



Making Vinyl Europe 2023



“If it sounds good on this...”

A Guide to QC playback equipment



Edward Forth
Global Brand Projects and Partnerships, Manager EMEA

Making Vinyl Europe, Haarlem



**“If it sounds good on this...
...it will sound good on
anything”**

This is a very common thought process when it comes to listening to a record. If it plays on this old thing it will be fine on anything.

We need to take this thought and do this:





**“If it sounds good on
this.....it will sound
good on anything”**

This is a more accurate representation!

Bad records may sound ok on bad equipment, but will sound bad on good equipment.

Good records will play on any equipment, good or bad.

Make sure you are quality controlling your records on good equipment!





The Audio-Technica Guide to QC Playback Equipment

Leaning on our over 60 years experience in transducer technology, we have put together this simple presentation to get the best out of your QC process through using the correct playback equipment for the job.

A lot of you will already know a lot of this, but a refresher is never a bad thing!

We will use Audio-Technica product for the examples, but the information is standard across the industry.





1 – The Cartridge

What is a cartridge?

A turntable cartridge (sometimes referred to as a phonograph cartridge or phono cartridge) is, at its basic level, an electromechanical transducer. It turns the mechanical movement of the needle (stylus) in the record groove into an electrical signal. There are two basic designs when it comes to cartridges: moving magnet and moving coil.



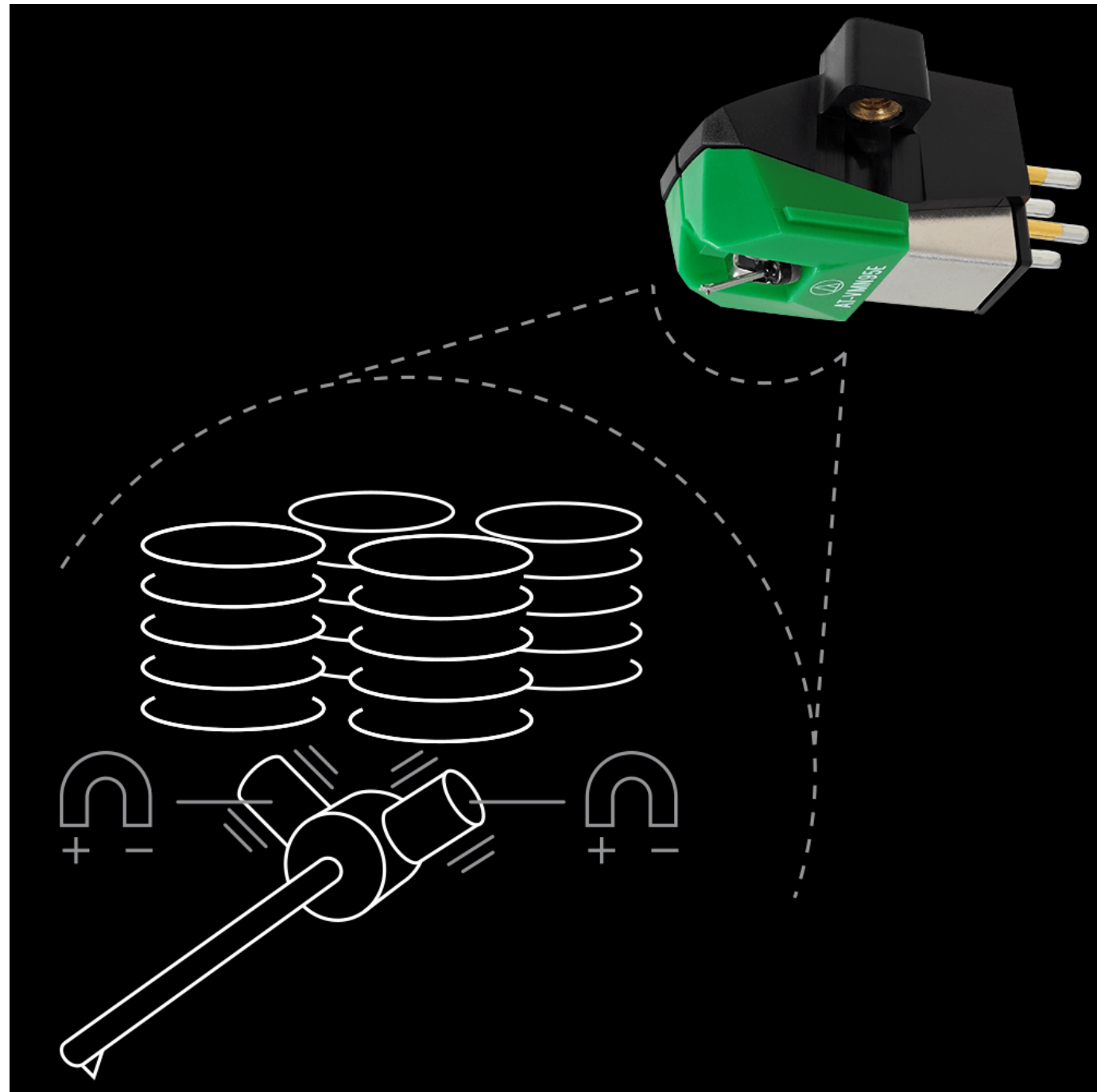


1 – The Cartridge

Moving Magnet

In a moving magnet cartridge, the stylus travels through the groove of a record, transferring its mechanical force up a cantilever to a magnet attached to the other end.

The cantilever and magnet move (moving magnet), interacting with a coil to generate an electromagnetic signal. The signal is output through the four pins at the back of the cartridge. Audio-Technica uses two magnets and multiple coils (dual moving magnet design) for turntables that more accurately read both sides (left and right channels) of the record groove.





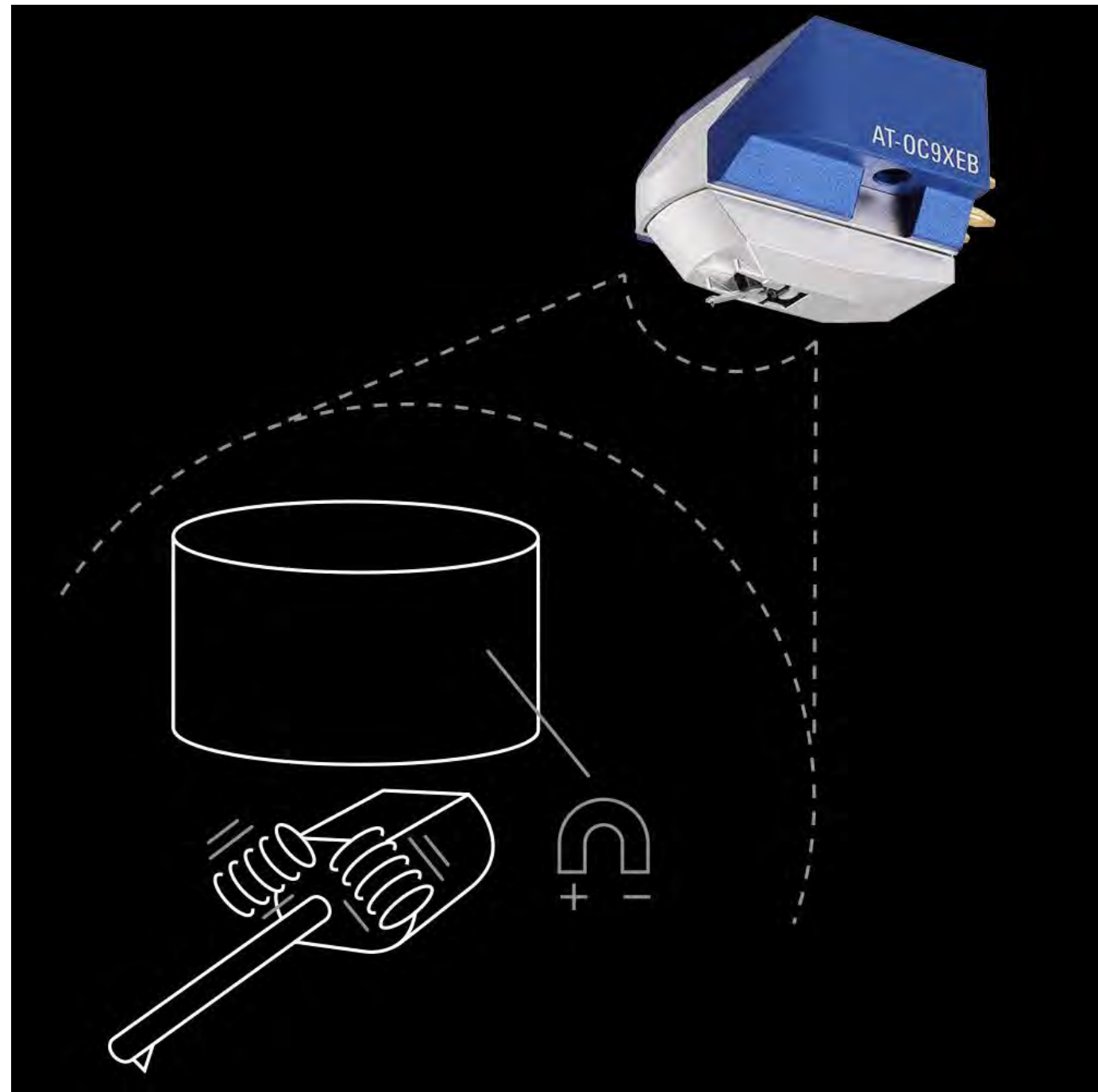
1 – The Cartridge

Moving Coil

In a moving coil cartridge, the mechanical process is opposite to that found in a moving magnet design. The mechanical force of the stylus transfers up the cantilever to a coil rather than a magnet.

The cantilever and coil move (moving coil), interacting with a magnet to generate the electromagnetic signal. The signal is output through the four pins in the back of the cartridge.

The moving coil structure has much lower mass than a moving magnet structure. The lower mass allows the stylus to react quicker to the changes in the record groove, resulting in more detailed sound reproduction





1 – The Cartridge

What to use?

The cartridge is the most important element, as it is the first link in the chain. We would recommend using a VM (vector mount) moving magnet cartridge with a Microlinear (ML) shaped diamond tip, such as the VM740ML.



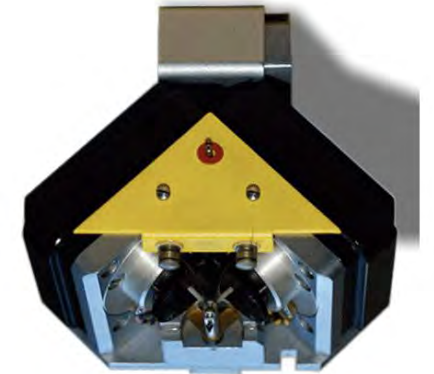
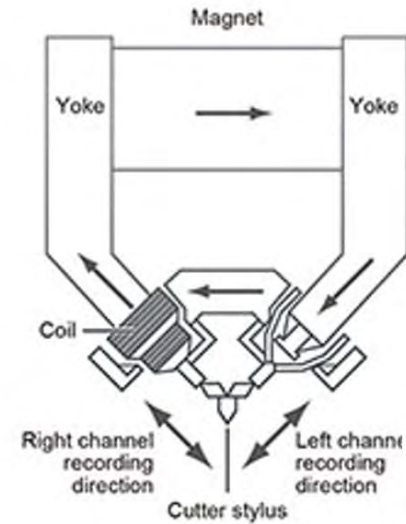


1 – The Cartridge

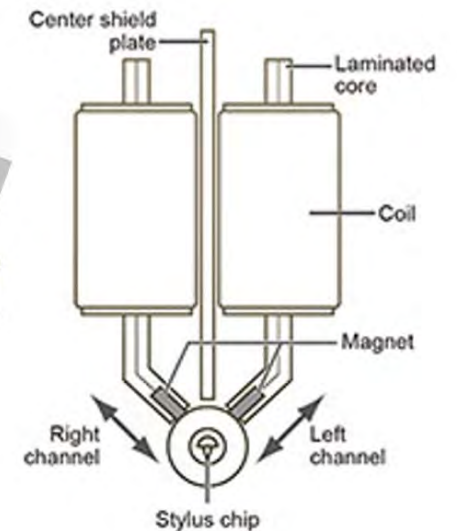
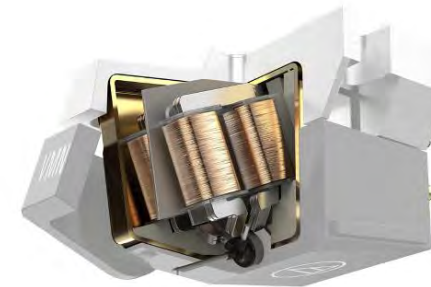
Why a VM Cartridge?

A cutter head carves out the record grooves, creating analogue mechanical equivalents of the original audio signals. To read these accurately, we developed the internationally-patented Dual Magnet design which duplicates the structure of cutter head. Instead of using a single, large magnet, the two magnets are arranged in the shape of a 'V'. The two magnets are positioned precisely to match the positions of the left and right channels in the stereo groove walls. The VM cartridge ensure outstanding channel separation, and an excellent frequency response, and gets you as close to the cutting head as possible. The die-cast aluminum VM700 body reduces unwanted vibration and enhances the superior sound quality of the Microlinear stylus, giving you the most accurate sound possible.

Basic structure of the cutter head



Basic structure of the VM cartridges

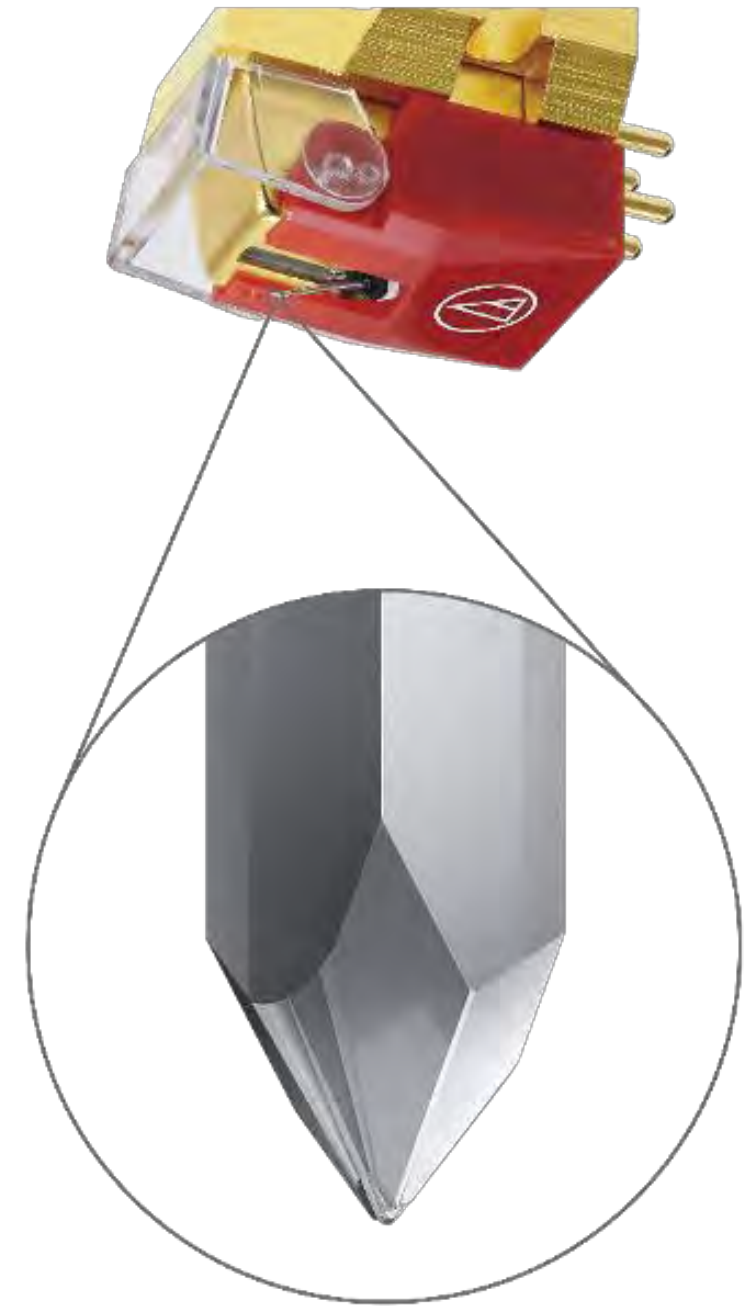




1 – The Cartridge

Why a Microlinear Stylus?

The primary reason we suggest the Microlinear stylus is that it almost exactly replicates diamond profile/shape as the cutting needle. This means that you have the best chance of getting the same sound out that was cut in. The Microlinear stylus has a deeper contact with the record groove than other styli, such as the more commonly used Conical or Elliptical shapes simply cannot reach. The result is extremely accurate tracking of high-frequency passages and flat and accurate frequency response within the audible range. Conical and Elliptical styli also have the disadvantage of providing additional surface noise, from where they sit on, rather than in the record groove, which is an unwanted element when trying to QC a record.





2 – The Turntable

What to use

We would recommend a good quality Direct Drive Turntable with VTA (vertical tracking angle) adjustment with a stroboscopic platter and speed adjustment, such as the AT-LP140XP. The arm shape does not matter, as long as the cartridge is properly aligned.

Why

A direct drive turntable is easier to set up and maintain. The VTA adjustment means you can set up your cartridge properly, and adjust for different thicknesses of vinyl. The stroboscopic platter means you can make sure you are playing at the correct speed, and you can easily adjust if not. A Direct Drive turntable is proven to have greater speed accuracy than other types. A proper set up is always essential.





3 – The Phono Equalizer

What to use

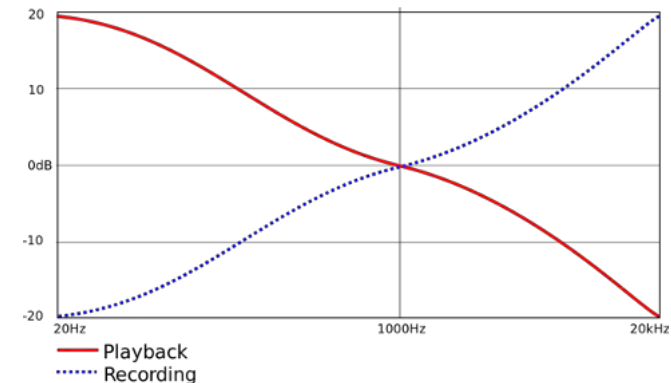
The Phono Equalizer is an important component to get accurate sound reproduction.

We would recommend a good quality external phono equalizer, with something like the AT-PEQ30 as a minimum standard.



Why

The RIAA (Record Industry Association of America) curve is used to reduce the low frequencies and boost the high frequencies to increase record length and improve sound. The Phono Equalizer reverses this equalization so you hear what was originally intended. A high quality phono stage will give you the most accurate EQ reversal, and put you closer to the master tape/file. The Phono Equalizer also boosts the cartridge signal to line level.





4 – The Amplifier

What to use

Depending on your listening environment we would recommend a good quality headphone amplifier, or an integrated amplifier with a designated headphone output.

Why

In a QC environment headphones are going to give the best results (and allow multiple listening stations) A designated headphone amplifier is going to give a higher quality, more accurate sound representation, but an integrated amplifier has the option of adding speakers if required.





5 – Monitoring Headphones

What to use

The best option for this is a good quality pair of studio monitoring headphones, either in a closed back or open back design depending on the listening environment.

Pictured are the ATH-R70x and ATH-M70x.

Why

Studio monitor headphones are designed to give a flat, accurate, uncoloured representation of the audio. They will have also been used in the studio when recording and mastering, and be the closest to the intended sound. If your QC room is noisy, we would recommend closed back headphones for the best sound isolation.





Have a Listen for Yourself

Meet the Experts @ Haarlem Vinyl Festival

If you would like to have a listen to the set up described in this presentation, we will have it set up all weekend at the Vinyl Alliance 'Meet the Experts' at Loft 1 in the Phil, Haarlem.

We will also be doing a Q+A drop-in session in the same venue at 13:00 on Sunday 1st October with hi-fi and studio experts on hand to answer any questions.





All Making Vinyl^{*} participants get 25% off all equipment mentioned in this presentation at www.audio-technica.com in October with the code:

MVE2023

*** Europe & UK based participants only.**

Cartridges include AT-VM95ML, VM540ML, VM750ML

For any out of stock items, please email eforth@audio-technica.eu



**Thanks for your time, and
please come and chat to us
afterwards!**