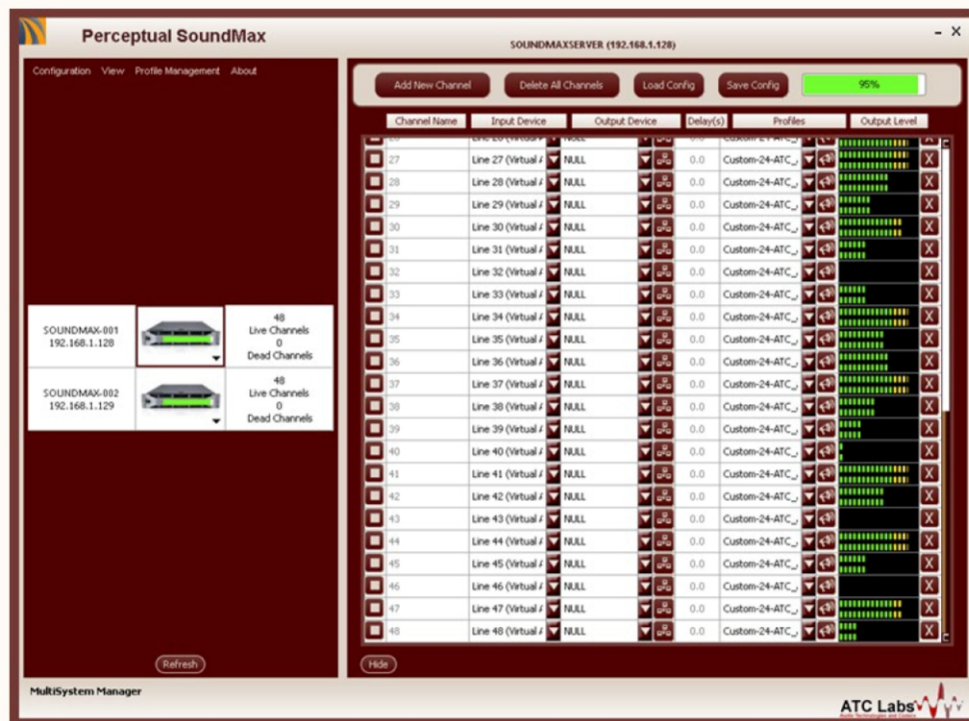


Perceptual SoundMax™ Model Q24Ser

Up to 48 Streams of 24-Band Aideal™ Audio Processing
in a
Single PC or Rack Server



Audio Processing, Encoding, & HLS streaming

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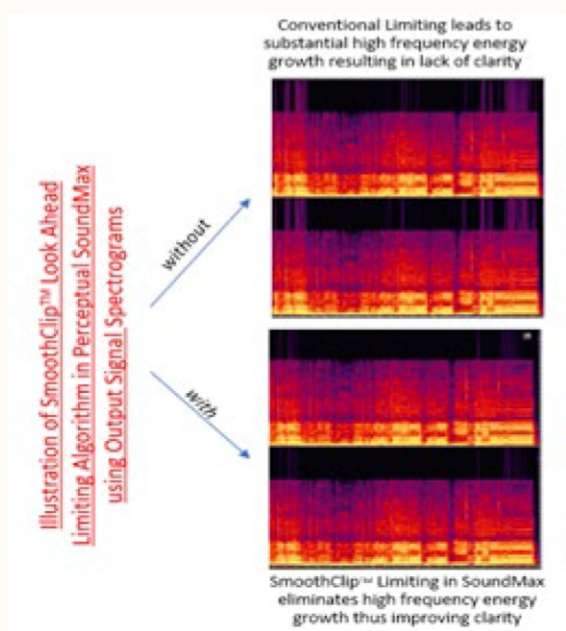
AiDeal™ Audio Processing

Lively, Crisp, Clear & Loud Sound:

Craft a breathtakingly detailed, consistent, and balanced sound for your broadcast using Perceptual SoundMax™ 24-Band *high resolution intelligent* Audio Processing technology developed by ATC Labs. This product brings novel innovations in audio processing & sound-quality enhancement to your Broadcast in an integrated software solution. ATC Labs specializes in audio signal modeling, psychoacoustics, accurate signal processing, and novel audio aware artificial intelligence/machine learning algorithms. These drive the core of Perceptual SoundMax™

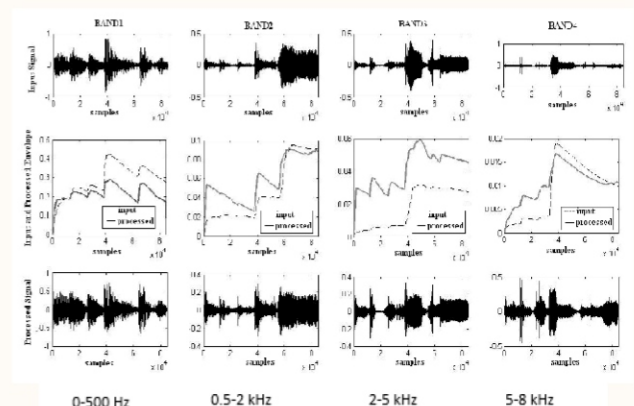
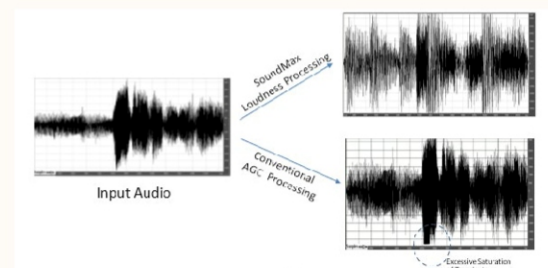
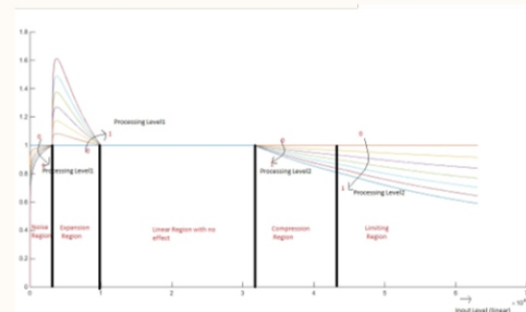
Audio Processing Tools Powered by Latest Research in Sound Perception, Signal Processing, and Audio AI-ML:

- ❖ **Multi-band (24-band) high-resolution Dynamic Range Compression (DRC)**, employing detailed time-frequency signal processing
- ❖ **Perceptually tuned Intelligent Loudness Control (ILC)**: with ITU BS1770-3 compliant and enhanced perceptual modes
- ❖ **Voice/Vocal Enhancement (VE)**: Vocal, and dialog enhancement using detailed harmonic analysis
- ❖ **Bass Enhancement**: using sophisticated bass boost models and 2-independent stages
- ❖ **Stereo Enhancement**: Stereo image stabilization & enhancement.
- ❖ High Frequency Enhancement
- ❖ Final look ahead limiting with SmoothClip™



Features:

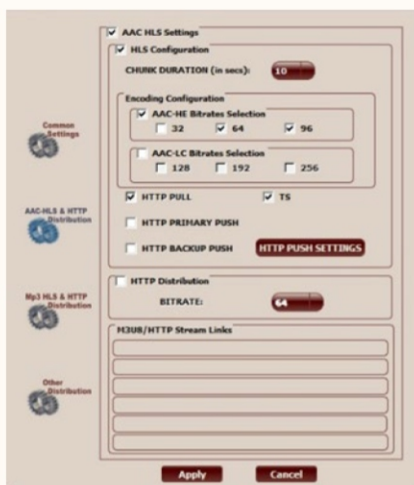
- ❖ **Extensive use of AI Based Audio Processing Algorithms**: Perceptual SoundMax™ utilizes AI/ML based techniques throughout its processing platform. Techniques included sophisticated models for multiband noise analysis, signal tilt analysis, and our patent pending Real-Time Multi-Class Hierarchical Audio Classification Deep ML model that can be used to adaptively adjust processing parameters based on changing audio characteristics.
- ❖ **High Resolution Audio Processing**
- ❖ **Linear Phase Audio Processing**
- ❖ **Integrated Compression / Limiting/Expansion/Noise Gating**



Integrated Encoding, HLS Encapsulation & Streaming

High quality AAC/HE-AAC Coding

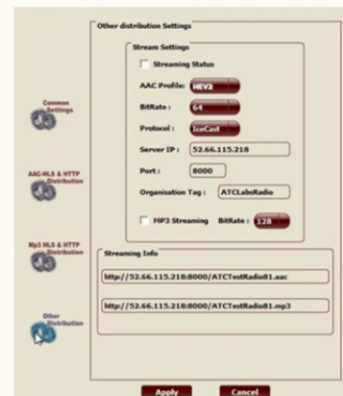
SoundMax™ Serverware supports AAC codec with profiles LC & HE (HEv1 & HEv2). Each channel can individually be configured for two different bitrates of AAC encoding format having either an LC profile or HE profile. As per AAC industry standards, LC profile is applied for bitrates 128, 192 & 256, HEv1 profile is applied for bitrates 64 & 96 and HEv2 profile is applied for bitrate 32.



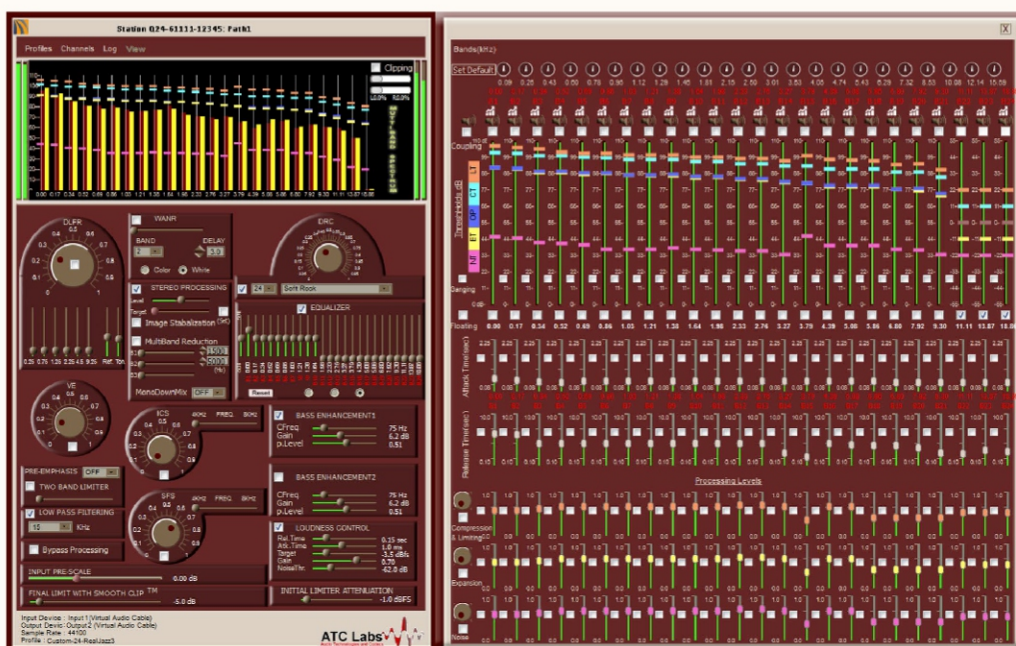
OPTIMIZED CONNECTION TO CDN AND DISTRIBUTION SERVER:

SoundMax™ Serverware supports multiple encoding formats including scalable 2-rate AAC-LC/HE-AAC-v2 and MP3. These may be encapsulated in RAW/ADTS packets or TS Streams and chunks for HTTP Live Stream (HLS) are generated. Furthermore, it supports multiple distribution options including:

- ❖ Connection to ICECast Servers
- ❖ Inbuilt HTTP server with .aac/.m3u8 pull
- ❖ HTTP PUSH/PUT to CDN network



Audio Profile Fine Tuning



QUICK SETUP GUIDE

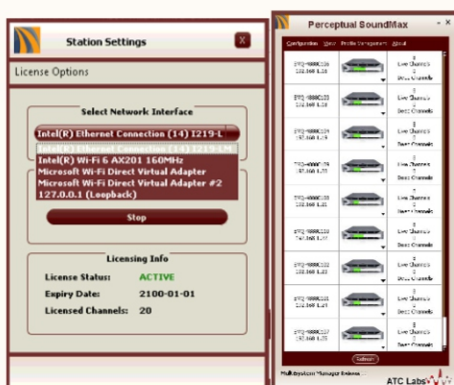
Software Installation Packages

The Perceptual SoundMax™ Model Q24Ser serverware includes two setup executables

1. Perceptual SoundMax™ Model Q24Ser Station: A Station software which includes all the service and processing components
2. SoundMax™ Manager: A Manager software which provides the complete functionality for configuring and monitoring each processing/encoding/streaming channel.

Installing Perceptual SoundMax™ Model Q24Ser Station

- ✓ Run the Perceptual SoundMax™ Model Q24Ser Serverware **Station setup** on a PC and follow the instructions:
- ✓ After the installation SoundMax™ Serverware Station Settings UI will launch as shown in below left figure.
- ✓ Select the network IP interface on which you wish to start the station & press the start button. This IP interface will be used by the *Station* to broadcast its presence to the *Manager*. Use local loopback 127.0.0.1 if Manager will be installed on the same PC
- ✓ SoundMax™ Serverware by default configures in a trial mode. The Station Settings UI is also used to import License File(s). Contact ATC Labs support at support@atc-labs.com to obtain longer terms licenses for 1 or more streams.



Installing SoundMax™ Manager

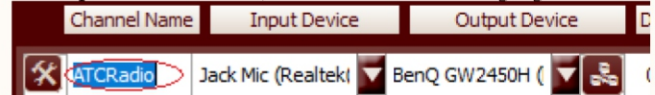
- ✓ Run the SoundMax™ Manager setup on a PC and follow the instructions
- ✓ After the installation SoundMax™ Manager user interface screen (UI) will come with stations list as shown in above right figure
- ✓ Click on any station, one can get a detailed view and options to configure that station

Steps to Configure a channel

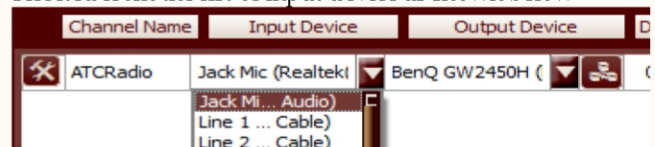
- ✓ **Add a channel:** Click on the add new channel icon . A new row corresponding to unconfigured channel has been added in the manager as shown below.



- ✓ **Naming of Channel:** Enter a name for the channel (unique to the particular station) as shown in following figure.



- ✓ **Selection of Input Device:** A desired input device should be selected from the list of input device as shown below



- ✓ **Selection of Output Device:** A desired output device should be selected from the list of output. *For streaming only channels the output device should be chosen as NULL.*



- ✓ **Start the channel:** Click the configure/play icon to start the channel on the selected station. In the running mode I/O selection is locked.
- ✓ **Stop the channel:** Click the stop icon to stop the channel or encoding/processing. In the stopped mode a user can re-configure I/O devices.
- ✓ **Delete the channel:** Click the delete icon to delete the selected channel. Clicking on this icon will prompt a user to confirm the selection.
- ✓ **Play the channel:** Click the play button to again start the stopped channel.
- ✓ **Encoding/Streaming settings icon:** Click the encoding/streaming settings icon to open the encoding/streaming panel for further settings. This option is unlocked when channel is in running mode.
- ✓ **Fine tune Channel:** Click the tuning icon to open audio preprocessor tuning screen for detailed tuning of the audio quality of the channel or creating custom profiles. This option is unlocked after starting the channel.
- ✓ **Profile Selection:** A desired profile may be selected from the list of available preset and custom profiles as shown in following figure. This option is available in both configured/unconfigured channel.

