SLC® Series 5 Carrier System

AUA158( ) (RT) POTS Channel Unit—
5SC1WW8 (AUA158)
5SC1WW0 (AUA158B)
5SC1WK0 (AUA158C)
5SC5725 (AUA158D)

Features/Functions

- Conforms to appropriate industry standards
- Automatic level compensation (ALC)
- Adaptive balance (AUA158D)
- Extended range to 1400 ohms (AUA158D)
- Supports *CLASS** services
- Faceplate test access to tip and ring for both channels
- Faceplate BUSY LEDs
- On-hook transmission (OHT)
- Enhanced inventory
- No option switches
- UL† recognized

* Service mark of Telcordia Technologies.

† Registered trademark of Underwriters Laboratories Inc.

Description

This data sheet describes the AUA158( ) (RT) POTS channel unit (CU) (COMCODE 106018583, AUA158; 106903388, AUA158B; 107184780, AUA158C, and 108938267, AUA158D) and is intended for the end-user of the unit. This data sheet is being updated to add the latest CLEI code and comcode information.

The AUA158( ) channel unit is designed for 2-wire, loop-start POTS service. The unit provides two channels of service and is normally installed at the remote terminal (RT). The AUA158( ) CU can also be hosted by a *SLC*-2000 Access System. The CU is equipped with automatic level compensation (ALC) which

adds loss when connected to shorter loops. This feature optimizes the loss level for ranges of metallic extensions up to 900 ohms. If a digital loop carrier (DLC) system or channel is replacing long metallic loops, the ALC feature minimizes the loss contrast experienced on cutover. The AUA158( ) furnishes a current feed interface to the customer loop and provides a fast forward disconnect feature (repeats the central office's (CO) open battery interval toward customer premises equipment (CPE), up to a maximum of 1.5 seconds if the central office interval is greater than or equal to 50 ms). The AUA158B unit features ALC on-hook as well as off-hook. On-hook loss is determined by the tip/ring resistance during the most recent off-hook condition. The greater and more constant on-hook loss of the AUA158B relative to the AUA158 enhances its compatibility with CND and CNAM services. The AUA158C differs from the AUA158B by having slightly less on-hook loss that improves impulse noise margin and assures CO-to-CPE on-hook loss of less than 13 dB.

The AUA158D channel unit differs from the earlier versions of the AUA158( ) CU in two respects: longer loop range and improved hybrid balance. The AUA158D CU has a loop range of 1400 ohms as compared to the AUA158, AUA158B and AUA158C units which have a range of 900 ohms. To support the extra loop range, the on-hook and off-hook losses of the AUA158D CU are about one dB less than before (see Table 2). The AUA158D CU uses an adaptive balance network that provides improved balance for a wide range of loop terminations. This feature will frequently increase the connect rate and/or throughput performance of a pair of high speed modems, such as those with maximum connect rate of 28.8 kb/s or 33.6 kb/s, used to access the Internet.

The channel unit stores a plug-in inventory record in non-volatile memory available for reading by an inventory compatible host (e.g., *SLC*-2000 Access System). The inventory record includes 10-character *COMMON LANGUAGE*[*] *CLEI*, COMCODE, ECI, Function, Loss, and ID codes.

Figure 1 shows the faceplate diagram for the AUA158( ) POTS CU. Table 1 shows the AUA158( ) CU's on-hook transmission compatibility. Table 2 lists the salient AUA158( ) CU's electrical and transmission specifications. Table 3 lists the environmental specifications and Table 4 lists the power drain of the AUA158( ) CU. Table 5 lists the edge connections for the AUA158( ) (RT) POTS CU.

* *COMMON LANGUAGE* is a registered trademark and *CLEI*, *CLLI*, *CLCI*, and *CLFI* are trademarks of Telcordia Technologies.

Compatibility

The AUA158( ) channel unit is supported by all *SLC* Series Carrier System feature packages and by all RT releases of the *SLC*-2000 Access System. The far-end termination can be any of the following units (where the *SPOTS*® units are limited to loop start service):

- AUA32 *SPOTS*® channel unit
- AUA39( ) *SPOTS* channel unit
- AUA31 POTS channel unit
- AUA38( ) POTS channel unit
- *SLC* 96 WP10( ) POTS channel unit
- *SLC* 96 WP36( ) *SPOTS* channel unit
- *SLC* -2000 *SPQ*®300 quad POTS channel unit
- *SLC* -2000 *SPQ*340 quad *SPOTS* channel unit
- *5ESS*® switch digital carrier line unit (DCLU)
- *5ESS* switch integrated digital carrier unit (IDCU)

Specifications

Table 1 gives the on-hook transmission capabilities for the AUA158( ) POTS CU.

Table 1. AUA158( ) POTS CU — On-hook Transmission Capability

ON-HOOK TRANSMISSION CAPABILITIES			
CO Termination	**Signaling**	**Direction**	**OHT Services CND, MWI, MR**
WP10	LS	COT→RT	✔*
WP10B	LS	COT→RT	✔ *
WP10C	LS	COT→RT	✔*
AUA38( )	LS	COT↔RT	✔
WP10D	LS	COT↔RT	✔
WP36	LS /GS	COT→RT	✔*
AUA39	LS†/GS	COT↔RT	✔ ‡
AUA39B	LS /GS	COT↔RT	✔
INTEGRATED:§			
POTS CU mode	LS	DCLU↔RT	✔

Legend:

CND — Calling name/number delivery (CND). Individual calling line identification (ICLID) feature of CND transmits number, using frequency shift keying (FSK), during silent ringing interval.

MWI — Visual message waiting indication(MWI). Central office (CO) switch transmits FSK to turn on indicator during idle state.

MR — Meter reading.

LS — Loop start (LS) signaling.

GS — Ground start (GS) signaling.

* Meter must present off-hook termination when responding to poll.

† When an AUA39 CU is connected to the floating battery feed of a *5ESS* Switch, either the RANGEX or GNDREF *5ESS* Switch option should be set, to provide the necessary low resistance tip/ground interface when the switch sends the CND message. The RANGEX option is preferred. The AUA39B CU does not require these switch options:

RANGEX=Y [up to Release 5E9(2)] or RANGEX=EXT [Release 5E9(2) or later]

GNDREF=Y

‡ CND only.

§ Digital carrier line unit (DCLU) or integrated digital carrier unit (IDCU) interface feature of *5ESS* Switch, or other switch with digital loop interface compliant with Bellcore TR-TSY-000008. (Compatibility for MWI on ground start circuits is not covered by TR8.)

Table 2 gives the salient electrical and transmission specifications for AUA158( ) channel unit. The parameters are off-hook unless specified otherwise. For complete transmission specifications consult Chapter 6 of 363-205-010, *SLC Series 5 Carrier System Applications and Planning Guide*. Table 3 lists the environment specifications.

Table 2. Salient AUA158( ) Electrical and Transmission Specifications (Note 1)

Parameter	Value-
Loop resistance (excluding telset):	0-900 ohms; 0-1400 ohms, AUA158D
1 kHz VF loss between CO and network interface (NIF) at customer location, customer premises equipment (CPE) off-hook:	4 dB to 8 dB
Nominal 1 kHz VF loss, AUA158( ) only, CPE off-hook: AUA158( ) except AUA158D AUA158D	 1.4 dB to 6 dB 0 dB to 5.25 dB
Nominal 1 kHz VF loss, AUA158( ) only, CPE on-hook: AUA158 AUA158B AUA158C AUA158D First installed, telset on-hook, AUA158 AUA158B AUA158C AUA158D	 3.8 dB 4.9 dB to 9.5 dB 3.4 dB to 8 dB 2.75 dB to 8 dB 3.8 dB 6.5 dB 5 dB 5 dB
Return loss at COT. Reference Z = 900 ohms + 2.16 µF. AUA158( ) terminated at voice frequencies with 900 ohms + 2.16 µF. DC resistance at RT: on-hook and off-hook < 430 ohms.	ERL > 18 dB, SRL > 10 dB
Return loss at COT; AUA158D. Reference Z = 900 ohms + 2.16 µF. AUA158D terminated with TR-57 test loops. DC resistance of loop terminations < 430 ohms:	Off-hook: ERL > 14 dB, SRL > 9 dB
Return loss at RT. Reference Z = 900 ohms + 2.16 µF. CO terminated with 900 ohms + 2.16 µF. DC resistance at RT: on-hook and off-hook < 430 ohms.	ERL > 18 dB, SRL > 10 dB

Parameter	Value-
Frequency response (loss relative to 1004 Hz, end to end)	Frequency range 300-3000 Hz; -0.5 dB to +1.0 dB 3200 Hz: -0.5 dB to +1.5 dB
Structural impedance (hybrid impedance, output impedance)	900 ohms + 2.16 µF
Impulse noise at a threshold of 47 dBrnC0 for 15 minutes	≤ 15 counts

Note 1: End-to-end performance specified with AUA38( ) or AUA39( ) at COT, terminated with 900 ohms + 2.16 µF.

This unit is intended for use in *SLC* Series 5 Carrier Systems located in controlled environments that conform to the specifications of Telcordia Technologies GR-63*. It may also be used in applicable Lucent Technologies cabinets designed for *SLC* Series 5 and intended for applications in non-controlled (outside plant) environments that conform to Telcordia Technologies GR-487†. These cabinets, when properly equipped, are designed to maintain internal environmental conditions within appropriate operational limits for *SLC* Series 5 Carrier equipment such that system performance meets TR-NWT-000057‡.

The applicable outside plant environment criteria for cabinet enclosures (per GR-487) are summarized in Table 5 Environmental Specifications.

Table 3. Environmental Specifications

A. Temperature Range (Ambient) 1. Operating, per TR-NWT-000057: in Lucent Technologies cabinets exposed to ambient temperatures of -40° F (-40° C) with no solar load to +115° F (46° C) with maximum solar load and maximum power dissipation. Lucent Technologies cabinets are designed to ensure that the components within do not exceed their rated temperatures for the above conditions. 2. Storage, per TR-NWT-000057: ambient temperatures of -40° to 140° F (-40° to 60° C).
B. Relative Humidity 1. Operating, per TR-NWT-000057. For outside ambient temperature 84° F (29° C) or less, relative humidity of 5% to 95%. For ambient temperatures above 84° F (29° C), the relative humidity is limited to that corresponding to a specific humidity of 0.024 pound of water per pound of dry air. 2. Storage, per TR-NWT-000057: ambient temperatures 84° F (29° C) or less, 10% to 95%. For ambient temperatures above 84° F (29° C), the relative humidity is limited to that corresponding to a specific humidity of 0.024 pound of water per pound of dry air.

* Telcordia Technologies Generic Reference GR-63, Issue 1, October 1994, and all Revisions and Supplements, "Network Equipment-Building System Requirements: Physical Protection (a module of LSSGR, GR-64; TSGR, FR-440, and NEBS FR, FR-2063)," Telcordia Technologies, Inc.

† Telcordia Technologies General Requirements GR-487, Issue 1, June 1996, and all Revisions and Supplements. "*General Requirements for Electronic Equipment Cabinets*," Telcordia Technologies, Inc.

‡ Telcordia Technologies Technical Reference TR-NWT-000057, Issue 2, January 1993, and all Revisions and Supplements, "*Functional Criteria For Digital Loop Carrier Systems*," Telcordia Technologies, Inc.

Table 4. Power drain for AUA158( ) POTS CU

Condition	Value
All channels idle	0.72 W
Each added channel active (T/R resistance 600 ohms): AUA158, AUA158B,AUA158C AUA158D	 1.30 W 1.45 W
Each added channel ringing	12 mW

Installation and Testing

There are no switches to set on this unit. Procedures for testing the unit are given in 363-205-402, *SLC Series 5 Carrier System Channel Unit Installation and testing*.

The AUA158( ) CU is compatible with mechanized loop testing (MLT) and the pair gain test controller (PGTC) and the extended test controller (XTC) test systems.

The faceplate jack provides convenient test access to the tip (T) and ring (R) of both odd (O) and even (E) channels.

Faceplate Features

The AUA158D (RT) POTS current feed channel unit faceplate is shown in Figure 1. Except for apparatus code labels, the faceplate of all the AUA158( ) channel units are identical. The faceplate jack provides convenient test access to the tip and ring through a channel unit faceplate test cord adapter part number 400395, available from Telecom Assistance Group, Inc., West Berlin, New Jersey (1-800-824-7005). The following LED indicators are located on the faceplate:

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

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

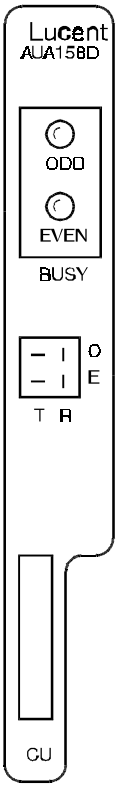

Figure 1. AUA158D Faceplate Diagram

Table 5. Edge Connections For AUA158( ) (RT) POTS Channel Unit

Finger	Function
1	Frame Ground
2	Ringing Ground
13, 17, 19, 20, 21	Circuit Ground
22, 23, 25, 50	+5 Volts dc
26	-48 Volts dc
27	-20 Hz Ringing
29	T1 (Tip Even)
30	R1 (Ring Even)
31	T (Tip Odd)
32	R (Ring Odd)
49	-5 Volts DC

References

The following documents provide additional information about the use of this channel unit in the *SLC Series 5 Carrier System* and the *SLC*-2000 Access System:

363-205-010	*SLC Series 5 Carrier System Applications and Planning Guide*
363-205-402	*SLC Series 5 Carrier System Channel Unit Installation and Testing*
363-208-000	*SLC*-2000 *Access System Application, Planning, and Ordering Guide*

Technical Assistance

Follow local procedures for obtaining technical assistance. Lucent Technologies 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 Lucent Technologies Regional Technical Assistance Center at 1-800-225-RTAC.

Ordering Information

Additional copies of this document (363-005-303) are available from the Customer Information Center — call 1-888-582-3688.

Comments

Comments about this document can be directed to:

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