2-24. Decibel (dB)

The selection of dB is described in Figure 2-19. Like frequency, dB is automatically canceled if you select another function (resistance or frequency, for example).

When dB is selected, the 8060A microcomputer converts ac or dc voltage readings to the dBm equivalent (decibels above or below one milliwatt). The standard reference impedance is 600Ω. You can make dB measurements independent of the reference impedance by using the relative function in conjunction with the dB function. You can also modify the reference impedance by applying and storing a voltage equivalent to 0 dBm referenced to the desired impedance. Refer to Chapter 3 for details.

Note that the 8060A performs a 'bridging' measurement when measuring dBm, which assumes the reference load is part of the system. When making 'terminating' measurements (such as testing a phone line without a phone connected) be sure to apply the proper load to the 8060A. For example, if you are making a terminating dBm measurement in a 600Ω system with 50V maximum signal levels, place a 600Ω 5 watt resistor across the 8060A input terminals.

The ac dB dynamic range is from -50.0 to 59.72 dBm (109.72 dBm total). The dc dB dynamic range is from -74 to 62.22 dBm (136.22 dBm total). For readings greater than approximately 5% of full-scale for the voltage range selected, the resolution is .01 dB. Below approximately 5% of scale, resolution drops off to .1 dB, and below approximately 0.6% of scale, resolution is 1 dB. Anytime blank digits appear to the right of the decimal point, it is an indication that resolution has fallen off and you need to select a lower range.
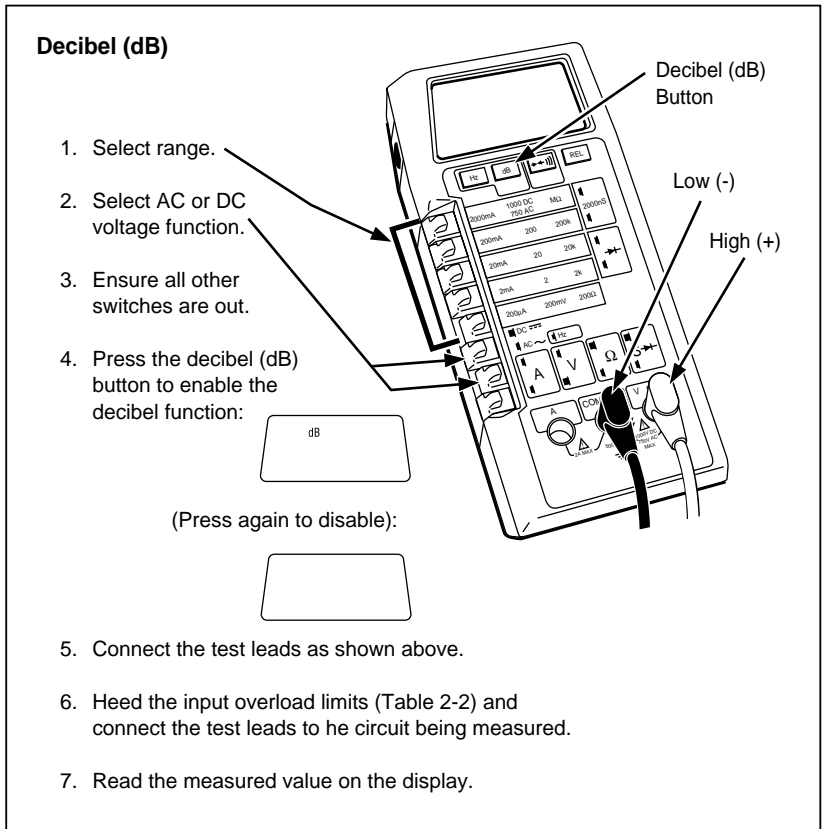
Decibel (dB)

Decibel (dB)
Button

Low (-)

High (+)

1. Select range.

2. Select AC or DC voltage function.

3. Ensure all other switches are out.

4. Press the decibel (dB) button to enable the decibel function:

   dB

   (Press again to disable):

5. Connect the test leads as shown above.

6. Heed the input overload limits (Table 2-2) and connect the test leads to he circuit being measured.

7. Read the measured value on the display.

dx20f.eps

Figure 2-19. Decibel (dB) Operation

2-25. dBV

dBV is defined as dB relative to 1 volt, independent of load impedance. This measurement is commonly used in the audio industry as a convenient reference for log weighted measurements such as noise, sensitivity, and level. The 8060A uses the ratio self-test to "fool" the microcomputer into thinking it has 1V present at the meter input, and then uses the pseudo 1V as the 0 dB relative reference. Use the following procedure to make dBV measurements: