

Title (en)
DURABLE VISIBLE/LASER/MEDIUM WAVE INFRARED COMPOSITE WINDOW

Title (de)
DAUERHAFTES FENSTER ZUR TRANSMISSION SICHTBARER UND INFRAROTSTRAHLUNG

Title (fr)
FENETRE DURABLE POUR LA TRANSMISSION COMPOSITE D'INFRAROUGES ET D'ONDES VISIBLES, LASER ET MOYENNES

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Application
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Abstract (en)
[origin: WO9713169A1] A durable window (16) which is scaleable in size is provided for transmitting 0.4 to 0.9 micrometer visible and near infrared wavelengths, 1.06 and 1.54 micrometer laser and 3 to 5 micrometer medium wave infrared wavelengths. One embodiment of the present invention comprises a 5 to 20 micrometer thick hard sapphire coating (34) on a multispectral zinc sulfide substrate (32). This window provides a higher transmission and therefore higher acquisition range for infrared imaging systems, while still providing the same exterior durability as bulk sapphire. Since there is less absorption, there is also less emission from the window of the present invention in comparison with a bulk sapphire window. Accordingly, background noise is reduced. Sapphire-coated multispectral zinc sulfide windows are also considerably less expensive than the expensive bulk sapphire substrate alternative. Furthermore, multispectral zinc sulfide substrates are available in large sizes up to 30 inches (0.762 m) in diameter. The application of a durable sapphire coating allows a straightforward scalability which can be used to produce the large size windows (i.e., 10 to 20 inches in dimension) necessary for multisegmented "greenhouse"-type window assemblies integrated into high-speed aircraft airframes.

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