

## PURPOSE OF EXPERIMENT

### Response to Item 7

The purpose of this Experimental License is to determine whether the requested spectrum can be used to deliver high-quality fixed wireless broadband service. Great Lakes Communications Corp. ("Great Lakes") seeks a conventional experimental license for additional spectrum to supplement our current 3.65GHz-3.7GHz network for purposes of evaluating new products in our market. Great Lakes began fixed wireless Internet and VOIP phone deployment in 2012. We have grown to 1,934 subscribers, with 903 of those subscribers currently served in the 3.65GHz spectrum. Accordingly, we have experienced a growth in the bandwidth-to-subscriber ratio. Knowledge of the potential of our network capacity in this spectrum is crucial to plan the future of our business's ability to serve the public. The experimental license will facilitate our company's efforts to evaluate product performance in a market trial under expected use conditions.

We have made a significant investment in Telrad Compact 1000 LTE base stations with the intent of evaluating their potential capacity. To test this potential, we are applying for 100MHz of experimental spectrum granting us access to 3.55GHz through 3.65GHz on an experimental basis. This additional spectrum will allow us to test capacity and interference by experimenting in a number of different live network scenarios that will yield true performance data. The first is to develop a four-sector site using two 20MHz channels in a back-to-back frequency reuse scenario. The second is to test the performance of the aggregation of two 10MHz channels into one 20MHz channel. The third is to have a single 10MHz sector operate in a low-noise environment. The information gathered from these experiments will give us knowledge of the true potential of the equipment. As the experimental licensee, Great Lakes shall own all transmitting and receiving equipment in this experiment. All antennas are mounted on existing facilities, all of which correspond to base stations registered under our 3.65 GHz license (Call Sign: WQPL282) subject to ASR/FAA review; accordingly no antenna sketches are provided with this filing. .

Great Lakes is requesting the experimental status be granted for one year. This period is necessary because Telrad has yet to release the carrier aggregation update in a general release. Another major upgrade to the Telrad LTE platform is MU MIMO which has been rumored to increase capacity of a base station by 70%. These features are scheduled for release later in 2018 and in anticipation of these updates we are requesting a 12-month experimental license period. The information gathered by this experimental license will be critical in planning our future network to meet the needs of subscribers in underserved parts of the state.

Please contact the undersigned if there are any questions regarding this request.

Adam Nelson

Plant Manager

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