



Unlicensed Devices & FCC Enforcement

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Background

- Responsible for key unlicensed decisions:

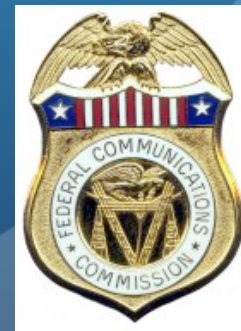


1985 ISM Band Decision
(Wi-Fi, Bluetooth, etc).



1995 60 GHz Decision

- Spent 7 interim years as Associate Chief, FOB (EB predecessor) working on technical enforcement issues





Compliance and Enforcement

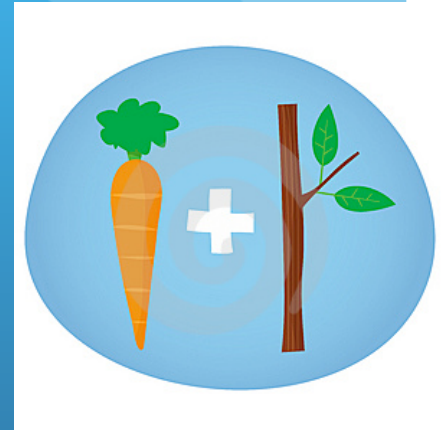
- Are a key part of spectrum policy and essential to effective spectrum use
- *BUT* have little natural constituency because subjects of enforcement are usually unhappy
 - It is easier to get resources for authorizing new services than enforcing existing rules
- 1993 downsizing of FOB and creation of EB has created morale *and* leadership problem that lingers in technical enforcement





Compliance and Enforcement

- **Effective compliance is the goal,**
- Enforcement is a necessary tool
 - But both carrots and sticks are needed
- How much effort is FCC spending to engage manufacturers, distributors, and retailers in their responsibilities and liabilities for equipment marketing?
 - It appears no one from EB or OET attended recent CES even though there were resources for 8th Floor





U-NII/TDWR Interference Lessons Learned?



- Even though NTIA dictated terms of U-NII DFS rules, FAA TDWR have experienced interference
- Possibly 3 types of problems:
 - Compliant devices in unexpected high locations
 - Noncompliant devices
 - Compliant devices with unauthorized software changes
- Serious transparency problem with respect to lessons learned possibly due to NTIA & IRAC “CYA”
- FCC using nonrulemaking approach at present to contain problem:
 - <http://fjallfoss.fcc.gov/kdb/GetAttachment.html?id=33781>
 - <http://www.wispa.org/?p=2743>

Subpart E—Unlicensed National Information Infrastructure Devices

§ 15.401 Scope.

This subpart sets out the regulations for unlicensed National Information Infrastructure (U-NII) devices operating in the 5.15–5.35 GHz, 5.47–5.725 GHz and 5.725–5.825 GHz bands.

[69 FR 2686, Jan. 20, 2004]



Compliant Emerging Interference Sources *Also* Need Timely Attention

- FCC dragged feet for over 10 years on VSAT interference from compliant radar detectors
- FCC inaction, coupled with odd CTIA strategy, has delayed for over 5 years rule fix to prevent cellular phone interference from some models of compliant bidirectional amplifiers





SDR Rules & Compliance

- When SDR rules were adopted in Docket 00-47, large companies that were SDR advocates strongly fought provisions that would control loading of unauthorized software into SDR hardware
 - SDR advocates felt only large, reputable companies would even make SDR systems so why should they be burdened?
 - Incumbent spectrum licensees/users did not counter SDR advocates on this issue
- But same **rules** apply to both reputable firms and questionable offshore operations!
- Lack of effective SDR safeguards a real threat in the case of **both** licensed and unlicensed systems



Special CR/DSA Compliance Issues

- In many cases the same as traditional licensed or unlicensed issues
- Most CR/DSA radios will be SDR and raise general SDR issues – Is only approved software used?
- BUT, use of SDR also raises new defensive possibilities:
 - “putting toothpaste back in the tube” by making software license expire on a regular basis
 - Concept strongly opposed by certain interests
 - FCC could revoke or modify DSA rules and achieve compliance within a few months



<http://www.youtube.com/watch?v=VZu0lxTh0t8>



Market Surveillance

5/04

- As FCC decreased role in equipment authorization to accommodate increasing load and maintain speed, it promised to divert resources to market surveillance
- Questionable if this has happened
- Main surveillance is ill defined requirement for TCBs

Modernizing FCC Technical Capabilities

Anechoic Chamber



State-of-the-Art Test Facility





TCBs and Market Surveillance:

A Naïve Approach Adopted Out of Desperation

- Ref:
 - §2.962(g)(2) – Very vague
 - KDB Publication No. 628591
(<https://apps.fcc.gov/kdb/GetAttachment.html?id=34756>)
- Problems of TCB-based surveillance
 - Basic conflict of interest
 - Sampling rate 5%
 - Samples not required to be purchased on open market – “lab queen”



Lighting Candles to a Better Compliance Approach



- Incumbent spectrum users need to work together to advocate an effective compliance/enforcement program at FCC
 - Recommend major trade groups form a compliance/enforcement advocacy consortium
- More realistic sampling of products *actually sold*
 - Decrease dependence on samples from grantees
 - Budget for purchases of units at retail
 - Require submission of “coupons” good at any retailer
 - Criminalize submission of false samples to FCC or TCBs by requiring affidavit that unit came from normal inventory
- Engage retailers and distributors on need for compliance and their responsibilities/liabilities
- Tighten SDR rules for accountability of software for *all* SDRs