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Federal Communications Commission
Washington, D.C. 20554

Re: Comments on ET Docket No. 15-99

I strongly support granting amateur licensees the authority to operate in the 2200 Meter band. I also strongly support licensed amateur use in the 630 Meter band and the adoption of RR 5.80A.

The use of the bands may be limited or specialized but the interest in either band is broad-based.

There are tangible benefits in providing for licensed amateur use in the 2200 Meter and 630 Meter band. Not only will amateur operators get new opportunities to experiment but it can help pipeline amateurs and non-amateurs into technology fields.

The current experimental authorization process is too burdensome. It has and continues to prevent the entry of new experimenters and non-amateurs who have great interest in the low and medium frequencies but do not have the specialized experience to put up these stations.

As the ARRL states, amateur technical self-training and radiocommunications development would be greatly enhanced by an allocation.

Our President and the Congress want to build a more talented

and diverse workforce with the skills needed to succeed in 21st century jobs. Opening up these bands for amateur use and encouraging experimentation will dovetail with our government's human infrastructure efforts.

It will also help increase economic mobility which always needs active government encouragement. It is very much in the public interest for the Commission to assist with this.

The fact that of the 27 countries named in RR 5.80B most are monarchist states, with Egypt and its current coup government included, is very dispositive that the real issue for these states is not radio interference but control of their and their neighboring populations.

The Commission can show an open and informed society is in the public interest by allowing amateurs to use both bands and encouraging their use and experimentation.

Radio experimentation is undergoing a Marconian renaissance because of the advances in software defined radio applications and hardware.

Mr. Leggett in his comments explains how well suited lower radio frequencies are for invention, building and designing radio equipment. I refer the Commission to his comments. In addition the lower frequencies are very well suited to building and designing radios in software.

Reducing hardware components and systems to software blocks

is helping to grow the base of radio experimenters. Free professional computer software such as GNU Radio has become more common place. With GNU Radio one can design both receivers and transmitters in software. The actual electronics of radio can be very confusing to beginners. SDR software can help abstract out the math from the electronics making radio easier to learn and understand.

Sound card digital-to-analog converters are fast enough today to digitize into the low IF range. Modern laptops already support 192,000 samples per second stereo playback. My $149 Rockchip Chromebook supports this speed. There is even a board for the Raspberry Pi that supports stereo output at 384,000 samples per second.

With the development and widespread use of the Tayloe mixer it has become easier to build a transmitter in software and then upconvert the IQ output to the transmission frequency. At lower frequencies the Tayloe mixer might not even be needed.

Cheap USB based DAB receivers with digital IQ outputs have brought more people into radio experimentation. One no longer needs a $600 receiver to get started. Experimenters have also written command line tools to demodulate standard voice modulations as well as standard data modulations such as OOK and ASK.

I understand why the Commission wants to take a measure and deliberate appoach specially on matters that touch on critical infrastructure. However PLC operators should be acting in a measured and deliberate manner as well.

Besides responding to your questions in the NPRM they should also be showing how they are taking steps to remediate against data breaches and infrastructure attacks. After the OPM data breaches the measurement stick has gotten shorter.

No amateur wants to diminish or supplant PLC operations.
I agree that efficient sharing of our scare spectrum is in the public interest. However PLC operators must meet up half way and be more responsible as well as responsive to the Commission.

PLC operators should, like the current crop of forward thinking AM broadcasters, also investigate using modern radio technology, such as radio chips made by Silicon Labs, in their devices to improve rejection of interference.

That the Commission decided to allocate a secondary amateur service to the 2200 Meter band after 12 years shows that PLC operators can no longer rest solely on deference. Human infrastructure is just, if not more, critical to the public interest as physical infrastructure.

Limiting stations to fixed locations is a mistake, especially for the 630 Meter band.

Amateur licensees can be trusted to check whether they are suitably distant from PLC operations. Advancements in geographic information system technologies and mapping capabilities are already used heavily by amateurs, especially those operating in this specialized area. Fixed location operation is and will be as burdensome as the current experimental process.

Amateurs and non-amateurs that live in noise pervasive locations will be effectively excluded from experimentation if mobile stations are not allowed. Transmission and reception go hand in hand, especially if station operation must be supervised.

An amateur/experimenter whose station is surrounded by RF noise should be allowed to relocate their station. Like an amateur astronomer who must move to a location of less light to observe, an amateur radio licensee should be allowed to move to a location of lower noise.

As the Commission notes, PLC are not present in most residential neighborhoods. Therefore to prevent mobile station operation in residental neighborhoods is too restrictive and defeats the experimental, interest potential, and educational opportunities inherent in the bands.

From my experiments, merely moving 400 meters into the middle of New York's Central Park I was able to noiselessly pickup a Washington Capitals game on my portable radio. This is in contrast to the waterfall of noise I could only receive at the

entrance to the Park. Reception should be even better at one of the many parks in the Bronx or at Brooklyn's Floyd Bennett Field, one of the parks where my astronomy club observes.

Unnecessary restrictions will not be conductive to experimentation.

I read the Davis proposal prohibiting "software-driven modes that determine their own operating frequency without human intervention" as meaning that transmissions must be supervised. I oppose any reading of the Davis proposal that would restrict experimentation. I also agree with the ARRL that a stricter limit on bandwidth would not be conductive to experimentation.

Also I disagree the bands should be limited to the upper classes of amateur licenses. What is important is the amateurs' interest in experimenting, not their skill at routine and widespread communications. So the use of the lower frequency bands should be granted to all amateur license classes.