DATE 1-25-61 SH. 1 OF 5 COMPILED BY	TMC SPECIFICATION NO. S-537	A
	TITLE: TEST PROCEDURE SBT-1KP	JOB
APPROVED RK		

A. INTRODUCTION

The SBT-1KP is a general purpose radio transmitter providing SSB, ISB, DSB, AM and CW operation throughout a frequency range of 2 to 32 megacycles in 100 CPS steps (320,000 channels) with a stability of 1 part in 10^8 per day. The complete system is housed in two separate racks.

B. MAIN COMPONENTS

The SBT-1KP consists of 15 separate units integrated to form the system. These units are:

1)	Rack Ass'y.	RAK-11	
2)	Sideband Exciter	CBE-1	
3)	Controlled Harmonic Generator	CHG-1	
4)	Controlled Master Oscillator	CMO-1	
5)	Low Frequency Loop	CLL-1	... SBG SECTION
6)	High Frequency Loop	CHL-1	
7)	Frequency Standard	CSS-1	
8)	Power Supply	CPP-5	
9)	Power Supply	CPP-2	
10)	Rack Ass'y.	RAK-17B	
11)	Antenna Tuning System	ATS-2	
12)	Linear Power Amplifier	RFD-1	
13)	Auxiliary Power Panel	APP-4	.... PA SECTION
14)	Low Voltage Power Supply	P.S.-4	
15)	High Voltage Power Supply	P.S.-5	

Modification Kit, KIT-101 may also be supplied as required by the particular installation.

C. TEST PROCEDURE

The test procedure for the SBT-1KP system is outlined on the following pages. Before the system can be tested correctly, all components except the RAK-17 rack assembly must be tested and passed by the test department as per the specific test requirements for each unit.

I. EQUIPMENT REQUIRED

1. 52Ω dummy load, 1KW dissipation.
2. AC power cables.
3. Test equipment rack TMC model PTE.
4. RF output cable. RG-8/U.
5. MWC24(7)S3, cable insulated shielded, 5 ft.
6. CA-409 cable asembly, jumper 6 in.
7. H.P. VTVM, Model 410B, or equivalent.
8. Test cable assembly #106.
9. Test Chart, SBT-1KP (S537 page 5 (size Dw'g.)
10. Voltmeter, Simpson 260 or equivalent.
11. Modification kit KIT-1 (if not supplied with system).

II. PROCEDURE

1. Install Modification Kit KIT-101 to interconnect the SBG (exciter) rack to the power amplifier rack.
2. Install AC input power cables from the rear of the RAK-11 and RAK-17B to the AC line.
3. Apply power to the SBG section and allow unit to warm up as per the test specifications for the SBG-1(S-527). Make sure RF output controls on CHG are at zero.
4. Connect fanning strips of test cable assembly to E501 and E502 on rear of APP-4 chassis. Remove all jumpers from rear of APP-4 chassis; these jumpers will be replaced upon completion of this test procedure.

PROCEDURE CONT'D.

5. Connect shielded lead from the output of the TTG mounted in test equipment rack PTE to CHANNEL 1 and CHANNEL 2 input terminals (balanced) on test cable assembly.

6. Connect RF output cable from J609 jack of AX-198 assembly to RF input terminal of TU-2 antenna tuner.

7. Connect coaxial cable from RF output terminal of TU-2 unit to the dummy load.

8. Connect dummy load MONITOR OUTPUT to SIGNAL INPUT jack of PTE analizer.

9. Connect a jumper between terminals 5 and 8 on the test cable assembly terminal board T601.
This completes the EXTERNAL INTERLOCKS circuit within the rack.

10. Connect a jumper from terminal 21, T602, to terminal 22. This completes the KEY LINE circuit to the CMO.

11. Set MAIN POWER switch on APP-4 to ON position. The red MAIN POWER indicator lamp should light.

12. Set MAIN POWER switch on PS-4 to ON position. The green MAIN POWER indicator lamp should light and RFD-1 blower and PS-5 fan should start running. NOTE: PS-4 TRANSMITTER VOLTAGES switch should be in STANDBY position; FINAL VOLTAGES switch on OFF position and OVERLOAD breakers in ON position. Adjust line voltage to 115 volts, rack fan should start running.

13. After a warm-up time of approximately 5 minutes, set the TRANSMITTER VOLTAGES switch to ON position. The red indicator lamp should light.

14. Set the FINAL VOLTAGES switch to ON position. The red indicator should light and approximately 200 MA of plate current should appear on the PA PLATE CURRENT meter on the RFD.

15. Place voltmeter across terminals 3 and 4 of T601 on test cable. Meter should read 115 volts A.C. This is transmitter antenna relay voltage, and may vary ± 10%.

16. With voltmeter connected as in (15) above, set XMTR VOLTAGES switch on PS-4 to STANDBY POSITION.
    a. Voltmeter should read zero volts.
    b. FINAL VOLTAGES and TRANSMITTER VOLTAGES indicators on P.S.-4 should go out. Remove meter.

PROCEDURE CONT'D.

17. Place a jumper across terminals 1 and 2 on T601. TRANSMITTER VOLTAGES and FINAL VOLTAGES indicator should light. Remove jumper. This checks the REMOTE XMTR PLATE circuit to the P.S.-4.

18. Place an ohmmeter across terminals 24 and 25 T602. The ohmmeter should read 10Ω ± 10% between 24 and 25 and ∞ between 23 and 24.

19. Place a jumper across terminals 1 and 2 to key the unit. An ohmmeter connected between 23 and 24 should read 10Ω ± 20% between 24 and 25 ahould read ∞. Remove jumper and meter.

20. Using the TTG supplied with the PTE test rack, adjust the SBG section for two tone test at required frequency. See test chart on last page and refer to SBG test procedure S-527. Reduce CHG output to zero.

21. Set TRANSMITTER VOLTAGES switch on PS-4 to ON position. The TRANSMITTER VOLTAGES and FINAL VOLTAGES indicators should light.

22. Adjust the SBT-1KP system for 1KW, PEP, at the test frequency. 1KW PEP is 225 VRMS across 52Ω load when measured with HP410B.

23. Adjust system for 40 DB third order distortion at test frequency. See chart.

24. Adjust system for 1KW, CW, at test frequency. (225 VRMS @ 52Ω).

25. Adjust CHG output to zero.

26. Turn all switches OFF. Remove AC input cables and test cable assembly.

27. Remove Modification Kit,KIT-101 all test equipment and cables. This completes operational testing of system SBT-1KP.

28. Check cables, hardware and slides for ease of movement. Units should tilt without obstruction.

29. This completes testing of system SBT-1KP.

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DATE

TEST BY

TEST CHART SBT-1KP, ser. no.

CBE ser. no. _____

CHG ser. no. _____

CMO ser. no. _____

CLL ser. no. _____

CHL ser. no. _____

CSS ser. no. _____

CPP-5 ser. no. _____

CPP-2 ser. no. _____

RFD-1 ser. no. _____

P.S.-4 ser. no. _____

P.S.-5 ser. no. _____

APP-4 ser. no. _____

ATS-2 ser. no. _____

	1KW PEP, SSB											1KW, CW					
FREQ MC	CMO SETTING	CHG BAND	DRIVER BAND	1st AMPL. TUNE	PA GRID TUNE	PA TUNING	PA LOADING	PA LOADING SWITCH	MA, PA PLATE CURRENT	MA, PA SCREEN CURRENT	3rd ORDER DISTORTION -DB	MA, PA PLATE CURRENT	MA, PA SCREEN CURRENT	FORWARD POWER WATTS	REFLECTED POWER WATTS	ACTUAL POWER WATTS	REMARKS
2																	
5																	
10																	
20																	
30																	

NOTE: 1. 1KW, PEP, IS 225 VRMS ACROSS 52 Ω LOAD. (HP 410B)

2. 1KW, CW, IS 225 VRMS ACROSS 52 Ω LOAD.

3. 3rd ORDER DISTORTION REQUIRED AT 30MCS-32MCS IS 35DB.

ITEMS	ACCEPT	REMARKS
1. A.C. POWER TO APP-4	_____	_____
2. A.C. POWER TO PS-4	_____	_____
3. A.C. POWER TO CBE	_____	_____
4. A.C. POWER TO CMO	_____	_____
5. A.C. POWER TO CSS	_____	_____
6. A.C. POWER TO CHG	_____	_____
7. INTERLOCK CIRCUITS	_____	_____

ITEMS	ACCEPT	REMARKS
8. KEY LINE CIRCUIT	_____	_____
9. CHANNEL 1 CIRCUIT	_____	_____
10. CHANNEL 2 CIRCUIT	_____	_____
11. REMOTE XMTR PLATE CIRCUIT	_____	_____
12. INTERCONNECT CABLING	_____	_____
13. RECEIVER MUTING	_____	_____
14. 115V ANTENNA RELAY	_____	_____

SYM	DESCRIPTION	DATE	CH. NO.	DRAFTS	CHECKER	ENG. APP.

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± 1/64 DECIMALS ± .005 ANGLES ± 1/2°

SCALE:

MAXIMUM ALLOWABLE TOLERANCES HAVE BEEN DETERMINED AND ANY DEVIATIONS WILL BE CAUSE FOR REJECTION. REMOVE ALL BURRS AND SHARP EDGES

REQ. PER UNIT	MODEL	SECTION	ASS'Y. NO.	DATE
	USED ON			

REQ.	ITEM	PART NO.	DESCRIPTION	SYMBOL

STOCK SIZE

MATERIAL

TYPE & TEMPER | HEAT TREAT. SPEC.

FINISH & SPEC. NO.

THE TECHNICAL MATERIEL CORP.
MAMARONECK, NEW YORK

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TEST PROCEDURE CHART, SBT1KP

DRAWN	CHECKER	FINAL APPROVAL
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ELEC. DES. APP. | MECH. DES. APP.

TMC FORM NO. 109

DEFIANCE NO. 1020 36352

REVISION SHEET

THE TECHNICAL MATERIEL CORP.
MAMARONECK NEW YORK

S-537

MODEL _____ PROJECT NO _____

DATE	REV.	PAGE	EMN#	DESCRIPTION	CHK.	APP.
5-4-61	A	1	4856	On "B" MAIN COMPONENTS, chg. item #8 from CPP-1 to CPP-5.		
5-4-61	A	1	4856	Chg. "Modification Kit" from KIT-1 to KIT-101.		
5-4-61	A	2	4856	On "PROCEDURE", item #1, chg. from KIT-1 to KIT-101.		
5-4-61	A	4	4856	On Item #27, chg. KIT-1 to KIT-101.		
5-4-61	A	5	4856	On "TEST CHART SBT-IKP", (Print), chg. CPP-1 to CPP-5.		

IMC FORM 154 - A