

# 135 – 150 GHz Experiment License Application

## 1. Introduction

Qualcomm is the world's leading wireless technology innovator and driving force behind the development, launch, and expansion of 5G. When we connected the phone to the internet, the mobile revolution was born. Today, our foundational technologies enable the mobile ecosystem and are found in every 3G, 4G and 5G smartphone. We bring the benefits of mobile to new industries, including automotive, the internet of things, and computing, and are leading the way to a world where everything and everyone can communicate and interact seamlessly.

Qualcomm Incorporated includes our licensing business, QTL, and the vast majority of our patent portfolio. Qualcomm Technologies, Inc., a subsidiary of Qualcomm Incorporated, operates, along with its subsidiaries, substantially all of our engineering, research and development functions, and substantially all of our products and services businesses, including our QCT semiconductor business.

For more information, visit Qualcomm's website, OnQ blog, Twitter and Facebook pages.

Qualcomm will be experimenting with frequencies in the range of 135 to 150 GHz for communication purposes. The system will be comprised of both indoor and outdoor transmitters, which will all be located in or near Qualcomm facilities in San Diego, California.

## 2. Experiment Description

This experimental license would allow Qualcomm to develop new wireless communications systems technologies for the operating range of 135 - 150 GHz in San Diego, California.

Prototype transmitters and receivers will be located at the locations provided in Table 1 below. Higher power transmitters will be fixed and located indoors and outdoors. Mobile devices will operate within the coverage range of the transmitter. Transmission BW is comprised of 3 subcarriers at 2.5 GHz each using OFDM modulation. Fixed site transmitters will use beam steering antenna arrays.

Site Name	Latitude (dms)	Longitude (dms)	Height (m)	Azimuth (deg)	Tilt (deg)
BLDG QRC	32° 53' 45.24" N	-117° 11' 41.64" W	9.2	230	-15
BLDG T	32° 53' 42.36" N	-117° 11' 45.24" W	31.3	0	-20
BLDG N	32° 53' 42.72" N	-117° 11' 46.32" W	3.5	75	-5

**TABLE 1: Transmitter site locations**

Each transmitting station will operate over the air within the technical specifications provided in Table 2 below.

EIRP (dBm)	EIRP (W)	ERP (W)	Max Tx BW	Beam Width – Azimuth (deg)	Beam Width – Elevation (deg)	Modulation
65	3,162	1,198	2.5 GHz	+/- 60	+/- 60	OFDM

**TABLE 2: Transmitter OTA specifications**

The experimentation will be conducted 24/7.

### 3. Points of contact to stop transmission

The following points of contact are available as a stop buzzer:

Email: [transmitter.shutdown@qti.qualcomm.com](mailto:transmitter.shutdown@qti.qualcomm.com) (include the band and location).

Alternative contact:

John Forrester

Phone: 858-845-7428 (24 hours)

Email: [jforrest@qti.qualcomm.com](mailto:jforrest@qti.qualcomm.com)