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If you have been reading APH Networks for a while, usually, we start off a review with a story, a joke, or a narrative of some sort. Yes, there are a number of unorthodox exceptions, notably in the introductions of the QNAP TS-419P II and Tt eSPORTS Meka G-Unit reviews, but those are far and few in between. Some people may wonder why we start reviews in this manner -- instead of cutting to the chase, which is a fair point -- but at least we make our articles interesting to read, you know? Now, before you go "yo dawg..." about me writing a review introduction about writing review introductions, I just want to point out instead of going the usual route, let us talk about the shipping method used to get the Audioengine HD6 to our door. About a month ago, on a sunny Friday afternoon, I got a notice on my door for a delivery from "ATS Healthcare". If you go on their website, the company states they are "the largest, most reputable provider in Canada's temperature controlled healthcare transportation industry". At first, I thought they probably found the wrong place to deliver a dog or some medical equipment, so I did not give it much thought. When I called them on Monday about the shipment, I found out it was actually our sample for today's review. Needless to say, I was surprised. Why would they use a healthcare transportation company to ship a pair of speakers? When I told my colleague Aaron Lai about this, he told me it made sense, because judging from our experience on the past, products from Audioengine are really healthcare products used to cure people from Heats prescribed by Dr. Grey, or whatever it is called. With the latest flagship speakers from renowned manufacturer Audioengine in our hands for the last month or so, have we found the best antidote for people suffering from poor computer audio equipment? Well, we got the lab results for you.

As I have mentioned in the introduction, our review unit of the Audioengine HD6 came in quite a big and hefty brown corrugated cardboard box from Atlantia, a large national distributor of technology products in Vancouver, BC who handles Audioengine's account here in Canada. Vancouver is pretty famous for street pharmaceuticals, and I heard there is a high concentration of street pharmacists on East Hastings, which is located just across the harbor from Atlantia's offices. Now, I am not interested in those kind of stuff, and I would much rather try out the Audioengine HD6 to cure any sickness I may have. This could not have been done without ATS Healthcare getting my equipment safely delivered one province over to us here in Calgary, Alberta for our evaluation today, and of course, they have done their job well.

As you can see in our photo above, Audioengine kept the packaging simple. Its retail box doubles as the shipping box, which is not a bad idea, considering the size of the package. All you will get is Audioengine's logo and website at top left corner, and the model on a band along the bottom. On other sides, you will see some regulatory logos, region for the power cable, and a color checkbox. Our particular model is the Cherry Wood Veneer version. This is it. It is double boxed for extra protection, but the inside box is completely plain.

Before we move on, let us take a look at the specifications of the Audioengine HD6, as obtained from the manufacturer's website:

Hardware specifications
Speaker type: 2.0 powered bookshelf-style speaker system featuring wireless and digital optical inputs
Power output: 150W peak power total (50W RMS, 75W peak per channel)
Inputs: 3.5mm mini-jack, RCA L/R, digital optical (SPDIF,) Bluetooth aptX
Outputs: Variable line-out w/2.0V RMS max output, 47ohm output impedance
Input voltages: 115/240V, 50/60Hz manually-switchable
Amplifier type: Analog dual-class A/B monolithic
Drivers: 5.5" Kevlar woofers, 1" silk dome tweeters
SNR: >95dB (typical A-weighted)
THD+N: <0.05% at all power settings
Crosstalk: -50dB
Frequency response: 50Hz-22kHz ±1.5dB
Analog input impedance: 48Kohms unbalanced (mini-jack and RCA inputs)
Protection: Output current limiting, thermal over-temperature, power on/off transient protection, replaceable external main fuse

Bluetooth specifications
Internal D/A converter: AKM AK4396
Input bit depth: 24-bits upsampled
Bluetooth receiver type: Bluetooth 4.0 audio
Supported codecs: aptX, AAC, SBC
Wireless operation range: Up to 100ft (30m) typical
Input data rate: Determined by Bluetooth
Wireless latency: ~30 milliseconds (ms)

Optical specifications
Internal D/A converter: AKM AK4396
Input bit depth: up to 24-bits native
Input data rate: up to 192KS/s native

Speaker dimensions (HxWxD)
Left speaker (powered)
Dimensions: 11.75" (30cm) x 7.25" (18.5cm) x 10" (25cm)
Weight: 17.5 lbs (8kg)
Right speaker (passive)
Dimensions: 11.75" (30cm) x 7.25" (18.5cm) x 10" (25cm)
Weight: 12.5 lbs (5.5kg)
Shipping box
Dimensions: 17" (43cm) x 20" (51cm) x 15" (38cm)
Total weight: 33.5 lbs (15kg)

Power consumption
Idle: 10W
Mute: 6W
Sleep: 4W

Environmental requirements
Operating temperature: 32° to 95°F
Non-operating temperature: -4° to 113°F
Relative humidity: 5% to 95% non-condensing

Out of the box, you will receive everything you need to get you started. In addition to the Styrofoam brackets, you will find both speakers and cables all come in their separate reusable microfiber drawstring bag. I think the way a product is packaged is a statement in itself to the end user, and my experience with stuff from Audioengine in the past -- namely, the A2+ and B2 -- is the company makes its products with no expenses spared. We will dig into that more in the hardware inspection on the next page, but for now, here is a list of what you will receive in addition to the Audioengine HD6 speakers itself:

- Remote control
- Antenna
- Speaker wire (16AWG), 4 meters (~13ft)
- Power cable
- Mini-jack audio cable, 2 meters (~6.5 feet)
- RCA audio cable, 2 meters (~6.5 feet)
- Microfiber speaker bags
- Microfiber cable bag
- Quickstart guide
- Product line brochure

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Page 2 - Physical Look - Hardware

If you are planning to put the Audioengine HD6 on your desk, then you better have a pretty large desk. Simply put, the Audioengine HD6 is huge. At specified dimensions of 30cm tall, 18.5cm wide, and 25cm deep, you know these bookshelf style speakers are not made for the common man by sheer size alone. It is even bigger than the A5+. If you are looking for something a little smaller that fits well on your desk, look out for the A2+ instead. Meanwhile, our particular unit came in a flawless Cherry Wood Veneer finish, but if you want, you can get it in Satin Black Paint or Walnut Wood Veneer as well. In my opinion, the HD6 looks simple yet elegant, and aptly looks the part as a piece of premium audio equipment. I am also happy to see detachable speaker grilles are included. They are held on magnetically, and automatically align themselves in place like magic when put on. Of course, we can never judge acoustics by the way it looks, so let us talk about its internal construction.

From the front, both the left and right speakers look nearly identical. At the bottom is a 5.5" Kevlar woven glass aramid composite woofers with rubber surrounds in die cast aluminum woofer baskets, and at the top is a 1" ferro fluid cooled silk dome tweeter with neodymium magnets. Together, their frequency response is rated at 50Hz-22kHz ±1.5dB, and unlike its predecessor, the A5+, you can expect nearly flat studio-like response all the way down to 50Hz. We will talk about that in our evaluation on the next page. The use of high end materials for construction allows reduced distortion at high volumes. Signal to noise ratio is specified at >95dB, THD+N at <0.05%, and -50dB stereo crosstalk. At the bottom, Audioengine's logo is printed on a brushed aluminum metal piece. A volume control knob is located on the left speaker, which can be turned infinitely in both directions, being active only when the internal amplifier is turned on. A white LED is situated behind a shiny ventilated cover on the opposite end of the volume control knob, where an infrared receiver for the remote control is also located.

Here is a shot at the back of the Audioengine HD6 powered desktop speakers. By "powered", it means it comes with an internal amplifier. What we have here is a dual class AB monolithic amplifier located inside the left speaker that provides 50W RMS and 75W peak per channel. As such, the left speaker weighs -- shown in the right, as you can see in our photo above -- an extra five pounds more than the right; where Audioengine specifies a weight of 17.5lbs and 12.5lbs, respectively. A bass reflect port opening slit can be seen at the top. Power is supplied by an internal power supply with low noise gapless core toroidal transformers. A large black heatsink is used to dissipate the extra heat into the air. Here, you will also find a rocker style switch to turn off the power supply off, voltage selection switch to choose between 120V or 240V, as well as a user replaceable external main fuse.

As you can see in our photo above, Audioengine offers an extremely generous array of input and output connectors on the HD6. The company advertises it as their "most versatile speaker yet", and I have no reason to doubt this claim. On the input side, we have a 3.5mm stereo mini-jack, S/PDIF optical, and RCA. For my particular setup, I used the 3.5mm stereo mini-jack for input from my personal computer, since I have a Auzentech X-Fi HomeTheater HD sound card. The optical input is hooked up to my cable box, which I occasionally use. Like most powered computer speakers with multiple inputs I have used in the past, if multiple sources are active, the Audioengine HD6 will simply mix the signals together, and output both. The Audioengine HD6 also features stereo line level output via a pair of RCA jacks. This allows you to send audio to other speakers using an optional wireless adapter. For most people, it will probably be used for a subwoofer, which I have done so in my setup.

On the wireless side, Bluetooth operation depends on an external antenna, which you can see in our photo above. Personally, I find it a bit unsightly, considering it is quite easy to implement an internal antenna nowadays. However, having something like this has its advantages. For one thing, the HD6's wireless range is incredible. I can plug in my speakers on the second floor of my house, and still have reception from my phone in the basement... at the opposite side of the house. I do not believe this is an entirely realistic scenario, but a strong wireless subsystem will allow for higher consistency and more bandwidth, which in turn may translate to better sound quality and improved user experience.

To start, simply hit the white LED button labeled "Pair". Protocols supported over Bluetooth include aptX, AAC, and SBC. SBC, or Subband Coding, is the default Bluetooth audio codec with reasonably good audio quality and low processing power requirements. aptX is a time domain ADPCM compression algorithm that promises "CD like quality" according to the people promoting it -- but so does MP3 at 128kbps, which, in my opinion, is quite an overused marketing term in the industry. Do not get me wrong; it is probably still an improvement compared to the standard profile, since it has a more efficient encoding algorithm and higher bitrates. In case you are asking, Apple devices does not support aptX, but many high end Android devices do, like my Nexus 9. Fortunately, for Apple users, the HD6 supports AAC as well, which communicates at about 250kbps from the source. In case something new comes along in the future, Audioengine advertises an upgrade path for the HD6, so its wireless capabilities will not become obsolete down the road.

Inside, the digital to analog converter is an Asahi Kasei Microdevices AK4396 that can sample at up to 24-bit, 192kHz with upsampling support. This is a very famous chip among audio enthusiasts known as the "miracle DAC". With all its digital input options -- namely, Bluetooth and optical -- a quality DAC is the key to success. Most people do not own external DACs or have anything more than integrated sound from their motherboard, and having an AK4396 inside will allow you to digitally connect your devices to your HD6 without worrying about bottlenecking the potential of your $750 speakers.

If you are familiar with home theater equipment, then the speaker connectors from the powered left speaker to the passive right speaker should not be new to you. In fact, the Audioengine HD6+ uses standard 16AWG speaker wires to connect the left and right unit together. The included cable is four meters long, which should be more than enough for most people. To add a bit of classiness in a no expenses spared style, banana jacks installed on both ends of the speaker cable.

The Audioengine HD6 is built with 20mm thick, high resin reinforced MDF cabinets. Internal sound dampening material is implemented to reduce undesired internal sound reflections. The speakers are also magnetically shielded; while non-magnetically shielded speakers will definitely not fry your hard drives anytime soon, it is something nice to have, especially being computer speakers. (Just for reference, if you ever want to damage any hard drives using magnets, you will need pretty much military grade stuff.) Our photo above shows the bottom of the HD6, which has a thin layer of foam to dampen it from the surface it resides on. This is most likely your wooden or glass desk, which can be very useful. A standard 1/4" insert is present for wall mounts.

Audioengine also includes a remote control to go with the HD6. It is a stylish rectangular piece cast with a single piece of aluminum; if you are thinking Apple, you are not too far off. It is one of those things where you hold and go like, "How the heck do I replace the battery?" Fortunately, a paperclip hole at the back allows you to disassemble the unit where the black piece is to do a battery swap. The remote control itself is relatively simple. It has only four buttons: Two for controlling the volume, one for mute, and one for standby. Using mute or standby will both fade out your music if they are playing at the time you depress the button, and send the white power indicator LED in front to fade in and out. If you are a little perplexed as to the difference between mute and standby, as they appear to do the exact same thing, it really comes down to power consumption. Mute simply turns the volume all the way down, and your HD6 is still using 6W of power. Standby shuts down a few items, probably the amplifier, which reduces your power consumption down to 4W according to Audioengine.

With all this in mind, it is now time to put the Audioengine HD6 through APH Networks' infamous subjective audio tests.

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Page 3 - Subjective Audio Analysis

This is not my actual test setup, but putting the Audioengine HD6 beside a MacBook Pro makes everything look classy.

Reviewing audio devices require extensively trained ears and lots of experience. Even for audiophiles, it may prove challenging at times to obtain an accurate evaluation of a product without a thoroughly familiar product to use as a simultaneous reference. While I am not going to even try to claim that I am the only trustworthy or best reviewer for sound, it is fact that most computer review sites have editors who are insufficiently trained in reviewing audio equipment. Give them practically anything and all you will read about goes along the line of "good bass, nice midrange, awesome treble, really clear sound, 10/10". While there are many knowledgeable audio reviewers at various respected online media outlets, they are by far the minority.

As I have mentioned in my past audio reviews, there are really no true objective measurements for speaker sound quality. As the reviewer, however, I will put it through a series of subjective tests to try to come up with the most objective rating possible (Yes, it is quite a paradox haha). On the wired, analog side, tests were conducted primarily with the Auzentech X-Fi HomeTheater HD sound card (Creative CA20K2 DSP/APU, National Semiconductor LME49720NA OpAmp, JRC NJM4580 signal buffers, Cirrus Logic CS4382A DAC, Nichon MUSE ES capacitors). For Bluetooth wireless and digital tests, I mainly used a HTC Google Nexus 9 for its aptX support. These are some of the best consumer sound equipment out there in the market today, and will reduce its potential to be a limiting factor in our auditioning.

After over 170 hours of break-in time -- well above typically required period -- we put the Audioengine HD6 to the tests. All tracks were uncompressed CDs, FLAC, or LAME encoded MP3s at 192kbps or higher.

In the most un-audiophile way possible, let me first start off with the power of these speakers. I am not the kind of guy who goes like, "These speakers are loud! They must be good!" but I am rather impressed by its ability to fill a medium sized room. But having the ability to fill a medium sized room is not the most impressive thing about the HD6. The ability to fill a medium sized room with quality sound is. And where do I start? The Audioengine HD6 is amazing. Amazing in pretty much every way possible. I do not think this should come at a surprise, considering the magic the company is known for based on our experience with their products in the past, but let me tell you exactly why.

There are many reasons why the Audioengine HD6 is amazing. Without first going through the "big three" -- bass, midrange, and treble -- I will have to start with soundstaging. Soundstaging is contributed by many factors, from the treble performance to the amount of air its woofer moves, but whatever the factors are, the final result is mind bogglingly good. You know something is outstanding when it does not take an audiophile to identify it, and even amateurs can tell within the first ten seconds. When I let a few people try out the HD6, they told me it sounded like they were totally immersed in the music, because they felt like it had depth and perception like nothing else they have heard -- and I was only using my MacBook Pro as the audio source during those demonstrations. Indeed, its soundstaging is super wide. These speakers sound way bigger than they physically are. You do not even need to close your eyes to perceives the incredible depth and direction the Audioengine HD6 produces. Needless to say, I am impressed.

Moving on to the "big three", let me first clarify on some expectations. The fact is, even though you can reliably move quite a bit of air with its 5.5" Kevlar woven glass aramid composite woofers with rubber surrounds in die cast aluminum woofer baskets, the Audioengine HD6 is not a subwoofer. If you want to completely fill the low end, you will need big drivers to move lots of air. There is no way around physics. That said, I did a frequency sweep on these speakers, and there is almost flat response down to 50Hz -- exactly what its specifications suggest. It drops off quickly past this point, but you can still hear things reasonably clearly down to 30Hz. I do not believe it is unreasonable to expect owners of the HD6 to buy their own subwoofer, which is exactly what I have done. A low pass filter set at around 60Hz is probably a good idea, and there are many great high quality subwoofers in the market that will go well Audioengine's flagship speakers.

When it comes to the bass, as I have just said, there is no way around physics, and I am very happy with the way Audioengine's engineers tuned the HD6. Sometimes, for speaker manufacturers to try to hide limitations of their design, they will overdrive certain frequencies, resulting in disastrous effects. Audioengine did not attempt make those 5.5" woofers work harder than it should at low frequencies, which is excellent. Going as low as 50Hz, during my frequency sweep, I actually had to check if I turned my subwoofer off, because it was surprisingly good into the mid-bass. For the amount of bass you do get, it is solid smooth, defined, round and fairly articulate. It is neither deep nor punchy, so in order to fill your room, you will definitely want a subwoofer. $500 will get you something pretty amazing nowadays, and since you are paying $750 for these speakers anyway, what is another $500 to burn? That said, if you are not big into bass, you can probably get away without a subwoofer.

The Audioengine HD6 continues to shines through in its midrange and treble performance, which is what they are really designed to do. As far as the midrange is concerned, I do not know a term better than what I frequently see in the tomato sauce section of my local supermarket, and that is, "thick and rich" -- just like the A2+, except better. The entire presentation is very natural and warm; perfectly saturated throughout the entire range, with no missing bars. The first time I heard it, I was absolutely immersed by its brilliant performance. The vocals were incredible. The instruments were incredible. It was just an incredible experience. For its treble, I have great things to say about it, too. It carries almost all the characteristics of what makes good treble sound good, and that is sharp, distinct, and wet. At the same time, it has balanced brightness. Furthermore, it is immediate and high with perfect smoothness across the range. The Audioengine HD6 literally hits every note perfectly, and is pleasant to listen to all the time.

Once you start listening for the auxiliary details, you can definitely hear the way the Audioengine HD6 is tuned as a pair from the factory. The sound is imaged precisely to the center. If you close your eyes while firing up the music, a ghost center speaker will appear. Now, this is not an entirely realistic reproduction, but this center image does not come at the expense of soundstaging, making the experience very enjoyable. Its practically studio monitor like frequency response -- flat for all intents and purposes -- is a true winner for audio purists.

I am extremely impressed by amount of precision and detail the Audioengine HD6 is able to reproduce. The layering comes in at a very detailed resolution, yet each frequency layer is distinct and extremely well separated. If there is a better word for "clean" that roughly carries the meaning of "super-duper clean", I would use that word. At the same time, the transition between each layer is smooth and cohesive, making everything sound very harmonized and immersive to the listener. There is no missing detail with the HD6 -- not a single one. Its clarity is simply flawless.

On the digital side of things, the AKM AK4396 "miracle DAC" works its magic inside the Audioengine HD6. If you connect your speakers directly to your source via an optical cable, rest be assured you are not missing out much -- if at all -- compared to having a premium sound card in your computer like me. Even if you are going over Bluetooth, my aptX compatible Nexus 9 tablet streamed music with excellent quality without wires. You would be hard pressed to tell the difference, and even though there indeed is compared to my Auzentech X-Fi HomeTheater HD, I had to really listen carefully to tell. All in all, the Audioengine HD6's entire digital subsystem is excellent; whether you are connecting with or without wires.

The Audioengine HD6 are big speakers. But they are big on everything else, too. It is big on sound and big on performance. Even non-discerning amateurs can tell how good they are right off the bat. To the discerning audiophile, the Audioengine HD6 simply produces heavenly sound.

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Page 4 - Conclusion

When it comes to car engines, it has often been said there is no replacement for displacement. In the speaker world, I have to say there is no substitution for size, either. Sure, there are small speakers that sound good, like the Audioengine A2+. But when it comes to something that can go without compromise, it will have to come in certain dimensions. Engineering can allow you to make the most out of physics, but making the most out of it does not mean you can break it. With the Audioengine HD6, they simply sound amazing. Amazing enough to even make non-audiophiles take a second look. With its 5.5" Kevlar woven glass aramid composite woofers and 1" ferro fluid cooled silk dome tweeter in a 30cm tall, 18.5cm wide, and 25cm deep enclosure, they are probably a bit too big to be classified as desktop computer speakers, and if there are any drawbacks to the HD6, this will have to be pretty much the only one. I mean, you better have a pretty big desk to accommodate the HD6. It certainly does not fit on mine, which is rather unfortunate, even though I already have my pair monitors hanging on a SilverStone ARM Two SST-ARM22SC. But if you have a big desk, then all power to you, because Audioengine's latest flagship is probably the best money can buy in its class. Its flawless construction and finish, all with an intricate attention to detail, makes it fit right in with any premium equipment configuration. This, along with its classical, inoffensive design, allow it to be a welcomed addition everywhere. Everything just feels high end from the moment you take it out of the box. From its super versatile input selection to a convenient and good looking remote control, the Audioengine HD6 has it all -- whether you plan on having it on your desk or in your living room, listening to a source with or without wires. For $750, the performance and features you get is a steal. This is no exaggeration. Pick up a good subwoofer, and you can quote me on this: The Audioengine HD6 is the best antidote for people suffering from poor computer audio equipment for the price. Or any poor audio equipment, really.

Atlantia provided this product to APH Networks for the purpose of evaluation.

APH Recommended Award | APH **Review Focus** Summary:
9/10 means *Excellent product with very minor drawbacks that do not affect the overall product.*
8/10 means *Definitely a very good product with drawbacks that are not likely going to matter to the end user.*

-- Final APH Numeric Rating is **8.4/10**
Please note that the APH Numeric Rating system is based off our proprietary guidelines in the Review Focus, and should not be compared to other sites.

If heaven is installing a new sound system, they will be getting the Audioengine HD6.

Do you have any comments or questions about the Audioengine HD6? Drop by our **Forums**. Registration is free, and it only takes a minute!

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