

SLC Series 5 Carrier System

End-to-End Tests

TASK Oriented Practice (TOP) TASK INDEX LIST

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CAUTION:

In dusty areas (for example, near construction sites), AT&T recommends tenting the RT cabinet to protect electronic equipment whenever the cabinet doors are opened for extended periods.

| | |
|---|---------|
| Abbreviated End-to-End System Tests | NTP-006 |
| Acceptance | NTP-002 |
| Clear Distant Terminal Channel Trouble — Fiber-To-The-Home RT-to-DT | TAP-101 |
| FPA, FPC, FPC-Autocut, and FPD Universal Series 5 End-to-End System Tests | NTP-003 |
| FPB, FPB Mode 1 or Mode 2 Integrated Series 5 (Mode 96) End-to-End System Tests | NTP-005 |
| FPB, FPB Mode 1 or Mode 2 Universal Series 5 (Mode 96) End-to-End System Tests | NTP-004 |
| FPC Fiber-To-The-Home — Abbreviated End-to-End System Tests | NTP-009 |
| Fiber-To-The-Home — COT To DT End-to-End System Tests | NTP-008 |
| Fiber-To-The-Home — COT To DT Single Party Channel Tests | DLP-518 |
| Fiber-To-The-Home — COT To RT End-to-End System Tests | NTP-007 |
| Fiber-To-The-Home — COT To RT Single Party Channel Tests | DLP-516 |
| Integrated FPB Fiber-To-The-Home — DCLU To RT End-to-End System Tests | NTP-010 |
| Universal FPB Fiber-To-The-Home — COT To RT End-to-End System Tests | NTP-011 |
| Perform End-to-End System Tests for Feature Package 303 | NTP-012 |

Figure 1 shows a block diagram of the SLC Series 5 Carrier System feature packages.

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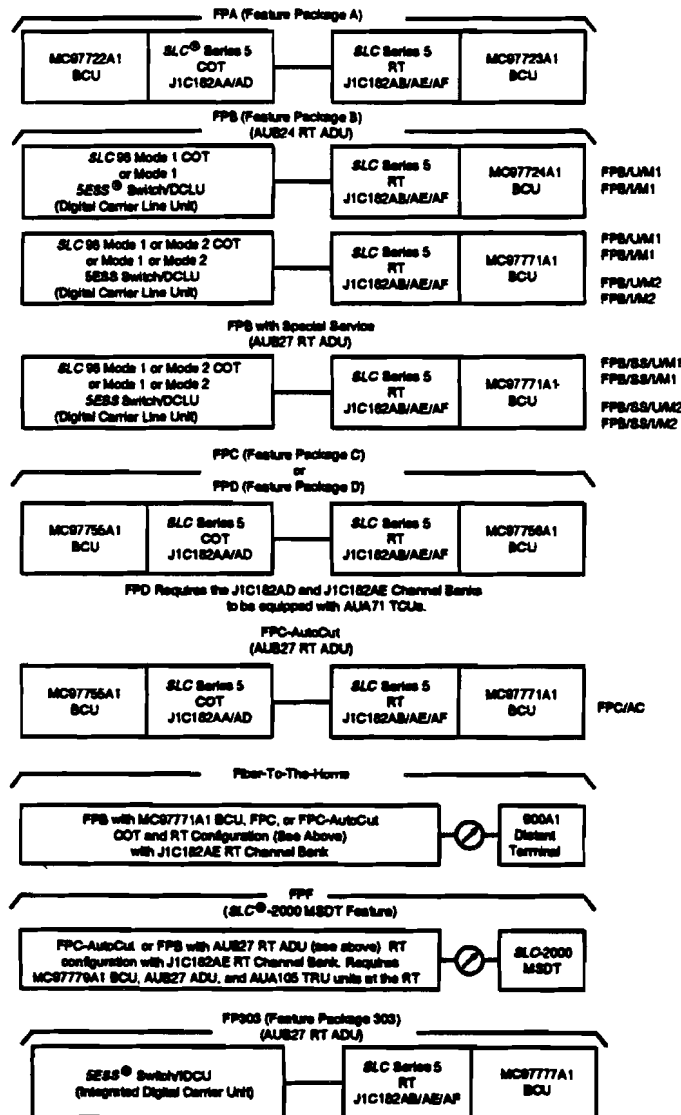


Figure 1 — Feature Package Arrangements


Perform End-to-End System Tests for Feature Package 303

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OVERVIEW: This procedure assumes that the 5ESS® Integrated Digital Carrier Unit (IDCU) and SLC® Series 5 Feature Package 303 (FP303) remote terminal (RT) are installed and connected end to end. It further assumes that at a minimum line interface unit (LIU) A and C DS1 facilities are equipped and in the preservice state.


1. At the RT, obtain a DMM (digital multimeter) with an accuracy of 1.0% and an AC/DC input impedance of ≥ 1 megohm.

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2.  **NOTE:**
AT&T 235-105-231 contains procedures for installing and testing the IDCU.

Verify that the IDCU is properly installed and tested.

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3.  **NOTE:**
TOP Volume 363-205-401 contains procedures for installing and testing the RT.

Verify that the RT has been properly installed and tested.

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4.  **CAUTION:**
The digital line coding, ZCS (zero code suppression also called AMI) or B8ZS (bipolar eight zero substitution), for all the transmission equipment interfaces MUST BE SET FOR B8ZS CODING.

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If using a T1 digital facility, go to Item 6; otherwise, continue with Item 5.

5.



NOTE:

Refer to the TOP volume for the transmission facility.

Verify that the IDCU and RT are connected to the transmission facility and that the transmission facility is operating properly. Then, go to Item 12.

6.



DANGER:

DC voltage to +130 and -130 volts may be present on connections to outside cable pairs if line is powered from an office repeater bay (ORB) at the IDCU location.

From work order, verify that proper connections have been made to outside cable pairs at IDCU location.

7.

Verify that heat coils and carbon blocks are installed in connectors at main distributing frame at IDCU location.

8.



DANGER:

DC voltage to -130 Volts may be present on connections to outside cable pairs if line powering LIU is installed at RT.

Verify that proper digital line connections have been made at RT.

9.



NOTE:

AT&T 363-200-001 (TOP) contains procedures for T1 line repeater and digital line installation (preservice tests). If a RPFT (remote power feed terminal) is used to power part of the digital lines, refer to AT&T 363-202-525 for additional preservice tests.

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Consult office records to verify that all digital line repeaters have been installed and that digital line installation is complete.

10.



NOTE:

If the system is equipped with a digital cross connect panel/office repeater bay (DSX/ORB) facility, digital line power loop tests should be done from the office repeaters. Use AT&T 363-200-001 or appropriate documentation for the type of digital line repeater used.

If RT is equipped with line powering LIUs AUA62(), continue with Item 11; otherwise go to Item 12.

11. Perform power loop tests on installed line powering LIUs AUA62() at RT. DLP-500

12.



CAUTION:

During recent change and verify activities the switch personnel must assign IFACs to RT TERM numbers that correspond to physical DS1 location (LIUs) in the RT. RT TERM 1 corresponds to LIU-A, RT TERM 2 corresponds to LIU-B, RT TERM 3 corresponds to LIU-C, RT TERM 4 corresponds to LIU-D, and RT TERM 5 corresponds to LIU-P. Since the LIU-C DS1 facility carries the backup EOC/TMC, the EOC/TMC BKUP RT TERM recent change field must be set to 3.

Establish communications with 5ESS IDCU personnel.

13.



CAUTION:

An electrostatic discharge wrist strap with a minimum resistance of 250K Ohms should be worn when handling Series 5 circuit packs to prevent possible damage to the circuit packs. Before using the wrist strap, check it for opens, shorts, and minimum resistance value. If the strap does not pass these checks it should not be used. To avoid possible

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*personal injury while using the wrist strap, do not connect it to the power shelf or adjacent portions of the RT frame. Connect the wrist strap to **ESD GRD** jack on the fan unit, if present. If grounding jack is not present, connect wrist strap to bare-metal section of the frame well away from the power shelf.*

Remove **ADU** and set switches **S1-3** and **S1-4** to **ABI** and **CDI**. Reinstall the **ADU**.

The **MJ** and **NE** LEDs on the **ADU** and **DIGROUP** LEDs on the **BCU** light. Also, the **CLF** LEDs on the **LIUs** light.


| | | |
|-----|--|---------|
| 14. | Perform terminal-to-terminal tests. | DLP-530 |
| 15. | Have the switch personnel at the MCC provision the RT by entering EXC:RT,PROV,TYPE=ALL,LRT=d-e-f (where d=SM number, e=IDCU number, and f=FP303 RT number). Response: Wait for the MCC to display EXC RT PROV TYPE=ALL SID=g LRT= d e f COMPLETED - NO TASKS PENDING (where g=Site ID number, d=SM number, e=IDCU number, and f=FP303 RT number) before continuing. Provisioning can take up to 15 minutes depending on the switch activity level. | |
| 16. | Test alarm system for power minor and fan alarms. | DLP-531 |
| 17. | Test alarm system for miscellaneous alarms. | DLP-532 |
| 18. | Perform channel tests. | DLP-533 |
| 19. | Update Office Records for Job Completed on Assigned System for Installed Digital Line and Channels and Specify Task(s) Completed, According to Local Office Procedures. | |

Perform Terminal-to-Terminal Test For Feature Package 303

1.  **NOTE:**
This procedure requires coordination between RT and switch personnel.

Establish communication between RT and switch personnel.
2. At the RT install the 3-type digital line protectors associated with the LIU A DS1 facility.
3. After the IDCU Facility (IFAC) associated with the LIU A DS1 facility is activated at the IDCU, did **DIGROUP A** LED on the **BCU** and **CLF** LED on **LIU-A** go off?

If **YES**, proceed to Step 7.
If **NO**, continue with Step 4.

4.  **CAUTION:**
Incorrectly set LIU option switches can result in immediate or future loss of service or introduce errors into the digital bitstream.

At RT, remove **LIU-A** and check switch settings. Correct any option switch settings that are incorrect and reinstall the **LIU**.

5. Did **DIGROUP A** LED on the **BCU** and **CLF** LED on **LIU-A** go off?

If **YES**, proceed to Step 7.

If **NO**, continue with Step 6.

6. Verify that digital line pairs are connected to the proper outside cable pairs. Use digital line fault-locating procedures in AT&T 363-205-500 or request personnel at the IDCU location perform fault location procedures on the digital line.
7. At the RT install the 3-type digital line protectors associated with the LIU C DS1 facility.
8. After the IDCU Facility (IFAC) associated with the LIU C DS1 facility is activated at the IDCU, did **DIGROUP C** LED on the **BCU** and **CLF** LED on **LIU-C** go off?

If **YES**, proceed to Step 12.

If **NO**, continue with Step 9.

9.



CAUTION:

Incorrectly set LIU option switches can result in immediate or future loss of service or introduce errors into the digital bitstream.

At RT, remove **LIU-C** and check switch settings. Correct any option switch settings that are incorrect and reinstall the **LIU**.

10. Did **DIGROUP C** LED on the **BCU** and **CLF** LED on **LIU-C** go off?

If **YES**, proceed to Step 12.

If **NO**, continue with Step 11.

11. Verify that digital line pairs are connected to the proper outside cable pairs. Use digital line fault-locating procedures in AT&T 363-205-500 or request personnel at the IDCU location perform fault location procedures on the digital line.

12. Is LIU B DS1 facility equipped?

If **YES**, continue with Step 13.

If **NO**, proceed to Step 18.

13. At the RT install the 3-type digital line protectors associated with the LIU B DS1 facility.

14. After the IDCU Facility (IFAC) associated with the LIU B DS1 facility is activated at the IDCU, did **DIGROUP B** LED on the **BCU** and **CLF** LED on **LIU-B** go off?

If **YES**, proceed to Step 18.

If **NO**, continue with Step 15.

- 15.



CAUTION:

Incorrectly set LIU option switches can result in immediate or future loss of service or introduce errors into the digital bitstream.

At RT, remove **LIU-B** and check switch settings. Correct any option switch settings that are incorrect and reinstall the **LIU**.

16. Did **DIGROUP B** LED on the **BCU** and **CLF** LED on **LIU-B** go off?

If **YES**, proceed to Step 18.

If **NO**, continue with Step 17.

17. Verify that digital line pairs are connected to the proper outside cable pairs. Use digital line fault-locating procedures in AT&T 363-205-500 or request personnel at the IDCU location perform fault location procedures on the digital line.

18. Is the LIU D DS1 facility equipped?

If **YES**, continue with Step 19.
If **NO**, proceed to Step 24.

19. At the RT install the 3-type digital line protectors associated with the LIU D DS1 facility.

20. After the IDCU Facility (IFAC) associated with DS1 D is activated at the IDCU, did **DIGROUP D** LED on the **BCU** and **CLF** LED on **LIU-D** go off?

If **YES**, proceed to Step 24.
If **NO**, continue with Step 21.

21.



CAUTION:

Incorrectly set LIU option switches can result in immediate or future loss of service or introduce errors into the digital bitstream.

At RT, remove **LIU-D** and check switch settings. Correct any option switch settings that are incorrect and reinstall the **LIU**.

22. Did **DIGROUP D** LED on the **BCU** and **CLF** LED on **LIU-D** go off?

If **YES**, proceed to Step 24.
If **NO**, continue with Step 23.

23. Verify that digital line pairs are connected to the proper outside cable pairs. Use digital line fault-locating procedures in AT&T 363-205-500 or request personnel at the IDCU location perform fault location procedures on the digital line.

24. Is a protection line provided?

If **YES**, continue with Step 25.
If **NO**, **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

25. At the RT install the 3-type digital line protectors associated with the LIU P DS1 facility.

26. After the IDCU Facility (IFAC) associated with the LIU P DS1 facility is activated at the IDCU, did the CLF LED on LIU-P go off?

If **YES**, proceed to Step 30.

If **NO**, continue with Step 27.

27.



CAUTION:

Incorrectly set LIU option switches can result in immediate or future loss of service or introduce errors into the digital bitstream.

At RT, remove LIU-P and check switch settings. Correct any option switch settings that are incorrect and reinstall the LIU.

28. Did the CLF LED on LIU-P go off?

If **YES**, proceed to Step 30.

If **NO**, continue with Step 29.

29. Verify that digital line pairs are connected to the proper outside cable pairs. Use digital line fault-locating procedures in AT&T 363-205-500 or request personnel at the IDCU location perform fault location procedures on the digital line.

30. Verify that all LSU deny (d) and force (f) faceplate switches are set to the off position.

31. At the RT, set LSU f switch for DS1 A to the ON position.

32. Are the ADU MN, NE, and TRU PROT LEDs lighted?

If **YES**, proceed to Step 36.
If **NO**, continue with Step 33.

33.



CAUTION:

Incorrectly set ADU and LIU option switches can result in immediate or future loss of service or introduce errors into the digital bitstream.

At the RT, replace the **LSU, ADU, BCU, TRU, and LIU** one at a time, repeating from Step 31 after each replacement. Replace these circuit packs until correct results are obtained or all circuit packs have been replaced.

34. Are the **ADU MN, NE, and TRU PROT LEDs** lighted?

If **YES**, proceed to Step 36.
If **NO**, continue with Step 35.

35. Check wiring using SD-7C118-01. Repeat procedure from Step 31 after locating and correcting trouble.

36. Return LSU f switch for DS1 A to the off position.

37. Repeat procedure from 31, for each of the remaining DS1s (B, C, and D).

STOP. YOU HAVE COMPLETED THIS PROCEDURE.

Test Alarm System for Power Minor and Fan Alarms

1.



CAUTION:

System must be out of service to perform test; otherwise, service will be interrupted. If dual channel bank is already providing service, RT batteries must be fully charged before test is started; otherwise, service may be interrupted on the working bank while alarms are being tested.

Consult office records and verify that needed jumpers for central office and remote alarm points have been made at main distributing frame.

2.



NOTE:

This procedure should only be performed if the -48V DC power shelf (or bulk power plant) is equipped with fully charged batteries.

At RT interrupt AC power by turning off AC circuit breaker to the power shelf (see label on inside door for cabinets), or unplugging the AC power cord plug from outlet.

Response:

At 5ESS switch MCC IDCU RT Page 188YZZ,X for 5E9(1) generic or Page 1880,Y,ZZ,X for 5E9(2) generic (where Y=IDCU, ZZ=TR303 RT number, X=SM number) **POWER** and **MINOR** alarm messages appear after about 4 minutes.

At RT, **ADU** indicator **NE** and **BCU** indicator **PMN** light after about 4 minutes (both banks).

3. At RT, restore AC power by turning circuit breaker on or plugging power cord into AC outlet.

Response: Alarms clear after about 1 minute.

4.



NOTE:

If fans are running, it will be necessary to remove power to the fans by unplugging J114 to fan assembly before obstructing fan blade. The power should be restored before testing the fan alarm. The 4() type fans can be stopped by pressing the **LED TEST/CHANGE FAN SPEED** pushbutton.

When fans are not running at the RT, insert an obstruction (screwdriver, pencil, etc, not your finger) between the fan blades. Start fans by depressing and holding the **FAN TEST** pushbutton on the fan control unit (FCU) or 4() Cooling Shelf **LED TEST/CHANGE FAN SPEED** pushbutton.

Response:

At 5ESS switch MCC IDCU RT Page 188YZZ,X for 5E9(1) generic or Page 1880,Y,ZZ,X for 5E9(2) generic (where Y=IDCU, ZZ=TR303 RT number, X=SM number) **MINOR** alarm message appears after about 30 seconds.

At RT, ADU indicators **MN** and **NE** light after about 30 seconds.

5. Remove fan blade obstruction. Then disconnect and reconnect J114 fan power plug to reset the alarm in the 2A fan.

Response: Alarms clear after 30 seconds.

STOP. YOU HAVE COMPLETED THIS PROCEDURE.

Test Remote Miscellaneous Alarm (If Provided)

1. Is **MISC1** alarm assigned at the RT?

If **YES**, then continue with Step 2.

If **NO**, then **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

2. At RT, operate **MISC1** alarm.

Response: At 5ESS switch MCC IDCU RT Page 188YZZ,X for 5E9(1) generic or Page 1880,Y,ZZ,X for 5E9(2) generic (where Y=IDCU, ZZ=TR303 RT number, X=SM number) **ENV1** and **MINOR** or **MAJOR** (depending on **ADU S1-7** setting) alarm messages appear after about 30 seconds.

At RT, **BCU** indicator **MISC1** and **ADU** indicators **MJ** or **MN** (depending on **ADU S1-7** setting) light after about 30 seconds.

3. At RT, cancel **MISC1** alarms.

Response: All alarms clear.

4. Is **MISC2** alarm assigned at the RT?

If **YES**, then continue with Step 5.

If **NO**, then **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

5. At RT, operate **MISC2** alarm.

Response: At 5ESS switch MCC IDCU RT Page 188YZZ,X for 5E9(1) generic or Page 1880,Y,ZZ,X for 5E9(2) generic (where Y=IDCU, ZZ=TR303 RT number, X=SM number) **ENV2** and **MINOR** or **MAJOR** (depending on **ADU S1-8** setting) alarm messages appear after about 30 seconds.

At RT, **BCU** indicator **MISC2** and **ADU** indicators **MJ** or **MN** (depending on **ADU S1-8** setting) light after about 30 seconds.

6. At RT, cancel **MISC2** alarms.

Response: All alarms clear.


STOP. YOU HAVE COMPLETED THIS PROCEDURE.

Test Single-Party POTS Channel End to End (IDCU to Series 5 RT)

SUMMARY: At RT, locate in both the AB and CD shelves a single-party channel to test. At IDCU, determine corresponding channel and directory number of channel. At RT, connect a test telephone set connected for bridged ringing to channel being tested. Make talking, dialing, ringing, and ring-trip tests on the channel.

1. Obtain Support Apparatus listed:
 - DMM (digital multimeter) with an accuracy of 1.0% and AC/DC impedance of ≥ 1 megohm.
 - 500-type telephone set or 1015B dial hand set (Butt set).
 - **AUA58B** or similar single party *SLC* Series 5 RT channel unit.
 - ITT RTG16L2H15A channel unit faceplate test cord (COMCODE 405755208).

2. Establish communication between RT and IDCU personnel.

3.  **NOTE:**
These test procedures are to be performed on one channel in the AB and CD shelves.

Pull the protector unit for the customer drop corresponding to the channel to be tested.

4.  **NOTE:**
Test telephone set should be connected for bridged ringing.

Install the channel unit faceplate test cord plug into the channel unit faceplate jack. Connect the other end of the test cord to a test telephone set.

5. At RT, lift handset and check for dial tone.
6. Is dial tone present at RT?

If **YES**, then proceed to Step 10.
If **NO**, then continue with Step 7.
7. Request IDCU personnel review line assignment to ensure correct test number. If line assignment is correct, check test connections at RT and correct if needed. If dial tone is still not present, replace RT channel unit and check for dial tone.
8. Is dial tone present at RT?

If **YES**, then proceed to Step 10.
If **NO**, then continue with Step 9.
9. At RT, use SD-7C118-01 to check channel bank wiring. Look for tip and ring reversal between RT and cross-connect terminal. Correct wiring and repeat Step 8.
10. At RT, dial local test number and make normal talk tests.
11. Was call completed with normal transmission quality in both directions?

If **YES**, then proceed to Step 15.
If **NO**, then continue with Step 12.
12. Replace RT channel unit and repeat normal talk tests.

13. Was call completed with normal transmission quality in both directions?
If **YES**, then proceed to Step 15.
If **NO**, then continue with Step 14.
14. At RT, use SD-7C118-01 to check wiring. Check for tip and ring reversal between RT and cross-connect terminal. Correct wiring and repeat Step 13.
15. At CO, dial test line number to ring telephone at RT.
16. At RT does test telephone ring normally?
If **YES**, then proceed to Step 20.
If **NO**, then continue with Step 17.
17. Has tip and ring reversal been checked?
If **YES**, then continue with Step 18.
If **NO**, then proceed to Step 19.
18. Replace RT channel unit and repeat this procedure from Step 5.
19. At RT, look for tip and ring reversal and repeat from Step 15.
20. At RT, lift telephone handset during ringing.
21. At RT, does ringing trip normally?
If **YES**, then proceed to Step 23.

If **NO**, then continue with Step 22.

22. Replace RT channel unit and repeat this procedure from Step 5.

23. Is this the last designated channel to be tested?

If **YES**, then continue with Step 24.

If **NO**, then proceed to Step 3.

24. * Is TBCU (test bus control unit) available for use in testing channels?

If **NO**, then proceed to Step 33.

If **YES**, then continue with Step 25.

25. Request that Repair Service Bureau or Local Test Desk performs necessary channel tests using TBCU.

26. Did tests pass?

If **YES**, then proceed to Step 32.

If **NO**, then continue with Step 27.

27. Check test connections and correct if needed. If connections are correct, replace RT channel unit. Repeat Step 25 and continue with Step 28.

28. Did tests pass?

If **YES**, then proceed to Step 32.

If **NO**, then continue with Step 29.

29. Make sure TBCU is working properly and that you are using proper

procedures. Repeat Step 25 and continue with Step 30.

30. Did tests pass?

If **YES**, then proceed to Step 32.

If **NO**, then continue with Step 31.

31. Use RT schematic drawing SD-7C118-01 to check wiring. Check for tip and ring reversal between RT and cross-connect terminal. Correct wiring problem and repeat Step 25 until tests pass and continue with Step 32.

32. Is this the last designated channel to be tested with TBCU?

If **YES**, then continue with Step 33.

If **NO**, then proceed to Step 25.

33. At RT, remove test telephone and reinstall the protector unit for the customer drop.

STOP. YOU HAVE COMPLETED THIS PROCEDURE