Effective electromagnetic operators in the p-shell using the No-Core Shell Model formalism[1] MICHAEL KRUSE, ALEXANDER LISETSKIY, BRUCE BARRETT, University of Arizona, PETR NAVRÁTIL, Lawrence Livermore National Laboratory, IONEL STETCU, Los Alamos National Laboratory, JAMES VARY, Iowa State University — Much effort has been devoted to creating Standard Shell Model (SSM) effective interactions from ab initio techniques such as the No-Core Shell Model (NCSM). Such a procedure drastically reduces the computational effort necessary to find the low-lying states of a light nucleus ($A \leq 14$) and in most cases the results agree quite well with experiments. One can also create a similar SSM effective operator for an electromagnetic operator, like E2 and M1. The properties of such operators, for example in terms of renormalization of proton and neutron charges as a function of model space size are not clearly understood. We present a procedure for creating E2 and M1 operators in the p- shell, using ^{5}Li, ^{5}He and ^{6}Li, and show how these operators depend on one- and two-body contributions. This is particularly interesting for long-range operators such as E2.

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