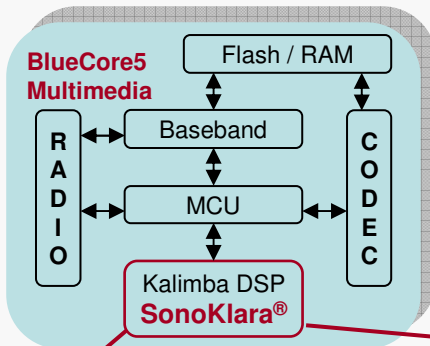
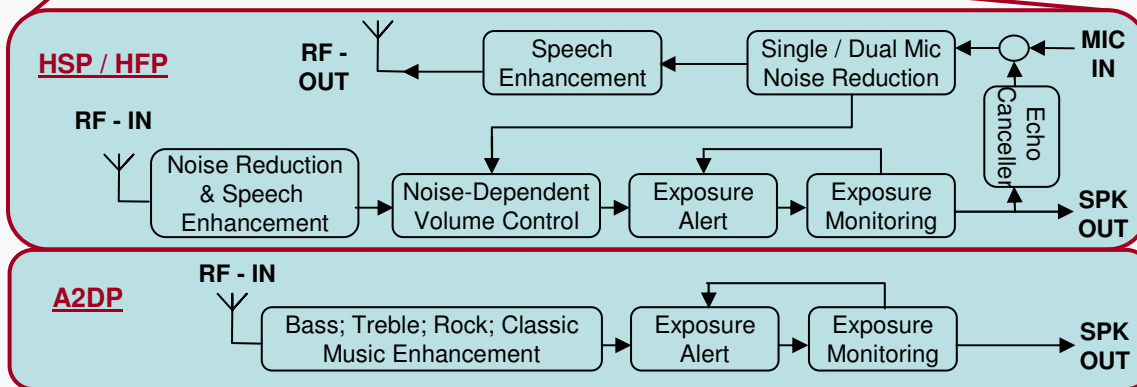


*Simultaneous Rx / Tx noise cancellation, acoustic echo reduction, speech enhancement, hearing exposure monitoring & alert, and music effects, optimised and ready-to-run on CSR's BlueCore5-Multimedia.*



Bi-directional noise reduction, speech enhancement, echo cancellation and noise-dependent auto volume control represent the core of SonoKlara® proprietary technology from ElaraTek. SonoKlara® identifies background noise mixed with the signal and intelligently auto-tunes the noise reduction algorithm in to cancel different noise types mixed with the signal, including: road/traffic/engine noise, street/factory/café/babble noise and wind noise. Subsequently the speech enhancement algorithm compensates for any adverse effects and the result is clear natural-sounding speech, even when background noise is dominant.



**SonoKlara®**  
**Digital Audio**  
**Processing**

### Features (HSP/HFP)

#### Bi-directional noise reduction

- excellent performance with all noise types
- simultaneous noise reduction in TX and RX
- upto 25dB noise attenuation with dual-mic
- noise identification for optimal tuning
- fast convergence with low delay
- integrated speech enhancement
- no adverse effect on speech quality
- works well when in tandem with a 2<sup>nd</sup> NR

#### Noise-dependent auto volume control

- adjusts the volume based on ambient noise
- utilises accurate ambient noise estimation
- smooth and natural transition between levels
- intelligent tracking for optimum voice quality
- avoids startle effects - no sudden changes
- maintains previous signal-to-noise ratio (SNR)
- no need to constantly search for volume buttons



#### Acoustic echo cancellation

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



## Features (A2DP)

SonoKlara® incorporates music enhancements and user exposure monitoring and alert (EM&A) technology.



### A2DP music enhancement

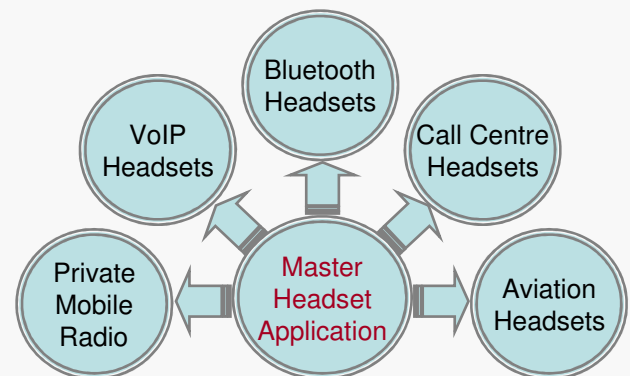
- bass-boost enhancement
- treble-boost enhancement
- rock and classic music effects

### User exposure monitoring & alert

- continuously monitors acoustic energy through the headset
- calculates accumulative hearing exposure in HSP and A2DP
- configurable loudspeaker setting for precise measurement
- notifies the user if a pre-defined acoustic energy level is reached
- notification message can be deactivated / reactivated

Listening to loud music for extended periods of time through a headset can adversely affect human hearing. SonoKlara® offers sound exposure monitoring and alert to maximise hearing protection.

ElaraTek's comprehensive suite of voice enhancement technologies are optimised to run on Kalimba DSP. The Master Headset Application (MHA) is ideal for module selection, and speedy integration to deliver new products with unique features to meet customer requirements.



## Call Centre Solution

Enhance the performance of your call centre headsets by integrating technologies and solutions from ElaraTek. Our technologies offer speech clarity while protecting operators from excessive noise exposure and acoustic shocks. ElaraTek's proprietary acoustic shock protection technology accurately identifies different types of acoustic shocks and subsequently attenuates the shocks without adversely affecting voice quality.

Our integrated call centre solution comprises of:

- SonoKlara® noise reduction and speech enhancement
- acoustic and impulsive shock protection
- active & passive exposure monitoring, logging and alert technology

ElaraTek's highly integrated voice quality & music enhancement DSP technologies and products are optimised to run on CSR's BlueCore5-Multimedia.

