



**EXCERPTS FROM MIL-C-48497A AND MIL-C-48497A AMENDMENT 3  
QUALIFYING SCRATCHES AND DIGS**

4.5.2.1 Physical. The coating shall be visually examined by reflection with the unaided eye for evidence of flaking, peeling, cracking or blistering. The examination shall be performed using two 15-watt cool white fluorescent light tubes as the light source. The viewing distance from the coated surface to the eye shall not exceed 18 inches. The coated surface shall be viewed against a black matte background. The only illumination in the test area shall be from the light source used for testing.

3.3.5.2 Opaque Coated Surfaces. Scratch and dig requirements for opaque coated surfaces shall be specified by two letters separated by a hyphen (e.g., F-F). The first letter of the pair is the maximum scratch value; the second letter is the maximum dig value.

3.3.5.2.1 Scratches. The scratch letter defines the width of the scratch in accordance with the following table:

Scratch Letter	Scratch Width (microns)	Scratch Width (inches)	Disregard Scratch Widths Less than (inches)
A	5	.00020	.00004
B	10	.00039	.00010
C	20	.00079	.00020
D	40	.00157	.00039
E	60	.00236	.00039
F	80	.00315	.00079
G	120	.0072	.00079

3.3.5.2.1.1 Density of Maximum Size Scratch. The accumulated length of all maximum size scratches present shall not exceed  $\frac{1}{4}$  the average diameter of the coated surface.

3.3.5.2.1.2 Density of All Scratches. When a maximum size scratch is present, the sum of the products of the widths designated by the scratch letters times the ratio of their length to the diameter of the coated surface shall not exceed one half the width specified by the scratch letter. When a maximum size scratch is not present, the sum of the product of the widths designated by the scratch letters times the ratio of their length to the diameter of the coated surface shall not exceed the width specified by the scratch letter.

3.3.5.2.1.3 Digs. The dig letter specifies the average diameter of the dig in accordance with the following table:

Dig Letter	Diameter (mm)	Diameter (inches)	Disregard Digs Smaller than (inches)
A	0.05	.0020	.0004
B	0.10	.0039	.0010
C	0.20	.0079	.0019
D	0.30	.0118	.0019
E	0.40	.0158	.0039
F	0.50	.0197	.0039
G	0.70	.0276	.0079
H	1.00	.0394	.0099

The permissible number of maximum size digs shall not exceed one per each 20 millimeters (.80 inches) of diameter or fraction thereof on any single coated surface. The sum of the diameters of all digs shall not exceed twice the diameter of the maximum size specified by the dig letter per 20 millimeters of diameter.

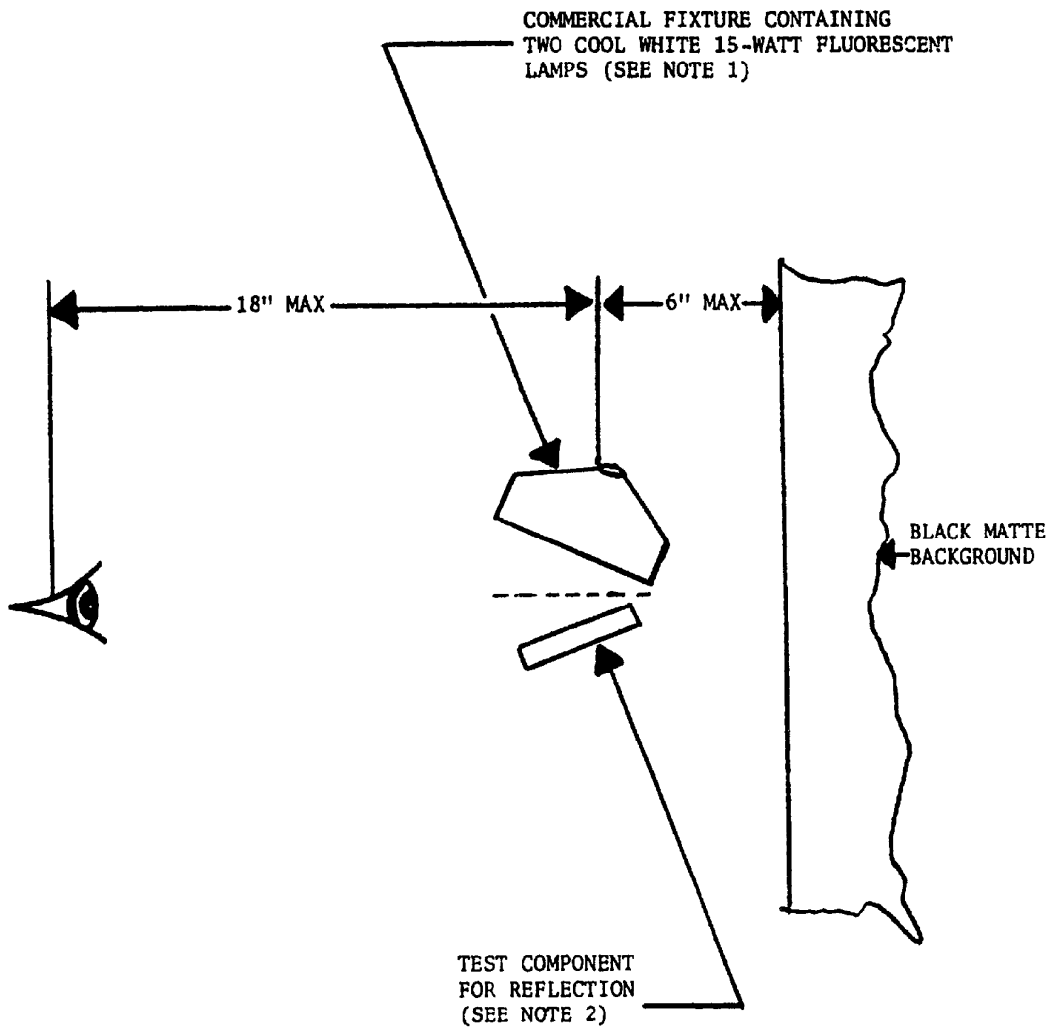
4.5.2.5.2 Opaque Coated Surfaces. Surfaces shall be examined utilizing the lamination, reflection and viewing background technique specified in 4.5.2.1. The length and width of scratch and dig (hole) diameters shall be determined by using interferometry microscope measurement devices, calibrated precision comparators or similar applicable precision measuring devices. The width, length and density of all scratches in the coating shall conform to the requirements of 3.3.5.2. The diameter and density of all digs (holes) in the coating shall conform to the requirements of 3.3.5.2.

#### OMEGA NOTES

**Scratch:** Omega measures scratches that are detected visually in the Mil-C-48497A viewing box with a comparator with which the widest section of scratch is identified with the index mark falling within the first detectable scratch area and displaced to the other extreme of scratch area.

**Digs:** Omega considers digs to be pinholes or bubbles at an air glass surface that will cause a ray of light to be diffracted or scattered off its undeviated path. Inclusions of dust or coating debris will only reduce the surface area by a very small fraction and are considered on a workmanship standard.

MIL-C-48497A



NOTES:

1. THE ONLY ILLUMINATION IN THE TEST AREA SHALL BE FROM THE LIGHT SOURCE USED FOR TEST.
2. TILT AT AN APPROPRIATE ANGLE TO SEE THE COATED SURFACE.