

Carl Huie

From: Ryan, Ken [kryan@comsearch.com]
Sent: Tuesday, June 08, 2004 4:58 PM
To: Carl Huie
Cc: Gjertson, William G; Stromsland, Kari L
Subject: RE: Sea Launch Frequency Coordination

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Carl:

Attached is the frequency coordination report for the US Sea Launch re-rad being performed this week in Long Beach, CA. The analysis and coordination indicated that no potential for interference into local 4 and 6 GHz microwave, 4 GHz receive FSS earth stations, and local BAS activities will occur. We have contacted the licensees or their protection agents to secure clearances. Clearances or conditionals clearances have been provided by the licensees. If you have any questions please call.

regards,

Ken

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FREQUENCY COORDINATION AND INTERFERENCE
ANALYSIS REPORT

PREPARED FOR
US SEA LAUNCH

LONG BEACH, CA
SATELLITE RE-RAD TESTING
FCC STA # 0199-EX-ST-2004

PREPARED BY
COMSEARCH
19700 JANELIA FARM BOULEVARD
ASHBURN, VIRGINIA 20147
JUNE 8, 2004

SEA LAUNCH COORDINATION REPORT

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SEA LAUNCH COORDINATION REPORT

1. CONCLUSIONS

AN INTERFERENCE STUDY CONSIDERING ALL EXISTING, PROPOSED AND PRIOR COORDINATED MICROWAVE AND SATELLITE FACILITIES WITHIN THE COORDINATION CONTOURS OF THE PROPOSED RE-RAD TEST BED IN LONG BEACH, CA DEMONSTRATES THAT THIS SITE WILL OPERATE SATISFACTORILY WITH THE COMMON CARRIER MICROWAVE AND SATELLITE ENVIRONMENT BASED UPON THE TEMPORARY OPERATIONS NOTED IN THE SUMMARY OF RESULTS (SECTION 2).

SEA LAUNCH COORDINATION REPORT

2. SUMMARY OF RESULTS

A NUMBER OF GREAT CIRCLE INTERFERENCE CASES WERE IDENTIFIED DURING THE INTERFERENCE STUDY OF THE PROPOSED TEMPORARY RE-RAD TEST. EACH OF THE CASES WHICH EXCEEDED THE INTERFERENCE OBJECTIVE ON A LINE-OF-SIGHT BASIS WAS ANALYZED AND RESOLVED USING PROFILES AND THE PROPAGATION LOSSES ESTIMATED USING NBS TN101 (REVISED) TECHNIQUES OR FREQUENCY OFFSET. THE LOSSES AND/OR FREQUENCY OFFSET WERE FOUND TO BE SUFFICIENT TO REDUCE THE SIGNAL LEVELS TO ACCEPTABLE MAGNITUDES IN EVERY CASE. THE LONG BEACH TEST SETUP WILL ONLY OPERATE WITHIN THE FOLLOWING FREQUENCY BAND TO ENSURE THAT NO INTERFERENCE WILL OCCUR: 5850.5 MHZ +/- .5 MHZ, 6425 MHZ +/- 0.5 MHZ AND 3630 MHZ +/- 2 MHZ AND 4199 +/- 2 MHZ. THE OPERATION WILL ALSO BE LIMITED TO A 5 DAY PERIOD BETWEEN JUNE 8, 2004 AND JUNE 12, 2004.

THE ANALYSIS INDICATED THAT FOLLOWING COMPANIES COULD HAVE POTENTIAL GREAT CIRCLE INTERFERENCE CONFLICTS THAT DID NOT MEET THE OBJECTIVES ON A LINE-OF-SIGHT BASIS. WHEN OVER-THE-HORIZON LOSSES AND FREQUENCY OFFSET ARE CONSIDERED ON THE INTERFERING PATHS, SUFFICIENT BLOCKAGE EXISTS TO NEGATE HARMFUL INTERFERENCE FROM OCCURRING WITH THE PROPOSED TRANSMIT AND RECEIVE EARTH STATION.

COMPANY

4 GHZ MICROWAVE

- ALL CASES CLEAR C/I CO AND XPOL OBJECTIVES

6GHZ MICROWAVE

- ALL CASES CLEAR C/I CO AND XPOL OBJECTIVES

SEA LAUNCH COORDINATION REPORT

2. SUMMARY OF RESULTS (CONTINUED)

4 GHZ EARTH STATIONS*

COMCAST OF LOS ANGELES	PANAMSAT
DIGITAL RADIO LABS	COMMAND CORP
HUGHES COMMUNICATIONS	CALIFORNIA BROADCAST CENTER
INTELSAT	CALIFORNIA STATE UNIVERSITY
LASON SYSTEMS	SES AMERICOM

* ALL EARTH STATIONS WERE COORDINATED FOR THE ENTIRE 4 GHZ BAND. AFTER CONTACTING EACH CLIENT IT WAS DETERMINED THAT NO STATIONS WERE CURRENTLY OPERATING NEAR THE 4198-4200 MHZ BAND AND THAT NO INTERFERENCE WILL OCCUR.

SEA LAUNCH COORDINATION REPORT

3. SUPPLEMENTAL SHOWING RE: PART 25.203(C)

PURSUANT TO PART 25.203(C) AND 101.103(D) OF THE FCC RULES AND REGULATIONS, THE SATELLITE RE-RAD TEST PROPOSED IN THIS STA APPLICATION WAS COORDINATED BY COMSEARCH USING COMPUTER TECHNIQUES AND IN ACCORDANCE WITH PART 25 OF THE FCC RULES AND REGULATIONS.

COORDINATION DATA FOR THIS EARTH STATION WAS PERFORM VERBALLY AND USING EMAIL DURING THE PERIOD BETWEEN MAY 20 AND JUNE 8, 2004. THE FOLLOWING LICENSEES OR THEIR PROTECTION AGENTS WERE CONTACTED.

4 GHZ MICROWAVE LICENSEES CNG COMMUNICATIONS

4 GHZ EARTH STATION LICENSEES
COMCAST OF LOS ANGELES
PANAMSAT
DIGITAL RADIO LABS
ON COMMAND CORP
HUGHES COMMUNICATIONS
CALIFORNIA BROADCAST CENTER
INTELSAT
CALIFORNIA STATE UNIVERSITY
LASON SYSTEMS
SES AMERICOM

6 GHZ MICROWAVE LICENSEES NO CASES FOUND DURING ANALYSIS

LOCAL LA, CA SBE COORDINATOR HOWARD FINE CONTACTED

SEA LAUNCH COORDINATION REPORT

4. EARTH STATION COORDINATION DATA

THIS SECTION PRESENTS THE DATA PERTINENT TO FREQUENCY COORDINATION OF THE PROPOSED EARTH STATION, WHICH WAS CIRCULATED TO ALL COMMON CARRIERS WITHIN ITS COORDINATION CONTOURS. THE TEST WAS ANALYZED AND COORDINATED AS TWO SIMPLEX POINT-TO-POINT MICROWAVE LINKS. THE STA REQUEST HAS A COMPLETE DESCRIPTION OF THE RE-RAD SYSTEM SET-UP. THE WORST CASE POWER LEVELS EMANATING FROM THE TEST SETUP WERE CONSIDERED IN THIS ANALYSIS.

LINK 1 - COMMAND LINK

TRANSMIT SITE - LAUNCH PLATFORM

TX LATITUDE: 33 44 43 N

TX LONGITUDE: 118 13 28 W

TX GND ELEVATION: 0 FT

TX ANTENNA CENTERLINE: 185 FT

RECEIVE SITE: SPACECRAFT

RX LATITUDE: 33 44 41 N

RX LONGITUDE: 118 13 28 W

RX GND ELEVATION: 0

RX ANTENNA CENTERLINE: 315 FT

TX ANTENNA TYPE: 3 FT PARABOLIC

TX ANTENNA GAIN: 30 DBI

TX FREQUENCY: 5850.5 MHZ, 6425 MHZ

TX POWER: 30 DBM

EMISSION: 1 MHZ PSK/FSK/FM

SEA LAUNCH COORDINATION REPORT

LINK 2 - TELEMETRY LINK

TRANSMIT SITE - INTEGRATED LAUNCH VEHICLE

TX LATITUDE: 33 44 41 N

TX LONGITUDE: 118 13 28 W

TX GND ELEVATION: 0 FT

TX ANTENNA CENTERLINE: 315 FT

RECEIVE SITE: ASSEMBLY AND COMMAND SHIP

RX LATITUDE: 33 44 44 N

RX LONGITUDE: 118 13 25 W

RX GND ELEVATION: 0

RX ANTENNA CENTERLINE: 185 FT

TX FREQUENCIES: 3630 MHz, 4199 MHz

TX ANTENNA TYPE: 3 FT PARABOLIC

TX ANTENNA GAIN: 3 DBI

TX POWER: 27 DBM

EMISSION: 2 MHZ BPSK

SEA LAUNCH COORDINATION REPORT

5. CERTIFICATION

I HEREBY CERTIFY THAT I AM THE TECHNICALLY QUALIFIED PERSON RESPONSIBLE FOR THE PREPARATION OF THE FREQUENCY COORDINATION DATA CONTAINED IN THIS APPLICATION, THAT I AM FAMILIAR WITH PARTS 101 AND 25 OF THE FCC RULES AND REGULATIONS, THAT I HAVE EITHER PREPARED OR REVIEWED THE FREQUENCY COORDINATION DATA SUBMITTED WITH THIS APPLICATION, AND THAT IT IS COMPLETE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

BY:
KENNETH G. RYAN, P.E.
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DATED: JUNE 8, 2004