

Unlicensed Operation in the TV Broadcast Bands

1. The proposal in the Notice to require personal/portable devices to comply with a control signal sent by the incumbent broadcaster is unnecessarily restrictive. It imposes by rule an inefficient rent extraction in favor of the incumbents, without offering flexibility for more efficient designs, and while ignoring a more permissive option that would allow a market engagement between the incumbent broadcasters and equipment manufacturers, but would not force it by rule.
2. The legitimate concern expressed is that portable devices will have to deal with more complex situational changes than fixed devices, and therefore require greater care in their design to assure that they in fact use only unused frequencies. The actual requirement appears to be that all mobile devices sharing the proposed band will be required by rule to seek and comply with a broadcaster-emitted control signal.
3. This effect of this requirement is to offer the broadcasters a means of extracting a rent from the mobile device manufacturers, and ultimately from device users. Nothing in the proposal appears to require the broadcaster to design its use of the control signal so that it assures non-interference. Indeed, the Notice specifically states that the control signal is an opportunity for incumbents to charge fees. As structured, these fees would not reflect efficiencies gained from use of the control signal, but purely the rent value of freedom to operate.
4. While mobile devices may indeed pose a more complex problem than fixed devices, this problem is not fundamentally different. Most devices are likely to operate within a home, a campus, or at most a commuting range—in automobiles or commuter systems. For most of these systems, the relevant television environment will have slight changes over the course of their deployment. While this makes a “professional installation” option unlikely feasible, there is no reason to think that device manufacturers will be unable to make mobile devices situation-aware. For example, devices can continuously compare their geographic position with an updated table of allocations and assure that they use only unassigned or unused bands. This would be more complex, and hence expensive, for genuinely long-distance portable equipment, but again, not technologically different in kind.
5. It may be more expensive to build context-aware devices than devices capable of complying with a control signal. If this is so, a market opportunity develops. Broadcasters and device manufacturers can bargain for the genuine benefit to be derived from installing the control signal capability in the tower, rather than building all the coordination into the device. If this were to happen, it would represent a genuine improvement in efficiency, and should not be prohibited by regulation. But this permissive regulation, allowing devices without complete situational awareness to operate if they can comply with a control signal, is very

different from a regulatory requirement that all mobile devices in these bands must seek permission from an incumbent, in the form of a control signal. The price of this permissive access would not be a rent, based on the value of the wireless devices and the government-granted monopoly of the incumbent over the bands, it would be a price that would be set somewhere between the cost of implementing all the coordination in the end-user device and the cost of implementing coordination in the interaction between the end-user device and the incumbent's facility.

6. The Commission should change the proposed rule with regard to portable devices. Instead of requiring compliance with a control signal, the rule should require portable devices to be context-aware in the same way that fixed devices that are not professionally installed may be designed, and offer control signal compliance as an optional alternative, parallel to professional installation in the fixed context.

Yochai Benkler
Professor of Law
Yale Law School