



MBR / DESIGN GROUP

DECIBEL ADDITIONS

It's commonly known the addition of two sound sources of equal intensity result in a 3dB higher sound. As decibels are logarithmic values, they cannot be combined by normal algebraic addition. For example: the sound level of a pair of speakers playing at 40dB each would be 43dB and not 80dB.

When two or several sound sources of different intensities must be combined, we must consider the table below...

<u>WHEN TWO DB VALUES DIFFER BY:</u>	<u>ADD THE FOLLOWING DB TO THE HIGHER VALUE:</u>
0 or 1	3
2 or 3	2
4 to 8	1
9 or more	0

For example:

34dB + 41dB = 42 the difference between values is 7dB.

Another example:

34dB + 41dB + 43dB + 58dB = 58

34dB + 41dB = 42dB the difference between values is 7dB.
43dB + 58dB = 58dB the difference between values is 15dB.

42dB + 58dB = 58dB the difference between values is 16dB.

When the difference between values is 9dB or more there is no increment of sound intensity because the higher sound level swamps out the lower sound level.

Using different orders of additions may give results that differ by 1dB, which is normally not too significant. To achieve the greatest precision, decibels should be combined logarithmically.

This table can be used to subtract decibel values too.