

11. Zcal Utility

The **zcal** utility is an alternative to the **zauto** utility for entering and displaying the LOG receiver calibration numbers in the calibration file. Zcal can be useful when first setting up a system, before final calibration. It is also the only way to reset reference calibration information. Reference information is applicable only on systems that automatically run calibration. (See chapter 10 on **zauto**) If a new calibration deviates too much from the reference, it is not used. This prevents loss of data if the signal generator fails.

Zcal requires no graphics interface. You enter the calibration numbers which have been determined in some other manner. For an RVP6, these numbers consist of a slope and an intercept in the linear mapping between averaged A/D converter values and dBZ. For the RVP7 and later, just the intercept is required. There are separate calibrations for each pulse width and polarization as applicable. A thorough discussion of the LOG receiver channel calculations is covered in the *Signal Processor User's Manual*.

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11.1 Invoking Zcal

Command

zcal

11.2 Zcal Commands and Prompts

Zcal displays the stored and reference calibration information for each pulse width, then prompts you to enter a command. The number of pulse widths may vary, depending on your system. For a large number of pulse widths, you will want to use a large width terminal window. All dates shown are in local time as configured on your computer.

```

----- Horizontal Calibration -----
                Sto 1.0us   Ref 1.0us
Slope:          0.5084      0.5084 dB/LSB
Cal:            -39.44      -39.44 dBZ
Std Dev:        0.00        0.00
Log Noise:      0.00        0.00 A/D
Lin. Noise:     0.00        0.00 A/D
Linear RMS:     0.00        0.00 A/D
I0:             0.00        0.00 dB
Flag:           0          0
Cal Time:       15:56:52    15:12:40
Cal Date: 12 OCT 2002 10 DEC 2001
Siggen Date: 15 JAN 2000 15 JAN 2000
Siggen ID:      19550      19550

Current Siggen ID:          19550
Current Siggen cal date: 15 JAN 2000

```

ZCAL command (? for help):

Table 11–1 lists the commands that you can enter at the prompt.

Table 11–1: Zcal Commands

Cal	Enter a new calibration reflectivity
Exit or Quit	Exit from the utility
ID	Set the signal generator ID
List	Show the current numbers on the screen again.
Polar	Change polarizations (only on dual pol radars)
Refer	Set reference to stored values
Slope	Enter a new calibration slope
Write	Write the calibration file
?	Display help on the commands

11.3 Changing LOG Receiver Calibration Numbers

To change the calibration reflectivity:

1. Type **cal** at the command prompt. Zcal displays the prompt:

Enter pulse width to change

2. Enter the pulse width in microseconds (for example, 1, 1.0, 1.00). Zcal displays the prompt:

Enter new calibration number

3. Enter the calibration reflectivity (dBZo) in dB. Typically this is a negative dB number, such as -35, which corresponds to the minimum detectable dBZ at 1 km.

Zcal redisplay the calibration information, showing the new calibration reflectivity that you entered.

To change the calibration slope:

1. Type **slope** at the command prompt. Zcal displays the prompt:

Enter new calibration slope

2. Enter the calibration slope, usually a positive number in the range 0.2 to 0.6.

Zcal redisplay the calibration information, showing the new calibration slope that you entered.

To change the reference values:

1. Type **refer** at the command prompt.

Zcal copies the current calibration to the reference calibration and redisplay the calibration information with the new reference information settings. You should issue this command when you are happy with the current calibration. IRIS/Open always uses the current calibration when configuring the DSP. It uses the reference calibration only when performing an automatic calibration. If the new calibration deviates too much from the reference, it is not used.

To write the calibration file:

1. Type **write** at the command prompt.

Zcal writes the calibration information to the file, then prints the message:

File updated successfully.

To switch polarizations:

Zcal writes displays information for only one polarization at a time. If you radar is capable of transmitting in either horizontal or vertical polarization, then both channels can be calibrated. This is normally done in **zauto**. To switch which polarization is display, type “polar”.