Why Should You Choose ASTi?

ASTi has repeatedly shown why we remain the leading provider of digital audio and communications systems in the world, and the best testimonial we can cite is the phenomenal level of repeat customers that ASTi is proud to retain.

One of the principal reasons we are able to achieve this level of follow-on business is our dedication to supporting our customers. Out of the 35+ full-time ASTi staff, there are 25 qualified engineers who are called upon for support. Our front-line team of 15 project/application engineers represent the single highest concentration of dedicated expertise you can find in this industry under one roof.

Our Level D sound and communications package represents the most technically-advanced solution in the industry, coupled with a long and extensive legacy of existing models and system solutions. We also have a history of long-term product support, and plan for product longevity, which is vital in supporting production programs over many years of deliveries.

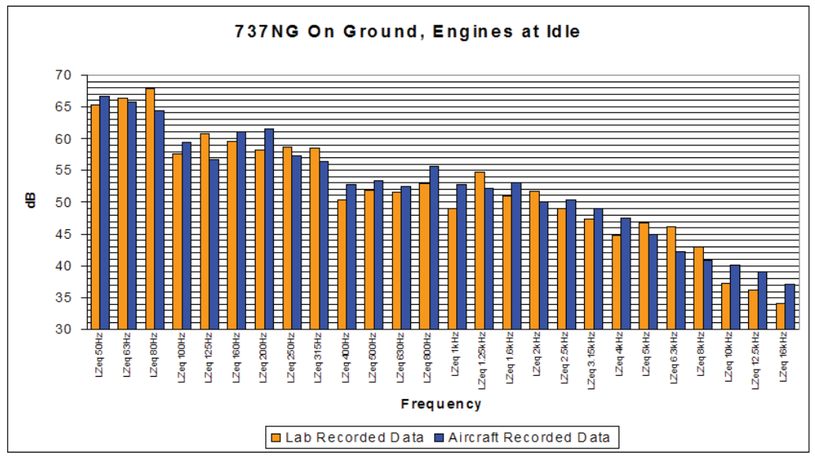
Our Credentials

ASTi has been shipping digital audio systems since inception in 1989, and while the majority have serviced military applications, a steady number have been used for commercial simulation programs. ASTi has fielded multiple systems supporting FAA Level D equivalent audio and communications for various branches of the military and ASTi has many FAA Level D certified aural cue and communications systems installed in simulators around the world. Other ASTi applications have been certified to both Level D and Level C, depending on customer needs.

The Proof is in the Plot

The graph below presents a Level D Spectral Plot (1/3 octave) comparing an ASTi software model to original aircraft data.

The plot presented is from an actual Level D program (Boeing wide-body jet), and shows the comparison of manufacturer-supplied aircraft data to the ASTi model for a test case condition of Flight Idle.



500A Huntmar Park Drive, Herndon, VA, 20170 • 703-471-2104 • www.asti-usa.com

Advanced Simulation Technology inc.

FAA Level D Integrated Audio Solution for Civil Flight Simulators

Overview

ASTi offers a sound and communications solution package for applications requiring performance up to FAA, JAA and equivalent Level D/ZFT standards.

The ASTi audio system provides a truly complete solution at a price-to-performance mark offering exceptional value. The Level D package includes hardware, software, aircraft-specific model, customer training and support. Also available are optional packages providing full audio hardware peripherals, including headsets and speakers. Two options are provided for Level D certification: The preferred option integrates the solution into the processing system itself, making integration into eQTG systems a breeze, while the second is a conventional, external solution based on standard measurement hardware.

As an adjunct to the system package, ASTi is able to provide engineering support services to facilitate turnkey[1] integration of the solution into new simulators, or as an upgrade package to existing devices.

Core Product Capabilities and Features

The heart of the system is based on the Telestra 4 product suite, with its Target audio processor supporting the Ethernet-based ACENet audio distribution architecture (audio sampled at 48kHz, 16-bit resolution). Studio runs the ACE software modeling environment, providing the flexibility to generate and tune the model to meet Level D requirements.

The model features include:

- Basic and composite audio synthesis, from simple wave shapes to complex and composite objects
- Optimized “Level D Engine” object
- State-of-the-art “Sound Field Reconstruction” recreates the 3D audio environment of the cockpit
- Soundfile replay including seamless complex loop capability (used for rotating machinery sounds)
- Full digital signal mixing and dynamic filtering
- Simple host interface generation and internal type casting in the model environment
- Use the host to command a self-test of the sound system installation for system confidence testing with the “Auto-DRED” object

[1] The ASTi definition of turnkey is that ASTi will provide engineering staff on-site to assist the customer engineering team in installing the hardware, integrating the system with the host, provide expert wiring recommendations, and perform model testing, tuning and certification support.

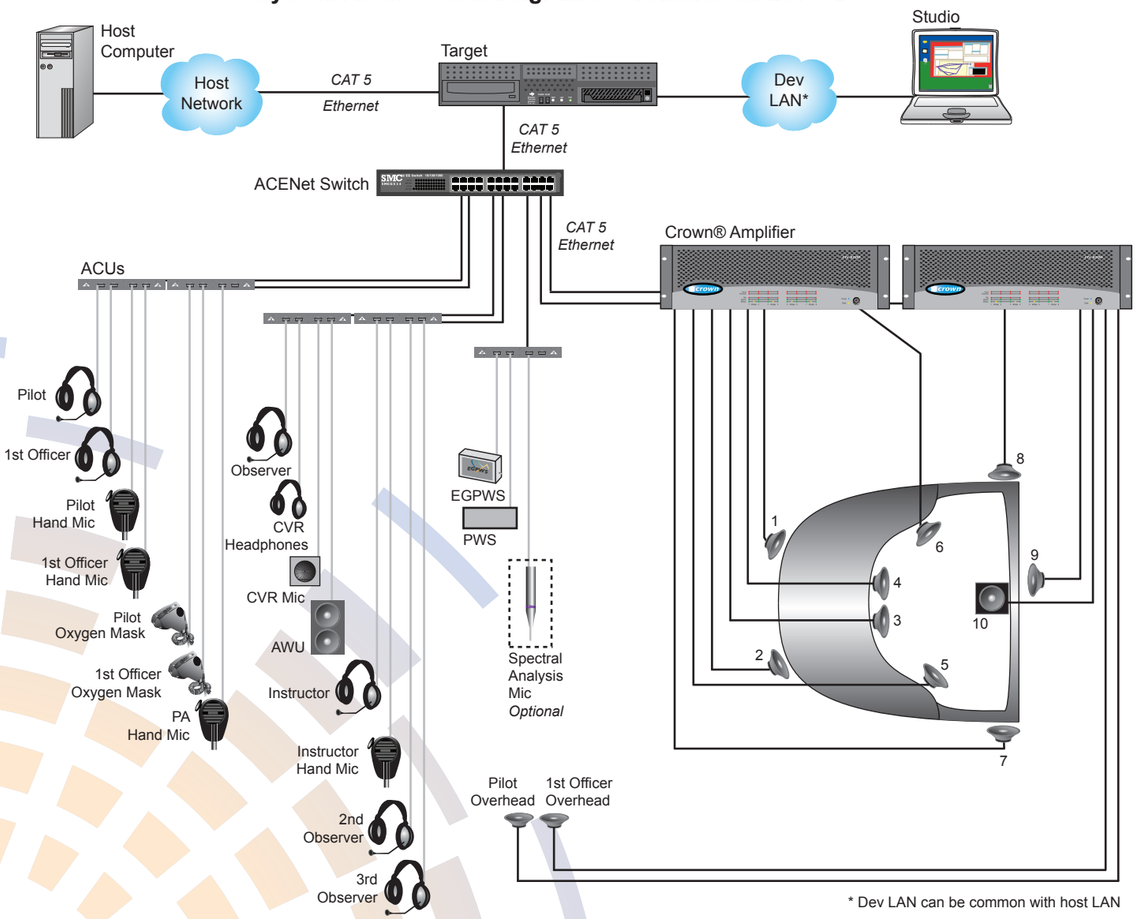
500A Huntmar Park Drive, Herndon, VA, 20170 • 703-471-2104 • www.asti-usa.com

The hardware features include:

- ACENet audio distribution architecture utilizing an Ethernet backbone, supporting high channel counts if required (see System Architectural Diagram below for details)
- ACENet-enabled amplifiers provide direct connection of amplifier to processor using CAT5 cabling, and support both frequency equalization and time-alignment for each independent channel.
- Every ACU audio interface includes 3 discrete input channels for direct sensing of press-to-talk (PTT) switches, volume and similar controls, ensuring minimized latency for crucial control inputs.

The ASTi Remote Management System (RMS) provides monitoring and control via any PC with a standard web browser connected to the Target's network to interrogate the system. It also supports host-side control scripting to allow automation of many common system operations.

System Architectural Diagram for Commercial Level D



What's in the Box?

Our Level D sound and communications solution includes the following:

- Target 2U rackmount, multi-core processor, running a unique split-core realtime framework, the workhorse of the simulation application
- ACENet (Ethernet-based) power amplification for 8-channels, mounted on- or off-board, 16-channel option available
- Remote audio distribution modules for up to 20 independent communications audio channels; all channels are bi-directional, with 20 inputs and 20 outputs
- Baseline software model to reflect aircraft type, per customer-supplied data package; a data package must be provided–even for existing ASTi models–for licensing considerations
- Host interface ICD documentation customized to aircraft type
- ASTi standard QTG documentation package modified to aircraft type and supplied data
- Training package including five (5) days working at ASTi
- 40 hours of technical support
- Optional sound hardware package including: communications headsets, handmics, communications loud-speakers, and environmental cue loudspeakers
- Optional (but highly recommended) internal Level D certification kit including: measurement class micro-phone, spectral analysis ACE software package, and eQTG plot generation package
- Optional Level D certification kit including: B&K Sound Analyzer with measurement class microphone, laptop computer and software

Also available are sound-only and communications-only packages. Follow-on devices (same data package and system configuration) are priced as hardware and software only.

Although the Level D solution is presented as a "bundled package," it is flexible. System variations are priced per our standard price list which can be found at: www.asti-usa.com/pricing.

Integrated Level D Spectral Analysis

The ACE Spectral Analysis option is a powerful add-on package to the Telestra 4 product suite. The package combines the ability to run real-time 1/3rd octave spectral band plots of any signal source available within the system, and automatically calibrate and compare runtime-averaged 1/3rd octave spectral band data captures to original aircraft data recordings, under manual or host control.

The results are formatted for direct inclusion into eQTG documentation, eliminating the need for specialized training or audio engineering skills to conduct the semi-annual re-qualification of the sound system by the FAA/CAA, etc.

With the introduction of the ACE Spectral Analysis option, the Level D sound-testing task is greatly simplified. Enter up to 20 test cases through RMS for the initial setup. Physically, the only external equipment required is the ASTi-supplied measurement class microphone, microphone stand, and cable. The cable is connected to a designated audio input of an on-board ACU. The data generation and capture operations are then controlled from the Remote Management System (RMS) or, if preferred, the customer host computer.