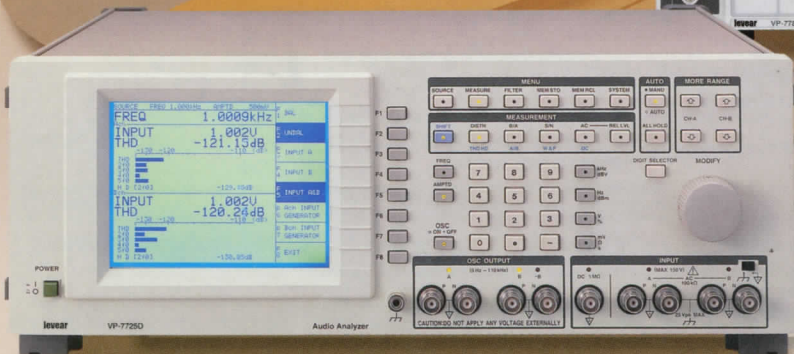
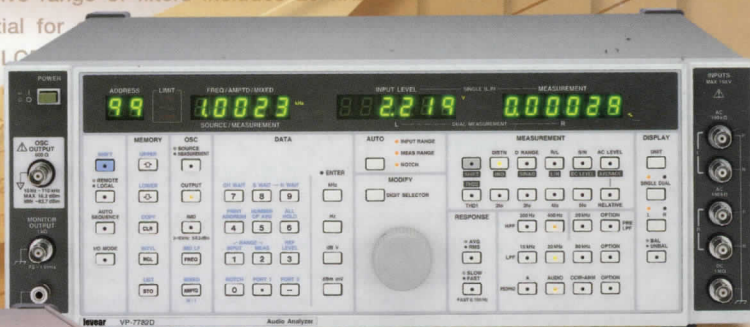


オーディオアナライザシリーズ Audio Analyzer Series

VP-7723D / VP-7782D / VP-7725D



VP-7723Dは、CD、MD、DVDのデジタルオーディオ評価用にPre-Lデジタルオーディオ機器の測定に、高性能、多機能でお応えします。
 VP-7723D is equipped with pre-LPF for evaluation of audio signal providing high performance, and multi functions for your measur



Audio Analyzer VP-7723D

VP-7723Dは、オーディオ測定用信号源と、ACレベル測定、DCレベル測定、ひずみ率測定、周波数測定、ワウフラッタ測定(工場オプション)の5種の基本測定機能を備えたオーディオアナライザです。デジタルオーディオ測定に必須である20 kHz Pre-LPFなどの測定フィルタを豊富に備え、付加機能として、プリセットメモリやリミット判定機能、メモリオートシーケンス、GP-IB、リモートインタフェースを装備しています。

This Audio Analyzers is equipped with a low distortion signal source, measurement functions of AC level, DC level, Distortion, Frequency and Wow & Flutter (Factory Option).

In addition to various filters including 20 kHz pre-LPF which are essential for digital audio measurement, the audio analyzers have pre-set memory, judgment function, auto sequence function, GP-IB and remote control interface.

特徴 / Features

オーディオ測定用信号源 Audio signal oscillator

- 5 Hz ~ 110 kHz広帯域、16.2 dBm高出力(14 dBV, 10 V開放端)
- 0.000 5 %の超低ひずみ率測定(1 kHz 代表実測値)
- 5 Hz to 110 kHz, 16.2 dBm(14.0 dBV, 10 V at open end)
- 0.000 5 % distortion(1 kHz typical value)high performance signal source

ACレベル測定 AC Measurement

- ACレベル測定: 0.316 mV ~ 100.0 V 平均値 / 実効値応答
- リラティブレベル測定: 相対レベル測定で周波数特性測定やS/N測定、クロストーク測定に有効です。
- WATT表示機能: ACレベル測定と設定した仮想負荷抵抗 R_L により電力を算出し、表示します。
- S/N測: 測定用信号源との連動で最大130 dbの自動測定が可能です。レスポンスのFAST/ SLOW(1.5 s / 3.0 s)が選択できます。
- AC level measurement: The audio analyzer has a highly sensitive AC level measurement function with indication response selectable from V [rms] or V [avg]. Seven measurement ranges are provided; 0.316 mV, 3.16 mV, 31.6 mV, 316 mV, 3.16 V, 31.6 V and 100 V full range.
- Relative level measurement: Deviation measurement against reference level is available. It is applied to frequency characteristics and level ratio measurement.
- Watt indication: By setting the imaginary load resistance(R_L) across the input voltage, the power value is calculated and displayed.
 $Power = (Measured\ AC\ level\ value)^2 / R_L [watt]$
- S/N measurement: In this mode, the oscillator is turned on for a length of time(1.5 to 3 s) and the signal component(S component level) is measured. Then, the oscillator turns off and the noise component(N component level) is measured when the input terminal of the D.U.T. is terminated with the characteristic impedance. The S/N ratio is obtained automatically by calculating the output signal(S component level) and N component level ratio.

DCレベル測定 DC Measurement

- 0.316 ~ 100.0 V フルスケール
- 被測定機器の供給電源などを測定できます。
- 0.316 to 100 V full scale
- Available for D.U.T. supply voltage measurement.

ひずみ率測定 Distortion Measurement

- 5 Hz ~ 110 kHzのTHD+Nを測定
- デジタルオーディオダイナミックレンジ測定用の3.16 mV測定レンジを装備。
- The audio analyzer is capable of measuring distortion factors of the fundamental signal over the frequency range of 5 Hz to 110 kHz.
- Input level ranges from 0.1 V to 100 V [rms]. Also a high sensitivity 3.16 mV range is provided for the dynamic range measurement of digital audio equipment.

周波数測定 Frequency Measurement

- レシプロカル方式の高速周波数カウンタ内蔵。
- ACレベル、ひずみ率、ワウフラッタ測定モードで動作します。
- Reciprocal type high speed counter is installed.
- This function is available in AC level, Distortion and Wow & Flutter measurement modes.

ワウフラッタ測定(工場オプション) Wow & Flutter measurement (Factory Option)

- オプション01の準ピーク応答(CCIR / DIN)とオプション02の実効値応答(JIS)モデルを用意しています。
- Wow & flutter measurement meeting the quasi-peak and rms response requirement specified by the CCIR/DIN (Option 01) or JIS (Option 02) specifications can be installed optionally.

PFを搭載。

from digital sources, CD, MD and DVD,
ements.

測定フィルタ Measurement filters

- ・ノイズ評価に必須のフィルタ / 標準 9種類とオプション 5 種類
- ・ Nine filters are installed as standard and five kinds of filters as options.

標準装備フィルタ Standard filters

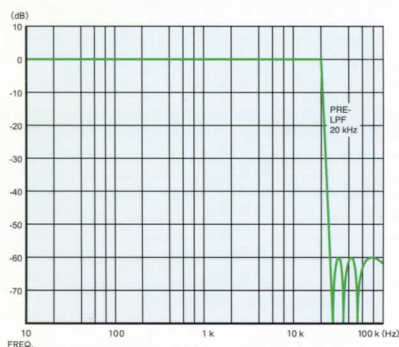
1. Pre-LPF 20 kHz: デジタルオーディオ用で、特にCD,MD,DVDや半導体(ADC)評価に適します。オプションで1波追加できます。
20 kHz: Filters for digital audio. It is applicable to CD,MD,DVD and semiconductors.(ADC)
One optional filter is available.
2. LPF 15 kHz: DATやBS / FMチューナ用
For DAT, BS and FM tuner
20 kHz: デジタルオーディオ用
For digital audio.
80 kHz: 高域カット用
For high frequency elimination.
オプションで1波追加できます。
One optional filter is available.
3. HPF 100 Hz: A Mステレオのパイロット信号(25 Hz)カット用
For eliminating AM stereo pilot signal(25 Hz).
200 Hz: IHF-BPFの低域カット用
For low band elimination in IHF-BPF.
4. PSOPHO A: IEC規格準拠のAフィルタ, CCIR/ARM: ドルビー特性フィルタ, AUDIO: IEC AUDIOのBPF特性フィルタ。
オプションで 1波追加できます。
A: IEC-A filter. CCIR/ARM: Dolby.* AUDIO: IEC AUDIO.
One optional filter is available.
(*Dolby is a registered trademark of Dolby Laboratory Inc.)

オプションフィルタ Optional filters

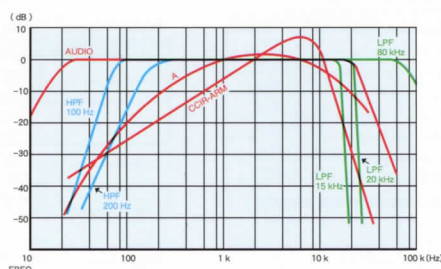
VQ-071H Series

- ・LPF部とPSOPHO部に1波づつ追加できます。
One option can be installed in LPF part and Psopho part respectively.
- ・VQ-071H01 CCITTP53: 電話/通信機器・回線評価用で、主にヨーロッパ向け
CCITTP53: For telecommunication(mainly Europe).
- ・VQ-071H02 C-MESSAGE: 電話/通信機器・回線評価用でBELL規格主にアメリカ向け
C-MESSAGE: For telecommunication(mainly USA).
- ・VQ-071H03 1 kHz BPF: クロストーク測定用など
1 kHz BPF: For crosstalk measurement.
- ・VQ-071H04 3 kHz BPF: クロストーク, 消去率測定などで、主にテープ測定用
3 kHz BPF: For crosstalk measurement.
(Mainly for audio tape)
- ・VQ-071H05 IEC-C: オーディオ機器評価用BPF特性
IEC-C: For audio equipment.
- ・VQ-071H06 315 Hz BPF: テープ評価用
315 Hz BPF: For audio tape evaluation.
- ・VQ-071H07 30 kHz LPF: 高域カット用
30 kHz LPF: For high frequency elimination.

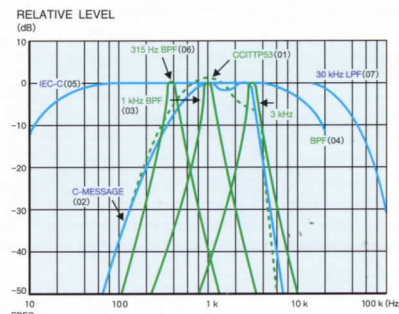
フィルタ測定例 / Filter Examples



▲ PRE LOW-PASS FILTER



▲ STANDARD FILTERS



▲ OPTIONAL FILTERS

多彩なインタフェースで生産ラインでの自動化が容易

Versatile interfaces are useful for construction of automated testing system

1. 100ポイントメモリ機能: 10グループに分割可能です。
2. メモリアドレスオートシーケンス機能: アドレスごとにシーケンスタイムが設定可能。当社のSGやステレオモジュレータと連動できます。
3. 判定機能: リミット値に対してUNDER/OVER/PASS表示、外部出力機能。
4. 外部制御機能: メモリモートやモディファイ操作が可能。8ビット2ポートの入出力機能で外部治具などの制御が容易です。
5. GP-IB標準装備: 各種のコントロール、測定データの送出、トークオンリ/リスンオンリでの連動機能、メモリ内容の転送(DUMP)が実効できシステム展開が容易です。

1. 100 points memory: Grouping function is included (max.10 groups).
2. Auto sequence: Sequence time can be set for each memory address.
3. Judgment function: Auto judgment function by UNDER/OVER/PASS.
4. External control: Remote control is available for memory address. 8 bits 2 ports input/output function for controlling the jigs, etc.
5. GP-IB: It is used for controlling peripheral equipment, transmitting measurement data, synchronized operation by talk only/ listen only mode and memory dumping.

Audio Analyzer VP-7723D

■測定用信号源 SIGNAL SOURCE

低周波発振器 / OSCILLATOR

Frequency Range	5 Hz to 110 kHz 4 ranges
Resolution	0.1 Hz (5.0 to 200.9 Hz)
(4 digits display)	1 Hz (0.201 to 2.009 kHz)
	10 Hz (2.01 to 20.09 kHz)
	100 Hz (20.1 to 110.0 kHz)
Accuracy	±2 % of setting (0.201 to 20.09 kHz)
	±3 % of setting (all ranges)
Output Range	14.0 to -85.9 dBV (0 dB=1 V [rms], load end)
	16.2 to -83.7 dBm (0 dBm=1 mW, 600 Ω load)
Resolution	0.1 dB
Accuracy	±0.5 dB of setting at 1 kHz (>-37.1 dBV)
	±0.8 dB of setting at 1 kHz (≤-37.2 dBV)
Flatness	600 Ω load
	±0.05dB (20.0 Hz to 20.09 kHz)
Noise level	±0.3 dB (all ranges)
	Less than 10 μV [rms] (with output off)
Distortion	≤0.001 % (-100 dB) (20 Hz to 15 kHz, 80 kHz BW)
	≤0.01 % (-80 dB) (All ranges)

■アナライザ部 ANALYZER

測定機能 / MEASUREMENT FUNCTIONS

Frequency measurement, AC level measurement (Includes the relative level measurement function), DC level measurement, S/N measurement, Distortion (THD+N) Wow & Flutter (factory option)

周波数測定 / FREQUENCY MEASUREMENT

Range	5 Hz to 110 kHz (operates in AC level, Distortion, Wow & Flutter measurement mode)
Display resolution	5 digits, 0.01 Hz < 100 Hz
Accuracy	±5 × 10 ⁻⁵ ± 1 digit
Measuring system	Reciprocal counter

ACレベル測定 / AC LEVEL MEASUREMENT

Full range display 0.316 0 mV to 100 V full range (7 ranges)		
Unit: (m)V	Unit: dB	Unit: dBm
100.0 V	40.0 dBV	42.2 dBm
31.60 V	30.0 dBV	32.2 dBm
3.160 V	10.0 dBV	12.2 dBm
316.0 mV	-10.0 dBV	-7.8 dBm
31.60 mV	-30.0 dBV	-27.8 dBm
3.160 mV	-50.0 dBV	-47.8 dBm
0.316 0 mV	-70.0 dBV	-67.8 dBm

Note: Approximate 10 % of overrange is provided for each range except the 100.0 V range

Accuracy	±2 % of full range display (at 1 kHz)
Frequency range	±5 % (20 Hz to 20 kHz)
	±10 % (5 Hz to 110 kHz)
Residual noise	< 4 μV [rms] (with 80 kHz BW)
	< 10 μV [rms] (with 500 kHz BW)
Relative level range	±130 dB
Detection response	RMS or average response

ワット表示機能 / WATTAGE DISPLAY FUNCTION

Method	Calculated by AC level measurement and imaginary load resistance. (Actual load is not equipped.)
Display resolution	Max. 5 digits 0.01 W
RL setting range	2 to 5 000 Ω (1 Ω resolution)

DCレベル / DC LEVEL MEASUREMENT

Range	100.0/31.60/3.160/0.316 0 mV 4 ranges
Over range	Approx. 10 % (except 100 V range)
Accuracy	± (0.3 % fs + 0.75 % reading)

S/N測定 / S/N MEASUREMENT

Input level range	30 μV to 100 V [rms] (N component has to be lower than S component in amplitude)
Measurement range	0 to 130 dB

S component level (freq ≤ 10 kHz)	S/N Limit
≥ 31.6 V (30 dBV)	> 130 dB
≥ 3.16 V (10 dBV)	> 110 dB
≥ 316 mV (-10 dBV)	> 90 dB
≥ 31.6 mV (-30 dBV)	> 70 dB
≥ 3.16 mV (-50 dBV)	> 50 dB
≥ 0.316 mV (-70 dBV)	> 30 dB

Accuracy	±1 dB
Detection response	RMS or average response
S/N delay time	3 s (SLOW Response mode)
	1.5 s (FAST Response mode)
S component level	Same as AC level measurement

ひずみ率(THD+N)測定 / DISTORTION MEASUREMENT

Fundamental frequency range	5 Hz to 110 kHz
Measurement range	31.6/10.00/1.000/0.100 0/0.0100 0 % (-10.00/-20.00/-40.00/-60.00/-80.00 dB)

Display of measurement units

Selection of unit key	Input signal level	Distortion display
V, %	mV, V	%
dB, dBm	dB, dBm	dB

Detection characteristics	Input signal level : RMS responding Distortion : RMS or average responding
Second harmonic accuracy	±1 dB (20 Hz to 20.09 kHz)
	±3 dB (all ranges)

Residual distortion detection

Input range	100, 31.6, 10, 3.16, 1V	0.316 V	Band width range
Input level	Full scale input	1/3 input of full scale	Full scale input
5 Hz to 20 kHz	≤ -100 dB, 0.001 %	≤ -90 dB, 0.0032 %	≤ -94 dB, 0.002 %
5 Hz to 110 kHz	≤ -80 dB, 0.01 %	≤ -80 dB, 0.01 %	≤ -76 dB, 0.016 %

3.16 mV range: < -45 dB (0.56 %) against 2 mV [rms]

(Fundamental freq.: 20 Hz to 10 kHz, 20 kHz BW)

Input signal level range	0.1 to 100 V [rms] / 1 to 3.16 mV [rms]
Measurement range	7 ranges

Display unit (m)V	Unit: dBV	Unit: dBm
100.0 V	40.0 dBV	42.2 dBm
31.6 V	30.0 dBV	32.2 dBm
10.0 V	20.0 dBV	22.2 dBm
3.16 V	10.0 dBV	12.2 dBm
1.00 V	0 dBV	2.2 dBm
0.316 V	-10.0 dBV	-7.8 dBm
*3.16 mV	-50.0 dBV	-47.8 dBm

* manual range setting only

Input signal level measurement accuracy	±2 % of full scale (1 kHz)
Input signal frequency range	±5 % (5 Hz to 110 kHz, except 100 V range)
	±10 % (3.16 mV range, 10 Hz to 20 kHz, 1 kHz full scale reference)

ワウフラッタ測定(工場オプション) / WOW & FLUTTER MEASUREMENT (factory option)

Measurement center Frequency range	3 kHz, 3.15 kHz ± 200 Hz
Measurement range	10.00/1.000/0.100 0 %
Detection characteristics	Q-peak, DIN-CCIR (VP-7723D01) RMS, JIS (VP-7723D02)
Frequency characteristics	Psophometric characteristics based on DIN45507, (WTD)
	0.5 Hz to 300 Hz (UNWTD)
Accuracy	±5 % of full scale (4 Hz)
Input signal level range	Same as input range of distortion, measurement.

Specifications

■測定機能共通項目 COMMON FOR ALL MEASUREMENT

入カインピーダンス / Input Impedance

100 k Ω shunted by < 270 pF (A, B terminal to common)

1 M Ω (DC terminal to common)

最大許容入力電圧 / Max. input voltage

150 V [P-P] (10 to 100 V range, less than 17 kHz AC + DC level)

20 V [P-P] (Less than 3 V range, 500 kHz AC level)

フィルタ / Filters

HPF 100 Hz (less than -40 dB at 25 Hz for AM stereo pilot signal elimination)
200 Hz (Cut-off frequency 180 Hz, 60 dB roll off/decade)

LPF 15 kHz (less than -30 dB at 19 kHz, 15 kHz cut-off frequency/
for elimination of FM pilot signal)
20 kHz (less than -30 dB at 24.1 kHz, 20 kHz cut-off frequency/
for digital audio)
80 kHz (Cut-off frequency 80 kHz, 60 dB roll off/decade)

OPT (Option)

PSOPHO A (IEC-A)

CCIR ARM (DOLBY)

AUDIO (Based on DIN 45405-1978)

OPT (Option)

AC出力 / AC output

0.2 V [rms] fs (AC, DISTN, S/N), output impedance 1 k Ω

■メモリ機能 MEMORY FUNCTION

100 points (Memory address 00 to 99)

Memorizes panel condition, EXT control I/O, and limit data are stored as one point.

■モディファイ機能 MODIFY FUNCTION

1) Modification of oscillator frequency and output amplitude

2) Modification of Input range/Measurement range in manual mode

■リミット機能 LIMIT FUNCTION

One of three modes are predetermined (Upper limit only, Lower limit only, Upper and Lower limits) LED alarm is given when a result exceeded the limit.

■インタフェース I/O FUNCTION

GP-IB

• SH1, AH1, T7, L3, SR0, RL1, PR0, DC1, DT1, C0

• Memory copy (Talk/Listen only mode)

• Memory synchronizing function (Talk/Listen only mode)

EXTコントロール I/O / EXT control I/O

1) Memory remote sequential recall 2) Memory remote direct recall

3) Control output 4) Comparison result output 5) 8 bits data read

6) Measured data printout

■その他 OTHERS

Power requirements 100 V/120 V/220 V/230 V, 50 or 60 Hz, Approx. 70 VA

Dimension & Weight (W) 426 × (H) 132 × (D) 400 mm approx. 13 kg

Accessories Power cable ---1, GP-IB connector cap ---1,

Spare fuse ---1, Instruction manual ---1

Option Wow & Flutter: Opt.01 (Q-Peak) Opt.02 (RMS)

Optional filters: VQ-071H01/CCITT P53 TEL

VQ-071H02/C-MESSAGE

VQ-071H03/1 kHz BPF

VQ-071H04/3 kHz BPF

VQ-071H05/IEC-C

VQ-071H06/315 Hz BPF

VQ-071H07/30 kHz LPF

Rack mount kit: VQ-069H32 EIA

VQ-069H31 JIS/Metric

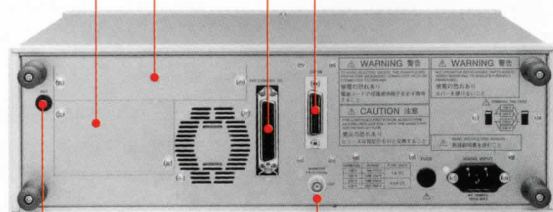
背面パネル / Rear Panel

W&F測定ユニット装着部 / W&F unit slot

フィルタユニット装着部 / Filter unit slot

EXTコントロールI/Oコネクタ / Ext. control I/O

GP-IBコネクタ / GP-IB connector



モニタ出力 / Monitor output

予備端子取付部 / Spare terminal

基本性能、操作性、高速性を徹底追求して実現。

R&D からライン自動化システムまで、測定之最適化に応える 2 チャ

Sufficient basic performance, easy and simple operation and high speed for use in R&D, QA and automated system application for produc



Audio Analyzer VP-7782D

オーディオ測定之最適化を追求

本器は、デジタルオーディオ機器測定之最適化をめざし「基本性能の充実」、「容易な操作性」、自動計測用途に求められる「測定之高速化」を重点課題として開発、商品化しました。信号源やアナライザ部では徹底的な低ノイズ化に取り組み、基本性能を向上させるとともに、豊富なフィルタの標準装備、ダイナミックレンジやDCレベル測定などの機能を充実。

測定之高速化では、ACレベル測定: 80 ms を実現したほか、新オートレンジの採用で実測定時間之短縮を可能にしています。また各種キー操作性を向上し、生産ラインをはじめ、R&D部門、QA 部門でも幅広くご活用いただけます。

Optimum Measurement Solution for Versatile Audio Signal

This Audio Analyzer is designed for optimum measurement solution for digital audio age of applications. This is sufficient basic performance, friendly operation and high speed operation for system applications.

Signal source and analyzer section has drastically reduced internal noise for better basic performance and host versatile filters, Dynamic Range, and DC level measurement functions. High speed measurement achieves 80 ms at AC level measurement and equipped foreseeing auto-range greatly improved total measurement speed.

オーディオソース / Audio source

- 周波数範囲: 10 Hz ~ 110 kHz ● 超低ひずみ: 0.0002 % 以下
- Frequency range: 10 Hz to 110 kHz ● Distortion: 0.0002 % or less

DC 電圧測定部 / DC Measurement section

- 316 mV ~ 31.6 V フルスケールの DC 電圧測定機能
- 316 mV to 31.6 V full scale DC measurement

2 ch オーディオ信号測定部 / 2 ch Audio Signal Measurement section

- 周波数測定 ● AC レベル測定 ● ひずみ率測定 ● D-RANGE 測定 ● IMD 測定機能 ● S/N 測定 ● レシオ測定
- Frequency ● AC level ● Distortion ● Dynamic-Range ● IMD ● S/N ● Ratio

● 測定効率をアップする豊富な機能 / Improved measurement efficiency

100ポイントメモリ
100 points memory

オートシーケンス
Auto sequence

リミット判定
Limit function

EXT I/O 外部制御
EXT I/O control

GP-IB インタフェース
GP-IB Interface

RS-232-C インタフェース
RS-232-C Interface

データ収集ソフトウェア
Data correction software

特 徴 / Features

アナライザ部 Audio Analyzer

- ・多機能化と基本性能を追求してパワーアップ
- ・Multi-Function and Enhanced Basic Performance

アナライザ部は、2チャンネル計測、AC/DCレベル、周波数、ひずみ率、S/N、ダイナミックレンジ、L/Rレシオの計測機能を搭載し、特にひずみ率計測ではDSP(デジタル信号処理)により、高調波ひずみ率(THD)を0.0001%オーダーで計測できるほか、2fo ~ 5foの高調波成分測定を行えます。

The analyzer 2-channel measurement section has a full range of functions including, AC/DC level, frequency, distortion, S/N, dynamic range, and L/R ratio, while the DSP function supports total harmonic distortion (THD) 0.0001 % order measurements and harmonic component (2 fo to 5 fo) measurements.

信号源 Oscillator section

- ・超低ひずみ率/高出力信号源とIMD測定信号源を搭載
- ・Ultra-low Distortion/High Output and IMD Signal Source

信号源は、ブリッジド T 型 RC 発振器による、10 Hz ~ 110 kHz の広帯域と 14 dBV の高出力で、0.0002 % (THD/代表値) 以下の超低ひずみ率を実現。さらに独自の ALC (振幅制御回路) で出力レベルの平坦化と高速安定化を図っています。

また、混変調ひずみ率(SMPTE 法によるIMD)測定信号源を内蔵しています。

A bridged-T RC oscillator gives high 14 dBV output over a wide 10 Hz to 110 kHz band, and a unique ALC circuit with an ultra-low distortion ratio of 0.0002 % or less (THD) is used to achieve high-speed stabilization with a flat output level. There is also a built-in SMPTE signal source for intermodulation distortion measurements (IMD).

オーディオアナライザ。 High speed 2-channel Audio Analyzer Production line.

操作性 Operation

- ・生産ラインからR&Dまでに対応する操作性を向上
- ・Operation Improvement from Production Purpose to R&D.

各種機能キー操作の単純化を図り操作性を向上。アナライザの動作状態や入力レンジの自動/マニュアル状態、ノッチフィルタの状態を表示していますので、様々な使用方法において簡単に設定の確認・変更が行えます。さらにインタフェース部にはGP-IB、EXT I/Oに加え、RS-232-Cを標準装備、コンピュータとの接続性が容易なため、システム構築が簡単にできます。

Improved panel operation makes settings simpler and a convenient additional indication shows whether auto range or fixed range is selected when making analyzer input section, measurement section or notch filter settings. GP-IB, EXT I/O and RS-232-C control interface offers a wide range of system application.

高速化 High Speed

- ・実測定時間の短縮
- ・Improved Total Measurement Speed

一般のオーディオ信号測定では、低周波から高い周波数へ切替える周波数特性試験や、数 μ Vの微小電圧と高電圧との比率測定を行うダイナミックレンジ等での高速測定が重要となります。本器はサンプリングスピードの高速化に加えて、入力信号に対して予測制御を行う新方式のオートレンジ、周波数測定の並列処理によるひずみ率測定に必要なノッチフィルタの高速、安定設定を実現。トータル測定に必要な実計測時間の短縮を実現しました。

In audio signal testing, measurements are normally required to cover a wide dynamic range from very small amplitude of a few μ V up to about 100 V, and frequencies from as low as 10 Hz to around 100 kHz. This instrument has high sampling rates plus faster response of foreseeing auto range and parallel counter control for fast and stable notch filter operation supporting reduction of actual measurement speed.

ACレベル測定 80 ms (代表値) の高速測定

AC Signal Measurement Time Cut to 80 ms (Typ.)

システムコンポーネントとしてご活用いただけるよう、AC レベル測定: 80 ms (代表値)の高速化を実現しました。

Its high speed response, with an 80 ms (Typical) AC signal measurement time, makes the VP-7782D an ideal component for high-speed measurements systems.

新方式のオートレンジを採用

New High Speed Auto Ranging

従来のオートレンジは、入力信号の変化に対してステップバイステップで目標測定レンジに到達します。本器は、レンジ切換えを予測制御する新方式のオートレンジを採用、S/N測定やダイナミックレンジ測定での大幅な高速化を実現しました。

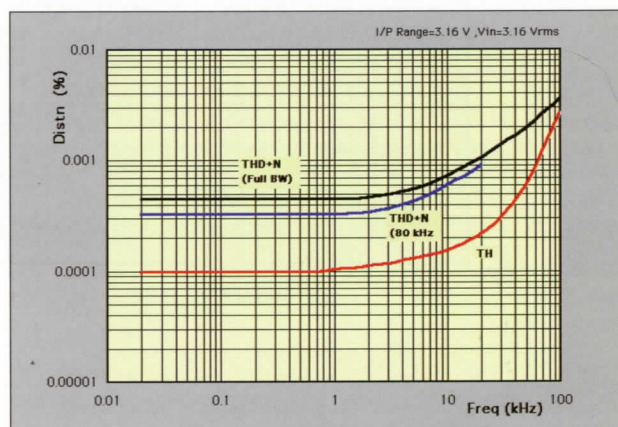
Unlike normal auto range functions, which change measurement ranges step-by-step to match changes in signal input, the new auto ranging can foresee input range switch widely. This greatly increases the speed of measurements such as S/N and dynamic range.

ひずみ率測定の高速度と安定化

High Speed and Stabilization for Distortion Measurement

周波数測定を並列処理し、入力信号が変化した際の基本波除去フィルタ設定応答性を改善。ひずみ率測定の高速度を図りました。さらに、周波数測定部に雑音に強い入力回路を採用、安定した測定を実現しています。

Frequency counter has been parallel operation further improved to reducing the time required between counter measurement and notch frequency setting allows faster distortion measurements for varying frequencies and makes the counter less susceptible to input signal superimposed noise.



▲ Overall distortion characteristics (Typical)

先進の機能で最適化を実現。

デジタルオーディオ機器の測定に、自在な操作性でフレキシブルに対応
Innovative Functions Make Optimum Measurement Condition.
Flexible and Simple Application for Digital Audio Signal Measure

アナライザ機能の充実

Powerful Functions for Analyzer section

D-RANGE (ダイナミックレンジ)

D-RANGE (Dynamic Range)

デジタルオーディオの基本性能であるダイナミックレンジをワンキー操作で測定できます。このとき、必要な 20 kHz プリ-LPF、A-カーブ等も自動的に設定します。

Dynamic range is the fundamental performance factor in digital audio. The VP-7782D makes dynamic range measurement a simple one-touch operation, and all required settings, including 20 kHz Pre-LPF and A-curve, are executed automatically.

DC レベル測定

DC Level Measurements

0.316 V ~ 31.60 V フルスケールで、被測定物の供給電圧等の測定が可能です。

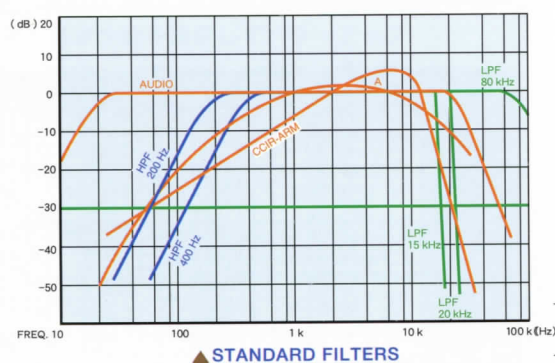
The VP-7782D can perform DC measurements, such as DUT supply voltage, from 0.316 V to 31.60 V full scale.

豊富なフィルタを標準装備

Full Range of Standard Filters

デジタルオーディオ計測に必要なプリ-LPFに加えて、LPF/HPF/PSOPHOなど9種類のフィルタを標準装備した他、オプションでさらに3種類を追加できます。また、これらのフィルタLPF/HPF/PSOPHOを自由な組み合わせで設定できるようにキーが構成されています。

The instrument provides 9 standard filters, including LPF, HPF, PSOPHO and Pre-LPF (essential for digital audio measurements) plus further 3 optional filters. This layout is designed to allow easy setting of different filter combinations.



オートレンジ / 固定レンジの動作モニタ

Auto Range / Fixed Range Status Indication

アナライザの動作状態、「入力レンジの自動/マニュアル設定」「ノッチフィルタの状態」を表示していますので、さまざまな使用方法においても簡単に設定が変更できます。

A convenient new indication shows whether auto range or fixed range is selected when making analyzer input section, measurement section or notch filter settings.

S/N ウェイト時間設定

S/N Wait Time Setting

従来、固定値であった S/N 計測の切換え時間を 0.1 ~ 9.9 秒の範囲で設定できます。D.U.T. の性能や計測目標に合わせた最適値を設定でき、計測スピードアップと安定な測定が可能になりました。

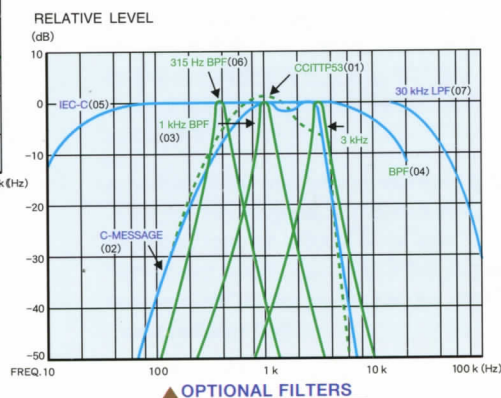
Switching time for S/N measurements, normally a fixed value, is variable. This allows settings to be optimized to match D.U.T. performance or measurement targets, for faster, more stable measurements.

チャンネルウェイト時間設定

Channel Wait Time Settings

2 チャンネル計測における L/R 間の切換え時間を設定可能にしました。L/R 信号比に合わせた適切な値に設定することで、高速計測と安定な測定を行えます。

L/R switching time is now variable for 2-channel measurements. The ability to set wait time values to match L/R signal ratios also makes measurements faster and more stable.



- (1) VQ-071H01
- (2) VQ-071H02
- (3) VQ-071H03
- (4) VQ-071H04
- (5) VQ-071H05
- (6) VQ-071H06
- (7) VQ-071H07

応じます。

ment.

Analyzer

パネル操作をさらに使い易く簡単設定を実現

Improved Panel Operation Makes Settings Simpler

自由な測定単位表示設定

Versatile Measurement Unit Display Settings

入力信号単位表示の V / dB と、ひずみ計測単位 % / dB を 4 通りの組み合わせで自由に設定できます。

Four combinations of display units can be set: V and dB for input signal, % and dB for distortion measurement.

オシレータ ON / OFF 切換えスイッチ

Oscillator ON / OFF Switch

オシレータの ON / OFF スイッチにより、D.U.T.部の残留ノイズ等の測定を簡単に行えます。

A switch to allow the oscillator to be switched on and off simplifies measurements such as D.U.T. residual noise.

ステップ削減の簡単キー操作

Simplified Setting Operation

従来の信号源における周波数や出力設定では、まず目的の [FREQ] [AMPTD] キーを押した後に「数値」を設定、その後 [ENTER] キーを押す 3 ステップが必要でした。本器では、「数値」[ENTER] の 2 ステップで操作できます。また、入力データは [SHIFT] キーで簡単にキャンセルできます。

Conventionally, three steps have been required to make each signal source or output setting: press FREQ or AMPTD, enter numeric value and press ENTER. In the VP-7782A, the first of these steps has been eliminated: simply enter the value and press ENTER.

SINGLE / DUAL、L / R の独立キー設定

SINGLE / DUAL and L / R Keys

L、R チャンネルを独立測定したり、L / R 同時計測をする際に、SINGLE / DUAL、L / R の 2 つの独立キーにより、素早く目的の操作に切換えられます。

Separate SINGLE / DUAL and L / R keys make switching faster when setting independent L / R or simultaneous L / R measurements.

測定効率をアップする充実のインタフェース

Variety of Interfaces for Improved Measurement Efficiency

多彩なインタフェースで自動化が容易

EXT I / O Interface

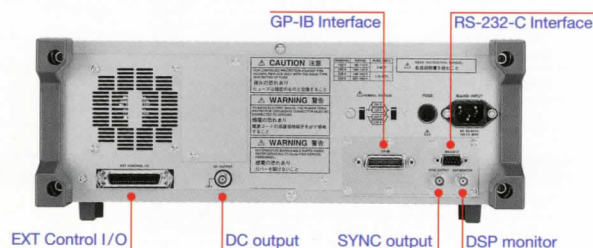
当社の AV 計測器共通の、EXT I / O インタフェースを搭載しており、治具の制御やリモコンを共通にお使いいただけます。

- 100 ポイントメモリ機能: 10 グループに分割可能
- メモリアドレスオートシーケンス: 当社 AV 用計測機器と連動可能
- 判定機能: リミット値による UNDER / PASS / OVER 表示と、判定出力
- 外部制御機能: メモリリモートやモディファイ操作、8 ビット x 2 ポートの I / O 機能

Following the audio / video common measurement concept, a built-in EXT I / O interface allows remote control of jigs and other measuring instruments.

- 100-point memory, dividable into 10 groups
- Memory address auto sequence allows linked operation with audio / video measuring instruments
- Limit function displays UNDER, PASS or OVER based on limit values and provides a decision output
- External control functions provide memory address remote and memory data modification control through two 8-bit I / O ports

背面パネル / Rear Panel



Audio Analyzer VP-7782D

■測定用信号源 / SOURCE

ノーマルモード / Normal mode Sine wave mode

Frequency	
Frequency range / Display	10 Hz to 110 kHz (4-range) 4 digits display
Frequency accuracy	±3 % of setting (All ranges) ±2 % of setting (0.160 kHz to 15.99 kHz)
Output	
Output range / Display	14.0 dB to -85.9 dB (0 dB = 1 V[rms] 600 Ω loaded) 16.2 dBm to -83.7 dBm (dBm : 1 mW 600 Ω loaded) 3 digits display
Output accuracy (1 kHz)	±0.5 dB of setting: > -37.1 dB ±0.8 dB of setting: ≤ -37.2 dB
Flatness	±0.3 dB or less (All ranges) ±0.05 dB or less (20 Hz to 20 kHz)
Output impedance	600 Ω ±2 % (Common for IMD signal output)
Distortion	0.0002 % (-114 dB) or less (50 Hz to 10 kHz) (at 2 f ₀ to 10 f ₀ Harmonic distortion) 0.003 % (-90 dB) or less (All range)

混変調テスト信号 / Inter modulation test signal SMPTE type IMD test signal

Frequency / Display	4 digits display of HF signal LF: 50 Hz or 60 Hz, HF: 2.00 kHz to 10.00 kHz
Output	Output level shows two frequency of mixed RMS level
Output range / Display	4.0 dB to -85.9 dB / 6.2 dBm to -83.7 dBm (0 dB = 1 V[rms] 600 Ω loaded, dBm: 1 mW, 600 Ω loaded)
LF / HF Ratio range	1:1 to 8:1 / 1 step
Inter modulation distortion	0.002 % (-94 dB) or less (LF / HF 4:1, HF 7 kHz)

■測定機能部 / MEASUREMENT

測定モード / Measurement functions

- 1) Frequency
- 2) DC level
- 3) AC level (Relative level, S / N)
- 4) Distortion
THD + N (DISTN)
THD (Detect 2 f₀ to 10 f₀ of harmonics)
HD (2 f₀ to 5 f₀ of each harmonics level analysis)
- 5) Dynamic range
- 6) SINAD
- 7) Inter modulation distortion (IMD by SMPTE method)
- 8) Ratio (L / R, R / L level)
- 9) Signal averaging (Relative level)

周波数測定 / Frequency measurement Reciprocal counter

Frequency range / Accuracy	10 Hz to 110 kHz / ±5 × 10 ⁻⁶ ±1 digit
Input level	0.1 V[rms] to 100 V[rms]

DCレベル測定 / DC level measurement

Range	31.60 V / 3.160 V / 316 mV
Accuracy	±2 % or less

ACレベル測定 / AC level measurement Input L and R common

Full range display	0.316 0 V to 100.0 V / 7 ranges Over range: Approx. 10 % (Except 100 V range)
Accuracy	±2 % of fs. (Except 0.316 0 mV range)
Detection response	RMS or Averaging response
Flatness	±5 % (20 Hz or 20 kHz)
S / N measure range	0 dB to 130 dB (N components to be lower than S components in amplitude)
S / N accuracy	±1 dB or less
S / N measure delay time	S: Approx. 0.1 s to 9.9 s / N: Approx. 0.1 s to 9.9 s

全ひずみ測定 (THD + N) / Distortion (THD + N)

Fundamental frequency range	10 Hz to 110 kHz
Distortion measure range	0.001 % (-100 dB) to 100 % (0 dB) full scale / 6 ranges 100 % range: Manual setting range
Display unit	Input level: V · % / dB · dBm, Distortion : % / dB
Detection response	Input level: RMS response, Distortion : RMS or Averaging response
Second harmonics accuracy	±1 dB (10 Hz to 15.99 kHz) / ±3 dB (16.0 kHz to 110 kHz)
Residual distortion	≤ -95 dB (1 V input at 10 Hz to 20 kHz)
Input level measurement	40.0 dB to -17.5 dB / 2.5 dB step of 24 ranges and dynamic range measurement added 3.160 mV range of total 25 input ranges. Common for SINAD test or IMD input level, ratio measurement of numerator signal averaging of input condition.
Input level accuracy	±2 % of full scale (at 1 kHz except 3.160 mV range)
Input level frequency response	±5 % or less (10 Hz to 110 kHz) reference at 1 kHz

高調波ひずみ率測定 / Harmonic Distortion-1 (THD1)

Harmonic measure range	2 f ₀ to 10 f ₀ of harmonics
Distortion measure range	0.001 % (-100 dB) to 100 % (0 dB) full scale / 6 ranges 100 % range: Manual setting range
Residual distortion	≤ -110 dB (1 V: 20 Hz to 10 kHz)
DSP SYNC output	TTL level (at one channel measurement)
DSP monitor output	2 f ₀ to 10 f ₀ harmonic components Approx. 0.5 V[rms] (Full scale input condition) Fundamental frequency: 1 kHz, Output resistance: Approx. 1 kΩ

高調波ひずみ率測定 / Harmonic Distortion-2 (THD2)

Harmonic measure range	2 f ₀ to 10 f ₀ of harmonics
Distortion measure range	1 % (-40 dB) to 100 % (0 dB) full scale / 2 ranges
Residual distortion	≤ -80 dB Input level ≥ 1 V

高調波分析 / (2 f₀ to 5 f₀) / Harmonic analysis

Harmonic measure range	2 f ₀ to 5 f ₀ of specified harmonics Adjoining harmonic attenuation 25 dB or higher
DSP monitor output	Selected harmonic component

SINAD測定 / SINAD measurement

SINAD measure range	Auto range: 0 dB / 20 dB / 40 dB Manual range: 0 dB / 20 dB / 40 dB / 60 dB
Display unit	Input level: dB or dBm SINAD: dB
Residual SINAD	> 80 dB Input level ≥ 1 V > 65 dB Input level < 1 V

混変調ひずみ率測定 / Inter modulation measurement (SMPTE method)

Frequency range LF / HF	50 Hz or 60 Hz / 2 kHz to 20 kHz
Mix. level range	1:1 to 8:1
Inter modulation range	0.01 % (-80 dB) full scale to 100 % (0 dB) full scale
Display unit	% or dB
Detection response	RMS or Averaging response
Residual IMD	< 0.003 % (-90 dB) (at LF / HF = 60 Hz / 7 kHz, Mix ratio 4:1 Input level ≥ 1 V)

Specifications

レシオ測定 / Ratio measurement

Denominator range	0.05 V [rms] to 100 V [rms]
Numerator range	30 μ V [rms] to 100 V [rms]
Ratio measure range	0 to -130 dB (100 % to 0.000 03 %)

シグナルアベレージ測定 / Signal averaging measurement

Full scale	Same as AC level measurement
Accuracy	± 10 % of full scale at 1 kHz
Residual noise	10 μ V [rms] or less at 16 times averaging
Flatness	± 10 % (10 Hz to 110 kHz) at 1 kHz reference
Detection response	RMS or averaging response
Reference signal input level	0.1 V [rms] to 100 V [rms]
Averaging time	16 times, 32 times, 64 times, 128 times, 256 times

ダイナミックレンジ測定 / Dynamic range measurement

Input level range	0.8 mV [rms] to 3.160 mV [rms] (at 3.160 mV range)
Accuracy	± 5 % of full scale at 1 kHz
Input signal frequency response	± 10 % (10 Hz to 10 kHz)
Residual distortion	D-RANGE ≥ 110 dB (at 1 kHz, LPF 20 kHz + A curve filter)

測定機能部共通項目 / Common functions

Input impedance	AC input: Approx. 100 k Ω , 200 pF or less DC input: Approx. 1 M Ω
Filters	
20kHz Pre-LPF	Approx. -60 dB at 24.1 kHz 9th elliptic filter Distortion: ≤ -100 dB (15 kHz BW)
200 Hz HPF	-3 dB / Cutoff frequency: 180 Hz ± 25 Hz Roll off characteristics: 60 dB / decade
400 Hz HPF	-3 dB / Cutoff frequency: 400 Hz ± 50 Hz Roll off characteristics: 60 dB / decade
80 kHz LPF	-3 dB / Cutoff frequency: 80 Hz ± 10 kHz Roll off characteristics: 60 dB / decade
15 kHz LPF	± 1 dB or less: ≤ 15 kHz -30 dB or less: ≥ 19 kHz
20 kHz LPF	± 1 dB or less: ≤ 20 kHz -30 dB or less: ≥ 24.1 kHz
PSOPHO A	IEC-A curve
PSOPHO AUDIO	DIN45 405 (1978) of AUDIO characteristics
PSOPHO CCIR-ARM	Dolby characteristics

モニタ出力 / Monitor output

AC output	Approx. 1 V [rms] at full scale / 1 k Ω ± 5 %
DC output	Approx. -2.5 V

プリセットメモリ/Preset memory

	100 points
	Panel condition, EXT control I / O
	Limit data memory

モディファイ機能 /Modify function

(1) Oscillator frequency, Output level, Mix. Ratio	
(2) Manual operation condition	
Distortion fundamental frequency	
Measure range, S / N delay time	
Averaging time	

リミット機能 /Limit function

Each measurement of Upper / Lower limit (Single or both) are available When input signal is over the limit, LED shows the information	
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GP-IB

SH1, AH1, T7, L3, SR0, RL1, PP0, DC1, DT1, C0	
Preset data copy mode, Combination operation of recall mode (Talk only, Listen only mode)	

EXT control I / O

• Memory remote sequential recall / Direct recall operation	
• External control (8-bit $\times$ 2 ports)	
• Data read (8-bit $\times$ 1 port)	
• Rotary encoder remote control	

RS-232-C

• Port number: 1	
• Baud rate: 38 400 bps	
• Character length: 8-bit	
• Parity: NONE / Flow control: X-OFF / X-ON / Stop bit: 1 bit	

その他 / Others

Power requirement	100 V / 120 V / 220 V / 230 V
Frequency	50 Hz / 60 Hz
Power consumption	120 VA or less
Dimension/Mass	Approx. 17 kg (37.5 lbs) W 426 mm $\times$ H 150 mm $\times$ D 400 mm (5.9" $\times$ 16.7" $\times$ 15.7")
Accessories	Operation manual $\times$ 1, Power cable $\times$ 1, Fuse $\times$ 1, GP-IB connector cap $\times$ 1

フィルタオプション / Optional Filters

VQ-071H01	CCITT P53 (TEL) specification See filter curve $\rightarrow$ (1)
VQ-071H02	C-MESSAGE specification BELL specification BPF See filter curve $\rightarrow$ (2)
VQ-071H03	1 kHz BPF -1 dB < 1 kHz ± 40 Hz See filter curve $\rightarrow$ (3)
VQ-071H04	3 kHz BPF -1 dB < 3 kHz ± 40 Hz See filter curve $\rightarrow$ (4)
VQ-071H05	IEC-C specification IEC-651 C waiting filter (TYPE) See filter curve $\rightarrow$ (5)
VQ-071H06	315 Hz BPF -1 dB < 315 Hz ± 12.6 Hz See filter curve $\rightarrow$ (6)
VQ-071H07	30 kHz LPF -3 dB / Cutoff frequency: 30 kHz ± 5 kHz Rolloff characteristics: 60 dB / decade

独立2 ch 型で高速・高性能を追求。

DVDオーディオやスーパーオーディオCDなど、デジタルオーディオ
Independent two-channel Audio Analyzer for digital audio equip
especially for DVD and Super Audio CD.

本器は、ますます高精度化するデジタルオーディオの、
-120 dB領域のひずみ率測定が可能、2 chの信号発生部
(オーディオ発振器)と多機能測定部を持つオーディオアナ
ライザです。

5 Hz~110 kHzの低ひずみ率信号源と、DCレベル、ACレベル、
ひずみ率、S/N、レシオ、周波数、ワウフラッタ(オプション)
の7種の基本測定機能を備えています。また、デジタル
オーディオ測定に必須である20 kHz Pre-LPFなどの測定
フィルタを豊富に備え、測定表示部にはLCDディスプレイ
を採用、数値とアナログバーで測定表示します。

付加機能として、プリセットメモリやリミット機能、メモリ
オートシーケンス、リモートインタフェース、GP-IBを有し、
特にDVDオーディオやSACD*など高性能オーディオ測定に
有効です。(SACD*=スーパーオーディオCD)

The VP-7725D combines a 2-channel signal source
(audio oscillator) and a full range of measurement
functions to provide the -120 dB distortion
measurements needed for testing today's high
precision digital audio equipment.

In addition to a low distortion 5 Hz to 110 kHz signal
source, this new audio analyzer provides 7 major
measurement functions: DC level, AC level, distortion,
S/N, ratio, frequency and wow & flutter (option). The
extensive range of filters includes 20 kHz Pre-LPF,
essential for digital audio measurements, and the
large LCD shows measurement results in combination
of digital and analog format.

With pre-set memory, limit function, memory auto-
sequence function, remote interface and GP-IB, the
VP-7725D is an ideal solution for testing high
performance audio equipment such as DVD audio
and SACD* (SACD*=Super Audio CD)

オーディオ発振器 Audio source

- ・ひずみ率 0.000 05 % (1 kHz 代表実測値)の2 ch 高性能、
高出力発振器

周波数範囲5.0 Hz~110.0 kHz、

最大出力レベルは、UNBAL/BALで14 dBV/20 dBV (600 Ω)

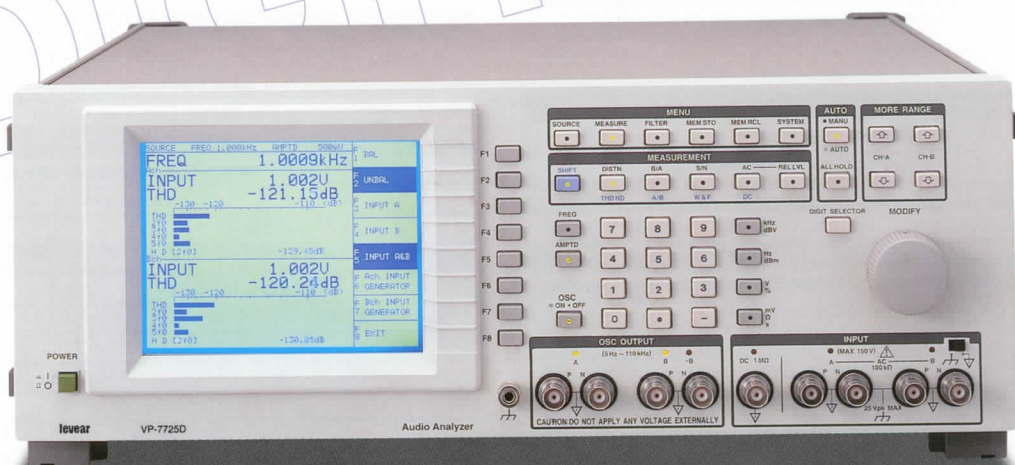
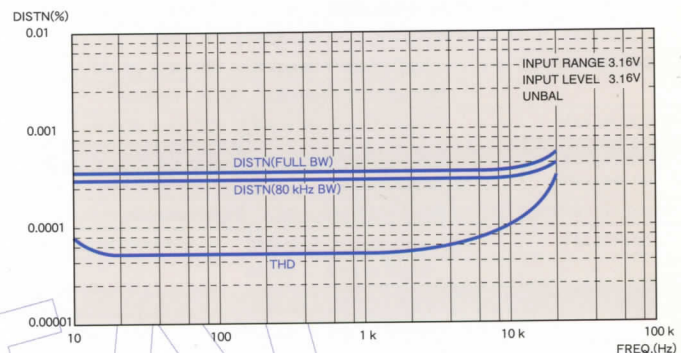
さらにLOWインピーダンスモードではUNBAL/BALで20 dBV/26
dBVの高出力が取り出せます。

- ・2-channel high-performance, high-output oscillator
with low distortion (typically 0.000 05 % at 1 kHz)

Maximum output level is 14 dBV UNBAL/20 dBV BAL (600 Ω)
for a frequency range of 5.0 Hz to 110.0 kHz.

Low impedance mode provides high output: 20 dBV
UNBAL/26 dBV BAL.

総合ひずみ率特性 TOTAL HARMONIC DISTORTION



Independent two-channel Audio Analyzer
VP-7725D

測定フィルタ Measurement filters

- ・ノイズ評価に必須のフィルタ/標準9種類とオプション5種類
- ・9 standard/5 optional noise evaluation filters

標準装備フィルタ Standard filters

Pre-LPF

20 kHz: デジタルオーディオ用で、特にローエンドオーディオ CD、MD、DVD や半導体 (ADC) 評価に適します。オプションで1波追加できます。

20 kHz: For digital audio. Ideal for low end audio CD/MD/DVD and semiconductor (ADC) testing. One extra filter option can be added.

LPF

15 kHz: DAT や BS/FM チューナ用。20 kHz: デジタルオーディオ用。80 kHz: 高域カット用。オプションで1波追加できます。

15 kHz: For DAT and BS/FM tuners, 20 kHz: For digital audio, 80 kHz: High frequency elimination. One extra filter option can be added.

HPF

100 Hz: AM ステレオのパイロット信号 (25 Hz) カット用。

200 Hz: IHF-BPF の低域カットフィルタ。

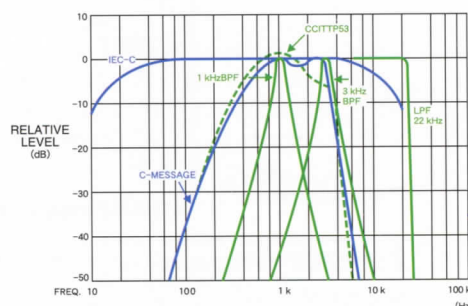
100 Hz: Reject 25 Hz AM stereo pilot signal,

200 Hz: IHF-BPF low frequency elimination.

PSOPHO

A: IEC 規格標準の A フィルタ、CCIR/ARM: ドルビー特性フィルタ、AUDIO: IEC AUDIO の BPF 特性フィルタ。オプションで1波追加できます。

A: IEC-A filter, CCIR/ARM: Dolby, Audio: IEC audio BPF. One extra filter option can be added. (Dolby is a registered trademark of Dolby Laboratory Inc.)



オプションフィルタ (工場オプション) Optional filters (Factory Option)

- ・LPF部とPSOPHO部に1波ずつ追加できます。

CCITT53: 電話/通信機器・回線評価用で、主にヨーロッパ向け。

C-MESSAGE: 電話/通信機器・回線評価用でBELL規格、主にアメリカ向け。

1 kHz BPF: クロストーク測定用など。

3 kHz BPF: クロストーク消去率測定などで、主にテープ測定用。

IEC-C: オーディオ機器評価用BPF特性。

315 Hz BPF: テープ評価用。

- ・LPF section and PSOPHO section each accept one filter option

CCITT53: Telephone/telecommunication equipment, circuit evaluation (mainly Europe).

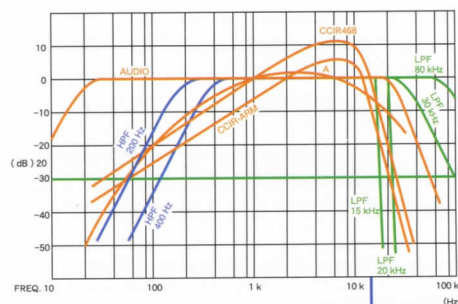
C-MESSAGE: Telephone/telecommunication equipment, Bell standard circuit evaluation (mainly U.S.).

1 kHz BPF: Crosstalk measurements, etc.

3 kHz BPF: Crosstalk, extinction ratio measurements, etc. (mainly for audio tape).

IEC-C: BPF characteristics for testing audio devices.

315 Hz BPF: Audio tape testing.



◀ Standard filters

フィルタ特性例
Versatile Digital Filters

◀ Optional filters

多彩なインタフェースで自動計測システム(GP-IB)も容易

GP-IB and EXT I/O interfaces make it easy to construct automated test systems

1. 100ポイントメモリ機能: 10グループに分割可能。
2. メモリアドレス: アドレスごとにシーケンスタイムが設定可能。
- オートシーケンス機能: 当社のSGと連動できます。
3. 判定機能: リミット値に対してUNDER/OVER/PASSのTTL外部出力機能。
4. 外部制御機能: メモリリモート制御やモディファイ操作が可能。
- 8ビット 2ポートの入出力機能で外部治具などの制御が容易。
5. GP-IB標準装備: 各種のコントロール、測定データの送出、トークオンリ/リスンオンリモードでの連動機能、メモリ内容の転送(DUMP)が実行でき、システム展開を容易に行えます。

1. 100-point memory: Can be split into 10 groups.
2. Auto sequence: Sequence time can be set for each memory address (can be synchronized to SG etc.).
3. Judgement function: TTL ext. output function for limit values of Under/Over/Pass.
4. External control: Allows remote control/modification of memory.
- 8-bit, 2-port I/O for remote control of jigs and DUT.
5. GP-IB (standard): Allows easy system expansion, with control of peripheral equipment, transfer of measurement data, synchronized operation (talk only/listen only modes) and memory dump function.

■測定用信号源/Signal generator section

Output system	BAL/UNBAL, Dual, Floating
Output mode	A, B, A & B, A & -B, OFF
Frequency range	5.0 Hz to 110.0 kHz
Frequency accuracy	±2 % (0.101 to 10.09 kHz)
	±3 % (Overall range)
Output level	dBV, dBm and V/mV

Output	Impedance	Output level(600 Ω loaded)
BAL	2 Ω or less	26.04 to 20.03 dBV
	600 Ω ±2 %	20.02 to -79.97 dBV
UNBAL	1 Ω or less	20.02 to 14.01 dBV
	600 Ω ±2 %	14.00 to -85.99 dBV

Resolution	0.01 dB
Accuracy	± 0.5 dB or less output ≥ -45.99 dBV (UNBAL), ≥ -39.97 dBV (BAL)
Flatness	±0.05 dB or less (20.0 Hz to 20.0 kHz) (1 kHz ref. 600 Ω)
Distortion	output 14.00 dBV (UNBAL) / 20.02 dBV (BAL) output impedance = 600 Ω

Frequency	UNBAL	BAL	Remarks
All range	≤ 0.003 % (-90 dB)	≤ 0.01 % (-80 dB)	THD
20 Hz to 15 kHz	≤ 0.001 % (-100 dB)	≤ 0.001 % (-100 dB)	THD (Passive filter)
20 Hz to 10 kHz	≤ 0.000 1 % (-120 dB)	≤ 0.000 3 % (-110 dB)	THD (Passive filter)

output: 20.02 dBV (UNBAL) / 26.04 dBV (BAL)
(Low impedance mode)

Frequency	UNBAL	BAL	Remarks
20 Hz to 20 kHz	≤ 0.003 % (-90 dB)	≤ 0.003 % (-90 dB)	THD

Output OFF noise	≤ 4 μ V [rms]: A Filter
Crosstalk	≤ -120 dB: 20 kHz

■測定機能部 / Measurement section

Input system	BAL/UNBAL, Dual
Common	Floating/Grounded
Input mode	A, B, A & B, Generator monitor
Measurement function	(1) Frequency (1 ch) (2) DC level (1 ch) (3) AC level (2 ch) Relative level Watt indication (4) Distortion (2 ch) Total distortion THD (2nd to 10th HD) HD (2nd, 3rd, 4th, 5th HD) (5) S/N (2 ch) (6) Ratio (A/B, B/A) (2 ch) (7) Wow & Flutter (Option)

周波数測定 / Frequency Measurement

	1 ch (Available in AC level, Distortion, S/N, Ratio and Wow & Flutter)
Measurement range	5 Hz to 330 kHz
Display unit	± (5 × 10 ⁻⁵ + 1 digit) 5 digits
Input level range	30 mV to 100 V [rms] (1 kHz)
Distortion input range	31.62 mV: 8 to 31.62 mV 3.162 mV: 0.8 to 3.162 mV

DCレベル測定 / DC level measurement

Measurement channel	1 ch DC level input terminal (BNC)
Full scale	31.62 V, 3.162 V, 316.2 mV 3 ranges (Max. 60 V)
Accuracy	± (0.3 % of FS + 0.7 % of reading)

ACレベル / AC level measurement

Full scale	0.316 mV to 100 V (7 ranges) (-70.00 to 40.00 dBV, FS) (-67.78 to 42.22 dBm, FS)
Over range	Approx. 10 % (Except 100 V range)
Accuracy	±2 % of FS (Except 0.316 mV range and Q-PEAK)
Flatness	±3 % or less (20 Hz to 20 kHz)
1 kHz, Full scale input	±10 % or less (20 Hz to 20 kHz Q-PEAK)
Residual noise	4 μ V (UNBAL 80 kHzBW RMS/AVG) 8 μ V (UNBAL 80 kHzBW Q-PEAK)
Relative level	Measurement range: ±130 dB Unit: dB Ref. setting range: 40.00 to -120.00 dBV 42.22 to -117.78 dBm 100.0 to 0.001 0 mV
Watt indication	Calculated from an assumptive load (1.0 to 999.9 Ω)

ひずみ率測定 / Distortion measurement

Measurement mode	DISTN (THD + N), THD, HD
Fundamental frequency	10.0 Hz to 110.0 kHz (Range of HD is max. 330 kHz) 10.0 Hz to 10.00 kHz for 31.62 mV and 3.162 mV range
Full scale	31.62 % to 0.003 162 % (5 ranges)
Response	RMS, AVG
2nd harmonics accuracy	±1 dB: 20 Hz to 20.09 kHz ±3 dB: All range and THD mode
Residual noise and distortion	DISTN mode: show below

BAL & UNBAL						Detection BW
Input range	100 to 1 V range	750 to 316 mV range	237 to 133 mV range	FS Input	FS -2.5 dB	
Input level	FS Input	FS Input	FS Input	FS Input	FS -2.5 dB	
20 Hz to 10 kHz	≤ 0.001 % ≤ -100 dB	≤ 0.001 4 % ≤ -97 dB	≤ 0.002 % ≤ -94 dB	≤ 0.003 2 % ≤ -90 dB	≤ 0.006 3 % ≤ -84 dB	≤ 0.006 3 % ≤ -84 dB
10 Hz to 100 kHz	≤ 0.005 % ≤ -86 dB	≤ 0.005 % ≤ -86 dB	≤ 0.01 % ≤ -80 dB	≤ 0.01 % ≤ -80 dB	≤ 0.02 % ≤ -74 dB	≤ 0.02 % ≤ -74 dB

31.6 mV range: -66 dB or less for UNBAL,

1 kHz, 31.6 mV input (20 kHz BW)

3.16 mV range: -46 dB or less for UNBAL,

1 kHz, 3.16 mV input (20 kHz BW)

THD mode: show below

Input range	3.16 V range	1 V range	0.316 V range	0.133 V range
Input level	3.16 V	1 V	0.316 V	0.100 V
UNBAL	200 Hz to 2 kHz	≤ -120 dB	≤ -116 dB	≤ -106 dB
	10 Hz to 20 kHz	≤ -110 dB	≤ -106 dB	≤ -96 dB
	20 to 50 kHz	≤ -100 dB	≤ -96 dB	≤ -90 dB
	50 to 100 kHz	≤ -86 dB	≤ -86 dB	≤ -80 dB
BAL	200 Hz to 2 kHz	≤ -110 dB	≤ -110 dB	≤ -100 dB
	10 Hz to 20 kHz	≤ -106 dB	≤ -106 dB	≤ -96 dB
	20 to 50 kHz	≤ -96 dB	≤ -96 dB	≤ -90 dB
	50 Hz to 100 kHz	≤ -86 dB	≤ -86 dB	≤ -80 dB

Input level range	0.05 V to 100 V [rms] 10 mV to 31.62 mV [rms] 1 mV to 3.162 mV [rms] (For dynamic range meas.)
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Accuracy	±2 % of FS: 1 kHz ±5 % of FS: 1 kHz (31.6 mV, 3.16 mV range) (1 kHz Fullscale input)
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Flatness	±5 % or less: 10.0 Hz to 110.0 kHz ±10 % or less: 10.0 Hz to 10.00 kHz (For 31.6 mV and 3.16 mV ranges)
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Audio Analyzer VP-7725D

Specifications

S/N測定 / S/N measurement

Measurement range 100.0 V to 0.316 2 mV fs

Measurement range 0 to 130 dB

Measurement range for each S level

S level (≤ 10 kHz)	Measurement range (RMS/AVG)		Measurement limit (Q-PEAK)	
	UNBAL	BAL	UNBAL	BAL
≥ 31.6 V (30 dBV)	> 130 dB	> 126 dB	> 124 dB	> 120 dB
≥ 3.16 V (10 dBV)	> 110 dB	> 106 dB	> 104 dB	> 100 dB
≥ 316 mV (−10 dBV)	> 90 dB	> 86 dB	> 84 dB	> 80 dB
≥ 31.6 mV (−30 dBV)	> 70 dB	> 66 dB	> 64 dB	> 60 dB
≥ 3.16 mV (−50 dBV)	> 50 dB	> 46 dB	> 44 dB	> 40 dB
≥ 0.316 mV (−70 dBV)	> 30 dB	> 26 dB	> 24 dB	> 20 dB

Accuracy ±1 dB

S level measurement time 1.0 to 30.0 s

レシオ測定 (A/B, B/A) / Ratio measurement (A/B, B/A)

Input level 100 V to 30 μV [rms] (For numerator and denominator)

Measurement range Max. −130 dB

Unit Denominator: (m) V, dBV, dBm

Ratio: dB, %

Accuracy ±1 dB

ワウフラッタ測定 (オプション) / Wow & Flutter measurement (Option)

Measurement channel 1 ch (Only A ch)

Center frequency 3 kHz ± 200 Hz

3.15 kHz ± 200 Hz

Full scale 3.162 %, 0.316 2 % (2 ranges)

Response IEC (DIN), JIS, NAB

Frequency response WTD: DIN 45 507

UNWTD: 0.5 to 300 Hz

Accuracy ±5 % of full scale

Input level range Same as distortion measurement

(Except 31.62 mV and 3.162 mV ranges)

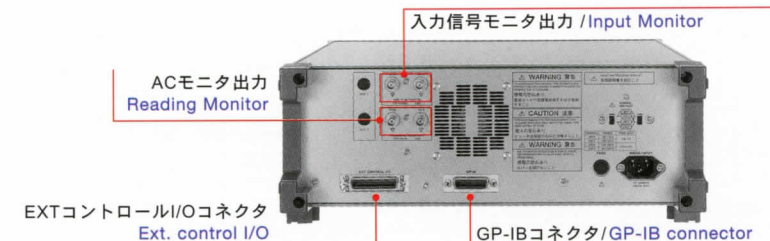
■測定機能部共通項目 / Common section

Input impedance	AC input: 100 kΩ, 270 pF or less
	DC input: 1 MΩ
Maximum input voltage	AC input: 150 V (DC + AC peak)
	DC input: 150 V
Filter	Pre-LPF: 20 kHz/OPT.
	HPF: 200 Hz/400 Hz
	LPF: 15 kHz/20 kHz/30 kHz/80 kHz/OPT. 01
	PSOPHO: A/AUDIO/CCIR468/CCIR-ARM/OPT.02 (LPF & PSOPHO Filter are composed by digital circuit)
Monitor output	Input monitor, reading monitor
Preset memory	100 points/10 groups/Auto sequence
Judgment	Under/Pass/Over
	Result is output from Ext. I/O
Interface	GP-IB: SH1, AH1, T7, L3, SR1, RL1, PP0, DC1, DT0, C0
	Memory data copy
	Synchronized memory recall
	EXT I/O Sequential memory recall
	Direct memory recall
	External control (8 bits x 2 ports)
	External data read (8 bits x 1 port)
	Remote control of rotary encoder Output of judgment result

■その他 / Others

Accessories	Instruction manual, Power cable, Fuse,
	GP-IB connector cap
Power requirement	Voltage: 100, 120, 220, 230 V
	Consumption: 170 VA or less
Dimensions, Mass	W 426 x H 149 x D 400 mm
	Approx. 18 kg

背面パネル / Rear Panel



安全に関するご注意

●ご使用の際は、「取扱説明書」よくお読みの上 正しくお使いください。

●お問い合わせは……

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