Print Settings

Table 7 • Print Settings

Print Darkness	Set the darkness to the lowest setting that provides good print quality. If you set the darkness too high, the label image may print unclearly, bar codes may not scan correctly, the ribbon may burn through, or the printhead may wear prematurely.
	If desired, use the *FEED Self Test* on page 151 to determine the best darkness setting.
	Accepted values: 0.0 – 30.0
	Related ZPL command(s): `^MD, ~SD`
	SGD command used: `print.tone`
	Control panel menu item: DARKNESS on page 21
	Printer web page: View and Modify Printer Settings > General Setup > Darkness
Print Speed	Select the speed for printing a label (given in inches per second). Slower print speeds typically yield better print quality.
	Accepted values: • 203 dpi: 2–12 ips • 300 dpi: 2–9 ips
	Related ZPL command(s): `^PR`
	SGD command used: `media.speed`
	Control panel menu item: PRINT SPEED on page 21
	Printer web page: View and Modify Printer Settings > General Setup > Print Speed

Operating Parameters on the Control Panel

Items in this menu are shown in the order in which they appear when you press the **RIGHT ARROW**. For more information about these settings, see *Print Settings* on page 83.

Adjust the Print Darkness

Set the darkness to the lowest setting that provides good print quality. If you set the darkness too high, the label image may print unclearly, bar codes may not scan correctly, the ribbon may burn through, or the printhead may wear prematurely.

See *Print Darkness* on page 83 for more information.

Select the Print Speed

Select the speed for printing a label (given in inches per second). Slower print speeds typically yield better print quality.

See *Print Speed* on page 83 for more information.

Adjust the Tear-Off Position

If necessary, adjust the position of the media over the tear-off bar after printing.

See *Tear-Off Position* on page 84 for more information.

Select the Print Mode

Select a print mode that is compatible with your printer options.

See *Print Mode* on page 84 for more information.

FEED Self Test

Different types of media may require different darkness settings. This section contains a simple but effective method for determining the ideal darkness for printing bar codes that are within specifications.

During the FEED self test, labels are printed at different darkness settings at two different print speeds. The relative darkness and the print speed are printed on each label. The bar codes on these labels may be ANSI-graded to check print quality.

During this test, one set of labels is printed at 2 ips, and another set is printed at 6 ips. The darkness value starts at three settings lower than the printer's current darkness value (relative darkness of –3) and increase until the darkness is three settings higher than the current darkness value (relative darkness of +3).

To perform a FEED self test, complete these steps:

1. Print a configuration label to show the printer's current settings.

2. Turn off (**O**) the printer.

3. Press and hold **FEED** while turning on (**I**) the printer. Hold **FEED** until the first control panel light turns off.

   The printer prints a series of labels (Figure 16) at various speeds and at darkness settings higher and lower than the darkness value shown on the configuration label.

Figure 16 • FEED Test Label

4. See Figure 17 and Table 20. Inspect the test labels and determine which one has the best print quality for your application. If you have a bar code verifier, use it to measure bars/spaces and calculate the print contrast. If you do not have a bar code verifier, use your eyes or the system scanner to choose the optimal darkness setting based on the labels printed in this self test.

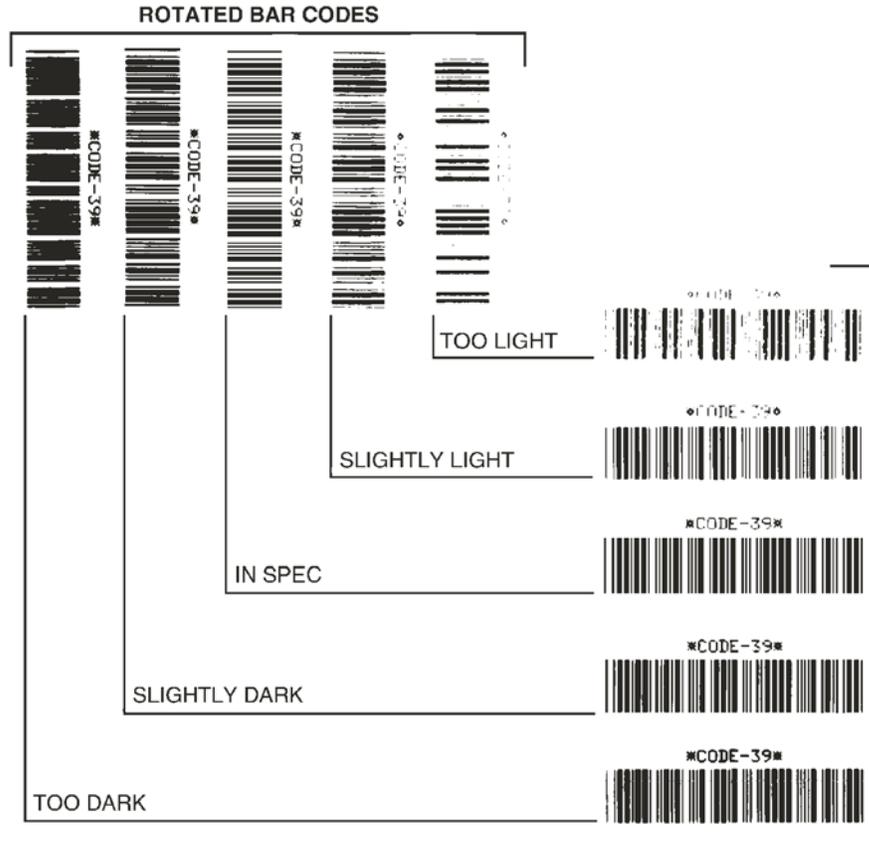**Figure 17 • Bar Code Darkness Comparison**

Table 20 • Judging Bar Code Quality

Print Quality	Description
Too dark	Labels that are too dark are fairly obvious. They may be readable but not "in-spec." • The normal bar code bars increase in size. • The openings in small alphanumeric characters may fill in with ink. • Rotated bar code bars and spaces run together.
Slightly dark	Slightly dark labels are not as obvious. • The normal bar code will be "in-spec." • Small character alpha numerics will be bold and could be slightly filled in. • The rotated bar code spaces are small when compared to the "in-spec" code, possibly making the code unreadable.

Table 20 • Judging Bar Code Quality (Continued)

Print Quality	Description
"In-spec"	The "in-spec" bar code can only be confirmed by a verifier, but it should exhibit some visible characteristics. • The normal bar code will have complete, even bars and clear, distinct spaces. • The rotated bar code will have complete, even bars and clear, distinct spaces. Although it may not look as good as a slightly dark bar code, the bar code will be "in-spec." • In both normal and rotated styles, small alphanumeric characters look complete.
Slightly light	Slightly light labels are, in some cases, preferred to slightly dark ones for "in-spec" bar codes. • Both normal and rotated bar codes will be in spec, but small alphanumeric characters may not be complete.
Too light	Labels that are too light are obvious. • Both normal and rotated bar codes have incomplete bars and spaces. • Small alphanumeric characters are unreadable.

5. Note the relative darkness value and the print speed printed on the best test label.

6. Add or subtract the relative darkness value from the darkness value specified on the configuration label. The resulting numeric value is the best darkness value for that specific label/ribbon combination and print speed.

7. If necessary, change the darkness value to the darkness value on the best test label.

8. If necessary, change the print speed to the same speed as on the best test label.