CT SCANNER QUALITY ACCORDING TO EXPOSURE DOSE DURING SCANNING PROCEDURE

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Abstract: *In this paper, the ABC classification of possible locations for ELV dismantling centers in the presence of uncertainties is considered. The proposed ABC classification algorithm is based on Pareto analysis. The uncertain criteria values are described by linguistic expressions specified by waste management. They are modelled using fuzzy sets.*

Keywords: *end-of life vehicles, multi-criteria classification, fuzzy sets*

1. INTRODUCTION

Computed tomography (CT) is probably the most common technology for obtaining high resolution anatomical images of patients. CT images are composed by transverse slices, which are obtained by an X-ray tube rotating around the human body.

Recent studies in radiology suggest that (CT) scans contribute to (35-45) % of the total radiation dose to the patient population [1, 2].

Further research into the complex relationship between radiation exposure, image quality, and diagnostic accuracy should be encouraged, in order to establish the minimum radiation dose necessary to provide adequate diagnostic information [3].

According to this information protection of patients during scanning procedure is main requirement during imaging procedure and design of CT devices. The one way to minimize radiation dose is to better understand mechanisms of dose absorption and factor like construction of X-ray device, type of filter being used and characteristic of patient tissue. Dose reduction can be achieved using appropriate filterers [4,5] suitable reconstruction algorithms [6,7] or special mode of X-ray source operation [7].

In this study we consider quality of CT scanner and according to radiation dose and propose procedure for dose calculation by Monte Carlo Simulation using multi slice human head phantom data. The dose calculation can be very helpful parameter during design and planing scaning procedure.