UNLICENSED PERSONAL COMMUNICATIONS SERVICES

Summary of Decisions in
Second Report & Order in GEN Docket No. 90-314

Transcription of Slides presented by Mr. Julian Knapp, FCC

October 26, 1993

FCC Laboratories -- Columbia, MD

Allocations

Total of 160 MHz for PCS

- 120 MHz for licensed PCS
  - Expected to foster new mobile services and technologies
  - Sufficient spectrum to foster competition among providers
  - Provides sufficient spectrum to foster competition between PCS providers and cellular operators
  - Ensures rapid deployment and implementation of service
  - Provides flexibility for licensees to coordinate with existing microwave licensees

- 40 MHz for unlicensed PCS
  - Foster the rapid introduction of new PCS technologies
  - Permits manufacturers to directly market new PCS products to the general public

Unlicensed PCS Channel Plan

<table>
<thead>
<tr>
<th>Frequency (MHz)</th>
<th>Transmission Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>1890-1900</td>
<td>Voice (i.e., isochronous)</td>
</tr>
<tr>
<td>1900-1920</td>
<td>Data (i.e., asynchronous)</td>
</tr>
<tr>
<td>1920-1930</td>
<td>Voice</td>
</tr>
</tbody>
</table>

Reference: A-1
Prepared by C. A. Rypinski
Part 15 Unlicensed PCS Rules

New Rules Contained in New Part 15 Subpart D

- Define Unlicensed PCS Devices as intentional radiators operating in the frequency band 1890-1930 that provide a wide array of mobile and ancillary fixed communication services to individuals and businesses
- Address band clearing of incumbent microwave operations
- Establish a spectrum etiquette

Band Clearing of Incumbent Microwave Operations

- 1890-1910 MHz band has 1400 incumbents
- 1910-1930 MHz band has 400 incumbents
- UTAM, Inc. conditionally designated as coordinator for unlicensed devices in the 1890-1930 MHz band
- Must submit and have accepted by FCC:
  - an equitable relocation funding plan
  - a band clearing plan that will permit the implementation of nomadic devices as promptly as possible

UTAM, Inc. Responsibilities

- Relocation of existing microwave stations in accordance with the requirements of ET Docket 92-9
- Ensuring that comparable facilities are provided
- Resolving and disputes of interference to OFS microwave operations from unlicensed PCS
Specific Coordination Requirements

- Applicants for equipment authorization must be participants in UTAM, Inc.
- UTAM to determine whether device is coordinatable
  - Coordinatable devices may be deployed early
  - Noncoordinatable devices not permitted until the band is cleared or it can be shown there is little risk of interference to the remaining incumbents
- Device must include measures to ensure it cannot be activated until installed at its authorized location
- Device must include an automatic mechanism to disable operation in the event it is relocated outside coordination area

Unlicensed PCS Spectrum Etiquette

- Largely consistent with WINForum etiquette
- Reorganized text of WINForum proposed etiquette to separate requirement for asynchronous and isochronous
- Made several modifications, deletions and additions to WINForum proposed etiquette to improve spectrum efficiency

Spectrum Etiquette: Purpose

- Enables differing applications and technologies to share spectrum
- Separate etiquette for isochronous applications (i.e., voice) and asynchronous applications (i.e., broadband data)
  - Isochronous etiquette: 1890-1900 and 1920-1930 MHz
  - Asynchronous etiquette: 1900-1920 MHz
Spectrum Etiquette: Features

- Transmission time limits
- Power output limit varies with the square root of the emission bandwidth
- Listen-before-talk requirements
- Power reduction tied to listening threshold limit
- Strict emissions control

Modifications to WINForum Etiquette

- Reduced permitted emissions in the adjacent channel by changing attenuation from 30 dB to 40 dB down
- Reduced emissions removed from the center frequency by an amount equal to the emission bandwidth by changing attenuation from 30 to 40 dB down
- Transmit bandwidth defined as the 26 dB down points instead of the 23 dB down points.

Deletions to WINForum Etiquette

- Deleted provisions that permitted certain technologies to circumvent the isochronous listen-before talk provisions in the band you intend to occupy
- Deleted provision for marker beacons

Additions to WINForum Etiquette

- Provision for a maximum 5 MHz emission bandwidth in the 1890-1900 isochronous band
- Adopted spectrum packing requirements to improve spectrum utilization
- Adopted a provision requiring an accuracy of 3 dB for monitoring ambient signals prior to transmitting
- Provided for signalling and control information as equivalent to data