

BVA170 and CWT150 Multipurpose Telephony Testers



- **BVA70 Voice Network Analyzer and CWT150 Transmission Impairment/CIDCW Tester**
- **Series delivers the right tools at the right price to make your telephony work quicker, easier, and better**
- **Perfect for installation, repair, and subscriber loop conformance testing**

DESCRIPTION

Cable and service qualification occupies a great amount of time and effort. Testing for and uncovering transmission impairments or network problems is a necessary task during the installation or activation of new systems, when qualifying existing pairs for new services or troubleshooting and maintaining existing systems.

BVA70 Voice Network Analyzer

The BVA70 bridges the gap between general-purpose multimeters and expensive transmission test equipment. The BVA70 is specifically designed as a multipurpose test set for installation and maintenance work in a telephone environment. The eight test functions are a collection of the basic, important tests needed on an everyday basis.

PERFORMANCE FEATURES OF THE BVA70 INCLUDE:

- **Line Measurements** — Probably the most unique feature of the BVA70 is its ability to make simultaneous measurements of line voltage, loop current, dB level and frequency. Not only does this greatly simplify the measurement process, but it also enables monitoring of the interaction of these parameters in everyday situations – a very important feature in telephony.
- **Ohms Mode** — Measure the resistance of “dry” (unpowered) phone loops and other passive circuits.
- **Loop Mode** — Measure the effective resistance of a phone loop while it is connected to CO battery power (“wet” loop).
- **Loss and Slope** — Determine loss and slope on a

phone line by measuring the Frequency of any tone and the True-RMS level of any signal.

- **Tone Generator** — Simple cable identification and mapping at the touch of a button. The BVA70 generates a 1004 Hz test tone with a 0.0-dBm level at 600 ohms.
- **Digit Monitor** — The BVA70 provides monitoring of both Dual Tone Multi-Frequency (DTMF) and Pulse digits dialed through a telephone system to assist technicians in verifying proper dial-up performance.

CWT150

Transmission Impairment/CIDCW Tester

Test for line voltage and current, noise, balance, loss and slope, as well as get comprehensive Caller ID with Call Waiting — all in one compact, lightweight, hand-held test set. The new CWT150 does the work of several more costly test sets. The ONLY test set to do Caller ID Call Waiting, the latest class feature being rolled out by the RBOCs.

Subscriber Loop conformance measurements include:

- **Line Measurements** — Simultaneously monitor the interaction of line voltage, loop current and ringer voltage.
- **Internal 430 Ohm Load** — Testing of loop current for conformance standards requires the use of a 430-ohm resistive load. The CWT150 conveniently places one at your fingertips.
- **Loss and Slope** — Determine loss & slope on a phone line by measuring the Frequency and dBm level of any tone

Noise and Balance

Measurements — The CWT150 is an ideal tool for uncovering noise and balance problems by simultaneously displaying metallic noise, noise to ground (power influence) and longitudinal balance.

Caller I.D. (CID) display and measurements on the CWT150 include:

Display:

- Name and number
- Event list progress indication
- Full or partial message
- Error messages
- Message/parameter type and length
- Displays up to 150 characters

Measurements:

- Ring time
- Silent time
- Alert-to-carrier time
- Mark and space dB
- Checksum

Caller I.D. (CIDCW) display and measurements on the CWT150 include:

Display:

- Multiple ACK tone characters
- Selectable ACK tone generator enables tests either with external CPE or “stand-alone”

Measurements:

- CAS tone dB
- ACK tone dB
- OSI time

Additional functions to support CIDCW measurements include:

- Line termination
- Line hold
- CPE disconnect during test

BVA70

DC Volts

Parameter	Min	Typ	Max	Unit
Range	± 1		±99.5	V dc
Resolution	.05			Volts
Accuracy	±1.0	% of full scale		

DC Milliammeter

Parameter	Min	Typ	Max	Unit
Range	± 1		±99.5	mA
Resolution	.05			mA
Accuracy	±1.0	% of full scale		

AC Volts

Parameter	Min	Typ	Max	Unit
Range	3		125	V ac
Resolution	1			Volts
Accuracy	±2.0	% of full scale		
Frequency Range	16		1 K	Hz
Conversion Method	True RMS			

Decibels

Parameter	Min	Typ	Max	Unit
Range	-44		+4	dBm
Resolution/ Accuracy (dBm)				
-20 to +04	0.5			dB
-30 to -20	1.0			dB
-34 to -30	2.0			dB
-38 to -34	4.0			dB
-44 to -38	6.0			dB
Frequency Range	30		8 K	Hz
Conversion Method	True RMS			
Reference Impedance		600		Ohms

SPECIFICATIONS

BVA70 and CWT150

Battery: 9 V Alkaline (Duracell MN-1604 or equivalent)

Environmental

Protection: IP54

Operating Temperature

5° to 122° F (-15° to +50° C)

Frequency

Parameter	Min	Typ	Max	Unit
Range	15		8K	Hz
Resolution/ Accuracy	16			Hz
Input Level	-25		125	dBm V ac

DC Ohms

Parameter	Min	Typ	Max	Unit
Range	0		25K	Ohms
Resolution	100			Ohms
Accuracy	±2.0	% of full scale		

Loop Ohms

Parameter	Min	Typ	Max	Unit
Range	100		5K	Ohms
Resolution	100			Ohms
Voltage Range (Bridging)	20		60	V dc
Current Range	10		90	mA

Tone Generator

Parameter	Min	Typ	Max	Unit
Frequency	1004			Hz
Accuracy	±0.15			%
Level	-0.5			dBm
Impedance	600			Ohms

Internal Load

Parameter	Min	Typ	Max	Unit
Impedance		600		Ohms
Max. Input Level			+4	dBm
Freq. Range	300		8K	Hz
dc Equivalent Resistance	50		300	Ohms

Storage Temperature

-4° to +158° F (-20° to +70° C)

Mechanical

Case Dimensions

4 x 7.5 x 1.4 in. (102 x 191 x 35 mm)

Case Material: ABS

Connectors: RJC-11

Test Lead: 36 in. (914 m) cable patch cord with crocodile clip

BVA70

Digit Display

Parameter	Min	Typ	Max	Unit
Capacity			32	Digits
DTMF Input				
Input Level	-26		+3	dBm
Twist	-8		+8	dB
Freq. Dev. Accept Limit		±1.5		%
Freq. Dev. Reject Limit		±3.5		%
Tone Duration Accept	40			ms
Interdigit Pause Accept	40			ms
Input Impedance			100	kW
Characters Displayed	0-9, *, #, A, B, C, D			
Pulse Dial Input				
High Threshold:				
Off-hook V	0		41	V dc
On-hook V	44	48	100	V dc
Low Threshold:				
Off-hook V	0		20	V dc
On-hook V	22	48	100	V dc
Pulse Rate	7	10	20	PPS
Interdigit Time	200			mS
Characters Displayed		0-9		

CWT150

Parameter	Min	Typ	Max	Tol	Unit
Line Measurement Mode					
Line Volts	0		100	±1	V dc
Loop Current	0		100	±1	mA, dc
Ringing Voltage			150	±3	V ac
Loss/Slope Measurement Mode					
dB Level	-34		0	±1	dBm
Frequency	300		3000	±2	Hz
Noise Measurement Mode					
Metallic Noise	10		40	±2	dBmC
Noise to Ground	60		94	±2	dBmC
Longitudinal Balance	54		84	±2	dB
Line Termination	600 Ohms + 2.2 µF				
On-hook Caller I.D. Test (CID)*					
Line Volts	0		100	±1	V dc
Ringing Voltage	0		150	±3	V ac
Ring Time	.15		8		sec
Silent Time	.5		8		sec
OSI Time	100		500		m sec
Alert/Carrier Time	.1		3.6		sec
Timing Resolution	100				m sec
Mark dB	-33		-4	±1.5	dBm
Space dB	-33		-4	±1.5	dBm
Message Characters			150		
Off-hook Caller I.D. Test (CIDCW)*					
Line Volts	0		100	±1	V dc
Loop Current	0		100	±1	mA dc
OSI Time	100		500		m sec
Alert/Carrier Time	100				m sec
Alert/Answer Time	1		20		sec
Timing Resolution	100				m sec
Mark dB	-33		-4	±1.5	dBm
Message Characters			150		
ACK Tone DTMF Character		"D"			
ACK Tone Send Level	-12		-6		dBm

*Per Telcordia GR-30-CORE, Issue 2, 12/98

APPLICATION PACKAGES

Installer/Repair Technician Test Package

Feature/Function	QualiFyr BVA70
Multimeter	
Line Voltage (dc)	•
Loop Current	•
Volts (ac)	•
Line Polarity	•
DC Ohmmeter	
Loop Resistance (unpowered loop)	•
Loop Resistance (powered loop)	•
Loss/Slope Measurements	
dBm Level (600 Ω Termination)	•
Frequency (15 to 8000 Hz)	•
Tone Output	
1004 Hz 600 Ω Termination	•
CPE/Butt-set Connection Port	•

Subscriber Loop Test Package

Feature/Function	QualiFyr CWT150
Multimeter	
Line Voltage (dc)	•
Loop Current	•
Ringer Volts	•
DC Ohmmeter	
Loop Resistance (unpowered loop)	•
Loss/Slope Measurements	
dBm Level (600 W Termination)	•
Frequency (300 to 3000 Hz)	•
POTS Noise Measurements	
C-Message Filter	•
Metallic Noise	•
Noise to Ground	•
Longitudinal Balance	•
Line Termination	600 Ω
CPE/Butt-set Connection Port	•

ORDERING INFORMATION

Item (Qty)	Cat. No.
BVA70 Voice Network Analyzer	BVA70
CWT50 Transmission Impairment/CIDCW Tester	CWT50
Included Accessories:	
Carry pouch	684009
Cable patch cord with crocodile clip, 3 ft (914 m)	620018
Ground cable for CWT50	620019
User guide	
BVA70	710006
CWT50	710007

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