Petition for Notice of Inquiry to solicit public comments about the adequacy of the enforcement procedures used to resolve spectrum interference conflicts

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Note to Roundtable Participants: This draft petition was drafted by Matt Montgomery, now a graduate of CU Law School, while part of the Samuelson-Glushko Tech Law & Policy Clinic (TLPC). Matt worked under the supervision of Brad Bernthal in drafting the petition. Matt's work was excellent for the TLPC, however, there are pieces yet incomplete. We hope to have another individual eventually help fill these gaps and perhaps advocate for taking the petition forward.

In the draft petition, the TLPC encourages the FCC to take the next step in spectrum management by reexamining existing spectrum enforcement mechanisms. Speedy and predictable ways to enforce rights are an important dimension of a well-functioning market. There is reason to question whether existing enforcement mechanisms are sufficient given wireless regulatory and market trends. This paper explains why the FCC should reexamine its existing enforcement and dispute resolution mechanisms in order to adapt to an environment where more intensive and dynamic spectrum activity is likely to increase the frequency of spectrum rights disputes.

EXECUTIVE SUMMARY

Petitioner, the Colorado Law School's Samuelson-Glushko Technology Law and Policy Clinic, requests that the Federal Communications Commission ("FCC" or "Commission") issue a Notice of Inquiry ("NOI") to solicit public comments about the adequacy of the enforcement procedures used to resolve spectrum interference conflicts.

Over the last few decades, the Commission has led a revolutionary rethinking of spectrum management, pursuing policies that facilitate flexible use and market-based apportionment of spectrum. This has been welcome development as these policies help to promote the free flow of spectrum to its highest valued use. These market-based approaches, however, also trigger a more intensive use of spectrum. This increases the number of private interference disputes—a problem that only grows more acute as spectrum demand rises. Market theory teaches that these disputes must be solved timely, predictably, and fairly if market mechanisms are to function efficiently. Thus, ensuring that the FCC's enforcement regime is optimally structured to resolve these disputes is the next logical step in the migration away from command-and-control regulation and toward a spectrum market.

The existing enforcement regime is not ideally structured to predictably and fairly resolve private interference disputes. Accordingly, in addition to soliciting public comment, the Petitioner recommends that the FCC consider a new enforcement docket that is specifically tailored to adjudicating interference conflicts. In particular, the Petitioner proposes that the FCC examine the following proposals: (1) implement an Accelerated Spectral Docket modeled after the Enforcement Bureau's Accelerated Docket for formal complaints against common carriers; and (2) accord precedential authority to orders issued by the Accelerated Spectral Docket. Applying these recommendations would ensure that the FCC's enforcement regime is well tailored to maintaining market efficiency in the face of the novel challenges created by the Commission's adoption of flexible use and market-based apportionment.

INTRODUCTION

Over fifty years ago, Ronald Coase explained why command-and-control regulation is an inefficient response to the problem of spectral scarcity.[1] Instead, Coase argued that the forces of the market, as opposed to centralized governmental control, should determine the allocation and assignment of spectral rights. Over the last few decades, through the development of spectrum auctions, PCS licensing, and secondary-use markets, the FCC has implemented a prescient set of policies that help to promote this vision of a market in spectrum. Where once centralized decision-making was the *sine qua non* of spectral regulation, market-based allocation and flexible-use licensing are, today, the cornerstones of FCC policy. The National Broadband Plan,[2] which aims to repurpose 500 MHz of "beachfront" spectrum for wireless broadband, is the latest step in this historic transition. However, this migration has also led to more intensive use of spectral resources. This result is a natural and desirable consequence of embracing flexibility and market-based approaches, but it inadvertently increases the number of interference disputes among the various spectrum users. These interference conflicts are not a problem *per se*, but in the absence of an effective enforcement regime that can resolve them quickly, fairly, and consistently, the market mechanisms will function sub-optimally.

A well-structured enforcement regime is an essential component of an efficient market. Efficient bargaining explicitly requires the presence of a well-defined property right *and* a mechanism to enforce the right.[3] Understandably, much recent attention has been devoted to the delineation of property rights in spectrum. However, far less attention is paid to ensuring that the FCC's enforcement regime—largely unchanged since the command-and-control era—is appropriate for a spectrum market. This merits reevaluation because not only does poor

[1] Ronald H. Coase, *The Federal Communications Commission*, J.L. Econ. vol. 2 at 14 (Oct. 1959).
[2] FCC, *National Broadband Plan* 75 (2010), http://www.broadband.gov/download-plan
[3] Coase, *supra* note 1, at 14

enforcement undermine the rule of law, forcing parties to resort to self-help, it frustrates private bargaining and negotiation, ultimately decreasing the value of spectrum as a whole. Therefore, there is a pressing need for the Commission to appraise the current state of its enforcement regime and to evaluate whether it is optimally structured to respond to the unique problems created by flexible-use and market-based allocation. Petitioner requests that the FCC initiate an NOI to evaluate the adequacy of the enforcement procedures used to resolve spectrum interference disputes.

The remainder of the NOI proceeds as follows. Part I considers how the FCC's reliance on market-based allocation and flexible-use increases the intensity of spectral use, inadvertently creating a variety of new interference conflicts. Part II evaluates the current state of the FCC's enforcement regime and demonstrates that it is not optimally structured to respond these interference conflicts. Lastly, Part III proposes a potential solution, namely implementing an Accelerated Spectral Docket to resolve interference conflicts between market participants.

I. THE FCC'S COMMITMENT TO FLEXIBLE USE AND MARKET-BASED ALLOCATION OF SPECTRUM INCREASES THE INTESITY OF SPECTRUM USE WHICH LEADS TO INTERFERENCE DISPUTES

The emergence of novel wireless technologies has fundamentally altered the spectral landscape superintended by the FCC. Where once broadcast radio and television services constituted the most valuable applications of spectrum,[4] today, wireless broadband is becoming the key platform for innovation in the United States.[5] In recognition of this landmark change, the National Broadband Plan recommends that the FCC repurpose 500 MHz of spectrum between

[4] *See* Jonathan E. Nuechterlein & Philip J. Weiser, *Digital Crossroads: American Telecommunications Policy in the Internet Age* 225 (MIT Press 2007) ("Many Americans rely more heavily on their wireless telephones than on their wired ones, and, as of 2003, fewer than 15% of households with televisions rely on terrestrial 'over-the-air' broadcasting to receive their TV signals.").
[5] FCC, *National Broadband Plan* 75 (2010), http://www.broadband.gov/download-plan

225 MHz and 3.7 GHz for broadband use in the next ten years.[6] In particular, the Plan stresses the importance of flexible-use rights and market-based apportionment to facilitate the free flow of spectrum to its highest valued use.[7] This modern trend towards flexibility and market-based approaches is a welcome change to the ad-hoc and overly prescriptive world of command-and-control regulation.[8] However, by increasing the intensity of spectral use, the FCC's commitment to these policies inadvertently leads to more interference disputes among the innovative users and novel operations.[9] This result is a natural and unavoidable consequence of better utilization of the available spectral resources.[10] Thus, the FCC should neither regard the possibility of increased interference as harmful to the spectrum market *per se*, nor should it hope to forestall all possible interference conflicts before they arise. But, in the absence of a well-structured enforcement regime, the wireless market will function sub-optimally.[11]

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[6] *Id.* at 83.
[7] *Id.* at 79.
[8] *Id.* at 78; *see also* F.A. Hayek, *The Use of Knowledge in Society*, Am. Econ. Rev. XXXV, No. 4. (Sept., 1945) ("[t]he reason for [the failure of centralized decision-making] is that the 'data' from which the economic calculus starts are never for the whole society 'given' to a single mind which could work out the implications and can never be so given.").
[9] Edward Wyatt, *F.C.C. Likely to Open New Airwaves to Wireless*, N.Y. Times, Sept. 12, 2010, http://www.nytimes.com/2010/09/13/technology/13wifi.html ("[I]ssues of interference and other conflicts inevitably will arise and will be have to be addressed by the commission…"). *See also* Ellen P. Goodman, *Spectrum Rights in the Telecosm to Come* 41 San Diego L. Rev. 269, 301–02 (2004) ("Flexible use will change the meaning of existing service categories like satellite radio or television broadcasting. To the extent that any given service category can be used for multiple consumer applications, such as data or video, then the characteristics of interservice and intraservice interference will be different than they are today. Depending on the degree of flexibility permitted within a set of spectrum usage rights, the meaningful distinction between interference scenarios will come to lie not in the definition of service, but in the system architectures and technologies at issue in the interference conflict. Thus, "intraservice" interference cases will arise between operators using a similar architecture, such as low-power satellite transmissions, whatever the end-user service that is provided. "Interservice" disputes will arise between operators using distinct system architectures, such as low-power satellite and high-power broadcast transmissions, again regardless of the associated consumer applications. As we have seen, because of the predictive modeling that goes into the setting of initial spectrum entitlements, the migration to flexible use is likely to exacerbate interservice interference in particular as new and different technologies share spectrum.").
[10] *See* Anna Schulz, *Creating a Legal Framework for Transboundary Water Governance in the Zambezi and Incomati River Basins* 19 Geo. Int'l L. Rev. 117, 125 (2007) ("Initially, natural resources may seem unlimited, but as the number of individual members multiply, conflicts over increasingly scarce resources become inevitable. It is thus necessary to establish a system of rules (law) to resolve these conflicting rights.").
[11] *See* Stephen J. Eagle, *Private Property, Development, and Freedom: On Taking Your Own Advice* 59 SMU L. Rev. 345, 359–60 (2006) ("Many commentators assert that private enterprises work well only after a society has established the institutions that interact with the market to form an efficient private sector. This is the role meant for

For example, consider the problems that can arise when a new service commences operations in a band adjacent to an existing user. The new service—even with careful licensing and *ex ante* technical review—can drastically and unpredictably alter the ambient spectral environment, causing the new service to function poorly and degrading the quality of the existing users services. When this happens, the most desirable result is for the effected parties to negotiate a satisfactory solution.[12] But, as Coase showed, these negotiations will not take place efficiently in the absence of a well-structured enforcement regime.[13] First, there is nothing to stop the more powerful party from simply resorting to self-help.[14] And second, there is no external authority, such as a court, that can impose an outcome on the parties if negotiations break down or enforce an agreement if one of the parties refuses to abide by it.[15] In short, effective enforcement is critical to ensuring that the proper incentive structure is in place to make

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government involvement during the early stages. A set of new rules should be established to inspire confidence in would be private investors. Of primary importance is the establishment of a legal infrastructure for the private sector…In addition, all these measures are of little practical value, unless the laws are supported by courts and trained professionals, who can settle disputes and enforce the laws.").

[12] *See* David B. Spence & Paula Murray, *The Law, Economics, and Politics of Federal Preemption Jurisprudence: A Quantitative Analysis* 87 Cal L.R. 1125,1204 n.303 (1999) ("[T]he Coasean view advocates private negotiated solutions to externality problems.").

[13] *See* Einer R. Elhauge, *Does Interest Group Theory Justify More Intrusive Judicial Review?* 101 Yale L.J. 31, 97 (1991) ("Coasean bargaining and the so-called 'private ordering' actually depend on the state definition and enforcement of contract and property rights. Without a state law promising legal enforcement, such contract and property rights would be meaningless, and Coasean bargaining and the resultant 'private ordering' would be impossible.").

[14] *See* Maurice Stucke, *Does the Rule of Reason Violate the Rule of Law?*, 22 Loy. Consumer L.R. 28, 29 (2009) ("[T]he rule of law is a pre-condition for an efficient market economy.").

[15] *See* Craig Pirrong, *A Theory of Financial Exchange Organization* 43 J. Law & Econ 437, 463 (2000) ("Even given these distributive effects, members clearly have an incentive to choose rules that maximize joint surplus by negotiating Coasean bargains. There are myriad obstacles to the implementation of such bargains, however. Reneging is an ever-present possibility, especially if bargains require asynchronous performance or if the different parties to the bargain realize their benefits at different times. Reputation and formal contracting may mitigate these hazards but are unlikely to eliminate them altogether. The potential complexity of wealth-increasing bargains can also impede their implementation. The difficulties of complete contracting in a dynamic and complex environment are well known. Third-party enforcement of contracts is also costly, especially given the specialized and arcane features of financial markets. Information asymmetries may also bedevil the completion of Coasean bargains. Well-crafted governance structures that reduce enforcement and negotiation costs can mitigate impediments to deals that enhance member wealth.").

market mechanisms work.[16] Moreover, when effective enforcement is lacking, it degrades the overall value of spectrum because the market mechanism cannot efficiently facilitate the free flow of spectrum to its highest valued use and, in addition, parties become less willing to pay to acquire spectral rights because their scope is uncertain.[17] Thus, it is imperative that the FCC develop an enforcement regime that can quickly, fairly, and consistently resolve interference disputes.

Consider the interference dispute that arose between Satellite Digital Audio Radio Systems[18] (SDARS) and Wireless Communication Services[19] (WCS). In 1997, the FCC authorized the use of geostationary satellites to provide SDARS in the 2320 to 2345 MHz band.[20] XM and Sirius Radio purchased a portion of this spectrum at auction for a combined cost of $170 million and subsequently allocated billions of dollars for infrastructure, satellites, and

[16] *See* Brian JM Quinn & Anh, T.T. Vu, *Farmers, Middlemen, and the New Rule of Law Movement* 30 B.C. Third. World. L.J. 273, 280–81 (2010) ("[E]fficient markets and economic growth…require the rule of law and formal legal structures, in particular the protection of property rights and the efficient enforcement of contracts.").

[17] *See* Michael Trebilcock & Paul-Erik Veel, *Property Rights and Development: The Contingent Case for Formalization* 30 U. Pa. J. Int'l Law 397, 399–400 (2008) ("[I]t has become conventional wisdom amongst most economists that, whatever else the state does, it should provide effective institutions and processes to protect private property rights and enforce contracts, which are regarded as pre-requisites to efficient and dynamic market economies. In the words of two prominent law and economics scholars in a forthcoming book, Law and the Poverty of Nations, 'inadequate institutions to enforce property and contract law is the most pervasive and fundamental defect in the legal framework of poor countries.' On this view, law plays a critical role in promoting economic development and should be accorded the highest developmental priority.").

[18] "In 1997, after seven years of pushing, the FCC authorized the creation of a 'Satellite Digital Audio Radio Service' (SDARS). The idea is pretty simple: launch a satellite that can cover the continental U.S. and offer a bunch of channels. At the time, the draw was that it would be CD quality music, as opposed to the quality you get on air. The service finally [launched] a few years later and is offered by two competitors, XM Radio and Sirius Radio." Harold Feld, *Tales of the Sausage Factory: Goodies for the Broadcasters, Zip for the Public*, Wetmachine, http://www.wetmachine.com/item/76. XM Radio and Sirius Radio have since merged to form Sirius XM Radio. *See* http://www.siriusxm.com.

[19] "Wireless Communications Service is defined by the Federal Communications Commission as radio communications that may provide fixed, mobile, radio location, or satellite communication services to individuals and businesses within their assigned spectrum block and geographical area. The WCS is capable of providing more advanced wireless phone services that would be able to pinpoint a subscriber in any given locale. The WCS will most likely be used to provide a variety of mobile services, including an entire family of new communication devices utilizing very small, lightweight, multifunction portable phones and advanced devices with two-way data capabilities. WCS systems will be able to communicate with other telephone networks as well as with personal digital assistants, allowing subscribers to send and receive data and/or video messages without connection to a wire." *WCS (Wireless Communications Service),* http://www.linktionary.com/w/wcs.html.

[20] *In Re XM Radio, Inc.*, Order & Authorization ("O&A"), File No. SAT-STA-20010712-00063 ¶ 3 (Sept. 17, 2001), http://www.fcc.gov/ib/files/9_17_01/sta_order_sep1701_signed.pdf.

content.[21] However, because of satellite signal blockage and multipath interference, it was necessary to add a complementary network of terrestrial repeaters in order to make the service work.[22] Contemporaneously, the FCC auctioned off WCS spectrum on both ends of the SDARS band with the express condition that these users could not cause interference to SDARS.[23] Nonetheless, because of their proximity, a number of interference problems did arise.[24] For example, WCS users have complained about interference caused by SDARS terrestrial transmitters.[25] Likewise, SDARS licensees have objected to potential interference that expanded use of mobile WCS devices might cause.[26]

The fundamental problem is that the ambient broadcast conditions at the nexus of the two bands are constantly changing. Unfortunately, the SDARS and WCS operations are not instantaneously adaptable to these ever-changing conditions.[27] Rather, they are specially tuned to the previously existing conditions.[28] Thus, there needs to be some amount of give and take to make this situation workable. Ideally, the SDARS and WCS operations would negotiate an acceptable solution that would allow both services to operate, with each party internalizing some

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[21] David Phillips, *Voice Your Opinion to the FCC Regarding Sirius XM*, Satwaves (Mar. 12, 2010),http://satwaves.com/blog/2010/03/12/voice-you-opinion-to-the-fcc-regarding-sirius-xm.
[22] *In Re XM Radio, Inc.*, O&A ¶ 2.
[23] Brandon Matthews, *Will the FCC Interfere with Sirius XM Yet Again?*, Seeking Alpha (Mar. 7, 2010), http://seekingalpha.com/article/192329-will-the-fcc-interfere-with-sirius-xm-yet-again.
[24] *See e.g.*, Pierre de Vries, *Radio Regulation Summit: Defining Inter-channel Operating Rules*, A Report on a Silicon Flatirons Summit on Information Policy held 8/9 September 2009 (Dec. 2, 2009) at 10.
[25] *Id.* ("The signal originally delivered to SDARS receivers was weak, coming from satellites. This resulted in gaps in coverage, particularly in urban areas, and lead SDARS operators to deploy ground-based signal repeaters. WCS receivers now had to contend, not with a very weak signal coming from outer space, but a very strong signal com[ming] from a repeater on the top of nearby buildings. Cheap receivers can reject a weak signal in an adjacent channel, but not a strong one.").
[26] *Id.* at 11. ("WCS was intended to provide digital radio services to fixed devices. However, WCS licensees wanted to enable mobile operation, creating a potential problem for SDARS. Rather than having to reject merely a weak adjacent channel signal from a distant building, an SDARS in-car receiver would now have to reject interference from an adjacent vehicle.").
[27] *See* Kevin Werbach, *Supercommons: Towards a Unified Theory of Wireless Communication* 82 Tex. L. Rev. 863, 905 (2004) ("The property regime implies certain uses in the very nature of the rights it grants, especially when those rights are based initially on existing FCC licenses. Those licenses were, in most cases, designed with specific services in mind.").
[28] *See id.*

portion of the costs necessary to make this happen. But, because there is no effective enforcement regime, this has not happened. Rather, the parties find it more advantageous to simply go "through the motions"[29] of negotiation, presumably in hopes that they can extract additional (and undeserved) concessions from the FCC as a carrot to induce settlement. This is not efficient—indeed it is exactly the type of scenario that FCC hopes to avoid by pursuing flexibility and market-based apportionment. But, without a well-structured enforcement regime, these market-based approaches do not function optimally. Consequently, it is incumbent on the FCC to develop an enforcement regime that can resolve interference disputes quickly, fairly, and consistently.

II. THE FCC'S CURRENT ENFORCEMENT REGIME IS NOT OPTIMALLY STRUCTURED TO REPOND TO THE CHALLANGES OF A MARKET

Unleashing competitive forces into formerly regulated markets is not necessarily a panacea.[30] Instead, successful markets result from the careful interplay of governmental design and private actors.[31] As Christian Castle and Amy Mitchell explain, "in a capitalist system, the most fundamental characteristic of a market is that it exists in a regime of property rights that are

[29] de Vries, *supra* at 11.

[30] *See e.g.*, Jim Chen, *The Echoes of Forgotten Footfalls: Telecommunications Mergers at the Dawn of the Digital Millennium* 43 Hous. L. Rev. 1311, 1313 (2007) ("[t]he Telecommunications Act of 1996 promised to promote competition and reduce regulation, secure lower prices and higher quality services and encourage the rapid deployment of new telecommunications technologies. One decade later, many observers have argued that the Act in practice fell far short of the expectation that legislative reform would open all telecommunications markets to competition.") (internal quotation marks and citations omitted); Richard D. Cudahy, *Whither Deregulation: A Look at the Portents* 58 N.Y.U. Ann. Surv. Am. L. 155, 186 (2001) ("Enron failed apparently because of its hubris—its apparent belief that it could make its own way in the energy world, freed of deference to traditional rules and unshackled from regulatory constraint. Its demise may send a message that competitive innovation is not the only value—that freedom from regulation can loose the demons of human nature as well as unbind its creative potentials.").

[31] Ellen Byers, *Corporations, Contracts, and the Misguiding Contradictions of Conservatism*, 34 Seton Hall L. Rev. 921, 956 ("[g]iven these contemporary and historical lessons, [free market proponents] recklessly abandon their belief in pragmatism when they invoke a romanticized vision of 'free market America.' The assumption that the laissez-faire system can somehow 'heal' itself of its defects without any meaningful form of regulation is misguided and unfaithful to history. Despite its appealing frontier connotations, the concept of a 'free market' separate from government is simply a myth. As Dean Joseph Tomain observes, markets simply do not exist without governments: 'Governments create, protect, and enable transactions of property in markets.' ").

legally protected and enforced by both government and private individuals."[32] Accordingly, the FCC must implement a well-structured enforcement regime—otherwise, it risks creating a well intentioned, but ultimately inefficient, spectral market.[33]

Efficient bargaining explicitly requires the presence of: (1) a well-defined property right *and* (2) a mechanism with which to enforce the right.[34] Understandably, much recent attention has been devoted to formulating the contours of property rights in spectrum.[35] As Phil Weiser and Dale Hatfield demonstrate, technical issues, such as radio wave propagation and inter-channel interference, do not square neatly with traditional notions of land-based property.[36] However, far less attention has been paid to ensuring that the FCC's enforcement regime is well adapted to a spectrum market. Indeed, it is common among theorists to simply assume a well-structured enforcement regime is an implicit aspect of an efficient market and give it no more thought.[37] But the Commission—as the entity actually responsible for creating the spectrum

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[32] Christian L. Castle & Amy E. Mitchell, *What's Wrong With ISP Music Lincensing?* 26 Ent. & Sports Law. 4, 4 (2008).

[33] The standard critique supposes that government intervention is not "a public-regarding response to market failure but a deliberate interference with efficiently functioning markets." Helen A. Garten, *Regulatory Scholarship in the Law School* 51 Rutgers L. Rev. 911, 913 (1999). However, the recent collapse of housing prices and the resulting financial crisis demonstrate that market failure is a real concern that has tangible human consequences. *See* Paul Krugman, *How Did Economists Get it so Wrong?*, N.Y. Times, Sept. 2, 2009, at MM36. One leading commentator cautions that "[e]conomics, as a field, got in trouble because economists were seduced by the vision of a perfect, frictionless market system….[A] market economy…has many virtues but [it]…is also shot through with flaws and frictions." *Id.* For example, the Capitol Hill Baby Sitting Co-op is a prescient reminder of how a market, even if simple and uncomplicated, can fail to efficiently allocate resources. Joan Sweeney & Richard James Sweeney, *Monetary Theory and the Great Capitol Hill Baby Sitting Crisis*, Journal of Money, Credit and Banking, vol. 9, no. 1, pt. 1 at 86 (Feb. 1977).

[34] Coase, *supra* note 9, at 14. ("[a] private-enterprise system cannot function properly unless property rights are created in resources, and, when this is done, someone wishing to use a resource has to pay the owner to obtain it. Chaos disappears; and so does the government except that a *legal system to define property rights and to arbitrate disputes* is, of course, necessary.") (emphasis added).

[35] *See e.g.*, Pierre de Vries, *Radio Regulation Summit: Defining Inter-channel Operating Rules*, A Report on a Silicon Flatirons Summit on Information Policy held 8/9 September 2009 (Dec. 2, 2009); Philip J. Weiser & Dale Hatfield, *Spectrum Policy Reform and the Next Frontier of Property Rights* 15 Geo. Mason L. Rev. 549, 569–75 (2008); Thomas W. Hazlett, *A Law and Economics Approach to Spectrum Property Rights: A Response to Weiser and Hatfield,* 15 Geo. Mason L. Rev. 975, 977–98; Ellen P. Goodman, *Spectrum Rights in the Telecosm to Come* 41 San Diego L. Rev. 269, 271 (2004).

[36] Weiser & Hatfield, *supra*, at 569–75.

[37] Frank K. Upham, *From Demsetz to Deng: Speculations on the Implications of Chinese Growth for Law and Development Theory* 41 N.Y.U. J. Int'l L. & Pol. 551, 563–64 (2009) ("The third figure in the institutional pantheon

market and promoting flexible use—cannot rely on this assumption. Rather, in order to reap the full benefits of the market, the FCC must explicitly delineate the structure of the enforcement regime and ensure that it is implemented.

To maintain the incentive structure necessary to facilitate efficient bargaining, a well-structured enforcement regime,[38] committed to the rule of law[39] and consistently applied,[40] must accompany the flexible use and market-based appropriation of spectral rights.[41] First, enforcement ensures that the benefits conferred by rights correspond to the price paid to obtain the rights.[42] As Harold Demsetz explains, "the absence of property right enforcement…can be shown to result in too little production of the good, or in too small an increment to the pool or inventory of the good…because the prices, which reflect private benefits, fail to measure the whole of the social benefit derived from the good."[43] Second, enforcement keeps transaction costs low.[44] As Owen Lippert notes, "[a]t the core of reducing transaction costs is a stable, clear

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is Douglass North. He emphasized what had been implicit in the work of his predecessors: None of the wonderful results of contract and property rights or the advantages of private over commonly held property would materialize without institutions to enforce them.") (citing, *e.g.*, Douglass C. North & Robert P. Thomas, *The Rise of the Western World: A New Economic History* 1 (1973)).

[38] *See* Amy Sinden, *The Tragedy of the Commons and the Myth of a Private Property Solution* Colo. L. Rev. 533, 594–95 (2007) (noting that traditional market theory provides that "where private property rights are well-defined, enforced, and transferable, the tragedy of the commons will be solved and the free market will produce efficient results.").

[39] Eric J. Segall, *Justice O'Connor and the Rule of Law* 17 U. Fla. J.L. & Pub. Pol'y 107, 109 (2006) (stating that "the rule of law requires a minimum judicial commitment to treating similar cases similarly.").

[40] *See.* David M. Becker, *Debunking the Sanctity of Precedent* Wash. Univ. L.Q. 853, 936 (1998) ("Interpretive certainty for title assessors will not arise unless courts give consistent meaning to the same language formats. Ultimately, this will erase doubt as to who owns what interests and, therefore, discourage litigation. Ideally, it will also yield greater marketability.").

[41] Bradley R. Stark & Ronald W. Cornew, *Compulsory Arbitration: Its Impact on the Efficiency of Markets15* PIABA Bar J. 20, 28 (2008) ("When individuals cannot vindicate their property rights through efficient and fair dispute resolution, it is the market itself that ultimately loses efficiency.").

[42] Harold Demsetz, *The Exchange and Enforcement of Property Rights* 7 J. Law & Econ. 11, 17 (1965) ("The value of what is being traded depends crucially on the rights of action over the physical commodity and on how economically these rights are enforced. The enforcement of the accompanying property rights has an important impact on the ability of prices to measure benefits.").

[43] *Id.*

[44] Owen Lippert, *One Trip to the Dentist is Enough: Reasons to Strengthen Intellectual Property Rights Through the Free Trade Area of the Americas* 9 Fordham Intell. Prop. Media & Ent. L. J. 241, 263 (1998) ("[O]ne of Coase's fundamental insight is this: the sustained economic success of a country does not depend on any initial or subsequent endowment of capital and technology, but rather on its ability to maintain institutions of formal and

and enforced system of property rights."[45] And lastly, enforcement maintains robust investment into the market and ensures that goods and resources flow to their highest valued use.[46]

However, the current enforcement regime is not well adapted to the novel challenges posed by flexible use and market-based apportionment of spectrum. Rather, it provides a menu of options that were better suited to command-and-control regulation: rulemaking and basic policing (via the Enforcement Bureau). This frustrates private negotiations, and ultimately decreases the value of spectrum as a whole. In particular, the current regime is not optimally structured to respond where (1) the scope of interference is pervasive and systematic; (2) the interference dispute is between an incumbent and a new entrant; (3) the scope of the spectral right is inadequately defined *ex ante*; or (4) the dispute implicates different technologies in adjacent bands.[47] Moreover, disputes along these dimensions are likely to be exacerbated by the move to flexible use and market-based apportionment because these are exactly the problems that are caused by new entrants employing novel spectral technologies and more intensive use of spectrum.

A. Rulemaking. In general, rulemaking is a thorough process, but it is typically too slow to efficiently resolve interference conflicts.[48] For example, the interference dispute that arose

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informal rules that keep low the costs of measuring the valuable attributes of what is being exchanged and the costs of protecting rights and policing and enforcing agreements.") (internal quotation marks omitted).

[45] *Id.*

[46] J. Gregory Sidak & Daniel F. Spulber, *Deregulatory Takings and Breach of the Regulatory Contract* 71 N.Y.U. L. Rev. 851, 935 (1996) ("Without protection of property there would be a reduction in incentives to invest, because there would be an increased risk that others would appropriate the returns to the investment. The classic example is the farmer planting crops in anticipation of reaping the harvest. Those who confiscate property or the productive returns created by the investment of resources are free riding on the efforts of others. Free riders create economic inefficiencies because they do not take account of the full costs associated with their behavior.").

[47] Problems also emerge when interfering technologies are regulated by different agencies, such as the FCC and the NTIA. The interference that was caused by garage door openers illegally operating in military-controlled spectrum is an example of such a conflict. *See* GAO, (Dec. 1, 2005), http://www.gao.gov/new.items/d06172r.pdf.

[48] *See* Robert W. Hamilton, *Book Review: Administrative Law Treatise (Second Edition, Volume I)* 127 U. Pa. L. Rev. 855, 860 (1979) (" 'Formal' rulemaking, or 'rulemaking on a record' requires the agency to follow the essentially adjudicative procedures set forth in sections 556 and 557 of the [APA]. These include a formal trial-type hearing before an administrative law judge, sworn testimony, cross-examination, and an ultimate decision based

between T-Mobile and the Broadcast Auxiliary Services (BAS) after the AWS-1 band[49] auction evidences potential problems associated with the rulemaking process that can harm new entrants.

In 2002, the FCC auctioned off 90 MHz of spectrum in the 1710–1755 MHz and 2110–2155 MHz for advanced wireless services (AWS),[50] with T-Mobile emerging as one of the successful bidders.[51] Beginning in mid-December 2006, WABC News ("ABC News") in New York began experiencing interference at several of its electronic news gathering (ENG) receive-only (ENG-RO) sites.[52] ABC News determined that the source of the interference was a Special Temporary Authority (STA) authorization[53] issued to Ericsson Inc.—a large manufacturer of AWS radios under contract with T-Mobile to deploy approximately 50 mobile AWS base stations in the New York City area.[54] Under Section 5.111(a)(2) of the FCC's Rules, experimental stations are not permitted to cause interference to licensed stations.[55] Moreover, both Ericsson and T-Mobile had an FCC-imposed obligation to protect ABC News (as an incumbent) from interference.[56] When informed of the interference, Ericsson/T-Mobile promptly stopped the STA authorized tests.[57] To solve the problem, Ericsson/T-Mobile agreed to shift its operations up the band to provide a 5 MHz separation between its broadcasts and the BAS band, and to refrain from operations in the late afternoon when ABC News most intensively used its

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solely on the record created at the hearing. Although the Act permits a certain amount of flexibility, it was generally recognized that 'rulemaking on a record' was slow, inefficient, and poorly suited to resolving the kind of broad issues usually addressed in rulemaking.").

[49] AWS stands for Advanced Wireless Services. The AWS-1 band ranges from 1710–1755 MHz and 2110–2155 MHz.

[50] FCC, *Second Report and Order,* ¶ 1 ET Docket No. 00-258 (Nov. 7, 2002).

[51] Phone Scoop, *A Visual Guide to AWS*, http://www.phonescoop.com/articles/article.php?a=99&p=1495.

[52] The Society for Broadcast Engineers, *Petition for Reconsideration*, WT Docket No. 02-353, ¶ 6 (Mar. 8, 2007).

[53] The circumstances surrounding this STA are likely to approximate a situation where a new entrant has purchased spectrum rights on an open market and is subsequently attempting to commence its operations.

[54] *Id.* ¶ 7.

[55] *Id.* ¶ 9.

[56] *Id.* ¶ 12 ("AWS licensees operating in the 2110-2155 MHz band must protect previously licensed BAS…operations in the adjacent 2025- 2110 MHz band. In satisfying this requirement AWS licensees must, before constructing and operating any base station, determine the location and licensee of all BAS…stations authorized in their area of operation, and coordinate their planned stations with those licensees.") (quoting 47 C.F.R. § 27.1133).

[57] *Id.* ¶ 8.

BAS channel.[58] In addition, Ericsson/T-Mobile arranged to provide a hotline staffed at all times that would allow ABC News to shut down Ericsson/T-Mobile's operations in real time if necessary to prevent interference.[59]

Nonetheless, despite these seemingly drastic concessions (forgoing 5 MHz of spectrum in New York City undoubtedly cost T-Mobile millions of dollars), the Society of Broadcast Engineers, Inc.[60] (SBE) determined that this was a "dubious fix," and requested that the FCC reconsider its previous Report and Order allowing T-Mobile into the band.[61] The SBE reasoned that "[t]he Ericsson experimental STA operation suggests that if mitigation measures are not taken, the interference to ENG-RO sites will get much worse once T-Mobile has completed its build out,"[62] and, moreover, once T-Mobile has commenced operations, it will "be reluctant to shut down activated cell sites, even if they are causing interference to BAS operations."[63] The SBE stressed that it was "not singling out T-Mobile in this regard," rather it believed "that such reluctance would apply to any commercial mobile radio service (CMRS) licensee that has made a large financial investment to obtain a license, and needs to generate revenue from paying subscribers, just as quickly as possible, to start making that investment pay off."[64] Thus, to fully appease ABC News and the SBE, T-Mobile—in addition to the previous fixes—spent two years working with a California-based filter manufacturer to develop an AWS band reject filter that

[58] *Id.* ¶¶ 8, 10.
[59] *Id.* ¶ 10.
[60] The SBE is the "national association of broadcast engineers and technical communications professionals, with more than 5,000 members world wide." *Id.* at 1.
[61] *Id.* ¶¶ 5, 8 ("For example, what if there is need for news coverage in the [New York City] area at other times? Will that coverage just have to wait until Ericsson can be persuaded to once again shut down its interfering experimental operation?").
[62] *Id.* ¶ 11
[63] *Id.*
[64] *Id.* ¶ 11 (also noting that T-Mobile paid $396 million for its New York City AWS license).

could be used to protect sensitive BAS sites from harmful interference—all at its own expense.[65]

In some respects, this interference conflict illustrates the ability of the market to facilitate an efficient solution where the rules—in particular, T-Mobile's obligation to protect incumbents from interference—are clear *ex ante*.[66] To be sure, T-Mobile and ABC News reached a solution without intervention from the FCC. But this reading of the facts minimizes the role played by other important circumstances in the case. Indeed, the fundamental problem underscored by the dispute was that the license rules did not adequately anticipate *ex ante* the extent to which the BAS would be harmed by T-Mobile's operations—a simple mistake that imposed burdens exclusively on the new entrant.[67] Therefore, a more nuanced interpretation must consider the extent to which, under the existing rules, incumbents are in a position to extract economic rents from new entrants where the operating rules are poorly defined *ex ante*.[68]

Under the existing rules, ABC News effectively received a *de facto* injunction against the entirety of T-Mobile's operations in New York City, as any seeming unwillingness on T-Mobile's part to cooperate would have subjected it to the possible revocation of its license. In property terms, this would be akin to allowing an adjacent landowner to shut down a newly built hotel because of a dispute at the edge of the property line. Of course, in the context of real property, the landowner would not be entitled to an automatic injunction, but rather could use the legal system to obtain compensation roughly proportional to the harm caused by the error—a fact that would be reflected if the hotel and the landowner decided to settle. But, aside from settling

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[65] Dane Ericksen, *New AWS Band Filter Developed*, TV Technology (Apr. 29, 2009), http://www.tvtechnology.com/usercontrol/article/80214.

[66] De Vries, supra note 11, at 13 *("*In this case, negotiations between the incumbent (BAS) and newcomer (AWS-1) were successful because the rules were clear and AWS-1 was obligated to become compliant.*"*).

[67] *Id.* (Ostensibly, "[t]he FCC set rules without realizing how poor the performance of BAS receivers was.").

[68] Black's Law Dictionary defines economic rent as "[t]he return gained from an economic resource (such as a worker or land) above the minimum cost of keeping the resource in service." *See also* Paul M. Johnson, *A Glossary of Political Economy Terms*, *Rent-Seeking Behavior*, http://www.auburn.edu/~johnspm/gloss/rent-seeking_behavior (Rent-Seeking is "[t]he expenditure of resources in order to bring about an uncompensated transfer of goods or services from another person or persons to one's self as the result of a 'favorable' decision on some public policy.").

with ABC News, T-Mobile's only other recourse in this case was a new rulemaking procedure that is both extremely slow,[69] and poorly attuned to resolving interference disputes. In the real property example, it would be analogous to using the hotel permitting process to resolve the boundary dispute. Consequently, the existing rules ostensibly made the market value of the BAS's *de facto* injunction equivalent to the entire value of T-Mobile's nearly $400 million New York license.[70] In other words, because the BAS could effectively delay T-Mobile's operations indefinitely, it could use this advantage to force T-Mobile to pay substantially in excess of the economic value of the harm caused by its interference. Accordingly, although the parties reached a market-based solution, the rulemaking procedure does not ensure that it is under the influence of the appropriate competitive forces essential to market-efficiency.[71] To be sure, it is

[69] As the well-known Northpoint case illustrates, the rulemaking process can ultimately take more than ten years to complete. Kevin Werbach, *Supercommons: Towards a Unified Theory of Wireless Communication* 82 Tex. L. Rev. 863, 926–27 (2004) ("Like ultra-wideband, another technology that did not fit the frequency-oriented paradigm, Northpoint's proposed service was the subject of bitter, protracted regulatory wrangling. Nearly a decade after Northpoint first brought its technology to the FCC, the FCC approved Northpoint's approach, but refused to grant Northpoint the exclusive license it claimed it needed. The Northpoint case looks like yet another example of how government allocation of spectrum is political and inefficient. It shows the public choice problems with a system that vests allocation and assignment decisions in regulators.").

[70] In the context of patents (an intellectual property right), the Supreme Court has recognized that the automatic issuance of an injunction without first considering the traditional principles of equity can allow certain entities to unfairly and inefficiently extract economic rents from other businesses. *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 391 (2006) ("According to well-established principles of equity, a plaintiff seeking a permanent injunction must satisfy a four-factor test before a court may grant such relief. A plaintiff must demonstrate: (1) that it has suffered an irreparable injury; (2) that remedies available at law, such as monetary damages, are inadequate to compensate for that injury; (3) that, considering the balance of hardships between the plaintiff and defendant, a remedy in equity is warranted; and (4) that the public interest would not be disserved by a permanent injunction."); *see also id*. at 396–97 (Kennedy, J., concurring) ("In cases now arising trial courts should bear in mind that in many instances the nature of the patent being enforced and the economic function of the patent holder present considerations quite unlike earlier cases. An industry has developed in which firms use patents not as a basis for producing and selling goods but, instead, primarily for obtaining licensing fees…For these firms, an injunction, and the potentially serious sanctions arising from its violation, can be employed as a bargaining tool to charge exorbitant fees to companies that seek to buy licenses to practice the patent…When the patented invention is but a small component of the product the companies seek to produce and the threat of an injunction is employed simply for undue leverage in negotiations, legal damages may well be sufficient to compensate for the infringement and an injunction may not serve the public interest.") (internal citations omitted).

[71] *See* William J. Kolasky & Andrew R. Dick, *The Merger Guidelines and the Integration of Efficiencies into Antitrust Review of Horizontal Mergers* 71 Antitrust L. J. 207, 208 (2003) ("The fundamental reason we favor competition over monopoly is that competition tends to drive markets to a more efficient use of scarce resources. There are four distinct types of efficiencies that competition promotes. Competition promotes *allocative efficiency* by leading firms to produce output up to the point where the marginal cost of each unit just equals the value of that unit to consumers. Competition promotes *productive efficiency* by forcing firms to cut their costs in order not to lose

impossible to know whether the agreement reached between the BAS and T-Mobile was objectively reasonable under the circumstances of this case. But, it is disconcerting that the existing rules create a circumstance such that any new entrant who causes unexpected interference is potentially subject to rent seeking by adjacent incumbents.

An enforcement regime that more closely resembled the adversarial system used to resolve civil disputes—such as those that arise in the context of real property—would help to alleviate these concerns. In this case, if T-Mobile believed that the BAS was unfairly trying to extract economics rents, an impartial third party would be available to review the facts and make a determination as to the proper outcome. Moreover, by doing this, a court-like regime could assure that the negotiations centered on compensating the BAS for the economic damages caused by T-Mobile's interference and that they did not inadvertently allow for the possibility that the BAS could extract almost the entire value of T-Mobile's operation because of the *de facto* injunction created by the uncertainties and delay attendant to the rulemaking process. In short, a court-like system of enforcement would ensure that the proper incentive structure was in place for the parties to negotiate an efficient solution.

B. Enforcement Bureau. On the other hand, the Enforcement Bureau (EB) provides an effective mechanism to resolve interference disputes quickly where a user is operating in clear violation of the Communications Act or established FCC rules. However, the EB is currently not well equipped to handle the wide-ranging interference complaints involving commercial enterprises that are likely to become more common as additional spectrum is opened up to flexible use. For example, *In Re Neptuno Networks Inc.*[72] demonstrates how FCC enforcement

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sales to more efficient rivals. Competition promotes *dynamic efficiency* by stimulating investment and innovation. And competition promotes *transactional efficiency* because, faced with competition, firms will seek out the least expensive means of carrying out transactions.").

[72] Notice of Apparent Liability for Forfeiture ("NAL"), File No. EB-06-SJ-022 (Jan. 23, 2007), *available at*

actions are susceptible to haphazard and *ad hoc* outcomes where the observed violations are systematic and pervasive. In addition, it highlights the fact that the scope and thrust of government enforcement is often too narrow to fully resolve an interference dispute between private entities.

Neptuno commenced on March 11, 2006, when Islanet Inc. filed a complaint with the FCC alleging that Neptuno was operating U-NII devices in violation of the Communication Act and Part 15 of the FCC's Rules.[73] Ten months later, on January 23, 2007, the EB issued a Notice of Apparent Liability for Forfeiture ("NAL").[74] On four occasions, at three separate locations, field agents observed Neptuno operating user-modified U-NII devices outside.[75] In addition, Neptuno admitted that it had operated such U-NII devices outside at 68 locations for a period of about five years.[76] The EB determined that Neptuno had "failed to operate its U-NII devices in accordance with the requirements of Section 15.407 of the Rules."[77] Moreover, the EB found that "Neptuno apparently willfully and repeatedly violated Section 301 of the [Communications] Act by operating radio transmitters without a license."[78] Pursuant to Section 503(b) of the Communications Act, and in accordance with Section 1.80 of the FCC's Rules,[79] the base fine for operating without a license is $10,000.[80] However, the EB, noting the statutory factors set

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http://www.fcc.gov/eb/FieldNotices/2003/DOC-269874A1.html. *See also In Re Neptuno Media*, Memorandum Opinion and Order ("MO&O"), (Apr 23, 2007) *available at*, http://fjallfoss.fcc.gov/edocs_public/attachmatch/DA-07-1808A1.pdf. The MO&O denies Islanet's Petition to Deny Neptuno's application to modify its common carrier fixed point-to-point microwave stations. *Id.* ¶ 1. Therein, Islanet submits the violations disclosed in the NAL as *prima facie* evidence that Neptuno's petition to modify its stations is not in the public interest. *Id.* ¶¶ 6–9.

[73] *In Re Neptuno Media*, MO&O ¶ 3. U-NII stands for Unlicensed National Information Infrastructure; Part 15, Subpart E of the FCC's Rules sets forth the specific conditions that U-NII devices must observe in the 5.15–5.35 GHz, 5.47–5.725 GHz, and 5.725–5.825 GHz bands. 47 C.F.R. §§ 15.401–15.407.

[74] *In Re Neptuno Network, Inc.*, NAL.

[75] *Id.* ¶ 9.

[76] *Id.*

[77] *Id.*

[78] *Id.* ¶ 11.

[79] *See The Commission's Forfeiture Policy Statement and Amendment of Section 1.80 of the Rules to Incorporate the Forfeiture Guidelines,*12 FCC Rcd 17087 (1997), *recon. denied*, 15 FCC Rcd 303 (1999); 47 C.F.R. §1.80.

[80] *In Re Neptuno Network, Inc.*, NAL ¶ 13.

out in 503(b)(2)(D),[81] held that because of "the number of active sites, the duration of the violation, and the commercial application of the unlicensed activity," it is appropriate to "to increase the forfeiture amount above the base forfeiture.[82] Thus, the EB concluded that Neptuno was apparently liable for a forfeiture of $20,000.[83] On February 12, 2007, Neptuno paid the forfeiture amount.[84]

However, it is difficult to discern the principled reasoning on which the NAL rests. As the MO&O notes, Neptuno's violations were "serious."[85] Nonetheless, the forfeiture amount was trivial for a commercial enterprise.[86] Despite the fact that the EB used its discretion under the FCC's Rules to adjust the fine amount upwards, it only issued a forfeiture based on a single violation, rather than the 68 violations admitted to in the NAL.[87] Moreover, the EB did not consider the unauthorized modification of the U-NII equipment as an additional basis for forfeiture although the FCC's Rules set forth a $4,000 fine per violation.[88] As one practitioner remarked, "[i]t is not clear whether the failure to consider each transmit point as a separate violation reflects a change in policy at the Enforcement Bureau. Typically the [FCC] is faced with an isolated incident, rather than the apparently systematic abuse described in the Commission's order."[89]

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[81] "[W]hich include the nature, circumstances, extent, and gravity of the violations, and with respect to the violator, the degree of culpability, and history of prior offenses, ability to pay, and other such matters as justice may require." *Id*.
[82] *Id.*
[83] *Id.*
[84] *In Re Neptuno Media*, MO&O ¶ 5.
[85] *Id.* ¶ 8.
[86] Lee Petro, *Unauthorized Operation at 68 Sites for 5 Years Nets $20K fine*, FHH Telecom Law at 3, 4 (March 2007) ("considering that the frequencies were used as part of a commercial operation, the impact of the forfeiture on Neptuno's bottom line will likely be negligible.").
[87] Alex Goldman, *FCC Fines Puerto Rico WISP $20,000*, ISP-Planet ("If we read the order correctly, the FCC could have fined the WISP $10,000 per site, for a total of $680,000, but chose instead to fine the company $20,000…perhaps choosing to be lenient because [Neptuno] had cooperated with the investigation."), http://www.isp-planet.com/fixed_wireless/news/2007/fcc_neputuno.html.
[88] Lee Perto, *supra*, at 4.
[89] *Id.*

In addition, *Neptuno* illustrates that the goals of government enforcement are often poorly aligned with the aims of private concerns.[90] In the MO&O, Islanet asserted that the facts elucidated by the NAL demonstrated that Neptuno, as a commercial competitor, caused economic injury to Islanet.[91] Likewise, Islanet maintained that the facts showed that Neptuno would fail to comply with the FCC's Rules in the future.[92] Certainly, the EB may have been correct to conclude that the record fails to establish these allegations.[93] However, it is doubtful that an EB enforcement proceeding would ever be capable of satisfying these factual inquiries. An EB enforcement proceeding endeavors only to establish the existence of interference as a matter of fact so that the EB can enforce the Commission's rules against a private party. It does not concern itself with how the existence of interference potentially fits into the broader context of (possibly unlawful) competition between commercial rivals. Moreover, this poor alignment is augmented because the party who complains about interference plays no additional role in the enforcement proceeding once the complaint is levied. Yet, in order to obtain relief from harmful interference, the party may need to establish more than the simple fact that interference exists. Thus, in these cases, the scope of fact-finding in the enforcement proceeding offered by the EB is inadequate to allow a party to meaningfully enforce its rights against a generator of harmful interference. In the context of a market, this is problematic because there is no incentive for a party that is violating another's rights to negotiate where the aggrieved party has no legal means to redress the violations. But, on the contrary, an adversarial, court-like setting would allow private parties to more-thoroughly present their concerns and to develop the full range of facts

[90] *Cf.* Mary Condon, *Rethinking Enforcement and Litigation in Ontario Securities Regulation* 32 Queen's L.J. 1, 4 (2006) ("An important point of departure here is that public enforcement of securities regulatory norms may have different normative goals than those of private enforcement. Specifically, public enforcement is considered to be about punishing market actors or producing markets that operate with integrity, while private enforcement is about compensation for investors.").
[91] *In Re Neptuno Media*, MO&O ¶ 4.
[92] *Id.* ¶ 8.
[93] *See id.*

necessary to examine the entire scope of an interference dispute—ensuring that the incentive structure necessary to facilitate bargaining properly envelopes all of the rights implicated in a dispute.

Another example of the difficulties posed by continuous and systematic interference is the conflict that arose between Neptuno Networks[94] and World Data PR, Inc. In late 2009, World Data filed applications to register twelve base/fixed stations in Puerto Rico under its nationwide, non-exclusive license for the 3650 MHz band.[95] Subsequently, Neptuno, who also held a nationwide, non-exclusive license for the 3650 MHz band, petitioned the FCC to deny World Data's applications.[96] Neptuno alleged that World Data operated transmitters at several of these base/fixed stations prior to obtaining FCC authorization, and further, that it failed to coordinate any of these stations with Neptuno.[97] As a result, Neptuno maintained that it suffered harmful interference for a three-week period beginning in July 2009.[98] Accordingly, Neptuno asked the FCC to deny World Data's applications because it "cannot be trusted to comply with the [FCC's] rules or to avoid causing harmful interference in the future."[99]

As a preliminary matter, the FCC agreed with World Data that its rules do not contemplate petitions to deny against application registrations[100] because it "intended the 3650 MHz band rules as involving minimal regulatory burdens to encourage multiple entrants and to

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[94] N.B., although *World Data* involves the same company (Neptuno) as *Neptuno*, *supra*, the cases are not related.
[95] *In Re World Data PR, Inc.*, Memorandum & Opinion Order (MO&O), ¶ 1 (Dec. 29, 2009), http://hraunfoss.fcc.gov/edocs_public/attachmatch/DA-09-2626A1.pdf. *See also* subpart Z of Part 90 of the Commission's Rules, 47 C.F.R. §§ 90.1301-1337 (Wireless Broadband Services in the 3650-3700 MHz Band).
[96] *In Re World Data PR, Inc.*, MO&O ¶ 2.
[97] *Id.* ¶ 3.
[98] *Id.*
[99] *Id.* ¶ 5.
[100] *In Re World Data PR, Inc.*, MO&O ¶ 9. (citing 47 C.F.R. § 1.939(a) (any party in interest may file with the Commission a petition to deny any application listed in a Public Notice as accepted for filing); "Station registrations will not be placed on Public Notice as a matter of routine unless they raise a matter of public significance (*e.g.*, environmental concerns);" *Public Notice*, 22 FCC Rcd at 19808 *citing* 47 C.F.R. § 1.933(a)(3) (categories of information of public significance include special environmental considerations as required by Part 1, FCC Rules)).

stimulate the rapid expansion of broadband services."[101] However, it did consider the petition as an informal request under its discretionary authority pursuant to Section 1.41 of its Rules.[102] On the merits, the FCC found no basis for denying World Data's application registration.[103] First, the EB had already conducted a preliminary investigation and issued a Notice of Violation.[104] Although the violations were serious, they did not prove that World Data would fail to comply with the FCC's Rules in the future.[105] Second, despite Neptuno's assertion that World Data intended to "simply turn up [its] transmitters and overwhelm others in the area," the record disclosed that World Data had consulted the database of registered users and taken steps to share the band.[106] Importantly, the FCC emphasized that Neptuno was not entitled to a first-in-time right and that both parties were mutually obligated to cooperate to avoid causing harmful interference to each other.[107]

Certainly, it was commendable of the FCC's to avoid grafting a first-in-time right onto Neptuno's 3650 MHz license. Indeed, "[t]his is the 'licensed-lite' band, designed to be just a little bit more restrictive than the pure unlicensed regime."[108] A first-in-time right would have effectively converted the 3650 MHz into an exclusive-use band that afforded first users an undeserved status as incumbents. However, the subtext of the order implies that the FCC will not become involved in inter-party interference disputes in the 3650 MHz band. As Harold Feld

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[101] *Id.* (citing *3650 MHz Order*, 20 FCC Rcd at 6508, 6512 ¶¶ 15-16, 28 ("[w]e wish to emphasize that the licensing requirements that we are adopting here for wireless operations in the 3650 MHz band are minimal in nature.")).
[102] *Id.* (citing 47 C.F.R. § 1.41 and Michael McDermott d/b/a McDermott Communications Co., *Memorandum Opinion and Order*, 11 FCC Rcd 5750, 5751 ¶ 6 (1996)).
[103] *Id.* ¶ 11.
[104] *Id.* (citing World Data, PR, Inc., Licensee of Radio Station WQJI716, San Juan, PR, *Notice of Violation*, NOV No. V201032680002) (rel. Nov. 20, 2009) (available at: http://www.fcc.gov/eb/FieldNotices/2003/DOC-294807A1.html) (*Violation Notice*); and stating that "On October 19, 2009, an agent of the Commission's San Juan Office issued a Letter of Inquiry (File No. EB-09-SJ-0033). World Data submitted a satisfactory response dated November 25, 2009 to the Violation Notice, and the investigation is now closed.").
[105] *Id.*
[106] *Id.* ¶ 13.
[107] *Id.*
[108] Harold Feld, *Wireless Bureau Wisely Decides To Not Play Referee In 3.65 GHz Band*, Wetmachine, http://www.wetmachine.com/item/1786.

notes, "[i]t boils down to [the fact that] [t]he rules do not contemplate *Petitions to Deny* for 3.65 GHz band site registrations once a party qualifies for the general non-exclusive national license (the initial registration). So while we [the FCC] are treating this as an informal request for action under Rule 1.41, we are not going to entertain these sorts of things on a regular basis. Everyone else take note that we are resolving this to establish that fact and don't bug us again."[109]

The prospect of Agency reluctance to resolve interference disputes in the 3650 MHz band is disconcerting. Even though the rights provided by a 3650 MHZ license are intended to be limited, they are not intended to be zero. Ostensibly, "[t]he idea was to eliminate the attitude of some in the pure unlicensed world that 'because the rules don't require me to play nice, I won't — so there!' ".[110] Yet, without a legal regime in which to enforce these rights, an aggrieved party cannot force another spectrum user to "play nice." To stop unlawful broadcasts, an aggrieved party has to either offer concessions to the offending party (perversely rewarding wrongdoing) or resort to self-help—results that are inconsistent with both the rule of law and an efficient spectrum market.

At base, this problem exists because the FCC does not have an adequate mechanism to resolve disputes where the scope of a license does not anticipate all forms of interference *ex ante*. By design, the 3650 MHz band rules do not clearly specify what does and does not constitute harmful interference. Rather, the rules address only specific actions that users must complete before commencing operations. Therefore, as *World Data* demonstrates, this creates situations where the rules, as written, are not sufficient to prevent interference. This puts the FCC in a catch-22 because its existing enforcement regime offers only two imperfect options for redress: either graft a first-in-time right onto a license and use the incumbent/new entrant archetype to

[109] *Id.*
[110] *Id.*

resolve the dispute (at odds with the license-lite purpose of the band), or refuse a remedial cure altogether (which is against the rule of law and removes the incentives necessary to facilitate bargaining). This conundrum, much like the previous examples above, demonstrates that there is critical the need for the FCC to develop a new mechanism specifically tailored to adjudicating interference disputes. Otherwise, the incentive structure necessary facilitate bargaining and ensure the free flow of spectrum to its highest value use will not function properly, and the spectrum market will function sub-optimally.

III. THE FCC SHOULD IMPLEMENT AN ACCEERATED SPECTRAL DOCKET TO RESOLVE INTERFERENCE DISPUTES BETWEEN PRIVATE PARTIES

Effective enforcement is a critical component of an efficient spectral market.[111] Indeed, market theory suggests that without an expedient means to enforce rights and adjudicate disputes, the market mechanism will ultimately fail.[112] Consider, as an analog, the extent to which common law courts are involved in the administration of land titles in real property; the real estate market relies upon the courts to maintain the rule of law and ensure the efficient functioning of the property market. Accordingly, there is reason to think that the FCC will need to maintain a similar involvement in administering flexible-use licenses and overseeing market-based allocation if the spectrum market is to function efficiently. As Barzel notes, "[t]he courts participate in rights delineation in two ways. The first is indirect: When the parties choose to settle their disputes without resorting to the courts, their actions are influenced by their perceptions of how the courts would have acted in their dispute. The second is direct: The

[111] *See* Jim Rossi, *Beyond Goldwasser: Ex Post Judicial Enforcement in Deregulated Markets* 2003 Mich. St. DCL L. Rev. 717, 717–18 (2003) ("Increasingly, regulatory agencies are adopting ex ante rules to set market access terms and conditions for network industries. A major challenge for regulatory law is striking an effective balance between ex ante and ex post regulatory mechanisms. I argue that ex post enforcement has an important role to play in deregulated markets and should not be ignored where a regulatory agency is not actively applying ex ante rule to guide market conduct.").

[112] Douglas W. Arner, Charles D. Booth, Paul Lejot, & Berry F.C. Hsu, *Property Rights, Collateral, Creditor Rights, and Insolvency in East Asia* 42 Tex Int'l L.J. 515, 560 (2007) ("[A] governance system that enforces contracts and resolves commercial disputes in a credible and predictable manner is essential to a basic market economy, as well as allowing financial markets to develop beyond the simplest single instantaneous transactions.").

disputes are actually settled by the courts."[113] Consequently, the demarcation of real titles in land must coincide with "a series of politically challenging steps [including] improving the efficiency of judicial systems."[114] Likewise, the delimitation of flexible use rights in spectrum must coincide with improvements to spectral enforcement proceedings.

Unfortunately, the current enforcement mechanisms are not well adapted to resolve these types of conflicts. Thus, the Petitioner urges the FCC to act proactively, and to consider and devise better enforcement mechanisms to resolve interference disputes between private market participants quickly, fairly, and consistently.[115] With this goal in mind, the Petitioner requests that the FCC issue a Notice of Inquiry to solicit public concerning the efficacy of its enforcement proceedings as it undergoes a transition to flexible use rights and market-based apportionment of spectrum.

A. The Accelerated Docket. As a template, the Petitioner recommends that the administrative process rely on the Enforcement Bureau's Accelerated Docket[116] that was developed to speedily resolve formal complaints against common carriers. The Accelerated Docket was introduced in 1998 as part of the FCC's mandate to establish a pro-competitive, deregulatory framework under the 1996 Telecommunications Act.[117] The FCC believed that accelerated procedures would "stimulate the growth of competition for telecommunications services by ensuring the prompt resolution of disputes that…arise between market

[113] Yoram Barzel, *Economic Analysis of Property Rights* 98 (Cambridge University Press 2nd. ed. 1997).
[114] Jeremy Cliff, *Hearing the Dogs Bark: Jeremy Cliff Interviews Development Guru Hernando de Soto*, People in Economics, Finance & Development (Dec. 2003) at 11.
[115] *Cf.* Michael Trebilcock & Paul-Erik Veel, *Property Rights and Development: The Contingent Case for Formalization* 30 U. Pa. J. Int'l L. 397, 456 (2008) ("A property rights regime does not exist in a vacuum, but rather its operation depends on its interactions with a number of related social institutions.").
[116] 47 C.F.R. § 1.730 (2009).
[117] FCC, *Second Report and Order,* 13 FCC Rcd 17018 ¶ 1 (1998), *available at* http://www.fcc.gov/Bureaus/Common_Carrier/Orders/1998/fcc98154.txt.

participants."[118] Moreover, the FCC recognized "that even minor delays or restrictions in the interconnection process can represent a serious and damaging business impediment to competitive market entrants."[119] As Nakahata and Smith note, "[t]he Accelerated Docket is another creative approach to problem solving that can get your client answers to their problems quickly. One of the best kept secrets in town is that, through the Accelerated Docket process, dozens of problems are resolved without a complaint ever being filed, simply by having Enforcement Bureau staff mediate the dispute with the parties."[120]

The Accelerated Docket is set out in section 1.730 of the Code of Federal Regulations. Under this section, "[p]arties to formal complaint proceedings against common carriers within the responsibility of the Enforcement Bureau…may request inclusion on the Bureau's Accelerated Docket."[121] Unlike the traditional rulemaking process, "proceedings on the Accelerated Docket are subject to shorter pleading deadlines and certain other procedural rules that do not apply to other formal complaint proceedings before the Enforcement Bureau."[122] However, the main benefit is that "[i]n Accelerated Docket proceedings, the [FCC Staff] may conduct a minitrial, or hearing-type proceeding, as an alternative to requiring that parties submit briefs in support of their cases."[123] The minitrials take place between 40 and 45 days after the filing of the complaint and are presided over by an FCC Administrative Law Judge (ALJ).[124] Importantly, during a minitrial, each party has only a certain allotment of time to present its

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[118] *Id.* ¶ 3.
[119] *Id*.
[120] John Nakahata & Lisa Smith, *Consent Decrees and Appendices*, 1294 PLI/Corp. 559, 581 (2002). *See also* FCC, EB-Progress Report Year One, http://www.fcc.gov/eb/reports/yearone.html ("Through the Accelerated Docket and other informal dispute resolution efforts, the Bureau has facilitated the settlement of approximately 40 disputes without formal complaints ever being filed. This includes settlement of disputes in areas such as collocation, provisioning of network elements and services to local competitors, and local competitors using existing interconnection agreements with incumbent carriers.").
[121] 47 C.F.R. § 1.730(a) (2009).
[122] *Id.*
[123] *Id.* § 1730(g)(1).
[124] *Id.*

case.[125] After the minitrial, the FCC Staff issues its recommended decision.[126] "If no party files comments challenging the recommended decision, the [FCC] issues its decision adopting or modifying the recommended decision within 45 days."[127]

Although the specifics of Accelerated Docket are tailored to the administration of formal complaints against common carriers, the basic structure should be applicable to the resolution of spectral interference disputes. In particular, the Accelerated Docket illustrates that a proceeding broadly resembling a standard trial (*viz.*, the minitrial) fits within the general framework of the FCC's regulatory process. Accordingly, the Accelerated Docket is an ideal template for implementing a regulatory proceeding that is similar to a common law tribunal. However, unlike the Accelerated Docket—which does not adhere to precedent—the adjudicatory process developed to oversee the spectrum market should treat like cases alike because of the importance of consistent administration to the efficient functioning and certainty of a property-rights regime. Consequently, the Petitioner asks the FCC to consider creating an Accelerated Spectral Docket to resolve interference disputes between private market participants.

B. The Accelerated Spectral Docket. In accord with its mandate to regulate in the public interest, the FCC should initiate a Notice of Inquiry to appraise the current state of spectral interference enforcement.[128] In this Inquiry, the Petitioner recommends that the FCC

[125] *Id.* § 1730(g)(2).
[126] *See id.* § 1730(h).
[127] *Id.* § 1730(i).
[128] As a preliminary matter, the FCC should inquire as to its authority under both the Communications Act and the Administrative Procedure Act to promulgate new enforcement rules and procedures that better dovetail with flexible use rights and market-based allocation. Clearly, the FCC has authority to institute formal adjudications pursuant to the Administrative Procedure Act. 5 U.S.C. § 554. However, the Petitioner is aware that the FCC and other interested parties may be wary of instituting new formal adjudicatory procedures. Moreover, the Petitioner believes that the FCC already has statutory authority under the Communications Act to promulgate regulations concerning the enforcement of spectral interference conflicts. *See e.g.*, 47 U.S.C. § 302a. In addition, this authority is augmented by 5 U.S.C. § 555, which grants administrative agencies the authority to offer informal adjudicatory proceedings under the Administrative Procedure Act.

consider promulgating regulations pursuant to its authority under 47 U.S.C. § 302a(a)[129] to institute an Accelerated Spectral Docket ("ASD") to resolve interference conflicts based on the Enforcement Bureau's Accelerated Docket for the disposition of formal complaints against common carriers. The ASD should provide parties the opportunity to be heard at a minitrial presided over by an ALJ or some other neutral third party.[130] The ASD should impose strict time and page limits on the parties that appear before it and finalize the resolution of disputes within 60 days of filing. However, the scope of the minitrial should be broad enough to encompass any aspect of the dispute, within the FCC's discretion, that is reasonably related to the underlying interference. From the record adduced at trial, FCC staff from the Enforcement Bureau and the Office of Engineering and Technology—specifically chosen for their relevant expertise—should issue findings of fact and a final agency order.

- Specifically, the FCC should seek comment as to:

  (1) what forms of relief shall parties be entitled to (temporary restraining order, preliminary injunction, injunction, compensatory damages, punitive damages, prospective damages, etc.)?;

  (2) what form of relief should be issued as the default rule (*i.e.*, injunction or money damages)?;

  (3) what factors should govern the issuance of other types of relief?;

  (4) whether or not the ASD should have authority to modify operator licenses?;

  (5) what rules should govern the standing of private parties to bring complaints against other private parties?:

[129] 47 U.S.C. § 302a(a), titled "Devices which Interfere with Radio Reception," provides that "The Commission may, consistent with the public interest, convenience, and necessity, make reasonable regulations (1) governing the interference potential of devices which in their operation are capable of emitting radio frequency energy by radiation, conduction, or other means in sufficient degree to cause harmful interference to radio communications; and (2) establishing minimum performance standards for home electronic equipment and systems to reduce their susceptibility to interference from radio frequency energy. Such regulations shall be applicable to the manufacture, import, sale, offer for sale, or shipment of such devices and home electronic equipment and systems, and to the use of such devices."

[130] For example, the FCC could also consider using Administrative Judges (AJs)—*i.e.*, judges not specifically provided for in the Administrative Procedure Act—for this function.

(6) what rules of procedure should apply?; and

(7) whether the adjudicatory body is charged solely with deciding the outcome of disputes or must it also exposit the governing law?

- Moreover, the FCC should consider giving the decisions emerging from the ASD precedential value.

These changes would give spectral enforcement a speedy enforcement mechanism and a high level of consistency,[131] and gradually lead to the development of a body of law that imbues flexible use rights with same level of certainty that the common law affords to real property rights.[132] Additionally, the ASD would ameliorate four critical challenges that currently limit the efficacy of spectral enforcement. First, the ASD would improve enforcement where the interference is pervasive as systematic. As *Neptuno* demonstrated, EB enforcement is poorly suited to rendering systematic and principled decisions—in large part because the disputes are decided on an ad-hoc basis without adherence to precedent. Using an adversarial minitrial would help to ensure that issues are more clearly presented to the finder of fact. In addition, by giving decisions precedential value, the ASD would be able to limit the extent of ad-hoc, case-by-case decision. Moreover, as *Neptuno* also showed, the aim of EB enforcement is often not perfectly aligned with the issues that private parties would like adjudicated. By allowing the individual parties to control their cases and giving the fact finder broad discretion to consider all issues

[131] Henry G. Manne, *The Judiciary and Free Markets* 21 Harv. J.L. & Pub. Pol'y 11, 15 n.16 (1997) ("[T]he manner in which disputes are adjudicated by regulatory bodies—unpublished dispositions with little or no precedential value—itself undermines economic efficiency by precluding business entities from relying on a stable, consistent body of law. One of the theoretical values of the judicial system in this respect is that disputes are adjudicated publicly and the results are often published, attaining precedential value and thus contributing to a body of law upon which economic actors can rely.").

[132] David M. Becker, *Debunking the Sanctity of Precedent* 76 U. Wash. L.Q. 853, 856 (1998) ("Judicial adherence to such precedent is especially important to the law of property. Without certainty as to rules and their application, owners could not determine what they have acquired, how they can use it and what they might convey. Without adherence to precedent, these private determinations could not be made; instead, there would be constant litigation, resulting in significant costs to the interested parties and to the entire community.").

reasonably related to the interference dispute, the ASD would be better able to resolve the full scope of interference conflicts.

Second, the ASD would better protect the interests of new entrants. As the conflict between T-Mobile and BAS demonstrated, new entrants often have an FCC imposed obligation to protect incumbent operations. Under the current enforcement regime, this puts a new entrant in the difficult position of either having to succumb to an incumbent's demands (regardless of whether or not they are reasonable) or face a protracted rulemaking procedure (which is slow and will often be beyond its financial means). To the extent that new entrants and innovation are vital to the U.S. economy, this circumstance is clearly without the public interest. However, because the ASD mandates strict time limits, new entrants should be able to seek out FCC adjudication without fear of financial ruin. Moreover, the presence of a neutral third party fact-finder would help to facilitate negotiations in addition to cabining the demands of the incumbent within the bounds of reason and market efficiency.

Third, the ASD would better provide for a more fair and speedy resolution of disputes where the FCC's license rules do not forestall all harmful interference *ex ante*. As both *World Data* and the conflict between T-Mobile and the BAS illustrate, unforeseen interference issues will sometimes arise despite the FCC's best effort to define usage rights that avoid these types of conflicts. By giving the ASD the ability to issue injunctions and modify usage rights, the new procedure would be able to quickly resolve this type of conflict without the need to resort to a new rulemaking procedure. Moreover, the ASD would lessen the FCC's current burden that requires it to attempt to perfectly define spectral rights *ex ante* because effective *ex post* adjudication can efficiently compensate for errors. Accordingly, this would allow the FCC to more rapidly repurpose spectrum in accord with the stated goals of the National Broadband Plan.

Fourth, the ASD would better facilitate conflict resolution between services in adjacent bands—particularly those conflicts that arise because of changing uses of spectrum resources. As the conflict between SDARS and WCS illustrates, many working operations fail to remain robust when operational changes occur in adjacent bands. With the National Broadband Plan's aim to reallocate 500 MHz of spectrum over the next ten year, this type of conflict will likely become commonplace. Moreover, the ever-increasing emphasis on flexible use rights will further exacerbate this problem. By giving the ASD the authority to issue injunctions, provide for money damages, and modify usage rights as necessary, this procedure would be able to rapidly resolve interference issues as they arise. In addition, by mandating an adherence to precedent, the ASD would ensure that the build-out of wireless infrastructure in response to the National Broadband Plan occurs in a fair and principled manner.

In conclusion, there are compelling reasons why the FCC should commence a Notice of Inquiry to consider implementing an Accelerated Spectrum Docket modeled after the EB's Accelerated Docket for formal complaints against common carriers and according precedential authority to orders issued by the Accelerated Spectral Docket. Taken together, these changes will ensure that the proper incentive structure is in place to facilitate efficient bargaining between aggrieved parties. Moreover, commencing a Notice of Inquiry is consistent with the Commission's obligation to regulate in the public interest.