

1705A Spectrum Monitor

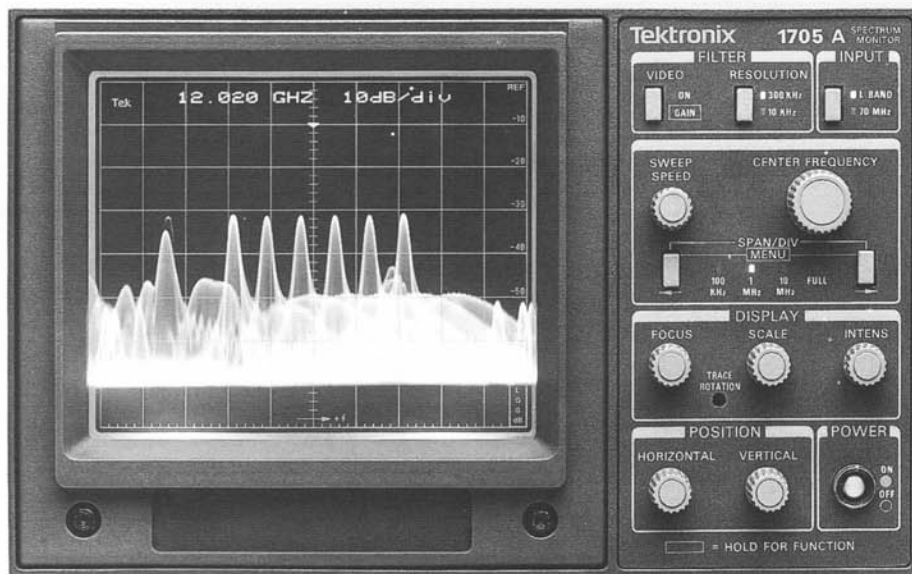
Test Equipment Depot
99 Washington Street
Melrose, MA 02176-6024

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1705A

SIGNAL MONITORS

- Full 850 MHz span for international satellites
- L-band and 70 MHz IF inputs
- Designed for satellite news gathering
- Easy, reliable operation
- Cost-effective
- On-screen Ku- or C-Band frequency readout
- On-screen setup menu
- Selectable 2 dB/div or 10 dB/div sensitivity
- Resolution Bandwidth switchable to 10 kHz or 300 kHz
- Span range and video filter selection
- Bright, clear display
- Portable dc power kit available



L-Band modulated RF input, offset frequency display.

The 1705A is a compact, specialized spectrum monitor designed to assist operators of portable television earth stations to adjust transmission equipment, and to correctly access geostationary satellites operated by public and private communications organizations. The 1705A provides expanded capabilities for observing the 850 MHz wide frequency band used by international satellite carriers.

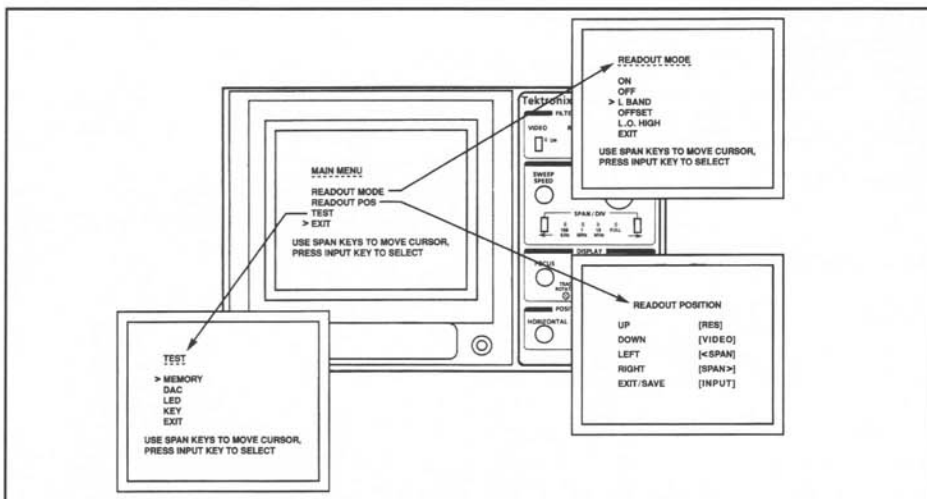
Dual band operation. Separate signal inputs allow connection to the two primary signals of interest in a television uplink/downlink system. A 45-100 MHz band allows observation of the television exciter at the 70 MHz IF monitoring point for a check of video deviation and aural subcarrier injection. A 950-1800 MHz band, with a separate RF input, allows observation of the full satellite downlink spectrum as down converted by the antenna-mounted, low-noise block down converter (not supplied). The input levels available in typical satellite television systems match the input sensitivity of the 1705A without need for operator adjustable input attenuators.

In addition to a span of the full spectrum in each band, the 1705A allows a selection of narrow spans and resolution filters for observation of individual satellite transponders, the video FM modulation envelope, or associated audio carriers.

Using the 1705A, the operator can quickly identify the assigned satellite and transponder, and correctly adjust the direction and polarization of the portable uplink/downlink antenna. Precise antenna pointing is facilitated by a selectable 2 dB or 10 dB per major division vertical screen sensitivity with vertical position control.

Compact size. The 1705A is unique in size, shape, and utility. Eight and one-half inches (215.9 mm) wide and five and one-quarter inches (133.4 mm) high, it fits into a standard Tektronix dual half-rack 1700F05 cabinet, along with a matching 1700 series waveform, vector, or combination monitor.

The 1705A may be operated in a portable 1700F02 cabinet. Operated from ac mains, or an external 12



1705A menu flow.

V source, with the accessory 1700F10 DC power kit, the 1705A provides +18 V dc power for the LNB when used at the rooftop antenna site.

Microprocessor control. A menu selected readout offset allows on-screen indication of the Ku-band or C-band satellite operating frequency in steps of 10 MHz. The offset may be set for local oscillators operating above or below the received signal. The status of all front panel buttons is stored when power is removed, and all modes are restored on power-up, ready for quick operation. Function indicators are lighted for visibility in television operating environments.

RF spectrum display. Span per division, resolution bandwidth, and display video bandwidth may be selected for full satellite, transponder, or discrete carrier display. The band of interest is highlighted in the full span mode, with frequency indicated as an alphanumeric readout. In 10 MHz, 1 MHz, and 100 kHz span/div modes, the readout indicates the

frequency of the spectrum displayed directly under the cursor.

A CENTER FREQUENCY control marks the display in full span and moves the spectral view through the entire selected band in narrower spans.

Bright, full size CRT display. The signal is displayed on a bright, mesh type CRT, with internal graticule to eliminate parallax. Variable graticule illumination improves readability under difficult conditions. The display is a full 8 x 10 cm, and the bezel accepts camera and viewing hood options designed for Tektronix 1700 series monitors.

Designed for rugged use. The 1705A spectrum monitor is designed to provide reliable operation in portable news gathering applications. The 1705A is built to withstand extremes of temperature, altitude, and vibration. Its small size, and various packaging and power options provide a freedom of system design critical in the rapidly changing television news environment.

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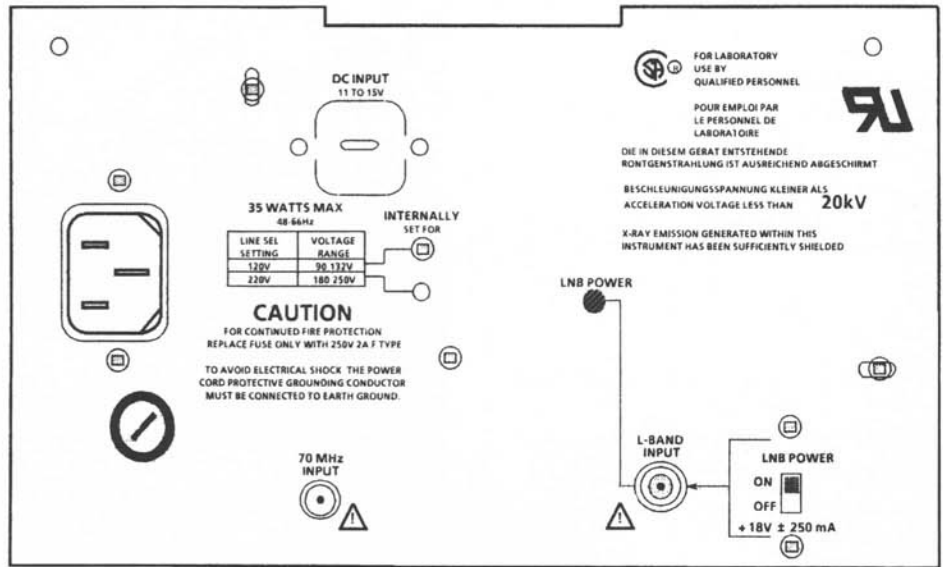
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CHARACTERISTICS

Frequency Range	L-band 900-2000 MHz (F-type connector), with performance specified over a range of 950-1800 MHz
70 MHz	45-100 MHz (BNC type connector)
Frequency Span	L-Band Full (900-2000 MHz with 1000 MHz on screen), 10 MHz/div., 1 MHz/div., 100 kHz/div.
70 MHz	Full (45-100 MHz with 50 MHz on-screen), 1 MHz/div., 100 kHz/div.
Frequency Readout	Alphanumeric on-screen display with center frequency marker. Offset may be adjusted to read satellite frequency in range of 0.9 GHz to 20.0 GHz.
Readout Accuracy	± 10 MHz.
Frequency Marker	Full Span Bright up marker at indicated frequency. Marked frequency will be on screen in next narrower span
MHz/div. spans	Selected center frequency indicated by caret marker
Span/Div Accuracy	L-band Full span typically 0.5 minor division
70 MHz	Full span typically 1.0 minor division
Relative Amplitude Accuracy	Typically ± 1 dB/100 MHz over L-band frequency range of 950-1800 MHz.
Display Sensitivity	Nominally 10 dB or 2 dB/div.
Flatness	L-band (950-1800 MHz) ± 5 dB; 70 MHz (45-100 MHz) ± 2 dB.
Positioning Range	Vertical ± 3 divisions Horizontal ± 2 divisions
Resolution Bandwidth	Filter bandwidth 6 dB down 10 kHz or 300 kHz
Maximum Input Signal Level	L-band -30 dBm, 75 Ω 70 MHz -20 dBm, 75 Ω
Video Filter	Reduces display video bandwidth to approximately 10 kHz
Low Noise Blockconverter (LNB) dc Supply	+18 Vdc ± 5%, 250 mA max Output through L-band input connector, switched on/off by rear panel slide switch LED indicator on rear panel

CRT DISPLAY

CRT Viewing Area	80 x 100 mm
Accelerating Potential	13.75 kV
Trace Rotation Range	> ± 1 degree from horizontal. Total range typically 8 degrees
Graticule	Internal, 8 x 10 division spectrum monitor graticule with variable scale illumination



1705A rear panel.

POWER SOURCE

Mains Voltage Ranges	110 V 90-132 V, 100-132 V with LNB supply switched on
220 V	180-250 V, 200-250 V with LNB supply switched on
Mains Frequency Range	48 Hz to 66 Hz
Power Consumption	25 watts, 35 watts maximum with LNB supply switched on

ENVIRONMENTAL

Temperature	Nonoperating -55°C to +75°C Operating 0°C to +50°C
Altitude	Nonoperating To 18,000 M (50,000 feet) Operating To 5,500 M (15,000 feet)
Shock	Nonoperating 30 g's, 1/2 sine, 11 ms duration, 3 shocks per surface (18 total)
Vibration	Operating 15 minutes each axis at 0.015" (frequency varied from cycles with instrument secured to vibration platform) 10 minutes each axis at any resonant point or at 55 Hz if no resonant point is found
Transportation	Qualified under NSTC Test Procedure 1A, Category II (30" drop)

SAFETY/EMI CERTIFICATION

Designed to meet or exceed	UL-1244 FactoryMutual-3820 CSA Bulletin 556B IEC 348 FCC EMI Compatibility (FCC Rules Part 15, Subpart J, Class A)
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PHYSICAL CHARACTERISTICS

Dimensions	mm	in
Height	133.4	5.25
Width	215.9	8.50
Depth	460.4	18.10
Weight	kg	lb
Approximately	3.8	8.5

ORDERING INFORMATION

1705A Spectrum Monitor
 When ordering, please use the nomenclature given here. The standard instrument is shipped without a case or handle. If your application is for bench or portable use, please order the appropriate enclosure from the optional accessories list. The 1705A is a UL-recognized component and meets the requirements for listing when used in the appropriate enclosure.

Includes: Instruction manual; Adapter, F-type male connector to BNC female connector; Power cord (with correct plug for the selected power plug option).

OPTION

- Option 74** — White CRT Phosphor.
- Option A1** — Universal Europe locking power cord, 220 VAC
- Option A2** — United Kingdom power cord, 240 VAC
- Option A3** — Australia power cord, 240 VAC
- Option M2** — Remedial service support
- Option M8** — Calibration service

OPTIONAL ACCESSORIES

- 1700F00** — Plain cabinet, no handle or feet
- 1700F02** — Portable Cabinet.
- 1700F05** — Dual rack mount, adjustable front panel depth
- 1700F06** — Blank panel for unused half of dual rack mount
- 1700F07** — Drawer for unused half of dual rack mount
- 1700F10** — DC Power Converter Kit
- 016-0475-00** — Viewing hood
- 200-3897-01** — Front panel cover
- C9 Option 20** — Camera