

Like many of the commentators so far, I am grateful that these question are being raised by the Commission.

Lower frequencies will facilitate meeting a currently unmet need: ubiquitous broadband in rural areas, which is extremely unlikely to be met through wired infrastructure, especially for households.

Currently, the 900 MHz ISM band is the only no-license way to get a signal through foliage for any significant distance (a few miles at best) -- a problem that affects a large portion of rural America. Higher carrier frequencies suffer from greater inability to go through leaves; thus, recent proposals of additional spectrum at 3 GHz are of little last-mile utility in rural areas.

Additionally, due to low population there is a tendency to have lower density of TV broadcasting in rural areas, thus reducing contention for spectrum. Thus, TV spectrum, in particular the lower end, would facilitate last-mile (more importantly, last ten-mile) uplinks.

Other comments preceding mine are from individuals and companies who want to provide "broadband" Internet access, which should be borne in mind not only when you allocate spectrum, but also when you determine limits on spread-spectrum bandwidth within a channel. The goal should not be the provision of 56 kbps via sub-900 MHz radios; it should be to provide T1 service, as a minimum.

Also: although many of the respondents to this NOI are in the WISP sector, please understand that a WISP-only band (to the exclusion of other sub-900 MHz usages) would be short-sighted. Other uses that readily come to mind include environmental telemetry (used by environmental scientists and field biologists among my own clientele; this also has great homeland security potential for monitoring large rural areas like reservoirs) and county-wide videoconferencing networks (e.g., for school systems). There are plenty of other non-WISP applications that I have not thought about -- and that indeed is the point.

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Regarding specific questions:

"Should new unlicensed devices be permitted to operate within any portions of the TV bands,..."

Yes.

"...and if so which portions?"

Lower carrier frequencies are better in the woods. It would be grand if you would find a way to extend access down to channel 7, at least.

"Should unlicensed operations be permitted in the [channel 52-69] reclaimed spectrum?"

Why not? If interference is considered a risk, then require enough intelligence and frequency agility to stay away from occupied channels. This approach would also solve similar problems during transition from analog to digital TV broadcasts.

"Could unlicensed devices operate in TV bands with a power greater than the 1 watt maximum permitted for Part 15 devices in the ISM bands...?"

I certainly hope so. If we are to facilitate applications that serve large rural areas (either near big forests or very big, sparsely populated plains) it is doubtful that a 1 watt limit will meet the need.

"Should unlicensed devices be required to use an integrated transmitting antenna be prevented from using external amplifiers and antennas?"

No; to do so would greatly stifle innovation of the type we have already seen in the ISM bands. "Pringles cans" notwithstanding, a huge part of the recent advancements in the use of spread-spectrum digital radio resulted from novel implementations of point-to-point and point-to-multipoint 802.11b technology using amplifiers and antennas that, while within the broadcast standards, were (at best) in the legal limbo of not being certified \*systems\* from transmitter to antenna. I would greatly prefer to see rules requiring certified \*components\*.

A better approach would be based upon transmit power. Set a limit of "N" maximum dBm, perhaps with a higher value for "N" in point-to-point operations (like the 5 GHz ISM 3-to-1 rule).

"Could GPS ... be incorporated into an unlicensed device so it could determine its precise location and identify licensed users in its vicinity by accessing a database?"

Unlikely to work. Two reasons: (1) within forested areas, where such technology will be of great potential utility to citizens, scientists, and government, GPS does not work well, if at all. (2) a GPS-plus-database approach does not protect users of licensed spectrum if their licenses are granted after the date of database creation, assuming the database to be in some sort of ROM.

Respectfully submitted,  
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