Moment lab[1], a part of the Computer Science Department, University of California Santa Barbara, respectfully requests the issuance of an experimental license using the equipment and operating parameters set forth in File No.0220-EX-PL-2010. Grant of this license will enable Moment lab to conduct research and experimentation regarding use of vacant spectrum in the television broadcast bands (the "white spaces")[2].

Moment lab is lead by prof. Elizabeth Belding and has a history of influential academic research work in wireless communication over 2.4GHz and 5GHz ISM bands as well as in the 60GHz band. Moment lab puts a large part of its efforts to explore novel wireless paradigms for rural areas. This includes long range, low power and low cost solutions. The "white spaces" occupy frequencies that are, due to propagation characteristics and licensing issues, very well suited for rural area communication. Moment lab seeks to evaluate its solutions for modulation and coding scheme and channel width adaptation on long-distance white-space links.

The proposed setup consists of two links, one completely within the Harold Frank Hall building at the UC Santa Barbara campus, Goleta, CA (*short link*) and the other from the Harold Frank Hall building to the residence of one of the Moment lab members at The Storke Family Apartments complex, Goleta, CA *(long link)*. The long link will be approximately 2.5km long (lat 34.418889, lon -119.861205 to lat 34.413756, lon -119.841485), while the short link will be approximately 5-10m long. The transmitter/receiver will consist of Ettus research's USRP2 software radio board with WBX daughtercard, capable of transmitting at 100mW maximum. For the short link omnidirectional antennas will be used, while for the long link standard television yagi antennas will be used.

The links will be used to evaluate solutions that directly contribute to the area of wireless bit rate adaptation and energy efficient radio communication. In addition, the testbed will provide useful insights on white-space link practicality for rural area communication. Moment lab's partner, Meraka Institute, South Africa, will deploy a white-space network in rural South Africa after the initial tests at the Moment lab testbed are successfully completed, and the implementation guidelines provided by the Moment lab researchers.

Moment lab's experiments will use both geolocation and spectrum sensing techniques to prevent interference with the primary users of the spectrum. Moment lab will not transmit on any television channel in which there is an incumbent licensee. In addition, the maximum transmission power of 100mW is limited by the equipment and the antenna directionality is fixed along the link.

1 http://moment.cs.ucsb.edu/

2 See: Unlicensed Operations in the TV Broadcast Bands; Additional Spectrum for Unlicensed Devices, Below 900 MHz and the 3 GHz Band, Second Report and Order and Memorandum Opinion and Order, 23 FCC Rcd 16807 (2008).