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## **SLC<sup>®</sup> Series 5 Carrier System**

### **AUA43() 2-Wire Special Services E SPOTS<sup>®</sup> Channel Unit — 5SCU6A6 (AUA43), 5SCU6F0 (AUA43B)**

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#### **Features/Functions**

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- Two-wire special services
  - Loop or ground start, local or FX
  - Loop reverse battery\* (DPO), local or FX
  - Private line, voice or data (TO)
- Provisionable transmission treatment
- Reverse battery capability for LSAS applications
- On-hook transmission (OHT), full-time or Caller ID only
- Supports CLASS† services
- Fast forward disconnect
- Faceplate test access to tip and ring (AUA43B only)
- Faceplate BUSY LEDs
- Enhanced inventory read-out (AUA43B only)
- Conforms to appropriate industry standards

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\* Except when facing a DID switch with battery and ground pulsing: AUA43, local and foreign CO; AUA43B, foreign CO.

† Service mark of Bell Communications Research, Inc.

## Description

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This data sheet describes the AUA43( ) 2-wire special services E *SPOTS*<sup>®</sup> channel unit (CU) (COMCODE 105478713, AUA43; 106932197, AUA43B) and is intended for the end-user of the unit. The AUA43( ) CU is a current feed (CF) unit and is primarily intended for use in 2-wire nonlocally switched ground- and loop-start special services, 2-wire nonswitched private lines, and direct inward dial (DID) trunks. The unit may also be used in locally switched services.

This data sheet is reissued to include information about the AUA43B and its applications.

The AUA43( ) CU may interface with a switching machine, other transmission equipment, or cable. The connecting wire or cable must conform to the carrier serving area (CSA) design rules (see AT&T 363-205-010).

The AUA43( ) CU provides two channels of service. Each channel can be used independently of the other to provide any of three functions.

- a. Foreign exchange - station end (FXS) — The FXS function is used for a loop- or ground-start application, nonlocally or locally switched. Typical nonlocally switched applications are foreign exchange trunks and lines and off-premises PBX station lines. For the FXS function, the AUA43( ) CU may be used in either the remote terminal (RT) or central office terminal (COT) depending on the application.
- b. Dial pulse originating (DPO) — The DPO function is used for a DID application only, with either dial pulse or multifrequency signaling. For this function, the AUA43( ) CU is located in the COT.
- c. Transmission only (TO) — The TO function is used for a private line application, with no DC signaling. For this function, the AUA43( ) CU may be located in either the RT or COT. The unit provides sealing current to break down a high resistance film which may build up at unsoldered hand-twisted splices.

The AUA43( ) CU has transmission and signaling options that must be set before service can be provided. The unit does not have physical switches. Instead, option information is written into memory registers located on the CU. For this purpose, the Series 5 craft interface unit (CIU - J99404TA), the special channel administration tool (SCAT, Comcode 107040347), or the SLC<sup>®</sup>-2000 craft interface terminal (CIT), and bank control unit (BCU) are used. All transmission and signaling options and the function type (FXS, DPO, or TO) for either channel on the unit are set by entering commands into the CIU/SCAT/CIT which then transmits the information to the BCU where the information is stored in nonvolatile system memory. The BCU then writes the options into the CU registers when the CU is installed. If the CU is already installed, the BCU writes the option information into the CU registers immediately after it receives the information from the CIU/SCAT/CIT. Unplugging the CU does not erase the option information stored in system memory; reinserting the CU causes the options to be rewritten immediately into the CU registers by the BCU.

The CIU is also used during manual testing of the transmission performance of either channel on the AUA43( ) CU. The procedures for setting options and performing tests with the CIU are described in AT&T 363-205-402. The CIU is described in AT&T 363-205-101.

The AUA43B includes enhanced capability for plug-in inventory, a capability supported by the *SLC-2000* Access System. The AUA43B stores in its non-volatile memory an inventory record that includes its 10-character CLEI code. The faceplate of the AUA43B has jacks to provide access to tip and ring. Table 1 lists the transmission and signaling options, and the associated ranges for the AUA43( ) CU. The guidelines for selecting option settings for the AUA43( ) CU are provided in AT&T 915-710-116 that also describes the various applications for the unit.

**Table 1. Range of Settings for the AUA43( ) Channel Unit Options**

<b>Option</b>	<b>Range</b>
Output impedance (Hybrid impedance, structural impedance)	900 ohms or 600 ohms
Hybrid balance	0 to 15 in steps of 1
Transmit gain	-1.0 dB to 6.75 dB in steps of 0.25 dB
Receive gain	-8.0 dB to 1.5 dB in steps of 0.25 dB
Equalizer slope	0 to 7 in steps of 1
On-hook transmission	Yes or No

Table 2 lists the allowable options for the FXS, DPO, and TO functions.

**Table 2. Options for Each AUA43( ) Channel Unit Function**

<u>Option</u>	<u>Channel Unit Function</u>		
	<u>FXS</u>	<u>DPO</u>	<u>TO</u>
Output impedance *	✓	✓	✓
Hybrid balance	✓	✓	✓
Transmit gain	✓	✓	✓
Receive gain	✓	✓	✓
Equalizer slope †	✓	✓	✓
On-hook transmission ‡	✓		

\* When the channel unit faces outside plant cable, the output impedance should be set to 600 ohms.

† The 1-kHz gain of the channel unit is independent of the equalizer setting.

‡ This OHT provides full-time transmission while the CPE is on-hook. For ground-start services using the AUA43, the on-hook transmission option must be set to NO (which does not disable Calling Party ID, CPI).

The AUA43( ) automatically provides the following three features:

- a. Forward disconnect (responds to open battery intervals of > 50 msec.)
- b. Reverse battery capability [makes the unit compatible with line side answer supervision, LSAS]
- c. On-hook transmission during the silent interval of ringing [makes the unit compatible with calling party identification (CPI)].

Figure 1 is a block diagram of the AUA43. The AUA43B has the same edge connector functions.

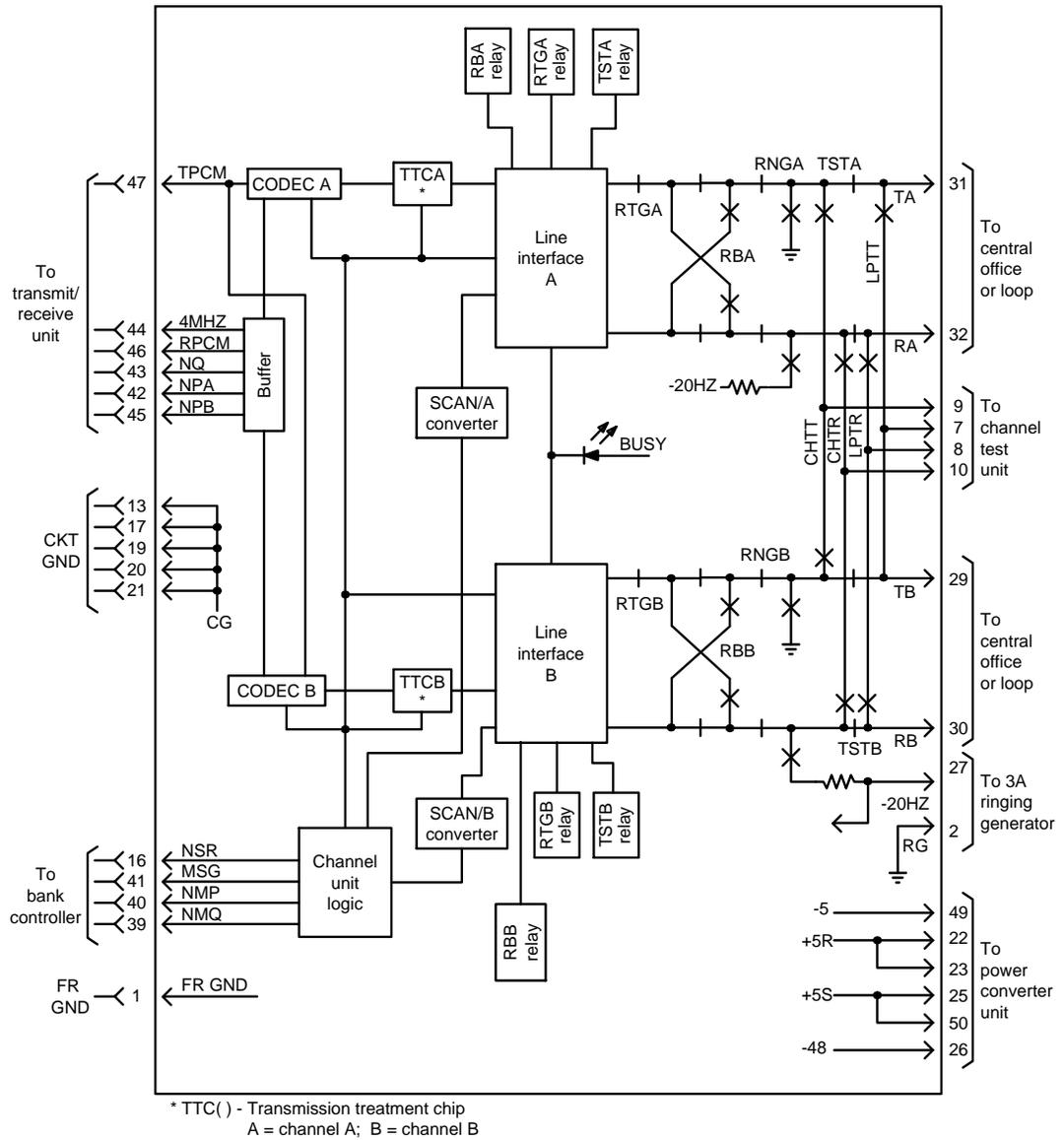


Figure 1. AUA43 Block Diagram

## **Compatibility**

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LSAS is the principal reason why the AUA43( ) CU may have applications in locally switched services.

The AUA43( ) CU is end-to-end compatible with the following CUs providing the noted services:

- AUA42( ), AUA142, AUA44 for loop start/ground start.
- AUA42( ), AUA56 for loop reverse battery.
- AUA41( ), AUA42( ), AUA142, AUA43( ), for private line.

There are several restrictions in the application of these units:

- AUA43 is not compatible in the DPO mode with a switch that uses battery and ground pulsing (for example, 1AESS®).
- AUA43B is not compatible in the DPO mode with a step-by-step switch. When used with a common control switch for DID service, the switch must comply with LSSGR, and the low resistance option of the switch trunk circuit should be selected for minimum dial-pulse distortion.
- The AUA43B may not be compatible with Klaxon-type ringers.

For the FXS and DPO functions, the unit permanently selects the 2.5-second delayed busy option on trunk processing (for example, 2.5 seconds after receipt of a carrier line failure indication from the *SLC* Series 5 Carrier System, the CU will busy out the service).

The AUA43( ) channel can be used in a Series 5 system equipped for Enhanced FPB, Feature Packages C, D, 303 or INA-RT, or in the *SLC*-2000 Access System, Release 2.0 or later.

Further compatibility and application information can be found in AT&T 915-710-116.

## Specifications

**Table 3. Salient Parameters for the 2-Wire E-SPOTS® AUA43() Channel Unit**  
(Off-hook unless specified)

Parameter	Condition	Value																
Equalization		Equalized CSA cable rolloff at 0.4 k Hz varies from 0.0 dB to 1.1 dB; at 2.8 kHz, rolloff varies from 0.3 dB to 1.75 dB																
ERL/SRL (2-wire return loss with 4-wire path broken)	With reference to structural impedance	28/20 dB																
Balance capability, CSA loops	At digital line interface of channel unit facing loop, with zero transmit and receive gain.	ERL ≥ 14 SRL ≥ 9																
Idle channel noise	AUA42/AUA43 pair AUA42B/AUA43B pair	23 dBrc0 20 dBrc0																
Impulse noise	AUA43( ): Measured at 65 dBrc0 with holding tone at -13 dBmO AUA43B: Measured at 47 dBrc0 with no holding tone, on-hook & off-hook	≤15 counts in 15 minutes ≤15 counts in 15 minutes																
On-hook loss, 1004 Hz, (Nominal)	"OHT=YES;" Terminated with Structural Impedance; Slope=0  IMP=600 ohms IMP=900 ohms	<table border="1"> <thead> <tr> <th colspan="2">AUA43</th> <th colspan="2">AUA43B</th> </tr> <tr> <th>Rcv (to T/R)</th> <th>Xmt (from T/R)</th> <th>Rcv (to T/R)</th> <th>Xmt (from T/R)</th> </tr> </thead> <tbody> <tr> <td>9dB</td> <td>2.5dB</td> <td>2.5dB</td> <td>2.5dB</td> </tr> <tr> <td>9dB</td> <td>4.5dB</td> <td>2.5dB</td> <td>2.5dB</td> </tr> </tbody> </table>	AUA43		AUA43B		Rcv (to T/R)	Xmt (from T/R)	Rcv (to T/R)	Xmt (from T/R)	9dB	2.5dB	2.5dB	2.5dB	9dB	4.5dB	2.5dB	2.5dB
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## Faceplate Features

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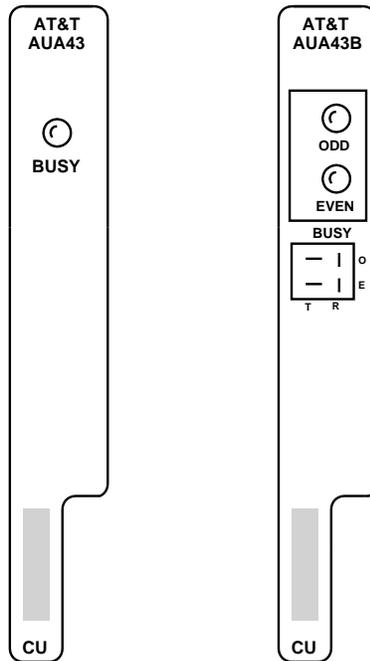
Figure 2 shows the faceplates of the AUA43 and AUA43B. The AUA43B faceplate includes test access to tip and ring through the ITT RTG16L2H15A channel unit faceplate test cord (COMCODE 405755208).

The following LED indicators are located on the faceplate of the AUA43( ).

**BUSY** (Red LED): One of the channels is busy when lit.

**ODD BUSY** (Red LED): The ODD channel is busy when lit.

**EVEN BUSY** (Red LED): The EVEN channel is busy when lit.



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**Figure 2. AUA43( ) Faceplate Diagram**

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## References

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The following documents provide additional information about the *SLC Series 5 Carrier System* and *SLC-2000 Access System*:

- AT&T 363-205-010 *SLC Series 5 Carrier System Application and Planning Guide.*
- AT&T 363-205-402 *SLC Series 5 Carrier System Channel Unit Installation and Testing.*
- AT&T 363-208-000 *SLC-2000 Access System Application and Planning Guide.*
- AT&T 915-710-116 *SLC Series 5 Carrier System Channel Unit Application and Prescription Setting.*

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## Technical Assistance

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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*. Call the AT&T Regional Technical Assistance Center at **1-800-225-RTAC**.

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## Ordering Information

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Additional copies of this document (AT&T 363-005-107) are available from the Customer Information Center — call 1-800-432-6600.

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## Comments

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Comments about this document can be directed to:

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