

3M Optical Systems Division
Computer Filters

Customer Quality Specification

Vikuiti™
21 mil Unframed Privacy Filter

This is an uncontrolled document and may not be the most current revision. To assure it is current, please contact sender.

**3M Optical Systems Division
Computer Filters**

Customer Quality Specification

**Vikuiti™
21 mil Unframed Privacy Filter**

Table of Contents

1.0	Scope
2.0	Function
3.0	Material
4.0	Structure
5.0	Definitions
6.0	Physical Characteristics
7.0	Optical Characteristics
8.0	Appearance
9.0	Measurement
10.0	Environmental Testing
11.0	Patent
12.0	Packaging
13.0	Film Handling
14.0	Warranty Period and Storage Conditions

1.0 Scope

This document provides customer specifications for a 3M Vikuiti™ 21 mil Unframed Privacy Filter .

2.0 Function

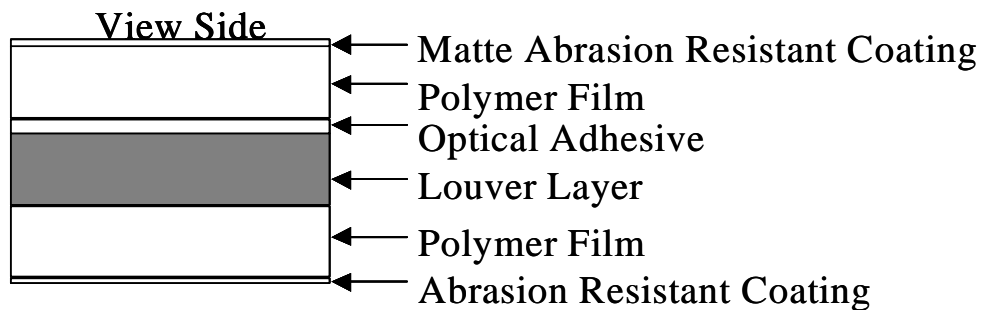
The 3M Vikuiti™ 21 mil Unframed Privacy Filter is a product which restricts visibility of a computer display at wide angles by limiting the angle with which light may pass through the filter, enabling privacy to the user. The filter may be viewed from either its front (matte) or rear (gloss) side.

3.0 Material

Outer Substrates: Polymer films
Louver Layer: Acrylic Resin and Carbon Black

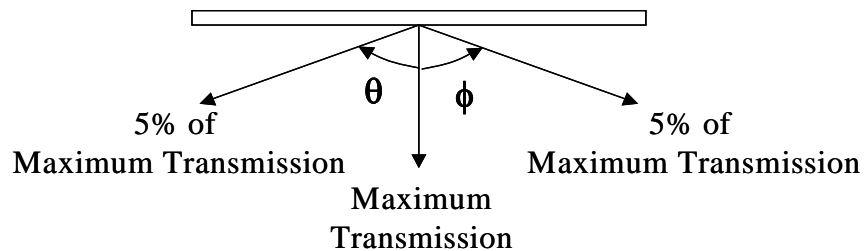
4.0 Structure

21 mil Unframed Privacy Filter

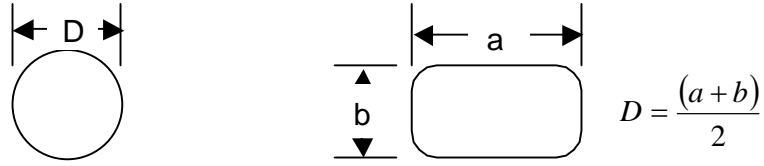


5.0 Definitions

5.1 View Angle: The sum of the angles (θ and ϕ), measured from the angle of maximum transmission, at which only 5% of the maximum transmission is transmitted through the film.



- 5.2 Louver Angle: The angle, from normal, at which maximum transmission occurs.
- 5.3 Defect Diameter is judged by “D” below.



6.0 Physical Characteristics

- 6.1 Thickness: 0.021 ± 0.003" (0.53 ± 0.08mm).
- 6.2 Part size: filters are available in a variety of common notebook and desktop display sizes. Please see the appropriate drawing for specific dimensions.
- 6.3 Louver bias angle: 11° ± 2°, measured from a vertical line in the image plane.
- 6.4 Louver angle: 0° ± 2°, measured in a horizontal plane normal to the viewing surface.
- 6.5 Custom design: please refer to the appropriate drawing for 3M and customer filter design and logo location.

7.0 Optical Characteristics

- 7.1 View Angle: 60° ± 4°, around a vertical plane normal to the viewing surface.
- 7.2 Color: 1931 CIE x Color Coordinate: 0.317 ± 0.02
1931 CIE y Color Coordinate: 0.335 ± 0.02

8.0 Appearance

8.1 Particles/Bubbles/Defect and Similar:

In general, if louver variations are not visible when viewed within ±10 degrees along a horizontal axis, they are acceptable. The measurement area will include total optical effect visible at ±10 degrees.

DIAMETER/EQUIVALENT DIAMETER (Using 3M Computer Filter Inspection Gauge IQS-0017)	MAXIMUM ALLOWED
d > 0.025" (0.635mm)	None
0.010" < d < 0.025" (0.25mm < d < 0.635mm)	3 per part; minimum spacing 2" (50.8mm)
d < 0.010" (0.25mm)	Disregard

8.2 Scratches/Defects/ Black Lines and Similar:

No size or count limit if the scratch or similar is not seen when viewed at 18-24" (457-610mm) from the view surface, and within a cone of 10 degrees from a line normal to the view surface.

8.3 Dimples:

Total effect of dimple must not exceed 0.060" (1.524 mm), measured with equivalent size gage. Disregard dimples if not visible at 18-24" (457-610mm) when viewed normal to the surface.

9.0 Measurement

Item	Method
Louver Angle	Photometer: Electro-optics Photometer with Photometric filter and 2.5 degrees field of view aperture Light Source: Oriol 50W Quartz Tungsten Halogen Lamp with stabilized power supply and diffuser. Procedure: Rotate sample until maximum transmission is reading on photometer is reached. Record this angle as the louver angle.
View Angle	Photometer: Electro-optics Photometer with Photometric filter and 2.5 degrees field of view aperture Light Source: Oriol 50W Quartz Tungsten Halogen Lamp with stabilized power supply and diffuser. Procedure: Multiply the maximum transmission from the view angle measurement by 0.05. Rotate the sample left or right until the calculated value is displayed on the photometer. Record the angle. Rotate the sample the opposite direction until the calculated value is displayed on the photometer. Record the angle. The sum of the 2 recorded angles is the view angle.
Color	Light Source: D65 Measurement: Transmission Equipment: BYK Gardner Colorsphere Procedure: Measure 1931 CIE x and y color coordinates

10.0 Environmental Testing

Testing condition:

3M Vikuiti™ 21 mil Unframed Privacy Filters are tested under the following conditions with film free floating. No significant change occurs in these conditions.

Test	Condition
Humidity resistance	40°C, 85% relative humidity, 7 days
Heat resistance	60°C, 15% relative humidity, 7 days
Thermal shock	-35° C to 60° C for 10 total cycles at 11 hours per cycle

11.0 Patent

This product, uses thereof, or its manufacture may be covered by one or more of the patents listed on the package labels.

12.0 Packaging

Packaged per 3M's internal packaging specification or supply agreement if applicable. Shipping labels include a minimum of the following information:

- 12.1 Product name.
- 12.2 Quantity per container.

13.0 Film Handling

- 13.1 Avoid applying pressure or resting objects on the product to prevent marking, denting or deforming the surface.
- 13.2 Hold product by the edges to prevent soiling of the view area.
- 13.3 Product must be stored away from direct sunlight.

14.0 Warranty Period and Storage Conditions

3M warrants that products produced to this specification will meet this specification for a period of twelve (12) months after the date of receipt at the purchaser location, provided that the product is stored flat, in accordance with the requirements in section 13.0, and in its original package at a temperature of $20 \pm 10^{\circ}\text{C}$ and at a relative humidity of $45 \pm 15\%$. If product is shown to be defective during this warranty period, 3M's sole liability and purchaser's exclusive remedy is, at 3M's option, for 3M to refund the purchase price of the product or provide replacement product in the quantity shown to be defective.

3M makes no additional warranties, express or implied, including but not limited to, any implied warranties of merchantability or fitness for a particular purpose. In particular, but without limitation, 3M makes no representations or warranties concerning the effective life of the products or their ability to survive user's environmental testing. Purchaser is responsible for determining whether the 3M products are fit for the purchaser's particular purpose and suitable for the purchaser's method of production.

3M shall not be liable for any loss or damages, whether non-specified direct, indirect, special, incidental or consequential (including downtime, loss of profits or goodwill) regardless of the legal theory asserted.