

I am commenting on the proposed use of utility power lines for the transmission of broadband data for internet interface. My experience and understanding of other attempts for such lead me to believe that this approach is vastly underrated in its adverse impact on many other uses of the HF spectrum. As an amateur radio service licensee I can only see this as an effectual end to a major facet of my use of the HF spectrum: weak signal and low powered communications.

My points to be made against the proposal are as follows:

1. There is (or can be) sufficient bandwidth via existing transmission systems, that is via TV cable or via DSL/phone lines. Both of these use shielded cabling and will not radiate appreciably at HF.
2. A recent failed use of so-called wireless modems by the local cable TV franchise in lieu of hard cable wiring for their billing system was a thorough disaster on the frequencies involved. Those devices made useless the amateur frequencies involved with a device within a 1 mile radius. There were also instances where the propagated in from 25 to 50 miles away.
3. Being a scientist as well as an amateur radio operator, I can attest to the efficiency of the power line systems as being basically antennas rather than a closed transmission system. In chasing down an arcing insulator, I found classic standing wave patterns on the power lines as one obtains from longwire antenna systems. The power lines acted (and always will act) like a very efficient antenna system.
4. Any transmission system that is not balanced to the scale of a very small fraction of the wavelength involved will always radiate some of the transmitted signal. As the frequency corresponding to the data transmission rate is approximately 80 MHz, it is clear that a choice of even a balanced line transmission medium of spacing more than 5 or 10 cm will radiate (and be correspondingly inefficient in the transmission of the desired signal down the line!). And a power line system would present an unbalanced single wire transmission system with the ground as the apparent other conductor. This would give a spacing of 8 to 20 meters, clearly a major radiation source.
5. If the telephone systems or cable TV systems used other than the shielded cables presently in service, the service to their desired customers would be significantly degraded: not only would the intended signal be degraded in intensity by the radiative loss along the transmission line but also any RF source along the way (licensed or otherwise) would be picked up and very likely interfere with the intended digital transmissions.

In summary, use of the utility power line system for transmission of digital internet communications is an ill-conceived, troubleprone, troublesome, and intrusive way to achieve an end. To the radio amateur and other users of the HF RF spectrum it is equivalent to turning on all the lights in Los Angeles and deliberately adding to light pollution for astronomers, professional and amateur alike. To the average consumer, it will lead to a general rise in noise in household devices using that spectrum. And to the actual providers

of the service it will actually be a much dirtier and less reliable system in practice.

Let's keep digital transmissions in the HF and lower VHF spectrum restricted to appropriately sized balanced transmission lines or carefully shielded coaxial cables. Those are proven methods and basically good engineering practice.

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