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International Bureau

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Marlene H. Dortch
Secretary
Federal Communications Commission
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RECEIVED

OCT 17 2005

Federal Communications Commission
Office of Secretary

**RE: Iridium Special Temporary Authority
File Nos. SAT-STA-20050923-00180/00181**

**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**

Dear Ms. Dortch:

Globalstar LLC ("Globalstar") hereby requests that the Commission immediately terminate the above-referenced special temporary authority ("STA") authorizations granted to Iridium Satellite LLC ("Iridium") following Hurricanes Katrina and Rita that authorized Iridium to provide service on a temporary basis in the 1616-1618.25 MHz frequency band in which Globalstar is authorized to provide Mobile Satellite Service ("MSS"). As detailed in the attached technical exhibit, Iridium's operations on these frequencies are causing harmful interference to Globalstar's licensed MSS operations, and thus are severely hindering Globalstar's ability to provide reliable service to its customers in the Gulf Coast region.

Immediately following Hurricane Katrina, Iridium sought special temporary authority to operate in the Gulf Coast region in the 1616-1618.25 MHz frequency band, which otherwise is reserved exclusively for Globalstar's MSS operations.^{1/} In its request, Iridium stated that "[g]rant of this STA request is not expected to cause harmful interference to the Globalstar satellite system, which is currently licensed to occupy the same spectrum. *To the extent that harmful interference occurs, Iridium understands and accepts that Iridium may be required*

^{1/} See Public Notice, Policy Branch Information, Actions Taken, Report No. SAT-00318, File No. SAT-STA-20050901-00171 (Sept. 9, 2005). See also File No. SAT-STA-20050923-00181 (30-day STA extension commencing on October 2, 2005).

by the FCC to cease operating in the 1616-1618.25 MHz frequency band.”^{2/} In an effort to help meet the vital communications needs of the region at that time, Globalstar supported Iridium’s temporary operations on a non-interference basis. In granting the STA requests, the Commission placed the following condition on Iridium’s operations: “Iridium shall coordinate all of its operations so that no harmful interference shall be caused to any other lawfully operating satellites or radiocommunication system. *Iridium shall cease operations immediately upon notification of such interference and inform the Commission in writing immediately of such an event.*”^{3/} In the aftermath of Hurricane Rita, Iridium requested, and was granted, similar special temporary authority.^{4/}

As demonstrated in the attached technical exhibit, Globalstar is experiencing harmful interference from Iridium’s operations that is degrading Globalstar’s signal and causing failed and dropped calls at triple the rate previously experienced. Specifically, the link failure rate on Globalstar channels 7 and 8 (1617.495-1619.955 MHz) has increased by up to 18% since Iridium’s has begun operating on Globalstar’s frequencies in the region. As the Commission is aware, Globalstar provides vital communications services throughout the region affected by Hurricanes Katrina and Rita. In the aftermath of the storms, which disabled the wireline and terrestrial wireless telecommunications infrastructures along the Gulf Coast and surrounding area, Globalstar has experienced a significant increase in call volume in the region. Globalstar’s customers in the region include a number of federal and state authorities engaged in the recovery effort. It thus is imperative that the integrity of Globalstar’s links remain intact and that Globalstar be able to provide reliable service to its customers.

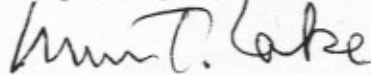
^{2/} Letter from Jennifer D. Hindin, Counsel to Iridium Satellite LLC, to FCC Chairman Kevin J. Martin, September 23, 2005, File Nos. SAT-STA-20050923-00180/00181 (*emphasis added*).

^{3/} Conditions for Grant of Hurricane related STA request, September 23, 2005, File Nos. SAT-STA-20050923-00180/00181 (*emphasis added*).

^{4/} See FCC File No. SAT-STA-20050923-00180 (30-day STA in support of Rita recovery commencing on September 23, 2005).

In light of the foregoing, Globalstar requests that the Commission immediately terminate the STAs in accordance with the express conditions contained therein and require that Iridium cease operations on Globalstar's spectrum.

Respectfully Submitted,



William T. Lake
Counsel to Globalstar LLC

cc: Chip Fleming
Kathryn Medley

Enclosure

GLOBALSTAR LLC AND GLOBALSTAR USA, LLC

Iridium STA - Reverse Link Interference Analysis

File Nos. SAT-STA-20050923-00180 & 00181

Summary

Louisiana and adjacent areas are in the region served by Globalstar's gateway in Clifton, Texas. Following Hurricane Katrina, it was noticed that the link quality for Globalstar return link traffic had degraded even though there was enough Gateway hardware available to serve the high concentration of users in Hurricane region. This link quality was affected even after three weeks when the level of concentration of traffic was significantly lower than the peak level during and immediately after Katrina. This load was similar to the traffic load on the gateway pre-Katrina.

The percentage of call drops in the Globalstar channels, which are shared with Iridium, has **tripled**. Globalstar users in the Louisiana area are experiencing much worse quality of service. The radio link failure rate for all calls went up by about 5% while the radio link failure rate specifically for Globalstar channels 7 and 8 (1617.495 - 1619.955 MHz) went up by 13-18% for 9/22/05 as compared with 8/04/05. The percentage frame error rate reported in call performance data for each call indicating the average link quality of the call went up by about 1.7% on 9/22/05 (post-Katrina) as compared to 8/4/05 (pre-Katrina). Return link spectrum analyzer measurements were made at Clifton. These measurements showed a significant increase in the number of Iridium carriers in Globalstar channels 5-9 (1616.265 - 1621.415 MHz). This increase in the Iridium carriers appears to be causing harmful interference to Globalstar users and to be the primary contributor to the degradation of reverse link quality for Globalstar users. This is evidence of Globalstar's often stated position that Globalstar's CDMA and Iridium's TDMA cannot share the same bandwidth when both systems have high usage.

Introduction

This paper describes the results of the measurements taken in conjunction with Globalstar's effort to improve the quality of service to its users under the extraordinary circumstances following Hurricane Katrina. The following parameters were considered to isolate the factors contributing to the apparent reduction in quality of service:

1. Reverse link call quality
2. Radio link failure rate
3. External source of interference

Two days were chosen such that the traffic load on the system was similar while the call success rate was significantly lower: 8/4/2005 and 9/22/2005. The call success rate for 9/22/2005 was 79.2% while that for 8/4/2005 was 87%. For further investigation, link quality parameter reported in the call performance records was collected for the two days. Radio link failure rates for each day and each return link frequency were also calculated. Spectrum analyzer

measurements were made at Clifton to isolate the source of external interference. The next two sections show the results of the link quality measurements and the interference measurements.

Results of Link quality Measurements

Figures 1 and 2 show the number of simultaneous calls by minute on 8/4/05 and 9/22/05, respectively, in the Clifton gateway service area. These charts show that there was similar traffic load on the gateway on both the days. The peak demand on both days was about 70-75 simultaneous calls. Figures 3 and 4 show the 3-minute average return link quality measurement for the calls on 8/4/05 and 9/22/05, respectively. These charts show that there was a significant increase in the frame error rate (FER) for the reverse link (an indication of link quality for CDMA signals) on 9/22/05 as compared to the same number of simultaneous users on 8/4/05. Table 1 shows the overall average of the FER for both the days. There was about a 1.4% increase in average FER for all calls on 9/22/05 as compared to 8/4/05. There was about a 0.6% increase in the average FER for all successful calls and there was about a 2.5% increase in the average FER for calls that failed with radio link failures.

Table 1 Reverse Link quality measurements for all calls in Clifton gateway service area

	08/04/05	09/22/05
AVG FER (%)	3.30	4.7
AVG FER (%) W/O RLF	2.27	2.9
AVG FER (%) ONLY RLF	14.98	17.5

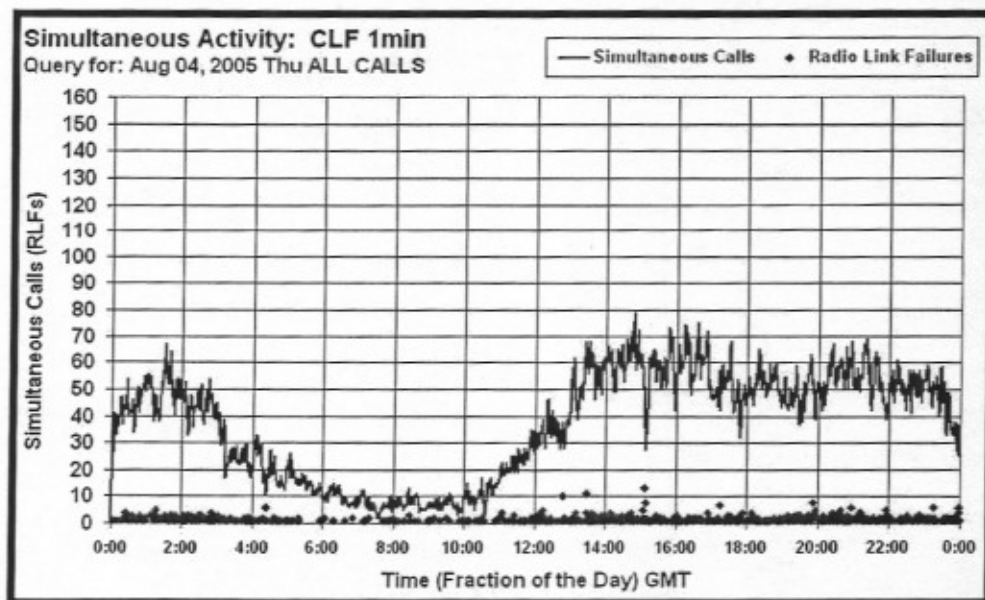


Figure 1 Traffic load in Clifton gateway service area on 8/4/05

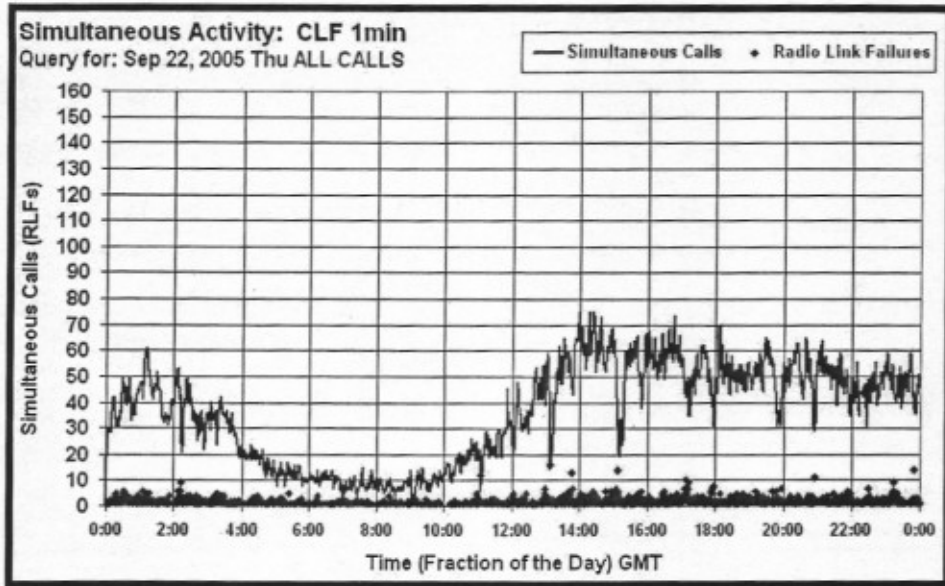


Figure 2 Traffic load in Clifton gateway service area on 9/22/05

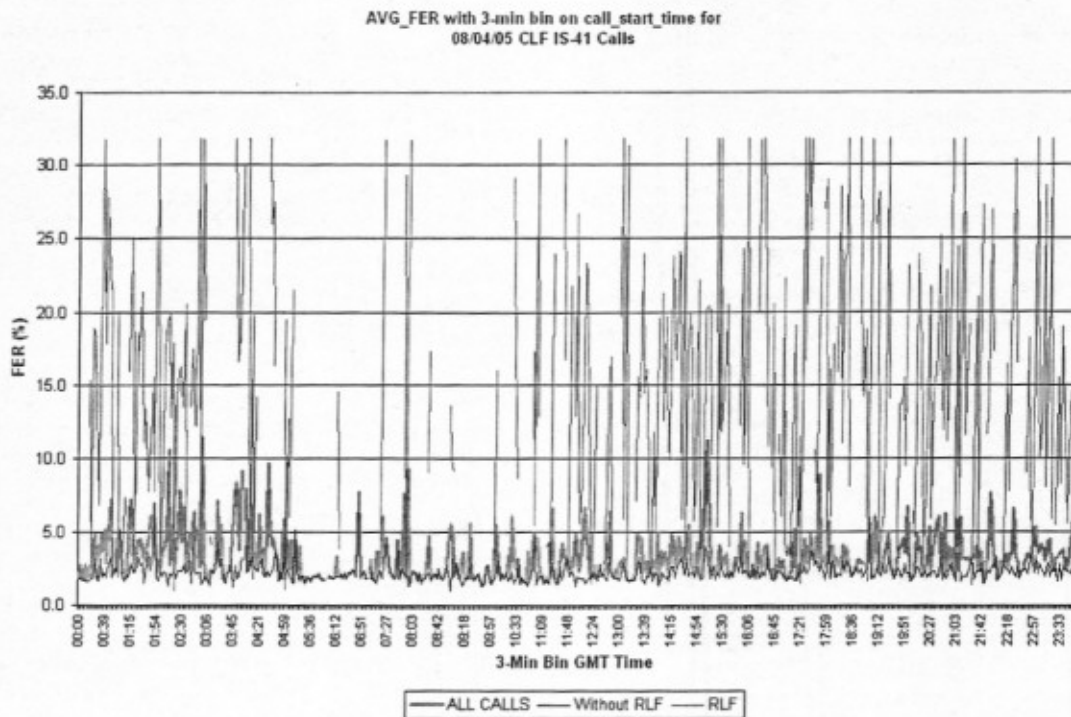


Figure 3 Reverse link quality measurements for Clifton calls on 8/4/05

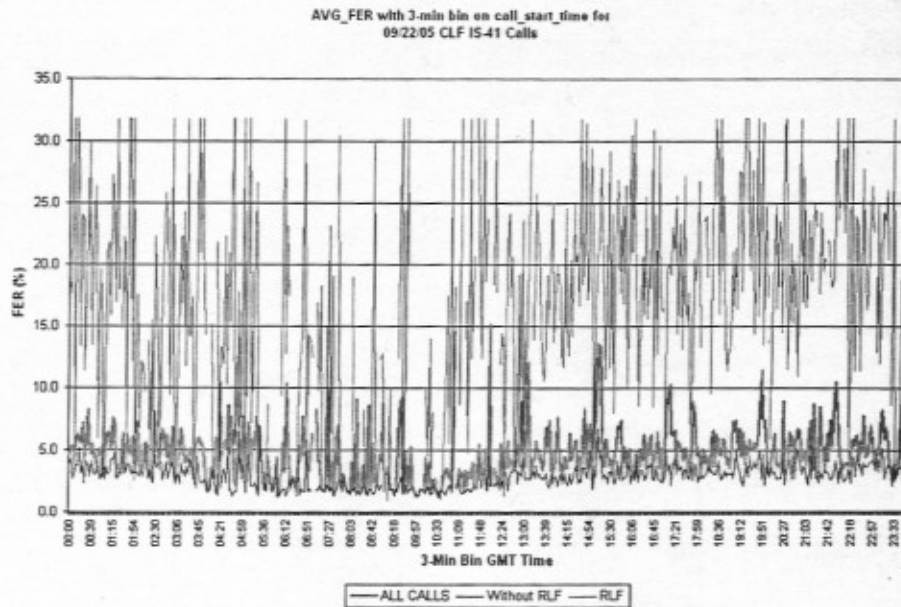


Figure 4 Reverse link quality measurements for Clifton Calls on 9/22/05

As seen in Table 2 below, there was a 5.4% increase in the percentage of radio link failures on 9/22/05 as compared to 8/04/05. Table 3 also shows the percentage of radio link failures for each Globalstar return link frequency used in Clifton gateway. As seen in Table 3, there is about a 13-18% increase in the radio link failures in Channels 7 and 8. Channel 3 was not used on 8/4/2005 and hence, no radio link failures have been reported for Channel 3 in Table 3 for August 4. As the traffic load had not increased from 8/04 to 9/22, the degradation in the link quality and increase in radio link failure rate can only be attributed to an external source of interference. This led to further investigation for the source of the external interference.

Table 2 % Radio Link Failures for Calls in Clifton gateway service area

	08/04/05	09/22/05
% Radio Link Failures	8.10	13.9

Table 3 Radio Link Failures by Globalstar Reverse link Channel

Channel	8/4/2005	9/22/2005
3		14%
7	8%	26%
8	7%	20%

Results of External Interference Investigation

Figure 5 shows the snapshot of spectrum analyzer measurement at 2 GHz IF at Clifton. The 8 square waves in the figure show the 8 beams and Globalstar channels 1-9. Globalstar CDMA signals are like the upper noise level of the square wave while the external interference

can be seen as the narrowband spikes, which are 5-15 dB higher than the Globalstar user noise floor.

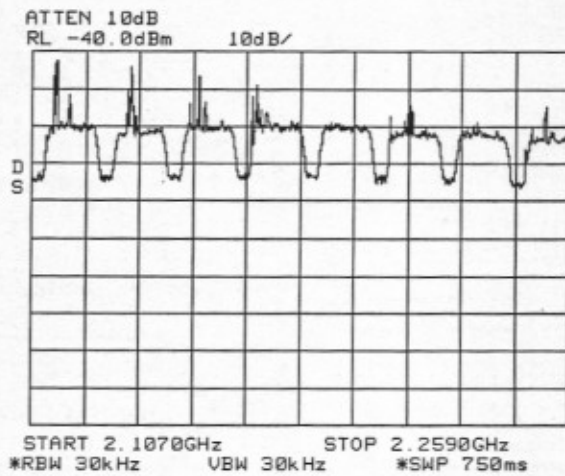


Figure 5 Spectrum Analyzer Measurements at Clifton Gateway at IF

Multiple measurements were made during different satellite passes. Each measurement was recorded using 30-second peak hold of a 750 ms sweep with 30 kHz resolution bandwidth. Four such measurements were made during each satellite pass. The number of spikes which have spectral characteristics similar to Iridium carriers were counted during each satellite pass. Figure 6 shows the number of Iridium carriers for three satellite passes in Globalstar channels 1-9. The figure also shows the past measurements of Iridium carriers in February 2005, where all Iridium traffic was present only in Channels 9-13 (1621.35 - 1626.5 MHz).

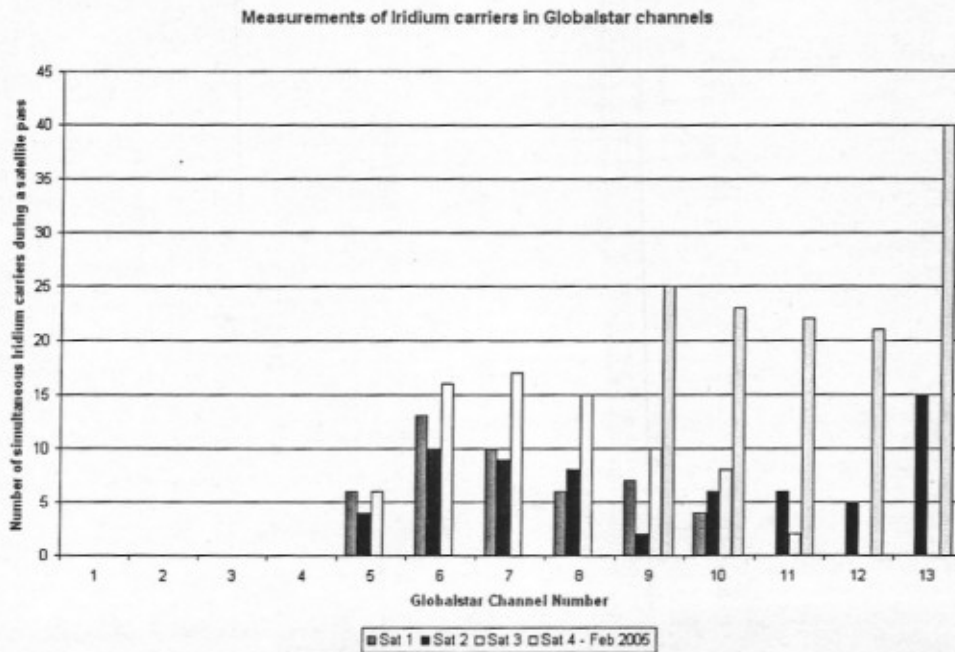


Figure 1 Iridium Carrier Measurement in Globalstar channels

Figure 6 shows that there is an increase in the Iridium traffic in Globalstar channels 5-9, which is contributing to the degradation of return link quality for Globalstar's users.