

A New Approach to Spectrum Management: Industry Self Regulation

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Traditional Licensing Method

- Individual licensee
- Specific spectrum assignment
- Specific service
- Specific technology
(AMPS/GSM/TDMA/CDMA)

The License-Exempt Revolution

- No individual licenses required (open to all)
- Can provide service across the entire band
- No geographic limitations
- Not service specific
- No specific technology (few mandates)

Outcome of The License-Exempt Revolution

- Unanticipated technologies
- Large new markets for equipment and services
 - LANs
 - WISPs & Mesh Networks
- Little regulatory action
- Global interest (WRC and 5 GHz)

Lessons Learned

- Regulators cannot predict: (1) what technologies will be successfully deployed; (2) by which players (3) in what markets (4) providing what services.
- Markets react faster than governments
- Government regulation = restriction on market development
- Market forces should drive spectrum management

Application of Lessons to Licensed Services

- Aggregating/disaggregating and partitioning
- Flexible use for incumbents
- Non-service specific licenses
- Secondary markets
- Unlicensed “underlays” and “overlays”

Aggregating/Disaggregating & Partitioning Spectrum

- Licensees can add to or subtract from spectrum blocks awarded by regulators
- Licensees can alter geographic service areas awarded by regulators

Flexible Use for Incumbents

- New flexible use rights for incumbents
 - MSS – ancillary terrestrial component
 - MDS/ITFS – from TV to the Internet
- Higher power in rural areas
- Practical impact likely to be gradual
- Likely to lead to changes in use and market value
- Issue: windfalls or unjust enrichment

Non-Service Specific Licenses

- Allow licenses freedom in determining specific services to be offered (*i.e.*, WCS, AWS (3G))
- Harmonize rules for like services to promote flexibility
- Market forces drive services
- Limitations:
 - Public policy (e.g., public safety)
 - Government spectrum use
 - International obligations (sort of)

Secondary Markets

- Licensee can allow others to use spectrum with little or no regulatory involvement
- “Spectrum Manager” Leasing
- “*De Facto* Transfer” Leasing
 - Long term
 - Short term

Spectrum Manager Leasing

- Licensee retains legal control and practical control
- No prior FCC approval: Licensee notifies
- Technical and interference-related services rules applicable to licensee also applicable to lessee
- FCC looks to licensee to ensure compliance

De Facto Transfer Leasing

- **Long Term**
 - Lessee exercises *practical* control
 - Streamlined FCC prior approval required
 - Service rules applicable to licensee also applicable to lessee
 - FCC looks primarily to lessee to ensure compliance
- **Short Term**
 - Lessee exercises *practical* control.
 - FCC prior approval within ten days using STA authority
 - Interference-related rules apply, NOT service rules: need for additional flexibility (use restrictions, designated entity and entrepreneur policies, spectrum aggregation)

Spectrum Underlays & Overlays

- “Unlicensed” uses in licensed bands (*i.e.*, ultrawideband)
- Unlicensed use of “white spaces” (agile radios)
- Value of “interference temperature” metric

Conclusion: Industry/Market Decides

- Licensee
- Spectrum assignment
- Service
- Technology