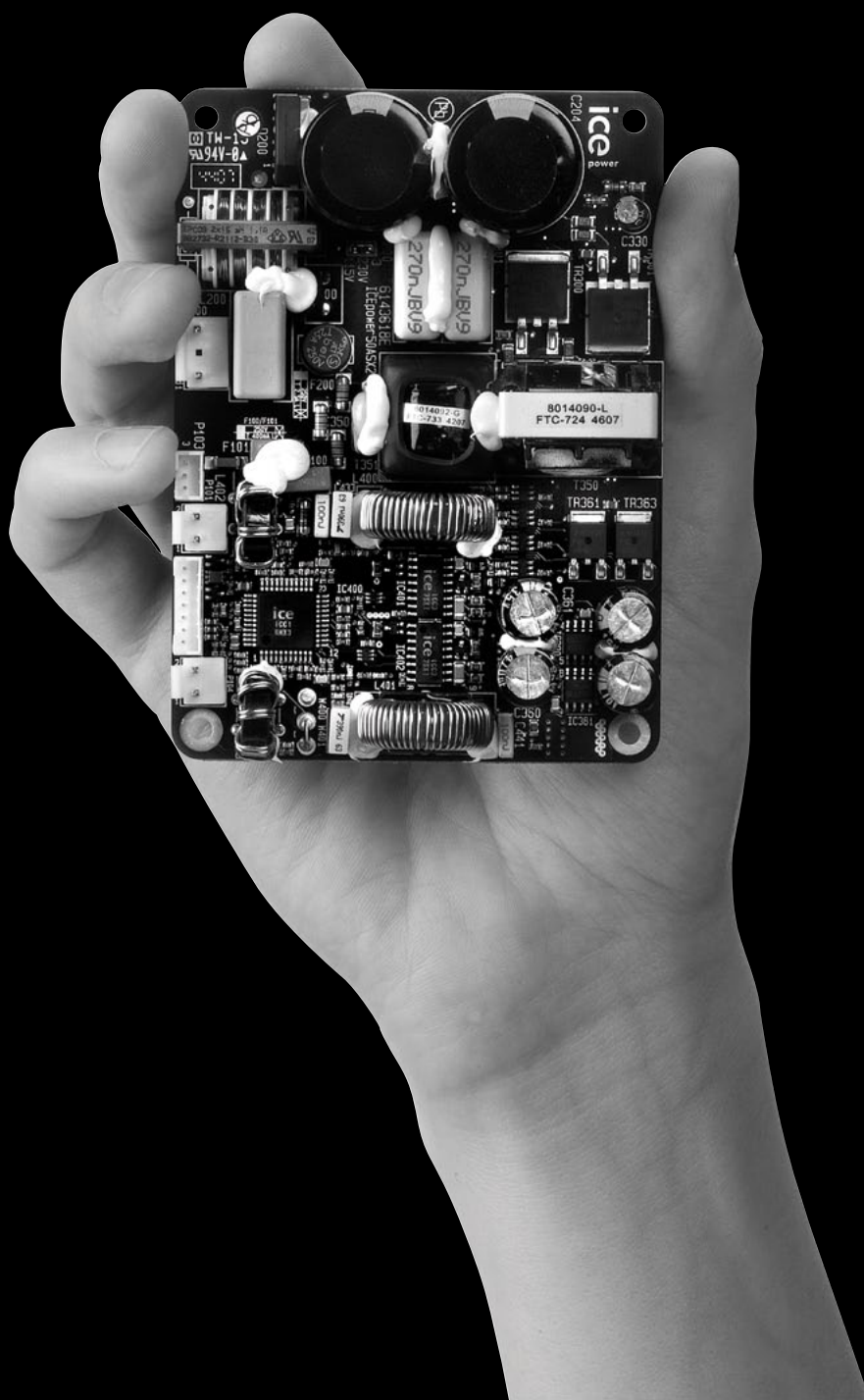


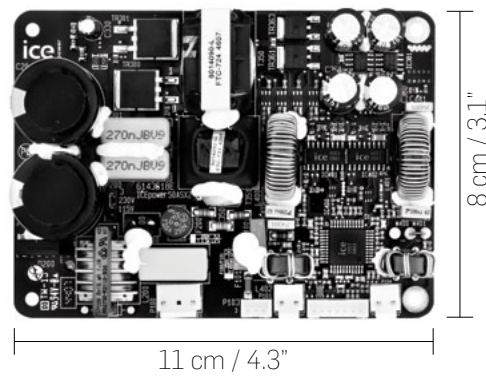
ICEpower ASX Series



ASX Series Size and Power

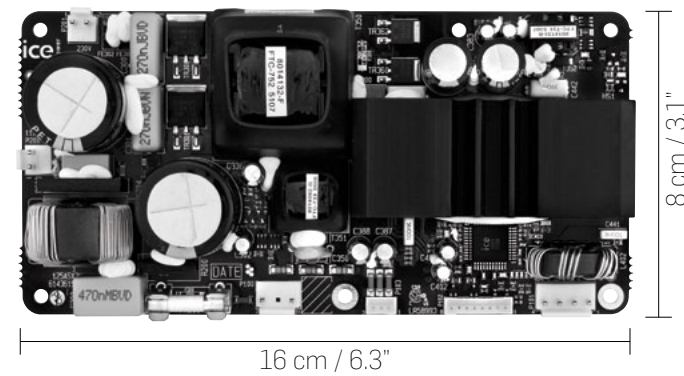
ICEpower50ASX2 SE/BTL

2 x 50W 4Ω 1% THD+N SE
1 x 170W 4Ω 1% THD+N BTL



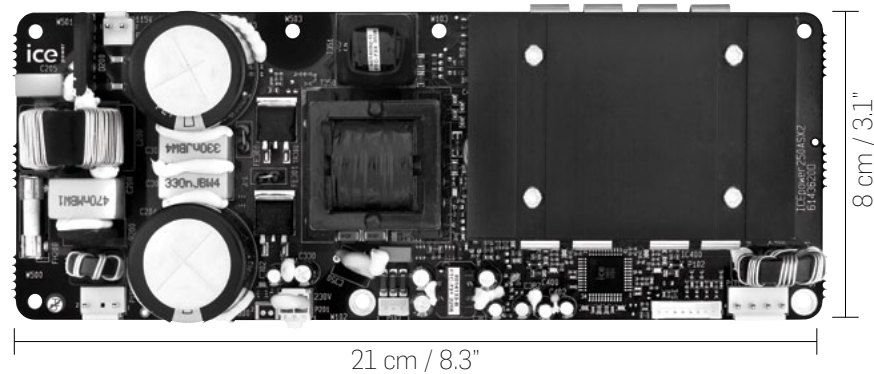
ICEpower125ASX2

2 x 125W 4Ω 1% THD+N SE
1 x 450W 4Ω 1% THD+N BTL



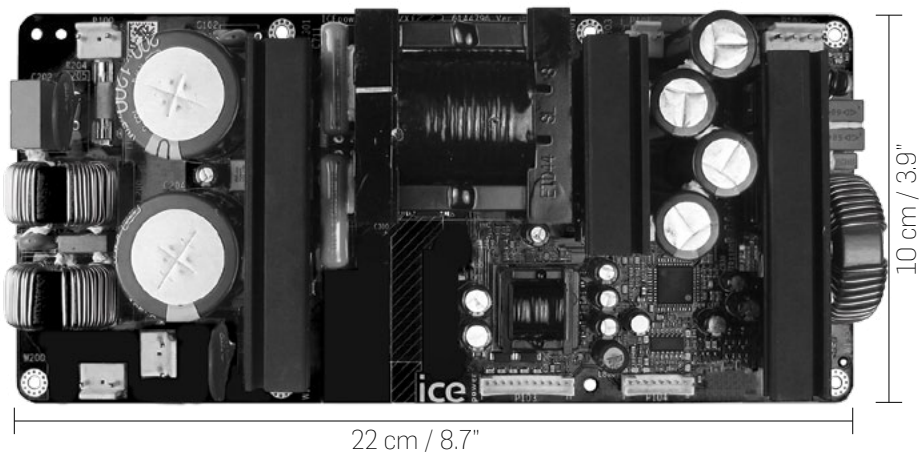
ICEpower250ASX2

2 x 250W 4Ω 1% THD+N SE
1 x 500W 8Ω 1% THD+N BTL



ICEpower700ASX

1 x 700W 4Ω 1% THD+N BTL



Product pictures are illustrative and cannot be used for technical purposes

Dear Audio Manufacturer

In today's market, low production costs, competitive prices and short time to market are essential for successful product introductions. The market changes rapidly and the consumers and end-users demand low prices, high quality and high reliability. When developing our ASX Series, we have taken all these matters into account and the amplifier series is developed with you, the manufacturer's, needs in focus in order to enable you to introduce outstanding new products to the market fast. The result is raw audiophile power at minimal cost.

The modules included in our ASX Series come with power ratings ranging from 25 to 700 Watt and practically everything in between which means you can easily pick and choose between the modules to find the power that is exactly right for your product. In fact, you can just tell us what you need and we will provide you with a tailored solution combining modules from the ASX Series. Time and money saved is a guarantee.

In order to speed up your time to market and reduce your product development cost, the modules are pre-approved for safety and EMC and there is no need for you to spend time and money acquiring approvals yourself.

Stocking and managing the logistics of delivering a product is expensive. To keep your stock and logistics cost to a minimum, we have developed ICEExtend, an extension module for ICEpower amplifiers. ICEExtend is designed with a Universal Mains power supply, eliminating the need to stock both 115V and 230V versions of your product. Simply integrate ICEExtend with any ASX module in your product to make it function world-wide and thereby halve your necessary stock and save valuable warehouse and logistics costs.

A product that fails at the end user is expensive. The costs associated with loss of reputation, repairing, replacing or even recalling the product can be significant. That is why the ASX Series is equipped with full protection features to avoid failure. Furthermore, the ASX Series has been employed in hundreds of thousands of products, providing audiophile happiness to consumers, all over the world. This means that we have had time to perfect the modules, resulting in market proven solutions, with excellent reliability and very low field failure rates. When developing products with the ASX Series, you don't need to worry about quality costs.

So, hasn't all this focus on cost comprised the audio performance? Absolutely not. True to the ICEpower brand promise, the ASX Series class D amplifiers are based on proprietary ICEpower HCOM Class D topology, ensuring crisp, clear and delicate audio reproduction with a tightly controlled bass response.

We encourage you to experience this outstanding module series for yourself. Please contact your ICEpower Sales Manager or info@icepower.dk to order modules for evaluation.

ASX Series Overview

The ICEpower ASX Series consists of four incredibly compact and lightweight class D audio amplifiers with integrated power supplies designed specifically as highly competitive modules in terms of low cost and carefully chosen features.

50ASX2 comes in two versions: one optimized for dual-channel single-ended output (SE) delivering 2 x 50W at 4 ohm output power, and the other one optimized for bridged (BTL) higher power single-channel operations delivering 220W at 4 ohm. The 125ASX2 and 250ASX2 modules can be configured at your production line for SE or BTL operations, thus improving the your logistics. The 125ASX2 delivers 2 x 125W at 4 ohm (SE) or 1 x 550W at 4 ohm (BTL). The 250ASX2 delivers 2 x 250W at 4 ohm (SE) or 1 x 630W at 8 ohm (BTL). The newest addition, 700ASX, is a bridged single-channel amplifier delivering 700W at 4 ohm.

Flexibility is paramount to the ASX Series. The four modules can be combined as application building blocks to generate a wide variety of 1-8 channel audio applications in consumer or professional audio products, see illustrations page 5-6. Due to their extremely compact size, the ASX solutions are suitable for innovative product architectures, bringing a new, exceptionally powerful experience to audio reproduction. High current output stages, designed to comfortably drive any speaker load from 3Ω and up, significantly enhance product design flexibility for our customers.

The ASX Series is fully compatible with our extension module, ICEExtend. This means that by integrating ICEExtend in your application, you can easily add ErP (1275/2008) compliant stand-by functionality, universal mains, +5V auxiliary power supply and even more features to your application.

Quality and reliability are crucial factors for end-users and therefore the modules have an extraordinary solid build quality and are fully protected ensuring a long lifetime and minimizing quality costs.

The ASX Series is based on our HCOM class D topology, which takes the ICEpower® audio performance to the next level. The advancements include extended bandwidth, improved dynamic range and exceptionally low distortion, achieved through our unique, proprietary HCOM topology.

With their unique features, the ICEpower ASX solutions serve as a flexible product development platform for audio manufacturers with versatile end-user products.

Application Convenience

Application convenience has been high on our priority list when developing the ASX Series. We have striven to make the solutions easy and convenient to implement, so that you can focus on design and audio quality of your products.

ICEpower ASX Series conveniently complies with all relevant EMC and Safety standards and is fully RoHS compliant, with the respective certificates available. The modules in the ASX Series require no extra heat sinking or shielding due to the excellent efficiency and the carefully engineered EMC architecture. The on-board ICEpower switch-mode power supply operates globally on nominal mains of 100-120V and 200-240V (universal mains can easily be achieved with ICEExtend). A low-power DC auxiliary supply has been integrated in order for the external circuits to be powered from the ASX module.

The power density, which exceeds 20 Watts per cubic inch, combined with the unique geometries of the ASX Series, open up new innovation space for audio manufacturers.

The efficiency exceeds 90 percent in both amplifier and power supply sections, which secures cool operation and enhances product reliability. Combined with the low idle consumption, which is 5 to 10 times lower than in comparable Class AB amplifier assemblies, the ASX solutions are a responsible choice when caring for the environment.

These attributes combined, simplify module integration and cause significant size and weight reductions, compared to the traditional power supply and amplifier assemblies of equivalent power. Typical electrical, mechanical and thermal limitations should no longer constrain creativity of audio manufacturers. Nor should application or approval difficulties in adapting the switching technologies.

Applications

The rich feature set of the ASX Series makes the modules a perfect match for subwoofers and active loudspeakers. The superb audio performance also makes them highly suitable for quality, high-end consumer audio applications. The typical applications include:

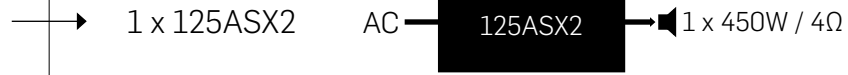
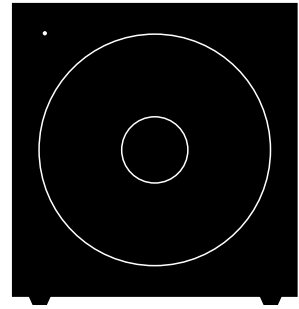
- Subwoofers
- Active 2- and 3- way speakers
- Stereo and multi-channel high-end amplifiers
- Musical Instrument Amplifiers

Please see examples on next page.

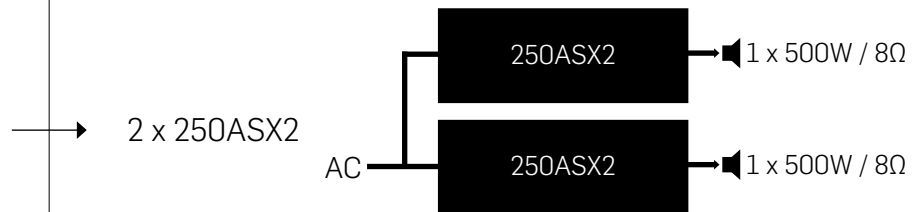
Application

Solution

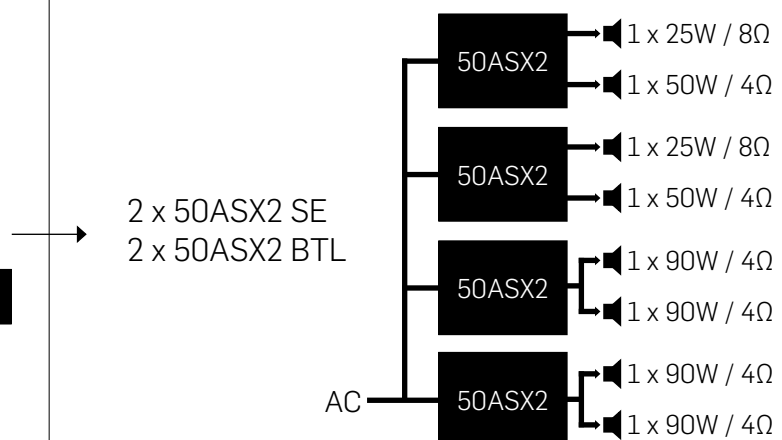
Active subwoofer
1 x 450W / 4Ω



Stereo amplifier
2 x 500W / 8Ω



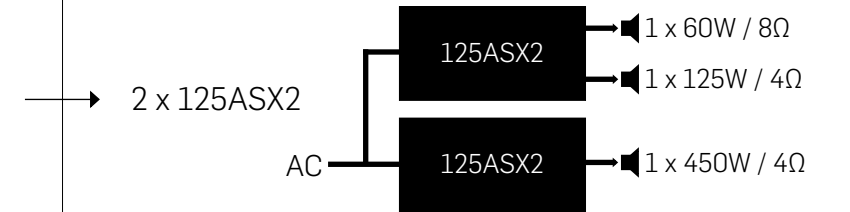
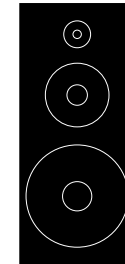
Sound Bar
2 x 25W / 8Ω
2 x 50W / 4Ω
4 x 90W / 4Ω



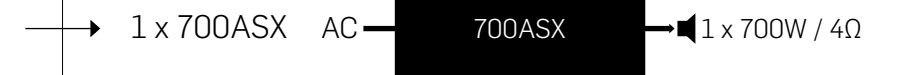
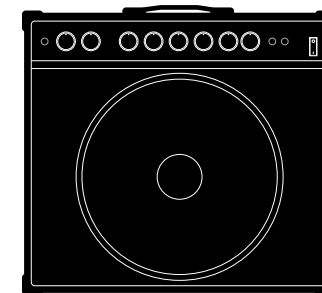
Application

Solution

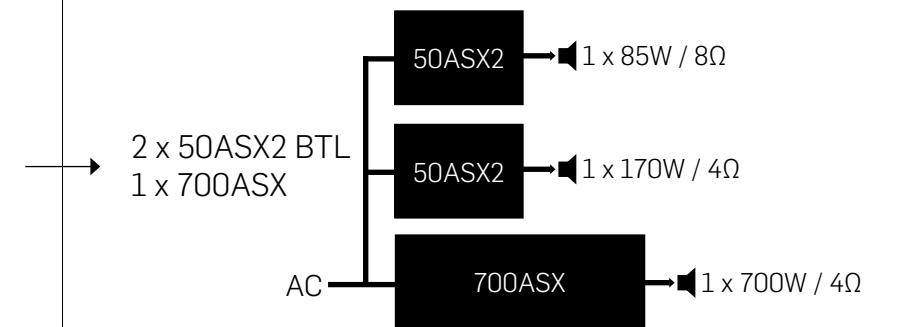
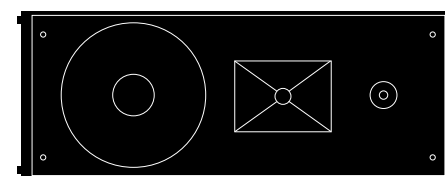
3-way active speaker / studio monitor
1 x 60W / 8Ω
1 x 125W / 4Ω
1 x 450W / 4Ω



Bass amplifier
1 x 700W / 4Ω



Line array
1 x 85W / 8Ω
1 x 170W / 4Ω
1 x 700W / 4Ω



Feature Set Summary

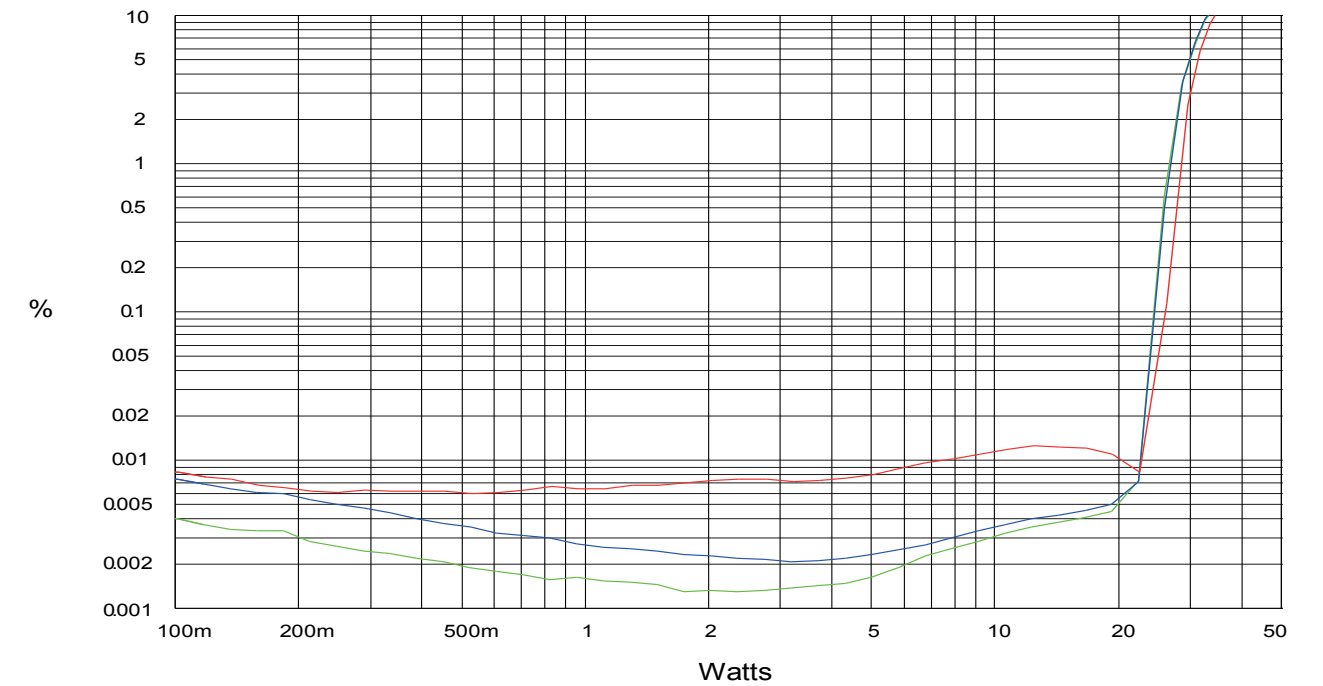
	50ASX2	125ASX2	250ASX2	700ASX*
Global AC input selection 115V setting: 85-132V 230V setting: 170-264V	✓	✓	✓	✓
Short circuit protection	✓	✓	✓	✓
Over-current protection	✓	✓	✓	✓
Thermal protection	✓	✓	✓	✓
Thermal protection monitoring	✓	✓	✓	✓
Over-current protection monitoring	✓	✓	✓	✓
Safety pre-approved	✓	✓	✓	✓
EMC pre-approved	✓	✓	✓	✓
RoHS compliant	✓	✓	✓	✓

Key Performance Parameters

	50ASX2	125ASX2	250ASX2	700ASX*
Nominal power 1% THD+N, SE mode, 4Ω, 1kHz	2 x 50W	2 x 125W	2 x 250W	-
Nominal power 1% THD+N, BTL mode, 4Ω, 1kHz	1 x 170W	1 x 450W	-	1 x 700W
Maximal power 10% THD+N, BTL mode, 4Ω, 1kHz	1 x 220W	1 x 550W	-	1 x 800W
Nominal power 1% THD+N, SE mode, 8Ω, 1kHz	2 x 25W	2 x 65W	2 x 125W	-
Nominal power 1% THD+N, BTL mode, 8Ω, 1kHz	1 x 100W	1 x 250W	1 x 500W	1 x 350W
Maximal power 10% THD+N, BTL mode, 8Ω, 1kHz	1 x 130W	1 x 300W	1 x 630W	1 x 420W
Bandwidth 8Ω, -3dB point, SE mode	130kHz	120kHz	130kHz	100kHz (BTL)
Frequency response, 20Hz-20kHz, 2Ω-8Ω load range	+/- 0.5 dB	+/- 0.5 dB	+/- 0.5 dB	+/- 0.5 dB
Damping factor 8Ω, 100Hz	>500	>500	>500	>1500
THD+N 1kHz, 1W	0.002 %	0.003 %	0.008 %	0,006%
Dynamic range A-weighted, SE mode	120 dB	117 dB	112 dB	-
Dynamic range A-weighted, BTL mode	125 dB	121 dB	121 dB	118 dB

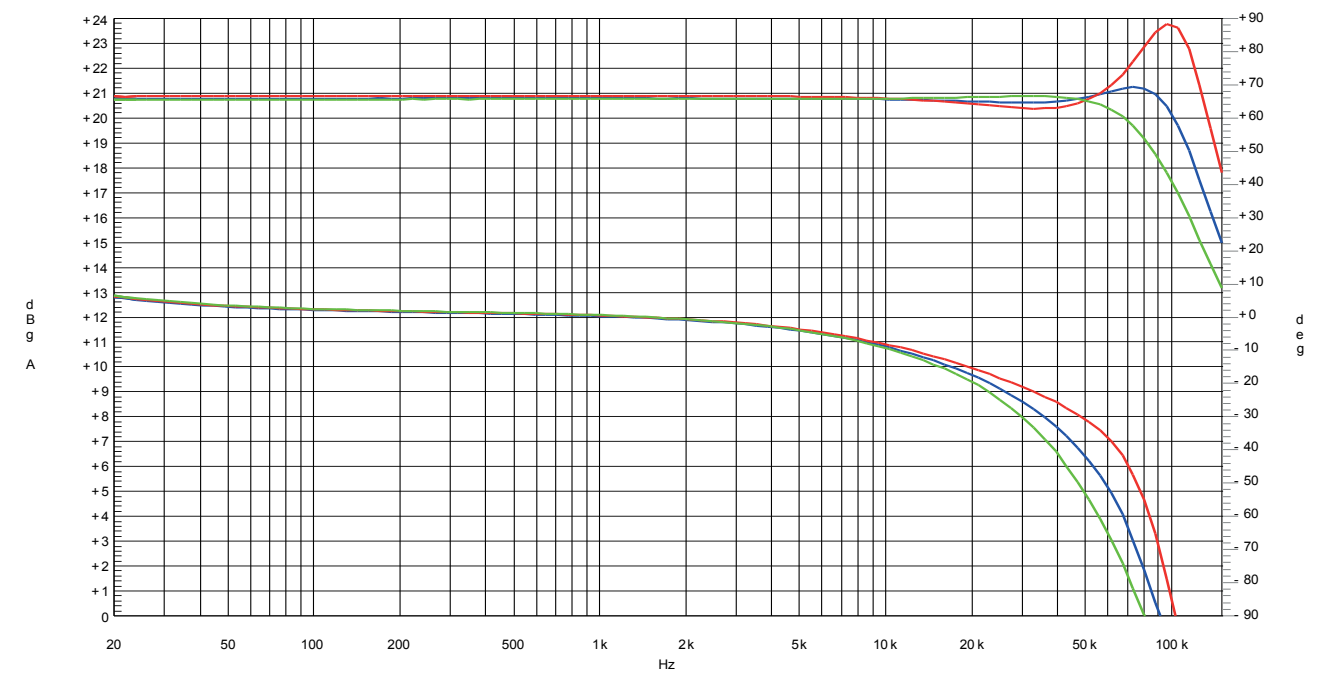
*Preliminary specifications

50ASX2 THD+N vs. output power



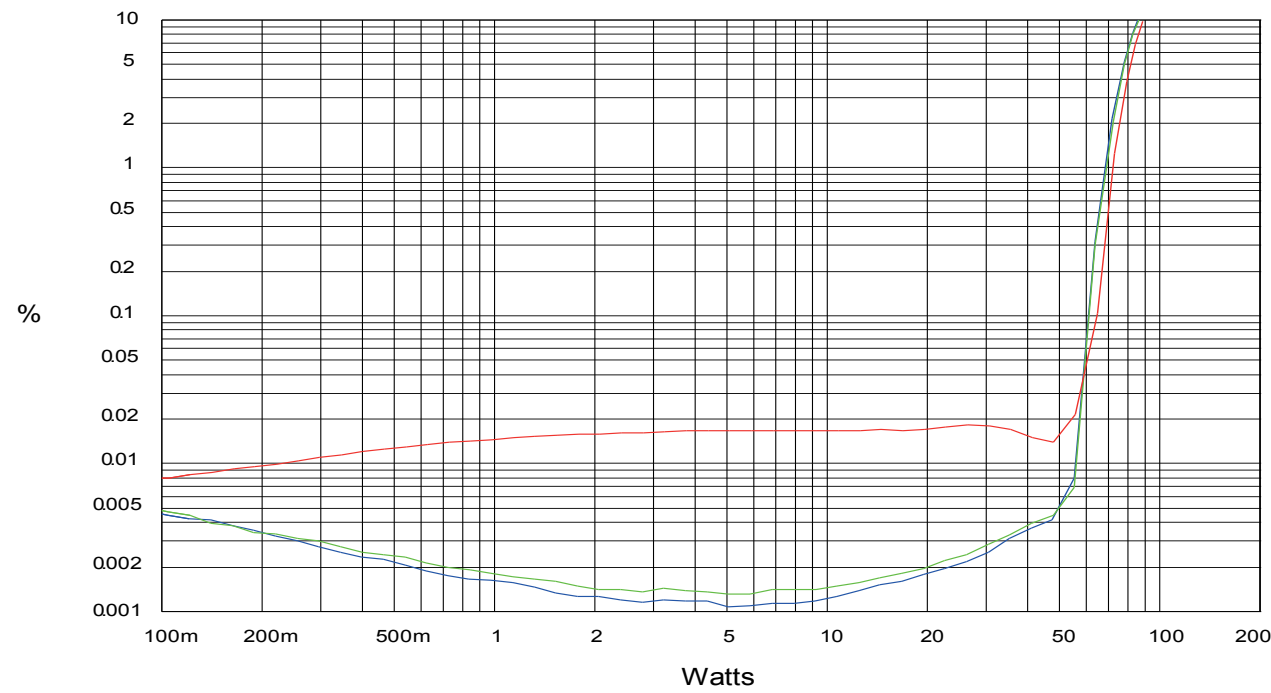
8Ω SE, 230V, at 100 Hz, 1 kHz and 6.67 kHz (AES17 measurement filter).

50ASX2 Frequency Response



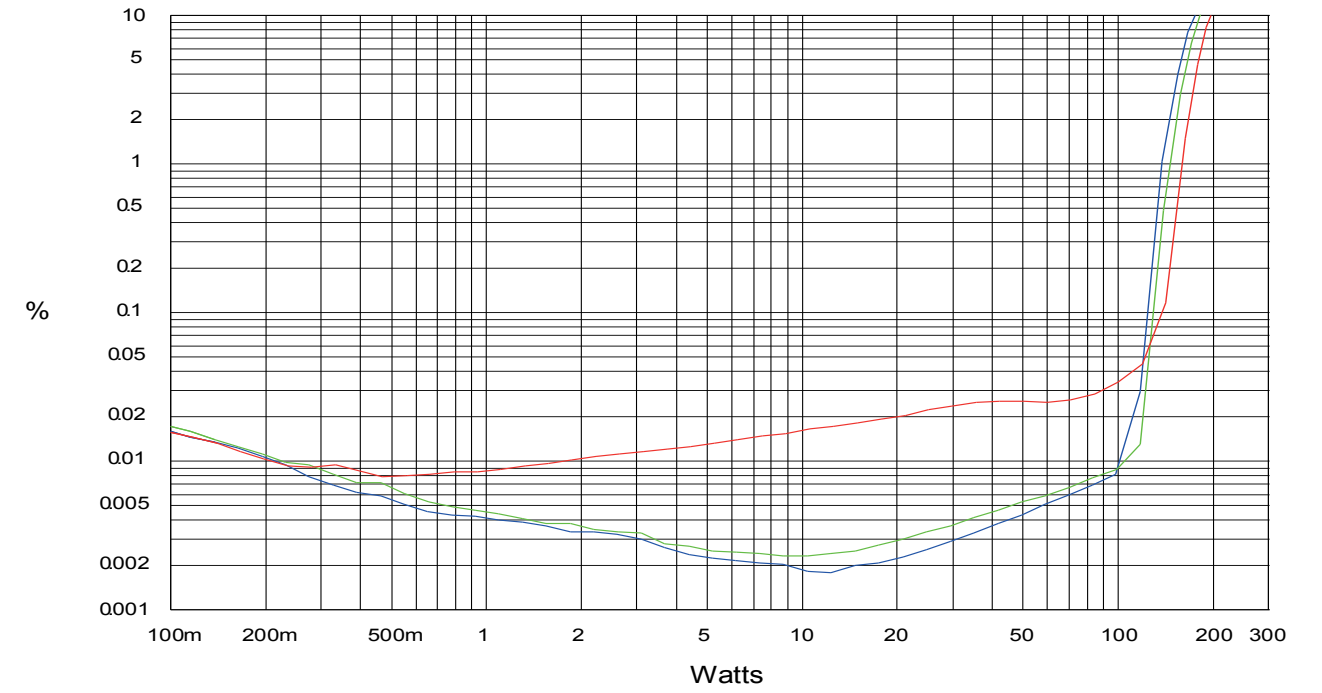
Frequency response in 4Ω, 8Ω and open load. Top - amplitude. Bottom - phase.

125ASX2 THD+N vs. output power



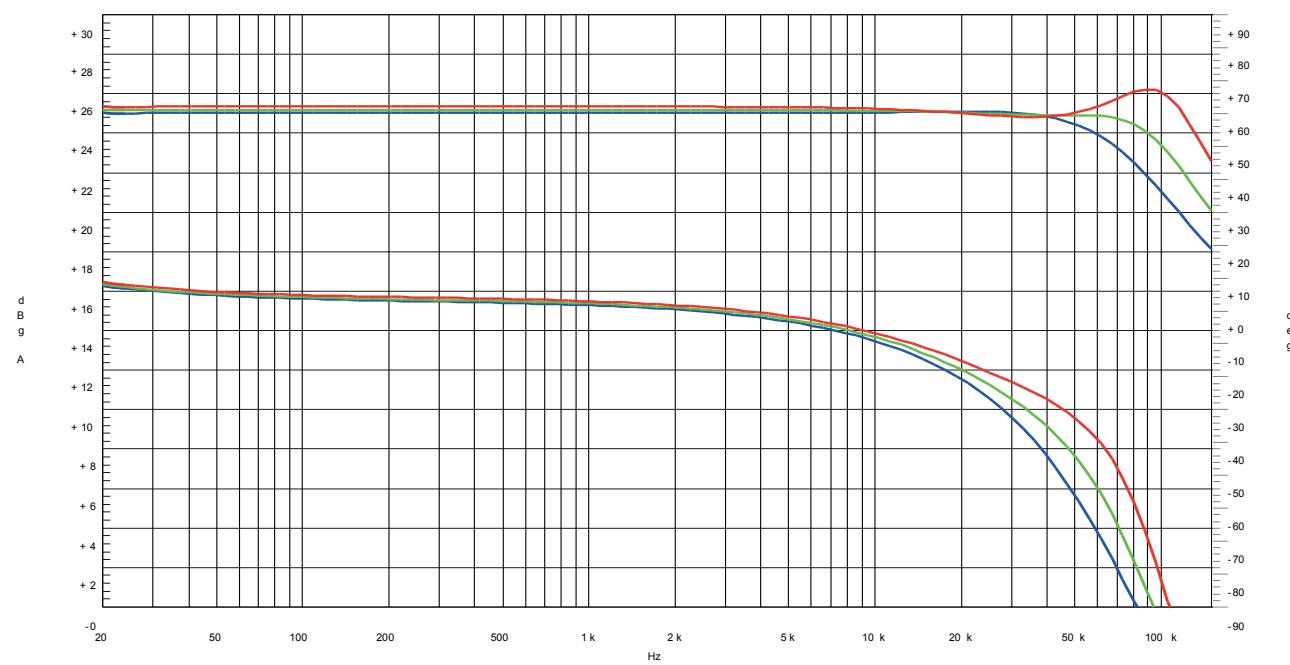
8Ω SE, 230V, at 100 Hz, 1 kHz and 6.67 kHz, 8Ω (AES17 measurement filter).

250ASX2 THD+N vs. output power



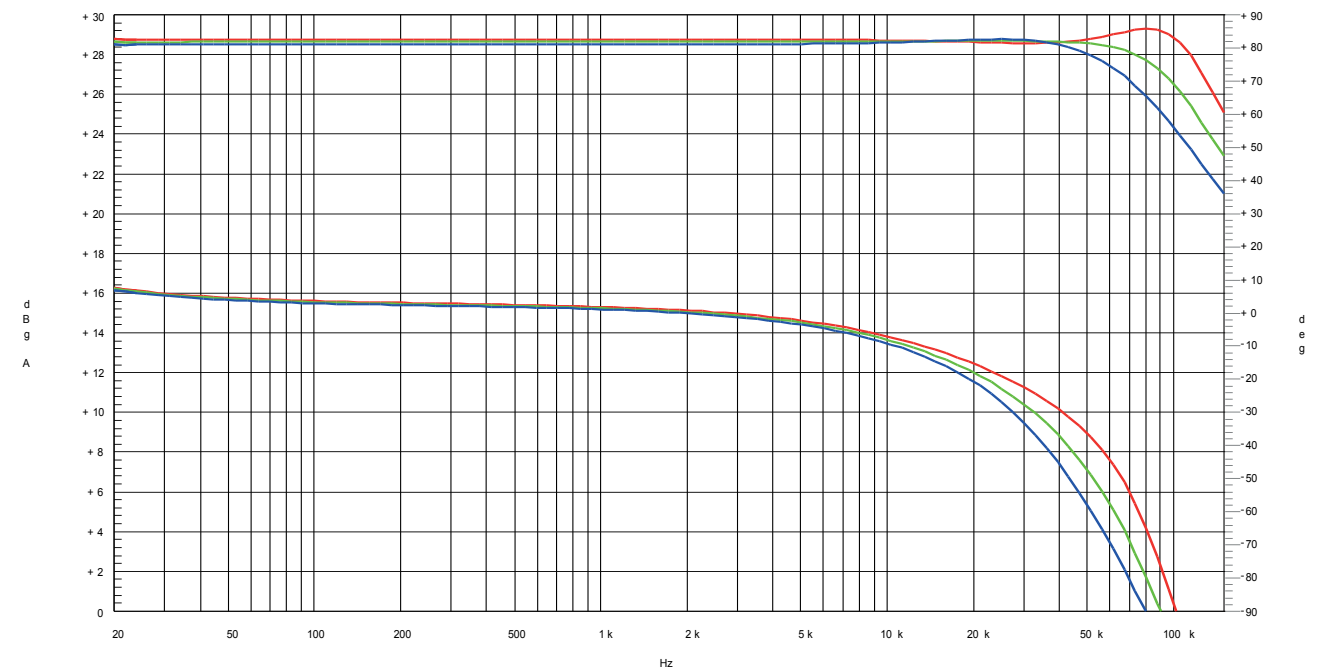
8Ω SE, 230V, at 100 Hz, 1 kHz and 6.67 kHz, 8Ω (AES17 measurement filter).

125ASX2 Frequency Response



Frequency response in 4Ω, 8Ω and open load. Top - amplitude. Bottom - phase.

250ASX2 Frequency Response



Frequency response in 4Ω, 8Ω and open load. Top - amplitude. Bottom - phase.

About ICEpower

ICEpower is an innovative Danish company developing and manufacturing energy efficient, high performance class D audio solutions for consumer, professional, automotive and portable audio applications. Our products are based on a range of innovative, proprietary technologies that deliver the best audio performance, efficiency and power density in the industry.

The company was founded in 1999 by Bang & Olufsen and Dr. Karsten Nielsen, based on the technologies developed in a joint research project between Bang & Olufsen and the Technical University (DTU), where Karsten Nielsen managed to achieve significant improvements in efficiency and audio quality of switching technologies. Today, ICEpower is a company of 40 employees and an independent subsidiary of Bang & Olufsen.

We are proud of the fact that ICEpower was one of the first companies to pioneer the audio industry's change from analogue technologies to highly efficient switching technologies, bringing about a true paradigm shift in the industry. Our technologies have raised the efficiency of audio amplifiers and power supplies from 50-70%, possible with traditional analogue technologies, to 80-95% – making audio devices "greener".

Today, we continue our focus on enhancing the efficiency, audio performance and power density in the audio power conversion chain. We work hard to stay on the forefront of technological development in our niche, continuously working to enhance our technological portfolio through in-house development, academic collaboration and partnerships with other industry players.

Since our establishment, we have cooperated with over 100 loyal customers and partners all over the world. Among them are some of the world's most respected companies, such as Bang & Olufsen, Bowers & Wilkins, Pioneer, TEAC, Samsung, ASUS Computers, Toshiba, Sanyo and Audi.

Please visit us at ICEpower.dk for further information about our products, our technologies and our company.

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