

Audio Amplifier Performance Assessment Program (AAPAP)	
General use and objective of AAPAP	
The program looks at several important amplifier performance areas and provides an objective method of assessing the design and engineering effort brought to bear in reducing or eliminating shortcomings that will materially affect electrical performance and therefore sound quality negatively. The philosophy behind this approach is that, for example, hum and noise or TIM/SID cannot bring positive benefits to any amplifier either electrically, or when assessed separately, for sound quality. These are problems that require design effort to eliminate, and this is what AAPAP addresses.	
The assessment process can be used during the design phase to guide the designer towards improved electrical performance and/or to assess finished designs, be they DIY or commercial.	
For assessment and scoring, the amplifier under test (AUT) is treated as a black box except for the protection features scoring where the AUT specification is consulted.	
The following areas of electrical performance are covered by AAPAP:-	
1. Output Power	1. Output Power
2. Capacitive load drive capability	2. Capacitive load drive capability
3. Overdrive recovery	3. Overdrive recovery
4. Frequency response into 8 Ohms resistive load and complex load	4. Frequency response into 8 Ohms resistive load and complex load
5. Complex load drive capability vs distortion at high power levels	5. Complex load drive capability vs distortion at high power levels
6. THD + N at 1 watt into 8 Ohms (0 dBV) and at rated power (dBr measurement)	6. THD + N at 1 watt into 8 Ohms (0 dBV) and at rated power (dBr measurement)
7. IMD 19+20 kHz at 80% of rated power into 8 Ohms	7. IMD 19+20 kHz at 80% of rated power into 8 Ohms
8. Noise floor of mains-related noise and hum, including cross-channel ground loop noise	8. Noise floor of mains-related noise and hum, including cross-channel ground loop noise
9. Speaker and amplifier protection assessment	9. Speaker and amplifier protection assessment
10. \$ Cost per stereo watt (not scored, but must be stated in the assessment)	10. \$ Cost per stereo watt (not scored, but must be stated in the assessment)
The assessment program explicitly does not address subjective notions of amplifier quality, only those that can objectively assessed using test instrumentation.	
The tool distinguishes between different amplifier technologies and assesses performance within the capabilities of the designer's chosen technology. The technologies currently covered are: -	
<ul style="list-style-type: none"> Linear solid-state amplifiers with global feedback Linear solid-state amplifiers without global feedback Vacuum tube amplifiers Class D amplifiers will be added to the program once agreement is reached on how certain parameters will be scored 	

Tool outputs

A report card against which the parameters listed above are scored with a top-level score that places the amplifier in one of 6 categories as detailed below: -

Note, a zero score on any of the tests in amplifiers assessed in the top two categories will force the AUT score to the next lowest overall rating. For example, if an amplifier scores well on all parameters except overdrive recovery, where it scores 0, it must be given a maximum of 4 stars.

A standard histogram chart accompanies the report card and is always ordered in the same way as the tests are ordered in the accompanying Excel file. This allows direct, easy visual side by side comparison between different amplifiers.

Along with the report card, plots for tests 2-7 must be included for reference. All tests are done in stereo mode.

Simulation plots of amplifier performance are not accepted as performance plots.

Score	AAPAP Star Rating	Comments
= > 70	***** (5 Stars)	Amplifier well engineered with good performance across a range of technical measures
60 ~69	****	Acceptable engineering and performance but some areas of the assessment may affect performance and or could be improved
50~59	***	lower scoring areas of the design require attention
40~49	**	General failings on many of the test parameters that require attention
30~39	*	Serious shortcomings as a result of bad engineering leading to suboptimal performance across too many of the technical measures
<= 30	No stars	The amplifier performance in key technical areas is too weak to warrant any grading