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# LATHAM & WATKINS LLP

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March 17, 2009

### VIA HAND DELIVERY

Ms. Marlene H. Dortch  
Secretary  
Federal Communications Commission  
445 12th Street, SW  
Washington, DC 20554

**FILED/ACCEPTED**  
**MAR 17 2009**  
Federal Communications Commission  
Office of the Secretary

Re: ViaSat, Inc. Milestone Compliance Showing for VIASAT-KA1, Call Sign S2737,  
File Nos. SAT-LOA-20070314-00051, SAT-MOD-20080718-00144, SAT-AMD-  
20081203-00220

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Dear Ms. Dortch:

Pursuant to Section 25.164(d) of the Commission's rules, ViaSat, Inc. ("ViaSat") hereby submits documentation to demonstrate compliance with the critical design review ("CDR") construction milestone set forth in its authorization to launch and operate the VIASAT-KA1 satellite at the 77.3° W.L. orbital location. The VIASAT-KA1 license provides for ViaSat to complete the CDR for this satellite by July 18, 2009.<sup>1</sup>

To demonstrate compliance with this construction milestone, enclosed are: (i) a certification of completion of CDR, and (ii) a copy of the minutes from the CDR indicating that CDR was completed on January 30, 2009. Based on this evidence, ViaSat respectfully requests that the Commission find that the CDR milestone for the VIASAT-KA1 satellite has been satisfied and authorize the reduction of ViaSat's performance bond accordingly.

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<sup>1</sup> See File No. SAT-LOA-20070314-00051 (granted July 18, 2007).

LATHAM & WATKINS<sup>LLP</sup>

Please do not hesitate to contact the undersigned if you have any questions regarding this submission.

Respectfully submitted,

A handwritten signature in black ink, appearing to be a cursive signature of John P. Janka and Elizabeth R. Park, with a long horizontal flourish extending to the left.

John P. Janka  
Elizabeth R. Park

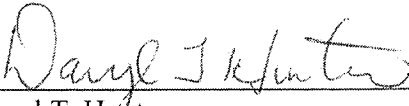
Enclosures

cc: Robert Nelson  
Stephen Duall

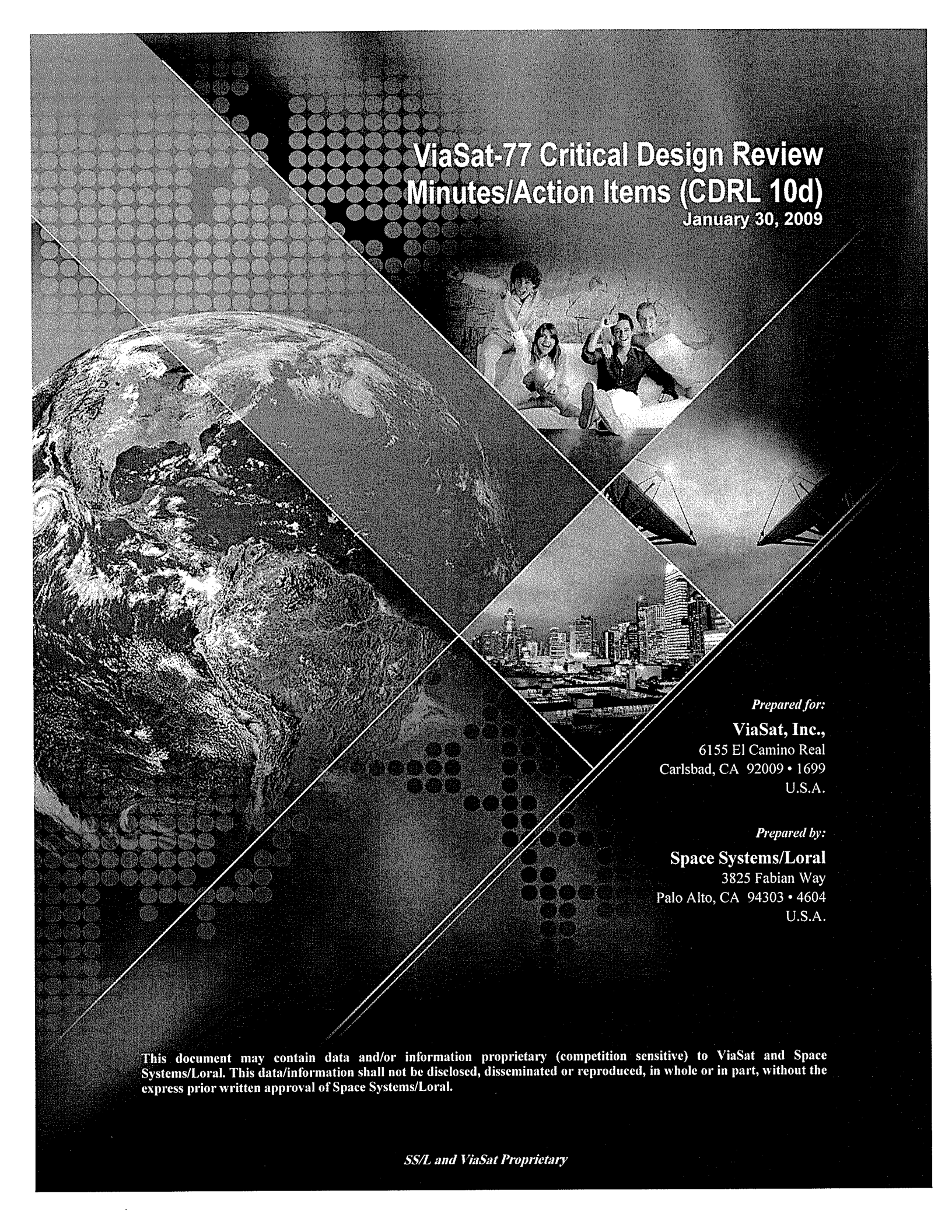
## CERTIFICATION

I, Daryl T. Hunter, certify under penalty of perjury that:

1. I am the Director, Regulatory Affairs of ViaSat, Inc.
2. Critical Design Review, as defined in the Contract between ViaSat, Inc. and Space Systems/Loral, Inc. for the ViaSat "77" Satellite Program, dated as of July 14, 2008 (the "Contract"), for the manufacture of ViaSat's licensed Ka-band geostationary fixed-satellite service satellite to be launched and operated at the 77.3° W.L. orbital location, was completed on January 30, 2009.

  
\_\_\_\_\_  
Daryl T. Hunter

March 12, 2009



# ViaSat-77 Critical Design Review Minutes/Action Items (CDRL 10d)

January 30, 2009

*Prepared for:*

**ViaSat, Inc.,**  
6155 El Camino Real  
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U.S.A.

*Prepared by:*

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*SS/L and ViaSat Proprietary*

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## SUMMARY

The ViaSat-77 Critical Design Review (CDR) was held at Space Systems/Loral in Palo Alto on January 30, 2009. The CDR was completed successfully agreement was reached to continue the program according to plan. Action Items were generated and are documented herein. Participants were:

### ViaSat, Inc.

Marc Agnew  
Mark Miller  
Dave Abrahamian  
Aaron Mendelsohn  
John Tchorz  
Daryl Hunter

### Space Systems/Loral, Inc.

Greg Bossert  
Michel Baylocq  
Jon Danckwerth  
Jim Sowers  
Greg Harms

# MINUTES

## 1.0 INTRODUCTION / WELCOME

The objectives of the CDR were identified and significant program accomplishments were discussed. The program plan is on-track and progressing smoothly.

## 2.0 SPACECRAFT OVERVIEW AND SYSTEM BUDGETS

The current design status of the satellite and the latest mass, power, thermal, pointing, and OML budgets were presented and discussed. Budgets demonstrate positive margins.

## 3.0 SYSTEM PROCESSES

### 3.1 Integrated Program Plan

The ViaSat-77 schedule was presented and progress was discussed. Program schedule contingency remains at 2 months as originally planned.

### 3.2 Product Assurance

All hardware development and qualification was accomplished on the ViaSat-1 program. The Product Assurance program for VS-77 was addressed to capture and assess changes from VS-1.

### 3.3 Reliability Analyses

The updated reliability analysis was presented. Reliability was shown to be compliant to specifications.

## 4.0 SPACECRAFT LEVEL REQUIREMENTS

### 4.1 Exhibit B Review

All system level requirements from Exhibit B have been satisfied.

### 4.2 ERS/Space Environments

The satellite design was shown to be consistent with 18 years of space environment. Venting profiles were also presented for several LVs.

## 5.0 SPACECRAFT CONFIGURATION

The external and internal configurations of the VS-77 satellite were presented and discussed.





## **6.0 PAYLOAD SYSTEM**

### **6.1 ViaSat-77 Communications Payload**

The payload design and predicted performance was discussed. AI #1 - #3 were generated regarding the baseline beam mappings and possible variations.

Further detail was provided on each of the Forward and Return Payloads.

### **6.2 LNAs**

The design overview and performance status of the SS/L LNAs was presented.

### **6.3 Downconverters**

The design overview and performance status of the SS/L downconverters was presented.

### **6.4 MPM**

The Tesat MPM build status and design overview were discussed. Performance results were also addressed. Separate discussions of the Thales TWTs and Tesat LCAMPs were also undertaken.

### **6.5 MRO/MLO**

The design overview and performance status of the Lucix MRO/MLO was provided. AI #4 was generated to investigate options for output detection of the MLO.

### **6.6 Input Filters/Output Filters/Switch**

A design and performance discussion of each filter type was provided. Included were: output diplexer with harmonic filter; output combiner; output harmonic filter; channel filter; pre-select filter; and harmonic filter.

### **6.7 Antennas**

A presentation of RF design and performance for the ViaSat-77 antennas was provided. Each separate sub-component was discussed in detail, including: feeds, splashplates, and reflectors.

The mechanical design of the ViaSat-77 antenna subsystem was then presented.

### **6.8 Radio Frequency AutoTrack (RFAT)**

#### **6.8.1 RFAT Subsystem Design & Req**

An overview discussion of the ViaSat-77 RFAT subsystem was provided. AI #5 was generated regarding ground TCR locations.

### **6.8.2 RF Sensor Design**

Further detailed information was provided on the RF components of the autotracking system including the PSN, switches, filters, LNA, and receiver.

### **6.8.3 RFAT Dynamics & Controls**

The RFAT control loop design and performance was presented.

### **6.8.4 RFAT Controller Design**

Presentation of the RFAT subsystem was finished with a discussion of the RAP design and performance and test philosophy.

## **7.0 TC&R SUBSYSTEM AND BEACON**

A detailed discussion of the TCR subsystem along with component designs and performance was provided.

## **8.0 ATTITUDE CONTROL SUBSYSTEM (ACS)**

### **8.1 ACS Overview**

An overview presentation of the ACS was provided. No changes were noted from ViaSat-1.

### **8.2 ACS Subsystem H/W**

The ACS subsystem hardware design and performance was discussed.

### **8.3 ACS Dynamics and Controls**

A discussion of the ACS Dynamics and Controls design was provided.

### **8.4 ACS FDIR Overview**

The Fault Detection Isolation and Recovery approach for the ViaSat-77 ACS was reviewed.

### **8.5 ACS Flight Software**

The ACS Flight Software was presented to be virtually identical to ViaSat-1.

## **9.0 DATA HANDLING SUBSYSTEM (DHS)**

### **9.1 DHS Overview**

An overview of the DHS was provided.

### **9.2 DHS Hardware**

The hardware components of the DHS were discussed from a performance and design standpoint.

### **9.3 DHS Flight Software**

An overview of the flight software modules and performance characteristics was provided.

### **9.4 DHS FDIR Overview**

A presentation of the failure detection and recovery for ViaSat-77 was provided.

## **10.0 ELECTRICAL POWER SUBSYSTEM (EPS)**

### **10.1 EPS Overview and Requirements**

The EPS design and requirements for ViaSat-77 were shown to be very similar to ViaSat-1.

### **10.2 EPS Hardware**

The design and performance of EPS hardware components was provided.

### **10.3 Battery**

A briefing on the LiIon battery design and performance was provided.

### **10.4 Solar Array**

The solar array design and performance was provided.

## **11.0 THERMAL CONTROL SUBSYSTEM**

The ViaSat-77 thermal control subsystem was reviewed.

## **12.0 PROPULSION SUBSYSTEM DESIGN**

The bipropellant and electrical (Stationary Plasma Thruster) propulsion system design, operation, and performance were discussed in detail.

## **13.0 STRUCTURE SUBSYSTEM**

### **13.1 Structure Subsystem Requirements**

The requirements for the primary and secondary structure were presented.

### **13.2 Structure Subsystem Description**

The structural design and heritage of the ViaSat-77 satellite was discussed.

### **13.3 Tower Design**

The principal component of the secondary structure, the tower, was described in detail.

### **13.4 Satellite Structure Analysis**

Results of the principal structural analyses were reviewed.

#### 14.0 MECHANISMS SUBSYSTEM

A brief design and heritage discussion was provided for each of the satellite mechanisms.

#### 15.0 ASSEMBLY, INTEGRATION, AND TEST

The key steps and philosophy of the serial-flow system-level assembly, integration, and test sequence were reviewed in detail.

#### 16.0 LAUNCH VEHICLE SYSTEMS

An overview of the SS/L experience and history with each applicable launch vehicle for ViaSat-77 was provided.

#### 17.0 MISSION ANALYSIS

The analysis for the ViaSat-77 mission was briefly discussed.

#### 18.0 MISSION PLANNING


The mission sequence and planning exercises were shown to be very similar to ViaSat-1.

#### 19.0 IN-ORBIT TEST


The in-orbit test sequence and philosophy were discussed in an overview sense.

The ViaSat-77 CDR was completed successfully and all approve to move forward as planned.

Concur:



ViaSat, Inc.



Space Systems/Loral

SPACE SYSTEMS  
**LORAL**

SS/L-TR02092  
System CDR – Actions/Minutes

## ACTION ITEMS

<i>Action No.</i>	<i>Description</i>	<i>Actionee</i>	<i>Due</i>
1.	p. 89: The user beam and gateway for St John's are not overlaid exactly. What are the implications to overlay exactly?	Jim Sowers	15-March
2.	p. 89 The Puerto Rico beam is shown to originate from the NW reflector? What drives it to originate from NW versus another reflector?	Mike Djobadze	15-March
3.	p. 90: The number of 2, 3 and 4 color gateways is not identical to ViaSat-1. How does this effect the objective to have an identical repeater design?	Jim Sowers	15-March
4.	Investigate options for output detection of the MLO.	Jim Sowers	15-March
5.	Is there flexibility in the location of the two TCR ground sites other than St. Louis and Louisville.	Yassir Azziz	15-March
6.	ViaSat to confirm that collocation of the uplink beacon sites with the TCR ground sites is the plan.	ViaSat	15-March
7.	ViaSat to confirm that the TCR RF frequencies, duplicated from ViaSat-1, are consistent with coordination at 77 West Longitude.	ViaSat	15-March