

TMC SPECIFICATION

NO. S - 1086

REV:

0

COMPILED: FP *FP*

CHECKED: *[Signature]*

APPD: *[Signature]*

SHEET 1 OF 7

TITLE:

Typed by mtp 3/25/66

FINAL TEST PROCEDURE

DUAL DIVERSITY RECEIVER

MODEL DDR-7K

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TITLE: TEST PROCEDURE FOR MODEL DDR-7K

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INTRODUCTION

The DDR-7K is a Diversity receiving system that combines the TMC Model double conversion receiver with the TMC Model SBC-1A sideband converter.

TEST EQUIPMENT REQUIRED

1. Signal Generator: H.P. Model 606A
2. AC-VTVM: Ballantine Model 314
3. Frequency Counter: H.P. Model 524C
4. TMC Model TTG-2
5. Sonic Analyzer: Model LP-1A

PRELIMINARY

It is assumed that individual units have been tested and installed in the cabinet; that all cables have been connected and all inter-connections have been made.

1. Check for obvious mechanical and electrical defects.
2. Turn on main power on DCP-1; blowers should operate.
3. Measure line voltage at DCP-1 outputs.
4. Turn on all units.

PROCEDURE

AFC-2A #1

1. Turn sensitivity control full CCW, RCC/OSC switch to OSC, AFC on SBS #1 to on.
2. Connect frequency counter to J5002, hold reset button depressed.
3. Frequency should read 250 KC ± 5 cps. Adjust tuning slug on 250 KC oscillator if required.
4. Connect counter to J5003, hold reset button depressed and set KC tuning knob to 0.
5. Frequency should read 705 KC ± 250 cps. Adjust tuning slug on 705 KC oscillator if required. Remove counter.
6. With reset button depressed, set drift meter to center scale using adjustment pot on top of AFC chassis.

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PROCEDURE - Cont'd

SBS-I-1A #1

1. Connect signal generator to J6800. Frequency to 455 KC with 10 milli-volts output (no modulation).
2. Connect AC VTVM and 50 ohm load to J6806.
3. Set AFC switch to off, detection switches to SSB.
4. Set both channel IF selectors to 7.5 KC LSB.
5. Vary generator approximately 1 KC above 455 KC.
6. Adjust R116 on 7.5 KC LSB IF strip for 1 V on AC VTVM.
7. Set both IF selectors to 3.5 KC LSB.
8. Adjust R116 on 3.5 KC LSB strip for 1 V on AC VTVM.
9. Set both IF selectors to 3.5 USB. Vary generator approximately 1 KC below 455 KC.
10. Adjust R116 on 3.5 KC USB IF strip for 1 V on AC VTVM.
11. Set both IF selectors to 7.5 KC USB.
12. Adjust R116 on 7.5 KC USB IF strip for 1 V on AC VTVM.
13. Remove generator, AC VTVM, and load.

SBC-I-1A-SYSTEM #1

1. Connect signal generator through a 20 DB pad to antenna input HFD-1, frequency set at 5 MC unmodulated with output set at 100 microvolts.
2. Set up FFR-3 for 5 MC reception.
3. Set AGC selector on SBS to channel A-B position, IF selector to 3.5 KC LSB.
4. Adjust CH-A and CH-B line level meters on SBS for 0 VU.
5. Connect DC VTVM between terminals 10 and ground of E6800 on back of SBS. Decrease generator to 10 microvolts.
6. Adjust R6800 on back of SBS for 0 volts on DC VTVM. Remove VTVM.
7. Turn sensitivity control on AFC-2A #1 fully CW, AFC on SBS #1 to on.
8. Holding reset button depressed, carefully tune generator so that the fade alarm goes out, level meter reads in the green, and the drift meter reads center scale.
9. To obtain a level meter reading in the green, it may be necessary to adjust the threshold pot on the top chassis of the AFC-2A.
10. Release reset button and turn sensitivity full CCW. After 1 minute, turn sensitivity back to CW. The level meter should return to the green, and the fade alarm go out.
11. Vary generator as in Step 8.
12. Connect frequency counter to signal generator.
13. Slowly vary generator plus 1 KC. When this is obtained, the AFC-2A should not be in a fade, and the drift should indicate in the yellow. Repeat for a frequency of minus 1 KC; the same conditions should exist. Retune generator for maximum indication on SBS line level meters.

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PROCEDURE - Cont'd

PROCEDURE: RECEIVER #2:

1. Repeat all the previous steps on the units in Receiver #2.
2. Repeat using GPR-90 as substitute for one FFR-3.

PRECEDURE: OVERALL RECEIVER

A. SIGNAL + NOISE TO NOISE:

1. Connect signal generator to Antenna Input of HFD-1. Set generator to 5MC with a 1 microvolt output.
2. Tune FFR-3 for 5.0 MC reception.
3. On SBS-1 set detection switches to SSB, and IF selectors to 3.5KC position.
4. Connect AC-VTVM to audio output on E6800 on SBS #1, and terminate with 600 ohms.
5. Vary generator for peaks on CH-A VU meter, set line level for OVU.
6. Reduce generator output to 0, set line level of CH-A for 0DB reference on AC-VTVM.
7. Increase generator for a 10DB rise on AC-VTVM. Generator output should be 1 microvolt or less.
8. Repeat 1 - 8 for Receiver #2.
9. Repeat 1 - 8 for Receiver #3 (GPR-90).

B. IMAGE RATIO:

1. Connect signal generator to Antenna input of HFD-1.
2. Set generator for 5MC with 1 microvolt output.
3. Tune FFR-3 to 5MC.
4. Set SBS #1 detection switches to SSB, and IF selectors to 7.5KC position.
5. Vary generator for maximum indication on CH-A and CH-B VU meters, set line levels for OVU.
6. Retune signal generator to 5.910MC.
7. Increase generator attenuator to obtain OVU on VU meters.
8. Generator output should be approximately 10,000UV (Average 80DB).
9. Repeat 1-8 for Receiver #2.

C. IF REJECTION:

1. Connect generator to Antenna Input of HFD-1.
2. Set generator for 5MC with 1 microvolt output.
3. Tune FFR #1 to 5MC.
4. Vary generator for maximum indication on VU meters, set line levels for OVU.

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PROCEDURE - Cont'd

5. Retune generator to 455KC.
6. Increase generator attenuator to obtain OVU on VU meters.
7. Generator output should be 10,000UV (80DB) or greater.
8. Repeat 1-8 for Receiver #2.

D. DISTORTION PRODUCTS:

1. Connect the RF tones of a TMC Model TTG-2 to Antenna Input of HFD-1.
2. Tune FFR #1 to 5MC.
3. Vary FFR #1 tuning for maximum indication on CH-A and CH-B VU meters, set line levels for OVU.
4. Connect Sonic Analyzer to terminals 2 and 4 of E6800 of SBS #1.
5. Set up analyzer for two tone presentation on CRT.
6. Measure intermodulation distortion, should be at least 39DB below two tone level (45DB below PEP).
7. Repeat 1-6 for Receiver #2.
8. Repeat 1-6 for Receiver #3 (GPR-90).

E. DYNAMIC AGC CHARACTERISTIC CHECK

- a. Set controls on FFR-3 #1 as follows:

1. AVC to ON position
2. Tune to 5.0 MC.

- b. Set IF BANDWIDTH selector on SBS-1 to 7.5 KC USB position.

- c. Set the RF head at 5.0 MCS. Lock the TUNING control.

- d. Place the DETECTION switches on SBS-1 to SSB.

- e. Connect a signal generator via a 20 db pad to Antenna Input of HFD-1. Set the frequency to approximately 5.0015 mcs. UNMODULATED, and the output to 1.0uv. A 1.5 KC tone should be heard.

NOTE: Because of the 20 db pad, the actual input to J109 on the FFR-3 is 10 uv; that is, actual input = sig. gen. output + 10. Connect Ballantine Meter to Audio output terminals of SBS #1 terminated in 600 ohms.

- f. Increase the signal generator output to 100.000 uv. Note Ballantine reading. Decrease signal generator output to 10 uv. Ballantine reading should not change more than 12 db.
- g. Repeat for Receiver #2.
- h. Repeat for Receiver #3 (GPR-90).

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SERIAL NO. _____

MFG. NO. _____

Mechanical check	_____	OK
Wiring check	_____	OK
Line Voltage at DCP outlets	_____	VAC
Blower Operation	_____	OK

FFR-3

RCVR #1

RCVR #2

AFC-2A

1. Detector Oscillator	_____	CPS	_____	CPS
2. Converter Oscillator	_____	CPS	_____	CPS

SBS-I-1A

1. IF Strip Output	_____	OK	_____	OK
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SBC-I-1A

1. AGC Threshold	_____	OK	_____	OK
2. AFC Locking	_____	OK	_____	OK
3. AFC Drift	_____	OK	_____	OK

OVERALL RECEIVER

1. Signal + Noise to Noise	5MC	_____	OK	_____	OK
2. IMAGE RATIO		_____	OK	_____	OK
3. IF REJECTION		_____	OK	_____	OK
4. DISTORTION PRODUCTS		_____	DB	_____	DB
5. AGC Response		_____	DB	_____	DB

FFR-3	_____	_____
AFC-2A	_____	_____
SBS-I-1A	_____	_____
DCP-1	_____	_____

DATE: _____

TESTER: _____

