

**Subjects for Consideration by the  
Commerce Spectrum Management Advisory Committee (CSMAC)  
2009-2010**

The following are various subjects for the CSMAC to consider and on which to provide advice to NTIA's Assistant Secretary. They are drawn from the CSMAC's previous work and transition report as well as from an assessment of current spectrum issues.

**Spectrum Inventory** – Spectrum inventory legislation is pending. What information is needed from an inventory to reach policy decisions? What is needed by technology innovators? For example, do groups seeking access to the spectrum need information in the inventory specifying system characteristics? The CSMAC previously recommended that new uses be identified before reallocation is considered. How the inventory can be conducted in the most cost-effective, efficient and transparent way? What system characteristics should be used to determine what spectrum/geographic areas are underutilized or vacant, and, assuming the completion of federal and non-federal inventories, what follow-up steps are needed to make best use of the inventory?

**Transparency** – The Obama Administration has advocated transparency for the Federal Government. During the last cycle, the CSMAC recommended approaches to handling classified or controlled information with respect to the relocation of federal systems under the CSEA. Decisions regarding release of radio operations information are generally in the hands of the user, not the spectrum manager. FCC licensee data for public safety, for example, is generally available to the public while analogous Federal operations are not. All licensees (especially those addressing public safety and homeland security issues) also express concern about revealing information on their operations. What approaches should NTIA or the FCC take to ensure that as much information on current uses (federal and non-federal) is available for decision-making, facilitating sharing and innovation? What approaches can be taken facilitate research and innovation while protecting sensitive spectrum data?

**Spectrum Monitoring** – What roles should spectrum monitoring play in spectrum management, i.e., enforcement, interference identification and resolution, database verification, general occupancy, etc)? How could monitoring support an inventory. What types of spectrum measurements should be performed through monitoring? What are realistic methods of monitoring or measuring spectrum use levels around the country? What are the limitations associated with measurements that need to be understood and how can those limitations be adjusted to or overcome? With limited resources for measurements, where should they be focused to maximize the public interest payoff? How would the information resulting from spectrum measurements be used in spectrum management policy- and decision-making?

**National Spectrum Plan** – NTIA and the FCC have not completed a national spectrum plan (as distinct from national broadband plan) that goes beyond the allocation table. Does the CSMAC see value in such a plan? If so, what should it include? Which agency, NTIA or FCC, (or both), should be responsible for

the plan? What public interest benefits would be derived from such a plan? Do other countries utilize such plans effectively? Does there need to be a long-range, coordinated planning tool which takes into account technological development, as well as long-range user transitions?

**Incentives/Value for Federal Spectrum** – At the close of the last cycle, CSMAC recommended that, as part of its next charter, it examine economic incentives as a way to improve efficiency and that NTIA develop a new management structure that includes improved sharing and use of market incentives. What incentives are practical and would lead to greater efficiency in spectrum use or reallocation to services in increasing demand? What changes in policy or law are needed?

**Adjacent Band and Adjacent Channel Issues** - With the desire to implement new wireless technologies there will be greater demand for spectrum access. Licensees will seek to use channels to the band edge. Many adjacent band incumbents may have been emitting outside their own band. How do we balance the development of new technologies and services and the protection of adjacent band users? How should cases be handled where open receivers appear to contribute to the interference situation? Is there uncertainty as to the respective rights and responsibilities of the various right holders? Is this true for commercial licensees, federal government users, and public safety? What are the CSMAC views on receiver standards, guardbands and approaches to resolving adjacent band interference? Also, approaches to setting unwanted emission limits have changed little for many years. Should the approach change? If so, how? Should there be a presumptive rule on protecting new services or incumbents or other actions to increase certainty? How does the stricter standard applicable to safety-of-life services affect the setting of limits?

**Dynamic Spectrum Access and Cognitive Technologies** - Federal users employing cognitive radio and dynamic spectrum sharing techniques would like to access non-federal frequency bands, and non-Federal users using these same techniques would like to access Federal bands. What are the impediments to such access? What legal or regulatory changes to NTIA and FCC management processes, such as in the testing and certification processes or flexibility to users, would overcome these changes? Can software driven devices, particularly those operating over multiple bands, be designed to meet spurious emission requirements? How can the commercial sector cooperate with the Federal side to facilitate the uptake of new devices, thereby driving the cost down? What can NTIA, as the steward of Federal spectrum use and a unit of the Commerce Department, do to facilitate positive synergies? What is the planning horizon for such technologies? Would they be available to satisfy the broadband needs in the near future or over the next 20 years? What impact would the use of such devices have on mission critical operations for federal users and investment incentives and innovation for commercial licensees?

**Unlicensed Policy** – Current U.S. policy does not allocate specific bands for unlicensed use. Is the right direction for the future? Is a commons needed apart from licensed spectrum? How can regulators address interference after devices are widely deployed?

**Radars** – What frequency band and bandwidth requirements are tied to radar applications? What technological innovations are available that may change the bandwidth required for individual uses in

existing bands? What research is being performed to determining whether systems currently occupying the spectrum beachfront can be performed in other ways or at higher frequencies? What is the planning horizon for such new technologies, given the predicted need for more broadband spectrum in 20 years? How can new technologies share with radars?

**Protection of Science Sensing** – Satellite sensing is critical to environmental and other studies. How can these systems be protected when radio devices are becoming more prevalent and radiate unwanted emissions into the sensing bands? How can radio astronomy be protected from large scale satellite implementation?

**Automation of Spectrum Management** – Spectrum use coordination is still a heavily manual process. Do advances in information technology provide opportunities to improve spectrum management? Will this permit coordination with Federal systems without access to information exempt from disclosure? Currently there is a on-line capability used to coordinate federal and non-federal frequency assignments in the 71-76 GHz, 81-86 GHz, 92-94 GHz, and 94.1-95 GHz (70/80/90 GHz bands). Is this on-line capability expandable to other bands? What lessons can be learned from other federal government systems, private frequency coordination, and international experiences?