

**LESSON PLAN**

**PART I**  
**COVER SHEET**

**LESSON TITLE:** CDV 700 Survey Meter

**TRAINING METHOD:** Demonstration - Performance

**REFERENCES:** FEMA, SM 5.1, Handbook for Radiological Monitors

**AIDS AND** CDV 700 Survey Meter  
**HANDOUTS:** Attachment 1 - Illustration of CDV 700  
FEMA, SM 5.1, Handbook for Radiological Monitors

**LESSON OBJECTIVE:** Given an explanation and a demonstration of the CDV 700 Survey Meter, the student must properly perform all of the task steps listed. The student, during the final course exam, must also correctly answer questions that demonstrate mastery of three samples of behaviors listed below:

**TASK STEPS:**

1. Identify the components of the CDV 700 Survey Meter.
2. Perform an operational check of the CDV 700 Survey Meter.
3. Demonstrate how to read a CDV 700 Survey Meter.

**SAMPLES OF BEHAVIOR:**

1. State the purpose of the CDV 700 Survey Meter.
2. State the types of radiation the CDV 700 Survey Meter measures and detects.
3. Identify the components of the CDV 700 Survey Meter.
4. Identify the operational limitations of the CDV 700 Survey Meter.

**ORGANIZATIONAL PATTERN:** Topical

**SUGGESTED COURSE(S) OF INSTRUCTION:** Disaster Preparedness Support Team  
Shelter Management Team

**STRATEGY:** Explain cautions, warnings, and the purpose of the CDV 700 Survey Meter upon issuing the instruments to the students. During the student's performance, stress the samples of behaviors (i.e., purpose, type of radiation measured and detected, components, limitations, etc.)

**LESSON OUTLINE:**

MAIN POINT 1.       PURPOSE OF THE CDV 700 SURVEY METER

MAIN POINT 2.       INSTRUMENT FAMILIARIZATION

- A. Control Selector Switch
- B. External Detection Probe
- C. Headphones
- D. Operational Check Source

MAIN POINT 3.       OPERATIONAL CHECK

MAIN POINT 4.       LIMITATIONS

**PART II**  
**TEACHING PLAN**  
**INTRODUCTION**

**ATTENTION:**

Radiological monitoring is an indispensable service during nuclear attacks are radiological accidents.

**MOTIVATION:**

Monitoring is required shortly after a nuclear attack or accident until the hazard from radiological contamination diminishes to the point that normal operation may be resumed without significant danger.

**OVERVIEW:**

Today's class will cover:

- ⇒ the purpose of the CDV 700 Survey Meter.
- ⇒ familiarization with the instrument.
- ⇒ how to perform an operational check on the CDV 700 Survey Meter.
- ⇒ limitations of the CDV 700 Survey Meter.

**TRANSITION:**

Let's start by looking at the purpose of the CDV 700 Survey Meter.

**BODY**MAIN POINT 1.  
PURPOSE OF THE  
CDV 700 SURVEY  
METER.

The CDV 700 Survey Meter is a low range instrument that measures gamma intensity in milliroentgens per hour (mR/hr) and detects beta radiation. It has limited usefulness in areas of high radiation, but can be used in long term clean-up and decontamination operations.

**INSTRUCTOR'S NOTE:** For Main Point 2, show the students the CDV 700 Survey Meter and identify the major components for them.

MAIN POINT 2.  
INSTRUMENT  
FAMILIARIZATION

The CDV 700 Survey Meter has four main features:

- ⇒ a control selector switch.
- ⇒ an external detection probe.
- ⇒ headphones
- ⇒ an operational check source.

A. CONTROL  
SELECTOR SWITCH

A. A control selector switch with an OFF position and three ranges labeled x100, x10, and x1 (times 100, 10, 1).

B. EXTERNAL  
DETECTION PROBE

B. The external detection probe has two functions.

- ⇒ With its shield closed, it measures only gamma radiation.

C. HEADPHONES

⇒ With its shield open, it'll detect both gamma and beta radiation. A difference between the unshielded and shielded reading indicates beta radiation is present.

D. OPERATIONAL  
CHECK SOURCE

C. Headphones may be attached if you want audible monitoring.

D. An operational check source is located on the instrument housing.

MAIN POINT 3.  
OPERATIONAL  
CHECK

Perform an operational check of the CDV 700 Survey Meter in a radiation-free area annually and prior to use. Also, ensure proper polarity during battery installation.

⇒ Turn the selector switch to the x10 range and allow at least 30 seconds for warm up.

⇒ Rotate the shield on the probe to the fully open position.

⇒ Place the open end of the probe as close as possible to the operational check source located on the instrument housing. The meter should register above 1.5 mR/hr.

#### MAIN POINT 4. LIMITATIONS

NOTE: Use of the check source does not replace the need for calibrating the instrument. Also, the presence of external radiation may prohibit you from performing the operational check. If it indicates levels above normal, assume a calibrated CDV 700 Survey Meter is operating properly.

Radiation intensities set limitations of the CDV 700 Survey Meter. Radiation exposure rates from 50mR/hr to 1000mR/hr (1R/hr) will produce off-scale readings. When exposure rates exceed 1R/hr, the CDV 700 Survey Meter may jam or saturate and read zero or less than full scale. A high range meter is required for intensities higher than 1R/hr.

## **CONCLUSION**

**SUMMARY:**

We have just covered the CDV 700 Survey Meter. Specifically we talked about:

⇒ the purpose of the CDV 700 Survey Meter.

⇒ familiarization with the instrument.

⇒ how to perform an operational check on the CDV 700 Survey Meter.

⇒ the limitations of the CDV 700 Survey Meter.

**REMOTIVATION:**

In the event of a nuclear attack or accident you will be required to use the CDV 700 Survey Meter or other radiation monitoring instruments. Be familiar with your equipment.

**CLOSURE:**

This concludes this lesson.

**TRANSITION:**

(Develop locally to transition to the next topic.)



**PART III  
EVALUATION  
STUDENT PERFORMANCE STANDARDS**

<b>The following steps were completed by the student:</b>  (* Must be done without error)	<b>Yes</b>	<b>No</b>
1. Identify the components of the CDV 700 Survey Meter. *		
2. Perform an operational check of the CDV 700 Survey Meter. *		
3. Demonstrate how to read a CDV 700 Survey Meter. *		

**TEST ITEMS**

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1. LESSON OBJECTIVE: State the purpose of the CDV 700 Survey Meter.

QUESTION: (Multiple Choice)

Which of the following statement(s) DOES NOT correctly identify the purpose of the CDV 700 Survey Meter.

- a. The CDV 700 Survey Meter measures 0-50mr/hr.
- b. The CDV 700 Survey Meter measures gamma and detects beta radiation.
- c. The CDV 700 Survey Meter can be used for long term clean-up and decontamination.
- d. The CDV 700 Survey Meter is a high-range instrument used to detect gamma radiation.

KEY: d

REFERENCE: Main Point 1

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2. LESSON OBJECTIVE: State the types of radiation the CDV 700 Survey Meter measures and detects.

QUESTION: (True or False)

The CDV 700 Survey Meter will measure beta and detect gamma radiation.

- a. True
- b. False

KEY: b

REFERENCE: Main Point 1

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3. LESSON OBJECTIVE: Identify the components of the CDV 700 Survey Meter.

QUESTION: (True or False)

The CDV 700 Survey Meter has a selector switch, probe with shield, headphones, and a check source.

- a. True
- b. False

KEY: a

REFERENCE: Main Point 2

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4. LESSON OBJECTIVE: Identify the operational limitations of the CDV 700 Survey Meter.

QUESTION: (True or False)

A limiting characteristic of the CDV 700 Survey Meter is that it may read less than full scale or become saturated if radiation intensities exceed its range.

- a. True
- b. False

KEY: a

REFERENCE: Main Point 4

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**PART IV**  
**RELATED MATERIALS**

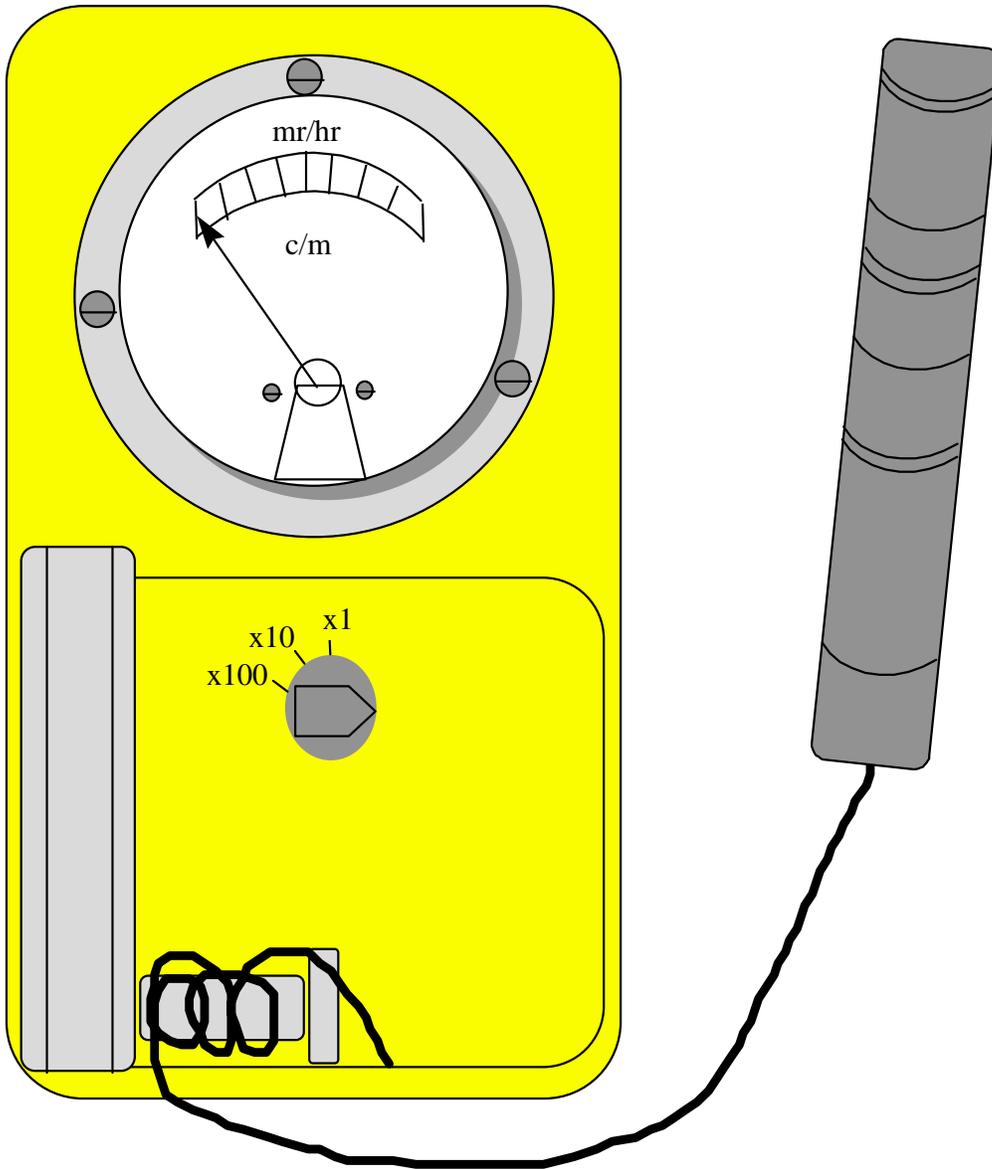
**RTP F11** - Dosimeters and Chargers

**RTP F13** - CDV 715 and CDV 717 Survey Meters

**RTP F14** - ADM-300A Multifunction Survey Meter



# CDV 700 Survey Meter



Attachment 1 - Illustration of CDV 700 Survey Meter

TRAINING PACKAGE COMMENT REPORT

RTP #	RTP DATE
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To get an *immediate response* to your questions concerning subject matter in this Readiness Training Package (RTP), call the author (listed on the front cover) or the Contingency Training Section at DSN 523-6160 between 0700-1600 (CT), Monday through Friday. Otherwise, write, fax, or E-mail the author to make comments, suggestions, or point out technical errors in the area of: references, body information, performance standards, test questions, and attachments.

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**Comments:** \_\_\_\_\_  
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