



# **Terahertz Technology: The Next Frontier for Radio**

Dr. Peter Siegel – JPL

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Hosted by

Dr. Michael Marcus - Virginia Tech



# Who is IEEE-USA?

- IEEE-USA is an organizational unit of the Institute of Electrical and Electronics Engineers, Inc. - the world's largest professional association dedicated to advancing technological innovation and excellence for the benefit of humanity.
- Created in 1973 to support the career and public policy interests of IEEE's U.S. members. IEEE-USA is primarily supported by an annual assessment paid by U.S. IEEE members.



# Today's Talk

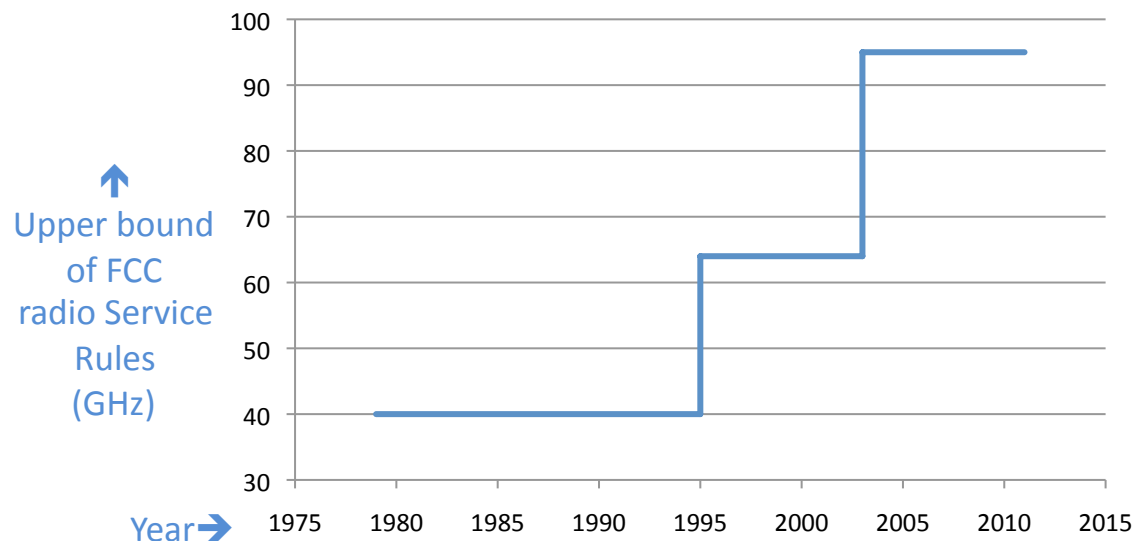
- Organized by IEEE-USA in cooperation with FCC/OET to inform FCC staff and public of new technologies likely to raise policy issues in the future
- Speakers are from different parts of IEEE
- Intends to inform on new & emerging technologies -- not to advocate on behalf of new policy or rules

# Background

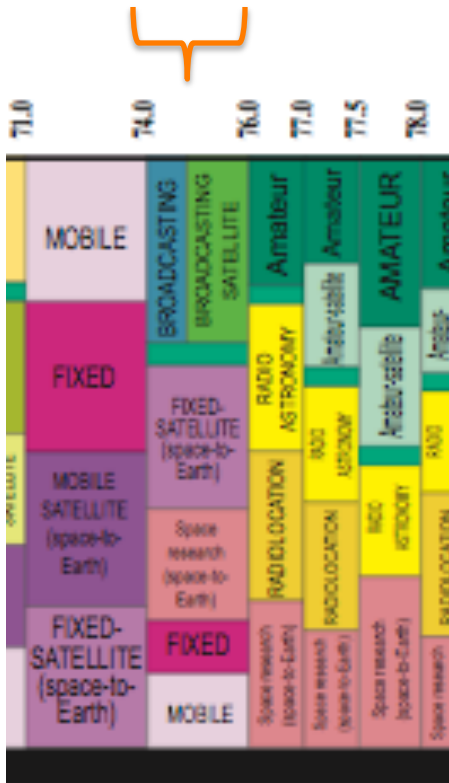
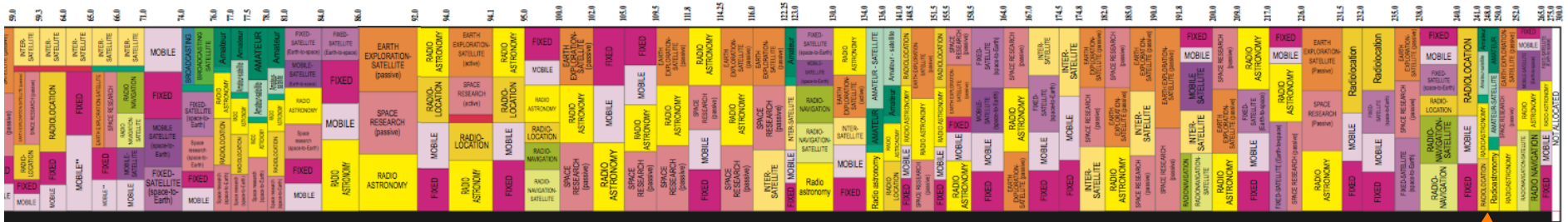
- Will focus on frequencies above 100 GHz
- Sale and use of nonexperimental wireless systems requires *both allocations and service rules*
  - Today’s allocations extend to 275 GHz
  - Today’s service rules end at 95 GHz

275-1000 (Not allocated)
5.565

47 C.F.R. 2.106



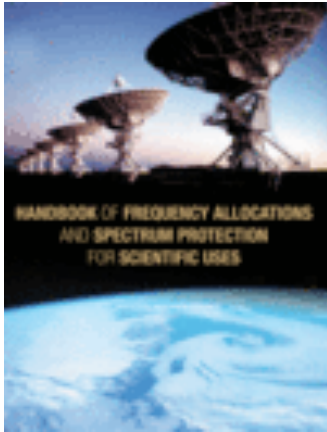
# mmW & THz Spectrum in US



- Spectrum rather balkanized
- Allocations stop at 275 GHz
- All spectrum >60 GHz shared G/NG  
 → Subject to shared FCC/NTIA jurisdiction
- Passive services well represented due to early advocacy



# Sharing with Passive Services



- Passive services have allocations and have documented their requirements
- But have shown interest to consider “cooperative spectrum sharing techniques”



NRC/CORF, *Spectrum Management for Science in the 21st Century* (2010) Recommendations 7 & 8  
([http://www.nap.edu/catalog.php?record\\_id=12800](http://www.nap.edu/catalog.php?record_id=12800))