



***SLC*[®]-2000 Access System/ *SLC*[®] Series 5 Carrier System**

***SPQ*[®]453 Dual Current Feed Coin Channel Unit — 5SC4V2U**

Features/Functions

- Coin-first and dial-tone-first coin service
- Dual channel current feed unit
- On-hook transmission (OHT)
- No option switches
- Faceplate BUSY LED for each channel
- Faceplate test access to tip and ring for each channel
- Enhanced inventory readout
- Conforms to appropriate industry standards

Description

This data sheet describes the *SPQ453* dual current feed channel unit (CU) (COMCODE 108041310) usable in a Release 4.2 (or higher) *SLC*-2000 Access System remote terminal (RT), in a *SLC* Series 5 Carrier System RT, and in an optical network unit (ONU), and is intended for the end-user of the unit. The *SPQ453* CU can also be located in a multi-services distant terminal (MSDT). This data sheet is being reissued to update the latest CLEI Code and COMCODE information on the *SPQ453* channel unit and to update compatibility information. See Table 1 for compatible host terminals.

The *SPQ453* dual current feed channel unit is a 2-wire analog voice-frequency (VF) channel unit that provides two channels of dial-tone-first (DTF) service using loop-start signaling or coin-first service using ground-start signaling. Some

circuit configurations do not support the second (even) channel (see Table 1). Transmission parameters are fixed and the signaling mode is selected automatically. The channel unit stores a plug-in inventory record in nonvolatile memory, readable when installed in a *SLC-2000* RT. The inventory record includes 10-character *COMMON LANGUAGE*^{*} *CLEI* code, *COMCODE*, *ECI*, *Function*, *Loss*, and *ID* codes. During a switch event to a protection line, the channel unit maintains the existing signaling state. In the event of a permanent carrier failure, the channel unit assumes the on-hook state.

Figure 1 shows the loop current profiles as a function of loop resistance plus telephone set resistance, with backplane battery voltage as a parameter. Figure 2 shows the faceplate diagram for the *SPQ453* CU. Table 1 lists the end-to-end compatibility for universal and integrated configurations and compatible host terminals. Table 2 lists the *SPQ453* signaling and transmission specifications. Table 3 lists the power drain of the *SPQ453* CU and Table 4 lists the environmental specifications. Table 5 shows the edge connections for the *SPQ453* CU.

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

Compatibility

The *SPQ453* dual current feed channel unit is compatible with all 1C/2C-type and 1D-type coin telephone sets, except that *SPQ453* usage with DTF coin sets is limited to sets with ground lifting.

The *SPQ453* dual current feed channel unit is end-to-end compatible with the following coin channel units: *SPQ333* dual channel unit, *SPQ318* quad channel unit, and the *AUA33()* and *WP12 (SLC 96)* single channel units. The *SPQ453* CU is also compatible with local digital switches operating in TR-TSY-000008* and TR-NWT-000303† modes. Table 1 gives the compatibility for universal and integrated configurations. For compatibility with host terminals not listed in Table 1, consult customer documentation for those terminals.

Table 1. End-to-End Compatibility for *SPQ453* Dual Current Feed Coin CU.

Universal Configurations					
RT Release*/ Feature Package (FP)	COT	COT Release* / Feature Package	COT Channel Unit	Mode	Usable Channels†
4.2	<i>SLC-2000</i>	R3.3	<i>SPQ333</i> , <i>SPQ318</i>	TR-08, INA	2
4.2	<i>SLC-2000</i>	R3.1	<i>AUA33()</i>	TR-08, INA	1
FPC	<i>SLC Series 5</i>	FPC	<i>SPQ333</i>	---	2
FPC	<i>SLC Series 5</i>	FPC	<i>AUA33()</i>	---	1
4.2	<i>SLC 96</i>	---	<i>WP12</i>	TR-08	1
FPB	<i>SLC 96</i>	---	<i>WP12</i>	TR-08	1

* Entry means earliest release supporting channel unit listed

† With straight-through cross-connects.

Optical Extension Configurations		
RT Release*	ONU	Usable Channels
4.2	MSDT	2
4.4	Narrow Band Shelf	2

* Bellcore Technical Reference TR-TSY-000008, Issue 2, August 1987, and all Revisions and Supplements, "Digital Interface Between the *SLC*[®]96 Digital Loop Carrier System And A Local Digital Switch," Bell Communications Research.

† Bellcore Technical Reference GR-303-CORE Issue 1, September 1995, and all Revisions and Supplements, "Integrated Digital Loop Carrier System Generic Requirements, Objectives, and Interface," Bell Communications Research.

Integrated Configurations			
RT Release/Feature Package (FP)	5ESS[®] Interface	Mode	Usable Channels
4.2	DCLU/IDCU	TR-08	2*
4.2	DCLU/IDCU	TR303	2
FPB	DCLU/IDCU	TR-08	1

* Second channel must be provisioned for ODD timeslot at switch

Specifications

The *SPQ453* dual current feed channel unit conforms to the appropriate criteria of ANSI*, Bellcore, FCC, GTE, Rural Utilities Service (RUS), and UL† standards.

Table 2 gives the electrical and transmission specifications for the *SPQ453* channel unit. The end-to-end values are specified with an *SPQ333* CU at the COT end.

Table 2. *SPQ453* Dual Coin CU Electrical and Transmission Specifications †

Parameter	Value
Loop Range *	900 Ω
1 kHz VF Loss, RT CU only	1.0 dB off-hook 4.0 dB on-hook
Input/output impedance (Structural impedance, hybrid impedance)	900 Ω + 2.16 μ F
Return loss at RT (reference Z of 900 ohms + 2.16 μ F) (COT terminated in 900 ohms + 2.16 μ F)	ERL > 18 dB, SRL > 10 dB
Return loss at COT (reference Z of 900 ohms + 2.16 μ F) (RT terminated in 900 ohms + 2.16 μ F)	ERL > 18 dB, SRL > 10 dB
Idle channel noise, end-to-end	\leq 20 dBrc
Frequency response (loss relative to 1004 Hz) End to end, off-hook	at 400, 2800 Hz; - 0.5 dB to + 1.0 dB
End to end, on-hook	at 400, 2800 Hz; - 1.0 dB to + 2.0 dB
60 Hz rejection	\geq 20 dB
Crosstalk (0 dBm0 input, 200 to 3400 Hz)	\leq - 65 dBm0
Impulse noise at a threshold of 47 dBmC0 for 15 min.	\leq 15 counts
Data pulse distortion (PAR) End to end	\geq 90
Single frequency distortion with input of: 0 - 12 kHz, 0 dBm0 1004 - 1020 kHz, 0 dBm0	< - 28 dBm0 at 0 Hz to 12 kHz < - 40 dBm0 at 0 Hz to 4 kHz

* Registered trademark of American National Standards Institute, Inc.

† Registered trademark of Underwriters Laboratories, Inc.

Parameter	Value
Signal-to-distortion with input of: 0 dBm0 to -30 dBm0 -30 dBm0 to -40 dBm0 -40 dBm0 to -45 dBm0	> 33 dB > 27 dB > 22 dB
System generated tones $0 < f < 16$ kHz	< - 50 dBm0
Gain Tracking at 1004 Hz, relative to 0dBm0 - 37 dBm0 to + 3 dBm0 - 50 dBm0 to - 37 dBm0 - 55 dBm0 to - 50 dBm0	± 0.5 dB max. (± 0.25 dB avg.) ± 1.0 dB max. (± 0.5 dB avg.) ± 3.0 dB max. (± 1.5 dB avg.)
Intermodulation distortion (4-tone method, -13 dBm0 input)	A - B (R2) product > 43 dB 2A - B (R3) product > 44 dB
Overload at the COT and RT	≤ 0.5 dB increased loss at + 3 dBm0
Minimum longitudinal balance at the RT†	≥ 58 dB at 200 Hz, 500 Hz, 1000 Hz ≥ 53 dB at 3000 Hz

* Supplying > 23 mA into 550 Ω coin telephone set.

† Measured by IEEE Method 455-1976

Table 3. Power drain for SPQ453 Dual Coin Current Feed CU

Condition	Value
All channels idle	0.7 W
Each added channel active (T/R resistance 600 ohms)	1.4 W
Each added channel ringing	120 mW

‡ Note: Off hook unless specified. End-to-end performance with a SPQ333 CU at the COT.

Figure 1 shows the loop current profiles as a function of loop resistance plus telephone set resistance.

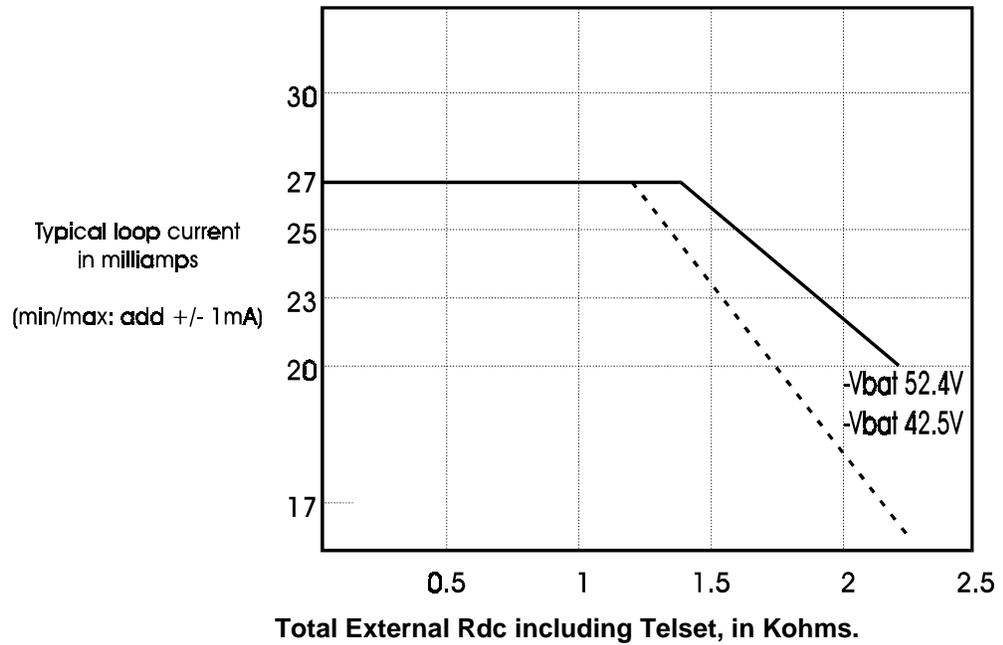


Figure 1. *SPQ453* CU Loop Current Profile

Table 4. Environmental Specifications

<p>A. Temperature Range (Ambient)</p> <ol style="list-style-type: none"> 1. Operating, per TR-NWT-000057[*]: in Lucent Technologies cabinet mounted RT, outside 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 assure 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).
<p>B. Relative Humidity</p> <ol style="list-style-type: none"> 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 pounds 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 pounds of water per pound of dry air.

* Bellcore Technical Reference TR-NWT-000057, Issue 2, January 1993, and all Revisions and Supplements, "Functional Criteria For Digital Loop Carrier Systems," Bell Communications Research.

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 SPQ453 CU, in all its applications, is compatible with mechanized loop testing (MLT) and the pair gain test controller (PGTC) and the extended test controller (XTC) test systems.

Faceplate Features

The SPQ453 dual current feed channel unit faceplate is shown in Figure 2. The faceplate jack provides convenient test access to the tip and ring through a channel unit faceplate test cord adapter part number 400395M, available from Telecom Assistance Group, Inc., West Berlin, New Jersey; (1-800-824-7005). The following LED indicators are located on the faceplate:

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

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

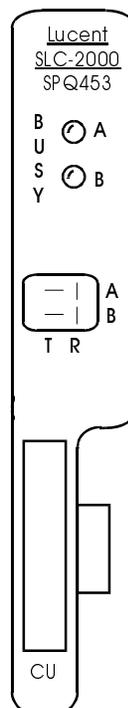


Figure 2. SPQ453 CU Faceplate Diagram

Table 5. Edge Connections For SPQ453 Dual Current Feed Channel Unit

Finger	Function
1	Frame Ground
2	Ringing Ground
17, 19, 20, 21	Circuit Ground
22, 23, 25, 50	+5 Volts DC
26	-48 Volts DC
27	-RNG (20 Hz)
29	T1 (2nd channel)
30	R1(2nd channel)
31	T (1st channel)
32	R (1st channel)
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 *SLC-2000 Access System*:

- | | |
|-------------|--|
| 363-205-004 | <i>SLC-2000 Multi-Services Distant Terminal Feature User/Service and Ordering Manual</i> |
| 363-205-010 | <i>SLC Series 5 Carrier System Application and Planning Guide</i> |
| 363-205-401 | <i>SLC Series 5 Carrier System Remote Terminal Acceptance and Turnup</i> |
| 363-205-402 | <i>SLC Series 5 Carrier System Channel Unit Installation and Testing</i> |
| 363-205-500 | <i>SLC Series 5 Carrier System Maintenance and Trouble Clearing</i> |
| 363-208-000 | <i>SLC-2000 Access System Application, Planning, and Ordering Guide</i> |

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 (363-005-342) are available from the Customer Information Center — call 1-888-582-3688.

Comments

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