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Analog: On the Comeback Trail?

*By Mitchell Lazarus
703-812-0440
lazarus@fhhlaw.com*

Reports of the demise of analog radio, it turns out, have been greatly exaggerated. Two recent petitions at the FCC suggest analog radio devices could be making an unexpected comeback.

Analog modulations are historically much older than digital, going back to the earliest days of AM crystal sets. They are more prone to distortion and more sensitive to interference than digital, and use spectrum less efficiently. When cellular providers switched from analog to digital modulation, there was a sharp increase in voice quality, and the number of callers who could squeeze into the same spectrum increased tenfold. For decades the main drawback of digital equipment was higher cost, but nowadays in many applications the price of digital radios is competitive with analog.

The FCC gave digital technology a big boost back in 1985 when it allowed unlicensed radios in three bands to use the unprecedentedly high power of one watt, provided they adopted one of two specific "spread spectrum" digital modulations, later typified by Wi-Fi and Bluetooth. In 2002 the FCC dropped the spread spectrum requirement and opened the same bands at the same high power to a much wider range of unlicensed digital radios.

Remington Arms Company, the firearms manufacturer, recently asked the FCC for a waiver to allow marketing of a device that is thrown like a baseball into an inaccessible or hazardous location. Intended for use by law enforcement, it contains a video camera and radio transmitter, allowing personnel on the scene to see around corners and behind walls. Octatron, Inc, and Chang Industry, Inc. propose a small egg-shaped device that can be similarly thrown or mounted on a pole. It too contains a camera and transmitter. The two products operate in two different high-power unlicensed bands.

Each device is a throwback (sorry!) in its use of analog modulation. The products need waivers because unlicensed operation at these power levels is ordinarily limited to digital radios. The FCC makes the distinction because digital transmitters spread their power more evenly over the spectrum, and so are less likely to interfere with other users. Why don't Remington and the others go with the digital flow? They claim that analog radios provide longer battery life, more predictable operation under weak signal conditions, and -- even today -- lower cost.

The FCC granted the Remington Arms waiver, but limited the market to law enforcement agencies already authorized to use public safety radio frequencies. The Octatron-Chang request is still pending.

In an age when radio, TV, and almost every other gadget in the home and car is moving relentlessly toward digital technology, there is something almost quaint about this high-tech return to old-fashioned analog modulation. Watch for wind-up gramophones on sale next to the MP3 players.