EmiClare MicroMesh®

1.0 Overview

EmiClare MicroMesh® is a perfect replicated conductive grid for EMI shielding electronic displays, touch screens and apertures. It is the result of Optical Filters continued research & development program to attain the best combination of optical appearance and shielding effectiveness that is not achievable with low ohms/sq ITO coatings or other EMI and RFI shielding methods.

2.0 Key Features

- ❑ Excellent optical performance with moiré optimized configuration.
- ❑ Very low surface resistance for high shielding effectiveness.
- ❑ Wide range of integration options and substrates.

3.0 Benefits

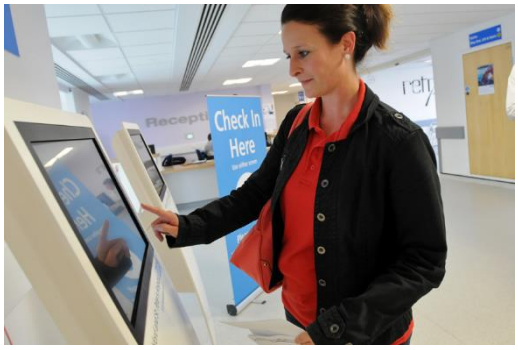
- ❑ Achieve EMI/RFI compliance for displays, touchscreens and sensors with minimal optical compromise.
- ❑ Excellent light transmission and sunlight readability performance.

4.0 Applications

- ❑ Defense and avionics displays, Tempest secure communication equipment, in-flight entertainment, touchscreens, ruggedized displays, shielded sensors and windows, MRI and medical displays.

5.0 Description

- ❑ This specification defines the requirements for **EmiClare MicroMesh®**



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6.0 Specification

- ❑ **EmiClare MicroMesh®** offers the combined benefits of a low surface resistance conductive grid and the **EmiClare MicroMesh®** high transmission moiré optimized design.
- ❑ The double side blackened metal deposition process used in the production of **EmiClare MicroMesh®** leaves the aperture clear. This allows single side lamination to the rear of touchscreens and cover glass or as a drop-in filter in suitable applications and environments.

	EmiClare MicroMesh®
Mesh count (line pitch)	300µm / 85opi
Line width (average)	8µm / 0.0003”
Open area (calculated)	95%
Haze	2.3
Appearance	

EmiClare MicroMesh®	
Maximum optical area	794 x 1224mm +/-1mm
Standard bias angle	36° +/-1° (CCW from landscape horizontal)
Thickness without PSA	100µm +/- 10µm
Thickness with PSA	125µm +/- 15µm

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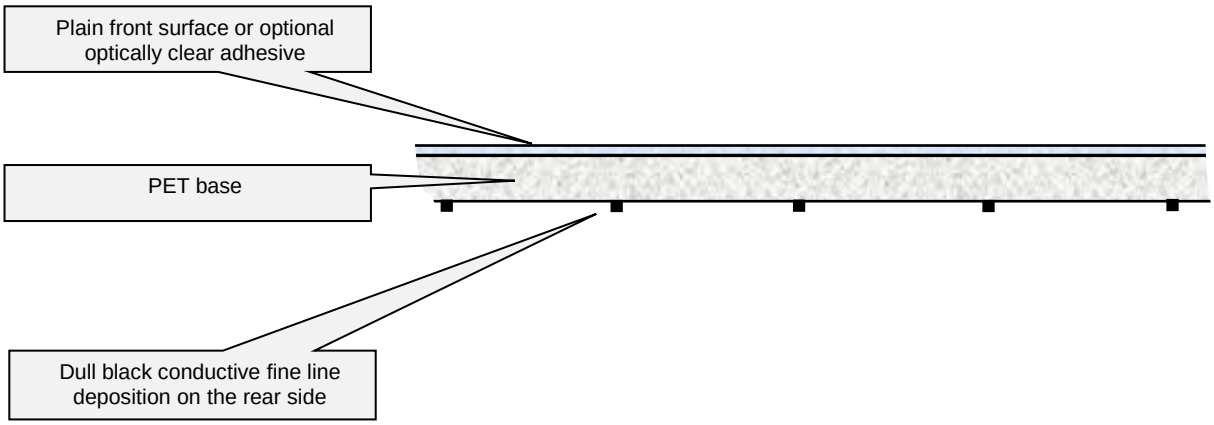
6.1 Structure



7.0 Electrical properties

- **EmiClare MicroMesh®** has been successfully qualified to a wide range of medical, defense, aviation and communications standards including Tempest. The low surface resistance has comparable shielding performance to traditional woven wire mesh and other micro replicated products.

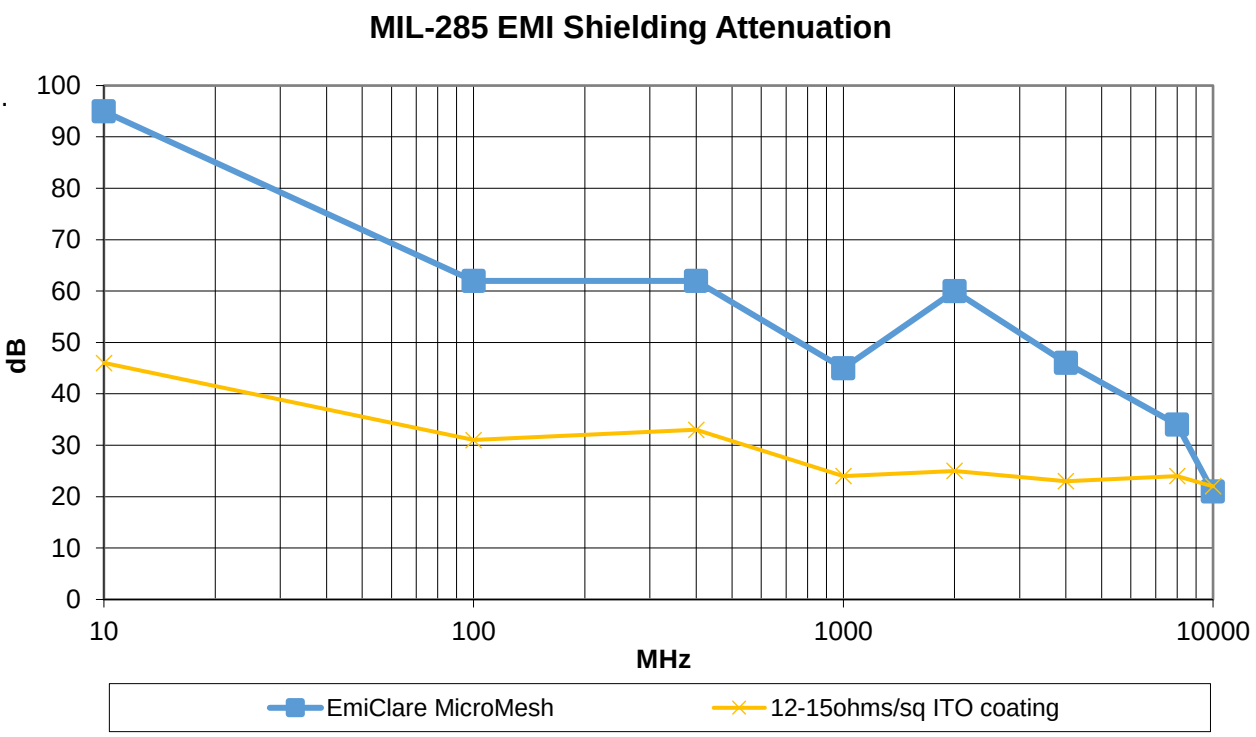
	Emiclare MicroMesh®
Surface resistance With 4 point probe	≤0.5Ω/sq

8.0 Optical Performance

Typical optical performance of EmiClare MicroMesh®			
	Non-PSA film only From the PET side	Single side lamination to AR coated glass	Full lamination between AR coated glass
Photopic transmission	85.0%	86.5%	89%
Diffuse Reflectance @ 30°	0.60%	0.60%	0.25%
Specular reflectance @ 30°	7.8%	4.6%	0.60%

9.0 Shielding Attenuation

- Attenuation performance is heavily dependent on mesh termination and overall enclosure design. Testing of complete assemblies is recommended for accurate qualification of attenuation performance. Tinned copper EMI tape termination is recommended for best results and flexibility in integration.



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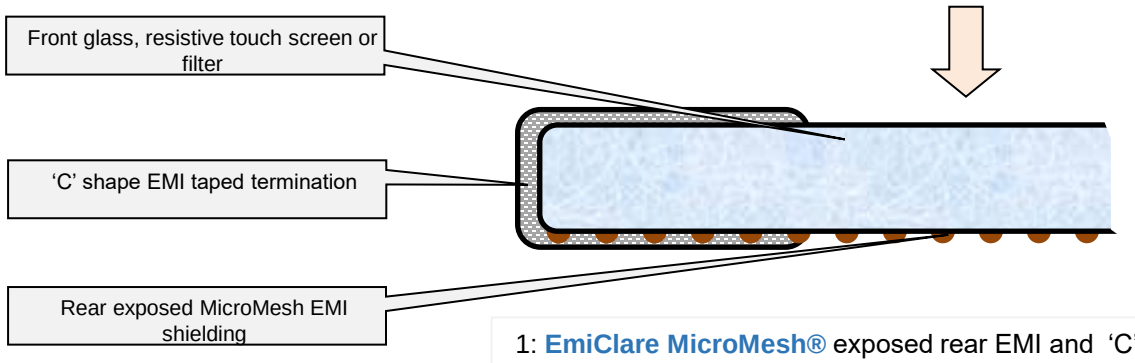
10.0 Termination option examples

❑ There are various termination options - EMI Tape, AG Busbar, gasket or direct connection.



1: **EmiClare MicroMesh®** exposed rear EMI and 'C' shape front surface termination

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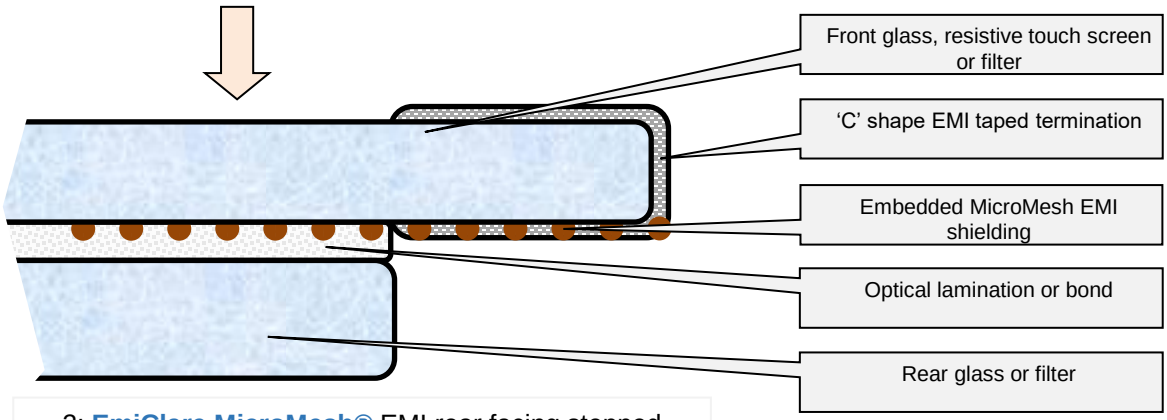
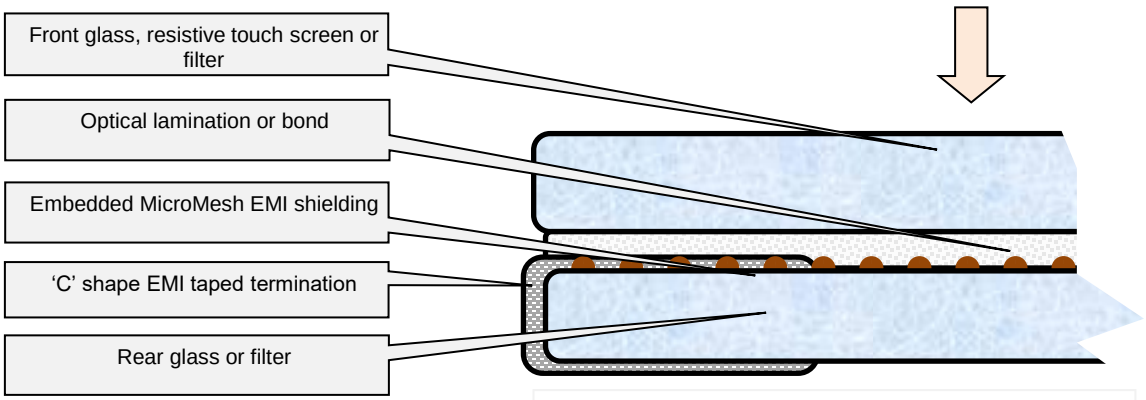


2: **EmiClare MicroMesh®** EMI rear facing stepped edge and 'C' shape front termination

10.0 Termination option examples cont.



3: **EmiClare MicroMesh®** EMI 'C' shape rear surface termination

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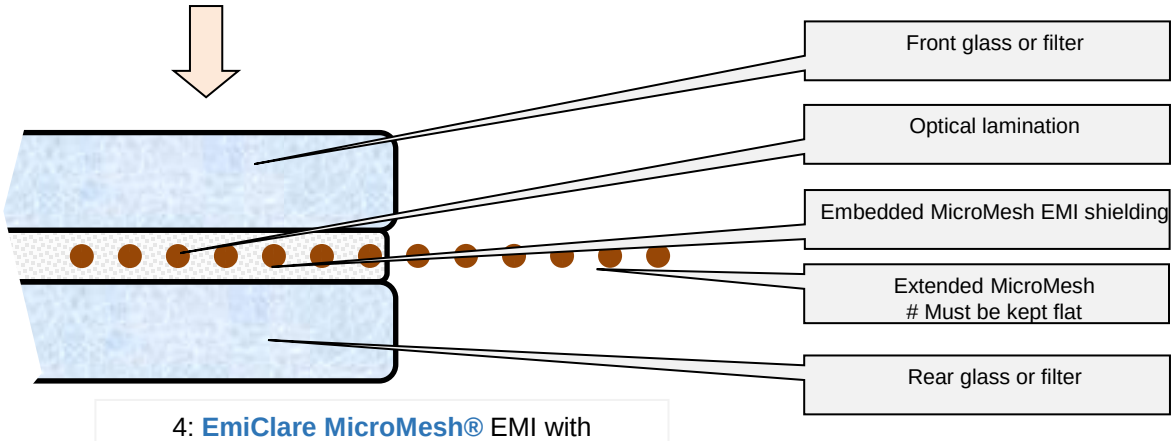

4: **EmiClare MicroMesh®** EMI with extended termination

11.0 Quality Assurance Provisions

- ❑ Parts are manufactured and inspected to Optical Filters OIS:4 Inspection Standard.
- ❑ Cosmetic specification is valid when viewed from the front surface (as defined in section 6.1) only. Optical Filter does not warrant or accept returns when **EmiClare MicroMesh®** is used in any other configuration.

12.0 Preparation for Delivery

- ❑ Finished parts shall be cleaned and packaged in a manner to ensure protection against breakage or damage during reasonable handling and transportation. Additional charges may apply.

13.0 Application Notes

- ❑ **EmiClare MicroMesh®** has a birefringent base layer and is therefore not compatible with most polarized touch screens or 3D applications.

14.0 Reference Documents

- ❑ OIS:4 Optical Filters Inspection Standard.

15.0 Stock sheets

Type	Dimensions	Characteristics
SMA-MM2-BLK/STD-55	794.0 x 1224.0mm	Plain front surface
SMA-MM2-BLK/PSA-55	794.0 x 1224.0mm	PSA/OCA front surface

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