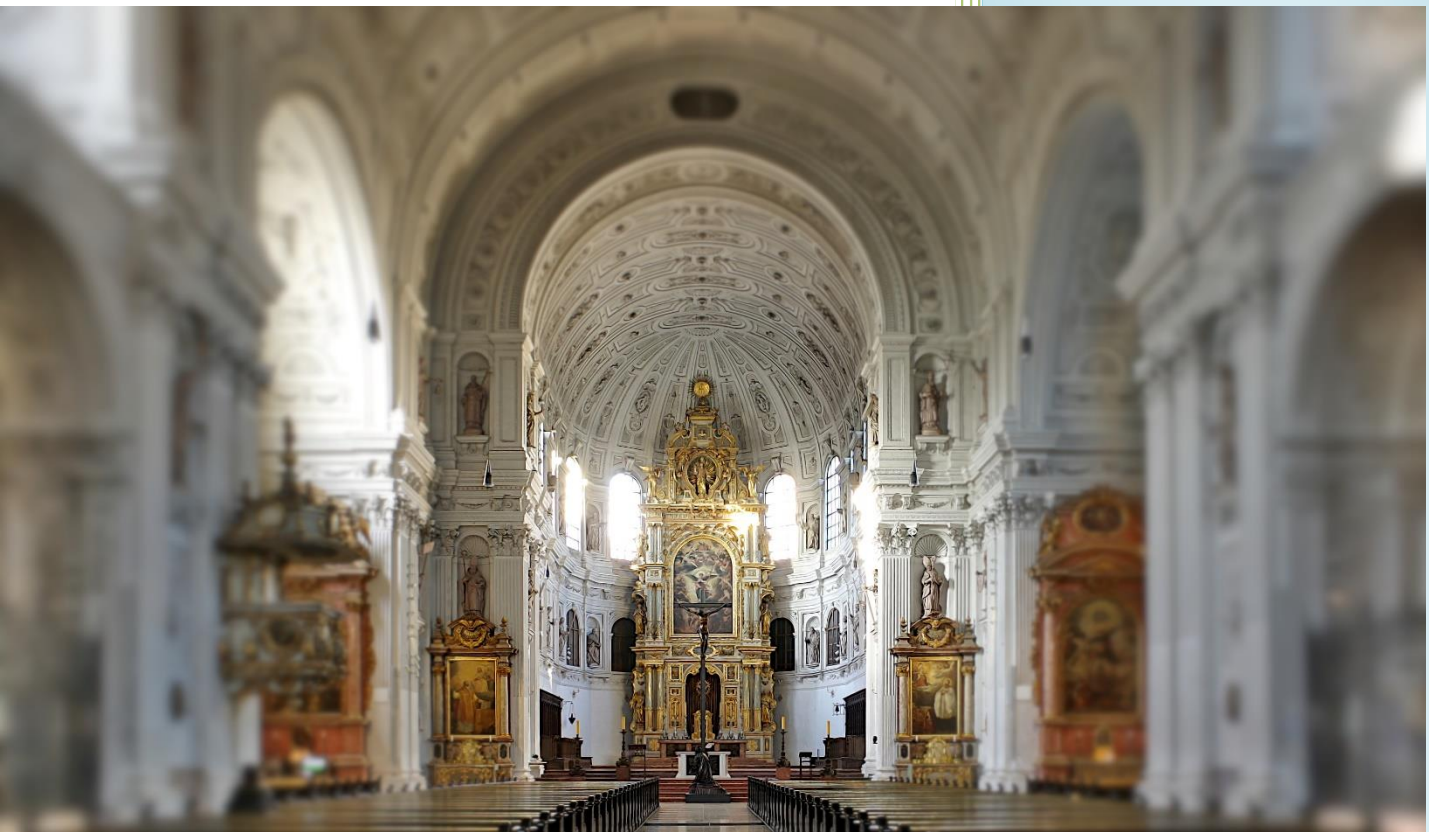


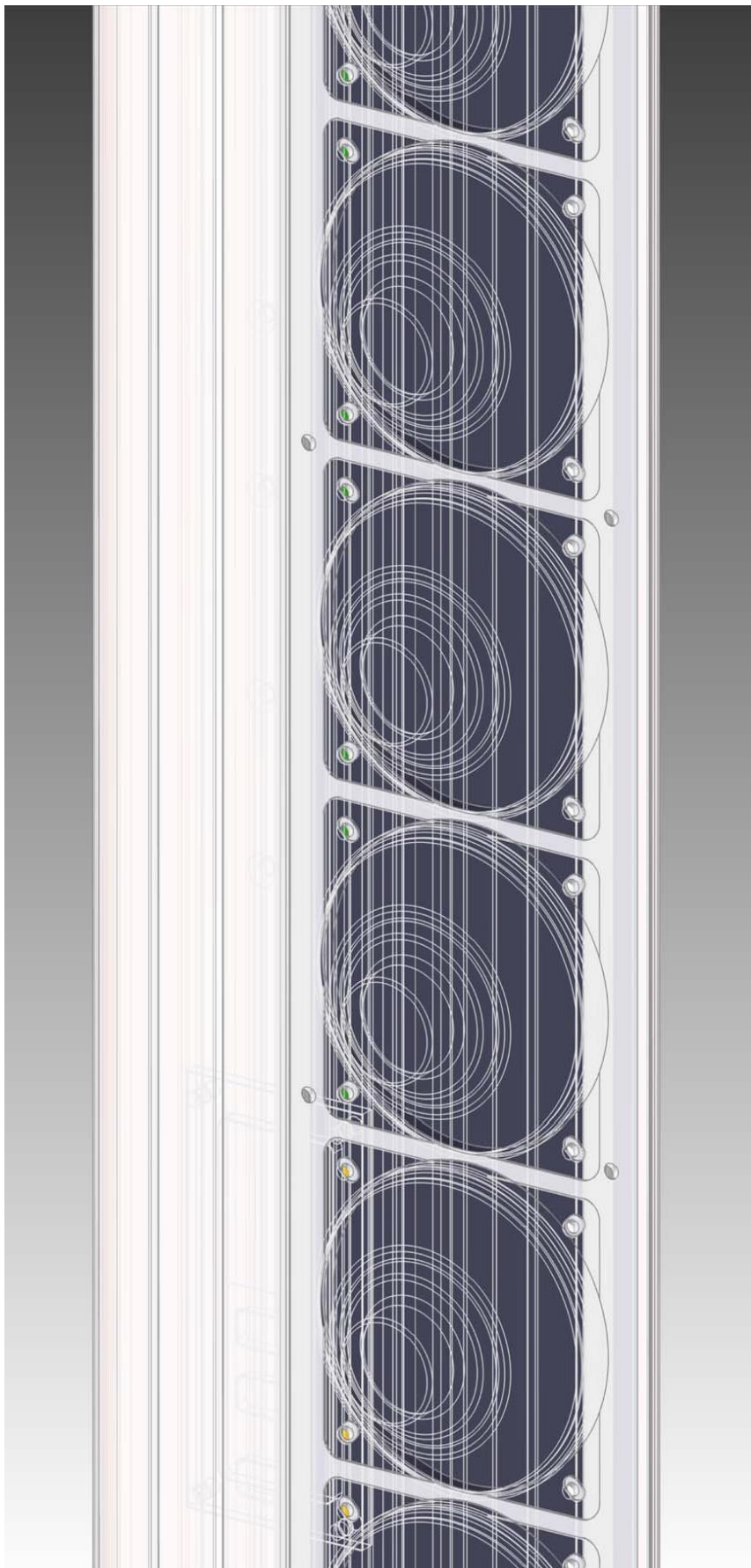
**AVE Audio**

Digitally Steerable Column Speaker  
**Ascolto**



**A.V.E. GmbH  
Audio Vertriebs-  
Entwicklungsgesellschaft**

**Germany**



**Digitally  
Steerable  
Column  
Speaker**

**Ascolto**

**FF0870**

**Datasheet**

# Table of Contents

- 1. Acoustic Specifications**
- 2. Electrical Specifications**
- 3. Electromagnetic compatibility**
- 4. General Specifications**
- 5. Vertical Beam Pattern**
- 6. Vertical Beam Width**
- 7. Horizontal Beam Width**

## 1.0 – Acoustic Specifications

### Frequency Bandwidth

80 Hz to 20 kHz ( $\pm 2$  dB)

### Maximal SPL

125 dB (A-Weighted at 1 m)

### Nominal SPL (1 W/Loudspeaker)

109 dB (A-Weighted at 1 m),  
 103 dB (A-Weighted at 10 m),  
 100 dB (A-Weighted at 20 m),  
 98 dB (A-Weighted at 30 m)

### Coverage

Horizontal (fixed)	110° (-6 dB average 500 Hz to 8 kHz)
Vertical (adjustable)	Tilting Up/Down Angle: -60° to 60° in 0.1° intervals Opening Angle: 20° to 40° in 0.1° intervals
Typical Throw	20 m
Maximum Throw	25 m

### Dynamic Range

102 dB (f=1 kHz, AES17 filter)

### Transducers Type

Number of Transducers	8 Coaxial Loudspeakers
Diameter	4.0" Woofer + 1.0 Dome Tweeter
Magnets 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 k $\Omega$ at 1 kHz

### Audio Input 2: 100 V (not available in Ascolto – Dante Series)

Input Level Nominal	39.2 dBu (200 Vpp)
Type	Balanced with Transformer
Impedance	20 k $\Omega$ 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 Amplifiers

Type	PWM (Class D)
Output Power	8 × 140 W <sub>max</sub>
Power Efficiency	92%
THD+N	0.025% at 10 W <sub>rms/channel</sub> , 1 kHz
Input Signal	Balanced
Channel Protections	Thermal Shutdown (T <sub>junction</sub> >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 512× Sample Rate: 48 kHz SNR: 112 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 <sub>FS</sub> to 0 dB <sub>FS</sub> ) 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 $\Omega$ 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	Strain relief housing Wago cod. 770-503, 3-pole, 4,00 mm <sup>2</sup> , ratings 250 VAC, 25 A, IEC/EN 60664-1, UL 1977

**Switched-Mode Power Supply Unit**

AC Range	90 VAC to 264 VAC (Universal Input)
----------	-------------------------------------

Input Frequency	47 Hz to 67 Hz
-----------------	----------------

Efficiency	91% typ at 230 VAC
------------	--------------------

Power Factor Correction	Yes
-------------------------	-----

Input Current at Full Load	4.0 A typ at 115 VAC 2.0 A typ at 230 VAC
----------------------------	--

Power Consumption	Continuous: 360 VA Peak: 468 VA Idle: 12 VA Stand-By: 4 VA
-------------------	---

Protection	Thermal Protection Short Circuit 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	1174 mm
Width	122 mm
Depth	120 mm
Weight	10.3 Kg (22.7 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)

### Dust and Water Protection Class

IP 54

### Electrical Protection Class

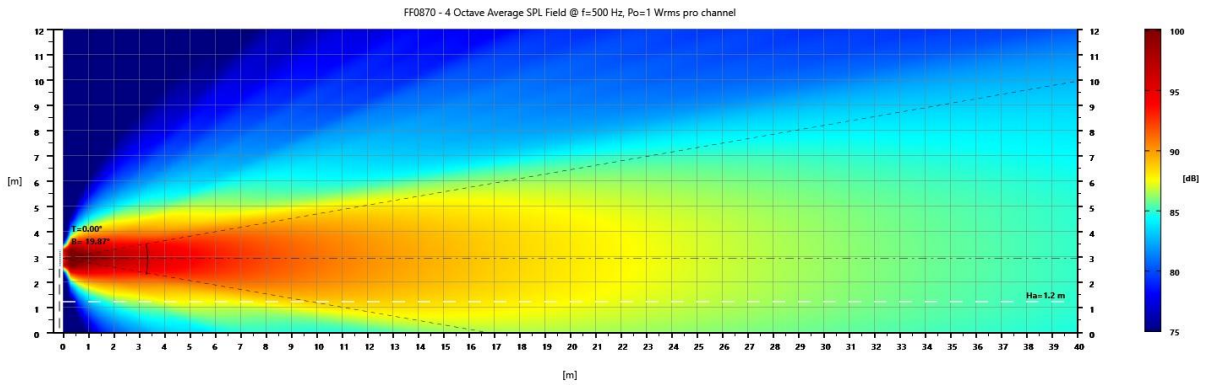
IEC 61140 - Class 1

### Certificates

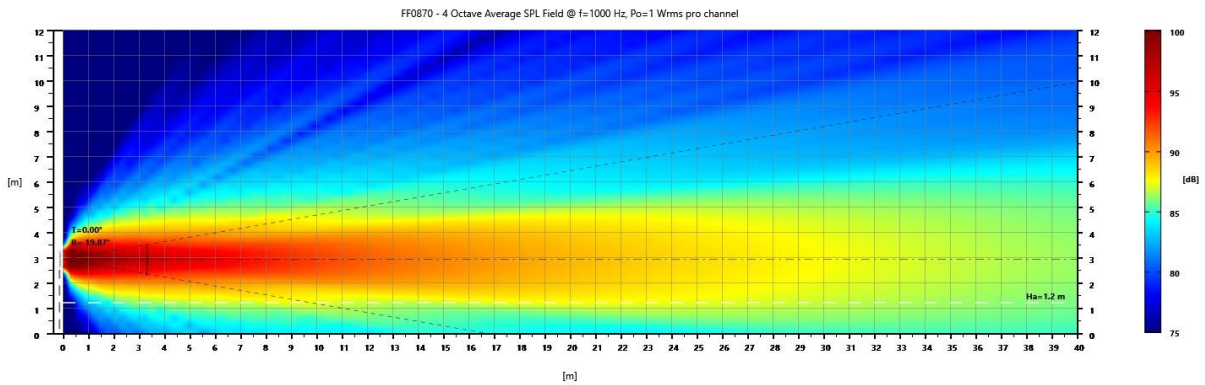
CE

- 1) Rated power measured with pink noise signal, 6 dB crest factor.
- 2) Polare response: -6 dB average 500 Hz to 8 kHz.

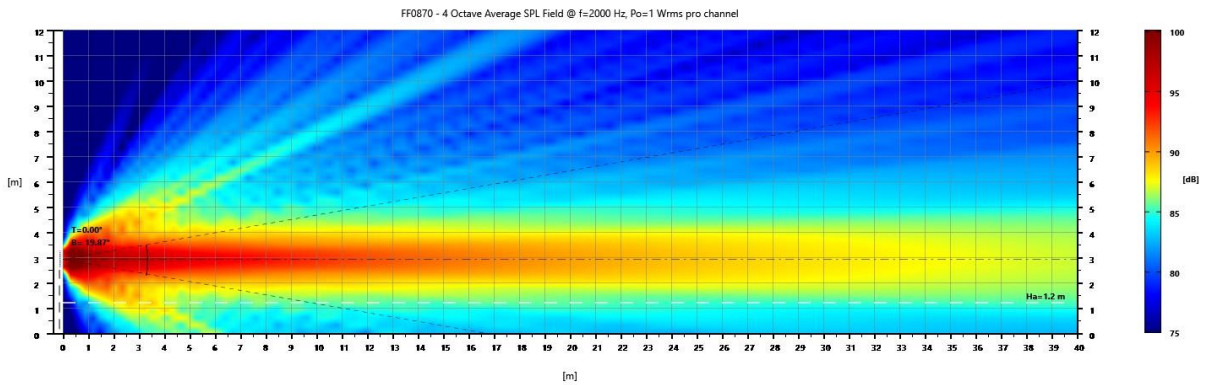
## 5.0 – Vertical Beam Pattern



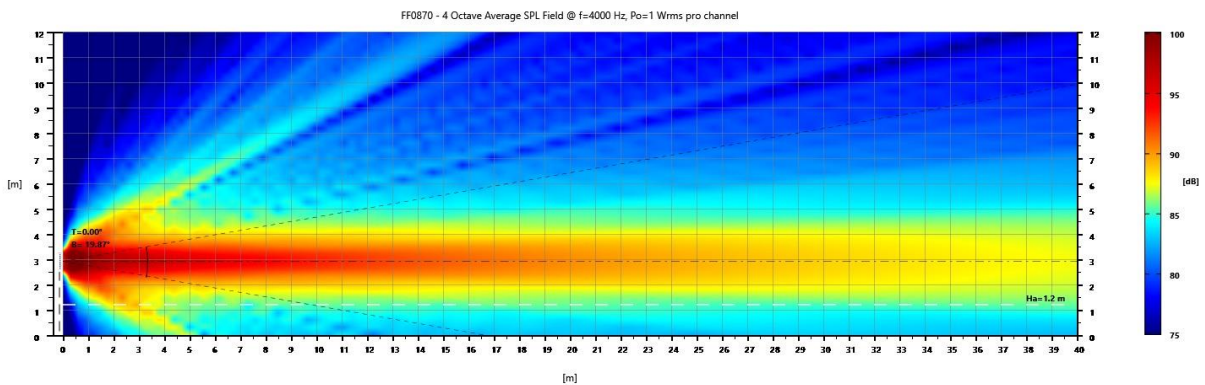
**FF0870 – Vertical Beam Shape at 500 Hz, 4 Octaves average**



**FF0870 – Vertical Beam Shape at 1000 Hz, 4 Octaves average**

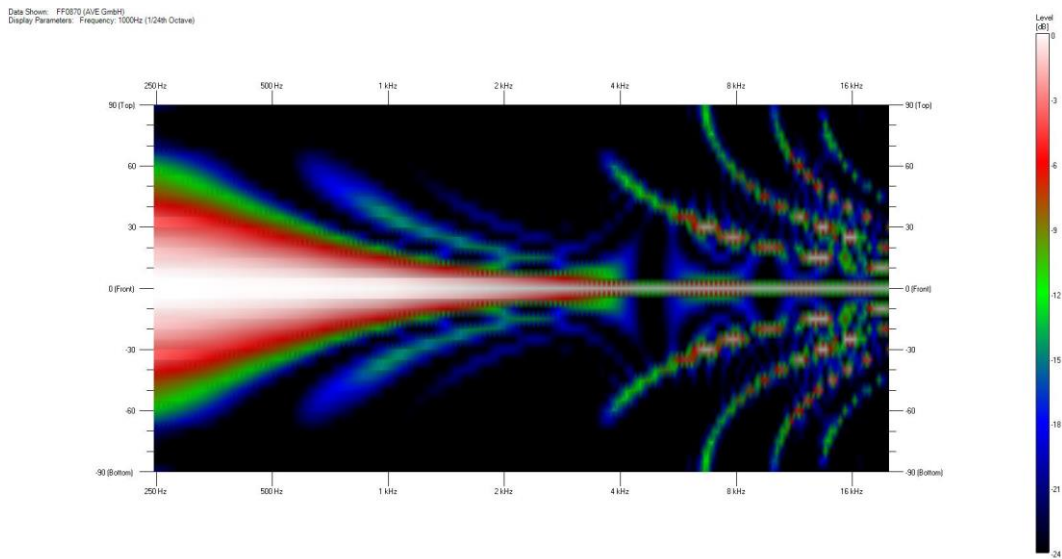


**FF0870 – Vertical Beam Shape at 2000 Hz, 4 Octaves average**

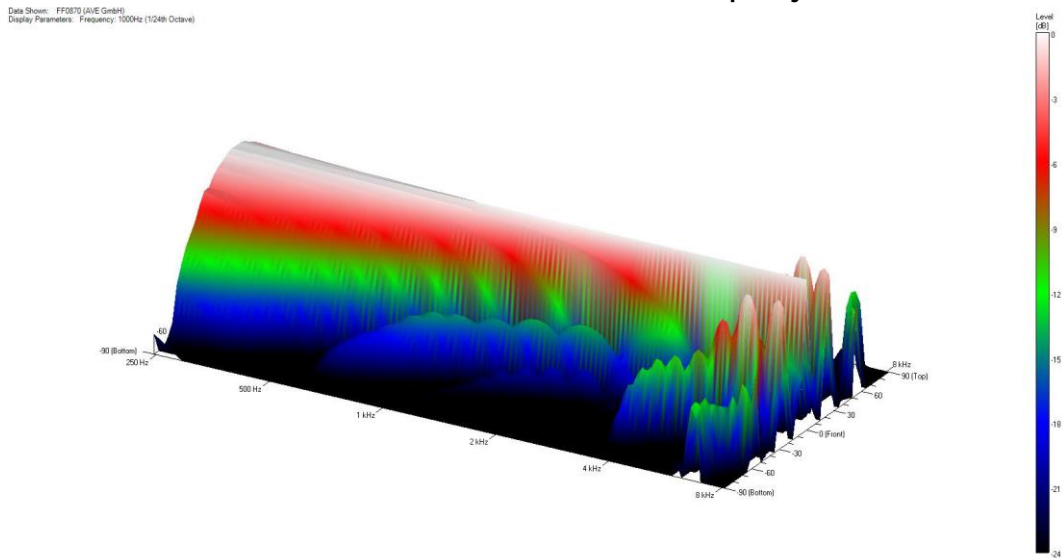


**FF0870 – Vertical Beam Shape at 4000 Hz, 4 Octaves average**

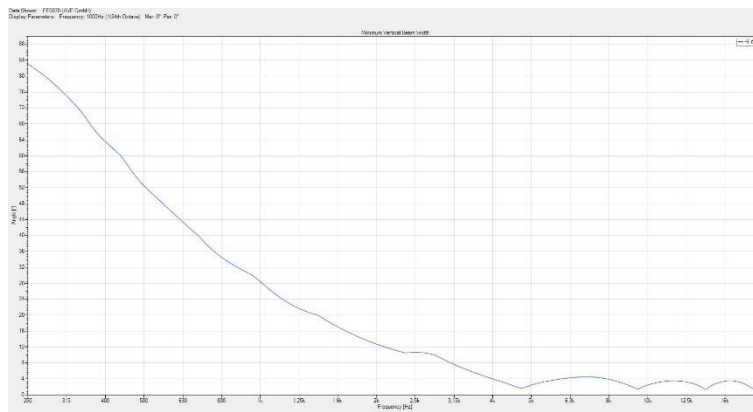
## 6.0 - Vertical Beam Width



**FF0870 – 2D Vertical Beam Width vs Frequency**



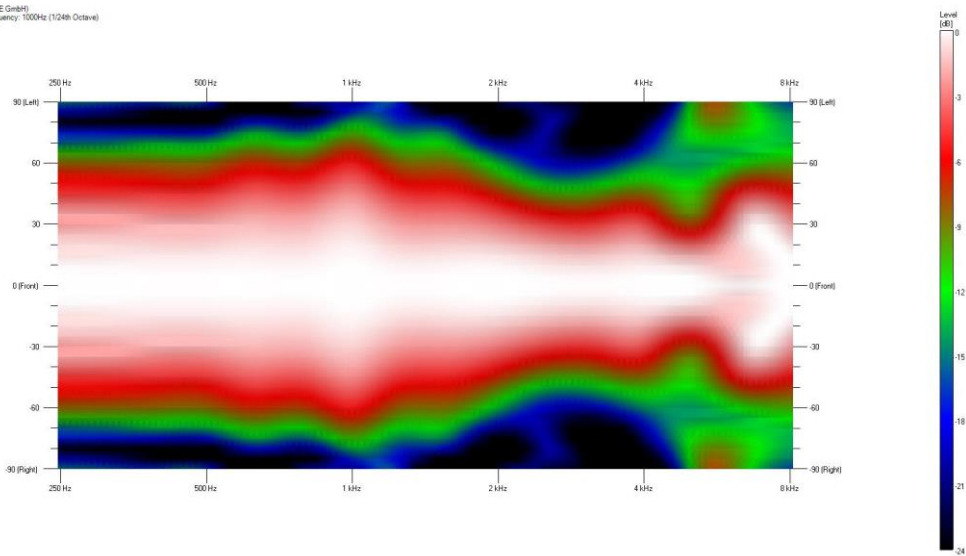
**FF0870 – 3D Vertical Beam Width vs Frequency**



**FF0870 – Vertical Beam Width vs Frequency**

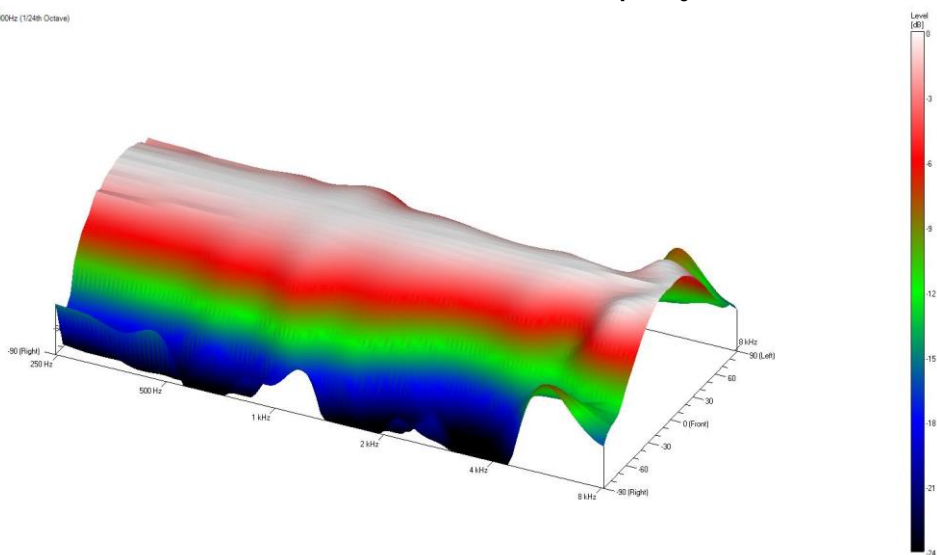
## 7.0 - Horizontal Beam Width

Data Show: FF0870 (A.V.E GmbH)  
Display Parameters: Frequency: 1000Hz (1/24th Octave)

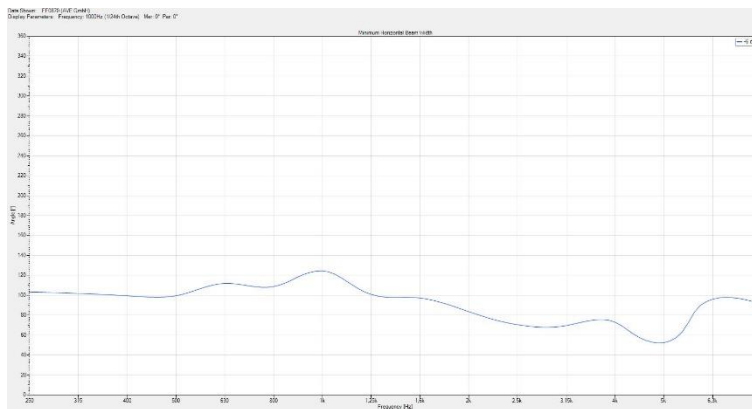


**FF0870 – 2D Horizontal Beam Width vs Frequency**

Data Show: FF0870 (A.V.E GmbH)  
Display Parameters: Frequency: 1000Hz (1/24th Octave)



**FF0870 – 3D Horizontal Beam Width vs Frequency**



**FF0870 – Horizontal Beam Width vs Frequency**

## Notice

ALL AVE GmbH DESIGN SPECIFICATIONS, FILES, DRAWINGS, TABLES, LISTS, AND OTHER DOCUMENTS ARE BEING PROVIDED “AS IS.”

AVE GmbH MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY, OR OTHERWISE WITH RESPECT TO THE MATERIALS, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES OF NONINFRINGEMENT, MERCHANTABILITY, AND FITNESS FOR A PARTICULAR PURPOSE.

Information furnished is believed to be accurate and reliable. However, AVE GmbH assumes no responsibility for the consequences of use of such information or for any infringement of patents or other rights of third parties that may result from its use. No license is granted by implication or otherwise under any patent or patent rights of AVE GmbH. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. AVE GmbH products are not authorized for use as critical components in life support devices or systems without express written approval of AVE GmbH Corporation.

## Trademarks

AVE GmbH, “Ascolto” and the AVE logo are trademarks or registered trademarks of AVE GmbH in the Germany and other countries. Other company and product names may be trademarks of the respective companies with which they are associated.

Copyright

© 2025 AVE GmbH. All rights reserved.



**German Technology**

**Made in Germany**



**AVE GmbH**  
**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)