



Standard Guide for Selection and Operation of Vessel-mounted Camera Systems¹

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1. Scope

1.1 This guide provides information and criteria for the selection of camera remote sensing systems that are vessel-mounted for the detection of oil on water.

1.2 This guide applies to the detection of oil-on-water involving cameras of IR, visible, ultra-violet, or night vision types.

1.3 The context of camera use is addressed to the extent it has a bearing on their selection and utility for certain missions or objectives.

1.4 This guide is generally applicable to all types of crude oils and most petroleum products, under a variety of marine or fresh water situations.

1.5 Many camera technologies exhibit limitations with respect to discriminating between the target substances under certain states of weathering, lighting, wind and sea, or various camera settings.

1.6 General remote sensing systems are used to detect and delineate the overall slick. Vessel-mounted systems are used only to provide a tactical image in front of the recovery vessel.

1.7 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.8 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:²

¹ This guide is under the jurisdiction of ASTM Committee F20 on Hazardous Substances and Oil Spill Response and is the direct responsibility of Subcommittee F20.16 on Surveillance and Tracking.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

F2327 Guide for Selection of Airborne Remote Sensing Systems for Detection and Monitoring of Oil on Water

3. Significance and Use

3.1 The contributions of an effective vessel-mounted camera system:

3.1.1 Provide a tactical image of the portion of spill in front of the vessel upon which the system is mounted,

3.1.2 Assist in detection of slicks when they are not observable by persons operating at, or near, the water's surface or at night,

3.1.3 Provide assistance in judging whether these are sheens or slicks containing the most oil,

3.1.4 Provide input for the operational deployment of equipment,

3.1.5 Extend the hours of clean-up operations to include darkness and poor visibility,

3.1.6 Identify oceanographic and geographic features toward which the oil may migrate,

3.1.7 Locate reported oil-on-water, and

3.1.8 Guidance for operational crews to the slick(s).

4. Overview of Remote Sensing Equipment Capabilities and Limitations

4.1 The capability of camera equipment is determined by the physical and chemical properties of the atmosphere, the water, and the target oil. There may be variations in the degree of sophistication, sensitivity and spatial resolution of sensors using the same portion of the electromagnetic spectrum and detector technology. Sensors within a given class tend to have the same general capabilities and typically suffer from the same limitations (see Guide F2327).

4.2 Combinations of camera types may offer broader spectral coverage that permit better probability of detection, better discrimination, and effective operation over a broader range of weather and lighting conditions. Certain combinations, or sensor suites, are well documented, and their use is particularly suited to oil spill response missions.

4.3 Camera performance can be enhanced by a variety of real-, near real-time or post processing techniques applied to