TMC SPECIFICATION			NO. S 1275
REV: Ø			
COMPILED:	CHECKED:	APPD:	SHEET 1 OF 42
TITLE:			
11/11/70			

TEST PROCEDURE

FOR TMC

HFTM-1KJ

1.1 TABLE OF CONTENTS

1.2 INTRODUCTION

GENERAL:

The TMC series of HFTM-1KJ transmitters are general purpose High Frequency Radio Transmitters capable of providing CW, AM, SSB, ISB, FAX, FSK operation. The transmitter will supply 1KW average or PEP power. The HFTM-1KJS operates over the frequency range of 1.5 to 28 MHz.

OBJECTIVE:

The procedures outlined herein are intended to serve as verification of system operation and to insure the compatability and performance of the various individual modular assemblies which have been completely tested and inspected on an individual basis prior to system integration.

1.3

A. Mechanical Inspection

1. Check all knobs and switches for proper operation.
2. Carefully check PA bandswitches for good mechanical condition, obvious miswiring and loose connections.
3. Check power supply for loose connections and correct value of circuit components.

1.4

A. Preliminary Electrical Inspection

1. With main wall breaker OFF, check input phase for possible short to ground.
2. Check high voltage power supply for possible shorts to ground.
3. Check complete unit for correct value of fuses.

2.1 POWER OUTPUT AND VSWR PROTECTION

A. Performance Criteria

1. Power Output - The linear power amplifier is capable of providing 1.0KW Average and PEP in continuous keydown service.
2. VSWR Protection - The transmitter has a nominal RF output impedance of 50 ohms and has sufficient tuning range to operate into a load whose impedance can have any phase producing a maximum VSWR of 3 to 1. The transmitter is equipped with an adjustable trip that will automatically disable the transmitter HV when a selected VSWR is exceeded.

B. Test Arrangement

	Relevant Figure
1. Power Output	2.1
2. VSWR Protection	2.1

C.

Test Equipment Required	Schematic Reference	Item No. In Appendix 1	Required For Arrangement
1. Wattmeter	A	1	1.2
2. Dummy Load	B	2	1.2
3. Audio Generator	C	3	1.2
4. Oscilloscope	D	9	

D. Test Procedure

1. Power Output

a. Connect the equipment as shown in Figure 2.1
b. Tune the transmitter to 1.5 MHz at rated average power output in CW mode.
c. Record the power output as indicated on the transmitter power meter. This reading must be within 7% of the calibrated wattmeter.
d. Record the audio input level. This level must be within -20 to +10 dbm.

e. Repeat parts b to d at frequencies listed on test data form No. 2.1.

E. VSWR Protection

a. Connect the equipment as shown in Figure 2.1.
b. Set the variable capacitor on the dummy load for minimum capacitance.
c. Tune the transmitter for rated avarage power output at 1.5 MHz.
d. Depress reflected power button below output meter.
e. Slowly increase the capacitance on the dummy load, until the reflected power indicates 250 watts (red scale).
f. Verify proper operation of SWR overload, adjust SWR overload control until high voltage deactivates.
g. Record reflected power at time of deactivation.
h. Repeat steps B-G at frequencies listed on test data form #2.1.

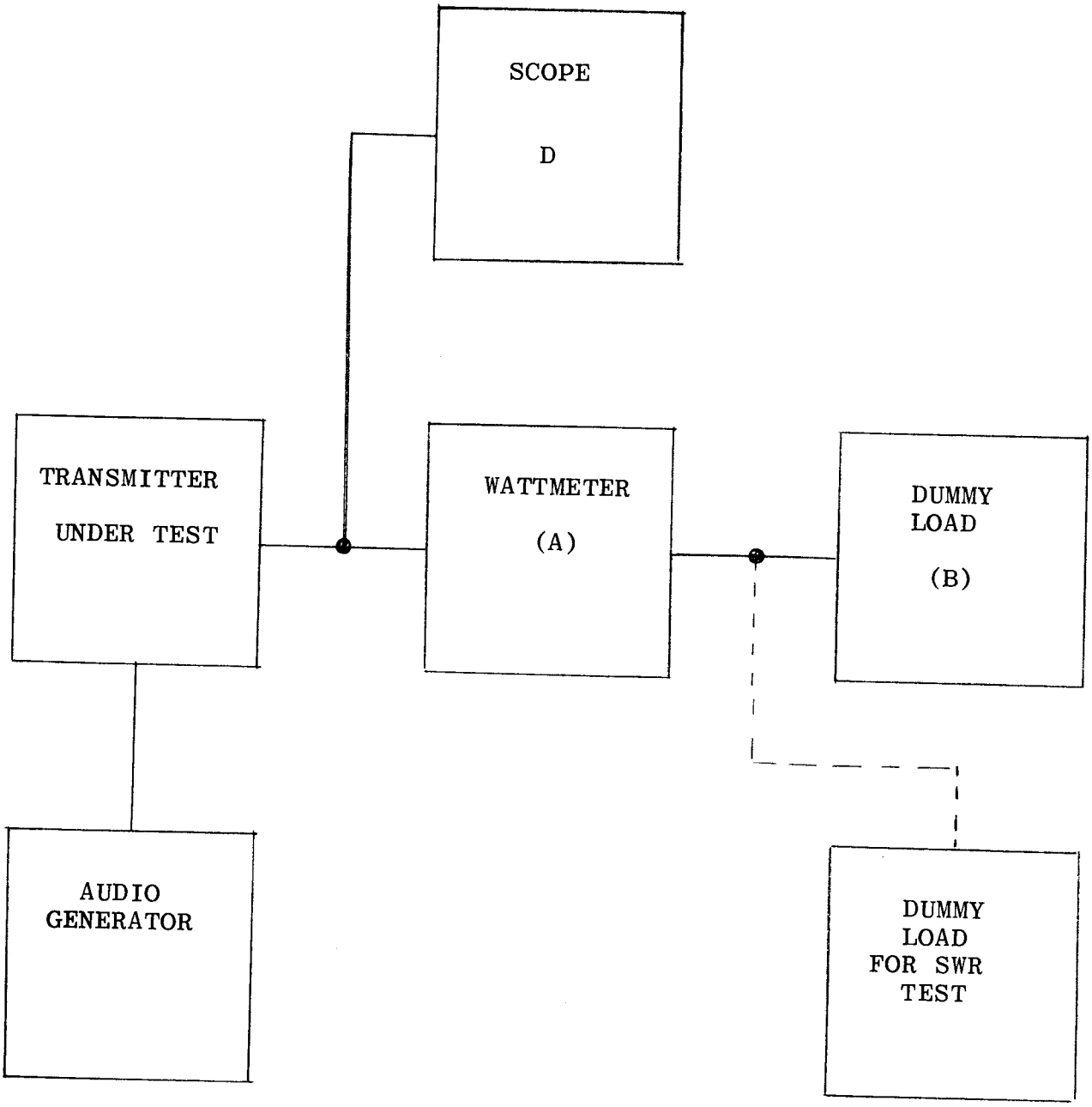


FIGURE 2.1

POWER OUTPUT
VSWR PROTECTION

2.2 NOISE, HUM AND SPURIOUS EMISSIONS

A. Performance Criteria

1. Noise, hum and spurious emission output levels shall be at least 50 db below PEP.

B. Test Arrangement

	Relevant Figure
1. Noise, hum and spurious emission levels	2.2

C. Test Equipment Required

	Schematic Reference	Item No. In Appendix 1
1. Spectrum Analyzer	A	4
2. Dummy Load	B	2
3. Oscilloscope	C	9

D. Test Procedure

a. Connect the equipment as shown in Figure 2.2
b. Tune the transmitter to 1.5 MHz at rated average power output in the CW mode.
c. Adjust the spectrum analyzer for a full scale presentation of the carrier and establish a 0 db reference level.
d. Remove 20 db of attenuation from the spectrum analyzer expanding the calibrated display from 0 thru -40db to -20 thru -60 db.
e. Adjust the spectrum analyzer for a 500 Hz bandwidth and record the noise and hum level.
f. Increase the spectrum bandwidth to maximum and record the level of any spurious emissions.
g. Repeat parts b to f at frequency listed on test data form No. 2.2

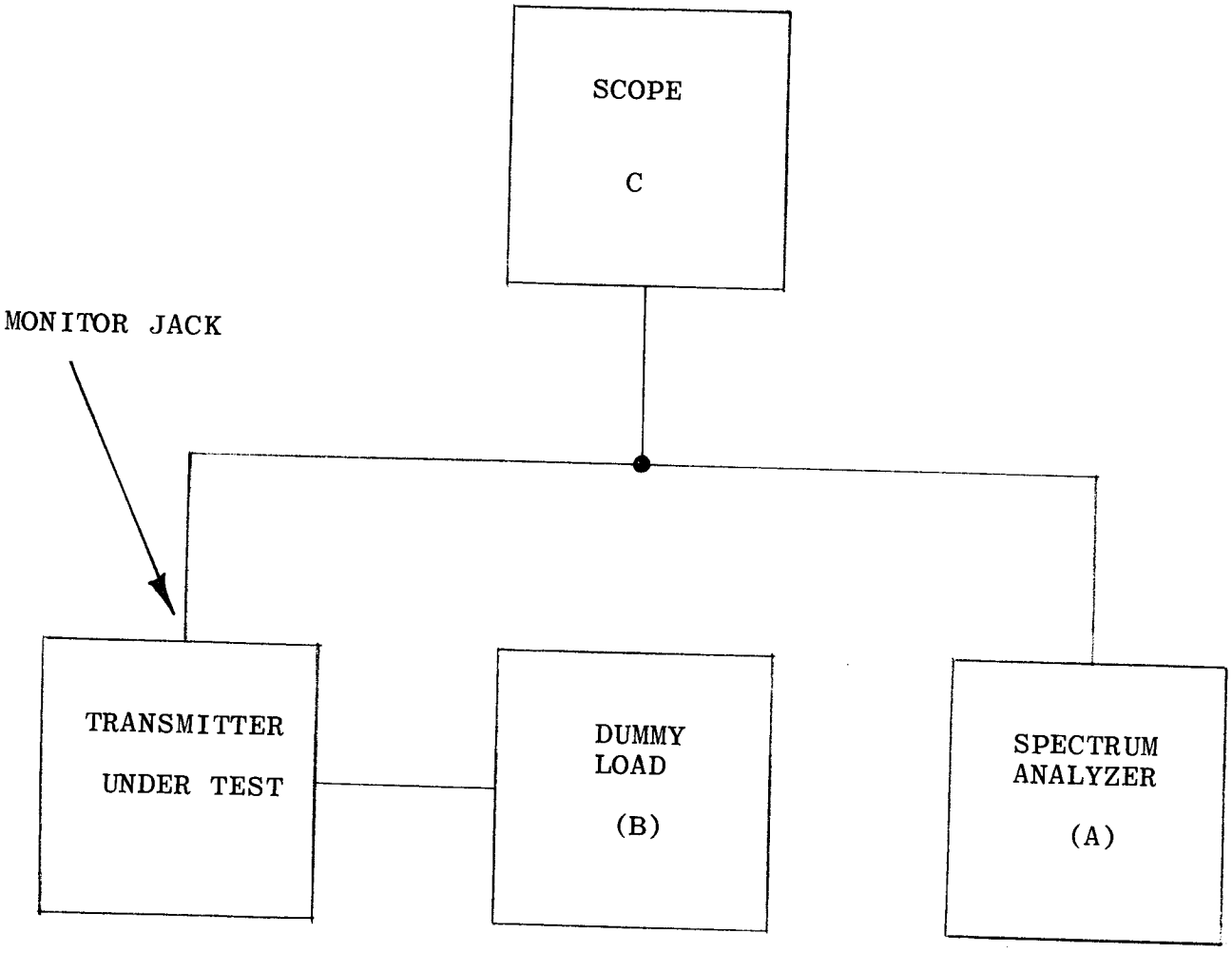


FIGURE 2.2

NOISE LEVEL AND
SPURIOUS EMISSIONS

2.3 INTERMODULATION

A. Performance Criteria

1. At rated PEP, third and higher order intermodulation distortion products shall be at least 40db below either tone of two tones of equal amplitude.

B. Test Arrangement — Relevant Figures

1. Intermodulation Distortion — 2.3

C. Test Equipment Required

	Schematic Reference	Item No. In Appendix 1
1. Two Tone Generator	A	5
2. Spectrum Analyzer	B	4
3. Dummy Load	C	2
4 Oscilloscope	D	9

D. Test Procedure

1. Intermodulation Distortion:

a. Connect the equipment as indicated in Figure 2.3.
b. Adjust the two tone input for a convenient level in the upper sideband channel. Set the carrier insert control for maximum carrier suppression.
c. Tune the transmitter for rated PEP power output at 1.5 MHz.
d. Adjust the spectrum analyzer for a full scale presentation, thus establishing a 0db reference level.
e. Remove 20db of attenuation from the spectrum analyzer expanding the calibrated display from 0 thru -40db to -20 thru -60db.
f. Record the third order intermodulation product level. Third and higher order intemodulation products must be at least 40db down from either tone.
g. Repeat steps b to f at frequency listed on test data form No. 2.3.

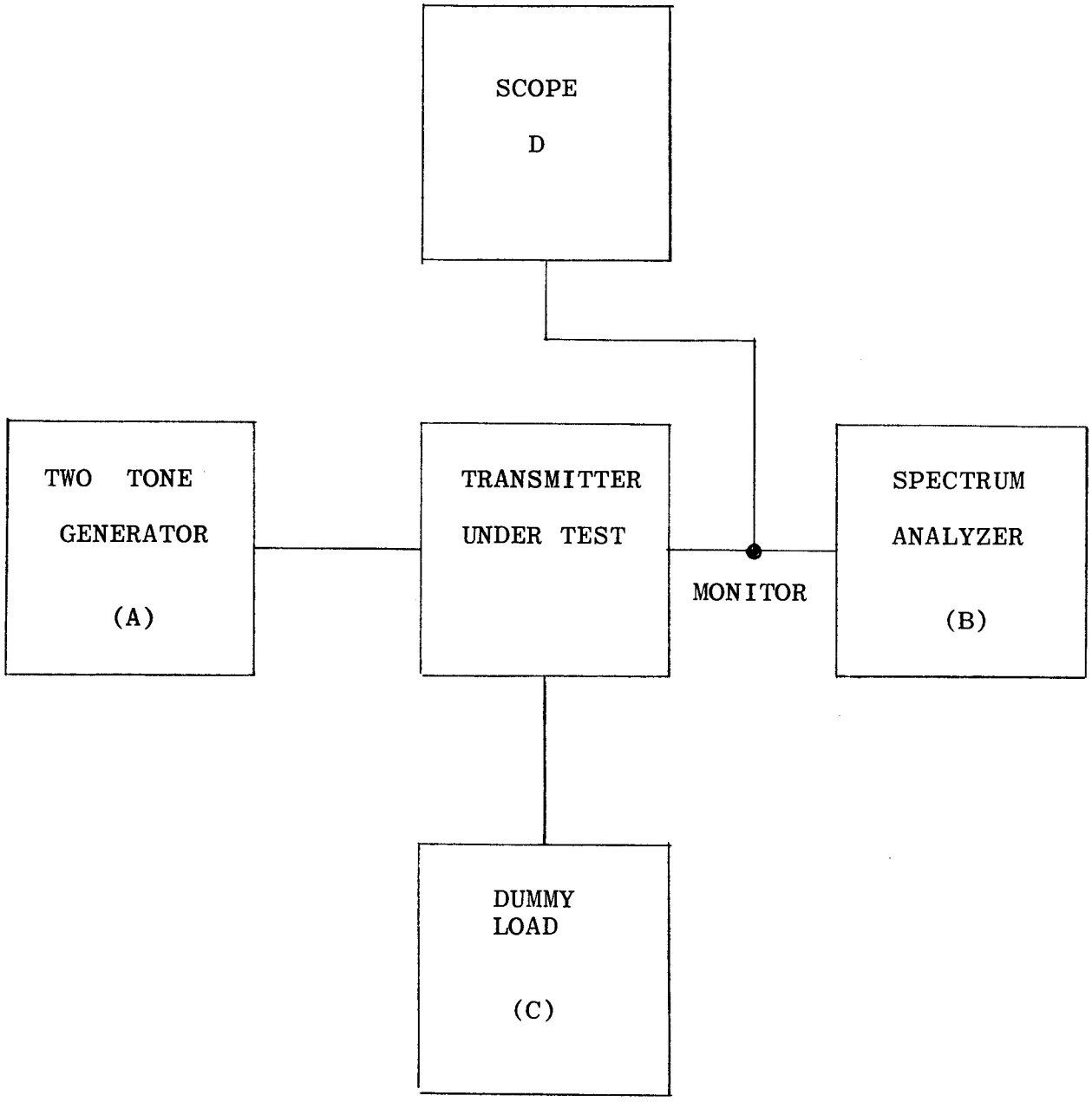


FIGURE 2.3

INTERMODULATION

2.4 SIDEBAND REJECTION AND CARRIER SUPPRESSION

A. Performance Criteria

1. Sideband Rejection - Unwanted sidebands shall be suppressed at least 50db below PEP.
2. Carrier Suppression - The carrier level must be continuously adjustable from full output to at least -55db below PEP.

B. Test Arrangement — Relevant Figure

1 and 2. Sideband Rejection and Carrier Suppression — 2.4

C. Test Equipment Required

	Schematic Reference	Item No. In. Appendix 1	Required For Arrangement
1. Dummy Load	A	2	1 & 2
2. Spectrum Analyzer	B	4	1 & 2
3. Audio Generator	C	3	1 & 2
4. Oscilloscope	D	9	

D. Test Procedure

a. Connect the equipment as shown in Figure 2.4.
b. Tune the transmitter to 1.5 MHz at rated average power output, in USB mode, with full carrier insertion.
c. Adjust the spectrum analyzer for a full scale presentation of the carrier signal to establish a 0db reference level. Now remove 20db of attenuation from spectrum analyzer.
d. Reduce carrier insertion to maximum suppression.
e. Record carrier suppression on test data form No. 2.4A. Repeat steps B to D on other frequencies listed on test data form.
f. Tune transmitter to full rated output at 2 MHz, using a 500 Hz in the USB.
g. Set up spectrum analyzer as in Step C.
h. Observe the display and record the level of 500 Hz tone in unwanted sideband, on test data form No. 2.4.
i. Also repeat steps F to L at frequencies listed on test data form No. 2.4.

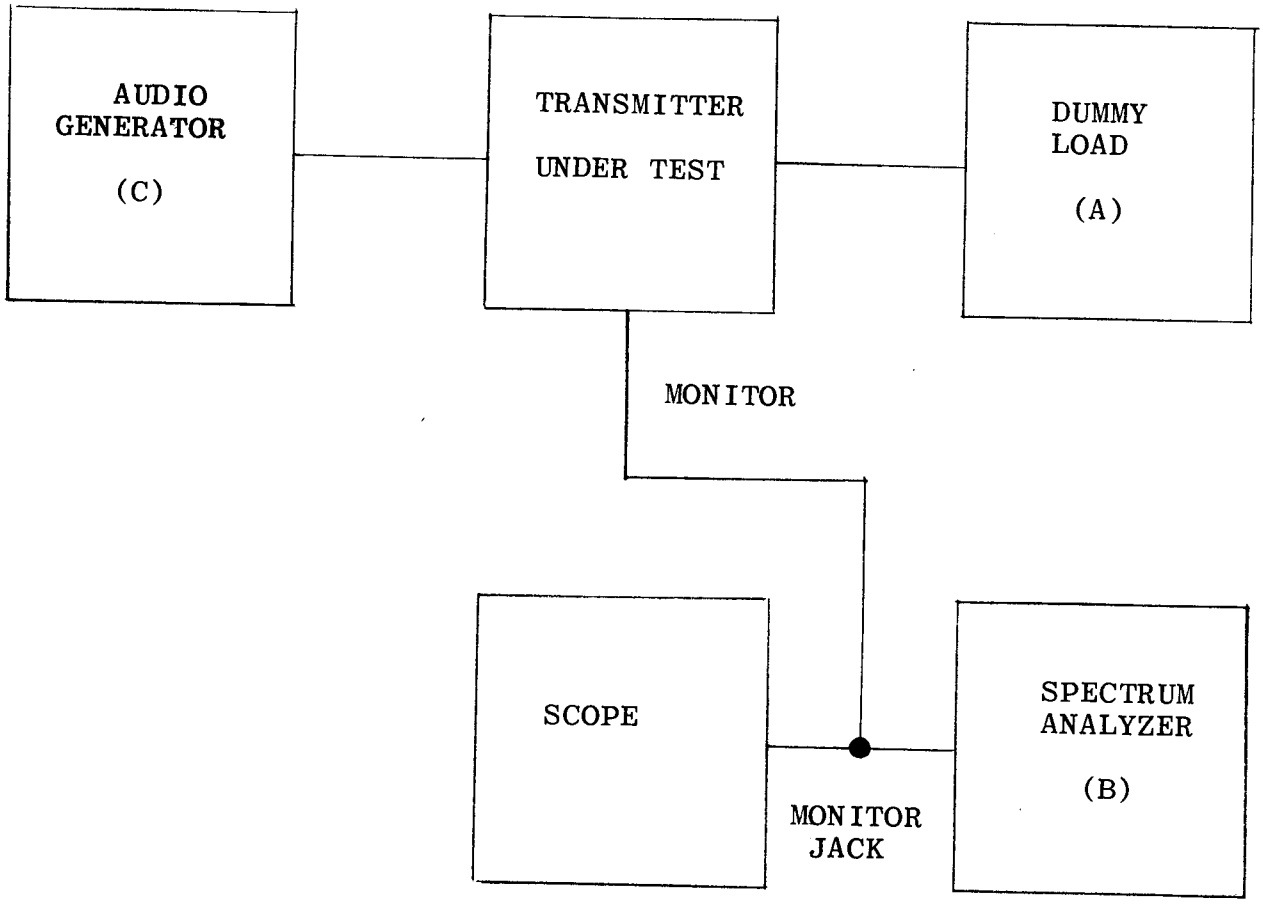


FIGURE 2.4

SIDEBAND REJECTION AND CARRIER SUPPRESSION

2.5 AM DISTORTION

A. Performance Criteria

1. At rated PEP output, all harmonic distortion must be at least 33db below the carrier.

B. Test Arrangement — Relevant Figure

1. AM Distortion	2.5

C. Test Equipment Required

	Schematic Reference	Item No. In Appendix 1
1. Two Tone Generator	A	5
2. Oscilloscope	C	9
3. Spectrum Analyzer	B	4
4. Dummy Load	D	2

D. Test Procedure

a. Connect the equipment as indicated in Figure 2.5.
b. Place MMX meter switch in USB position. Adjust one tone audio input for an indication of four on MMX meter.

NOTE: This meter reading indicates approximately 90% modulation.

c. Tune transmitter to full rated output in CW mode at 1.5 MHz.
d. Reduce driver to zero.
e. Place MMX mode switch in AM position.
f. Advance drive until transmitter output indicates 250 watts.
g. Adjust the spectrum analyzer for a full scale presentation, thus establishing a 0db reference level.
h. Remove 20db of attenuation from the analyzer expanding the display from 0 thru -40 to -20 thru -60db.
i. All harmonic distortion must be down at least 33db.
j. Repeat steps c to j at frequencies indicated on test data form No. 2.5.

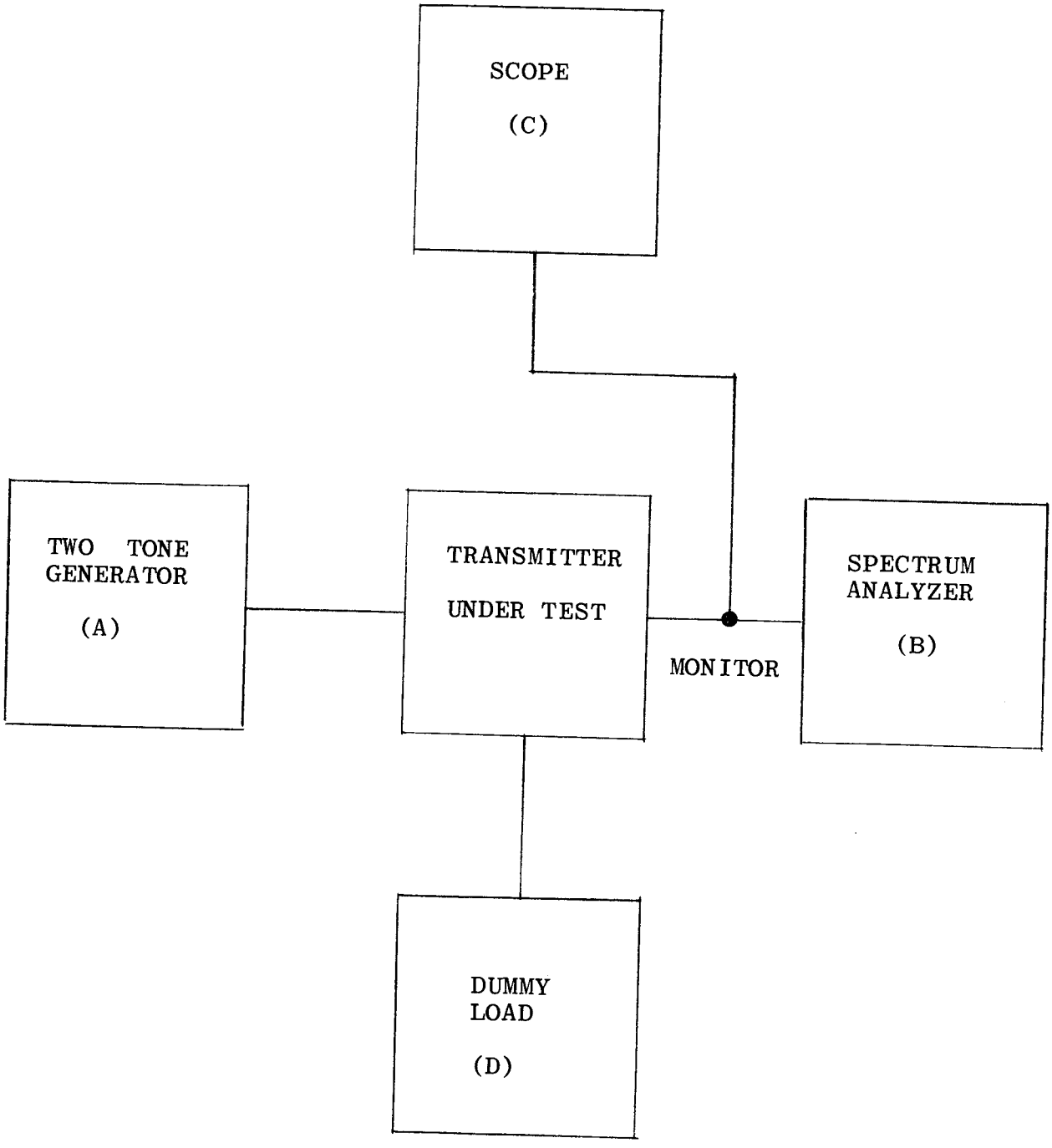


FIGURE 2.5
AM DISTORTION

2.6 ALDC TEST

A. Performance Criteria

1. With ALDC engaged, transmitter must maintain rated output within +20%.

B.

Test Arrangement	Relevant Figure
ALDC	2.6

C. Test Equipment Required

	Schematic Reference	Item No. In Appendix 1
1. Dummy Load	A	2

D. Test Procedure

a. Connect the equipment as shown in Figure 2.6.
b. Tune the transmitter to 1.5 MHz at 1.2 KW in CW mode.
c. Slowly engage ALDC until output drops to about 1 KW.
d. When increasing transmitter drive to maximum, output must remain within +20%.
e. Record output.
f. Repeat steps b to e at frequencies listed on test data form No. 2.6.
g. Also check rated power on all modes.

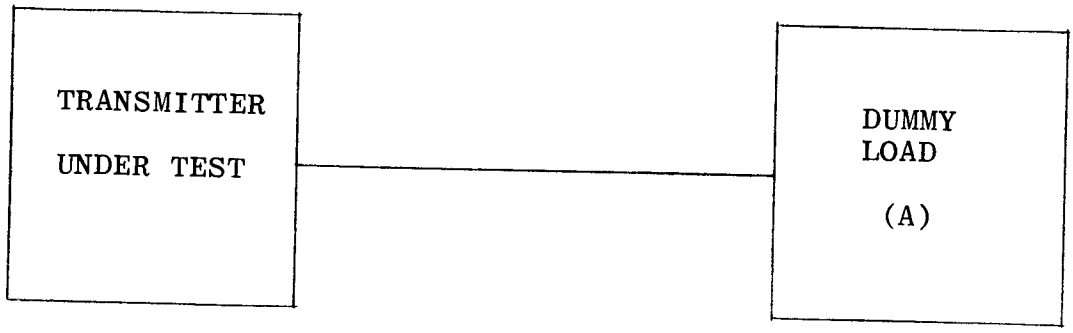


FIGURE 2.6

ALDC

2.7 CW KEYING

A. Performance Criteria

1. Transmitter must be capable of transmitting a CW signal with no more than 5% keying distortion.

B.

Test Arrangement	Relevant Figure
CW Keying	2.7

C.

Test Equipment Required	Schematic Reference	Item No. In Appendix
1. Dummy Load	B	2
2. Oscilloscope	C	9
3. Keyer	A	10

D. Test Procedure

a. Connect equipment as show in Figure 2.7.
b. Tune transmitter to rated output at 1.5 MHz in CW mode, with test key switch in up position.
c. Set keyer frequency at $12\frac{1}{2}$ cycles. This is equivalent to 25 Bauds.
d. Using oscilloscope with TIME/CM Switch in 10 millisec position, record mark - space - pulse duration in millisec.
e. Mark - space deviation must not exceed 4 millisec.
f. Repeat steps B to E using keying frequencies listed on test data form No. 2.7.

Note: 25 cycles = 50 Bauds.
50 cycles = 100 Bauds.

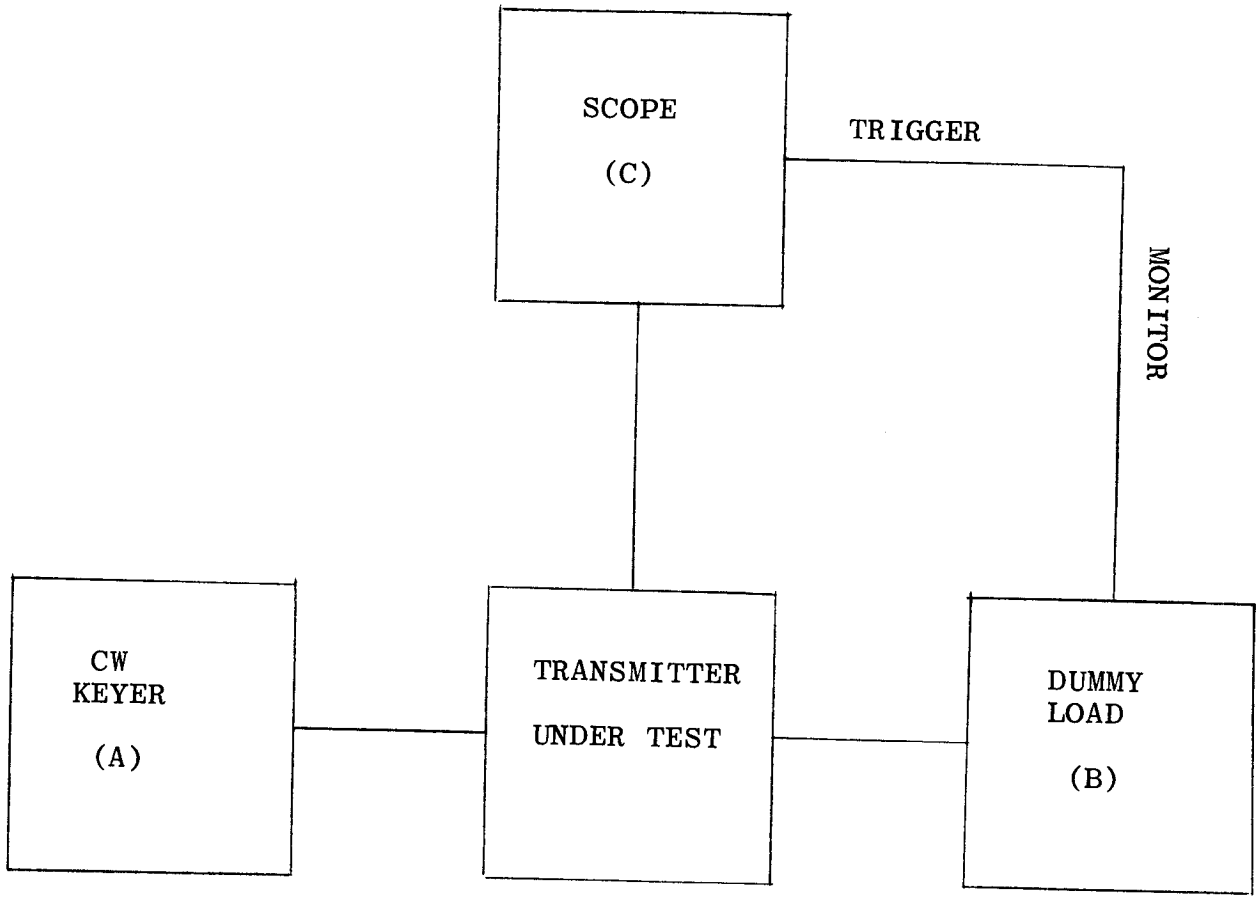


FIGURE 2.7

CW KEYING

2.8 FSK DISTORTION

A. Performance Criteria

1. Transmitter must be capable of transmitting an FSK signal with no more than 5% of distortion.

B. Test Arrangement — Relevant Figure

FSK Distortion — 2.8

C. Test Equipment Required

	Schematic Reference	Item No. In Appendix 1
1. Dummy Load	B	2
2. Telegraph Character Gen.	A	13
3. Frequency Counter	C	11

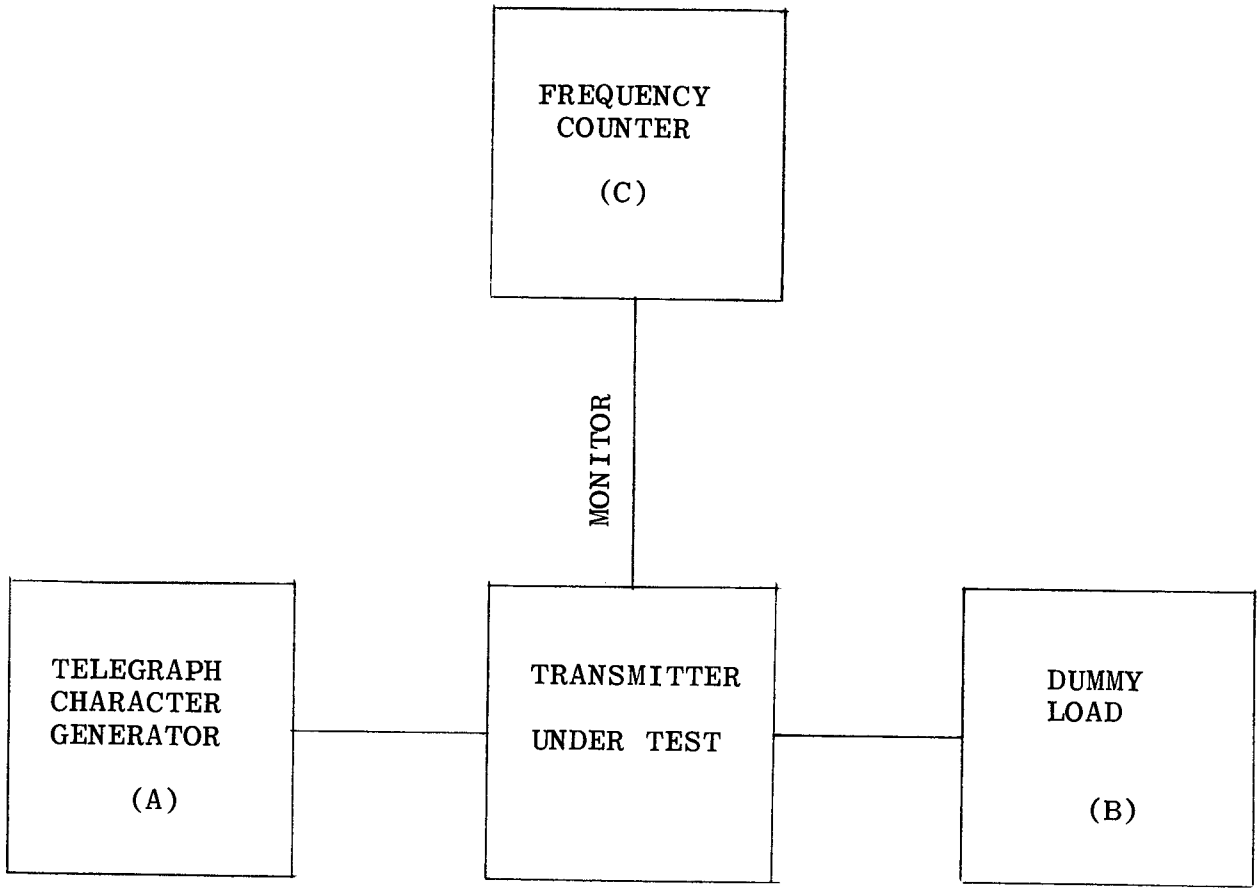
D. Test Procedure

a. Connect the equipment as shown in Figure 2.8.
b. Place switch # S.110 in back of MMX in the ± 53 cycle position. Also place switch #S111 in 20 M.A. position.
c. Place the output select switch on the character generator in the space position.
d. Tune the transmitter to full rated output in the FSK mode, at 1.5 MHz. Record space frequency on test data form No. 2.8.
e. Place output select switch in mark position, record mark frequency on test data form.
f. Set the character generator output select switch to Dot cycle, set speed switch to 45.5 Bauds., set frequency counter time base to 10 sec., and record measured frequency on test data form No. 2.8.
g. Obtain the FSK distortion from the following equation.

$$\text{PERCENT DISTORTION} = \frac{\text{MEASURED FREQ.} - \text{CENTER FREQ.}}{1/2 \text{ TOTAL SHIFT}} \times 100$$

DISTORTION MUST NOT EXCEED 5%.

h. Repeat steps e to g with speed switch set at 100 Bauds.
i. Place switch S110 on MMX in ±425 position and repeat steps c to h.
j. Repeat entire procedure at 26 MHz.



FSK DISTORTION

FIGURE 2.8

2.9 AUDIO RESPONSE

A. Performance Criteria

1. Transmitter audio response must be ± 1.5db from 250 to 3040 cycles.

B. Test Arrangement — Relevant Figure

Audio Response — 2.9

C. Test Equipment Required

	Schematic Reference	Item No. In Appendix 1
1. Dummy Load	B	2
2. Audio Generator	A	12
3. High Frequency Counter	C	11

D. Test Procedure

a. Connect Equipment as shown in Figure 2.9.
b. Tune transmitter for output of 1KW, at 1.5 MHz, in CW mode.
c. Adjust audio generator for an output of 0db, at a frequency of 1 KHz.
d. Reduce transmitter drive to min., and place MMX in USB mode.
e. Increase drive until transmitter output indicates .5 KW.
f. Slowly reduce frequency and record output as indicated on test data form No. 2.9.
g. Return generator frequency to 1KHz, now slowly increase frequency and record output as indicated on test data form.
h. Output should not deviate more than 3 db thru the range of 250-3040 cycles.
i. Repeat steps d to h on LSB.

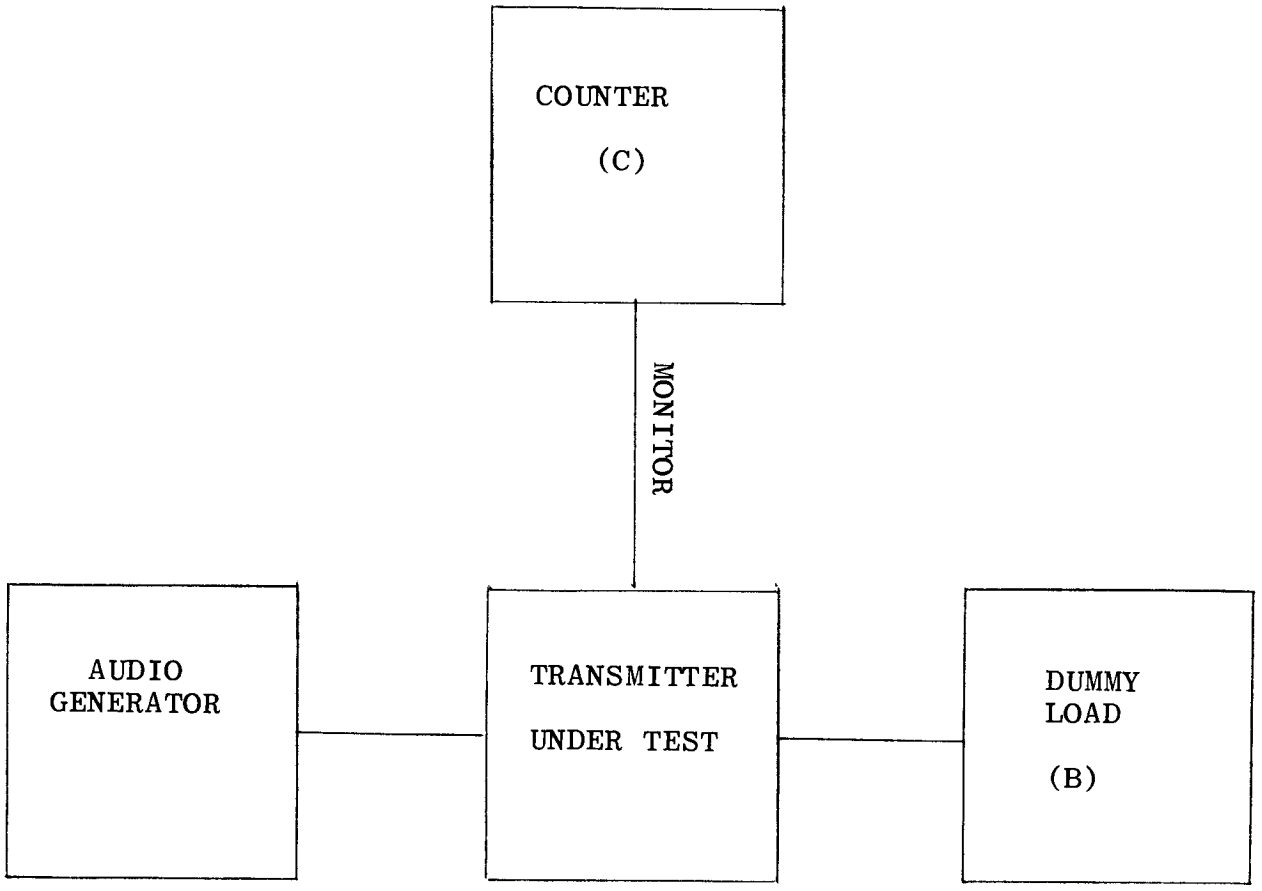


FIGURE 2.9

AUDIO RESPONSE

3.0 HARMONIC SUPPRESSION

A. Performance Criteria

1. The transmitter is capable of producing full rated average power output with the second harmonic suppressed at least 45db below PEP, the third and higher harmonics suppressed at least 55db below PEP.

B. Test Arrangement

	Relevant Figure
1. Harmonic Suppression	3.0

C. Test Equipment Required

	Schematic Reference	Item No. In Appendix 1
1. Dummy Load	A	2
2. Spectrum Analyzer	B	4
3. Coaxial RF Voltage Divider	C	8
4. Step Attenuator	D	6
5. RF Signal Generator	E	7

D. Test Procedure

a. Connect the equipment as shown in Figure 3.0.
b. Tune the transmitter to 1.7 MHz and load it to full rated average power output in the CW mode.
c. Tune the spectrum analyzer to the fundamental frequency and establish a 0db reference level. Disconnect the step attenuator from the coaxial divider and correct the signal generator. Tune the signal generator to the test frequency and note the level required to produce a full scale deflection on the analyzer.
d. Tune the spectrum analyzer and signal generator to the frequency of the second harmonic. Set the signal generator input level to the level noted in part c and adjust the spectrum analyzer for full scale deflection. Disconnect the signal generator from the step attenautor and connect the step attenuator to the coaxial divider.
e. Remove 20db of attenuation from the spectrum analyzer and note the level of the second harmonic. add the attenuation correction factor for the coaxial divider and obtain the level of the second harmonic. Record this level.

f. Repeat parts d and e for the third and higher harmonics.
g. Repeat parts b to f at frequencies listed on test data form No. 3.0.

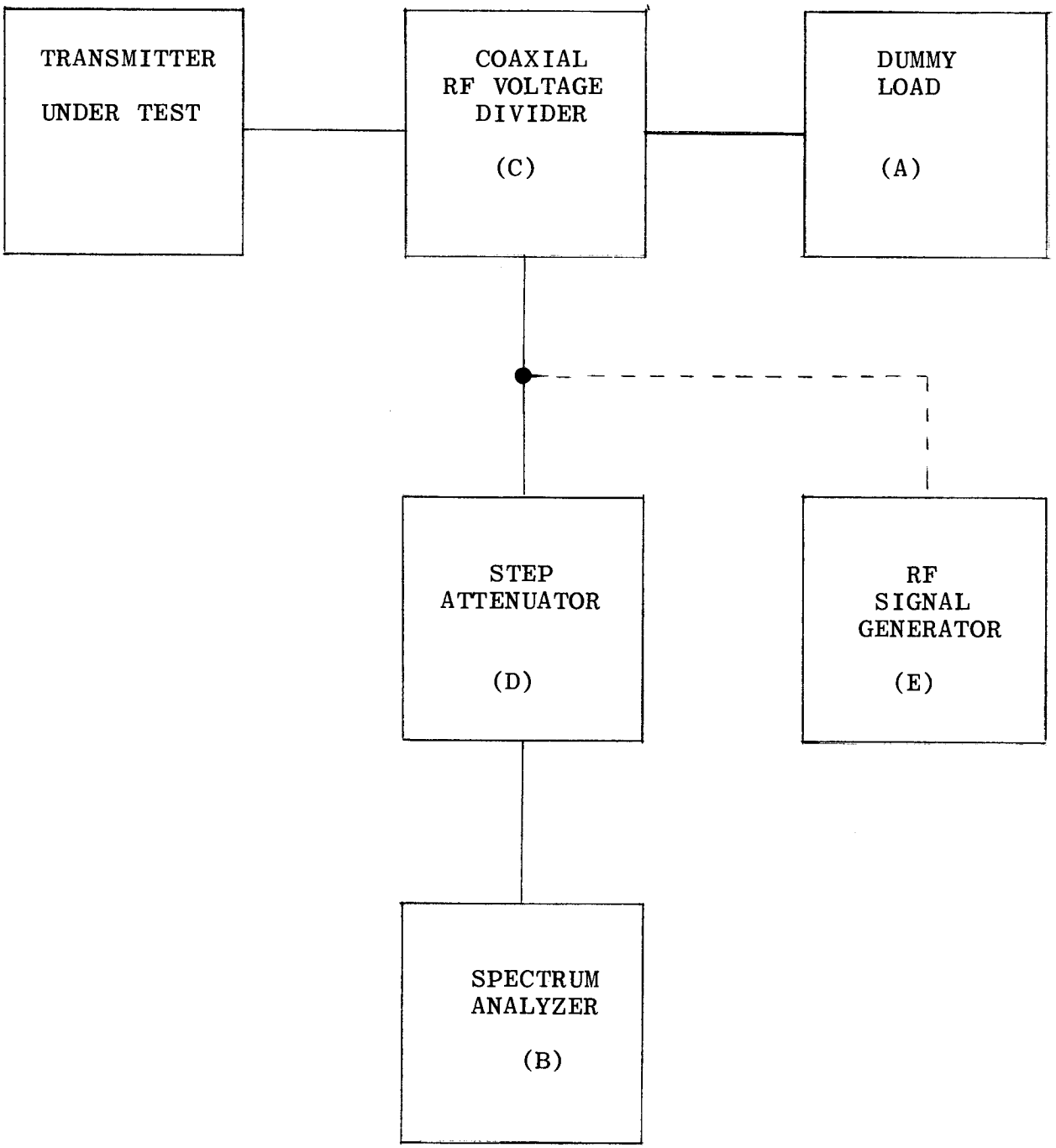


FIGURE 3.0

DOTTED LINE INDICATES ALTERNATE CONNECTION.

HARMONIC SUPPRESSION

3.1 FREQUENCY ALLOCATION

A. Test Arrangement — Relevant Figure

Frequency Allocation — 3.1

B. Test Equipment Required

	Schematic Reference	Item No. In Appendix 1
1. Frequency Counter	A	11

C. Test Procedure

a. Connect the equipment as shown in Figure 3.1.
b. Allow MMX Exciter at least a one hour warm up before starting test.
c. Using test data form No. 3.0 record exciter output frequency as listed on form No. 3.1.
d. Measured frequency must be within ± one cycle.

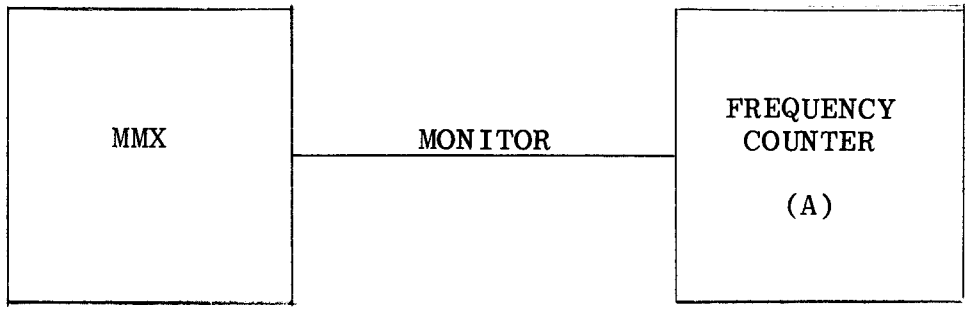


FIGURE 3.1

APPENDIX 1

TEST EQUIPMENT LIST

ITEM NUMBER	DESCRIPTION	MANUFACTURER AND MODEL USED
1	Wattmeter	Bird Electronics Model 3127 or equivalent
2	Dummy Load	TMC 18K/50 (modified) or equivalent
3	Audio Generator	General Radio Model 1304-B or equivalent
4	Spectrum Analyzer	Lavoie Labs Model LA-40A or equivalent
5	Two Tone Generator	TMC Model TTG-1 or equivalent
6	Step Attenuator	Telenic TG950 or equivalent
7	RF Signal Generator	Hewlett-Packard 606A or equivalent
8	Coaxial RF Voltage Divider	TMC Fabricated
9	Oscilloscope	Tektronix
10	CW Keyer	TMC
11	Frequency Counter	Hewlett-Packard
12	Audio Generator	Hewlett-Packard
13	Telegraph Character Generator	Digitech Inc.

APPENDIX 1

TEST EQUIPMENT LIST

ITEM NUMBER	DESCRIPTION	MANUFACTURER & MODEL USED	TMC SERIAL #	CALIBRATION DATE
1	Wattmeter	Bird Electronics Model 3127 or equiv.		
2	Dummy Load	TMC 18K/50 (Modified) or equivalent		
3	Audio Generator	General Radio Model 1304-B or equivalent		
4	Spectrum Analyzer	Lavoie Labs Model LA-40A or equivalent		
5	Two Tone Generator	TMC Model TTG-1 or equivalent		
6	Step Attenuator	Telonic TG950 or equivalent		
7	RF Signal Generator	Hewlett-Packard 606A or equivalent		
8	Coaxial RF Voltage Divider	p/o TMC 18K/50(modified)or equivalent		
9	Oscilloscope	Tektronix		
10	CW Keyer	TMC Model AK-100		
11	Frequency Counter	Hewlett-Packard		
12	Audio Generator	Hewlett-Packard		
13	Telegraph Character Generator	Digitech Inc.		

TITLE: FACTORY TEST - TEST DATA SHEET FOR VSWR

TRANSMITTER SERIAL NO. _____ TEST DATA FORM #2.1

EXCITER SERIAL NO. _____ DATE _____

_____ _____

Signature (TMC) Signature(Page Europa)

_____

Signature C.E.I. OTAN

BAND	FREQUENCY mHz	DIRECT POWER KW	REFLECTED POWER	VSWR	Ia P.A.	RETUNING
1.5-2.0	1.5					
2.0-2.6	2.3					
2.6-3.0	2.8					
3.0-5.0	4.0					
5.0-8.0	6.5					
8.0-12	10.0					
12- 16	14.0					
16- 24	20.0					
24.0-30.0	26.0					
24.0-30.0	28.0					

TMC SPECIFICATION

NO. S 1275

REV:

COMPILED: | CHECKED: | APPD: | SHEET 31A OF

TITLE: FACTORY TEST - TEST DATA SHEET FOR VSWR

TRANSMITTER SERIAL NO._____ TEST DATA FORM #2.1

EXCITER SERIAL NO. _____ DATE _____

_____ _____

Signature (TMC) Signature (Page Europa)

_____

C.E.I. OTAN

BAND	FREQUENCY mHz	DIRECT POWER KW	REFLECTED POWER	VSWR	Ia P.A.	I S2 P.A.
1.5-1.8	1.6					
1.8-2.6	2					
2.6-4	2.7					
2.6-4	3.5					
4 - 5	4					
5 - 8	6					
8 - 12	9					
12 - 16	13					
16 - 24	18					
24 - 28	25					
24 - 28	28					

TITLE: TEST DATA FOR NOISE AND HUM LEVEL AND SPURIOUS EMISSIONS WITH ALDC

TRANSMITTER SERIAL NO. _____ TEST DATA FORM #2.2

EXCITER SERIAL NO. _____ DATE _____

_____ _____

Signature (TMC) Signature(Page Europa)

Signature C.E.I. OTAN

BAND	TEST FREQUENCY MHz	HUM LEVEL db below reference level	NOISE LEVEL	SPURIOUS EMISSION	
1.5-2.0	1.5				
2.0-2.6	2.3				
2.6-3.0	2.8				
3.0-5.0	4.0				
5.0-8.0	6.5				
8.0-12.0	10.0				
12.0-16	14.0				
16.0-24.0	20.0				
24.0-30.0	25.0				
24.0-30.0	28.0				

TMC SPECIFICATION

NO. S 1275

REV:

COMPILED: | CHECKED: | APPD: | SHEET 32A OF

TITLE: TEST DATA FOR NOISE AND HUM. LEVEL & SPURIOUS EMISSIONS WITH ALDC

TRANSMITTER SERIAL NO. _____ TEST DATA FORM #2.2

EXCITER SERIAL NO. _____ DATE _____

_____ _____

Signature (TMC) Signature (Page Europa)

_____

C.E.I. OTAN

BAND	TEST FREQUENCY mHz	HUM LEVEL	NOISE LEVEL db below reference level	SPURIOUS EMISSION	
1.5-1.8	1.7				
1.8-2.6	2				
2.6-4	2.7				
2.6-4	3.5				
4 - 5	5				
5 - 8	6				
8 - 12	9				
12 - 16	12				
12 - 16	15				
16 - 24	18				
16 - 24	20				
24 - 28	24				
24 - 28	26				
24 - 28	28				

TMC SPECIFICATION

NO. S 1275

REV:

COMPILED: | CHECKED: | APPD: | SHEET 33 OF 42

TITLE: INTERMODULATION TEST CON F1=935 F2=2805

TRANSMITTER SERIAL NO. _____ TEST DATA FORM #2.3

EXCITER SERIAL NO. _____ DATE _____

_____ _____

Signature (TMC) Signature (Page Europe)

_____

Signature C.E.I. OTAN

BAND	TEST FREQ. MHz	PA TUNE	PA LOAD	PA PLATE	SIDE-BAND	INTER MOD NORMAL db	INTER MOD RETUNED	AUDIO INPUT db
1.5-2.0	1.5				USB			
2.0-2.6	2.3				USB			
2.6-3.0	2.8				USB			
3.0-5.0	4.0				USB			
5.0-8.0	6.0				USB			
8.0-12.0	8.0				USB			
8.0-12.0	11.0				USB			
12.0-16	14.0				USB			
16.0-24.0	16.0				USB			
16.0-24	20.0				USB			
24.0-30	24.0				LSB			
24.0-30	28.0				LSB			

TMC SPECIFICATION

NO. S 1275

REV:

COMPILED: | CHECKED: | APPD: | SHEET 33A OF

TITLE: INTERMODULATION TEST CON F1=935 F2=2805

TRANSMITTER SERIAL NO. _____ TEST DATA FORM #2.3

EXCITER SERIAL NO. _____ DATE _____

Signature (TMC) (Page Europa) C.E.I. OTAN

BAND	TEST FREQ. mHz	IPA TUNE	LOAD	P.A. SCREEN	P.A. PLATE	SIDE-BAND	INTER MOD NORMAL db	AUDIO INPUT db
1.5-1.8	1.5					USB		
1.8-2.6	2.0					USB		
2.6-4	2.7					USB		
2.6-4	3.5					USB		
4-5	4					USB		
4-5	4.5					USB		
5-8	5					USB		
5-8	6					USB		
5-8	7					USB		
8-12	8					USB		
8-12	10					LSB		
12-16	12					LSB		
12-16	14					LSB		
12-16	16					LSB		
16-24	18					LSB		
16-24	20					LSB		
16-24	22					LSB		
16-24	24					LSB		
24-28	26					LSB		
24-28	28					LSB		

TMC SPECIFICATION

NO. S 1275

REV:

COMPILED: | CHECKED: | APPD: | SHEET 34 OF 42

TITLE: FACTORY TEST - SIDEBAND REJECTION CON F1=935 F2=2805

TRANSMITTER SERIAL NO. _____ TEST DATA FORM #2.4

EXCITER SERIAL NO. _____ DATE _____

_____ _____

Signature (TMC) Signature (Page Europa)

_____

Signature C.E.I. OTAN

FREQ. mHz	POWER OUTPUT kW	SIDE-BAND USED	SIDEBAND REJECTION db	SIDEBAND REJECTION db	NOTES
1.5		LSB			
2.4		USB			
2.8		USB			
4.0		LSB			
6.0		LSB			
10.0		USB			
14.0		USB			
16.0		LSB			
20.0		LSB			
24.0		USB			
28.0		USB			

TMC SPECIFICATION

NO. S 1275

REV:

COMPILED: | CHECKED: | APPD: | SHEET 34A OF

TITLE: FACTORY TEST - SIDEBAND REJECTION

CON F1=935 F2+2805

TRANSMITTER SERIAL NO. _____ TEST DATA FORM #2.4

EXCITER SERIAL NO. _____ DATE _____

_____ _____

Signature (TMC) Signature (Page Europa)

_____

C.E.I. OTAN

FREQ. mHz	POWER OUTPUT kw	SIDE-BAND USED	SIDEBAND REJECTION db	NOTES
1.5		LSB		
2		USB		
3		USB		
4.0		LSB		
5		LSB		
6		USB		
9		USB		
12		LSB		
15		LSB		
18		USB		
20		USB		
24		LSB		
25		LSB		
26		USB		
28		USB		

TITLE: FACTORY TEST - CARRIER SUPPRESSION (W/O ALDC)

TEST FORM #2.4A

TRANSMITTER SERIAL NO. _____ DATE _____

EXCITER SERIAL NO. _____

_____ _____

Signature (TMC) Signature (Page Europa)

_____

Signature C.E.I. OTAN

FREQUENCY	CARR. SUPPRESS.	MODE	NOTES
1.5		USB	
5		USB	
9		USB	
15		LSB	
20		LSB	
25		LSB	

TMC SPECIFICATION

NO. S 1215

REV:

COMPILED: | CHECKED: | APPD: | SHEET 35A OF

TITLE: FACTORY TEST - CARRIER SUPPRESSION

TRANSMITTER SERIAL NO. _____ TEST DATA FORM #2.4A

EXCITER SERIAL NO. _____ DATE _____

_____ _____

Signature (TMC) Signature (Page Europa)

_____

C.E.I. OTAN

FREQUENCY	CARR. SUPPRESS.	MODE	NOTES
1.5		USB	
5		USB	
9		USB	
15		LSB	
20		LSB	
25		LSB	

TMC SPECIFICATION

NO. S 1275

REV:

COMPILED: | CHECKED: | APPD: | SHEET 36 OF 42

TITLE: FACTORY TEST - P.M. DISTORTION

W/ALDC
MODULATION 90% 7 db

TEST DATA FORM #2.5

DATE _____

TRANSMITTER SERIAL NO. _____

EXCITER SERIAL NO. _____

_____
Signature (TMC)

_____
Signature (Page Europa)

_____
Signature C.E.I. OTAN

FREQUENCY mHz	I (db)	II (db)	III (db)	DISTORTION %	NOTES
1.5					
4					
6					
8					
12					
15					
18					
20					
24					
26					
28.0					

TMC SPECIFICATION

NO. S 1275

REV:

COMPILED: | CHECKED: | APPD: | SHEET 36A OF

TITLE: FACTORY TEST A-3H DISTORTION
W/ ALDC MODULATION 90% 7 db

TRANSMITTER SERIAL NO. _____ TEST DATA FORM #2.5

EXCITER SERIAL NO. _____ DATE _____

_____ _____
Signature (TMC) Signature (Page Europa)

_____
C.E.I. OTAN

FREQUENCY mHz	I (db)	II (db)	III (db)	NOTES
1.5				
4				
6				
8				
12				
15				
18				
20				
24				
26				
28				

TMC SPECIFICATION

NO. S 1275

REV:

COMPILED: | CHECKED: | APPD: | SHEET 37 OF 42

TITLE: ALDC TEST

1KW OUTPUT

TEST DATA FORM #2.6

DATE _____

TRANSMITTER SERIAL NO. _____

EXCITER SERIAL NO. _____

_____
Signature (TMC)

_____
Signature (Page Europa)

_____
Signature C.E.I. OTAN

BAND	FREQ. MHZ	CW	AM	USB	LSB	FSK	FAX	IP	TUNE	LOAD
1.5-2.0	1.5									
2.0-2.6	2.3									
2.6-3.0	2.8									
3.0-5.0	4.0									
5.0-8.0	6.0									
8.0-12	10.0									
12.0-16	14.0									
16.0-24	18.0									
24.0-30.0	25.0									
24.0-30.0	28.0									

TMC SPECIFICATION

NO. S 1275

REV:

COMPILED: | CHECKED: | APPD: | SHEET 37A OF

TITLE: ALDC TEST
10KW OUTPUT

TRANSMITTER SERIAL NO. _____ TEST DATA FORM #2.6

EXCITER SERIAL NO. _____ DATE _____

_____ _____
Signature (TMC) Signature (Page Europa)

_____
C.E.I. OTAN

BAND	FREQ. mHz	CW	AM	USB	LSB	FSK	FAX	Ip	Is	LOAD
1.5-1.8	1.6									
1.8-2.6	2.2									
2.6-4	2.8									
2.6-4	3.5									
4-5	4.5									
5-8	6.0									
8-12	10.0									
12-16	14.0									
16-24	20.0									
24-28	26.0									
24-28	28.0									

TEST DATA FORM #2.7

DATE _____

TRANSMITTER SERIAL NUMBER _____

EXCITER SERIAL NUMBER _____

_____ Signature (TMC)

_____ Signature (Page Europa)

_____ Signature C.E.I. OTAN

FREQUENCY 1.5 mHz (Test W/O ALDC)

	MARK	SPACE	
25 BAUDS			
50 BAUDS			
100 BAUDS			

FREQUENCY 1.5 mHz (Test with ALDC)

	MARK	SPACE	
25 BAUDS			
50 BAUDS			
100 BAUDS			

TMC SPECIFICATION

NO. S 1275

REV:

COMPILED: | CHECKED: | APPD: | SHEET 38A OF

TITLE: FACTORY TEST - CW SPEED - TEST

TRANSMITTER SERIAL NO. _____ TEST DATA FORM #2.7

EXCITER SERIAL NO. _____ DATE _____

_____ _____

Signature (TMC) Signature (Page Europa)

_____

C.E.I. OTAN

FREQUENCY 2 mHz (Test with ALDC)

	MARK	SPACE	
25 BAUDS			
50 BAUDS			
100 BAUDS			

FREQUENCY 28 mHz (Test with ALDC)

	MARK	SPACE	
25 BAUDS			
50 BAUDS			
100 BAUDS			

TMC SPECIFICATION

NO. S 1275

REV:

COMPILED: | CHECKED: | APPD: | SHEET 39 OF 42

TITLE: FACTORY TEST FSK DISTORTION

TRANSMITTER SERIAL NO. _____ TEST DATA FORM #2.8

EXCITER SERIAL NO. _____ DATE _____

_____ _____

Signature (TMC) Signature (Page Europa)

_____

Signature C.E.I. OTAN

± 53 Hz		2 mHz			
BAUDS	MARK Hz FREQ.	SPACE (Hz) FREQUENCY	± FROM (Hz) CENTER FREQUENCY	MEASURED FREQUENCY	DISTORTION %
45.5					
110					

± 425Hz		2 mHz			
BAUDS	MARK Hz FREQ.	SPACE (Hz) FREQUENCY	± FROM (Hz) CENTER FREQUENCY	MEASURED FREQUENCY	DISTORTION %
45.5					
110					

± 53 Hz		26 mHz			
BAUDS	MARK Hz FREQ.	SPACE (Hz) FREQUENCY	± FROM (Hz) CENTER FREQUENCY	MEASURED FREQUENCY	DISTORTION %
45.5					
110					

±425 Hz		26 mHz			
BAUDS	MARK Hz FREQ.	SPACE (Hz) FREQUENCY	± FROM (Hz) CENTER FREQUENCY	MEASURED FREQUENCY	DISTORTION %
45.5					
110					

TITLE: FACTORY TEST AUDIO RESPONSE TEST

TEST DATA FORM #2.9

DATE _____

TRANSMITTER SERIAL NO. _____

EXCITER SERIAL NO. _____

_____ Signature (TMC)

_____ Signature (Page Europa)

Signature C.E.I OTAN

AUDIO FREQ. Hz	USB BAND OUTPUT LIN.	USB BAND OUTPUT db	LSB BAND OUTPUT LIN.	LSB BAND OUTPUT db	NOTES: 1KHz TONE db
200					
250					
300					
350					
400					
500					
600					
700					
800					
900					
1000					
2000					
3000					
3100					
3300					
3400					
3500					
3700					
3800					

TEST DATA FORM #3.0

DATE _____

TRANSMITTER SERIAL NO. _____

EXCITER SERIAL NO. _____

_____ Signature (TMC)

_____ Signature (Page Europa)

_____ Signature C.E.I. OTAN

TEST DATA FOR HARMONIC MEASUREMENTS

BAND	TEST FREQUENCY (MHz)	CARRIER REFERENCE (db)	HARMONIC LEVEL IN db BELOW CARRIER REFERENCE			
			2nd	3rd	4th	5th
1.5-2.0	1.7					
2.0-2.6	2.4					
2.6-3.0	2.8					
3.0-5.0	4.0					
5.0-8.0	6.0					
8.0-12.0	10.0					
12.0-16.0	14.0					
16.0-24.0	20.0					
24.0-30.0	27.0					

TMC SPECIFICATION

NO. S 1225

REV:

COMPILED: | CHECKED: | APPD: | SHEET 41A OF

TITLE: TEST DATA FOR HARMONIC MEASUREMENTS

TRANSMITTER SERIAL NO. _____ TEST DATA FORM #3.0

EXCITER SERIAL NO. _____ DATE _____

_____ _____

Signature (TMC) Signature (Page Europa)

_____

C.E.I. OTAN

BAND	TEST FREQUENCY (mHz)	CARRIER REFERENCE	HARMONIC LEVEL IN db BELOW CARRIER REFERENCE			
			2nd	3rd	4th	5th
1.5-1.8	1.7					
1.8-2.6	2.2					
2.6-4.0	2.8					
2.6-4.0	3.5					
4.0-5.0	4.5					
5.0-8.0	7.0					
8.0-12	10.0					
12-16	14.0					
16-24	20.0					
24-28	26.0					

TMC SPECIFICATION

NO. S 1275

REV:

COMPILED: | CHECKED: | APPD: | SHEET 42 OF

TITLE: FREQUENCY ALLOCATION

EXCITER #1 Hz

TRANSMITTER SERIAL NO. _____ TEST DATA FORM #3.1

EXCITER SERIAL NO. _____ DATE _____

_____ _____

Signature (TMC) Signature (Page Europa)

_____

Signature C.E.I. OTAN

FREQ. SET AT mHz	MEASURED FREQ. Hz	UNIT	
1.5			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			

TMC SPECIFICATION

NO. S 1215

REV:

COMPILED: | CHECKED: | APPD: | SHEET 42A OF

TITLE: FREQUENCY ALLOCATION

EXCITER ± 1 Hz

TRANSMITTER SERIAL NO. _____ TEST DATA FORM #3.1

EXCITER SERIAL NO. _____ DATE _____

_____ _____

Signature (TMC) Signature (Page Europa)

_____

C.E.I. OTAN

FREQ. SET AT mHz	MEASURED FREQ. Hz	UNIT	
1.5			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			

REVISION SHEET

THE TECHNICAL MATERIEL CORP.
MAMARONECK NEW YORK

S 1275
LIST NO.

DATE	REV.	SHEET	EMN #	DESCRIPTION	APP.
3/11/71	Ø			ORIGINAL RELEASE FOR PRODUCTION	

TMC FORM MLR-1 2-65—AINS.