A. Applicants Qualifications

QCT (www.cdmatech.com), a division of QUALCOMM Incorporated, is a developer and supplier of CDMA chipsets, hardware and software solutions, and tools, with 163 million cumulative shipments of MSM chips worldwide. QCT offers wireless position location technology by SnapTrack™, a wholly owned subsidiary of QUALCOMM. QCT supplies chipsets to the world's leading CDMA handset and infrastructure.

QUALCOMM Incorporated (www.qualcomm.com) is a leader in developing and delivering innovative digital wireless communications products and services based on the Company's CDMA digital technology. The Company's business areas include CDMA chipsets and system software; technology licensing; the BREW applications platform; Eudora® e-mail software; digital cinema systems; and satellite-based systems including portions of the Globalstar™ system and wireless fleet management systems, OmniTRACS® and OmniExpress™. QUALCOMM owns patents that are essential to all of the CDMA wireless telecommunications standards that have been adopted or proposed for adoption by standards-setting bodies worldwide. QUALCOMM has licensed its essential CDMA patent portfolio to more than 100 telecommunications equipment manufacturers worldwide. Headquartered in San Diego, Calif., QUALCOMM is included in the S&P 500 Index and is a 2001 FORTUNE 500® company traded on The Nasdaq Stock Market® under the ticker symbol QCOM.

B. Demonstration Proposal

QUALCOMM is complimenting its CDMA developed technology with the emerging WCDMA technology in the development of single and multi-mode chipsets. On May 22, 2003, Qualcomm will conduct a wireless demonstration of WCDMA UMTS technology during the QUALCOMM analyst meeting. The analyst meeting is located at the Essex House Hotel on 160 Central Park S, New York, New York 10019.

The demonstration setup will consist of a base station with coaxial cable routed to an antenna located near the demonstration area. The distance between the base station and mobile unit will be less then 100 feet, and the base station power will be 1 watt EIRP or less. The base station transmitter will operate with one 4.68 MHz channel located in the frequency range of 2110-2120 MHz or 2165-2170 MHz.

The UMTS mobile units transmit in either the unlicensed PCS band: 1920-1930 MHz, or the US PCS C block frequency range 1975-1980. The mobile unit meets the FCC requirements of CFR47: Part 2.803 and Part 15. Part 15.319 specifies a maximum peak transmit power of 100 microwatts multiplied by the square root of the emission bandwidth. For the WCDMA handset, the maximum radiated output power is 100uW * 4.68MHz = 23.35 dBm.

C. Additional Information On Proposed Experiment

The WCDMA signal is QPSK modulated with a modulating chip rate of 3.84 Mcps (Mega chips per second.) The pulse shaping method applied to the transmitted chips is root-raised cosine filtering with roll-off factor of 0.22. The required bandwidth to transmit the WCDMA signal is computed as follows:

$$W = (1+r)\ R_c$$

Where

W is the required bandwidth
r is the roll-off factor
R_c is the chip rate

The above gives us:

$$W = (1+0.22) \times 3.84 \times 10^6$$
$$W = 4.6848 \times 10^6 \text{ Hz}$$

Allowing for some guard band, the required bandwidth for the experiment is 5 MHz.

B. Proposed Frequencies For Experiment

One 5 MHz channel will be used in IMT-2000 range #1 or #2.

IMT-2000 Range #1

Link	From	To
Downlink (Base Station to Mobile)	2110 MHz	2120 MHz
Uplink (Mobile to Base Station)	1920 MHz	1930 MHz

IMT-2000 Range #2

Link	From	To
Downlink (Base Station to Mobile)	2165 MHz	2170 MHz
Uplink (Mobile to Base Station)	1975 MHz	1980 MHz