1. Purpose of Experiments
   Include immediate goal of the experiments, scientific importance and/or programatic relevance. 
   Refer to any relevant program milestones.

   Purpose of this experiment is to study dependance of H-mode pedestal parameters with 
   central plasma density.

2. Background
   Discuss Physics basis of the proposed research, Prior results at Alcator or elsewhere, and any 
   related work being carried out separately

   Previous pedestal scalings studies revealed a strong correlation between pedestal 
   height and gradient and plasma current. It is known, on the other hand, that H-mode 
   central density in C-Mod scales with plasma current. Therefore it is desirable to sep-
   arate obtained pedestal scalings with plasma current and possible pedestal parameters 
   dependance on plasma density.

3. Approach
   Describe the methodology to be employed; explain the rationale for the choice of parameters, 
   etc. Describe the analysis techniques to be employed in interpreting the data, if applicable. If the 
   approach is standard or otherwise self-evident, this section may be absorbed into the Experimental 
   Plan

4. Resources

4.1 Machine and Plasma Parameters
   Give values or range for :

   Toroidal Field:  5.3 T
   Plasma Current:  1 MA
Working gas species: D2
Density: $5 \times 10^{19} - 2 \times 10^{20}$ line integral
Equilibrium configuration (if possible, refer to database equilibria):
Pulse length, typical current & density waveforms, etc. Refer to database or sketch desired waveforms.

4.2 Auxiliary Systems

RF Power, pulse length, phasing: 4 MW
Pellet Injection (species):
Impurity blow-off injection:
Diagnostic Neutral Beam:
Special gas puffing:
Other:

4.3 Diagnostics
List required diagnostics, and any special setup or configuration, e.g. non-standard digitization rate.

Edge Thomson scattering, ECE sweep, visible bremsstrahlung, scanning probes, reflectometry and PCI for fluctuations diagnostics

5. Experimental Plan
Both sections must be filled in.

5.1 Run sequence plan
Specify total number of runs required, and any special requirements, such as consecutive days, no Monday runs, extended run period (10 hours maximum), etc.
1 run day

5.2 Shot sequence plan
For each run day, give detailed specification for proposed shot sequence: number of shots at each condition, specific parameters and auxiliary systems requirements, etc. Include contingency plans, if appropriate.

Establish steady state EDA H-mode at 1 MA, 4 MW RF power, $1 \times 10^{20}$ target density - 2 shots
Drop target density to $5 \times 10^{19}$, obtain good H-mode - 2 shots
Scan target density ($5 \times 10^{19}, 7 \times 10^{19}, 9 \times 10^{19}, 1.1 \times 10^{20}, 1.3 \times 10^{20}, 1.5 \times 10^{20}$), obtaining steady state H-mode at 4 MW RF power for each shot - 2 shots per density, total of 12 shots
Set up gas puffing during H-mode to obtain higher core density, try different amounts of gas - 6 shots
Total - 22 shots
6. **Anticipated Results**

Discuss possible experimental outcomes and implications. Indicate if the program may be expected to lead to publications, milestone completions, improved operating techniques, etc. Indicate if the experiments are intended to contribute to a joint research effort, or an external database.

The results will be used to finalize our understanding of pedestal parameters scalings with plasma parameters, to complete pedestal scalings database, which would lead to a publication of scaling studies results.

7. **References**

Include references both to external and internal literature or communications which bear on this proposal. See Section 2.

1. D.Mossessian et al. "H-mode pedestal studies in Alcator C-Mod", preprint 00JA015