

# MQA Revisited

FOLLOWING AN INTRODUCTION BY MC IN 2015, AND A STREAMING UPDATE BY AE (VOL 11 NO 2), IN PART 1 ANDREW HARRISON EXPLORES HOW MQA TECHNOLOGY WORKS, AND CONSIDERS WHETHER IT'S A WORTHWHILE HIGH-RESOLUTION AUDIO FORMAT

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What is this thing called MQA anyway? Master Quality Authenticated is the full name behind the MQA initials.

It's a suite of compression, watermark and encryption technologies that aims to deliver secure high-resolution music at a lower bitrate than uncompressed 24-bit audio. 'Master' and 'Quality' are there to assure that the music is always sourced from and has exactly the sound quality of the studio master. 'Authentication' means that MQA music has been cryptographically signed off by the content owner, a process which supposedly “directly connects the artist to the listener”.

Since its launch four years ago MQA has been simultaneously rhapsodised by elements in the US audio press, and vilified by other sectors of the audio industry. It's not the first proprietary digital format to appear since the launch of CD but it must be the most controversial and divisive thus far.

An initial soft launch in December 2014 addressed to journalists explained that ‘MQA is really about the future of recorded music’. As with the abandoned formats of DVD-Audio and SACD, its stated intent was to enable the delivery of better-than-CD audio to a large audience; indeed to become the new standard for music for the masses. It's partly because of this ambition that we must take care to understand what the format is delivering, lest it becomes the sole option for all future releases.

The company behind the MQA format has pedigree. MQA Limited is an offshoot of Meridian Audio, a pioneer in consumer digital audio, and the two companies share the same premises in Huntingdon, although MQA Limited's registered office is now at the London Shard.

Beyond manufacturing, Meridian has experience in licensing its intellectual property, having developed the lossless compression system that became written into the DVD-A standard, and then transferring its Meridian Lossless Packing (MLP) patent to Dolby. MQA though is a far more ambitious project that intends to control the whole chain of music distribution, from the analogue point of capture by ADC, encapsulation in a secure container for passing through an internet pipeline,

before conversion back to analogue for the listener.

The brainchild of Meridian co-founder Bob Stuart and MLP co-inventor Peter Craven, MQA promises to shrink any high-resolution PCM audio – currently up to 24-bit/768kHz – to the size of uncompressed CD, without compromising perceived quality. And more than that, it's claimed to improve on the current standard of PCM sound in the process. The idea here is to ‘fix’ a supposed shortcoming in standard linear PCM filters, which are blamed by MQA Limited for ‘blurring’ the sound, as evinced by impulse response tests that are extended through time.

MQA is also being marketed as a backwards-compatible format that will play on existing equipment, giving something like CD quality without a licensed decoder. In fact, MQA Limited asserts better-than-CD reproduction here, thanks to unique DSP manipulation applied while encoding.

## History

It was early 2016 that the first products to decode MQA became available, starting with upgrades to some of Meridian's existing products, followed by the Mytek Brooklyn DAC (*Vol10 No3*). Initially only full hardware decoding in approved and licensed products was available. “In our model,” Bob Stuart explained to me in 2016, “there is no single high-res digital signal outside the context of the decoder matching the analogue output of a DAC”.

More recently MQA Limited appears to have relaxed its ‘end-to-end’ commitment by licensing third-party software to allow partial decoding of the MQA stream, which can then be passed to a regular convertor. So now it is possible to make the first decoding step – ‘unfold’ in MQA's origami metaphor – from 48kHz to 96kHz using Audirvana Plus or Tidal streaming software.

MQA launched with a handful of hardware partners, gradually expanding to a list that now includes Audiolab/Quad, dCS, iFi, MSB, NAD, TEAC and Pro-Ject. Other familiar brands have been conspicuously silent on their stance. Or in the case of Naim Audio by offering a carefully worded statement that “we continually assess all the format and feature options available, which includes MQA,