

NTIA Response to CSMAC Recommendations
Sharing Subcommittee
March 2012

Recommendation	Report Page	NTIA Response	NTIA Explanation
<p>1. Develop a set of spectrum sharing system requirements. The requirements are used to develop and to analyze spectrum sharing approaches. The requirements include general requirements for most spectrum bands and requirements for specific bands. The requirements include estimated limits on the changes in incumbent use (waveforms, locations, occupancy, etc). The NTIA should develop both incumbent and entrant requirements, assuming that in some cases the entrant systems maybe other federal systems. The requirements should be made public and open for comment. Currently the requirements are not well known, which makes it difficult for incumbents and entrants to develop or analyze spectrum sharing approaches.</p>		Approve	<p>NTIA agrees with the recommendation. However, reaching agreement on the analytical engineering analysis tools and procedures to be used in sharing studies is difficult. The incumbent spectrum users want protection and typically employ conservative analysis approaches possibly placing unnecessary restrictions on the new entrant. On the other hand, the new entrants to the spectrum desire the greatest flexibility possible when implementing an emerging technology or service which typically means using a less conservative analysis approach. To offer the greatest access by both the incumbent and the new entrant, analysis must use exact and real-life operational characteristics of both systems. Therefore, NTIA would have to set band priorities for laying out federal incumbent requirements.</p> <p>NTIA is developing a Best Practices Handbook of analytical engineering tools and procedures for spectrum management. NTIA and the federal agencies have long relied on the use of engineering analyses and technical studies to assess compatibility with non-federal systems. Unfortunately, there is not a common set of approaches for conducting these technical engineering studies that are recognized by the regulators and the federal and non-federal spectrum management community. Documenting the analytical engineering analysis tools and procedures will provide the predictability and certainty that federal and non-federal entities desire in assessing the potential impact of emerging technologies. When complete, this handbook will include appropriate technical transmitter and receiver characteristics</p>

			for federal systems, radio service specific interference protection criteria, engineering models for radiowave propagation and antennas, and a description of radio service specific analysis models that address single and aggregate interference. This handbook will improve the ability to evaluate the impact of emerging technologies on incumbent spectrum users as called for in the recommendation.
<p>2. Require that a management and control (e.g. an interactive database or other system) feature be used in all spectrum sharing approaches. The management and control feature is needed to supervise and reconfigure the entrant system. The management and control feature would have a defined reaction time (not necessarily continuously connected). The management and control feature would apply to geographic-based, to sensing-based, or to any other spectrum sharing approach.</p>		Approve	NTIA agrees that management and control features would take a significant step toward ensuring the proper implementation of sharing arrangements and the flexibility to change arrangements based on practical experience.
<p>3. Not select a certain spectrum sharing approach at this time. There are many potential spectrum sharing approaches that are capable of meeting the spectrum sharing requirements. The different approaches have their own costs, advantages and disadvantages that depend on the entrant and incumbent system details. Once the NTIA releases: (a) The requirements, and (b) More detailed information on the incumbent systems and the incumbent CONOPS, then these different sharing approaches can be evaluated by industry, and then specific proposals can be made to the NTIA. When analyzing alternate approaches, both the entrant and incumbent factors need to be considered in selecting the spectrum sharing approaches. It is likely that multiple spectrum sharing approaches will be used in a band to most economically accommodate the incumbent and entrant requirements. Selecting a spectrum sharing approach now is likely to result in a costly or an ineffective approach that will not ultimately be successful.</p>			NTIA agrees with the recommendation. NTIA believes that no specific approach applies to all situations. For example, database approaches may not work well in bands with highly mobile incumbents.
<p>4. Facilitate a dialogue between incumbents and potential new entrants to develop specific sharing recommendations. In instances where sharing is necessary, NTIA should work</p>		Approve	NTIA agrees with the recommendation. NTIA believes that the federal agencies need to engage with industry to develop effective spectrum sharing approaches. The existing FCC

<p>with the FCC, federal agencies and potential new entrants to develop specific recommendations on the extent, impact and method of sharing spectrum. Direct discussions between experts will result in the most efficient and dynamic sharing method based on a detailed understanding of how systems and technology operate and are used. The discussions should be open to any interested parties, but must be focused on a limited number of issues or scenarios to develop actionable recommendations that would be codified as appropriate through a rule making proceeding. The discussions should be held as early in the process as possible to provide sufficient time and to allow open and direct discussion between the parties, including federal agencies. They must have senior level oversight to ensure that the discussions are based on official recommendations and with an expectation that proposals will be implemented.</p>		<p>regulations for Unlicensed-National Information Infrastructure (U-NII) devices employing Dynamic Frequency Selection (DFS) were developed jointly between NTIA, the federal agencies, and industry representatives over approximately four years during which analysis and measurements (laboratory and field) were performed. When interference problems were encountered with some U-NII device applications, NTIA brought together federal and industry experts to characterize the interference and develop potential solutions. As called for in the Middle Class Tax Relief and Job Creation Act of 2012, NTIA will perform a study to determine if the existing U-NII DFS regulations can be expanded to other portions of the 5 GHz band. NTIA again will need to work with federal and industry representatives to perform the necessary sharing studies assessing the impact of expanding the U-NII regulations on federal systems. To examine sharing approaches between federal and commercial systems in the 1695-1710 MHz band and the 1755-1850 MHz band, NTIA through the CSMAC established working groups that are co-chaired by federal and industry experts to develop consensus-based sharing recommendations. NTIA believes that spectrum sharing is a vital component of satisfying the growing demand for access to spectrum and that both federal and commercial users will need to work together to adopt innovative sharing techniques.</p>
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