1067-47-351 **Chang-Pao Chen*** (`cpchen@wmail.hcu.edu.tw`), Department of Applied Mathematics, Hsuan Chuang University, Hsinchu, 30092, Taiwan, **Jin-Wen Lan** (`d937210@oz.nthu.edu.tw`), Department of Mathematics, National Tsing Hua University, Hsinchu, 30013, Taiwan, and **Dah-Chin Luor** (`dclour@isu.edu.tw`), Department of Applied Mathematics, I-Shou University, Ta-Hsu, Kaohsiung 84008, Taiwan. *The Muckenhoupt-type estimations for the best constants in multidimensional modular inequalities over spherical cones.* Preliminary report.

In this paper, we establish the Muckenhoupt-type estimation for the best constant C associated with the following multidimensional modular inequality over a spherical cone:

$$\left(\int_E \left\{\Phi\left(\int_{\tilde{S}_x} k(x,t)f(t)d\sigma(t)\right)\right\}^q d\mu\right)^{1/q} \leq C\left(\int_E \left\{\Phi(f(x))\right\}^p d\nu\right)^{1/p},$$

where $f \in L_\Phi^p(d\nu)$ and $1 \leq p, q \leq \infty$. Similar results are also derived for the complementary integral operator. As a consequence, we give the n-dimensional weighted extensions of Levinson's modular inequality, extensions of Stepanov's and Heinig's results, generalizations of the Hardy-Knopp-type inequalities, and those for the Riemann-Liouville operator and the Weyl fractional operator. We also point out that our estimates are better than the known ones. (Received August 26, 2010)