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

RE: WT Docket No. 03-103
Notice of *Ex Parte* Presentation

Dear Ms. Dortch:

This is to inform you that AirCell, Inc. ("AirCell") representatives Bill Gordon, Vice President for Government Affairs; Joe Cruz, Vice President, Engineering and Technology; Grant Saroka, consultant; and I, counsel to AirCell, made *ex parte* presentations on July 26, 2004 to the following FCC representatives with respect to the above-referenced proceeding: George Sharp, Ron Chase, Jim Schlichting, Julius Knapp, and Ira Keltz of the Office of Engineering and Technology ("OET"); and Martha Stancill, Richard Arsenault, Kathy Harris, and Jay Jackson of the Wireless Telecommunications Bureau ("WTB").

The meeting addressed the issues set forth in the attached presentation, including background on the current and future Air-to-Ground ("ATG") market and a summary of AirCell's positions on the FCC's pending ATG proceeding, as referenced above. Specifically, AirCell described the benefits of allowing competitive access to this band, as well as the technical and policy impact of AirCell's proposed approach.

Pursuant to Section 1.1206(b)(1) of the Commission's rules, I am filing this notice electronically in the above-referenced docket. In addition, I am sending one copy of this notice to each of the FCC staff listed below. Please contact me directly with any additional questions.

Respectfully submitted,

Michele C. Farquhar
Counsel to AirCell, Inc.

Enclosures

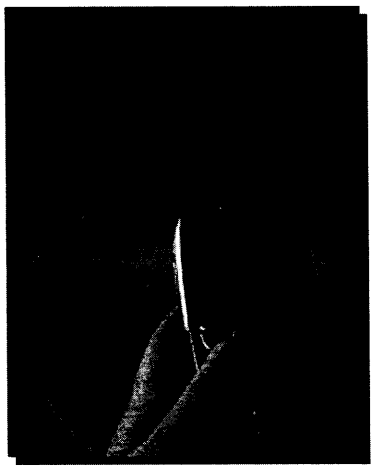
cc: Richard Arsenault
Ron Chase
Kathy Harris
Jay Jackson
Ira Keltz
Julius Knapp
Jim Schlichting
George Sharp
Martha Stancill

Business Structure & Market Outlook for Inflight Communications Services

Presented to the

Federal Communications Commission

July 26, 2004



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Agenda

Technical Overview
Benefits of AirCell's Solution
Key Points
Market Opportunity
Air-to-Ground Telecom Market
Regulatory Hurdles
Conclusions

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Technical Update

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Technical Objectives

- Support widespread deployment of terrestrial broadband ATG service
- Allow multiple terrestrial ATG carriers to provide competitive services (satellite-based services cannot compete)
- Provide for transition of current ATG services to new spectrum usage standards
- Provide minimal rules to assure that adequate inter-system isolation is preserved, while allowing carriers to choose and evolve ATG technology.

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Technical Overview - Broadband Capacity

AirCell's ATG proposal supports broadband technology, providing up to 50x capacity increase over today's network

- **Provides voice and data services in cabin**
- **Shares the broadband ATG pipe among all users and traffic types**
- **Offers up to 50 times the capacity of today's network (1440 equivalent voice channels in an area vs 29 voice channels today)**
- **Can meet demands even in the busiest airport scenarios**

Broadband technology enables higher data rate for users – peak and average (3+Mbps peak rate with EVDO.)

- **With high peak rates, customer experience is similar to terrestrial broadband offerings**
- **Ideal for the bursty and asymmetrical nature of data usage; EVDO forward link (ground-to-air) supports higher data rate than reverse link**
- **Packet-based architecture allows sharing capacity between voice and data**

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Capacity and Competition

AirCell's broadband technology based proposal...

- **Accommodates up to 4 service providers, each with full broadband capability**
- **Increases total capacity by 3.6x to 4x over a single 1.25 MHz carrier**
- **Offers capacity increase through spectral re-use and isolation**
- **Provides competitive environment fostering**
  - Ample capacity to satisfy demand
  - Faster time-to-market deployment
  - New/improved services and features

AirCell's proposal will increase ATG spectral usage and capacity and is the best way to handle the demands of airborne customers with the 4 MHz available spectrum

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Technology Evolution

Users benefit from rich functionality, while service providers have architectural flexibility ...

- AirCell's proposal and broadband architecture provides a flexible solution to technology choice and evolution
- Allows for migration of today's narrowband technology to broadband technology (1.25 MHz based)
- Broadband technology choice can be CDMA-1xRTT to EVDO (any revision), and each service provider has flexibility to evolve own system
- Minimal inter-system interference provides a "no-restriction environment" for technology evolution and innovation
- Each service provider has operational flexibility - comparable to terrestrial cellular/PCS service providers

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Rules

Spectrum Plan:

System	Pol.	Initial Channels (MHz)		Final Channels (MHz)	
		Ground	Air	Ground	Air
Existing	V	849.00 - 849.60	894.00 - 894.60	-	-
System 1	V	894.75 - 896.00	849.75 - 851.00	894.00 - 895.25	849.00 - 850.25
System 2	V	849.75 - 851.00	894.75 - 896.00	849.75 - 851.00	894.75 - 896.00
System 3	H	894.00 - 895.25	849.00 - 850.25	894.75 - 896.00	849.75 - 851.00
System 4	H	849.00 - 850.25	894.00 - 895.25	849.00 - 850.25	894.00 - 895.25

Note 1: Initially, existing services move to channel blocks 8, 9, & 10, which permits initial service by up to four carriers (within X months of license grant(s) under new rules)

Note 2: Existing services provided time to migrate to new technology platform, then discontinues use of current channel blocks (Y months); four carriers supported with maximum intersystem isolation.

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Rules

Inter-system isolation:

- **Cross polarization discrimination preserved by i) requiring ground station antenna alignment within 1 degree, ii) reduction in aircraft transmit power to compensate dB for dB for xpd reduction below 12 dB**
- **Maximum aircraft EIRP of 200 milliwatts radiated towards any other system ground station or aircraft**
- **Maximum ground station EIRP of 200 Watts radiated towards any other system ground station or aircraft.**
- **If signals not occupying 1.25 MHz, then equivalent maximum spectral power density must be observed.**

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Rules (continued)

Inter-system isolation (continued):

- **Base station isolation requirements met for x-country base stations - no additional regulations required.**
- **For vicinity of major airports, rules limit base-base cross-duplex interference and provide opportunity for multiple carriers to provide low-altitude services:**
  - maximum EIRP of 200 milliwatts to horizon +/- 2 degrees (met using uptilt antennas)
  - minimum intra-system site spacing requirement
  - expectation that carriers will coordinate to achieve acceptable inter-system isolation

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Benefits of AirCell's Solution

Minimal ongoing administration;

- **Proposed ATG rules similar to PCS implementation "freedom" – achieving isolation goal with different techniques.**
  - while based upon system requirements for EVDO networks, framework is not technology specific
  - each carrier has flexibility in designing its system - air interface selection, ground network design and aircraft antenna systems
- **Supports competition among terrestrial ATG service providers**
- **Supports combination of voice and broadband data services to passengers and airlines**
- **Maximizes utility of the 4 MHz of ATG spectrum; approximately 4 times the capacity that a single provider would likely achieve.**

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ATG Market

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KEY POINTS

- Airlines and passengers want cell phones and broadband onboard
- Competition important to airlines and passengers
- No viable alternatives to 800 MHz ATG Band
- Several factors led to the market failure of past ATG providers, but not the sharing plan itself or the opportunity for multiple service providers
- Licensing scheme must accommodate unique market
- The technical solutions recommended by AirCell and Boeing allow four terrestrial providers, with no penalties or impediments to full broadband capability, and can be simply implemented

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Unique "Window of Opportunity" in Aviation Communications

On Threshold of Dramatic Change in Passenger Voice/Data

- *One Phone Goes Anywhere* - Personal cell phones and other wireless devices will be used in flight
- WiFi now flying

Airline Travelers want to Stay Connected

- In addition to cell phones, many now carry WiFi devices
- Want VPN, Internet, and other broadband services

Pent up Need in Stranded Airlines

- Over 70% of U.S. airliners have no air-to-ground connection outside the cockpit

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Press Release

American Airlines and QUALCOMM Complete Test Flight to Evaluate In-Cabin Mobile Phone Use

Proof-of-Concept Event Highlights Safe and Reliable Mobile Phone Technology Using CDMA on a Commercial Aircraft

Qualcomm Inc. chief executive Irwin Jacobs, makes a call from an American Airlines jet as Monte Ford, American CIO, listens in.

As pictured in USA Today 7/19/04

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Expected Passenger Features

Service available to passengers whenever FAA and FCC allow handsets to be operated

- ✈ Expected to be above 10,000 feet initially, eventually from pushback to landing

Passengers using the system will have access to the same features typically available when roaming:

- ✈ Make and receive voice calls
- ✈ Call waiting, 3-way calls
- ✈ Send and receive SMS and data
- ✈ Access to "home system" voicemail
- ✈ Cabin like WiFi "hotspot"

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What happened to the ATG Market?

1979 – 1990 (Airfone Experimental License)

- Infancy of wireless communications
- Unrealistic usage projections – little market data
- High cost custom built hardware
- Only 4 MHz -- 6 KHz channels for efficiency
- Sweet deals needed to entice airlines to offer service – free hardware and percent of gross revenue.

1990 – 2003 (Allocation made – 6 licenses granted)

- Airfone controls 100% of market
- Only three licensees build systems
- New entrants make even sweeter deals to attract airlines away form Airfone
- New digital equipment custom built and very expensive

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What happened to the ATG Market?

1990 – 2003 (Cont.)

- Proliferation of inexpensive cell phones
- Cell phone charges fall to pennies per minute
- Cell phone usage allowed while aircraft on ground
- Inability of current technology to support high-speed data – meet passenger needs

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Airline Telephony Solutions

Existing Service (Domestic U.S. Airlines)

- Wired cabins with shared seatback telephones
- Verizon Airfone the sole service provider
- Narrowband solution - adequate voice service, but poor email/data, and not practical for Internet access
- High service price, extremely low usage, and of little value to the airlines or passengers

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Airline Telephony Solutions (continued)

What the Airlines Expect

- ✈ Simple and light weight system (wireless cabin)
- ✈ Broadband from Passenger to Ground – full voice, email/data and Internet capabilities
- ✈ Attractive business model: low cost system, high value service, with high revenue from passenger use
- ✈ Competitive offerings from multiple vendors, with ...
  - Shorter term contracts and flexibility to embrace rapidly changing technologies (driven by consumer market not aerospace)
  - Best value in onboard equipment – cost, size, weight, reliability, ease of installation, certification and support
  - Viable and realistic business model to insure rapid financial return on airline investment

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Present Market Status

Lone Service Provider – Verizon Airfone

- Four airline customers – Continental, Delta, United and US Airways -- $8.00 for the first minute
- Approximately 1650 aircraft are outfitted with seatback phones and air-to-ground radios
- Annual call gross revenue estimated at $40 million*
- Revenue share to the airlines is roughly $8 million *

Unserved U.S. Fleet

- Nearly 4300 aircraft, representing 72% of the U.S. fleet (including regional airlines) have no passenger air-to-ground telephony

➢* AirCell estimate

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Present Market Status

Satellites - not an alternative to proposed ATG link

- **Inmarsat**
  - Onboard system - $500 K
  - Domestic fleet un-served
  - A 3 minute voice call costs $40
  - Latest upgrades allow 64 Kbps per channel at a premium price
  - 64 Kbps services are not being adopted by the airlines
- **Globalstar & Iridium**
  - Simple voice com, but limited to 2.4 - 9.6 Kbps at $0.55-$1.60 per min.
  - Cannot support 3G phone capabilities or the required email & Internet connectivity
- **Ku-Band** (sample of one such provider)
  - Onboard system costs $700 K
  - International aircraft only, does not include voice
  - Email & Internet connectivity priced at $30 / flight, $10 / 30 min.

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ATG Market Stakeholders

- **Passengers** – inflight use of next generation cell phones, PDAs and laptops (exact capabilities and protocol mix TBD) – expect close to terrestrial rates
- **Airlines** – deploy 'point of presence' and participate in revenue share
- **ATG licensees** – provide aircraft system, air-ground link, interface with terrestrial cellular system, and operate as a roaming service provider
- **Terrestrial Service Partners** – provide site locations, link to terrestrial networks, use of billing/roaming platforms, and market access to existing customer base

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Market Potential – Inflight Cellular Services

(as compared with Terrestrial Cellular Market)

	U.S Terrestrial Cellular Market	U.S. Inflight Comm Market (at 2004 traffic)
Total Available Market / Potential Users	232 million (4) (U.S. pop. ages 15-up)	600 million (1) (U.S. enplanements)
Subscribers / Enplanements Served	160 million (2)	38 million (est. 80% fleet pen. & 8% uptake)
Customer Access, Hours per Year	934 billion (16 hours per day x 365)	85 million (2.2 hours per flight)
Minutes of Use	813 billion (2)	900 million (3) (est. voice, SMS & data sessions)
Annual Revenue	$87.6 billion (2)	$510 million (3) (equipment & services)
Total U.S. Network, sites deployed	163,000 (2)	480 (four providers)

(1) FAA forecast, 7/15/04 (2) CTIA news release 3/22/04 (3) AirCell estimate
(4) CIA Population Fact Book

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Regulatory Hurdles

FAA, Airlines & Aircraft OEMs

- Rigorous testing to ensure onboard picocell, Personal Electronics Devices (PEDs), and air-ground radios do not interfere with aircraft systems
- Will require dozens of individual aircraft (STC) certifications and manufacturing and maintenance certifications

FCC

- New 800 MHz ATG band rules and licensing process
- Testing to verify inflight cell phone use does not interfere with ground licensees
- Approval to implement RF management of unsupported cell phone protocols

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'Gatekeeper' Airlines

Airline control over deployment

- ✈ **Airlines control 'point of presence'**
- ✈ **7 airlines operate 82% of the U.S. fleet**
- ✈ **Experience with past/present ATG telephony models**
- ✈ **Industry's financial condition**
- ✈ **Upcoming regulatory approvals / restrictions**
- ✈ **Program costs to undertake a fleet fitment**
- ✈ **Acceptance/value of business model**

  System cost, cost of installation, certification, logistical support, and expected payback from revenue share

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Conclusions - Inflight Communications Services

Perfect market conditions ...

- ✈ **Widespread Market Demand**
- ✈ **Ubiquitous use of compatible passenger devices**
- ✈ **Technology is proven and available**
  - On-aircraft system
  - Terrestrial network

Rapid Progress Being Made Toward Market Intro

Remaining hurdles largely regulatory ....

- ✈ **FAA system certifications**
- ✈ **FCC spectrum allocation & rules on RF management**

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In Touch-In Flight®

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Supporting Data

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Present U.S. Airline Telephony Market

Pricing and Revenue Estimates	
Connection Fee per Call	$3.99
Price per Minute	$3.99
Average Call Length in Minutes	2
Revenue per Call	$11.97
Calls per Day per AC	6
Revenue per Day per Aircraft	$71.82
Aircraft Served, Verizon Airfone	1644
Average Operating Days per AC per Year	330
Total Annual Revenue	**$38,963,786**

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Key U.S. Airlines

Airline	Fleet Size	Percentage of US Passenger Fleet
American Airlines	713	18.2%
United Airlines & Ted	523	13.4%
Delta	495	12.7%
Northwest Airlines	435	11.1%
Southwest Airlines	398	10.2%
Continental	345	8.8%
US Airways	281	7.2%
Total	3190	81.6%
US Passenger Fleet (excluding regional airlines)	3908	

- Airfone controls United, Delta, Continental, & US Air

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