

Tocano Mastering



Balancing a high profile city centre satellite mastering operation against the backdrop of a suburb-based replication plant, Tocano has all the bases covered and adheres to the first three laws of real estate – location, location and location.

KEITH SPENCER ALLEN

MASTERING IS ESSENTIALLY an introverted activity. So when it comes to the location of a new facility, many choose a position that is practical for their intended clients with less concern for the choice of neighbourhood. Tocano Mastering followed exactly the same priorities but in a city like Copenhagen, where the clients want to go is also a great place to be.

Outside of Denmark, Tocano is best known as a replicator/duplicator of CD, DVD, and audio and video cassettes and its plant employs 250 people at Smørum, close to Copenhagen. While two mastering suites and a DVD authoring facility operate there, a response to client wishes led to the opening of a third mastering suite as a satellite operation in the capital.

'All our major clients are based within walking distance of where we are now,' explains Jan Eliasson, principal mastering engineer and the person largely responsible for the development of the new facility. 'When busy they were less keen on travelling the 20km to Smørum, and we didn't want geography to be an issue in their using Tocano.'

While part of the Tocano group they operate as an independent operation, and not everything they work on is destined for replication by Tocano. 'Although we might suggest that the factory do their replication', says Eliasson, 'we're not a tourist office for the

replication plant. A lot of our work does go there though.'

The new mastering suite is at the quiet end of Nyhavn, the old part of the city close to where the canal system meets the main harbour. Rows of brightly coloured buildings, some more than 400 years old, line the canal in a virtually traffic-free area lined with pavement cafes and bars. Tocano is on the third floor with balcony views over this idyllic scene.

But it wasn't quite intended to be this way. Originally they had plans for an adjacent building without the views but that fell through at the last moment. Liking the area and its 'client-convenience' they considered this third floor location. By removing walls and a ceiling to incorporate the roof area, they created enough space to fulfil their requirements for a good mastering room, together with a suite of rooms for offices and future services.

John Flynn at UK-based Acoustic Design Group was commissioned to handle the acoustic design as Eliasson had been impressed by ADG's projects in London. Although Eliasson insisted on the windows with the views and balcony remaining, he admits that 'I didn't have to explain that much to John as he knew what we wanted. They suggested soffit mounting of the monitors, a hard front wall and absorbent rear of the room.'

The original rafters are visible as the new ceiling continues, following the roof line, for a further 2m above them. There were concerns about the front-to-back distance and the need to give up more than they'd anticipated for acoustic treatment, but Eliasson's windows and views remained, with internal glazing angled to reflect incident sound into the absorbent areas.

Interestingly, with the convergent point of the monitor's axis' being just behind the engineer's position, the shape of the room brings the clients very close to the sweet spot so everyone hears a similar result.

No matter how attractive the design and the combination of blue, grey and turquoise colouring is, it's the large white console, housing the majority of the suite's equipment, that dominates the room. Eliasson: 'I approached a company that normally makes more traditional studio furniture with the concept. They were surprised but agreed to look into it. Following calculations to see if it would be stable and transportable, we agreed a price.'

Made in two pieces, raised by crane, and assembled on site before the building work was completed, the task proved far more difficult for the makers than was first thought and they almost certainly made a loss on the project. However, the finished result, with its three

legs and multiple coats of white lacquer and clear epoxy, adds a stunning aspect to the room, and being very hard it also resists all wear and tear.

A monitor wall was built, partially independent of the room's natural boundaries, stopping for the door at one end and matched at the other end by space for a patchbay and equipment racks. It houses a pair of flush-mounted Genelec 1034s while a selection of near and mid field monitors can be positioned on the centre section of the console.

'In mastering, you have to be very confident about your speakers', confirms Eliasson, 'I selected Genelec 1034s because I think they reveal more of any problems in the client's music. We may have to work harder but know what we hear is true.'

'I auditioned a lot of different monitors in the mastering suites at Smoerum. I had a lot of old records that I knew by heart, how they sounded, and how they were supposed to sound, on all kinds of speakers. So when I listened to them on a speaker I asked myself "Do I recognise this?" I've got to rely on them.'

'Mastering is not just about listening to your work on an A-class speaker – it is about making music work on every kind of speaker. So we have a variety of different speakers – we use Dynaudio BM-15s to simulate how a good home stereo would sound; and the NS10s – not for mastering on – but because when clients come to our place they go "Aahh, we know that one!"'

In the three years since opening they've gathered a diverse range of customers – record labels, studios, and private individuals. Local record companies tend to put more money into fewer projects, which are then marketed more heavily, leaving a lot of music to the smaller operations and privately financed projects.

Tocano gets to handle classical, jazz, and rock although looked at in terms of percentage of releases, dance music, pop, rap and hip-hop predominate. A portion of the work also comes from Sweden and Norway as well as other European countries. While admitting that the first of these has some excellent mastering facilities, Eliasson points out that Copenhagen is a very attractive place to come for other Scandinavian countries.

Both Eliasson and his co-mastering engineer, Morten Bue, have broad practical experience. 'Morten and I are engineers and producers. I don't do it any more because I don't have the edge, but Morten still does,' explains Eliasson. 'He also handles DVD audio preparation out at the plant. But on a practical level we understand the dynamics of jazz and classical music as well as how dance almost makes a virtue of the digital zero!'

The studio is designed to encourage a hybrid analogue/digital approach. 'I like to do my main work in the analogue domain, and when I know that I've gone as far in that as I can, I move into digital processing to correct the smaller problems with more precise processing, doing things that you cannot do in analogue,' he says. 'We then go to the Sonic System, which is mainly used for editing and compilation rather than for its signal processing.'

Control of signal paths is looked after by a pair of routers. A Pro Bel system handles all the source selection, while the creation of signal chains is under the control of a Z-sys digital router. 'You can create your own presets – it is very quick and reliable – in my view more reliable than a patchbay although we do still have one just in case. We still need one for the analogue domain,' adds Eliasson.

All A-D and D-A conversion chores are handled by an Apogee ADA8000. One pair are dedicated to providing the monitor feed and are arranged so that monitoring is always through the same converters whether working in the analogue or digital domain. 'We don't want to cheat clients or ourselves by listening to another pair of converters – we can always listen to the original master by bypassing all the processing, and it is still the same two converters we are listening to,' he says.

The bulk of the material arrives as CD-R with some DAT, and an increasing amount of analogue 1/2-inch at 30ips. A Sony APR5000 handles the analogue replay but an Ampex ATR102 is awaiting restoration and possible tube conversion. A range of DAT machines are available including a Tascam DA45 high-bit rate machine but Eliasson remains unconvinced that more bits is better in all cases. 'Recently we had eight masters arrive at a higher bit rate with four of them also available as identical mixes in 16-bit. And on three of those four we selected the 16-bit mix to use. It was dance music and they seemed to be much firmer in the bottom end.'

A wide range of analogue and digital processors are mounted in the console but the most heavily used are the Fairman TM EQ 22-tube four-band stereo analogue equaliser with high and low pass filters, and the Weiss DS1 and EQ1 digital units. The remaining processors include such items as a TC 5000, dbx Quantum, P&G PP10, a pair of Summit EQF100s, and dynamics units from Sony, Junger and Orland/NTP.

Most of Eliasson's enthusiasm for his equipment is centred on the Fairman EQ. 'Fairman is based just outside of Copenhagen and is dedicated to the use of tubes,' he says. 'When we started up, Werner from

Processing details

Tocano knows its processing equipment well and Eliasson is happy to talk through some of the ways that they use it.

Orland / NTP 179/120 compressor modules – 'The original NTP modules were a favourite with mastering suites because of their smooth compression action but their minimal controls don't apply them so well to modern bass-heavy music. Ex-NTP and local designer Trols Orland will modify modules, adding new control facilities, such as side chain, peak clip, de-esser, stereo link, metering and a new rack. Using the side chain with an LF cut of 6dB/octave below 300Hz they become more usable on dance music.'



Weiss DS1 and EQ1 – 'These are the principal tools once you get into the digital domain. The EQ is very good for problems that require a very narrow Q to get at unwanted resonances. The DS1 is the best de-esser that I have ever heard.'

dbx 160S compressor – 'Only used occasionally, such as on masters that sound a bit dull, where the presence and the high mid-range isn't that apparent and EQing it might not sound too good. Compressing with the 160S exposes the mid-range without sounding nasty.'

Aphex Exciter II – 'Not used so much these days but it is a good machine when remastering old material that falls off in response beyond 8kHz. It gives you a bit to work on afterwards with EQ.'

Junger DO2 – 'A good compressor, very discrete and gentle; great for classical and jazz but not so good for rock music because it tends to get 'pumpy' very fast. It hasn't got that many control parameters – the factory presets are very hard to tell apart – and you cannot modify them. You either tend to put it on and like it, or take it off.'

Sony DAL1000 digital limiter – 'You don't see too many of these around now. It's the original digital limiter and isn't really used anymore but one faithful regular customer insists on using it almost every time. I've told him that it distorts like hell but he says he likes it!'

P&G PP10 – 'It was not easy to use at the start but when you get used to it it works very well. We use it for full-band compression and sometimes with the soft clip limiter if I want to play safe with the output.'

TC5000 – 'It has a lot of effects and can be used to modify masters in other ways such as the apparent room size on an acoustic recording. It is also occasionally used as a multiband compressor or to handle a specific compression band.'

dbx Quantum – 'A very musical compressor and the preferred choice for multiband use.'

Fairman approached us about his equipment but we declined as I was looking for one of those old Klein + Hummel equalisers. The next time I was out there about the monitoring controller that he was building for us, I saw a K+H in pieces. He asked me to write down exactly what I wanted from a main equaliser, and apart from one feature, he delivered everything. It is now a standard unit for Fairman but this was the first and it sounds so nice. I would almost say that this is the heart of our mastering.'

The Fairman designed and built monitor distribution system allows switching between the Genelecs and up to three other systems, while selecting mono, stereo, or left or right in both sides. The Sonic System and its twin screens are set into the centre of the console. The same systems are in use at the mastering studios in

Smoerum and these additionally have NoNoise software so any major clean-up processing is handled there. There are plans to employ some of the other rooms to provide other services, such as digital copying, baking analogue masters, and maybe even disc cutting. Apparently, there are no disc mastering facilities in Denmark now so masters are being sent to Belgium, the UK and Germany for acetates.

Eliasson has noted a change in client's attitude to dynamics on the output masters. 'Traditionally, clients have wanted their music to play as loud as possible on the radio,' he states. 'Of course, it has to sound right but when you really pump up the volume some of the local radio stations just add extra compression on a default setting and loud records have no dynamics left. Some are now considering backing off on the level a

little and they argue that if we don't push it too hard we'll leave a little for the radio. In that way, the music seems to get through a little more like it should but it is a very fine line.'

And there are always clients who want to turn the mastering process into an extension of the recording and mixing process, according to Eliasson. 'A couple of times we've been asked - "would it be possible for us to come with data disks or should we bounce it down in subgroups so when we do the mastering we can add a bit more drums or vocal?" Suddenly you are in the mixing business as well. We have kept it away for the moment but we might end up with it.'

Tocano's Copenhagen satellite has been a success, it works at least 8 hours a day and late into the night several times a week. And if the pressure gets to you, you just walk out onto the balcony and view the activity of Nyhavn below. It is quiet - no traffic or trains - and in summer you could work with the windows open with just the occasional intrusion of a ferry boat captain who feels compelled to sound his horn. However, in such an environment, you can live with that. ■

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Difficult original masters

As with most mastering facilities, Tocano receives a lot of mastering projects on CD-R that have been created and mixed within digital workstations. But problems can occur when the original mix has been very heavily processed, according to Eliasson.

'It causes difficulties when clients have used all their plug-ins to create the master. We try to educate them that they can do that for their own listening CD but that we should get a virgin mix, without any compression and set at a level that, if possible, uses all 16-bits. This gives us something to work on because we can always add compression and processing but we can't take it away. If we get a CD or DAT that is at zero all the time you cannot do anything EQ-wise - it gets grainy in the high end and almost everything we could do just makes it sound worse.'

Eliasson says that the other problem that occurs is a result of the client's choice of mix monitors. 'So many people are working on NS10s back in their studios, adding their powerful plug-ins, playing it loud, and thinking it sounds great. But they can't hear the bottom two octaves and because the NS10 is a very 'lively' speaker, they don't notice the low-end compression. Then they come here and our monitors reveal a lot more than they've heard on theirs and suddenly it's "Oh, it's no good - do something!" Then I have to tell them that there's very little I can do.'