

27.5-28.35 and 37-40 GHz MHz Experimental License Application

1 Introduction

Qualcomm's technologies have powered the smartphone revolution, connecting billions and billions of people. We pioneered 3G and 4G technologies – and now we are leading the way to 5G technology and a new era of intelligent, connected devices. Our products are revolutionizing industries, including automotive, computing, IoT, smart cities, and healthcare, and are allowing devices to connect with each other in ways never before 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.

This experimental license modification is requesting expansion of the existing experimental license call sign WJ2XDR. The modification is to add the downtown region of San Diego as a test area as defined in section 2.

The continued purpose of the experimental license is to support low power testing, development, and demonstration of 5G mmWave user equipment within and nearby Qualcomm's campuses in the Sorrento Valley area of San Diego, California and in Bridgewater, NJ, with the addition of the new region. The R&D experimental testing will operate within the frequency range of 27.5-28.35 and 37-40 GHz.

2 Experiment Description

Qualcomm will use this experimental license to develop, validate, and demonstrate 5G mmWave technology wireless communications systems.

Most Qualcomm activity in the requested frequency bands will occur indoors in laboratory environments. Mobile user equipment connects wirelessly to base stations or base station emulator test equipment. In all cases, the maximum EIRP of user equipment or base station equipment is less than 36 or 41 dBm EIRP. In limited situations, testing may occur outdoors.

For the purposes of this experimental license, all equipment is considered mobile as there is no permanent fixed site installations. Both infrastructure and mobile equipment can be located anywhere inside or near a Qualcomm building.

3 Transmitter Information

The transmitters used in the testing are 5G development TDD radios that utilize a variable RF transmission bandwidth up to a maximum of 800 MHz in the frequency ranges of 27.5-28.35 or 37-40 GHz. Both fixed and mobile transmitters use OFDM modulation with an FCC emission designator of 800M00W9W.

Table 1 below provides the technical parameters of the test equipment. All Sorrento Valley and Bridgewater test locations are within a 1km radius of the identified lat/long. **The new downtown San Diego location is a 6km radius.**

Table 1 Transmitter Information

Site Name	Operational Center Longitude Latitude	EIRP [dBm]	EIRP [W]	ERP [W]	Maximum TX Emission BW	Modulation
Downtown San Diego [NEW]	32 42 43 N / 117 10 17 W	43	20 W	12.1	800 MHz	OFDM
Sorrento Valley (San Diego, CA)	32 54 9 N / 117 11 44 W	36	4.0	2.4	800 MHz	OFDM
Bridgewater, NJ	40 35 16 N / 74 37 41 W	36	4.0	2.4	800 MHz	OFDM

4 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.