

**L60A/L120A LMX-2 CARRIER TERMINAL  
TRANSMITTING CIRCUITS  
SUPERGROUP MODULATOR  
IN-SERVICE LOSS ADJUSTMENT**

The purpose of this test is to measure and, if necessary, to adjust the supergroup modulator circuit loss.

The 312- to 552-kHz band of frequencies received from a group bank or a supergroup connector at a -25 dB transmission level is translated to its proper frequency allocation in the 60- to 2788-kHz band in the supergroup bank. The design of the L60A and L120A terminals requires a loss of 18.4 dB in each supergroup modulator circuit. A continuously adjustable SG PAD having a range of approximately 3.5 dB is provided in each supergroup modulator to adjust the loss. Supergroups 1 and 3, when used, are unique in that amplification is required in the circuit to maintain this loss.

A translated 104.08-kHz group pilot, which is 20 dB below transmission level, is used to measure the supergroup modulator loss on an in-service basis. The comparison method of measurement normally used for in-service tests should *not* be used. The comparison switch in the 27B receiving console or the 34A TMS does not operate instantaneously. The momentary open (on the net side of the hybrid coil to which the SG BK OUT TST jack is wired) may result in level changes as great as 20 dB.

This section is reissued (a) to delete reference to 92-kHz group pilot, (b) to add Caution note, (c) to add Steps 4 through 7, and (d) to revise Fig. 1. *Equipment Test Lists are not affected.*

**APPARATUS**

**Transmission test equipment:** Refer to Section 356-010-500 and select, from available equipment, receiving test units having the following capabilities:

**Receiving test equipment (RTE)** capable of detecting, from 75-ohm circuits, signals between 296.08 and 2784.08 kHz at a power of -63.4 dBm  $\pm$ 0.05 dB.

**J68858AT (58AT) Pilot Filter Set\*** (Section 103-407-101)

**9A (10 dB) Attenuator\***

\*Required for SG2 315.92-kHz pilot measurement only.

STEP	PROCEDURE
	<p><b>Caution:</b> Section 356-281-502 is prerequisite to this procedure.</p>

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1	<p data-bbox="326 285 1479 348">Set up and calibrate the test equipment for a measurement of a signal of <math>-63.4</math> dBm at the frequency of the supergroup pilot under test (Table A).</p> <div data-bbox="440 423 1341 749" style="text-align: center;"> <p><b>TABLE A</b></p> <table border="1"> <thead> <tr> <th>SG NO.</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> </tr> </thead> <tbody> <tr> <td>Translated 315.92-kHz Pilot Frequency</td> <td>296.08</td> <td>315.92*</td> <td>800.08</td> <td>1048.08</td> <td>1296.08</td> </tr> <tr> <th>SG NO.</th> <th>6</th> <th>7</th> <th>8</th> <th>9</th> <th>10</th> </tr> <tr> <td>Translated 315.92-kHz Pilot Frequency</td> <td>1544.08</td> <td>1792.08</td> <td>2040.08</td> <td>2175.92</td> <td>2784.08</td> </tr> </tbody> </table> <p data-bbox="469 759 1151 789">* Use 58AT pilot filter set and 9A attenuator (Fig. 1).</p> <p data-bbox="329 846 1338 876"><b>Caution:</b> Connect the patch cord to the RTE before proceeding to Step 2.</p> </div> <p data-bbox="326 910 1479 974">2 On the supergroup bank under test, connect the RTE to the SG BK OUT TST jack [patch (1), Fig. 1].</p> <div data-bbox="480 1074 1276 1570" style="text-align: center;"> </div> <p data-bbox="480 1619 548 1638"><b>NOTES:</b></p> <ol data-bbox="493 1644 1019 1757" style="list-style-type: none"> <li>CONNECT PATCH CORD TO RTE BEFORE CONNECTING TO SG BK OUT TST JACK.</li> <li>USE 9A ATTENUATOR AND 58AT PILOT FILTER SET WHEN MEASURING SG 2 PILOT (315.92 KHZ). PILOT FILTER SET HAS 10-DB INSERTION LOSS.</li> </ol>	SG NO.	1	2	3	4	5	Translated 315.92-kHz Pilot Frequency	296.08	315.92*	800.08	1048.08	1296.08	SG NO.	6	7	8	9	10	Translated 315.92-kHz Pilot Frequency	1544.08	1792.08	2040.08	2175.92	2784.08
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**Fig. 1—Supergroup Modulator—In-Service Loss Adjustment**

STEP	PROCEDURE
3	Measure the translated pilot output power at the SG BK OUT TST jack.  <b>Requirement:</b> $-63.4 \text{ dBm} \pm 0.05 \text{ dB}$ .
4	If the requirement of Step 3 is not met, slowly adjust the SG PAD control associated with the supergroup modulator under test to meet the requirement.
5	If the requirement of Step 3 still cannot be met, remove the supergroup bank from service and test in accordance with Section 356-282-502.
6	Repeat Step 3 for each translated supergroup pilot of interest.
7	Disconnect test equipment.