

UNITED STATES MARINE CORPS
FIELD MEDICAL TRAINING BATTALION-EAST
PSC BOX 20042
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MCECST

2401-COMM-1002 LIMITED VISIBILITY DEVICES

TERMINAL LEARNING OBJECTIVES:

1. Given a situation when voice commands are difficult, impossible, or when silence must be maintained, equipped with a limited visibility device, while wearing a fighting load communicate using limited visibility signals to transmit commands or information.
(2401-COMM-1002)

ENABLING LEARNING OBJECTIVES:

1. Given a list of choices, identify Marine Corps visual signals options to fit the operational environment in order to accomplish the mission in accordance with references FM 21-60 Visual Signs, MCRP 3-10A.4 Marine Rifle Squad and MCTP 3-01A Scouting and Patrolling.
(2401-COMM-1002a)

2. Without the aid of references, identify common visual signals used in the Marine Corps without omitting key components in accordance with references FM 21-60 Visual Signs, MCRP 3-10A.4 Marine Rifle Squad and MCTP 3-01A Scouting and Patrolling.
(2401-COMM-1002b)

1. **LIMITED VISIBILITY SIGNALS.**

a. **Purpose of Limited Visibility Signals:** Limited Visibility Signals are used to transmit commands or information when voice communications are difficult, impossible, or when silence must be maintained.

b. **Types of Limited Visibility Signals:**

(1) **Red Lens Flashlight** - Red Flashlights are one of the most commonly used night time signaling devices, used for signaling between sentry post and patrols or to direct vehicles. Red filters should be used whenever possible in order to preserve the driver's night vision.

(2) **Chemical Lights** - can be used in place of a flashlight and have less effect on a motor vehicle operator's night vision.

(3) **Pyrotechnics / Thermal Devices** - are used to signal over long distances, will penetrate fog, smoke, falling snow, camouflage and light vegetation, but are also visible to the enemy.

(4) **Infrared Emitters** - Used when night vision devices are available and are invisible to the unaided eye.

c. **Special Signals:** Special Signals consist of all special methods and devices used to transmit commands or information.

(1) Special Signal Example: (A squad leader, operating at night, may use taps on his helmet or rifle butt to signal halt, danger, move forward, or assemble here.)

(2) All forms of limited visibility signals must be understood and rehearsed prior to their use.

2. LIMITED VISIBILITY DEVICES.

a. **Limited Visibility Devices (LVDs):** Improve night vision using ambient light from the sky (moon, stars, etc.).

b. Three currently used LVDs are;

(1) **AN/PVS-14 Monocular Night Vision Device.** A self-contained night vision device that can be hand-held, carried in the utility uniform, head-mounted, helmet-mounted, or mounted to a weapon that enables walking, weapons firing, short-range surveillance, map reading, vehicle driving, and administering first-aid. Capabilities include;

- Easy to adjust fit
- IR emitting source
- Low battery indicator
- 1.0X Magnification
- 40 deg. field of view

(2) **AN/PAS 13 V2/V3 (MNVD).** A lightweight, compact, durable, battery powered thermal sight. The TWS operates with low power consumption. Capable of target acquisition under conditions of limited visibility such as darkness, smoke, fog, dust, and haze. Operates effectively during daylight. Effective operating ranges are;

- V2 can effectively engage targets out to 1,100 meters
- V3 can effectively engage targets out to 2,200 meters

(3) **Mini Integrated Pointing Illumination Module.** A laser targeting and illumination systems can be mounted to M16s, M4s and M240Bs which provides two different capabilities;

- The visible laser can assist with aiming, and the floodlight on the PEQ-16A can assist in identifying targets in low-light situations.
- Is used in conjunction with the AN/PVS-14 monocular, can switch to using the infrared targeting laser or the infrared illumination.

c. **Limitations of using any LVD.**

(1) Requires some night light.

(2) Night light reduced by clouds, under trees, shadows, etc.

(3) Less effective looking into shadows, smoke, fog, rain, etc.

(4) Clarity is dependent on the amount of light, condition of the objective and diopter lenses, and time of life of the image intensifier.

(5) **Effects of Wet Weather on any LVD.**

(a) Fog or clouds causes a scattering effect on IR.

(b) Very poor transmittance.

(c) Slightly better than visual optics.

(d) Rain will scatter and absorb IR.

(6) **Other Effects.**

(a) Overcast sky reduces solar energy absorbed by objects.

(b) Overcast sky causes surface temperatures tend to become equal causing reduced contrast.

(c) Particulates (*Dust, Haze, Smog, Smoke*) may cause degradation of imagery.

(d) High humidity may also cause degradation.

(e) Surface reflections can cause deceptive imagery.

(f) Smooth, glossy surfaces (e.g. Windows, mirrors, still water) can produce strong reflections of IR energy from other sources.

REFERENCES

Operator's Manual Night Vision Goggles AN/PVS-7B and AN/PVS-7S,
TM 09500A-10/1

Operator's Manual, Monocular NVD, AN/PVS-14, TM 10271A-10/1

Scouting and Patrolling, MCWP 3-11.3

Visual Signals, FM 21-60