Table 6. Comparison of the results with the Ishihara test, Panel D-15, and CMT, and the false color recognition of objects used in daily life. Tests for false color recognition were done with 2 tasks that are typical of problems in color discrimination in daily life: 1) discrimination of colored pencils (Coupy Pencils®) from 12 colors painted on the outside of the pencils (white, black, brown, pink, purple, blue, aqua, green, yellow-green, yellow, orange, red), and 2) the colors (same 12 colors) of the plastic insulation covering electrical wires 2 mm in diameter that are used for electrical wiring codes (color codes).

Color pecils

	False color recognition	No false color recognition	Total
CMT: Fail	2	21	23
CMT: Pass	0	16	16
Total	2	37	37

Sensitivity: 100%; Specifity: 43%.

Color pecils

	False color recognition	No false color recognition	Total
Panel D-15 test: Fail	2	27	29
Panel D-15 test: Pass	0	10	10
Total	2	37	37

Sensitivity: 100%; Specifity: 27%.

Electrical wire color code test

	False color recognition	No false color recognition	Total
CMT: Fail	6	22	28
CMT: Pass	2	16	18
Total	8	38	46

Sensitivity: 75%; Specifity: 42%.

Electrical wire color code test

	False color recognition	No false color recognition	Total
Panel D-15 test: Fail	7	30	37
Panel D-15 test: Pass	1	8	9
Total	8	38	46

Sensitivity: 88%; Specifity: 21%.

ple in the false color recognition group tested positive by failing 16 or more of the plates (sensitivity 100%). Among those who did not have mistaken color recognition (people who had better color naming results than the worst results among the people with normal color vision), the percentage of people that were negative by failing 15 or fewer of the plates was 41% (specificity). From this result, the Panel D-15 test has a sensitivity of 80% and specificity of 69% in determining whether or not a person has false color recognition. Thus, it does not seem to be an adequate test.

As mentioned in the Results, the percentage of people who failed the Panel D-15 test who are judged to be in the Fail group with the CMT only was 85.5%. The percentage of people who passed the Panel D-15 test who are judged to be in the Pass group with the CMT only was 63.9%. Thus, 36.1% were Pass with the Panel D-15 test and Fail with the CMT. Thus, of the 1,017 people suspected of having problems with color vision from the Ishihara test, 659 were Pass on the Panel D-15 test (Pass rate 64.8%) and 473 were Pass on the CMT (Pass rate 46.5%). A simple comparison of the Pass rate shows that the Pass rate is lower with the CMT than with the Panel D-15 test.

4. Comparison of False Color Recognition of Objects Used in Daily Life and Color Vision Tests with the CMT and Other Tests

In the former section, the Ishihara test, Panel D-15 test, and CMT were compared each other. Next, the relation with false color recognition in daily life should be studied. Here the relationship between each color test and false color recognition in daily life with subjects who were examined at the ophthalmology clinic of one of the authors (Y.T.) was investigated.

The Ishihara test, the most widespread test of color vision, has an extremely high sensitivity when screening people who are suspected of having problems with color vision. With the Ishihara test, however, it is impossible to make judgments at the level of false color recognition in daily life. The CMT, which tests color combinations that are difficult to distinguish, was developed with the purpose of identifying children who will need special considerations for school study, and determining the kinds of measures that will be necessary. In tests of occupational suitability, the Panel D-15 has been used relatively more often. In Study II, therefore, Takayanagi *et al.* (2010) compared the results with the Ishihara test, Panel D-15, and CMT, and the false