SD1000 Surface-Applied Film Technical Data Sheet

Signals Defense's patented surface-applied window films are the U.S. Government's choice for TEMPEST protection on windows. Signals Defense window films provide high RF (Radio Frequency) and IR (Infrared) attenuation with high visible light transmittance and low reflectivity, resulting in minimal aesthetic impact.

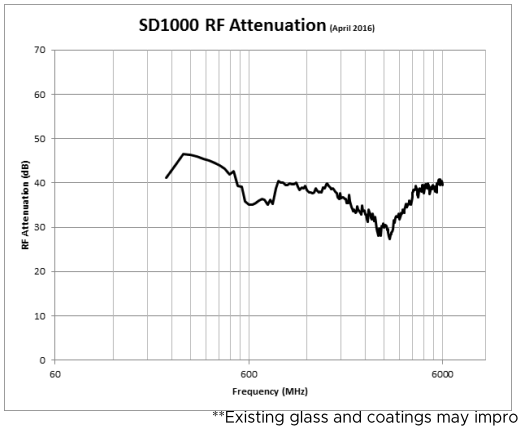
Signals Defense Films are ASTM F3057 tested and exceed the RF, IR and VLT standards for the U.S. Intelligence Community. SD Technology is available as surface-applied films and in Laminated Glass and Polycarbonates.

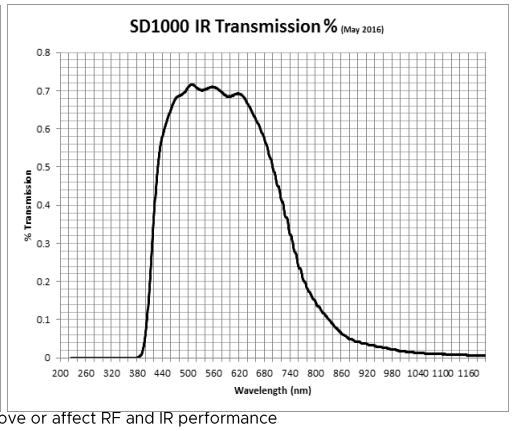
BENEFITS

- Anti-eavesdropping and TSCM (Technical Surveillance Counter-Measure) security
- Added security for WLAN (Wireless Local Area Network) or 802.11 and other wireless technologies
- Energy Savings and possible LEED credits
- EMI (Electromagnetic Interference) protection and RF Shielding for both people and equipment
- DAS/IBW efficiency.
- UV (Ultraviolet) protection for fade control and health

PERFORMANCE CHARACTERISTICS (*Per NFRC)

RF Attenuation (30MHz – 6 GHz)	Avg >33 dB
Infrared Ray Transmission (940 nm)	< 3%
Ultraviolet Transmission* (<380 nm)	< 1%
Visible Light Transmission* (400-780 nm)	68%
Visible Light Reflectance* (400-780 nm)	9%
Total Solar Energy Rejected*	64%
Shading Coefficient*	0.42
Solar Heat Gain Coefficient*	0.36
Approximate Thickness	0.002" (2mil)





**Existing glass and coatings may improve or affect RF and IR performance

PRODUCT OVERVIEW

Standards/Compliance:
ASTM F3057(Shielding Effectiveness Test Method)
ASTM E84-23 (Surface Burn)

Patented Technology: US Patent #s 7177075, 7295368, 7405872, 7596850

Intended Use: To provide RF and IR attenuation for mitigating electronic eavesdropping and TSCM (Technical Surveillance Counter-Measure) security

NFRC Certified*
Performance data available upon request

Areas of Application:
SCIF (Sensitive Compartmented Information Facility), Commercial Buildings, RF Sheltering, DAS (Distributed Antenna System) / IBW (In-Building Wireless) system designs, Wi-Fi containment

Made in USA

MATERIAL SAFETY

See film and sealant Material Safety Datasheets (MSDS)

STRUCTURE

Multiple layers of metal and metal oxides, including silver, silver oxide, indium tin oxides, and others, sputter coated on PET surface at the angstrom level. An RF notch filter allows visible light transmission. SD maintains strict guidelines on our RF/IR performance.

Adhesive Type:
Clear Distortion Free (CDF - SD1000)

APPLICATION

Areas for Surface-Application: Glass-surfaces only. Not made for external application (exposure to weather elements.

Installation: Manufacturer does NOT recommend 'grounding' SD film to other shielding materials.

Surface Preparation: The glass surface to which the shatter-resistant window film is to be applied should be clean and free of paint, foreign compounds, smears, and spatters.

Sealant: Dowsil 995 (Black, Gray, White).

Curing Period*: SD1000 (7-60+ days)
*Pending weather, sun exposure and environmental conditions.

STORAGE

Store in a cool, dry place. Keep packages closed to prevent contamination. Shelf-life - 2 years (approximate).

CARE AND MAINTENANCE

For best results, clean windows with a soft, clean, rubber squeegee, cotton, or microfiber cloth and common household-strength liquid glass cleaner such as Windex®, GlassPlus®, or silicone cleaner/polisher specifically made for window films. See attached instructions for further detail.

WARRANTY

Signals Defense™ signal protection film is warranted against crazing, cracking, peeling, demetalizing, bubbling and delaminating, for a period of 3-10 years from the date of original installation, when installed by trained and approved installers, subject to existing glass conditions. Additional extended warranty available upon request and with prior approval. See Warranty document for full terms and conditions,

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ASTM F3057 Testing

Signals Defense SD1000 Film has been tested to ASTM F3057 and provides an average >33dB of attenuation from 30 MHz to 6GHz. The ASTM F3057 is the only test method specifically designed for the evaluation of glass, coatings, and films, with respect to Electromagnetic Shielding Effectiveness of Glazings. This test method specifies a larger, more applicable aperture size, and hundreds of test points; compared to previous test methods such as IEEE-299 and ASTM 04935 which are not specific to glazing materials, and allow very small sample sizes and as few as 6 test points.

IR Transmission Testing

SD1000 film has been 3rd party tested by multiple independent authorities, most recently with the Bomem MB Series Spectrometer with measurements taken at 2nm intervals. SD1000 has been tested from 250nm through 2500nm, and while it provides nearly 70% Visible Light Transmission, it also provides <3% transmission (over 97% rejected) from 940nm through 2500nm.

~~Safety/Glass Fragmentation~~

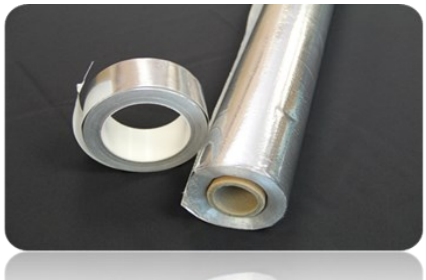
~~Signals Defense SD1010 Film meets GSA Minimum Anti-Terrorism requirements. SD1010 achieves a minimum of GSA level 3b rating when applied to 0.25" annealed glass. When applied to dual-pane tempered glass, test results show as high as GSA level 2 performance. Additional physical properties of the SD1010 include:~~

~~Film Thickness~~	~~Tensile Strength~~	~~Break Strength (peak)~~	~~Elongation at Break~~	~~Peel Strength~~	~~Puncture Strength~~
~~0.010~~	~~32,473 PSI~~	~~269 lbf/in~~	~~>100%~~	~~>2,720 lbf/in~~	~~164 lbf~~
~~Test Method~~	~~ASTM D882~~	~~ASTM D882~~	~~ASTM D882~~	~~ASTM D3330~~	~~ASTMD4830~~

Architectural Shielding

Since 2000, Signals Defense's patented surface applied window films and glass products have been the U.S. Government's choice for TEMPEST film protection. Signals Defense window technology provides high Radio Frequency (RF) and Infrared (IR) attenuation with high visible light transmittance and low reflectivity resulting in minimal aesthetic impact. As a result of the high attenuation provided by SD Technology, existing buildings fitted with windows may be converted to Sensitive Compartmented Information Facilities (SCIF) ICD 705 standards. SD Technology is available in Film, Glass, and Polycarbonate. SD Films work best when used in conjunction with other RF shielding materials. rFoil, EMCoat paint, and other architectural shielding materials are also available.

From a TSCM (Technical Surveillance Counter-Measure) perspective, Signals Defense Films is considered one of the least expensive methods to mitigate the largest amount of eavesdropping and espionage techniques.



About Us

Signals Defense technology is the de facto written standard for the US Government and organizations desiring to properly secure locations handling sensitive and/or classified information. Signals Defense helps shield a building and protect enterprise data: sensitive files and emails; confidential customer, patient and employee data; financial records; strategic and product plans; and other intellectual property.

In addition, our film technology offers an element of security that no one else can currently provide helping toprotect from inside and outside leakage of sensitive materials and information. Our company has expanded to offer other RF and IR shielding materials to include rFoil and paints. We also offer shades and blinds that are designed to shield against harmful UV/solar energy and provide additional privacy.

We serve industry leaders in many sectors including financial services, healthcare, government, public, industrial, insurance, energy and utilities, consumer and retail, education, media and entertainment, and technology.

SIGNALS DEFENSE

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