

**MINTZ LEVIN
COHN FERRIS
GLOVSKY AND
POPEO PC**

*Boston
Washington
Reston
New York
New Haven
Los Angeles
London*

*701 Pennsylvania Avenue, N.W.
Washington, D.C. 20004
202 434 7300
202 434 7400 fax
www.mintz.com*

Russell H. Fox

**Direct dial 202 434 7483
rfox@mintz.com**

July 22, 2004

FILED ELECTRONICALLY

Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

Re: Notice of *Ex Parte* - WT Docket No. 03-103: Amendment of Part 22 of the Commission's Rules to Benefit the Consumers of Air-Ground Telecommunications Services; Biennial Regulatory Review Amendment of Parts 1, 22, and 90 of the Commission's Rules

Dear Ms. Dortch:

Pursuant to the provisions of Section 1.1206(b) of the rules and regulations of the Federal Communications Commission ("FCC"), The Boeing Company ("Boeing") hereby submits this letter summarizing its *ex parte* presentations in the above-referenced proceeding.

On July 21, 2004, Guy Christiansen, Mike de la Chapelle and Sean Schwinn of Boeing and Howard Symons and Russell Fox of Mintz, Levin, Cohn, Ferris, Glovsky, and Popeo, P.C. met with Ed Thomas, Bruce Franca, James Schlichting, Bruce Romano and Ira Keltz of the Office of Engineering and Technology and John Muleta, Peter Tenhula, Kathy Harris, Richard Arsenault and Jay Jackson of the Wireless Telecommunications Division to discuss the attached presentation. A copy of this letter and presentation is being served electronically on each meeting attendee.

Marlene H. Dortch
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Should there be any questions regarding this matter, please contact the undersigned directly.

Cordially yours,

/s/ Russell H. Fox

Russell H. Fox

Attachment

cc: (w/attachment by e-mail): Ed Thomas
Bruce Franca
James Schlichting
Bruce Romano
Ira Keltz
John Muleta
Peter Tenhula
Kathy Harris
Richard Arsenault
Jay Jackson

Meeting with Federal Communication Commission

July 21, 2004

Agenda

- Connexion by Boeing (CBB) Overview
- Boeing Implementation
- ATG Rule Framework

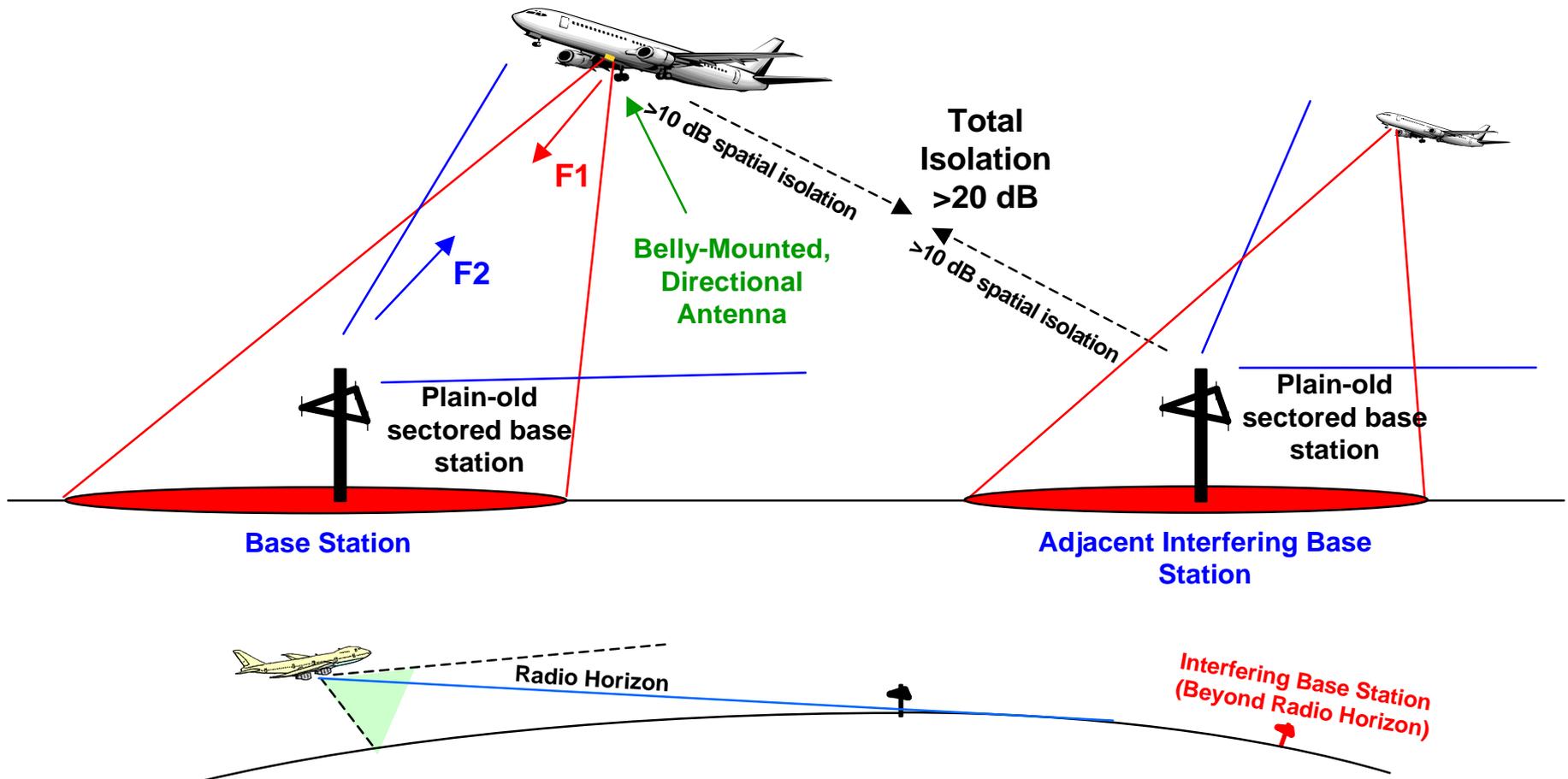
CBB Overview

The screenshot shows the Connexion by Boeing website interface. At the top left is the logo "connexion by Boeing". A notification in the top left corner says "Not Connected to the Internet". The main content area features a "sign up now" banner for "high-speed in-flight internet access" with "2 easy ways to pay". The first option is "Internet Flight" for "\$29.95* or less" with a "Sign Up Now" button. The second option is "Internet Minutes" for "\$9.95* First 30 minutes" with a "Sign Up Now" button. A note below states "*All prices shown in US Dollars, based on flight length". On the right side, a vertical banner reads "First in the Sky with in-flight High-Speed Internet Service". The left sidebar contains a login form with fields for "Username:" and "Password:", a "Forgot Your Password?" link, and a "Sign In" button. Below the login form are links for "Home", "Pricing", "My Account", "About Us", "Product Tour", "Getting Access", "FAQ", "Help Options", and "Live Chat Help". At the bottom of the sidebar is a "TRUSTe" logo. The main content area also includes three promotional boxes: "Need Help? Free Live Chat" with a "Live Chat Help" button, "Your Satisfaction Counts" with a "Give us your feedback" button, and "Send a free E-Mail Greeting Now!" with a "Send an E-Card!" button. At the bottom of the page, there are links for "Terms of Use", "Subscriber Agreement", "Privacy Policy", and "Security Information", along with a copyright notice: "Copyright © The Boeing Company 2003-2004".

- 7 airline customers
- Commercial Service Launch on May 17
- Wi-fi hotspots in the cabin
- Customer usage meeting early expectations
- Partnering with leading wireless providers globally to build awareness
 - NTT DoCoMo
 - T-Systems
 - Starhub
 - Infonet



Boeing Approach to ATG



Spatial isolation provided by sectored base station antennas, directional aeronautical antennas, and the curvature of the earth, allow multiple service providers to serve the entire addressable market while sharing the existing ATG spectrum.

4-System Geometry – Video Simulation



- Aircraft “flown” from Washington, DC to Seattle, WA
- Connects to blue service provider’s base stations
- Interfering base stations are colored red, yellow and green.

Video #1 – Hemi antenna @ 30’K

Video #2 – 7-Element Array @ 30’K

Key to video simulation

- Red beam indicates “near-far” problem. Interfering BTS is within antenna beam and closer than serving BTS.
- Yellow indicates that interfering BTS is within the aircraft antenna beam and radio horizon but at a distance beyond the serving base station.
- Green indicates that only the serving BTS is within the aircraft antenna beam and radio horizon

Results:

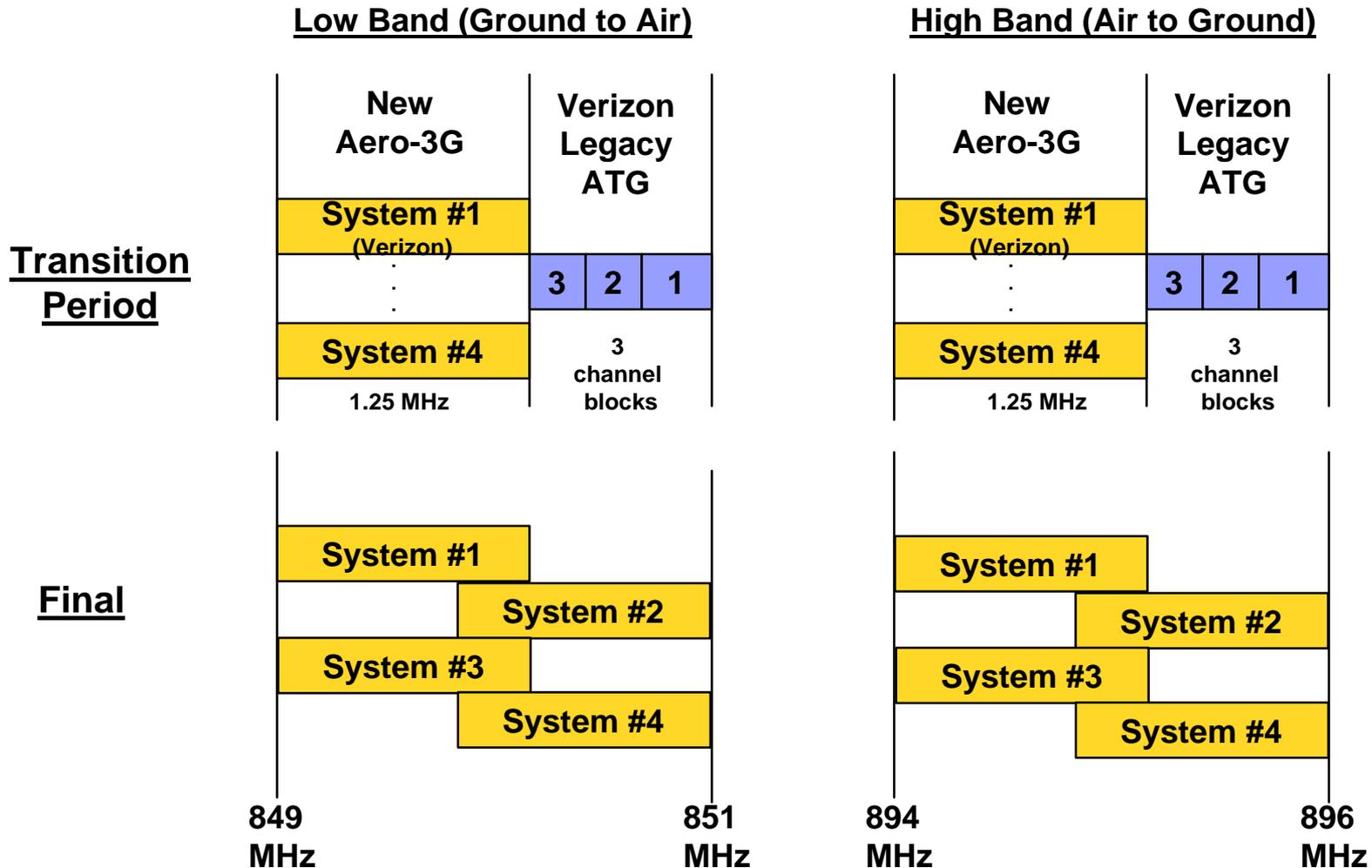
Hemi-Antenna

- Near-Far problem occurs over most of flight

7-Element Array

- Near-Far problem never occurs.

ATG Spectrum Channelization

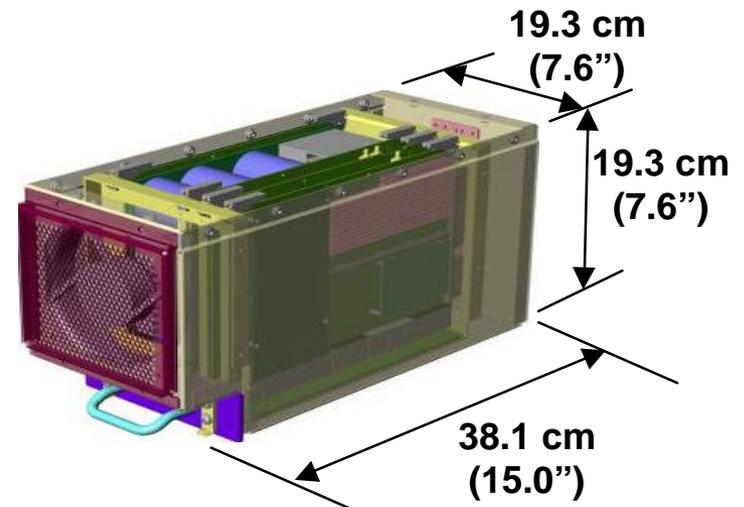
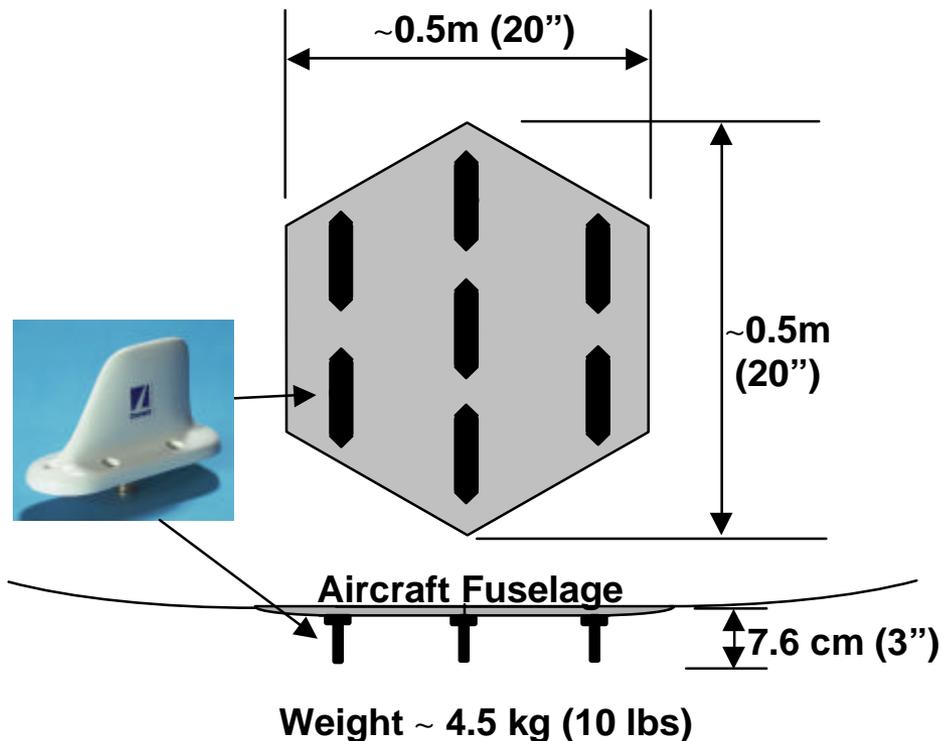


Our channelization plan:

- accommodates 4 systems
- provides a transition plan
- Uses overlapped 1.25 MHz channels to accommodate CDMA2000 standards.

Aeronautical Terminal Size, Weight & Cost Estimates

Antenna implemented as seven individual monopole blades mounted directly to skin of aircraft fuselage or mounting plate.



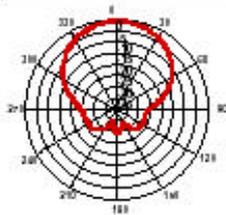
6MCU Chassis
Weight ~ 9.0 kg (20 lbs)

Estimated cost for aeronautical terminal is \$50,000 in quantity of 1000 units.
Fraction of the cost of the least expensive satcom terminal (\$168,000).

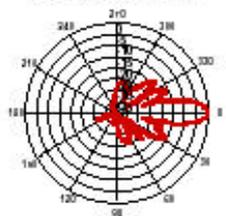
“Plain-Old” Base Station Antenna 6-Sectors (60°)

DECIBEL	DB876G60A-XY	806-896 MHz 870-860 MHz
	15 dBi, Panel Antenna 806-896, 870-860 MHz	GEN3VPOL™

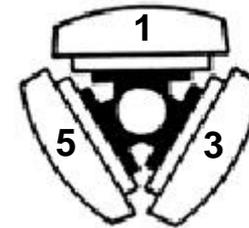
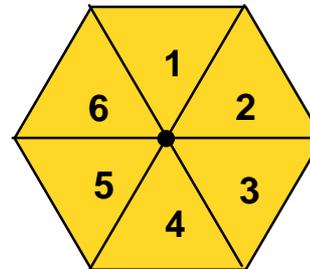
- Air dielectric feed system featuring no screws, welds, solder or rivets in dipole feedpoint
- Low loss feed system provides improved gain per unit length
- Low noise due to superior intermodulation performance
- Low profile appearance and low wind loading profile for easier zoning approvals



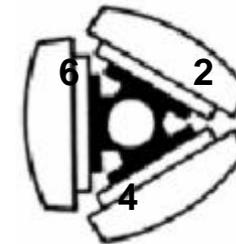
Horizontal 850 MHz (Tilt=0)



Vertical 850 MHz (Tilt=0)



6-Sector Mast-Mounting Configuration



ELECTRICAL		MECHANICAL	
Frequency (MHz):	806-896 870-860	Weight:	10 lbs (8.6 kg)
Polarization:	Vertical Vertical	Dimensions (LxWxD):	12 X 12.5 X 5 in (302 X 318 X 127 mm)
Gain (dBi/cdBi):	15/17.1 15.5/17.6	Max. Wind Area:	6.3 m² (0.89 m²)
Azimuth BW:	60° 60°	Max. Wind Load (@ 100mph):	250 lbf (1112 N)
Elevation BW:	12° 11°	Max. Wind Speed:	125 mph (201 km/h)
Beam Tilt:	0° 0°	Radiator Material:	Aluminum
Front-to-Back Ratio* (dB):	25 25	Reflector Material:	Passivated Aluminum
VSWR:	<1.33:1 <1.33:1	Radome Material:	ABS, UV Resistant
IM Suppression - Two 20 Watt Carriers:		Mounting Hardware Material:	Galvanized Steel
Impedance:	50 Ohms 50 Ohms	Connector Type:	T16 DIN - Female (Back)
Max Input Power:	500 Watts 500 Watts	Color:	Light Gray
Lightning Protection:	DC Ground DC Ground	Standard Mounting Hardware:	DB380 Pipe Mount Kit included
		Downhill Mounting Hardware:	DB383, optional
		Opt. Mounting Hardware:	DB384-AZ Azimuth Wall Mount

This product has been in production for twenty years. Same product line includes 45° (8-sector) and 35° (10-sector) antennas



Andrew Corporation
9525 Skerrets Lane
Dallas, Texas, U.S.A. 75247-3701
Tel: 214.631.0310
attech@andrew.com

Fax: 214.631.4706
Toll Free Tel: 1.800.676.5342
Fax: 1.800.229.4706
www.andrew.com

Date: 7/24/2003



Methods for Increasing ATG Spectral Efficiency

	Spatial Isolation, Directional Aero Antenna	Spatial Isolation, Segmented Base Station Antennas	Spectral Isolation, Channel Staggering	Polarization Isolation, V and H	Cross Duplex Operation
AirCell		x	x	x	x
Airfone	x	x			
Boeing	x	x	x		

Boeing believes that a simple set of rules can be created that accommodate all proposed approaches.

ATG Rule Summary

- Licensee-selected base station locations. FCC designed grid.
- Staggered & overlapped 1.25 MHz channels (see chart)
- Interference limits
 - Into base stations
 - Into aircraft
- Compliance obligations
 - Each service provider measures, controls and records interference
- Transition from current rules.

Simple self-policed rules

Benefits of Boeing Approach

- Pro-competitive
- Implementation flexible
 - Can accommodate Boeing and Aircell plans
 - Verizon proposed directional antenna would work well
- Competitors free to choose the level of technology they deploy to serve the market

Conclusions

- Licensing of multiple providers technically feasible
- Sufficient capacity exists within the current ATG bands to service the market.
 - Using Boeing’s implementation or others.
- Competitive choice beyond just “satellite vs. terrestrial”