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LASER CLEARINGHOUSE REPORTS HANDBOOK

Change 6
June 16, 2017

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Summary of Changes

Version	Summary of Changes
Initial approval	Initial release, October 14, 2004; signed by Captain Patrick M. Mills, U.S. Navy, Director of Operations for Cheyenne Mountain Operations Center, U.S. Strategic Command.
Revision A	Revision A1, dated March 15, 2005 was signed by Captain Patrick M. Mills, U.S. Navy, Director of Operations for Cheyenne Mountain Operations Center, U.S. Strategic Command. Contains editorial and administrative updates.
Change 1	Change 1 dated August 26, 2006 was signed by MAJ Patrick Suggs, U.S. Army. The primary change was to delete the electronic message formats covered in the recently published LCH Spiral 3 Deconfliction System Interface Control Document. In addition, administrative updates were made to reflect the evolving organizational titles in USSTRATCOM and the Cheyenne Mountain Directorate plus a new unclassified email address for the Space Control Center.
Change 2	Updated the Inadvertent Illumination Notification and Report to add clarification. In addition, administrative updates were made to reflect the organizational title of the Joint Space Operations Center (replacing the Space Control Center).
Change 3	Revised the title of the Notification of Laser Firing Outside Authorized P/A Parameters and Report of Laser Firing Outside Authorized P/A Parameters. Added in Laser Activity Summary Report information.
Change 4	Revised J95 to USV and replaced JSpOC SSA Ops to Combat Operations Division (COD) Space Battle Duty Technician (SBDT). Updated LCH and COD contact information. Updated ICD to LP 14-1.
Change 5	Revised JSpOC USV to J3 and replaced JSpOC Space Battle Duty Technician with Senior Awareness Duty Technician (SADT). Updated LCH and SADT contact information. Updated Space Deconfliction System Interface Control Document (ICD) to LP 14-2. Also changed “predictive avoidance” terminology to “deconfliction.” Renamed “Laser Test Master Schedule” to “Master Test and Operations Schedule.” Incorporated “30-Day Outlook” into “Master Test and Operations Schedule.”
Change 6	Various wording and formatting changes, as well as simplification of report templates.

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1 INTRODUCTION

1.1 Purpose

The Laser Clearinghouse (LCH) Reports Handbook contains voice and electronic report and message templates required for information and data exchange between the LCH and laser owners/operators (LO/O). Additional data exchange formats are defined in the LCH Interface Control Document (ICD).¹ This handbook applies to any laser programs receiving deconfliction support from the LCH or Joint Space Operations Center (JSpOC).

The LCH and LO/Os must work together to provide safe and responsible laser activities, as required by Department of Defense Instruction (DoDI) 3100.11.² LO/Os with non-waived lasers require Joint Functional Component Command for Space (JFCC SPACE) authorization to conduct laser activities per the U.S. Strategic Command (USSTRATCOM) Instruction.³ Authorization is granted upon approval of the laser program Deconfliction and Capability Validation plans. DoD LO/Os must obtain deconfliction from the LCH or JSpOC prior to conducting laser activities, per the individual laser deconfliction plans.

Laser programs currently conducting activities under previous agreements may continue to do so, with the understanding that further implementation of the DoDI or other changes to the deconfliction process may prompt mandatory revision to applicable agreements.

1.2 Handbook Maintenance

The Laser Clearinghouse is the controlling authority for this Handbook. The Laser Clearinghouse Chief can approve and implement revisions and updates as required. At a minimum, the Handbook will be reviewed every two years.

1.3 Points of Contact

Table 1 contains phone numbers and e-mail addresses for the LCH and JSpOC Senior Awareness Duty Technician (SADT).

Table 1 - Points of Contact.

	LCH	JSpOC SADT
Address	LCH/J39/JFCC SPACE 747 Nebraska Ave, Room B209 Vandenberg AFB, CA 93437	JSpOC/JFCC SPACE Building 8410 Vandenberg AFB, CA 93437
E-mail	laserclearinghouse@us.af.mil	JSpOCSSAOps@us.af.mil (subject line include Attention: SADT)
SIPRNet	usaf.vandenberg.afspc.mbx.jspoc-lch@mail.smil.mil	JSpOCSSAOps@afspc.af.smil.mil (subject line include Attention: SADT)

¹ *Interface Control Document for the USSTRATCOM JFCC SPACE [LP 14-2] Space Deconfliction System*, DM-06914 Version 02, December 5, 2014.

² DoD Instruction 3100.11, *Management of Laser Illumination of Objects in Space*, October 24, 2016.

³ U.S. Strategic Command Strategic Instruction 534-12, "Laser Deconfliction Process," July 25, 2007. Note: this Instruction will be revised to reflect the new DoDI 3100.11. Further changes to this Handbook may result.

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	LCH	JSpOC SADT
Unclassified Phone	(805) 606-1282, DSN 276-1282 (805) 606-1075, DSN 276-1075	(805) 605-6546, DSN 275-6546
Secure Phone	(805) 606-1282, DSN 276-1282 (805) 606-1075, DSN 276-1075	(805) 606-7546, DSN 276-7546
Secure Fax	Contact the LCH	(805) 605-3509

1.4 Reports

Table 2 lists the voice and electronic reports detailed in this Handbook, and includes the Information Exchange Requirement (IER) number, report name, type, the report source and recipient, and the timeliness requirements or special considerations.

Reports may be Classified or Unclassified. Classification will be based on the laser system's Security Classification Guide. The Secure Internet Protocol Router Network (SIPRNet) is the preferred method of text message reporting of SECRET information. The Joint Worldwide Intelligence Communications System (JWICS) will be used for higher classifications.

The IERs in this table apply to all laser programs regardless of the deconfliction approach (centralized, decentralized, or hybrid).

Table 2 - List of Voice and Text Reports.

IER #	Name/Reference	Type	From	To	Schedule
1	Master Test and Operations Schedule (details in Section 3.3)	Spreadsheet	LO/O	LCH	Monthly projections of laser firing; update by 15 th of preceding month.
4	Laser Status Report (details in Section 2.2)	Voice	LO/O	LCH or JSpOC	1 hour prior to the start of daily laser activities.
5	Space Event Notification (details in Section 2.5)	Voice	LCH or JSpOC	LO/O	As soon as possible following determination of a space event.
6	Quick Look Report (details in Section 2.3)	Voice	LO/O	LCH or JSpOC	Within 15 minutes after completion of all daily laser activities.
7	Laser firing Outside Authorized Parameters (LOAP) Notification (details in Section 2.4)	Voice	LO/O	LCH or JSpOC	Within 15 minutes of determination of laser firing outside authorized deconfliction parameters.
8	LOAP Report (details in Section 3.2)	Text	LO/O	LCH	Within 12 hours of Notification of Laser firing Outside Authorized Parameters (IER #7).

Table 3 lists formatted messages used in centralized, decentralized and hybrid deconfliction for

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satellite safety⁴. The Program Request Message (PRM - IER #2) is the LO/O's support request with information about the mission, lasers, targets, activity dates and times, and points of contact. The LCH or JSPOC will respond to the PRM with the Program Approval Message (PAM - IER #3) listing open laser firing windows and other pertinent details.

Table 3 - List of ICD Reports.

IER #	Name/Reference	Type	From	To	Schedule
2	Program Request Message (details in ICD Section 4.2.1.1)	Text or XML	LO/O	LCH or JSPOC	Note: used for centralized and hybrid deconfliction only. Between 30 days and 3 days prior to laser activity; see Deconfliction Plan for more detailed schedule constraints.
3	Program Approval Message (details in ICD Section 4.2.2.2)	Text or XML	LCH or JSPOC	LO/O	Note: used for centralized and hybrid deconfliction only. Approximately 1 day prior to laser activity or per Deconfliction Plan.
9	Laser Activity Summary Report (details in ICD Section 4.2.1.3)	Text	LO/O	LCH	Archive the data necessary to complete the report for one year and generate within 3 days upon request from LCH. If a LOAP Notification (IER #7) was submitted, provide the LASR to the LCH within 24 hours of notification.

Following is guidance for the PRM Naming Convention. The PRM file name must be in the following format:

PRM_LaserOwner_A_B_##Mon####_For_JDAY###_TargetType.txt

This file naming convention is case sensitive and all fields are required, including a total of seven underscores. No spaces are allowed.

Fields A and B should be distinctive identifiers for the program, laser, mission or test. Any characters in between the underscores for A and B will be returned in the PAM file. The intent is to provide the Laser Name and unique identifier in Fields A and B, but there is no specific requirement for content.

Example: PRM_LCH_Vandenberg_AFB_01Feb2017_For_JDAY032_FFOV.txt.

All characters after A and B must match the naming convention format exactly. The term “##Mon####” is the date submitted where ## is the two digit indicator of days and #### is the four-digit designation of the year. The term “For_JDAY###” is the Julian Date of the activity.

⁴ *Standard Centralized Predictive Avoidance and Capability Validation Plan*, Change 3, June 16, 2016, U.S. Strategic Command Joint Functional Component Command for Space and *Standard Decentralized Deconfliction Plan*.

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2 VOICE REPORTING TEMPLATES

2.1 Reporting Guidelines

Voice reporting is used to confirm or change a scheduled activity, provide laser status, indicate start and stop times of a laser activity, announce space events that may impact activities, inform of a laser firing outside authorized parameters, and other such information necessary to effectively conduct laser activities.

The LO/O will initiate the Laser Status Report (IER #4), Quick Look Report (IER #6), and LOAP Notification (IER #7) in accordance with the following templates. The LCH or JSpOC SADT will contact the LO/O with the Space Event Notification (IER #5) if necessary.

These reports will be directed to either the LCH or JSpOC SADT depending on which organization is designated in the LO/O's Deconfliction Plan. Normal duty hours for the LCH are from 0730 to 1630 Pacific Time, Monday through Friday, excluding Federal holidays. The LCH should only be contacted during normal duty hours unless other arrangements have been made. The JSpOC SADT is a 24/7 position and may be contacted at all other times. Phone numbers are in Section 1.3 of this Handbook. The purpose, time requirements, and other pertinent details are indicated in each template.

NOTE: for fully automated laser deconfliction and fire control systems, these human "voice" messages may be replaced by system-generated electronic messages. The protocols for generating, sending and receiving these reports will be defined in the laser system's appendix to the appropriate standard plan.

SEE NEXT PAGE FOR MESSAGE TEMPLATES

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2.2 Laser Status Report (IER #4)

Summary: This is a voice report from the LO/O to the LCH or JSpOC SADT to verify that a scheduled laser activity is still planned, to verify communications links, and to provide status of the site's laser equipment and planned test. Use the Quick Look Report (Section 2.3) to report completion of laser activities.

Time Frame: One hour prior to the start of daily laser activities.

Note: If call will include classified information, be sure to use a secure communications system.

Template:

#	Item/Information
1	Confirm Classification Ensure proper communication line is used
2	Name/Rank/Organization of Caller
3	Date/Time of Call (UTC)
4	Laser System Name
5	Confirm Lines of Communication (if req.) Exchange additional phone numbers or email addresses as required
6	Expected Start Time (UTC)
7	Expected Stop Time (UTC)
8	Status of Laser System Note whether system is Green (on track), Yellow (mission at risk) or Red (likely cancel). Note reason, e.g. weather, equipment, etc.
9	Deconfliction Status Inquire about status of current or expected Space Events.

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2.3 Quick Look Report (IER #6)

Summary: This is a voice report from the LO/O to the LCH or JSpOC SADT to confirm the completion of laser activities. If an event is cancelled, such as a target scrub, use this report to notify the LCH of the cancellation and provide an estimated time for the next operational window, if available.

Time Frame: Within 15 minutes after completion of all laser activities within a given day.

Note: If call will include classified information, be sure to use a secure communications system.

Template:

#	Item/Information
1	Confirm Classification Ensure proper communication line is used
2	Name/Rank/Organization of Caller
3	Date/Time of Call (UTC)
4	Laser System Name
5	Actual Start Time (UTC)
6	Actual Stop Time (UTC)
7	Assessment of Deconfliction Adherence State whether laser activities were nominal and executed in accordance with supplied deconfliction

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2.4 Notification of Laser firing Outside Authorized Parameters (IER #7)

Summary: This is a voice report from the LO/O to the LCH or JSpOC SADT to provide initial notification that a laser has fired outside authorized deconfliction parameters. For centralized deconfliction, this means that (1) the laser was outside the laser location listed in the PAM, (2) the laser fired outside an authorized pointing direction in the PAM, (3) the laser was fired outside an open window time specified in the PAM, or (4) different laser parameters were used resulting in higher on-orbit irradiance (e.g. higher power, smaller divergence, smaller pulse width).

For decentralized deconfliction, firing outside authorized parameters is defined as a laser firing that may have posed a hazard to a satellite due to the close proximity to the satellite that exceeds the uncertainties of the Keep-Out Cone. A decentralized LOAP may be related to a procedural deviation, software issue or equipment malfunction.

This voice report must be followed up by the hardcopy LOAP Report (Section 3.2) within 12 hours.

Time Frame: Within 15 minutes following the determination of laser firing outside authorized parameters.

Note: If call will include classified information, be sure to use a secure communications system.

Template:

#	Item/Information
1	Confirm Classification Ensure proper communication line is used
2	Name/Rank/Organization of Caller
3	Date/Time of Call (UTC)
4	Laser System Name
5	Nature of Incident Confirm lasing has ceased; describe the circumstances related to the firing outside authorized parameters.
6	Time of Incident (UTC) Provide start and stop times.
7	Laser System Location (latitude in decimal degrees North or South/ longitude in decimal degrees East or West/ altitude in kilometers)
8	Output Power (Watts) Provide average or equivalent-CW power (and instantaneous peak power for pulsed lasers)
9	Laser Pointing Information (azimuth in degrees relative to true North/ elevation in degrees above local horizon; if PAM used other target definition, provide information as appropriate)
10	Laser Target Note satellite number, missile, point in space, star, etc.
11	Applicable Open Windows Note applicable window times from supplied deconfliction products (PAMs) that may have been violated.
12	Pointing Limits Note applicable azimuth and elevation limits.

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2.5 Space Event Notification (IER #5)

Summary: This is a voice report from the LCH or JSpOC SADT to inform the LO/O of a space event that impacts planned or currently operating laser activities.

A Space Event is an event that results in the invalidation/expiration of a previously generated deconfliction product (PAM files). For soon-to-be operating or currently operating laser activities which are impacted by the space event, the below notification is provided to direct cessation of laser activity and advise the LO/O to await for a replacement deconfliction product. LO/Os using deconfliction products not impacted by the Space Event will not be contacted.

In such case that the Space Event results in minimal (but non-zero) impact to a preexisting PAM, SADT personnel may issue individual "Closure Windows" to be manually implemented by a LO/O en lieu of a full replacement PAM.

Time Frame: As soon as possible following the determination of a Space Event.

Note: If call will include classified information, be sure to use a secure communications system.

Template:

#	Item/Information
1	Confirm Classification Ensure proper communication line is used
2	Name/Rank/Organization of Caller (An LCH or SADT representative)
3	Date/Time of Call (UTC)
4	Notification of Space Event The LCH or SADT representative will state that a Space Event has occurred
6	Cease-Fire Notification The LCH or SADT representative will state whether the LO/O must cease laser activities
7	Confirm Cease-Fire If required, the LCH or SADT representative will confirm the laser has been shuttered or disabled
8	Estimated Time to Generate Replacement PAMs Typically 30-90 minutes, depending on nature of the space event and number of operating programs
9	Discussion The LCH or SADT representative will provide other information as required, and ask the LO/O if they have any questions at the time of the Space Event Notification

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3 ELECTRONIC REPORT TEMPLATES

3.1 Reporting Guidelines

Electronic reports are digitally-transmitted documents used to formally document laser activity schedules and laser firings outside of authorized deconfliction parameters. The LO/O will submit Master Test and Operations Schedule Input Forms (IER #1) and Laser firing Outside of Authorized Parameters Reports (IER #8) in accordance with the following templates.

The LO/O will forward these documents to the LCH by means agreed upon with the LCH. The preferred means of transmission for unclassified reports is e-mail. The preferred means of transmission for classified reports up to collateral SECRET is SIPRNet. Other means (such as facsimile) may be used as agreed upon with the LCH. E-mail and fax numbers can be found in Section 1.3 of this handbook.

SEE NEXT PAGE FOR MESSAGE TEMPLATES

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3.2 Report of Laser firing Outside Authorized Parameters (IER #8)

Summary: This is a text report that formalizes notification from the LO/O to the LCH that a laser has fired outside authorized deconfliction parameters. This text report is a follow up to the LOAP voice report (IER #7).

The LCH will use this information to continue its assessment to determine whether a satellite hazard existed as a result of the firing. Attachments with additional detail may be included as appropriate. The document should be signed at the O-6, GS-15, or Director level and transmitted in a way that preserves the written signature.

Time Frame: Within 12 hours of Notification of the LOAP (Section 2.4).

Note: If the report is classified be sure to mark appropriately and use secure communication systems.

Template:

FROM: (Laser Owner/Operator)

TO: JFCC SPACE (Laser Clearinghouse)

SUBJECT: Laser firing Outside Authorized Parameters (LOAP) Report

1. This is to notify the Laser Clearinghouse of a laser incident. To assist in further analysis, the following information describes the incident:

- a. Laser system name and configuration (for pulsed lasers - pulse width, pulse repetition frequency, pulse energy, divergence half-angle, and wavelength; for continuous wave lasers - power, wavelength, divergence half-angle).
- b. Laser location (latitude, longitude, and elevation).
- c. Time of laser firings during incident (date, hh:mm:ss (UTC)).
- d. Laser target (satellite number, missile, point in space, star, etc.).
- e. Laser pointing direction (azimuth relative to true north and elevation above the local horizon; preferred units: degrees).
- f. Assessment of incident, including how far outside authorized parameters were the firings.
- g. Laser system or test conditions that may have contributed to the laser incident, including actions to mitigate future incidents.
- h. Identify whether LOAP related to centralized or decentralized deconfliction.

2. Point of contact/phone/fax numbers.

3. If additional information and detailed data (e.g. system data logs, etc.) become available to clarify or provide more detail about the incident, we will forward it as separate correspondence or part of the corrective action report.

4. Contact information, e.g. phone numbers, other POCs, etc.)

<<Signature>>

Name, Rank / Grade, Office Symbol Title

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3.3 Master Test and Operations Schedule (MTOS) Input Form (IER #1)

Summary: The MTOS Input Form is a spreadsheet provided by the LO/O to the LCH that provides a forecast of laser activities for at least the next month, but up to the next 12 months. LO/Os will use the LCH MTOS Input Form to indicate days on which “live fire” operations will occur, and additionally identify any “live fire” events that will target Resident Space Objects (RSOs). Make use of the notes column to provide any additional details.

Time Frame: Monthly (prior to the 15th)

Note: This spreadsheet may only be populated with unclassified schedule information. Contact LCH for the classified reporting format.

Template (Example):

UP TO UNCLASSIFIED//FOUO ONLY					
Annotate Days of Activity and Space Targets with an "x"					
Please refrain from copying/pasting values.					
ENTER POC (Name/Phone):			(Enter POC Name & Telephone # Here)		
ENTER PROGRAM NAME:			(Enter Program Name Here)		
2017			Day of Operation		
			Space Target? (Satellite, Rocket Body, Debris)		
J-Day	Day	Month			Notes
001	01	JAN			
002	02	JAN	X		
003	03	JAN	X		
004	04	JAN	X		
005	05	JAN			
006	06	JAN	X	X	
007	07	JAN			
008	08	JAN			