

# FEDERAL SPECTRUM DEVELOPMENTS

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CORF MEETING  
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## **I. SPREAD SPECTRUM FOR AMATEUR RADIO**

### **March 2011 – FCC Order 11-22**

- FCC had previously authorized use of SS emissions for Amateur radios w maximum power of 100 w peak env power + Automatic Power Control requirement
- Amateurs sought elimination of APC
- FCC eliminated APC requirement, but reduced maximum power of SS transmissions to 10 watts PEP
- Section 97.313 of FCC Rules

## **II. V-BAND SATELLITE SPECTRUM – NPRM**

**Nov. 2010 -- FCC Order 10-186**

- FCC seeks to increase the potential for sharing between terrestrial and satellite services in the 37.5-42.5 GHz band
- Propose to delete the Broadcasting Satellite Service (BSS) allocation in the 42.0-42.5 GHz band, add primary allocation for the Fixed Satellite Service (FSS) (s-E) in the 42.0-42.5 GHz band.
- What limitations to impose on FSS in the 42.0-42.5 GHz band to protect RAS operations in the adjacent 42.5-43.5 GHz band?

## **II. V-BAND SATELLITE SPECTRUM** (CONT'D)

CORF Comments Filed Feb. 2011:

- Support deletion of BSS Allocation at 42.0-42.5 GHz

OOBE into RAS @ 42.5-43.5

- If FSS allocated at 42.0-42.5, RAS should be protected per  
FNs 5.551H and I

- There should be no new allocation to aeronautical mobile at  
40.5-42.5 GHz

- FCC action still pending

### **III. EXPERIMENTAL LICENSE RULES --- NPRM**

**Nov. 2010 – FCC 10-197**

- Generally, exp. licenses obtained by *application* listing *specific* parameters
- Experimental operations *must not cause harmful interference* to stations of authorized services, including secondary services. Additionally, experimental stations can be required to *immediately cease operation* at FCC request, and are subject to revocation w/o notice.
- To facilitate innovation, FCC proposes broad research licenses that *eliminate* the need to obtain *specific prior authorization*

### **III. EXPERIMENTAL LICENSES** (CONT'D)

- Under new program licenses, *qualified institutions* permitted to use frequencies for research and experimentation on a non-interference basis without having to obtain prior authorization.
- Licensees would be *colleges, universities, and non-profit research* organizations with defined campus settings and institutional processes.
- FCC proposes *not* to allow operations on Section 15.205(a) “restricted bands”

but *would allow* experiments on frequencies above 38.6 GHz, except for those that are listed in Footnote US246

### III. EXPERIMENTAL LICENSES (CONT'D)

- "*Innovations Zone Licenses*" similar to those described above, but would be available to other entities with the appropriate "technical competence" located in certain geographically isolated "zones."
- NPRM asks whether restrictions on frequency bands used above would be necessary. This is a potentially troublesome combination -- "rural" locations and unrestricted frequency use.

# THE SEARCH FOR SPECTRUM --

Or, How Smart Phones Will Eat the World

*-FCC*

*-NTIA*

*-Congress*



## IV. TERRESTRIAL USE OF MSS SPECTRUM

### FCC Order 11-57 April 2011

- 3 *MSS Bands*: the 2 GHz band (“S-band”) from 2000-2020 MHz and 2180-2200 MHz, the Big LEO Band from 1610-1626.5 MHz and 2483.5-2500 MHz, and the L-band from 1525-1559 MHz and 1626.5-1660.5 MHz
- Bands largely *underused*, and in prime target spectrum, so FCC seeks to increase “*flexibility*” of usage.
- MSS currently allowed to operate an “ancillary terrestrial component” (ATC) repeater in *conjunction* with satellite use.

## IV. TERRESTRIAL USE OF MSS SPECTRUM (CONT'D)

### **ORDER:**

1. *Add Terrestrial and Fixed Service Co-Primary Allocations in 2 GHz Band (but not Big LEO or L-Band)*

- NPRM for service rules to follow*

- Implied threat to MSS Operators? Use it or lose it.*

2. *Apply Leasing Rules to ATC for all MSS Bands*

Still require satellite usage, but FCC facilitates easier use by terrestrial partners

Leasing generally requires notification to FCC, but not approval.  
More difficult to track.

## V. LIGHTSQUARED -- WAIVER OF ATC RULES

- LightSquared is current name of L-Band MSS Operator, operating since 1996
  - Prev – SkyTerra, MSV, AMSC
  - Sharing/coordinating with Inmarsat
- Seeks to build *nation-wide terrestrial network* under ATC rules, and *sell T-only service wholesale* to cellular operators
- Problem: ATC rules require “integrated” MSS/ATC service, prohibit terrestrial-only offering
- Solution: Friends, and a request for waiver

## V. LIGHTSQUARED -- WAIVER OF ATC RULES (CONT'D)

### FCC Order DA 11-133 Jan. 2011

- Grant waiver of integrated service *requirement*
- Require continued *offering* of integrated service
- Require almost nationwide terr capability by 2016  
(260 m)
- Waiver applies only to LightSquared, not other MSS
- Must resolve *GPS interference* concerns of NTIA and Industry before operation (GPS:1559-1610)

## V. LIGHTSQUARED -- ATC WAIVER (CONT'D)

### *Coordination with RAS*

25.253(g)(2): For L-Band ATC handsets transmitting at 1626.5-1660.5 MHz, operator must "take all practicable steps to avoid interference to RAS observations in the 1660-1660.5 MHz band."

*FCC Order:* protection to RAS should be "consistent with Recommendation ITU-R RA.769-1 of the International Radio Regulations."

## V. LIGHTSQUARED -- RAS COORDINATION

*Coordination w LS has resulted in agreement of  
no LS transmission at 1660-1660.5*

in FCC Section 25.213 radii (160/50 km)  
around modified 25.213 list of observatories:

-Add: ATA

-Delete: Ohio State and Owens Valley (single  
dish, not VLBA)

## V. LIGHTSQUARED -- RAS COORDINATION (cont'd)

### *In Addition:*

- Restricted zones do not authorize aeronautical mobile transmissions by LightSquared at 1660-1660.5 MHz;
- Provisions of *NRAO Quiet Zone and Puerto Rico Notification Zone* [Sections 1.924(a) and (d)] still apply to construction of fixed transmitters

## VI. DEVELOPMENTS AT 1.7 GHZ

### ***-FCC National B'Band Plan (and Presidential Order):***

- 300 megahertz between 225 MHz and 3.7 GHz should be made newly available for mobile BBand use within five years.

*Add'l 200 megahertz w/in 10 years*

-FCC/NTIA work together to identify spectrum

-NTIA Plan (Oct. 2010):

- make 1695-1710 available* (exclusion zones to protect NOAA downlinks)

- further "Fast Track" review of 1675-95 and 1755-1780

- also evaluating 1755-1850



## VI. DEVELOPMENTS AT 1.7 GHZ (CONT'D)

- Industry* appears to *prefer* 1755-80:

  - part of *int'l allocation* for commercial wireless

  - adjacent to commercial AWS band at 1710-55

- NTIA* appears to believe that 1695-1710 can be *cleared* more quickly

1755-1850 is allocated to DOD

## VI. DEVELOPMENTS AT 1.7 GHZ (CONT'D)

### FCC Public Notice March 2011 (ET Dkt. 10-123)

- Seek comments* on how to best promote comm'l use of identified bands:  
assumptions, technologies, sharing
- 1695-1710: establish 72-121 km radii *exclusion zones* around  
18 NOAA Earth stations?

### [CORF Comments Aug. 2010 – oppose reallocation]

- 1755-1850: exclusion zones, sharing, alternate spectrum for DOD?
- Also seek comments on 3550-3650 (radar, radiolocation and FSS s-E)  
and 4200-4220, 4380-4400 (aircraft altimeters).

## VII. Reallocation/Re-Packing of TV Band

***NPRM* FCC 10-196 Nov. 2010**

- Nat'l B'band Plan suggests *reallocation of 120 MHz* of spectrum from TV to commercial wireless services
- NPRM proposes *new allocations* for fixed and mobile services in existing TV bands (not Ch. 37) to be co-primary with TV
- Proposal to allow stations to *share channels*, and question raised re possible *interference* to RAS operations on Channel 37?

## VII. Reallocation/Re-Packing of TV Band (Cont'd)

- FCC's real goal: *“re-packing”* of TV Table,  
*elimination* of TV allocations in Chs. 31-51  
*(572-698 MHz)*  
*shift to comm'l wireless*
- Heavy political issue, and FCC proposes  
“voluntary” auction of TV channels to wireless,  
prior to re-packing remainder
- Auction will require legislation

## VII. Reallocation/Re-Packing of TV Band (Cont'd)

### *-S.455 - "RADIOS Act"*

#### -NTIA-FCC Spectrum Inventory/Survey

(is passive "use"?)

Survey includes consultation with NAS and other agencies (NTIA?)

-NTIA/OSTP determination of benchmarks for "utilization" of spectrum, interference sensing, and Fed/Comm'l spectrum sharing

## VII. Reallocation/Re-Packing of TV Band (Cont')

### *-S.455 - "RADIOS Act"*

- Efficient receiver standards
  - 10 years+ -- harmful interference only if receiver is in compliance
- authorize FCC TV spectrum auctions
- “incentive pricing” for inefficient users of federal spectrum
- Wi-Fi in all Fed buildings!

**VIII. SHOULD CORF BE MEETING WITH FCC, OTHER AGENCIES?**

-Policy Goals?

-Action Plan:

- document goals and interests

- meet w FCC staff

- meet w FCC commissioners

- participate in relevant FCC proceedings

QUESTIONS?

THANKS!

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