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November 14, 2001

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

**BY HAND**

Ms. Magalie Roman Salas  
Secretary  
Federal Communications Commission  
445 12th Street, SW  
Washington, DC 20054

**EX PARTE  
PRESENTATION**

**Re: IB Docket No. 00-248**

Dear Ms. Salas:

On November 13, 2001, Gene Cacciamani, Uday Mathur, and John Lane of Aloha Networks, Inc. and Lewis J. Paper and the undersigned of this Firm met with George Sharp, Hsing Liu, Ron Repasi, Steven Spaeth, John Martin, Joseph Hill, Jennifer Gilson and Frank Peace, Jr., of the Federal Communications Commission's International Bureau. We discussed the Notice of Proposed Rulemaking in the above-referenced proceeding. In particular, we discussed the Commission's proposed changes to its rules regarding power limits for VSAT networks using random access techniques. The attached materials, which summarize our presentation, were distributed at the meeting.

If you need any further information, or have any questions, please do not hesitate to call me.

Sincerely,



Jacob Farber

- cc: George Sharp (FCC, Room 7-A462)
- Hsing Liu (FCC, Room 7-A431)
- Ron Repasi (FCC, Room 6-A822)
- Steven Spaeth (FCC, Room 6-B434)
- John Martin (FCC, Room 6-A426)
- Joseph Hill (FCC, Room 7-A425)
- Jennifer Gilson (FCC, Room 6-A520)
- Frank Peace, Jr. (FCC, Room 7-A430)
- Lewis J. Paper
- Gene Cacciamani
- Uday Mathur
- John Lane

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**FCC Discussion on Notice of Proposed  
Rulemaking, IB Docket No. 00-248  
13 November, 2001**

**Aloha Networks, Inc  
1001-A O'Reilly Ave  
P.O. Box 29472  
San Francisco, CA**

**Aloha Networks Inc  
Proprietary and Confidential  
For Discussion Purposes**



## **Topics of Discussion**

- Challenges in VSAT networks mandate regulations on adjacent satellite interference to facilitate market growth
- Regulation should focus on percentage of time that acceptable ASI levels must be met
- Grandfathering of existing operations



## **VSAT Industry Growth**

- Explosive growth predicted in VSAT networks (Internet access, etc.)
- In order to reach a broader population, VSAT terminals will be cheaper and less obtrusive, increasing harmful interference
  - Smaller antenna sizes (beamwidth and sidelobe gain)
  - Inexperienced ('self') installation (mispointing gain)
- Internet use will drive increased use of existing and new random access techniques

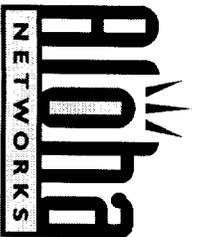
**VSAT industry growth will result in heretofore unseen levels of interference to adjacent satellites**



# ASI Is a Problem

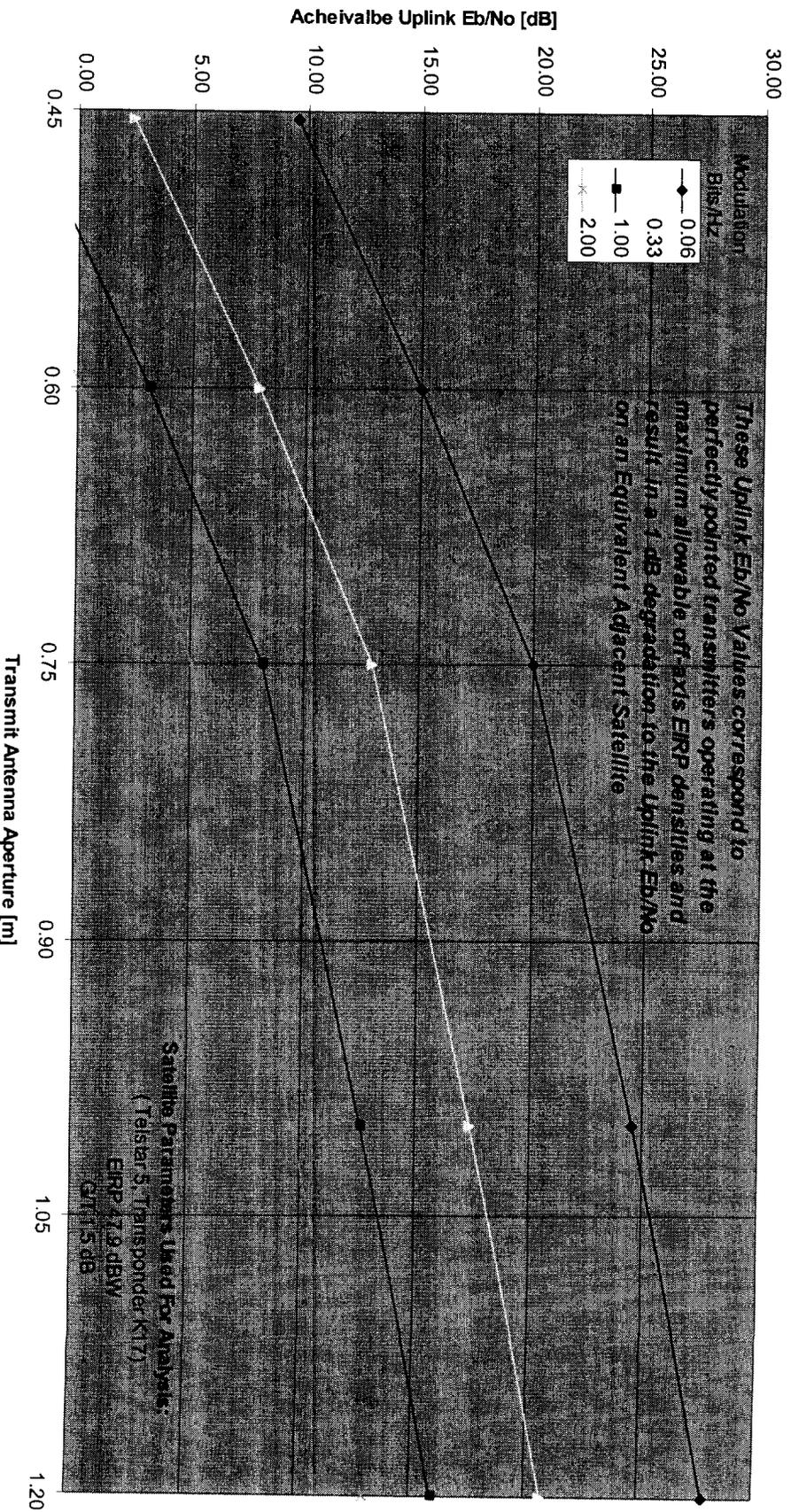
- Aloha experience with ASI
  - Attenuator setting changes on transponders
  - Intended transponder was converted from digital to analog video for coordination with adjacent satellites
- FCC granted Aloha a Special Transmit Authority to test its Spread Aloha™ Multiple Access (SAMA®) protocol on VSATs
  - In spite of their comments in this proceeding, PanAmSat and Loral both expressed concern about ASI using sub-meter antennas
  - PAS ultimately denied Aloha request for satellite transponder time for testing because of ASI fears

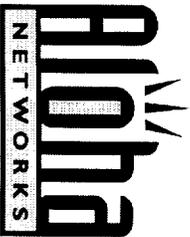
**Enormous amount of coordination required to resolve current levels of ASI**



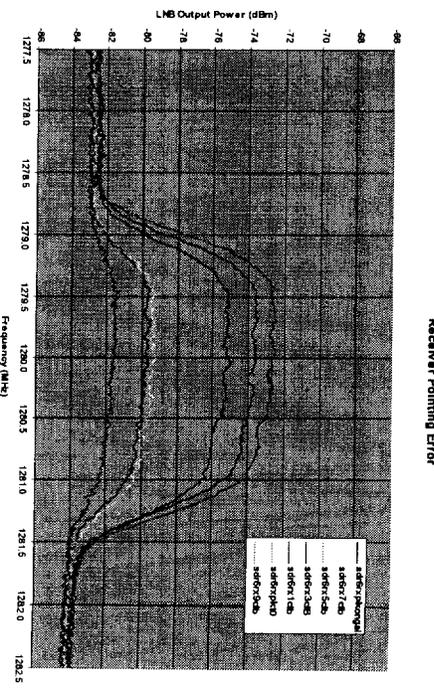
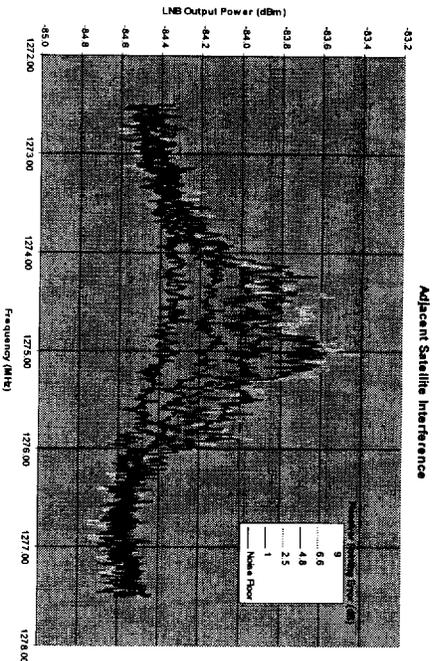
Current PSD regulations can allow as much as 1dB increase in uplink “noise + interference” power spectral density in equivalent adjacent satellites

Typical Uplink Eb/No Limits for Current Transmit EIRP Limits (7.1 dBW/4kHz)

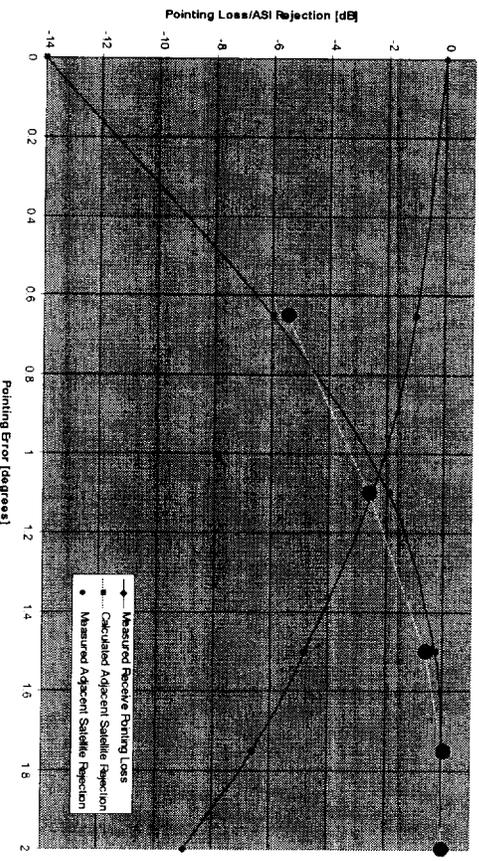




# Smaller dishes increase ASI sensitivity to pointing errors



0.75m Remote to 2.4m Hub Adjacent Satellite Interference Measurement



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# Regulation is Required Now

- **As with other industries, VSAT industry cannot rely on players to self-enforce interference limiting practices**
  - Industry self-regulation will most likely result in desensitizing satellites for short-term solution
- **It will be difficult for the FCC to remedy problems in the future with prospective regulation**
  - Will require extensive and expensive upgrades to existing network infrastructures



# Proposed Limits

- Any regulation must be consistent with figure of merit used in satellite systems - availability
  - Hughes proposed average power over 1 second is arbitrary and inappropriate
- Commission proposed transmitter power spectral density limit of -14.0 - 10 log (N) dB (W/4KHz) into any GSO FSS earth station antenna
  - N based on one of four specified multiple access techniques

- Aloha proposed a broader definition

The maximum power spectral density of a digital modulated carrier into any GSO FSS earth station antenna shall not exceed  $-14 - 10\log(N)$  dB (W/4KHz) where N is the smallest number of co-frequency simultaneously transmitting earth stations in the same satellite receiving beam such that the probability of an event with greater than N simultaneous transmitters is less than .001.

- Agrees with FCC proposal that limiting interference to a percentage of time is the critical factor
- Allows application to **any** multiple access scheme
- Value of .001 could be adjusted by Commission as appropriate



# Grandfathering

- Any regulation should be prospective in nature
  - Existing VSAT operations should be grandfathered
- Grandfathering should not extend to
  - New licenses
  - New equipment that do not reflect prior investments
  - The addition of a significant number of new users in an existing network once regulation is enacted