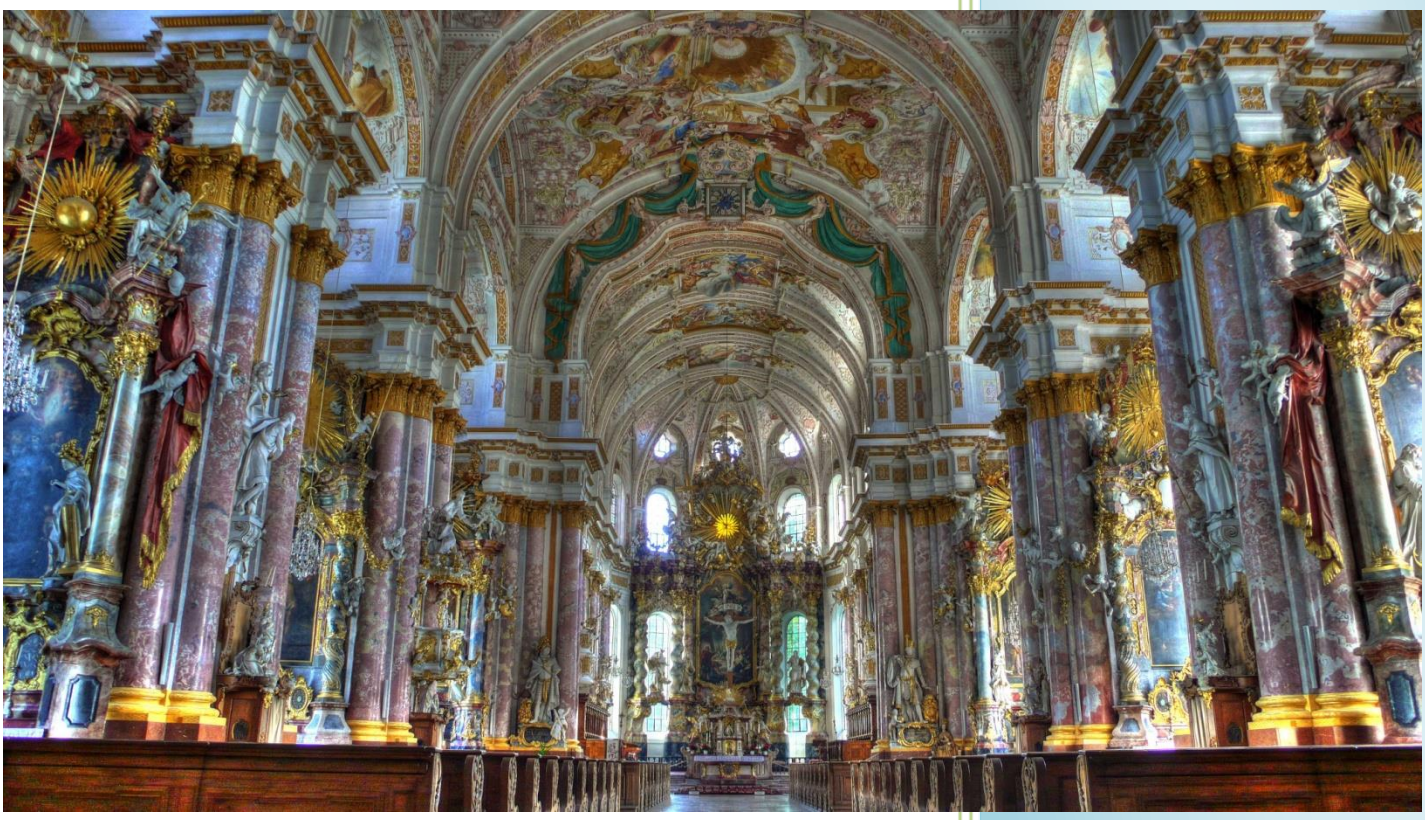
AVE mbH

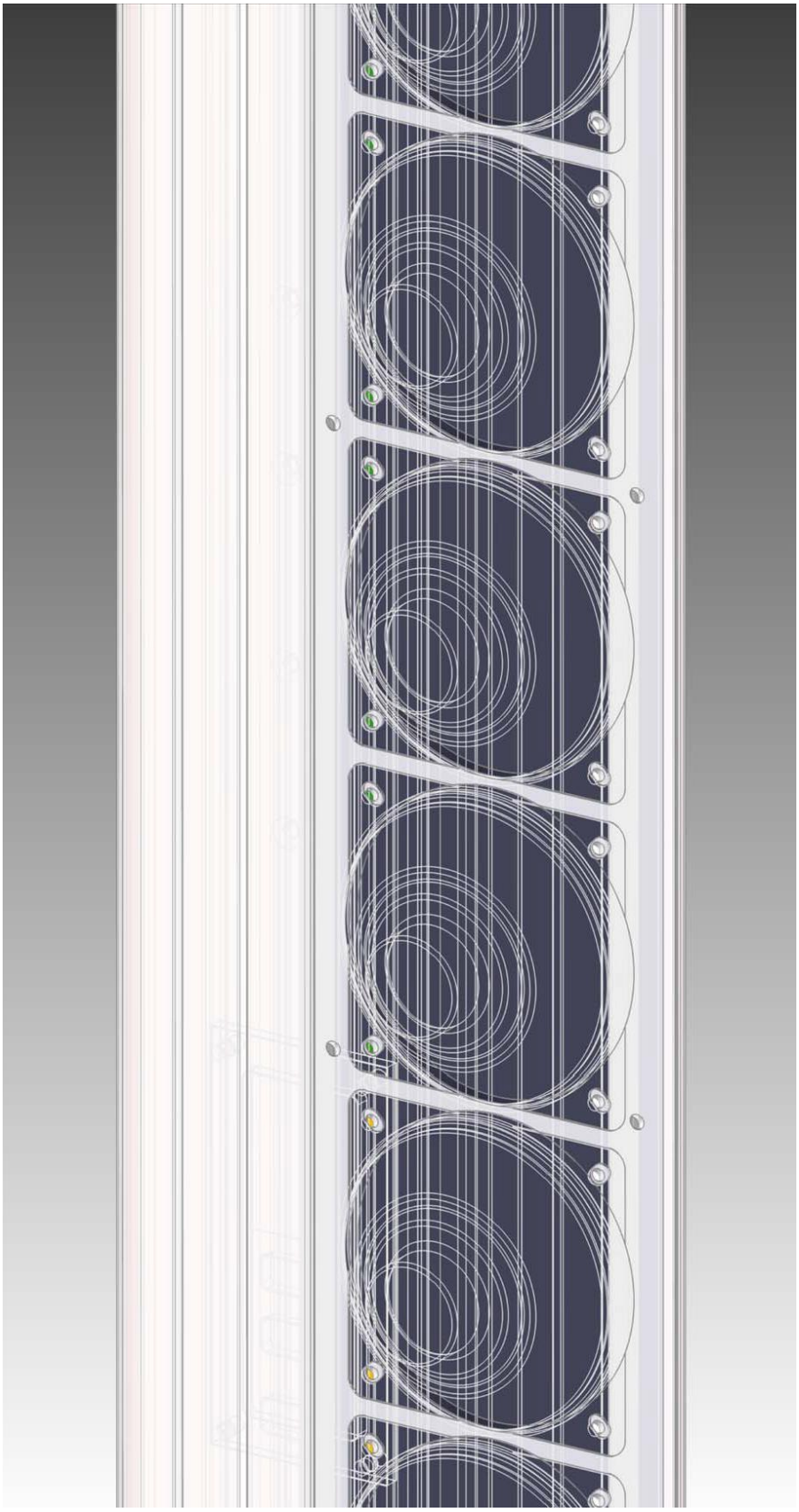
Digitally Controlled Line Array
Ascolto®



A.V.E. mbH

Audio Vertriebs-Entwicklungsgesellschaft

Germany



Digitally Controlled Line Array *Ascolto*®

FF0870 Datasheet

Table of Contents

1.0 – Acoustic Specifications

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

SPL	**Nominal/Peak**
	103 dB/106 dB (A-Weighted at 10 m, 1 W_{rms} per channel)
	100 dB/103 dB (A-Weighted at 20 m, 1 W_{rms} per channel)
	98 dB/101 dB (A-Weighted at 30 m, 1 W_{rms} per channel)

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

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

Transducers Type	
Number	8 Coaxial Loudspeakers
Diameter	4.0'' Woofer + 1.0" Dome Tweeter
Magnets	Neodymium
Rated Power	60 W (with pink noise, 6 dB crest factor)
Musical Power	120 W
Sensitivity 1 W/1 m	91.5 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 (not available in Ascolto – Dante Series)	
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)
Sample Rates	48 kHz
Bit Depths	24

Power Amplifiers	
Type	PWM (Class D)
Output Power	8 × 70 W_{rms}
Power Efficiency	92%
THD+N	0.025% at 10 $W_{rms/channel}$, 1 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 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_{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
Setup Network Interface	RS485, Half Duplex, 115200 baud/s 120 Ω Parallel Termination (recommended for long distance) This network interface is used by AVE Line Array User Control software to manage beam setup and other audio

	features.
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	Socket Wago cod. 770-103 with strain relief housing, 3-pole, 4,00 mm², ratings 250 VAC, 25 A, IEC/EN 60664-1, UL 1977

PSU Module	
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)
Electromagnetic compatibility	EN 55022, class B, FCC part 15, level B
(EMC), Emissions	IEC/EN 61000-3-2 class B

3.0 – General Specifications

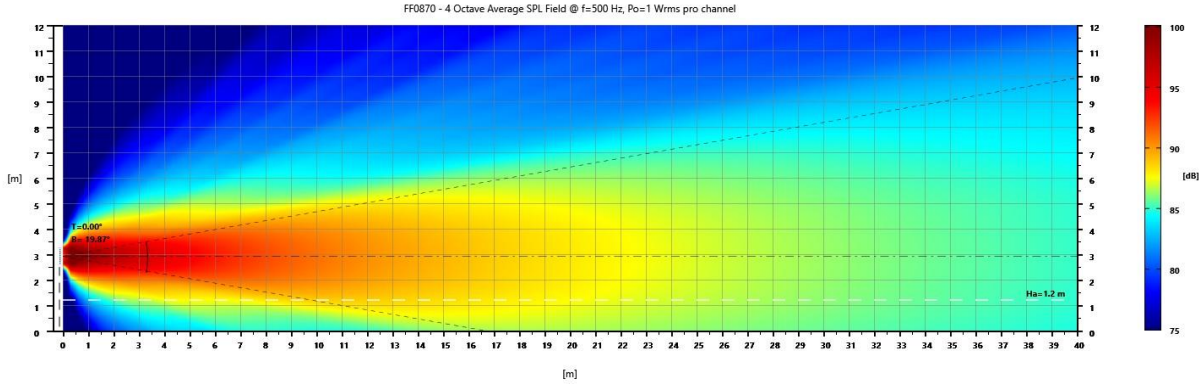
Mechanical	
Height	1174 mm
Width	122 mm
Depth	120 mm
Weight	10.3 Kg (22.7 lbs)
Cabinet	Powder Coated Aluminum Extrusion

Colour	RAL 9010
Special colours	Available for an additional charge

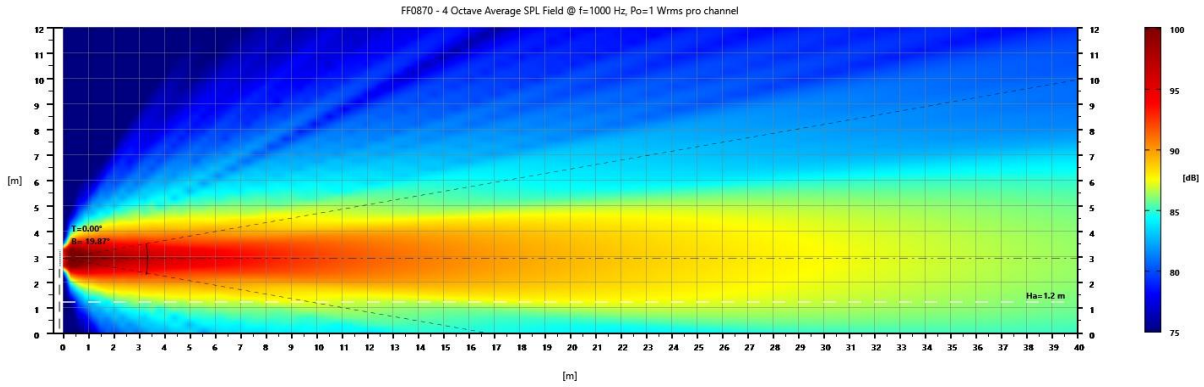
Temperature Range	
	0°C to 40°C (32°F to 102°F)

Certificates	
	CE

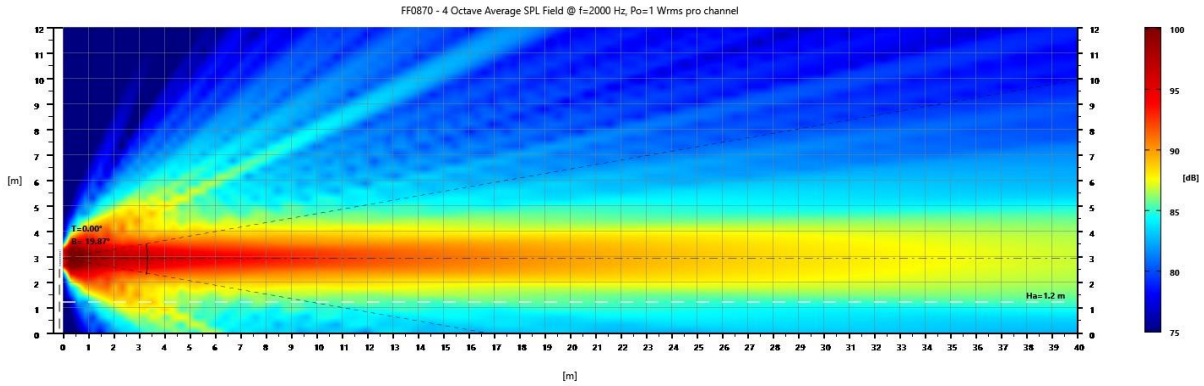
4.0 – Vertical Beam Pattern



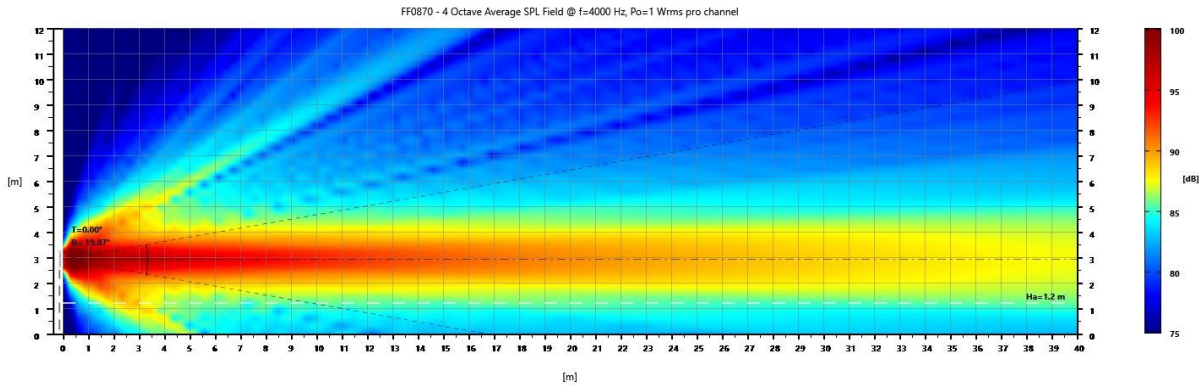
FF0870 – Vertical Beam Shape at 500 Hz, 4 Octaves average



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

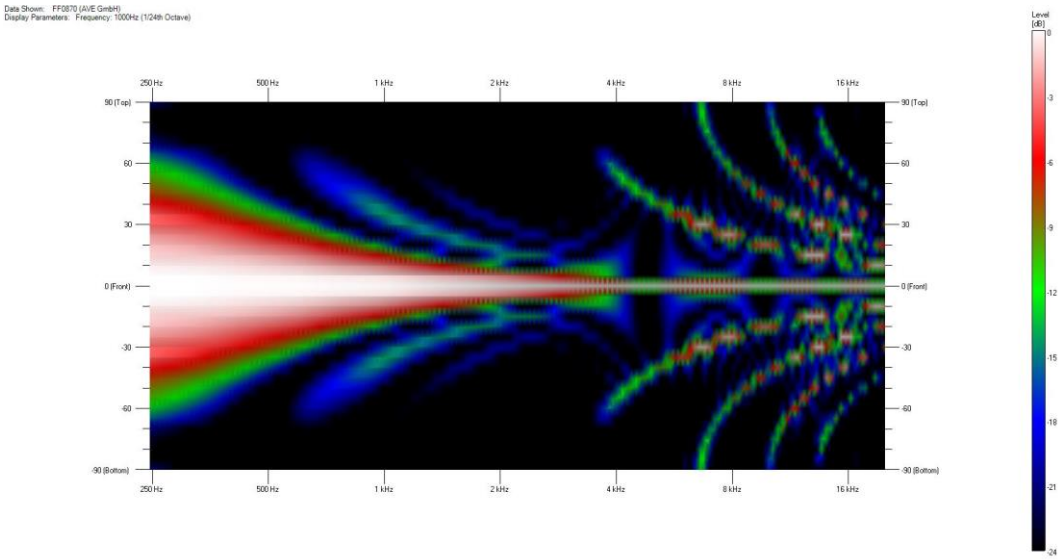


FF0870 – Vertical Beam Shape at 2000 Hz, 4 Octaves average

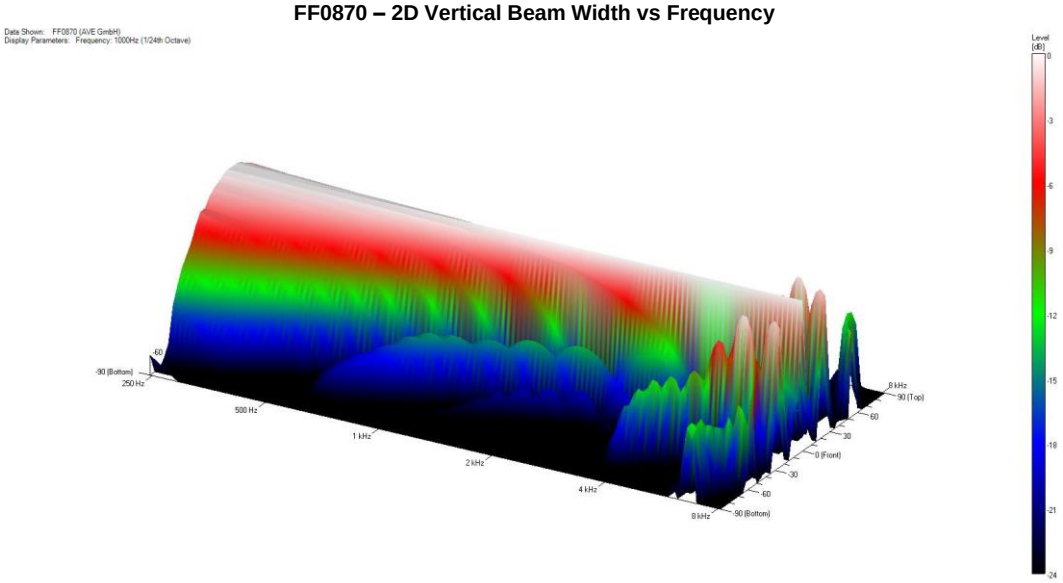


FF0870 – Vertical Beam Shape at 4000 Hz, 4 Octaves average

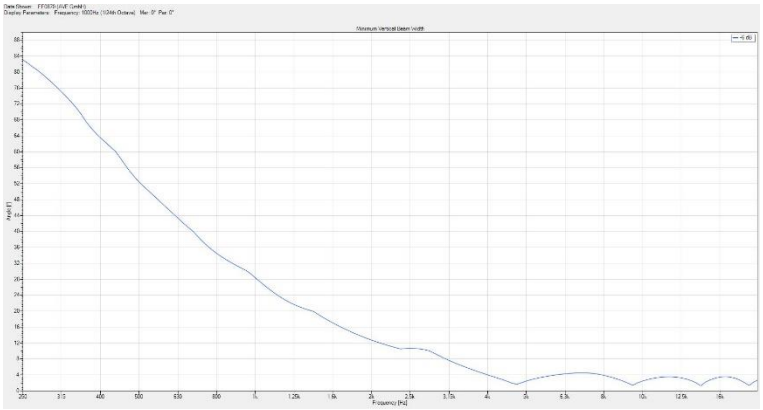
5.0 - Vertical Beam Width



FF0870 – 2D Vertical Beam Width vs Frequency

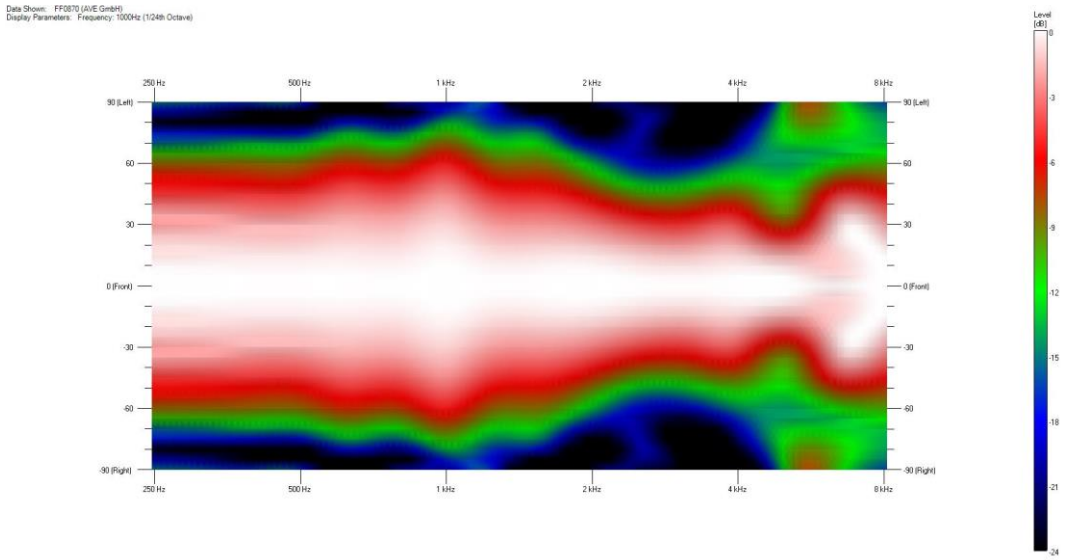


FF0870 – 3D Vertical Beam Width vs Frequency

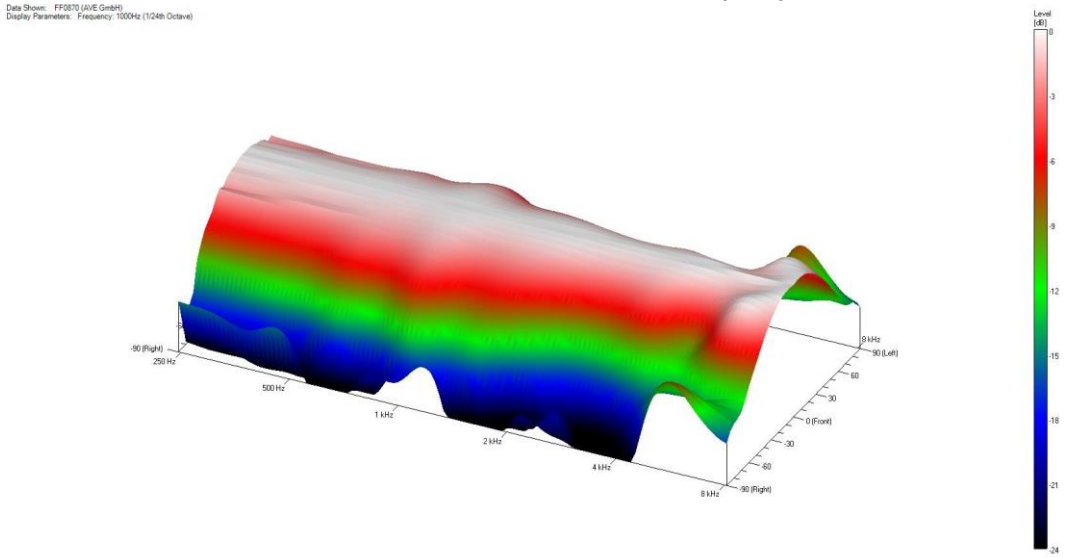


FF0870 – Vertical Beam Width vs Frequency

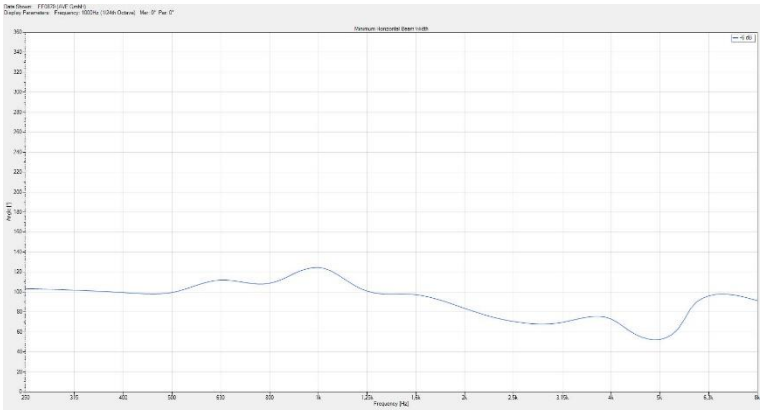
6.0 - Horizontal Beam Width



FF0870 – 2D Horizontal Beam Width vs Frequency



FF0870 – 3D Horizontal Beam Width vs Frequency



FF0870 – Horizontal Beam Width vs Frequency

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