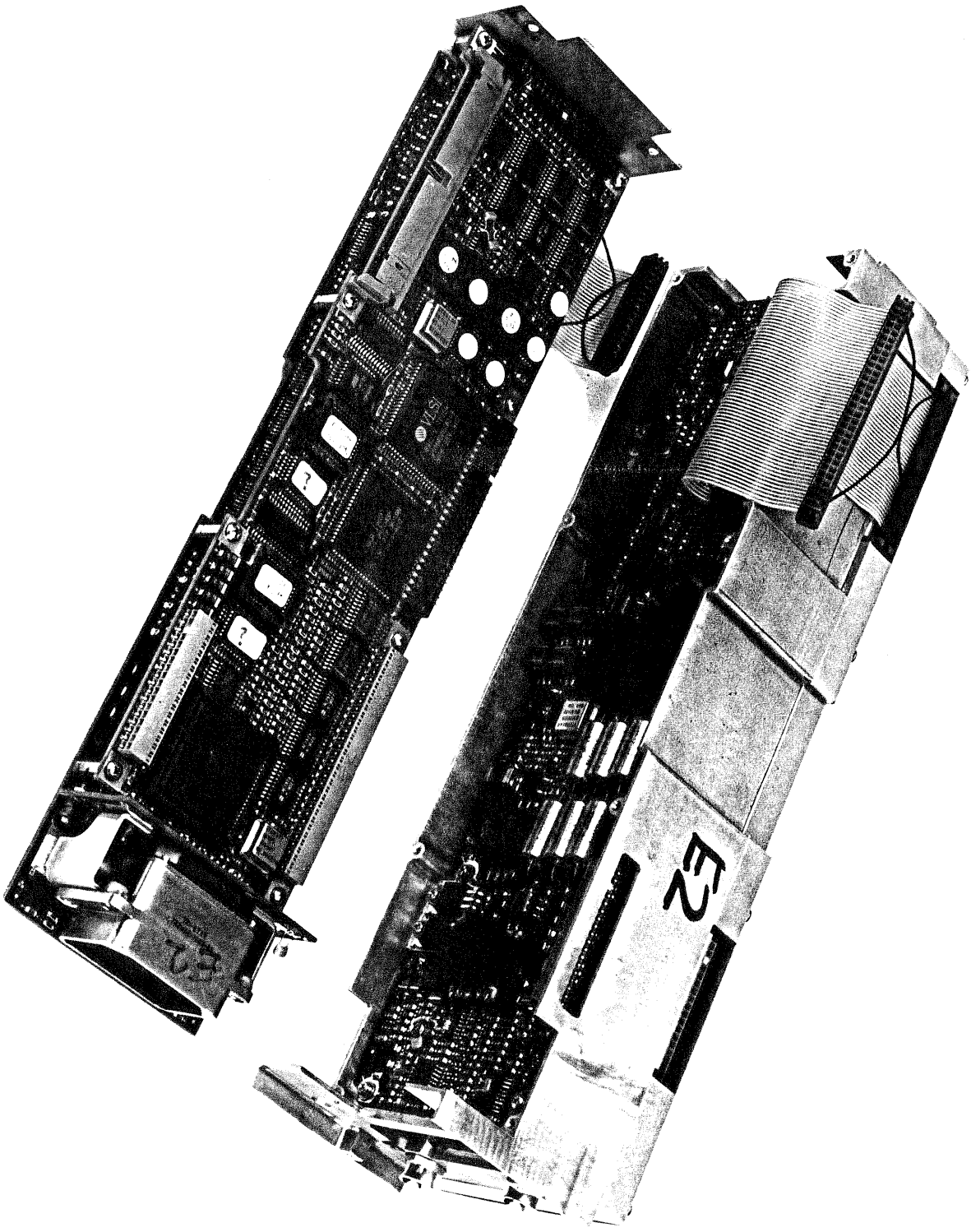
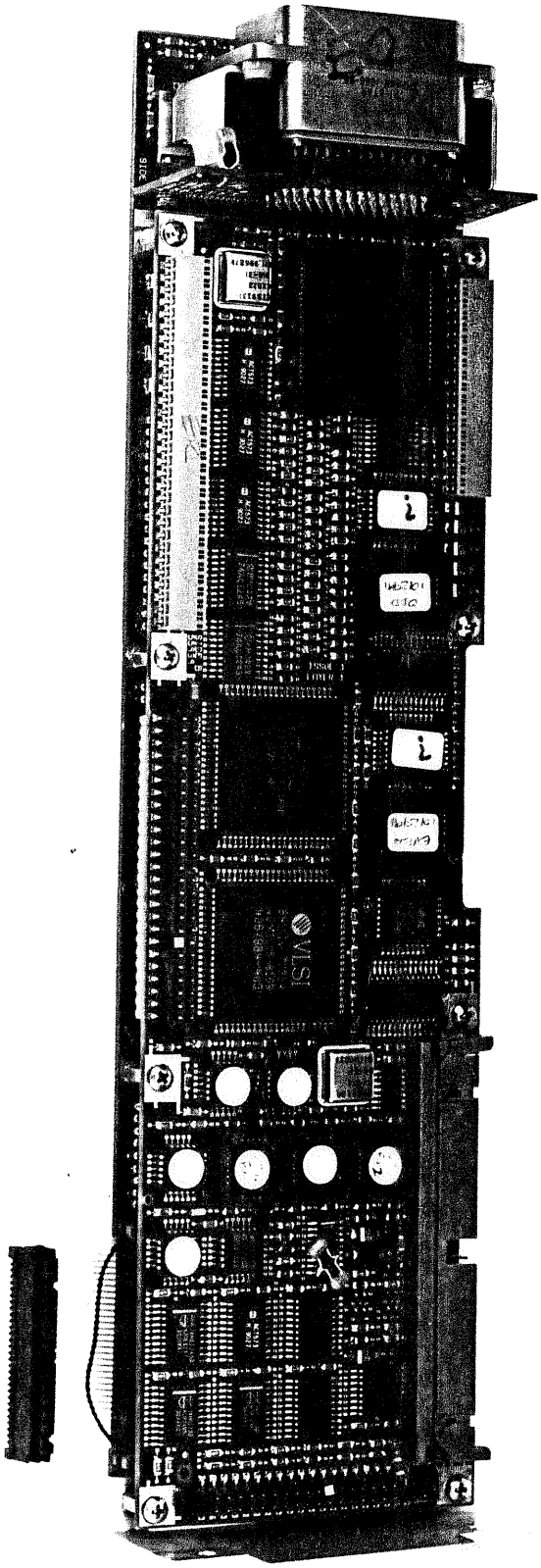
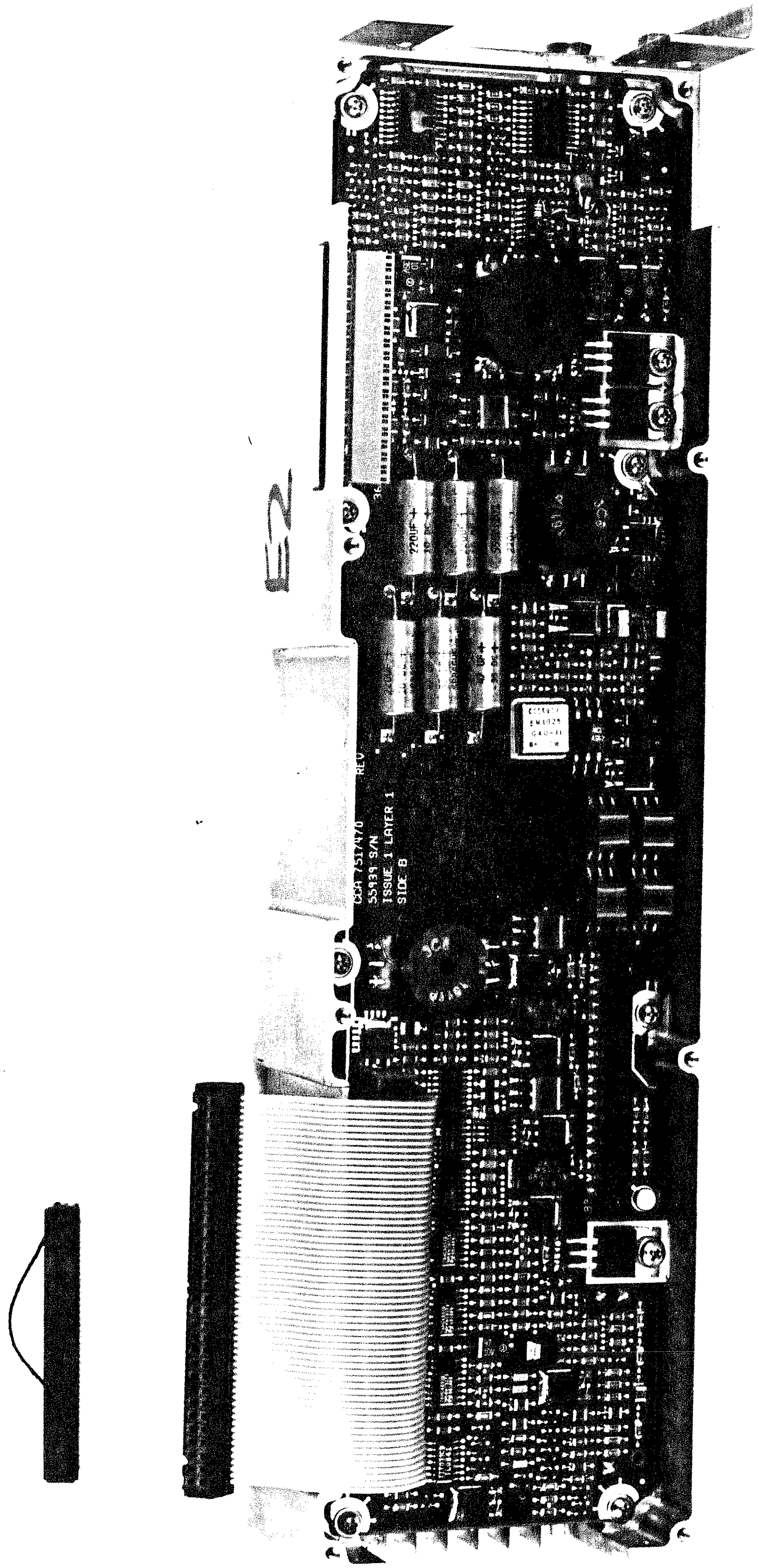
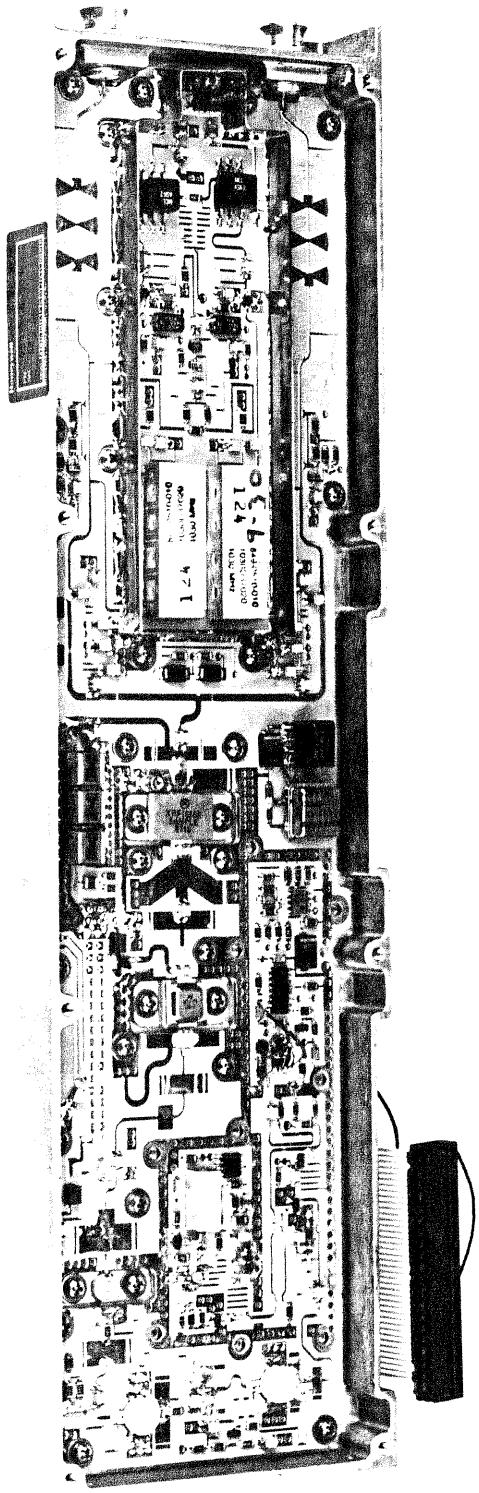
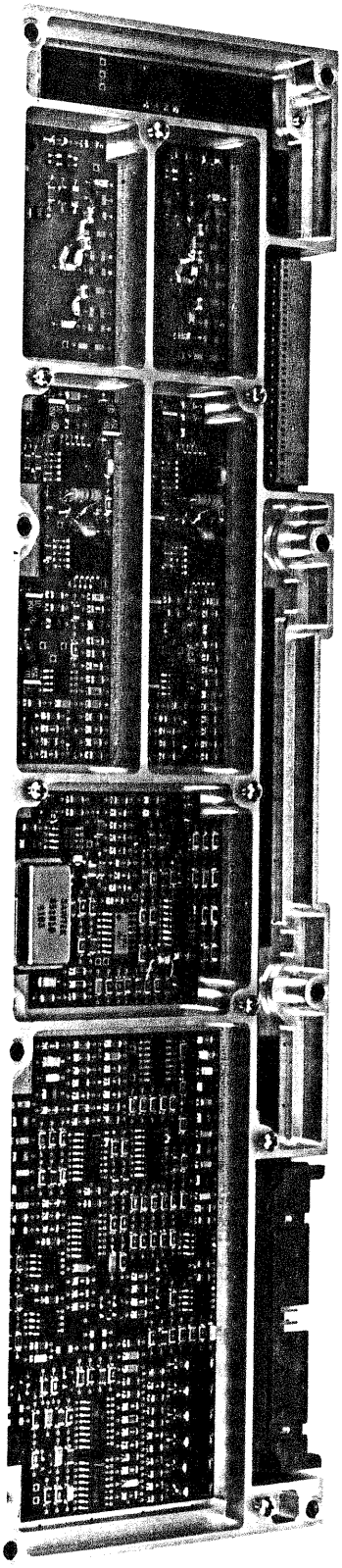



VLSI







TEST PROCEDURES AND DATA: TEST NO: 1

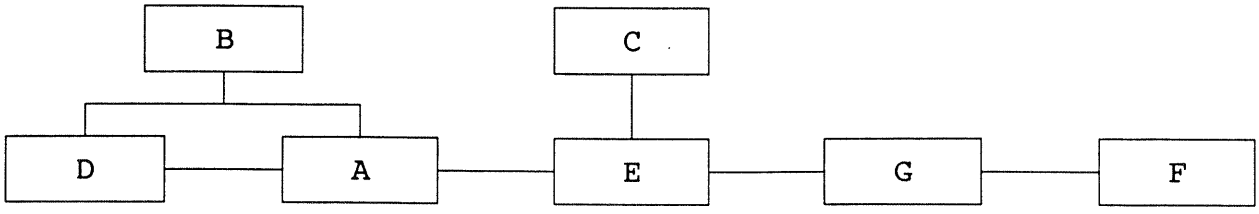
1.0 DESCRIPTION OF TEST: Power Output

2.0 SPECIFICATIONS: 47 CFR 2.985a
47 CFR 2.985c
47 CFR 87.131

3.0 EQUIPMENT REQUIRED:

	TYPE	MANUFACTURER	MODEL	SER. NO
A	Transponder	Honeywell	RCZ-851B	E2
B	Power Supply	Kepco	ATE36-30M	63529
C	RF Generator	IFR	ATC-1400	1104
D	Radio Mgmt Unit	Honeywell	RM-850	88030142
E	Directional Coupler	HP	778D	826-1243
F	Peak Power Meter	HP	8900C	AV53646
G	Attenuator	Narda	757C	32114
H				
I				
J				
K				
L				
M				
N				

4.0 BLOCK DIAGRAM OF TEST SETUP:



TEST PERFORMED BY: [signature] DATE: 11 Dec 1991

DATA REFERENCE: SHEET: 20

5.0 PROCEDURE:

1. Connect the equipment as shown in the block diagram in Section 4.0 of this document.

2. Using the peak power meter, record the transponder output power under minimum and maximum reply pulse conditions. Note the frequency deviations relating to a change of the output power.

3. Compute actual power using measured losses for coupler and attenuator.

6.0 DATA

6.1 Top Antenna measurements

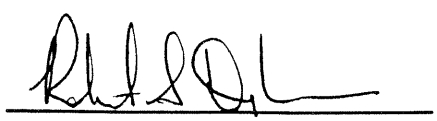
TDR Mode	Reply Code	Observed Power	Path Loss	Actual Power	Freq
A	0000	42.5 mW	39.2 dB	353 W	1090.10
A	7777	42.5 mW	39.2 dB	353 W	1090.16
S	(*)	42.5 mW	39.2 dB	353 W	1090.10

(*) Mode S All Call Reply

6.2 Bottom Antenna measurements

TDR Mode	Reply Code	Observed Power	Path Loss	Actual Power	Freq
A	0000	44.5 mW	39.2 dB	370 W	1090.07
A	7777	44.5 mW	39.2 dB	370 W	1090.18
S	(*)	45.0 mW	39.2 dB	374 W	1090.10

(*) Mode S All Call Reply

TEST PERFORMED BY:  DATE: 11 Dec 1991

DATA REFERENCE: _____ SHEET: 21

TEST PROCEDURES AND DATA: TEST NO: 2

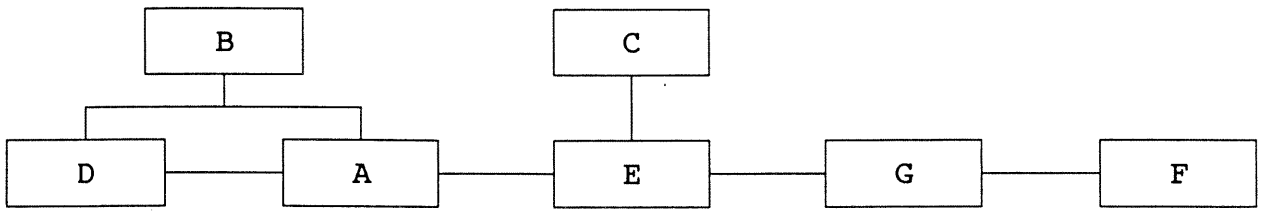
1.0 DESCRIPTION OF TEST: Modulation Characteristics

2.0 SPECIFICATIONS: 47 CFR 2.987d
47 CFR 87.141c

3.0 EQUIPMENT REQUIRED:

	TYPE	MANUFACTURER	MODEL	SER. NO
A	Transponder	Honeywell	RCZ-851B	E2
B	Power Supply	Kepco	ATE36-30M	63529
C	RF Generator	IFR	ATC-1400	1104
D	Radio Mgmt Unit	Honeywell	RM-850	88030142
E	Directional Coupler	HP	778D	826-1243
F	Crystal Detector	HP	423	None
G	Attenuator	Narda	757C	32114
H				
I				
J				
K				
L				
M				
N				

4.0 BLOCK DIAGRAM OF TEST SETUP:



TEST PERFORMED BY: Robert Dyke DATE: 11 Dec 1991

DATA REFERENCE: SHEET: 22

5.0 PROCEDURE:

1. Connect the equipment as shown in the block diagram in Section 4.0 of this document.

2. Interrogate the Transponder at a 500 Hz rate and set the reply code to 7777.

3. Record the output pulse characteristics using the detector output of the RF generator.

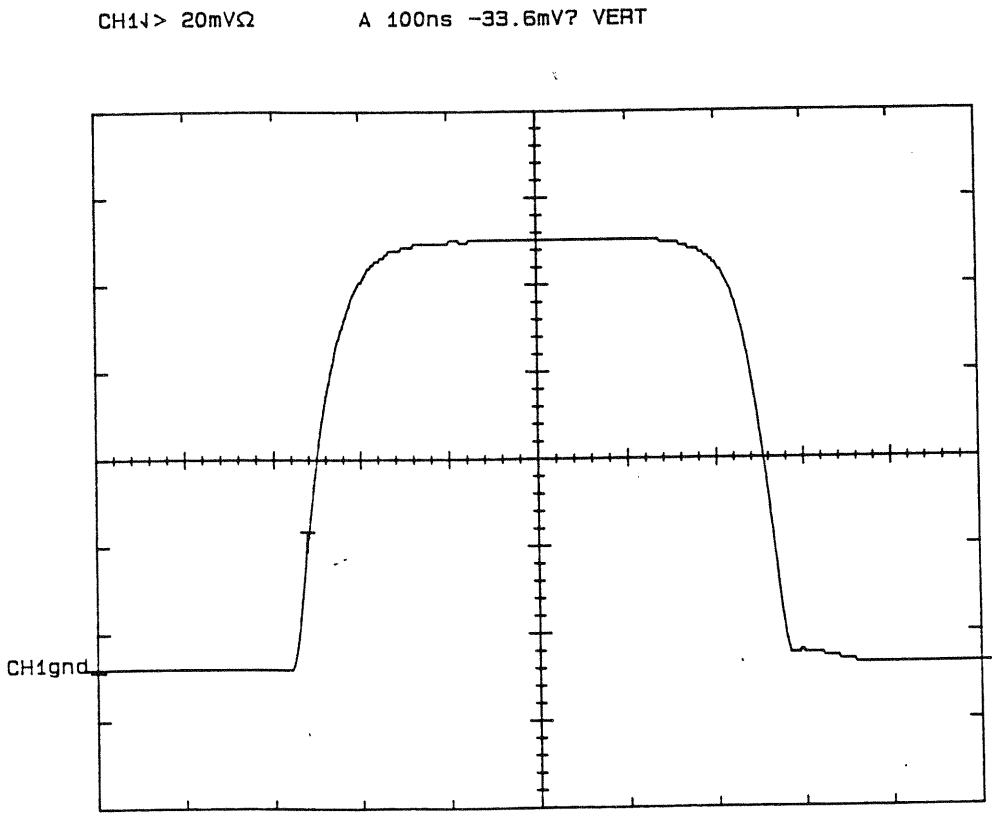
6.0 DATA

Pulse Characteristic	Measurement	Specification
Rise Time	68 nS	≤ 100 nS
Fall Time	68 nS	≤ 200 nS
Pulse Width	507 nS	450 ± 100 nS
Pulse Jitter	60 nS	≤ 100 nS

TEST PERFORMED BY: Robert Doyle DATE: 11 Dec 1991

DATA REFERENCE: _____ SHEET: 23

6.0 DATA (Cont.)



TEST PERFORMED BY: Robert Doyle

DATE: 11 Dec 1991

DATA REFERENCE: _____

SHEET: 24

TEST PROCEDURES AND DATA: TEST NO: 3

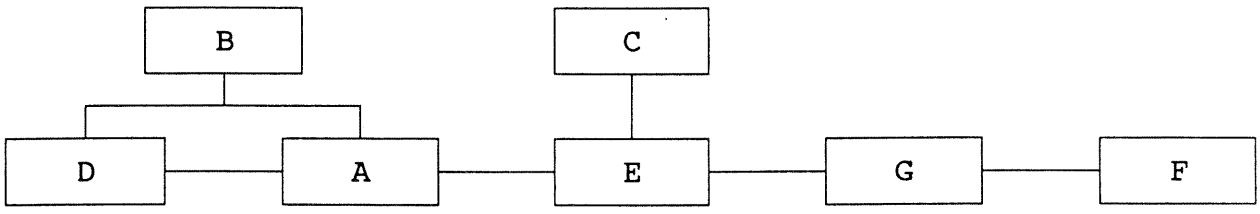
1.0 DESCRIPTION OF TEST: Occupied Bandwidth and In Close Spurrious

2.0 SPECIFICATIONS: 47 CFR 2.989
47 CFR 87.135
47 CFR 87.139

3.0 EQUIPMENT REQUIRED:

	TYPE	MANUFACTURER	MODEL	SER. NO
A	Transponder	Honeywell	RCZ-851B	E2
B	Power Supply	Kepco	ATE36-30M	63529
C	RF Generator	IFR	ATC-1400	1104
D	Radio Mgmt Unit	Honeywell	RM-850	88030142
E	Directional Coupler	HP	778D	826-1243
F	Spectrum Analyzer	HP	8568B	AV55900
G	Attenuator	Narda	757C	32114
H				
I				
J				
K				
L				
M				
N				

4.0 BLOCK DIAGRAM OF TEST SETUP:



TEST PERFORMED BY: Rhd Doyle DATE: 11 Dec 1991

DATA REFERENCE: SHEET: 25

5.0 PROCEDURE:

1. Connect the equipment as shown in the block diagram in Section 4.0 of this document.

2. Insert sufficient attenuation as required for maximum dynamic range.

3. Use 300 kHz IF bandwidth on the Spectrum Analyzer and record spectrum level, for 1 MHz intervals from -25 MHz to +25 MHz.

4. Calculate the spectral energy density using the BASIC program listed below.

6.0 DATA:

```
110 DIM X(50)
120 DIM Y(50)
140 INPUT "ENTER CARRIER LEVEL"; X(0)
150 INPUT "ENTER NUMBER OF FREQ INCREMENTS"; K
160 A = 1                       'initialize sum to carrier level
170 FOR I=1 TO 2*K-1 STEP 2
180   INPUT X(I), X(I+1)        'input power levels
190   X(I) = X(0) + X(I)        'convert X(I) to dBc
200   X(I+1) = X(0) + X(I+1)    'convert X(I) to dBc
210   Y(I) = 10^(X(I)/10)       'convert X(I) to linear
220   Y(I+1) = 10^(X(I+1)/10)   'convert X(I) to linear
230   A = A + Y(I) + Y(I+1)     'sum up total power
240 NEXT I
250 INC = 1
260 PRINT "FREQ OFFSET(MHz)  LEVEL(dBC)    FREQ OFFSET(MHz)  LEVEL(dBC)"
270 FOR I = 1 TO K
280   J = I*INC
290   PRINT USING "  +##.#         +##.#       ";-J,X(2*I-1),J,X(2*I)
300 NEXT I
310 PRINT
320 PRINT "PERCENT TOTAL ENERGY        OCCUPIED BANDWIDTH (MHz)"
330 B = 1
340 PRINT USING "      +###.#                +##.#  ";B/A*100,INC
350 FOR I = 1 TO K
360   B=B+Y(2*I-1)+Y(2*I)
370   PRINT USING "    +###.#            +##.#"  ;B/A*100,(2*I+1)*INC
380 NEXT I
390 END
```

TEST PERFORMED BY: Robert S Dyer DATE: 11 Dec 1991

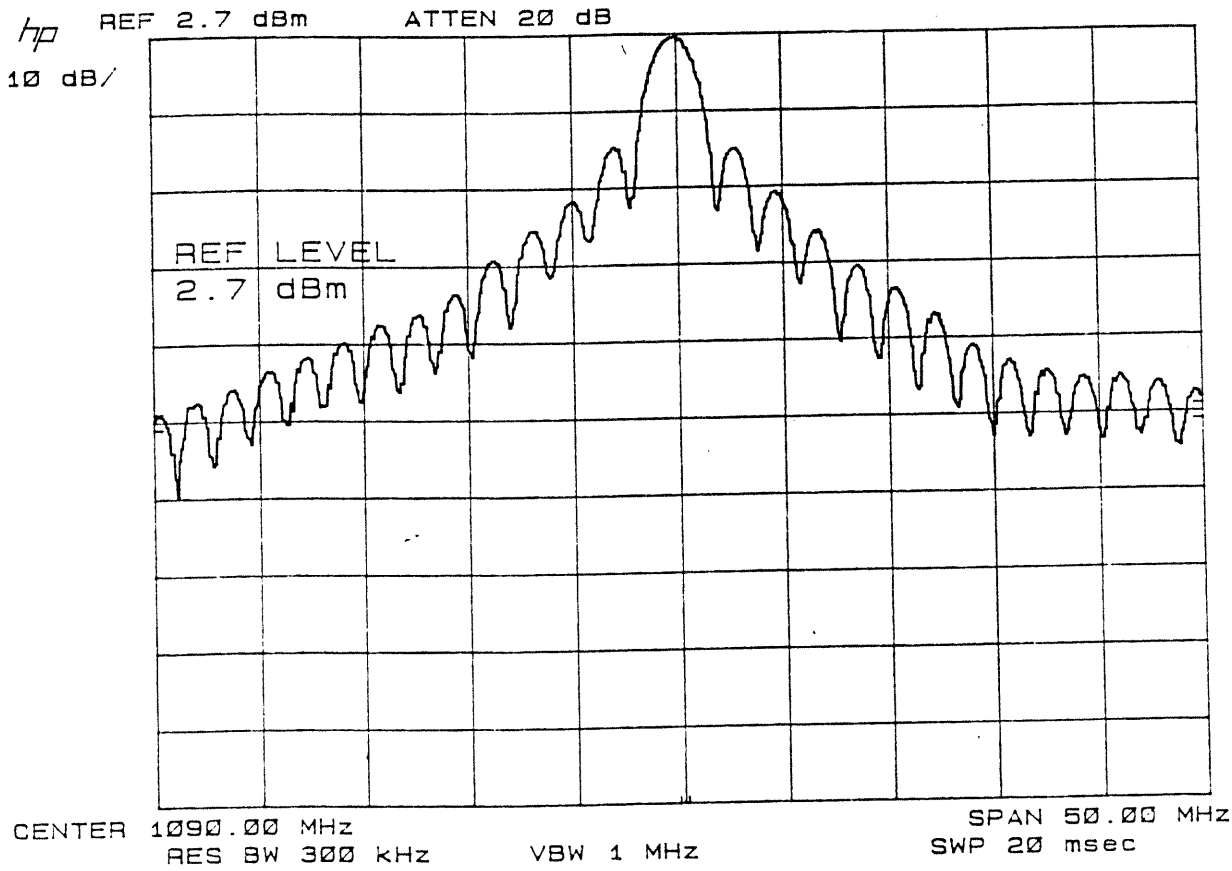
DATA REFERENCE: _____ SHEET: 26

6.0 DATA (Cont.)

FREQ OFFSET(MHz)	LEVEL(dBC)	FREQ OFFSET(MHz)	LEVEL(dBC)
-1.0	-3.3	+1.0	-5.7
-2.0	-18.4	+2.0	-21.4
-3.0	-14.4	+3.0	-15.5
-4.0	-24.4	+4.0	-25.9
-5.0	-21.4	+5.0	-21.6
-6.0	-31.0	+6.0	-29.8
-7.0	-25.2	+7.0	-27.0
-8.0	-37.7	+8.0	-33.7
-9.0	-29.3	+9.0	-33.6
-10.0	-40.6	+10.0	-35.1
-11.0	-35.4	+11.0	-38.7
-12.0	-37.5	+12.0	-37.9
-13.0	-41.3	+13.0	-44.9
-14.0	-37.5	+14.0	-40.7
-15.0	-45.9	+15.0	-52.4
-16.0	-39.6	+16.0	-43.3
-17.0	-47.6	+17.0	-47.1
-18.0	-42.0	+18.0	-47.3
-19.0	-46.6	+19.0	-45.9
-20.0	-45.0	+20.0	-52.0
-21.0	-46.8	+21.0	-44.8
-22.0	-51.7	+22.0	-52.7
-23.0	-47.3	+23.0	-45.9
-24.0	-52.0	+24.0	-52.3
-25.0	-49.4	+25.0	-47.9

PERCENT TOTAL ENERGY	OCCUPIED BANDWIDTH (MHz)
+53.9	+1.0
+93.7	+3.0
+94.8	+5.0
+98.3	+7.0
+98.6	+9.0
+99.4	+11.0
+99.5	+13.0
+99.8	+15.0
+99.8	+17.0
+99.9	+19.0
+99.9	+21.0
+99.9	+23.0
+100.0	+25.0
+100.0	+27.0
+100.0	+29.0
+100.0	+31.0
+100.0	+33.0
+100.0	+35.0
+100.0	+37.0
+100.0	+39.0
+100.0	+41.0
+100.0	+43.0
+100.0	+45.0
+100.0	+47.0
+100.0	+49.0
+100.0	+51.0

6.0 DATA (Cont.)



TEST PERFORMED BY: Robert S. Dyl

DATE: 11 Dec 1991

DATA REFERENCE: _____

SHEET: 28