6.815-6.915 GHz Experimental License Application

1 Introduction

Qualcomm's technologies powered the smartphone revolution and connected billions of people. We pioneered 3G and 4G – and now we are leading the way to 5G and a new era of intelligent, connected devices. Our products are revolutionizing industries, including automotive, computing, IoT, healthcare and data center, and are allowing millions of devices to connect with each other in ways never imagined. 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, all of our engineering, research and development functions, and 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 is conducting 5G R&D tests using prototype base-station (BS) and mobile device equipment in 6 GHz bands and is requesting this experimental license to assist it further in the development, validation, and demonstration of this new technology.

2 Transmitter Information

Experimental tests will be conducted within the immediate vicinity of Qualcomm buildings as depicted in the yellow 300m contour shown in Figure 1 and described in Table 1.

Four base-stations located on buildings in a cluster will form a short-range network around the buildings shown in Figure 1 for communication to mobile devices (not shown).

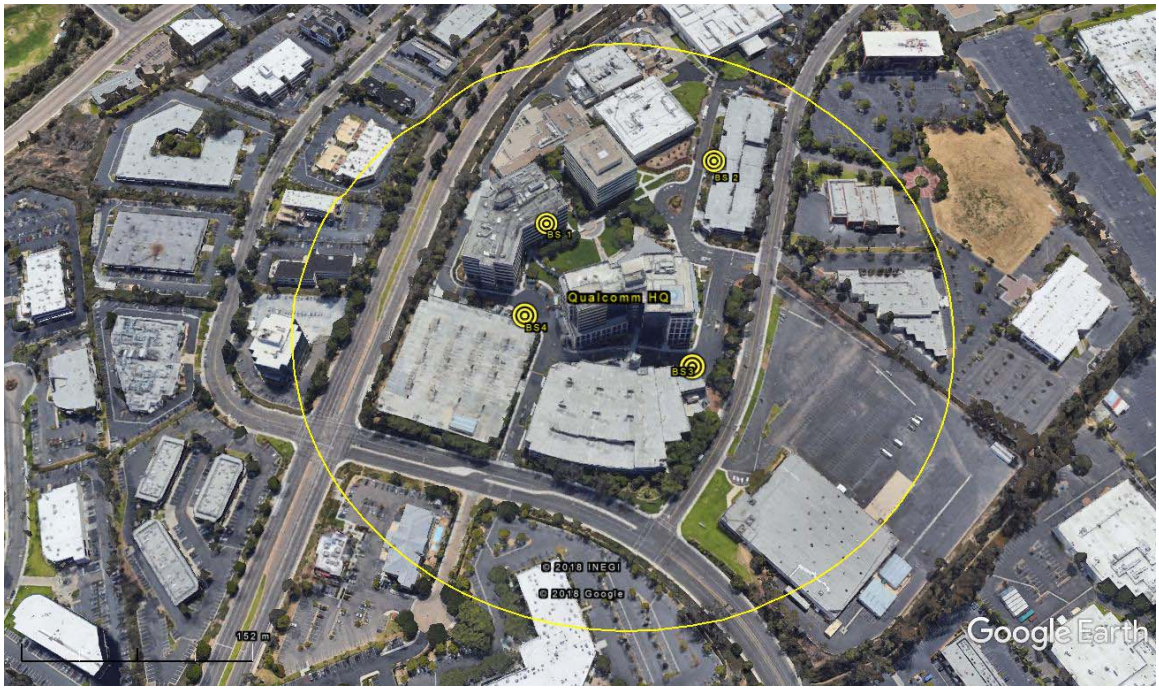

Figure 1. Sorrento Valley, San Diego, CA region of operation.

Each base-station transmitter uses a 120-180° single-sector downward tilting antenna pointed to small service areas at ground level for reception by mobile devices over a range of up to 200m.

The carrier center frequencies of the base-stations and mobile devices will be fixed at 6.845 GHz and occupy the band: 6.815-6.915 GHz with a TDD 5G New Radio (NR) signal that can vary in bandwidth up to a maximum of 100 MHz.

Table 1 indicates the site and antenna information and table 2 defines the transmitter information.

Site #	County	Latitude	Longitude	Height above terrain	Nominal beam shape and pointing	Planned Azimuth
1	San Diego, California	32°53'42.81" N	117°11'43.52" W	34m	elliptical: 120-180° H 10-60° V -10° boresight down-tilt or greater	298°±90°
2		32°53'42.47" N	117°11'49.27" W	7m		78°±90°
3		32°53'47.81" N	117°11'45.84" W	7m		201°±90°
4		32°53'45.16" N	117°11'41.87" W	7m		265°±90°
Mobile device operating area		within a 300m radius of Qualcomm HQ – yellow contour		<3m	60°circular beam-width or smaller	tracking site 1,2,3 or 4 with max elevation +10°

Table 1 Site and antenna information

		Peak EIRP					
Type	Center Frequency (GHz)	dBm	dBW	W EIRP	W ERP	Emission designator	Signal /multiplexing
Experimental Base station	6.845	55	25	316	316	100MW7D	5G NR / TDD
Experimental Mobile Device (up to 20)	6.845	36	6	4	4	100MW7D	5G NR /TDD

Table 2 Transmitter Information

3 Interference Coordination

Immediate requests for Qualcomm to stop transmission should be emailed to qualcomm.transmitter.shutdown@qualcomm.com. Alternatively, a shutdown request can be communicated to John Forrester of Qualcomm who can be contacted at 858-845-7428 and jforrest@qti.qualcomm.com.