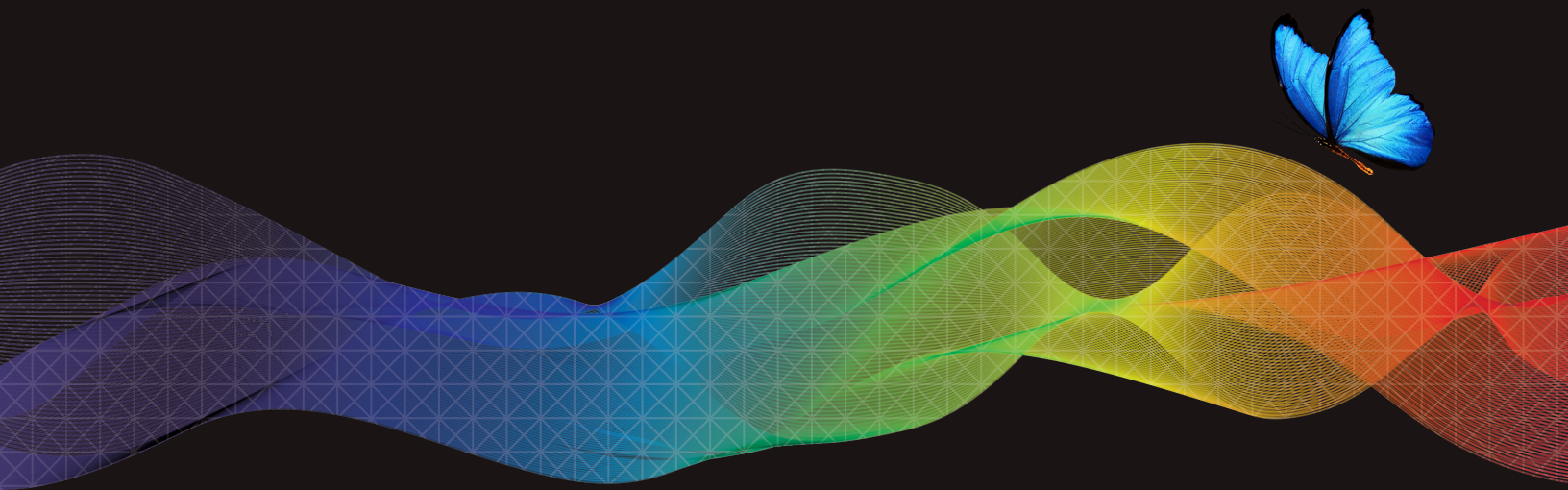


META[®]
Go Beyond.



NANOWEB[®]

Transparent, flexible, and energy-efficient film

Contact us for more information on the product and intellectual property.
metamaterial.com | sales@metamaterial.com | metamaterial.com/products/nanoweb/

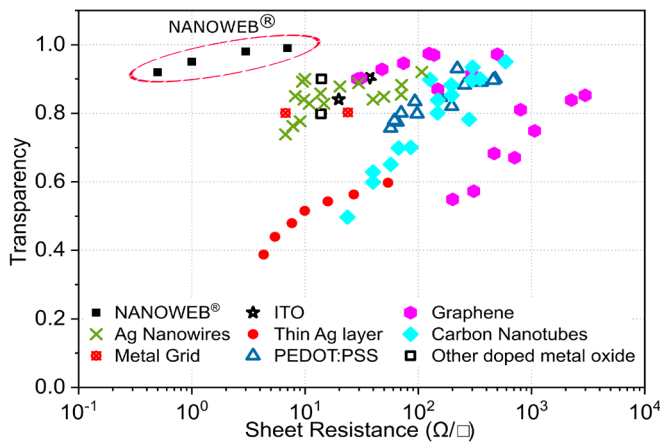
NANOWEB®

Transparent, flexible, and energy-efficient film

NANOWEB® is a patented transparent conductive film that can be fabricated onto any glass or plastic surface. With flexible material, low operating power requirements, and high transparency. Made of an invisible, nano-structured metal mesh, NANOWEB® is an advanced functional film that delivers unmatched transparency, conductivity, and flexibility.

This unique combination of advanced material functionality enables exciting applications and innovations across a wide range of industries. It offers a flexible alternative to Indium Tin Oxide (ITO), Silver Nanowires (AgNW), graphene and carbon nanotubes, among other ITO-alternative technologies. Exceptional transparency is achieved through precise geometric arrangement of sub-micron metal wires, which are invisible to the human eye. As the transparency is dependent solely upon the nano-structured geometric spacing and sub-micron dimensions of the mesh, NANOWEB® can be manufactured from silver, aluminum, platinum, copper, and many other metals, to deliver a wide-range of specifications and capabilities, without significantly affecting visibility.

NANOWEB® is manufactured using a roll-to-roll lithography process suitable for large area products and system components. It can be patterned in any shape and designed to incorporate many functionalities, such as transparent heating, electromagnetic radiation and EMI shielding, while maintaining very high transparency, low haze, and uniform conductivity.



Performance comparison for major transparent conductive film technologies. NANOWEB® shows superior transparency vs. sheet resistance.

NANOWEB® Microwave Oven with Crystal Clear Window.

OFF-THE-SHELF AVAILABLE DESIGNS

Name	Sheet Resistance (Ohm/sq)	Transparency (%)	Haze (%)
E50	0.5	92	5.1
P25	2	93.5	7.0
P45	3.5	96	4.4
P90	7.5	98	2.5
P200	15	99	1.5

Contact us to receive our NANOWEB® technical white paper. Substrates available: Glass, PET, Zinc Selenide, Zinc Sulfide, Germanium, Sapphire.

BENEFITS



**HIGH TRANSPARENCY
(VISIBLE + IR)**



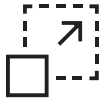
**FLEXIBLE
AND DURABLE**



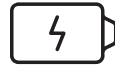
**COST
EFFECTIVE**



**HIGH
CONDUCTIVITY**



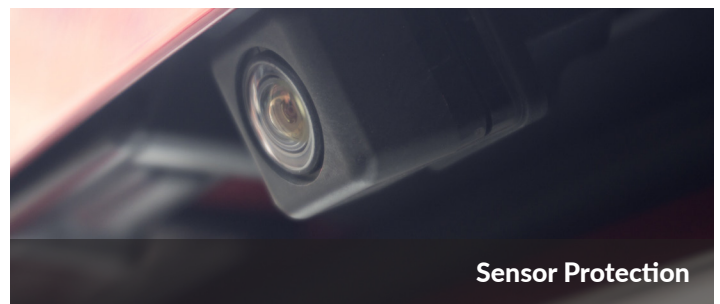
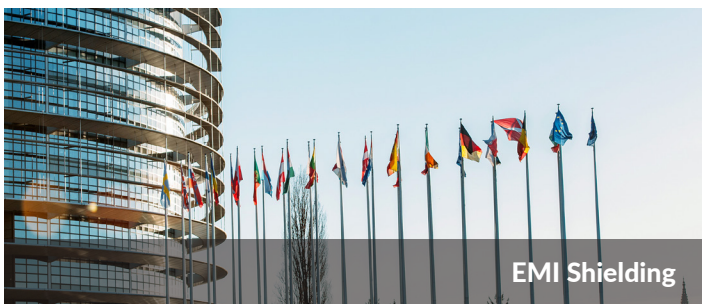
**LARGE SCALE SURFACE AREA
COVERAGE**



**LOW
VOLTAGE**

APPLICATIONS

As a highly conductive, functional metal mesh film, NANOWEB® offers an incredible range of both passive and powered use-cases. High conductivity combined with superior transparency, with low haze and no tint, open exciting new applications for NANOWEB®. It can be applied directly to display screens, sensor windows (lidar/radar, and ADAS cameras), windshields, visors, and goggles, without any obstruction of view.



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