



SLC[®]Series 5 Carrier System

AUA54() 4-Wire E&M Special Services Channel Unit — 5SCU7B0 (AUA54) 5SC27D0 (AUA54B)

Features/Functions

- E&M and pulse link repeater (PLR) signaling
- FX DID four-wire PBX tie trunk applications
- Faceplate test access to tip and ring pairs (AUA54B)
- BUSY LED on faceplate (AUA54B)
- Enhanced inventory readout (AUA54B)
- Conforms to appropriate industry standards.

Description

This data sheet describes the AUA54() 4-wire E&M channel unit (CU) (COMCODE 103840732, AUA54; 107391740, AUA54B) which is intended for use in private branch exchange (PBX) tie trunks and other special service circuits requiring an E&M signaling interface. The CU is used in a SLC[®]Series 5 Carrier System in a central office terminal (COT), remote terminal (RT), or multi-services distant terminal (MSDT). The CU can also be used in an MSDT homed on a SLC-2000 Access System RT. The AUA54() can interface with other transmission equipment, a PBX, or a tie trunk equipped CO-Centrex. The channel unit must be co-located with the terminating equipment because its interface circuits are not protected against the outside plant environment. The AUA54() can be connected to a distant D-bank via an integrated network access facility (INA-facility) arrangement.

The AUA54() CU includes capability for enhanced plug-in inventory. The unit stores in its nonvolatile memory an inventory record that includes its 10-character *CLEI** code, readable by a compatible host.

Figure 1 is the functional block diagram of an AUA54() CU, and Figure 2 shows the faceplates.

Functions

The AUA54() CU provides one channel of service, which can function in one of two modes, 4E&M or pulse link repeater (PLR). Each of these modes can be configured with single leads connecting to the signaling circuits of the interfacing equipment (Type I) or with pairs of leads looped to avoid using a noisy building structure for the return path (Type II).

4E&M: The 4E&M function provides an E&M signaling interface. The unit converts the DC signal on the M lead from the PBX into a signal carried by the digital network. A similar signal from the digital facility is converted into the DC signal sent to the equipment over the E lead. See Figures 5-11 and 5-16 of TR-NWT-000057 Issue 2 for E&M Type I and Type II signaling lead connections.

PLR: The PLR function provides the E&M interface with inverted signaling polarity. The unit converts the DC signal on the E lead from the equipment into a signal carried by the digital facility. Similar signals from the digital facility are converted into the DC signal sent to the connecting equipment over the M lead. See Figures 5-19 and 5-20 of TR-NWT-000057 Issue 2 for Type I and Type II signaling connections in the PLR mode.

Applications

The dominant application of an AUA54() CU is a PBX tie trunk. In tie trunk applications, the AUA54() CU is likely to be located close to the PBX, but the unit might also be located in the COT interfacing a D-bank 4E&M or PLR channel unit. An AUA54() CU in the COT, back-to-back with a D4 CU, can also be part of a foreign exchange direct-inward-dialing PBX-CO trunk circuit. Further information can be found in AT&T 915-710-116 *SLC Series 5 Carrier System Channel Unit Application and Prescription Setting*.

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Transmission Treatment and Signaling

Since wiring that connects the AUA54() CU is strictly intrabuilding, transmission treatment is limited to attenuation control. See Table 3. Transmission is enabled whether the circuit is idle or busy. The signaling range for Type I is 250 ohms and for Type II is 500 ohms. These ranges translate to 3 kft of 26 gauge cable. In all cases, the signaling range may be limited by the connecting equipment.

Facility Failure

When the system controller notifies the channel unit that a facility failure has occurred, the AUA54() CU carries out the following actions:

- Adopts an idle condition for 2.5 seconds
- After 2.5 seconds and for the duration of the failure, conditions the signaling leads for busy, sends idle signaling to the far end, disables transmission in the receive direction, and disables the test relay.

Options

The AUA54() CU has options (Tables 1, 2, and 3) that must be set before service can be provided. All options for the CU are set by entering commands into the Series 5 craft interface unit (CIU) or special channel interface administration tool (SCAT), or *SLC-2000* System craft interface terminal (CIT) (when the CU is used in an MSDT), which then transmits the settings to the system controller where they are stored in nonvolatile memory. The controller then writes the settings into memory registers on the CU immediately or when a CU is later installed or replaced. The procedures for setting options are described in AT&T 363-205-402 *SLC Series 5 Carrier System Channel Unit Installation and Testing* (CIU) and in AT&T 363-208-001 (CIT). The CIU is also used during manual testing of the AUA54() CU. The CIU is described in AT&T 363-205-101, *SLC Series 5 Carrier System Craft Interface Unit*.

**NOTE:**

The 6- character *CLEI* code for the AUA54, 5SCU7B, must be used when provisioning the AUA54B CU in *SLC* Series 5 carrier systems.

Table 1. AUA54() Channel Unit Options

Option	CU Function	
	4E&M	PLR
Function Code	X	X
Transmit Attenuator	X	X
Receive Attenuator	X	X

Table 2. AUA54() Channel Unit Function Codes

Function Code	CU Function	Signaling Mode
EM4C	4E&M	E&M signaling Type I
EM4H	4E&M	E&M signaling Type II (looped)
PLR1	PLR	PLR signaling Type I*
PLR2	PLR	PLR signaling Type II* (looped)

* PLR signaling (the complement of E&M signaling) permits the back-to-back connection of two carriers with E&M signaling.

Table 3. AUA54() Channel Unit Option Ranges

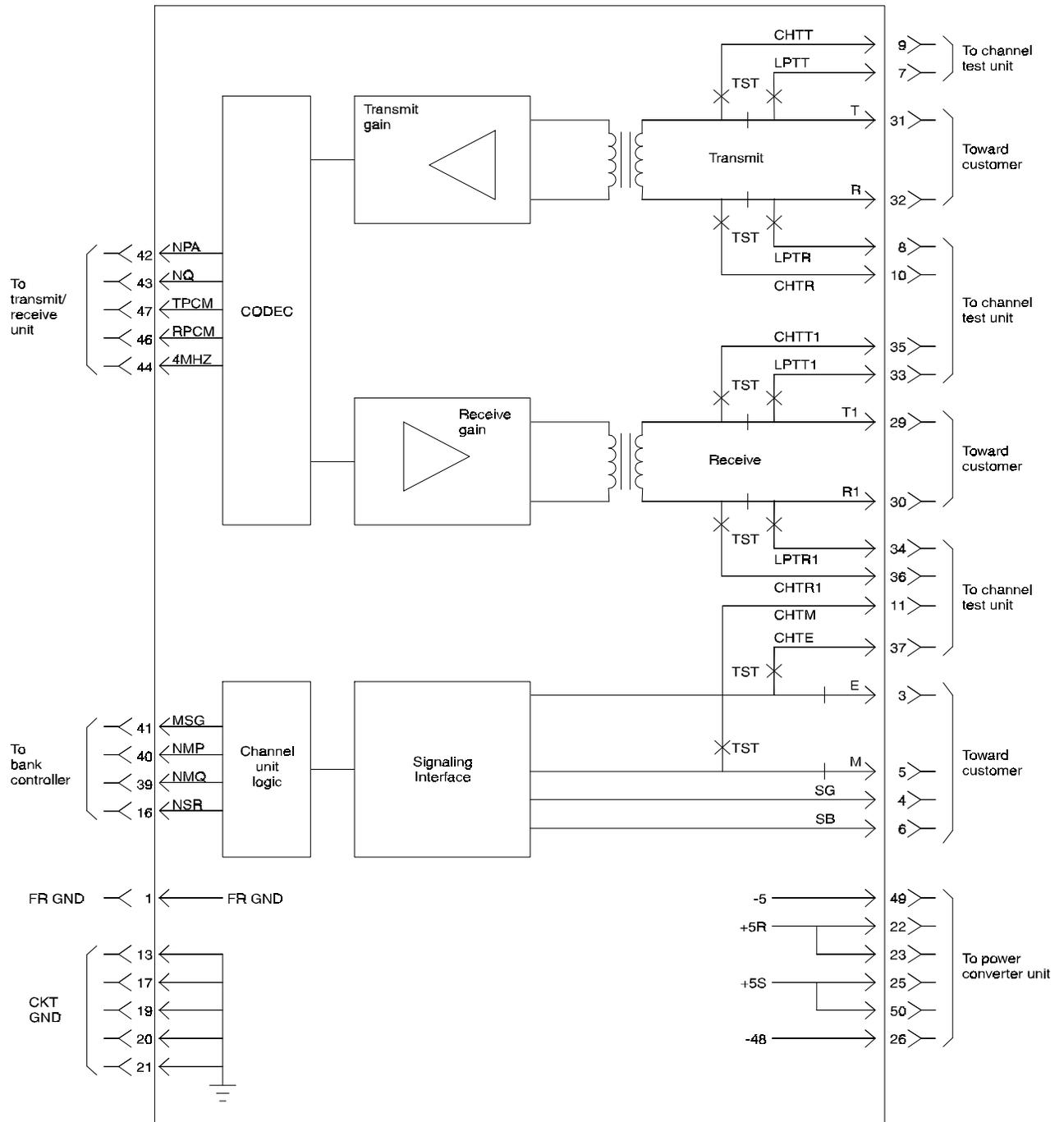
Option	Attenuation Range, dB TLP Range, dB
Transmit Attenuator	0 to 25.5 in steps of 0.1 -17.5 to +8.0 (T/R)
Receive Attenuator	0 to 25.5 in steps of 0.1 +8.5 to -17.0 (T1, R1)

⇒ NOTE:
The transmit and receive impedances of the unit are fixed at 600 ohms.

Remote Test Access

Local or remote test access to the AUA54() CU is available when the unit's test relay is operated. This access includes bidirectional splitting access to the transmission leads and splitting access toward the digital facility on the E and M signaling leads. See Figure 1.

Figure 1. AUA54() Channel Unit Functional /Block Diagram



Compatibility

The AUA54() CU is end-to-end compatible with various channel units for PBX tie trunk applications. The AUA54() can also be used in the local CO back-to-back with a D-bank 4E&M or PLR channel unit in applications where signaling is two-state, such as a direct-inward-dialing PBX trunk from a foreign CO.

Table 4 lists channel units that are currently compatible end-to-end with the AUA54() CU. Further compatibility and application information can be found in AT&T 915-710-116, *SLC Series 5 Carrier System Channel Unit Application and Prescription Setting*, Section 7.02 and Figure 32, and AT&T 363-205-010 *SLC Series 5 Carrier System Application and Planning Guide*, Section 6. The 915-710-116 practice in several places refers to compatibility of channel units located beyond a digital connectivity unit (DCU). The *SLC-2000 System* does not support DCUs, but the document can nevertheless be applied to *SLC-2000 System* applications if references to DCU-equipped terminals in the text are replaced by digital switch, , digital cross-connect equipment, or an INA facility used to connect a *SLC-2000 RT* to a D4-type terminal.

Table 4. End-to-End Compatibility of AUA54() Channel Units

Tie Trunks, AUA54() in RT/MSDT		DID and Tie Trunks, AUA54() in COT	
COT CU	Function Codes	RT/MSDT CU	Function Code
AUA54()	EM4(C/H), PLR(1/2)	AUA42()	DPT
AUA41()	DX4(N/R)	AUA56()	—
AUA44()	TD(O/S, C/D)	SPQ®442	DPT
SPQ454	EM4(C/H), PLR(1/2)	AUA41()	DX4(N/R)
SPQ444	TD(O/S, C/D)		
D-Bank CU			
	PLR		
	2DX/GT		
	2E&M		
	2E&M6		
	4DX		
	4E&M		
	4E&MER		
	4TDM		

Specifications

The AUA54() CU conforms to the appropriate criteria of Bellcore, FCC, GTE, and *UL** standards.

For a list of transmission specifications of the AUA54(), consult AT&T 363-205-010, *SLC Series 5 Carrier System Applications and Planning Guide*.

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Faceplate Features

The AUA54() channel unit faceplates are shown in Figure 2. The AUA54B faceplate has one faceplate jack and one red BUSY LED indicator.

The faceplate test jack provides bridging test access to both tip/ring pairs (T/R, T1/R1) through the ITT RTG16L2H15A channel unit faceplate test cord (COMCODE 405755208). Tip and ring leads provide VF input to the CU; tip1 and ring1 leads connect to the CU output.

BUSY (Red LED): The BUSY LED will light: a) upon power up in any terminal when service is activated; b) whenever a busy condition exists on the signaling leads; c) in response to an LED TEST command at an MSDT.

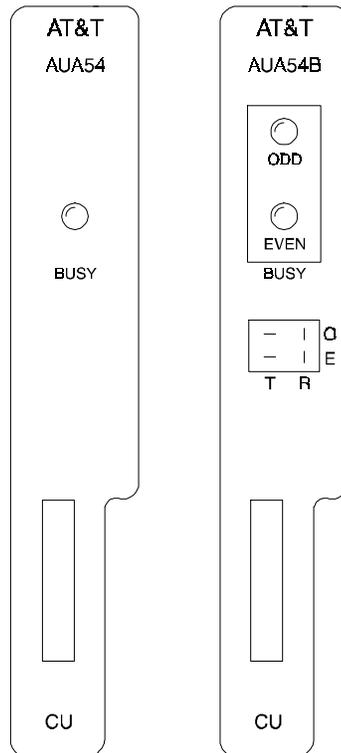


Figure 2. AUA54() Faceplates

References

The following documents provide additional information about the SLC Series 5 Carrier System and the SLC -2000 Multi-Services Distant Terminal:

- AT&T 363-205-004 *SLC-2000 Multi-Services Distant Terminal Feature—
User/Service and Ordering Manual*
- AT&T 363-205-010 *SLC Series 5 Carrier System Applications and Planning
Guide*
- AT&T 363-205-101 *SLC Series 5 Carrier System Applications Craft Interface
Unit Description*
- AT&T 363-205-110 *SLC Series 5 - Cable Measurement Method for
Determining Provisioning Settings for Special Services
Channel Units*
- AT&T 363-205-402 *SLC Series 5 Carrier System, Channel Unit Installation*
- AT&T 363-208-000 *SLC-2000 Access System Applications, Planning, and
Ordering Guide*
- AT&T 363-208-001 *SLC-2000 Access System User/Service Manual*
- AT&T 915-710-115 *SLC Series 5 Carrier System Application Engineering*
- AT&T 915-710-116 *SLC Series 5 Carrier System Channel Unit Application and
Prescription Setting.*

Bellcore's technical reference for digital loop carrier systems, TR-NWT-000057, Issue 2, January 1993, is one of several telephone company sponsored documents that offer criteria by which to judge such systems.

Technical Assistance

Follow local procedures for obtaining technical assistance. AT&T also provides in-hours or emergency out-of-hours help for the SLC Series 5 Carrier System and the SLC-2000 Access System. Call the AT&T Regional Technical Assistance Center at **1-800-225-RTAC**.

Ordering Information

Additional copies of this document (AT&T 363-005-113) are available from the Customer Information Center — call 1-800-432-6600.

Comments

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