PENETRATION OF AN ELECTROMAGNETIC FIELD IN A LOSSY, INFINITE, CONDUCTING HALF-SPACE

BY

HUGO ROSMAN

Abstract. The expressions of the damping and phase coefficients, the phase speed, the wave length and of the complex vectors $\underline{\mathbf{E}}_{l}$, $\underline{\mathbf{H}}_{l}$, $\underline{\mathbf{J}}_{l}$, in the case of a harmonic electromagnetic field penetration in a lossy, conducting, infinite half-space are determined. In the studied case the complex Poynting vector, the active and reactive powers which penetrate through the unity area of a lossy, conducting, infinite half-space and the penetration depth are determined too.

Key Words: Lossy, Infinite, Conducting Half-Space; Penetration of an Electro-magnetic Field.

DETERMINATION OF THE TOTAL COMPLEX IMPEDANCE OF PLANE ELECTROMAGNETIC WAVES IMPINGING NORMALLY ON A LOSSY DIELECTRIC LAYER

BY

CAMELIA PETRESCU

Abstract. The analytical expressions for the total wave impedance are established in the case of a plane electromagnetic wave with normal incidence that passes through three successive media. The multiple reflections/refractions that occur due to the existence of two successive separating boundaries are taken into account. The expressions are valid for any materials, conductors or dielectrics, real or ideal.

Key Words: Plane Waves; Reflection and Refraction; Complex Impedance.

COMPARED ANALYSIS OF ENCODING TECHNIQUES USED IN SPACE TIME TRANSMISSIONS

ΒY

VALERIU MUNTENU and DANIELA TĂRNICERIU

Abstract. For the case in which the code alphabet consists of M letters, we perform a generalized Huffman encoding for a discrete, complete and memoryless source for which the probability of one message is equal to 1 - x and the other ones are of the form $k_i x$. For this case we derive the conditions for x and k_i which lead to an extended and to a compact coding graph, respectively. For each of these two cases the average codeword length is computed.

Key Words: Generalized Huffman Coding; Extended Graph; Compact Graph; Average Codeword Length.

OPTIMAL TECHNIQUES USED IN TURBO SPACE CODES

ΒY

DANIELA TĂRNICERIU and VALERIU MUNTENU

Abstract. In this paper we consider a discrete, complete and memoryless source for which, excepting one message, the other ones are equally likely. This source is encoded by means of a generalized Huffman code. For this special probability distribution we compute the maximum and the average code word length and determine the topology of the encoding graph. It is shown that, excepting one code word, the other ones are placed on the last two levels. The analysis is specialized for a case study, for which we perform a matrix characterization and derive the information quantities.

Key Words: Generalized Huffman Coding; Average Codeword Length; Entropies; Space-Time Codes.