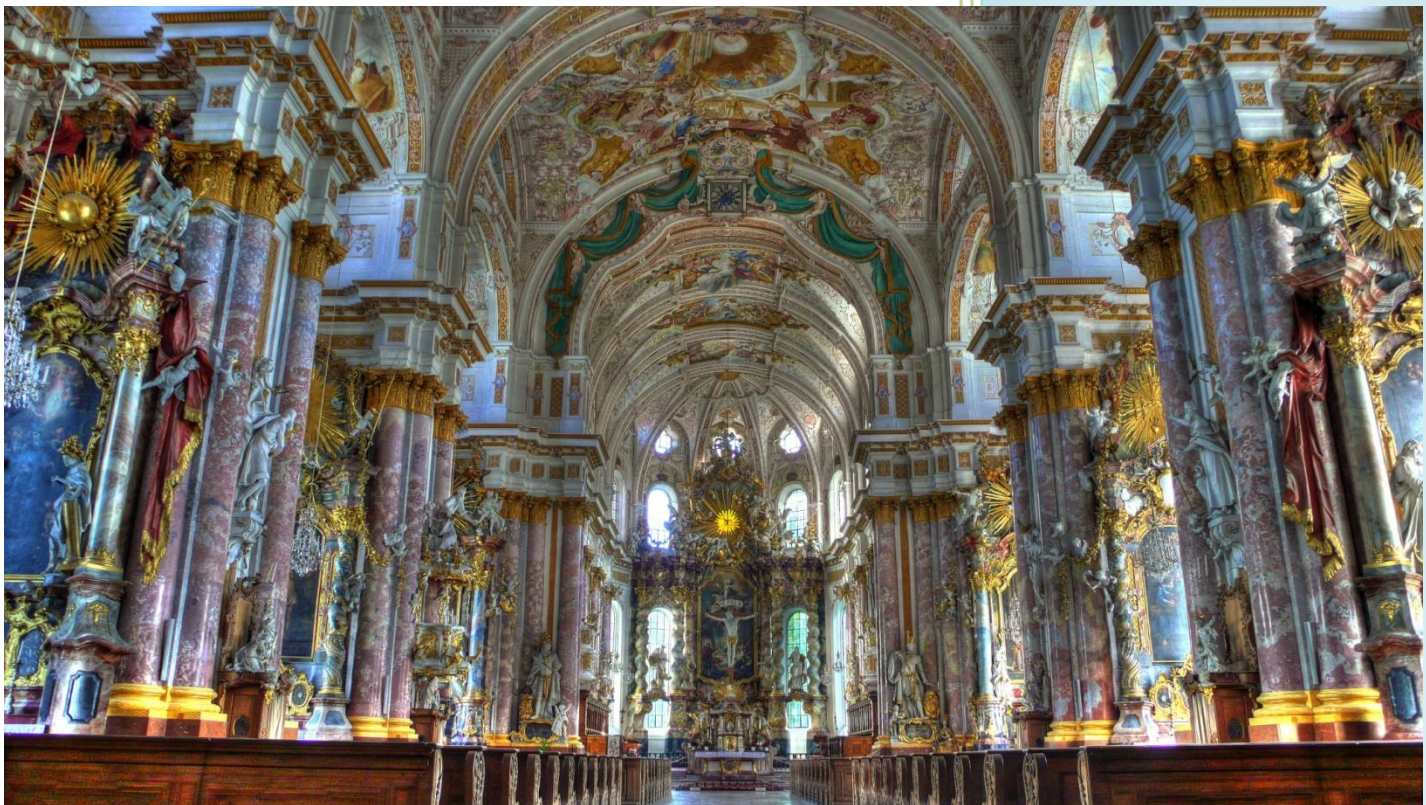


**AVE mbH**

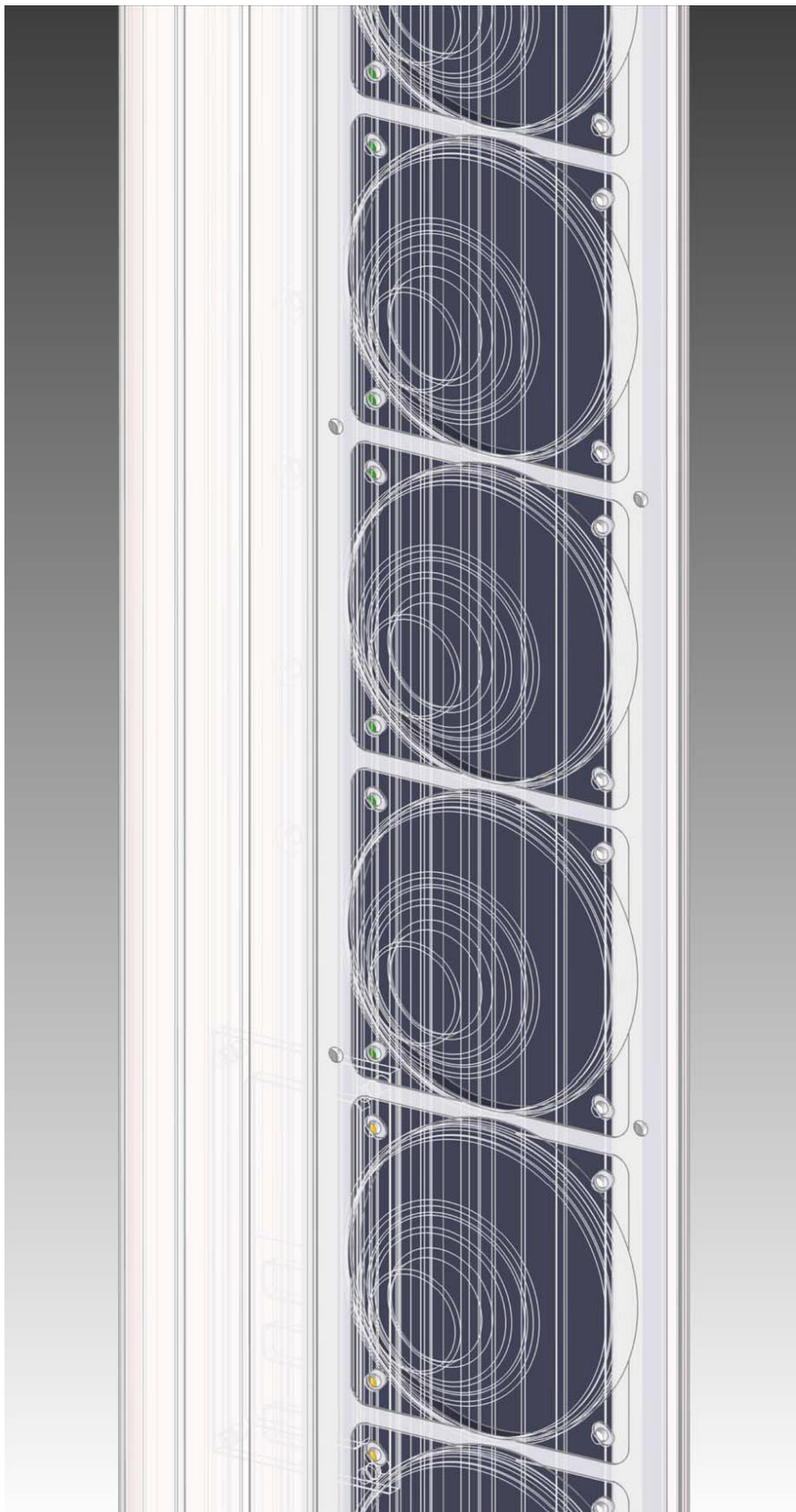
**Digitally Controlled Line Array**  
*Ascolto*<sup>®</sup>



**A.V.E. mbH**

**Audio Vertriebs-Entwicklungsgesellschaft**

**Germany**



**Digitally  
Controlled  
Line Array**  
*Ascolto*<sup>®</sup>

**LH4025  
Datasheet**

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## 1.0 – Acoustic Specifications

### Frequency Bandwidth

120 Hz to 20 kHz ( $\pm 3$  dB)

### SPL

#### Nominal/Peak

104 dB / 107 dB (A-Weighted at 10 m)

101 dB / 104 dB (A-Weighted at 20 m)

99 dB / 102 dB (A-Weighted at 30 m)

98 dB / 101 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: 10° to 40°

Typical Throw 30 m

Maximum Throw 35 m

### Dynamic Range

102 dB (f=1 kHz, AES17 filter)

### Transducers

Number 40

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            | 40 × 25 W <sub>rms</sub> (8 Ω)   |
| Power Efficiency        | 86%  |
| THD+N                   | 0.07% at 10 W <sub>rms/channel</sub>                                     |
| Output Integrated Noise | 65 μV (typical) measured from 20 Hz to 22 kHz                            |
| Input Signal            | Balanced   |
| Channel Protections     | Thermal Shutdown (T <sub>junction</sub> > 150°C)<br>Output Short Circuit |

### DSP Module

|                |   |
|----------------|---|
| DSP Processors | 48 bit Fixed Point DSP<br>76-bit Internal Accumulator |
|----------------|---|



|                   |  |
|-------------------|--|
|                   | 145 MHz  |
| Sample Rate       | 48 kHz   |
| A/D Conversion    | Resolution: 24 bit Linear PCM<br>Conversion: 1-bit delta-sigma 256x<br>Sample Rate: 48 kHz<br>SNR: 102 dB (A-Weighted)   |
| D/A Conversion    | Resolution: 24 bit Linear PCM<br>Conversion: upsampling 128x<br>Sample Rate: 48 kHz<br>SNR: 105 dB (A-Weighted)  |
| Signal Processing | Beam Forming Filtering<br>Input Equalization (10 Biquad)<br>Volume (-120 dB <sub>FS</sub> to 0 dB <sub>FS</sub> )<br>Delay (0 m to 30 m, step 0.1 m)<br>Dynamic Compressor 2-Bands<br>Input Signal Activity Detector |

### Control Module

|                      |   |
|----------------------|---|
| Processor            | 32 bit ARM-Cortex M3<br>RISC<br>50 MHz  |
| Network Interface    | RS485, Half Duplex, 115200 baud/s<br>120 Ω Parallel Termination (recommended for long distance)                                     |
| Processor Activities | DSP Firmware Booting<br>DSP Status Monitoring<br>PWM Power Amplifier Functions Controlling<br>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 (+)<br>pin 2: cold signal (-)<br>pin 3: earth (chassis ground) |
| RS485 Network Connector | 3-pole, 3.81 mm-pitch  |
| RS485 Network Pinout    | pin 1: data +<br>pin 2: data -<br>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<br>4.0 A typ at 230 VAC        |
| Power Consumption          | Continuous: 790 VA<br>Idle: 24 VA<br>Stand-By: 4 VA |

|            |   |
|------------|---|
| Protection | Thermal Protection<br>Output Current Limiting<br>Under-Voltage Lock Out |
| Main Fuse  | 1 x 6.3 A (slow blow)   |

### 3.0 – General Specifications

#### Mechanical

|                |                                     |
|----------------|-------------------------------------|
| Height         | 3190 mm                             |
| Width          | 90 mm                               |
| Depth          | 100 mm                              |
| Weight         | 14.20 Kg (31.30 lbs)                |
| Cabinet        | Powder Coated<br>Aluminum Extrusion |
| Colour         | RAL 9010                            |
| Special colour | available for an additional charge  |

#### Temperature Range

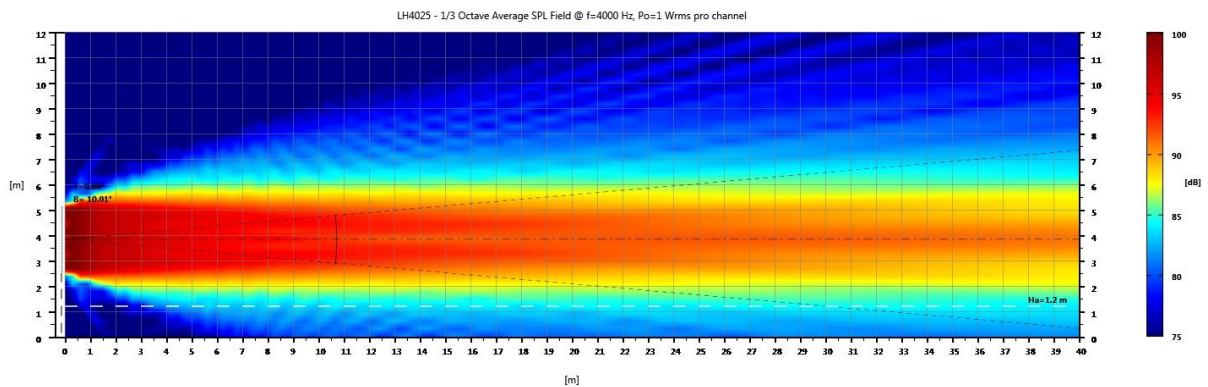
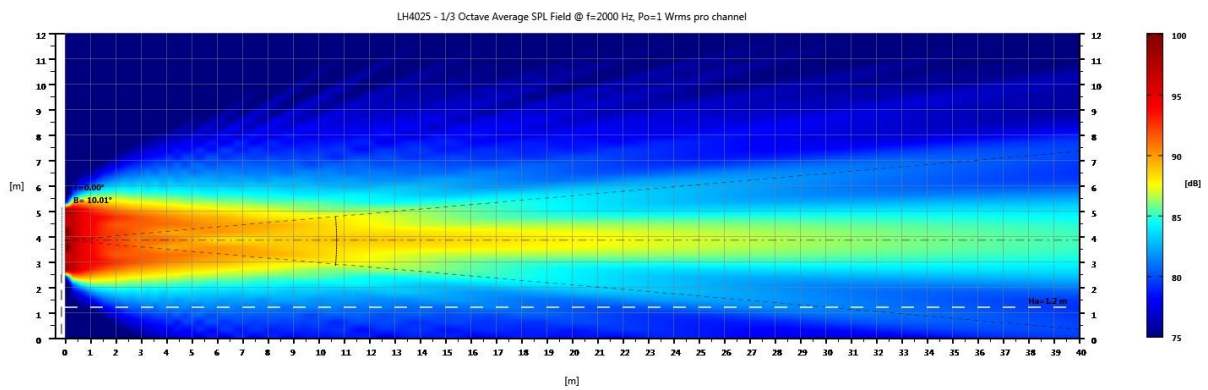
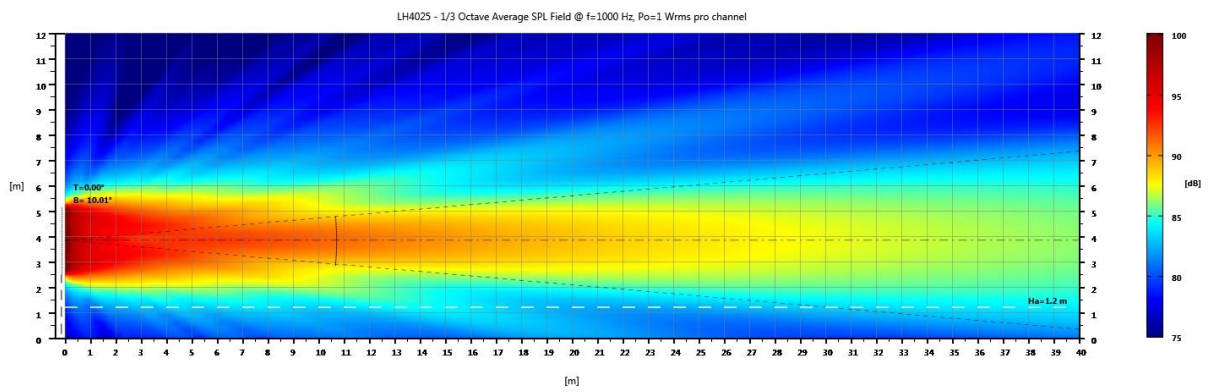
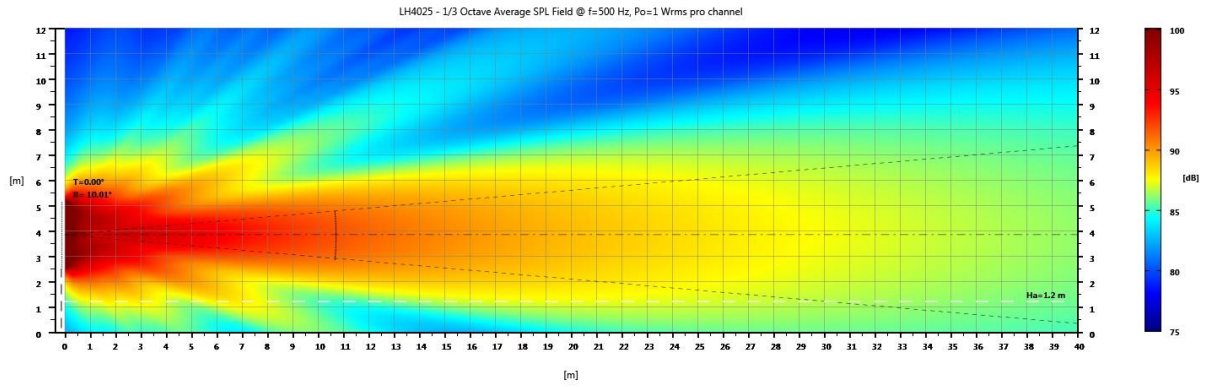
0°C to 40°C (32°F to 102°F)

#### Certificates

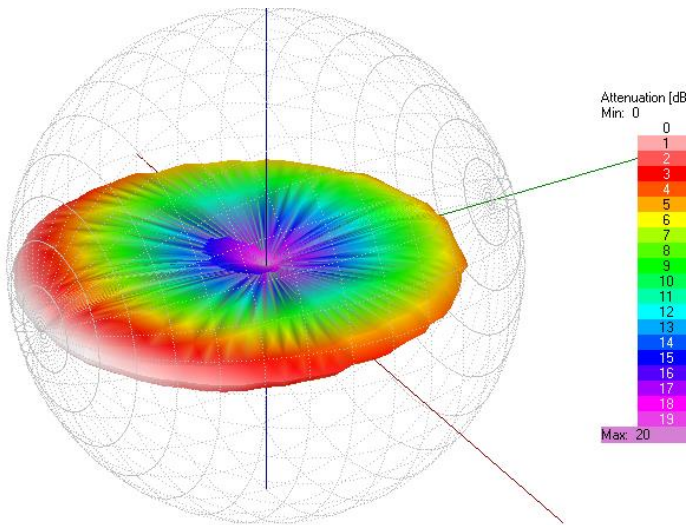
CE



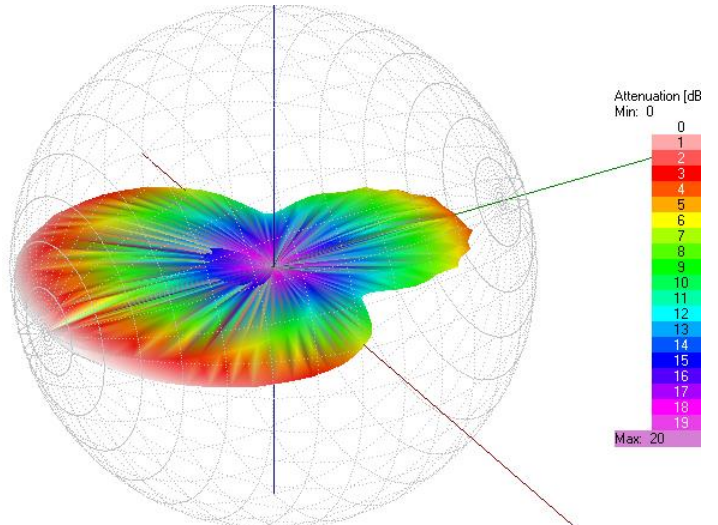
## 4.0 – Vertical Beam Pattern



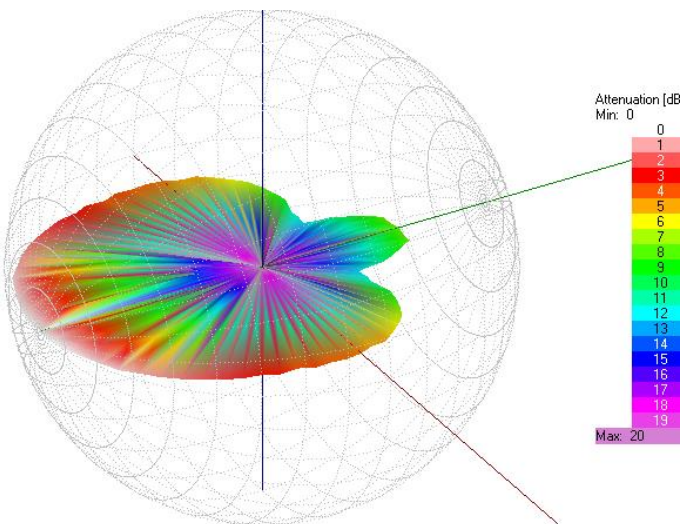
## 5.0 - Attenuation Balloon



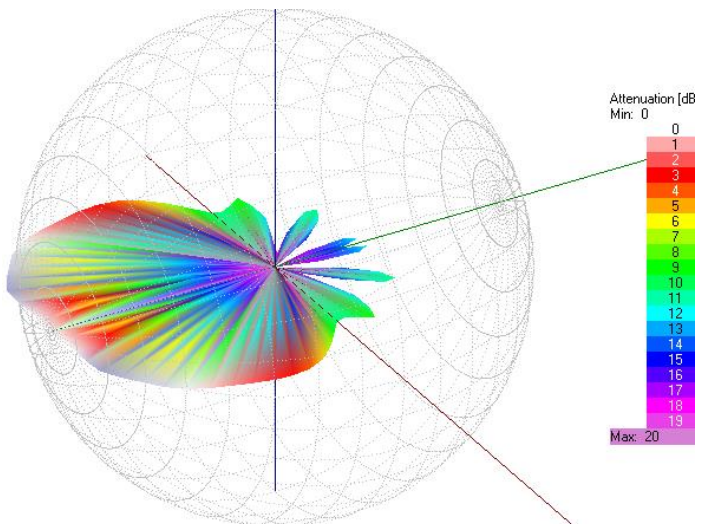
LH4025 – Attenuation Balloon – Freq = 500 Hz



LH4025 – Attenuation Balloon – Freq = 1000 Hz

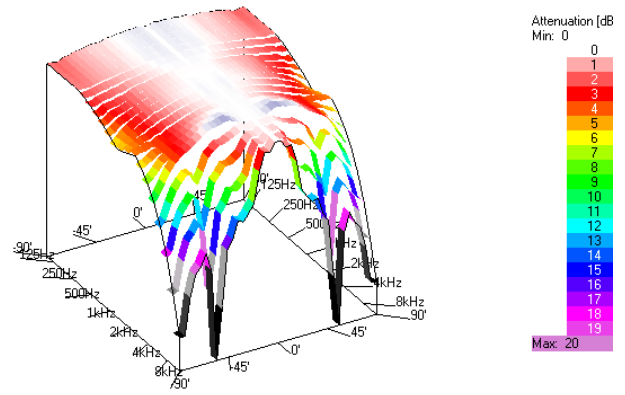
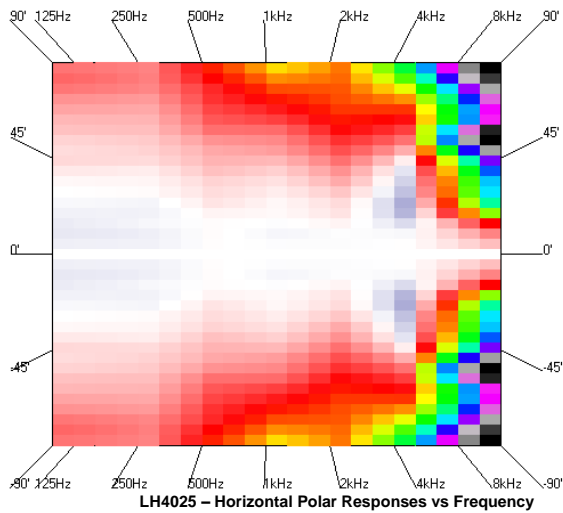


LH4025 – Attenuation Balloon – Freq = 2000 Hz

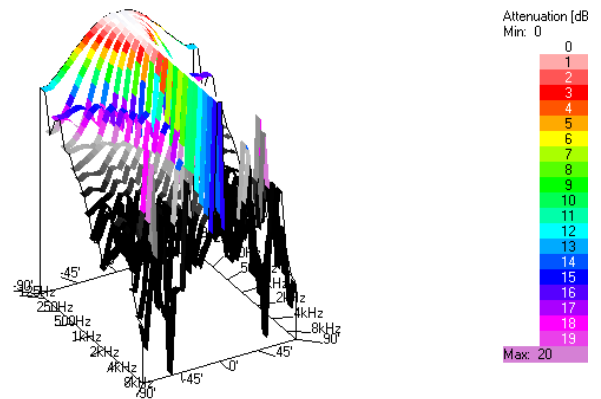
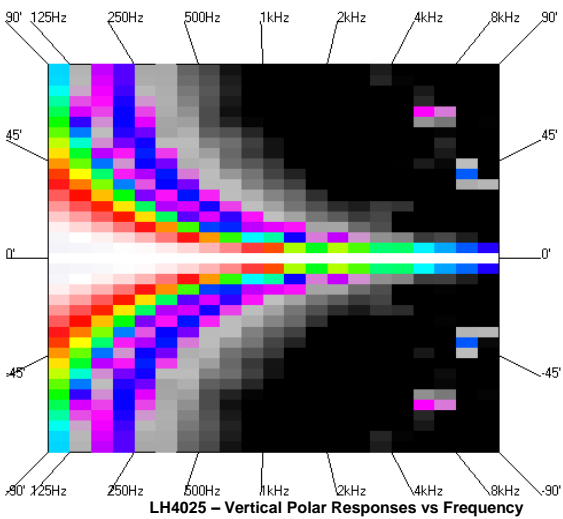


LH4025 – Attenuation Balloon – Freq = 4000 Hz

## 6.0 - Horizontal Polar Responses

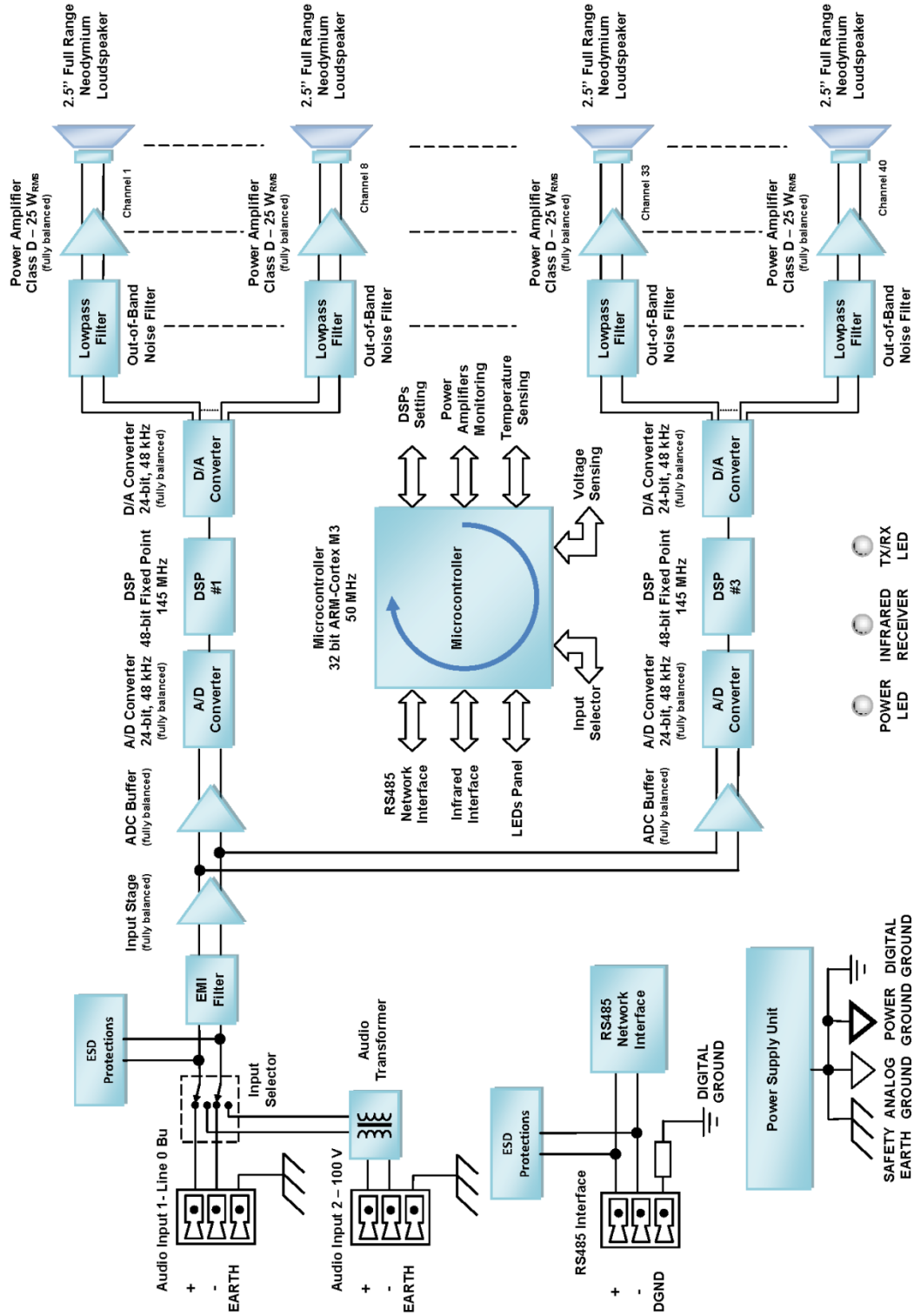


## 7.0 - Vertical Polar Responses

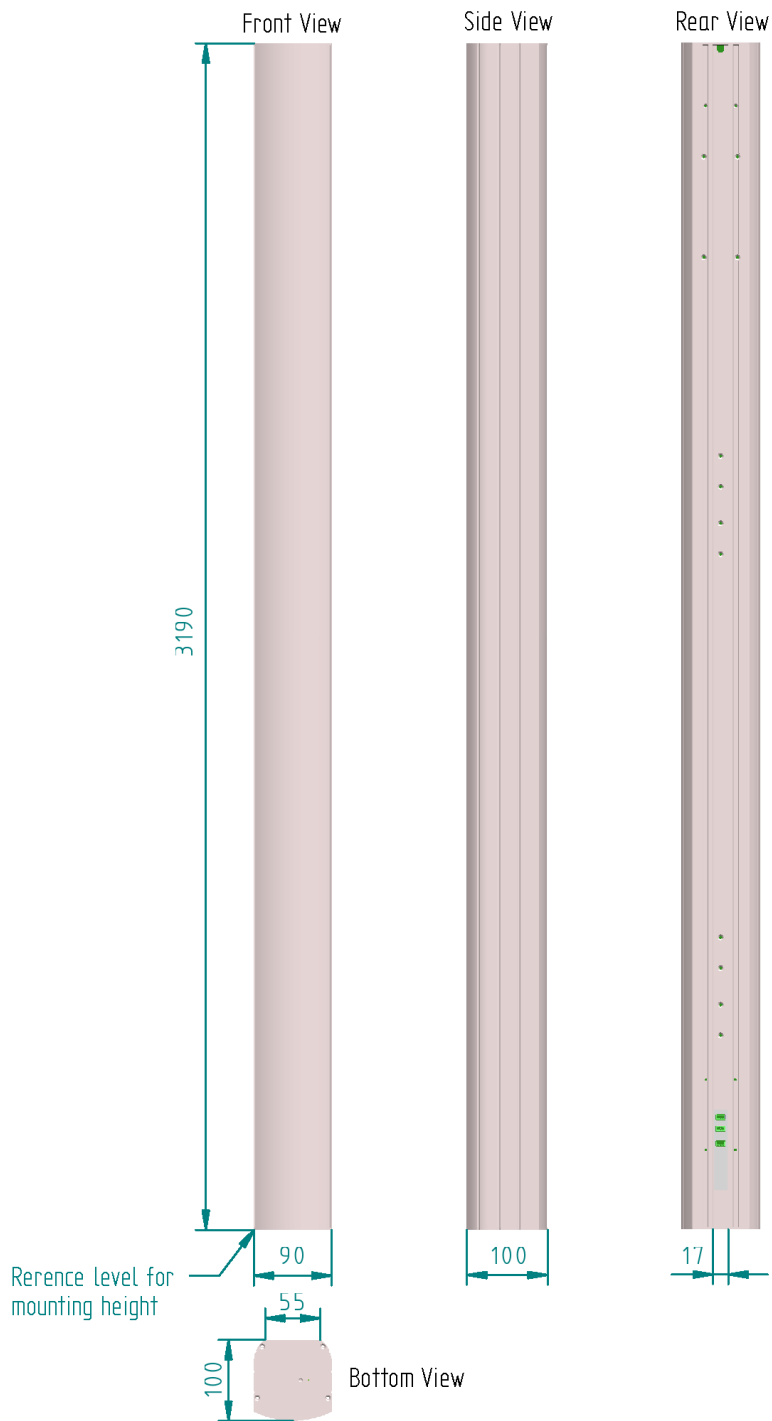




## 8.0 – Schematic Blocks



## 9.0 - Mechanicals Dimensions



Figures not drawn to scale

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**AVE mbH**  
**Gustav-Rau-Straße, 6**  
**74321 - Bietigheim-Bissingen**  
**Germany**

**Telefon: +49 (0) 7142-78879-10**

**Fax: +49 (0) 7142-78879-18**

[www.ave-stuttgart.com](http://www.ave-stuttgart.com)

[info@ave-stuttgart.de](mailto:info@ave-stuttgart.de)

