Evaluating High Order Resonances using Resonant Normal Form, F. SCHMIDT, E. TODESCO, CERN, Bologna University - Resonant Normal Form allows to study various aspects of resonances up to very high orders. Using this techniques a tool has been prepared that evaluates resonances in four phase space variables. The input is a truncated One-Turn Map derived from standard tracking codes. The program finds fix-point and fix-line locations in phase space for resonances up to a desired order. The island widths and the island tunes of these resonances are calculated as well. As a check it is shown to which extent results from first order perturbation theory can be reproduced and how well the predictions of Resonant Normal Form agree with tracking simulations. Finally we discuss the inherent limitations due to divergences of the Resonant Normal Form.