Pillsbury Winthrop Shaw Pittman LLP
2300 N Street, NW | Washington, DC 20037-1122 | tel 202.663.8000 | fax 202.663.8007

John K. Hane
Phone: 202.663.8116
john.hane@pillsburylaw.com

December 3, 2008

By Electronic Filing (ECFS)

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

Re: Mobile Satellite Ventures Subsidiary LLC
***Ex Parte* Letter**
Docket Nos. 06-150 and 06-229

Dear Ms. Dortch:

On December 3, 2008, Jennifer Manner, William Chapman, Ajay Parikh, Christian Gates, and Jim Corry of Mobile Satellite Ventures Subsidiary LLC ("MSV"), as well as the undersigned, counsel for MSV, met with Jeff Cohen and David Furth of the Public Safety and Homeland Security Bureau. The parties discussed the positions advocated by MSV in its comments filed in the above-referenced proceedings, and MSV provided the attached handouts.

Very truly yours,

/s/

John K. Hane

Attachment

cc: Derek Poarch
Jeff Cohen
David Furth

The Imperative of Satellite Capability in the Public Safety Network

MSV urges the Commission to expand its satellite handset rule to require that, within 60 months of award of the D Block license and thereafter, (i) half of all user device models made available to public safety must incorporate satellite communications capability and (ii) at least one model of each major device type (e.g., one broadband modem card, one PDA, and one phone) must incorporate satellite capability. The D Block licensee would be required to make at least one satellite-capable device available within 36 months of licensing.

The record demonstrates that there are three ways in which mobile satellites services can enhance and extend the public safety network:

- Ensuring that first responders can communicate and access critical applications anytime, regardless of conditions on the ground, including during disasters.

- Coverage of geographic areas that the terrestrial network cannot reach, including small communities, streets and highways, and vast unserved rural areas. The *Third FNPRM* proposes to greatly reduce the minimum required coverage of the terrestrial network. This tradeoff may be necessary to make the public-private partnership viable, but a smaller terrestrial footprint makes the availability of a meaningful satellite component far more important than it was when coverage requirements were more substantial.

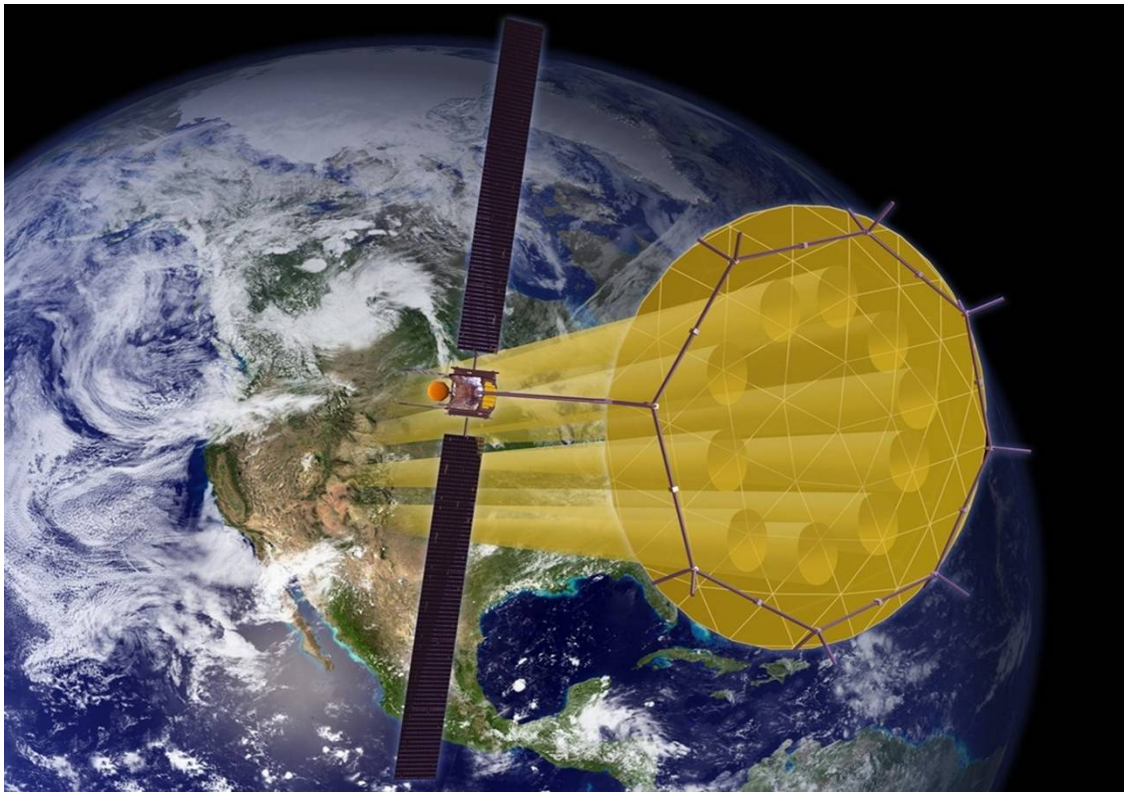
- Providing a core level of interoperability among all agencies in all geographic areas regardless of local network coverage, technology or features.

Multiple device types. The Commission's existing requirement that a single satellite-enabled handset be made available is insufficient to provide public safety with the variety of devices that it needs to reliably communicate. The new public safety network will be a data network that supports a variety of device types, each providing different services and functions. Public safety agencies should be able to choose satellite-enabled devices that meet their day-to-day needs, so satellite capability will available when and where needed on devices the first responders keep charged and at hand – devices they already know how to use and that support their critical applications.

Half of all models. By requiring half of all models to be satellite-enabled, the Commission will ensure that manufacturers, as they upgrade their product lines, continue to produce new satellite-enabled devices. The 60-month timetable will allow adequate time for implementation. MSV has demonstrated that the cost to the manufacturer of adding satellite functionality to a 700 MHz public safety user device has been reduced to less than $3 per device. MSV's recent agreement with Qualcomm validates the practicality of integrating satellite and terrestrial functionality in a single chipset.

* * * *

Next Generation Mobile Satellite Services and the 700 MHz Public Safety Broadband Network



MSV
Mobile Satellite Ventures

Agenda

- Limitations of current generation MSS systems
- Approach to next generation MSS systems
- Services supported
- Implementation
- MSV deployment timeline

MSS Service Evolution

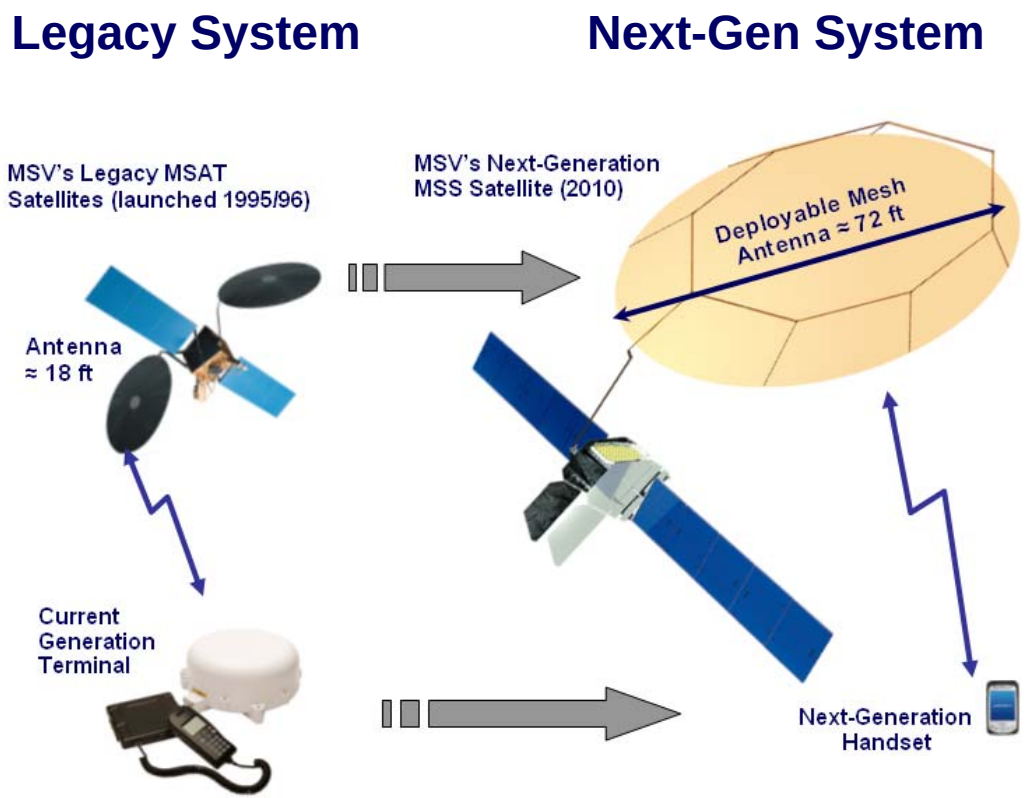
- **MSS has remained a niche service, primarily serving vertical markets, in large part because MSS devices have been large and expensive**
  - Large antennas and high power needed to close links with existing satellites
  - Satellite protocols have required specialized high power amplifiers and expensive, custom-designed, separate chipsets that are produced in lower volumes
  - Expense and “emergency use only” status of devices have limited MSS potential, particularly for public safety users
- **Next generation MSS systems are designed to address these issues**

MSS provided the most reliable links after Katrina, but many satellite phones intended only for emergency use were uncharged and some personnel did not know how to use them

MSV
Mobile Satellite Ventures

MSV Approach: Put MSS in low cost, mainstream, commercial, terrestrial wireless devices

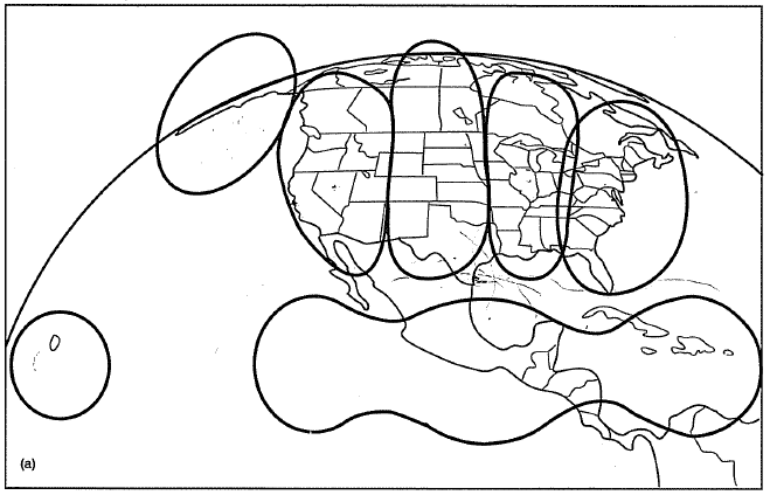
- 19 dB additional link margin from higher power satellite used to reduce handset size: MSV satellites can close the link with devices carrying normal form-factor terrestrial (linearly polarized) antennas (including internal antennas)
- Reduce handset BOM cost by getting mainstream chipset vendors to include a satellite protocol stack in baseband chipsets and satellite bands into multi-band RFIC's
- Dual-mode BOM cost delta relative to PCS is < $ 5 and diminishes over time
- Resources used by a satellite stack are small compared to MIPS and memory of present cell phone processors; cost delta driven by discreet RF components, not by burden of carrying protocol



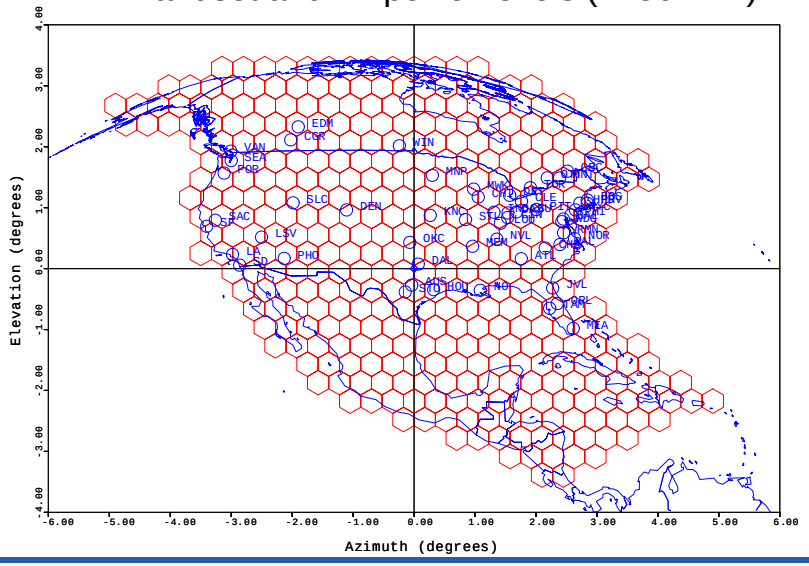
System Coverage Comparison: Legacy vs. Next-Generation

- **To a first order approximation, and for a comparable coverage area, the link margin increases ≈ as the ratio of beam count (e.g., Δ Link Margin ≅ 10Log(500/6) = 19 dB**
  - This 19 dB is then used to reduce the size of the user handset:

- **Legacy MSAT Satellites**
  - Six L-band coverage beams (Note: Alaska and Hawaii are physically coupled)
  - Return link G/T at edge of beam ≈ 2 dB
  - Link closure requires laptop sized terminal with significant antenna gain



- **Next-Gen MSV Satellites**
  - 500 L-band coverage beams (Note: Hawaii not shown)
  - Return link G/T at edge of beam ≈ 20 dB
  - Link closure possible with CMRS-sized handset and Tx power levels (≈250 mW)



MSV
Mobile Satellite Ventures

Supported Services

- **The following services are planned to be offered from cellular-sized handsets and wireless access cards**
  - Voice (VoIP), SMS, email, web browsing
  - Data speeds: 25 kbps uplink (max per user), 300 kbps downlink (max burst throughput to an individual user)
  - IP based data services up to 500 kbps uplink and downlink (max burst throughput) can be supported with BGAN-like transportable data terminals (notebook sized)
- **Single-hop channel latency (device-application to core network output) of under 350 ms**
  - Latency has been proven to be acceptable for useful voice service in legacy GEO MSS (MSAT, Thuraya and ACeS) and is acceptable for many data services – position/data reporting, dispatch, email, SMS, web browsing, file transfer, etc.
  - Propagation characteristics addressed through adaptation of terrestrial air interface, baseband processor chipset customization and spoofing
- **Provision for Indoor/In Car coverage**
  - Special products (femtocell, repeater etc.) will be introduced to extend the satellite coverage in enclosed areas

Satellite links can ensure first responders have immediate access to critical applications on the devices they use every day, regardless of conditions on the ground

Handset Implementation

- **In September 2008 MSV and ICO signed a technology development agreement with Qualcomm**
  - Starting in 2010, all[1] Qualcomm baseband processor chips carrying EVDO will also carry a satellite protocol based on EVDO called GMSA (GEO Mobile Satellite Air interface) – GMSA would become an extension of EVDO
  - After 2010 Qualcomm will incorporate L-band and S-band MSS into all Multiband RFIC's

1 An exception may be made for very low cost chips targeted at developing markets

Next-Gen System Deployment Timeline

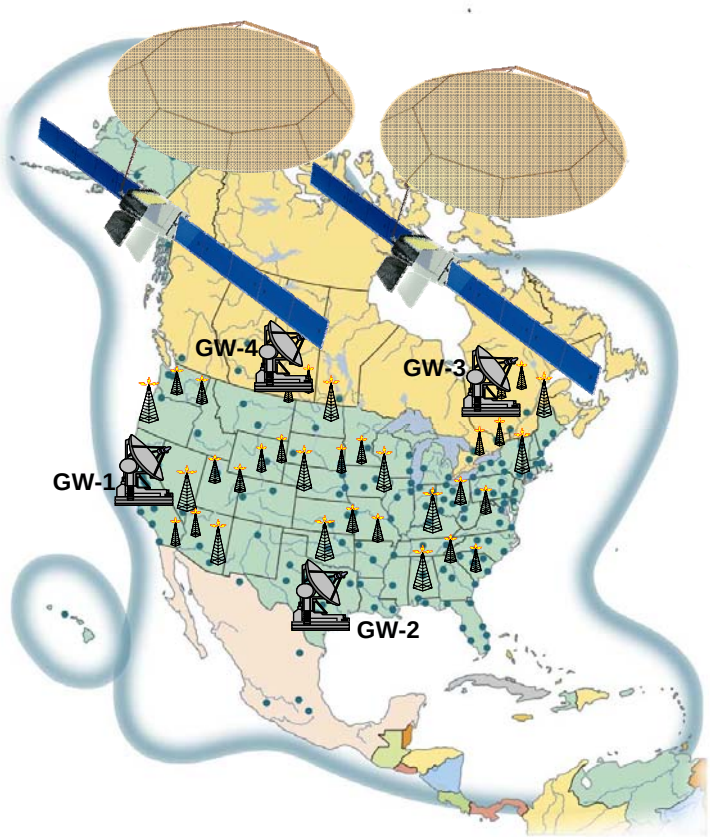
System Deliverable	Delivery Date
Boeing Contract Award	Jan 2006
Gateway 1 Facility Complete (Napa)	Oct. 2008
Gateway 2 Facility Complete (Saskatoon)	Dec. 2008
Gateway 3 Facility Complete (Dallas)	1st Qtr 2009
Gateway 4 Facility Complete (Ottawa)	2nd Qtr 2009
GBBF Ready to Ship to GWs	2nd Qtr 2009
22m Reflector Delivered to Boeing	2nd Qtr 2009
Ground Segment Complete	3rd Qtr 2009
MSV-1 Launch	4th Qtr 2009
Qualcomm Chipset Engineering Samples	4th Qtr 2009
SBN-1 Acceptance	4th Qtr 2009
Qualcomm Commercial Chip Availability	2nd Qtr 2010
MSV-2 Launch	2nd Half 2010
Next-Gen Two-Satellite System Availability	2nd Half 2010

Next-generation MSS service available early in early stages of public safety network deployment

MSV
Mobile Satellite Ventures

Backup Slides

MSV's Next-Gen System Overview



- **Next-Generation System includes Two Satellites and Four Gateways**
- **Each Satellite is Connected via Ku-band Links to all Four GWs**
  - Both satellites use the same gateway locations - each satellite Ku-band feederlink supports 7.5 MHz of L band spectrum
  - System can process 30 MHz of L band spectrum (both forward and return)
- **Each Gateway includes a Fully Digital, FPGA Based, Ground Based Beamformer (GBBF)**
  - Each GBBF is capable of forming L-band spot beams anywhere over the service area
- **Beamforming is Performed with Integrated Satellite and Ground Processing**
  - Beamformer (which is traditionally on the satellite) is moved to the ground
  - Satellite channelizer payload routes the forward and return link spectrum of L-band antenna feeds signals (i.e., not "beam signals")
- **Design Permits Significant Increase in Overall End-User Capacity, and Greatly Increased Flexibility in Beamforming Operation**
- **Overall System Design Permits Combining of Return Link Power from Both Satellites (i.e., two satellite antennas plus two polarizations = four diversity signal paths)**
  - Power combining enables simple, lower cost, linear polarization on user handset
- **Forward Link Tx Power Requirements is Shared by Two Satellites**
  - Aggregate system EIRP is significantly higher than that available in previous MSS systems

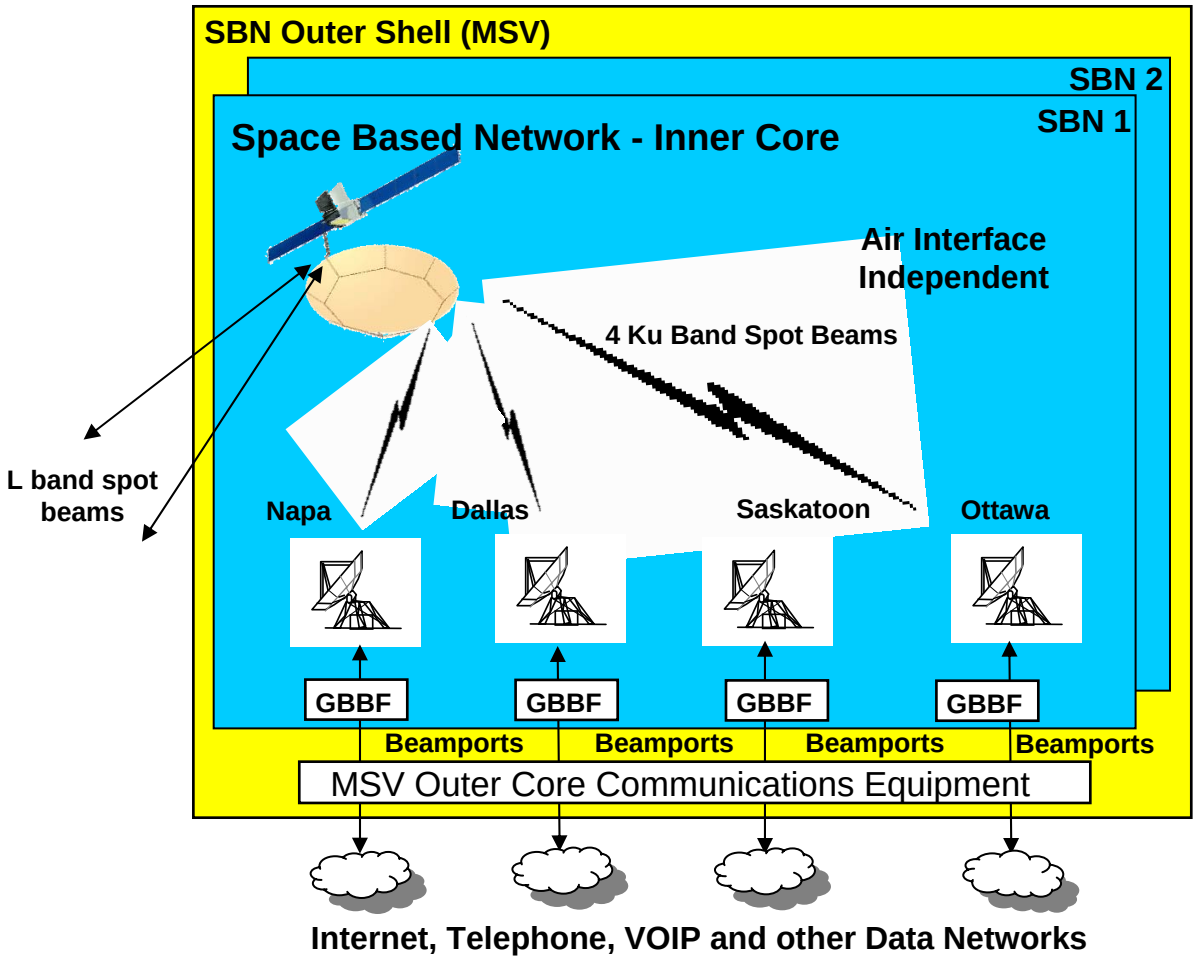
MSV
Mobile Satellite Ventures

Four Gateways Support 30 MHz of L-Band Spectrum

Example L-Band Beamport Spectrum Processing (programmable slots on 2.5 MHz grid)

Gateway 1 Spectrum	Three 2.5 MHz bands
Gateway 2 Spectrum	One 5 MHz band + One 2.5 MHz band
Gateway 3 Spectrum	One 7.5 MHz band
Gateway 4 Spectrum	Three 2.5 MHz bands

- Each gateway processes up to 7.5 MHz of L-band spectrum
- Allocation of 2.5, 5.0 or 7.5 MHz slots between GWs is fully reconfigurable



Satellite channelizes different L band spectrum for each gateway. Each gateway GBBF can processes all beams in a different portion of L band spectrum

MSV Mobile Satellite Ventures