

I. Chronology Of FCC Spectrum Policy Initiatives Over Last Five Years

November 2002: The FCC Spectrum Policy Task Force, established by Chairman Michael Powell, releases its findings and recommendations for improving FCC spectrum management. The report acknowledged that the FCC had made major strides in its approach to allocation of spectrum and frequency band assignment through flexible rules and competitive bidding, but determined that the Commission's spectrum policy was not keeping pace with market demand for spectrum.

Policy Task Force Recommendations

- Move towards a spectrum policy that is more flexible and market-oriented
- Base regulatory models on clear definitions of the rights and responsibilities of both licensed and unlicensed spectrum users, particularly with respect to interference and interference protection
- Abandon the single regulatory model; use a balance of three general models for assigning spectrum usage rights
 - “Exclusive use” model: licensee has exclusive and transferable flexible use rights for specified spectrum within a defined geographic area, with flexible use rights that are governed primarily by technical rules to protect spectrum users against interference
 - “Commons” model: unlimited numbers of unlicensed users to share frequencies, with usage rights that are governed by technical standards or etiquettes but with no right to protection from interference
 - “Command-and-control” model: current model for most spectrum usage; allowable spectrum uses are limited based on regulatory judgments
- Incorporate the following common spectrum policy elements regardless of spectrum model chosen, including
 - Maximum feasible flexibility of spectrum use by both licensed and unlicensed users
 - Clear and exhaustive definition of spectrum users' rights and responsibilities
 - Policies that account for all potential dimensions of spectrum usage (frequency, power, space, and time)
 - Incentives for efficient spectrum use
 - Policies that encourage grouping of spectrum “neighbors” with technically compatible characteristics
 - Periodic review and revision of spectrum rules to account for technological advances and other changes
 - Efficient and reliable enforcement mechanisms to ensure regulatory compliance by all spectrum users
- Increase spectrum “white spaces” (both temporal and geographic) use
- Eliminate regulatory barriers
- Adopt a quantitative approach to interference management based on the concept of “interference temperature”

- Apply receiver performance requirements for some bands and services, either through incentives, regulatory mandates, or some combination of incentives and mandates
- Designate additional bands for unlicensed spectrum use to better optimize spectrum access and provide room for expansion in the fast-growing market for unlicensed devices and networks
- Pursue secondary markets policies in licensed spectrum bands that encourage licensees to provide access for “opportunistic” uses above the interference temperature threshold through leasing of spectrum usage rights
- Explore ways to promote spectrum access and flexibility in rural areas, including flexible regulation of power levels, secondary markets mechanisms to encourage leasing of spectrum usage rights in rural areas, and consideration of rural issues in defining geographic licensing areas
- Encourage experimental spectrum uses by improving the experimental licensing frequency coordination process and identifying bands that are particularly suitable for experimental applications

April 2004: President George W. Bush, Jr. announces his technology agenda and a series of specific measures to inspire a new generation of American innovation, including a call for universal, affordable access to broadband technology by the year 2007. The President cited low cost, broadband technology as a key factor in achieving economic competitiveness, and improving education and health care. The President identified three ways to lower the cost of broadband and increase its use and availability.

- Enact legislation to make broadband access permanently tax free
- Allocate additional spectrum to promote wireless broadband and create technical standards to enable the deployment of broadband over power lines
- Reform federal agency practices to simplify and standardize rights-of-way processes

May 2004: Chairman Powell establishes the Wireless Broadband Access Task Force (“Wireless Task Force”) to identify and recommend ways to facilitate the more rapid deployment of wireless broadband services.

December 2004: The Commercial Spectrum Enhancement Act (“CSEA”)¹ is signed into law, imposing revenue requirements on the Advanced Wireless Services (“AWS”) auction to ensure that certain relocation efforts of government incumbents would be fully funded. About half of licenses in the 1710-1755 MHz portion of the AWS band are held by government incumbents, and the CSEA required that the auction of those licenses raise at least 110 percent of the total estimated federal users' relocation costs. Under the CSEA, auction revenues would be placed in a spectrum relocation trust fund, which

¹ See Commercial Spectrum Enhancement Act, Pub. L. No. 108-494, 118 Stat. 3986, Title II (2004) (codified in various sections of Title 47 of the United States Code) (“CSEA”), § 202 (codified at 47 U.S.C. § 923(g)(2)).

guaranteed that those revenues would be used relocate government users from the 1710-1755 MHz portions of the AWS bands (“AWS-1”). The FCC established a reserve price of \$ 1,029,534,343.20 for AWS-1 licenses, based on estimates of relocation costs submitted by the National Telecommunications and Information Administration (“NTIA”).² The CSEA required the FCC to cancel the auction if the winning bids submitted failed to meet the 110 percent benchmark.

February 2005: The Wireless Task Force releases its report and recommendations for enhancing the success of wireless broadband employing unlicensed devices and improving broadband deployed in licensed spectrum.

Wireless Task Force Recommendations

Unlicensed Devices

- Promote voluntary frequency coordination efforts by private industry to mitigate potential interference among unlicensed spectrum users.
- Promote voluntary industry “best practices” (*e.g.*, network planning and design, rule compliance) among unlicensed users.
- Increase the power limits in certain bands available for use by unlicensed devices in order to improve their utility for license-exempt WISPs.
- Work closely with license-exempt WISPs to address, on a proactive basis, their needs relating to Commission policies and regulations.
- Host a WISP forum on an annual or periodic basis to provide additional opportunities for WISPs and consumers to share their views on issues before the Commission.
- Work closely with the wireless broadband industry to ensure that the Commission addresses unlawful intentional violations (*e.g.*, jamming, power boosting) of the technical rules applicable to unlicensed wireless broadband devices.

Licensed Spectrum

- Improve access to licensed spectrum by
 - Aggressively putting valuable spectrum on the market through further improvements and streamlining of the Commission’s spectrum allocation and assignment process
 - Expediting the transition of the Digital Television (DTV) spectrum to advanced wireless services
 - Adopting new band plan configurations that are conducive to wireless broadband applications

² FCC Public Notice, *Auction of Advanced Wireless Services Licenses Scheduled for June 29, 2006*, FCC 06-47, 21 FCC Rcd 4562, at ¶ 6 (2006).

- Increase the licensed spectrum rules' technical and regulatory flexibility by
 - Adopting “flexible use” policies that remove impediments to the use of new and advanced wireless broadband technologies and applications
 - Providing incumbent licensees in restrictive bands with additional flexibility, either by granting significant new flexibility to existing licensees or using creative market-based auction mechanisms
 - Facilitating secondary market arrangements that provide wireless broadband service providers with easy access to licensed spectrum and enhance opportunities for more efficient and “dynamic” sharing of the same spectrum among different users
- Apply a pro-competitive, deregulatory framework (with minimal federal and state regulatory barriers) to wireless broadband services to maximize innovation and consumer benefits by
 - Classifying wireless broadband as an “information service”
 - Determining whether wireless broadband constitutes an “interstate service”
 - Applying the deregulatory principles applicable to Commercial Mobile Radio Services (CMRS) under Section 332(c) of the Communications Act to wireless broadband; and
 - Clarifying the scope of state authority, under Section 332(c), in setting “other terms and conditions” relating to wireless broadband services

September 2005: FCC 2006 – 2011 Strategic Plan: Chairman Kevin Martin releases the final version of the FCC's 2006-2011 Strategic Plan. With respect to spectrum issues, the plan set forth the following:

- *Vision:* Facilitate efficient and effective use of non-federal spectrum domestically and internationally to promote the growth and rapid deployment of innovative and efficient communications technologies and services.
- *Objective 1:* Develop, advocate, and implement flexible, market-oriented spectrum allocation and assignment policies through the following:
 - Conducting rulemakings to enable new communications services and more flexible operations within existing services, where possible, and to ensure that public safety users have adequate spectrum
 - Evaluating and refining spectrum assignment policies and procedures, including but not limited to its auction processes
 - Working with other regulators around the world to promote the importance and benefits of implementing market-oriented spectrum reforms, as well as the National Telecommunications and Information Administration (NTIA) and the Department of State to

develop proposals for reforming the processes and policies of the International Telecommunication Union (ITU) so that international spectrum allocations can be updated on a more timely and flexible basis

- *Objective 2:* Develop policies that promote efficient and effective use of spectrum through the following:
 - Taking steps to improve the efficiency and effectiveness of spectrum use, including (1) accommodating shared use of spectrum by compatible users; (2) exploring new and innovative licensing models that reduce entry barriers; (3) fostering interoperability for public safety communications; (4) minimizing harmful interference; and (5) encouraging the development of new technologies, such as software defined radio, cognitive radio, dynamic frequency selection, and new protocols (*e.g.*, Internet Protocol based).
- *Objective 3:* Conduct effective and timely licensing activities, relying on advanced electronic filing and electronic information access systems through the following:
 - Encouraging or requiring electronic filing of license and other applications involving spectrum
 - Updating and improving its electronic filing and electronic information access systems to streamline and harmonize its licensing and coordination processes
 - Ensuring its website continues to provide the public with the best and most up-to-date information on existing licenses, pending applications, and licensing procedures
 - Working with NTIA, the ITU, Canada, and Mexico to explore ways to improve the sharing of electronic information and the coordination and approval of pending applications
- *Objective 4:* Develop and implement policies that delineate the rights and responsibilities of both licensed and unlicensed spectrum users, particularly with respect to harmful interference, through the following:
 - Providing for increased sharing of spectrum between services with similar technical requirements, while ensuring that highly sensitive services (*e.g.*, public safety) are protected from harmful interference
 - Delineating the rights and responsibilities of spectrum users so that: 1) the potential for harmful interference can be minimized, and 2) opportunities for new spectrum uses, including both licensed and unlicensed systems and facilities, can be exploited
 - Working with NTIA, as well as regulators in Mexico, Canada, and other countries, to identify and resolve instances of harmful interference on an international basis and to avoid harmful interference in the future
- *Objective 5:* Enforce spectrum regulations and policies to

- Provide certainty to spectrum users that they will not be subject to harmful interference by the use of devices that do not comply with the Commission's technical rules
- Ensure that licensees are using spectrum efficiently and effectively
- Prevent unauthorized use of spectrum through enforcement proceedings
- *Objective 6:* Serve as a dependable information source for Congress, spectrum users, and regulators around the world on the complex issues inherent in using our spectrum resources through the following:
 - Providing Congress and the Executive Branch with timely and professional advice and information concerning efficient and effective spectrum utilization
 - Publishing public notices regarding spectrum issues
 - Keeping its spectrum-related web pages current
 - Conducting conferences regarding auctions and other spectrum matters
 - Participating in the work of the international bodies that deal with spectrum issues, providing our expertise, knowledge, and recommended approaches to complex spectrum issues

II. Implementation of FCC Spectrum Policy

Licensed Services Developments

- The FCC has allocated or proposed to allocate more than 200 MHz of commercial spectrum in the last five years for licensed wireless services, with a decided focus on promoting broadband wireless services. Although the FCC undertook a number of unlicensed initiatives during that time, less emphasis has been placed recently on unlicensed spectrum. Provided below is a summary of the major spectrum initiatives undertaken by the FCC in the last five years.
- **Advanced Wireless Services (“AWS”)**
 - Advanced Wireless Services or AWS is a blanket term the Commission uses to refer to new and innovative fixed and mobile terrestrial wireless services that require sufficient bandwidth to provide a variety of applications, including voice and data content – Internet browsing, message services, full-motion video, etc. Consistent with its dual objectives of promoting effective and efficient use of spectrum and encouraging development of wireless broadband services, the Commission has designated 130 MHz of spectrum for AWS use since 2001.
 - **1710-1755 MHz and 2110-2155 MHz (“AWS-1”) Auction**
 - The AWS-1 band, consisting of 90 megahertz of paired spectrum, was the first AWS-designated spectrum to be

licensed. The AWS-1 auction (Auction No. 66) began on August 9, 2006 and closed on August, 18, 2006. In nine days, the Commission raised \$13.7 billion (in net bids), auctioning off 1,087 licenses to a total of 104 winning bidders.

- AWS-1 Band Plan
 - Spectrum: 1710-1755 and 2110-2155 MHz bands
 - Bandwidth:
 - Block A: 1710-1720 / 2110-2120 (20 MHz)
 - Block B: 1720-1730 / 2120-2130 (20 MHz)
 - Block C: 1730-1735 / 2130-2135 (10 MHz)
 - Block D: 1735-1740 / 2135-2140 (10 MHz)
 - Block E: 1740-1745 / 2140-2145 (10 MHz)
 - Block F: 1745-1755 / 2145-2155 (20 MHz)
 - Licenses:
 - Block A: 734 Cellular Market Area (CMA) licenses
 - Block B: 176 Economic Area (EA) licenses
 - Block C: 176 Economic Area (EA) licenses
 - Block D: 12 Regional Economic Area Grouping (REAG) licenses
 - Block E: 12 Regional Economic Area Grouping (REAG) licenses
 - Block F: 12 Regional Economic Area Grouping (REAG) licenses
- Relocation requirements for government incumbents in the 1710-1755 MHz band and Broadband Radio Service (“BRS”) and Fixed Microwave Service (“FS”) incumbents in the paired 2110-2155 MHz band have slowed the rollout of AWS services. To facilitate the transition, the FCC established relocation rules based generally on the Commission’s Emerging Technologies relocation policy, which attempts to balance the new entrants’ interest in gaining immediate access to the spectrum against the need to minimize disruption to incumbent operations during the relocation process. The relocation plan included cost-sharing rules for AWS and Mobile-Satellite Service (“MSS”) entrants that benefit directly from the transition. The FCC chose the Wireless Infrastructure Association (“PCIA”) and Wireless Association (“CTIA”) as clearinghouses to administer the relocation cost-sharing plan.
- **1915-1920 MHz, 1995-2000 MHz, 2020-2025 MHz, and 2175-2180 MHz bands (“AWS-2”)**

- In the September 2004 AWS-2 NPRM, the Commission proposed to allocate 20 MHz of paired spectrum for fixed and mobile services, including advanced wireless services. The Commission intends to license the bands using a geographic area licensing scheme under its flexible, market-oriented Part 27 rules. The still pending NPRM sought comments on competitive bidding rules, incumbent relocation and cost-sharing of band-clearing costs, and interference issues.
- **2155 – 2175 MHz Band (“AWS-3”)**
 - The AWS-3 band is a contiguous 20 MHz block whose immediate neighbors are the AWS-1 band (2110-2155 MHz) and the proposed AWS-2 band (2175-2180 MHz). Although M2Z Networks, Inc. and others sought an outright grant of the spectrum block, requesting licensing on a non-auctioned basis, the Commission decided instead to auction the spectrum under its Part 27 rules, using a geographic-area licensing scheme. The single, unpaired 20-megahertz segment precludes the Commission from taking a symmetrical-pairing approach previously used in AWS-1 and AWS-2 spectrum band plans, and the September 2007 NPRM asks for comments on three different technological approaches to address interference concerns. Recognizing that each approach has tradeoffs between flexible use and the necessary interference protection measures, the Commission emphasized that the ultimate goal is to maximize the effective and efficient use of the spectrum.
- **700 MHz Auction (“Auction 73”)**
 - The long awaited 700 MHz auction that will assign licenses in the 698-806 MHz band, is scheduled to begin on January 24, 2008. The spectrum is occupied by television broadcasters, who must depart the spectrum by 2009 as part of the Congressionally mandated digital television (“DTV”) transition. Auction 73 will include all available, commercial 700 MHz band licenses (1,099 licenses) using the Commission’s standard simultaneous multiple-round (“SMR”) auction format for the A, B, D, and E block licenses and an auction design with hierarchical package bidding (“HPB”) for the C Block licenses. If any spectrum licenses offered initially in Auction 73 do not meet the applicable reserve prices, the Commission will hold a contingent subsequent bidding (Auction No. 76) for those licenses.
 - To ensure a rapid rollout of new 700 MHz wireless services, the Commission has imposed build-out and service requirements on licenses up for auction. The FCC also has imposed “open access”

requirements on 700 MHz C Block licenses, which will give consumers the right to use any equipment, content, application or service on a non-discriminatory basis.³ Licensees in all blocks of the 700 MHz band must meet certain rigorous interim and end-of-license-term construction benchmarks covering a certain percentage of the population or geographic area of the license.⁴

- 700 MHz Band Plans:
 - Auction 73 consists of three different spectrum band: commercial services, public safety services, and guard bands; the Commission is auctioning off the commercial services spectrum.
 - Commercial services band plan
 - Channels: 52-59, 60-69
 - Bandwidth:
 - Block A: 698-704, 728-734 (12 MHz)
 - Block B: 704-710, 734-740 (12 MHz)
 - Block E: 722-728 6 MHz (unpaired)
 - Block C: 746-757, 776-787 (22 MHz)
 - Block D: 758-763, 788-793 (10 MHz)
 - Licenses:
 - Block A: 176 Economic Area (EA) licenses
 - Block B: 734 Cellular Market Area (CMA) licenses
 - Block E: 176 Economic Area (EA) licenses
 - Block C: 12 Regional Economic Area Grouping (REAG) licenses
 - Block D: 1 nationwide license

800 MHz Rebanding Proceeding

- The Commission initiated the 800 MHz rebanding proceeding to address harmful interference to public safety communications systems in the 800 MHz band. An incompatible mix of two types of communications systems: cellular-architecture multi-cell systems used by Enhanced Specialized Mobile Radio (“ESMR”) providers such as Sprint Nextel and high-site non-cellular systems used by public safety agencies created the problem. To provide a long-term solution to the interference problem, the Commission adopted a plan for reconfiguring the 800 MHz frequency band that would separate public safety systems from ESMR systems. Under

³ *Service Rules for the 698-746, 747-762 and 777-792 MHz Bands*, Further Notice of Proposed Rulemaking, 22 FCC Rcd 8064, 8168. ¶ 290 (2007).

⁴ *700 MHz Second Report and Order*, at ¶ 6.

the plan, Sprint Nextel is required to relinquish its spectrum holdings in the 800 MHz band and to relocate public safety systems and other incumbents in the 800 MHz band to their new spectrum assignments. In return, Sprint Nextel obtained 10 MHz of nationwide spectrum in the 1910-1915 MHz (formerly unlicensed personal service communications spectrum) and 1990-1995 MHz bands. The Commission valued Sprint Nextel's new spectrum block at \$4.86 billion. Relocation issues both in the 800 MHz and the 1990-1995 MHz bands have delayed the rebanding process. In September 2007, the FCC found that Sprint Nextel failed to meet an interim benchmark for clearing 800 MHz incumbents and imposed additional benchmarks to ensure timely clearing of the band. Sprint later filed a court appeal of the FCC's decision.

- **2.5 GHz**

- In July 2004, the FCC adopted a band plan that restructures the 2495-2690 MHz band ("2.5 GHz band") in order to facilitate deployment of Broadband Radio Services ("BRS") and Educational Broadband Service ("EBS"), as well as to reduce the risk of interference caused by incompatible uses. The proceeding is intended to promote flexible use of spectrum and to advance the Commission's goal of promoting the development of wireless broadband systems in order to provide all Americans with universal, affordable broadband access. A number of service providers are beginning to transition to the new plan.
- A number of the BRS licensees in the 2.5 GHz band also are beginning to deploy Worldwide Interoperability for Microwave Access ("WiMAX") technology. WiMAX, based on the IEEE 802.16 standards, is theoretically capable of transmitting data up to 70 Mbps and from a distance of up to 30 miles. Capable of supporting both fixed and mobile applications, WiMAX is expected to become a last mile solution for broadband access, including last mile delivery of video programming, and the 2.5 GHz band provides a test bed for the technology.

- **3.5 GHz band**

- In March 2005, the FCC adopted rules permitting wireless broadband services, such as WiMAX, in the 3650-3700 MHz band. In doing so, the FCC created a novel licensing framework allowing an unlimited number of wireless providers to access the entire 3650-3700 MHz band by obtaining a non-exclusive, nationwide license from the FCC but registering their fixed and base stations

with the FCC. Under this licensing framework, all wireless broadband licensees in the 3650-3700 MHz band have equal rights to use the spectrum, along with a mutual obligation to cooperate and avoid harmful interference to one another. Several parties, including Intel, Motorola, and the Wireless Communications Association (all of which are major WiMAX proponents), sought reconsideration of the non-exclusive licensing framework and argued that exclusive licensing and interference protection are necessary to provide licensees with sufficient incentive to invest in the development of the band.

- In June 2007, the FCC issued an order denying those requests and affirming its non-exclusive, nationwide licensing framework for the 3650-3700 MHz band. At this time it remains uncertain whether WiMAX supporters such as Intel and Motorola will invest in WiMAX deployment in the 3650-3700 MHz band or whether other companies will roll out alternative wireless broadband technologies in the band.
- To date, the Wireless Telecommunications Bureau has not established an initial date for filing applications for wireless broadband licenses in the 3650-3700 MHz, and consequently no license applications have been filed.

DTV Transition

The DTV transition for most may be about receiving a favorite TV show in high-definition digital format (“HDTV”), but for the FCC it means freeing up additional spectrum to auction for advanced commercial wireless services. In February 2006, President Bush signed legislation establishing a hard deadline – February 17, 2009 – for the end of the DTV transition. At that time, all U.S. television stations will broadcast solely in a digital format that can be viewed only by consumers who have acquired a DTV-capable television or an analog converter. The FCC recently, however, adopted a rule to ensure all cable subscribers, including those with analog sets, would continue to see their local broadcast stations through February 2012. In addition to setting a firm deadline for the end of the transition, the statute provides up to \$1.5 billion to fund a program to subsidize the purchase of converter boxes that will allow analog TV sets to continue operating after the transition is completed.

In July 2007, the FCC initiated a rulemaking seeking comment on proposals to help consumers understand the timing, logistics and benefits of the DTV transition, including public service announcements, notices included with cable and satellite bills, notices from consumer electronics manufacturers and employee training for electronics retailers; the rulemaking proceeding remains pending.

Meanwhile, to further ensure consumer access to DTV-compatible televisions, the FCC imposed a rule, effective March 1, 2007, banning importations and interstate shipment of analog-only tuners. Not all importers heeded the deadline. To date, the FCC has issued Notices of Apparent Liability (“NALs”) to several companies, carrying hefty fines of up to \$3 million for violating the FCC’s DTV rules. The FCC also released an order requiring all retailers who still make analog-only TVs available to inform consumers of the DTV transition before they purchase an analog TV.

Unlicensed Spectrum Developments

TV White Spaces

The FCC continues its efforts to maximize unused or underutilized broadcast television spectrum (“white spaces”) in the 76 to 698 MHz ranges (channels 2-51). In September 2006, the FCC released a public notice which set forth a detailed schedule for FCC action in the white space proceeding. Consistent with that schedule, the FCC released an order on October 18, 2006 allowing fixed low-power devices on unused television channels. The order restricts the use of low-power devices in certain TV channels allocated for other services, such as public safety or wireless medical telemetry. The FCC also issued a further notice of proposed rulemaking seeking comment on, among other issues, whether white space devices should operate on a licensed, unlicensed or hybrid basis, and whether portable low-power devices can operate in any of the TV channels without causing harmful interference to licensed operations.

The FCC’s Office of Engineering and Technology (“OET”) reported in March 2007 on the results of measurements of the interference rejection capabilities of DTV receivers. OET followed in July 2007 with two reports providing the initial results on whether certain new white space devices would cause interference with broadcasters and devices that already operate in the TV band. The results, however, intensified the controversy between proponents, who contend that leveraging sensing technology would allow unlicensed use of this spectrum and would enable the provision of broadband access at lower cost. Opponents, however, argue existing spectrum sensing technology would not provide adequate protection to TV reception in all locations.

The FCC expects to adopt an order in 2007 setting forth final technical requirements for unlicensed devices that operate in the TV bands, although further delay is possible.

Ultra-wideband

The FCC initially amended its Part 15 rules, allowing the marketing and unlicensed operation of products incorporating ultra-wideband (“UWB”)

technology in February 2002. UWB devices can be used for precise measurement of distances or locations and for obtaining images of objects buried under ground or behind surfaces. UWB devices can also be used for wireless communications and, in particular, for short-range high-speed data transmissions suitable for broadband access to networks. The FCC envisioned UWB devices would include radar systems to improve automotive safety and tracking systems for personnel location, such as hospital patients and emergency rescue crews, as well as for functions such as inventory control. In December 2004, the FCC further tweaked its rules for general Part 15 unlicensed operations that use wide bandwidths but are not classified as UWB devices under its rules, making minor changes to peak power limits and measurement procedures to permit frequency hopped, swept frequency, and gated systems operating within these bands to be measured in their normal operating mode.

Interference Temperature

In its efforts to maximize spectrum use and mitigate the impact of interference, the FCC began a short-lived rulemaking in November 2003 that attempted to develop a new “interference temperature” model for managing interference. The proposal would have shifted the current method of assessing interference, which is based on transmitter operations, to an approach that takes into account the cumulative effects of all undesired radiofrequency energy, *i.e.*, energy that may result in interference from both transmitters and noise sources, that is present at a receiver at any instance of time. Commenting parties argued that the interference temperature approach is not a workable concept and would increase unacceptably interference in the frequency bands where it would be used. In addition, no party offered workable specific technical rules that would address interference concerns. The Commission abandoned the proceeding in May 2004.