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6 January 2015

MEMORANDUM FOR LASER OWNER/OPERATORS

SUBJECT: Normalization Meeting Considerations


1. Background: Laser Owner/Operators (LOOs) following Department of Defense (DoD) Laser Clearinghouse (LCH) guidelines will participate in the normalization process. Normalization is the process by which laser parameters are verified and made compatible with LCH software. LCH will host a series of normalization meetings in which the laser registration form is discussed. Meetings are usually held via teleconference.
2. Organizations: The LCH is one of the functions of the U.S. Strategic Command (USSTRATCOM) Joint Functional Component Command for Space (JFCC SPACE) Directed Energy Branch. The Air Force Research Laboratory (AFRL) Satellite Assessment Center (SatAC) assists in the normalization process.
3. Laser Owner/Operators should prepare for normalization meetings in the following ways:
 - a. No later than 24 hours prior to the telecon, provide LCH and SatAC with a complete list of LOO personnel who will participate in the telecon. This list shall include full name, role, organization, physical location, phone number, and email address.
 - b. No later than 24 hours prior to the telecon, provide LCH and SatAC with the version number and date of the registration form to be discussed during the telecon. The LOOs shall ensure that SatAC and LCH have the most recent registration form.
 - c. No later than 24 hours prior to the telecon, provide LCH and SatAC with a PowerPoint slide or other one-page document that graphically depicts the basic test geometry in a simple, understandable manner. The purpose of this graphic is to visually describe the scenario to avoid confusion during telecons. This document is separate from the registration form. The only scenario in which this graphic is not required is when the laser is a single-beam, fixed-site laser with a star target.
 - d. Ensure that all necessary LOOs participate in the telecon. Telecons will not be conducted without the participation of the official LOO point of contact (POC) listed on the registration form, who can act in the capacity to make authoritative decisions and the final say for the LOOs. POCs are expected to make final decisions when there are conflicting viewpoints between LOO personnel. Experts who can address all technical questions must also be present.

4. There are several common areas of confusion or misunderstanding during normalization meetings. Laser Owner/Operators can avoid these pitfalls in the following ways:

- a. LOOs should know whether the divergence is measured or calculated, and how.
- b. LOOs should know whether the focus values are based on the radius of curvature or the location of the beam waist (if the beam is a focused Gaussian).
- c. LOOs should know both the $1/e$ and $1/e^2$ values, and what the difference is.
- d. LOOs should know the difference between collimated and defocused.
- e. LOOs should understand that LCH and SatAC are only concerned with the parameters of the beam after leaving the exit aperture (*not* the laser source). LOOs should provide system output parameters, not laser device parameters.
- f. LOOs should record values for Beam Waist (W_0) and Beam Radius at Exit Pupil (W_{ap}) as radius (not diameter).
- g. LOOs should list lasers focused at infinity as collimated lasers, not focused lasers.
- h. For unusual, atypical, exotic, or unique beam or beam combinations, LOOs should provide measurements of far-field beam divergence and detailed models addressing them. LOOs should also provide information on references and the method of calculation.

5. In order to maintain efficiency in Directed Energy Branch and SatAC operations, LCH reserves the right to cancel or postpone meetings if the Laser Owner/Operator has not adequately prepared for the normalization process.

6. The POC for this memorandum is the Laser Clearinghouse at 805-606-1282/1075, DSN 276-1282/1075.


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