

3800-4200 MHz Experiment Description

1 Introduction

Qualcomm Incorporated (NASDAQ:QCOM - News) is a leading provider of 3G and 4G wireless technologies. For more than three decades, Qualcomm's ideas and inventions have driven the evolution of wireless communications, connecting people more closely to information, entertainment, and each other. Today, Qualcomm technologies are powering the convergence of mobile communications and consumer electronics, making wireless devices and services more personal, affordable, and accessible to people everywhere. For more information about Qualcomm, please visit www.qualcomm.com.

This experimental license request is to support research and development efforts for next generation large bandwidth wireless communications systems. While the spectrum requested for use in this license is not currently targeted for commercial deployment of a terrestrial communication system in the United States, the wireless technology that Qualcomm will be testing could operate in this or another frequency band.

The test network consists of four directional antennas that are oriented to create a small RF coverage area at Qualcomm's Morehouse campus facility. In addition to using the four directional antennas that will be tilted downward towards the ground, the actual test area is surrounded by multi-story office buildings and parking structures in all directions to provide additional attenuation of the RF signal. Qualcomm also has completed RF simulations demonstrating that the test signals will be attenuated below -100 dBm at distances less than 700 meters from the test area.

Testing is expected to occur periodically for six months from grant date and is a continuation of testing completed earlier in 2015 but was not fully completed under STA call sign WI9XHH. Initial testing will measure RF propagation levels to validate the RF coverage simulation model provided in this STA application.

2 Transmitter Information

The four transmitter sites are located on Qualcomm's Morehouse campus at 5775 Morehouse Drive, San Diego, CA 92121. Table 1 contains the specific information for each transmitter that is sending a wideband noise like signal. The frequency range of operation is 3800-4200 MHz.

Table 1 Transmitter Information

Site Name	Lat	Long	Azimuth (degrees)	AGL (m)	Down Tilt (Degrees)	Antenna gain	3dB BW (deg)	EIRP (dBm)	EIRP (W)	ERP (W)	Emission Bandwidth	Emission Designator
T	32 53 43 N	117 11 45 W	32	15	10	17	60	58	631	383	400 MHz	400M00W7W
QRC lamp	32 53 43 N	117 11 43 W	169	3	2	12	60	50	100	61	400 MHz	400M00W7W
QRC Park	32 53 45 N	117 11 42 W	11	40	20	17	60	58	631	383	400 MHz	400M00W7W
N Gym	32 53 45 N	117 11 44 W	231	3	2	12	60	54.5	282	171	400 MHz	400M00W7W

Figure 1 shows a RF simulation where the Qualcomm RF test signal is attenuated below -100 dBm at a distance less than 700 meters from the test RF coverage area. The simulations are based on a Cost-Hata Mid City Urban model and are expected to represent a conservative assessment of interference to any victim receivers because the simulations do not take into account the tall office buildings in the area that will provide additional significant RF attenuation. At the time of the STA submission, no licensed sites have been identified in the frequency range operating within 700 meters of the RF coverage area of the Qualcomm test network.

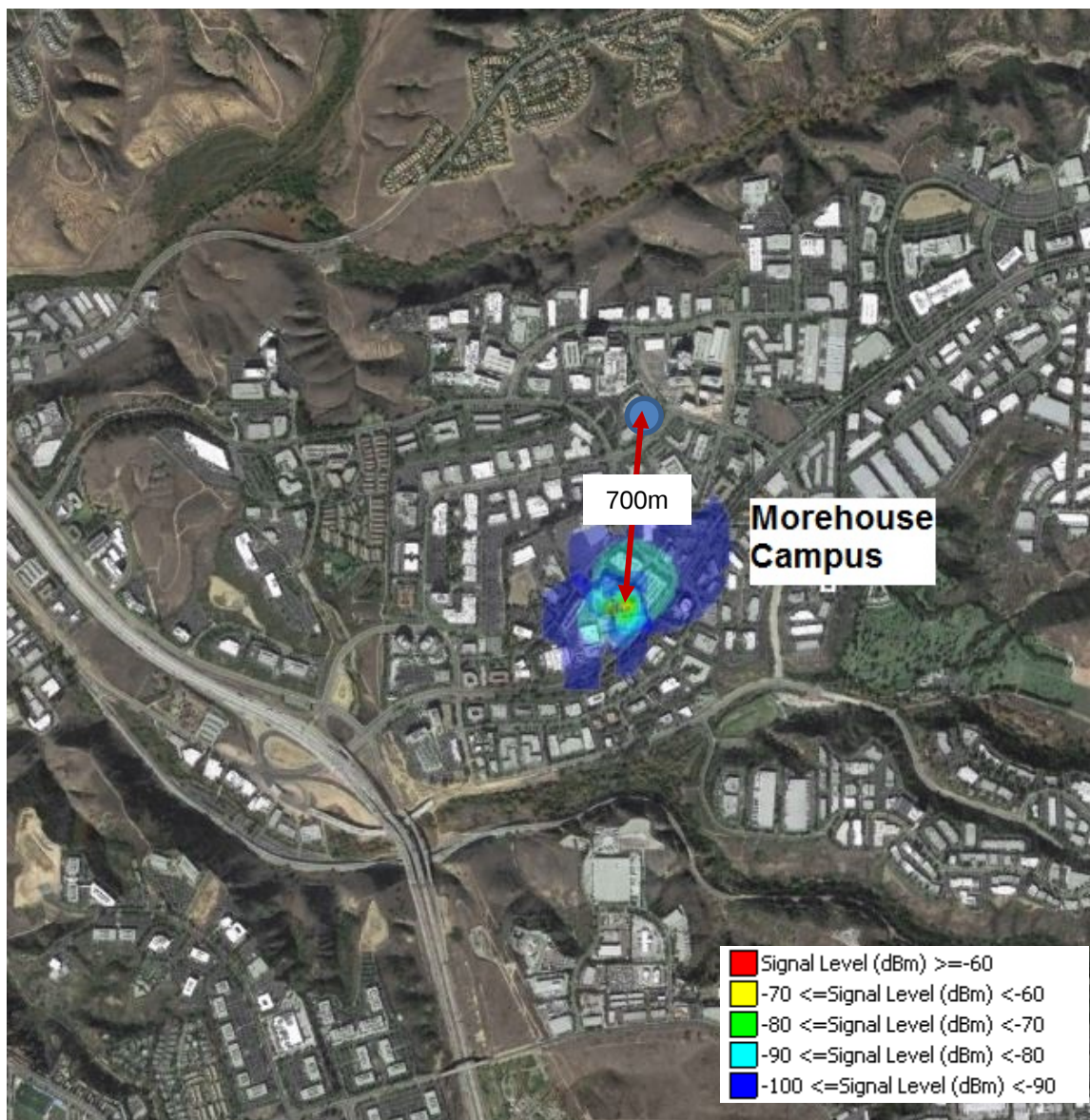


Figure 2 Four Site RF Coverage Simulation 3800-4200 MHz

3 Antenna information

Antennas used for the testing will operate within the following parameters consistent with what was used in the RF coverage simulation:

- Max Peak Gain: 17 dBi
- 3dB beamwidth: +/-45 degrees
- Front to back ratio: >25dB

4 Stop buzzer

Two methods are available for immediate shutdown of the Qualcomm test system in the event interference to licensed services is caused.

- 1) Email: tx.shutdown@qti.qualcomm.com
- 2) John Forrester can be contacted at 858-845-7428 or jforrester@qti.qualcomm.com

