than ever. Collisions, explosions, gunfire,

booby traps, and ambient sounds were all excellent on this state-of-the-art soundtrack. Dialogue sometimes happens during mayhem, but even with all the complex distractions going on, everything including dialogue was still easy to hear. The deep bass “event” at the beginning of *Edge Of Tomorrow* starts even before the Village Roadshow logo disappears at the end of the opening credits. This effect starts at around 40 Hz to 50 Hz and descends to 10 Hz, where you don’t hear anything, but you can feel the air moving like someone turned on a fan... if the subwoofer being used even attempts to reproduce that signal. But effect is very loud from 20 Hz down to 16 Hz. The dARTS subwoofers give you enough of what’s going on to realize the movie is starting with a very strange bass event, even though half or so of the length of the event just goes silent when the subwoofer reaches its limits. Test tones indicate solid output down to 25 Hz, with rapid roll-off below that. 20-Hz test tones produced some sound but not a lot. Phase Technology is working on a new means of extending the deep bass response a bit lower than I achieved here, but it wasn’t ready by the submission deadline. The dARTS system reproduced mayhem of the combat scenes in *Edge Of Tomorrow* with such visceral power, directionality, and purity that even though I’ve viewed parts of this movie more than 25 times, I still ended up with a bit of an adrenaline rush from viewing these scenes for the first time with the dARTS system in charge.

With quieter movies like *Bad Moms*, the sound was so normal and natural that it was almost impossible to stay in evaluation mode. Every couple of minutes I would find myself just enjoying the movie without thinking about the sound at all. That’s a rare event for me and speaks well of the ability of the dARTS system to disappear from consciousness so easily.

Multi-channel music on Blu-ray Discs was such a guilty pleasure with the dARTS system that I re-watched every multi-channel music disc I own just for the sheer enjoyment of the performances. Once I got through those, I started pulling out other titles with strong musical performances, like Blue Man Group’s *How To Be A Megastar Live!* and *Cirque du Soleil: Worlds Away* and *Journey Of Man*. If you enjoy this sort of entertainment at home, the dARTS system is like a magic carpet to transport you right into the world of the performance. Both of these performance groups use sound and music as major elements of their performances, and the dARTS system brought those performances right into my room better than any loudspeaker system I’ve reviewed so far. The opening title music from *Terminator 2: Judgment Day* (Skynet Edition) remains one of my favorite musical interludes on Blu-ray Discs, and that sounded the best I’ve ever heard it sound with the dARTS system. The metallic hammering sounds at the end were incredible when played back at 95 dB or so.

Listening Results—Music

The dARTS system does something for music I’m going to call deconvolution. There is a clarity in the music I just don’t hear from conventional loudspeakers. I suspect it is mostly taking place within the zone where drivers “overlap” with conventional crossovers, where two drivers are reproducing the music signal in different proportions. Based on the sound of the dARTS system, conventional crossovers cause some convolution of the signal in those overlap zones. Hearing the music played more “cleanly” through the crossover region produces more detail and more clarity in the sound than is (apparently) possible with passive crossovers. Classic recordings like Dave Brubeck’s *Time Out*, recorded at the pinnacle of the golden age of tube studio gear, sound so immediate and present in the room that I can’t recall a loudspeaker system that has produced the same “they are right there in front of me” listening experience. The high frequencies in percussion are just right, not too splashy, not too reticent, not too edgy, not too etched. Dynamics on Adele’s song “Hello” are pretty spectacular, starting softly and building to powerful vocal and instrumental crescendos. But change to another track on the same

album (25), “All I Ask,” for example, and you hear lots of compression and fake-sounding studio tricks. The dARTS system exposes the quality or lack of quality in music recordings for all to hear without glossing over anything. In this case, it’s not that “Hello” isn’t loaded with studio trickery, it’s just done better than it is done on “All I Ask.”

Some of the most tuneful deep bass you’ll hear in recorded music is on Enya’s *Watermark* album, specifically on “Longships.” Here the dARTS subwoofers assert themselves perfectly, delivering strong but low-distortion bass that is, seriously, the best-sounding deep bass in music I’ve heard from a subwoofer so far. The choir that opens “Merlin The Magician” from Rick Wakeman’s *The Myths And Legends Of King Arthur...* sounds better than I’ve ever heard it sound before. In fact, I hadn’t realized just how well recorded that choir was until hearing the Japanese SHM CD version with the dARTS system. As this track progresses it gets increasingly complex, with a wide array of sounds from real instruments as well as synthesizers and some very strong bass. The dARTS system kept up with everything Rick Wakeman threw at it. “Dog Days Are Over” from Florence + The Machine’s *Lungs* album is a great example of how well the dARTS system works on complex mixes, sorting out every element with complete discretion, producing a wall of sound effect so smile-inducing you just want to keep bumping the volume up louder and louder, while you marvel at how clean and undistorted this great song can play without hinting at a lack of power or of dynamic compression from drivers not quite up to the task of reproducing such complexity at such high SPLs without distortion bollixing the presentation. The bass (synthesizer) pedals on “Dance On A Volcano” on Genesis’ *A Trick Of The Tail* album sound exactly like they sound live for the first time, listening to this 1976 album on any stereo or home theatre system. I’m not sure I can tell you exactly why the bass pedals sound so correct on the dARTS system versus 50 or more other systems with and without subwoofers. But there is something just right about the texture, tonal differentiation between the pedal notes, and lack of any distortion that just assaults you with how correctly the dARTS system reproduces the bass pedals.

I don’t want to undersell the superb tweeters. One of the more obscure tracks I use for treble evaluation is “Robot Salesman” from the self-titled *Intergalactic Touring Band* album, a project bringing together quite a “cast” of progressive rock and art rock performers from the 1970s. Not because the recording is so perfect (it’s okay on the CD, better on some of the more well-mastered LPs), but because there are some really tasty treble sounds that can be achingly pretty sounding on the best systems, and the dARTS system did that perfectly. I just sat through the track in wonder... as in wondering why other systems can’t make that treble sound that good. Of course once you hear that delight, it sends you off looking for other examples of extra-nice, high-frequency sound, and before you know it, three hours are gone. One of the tracks I thought of was the jingle-jangle “Mr. Tambourine Man” from the Byrds album of the same title. Listening to that track revealed a lot more detail in the mix (this stereo version was remastered in 2011) than I recall hearing on any other system. With the volume cranked up, it was like being transported back to 1966.

Conclusion

If it isn’t obvious already, I liked the Phase Technology dARTS system a lot. This would be my ideal system to carry me into reviewer retirement if that ever happens. Everybody needs to hear a system this good so they realize how imperfect conventional loudspeakers sound. Because the Audyssey Pro calibration strives to make every system sound right, removing much of the room’s effect on sound from the equation, when you hear a dARTS system in a room other than your own room, you can be sure what you hear in your room will be very similar. The dARTS system is simply the best home theatre sound system I’ve heard so far. If you have the budget for a dARTS system, it could well be impossible to find anything else in that range that performs as well. **WSR**