TMC SPECIFICATION			NO. S-1162
REV: A			
COMPILED: RJB	CHECKED: R. Baker	APPD: D B Mackay	SHEET 1 OF 5
TITLE:			

jb 12/21/66

TEST PROCEDURE

LPFA-1K, 10K, 40K and 200K

LOW PASS FILTERS

The LPFA series are Low Pass Filters of the image parameter design method, with a cut-off frequency (3db or half power point) at about 32 MHz. The LPFA 1 and 10K use the standard CC-109 capacitor series, while the 40K and 200K use vacuum type capacitors. The basic test procedure applies to all models of this line with a 32 MHz cut-off frequency.

A. EQUIPMENT REQUIRED

1. HP Signal Generator, Model 606 or equivalent.
2. HP VTVM
3. 47 ohms load (RC-32GF470J)
4. Coax test lead, BNC at one end, clips at opposite end, length under 4 feet.
5. GPT-10K or equivalent (power test)

B. PHYSICAL

1. Inspect for loose or broken components and connections.
2. Physical layout and components must conform with existing drawings and schematics.
3. Employ existing procedures as outlined by QA Dept.

C. ELECTRICAL TEST

1. Connect test set-up as noted below.
   a. Coax lead connects from Signal Generator to filter input.
   b. 47 ohm load (RC32GF470J) is connected to filter output using the shortest possible lead lengths. Clips may be soldered to the 47 ohm resistor if desired to clip to the filter output.
   c. Connect the AC probe of the VTVM across the 47 ohm load in the filter output.

2. Set Signal Generator output to zero, using 1 volt range. Set VTVM on 1 VAC range, zero.

3. Set Signal Generator frequency to 2.0 MHz, adjut output to 1 volt. VTVM should read 1.0 volt, ± one minor meter division. If difficulty is encountered with this setting, use Signal Generator 3 volt range, adjusted to 1.0 volt output.

4. Adjust Signal Generator frequency from 2.0 to 30.0 MHz, keeping output at 1.0 volt. VTVM reading should remain at 1.0 volt ± .1 volt, except in the region of 30 MHz. As the frequency is further increased above 30 MHz, the VTVM reading should decrease. When the VTVM reads .7 volts, note and record this frequency. This is the 3db or cut-off frequency, and should occur between 31 and 34 MHz for the LPFA 1 and 10K, and between 30 and 34 for the 40K. If the 3db point is reached before or after the above frequencies, recheck coil and capacitor values, and Signal Generator. Signal Generator is set to 1 volt level at 20 MHz and is not readjusted above this frequency.

5. Continue to increase Signal Generator frequency until the VTVM reads .1 volt. This is the 20 db point. Note and record this frequency, which should fall in the range of 33 to 39.5 MHz.

6. Continue to increase Signal Generator frequency. In the area of 39.5 to 42 MHz, The VTVM reading should be below .05 volts, or unreadable.

7. Continue to increase Signal Generator frequency to 65 MHz. The VTVM reading should not rise above .05 volts. (Note 1)

D. RESULTS

1. In the frequency range 2.0 to 30.0 MHz (LPFA 1 and 10K) and 2.0 to 28.0 (LPFA-40K) VTVM readings should remain at 1.0 volts ± .1 volts or not exceed ± .15 volts except near Fc (32 MHz) when the VTVM starts decreasing. In some cases, in the range of 28 to 30 MHz, VTVM reading will increase somewhat, which can be neglected. Readings in the Pass Band (2-28 or 2-30) which are far below those specified, require component investigation. Readings above the cut-off frequency which

do not meet those specified also require investigation.

NOTE: 1. Lead length of input and output connections may cause incorrect VTVM readings, especially at frequencies above 30 MHz. For this reason, care must be exercised when taking readings. "Skin Leakage" must also be considered at frequencies above about 30 MHz. This effect is noted by a change of VTVM reading when a hand is placed on various sections of the filter surface, other than the coils or capacitors. In some cases, heavy ground straps must be used between all three units to minimize this effect. Increasing the grounding surface from the AC probe of the VTVM to the filter ground may also be required.

POWER TEST: After the above testing is completed, filter should be connected to its appropriate transmitter at a frequency of 20 mc. It should be run for approximately 10 minutes, at full average power. Filter should then be checked for any overheating of components.

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COMPILED: | CHECKED: | APPD: | SHEET 5 OF 5

TITLE:

TYPE FILTER LPFA- K | TESTER

MECH CHECK _____ _____

ELECT CHECK

Fc ok _____

PASSBAND OK _____

Fc FREQ _____ MHZ

20 db FREQ _____ MHZ

NOTES

OTHER

REVISION SHEET	THE TECHNICAL MATERIEL CORP. MAMARONECK NEW YORK	S 1162 LIST NO.

DATE	REV.	SHEET	EMN #	DESCRIPTION	APP.
1/30/67				ORIGINAL RELEASE FOR PRODUCTION	
2/3/67	A	3	17787	. Revised per EMN	al

TMC FORM MLR-1 2-65—AINS.