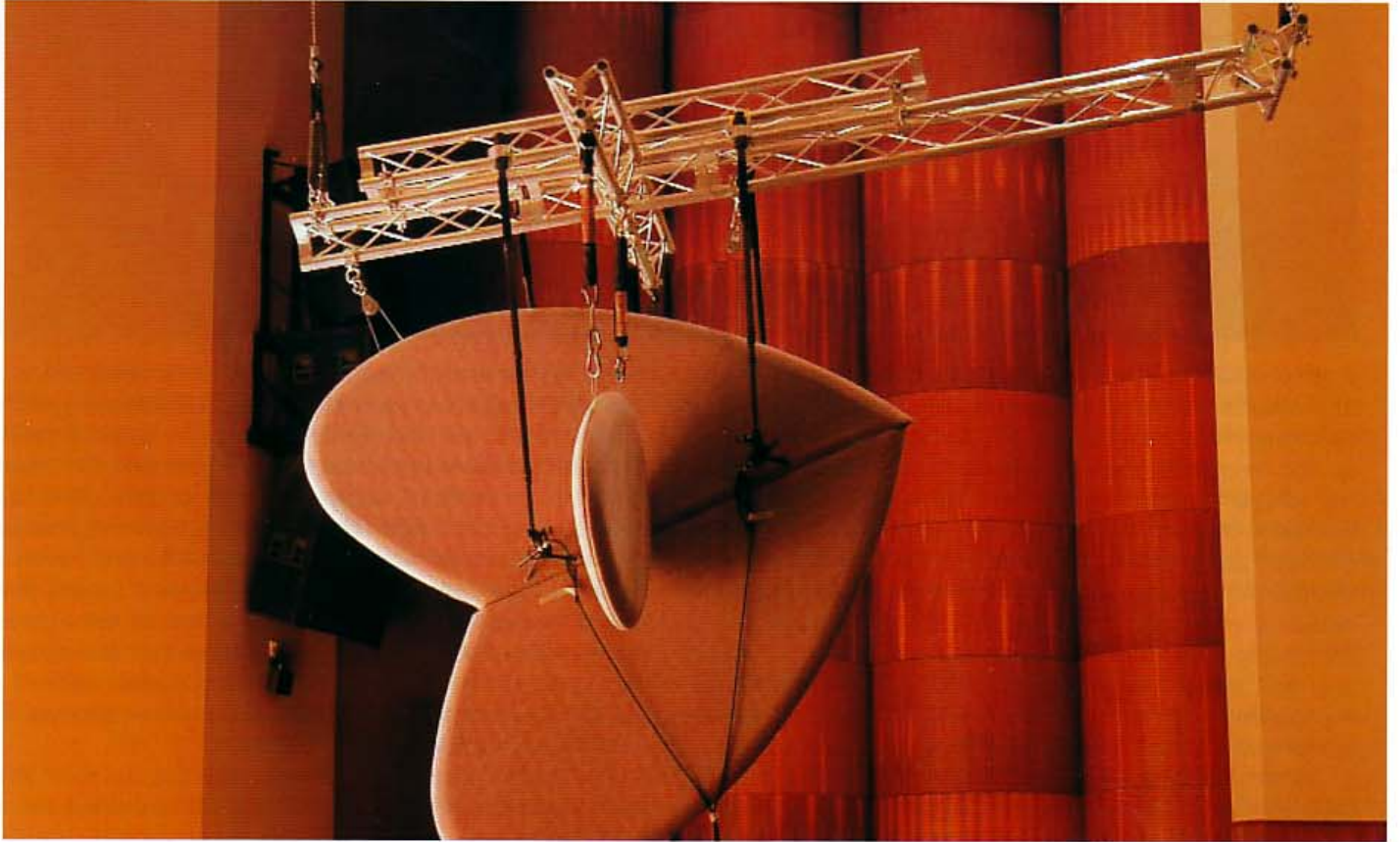


The Kimber IsoMike System



George Graves

ANYONE WHO HAS a decent collection of recordings knows what an uncontrollable variable recording quality can be. Sometimes we purchase a new CD (or even a vinyl record) and are blown away by the realism and fidelity. Other times, we are very disappointed in what we get. The recording sounds flat, lacks depth, sounds compressed and lacking in dynamic range. Many recordings are made with a veritable forest of microphones and sound no more like real music than a cartoon resembles real life. The result of this is that most of us have a small percentage of our record and/or CD collections that we consider "super discs," recordings that can, and often do, give us a glimpse of the sound of real music, played in a real space. These recordings transport us, no matter how fleetingly, to that audio nirvana that got us into this hobby in the first place. For many music lovers, certain titles and even certain labels give us goosebumps at their very mention. The classical music recordings of C.R. Fine and Bob Eberenz of Mercury "Living Presence" fame, the RCA Red Seals of Lewis Leyton, the jazz recordings of Rudy Van Gelder have all earned a special place in the hearts of music-loving audiophiles, everywhere. But there hasn't been a new Mercury Living Presence, Leyton, or Van Gelder

recording since the 1960s, and their fine bodies of work are all in the past. What happened?

Economics is one thing that happened. As the 1960s wore on, it was becoming increasingly expensive to record symphony orchestras and other large musical groups. The answer, it seemed, was to forego expensive hours of testing in order to find the ideal place to hang a stereo pair of microphones. Instead, record companies turned to technology to save them some of the costs of recordings. It was found that the then new 8-, 16-, and 32-track tape recorders allowed the recording engineers to throw up a bunch of microphones, as many as one per musical instrument, and record each mike to a separate track. The musicians, or "talent" as they are called, could then come in, sit down and play. Each instrument or group of instruments was caught on their own discrete tracks and then, once the performance was captured, the talent could be dismissed and the

TAV

Reprinted from
The Audiophile Voice
Vol. 13, No. 4



engineers and producers could vacillate over balances and other nuances to their heart's content. This practice of using multi-track tape to capture a performance spilled over from the then nascent field of "pop" recording where innovative rock-'n-roll groups were using the wonders of multi-track recording and over-dubbing to produce some interesting and novel effects. Once the economic advantages of multi-track recording were realized, everyone started to do it. Add to this the fact that early solid-state (transistor) recording equipment was just atrocious by the standards of the earlier tube equipment and the recording industry had entered an era of truly dismal sound.

In the early eighties, the Compact Disc with its digital recording process came on the scene. This change in media, from LP and audio cassette to the little silver disc brought about two profound changes in the way recordings were made – at least as far as classical and jazz were concerned. First of all, many of the old analog multi-track recordings were transferred to CD with horrid results, so, early on, CDs gained a largely undeserved reputation for being ear-bleedingly bright and harsh. Secondly, digital recording technique was in its infancy. It was pushing the technology envelope just to do two channels of digital, much less 8, or 16, or 32. Indeed, the earliest digital recording processes, such as those from Soundstream, were two channel and two channel only. While this latter situation changed fairly quickly as designers became more familiar with the technology, it did cause many recording engineers to revisit the old "minimalist" two- or three-microphone, two-channel recording methods used in the 1950s and early 1960s. Many engineers, Robert Woods of Telarc for example, found that such a technique yielded superior masters which, for the first time in decades, actually had a semblance of a real soundstage and actually sounded like real music. While many record companies stuck with multi-tracking (now digital), some were rediscovering the joys of true stereo recordings.

In the '50s, people like Bob Fine of Mercury fame were using two or three omni-directional microphones spaced in front of the musical ensemble. One mike of a three-track stereo recording was usually in the center,

often just behind the conductor (but over his head) and the other two were spaced halfway between the center mike and the left and right edges of the stage. Initially, the center mike was placed there for monaural compatibility. In those days, record companies produced dual inventory of each title. The record was always released as both a stereo version and a monaural version because many people hadn't updated their record players to stereo, and playing a stereo record on a mono player would ruin it. This is because the mono stylus had no vertical movement, only horizontal. Instead of tracing the vertical component of the stereo groove, the mono stylus simply plowed it away.

Eventually, Fine and others found that if, in the final mix to produce the tape used to actually cut the record (the master was never used to cut the record directly), they mixed the center channel equally into the left and right channels, they would get a better stereo image and almost all Mercurys and not a few classics from RCA, Vanguard, and other labels were made that way. When Robert Woods, the recording engineer (and one of the founders) at Telarc, started to make his early Soundstream recordings, he mimicked Bob Fine at Mercury and used three spaced omni-directional mikes. There was a difference, however. Fine mostly used post-war Telefunken mikes which had switchable patterns. That means that the mike could be used as either an omni-directional mike (pickup is equal from all directions), a cardioid mike (pickup is heart-shaped, with the main lobe pointing forward, and falling off to the sides and rear), or figure-of-eight pattern where the pickup is directional in front of, and in back of, the mike with little or no pickup to the sides. While the omni-directional pattern on these early condenser mikes was supposed to be non, in reality, they weren't. While they were more omni-directional than in the cardioid pattern, they were still more directional than a true omni-directional should be.

Telarc tried to use the same technique as Mercury, but had less success with it. The reason is because Woods employed a modern omni-directional microphone from a company called Schoeps. The Model SKM-52U was a true omni-directional microphone, not



a quasi-omni-directional like the Telefunks. It was also not designed specifically as a recording mike, but rather as an instrumentation mike. This latter characteristic meant that the Schoeps had extremely flat frequency response (much flatter than a cardioid ever could have) but its true omni-directional characteristics insured that the stereo, even when the mikes were 15 feet or more apart, wasn't very good. The problem is that their 360° pickup pattern captured the entire ensemble, not just one side of it. The resulting recording relied on the different perspective of the two microphones to provide the stereo cues. Unfortunately, people don't hear that way. Our ears are but seven inches or so apart, and the vectoring of directionality is something that happens in the human brain, not in space. The difference in perspective between two (or three) spaced, true omni-directionals, is simply not enough to provide a good stereo image to the brain. Listen to the Telarc recording of Frederick Fennell and the Cleveland Symphonic Winds (CD-80038), for instance. This is one of Telarc's first digital recordings (if not THE first) recorded in conjunction with Soundstream and was made with three spaced omni-directional microphones. The flat frequency response of the Schoeps instrumentation mikes makes the sound of this recording truly spectacular. In the Two Holst Suites for Military Band, the bass drum whacks made this recording an instant demonstration disc and a classic among classics. But listen to the recording for soundstage and imaging. The image specificity is very vague, with no solid images present. This is the bane of using spaced omni-directional microphones for recording and due to their 360° pickup pattern, it's impossible to place omni-directionals close together in a stereo pair. For that, you have to use cardioid pattern mikes in some form of co-incident or X-Y pair or a crossed pair of figure-of-eight mikes. In the X-Y configuration, the mikes are closely spaced, often on a single bar, and separated by only a few inches in an arrangement where one mike is aimed at the left side of the ensemble and the other at the right side. This yields killer stereo and great soundstage and imaging, but cardioids are simply not as accurate, frequency response wise, as are omni-directionals.

Ray Kimber's IsoMike Technique

Realizing that omni-directionals were superior at capturing a flat frequency response, but lousy at capturing a stereo image, Ray Kimber, of Kimber Kable fame, started to experiment with a way to place two modern omni-directional microphones in close proximity to one another in order to mimic the results realized from an X-Y or co-incident style configuration and yet, keep the mikes separate with regard to the right and left stereo signal. Obviously, the only way to do this is with some kind of isolation device or sonic baffle between the mikes to keep the right side of the ensemble out of the

left omni-directional microphone and vice versa. The problem is how. A small baffle, made of some acoustically absorbent material, might shield each mike from high frequency cross contamination, but it would become increasingly less effective as the frequency dropped.

Kimber and his associates found that the baffle must be not only extremely sound absorbent over the entire frequency range, but it also must be large in area and have a specific shape. The resulting baffle system is actually heart-shaped, about 18 feet in overall diameter, with the lobes of the "valentine" facing the group being recorded, and the point of the valentine facing the back of the hall. It was found that this arrangement shields each microphone from the effects of the first reflection from the other side of the room. Both mikes can see both sides of the orchestra as they actually "peek" around the cleft in the heart-shaped baffle. The great stereo effect that Kimber's IsoMike arrangement gives is due to the time delay between the arrival of each of the two channels relative to one another. The smaller, secondary baffles are placed more-or less perpendicular with the floor and are arranged behind the front microphones and are generally egg-shaped. Behind these baffles are located the rear microphones which are aimed toward the back of the hall to give ambience and provide four-channel recordings for SACD.

The result is a microphone arrangement that seems to exhibit all of the desirable directional characteristics of a cardioid microphone while maintaining the flat frequency response across the entire pickup area that characterizes omni-directionals.

The Recordings

I received two SACD recordings recently from Kimber. One is an IsoMike test disc and the other is a disc of two Beethoven works, the String Quartet in C Minor, Opus 18, and the String Quartet in B-flat major, Opus 130, both recorded by the Fry Street Quintet via the IsoMike process.

IsoMike Tests 2008A Disc

This SACD has 21 cuts on it representing a wide range of music from drum and bugle corps to marching bands, to various college symphonic bands to solo piano music to jazz ensembles, string quartets and even choir music. This title is available at IsoMike.com, and all proceeds from the sale of this disc goes back to Weber State University to improve the listening environment and to buy equipment such as choir risers to improve the performing arts department. It is a demo disc, pure and simple.

Upon playing this disc, the first thing I noticed is that the record level for most of the cuts on the disc was really low compared to the other SACDs in my considerable collection. The liner notes warn of this and advise the listener to not be too quick to jack the volume up to a normal commercial release's level because these recordings have been transferred to SACD with no compression or signal processing of any kind. That means that if and when they get loud, they get loud! I set the level at a moderate level (I record 24-bit, 192-kHz sampling rate myself, so I know what they mean), and I began to listen. It was then that I noticed a second characteristic. Most of these recordings were made using a quite distant microphone placement and have a

mid-hall perspective. Ray Kimber agrees with this, but cautions that when heard in four channels, it makes more sense. Also he says that the choice to hang the mikes more mid-hall is due to physical constraints more than it is an artistic choice. This is especially true of the various cuts involving band music. That said, I found that the dynamic range was simply uncanny, certainly greater than anything available commercially. When the crescendos were set so that they didn't break the lease, the pianissimos were all but inaudible. This is a problem for apartment dwellers and even for single-unit dwellers, especially if neighbors are close at hand, so when buying commercially available IsoMike discs, beware. The frequency response of these test recordings was as good as anything I've heard and seemed to be flat across the spectrum with great bass and silken highs. Great low end is a special bailiwick of omnidirectional microphones and it's here in spades. Rarely have I heard digital recordings that lived up to their promise in the bass department (even the aforementioned bass drum whacks on the Telarc Holst recording (Telarc CD-80038) are much more visceral on the original LP than they are on the later CD), but this is certainly one SACD that does live up to expectations.

The performances are competent but naturally of a demonstration disc quality. The really good music seems to be samples of upcoming full releases like the third movement of the aforementioned Beethoven String Quartet, Opus 130. The jazz piece "Monday Mornin' Blues" by Joe McQueen and friends is quite nice and seems to be a closer in perspective than are most of the rest of the cuts on the disc. I highly recommend that readers go to isomike.com and purchase this disc. It will become a demonstration disc favorite and it is certainly for a good cause.

Imaging is very good, among the best I've heard. The kind of imaging that I hear on this disc reminds me of a good stereo pair of cardioid mikes or a single-point stereo mike like the famous Telefunken ELA-M-270 or Neumann SM-2. Image specificity is great. I can close my eyes and pinpoint every instrument in the ensembles. The image also exhibits good height and great front-to-back layering. Normally arrayed omnidirectional microphones simply cannot do this, so I'd have to say that the IsoMike technique works quite well.

Two Beethoven String Quartets

The second disc from Kimber (IsoMike label, CD FSQCD5) is a commercially available title. It's of the Fry Street Quartet playing two Beethoven string quartets, the C Minor, Opus 18, and the B-flat major, Opus 130. First of all, I have to say that the performances here are first rate. Often, this type of audiophile offering, made as they tend to be, on a shoestring has less than stellar (and therefore inexpensive) talent. Here, I have to say that Kimber and Co. has produced a recording that doesn't have to take a back seat to any, either sound-wise or performance wise. These are marvelous renditions of these two quartets and the Fry Street personnel are world-class musicians.

The sound of this disc is much more *en chambre* than are most of the cuts on the demo disc. Recorded at the Austed Auditorium at Weber State University, Ogden Utah, the perspective for this recording is quite close, as if the IsoMike system was up on the stage with the musicians. This gives the recording a coziness that is



every bit in keeping with its chamber music persona. Sound-wise, the recording is simply breathtaking. The flat frequency response of the omnidirectional DPA (formerly B&K) 3529A microphones gives the cello and viola real foundation and guts while the violins soar with a resinous smoothness that is simply astonishing. Once again, soundstage and image specificity are darn high perfect. The result is a level of palpability that I've only experienced with a few jazz recordings. With the right speakers and a good SACD player, this recording will, quite literally, put the Fry Street Quartet directly into your listening room. And if that's not what high-fidelity is all about, I don't know what is.

Reprinted by permission from Vol. 13, No. 4 of The Audiophile Voice © 2009 Guts & Elbow Grease Publishing Ltd., P.O. Box 43537, Upper Montclair, NJ 07043.

Subscriptions are \$12.00 for one year, \$24.00 for two years or \$36.00 for three years within the U.S. Canadian subscriptions are \$25.00 (U.S. dollars) for one year and \$42.00 for two years. Overseas subscriptions are \$66.00 for one year.

Please pay by check or money order in U.S. funds or use the PayPal service on our website www.audiophilevoice.com. We don't use credit cards to help keep our overhead low.

Send Payment To: The Audiophile Voice, PO Box 43537, Upper Montclair, NJ 07043.