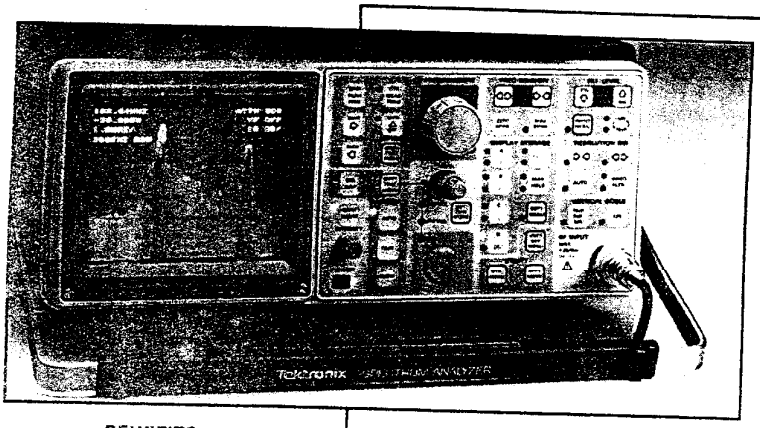
2710 ECONOMY PORTABLE SPECTRUM ANALYZER



BENEFITS

- *High Confidence in Frequency Measurements*
- *Easily See Weak Signals*
- *Ease of Use Enhanced by Automated Calibration (Normalization), Dedicated Function Keys, Microprocessor Control, Pushbutton Measurements*
- *Short Waiting Time Before Making Measurements*
- *High Portability*
- *Enhanced Measurement Comparisons*
- *Measurement Convenience with Full Marker/Delta Marker Capability*
- *See Modulation-Related Phenomena and Low Level Beats*

FEATURES

- *10 kHz to 1800 MHz Frequency Range*
- *1 x 10^{-5} or Optional 5 x 10^{-7} Frequency Accuracy*
- *1 Hz Frequency Resolution at Wide Span/Div Using Optional Internal Frequency Counter*
- *Up to –127 dBm Sensitivity, or –139 dBm Sensitivity Using Built-in Preamp*
- *9.5 Kg (21 lb.) Weight, Compact Size*
- *Fast Warmup, High Stability*
- *Full Display Area Usable With 80 dB Display Dynamic Range*
- *Four-Trace Digital Storage*
- *Direct-Reading 50 ohm and 75 ohm Operation Modes*
- *True Analog Display*
- *Signal Identification and Qualitative Analysis with Aural and Optional Video Demod*

CHARACTERISTICS

The following specifications and features apply after a 15-minute warmup period unless otherwise noted.

FREQUENCY RELATED

Frequency Range – 10 kHz to 1800 MHz.

Center Frequency Accuracy – $1x10^{-5} \pm 5$ kHz; Option 01: $5x10^{-7} \pm 700$ Hz.

Frequency Counter Accuracy (Opt. 02) – $1x10^{-5} \pm 10$ Hz, 0°C to 50°C; 3 (10^{-6}) ±10 Hz/year; Opt. 01: $5x10^{-7} \pm 10$ Hz, 0°C to 50°C, at $2x10^{-6}$ ±10 Hz/year.

Dot Marker Frequency Accuracy – CF Accuracy plus 3% of span.

Frequency Counter Readout Resolution (Opt. 02) – 1 Hz.

Typical Long-Term Drift – 10 ppm/yr; Opt. 01: 2 ppm/yr.

Short-Term Drift – 20 kHz maximum drift between correction cycles. Typical short-term drift between correction cycles is within 5 kHz. Opt. 01: ≤ 400 Hz maximum drift between correction cycles.

Residual FM – ±2 kHz p-p/20 µsec; Opt. 01: ±100 Hz p-p/20 µsec at span/div ≤ 20 kHz/div; ±2 kHz p-p/20 µsec at span/div > 20 kHz/div.

Resolution Bandwidth – (–6 dB) 5 MHz, 300 kHz, 30 kHz, 3 kHz; Option 01: add 300 Hz.

Resolution Bandwidth Shape Factor – ≤ 7:1

Noise Sidebands – >–70 dBc at 30xRBW (Resolution Bandwidth).

Video Filter – Approx. 1/100 (Auto) of RBW. Manual Selection: 3 Hz to 300 kHz in 1–3 sequence.

Freq. Span/Div Range – 180 MHz to 10 kHz; Opt. 01: add 1,2,5 kHz/div. Selected in 1,2,5 sequence or 2 significant digits via menu. Max span, zero span keys.

Span Accuracy – ±3% measured over the center eight divisions.

AMPLITUDE RELATED

Flatness – ±1.5 dB measured with 10 dB RF attenuation (preamp off).

Vertical Display Modes – 10, 5, 1 dB/div, Linear.

Measurement Range – –129 (preamp on) to +20 dBm; Option 01: –139 (preamp on) to +20 dBm.

Display Dynamic Range – 80 dB max.

Reference Level Range – LOG Mode: –70 to + 20 dBm (–23 to + 67 dBmV). LINEAR Mode: 8.8 µV/div to 280 mV/div.

Reference Level Steps – LOG Mode: 1 dB or 10 dB. LINEAR Mode: 1,2,5 sequence. 10 µV/div to 280 mV/div.

Mixer Input Level – Automatically controlled by instrument for on-screen signals. Level selectable between –20 to –50 dBm.

Display Amplitude Accuracy – 10 dB/div: ±1.0 dB/10 dB to max. cum. error of ±2 dB over 80 dB range. 5 dB/div: ±1.0 dB/5 dB to max. cum. error of ±2.0 dB over 40 dB range. 1 dB/div: 1 dB max. error over 8 dB range. LINEAR Mode: ±5% of full scale.

RF Attenuation Range – 0 - 50 dB, 2 dB steps.

Maximum Sensitivity – –117 dBm at 3 kHz RBW. –129 dBm at 3 kHz RBW w/preamp. Opt. 01: –127 dBm at 300 Hz RBW, –139 at 300 Hz RBW w/preamp.

SPURIOUS RESPONSE (WITH PREAMP OFF)

Residual Spurious Response – ≤–100 dBm referenced to input of 1st mixer.

3rd Order IM Distortion – ≤–70 dBc, from any two on-screen signals within any frequency span at –20 dBm input level, 10 dB attenuation.

2nd Harmonic Distortion – ≥ – 66 dBc with – 30 dBm input and 0 dB attenuation.

INPUT RELATED

LO Emission – ≤–70 dBm with 0 dB RF attenuation.

RF Input – Type N connector, 50Ω

VSWR with 10 dB or more RF attenuation – 1.5:1 max.

Maximum Safe Input – +20 dBm (0.1 W) continuous peak with 0 dB RF attenuation; 100 V dc (initially applied with full attenuation).

1 dB Compression Point – ≥ –15 dBm with 0 dB RF attenuation.

SWEEP RELATED

Sweep Times – 1 µsec to 2 sec/div in 1,2,5 seq. (7 decade range); AUTO SWEEP mode; MANUAL SWEEP select.

Sweep Time Accuracy – ±10% over the center 8 divisions.

Trigger – Free run, internal, external, line, TV field, TV line, single sweep, manual scan.

Trigger Amplitude – Internal: One division or more of signal. External: 1.0 V peak, minimum; DC coupled (15 Hz to 1 MHz).

OTHER INPUTS/OUTPUTS

External Trigger – BNC connector, 10 kΩ impedance, DC coupled 0.1 µs minimum pulse width. 35 V max.

ECONOMY PORTABLE SPECTRUM ANALYZER 2710

External Video Input – DC coupled, 0-100 kHz, 0-1.6 V (200 mV/div) signal input for vertical deflection of CRT beam.

Sweep Gate Out – TTL level signal that is HI while CRT beam sweeps.

Sweep Output – +1.3 to −1.3 V, negative going ramp, proportional to the horizontal sweep. Source impedance ≤50 Ω, load impedance ≥10 Ω.

Video Output – 0 to +1.6 V of video signal, proportional to vertical display amplitude. 0 V is top of screen. 1 kΩ impedance.

ENVIRONMENTAL

Temperature – Operating: 0°C to +50° C (MIL-T 28800C). Nonoperating: −55°C to +75° C.

Humidity – Nonoperating: Five cycles (120 hours) per MIL-T-28800C, class 5.

Vibration – Meets MIL-T-28800C Method 514 Procedure X (modified).

Shock – Operating and Nonoperating: Three guillotine-type shocks of 30 g, one-half sine, 11 ms duration each direction along each major axis; total of 18 shocks.

Radiated and Conducted Emissions – Meets FCC Part 15, sub-part J, class A and VDE 0871, class B.

Radiated and Conducted Susceptibility – Meets Part 7 MIL-STD 461B.

GENERAL CHARACTERISTICS

Power Requirements – 90 W MAX (1.2 A) at 115 V, 60 Hz. Operates 48 Hz to 440 Hz, 90 to 250 V ac. Battery power option available.

Weight – 9.5 kg (<21 lb.) nominal for basic configuration.

Dimensions (H, W, D) with feet, handle and front panel cover – 137x361x445 mm (5.4x14.2x17.5 inches).

OTHER CAPABILITIES

Markers – Single marker/delta markers; next right, next left peaks, next lower, next higher peaks; (highest) peak find; marker to CF; select start/stop frequencies; transpose Δ markers.

Nonvolatile memory – Up to 18 displays and/or 8 front panel setups may be saved. Lithium battery backup.

Digital Storage Display – Selectable acquisition modes of positive peak only, positive/negative peak. SAVE A, B, C and active D trace; up to four traces on screen; MAX HOLD A, B, MIN HOLD A, B or C; B, C minus A; WATERFALL display mode; ensemble averaging; (min., max., mean, min/max); digital storage off provides analog display.

Ensemble Averaging – Provides weighted averaging of display resulting in reduction of random noise and impulse signals without sweep speed changes.

Direct Entry of Control Parameters – Frequency, span/div, reference level, RBW, video filter, vert. scale, sweep rate.

Measurement Modes – Noise, Carrier-to-Noise, Bandwidth (user definable "dB down" points).

Internal Freq. Counter (signal counter) – Opt. 02.

Internal Preamplifier – Preamp may be switched in/out of circuit (degrades flatness below 10 MHz and above 600 MHz, provides approx. 12 dB sensitivity improvement) with zero RF attenuation.

Alternate Reference Level Units – dBm, dBmV, dBV, dBm, dBμW, dBμV/m.

User-definable Power-on Status – Instrument powers up to user-definable state or supplied default settings.

Constant Rate Tuning – Same on-screen tuning sensitivity regardless of span/div selection.

Center Measure – Signal nearest CF (from any screen location) is centered with frequency and peak amplitude automatically read out (not a marker mode). The centered signal will be counted if the Opt. 02 Frequency Counter is installed.

Signal Track – Drifting signal is kept at display center with correct frequency and peak amplitude displayed.

Graticule Illumination – Contrast enhancement for CRT photography.

Centronics Interface – Opt. 09. Will support Epson FX Series Printers and compatibles and Tek HC100 Printer/Plotter.

Rackmount Option – Opt. 30. Converts unit to a rack mounted installation. Five-inch rack height, 19-inch rack width.

Portable-to-Rack Adapter – Opt. 34. Provides rackmounting of instrument in standard enclosure with handle. Offers immediate instrument portability when needed. Seven-inch rack height, 19-inch rack width.

AM/FM Detectors – Built-in amplifier, speaker and headphone jack for aural demodulation.

Video Monitor Mode – Opt. 10. Allows direct viewing of television picture on analyzer screen. Functions in NTSC, PAL and SECAM systems. Includes selectable horizontal line trigger.

2704 INVERTER/2705 BATTERY PACK

The 2704 Inverter and 2705 Battery Pack can provide a minimum of one hour continuous operation for the 2710 in locations where ac power is not available. These units mount directly on the 2710 to form a portable package.

They can also be used for other remote applications requiring 115V, 60 Hz power. Maximum continuous output power is 125 watts.

Several 2705s can be used to provide an uninterruptible power source for the 2710 or other equipment. The 2704 includes a battery charger, and provides an auxiliary 18 volt output. The 2704 also accepts 12 volt input from other sources, such as car batteries. These units are described in more detail in Tektronix Specification/Ordering Information Sheet 26W-7061.

TYPICAL APPLICATIONS

- *Cable Television*
- *VTR/VCR Maintenance*
- *Television and Audio Broadcasting*
- *Broadband Local Area Networks*
- *Education*
- *Manufacturing Test*
- *EMI/RFI*
- *Land Mobile/Two-Way Communication*
- *Avionics*
- *Cellular Radio*

ORDERING INFORMATION

2710 Spectrum Analyzer. Includes: Power cord (U.S. 115 V/60 Hz) (161-0104-00); Operator's manual (070-6022-02); Front cover (200-2520-00); and 75/50Ω min-loss pad (131-4199-00). **$8,250**

OPTIONS

Opt. 01 – 300 Hz resolution bandwidth/phaselock stabilization/5 x 10^{-7} ±700 Hz frequency accuracy **+$1,200**

Opt. 02 – Internal frequency counter with selectable 1 kHz/1 Hz readout resolution **+$600**

Opt. 06 – 1106 Battery Pack, 1107 Inverter, Battery operation, nicad **+$2,720**

Opt. 07 – 2704 Inverter and 2705 Battery Pack, gell cell lead acid **+$1,290**
Includes: Power cord (U.S. 115 V, 60 Hz), Operator's Manual, 2710 Mounting Plate.

Opt. 09 – Centronics interface **+$450**

Opt. 10 – Video monitor mode **+$620**

Opt. 14 – Adds 1 kHz, 10 kHz, 100 kHz and 1 MHz RBW filters **+$570**

Opt. 15 – Tek 1405 TV Sideband Analyzer Interface **+$250**

Opt. 30 – Rackmount for 19-inch rack width, 5- inch height **+$150**

Opt. 33 – Travel Line Package **+$95**
Includes: Accessory pouch; carrying strap; smoke-gray CRT filter; vinyl rain cover

Opt. 34 – Portable to Rack mount adaptor for 19-inch rack width, 7 inch height **+$425**

INTERNATIONAL POWER PLUG OPTIONS

Opt. A1 - A5 – Available **NC**
See page 488 for description.

WARRANTY-PLUS SERVICE PLANS

Opt. M1 – Available **+$710**

Opt. M2 – Available **+$1,190**

Opt. M3 – Available **+$1,430**

OPTIONAL ACCESSORIES

2704 – Inverter **$995**
Includes: Power cord (U.S. 115 V, 60 Hz), Operator's Manual, 2710 Mounting Plate.

2705 – Battery Pack **$295**

Front Panel Cover – 200-2520-00 **$6.00**

Accessory Pouch – Mounts on top. Order 016-0677-02 **$45**

Viewing Hoods –
(Collapsible) Order 016-0592-00 **$15**
(Binocular) Order 016-0566-00 **$21**
(Polarized) Order 016-0180-00 **$60**

Carrying Strap – 346-0199-00 **$19.25**

Shipping Case – 016-0792-02 **$375**

Table 2-6
GENERAL CHARACTERISTICS

Characteristic	Performance Requirement	Supplemental Information
Sweep		Normal, Single Sweep, Manual Scan, and Video Monitor (Option 10).
Sweep Rate	1 µs/Div to 2 sec/Div in a 1–2–5 sequence	
Accuracy	±10% over the center 8 divisions	
Triggering		Free Run, Internal, External, Line, TV Line, and TV Field
Internal Trigger Level	1 division or more of signal	
External Trigger Level		See EXT TRIG (J102) in Table 2-4
Non-Volatile Memory (Option 11) (Battery-Backed Up)		Instrument settings, waveforms, and some Normalization results are stored in non-volatile RAM.
Battery Life		
At +55° C Ambient Temperature		1 to 2 years (Lithium or Silver)
At + 25°C Ambient Temperature Lithium (Standard)		At least 5 years
Temperature Range for Retaining Data		
Operating		–15° C to + 55° C
Non-Operating		–30° C to + 85° C
Internal Calibrator		Provides 100 MHz marker for amplitude calibration and comb of 100 MHz markers for frequency and span calibration.
Amplitude and Accuracy		
2710	–30 dBm ±0.3 dB at 100 MHz ±5 kHz	
2710 Option 01	–30 dBm ±0.3 dB at 100 MHz ±2 kHz	
Drift		
2710	±10 PPM/Year	
2710 Option 01	±2 PPM/Year	

Table 2-7
ENVIRONMENTAL CHARACTERISTICS

The Description column describes how most characteristics were derived and a description of the characteristic. This instrument meets MIL T–28800C, type III class 5, style C specifications.

Characteristic	Description
Temperature	
Operating and Humidity	0° C to +50° C MIL T-28800C 5 cycles (120 hours).
Non-operating*	–55° C to +75° C
Altitude	
Operating	15,000 ft
Non-operating	50,000 ft
Humidity (Non-operating)	Five cycles (120 hours) in accordance with MIL-Std-28800C, class 5
Vibration	
Operating (Instrument secured to a vibration platform during test)	MIL–Std–28800C, Method 514 Procedure X (modified). 15 minutes along each of 3 major axes at a total displacement of 0.015 inch peak-to-peak (2.4 g at 55 Hz), with frequency varied from 10 Hz to 55 Hz in 1-minute sweeps. Hold for 10 minutes at 55 Hz. All major resonances must be above 55 Hz.
Shock (Operating and Non-operating)	Three guillotine-type shocks of 30g, one-half sine, 11 ms duration each direction along each major axis; total of 18 shocks.
Transit Drop (free fall)	8 inch, one per each of six faces and eight corners (instrument is tested and meets drop height of 12 inches).
Electromagnetic Interference (EMI)	
Radiated and Conducted Emission	
FCC	FCC Part 15, sub-part J, Class A.
VDE	VDE 0871, Class B.
Susceptibility	Part 7 Mil Std 461B

* After storage at temperatures below –15° C, the instrument may not reset when power is first turned on. If this happens, allow the instrument to warm up for at least 15 minutes, then turn POWER OFF for 5 seconds and back ON.

Table 2-8
PHYSICAL CHARACTERISTICS

Characteristic	Description
Weight	<25 lbs (11.25 kg) maximum, includes Standard accessories. <21 lbs (9.5 Kg) nominal for basic configuration.
Dimensions	
Height with feet and handle	5.4 in (137 mm)
Width	
With Handle	14.2 in (361 mm)
Without Handle	12.9 in (328 mm)
Depth	
With Front Panel Cover	17.5 in (445 mm)
Without Front Panel Cover	16.85 in (428 mm)
With Handle Extended	20.1 (511 mm)

OPTIONS

Introduction

This section describes the options available for the Spectrum Analyzer.

Options are usually factory installed; however, field kits are available for some options. Contact your local Tektronix Field Office or representative for information on field kits and their installation.

Options A1 Through A5 (Power Cord Options)

There are five international power cord options offered for the spectrum analyzer. The physical descriptions of the cord plugs are listed in Table 7–1. For replacement purposes, refer to the Replaceable Mechanical Parts list.

Table 7–1
POWER CORD OPTIONS

Option A1	Universal Euro, 220 V/50 Hz at 16A
Option A2	United Kingdom, 240 V/50 Hz at 13A
Option A3	Australian, 240 V/50 Hz, at 10A
Option A4	North American, 240 V/60 Hz, at 12A
Option A5	Swiss, 250 V/50 Hz, at 6A

Option B1 (Service Manual)

Option B1 includes a service manual with the instrument.

Options M1 Through M3 (Extended Service and Warranty Options)

There are three extended service and warranty options offered for the spectrum analyzer that go beyond the basic one-year coverage (see Table 7–2). Contact your local Tektronix Field Office or representative for additional information about your specific requirements.

Table 7–2
EXTENDED SERVICE AND WARRANTY OPTIONS

Option	Description
M1	Two routine calibrations to published specifications; one each in years two and three of warranty coverage, plus two years remedial service.
M2	Four years remedial service
M3	Four routine calibrations to published specifications; one each in years two, three, four, and five of product ownership, plus four years of remedial service.

OPTION 01

Option 01 adds a 300 Hz resolution bandwidth filter and a minimum Span/Div of 1 kHz for enhanced measurement resolution that is commensurate with the improved frequency accuracy of 5×10^{-7}.

OPTION 02

Option 02 adds a frequency counter with readout resolution selectable between 1 Hz and 1 kHz. Also, a provision for turning off the counter when tracking is invoked has been provided.

OPTION 06

Introduction

Option 06 includes the Tektronix 1106 Battery Power Supply and the Tektronix 1107 DC Converter with adapter mounting kits and their respective instruction manuals. The following describes the installation of the Tektronix 1106 and 1107 Battery Power option.

Installation of 1106 Battery Power Supply

Two mounting straps, with slots at each end, are welded on the bottom of the Spectrum Analyzer. These mounting straps with the conversion kit supplied with the 1106 Battery Power unit provide the means to attach the 1106 to the Spectrum Analyzer. The following procedure describes the process for installing the Battery Power Supply.

1. Lay the Spectrum Analyzer on its top so the underside is exposed. Note the two mounting straps, with slots at each end, welded to the bottom of the instrument.

2. Slide the four (4) studs, from the mounting kit, into the slots on the mounting strip and bolt them in place using the washers and the thick 8-32 nuts. See Figure 7–1. Tighten the four nuts finger tight so the studs will still move in the slot.

3. Now place the adapter plate assembly, with the slotted feet up, on the mounting studs and install the four (4) plain nuts to hold the plate assembly on the studs.

4. Using a 5/16 inch wrench, tighten the nuts holding the adapter plate on the studs.

5. The analyzer, with its adapter plate will now mount on the 1106 Battery Power Supply. Set the slotted feet of the adapter plate into the recessed holes on the battery pack and close the retaining slide catch.

Installing 1107 DC Converter

The installation kit for this Tektronix DC Converter consists of an adapter plate and mounting hardware. The following describes how to install this DC converter.

1. Remove the two Spectrum Analyzer rear panel mounting screws and replace them with the two standoff studs, supplied with the adapter kit.

2. Tighten the studs with a 5/16 inch open-end wrench.

3. Install the adapter plate on the standoff studs, using the two 8-32, 5/16 inch flat-head screws.

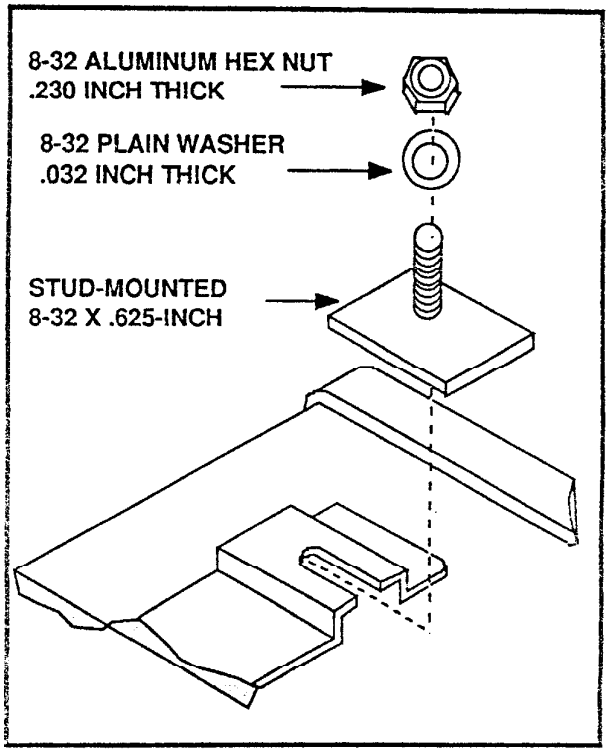


Figure 7–1. Installing a stud into a mounting strip.

4. The 1107 DC Converter can now be mounted on the four slotted feet of the rear panel adapter plate.

5. Plug the DC Converter power cord into the receptacle on the Battery Power Supply pack.

6. The Spectrum Analyzer is now ready for battery power operation.

OPTION 09

Option 09 adds a Centronics®-compatible parallel printer interface. The pertinent circuits are located on the Digital Options board. The Centronics port consists of two 8-bit, tri-statable data latches and two 8-bit, tri-statable data buffers. The port can be used as a 12-bit read/4-bit write or 4-bit read/12-bit write port for diagnostics, or as a full specification Centronics communications port. The rear-panel connection provides full IBM-PC printer compatibility.

J104 - Centronics Port Bus

Pin #	Description	Pin #	Description
1	$\overline{\text{STROBE}}$	2	D0
3	D1	4	D2
5	D3	6	D4
7	D5	8	D6
9	D7	10	$\overline{\text{ACKNLG}}$
11	BUSY	12	PE
13	$\overline{\text{SLCT}}$	14	FEED
15	$\overline{\text{ERROR}}$	16	$\overline{\text{INIT}}$
17	$\overline{\text{SLCT IN}}$	18	Ground
19	Ground	20	Ground
21	Ground	22	Ground
23	Ground	24	Ground
25	Ground		

Compatible Plotters and Printers

The Centronics interface may be used with all EPSON FX-compatible printers and HPGL-compatible plotters, such as the TEKTRONIX HC100 COLOR PLOTTER.

Using the Plot Feature

When UTIL MENU/#6 (WAVEFORM PLOT) is pressed, display and graticule information is sent over the interface bus to drive an external plotter or printer. Graticule information is plotted only when the graticule is illuminated.

To use the plot feature, connect the plotter or printer to the Spectrum Analyzer interface port J104 and perform the following:

a. On the Spectrum Analyzer, press UTIL MENU/#4 (SYSTEM CONFIGURATION)/#1 (SCREEN PLOT CONFIG), then press keypad #1 until the desired output device type (HPGL 2-PEN, HPGL 4-PEN, or EPSON FX-80) is displayed.

b. Press keypad #3 (PLOT SPEED) until the desired plotter speed (SLOW, NORMAL, FAST, FASTER, or FASTEST) is displayed. The best resolution is obtained at the slowest speed. Press UTIL MENU three times to exit.

c. Power-up the plotter/printer, ascertain that the paper is in position, and confirm that the desired display is on the screen.

d. Press UTIL MENU/#6 (WAVEFORM PLOT) to start the plot.

When more than one waveform is plotted using a 4-pen [illegible] color the register in which each waveform resides (A, B, C, or D). Also, each waveform may be given a title via TITLE MODE (UTIL MENU/#5). See Figure 7–2 for a typical plot.

> ***NOTE***
>
> *Plotter time may be reduced by selecting PEAK ACQUISITION MODE (DSPL MENU/#4) or enabling the VIDEO FILTER.*
>
> *Baseline noise has negligible effect on display reproduction time when using matrix printing devices.*

> ***NOTE***
>
> *When using an EPSON FX-series or equivalent printer, there is a 30-second delay between initiation of the waveform plot session and the beginning of the printing action. The Spectrum Analyzer front panel is locked out until just before the plot/print action ends.*

OPTION 10

Option 10 adds Video Monitor capabilities. The pertinent circuits are located on the Sweep board.

OPTION 11

Option 11 adds non-volatile memory.

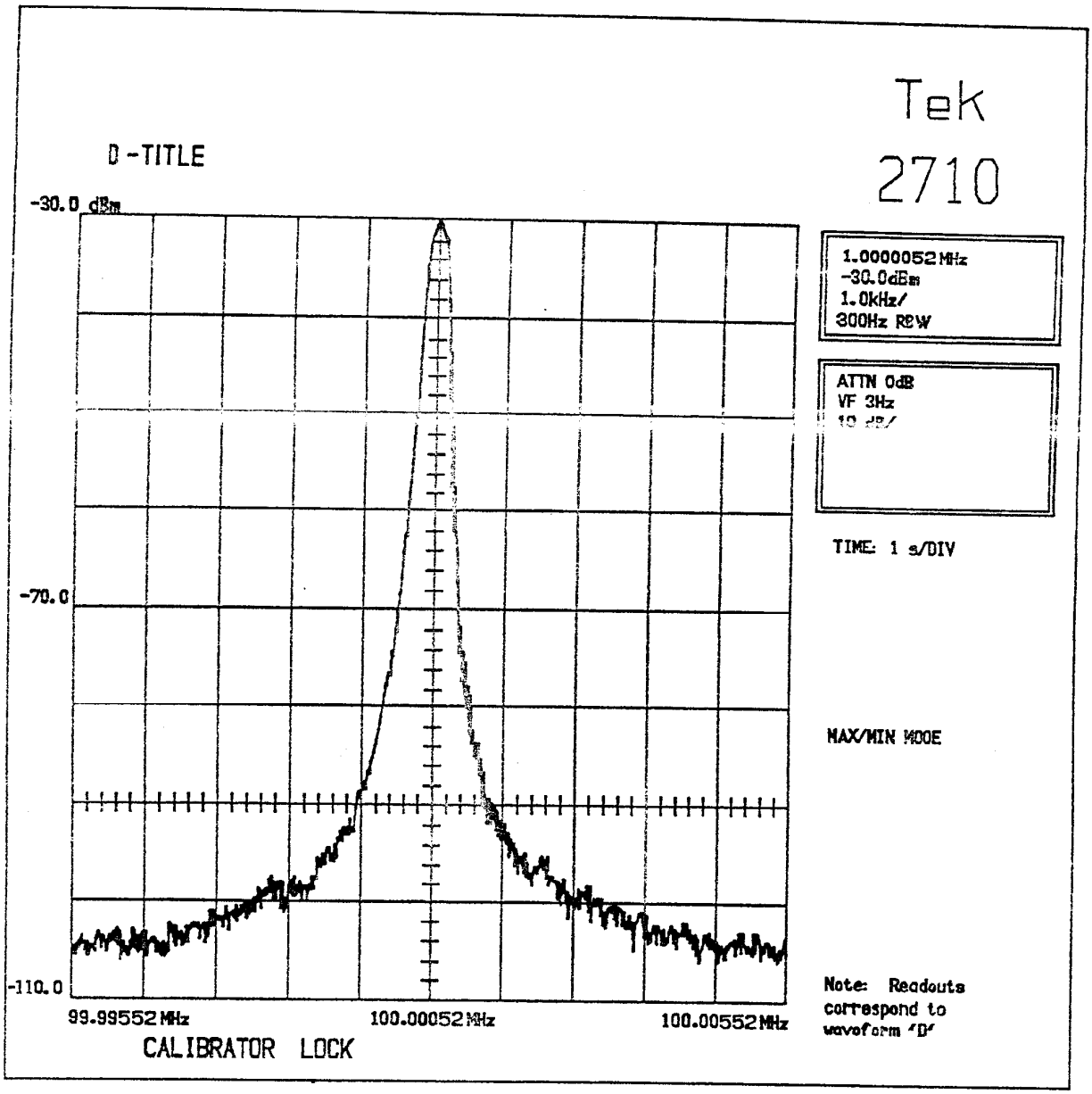


Figure 7–2. Typical plot.

OPTION 14

Option 14 adds a set of additional filters whose bandwidth is variable over 4 decades in discrete steps. The bandwidth range is 1 MHz to 1 kHz. These resolution bandwidths compliment the bandwidths already in place giving the user enhanced measurement capability.

The board also contains a 300 Hz filter when Option 01 is installed together with Option 14.

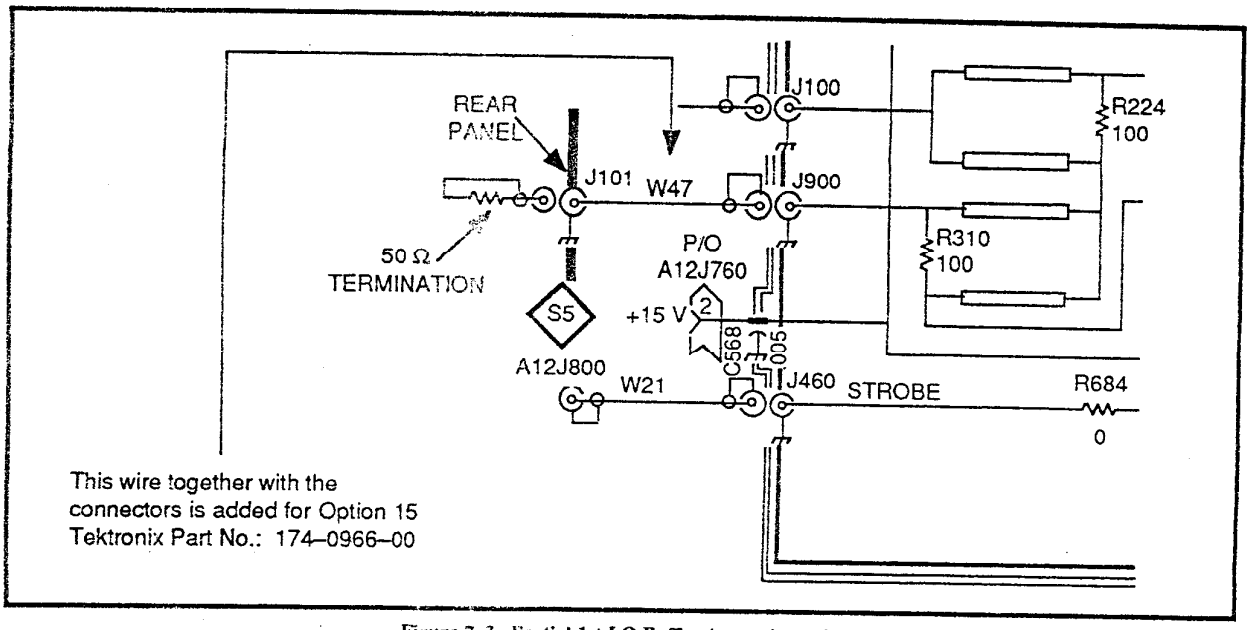


Figure 7–3. Partial 1st LO Buffer Amp schematic.

OPTION 15

Option 15 Provides an interface for a 1405 TV Sideband Analyzer. The 1st LO is routed to J101 at the rear panel and terminated in 50 Ω. See Figure 7–3.

OPTION 30

Introduction

Option 30 enables mounting of the Spectrum Analyzer in a standard 19-inch rack. The Spectrum Analyzer is guaranteed to meet all electrical and environmental characteristics, published in both the Operators and Service Manuals, when it is mounted according to the procedures given in this instruction sheet.

Temperature Requirements

Ambient temperature inside the rack with the Spectrum Analyzer power on must not exceed +50° C (122° F).

Clearance Requirements

Figure 7–4 is a dimensional drawing of the Rack Adapter and Spectrum Analyzer. At least 5 1/4 inches (133 mm) of vertical space are needed to mount the Spectrum Analyzer in an equipment rack. Minimum width of the opening between the left and the right front rails in the rack must be 17 5/8 inches (448 mm). Total depth of the rack must be at least 17 inches (432 mm). These clearances will allow sufficient space for air circulation and accomodation of the power cord and mounting hardware.

NOTICE

Installation is to be performed only by qualified service personnel.

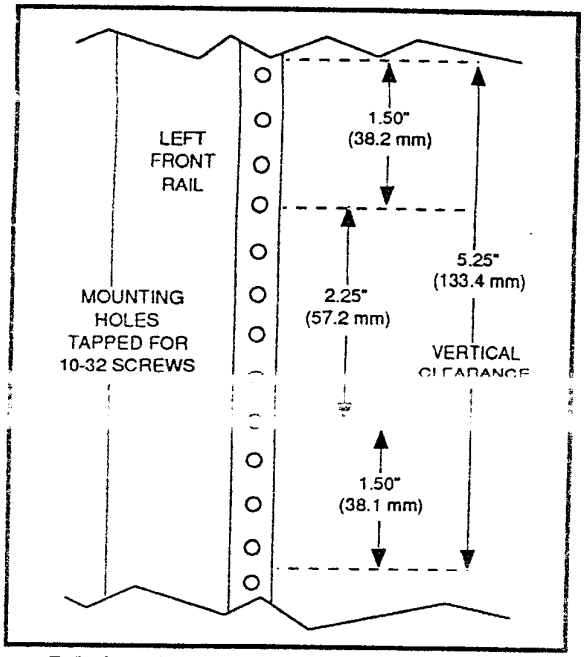


Figure 7–5. Locating mounting holes on front rails of equipment rack.

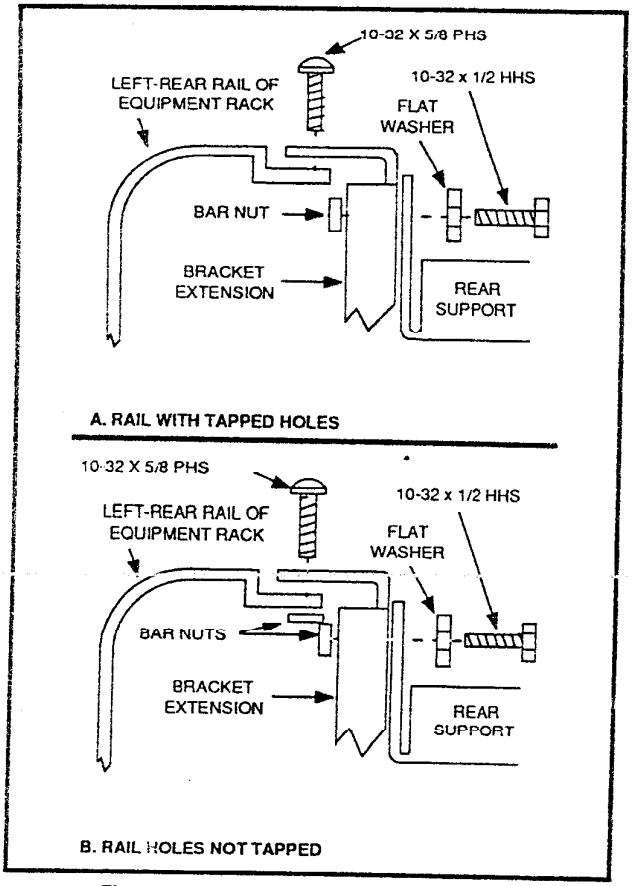


Figure 7–6. Installing bracket extensions.

3. Set the Spectrum Analyzer in the rack and align the screw holes in the front frames of the rack adapter with the screw holes selected in step 1.

4. Secure the front frames of the rack adapter to the front rails of the equipment rack using four oval-head screws, four finishing washers, and four plastic washers, as shown in Figure 7–7.

5. Secure the bracket extensions to the rear support using four 10-32 x 1/2-in hex-head screws, four flat washers, and two bar nuts as shown in Figure 7–6.

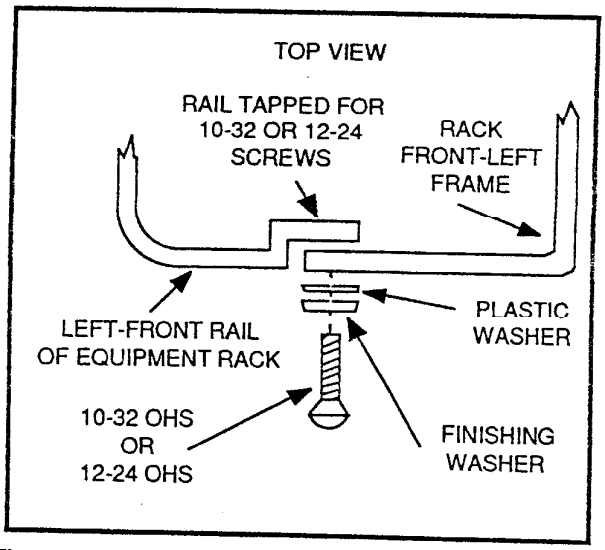


Figure7–7. Securing rack-adapted Spectrum Analy-zer to front rails of equipment rack.

OPTION 33

Option 33 Provides a Travel Line package including a rain cover, accessory pouch, gray crt filter, and carrying strap.

OPTION 34

Option 34 is a Portable to Rackmount adapter for 19 by 6.970 inch rack dimensions that enables mounting of the TEKTRONIX 2710 Spectrum Analyzer in a standard 19-inch rack. The adapter consists of a cradle (shelf) with slide-out assemblies and a mask to fit over the regular instrument panel.