

Spectrum Analyzers

U3641/N • U4342 • U4941/N

LARGE COLOR TFT LCD DISPLAY

The 6 in. color TFT LCD display enhances viewing of complex measurements. A built-in tilt mechanism allows adjusting the viewing angle ± 15 degrees to improve visibility and efficiency.

COMPUTER AND INTERFACE FRIENDLY

These analyzers are well suited for computer-based applications. Two PCMCIA memory card slots allow you to store and recall instrument settings and measurements. This data can also be transferred directly to a computer in CSV (comma separated variable) and BMP screen image formats. The memory card slots incorporate a dust-proof shutter and an eject mechanism for reliable operation even in difficult outdoor working conditions.

RS-232C and GPIB ports are also standard. This allows you to print hardcopies of spectrum information and to control the instruments from and external computer as well as send/retrieve data.

Composite video out jacks are standard. The output of these spectrum analyzers can be easily projected for better viewing in meetings or training sessions.

Characteristics

FREQUENCY RELATED

Frequency Range –

U3641: 9 kHz to 3 GHz.

U4941/U4342: 9 kHz to 2.2 GHz.

Frequency Readout Accuracy – (Start, Stop, CF, Marker)

U3641/N: $\pm$ (marker frequency x frequency reference error + 5% x span + 15% x RBW + 10 Hz).

U4941/N/U4342: $\pm$ (span x span accuracy + 0.15 x RBW + 50 kHz).

Count Frequency Marker –

Resolution:

U3641/N: 1 Hz to 1 kHz.

U4941/N/U4342: 1 Hz to 1 kHz.

Count Accuracy:

U3641/N (S/N ≥ 25 dB, RBW ≥ 3 kHz, 1 kHz $\leq$ SPAN ≤ 200 MHz): $\pm$ (marker frequency x frequency reference accuracy + 1 LSD ± 5 Hz).

U4941/N/U4342: (S/N ≥ 25 dB, 50 kHz $\leq$ span ≤ 10 MHz, RBW ≥ 100 kHz): $\pm$ (marker frequency x frequency reference accuracy + 1 LSD ± 5 Hz).

Frequency Reference Accuracy – $\pm 2 \times 10^{-6}$ /year $\pm 1 \times 10^{-5}$ (at 0°C to 50 °C).

Frequency Span –

Range:

U3641/N: 1 kHz to 3.2 GHz, 0 Hz (Zero Span).

U4941/U4342/N: 1 kHz to 2.4 GHz, (Zero Span).

Accuracy:

U3641/N: $\leq \pm 5\%$ (SPAN).

U4941/U4342/N: $\leq \pm 5\%$ (SPAN ≥ 100 kHz).

Frequency Stability –

U3641/N:

Residual FM: ≤ 60 Hzp-p/100 ms (ZERO span).

Frequency Drift: < 150 Hz/min (SPAN ≤ 10 kHz).

Frequency Stability –

U4941/4342/N:

Residual FM: ≤ 3 kHz p-p/100 ms.

Frequency Drift (50 ms to 5 s sweep time): < 10 kHz after 30 min. warm-up.

Noise Sidebands –

U3641/N:

20 kHz Offset: ≤ -105 dBc.

10 kHz Offset: ≤ -100 dBc.

U4941/4342/N: ≤ -100 dBc/Hz at 20 kHz offset.

Resolution Bandwidth (3 dB) –

Range: 1 kHz to 3 MHz, 1-3 sequence.

U3641, Opt. for 100, 300 Hz.

Bandwidth Accuracy:

1 kHz to 1 MHz: $\leq \pm 20\%$.

3 MHz: $\leq \pm 25\%$.

Selectivity: $< 15:1$ (60 dB to 3 dB, RBW 1 kHz to 3 MHz).

Bandwidth (6 dB) (U4941/N): 9 kHz, 120 kHz (conforming to CISPR standard).

Video Bandwidth – 10 Hz to 3 MHz (1-3 step).

AMPLITUDE RELATED

Amplitude Range –

U3641: +20 dBm to displayed Average

Noise Level.

U3641/N: +130 dB μ V to displayed Average

Noise Level.

U4941/N: +20 dBm to displayed Average

Noise Level: +130 dB μ V to displayed Average

Noise Level.

Maximum Input Level (± 50 V DC maximum) –

Preamplifier OFF (Input Atten ≥ 10 dB):

U3641: +27 dBm.

U3641/N: +134 dB μ V.

U4941/N: +27 dBm, +134 dB μ V.

Preamplifier ON (input atten ≥ 10 dB):

U3641: +13 dBm.

U3641/N: +120 dB μ V.

U4941/N: +13 dBm, +120 dB μ V.

Display Range –

Log: 10×10 div, 10, 5, 2, 1 dB/div.

Linear: 10% of reference level/div,

RBW $gt;= 3$ kHz.

QP Log (U4941/N): 40 dB (5 dB/div).

Reference Level Range (U3641/N) –

Preamplifier OFF (Input Atten 0 dB to 50 dB):

Log: U3641, -64 dBm to +40 dBm;

U3641/N, +46 dB μ V to +150 dB μ V.

Linear: U3641, +141.1 μ V to +22.36 V;

U3641/N, +198.4 μ V to 31.44 V.

Preamplifier ON (Input Atten 0 dB to 10 dB):

Log: U3641, -89 dBm to -25 dBm (0.1 dB

step); U3641/N, +21 dB μ V to +85 dB μ V.

Linear: U3641, +7.934 μ V to +12.57 mV;

U3641/N, +11.16 μ V to 17.68 mV.

Reference Level Range (U4941/U4342/N) –

Preamplifier OFF: Log, -64 dBm to +40 dBm (0.1 step); +46 dB μ V to +150 dB μ V

Linear, +141.1 μ V to +22.36 V; 199.5 μ V

to 31.62 V.

Preamplifier ON: Log, -84 dBm to +10 dBm

(0.1 dB step); +26 dB μ V to +120 dB μ V.

Linear, 14.11 μ V to 707.1 mV, 19.95 μ V to 1 V.

Input Attenuator Range – 0 to 50 dB (10 dB step).

SWEEP RELATED

Sweep Time –

U3641/N: 50 μ s to 1000 s and manual sweep.

U4941/4342/N: 50 ms to 1000 s and manual sweep.

Accuracy – $\leq \pm 5\%$.

Trigger Mode – Free Run, Single, Video, Ext, TV.

DEMODULATION

Spectrum Demodulation –

Modulation Type: AM and FM (FM at RBW ≥ 3 kHz).

Audio Output: Speaker and phone jack with volume control.

DYNAMIC RANGE

Displayed Average Noise Level

(RBW 1 kHz, VBW 10 Hz) –

Preamplifier OFF:

U3641: -117 dBm + 2.7 f (GHz) dB.

U3641/N: -8 dB μ V + 2.7 f (GHz) dB.

U4941/N: -117 dBm + 2.7 f (GHz) dB;

-8 dB μ V + 2.7 f (GHz) dB.

Preamplifier ON:

U3641: -135 dBm + 4.3 f (GHz) dB.

U3641/N: -26 dB μ V + 4.3 f (GHz) dB.

U4941/N: -132 dBm + 3.3 f (GHz) dB;

-23 dB μ V + 3.3 f (GHz) dB.

Spectrum Analyzers

U3641/N • U4342 • U4941/N

TV Image Signal Input –

Connector: BNC jack, rear panel.
Impedance: 75 Ω (nominal), AC coupled.
Input Level: About 1 V_{p-p}.

TV Sound Signal Input –

Connector: Pin jack, rear panel.
Impedance: 1 K Ω (nominal), AC coupled.

TRACKING GENERATOR FUNCTION

Opt for U3641/N. STD for U4342.

Frequency Range – 100 kHz to 2.2 GHz.

Output Level Range –

0 dBm to -31 dBm, 1 dB steps.
N Version: 105 dB μ V to 74 dB μ V, 1 dB steps.

Output Level Accuracy –

(at 30 MHz, -10 dBm: $\leq \pm 0.5$ dB.
N Version (at 30 MHz, 95 dB μ V: $\leq \pm 0.5$ dB.

Output Level Flatness –

(at -10 dBm, 30 MHz reference):
100 kHz to 1 GHz: $\leq \pm 0.7$ dB.
100 kHz to 2.2 GHz: $\leq \pm 1.5$ dB.
N Version (at 95 dB μ V, 30 MHz reference):
100 kHz to 1 GHz: $\leq \pm 0.7$ dB.
100 kHz to 2.2 GHz: $\leq \pm 1.5$ dB.

Output Level Switching Accuracy –

(at -10 dBm reference):
100 kHz to 1 GHz: $\leq \pm 1.0$ dB.
100 kHz to 2.2 GHz: $\leq \pm 2.0$ dB.
N Version (at 95 dB μ V reference):

100 kHz to 1 GHz: $\leq \pm 1.0$ dB.
100 kHz to 2.2 GHz: $\leq \pm 2.0$ dB.

Output Spurious –

Harmonic: < -20 dBc.
Non-harmonic: < -30 dBc.

Tracking Generator Leakage –

≤ -95 dBm.
N Version: ≤ -16 dB μ V.

Tracking Generator Output –

Connector: N-type jack.
Impedance:
50 Ω (nominal).
N Version: 75 Ω (nominal).
VSWR:
(≤ -10 dBm output): ≤ 1.5 .
N Version (≤ -10 dB μ V output): ≤ 2.0 .

CHANNEL INPUT SETTING

(OPT. 78 ONLY, U3641/N)
(Opt. 78 is included in Opt. 72.)

Channel Setting – Channel setting for VHF, UHF, CATV, BS, and CS. Two user tables are available and 99 channels can be registered for each table.

ENVIRONMENTAL

Temperature –

Operating: 0°C to 50°C.
Non-operating: -20°C to +60°C.

Humidity – 85% or less.

POWER REQUIREMENTS

External DC Input –

Connector: XLR 4-Pin.
Voltage Range: +10 V to +16 V.
Power Consumption: 60 W maximum.

AC Input –

Line Voltage: 100 VAC and 200 VAC, auto switching.
Voltage Range:
100 V Operation: 90 V to 120 V.
220 V Operation: 220 V to 240 V.
Line Frequency: 50 Hz/60 Hz.
Power Consumption: 100 VA maximum.

PHYSICAL CHARACTERISTICS

Dimensions (without feet or connectors)

	mm	in.
Height	148	5.75
Width	291	11.375
Depth	330	13.25

Weight (without options, accessories, carrying belt, batteries)

	kg	lbs.
U3641/N/U4342	6.9	15.2
U4941/N	6.5	14.3

ORDERING INFORMATION

For price information: Outside the U.S. contact your local Tektronix representative, inside the U.S. see the price list in the back of this catalog.

U3641

Portable Spectrum Analyzer, 50 Ω Input.

U3641N

Portable Spectrum Analyzer, 75 Ω Input.

Includes: Power Cable (A01402), N-to-BNC Adapter (U3641 – JUG-201A/U), NC-to-BNC Adapter (U3641N – BA-A165), N-C15 Adapter (U3641N – (NCP-NFJK), AC-DC Adaptor (A08364), Carrying Strap, Operation Manual, SRAM card.

U4342

RF Field Analyzer with Tracking Generator, 50 Ω Input.

U4342/N

RF Field Analyzer with Tracking Generator, 75 Ω Input.

Includes: Power Cable (A01402), N-to-BNC Adapter (U4342 – JUG-201A/U), NC-to-BNC Adapter (U4342N – BA-A165), N-C15 Adapter (U4342N – (NCP-NFJK), AC-DC Adaptor (A08364), Carrying Strap, Operation Manual, SRAM card.

U4941

RF Field Analyzer, 50 Ω Input.

U4941/N

RF Field Analyzer, 75 Ω Input.

Includes: N-to-BNC Adapter (JUG-201A/U), AC-DC

Adaptor (A08364), Carrying Strap, Instruction Manual, Quick Guide, SRAM card.

U3641/U3641N OPTIONS

Opt. 15 – Program controller.

Opt. 20 – High-stability reference (cannot be installed with Opt. 70).

Opt. 26 – Narrow RBW filters (300/100 Hz).

Opt. 60 (U3641 only) – CDMA Measurement IS-95/J-STD-008 TX measurement.

Opt. 70 (U3641 only) – PHS demodulation (cannot be installed with Opt. 20 or Opt. 72).

Opt. 72 – TV demodulation (cannot be installed with Opt. 70, includes Opt. 78).

Opt. 74 – Tracking generator.

Opt. 78 – Channel input setting (included with Opt. 72).

MEASUREMENT SERVICE OPTIONS

U3641/N, U4342/N, U4941/N

Opt. C3 – Three years of Calibration Services.

Opt. C5 – Five years of Calibration Services.

Opt. D3 – Test Data (requires Opt. C3).

Opt. D5 – Test Data (requires Opt. C5).

Opt. R3 – Repair warranty extended to cover three years.

Opt. R5 – Repair warranty extended to cover five years.

RECOMMENDED ACCESSORIES

Battery – Order 146-0111-00 (Requires Charger).

Battery Charger – Order 119-4901-00.

External DC Power Cable – Order A01434.

Memory Card, 64K – Order A09507.

Soft Carrying Case – Order R16216.

Transit Case – Order R16072.

Front Panel Cover – Order A02806.

Carrying Handle – Order A08184.

Display Hood – Order R16601

For your local Tektronix representative see the list in the back of this catalog or outside the U.S. call: 1-503-627-1933, inside the U.S. call: 1-800-426-2200.



ISO 9001

Tektronix measurement products are manufactured in ISO registered facilities.



Product(s) complies with IEEE Standard 488.2-1987.

ADVANTEST

Advantest's quality system complies with the DIN ISO 9002 standard and has been certified by TUV Product Service GMBH.