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The Thiel MCS-1 Home Theater Speaker: Too Good For Surround Sound?

by Anthony H. Cordesman

I am tempted to begin this review with the statement that the Thiel MCS1 is too good a speaker for surround sound. This is the kind of snotty remark, however, that ignores the fact that high quality movie soundtracks deserve high quality speakers as much as music. It also ignores the potential of surround music—a potential that has become much more real from demonstrations of surround sound SACD. At the same time, such a remark does dramatize the fact that the MCS1 is an exceptionally musical speaker for the money as well as an exceptional speaker for a home theater or surround system.

Accordingly, the real reason that that I have decided not to begin this review by saying that the Thiel MCS1 is too good a speaker for surround sound is that saying a Thiel speaker provides outstanding musical performance for the money simply isn't necessary. Audiophiles already know that Thiel has long been one of the top speaker manufacturers in the U.S., and it was almost inevitable that Jim Thiel would build upon his experience with stereo to design products for surround sound.

The MCS1 sells for \$2,200 a speaker. It is a relatively compact 10 x 12.5 x 28.5 (w x d x h) inches, and weighs 61 pounds. This is relatively small for a stereo monitor, although “big” by left and right satellite, center channel, side channel, and rear channel standards. The MCS-1 comes in a wide range of finishes, stands are available for vertical or horizontal placement, and it comes in a wide range of finishes. As is the case with all Thiel speakers I have encountered, it is built in-house, and the woodwork and finish are superb. Aside from the fact that the MCS1 is magnetically shielded, and is designed for stand mounting, it has the same basic components and design features as other products in the Thiel line.

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design that is also used in the Thiel PCS and CS2.3. This technique allows the elimination of the midrange/tweeter section of the electrical crossover network as the drivers' structure provides a mechanical crossover. Thiel feels this design allows drivers to achieve better time coherence. Such drivers can provide superior time alignment because the sound sources of both drivers are in the same location, and therefore the outputs of both reach the listener at the same time.

The two 6.5" woofers have short coil/long gap, copper stabilized motor systems, cast aluminum chassis, and 2.2 pound magnets to increase output capability and efficiency. Thiel feels the use of a short coil/long gap voice coil design causes the intensity of the magnetic field acting on the coil to be constant during movement. Normally, the driver's the magnetic field changes in intensity as



the voice coil moves forward and backward in the magnetic gap, producing distortion. Thiel also uses a copper sleeve around the center pole in the woofer and midrange driver to cancel unwanted changes in magnetic field strength caused by the amplifier's current through the voice coil. The result is again a more stable magnetic field and reduced distortion.

The crossover in the MCS1 is what Thiel calls "phase correct." Jim Thiel seeks to preserve the phase coherence and the harmonic integrity of the music by ensuring that all drivers must move in and out in step with each other and with the speaker's input signal. He uses wide bandwidth drivers in conjunction with crossover systems that are designed to provide phase coherent transitions between drivers. He feels that this requires the use of first-order crossover networks (6 dB/octave) because more complex networks discriminate between frequencies in ways that cause the phase of the signal to be shifted, and causes the drivers to move out of step with each other.

Thiel notes, for example, a second-order network which reduces the high frequencies to one-fourth for each doubling of frequency (12 dB/octave) will cause the phase of the higher frequencies to be shifted almost 180°. A fourth-order network will cause the higher frequencies to lag almost 360°, or one complete cycle. Since one cycle represents a different amount of time for different frequencies, the network smears the frequencies in time. It also causes the individual harmonic components of each sound, which are reproduced simultaneously by different drivers, to lose their synchronous structure. This loss is caused by the negative and positive motions of the drivers being out of step with the input signal. This changes the waveform and results in the loss of spatial and transient information.

In contrast, Thiel states that the first-order crossover system used in the MCS1 and his other speakers keep the phase shift of each filter to less than 90° so that it can be canceled with a filter that has an identical phase shift in the opposite direction. The phase shift is kept low by using very gradual (6 dB/octave) roll-off slopes that produce a phase lag of 45° for the low frequency driver and a phase lead of 45° for the high frequency driver at the crossover point. Because the phase shift of each driver is much less than 90° and is equal and opposite, their outputs combine to produce a system output with no phase shift and perfect transient response. Thiel feels that other types of crossover system cannot completely eliminate time smear and phase shift.

The network in the MCS1 also corrects for small tonal irregularities, improving frequency response. It uses pure

polystyrene and polypropylene capacitors, and air-core inductors wound with high purity copper wire to preserve sonic information for even greater fidelity.

A design feature that is critical for home theater and surround sound purposes is that the MCS1 is matched in timbre and its other sound characteristics with Thiel's other high performance speakers such as the CS6 or CS7.2. This means that the MCS1s can either be used for all channels in a surround system, be used as rear and center speakers with a pair of larger monitors like CS7.2s for the front channels, or be used with

Thiel's new rear and surround channel speakers, the PowerPoint and PowerPlane.

As for specifications, the MCS1 has unusually extended frequency response for a home theater speaker. Its bandwidth is 47 Hz-23 kHz (-3 dB), and its amplitude response is 50

Hz-20 kHz (± 2 dB). Its phase response is a minimum $\pm 10^\circ$. Its sensitivity is 90 dB at one meter with a 2.8-volt input, and its impedance is 4 ohms (3 ohms minimum).

I wouldn't bother going into so much technical detail if the MCS1 did not meet the acid test of superior sound quality, and if the sound quality of the speaker did not track so closely with the engineering goals that went into its design. I should also note that I am convinced enough with the overall merits of Thiel designs to use the Thiel CS7.2 as one of my references. At the same time, I should qualify my praise for the sound quality of the MCS1 by saying that I have heard excellent sounding speakers that break most or all of the design rules that Jim Thiel has used in designing, and which use radically different design principles, materials and enclosures. I have never found that sonic excellence is limited to one design approach, or even to one type of speaker—whether dynamic, ribbon, or electrostatic. Ultimately, the quality of the execution of a given design approach that seems to matter more than any given set of engineering and design characteristics.

That caveat aside, the MCS1 is an intensely musical speaker for the money. I review home theater speakers in two ways. First, in terms of their performance in my reference stereo system, and second in terms of their performance in my reference with a home theater/surround system. What struck me immediately about the MCS1 was how good it sounded in my stereo reference system, and how much "larger" it sounded than its size initially indicated.

Placed vertically on a stand with the tweeter near ear height, it sounded much more like a large floor mounted speaker. The timbre was also simply right. I generally pay more attention to the overall timbre of a speaker and its realism with recordings of

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acoustic (unamplified) instruments than any other aspect of sound. I am particularly concerned with the timbre of strings, soprano voice, and piano because any speaker that does not get the timbre right with these aspects of music eventually becomes irritating and fatiguing, regardless of how well it does in other respects. The MCS1 did very well in these respects. I use some very difficult string octets for reviewing that have extremely complex imaging and depth and which are recorded on the edge of being bright. (One is the L. Archibudelli & Smithsonian Chamber Players, "Mendelssohn and Gade," Octets for Strings, Sony SK 48 307). They serve as an almost instant test of whether a speaker will really be musical in timbre with a wide range of music. At the same time, I use "warm" recordings to determine whether a speaker is too warm and lacking in upper midrange and treble energy. (Roel Dieltiens, "Vivaldi, Concertos pour Violoncelle," Harmonia Mundi HMC 901655). Throw in a Judy Collins recording of virtually any venue, and you get a slightly harsh female voice with a high level of aspiration that can sound good with natural timbre and edgy with poor timbre. Similarly the timbre and detail of the MCS1 proved to be very good to excellent with winds and brass, even with slightly hard material like the Capella Istropolitana recording of "Vivaldi Wind and Brass Concerti" (Naxos 8.550386). The MCS1 came close to the golden mean with all of this material, and did significantly better than most of the speakers I have reviewed in its price range.

The MCS1 did equally well in reproducing detail. It will not suit those audiophiles who want a bit of excessive upper midrange energy and/or a dip in the lower midrange to give a speaker added detail. In spite of its use of metal diaphragms, it is slightly sweet in the treble. It also has a rich upper bass/lower midrange. At reasonable listening distances (six feet or more), however, it provides a very detailed sound that is filled with natural musical information and detail. I was struck at the level of resolution in reproducing complex choral music and in the consistency of detail and timbre even in reproducing large-scale symphonic climaxes. The MCS1 may not have the same dynamic capacity as some larger speakers, but it is very good for its size. Its combination of consistency, power handling capability, and reproduction of sudden transient peaks sounds considerably more natural than that of many other speakers designed for home theater purposes.

The MCS1 is not a speaker whose frequency range extends into deep pipe organ, synthesizer superbass, or ultimate bass drum levels. It does do very well with classic rock, acoustic jazz, and bass-rich classical material. For example, there is a lot of excellent bass and demanding percussion detail on the Aurora

recording of "Aurora" (Denon CY-73148), and the MCS1 provided excellent sound. The same was true of its ability to reproduce the string bass line on Kozeluh, "Works for Wind Ensemble," Orfeo C 442 981. This is a nice combination of winds and strings and the MCS1 did well in every respect. I should also note that the MCS1 was perfectly acceptable even with demanding deep bass heavy material like the Reference Recordings record of "Pomp & Pipes" (RR-58CD) and the Jenifer Warnes superbass chestnuts on bands 1 and 2 of "The Hunter" (Private Music 01005-82089-2). If you get the upper and mid-bass right, the lack of deep bass is a lot less striking.

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The dispersion was good enough at realistic listening distances (again, over six feet) to produce a wide, stable listening area and one unusually insensitive to speaker toe in and distance from the rear and side walls. (Note: These placement issues were still very important. They were simply less critical than usual with the MCS1.)

Imaging was very good, stable and natural. Depth and overall soundstage size were very good with chamber music and jazz groups, but not as realistic with larger scale music as larger speakers. You need the deep bass to throw a truly convincing soundstage with such music.

Now, what about home theater? Well, the answers here have to be a bit preliminary. As might be expected, the MCS1 did just as well in reproducing the timbre and detail of demanding sound tracks as it did in reproducing stereo music. It had enough resolving power to clearly pick up the differences in sound character between the Meridian 800, Theta Casablanca, and Lexicon MCS1s I use in my front end, and it extracted a great deal of ambient detail and background sound, as well as the details of dialogue and music.

I have no hesitation about recommending the MCS1 as a center channel, and as left and right main channels in a system using a subwoofer. The MCS1s do not have enough deep bass and dynamics to operate independently as full range left and right main channels in a home theater system. This takes a speaker with deep bass like the CS7.2 or CS6. At the same time, they do have enough bass and power handling capability at other frequencies to provide much better performance than many other medium size home theater speakers. I would note that I found they sounded better in systems with an adjustable crossover going down to 60 Hz, than the standard 80Hz crossover used in many AV processors. This is a sign of unusually good subjective bass performance in a speaker in this size and price range since many speakers that claim to perform well

with an 80 Hz crossover are actually bass shy enough to sound better at 100 Hz. Other reviewers may, however, feel differently. There are some experts who argue that a speaker must be flat down to nearly 40 Hz to be used with an 80 Hz crossover. This, however, means either a much bigger left or right channel speaker than the MCS1 or compromises in dynamics and other respects. I guess that I would rather have musical and soundstage coherence in the bass by maximizing the effective range of the MCS1 than sheer power handling capability and bass that I feel measures better in the crossover region than it sounds.

The use of the MCS1s for the side and rear channels may be equally controversial. I found that the MCS-1s worked very well for me as side and rear channel speakers for Dolby digital, Dolby EX, Dolby Pro Logic, Dolby Ad Nausea, DTS, Logic 7, and surround music. At the same time, they are not dipole or bipole speakers. The use of direct radiators like the MCS1 can create a very precise sense of direction in a relatively limited area, and do so in a way I feel sounds considerably better than bipoles or dipoles. You can also broaden the apparent sound stage and feeling of ambiance simply by directing the speakers so they reflect more energy or by moving them back from the listening position. Any direct radiator does, however, still give up some degree of ambiance and the appearance of realism in the broad sound field created by sounds like wind or rain. I'd suggest some hard listening at a dealer or a friend's to decide what kind of side and/or rear channel sound you really want.

As for subwoofers, I used the MCS1s with the subwoofers with my Polk SRTs, a Vandersteen V2W owned by a friend, and the REL Storm IIIs. The REL Storm IIIs worked best, hooked up in a configuration where one or two Storm IIIs were driven by the effects (subwoofer) output of my reference AVPs in playing back movie soundtracks, but were hooked up directly to the output of the left and right channel amplifiers for stereo and surround music. This allowed all hell to break loose in the louder parts of movie soundtracks while it provided the most natural sound in music. Incidentally, I set the crossover in the REL Storms to around 42 Hz for music because these subwoofers supplement the sound of the MCS1s when they are hooked up directly to the left and right channel amplifiers rather than use a high pass crossover to restrict the bass of the MCS1s. A point of reviewer bias. No matter what I did, I could hear slight colorations around the crossover point between the MCS1s and the subwoofers. This, however, is true of every system I have ever listened to in which the subwoofer was not made by the same firm as the upper channels; where

the main channels and subwoofer were not designed with a specific crossover (or dedicated crossover) in mind; and where the end result is not unusually accurate. I realize other reviewers and many audiophiles are not bothered as much by such a problem in the bass as I am, and I have to admit that the special crossover features in the REL Storm III allowed me to get very close to flat sound. Further, the fact that the REL Storm III supplements the sound of the MCS1 in music, rather than requires a high pass filter that reduces the bass response of the MCS1, really helped in getting the best out of the MCS-s.

Nevertheless, there were still differences in apparent driver speed and every adjustment I tried either produced a slight boost or

dip around the crossover frequency. The result was similar to the sound of a very good full-range speaker system with deep bass extension where things are not quite right in the transition to the lowest frequency bass driver. I can't criticize the MCS1 in these respects relative to other speakers of

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its type. Every home theater speaker that is not part of a dedicated home theater system presents this problem and so do at least 80% of the home theater systems that do have a dedicated subwoofer. For example, many THX audio-video systems have clearly audible transitions between the left and right channels and subwoofer in spite of a largely productive effort to ensure high standards, and the subwoofer in such systems is often audibly slower, dragging down the speed of the dynamics and definition of the bass.

At this point, however, I have good news to add to my praise of the MCS1. Thiel had new PowerPoint and PowerPlane side and rear channel speakers at the CES in Vegas in January and it showed the prototype of an exciting new approach to subwoofer design that could match the MCS1 to a dedicated Thiel subwoofer and electronic crossover. They also had the prototype of a 10-channel audio processor with variable crossovers and room correction for both the main speakers and subwoofer.

This means that by the time you read this review, Thiel should have a full-range and integrated home theater system available to use with the MCS1, and the first of what promises to be a series of audio processors with variable crossovers and room correction for any mix of speakers. In short, even if the MCS1 is a bit "too good" for home theater as of the writing of this review, it should be part of a family of dedicated home theater components by the time you read it. Certainly, you should take a hard look at the new Thiel subwoofer. It is one of the few designs I have seen which really takes a serious approach to ensuring that subwoofers sound truly natural and not simply deep and loud.