

OPTOMA BTR100 Bluetooth Receiver & OPTOMA NE800M Earbuds

BY CHRIS BIDMEAD

JUNE 12, 2015 - 1:02 PM

These days there's a distinct move away from home hi-fi to music-on-the-go from our mobiles, and this means that we're often listening to our favourite bands on headphones. But most tracks are still studio balanced for loudspeakers, and opening up your music to the full living-room experience can be a real revelation.



Optoma BTR100 Bluetooth Receiver

Bluetooth has evolved into a handy way wirelessly to hook up your phone to your home hi-fi equipment, but a lot of home hi-fi lacks Bluetooth capability. The answer is to add a Bluetooth receiver, a small device often powered through USB that turns an audio stream over wireless into an analogue stereo feed into your hi-fi's RCA or jack sockets.

Optoma's new BTR100 goes one step better, optionally delivering the stereo output optically into your hi-fi's TosLink socket for the very best audio quality. Let's take this impressive gadget for a spin...

In the tenth-century, King Harald Bluetooth united the various squabbling Scandinavian tribes into a single kingdom. Towards the end of the 20th century the telecom vendor Ericsson

thought it might be a good idea to pull together the various applications of short distance short wave wireless technology in much the same way. And with that thought, as IBM, Intel, Toshiba, Nokia and eventually many other companies climbed on board... Bluetooth was born.

Bluetooth as a general purpose low cost wireless communication channel for data got off to a slow start. From the early days it had pretensions as a stereo music channel, but at first efforts in this direction were hampered by narrow bandwidth, requiring the audio to be very tightly compressed at the transmission end and re-expanded in the receiver. The results were ugly.

The arrival of Bluetooth 2.0 towards the end of 2004 opened up the bandwidth to a theoretical 3Mbps. In practice this was more like 2Mbps, but still quite enough for CD quality stereo, although it took a while for Bluetooth to shake off its old tight compression habits, and the quality-throttling **SBC** (SubBand Coding) originally designed to save power above all else, remained pervasive. To be fair to SBC its theoretical specifications do allow for quite decent audio, but the specs permit a variety of transmission rates, and most of those early implementations settled for the lowest common denominator.

Happily this is all history now. The wider bandwidth and newer codecs in the shape of AAC and aptX at last enable Bluetooth to fulfil its ambition of delivering high quality music over a handy wireless link. **AAC** (Advanced Audio Coding) is a widely supported international audio compression standard that improves on MP3 and can generally be expected to deliver sound that is only slightly sub-CD quality over Bluetooth. **aptX**, a proprietary import into the consumer world from professional broadcasting, claims CD quality or better. A key requirement is that the receiver device must also support aptX. This isn't always the case, although aptX adoption seems to be spreading fast.

Unlike some other Bluetooth adapters the **Optoma BTR100** is up-to-date with these codecs, as well as being able to do

them full justice by optionally injecting the output signal digitally into your hi-fi amplifier through an optical link. If your hi-fi isn't TosLink equipped the BTR100 will still work through a conventional 3.5mm or RCA analogue stereo with respectable fidelity.

Optoma is chiefly known as a manufacturer of projectors based on Texas Instruments DLP chips. The BTR100 is part of a new range of consumer audio products that Optoma added towards the end of last year when it completed acquisition of the well-respected California-based audio company NuForce.

At the heart of the BTR100 is the DAC (Digital-to-Analogue converter). Any digital audio equipment will need something like this somewhere in the chain, because although what goes in is just, effectively, a bunch of numbers, what will eventually hit your ears, whether through loudspeakers or headphones, will be analogue modulated vibrations of the air. It's generally acknowledged by audiophiles that the implementation of the DAC – the circuitry surrounding it – has a much larger effect on the output than the actual DAC itself. But it's encouraging that the manufacturers seem to have employed one of the better DACs for the job. The Wolfson WM8533 (which my research suggests is what the BTR100 is using) is a 24-bit 192kHz Stereo DAC, more than capable of handling CD quality digital streams.

As part of the testing I also tried out a pair of **Optoma's NE800M earbuds**, again a legacy of their recent NuForce acquisition. The brass and carbon fibre construction is designed to dampen unwanted vibrations, but also has the (for me desirable) side-effect of giving them a distinctly Steam Punk look.

If you're wondering about this choice of materials (I was) you'll be interested to learn that carbon fibre, weight for weight one of the strongest materials on earth, is also one of the most acoustically inert due to its inherent damping properties. Optoma's marketing bumf suggests that using machined solid brass for the sound nozzle that guides the 8.6mm titanium-coated diaphragm's vibrations into your ear canal is optimal because brass has been "...used in musical instruments throughout history...".

This struck me as puffery, but on second thoughts there may well be some science behind it. Your earbuds are, in a real sense, musical instruments, and the sound nozzle has much the same job to do as, say, the tubing of a slide trombone. Primarily it's about letting the air vibrate with the minimum of interference from the casing containing it. It also turns out that, presumably due to its copper content, brass has powerful antibacterial properties. If you're going to keep jamming something into your ears it's good to know it's unlikely to become a nest of germs.

A small red bead at the bottom of the feed into the cable marks the right hand earpiece. The cable itself sports a subtle grey criss-cross design and is rubberised, which helps avoid tangling. Six inches below the left hand earpiece is a microphone housing which includes a stop/start button for playback. The whole thing folds nicely into a small neoprene case faced with faux carbon fibre. In the box supplied for review was a set of three different sizes of silicone earphone tips, together with two pairs of especially comfortable luxury sound isolation tips by the specialist manufacturer Complyfoam.

Conclusion

The NuForce BTR100, reborn now as the **Optoma NuForce BTR100**, appears to share internal circuitry with several other China-built Bluetooth receivers sold for around the same price – you can pick it up on the Web for around £70. It's certainly one of the better consumer-grade Bluetooth receivers on the market, although strict audiophiles (if they deign to dabble in Bluetooth at all) will probably want to pay around £100 more for something along the lines of the Arcam rBlink.

