

leveal

Signal Generator Series

140 MHz VP-8193D / VP-8194D

280 MHz VP-8131D / VP-8132D / VP-8133D



140 MHz Signal Generator

This series provides a versatile choice of high performance, low cost, AM/FM signal generators ideal for use on car audio, portable audio and home audio production lines. In addition to a wide 100 kHz to 140 MHz, 162 MHz to 163 MHz bandwidth, the new series boasts functions and performance easily comparable to high-end conventional signal generators, featuring a high-purity signal source with S/N of 76 dB or more (FM), 0.1 dB resolution electronic attenuator giving up to 126 dB μ V [emf] output, and a comprehensive range of standard interfaces including GP-IB and RS-232-C. With its high speed frequency switching and long-life attenuator, and the capability in the VP-8194D model to include an RDS + ARI signal source and FM stereo modulation in a single unit, the compact size of this powerful, yet simple to operate, instrument can save valuable production line space.

High-performance 140 MHz signal generator series.

FEATURES

High output and equipped, with an electronic attenuator .
-20 dB μ V to 126 dB μ V [emf] with 0.1 dB step control.

100 kHz to 140 MHz, 162 MHz to 163 MHz wide frequency range.

Simultaneous AM/ FM modulation.

FM stereo modulation function.

RDS + ARI Signal Generator built in.(VP-8194D)

20 Hz to 20 kHz DDS audio signal source.(Option)

GP-IB. RS-232-C. EXT I / O interfaces as standard.

Option

DDS Audio Signal Generator

In addition to 400 Hz/1 kHz fixed frequencies, a 20 Hz to 20 kHz/1 Hz resolution DDS signal source option can be installed to provide a variable frequency modulation signal source.

* DDS=Direct Digital Synthesizer

VP-8193D

Standard model with AM / FM monaural + FM stereo modulator functions:



The standard model, featuring a high-purity signal source, plus an internal high performance FM stereo modulation function with a high stereo separation ratio better than 55 dB.

VP-8194D

Model with AM / FM monaural / FM stereo + RDS-ARI signal source:



The model VP-8194D signal generator with FM stereo modulator and RDS + ARI generator. Built-in CENELEC compliant RDS/ARI signal source and RDS 16-pattern memory. Included editor software (Windows) allows RDS data to be easily downloaded through RS-232-C interface and edited on a PC.



FUNCTION

Modulation

FM : 0.0 kHz to 100 kHz, AM: 0 % to 80 %.
Distortion : FM 0.05 % or less, AM 0.5 % or less.

- ◆ Three digit setting of modulation level, FM: 0 kHz to 100 kHz/0.5 kHz step and AM: 0 % to 80 % / 0.5 % step.
- ◆ Equipped HIGH / LOW indicator to 1 V [peak] for external modulation signal input. Modulation level setting correspond to internal modulation.
- ◆ Internal / External combination modulation of four kinds of simultaneous AM / FM modulation function.

Output

High output level (-20 dBμV to 126 dBμV [emf])
microprocessor compensated high accuracy of 0.1 dB step.

- ◆ Electronic attenuator for long-term durability.
- ◆ Continuous attenuation control for correct AGC range measurement.
- ◆ ΔdB function allows direct AGC level and limiting sensitivity measurements.
- ◆ Easy operation of frequency modify knob.

Frequency

Wide frequency range of 100 kHz to 140 MHz, 162 MHz to 163 MHz
Synthesized system of 100 Hz resolution and 5 x10⁻⁶ accuracy.

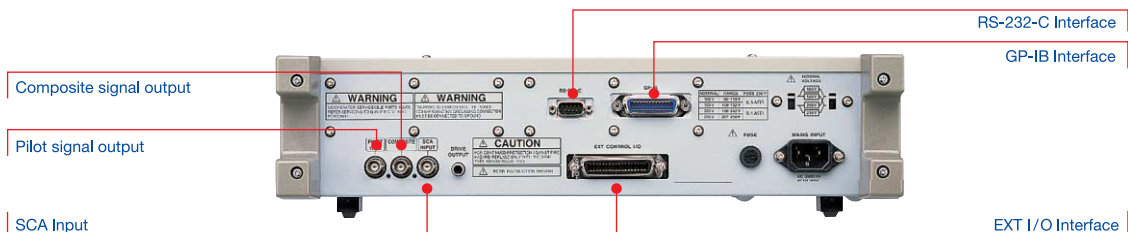
- ◆ 100 Hz resolution 7-digit display.
- ◆ Support for highest FM band image frequencies measurement.
- ◆ Excellent high purity of S/N 76 dB or higher.
- ◆ 700 ms (Typical) of high setting speed.
- ◆ Convenient ΔF display function for interference and selectivity measurements

Memory & Interface

GP-IB and RS-232-C interfaces as standard.
Auto sequence and EXT I/O for simple system.

- ◆ Auto sequence function: Use in combination with a Levear Audio Analyzer to create a simple automatic measurement system.
- ◆ No external PC or controller is required.
- ◆ EXT Control I/O: Two 8-bit ports for external control of system instruments and peripherals.
- ◆ GP-IB: Built-in as standard for use in automatic measurement systems.
- ◆ RS-232-C: Allows direct PC control and RDS data modification.

Rear Panel



280 MHz Synthesized Signal Generator

Versatile three model lineup includes a DDS signal

VP-8131D With FM stereo modulator



Additional FM stereo modulation with 60 dB or more stereo separation.



VP-8132D With FM /AM stereo modulator



Additional High performance signal generator with FM and AM stereo (C-QUAM) modulation.



VP-8133D With DDS Signal Source

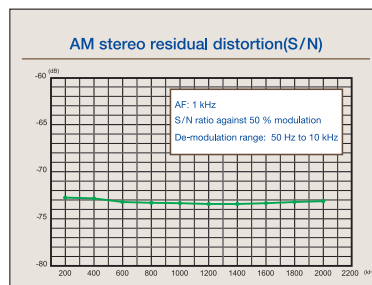
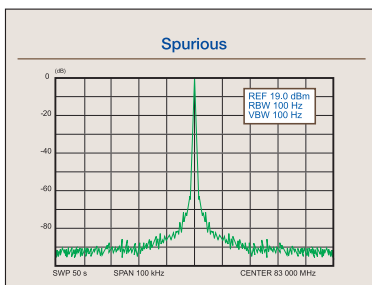
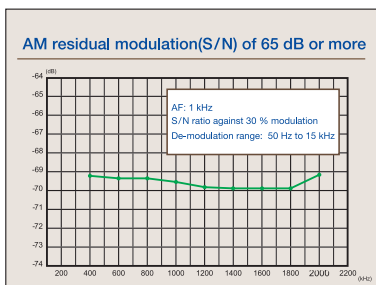
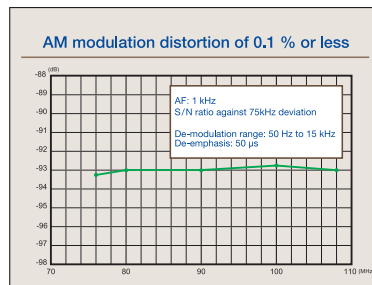
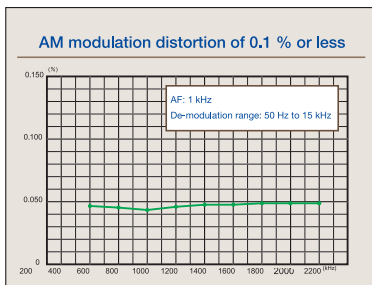
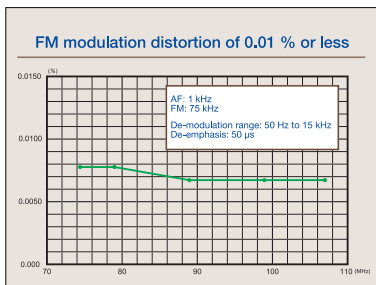
* DDS=Direct Digital Synthesizer



Direct digital synthesizer for enhanced frequency response measurements.



Typical data of performance



generator. these models feature electronic attenuation.



FUNCTION

	Electronic ATT	F M	A M	FM stereo	AM stereo	DDS
VP-8131D	●	●	●	●		
VP-8132D	●	●	●	●	●	
VP-8133D	●	●	●	●		●

Low FM modulation distortion, low spurious, high purity source for all basic performance tests

- Covers wide range from LW to VHF.
- Supports hi-fi receiver tests with low -60 dBc spurious and 90 dB or more S/N ratio.

FM/AM high purity signals

- Low FM (0.01% or less) and AM (0.1% or less) modulation distortion with -60 dBc non-harmonic spurious for testing hi-fi receivers.
- Residual distortion of better than 90 dB (FM) and 65 dB (AM).

High 2 V output (19 dBm)

- High output from -133 to $+19$ dBm (50 Ω).
- 0.1 dB attenuator setting resolution for all ranges.
- Results can be displayed in a choice of 7 units.
- Built-in output level sweep function.

High 10 Hz RF resolution (10 kHz to 140 MHz)

- Frequency range of 0.01 to 280 MHz covers LW, AM, FM and VHF TV bands to allow testing of anything from hi-fi tuners, car audio and pagers to communications equipment.
- 8-digit high resolution setting: 20 Hz (140.000 02 to 280.000 00 MHz) and 10 Hz (below 140 MHz).
- Frequency sweep function provided as standard.

VP-8131 series features Long-life electronic attenuation for all bands

- RF section employs electronic attenuation to achieve the reliable long life required for high speed automated testing systems.

Built-in direct digital synthesizer (VP-8133D)

- The VP-8133D features a DDS in addition to 400 Hz/1 kHz internal oscillators to allow 1 Hz step frequency response measurements from 20 Hz to 20 kHz.

Space saving design simplifies measurements

- Built-in AM/FM stereo modulation (VP-8132D) makes it easy to configure measurement instruments and set up optimal measurement conditions. Switching signals and connecting instruments is greatly simplified.

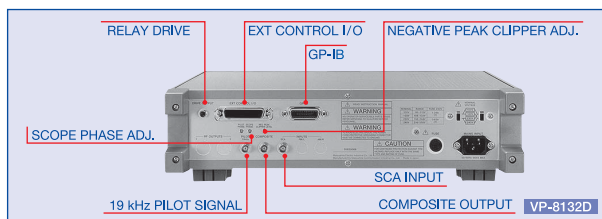
High-speed GP-IB interface

- Standard GP-IB interface with fast 70 ms frequency settling time supports high-speed system automation.

Flexible memory and interfaces

- An auto sequence function makes it simple to create an automatic measurement system by combining the SSG with an audio analyzer, etc. No external PC or controller is required. Standard memory can hold up to 100 combinations of panel settings. External control of other instruments and automated test system peripherals is supported by a 2-port, 8-bit TTL I/O external control interface.

Rear Panel



VP-8193D / VP-8194D / Common Specification

Frequency

Frequency range	100 kHz to 140 MHz
Max. display / Resolution	7 - digit / 100 Hz
Frequency band	Band 1: 0.100 0 MHz to 35.000 0 MHz Band 2: 35.000 1 MHz to 70.000 0 MHz Band 3: 70.000 1 MHz to 140.000 0 MHz
Accuracy	$\pm 5 \times 10^{-6}$
Aging rate	$\pm 2 \times 10^{-7}$ / week
Temperature coefficient	$\pm 5 \times 10^{-6}$ 10 °C to 35 °C

Weather band

Frequency range	162 MHz to 163 MHz
Resolution	100 Hz
Freq. accuracy	$\pm 5 \times 10^{-6}$
Weather band Mod. mode	FM monoral only

Output

Output range	-20 dB μ V to 126 dB μ V[emf]
Display range / Resolution	4 - digit / 0.1 dB
Accuracy	± 1.5 dB (RF ≥ 0 dB μ V[emf]), ± 2.0 dB (RF < 0 dB μ V[emf])
Output impedance	50 Ω
VSWR	≤ 1.3 (RF $\leq +101$ dB μ V[emf])
Unit	dB μ V[emf]
Attenuator construction	Semiconductor (Except 106 dB and 106.1 dB points)

Signal purity (Frequency offset: 10 kHz or more)

Harmonic spurious (2nd/3rd)	≤ -30 dBc
Non harmonics spurious	≤ -50 dBc (Band 2 to 3) ≤ -40 dBc (Band 1: 0.1 MHz $\leq f_s \leq 35$ MHz) ≤ -30 dBc (Band 1: $f_s \geq 35.000$ 1 MHz) (At a point of 10 kHz or more from the carrier) (f_s : Spurious output frequency)

Residual Modulation

FM components	(AF 1 kHz, FM 75 kHz) ≥ 76 dB (10.7 MHz ± 1 MHz / 76 MHz to 108 MHz) ≥ 73 dB (0.3 MHz to 140 MHz) (BW 50 Hz to 15 kHz, De-emphasis 50 μ s)
AM components	(AF 1 kHz, AM 30 %) ≥ 55 dB (0.4 MHz to 1.7 MHz) ≥ 50 dB (0.15 MHz to 140 MHz) (BW 50 Hz to 15 kHz) (Except beat element)

Modulation

Internal signal source	RC oscillator 400 Hz / 1 kHz ± 3 %
Ext. input impedance	Approx. 10 k Ω
Ext. input voltage	Approx. 1 V [peak]

Option

DDS Oscillator [VQ-081G]	
Oscillator type	Direct Digital Synthesizer 12 bit
Frequency / Resolution	20 Hz to 20 kHz / 1 Hz
Freq. accuracy	± 0.1 %

Amplitude modulation (AM) (RF: ≥ 150 kHz)

Modulation range	0 % to 80 %
Modulation setting range	0 % to 100 %
Resolution	0.5 %
Accuracy	
(0.4 MHz to 1.7 MHz)	\pm (setting $\times 0.1+1$) % (≤ 80 %)
(0.15 MHz to 140 MHz)	\pm (setting $\times 0.1+2$) % (≤ 80 %) (BW 50 Hz to 15 kHz, AF 1 kHz)
Freq. / Modulation	30 % 60 % 80 %
(0.4 MHz to 1.7 MHz)	≤ 0.5 % ≤ 1.5 % ≤ 3 %
(0.15 MHz to 140 MHz)	≤ 1.5 % ≤ 3 % ≤ 5 %
	(Except beat element)
Incidental FM	(AF 1 kHz, AM 30 %)
(0.4 MHz to 1.7 MHz)	≤ 150 Hz
(0.15 MHz to 140 MHz)	≤ 300 Hz
External modulation	$\leq \pm 1$ dB: 20 Hz to 10 kHz (1 kHz reference)
Frequency characteristics	Max. Modulation frequency should be lower that 2 % of carrier frequency at 30 % modulation condition

Frequency modulation (FM)

Deviation range	0.0 kHz to 100 kHz
MAX. FM deviation	RF ≤ 35 MHz Up to 25 % of carrier frequency
Resolution	0.5 kHz
Accuracy	
(10.7 MHz ± 1 MHz / 76 MHz to 108 MHz)	\pm (setting $\times 0.1+0.5$) kHz
(0.3 MHz to 140 MHz)	\pm (setting $\times 0.1+1$) kHz
Distortion	
(10.7 MHz ± 1 MHz / 76 MHz to 108 MHz)	≤ 0.05 %
(0.3 MHz to 140 MHz)	≤ 0.1 %
	(AF 1 kHz, FM 75 kHz, BW 50 Hz to 15 kHz, De-emphasis 50 μ s)
Stereo separation	≥ 55 dB (AF 1 kHz, 100 % Mod., 76 MHz to 108 MHz)
Incidental AM	≤ 0.5 %: 10.7 MHz ± 1 MHz / 76 MHz to 108 MHz (AF 1 kHz, FM 75 kHz)
Ext. modulation Frequency response	
MONO	$\leq \pm 1$ dB (20 Hz to 100 kHz, 1 kHz ref.)
STEREO	$\leq \pm 1$ dB (20 Hz to 15 kHz, 1 kHz ref.)
Pre-emphasis	25 μ s / 50 μ s / 75 μ s / OFF
FM-AM simultaneous modulation (4 kinds)	
	AM / FM mono modulation
	AM / FM stereo modulation

FM stereo modulation

Frequency range	RF ≥ 0.3 MHz	
Main & Sub channel modulation mode		
Mode	Signal source	Contents
L = R, L, R, L = -R	INT/EXT	Single frequency, Stereo modulation
MONO	INT/EXT	Monophonic modulation
Modulation range	0 % to 127 % (at 75 kHz / 100 %)	
Modulation resolution	1 %	
Accuracy		
(10.7 MHz ± 1 MHz / 76 MHz to 108 MHz)	\pm (setting $\times 0.1+1$) %	
(0.3 MHz to 140 MHz)	\pm (setting $\times 0.1+1.5$) %	

Pilot signal

Frequency / Accuracy	19 kHz / ± 1 Hz
Level range / Resolution	0.0 % to 15.0 % / 0.1 %
Accuracy	\pm (setting $\times 0.1+1$) % (10.7 MHz ± 1 MHz / 76 MHz to 108 MHz)

Composite output

Level	5 V [p-p] ± 10 % (FM-MONO, 100 % Mod.)
Output impedance	Approx. 600 Ω
Stereo separation	≥ 55 dB (AF: 400 Hz, 1 kHz) (10.7 MHz ± 1 MHz / 76 MHz to 108 MHz)
Distortion	≤ 0.05 %
38 kHz sub-carrier leakage	≤ -50 dB

19-kHz output signal

Level	Approx. 1 V [rms]
Output impedance	Approx. 1 k Ω

SCA input

Input level	0.56 V [p-p] (0.2 V [rms]) (Equivalent to 10 % level ratio)
Frequency range	20 kHz to 99 kHz ± 1 dB (57 kHz ref.)
Input impedance	Approx. 10 k Ω

Preset function

Assorted preset	100 data (Panel condition, I/O condition, Output level)
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Interface

GP-IB	Listener / talker /, Listen only, Talk only, Remote / local, Device clear SH1, AH1, T7, L3, RL1, DC1
RS-232-C	
Baud rate	38 400 bps
Character length	8 bit
Parity	EVEN
Flow control	Software flow control \times on / \times off
Stop bit	1 bit
External control interface	(1) Sequential recall, (2) Modify, (3) Direct recall, (4) TTL control, (5) Data read, (6) Relay drive

Others

Power requirement	AC100 V / 120 V / 220 V / 230 V
Frequency	50 Hz / 60 Hz
Power consumption	Approx. 60 VA
Dimension / Mass	W 426 mm \times H 99 mm \times D 300 mm / Approx. 9 kg
Accessories	Power cable $\times 1$, Spare fuse $\times 1$, Operation manual $\times 1$ RDS editor software (VP-8194D only) $\times 1$

VP-8194D

ARI Modulation

SK signal	
Frequency	57 kHz ± 6 Hz
Level	0.0 % to 10 % (100 % = 75 kHz)
Resolution	0.1 %
Accuracy	\pm (setting $\times 0.1+0.5$) %
Phase	0 deg ± 10 deg (to the pilot signal)
DK signal	
Frequency accuracy	125 Hz ± 1 %
AM modulation range	0 % to 40 %
AM resolution	1 %
AM accuracy	± 5 %
AM distortion	≤ 1 % (SK = 5.3 %, AM = 30 %)
BK signal	
Frequency accuracy	Code A: 23.75 Hz ± 1 %, Code B: 28.27 Hz ± 1 % Code C: 34.93 Hz ± 1 %, Code D: 39.58 Hz ± 1 % Code E: 45.67 Hz ± 1 %, Code F: 53.98 Hz ± 1 %
AM modulation range	0 % to 80 %
AM resolution	1 %
AM accuracy	± 5 %
AM distortion	≤ 2 % (SK = 5.3 %, AM = 60 %)

RDS modulation

Level range	0.0 % to 10 % (100 % = 75 kHz)
Resolution	0.10 %
Accuracy	\pm (setting $\times 0.1+0.5$) %
Spurious	≤ -50 dB (≤ 53 kHz, 10 % output), ≤ -40 dB (≥ 61 kHz, 10 % output)
Sub-carrier	
frequency	57 kHz ± 6 Hz
Phase	0 deg or 90 deg ± 10 deg (to the pilot)
Leakage	≤ -50 dB
Internal data	
Mode	Sub-carrier / Null / Internal
Pattern number	Max. 16
Pattern length	Max. 2 048 groups

VP-8131D / VP-8132D / VP-8133D / Common Specification

Frequency

Frequency range: 0.01 to 280 MHz
 Display/Resolution: 0.010 00 to 280.000 00 MHz

Band	RF frequency	Resolution
4	140.00002 to 280.00000	20
3	70.00001 to 140.00000	10
2	35.00001 to 70.00000	10
1	0.01000 to 35.00000	10
VP-8132D/AM ST	0.010000 to 2,000000	1

Switching speed: To be within 100 Hz to final frequency
 Processing time: ≤ 15 ms
 Settling time: ≤ 55 ms

Accuracy: ± 2 x 10⁻⁶ ± 1 digit
 Aging rate: ± 2 x 10⁻⁷/week
 Temperature coefficient: ± 2 x 10⁻⁶ / (10 to 35 °C)

Output Level

Output level range: -133 to +19 dBm (50 Ω)
 -134,8 to +17,2 dBm (75 Ω)

Resolution: 0.1 dB
 Accuracy: ± 1 dB (≥ -113 dBm: 50 Ω)
 ± 1,5 dB (< -113 dBm: 50 Ω)

Flatness: ± 1 dB or less (Output level: + 8 dBm, 50 Ω)

Output impedance: 50 Ω / 75 Ω
 VSWR: ≤ 1.2 (Output level ≤ + 3 dBm: 50 Ω)

Radiation interference: ≤ 1 μV (25 mm apart from the main body)
 Unit: dBm, dBμV, dBμV [emf], V, mV, μV, V [emf], mV [emf], μV [emf]

Signal purity

Spurious:

Harmonics:
 RF: 0.01 to 35 MHz ≤ -30 dBc (Output > +13dBm: 50 Ω)
 RF: 0.01 to 35 MHz ≤ -40 dBc (Output ≤ +13dBm: 50 Ω)
 RF: 35.000 1 to 280 MHz ≤ -30 dBc (Output ≤ +13dBm: 50 Ω)

Non-harmonics: ≤ -60 dBc (± 10 kHz offset from carrier)

Residual modulation

FM component: (AF 1 kHz, FM 75 kHz)
 ≥ 90 dB (10.7 ± 1/76 to 108 MHz)
 ≥ 80 dB (0.3 to 280 MHz)
 (BW 50 Hz to 15 kHz)
 (De-emphasis 50 μs)

AM component: (AF 1 kHz, AM 30 %)
 ≥ 65 dB (0.4 to 1.7 MHz)
 ≥ 60 dB (0.15 to 280 MHz)
 (BW 50 Hz to 15 kHz)
 (Except beat element)

Modulation

Internal modulation signal:
 RC oscillator: 400 Hz, 1 kHz ≤ ± 3 %
 DDS: VP-8133D only
 Frequency range/Accuracy: 20 Hz to 20 kHz / ± 0.01 %
 Resolution: 1 Hz
 Flatness: Same as ext. modulation frequency response

Ext. modulation input impedance: Approx. 10 kΩ
 Ext. modulation input voltage: Approx. 1V [peak]

Amplitude modulation

Modulation depth: 0 to 100 % (Output level ≤ + 13 dBm, RF ≥ 0.15 MHz)
 Resolution: 0.5 % (0 to 100 %)
 Accuracy: (AF 1 kHz)
 (0.4 to 1.7 MHz) ± (Reading x 0.04 + 2) % (≤ 80 %)
 (0.15 to 280 MHz) ± (Reading x 0.06 + 2) % (≤ 80 %)

Distortion: (BW 50 Hz to 15 kHz, AF 1 kHz: RC)

Modulation:	0 to 30 %	30 to 60 %	60 to 80 %
Band 1: 0.4 to 1.7 MHz	≤ 0.1 %	≤ 0.5 %	≤ 1 %
All band: 0.15 to 280 MHz	≤ 1 %	≤ 2 %	≤ 3 %

(Except beat element)

(VP-8131 series: +8 dBm)

Incidental FM: (AF 1kHz AM 30 %)
 (0.4 to 1.7 MHz) ≤ 75 Hz
 (0.15 to 280 MHz) ≤ 200 Hz

Ext. modulation frequency response: ≤ ± 1 dB: 20 Hz to 10 kHz
 (Ref.: 1 kHz RF ≥ 0.3 MHz)
 (Max. modulation frequency is up to 2 % of carrier frequency at 30 % AM.)

Frequency modulation

Frequency deviation range:	0 to 9.99 kHz	10 to 99.9 kHz	100 to 999 kHz
Resolution:	10 Hz	100 Hz	1 kHz

(Max. FM deviation is up to 25 % of carrier frequency)
 Accuracy: ± (Reading x 0.08 + 1 digit)
 Distortion: (BW 50 Hz to 15 kHz, AF 1 kHz: RC FM 75 kHz)
 ≤ 0.01 % (10.7 ± 1/76 to 108 MHz)
 ≤ 0.1 % (0.3 to 140 MHz)
 ≤ 0.5 % (140.000 02 to 280 MHz)

Stereo separation: (AF 1 kHz 67.5 kHz deviation 76 to 108 MHz)
 ≥ 60 dB

Incidental AM: (AF 1 kHz FM 75 kHz)
 ≤ 0.5 % (10.7 ± 1/76 to 108 MHz)

280 MHz Synthesized Signal Generator Series

Ext. modulation frequency response: MONO mode (20 Hz to 100 kHz, 1 kHz ref.)
 ≤ ± 0.3 dB (76 to 108 MHz)
 ≤ ± 1 dB (0.3 to 280 MHz)
 Other than MONO mode (20 Hz to 15 kHz, 1 kHz ref.)
 ≤ ± 1 dB (2,000 01 to 280 MHz)

FM-AM simultaneous modulation: 4 kinds

FM stereo

Frequency range: 2.00001 to 280 MHz
 Modulation mode:

Mode	Modulation signal	Contents
OFF	-	Pilot signal only
L=R	INT L, EXT L	Stereo modulation by single signal
L		
R		
L= - R		
MONO	INT/EXT L	Monophonic modulation
INT L	Lch: INT L	Stereo modulation by Int. & Ext.
EXT R	Rch: EXT R	
EXT L,R	Lch: EXT L	Stereo modulation by Ext. two signals
	Rch: EXT R	

Specification of monophonic modulation mode is based on the common specification of this series.

Signal level ratio (M + S variable)

Range: 0 to 114 % (Other than Monophonic)
 0 to 127 % (MONO)

Resolution: 1 %
 Accuracy: ± 5 %
 Pre-emphasis: 25 μs/50 μs/75 μs/OFF

VP-8132D (+8 dBm)

AM stereo

AM stereo: C-QUAM (Motorola system)
 RF frequency: 0.200000 to 2.000000 MHz
 Resolution: 1 Hz

Residual modulation

AM component: (AF 1 kHz, Main ch. 50 % modulation)
 ≥ 65 dB (BW 50 Hz to 10 kHz)

PM component: (AF 1 kHz, Sub ch. 50 % modulation)
 ≥ 54 dB (BW 50 Hz to 10 kHz)

Main • Sub ch. modulation:

Mode	Modulation signal	Contents
OFF	-	Pilot signal only
L=R	INT/EXT R	Stereo modulation by single signal
L		
R		
L= - R		
MONO	INT/EXT R	Monophonic modulation
EXT L,R	Lch: EXT L	Stereo modulation by Ext. two signals
	Rch: EXT R	

Specification of monophonic modulation mode is based on the common specification of this series.

Main channel modulation

Modulation: AM
 Range: 0 to 100 %
 Resolution: 1 %
 Accuracy: ± (Reading x 0.05 + 2) % (0 to 99 %)
 Distortion: (AF 1 kHz BW 50 Hz to 10 kHz)
 ≤ 0.2 % (50 % modulation)

Sub-channel modulation

Modulation: PM
 Range: 0 to 100 % (100 %: ± 45 °)
 Resolution: 1 %
 Accuracy: ± (Reading x 0.05 + 2) %
 Distortion: (AF 1 kHz BW 50 Hz to 10 kHz)
 ≤ 1 % (50 % modulation)

L-R modulation

Range: 0 to 80 %
 Resolution: 1 %
 Accuracy: ± (Reading x 0.05 + 2) %
 Distortion: (AF 1 kHz BW 50 Hz to 10 kHz)
 ≤ 1 % (50 % modulation)

Cross talk: (AF 1kHz 50 % modulation)
 Main to Sub ch: ≥ 40 dB
 Sub to main ch: ≥ 46 dB
 Separation: ≥ 36 dB (BW 400 Hz to 4 kHz)
 ≥ 26 dB (BW 100 Hz to 7.5 kHz)

Pilot signal

Frequency: 25 Hz
 Frequency accuracy: ± 1 %
 Range: 0 to 10 % (Display: 0 to 12.5 %)
 Resolution: 0.1 %
 Modulation accuracy: ± (Reading x 0.05 + 2) %

Negative peak clipper

ON-OFF control:
 Variable range: ≥ (95 % ± 5 %)

VP-8131D / VP-8132D / VP-8133D / Common Specification		280 MHz Synthesized Signal Generator Series	
Pilot Signal		Preset function	
Frequency/Accuracy:	19 kHz/±1 Hz	Assorted preset:	100 data (Panel condition, I/O condition, Output level)
Level setting/Resolution:	0 to 19.9 %/0.1 %	Interface	
Accuracy:	±1 %	GP-IB:	
Composite output (Against the internal modulation)		Listener/talker, Listen only, Talk only, Remote/local, Device clear SH1, AH1, T7, L3, SR0, RL1, PP0, DC1, DT0, C0	
Level:	0 to 9.99 V [p-p] Open end ±5 %	External control interface:	
Output impedance:	Approx. 75 Ω	(1) Sequential recall (Up/Down/Clear)	
Stereo separation:	≥ 60 dB, 90 % level ratio (AF: 1 kHz)	(2) Modify (Freq./Level)	
Distortion:	0.01 % (RC oscillator)	(3) Direct recall	
S/N:	≥ 90 dB, 100 % level ratio	(4) 8 bits TTL control	
38 kHz sub carrier leakage:	≤ - 50 dB	(5) 8 bits data read	
19 kHz output signal		(6) Relay drive (Dummy antenna switching)	
Level:	Approx. 1 V [rms]	Others	
Impedance:	Approx. 1 kΩ	Power requirement: AC100/120/220/230 V	
SCA signal		Frequency: 50 Hz/60 Hz	
Frequency range:	20 to 99 kHz ±1 dB (57 kHz ref.)	Power consumption: Approx. 90 V-A	
Input level:	0.56 V [p-p] (0.2 V [rms]) Equivalent to 10 % level ratio	Mass · Dimension: W 426 x H 99 x D 400 mm Approx. 15 kg	
Input impedance :	Approx. 10 kΩ	Accessories: Output cable, GP-IB connector shield cap, Power cable, Spare fuse, Operation manual	

* Windows is the trade mark of Microsoft Corporation.

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