

Event Brief

Efficient Interference Management: Regulation, Receivers, and Rights Enforcement

A Silicon Flatirons Roundtable

Tuesday, October 18, 2011

School of Law, University of Colorado, Boulder

(Version 0.61)

Managing interference between operators is at the heart of wireless regulation. To date, national regulators have borne almost all of this burden. However, the increasing intensity of radio use is leading to more conflicts, particularly between different allocations. The resolution of cross-allocation interference problems will have to improve if the promise of wireless technology is to be realized.

Goals and Topics

This closed-door workshop convenes a select group of experts from government, industry, academia, and civil society to explore improving the management of radio interference from legal, economic, and engineering perspectives. It is the latest step in a multi-year program on this topic organized by the Silicon Flatirons Center that began in September 2009 with a summit in Boulder on [Defining Inter-Channel Operating Rules](#), and was followed by a conference in Washington, DC in November 2010 on [New Approaches to Handling Wireless Interference](#) (proceedings published in [9 J. on Telecomm. and High Tech. L. 501](#)).

The previous meetings indicated that ambiguous rights definition and ineffective adjudication contributed to difficulties in resolving cross-allocation interference conflicts, leading to delay, uncertainty, and political gamesmanship. The goal of this roundtable is to develop proposals for improved receiver management and more effective enforcement, and to seek consensus recommendations for changes in the regulatory framework that could achieve this. After a discussion of cases to identify lessons and pitfalls, participants will explore the possibilities for policy reform.

The role of receivers. Receiver performance dramatically affects the efficient coexistence adjacent services. However, while transmitters are required to control out-of-band and spurious emissions to minimize interference with other services, the same does not apply to receivers. In the *receiver standards* approach, the regulator specifies minimum receiver performance characteristics, e.g. sensitivity and front-end performance. An alternative approach is *receiver protection limits*, in which the regulator specifies the in- and out-of-band interference environment that receivers can expect to operate in. While the advantages and disadvantages of each approach are well understood in the engineering community, more work is required to deepen understanding and reach consensus in the policy community.

Enforcement. It is essential that parties can obtain efficient redress of their grievances about harm to their operations, both current and foreseen. While like-to-like co-channel conflicts seem to be handled well, and are often resolved without FCC involvement, cross-allocation conflicts appear to be more time-consuming and contentious. The meeting will set out to develop a consensus framework for thinking about enforcement issues, including their relationship to rights definition. Topics for discussion include diagnosing what's working and what isn't in FCC spectrum enforcement proceedings, the balance between rulemaking and adjudication, enforcing rules vs. enforcing rights, and delegating enforcement.

Agenda

- 8:30-9:00am Continental breakfast
- 9:00-9:30am Setting the Scene
- Welcome (Phil Weiser)
 - Introductions and expectations
 - Recap of the discussion to date (Pierre de Vries)
- 9:30-11:00am Receiver management
- Cases: the role of receiver performance in interference conflicts
 - Satellite-terrestrial: WCS/SDARS; C-band satellite earth stations and 3650-3700 MHz
 - Terrestrial: TDD/FDD, e.g. AWS-1/AWS-3; AWS-1/BAS
 - TV receivers: taboos; whitespace
 - Nextel/public safety in 800 MHz
- 11:00-11:30am Break
- 11:30am-1:00pm Receiver management (ctd.)
- Opportunities for, and impact of, improving receiver performance
 - Receiver standards vs. protection limits
 - “Decoupled” receivers
 - Role of expert regulator vs. market negotiations; C&C vs. flexibility
 - Actionable items
 - Proposals for policy reform
 - Implementation options
- 1:00-2:00pm Lunch
- 2:00-3:00pm Enforcement
- Categories of SUR disputes and implications for regulation (Peter Tenhula)
 - Cases
 - DARS Terrestrial Repeater STAs
 - 5 GHz U-NII/TDWR
 - Puerto Rico WISPS: Islanet vs. Neptuno
 - Qualcomm/MediaFlo Petition for Declaratory Ruling
- 3:00-3:30 Break
- 3:30-5:00 Enforcement (ctd.)
- Elements of a taxonomy
 - Proposals for policy reform
 - Rulemaking vs. adjudication
 - Delegating enforcement – technical and legal
 - Implementation options
- Wrap-up
- Consensus recommendations
 - Meeting debrief: outcomes vs. expectations

Attendees

Bob Matheson, NTIA ITS (retd.)
Brad Bernthal, Silicon Flatirons Center
Bryan Tramont, WBK
Charla Rath, Verizon
Coleman Bazelon, Brattle Group
Dale Hatfield, Silicon Flatirons Center
David Solomon, WBK
Doug Sicker, FCC
Ed Drocella, NTIA OSM
Evan Kwerel, FCC
Frank Sanders, NTIA ITS
Henry Goldberg, G2W2

Jean-Pierre Lanteri, Cobham
Jeff Carlisle, LightSquared
John Williams, FCC
Julie Knapp, FCC
Michael Calabrese, New America Foundation
Peter Tenhula, Shared Spectrum Company
Reza Karimi, Ofcom
Rich Lee, Greenwood Telecommunications
Consultants
Tom Lookabaugh, Entropic Communications
Tom Peters, FCC

Chair: Pierre de Vries
Rapporteur: Madelaine Maior

About the Silicon Flatirons Roundtable Series

The Silicon Flatirons Roundtable Series brings together groups of academics, public interest advocates, governmental officials, and industry executives for a private in-depth discussion on important topics in the technology policy world today. The roundtables use the “Chatham House Rule”: participants will be free to use the information received, but neither the identity nor the affiliation of the speaker(s), nor that of any other participant, may be revealed. Moreover, we will expect to develop a final report with a statement of principles, but that report will only use quotes or information from participants with their consent to do so.

Logistics

The summit will begin with breakfast at 8:30am on Tuesday, October 18th, and conclude at 5:00pm. It has been arranged to complement the Silicon Flatirons conference “[Reflections on Satellite Communications](#)” which runs from 3:00pm to 7:30pm on Monday October 17th.

The meeting will be held in Room 480 (Colloquium Room) on the fourth floor of the Wolf Law Building, 2450 Kittredge Loop Road, Boulder, CO 80309 ([maps & directions](#)).

Breakfast and lunch will be provided at the event.

Parking permits are required to park at the Law School. Please let [Anna Noschese](#) know if you plan to park on campus, and she will add your name to the permit list. Starting at 8:00am there will be a parking attendant on Kittredge Loop Road passing out permits for the event and to help direct you to the correct lot. Keep an eye out for the attendant to pick up your permit before parking.