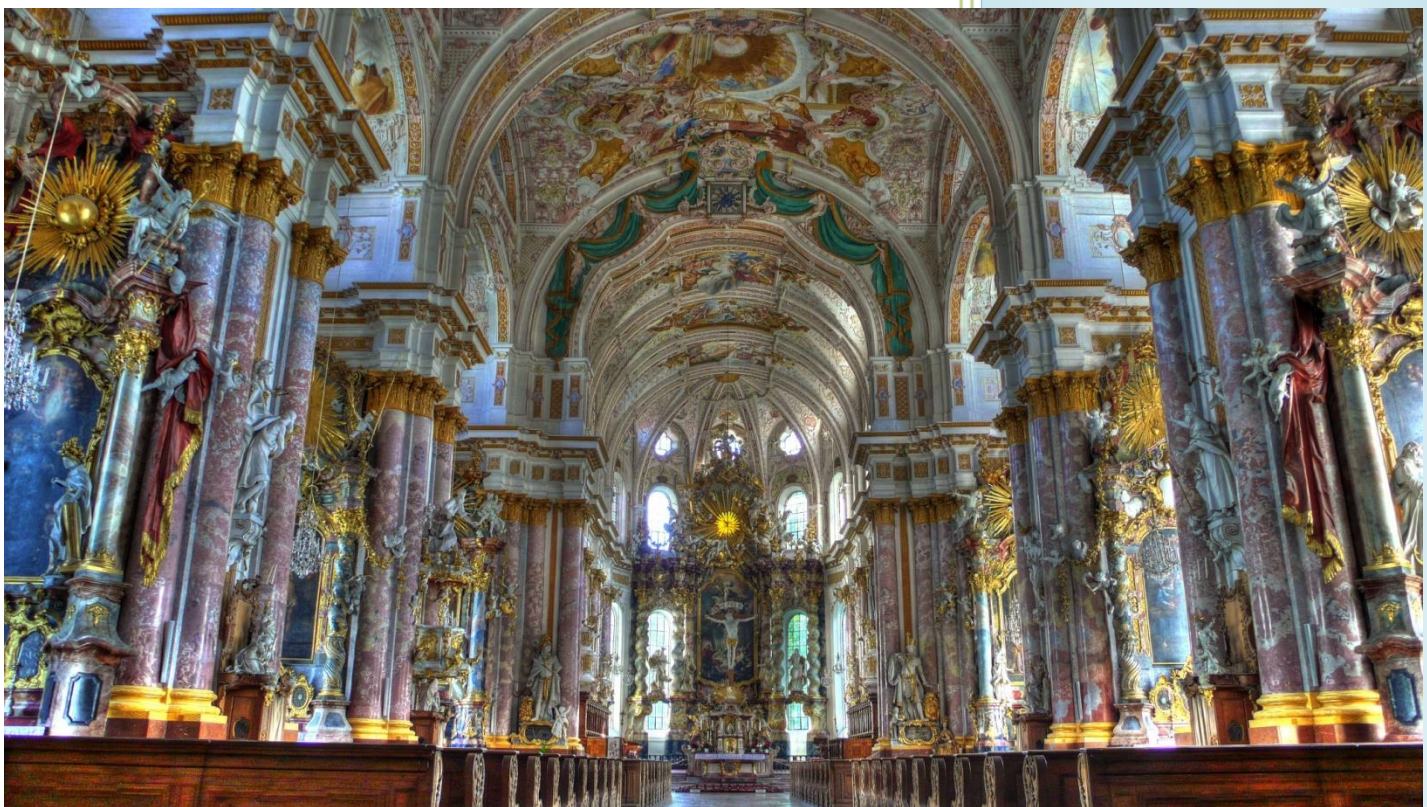


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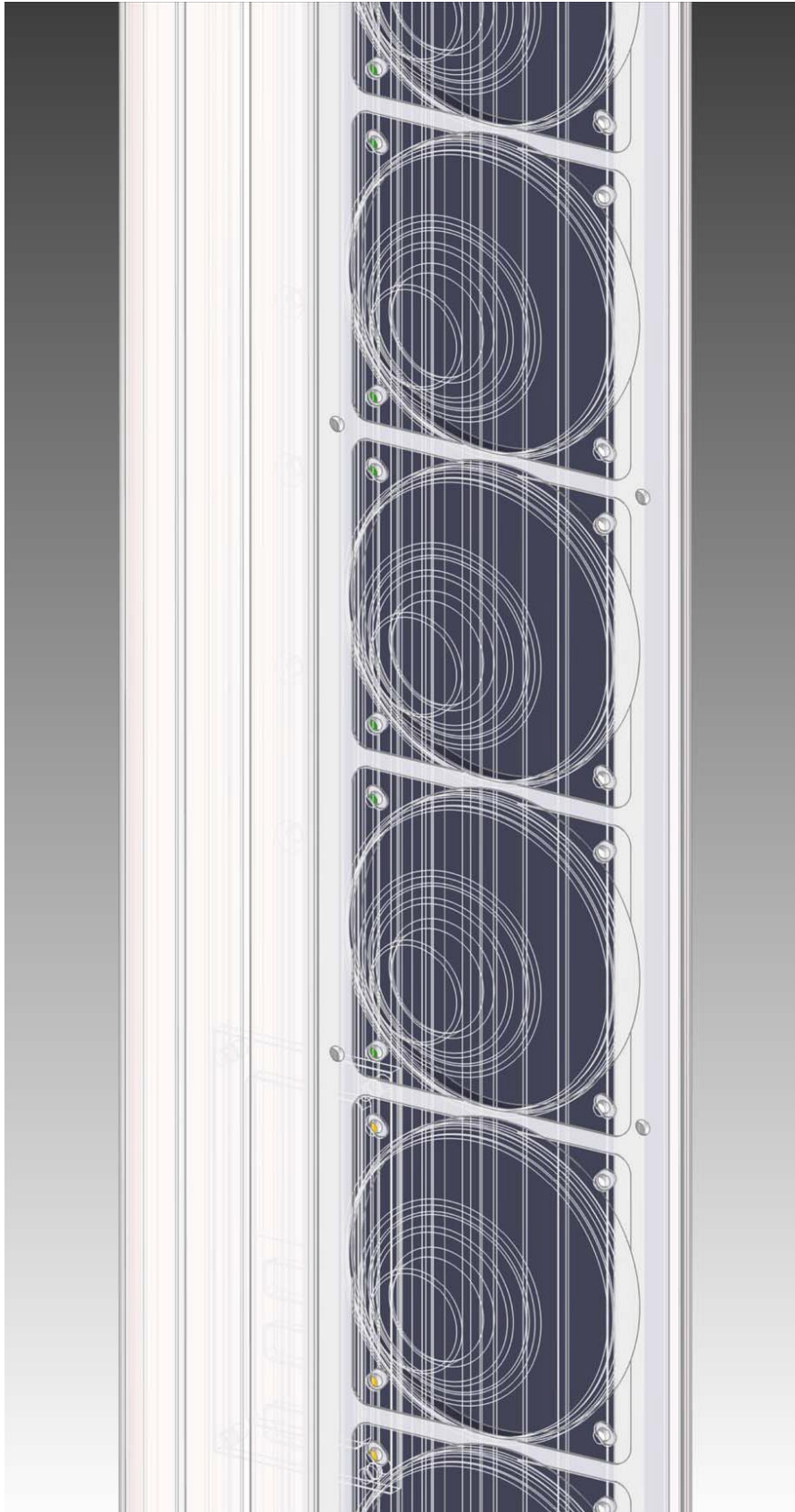
Digitally Controlled Line Array *Ascolto*[®]



A.V.E. mbH

Audio Vertriebs-Entwicklungsgesellschaft

Germany



**Digitally
Controlled
Line Array
Ascolto[®]**

**FF1670
Datasheet**

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1.0 – Acoustic Specifications

Frequency Bandwidth

80 Hz to 20 kHz (± 2 dB)

SPL

Nominal/Peak

105 dB/109 dB (A-Weighted at 10 m, 1 W_{rms} per channel)

102 dB/105 dB (A-Weighted at 20 m, 1 W_{rms} per channel)

100 dB/103 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: 10° to 40° (-6 dB average 500 Hz to 8 kHz)

Typical Throw 30 m

Maximum Throw 35 m

Dynamic Range

102 dB ($f=1$ kHz, AES17 filter)

Transducers Type

Number 16 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	16 × 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 512x
	Sample Rate: 48 kHz
	SNR: 112 dB (A-Weighted)
D/A Conversion	Resolution: 24 bit Linear PCM
	Conversion: upsampling 128x
	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	<p>RS485, Half Duplex, 115200 baud/s</p> <p>120 Ω Parallel Termination (recommended for long distance)</p> <p>This network interface is used by AVE Line Array User Control software to manage beam setup and other audio features.</p>

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 mm ² , 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	8.0 A typ at 115 VAC 4.0 A typ at 230 VAC
Power Consumption	Continuous: 720 VA Peak: 936 VA Idle: 24 VA Stand-By: 8 VA
Protection	Thermal Protection Short Circuit Protection Output Current Limiting Under-Voltage Lock Out
Main Fuse	1 × 6.3 A (slow blow)
Electromagnetic compatibility (EMC), Emissions	EN 55022, class B, FCC part 15, level B IEC/EN 61000-3-2 class B

3.0 – General Specifications**Mechanical**

Height	2014 mm
Width	122 mm
Depth	120 mm
Weight	18,8 Kg (41,4 lbs)
Cabinet	Powder Coated aluminium extrusion

Colour	RAL 9010
Special colours	Available for an additional charge

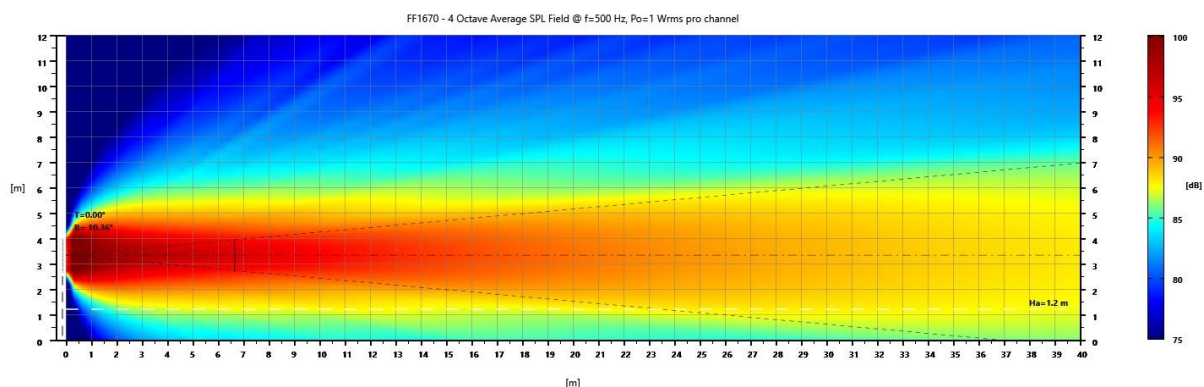
Temperature Range

0°C to 40°C (32°F to 102°F)

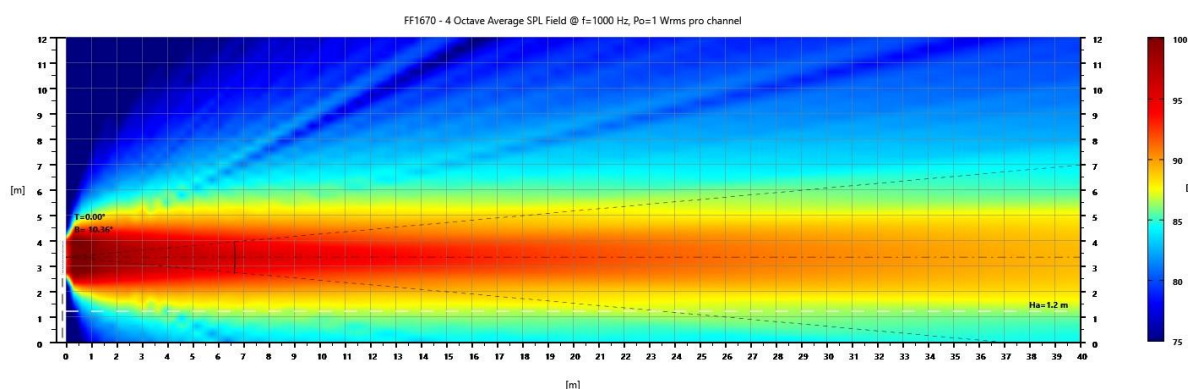
Certificates

CE

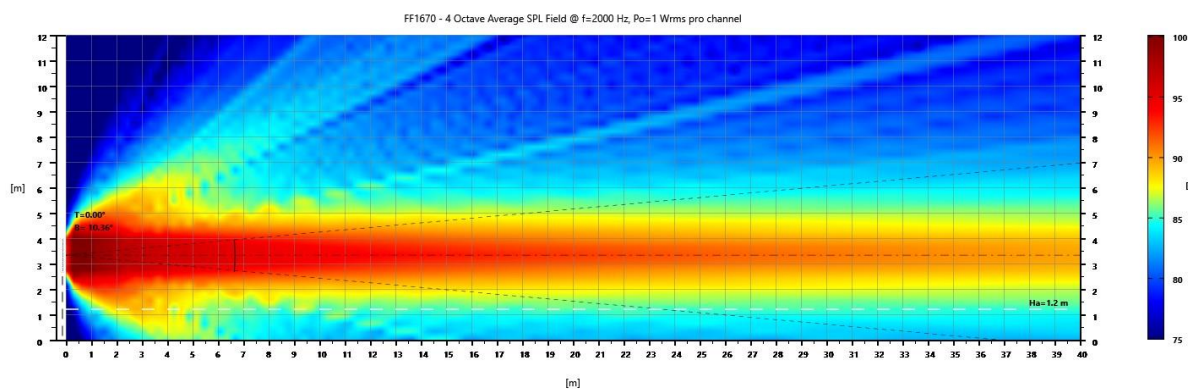
4.0 – Vertical Beam Pattern



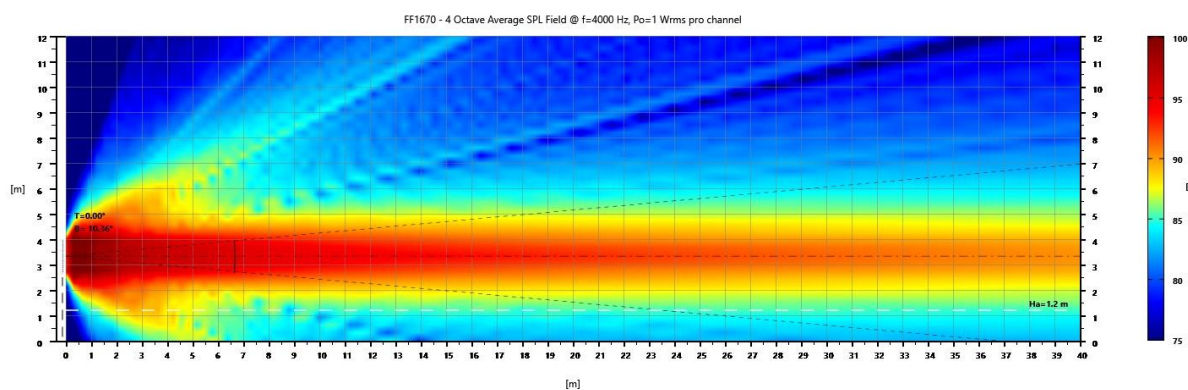
FF1624 – Vertical Beam Shape at 500 Hz, 4 Octaves average



FF1624 – Vertical Beam Shape at 1000 Hz, 4 Octaves average

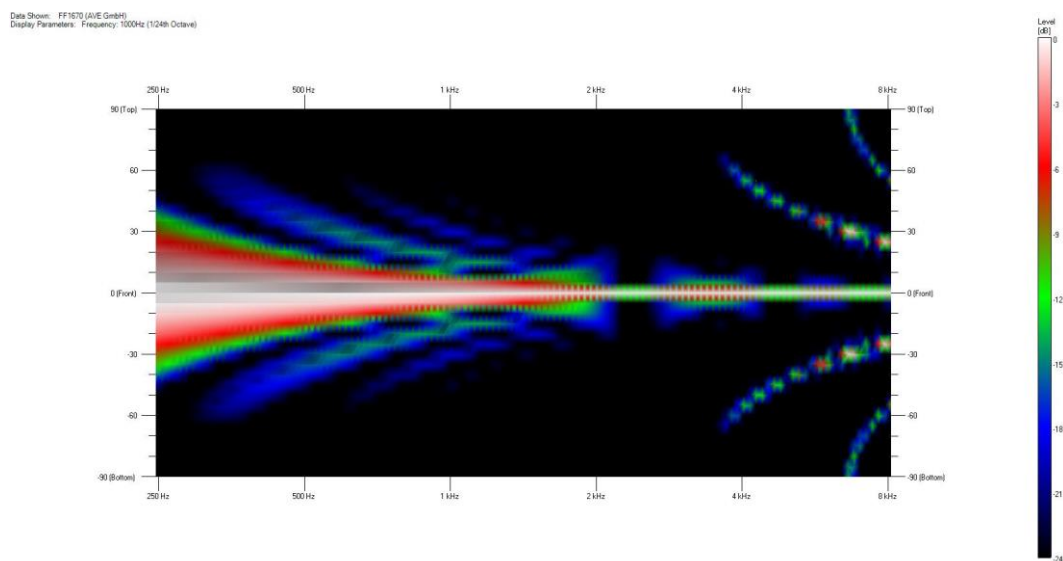


FF1624 – Vertical Beam Shape at 2000 Hz, 4 Octaves average

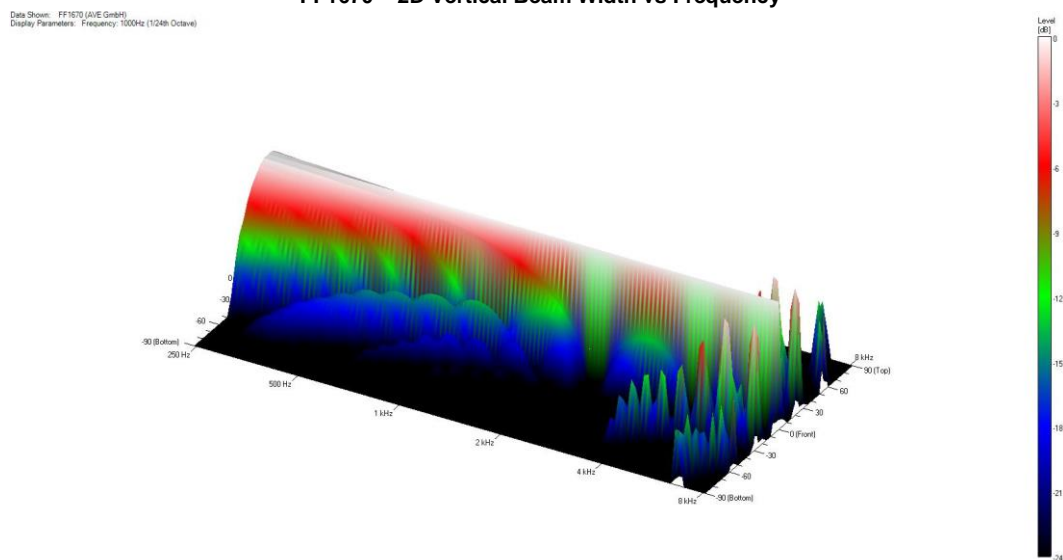


FF1624 – Vertical Beam Shape at 4000 Hz, 4 Octaves average

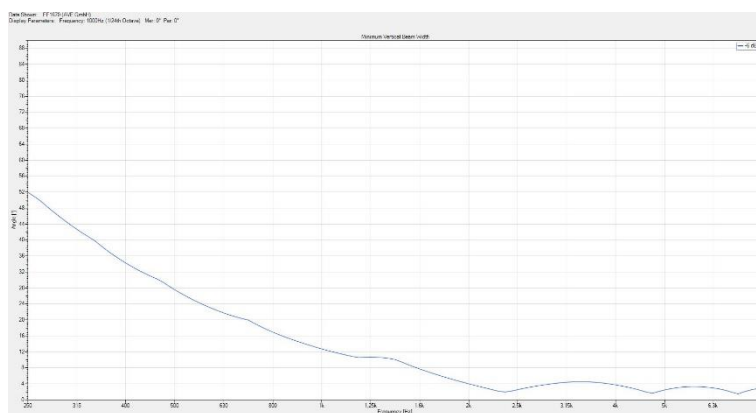
5.0 - Vertical Beam Width



FF1670 – 2D Vertical Beam Width vs Frequency

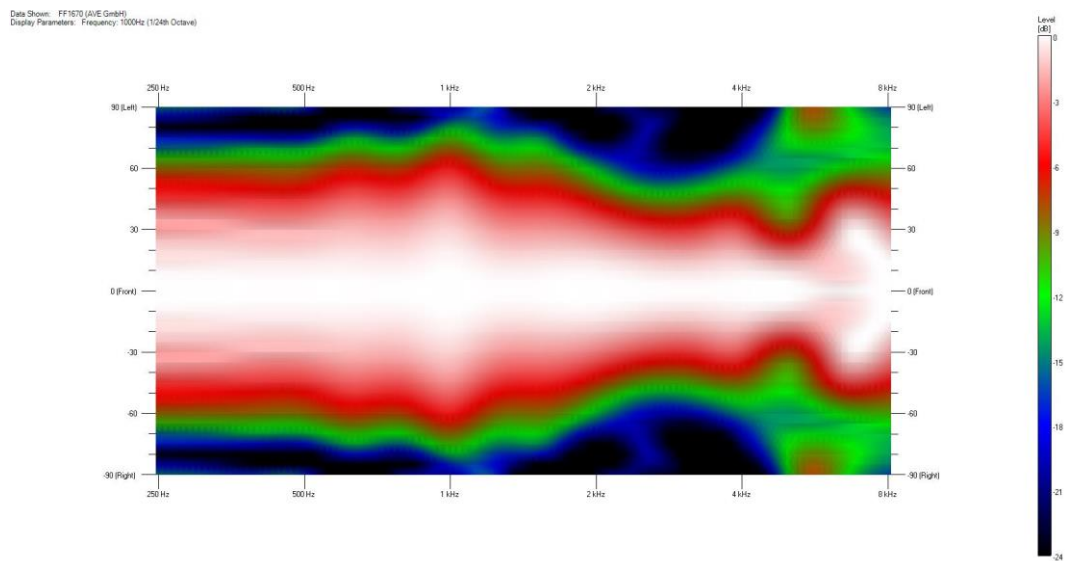


FF1670 – 3D Vertical Beam Width vs Frequency

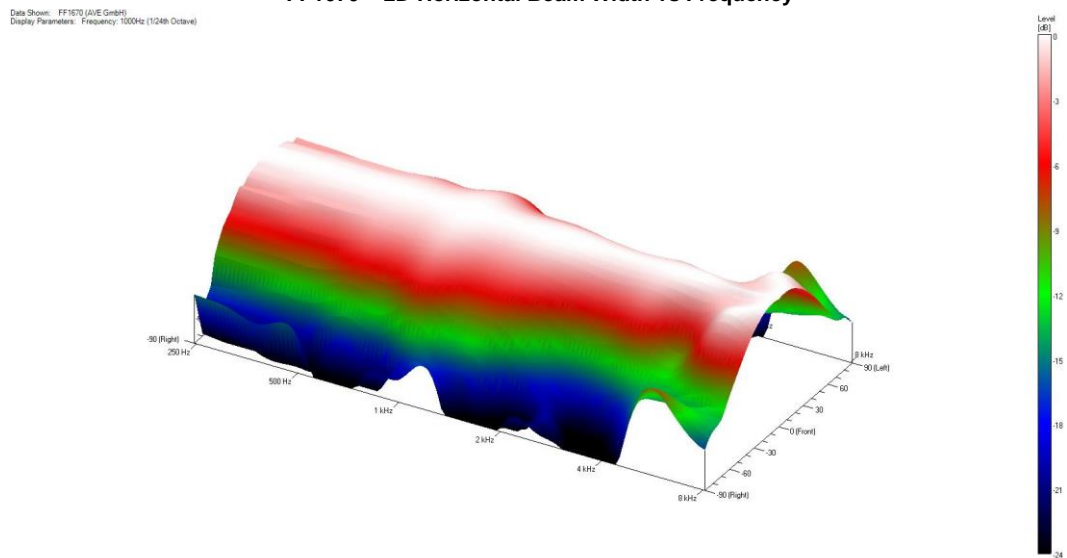


FF1670 – Vertical Beam Width vs Frequency

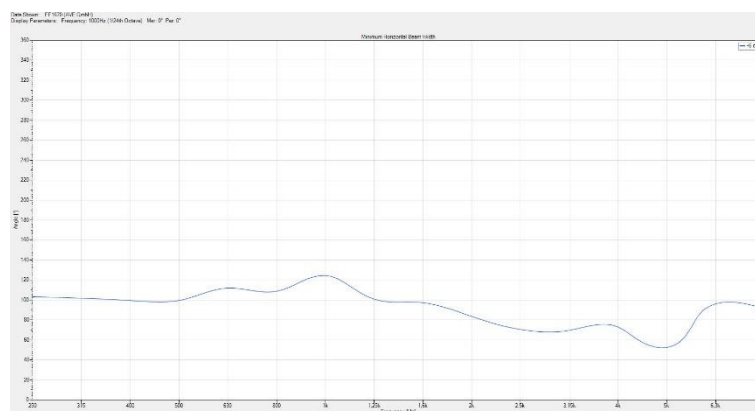
6.0 - Horizontal Beam Width



FF1670 – 2D Horizontal Beam Width vs Frequency



FF1670 – 3D Horizontal Beam Width vs Frequency



FF1624 – Horizontal Beam Width vs Frequency

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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

info@ave-stuttgart.de



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