

**OPERATION AND MAINTENANCE
TERMINAL STATION
HOT STANDBY
DR 6/11-135EC
ANNUAL FCC TESTS**

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1. Introduction

This practice lists the annual tests required to ensure compliance with the Federal Communications Commission (FCC) rules for Terrestrial Microwave Radio Systems operation in the common carrier frequency bands. These tests are required to guarantee that the radiated radio signal power, frequency, and spectrum are in compliance with the rules applicable to the operating license. These FCC-required tests are listed in Table A. Note that the first four tests may be performed with the channel in service. However, the Over-the-Air S/I Stress Check is a service-affecting procedure and **must** be performed for both the regular-to-regular and standby-to-standby transmitter/receiver combinations over each radio hop.

Although the DR 6/11-135 Digital Radio System operates on a demand maintenance basis, the additional tests in Table B are also recommended during the annual station visits. When done with the FCC checks, these additional tests require little extra effort and, therefore, offer a cost-effective means for preventive maintenance. For applications where FCC rules do not apply, or if FCC rules are abolished, the tests in Tables A and B are not necessary.

Note that some of the additional recommended tests also involve service-affecting procedures and require both transmitter and receiver switching operations before testing. ***Since transmit switch and reset operations may cause momentary out-of-frame conditions on the downstream transmission line, testing should be scheduled for a low traffic period.*** For proper results, testing should also be scheduled during stable propagation periods. System operation and maintenance supervisors should consult the technical support group to determine the best time to schedule such activity for their specific operating area.

The procedure for each of the indicated tests is given under the "Tests and Adjustments" tab and should be performed on both the regular and standby equipment for both directions of transmission. For cases where requirements of a given test or check are not met, the defective or maladjusted unit(s) should be isolated and restored to proper operation by replacement or adjustment. Consult the applicable diagnostic charts and/or technical support group for assistance in this process, if necessary.

1.1 Update Information

This practice is reissued to move the following tests from Table B, *Recommended Annual Performance Tests*, to Table A, *Required Annual FCC Tests*. This practice is revised to improve overall system performance and to ensure FCC compliance.

- Radio Receiver Microwave Generator Frequency Check and Adjustment
- Radio Transmitter ALC Voltage Check

TABLE A REQUIRED ANNUAL FCC TESTS	
TEST TO BE PERFORMED	ACTION REQUIRED WHEN REQUIREMENTS ARE NOT MET
MWV GEN Frequency Check and Adjustment (RADIO TRANSMITTER PROCEDURES tab)	(1) Ensure service is properly protected.* (2) Replace TRANSMITTER UP-CONV & MWV GEN unit.† (3) Go to "Repair Verification" tab.
Terminal Frame Generator Clock Frequency Check (TERMINAL PROCEDURES tab)	(1) Ensure service is properly protected.* (2) Replace FRAME GEN unit.† (3) Go to "Repair Verification" tab.
Terminal Modulator Carrier Frequency Check (TERMINAL PROCEDURES tab)	(1) Ensure service is properly protected.* (2) Replace 64QAM MOD unit.† (3) Go to "Repair Verification" tab.
Transmitter RF Output Power Check (RADIO TRANSMITTER PROCEDURES tab)	(1) Perform Transmitter RF Output Power Adjustment procedure. If requirements cannot be met, report trouble to technical support group and follow instructions. (2) If a unit is replaced, go to "Repair Verification" tab.
Over-the-Air S/I Stress Check (STATION PROCEDURES tab)	Report trouble to technical support group and follow instructions.
MWV GEN Frequency Check and Adjustment (RADIO RECEIVER PROCEDURES tab)	(1) Ensure service is properly protected.* (2) Replace RCVR DN-CONV & MWV GEN unit.† (3) Go to "Repair Verification" tab.
Radio Transmitter ALC Voltage Check (Set selector switch on ALARM AND METER unit to the ALC V position, or measure the voltage at the ALC V test points.) Requirement: 0.00 ±0.12 volts	(1) Perform Radio Transmitter RF Output Power Adjustment procedure. If requirements cannot be met, report trouble to technical support group and follow instructions. (2) If a unit is replaced, go to "Repair Verification" tab.
* Refer to the "Service Protection" tab. † Refer to the appropriate replacement procedure.	

TABLE B
RECOMMENDED ANNUAL PERFORMANCE TESTS

<i>TEST TO BE PERFORMED</i>	<i>ACTION REQUIRED WHEN REQUIREMENTS ARE NOT MET</i>
Over-the-Air Error Correction Performance Check (STATION PROCEDURES tab)	(1) Ensure service is properly protected.* (2) Maintain test setup and replace one at a time EC RECDR, ERROR LOCTR, and ERROR CORR units. Check requirements after each replacement. If requirements cannot be met, report trouble to technical support group and follow instructions. (3) If a unit is replaced, go to "Repair Verification" tab.
If TWT Power Amplifier is equipped: TWT Helix and Beam Current Check in Radio Transmitter TWT Beam and Helix Current Check and Beam Current Adjustment procedure (RADIO TRANSMITTER PROCEDURES tab)	(1) Follow recommendations in procedure. (2) If unit is replaced, go to "Repair Verification" tab.
Over-the-Air Propagation Distortion Performance Check (STATION PROCEDURES tab)	Report trouble to technical support group and follow instructions.
Terminal Receiver Switch Alignment Check	Perform DADE procedure in Maintenance Manual.
Radio Transmitter Switch Check (Exercise radio transmitter switch with manual local and remote TRMT Switch and then TRMT RESET. Verify that proper local indicators light and downstream transmission is good.†) (See OPERATIONS tab for local procedure and call Alarm Center for remote procedure.)	Report trouble to technical support group and follow instructions.
* Refer to the "Service Protection" tab.	
† Downstream transmission may take momentary hits when switch operates or resets.	