



Rethink Your STL

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Broadcasters Own Beachfront Property



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Problem #1 - Wireless Operators Want Your Beachfront Property



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FCC Wireless Telecommunications Docket 10-153

- August 9, 2011

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- August 9, 2011
- Allows wireless operators access to 7GHz and 13GHz bands, though outside of major markets.

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- **Allows wireless operators access to 7GHz and 13GHz bands, though outside of major markets.**
- **Allows broadcasters to use Private Operational Fixed Service (Part 101) channels for STL.**

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FCC Wireless Telecommunications Docket 10-153

- **August 9, 2011**
- **Allows wireless operators access to 7GHz and 13GHz bands, though outside of major markets.**
- **Allows broadcasters to use Private Operational Fixed Service (Part 101) channels for STL.**
- **Allows broadcasters access to POFS channels in the 900 MHz band.**

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FCC Wireless Telecommunications Docket 10-153

- **Allows use of adaptive modulation and power on old Part 74 channels.**
- **Two 25MHz bands at 6975 – 7025 and 13150 – 13200 are reserved now for TV ENG nationwide.**

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FCC Wireless Telecommunications Docket 10-153

- What should you do?

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Understand the nature of fixed service path registration

Check the FCC Universal Licensing System (ULS) records for your links.

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Make sure your records of 7 GHz and 13 GHz operations are complete and accurate.

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Are your transmit and receive locations both registered?

32.69832° N

117.37189° W



WPX357



32.35643° N

117.1923° W

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**Is the height of your receive antenna
above ground correct?**



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Is the make and model of your receive antenna correct?

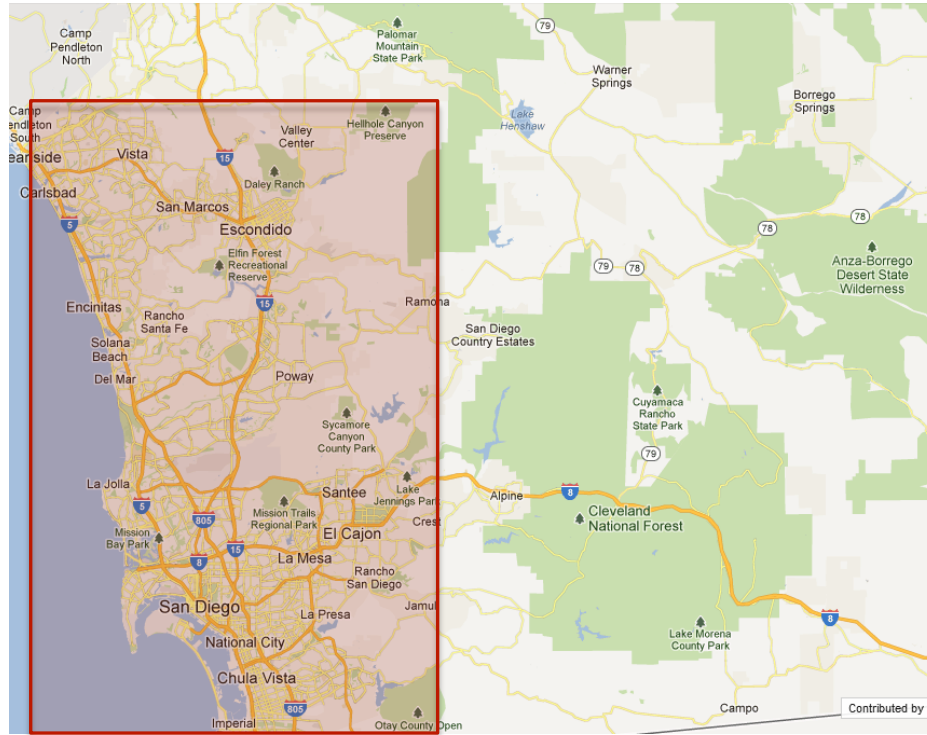


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If you operate ENG on 7 GHz or 13 GHz,
make sure that your operation “rectangle”
is registered and sufficiently large.



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**Did I say register ALL of your ENG
receive sites?**

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Confirm with GPS and Google Earth

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If you need to make a correction to add your receive sites, a Prior Coordination Notice (PCN) is not required for your filing if your original application was on a paper Form 313 and didn't require receive site coordinates.

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Otherwise, file a PCN.

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Microwave Coordination Services

- **Comsearch, Ashburn, VA**
- **Radyn, Bethesda, MD**
- **Micronet, Plano, TX**

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Problem #2 - Your links should be digital and duplex.

- **Transmitters are increasingly using an Ethernet port for media and control.**

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Problem #2 - Your links should be digital and duplex.

- Transmitters are increasingly using an Ethernet port for media and control.
- The 2007 fires taught us not to depend on separate land lines for control.

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Problem #2 - Your links should be digital and duplex.

- **Transmitters are increasingly using an Ethernet port for media and control.**
- **The 2007 fires taught us not to depend on separate land lines for control.**
- **Radios are cheaper than ever.**

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**Consider filing for backhaul channel.
Simplex is so...1999.**

32.69832° N

117.37189° W



WPX357



32.35643° N

117.1923° W

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Should I use 2.4 GHz, 5.8 GHz, or 24 GHz unlicensed Part 15 radios?



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No!

- Unless you and your management truly don't care about outages.
- Or your studio and transmitter are a short distance apart...in the desert.
- You get what you pay for.

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New Part 101 radios are amazing.

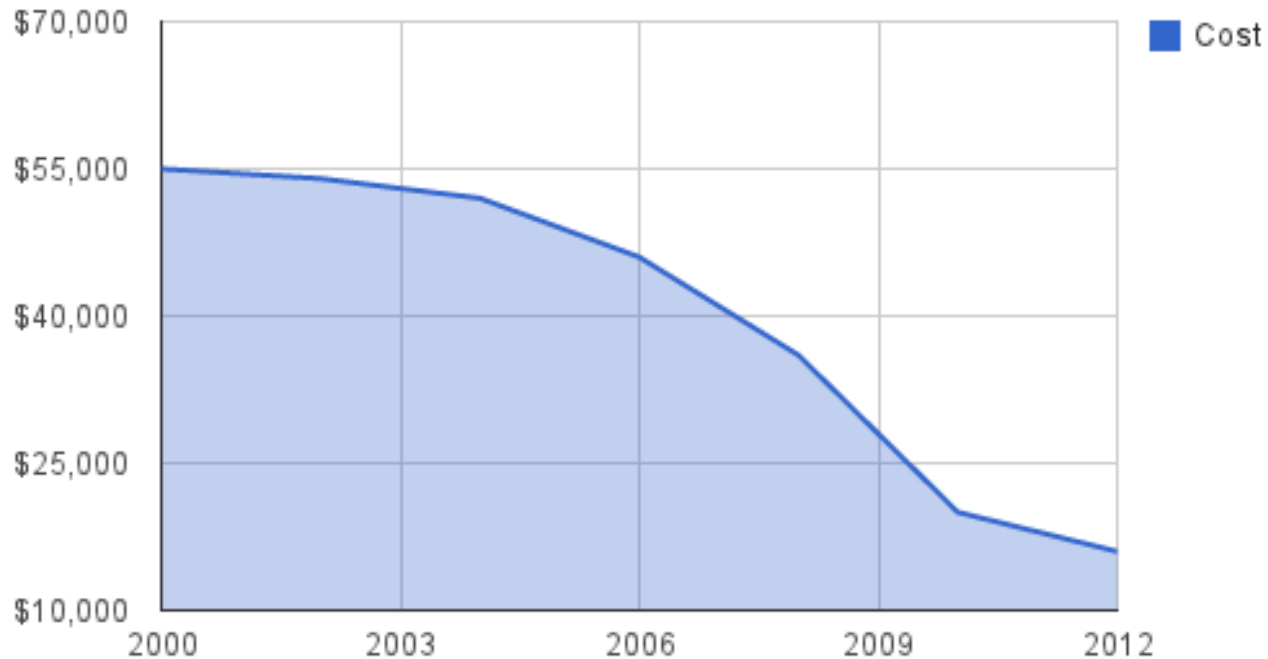


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They are far less expensive than in the past.



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They are far more flexible with respect to...

- Frequency
- Power
- Bandwidth
- Modulation
- Arrangement

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Bands available

- 6 & 7 GHz  30–50mi.

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Bands available




- 6 & 7 GHz  30–50mi.
- 11 & 13 GHz  10–30 mi.

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Bands available





- 6 & 7 GHz  30–50mi.
- 11 & 13 GHz  10–30 mi.
- 18 & 23 GHz  2–10 mi.

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Bands available

- 6 & 7 GHz  30–50mi.
- 11 & 13 GHz  10–30 mi.
- 18 & 23 GHz  2–10 mi.
- 70 & 80 GHz  <3 mi.

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Adaptive Coding & Modulation (ACM).



4PSK



16QAM



256QAM

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Adaptive Transmission Power Control (ATPC).



30dBm



24dBm



18dBm

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Forward Error Correction coding FEC



.81



.92

Reed-Solomon 188/204

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Indoor Unit (IDU)



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Outdoor Unit (ODU)



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Split unit – IDU + OD

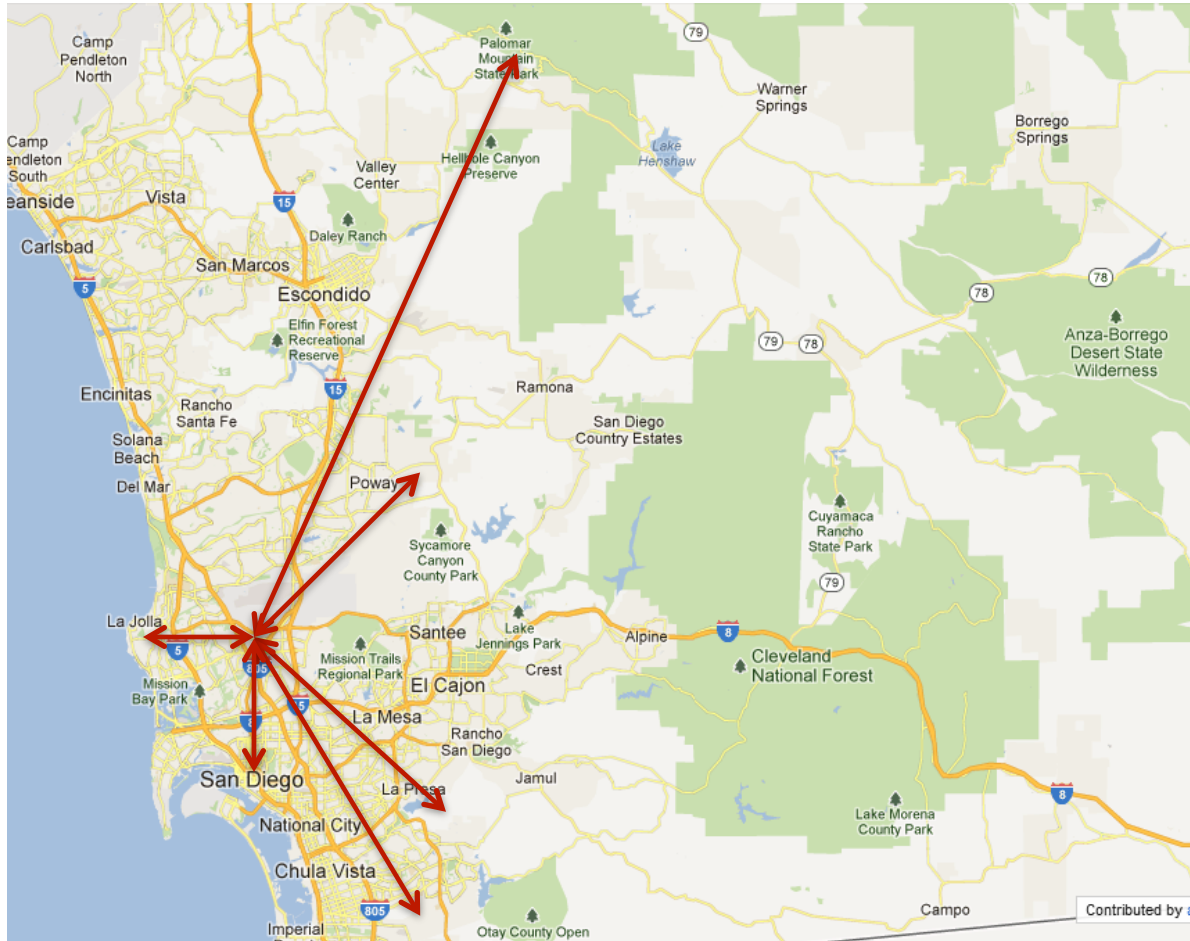


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Hub and spoke “Point-to-multipoint”

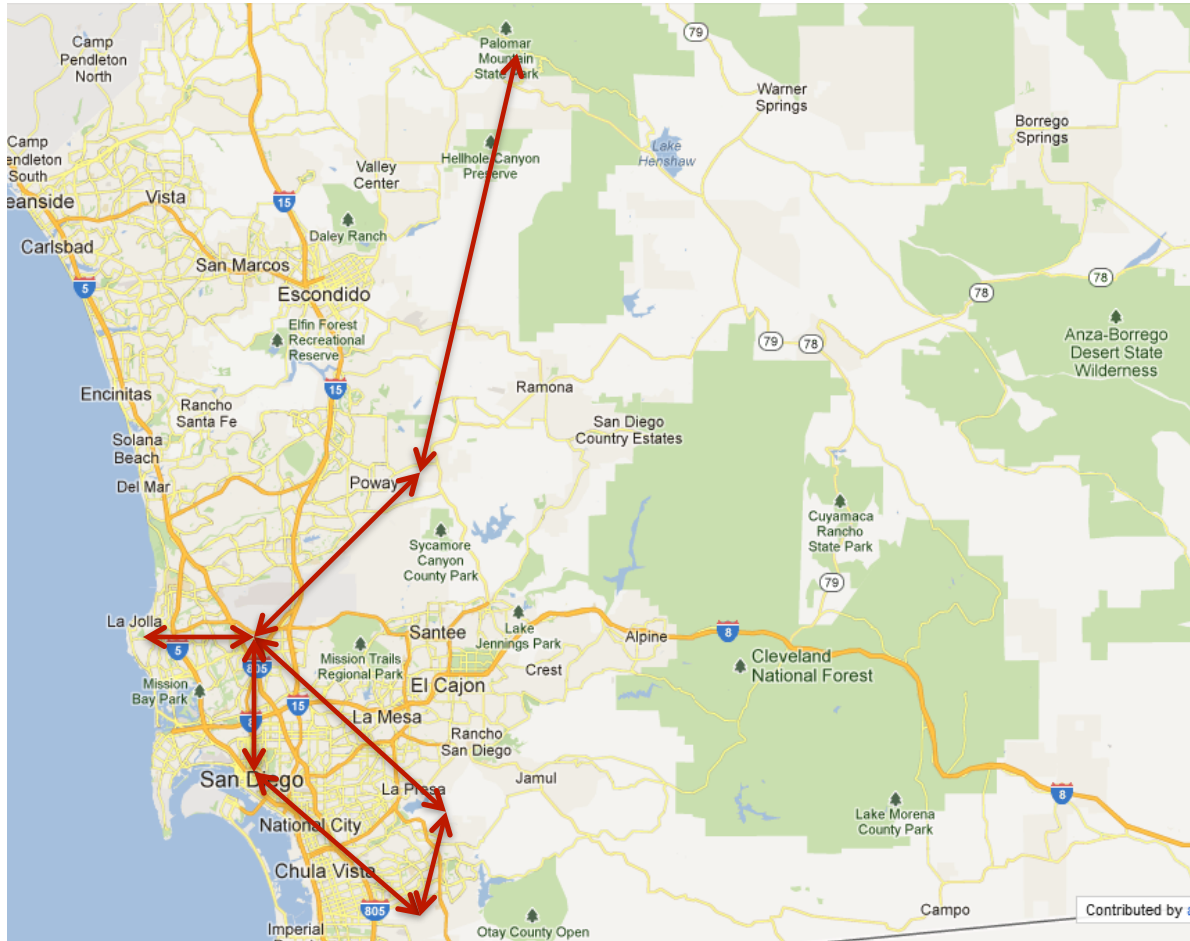


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Shorter links, ring



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Data throughput influenced by:

- Bandwidth of FCC allocation used.
- Modulation scheme
- FEC ratio (“coding”)
- Multiple paths in rings or meshes
- Dual cross-pol feeds

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Many brands

- Locals Trango and E-band
- Dragonwave
- Ceragon
- Exalt
- Bridgewave

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Get help! Allow me to...

- Confirm your current system.
- File for new links.
- Wade through the available radios.
- Get a system at a discount.

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Thanks...

- Dane Ericksen, Hammett & Edison
- Chris Imlay of Booth, Freret, Imlay & Tepper (SBE attorney)
- Trango Wireless, photos
- Benjamin Brinitzer, Regional VP Engineering, Clear Channel Comm.

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