William T. Lake

+1 202 663 6725 (t)
+1 202 663 6363 (f)
william.lake@wilmerhale.com

April 17, 2006

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

Re: Review Of The Spectrum Sharing Plan Among Non-Geostationary Orbit Mobile Satellite Service Systems In The 1.6/2.4 GHz Bands, IB Docket No. 02-364

Dear Ms. Dortch:

At the request of staff in the Commission's International Bureau, Globalstar, Inc. ("Globalstar") provides the following update to the information submitted for the record in the above-referenced proceeding on November 4, 2005, concerning the aviation-related services Globalstar provides using its Mobile Satellite Services ("MSS") system.

Globalstar provided a detailed description of its spectrum requirements, along with a Technical Appendix to support the description, in its original comments in IB Docket No. 02-364.[1/] As Globalstar showed in that pleading, and as set forth in the attached Exhibit 1, Globalstar's aviation service is subject to several restrictions that limit potential channel usage.[2/] Specifically, Globalstar's aviation equipment has been built to meet standards developed by the Federal Aviation Administration ("FAA") and RTCA, Inc., for the protection of GPS and GLONASS (collectively, the Global Navigation Satellite System, or "GNSS") operating in the 1574-1610 MHz band. To meet these standards, Globalstar's aviation services in the L-band must operate above 1616 MHz (that is, on L-band Channels 6, 7, 8, and 9).[3/] Furthermore, the

---

1/ *See* Joint Comments of L/Q Licensee, Inc. Globalstar, L.P. and Globalstar USA, LLC in IB Docket No. 02-364 (filed July 11, 2003) ("Joint Comments"). *See also* Joint Reply Comments of L/Q Licensee, Inc., Globalstar, L.P., and Globalstar USA, LLC in IB Docket No. 02-364 (filed July 25, 2003) ("Joint Reply").

2/ *See* Joint Comments; Joint Reply Comments. *See also* Reply Comments of Qualcomm Incorporated in IB Docket No. 02-364 and ET Docket No. 00-258 at 7-8 (filed Sept. 23, 2004), (attached at Exhibit 2) (these restrictions "severely limit[] the Globalstar aviation service frequency planning and deployment.").

3/ *See* RTCA, Inc., "Minimal Operational Performance Standards for Avionics Supporting Next Generation Satellite Systems (NGSS)," RTCA/DO-262 (Dec. 14, 2000).

speed of airplanes using the aviation service, commonly moving through two or more gateway coverage areas, dictates that Globalstar must allocate two separate channels for its aviation services. As Globalstar and the makers of its aviation products have made clear, any further encumbrances on Globalstar's ability to use these channels would cause "unacceptable and damaging" interference to Globalstar's aviation service customers.[4/]

Globalstar has three distributors of aviation terminals in North America – Sagem Communication (formerly ARNAV), Geneva Aviation, and Northern Airborne. Although the specific number of aviation (fixed wing and helicopter) customers in the U.S. is proprietary, Globalstar's largest single aviation services customer is the U.S. Civil Air Patrol ("CAP"), whose principal mission is search and rescue and whose secondary mission is to support homeland security initiatives.[5/] CAP components have about 100 Globalstar subscriptions. In addition, components of the U.S. Air Force and other U.S. government agencies, as well as the New Mexico State Police, have subscriptions for aviation services. The Department of Homeland Security has a fleet of aircraft that use Globalstar phones to transmit photo imagery of offshore maritime and other activities to various intelligence and operational agencies to protect national security.[6/] And the U.S. Forest Service uses five custom-made 16-channel modems in its aircraft.

Globalstar has also assigned its channel 6 to its Smith Falls, (Eastern) Canada, gateway and channels 6 and 7 to its High River, (Western) Canada gateway. Each of these gateways serves nearly one-third of the U.S. They provide capacity to both U.S. and Canadian aviation customers, among others. Among the Canadian aviation customers of Northern Airborne are the British Columbia Air Ambulance Service, the Royal Canadian Mounted Police and, especially, the British Columbia Forestry Service, which has some 30 units in its water bombers and helicopters. These units are critical to fighting forest fires in remote areas.

[4/] *See* Letter from Frank R. Williams, Vice President, SAGEM Avionics, Inc., to Michael K. Powell, Chairman, Federal Communications Commission filed in IB Docket No. 02-364 at 2 (Sept. 7, 2004) (attached at Exhibit 3).

[5/] The Civil Air Patrol's Web site states: "CAP still flies 95 percent of all federal inland SAR [search and rescue] missions, as directed by the Air Force Rescue Coordination Center (AFRCC) at Langley AFB, Va. ... On average, each year CAP members fly more than 100,000 hours in operational missions and save about 100 lives.... CAP now provides reconnaissance, communications and transpiration for counterdrug missions" *See* http://www.cap.gov/visitors/about/our_programs/operations.cfm (last visited Apr. 14, 2006).

[6/] Letter from Frank R. Williams, supra note 4, at 2.

The aviation services that Globalstar provides serve a vital purpose for aircraft communication, particularly in remote areas where aviation may be the only realistic means of travel and MSS services may be the only feasible means of communication. In particular, a number of Globalstar's aviation customers are located in Alaska, where many customers – including public safety providers – use small planes to travel to and from remote areas. Because these customers are using their phones in areas in which traditional wireline and wireless services are not available, they rely increasingly on Globalstar's satellite services. These customers look to Globalstar when they are in the air – just as they do on the ground and on the waterways – to meet their communications needs on a day-to-day basis and during times of emergency. To help meet their needs, Globalstar has filed an application seeking authority to construct a new gateway in Wasilla, Alaska, which will bolster Globalstar's ability to provide in Alaska the same robust and reliable Globalstar services that Globalstar customers in the rest of the country enjoy.[7/] When Globalstar activates the new Alaska gateway later this year, it expects very high aviation usage for safety and rescue missions in remote areas of Alaska and its offshore islands.

Notably, these aviation channels are not, and have never been, dedicated solely to aviation traffic, because that would constitute an inefficient use of the spectrum. The channels are used also to provide MSS voice and data services throughout the country, especially during times of emergency when increased demand for Globalstar's services requires Globalstar to focus its capacity on an affected area.[8/] For example, Globalstar used channels 3, 7, and 8 from its Clifton, Texas, gateway to serve the large increase in demand by users affected by Hurricane Katrina.[9/] The Sebring, Florida, gateway uses channel 9 for all its traffic, serving an area that includes both the Caribbean and Gulf hurricane zones.

7/ *See* Applications of Globalstar USA, LLC, File Nos. SES-LIC-20051122-01631/1632/1633 (filed Nov. 22, 2005).

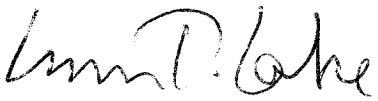
8/ Most recently Globalstar provided detailed descriptions of its channel assignments in its pleadings addressing Iridium's applications for special temporary authority following Hurricane Katrina. *See* Globalstar LLC Letters to the International Bureau of the Federal Communications Commission, filed in IBFS File Nos. SAT-STA-20050923-00180/00181 (Oct. 21, Oct. 28 and Dec. 14, 2005).

9/ During Hurricane Katrina, when the demand for Globalstar's services in the Gulf Coast states affected by those storms increased by more that 500 percent, Globalstar was required to allocate additional channels – including the channels used for aviations services – to meet the increased demand. *See* Statement of James Monroe III, Chairman and Chief Executive Officer, Globalstar, to the Federal Communication Commission Independent Panel Reviewing the Impact of Hurricane Katrina, Mar. 6, 2006, *available at* www.fcc.gov/eb/hkip/GSpeakers060306/ACT1050.pdf (last visited Apr. 17, 2006).

The ability to focus capacity on an area of urgent need is one of the great strengths of Globalstar's system design. Had the channels also used for aviation not been available – or been encumbered by other users – Globalstar would have been unable to meet the increased demand for its services following the recent hurricanes. The first responders and other public safety agencies that rely on Globalstar's services would have been left with no means of communicating. Any action by the Commission to encumber those channels would impair Globalstar's ability to meet these customers' vital needs in future times of emergency.

Should there be any further questions concerning this matter, please contact the undersigned.

Respectfully Submitted,



William T. Lake
Counsel to Globalstar, Inc.

cc (via email): James Ball
Howard Griboff
Jennifer Gorny
Paul Locke

Exhibit 1

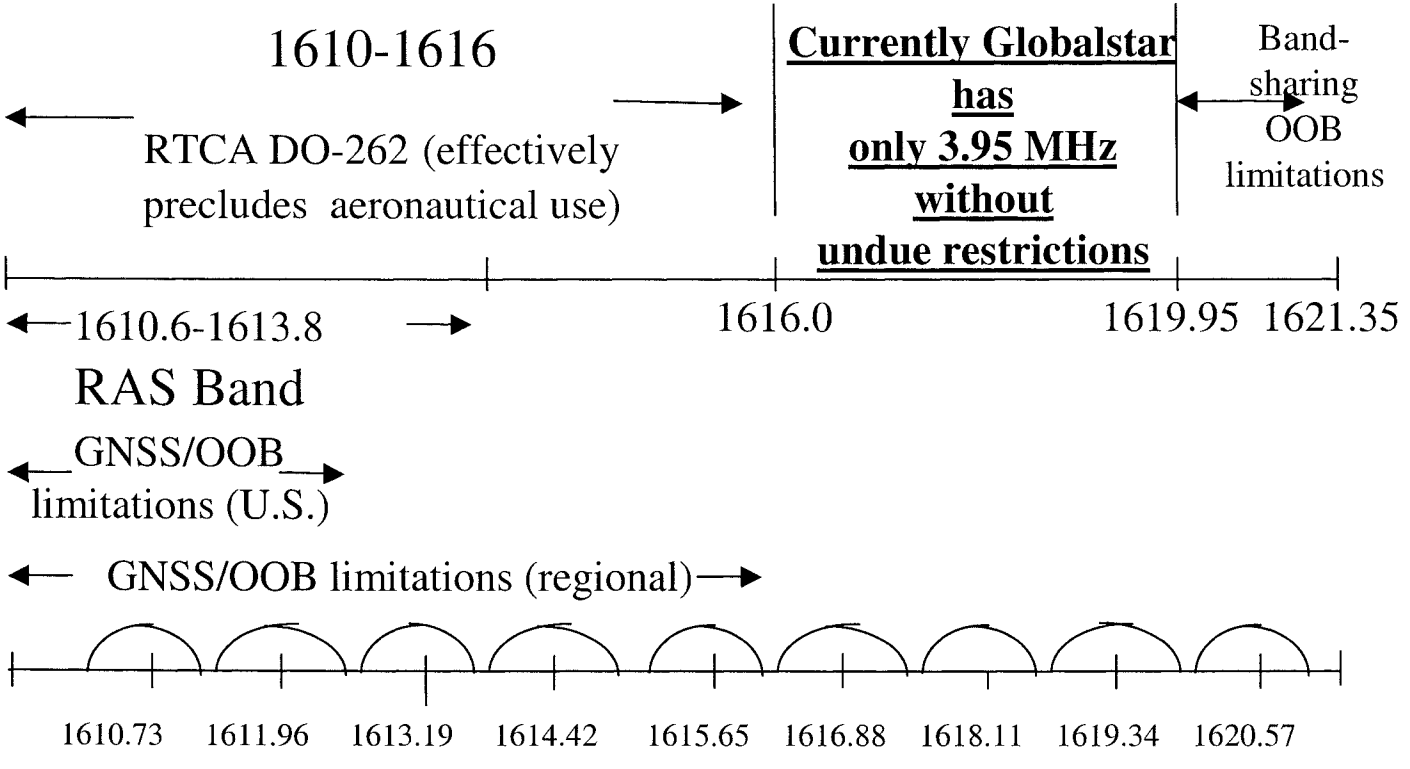

1610-1616
RTCA DO-262 (effectively precludes aeronautical use)
Currently Globalstar has only 3.95 MHz without undue restrictions
Band-sharing OOB limitations
1610.6-1613.8
1616.0
1619.95
1621.35
RAS Band
GNSS/OOB limitations (U.S.)
GNSS/OOB limitations (regional)
1610.73
1611.96
1613.19
1614.42
1615.65
1616.88
1618.11
1619.34
1620.57

EXHIBIT 2

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

In The Matter Of Review of the Spectrum Sharing Plan Among Non-Geostationary Satellite Orbit Mobile Satellite Service Systems in the 1.6/2.4 GHz Bands	)	IB Docket No. 02-364
Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, Including Third Generation Wireless Systems	)	ET Docket No. 00-258

To: The Commission

REPLY COMMENTS OF QUALCOMM INCORPORATED

Dean R. Brenner
Senior Director, Government Affairs
QUALCOMM Incorporated
2001 Pennsylvania Ave., N.W.
Suite 650
Washington, D.C. 20006
(202) 263-0020
Attorney for QUALCOMM Incorporated

Dated: September 23, 2004

SUMMARY

QUALCOMM is the developer of the airborne terminals currently in service using the Globalstar satellite communications system and is pleased to submit these reply comments to provide the Commission with additional information concerning the restrictions imposed on Globalstar aviation service as a result of the need to meet stringent Radio Astronomy and GNSS protection requirements. In the Further Notice of Proposed Rule Making ("FNPRM") in this proceeding, the Commission noted that it did not have sufficient information about these restrictions and whether these restrictions deter the sharing of additional spectrum in the L Band See FNPRM at para. 98.

QUALCOMM participated in the RTCA Special Committee 165 in the development of the document DO-262 and is therefore qualified to explain the applicability of this document and the requirements which dictate the restrictions imposed on the Globalstar aviation service to frequency bands above 1616 MHz. These restrictions do in fact deter the sharing of additional spectrum in the L Band for reasons explained herein. In reviewing the comments filed in this proceeding, it is clear that further clarification is necessary because the frequency restriction is not a result of failure to meet OOB emission requirements, but a need for Globalstar AES to comply with existing frequency selectivity specifications for airborne GNSS systems.

In these reply comments, QUALCOMM provides a detailed technical explanation of the restrictions imposed on Globalstar's aviation service as a result of DO-262, including an overview of the filtering that has been incorporated in the multi-channel and single-channel products.

TABLE OF CONTENTS

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

In The Matter Of Review of the Spectrum Sharing Plan Among Non-Geostationary Satellite Orbit Mobile Satellite Service Systems in the 1.6/2.4 GHz Bands	)	IB Docket No. 02-364
Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, Including Third Generation Wireless Systems	)	ET Docket No. 00-258

To: The Commission

COMMENTS OF QUALCOMM INCORPORATED

QUALCOMM Incorporated ("QUALCOMM"), by its attorney, hereby submits its Comments in the above-referenced proceeding to provide the Commission with technical information to explain the restrictions imposed on Globalstar in providing aviation services.

I. Background

QUALCOMM is a world leader in developing innovative digital wireless communications products and services based on the Company's patented Code Division Multiple Access (CDMA) digital technology. The Company's business areas include CDMA chipsets and system software; technology licensing; the Binary Runtime Environment for Wireless™ (BREW™) applications platform; Qchat™ push-to-talk technology; Eudora® e-mail software; and satellite-based systems, including portions of the Globalstar™ system and wireless fleet management systems, OmniTRACS® and OmniExpress®. QUALCOMM owns patents that are

essential to CDMA wireless telecommunications standards that have been adopted or proposed for adoption by standards-setting bodies worldwide

II. Globalstar Aviation Products

Iridium has contended that "Globalstar could prevent its out of band emissions from interfering in spectrum below 1614 MHz if it employed better filter technology." Iridium Ex Parte Letter to FCC, dated June 2, 2004, at 1 (quoted in FNPRM at para. 97). In fact, Globalstar's aviation products do indeed employ state-of-the-art filtering to control out of band emissions (OOB), but as discussed in Section III herein, it is not the OOB emissions limits which are restricting the use of Globalstar's aircraft earth station ("AES") terminals to channels above 1616 MHz. Rather, the "Maximum Total Transceiver Output" requirement specified in DO-262 reflects the limitation of current Out-of-Band Continuous Wave (CW) Signal Rejection of airborne GNSS receiver systems, and it is this limitation that dictates that Globalstar's AES terminals operate only on channels above 1616 MHz.

QUALCOMM has developed a Medium Data-rate SATCOM System (MDSS) with bi-directional data rates up to 128 kbps on-demand. This product uses a single carrier with multiple CDMA channels aggregated and was designed to have a maximum transmitter power of 39 dBm per transmitter at the antenna port, with up to two transmitters per aircraft. The total power at the antenna port can be up to 42 dBm. In order to comply with the RTCA out of band emissions requirements and protection of Radio Astronomy a substantial transmit filter was required (see Figure 1 below).

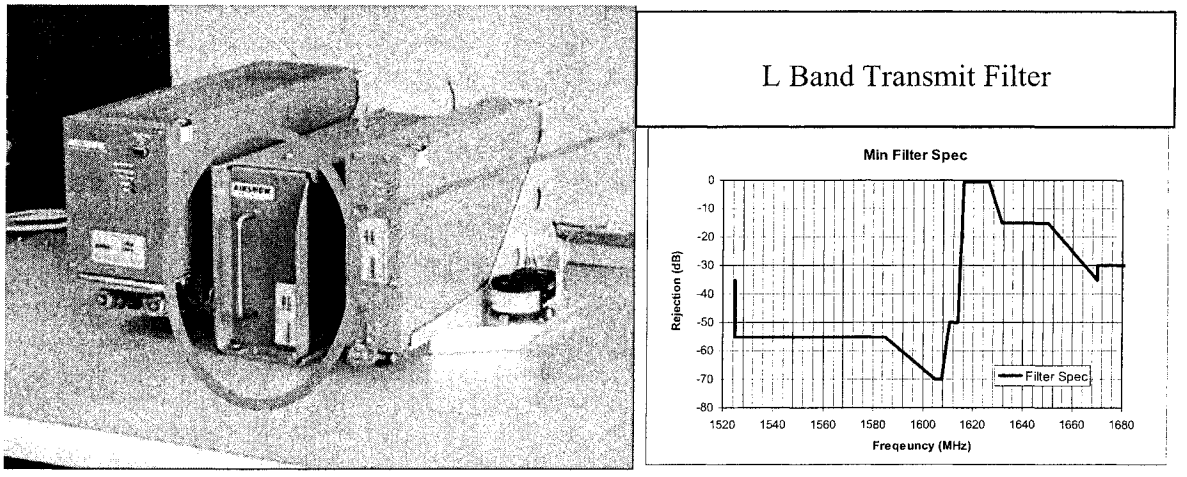
Globalstar Medium Data rate SATCOM System (MDSS) comprises the following

4 MCU tray-mounted Medium Data Rate Terminal (MDT)

2 MCU tray-mounted RF Power Amplifier (RFPA)

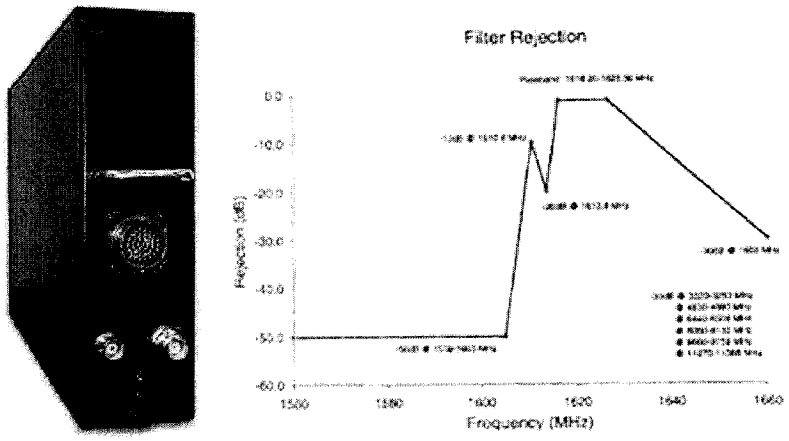
RF Transmit Filter: **max 1.5 dB Insertion loss 1616 to 1626.5 MHz.**

Figure 1.



QUALCOMM has also provided components to avionics manufacturers to produce single-channel airborne products to be used on the Globalstar system. One of the components that is supplied for the single channel product is a transmit filter which is necessary to provide protection for Radio Astronomy and GPS systems installed on board the same aircraft as the Globalstar AES. Figure 2 below shows the single "box" product with an internal transmit filter that meets the rejection characteristics shown in the adjacent plot.

Figure 2



III. RTCA DO-262 Applicability

In Iridium's Comments in this proceeding, Iridium raised a question about the applicability of DO-262 Document given that Globalstar currently provides non-safety services (AMSS) for the aviation industry. Iridium Comments (filed Sept. 8, 2004) at Pg. 14.

QUALCOMM, Globalstar and Iridium participated in the RTCA Special Committee 165, which was commissioned to produce DO-262 (Minimum Operation Performance Standards (MOPS) for the Next Generation Satcom Systems (NGSS)). In the development of this standard, the committee agreed to identify requirements for systems that provide non-safety services and significant time was devoted to identifying the essential compatibility requirements that would apply to a non-safety AES. As a result the following text appears in the RTCA DO-262 document;

Page 1: "Compliance with these standards is recommended as one means of assuring that NGSS avionics will perform its intended function(s) satisfactorily under all conditions normally encountered in routine aeronautical operations. *Any regulatory application of this document is the sole responsibility of appropriate governmental agencies."*

Page 2 paragraph 7: " Appendix C is an informative appendix containing specific recommendations tailoring the requirements contained in this MOPS *for equipment that supports only non-safety AMSS communications*."

Page 15 Definitions: "**Next Generation Satellite System (NGSS):** A satellite communications system that provides AMS(R)S which may be voice, data or both. An NGSS includes AESs, satellites, GESs and network control system facilities that perform administrative and operational management functions. *An NGSS may provide non-AMS(R)S communications."*

Appendix C – "RECOMMENDED STANDARDS FOR AMSS EQUIPMENT NOT PROVIDING AMS(R)S SAFETY SERVICES

This appendix provides guidance on the tailoring of the MOPS requirements for AMSS equipment that does not provide AMS(R)S.....Manufacturers of non-safety AMSS equipment using NGSS technologies are urged to consider all of the antenna (Section 2.2.2.1), transmitter (Section 2.2.2.1.1) and receiver (Section 2.2.2.1.2) requirements as guidance in their design."

In order to comply with the minimum requirements of the RTCA DO-262 document, QUALCOMM and Globalstar, as an NGSS system applicant, submitted information regarding the technical characteristics of the Globalstar NGSS. The technology-specific technical requirements for the Globalstar system were reviewed by the SC-165 committee and this attachment was published by QUALCOMM in 2001.

The QUALCOMM-developed Medium Data Rate Satcom System (MDSS) described in section II has been certified by the FAA using the Supplemental Type Certification (STC) process. The MDSS has been certified on a general aviation aircraft (STC No. ST01064WI) and more recently on a commercial aircraft operated by a major US carrier (STC No. ST10147SC-

D). In both cases, the FAA reviewed a data package, which included reports from tests performed and witnessed in accordance with RTCA DO-262 and the Globalstar Technology Specific Attachment.

Thus, it would not be appropriate for the FCC to disregard the requirements imposed on Globalstar's aviation products as a result of RTCA DO-262. The FAA, in approving these products, relied on QUALCOMM's compliance with RTCA DO-262.

IV. Technical Explanation for Frequency Restriction above 1616MHz

This section addresses the interference issues between the aviation Global Positioning (GPS) System and the Globalstar Aircraft Earth Stations.

The Globalstar AES is designed to have a maximum transmitter power of 39 dBm per transmitter at the antenna port and up to two transmitters per system. The total power at the antenna port is 42 dBm. Because the Globalstar transmit frequency allocation is 1610 MHz to 1621.35 MHz means that the Globalstar AES is a potential interferer to the GPS system (1575.42 MHz) installed on the same aircraft. This section discusses the limitation of current Out-of-Band Continuous Wave (CW) Signal Rejection of GPS sensors/receivers.

The interference between the Globalstar AES and GPS depends on the isolation between two systems.

RTCA DO-262 contains a section "**2.2.3.1.2.1.3 Maximum Total Transceiver Output**" which specifies the total average power output of the transceiver and specifies that the power shall not exceed the values given in Table 2-2 shown below.

Table 2-2 Maximum Carrier Output Level

Minimum Carrier Frequency (MHz)	Maximum Carrier Frequency (MHz)	Transmitter Power in 1 kHz Band
1315	1525	$-0.179 \times (f - 1315) + 29.5$ dBW
1525	1565	$-2.65 \times (f - 1525) - 8$ dBW
1565	1585	-116.5 dBW
1585	1605	-115.0 dBW
1605	1614	$7.67 \times (f - 1605) - 115$ dBW
1614	1626.5	$4.64 \times (f - 1614) - 46$ dBW
1626.5	2000	$0.036 \times (f - 1626.5) + 12$ dBW
2000	above	25.5 dBW

The levels shown in table 2.2 were derived from the GNSS sensor/receiver selectivity specifications and assume a 40 dB isolation between the GNSS antenna and the AMSS or AMS(R)S antenna. The following note appears in DO-262 to explain the derivation of this limit and the isolation assumption.

Note 1: This requirement is included to provide compatibility with the GNSS receiver susceptibility requirements. The linear segments were determined from Appendix B of the GNSS SARPS. The absolute power levels are given at the input to the AMSS/AMS(R)S antenna. The absolute power levels assume a minimum isolation between the GNSS antenna output to the GNSS receiver and the AMS(R)S antenna input of 40 dB. This value is consistent with the assumptions made in DO-210D and the Chapter 4 SARPs.

It is as a result of this maximum transmitter power limitation that the Globalstar AES can only operate at the high frequency end of the MSS band, 1616.26 MHz to 1621.35MHz. At the low frequency end of the MSS band, for example at 1610 MHz, the transmitter power is restricted below 10 dBm (not including GLONASS requirement). Such low power basically prohibits the operation of Globalstar AES. The specification severely limits the Globalstar

aviation service frequency planning and deployment. It also greatly reduces the total data/voice traffic that Globalstar AES systems are capable of providing to and from the aircraft.

In the Globalstar technique specific attachment to DO-262, there is a modification to this section which specifies that Globalstar AES must not be used on board an aircraft which has a GLONASS system because compatible operation would require a significant amount of additional isolation beyond the assumed minimum of 40dB. The technique specific attachment also contains a modified Table 2-2 to reflect the out of band selectivity requirements for GPS only systems (i.e. no GLONASS requirements). Compliance with the GPS requirement is achievable at the higher frequencies (>1616MHz) with additional isolation.

The usable L band channels increase as the isolation increases. This is the method currently in use, but the method is very limited by the size of airplanes. The installation and deployment must be evaluated on a case by case basis. The isolation increases 6 dB theoretically as the antenna physical separation doubles in free space. A minimum of 30 dB increase of the isolation needed at 1610 MHz would require increasing the antenna physical separation $2^5 = 32$ times, comparing 105 inches needed for a standard 40 dB isolation with this multiplier results in an unattainable situation as aircraft length is limited.

In accordance with DO-262 the manufacturer may establish a system-specific requirement different from the assumed 40 dB. Such a requirement shall be declared in the system-specific attachment. When an isolation value different from 40 dB is declared in the system specific attachment, the allowable power output values in Table 2-2 may be changed by an equivalent amount.

The Globalstar Technique specific attachment allow for the limits to be adjusted if the actual GPS antenna and receiver type is known for a particular installation and provides isolation due to integrated filter performance.

From the graphs (Figure 3 and 4) shown below, it is clear that additional isolation (beyond the assumed 40dB) is required even at 1616 MHz before an AES such as the 9dBW Max Power single MDSS system can be demonstrated to comply with the requirements for GPS. To date this additional isolation (up to 15dB) has been achieved through physical isolation combined with higher quality aircraft GPS antenna's with integrated bandpass filters.

This requirement also places a restriction on the lower power single channel AES products which have a transmit power of 2dBW. An additional isolation of up to 6dB needs to be demonstrated for operation at channel 6 and above.

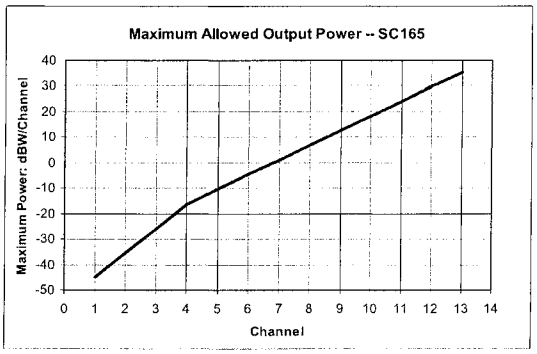


Figure 3

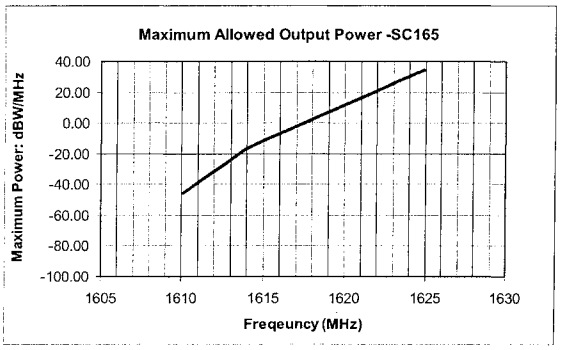


Figure 4

V. Conclusion

QUALCOMM is pleased to provide clarification on the applicability of the RTCA DO-262 specifications and the technical restrictions that this specification imposes on the Globalstar aviation service. QUALCOMM has developed innovative, important aviation products for use on the Globalstar system. However, because the specifications for airborne GNSS

sensors/receivers in DO-262 are less than ideal, Globalstar is effectively restricted to the upper frequency bands of the MSS allocation, i.e., above 1616 MHz.

QUALCOMM has made significant investments in research and development of Globalstar airborne terminals and the cost of such terminals have increased significantly due to the need for compliance with DO-262. The higher power airborne terminals are necessary in order to support the increased voice and data capacity needs of the aviation industry. If Globalstar is to meet the aircraft capacity needs of this industry, then multiple carriers would also be required.

Unless there is a change to the GNSS specifications and a desire by the airlines and general aviation customers to retrofit their aircraft (legacy equipment) with higher quality GPS sensors/receivers (integrated filters) then Globalstar has no choice but to operate at the higher frequency channels for both the single channel and multi-channel AES products.

Respectfully submitted,

By: /s/Dean R. Brenner

Dean R. Brenner
Senior Director, Government Affairs
QUALCOMM Incorporated
2001 Pennsylvania Ave., N.W.
Suite 650
Washington, D.C. 20006
(202) 263-0020
Attorney for QUALCOMM Incorporated

Dated: September 23, 2004

EXHIBIT 3

SAGEM Avionics, Inc.

16923 Meridian East
Puyallup, WA 98375
USA

Phone (253) 848-6060
Fax (253) 848-3555
http://www.sagemavionics.com

September 7, 2004

The Honorable Michael K. Powell
Chairman
Federal Communications Commission
445 Twelfth Street, SW
Washington, DC 20554

RE: Comments in IB Docket No. 02-364

Dear Chairman Powell:

Sagem Avionics, Inc. is submitting this letter to comment on the proposals in the Further Notice of Proposed Rulemaking in the FCC's IB Docket No. 02-364, "Review of the Spectrum Sharing Plan Among Non-Geostationary Orbit Mobile Satellite Service Systems in the 1.6/2.4 GHz Bands," released July 16, 2004.

Sagem Avionics, Inc. hereby explains why the FCC must not require additional spectrum sharing between the Globalstar and Iridium Mobile-Satellite Service ("MSS") systems. For the reasons outlined below, Sagem Avionics, Inc. most strongly requests that the FCC take no further action to encumber access to spectrum currently assigned to the Globalstar system for CDMA Big LEO MSS.

The following facts form the basis for Sagem Avionics, Inc.'s position opposing the proposed further sharing between Globalstar and Iridium:

- Sagem Avionics, Inc. designed, built, and brought to market an aviation qualified, Globalstar-based, satellite telephone product – the RCOM-100 SatPhone (FCC Type Certification FEF-453-8050).

- Sagem Avionics, Inc. has a significantly large number of these satellite phones installed aboard our customer's aircraft. These aviation satellite phones provide vital communications links to the aircraft owners.

- Sagem Avionics, Inc. invested a considerable amount of its Research & Development ("R&D") budget to qualify the RCOM-100 SatPhone to meet Federal Aviation Administration ("FAA") and FCC requirements. These constraints include performance

- requirements for aviation-qualified telecommunications systems developed by RTCA, Inc. for the FAA.

- To meet the out-of-band ("OOB") emissions requirements enforced by RTCA Documents DO-262 and DO-228, the RCOM-100 SatPhone operates only within Globalstar channels 6, 7, 8, and 9, that are only above 1616.265 MHz, the bottom frequency edge of Channel 6. These OOB emissions requirements were developed by RTCA to protect the Global Navigation Satellite Systems, GPS and GLONASS.

- In the Further Notice of Proposed Rulemaking, the FCC has asked whether it would serve the public interest to allow the Iridium TDMA MSS system to operate in all these channels, down to 1616 MHz, on a shared basis with the Globalstar CDMA system.

- Allowing Iridium terminals to operate in these channels will subject Sagem's and Globalstar's aviation service customers to unacceptable and damaging interference.

- The requirements of RTCA DO-262 and DO-228 required Sagem Avionics, Inc. to utilize a state-of-the art frequency filter in the RCOM-100 SatPhone to meet OOB emission limits.

- Sagem Avionics, Inc. is unaware of any filter able to provide protection to the level that would be required in order for the RCOM-100 SatPhone to adequately operate in frequencies co-utilized by both Globalstar and Iridium and also to meet the same requirements of the RTCA documents. Even if such filters exist or could be developed, the costs of retrofitting the existing SatPhones would be prohibitive.

- For example, the Department of Homeland Security has a fleet of aircraft that use the RCOM-100 SatPhones to transmit photo imagery of offshore maritime and other activities to various intelligence and operational agencies in protection of our national security. Sagem Avionics, Inc. is dedicated to continuing to provide quality service to these customers. The FCC's proposed sharing plan, if adopted, would result in degraded quality of service to users of the Sagem Avionics, Inc. RCOM-100 SatPhone. All our customers demand and deserve continued excellent quality of service provided over the Globalstar system.

- Adopting the proposed sharing plan to allow Iridium users to co-use portions of what is now the Globalstar unencumbered frequency assignment will severely degrade the quality of service to Sagem Avionics, Inc. users. This is unacceptable to Sagem Avionics, Inc. and to its users, which include the Department of Homeland Security.

- Moreover, if the FCC adopts the proposed spectrum sharing plan, Sagem Avionics, Inc. would incur severe and negative financial impact.

Accordingly, Sagem Avionics, Inc. strongly urges the FCC to reject any proposal for additional sharing down to 1616 MHz between the Globalstar and Iridium MSS systems.

Respectfully submitted,

Frank R Williams

Frank R. Williams
Vice-President
SAGEM Avionics, Inc.
WA Division