The return to Canada of the Jean Maurer brand

JAN-ERIK NORDOEN

Prior to the annual Salon Son & Image audio show in Montreal, I browse through the list of exhibitors to spot the ones that I don't want to miss. This year, I must have underlined "Jean Maurer" three times, as this almost mythical brand of speakers is once again available on our continent, thanks to the efforts of Claude Chasles, owner of the distribution company Audio Passion. On arriving at the show, I headed straight for the Audio Passion room for my first contact with Jean Maurer's flagship speaker, the JM 370E. Judging by the comments from visitors to the crowded room, the brand's reputation is well founded, an impression confirmed by the time I was able to spend with these speakers at the show.

Established in western Switzerland in 1971, Jean Maurer Suisse Audio Manufacture firmly remains a family business dedicated to perfecting loudspeakers and the Lectron brand of tube amplifiers, in strict compliance with the fundamental principles of physics and acoustics. Far from any mainstream fashion and from the trend to outsourcing, all design work and the greater part of manufacturing are carried out in-house by the Maurer family. Our curiosity to know more about the philosophy and the values that drive the design and the evolution of the brand led us to an interview via Skype with Jean Maurer and his son Marc Maurer.

A MEETING WITH TWO ENGINEERS, CRAFTSMEN AND MUSIC LOVERS

The essence of Jean Maurer's philosophy in loudspeaker design is neatly summarized in this quote from his website: *"The primary purpose of a high-fidelity system is to provide the fascination of the physical presence of sound, normally provided by the physical presence of musicians. Any other consideration is secondary."*

MSI: Which attributes of music reproduction contribute most to a speaker's ability to provide the illusion of physical presence? If you had to prioritize a single attribute, which one would you choose?

JM: If you leave us only one choice, then it would be to improve the weakest point of the speaker in question. In Europe, that's called "a Normand answer," a way of sidestepping a difficult question. Let's dig a little deeper and

step outside of the bounds of politically correct responses. The qualities, excellent or mediocre, of a loudspeaker are numerous. The following are the ones that concern us the most:

- **Respect for instrumental timbre**, which implies not only a linear frequency response, but also minimizing the effects of smearing and ensuring that directivity is as regular as possible in all frequency bands.
- **Accuracy of instrument attack**, commonly and erroneously called "transient response". The latter has in fact two opposing aspects that are the beginning of a note and its extinction. The usual notion of the transient response describes only the rise of the music signal while omitting its extinction.
- **Minimizing harmonic distortion**, a type of distortion whose perception is nonlinear in frequency and which differs according to its even or odd harmonic content. This type of distortion often results from deformation of the speaker cone when a transducer is used outside of its ideal frequency band or is poorly filtered in the rejected bands.
- **The directivity**, which should be as broad and as regular in frequency as possible. If this is not the case, the angle of the listening position becomes crucial and the frequency response will not be stable with respect to listening distance.
- **The effects of smearing**, which represent signals that last beyond the original signal. This results in a decrease of musical dynamics. If these effects are not linear in frequency - as is always the case – timbral accuracy suffers during playback and listening fatigue often sets in due to coloration added by the speaker.
- **The control of reactive energies**, not to be confused with the previous point, in which the original signal is prolonged. Reactive energies create signals of all shapes whose origins are very diverse: from vibration of the elements that house the transducers, to electrically reactive energy from the speaker that is poorly dealt with by the amplifier (back EMF), which returns it to the speaker with – unfortunately - a very audible delay!

Most engineers deal with the first five points, but who takes care of item 6? To our knowledge, we are alone. In over 99% of cases, the answer to your question is "mastery of reactive energy." In our case, we believe that our JM 370E is a particularly well-balanced product, which does not mean perfect.

MSI: If a speaker is able to properly create this illusion of physical presence, is that enough to ensure the faithful conveyance of the emotional content of music? If not, what other attributes must be prioritized to ensure the emotional connection?

JM: Definitely the "respect of silence" is essential for emotion. Signal fidelity, as already said, is a matter of balancing the six points mentioned above. But let us reiterate a point that we hold very dear: you never listen to a pair of speakers, but necessarily to a complete system. You cannot judge a single element, it is always in relation to its surroundings. This is especially true for the amplifier-speaker-cable marriage. For a source, as for the quality of a musical recording, you cannot make a silk purse out of a sow's ear…

This "marriage" is quite difficult to get right and not everything can be measured. A fault too often encountered in an engineer is to ignore what he does not understand or what he cannot measure. To unequivocally observe a phenomenon that is not understood is very uncomfortable for the scientist; it is none the less real and undeniable. With a touch of humor, we tell ourselves that we would like to not die ignorant, when faced with any of these findings. In many cases, however, we later find that there is a rational explanation.

MSI: You were among the first to use very steep slopes for passive crossover filters to isolate each driver in its optimal frequency range. Do you think that digital filters represent the culmination of this approach, providing extremely steep slopes while preserving phase relationships?
JM: The response of a speaker around the resonant frequency of its moving parts is absolutely disastrous: the smearing and distortion are catastrophic. However, an octave above this resonance, the transducer is already able to give the best of itself, which implies the development of steep filter slopes. Digital filters are capable of going even further in this direction, but they require the not insubstantial investment of a tri-amplified system. For us, the budget for such a system seems unrealistic.

MSI: In the interview you gave during the programme "À bon entendeur," you talk about the importance of silence in music reproduction. What approaches do you use to ensure that speakers meet this important quality in music reproduction?
JM: This approach is not new; allow us to quote from an editorial signed by Jean Maurer in October 1995 in L'Espace du Son No.3 in which we talked about music:

"Music is by no means a sequence of sounds, but a work whose notes, with their interrelationships and their infinitesimal nuances, can only together bring the full emotional message. A bow does not slide on the string of the violin, but it skips, causing a series of attacks and micro-variations of amplitudes and frequencies. When a violinist gradually reduces the intensity and the extent of his vibrato to the point where he flirts with silence so subtly that we do not quite know where the sound ends and where the silence begins, then we discover that the extinction of the note is a fascinating moment."

At a meeting last Friday with three musicians in Valais, they noted that the restraint exercised by a trombonist represents the cornerstone that marks the beginning of perfection in mastering the instrument. Learning to approach silence is an art, but it is unavoidable. It is therefore not only an obsession in high-level music reproduction, but also of any musician seeking to perfect his art.

To approach this ideal in music reproduction, we must consider the speaker casing as the antithesis of the musical instrument: it should absolutely not vibrate, that is to say, it must be inert and absorbent and not just rigid, as we too often read. The three forms of reactive energy described on page 12 of our small booklet (available in French on the Jean Maurer website) should be treated with great commitment. In fact, a three-way speaker represents three cabinets inserted one into the other or stacked together. Similarly, the back electromotive force (EMF) must be dealt with by the amplifier in the best possible conditions, as described at the bottom of page 10 of our booklet.

MSI: Some say that the piano is the most difficult instrument to correctly reproduce through a loudspeaker. What musical instrument allows you to best judge the fidelity of a speaker, and why?
JM: The piano is certainly important, but alone it does not provide a complete analysis of a speaker. The violin and the cello provide an interesting vision of respect for instrumental timbres. The human voice, of course, and perhaps above all. Percussion instruments are not very sensitive to timbral accuracy, but for note attack, they are king. For us, the most difficult is the symphony orchestra because the signal is extremely complex and some holographic reduction is inevitable. The string quartet should provide a total illusion of the musicians' presence in the listening room, and the same for a jazz trio. Provided that the instruments are acoustic, and that the recording is well executed...

MSI: Beyond the speaker, what component do you consider as the most important in an audio system as to its ability to transport the listener onstage with the musicians?
JM: Undoubtedly, as already said, the amplifier-cable-speaker marriage is responsible for many great joys or disappointments. Each element is vital, but this marriage is almost magical, for better or for worse. If it is successful but the source is not up to par, then the latter will compromise the expected level of performance.

MSI: In your paper "Loudspeakers and speaker cabinets" you explain the benefits of an output transformer for dealing with back EMF produced by the speakers. Some manufacturers, such as Heed Audio, use output capacitors to avoid direct coupling of the output stage, which they consider harmful to music reproduction. Do you consider that this approach is as valid as the output transformer to control back EMF from speakers?
JM: We hoped that our meeting would bring us some positive elements. Well, they are already very constructive, since we do not know about this capacitive coupling technology. Maybe you can tell us more about a particular type of amp; Heed Audio we know only by name, and we'll look for more information on this approach. We'll even be listening in our auditorium early next week to the Obelisk Si II integrated model, to be shipped soon by the Swiss distributor.

MSI: Since its launch, has the JM370E speaker undergone changes or updates in order to further its evolution?
JM: A pretensioning rod connects the bass driver's magnet assembly to the double sand-filled back panel. This rod was originally hinged to allow the cabinet back any form of absorbent movements around 87 Hz; this hinge was implemented with a spring mounting. In recent years, we've replaced this with a ball joint that provides greater smoothness in following reactive structure-borne energy transmitted to the back panel. In a passive filter, the technology of self-inducting coils, as with the capacitors, is paramount. Ten years ago, we replaced polycarbonate capacitors with polypropylene versions.

One element is very dear to us: the paramount and central role of the midrange driver, the quality of which should be free of all avoidable compromises.

MSI: There seem to be in your speakers a great level of concern regarding the control of all problems associated with resonances and vibrations. Could you expand a little on the solutions you use in your speakers, the usefulness of the pretensioning rod in the 370E, and the results you have achieved?
JM: If you look at the vertical section diagramme of our speaker and if you look at our booklet on "Loudspeakers and speaker cabinets" where many drawings and diagrams replace long texts, you find that everything is implemented to absorb any form of residual vibration. The use of round grains of quartz sand is omnipresent in each sub-enclosure (treble, medium and the main cabinet for the bass). The front of the "woofer" is fixed by a "Silentbloc" system (a set of rubber parts) so that no structure-borne energy can pass through the driver chassis to the cabinet. The "woofer" is thus fixed statically from the

front. Dynamically, it is stabilized by the pretensioning rod whose purpose is to transmit reactive structure-borne energy to the double sand-filled back plate of the main cabinet. In analogy, this energy is the same type that makes the cannon recoil as the projectile is shot out; it is of the same order of magnitude as the active energy and is transmitted to the various elements of the cabinet in all traditional systems.

The residual vibration of our existing speakers is reduced by 97% compared to the C series, dating from 1984. It follows that musical dynamics are incomparable, simply through respecting the dynamic troughs, or silences essential to accurate dynamics.

MSI: The cabinets and components of your speakers are for most part designed, manufactured and engineered in Switzerland. Why do you not follow the trend of other manufacturers to build your cabinets and your components in Asian factories, to your specifications?
JM: How would it be possible to imagine ideas for improving performance if we do not ourselves build the components involved? It is by having our own manufacturing equipment that can find new solutions, to advance in the right direction. The subcontractor will never do this type of research work; his focus is on ways to reduce his manufacturing time, which is in his direct interest. Even assuming that the quality of execution remains optimal, the possibilities of moving towards greater performance are quite limited.

MSI: How do you explain the longevity and the durability of your speakers, which have preserved, for the most part, their "look" of more than 30 years ago?
JM: Our products have a design based on function, not on fashion. In a way, you could say that they designed themselves. Since the function has not changed, the shape has remained true to its original form.

MSI: In your opinion, what is the greatest quality of a speaker?
JM: Its consistency, allowing it to be forgotten. In other words, transparency.

MSI: Finally, what are your tastes in music?
JM: Of the music I prefer, that which came out of the Italian and German Baroque eras, but also post-romantic music with composers such as Bruckner, Mahler and Richard Strauss, and of course Mozart.
Thank you, Mr. Maurer, for the time devoted to this interview.

LISTENING SESSION
Appreciation

Jan-Erik Nordoen
My colleague Cyr-Marc neatly captured the sound signature of JM 370E with the term "coherence". For my part, I would complete with the word "confidence", and let me explain. The listening session started with one of Cyr-Marc's selections from Nine Inch Nails, a densely recorded track, complex and a considerable challenge for a speaker, but one that the JM 370E's delivered with ease. The speakers rendered the track with a level of intelligibility and organization that left no doubt in my mind about their musical abilities. As if I were at the concert, I could freely follow every musical thread without losing the overview and at the same time, step back and bathe in the atmosphere of the work. After Nine Inch Nails, it was with confidence that we cued up Agnes Obel performing "Katie Cruel" from her album Live in Copenhagen, with a level of enchantment that brought me right back to this Danish artist's concert in Montreal in February 2014. Moving on to Tom Waits in "Green Grass" from his album Real Gone, then Nick Cave in "God Is In The House" and Jeffrey Foucault in "One Red Rose" and several of my other reference tracks, the JM 370E's simply opened a window allowing a much deeper take on the meaning and the emotion of music that I thought I knew well. The day after the listening session, while hunting for something new at a record store, I was rewarded by Imaginary Cities, Chris Potter and his Underground Orchestra's latest work. I headed to a listening station to sample the record, and I could not help but imagine listening to this music on the JM 370E's. Returning to my own two-driver speakers was difficult, because after having experienced music on a state-of-the-art three-way design, the compromises of two-way designs stood out bluntly. I can only urge the reader to listen to the Jean Maurer speakers to understand their level of intelligibility and their ability to create a physically present soundstage in which music simply breathes in all its strength, scale and beauty.

Cyr-Marc Debien
At the last Salon Son & Image recently held in Montreal, I was particularly attracted to one of the rooms containing an audio system which, in my opinion, was far beyond anything I had heard elsewhere at the show. The audio

system presented by Claude Chasle of Audio Passion, served up a sonic and musical performance that was simply exceptional.

It was enough to spur me to discuss with my editor so that he could organize a listening session at Audio Passion, the purpose being to assess the Jean Maurer JM 370E speakers in a domestic setting. So it was that on a beautiful spring evening, Jan-Erik and I met at Claude Chasle's home and office for a private listening session.

The Jean Maurer JM 370E's are freestanding three-way loudspeaker that set themselves apart from the market in several ways. First, it is important to note that they are entirely manufactured and assembled by hand in Switzerland by Jean Maurer, his wife and his son. Essentially all components (cabinets, speakers, crossovers, etc.) are developed and manufactured in the family's workshops. Digital machining stations enable parts to be produced as required, and quality consistency maintained to a very high level. In short, production is handcrafted on a small scale using modern tools and precision manufacturing, in a truly Swiss tradition. Another important ingredient is Jean Maurer's approach in researching and implementing simple and effective solutions aimed at countering and controlling vibrational problems inherent in all types of drivers or loudspeaker cabinets. For me, the JM 370E speakers represent a distillation of all the solutions discovered, tested and deployed in the last fifty years in this field. Many of these solutions have been abandoned by many manufacturers over the years, but Jean Maurer has kept them, has developed new ones and continues to use them in these speakers. Bravo!

The final observation is a major discovery for me, the use of an unconventional three-way crossover. As you may know, a speaker system with multiple drivers must have a crossover network to properly direct the high, medium and bass frequencies to the appropriate drivers. Usually, the crossovers are designed for precise frequencies and typical slopes, for example 800 Hz between the mid and bass drivers with rolloff set at -12 or -18 dB per octave, and 4000 Hz with a similar slope between the midrange and the tweeter. Jean Maurer uses different slopes to more effectively separate drivers, and designs his crossovers for a very steep rolloff, in the order of -20 to -49 dB per octave between the bass speaker and the medium, and -38 and -70 dB per octave between the midrange and tweeter. To achieve this type of filter in the analog domain is an incredible technological feat and ensures that the overlap between drivers is almost zero, each of them allowed to work in a very specific frequency range.

LISTENING IMPRESSIONS

The system for this session was indeed exceptional, not so much by the price of the individual components as by the choice and the synergy between the various elements.

As some readers probably know, I am a very big fan of broadband or "full range" speakers, where a single driver, specially designed for this purpose, covers the entire audible spectrum. I enjoy these kind of speakers for their qualities of consistency, uniformity and dynamic scale due to the lack of a crossover and their realistic reproduction of musical attacks.

The Jean Maurer speakers literally seduced me. They are of exceptional consistency and uniformity for multi-driver speakers. I never had the impression that there were six drivers playing in front of me. Jean Maurer's deep understanding of speaker design allowed me to finally hear nuances and details in Brian Eno's Drums Between The Bells that I had never heard before. The textures and layers that overlap one another brought another dimension to this work. On Albert Pla's album Viva la Tristeza and the track "Qualsevol nit pot sortir el sol", the voices intertwine, advance and retreat, moving from left to right before us with striking realism. The midrange reproduced by the dome driver are exceptional in their transparency.

During the evening, alternating between Jan-Erik's discs and mine allowed us to fully appreciate loudspeakers and audio equipment of the very highest level. Personally, the JM 370E's are simply the best multi-driver speakers I have heard to date. Period.

EQUIPMENT

- Speakers: Jean Maurer JM 370E
- Integrated amplifier: Air Tight ATM-1S (Actinote power cable)
- Speaker cables: Jean Maurer
- Digital source (CD): Aqua Acoustic Transport «La Diva» (Aqua power cable)
- Digital source (file playback): Mac Mini / Audirvana
- Digital to analog converter: «La Scala MkII» (Aqua power cable)
- Digital cable: RJ45 (data via I2S between the MacMini and the converter)
- USB cable: Oyaide USB 2.0 Neo d+ Class A high speed
- Interconnect cable: Oyaide Tunami Terzo 1m (converter to integrated amp)
- Power distribution bar: Vibex Two 6R