

# Tutorial on Wireless Broadband in the ASP Region

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## Outline



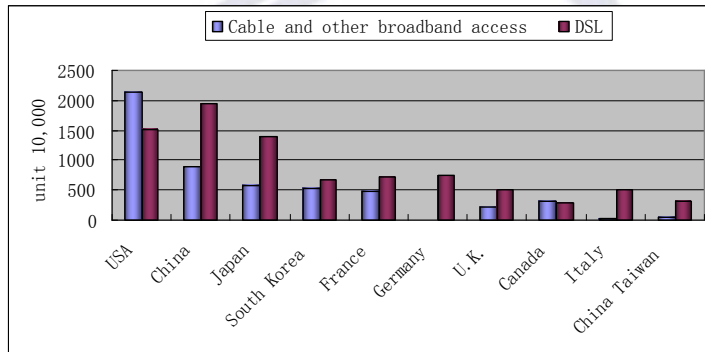
- **Wireless Broadband in ASP region**
- China FWA market
- Current Status of BWA Research and Standardization in China
- Prospect of BWA development in China

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## Wireless Broadband in ASP Region

- ASP has been one of the most important Broadband markets in the world.



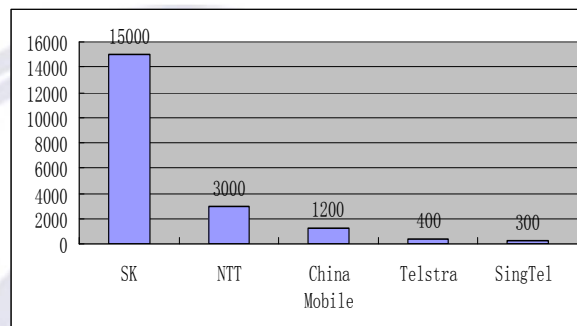
Top 10 economies by broadband user,2004  
(source: ICIR)

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## WLAN Public Service Market in ASP

- WLAN became a highlight in wireless broadband services
- The operators like SK, NTT, China Mobile and Telstra have set up lots of hotspots



Main WLAN operators in ASP

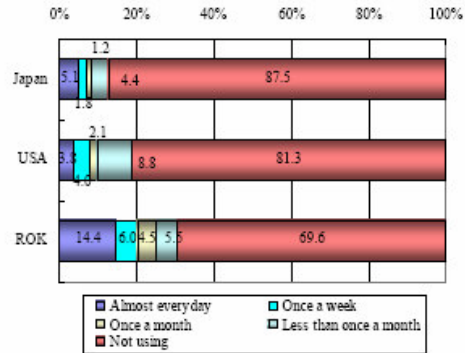
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## Status of Using WLAN

- South Korea is one of the best WLAN service markets in the world



Status of using public wireless LAN in Japan, USA and Korea

based on Web Survey  
June, 2005

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## New Trends of Technologies in ASP

South Korea

- Issued three WiBro licenses early 2005

Australia

- Mobile wireless broadband access service using iBurst system had been launched by PBA

Malaysia  
New Zealand  
Singapore

- Allocated new spectrums and licenses for new wireless broadband technologies like WiMAX

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## China FWA Market

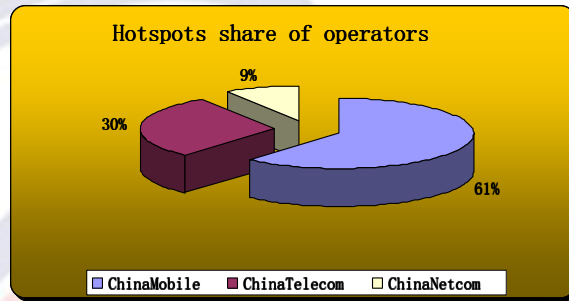
- Fixed Wireless broadband market is in the initial stage
- There are three markets:
  - Public WLAN
  - 3.5GHz MMDS
  - LMDS

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## WLAN Hotspots in China

- Public WLAN service began from 2001
- There are about 1,700 Hotspots in airports, hotels, museums etc
- Three operators
  - China Telecom
  - China Netcom
  - China Mobile



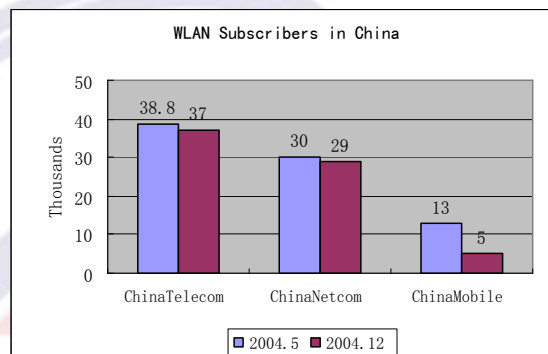
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## WLAN Subscribers

- WLAN Subscribers amounted to 82,000 in May, 2004
- Since then, Subscribers kept reducing.
- By the end of 2004, it dropped to 71,000



(source: ICIR)

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## WLAN Service Not Bring the Expecting Benefit in China

- Main reasons:
  - Limited coverage
  - No mature commercial model
  - The WLAN standard is not yet determined in China, so operators can't easily increase their investment.

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## WLAN Service is still a Promising Market

- The Policy environment will become stable
- The demand of the enterprise market keeps increasing
- Operators will formulate more definite development strategies

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## 3.5GHz Spectrum Allocation(1)

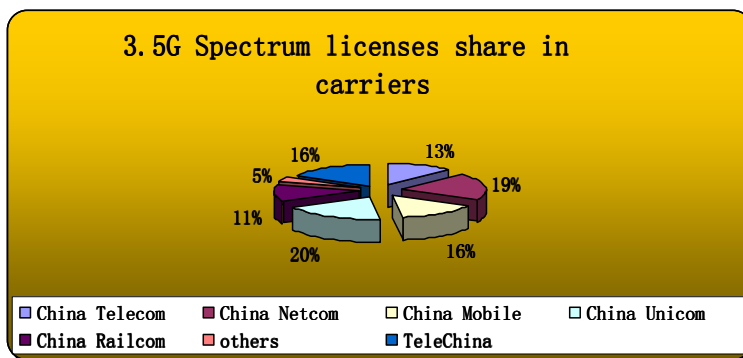
- MII allocated 3.5GHz fixed wireless access frequency licenses for three times from June, 2001
- This is the first time to allocate frequency licenses by bidding in China.
- There are three carriers in each region and every carrier has  $2 \times 10\text{MHz}$  blocks

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## 3.5GHz Spectrum Allocation(2)

3.5G Spectrum licenses share in carriers



(source: ICIR)

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## Services Provided by 3.5GHz

- **3.5GHz system**
  - Center stations: more than 300.
  - CPE: about 2,500
- **Services provided by most carriers are:**
  - Voice access service( Local and IP phone)
  - DDN
  - Internet access

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## Features of 3.5GHz Fixed Wireless Access Development

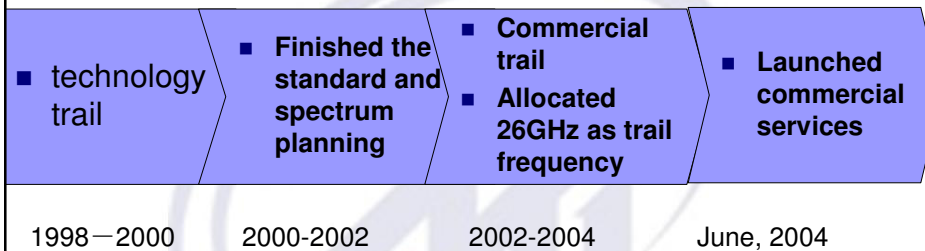
- Promote the competition of telecommunication
- The service types provided by 3.5GHz system are determined by carriers' strategies
- The Market is still in the initial stage. WiMAX based on 802.16d maybe can stimulate the market

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## Milestones of LMDS in China



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## LMDS Services and Users

- **Services provided by LMDS**
  - Internet access
  - Group IP phone
  - DDN&VPN
  - WLAN access
  - Marco cell /micro cell station access
  - emergency communication service
  - Multimedia application
- **User types**
  - Group users
  - commercial users
  - Intelligent community

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## Domestic Manufactories Pay More Attention to R&D on Wireless Broadband Technology

- Xinwei is engaged in McWiLL based on SCDMA
- ZTE's MMDS system has their own intellectual property
- HUAWEI and ZTE have taken part in the WiMAX standardization and R&D deeply

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## Standardization

- Standard Organization of BWA in China
  - WG3 of TC5 ( Wireless Communication Technical Committee ) ,CCSA ( China Communications Standardization Association ) focus on WMAN technologies based on 802.16.
  - BWIPS(CHINA Broadband Wireless IP Standard Work Group) focus on WLAN security (WAPI)

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## TC5/WG3 BWA Task

- Frequency demand analysis( tentative proposal finished);
- Frequency interfere analysis and planning (under discussion)
- FWA standard series (to be finished)
- MBWA air interface (by the end of 2006)
- Network framework of BWA system of 802.16

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## Trends in Wireless Communications(1)

### Mobilization of Broadband Wireless Access

- The development of mobile communication, broadband communication and Wi-Fi brought new broadband wireless technologies such as WiMAX, 802.20

### Broadband Approach of Mobile Technologies

- WiMAX accelerated the development of E3G technologies.

Convergence

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## Trends in Wireless Communications(2)

- Broadband wireless access and wideband mobile communication will complement each other

Complement

- Wireless broadband will be a good complementarity for traditional wired access systems

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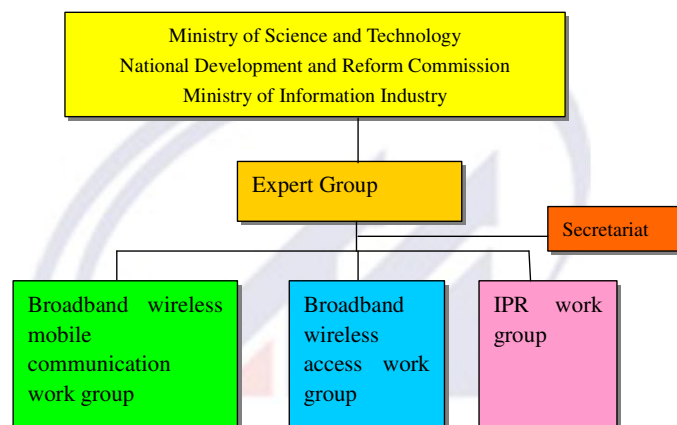
## Broadband Wireless Mobile Expert Group

- Broadband Wireless Mobile Expert Group set up on July, 2005
- Target and responsibility
  - Research on national development strategies, supporting the decision-making of the government
  - Analysis, evaluation and converge of different technologies
  - Trail the key technologies and products of broadband wireless mobile communication

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## Expert Group Structure(1)



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## Expert Group Structure(3)

### Broadband wireless mobile communication work group

- Focus on standardization and research of E3G

### Broadband wireless access work group

- Organize domestic manufactories and research institutes attend the international standardization affairs
- Domestic broadband wireless access market research, technologies selection and technologies evaluation

### IPR work group

- Establish IPR principles, operating procedures and IPR related evaluation of the proper domain

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## Features of China Wireless Access Market

- The largest number of mobile and broadband users in the world
- Lower mobile and broadband penetration rate
- The development of communication market is unbalanced

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## Two Orientation of the Development of BWA

- Different broadband wireless access technologies work together;
  - Various coverage methods (hotspots, hot zones, nomadic and limited mobile)
  - data-oriented
  - Complement with mobile network
- Low cost BWA system for rural communication
  - Wide coverage, convenient maintenance, low cost
  - Government will support and help the R&D of this kind of technologies with their own intellectual property

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**Thank you!**



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