



## Shooting Blanks on Wireless Policy

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US regulators are designating that unused TV channels be made available for low-power wireless devices. The move – pushed by tech giants Microsoft, Google, HP, and Dell -- is hailed as “liberalisation”, paving the way for “Wi-Fi on steroids.” The exact same hype, including a similar “licence-exempt” plan, inspired a 2005 bandwidth set-aside for WiMax (at 3.6 GHz) that has since flopped. The TV Band initiative is likewise a debacle in the making.

In December 2002, the Federal Communications Commission announced its intention to permit short-range wireless devices to use unoccupied TV airwaves. With 49 channels reserved for digital TV stations (the last analog stations went dark in June 2009), and only eight stations in the average market, the abundant frequencies were left to go fallow, in what are known as “white spaces.”

After nearly a decade, they remain idle: not a single radio device has been approved for their use. This gridlock is the result of the policy chosen. Instead of auctioning exclusive rights to the white spaces and letting private competitors manage spectrum sharing arrangements, the Commission managed congestion by imposing power limits, technology restrictions and other rules of the road.

Tech firms argue that this framework is easy to design and trivial to enforce; “smart radios” that politely tip-toe around the TV broadcasts are just off-the-shelf science.

This view is fatally misleading. Technology defines what is possible, but economics reveals the options that are best. Complex value trade-offs exist; state bureaucrats are flummoxed. The FCC has spent years pondering how white space devices should operate, rejecting every “smart radio” design submitted. They aim to protect viewers of over-the-air TV from reception interference. But how much protection, and at what cost?

Each mandate forces new Wi-Fi radios to be better behaved in order to reduce the threat to Aunt Minnie’s rabbit ears – but that raises their price or hampers their performance. For example, the FCC will not allow the new mobile devices to use more than a tiny splash of power (a small fraction of that permitted with Wi-Fi). Moreover, the radios must avoid any channel with a TV station on it or next to it – blocking off three channels per local TV broadcast. Such top-down restrictions are what produced vast “white spaces” to begin with.

Wi-Fi on steroids? Try Wi-Fi on a walker.

But the sensational inefficiency is that the FCC seeks to protect over-the-air television broadcasting from “interference.” This policy creates far more costly “interference” than it prevents, deterring the development of 21st Century wireless applications – 4G, 5G and beyond -- that could turn the 49 channel TV band into a communications cornucopia.

Shifting all the Aunt Minnies to cable or satellite (more than 90 per cent of US households already have already moved) would cost pocket change in comparison to the value of a free and clear TV band for new services: credible economic estimates start at a 30-to-1 social value gain.

Innovative new networks would be empowered and competition fueled. Spectrum sharing would be intense, such as in cellular frequencies, where de facto spectrum ownership enables hundreds of millions of subscribers, as well as wireless vendors from Apple to RIM to Google to Samsung to Amazon, to enjoy the most crowded – and productive – bandwidth on the planet.

The TV Band could supercharge the mobile space, more than doubling current spectrum allotments. But it is walled off by regulators; the white spaces plan extends these barriers. Hying new technologies and touting “liberalisation,” the FCC stymies both – as their own spectrum policy experts know.

Just as the Commission was embarking on its misguided white spaces policy, economist Evan Kwerel and engineer John Williams advanced a market allocation alternative in this FCC paper. Instead of Microsoft lobbying the FCC to set aside spectrum, it could buy frequency rights and offer its own radio access “commons.” License fees paid by radio vendors, Kwerel and Williams augured, would monetize investments and supply consumer feedback, gauging values and guiding market design.

Instead, FCC regulators fly blind. They do not know how valuable the off-air broadcasting they are protecting is, how useful the new Wi-Fi-like services they are promoting are, or how productive the wireless services they are suppressing can be. They are seemingly unaware even of their own policies: FCC Chair Julius Genachowski touted the new “white space” rules as the first major new spectrum allocation for unlicensed devices in 25 years. Incredibly, that ignores at least five important, highly touted set-asides, including the failed 3650 MHz proceeding, noted above.

Then again, with a record such as this, perhaps it is good to forget.

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