Specifications of VSA-B10

Specifications of Video Measurement System VSA see data sheet PD 757.0464

TV standards	B/G, D/K, I (see ordering information); one standard per unit; other standards on request

Inputs and outputs

RF input	rear panel, N connector
Frequency range	47 to 862 MHz
Level range	0.1 to 1000 mV (40 to 120 dBµV)[1]
Level range with 10-dB preamplifier	0.03 to 1 mV (30 to 60 dBµV)[1]
Impedance	50 Ω or 75 Ω (depending on model)
Return loss (attenuation ≥10 dB)	>14 dB (VSWR <1.5)
IF input	rear panel, BNC connector
Frequency (vision carrier)	38.9 MHz (for all standards)
Level range	20 to 200 mV (86 to 106 dBµV)[1]
Impedance	50 Ω
Return loss	>20 dB (VSWR <1.2)
IF output	rear panel, BNC connector
Frequency (vision carrier)	38.9 MHz
Level	100 mV, controlled (100 dBµV)[1]
Impedance	50 Ω
Return loss	>20 dB (VSWR <1.2)
Video output	rear panel, BNC connector
Level	1 V_{pp} CVS with video modulation to standard
Impedance	75 Ω
Return loss	>26 dB (VSWR <1.1)
Audio outputs	2 x BNC connector on rear panel, unbalanced
Level for ±30 kHz deviation and f_{mod} = 500 Hz	+ 6 dBm ±0.2 dB into 600 Ω
Impedance	<25 Ω
Signals	mono, right and left (stereo), mono 1 and mono 2 (dual sound)

RF/IF characteristics

Frequency resolution	1 Hz
Frequency accuracy	<±2x10^{-6} x receive frequency
Image-frequency rejection	
VHF	>70 dB
UHF	>50 dB
Adjacent-channel suppression	>48 dB

Video parameters

Synchronous demodulation	
Phase control	continuous or sampled (switch-selectable)
Time constants for	
continuous phase control	fast, normal, slow
sampled phase control	normal, slow
Switching carrier phase error	<1°, typ. <0.5°
Quadrature signal	for measuring the incidental carrier phase modulation (ICPM)
S/N ratio	
weighted to CCIR Rec. 567, V_{RF} = 3 mV (70 dBµV)[1]; attenuation 0 dB	>56 dB

Linear distortion

Amplitude response		
Standard B/G, 0 to 4.5 MHz	±0.5 dB	
D/K, 0 to 5.5 MHz	±0.5 dB	
I, 0 to 5 MHz	±0.5 dB	
Group-delay response	group-delay correction	
0 to 4.43 MHz	off	on
via IF input	<±10 ns	<±15 ns
via RF input	<±15 ns	<±20 ns
Additional ripple due to SAW filter	<±20 ns	
Group-delay correction	flat plus one standard-specific curve (see page 4)	
2T k factor	<1%	
15-kHz tilt	<1%	

Nonlinear distortion

Luminance nonlinearity	<3%
Differential gain	<3%
Differential phase	<2°
Intermodulation in low-distortion mode (vision carrier: –8/sound carrier:–10/SB: –16 dB)	<72 dB

Audio parameters

Stereo/dual-sound mode	A2 (IRT)
Frequency response, 40 Hz to 15 kHz	<0.5 dB
Deemphasis	50 µs and off
Distortion for ±50 kHz deviation	<0.5%[2]
Stereo crosstalk	>40 dB
Channel crosstalk with spurious FM	
±30 kHz	>80 dB
±55 kHz	>70 dB
Intercarrier S/N ratio (weighted to CCIR 468-3)	
All-black picture	>55 dB
FuBK test pattern	>48 dB
Sinewave modulation (10 to 75%)	
0 to 5 MHz	>46 dB
242 ±15 kHz	>42 dB
Split-carrier S/N ratio, measured at IF output (weighted to CCIR 468-3)	>56 dB

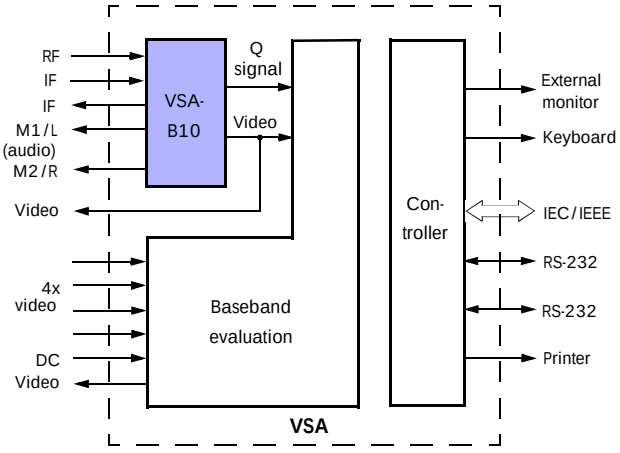
Test parameters

	Resolution	Deviation
Vision carrier power/level in dBµV, dBm, dBpW	0.1 dB	±3 dB
Vision carrier offset frequency	100 Hz	±2x10^{-6} x receive frequency
Residual carrier	0.1%	±1%
Vision/sound carrier level ratio	0.1 dB	±2 dB
Vision/sound carrier freq. spacing	0.1 kHz	±0.2 kHz[3]
FM deviation of sound carrier	0.1 kHz	±5x10^{-2}x $\Delta f_{carrier}$±500 Hz
Pilot deviation	10 Hz	±200 Hz
Pilot carrier frequency	1 Hz	±10 Hz
Incidental carrier phase modulation	0.1°	±1°

General data

Rated temperature range	+5 to +45 °C
Operating temperature range	0 to +50 °C
Storage temperature range	–40 to +70 °C
Power supply	100/120/220/230 V +10/–15%, 47 to 63 Hz
Weight	3 kg

Interfaces of VSA system



[1]) RMS values, referred to sync peak level.
[2]) At ambient temperatures >35 °C: <1%.
[3]) Without FM deviation.

Ordering information

TV Test Receiver Option

Standard B/G Europe, dual sound,			
IF 38.9 MHz + 33.4/33.158 MHz	50 Ω	VSA-B10	2014.0000.02
	75 Ω	VSA-B10	2014.0000.03
Standard B/G Europe, mono sound,			
IF 38.9 MHz + 33.4 MHz	50 Ω	VSA-B10	2014.0000.06
	75 Ω	VSA-B10	2014.0000.07
Standard B/G Australia, dual sound,			
IF 38.9 MHz + 33.4/33.158 MHz	50 Ω	VSA-B10	2014.0000.10
	75 Ω	VSA-B10	2014.0000.11
Standard D/K CCIR, dual sound,			
IF 38.9 MHz + 32.4/32.642 MHz	50 Ω	VSA-B10	2014.0000.40
	75 Ω	VSA-B10	2014.0000.41
Standard D/K CCIR, dual sound,			
IF 38.9 MHz + 32.4/32.158 MHz	50 Ω	VSA-B10	2014.0000.42
	75 Ω	VSA-B10	2014.0000.43
Standard I UK, mono sound,			
IF 38.9 MHz + 32.9 MHz	50 Ω	VSA-B10	2014.0000.70
	75 Ω	VSA-B10	2014.0000.71
Standard I SABC, mono sound,			
IF 38.9 MHz + 32.9 MHz	50 Ω	VSA-B10	2014.0000.72
	75 Ω	VSA-B10	2014.0000.73

Other standards on request.

Group-delay characteristics defined by TV standards

Standard	B/G CCIR	B/G Australia	B/G Sweden	D/K OIRT TK III-830	D/K CCIR Rep. 308	I BBC	I SABC TVT 12.2
Frequency [MHz]	Nominal value [ns]	Nominal value [ns]	Nominal value [ns]	Nominal value [ns]	Nominal value [ns]	Nominal value [ns]	Nominal value [ns]
0.1	0	0	0	0	0	0	0
0.25	–5		0		–5	0	0
1.0	–53	–30	0	–40	–53	0	0
2.0	–90	–60	0	–75	–87	0	0
3.0	–75	–40	0	–90	–85	0	0
3.5		0	0			0	0
3.6			0			0	0
3.75	0					0	0
4.0				–70	–50	0	0
4.43	170	170	175		0	0	40
4.8	400	260	400		90		100
5.0				0			
5.5				90			

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