

SIMULATION OF REFLECTION
LOSS FOR MONOLAYERS IN X,
KU, K AND KA BANDS WAVE
GUIDED APPLIED IN THE
AERONAUTICAL AND
AEROSPACE SECTOR

A. P. S. de Oliveira^{1*}, M. A. do Amaral Junior¹, S. L.
Minciro¹; M. R. Baldan¹

¹ Instituto Nacional de Pesquisas Espaciais

*email silvadeoliveira.ana@gmail.com

Abstract

The microwave reflection properties through the S-parameters were measured in wave guide in the frequency range 8.2-12.4GHz. For the same concentration of carbonyl iron 40 wt. % with different thicknesses were tested. Results show that the thickness of material varying from 1mm to 3mm had no significant effect on either the permittivity or permeability. However, the measured reflectivity tends to decrease at frequencies higher than 12.4GHz as sample thickness increases. Thus, for a sample with 9.78 mm thickness, the measured attenuation peak was around 9.5GHz with -15dB of reflectivity. At the same reflectivity of -15dB obtained from the permittivity and permeability of sample thickness 1mm, the difference between the measured and the calculated (10,5GHz) frequency values is about of 1GHz.

Key words: Radiation absorbing material, carbonyl iron, X-band.