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# Rice University to test FCC's white-space initiative

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Rice University professor Edward Knightly said they'll make sure a frequency is free and clear to use before they send or receive signals over their White-Fi network.

Rice University professors Edward Knightly and Lin Zhong are likely to be among the first in the nation to test the FCC's new white-spaces rules, thanks to a recent \$1.8 million federal grant to establish a white-space test-bed network in East Houston, TX.

The five-year project calls for Rice and Houston nonprofit Technology For All (TFA) to add white-space technology to a wide spectrum Wi-Fi network they jointly operate in Houston's working-class East End neighborhood.

◆ The exact rules that the commission adopts will determine the ease of implementation, the coverage range and the capacity of our deployment of ◆ White-Fi ◆ in our neighborhood network, ◆ said Knightly, the principal investigator on the new grant from the National Science Foundation.

The TFA network delivers free broadband Internet to about 4000 users in a 2-sq-mi service area. Launched in 2004, TFA Wireless uses unlicensed Wi-Fi frequencies ranging from 900MHz to 5GHz. The new project calls for adding frequencies between 500MHz and 700MHz.

Knightly and Zhong, both members of Rice ◆s Department of Electrical and Computer Engineering, will develop and test customized networking gear that can broadcast on White-Fi frequencies as well as customized smart phones and laptops that can receive the signals. The FCC rules are expected to strictly prohibit White-Fi signals from interfering with television broadcasts in the licensed portion of the 500MHz to 700MHz spectrum.

◆ It ◆s going to be up to us to make certain a frequency is free and clear to use before we send or receive signals, ◆ Knightly said. ◆ The rules spell out what the FCC expects of us in this regard. How we configure our network will be determined, at least in part, from these rules. ◆

Once implemented, the white-space component of TFA Wireless will allow Rice ◆s team to study how the combination of White-Fi and Wi-Fi can help users extend battery life and get improved reception. They ◆ll also explore the potential energy savings from powering down Wi-Fi nodes and covering large portions of the network with a small number of White-Fi transmitters during off-peak hours.

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