

Zachry Car Audio Amplifier Specification

1 Model number: R500H

2 Features:

- 5-ch Class-D & Class-AB hybrid design.
- 4x90W+500W rms output power.
- All channel 2 ohm load stable.
- Double Side PCB and SMD components.
- Advanced short circuit, overload, over heat protection.
- Versatile woofer signal path.
- Optional remote controller.

3 Detailed specs:

3.1 Test Condition.

All the specs were tested with following condition unless noted.

1. Power supply: 14.4V DC power supply
2. Test signal: 1KHz sine wave for 4 full frequency channel, 50Hz for woofer channel.
3. Loads: Resistor dummy load.
4. Environment: 25 degree C, open air.
5. Relative humidity: 70%.
6. Test Instruments: Audio Precision SYS-2322A.

3.2 Output Power

3.2.1 4x full frequency channels

Following table is the 4x channel RMS output power with THD+N (A weighted) value at 5%, 3% and 1%.

Power THD+N	RMS power (4ohm)		RMS power (2ohm)		Bridged RMS power	
	Left	Right	Left	Right	8ohm	4ohm
THD+N=5%	97W	99W	144W	146W	192W	295W
THD+N=3%	90W	92W	136W	140W	182W	280W
THD+N=1%	82W	85W	122W	126W	168W	255W

Table 1 4x full frequency channel Output Power with THD+N

Following charts show the output power with THD+N (A Weighted) curve at 4ohm load, 2ohm load stereo.

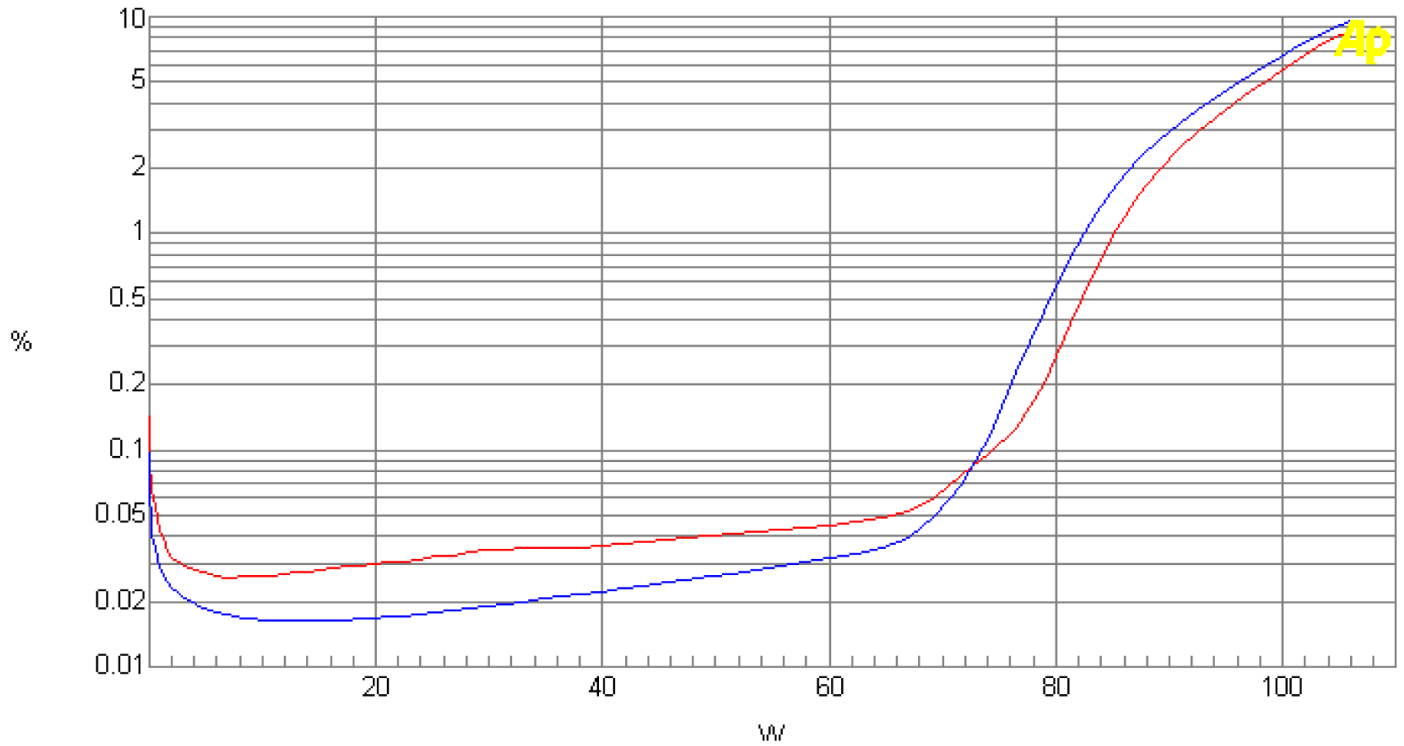


Chart 1. 4x Channel RMS output power @4ohm with THD+N

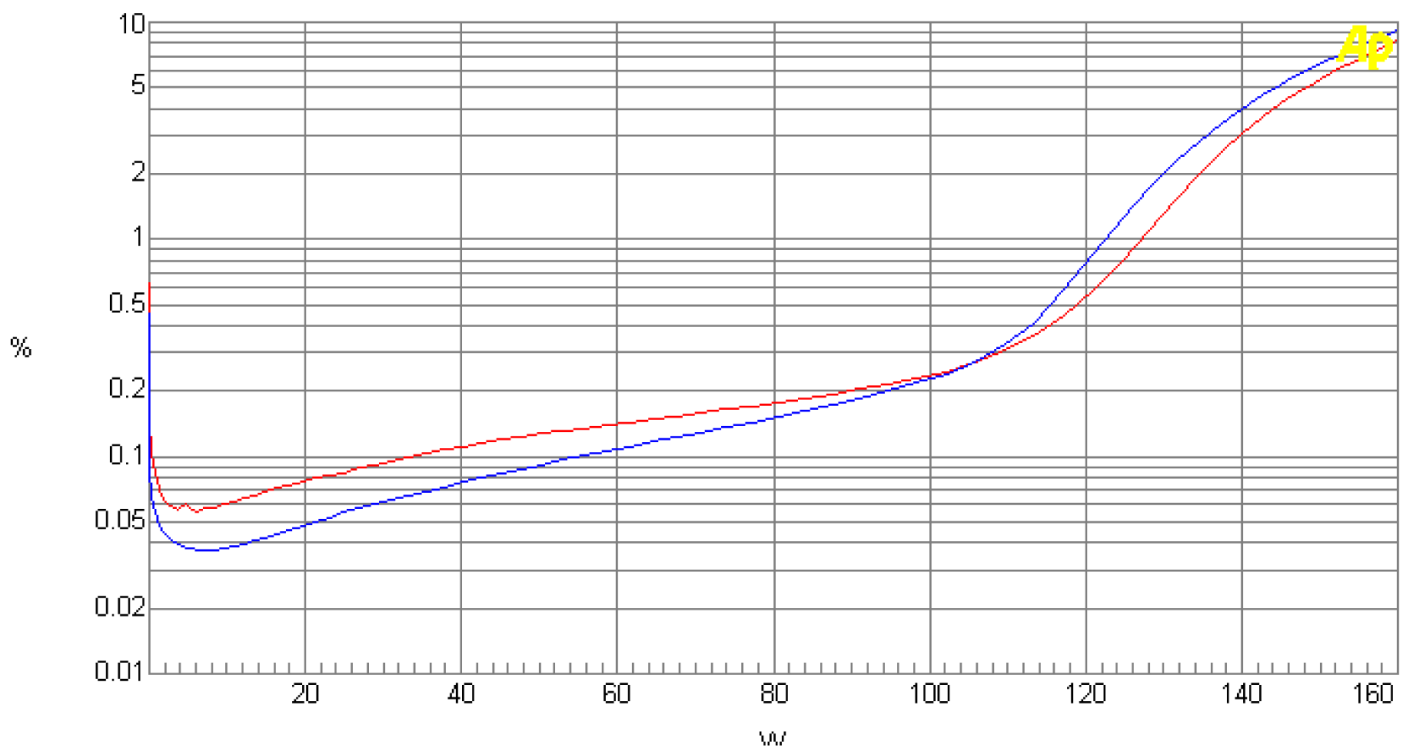


Chart 2. 4x Channel RMS output power @2ohm with THD+N

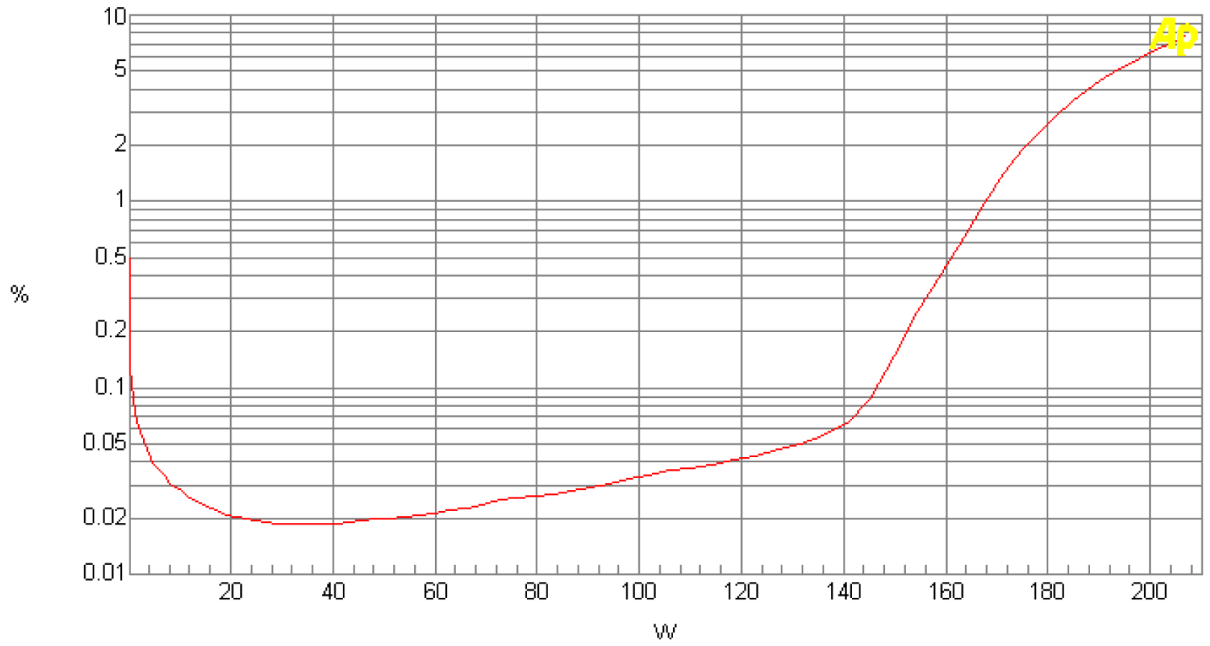


Chart 3. Bridged RMS power @8ohm with THD+N

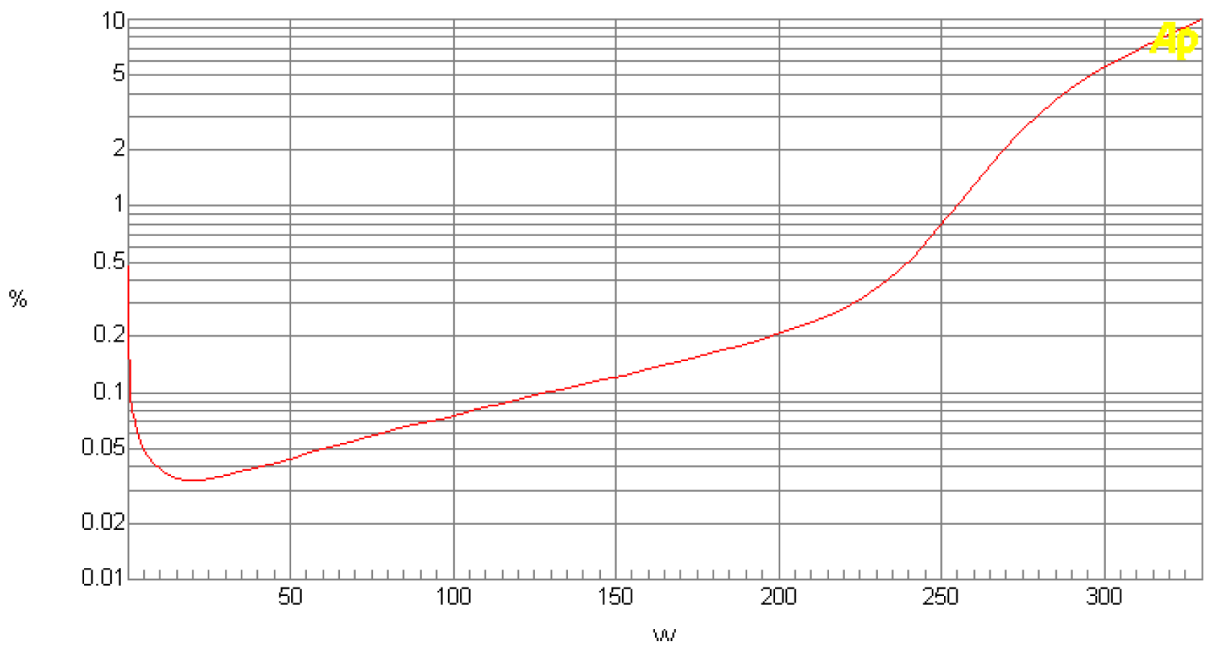


Chart 4. Bridged RMS power @4ohm with THD+N

3.2.2 Woofer channel

Following table is the woofer channel RMS output power with THD+N(A-weighted) value at 5%, 3% and 1%.

THD+N \ Power	RMS power (2ohm)	RMS power (4ohm)
5%	442W	293W
3%	425W	282W

1%	400W	263W
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Table 2 Woofer Channel Output Power with THD+N

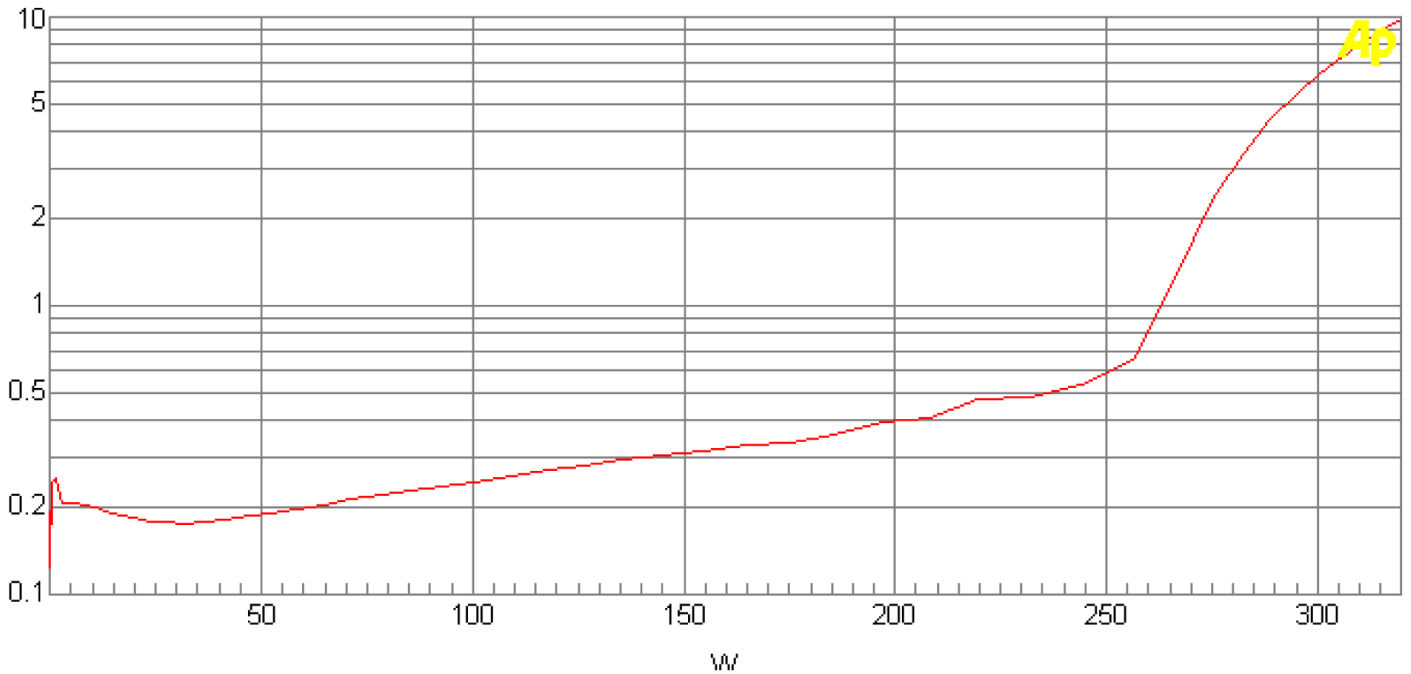


Chart 5. Woofer channel RMS power @4ohm with THD+N

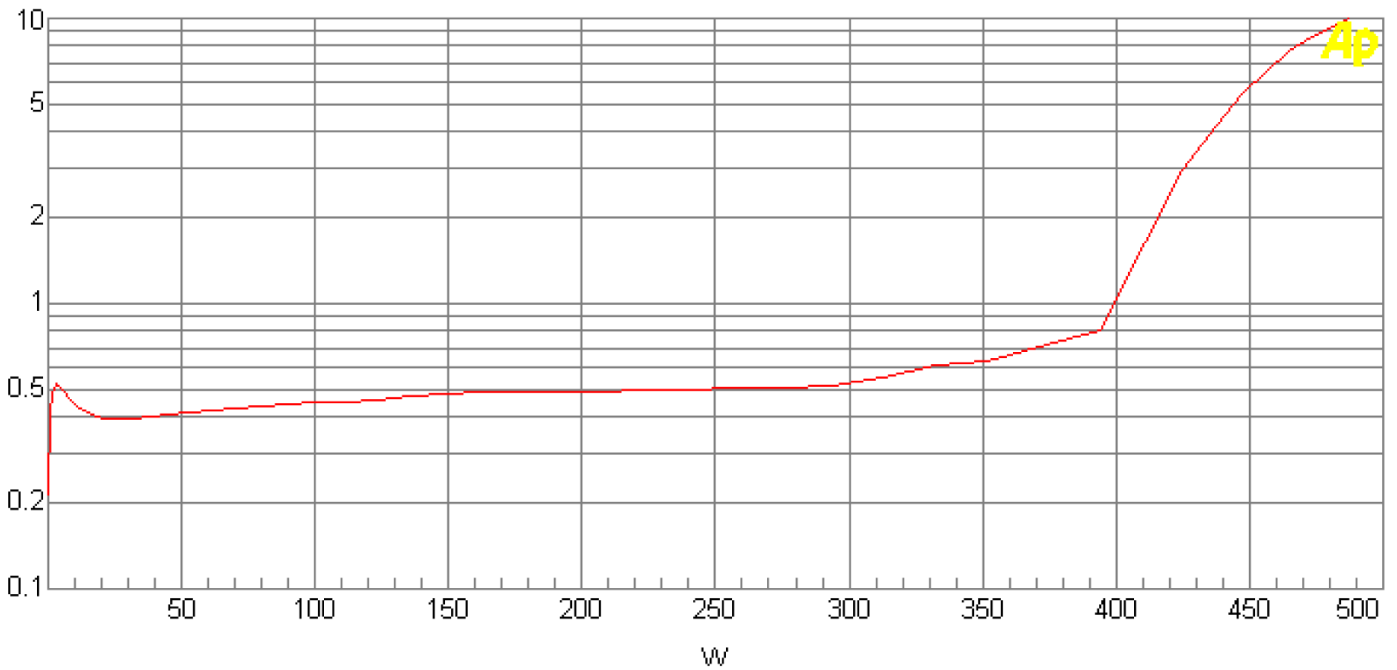


Chart 6. Woofer Channel RMS power @2ohm with THD+N

3.3 Frequency Response

1. 4x channel -3dB frequency response: 7Hz~39.5KHz.

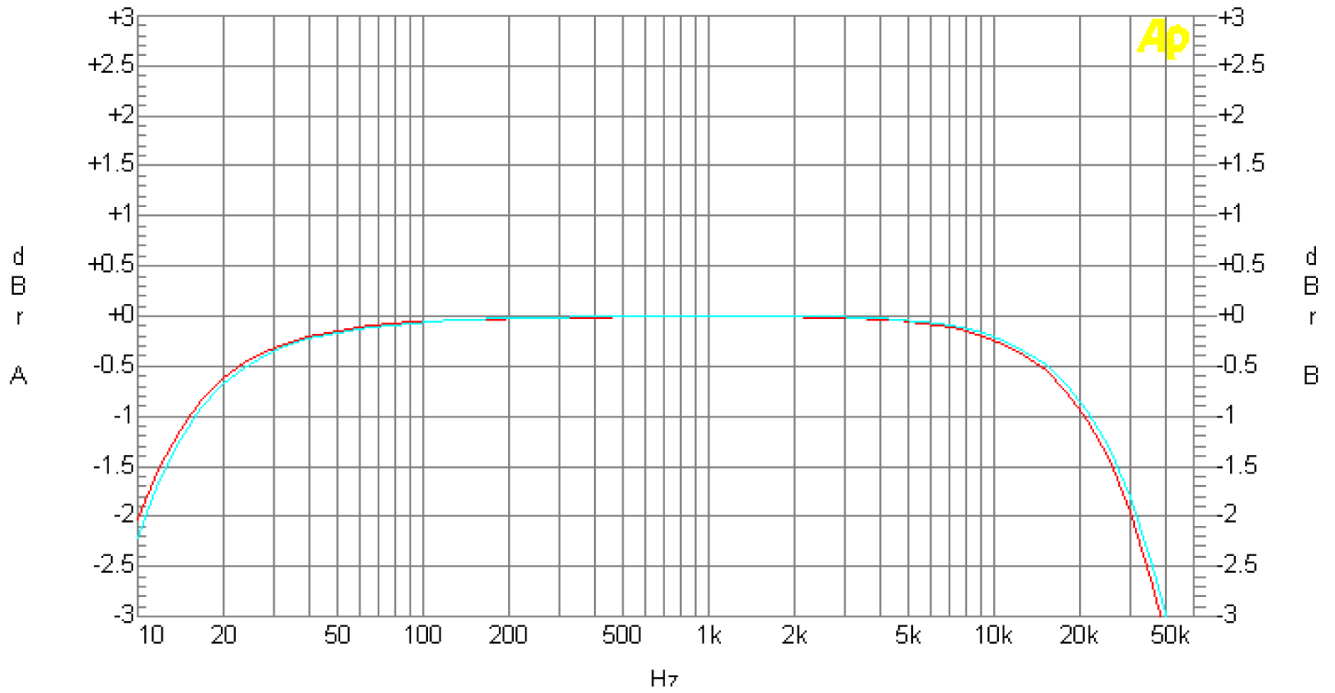


Chart 7. 4x Channel Frequency Response

2. Woofer channel- 3dB frequency response: 14Hz~249Hz.

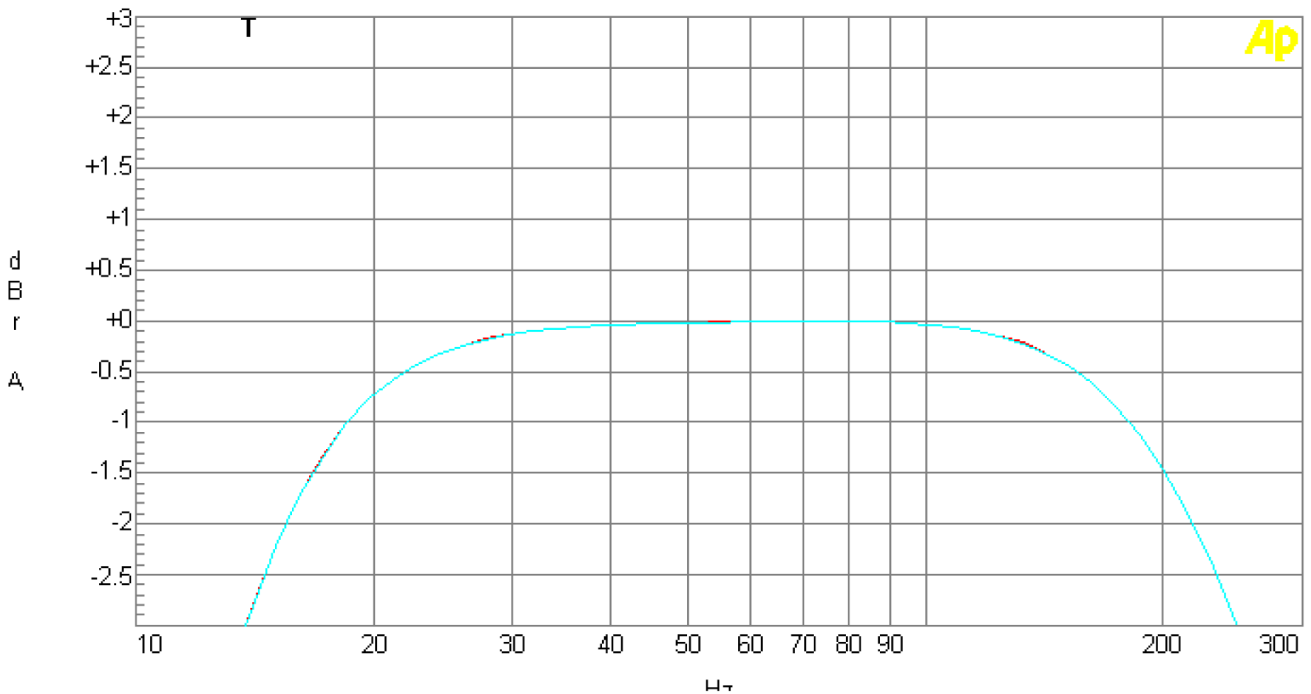


Chart 8. Woofer Channel Frequency Response

Chart 9.

3.4 Filter feature

1. 4x Channel HPF response: 7Hz~220Hz

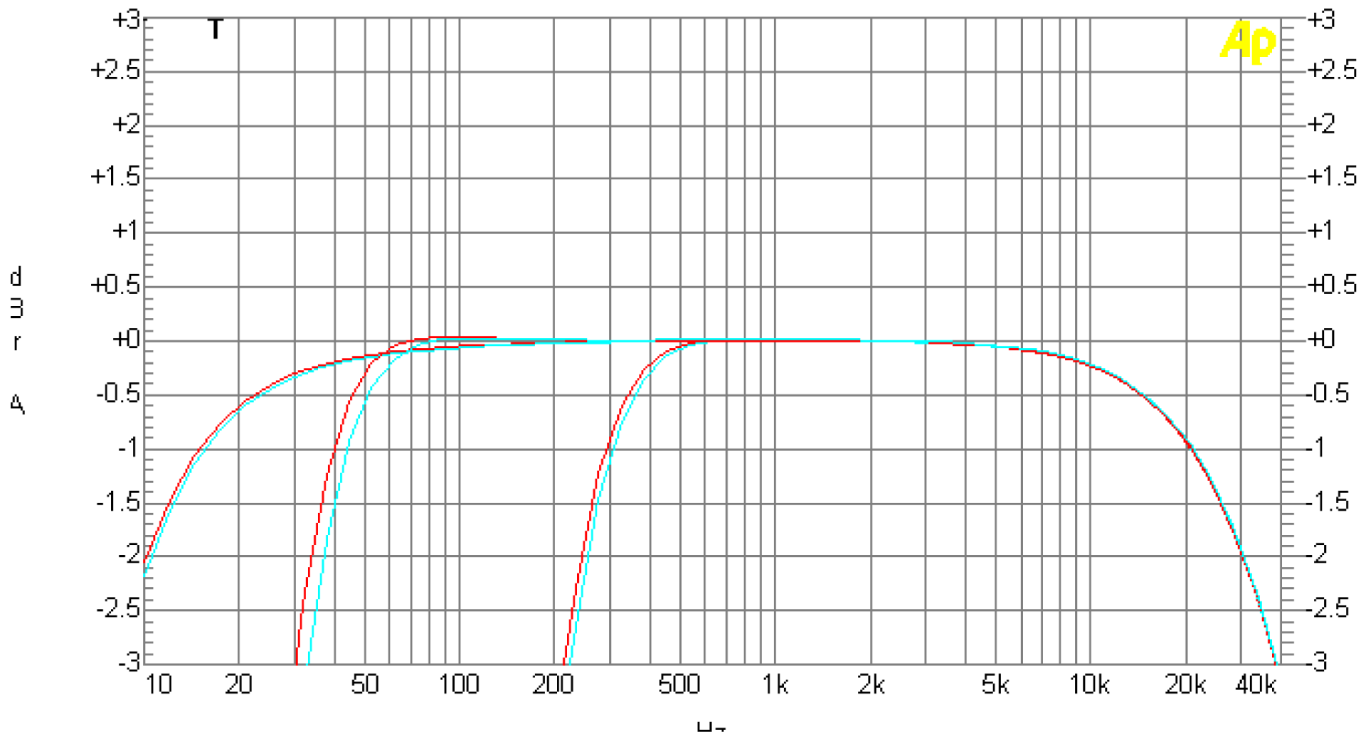


Chart 9. 4x Channel HPF response

2. Woofer channel LPF response: 48Hz~237Hz.

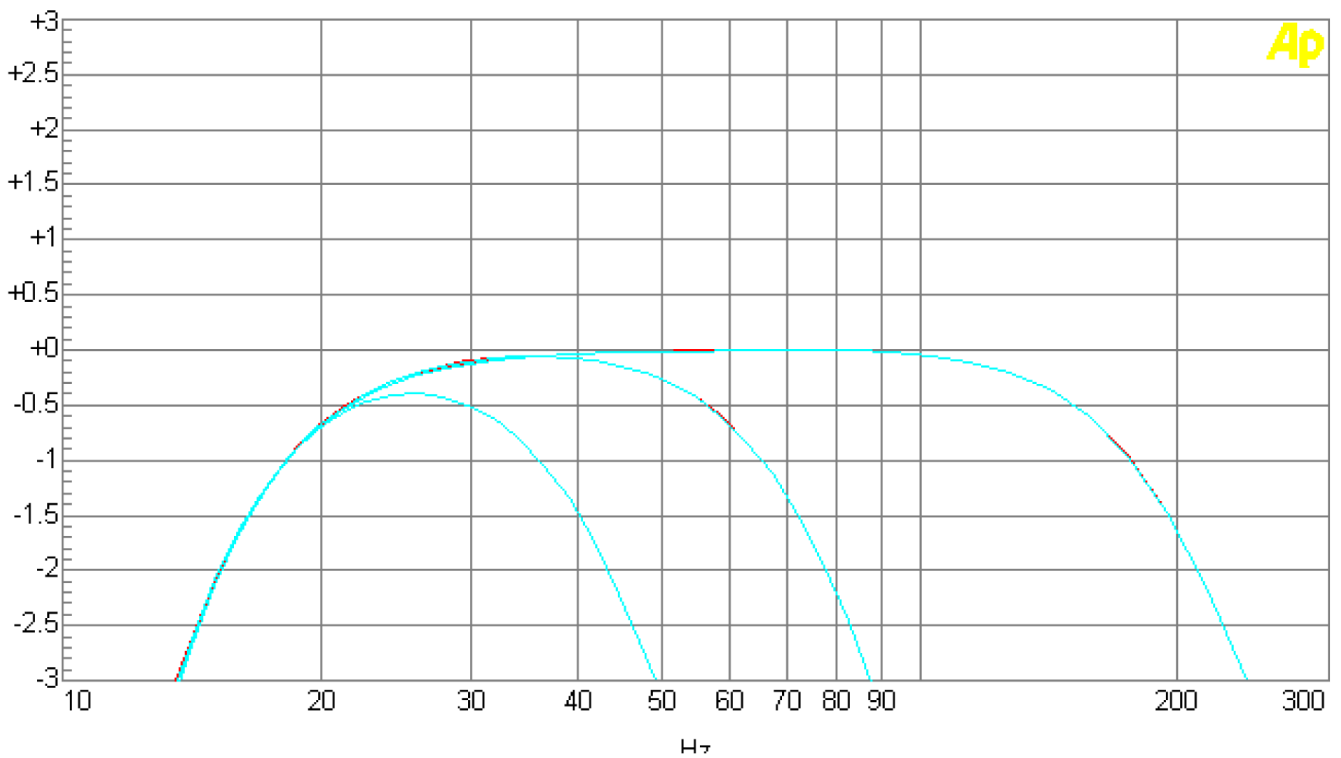
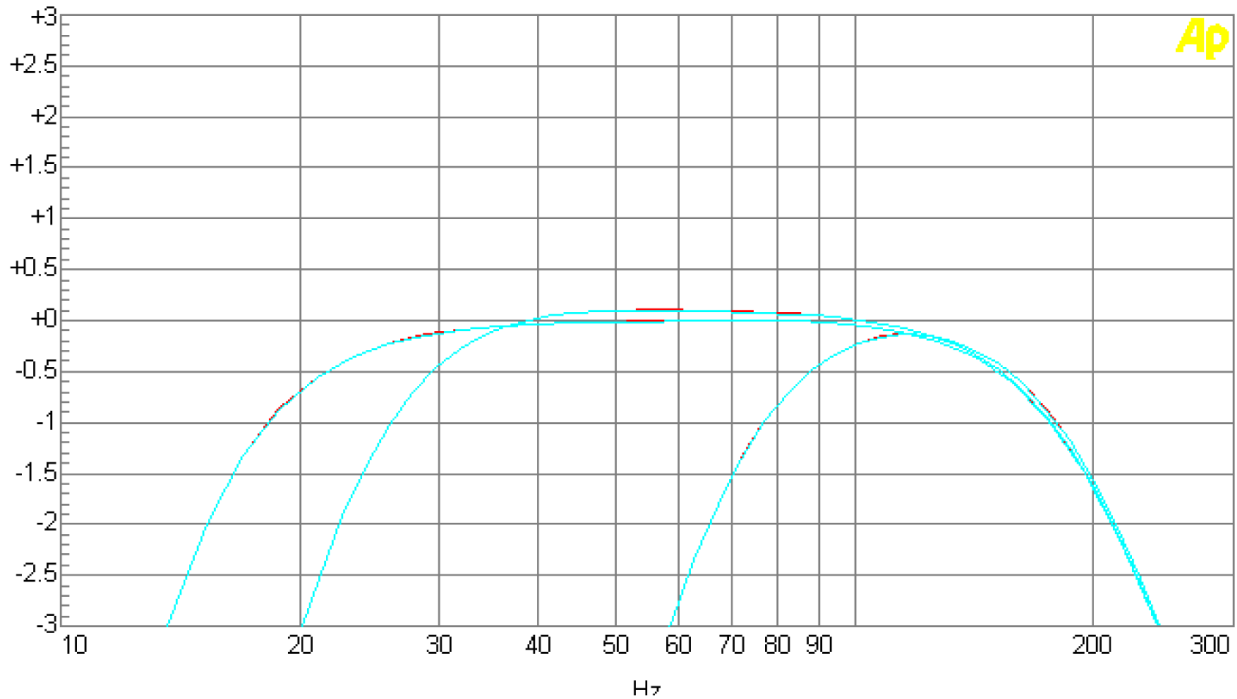


Chart 10. Woofer Channel Filter response

3. Woofer channel Subsonic response: 14Hz~58Hz.



- Yellow line shows LPF set at minimum position
- Green line shows Subsonic set at maximum position.

Chart 11. Woofer Channel Filter response

3.5 Total Harmonic Distortion

1. 4x Channel THD+N=0.018%(A-weighted) @ 20W with 4ohm load.
2. Woofer Channel THD+N=0.18%(A-weighted) @ 50W with 4ohm load.

3.6 Protection System

1. Overload:
 - All channel protect at 1.30ohm load at full rated output power.
2. Short Circuit:
 - Full rated power short circuit protect test: passed.
 - Full rated power long last short circuit test: 10 minutes passed.
3. Over temperature:
 - Protect while heat sink temperature over 81 degree C.
4. Low voltage:
 - Protect while power supply voltage lower than 7.9V.

3.7 Idle current and Efficiency:

1. Idle current: 1.42A.

2. Efficiency: 4x channel = 63% at 80W/4ohm load, woofer channel = 82% at 220W/4ohm load.

3.8 Dimension

This amplifier's size is at mmXmmXmm(W,L,H).