Stereo Optical Company
Vision Tester Slide Package:

F.A.C.T.® Contrast Sensitivity

Test for Distance and Near, Acuity, Color, Phorias, Stereopsis, and Potential Acuity. Ideal for Clinical or Research Practices.

Slide # 1: 3000-037
Slide # 2: 3000-042
Slide # 3: 2000-185
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Slide #11: 2000-010
Slide #12: 3000-037R

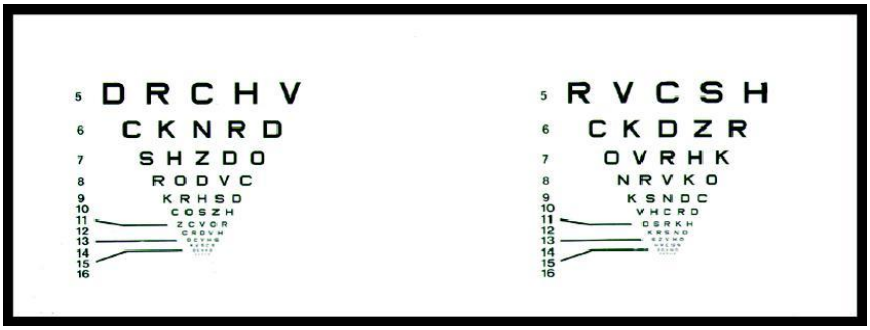
STEREO OPTICAL™

8600 W. Catalpa Avenue, Suite 703, Chicago, IL 60656 – USA, Phone: 1.800.344.9500
Email: sales@stereooptical.com Website: www.StereoOptical.com

P/N 56183

Slide 3000-037 “FAR” Visual Acuity Test

1. Dial at 1 (Yellow) indicator
2. Far Switch illuminated 
3. Right Eye Switch illuminated 



QUESTION: What is the lowest line you can read? If this is correct proceed to the next line, if correct continue reading until 3 or more errors are made on one line.

SCORING: This score is the acuity level of the preceeding line, either minus the number wrong on that line or if all were correct, then plus the number correct on the next line.

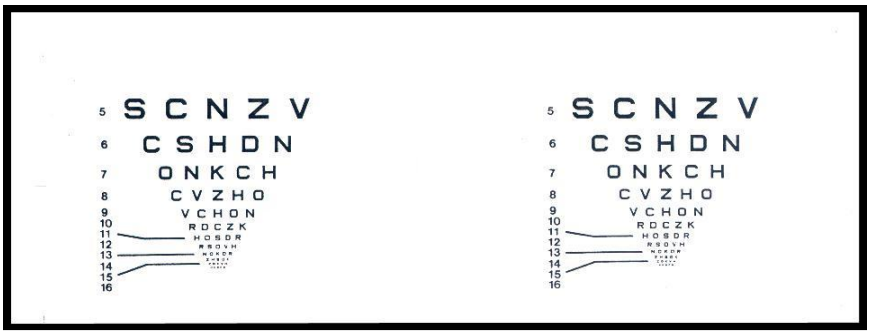
For example, if the subject can read line 13 (20/25) with no errors, but makes 3 errors on line 14 (20/20) their score is 20/25 +2.

REPEAT THE SAME FOR THE LEFT EYE.

ACUITY LEVEL		LINE	RIGHT	LEFT
20/160	6/48	5	RVCSH	DRCHV
20/125	6/38	6	CKDZR	CKNRD
20/100	6/30	7	OVRHK	SHZDO
20/80	6/24	8	NRVKO	RODVC
20/63	6/19	9	KSNDC	KRHSD
20/50	6/15	10	VHCRD	COSZH
20/40	6/12	11	DSRKH	ZCVOR
20/32	6/9.5	12	KRSND	CRDVH
20/25	6/7.5	13	SZVHO	DCVHS
20/20	6/6	14	HRCSN	KVSCR
20/16	6/4.8	15	ZCVNO	OCNKD
20/12.5	6/3.8	16	OKZHC	DKCVZ

Slide 3000-042 “FAR” Visual Acuity Test

1. Dial at 2 (Yellow) indicator
2. Far Switch illuminated 
3. Right and Left Eye Switches illuminated 



QUESTION: What is the lowest line you can read? If this is correct proceed to the next line, if correct contInue reading until 3 or more errors are made on one line.

SCORING: This score is the acuity level of the preceeding line: either minus the number wrong on that line or if all were correct, then plus the number correct on the next line.

For example, if the subject can read line 13 (20/25) with no errors, but makes 3 errors on line 14 (20/20), their score is 20/25 +2

LINE	ACUITY LEVEL	BOTH EYES
5	20/160	SCNZV
6	20/125	CSHDN
7	20/100	ONKCH
8	20/80	CVZHO
9	20/63	VCHON
10	20/50	RDCZK
11	20/40	HOSDR
12	20/32	RSOVH
13	20/25	HOKDR
14	20/20	ZHSOK
15	20/16	CDKVH
16	20/12.5	HKDCO

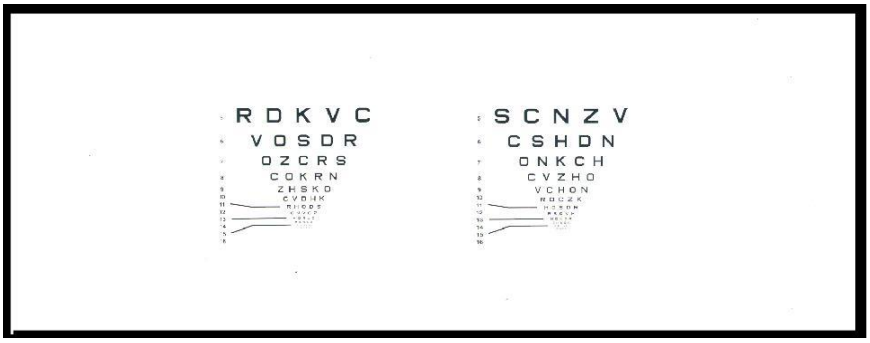
Slide 2000-185 “NEAR” Visual Acuity Test

1. Dial at 3 (Blue) indicator

2. Near Switch illuminated 

3. Right Eye Switch illuminated 

R



QUESTION: What is the lowest line you can read? If this is correct proceed to the next line, if correct continue reading until 3 or more errors are made on one line.

SCORING: This score is the acuity level of the preceeding line...either minus the number wrong on that line or if all were correct, then plus the number correct on the next line.

For example, if the patient can read line 13 (20/25) with no errors, but makes 3 errors on line 14 (20/20) their score is 20/25 +2.

REPEAT THE SAME FOR THE LEFT EYE.

ACUITY LEVEL	LINE	LEFT	RIGHT
20/160	5	RDKVC	SCNZV
20/125	6	VOSDR	CSHDN
20/100	7	OZCRS	ONKCH
20/80	8	COKRN	CVZHO
20/63	9	ZHSKO	VCHON
20/50	10	CVDHK	RDCZK
20/40	11	RHODS	HOSDR
20/32	12	ONVCZ	RSOVH
20/25	13	HDRVC	NOKDR
20/20	14	KRNSD	ZHSOK
20/16	15	CZDVK	CDKVH
20/12.5	16	HDKCN	HKDCO

Slide 2000-189 “NEAR” VISUAL ACUITY TEST

1. Dial at 4 (Blue) Indicator
2. Near Switch illuminated
3. Right and Left Eye Switches illuminated

QUESTION: What is the lowest line you can read? If this is correct proceed to the next line, if correct continue reading until 3 or more errors are made on one line.

SCORING: This score is the acuity level of the preceeding line: either minus the number wrong on that line or if all were correct, then plus the number correct on the next line.

For example, if the patient can read line 13 (20/25) with no errors, but makes 3 errors on line 14 (20/20) their score is 20/25 +2.

ACUITY LEVEL	LINE	BOTH EYES
20/160	5	RDKVC
20/125	6	VOSDR
20/100	7	OZCRS
20/80	8	COKRN
20/63	9	ZHSKO
20/50	10	CVDHK
20/40	11	RHODS
20/32	12	ONVCZ
20/25	13	HDRVC
20/20	14	KRNSD
20/16	15	CZDVK
20/12.5	16	HDKCN

Slide 3000-171 to 3000-175 “FAR” CONTRAST SENSITIVITY

1. Dial at 5-9 (Yellow) indicator
2. Far Switch illuminated 
3. Right Eye Switch illuminated 

Contrast Sensitivity Test consists of 5 slides.

There are 4 testing strategies available (see Record Form) on the Optec® 6500:
- Night testing without Glare - Day testing without Glare - Night testing with Glare - Day testing with Glare

When testing includes all four strategies, begin testing with the Night Switch illuminated.

1. Ensure that the patient is wearing their usual optical correction or is properly refracted at the test distance.

2. Show the patient the sample patch making the statement, “Each of the circles contain lines, tell me if the top of the lines point to the left, right or up.”

3. Point or instruct the patient to look at ROW A, proceeding from left to right, having them state the last patch they can see by number and stating which way the top of the lines point. For example: The patient response may be: “A” 6 is UP.

4. If the response is correct, encourage the patient to proceed to each subsequent patch to the right until one incorrect response is obtained. (NOTE: The correct responses are indicated on the recording form.)

5. If the response is incorrect:
   a. Have the patient look at each subsequent patch to the left until a correct response is obtained.

   b. Then encourage the patient to proceed to the right until one incorrrect response is obtained.

6. Mark the last correct response in the proper location on the recording form, the vertical columns of numbers marked “A” on the scoring pad corresponds to the “A” horizontal row on the test slides. The same is true for columns B,C,D and E on scoring pad. (See Figure 1)

7. Repeat septs 3-6 on rows B,C,D and E.

8. Repeat steps 3-7 for the patient’s LEFT eye.

9. To plot the contrast sensitivity curve, connect the marked patient response points.

10. Use a two color pen to distinguish between the right eye and left eye.

REPEAT STEPS 3-8 FOR EACH OF THE 4 TESTING STRATEGIES

FOR ADDITIONAL INFORMATION, SEE “CONTRAST APPENDIX”

F.A.C.T. QUICK TEST

To identify vision loss due to Macular, Retinal, or Optec Nerve Defects, testing Row C many be sufficient. This “Quick Test” provides a quick method of detecting contrast loss.

Individuals whose contrast falls below the normal range are suspect and should be tested using the other frequencies.

RECORDING AND EVALUATION OF RESULTS

1. The last correct response for each row is recorded on the record form.

2. The marked patient response for each contrast sensitivity level are connected with a line.

3. Abnormal contrast sensitivity curves are defined as:
    a. The curve is not within the normal range (gray area) of the record chart. (See Figure 2).
    b. The curve of the patient’s two eyes differs by more than two contrast values (patches) at any one frequency. (See Figure 3).
    c. The curve of the patient’s two eyes differs more than one contrast value (patch) at two or more adjacent frequencies. (See Figure 4).

Early losses, neurologic, pathologic, or refractive visual problems will have different effects on the contrast sensitivity curve. Losses in the high frequencies usually indicate problems with the macula, which includes refractive problems and macular edema. More severe vision problems may cause degradation of the entire contrast curve. (See Figure 5).

A curve with normal high frequency contrast sensitivity and abnormal low and/or mid-frequency contrast sensitivity indicates the possibility of a pathologic or neurologic problem.

SNELLEN FUNCTIONAL EQUIVALENTS

The contrast sensitivity curve can be interpreted in Snellen Functional Equivalents. To obtain the Snellen Functional Equivalent value:

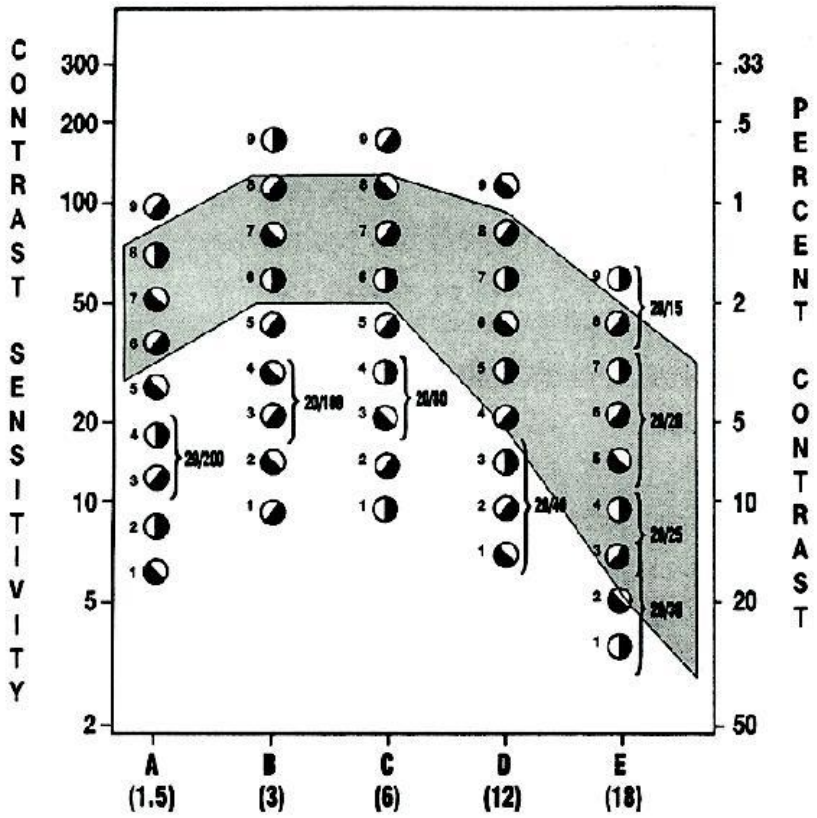
1. Look at the contrast sensitivity curve going from left to right.

2. The first bracket the contrast curve intersects is the Snellen Functional Equivalent.

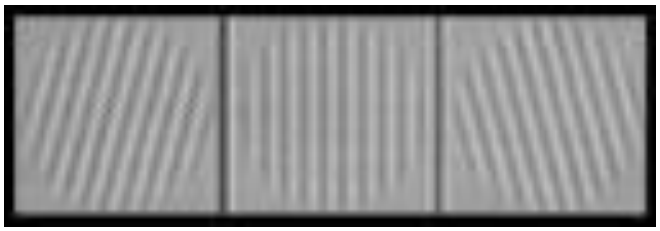
In Figure 2, the Snellen Functional Equivalent for the right eye is 20/100 and 20/15 for the left.

FUNCTIONAL ACUITY CONTRAST TEST (F.A.C.T.)®

FIGURE 1



CONTRAST SENSITIVITY TARGET SAMPLES



RIGHT UP-DOWN LEFT

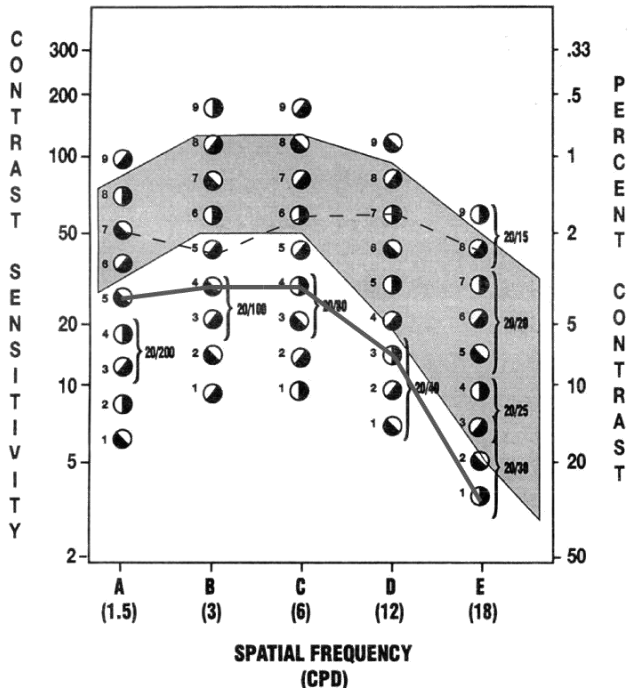


FIGURE 2
Abnormal Curves

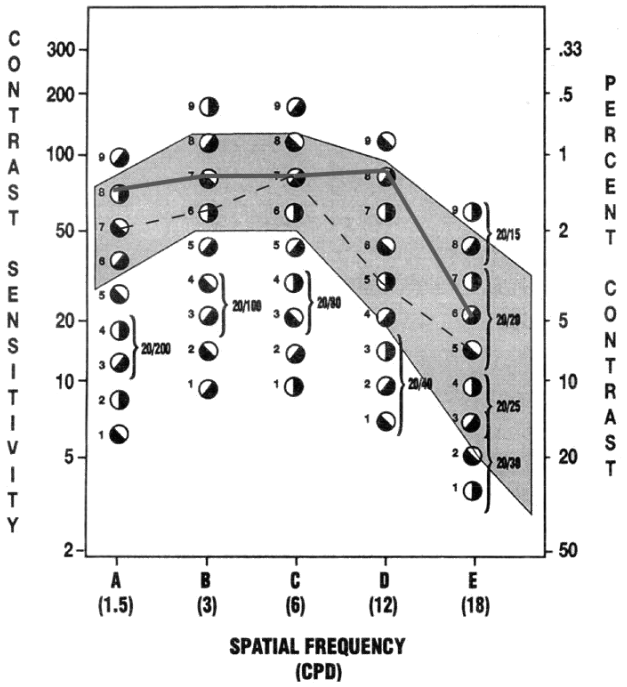


FIGURE 3
Abnormal Curve at the D Frequency for Left Eye

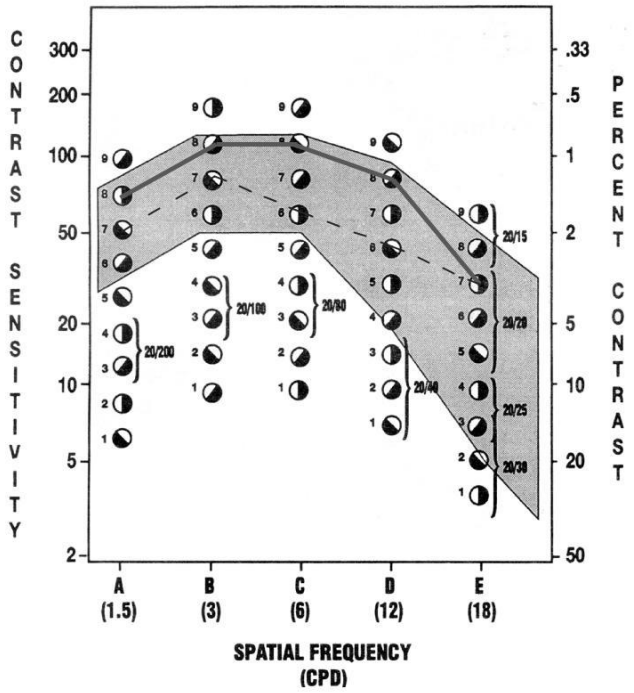


FIGURE 4
Abnormal Curve at the C and D Frequencies for Left Eye

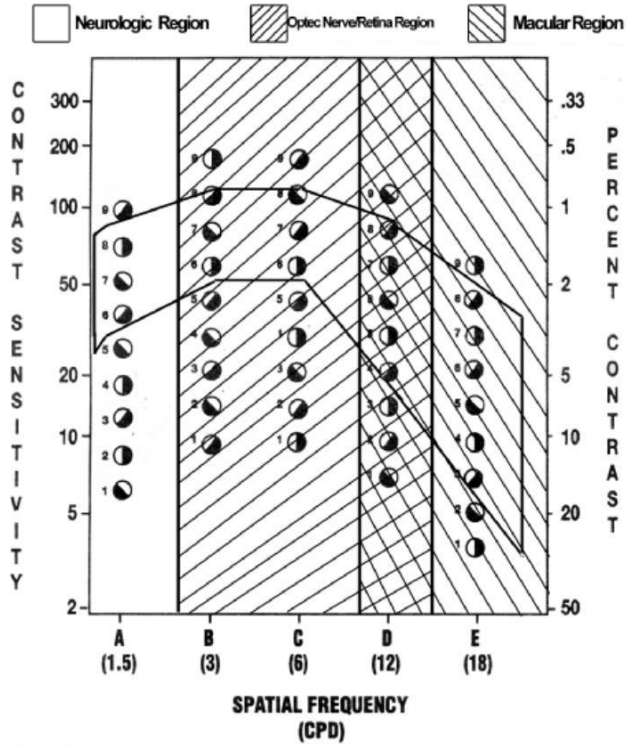
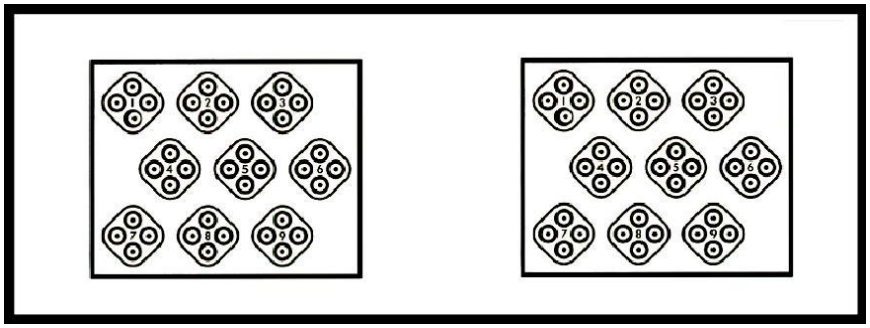


FIGURE 5
Segment of the Contrast Sensitivity Curve Affected During Early Vision Problems

Gray Line: RIGHT EYE
Dashed Black Line: LEFT EYE

Slide 2000-024 “FAR” STEREO DEPTH PERCEPTION

1. Dial at 10 (Yellow) indicator
2. Far Switch illuminated
3. Right and Left Eye Switches illuminated



This test measures binocularity. In order to perceive depth perception, both eyes are required to work together. Omit this test, if there is little or no vision in one eye. The ability to judge relative distances without the aid of monocular clues is the goal of this stereotest. The difficulty to point out the “floating” ring increases in each of the nine steps in this series.

QUESTION: Study target #1. Does the bottom ring seem to be floating toward you? If the answer is YES, proceed with: In target #2, which ring is floating toward you? #3, #4? This test requires a little extra time, so being patient is extremely important. On occasion, the subject with good acuity scores will fail to fuse the left and right eye patterns and experience an overlapping of images. Turn the dial back to a Test where the subject can stabilize fusion, then proceed.

SCORING: Reading all circles correctly through #9 is normal depth perception. Correctly answering through #5 is acceptable depth perception. When the subject misses two consecutive circles, go back to last answer as their correct score.

STEREO DEPTH KEY

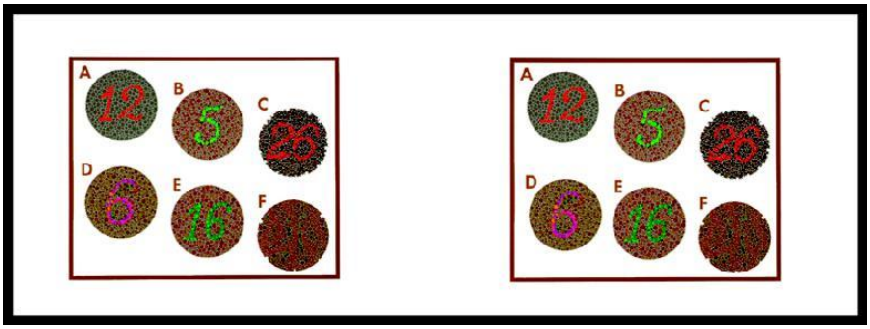
1 B	2 L	3 B	4 T	5 T	6 L	7 R	8 L	9 R	TARGET
400	200	100	70	50	40	30	25	20	Angle of Stereopsis in Seconds of Arc
15	30	50	60	70	75	82	90	95	Shepard-Fry Percentages

The angle of Stereopsis: A defined depth, the greater the number, the more obvious the stereopsis.

Shepard-Fry Percentages: The amount of visual efficiency required to determine a particular angle of stereopsis-85% is considered average.

Slide 2000-010 “FAR” COLOR PERCEPTION

1. Dial at 11 (Yellow) indicator
2. Far Switch illuminated 
3. Right and Left Eye Switches illuminated 



This test is a screening for color perception. It will identify deficiencies, but it does not classify them. Six Pseudo-Isochromatic Ishihara Plates are accurately and authentically reproduced for this test. This test is set for a minimal visual acuity of 20/70. If a subject has 20/70 acuity or lower, the subject could fail the test because of low vision, not poor color perception.

QUESTION: Can you identify the numerals in each circle, starting with A?

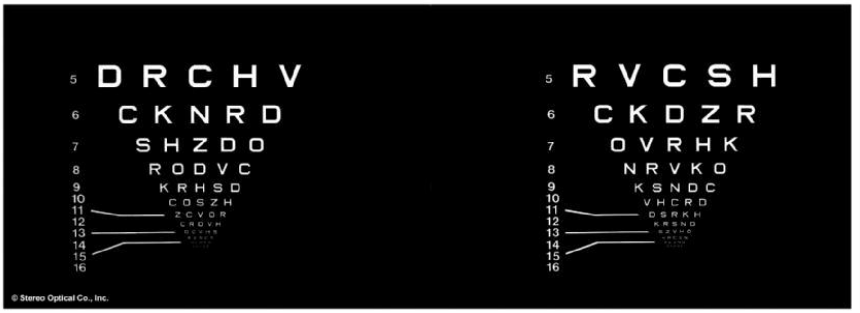
SCORING: There are a total of 8 numerals in the six circles. For normal color vision, circle F has no numerals in it, color deficients will read a 5. Color-normal subjects will answer the 8 numerals correctly and state there is nothing in circle F. 5 out of 8 numerals correct is mild color deficiency.

For the F.A.A. examination class, I, II, and III the applicant must identify all 8 numerals correctly.

TARGET	A= 12	B= 5	C= 26	D= 6	E=16	F=Blank

Slide 3000-037R “FAR” Potential Acuity Test

1. Dial at 12 (Yellow) indicator
2. Far Switch illuminated 
3. Right Eye Switch illuminated 



Have the subject view the reversed acuity chart while intensely illuminated. The brightness of the chart compensates for the light normally lost through the opacity. A subject with good macular function will achieve a normal acuity reading. Results can be obtained within 30 seconds.

QUESTIONS: What is the lowest line you can read? If this is correct proceed to the next line, if correct continue reading until 3 or more errors are made on one line.

SCORING: This score is the acuity level of the preceeding line: either minus the number wrong on that line or if all were correct, then plus the number correct on the next line.

For example, if the patient can read line 13 (20/25) with no errors, but makes 3 errors on line 14 (20/20), their score is 20/25 +2.

REPEAT THE SAME FOR THE LEFT EYE.

ACUITY LEVEL		LINE	RIGHT	LEFT
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20/125	6/38	6	CKDZR	CKNRD
20/100	6/30	7	OVRHK	SHZDO
20/80	6/24	8	NRVKO	RODVC
20/63	6/19	9	KSNDC	KRHSD
20/50	6/15	10	VHCRD	COSZH
20/40	6/12	11	DSRKH	ZCVOR
20/32	6/9.5	12	KRSND	CRDVH
20/25	6/7.5	13	SZVHO	DCVHS
20/20	6/6	14	HRCSN	KVSCR
20/16	6/4.8	15	ZCVNO	OCNKD
20/12.5	6/3.8	16	OKZHC	DKCVZ

NOTES

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STEREO OPTICAL™

8600 W. Catalpa Avenue, Suite 703, Chicago, IL 60656 – USA, Phone: 1.800.344.9500
Email: sales@stereooptical.com Website: www.StereoOptical.com