

# Digital Television Carriage Issues for DBS Operators

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# DTV Carriage Proceeding Currently Pending



- Focus clearly has been on carriage requirements for cable systems
- Only a brief mention of DBS in the NPRM
- A reflection of much greater capacity constraints and other technical issues facing DBS operators

# DIRECTV'S HD Initiative



- DIRECTV has announced plans to construct and launch next-generation satellites over the next three years to enhance the consumer experience by increasing capacity for HD carriage
  - 2005: two satellites, ~ 500 local HD channels
  - 2007: two satellites, ~ 1000 local HD channels plus ~ 150 national HD channels
- But these carriage estimates depend on critical operational assumptions
  - Modulation
  - Compression
  - Carriage of primary video signal only
- In light of this development, worth highlighting key issues for DBS carriage – especially differences between DBS and cable

# HD Carriage Actually Decreases Bandwidth Requirements for Cable



- Each cable system retransmits only the stations in its area
- Cable operators retransmit local channels primarily in analog format without compression
  - 6 MHz over-the-air analog signal takes 6 MHz on analog cable system
- With digital modulation (but not compression), cable operators can retransmit HD over-the-air signal using only 3-4 MHz on a typical digital cable system
- Thus, digital conversion *saves* one-third to one-half the capacity currently required for retransmission of local stations

# DBS HD Carriage Dramatically Increases Bandwidth Demands



- DBS carriage of local signals is very different from cable
  - DIRECTV must retransmit all broadcast signals in each of the markets served nationwide from a very limited number of orbital locations – currently 890 stations from two orbital locations
  - DBS operators convert analog signals to standard definition (“SD”) digital format
- DBS operators already use digital modulation and compression for both SD and HD transmissions
  - Single DBS transponder currently carries 11 to 12 SD broadcast signals
  - Single DBS transponder currently carries only 2 HD signals
- Thus, conversion to HD currently requires DBS operators to use *six times* as much capacity for local broadcast carriage
- Existing spot beams are fixed and do not have sufficient capacity to satisfy HD “carry one, carry all” requirement

# Next-Generation Technology May Ameliorate Bandwidth Shortage



- Ka-band satellites will increase capacity available for HD programming
  - Higher order modulation
  - More advanced compression
  - Spot beam optimization
- Using these technologies, the two satellites we plan to launch in 2005 will be able to retransmit approximately 500 local channels in HD
- With planned launch of additional satellites in 2007, will be able to retransmit another 1000 local channels in HD
- Any HD carriage requirement prior to launch of all four satellites would severely limit DIRECTV's ability to serve local markets

# The Continued Use of Advanced Video Compression is Essential



- DIRECTV currently uses compression technology to maximize efficiency in transmission of both SD and HD programming
  - Anticipated by SHVIA, approved by the Commission
- Without compression, each DBS transponder can carry only one station in HD
  - DIRECTV currently uses 10 DBS transponders for all local services – sufficient to serve a single, mid-sized market without compression
- Without compression, even capacity available after 2007 would be sufficient to serve only a small handful of markets with HD locals
  - Total capacity for approximately 350 uncompressed HD local channels
  - But fixed spot beams rendered useless, so actual number could be as low as 40 channels

# A Dual Carriage Requirement Would Reduce Local Carriage



- Requiring dual carriage would reduce the total number of local markets in which DIRECTV could provide *any* local service
  - If applied before 2007, DIRECTV would have to cut off *all* local service in most of the DMAs currently served
  - Even after 2007, DIRECTV will not have sufficient capacity to serve every market with HD immediately – and so would not be able to provide *even SD service* in many markets
- Increased burden on DBS systems would likely violate the First Amendment
  - Even more of a burden on speech for DBS than for cable

# Conclusions



- DIRECTV is making a significant investment in the infrastructure necessary to provide the best consumer experience by adding significant HD programming
- HD carriage places much greater burdens on DBS operators than on cable operators
  - More limited capacity
  - Larger number of stations to carry from coast to coast
  - HD carriage increases (rather than decreases) bandwidth demand
- Continued use of compression is critical to any HD carriage
- Dual carriage requirement would limit the number of local markets served and violate the Constitution as well