

Measurement of the Effect on Single Bunch Stability of Changing Transition Energy in the CERN SPS, T. BOHL, M. LAMONT, T. LINNECAR, W. SCANDALE, E. SHAPOSHNIKOVA, CERN - The SPS is the final accelerator in the chain which will be used to fill the Large Hadron Collider (LHC), at present under construction at CERN. The most critical limitation for single bunch intensity in the SPS comes from the longitudinal microwave instability caused by the impedance of about 800 intermagnet pumping ports, cavity like elements with low Q and large R/Q. One of the ways to raise the instability threshold is to decrease the transition energy which can be obtained by perturbing the dispersion function. This can be performed in a controlled way by the installation of two new families of quadrupoles. In order to test expectations an experiment was performed in the SPS using the existing lattice. By adjusting the machine tune at 26 GeV to be close to a multiple of the machine super period, a situation not acceptable for regular operation, the transition energy was reduced from 22 to 19 GeV. The results of this change on the beam were measured directly from the bunch spectrum and are presented in the paper.