



NYU

**TANDON SCHOOL
OF ENGINEERING**

PRESS OFFICE • 1 MetroTech Center, 19th Floor, Brooklyn, NY 11201

CONTACT • Kathleen Hamilton
646.997.3792 / mobile 347.843.9782
kathleen.hamilton@nyu.edu

Immediate Release

NYU WIRELESS founder predicts proposed FCC rule will grow amateur radio hobby and inspire future engineers

BROOKLYN, New York, Thursday, April 4, 2018 – In comments filed with the Federal Communications Commission and members of Congress today, the researcher credited with proving to the wireless communications world that millimeter wave communications should become the backbone for 5G cellular cast his support for a proposed FCC ham radio rule, predicting it would open exciting opportunities for growth in amateur radio and encourage youngsters to listen and thereby learn about electronics and communications.

Professor Theodore (Ted) Rappaport, the founder of the noted research center NYU WIRELESS at the NYU Tandon School of Engineering and the world's most highly cited author in the wireless communications field, wrote:

“The FCC has recently recognized a major problem that has existed for decades in ham radio, and in the past few days took steps to institute vital new rules that will grow the hobby by reiterating the fundamental requirement that all radio communications are open, so that the public may listen in.”

Rappaport was referring to rulemaking proposal RM-11831 by Ron Kolarik, a radio amateur from Nebraska who singled out two key problems that have plagued the hobby for two decades, through the emergence of data communications and the Internet. In the rulemaking petition, [RM-11831](#), Kolarik noted that many stations are improperly using effectively encrypted transmissions, essentially turning the public airwaves of ham radio into a private point-to-point email system, in violation of many FCC rules. Rappaport had [earlier complained](#) to the FCC and Congress about the danger of such obscured messages for national security.

“Even in emergency communications, the FCC has ruled clearly that ham radio traffic must always be open to public interception, so that anyone, including the public and other hams, can tune in to listen and learn, and even to help in time of emergency,” Rappaport wrote. “Ham radio is what led me and thousands of others into a career of electronics and communications, and it all started by listening to shortwave, which then led me to ham radio and my N9NB call sign as a teenager. This new rulemaking

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will ensure that young computer enthusiasts will be able to use open source software and readily available decoding methods to listen in by tinkering and engaging with an exciting hobby that encourages international goodwill and develops the soft skills and electronics know-how needed to succeed in science, technology, engineering, and math (STEM).”

In his recently filed [comments](#) to the FCC, which were also sent to many congressional leaders, Rappaport acknowledged the efforts of the [American Radio Relay League](#) (ARRL): “I also applaud the ARRL’s recent acknowledgement of the problems of obscured data and digital aggression...that exist in the hobby today.”

“I am proud to be a Life Member of the ARRL, but the ARRL represents only 20% of the 750,000 hams in the United States and is coming out of a dark period. ARRL’s past lack of attention to gross FCC rule violations and numerous spurious petitions led to a stagnation in ham radio. The current ARRL board realizes that changes for the hobby are needed, and RM-11831 acknowledges past problems and sets the hobby on an exciting new path for growth, bringing ham radio back to its fundamental purpose of openness and building a reservoir of technical experts for our country.”

Rappaport said some parts of the high frequency (HF) amateur radio service have effectively encrypted data. He explained the technical history: “In 1995, FCC approved ham radio to use open source data, PACTOR 1, through 95-2106, which met the FCC’s objective of preventing the use of codes or ciphers intended to obscure the meaning of the communications.

“Over the years, some data and private email advocates began to chip away at the FCC Part 97 rules with tiny modifications and very nuanced language that allowed for ‘creative interpretation’ leading to frequent interference with other hams and obscured data that only one sender and one receiver can understand over the public airways. This was accomplished by compression and automated request transmissions (ARQ) that require instantaneous channel knowledge that only the sender and receiver can experience. This provides effective encryption over the air, and even other owners of radios equipped to receive ARQ cannot intercept the signals for their plain meaning.”

Rappaport’s [critics](#) include the Amateur Radio Safety Foundation, Inc. (ARSFI), which runs a global email system, Winlink, over the amateur radio short wave spectrum as well as in other frequency bands used by mariners and governments. Winlink uses a network of largely unattended, automated repeater stations that store and forward messages around the world using the ionosphere. Hams have complained for decades to the FCC that such messages cannot be eavesdropped over the air by the public, other ham operators, or even the FCC.

“The FCC has always been very clear that all ham radio messages must be out in the open, for over-the-air copy by anyone in real time.” Rappaport said, citing numerous FCC rules that suggest the amateur radio spectrum is a gift, like a national park, made available for all to share.

“Having openly decodable communication is the only way to engage the public, self-police the amateur spectrum (as required by FCC), and grow a healthy, open, and inclusive hobby that attracts youth. The FCC has recognized this with RM-11831. With this proposal, there will be no loss of emergency communications capabilities and no loss of legitimate data. The ruling simply reaffirms that all store-

and-forward transmissions need to be confined to the FCC-allocated sub-bands already made available for this type of data so that they avoid interfering with others, and that all transmissions will be openly decodable by other hams, the public, and the FCC. I sincerely hope that by being able to listen in, youngsters will become fascinated with the magic of radio, just like I and thousands of others did before we finished high school.”

The FCC is accepting comments on RM-11831 until April 29, 2019.

About NYU WIRELESS

NYU WIRELESS is a multi-disciplinary academic research center that offers an unprecedented and unique set of skills. Centered at the NYU Tandon School of Engineering, and involving more than 100 faculty and students throughout the entire NYU community, NYU WIRELESS offers its faculty, students and affiliated sponsors from industry a world-class research environment that is creating the fundamental theories and techniques for next-generation mass-deployable wireless devices across a wide range of applications and markets. This center combines NYU Tandon, NYU School of Medicine and NYU Courant Institute of Mathematical Sciences, and offers a depth of expertise with unparalleled capabilities for the creation of new wireless circuits and systems as well as new health care solutions for the wireless industry. For more information, visit www.nyuwireless.com.

About the New York University Tandon School of Engineering

The NYU Tandon School of Engineering dates to 1854, the founding date for both the New York University School of Civil Engineering and Architecture and the Brooklyn Collegiate and Polytechnic Institute (widely known as Brooklyn Poly). A January 2014 merger created a comprehensive school of education and research in engineering and applied sciences, rooted in a tradition of invention and entrepreneurship and dedicated to furthering technology in service to society. In addition to its main location in Brooklyn, NYU Tandon collaborates with other schools within NYU, one of the country’s foremost private research universities, and is closely connected to engineering programs at NYU Abu Dhabi and NYU Shanghai. It operates Future Labs focused on start-up businesses in downtown Manhattan and Brooklyn and an award-winning online graduate program. For more information, visit <http://engineering.nyu.edu>.

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