

From: Robert H. Jackson

To: Behnam Ghaffari

Date: October 24, 2017

Subject: 0775-EX-CN-2017

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Message:

0775-EX-CN-2017 Response No. 1

Carnegie Mellon University (CMU) was asked the following question: "Please justify the need to operate 200 vs. 50 devices."

The LoRa devices to which this application applies can transmit on the 430-440 MHz and 902-928 MHz bands, as well as on TV White Spaces frequencies. CMU previously filed an application (0153-EX-CM-2017) for an experimental license for these radios that sought modification of WI2XXL. Due to unforeseen circumstances, CMU was unable to prosecute 0153-EX-CM-2017 fully, such that the Commission dismissed it.

In the near term, CMU intends to file another application for the LoRa radios to operate in the TV White Spaces bands (i.e., to replace the 0153-EX-CM-2017 application). However, at the direction of OET, that application will not include a request to operate the LoRa radios in the 430-440 MHz bands. Rather, such authority is being requested separately in this application (0775-EX-CN-2017). In other words, CMU is ultimately seeking two experimental licenses to operate the LoRa radios to satisfy the instructions from OET.

One of the major purposes of CMU's White Spaces experiments at both its Main Pittsburgh and Silicon Valley campuses is to test scalability of infrequently transmitting radios. Can satisfactory performance obtained on a small scale, i.e., one or two fixed units and several mobile units, be replicated when the number of fixed and mobile units increase? Are there limits to scalability? Can a user with a pressing need for a larger system quickly expand from a smaller system quickly and successfully? CMU believes that its 200 mobile units will allow for such controlled experimentation.

Also, there is recent precedent for an experimental White Spaces license that has a total of 300 stations. Please see File Number: 0492-EX-PL-2016 Call Sign: WI2XMI, Adaptrum Inc. The Adaptrum radios are authorized to operate at higher power than the CMU request, 7.94 Watts (ERP).

Accordingly, CMU believes its request is justified as filed. Should you have further questions, please contact me. Thank you for your time and consideration.

Robert H. Jackson  
Counsel to Carnegie Mellon University  
703-714-1316