

Comments in ET Docket No. 03-108 for Cognitive Radio

Eli Sheffer, by his counsel, hereby submits the following Comments in response to the Notice of Proposed Rulemaking and Order in ET Docket No. 03-108, FCC 03-322, released December 30, 2003, with respect to Cognitive Radio Technologies. The commenting party is an engineer involved in developing use of this technology.

The **missing ingredient** in deploying Cognitive or Smart Radio, as proposed in the NPRM, is an increase in SPECTRAL EFFICIENCY above that proposed by the FCC. For instance, the FCC suggests words, such as “permissible transmissions to determine optimal frequencies,” “avoid interference,” “different formats or modulation,” and “identify and use vacant spectrum.”

It is believed that the technical capability for spectrum co-sharing offers the highest potential for Spectral Efficiency, well **beyond the ways suggested by the FCC**. By achieving this type of higher efficiencies, the same amount of radio spectrum will enable more applications, serve more people, and at a lower cost to the service provider and the public.

In short, what must be achieved is improved access to licensed spectrum by persons other than the licensees themselves, in order to provide significant additional services and benefits to the public, and **not only** in "underserved areas," as suggested by the FCC.

1. It is believed that significantly higher spectral efficiencies can be attained by having **two or more wireless networks in the same geographical area** (with the same or different applications) using the **same** frequency spectrum, transparently to each other (with no capacity nor interference impact).

2. Furthermore, it is believed that the deployment of more than one wireless network in the same geographical area, using the same frequency spectrum, has significant ramifications to the cost of services to the served public; and they should be significantly lower by any measure of cost accounting.

3. Similarly, the utilization of same spectrum, transparently, in multiple networks, should affect the leasing of spectrum as well. Note that each of the networks using the same spectrum, with different or same applications, provides services to the public. The leasing cost to each of the service providers using a co-shared spectrum should be significantly lower.

4. As an aside, any non-CDMA type of CAI wireless network capacity **should be increased significantly**, providing a higher Grade-Of-Service and higher availability to the served public, resulting in better service to the public and greater satisfaction on the part of the served public when compared to the current situation.

Accordingly, the above set of benefits would be in the public interest and thus should be incorporated into the proposed NPRM.

Respectfully submitted,

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