

TMC SPECIFICATION

NO. S 1201

REV:

COMPILED: BN

CHECKED:

APPD:

SHEET 1

OF 7

TITLE: TEST PROCEDURE SBT-1KA6

I. INTRODUCTION

The SBT-1KA6 is a general purpose transmitter providing AM, CW, SSB, DSB and ISB operation throughout a frequency range of 2 to 32 Mc. The transmitter provides 1 KW output for AM and CW operation and 1 KW PEP for sideband operation.

II. MAIN COMPONENTS

The SBE-1KA6 consists of nine separate units integrated to form the transmitter system. These components are:

1. Rack Assembly RAK-9A2.
2. Auxiliary Power Panel APP-4.
3. High Voltage Power Supply PS-5B.
4. Mid and Low Voltage Power Supply PS-4B.
5. Linear Power Amplifier RFD-1B.
6. Mode Selector SBE-8.
7. Variable Frequency Oscillator VOX-5.
8. SWR Indicator SWR-1K.

III. TEST EQUIPMENT

1. Dummy Load 1 KW, 50 ohm.
2. Spectrum Analyzer, PTE.
3. VTVM, HP Model 410B or equivalent.
4. Voltmeter, Simpson Model 260 or equivalent.
5. Test Receiver, TMC Model GPR-90 or equivalent.
6. Square Wave Generator, Boonton Model 71 or equivalent.

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IV. TEST PROCEDURE

1. Turn all power switches to OFF or STANDBY.
2. Connect AC power to the rack.
3. Connect a shielded lead from the output of the TTG (P/O,PTE) to Channel 1 or Channel 2 inputs on the APP-4.
4. Connect a RF cable from J609 (AX198) to the dummy load.
5. Connect the dummy load Monitor Output to SIGNAL INPUT jack of the PTE.
6. Connect a jumper on Term. 5 & 6, 7 & 8 of the APP-4 (EXTERNAL INTERLOCKS). Connect a jumper between Terminals 22 and 21 (KEY LINE).
7. Set S100 on the PS-4B to NORMAL, TRANSMITTER VOLTAGES to STANDBY, FINAL VOLTAGES to OFF, OVERLOAD breakers to ON.
8. Set MAIN POWER switch on APP-4 to ON position. The red MAIN POWER indicator lamp should light.
9. Set MAIN POWER switch on PS-4B to ON position. The green MAIN POWER indicator lamp should light and RFD-1B blower and PS-5B fan should start running. Adjust line voltage to 115 volts, rack fan should start running.
10. Turn on POWER switch on SBE. The red lamp on power supply and OVEN lamp should light.
11. Turn on POWER switch on VOX. The red MAIN POWER lamp and INNER OVEN and OUTER OVEN lamps should light.

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12. After a warm-up time of approximately 5 minutes, set the TRANSMITTER VOLTAGES switch to ON position. The red indicator lamp should light.
13. Open all interlock switches and jumpers in succession. The red TRANSMITTER VOLTAGES indicator must go out. Set the TRANSMITTER VOLTAGES switch to STANDBY.
14. Set XMTR switch on SBE to ON position. The TRANSMITTER VOLTAGES red indicator lamp on PS-4B should light.
15. Turn VOX METER switch to HFO position.
16. Set VOX HFO switch to ON position.
17. Set VOX MASTER OSCILLATOR FREQUENCY. (See Chart)
18. With SBE, MF, XTAL, SW in the VMO position, adjust the SBE for two tone test at req. output frequency using the TTG supplied with the PTE test equipment rack.
19. Set SBE OUTPUT control to zero.
20. Set FINAL VOLTAGES switch on PS-4B to ON position. Red indicator should light.
21. Using the tuning chart, adjust the RFD-1 for 1 KW PEP at required frequency (225 VRMS across 52 ohms).
22. Adjust RFD-1 to obtain 40 db third order distortion at 1 KW PEP.
23. Adjust RFD-1 to obtain 1 KW CW. (225 VRMS @ 52 ohms.)
24. Place voltmeter across terminals 3 and 4 of APP-4. Meter should read 115 volts A.C. This is transmitter antenna relay voltage, and may vary $\pm 10\%$.

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25. With voltmeter connected as in (24) above, set XMTR switch and EXCITER switch on SBE to OFF position.
 - a. Voltmeter should read zero volts.
 - b. FINAL VOLTAGE and TRANSMITTER VOLTAGE indicators on P.S.-4B should go out.
26. Place a jumper across terminals 1 and 2 on the APP-4. TRANSMITTER VOLTAGES indicator should light. Remove jumper.
27. Place a jumper across terminals 9 and 10 on the APP-4, TRANSMITTER VOLTAGES, FINAL VOLTAGES and EXCITER on indicators should light. Remove jumper.
28. Place an ohmmeter across terminals 24 and 25 on the APP-4. The ohmmeter should read $10 \Omega \pm 20\%$ between 24 and 25, ∞ between 23 and 24. Place a jumper across terminals 9 and 10 to key the unit. An ohmmeter connected between 23 and 24 should read $10 \Omega \pm 20\%$, between 24 and 25 should read ∞ .
29. Set the MULTIPLY by frequency selector on the SQUARE WAVE GENERATOR to 1 position.
30. Turn the CYCLES frequency selector maximum counterclockwise and observe fluctuating meter reading.
31. Turn the control knob under the PEAK VOLTS meter maximum counter-clockwise.
32. Set the small OUTPUT selector switch to the 50 position.
33. Connect a piece of 2 conductor shielded cable from the two uppermost S.W. output terminals on the SQUARE WAVE

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GENERATOR to the APP-4 so that the upper S.W. output terminal is connected to terminal 27 and the other S.W. output terminal connected to terminal 29.

34. Set S100 on the PS-4B to CW position.
35. Turn on the TRANSMITTER VOLTAGES switch. Adjust the transmitter for 1 KW output.
36. By shutting off the Square Wave Generator, the transmitter Plate Current should fall to 0. The SBE output should drop to 0. Turning on the generator should result in full output.
37. Set the TRANSMITTER VOLTAGES to STANDBY.
38. Turn S100 to PTT. Connect a jumper across Terminals 10 and 11 of E701 on the PS-4B.
39. Set the TRANSMITTER VOLTAGES to ON. The transmitter should be at full output with the Square Wave Generator on. Disconnecting the jumper on Terminals 10 and 11 should result in the PA Plate Current falling to 0.
40. Turn off all power switches and reduce all gain controls to zero. Remove AC connections to line.
41. Check cables, hardware and slides for ease of movement. Units should tilt without obstruction.
42. This completes testing of system SBT-1KA6.

