

Verizon Wireless Generator Information

Using Decibels

Addition and subtraction of decibels is often necessary for estimating total noise levels or background noise. Because decibels are measured using a logarithmic scale, conventional linear mathematics cannot be used. The most convenient way to perform simple arithmetic functions involving logarithmic measurements is to use doubling rules. These rules provide an accurate estimate of the effect distance and multiple sources have on measured sound pressure level.

Distance Attenuation Estimations

When the distance is doubled from a *Line* source the sound level decreases three decibels.

Example: If a sound level is: 70 decibels at 50 feet it will be 67 decibels at 100 feet, and 64 decibels at 200 feet.

When the distance is doubled from a *Point* source the sound level decreases six decibels.

Example: If a sound level is: 95 decibels at 50 feet it will be 89 decibels at 100 feet, and 83 decibels at 200 feet.

Decibel Levels of Common Noise Sources

Sound Pressure Level (dBA) Noise Source

140	-----	Jet Engine (at 25 meters)
130	-----	Jet Aircraft (at 100 meters)
120	-----	Rock and Roll Concert
110	-----	Pneumatic Chipper
100	-----	Jointer/Planer
90	-----	Chainsaw
80	-----	Heavy Truck Traffic
70	-----	Business Office
60	-----	Conversational Speech
50	-----	Library
40	-----	Bedroom
30	-----	Secluded Woods
20	-----	Whisper

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Rapid City Growth
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GENERAC Power Systems – 3.3 L Engine SD040 – SD050 GEN 2000 Weather Protective Enclosure w/ Sound Attenuation:

Pos 1 (alternator end) 72dB

Pos 2 (side) 72dB

Pos 3 (radiator end) 72.5dB

Pos 4 (side) 72dB

AVERAGE – 72dB

- Notes:
1. All positions 23 ft (7M) from center of generator.
 2. Generator operating at full load.
 3. Test conducted on a 100 foot diameter asphalt surface

D = DISTANCE FROM CENTER OF GENERATOR

S = SOUND PRODUCED IN Db

D / 2	=	S – 6	Noise similar to:
23ft	=	72dB	Business Office
46ft	=	66dB	Business Office - Conversational Speech
92ft	=	60dB	Conversational Speech
184ft	=	54dB	Conversational Speech – Library
368ft	=	48dB	Library
736ft	=	42dB	Bedroom
1472ft	=	36dB	Bedroom - Secluded Woods
2944ft	=	30dB	Secluded Woods
5888ft	=	24dB	Secluded Woods - Whisper

This information is taken from pages 5 and 6 of Minnesota Pollution Control Agency
“A Guide to Noise Control in Minnesota” revised 3/99 and GENERAC Power Systems,
Inc.

STANDARD 210000

Figure 1. Typical Sound Levels Measured In the Environment and Industry

