

# The DPA d:vice MMA-A Mobile Recording Interface

DPA has debuted an accessory called the d:vice MMA-A, which is meant to allow users to plug the d:vote mics into an iOS device, providing both an interface and phantom voltage. Stuart Yaniger tests it out and gives us his opinion.

By  
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(United States)

Not so long ago, serious field recording meant much lifting and carrying of heavy objects, lots of searching for power sources (or carrying even more weight), and in the case of video recording or television/radio production, the need for at least two people. Like everything else, field recording has been completely transformed. My current audio recording gear, which comprises a laptop, a stereo microphone, a USB interface, and associated cabling, fits into a medium-sized attaché case and might weight 4 or 5 kg. There's likely an audio equivalent to Moore's Law, and as one would expect, the next step involves the little audio and video recorders that everyone carries around with them these days. Like most people's, mine is an iPhone.

The improvements in the camera and optics of smartphones get the most attention, but most readers of *audioXpress* are also quite aware of the great sound capabilities of the current generation of these devices. But there are limitations, and those include the built-in microphones (generally very cheap electret or MEMS) and form factor of the phone, which determines the microphones' acoustic environment. So we sometimes (ok, often) see well-shot videos, but they have poor sound.

Some videographers and musicians will use a separate microphone that plugs into the smartphone—in the case of iPhones, this is a Lightning connector. There are a lot of choices here at the inexpensive end of the market, but not nearly as many high-quality professional-grade microphones.

I recently reviewed the DPA d:vote 4099 microphone (see Resources), which had the virtues of high directionality, low



distortion, rugged construction, and ultra-light weight. This would seem to be a perfect sort of device for use with a smartphone, and DPA has a wide range of high-quality mics optimized for different applications. But of course, one still needs a way to plug it into a Lightning or microUSB port (depending on one's use of Apple or Android) and control the recording.

## The Product

Recognizing this need, DPA has debuted an accessory called the d:vice MMA-A. The MMA-A is meant to allow the d:vote mics to plug into an iOS device, providing both an interface and phantom voltage. There are two input channels and no analog output. According to René Mørch, the product manager for DPA, "The MMA-A Digital Audio Interface was designed with broadcasters and mobile journalists in mind, but can also be used by other content makers for recording music, filming on location, and during both live and recorded broadcasts. With this interface, users can portably record and stream clear and professional audio from the connected microphones."

The MMA-A is about the size and shape of an Oreo cookie (see **Photo 1**), and has absolutely no controls on it, just two inputs and a microUSB port (see **Photo 2**). DPA's proprietary input interface is called MicroDot. The MicroDot system provides the DPA microphones with phantom voltage (strictly speaking, the interface is a constant current one, similar to the system used for measurement mics, see the article in Resources) and receives the analog signal from the mic (see **Photo 3**). The connector is a miniature screw-on coaxial, and DPA provides adapters for connecting a MicroDot microphone to conventional XLR balanced inputs, which is how I've been using the 4099 mic. With the MMA-A, the DPA mic just connects directly via its MicroDot plug—and that's the only connection option.

There's also a microUSB port for connection to the recording device, along with provided cables to connect either to a Lightning port or a USB port. Connection to my iPhone was painless (see **Photo 4**). This seems obvious, but at the same time that I had the MMA-A, I also had on hand another iOS-compatible interface, this one from CEntrance, the MixerFace 4, which (although more versatile than the MMA-A) was very picky about which USB-to-Lightning cables were used. For example, if I used the MMA-A's cable or any other third-party microUSB to Lightning cable, the iPhone would not recognize the MixerFace. I had no such problems with the MMA-A and my iPhone, regardless of cables and adapters- this could be



Photo 1: The DPA d:vice MMA-A microphone interface is compact and is equipped with no physical controls.



Photo 2: The MMA-A has two MicroDot inputs and connects to iOS devices via a microUSB port.



Photo 3: The MicroDot system provides the DPA microphones with phantom voltage and receives the analog signal from the mic.

critical in situations where a longer connecting cable might be needed.

Input level and some equalization options are all controlled by a free iOS app called, fittingly, “d:vice.” This app allows you to choose channel assignments, set levels, and apply an 80 Hz second-order low-cut filter (see **Figure 1**). Once your mic and interface are configured as you want it, the lock button freezes the selections, and you can begin by opening your recording software. One other thing to note is that if you are using a single mic, the MMA-A will put out a mono signal on both channels

unless you manipulate the settings to limit it to a single channel. 99% of the time, their default will be preferable.

As befits an interface intended for professional field recording, the MMA-A is packaged in rugged fitted foam carrying case (see **Photo 5**), but it is small enough to be just dropped into a pocket if space and weight are at a premium—the rounded disk shape means that it won’t poke holes in pockets, for which I was grateful in field use, and it’s solid enough that the jostling around won’t break it. The price for the MMA-A is about \$660, including the case and cables. This is not inexpensive, but it is intended to be used with DPA’s top-grade mics, which are likewise priced (and designed) with professional use in mind.



Photo 4: Connection to my iPhone was painless.



Photo 5: DPA provides a rugged foam-lined case for the MMA-A’s transport. (Photo courtesy of Cynthia Wenslow)

## The d:vice MMA-A in Use

First and foremost, it is important to note three major application limitations for the MMA-A: It is designed for iOS only (no drivers for Android or PC), it can only be used with DPA’s MicroDot

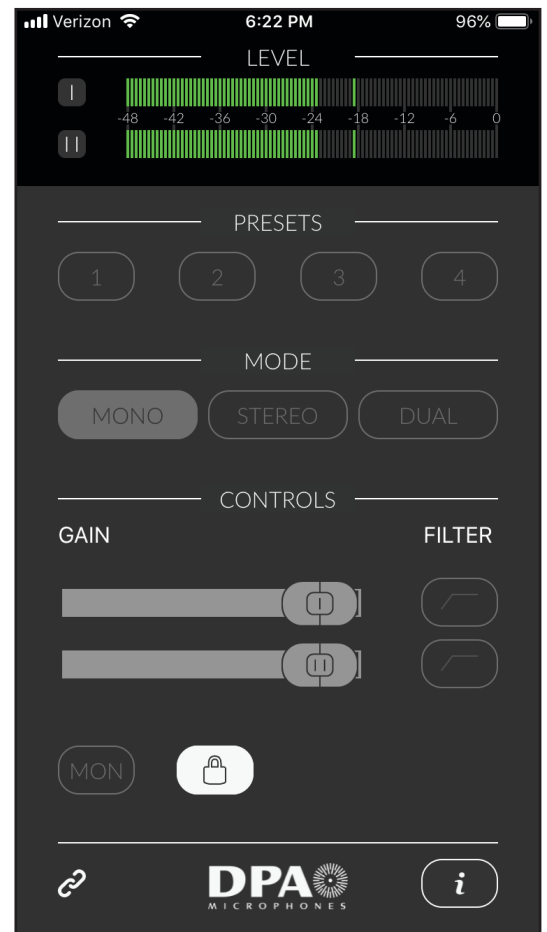


Figure 1: Operation mode and levels for the MMA-A are set by a free iOS app called d:vice.

mics (no other mics nor line inputs), and it has no output beyond the USB port. The first limitation should be qualified a bit—there is no PC or Android driver for the MMA-A, but a third-party ASIO driver could potentially be used. I tried this with ASIO4ALL and got rather mixed results. My usual recording software is Adobe Audition, but I could not get the MMA-A plugged into my PC to work at all with it. As I will show in the measurements section, ASIO4ALL and the MMA-A may not be a match made in heaven.

Turning to the actual intended use, I purchased a copy of the n-Track Studio app (one of the recording apps DPA recommends) for my iPhone 8, grabbed the d:vote 4099 mic I still had on hand after reviewing it, and plugged everything in (see **Photo 6**). And delightfully, it all worked right from the start.

I set levels with the d:vote app, locked them, then fired n-Track back up and made my first recording—in this case it was me brutalizing my guitar in an attempt to play Peter Mulvey’s “Sad, Sad, Sad, and Far Away From Home.” Between the clarity of the 4099 mic and the seamlessness of the interface, the playback revealed my poor picking and clumsy fingering in full detail. More importantly, the hiss was below the ambient noise in my room, which was also faithfully captured, although the highly directional character of the 4099 mic certainly helped here.

Next, I created a short video with sound, in this case a cooking video (my cooking is better than my guitar playing). For this, I bought a copy of the MoviePro app. As before, the MMA-A allowed the mic to interface seamlessly with the iPhone and the video software, and I was able to get a recording that sounded far, far better than ones made with the built-in iPhone mics. By contrast, getting the MoviePro app to recognize and interface with a competing (though more flexible) interface took a bit of wrestling and searching through Settings menus.

Unfortunately, for my next attempt, the limitations of the MMA-A proved insuperable. The n-Track app allows musicians (and hacks like me) to create multitracked performances. My intention was to track two guitars, a bass, and a flute, which should be relatively simple. This, however, proved infeasible because of the lack of outputs on the MMA-A. For the last few generations of iPhones, there is no separate headphone jack, and all connections go through the Lightning port. Apple provides an adapter to allow standard wired headphones to be plugged in, but that requires the Lightning port to be available. So with the MMA-A plugged in, there’s no way to connect wired headphones for monitoring.

There are a few possible solutions. First, one can use an older model of iPhone where the headphone jack still exists. However, if what you have



Photo 6: Connecting microphones to an iPhone through the MMA-A is simple and straightforward, creating a very portable and high quality recording system. (Photo courtesy of Cynthia Wenslow)

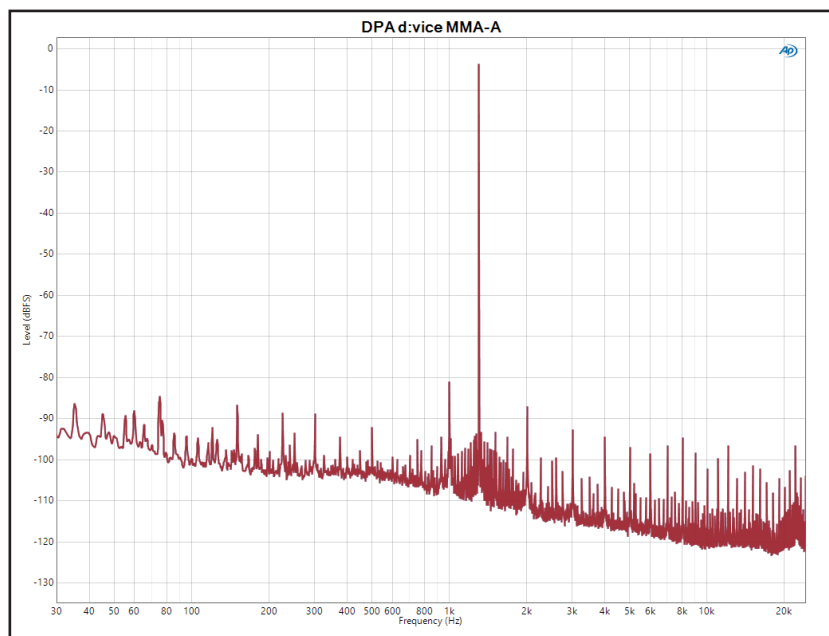


Figure 2: With the MMA-A connected to a PC through a USB port and a third-party ASIO driver, the MMA-A shows significant amounts of artifacts spaced at 1 kHz intervals.

### About the Author

Stuart Yaniger has been designing and building audio equipment for nearly half a century, and currently works as a technical director for a large industrial company. His professional research interests have spanned theoretical physics, electronics, chemistry, spectroscopy, aerospace, biology, and sensory science. One day, he will figure out what he would like to be when he grows up.

is an iPhone 8 or 10, it seems counterproductive to have to buy a separate phone for recording, not to mention the downgrade in the camera. As well, it is not exactly unknown for older iPhones to suddenly develop performance slowdowns as the operating systems are updated...

Another option is to use an Android device. This seemed appealing to me, given that, although I own an iPhone, I am very antipathetic to Apple's concept of an electronic ecosystem, and find simple tasks like file transfers to be overly clumsy and non-intuitive. Nonetheless, I tried using the MMA-A with a borrowed Android phone. Without an Android driver, it proved

to be a much more difficult task than, say, using a more conventional interface. It is not an experience I would recommend, and lacking the ability to use the d:vice app, nothing ran optimally.

The option recommended by DPA was to replace my conventional headphones with Bluetooth. I borrowed a pair of Bluetooth headphones and indeed, I could play back tracks while recording. Unfortunately, latency was an issue—although the timing and precision of my playing are not exactly state-of-the-art, the latency made doing overdubs of even mediocre quality nearly impossible. All of this would be trivially easy if the MMA-A had either a headphone jack or line outputs.

In my communications with Mørch, he elaborated on DPA's decision to omit monitoring capabilities. Mørch pointed out that there was a 100 mA limit to current drawn through the Lightning port, that the MMA already drew close to that, and that consequently there was no current budget left to drive headphones. This may be true (I don't know if the current to the ADC or Lightning interface can be reduced), but surely a line out option would not draw much current and would allow "studio on the move" capabilities to touring musicians and people integrating voice with video.

## Measurements

This section will be a bit less comprehensive than usual, due to the practical iOS-only limitations of the MMA-A. This became clear when I ran the USB output to the lab PC that I use for Audio Precision measurements, injecting an analog signal into the MicroDot ports and using the ASIO4ALL driver to look at the output. **Figure 2** shows the spectrum of a 1.3 kHz sine wave obtained this way—there's a series of artifacts at 1 kHz intervals at a moderately high level, which obscures the rather low harmonic distortion results and reduces the measured dynamic range. Clearly, the MMA and PC do not play well together.

As a workaround, I connected the MMA-A to my iPhone 8, ran the analog signals from an Audio Precision APx525 analyzer to the mic inputs of the MMA-A, then used the n-Track app to record the signals. Then I would unplug the MMA-A, plug in Apple's headphone adapter, and play back the signal to be captured by the AP analyzer.

It's a rather clumsy way of doing things, with much plugging and unplugging needed for each measurement, and there's certainly room for error. However, in a world where iOS and Windows are sworn mortal enemies, peacekeeping missions are not going to be easy.

To check the capability of this setup, I ran some baseline tests by playing back some WAV files directly.

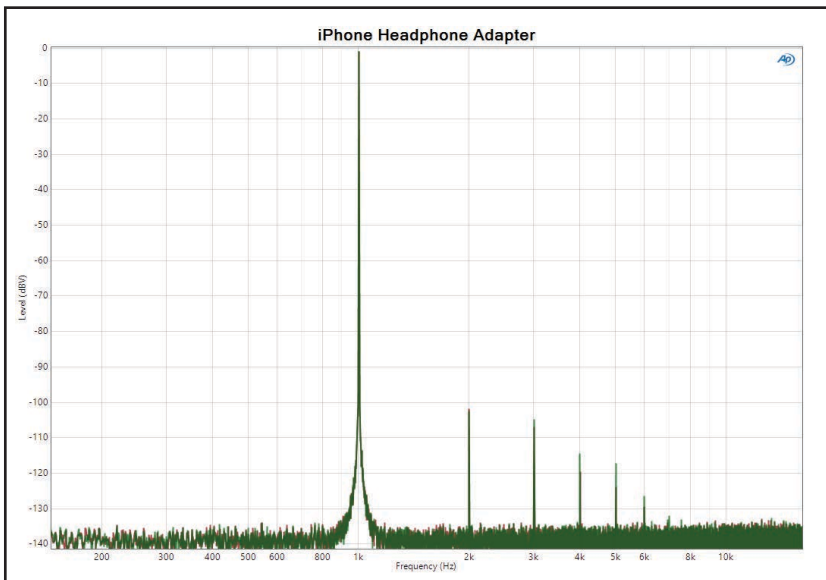


Figure 3: Playing back a WAV file of a generated sine wave through the iPhone's headphone adapter results in a very clean and low noise signal spectrum.

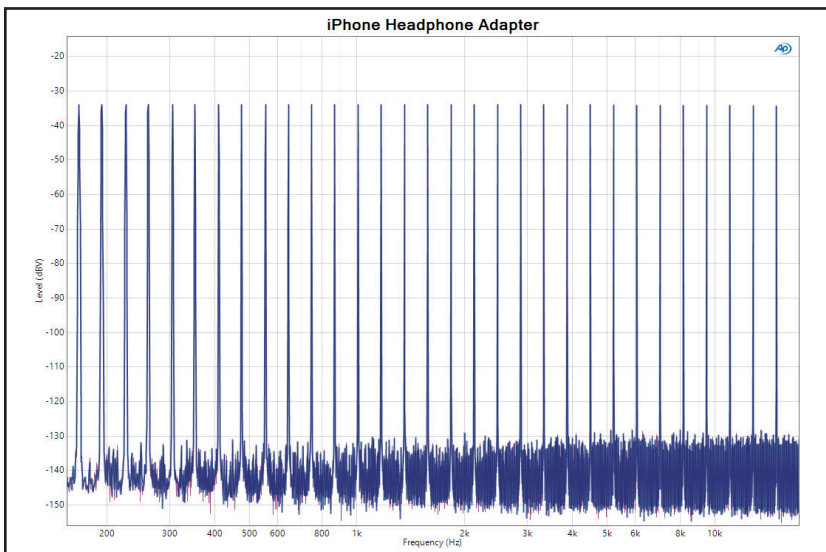


Figure 4: Using the same setup as shown in Figure 3, a generated multitoned WAV file playback shows an excellent spectrum.

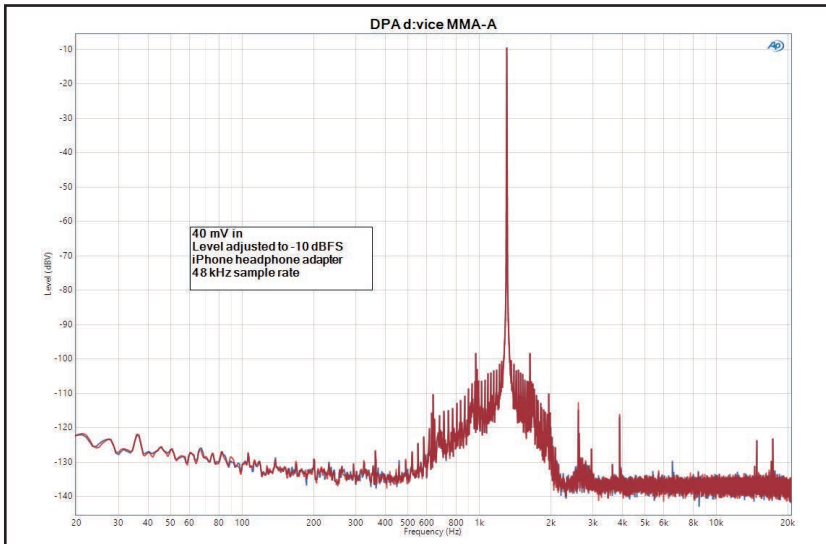


Figure 5: This is the spectrum of a 1.3 kHz sine wave recorded through the MMA-A and played back through the iPhone headphone adapter.

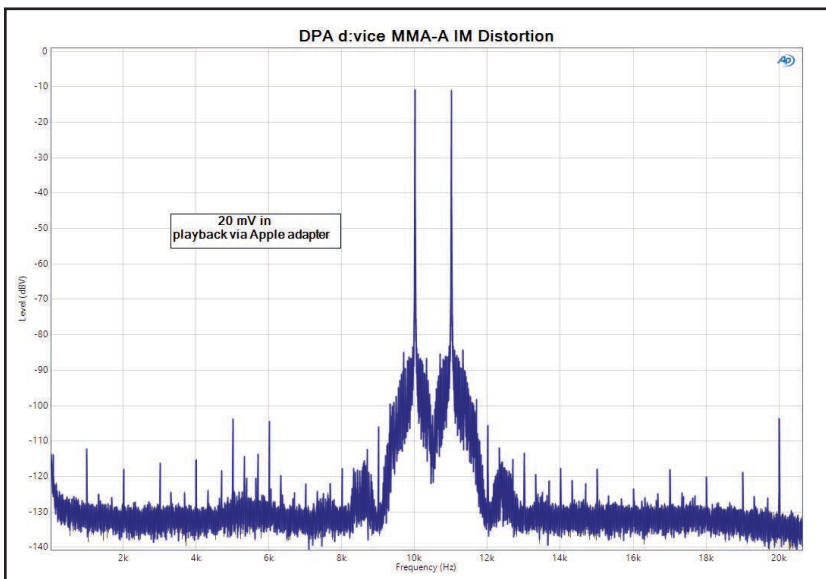


Figure 6: A 10/11 kHz intermodulation signal results in a low first-order intermodulation product, but higher (though still fairly small) levels of sidebands.

**Figure 3** and **Figure 4** show the spectra of a 1 kHz sine wave and a multitone signal, respectively. Although not the subject of this review, it's clear that the Lightning-to-headphone DAC and amplifier are remarkably good, especially considering the under \$10 price tag. This is making me rethink the need for anything fancier for music playback in my home audio system!

With the capabilities of this platform established, I moved on to the MMA-A measurements. First, a frequency response sweep confirmed that the MMA-A was flat above 40 Hz, with no signs of ripple at high frequencies. There was a very slight low frequency roll-off below that point, with 20 Hz being down by 0.5 dB. This suggests that the -3 dB point is below 10 Hz, a more than satisfactory result. I also checked the overload capabilities.

One of the advantages of a closed system such as the MMA-A with the MicroDot mics is that levels are well defined and will almost automatically match. With the MMA-A gain turned up to maximum, the overload point was at 40 mV in, which corresponds to about 110 dB SPL for the 4099 mic. With the gain turned down, the overload point rose proportionately, so the MMA will not be the determining factor for maximum SPL capability.

**Figure 5** shows the spectrum of a 1.3 kHz sine wave taken at -10 dBFS. The harmonic content is quite low, with second and third harmonics being well below -110 dBFS, but there are noticeable sidebands and a baseline spreading around the fundamental, which could indicate a slight jitter issue.

It should be noted that these artifacts are at roughly -100 dBFS and lower, so their audibility in most situations is questionable. Likewise, the spectrum of a two tone 10 kHz/11 kHz signal (see **Figure 6**) shows intermodulation products well below -100 dB, but the same spread and sidebands can be seen as before. Unlike the very versatile CEntrance MixerFace R4 I had for a short time, the ultrasonic range of the MMA is quite clean and free of significant artifacts.

## Resources

S. Yaniger, "Fresh From the Bench: DPA d:vote 4099 Instrument Microphone," *audioXpress*, February 2019.

S. Yaniger, "Innovative Measurement Microphones from PCB Piezotronics," *audioXpress*, December 2016.

## Sources

### DPA d:vice app

iTunes | <https://itunes.apple.com/gb/app/d-vice/id1182987675>

### MoviePro app

iTunes | <https://itunes.apple.com/us/app/moviepro-video-recorder/id547101144>

### n-Track Studio software

n-Track, S.r.l. | <https://ntrack.com/digital-audio-workstation.php>

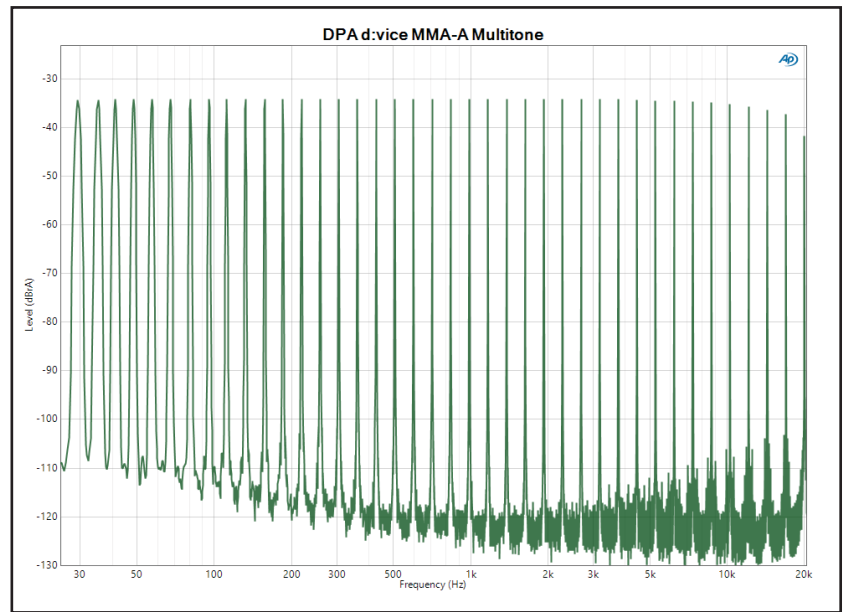
The spectrum of a multitone signal is shown in **Figure 7**; while not perfectly clean, the artifacts again are quite low in amplitude and would not be expected to cause audible issues. I should also mention that ultrasonic artifacts are similarly low, in contrast with the significant idle tones I've seen in other interfaces made for this application.

In summary, the measurements (with the caveat that there are some uncontrolled variables) are not perfect, but indicate performance more than good enough for the intended application.

### Wrap-Up

The MMA-A is a slick piece of engineering and industrial design. I always had the urge to slip it in my pocket! If you're doing live, single-take recording, nature sounds, or video journalism, and want top-level audio, the combination of a DPA mic and the MMA-A will offer portability, ruggedness, ease of use, and high performance. It is not inexpensive, but its price is in line with DPA's microphone offerings.

The limitations are likewise quite severe—the MMA-A is really only suitable for iOS, your choice of mics is strictly limited to DPA's line, there is no facility for monitoring, and for music production or other



overdubbing it's a coin flip whether you'll be able to overcome latency issues. If these are not critical to you, I can recommend this d:vice, but I suspect that the real market for this is rather limited. If I were DPA, I would be seriously considering development of Android and PC drivers and the addition of some sort of monitoring output, both of which would greatly broaden the market for this otherwise-fine device. 📧

Figure 7: The spectrum of a multitoned stimulus signal is reasonably clean but one can see low levels of sidebands and some spectral spreading increasing at higher frequencies.

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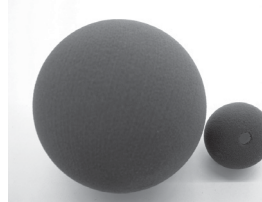


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