AT&T

SLC® Series 5 Carrier System

AUA52( ) OCU Dataport — 5SCU480 (AUA52), 5SC1430 (AUA52B)

This data sheet describes the AUA52( ) office channel unit (OCU) dataport (DP) [COMCODE 103840716 (AUA52), 106244163 (AUA52B)] and is intended for the end-user of the unit. The AUA52( ) OCU dataport is primarily used in an end-link of a digital data system (DDS) private line data service. An *end-link* is the part of the service between a customer and the local central office. The AUA52( ) OCU may also be used to provide local data service. For DDS applications, the AUA52( ) OCU is always located in the remote terminal (RT). For local data applications, the unit may also be used in the central office terminal (COT) as well as the RT. The AUA52B OCU is backward compatible with all the features of the AUA52 OCU (5SCU480). The AUA52B is an enhanced version of the AUA52 OCU, with the following added features:

- 19.2-kb/s data rate

- 64-kb/s clear channel capability

- faceplate loopback status indicator

- faceplate controlled local loopback occurring at the pulse code modulation (PCM) bit stream

- *4-wire bridging* access faceplate jack, compatible with channel service unit (CSU) and data service unit (DSU) operation.

⇒ **NOTE:**
Use the *CLEI* * code 5SCU480 (for the AUA52) when using the craft interface unit (CIU) to provision the AUA52B.

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* COMMON LANGUAGE is a registered trademark and CLEI, CLLI, CLCI, and CLFI are trademarks of Bell Communications Research, Inc.

This data sheet is reissued to add testing information about the AUA52B OCU dataport.

Figure 1 is a functional block diagram of an AUA52B OCU, and Figure 2 shows the faceplate and switch location.

The AUA52( ) OCU provides one channel of service and serves as the interface between full-duplex synchronous digital data [bipolar return-to-zero (RZ) format] on a 4-wire customer loop and the PCM bit stream. The digital rate may be 2.4, 4.8, 9.6, or (AUA52B) 19.2 kb/s (called subrates), or 56 or (AUA52B) 64 kb/s (called fullrates). The unit transmits and receives a bipolar RZ signal on the 4-wire loop. The maximum cable loss that can be tolerated is 34 dB measured at a frequency equal to one-half the customer's primary data rate. The line drivers and receivers present a balanced 135-ohm impedance across the signal frequency range.

The AUA52( ) OCU supports both latching and nonlatching DDS loopbacks for DDS-type testing. Nonlatching loopbacks are disabled when the AUA52B clear channel option is selected. The AUA52B channel unit provides test access to the metallic leads. Test access is available through the CIU or the extended test controller (XTC) with the limitation that at an RT location, the XTC can look only toward the metallic extension. (The CU provides metallic test access only in the direction toward the metallic pairs.)

The channel unit offers several options. An error correction option is provided to avoid the need to qualify the T-carrier facility for DDS services. There are three error correction methods — the appropriate method depends on the customer data rate. All error correction methods ensure a 10^{-8} error-rate performance for a 10^{-3} error rate facility. The unit provides a zero-code option to guarantee a sufficient ones density on the T-facility. A secondary channel option, when selected, provides a low-speed telemetry channel to the end-user.

For all applications of the AUA52( ) OCU, the SLC® Series 5 Carrier System must be synchronized to a DDS-type composite clock. The interface to the clock is the AUA3 office timing unit (OTU) (5SCS604), which is used in the COT. An OTU is not required in the RT since the RT is loop-timed to the COT.

This unit supplies the proper sealing current to the T/R and T1/R1 leads when the external load is less than 4050 ohms.

The AUA52( ) OCU has options that must be set before service can be provided. Options for the channel unit are set both manually and by entering commands into the *SLC* Series 5 Carrier System CIU (J99404TA) which then transmits the option information to the bank control unit (BCU) where the option information is stored in nonvolatile system memory. The BCU then writes the options into memory registers on the channel unit when the channel unit is installed. If the channel unit is already installed, the BCU writes the option information into the channel unit registers immediately after it receives the information from the CIU. Unplugging the channel unit does not erase the option information stored in system memory. Reinserting the channel unit causes the options to be rewritten immediately into the channel unit registers by the BCU. One of two switch options on the printed wiring board must be manually selected to provision the AUA52B for 19.2- or 64-kb/s clear channel (CC) capability.

⇒ **NOTE:**
Use the *CLEI* code 5SCU480 (for the AUA52) when using the CIU to provision the AUA52B.

The AUA52B has the following two switch-settable options:

■ 19.2 (enable, disable) — Setting the options for a data rate of 19.2 kb/s requires that the 19.2 option switch on the AUA52B OCU be set to the ENABLE position (Figure 2). This action overrides the subscriber data rate set by the CIU. Other CIU options are set as required. When enabling the 19.2 option, a green faceplate LED lights to indicate the switch setting.

■ CC (enable, disable) — Provisioning the AUA52B OCU for 64-kb/s clear channel service requires setting the clear channel (CC) switch to the ENABLE position. The remaining options must be set using the CIU:

— Subscriber data rate — 56

— Error correction — SCEC, if second channel error correction is desired

— All-zero-code-allowed — YES

— Secondary channel used — YES.

The CIU is also used during manual testing of the transmission performance of the AUA52( ) OCU. The procedures for setting options and performing tests with the CIU are described in AT&T 363-205-402. The CIU is described in Select Code 500-206, *CIU User's Guide* and in AT&T 363-205-101. Additional preservice testing capabilities are provided using two faceplate jacks — the bridging 4-wire access jack and the PCM loopback jack (Figures 1 and 2).

Table 1 lists the options set by the CIU for the AUA52( ) OCU and the range of the options.

Table 1. Options Set by the CIU for the AUA52( ) OCU

Option	Range
Subscriber data rate	2.4, 4.8, 9.6, or 56 kb/s
Error correction	SCEC, NONE, or MVEC
All-zero-code allowed	YES or NO
Secondary channel used	YES or NO

The following list describes the options set by the CIU for the AUA52( ) OCU:

- **Subscriber data rate** — Enter the appropriate customer primary data rate. For AUA52B 19.2 kb/s service, any of the valid subrates can be entered (2.4, 4.8, or 9.6).

- **Error correction** — For a 56-kb/s service, the error correction options are second channel error correction (SCEC) or NONE. For a data service at one of the subrates, any of the error correction options may be chosen, although majority vote error correction (MVEC) is the normal selection. When SCEC is used, both PCM time slots associated with a plug-in slot are used — the odd-numbered time slot is used for data and the even-numbered time slot is used for error correction. For MVEC, the odd-numbered time slot is used for both purposes. When the AUA52B OCU is optioned for 19.2 kb/s service, the MVEC option invokes the single time slot error correction method described in *Contribution to the ANSI * T1 Standards Project*, document #T1ZX1.4/89-023.

- **All-zero-code** — When the all-zero-code option is set to YES, the AUA52( ) OCU will allow eight consecutive zeros to be transmitted toward the digital line. If the option is set to NO, two of the zeros, in a string of eight zeros, will be set to ones. This option should always be set to NO if the line interface unit (LIU) is set for zero code suppression. If the LIU is set for B8ZS line coding, either OCU all-zero-code option may be chosen. For AUA52B 64 kb/s clear channel service, this option is set to YES and the LIU must be optioned for B8ZS.

- **Secondary channel** — Secondary channel should not be confused with SCEC. A secondary channel is a low-speed telemetry channel added to the customer's data bits. The secondary channel capability should be used only when suitable customer premises equipment is available.

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AT&T 915-710-116 provides the guidelines for selecting the AUA52( ) OCU options and a description of the various applications.

The AUA52( ) OCU can be used in any channel unit slot and can be used in combination with any mix of the other *SLC* Series 5 Carrier System channel units. If required, all 48-channel unit slots in a bank can be equipped with AUA52( ) OCUs. When the AUA52B OCU unit is used in a Feature Package D system and optioned for 56-kb/s with SCEC, the next higher numbered channel unit slot *must* be left vacant. The presence of basic rate interface transmission equipment channel units (BRITE CUs) (AUA90, AUA92, AUA93) imposes certain placement restrictions on other CUs — for details see AT&T 363-205-010, *SLC Series 5 Carrier System, Application and Planning Guide.*

▧> **NOTE:**
The AUA52( ) OCU has the following integrated network access-remote terminal (INA-RT) restrictions:

■ Mode III (*SGL*)

— Dataport *without* SCEC may be assigned to any slot.

— Dataport *with* SCEC may be assigned to any slot except the last in each digroup. However, the slot to the immediate right of the dataport CU must remain empty.

■ Mode III (*DBL*)

— Any dual-channel CU may be assigned to any slot except slot 12 of a digroup. The slot to the immediate right of the equipped slot must remain empty.

— Dataport *without* SCEC may be assigned to any slot.

— Dataport *with* SCEC may be assigned to any slot. However, the slot to the immediate right of the dataport CU must remain empty.

The AUA52B OCU is end-to-end compatible with another AUA52B or AUA52 OCU, or the AUA34 (5SCU380) or AUA34B (5SC1330) digital signal zero dataport channel unit (AT&T Data Sheet 363-005-104), or D4 dataport channel units in a *SLC* 96 COT or D4 channel bank.
The OCU-to OCU combination cannot be tested using the KS20908 and KS20909 data test sets.

The AUA52( ) OCU can be used only in *SLC* Series 5 Carrier Systems that support special services.

▧> **NOTE:**
Second channel error correction is not supported in either the universal Mode 2 or integrated Mode 2 configurations of FPB/SS (FPB/SS/U/M2 and FPB/SS/I/M2).

The LED indicators and RJ48S jack located on the faceplate of the AUA52B provide the following functions.

19.2/LB (Green LED) — When lighted, this dual function LED indicates that the unit is provisioned for 19.2 kb/s data rate. When flashing, this L D indicates that the AUA52B loopback has been activated locally or remotely, regardless of the provisioned data rate.

LB (Pin-jack) — When a pin plug is inserted into this faceplate-mounted jack, a PCM loopback is forced toward the drop.

RJ48S Access Jack (Faceplate-mounted jack) — The RJ48S jack provides bridging access to T, R, T1, and R1. The test jack is compatible with Telepath Industries Digital Loop Analyzer TPI-95 and other industry standard channel service unit/data service units (CSU/DSUs).
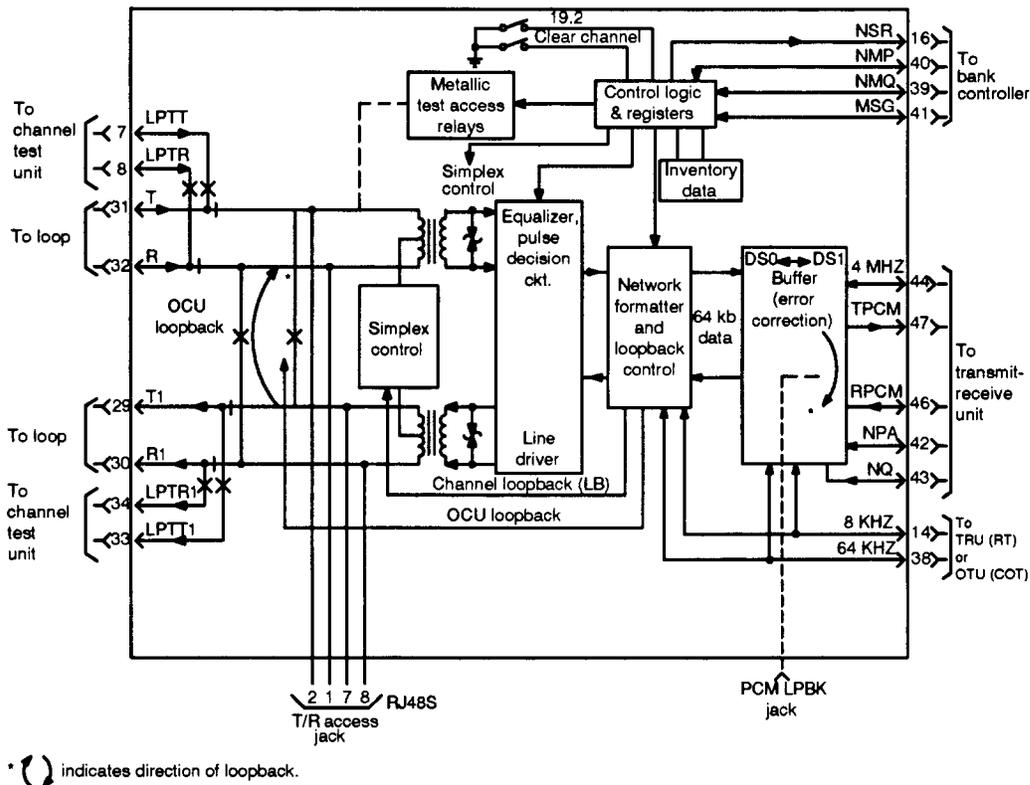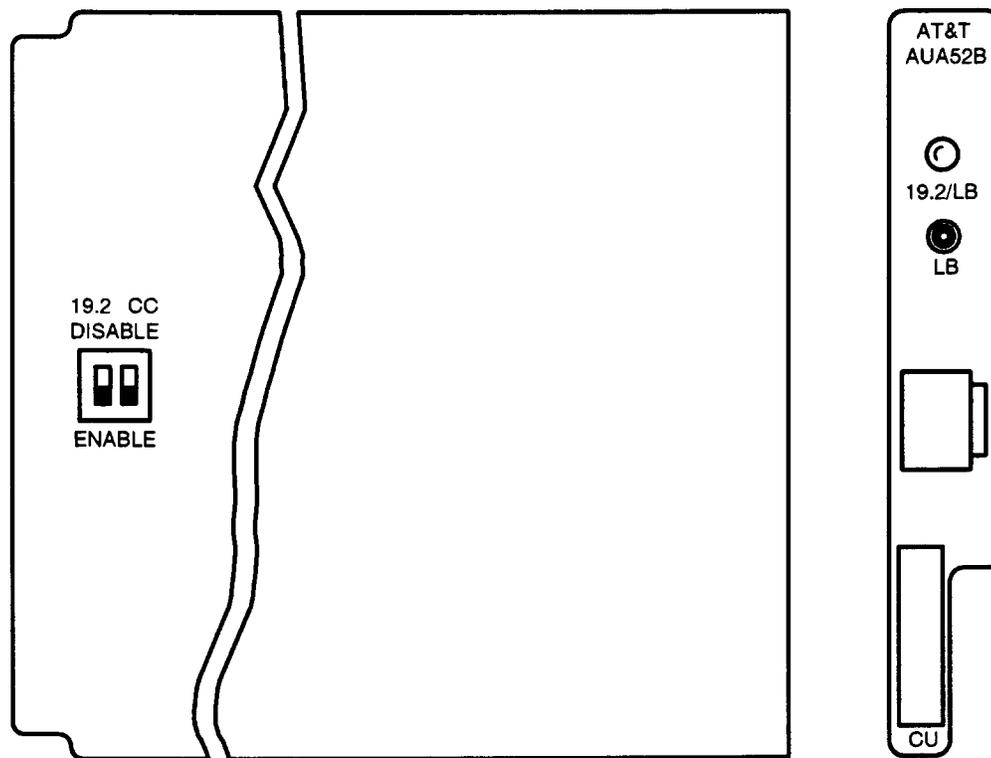

Figure 1. AUA52B Block Diagram

Figure 2. AUA52B Faceplate and Switch Location

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**.

Additional copies of this document (AT&T 363-005-111) are available from the Customer Information Center — call 1-800-432-6600.

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