

11.7-12.2 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 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.

Qualcomm is conducting limited antenna pattern testing of satellite antennas designed for use in the 11.7-12.2 GHz frequency range. The antenna testing requires a large separation distance to gather far field data due to the frequencies and antenna aperture size and cannot be completed in Qualcomm anechoic chamber.

Qualcomm completed initial testing under STA call sign WK9XXU but has determined that additional testing will be required at different times over the next year. Qualcomm respectfully requests the Commission to grant an experimental license to enable Qualcomm to continue these important antenna characterization measurements when needed.

2 Transmitter Information

The transmitter will only be operational during periodic times during the day or week. Qualcomm anticipates a frequency will be active for measurement periods of 10-30 minutes when testing is active.

A small horn antenna, with a selected pattern to minimize interference, mounted and pointed so as to use the building structure to provide additional shielding to back-lobes is shown in figure 1 and 2. Table 1 defines the transmitter information and Table 2 defines the site location.

A single, low-power continuous wave form ("CW"), measurement signal will be transmitted from the site defined in Table 2 at a fixed orientation. In accordance with the FCC conditions of the current STA call sign WK9XXU, Qualcomm will continue to coordinate the test frequencies with IBFS-licensed earth stations within a 5kms radius, of which there are currently two operators, and will continue to notify licenses within a 15kms radius 5 business days before tests commence.

The equipment under test ("EUT") is a receive antenna that is located on another building as shown in Figure 2. The receive antenna's orientation is moved in a process to evaluate the antenna pattern. As described earlier, different fixed frequencies will be tested at different times to profile the antenna response versus frequency.

Table 1 Transmitter Information

Type	Frequency (MHz)	Peak EIRP			W ERP	Peak Antenna Gain (dBi)	Emission BW
		dBm	dBW	W EIRP			
Fixed	11.7-12.2	34.6	4.6	4.8	2.9	26.8	CW

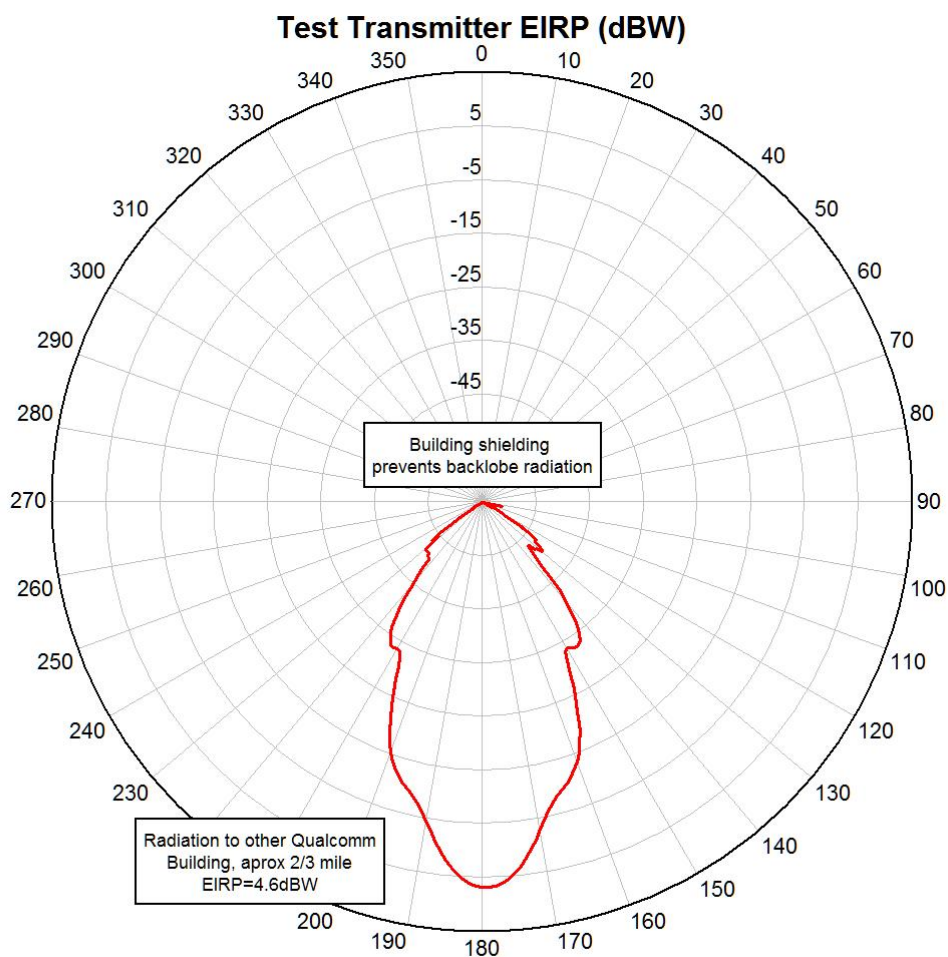


Figure 1 Fixed Site Antenna Pattern

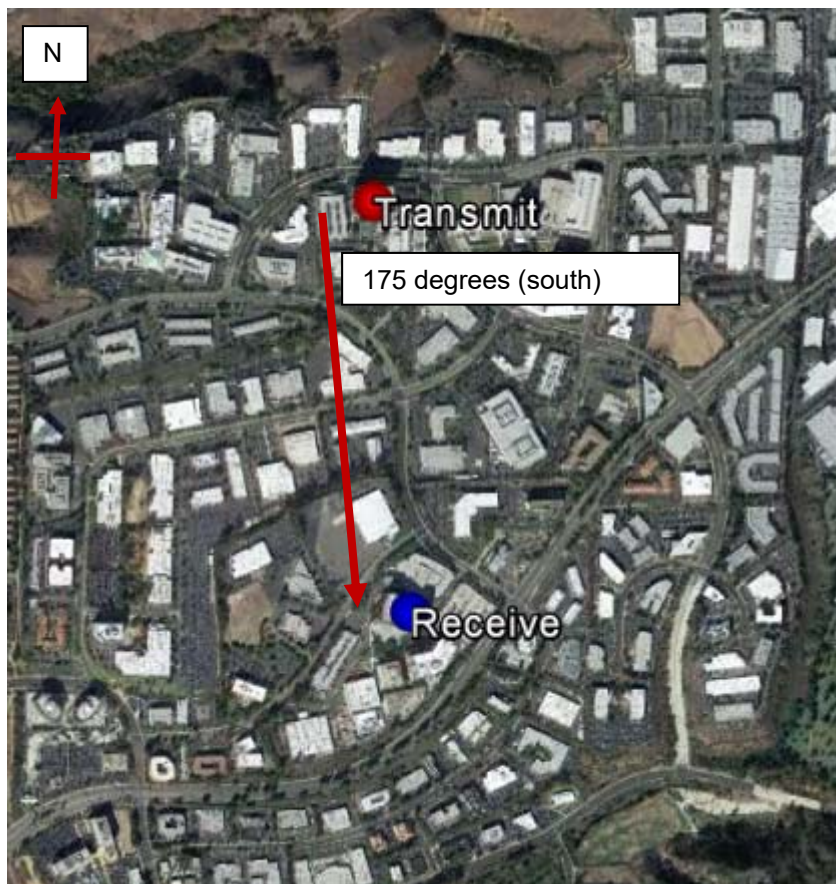


Figure 2 Location of Test horn and transmit path

Table 2 Transmitter Site Information

Site #	Address	County	Lat	Long	3dB Beamwidth	Azimuth	Elevation	Antenna Type
1	5745 Pacific Center Blvd San Diego, CA 92121	San Diego	32 54 14 N	117 11 47 W	+/- 4 degree	175 degrees (south) +/- 2 degrees	+/- 2 degrees above horizon	Directional standard gain horn

3 Points of Contact to stop transmission

The following points of contact is available as a stop buzzer.

Email ku.spectrum.shutdown@qti.qualcomm.com; or

Brian Jones
 5775 Morehouse Drive
 San Diego
 CA 92121
 858 658 4751 (24 hrs hour contact)
 brjones@qti.qualcomm.com