

NEUTRINO®



USER MANUAL

NEUTRINO INTEGRATED AMPLIFIER/STREAMER/DAC/PREAMP, HYPEX 2x250W/40hm(150W/80hm), WI-FI/BLUETOOTH 5.0 APTX-HD/OPTICAL INPUT, DAC ES9038Q2M , BIT PERFECT 24BIT/192KHZ, AIRPLAY 2, ALL STREAMING SERVICES

Introduction

Neutrino Integrated amplifier/streamer/DAC/preamp is a high-res wireless audio streamer and power amplifier, with WiFi and Bluetooth 5.0 APTX HD connectivity, integrated with Hypex amplifier, all in one case.

Neutrino Integrated amplifier/streamer/DAC/preamp can stream music from your smart devices, NAS and online streaming services like Spotify, Tidal, Deezer and more. It also supports Airplay 2, Spotify connect, Tidal connect, UPnP and DLNA protocols.

Neutrino Integrated amplifier/streamer/DAC/preamp is capable to stream and output high quality music in sample rate up to 192kHz/24bit.

Neutrino Integrated amplifier/streamer/DAC/preamp has optical Toslink SPDIF input where you can connect any digital source and select it from 4stream app or with remote control.

Main Features

Streaming music via network without distance limitation or Bluetooth aptX-HD 5.0 up to 15 meters.

Airplay2, Spotify connect, Tidal connect, Qplay, DLNA, UPnP streaming protocols supported. Support streaming source from online services, smart device, USB pen drive, NAS, Bluetooth, analog and digital input.

Multiroom and multizone streaming enabled by multiple units connected in same network.

All music sources can be restreamed in sync to other models from us.

High quality music streaming with sample rate up to 24bit, 192kHz Spotify, Deezer, Tidal, Qobuz, iHeartRadio, TuneIn, Napster, lots of online streaming services integrated to use in the app.

Free iOS and Android app available.

Free global online update for new features.

iTunes working with PC streaming integrated Hypex power amplifier

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SPECIFICATIONS

Specifications:

Amplifier Max output power: 2x250W/4Ohm (150W/8Ohm)

Hypex amplifier THD+N: 0,0015% (Pmax/2, 20Hz-20kHz)

DAC/preamp THD+N: 0,0001%

Digital Audio Output: SPDIF coaxial and optical 1:1 up to 24bit/192kHz

Digital Audio Input: LAN, WiFi, Bluetooth 5.0 aptX-HD, Optical

Wired network: Ethernet RJ45 LAN

LED indicator : 3x LED, input source status:WiFi/(white)BT/(blue)optical(red) input

Reset button: Short press to change input mode,
Press 2 times short to reset WiFi/BT,
Press 3 times short to restore factory settings,
Long press to turn off

IR Receiver: IR sensor for remote control

Streaming protocols: AirPlay2, DLNA, UPnP, Spotify Connect & Qplay

Music Format: FLAC / MP3 / AAC / AAC + / ALAC / APE / W

Smartphone application: 4Stream, Android and iOS app

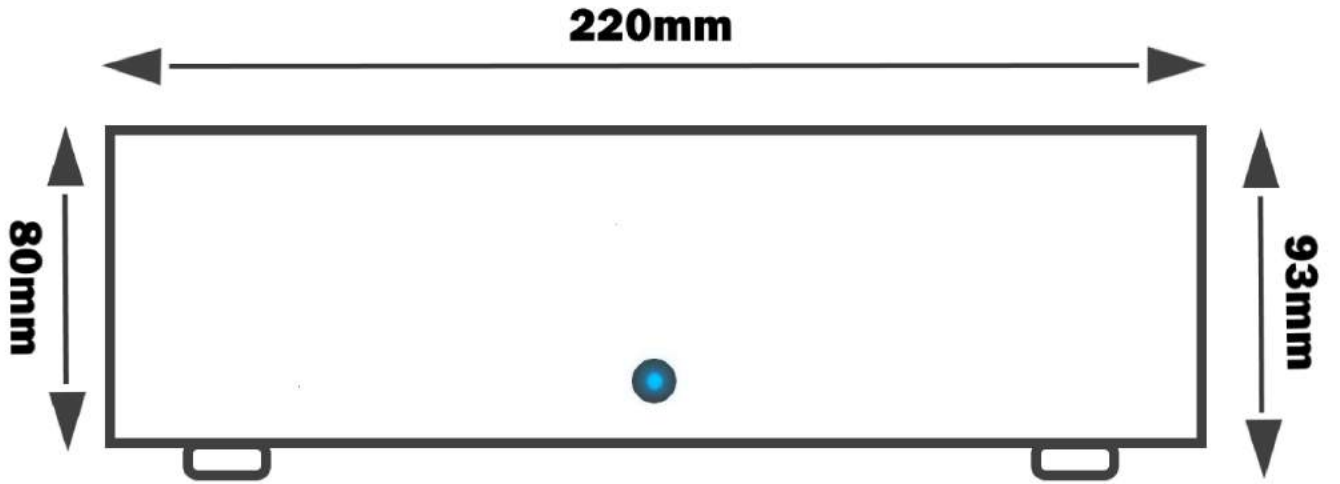
Applications for MAC and Windows PC: iTunes and Foobar2000 and other support
UPnP, DLNA 3rd party program

Online music streaming services:

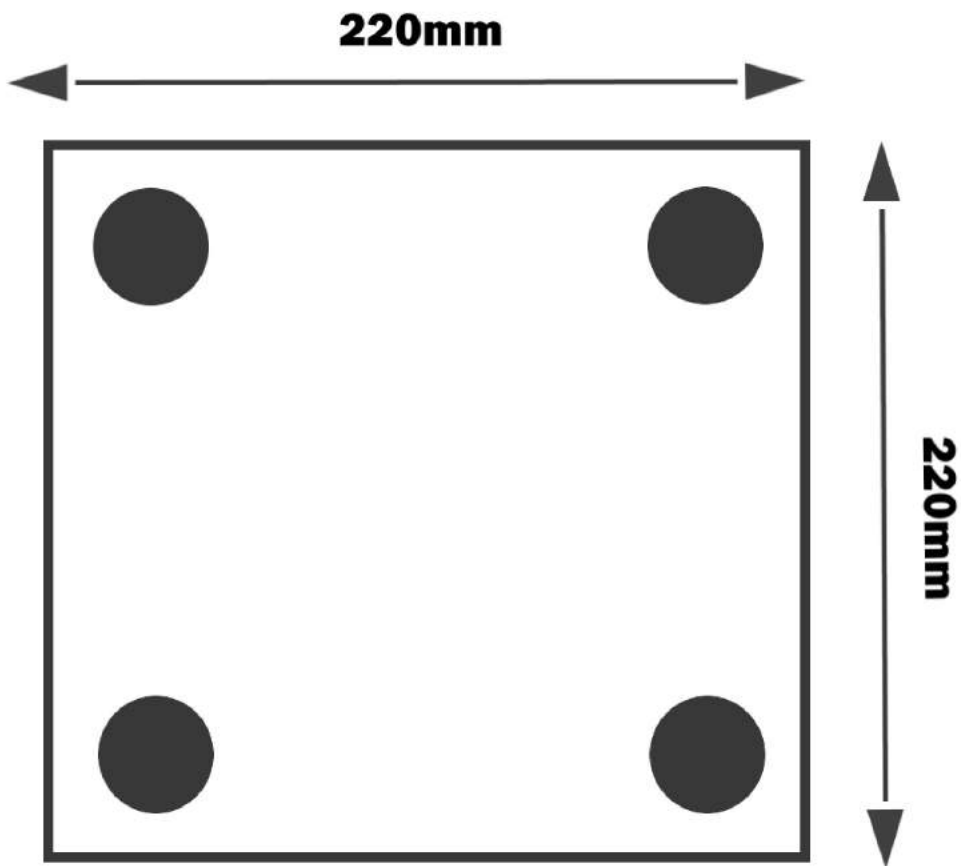
Spotify, Deezer, Amazon music, Deezer, TuneIn, Tidal, Qobuz, Napster,
iHeartRadio, QQ Music, QQFM

Local storage: Music file store in mobile phone, NAS&USB disk drive on MAC or PC

DIMENSIONS



FRONT



BOTTOM

INSTALLATION

Your new device is quite simple to set up and enjoy.

Please follow the steps outlined below in order to safely set up and use your new device.

The AC mains connection should be the last connection you make on your new device. In addition, it is always a good idea to power up your device first.

Conversely, it is a good practice to power the device down last when shutting down the system, as this prevents any transients from getting through to your loudspeakers.

- 1. Unpack everything according to the included instructions**

Be careful when doing so, as this device is heavier than it appears.

- 2. Place your device**

and connect it to your AC mains. This includes deciding on the location, making sure you have adequate ventilation, and adequate clearance for all the wires behind the device. Once accomplished, connect the device directly to the AC mains.

Front and Rear Panel



Front Panel



Rear Panel

- 1. POWER SWITCH**
- 2. 230V POWER SOCKET**
- 3. TRIGGER SWITCH**
- 4. SPEAKER INPUT (L)**
- 5. SPEAKER INPUT (R)**

- 6. OPTICAL INPUT**
- 7. OPTICAL OUTPUT**
- 8. COAXIAL OUTPUT**
- 9. LAN**
- 10. RESET, SWITCH CHANNEL**
- 11. BLUETOOTH ANTENNA**
- 12. WIFI ANTENNA**

NOTICE

All of us at Neutrino take extreme care to ensure that your purchase will remain a prized investment. We are proud to inform you that all Neutrino components have been officially approved for the European Community (CE) mark.

This means that your Neutrino product was subjected to the most rigorous manufacturing and safety tests in the world. CEmark certifies that your purchase meets or exceeds all European Community requirements for manufacturing consistency and consumer safety.

This equipment has been tested and found to comply with the limits for a Class D digital device, pursuant to Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment on and off, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna;
- Increase the separation between the equipment and the receiver;
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected;
- Consult the dealer or an experienced radio/TV technician for help.

CAUTION: Changes or modifications to this equipment not expressly approved by the manufacturer could void the user's authority to operate the equipment.

The information contained in the manual is subject to change without notice. The most current version of this manual will be posted on our web site at <http://neutrinoaudio.eu>



Neutrino marks the "CE" symbol indicating compliance of this device with the EMC (Electromagnetic Compatibility) and LVD (Low Voltage Directive) standards of the European Community.





Neutrino complies with the European Parliament and Council Directive 2002/96/EC concerning Waste Electrical and Electronic Equipment (WEEE). This product must be appropriately recycled or processed in accordance with these directives. Consult your local waste disposal authority for guidance.



Neutrino products are designed and manufactured to comply with the Restriction of Hazardous Substances (RoHS) Neutrino as stated in the European Parliament and Council Directive 2002/95/EC.

Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. **Clean only with dry cloth.** 
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12.  Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. Do not expose this apparatus to dripping or splashing and ensure that no objects filled with liquids, such as vases, are placed on the apparatus.

**WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK,
DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.**



The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

Unpacking and Placement

Unpacking your device

Carefully unpack your device according to the supplied instructions, and remove all accessories from the carton.

Important!

Keep all packing materials for future transport of your device. Sipping your nre component in anything other than its purpose-designed packing material may result in damage that is not covered by the warranty.

placement

Many installations will utilize an equipment rack, although a shelf, a cabiner or the floor near the speaker(s) are acceptable alternatives. In any case, take care to position it well away from source components

Note that adequate clearance for the AC cord and connecting cables must be left behind the streamer. We suggest leaving six inches (15cm) of free space behind your device to allow all cables sufficient room to bend without crimping or undue strain.

ventilation

Your device generates a certain amount of heat in the course of normal operation. Avoid placement on soft surfaces that would restrict airflow around the unit (such as plush carpeting)

custom installations

Drawings are included in this manual to facilitate special installations and custom cabinetry

How to use 4STREAM App

App download

Download the 4STREAM application from App Store for iOS based devices and Google Play Store for Android based devices. The application supports English, Spanish, French, German, Italian, Portugese, Korean, Simplified Chinese, Traditional Chinese and Japanes



Connection

First time usage & BLE WiFi S

Hold the Mode button then plug in the power cable.

The LED light will start flashing, release the button and wait till the LED flash slowly.

Make sure your mobile has connected to your home network using 2.4G and your GPS and Bluetooth is on.

Open 4Stream APP, for Android device, the system will ask for permission to use GPS data & File storage, please

click accept to continue. This GPS permission is setup by Google for BLE usage, once setup is finish you can go to system

settings and disable it, file storage permission is to let 4Stream access your mp3 files store in your mobile.

4Stream APP will list out all the device available for setup, choose the one you want.

Now enter password for your network, if this is not the network you want the device to connect, you can change it to the desire one.

Once connection is finished, it will automatically check for new updates.

Then you can change the name of the device.

You can select a preset one or enter your own.

After you define the name of the device, you will see it appears in the device list in 4stream app and now you can start streaming music.

How to use 4STREAM App

* If you change to another router, or the password of the connected router has been changed, please long press Mode button for 5 secs in WiFi mode to reset the connection.

* Hold Mode button then plug in the power can force the device to enter WiFi mode. If you have setup router connection before, the device will auto connect to that router

There is another way to setup Wifi if the above method has failed:

Hold the Mode button then plug in the power cable.

The LED light will start flashing, release the button and wait till the LED flash slowly.

Goto your mobile WiFi settings and search for Up2stream HD_xxxx WiFi and connect.

Open 4Stream APP and you should see the Up2stream HD_xxxx list in the device list.

*Your mobile might ask if you want to stay using this WiFi connection, click yes.

Click on the "+" icon on the top right corner to add device. The app will prompt you to select the router SSID

you want your Up2stream device connect to (enter password if required) and select continue.

Once connected, you can change the name of the device.

You can select a preset one or enter your own.

After you define the name of the device, you will see it appears in the device list in 4stream app and now you

can start streaming music.

* Attention for Android users Different brand mobile phones may ask you to allow to use SoundSystem WiFi network, please choose yes, if not, you may not able to set up successfully.
It may also ask you to authorize other things, please choose yes or it may affect your use.

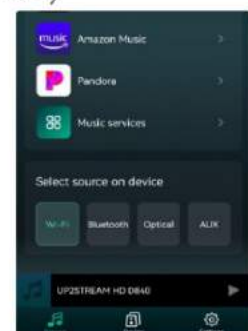
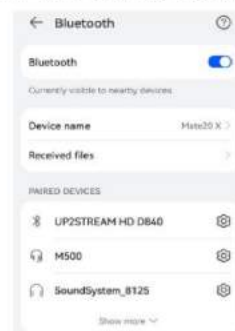
Connection via LAN

Plug in the wired cable to the RJ45 Ethernet, the device will show on the app in about 10 seconds.

(Note: The mobile phone and the device must be in the same network)

Bluetooth

To use Bluetooth, please switch to bluetooth via app or by remote controller, then find bluetooth device UP2STREAM HD_XXXX from your phone bluetooth setting and pair it



How to use 4STREAM App

App features

Device setting

Rename: Change the device name.

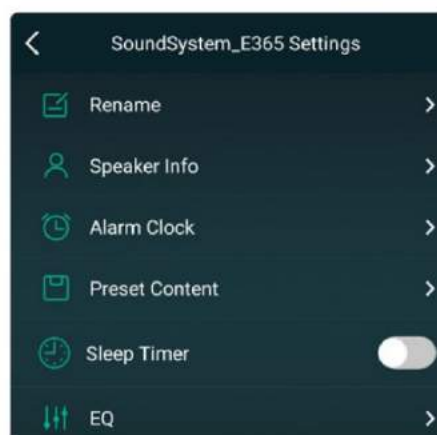
Speaker Info: Display device information like IP address, Mac address, SSID, firmware version, factory reset, etc.

Alarm Clock: Setup up to 4 different alarm clocks with music of your choice.

Preset Content: 10 Preset content buttons.

Sleep Timer: Countdown to turn off the device.

EQ: Bass and Treble control



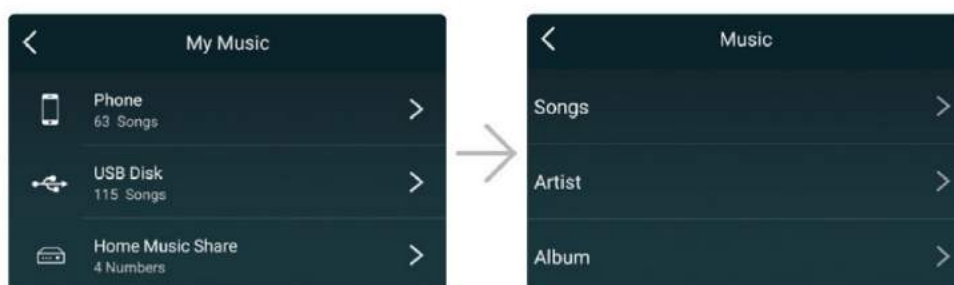
To play local storage music

Click the “My Music” on the Application and choose the Music ready there.

NOTES: The iOS based devices have blocked the access to iTunes

To Play Music From NAS

Please note that our system only support NAS with DLNA feature

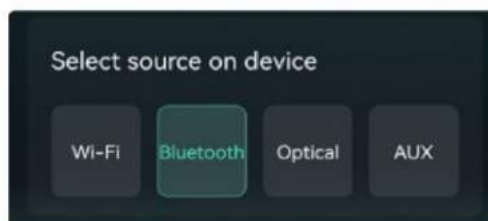


To Play Bluetooth Mode

Choose the Bluetooth mode on the application or remote control, the LED will change to blue.

Open the Bluetooth on your mobile device.

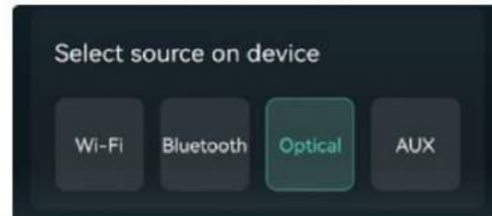
Pair the device Bluetooth (Up2stream HD) and play.



How to use 4STREAM App

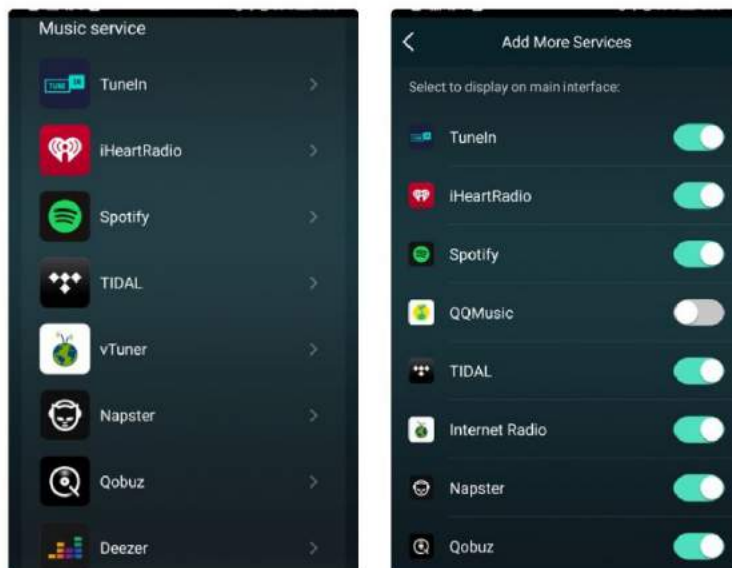
To Play Optical or AUX in Mode

Once you connect external AUX in or Optical in connector through specific PINs, you can choose AUX or Optical mode on the application or remote control to play sound from the audio source connected.



Streaming services

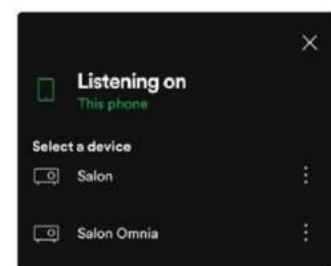
To use the online streaming services, iHeartRadio, Spotify, Tidal, Qobuz and Deezer may need to register account at the service provider pla



Spotify

To use Spotify, you have to own spotify premium account. You will find the device in the device list on the Spotify application and choose the device you want to play.

NOTE: One Spotify account can only streaming to one device at a time.



How to use 4STREAM App

Airplay 2

The Device Supports Airplay 2,
You can Choose the AirPlay and Play Music



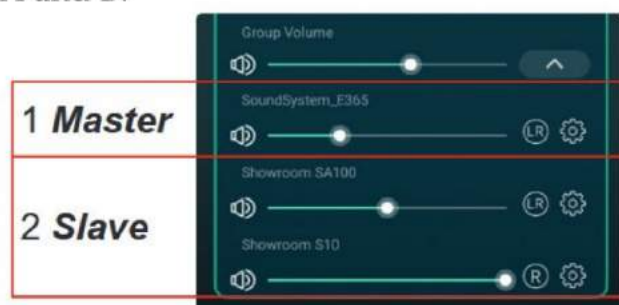
Qplay

Our Devices Support QQ Music using the Qplay protocol, you have to turn on the Qplay in the QQ Music player setting and then find the device in the Qplay list.



Multiroom and Multizone

Users can group multiple rooms and zones on the application. For example, you can group devices 1, 2 and 3 to play the same music in sync, or group devices 1 and 2 as zone A and devices 3 and 4 as zone B, and play different music in zones A and B.



How to use 4STREAM App

Add / Remove Device to Multiroom

In order to add device to multiroom function, click on the “+” mark of the device you want to be the master device.

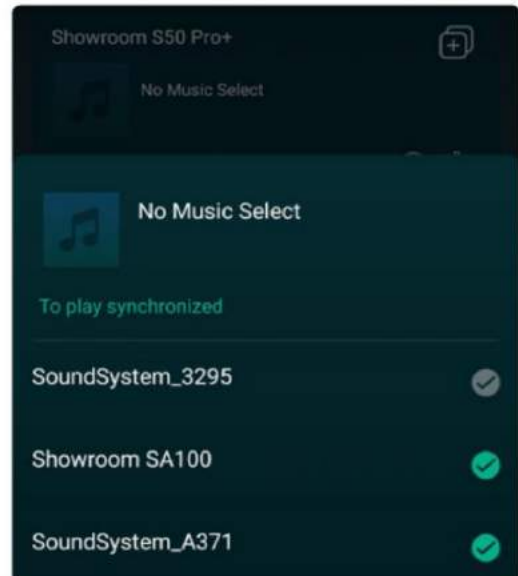
A list of available devices will pop out and you can select the device you want to add as slave device.

Click the Done button when finished.

The gray tick icon represents the master device and green tick icon represent the slave device.

To remove device from multiroom function, click on the “+” mark again to bring up the device list, and unselect any slave device you want to remove. Then click on the Done button to confirm.

If all the slave device is removed, multiroom function will disable.

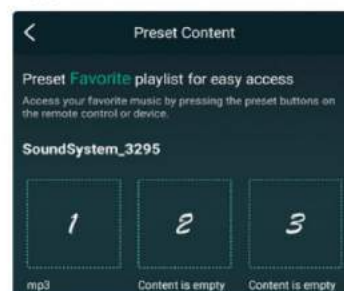
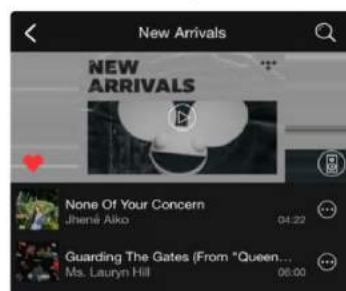


Left and Right Channel

Users can choose the right channel or left channel or stereo mode on the application, or choose left channel on device A and choose right channel on device B, and group them together and play in sync

Preset

There are 6 buttons on the remote control, users can preset play lists (Only the lists with speaker icon can preset) on the application from 1~6 for example, then when you press button 1 on the remote, the preset list 1 will play. (Users can Preset 10 Playlists on the Application, but the remote control can only save from 1



How to use 4STREAM App

Source mode Change

Method 1: Change on Application

Users can change play mode on the application, WiFi, Bluetooth, Line input and USB. To change from Bluetooth/line input/USB to WiFi, only need choose the online streaming services such as Tidal, Qobuz or Spotify or cell phone local storage music or any music via DLNA or UPnP streaming.

Method 2: Change with remote control

Users can use the remote control to change the play modes-WiFi, Bluetooth, Line input and USB.

Method 3: Press the Reset Button

User can press the reset button once to switch source mode, WiFi, Bluetooth, Line input, USB.

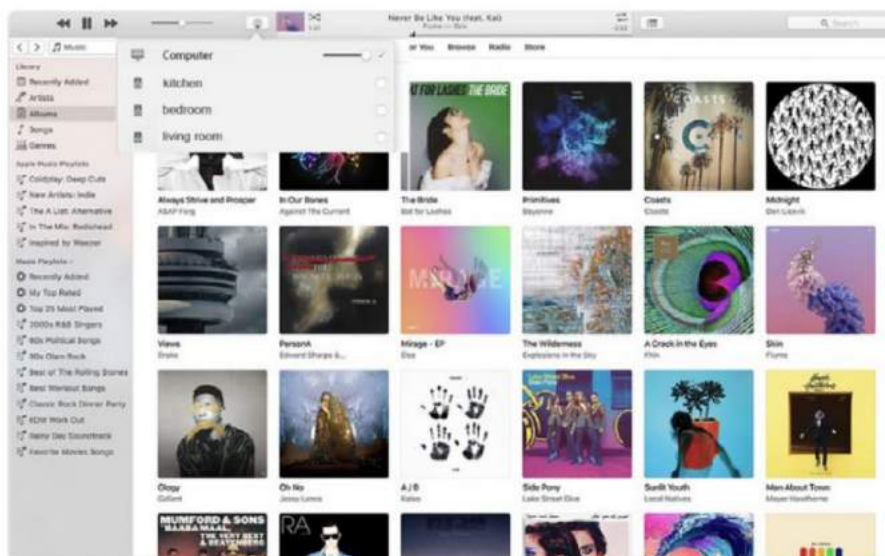
Play on PC

There are Several Tools to Play Music from the PC

To Play Music From iTunes on Mac and Windows PC

Our devices can stream audio sources from local storage, media library in Mac and Windows PC and online

services from iTunes. Users can easily play and switch music, control volume and choose the audio devices to group and upgroup the audio devices.



To play Music From Windows PC via Foobar2000

1. Download suitable software depending on your computer system from <https://www.foobar2000.org/download> and install on your computer.

2. From <https://www.foobar2000.org/components> downloaded UPnP to your computer.

3. Open Foobar2000 go to Library/Components click on Install and select downloaded UPnP, then press Apply then OK

4. Restart Foobar2000 and go to Library/Configure/Playback/Output choose your Device/Streamer and you ready to play Music.

Note; When Streamer is connected to 4Stream App via WiFi (Android or iOS). Streamer can be controlled with Foobar2000 from computer without of presence of LAN cable.

Ncore Amplifier Specifications

Parameter	Remarks	Symbol	Min	Typ	Max	Unit	Note
Max Output Power	1KHz, THD=1%, All channels driven. Per channel.	$P_{R, 2\Omega}$	-	-	180	W_{rms}	1)4)
		$P_{R, 4\Omega}$	-	-	250	W_{rms}	1)
		$P_{R, 8\Omega}$	-	-	150	W_{rms}	1)5)
Continuous Output Power	Per channel, 25°C ambient temperature.	$P_{R, cont}$	-	50	-	W_{rms}	2)
Distortion	<10Hz-20kHz AES17 $P_{out} < P_{R, 2}$	THD+N	-	0.0015	0.0024	%	3)
	<10Hz-20kHz AES17 $P_{out} = 1W$		-	-	0.002	%	3)
CMRR			-	71	-	dB	
Signal-to-Noise Ratio	<10Hz-20kHz AES17		-	121	-	dB	
Output Noise	Unwtd, <10Hz-20kHz AES17, 0Ω termination	U_N	-	-	40μ	V	
Crosstalk	1KHz, $P_{out} 10W / 4\Omega$, 0dB rel.			-105		dB	
Output Impedance	$f < 1kHz$	Z_{OUT}	-	-	2.5	mΩ	
	$f < 20kHz$		-	-	5.0	mΩ	
Power Bandwidth		PBW		20-35k		Hz	6)
Frequency Response	+0/-3dB. All loads.		10	-	50k	Hz	
Voltage Gain Buffered		A_v	25	25.5	26	dB	7)
Voltage Gain Unbuffered		A_v	11.5	12	12.5	dB	7)
Efficiency	Full power	η		92	-	%	
Idle Losses	Per channel	P_0	-	3.5		W	
Current Limit per Ch	Hiccup after limiting 40ms		-	17.5	-	A	

Note 1: The stimulus signal is a continuous 1 kHz sine wave. The true rms output voltage is measured across a load resistor. Max output power is time limited due to thermal properties.

Note 2: Typically, this is 1/5 of the peak output power. Apply sufficient cooling.

Note 3: An Audio Precision AES17 20 kHz is used during this measurement.

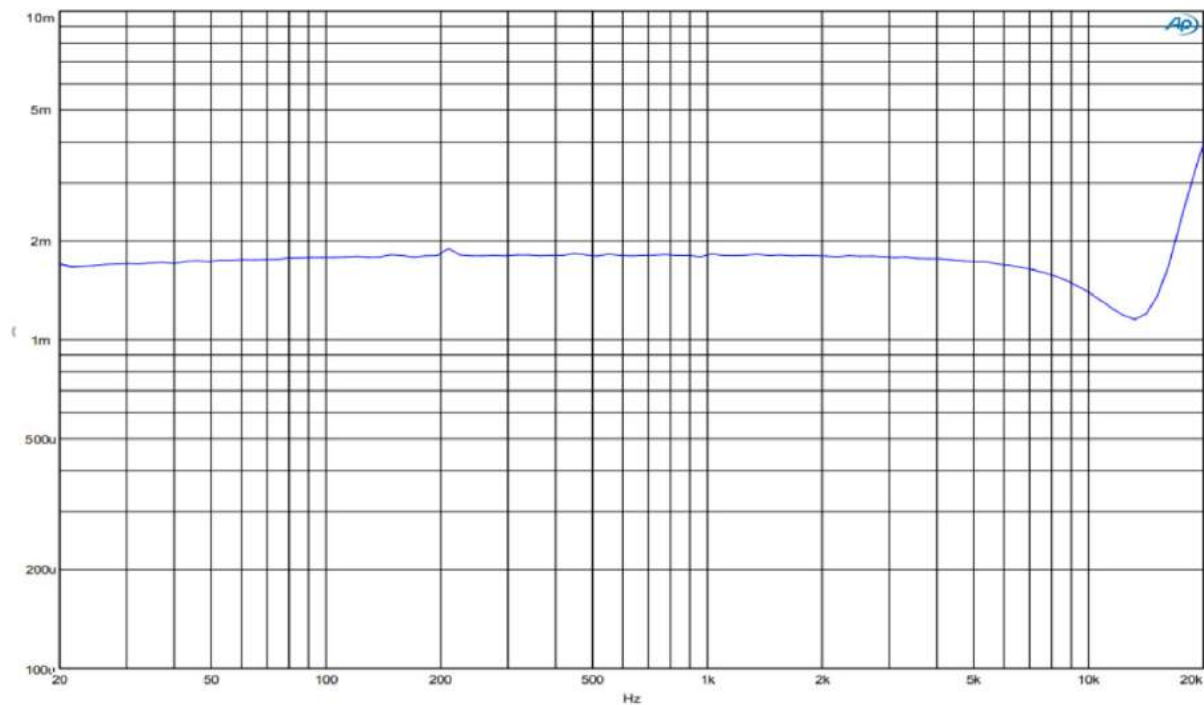
Note 4: Current limited.

Note 5: Voltage limited

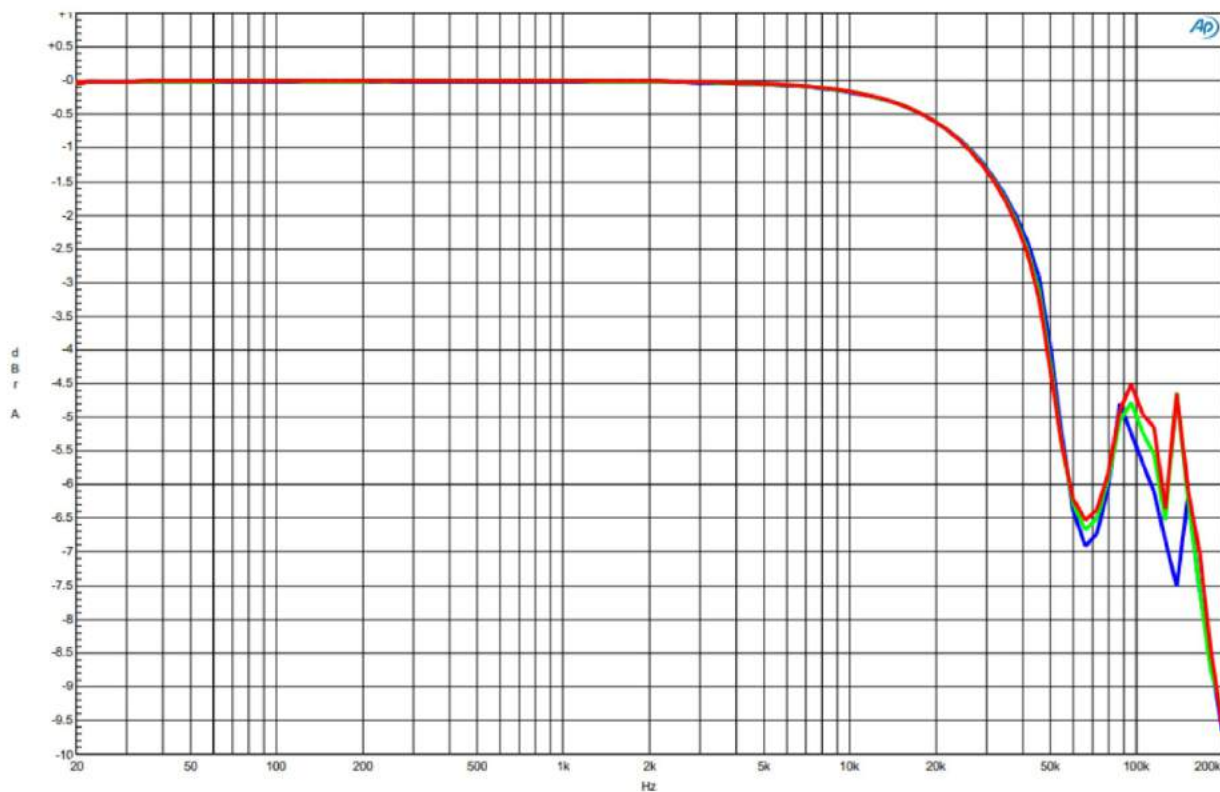
Note 6: Dielectric losses in the output capacitor limit long term (>30s) full-power bandwidth to 5 kHz.

Note 7: The factory default is a buffered input with a gain of 13.5 dB. This can be bypassed as explained in section 3.5 "Input buffer and gain"

OUTPUT IMPEDANCE & FREQUENCY RESPONSE

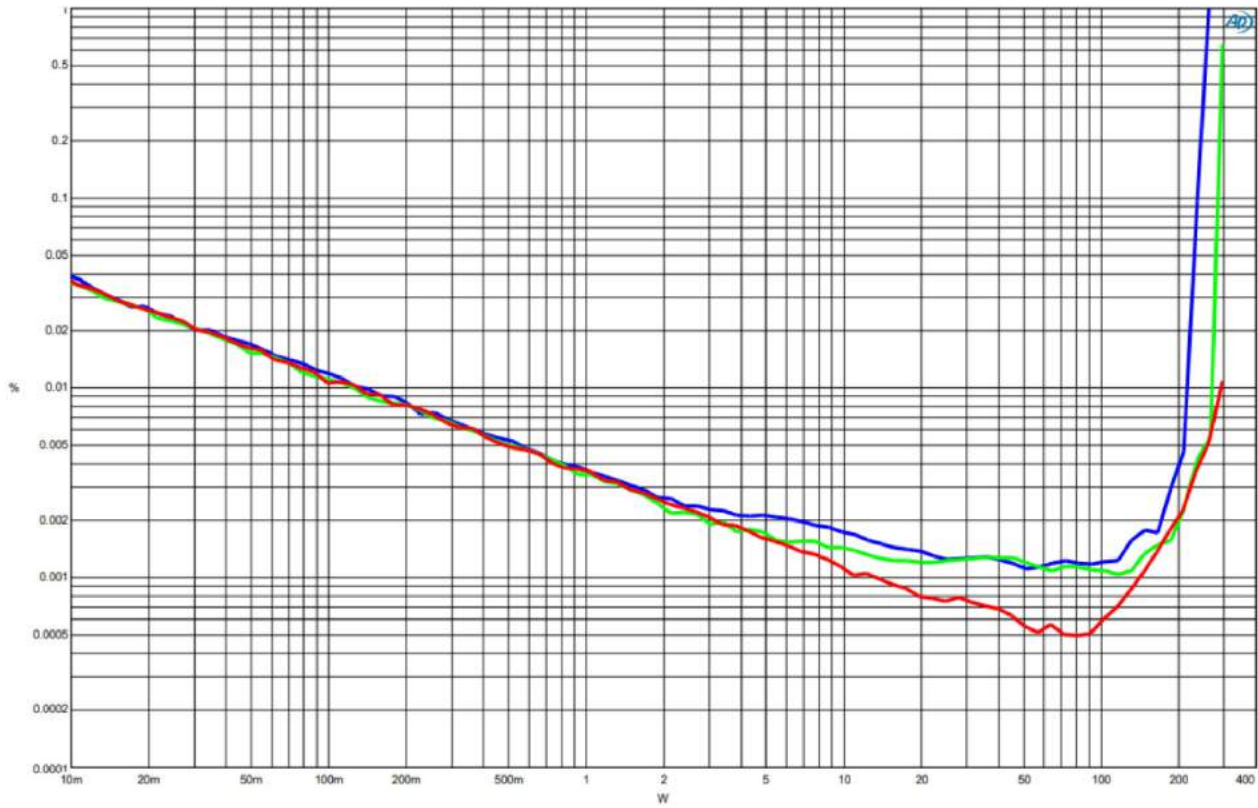


Output impedance

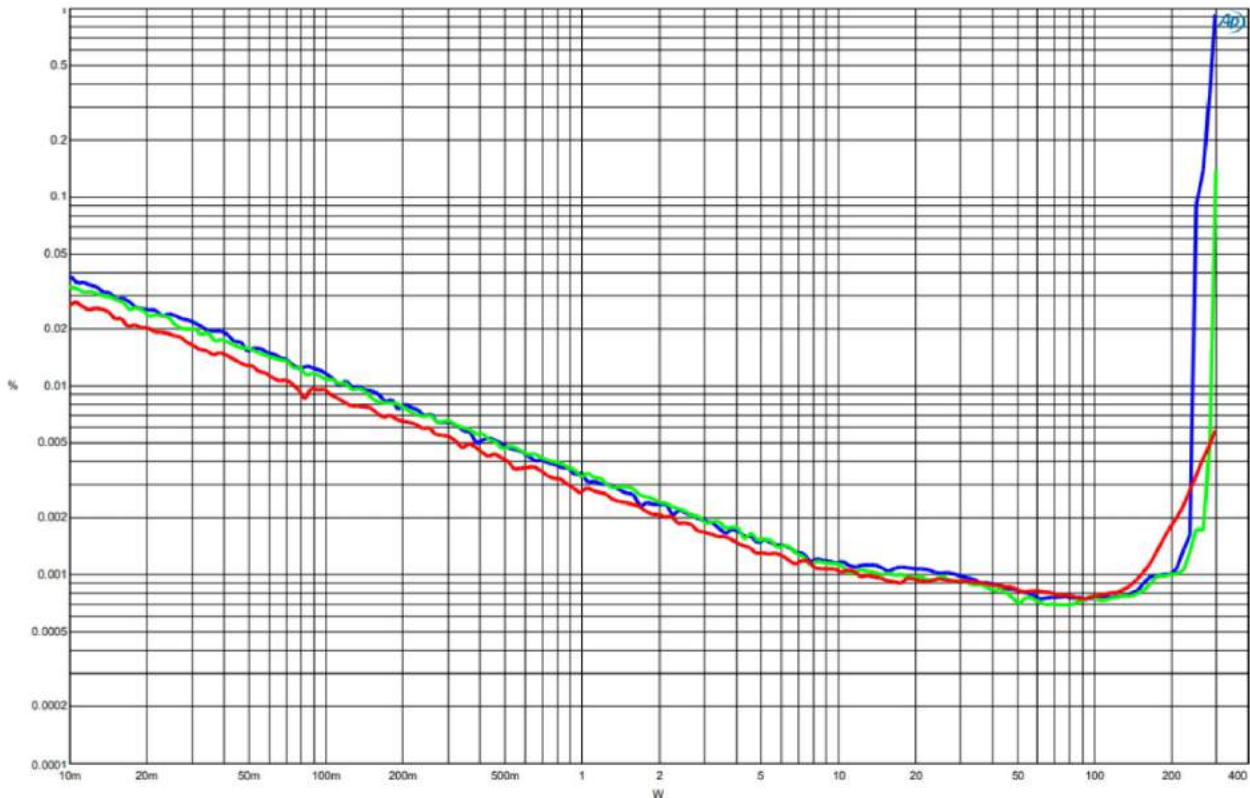


Frequency response in 2Ω (blue), 4Ω (green) and 8Ω (red).

THD+N vs Power

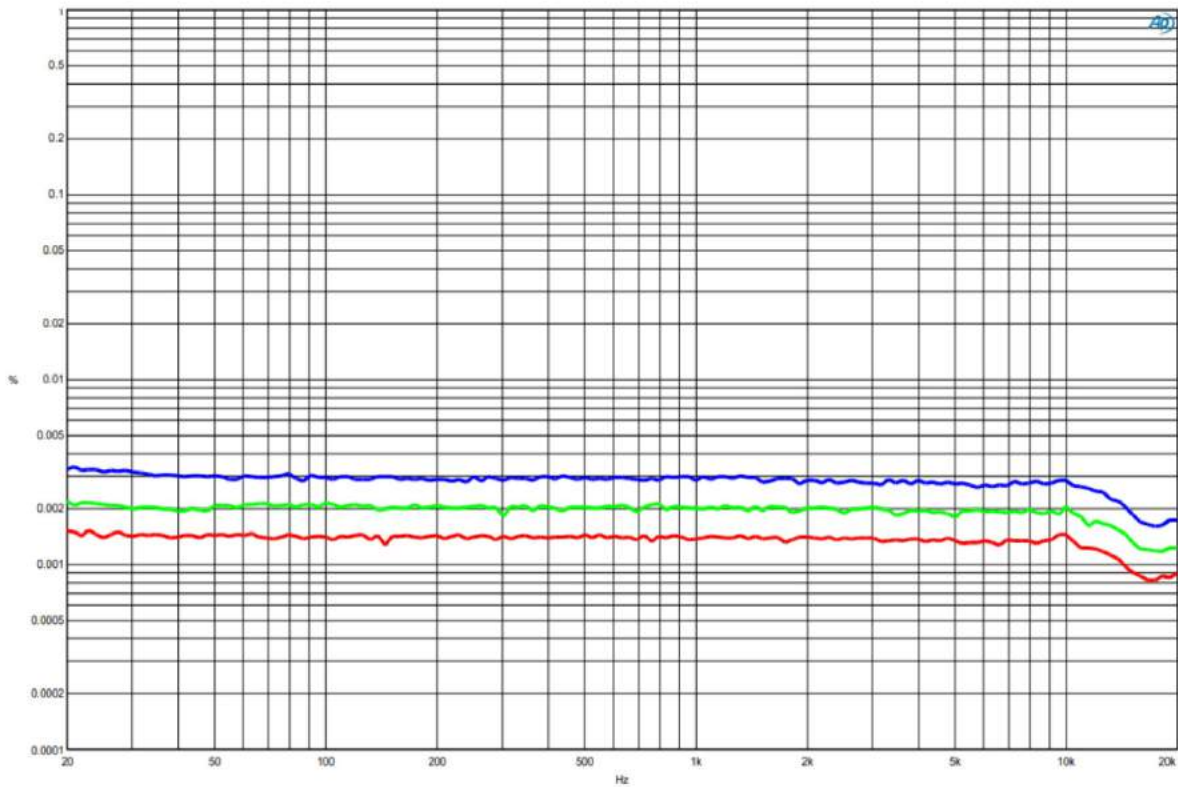


THD+N vs. power at 100Hz (blue), 1kHz (green) and 6kHz (red) (4Ω).

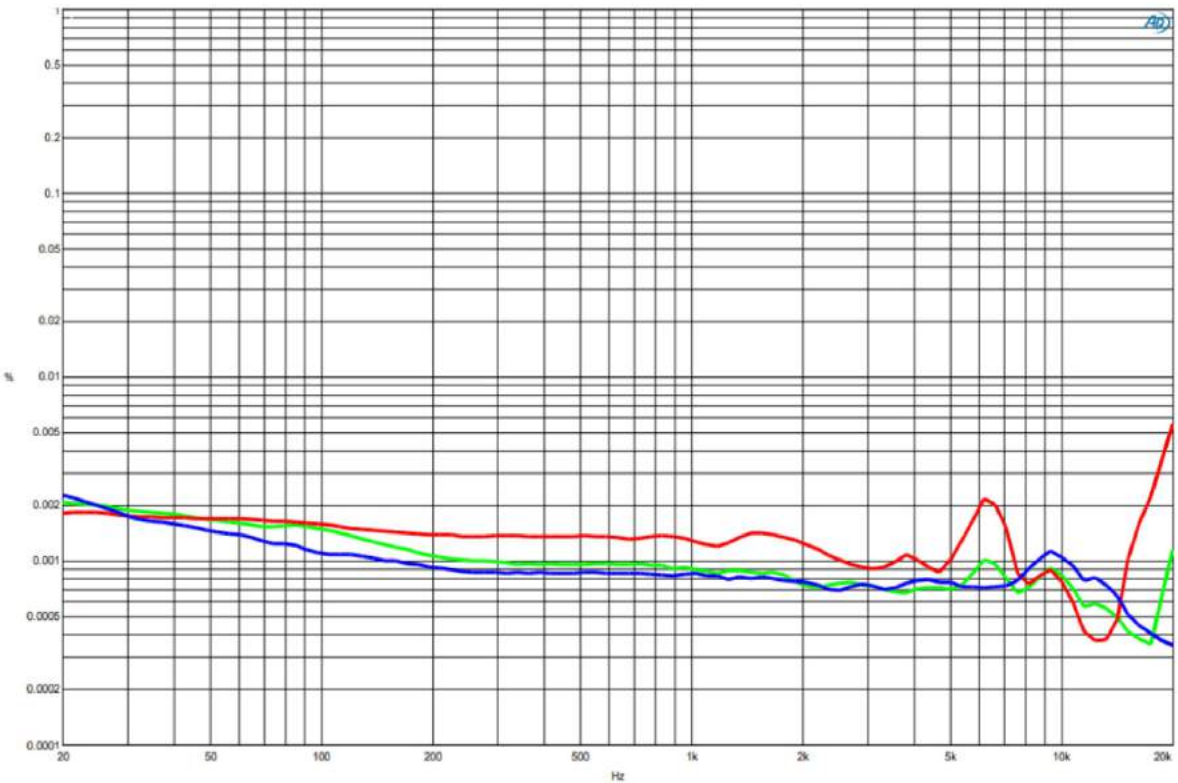


THD+N vs. power at 100Hz (blue), 1kHz (green) and 6kHz (red) (8Ω).

THD+N vs Frequency

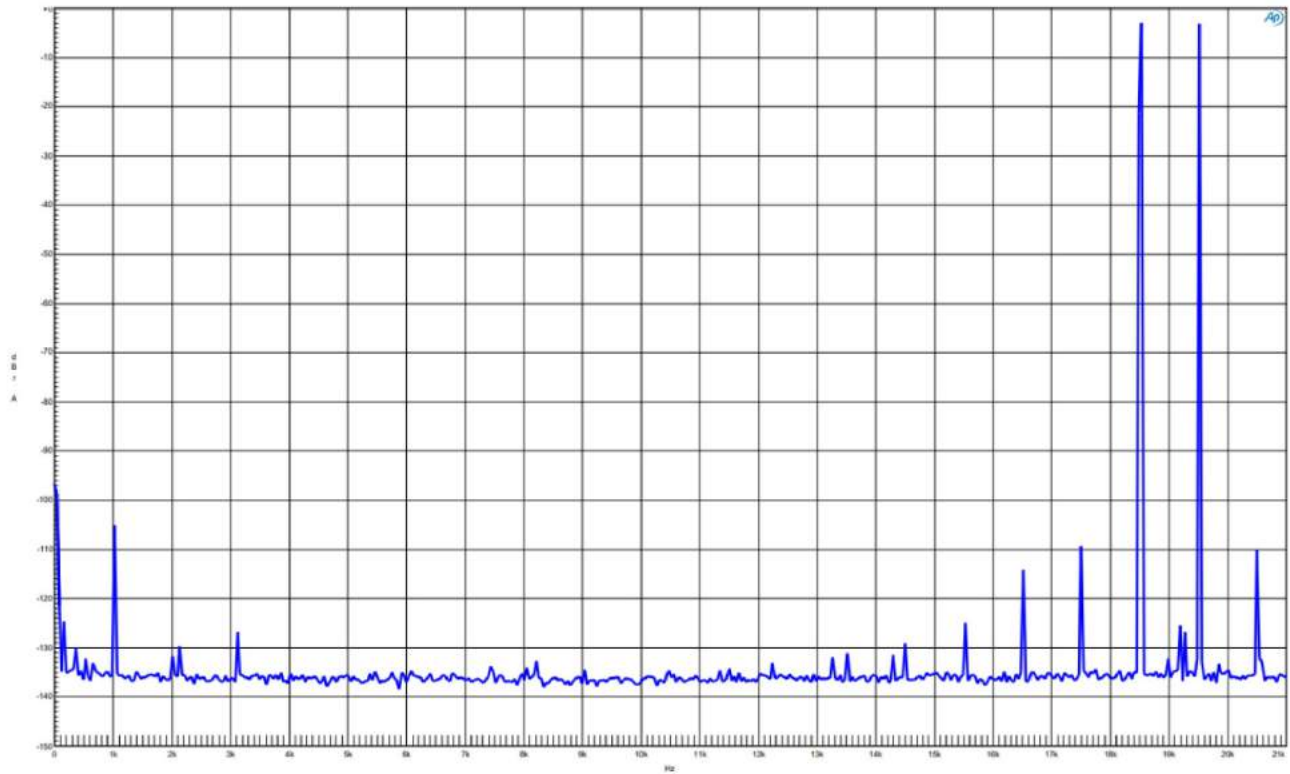


THD+N vs. Frequency at 1W in 2Ω (blue), 4Ω (green) and 8Ω (red).



THD+N vs. Frequency at $P_R/2$ in 2Ω (blue), 4Ω (green) and 8Ω (red).

IMD Spectrum



IMD spectrum at 18.5kHz + 19.5kHz, $P_R/2$ in 4Ω (blue).

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