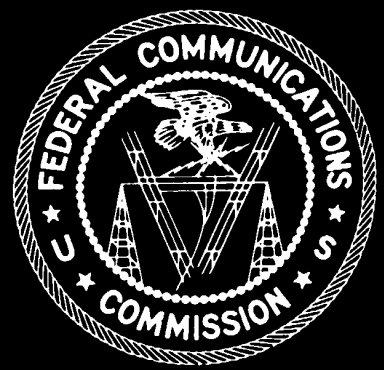
Spectrum Management Issues Involving CORF and FCC

5/14/03



TV Channel 37/Medical Telemetry Sharing

- Mutually beneficial spectrum use
  - may well actually benefit RAS by providing a better barrier against encroachment
- As spectrum becomes more valuable, can we find other areas to extend similar concepts?

4.9 GHz MO&O and 3rd R&O (Docket 00-32)

(released 5/2/03, not published in Federal Register)

- Denies reconsideration petitions to prohibit aeronautical mobile operations in 4940-4990 MHz band
  - Will consider aeronautical mobile operations on a case-by-case waiver basis
    - Demand will likely be limited, RAS will be protected, and each application will be coordinated with NTIA
- Public safety service rules will not mandate use of ITU-R P.1546 or RA.769-1.
  - ITU recommendations do not address this specific case or actual deployment conditions
  - Finds protections in US74 adequate

76 GHz Automotive Radars

- An old issue, but
- Have we made any progress on 3rd harmonic protections of radio telescopes?
- Will fencing have any impact?
- Have we learned the lessons of this problem?

Above 76 GHz NPRM

(released 4/28/03, ET Docket 03-102, not yet in FR)

- Reallocate spectrum in 76-81 GHz and above 95 GHz to place RAS in spectrum more suited for needs
  - Satisfy spectral line and wideband continuum observations
- Are there sharing concerns between RAS and satellite downlink services in same band or adjacent band?
- Is it feasible for RAS and vehicle radar systems to share band?

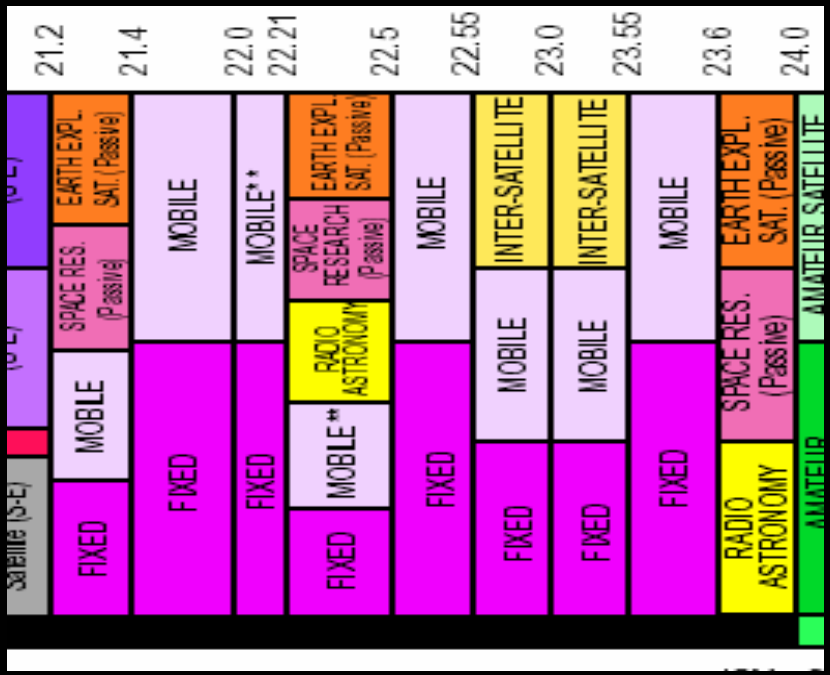
Broadband Power Line NOI
(ET Docket 03-104, released 4/28/03, not yet in FR)

- Consider issues for unlicensed BPL
  - Part 15 currently limits conducted emissions below 30 MHz
  - Experimental authorizations have been granted for systems up to 80 MHz
  - Explores interference avoidance techniques
    - Effectiveness of notch filters
    - What limits are necessary

Ultrawideband (UWB)

- ET Docket 98-153
- http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-02-48A1.doc
- This new technology raises many fundamental questions on spectrum management and many concerns on possible impacts on other spectrum users

Ultrawideband (UWB)



§ 15.205 Restricted bands of operation.

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090–0.110	16.42–16.423	399.9–410	4.5–5.15
[1] 0.495–0.505	16.69475–16.69525	608–614	5.35–5.46
2.1735–2.1905	16.80425–16.80475	960–1240	7.25–7.75
4.125–4.128	25.5–25.67	1300–1427	8.025–8.5
4.17725–4.17775	37.5–38.25	1435–1626.5	9.0–9.2
4.20725–4.20775	73–74.6	1645.5–1646.5	9.3–9.5
6.215–6.218	74.8–75.2	1660–1710	10.6–12.7
6.26775–6.26825	108–121.94	1718.8–1722.2	13.25–13.4
6.31175–6.31225	123–138	2200–2300	14.47–14.5
8.291–8.294	149.9–150.05	2310–2390	15.35–16.2
8.362–8.366	156.52475–156.52525	2483.5–2500	17.7–21.4
8.37625–8.38675	156.7–156.9	2655–2900	22.01–23.12
8.41425–8.41475	162.0125–167.17	3260–3267	23.6–24.0
12.29–12.293	167.72–173.2	3332–3339	31.2–31.8
12.51975–12.52025	240–285	3345.8–3358	36.43–36.5
12.57675–12.57725	322–335.4	3600–4400	[2]
13.36–13.41.			

[1] Until February 1, 1999, this restricted band shall be 0.490–0.510 MHz.
[2] Above 38.6

Ultrawideband (UWB)

- 2/02 1st R&O took very conservative approach
  - Basically reaffirmed in 2/03 MO&O
  - Vehicular radar question still have some unresolved issues with respect to protection of passive sensors
- Definitional problem of protecting restricted bands remains
  - NTIA favors 10 dB decrease in power density
  - BUT this results in designs where increasing power brings them **into** compliance!

70-90 GHz Issues (WT Docket 02-146)
(NPRM released 6/28/02, R&O not done)

- NPRM addresses WRC allocation implementation and licensing in:
  - 71-76 GHz, 81-86 GHz, and 92-95 GHz
  - Para. 44 “In paragraphs 30 and 40, above, we propose to allocate the 81-86 GHz, 92-94 GHz, and 94.1-95 GHz bands to the RAS on a primary basis. These RAS allocations were made at WRC-2000 as result of U.S. proposals and NTIA has requested their implementation.[1] We recognize that radio astronomers must observe radio waves of cosmic origin at frequencies over which they have no control.[2] We note, however, that the 86-92 GHz band is already allocated to the RAS on a primary basis. In light of this adjacent 6 gigahertz primary allocation, we request comment on whether the 81-86 GHz, 92-94 GHz, and 94.1-95 GHz bands should also be allocated to the RAS on a primary basis. Is this quantity of spectrum necessary for RAS purposes and would such a large allocation hinder effective use of spectrum needed for other applications? If not all of this spectrum is needed by the RAS, which portions are most essential or, alternatively, should certain portions be on a secondary or unprotected basis?”
  -

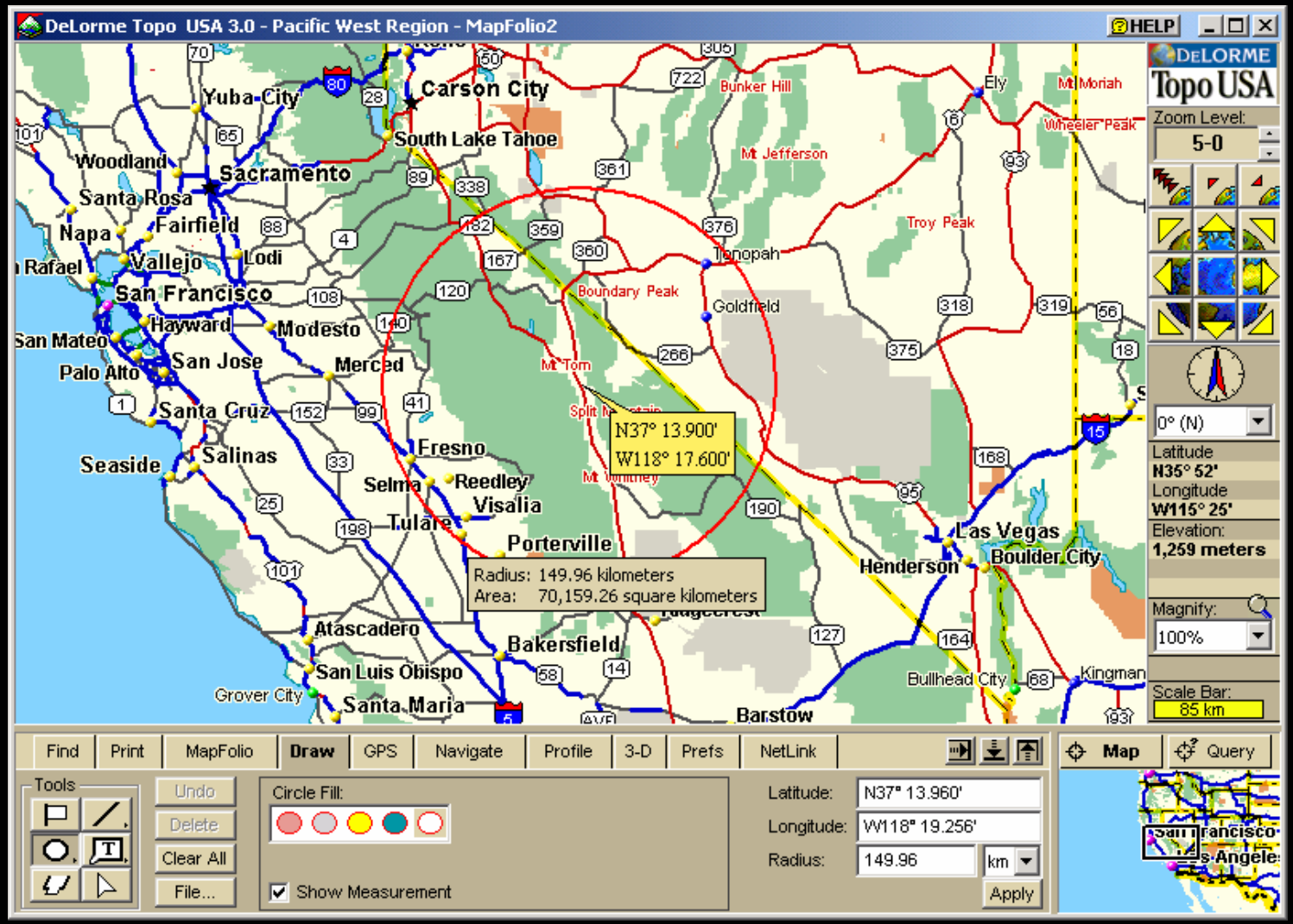
70-90 GHz Issues (WT Docket 02-146)
(NPRM released 6/28/02, R&O not done)

- Made several proposals for RAS, EESS, and SRS

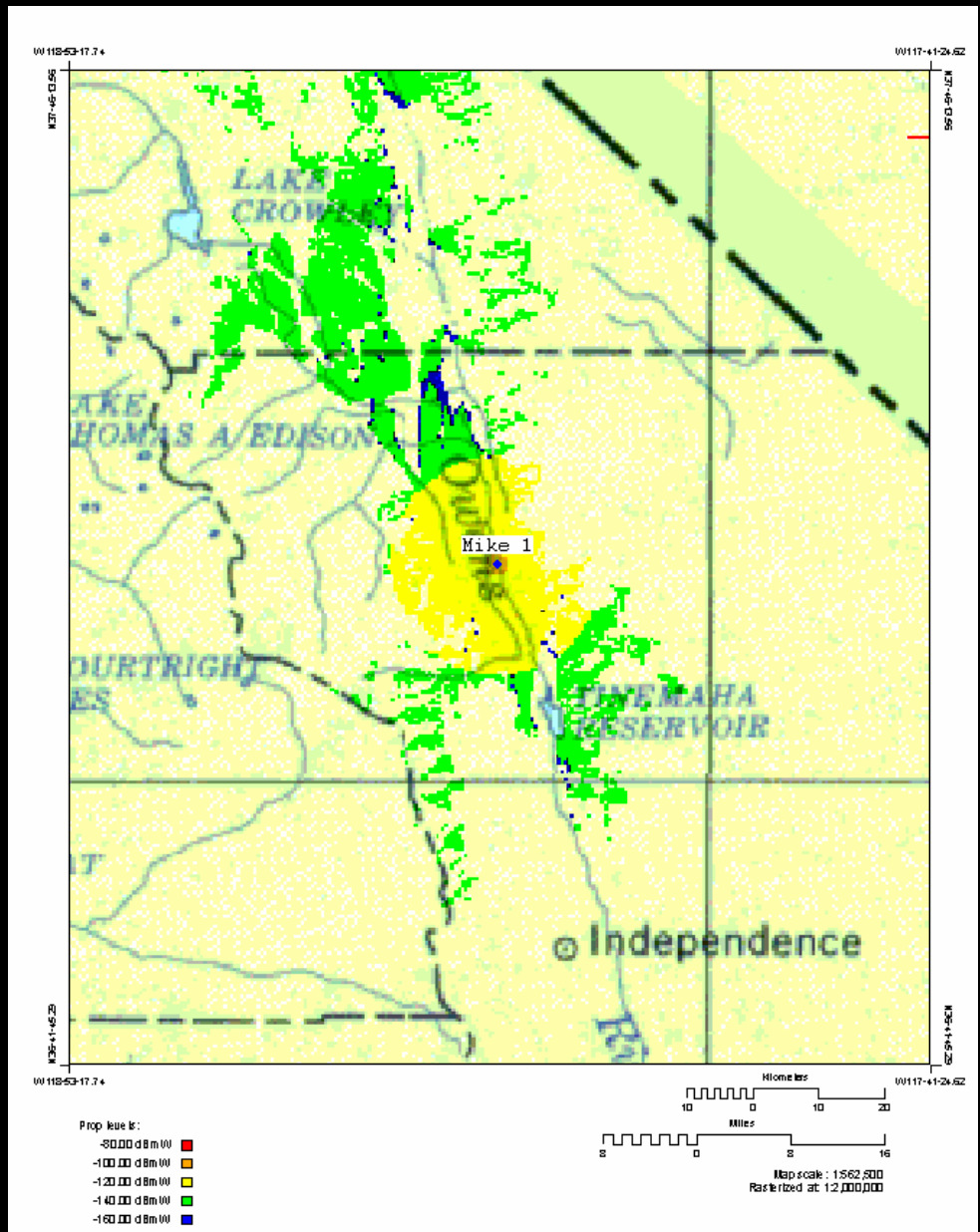
- NPRM addresses options to reduce coordination burdens while protecting RAS

150 km Protection of Haystack

150 km Protection of Owens Valley



Protection of Owens Valley considering terrain



Possible Web-based Coordination for 71-76/81-86 GHz

Input web page

Transceiver site 1

Latitude
Longitude
Height
EIRP

Transceiver site 2

Latitude
Longitude
Height
EIRP

Confirmation web page

Your coordination input has been accepted and entered into coordination data base.
Based on your input parameters there is no risk of interference to RAS from your link. You must refile in case of any parameter changes.
Confirmation # 7765AB923

Thanks for your cooperation!
You have been entered in a lottery to have a star named after you.

Spectrum Policy Task Force Report

ET Docket 02-135, released November 2002

- Increase access to underutilized spectrum
  - Use flexible assignments and technology to increase use of spectrum in various dimensions (time, space, code….)
  - Quantitative approach to interference management instead of frequency/geographic segmentation:
    - Interference temperature, environmental sensing and adaptation, better transmitter and receiver performance
- Refine spectrum rights and regulatory model
  - Reduce command and control approach and increase exclusive use and spectrum commons approaches
- http://www.fcc.gov/sptf/