

SD2500/2510 Surface-Applied Film Technical Data Sheet

Signals Defense's patented surface applied window films are the U.S. Government's choice for TEMPEST film protection. 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.

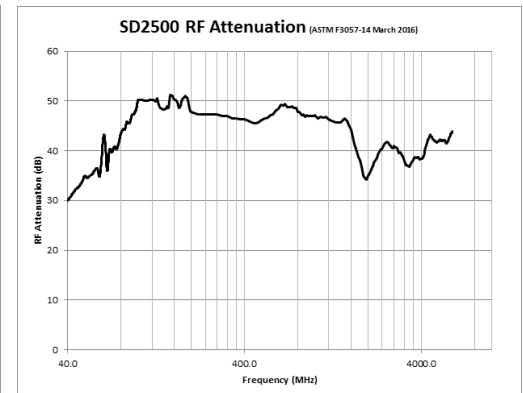
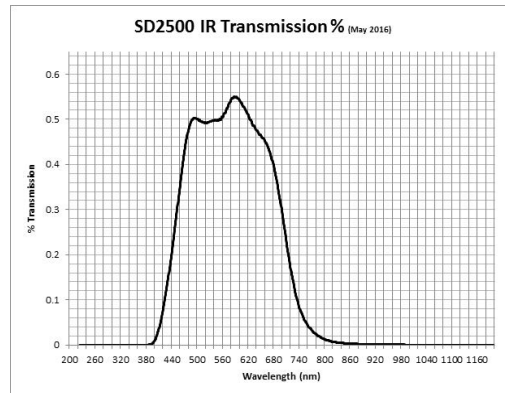
Signals Defense Films are ASTM F3057-14 tested and exceed the RF, IR and VLT standards for the U.S. Intelligence Community. SD Technology is available in Film, Glass, Polycarbonate and Preconstructed Panels.

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
- ◆ Physical Security including glass fragmentation and spill control
- ◆ EMI (Electromagnetic Interference) protection and RF Shielding for both people and equipment
- ◆ UV (Ultraviolet) protection for fade control and health

PERFORMANCE CHARACTERISTICS (*NFRC Certified)

RF Attenuation (30MHz – 6 GHz)	Avg >40 dB
Infrared Ray Transmission (940 nm)	< 1%
Ultraviolet Transmission (<380 nm)	< 1%
Visible Light Transmission* (400-780 nm)	53%
Visible Light Reflectance (400-780 nm)	13%
Total Solar Energy Rejected	73%
Shading Coefficient	0.32
Solar Heat Gain Coefficient*	0.27
Estimated Thickness	0.002" / 0.010"



PRODUCT OVERVIEW

Standards/Compliance:

ASTM F3057-14
ANSI Z97.1 Impact Test (SD2510)
ICD 705

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)
Pressure-Sensitive (PS) (SD2510)

APPLICATION

Areas of Application: Interior and exterior glass.

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: Dow Corning 995

Curing Period: SD2500 (7-60 days)
SD2510 (7-90 days)

STORAGE

Store in a cool, dry place. Keep packages closed to prevent contamination.

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.

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, subject to existing glass conditions. Additional extended warranty available upon request and with prior approval. Full terms, conditions, and warranty information is available upon request.

ASTM Testing

Signals Defense SD2500 Film has been tested to ASTM F3057-14 and provides an average >40dB of attenuation from 30 MHz to 6GHz. The ASTM F3057-14 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 D4935 which are not applicable to glazing materials, and allow very small sample sizes and as few as 6 test points.

IR Testing

SD2500 series film has been 3rd-party tested by multiple independent authorities, most recently with the Bomem MB Series Spectrometer with measurements taken at 2nm. SD2500 has been tested from 250nm through 2500nm, and while it provides >50% Visible Light Transmission, it also provides <1% transmission (over 99% rejected) from 800nm through 2500nm.

Safety/Glass-Fragmentation

Signals Defense SD2510 Film meets GSA Minimum Anti-Terrorism requirements. SD2510 achieves a minimum of GSA level 3b rating when applied to ¼" annealed glass. When applied to dual-pane tempered glass, test results show as high as GSA level 2 performance. Additional physical properties of the SD2510 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	ASTM D4830

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. Mesh and foil architectural shielding materials are also available.

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



About Us

Signals Defense, LLC began operations in Owings Mills, Maryland in 1999 with the introduction of an innovative optically clear window film technology that provides high RF (Radio Frequency) and IR (Infrared) attenuation for RF Shielding and Thermal Imaging Defense purposes.

Signals Defense patented window technology has been engineered to meet stringent US Intelligence community security requirements for facilities handling classified information. Our technology is the standard for the US Government and for organizations desiring to properly secure locations handling sensitive and/or classified information. Signals Defense window films meet the TEMPEST requirement for the Intelligence Community Directive ICD 705 and the DoD Infrared and Radio Frequency Emanation Protection Standards.

SD Technology has been deployed on over 1,300 locations providing our clients (including Government Intelligence agencies, DOD, and Fortune 100 companies) with US DoD emission security systems. Signals Defense Technology also provides safety and energy benefits to our clients with UV and glass fragmentation /spall control window films and SD glass and polycarbonate security products.



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