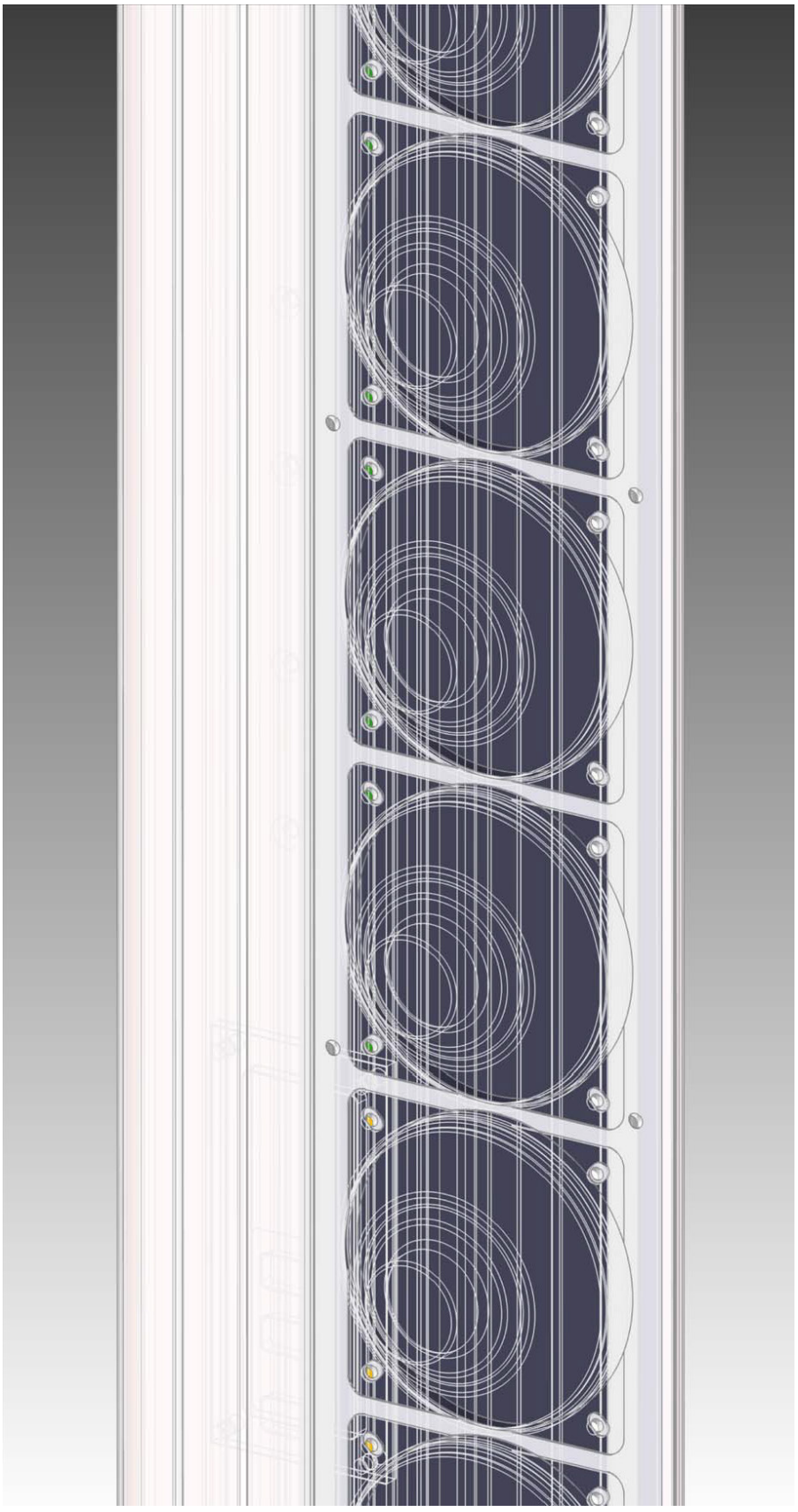
AVE Audio

Digitally Steerable Column Speaker
Ascolto

A.V.E. GmbH
Audio Vertriebs-
Entwicklungsgesellschaft

Germany



Digitally

Steerable

Column

Speaker

Ascolto

AH2435

Datasheet

Table of Contents

1.0 – Acoustic Specifications[1]

Frequency Bandwidth[2]	
	80 Hz to 20 kHz (±2 dB)

Peak SPL[3]	
	133 dB at 1 m, 106 dB at 30 m, 105 dB at 40 m
Coverage	
Horizontal (fixed)	130° (-6 dB average 1 kHz to 4 kHz)
Vertical (adjustable)	Tilting Up/Down Angle: -60° to 60° in 0.1° intervals Opening Angle: 12° to 40° in 0.1° intervals
Typical Throw	30 m
Maximum Throw	40 m

Dynamic Range	
	102 dB (f=1 kHz, AES17 filter)

Transducers Type	
Number of Transducers	24 Full Range Loudspeakers
Diameter	3.5”
Magnet Material	Neodymium

2.0 – Electrical Specifications

Audio Input 1: Line 0 dBu	
Input Level Nominal	0 dBu (2.19 Vpp)
Input Level Maximum	10 dBu (6.92 Vpp)
Type	Balanced
Impedance	20 kΩ at 1 kHz

Audio Input 2: 100 V (Distributed Speaker System)	
Input Level Nominal	39.2 dBu (200 Vpp)
Type	Balanced with Transformer
Impedance	20 kΩ at 1 kHz

Audio Input 3: Dante Audio Networking (available only in Ascolto – Dante Series)	
Network	Dante Audio over IP
Transport Layer	Ethernet
Dante Latency	1, 2, or 5 ms (configurable using Dante Controller)
Support for AES67	Yes
Sample Rates	48 kHz
Bit Depths	24

Power Amplifier	
Type	PWM (Class D)
Output Power	24 × 70 W_{max}
Power Efficiency	86%
THD+N	0.07% at 10 $W_{rms/channel}$
Input Signal	Balanced
Channel Protections	Thermal Shutdown ($T_{junction}$ >150°C)

	Output Short Circuit

DSP Module	
DSP Processors	48 bit Fixed Point DSP 76-bit Internal Accumulator 145 MHz
Sample Rate	48 kHz
A/D Conversion	Resolution: 24 bit Linear PCM Conversion: 1-bit delta-sigma 256× Sample Rate: 48 kHz SNR: 102 dB (A-Weighted)
D/A Conversion	Resolution: 24 bit Linear PCM Conversion: upsampling 128× Sample Rate: 48 kHz SNR: 105 dB (A-Weighted)
Signal Processing	Beam Forming Filtering Input Equalization (10 Biquad) Volume (-120 dB_{FS} to 0 dB_{FS}) Delay (0 m to 50 m, step 0.1 m) Dynamic Compressor 2-Bands Input Signal Activity Detector

Control Module	
Processor	32 bit ARM-Cortex M3 RISC 50 MHz
AVE Network Interface	RS485, Half Duplex, 115200 baud/s

	120 Ω Parallel Termination (recommended for long distance)
Dante Network Interface	Ethernet, 100 Mbit/s (available only in Ascolto – Dante Series).
Processor Activities	DSP Firmware Booting DSP Status Monitoring PWM Power Amplifier Functions Controlling PWM Power Amplifier Status Monitoring Audio Input Channel Functions Controlling Dante-Chip Ultimo XXT Control (in Ascolto – Dante Series) Auto Stand-By Controlling RS485 Communication Infrared Communication Panel LEDs Controlling Firmware Updating

Connectors	
Audio Inputs Connector	3-pole, 3.81 mm-pitch
Audio Inputs Pinout	pin 1: hot signal (+) pin 2: cold signal (-) pin 3: earth (chassis ground)
RS485 Network Connector	3-pole, 3.81 mm-pitch
RS485 Network Pinout	pin 1: data + pin 2: data - pin 3: digital ground
Dante Network Connector	8 pin Ethernet RJ45, female connector
Mains Connector	Module IEC 320-C14, ratings 250 VAC, 10 A Approvals: UL, CSA, TÜV, CCC

Switched-Mode Power Supply Unit	
AC Range	90 VAC to 264 VAC (Universal Input)
Input Frequency	47 Hz to 67 Hz
Efficiency	90% typ at 230 VAC
Input Current at Full Load	6.0 A typ at 115 VAC 3.0 A typ at 230 VAC
Power Consumption	Continuous: 527 VA Peak: 686 VA Idle: 36 VA Stand-By: 12 VA
Protection	Thermal Protection Output Current Limiting Under-Voltage Lock Out
Main Fuse	1 × 6.3 A (slow blow)

3.0 – Electromagnetic compatibility

Electromagnetic Interference (EMI)	
Complete System	EN 55032
Switched-Mode Power Supply Unit	EN 55024 EN 60601-1-2 (Medical Devices) EN 61000-4-2, -4-3, -4-4, -4-5, -4-6, -4-8, -4-11

Electromagnetic Susceptibility (EMS)	
Complete System	EN 61000-3-2, -3-3 EN 61000-4-2, -4-3, -4-4, -4-5, -4-6, -4-11
Switched-Mode Power Supply Unit	EN 60601-1-2 (Medical Devices) EN 55011 class A, B EN 55032 class A, B EN 61000-3-2, class A, D EN 61000-3-3

4.0 – General Specifications

Mechanical	
Height	2482 mm
Width	120 mm
Depth	121 mm
Weight	17 Kg (37.47 lbs)
Cabinet	Powder Coated Aluminum Extrusion
Colour	RAL 9010
Special colour	Available for an additional charge

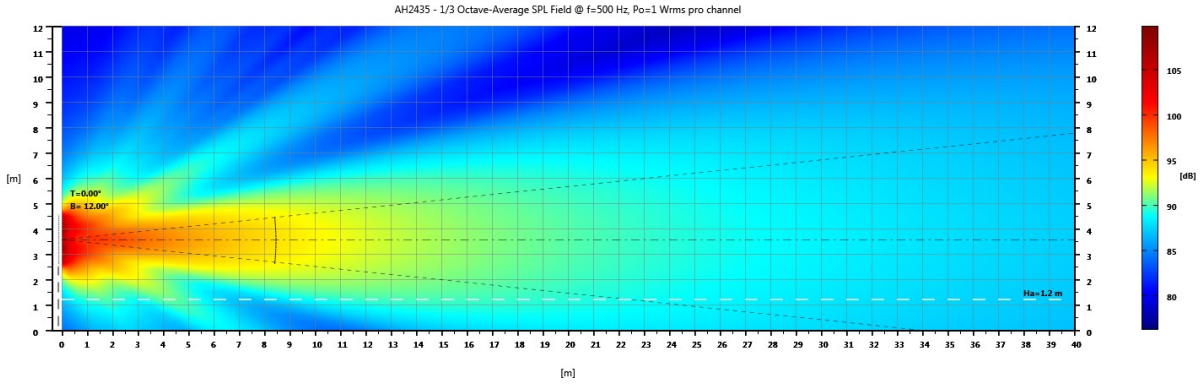
Temperature Range	
	0°C to 40°C (32°F to 102°F)

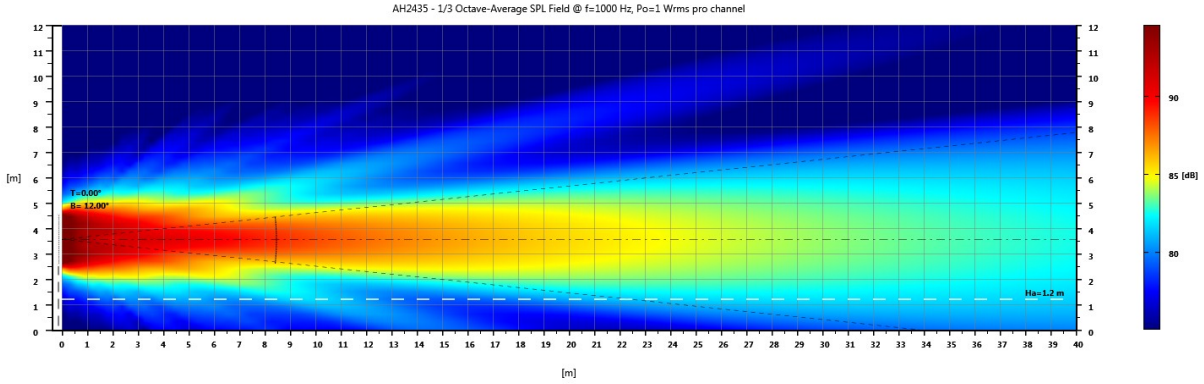
Electrical Protection Class	
	IEC 61140 - Class 1

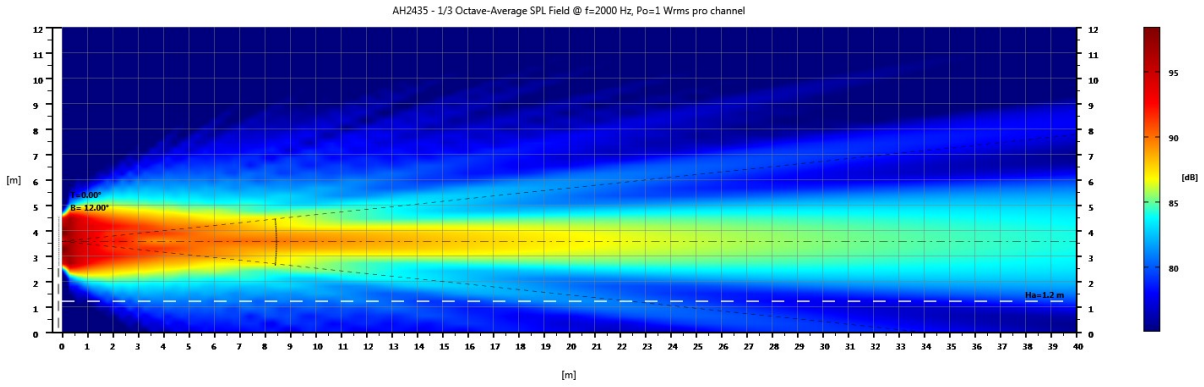
Certificates	
	CE

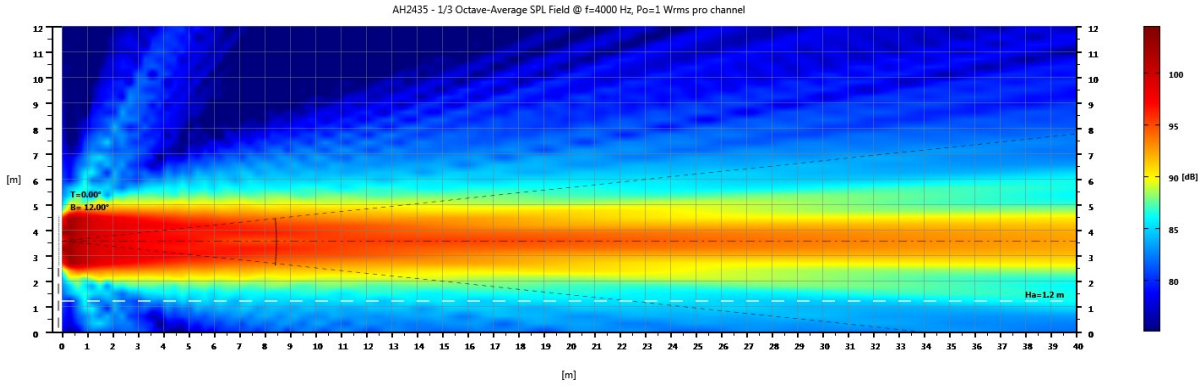
1) Measured outdoors under semi-anechoic full-space conditions using typical filter and delay settings, unless noted.
2) Column speaker data is 1/3-octave averaged, measured on-axis at 1 meter with 1 W per channel. Specified bandwidth assumes full-space conditions.
3) Levels refer to pink noise (100 Hz–20 kHz, 6 dB crest), at limiter onset.

5.0 – Vertical Beam Pattern

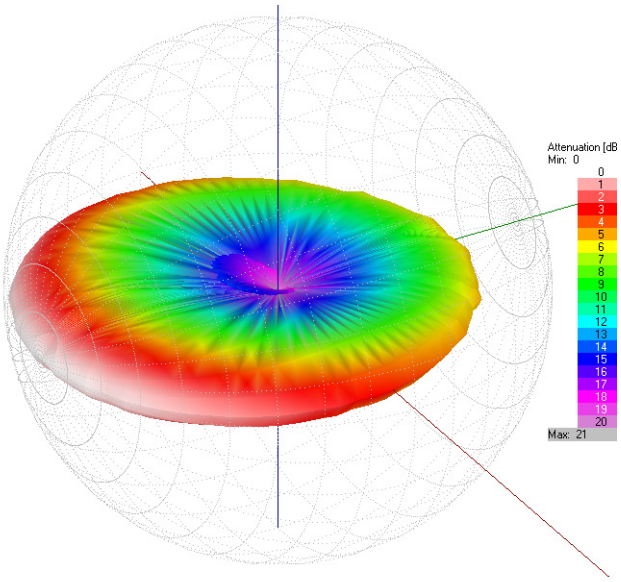




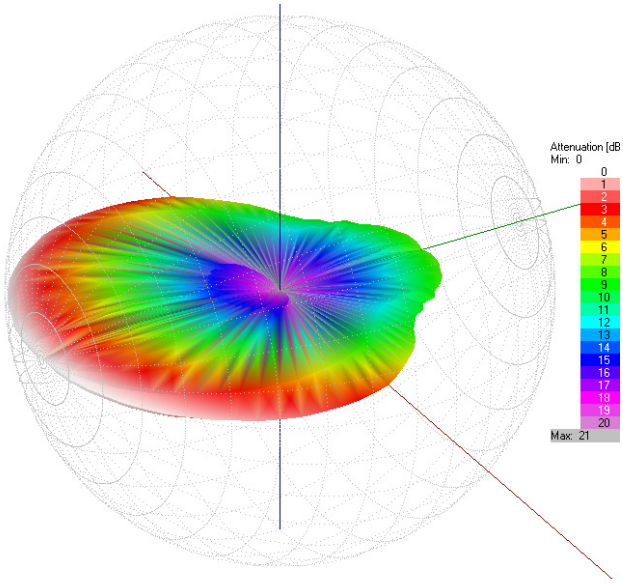




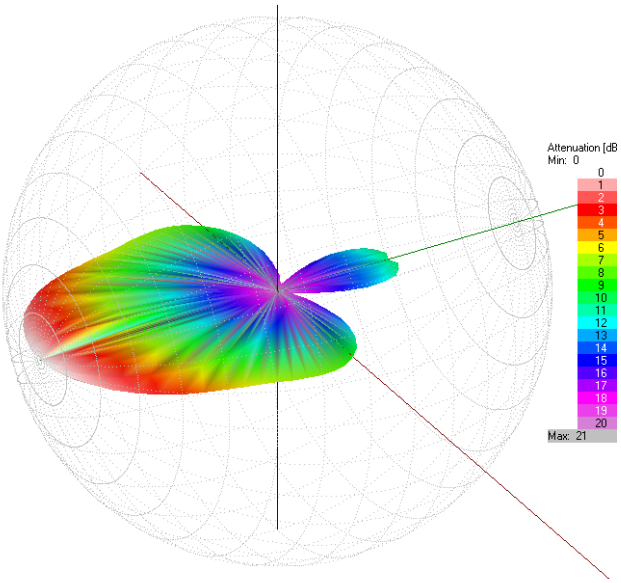
6.0 - Attenuation Balloon



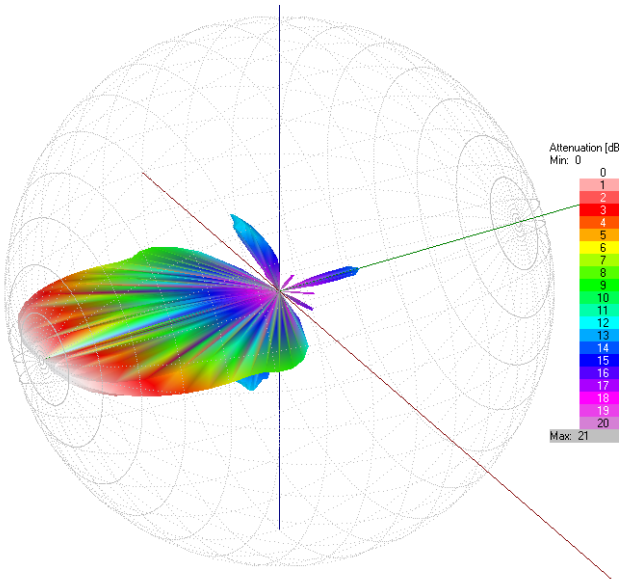
AH2435 – Attenuation Balloon – Freq = 500 Hz



AH2435 – Attenuation Balloon – Freq = 1000 Hz

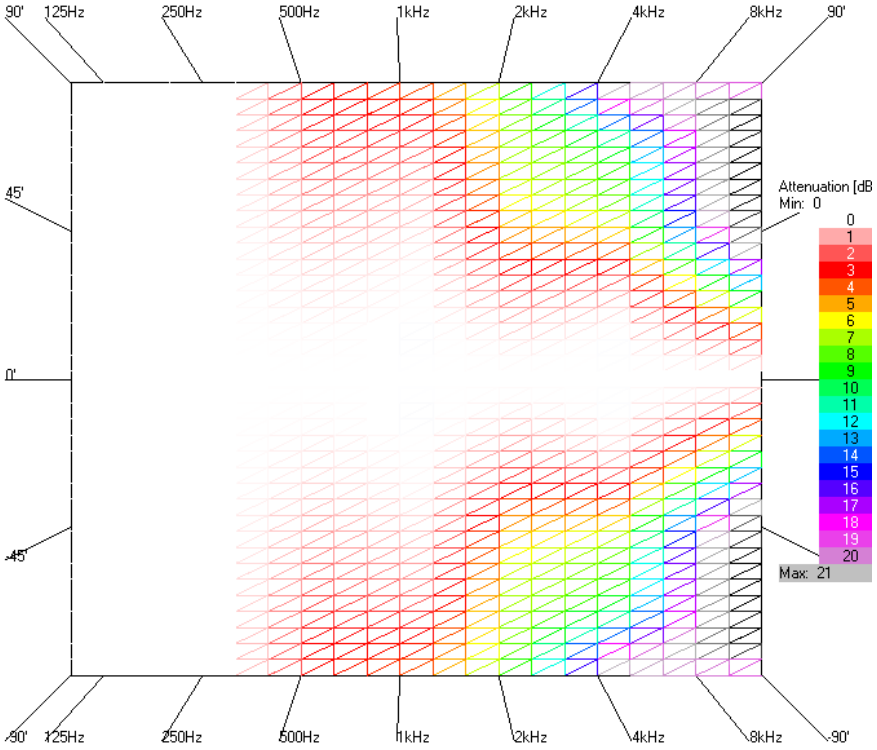


AH2435 – Attenuation Balloon – Freq = 2000 Hz

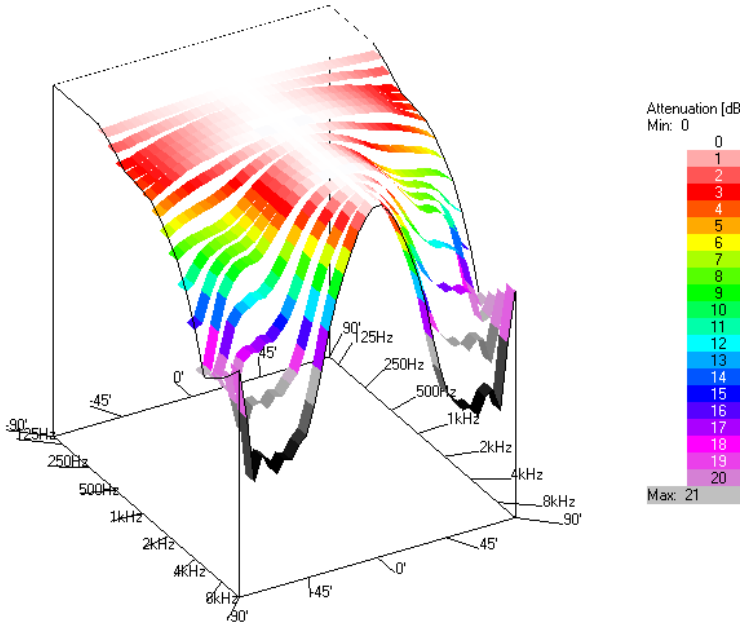


AH2435 – Attenuation Balloon – Freq = 4000 Hz

7.0 - Horizontal Polar Responses

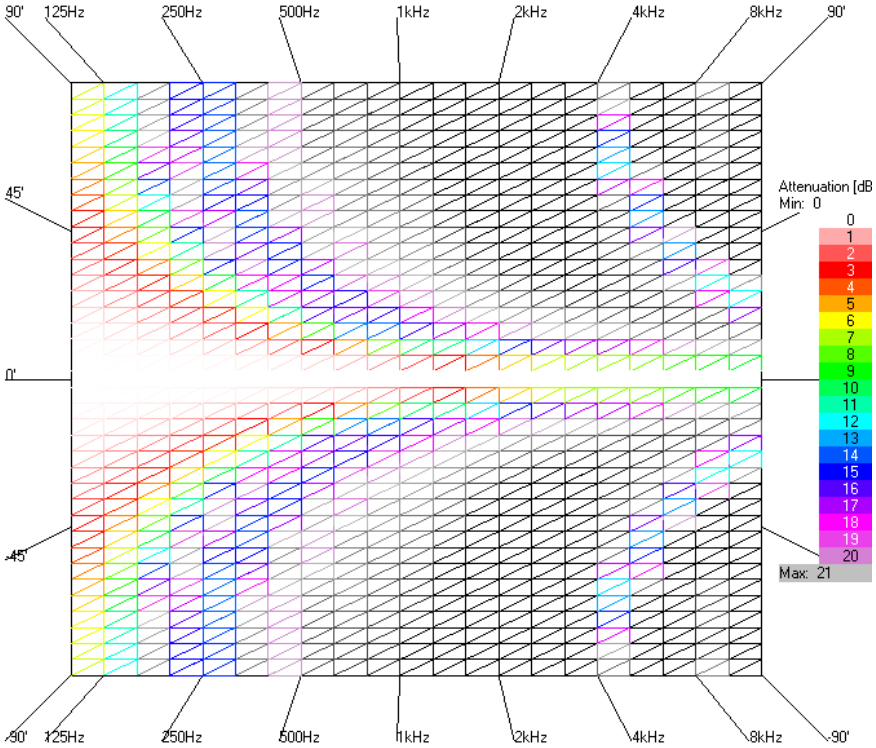


AH2435 - Horizontal Polar Responses vs Frequency

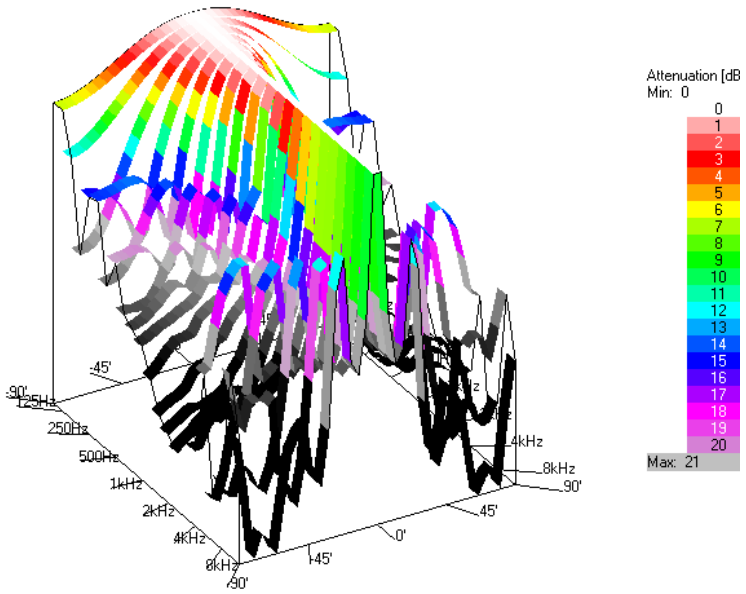


AH2435 - Horizontal Polar Responses vs Frequency

8.0 - Vertical Polar Responses



AH2435 - Vertical Polar Responses vs Frequency



AH2435 - Vertical Polar Responses vs Frequency

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