

1.5.3 Power Distribution

In order to design a system it is important to ascertain the expected power distribution between the various sections of the system. For an electronically crossed or active system, this will allow the selection of the correct amplifier power requirements and therefore the loudspeaker's power handling for each section of the audio range as designed.

For a passive system likewise, the proportion of power to each part of the crossover output section can be determined.

The power distribution for the audio spectrum is best represented by the percentage power about given frequencies. The figures quoted are for 'normal' play-back programme.

Crossover frequency	% power below crossover frequency	% power above crossover point
150	20	80
200	28	72
300	45	55
500	60	40
1000	75	25
3000	80	20
5000	90	10

Generally, for discos, the proportion of bass content up to 150 Hz will be excessively equalised as can that above 5 KHz. So it is useful as a safety measure to design a good excess of power handling capacity of loudspeakers in these frequency ranges particularly for active systems where the system balance can be more readily changed.

In recent years the digitisation of the play-back material means higher sound pressure levels of reproduction can be achieved without distortion effects; large amplifiers have become less expensive and more common, so low frequency systems are even more prone to be overloaded, particularly when large headroom allowances are made to deal with improved transient reproduction capability.