

THE AUDIOPHILE'S GUIDE

REFERENCE MUSIC

Unlock the Secrets to Great Sound



OCTAVE
RECORDS





This reference SACD is playable on any CD or DVD player, though its high resolution DSD layer is accessible only with a PS Audio SACD transport, or by copying the DSD tracks on the included DVD datadisc, or purchasing the download DSD version. The tracks within, along with this companion

quick-start guide booklet, are intended to be used in conjunction with Paul McGowan's book, *The Audiophile's Guide, The Stereo*, an easy-to-follow 212-page step-by-step manual for achieving amazing live sound from two speakers. *The Audiophile's Guide, The Stereo* can be purchased on Amazon in paperback or Kindle e-reader.

Introduction

Most people only need a simple sound system to bring the joy of music into their homes—even a Sonos, Amazon Echo, or Apple HomePod can fill the room with tunes. But for audiophiles, the lifeless two-dimensional facsimiles that these middle-of-the-road consumer offerings present soon start to grate on our nerves. At best they do a disservice to the music's tonal truth, only scratching the surface of the musical experience possible with the right technical setup.

On today's smart speaker audio systems, a big orchestral piece by the likes of Gustav Mahler or Ludwig van Beethoven does not sound live. They are so far away from suspending disbelief as to be laughable. Our brains immediately reject



the suggestion that an orchestra is in the room, as these puny speakers or MP3 players struggle to present the combined sound of 100 musicians performing together in a massive music hall.

The questionable performance of low-end consumer audio products is not news to the experienced audiophile. In our world, the challenge of a good

two-channel audio system is to recreate the sound of live musicians in the room with you—to convince you to suspend disbelief, if only for a few minutes. Turn the lights down low and the objects making the music—the speakers—disappear, leaving only a 3D recreation of the players, as if they were on an imaginary soundstage behind those speakers.

Achieving audiophile-grade performance requires a level of commitment greater than just walking into a Hi-Fi shop or

thumbing through an equipment catalog. It requires careful setup.

The typical pattern of stereo installation is to plop down a pair of speakers where you believe they will sound their best, wire them to the stack of equipment, press play, and then after a few hours of best-effort-tweaking pray it sounds good (better known as Plug-and-Pray). Chances are it will sound just fine, but that's not why you've purchased *The Audiophile's Guide*, *The Stereo*, and Octave® Record's *The Audiophile's Reference Tracks*.



The proper setup of a high-end audio system is often tedious, always requires a good dose of patience, and definitely benefits from a hopeful eye to the future. The first time you get it right, there's a real sense of satisfaction and accomplishment.

You've earned something very few have experienced: a stereo system that can sound heavenly enough to send a chill down your spine.

Whether you are a beginning or an advanced audiophile, once you follow the setup steps in *The Audiophile's Guide, The Stereo*, you too will be able to get closer to the sound of live music on the right recordings (and perhaps even drop a few jaws yourself). Even if you're blessed with golden ears, the difference between live and recorded music starts to vanish when you are listening on a system that has been properly set up.



So, grab your copy of Paul McGowan's book, *The Audiophile's Guide, The Stereo*, put this reference disc into any SACD, CD, or DVD player (or turntable if you purchased the vinyl

edition), and follow along as we take your system to levels of performance you could only have imagined possible.



Track 1

Left channel identification

Use this track to make certain the sound of Paul's voice is coming from the left channel (the left side as you face the speaker).

Track 2

Right channel identification

Use this track to make certain the sound of Paul's voice is coming from the right channel (the right side as you face the speaker).

Track 3

Center (phantom) channel identification

Use this track to make certain the sound of Paul's voice is coming from the phantom center channel (the middle between the left and right channels).

Track 4

Phase or polarity check

Paul's introduction

Track 5

Phase (polarity) check

In-phase

PS engineer Chris Brunhaver plays the double bass ***in phase***. The sound of Chris' bass should come from the two speakers' center channel and sound as if Chris and his bass are standing between the left and right speakers.

On this track, Chris is playing on a German handcrafted 7/8 size double bass with a low C extension. Engineers



Gus Skinas and Giselle Collazo employed a pair of DPA 4006 and Forssell SMP-2b preamplifier for the ambient room sound, a Sony C100 in omni-mode, and Forssell SMP-2b preamplifier for the close miking of the string plucks. A/D conversion through EMM Labs - Meitner ADC8 MK III, direct to the Sonoma Multitrack WorkStation and mixed on a Studer C963 console. All equipment powered by PS Audio Power Plants.

Track 6

Phase or polarity check out-of-phase

Chris Brunhaver playing the double bass ***out of phase***. The sound of the bass should be diffuse and without specificity as to where the bass player is standing (it can sound as if the air were suddenly sucked out of the room). If either of these tests don't produce the desired results, check the polarity wiring of your speaker cables: amplifier red + to speaker red +, amplifier black - to speaker black -.

Track 7

Room bass response

Turn to page 100 in *The Audiophile's Guide*, *The Stereo*, and follow the instructions for constructing the IAATB grid. Once the grid has been laid down, turn to page 106 of *The Audiophile's Guide*, *The Stereo*, to begin the procedure. Here, Chris Brunhaver runs up and down his standup double bass instrument's strings covering the frequency range of 30Hz to 200Hz. Play Track 6 at a live level, as if the bass instrument were actually playing in the room. With the music playing, stand in the same place as your listening



chair and focus on the bass performance. All the bass notes should be at even loudness, from the lowest to the highest. Where you're standing they probably are not. Perhaps some sound weaker than others. Perhaps when Chris hits that really low 30Hz note, it hardly comes through at all. Slowly start walking towards and away from the speakers as you listen with the track on repeat. Every few feet, you'll notice a considerable difference in the evenness of the bass notes.

Your goal will be to identify the one spot along the centerline where the bass is the smoothest. You want evenness, neither too much of any one note nor too little, and in particular, you want to hear the lowest bass notes played. The lowest (deepest) bass frequencies are the hardest to propagate in a room, so when you find that one magical spot along the room's center dividing tape, stop there and ensure the rest of the notes aren't too uneven.

This is where you will place your listening chair.

Track 8

Purity Test

Paul introduces us to the last few seconds of pianist Don Grusin's "*The Last Train*" from the Octave Record's release of his album, *Out of Thin Air*. (available at www.psaudio.com)

The idea with this track is to listen carefully for several things: the piano's upper harmonic overtones, and the system's resolving power as the last notes of the piano fades into blackness. On some systems with lower resolving power it becomes difficult to hear the last vestiges of the note's decay. On the best systems played at the proper volume level for this



track (remembering that we set the volume level so that the instrument is of lifelike size), you can briefly hear the decaying note resonate within the piano's body just after the string's vibration ends.

Track 9

Center channel adjustment

“What I Am” by Jessica Carson, recorded on October 11, 2020. Singer and songwriter Jessica Carson recorded live while playing a Fender Rhodes Suitcase Seventy-Three that was amplified by a Speakeasy Rhodes Preamp. Because the Rhodes electric piano is a mono instrument, we went direct off the Rhodes carriage in a dual-mono configuration with a passive cable-splitter. Left is direct while the right is from the splitter.

What we want with this track is to nail down the center channel, making sure Jessica is lifelike and sounds as if she is behind the speakers and right in the center (coming from the phantom center channel).



To take full advantage of this piece, open *The Audiophile's Guide*, *The Stereo*, to page 110 and begin at the section labeled Front and Center. Place this track on repeat. Sitting in your seat, listen to Jessica's voice. How precise, how palpable is she in space? Here you want to achieve a few things: a palpable solid center image, a reasonable approximation of proper height (she is seated at the keyboard), a center image that appears behind the two loudspeakers, and a voice tonal balance that is neither thin nor fat. If you're not getting the expected results, return to page 111 for instructions. Repeat this track and that procedure until you get it right.

Track 10

Center channel and soundstage width

“What I Am” by Jessica Carson, only this time with an ensemble, recorded on October 12, 2020. Lead vocal and Rhodes: Jessica Carson. Backing vocal: Giselle Collazo, upright bass: Bradley Morse, acoustic guitar: Kyle Donovan.

Kyle is playing an Eastman AC 222 steel string acoustic and he and bassist Bradley Morse were captured live on a Tim de Paravicini modified AKG C24 stereo microphone and a Sony C100, both amplified by a Grace M108 microphone preamplifier. Jessica and the Fender Rhodes were the same setup as described in Track 9.

Open The Audiophile’s Guide, *The Stereo*, to page 113. You’re listening to this track to make sure you haven’t narrowed the soundstage too much while trying to get Track 9 right. Alternate between Tracks 9 and 10 until you find the perfect balance of center image specificity, realistic depth, and wide soundstage width while not affecting tonal balance.

Tracks 11, 12, 13

Depth check

Soundstaging, imaging, depth perspective, stage width, and image touchability are the hallmarks of a great two-channel audio system. A properly spacious soundstage with correct and measurable depth are perhaps the most difficult 3-D attributes to achieve in your home. But, fear not. We're here to help.



These next three tracks are carefully measured depth checks. Singers Jessica Carson and Giselle Collazo perform

three verses of composer Carson's composition, *Dualities*. The setup is simple enough. Using mainly the Tim de Paravicini's modified AKG C24 Blumlein stereo microphone



(courtesy of its owner, musician Dan Schwartz) positioned at the front of PS Audio's warehouse, the two singers knock out verse one at a measured distance from the microphone of 3-feet. Next, verse two is sung at 6-feet from the microphone, and finally verse three is heard from 9-feet back.

Turn to page 115 in *The Audiophile's Guide, The Stereo*. Here you will find detailed instructions of how to adjust the system to achieve lifelike depth of soundstage. Though it is unlikely

you have 9-feet of distance from the back of your speakers to the front wall (the wall behind the speakers), properly setup, the illusion of depth can sound as if the two singers are beyond the front wall and outside the room.

This track was recorded using a pair of Sony C100 microphones in omni-mode spaced apart by 5 feet in addition to the aforementioned AKG C24. Microphone preamplification was through a Forssell SMP-2b and A/D conversion through EMM Labs - Meitner ADC8 MK III, transported via glass fiber to the Sonoma Multitrack Workstation and mixed on a Studer C963 console. All equipment powered by PS Audio Power Plants.

Track 14

Small ensemble with voice

Now that you have proper depth, width and soundstaging dialed in, it's time to test your work on a more complex recording.

Track 14, “Ain’t No Going Back Home” by Jessica Carson, is a live studio recording featuring Jessica on piano, Chris Brunhaver on upright bass, singer Katie Mac (doesn’t she have a lovely voice?), Thomas LaFond playing guitar, and Michael Wiebold on drums.



Recorded at Animal Lane studios in Lyons, Colorado in pure DSD, the track features a combination of Decca Tree room capture coupled with a few spot microphones where needed and is excellent for center channel adjustment, proper width and depth, as well as getting a feel of how a small live group performs in your listening room. Turn to page 117 in *The Audiophile's Guide*, *The Stereo*. The Final Tuning section will

help guide you dialing in this intimate track.

The idea behind the recording of this Jessica Carson composition was to emulate the sound of a smoky nightclub. Here we didn't want to follow standard procedures of first recording the instruments then separately layering in the vocals or using an isolation booth for the singer as is often done. Instead, we wanted to keep the group live with all the good and bad qualities of the different instruments bleeding into the various spot microphones (as they do in a live onstage performance). The musicians are arranged in a circle around the Decca Tree room microphone hovering above the group.

To get an idea of the musician's positioning, we move in a clockwise circle starting with Jessica on the Yamaha Grand to the far left (as viewed from inside the control room).





To her left, Chris on standup bass. To his left, drummer Michael Wiebold, followed by Thom the guitarist, and finally our singer, Katie Mac (with her back to the control room). If you listen carefully, you can sometimes hear the bleed of Thom's amplified guitar in Katie's vocal microphone.

The Decca Tree microphone setup features a DPA-4006A with APE 8-Ball Omnidirectional stereo pair with APE (Acoustic Pressure Equalizer). The piano is captured with an AKG C414 and Grace M101 preamplifier. Chris' bass spot miked with a Sony C-100, Thomas' guitar with a Royer 121, and Katie Mac's

vocal with an AEA KU5A ribbon microphone in a supercardioid polar pattern.

Track 15

Simple detailed music

This track is a beautifully simple piece featuring guitarist Eric Wiggs playing a 1930 OM18 copy of a steel string acoustic guitar made by Per Marklund in Sweden. If you've managed to get your system set up correctly in the preceding chapters, this track will help you learn to become a better trained listener.

Open *The Audiophile's Guide*, *The Stereo*, to page 131. First, look for the overall sense that a musician is performing in



the room. The guitarist should be sitting down, playing a standard-size acoustic guitar. If the guitar is too big and your viewpoint too close, reduce the volume level. If it's too small or distant sounding, raise the level until it's not only the proper size but there's an obvious amount of detail in each string pluck. When you're satisfied, zoom a little closer into those details, as if you're changing magnification levels on an acoustic microscope.



As each string is plucked, there's the fundamental note followed by the ringing of the string itself. As the string continues to vibrate, make a mental note of how long you can hear it before

it fades into obscurity or is masked by the next string pluck. Recorded in the PS Audio warehouse with an AKG C24 for ambient room, a pair of DPA 4004 for close miking, and a Sony C100 microphone as backup. Preamplification was through a Forssell SMP-2b and A/D conversion through EMM Labs - Meitner ADC8 MK III, transported via glass fiber to the Sonoma Multitrack Workstation and mixed on a Studer C963 console. All equipment powered by PS Audio Power Plants.

Track 16

Medium-sized group

Open The Audiophile's Guide, *The Stereo*, to page 133. Once you get the hang of hearing small differences in the simple acoustic guitar music of track 15, it's time to move up the ladder a bit. Here you still want to keep it simple, but you can add more players and look for more cues. With Track 16 of The Audiophile's Reference Guide, we introduce a few more instruments and complexity.

Track 16 is a live bluegrass recording featuring Christie Schneider on violin, Dylan McCarthy on mandolin, Bradley



Morse on standup bass, and Eric Wiggs on acoustic guitar. The acoustic quartet plays a traditional bluegrass piece, Old Grimes, live in the studios of Animal Lane in Lyons, Colorado. Recording engineer Gus Skinas employed a combination of ambient room miking using our favorite, the Blumlein setup AKG C24, with spot miking using very specific models. On Bradley's SB200 Samuel Shen Mirecourt model 2018-3-70 stand-up bass, a DPA 4099 was used to add presence. On

Christie's classic spruce top, maple back-and-sides-constructed violin, a Sony C100 was used. Dylan's mandolin, a San Juan, red spruce top, with a maple back and sides model built in February 2019, was won by Dylan at the 2019 Rocky Grass Festival Mandolin competition. Here, engineer Skinas chose a Neumann KM84 to get the right sound and presence, the same microphone he used on guitarist Eric Wigg's Pre-War Guitar Company Dreadnought with Brazilian Rosewood back and sides, and a Torrefied Adirondack top.

On Track 16, pay particular attention to the quality of the space between musicians. How separate are they? Do some instruments mask the sound of others? When the music gets louder does the image grow, or does it stay put and become overstuffed and congested? When the bass plays, is it heard as a separate instrument or as part of the overall presentation? Can you hear the room? Do you get a sense of its size?

Your goal here is to perfectly recreate the sound of separate musicians as if you were there when it was recorded. You should have a sense of the room it was recorded in; the

playing of one instrument should not affect or mask the sound of another. Likewise, when the group gets louder the image should grow in size and not become congested, the bass should not overwhelm the other instruments, and the size of the room should remain constant and discernible.

For help getting this track perfected, turn to page 133 of The Audiophile's Guide, *The Stereo*. (available at www.amazon.com)

Track 17

Slow Moving Ferns

Turn this baby up! Now that your system conveys all the proper cues of soundstaging, image placement, separation of instruments, focus, and tonality, it's time to light up the fireworks and enjoy the benefits of your hard work. While these next tracks are fun, I wouldn't jump into them until you've invested the time needed to get everything properly dialed in.

This first in our sonic fireworks series is called Slow Moving Ferns, an improvisation performance by Thomas LaFond.



Recorded at PS Audio's Octave Studios in Boulder, Colorado on November 2, 2020, LaFond hand built each of the 32 tracks recorded in pure DSD on the Sonoma multi-track recorder. No microphones were used. Instead a multitude of classic synths created this dynamic audio landscape. They include: An ARP 2600, Behringer Poly D, Behringer Model D, Behringer Deepmind 12, and a Juno 106.

Track 18

Unsatisfied

Singer Carly Ricks Smith knows how to light up the stereo system as she belts out a great Jessica Carson composition, *Unsatisfied*.

The track features: Laura Stratton on acoustic guitar, Jay Elliot on drums, Mark Dabrowski on electric bass, Kyle Donovan on electric guitar, Steve Vidaic on the Hammond organ, and the composer herself, Jessica Carson, on backing vocals.

The setup for capturing Jay's drums used



a Shure Beta 52 for the kick-in and a cardioid patterned, phantom powered, large diaphragm FET Soundlux U195 by David Bock for the kick-out.

The top of the snare was handled by a Hypercardioid Beyerdynamic M201 with its phase flipped while the snare's bottom was a Telefunken M80. The rack tom was captured by a Shure SM7B Cardioid dynamic microphone and the floor tom, an Audix D4 hypercardioid dynamic microphone.



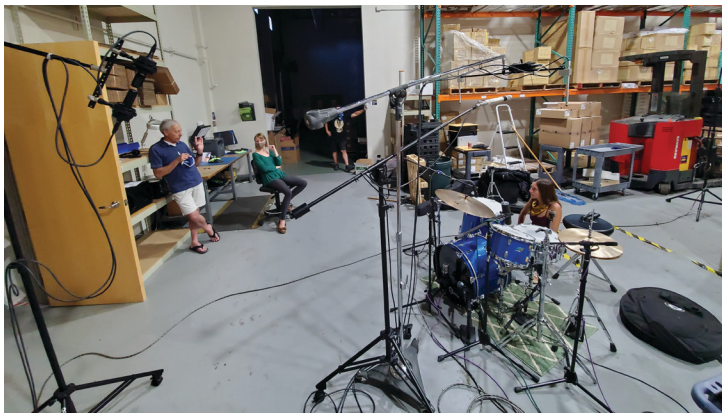
Track 19

Transmogrification

This is one of Paul McGowan's favorite tracks on the entire Audiophile's Guide Reference disc. In all his many decades of two-channel high-end audio, he's never heard a more dynamic lifelike reproduction of drums—not even from the much respected Sheffield Direct-to-Disc Drum Record.

Recorded on a Saturday afternoon inside PS Audio's cavernous warehouse, drummer Michelle Pietrafitta of Banshee Tree is captured perfectly from the Tim de Paravacini modified stereo C24 microphone set to a Blumlein configuration and positioned 3-feet above and 3-feet in front of the main drum kit. The majority of what you're hearing is from the C24.

Turn this baby up loud, perhaps twice as loud as any of the other tracks. If your system is up to the task, the kick drum ought to thump your chest while the quick-transient snap of the snare will be unlike anything you've yet heard.



At the beginning of the track Michelle relies upon soft mallets to excite the cymbals. On the best equipment, the ride cymbal's complex metal shimmer will present itself without haze or confusion—every ripple clearly defined. If you are fortunate enough to have a PS Audio SACD transport, or copied from the included data disc or downloaded the DSD tracks, compare the sound of the opening cymbals as reproduced by the DSD



layer and the included CD layer. Note how the cymbal's inner detail on the CD PCM version sounds "confused", and "bunched together" relative to the open-perfection of the DSD version it was originally recorded in.

At the very end of the drum track we left Michelle's comments in. Wait for them. How could we not? For those sensitive to profanities, skip this part. The

backstory of her comment is worth noting. After five takes of this difficult track she asked Paul McGowan what he thought of it. He responded, "it's great, but not quite all that I was hoping for." Michelle sighed and asked him to elaborate.

Not having the exact words he blurted out, “this track has to have fireworks—dynamics that are extraordinary. I need my jaw to drop. I need to think “holy f*cking sh*tb*lls!” Her next performance, Take 6, is what we kept as Track 19 of this disc. It’s her musical response to Paul’s request to drop his jaw.



Engineer Jay Elliott went all out to get the best from this amazing drum kit. The kit consists of a Ludwig 1970 Blue Sparkle 20” kick drum, 12” rack tom, 16x16” floor tom, 14 x 6.5” Ludwig Superphonic John Bonham LM 402 snare drum, Zildjian New Beats Hi-hat

70's era 14", Custom Dark Crash Kerope by Zildjian Crash 18", and a Kerope by Zildjian 22" ride.

To capture this kit, Jay employed his favorite setup for close miking: a Shure Beta 52 for the kick-in and a cardioid patterned, phantom powered, large diaphragm FET Soundelux U195 by David Bock for the kick-out. The top of the snare was handled by a Hypercardioid Beyerdynamic M201 with its phase flipped while the snare's bottom was a Telefunken M80. The rack tom was captured by a Shure SM7B Cardioid dynamic microphone and the floor tom, an Audix D4 hypercardioid dynamic microphone.

To capture the ambient room response, a careful combination of AKG C24, Grados, Sony C100s, were used for the overheads, and a Coles 4038 with flipped phase was placed twelve feet behind the drum kit for space recording.

Turn this one up on high.

Track 20

The Burn-In Track

**Start this track at a lower volume level until you know how your equipment will respond.*

Audio equipment benefits from use. The more you run signals through your kit, the better they will sound. This is called equipment Burn-In. While all equipment (including speakers), benefit from use, there are several cautionary notes.



First, if you are running vacuum tube equipment you should be aware that the more tubes are used the shorter their lifespan.

Unlike solid state equipment, vacuum tube life is measured by the number of hours used. It can be a double edged sword. On the one hand, burn-in helps tube equipment every bit as much as solid state kit. On the other hand, too much use will shorten their life requiring owners to replace them. Vacuum tubes can typically be relied upon to offer one to two years of continuous use. Over time, many vacuum tubes will lose some of their “life” and begin sounding less alive.

Secondly, track 20 can get very loud. To keep your equipment safe, we start and end track 20 at a low volume level. But be careful. For the majority of its play Track 20 is nearly at full level. Damage to your loudspeaker is possible. Please be careful.

To burn-in (break-in) electronics, put track 20 on repeat and let it play for at least 24 hours for new equipment, less time if your kit has some hours on it. We recommend disconnecting the speaker cables so there is no chance this high amplitude burn-in track can damage your speakers.

To burn-in speakers, we recommend setting the loudest parts

of Track 20 at a moderate level—what you might consider loud without being overbearing. Playing this track too loudly could potentially damage your tweeter or midrange. Do be careful.



Imagine building a home stereo system that makes music come alive—like the performers are right in front of you—even on a budget. It's easier than you think!

This, the Audiophile's Reference Guide SACD is the requisite companion to Paul McGowan's book, *The Audiophile's Reference Guide, The Stereo*. (sold separately)

Whether you're just beginning, or a seasoned audiophile, this is the reference music that, along with Paul's book, will show you how to get the most out of your two-channel audio system.

This Audiophile's Reference Guide SACD comes complete with an included 40 page booklet.

