

NO MORE WIRES

Due to suspicions and skepticism, Bluetooth has always had a difficult time with die-hard „high fidelity“ enthusiasts. Objectively speaking, however, the transmission standard is actually very interesting. It can even be retrofitted to older analog amplifiers with little effort.

We'll give you all advice you need.



Bluetooth is becoming increasingly respected! And why shouldn't it? Nowadays, almost everyone has a smartphone in their pocket. Often, a tablet lies on the living room coffee table, while a notebook is filling its batteries with its primary nutrition of electricity, less than five meters away. And all of them have Bluetooth! It is, however, not only their ubiquity that makes such devices attractive sources of music. Since the emergence of web-based streaming providers, potential buyers had to consider products on basis of their supported services. For the customer's favorites, like Spotify, Tidal, Deezer or the HiFi-friendly Qobuz, the coverage of support is fairly good. Those who have subscribed to e.g. Napster, Amazon, Google or Apple, on the other hand, often miss out.

With Android or iOS portables, however, you have none of these problems: apps that can handle all common streaming-services are available for both platforms. This fact provides a substantial

advantage for Bluetooth, especially since sound quality is usually not the number one priority there. Most web music is streamed in MP3 format anyway.

More and more new HiFi releases, whether talking about amplifiers, streamers or all-in-one-systems, already have Bluetooth on board upon delivery. However, entirely new components or a replacement of the whole system is not necessarily needed, as many manufacturers have retrofittable adapters in their range. These devices are comparatively cheap, while also offering another decisive advantage: in case there were changes made to the BT standard, as e.g. the current transition from aptX to the improved aptX HD, the small unit could be replaced at relatively little expense.

On the following pages we present a selection of "blue teeth", suitable for HiFi-appliance, including some real problem solvers, which not only receive audio signals, but can also transmit them to other devices, via their radio interface.

Carsten Barnbeck



Advantage for Android: manufacturers like Samsung, HTC or FiiO (shown on the right of the X5 III) are more open towards the BT standard and implement formats like aptX or aptX HD in their new releases. Apple, on the other hand, insists on AAC even in the expensive iPhone X (top left).

BLUETOOTH RECEIVER

FIT FOR HIFI

Audioengine's B1 (around 170 Euro, more information at www.audioengineusa.com) is in a way the high-quality, HiFi-suitable Bluetooth receiver's archetype: while being hardly bigger than a pack of cigarette, it has a robust metal casing and a D/A converter from Asahi Kasei, which works internally with 24/192 and is also used in many full-size DACs. The signals are delivered either via gold-plated RCA-outputs or, if you have a better converter, via an optical S/PDIF-out. The connection to BT suppliers is straightforwardly done via a small „pairing“ button, also serving as an operation LED, on the front panel. It is powered via mini USB (cable and power supply included). We agreed immediately upon the sound of the small box being very likeable. The B1 plays full-bodied and balanced, has colorful mids and a, within the borders of basic Bluetooth limitations, surprisingly subtle dynamism. On the iPhone SE it sounds a little "darker" than on FiiO's X 5 III, which can secure the lead due to its Android system, revealing, altogether, more details in higher registers and drawing a deeper, slightly sharper stage into the room, thanks to aptX. With its rich and atmospheric analogue outputs, the B1 is certainly one of the best low-cost Bluetooth expanders.

Audio engines B1 also has an optical output. To be honest rather unnecessarily, since it's got a superb converter.



IT DOESN'T GET MUCH SMALLER THAN THAT

Oehlbach's "evergreen" BTX-1000 (around 80 Euro, more information at www.oehlbach.com) is barely bigger than a fingertip and is plugged directly into the amplifier with its built-in mini jack. For the power supply, it requires an additional USB connection, which is only temporary though, as it works self-sufficiently for up to ten hours thanks to its rechargeable battery. It can, therefore, be plugged into the front aux jack of a NAD C 316 BEE or an AV receiver without any cables at all. Naturally, permanent supply with electricity is just as possible. Since with BT volume can be controlled via the source, it even works directly on active loudspeakers. Should your amplifier not have a 3.5-millimeter input, that is no problem either, as Oehlbach includes a gold-plated RCA adapter in the delivery - a matter of honor for the wire specialist. Further a USB charging cable, also gold-plated, is included, without power supply though. Pairing was immediately successful: press the only button on the case for six seconds and the BTX is ready, which is illustrated by its nervously flashing LED circle. We're quite taken with the sound: the tiny device differs only in nuances from audio engines comparatively large B1, though in direct comparison it lacks a little physicality and plasticity. However, we're talking about proper subtleties here. Since aptX is on board and run with a maximum bandwidth of 352 kilobits, which is above the best MP3 and AAC resolutions, the small adapter sounds surprisingly lively and linear, although we again noticed the stage seeming slightly wider via Android and aptX than from Apple. We would find it, admittedly, very difficult to assess these tonal differences as „better“ or „worse“.



Oehlbach's battery-powered BTX-1000 sounds amazingly atmospheric for such a tiny apparatus.

SIMPLY GOOD

One For All's inexpensive Music Receiver HD (around 60 Euro, more information at www.oneforall.de) can as well shine with its compact dimensions. It has an analog, but only as a mini jack, as well as a digital, i.e. optical S/PDIF, output. Next to the plug-in power supply unit, a RCA adapter is included upon delivery, in case the amplifier lacks a 3.5 mm input. For the DAC chip, the manufacturer relies on a model from Wolfson that is internally clocked with a resolution of 24 bits and 192 kilohertz and ensures uncolored, conversion with a high bandwidth. As a small special, the aptX-enabled Bluetooth controller allows simultaneous networking with up to three source devices, which should guarantee a wonderful mess at every party. The appearance cannot compete with the devices of Audioengine or InLine: One For All relies on a reasonably robust but unadorned plastic case. However, in terms of sound, also this rather cheap BT-receiver is convincing. Somewhat cooler in its timbre than the B1, the One For All plays with appropriate homogeneity and linearity. Especially the slightly smoother AAC of iOS devices could score. No interfering noise was audible. With the Music Receiver HD you can remorselessly save a few bucks.



Alright via mini-jack, better via S/PDIF: the neat connection field of the OneForAll receiver.

BT COULD BE SO MUCH MORE

Those who value clean music reproduction should be pleased that with AAC, aptX and aptX HD there are reasonably decent sounding formats for the wireless transmission standard. The timid evolution of Bluetooth audio's capabilities could lead to the misconception the speed or data bandwidth of the interface was limited. Quite contrary, the standard could've been, in fact, mastering bandwidths up to the megabit-registers for almost a decade. Since version 3.2 (2009) BT transmits, in theory, 480 Mbps, making it as fast as a typical Wi-Fi home network. Therefore, hypothetically, portables could also be sending high bit audio or DSD data, which, however, isn't intended by the standard.

BT having been designed primarily for mobile and thus battery-powered devices is the reason for this limitation in musical bandwidth: the less data flows, the longer portables, smart watches and BT headphones run. The Bluetooth consortium, which includes companies such as Microsoft, Samsung and Intel, is therefore not interested in equipping the wireless standard with genuine hi-fi qualities for the foreseeable future. Now, you could of course get upset about that, however, speaking for ourselves, we are first and foremost glad that the unspeakable early phase of BT, explicitly the SBC-standard with all the noises, scratching and distortions, is gone for good.

INEXPENSIVE AND GOOD

The „Bluetooth True Hi-Fi Audio Receiver“ (around 80 Euro, more information at www.inline-info.com) from InLine uses, as does the B1, AKs 4396 converters and is therefore another one of the 24/192 receivers. It is enclosed in a robust matt-black metal case and powered via USB. Outputs are analog, via gold-plated RCA sockets, or optical S/PDIF. Exactly the other way round as before, this time a cinch-to-mini-jack-adapter for connection to 3.5 mm sockets is included. A USB cable is also included, but the power supply is missing again. All common BT formats, including aptX, can be played. In terms of sound, the receiver makes a good impression. Compared to the other devices, it is close to the excellent converter from Audioengine, displaying music in an accentuated, colorful and organized way, with, again, more transparency and sharpness being achieved via Android. Altogether it is, therefore, the device with the best price-performance ratio. Like many of the other adapters, it remembers the last connected sources, hence, if streaming from different laptops, tablets and mobile phones in parallel, no re-pairing is necessary.

Due to its superb workmanship, the InLine adapter fits well with the components of a HiFi chain.



BRIEFLY INTRODUCED

AUDIO QUEST BEETLE

Audioquest's new BT converter (for 200 Euro, more information at www.audioquest.com) comes in a small, black plastic box, processes AAC and aptX signals and, additionally, has a very special feature: its BT controller can force source devices into asynchronous mode, meaning they have to adhere to the timing of its internal clocking. Although we don't know whether the resulting jitter avoidance is the deciding factor, in any case, the Beetle sounds superb – and not only via bluetooth. It also has a USB port for computers, which processes signals up to 24 bits and 96 kilohertz. A fantastic companion for every modern multimedia desk.



ADVANCE ACOUSTIC WTX-1000

The WTX-1000 (for 180 Euros, more information at www.advance-acoustic.com) is something special because it is one of the very few pure Bluetooth receivers with the look of a proper hi-fi component. Sure, it's quite small, but it comes in a robust metal exterior, with full-size connector field, offering an analog RCA-, as well as an optical and an electrical S/PDIF output. There is just one flaw with the device: here, too, power supply is only possible via micro-USB, something one apparently has to accept with Bluetooth adapters...

IS BLUETOOTH EVEN STREAMING?

The terminology of streaming technology is not clearly defined. Essentially, devices that can reproduce digital media data are meant. Whether the music's source is the Internet, a NAS in the local home network or the internal storage of the device is not of importance. Though one would typically only think of a traditional network player, the reproduction of music from e.g. a mobile phone, via a Bluetooth-capable integrated amplifier, falls under the same definition. Any type of BT music transmission is therefore also streaming.

The genuine difference between Bluetooth and HiFi network players is hidden in the way they utilize their network connectivity: when streaming from a mobile phone via BT, the music is played on the smartphone and then transmitted to the system in one of the common BT formats (SBC, AAC, aptX). Bluetooth merely replaces the audio signal cable to the amplifier. However, if you instruct a network player to play music from a networked NAS, he only retrieves the raw data via his LAN or WLAN connection. The music is played and converted entirely and exclusively in the network player. UPnP is a pure data interface.

SEND AND RECEIVE

The front switch allows selecting whether InLine's Transceiver sends the signals of the optical or analog input via aptX.



BI-DIRECTIONAL

Usually, bluetooth adapters are designed for reception only. Exceptions such as InLine's Bluetooth Audio Transceiver (around 70 Euro), however, can reverse their direction: a switch on the back of the unit is used to select whether it should send or receive. Operation in both modes simultaneously is not possible. It accepts analogue (3.5 mm) or S/PDIF (optical) signals and provides them in the same way. It is powered via micro-USB and USB as well as mini jack cables, RCA adapters and even an optical conductor are included in the scope of delivery, while the plug-in power supply is again missing. Conveniently, InLine also places rubberized adhesive strips in the packaging, which can be used to fix the featherweight device to other components or the rack. Operated analogously, the aptX-capable transceiver cannot quite match the balanced tone of its purely receiving colleague (tested above). It sounds audibly thinner and less smooth. However, if you use its digital inputs and outputs, the tone is within the limits of what aptX provides. In our test we sent the signals from Rega's Apollo CDP to Pioneer's N-70AE network player and were amazed at how neutral and fluent the music sounded. A potent problem solver!

GOLD PLATED

With the BTT-5000 (around 100 Euro) Oehlbach has a matching counterpart to the BTX-1000 in its product range: an ultra-compact device that can be connected to any source device via its analog mini jack. The 5000 gets power via a firmly anchored gold-plated USB connection. A plug-in power supply unit is included in the scope of delivery, but it can alternatively also be plugged into the USB socket of e.g. a CD player, which is a common way for power connection nowadays. After the uncomplicated pairing, it provides BT headphones such as B&W's P 5 Wireless with aptX format. Its analog 3.5 mm input tends to sound slightly darkened, but there were no side noises at all. Its form factor makes it extremely versatile.



LEAVE YOUR PORTABLE IN THE BACKPACK!

The FiiO BTR 1 (around 55 Euro, more information at www.fiiio.net) is indeed a very special device: it's a battery-powered headphone amplifier with aptX reception, which can be securely attached to your shirt or jacket, using a clip. While on the move, your portable, laptop or smartphone can disappear inside your backpack and send their music to the mini amplifier. Like the manufacturer's other headphone amps, the BTR 1 has a lot of power and makes for astonishingly solid dynamics. Tonally it can't compete with top headphone amplifiers, but one couldn't expect that at this price anyway.



PREFERABLY DIGITAL

Imperials BART 1 (around 60 Euro, available from Amazon and Co.) can also be reversed in its functional direction. It can send signals from an analog or optical-digital source with aptX to headphones or other hi-fi components. Once again, the digital output sounds alright, but you should better avoid the analog mini-jacks.



VERDICT

Bluetooth seems to have a compensating effect for differences in sound.

In practice, however, it has a few undeniable strengths.

It goes without saying that the rules and benchmarks for wireless Bluetooth playback differ from those for hard-wired hi-fi components, which is why we had to forgo rating the devices. Even the comparatively high-quality aptX format is lossy and levels out sound differences. Accordingly, we were amazed at how close the tested BT adapters are located together. Only the models from Audio-engine, Oehlbach and InLine could somewhat distinguish themselves with their, at times, more power- and colorful character, which is solely due to the topology of their analog output stages. If you choose the optical digital output instead, all adapters sound virtually identical. Those who already own a high-quality

D/A-converter can, therefore, absolutely reach for a cheaper product. To be honest, we would have been very surprised by any another outcome, as there is only a small selection of Bluetooth chipsets. Accordingly the receivers of many adapters should be identical.

The models upwards of 80 euro score additionally with better workmanship and more sophisticated features such as gold-plated RCA sockets. The fact that, in terms of sound, none of the devices can compete with a high-bit UPnP home network, allows a refreshingly unbiased view on Bluetooth technology, that allowed a consistently positive verdict: devices can be networked with each other at the touch of a button, and since

only one transmitter and one receiver are involved at a time, the interface is less abstract than a complex streaming network. This makes BT incredibly intuitive to use and, especially when it comes to „everyday listening“, the wireless standard is really fun. And the sound isn't thaaaat bad either: aptX in particular can ideally represent a large, vivid stage and works without any discoloration. The practical values are also convincing. All devices receive over distances of more than ten meters. Inside a room, the connection remains stable even if the adapter is hidden behind the HiFi system. However, BT remains completely unsuitable for cross-room networking.

OUR BT-FAVORITES



HECO ASCADA 2.0

Since 2014 the Ascada (around 500 Euro) has been a loyal companion to our editorial staff. Almost every Bluetooth portable of recent years has been linked to it at one point or another. It is aptX-able and can be conveniently adjusted via its accessible tone controls. It also has a USB DAC and the angled front makes it the perfect desk monitor.



KEF LS 50 WIRELESS

KEF's small LS 50 (around 2300 Euro) with its coax chassis is a precise monitor and has a deep, vivid stage representation. Besides LAN and WLAN, it also offers aptX Bluetooth and has been a lot of fun, especially with FiiO's excellent X5 III. It's the only active speaker to date that we have repeatedly controlled with BT in our listening rooms.



NAIM MU-SO

Naim's Mu-So (around 1150 Euro) hit us like a bomb back in 2015. With outstanding workmanship and a perfected design it enlivened the segment of the oversized table radio and has meanwhile found many imitators. Although they are capable of streaming, we tested them primarily with Airplay and Bluetooth. And with this large all-in-one system it sounds great, even via iOS portables. Certainly, this is primarily due to the Mu-So's DSPs: since the system has to rely on digital equalization, because of its specially arranged chassis, all input signals benefit as well from the sound polishing. In Germany we say "Allowed is what is liked" - and we liked it damn well.