

ATSC: Digital Television Update

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Advanced Television Systems Committee

*ITU Interregional Seminar on the
Transition from SECAM to
Digital TV Broadcasting*

Kiev, Ukraine

November 13, 2000

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- ❑ Technical Standards for Digital Television (DTV)
- ❑ DTV Implementation Activities
- ❑ Membership Organization -- International
 - Open to all organizations with a related interest
 - Broad, cross-industry participation
 - Broadcasters, cable, satellite, computer, movie & telecom service providers
 - Consumer electronics, computer & professional equipment companies
- ❑ Over 200 Members
 - Growing

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Options for DTV Business Models

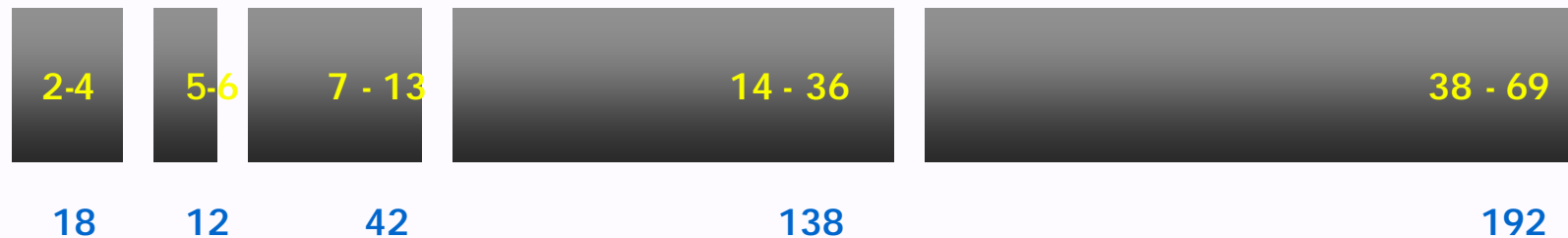
- HDTV (one or two programs)
- HDTV + SDTV (e.g., weather, news, alternative program)
- Multiple programs of SDTV
- Data services
 - Program-related or not
 - Interactive or one-way
- Combinations of HDTV, SDTV, data services
- Programs or data to mobile receivers?
 - Severe trade-off against deliverable bit rate
- Broadcast to TVs, PCs, or convergence products
- Free-to-air vs. pay services
- Impact of potential government requirements
 - Minimum HDTV requirements?

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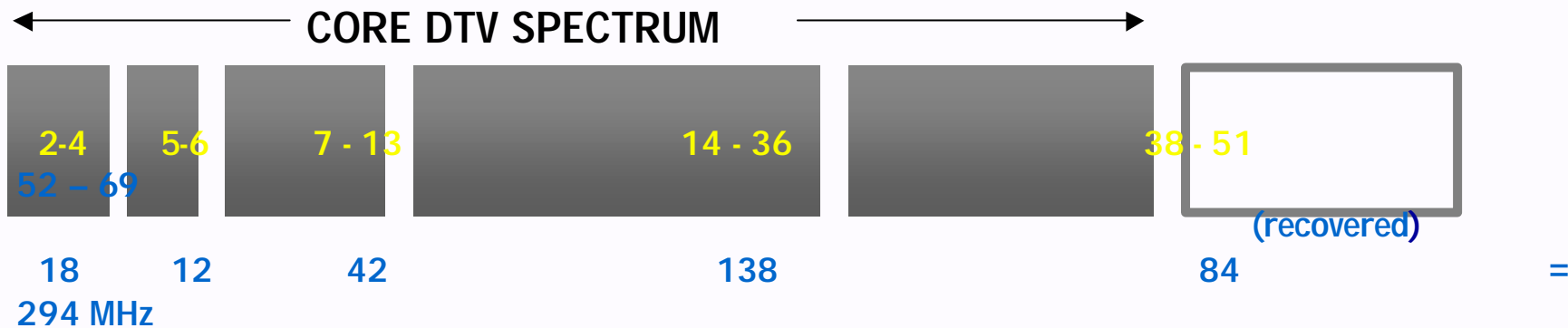
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Spectrum Efficiency

CURRENT NTSC CHANNEL DISTRIBUTION

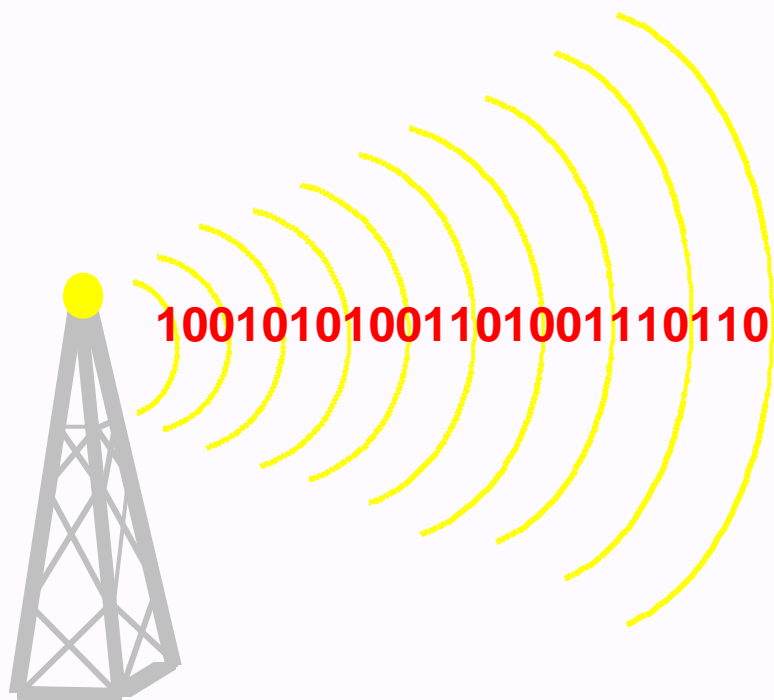


DTV CHANNEL ALLOCATION - END OF TRANSITION



108 MHz RECOVERED

Progress in DTV Deployment



- ❑ Current requirement:
 - 120 Stations
 - 30 Metropolitan Areas
- ❑ Actual deployment, as of November 2, 2000
 - 160 Stations
 - 56 Metropolitan Areas
 - Covering 65% of U.S. TV Households

*Source: U.S. National Association
of Broadcasters*

A Range of Consumer Products



Set-Top Box



Integrated Receiver



Computer

All can decode and display HDTV & SDTV

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Terrestrial & Satellite Set-Top Boxes



\$549

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Integrated Receiver with HDTV Display



Starting at \$2,000

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Plug-in PC Card

+



\$200 - \$300

+

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Manufacturers of ATSC Receivers*

- ATSC receivers are available from over 20 manufacturers including:

Zenith/LGE

Sony

Panasonic

Samsung

Sharp

CreativeLabs

Philips

Thomson

Happauge

Funai

Tatung

Toshiba

Sanyo

Skyworth

Zinwell

Prima

Digitra

DSC

Mitsubishi

Televue

MonoVision/Chun Yun

Hughes Network Systems

- Prices have fallen approximately 50% in two years, expected to fall 50% more in next two years

* *Including VSB Demodulator*

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Sales of DTV Products

- ❑ Sales to date (as of September 30, 2000)
 - HDTV-capable displays ~440,000
 - DTV receivers & set-tops ~90,000

- ❑ DTV receiver penetration by 2006
 - Abundant DTV Programming 50%
 - Average DTV Programming 30%
 - Minimal DTV Programming 15%

Based on Consumer Electronics Association data

U.S. Consumers Are Satisfied

- *“DTV is meeting and even exceeding consumer expectations.”*
 - Gary Shapiro - President and CEO, Consumer Electronics Association
- National Consumer League survey* shows overwhelming satisfaction with DTV products
 - 96% consumers satisfaction with picture quality
 - 89% consumer satisfaction with audio quality
 - Biggest concern is lack of compelling HDTV programming

* Conducted May 31-June 14, 2000

HDTV Broadcasting in the U.S.

- ❑ CBS
 - Full primetime evening schedule
 - NCAA Final Four, Masters Golf, U.S. Open Tennis, NFL football games/Super Bowl
- ❑ ABC
 - Feature films
 - '99-'00 NFL football games
- ❑ NBC
 - *The Tonight Show With Jay Leno*
 - *The Titanic*
- ❑ PBS
 - Special programs, repeated frequently
- ❑ Local Stations
 - Local programs, including news and DTV/HDTV education programs
- ❑ DirecTV & Dish Network
 - HBO, Showtime
 - Pay-per-view programming
- ❑ Cable networks (only a few systems so far)
 - Feature films
 - Selected sports events

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High-Definition Television

- ❑ No longer a question of whether HDTV will be successful
- ❑ Will it be a primary service of terrestrial broadcasting?
 - Satellite
 - Cable
 - DVD



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Transmission & Reception Issues

- ❑ Driven by broadcasters, not consumers
- ❑ Issues
 - Adequacy of indoor reception
 - Receiver implementation shortcomings vs. modulation standard problems
 - Increasing interest in mobile services
- ❑ FCC
 - Rejected proposal to add COFDM as an option
 - VSB receiver improvements will resolve problems
 - Adding COFDM would create incompatibility, customer confusion, delay
 - Testing VSB receiver improvements in Washington & Baltimore

Transmission & Reception Issues (cont.)

□ Industry

- ATSC Task Force assessing RF System Performance
- Broadcaster industry organizations conducting tests, soliciting and funding VSB improvements

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ATSC Task Force on RF System Performance

- ❑ Formed March, 2000
- ❑ Examining technical issues re RF system performance
- ❑ Developing recommendations to ATSC Executive Committee for technical initiatives
- ❑ ~ 100 members and non-members participating
- ❑ Work areas include:
 - Assessments of current 8-VSB performance and prospects for improvement – nearly complete
 - Existing and emerging broadcaster requirements - complete
 - Uniform field test procedures – complete