WIIM AUDIO STREAMERS AND AMPLIFIERS

THE WIIM RANGE OF AUDIO STREAMERS AND AMPLIFIERS ARE NOW ON THE MARKET. STEPHEN DAWSON TAKES A LOOK AT THE RANGE TO SEE HOW THEY STACK UP.

I write about network audio streamers on page 38 of this magazine, breaking down how they work, what they do and how integrators can get the most out of them. Unfortunately, network audio streamers offering quality and usability suitable for decent stereo systems have tended to be unaffordable. But in recent months there's been a lot of buzz around a new name in the field: WiiM. Its products certainly are affordable, but are they any good?

As it happens, a few months ago my own – very expensive – network streamer broke. Since its repair time was uncertain (it's still not back, awaiting parts from overseas), I purchased a WiiM Pro to tide me over. It has served me extremely well in the months since. And then I was asked to review the full range of WiiM streamers – including the WiiM Amp, which has streaming built into it. So here we are.

WHAT ARE THEY?

A music streamer is a source device for an audio system that provides access to the wealth of online music. For somewhere between ten and twenty bucks a month, you can get a significant proportion of music recorded in recent decades.

The WiiM streamers support, as I write, nineteen services. The only obvious omission is anything from Apple. A less obvious one is the classical-music-only service IDAGIO.

In addition, all of these devices support Bluetooth – both input from a phone or tablet, or output to Bluetooth headphones or whatever. And they all support Apple AirPlay from your iPhone or iPad. And they all support DLNA for streaming sound from your network storage. And all but the WiiM Mini support Google Chromecast Audio.

You can link multiple units together for a multi-room system using the underlying LinkPlay architecture. This apparently works with a few other brands, although not ones with which I was familiar.

The three source device streamers offer both digital and analogue outputs. The puck-style WiiM Mini delivers optical digital via TOSLINK and analogue via a 3.5mm output. The two WiiM Pro models replace the 3.5mm output with proper stereo RCA plugs plus coax digital audio.

All three of the source devices also have analogue audio inputs and the two WiiM Pro models also each have an optical digital audio input. They are network-connected via WiFi or Ethernet, while the Mini is WiFi only.

The WiiM Mini is, as the name suggests, the smallest. And that's by a significant margin. It's like a round puck, 69mm in diameter. The WiiM Pro and the WiiM Pro Plus are identical to the eye, apart only from the model identifier on the underside. These are compact squares, around 140mm side to side, front to back, and 42mm tall.

So, what does the "Plus" get you over the "Pro"? Essentially, better analogue performance, plus an RF remote control (you can purchase a remote for the regular Pro, or for the Mini, for $39).

Like the Mini, the Pro uses the Burr-Brown PCM5121 DAC chip for its output. This has a rated signal-to-noise ratio of 106dB and WiiM specifies the THD+Noise level as -92dB, which is 16-bit level performance.

The Pro replaces this with an audiophile-level AKM "Velvetsound" 4493SEQ chip with a rated signal-to-noise ratio of 121dB. WiiM puts the THD+N at -113dB. The analogue inputs of the Mini and Pro are fixed at 48kHz sampling and 16 bits. For the Pro Plus, it is up to 192kHz and 24-bit, set in the WiiM Home app.

Those changes must have had significant internal implications because the Pro Plus is 30% heavier than the Pro.

The WiiM Amp is quite different. It's also square, but around 190mm per side, and 64mm tall. At the front is a volume control/push button combo. You do most of the control with the remote or the app. Inputs are RCA analogue stereo, optical digital, HDMI ARC, Ethernet or WiFi, Bluetooth and USB (ie, for a storage device). Output is analogue only: the gold-plated speaker terminals, plus a configurable subwoofer output.

The Amp uses an ESS 9018 K2M DAC chip and a Texas Instruments TPA3255 Class D amplifier chip. I see from the TI spec sheet that this is rated at up to 315W per channel in stereo model But that depends on the supply voltage, suitable heat management and so on, and in any case is for 4Ω and 10% THD. WiiM's specification is far more modest: two 60W into 8Ω, two 120W into 4Ω. Which, obviously, is more than adequate in the great majority of situations. Texas Instruments' sheet suggests that those outputs are available at well under 0.01% THD.

SPECIFICATIONS: WIIM AMP

INPUTS:	- Analogue stereo (RCA) - Optical digital audio - HDMI ARC - USB - Ethernet - WiFi - Bluetooth
OUTPUTS:	- 1 Subwoofer - 2 pairs speaker binding posts

ACCESSORIES

RCA to RCA analogue cable, Optical digital audio cable, Power lead, RF remote control

PHYSICAL

POWER:	2 60W, 8Ω; 2 120W, 4Ω
DIMENSIONS:	190 x 64 x 215mm
WEIGHT:	1.86kg

SPECIFICATIONS: WIIM PRO PLUS

INPUTS:	- Analogue stereo (RCA) - Optical digital audio - Ethernet - WiFi - Bluetooth
OUTPUTS:	- Analogue stereo (RCA) - Optical digital audio - Coaxial digital audio

ACCESSORIES

RCA to RCA analogue cable, Optical digital audio cable, USB mains adaptor, USB-A to USB-C cable, RF remote control

PHYSICAL

DIMENSIONS:	141 x 42 x 141mm
WEIGHT:	435g

SETTING UP

Let's walk through the setup for the WiiM Amp. The pairing and control are the same for all the products, so this example will suffice.

In my case, I first plugged the WiiM Amp into my computer loudspeakers – Dynaudio Emit 20 bookshelf speakers on IsoAcoustic desktop stands – and used as one source a desktop DAC which ➤

is connected to the computer via USB. Remember, the WiiM Amp does not offer USB Audio support. I did not connect to Ethernet, deciding to rely on WiFi.

I already had the WiiM Home app on my phone for setting up and using the WiiM Pro I'd purchased, so I fired it up. My phone is Android, but I set up the previous unit using an iPad and the process was pretty much the same.

The app instantly identified the amp and offered a "Set Up" button. I tapped it, and a minute later with no further intervention, the WiiM Amp was connected to my WiFi network. I think that if I hadn't previously set up a WiiM device, it would have asked me for permission first. A tap on "Next" and the app immediately started to download a firmware update to install in the unit. Its "Estimated time of completion" was six minutes. A circular logo on the app showed progress and the power light on the front of the unit flashed green.

The download was complete about three minutes in and the device automatically rebooted. And it was ready.

At that point, you can change the name of the unit, either selecting from a bunch of locations or typing in your own. The app then talks you through pairing the RF remote. You just hold down a couple of keys in the remote for two seconds, the app tells you that the remote has been found and asks you to press the "Pair" button, and the next thing I heard through my speakers was: "Remote is successfully paired."

Finally, you can decide whether you want to Enable Chromecast audio (this isn't available for the WiiM Mini) and whether you want it to "Work with Alexa". You can change all these things later using the Settings within the app.

And it was right to go. I went to play some TIDAL music – I had already set up the app for using it – but it turned out I had to log into TIDAL again for the WiiM Amp. I guess each device needs to be authorised for direct access to the TIDAL servers.

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There are two significant differences between setting up the WiiM Amp and the others. First is that you also have to select the output – analogue, optical or, where fitted, coaxial digital audio. Only one can be used at a time. This has confused some customers because a card was included with each unit explaining this. The WiiM Amp's output is limited to its speaker binding posts ... and the subwoofer.

The other is latency calibration. Again, this applies to the WiiM Pro, Pro Plus and Mini. A little microphone is built into each for this purpose. The reason is to allow each unit in a multiroom system to play in sync. The app warns that a tone will be played for thirty seconds. It wasn't very loud, seemed to last a shorter time and sounded like rainfall.

With the app you can – for each device – tweak the EQ, using a ten-band graphic equaliser or a four-position parametric equaliser. With the WiiM Pro Plus you can also set the filter characteristics for the DAC built into each unit (this capability is included in the AKM DAC).

Some audiophiles believe that they make an audible difference, and they typically prefer settings with "Slow" in their title. The most accurate setting is "Sharp Roll=Off Filter". I'd recommend leaving it in that setting. Whatever you do, don't use "Super Slow Roll-Off Filter (NOS)". This filter is no filter at all, and it allows significant amounts of ultrasonic noise into the output. Again, this mode is recommended by some reviewers, which automatically makes me doubt those reviewers.

The WiiM Amp adds subwoofer settings. If switched on, the subwoofer output is enabled. You can set the level and bass crossover. The latter not only sets the low-pass filter for the subwoofer output, it also high-pass filters the main speaker outputs. That's a relatively uncommon feature, but very worthwhile since most small speakers will perform better if relieved of carrying bass below their capabilities.

The WiiM range of streamers gives integrators and end users a full range of connectivity options, passing on flexibility. The range can also connect with common voice assistants including Google Home and Amazon Alexa.

IN USE

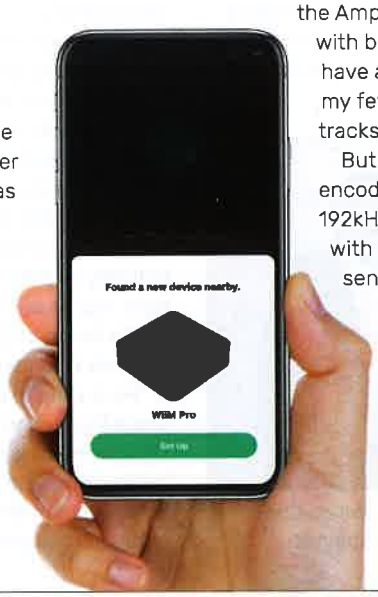
For me, there's one potentially disqualifying matter with network audio streamers. Is the network experience smooth? No one should have to go bug hunting when all you want to do is listen to some music. It kind of spoils the mood. So, with the WiiM gear? The usability was simply brilliant. The WiiM Home app – I used it both on an Android phone and an iPad – worked pretty much perfectly. It wasn't just during setup but throughout extensive use. Not once was there a wobble. All the devices were found within seconds of it starting up. They could be grouped easily and quite intuitively or made independent again.

Since I'm talking grouping, all but the Mini are highly groupable with other systems including Echo devices and Google Nest devices. I checked out the latter. You do it through the Google Home app (which is far less intuitive) and it works, but only using Google's facilities. The Google grouping doesn't work within the superior WiiM Home app.

I'd been using my own WiiM Pro via its coaxial digital audio output plugged into a high-quality DAC, so I wasn't at all familiar with its sound. So, I connected the three WiiM source devices via a switch box to the analogue input of the WiiM amp, which I used to drive my desktop Dynaudio Emit 20 speakers, which I use as near-field monitors. I normally drive them with a Class A/B 100W per channel analogue power amplifier.

It turned out that all found devices sounded excellent. Perhaps the less impressive noise performance of the two cheaper devices might be audible in some circumstances, with some content, but even at rather high listening levels, it was far from apparent in my setup, and even with the close monitors quite capable of revealing absolutely everything, noise levels of below -90dB is typically inaudible. That's CD-level noise.

That said, for a high-quality analogue sound system, I'd suggest going for the WiiM Pro Plus. It offers industry-best sound, yet doesn't cost all that much more than the Pro. The standard WiiM Pro would be a good choice if you don't need the remote and are planning on using an external DAC.



With the WiiM Home App, users can tweak the equaliser using a ten-band graphic equaliser or a four-position parametric equaliser.

With the analogue outputs, all three sources have a volume level adjustment via the app, the remote (if you have one) or touch controls on the units themselves. I mostly used them with the output set to fix in the app since the WiiM Amp was controlling the level.

Surely, I've got to find something to whinge about. Let me see. Um... It would be nice if the two units – the Pro Plus and the Amp – with remotes came with batteries. Also, I didn't have any success playing my few Direct Stream Digital tracks.

But all my other music encoded at up to 24 bits and 192kHz sampling worked well with all four devices. The sense online is that WiiM is frequently improving the firmware of these devices, so it may add DSD support at some point... but only for the Pro Plus and the Amp. It doesn't look like the Burr Brown PCM5121 supports DSD.

As for the WiiM Amp, I also gave it a whirl with my other speakers, Dynaudio Contour 20i stand-mounted speakers. These are low in sensitivity and impedance (4Ω), and the WiiM Amp ran them very nicely, with no stress whatsoever, and good control of the bass. If it can manage those, it ought to be fine with all but the weirdest loudspeakers.

That said, I would have liked a bit more gain in the WiiM Amp. Whether from the TV via HDMI ARC, streaming from TIDAL or my Network Attached Storage, I could comfortably turn the volume on the Amp to the maximum with those speakers. The result was nicely loud, but the speakers could handle a lot more and go quite a bit louder. There is a volume limiter in the app – of course, I had it set to 100% – so people with more efficient loudspeakers can knock that down for safety.

CONCLUSION

In fact, all four of the WiiM devices worked extremely well, the app was a delight and there were no wobbles at all in operation. Now, with all that, check out the prices. I don't see anything approaching the WiiM system for value for money.

Manufacturer:
WiiM
Distributed by:
Radio Parts