6 Patch Reading

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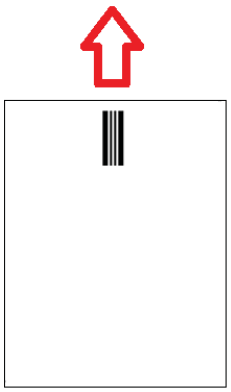
Patch reading

Patch codes are patterns of bars that are printed on pages that, when scanned by a *Kodak* scanner, instruct the scanner or scanning application to trigger a feature of the scanner or scanning application. Document separation is a common use of patch pages. Typically, patch pages are separate physical pieces of paper with patch patterns printed on them that are inserted into a stack of pages to be scanned. The features that are triggered by the patch page are determined by your scanner or scanning application.

Kodak i5000 Series Scanners can read patches in these ways.

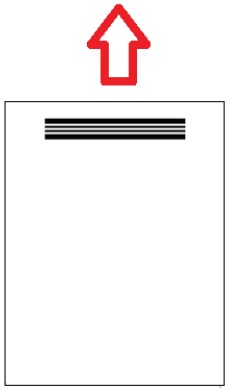
- **Method 1:** Using the cameras to read patches vertically. *Vertical* in this document means the bars of the patch pattern are aligned to the direction of paper movement in the scanner.

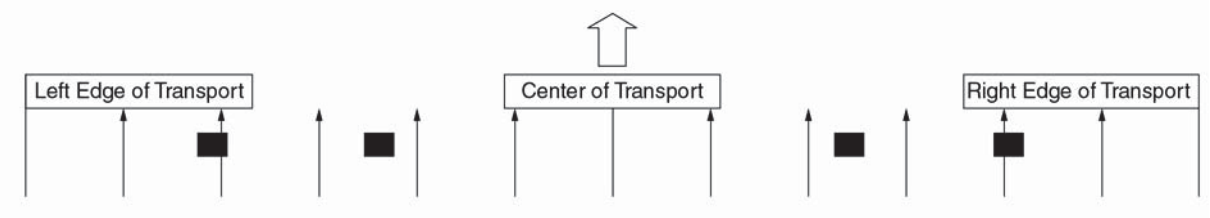
  This method of patch reading allows the patches to be anywhere across the top of a document and on the front or back of the document. A disadvantage to this method is that a page with a patch pattern will be printed before (with front, pre-scan printer) the patch is read so the printing on a page cannot be modified based on the presence of a patch on that page.



- **Method 2:** Using the cameras to read patches horizontally. *Horizontal* in this document means that the bars of the patch pattern are perpendicular to the direction of paper movement in the scanner.

  When reading patches in the horizontal orientation, using the camera the scanner creates four virtual patch readers in the same locations as the four physical patch readers. The patches must be located on the page in a location that would pass through the transport in the same location as the four physical patch readers.





This method of patch reading allows the patches to have horizontal bars and read patches on the front or rear of the page. A disadvantage to this method is that a page with a patch pattern will already be printed before the patch is read so the printing on a page cannot be modified based on the presence of a patch on that page.

- **Method 3:** Using the hardware patch readers to read patches horizontally. The patches must be located on the page in a location that passes through the transport in the same location as the four physical patch readers. An advantage to this method is that it allows scanner with image address/ indexing capabilities to print the correct Document Locator Number (image address) on every page. Patch patterns must be on the front of the page.

The *Kodak* i5000 Series Scanners read patch patterns differently depending on your scanner model and what features are enabled.

- **i5200**, **i5200V**, **i5600 and i5600V Scanners:** can only read Color Toggle patches using the front and rear cameras in the vertical orientation.
- **i5800 Scanner**: can read Type 1, Type 2, Type 3, Type T, Type 6 and Color Toggle patches if you have the Controlled Dual Stacking Accessory. If the i5800 Scanner does not have the Controlled Dual Stacking Accessory, only the Color Toggle patch can be read.
- **i5850 Scanner**: has all of the capabilities of the i5800 Scanner with the addition of four hardware patch readers that can read Type 1, Type 2, Type 3, Type T, Type 6 and Color Toggle patches on the front side of a page. The i5850 Scanner has hardware patch readers which are used for Indexing/ image addressing which allows you to control printing by using patch pages.

Kodak Scanner	Features Enabled		Includes Hardware Patch Readers	Image Address Patches 1,2,3,4,T,6 (with Hardware Patch Readers, Front only)	CDS Patches Read Vertical (with Camera, Front or Rear)	CDS Patches Read Horizontal (with Camera, Front only)	Color Toggle Patch Read Horizontal (with Hardware Patch Readers, Front only)	Color Toggle Patch Read Horizontal (with Camera, Front only)	Color Toggle Patch Read Vertical (with Camera, Front or Rear)
	CDS	IA					-		
i5200 or i5200V	-	-	no	-	-	-	-	No	Yes
i5600 or i5600V	-	-	no	-	-	-	-	No	Yes
i5800	no	-	no	-	-	-	-	no	yes
	yes	-		-	yes	no	-	no	yes
i5850	no	yes	Yes	yes	-	-	yes (to prevent printing)	yes	yes
	yes	yes		yes	yes	yes		yes	yes
	yes	no		-	yes	yes		no	yes
	no	no		-	-	-		no	yes
i1800 or i800	-	yes	Yes	Yes	-	-	yes	no	no
i1800	-	no		-	-	-	no	no	yes

Specific to i5850 Scanners

Patch readers

Because the *Kodak* i5850 Scanner has hardware patch readers, when the Indexing/Image Addressing feature is enabled, incrementing on the document index will be triggered by a 2, 3, or T patch being read on the front side of the page by any one of the four hardware patch readers.

If the Controlled Dual Stacking option is enabled, the scanner will sort based on a patch and the patches will be read by the front or rear camera patch readers in either vertical or horizontal orientation.

NOTE: The i5800 Scanner will only read vertically oriented patches using the Controlled Dual Stacking Accessory.

If **Indexing** is also enabled, the patch reader selection control will allow selection of which virtual patch readers will be enabled for front side horizontal patch reading. If **Indexing** is not enabled, then the Controlled Dual Stacking feature will enable all virtual patch heads.

Color Toggle Patch reading

If **Indexing** is enabled, Color Toggle patches will be read by both the front and rear cameras and the hardware patch readers. The Color Toggle patches will be read in either vertical or horizontal orientation by the front or the rear cameras. You can select which patch readers will be enabled for front, horizontal Color Toggle patch reading via your scanning application (e.g., TWAIN, ISIS). If horizontal Color Toggle patches are successfully read with the hardware patch readers, they will not be imprinted if **Printing** (with front, pre-scan printer) is enabled. Rear horizontal Color Toggle patches will always be imprinted if **Printing** is enabled.

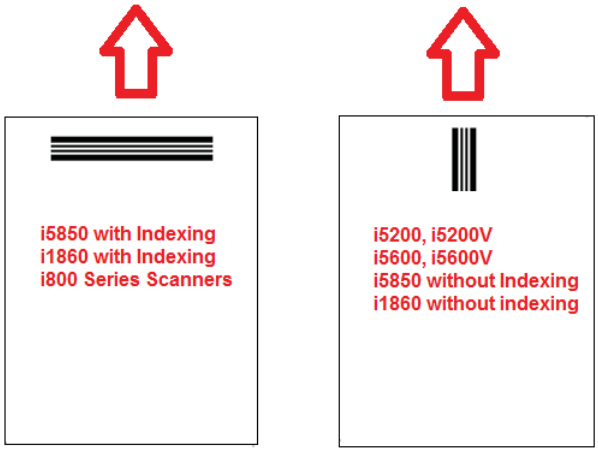
If **Indexing** or the **Controlled Dual Stacking** option is not enabled on the i5850 Scanner, Color Toggle patches will only be read by both of the camera patch readers in the vertical orientation and will always be imprinted if **Printing** (with front, pre-scan printer) is enabled.

Patch code requirements

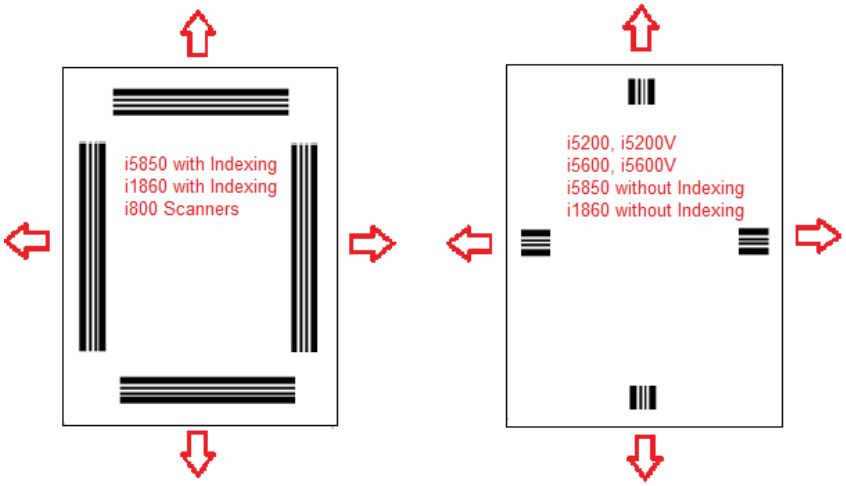
There are very specific requirements for the size and location of the patch patterns so care should be taken to ensure that the patch pages are created correctly.

NOTE: For information regarding enabling scanner features that are used with patch page, see the *Scanning Setup Guides* for TWAIN and ISIS or your scanning application documentation.

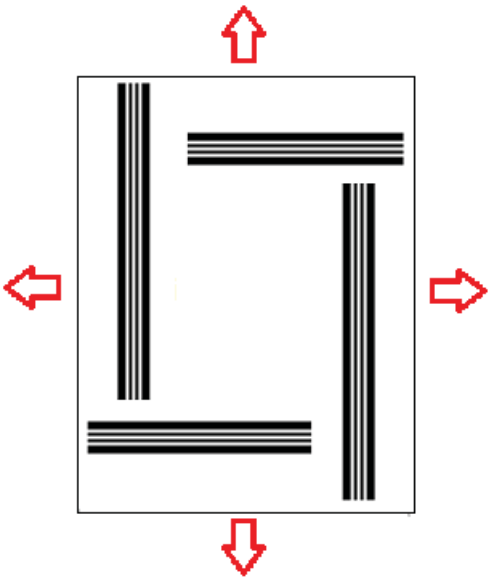
The most important difference between the patch reading system of the i5000 Series Scanners and other *Kodak* Scanners is that only patches with bars that are in line with the lead edge of the document are recognized.



To enable feeding in any direction it is common that patch pages are created with patch patterns on each edge of the page.



It is also possible to create a patch page that can be used on any *Kodak* Scanner with bar patterns that will be read consistently with camera patch reading or sensor patch reading.



Color Toggle patch

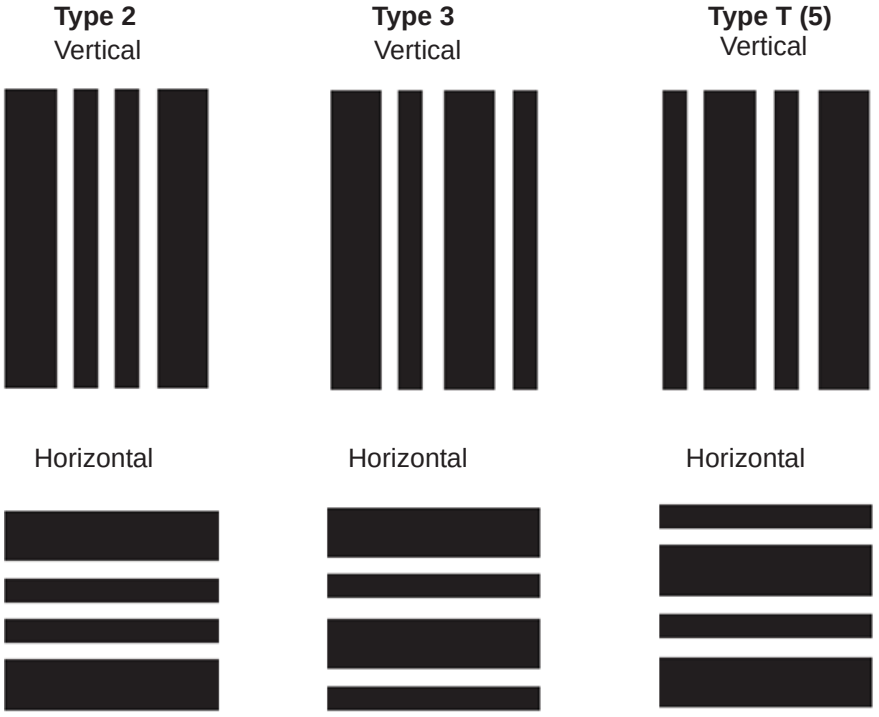
Sample PDF files of the patch patterns are available for download from the Kodak Alaris website: www.kodakalaris.com/go/docimaging. Click the **Support Center** tab then select: **Document Scanners>Production>i5850 (i5200, i5600, i5800)** and select **User Manuals**.

NOTE: There are PDF versions that are sized for printing on A4 and US lettersize paper. There are also TIFF source files that can be used to customize the patches for your business. Follow the instructions provided to ensure that the pages print accurately on your printer.

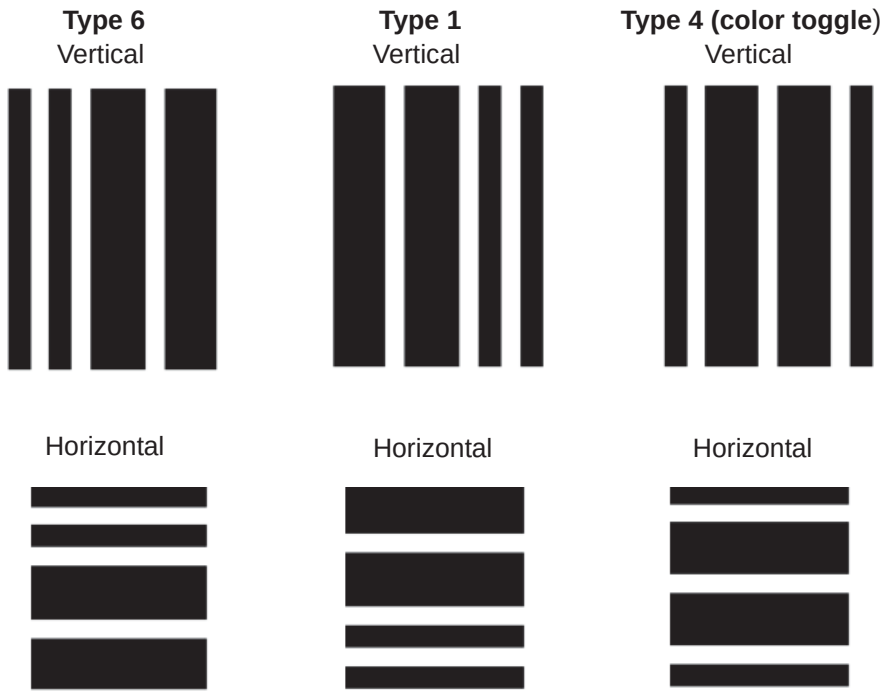
Patch pattern details

There are two patch classifications:

- **Document/Batch separation patches** (sometimes referred to Image Address patches) — these patches are traditionally used for scanning many different documents at one time with patch pages as separators. These patches are Type 2 (Document Separation) Type 3 (Batch Separation) and Type T which can be used for either Document or Batch Separation).



- **Feature patches** — these patch pages traditionally are not used for document separation. These patches may be used to trigger scanner features (such as color toggling or multifeed detection control) or can be used to trigger software features. These patches are Type 1, Type 4 (color toggle) and Type 6.



NOTE: Do not print the above patch patterns for use in a scanner. These example patterns are not correctly sized for production use. Printable PDF versions are available for download from the Kodak Alaris website.

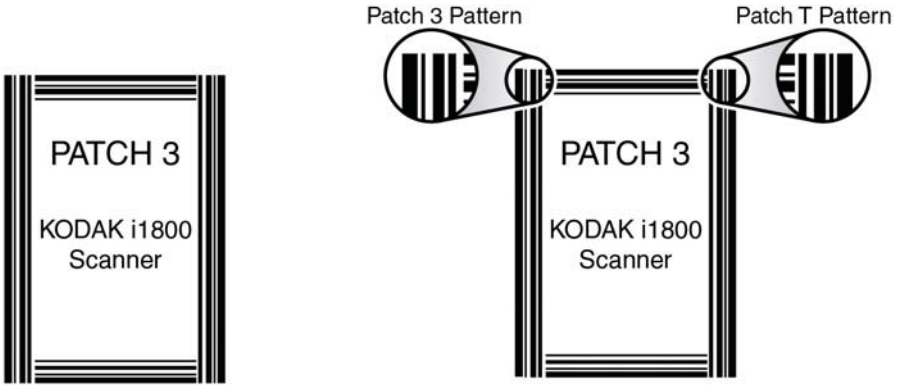
Patch pattern orientation

(for the i5800 Scanner with the Controlled Dual Stacker Accessory)

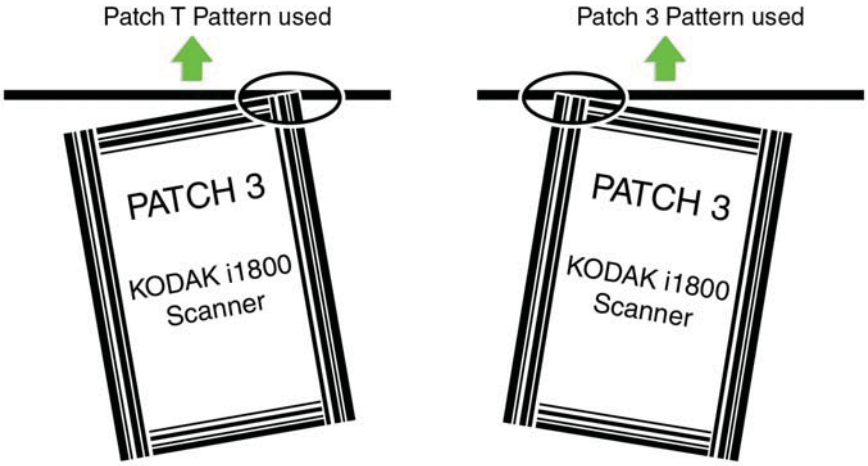
NOTE: This section only applies to the *Kodak* i5800 Scanner with the Controlled Dual Stacker Accessory. The *Kodak* i5850 Scanner has horizontal patch reading built-in; however, the **Stacking** option must be enabled to use this feature).

If you are using the Controlled Dual Stacking Accessory on the i5800 Scanner, you must orient the patch patterns correctly. The Type 3 patch is the inverse of the Type T patch and the Type 1 patch is the inverse of the Type 6 patch. If patch pages are not formatted correctly, this can cause incorrect patch pattern reading because only the first patch pattern that is read by the front and rear camera will be used.

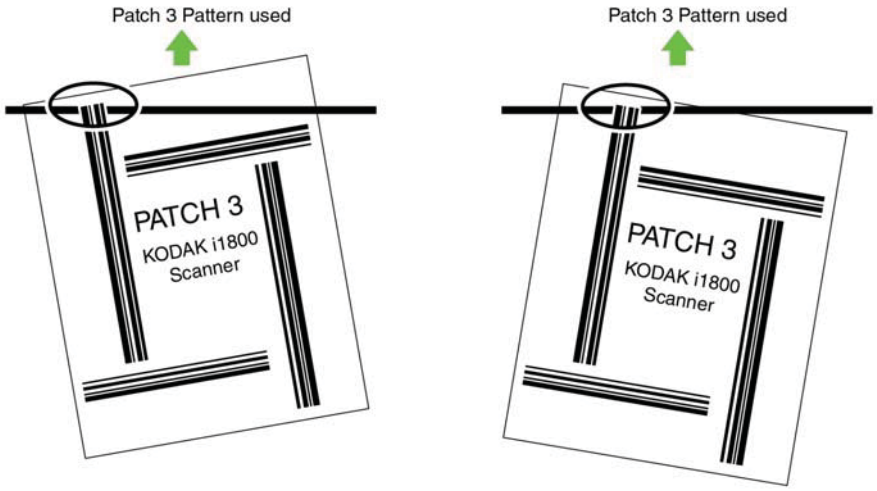
For example, many patch pages designed for scanners that read patches with physical patch reader sensors (*Kodak* i800/i1800 Series Scanners) will have bars that extend to the edges of the page on more than one side. While this worked well on *Kodak* i800/i1800 Series Scanners there is a potential problem when reading patch pages like this on the *Kodak* i5000 Series Scanners.



If the page is skewed during scanning such that the right edge of the page passes over a camera first, then the patch page may be read as a Type T patch rather than a Type 3 patch.



To prevent this potential issue you should construct your patch patterns such that only one bar pattern can be read even if the patch page is skewed.



Bar pattern details

A patch is a pattern of parallel, alternating black bars and spaces that is printed on a document. In order to prevent other document data from being detected as a patch, the scanner will only recognize a correctly formed bar pattern as a patch. The width of bars and spaces between the bars need to be very tightly controlled to ensure that the scanner detects the bar pattern.

The wide bars should be 0.20 inches (5 mm) wide $\pm$ 0.01 inches (0.25 mm). The narrow bars and spaces should be 0.08 inches (2.03 mm) wide + 0.01 inches (0.25 mm). The maximum width of the patch code is 0.80 inches (20 mm) + 0.01 inches (0.25 mm). The minimum overall length of the patch bars is 2 inches (50 mm).

Patch Codes

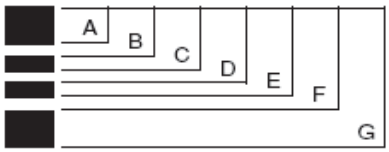
Patch 2



Assigns image level 2 to the *current* document.

Patch code specifications

Patch 2



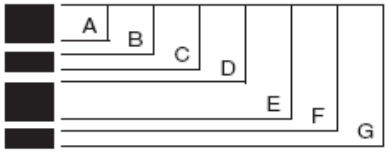
Zone	Inches		Millimeters	
	Low Range	High Range	Low Range	High Range
A	0.19	0.21	4.83	5.33
B	0.27	0.29	6.86	7.37
C	0.35	0.37	8.89	9.40
D	0.43	0.45	10.92	11.43
E	0.51	0.53	12.95	13.46
F	0.59	0.61	14.99	15.49
G	0.79	0.81	20.01	20.57

Patch 3



Assigns image level 3 to the *current* document.

Patch 3

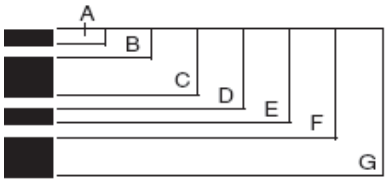


Zone	Inches		Millimeters	
	Low Range	High Range	Low Range	High Range
A	0.19	0.21	4.83	5.33
B	0.27	0.29	6.86	7.37
C	0.35	0.37	8.89	9.40
D	0.43	0.45	10.92	11.43
E	0.63	0.65	16.00	16.51
F	0.71	0.73	18.03	18.54
G	0.79	0.81	20.07	20.57

Patch T / Transfer Patch



Patch T / Transfer Patch



Zone	Inches		Millimeters	
	Low Range	High Range	Low Range	High Range
A	0.07	0.09	4.83	5.33
B	0.15	0.17	6.86	7.37
C	0.35	0.37	8.89	9.40
D	0.43	0.45	10.92	11.43
E	0.51	0.53	16.00	16.51
F	0.59	0.61	18.03	18.54
G	0.79	0.81	20.07	20.57

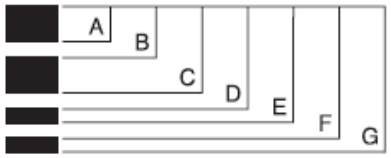
Patch Codes

Patch code specifications

Patch 1



Patch 1

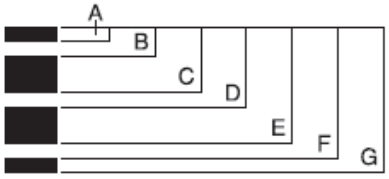


Zone	Inches		Millimeters	
	Low Range	High Range	Low Range	High Range
A	0.19	0.21	4.83	5.33
B	0.27	0.29	6.86	7.37
C	0.47	0.49	11.94	12.45
D	0.55	0.57	13.97	14.48
E	0.63	0.65	16.00	16.51
F	0.71	0.73	18.03	18.54
G	0.79	0.81	20.07	20.57

Patch 4 / Toggle Patch



Patch 4 / Toggle Patch

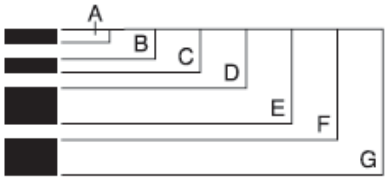


Zone	Inches		Millimeters	
	Low Range	High Range	Low Range	High Range
A	0.07	0.09	1.78	2.29
B	0.15	0.17	3.81	4.32
C	0.35	0.37	8.89	9.40
D	0.43	0.45	10.92	11.43
E	0.63	0.65	16.00	16.51
F	0.71	0.73	18.03	18.54
G	0.79	0.81	20.07	20.57

Patch 6



Patch 6



Zone	Inches		Millimeters	
	Low Range	High Range	Low Range	High Range
A	0.07	0.09	1.78	2.29
B	0.15	0.17	3.81	4.32
C	0.23	0.25	5.84	6.35
D	0.31	0.33	7.87	8.38
E	0.51	0.53	12.95	13.46
F	0.59	0.61	14.99	15.49
G	0.79	0.81	20.07	20.57

Patch positioning

Horizontal and vertical placement of the patch code is critical for reliable patch reading. If the patch code is placed improperly on the document, the scanner may fail to read the patch.

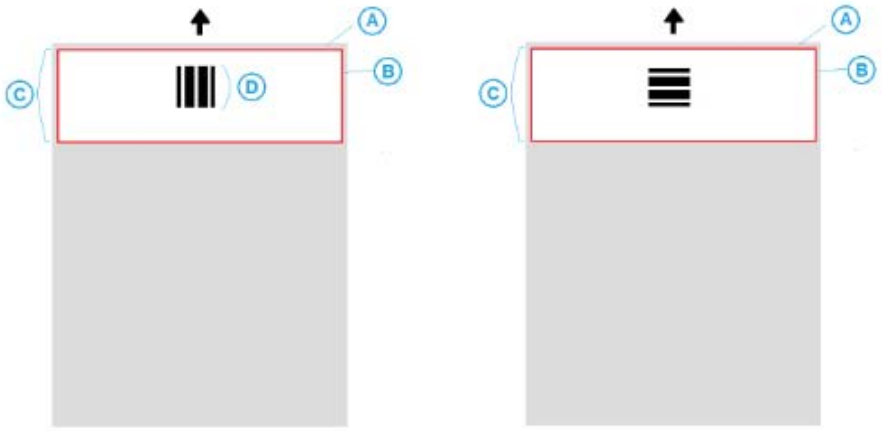
A Vertical patches should be placed such that there is at least 0.5 inches (12.7 mm) of white space between the lead edge of the page (the edge that goes into the scanner first) and the start of the printed bar patterns.

Horizontal patches should be placed such that there is at least 0.25 inches (6.35 mm) of white space between the lead edge of the page (the edge that goes into the scanner first) and the start of the printed bar patterns.

B There must be at least 0.25 inches (6 mm) of space between the patch code and the edge of the document.

C The patch reading window ends 2.0 inches (50.8 mm) from the lead edge of the document. Horizontal patches must not extend beyond the patch window.

D For vertical patches at least 0.75 inches (19 mm) of the patch code must appear within the patch reading area.



Paper details

- **Paper stock color** — white paper is the most reliable choice for patch code reading. If you want to make the patch pages more visible to operators or people who prepare the documents for scanning, then you can use bright colors for the paper stock. Light yellow paper or a light pastel color that reflects at least 65% of the light source should work well. Use of dark color paper stock for patch pages may lead to unreliable patch reading.
- **Print** — the patch bars should always be printed in black. The printed black bars must reflect less than 20% of the light source. Caution should be used when photocopying patches. Photocopiers tend to automatically scale the document which can effect the size of black bars and white spaces, thus altering the print specifications. A photocopier with the scale set to 100% should be acceptable for the i5850 Scanner.
- **Paper size** — the length and width of the patch pages should at least 5.5 inches (139.7 mm).
- **Paper weight** — if you want to reuse the patch pages after sorting, then the paper weight needs to be stiff enough to successfully fly into Stack #2. For more information refer to the section entitled, “Recommended paper specifications” earlier in this chapter.