From: Marojevic Vuk

To: Behnam Ghaffari
Date: December 30, 2020

Subject: FCC File No. 0266-EX-CM-2020
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Message:

In order to clarify the modification of the license, I would like to point out and explain each one of the requested changes below. The 4th and last point is most relevant to our research, as explained in continuation.

1. The current license is for 6 software radios. I would like to request to use up to 8 software radios. The use of these radios is for experiments on ground and low altitude, up to 400 feet. National Instruments USRPs are used for testing an LTE and 5G experimental radio access networks with up to 3-4 ground radios and up to 3-4 aerial nodes to advance research on cell association and handovers when serving ground and low altitude users, characterizing interference, and investigating interference mitigation techniques.

2. Mobile node power levels: The current license establishes 200.000000 mW transmission power and 2.000000 W EIRP. I would like to request up to 1 W and 3 W EIRP, if possible. The reason is to investigate if a larger range of transmission power levels and for power control mechanisms to optimize link and network performance. Most of the experiments would still operate mobile nodes below 200 mW transmission power. We use nearly no gain antennas.

3. Fixed node power levels: The current license establishes 1.000000 W transmission power and 10.000000 W EIRP. I would like to request up to 10 W and 10 W EIRP, if possible. The EIRP would remain unchanged, but it may be useful to experiment with transmission powers slightly higher than 1 W, if possible. Most of the experiments will use fixed nodes that transmit below 1 W. We use nearly no gain antennas.

4. The current license establishes three frequency bands. What matters for the requested modification is as follows: 3550.00000000-3700.00000000 MHz for FX and 3550.00000000-4200.00000000 MHz MO. If possible, we would like to extend this to 3300-4200 MHz for both FX and MO. The main reason is that our research interests are in cellular type experimental network, time and frequency division duplex (TDD and FDD), where in the case of FDD the frequency spacing is typically around 100 MHz. For our research we would like to test LTE and 5G like experimental systems and links. Adding the 3300-3550 band would be relevant for R&D on both LTE and, especially, 5G while it is still being rolled out.

Please let me know if you have any questions or concerns or if I need to modify my request.

Thank you,
Vuk Marojevic, Mississippi State University