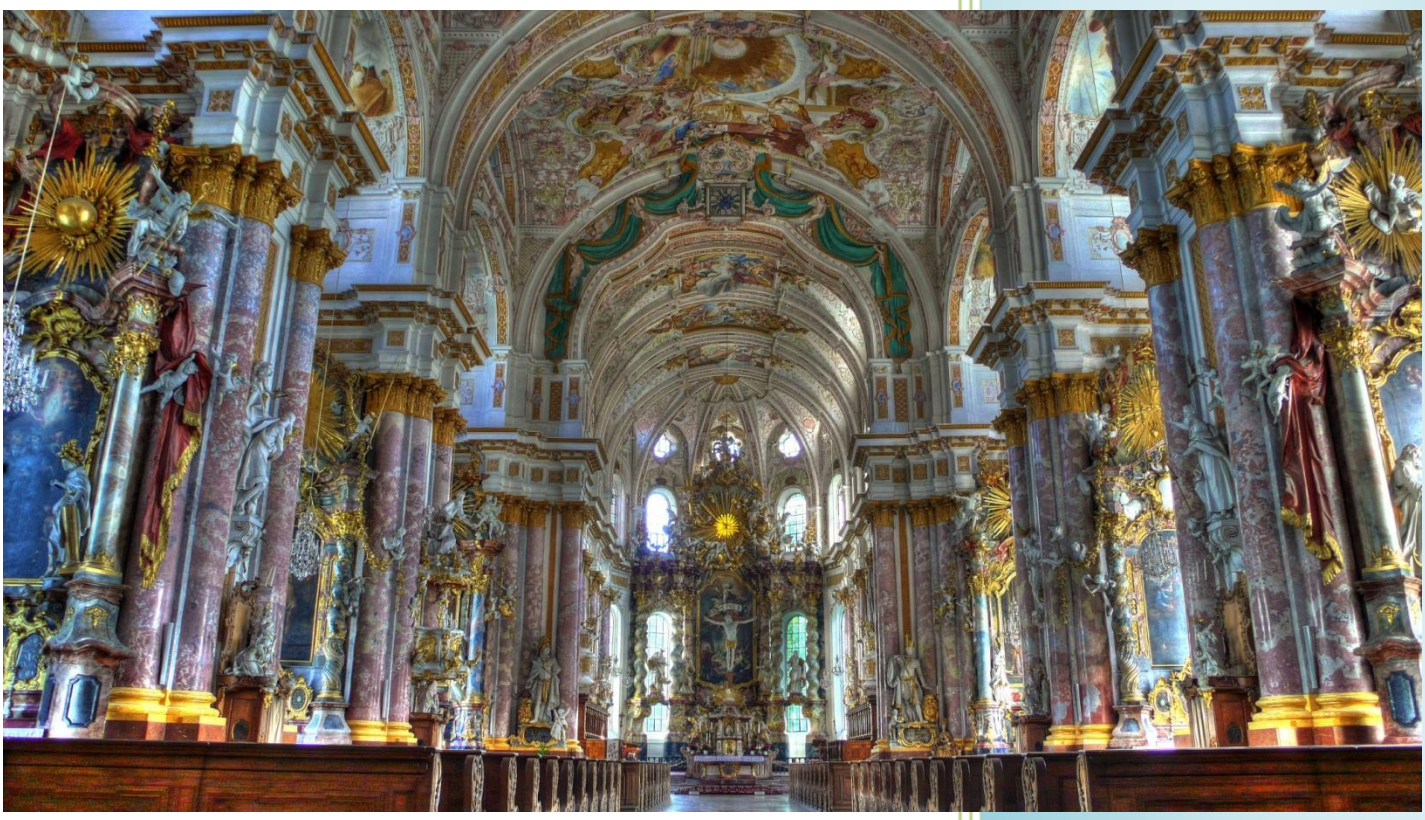
AVE mbH

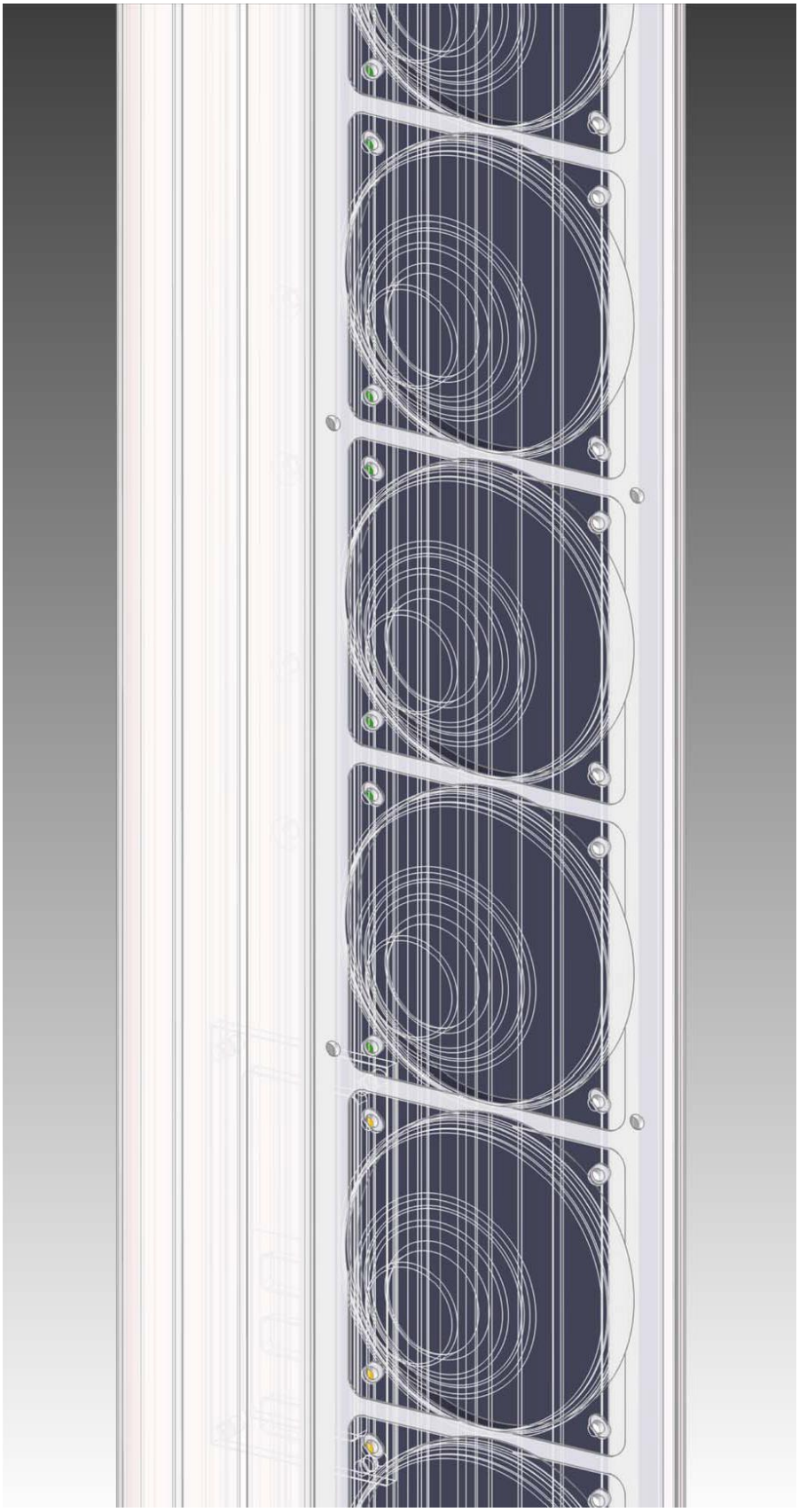
Digitally Controlled Line Array
Ascolto®



A.V.E. mbH

Audio Vertriebs-Entwicklungsgesellschaft

Germany



Digitally Controlled Line Array *Ascolto*®

LH3225 Datasheet

Table of Contents

1.0 – Acoustic Specifications

Frequency Bandwidth	
	120 Hz to 20 kHz (±3 dB)

SPL	**Nominal/Peak**
	103 dB / 106 dB (A-Weighted at 10 m)
	100 dB / 103 dB (A-Weighted at 20 m)
	98 dB / 101 dB (A-Weighted at 30 m)
	97 dB / 100 dB (A-Weighted at 40 m)

Coverage	
Horizontal (fixed)	155° (-6 dB average 1 kHz to 4 kHz)
Vertical (adjustable)	Tilting Angle: -60° to 60°
	Opening Angle: 12° to 40°
Typical Throw	25 m
Maximum Throw	30 m

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

Transducers	
Number	32
Diameter	2.5'' Full Range
Magnet	Neodymium
Rated Power	15 W (with pink noise, 6 dB crest factor)
Musical Power	30 W
Sensitivity 1 W/1 m	85.2 dB

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

Power Amplifier	
Type	PWM (Class D)
Output Power	32 × 25 W_{rms} (8 Ω)
Power Efficiency	86%
THD+N	0.07% at 10 $W_{rms/channel}$
Output Integrated Noise	65 µV (typical) measured from 20 Hz to 22 kHz
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 30 m, step 0.1 m) Dynamic Compressor 2-Bands Input Signal Activity Detector
Control Module	
Processor	32 bit ARM-Cortex M3 RISC 50 MHz
Network Interface	RS485, Half Duplex, 115200 baud/s 120 Ω Parallel Termination (recommended for long distance)
Processor Activities	DSP Firmware Booting DSP Status Monitoring PWM Power Amplifier Functions Controlling PWM Power Amplifier Status Monitoring

	Audio Input Channel Functions Controlling
	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
Mains Connector	IEC 60320 C14 three poles

PSU Module	
AC Range	90 VAC to 264 VAC (Universal Input)
Input Frequency	47 Hz to 67 Hz
Efficiency	91% typ at 230 VAC
Input Current at Full Load	8.0 A typ at 115 VAC 4.0 A typ at 230 VAC
Power Consumption	Continuous: 790 VA Idle: 24 VA Stand-By: 4 VA

Protection	Thermal Protection Output Current Limiting Under-Voltage Lock Out
Main Fuse	1 × 6.3 A (slow blow)

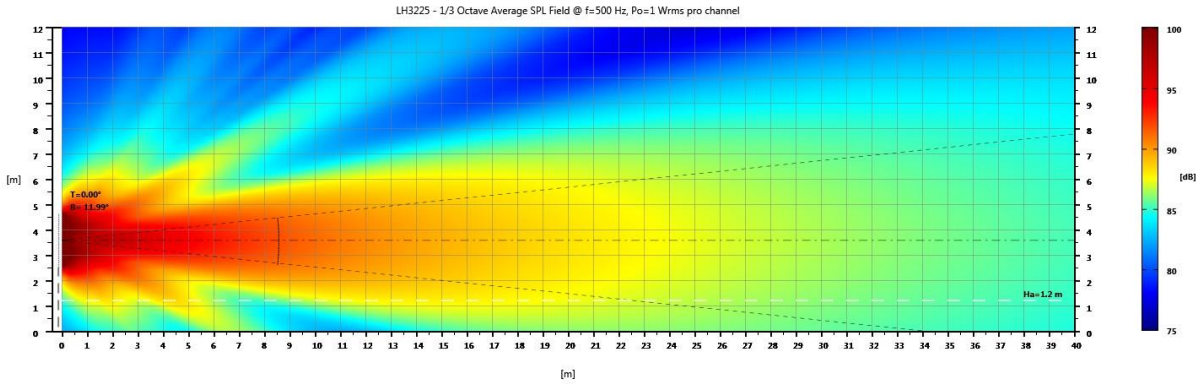
3.0 – General Specifications

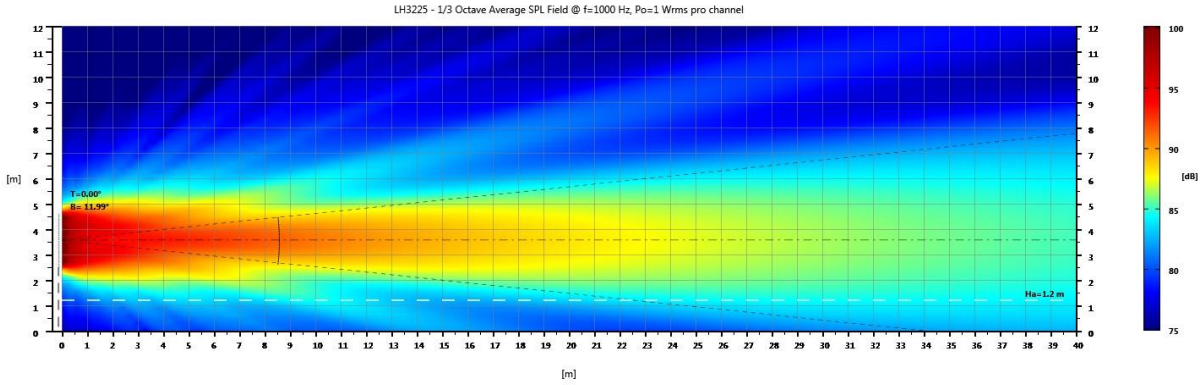
Mechanical	
Height	2655 mm
Width	90 mm
Depth	100 mm
Weight	11.20 Kg (24.69 lbs)
Cabinet	Powder Coated Aluminum Extrusion
Colour	RAL 9010
Special colour	available for an additional charge

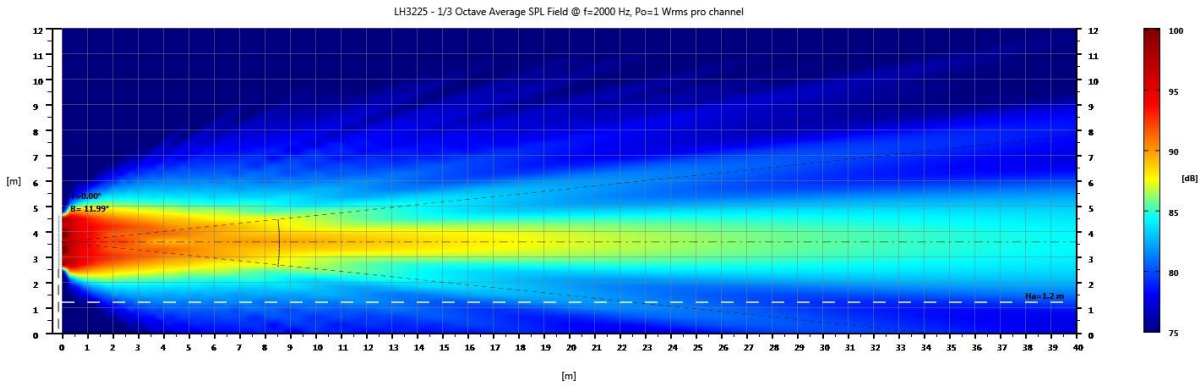
Temperature Range	
	0°C to 40°C (32°F to 102°F)

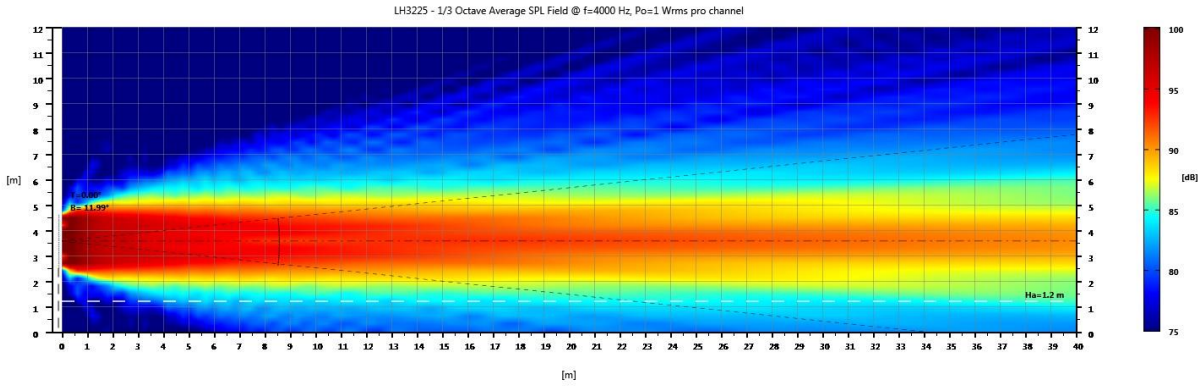
Certificates	
	CE

4.0 – Vertical Beam Pattern

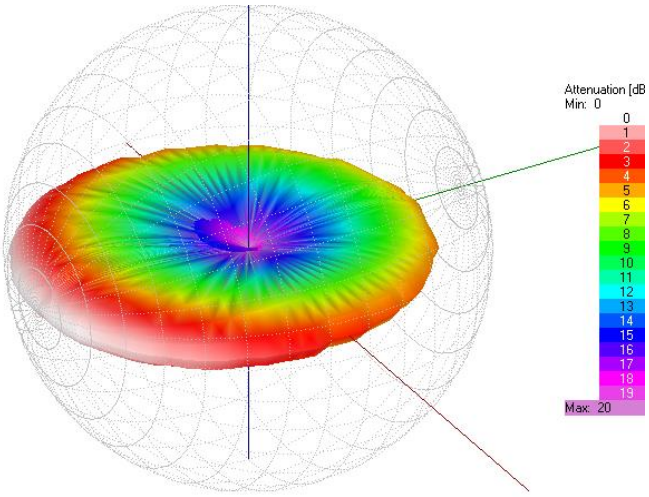




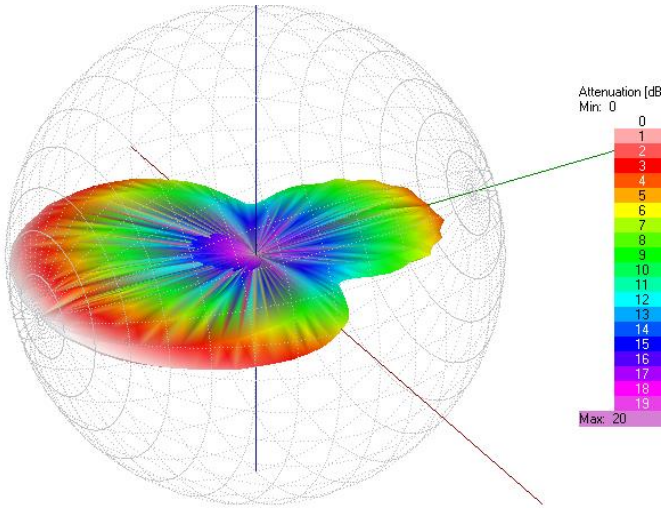




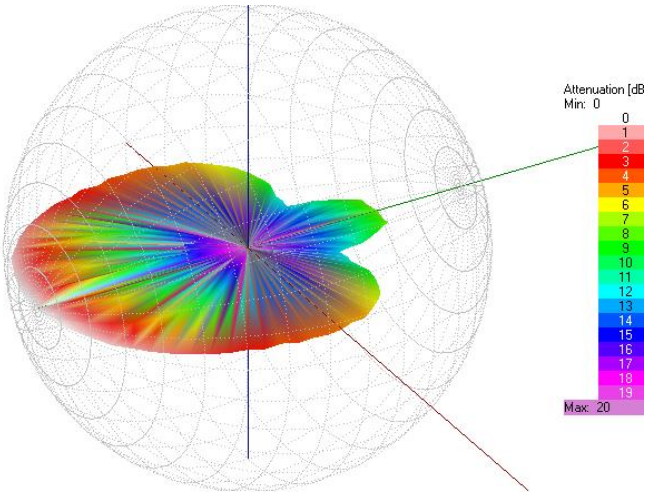
5.0 - Attenuation Balloon



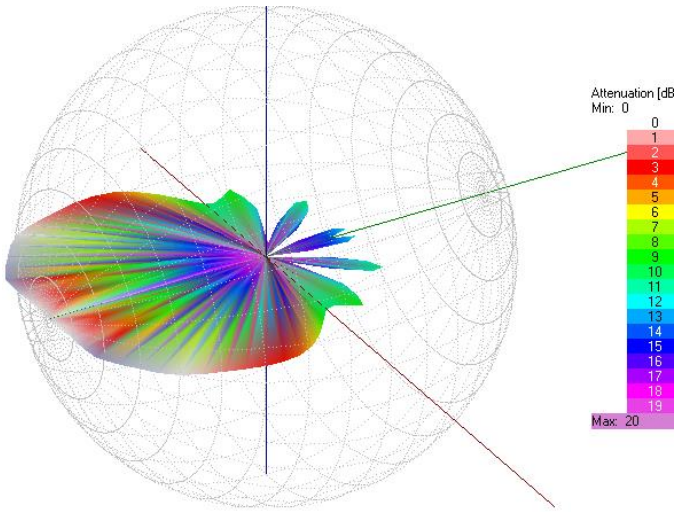
LH3225 – Attenuation Balloon – Freq = 500 Hz



LH3225 – Attenuation Balloon – Freq = 1000 Hz

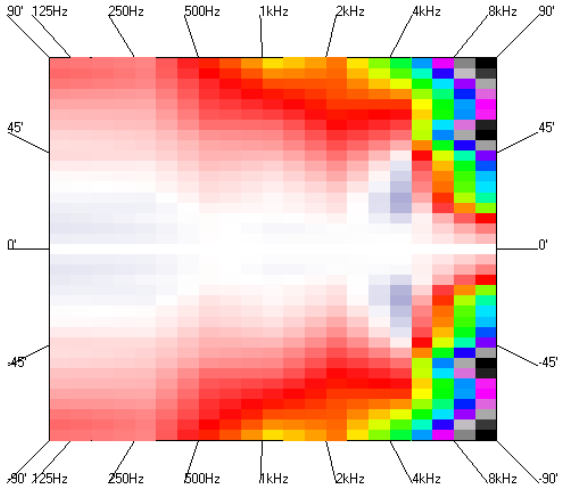


LH3225 – Attenuation Balloon – Freq = 2000 Hz

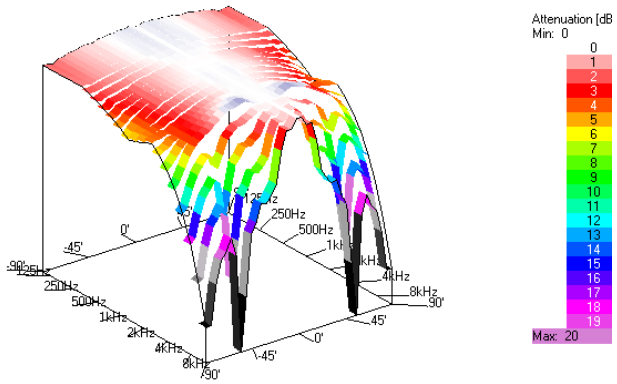


LH3225 – Attenuation Balloon – Freq = 4000 Hz

6.0 - Horizontal Polar Responses

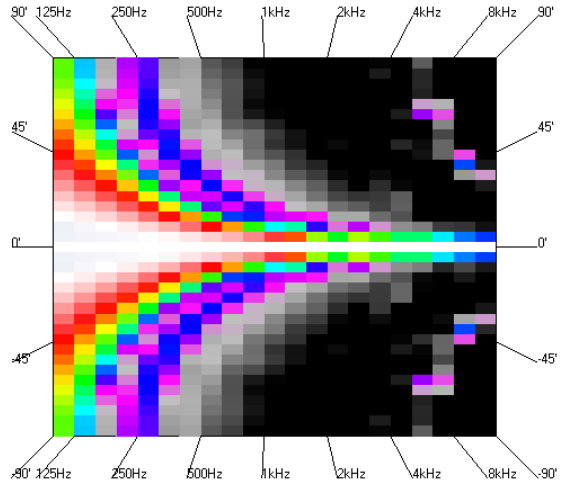


LH3225 – Horizontal Polar Responses vs Frequency

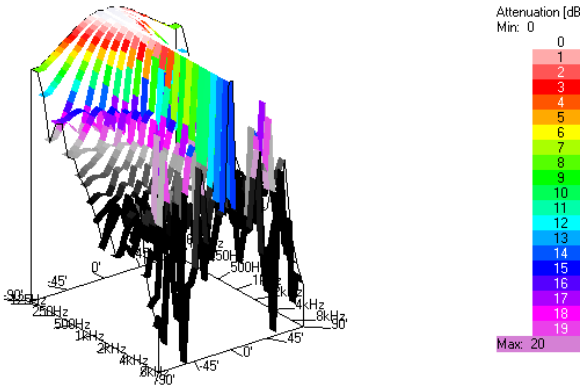


LH3225 – Horizontal Polar Responses vs Frequency

7.0 - Vertical Polar Responses

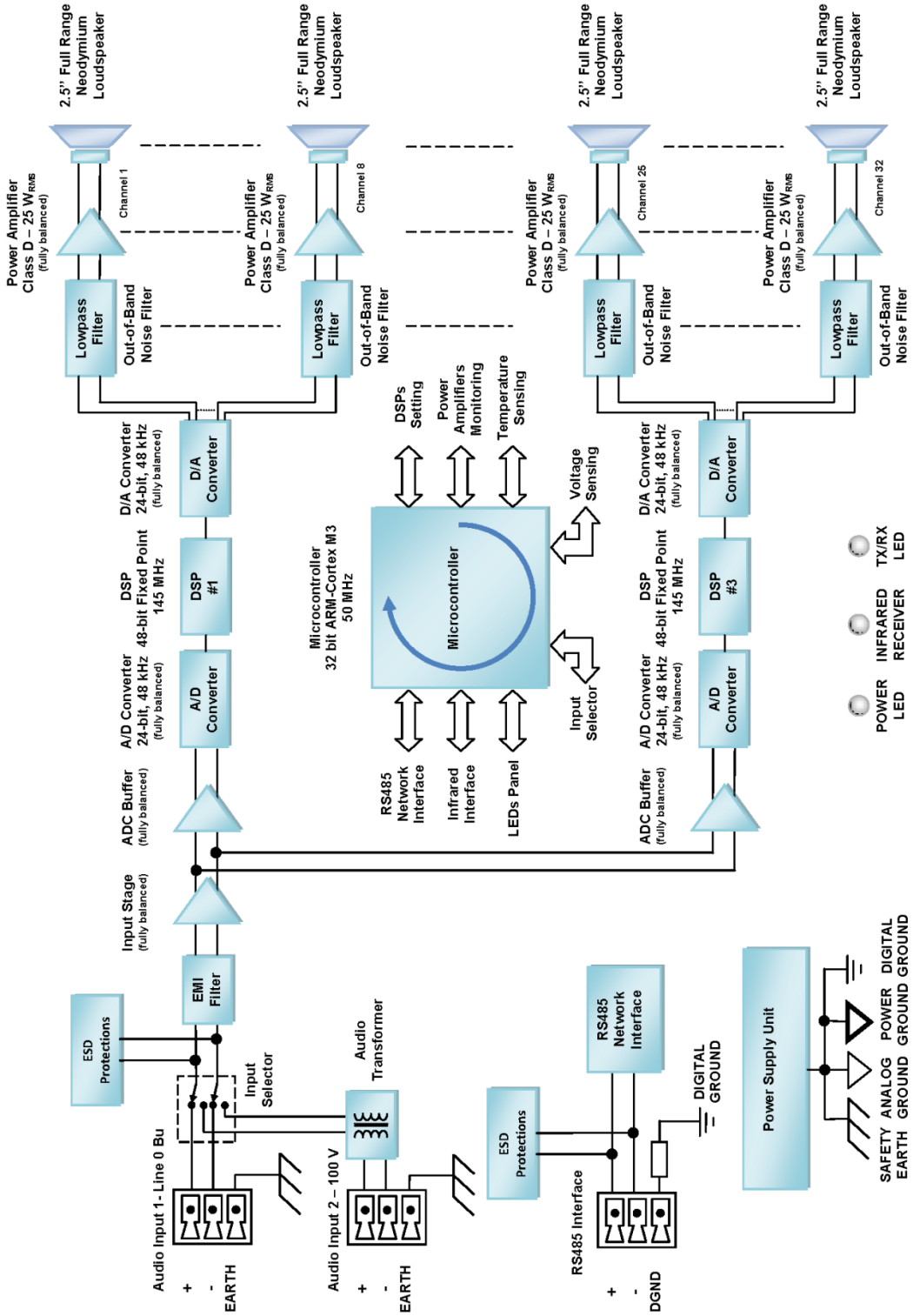


LH3225 – Vertical Polar Responses vs Frequency

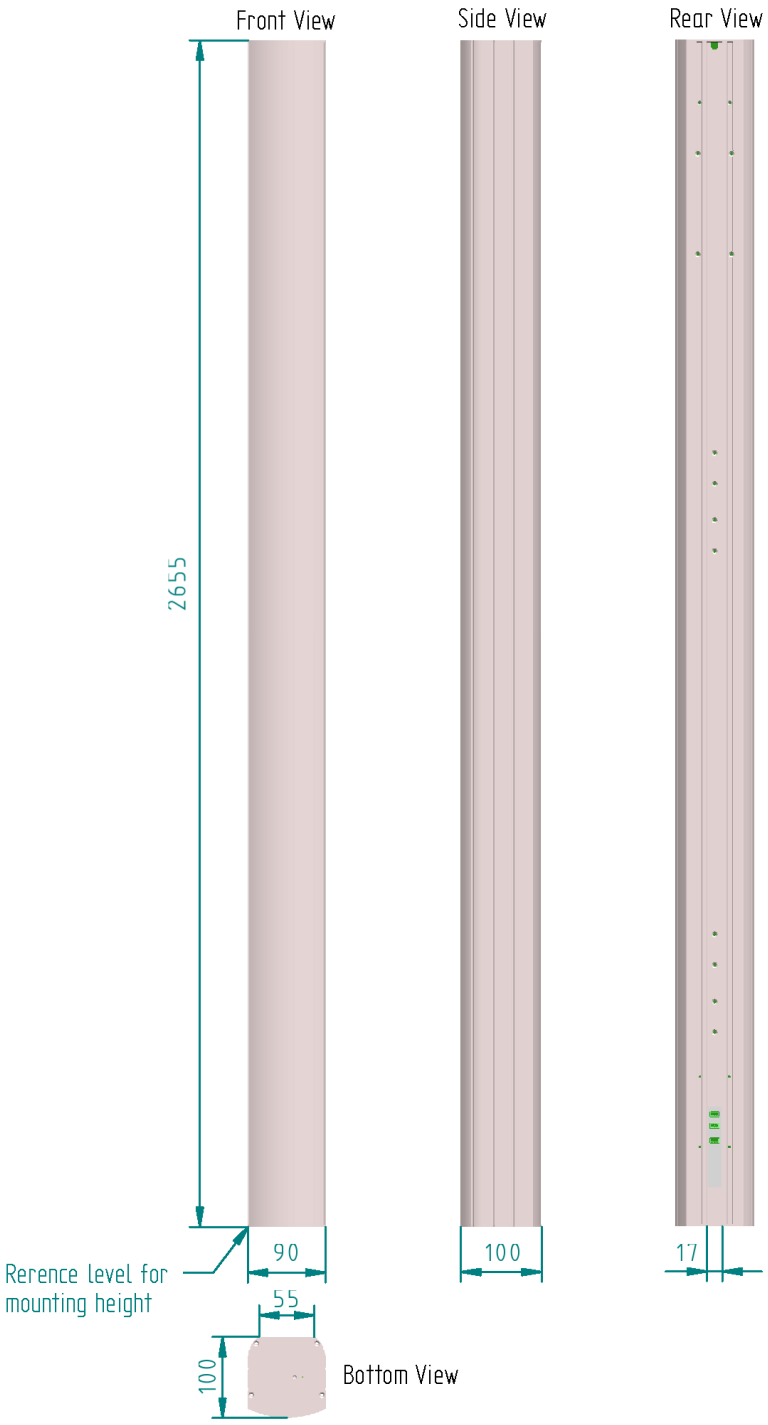


LH3225 – Vertical Polar Responses vs Frequency

8.0 – Schematic Blocks



9.0 - Mechanicals Dimensions



Figures not drawn to scale

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