

**Update on Emerging United States
Regulations and Standards of the
Federal Aviation Administration and
American National Standards Institute
Regarding Laser Energy Propagated through the
Atmosphere**

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**12th International Workshop on Laser Ranging
Matera, Italy
November 13-17, 2000**



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Last Time

Outdoor Propagation of Laser Energy

- Major Concern of both the
 - United States Federal Aviation Administration (FAA)
 - American National Standards Institute (ANSI)



Last Time

- **ANSI was developing**
 - **Z 136.6 - American National Standard for the Safe Use of Lasers Outdoors**

- **Scope:**

“Provide guidance for the safe use of potentially hazardous lasers in an outdoor environment. It also provides guidance to control disabling glare from non-injurious levels of visible laser light...”



Last Time

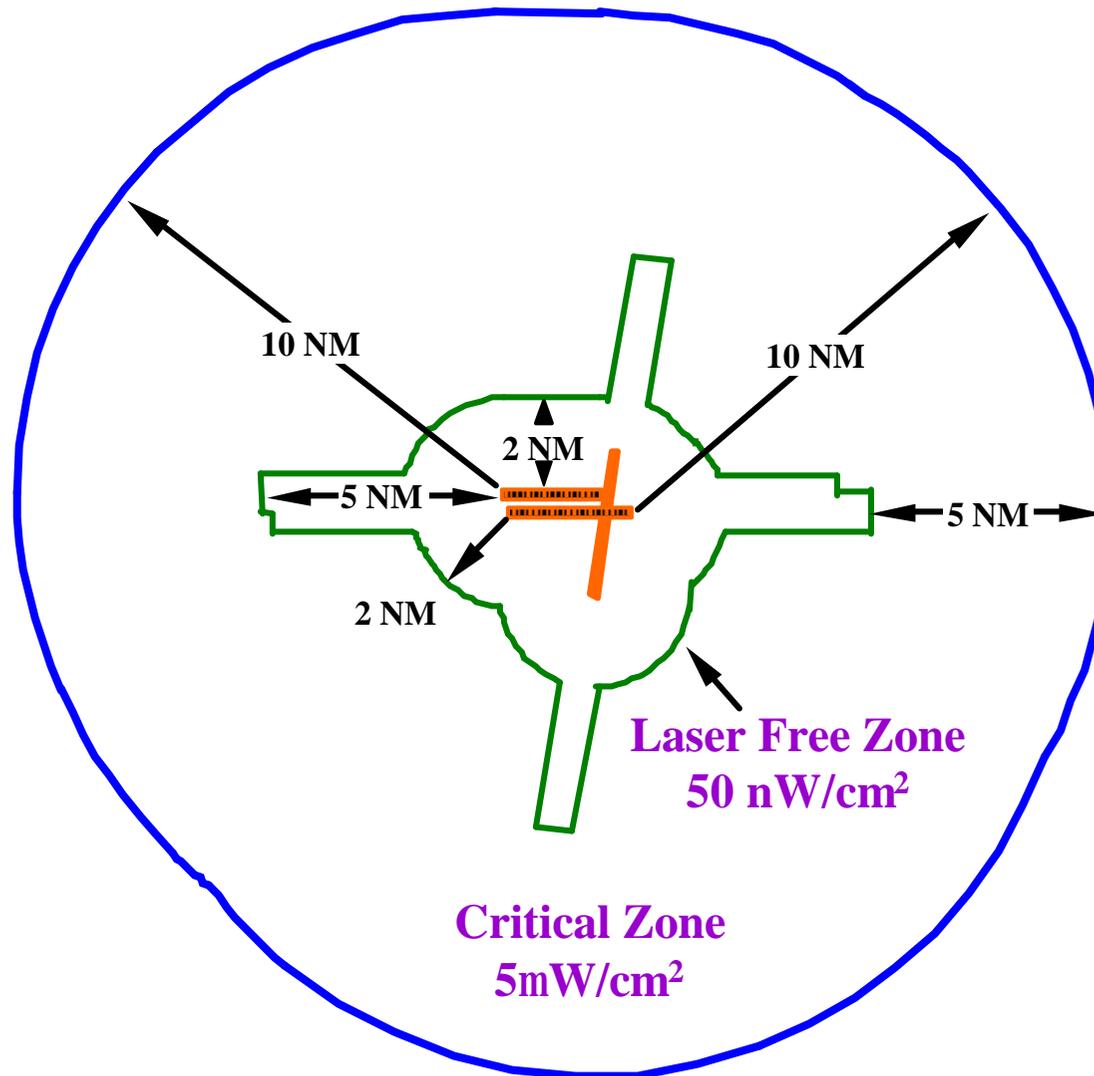
- **FAA was developing**
 - **7400.2E - Outdoor Laser/High Intensity Light Operations**
 - **Purpose:**

“Provide guidance for determining or verifying the effects of outdoor laser and other high intensity light (HIL) operations on the safe and efficient utilization of airspace...”



Airspace Hazard Zones

Sensitive Zone
100 mW/cm²

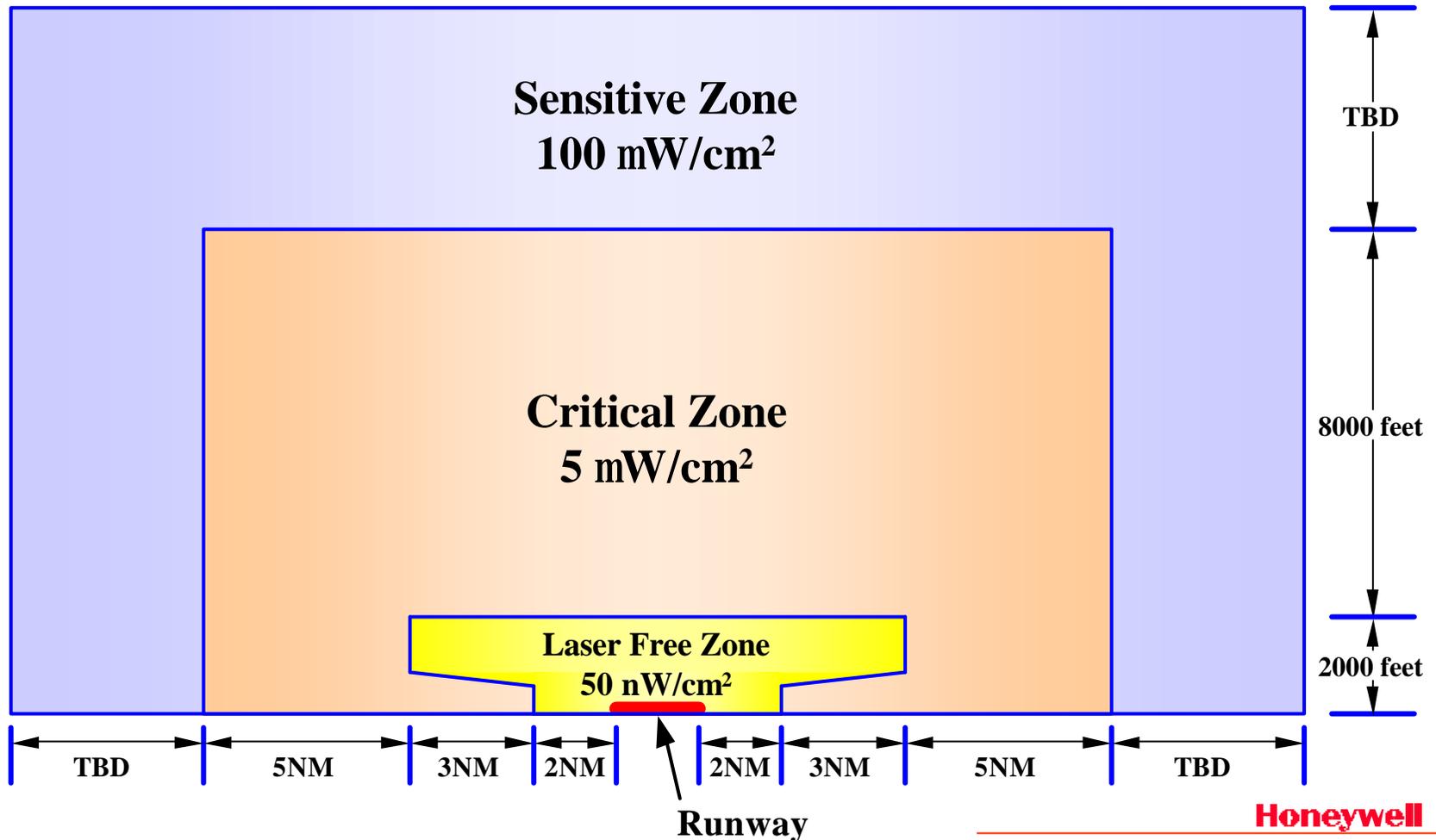


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Profile of Airspace Hazard Zones

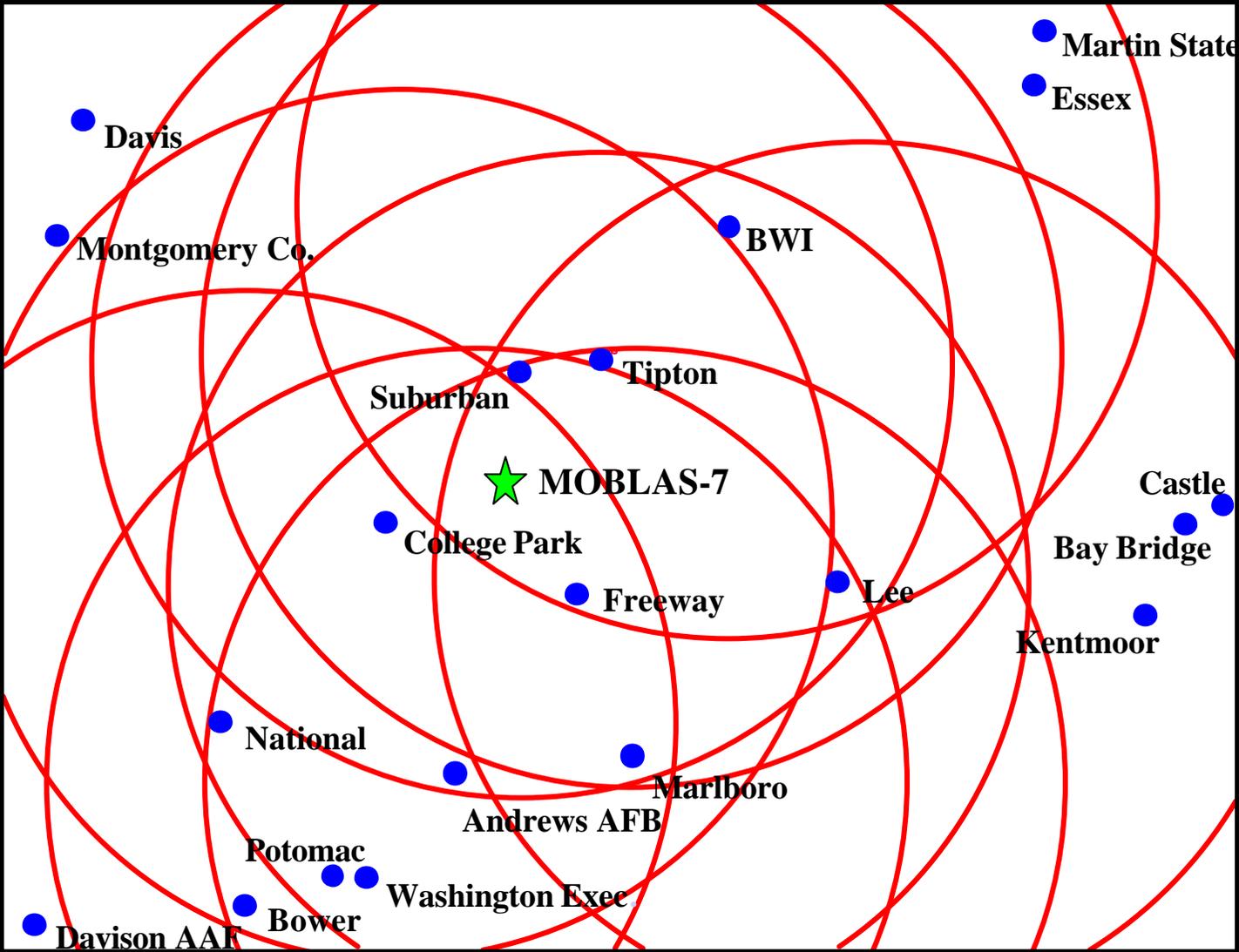
Normal Flight Zone
2.6 mW/cm²



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Effect on MOBLAS 7 in Greenbelt, Maryland



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Update

- **ANSI**
 - **Completed development of the Z 136.6 American National Standard for the Safe Use of Lasers Outdoors**
 - **Document has been published and is available**
 - **<http://www.laserinstitute.org/publications/ansi.html>**



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Update

- **FAA**
 - **7400.2E has been published**
 - **Document has received an update and will be published December 7, 2000**
 - **Update includes basic corrections and some changes**



Update

- **FAA**
 - **Advisory Circular AC No: 70-XX**
 - **“Provides information for those proponents planning to conduct outdoor laser operations that may affect aircraft operations...”**
 - **Complement to 7400.2E for general public**
 - **Document in review**



Update

- **FAA**
 - **Preliminary analysis indicates the following values are acceptable**
 - **50 nW/cm² - Laser Free/High Intensity Light Zone**
 - **5 mW/cm² - Critical Flight Zone**
 - **100 mW/cm² - Sensitive Flight Zone**
 - **2.6 mW/cm² - Normal Flight Zone**



Update

- **FAA**

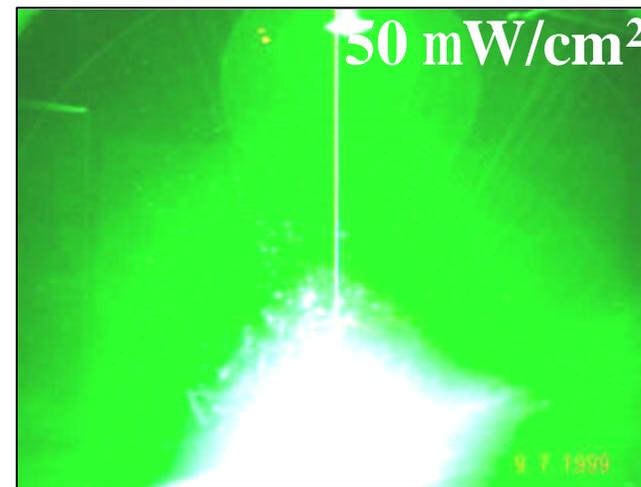
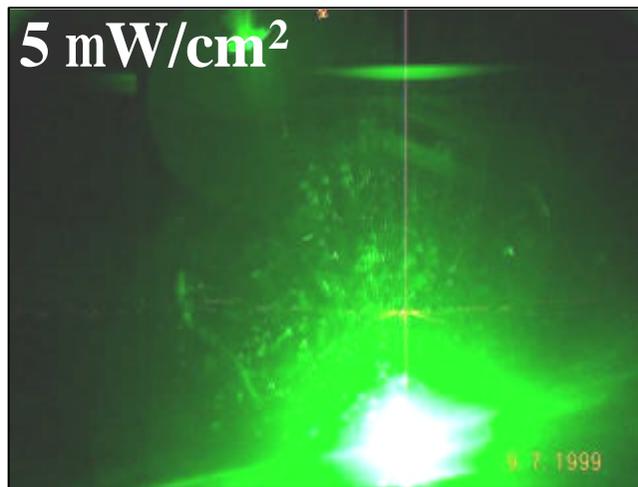
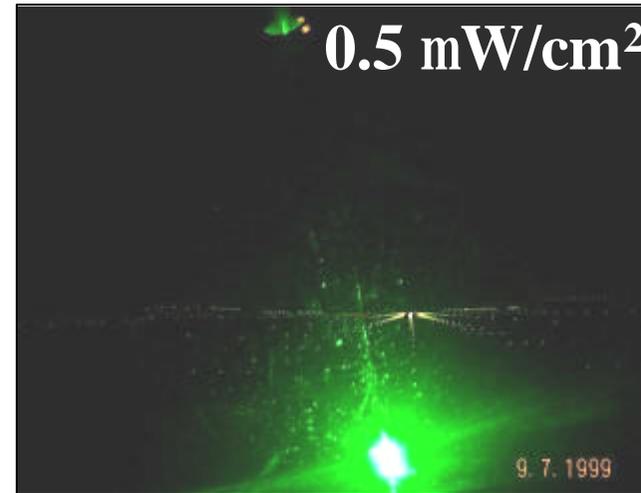


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Update

- **FAA**



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Closing

- **FAA**
 - **Continues to investigate hazards of atmospherically propagated laser energy**
 - **Though has developed internal guidelines, does not communicate to Regional Representatives who are responsible for implementation**
 - **Other countries are monitoring how USA is dealing with these potential hazards**

