Paradigm® FACTORY TOUR

BY JOEL KOPPING

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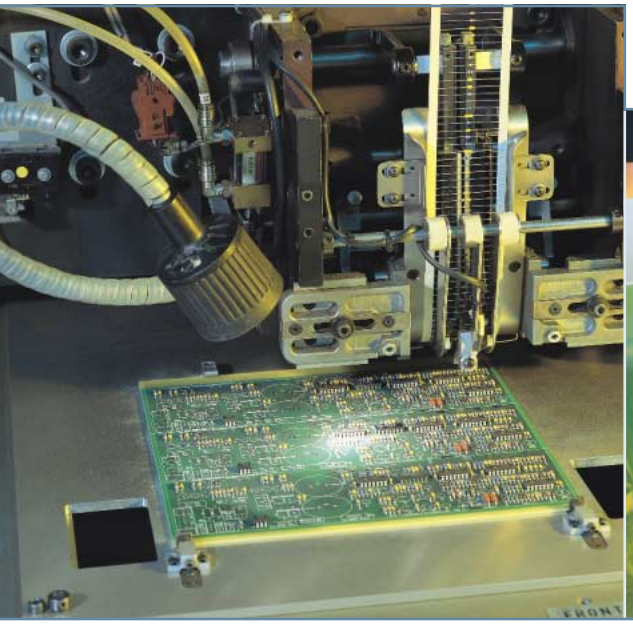
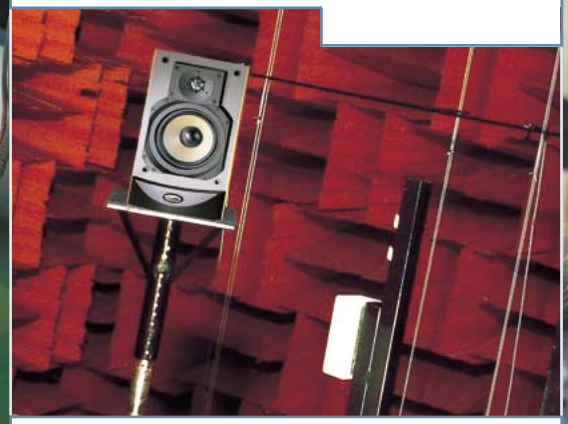
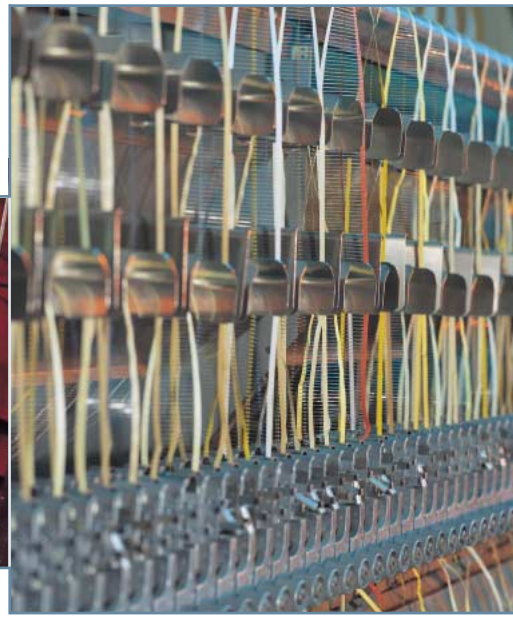
AUDIO VIDEO







In my experience, most people interested in audio enjoy visiting factories to get a "behind the scenes" view of how their favourite brands are manufactured. My view occurred recently at the new Paradigm factory in Mississauga, just a few minutes outside of Toronto.

The possibility for the visit was made possible once I had decided to go to Canada to visit some family. Once I had confirmed the dates for my visit and shelved out some cash for my ticket, I contacted Kim Gibbings of *Audio Specialists* and asked him if he could put in a good word for me regarding a factory visit. He mailed me back with the name and e-mail address of Mark Aling, the Marketing Manager for Paradigm/AudioStream, and a few e-mail messages later the visit was on.

Once in Canada I contacted Mark to confirm the date, he asked me if I had transport and when I said I would have to check with the family to see if they could loan me the car, he said not to worry, he would pick me up.

Paradigm currently have three facilities: the new facility, which at 240 000 square feet is not what you would call small, a R&D centre and the company's old manufacturing facility. This older facility was at the time of my visit being closed with all manufacturing being moved over to the new factory.

My day began at the new factory with Mark taking me through the various manufacturing sections at the facility. Before going into the technical side of the visit, what was obvious was the almost family-like feeling in the plant. Mark was on first name terms with most of the staff and they all seemed to enjoy working at Paradigm.

For the first part of the tour, I was taken through the woofer, tweeter, crossover, subwoofer amplifier, Anthem SSP and amplifier assembly lines. After looking at the assembly lines I was shown the wood shop, final speaker assembly lines and some of the injection moulding machines.

What impressed me was the precision to which Paradigm work. To maintain quality, the company manufactures practically every component of the speaker from baskets to voice coils, which are wound to incredibly tight tolerances of +- 0 turns, to the speaker cones that are also manufactured onsite. Paradigm wind their own inductors for the speaker crossover to standards way above the industry norm. Even the machines used to assemble the speakers are all designed and manufactured in-house to Paradigm specifications.

Component placement for the amplifiers is conducted by pick and place machines, with every amplifier tested on what the company calls a Bed Of Nails. This device tests the boards before they are placed in their cases. The Anthem production line has just as many checks as any other process in the factory. Anthem by the way, is a high end line of

AV processors and amplifiers. Unfortunately for us down here in SA, Paradigm can't keep up with demand for Anthem in their 110 volt market, so it will be quite a while before the company starts with 220 volt production.

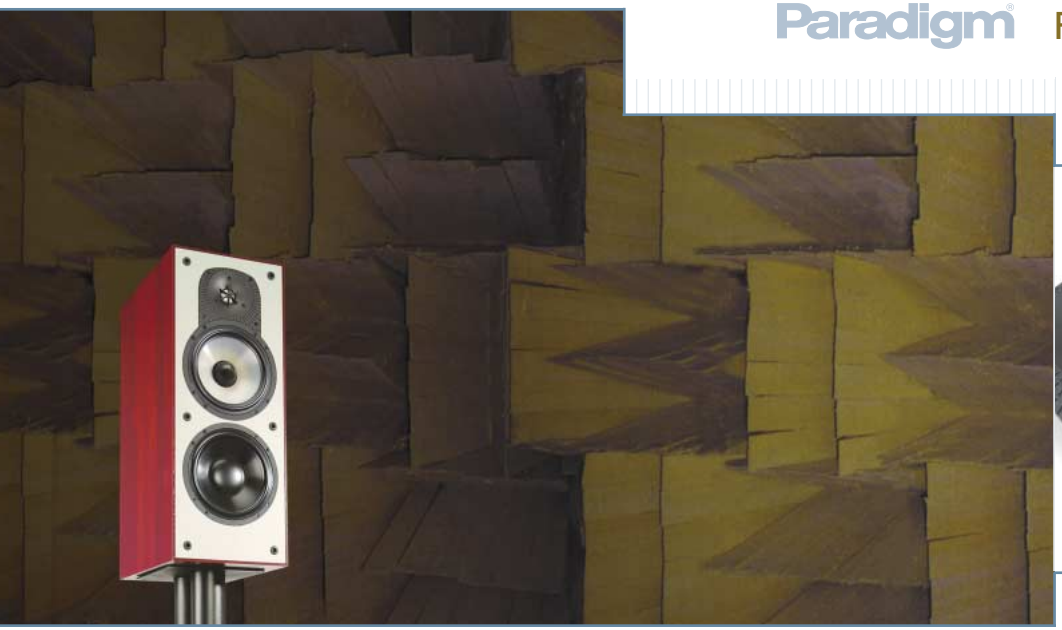
The wood shop is huge, with most cutting being done by CNC machines. Essentially the speaker cabinets are assembled in three pieces. Depending on which range is being manufactured, either the front, top, back and bottom, or the sides, top and bottom of the cabinets are cut from one piece of wood. During assembly, the braces and either sides or front and rear pieces are placed into grooves cut out for them and the cabinet is then folded over to create the complete cabinet.

My next visit was to the final assembly lines. Here, the complete speaker is assembled, with each and every speaker being tested to, for the Paradigm range, within 1 dB of the reference, and for the Paradigm Reference range to within 1/2 dB of the reference speaker. Any speaker that fails the test is scrapped, with the cabinets being broken up and returned to the wood suppliers for re-cycling.

The next move was to have a look at some of the heavy machinery where Paradigm makes their own moulds for the speaker baskets and the injection moulding machines that make the various speaker components, and then on to the warehouse where Paradigm keep around eight weeks supply of speakers.

One of the highlights was still to come. This was a visit to the new R&D section in the factory and a peek inside the anechoic chamber. The chamber is built within the confines of the factory, but it is a completely free-standing room, with no part of it touching any of the walls or floors of the surrounding building. This has been done so as to as to maximise isolation between the chamber and noises from outside. The chamber is 33 feet tall and the sound absorbing cones are a little over seven feet long. A suspended walkway takes you almost into the centre of the chamber.

From the chamber, it was out to lunch with Mark and Jerry VanderMarel, one of the company owners. The discussion at lunch centred on why Paradigm manufacture everything in-house and how they could build speakers at such competitive prices. The answer, Jerry explained, was that as Paradigm manufactured all the components themselves, they could keep strict quality control over every manufacturing process, leading to a better quality product. Also, the company only had to make one profit margin on the final product and did not have to add up all the profit margins that they would have to pay if they bought speaker components from outside suppliers. I also found out during lunch that Jerry shares another of my passions, that of motoring, although whilst my passion leans towards the classic side, his is for performance and he owns a 550hp Corvette.



After lunch, it was off to the old facility where I got to meet some of the engineers who design the Paradigm speakers and drivers. These guys were not the expected white-coated engineers, but real people that ordinary Joes like me could talk to. I was shown how the engineers conduct their computerised tests, using software that has also been designed by Paradigm, and had a look at a new subwoofer that the guys were working on. The final stop of my tour was into one of the rooms where Paradigm conducts blind testing. Three speakers were behind a curtain and I was given a remote control to switch between the speakers. I was also given a score sheet with which to rate the speakers. Luckily for me, I scored the speakers correctly according to their retail price.

I would like to close off by thanking Mark for taking the time off to show me around the facilities and both Mark and Jerry for the lunch. I am extending an open invitation to both of you to come and visit South Africa. When you get here, lunch will be on me.