

**INTERTEK TESTING SERVICES**

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**EXHIBIT 2**

**SYSTEM TEST CONFIGURATION**

## INTERTEK TESTING SERVICES

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### 2.0 System Test Configuration

#### 2.1 Justification

The device was configured for testing in a typical fashion (as a customer would normally use it). The device was mounted to a cardboard box, which enabled the engineer to maximize emissions through its placement in the three orthogonal axes. When the radiated emissions are measured.

The device was powered by a DC power supply adjusted to give 13.8 Vdc.

For measuring spurious and harmonic emissions of the transmitter, a 50Ω load was connected to the antenna terminal.

The frequency range from 25 MHz to 1 GHz was searched for spurious emissions from the device. Harmonic emissions of the transmitter were investigated up to 5 GHz. Only those emissions reported were detected. All other emissions were at least 20 dB below the applicable limits.

## INTERTEK TESTING SERVICES

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### 2.2 EUT Exercising Software

There was no special software to exercise the device. Once the unit is powered on, a signal is transmitted.

### 2.3 Special Accessories

During the test, a 8 ohm speaker has been used as an external speaker.

### 2.4 Equipment Modification

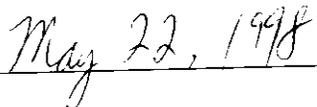
Any modification installed previous to testing by RadioShack, A Division of Tandy Corporation will be incorporated in each production model sold/leased in the United States.

No modification were installed by Intertek Testing Services.

*Confirmed by:*

*C. K. Lam*  
*Assistant Manager*  
*Intertek Testing Services*  
*Agent for RadioShack, A Division of Tandy Corporation*

 Signature

 Date

**INTERTEK TESTING SERVICES**

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**EXHIBIT 3**

**RF POWER OUTPUT**

## INTERTEK TESTING SERVICES

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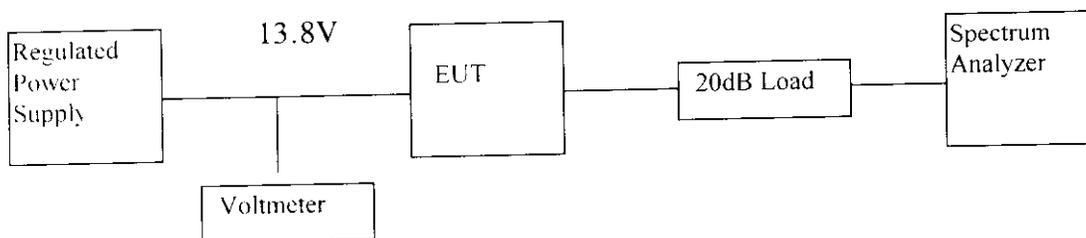
### 3.0 RF Power Output (Section 2.985(a))

#### A. Equipment Used

Equipment	Brand Name	Model No.
Regulated Power Supply	PAD	35-30L
Voltmeter	Fluke	87
Spectrum Analyzer	Hewlett Packard	8591EM
20dB RF Load	Bird	8304-200-N

#### B. Testing Procedure

- 1) Setup the test equipment in the following configuration:



- 2) Measure the power of all channels (40 channels) by Spectrum Analyzer in Watt.
- 3) Calculate the actual power by times the measured power with a correction factor, 104.7\*  
ie. Actual Power = measured Power \* 104.7

\* The Correction Factor is included the 20dB Load and cable loss between EUT and 20dB load.

# INTERTEK TESTING SERVICES

Table 1

RadioShack, A Division of Tandy Corporation  
RadioShack 21-1703

## Transmission Power

Channel	Frequency (MHz)	Measured Power (mW)	Net Power (W)	Limit (W)	Margin (W)
1	26.965	33.80	3.54	4	-0.46
2	26.975	33.80	3.54	4	-0.46
3	26.985	34.80	3.64	4	-0.36
4	27.005	34.80	3.64	4	-0.36
5	27.015	34.80	3.64	4	-0.36
6	27.025	34.80	3.64	4	-0.36
7	27.035	34.80	3.64	4	-0.36
8	27.055	34.80	3.64	4	-0.36
9	27.065	34.80	3.64	4	-0.36
10	27.075	34.80	3.64	4	-0.36
11	27.085	34.80	3.64	4	-0.36
12	27.105	34.80	3.64	4	-0.36
13	27.115	34.80	3.64	4	-0.36
14	27.125	34.80	3.64	4	-0.36
15	27.135	34.80	3.64	4	-0.36

Notes: Negative sign in the margin column shows the value below limits.

Test Engineer: Kenneth H. M. Lam

Date of Test: May 12, 1998

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**INTERTEK TESTING SERVICES**

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**Table 1 (Cont'd...)**

**RadioShack, A Division of Tandy Corporation  
RadioShack 21-1703**

**Transmission Power**

Channel	Frequency (MHz)	Measured Power (mW)	Net Power (W)	Limit (W)	Margin (W)
16	27.155	34.80	3.64	4	-0.36
17	27.165	34.80	3.64	4	-0.36
18	27.175	34.80	3.64	4	-0.36
19	27.185	34.80	3.64	4	-0.36
20	27.205	34.80	3.64	4	-0.36
21	27.215	34.80	3.64	4	-0.36
22	27.225	34.80	3.64	4	-0.36
23	27.255	34.40	3.60	4	-0.4
24	27.235	33.90	3.55	4	-0.45
25	27.245	33.90	3.55	4	-0.45
24	27.265	33.90	3.55	4	-0.45
27	27.275	33.90	3.55	4	-0.45
28	27.285	33.90	3.55	4	-0.45
29	27.295	33.90	3.55	4	-0.45
30	27.305	33.90	3.55	4	-0.45

Notes: Negative sign in the margin column shows the value below limits.

Test Engineer: Kenneth H. M. Lam

Date of Test: May 12, 1998

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**INTERTEK TESTING SERVICES**

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**Table 1 (Cont'd...)**

**RadioShack, A Division of Tandy Corporation  
RadioShack 21-1703**

**Transmission Power**

Channel	Frequency (MHz)	Measured Power (mW)	Net Power (W)	Limit (W)	Margin (W)
31	27.315	33.90	3.55	4	-0.45
32	27.325	33.90	3.55	4	-0.45
33	27.335	33.90	3.55	4	-0.45
34	27.345	33.90	3.55	4	-0.45
35	27.355	33.90	3.55	4	-0.45
36	27.365	33.90	3.55	4	-0.45
37	27.375	33.90	3.55	4	-0.45
38	27.385	33.90	3.55	4	-0.45
39	27.395	33.90	3.55	4	-0.45
40	27.405	33.90	3.55	4	-0.45

Notes: Negative sign in the margin column shows the value below limits.

Test Engineer: Kenneth H. M. Lam

Date of Test: May 12, 1998

**INTERTEK TESTING SERVICES**

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**EXHIBIT 4**

**MODULATION CHARACTERISTICS**

## INTERTEK TESTING SERVICES

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### 4.0 Modulation Characteristics

In order to satisfy the 2.987 requirement, Modulation Frequency Response, Modulation Limit Characteristics and Over Modulation Transient Response, are attached in Exhibit 4.1, 4.2 & 4.3.

Plots for each tests are included in the following sections.

## INTERTEK TESTING SERVICES

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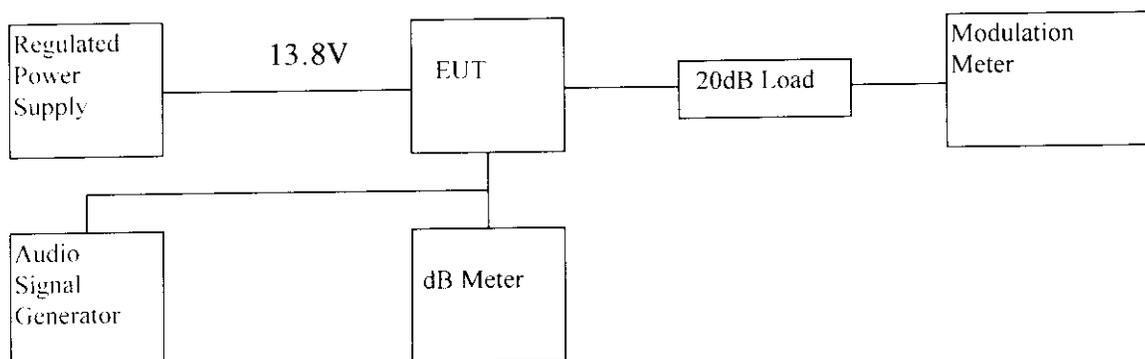
### 4.1 Modulation Frequency Response

#### A. Test Equipment

Equipment	Brand Name	Model No.
Regulated Power Supply	PAD	30-35L
Audio Signal Generator	Leader	LFG-1300S
dB meter	Leader	LMV-182A
20 dB RF Load	Bird	8304-200-N
Modulation Meter	Marconi Instrument	2945

#### B. Testing Procedure

- 1) Set-up the test equipment in the following configuration:



- 2) Set the audio signal generator frequency to 2kHz and adjust level to obtain 50% modulation. And then adjust the frequency to obtain the maximum audio frequency response of the EUT.
- 3) Adjust the level of audio signal generator to give 50% modulation at the maximum audio frequency response and take this level as the 0dB reference level.
- 4) The frequency of the audio signal generator is changed from 100Hz to 10kHz and adjust the level to obtain the 50% modulation at each frequency.
- 5) Record the level at each frequency reference to 0dB Level.

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**INTERTEK TESTING SERVICES**

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**C. Test Result**

**Table 2**

**RadioShack, A Division of Tandy Corporation  
RadioShack 21-1703**

**Modulation Frequency Response (Section 2.987(a))**

Test Channel : 19  
0 dB Level : -41.5 dBm  
Modulation Output : 50%

<b>Modulation Frequency (Hz)</b>	<b>Modulation input relative to max. output. (dB)</b>
100	-2.0
200	-22.0
300	-32.5
400	-37.0
500	-40.0
600	-41.0
700	-41.5
800	-41.5
900	-41.5
1000	-41.5
1500	-40.5
2000	-38.0
2500	-35.0
3000	-32.5
4000	-26.5
5000	-22.0
6000	-17.5
7000	-14.0
8000	-11.5
9000	-7.5
10000	-4.5

Test Engineer: Kenneth H. M. Lam

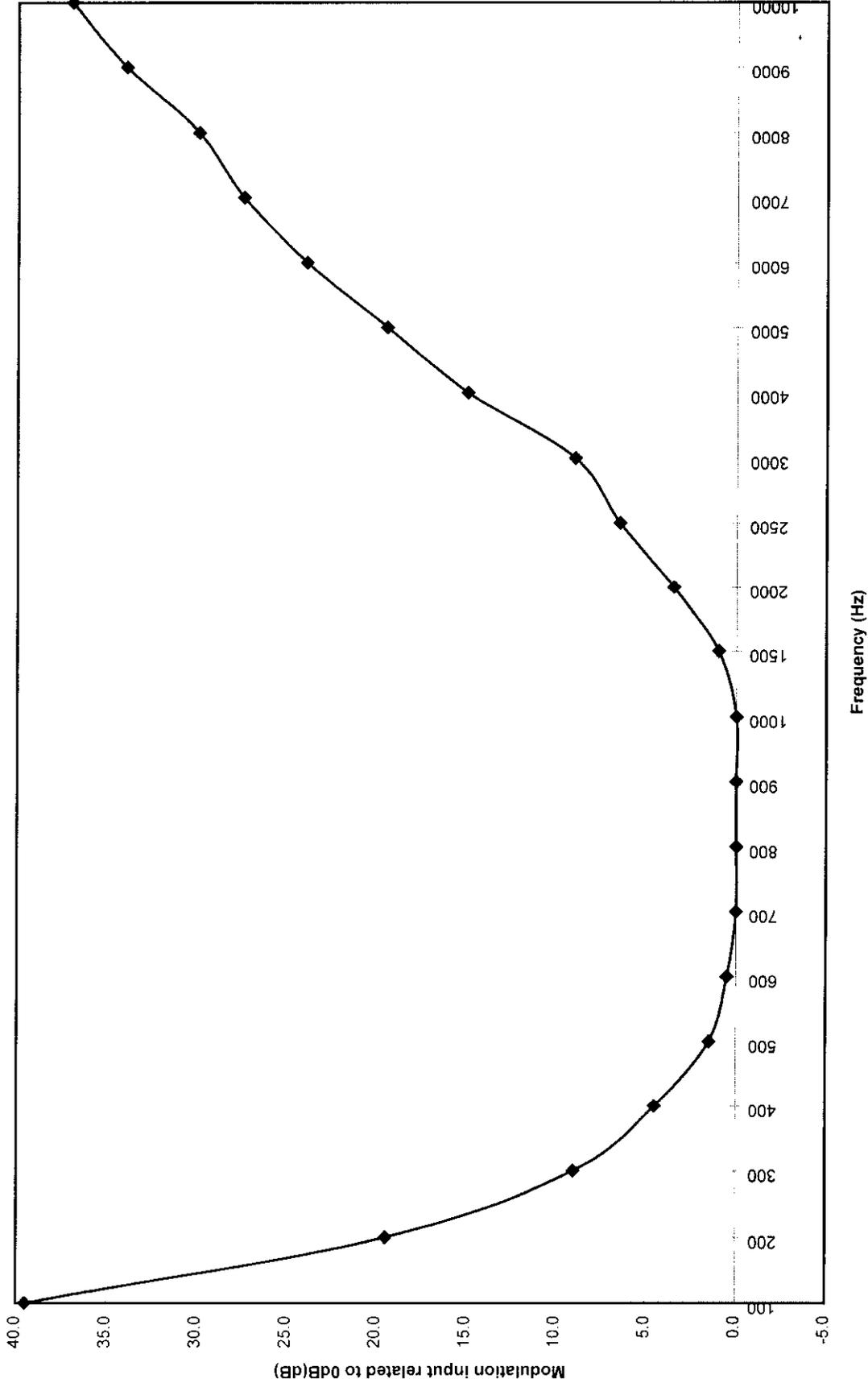
Date of Test: May 12, 1998



**Intertek Testing Services**  
ETL Testing Laboratories

Report No.: 5821557

**Modulation Frequency Response**



Ctrl. No.: N/A

**FCC ID: AAO21-1670**

## INTERTEK TESTING SERVICES

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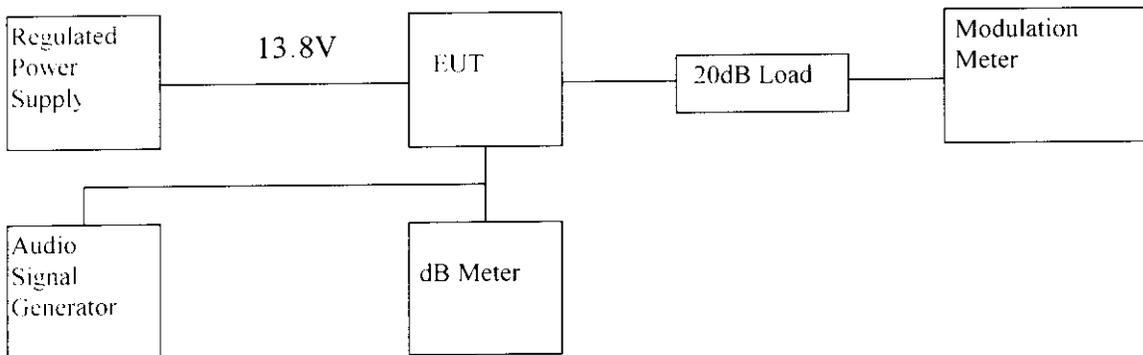
### 4.2 Modulation Limiting Characteristics (Section 2.987(b))

#### A. Test Equipment

Equipment	Brand Name	Model No.
Regulated Power Supply	PAD	30-35L
Audio Signal Generator	Leader	LFG-1300S
dB meter	Leader	LMV-182A
20 dB RF Load	Bird	8304-200-N
Modulation Meter	Marconi	2950

#### B. Testing Procedure

- 1) Set-up the test equipment in the following configuration:



- 2) Set the frequency of the audio signal generator to 400Hz and adjust the level from -60dBm to 0dBm. Record the output modulation index.
- 3) Repeat the above procedure with frequency 1200Hz, 1500Hz, 2500Hz & 5000Hz.

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**INTERTEK TESTING SERVICES**

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**C. Test Result**

**Table 3**

**RadioShack, A Division of Tandy Corporation  
RadioShack 21-1703**

**Modulation Limiting Characteristics**

Test Channel : 19

<b>Modulation Input (dBm)</b>	<b>Modulation Index(%) at 400Hz</b>	<b>Modulation Index(%) at 1200Hz</b>	<b>Modulation Index(%) at 1500Hz</b>	<b>Modulation Index(%) at 2500Hz</b>	<b>Modulation Index(%) at 5000Hz</b>
-60	3	6	6	4	2
-50	9	20	17	9	4
-40	26	57	50	27	7
-30	85	88	87	80	21
-20	88	88	88	84	61
-10	90	90	88	86	82
0	93	90	88	88	87

Test Engineer: Kenneth H. M. Lam

Date of Test: May 12, 1998

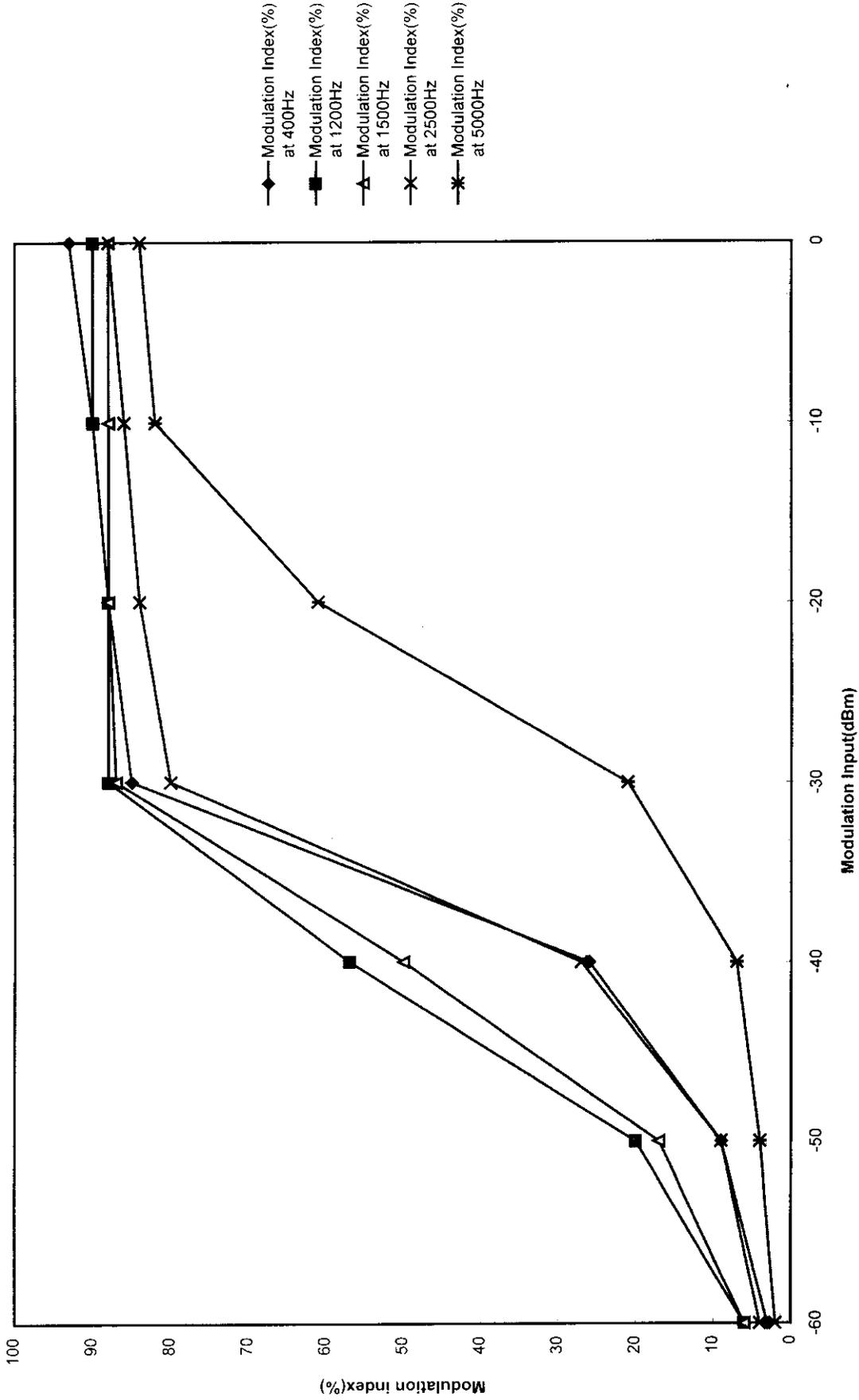


# Intertek Testing Services

ETL Testing Laboratories

Report No.: 9801557

## Modulation Limiting Characteristic



Ctrl. No.: N/A

FCC ID: AAO21-1703

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## INTERTEK TESTING SERVICES

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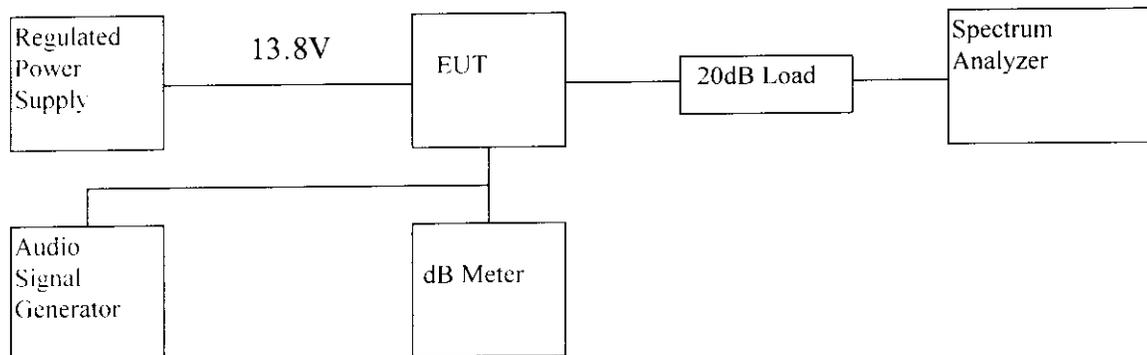
### 4.3 Over Modulation Transient Response (Section 2.987(b))

#### A. Test Equipment

Equipment	Brand Name	Model No.
Regulated Power Supply	PAD	30-35L
Audio Signal Generator	Leader	LFG-1300S
dB meter	Leader	LMV-182A
20 dB RF Load	Bird	8304-200-N
Spectrum Analyzer	Hewlett Packard	8951EM

#### B. Testing Procedure

- 1) Set-up the test equipment in the following configuration:



- 2) Set the frequency of the audio signal generator to 2.5kHz at level 16dB greater than required for 50% modulation.
- 3) Use the other audio signal generator pulse the previous signal at one P.P.S. with pulse width of 0.5 second.
- 4) Tune the spectrum analyzer to the channel on which the transmitter is set and adjust the setting as for the measurement of occupied bandwidth.
- 5) And then tune the spectrum analyser to adjacent channel(+/-10kHz) and use "Zero-scan" to observe the transients caused by the pulsed modulation.

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**INTERTEK TESTING SERVICES**

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**C. Test Result**

**Table 4**

**RadioShack, A Division of Tandy Corporation  
RadioShack 21-1703**

**Over modulation Transient Response**

<b>Channel</b>	<b>Adjacent Frequency (MHz)</b>	<b>Transient Level with respect to TP in (dB)</b>	<b>Transient Duration (ms)</b>
1	26.955	-43.54	20
1	26.975	-43.44	17
19	27.175	-40.77	25
19	27.195	-44.70	20
40	27.395	-40.36	25
40	27.405	-44.24	30

Remark: '-' sign in the Transient Level respect to the carrier Level column mean below the carrier level.

Test Engineer: Kenneth H. M. Lam

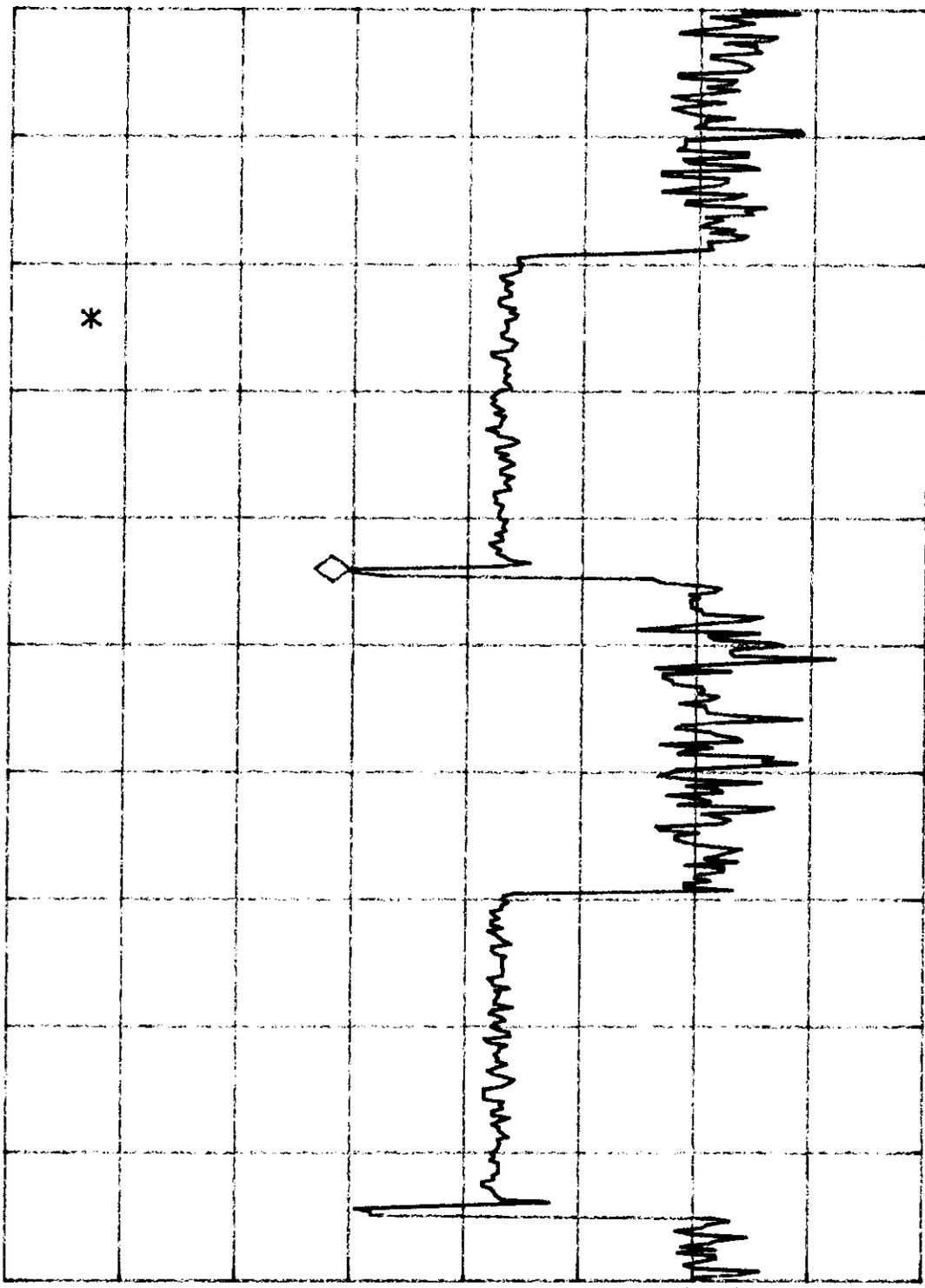
Date of Test: May 12, 1998

70

MKR 1.1200 sec  
-29.83 dBm

#AT 30 dB

REF .0 dBm



PEAK  
LOG  
10  
dB/

VA SB  
SC FC  
CORR

CENTER 26.955000 MHz  
 #RES BW 200 Hz  
 #VBW 3 MHz  
 SPAN 0 Hz  
 #SWP 2.00 sec



AP

MKR 1.7100 sec

REF .0 dBm

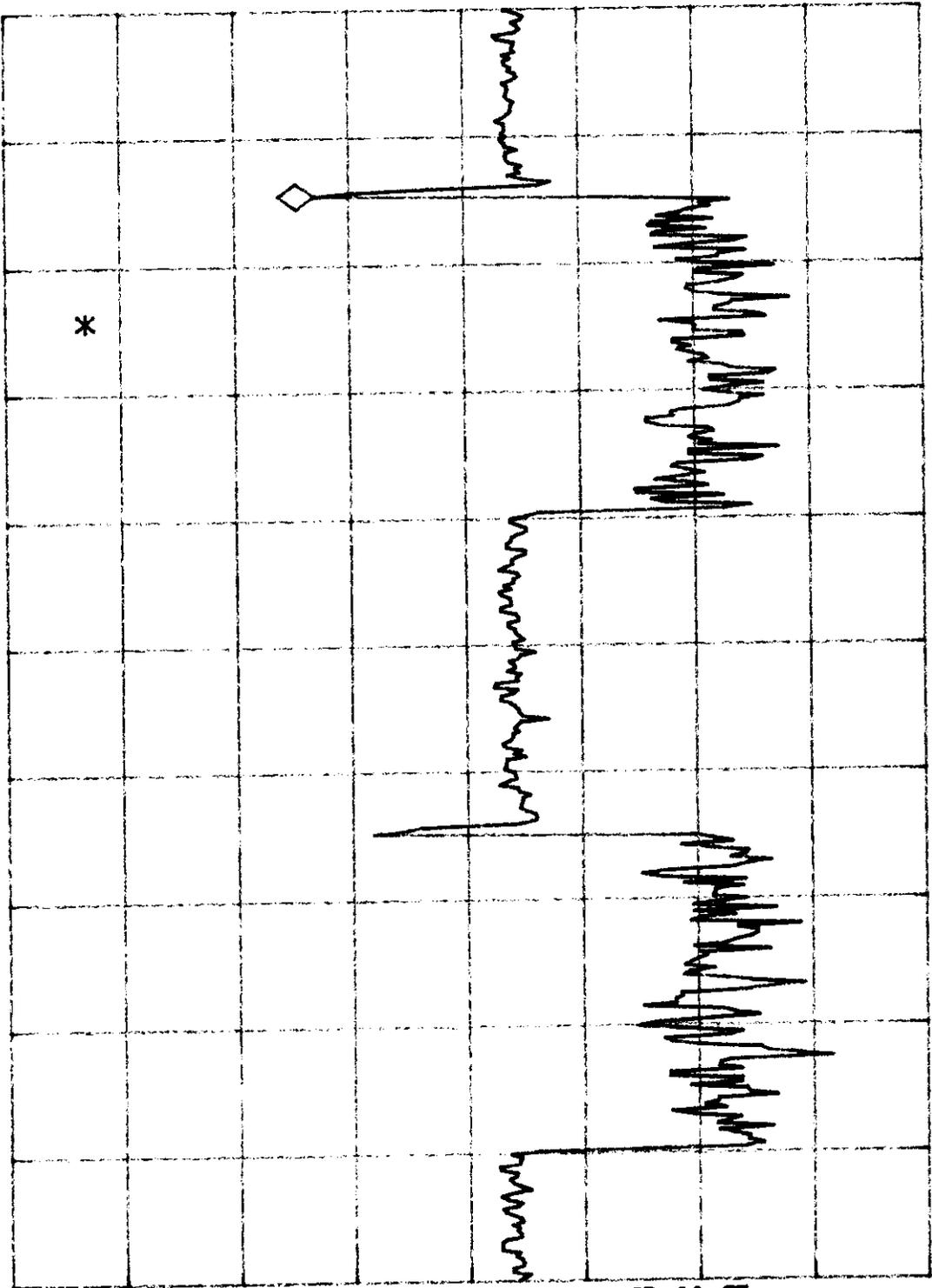
#AT 30 dB

PEAK

LOG

10

dB/



VA SB  
SC FC  
CORR

SPAN 0 HZ

CENTER 27.175000 MHZ

#SNP 2.00 sec

#VBW 3 MHZ

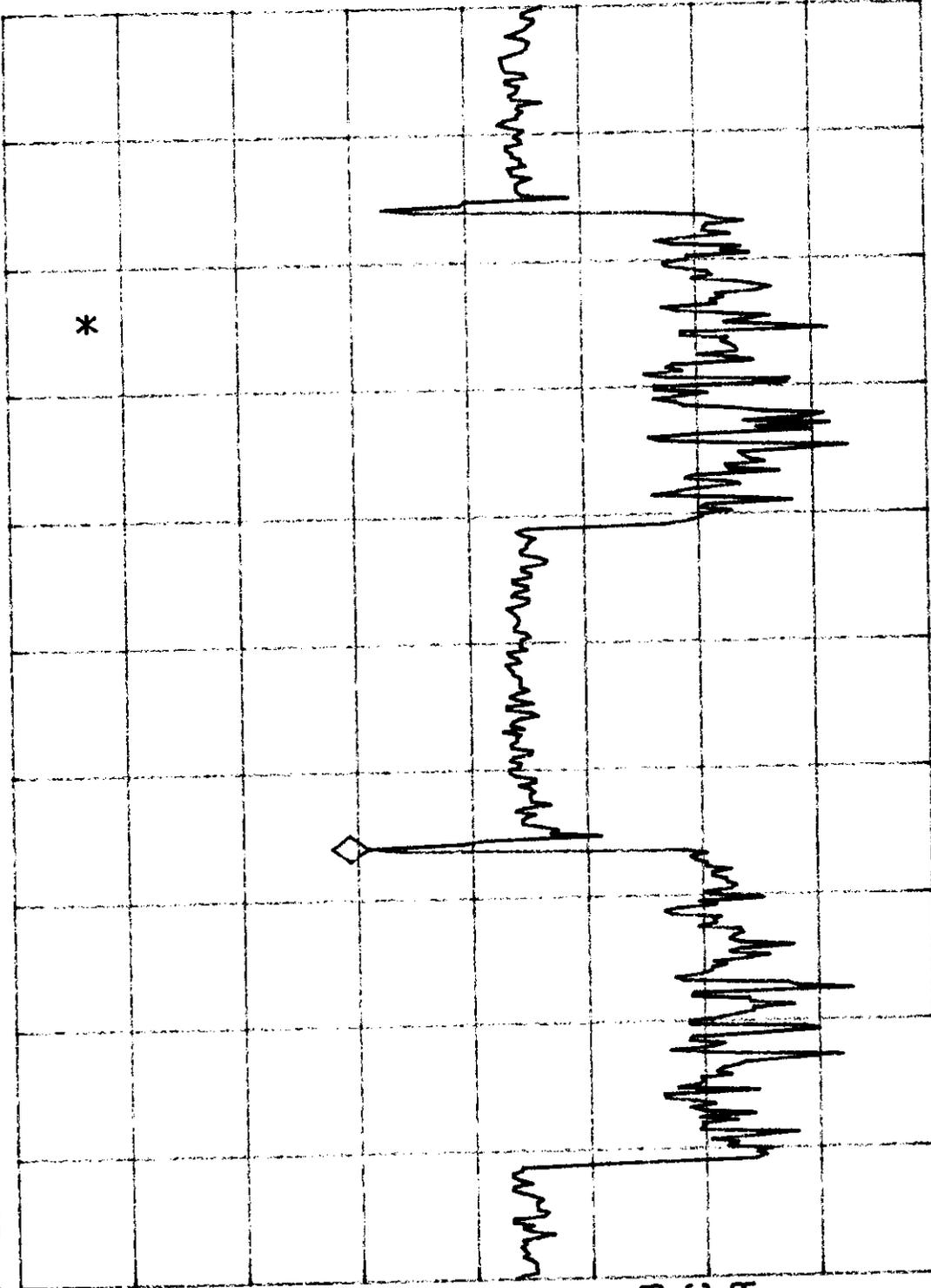
#RES BW 200 HZ

MKR 680.00 msec  
-30.94 dBm

#AT 30 dB

REF .0 dBm

PEAK  
LOG  
10  
dB/



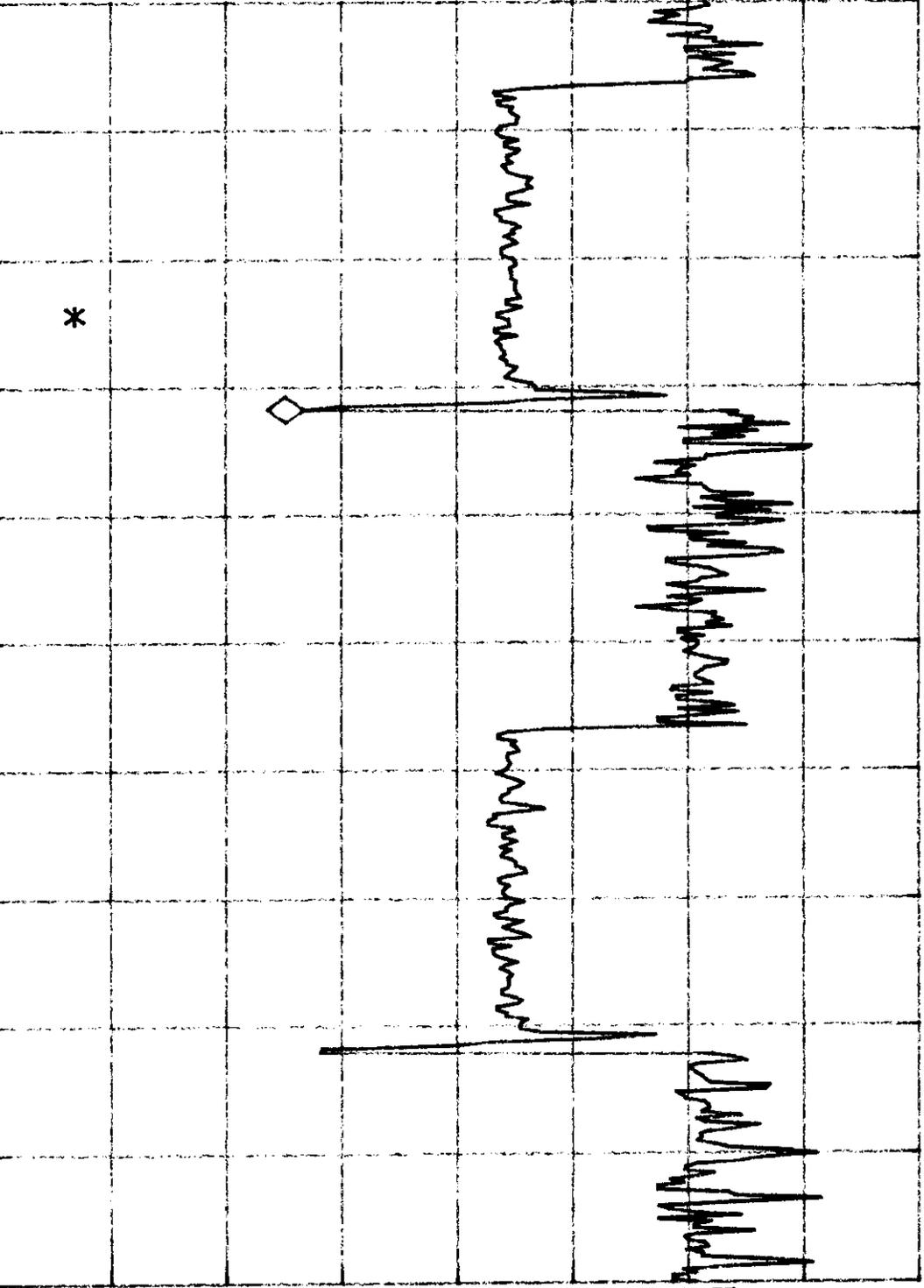
VA SB  
SC FC  
CORR

SPAN 0 HZ  
#SWP 2.00 sec

#VBW 3 MHz

CENTER 27.195000 MHz  
#RES BW 200 HZ

AP MKR 1.3650 sec  
REF .0 dBm #AT 30 dB  
-26.83 dBm



PEAK  
LOG  
10  
dB/

VA SB  
SC FC  
CORR

CENTER 27.395000 MHZ  
#RES BW 200 Hz  
#VBW 3 MHZ  
#SWP 2.00 sec  
SPAN 0 Hz

70

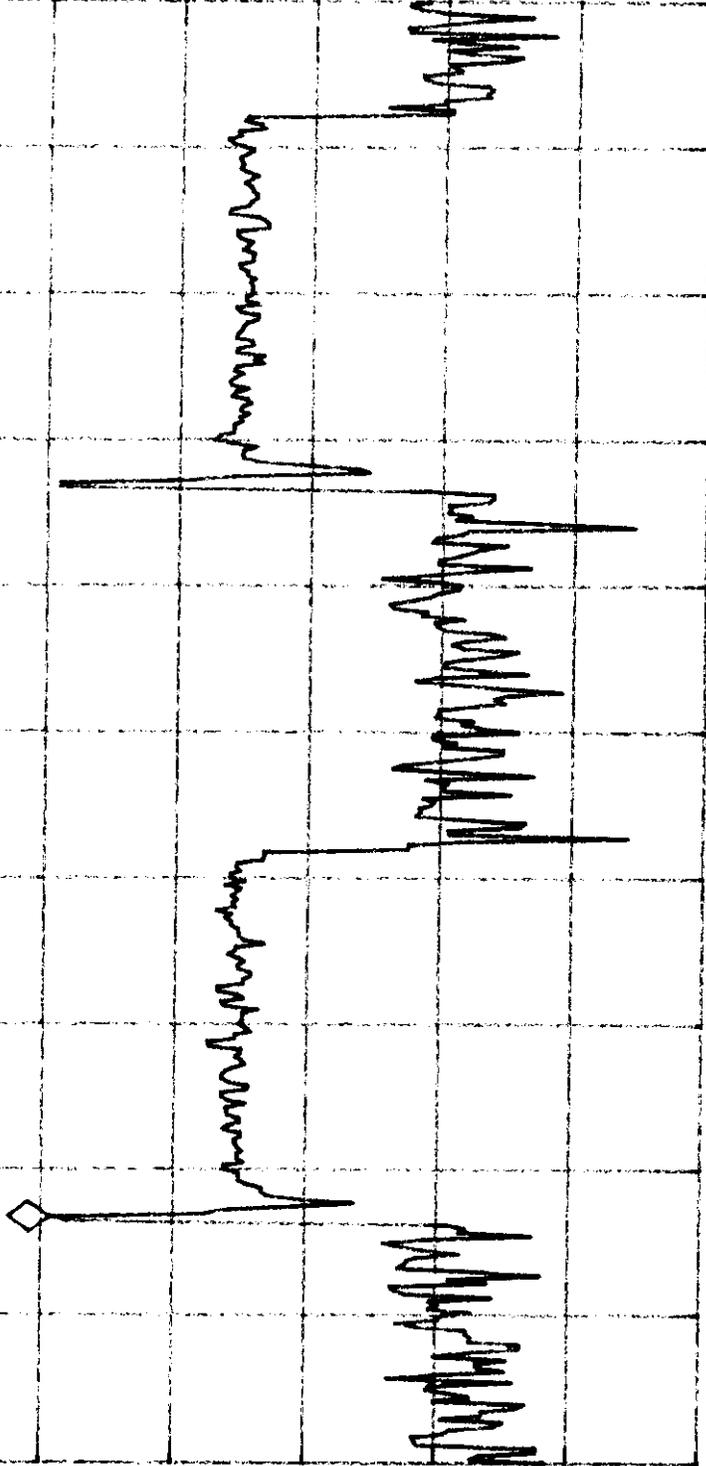
MKA 335.00 msec  
-30.71 dBm

#AT 30 dB

REF .0 dBm

PEAK  
LOG  
10  
dB/

\*



VA SB  
SC FC  
CORR

CENTER 27.415000 MHz

#RES BW 200 Hz

#VBW 3 MHz

SPAN 0 Hz

#SWP 2.00 sec

**INTERTEK TESTING SERVICES**

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**EXHIBIT 5**

**OCCUPIED BANDWIDTH**

## INTERTEK TESTING SERVICES

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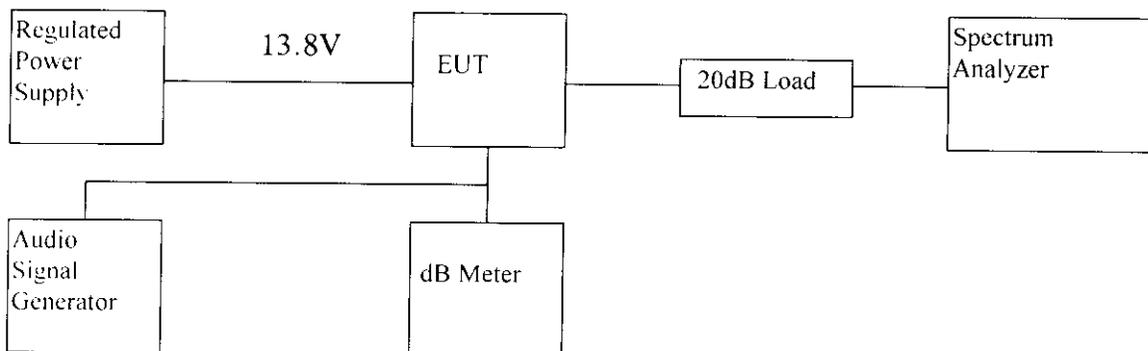
### 5.0 Occupied Bandwidth (Section 2.989 & Section 95.633)

#### A. Test Equipment

Equipment	Brand Name	Model No.
Regulated Power Supply	PAD	30-35L
Audio Signal Generator	Leader	LFG-1300S
dB meter	Leader	LMV-182A
20 dB RF Load	Bird	8304-200-N
Spectrum Analyzer	Hewlett Packard	8951EM

#### B. Testing Procedure

- 1) Set-up the test equipment in the following configuration:



- 2) Set the level of audio signal generator to obtain 16 dB greater than required for 50% modulation.
- 3) The occupied bandwidth is measured with the spectrum analyzer set at 5kHz/div scan and 10dB/div.

#### C. Test Result

The occupied Bandwidth is measured to be 5.5 kHz.

Test Engineer: Kenneth H. M. Lam

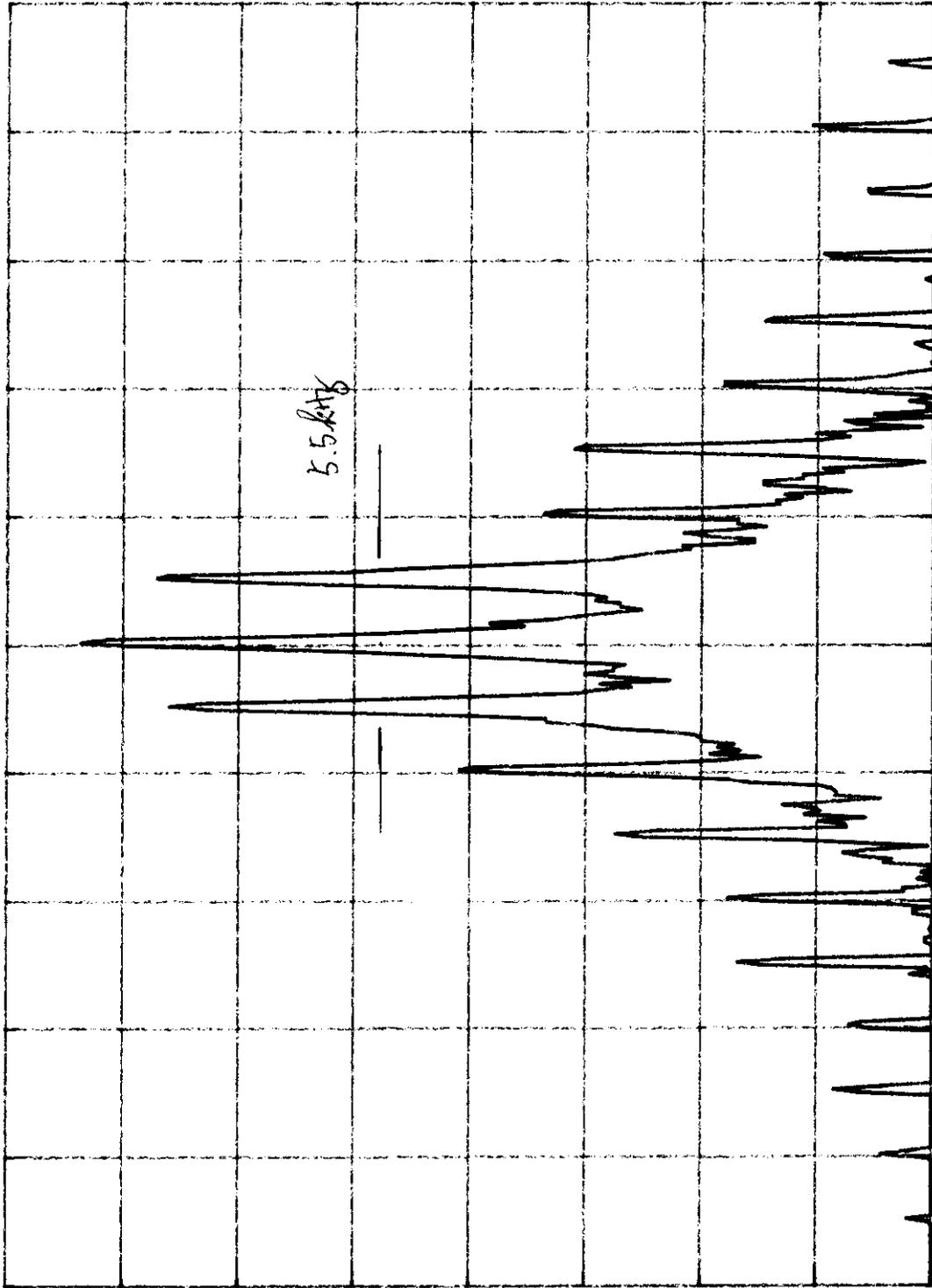
Date of Test: May 12, 1998

Channel 1

77

REF 20.0 dBm #AT 30 dB

PEAK  
LOG  
10  
dB/



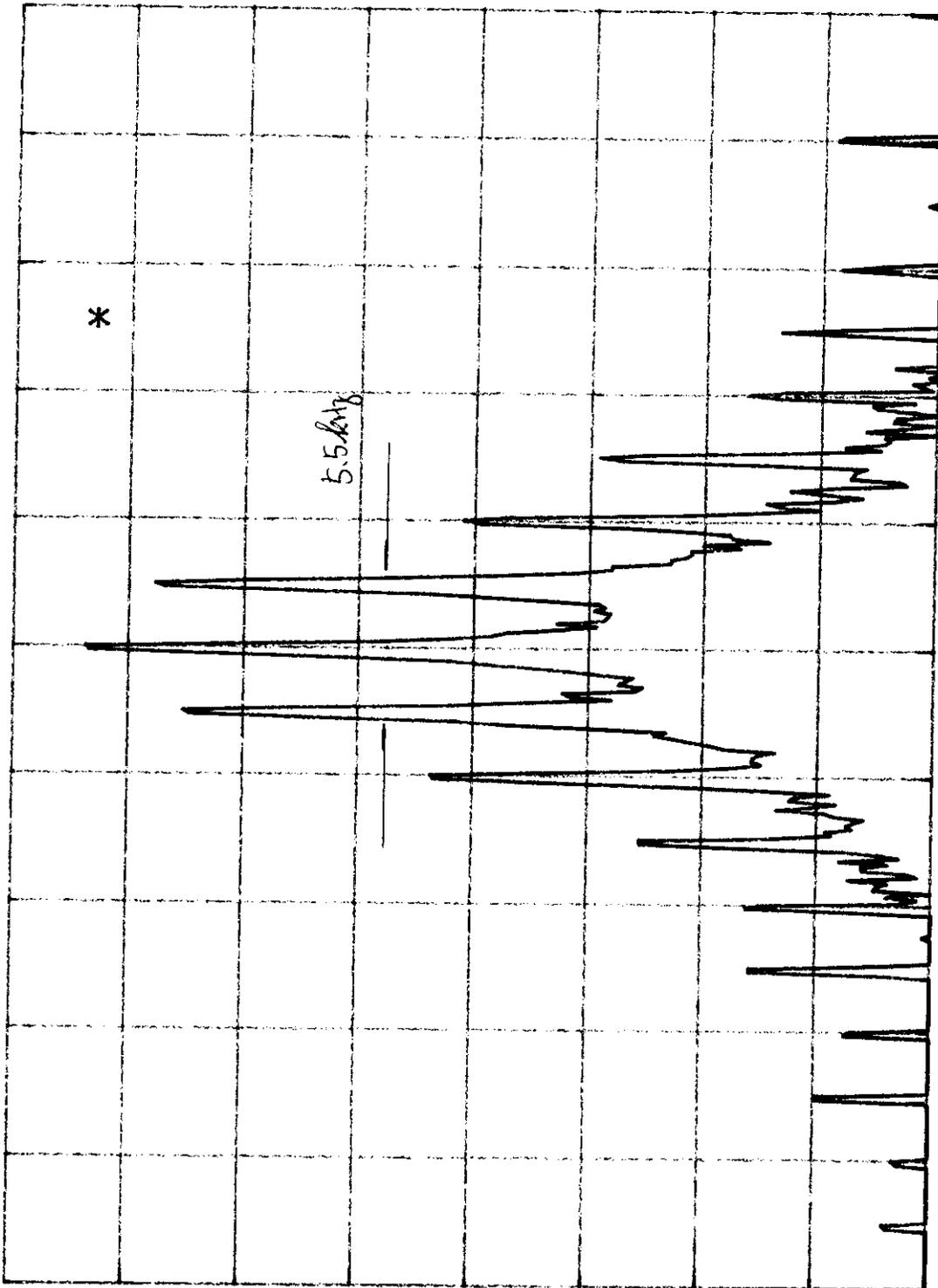
VA SB  
SC FC  
CORR

CENTER 26.96500 MHz #RES BW 200 Hz  
SPAN 50.00 KHz #SWP 7.50 sec  
#VBW 3 MHz

Channel 19

REF 20.0 dBm #AT 30 dB

PEAK  
LOG  
10  
dB/



VA SB  
SC FC  
CORR

CENTER 27.18500 MHz  
#RES BW 200 Hz

SPAN 50.00 KHz  
#SWP 7.50 sec

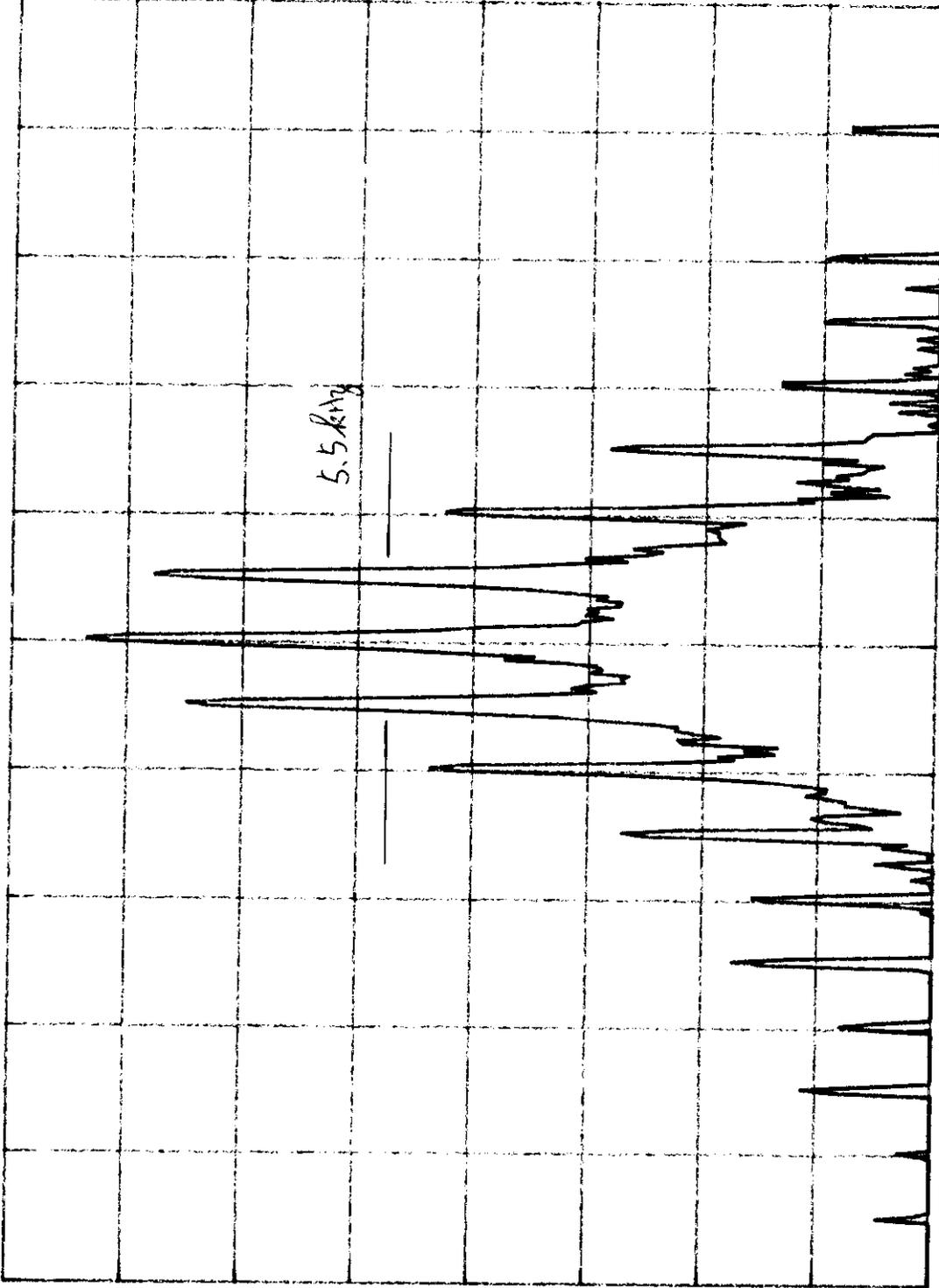
#VBW 3 MHz

*Channel 40*

*hp*

REF 20.0 dBm #AT 30 dB

PEAK  
LOG  
10  
dB/



VA SB  
SC FC  
CORR

CENTER 27.40500 MHz  
#RES BW 200 Hz

SPAN 50.00 KHz  
#SWP 7.50 sec

#VBW 3 MHz

**INTERTEK TESTING SERVICES**

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**EXHIBIT 6**

**SPURIOUS EMISSION**

## INTERTEK TESTING SERVICES

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### 6.0 Spurious Emission

In order to satisfy the 2.991 & 2.993 requirement, the spurious emission from the antenna terminal and from the EUT are measured and shown in the Exhibit 6.1 & 6.2

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## INTERTEK TESTING SERVICES

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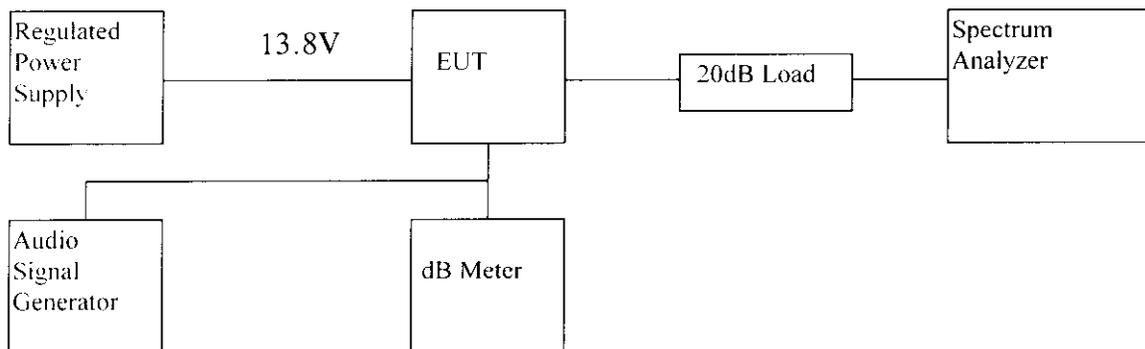
### 6.1 Spurious emission at the antenna terminal (Section 2.991 & Section 95.631)

#### A. Test Equipment

Equipment	Brand Name	Model No.
Regulated Power Supply	PAD	30-35L
Audio Signal Generator	Leader	LFG-1300S
dB meter	Leader	LMV-182A
20 dB RF Load	Bird	8304-200-N
RF Filter	Tailithic	3VF
Spectrum Analyzer	Hewlett Packard	8951EM

#### B. Testing Procedure

- 1) Set-up the test equipment in the following configuration:



- 2) Set the level of audio signal generator to obtain 16 dB greater than required for 50% modulation.
- 3) Plot the graph of emissions with 50kHz span.
- 4) Measure the emissions relative to TP in region  $CARRIER \pm 4kHz$  to  $CARRIER \pm 20kHz$  from the plot.
- 5) Record the emissions relative to TP from region  $CARRIER \pm 20kHz$  to 1000MHz.

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**INTERTEK TESTING SERVICES**

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**C. Test Result**

**RadioShack, A Division of Tandy Corporation  
RadioShack 21-1703  
Table 5(a)**

- 1) Unwanted emission from CARRIER  $\pm$  4kHz to Carrier  $\pm$  20kHz (Refer to the plots)

Region	Unwanted emission		
	Channel 1	Channel 19	Channel 40
CARRIER $\pm$ 4kHz to $\pm$ 8kHz	< 25dB	< 25dB	< 25dB
CARRIER $\pm$ 8kHz to $\pm$ 20kHz	< 35dB	< 35dB	< 35dB

- 2) Unwanted emission from CARRIER  $\pm$  20kHz to 1000MHz

**Table 5(b): Channel 1**

Frequency (MHz)	Emission relative to TP (dB)	Limit (dB)	Margin (dB)
53.930	-63.4	-60	-3.4
80.895	-84.0	-60	-24.0
107.860	-83.3	-60	-23.3
134.825	-78.7	-60	-18.7
161.790	-80.2	-60	-20.2
188.755	-82.8	-60	-22.8
215.720	-84.4	-60	-24.4
242.685	-87.1	-60	-27.1
269.650	-85.3	-60	-25.3

- Remark: 1. '-' sign in margin column shows the value below the limits.
2. Any emissions and other harmonics which are attenuated more than 20dB below the permissible value need not be recorded.

Test Engineer: Kenneth H. M. Lam

Date of Test: May 12, 1998

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## INTERTEK TESTING SERVICES

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**RadioShack, A Division of Tandy Corporation  
RadioShack 21-1703**

**Table 5(c): Channel 19**

<b>Frequency (MHz)</b>	<b>Emission relative to TP (dB)</b>	<b>Limit (dB)</b>	<b>Margin (dB)</b>
54.370	-63.3	-60	-3.3
81.555	-83.2	-60	-23.2
108.740	-82.0	-60	-22.0
135.925	-78.8	-60	-18.8
163.110	-79.1	-60	-19.1
190.295	-81.2	-60	-21.2
217.480	-84.6	-60	-24.6
244.665	-86.1	-60	-26.1
271.850	-84.8	-60	-24.8

- Remark: 1. '-' sign in margin column shows the value below the limits.
2. Any emissions and any other harmonics which are attenuated more than 20dB below the permissible value need not be recorded.

Test Engineer: Kenneth H. M. Lam

Date of Test: May 12, 1998

## INTERTEK TESTING SERVICES

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**Table 5(d): Channel 40**

<b>Frequency (MHz)</b>	<b>Emission relative to TP (dB)</b>	<b>Limit (dB)</b>	<b>Margin (dB)</b>
54.810	-63.2	-60	-3.2
82.215	-83.1	-60	-23.1
109.620	-81.1	-60	-21.1
137.025	-78.6	-60	-18.6
164.430	-77.4	-60	-17.4
191.835	-79.7	-60	-19.7
219.420	-85.6	-60	-25.6
246.645	-84.5	-60	-24.5
274.050	-85.6	-60	-25.6

- Remark:
1. '-' sign in margin column shows the value below the limits.
  2. Any emissions and any other harmonics which are attenuated more than 20dB below the permissible value need not be recorded.

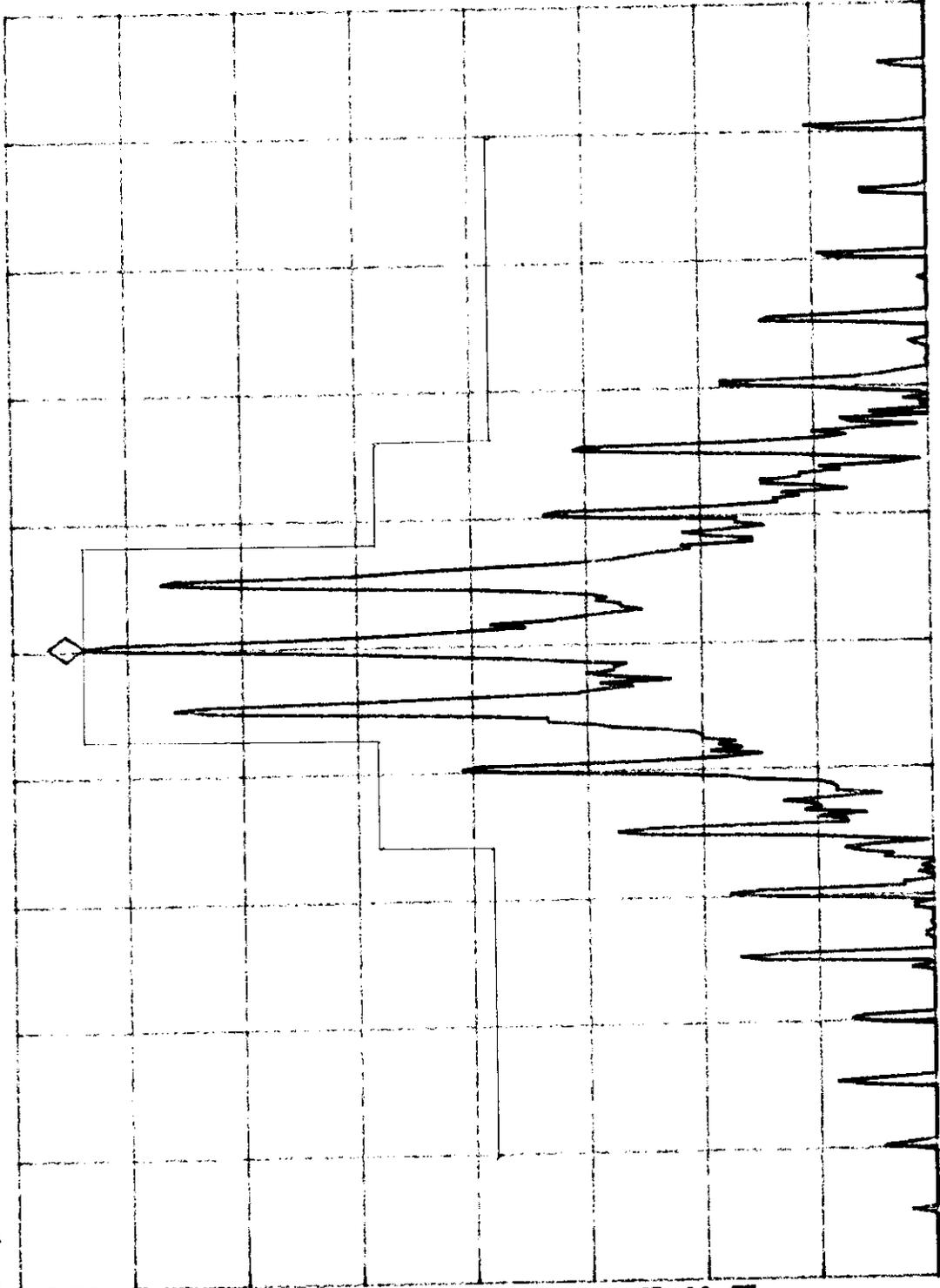
Test Engineer: Kenneth H. M. Lam

Date of Test: May 12, 1998

Channel 1

MKR 26.96513 MHz  
13.71 dBm

REF 20.0 dBm  
#AT 30 dB



PEAK  
LOG  
10  
dB/

VA SB  
SC FC  
CORR

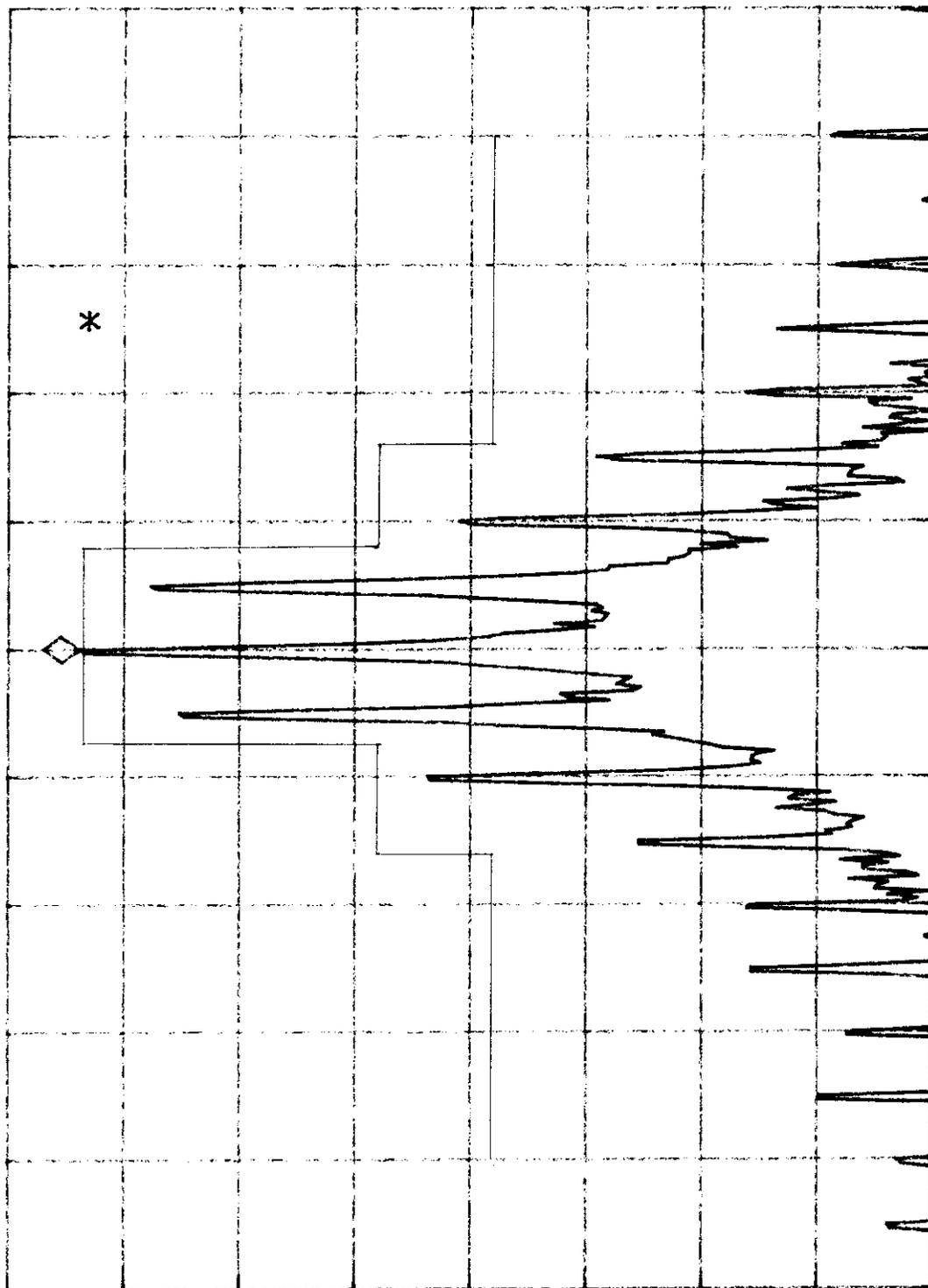
SPAN 50.00 KHz  
#SWP 7.50 sec

#VBW 3 MHz

CENTER 26.96500 MHz  
#RES BW 200 Hz

Channel 19

REF 20.0 dBm #AT 30 dB MKR 27.18500 MHz  
13.76 dBm



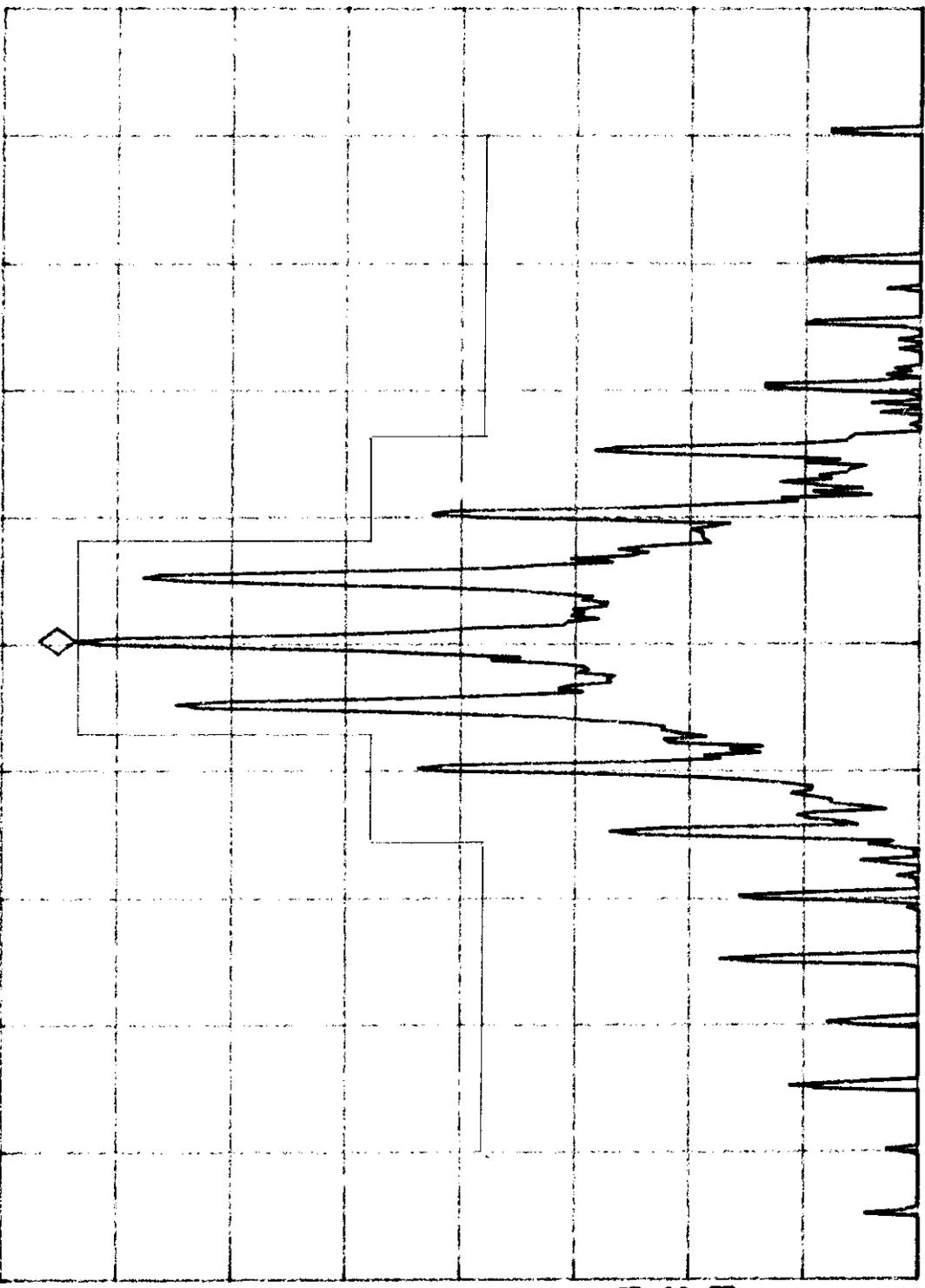
PEAK  
LOG  
10

VA SB  
SC FC  
CORR

CENTER 27.18500 MHz SPAN 50.00 KHz  
#RES BW 200 Hz #VBW 3 MHz #SWP 7.50 sec

*Channel 40*

h/p MKR 27.40513 MHz  
REF 20.0 dBm #AT 30 dB  
13.53 dBm



PEAK  
LOG  
10  
dB/

VA SB  
SC FC  
CORR

CENTER 27.40500 MHz  
#RES BW 200 Hz  
#VBW 3 MHz  
SPAN 50.00 kHz  
#SWP 7.50 sec

## INTERTEK TESTING SERVICES

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### 6.2 Field Strength of Spurious Radiation (Section 2.993)

#### A. Test Equipment

Equipment	Brand Name	Model No.
Regulated Power Supply	PAD	30-35L
Antenna	CDI	B100,B200,B300
Test receiver	Rohde & Schwarz	ESVS30
RF Filter	Tailithic	3VF

#### B. Testing Procedure

Radiated emission measurements were performed according to the procedures in ANSI C63.4(1992). All measurements were performed in Open Area Test Sites located at Roof Top of Garment Centre, 576 Castle Peak Road, Kowloon, Hong Kong.

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**INTERTEK TESTING SERVICES**

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**D. Test Result**

**Table 6**

**RadioShack, A Division of Tandy Corporation  
RadioShack 21-1703  
Radiated Spurious Emissions**

Channel : 1

The output power of transmitter is 35.5 dBm

<b>Antenna Polarity</b>	<b>Frequency (MHz)</b>	<b>Reading (dB<math>\mu</math>V)</b>	<b>Antenna Factor (dB)</b>	<b>Net at 3m (dB<math>\mu</math>V/m)</b>	<b>ERP (dBm)</b>	<b>ERP to related TOP*</b>
V	53.930	31.1	11	42.1	-53.1	-88.6
V	80.895	39.9	6	45.9	-49.3	-84.8
H	107.860	42.5	13	55.5	-39.7	-75.2
V	134.825	37.5	13	50.5	-44.7	-80.2
H	161.790	35.1	16	51.1	-44.1	-79.6
H	188.755	39.1	16	55.1	-40.1	-75.6
H	215.720	36.8	17	53.8	-41.4	-76.9
H	242.685	29.6	19	48.6	-46.6	-82.1
H	269.650	36.3	22	58.3	-36.9	-72.4
H	296.615	44.9	22	66.9	-28.3	-63.8
H	323.580	41.3	24	65.3	-29.9	-65.4
H	350.545	37.5	24	61.5	-33.7	-69.2
H	377.510	28.2	24	52.2	-43.0	-78.5
H	404.475	19.7	24	43.7	-51.5	-87.0
H	431.440	27.3	25	52.3	-42.9	-78.4
H	458.405	24.6	26	50.6	-44.6	-80.1
H	458.370	20.3	26	46.3	-48.9	-84.4
H	512.335	20.2	27	47.2	-48.0	-83.5
H	539.300	28.8	28	56.8	-38.4	-73.9
H	566.265	24.3	28	52.3	-42.9	-78.4

\* "TOP" is Transmitter Output Power

Test Engineer: Kenneth H. M. Lam

Date of Test: May 12, 1998

## INTERTEK TESTING SERVICES

### D. Test Result

**Table 7**

**RadioShack, A Division of Tandy Corporation  
RadioShack 21-1703  
Radiated Spurious Emissions**

Channel : 19

The output power of transmitter is 35.6 dBm

Antenna Polarity	Frequency (MHz)	Reading (dB $\mu$ V)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	ERP (dBm)	ERP to related TOP*
V	54.370	31.3	11	42.3	-52.9	-88.5
H	81.555	39.5	7	46.5	-48.7	-84.3
H	108.740	40.7	13	53.7	-41.5	-77.1
V	135.925	42.0	13	55.0	-40.2	-75.8
H	163.110	34.3	17	51.3	-43.9	-79.5
H	190.295	36.8	16	52.8	-42.4	-78.0
H	217.480	37.9	17	54.9	-40.3	-75.9
H	244.665	30.3	20	50.3	-44.9	-80.5
H	271.850	36.2	22	58.2	-37.0	-72.6
H	299.035	46.0	22	68.0	-27.2	-62.8
H	326.220	39.7	24	63.7	-31.5	-67.1
H	353.405	34.9	24	58.9	-36.3	-71.9
H	380.590	34.1	24	58.1	-37.1	-72.7
H	407.775	27.2	24	51.2	-44.0	-79.6
H	434.960	22.8	25	47.8	-47.4	-83.0
H	462.145	25.9	26	51.9	-43.3	-78.9
H	489.330	21.2	26	47.2	-48.0	-83.6
H	516.515	21.6	27	48.6	-46.6	-82.2
H	543.700	24.6	28	52.6	-42.6	-78.2
H	570.885	27.6	28	55.6	-39.6	-75.2

\* "TOP" is Transmitter Output Power

Test Engineer: Kenneth H. M. Lam

Date of Test: May 12, 1998

## INTERTEK TESTING SERVICES

### D. Test Result

**Table 8**

**RadioShack, A Division of Tandy Corporation  
RadioShack 21-1703  
Radiated Spurious Emissions**

Channel : 40

The output power of transmitter is 35.5 dBm

Antenna Polarity	Frequency (MHz)	Reading (dB $\mu$ V)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	ERP (dBm)	ERP to related TOP*
H	54.810	32.9	11	43.9	-51.3	-86.8
H	82.215	39.9	7	46.9	-48.3	-83.8
H	109.620	33.5	13	46.5	-48.7	-84.2
V	137.025	35.6	13	48.6	-46.6	-82.1
H	464.430	36.2	17	53.2	-42.0	-77.5
H	191.835	35.4	16	51.4	-43.8	-79.3
H	219.240	35.6	17	52.6	-42.6	-78.1
H	246.645	30.6	20	50.6	-44.6	-80.1
H	274.050	34.3	22	56.3	-38.9	-74.4
H	301.454	45.3	22	67.3	-27.9	-63.4
H	328.860	39.3	24	63.3	-31.9	-67.4
H	356.265	26.4	24	50.4	-44.8	-80.3
H	383.670	35.9	24	59.9	-35.3	-70.8
H	411.075	24.5	25	49.5	-45.7	-81.2
H	438.480	22.2	26	48.2	-47.0	-82.5
H	465.885	26.3	26	52.3	-42.9	-78.4
H	493.290	20.4	26	46.4	-48.8	-84.3
H	520.695	18.2	27	45.2	-50.0	-85.5
H	548.100	27.3	28	55.3	-39.9	-75.4
H	575.505	28.2	28	56.2	-39.0	-74.5

\* "TOP" is Transmitter Output Power

Test Engineer: Kenneth H. M. Lam

Date of Test: May 12, 1998

**INTERTEK TESTING SERVICES**

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**EXHIBIT 7**

**FREQUENCY STABILITY**

## INTERTEK TESTING SERVICES

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### 7.0 Frequency Stability

The frequency tolerance was tested in normal condition & over extreme ambient conditions with respect to voltage and temperature variation.

## INTERTEK TESTING SERVICES

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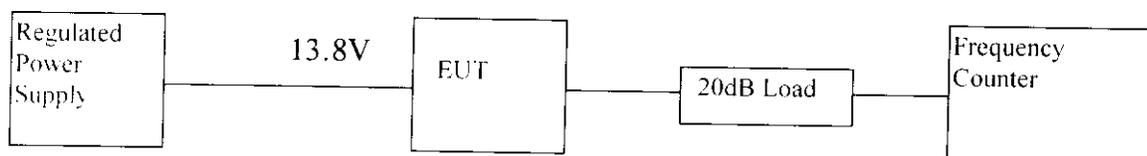
### 7.1 Frequency Tolerance (Section 95.625)

#### A. Test Equipment

Equipment	Brand Name	Model No.
Regulated Power Supply	PAD	30-35L
20 dB RF Load	Bird	8304-200-N
Frequency Counter	Phillips	PM6668

#### B. Testing Procedure

- 1) Set-up the test equipment in the following configuration:



- 2) Measure all transmit channel frequencies in MHz.

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**INTERTEK TESTING SERVICES**

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**C. Test Result**

**Table 9**

**RadioShack, A Division of Tandy Corporation  
RadioShack 21-1703  
Frequency Tolerance**

<b>Channel</b>	<b>Frequency (MHz)</b>	<b>Measured Frequency (MHz)</b>	<b>Tolerance (%)</b>
1	26.96500	26.96514	0.00052
2	26.97500	26.97514	0.00052
3	26.98500	26.98514	0.00052
4	27.00500	27.00514	0.00052
5	27.01500	27.01514	0.00052
6	27.02500	27.02514	0.00052
7	27.03500	27.03514	0.00052
8	27.05500	27.05513	0.00048
9	27.06500	27.06513	0.00048
10	27.07500	27.07512	0.00044
11	27.08500	27.08512	0.00044
12	27.10500	27.10511	0.00041
13	27.11500	27.11511	0.00041
14	27.12500	27.12511	0.00041
15	27.13500	27.13511	0.00041
16	27.15500	27.15511	0.00041
17	27.16500	27.16511	0.00040
18	27.17500	27.17511	0.00040
19	27.18500	27.18510	0.00037
20	27.20500	27.20510	0.00037
21	27.21500	27.21510	0.00037
22	27.22500	27.22509	0.00033
23	27.25500	27.25509	0.00033
24	27.23500	27.23509	0.00033
25	27.24500	27.24509	0.00033
26	27.26500	27.26509	0.00033

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**INTERTEK TESTING SERVICES**

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**C. Test Result**

**Table 9 (Cont'd...)**

**RadioShack, A Division of Tandy Corporation  
RadioShack 21-1703  
Frequency Tolerance**

<b>Channel</b>	<b>Frequency (MHz)</b>	<b>Measured Frequency (MHz)</b>	<b>Tolerance (%)</b>
27	27.27500	27.27509	0.00033
28	27.28500	27.28509	0.00033
29	27.29500	27.29508	0.00029
30	27.30500	27.30508	0.00029
31	27.31500	27.31508	0.00029
32	27.32500	27.32508	0.00029
33	27.33500	27.33508	0.00029
34	27.34500	27.34507	0.00026
35	27.35500	27.35507	0.00026
36	27.36500	27.36507	0.00026
37	27.37500	27.37507	0.00026
38	27.38500	27.38507	0.00026
39	27.39500	27.39501	0.00026
40	27.40500	27.40507	0.00026

Test Engineer: Kenneth H. M. Lam

Date of Test: May 12, 1998

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## INTERTEK TESTING SERVICES

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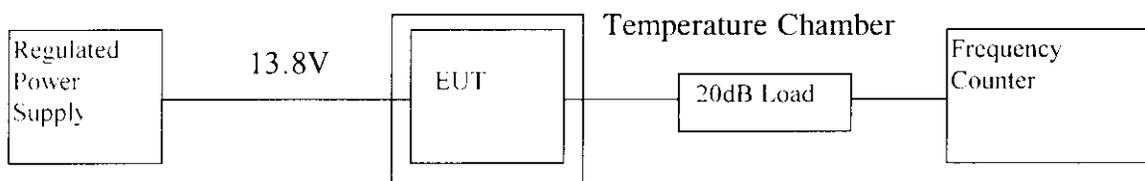
### 7.2 Frequency Stability - Temperature (Section 2.995)

#### A. Test Equipment

Equipment	Brand Name	Model No.
Regulated Power Supply	PAD	30-35L
20 dB RF Load	Bird	8304-200-N
Frequency Counter	Phillips	PM6668

#### B. Testing Procedure

- 1) Set-up the test equipment in the following configuration:



- 2) Set the Temperature Chamber to  $-30^{\circ}\text{C}$  and stabilize the EUT temperature for one hour. Apply standard input voltage of 13.8 volts with transmitter ON for two minutes.
- 3) Measure the channel frequency of channel 1, 19, 40 in MHz.
- 4) Turn the EUT OFF
- 5) Repeat the above procedure with  $10^{\circ}\text{C}$  intervals form  $-30^{\circ}\text{C}$  to  $50^{\circ}\text{C}$

# INTERTEK TESTING SERVICES

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## C. Test Result

**Table 10**

**RadioShack, A Division of Tandy Corporation  
RadioShack 21-1703**

### **Frequency Deviation with Temperature Variation**

Channel : 1

Temperature (°C)	Assigned Frequency (MHz)	Measured Frequency (MHz)	% Deviation
-30	26.96500	26.96445	-0.00204
-20	26.96500	26.96507	0.00026
-10	26.96500	26.96487	-0.00048
0	26.96500	26.96508	0.00030
10	26.96500	26.96499	-0.00004
20	26.96500	26.96496	-0.00015
30	26.96500	26.96488	-0.00045
40	26.96500	26.96488	-0.00045
50	26.96500	26.96468	-0.00119

Test Engineer: Kenneth H. M. Lam

Date of Test: May 12, 1998

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**INTERTEK TESTING SERVICES**

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**C. Test Result**

**Table 11**

**RadioShack, A Division of Tandy Corporation  
RadioShack 21-1703**

**Frequency Deviation with Temperature Variation**

Channel : 19

Temperature (°C)	Assigned Frequency (MHz)	Measured Frequency (MHz)	% Deviation
-30	27.18500	27.18445	-0.00202
-20	27.18500	27.18505	0.00018
-10	27.18500	27.18487	-0.00048
0	27.18500	27.18507	0.00026
10	27.18500	27.18498	-0.00007
20	27.18500	27.18498	-0.00007
30	27.18500	27.18488	-0.00044
40	27.18500	27.18488	-0.00044
50	27.18500	27.18471	-0.00107

Test Engineer: Kenneth H. M. Lam

Date of Test: May 12, 1998

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**INTERTEK TESTING SERVICES**

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**C. Test Result**

**Table 12**

**RadioShack, A Division of Tandy Corporation  
RadioShack 21-1703**

**Frequency Deviation with Temperature Variation**

Channel : 40

Temperature (°C)	Assigned Frequency (MHz)	Measured Frequency (MHz)	% Deviation
-30	27.40500	27.40445	-0.00201
-20	27.40500	27.40505	0.00018
-10	27.40500	27.40486	-0.00051
0	27.40500	27.40507	0.00026
10	27.40500	27.40500	0.00000
20	27.40500	27.40499	-0.00004
30	27.40500	27.40488	-0.00044
40	27.40500	27.40488	-0.00044
50	27.40500	27.40469	-0.00113

Test Engineer: Kenneth H. M. Lam

Date of Test: May 12, 1998

## INTERTEK TESTING SERVICES

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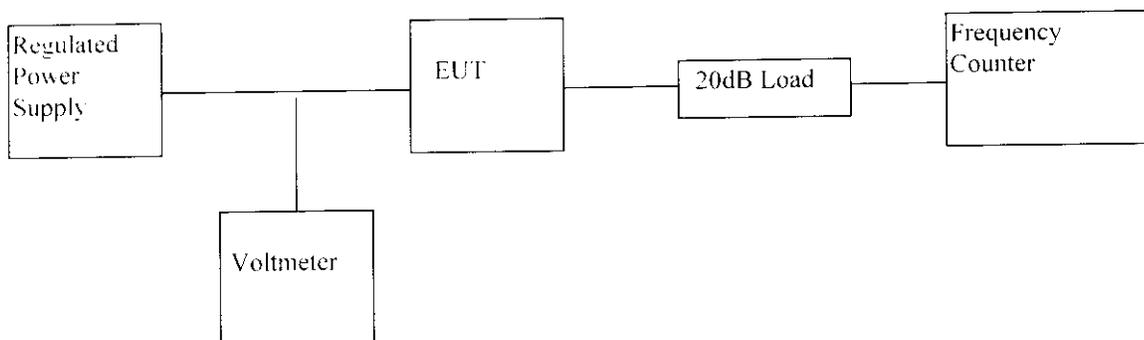
### 7.3 Frequency Stability - Voltage (Section 2.995)

#### A. Test Equipment

Equipment	Brand Name	Model No.
Regulated Power Supply	PAD	30-35L
20 dB RF Load	Bird	8304-200-N
Voltage meter	Fluke	87
Frequency Counter	Phillips	PM6668

#### B. Testing Procedure

- 1) Set-up the test equipment in the following configuration:



- 2) Vary the level of regulated power supply from 85% to 115% of the rated voltage and the manufacturer specified battery end point of the EUT.
- 3) Measure the channel frequency of channel 1, 19, 40 in MHz at each input power level.

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**INTERTEK TESTING SERVICES**

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**C. Test Result**

**Table 13**

**RadioShack, A Division of Tandy Corporation  
RadioShack 21-1703**

**Frequency Deviation with Voltage Variation**

Channel : 1

Voltage (Vdc)	Assigned Frequency (MHz)	Measured Frequency (MHz)	% Deviation
11.7	26.96500	26.96518	0.00067
13.8	26.96500	26.96514	0.00052
15.9	26.96500	26.96516	0.00059

Channel : 19

Voltage (Vdc)	Assigned Frequency (MHz)	Measured Frequency (MHz)	% Deviation
11.7	27.18500	27.18518	0.00066
13.8	27.18500	27.18510	0.00037
15.9	27.18500	27.18516	0.00059

Channel : 40

Voltage (Vdc)	Assigned Frequency (MHz)	Measured Frequency (MHz)	% Deviation
11.7	27.40500	27.40518	0.00066
13.8	27.40500	27.40507	0.00026
15.9	27.40500	27.40516	0.00058