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Wave Scattering by the Deformed Facet of a Dielectric Slab Waveguide
A.Brovko, A.Manenkov, A.Rozhnev, I.Tigelis 1

The problem of the electromagnetic wave diffraction by a smooth and non-smooth end of a planar dielectric waveguide is examined. The analysis is made by several techniques, including the finite difference time domain method. The guided-mode reflection coefficient as well as the near and far-field distributions are calculated for different deformations of the facet surface.

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J.Ivanov, E.Vapirev, T.Vasilev, K.Burin 25

The total transmission of light charged particles through supercollimators at different air pressure has been measured. Reduction in a number of light charged particles transmitted in case of increase of the air pressure has been demonstrated. It is due mainly to electron scattering at small angles by the atomic nuclei of the air and the following absorption by the walls of the collimators. The influence of energy of the light charged particles - beta-particles (^{147}Pm and $^{90}Sr(Y)$) on scattering was demonstrated and the absorption coefficients were determined.

Nonminimal Realisation of Common-Ground RLC Networks
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In the paper a new theorem is presented establishing a set of sufficient conditions for (non) minimal realisation of any stable, square, matrix of real rational functions in complex frequency, as admittance matrix of passive, transformerless, common-ground RC network, having (non) minimal number of capacitors. The obtained result is produced by using Howitt linear transformation and can readily be applied to admittance matrix synthesis of other types of two-element-kind RLC networks, owing

to the possibility of converting their synthesis problems to similar ones for the pertinent RC network prototypes.

Visibility Zone Improvement of Decimetre Band Radar Using Scanning of Diagram Directing
M.Mihaylov, R.Vladimirov **45**

The paper demonstrates the theoretical possibilities for using the diagram of the control of a reflector antenna by a decimeter band far detection radar, trying to avoid the deficiencies in accompanying low-flying targets. In accordance with the theoretical part, the authors suggest practical resolutions contributing for the stable accompanying of targets flying low in the whole near-distance zone. An original method for defining the characteristics of horn feeding with plate diffusion and Fresnel's integral solution is suggested.

Measurements of the Electromagnetic Radiation from a BTS for Radiation Hazard Purposes
T.Samaras, D.Babas, E.Vafiadis, J.Sahalos **53**

In this work we present the procedure and the results of the measurements that we have carried out in the vicinity of two GSM 900 Base Transceiver Stations (BTS). The results have shown that the power density levels measured are below the reference values of international guidelines and similar to the levels found in the literature. However, contrary to what is often reported for the urban environment, it was estimated from the measurements that the exposure levels due to the GSM spectrum are lower than those arising from FM radio broadcasting stations.

Design of a QPSK Modulator for ISM Band Modems
E.Vafiadis **63**

Comment [*1]:

In this article, the design approach and performance characteristics of a 200 Mbps QPSK modulator operating at 5.8 GHz are presented. The modulator, aiming to be used primarily in wireless modems operating at microwave frequencies, is implemented as a low cost hybrid microwave integrated circuit (MIC) sized 37.5 mm by 33.5 mm.