SLC® -2000 Access System

SPQ® 478 (RT) C-POTS Channel Unit - SAC1AAK___

Features/Functions

- Automatic loss compensation (ALC), 2 dB
- 600 Ω impedance
- Compatible with *CLASS** services
- On-hook transmission (OHT) (see Table 1)
- Fast forward disconnect
- Faceplate test access to tip and ring for two channels
- Faceplate BUSY LEDs

Description

The *SPQ* 478 channel unit (COMCODE 107295016) is designed for 2-wire, loop-start POTS service. This unit provides four channels of service and is located at the remote terminal (RT). It is equipped with automatic level compensation (ALC) which adds up to 2 dB of loss when connected to shorter loops, thus improving — with respect to the *SPQ* 400 — voice quality for loops with minimum cable loss. Maximum cable range is 900 ohms. If a digital loop carrier (DLC) is replacing long metallic loops, the ALC feature reduces the loss contrast experienced on cutover. The *SPQ* 478 unit furnishes a current feed interface to the customer loop and provides a fast forward disconnect feature [the RT disconnects when the central office (CO) open battery interval is longer than 50 ms].

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The unit stores in nonvolatile memory an inventory record (including its 10-character *CLEI** code) available for reading by a compatible operations support system (OSS).

Relative to other POTS channel units, the *SPQ*478 unit has the following feature changes.

- Structural impedance of 600 ohms + 2.16 μF.
- Off-hook ALC loss profile of 2 dB reducing to 0 dB.
- On-hook ALC loss of 3.5 dB fixed.
- Off-hook balance network optimized for carrier serving area (CSA) cables.
- On-hook balance network optimized for open circuit Caller ID termination.

Compatibility

The *SPQ*478 is compatible with all releases of the *SLC*-2000 Access System. The far-end termination can be any of the following units:

- *SPQ*300 POTS channel unit
- *SPQ*340 *SPOTS* channel unit
- *SLC* 96 WP10( ) POTS channel unit
- *5ESS*® switch digital carrier line unit (DCLU)
- *5ESS* switch integrated digital carrier unit (IDCU)

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Table 1. *SPQ* 478 On-Hook Transmission Compatibility

CO	Direction	Application	
WP10			
WP10B	COT→RT	CND	MR*
WP10C			
WP10D	COT↔RT	CND	MR
INTEGRATED:			
DCLU	DCLU↔RT	CND	MR
IDCU	IDCU↔RT	CND	MR

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

Legend:
CND — Calling name/number delivery
MR — Meter reading

Specifications

Table 2 lists the electrical and transmission specifications for the *SPQ* 478 unit. Table 3 lists the environmental specifications.

Table 2. *SPQ* 478 Electrical and Transmission Specifications (Note)

Parameter	Value
Loop resistance (excluding telset)	0 to 900 Ω
Loop current	20 mA to 30 mA
VF Loss, Off-Hook	
Between CO and network interface (NIF) at customer location	2 to 6.5 dB
CU loss	0 to 2.0 dB

See note at end of table.

Continued on next page

Table 2. *SPQ* **478 Electrical and Transmission Specifications (Cont'd) (Note)**

Parameter	Value	
VF Loss, On-Hook	3.5 dB	
Return Loss		
----------	Off-hook	On-Hook
	----------	----------
at COT (reference Z of 900 Ω + 2.16 μF, RT terminated with 900 Ω + 2.16 μF)	ERL > 14 dB SRL > 10 dB	> 18 dB > 10 dB
at COT, with RT unterminated (open)	ERL ----- SRL -----	> 16 dB > 16 dB
at RT (reference Z of 600 Ω + 2.16 μF, COT terminated with 900 Ω + 2.16 μF)	ERL > 18 dB SRL > 10 dB	> 12 dB > 10 dB
Frequency response (loss relative to 1004 Hz, end-to-end)	300 Hz to 3000 Hz: –0.5 dB to +1.0 dB 3200 Hz: –0.5 dB to +1.5 dB	
Overload at COT and RT	at +3 dBm0, ≤ 0.5 dB extra loss	
Single frequency distortion with input of:		
0 Hz to 12 kHz, 0 dBm0	< –28 dBm0 at 0 Hz to 12 kHz	
1004 Hz to 1020 kHz, 0 dBm0	< –40 dBm0 at 0 Hz to 4000 Hz	
Signal-to-distortion with input of:		
0 to –30 dBm0	> 33 dB	
–30 to –40 dBm0	> 27 dB	
–40 to –45 dBm0	> 22 dB	
System generated tones 0 Hz < f < 16 kHz	< –50 dBm0	
Structural impedance	600 Ω + 2.16 μF	
Minimum longitudinal balance (measured by IEEE Method 455-1976)	200 Hz to 1000 Hz: ≥ 58 dB 3000 Hz: ≥ 53 dB	
Idle channel noise, end-to-end	≤ 20 dBrnC	
60 Hz rejection	> 20 dB	
Cross talk (0 dBm0 input, 200 Hz to 3400 Hz)	≤ –65 dB	
Impulse noise at a threshold of 47 dBrnC0 for 15 minutes	≤ 15 counts	
Data pulse distortion (PAR), end-to-end	> 90	
Gain tracking at 1004 Hz, relative to 0 dBm0		
–37 dBm0 to +3 dBm0	±0.5 dB maximum (±0.25 dB average)	
–50 dBm0 to –37 dBm0	±1.5 dB maximum (±0.5 dB average)	

Note: End-to-end performance specified with *SPQ*300 at COT, terminated with 900 Ω + 2.16 μF.

Table 3. Environmental Specifications

Temperature Range (Ambient)	
Operating	–40˚ to 85˚C (–40˚ to 185˚F)
Storage	–40˚ to 85˚C (–40 ˚ to 185˚F)

Relative Humidity, Noncondensing
5% to 95%

Installation and Testing

There are no switches to set on the *SPQ*478 channel unit. Procedures for installing the *SPQ*478 unit are given in AT&T 363-208-001 (TOP).

The *SPQ*478 is compatible with mechanized loop testing (MLT) and the pair gain test controller (PGTC) and extended test controller (XTC) test systems.

The faceplate jack provides easy test access to the tip (T) and ring (R) of all four channels (A, B, C, D) through the ITT RTG16L2H15A channel unit faceplate test cord (COMCODE 405755208).

Faceplate Features

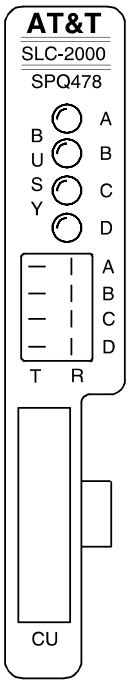
Figure 1 shows the *SPQ*478 faceplate. Faceplate features include faceplate busy LEDs and test access jack for tip and ring.

A BUSY (Red LED): The *A* channel (channel 1) is busy when lighted.

B BUSY (Red LED): The *B* channel (channel 2) is busy when lighted.

C BUSY (Red LED): The *C* channel (channel 3) is busy when lighted.

D BUSY (Red LED): The *D* channel (channel 4) is busy when lighted.



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Edge Connections	
Finger	Function
1	Frame Gnd
2	Ringing Gnd
3	T 3rd channel
4	R 3rd channel
5	T 4th channel
6	R 4th channel
17, 20, 21	Circuit Gnd
19	Inventory
22, 23, 25, 50	+ 5 Volts DC
26	-48 V DC Battery
27	Ringing
29	T 2nd channel
30	R 2nd channel
31	T 1st channel
32	R 1st channel
49	-5 Volts DC

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Figure 1. *SPQ* 478 Faceplate and Edge Connections

References

The following documents provide additional information about the *SLC*®-2000 Access System:

AT&T 363-208-000	***SLC****-2000 Access System Application and Planning Guide*
AT&T 363-208-001	***SLC****-2000 Access System User/Service Manual*
AT&T 363-208-003	***SLC****-2000 Access System Command and Message Manual*

Technical Assistance

Follow local procedures for obtaining technical assistance. AT&T also provides in-hours or emergency out-of-hours help for 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 363-005-377) are available from the Customer Information Center — call 1-800-432-6600.

Comments

Comments about this document can be directed to:

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