

TM 9-6625-2467-15

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

OPERATOR'S, ORGANIZATIONAL, DIRECT SUPPORT, GENERAL SUPPORT,

AND DEPOT MAINTENANCE MANUAL

(INCLUDING REPAIR PARTS)

SPECTRUM ANALYZER

(TEKTRONIX, INC. MODEL 491)

(6625-494-2937)



HEADQUARTERS, DEPARTMENT OF THE ARMY

DECEMBER 1969

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TECHNICAL MANUAL)
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HEADQUARTERS
DEPARTMENT OF THE ARMY
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CONTENTS

Section 1	Characteristics
Section 2	Operating Instructions
Section 3	Circuit Description
Section 4	Maintenance
Section 5	Performance Check
Section 6	Calibration
	Abbreviations and Symbols
Section 7	Electrical Parts List
	Mechanical Parts List Information
Section 8	Mechanical Parts List
Section 9	Diagrams
	Mechanical Parts List Illustrations
	Accessories
APPENDIX A.	BASIC ISSUE ITEMS LIST
B.	MAINTENANCE ALLOCATION CHART
C.	REPAIR PARTS LIST

Abbreviations and symbols used in this manual are based on or taken directly from IEEE Standard 260 "Standard Symbols for Units", MIL-STD-12B and other standards of the electronics industry.

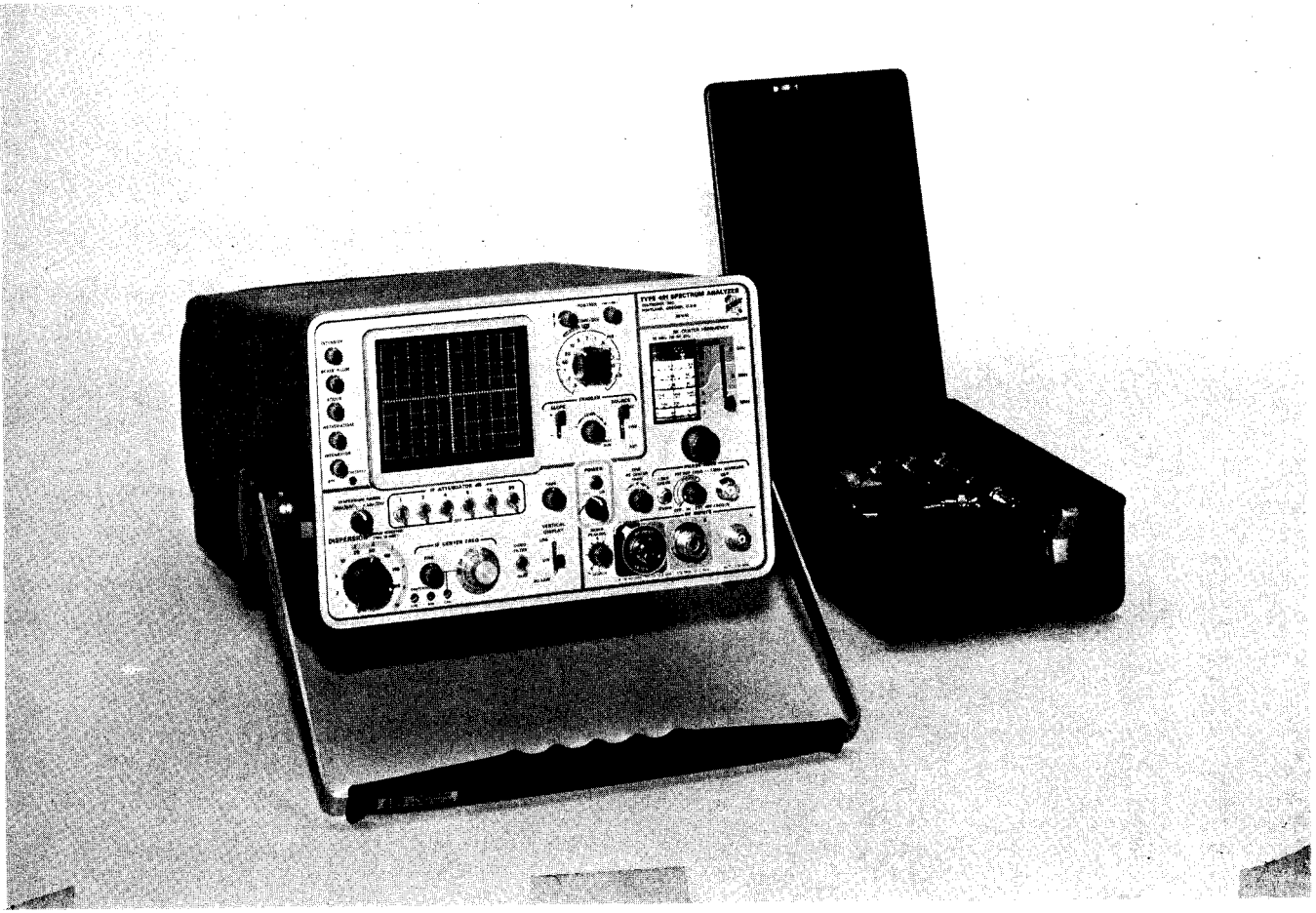


Fig. 1-1. The Type 491 Spectrum Analyzer.

SECTION 1

CHARACTERISTICS

The Type 491 Spectrum Analyzer is a wide band, general purpose portable spectrum analyzer with an RF center frequency range from 10 MHz to 40 GHz. The analyzer displays signal amplitude as a function of frequency for a selected portion of the spectrum. Frequency is displayed along the horizontal axis (dispersion) and signal amplitude on the vertical axis of a self-contained system.

The following electrical characteristics apply at an ambient temperature of 25° C (±5°C) after an initial warmup period of approximately 20 minutes.

ELECTRICAL CHARACTERISTICS

Characteristic	Performance Requirement	Supplemental Information
RF Center Frequency Range	10 MHz to 40 GHz—See Table 1-1	
CW Sensitivity (S + N = 2 N)	See Table 1-1	
Dial Accuracy	Within ± (2 MHz +1% of dial reading)	IF CENTER FREQ central at 000, FINE IF CENTER FREQ control and FINE RF CENTER FREQ controls centered.

TABLE 1-1

Minimum CW
Sensitivity (S + N = 2N)

Band and Scale	RF CENTER FREQUENCY	1 kHz RESOLUTION	100 kHz RESOLUTION	Supplemental Information
A-1	10-275 MHz	-100 dBm	-80 dBm	50 Ω source impedance. All voltages are RMS.
B-2	275-900 MHz	-110 dBm	-90 dBm	
3	800-2000 MHz	-105 dBm	-85 dBm	
C-4	1.5-4.0 GHz	-110 dBm	-90 dBm	
5	3.8-8.2 GHz	-100 dBm	-80 dBm	
6	8.0-2.4 GHz	-95 dBm	-75 dBm	
7	12.4-18.0 GHz	-90 dBm	-70 dBm	
8	18.0 -26.5 GHz	-80 dBm	-60 dBm	
	26.5-40.0 GHz	-70 dBm	-50 dBm	

TABLE 1-2

DISPERSION / DIV		Remarks
Setting	Accuracy	
10 MHz	±3% (±0.3 MHz/Div)	Over the ±25 MHz of the IF Center FREQ control except the 10 MHz/DIV position (± 10 MHz). The DISPERSION CAL adjust can be reset to improve the accuracy at a specific IF CENTER FREQ control setting by using the front panel 1 MHz CAL MARKERS OUT as a calibrated signal. Measured over the center 8 divisions of the graticule.
5 MHz	±3% (±0.15 MHz/Div)	
2 MHz	±5% (±0.1 MHz/Div)	
1 MHz	±7% (±70 kHz/Div)	
.5 MHz	±10% (±50 kHz/Div)	
.2 MHz	±15% (±30 kHz/Div)	