

## Voice 3.5M

### Exceptional Voice Quality

Today's voice calls are conducted in a wide variety of environments. Many of these contain a considerable amount of background noise which can overwhelm speaker voices and make the conversation difficult to comprehend at both ends of the call. This noise is not just comprised of environmental sounds such as traffic or music, the echo of the speaker's voice can also provide a troubling distraction. SoundClear<sup>®</sup> Voice 3.5M software maintains voice quality while at the same time reducing environmental noise for both mobile handheld and speakerphone applications. This combination helps to retain voice intelligibility without introducing any additional effects into the voice signal which can make voices sound metallic and artificial. For the far-end listener, SoundClear Voice 3.5M performs echo cancelation, echo suppression and environmental noise reduction. The caller benefits from greater clarity of the far-end signal thanks to the unique receive-path feature set. This includes compensation for ambient sound level variations, reduced noise, maximization of the perceived speaker loudness and limiting the output to prevent speaker clipping.



## Features

### Receive-path processing algorithms

- Downlink Noise Reduction reduces signal noise from the far-end in a phone call, or near-end input noise generated by electrical circuit properties or codecs
- Automatic Volume Control adapts the receive signal level and frequency response to compensate for the ambient environmental noise conditions around the listener
- Multi-band compression and dynamic range compression ensure high quality, linear drive from the earpiece/speaker and minimal speaker distortion
- Multi-band Equalization allows adjustment of the receive channel frequency response to meet device audio specifications or standard (e.g. ITU and 3GPP) requirements

### Transmit-path processing algorithms

- Multi-microphone echo cancelation and non-linear echo suppression
- Multi-microphone beam forming algorithms and residual noise suppression captures desired speech signals
- Multi-microphone wind noise reduction detects and reduces wind noise
- Multi-band equalization allows adjustment of the transmit channel frequency response



# SoundClear Voice 3.5M

SoundClear® Voice 3.5M also supports

- 8 kHz and 16 kHz sample rates for narrowband and wideband modes (other sample rates supported through use of hardware sample rate converters)
- Two speakerphone microphones for best-in-class speech quality and high performance noise reduction
- Compliance with all major telecommunications standards for cellular telephony noise reduction and speakerphone performance (ITU TS26.131/132, HD-Voice, G.160)

## Hardware Platforms

The following platform configurations are recommended:

**Smart Codec**  
WM8281



**MEMS Microphone – Analog**  
WM7121PE  
WM7132PE  
WM7138

**MEMS Microphone – Digital**  
WM7236E

## APPLICATIONS

SoundClear® Voice 3.5M is best suited to the following applications:



SMARTPHONE



TABLET

## The SoundClear Advantage

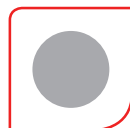
Cirrus Logic's SoundClear software technology utilizes self-adjusting algorithms to deliver industry leading voice quality, speech recognition, audio recording and high-fidelity playback. SoundClear utilizes intelligent speech and noise tracking, as well as adaptive processing, to exploit speech patterns and environmental conditions while providing advanced processing features such as noise suppression, echo cancelation and virtual surround sound. SoundClear software also features low power consumption for prolonged battery life of portable devices.



VOICE



PLAYBACK



RECORD



CONTROL



SENSE



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