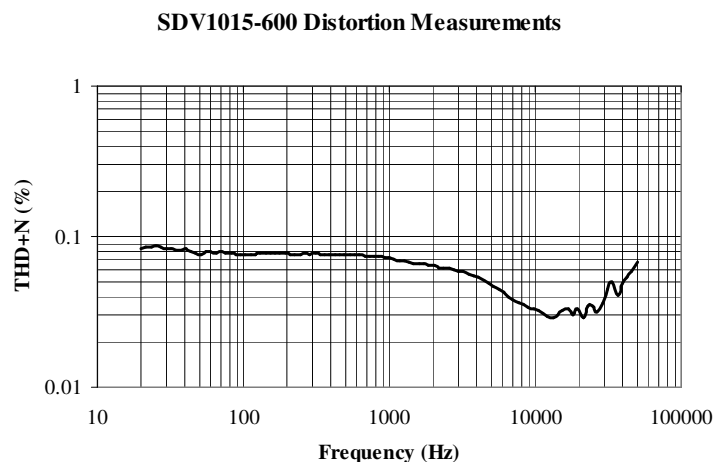


This note explains the nature and relevance of total harmonic distortion (THD) measurements to the characteristics Magnatec class D amplifiers.

Total harmonic distortion is used as a crude measure of amplifier performance. Some manufacturers claim impressively low THD+N readings for their amplifiers, some digital amplifiers have distortion readings less than 0.1%. This however is not necessarily a good measure of the sound quality of the amplifier. Often to achieve stunning low THD readings other aspects of an amplifiers performance are compromised. Magnatec class D amplifiers are designed foremost for people to listen too and enjoy. Measurement of parameters such as THD must be good enough such that the audio quality is not impaired, but unless specifically requested we aim to produce amplifiers with THD+N reading over 90% of their power spectrum at about 1% or below.

Measurement of total harmonic distortion is relatively straight-forward if the appropriate equipment is available. Magnatec amplifiers are classified using an Audio Precision System 2 audio measurement apparatus. As with other measurements on class D amplifiers the measurement conditions and the interpretation of the measured values can be confusing to the unwary.

To fully characterise the total harmonic distortion of an amplifier the distortion needs to be measured at different power levels into various load impedances across the audio spectrum. Most amplifier datasheets do not provide such comprehensive results. Readings are typically taken at one frequency, 1KHz is a favourite option and often only at one power level such that the amplifier is shown in the most favourable light. For example, the total harmonic distortion figures for the Magnatec 600W module at 1/10 power with sympathetic drive conditions gives excellent results as shown opposite.



However, measured over the full power spectrum the distortion figures for this amplifier can be up to 2% depending on drive conditions.

In conclusion, don't be fooled by seductive THD+N readings, apart from the power rating a more important parameter is the sound quality of the amplifier. For more details of how to achieve optimum sound quality see the explanation note XN03 on the main website (select the link opposite High Quality Sound Performance).