WHEATNET-IP

THE INTELLIGENT NETWORK

RULE RADIO NOW® • OFFICIAL WHEATSTONE TOOLS TO RULE RADIO NOW

Wheatstone

BROADCAST AUDIO PERFECTIONISTS℠

OVERVIEW/PRODUCT PLANNING GUIDE


WHEATNET
THE INTELLIGENT NETWORK

Yesterday's IP audio network just doesn't cut it anymore. You need a modern, smarter audio network. It's all in the WheatNet-IP Intelligent Network: audio routing, mixing, processing, silence detection, logic control, 24/7/365 reliability, and third-party equipment integration, from your program automation to your transmitter link. Only WheatNet-IP distributes intelligence across all access points in one unified, robust Gigabit Ethernet network for reliability, scalability and extreme studio programmability. Best of all, WheatNet-IP is the driving engine under the hood for a wide range of control surfaces made by Wheatstone, which you'll also need for your modern network.

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LIO-48 LOGIC BLADE

The LIO-48 is a high-density logic BLADE that can be added to any WheatNet-IP audio network to give you more of what you need in a modern studio: control. The LIO-48 Logic BLADE provides 48 universal logic I/O ports, each individually configurable, for machine control of devices and elements in the network.

LIO-48 logic ports can output to closures for machine control of on-air lights, mic tallies, transmitter remote control and the like. The LIO-48 also can receive machine closures from external devices like satellite receivers, remote mic panels or the automation system for triggering channels ON/OFF.

The LIO-4's logic I/O meter provides drill-down information for each of the 48 ports.

- 48 universal logic ports, individually configurable
- Front panel LED status indicators
- Ethernet port

HD-SDI BLADE-3

The HD-SDI BLADE-3 is a specialty BLADE for extracting encapsulated audio from a serial digital interface (SDI). With the HD-SDI BLADE-3, you can ingest audio into the WheatNet-IP Intelligent Network from video production automation systems, routers, and other professional video equipment that use HD-SDI.

Our new specialty HD-SDI BLADE-3 for the WheatNet-IP Intelligent Network de-embeds multiple audio channels from HD-SDI streams so you can mix, process or simply route audio to your console for final broadcast. This 1RU is capable of de-embedding up to four HD-SDI streams, and up to 8 AES/EBU pairs (16 audio channels) per stream.

The HD-SDI BLADE-3 has four BNC connectors for coaxial input, and includes logic control, onboard utility functions and the dedicated controller that is at the core of its intelligence. Like other BLADEs, the HD-SDI BLADE-3 has its own CPU and operating system and provides a 1000BaseT (Gigabit) network interface for optimum network QoS and reliability. The HD-SDI BLADE-3 is AES67 compatible for interoperability with other AES67 compatible systems and devices, and has two built-in 8x2 stereo mixers. It comes with 12 universal logic (GPIO) ports for interfacing various external switches, indicators and devices for control purposes – as well as 128 software logic ports for routing and controlling devices anywhere on the network.

- De-embeds audio from four HD-SDI streams
- De-embeds 8 AES/EBU pairs (16 audio channels) per stream
- 4 BNC connectors for coaxial input and 4 BNC loop connectors
- CPU with OS
- 1RU, no fans
- AES67 compatible
- One Gigabit Ethernet port
- Two stereo 8x2 utility mixers
- 12 universal logic ports (GPIO) on 2 RJ45 connectors
- 128 software logic ports
- Front panel headphone jack

M4-IP BLADE-3

Four Channel Mic Processing BLADE

The M4-IP BLADE-3 combines four high-quality microphone preamps, four channels of Vorsis embedded microphone processing, and a WheatNet-IP BLADE interface, allowing you to place four microphone inputs anywhere in your WheatNet-IP Intelligent Network (although it also works just fine as a standalone processor). The preamps and processors are accessed and controlled from any point on the network via its Windows-based GUI.

The M4-IP is a great way to maximize your investment in on-air talent by combining four mic processors into a single rack space, accessible from anywhere.

The M4-IP microphone processor is equipped with four matched Super-Quiet (SQ) microphone preamplifiers featuring extremely low noise floor, very wide dynamic range, faithfully accurate transient response, and ruler flat frequency response. Operating in harmony with high quality 24-bit A/D converters and a 96kHz base sample rate, the M4-IP adds absolutely no undesired coloration to the signal and faithfully preserves the sound of any microphone and talent combination. It also features a four-section equalizer with high and low shelving EQ and two bands of fully parametric EQ, high and low pass filters, and de-esser and expander functions.

The M4-IP has four analog stereo line-level outputs, ideal for feeding headphone amplifiers associated with talent or studio monitoring systems, and four stereo AES digital outputs.

The signal path of the M4-IP includes four completely independent channels of Wheatstone's smooth-sounding Vorsis dynamics processing. Adjustable from anywhere on your network the M4-IP offers the security of password protected TCP/IP-based remote control and no front panel controls.

Like all WheatNet-IP BLADE-3s, the M4-IP BLADE-3 is AES67 compatible.

Wheatstone-designed Equalization

Based on great-sounding designs built for Wheatstone's high performance professional audio applications, the M4-IP's equalization section operates predictably and adds no noise, ringing, phasiness or other undesirable coloration to the sound.

Wheatstone-designed Dynamics Processing tools

A high performance and fully adjustable downward expander, de-esser, and smooth sounding broadband compressor and selectable low distortion final Lookahead limiter round out the M4-IP to create powerful and authoritative presence to production or on-air microphones.

Processing Presets

A variety of ready-to-use factory processing presets are provided, carefully tailored for different processing goals and formats. You can select a factory preset, confident that it will sound great just as it is. Or use a factory preset as a starting point and create a custom sound for each announcer, then save the new settings as a personalized user preset. In a facility with multiple microphone processors, presets saved in one unit can be easily copied to the others.

Wheatstone Talent Control Interface

The Wheatstone Talent Control Interface software can reside on an air studio/control room PC and gives talent the ability to recall presets from any Vorsis microphone processor without allowing processing adjustments.

All parameters of the M4-IP are controlled using the included Windows-based GUI. Voice talent can activate his or her own personal sound at the press of a button using the Talent Control Interface, a special GUI designed for preset recall only.

- Extremely high performance microphone preamplifiers with 48V phantom power
- Four completely independent processing channels
- Four stereo analog line level outputs
- Four stereo AES outputs
- All digital, field proven Wheatstone-designed advanced processing algorithms
- Phase Scrambler to correct asymmetrical voice waveforms
- High- and low-pass filters
- Fully adjustable downward expander
- Precision de-esser sibilance controller
- Four-bands of EQ: low-frequency shelving, two-band parametric, high-frequency shelving
- Broadband compressor
- Final precision peak limiter – can be defeated if desired for lower latency
- AES67 compatible
- TCP/IP-based remote control from anywhere via M4-IP Remote Control Software
- Talent Control Interface software for preset recall without processor control
- Password controlled access and control-less front panel for keeping settings secure
- Full color OLED front panel display
- Front panel metering of input and output levels

Recommended Applications:

AM Analog
FM Analog
FM HD
AM HD
Television
Webcasting
Podcasting
Mastering & Production
Live Sound

NOTE: An original BLADE version of the M4-IP is still available. Contact your Wheatstone sales engineer for details.

AURA8-IP BLADE-3

Vorsis Eight-Channel Audio Processing BLADE

Rack up eight audio processors in one networkable unit. Convenient, cost-effective, and more than able enough, the Aura8-IP audio processing BLADE-3 has I/O onboard and eight fully independent Vorsis multiband stereo audio processors. This 1RU BLADE-3 offers processing control and network connectivity through the WheatNet-IP Intelligent Network and full AGC, compression and limiting functions for HD, streaming or podcasting separate channels of programming in one unit.

The Aura8-IP BLADE-3 audio processor brings two of Wheatstone's core technologies together: Vorsis ultra-high resolution audio processing and the WheatNet-IP Intelligent Network. Merging these technologies in a single product provides a convenient and cost effective way to access audio processing wherever you need it on your WheatNet-IP network. The Aura8-IP occupies a single rack space, but packs in an impressive eight fully independent Vorsis® multi-band stereo audio processors.

Each processing chain consists of a 4-band parametric equalizer followed by a crossover and three bands of compression. The compressors each feed their own limiters, whose outputs are then fed to a broadband lookahead limiter for tight peak control. The Aura8-IP has its own local I/O, with four stereo pairs of AES digital audio and four stereo pairs of analog line level audio in and out, and can function as a standalone processing engine. Because it's a BLADE-3, it can also instantly configure itself as part of a new or existing WheatNet-IP Intelligent Network, making its processing power available throughout that network.

Like all BLADE-3 access units, the Aura8-IP BLADE-3 is AES67 compatible.

The Aura8-IP is configured and controlled over Ethernet using a laptop or desktop computer. Included with the unit is Wheatstone's acclaimed "Guru" GUI software, which allows easy setup of the processing using familiar, straightforward controls. Also available is a more sophisticated control interface called "GUI Pro," which provides access to every individual processing parameter for expert-level adjustments.

NOTE: An original BLADE version of the Aura8-IP is still available. Contact your Wheatstone sales engineer for details.

- Highest performance 24-bit A/D and D/A convertors
- 8 complete Vorsis multiband processors, each with:
  - 4-band parametric equalizer
  - 3-way crossover
  - 3 compressors
  - 3 limiters
  - Final lookahead limiter
- Two 8-channel utility mixers
- 4 AES digital inputs on RJ45 and "D" connectors
- 4 stereo analog inputs on RJ45 and "D" connectors
- 4 AES digital outputs on RJ45 and "D" connectors
- 4 stereo analog outputs on RJ45 and "D" connectors
- Built-in router control
- AES67 compatible
- Full color OLED front panel displays
- Front panel headphone jack
- Front Panel Metering
- Rugged Power Supply
- Can be used standalone or as part of a WheatNet-IP Intelligent Network
- Silence sensing can be applied to any outputs
- One Gigabit Ethernet port

What can you do with the Aura8-IP? Virtually anything you want! These are just a few of the ways you might use Aura8-IP. As a standalone processor, you get eight stereo channels of jaw-dropping Vorsis ultra high resolution processing power for under $500 per channel. That alone is worth the price of admission. But when you take advantage of Aura8-IP being a BLADE with its built-in utility mixers, full logic, SNMP messaging and silence detection, and use all that with its eight channels of processing, its power is really unleashed. How many ways can YOU think of to use the Aura8-IP?

Low Latency Talent Headphone Processing

Often, the key to talent turning in their best performances is what they hear in their headphones. Give them a sound that drives them to brilliance with Aura8-IP.

Remote Feed Conditioning

The great and hard thing about radio is that you can tie the world together on your broadcast. That means you can have audio flying in from all over. Aura8-IP is exactly what you need for all of it, at a price that will make you very happy!

Talkshow Call-Ins

Processing can make a huge difference in the on-air quality of call-ins on your talk shows. Aura8-IP is up to the task.

Mic Processing

Every microphone does a better job when it's processed not only for the voice that's speaking into it, but for the path it's taking on the way to someone's ears. Aura8-IP does a superb job processing microphone audio.

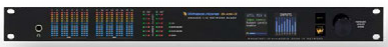
Satellite Uplink Peak and Spectral Control

The key here is keeping signals under control. Aura8-IP is perfect for the job, keeping an eye (or ear) on the peaks as well as ensuring the spectral range stays consistent.

IFB Conditioning

Clear communications between director, engineering and talent is key to presenting successful sports and multiple-report shows. Aura8-IP is perfect for cleaning up IFB.

STL Pre-Processing and Protection-Processing



There are a lot of dedicated STL systems out there. Or, if you have a WheatNet-IP, it's the perfect solution. No matter HOW you handle STL, let Aura8-IP handle processing to ensure the audio is optimized for it.

Multiple HD Feeds

HD Radio gives you the option of broadcasting multiple audio streams of varying quality. Make the most of each by giving them processing that will make them stand out.

Sweetening Incoming Commercials and Newsroom Feeds

Keeping your revenue sources sounding compelling can really help with audience perception and acceptance. Aura8-IP is a cost-effective solution for ensuring your entire audio stream sounds SWEET!

Codec Pre-Processing

Audio from codecs is subject to environmental conditions - at the source and through the connection. Processing with Aura8-IP can clean it up nicely.

Web Streams

Whether you are streaming now or getting ready to, there's no better investment you can make in your station than to ensure those streams sound great. That's exactly what Aura8-IP does.

Automation Streams

Wheatstone enjoys technology partnerships with the leaders in broadcast today. Use the AGC in Aura8-IP to keep your automation streams clean and under control.

VP-8IP

Multi-Mode Digital Audio Processor

The Wheatstone VP-8 IP multimode audio processor gives the cost/performance envelope a nice upward push. VP-8 IP, the broadcast industry's first multi-mode broadcast audio processor, is equipped with six built-in and highly specialized independent processing functions. AND it ties directly into the WheatNet-IP Intelligent Network which greatly increases its flexibility.

The VP-8 IP incorporates six highly specialized, built-in processing modes that may be changed at any time by the user.

Special processing algorithms designed by Wheatstone condition the audio appropriately for the special needs of each of the six operating modes. Audio is first pre-processed by a phase-linear four band AGC followed by an eight band multi-band limiter equipped with special mode-specific final processing. The final processing algorithms are unique for each mode and have been carefully designed to meet the special requirements of the intended audio transport mediums.

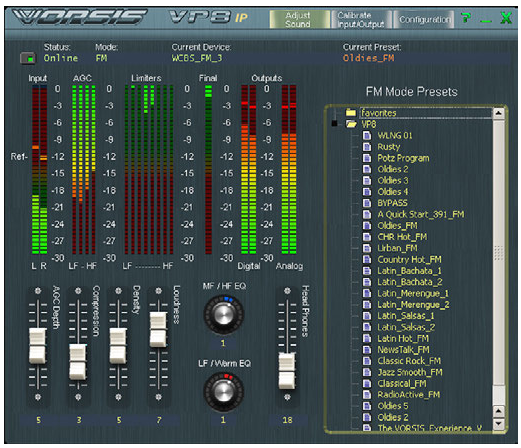
Regardless of the operating mode, the VP-8 IP offers the best listening experience of any audio processor in its price range. The VP-8 IP's built-in library of algorithms specifically addresses the special needs of FM, AM, FM-HD, and AM-HD, as well as High and Low bitrate codec applications.

The VP-8 IP architecture includes processing for FM (with built-in reference grade stereo generator and inputs for SCA or RDS), AM/AM-Stereo, and four specially optimized processing modes. These four modes have been specially designed and tuned for the challenges of codec-based mediums such as FM-HD, AM-HD and low bitrate applications using the MP3/AAC codecs.

Vorsis Bass Management System
A Vorsis innovation, the Vorsis Bass Management System (VBMS) circumvents bass-related distortion often plaguing audio processors. By monitoring program energy in the audio spectrum and manipulating the behavior of the final peak limiter, bass-induced intermodulation distortion is prevented. The result is improved bass impact and detail without affecting the clarity of mid and high frequency program – in fact bass detail and the clarity of higher frequency audio are actually enhanced by the VBMS algorithm.

Exclusive Multipath Limiter
Exclusive to the Wheatstone line of audio processors is the Multipath Limiter. This single user control can help mitigate the audible effects of multipath as well as reduce receiver-induced stereo blend by limiting the amount of L-R as a percentage of L+R for a more consistent and predictable sound.

Smart Stereo Enhancement
The VP-8 IP incorporates a new technology that we call Smart Stereo Enhancement. Operating in the sum and difference domain and under the management of specialized automatic level and spectral management algorithms, the resulting stereo image is wide and acoustically stable with no 'hole in the middle' effect. Producing a sound that has great depth of detail and is exciting to listen to, artistically important nuances in music can be revealed for the very first time. In fact, Wheatstone customers have reported hearing details in program material that were completely inaudible when the same material was processed by other brands of audio processing.



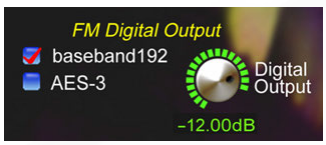
VP-8 IP Software GUI
Basic setup is via VP-8 IP AUDIO PROCESSING GURU® Software. Install it on a Windows® PC, and connect to the VP-8 IP directly, over a network, or over the Internet.

Audio Processing Guru® Software gives you six easy to understand controls to customize any preset. Each control changes multiple parameters behind the scenes to ensure intelligent adjustments to your sound. It's like having your own audio guru with you when you tweak!

Selecting a new processing mode is as simple as selecting it from the front panel or from within the Windows®-based Graphical User Interface. Mode changes occur in less than two seconds, with no reboot or 'memory bank selection' being required in order to change the VP-8 IP to a completely different processing mode.

Remote control is via 100BaseT wired Ethernet and Windows®-based GUI software. Additionally, the VP-8 IP can be located anywhere on Wheatstone's WheatNet-IP Intelligent Network for direct access from any WheatNet-IP compatible device.

Wheatstone® baseband192



Wheatstone® baseband192 digitizes the entire multiplex spectrum up to and including the RDS, doing away with an analog composite interface between processing and transmission.

A single AES/EBU cable carries the digitized signal between the VP-8IP and any FM transmitter equipped with a digital baseband input, bypassing the need for multiplexing in the exciter and eliminating the resulting signal overshoot and its associated loudness tradeoff. The baseband192 interface is a standard feature in Wheatstone FM-531HD, AirAuraX3, and VP-8IP audio processors.

- Switchable for FM analog, FM-HD, AM analog, AM-HD, Streaming >48kHz, Streaming <48kHz
- Updated preset library with dozens of factory processing presets separately designed for each medium, carefully tailored to get you sounding great quickly
- VBMS™ Vorsis Bass Management System for clean, deep, low bass without the typical distortions
- Front-panel metering of input levels, output levels, and processing activity
- FM stereo generator/encoder
- Stereo enhancement
- Diversity delay for HD
- Test/setup oscillator
- Headphone monitoring of each processing stage
- Front-panel control for selection of presets and setup; can be locked out for security
- Built by Wheatstone in the United States
- WheatNet-IP compatibility
- Wheatstone® baseband192 built in for digital link to transmitter

FM-531 HD

High Definition Audio Processor

Our FM-531HD on-air FM processor has the same digital performance as our flagship AirAura processor—squeaky-clean audio and bass that rocks—but in a 1RU package and at a very budget-friendly price.

Our FM-531HD is a 1RU on-air processor for FM/HD use. Packaged in a compact, 1RU form factor, this processor brings the multiband precision of our flagship AirAura® processor to a budget-friendly price point. Its Vorsis Ultra High Resolution processing technology delivers superb on-air sound that's loud, yet detailed.

Features include a distortion-managed final clipper for squeaky-clean audio, smart stereo enhancement, bass management for deep, yet clean bass, and Sweet Spot Technology for consistent sound regardless of density variations in the source material.

Distortion-Managed Final Clipper
The technology utilized in our FM-531HD final peak clipper does not generate the objectionable aliasing and intermodulation distortions commonly associated with less-complex clipper technology.

Similar in certain ways to our acclaimed 31-band 'Fine Grain' limiter (a Vorsis exclusive), the FM-531HD utilizes high resolution distortion recognition algorithms to discern audio from distortion. The fine-grained selectivity afforded by this technology is the best way to sense and truly mitigate distortion. Other technologies can only make a "best guess" at separating desirable audio components from undesirable distortion products.

By analyzing the audio and the distortion products created during peak control, the FM-531HD removes distortion products and other artifacts that a listener might find objectionable. It is highly adept at minimizing intermodulation distortion, especially close-spaced difference frequency intermodulation products in the midrange frequencies where human hearing is the most sensitive.

"Fine Grain" Processing
"Fine Grain" processing overcomes the limitations of peak limiters in other on-air processors. Using 31 limiter bands selected according to ISO standard 1/3 octave center frequencies the FM-531HD limiters (one for FM, one for HD) perform precision spectral energy control without generating additional density or artifacts usually associated with peak limiters having fewer bands. Operating according to accepted principles of human psychoacoustics, the action of the Stealth Limiter™ goes completely unnoticed by the ear. Because of the need for very shallow limiting in each band, there are absolutely no 'swishing' artifacts and no unnatural density buildup; just increased on-air loudness, detail, and "listenability" of the station's programming.

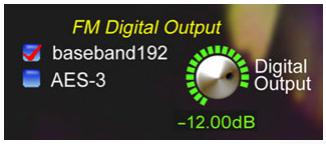
Sweet Spot Technology
Sweet Spot Technology (SST) has been designed by Vorsis to manage the behavior of the multiband AGC as program content density changes, something a typical broadband AGC simply cannot do. It effortlessly handles transitions between the hyper-compressed recordings of today and those of the past that have considerably more dynamic range. SST achieves uncannily natural-sounding consistency in both on-air loudness and spectral balance regardless of density variations in the incoming source material.

Vorsis Bass Management System - v2.0
The Vorsis Bass Management System (VBMS) enhances deep bass and impact without affecting the cleanliness of mid and high frequency content. Bass detail and the clarity of higher frequency audio are enhanced by this powerful, innovative algorithm. With VBMS' 'Texture' and 'Sub' controls, on-air bass has never sounded so good and so deep and natural.

Exclusive Multipath Limiter
Exclusive to the Wheatstone line of audio processors is the Multipath Limiter. This single user control can help mitigate the audible effects of multipath as well as reduce receiver-induced stereo blend by limiting the amount of L-R as a percentage of L+R for a more consistent and predictable sound.

Smart Stereo Enhancement
Stereo enhancement is a standard feature on all Vorsis on-air processors and utilizes a Vorsis technology: Smart Stereo Enhancement. Operating in the sum and difference domain and utilizing specialized spectral management algorithms, it provides a smooth, natural, wide listening experience without triggering multipath effects. It delivers an extremely stable 'on-air' stereo image that's exciting to listen to. Users have reported hearing, for the very first time, artistically important nuances in familiar music that could not be heard when that material was processed by other on-air processors.

Wheatstone® baseband192
Wheatstone® baseband192 digitizes the entire multiplex spectrum up to and including the RDS, doing away with an analog composite interface between processing and transmission.



A single AES/EBU cable carries the digitized signal between the FM-531HD and any FM transmitter equipped with a digital baseband input, bypassing the need for multiplexing in the exciter and eliminating the resulting signal overshoot and its associated loudness tradeoff. The baseband192 interface is a standard feature in Wheatstone FM-531HD, AirAuraX3, and VP-8IP audio processors.

- Distortion-managed final clipper for squeaky clean audio
- 31-band limiting for precision spectral energy control without generating additional artifacts typically associated with fewer bands
- Exclusive SST technology for sound consistency regardless of density variations in the incoming source material
- Bass management technology for deep bass without affecting the cleanliness of mid and high frequency program
- Exclusive Multipath Limiter for mitigating the effects of multipath
- Smart stereo enhancement for extremely stable 'on-air' stereo image that's exciting to listen to
- Audio Processing Guru® GUI included standard
- Five band phase linear adjustable crossover feeding a five band AGC
- Exclusive 31-band limiter technology
- Exclusive VBMS™ (Vorsis Bass Management System)
- Selectable FM peak control via oversampled lookahead limiter or distortion masked clipper
- Four band full parametric equalizer
- Variable high pass filter
- Voice phase rotator
- AES3 digital input accepts 32kHz - 96kHz
- AES3 digital output automatically synchronizes to AES3 digital input
- WheatNet-IP compatible
- Wheatstone® baseband192 built in for digital link to transmitter

AirAura X3

Digital Spectral Audio Processor

Being loud just to be loud is easy. It's been easy for years. Turning up the volume without causing listener fatigue – that's the real challenge. X3 technology inside our AirAura delivers that sought-after loudness without ever sounding harsh, clipped, distorted or overdone. It simply sounds real.

The AirAura X3 spectral audio processor for FM is equipped with processing technologies that simply didn't exist until now, starting with a new final clipper that creates extremely competitive loudness while also minimizing listener fatigue. Another new technology unique to our NEW third-generation AirAura helps extend perceived stereo coverage, and yet another technology helps hide the annoying coding artifacts that might be present in a station's stereo source material.

AirAura X3's incredible dial presence, three selectable stereo multiplex modulation methods, the ability to help mask coding artifacts, and its mitigation of many stereo multipath annoyances as well as its exclusive clipper technology make it THE processor for on-air FM.

AirAura X3 Distortion-Managed Final Clipper

The AirAura X3 has an entirely new final clipping technology that does two things very well: loud and clean. Simultaneously. Its new final peak clipper is based on proven Vorsis technology that does not generate the objectionable aliasing and intermodulation distortions commonly associated with less-complex clipper technology. The result is squeaky clean audio, even at extremely competitive loudness levels. AirAura utilizes high resolution distortion recognition algorithms to discern audio from distortion. The fine-grained selectivity afforded by this technology is the best way to sense and truly mitigate distortion. Other technologies can only make a "best guess" at separating desirable audio components from undesirable distortion products.

By analyzing the audio and the distortion products created during peak control, AirAura removes distortion products and other artifacts that a listener might find objectionable. It is highly adept at minimizing intermodulation distortion, especially close-spaced difference frequency intermodulation products in the midrange frequencies where human hearing is the most sensitive.

During beta testing in major markets listeners commented about how smooth and open the entire audio spectrum sounded when processed by our new AirAura clipper. Achieving effortless competitive loudness on the air while remaining subjectively cleaner than their usual on-air processor was never an issue. In fact, in one top-ten market we were asked if we could "turn it down just a little bit."

AirAura X3 PostCode Tool

Some audio processors precondition audio to make it more favorable for a codec's input, but no on-air processor had ever been developed with features specifically designed to help already coded stereo audio sound better after the fact. That is, until now.

AirAura X3's all-new PostCode Tool™ helps minimize the audibility of coding artifacts in stereo program material without degrading the overall listening experience. By reducing the swishing, swirling, grainy artifacts of coded audio, the AirAura X3 enables listeners to listen as long as they like with no fatigue.

AirAura X3 "Fine Grain" Processing

The AirAura X3 has an entirely new algorithm for selectively processing only those frequencies that require it, which overcomes the limitations of peak limiters in other on-air processors. Using 31 limiter bands selected according to ISO standard 1/3 octave center frequencies, the AirAura limiters (one for FM, one for HD) perform precision spectral energy control without generating additional density or artifacts usually associated with peak limiters having fewer bands. Operating according to accepted principles of human psychoacoustics, the action of the limiter goes completely unnoticed by the ear. Because of the need for very shallow limiting in each band, there are absolutely no 'swishing' artifacts and no unnatural density buildup; just increased on-air loudness, detail, and "listenability" of the station's programming.

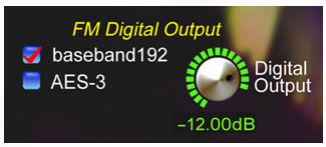
AirAura X3 five-band Sweet Spot AGC
AirAura X3 has an entirely new Sweet Spot Technology (SST) that effectively manages the behavior of the multiband AGC as program content density changes, something a typical broadband AGC simply cannot do. It effortlessly handles transitions between the hyper-compressed recordings of today and those of the past that have considerably more dynamic range. SST achieves uncannily natural-sounding consistency in both on-air loudness and spectral balance regardless of density variations in the incoming source material.

AirAura X3 Vorsis Bass Management System
AirAura X3 has a new and better Vorsis Bass Management System (VBMS) with new tuning features that enhance deep bass without affecting the cleanliness of mid and high frequency program. Bass detail and the clarity of higher frequency audio are enhanced by this more powerful algorithm. If you thought second-generation AirAura bass was something, you will be amazed at the deep and natural sounding bass coming from the AirAura X3.

Exclusive Multipath Control
Exclusive to the Wheatstone line of audio processors is the Multipath Limiter. This single user control can help mitigate the audible effects of multipath as well as reduce receiver-induced stereo blend by limiting the amount of L-R as a percentage of L+R for a more consistent and predictable sound.

AirAura X3's Smarter Stereo Enhancement
Operating in the sum and difference domain and utilizing specialized spectral management algorithms, AirAura's Smart Stereo Enhance provides a smooth, natural, wide listening experience without triggering multipath effects. It delivers an extremely stable 'on-air' stereo image that's exciting to listen to. Users have reported hearing, for the very first time, artistically important nuances in familiar music that could not be heard when that material was processed by other on-air processors.

Wheatstone® baseband192:
Wheatstone® baseband192 digitizes the entire multiplex spectrum up to and including the RDS, doing away with an analog composite interface between processing and transmission.



A single AES/EBU cable carries the digitized signal between the FM-531HD and any FM transmitter equipped with a digital baseband input, bypassing the need for multiplexing in the exciter and eliminating the resulting signal overshoot and its associated loudness tradeoff. The baseband192 interface is a standard feature in Wheatstone FM-531HD, AirAuraX3, and VP-8IP audio processors.

- New final clipping technology – very clean and very loud – simultaneously
- New Five-band AGC with Sweet Spot Technology tuning capabilities
- New codec artifact reduction algorithm helps tame coded stereo source material
- New 31-band limiter algorithms
- New left/right analog output routing for FM and HD processing
- New equalizer offers both parametric and Baxandall-style shelving EQ
- New bass management system with enhanced tuning features
- New high performance stereo generator with DSB and two SSB encoding methods
- New Guru GUI tuning capabilities
- New advanced analysis features for displaying internal and external signals
- New comprehensive security features designed for mixed-use sites
- New post-processed loudness analysis conforms to BS-1770-S standards
- New preset storage for up to 160 processing presets
- Analog, digital and WheatNet-IP audio I/O with automatic 'failback to primary'
- Exclusive stereo multipath controller technology for enhanced stereo reception
- Remote processor control via wired Ethernet or integrated Wi-Fi connectivity
- Specialized audio analysis functions for input or processed audio include:
  - 1,024 point FFT
  - Oscilloscope
  - Energy versus Frequency
  - 3-D plot of spectral content vs. time
  - Spectral Dynamic Range (a Vorsis exclusive)
  - Display of AirAura's clipper distortion masking activity
- WheatNet-IP compatible
- Wheatstone® baseband192 built in for digital link to transmitter

Designed and built by
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Wheatstone
BROADCAST AUDIO PERFECTIONISTS℠

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