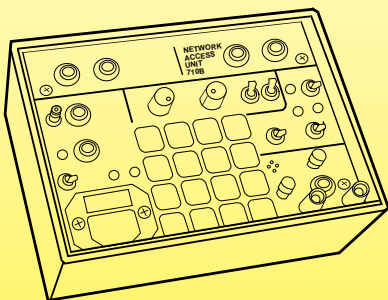


CXR Halcyon's 704A-400 Series are hand-held transmission and signalling wideband test sets optimized for installation and maintenance of analog voice and data services including Class Services and circuits utilizing DID Signaling (E911).

When equipped with 400 kHz Option, it is ideally suited for ADSL, HDSL, ISDN and DDS Facility Testing. Designed with state-of-the-art technology and engineered for ease of operation, the 704A-400 Series provides users with single-button test execution allowing quick circuit diagnosis and repair without extensive training. The internal NiCAD battery pack provides up to 4-hours of continuous operation. The alternate 704A-456 package is expandable to add DDS BRI/ISDN and DS1/T1/FT1 test functions. **The hand-held 704A-400 Series is the complete test solution for installation and maintenance of analog voice and data circuits.**

Features

- Rugged, Lightweight & Hand-Held
- RJ 11 Modular Jack
- Dual Mini-Phone Jacks (Bantam)
- 2-Wire and 4-Wire Interface
- 135, 600, 900, 1200 Ohm and Bridged
- Measure Line Voltages and Polarity
- Monitoring RINGING Voltage
- Generate and Measure:
 - Frequency and Level
 - 3-Tone Slope & 2713Hz Lpbk
 - Peak to Average Ratio (PAR)
- Noise Measurements:
 - Filtered and Notched
 - Signal to Noise
 - Impulse Noise
- Power Influence:
 - Stress Noise
 - Noise to Ground
- Filter Selections:
 - C-Message, 3 KHz Flat
 - Program-Weighted
 - 15 KHz and 50 KHz



Network Access Unit (710B)



- Return Loss Measurements:
 - Echo Return Loss (ERL)
 - Singing Return Loss (SRL-LO)
 - Singing Return Loss (SRL-HI)

Enhanced Capabilities

- Wideband operation, 400KHz for ISDN, HDSL, DDS & ADSL Facility Testing
- DID Emulation Mode (PBX & CO):
 - Station or PBX Mode
 - Office or CO Mode
 - MF Generation & Analysis
 - DTMF Generation & Analysis
 - Dial-Pulse Generation & Analysis
- Enhanced DTMF:
 - Low-Tone Level & Frequency
 - High-Tone Level & Frequency
 - Digit Duration, Intervals & Twist
- 48V Battery Supply (DID-PBX Mode)
- Class Service (On-Hook):
 - Caller Number & Name
 - Event Timing & Data Storage
 - Level & Noise Parameters
- Class Services, Call Waiting:
 - SAS & CAS Monitor
 - CPE Acknowledgement
 - Event Timing & Data Storage
 - FSK Level

Wideband TMS/Signalling Test Set Technical Data

Specifications

General

Physical: 9.5"L x 6.33"W x 1.4"H, 2.2 pounds.
Operating Environment: 0 to 50 ° C, 0 to 95% R.H. (Non-Condensing).
Power: 5W at 115VAC, 60 Hz nom. from 9VDC external power supply.
Battery: 4 hours continuous operation from internal 7.2 VDC NiCad Pack. Charge time: 14 hours.
2W/4W Interface: RJ 11C or Dual Bantam (210) jacks.
Impedance: 135/600/900, 1200 Ohms Terminated, >30K 2W-Bridged.
Longitudinal Balance: >60dB from 200 to 4 KHz.
Audio: Internal speaker with volume control.
Display: 4-line by 20-character LCD and status LEDs.
Line Hold: Electronic Internal current limited to 24mA when Off Hook.
Dial Mode: 16 character DTMF generator.
12 character MF generator, 10 digit dial pulse gen.

Generator

Frequency: 50 Hz to 25 KHz in 1 Hz steps
(Optional) 50 Hz to 400 KHz in 1 Hz steps
Accuracy: ± 0.5 Hz
Level: +7 to -40 dBm in 0.1 dB steps
Accuracy: ± 0.2 dB 50 Hz - 200 Hz
 ± 0.1 dB 200 Hz - 15 KHz
 ± 0.2 dB 15 KHz - 400 KHz
3-Tone Slope: 404, 1004, 2804 ± 5 Hz. Level adjustable in 4 steps of 0, -10, -13, and -16 dBm ± 0.2 dB.
2713Hz Loopback: Generated at ± 0.5 Hz. Level adjustable as in 3 tone slope.
P/AR: Continuous ANSI 743-1984 P/AR signal at -6dBm.
Return Loss: Continuous filtered noise signal at -6 ± 1 dBm for ERL, SRL-L and SRL-H.
DTMF Generator: -7 ± 0.2 dBm, 1.5dB twist, frequency accurate to ± 5 Hz. 75 mS on 75 mS off.

Receiver

Level: +7 dBm to -70dBm, 0.1 dBm resolution; 135/600/900 ohm 4-Wire mode:
0 dB to -60 dBm; 0.1 dBm res.
Accuracy: 1200 ohm - 2-Wire mode
 ± 0.2 dB - 50 Hz to 200 Hz
 ± 0.1 dB 200 Hz to 15 KHz
 ± 0.2 dB 15 KHz to 400 KHz (Opt.)
Frequency: 50 Hz to 25 KHz with 1 Hz res. (Optional 50 Hz to 400 KHz)
Accuracy: ± 0.1 dB 50 Hz to 200 Hz
 ± 0.1 dB 200 Hz to 15 KHz
 ± 0.2 dB 15 KHz to 400 KHz (Opt.)
Noise: 15 to 95 dBm with 1 dB resolution and ± 1 dB accuracy from 20 to 90 dBm.
Notched Noise: 1010Hz notch, with a minimum of 50 dB attenuation in the band of 995 to 1025 Hz.
Signal to Noise Ratio: Holding tone (1004Hz) must be in range of +6 to -45 dB; measured S/N ratio range from 10 to 55 dB with 1 dB resolution and ± 2 dB accuracy.
3-Level Impulse Noise: Threshold can be set from 30 to 90dBm; 3 level difference fixed at 4 dB with a measurement accuracy of +1 dB. Blanking interval fixed at 125mSec; with 3 independent counters.
P/AR: Measured from 30 to 180 units with a 1 unit resolution. Accuracy is ± 2 units from 40 to 120. Received P/AR signal must be greater than -45 dBm.
Return Loss: Three bands: ERL, SRL LO, SRL HI range of 0 to -30dB with .1 dB resolution and ± 1 dB accuracy.
Line Voltage Measurement: 2 to 85VDC; 0.1 Volt resolution and ± 1 Volt accuracy.
Line Current Measurement: 5 to 35mA; 0.1 mA resolution and ± 1 mA accuracy.

Direct Inward Dialing (Optional)

CO Emulation Mode:

Supervision: Wink start or Immediate start; Dialing delay: 2 ± 0.01 seconds.
Signaling Modes: DTMF: 12 character (0-9,*,#) at -7dBm 75mS on/off;
MF: 12 character (0-9,Kp,St) at -7dBm 65mS on/off (except for Kp, which is on for 120mS); Dial pulse: 12 character (0-9, *,=11,#=12) at 10PPS - 60% break
Prewink, Wink duration, Answer Delay: Up to 999mS max. with 1 mS resolution ± 1 mS accuracy.
Loop Current Detector: Loop current must be > 20mA to detect a valid off hook.
DTMF Generation: XMT level of -7 ± 0.2 dBm, with 1.5dB twist; freq. accurate to ± 0.5 Hz; 75mS on, 75mS off.

MF Generation: XMT level of -7 ± 0.2 dBm, with 0.5dB twist; freq. accurate to ± 0.5 Hz; 65mS on, 65mS off.
Dial Pulse Generation: Sent at 10 Pulses per Second, 60% break, interdigit time of 250mS.

Supervision: Wink start or Immediate start; pre-wink time set at 1.0 second; In immediate dial mode the receiver is enabled <100mS after seeing a CO off-hook.
Wink Duration: 250 ± 2 mS.
Measurements: Post wink time: up to 9999 mS max with 1 mS resolution and ± 1 mS accuracy
Battery Feed: -48V nominal, 400 ohm DC feed limited to 24mA. Reverse battery has <10mS transition time.
Maximum Loop Resistance: 3600 ohms including loop cable and terminal equipment.
MF Receiver: Receives all 15 valid MF tone pairs at levels down to -30dB. Minimum tone duration is 30mS; maximum twist is ± 6 dB. Noise floor must be at least 20 dB below the MF tone level.
DTMF Receiver: 16 digit receiver (1 -9,0,A,B,C,D,*,#) as specified.
Dial Pulse Receiver: 12 digit receiver (1 -9,0,*,#) from 3 to 29 pulses per second, 10 to 90% break. Loop current must exceed 20 mA for a valid make interval.

DTMF Analysis (Optional)

Frequency Measurements: High & low group frequency accurate to ± 3 Hz with 1 Hz resolution.
Level Measurements: High & low tone group range: +1.5 to -28dBm; 0.1dB resolution and ± 0.5 dB accuracy.
Timing Measurements: 1 mS to 65.5 Seconds with 1 mS resolution and ± 1 mS accuracy.
Tone Acceptance: Maximum twist ± 10 dB; minimum tone duration: 35 milliseconds; Dial tone tolerance: 18dB max.

Caller ID Analysis (Optional)

Receiver Sensitivity: Carrier must be received at -45dBm minimum.
FSK Data Detection: Continuous phase coherent, frequency shift keying (1200/2200Hz ± 1 %) at 1200 bps.
Timing Measurements: 1 mS to 60 Seconds with 1 mS resolution and ± 1 mS accuracy.
Ring Voltage Measurement: 40 to 140 VAC with 1 V resolution and ± 2 V accuracy.
Bantam (210) Test Jack: 2-Wire Circuits are accessed via the "2W" Bantam Jack. The "XMT" and "RCV" jacks provides access to the 4-Wire XMT and RCV pairs.
RJ 11 modular jack: 2-wire circuits are accessed via the inner pair 4-wire circuits utilize the inner pair (XMT) and the outer pair (RCV).
Volume Control: Speaker volume is controlled via this slide switch.
Power and ON/OFF: The internal NiCAD battery pack is automatically utilized when the external supply is not connected. Automatic shut-off occurs after 20 minutes of inactivity.

Options

704A-400 Options

400 KHz Frequency Range for ADSL, HDSL & ISDN Facility Testing (Opt. B)
Signalling & Network Access with DID (Opt. A)
PBX/CO Emulation and DTMF/MF/DP Analysis
Caller ID Analysis (Opt. A1)

704A-456 Options

Full Function 4-Wire/DS0 DDS
BRI ISDN
T1/FT1 BERT

Ordering Information

704A-400 Basic hand-held transmission set with 25 KHz range
704A-410 Basic hand-held transmission set with 400 KHz range
704A-430 Basic hand-held transmission set with 400 KHz range and Network Access/Signalling Test Functions with loop start, ground start, and DID test interfaces
704A-460 Basic hand-held transmission set with 400 KHz range and Network Access/Signaling Test Functions with loop start, ground start, and DID test interfaces. Also includes Class Services/Caller & Name ID Analysis.

For Wideband TMS, Signalling and DDS, ISDN & DS1/T1 test functions, order the 704A-456 configuration.



Products mentioned herein are trademarks or registered trademarks of their respective companies. Manufactured in the U.S.A. Specifications subject to change without notice.