

ALTEC LANSING
A Division of LING ALTEC, INC.

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SOUND COVERAGE
Degrees vs Distance

Technical Letter No. 162

The following charts have been prepared to assist in determining the coverage that may be expected from a speaker.

Figure 1 may be used to determine coverage for a given speaker. Two things must be known to use the chart; 1) distribution angle of the speaker, and 2), the height of the speaker above ear level.

Follow the selected Speaker Height line across the chart until it intersects with the correct Distribution Angle of the speaker used. A vertical line from this point of intersection to the bottom of the chart will indicate the diameter of coverage (assuming the distribution pattern of the speaker is conical). For example: A 615 speaker mounted 30' above ear height will cover a circle 60' in diameter. For proper spacing of more than one speaker see Figure 3.

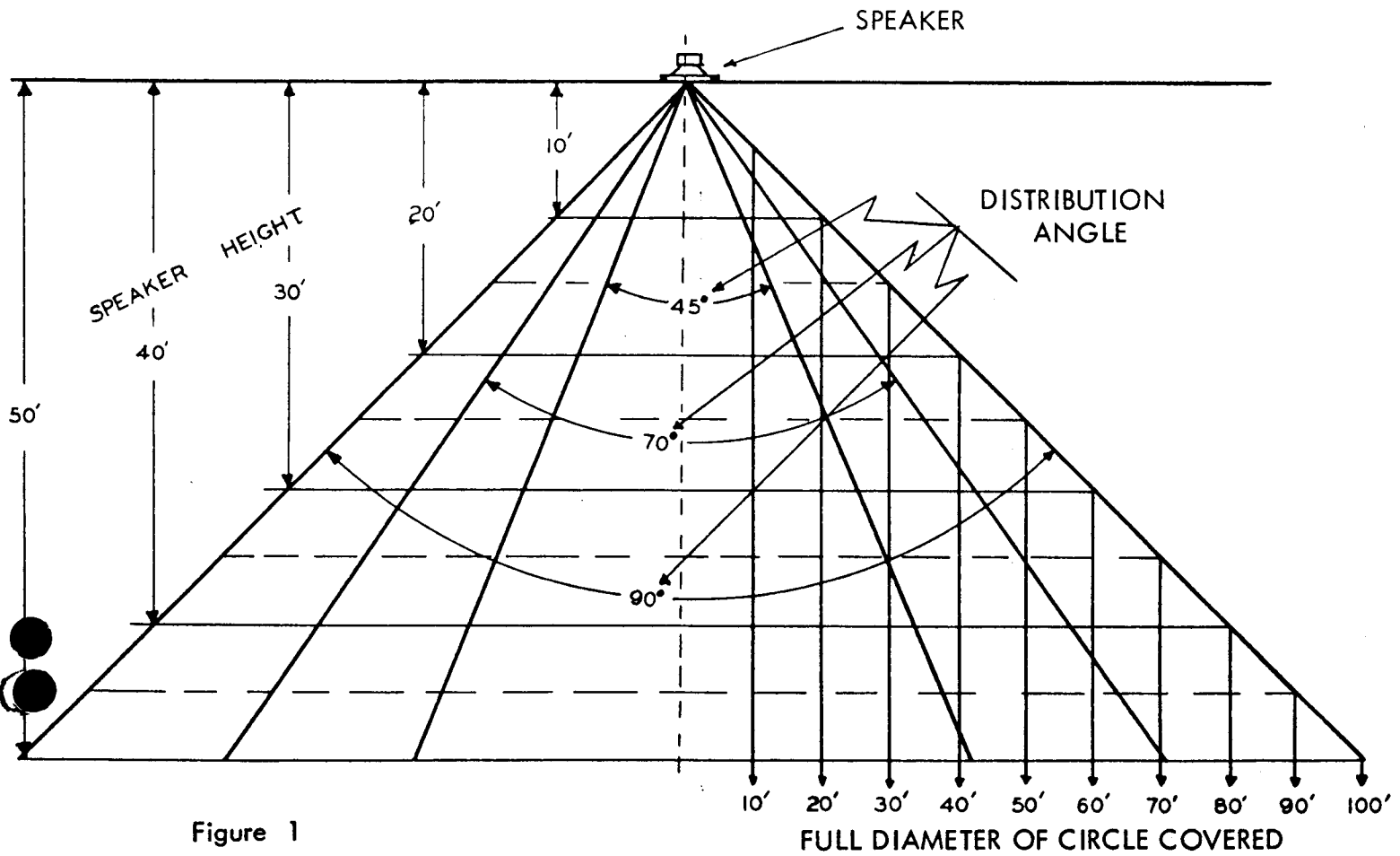


Figure 1

SPACING

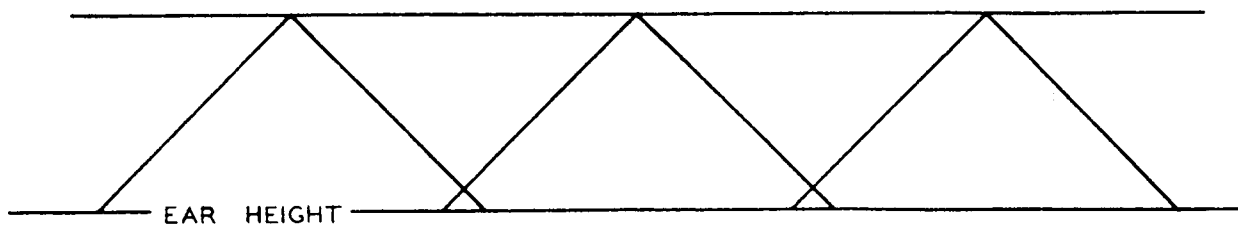


Figure 2

Figure 2 shows typical spacing for speakers with 90° conical distribution patterns. Assuming a speaker height of 40', the distance between speakers will be 57'. This overlap is computed by using the 70° instead of the 90° distribution angle, and will provide optimum coverage with essentially uniform sound pressure levels.

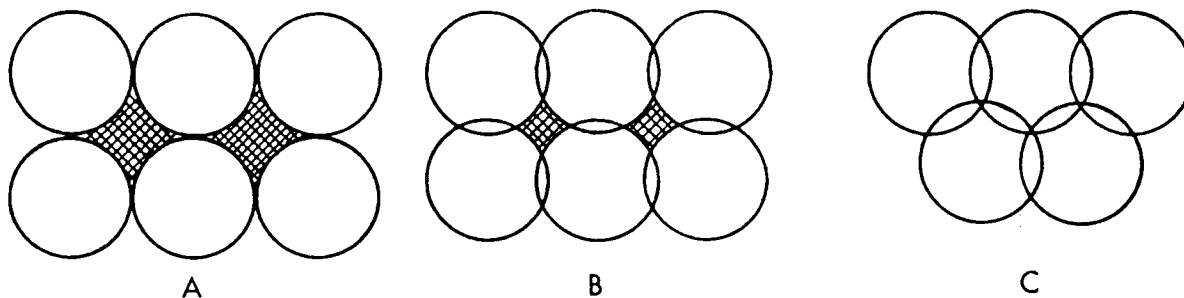


Figure 3

Figure 3 illustrates the plan views of three methods used for spacing speakers in a distributed sound system. Methods A and B are not recommended because they contain many 'dead spots' and 'hot spots' where the sound pressure level coverage will not be uniform. Optimum coverage may be attained by using method C which assures that the entire area is covered without creating any 'dead spots' or 'hot spots'.

SOUND PRESSURE LEVELS

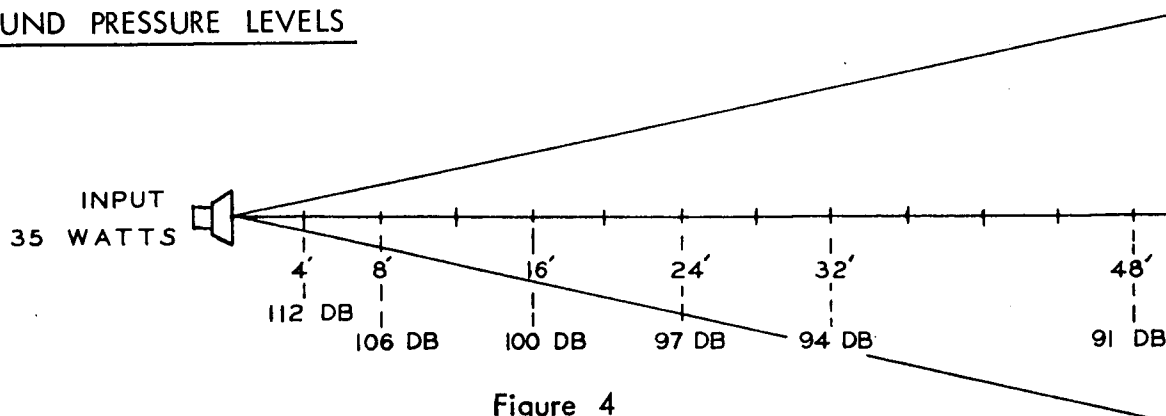


Figure 4

Typical sound pressure levels as produced by the 615 speaker. Note that as the distance is doubled, the SPL is reduced by 6 db. This example is computed for an input power of 35 watts. Peaks in the program material may produce short duration increases in the SPL.