

**BEFORE THE  
FEDERAL COMMUNICATIONS COMMISSION  
WASHINGTON, D.C. 20544**

In the Matter of	)	File No. SES-ASG-20090403-00406
	)	
SkyWave Mobile Communications, Corp.	)	Call-signs: E030120 and E990316
	)	
	)	

**Response and Opposition to  
SkyWave Mobile Communications, Corp.'s  
Application for Assignment of call-signs E030120 and E990316**

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May 27, 2009

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**Executive Summary**

The unique and beneficial technological attributes of the L-band (when compared to other satellite capacities) and the overall lack of existing competition within the L-band makes the Application troubling for MSS Providers and other end-users that depend exclusively on the L-band due to their existing embedded technology which is already deployed over 300,000 mission critical assets and vehicles across North America.

Commenters oppose the Application and believe there are many compelling reasons why its approval would not be in the public interest, including:

- (i) The Application does not adequately disclose the nature, scope, and implications of the proposed Transaction;
- (ii) Based upon the facts discussed herein, approval of this Application would

- a. substantially lessen competition in the provision of L-band satellite communication services;
- b. stifle innovation and delay deployment of advanced satellite services to end-users other than SkyWave's customers;
- c. result in higher prices of MSS services for end-users;

- d. 
- e. 

**I. Summary of SkyWave Mobile Communication's Application**

SkyWave Mobile Communications, Corp. ("SkyWave") filed an application (SES-ASG-20090403-00406) requesting consent to the assignment of certain licenses from AmTech Systems LLC to SkyWave (the "Application"). The Application specifically requests that the Federal Communications Commission (the "Commission") consent to the assignment of two blanket Mobile Earth Stations (Call Signs: E030120 and E990316). SkyWave's Application is related to the proposed acquisition under which, "(i) certain satellite communications assets of Transcore, LP's ("Transcore") and AmTech Systems LLC will be purchased by SkyWave Mobile Communications, Inc. ("SMCI"), (ii) the Amtech licenses will be assigned to licensee SkyWave, and (iii) Inmarsat Canada

Holdings Inc. ("Inmarsat Canada"), a subsidiary of Inmarsat plc ("Inmarsat"), will acquire 21.16% of the outstanding shares (equity and voting) of SMCI, 18.8% on a fully-diluted basis"<sup>1</sup> (the "Transaction").

SkyWave provided a narrative description of the Transaction, which purports to identify the public benefits that will be derived from the granting of such an assignment. On April 29, 2009, the Commission placed its acceptance of the Application for filing on Public Notice. SkyBitz, Inc. ("SkyBitz"), Wireless Matrix Corporation, Xata Corporation, Comtech Mobile Datacom Corporation (collectively, "Commenters" and in all cases, "end-users" of the L-band) and any other mobile satellite service ("MSS") provider companies in the North American geographic territory that are not subsidiaries of SkyWave (each, a "MSS Provider" and collectively, the "MSS Providers") serve commercial customers, U.S. government agencies (such as the Department of Defense and Department of Homeland Security), Federal Law Enforcement, state and local governments, the U.S. military, first responders and local public safety authorities. These end-users utilize MSS solutions to track a broad range of goods such as medical goods, hazardous materials, explosive munitions, commercial freight, and a diverse set of assets such as trailers, railcars, iso-tanks, tankers, containers, boats, barges, power-generators,

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<sup>1</sup> *AmTech Systems, LLC, Transferor; SkyWave Mobile Communications, Corp., Transferee; FCC Form 312 seeking consent to transfer AmTech Systems LLC's satellite earth stations (SES-ASG-20090403-00406), See accompanying Narrative in Exhibit 1, Pgs. 2-3.*

electric transformers, school buses, criminal detainee transfer buses, first responder vehicles, commercial and military vehicles and trucks, and locomotives. Thousands of government and commercial customers are now using services from the MSS Providers to ensure the safety and security of their goods, cargos, assets, and personnel. In a typical month, Commenters provide unique and critical service and support for public safety authorities, including but not limited to responding to:

- (i) Theft and recovery of stolen goods, cargos, and assets;
- (ii) Illegal use and routing of mission critical goods, cargos and assets;
- (iii) Homeland security notification and distress alerts for driver safety;
- (iv) Emergency, accident assistance and roadside services;
- (v) The tracking of sensitive international cargo between the United States, Canada, Mexico, and elsewhere in the world; and
- (vi) The tracking of illegal immigration and criminal activities across North America and within the United States.

**II. The L-Band Is Essential for Delivering MSS Services**

The L-band is essential in the provision of MSS services due to its favorable atmospheric performance, specifically in adverse weather, and its ability to establish a satellite communication link with a small form factor mobile terminal antenna.

Additionally, geosynchronous ("GEO") L-band satellites are capable of providing large geographic footprints with bi-directional, low latency, low data rate point-to-point communication links, which are ideally suited for MSS applications, specifically with

respect to security and safety applications. These capabilities are why the L-band is the preferred band for all military and other government applications.

When designing a MSS service whereby a small form factor mobile terminal with long battery life and bidirectional communication are necessary for mission critical applications (e.g.; tracking cargos containing nuclear material and other hazardous material, covert operations for law enforcement), a GEO L-band service is most practical. As a result, the GEO L-band is uniquely situated to serve the MSS Providers and other L-band users providing security and safety applications because it is the most cost effective and efficient platform.

Delivering these services to a growing customer base has required deep and fundamental technological innovation to integrate GPS, L-band, and at times, cellular service, with extensive embedded (on-device) and off-board (device and network configuration and management) software. This has required hundreds of millions of dollars of investments by a large number of public agencies (DARPA, DOD, and others) and private investors and has resulted in over twenty five U.S. patents and patent applications with new filings for geosynchronous L-Band technology advancements, just from Commenters.

A critical element in the delivery of services over L-band satellites is the fact that two-way L-band communications is used to deliver the location and status-based services like Automatic Hazardous Material ("HAZMAT") Incident Notification, Stolen Asset Location Assistance, Automatic Food-Chain Integrity Intrusion, and Automatic Location

Reporting of Arms, Ammunitions and Explosives. It is this capability that enhances the ability of MSS Providers to provide disaster recovery assistance and emergency response assistance by identifying the location, load and status of pre-positioned first-aid materials, water, food and other vital goods and optimize distribution of these materials into all impacted geographies to save countless lives. In addition, most often, L-band satellite communication is often the only communications channel that functions after natural or other types of disasters. Consequently, an accessible, efficient, affordable and reliable L-band satellite communication infrastructure is at the heart of the MSS Providers' capability to provide these services and serve the public, which is why MSS Providers require L-band satellite capacity.

From a technical perspective, there are no viable alternatives to the L-band that are capable of meeting the performance and technical metrics described above. For example, very high frequency ("VHF") and Ku bands, impose challenges for antenna designs that require directionality (e.g. signal seeking) or physically large antennas, making them impractical for MSS applications. Since VHF electromagnetic transmissions are limited to shorter ranges, they are better suited for non-GEO MSS applications due their range limitations. Ku Band satellite links typically have been designed for the unidirectional supply of large data volumes, such as internet or multimedia, to a large number of subscriber terminals (in the tens of millions). These uplinks are complex and require the development of additional proprietary inventions,

which makes it impractical for use in MSS applications. Consequently, VHF and Ku bands do not offer a reasonable alternative to the L-band.

Another theoretical alternative to GEO L-band are the low-earth orbit ("LEO") satellites which also impose major challenges for MSS applications. The LEO satellite network is a constellation of satellites orbiting the earth that don't have the right characteristics to serve MSS applications efficiently because each satellite provides a relatively small geographic footprint. This smaller geographic footprint combined with the large orbital spacing between satellites results in higher latency in the satellite communication link, which is unacceptable to L-band end-users.

For example, Globalstar's LEO constellation is L-band, but is not a viable alternative due to the fact that (a) the current satellite constellation is only functional for mobile originated messages (i.e.; Simplex), (b) Globalstar utilizes S-Band in the forward path and L-band in the return path and (c) Globalstar can provide a two-way communications but with a latency of thirty minutes to four hours since the forward path only functions on certain number of satellites.

Finally, any instance where the interface between the mobile terminal and the satellite is controlled by a subscriber modem that handles movement of data across the physical layer of the satellite network (as with Iridium) cannot provide an acceptable alternative to L-band capacity. Iridium's modem utilizes a hybrid frequency division multiple access/time division (FDMA/TDMA) architecture. Both the L-band downlink channels and the uplink channels use differentially encoded quaternary phase shift keying



(DE-QPSK) whereas the uplink acquisition and synchronization channels both use differential encoded binary phase shift keying (DE-BPSK). The complexity of the modulation and multiplexing scheme is to maximize link margin and network access for short burst data, however, when satellite network access is limited to the data link layer, or at higher OSI model layers, it precludes innovation and advancement in application specific RF modulation techniques, waveforms for maximizing link margin, and multiplexing technologies optimized for the low data rate ("LDR") application.

The technology advances for low latency, power efficient LDR solutions will be lost in situations where the MSS Provider is required to utilize a modem as described above. Typically, the message delivery time (or "latency") depends on the specific modem set-up, message size and location of the remote mobile terminal. For example, in the continental United States, ORBCOMM (who provides service through subscriber modems) was committed to providing 90% of all message traffic in six minutes or less, and 98% of all message traffic in fifteen minutes. The lack of current information using a subscriber modem infrastructure is unacceptable to L-band end-users as it does not provide the real-time information they require. Therefore, any satellite capacity providers that include a framework where a physical layer interface is controlled by a modem and where the data link layer is non-deterministic cannot provide viable alternatives to the L-band.

Even if, from a technological perspective, any acceptable alternatives to the GEO L-band existed, it would be extremely difficult for end-users to migrate to a different

band, as there is no technical or economically feasible commercial solution to allow migration of the existing customer base to a different frequency band. Even if such a solution were developed, these remote assets are scattered across the entire United States, Canada, and Mexico and many are placed in remote areas which are not easily accessible, making it impossible to retrofit L-band hardware while assuring reliable, uninterrupted delivery of services to the existing government and commercial customers.

Despite the clear benefits of using the GEO L-band for unique applications developed for targeted customer segments, the GEO L-band remains a unique marketplace with very little competition. Currently, Inmarsat and SkyTerra Communications Inc. and SkyTerra (Canada) Inc. (collectively "SkyTerra") are the only direct providers of GEO L-band capacity to MSS Providers and other end-users in the North American Market. This limited competition is especially troubling because both Inmarsat and SkyTerra have a major common shareholder, Harbinger Capital Partners Funds ("Harbinger")<sup>2</sup> who is seeking FCC approval to transfer control of SkyTerra Subsidiary LLC, a Commission licensee, from SkyTerra Communications Inc. to Harbinger. Commenters submit that the limited state of competition among L-band

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<sup>2</sup> *Harbinger holds approximately 49 percent of the equity and approximately 48 percent of the voting interests in SkyTerra Communications Inc., along with warrants for additional voting shares in SkyTerra Communications Inc. In addition, based on publicly available information, Harbinger holds approximately 29 percent of the issued and outstanding voting shares of Inmarsat plc and holds convertible bonds in Inmarsat plc.*

capacity providers should be of special concern to the Commission, as it endeavors to understand the implications of this Application for the MSS Providers and other L-band end-users that depend exclusively on the GEO L-band.

**III. The Application is Incomplete.**

SkyWave asserts its belief that granting the Application "...will provide public interest benefits with no offsetting public interest harms."<sup>3</sup> Commenters believe the Application must be rejected in its present form because it does not contain sufficient information to allow the Commission to conclude that its approval would be in the public interest. The Application materially fails to provide a full description of the Transaction, and completely ignores numerous and substantial negative impacts on MSS Providers and other end-users using L-band capacity.

SkyWave has endeavored to provide some background information regarding the Transaction in its narrative attached to the Application as Exhibit 1. In it, SkyWave describes the basic structure of the Transaction and the benefits that will be realized by SkyWave and Transcore's customers. Commenters believe that the Commission must be fully informed of the restrictive trade practices included in the Transaction to evaluate the

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<sup>3</sup> *AmTech Systems, LLC, Transferor; SkyWave Mobile Communications, Corp., Transferee; FCC Form 312 seeking consent to transfer AmTech Systems LLC's satellite earth stations (SES-ASG-20090403-00406), See accompanying Narrative in Exhibit 1, Pg. 4.*

harms that will result to MSS Providers and other end-users as a result of the Transaction. This will also afford SkyWave an opportunity to articulate why such harms are outweighed by the limited public interest benefits they have identified. Commenters believe that SkyWave must be compelled to disclose such information and make a compelling case as to why the resulting harms should not be given substantial weight by the Commission during the review process.

[REDACTED]

Business dealings between Commenters and Inmarsat over the past year have led to the discovery of additional terms and conditions which are a part of this Transaction and which should be assessed by the Commission. [REDACTED]

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For the reasons identified herein, we believe that the Application is not complete and must, therefore, be amended before the Commission can act on it. **The amended application and narrative description must contain all of the relevant facts, information and analysis including, but not limited to, all documentation related to the Transaction and Inmarsat's role in such Transaction.** The amended application filing must explain how Inmarsat will ensure non-discriminatory treatment of all MSS Providers and other end-users with respect to capacity, availability and contractual terms and conditions, including, but not limited to, fair and reasonable pricing and equal flexibility and responsiveness. The Commission should require SkyWave to amend the Application and provide information sufficient in scope and detail to allow the Commission to comprehensively assess whether assignment of the licenses in question would be in the public interest.

**IV. Based Upon Information Known to Date, The Proposed Transfer Does Not Serve the Public Interest.**

Pursuant to Section 310(d) of the Communications Act of 1934, as amended (the "Act"), the Commission will approve a proposed assignment if, after weighing the potential public interest harms [of the Transaction] against the potential public interest benefits, it concludes that, on balance, doing so would serve the public interest, convenience, and necessity.<sup>4</sup> SkyWave's narrative fails to adequately discuss how the public interest will be served by the Transaction, as SkyWave's focus is limited to how SkyWave's customers will benefit from the Commission's approval of the Application while neglecting to mention the restrictive trade covenants included by Inmarsat. Commenters believe that SkyWave could have easily outlined these restrictions in the Application, which would have allowed the Commission to review and determine whether other end-users in the L-band would be negatively impacted. Commenters believe it is obvious that SkyWave failed to disclose the existence of and consequences of these covenants in the Application because they so clearly demonstrate to the Commission that the anticompetitive harms associated with the Transaction outweigh the alleged benefits that will be bestowed upon a small population of L-band end-users. The Commission has stated that its public interest evaluation is governed by "...a deeply

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<sup>4</sup> *Id.*

rooted preference for preserving and enhancing competition in relevant markets, accelerating private-sector deployment of advanced services, ensuring a diversity of license holdings, and generally managing the spectrum in the public interest."<sup>5</sup> In addition, the Commission can also assess "...whether the proposed Transaction will affect the quality of communications services or will result in the provision of new or additional services to consumers."<sup>6</sup> Based upon the facts discussed herein related to the Transaction, Commenters believe in fact that the Transaction will (i) actually eliminate competition for end-users (as a result of the Covenant), (ii) delay deployment of advanced satellite services to end-users other than SkyWave's customers, (iii) result in higher pricing to end-users at the expense of higher margins for SkyWave and Inmarsat, and (iv) ultimately reduce the affordability of MSS services for end-users.

Based on the limited set of facts regarding the Transaction that are available to us, we believe approval of this Transaction will have at least these negative effects:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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<sup>5</sup> *Robert M. Franklin, Transferor; Inmarsat, plc, Transferee*, Memorandum Opinion and Order and Declaratory Ruling, WC Docket No. 07-73, ¶ 28 (2007).

<sup>6</sup> *Id.*



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<sup>8</sup> *Robert M. Franklin, Transferor; Inmarsat, plc, Transferee, Re: Notice of Ex Parte Presentation IB Docket No. 08-143, DA 08-1659, Pg. 8 (Feb 27, 2009).*

[REDACTED]

**D. This Application Does Not Present Vertical Integration Efficiencies.**

Commenters believe that the Transaction also raises an issue with respect to vertical integration within the L-band and feel that Inmarsat's involvement in the Transaction underlying the Application raises questions about what level of vertical integration within the satellite industry is advisable or beneficial. The Commission recently approved the transfer of control of Stratos to Inmarsat and found that the perceived vertical integration concerns expressed by Vizada, Inc. ("Vizada") relating to the transfer of control were not valid.<sup>9</sup> The Commission concluded that the vertical integration of Inmarsat and Stratos would create efficiencies, in part, by enabling "...Inmarsat to sell directly to resellers and end-users and [by] the extension of uniform discounts by Inmarsat to all resellers in place of discount arrangements favoring legacy distributors".<sup>10</sup> Additionally, the Commission felt that coordination between the deployment and assignment of satellite capacity and

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<sup>9</sup> *Robert M. Franklin, Transferor; Inmarsat, plc, Transferee*, Memorandum Opinion and Order and Declaratory Ruling, IB Docket No. 08-143, ¶ 53 (2009).

<sup>10</sup> *Id.*

the sales and marketing of retail satellite services would be improved as a result of vertical integration<sup>11</sup>.

The arguments made in favor of vertical integration in the Inmarsat-Stratos transaction were largely predicated on (i) Inmarsat being able to sell satellite capacity to a broad range of MSS Providers and other end-users, (ii) by ensuring uniform pricing and (iii) streamlining capacity and marketing within the sector. In this instance, the Transaction (i) does not provide for uniform pricing and [REDACTED]. As a result, we believe that the current Transaction clearly does not contain any of the pro-competitive efficiencies stated in Inmarsat-Stratos transaction. Instead, based upon information known to date, the Inmarsat-Stratos analysis dictates rejection of the Application.

Like the Commission, Commenters did not express a concern with respect to vertical integration in the Inmarsat-Stratos transaction; however, a close review of all aspects of the current Transaction, the current state of competition, and the business practices being used by Inmarsat, serve to underscore the dangers of attempted monopolization through vertical integration. [REDACTED]

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<sup>11</sup> *Id.*

[REDACTED]

[REDACTED] Commenters submit that if the Commission (and the Commenters) had believed that the facts discussed herein would result from the Inmarsat-Stratos transaction, then such transaction would not have been approved. Commenters would certainly have vigorously opposed it, and unanimously urge the Commission to take whatever steps are possible to mitigate the adverse effects of that transaction. Commenters believe that the Commission must have continuing oversight authority regarding satellite distribution arrangements.

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**V. MSS Providers' Objectives**

A. Commenters believe that the Application should be preliminarily denied because it does not disclose all of the details and conditions with respect to the Transaction that will impact L-band end-users nor does the Application provide adequate detail to address the effect of the proposed vertical integration on the MSS Providers.

B. The Application must be denied or, in the alternative, conditions must be placed upon Inmarsat that remedy any restrictions posed by the Transaction. Thus, at a minimum and based upon knowledge to date, the remedy should be that the Transaction and approval of the Application should be conditioned upon the following:

- (i) All MSS Providers must be treated equally by Inmarsat such that a MSS Provider must be offered bare capacity (i.e.; power and bandwidth) in the L-band from Inmarsat or one of its satellite capacity resellers at pricing and contractual terms no less favorable than the pricing and the terms that Inmarsat is or will be providing to SkyWave. The Commission must make it clear that Inmarsat's satellite capacity resellers are free to provide MSS Providers with L-band capacity at any time, and that they are prohibited



from refusing to deal with any MSS Provider regarding the provision of capacity on Inmarsat's L-band;

- (ii) Inmarsat must be compelled to provide unconditional (hot or other types) back-up to MSS Providers at pricing and contractual terms and conditions no less competitive than the pricing and contractual terms that Inmarsat is or will be providing to any provider; and
- (iii) The Covenant and other restrictions must be eliminated altogether.

Respectfully submitted,

**SkyBitz, Inc.**

By: /s/  
Name: Homaira Akbari  
Title: President and CEO

**Wireless Matrix Corporation**

By: /s/  
Name: J. Richard Carlson  
Title: President and CEO

**Xata Corporation**

By: /s/  
Name: Jay Coughlan  
Title: Chairman and CEO

**Comtech Mobile Datacom Corporation**

By: /s/  
Name: Daniel S. Wood  
Title: President