

1 19A NCAC 03D .0552 is proposed for readoption without substantive changes as follows:

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3 **19A NCAC 03D .0552 PHOTOMETER DESIGN AND PERFORMANCE REQUIREMENTS**  
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5 (a) Multi-piece photometers shall be designed to be operated by one person on front windows, roll-down and non-  
6 roll-down side windows, and rear windows with up to 1/4-inch glass thickness. The multi-piece photometer shall  
7 have a three-digit digital readout capable of displaying from 00.0% to 99.9% transmittance with a resolution to the  
8 nearest 1/10 of 1%.

9 (b) The multi-piece photometer shall incorporate an automatic alignment feature or positive alignment indication  
10 such that the alignment of the transmitter and receiver are accomplished either automatically by respective devices  
11 or through an electronic noise indicating proper alignment, a light indicating proper alignment, or a feature which  
12 prevents readings being taken without the device being properly aligned. The automatic field of view of the  
13 transmitter and receiver shall be large enough to provide a stable and accurate reading of the true net transmittance  
14 of the measured window.

15 (c) All photometric devices shall maintain unit accuracy within  $\pm$  plus or  $-$  minus three percentage points of  
16 reference samples between ten and seventy percent net light transmission.

17 (d) All photometric devices shall have a repeatability of  $\pm$  plus or  $-$  minus one percentage point from reading to  
18 reading.

19 (e) If the unit's supply voltage falls below the usable operating range, the device shall produce a low battery  
20 indication or fail to perform testing. Accurate readings must not be affected by the unit's supply voltage. The unit's  
21 power supply shall be capable of producing a minimum of 200 readings before replacement or recharge.

22 (f) Photometric devices shall not be affected by light sources other than the unit's source light. In addition to  
23 physical light barriers such as felt covers, rubber gaskets, the photometer shall include some form of electronic  
24 filtration or cancellation of any stray or ambient light sources. Units with readings affected by outside stray or  
25 ambient light sources shall not be acceptable.

26 (g) Photometric devices shall not be affected by interference generated by electric equipment, tools, or lighting  
27 devices. Readings shall not fluctuate when close to operating electric motors or lighting sources.

28 (h) Operating humidity range shall be 0-100% non-condensing. Operating temperature range shall be zero to 110  
29 degrees F.

30 (i) Photometric devices shall incorporate a means of compensating for temperature and humidity changes within the  
31 stated ranges of this Rule. Acceptable units shall be capable of demonstrating both accuracy and repeatability of  
32 transmittance readings throughout the operating temperature and humidity ranges under Paragraph (h) of this Rule.

33 (j) The multi-piece photometer's transmitter shall have a light source capable of providing a uniform intensity beam  
34 that can accommodate the alignment capabilities of the receiver. Multi-piece photometers shall incorporate a means  
35 of self-alignment or positive alignment indication that shall be accomplished when the source and detector units are  
36 placed on their respective surfaces of the glazing to be measured as described in Paragraph (a) of this Rule. The

1 alignment shall be accurate enough to position the detector unit well within the uniform beam of the source. The  
2 result of this alignment feature shall be data that meets the accuracy and repeatability requirements of this Rule.

3 (k) Reference samples shall be glass with a warranted transmittance stability of at least one year. Reference samples  
4 shall provide a uniform surface reading at four points with a variation not to exceed one percentage point as  
5 measured by a calibrated spectrophotometer over an indicated range within 560nm with a variance of no more than  
6 20nm. Reference samples shall be permanently labeled or inscribed with the manufacturer's name, address, and date  
7 of calibration. Manufacturers shall ensure replacement reference samples are available to the consumer within two  
8 working days in the event of damage or breakage.

9 (l) Photometric devices shall include an all segments display option for testing the unit's LCD display segments.  
10 This test may be performed prior to each reading or through a separate test button.

11 (m) Photometric units shall incorporate devices which shall protect the light source and detector from direct contact  
12 with environmental elements, dust, grease, and other products commonly associated with automotive repair shops.  
13 These devices shall also prevent the user from directly touching either the light source or detector.

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15 *History Note: Filed as a Temporary Adoption Eff. November 1, 1995 for a period of 180 days or until the*  
16 *permanent rule becomes effective, whichever is sooner;*  
17 *Authority G.S. 20-2; 20-39; 20-127; ~~20-183.6(a);~~ 20-183.7(a);*  
18 *Eff. February 1, 1996.*