



Solar Gard® EM Shielding with EMS 7030

Electromagnetic & radio frequency shielding

There are different ways to protect from electronic eavesdropping: either by securing the wireless signals (but then others can still view the network) or by trying to contain the wireless signals and prevent electronic signals to escape or to enter. The latter option is obviously a more thorough measure and give more security. To realize this one can create a full metal enclosure but that is esthetically not appealing as it requires to integrate metal meshes in the glazed surfaces. The better way of containing wireless signals is to use RF Shielding glass or, in the case of renovation or upgrading to apply a Radio Frequency shielding film. Solar Gard EMS 7030 is such a film.

Solar Gard has been tested in accordance with standard ASTM D4935-10, measuring the effectiveness of the attenuation of electromagnetic waves between 40 MHz – 40 GHz: test samples are irradiated with a defined power flux density S_1 , the pervasive power flux density S_2 is measured. The shielding attenuation is a non-dimensional measured variable in decibels(dB) and calculated as follows:

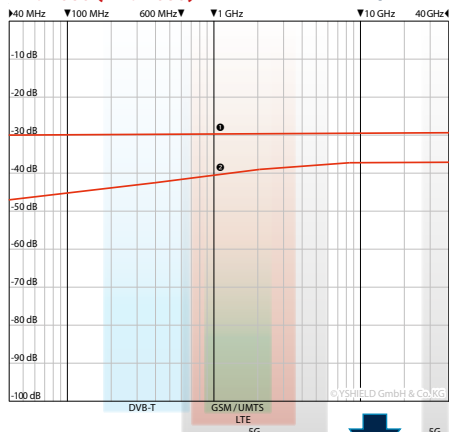
$$\text{dB} = 10 \cdot \log_{10} \frac{S_1}{S_2}$$

The measuring devices used are two Vector Network Analysers Rhode & Schwarz ZNB20 and ZNB40, with a measuring dynamics up to 140 dB. The antennas we use for ASTM D4935-10 are broadband TEM cells with radial polarization. A reduction of 10 dB corresponds to a 90% attenuation (reduction of the transmission); 40 dB corresponds to 99,99% reduction.

dB	10	20	30	40	50	60
Attenuation	90%	99%	99,9%	99,99%	99,999%	99,9999%

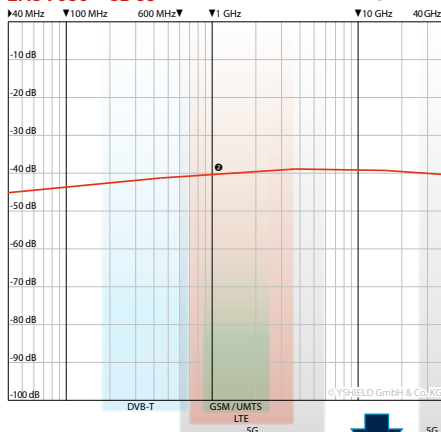
SCREENING ATTENUATION (dB) MEASURED ACCORDING TO ASTM D4935-10

Screening Window Film
EMS 7030 (EMS 4030)



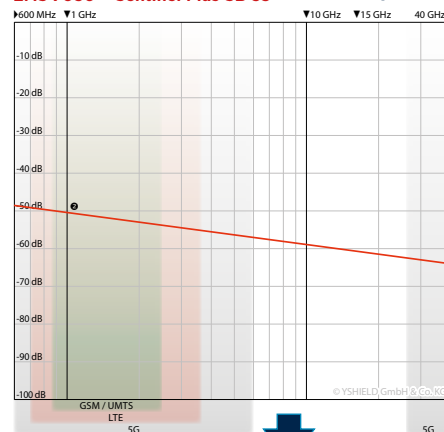
FREQUENCY	EMS 7030 (EMS 4030)	
	Single Layer	Double Layers
40 MHz	-30.2	-48.9
600 MHz	-30.4	-40.6
900 MHz	-29.6	-38.1
2.4 GHz	-29.3	-37.2
6 GHz	-28.9	-37.0
24 GHz	-28.5	-26.9

Screening Window Film
EMS 7030 + SB 35



FREQUENCY	EMS 7030 + SB 35	EMS 7030 + Sentinel Plus SB 35
40 MHz	-45.3	-49.1
600 MHz	-39.9	-51.8
900 MHz	-39.0	-56.4
2.4 GHz	-38.7	-60.1
6 GHz	-39.6	-64.9
40 GHz	-40.2	-65.9

Screening Window Film
EMS 7030 + Sentinel Plus SB 35





Solar Gard® EMS 7030 also increases thermal comfort & safety!

In addition to its shielding properties, EMS 7030 can also improve the performance of your existing glass. Due to its special composition of superb heat rejection properties combined with a high visible light transmission and a 99% UV rejection, the EMS 7030 window film keeps your building cooler and more comfortable whilst protecting your people and property. The 8 mil safety version of EMS 7030 helps to drastically reduce the risk of injury due to shreds of glass in case of breaking glass, be it by impact or due to an explosion. Furthermore, EMS 7030 is virtually undetectable on your windows, providing an unaltered view.

SOLAR PERFORMANCE RESULTS SOLAR GARD® EMS 7030

Performance Parameters for Different Window Types

Solar energy

Solar heat gain coefficient (G-value)	.87	.46	.77	.52
Solar heat gain reduction %		47		33

Visible light

Transmittance %	90	72	82	65
Reflectance exterior %	8	9	15	15
Reflectance interior %	8	9	15	13
Glare reduction %		20		20

Ultraviolet light

Blocked @300 to 380 nm %	36	>99	51	>99
Fade reduction coefficient %		45		42

4mm
Single clear
Simple vitrage

4/12/4mm
Double clear
Double vitrage

Film Performance Results
Performance results were generated from testing 1/6" (4mm) thick clear glass and have been measured, calculated and reported in accordance with EN410 standards.

Performance results are subject to variations within industry standards. Performance results are also available for testing on other types of glazings.

¹Infrared rejection = 1 - average unweighted transmittance using ASTM E 903. All Solar Gard window films meet classification B-S1,d0 (tests acc to SBI EN13823) and class M1 (tests according to NF P 92-501).

We also offer a darker version of EMS 7030: **Solar Gard® EMS 4030**. Compared to EMS 7030, EMS 4030 adds:

- more glare control (53% glare reduction)
- 15% lower g-value (0.39 on 4 mm clear glass)

EMS 7030 comes in a standard version and in a safety film version: **Solar Gard® AC 8 mil EMS 7030**

AC 8 mil EMS 7030 meets EN12600 1B1, EN 356 standards and has been tested according to GSA and ASTM blast standards as well as according to ISO 16933.

PHYSICAL PROPERTIES

Film Type	Nom. Thickness	Peel Strength	Tensile Strength	Break Strength	Elongation At Break	Reaction To Fire	ASTM D4830 Puncture Test
EMS 7030	2 mil	>985 g/cm	2110 kg/cm ²	44 kg	>100%	B-S1,d0	64 kg
EMS 4030	2 mil	>985 g/cm	2110 kg/cm ²	44 kg	>100%	B-S1,d0	64 kg

Product Codes

EMS 7030 SF53005360-60100EM

EMS 4030 SF53005340-60100EM

AC 8 MIL EMS 7030 SF53008570-60100EM

What matters most to you... *We're On It!*

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