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January 26, 1996

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JAN 26 1996

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

By Messenger

William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, NW
Washington, DC 20554

Re: File Nos. 3-DSS-P/LA-94; 4-DSS-P/LA-94; 174-181-SAT-P/LA-95; CC Docket No. 92-297, RM-7872, RM-7722
Ex Parte Presentation

Dear Mr. Caton:

Pursuant to Section 1.1204(b)(7) of the Commission's rules, Edward J. Fitzpatrick, Bernard F. Vecerek, Jim Justiss, and Raul D. Rey, of Hughes Communications Galaxy, Inc., Roger LeClair of Hughes Telecommunications and Space Company and the undersigned met on January 25, 1996 with Commission representatives Thomas S. Tycz, Harold Ng, Karl A. Kensinger, and Jennifer Gilsenen to discuss the Galaxy/Spaceway spectrum requirements. The enclosed materials formed the basis for those discussions.

An original and four copies of this letter are enclosed. The Commission's Public Notice DA 95-663, released April 5, 1995, waived the requirement that these materials be served on the parties to the restricted adjudicative proceeding involving applications in the 27.5-30.0 GHz part of the Ka band. Copies of this letter are being provided to the Commission representatives identified above.

Respectfully submitted,

John P. Janka

Enclosures

No. of Copies rec'd 0+4
List ABCDE

Spaceway Capacity Issues

HUGHES COMMUNICATIONS

- Single satellite can carry processor for 500 MHz (next year's technology)
- Business risk reduction dictates on-orbit redundant satellite (standard GSO practice)
  - Another 500 MHz needed
- 4-cell frequency re-use pattern maximizes spectral efficiency
  - Divide 500 MHz by 4 = 125 MHz/beam
- Spectrum needs are 4 x 125 MHz on each of two satellites
- Beams are not divisible
  - Single carrier in each beam
- Segments of allocated spectrum must consist of multiple of beam size
  - e.g., multiples of 125 MHz

Low Cost Opens Mass Market for SPACEWAY™

HUGHES COMMUNICATIONS

Low-cost SPACEWAY™ terminal depends on 1 GHz of spectrum

- Supports more than 1 million user terminals
  - Manufacturing volume drives down cost of terminal
  - Necessary for $ 1000 mass-market terminal in business case

Low-cost SPACEWAY™ service depends on large capacity => frequency re-use

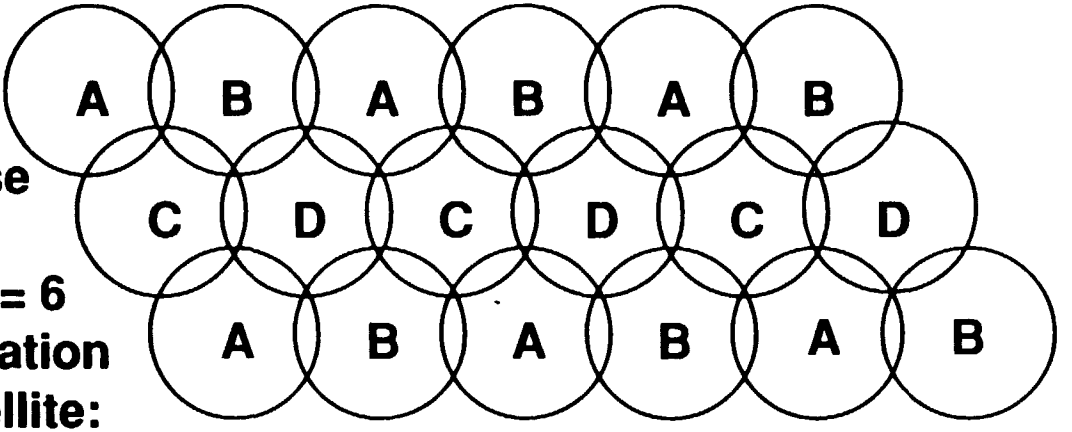
- Large capacity shared among many users gives low cost of usage
- Re-use provides capacity for more than 1 million users in business case
  - 125 MHz frequency re-use cell in spot beam pattern
  - 6 x spatial, 2 x polarization = 12 x frequency re-use

SPACEWAY™ Frequency Plan & Re-use

HUGHES COMMUNICATIONS

- 24 footprints per satellite
- 2 beams per footprint
- 4 footprints per frequency reuse cluster
- Spatial frequency reuse = 24/4 = 6
- 500 Mhz per cluster per polarization
- Total usable spectrum per satellite:
  => 500 Mhz x 6 x 2 = 6 GHz

Beam Lay-down Example



Satellite Allocation Plan (500 Mhz per satellite)

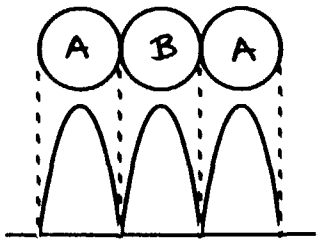
Uplink frequency [GHz]	29.500 - 29.625		29.625 - 29.750		29.750 - 29.875		29.875 - 30.000	
Downlink frequency [GHz]	19.700 - 19.825		19.825 - 19.950		19.950 - 20.075		20.075 - 20.200	
Polarization	L	R	L	R	L	R	L	R
Beam family	A	B	B	C	C	D	D	A

3-CELL RE-USE PATTERN

HUGHES COMMUNICATIONS

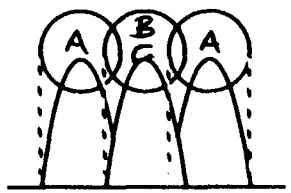
Baseline 4-cell re-use pattern

- Same frequency is spatially separated one beamwidth
- Steep antenna rolloff gives adequate isolation



3-cell re-use pattern

- Same frequency is spatially separated by 0.87 beamwidth
- Steep antenna rolloff means much larger interference
- Co-channel interference (CCI) increases 5 dB or more



Unacceptable loss of capacity or performance