

Flexible Wideband Microwave Absorbers with Frequency Selective Surface Based on Mechanically Treated Foiled Polymer Film

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2024

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Keywords: microwave antennas, absorption, microwave devices, polymer films, surface roughness, rough surfaces, manufacturing.

Abstract: The aim of the study was to experimentally substantiate the proposed by us technology for manufacturing flexible wideband microwave absorbers with frequency-selective surface containing circular patches formed from the foiled polymer film containing aluminum oxide. It was established that the effective absorption band of the samples, on the surface of which there are 3.0 cm patches formed from the smooth foiled polymer film, is 10.0-13.0 GHz. The effective absorption band of the samples, on the surface of which there are 6.0 cm and 9.0 cm patches formed from the smooth foiled polymer film, are respectively 10.5-17.0 GHz and 2.0-9.5 GHz, 10.5-12.0 GHz, 13.5-14.5 GHz, 15.5-16.5 GHz. The effective absorption band of the samples on the surface of which there are 9.0 cm circular patches, formed from the mechanically treated foiled polymer film, the average size of roughness of which is 20.0 is 9.0-11.5 GHz. The effective absorption bands of the samples, the surface of which contains 9.0 cm patches, formed from the mechanically treated foiled polymer film, the average size of roughness of which is 50.0 and 80.0 are respectively 6.0-13.5 GHz and 5.5-17.0 GHz. Thus, the absorbers manufactured in accordance with the proposed

technology mechanically treated foiled polymer film, the average size of roughness of which is more than 50.0 are wideband ones. These absorbers could be used to protect radioelectronic equipment and antennas systems from microwave interferences.

Publication source: Boiprav, O. Flexible Wideband Microwave Absorbers with Frequency Selective Surface Based on Mechanically Treated Foiled Polymer Film / O. Boiprav, S. A. Abdaljlil, V. Bogush // Conference on Sciences and Techniques of Automatic Control and Computer Engineering (MI-STA) : IEEE 4th International Maghreb Meeting 2024 conference materials, Tripoli, Libya, 19–21 May 2024 / Institute of Electrical and Electronics Engineers. – USA, 2024. – P. 393–397.