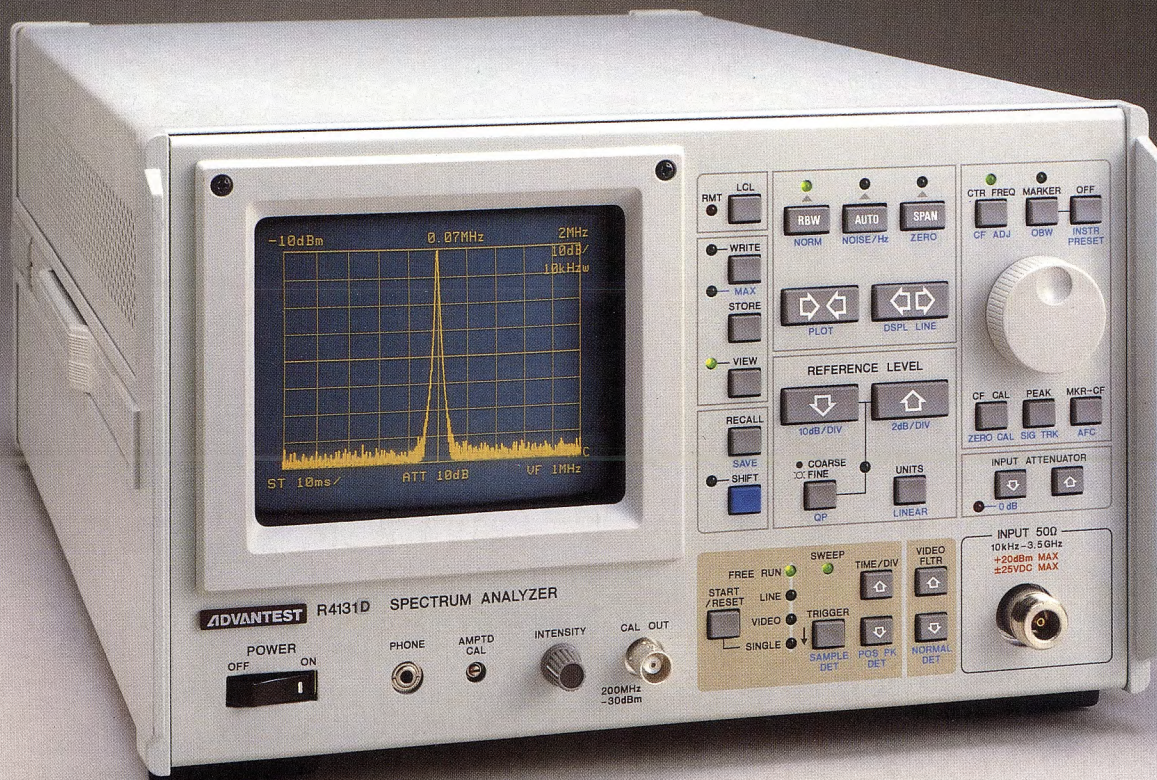


## *High-Performance, Low-Price, and Portable*

- *Wide frequency range: 10 kHz to 3.5 GHz*
- *Excellent skirt characteristics:  $-80$  dBc*
- *Small and light, and weighing only 10 kg*
- *Saving/recalling measurement conditions, including waveforms*
- *Low price*



## Save/Recall Function Including Waveforms and AFC

**R**4131C/CN/D/DN Spectrum Analyzers were developed to achieve greater cost-effectiveness. In addition to their cost-effectiveness, they are small and light, which makes them easy to carry. Their high-performance characteristics — such as a maximum input sensitivity of  $-116$  dBm (R4131C/D), a dynamic range of 70 dB, and  $-80$  dBc — also enable measurements in a wide frequency range from 10 kHz to 3.5 GHz.

Especially, the D type analyzer provides AFC (Automatic Frequency Control), enabling highly stable spectrum analysis.

The TR4153A/4153B and TR4154 Tracking Generators can be added to these analyzers to enable frequency-characteristic measurements with a wide dynamic range. For use in measuring systems, GPIB is as standard, as well as direct plotting and video output for use in system applications.



# Function

## 10 kHz to 3.5 GHz Coverage in a 10-kg Package

The R4131C/CN/D/DN, weighing just 10 kg, covers the wide frequency range of 10 kHz to 3.5 GHz, and is designed for both high performance and portability. The R4131C/CN/D/DN can be used in such diverse applications as 3rd harmonic measurements of 900-MHz-band mobile radio equipment, received field strength measurements of satellite broadcasts and evaluation/maintenance of CATV systems.

## Choose from 4 Models, Depending upon Your Application.

The R4131C/CN/D/DN consists of 4 models, enabling selection for various application requirements. All models feature high performance and set of features and functions for various applications.

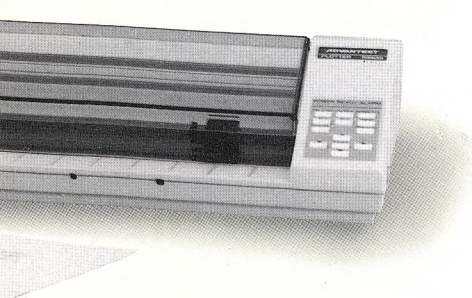
	R4131C	R4131CN	R4131D	R4131DN
Frequency range	10 kHz ~ 3.5 GHz			
Input impedance	50 Ω	75 Ω	50 Ω	75 Ω
Center frequency display accuracy	±10 MHz		±100 kHz	
Positive/negative display	N/A		YES	
Field strength measurement	standard		standard	
Quasi-peak value measurement	standard		standard	
GPIB	standard		standard	
Occupied band width measurement	N/A		Optional	N/A

## Video Signal Modulation Analysis

The R4131D and R4131DN feature a positive/negative display function usually found on more sophisticated equipment. This can be used to perform AM modulation measurements on video signals.

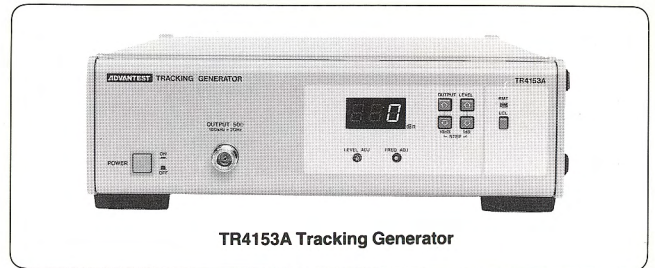
## Save/Recall Function for Conditions and Waveforms

The R4131C/CN/D/DN has a save/recall function which operates for not only measurement condition settings but for waveforms as well. Three sets of conditions and waveforms are stored and recalled. The enables a stored waveform to be used as a reference in comparison measurements at different locations. Independent from this function, is an auto-recall function that serves to automatically set the desired measurement conditions when power is switched on, a great convenience in making onsite measurements.



## Wide-Dynamic Range Frequency Characteristic Measurements

The R4131C/CN/D/DN can be combined with the TR4153A/4153B or TR4154 Tracking Generators to enable frequency characteristics measurements with wide dynamic range.



TR4153A Tracking Generator

## Automatic Measurement of Occupied Bandwidth

The R4131D has an optional automatic occupied-bandwidth measurement function. This function automatically determines the bandwidth within which 99% of the radiated power is contained, indicating the bandwidth markers and displaying values digitally.

## Wide Range of Accessories

The R4131C/CN/D/DN can be teamed up with a variety of accessories, including a DC-AC inverter (which provides AC power from a 12 VDC source) to enable operation outdoors without commercial AC power, and a complement of antennas for use in field-strength and EMI measurements.

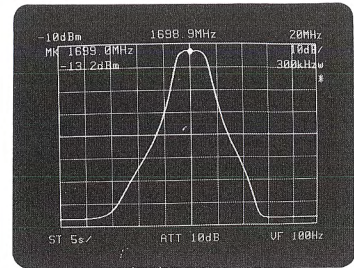
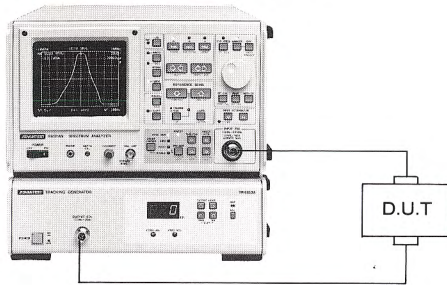


Compact, Lightweight DC-AC Inverter

# High-Precision Measurements of Amplifier and Filter Frequency Characteristics

**Easy to operate with price range of direct measurement readings for up to RF and semi-microwaves.**

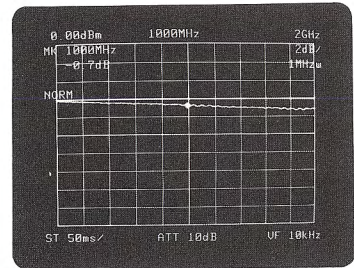
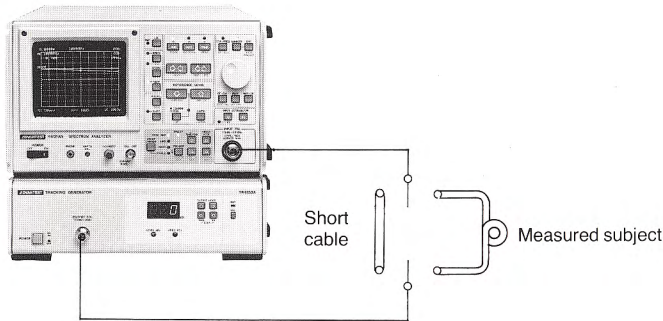
The R4131 series lets you easily measure the amplitude characteristics of amplifiers and filters over a wide dynamic range up to 2 GHz (when used with the TR4153A/4153B) or 3.5 GHz (when used with the TR4154). In addition, measurements can be taken automatically by using the GP-IB interface.



Amplitude characteristics of 1.7 GHz BPF

**Precise calculation display**

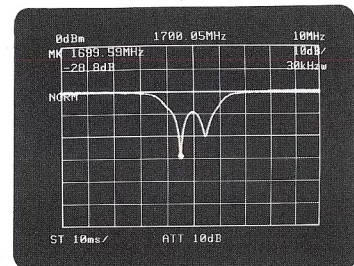
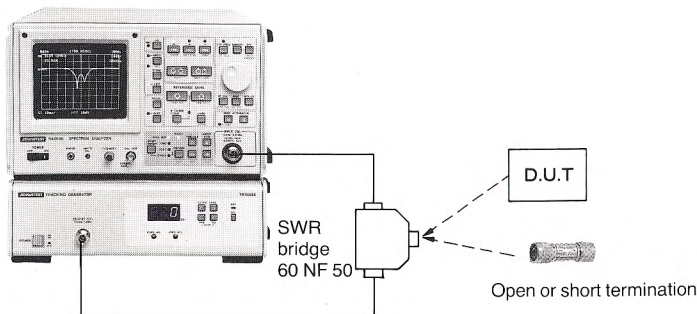
The normalize function of the R4131 series lets you precisely measure the frequency characteristics of a subject by eliminating the frequency characteristic components of the measuring system. The diagram to the right shows an example of measuring frequency characteristics of a BNC cable with a center frequency of 1 GHz (span width of 2 GHz). The example shows 0.7 dB of loss at 1 GHz.



Precision loss measurement of BNC cable

**Return loss measurement using SWR bridge**

The R4131 series lets you measure return loss by using the SWR bridge. The diagram to the right shows an example of measuring return loss on the input side of a filter. The example shows 28.8 dB of loss (about 1.07 VSWR) at 1.7 GHz.



Return loss measurement of 1.7 GHz BPF

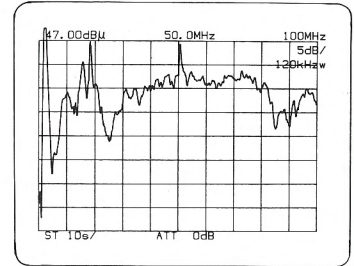
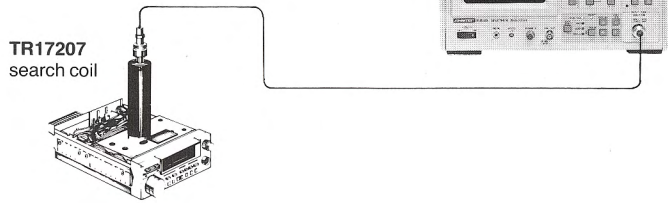
# For EMC Monitor and Countermeasure Use

## Simple, accurate EMI measurement

The R4131 series incorporates a QP-value measurement function based on CISPR standards. This function enables unit use with an EMC monitor and for countermeasures.

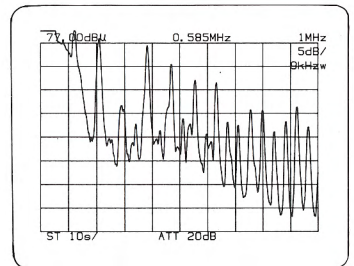
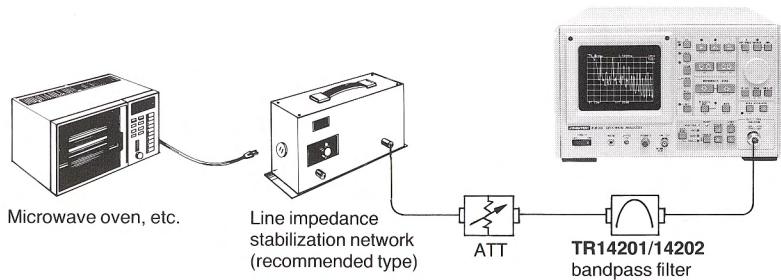
### ■ Noise detection using search coil

By using the TR17207 search coil, you can easily measure noise from the display as a relative value by considering the radiation and shielding from individual components in an electronic circuit.



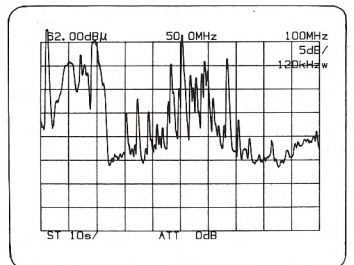
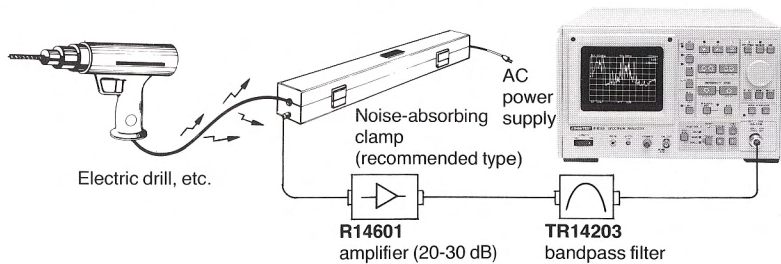
### ■ Measuring interfering wave terminal voltage

Interfering energy from electric equipment is usually radiated from power supply lines near the equipment. Quantitative measurements of noise from this power supply line are possible using a pseudo-circuit network with a known impedance.



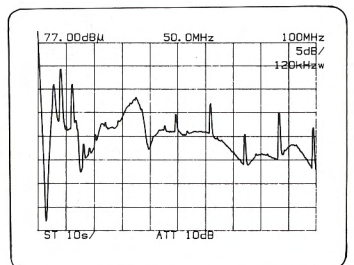
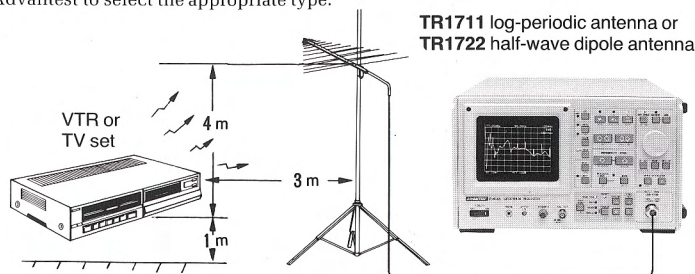
### ■ Measuring 30 MHz or higher interfering wave terminal voltage

For a frequency of 30 MHz or higher, a pseudo-power supply circuit with wideband frequency characteristics is difficult to construct. In such cases, an absorption clamp can be effectively used.



### ■ Measuring the radiant strength of interfering waves

By using an antenna with the unit, you can measure the radiant strength of interfering waves. Because there are many types of antennas, consult Advantest to select the appropriate type.

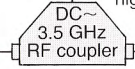
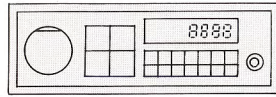


# Measurement of Radio Equipment Spurious Response and Occupied Bandwidths

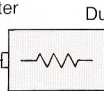
## Spectrum analyzer for new mobile radio bands

The R4131 series is ideally suited for measuring harmonic distortion in 900 MHz-band mobile radio equipment, because it enables frequency measurements over a wide range from 10 kHz to 3.5 GHz. In addition, it provides a dual-screen display and is capable of marker measurements so you can easily compare fundamental and harmonic waves.

Car telephone, MCA, cellular radio equipment, etc.

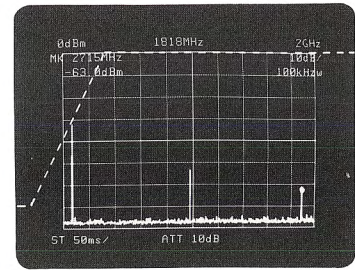
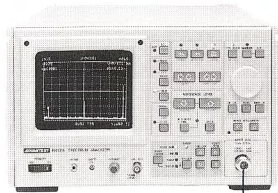


TR14101 high-pass filter



Dummy load

To probe power supply



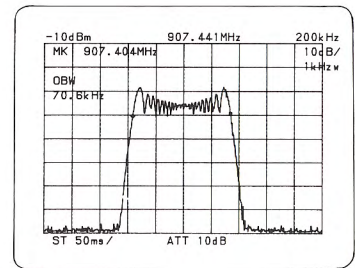
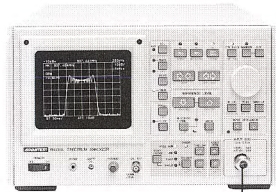
## Automatic measurements of occupied frequency bandwidths

The R4131D/DN optionally enables the automatic measurement of occupied frequency bandwidths.

Pseudo-sound generator

Radio equipment

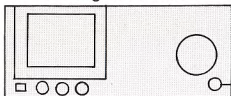
ATT



## Testing of CATV trunk amplifiers

The R4131 series lets you easily measure the C/N ratio, beat interference, cross modulation, and hum modulation in CATV trunk amplifiers.

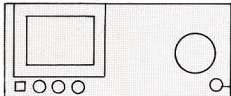
TR4511 signal source



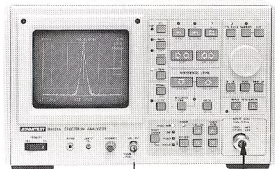
Tracking generator or TR4511 signal source

Power combiner

TR4511 signal source



CATV trunk amplifier



# Field Strength Measurements of Satellite and Radio Broadcasts

## F-axis oscilloscope use for 10 kHz to 3.5 GHz

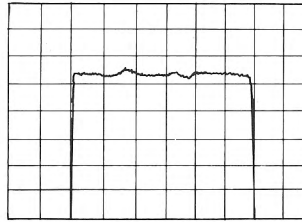
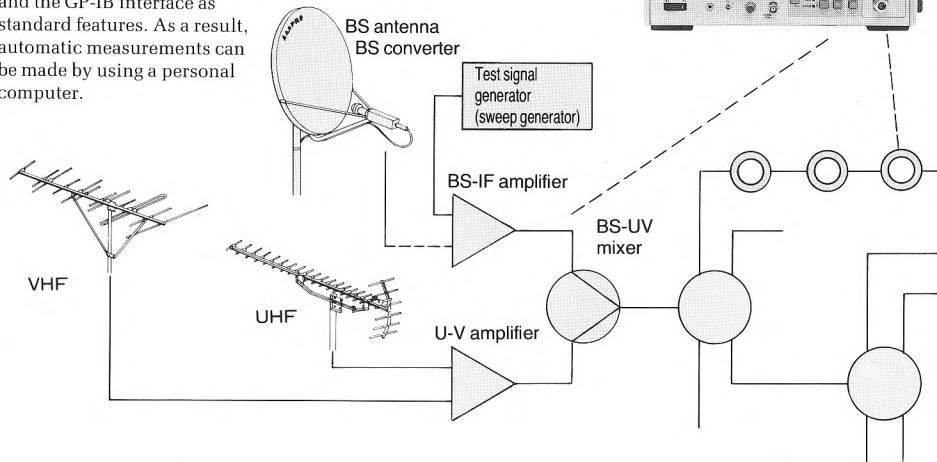
Because the R4131 series is capable of measurements up to 3.5 GHz, it can be used for servicing common-antenna TV reception systems such as those used for CATV and satellite broadcasting, as well as for angle adjustments of satellite broadcast-receiving antennas. In addition, even modulated signals can be received by using earphones.

### ■ Testing of common-antenna TV reception systems for satellite broadcasting

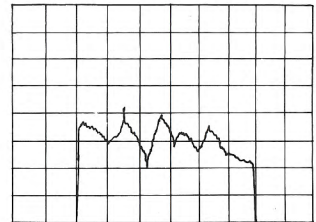
The R4131 series has MAX-hold and storage functions to simplify measurements of the amplitude frequency characteristics in the transmission frequency band, signal level in each channel, and level deviation in the receiving channels of common-antenna TV reception systems used for satellite broadcasting.

### ■ C/N ratio measurement of satellite broadcast reception signals

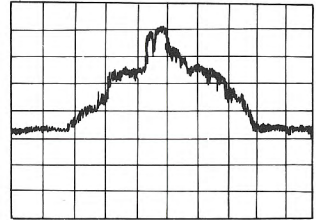
For clear reception of satellite broadcasts, a sufficient C/N ratio must be ensured since it determines reception quality. The R4131 series includes the MAX-hold function, NOISE/Hz function for convenient noise measurements, and the GP-IB interface as standard features. As a result, automatic measurements can be made by using a personal computer.



Desirable frequency characteristic data of transmission line



Undesirable frequency characteristic data of transmission line



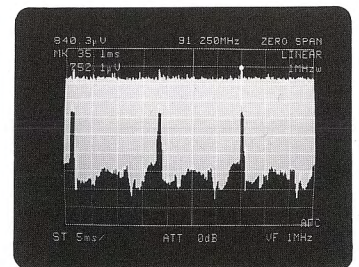
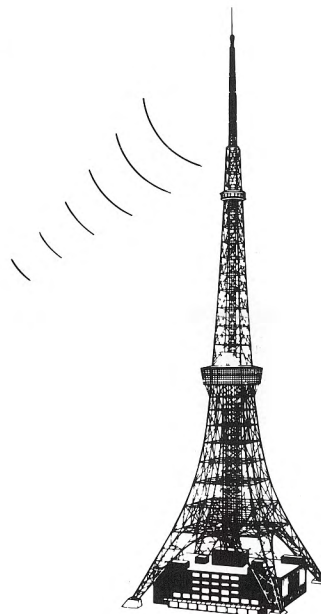
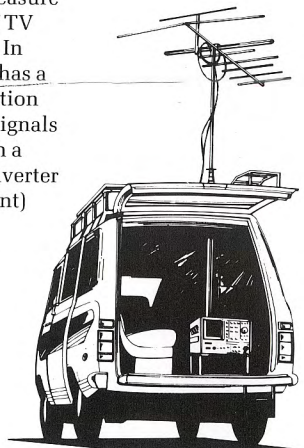
Example of carrier signal level measurement using MAX-hold function

For details on C/N ratio measurements, refer to the technical handbook published by NHK.

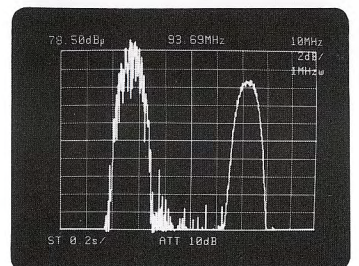
## Direct readout of wide range of electromagnetic waves

The R4131CN/DN of the R4131 series are designed for TV signal reception. Capable of high-sensitivity panoramic reception over a wide frequency range with 75-ohms input impedance, these units let you directly read levels in units of  $\text{dB}\mu$  or  $\text{dB}\mu/\text{m}$ . Consequently, you can use them for spectrum analysis and measuring sideband attenuation characteristics and intermodulation distortion in video transmitters, as well as the sync peak values of video transmitters, video carrier waves, and interfering waves generated near the carrier.

Thus, you can quickly measure various characteristics of TV broadcasting equipment. In particular, the R4131DN has a POSI/NEGA display function to let you observe video signals in time domain (i. e., with a zero span). The DC-AC inverter (provided as an attachment) lets you use the unit outdoors when no AC power is available.



Example of video signal measurement



Video and audio waveforms of TV signal

# Specifications

## Frequency

**Frequency range:** 10 kHz to 3.5 GHz

**Center frequency display:** Displayed on the CRT with a maximum resolution of 1 kHz

**Center frequency display accuracy:** After zero calibration at local feed through.

R4131C/4131CN	R4131D/4131DN
±10 MHz ±15 MHz under GPIB control	±100 kHz ±3% of span: under 2.5 GHz max. at a sweep time of 5 ms/div. to 0.5 s/div. ±10 MHz: 2.5 GHz min.

**Frequency span:** 50 kHz to 4 GHz in ten divisions on the horizontal scale on the CRT, selectable in 1-2-5 sequence. With zero span, operates as a fixed tuned receiver.

**Frequency span accuracy:** ±5%

## Stability:

**Frequency stability** at fixed frequency After 30-min. warm-up

R4131C/4131CN	R4131D/4131DN
±100 kHz/5 min. or better	10 kHz max./10 min. under 2.5 GHz max. and at sweep time 5 ms/div. to 0.5 s/div.

**Residual FM** 2 kHz<sub>p-p</sub> max./100 ms

**Noise sideband:** -80 dBc max. at resolution bandwidth of 1 kHz (at 20 kHz from the carrier, with a 10 Hz video filter)

## Resolution:

**Resolution bandwidth (3-dB points)** 1 kHz to 1 MHz in 1, 3, 10 sequence

**(6-dB points)** 9 kHz, 120 kHz, when QP mode is selected

**Selectivity (ratio of 60 dB:3 dB resolution bandwidths)** 15:1 max.

**Resolution bandwidth accuracy** ±20%, CISPR standard or better in QP mode

**Marker display:** Can be set at any point.

**Resolution** Max. 1 kHz (Depending on the span.)

**Measurement accuracy** Center frequency display accuracy + frequency span accuracy

## Amplitude

### Screen display range:

**LOG mode** With respect to reference level 80 dB for a 10 dB/div display and 20 dB for a 2 dB/div display, or 40 dB for a 5 dB/div display in QP mode

**LIN mode** 10 div

### Linearity:

**LOG mode** ±0.15 dB/1 dB, ±1 dB/10 dB, ±1.5 dB/70 dB or above

**LIN mode** ±5% of fullscale

### Reference level:

**LOG mode** -69 dBm to +40 dBm (40.25 dBμV to 150 dBμV for the R4131CN/4131DN) (for 10 dB/div, 10 dB and 1 dB steps, and for 1 dB/div and 5 dB/div, 1 dB and 0.25 dB steps)

**LIN mode** 72.77 μV to 22.36 V (102.9 μV to 31.62 V for R4131CN/4131DN)

**Reference level accuracy:** ±1 dB in LOG mode (in the reference level range of 0 to -59 dBm (110 dBμV to 51 dBμV for the R4131CN/4131DN), at 200 MHz, with attenuation at 10 dB after level calibration)

**Reference level units:** Selectable as dBm, dBμV, dBmV or dBμV/m

When dBμV/m is selected, an automatic correction is made for the antenna calibration factor.

### Marker display:

**Resolution** 0.2 dB (for 10 dB/div) or 0.05 dB (for 2 dB/div)

**dBm/Hz** Rms noise level is displayed normalized with respect to the 1-Hz-bandwidth noise at the marker position.

### Dynamic range:

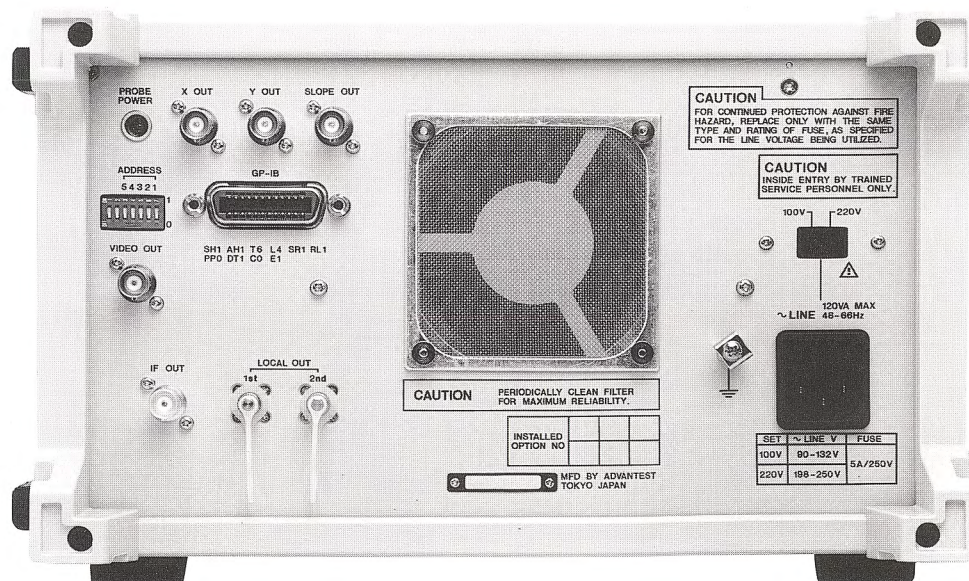
**Average noise level**

R4131C/4131D	R4131CN/4131DN
-116 dBm +1.55 f (GHz) dB or less	-114 dBm +1.55 f (GHz) dB or less

**2nd and 3rd order distortion** 70 dB or greater (when input level is -30 dBm, at 10 MHz or above)

**Frequency response (with 10 dB attenuation):**

R4131C	R4131D	R4131CN/4131DN
±1 dB or less (100 kHz ≤ F ≤ 2 GHz) ±3.5 dB or less (10 kHz ≤ F ≤ 3.5 GHz)	±1 dB or less (100 kHz ≤ F ≤ 2 GHz) ±2 dB or less (10 kHz ≤ F ≤ 3.5 GHz)	±1.5 dB or less (100 kHz to 1.5 GHz) ±2.5 dB or less (10 kHz to 2 GHz) ±4 dB or less (2 GHz to 3.5 GHz)





**Residual response** With attenuation 0 dB, input termination 50  $\Omega$ , frequency > 100 kHz

R4131C/4131D	R4131CN/4131DN
-100 dBm or less	-98 dBm or less

**Video filter:** 10 Hz, 100 Hz, 1 kHz, 10 kHz, 100 kHz, 300 kHz, 1 MHz

**Resolution bandwidth switching accuracy:**  $\pm 1$  dB (+20°C to 30°C)

**Gain compression:** 1 dB max. for -10 dBm input

#### Sweep

**Sweep time:** 5 ms/div to 100 s/div selectable in 1-2-5 sequence

**Sweep time accuracy:**  $\pm 15\%$

**Trigger modes:** Free-run, line, video and single (reset, start)

#### Input

**RF input:** Approx. 50  $\Omega$ , N connector (75  $\Omega$ , NC connector for the R4131CN/4131DN)

**Maximum input level:** +20 dBm (127 dB $\mu$ V for the R4131CN/4131DN),  $\pm 25$  VDC max. (with 20 dB or greater input attenuation)

**Input attenuator:** 0 to 50 dB in 10-dB steps

**Input attenuator switching accuracy:**  $\pm 1$  dB (10 kHz  $\leq$  frequency  $\leq$  2 GHz or  $\pm 1.5$  dB (2 GHz < frequency  $\leq$  3.5 GHz), with respect to 10-dB attenuation

**Input VSWR (at 10 dB input attenuation or greater):**

4131C/4131D	4131CN/4131DN
1.5 max. (100 kHz $\leq$ frequency $\leq$ 2 GHz)	1.5 max. (100 kHz to 1.5 GHz)
2.0 max. (2 GHz $\leq$ frequency $\leq$ 3.5 GHz)	2 max. (10 kHz to 2 GHz) 2.5 max. (2 GHz to 3.5 GHz)

#### Display Section

**Display:** Waveform, setting conditions, grid

**CRT:** 5.5-inch, phosphor, amber display

**Trace:** WRITE waveform and VIEW waveform (up to 2 waveform displayed on the CRT)

**WRITE:** Posi-peak and sample display

R4131C/4131CN	R4131D/4131DN
Posi-peak and sample display	Posi-peak, sample and pose/nega display

**MAX HOLD:** For every repetition from the beginning of the function, the maximum signal level along the horizontal axis is displayed.

**MARKER:** Frequency and level at the marker point are measured and displayed.

**PEAK SEARCH:** The marker is moved to the point of maximum level on the displayed waveform.

**MRK CF:** The center frequency is changed to the marker frequency.

**ZERO CAL:** Improves the center frequency accuracy for local feedthrough

**PLOT:** Direct plotting via the GPIB (using an ADVANTEST or HP plotter)

**NORMALIZE:** Display of values relative to an internally stored reference response.

**SAMPLE:** Display of instantaneous time-signal levels at each analysis position for each sweep

#### Output

**Calibration output signal:** 200 MHz  $\pm 30$  kHz, -30 dBm (80 dB $\mu$ V for the R4131CN/4131DN)  $\pm 0.5$  dB

**Monitor output:** Approx. 8  $\Omega$ , enables monitoring using an earphone.

**Recorder outputs:** Analog output of WRITE waveform only

X axis Approx. -5 V to +5 V (approx. 10 k $\Omega$ )

Y axis Approx. 0 V to +4 V (approx. 220  $\Omega$ )

**IF output:** 3.58 MHz IF output, approx. 50  $\Omega$

**Video output:** Approx. 1 V<sub>p-p</sub>, approx. 75  $\Omega$  (composite signal for external CRT)

**Probe power output:**  $\pm 15$  V, 4-pin connector

**GPIB:** Fully controllable over the GPIB for automatic testing as well as direct plotting without an external controller.

#### General Specifications

**Save/recall:** Up to 3 sets of measurement conditions, including waveforms, can be stored in memory and auto-recall can be used to automatically recall stored conditions when power is applied.

**Operating environment:** 0°C to +50°C

**Storage environment:** -20°C to +70°C

**Power requirements:** Specified at time of ordering

Option No.	Standard	40
Line voltage (V)	90 to 132	198 to 250

50/60 Hz, 120 VA max.

**Dimensions:** Approx. 300(W)  $\times$  177(H)  $\times$  460(D) mm

**Weight:** Approx. 10 kg (22 lbs.)

#### Standard Accessories

Item	Model	Remarks
Power cable	A01402	
Input cable	MI-02	Connector UG-88/U BNC-BNC (for R4131C/4131D)
Input cable	A01234	Connector BCP-C3 BNC-BNC (for R4131CN/4131DN)
Connector adaptor	JUG-201A-U	N-BNC adaptor (for R4131C/4131D)
Connector adaptor	BA-A165	NC-BNC adaptor (for R4131CN/4131DN)
Connector adaptor	NCP-NFJ	C15 type adaptor (for R4131CN/4131DN)

#### Options

##### Occupied Frequency Band width Measurement (Option 04)

The bandwidth within which 99% of the radiated power is included is calculated from the measured spectral data and this width is displayed digitally.

##### Occupied bandwidth measurement and 3 dB Down measurement (Option 14)

The bandwidth at the 3 dB down point and occupied bandwidth can be measured by using a tracking generator, for example.

##### Recommended Accessories

A02235 Rack-Mounted Set (JIS)

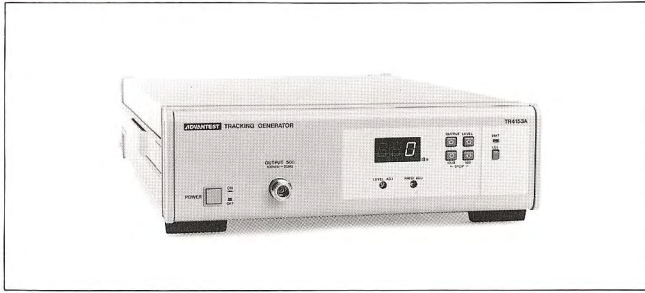
A02433 Rack-Mounted Set (EIA)

A02027 Panel-Mounted Set

A02802 Front Cover

# Accessories-I

## TR4153A Tracking Generator Specifications



**Frequency range:** 100 kHz to 2 GHz  
**Output impedance:** Approx. 50 Ω  
**Output VSWR:** 1.5 max. (at -10 dBm output)  
**Output level flatness:** ±1 dB max. (with respect to 200 MHz output, over an output level range of 0 to -59 dBm and frequency range of 100 kHz to 2 GHz)  
**Output level variable range:** 0 to -59 dBm in 1 dB steps (continuous adjustment over the range 0 to 1.5 dB or greater using the level adjustment)  
**Output level switching accuracy:** ±0.2 dB/1 dB (0 to -9 dB) ±1.0 dB/10 dB (0 to -50 dB)  
**Spurious output components:** Harmonics ≤ 20 dBc, non-harmonics ≤ 30 dBc(at 0 dBm output)  
**Tracking generator leakage:** -110 dBm  
 **GPIB:** Standard; enables remote control and data output

### General Specifications

**Output connector type:** N

**Operating environment:**  
 Temperature 0°C to 40°C  
 Humidity 85% max.

**Power requirements:** Specified at time of ordering

Option No.	Standard	32	43	44
Line voltage (V)	90 to 110	103 to 132	198 to 242	207 to 250

50Hz/60Hz

**Power consumption:** 50 VA max.

**Dimensions:** Approx. 300(W) × 90(H) × 440(D) mm

**Weight:** 10 kg max.

### Accessories

Name	Model	Product code	Remarks
Power cable	A01402		
Output cable	MI-04		UG-21D connector to N-N
Connecting cable	A01002		SMA-SMA connectors, 2 cables
Connecting cable	MI-02		UG-88/U, BNC-BNC

## TR4153B Tracking Generator Specifications



**Frequency range:** 100 kHz to 2 GHz  
**Output impedance:** Approx. 50 Ω  
**Output VSWR:**  
 1.5 max. (100 kHz to 1.5 GHz)  
 2.0 max. (100 kHz to 2.0 GHz)  
**Output level flatness:** ±0.7 dB max. (with respect to 200 MHz output, over an output level range of 0 to -10 dBm and frequency range of 100 kHz to 2 GHz)  
**Output level variable range:** 0 to -10 dBm or greater, continuously variable  
**Spurious output components:** Harmonics ≤ 20 dBc, non-harmonics ≤ 30 dBc(at 0 dBm output)  
**Tracking generator leakage:** -110 dBm

### General Specifications

**Output connector type:** N

**Operating environment:**  
 Temperature 0°C to 40°C  
 Humidity 85% max.

**Power requirements:** Specified at time of ordering

Option No.	Standard	32	43	44
Line voltage (V)	90 to 110	103 to 132	198 to 242	207 to 250

50Hz/60Hz

**Power consumption:** 50 VA max.

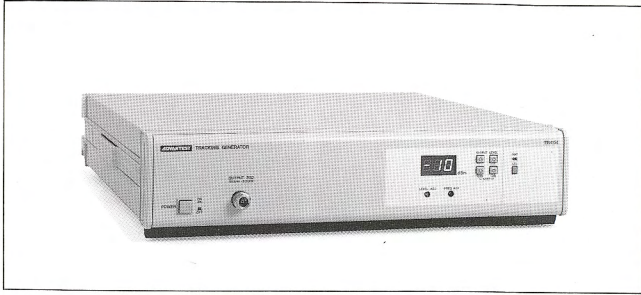
**Dimensions:** Approx. 300(W) × 90(H) × 440(D) mm

**Weight:** 10 kg max.

### Accessories

Name	Model	Product code	Remarks
Power cable	A01402		
Output cable	MI-04		UG-21D connector to N-N
Connecting cable	A01002		SMA-SMA connectors, 2 cables
Connecting cable	MI-02		UG-88/U, BNC-BNC

## TR4154 Tracking Generator Specifications



- Frequency range:** 100 kHz to 3.5 GHz  
**Output level:** 0 dBm to -59 dBm (switchable in 1 dB steps)  
**Output level accuracy:**  $\pm 0.5$  dB (at 200 MHz, -10 dB output and +20°C to +30°C)  
**Output level flatness:**  
 2 dB<sub>p-p</sub> (at 100 kHz to 2 GHz, -10 dBm output)  
 4 dB<sub>p-p</sub> (at 100 kHz to 3.5 GHz, -10 dBm output)  
**Output level switching accuracy:** with respect to -10 dBm output, over an output level range of 0 to -59 dBm.  
 $\pm 2$  dB (frequency range of 100 kHz to 2 GHz)  
 $\pm 2.5$  dB (frequency range of 100 kHz to 3.5 GHz)  
**Spurious output components:** at 0 dBm output.  
 harmonics  $\leq 20$  dB  
 non-harmonics  $\leq 30$  dB  
**Tracking generator leakage:** -110 dBm or less.  
**Output impedance:** Approx. 50  $\Omega$   
**VSWR:** 1.5 max. (100 kHz to 2 GHz)  
 2 max. (2 GHz to 3.5 GHz) (at output level of -10 dBm or lower)

### General Specifications

- Output connector type:** N  
**Operating temperature range:** 0°C to 40°C  
**Power requirements:** Specified at time of ordering

Option No.	Standard	32	43	44
Line voltage (V)	90 to 110	103 to 132	198 to 242	207 to 250

50Hz/60Hz

**Dimensions:** Approx. 424(W)  $\times$  88(H)  $\times$  440(D) mm

### Accessories

Name	Model	Product code	Remarks
Power cable	A01402		
Output cable	MI-04		UG-21D connector to N-N
Connecting cable	A01002		SMA-SMA connectors, 2 cables
Connecting cable	MI-02		UG-88/U, BNC-BNC

**TR17291**  
Antenna Mast

**TR17201**  
200 Hz to 35 MHz  
Active Antenna

**TR17203**  
25 MHz to 230 MHz  
Active Dipole Antenna

**Model 6502**  
10 kHz to 30 MHz  
Active Loop Antenna

**TR17204**  
200 MHz to 1000 MHz  
Log-Periodic Antenna

**TR1711**  
80 MHz to 1000 MHz  
Log-Periodic Antenna

**TR1722**  
25 MHz to 1000 MHz  
Half-Wave Dipole Antenna

**TR17207**  
10 kHz to 1000 MHz  
Search Coil

**TR14101**  
800 MHz to 900 MHz  
High-Pass Filter

**R14601**  
9 kHz to 1000 MHz  
Pre-Amplifier

**TR14201**  
10 kHz to 150 kHz  
Band-Pass Filter

**TR14202**  
150 kHz to 30 MHz  
Band-Pass Filter

**TR14203**  
25 MHz to 300 MHz  
Band-Pass Filter

**TR14204**  
300 MHz to 1000 MHz  
Band-Pass Filter

# Accessories-II

Device	Description	Model no.	Remarks
Antenna	Log-periodic antenna	TR1711	80 MHz to 1000 MHz (with pole and tripod)
	Half-wavelength dipole antenna	TR1722	25 MHz to 1000 MHz 4-element (with pole and tripod)
	Active dipole antenna	TR17203	25 MHz to 230 MHz (TR17291 antenna mast)
	Log-periodic antenna	TR17204	200 MHz to 1000 MHz
	Double rigid guide antenna	TR17206	1 GHz to 18 GHz
Probe	Active probe	*P-6201	DC to 900 MHz, separate power supply
	Active probe	*P-6202A	DC to 500 MHz (10:1), separate power supply
Preamps	Modular amp	*SAG-2047B	0.5 kHz to 1000 MHz, 24 dB gain, 6.5 dB noise figure, 15 V external power
	Modular amp	*SAU-3046M	5 MHz to 1500 MHz, 28 dB gain, 4.7 dB noise figure, 15 V external power
Filter	Bandpass filter	TR14202	Passband 150 kHz to 30 MHz
	Bandpass filter	TR14203	Passband 25 MHz to 300 MHz
	Bandpass filter	TR14204	Passband 300 MHz to 1000 MHz
	40 MHz highpass filter	MEP-292	27 MHz band
	100 MHz highpass filter	MEP-293	60 MHz band
	240 MHz highpass filter	MEP-294	150 MHz band
	670 MHz highpass filter	MEP-295	400 MHz band
	900 MHz highpass filter	TR14101	At least 35 dB attenuation at 800 MHz to 900 MHz
Adaptor	BNCJ-NCP adaptor	*BNCJ-NCP	75 Ω system
	NCP-NFJ adaptor	*NCP-NFJ	75 Ω system (Type C15)
Impedance conversion filter	50 Ω to 75 Ω impedance converter	*ZT-204NC	NP-NCJ 10 MHz to 1000 MHz SWR Bridge
	50 Ω to 75 Ω impedance converter	*ZT-130NC	NP-NCJ DC to 2000 MHz Loss 6 dB
	50 Ω to 75 Ω impedance converter	*ZT-301	NP-to NCJ 10 MHz to 1.5 GHz Loss 1 dB or less (R4131C/D)
Fixed attenuator	Coaxial fixed attenuator	*CFA-01	DC to 1000 MHz 10 dB attenuation NP-NJ 1 W
	Coaxial fixed attenuator	*CFA-10	DC to 1000 MHz 10dB attenuation NP-NJ 10 W
	Coaxial fixed attenuator	*SFA-01	DC to 8 GHz 10 dB attenuation SMAJ-SMAP 1 W
Power divider	RF coupler	TP1625	DC to 1000 MHz
	RF coupler	TR1626	DC to 500 MHz
Simulated power line network	Simulated power line network	*KNW-242	10 kHz to 30 MHz, 250 V, 15 A max. 50 Ω system, VDE
	Simulated power line network	*KNW-242C	10 kHz to 30 MHz, 250 V, 15 A max. 50 Ω, CISPR
	Simulated power line network	*KNW-407	0.45 MHz to 30 MHz, 250 V, 15 A max. 50 μH/50 Ω, FCC
EMI clamp	EMI clamp	*KT-10	30 MHz to 1000 MHz 50 Ω system
Amplifier	Preamplifier	R14601	9 kHz to 1 GHz, 25 dB or more, NF8 dB or less: supplied to main frame from power source
Miscellaneous	Earphone	*PR-30 A	8 Ω, 3.5 mm plug
	DC-AC power supply	*NCM-120 A	12 V input, 100 V output, 120 VA max. output 55 Hz rectangular
	DC-AC power supply	*NDV-400 A	12 V input, 100 V output, 400 VA max. output rectangular
	Plotter	R9833	GPIB is sold separately.
	Carrying case	R16054	Aluminum carrying case (for R4131 series)
	Soft Carrying case	R16210	Shoulder case made of cloth with small pocket

A recommended product that may be purchased directly from the manufacturer or (with a handling charge) through ADVANTEST. In both cases maintenance requests, should be made to the manufacturer.

# ADVANTEST®

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