Magnepan Magneplanar MG 1.7 Flat Panel Quasi-Ribbon Full Range Speakers

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Introduction

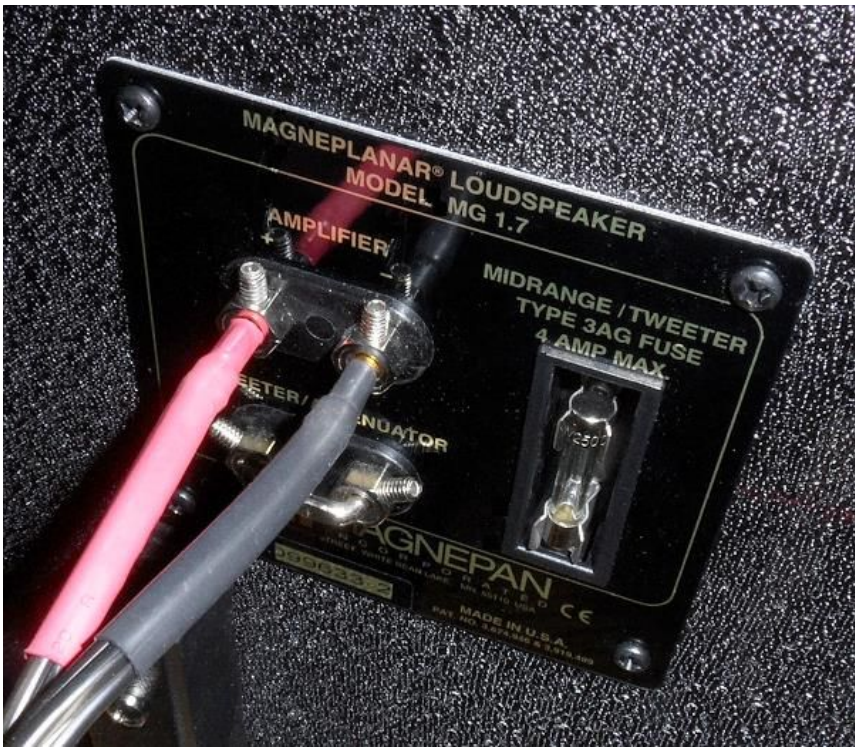
Probably 99% of the speakers in the world have drivers in a box, aka, an enclosure, either ported or sealed. Flat panel speakers don't have enclosures, other than the frame. The drivers consist of thin metal ribbons, or thin metal conductors attached to thin plastic ribbons (called "quasi-ribbon"), thin plastic sheets (i.e., larger than ribbons) with conductors running in narrow loops up and down, and thin plastic sheets suspended between perforated metal sheets called stators (electrostatic speakers). In the case of ribbons, there are permanent magnets close to the ribbons, and the music signal passes through the ribbons, creating a magnetic field that pulls or pushes the ribbon back and forth to create the music. Magnepan is a manufacturer of flat panel speakers, and in the past, at least one of the drivers was a large surface with the conductors running in loops. Perhaps their most popular model of recent years was the Magneplanar MG 1.6. At $2,000/pair, this was nirvana for flat-panel speaker aficionados. They now have announced the MG 1.6's replacement, the MG 1.7, which is the subject of this review.

Specifications

- Design: Three-Way, Full-Range, Quasi-Ribbon, Flat-Panel Speaker
- Drivers: Thin-Film Metal Conductors attached to Thin-Film Plastic Ribbons
- MFR: 40 Hz – 20 kHz
- Sensitivity: 86 dB
- Nominal Impedance: 4 Ohms
- Dimensions: 65″ H x 19″ W x 2″ D
- Weight: 50 Pounds/each
- MSRP: $2,000/pair USA
- Magnepan

The Design

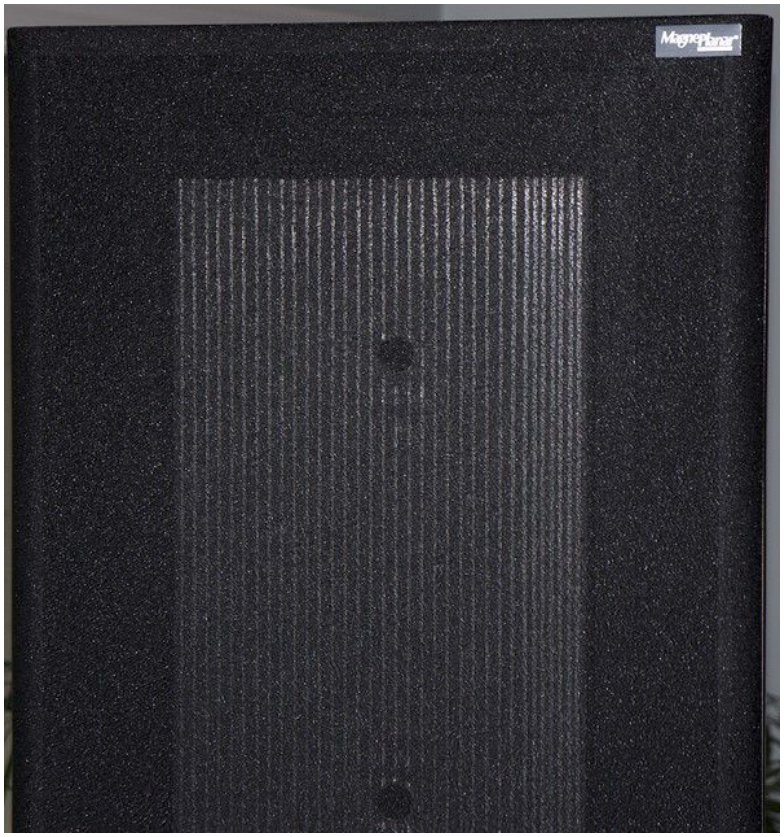
Although the Magneplanar 1.6's used a combination of quasi-ribbon and large surface area planar drivers (essentially, these are wide quasi-ribbons), the 1.7's use quasi-ribbons for all three drivers, one for the high frequencies, one for the mids, and one for the lows.



Ribbon speakers are known for their superb presentation of detail, which resides in the high frequencies. Some listeners find that it is too much detail, so for those consumers, there is a connector on the rear panel along with the speaker binding posts, in which you insert an included resistor, which attenuates the highs a bit. However, for me, there is no such thing as too much detail, assuming what one is hearing is musical detail, and not distortion. So, I did not install the resistor, and I suspect that most consumers would also choose not to put it in.

The binding posts accept bananas or bare wire, which are held in place by small hex screws (hex wrench included). You can see the tweeter attenuation connector beneath the speaker binding posts, as well as a 4 ampere fuse.

The speakers are “polarized”, meaning that there is a left and right speaker. They are designed to be arranged so that the tweeters are on the inside edge (the left speaker with the tweeter on the right side, and the right speaker with the tweeter on the left side), i.e., the tweeters are closer to the middle of the room placement, and the woofers are towards the outside. You can tell which is which by looking through the grille cloth of the speaker from the front, with some front lighting so that you can see the ribbons through the grille. For example, in the photo shown below, which is the left speaker, you can see the narrower placement of the tweeter ribbons on the right side. The right speaker will have the tweeter ribbons on the left side of the panel. The logo badge in the top right corner is something I placed there myself. There are two of them in a plastic bag that you can choose to put on the speakers or leave them off.



Although the 1.7 is more than 5 feet high, it does not weigh very much, because there is no enclosure. There is a wooden frame that surrounds the ribbons, and the entire structure is shaped much like a door. Its slim profile is a spouse-pleaser, at least in my household.

The low sensitivity (86 dB) and 4 ohm impedance means you will need a good amplifier that is rated into 4 ohms. Don’t even think of using these with an inexpensive receiver. You don’t necessarily need a lot of watts (75 is enough for average listening), but the amplifier does need to have that 4 ohm rating.

In Use

I tested the MG 1.7’s using an OPPO BDP-95 Universal Player, BAT VK-5i pure class A tube preamplifier, and BAT VK-75SE pure class A tube power amplifier (75 watts per channel). Cables were Marc Audio and Emotiva.

I was fortunate enough to have a pair of 1.6's on hand, as they had been my reference speakers in the two-channel room, so I could compare the sound between the two models.

Placement of the speakers is critical. They should not be too close to any wall, and they need to be toed in at about 15^0 or so.

The difference was obvious, but not massive, because the 1.6's are really good speakers. The most noticeable improvement was in the high frequency response. The 1.6's tend to roll off somewhat, but the 1.7's didn't do that so much. The bass was slightly cleaner and tighter. However, there was not as much deep bass as I would like, but that is the nature of flat-panel speakers.

I used a number of albums to solidify my conclusions about the above statement, including violins playing in harmony, trumpet concertos, and some powerful music that included deep bass.

For example, this Telarc SACD has some terrific string pieces, and I could tell that the overtones had more presence with the 1.7's than with the 1.6's.

Alison Balsom's trumpet solos came through with a crystal clear vibrancy and transparency, but without being overly sibilant. Flat-panel speakers reproduce high frequencies extremely well.

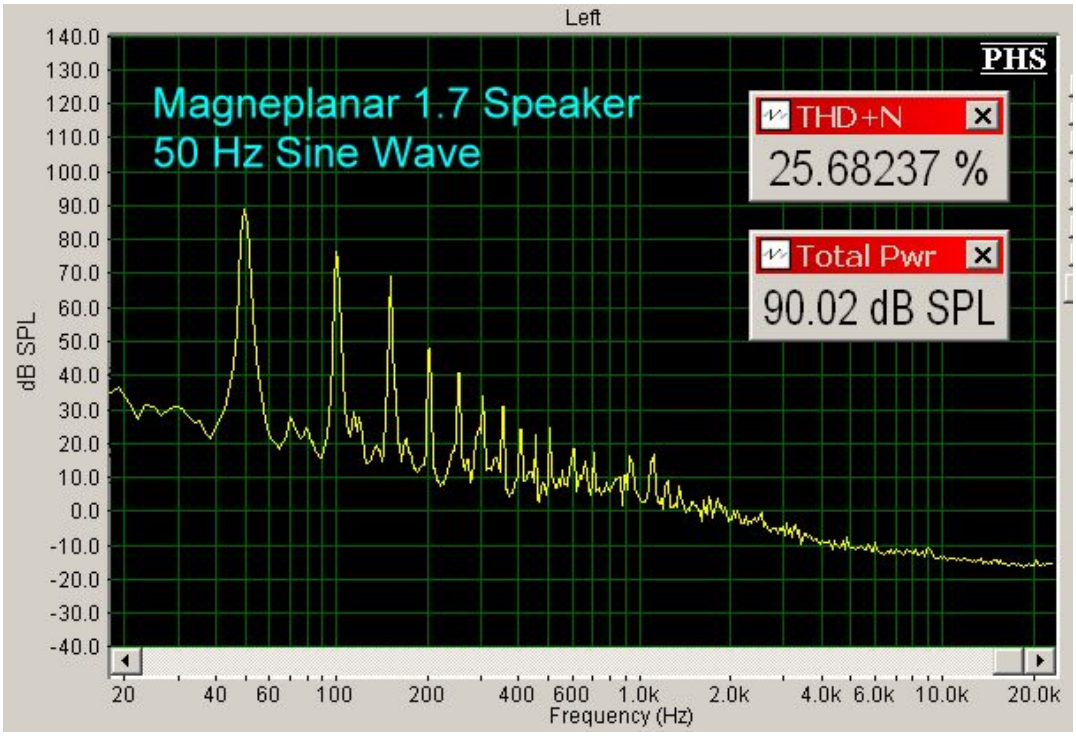
Like the 1.6's, the 1.7's had some difficulty with the deep bass. This is not a problem with the quality of the speaker, but merely a manifestation of not having a lot of surface area reproducing the signal. The plastic ribbon cannot move back and forth a great distance, so it cannot move enough air to reproduce 20 Hz like a 15″ conventional cone driver can. This is the one area where a conventional speaker does a better job, as all flat panel speakers have the same problem to varying degrees, depending on their size. However, this can be remedied by the use of a subwoofer. My electrostatic speakers have twice the surface area of the 1.7's, and I still

use a subwoofer (actually, three 18″ subs), crossing over the electrostatics to the subs at 60 Hz.

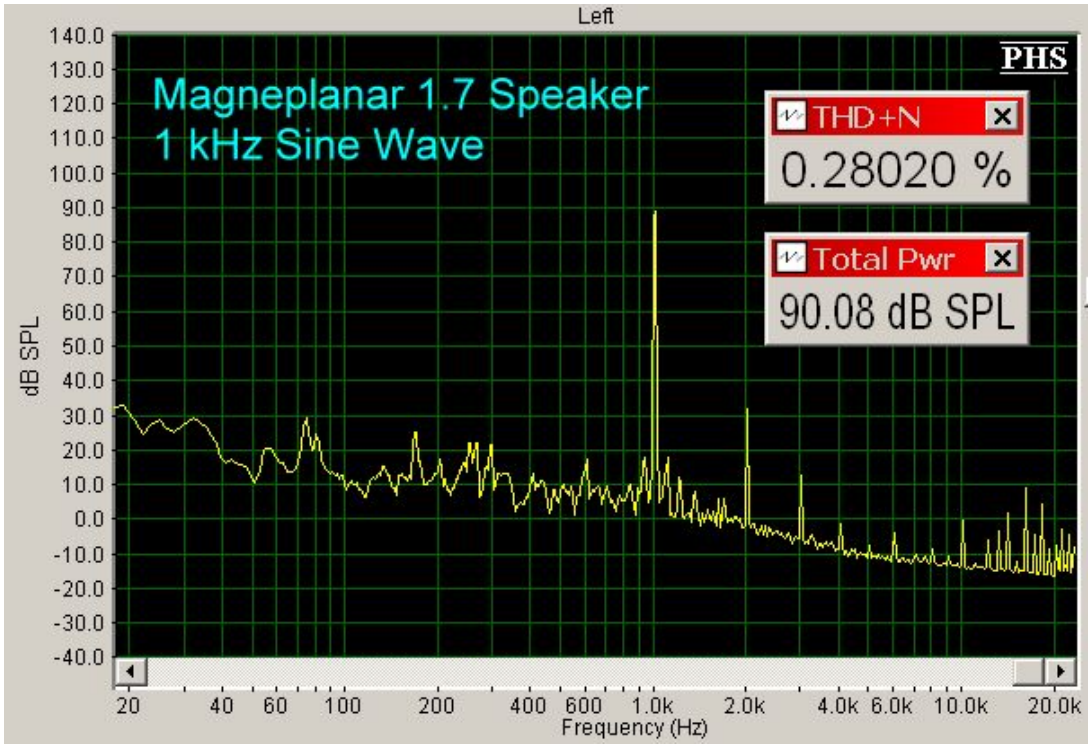
On the Bench

The distortion measurements were taken at 2 meters from the center of the speaker. I was unable to get a reliable frequency response measurement due to the dipolar sound.

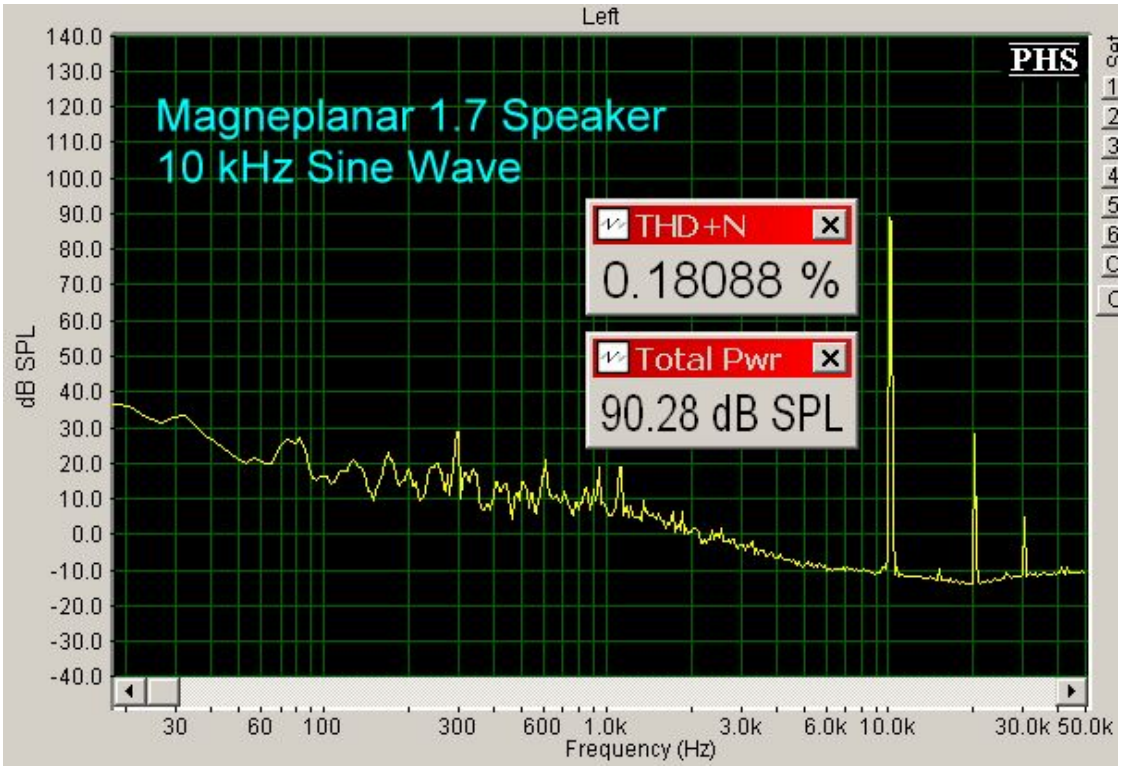
At 50 Hz and 90 dB output, THD+N was very high. I expected this because of the limitations of flat-panel speakers noted on the previous page.



However, at 1 kHz, distortion was very low.

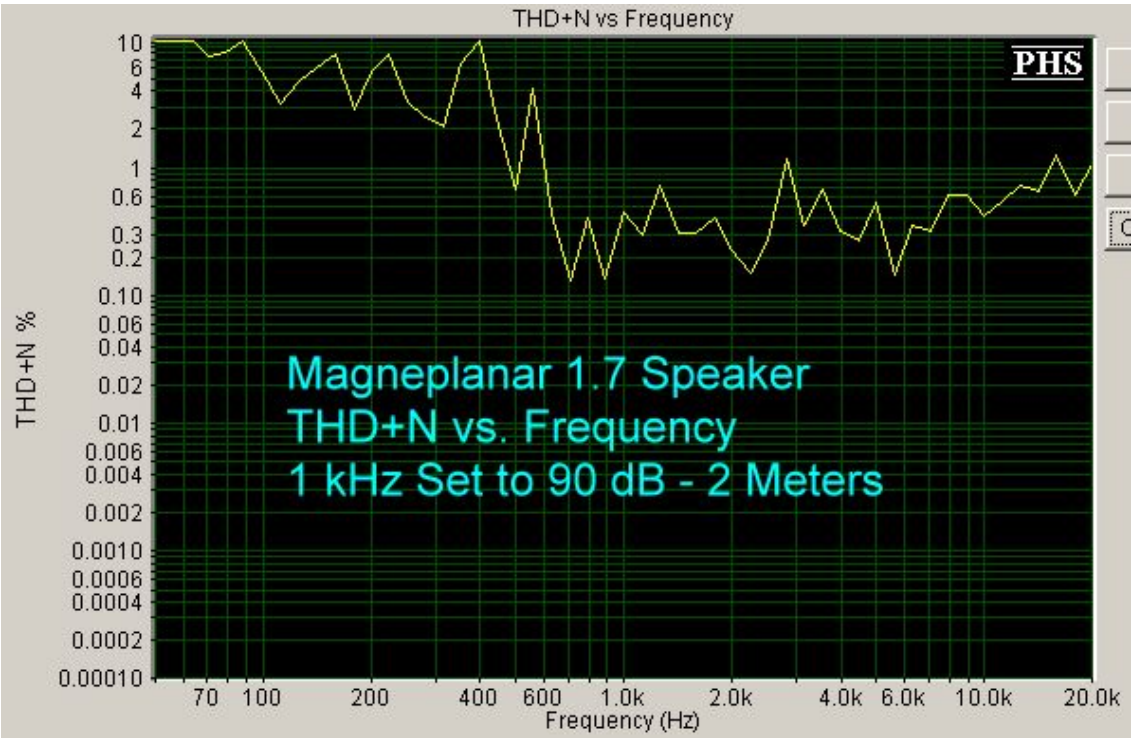


And, at 10 kHz, distortion was also low. As I have previously stated, flat-panel speakers do very well in the high frequencies.

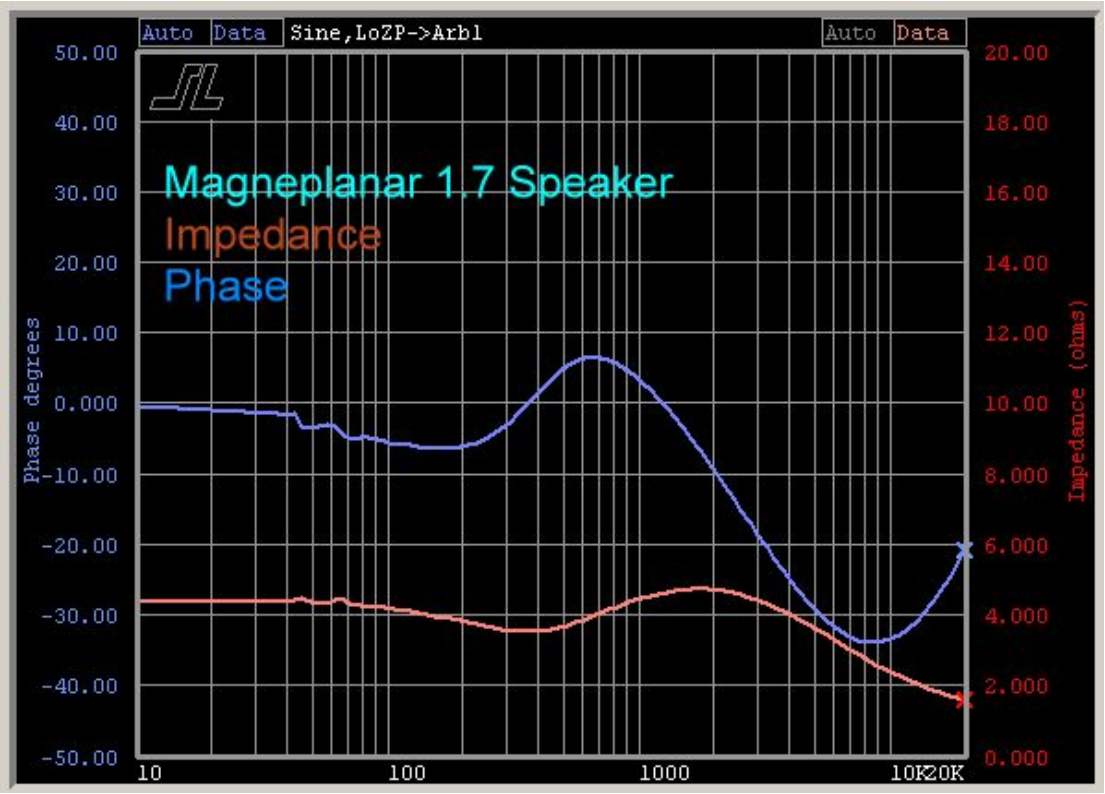


This graph shows THD+N vs. Frequency with 1 kHz set to 90 dB at 2 meters. Because of the dipolar nature, there is interference in the low frequencies caused by the negative wave coming out of the

rear side coming around to interact with the positive wave emerging from the front side. It is particularly bad with the lowest frequencies, and I think that the distortion measurements at the low frequencies in this graph do not accurately reflect the true amount of distortion (I believe it is lower, as I didn't hear any noticeable distortion in the lows or mid/lows).



The impedance was as flat as I have ever seen in any speaker, and was nominally 4 ohms as specified. It dipped down to 2 ohms in the 10 kHz – 20 kHz region, so as I said before, don't use a mass market receiver with these speakers. The phase varied from + 6^0 to – 34^0, which is excellent.



Conclusions

The Magnepan Magneplanar MG 1.6 speakers were excellent, but the 1.7's are definitely an improvement, most noticeably in the output at the high end of the audible spectrum, but also with a tighter bass. At $2,000/pair, they represent one of the great values in the world of speakers.