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Form 442 Question 7: Experimentation Description

Note: This document is the latest version of the Exhibit on Experimentation Description that replaces an earlier version of the Exhibit that was previously submitted.

Pursuant to Section 5.54 of the Commission's rules, Straight Path Ventures ("SPV") hereby seeks a conventional experimental radio license. SPV is developing radios that can support 5G fixed and mobile services in the 39 GHz band (38.4 – 40.0 GHz). The research and experimentation project will enable SPV to develop cost-effective transceivers in the 39 GHz band that can enable some of the essential features of 5G: large bandwidth (up to 1 GHz), high speed (multi-Gbps), and long range (up to 10 km). In order to achieve these goals (not necessarily simultaneously), we are developing multiple configurations of 39 GHz mobile and fixed 5G transceivers.

One configuration (hybrid beamforming configuration) is a phased antenna array with multiple transceiver chains. This configuration will allow dynamic steering of high gain beams across the coverage area of a 5G Base Station. This configuration is intended for fixed and mobile 5G Base Station. The maximum achievable EIRP of these devices is around 57 dBm while it will typically be operating at 40 ~ 50 dBm range.

Other configurations of the 39 GHz 5G transceivers are also being developed.

Another configuration (digital beamforming configuration) is a planar antenna array with multiple transceiver chains, with beamforming across transceiver chains achieved by digital processing. This configuration is intended for the Hub Station in fixed 5G deployment. We target 36 – 51 dBm EIRP with this configuration. The coverage of each sector is around 90 degree (azimuth).

Yet another configuration (fixed beam configuration) is a dish antenna with one or multiple transceiver chains. The dish antenna is around 6 – 12 inches in diameter. This configuration is intended for Consumer Premise Equipment (CPE) in fixed 5G deployment. We target 48 dBm EIRP for the CPE.

All equipment is designed to operate in the 39 GHz band. In most cases, operation will be on frequencies for which SPV's affiliate – Straight Path Spectrum, LLC – is authorized. SPV is unaware of any active use of the other frequencies on which it may operate. In any case, we will use power levels that will prevent us from transmitting outside of immediate geographic area in which tests will occur. Accordingly, there is no risk of harmful interference to co-channel third parties. All equipment is designed to meet the FCC emission requirements in the 39 GHz band so that it will pass compliance testing upon completion of development. Most of the tests will be done in the lab within our office, although we do plan to do some outdoor tests/demos within 2 km radius of our office to evaluate/demonstrate the achievable range/throughput of the technology.

We also request waiver of Section 5.115 of the rules, which otherwise requires us to transmit station identification. We plan to use devices that are only radio transceivers without a baseband unit. We plan to inject test signals such as single tones or waveforms generated by Arbitrary Waveform Generator. These signals typically do not have the ability to carry station identification. We also plan to connect the radios with off-the-shelf LTE and Wi-Fi based baseband solutions, which we do not have the ability to modify to add additional station identification. The station identification requirements are intended to permit the Commission or other interested parties to contact the licensee in the event that there is harmful interference. However, as noted above, based on the proposed operations and the frequencies that SPV intends to use, the likelihood of interference is minimal and SPV expects that it will be the only entity using these frequencies in the affected area in the unlikely case that others are able to detect its transmissions.