TMC SPECIFICATION

REV: Ø			NO. S 1181
COMPILED: BN	CHECKED:	APPD:	SHEET 1 OF 10
TITLE:			
3/6/67 jb			

TEST PROCEDURE FOR SBT-1KPA1 (RAK11E1)

AND SBT-1KPA2 EXCITER FRAME

WITH THE SBG-3 SYSTEM

TEST INSPECTION PROCEDURE

1. TEST EQUIPMENT REQUIRED:

   A. TMC Model PTE Spectrum Analyzer.

   B. Simpson Model 260 voltohmeter or equivalent.

   C. H-P Model 410B VTVM or equivalent.

2. PRELIMINARY SETUP FOR SIDE RACK:

   A. CHG-3 (RF Translator) RF Gain control mid range.

   B. HFS-2 None

   C. CMR-1 (Sideband Exciter).

      1. Channel Priority controls set to 100.

      2. Meter function set to A1.

      3. Carrier Suppression set to FULL.

      4. Power switch to ON.

   D. AX-560A

      1. Standby/operate switch to STANDBY.

      2. Test key in normal or neutral position.

   E. AF108

      1. Place a jumper from 4 to 5 on TB903 (CHG VOX).

      2. Place a jumper from 9 to 7 on TB903 (CHG KEY, TEST KEY).

   F. Connect the rack to 115/230 VAC power as required. The fans should operate (RAK11E1).

3. INSPECTION:

All units in the auxiliary rack must be tested to meet specification before installation as a system. For proper interconnection and termination refer to CK-1294.

A. MECHANICAL INSPECTION:

Give the rack a good visual inspection for obvious defects, check cabling to see that no strain exists when units are pulled out and tilted. Check slides for ease of operation sliding in and out. All units should line up in rack and no contact made between front panels.

B. PRELIMINARY ELECTRICAL INSPECTION:

1. Place the STANDBY-OPERATE Switch to the OPERATE position. This applies power to the HFP. Because of the delay tube in the HFP a 90 second delay is necessary before fil., B+, etc. is applied to the CHG and HFS. This time delay must be checked.

2. Connect DC VTVM to TP 8001 in the HFP. The voltage should be +200 VDC. If not adjust "voltage adjust" "A" to maintain +200 VDC. Connect DC VTVM to TP 8002 in HFP. This should be +200 VDC. If not, adjust "voltage adjust" "B" to maintain +200 VDC.

C. SBG SYSTEM

1. CHG

Translates simultaneously or individually four separate IF freq. channels to desired RF frequency.

2. HFS-2

Generates a DC Control voltage to control oscillator in CHG by comparison of sample signal from CHG with signal of same frequency internally generated. Also supplies 1 MCS signal to CMR.

3. CMR

Translates audio signal into four separate and distinct IF frequency channels.

4. HFP

Supplies B+, C- and AC voltages for the CHG and HFS-2.

5. AX-560A CONTROL PANEL

Provides operate/standby switch for HFP and test key.

D. INTERMODULATION DISTORTION SSB EXCITER ONLY

1. Connect two AF tones from PTE to channel A1 on TB 902 with a shielded pair. TB 902 is located on the AF108 at the bottom of the Rack. TTG Power Switch to "ON". "AF TONE" Switch to "ON". "RF TONE" Switch to "OFF". Tone control switch to "TWO TONES". Connect a 50 ohm, 2W load to J-912 through a "T" connector. Connect the AC VTVM lead to same "T" connector. Connect the analyzer RF Input to the Monitor Jack, J915.

2. Place the meter function switch on the CMR to A1 and adjust audio output for a -10dbm which can be read on the input level meter on the CMR.

3. The first frequency to be tuned will be 2 MCS. Set RF Gain control on CHG to mid range. On the HFS place the MC switch in position #2, 100KC at zero, 10KC zero, 1KC zero, .1KC also at zero. The HFS nixie lights will indicate 2 MCS. Activate the Test Key on the AX560A to the lock position. Turn the bandswitch on the CHG to band #1, and the CHG TUNE to 2 MCS. When it reaches 2 MCS the sync. light on the CHG will light and there should be some output indicated on the CHG RF level meter. Adjust RF gain control on the CHG for an output of 2.5 volts as indicated on the AC VTVM.

4. Tune the VOX on the PTE to a frequency 500 KC higher than the RF signal to be displayed.

   EXAMPLE: Desired freq. 2,000.000
   Intermediate freq. 500,000
   V.F.O. 2,500,000

   a. Set SWEEP selection to 14 KC.

   b. MASTER OSCILLATOR Frequency to 2.5 MC.

   c. Tuning switch to 2.5 MC.

5. PTE Analyzer Controls set as follows:

   a. Set the VOX output for about .1 MA.

   b. On analyzer.

   c. Scale switch to Log.

   d. IF attenuator switch to -20 db.

   e. Input attenuator switch as required to place two tone signal peaks on the ZERO db reference

line but maintaining the gain control at approximately full clockwise. Adjust the VOX freq. slightly to position the two tone signal presentation in the center of the analyzer screen. The displayed signal in conjunction with the 2.5 volts across the 50 ohm load represents the rated PEP output on a scale from 0 to 40 db.

f. Place the IF attenuator switch to 0 db thus expanding the scale to 60 db (0 db line now becomes 20 db).

g. Read the 3rd order products from this presentation. The 3rd order products shall be not less than 45 db below either tone of the two tone signal at the rated output which is 2.5 volts RMS. Record what the distortion is on the sheet provided.

h. Repeat the above procedure for all frequencies on the chart.

i. Upon completion of the Channel A1 check, repeat the procedure at 2 MCS for Channels B1, B2 and A2. Audio connections for the channels can be made on TB 902 for all channels.

j. Record the results on the chart.

E. CARRIER SUPPRESSION

1. Leaving the PTE set up as in Intermodulation check remove the A.F. tones from Channel A1 connection on the PTE.
2. Turn carrier suppression control on the CMR to "O".
3. Again adjust the output of the CHG to 2.5 volts RMS as indicated on the AC-VTVM with the RF gain control on the CHG and the CHG tuned to 2 Mcs.
4. Adjust the displayed signal on the analyzer screen with the IF Attenuator in the -20db position to the o db line and center the signal in the screen with the VOX.
5. Vary the carrier reinsertion on the CMR from its zero position to 3, 6, 20, 30 and FULL and back to the other extreme. Note the value of carrier suppression as indicated on PTE.
6. The carrier suppression control should provide a variation from 0 to 30 db suppression and a maximum carrier suppression of not less than 55 db below the rated output on the PTE. Record carrier suppression on sheet provided.

F. SPURIOUS CHECK

1. Set up the SSB Exciter to 2 MCS to its rated output, 2.5 volts RMS across a 50 ohm load with carrier drive ONLY. Set carrier suppression to 0 on CMR. Set up

the analyzer presentation as described in previous test to the 0 db reference line with IF attenuator to -20 db position.

2. Set the analyzer sweep frequency to 14 KC. Position the displayed signal so that the carrier is centered in the screen.

3. Set the IF attenuator to 0 db and read the level of all the spurious signals.

4. Spurious signals shall be at least 45 db below rated output .250 W PEP or 2.5 volts RMS. "Record results on sheet provided.

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FREQ. in mc/s	VOX Setting	BAND SW	OUTPUT POWER	DISTORTION FULL OUT
2.0000	2500	1		
3.0000	3500	1		
3.0000	3500	2		
4.0000	2250	2		
4.0000	2250	3		
6.0000	3250	3		
6.0000	3250	4		
8.0000	2125	4		
8.0000	2125	5		
12.0000	3125	5		
12.0000	3125	6		
16.0000	2062.5	6		
16.0000	2062.5	7		
24.0000	3062.5	7		
24.0000	3062.5	8		
28.0000	3562	8		
32.0000	2031	8		
Channel A2 2.0000	2500	1		
Channel B1 2.0000	2500	1		
Channel B2 2.0000	2500	1		

SPURIOUS SIGNALS

FREQ. IN MCS.	VOX SETTING	BAND SW	OUTPUT POWER	db
2.0000	2500	1		

CARRIER SUPPRESSION

FREQ. IN MCS.	VOX SETTING	BAND SW	OUTPUT POWER	SUPPRESSION
2.0000	2500	1		db

ACCEPT

MECHANICAL INSPECTION _____

PRELIMINARY ELECTRICAL INSPECTION _____

TESTER _____ INSPECTOR _____

FINAL APPROVAL _____ DATE _____

REVISION SHEET	THE TECHNICAL MATERIEL CORP. MAMARONECK NEW YORK	S 1181 LIST NO.

DATE	REV.	SHEET	EMN'#	DESCRIPTION	APP.
3/30/67	Ø			ORIGINAL RELEASE FOR PRODUCTION	

TMC FORM MLR-1 2-65—AINS.