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**AIRTOUCH**  
Communications

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF SECRETARY

**AirTouch Communications**

**FCC PCS Task Force**

**PCS Spectrum**

**and**

**Technical Issues**

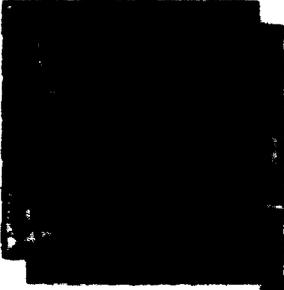
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## Background

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- Formerly *PacTel Corporation*, a Pacific Telesis Company
- One of the world's leading wireless telecommunications companies
  - Domestic and international cellular operations
  - Domestic and international paging operations
  - Teletrac vehicle location service operator
- Leader in wireless technologies including:
  - AMPS at 800 MHz
  - GSM at 900 MHz
  - DCS1800 at 1800 MHz, DCS1900 at 1900 MHz
  - CDMA at 800 MHz
  - CDMA at 1800 MHz
  - JDC at 1500 MHz
- Future PCS operator



## PCS Activities

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- AirTouch has been actively involved in PCS for the last four years
- Awarded PCN license in United Kingdom in 1989
- Received five experimental licenses from FCC in 1991
  - Scientific study of PCS spectrum – propagation, spectrum sharing
  - PCS Technology Trials – CT2 at 1800MHz, DCS1900, CDMA at 1800MHz, distributed antennas, personal number, etc.
  - PCS Market Trial that allowed potential PCS subscriber to select, purchase and use PCS services

Key learnings from PCS activities: Providers require flexibility to respond to diverse market needs.



## PCS - Spectrum Allocation

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- Varying spectrum blocks will promote diversity of PCS players and services
  - PCS service operators will target market segments that have different spectrum requirements
  - PCS market segments will demand different PCS features (i.e., wide area coverage, high-speed hand-off, high quality voice, data, etc.)
  - Consolidation should be permitted to achieve the optimum spectrum block needed to meet varying business objectives
  - If required, dual mode and dual frequency handsets will be developed, but will have higher cost
- Services at 2100 MHz are viable

PCS will be many things to many people. The best way to allow these services to develop, is to provide a variety of spectrum blocks.

## PCS - Technical Issues

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- PCS services will vary and require different technologies and network architectures
- Proposed PCS base station power should be increased
  - Low power limit will limit technology choices
  - Low power limit will dramatically increase system costs
  - PCS will be at a competitive disadvantage; service offerings will be limited
- PCS operators will require clear spectrum to provide a commercial, high quality system

Different PCS services will require different PCS network architectures, technologies and standards. PCS operators will select a technology that meets their business objectives.

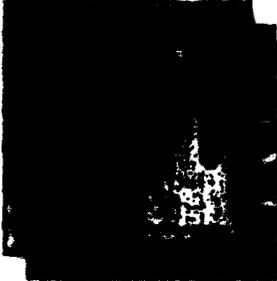


## S - Service Area Size

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- Smaller (BTA) serving areas will best serve FCC objectives
  - Allows PCS operators maximum flexibility
  - Provides opportunities for more PCS operators
  - Allows PCS operators more efficient consolidation to meet customer needs
  - Improves economics
  - Larger serving areas (MTA) do not insure coverage in rural areas

BTA's provide each PCS operators greater flexibility in building and consolidating their business to meet their customer needs.



## PCS - Technical Standards

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- PCS standards will aid in the development of PCS technologies and services
- One technical standard may not provide the solution for all PCS service requirements
- PCS will be a "Family of Services" providing a range of services and applications
- The industry is currently driving the development of multiple PCS standards
- PCS technology must balance spectral efficiency with quality and cost of service
- All proposed PCS technologies have spectrum efficient digital air interfaces
- PCS operators will respond to the consumer demands for seamless networks

The industry has taken on the responsibility of developing PCS standards. Standards will provide technologies and network architectures to meet the PCS consumers varying needs for features, services and quality.