

MQA (Master Quality Authenticated) - Better Sound or Effective DRM?
 By Dale Thorn - updated 09 April 2018

 PART 1 - Intro, sound quality tests, authentication (also see PART 2 below).

MQA, which started as a steganography-type scheme to squeeze higher-resolution music into smaller sizes for music-streaming sites like Spotify and Pandora, has evolved into a general-purpose codec for enabling high-res music on CDs, and providing smaller high-res files for download sites like HDTracks and ProStudioMasters, etc. This evolution has attracted lots of controversy, as "expert" users have accused it of being an effective form of DRM, as well as not delivering on its promise of providing genuinely higher resolution music in a smaller file size.

I followed those discussions for some time, but when they heated up recently on some high-traffic audiophile sites, I became more interested to the point of getting involved. While I realize that much of the controversy is directed at debunking the "MQA is better" idea, I decided to approach it from the standpoint of an ordinary budget-minded audiophile who is concerned only with a few things: Do the files cost more (ignoring streaming), are there any DRM issues, does it play on all of my devices, does it sound good enough on my non-MQA devices, and can I convert the files in Foobar to other generic formats - and do those conversions sound comparable to the original MQA download or CD?

Here is an example - the most recent test I performed:

Comparing the HDTracks 24/96 copy of Buena Vista Social Club to the MQA Studio version I got from the HighResAudio site, using the Macbook and Meridian Explorer-2 DAC, the 24/96 version is marginally darker - particularly noticeable on vocal sibilants ("Amor de Luca Juventud"). One effect of this is that I hear a slightly quieter background on the 24/96 version, so the difference extends evenly across the high end, and doesn't sound like a narrower EQ'd range.

This is more-or-less consistent** with what I experienced with the Steve Reich/Pulse album, using the Meridian DAC. I also have a DragonFly Red DAC that's updated for MQA, but since it's just a "renderer" and I'm not working with an MQA-capable music player, I'm not using it in any of my tests.

**The Pulse album comparisons (CD-resolution MQA to 24/96 FLAC) had very subtle differences for me, while the Buena Vista differences were more obvious.

The Meridian DAC lights reported blue-white-off with the MQA Studio version, and white-white-off with the HDTracks version, as long as the Mac's MIDI settings were correct (48 khz for Studio and 96 khz for 24/96). Both of the lights displays were correct for each version, and represent high-res music (88 to 96 khz). As of this writing (09 April 2018) I don't know whether any of the well-known MQA music players are able to force the correct MIDI setting on the Mac when MQA and non-MQA tracks are present in the same playlist and are played randomly (i.e. the player doesn't know anything about the tracks' contents in advance of playing them).

I have no idea which of these versions is the best, or audiophile-preferred in terms of the treble, as these are effectively different masterings. Although I can increase the volume to more clearly discern minute differences in the uppermost treble to at least 15 khz, if there were anything going on above that, or there were any low-level anomalous sounds that got past me in normal listening, I don't know about those. I have more than a few recordings that are edgy, sibilant, or contain minor irritations here and there, but I don't hear anything in the MQA-encoded albums that suggest other than high-quality masterings.

I may be outside of the audiophile mainstream since I'm not streaming music or arguing the MQA-is-better philosophy, but I think the issues in streaming will coincide with what I've found in high-res downloads, and the philosophy aspect will take care of itself according to the users' costs, including any necessary hardware purchases.

I'd suggest to those who are worried about MQA obsolescence or degradation, who are saving and backing up their high-res files on local storage, to convert their MQA files to a generic

format, evaluate the conversions for sound quality, then back those up in a separate folder or volume from the MQA files. It's a habit that any audiophile should already have, so it's not a significant extra effort in my experience. I don't see any reason why buying MQA should be any different in principle than having tapes, CDs, LPs, and digital files all under the same roof. Just observe the usual care and cautions that audiophiles have learned over the years.

PART 2 - Possible DRM issues.

From the MQA article on Wikipedia: "Based on information from Auralic, a manufacturer of Audiophile Wireless Audio Streamers, Meridian Audio prohibits digital output of unpacked MQA in any digital format, only allowing the unpacked data to be fed to an on-board MQA-compatible DAC and output in analog form. Some claim this to be a part of DRM process."

Based on the above, this is my interpretation of how one type of DRM is enabled in current MQA files (ignoring for the moment the possibly-DRM'd MQA-enabled software music players):

We can make bit-perfect rips of audio CDs, so in essence we can back up and preserve the digital data on our CDs with no limits. Not so with SACDs regardless of claims** that we can. We can download high-res music files at 24/96 and 24/192 resolution, which play perfectly on open-source music players, and which can be converted to other formats with no restrictions. So in the case of 16/44 CD data as well as the high-res downloads, we are able to preserve the digital data 100 percent for all time, and play it losslessly on all available music players, whether open-source or not.

**My effort to convert DSD/SACD files to a high-res PCM format that would play on an open-source player, with assistance from several industry experts, failed - undoubtedly due to DRM-type restrictions. Those experts pointed to the "openness" of various parts of the playback chain, but in the end none of them could or would demonstrate openness throughout that chain.

And thus the problem with MQA - we cannot decode the digital data and save that data to digital files that are playable on open-source music players. To my way of thinking, this is similar to the DSD/SACD issue but possibly worse, insofar as many SACDs have a 16/44 CD layer included, whereas in playing an MQA file on a non-MQA system, you don't get a lossless 16/44 layer.