# Investigation of the correlation between radial depth of cut (RDOC) and axial depth of cut (ADOC) in NX-CAM system: Simulation Studies

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**Abstract.** This paper outlines a simulation study to investigate the correlation between radial depth of cut (RDOC) and axial depth of cut (ADOC) in 4 axis machining processes. Computer-aided Manufacturing (CAM) plays a crucial role in simulating cutting operations before the real process executed. Several cutting parameters can be analysed through effective CAM program to predict the outcomes. However, an efficient program required skilled operator to develop the process planning. Besides, a standard CAM system has limited capabilities to handle repetitive simulation due to unavailable function to support the analysis. In this study, the combination of RDOC and ADOC is analyses on different parts features consist of planar surface and non-planar surface. Several set of pairing percentages between RDOC and ADOC are used in the simulation program to analyses the cutting operations. In order to perform the simulation, a customized program was developed in NX CAM system to assist the routines. It capable to generate machining data files from each simulation and assess the total volume removed. A pairing set with high volume removal is denoted as an optimum value and will be chosen as a cutting parameter in finishing operation. Generally, ADOC has a significant effect compared to RDOC in terms of total volume removed from the workpiece.