

Exploring a New Five Dollar Bill Using the UM-CAM 2 USB Microscope

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The UM-CAM USB Microscope is a low resolution inexpensive (<\$100) 2 MB video camera that may be used in the Video Web camera range to about 40x in magnification. Four white LED's provide illumination. Here are a few images taken of the left half of a new style US Five Dollar Bill.

Figure one shows the left half of the bill. If you look closely you will notice a variance of focusing over the full field of the image. This is typical of low cost cameras that use poor optics and less than ideal automatic electronic focusing and light adjustment.

Figure two is a closer view of the upper left corner. I recommend that the reader use the magnify feature of the PDF or Word viewer to look at the images in order to see the full detail available in the image. Usually 400% is adequate and you should be able to read the text in the left border in figures three and five. A closer view of this text is shown in figure six. How many gold "05"s are there? Did you count two groups of 15? Try printing this page to make it easier to count and you will find that the gold does not print well at all. This is another anti-counterfeiting part of the new design.



Fig. 1 – Left half of a US \$5 Bill.



Fig. 2 – Upper left Corner magnified.



Fig. 3 – Fig. 2 magnified further.

Figure four shows the upper left corner. This image also illustrates the variance of color that external lighting may have on the image. You may use the low light setting and only the LED lights for a more uniform image. I set my USB microscope up on my computer table which has an over head fluorescent light that is easily turned on and off as needed.

Figure five shows the splattering of gold "05" numbers. The "FIVE DOLLARS" micro text in the border in figure five may be clearly read at 400% in the word or the PDF version.

Figure six shows the text clearly without magnification. Full magnification was used to fill the frame. Note the random anti-counterfeiting blue thread in the lower right corner of figure six. You may also see a gold "line" in the center loop on the left. It was not clear if this is an anti-counterfeiting thread. Further examination using a 40x stereo microscope shows that this is a "mark" on the bill is not printed.



Fig 4 – Upper left corner at 40 x.

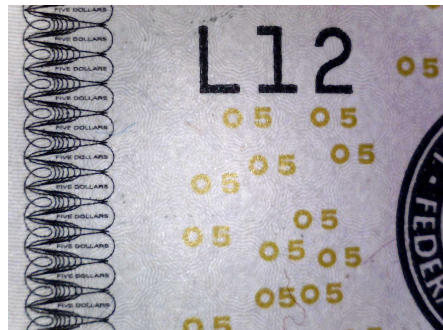


Fig. 5 – Gold 05 viewed closer.



Fig. 6 – Left border micro printing.

Figure seven shows the United States Federal Reserve System seal magnified to fully fill the frame. Figure eight shows a maximally magnified gold “05”. The field was selected to also show another random anti-counterfeiting red colored thread.

Figure nine shows the text under Lincoln’s head. There is no micro printing in this area.

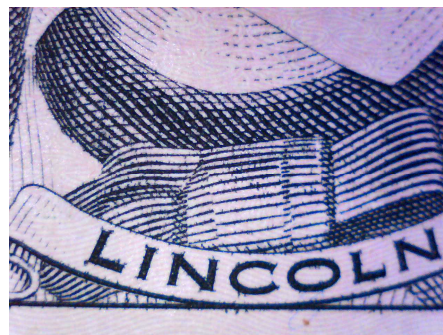
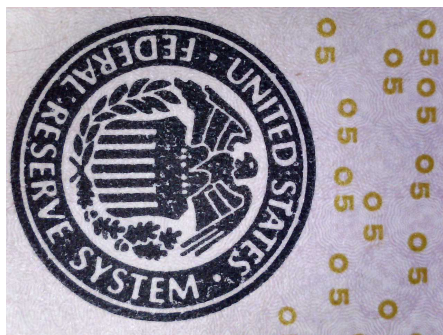


Fig. 7 – Federal Reserve Seal @40 x. Fig. 8 – Gold 05 magnified 40 x.

Fig. 9 LINCOLN text at 40 x.

Figure ten shows the area in the lower left corner that shows the treasure’s name and signature. This is at full magnification. Also see this in figure one.

Since this is the last image in our series it is being shown at larger magnification to better illustrate the background pattern of the paper. This may be seen in most of the other figures as well. This is another anti-counterfeiting measure used in this new design.

These images show the ability of the UM-CAM USB Microscope to take photos in a fast and convenient way. Paint Shop Pro was used to post process all images by sharpening and increased color saturation.

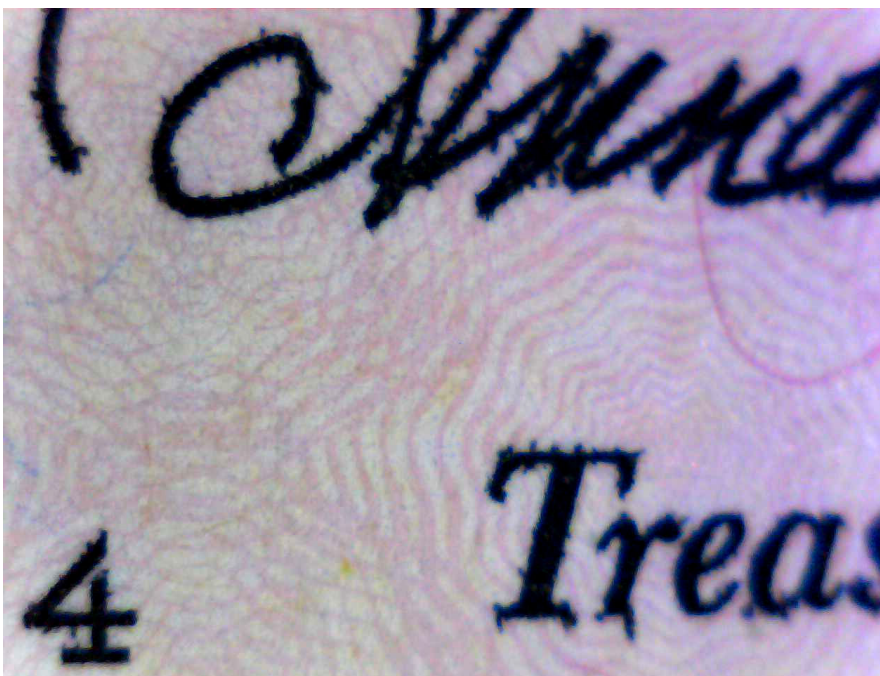


Fig. 10. - Treasure signature and an anti-Counterfeiting red thread.

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If you would like to read other articles with other images related to the UM-CAM USB Microscope you may request copies by emailing me at: rjnelsoncf “at” cox “dot” net.

Question. How would you determine/measure/indicate the magnification of the microscope images?