WW Spectrum Allocations for BWA

Doug Gray

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Wireless Broadband Networks Division
Milpitas, California

Rev. 4/30/99
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# Summary: WW Spectrum for BWA

<table>
<thead>
<tr>
<th>Country</th>
<th>10 GHz ETSI</th>
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<th>24 GHz DEMS</th>
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<th>31 GHz</th>
<th>38 GHz US</th>
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CEPT Recommendation for Europe of 40.5-42.5 and 42.5-43.5 GHz not considered
# Summary: WW Spectrum for BWA

## PMF Frequency Bands

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### CEPT Recommendation
Europe of 40.5-42.5 and 42.5-43.5 GHz not considered
### FCC “28GHz” LMDS Spectrum Allocation in US

<table>
<thead>
<tr>
<th></th>
<th>LMDS</th>
<th>GSO/FSS</th>
<th>NGSO/FSS</th>
<th>MSS FEEDER LINKS &amp; GSO/FSS</th>
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</tbody>
</table>

- **LMDS Block A (1150MHz)**
- **LMDS Block B (150MHz)**

#### Other US Multipoint Bands

- **DEMS Band**: 40 MHz Channels, 800 MHz Spacing
  - 24.25 24.45 25.05 25.25 GHz
- **38 GHz Band**: 50 MHz Channels, 700 MHz Spacing
  - 38.6 38.95 39.3 39.65 GHz
Wireless Broadband Networks

**WW - “10 GHz” Band**

- **Argentina**
- **Mexico**
- **Philippines**
- **United Kingdom**
- **Ireland 1 x 30 FD Channel**
- **Brazil**
- **Europe (available some)**
- **Malaysia (pending)**

- 30 MHz Channels, 350 MHz Spacing, 300 MHz Total
- 350 MHz

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WirelessBroadbandNetworks

**WW 18-24 GHz Band**

- **ETSIZen**
  - 3.5 to 112MHz FDD Channels, 1008MHz Spacing - Not being considered for PMP in Europe

- **Japan**
  - 3 Frequency Blocks 600 MHz TxRx Spacing
**North America 24-31 GHz Band**

**United States**
- 24.0 to 25.0 GHz: DEMS 5x40MHz FDD Channels, 800MHz Spacing
- 26.0 to 31.0 GHz: LMDS Blk A and LMDS Blk B

**ETSi 26GHz**
- 26.0 to 27.35 GHz: 3.5 to 112 MHz FDD Channels for PMP 1008 Spacing

**Canada**
- 27.35 to 28.35 GHz: Bands 1, 2 assigned
- Bands 3-6 in reserve
- To be auctioned as single block in 1999
Europe, Middle East, Africa #1 24-31 GHz Band

**United States**
- DEMS 5x40MHz FDD Channels, 800MHz Spacing
- LMDS Blk A
- LMDS Blk B

**ETSI 26GHz**
- 3.5 to 112 MHz FDD Channels for PMP 1008 Spacing

**Spain**
- 6 x 56 MHz FDD Channels, 1008 T-R Spacing
- 27.55
- 28.55

**Ireland**
- 4 x 56 MHz FDD Channels, 112MHz total to each operator (National Licenses)

**Netherlands**
- Pending rule-making (Channel assignments TBD)

**Germany**
- 28 MHz FDD Channels for PMP 1008 Spacing

**Hungary**

**Norway**
Europe, Middle East, Africa #2  24-31 GHz Band

United States
- DEMS 5x40MHz FDD Channels, 800MHz Spacing
- LMDS Blk A
- LMDS Blk B

ETSI 26GHz
- 3.5 to 112 MHz FDD Channels for PMP 1008 Spacing

Romania

Poland

Czech Republic

South Africa

France (for trials only)

Note: Spectrum from 28.6 to 29.1 could be contested if Teledesic is successful in gaining international support in barring terrestrial applications in this band

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Central & South America #1  24-31 GHz Band

- **United States**
  - 3.5 to 112 MHz FDD Channels for PMP 1008 Spacing
  - LMDS Blk A
  - LMDS Blk B

- **Argentina**
  - 24 GHz Bands A thru C
  - 5 x 20 MHz Channel Pairs

**Wireless Broadband Networks**

Lucent Technologies
Bell Labs Innovations

**Central & South America #1 24-31 GHz Band**

- DEMS 5x40MHz FDD Channels, 800MHz Spacing
- United States
- ETSI 26GHz

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10
Central & South America #3 24-31 GHz Band

United States

ETSI 26GHz

Paraguay
Ecuador
Bolivia
Venezuela

Colombia
(pending, will probably be changed)

24.0 25.0 26.0 27.0 28.0 29.0 30.0 31.0 32.0

DEMS 5x40MHz FDD Channels, 800MHz Spacing

3.5 to 112 MHz FDD Channels for PMP 1008 Spacing

Hold in reserve

- Bands 3, 4 & 7, 8 (Local)
- Bands 1 & 5 (Local)

- Bands 19, 20, 23, 24 (National License)
- Bands 17, 18, 21, 22 (National License)

LMDS Blk A
LMDS Blk B

28.35 GHz

25.35 GHz

26.35 GHz

28.35 GHz

24 x 125 MHz Blocks
Wireless Broadband Networks

Asia/Pacific #1 24-31 GHz Band

- **United States**: 3.5 to 112 MHz FDD Channels for PMP 1008 Spacing
- **ETSI 26GHz**: 3.5 to 112 MHz FDD Channels for PMP 1008 Spacing
- **Australia**: 6 Blocks, (1450MHz Total)
- **New Zealand**: United States
- **Taiwan**: Japan
- **Korea**: United States
- **Japan**: 7 Frequency Blocks 60 MHz Full Duplex, 3 Contiguous blocks/operator Max
  - 3 Additional Blocks available April 2001

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Wireless Broadband Networks

Asia/Pacific #2  24-31 GHz Band

United States

ETSI 26GHz

Philippines

Singapore

(need more details)

Thailand

Teledesic

Note: Spectrum from 28.6 to 29.1 could be contested if Teledesic is successful in gaining international support in barring terrestrial applications in this band.
North America 37-40 GHz Band

United States

- 37.0-39.5 GHz
- Proposed for Fixed Satellite Service
- Pending FCC Auction
- 50MHz FDD Channels, 700MHz Spacing

ETS

- 3.5, 7, 14, 28, etc. FDD Channels, 1260 MHz Spacing

Canada

- License B 400 MHz
- License C 300 MHz
- License D (TBD) 200 MHz
- 38.70, 39.05, 39.40, 39.75, 39.85
- 7 x 50MHz FDD Channels, 700MHz Spacing, for Pt-to-Pt & PMP, by Auction
- 2 x 50MHz Channels TBD
Europe, Middle East & Africa 37-40 GHz Band

To date there are no allocations for PMP in Europe, Middle East & Africa

United States

50MHz FDD Channels, 700MHz Spacing

Pending FCC Auction

ETSI

3.5, 7, 14, 28, etc. FDD Channels, 1260 MHz Spacing

37.0-39.5 GHz

Proposed for Fixed Satellite Service
Central & South America 37-40 GHz Band

**United States**
- 37.0-39.5 GHz
- Proposed for Fixed Satellite Service
- 50 MHz FDD Channels, 700 MHz Spacing
- Pending FCC Auction

**37.0-39.5 GHz**
- 3.5, 7, 14, 28, etc. FDD Channels, 1260 MHz Spacing

**Argentina**
- 37.140 GHz
- 3 x 100 MHz FDD Channels I, J, K 1260 MHz Spacing
- 1 x 78 MHz FDD Channel L

**ETSI**
- 37.0-39.5 GHz
- 3.5, 7, 14, 28, etc. FDD Channels, 1260 MHz Spacing

**Central & South America**
- 37.0-40.5 GHz
- 50 MHz FDD Channels, 700 MHz Spacing
- Proposed for Fixed Satellite Service

**50 MHz FDD Channels, 700 MHz Spacing**
- 37.0-39.5 GHz
- United States
- Argentina
- ETSI
Asia/Pacific 37-40 GHz Band

United States
- 50MHz FDD Channels, 700MHz Spacing
- Pending FCC Auction

ETSI
- 3.5, 7, 14, 28, etc. FDD Channels, 1260 MHz Spacing

Japan
- 7 x 60 MHz Full Duplex Channels, 1000 MHz Spacing

Taiwan
- 37.40 GHz
- 37.60 GHz
- 1300 MHz
- 38.06 GHz
- 38.48 GHz
- 1000 MHz
- 39.06 GHz
- 39.48 GHz
Standards Activities Re: BWA Spectrum

- **Europe:**
  - **ETSI FM-29:** Definition of band-plans in 26 and 28 GHz bands for PMP - (sharing w/ PtoP?)
  - **ETSI FM-34:** Studying feasibility of utilizing 31.8-33.4 GHz band for BWA PMP
  - **CEPT:** Re-visiting 40.5-42.5 GHz MVDS spectrum recommendation, extend to 43.5 GHz focus change to interactive services, multiple operators
  - **ETSI - TM-4:** Co-existence issues for BRAN HA


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