

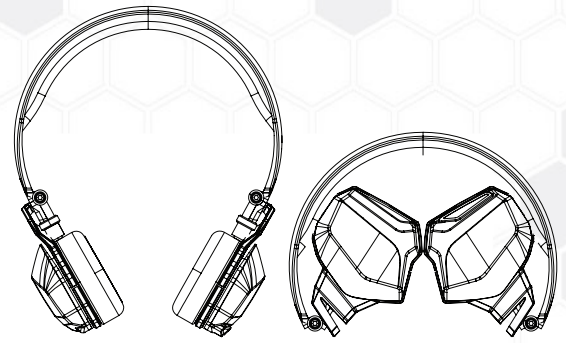
**F.R.E.Q.<sup>™</sup>**  
**WIRELESS**

:: WIRELESS MOBILE GAMING HEADSET ::

:: DRAHTLOSES MOBILES GAMING-HEADSET ::

:: CASQUE GAMER MOBILE SANS FIL ::

# Technical Briefing



The F.R.E.Q.<sup>™</sup> is foldable travel partner offering great sound quality in a compact form. The wired version offers great value and design, but the wireless version fulfils the vision of seamless technology and performance seamlessly integrated into an

ergonomically streamlined package. Every aspect of the design is instrumental in some regard and although we liberally applied new technology, that technology also achieves specific goals.



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# Ergonomics



## LOW AND SLIM FOLDED FORM

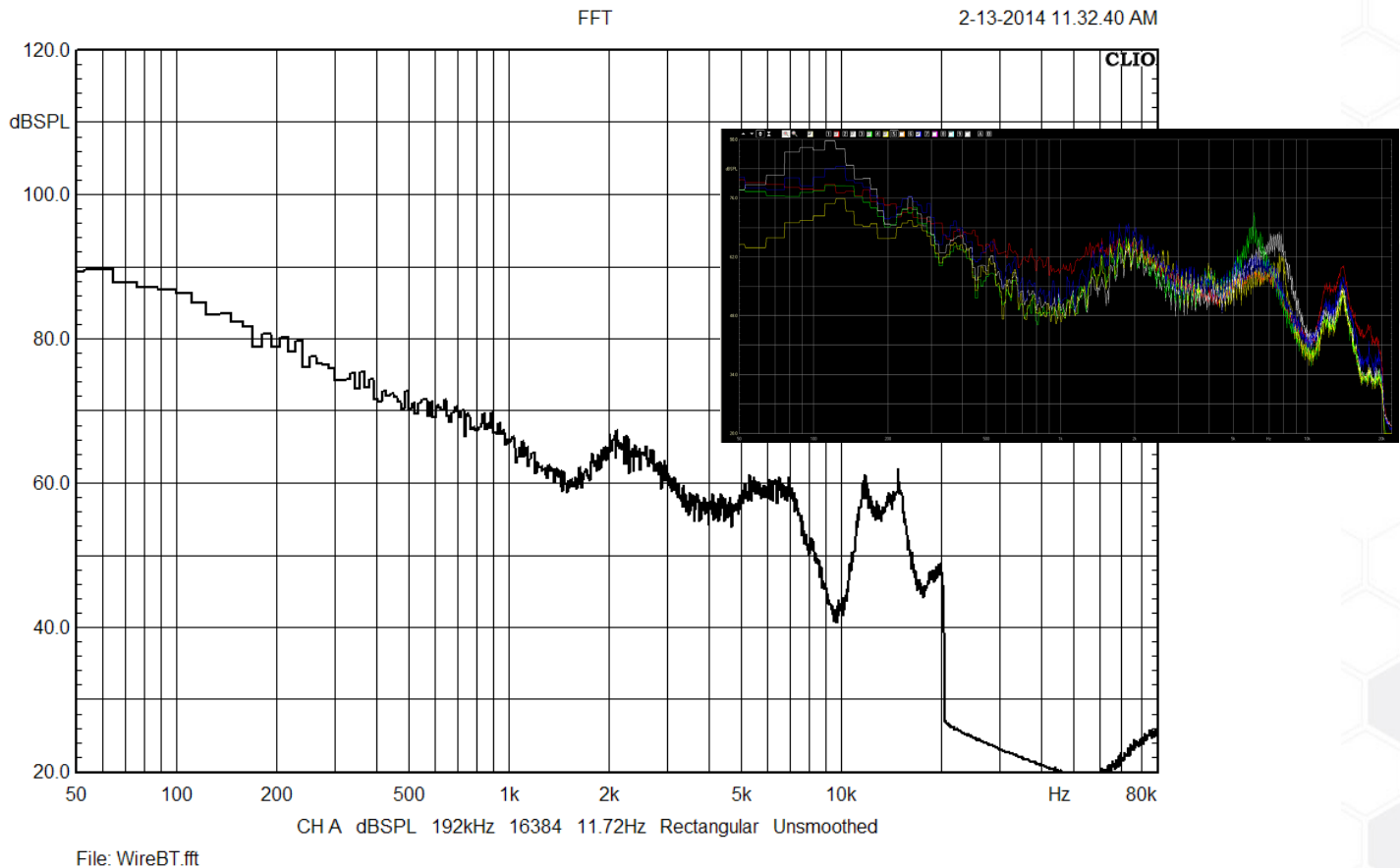
The F.R.E.Q.<sup>M</sup> – like most high-end Mad Catz products – features a very distinctive ergonomic and industrial design. As a travel headset, the F.R.E.Q.<sup>M</sup> will endure some pretty brutal handling at times, so although skeletal in appearance, we precisely engineered each pivot point for strength and reliability. The bi-fold design achieves this objective, yet produces a tiny form factor for easy transportation.

The earcups, by design, remove parallel sides and standing waves within the housing. 40mm drive units, although small, produce both forward and backward sound waves. The backward sound waves require quick absorption and dissipation.

The three-piece headrail promotes long-term comfort and its slight tension provides a snug earcup fit without applying undue pressure. The skeletal design eliminates unnecessary weight.

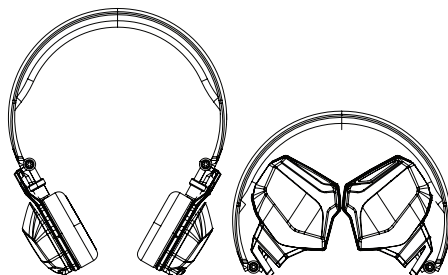


# Acoustic Engineering



Principle to the F.R.E.Q.<sup>M</sup> design, both wired and wireless, is the acoustic performance. Due to the universal nature of usage for mobile headsets, our engineers were aiming for a neutral frequency in ear response and a crisp temporal response without artefacts from echo, vibration or diaphragm breakup.

Headphone acoustic engineering is uniquely challenging, due to the close proximity of the drive units to the ear and the wide range of shapes and sizes of human ears. An engineered 'Flat response' would yield a pretty terrible cacophony. Only recently did acousticians settle on an international standard for 'equal-loudness' contour curves (ISO 226)

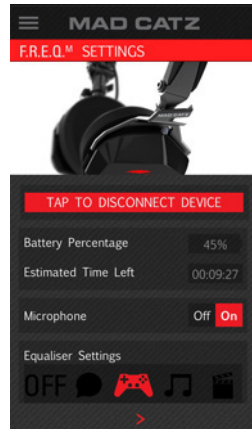


which has formed the basis for the acoustic design within the F.R.E.Q.<sup>M</sup> and indeed other models within the range.

Using a rare-earth neodymium magnet within the motor assembly – with an extremely high flux density – means that grip on the music signal is absolute. Crystal-clear highs, a smooth balanced mid-range along with punch and depth in the bass are givens, but the almost euphoric air with which the F.R.E.Q.<sup>M</sup> delivers presence sets it in a league above the ordinary headset and as a class-leader in mobile headsets.

# App Integration

The F.R.E.Q.™ works straight out of the box with mobile devices and pretty much anything with Bluetooth or a 3.5mm audio port. There are some advanced features, however, accessible via our own iOS and Android GameSmart app. The ability to modify EQ settings and check on battery life are but two of those features.



# Wireless Bluetooth

Bluetooth Audio is a much maligned form of technology. It is true that many attempts to perfect the near-field transmission it offers have fallen short of the desired audio standard, but coupled with the correct CODECs, it can deliver outstanding performance. We have worked in the development of the headset's wireless performance with the global leader in BT technology – CSR's solution engineering team. Together we ensured that whatever the source device, digital audio compression and latency are kept to a minimum, preserving audio integrity right to the transducer.



# Wired Connection

Even the wireless version of the F.R.E.Q.™ offers a 3.5mm four-pole audio socket, and comes complete with the requisite lead. We recognize that certain situations, such as when in an aircraft or a LAN environment, prohibit the use of wireless technologies. This also widens the compatibility of the wireless F.R.E.Q.™, meaning the headset is for use with legacy handheld consoles as well as Bluetooth-enabled devices.



# CSR's aptX



is the preferred wireless carrier codec, automatically selected and used wherever the source device is compliant. Using a very efficient process, the audio signal is packed with almost negligible loss to frequency and dynamic range. The efficiency of the codec reduces the resulting packing and unpacking latency to less than 30ms, and eliminates lip sync issues plaguing earlier designs.

There are several different flavors of aptX. We use the low-latency, variable bit-rate version to ensure instantaneous communication – perfect for multimedia and, of course, gaming applications.



# AAC

is, of course, the iOS native codec. When paired with an iOS device, and in the case of playing AAC-encoded music, the digital signal transmits at full-bandwidth without further compression to the headset.

There are no digital artefacts, and latency completely vanishes.





# Dual Pairing

Again working alongside CSR, leaders in Bluetooth technology, we have employed a dual-pairing version of the BT protocol. Our gaming heritage means we understand that users often wish to pair with two devices. They can now game with handheld consoles while on the move, but when important calls come in, the headset can automatically switch to the phone. Likewise, when an important call comes in while using the headset to watch a film on a laptop or tablet, the call takes precedence in a seamless fashion.

# CVC

Clear Voice Capture is another CSR technology incorporated into the F.R.E.Q.<sup>M</sup> wireless. The objective is crystal-clear voice communication. CVC uses a noise-suppression algorithm to separate the vocal element from background noise collected by the microphone. It also removes echoes from the received sound, further enhancing clarity – even in challenging environments.

# M.O.J.O.

The F.R.E.Q.<sup>M</sup> is a GameSmart product compatible with the widest possible range of devices and in particular, perfect for use with our own M.O.J.O. Micro-Console for Android. Pairing with M.O.J.O. is simplicity itself and allows not only great game audio, but crystal-clear communication through all the popular VOIP applications.

