SmartBeat™ USB Unified Communication headset solution
Develop sophisticated, feature-rich Unified Communication headsets fast

The Dialog DA14195* USB Unified Communication reference design saves time, cost and complexity when developing USB Unified Communication headsets. It combines high performance with low power consumption and an extensive array of added-value features. Moreover, comprehensive support helps further reduce your design effort.

At the heart of the reference design is a SmartBeat DA14195 audio processor. This device offers an open audio platform ideal for designing a Unified Communication headset to meet challenging specification requirements. It combines an extremely low-power 32 bit ARM Cortex-M0 microcontroller and C-programmable 32 bit Cadence HiFi 3 DSP. As a result, you can develop premium Unified Communication headsets with rich feature lists including super wideband acoustic echo cancellation, microphone noise reduction, voice control as well as the digital control interface to contextual awareness sensors. With support for up to 6 digital microphones, you can offer active noise cancellation and beamforming. The DA14915 can be powered directly from a smartphone (via a USB Type-C connector) or a computer (via USB Type-A).

Alongside the DA14195, the reference design also includes a DA7218 audio codec. Combining high performance with low power consumption, the DA7218 is optimized for portable and wearable devices. It has single-ended headphone outputs with excellent noise immunity and a true-grounded capless headphone driver capable of delivering a 100 dB dynamic range.

The reference design is compliant with enterprise requirements for Lync and Skype for Business, industry specifications including WHLK and WHCK, and USB Implementation Forum (USB-IF) specifications. It is a complete package including schematics, documentation, software libraries and stacks. The source code and sample code are available upon request, and all design files are available via our support portal: https://support.dialog-semiconductor.com.
**DA14195 UC reference design key features**

- USB 2.0 Full Speed and High Speed compliant
- USB Audio Device Class 1.0 and 2.0 support
- Compliant with industry specifications including Lync and Skype for Business
- Full-duplex phone call
- Programmable tone generator for acoustic feedback
- Voice prompts
- Superior voice processing algorithms with narrowband, wideband and super wideband support
  - Advanced acoustic echo canceller
  - Noise reduction
  - Parametric equalizer
  - Dynamic range compressor
- Comprehensive set of tuning tools for development and production environments
- Optional Dialog’s digital Active Noise Cancellation (ANC)
- Rich ecosystem of partners for voice and audio via Cadence open market

* The DA14195 SoC supports PCM audio up to 192 kHz at 16, 24 or 32 bits. The DA7217 DAC supports 24 bit PCM audio up to 96 kHz.