Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Mobile Satellite Ventures Subsidiary LLC	)	
	)	
Application for Minor Modification of Space Station License (AMSC-1)	)	File No. SAT-MOD-20090429-00047
	)	
Application for Minor Modification of Space Station License (MSV-1)	)	File No. SAT-MOD-20090429-00046
	)	
Application for Minor Modification of Blanket License to Operate Mobile Earth Terminals (MSAT-1)	)	File No. SES-MOD-20090429-00536
	)	

REPLY TO CONSOLIDATED OPPOSITIONS

Amtech Systems LLC ("Amtech"), by its attorneys and pursuant to Section 309(d) of the Communications Acts of 1934, as amended, and Section 25.154 of the rules of the Federal Communications Commission ("FCC" or "Commission")[1] hereby replies to the Consolidated Opposition filed by SkyTerra Subsidiary LLC ("SkyTerra")[2] and the Consolidated Opposition of Inmarsat Global Ltd. ("Inmarsat")[3] filed in response to Amtech's Petition to Deny.[4] The Oppositions of SkyTerra and Inmarsat to Amtech's Petition to Deny fail to provide any evidence that the proposed ATC network will be capable of operating without causing harmful interference to the tens of thousands of terminals served by Amtech.

Under Section 1.3 of the Commission's rules, the Commission has authority to waive its

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1 47 U.S.C. § 309; 47 C.F.R. § 25.154.

2 Consolidated Opposition of SkyTerra Subsidiary LLC (filed July 23, 2009) ("SkyTerra Opposition").

3 Consolidated Opposition of Inmarsat Global Ltd. (filed July 23, 2009) ("Inmarsat Opposition").

4 Petition to Deny of Amtech Systems LLC (filed July 10, 2009) ("Petition to Deny").

rules only "for good cause shown."[5] Good cause exists if "special circumstances warrant a deviation from the general rule and such deviation will serve the public interest" better than adherence to the general rule.[6] SkyTerra's waiver requests both undermine the rules at issue and fail to serve the public interest. In fact, SkyTerra concedes that Amtech's customers will receive harmful interference, but claims that the confidential, non-record Coordination Agreement between SkyTerra and Inmarsat must be upheld, even at the expense of the public interest in protecting these customers from harmful interference. Because SkyTerra fails to meet the waiver standard, the pending applications must be denied.

I. AMTECH'S CUSTOMERS WILL BE HARMED BY SKYTERRA'S PROPOSED OPERATIONS, AND THEREFORE AMTECH HAS STANDING TO OPPOSE SKYTERRA'S APPLICATIONS.

Under Section 309(d) of the Act, a party has standing to file a petition to deny if grant of an application would result in, or be reasonably likely to result in, some injury of a direct, tangible or substantial nature.[7] In opposing Amtech's Petition to Deny, SkyTerra claims that Amtech lacks standing to oppose SkyTerra's waiver requests, largely because SkyTerra asserts that Amtech has no customers.[8] This assertion is entirely inaccurate. Amtech provides service to customers through tens of thousands of mobile earth terminals. As Amtech made clear in its Technical Annex, Amtech uses its mobile earth terminals to provide remote and mobile asset tracking, monitoring and control solutions, primarily for the transportation industry.[9] Amtech in fact provides service to 20,131 terminals. Because of the nature of the transportation industry, these terminals are used throughout the United States, in both urban and suburban environments, and consequently will be affected no

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5 47 C.F.R. § 1.3; *WAIT Radio v. FCC*, 418 F.2d 1153, 1159 (D.C. Cir. 1969).

6 *Northeast Cellular Telephone Co. v. FCC*, 897 F.2d 1164, 1166 (D.C.Cir. 1990).

7 *Applications for Transfer of Control of the Telesis Corporation from the Trustees of the Central States, Southeast and Southwest Areas Pension Fund to the Equitable Life Assurance Society of the United States Application for Review*, Memorandum Opinion and Order, 68 FCC 2d, ¶ 8 (1978).

8 SkyTerra Opposition at 14.

9 Petition to Deny, Technical Annex at 2-3.

matter where SkyTerra's base stations are located.

SkyTerra's claim that Amtech's customers do not require interference protection because Amtech's services are "store-and-forward" services that do not require constant signal availability is also misleading.[10] In fact, many of Amtech's critical applications are security related, so that timely transmission of information is paramount. If the forward transmission link is interrupted by interference, then terminals will not be allowed to transmit and the information will be delayed, potentially too long. Moreover, based on the interference protection provided by the current rules, Amtech has assured customers a certain level of service, letting customers know that they will be able to receive service "with no dead spots" and "any time you want."[11] For these reasons, Amtech unquestionably has standing to oppose SkyTerra's modification application, which requests waiver of the rules designed to protect Amtech's customers.

II. ANY INTEREST IN THE PRIVATE AGREEMENT BETWEEN SKYTERRA AND INMARSAT DOES NOT OUTWEIGH THE PUBLIC INTEREST.

It is well established that the Commission cannot rely on non-record evidence to waive compliance with agency rules and grant authority such as that requested by SkyTerra.[12] SkyTerra and Inmarsat, however, seemingly ignore this requirement and base much of their rationale for approval of the requested waivers on the existence of a confidential Coordination Agreement between SkyTerra and Inmarsat.[13] Inmarsat claims, without disclosing any technical information regarding how Amtech customers will be affected, that the Coordination Agreement actually

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10 SkyTerra Opposition at 9.

11 *See* Slap & Track Trailer Tracking at 1. *See also* Cablink In-Cab Communications; ReeferTrak – Monitor and Control Reefer Assets; and Sense & Track Trailer Tracking and Monitoring. These marketing materials are included as Attachment A.

12 *See Ralpho v. Bell*, 569 F. 2d 607, 628 (D.C. Cir. 1977). *See also North American Broadcasting Co., Inc*., Decision, 21 FCC 2d 631, 633 (Rev. Bd. 1970), *Chapman Radio and Television Company*, Memorandum Opinion and Order, 6 FCC 2d 768 (Rev. Bd. 1967).

13 SkyTerra Opposition at 11-14; Inmarsat Opposition at 2 and 5

benefits Amtech.[14] Although SkyTerra's argument for waiver is based almost wholly on the existence of this Coordination Agreement, neither SkyTerra nor Inmarsat have yet disclosed the technical parameters of this Coordination Agreement to Amtech.[15] It is difficult to see how Amtech or any other potentially affected parties fully can evaluate the interference potential of SkyTerra's planned operations when many of the critical details of these operations is withheld. Prior to any action by the Commission, SkyTerra must be required to disclose the technical parameters of the Coordination Agreement to Amtech and other affected parties.

Moreover, the private agreement of Inmarsat and SkyTerra cannot be used to define the rights of the public to receive services without interference. SkyTerra and Inmarsat argue that the Commission must give deference to the private Coordination Agreement.[16] However, there is no reason to think that the private agreement will provide adequate protection for Amtech's customers. As Amtech explained in its Petition to Deny, the Coordination Agreement is an agreement between Inmarsat and SkyTerra.[17] This agreement consequently was drafted to protect the interests of these two parties, not third parties such as Amtech and the thousands of terminals to which Amtech provides service. SkyTerra and Inmarsat claim that the Commission must uphold the Coordination Agreement and protect the interests of the two private parties, even if protecting these interests would cause harmful interference to the customers who have an expectation of service from parties such as Amtech.

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14 Inmarsat Opposition at 2.

15 SkyTerra's claim that the Coordination Agreement is public is disingenuous; although the existence of the Coordination Agreement is public, the technical parameters of the Agreement that might harm or protect a third party such as Amtech are confidential. While claiming that Amtech should request such information from Inmarsat, SkyTerra also argues that "information pertaining to L-band frequency coordination is confidential to the parties to the agreement." SkyTerra Opposition at 14, n. 28.

16 SkyTerra Opposition at 11-16; Inmarsat Opposition at 5.

17 Petition to Deny at 8.

III. SKYTERRA'S ARGUMENT THAT AMTECH'S CUSTOMERS SHOULD NOT BE PROTECTED FROM INTERFERENCE IS NOT SUPPORTED BY LAW OR PRECEDENT.

SkyTerra admits that Amtech's METs will receive harmful interference from SkyTerra's ATC operations, but, nevertheless asks the Commission to deny Amtech's customers protection from interference. Inmarsat similarly suggests that Commission protection is not required because Amtech's interference concerns can be resolved through commercial solutions.[18] However, waiving FCC rules to allow SkyTerra to cause interference to Amtech's customers would explicitly defy the Commission's statutory mission, which is to reduce interference that will disrupt the provision of service to the public. Specifically, Sections 301 and 303(f) of the Communications Act require the Commission to minimize interference for licensees.[19] Amtech is a primary user of the L-band spectrum and through this spectrum allocation, provides service to tens of thousands of mobile earth terminals. Allowing SkyTerra to deploy a system that would cause interference to Amtech would totally invert the Commission's statutory mission to protect end-user customers from interference.

SkyTerra further asserts that Section 25.255 is only available to protect satellite operators, not the consumers served by L-band spectrum.[20] SkyTerra claims that Section 25.255 of the Commission's rules does not protect operators such as Amtech, because Amtech is not "an adjacent MSS operator."[21] SkyTerra's argument that Amtech does not operate MSS satellites and consequently seeks "new rights" is not supported by law or precedent. Amtech provides MSS to customers as envisioned by the original allocation in the L-band. By contrast, SkyTerra seeks to provide ATC operations, which are only permitted in the L-band on a non-harmful interference

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18 Inmarsat Opposition at 3-4.

19 47 U.S.C. §§ 301 and 303(f).

20 SkyTerra Opposition at 13.

21 *Flexibility for Delivery of Communications by Mobile Satellite Service Providers in the 2 GHz Band, the L-Band, and the 1.6/2.4 GHz Bands; Review of the Spectrum Sharing Plan Among Non-Geostationary Satellite Orbit Mobile Satellite Service Systems in the 1.6/2.4 GHz Bands*, Report and Order and Notice of Proposed Rulemaking, 18 FCC Rcd 1962, ¶ 104 (2003) ("2003 ATC Order").

basis.[22] The Commission's rules should not be interpreted to allow mobile earth terminal operators such as Amtech, who are primary users of the spectrum, to be harmed by interference from ATC operators. Moreover, even if Section 25.255 of the rules is interpreted narrowly to benefit only SkyTerra and Inmarsat, the Commission has ample authority—indeed a statutory obligation—to deny SkyTerra waivers that would cause harmful interference to Amtech's operations.

IV. ALTHOUGH SKYTERRA HAS NOT PROVIDED ADEQUATE INFORMATION ABOUT HOW ATC WILL BE DEPLOYED, IT IS CLEAR THAT THE PROPOSED OPERATIONS WILL CAUSE OVERLOAD INTERFERENCE.

SkyTerra attempts to downplay Amtech's interference concerns by arguing that Amtech's interference calculations are inaccurate.[23] However, as explained by Amtech in the Technical Annex filed with the Petition to Deny, a full technical analysis is not possible without complete information, much of which is contained in the confidential portions of Inmarsat and SkyTerra's Coordination Agreement.[24] Furthermore, SkyTerra has not provided information about how its proposed ATC system will be deployed or the technical parameters, including the number of and power levels of its base stations. In opposing Amtech's Petition to Deny, SkyTerra continues to withhold specific technical information.[25] Despite this lack of information both in the original application and SkyTerra's Opposition, it is clear that SkyTerra's proposed operations will cause harmful interference to Amtech's customers.

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22 *Id*. at 2017 (¶ 104) ("We adopt technical parameters for ATC operations. . . designed to protect adjacent and in-band operations from interference from ATC.").

23 SkyTerra Opposition at 7-8.

24 Petition to Deny, Technical Annex at 1-2.

25 For example, SkyTerra notes that Amtech questioned whether SkyTerra is requesting an unlimited waiver of the out-of-channel-emission ("OOCE") limits for any base stations not located near airports or waterways. SkyTerra responds that it will "operate all base stations within the same OOCE limits," but does not provide any specifics regarding what these limits will be. *See* SkyTerra Opposition, Technical Appendix at 3.

A. SkyTerra's Proposed Power Level Will Cause Harmful Interference to Amtech's Customers.

A perfect example of the problems caused by SkyTerra and Inmarsat's refusal to disclose the technical portions of the Coordination Agreement to Amtech is evidenced by SkyTerra's claim that it will operate at powers lower than that used in Amtech's analysis. In its Opposition, SkyTerra claims for the first time that it seeks to operate at 42 dBW EIRP, which is 3 dB lower than the level used in Amtech's analysis.[26] First of all, it is difficult to understand why SkyTerra did not simply state that it planned to operate at 42 dBW in its original application. Nevertheless, because Amtech did not have complete information available regarding the technical parameters of SkyTerra's ATC operations, there was no way Amtech could have been aware of this value – or any other parameters kept in the confidential agreement between Inmarsat and SkyTerra.

In any event, although this amount is lower, it is still a sizable increase in power from current allowable levels. Even at 42 dBW, the increased interference risk is severe when compared to the current 31.9 dBW limit.[27] A 42 dBW power limit will cause harmful interference to Amtech's receivers.[28] As shown in Section 4.1 of the Technical Annex, for terminals in a suburban environment more than 2 MHz from ATC base stations, the size of exclusion zone around each base station will expand from 0.03 km^2 to 1.4 km^2 and 11.3 km^2, depending on the propagation model. For terminals less than 2 MHz from ATC base stations, the size of exclusion zone around each base station will expand from 0.03 km^2 to 5.7 km^2 and 71.5 km^2, depending on the propagation model.

Moreover, SkyTerra claims that Amtech should not receive interference protection because it operates equipment with a wide-open front end, which increases susceptibility to interference.[29] SkyTerra's complaint that Amtech's receivers are "wide open" refers to the capability of Amtech

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[26] SkyTerra Opposition, Technical Appendix at 1.

[27] The difference in power between the permissible level of 31.9 dBW and that of SkyTerra's proposed 42 dBW is over 10 fold.

[28] *See* Technical Annex at 8-11.

[29] SkyTerra Opposition at 9-10.

terminals to receive signals in the MSS bands from 1525 MHz to 1559 MHz. Although SkyTerra suggests that Amtech could improve this design to avoid interference,[30] it is not possible to design to exclude the ATC frequencies from the terminals (e.g., by changing the L-band receive filter bandwidth). First, because no frequency plan has been published and been made public to parties such as Amtech, terminals cannot be designed to filter out ATC frequencies in favor of MSS-only frequencies within the L band. Moreover, Amtech's terminals are used for tracking and data communications applications spanning multiple continents and multiple satellites and therefore need to be able to switch frequencies. An MSS frequency that is allocated to SkyTerra's ATC operations in the United States may be allocated to mobile earth terminal networks on other continents, which precludes designing out the capability to operate on the ATC frequencies. In short, Amtech has specifically chosen this equipment because it allows Amtech to provide flexibility, competition, and continuity of service for its customers without regard to individual satellite operators' frequency use.

B. SkyTerra's criticism of Amtech's propagation model is unfounded.

As described in Section 3 of the Technical Annex, the propagation model used by Amtech has been employed and validated by the Commission for use in both urban and suburban environments. Amtech's customers operate land mobile terminals in both urban and suburban environments and SkyTerra has not committed to limit its base stations to solely urban environments. The model employed by SkyTerra provides only a best case analysis that likely understates real world interference. In particular, SkyTerra's non-line-of-sight propagation model is not appropriate for when Amtech's land mobile terminals operate in a suburban environment. It also fails to account for the fact that ATC base station antennas likely would be mounted as high as possible to promote line-of-sight reception to ATC receivers. Indeed, the favorable path loss results

[30] *Id*.

SkyTerra achieved using its propagation model may be the result of the assumed unrealistic placement of ATC antennas in locations surrounded by tall buildings. In the real world environment, Amtech's proposed use of the Walfisch-Ikegami LOS model would be more appropriate. Amtech recommends that Commission-monitored testing may be an appropriate way to reconcile the disparate propagation models and determine the amount of real world interference.

V. SKYTERRA'S PROPOSAL WOULD UNDERMINE THE INTERMODULATION RULE AND CANNOT BE GRANTED BY WAIVER.

Waiver is not available to SkyTerra because waiver would undermine the purpose of the Commission's intermodulation rule.[31] Amtech asserted in its Petition to Deny that SkyTerra's plan to deploy broadband carriers would undermine the entire scheme of intermodulation protection.[32] Specifically, Section 25.253(h) contemplates a coordination process between ATC and MSS operators to resolve intermodulation interference.[33] However, this process was developed based on an assumption of narrowband modulation. With narrowband modulation, carriers can change frequencies to avoid interference. Broadband carriers cannot change frequencies. SkyTerra provides no response to this argument. Because carriers would not be able to change frequencies to avoid intermodulation interference, SkyTerra's proposed waiver would eviscerate Section 25.253(h) of the Commission's rules and cannot be granted.

Moreover, SkyTerra provides a startling admission that intermodulation interference will cause a 104 km^2 area exclusion zone around each ATC base station.[34] SkyTerra claims that this will only result in an exclusion zone of "less than two percent of the typical market."[35] This claim of less than two percent interference is misleading. Although SkyTerra has not provided a deployment

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31 *See supra* notes 5 and 6 and accompanying text.
32 Petition to Deny at 7-8.
33 47 C.F.R. § 25.253.
34 SkyTerra Opposition at 8.
35 *Id*.

plan, it seems evident that SkyTerra plans to build a cellular-like system, which would likely require deployment of hundreds of base stations.[36] If a 104 km^2 area exclusion zone exists around each base station, huge areas of non-reception would disrupt the ability of Amtech's customers to receive service.

Nevertheless, even assuming only a single ATC base station is deployed in the biggest cities, a 104 km^2 area exclusion zone would prevent reception by Amtech's customers in entire cities. Moreover, as shown in the Technical Annex, the exclusion area could be much larger than 104 km^2, and possibly could be as large as 715 km^2. Each of these exclusion zones are plotted on a map of the Washington, D.C.- Baltimore area attached as Attachment B. This map shows that even if SkyTerra deployed ATC base stations only in the top 100 biggest cities, all of Washington, D.C. and much of Baltimore would be included in exclusions zones within which Amtech's customers would be prevented from receiving service.

VI. CONCLUSION.

As demonstrated above, grant of SkyTerra's requested waivers would cause harmful interference to Amtech's customers. Accordingly, Amtech urges the Commission to deny SkyTerra's pending modification application.

Respectfully submitted,

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[36] SkyTerra Opposition at 2-3.

ATTACHMENT A

TransCore®

Slap & Track™

Trailer Tracking

powered by GlobalWave®

Track and monitor trailers in real time, to protect your assets

TransCore's Slap & Track™ is a rugged, compact, 100% satellite terminal easily mounted on loaded or empty trailers to track assets anywhere in North America – with no dead spots. Providing up to six years of battery life, Slap & Track communicates critical location information to you and your customers via a web interface any time you want.

Prevent loss and theft. Slap & Track eliminates the worry and expense of retrieving trailers that have been lost due to error, driver neglect or theft. Find stolen or misplaced trailers anywhere in North America, within 30 minutes or less.

Improve asset management. Slap & Track delivers precise location reports on schedule or on demand, so dispatchers can assign routes efficiently without time-consuming yard checks or driver check calls. Analyze tractor-to-trailer ratios, and adjust them for maximum effectiveness.

Removable battery lasts six years. Replaceable battery packs optional. Thanks to intelligent power management, batteries last up to six years with normal use (see reverse page). On units featuring a removable battery pack, the battery can be replaced quickly and easily, without breaching the unit's electronics or removing the mobile terminal itself.

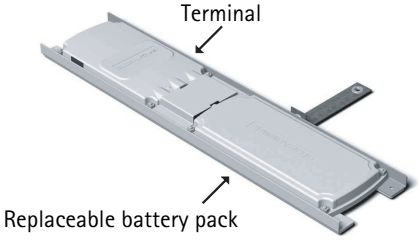
Install in 15 minutes, configure remotely. Slap & Track installation takes less than 15 minutes, whether the trailer is loaded or empty.

Integrates with major dispatch software such as ICC, Maddocks, McLeod and TMW.

Add revenue sources. Use data from Slap & Track to assess detention billing and other value-added services that meet customer demands for just-in-time delivery and inventory control.

Slap & Track™

- 100% satellite coverage, with no dead spots in North America
- Low-profile terminal installs in less than 15 minutes, on empty or loaded trailer
- Battery lasts up to six years with normal use.* NEW! Replaceable battery pack available.
- NEW! Stop/start sensor for automatic arrival/departure reports, longer battery life.



TRANSCORE

TransCore®
Slap & Track™
Trailer Tracking

powered by GlobalWave®

Product Profile

Low-profile unit tolerates extreme conditions. The Slap & Track Mobile Terminal is a single, integrated unit that includes batteries and an antenna. (Batteries are replaceable on some models.) The low-profile package is less than an inch high, so it is inconspicuous when installed on the roof of a trailer or shipping container. Designed for rugged automotive use in all weather conditions, Slap & Track operates normally within temperature ranges from -104° (below zero) up to 185° Fahrenheit (-40° to +85° Centigrade.)

REPORTING

Slap & Track produces four types of reports:

1. Polls for real-time GPS location
2. Pre-scheduled, configurable reports at your choice of intervals
3. Temperature-and-battery event-based reports when parameters exceed user-defined thresholds
4. NEW! Automatic stop and start detection and notification, configurable over the air

POWER

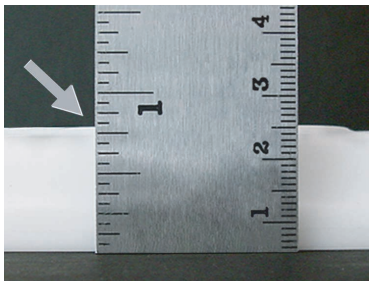
NEW! Removable lithium battery pack can be replaced without opening the sealed mobile terminal unit. Battery pack lasts up to six years under normal operating procedures.*

MODELS AVAILABLE

MT3300 and MT3400 (with replaceable battery pack) mobile terminals.

* Two reports per day, with a 30-minute wake-up cycle per report, and the device reverting to battery-conserving "sleep" mode between reports. Users can set Slap & Track to wake up, locate, and report within 60 seconds, but this rapid-response mode, if used repeatedly, will impact battery life.

Figure 1 Low Profile



Low profile of 0.8 inches allows the Slap & Track Mobile Terminal to be mounted almost anywhere.

Phone: 1.800.529.7634 Fax: 1.503.574.1006 email: inquiries@transcoretracking.com
www.TransCoreTracking.com

TransCore®

CabLink™

In-Cab Communications

powered by GlobalWave®

Cost-effective, 100% satellite in-cab communications and analytics.

Cut fuel costs, improve driver performance and save dispatch time.

CabLink is a complete in-cab tracking and communication solution. CabLink makes dispatchers and drivers more efficient, and enables carriers to monitor driver behaviors that can cost your company as much as 30% of purchased fuel. Accurate monitoring in real time of idling, speeding and out-of-route miles can save tens of thousands of dollars per truck, per year.

CabLink provides timely, accurate data to improve safety and increase productivity.

- Location tracking
  - Eliminate out-of-route miles, with advanced geofencing
  - Replace check calls with automated reports
  - Accurate International Fuel Tax Agreement (IFTA) fuel and mileage reporting, including state line crossings
  - Automatic stop/start and arrival/departure notices to improve scheduling and billing management
- Engine diagnostics
  - Provides data for all the most common fault codes to monitor idling, speeding and improper shifting
  - Earlier detection and diagnisis helps reduce costs
- Enhanced two-way communications
  - Text-based dispatch and status reports, for improved accuracy
  - NEW! Rugged, compact Windows-based, WiFi-ready notebook
  - NEW! Google™ maps integrated to provide accurate, up-to-date interactive maps in real time
  - NEW! Automatically tracked driver logs, for accurate hours-of-service reporting (optional)
  - NEW! Miles per gallon tracking
- Custom configurations, flexible settings
  - Re-set report frequency and thresholds over the air
  - Locate trucks on demand, to recover lost or stolen property
- Easy, inconspicuous installation
  - Low-profile terminal mounts on top of cab or in headliner, hidden from view
- Full software integration
  - CabLink integrates seamlessly with major dispatch software programs
  - CabLink is a comprehensive solution, including mobile terminal, in-cab computer, asset management software and two-way satellite communication.

CabLink™

Two-way driver communication

Features

- In-cab text messaging, location tracking and engine diagnostics
- NEW! Choice of rugged, in-cab messaging keypad or notebook that runs Microsoft Windows® applications and is WiFi-ready
- Replaces cell phones and check calls with 100% satellite coverage. No dead spots.
- NEW! Ability to track MPG usage daily for increased fuel efficiency.,

TRANSCORE

TransCore®
CabLink™
In-Cab Communications

powered by
GlobalWave®

Location tracking: Find your assets instantly.
TransCore's CabLink is a compact, 100% satellite communications mobile terminal that polls truck locations and sends/receives reports from anywhere in North America. Eliminate driver call-ins and driver checks with automatic stop/start and arrival/departure reports. Reduce out-of-route miles and choose the most cost-effective routes with geofencing.

Engine diagnostics: Reduce fuel and maintenance costs.
CabLink's on-board processor plugs into the J1708 engine bus, where it gathers data and generates reports for engine fault codes, speeding, over-revving and idling. CabLink also generates accurate mileage and state line crossing data for IFTA tax and mileage reporting. Identify mechanical issues and schedule maintenance in time to prevent costly breakdowns.

Enhanced two-way communications: Reduce costs, improve productivity and asset utilization. CabLink's two-way messaging includes precise status and shipment update forms, and text messaging between driver and dispatcher. No more check calls. Dispatchers automatically receive a complete, accurate daily location report for every truck.

CabLink web platform: Easy to learn, easy to use.
Our enhanced web product gives drivers complete connectivity and the ability to send and receive text messages, get directions, and use integrated Google maps. The mini-laptop PC runs Microsoft Windows® and is equipped for wireless internet access.

CabLink™
Two-way driver communication

Mobile satellite terminal provides high-performance location tracking, engine monitoring and in-cab messaging in an affordable, easy-to-use package.

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TRANSCORE

ReeferTrak® Monitor & Control Reefer Assets

powered by GlobalWave®

TWO-WAY REEFER CONTROL OF ALL REEFER MICROPROCESSORS

- Command & control for both Carrier Transicold and Thermo King Refrigeration unit microprocessors
- Broad worldwide satellite coverage
- Instant polling and command response
- Reefer functions with GPS – door, on/off, set temperature point, unhook, refueled, visibility of operating conditions when dropped
- Full Logistics – location, geofencing, dwell/detention time
- Alarms - fuel, pre-trip and maintenance
- Exception-based management and data mining
- Integration with Information Technology systems

OPERATIONAL SAVINGS

- Reduced claims and improved shipment quality
- Radically lower fuel costs
- Improved management of assets
- Improved trailer and tractor utilization
- Measured performance to plan
- Efficient pre-cooling operations
- Lessened driver dependence
- Remote pre-trip operations
- Arrival/Departure and Origin/Destination
- Dwell time reporting
- HACCP/CARB Compliance

REEFERTRAK® SOLUTION - Complete, real-time reefer operations via the Internet

ReeferTrak® is the most powerful, wireless refrigeration operation management tool available for the freight transportation industry. ReeferTrak® is ideal for rail, intermodal, truckload carriers and food distributors. The system allows immediate fleet visibility of every type of reefer operation, including reefer temperature monitoring, modes of operation, fuel management, trailer delivery, logistics and dwell time, engine hours and usage, and human interaction for each trailer. Using intelligent management of reefer specific data, exceptions are quickly identified and remote commands solve problems in minutes without the need for field intervention. ReeferTrak's powerful Reefer Access Management Platform™ (RAMP) delivers reefer management solutions through an integrated web application, supplemented with one and two-way data feeds as well as integrated Web Services applications with customer shipment planning information.

REFRIGERATION TRANSPORT UNIT INTEGRATION

ReeferTrak® includes intelligent, power-efficient equipment integration with the reefer microprocessor and provides a two-way satellite data link to the ReeferTrak's comprehensive reefer application. All Carrier Transicold and Thermo King microprocessors are supported with a two-way interface that delivers real-time operational reefer status within minutes. Low power operation allows for continuous two-way operation without degradation of the reefer battery even when the reefer unit is shutdown and un-tethered from the tractor. Its small, compact size means easy installation. Standard reefer alarms are sent to the user via the Internet, email or SMS within minutes. Command capability allows remote changes to temperature set point, operating conditions or parameters within minutes.

THE ADVANTAGES

ReeferTrak® is a comprehensive refrigerated transport management tool that monitors thousands of un-manned reefer assets throughout the world. Using a unique interface to the reefer microprocessor, comprehensive fuel management algorithms and a focused, exception-based reefer application, freight operators utilize the complete operational context of every trailer to achieve revolutionary cost and quality improvements in their operations. Allow your customers to gain more confidence in your refrigerated freight service operation with ReeferTrak®.

ReeferTrak® is the only solution fully authorized by both Carrier Transicold and Thermo King to provide full, two-way command and control access to their reefer microprocessors. Data delivery options are provided via the ReeferTrak's RAMP® system and include internet portal access, integration with third-party dispatch software and specialized one- and two-way data feeds to proprietary software applications.

REEFERTRAK® SPECIFICATIONS

Direct Interface to the following refrigeration transport unit microprocessors:

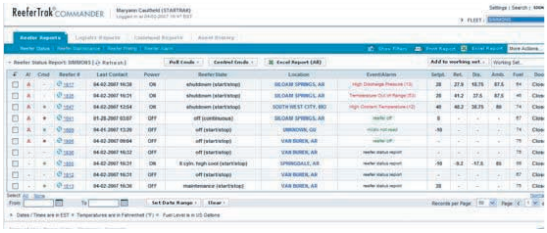
* Carrier Transicold Standard and Advance
* Carrier Transicold Summit and Summit Multi-temp
* Thermo King SR2, µPV, µPVI, µPT (limited versions of µPIV)
* Thermo King SR2 and Spectrum Multi-temp

REEFER MONITORING & CONTROL FUNCTIONS

Monitors all available microprocessor alarms Critical Shutdown Alarms – 36 default, plus other configurable shutdown alarms

Operational Functions:

* Change Reefer Set Point
* Reports Reefer On/Off Events & Shutdown Events
* Change Mode of Operation (On/Off, Continuous, Start-Stop/Cycle-Sentry)
* Clear Alarms
* Remote Pre-Trip
* Integrated Intellisets and Automatic Fresh Air Exchange (Carrier)
* Remote configuration parameters



OTHER FUNCTIONS

* GPS Locations
* Automatic Temperature Profiles
* Setup Temperature Variance Alarms
* Fuel (gallons, rapid fuel loss, refuel events low fuel, very low fuel)
* Tractor ID
* Hook/Unhook, door, remote temperature probes (qty 3)
* Geofences (~5,000 locations per unit)
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powered by GlobalWave®

Track and poll from anywhere in North America

TransCore's Sense & Track is a compact all-satellite communications device. Using a two-way protocol, it sends reports, receives commands, and polls from anywhere throughout North America with a full sensor suite capability. The Sense & Track terminal becomes an integral part of the trailer, capable of showing loaded/empty status and providing data from other monitored systems such as tire inflation and temperature.

The location accuracy provided by TransCore's integrated Global Positioning System (GPS) technology and the ability to change reporting characteristics "over-the-air" in minutes provides customers with unparalleled control over their fleets. Use of Sense & Track can reduce tractor to trailer ratio, prevent and reduce cargo theft, help recover misplaced or stolen equipment quickly, and reduce insurance costs. The application processor features multi-point geo-fencing, vehicle engine bus interface, text and form messaging and stop and start notifications.

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Product Profile

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  - Custom packs available
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- Five digital outputs
- Four analog inputs
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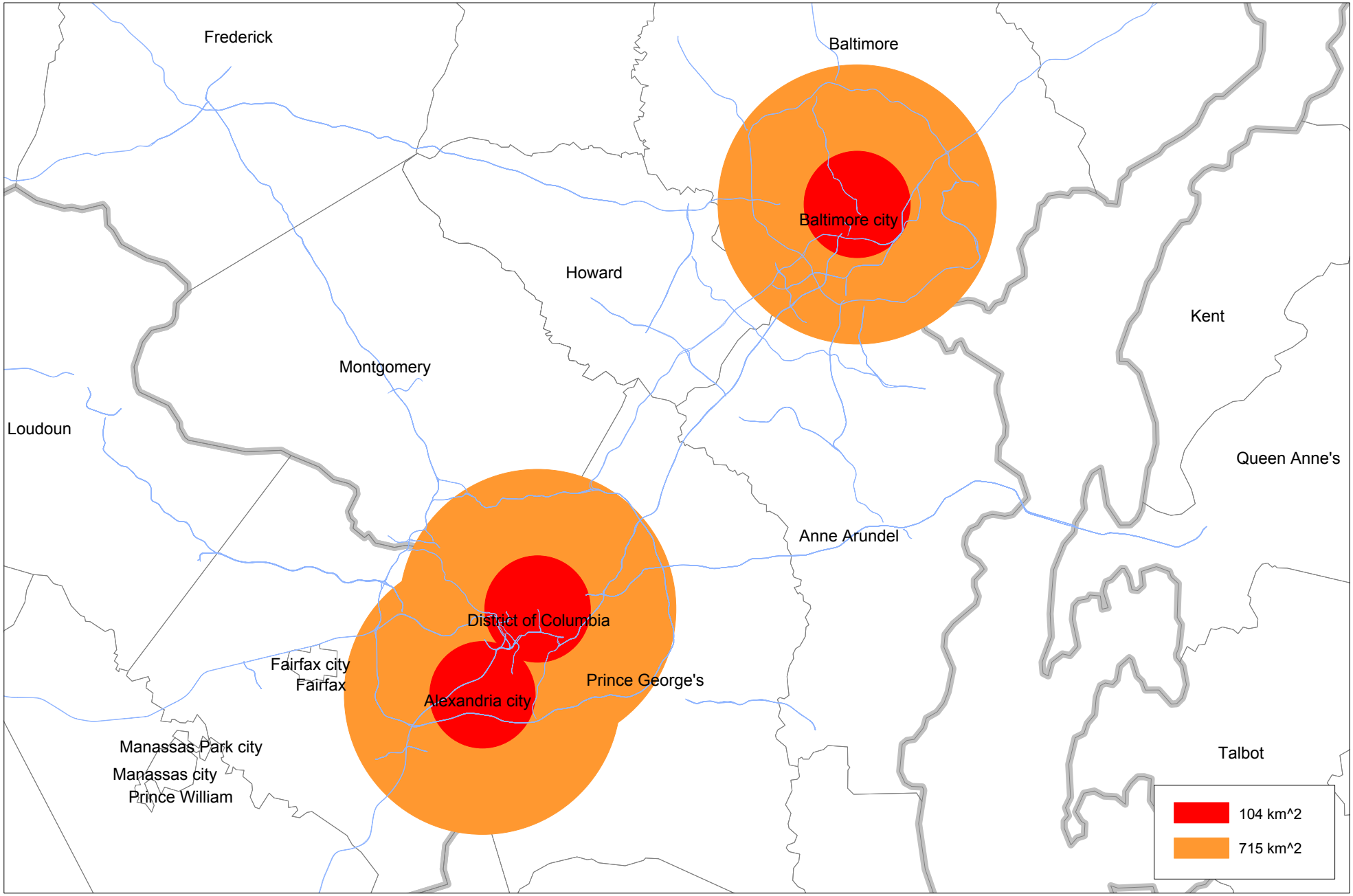
ATTACHMENT B

ATTACHMENT B: PRECLUSION ZONES IN THE BALTIMORE/WASHINGTON, D.C. AREA

(Scale: 1" = 15 miles)



Technical Appendix

1 Introduction

1.1 Overview

This annex contains technical discussion of some of the points raised by SkyTerra and Inmarsat in their Consolidated Oppositions to the *Comments of SkyWave Mobile Communications, Corp. and SkyWave Mobile Communications, Inc.*, dated July 10, 2009 and the *Petition to Deny of Amtech Systems LLC*, dated July 10, 2009.

1.2 References

In this Annex, FCC 03-15 refers to *Flexibility for Delivery of Communications by Mobile Satellite Service Providers in the 2 GHz Band, the L-Band, and the 1/6/2.4 GHz Bands*, 18 FCC Rcd 1962 (2003), while FCC 05-30 refers to *Flexibility for Delivery of Communications by Mobile Satellite Service Providers in the 2 GHz Band, the L-Band, and the 1/6/2.4 GHz Bands, Memorandum Opinion and Second Order on Reconsideration*, 20 FCC Rcd 4616 (2005). The SkyTerra modification request that is referred to is titled *Modification and Request for Expedited Consideration*, dated April 29, 2009. This document is referred to here as the Modification.

The *Comments of SkyWave Mobile Communications, Corp. and SkyWave Mobile Communications, Inc.*, dated July 10, 2009 is referred to here as the SkyWave Comments. The *Petition to Deny of Amtech Systems LLC*, dated July 10, 2009 is referred to here as the Amtech Petition. Collectively these two documents are referred to here as the Comments and Petition.

The *Consolidated Opposition of Inmarsat Global Ltd*., dated July 23, 2009, is referred to here as Inmarsat's Opposition, while SkyTerra's *Consolidated Opposition*, dated July 23, 2009, is

referred to here as SkyTerra's Opposition. Collectively these two documents are referred to here as the Oppositions.

2 Blockage and Service Reliability

In their Opposition SkyTerra states: "Studies cited by the Commission in the *ATC Order* discuss building blockage causing as much as 15 dB of attenuation in cities"[1]. To support this they cite the Commission's ATC Order[2]. The studies cited in FCC 03-15 are in fact SkyTerra's (then MSV), brought forth "in their analyses of the potential for ATC MT interference to Inmarsat's satellites"[3], and included attenuation averaging for terminals inside vehicles and buildings that are only reasonable for handheld devices, and not for SkyWave/Amtech terminals. The fact that the Commission cited them does not prove that they are correct or suggest that the Commission accepted their findings in the least. In fact we believe that the average blockage figure that the Commission's findings support is not -15 dB but only -0.5 dB.

In FCC 03-15, Table 1.2.3.B gives the expected average outdoor satellite blockage to the United States. For the MSV satellite at 101° West longitude, the value that the Commission has determined is -0.5 dB as shown in the table. The SkyWave GlobalWave network currently operates on this satellite. The majority (82%) of SkyWave terminals (and 100% of Amtech terminals) will experience this insignificant average blockage. In the future, it is expected that the GlobalWave network will operate on the Inmarsat satellite at 98° West longitude. Given that

[1] SkyTerra Opposition, page 8.

[2] SkyTerra Opposition footnote 13, citing FCC 03-15 at section 1.2 of Appendix C2.

[3] FCC 03-15, at page 181 of Appendix C2.

the difference between elevation angles to these two satellites will be only a degree or two, the same average blockage will apply.

In their Opposition, SkyTerra claims that "(t)he Commission reached a conservative conclusion that at least half of the time in cities, satellite service would be attenuated by building blockage" citing FCC 03-15 Appendix C2, Table 1.2.3.B. It is not clear what the basis is for SkyTerra's contention. There is no evidence in the table to support the argument that the Commission reached such a conclusion, or that such a hypothesis has any merit. As discussed previously, the average blockage of -0.5 dB is of little significance to the SkyWave network link performance.

To reach their conclusions on service reliability, SkyTerra may have misapplied studies, field trials and reasoning geared towards their own intended customers and applications for the ATC. Their commercial literature is heavily focused on delivery of voice services with relatively little attention paid to industrial data service delivery[4]. This may mean that their studies, field trials and reasoning are biased towards handheld terminals and in-building/in-vehicle utilization. This is borne out by their reference to studies showing "building blockage causing as much as 15 dB of attenuation in cities".[5] The citation supporting this comment points to FCC 03-15, Appendix C2, section 1.2. In this section (and particularly in section 1.2.1) the Commission describes the reasoning that MSV (now SkyTerra) used to reach a figure of 15.5 dB of blockage, including factors such as a distribution of user locations in which 30% were inside vehicles and 40% were inside buildings while only 40% were outside, and "3 dB due to Radio Frequency (RF)

[4] See, for example, the SkyTerra brochure titled "Learn About the Future", retrieved July 30, 2009 from http://www.skyterra.com/literature/SkyTerra_TheFuture.pdf , which describes SkyTerra's MSS/ATC services. This brochure devotes only 3 bullets to data services while allocating 18 bullets to voice services.

[5] SkyTerra Opposition at page 8, citing FCC03-15 at section 1.2 of Appendix C2.

absorption by the human head and body"[6]. None of these factors apply to SkyWave/Amtech's terminals.

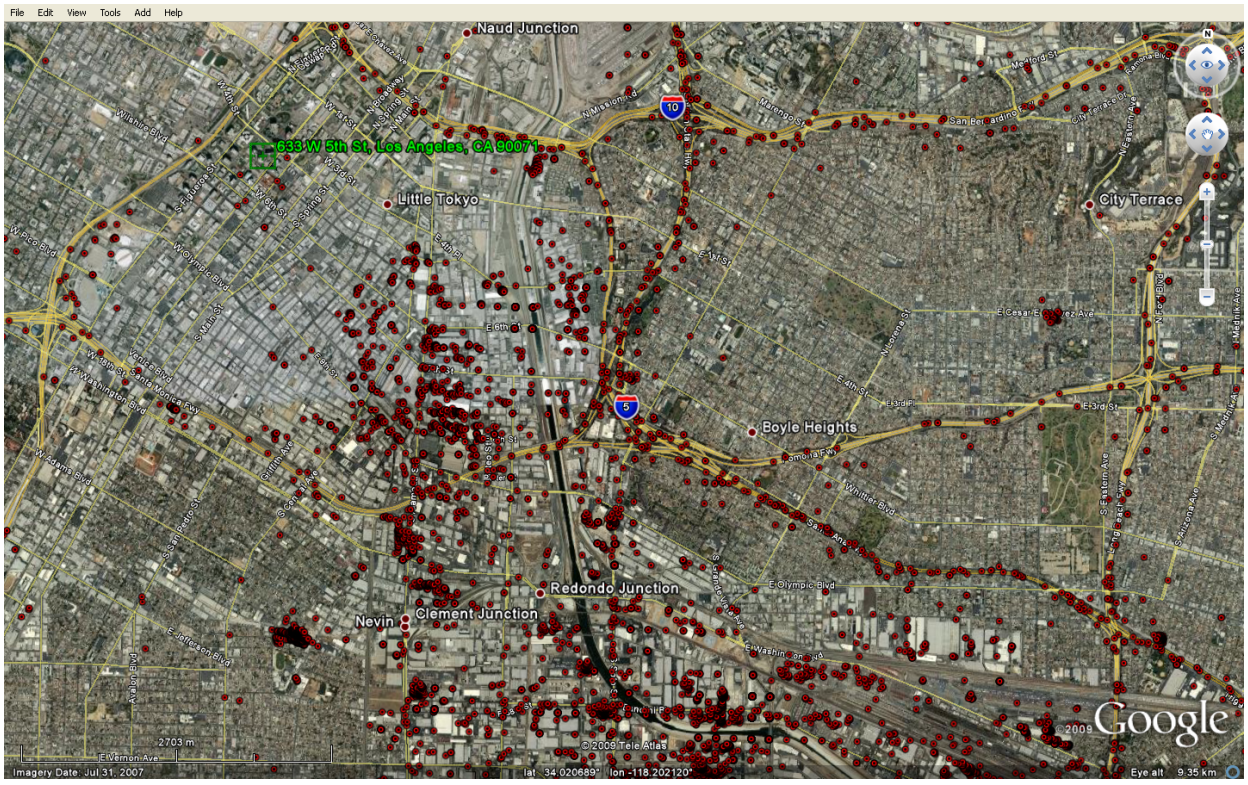
SkyTerra states in their Opposition, "Amtech and SkyWave ignore the fact that their user's current experience with satellite reception in a mobile environment in urban and suburban areas is already far worse than any interference they will receive from ATC base stations"[7]. This unsupported assertion shows that SkyTerra does not understand the Amtech/SkyWave customer applications or the propagation environment. Our customers' terminals spend no time in vehicles and virtually no time within buildings; rather, they are typically mounted on the exterior of trucks and trailers. They are typically found on railways, expressways and interstates, and in container yards, train yards and warehouse parking lots rather than in high-density urban environments (although very often in close proximity to high-density urban locations). These sites typically have clear lines of sight to the relatively high elevation SkyTerra and Inmarsat satellites at 101°W and 98°W.

An illustrative example location is shown in the figure below; in this figure the dark circles mark the locations of SkyWave/Amtech terminals reported via the GlobalWave network,[8] and the green rectangle marks the location of the US Bank Tower, which is the ninth-tallest building in the US and is located in the heart of Los Angeles' high-rise Financial District. A large number of the terminals reside in the industrial zone within 1-3 km of this building.

[6] FCC 03-15, Appendix C2, at section 1.2.1.

[7] SkyTerra Opposition at page 8.

[8] Each circle represents a position reported from a SkyWave terminal during the first five months of 2009.



In the SkyTerra Opposition the fact is stated that SkyWave "fails to mention that it offers a data device that combines Inmarsat satellites service in the L-band with terrestrial service in four terrestrial bands, which suggests that its urban and suburban service may be reliable today only because it is in fact terrestrial service"[9]. This was not mentioned because it is not significant: less than 1.5% of terminals operating in the US on SkyWave's networks are dual mode satellite/terrestrial capable at this time. Dual mode capable terminals did not factor into our statement on service reliability, which pertained to satellite-only service. It should be noted that SkyWave customers have many reasons other than service availability to desire dual mode capability. For example, it is occasionally necessary for some terminals to transfer larger data files that would take too long to send or receive via low data rate satellite services.

[9] SkyTerra Opposition at pages 8-9.

In their Opposition, SkyTerra proposes that "store-and-forward service would also tolerate the transient interference of driving near an ATC base station"[10] This statement is faulty for two reasons. Firstly, it ignores the fact that many of the SkyWave/Amtech terminals are used in security applications for which time is of the essence. A typical example is over-the-satellite notification that the door of a trailer has been opened, potentially by thieves. The SkyWave networks can provide this notification in seconds, unless interfered with. Secondly, only mobile usage is considered. For terminals that are stationary near an ATC base station, there would be no relief from interference. Past investigations of terminals operating on the GlobalWave network in the US have found that on average, terminals are in fact stationary considerably more than half of the time.

3 Propagation Model

In their Opposition, SkyTerra bases their computation of ranges of interference from ATC base stations to L-band MSS terminals on the WI-NLOS model. They present a justification for this with a curve fit to a single data set of path losses taken from a drive in the vicinity of Baltimore-Washington.

We believe that SkyTerra has misunderstood the correct application of the Walfisch-Ikegami propagation model. As explained in an NIST presentation, the model "distinguishes between LOS and non-line-of sight (NLOS) propagation situations"[11], so the two sub-models should be applied with insight into the LOS and NLOS condition that applies at each individual location, rather than as a blanket condition.

[10] SkyTerra Opposition at page 9.

[11] See http://www.antd.nist.gov/wctg/manet/calcmodels_dstlr.pdf , at page 6.

The fact that SkyTerra achieved a good curve fit with the NLOS-only model suggests that in the test which they present results for, line-of-sight conditions between the fixed and mobile ends were virtually non-existent. We believe that this is unlikely to be representative of links between ATC base stations and SkyWave/Amtech terminals. If this is the case in SkyTerra's test, it could be due to placement of the fixed antenna in locations surrounded by taller buildings. Standard practices in cellular networks include placement of base station antennas as high as economically possible, and not on low buildings surrounded by taller ones which would satisfy the condition of dominant NLOS conditions in both urban and suburban areas. If this is true of SkyTerra's test conditions then they are unrepresentative of the links between ATC base stations and SkyWave/Amtech METs. A second possibility for dominance of NLOS conditions might be the route driven during the test. This was unspecified apart from its general location within the Baltimore-Washington area, and could have been unrepresentative of the links between ATC base stations and SkyWave/Amtech METs.

A further possibility that could reconcile the measured path loss results with the Walfisch-Ikegami propagation model is that line-of-sight conditions were usually or always present, but that there was some additional fixed loss in the link from antenna placement within the cabin or perhaps the trunk of the mobile vehicle. This too is unrealistic for links between ATC base stations and SkyWave/Amtech terminals. As previously noted, these terminals are mounted on the exterior of trailers and trucks for clear line-of-sight, typical of MSS installation.

We believe that a common propagation situation for interference between ATC base stations and SkyWave/Amtech METs will comprise base stations located near or at the periphery of high density urban cores, and METs outside in open areas in close proximity to the urban core as previously described. In this type of situation, the WI-LOS and free space propagation models

will provide accurate assessments of interference ranges. As the Commission has noted, "in urban areas with large open spaces, such as airports and harbors, and possibly near navigable waterways, free-space propagation loss should be assumed. Depending upon the geographic area we analyze we use the WI (LOS and non-LOS) and free space propagation as appropriate."[12]

It should also be noted that there is no rule in part 25 that would prevent SkyTerra from deploying ATC base stations on towers in suburban environments. Here, too, the WI-LOS and free space propagation models provide accurate assessments of interference ranges.

As in the Comments and Petition Technical Annexes, the WI-LOS propagation model assumptions used here are a frequency of 1545 MHz, a base station height of 30m, and a mobile height of 2.5m.

4 ATC Basestation Downlink Interference Ranges

In this section revised interference link budgets and interference ranges are presented, for suburban environments. The revisions are performed to account for a lower ATC base station EIRP of 42 dBW which is the limit that SkyTerra now says in its Opposition is all they seek; also, for the intermodulation budget an interference level of -70 dBm has been applied similarly to SkyTerra's analysis in their Opposition. As in our previous analyses, we apply WI-LOS and free space propagation models to compute interference ranges.

4.1 Overload Interference Ranges

As in our previous analyses in the Comments and Petition, four link budget versions are included here, based on overload limits of -52 dBm and -60 dBm for cases where frequency separation

[12] FCC 03-15, Appendix C2 at section 1.6.

between ATC signals and the SkyWave networks' are greater than and less than 2 MHz respectively (as explained in the Technical Annexes of the Comments and Petition), and for ATC base station EIRPs of 31.9 and 42 dBW:

Link Budget	Total Peak EIRP per sector	Interference limit
A	31.9 dBW	-52 dBm
B	42.0 dBW	-52 dBm
C	31.9 dBW	-60 dBm
D	42.0 dBW	-60 dBm

Table 4.1-1 Suburban Environment Link Budget Variations – Overload Interference

As previously noted, the WI-LOS and free space models are used to compute propagation ranges from the required link budget path losses below. The ranges for the two models are included in separate rows in the link budget; however the path losses in both cases are identical as required to close the budgets. Free space ranges are computed as follows:

$$D = 10^{\frac{L - 20\log_{10} f - 32.45}{20}}$$

in which D is the distance in km, L the path loss in dB and f the frequency in MHz.

The link budgets are shown below:

Parameter	Units	Link A	Link B	Link C	Link D
Total EIRP per sector	dBW	31.9	42.0	31.9	42.0
BS to MET Propagation Loss	**dB**	**91.7**	**101.8**	**99.7**	**109.8**
Power Control	dB	5.2	5.2	5.2	5.2
Voice Activation	dB	4.0	4.0	4.0	4.0
Polarization Isolation	dB	1.0	1.0	1.0	1.0
MET Gain to BS	dB	-7.0	-7.0	-7.0	-7.0
BS Gain to MET	dB	-5.0	-5.0	-5.0	-5.0
Received Interference	dBW	-82	-82	-90	-90
Saturation Level	dBW	-82	-82	-90	-90
Saturation Level	dBm	-52	-52	-60	-60
Margin	dB	0	0	0	0
Distance (WI-LOS model)	**m**	**270**	**670**	**550**	**1350**
Distance (free space model)	**m**	**590**	**1900**	**1490**	**4770**

Table 4.1-2 Suburban Environment Link Budgets – Overload Interference

As can be seen from the propagation ranges, with the increased EIRP of 42 dBW that SkyTerra now says in its Opposition is all they seek in their waiver request, the ranges from each ATC base station in which service to SkyWave and Amtech Mets is interrupted by downlink overload interference will increase substantially.

With this analysis, we have shown that the area around each suburban 42 dBW ATC base station affected by overload interference is expected to increase from the 0.03 km^2 assumed by the FCC in their analysis (i.e. 100 m interference range) to 1.4 km^2 and 11.3 km^2 respectively with WI-LOS and free space propagation, for terminals separated by more than 2 MHz from ATC base

station downlink frequencies. For terminals separated by less than 2 MHz from ATC base station downlink signals, the area around each suburban 42 dBW ATC base station affected by overload interference is expected to increase to 5.7 km^2 and 71.5 km^2, depending on whether propagation follows the WI-LOS model or free space propagation.

4.2 Intermodulation Interference Range

In this section the intermodulation interference range calculated in the Comments and Petition is recalculated, based on a revised ATC base station EIRP of 42.0 dBW, and a revised intermodulation limit of -70 dBm as has been used by SkyTerra in their Opposition.

Parameter	Units	Value
Total EIRP per sector	dBW	42.0
BS to MET Propagation Loss	**dB**	**119.8**
Power Control	dB	5.2
Voice Activation	dB	4.0
Polarization Isolation	dB	1.0
MET Gain to BS	dB	-7.0
BS Gain to MET	dB	-5.0
Received Interference	dBW	-100.0
Intermodulation Level	dBW	--100.0
Intermodulation Level	dBm	-70.0
Margin	dB	0
Distance (WI-LOS model)	**m**	**3270**
Distance (free space model)	**m**	**15090**

Table 4.2-1 Suburban Environment Link Budget – Intermodulation Interference

With this analysis, we have shown that the area around each suburban 42 dBW ATC base station affected by intermodulation interference to METs with -70 dBm intermodulation thresholds is expected to be 33.6 km^2 and 715.4 km^2, depending on whether propagation follows the WI-LOS model or free space propagation. This is significantly larger than the 0.03 km^2 assumed by the FCC in their overload interference analysis.

5 Intermodulation Spectrum and Coordination

In the Comments and Petition, we have commented that broadband modulations, such as those SkyTerra has requested authorization for in their Modification, can cause intermodulation products potentially covering the entire MSS band from 1525-1559 MHz and precluding the ability to achieve intermodulation relief through coordination of operating frequencies. In their Opposition, SkyTerra states: "Amtech and SkyWave are wrong when they suggest that the deployment of broadband carriers eliminates the ability to coordinate effectively to reduce the effects of intermodulation. In fact, SkyTerra has successfully coordinated with Inmarsat."[13]

By consideration of a few examples and only a subset of the intermodulation products, the fact that the ATC base station generated intermodulation spectrum will fill the entire MSS spectrum from 1525-1559 MHz can be shown. SkyTerra has stated they plan "to have up to two 10 MHz or four 5 MHz bandwidth carriers/sector in a BTS sector"[14]. As a first example, consider such a configuration in which all these carriers are contiguous at the low end of the band. The ATC signal would then form a near-continuous spectrum from 1525-1545 MHz. In MSS receivers, this would cause an intermodulation spectrum centered at 1535 MHz with triple the bandwidth as

[13] SkyTerra Opposition, Technical Appendix at page 7.

[14] Modification at page 9.

is well known for third order intermodulation. This spectrum would then extend from 1505-1565 MHz, causing intermodulation at all frequencies in the MSS band. Similarly if the carriers were contiguous at the high end of the band, the spectrum would extend from 1519-1579 MHz, causing intermodulation at all frequencies in the MSS band. As a second example, consider a configuration in which the ATC base station is transmitting with two 10 MHz carriers centered at the high and low extremes of 1530 MHz and 1554 MHz. The low carrier by itself will generate intermodulation products from 1515-1545 MHz, while the high carrier by itself will generate intermodulation products from 1539-1569 MHz. Taken together, these intermodulation products would fill the entire MSS spectrum without any gaps. As a third example, consider a configuration in which the ATC base station is transmitting with two 5 MHz carriers centered at the high and low extremes of 1527.5 MHz and 1556.5 MHz, and two other 5 MHz carriers centered in between these extremes. The low carrier by itself will generate intermodulation products from 1520-1535 MHz, while the high carrier by itself will generate intermodulation products from 1549-1564 MHz. The other two carriers will each generate intermodulation spectra that are 15 MHz wide. Given that the remaining gap between the intermodulation spectra generated by the high and low carriers is only 14 MHz wide, it is not possible to choose any centre frequencies for the remaining two carriers that will not cause the entire MSS L-band spectrum from 1525-1559 MHz to be filled with intermodulation products.

DECLARATION UNDER PENALTY OF PERJURY OF KELLY GRAVELLE

I, Kelly Gravelle, am the Executive Vice President and Chief Technical Officer of Transcore, L.P. ("Transcore"). Transcore sells remote tracking and monitoring services pursuant to the non-common carrier blanket earth station authorizations held by Amtech Systems LLC ("Amtech"). Both Amtech and Transcore are subsidiaries of Roper Industries. I hold a Bachelor of Engineering Degree (Electrical) from McGill University and have over 25 years of experience in developing and deploying RF communications products in the transportation industry.

I hereby declare under penalty of perjury that I am qualified to speak on behalf of Amtech. I have reviewed the preceding Reply to Consolidated Oppositions submitted on behalf of Amtech, and the factual statements therein are complete and accurate to the best of my knowledge, information, and belief.

I certify that I am a technically qualified person with overall responsibility for the information contained in the foregoing Reply to Consolidated Oppositions. I am familiar with the requirements of Part 25 of the Commission's rules, and the information contained in the Reply to Consolidated Oppositions and Technical Annex is complete and accurate to the best of my knowledge, information, and belief.

/s/ Kelly Gravelle

Kelly Gravelle
Executive Vice President and Chief Technical Officer
Transcore, L.P.

Dated: August 4, 2009

CERTIFICATE OF SERVICE

I hereby certify that on August 4, 2009, I caused a true and correct copy of the foregoing to be served by first-class mail, unless noted otherwise, on the following:

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