

Audiocenter

Dynamic Audio Solutions

BrainCoreTM
Technology Inside

Technology for Music & Arts
Designed & Engineered in Europe

www.audiocenter.net

Together we are stronger

AVANDA Series Active DSP-controlled Line Array Loudspeaker

The AVANDA active line array is specifically designed for medium to large-scale sound reinforcement applications and fixed installations.

AVANDA is best suited for medium and large fixed or mobile installations in medium to large theaters, stadiums, convention centers, multi-purpose halls, concert halls, museums, high-end entertainment and performance venues.





Joan La Roda
Audiocenter R&D Director

Joan La Roda is an European electro-acoustic engineer, graduated from the Polytechnic University of Valencia (Spain), began his career in the audio industry since 1990 and has held various positions since then. During these 33 years, he first worked as a touring sound engineer, gaining experience in real-life situations. Then successfully designed sound systems for the largest Spanish audio manufacturer, including a top-selling stage monitor which is with linear phase response using FIR filters. After this period, he continued his career as a loudspeaker designer for several companies.

He has published educational articles in Spanish and English on phase alignment and tuning of cardioid subwoofers and has given educational seminars in Southeast Asia, Europe, Oceania and Latin America. Recently he published a book in Spanish to help people make the right choice when buying a sound system. He now uses BEM (Boundary Element Method) techniques to design horns and line array waveguides for Audiocenter.

Design Concept

- 🕒 **With global unique and pioneering ARROWHEAD™ waveguide technology, FIR BrainCore™ processing technology and patents**
Adhering to the principle of standing on the shoulders of giants, Audiocenter integrates top European R&D teams and top European loudspeaker and electronic suppliers.
- 🕒 **The most stylish and compact design of active line array loudspeaker , with exquisite workmanship, and a maximum SPL up to 142dB**
- 🕒 **Serving the largest customer base with the best products**
- 🕒 **Allow more people to enjoy the latest and most advanced technology**
- 🕒 **Durable and suited to all weather conditions and scenarios**



BrainCore™

BrainCore™ is an innovative core application technology researched and developed by Audiocenter, devoted to Audiocenter active DSP-controlled loudspeakers with supreme performance and high reliability.

With its advanced technology and scientific methodology, BrainCore™ analyses and processes the input signal, DSP module, Class D amplifier and loudspeaker optimally, achieving excellent frequency response and audio reproduction even at high levels of SPL.

Main Features



Innovative BrainCore™ technology to improve the audio performance of the system

The innovative BrainCore™ technology and built-in powerful DSP improve the performance of the loudspeaker. With Cort™ correction technology and Limita™ processing technology, the system works with safety and reliability and achieves supreme performance.



Advanced Digital FIR Filter Technology

FIR filtering enhances the audio's attack, ensuring a dynamic and impactful sound experience. The linear phase response preserves the original transient characteristics of the audio signal, resulting in a sharper, more defined attack.



Class D Amplifier

The power amplifier module and DSP module have been designed by Audiocenter's R&D team in Europe and manufactured according to Europe engineering standards. The system operates stably and efficiently, ensuring high-quality audio output.



Global Unique ARROWHEAD™ Waveguide Technology

The global unique ARROWHEAD™ waveguide technology is developed by using the most advanced and complex Boundary Element Method (BEM).



3 Presets

Three presets are available in the Avanda Series, for 4, 8 and 12 units. The presets can be selected via a switch on the back panel.



Stylish, Sturdy, and Compact Cabinet Structure

The cabinet is built using high-quality birch plywood and molded parts to minimize resonance. The cabinet is compact, sturdy and has a professional and stylish appearance.



Advanced Cooling System

Moulded large heatsink improves cooling , resulting in higher reliability.



Durable Polyurea Coating

The polyurea coating is waterproof, wear resistance, impact resistance and aging resistance.



Sleep mode

To save power, the system will enter into sleep mode automatically if without signal input for 45 mins.



Customized ProDriver

Latest driver technology and customized drivers ensure a clean sound and impressive dynamics.



Integrated FlyWare

Built-in flying hardware



EASE GLL

EASE GLL file available

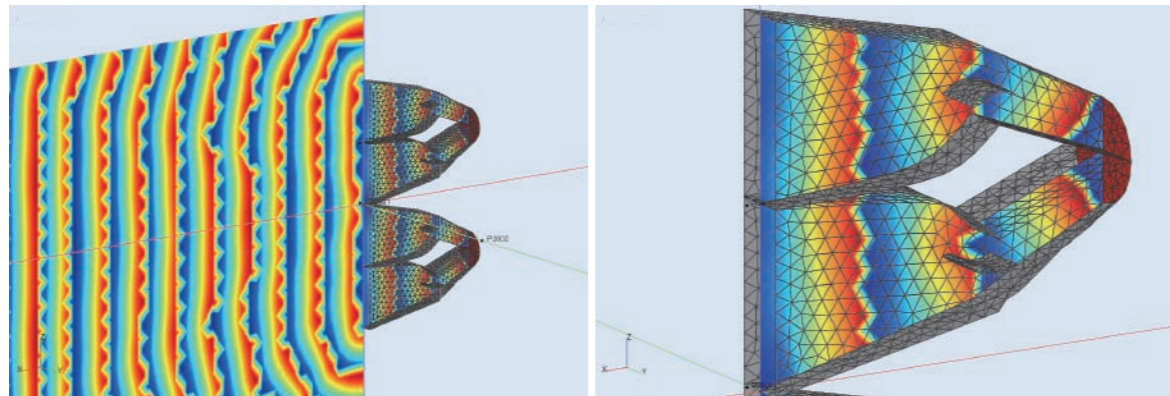
Global Unique ARROWHEAD™ Waveguide Technology

The global unique ARROWHEAD™ waveguide patent technology has been developed in house by AUDIOCENTER R&D team, by using the extremely advanced and sophisticated Boundary Element Method (BEM), integrating Audiocenter's extensive experience in audio industry. We have spent more than 3 years to design this ARROWHEAD™ waveguide technology.

The Arrowhead family of waveguides for the new Avanda line array series has been developed using Boundary Element Method (BEM) techniques. BEM is a numerical computational method used in acoustics to model sound wave propagation in acoustic devices such as horns or waveguides using surface-based calculations and boundary conditions.

The entry (throat) of a line array waveguide is round, while the exit (mouth) is rectangular. The role of a line array waveguide is to guide the sound wave from the circular entry to the rectangular exit while providing a narrow vertical coverage. This is achieved by shaping the interior of the waveguide in such a way that an isophasic wavefront is produced at the exit.

Each waveguide design has its own advantages and disadvantages, and challenges to overcome depending on the design strategy chosen. In our case, the arrowhead shape already provided the desired isophasic wavefront, but could be further improved by adding an acoustic impedance adapter, teardrop shaped, to facilitate the propagation of the soundwave within the device.



Advanced Digital FIR Filter Technology

FIR filters ensure that all frequencies within the audio signal experience equal delay, preserving the natural timing and phase relationships. This remarkable feature allows for seamless integration of audio systems. Two different systems featuring linear phase response can be put in phase in the whole frequency range simply by using a delay line.

FIR filtering enhances the audio's attack, ensuring a dynamic and impactful sound experience. The linear phase response preserves the original transient characteristics of the audio signal, resulting in a sharper, more defined attack. This means that every drum hit, guitar strum, or vocal emphasis retains its full impact, allowing the audience to immerse themselves in the intricate details and nuances of the sound.



PRESET, FIR Filter Technology

AVANDA comes with 3 default presets--4 Units, 8 Units, 12 Units. Users can directly call the corresponding preset program through the switch on the back panel.

Using a 96kHz signal sampling frequency and FIR filtering technology, it enhances the audio's attack, ensuring a dynamic and impactful sound experience. The linear phase response preserves the original transient characteristics of the audio signal, resulting in a sharper, more defined attack. With excellent phase consistency, it can bring the performance of the loudspeaker system to its fullest potential.



EASE GLL files

IFAA laboratory in Germany provides EASE GLL files to help the system engineers do the preliminary system designs.

European R&D design, German standard engineering

The power amplifier module and DSP module were designed by Audiocenter's R&D team in Europe and manufactured according to German standard engineering. The system operates stably and efficiently, ensuring high-quality audio output.



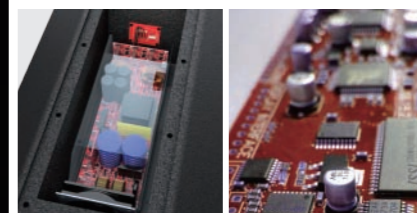
Advanced Digital FIR Filter Technology

FIR filtering enhances the audio's attack, ensuring a dynamic and impactful sound experience. The linear phase response preserves the original transient characteristics of the audio signal, resulting in a sharper, more defined attack.

More than 500,000 amplifier and DSP modules have been distributed worldwide along the years, proving their stability and reliability.

High-efficiency Class D Amplifier Module

The high-efficiency amplifier module can provide the highest sound output power among similar products. A single module has a peak power of up to 2200W and can provide excellent dynamic and transient response, greatly improving the audio performance of the loudspeakers.



Modular Power Amplifier Module

The modular power amplifier module adopts a sturdy mechanical structure, which can better protect the power amplifier. The tunnel-type heat dissipation also provides optimal heat dissipation efficiency (The maximum temperature rise is 30°).

Compact and light weight cabinet design

The symmetrical cabinet design helps to provide a uniform horizontal coverage.

AVANDA 212A
Dimension(WxHxD): 1220x344x464mm
Net Weight: 67.0Kg

AVANDA 210A
Dimension(WxHxD): 830x293x420mm
Net Weight: 39.0Kg



Visual Aesthetic Revolution of Professional Audio

AVANDA has started a visual aesthetic revolution in the professional audio field. AVANDA breaks through traditional design methods. The product appearance adopts an embedded design, and the custom-made cabinet protection parts hide the pins, fully enhancing the neatness and beauty of the product.

The cabinet is treated with polyurea spraying. The polyurea coating is waterproof, wear resistance, impact resistance and aging resistance.

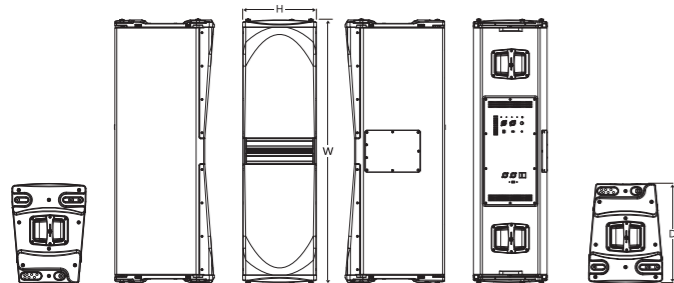


AVANDA 212A

AVANDA 212A is a dual 12" three-way active DSP controlled line array loudspeaker. Designed for medium to large-scale sound reinforcement applications and mid-to-high-end fixed installations, it provides a high quality and powerful sound, meeting the requirements of any sound reinforcement application, indoors or outdoors.

The AVANDA 212A achieves a narrow vertical coverage in the high frequency range through the innovative ARROWHEAD™ waveguide technology, providing a clearer sound performance. The 90° horn provides a precise horizontal coverage and ensures that the system delivers an even and smooth sound.

CNC machined birch plywood cabinet, coated with polyurea, is waterproof, wear and high temperature resistant.



Dimension(WxHxD): 1220x344x464 mm

Specification

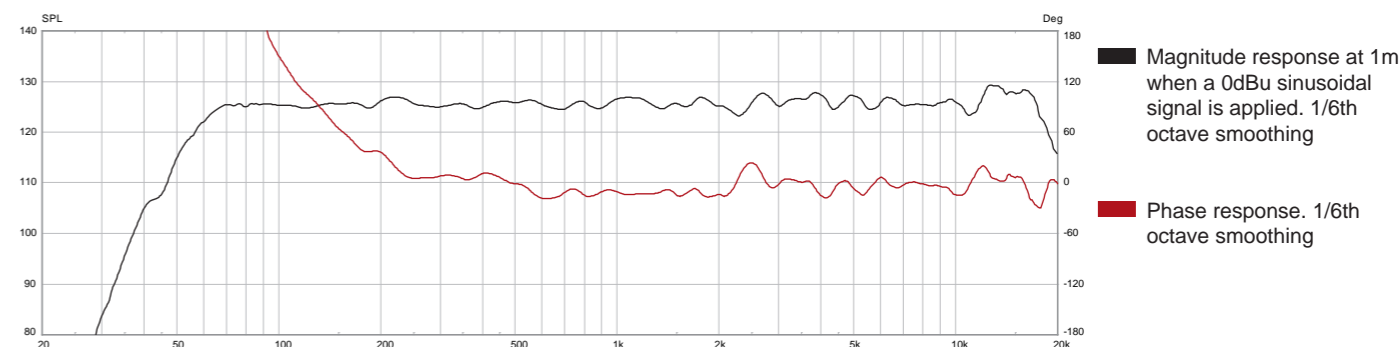
Frequency Response(-10dB)	60Hz-20kHz
Maximum Calculated SPL/1M(Continuous/Peak)	136dB/142dB
Horizontal Coverage	90°
Vertical Coverage	Splay angle dependent
HF	Customized Neodymium driver, 2x3"voice coil, 1.4"exit
MF	Customized 4x6" driver, 1.75"voice coil
LF	Customized 2x12" driver, 3"voice coil
DSP	
Processor	96kHz signal sampling frequency, FIR filtering
Presets	4 Units, 8 Units, 12 Units
AMPLIFIER	
Amplifier Circuitry	Class D
Power(RMS standards)	2600W
Peak Power	5200W
Frequency Response (1W 8Ω 2ch)	20Hz-20kHz(±0.5dB)
Intermodulation Distortion	< 0.05%
Total Harmonic Distortion	< 0.05%
Cooling System	Cooling with fans, air convection
Protection	DC protection, short circuit protection, overheat protection, input overload protection, output overload protection, soft startup protection, overvoltage protection, undervoltage protection
Output/Input	
Signal Input	Female XLR
Signal Output	Male XLR
Power Input	Power connector
Power Output	Power connector
AC Power Operating Range	100V-130V~ or 220V-240V~(±10%, 50/60Hz)
Power consumption (1/8 output power)	300W
Cabinet	
Cabinet Material	Russian birch plywood
Angle Adjustment	0°, 1°, 2°, 4°, 6°, 8°, 10°
Coating	Durable Polyurea Coating
Cabinet Color	Black is the default color. Contact Audiocenter for customization
Grille	Iron mesh
Handles	2 side, 2 rear
Speaker Dimension(WxHxD)	1220x344x464mm
Carton Dimensions (WxHxD)	1322x568x443mm
Net Weight	67.0Kg
Shipping Weight	70.0Kg

Key Features

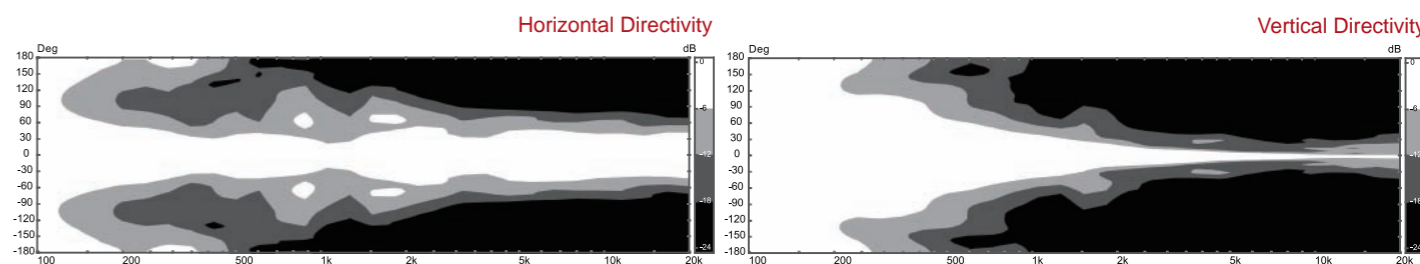
- Perfect integration of BrainCore™ technology achieves supreme performance of the loudspeaker system.
- ARROWHEAD™ waveguide technology
- 3 presets
- High end DSP, with 96KHz signal sampling frequency, with FIR filter
- Class D amplifier
- Automatically enter sleep mode after 45 minutes without signal input
- Advanced temperature control system
- Customized driver
- Optimized, compact cabinet design
- Durable polyurea coating
- CNC machined birch plywood cabinet, coated with polyurea, is waterproof, wear and high temperature resistant.



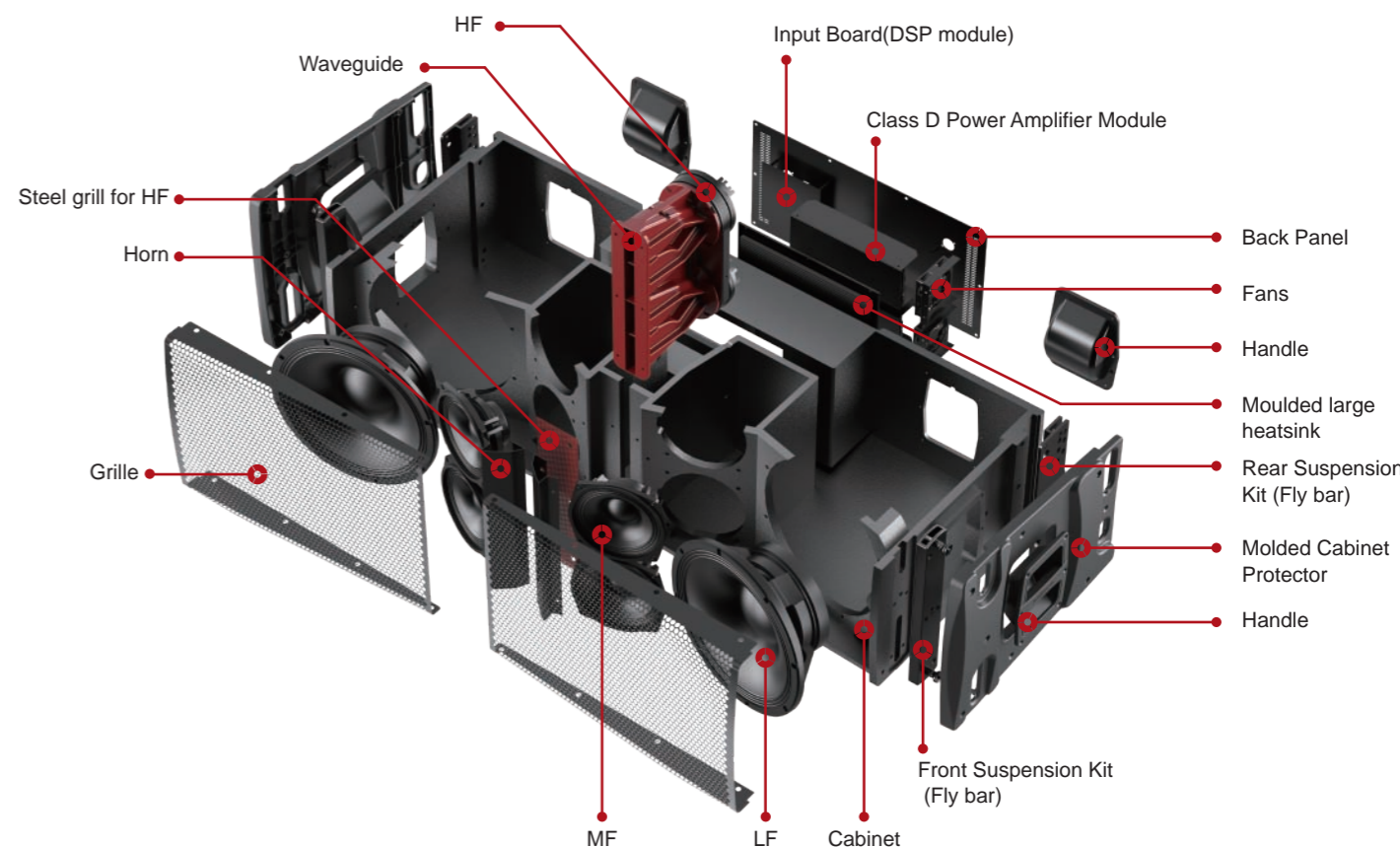
Frequency Response Graphs



Normalized Isobar Plot



Internal Structure

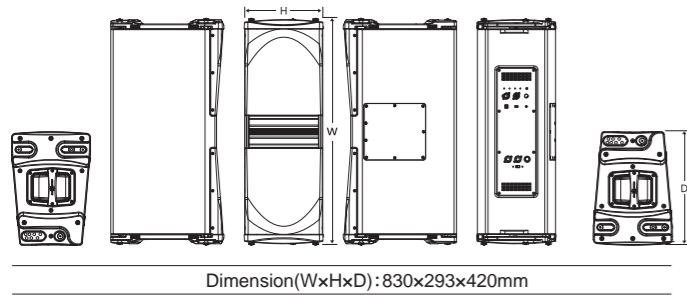


AVANDA 210A

AVANDA 210A is a dual 10" two-way active DSP controlled line array loudspeaker. Designed for medium to large-scale sound reinforcement applications and mid-to-high-end fixed installations, it provides a high quality and powerful sound, meeting the requirements of any sound reinforcement application, indoors or outdoors.

The AVANDA 210A achieves a narrow vertical coverage in the high frequency range through the innovative ARROWHEAD™ waveguide technology, providing a clearer sound performance. The 90° horn provides a precise horizontal coverage and ensures that the system delivers an even and smooth sound.

CNC machined birch plywood cabinet, coated with polyurea, is waterproof, wear and high temperature resistant.



Key Features

- Perfect integration of BrainCore™ technology achieves supreme performance of the loudspeaker system.
- ARROWHEAD™ waveguide technology
- 3 presets
- High end DSP, with 96KHz signal sampling frequency, with FIR filter
- Class D amplifier
- Automatically enter sleep mode after 45 minutes without signal input
- Advanced temperature control system
- Customized driver
- Optimized, compact cabinet design
- Durable polyurea coating
- CNC machined birch plywood cabinet, coated with polyurea, is waterproof, wear and high temperature resistant.

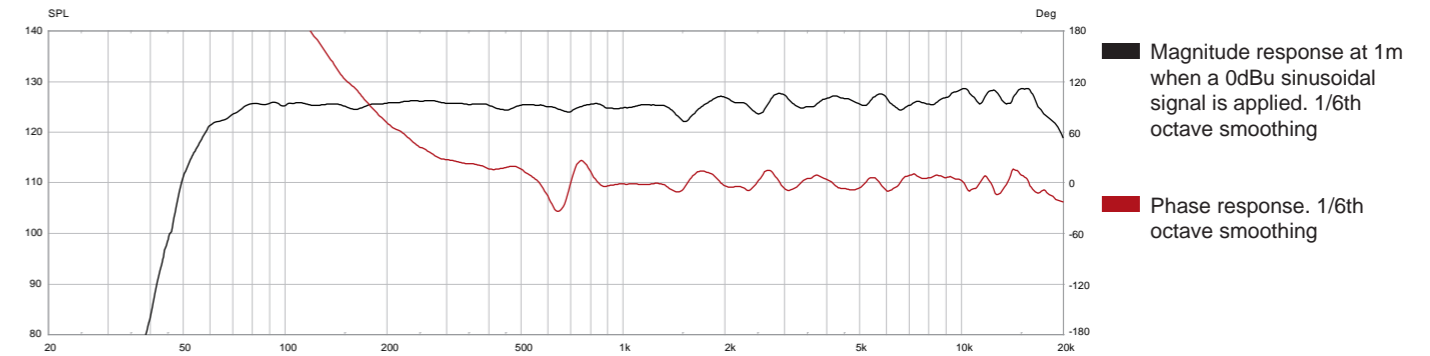


Specification

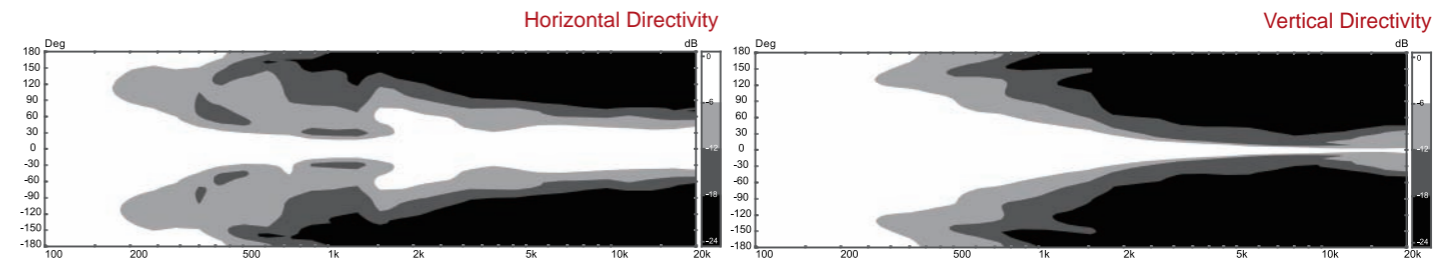
Frequency Response(-10dB)	67Hz-20kHz
Maximum Calculated SPL/1M(Continuous/Peak)	132dB/138dB
Horizontal Coverage	90°
Vertical Coverage	Splay angle dependent
HF	Customized Neodymium driver, 2x3" voice coil, 1.4" exit
LF	Customized 2x10" driver, 2.5" voice coil
DSP	
Processor	96kHz signal sampling frequency, FIR filtering
Presets	4 Units, 8 Units, 12 Units
AMPLIFIER	
Amplifier Circuitry	Class D
Power(RMS standards)	1600W
Peak Power	3200W
Frequency Response (1W 8Ω 2ch)	20Hz-20kHz(±0.5dB)
Intermodulation Distortion	< 0.05%
Total Harmonic Distortion	< 0.05%
Cooling System	Cooling with fans, air convection
Protection	DC protection, short circuit protection, overheat protection, input overload protection, output overload protection, soft startup protection, overvoltage protection, undervoltage protection
Output/Input	
Signal Input	Female XLR
Signal Output	Male XLR
Power Input	Power connector
Power Output	Power connector
AC Power Operating Range	100V-130V~ or 220V-240V~(±10%, 50/60Hz)
Power consumption (1/8 output power)	142W
Cabinet	
Cabinet Material	Russian birch plywood
Angle Adjustment	0°, 1°, 2°, 4°, 6°, 8°, 10°
Coating	Durable Polyurea Coating
Cabinet Color	Black is the default color. Contact Audiocenter for customization
Grille	Iron mesh
Handles	2 side
Speaker Dimension(WxHxD)	830x293x420mm
Carton Dimensions (WxHxD)	936x526x393mm
Net Weight	39.0Kg
Shipping Weight	42.0Kg



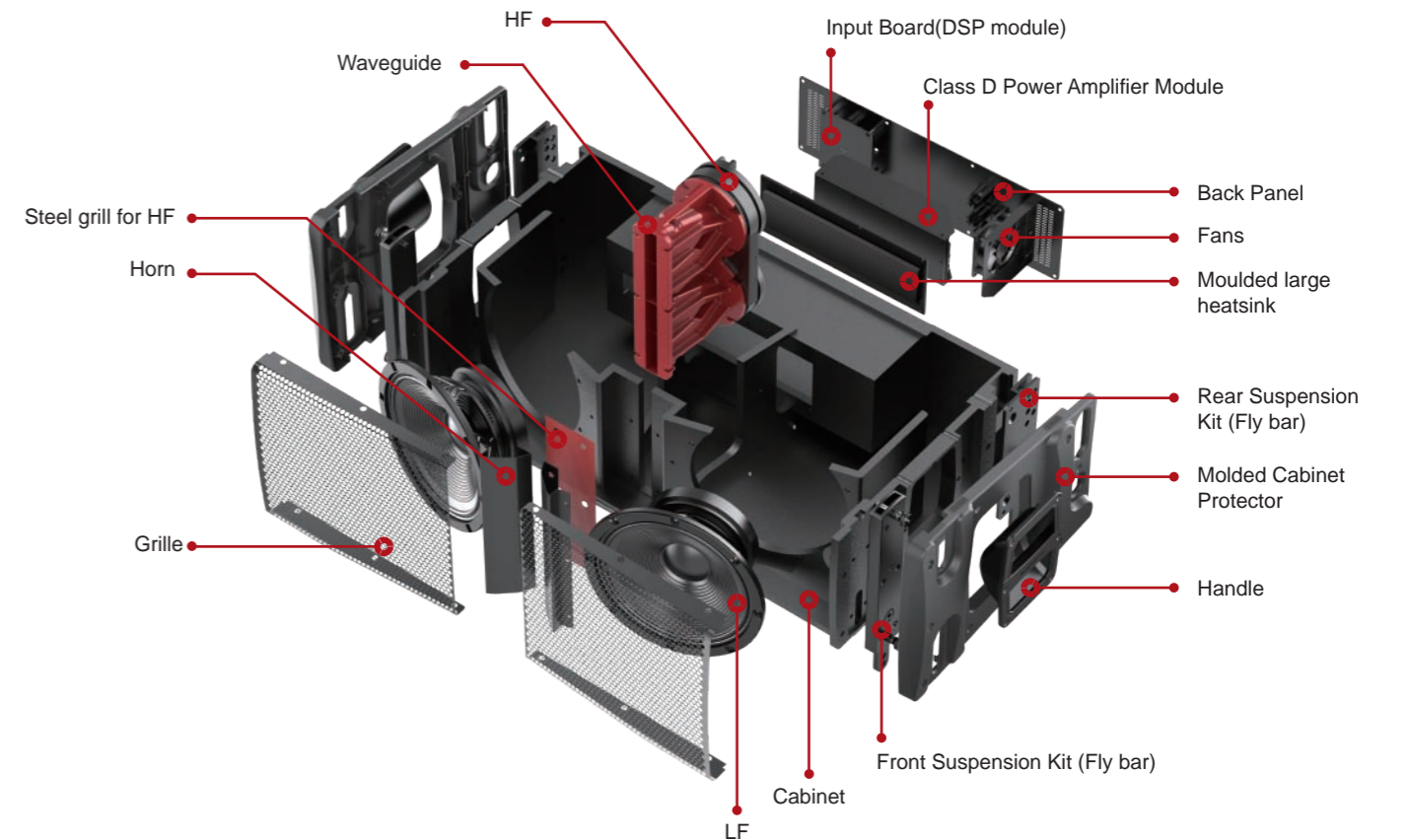
Frequency Response Graphs



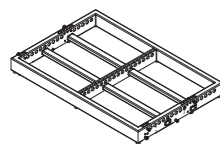
Normalized Isobar Plot



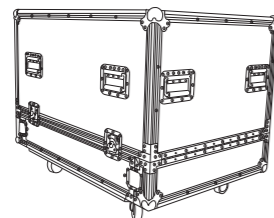
Internal Structure



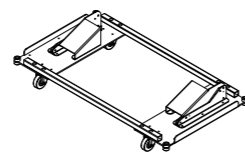
Accessories



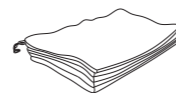
Frame for flying and ground stacking



Flightcase
For 2 cabinets,
with 100mm wheels

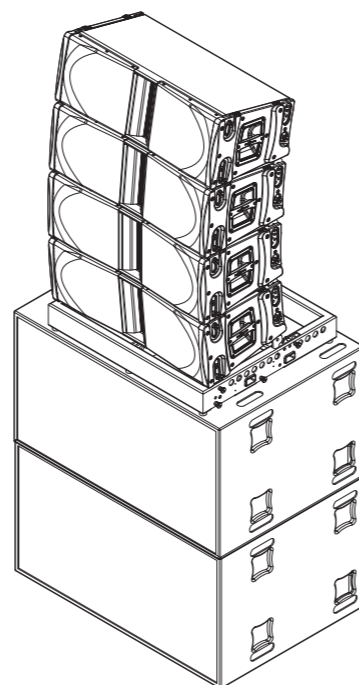
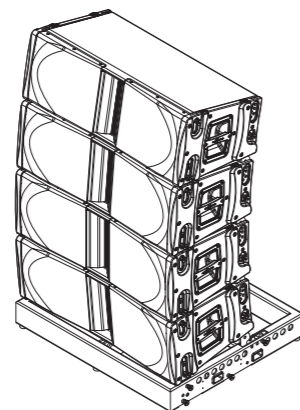
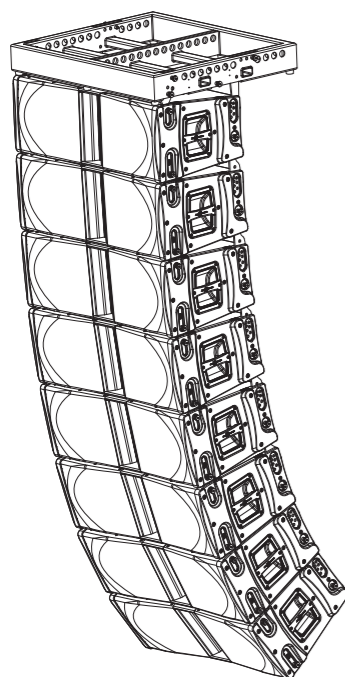


Dolly(customized)



Rain bag
(customized)

Installations



AVANDA Series Specifications

SPECIFICATIONS		AVANDA 212A	AVANDA 210A
Frequency Response(-10dB)		60Hz-20kHz	67Hz-20kHz
Horizontal Coverage		90°	
Vertical Coverage		Splay angle deependent	
Maximum Calculated SPL/1M	Continuous	136dB	132dB
	Program	139dB	135dB
	Peak	142dB	138dB
Drivers	HF	Customized Neodymium driver, 2x3" voice coil, 1.4" exit	
	MF	Customized 4x6" driver, 1.75" voice coil	/
	LF	Customized 2x12" driver, 3.0" voice coil	Customized 2x10" driver, 2.5" voice coil

DSP

Processor	96kHz signal sampling frequency, FIR filtering
Presets	4 Units, 8 Units, 12 Units

AMPLIFIER

Amplifier	Class D	
Power(RMS standards)	2600W	1600W
Peak Power	5200W	3200W
Frequency Response(1W 8Ω 2ch)	20Hz-20kHz(±0.5dB)	
Intermodulation Distortion (20Hz-20kHz, half power)	<0.05%	
Total Harmonic Distortion (20Hz-20kHz, half power)	<0.05%	
Cooling	Cooling with fans , air convection	
Protection	DC protection	√
	Short circuit protection	√
	Overheat protection	√
	Output overload protection	√
	Soft startup protection	√
	Overvoltage protection	√
	Undervoltage protection	√
Signal Input/Output Connectors	Female XLR input, male XLR output	
Power Input Connectors	Power connector	
Power Output Connectors	Power connector	
AC Power Operating Range	100V-130V~ or 220V-240V~(±10%,50/60Hz)	
Power consumption(1/8 output power)	300W	142W

CABINET

Cabinet Material	Russian birch plywood	
Angle Adjustment	0°, 1°, 2°, 4°, 6°, 8°, 10°	
Coating	Durable Polyurea Coating	
Cabinet Color	Black is the default color. Contact Audiocenter for customization	
Grille	Iron mesh	
Handles	2 side, 2 rear	2 side
Optional Accessories	Frame for flying and ground stacking / Flightcase with 100mm wheels / Rain bag / Dolly	
Speaker Dimension(WxHxD)	1220x344x464mm	830x293x420mm
Carton Dimensions (WxHxD)	1322x568x443mm	936x526x393mm
Net Weight	67.0kg	39.0kg
Shipping Weight	70.0kg	42.0kg
Technical Support and After-sales Service	Global application support team, EASE GLL files available	