Mobile Phones · Headsets · UMPCs · Computers · Car Systems

Bluetooth®

About the QSound® Wireless Audio Solution

For over 20 years, QSound Labs has been leading the world with innovative, ground-breaking digital audio technologies. Now, QSound is pleased to offer another industry first: a complete voice and audio enhancement software package for *Bluetooth*® enabled products.

mQFX, QSound's industry-leading audio effects suite of algorithms for advanced music listening, is now available in a complete package solution for *Bluetooth* enabled devices along with **QVoice**, the new voice enhancement software from QSound. Now integrated with mQFX is a noise-dependent volume control component of the QVoice algorithm suite, offering an expanded voice/audio feature set not available from any other vendor.

mQFX increases the audio impact of mobile devices with a powerful set of spatial and spectral audio enhancements that will set your products apart from the crowd. Users can enjoy a rich, personalized audio experience with the feature-rich mQFX suite that also includes dynamic volume and range controllers.

QVoice is a unique, comprehensive noise reduction and echo cancellation software solution for mobile devices, hands-free car systems and headsets. Offering exceptional natural-sounding speech clarity in noisy environments, QVoice high-performance algorithms deliver the most effective, efficient, leading quality voice solution available on the market today.

QSound's complete **Wireless Audio Solution** for voice and audio enhancement offers mobile device OEMs a convenient, cost-efficient technology and licensing proposition for differentiating their products. With QSound Labs' proven expertise in digital audio software development you can count on rapid time-to-market delivery with the best overall quality in the industry.

Feature Set Description

The QSound Labs **Wireless Audio Solution** for *Bluetooth* enabled devices includes the following components from the QVoice and mQFX suites of proprietary audio algorithms:

The QSound Competitive Edge

- *Industry-leading sound quality*
- *High efficiency, DSP-based solution for **Bluetooth**® enabled devices*
- *Powerful audio effects for a rich, immersive listening experience*
- *Crystal clear natural-sounding speech with no metallic effects*
- *Scalable, modular components for easy implementation*
- *Low memory & processing footprint*
- *Low development costs & rapid time-to-market delivery*
- *Single-vendor complete voice & audio enhancement solution:*
  - *Simplifies integration/licensing*
  - *Saves platform resources*
- *Proven track record and established brand recognition*

mQFX Features

QXpander® -- 3D spatial processing that literally adds new dimension to music playback, enlarging the sound stage beyond the physical limitations of speaker locations, and expanding the acoustic image outside the listener's head when using headphones. The result is a more natural, less fatiguing listening experience.

QSizzle™ -- An adaptive mid to high-frequency spectral enhancement, that restores a natural-sounding sonic punch to compressed formats by selectively adding upper spectrum energy according to input signal.

QRumble™ -- The low-frequency counterpart to QSizzle, QRumble also adds energy in a selective fashion, bringing substance and warmth to the low end spectrum without overloading on loud passages.

QEQualizer™ -- A sophisticated, highly flexible, fully parametric tone control. Configurable number of stages, with variable filter type, bandwidth, frequency, and fully-symmetrical +/- 18dB gain for each stage. Large library of customizeable presets available.

QLimiter™ -- A high-efficiency, anti-saturation dynamic range controller that handles any combination of signals and extreme effects settings, eliminating output distortion with high transparency and low overhead.

Platforms & Implementation

Audio solutions by QSound Labs have been rigorously optimized with the participation of our major industry partners focusing on three critical requirements: Quality, Memory Footprint, and Performance.

QSound's complete voice and audio enhancement **Wireless Audio Solution** for devices with *Bluetooth* technology will soon be available for all major platforms.

QVoice Features

Bi-Directional Noise Reduction

- excellent performance with all noise types
- simultaneous noise reduction in TX and RX
- up to 20dB noise attenuation
- fast convergence with low delay
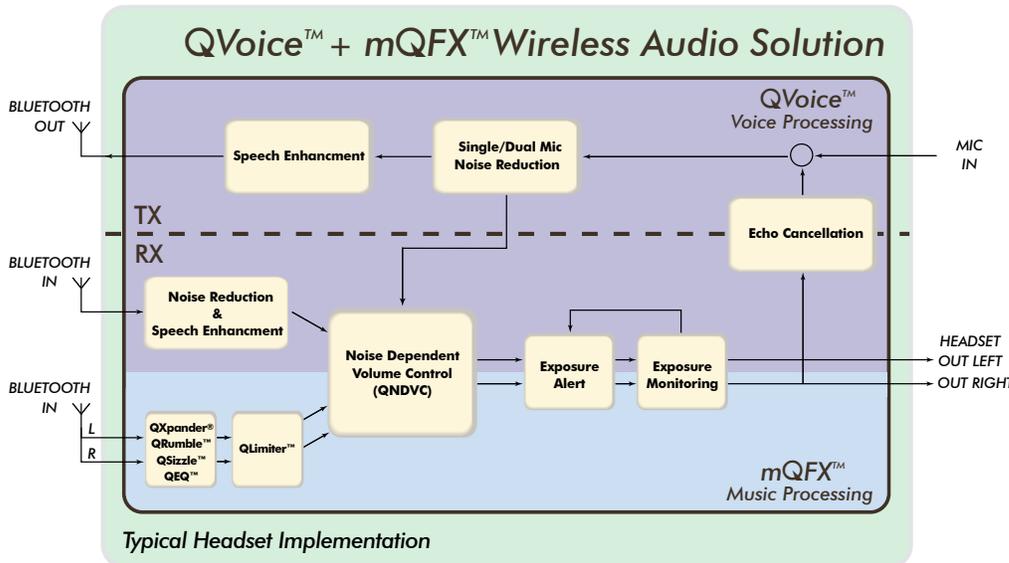- integrated speech enhancement

Acoustic Echo Cancellation

- cancel echos coupled from speaker to mic
- robust double-talk performance
- processes up to 32msec including echo tail
- handles multiple echos within the frame

Noise-Dependent Auto Volume Control

- adjusts the volume based on ambient noise
- smooth and natural transition between levels
- intelligent tracking for optimum voice quality
- maintains previous signal-to-noise ratio (SNR)

User Exposure Monitoring and Alert

- continuously monitors acoustic energy in headset
- calculates cumulative HSP/A2DP hearing exposure
- notifies user if pre-defined acoustic level is reached

QVoice™ + mQFX™ Wireless Audio Solution
Typical Headset Implementation

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