Table of Contents

SECTION 1

RF POWER OUTPUT

2.985 (A) The RF Power measured at the output terminals:

AXATR-381-A2 5 Watts

Method: The measurement was made per TIA/EIA-603 using the following equipment::

A 50 ohm load is attached to the output terminal through a directional coupler.. The power is measured on a HP436A power meter.

SECTION 2

MODULATION CHARACTERISTICS

Ref. Par. 2.987 (a, b, d) the frequency and amplitude response to audio inputs measured per TIA/ EIA 603 are shown on the following sheet

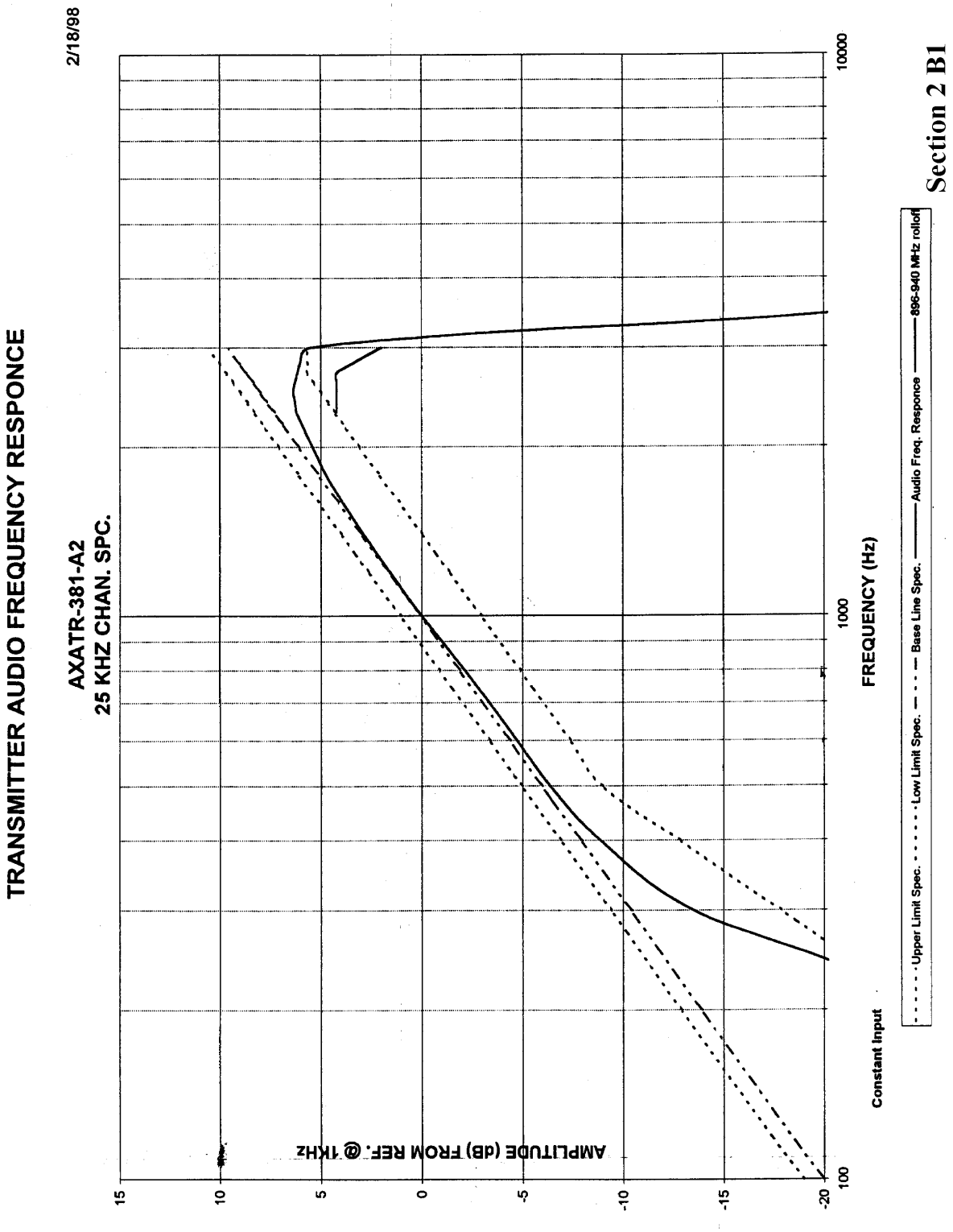
136-174 Mhz
Section 2B Audio Frequency Response(25 ,12.5kHz)

Section 2C Modulation Characteristics (25 ,12.5kHz)

Equipment used was:

Marconi Instruments Ltd. FM/AM Modulation Meter TF2300B
Hewlett Packard Audio Signal Generator 204D
Hewlett Packard Distortion Analyzer 333A

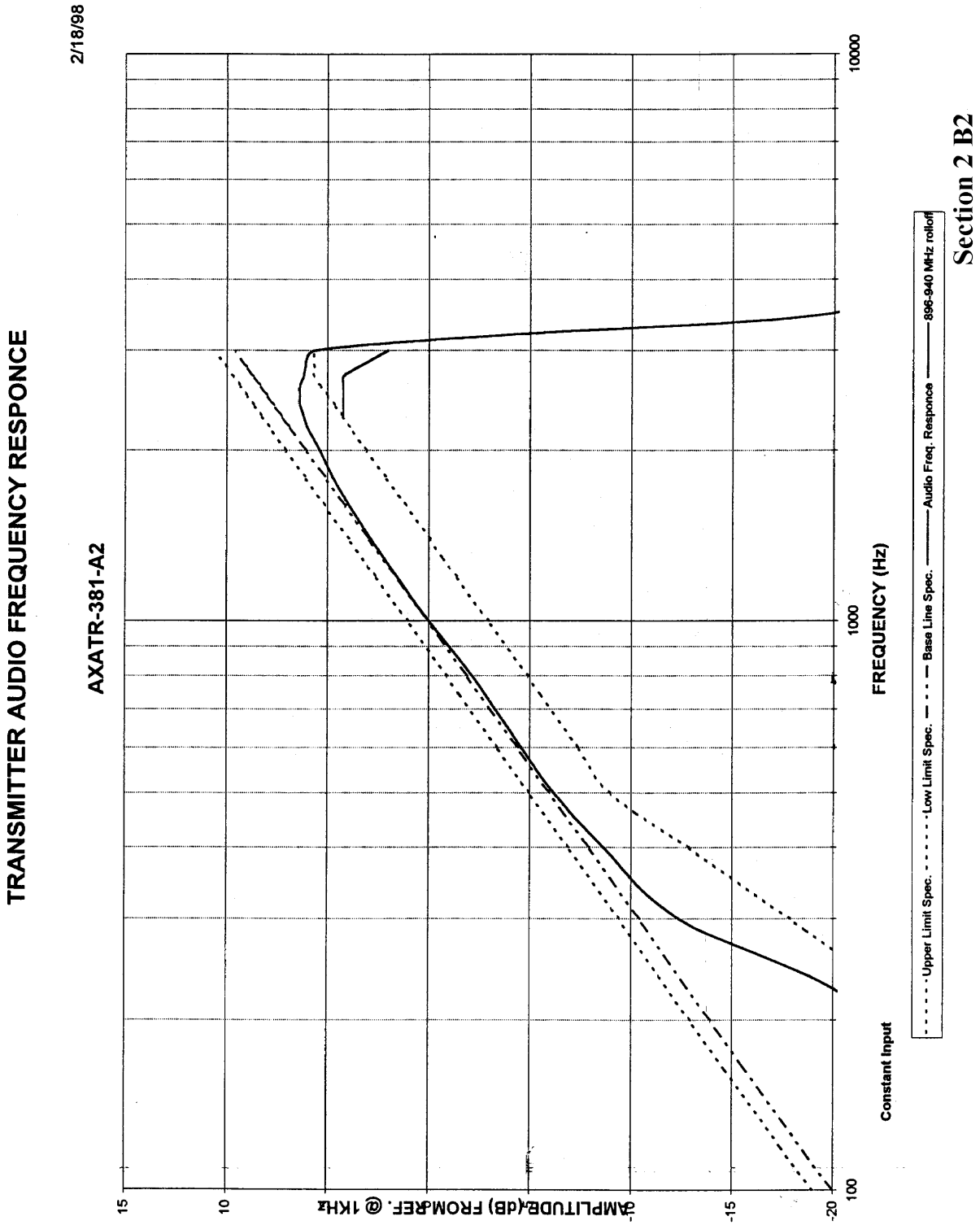
At those modulation frequencies at which the transmitter is not capable of producing 30% of system deviation, audio response is calculated from measurement of input voltage producing a lesser deviation.


TRANSMITTER AUDIO FREQUENCY RESPONCE
2/18/98
AXATR-381-A2
25 KHZ CHAN. SPC.
AMPLITUDE (dB) FROM REF. @ 1KHz
15
10
5
0
-5
-10
-15
-20
100
1000
10000
FREQUENCY (Hz)
Constant Input
Upper Limit Spec.
Low Limit Spec.
Base Line Spec.
Audio Freq. Responce
896-940 MHz rollof
Section 2 B1

AUDIO FREQUENCY RESPONCE

	A	B	C	D	E	F
1	Audio Frequency Response					
2	AXATR-	381-A2	25 KHZ CH SPC			
3						
4		Enter Data				
5	FREQ	AFR	UPPER SPEC	BASE LINE	LOWER SPEC	
6	100	-24.43	-19.00	-20.00	-37.00	
7	200	-24.43	-12.98	-13.98	-24.96	
8	300	-13.55	-9.46	-10.46	-17.92	
9	400	-8.87	-6.96	-7.96	-12.92	
10	500	-6.37	-5.02	-6.02	-9.02	
11	600	-4.73	-3.44	-4.44	-7.44	
12	800	-2.16	-0.94	-1.94	-4.94	
13	1000	0.00	1.00	0.00	-3.00	
14	1200	1.59	2.58	1.58	-1.42	
15	1400	2.86	3.92	2.92	-0.08	
16	1600	3.92	5.08	4.08	1.08	
17	1800	4.76	6.11	5.11	2.11	
18	2000	5.39	7.02	6.02	3.02	
19	2200	5.94	7.85	6.85	3.85	896-940 MHz rolloff
20	2300	6.19	8.23	7.23	4.23	4.20
21	2400	6.28	8.60	7.60	4.60	4.20
22	2500	6.36	8.96	7.96	4.96	4.20
23	2600	6.28	9.30	8.30	5.30	4.20
24	2700	6.15	9.63	8.63	5.63	4.20
25	2800	6.02	9.94	8.94	5.63	3.50
26	3000	5.57	10.54	9.54	5.63	2.00
27	3200	-4.01				
28	3400	-17.72				
29	3600	-24.43				
30	3800	-24.43				
31	4000	-24.43				
32	4500	-24.43				
33	5000	-24.43				
34						
35	FORMULA AUDIO FREQ. RESPONSE					
36	20 LOG 10(DEV FREQ / DEV REF)					

Section 2 B Data

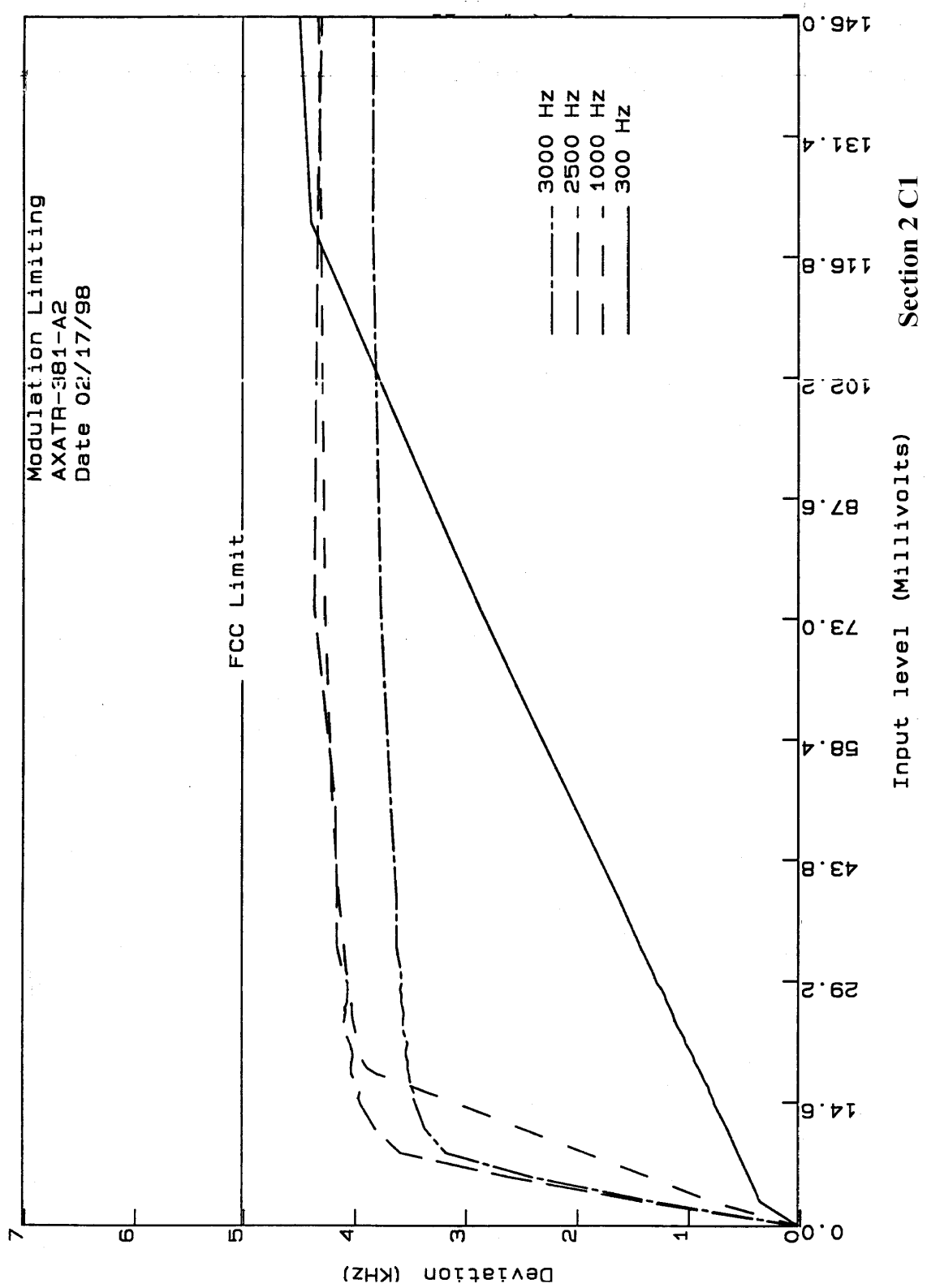

TRANSMITTER AUDIO FREQUENCY RESPONCE
2/18/98
AXATR-381-A2
AMPLITUDE (dB) FROM REF. @ 1KHz
15
10
-10
-15
-20
100
1000
10000
FREQUENCY (Hz)
Constant Input
Upper Limit Spec.
Low Limit Spec.
Base Line Spec.
Audio Freq. Responce
896-940 MHz rolloff
Section 2 B2

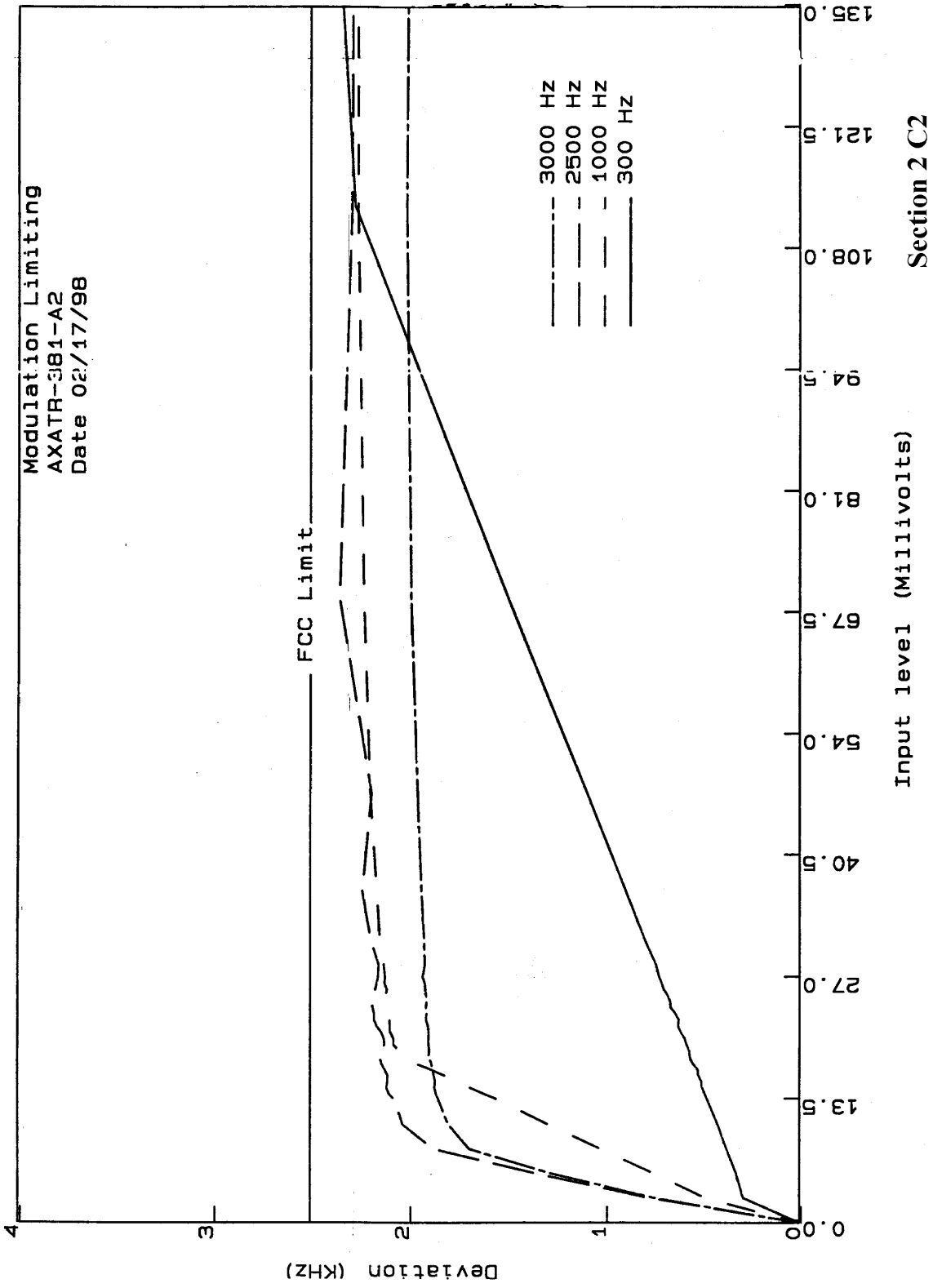
AUDIO FREQUENCY RESPONCE

	A	B	C	D	E	F
1	Audio Frequency Response					
2	AXATR-	381-A2	12.5 KHZ CH SPC			
3						
4		Enter Data				
5	FREQ	AFR	UPPER SPEC	BASE LINE	LOWER SPEC	
6	100	-21.94	-19.00	-20.00	-37.00	
7	200	-21.94	-12.98	-13.98	-24.96	
8	300	-12.39	-9.46	-10.46	-17.92	
9	400	-8.63	-6.96	-7.96	-12.92	
10	500	-6.19	-5.02	-6.02	-9.02	
11	600	-4.58	-3.44	-4.44	-7.44	
12	800	-2.16	-0.94	-1.94	-4.94	
13	1000	0.00	1.00	0.00	-3.00	
14	1200	1.59	2.58	1.58	-1.42	
15	1400	2.86	3.92	2.92	-0.08	
16	1600	3.92	5.08	4.08	1.08	
17	1800	4.76	6.11	5.11	2.11	
18	2000	5.39	7.02	6.02	3.02	
19	2200	6.02	7.85	6.85	3.85	896-940 MHz rolloff
20	2300	6.19	8.23	7.23	4.23	4.20
21	2400	6.36	8.60	7.60	4.60	4.20
22	2500	6.36	8.96	7.96	4.96	4.20
23	2600	6.36	9.30	8.30	5.30	4.20
24	2700	6.19	9.63	8.63	5.63	4.20
25	2800	6.11	9.94	8.94	5.63	3.50
26	3000	5.67	10.54	9.54	5.63	2.00
27	3200	-4.01				
28	3400	-17.08				
29	3600	-21.94				
30	3800	-21.94				
31	4000	-21.94				
32	4500	-21.94				
33	5000	-21.94				
34						
35	FORMULA AUDIO FREQ. RESPONSE					
36	20 LOG 10(DEV FREQ / DEV REF)					

Section 2 B2 Data

2/18/98


Modulation Limiting
AXATR-381-A2
Date 02/17/98
FCC Limit
3000 Hz
2500 Hz
1000 Hz
300 Hz
Deviation (KHz)
Input level (Millivolts)
0.0
14.6
29.2
43.8
58.4
73.0
87.6
102.2
116.8
131.4
146.0
Section 2 C1


Modulation Limiting
AXATR-381-A2
Date 02/17/98
FCC Limit
3000 Hz
2500 Hz
1000 Hz
300 Hz
Deviation (KHZ)
Input level (Millivolts)
Section 2 C2

SECTION 3

OCCUPIED BANDWIDTH

Per 2.989 (c, 1) the measurements were made per TIA/EIA 603.

162.0245 **Mhz**

SECTION 3 B1, B2. C1, C2 (25 kHz, 50 & 150 kHz spans, Voice)

SECTION 3 B3, B4, C3, C4 (12.5 kHz, 50 & 150 kHz spans, Voice)

SECTION 3

OCCUPIED BANDWIDTH

(FOR 25 kHz CHANNELIZATION)

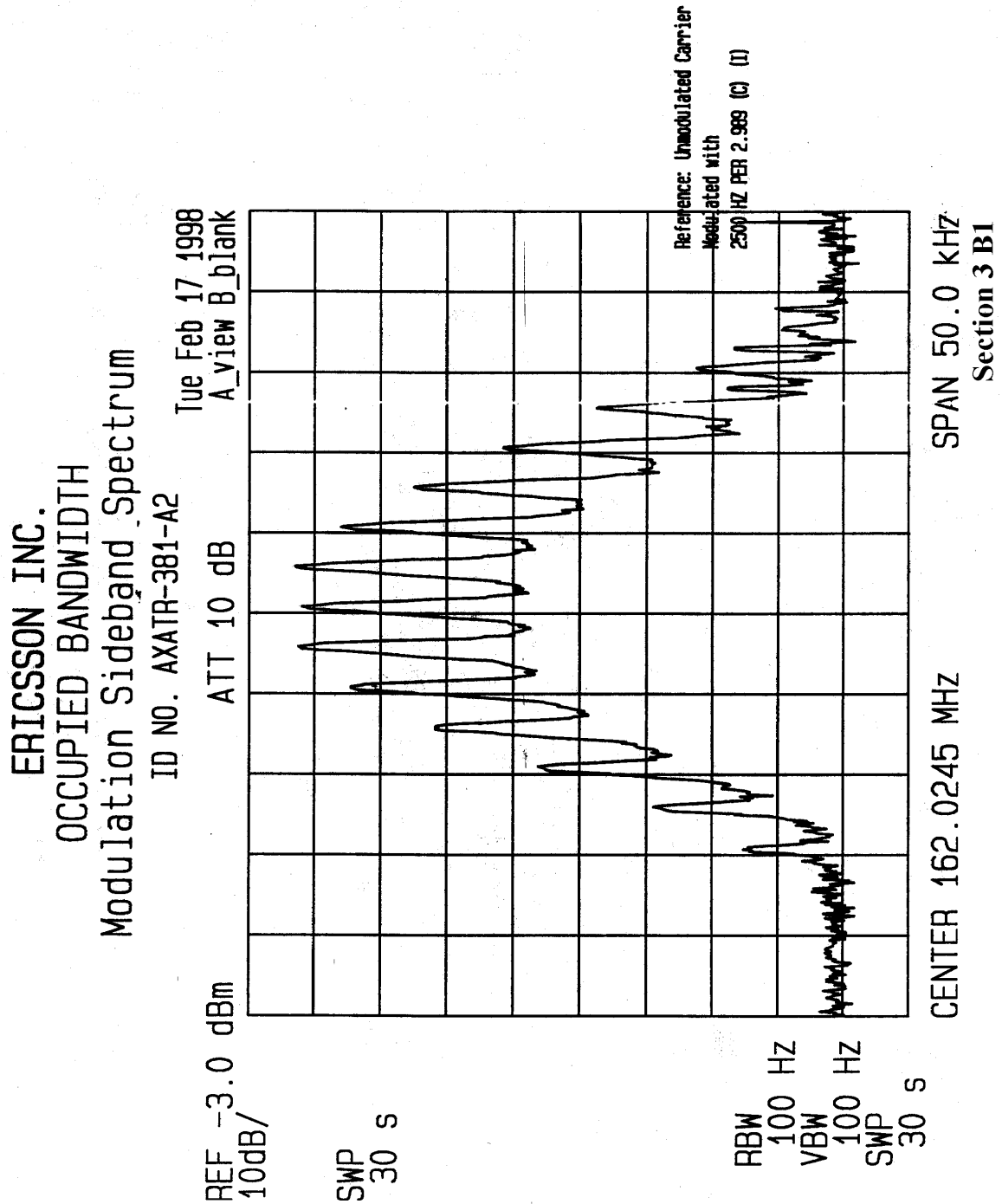
Method of Measurement Per 2.989 (c,1) Data on Occupied Bandwidth is presented in the form of a spectrum analyzer plot which illustrates the transmitter sidebands. A plot is taken of the carrier sideband modulated with a 2500 Hz tone at a level 16 dB greater than that required to produce 50 percent modulation. (The spectrum analyzer grid indicates the reference level of the carrier unmodulated in all exhibits.)

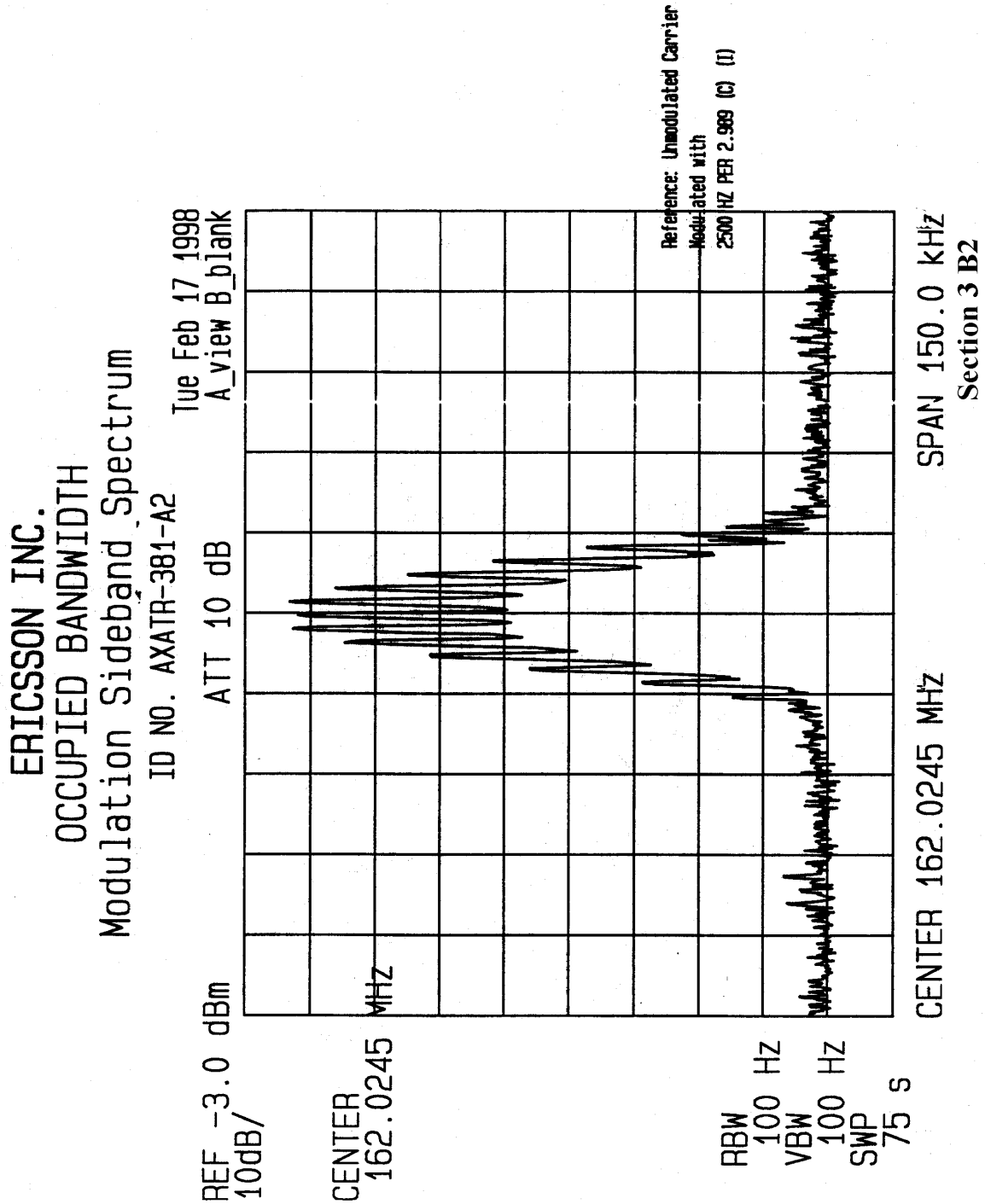
SECTION 3B,C Telephony

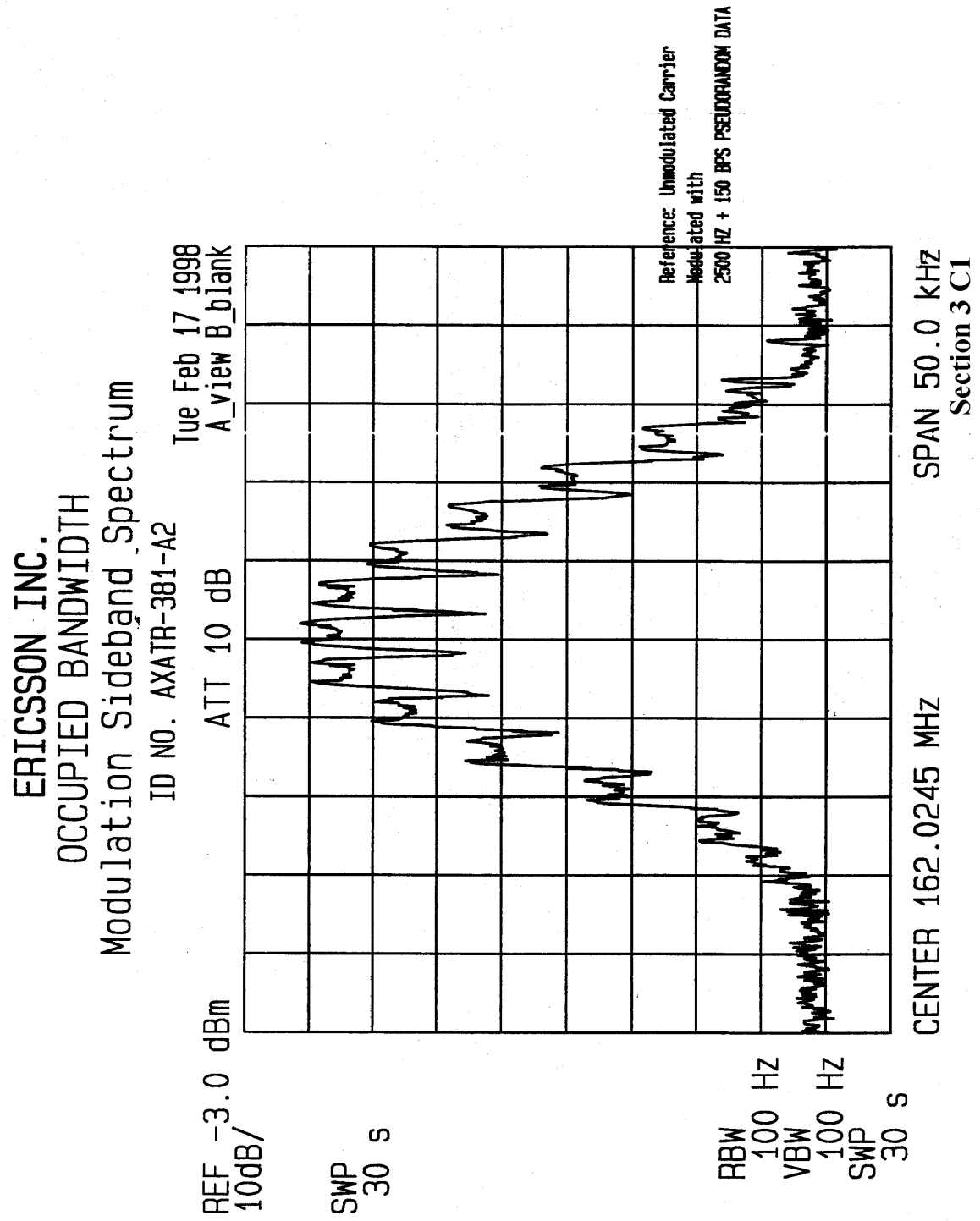
Bn = 2M + 2DK where

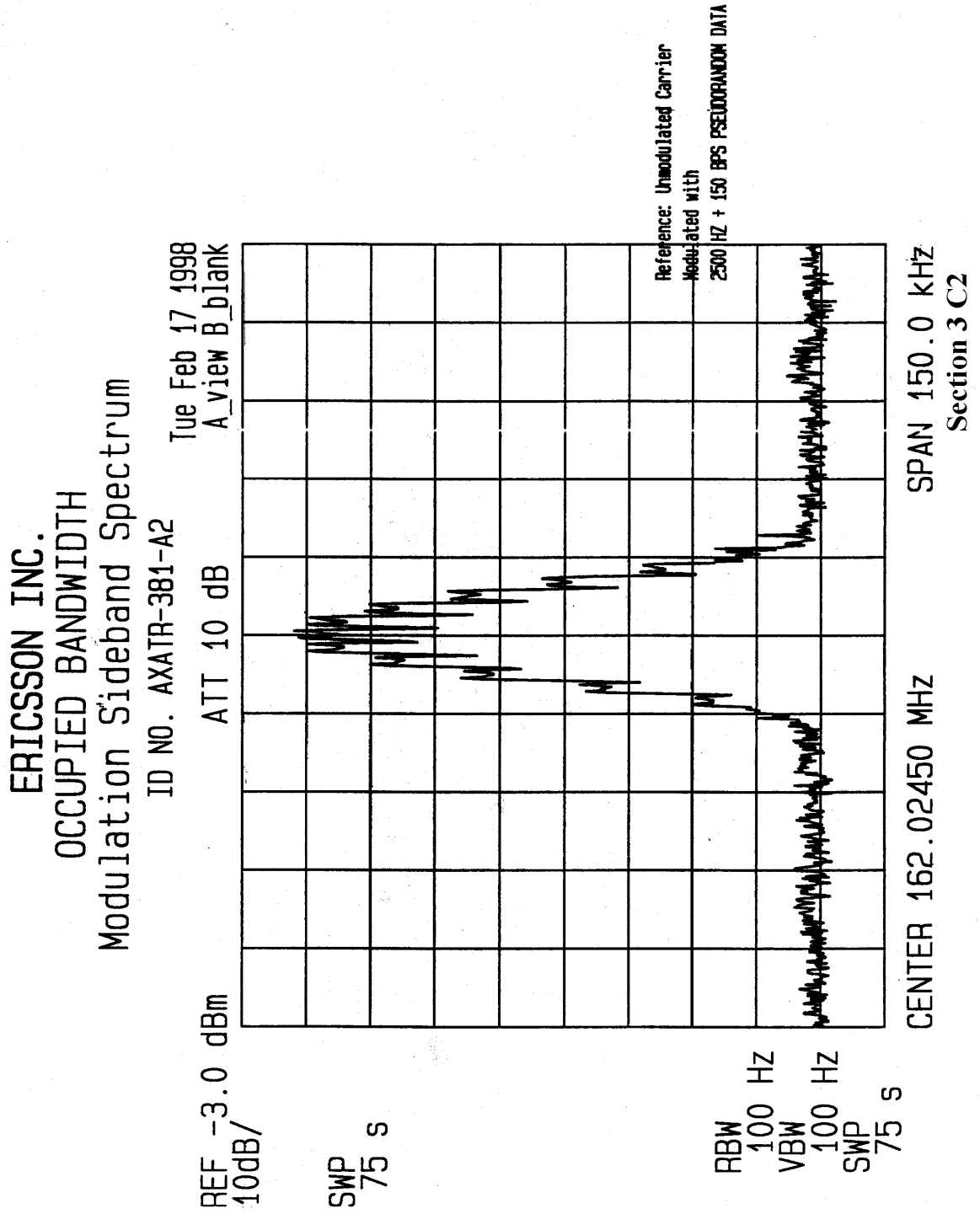
M = 3000 Hz
D = 4000 Hz
K= 1(assumed)

Bn = 14000 Hz
Therefore, Emission Designator = 14K0F3E


ERICSSON INC.
OCCUPIED BANDWIDTH
Modulation Sideband Spectrum
ID NO. AXATR-381-A2
Tue Feb 17 1998
A_view B_blank
ATT 10 dB
REF -3.0 dBm
10dB/
SWP
30 s
Reference: Unmodulated Carrier
Modulated with
2500 HZ PER 2.989 (C) (I)
RBW
100 Hz
VBW
100 Hz
SWP
30 s
CENTER 162.0245 MHz
SPAN 50.0 kHz
Section 3 B1


ERICSSON INC.
OCCUPIED BANDWIDTH
Modulation Sideband Spectrum
ID NO. AXATR-381-A2
Tue Feb 17 1998
A_view B_blank
ATT 10 dB
REF -3.0 dBm
10dB/
CENTER
162.0245 MHz
RBW
100 Hz
VBW
100 Hz
SWP
75 s
Reference: Unmodulated Carrier
Modulated with
2500 HZ PER 2.989 (C) (I)
CENTER 162.0245 MHz
SPAN 150.0 kHz
Section 3 B2


ERICSSON INC.
OCCUPIED BANDWIDTH
Modulation Sideband Spectrum
ID NO. AXATR-381-A2
Tue Feb 17 1998
A_view B_blank
ATT 10 dB
REF -3.0 dBm
10dB/
SWP
30 s
Reference: Unmodulated Carrier
Modulated with
2500 HZ + 150 BPS PSEUDORANDOM DATA
RBW
100 Hz
VBW
100 Hz
SWP
30 s
CENTER 162.0245 MHz
SPAN 50.0 kHz
Section 3 C1


ERICSSON INC.
OCCUPIED BANDWIDTH
Modulation Sideband Spectrum
ID NO. AXATR-381-A2
ATT 10 dB
Tue Feb 17 1998
A_view B_blank
REF -3.0 dBm
10dB/
SWP
75 s
Reference: Unmodulated Carrier
Modulated with
2500 HZ + 150 BPS PSEUDORANDOM DATA
RBW
100 Hz
VBW
100 Hz
SWP
75 s
CENTER 162.02450 MHz
SPAN 150.0 kHz
Section 3 C2

SECTION 3

OCCUPIED BANDWIDTH

(FOR 12.5 kHz CHANNELIZATION)

Method of Measurement Per Data on Occupied Bandwidth is presented in the form of a spectrum analyzer plot which illustrates the transmitter sidebands. A plot is taken of the carrier sideband modulated with a 2500 Hz tone at a level 16 dB greater than that required to produce 50 percent modulation. (The spectrum analyzer grid indicates the reference level of the carrier unmodulated in all exhibits.)

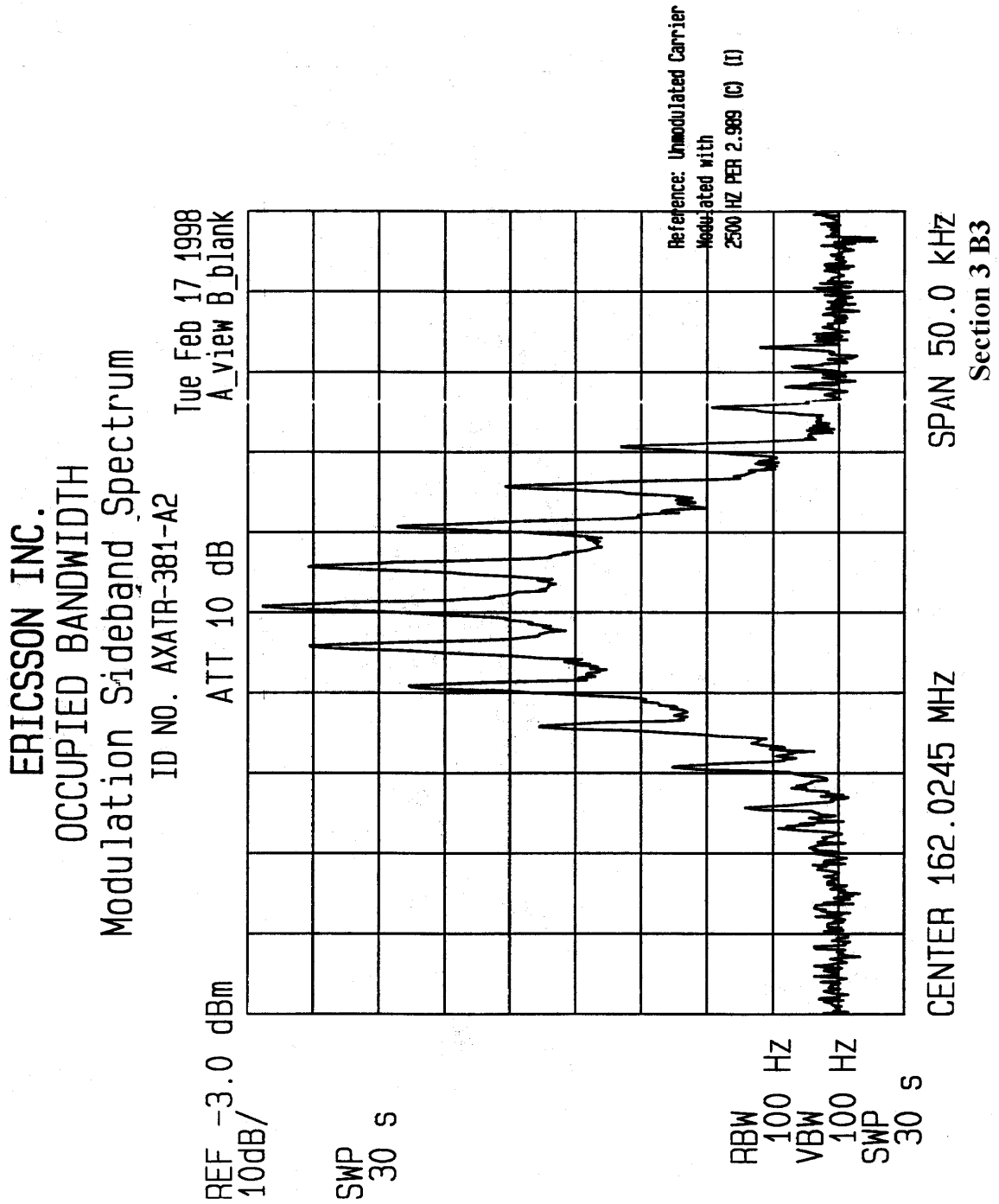
Section B,C Voice

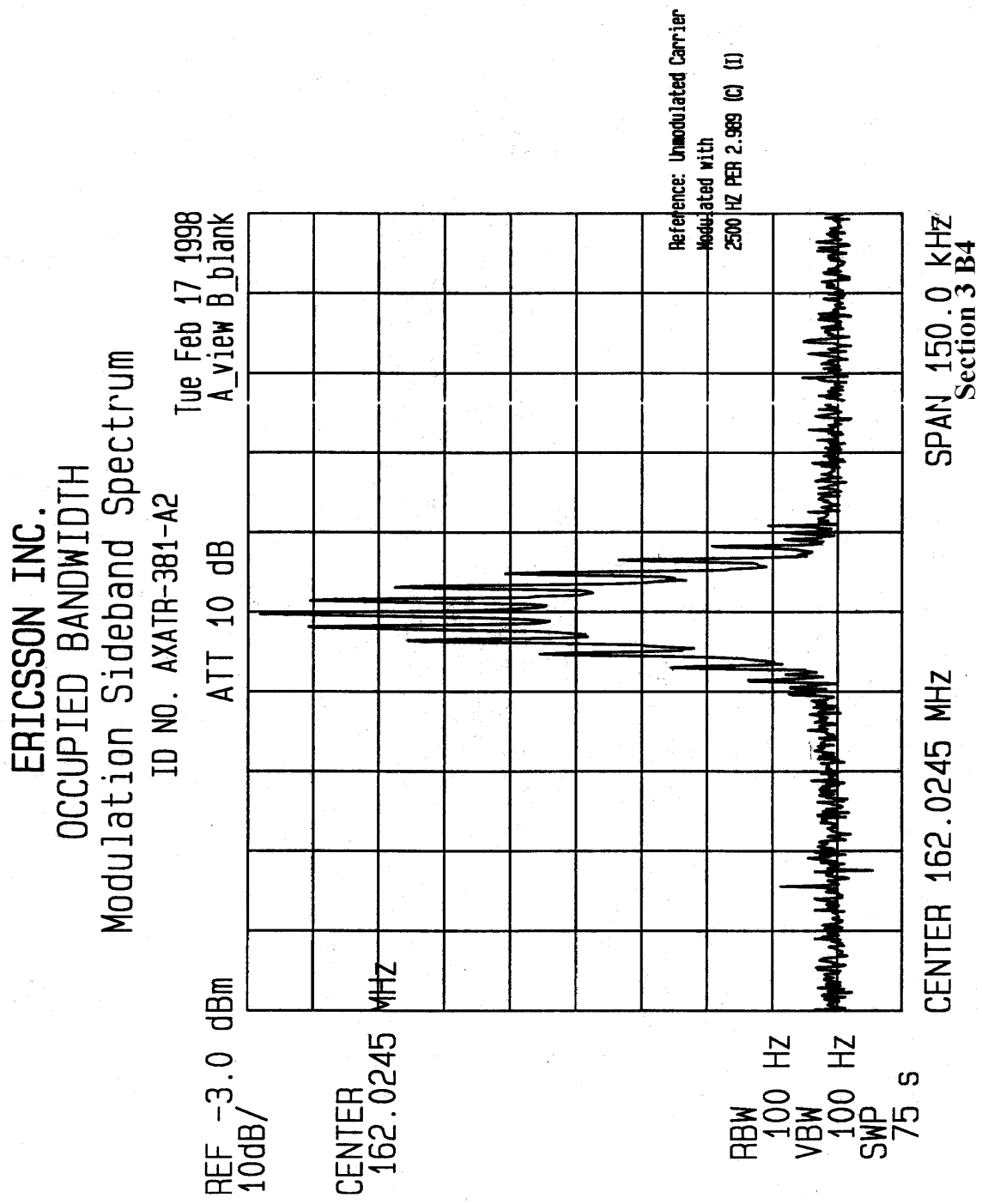
Bn = 2M+2DK where

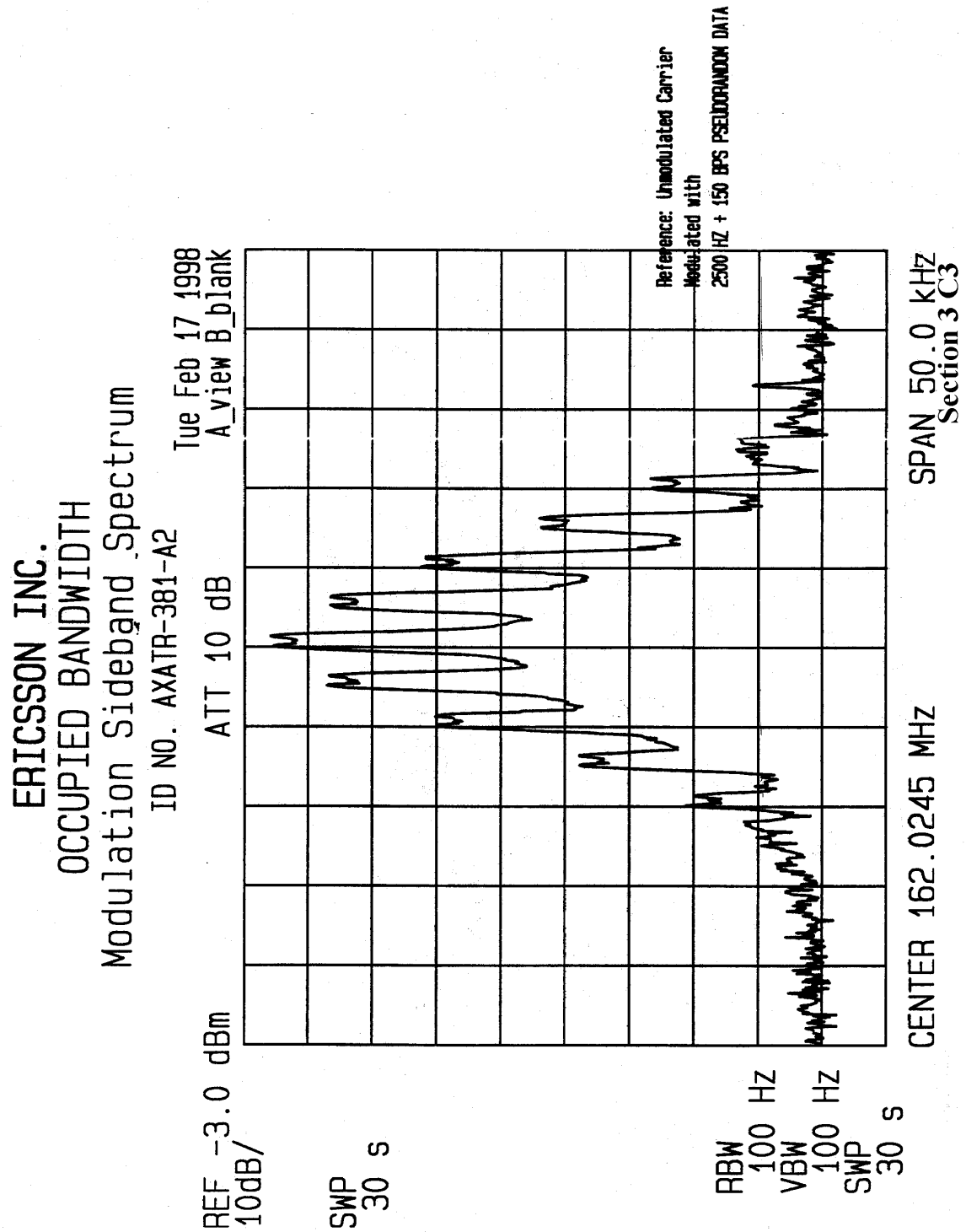
M = 3000 Hz
D = 2200Hz
K = 1 (assumed)

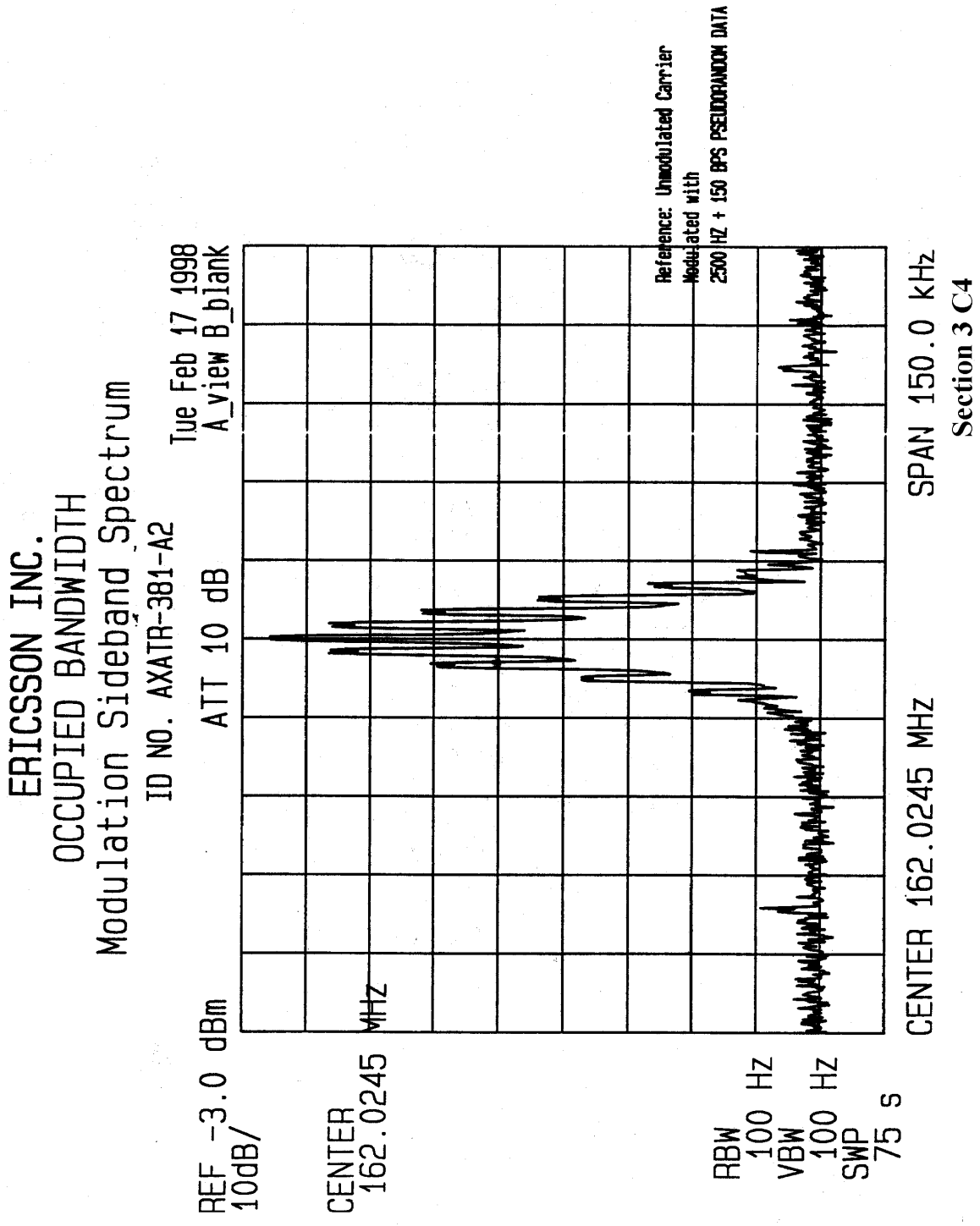
Bn =10400Hz

Therefore, Emission Designator =10K4F3E


ERICSSON INC.
OCCUPIED BANDWIDTH
Modulation Sideband Spectrum
ID NO. AXATR-381-A2
Tue Feb 17 1998
A_view B_blank
ATT 10 dB
REF -3.0 dBm
10dB/
SWP
30 s
Reference: Unmodulated Carrier
Modulated with
2500 HZ PER 2.909 (C) (I)
RBW
100 Hz
VBW
100 Hz
SWP
30 s
CENTER 162.0245 MHz
SPAN 50.0 kHz
Section 3 B3


ERICSSON INC.
OCCUPIED BANDWIDTH
Modulation Sideband Spectrum
ID NO. AXATR-381-A2
Tue Feb 17 1998
A_view B_blank
ATT 10 dB
REF -3.0 dBm
10dB/
CENTER
162.0245 MHz
RBW
100 Hz
VBW
100 Hz
SWP
75 s
Reference: Unmodulated Carrier
Modulated with
2500 HZ PER 2.989 (C) (I)
CENTER 162.0245 MHz
SPAN 150.0 kHz
Section 3 B4


ERICSSON INC.
OCCUPIED BANDWIDTH
Modulation Sideband Spectrum
ID NO. AXATR-381-A2
Tue Feb 17 1998
A_view B_blank
ATT 10 dB
REF -3.0 dBm
10dB/
SWP
30 s
Reference: Unmodulated Carrier
Modulated with
2500 HZ + 150 BPS PSEUDORANDOM DATA
RBW
100 Hz
VBW
100 Hz
SWP
30 s
CENTER 162.0245 MHz
SPAN 50.0 kHz
Section 3 C3


ERICSSON INC.
OCCUPIED BANDWIDTH
Modulation Sideband Spectrum
ID NO. AXATR-381-A2
Tue Feb 17 1998
A_view B_blank
ATT 10 dB
REF -3.0 dBm
10dB/
CENTER
162.0245 MHz
Reference: Unmodulated Carrier
Modulated with
2500 HZ + 150 BPS PSEUDORANDOM DATA
RBW
100 Hz
VBW
100 Hz
SWP
75 s
CENTER 162.0245 MHz
SPAN 150.0 kHz
Section 3 C4

SECTION 4

SPURIOUS EMISSIONS

Reference 2.991 spurious emissions at the antenna terminals when properly loaded with an appropriate artificial antenna were measured per TIA\EIA 603.

Results are as shown in the following Sections

Tx Radiated Emissions		
Sections	Frequency Mhz	Power in Watts
M1	150.825	1
M2	150.825	5
N1	173.975	1
N2	173.975	5

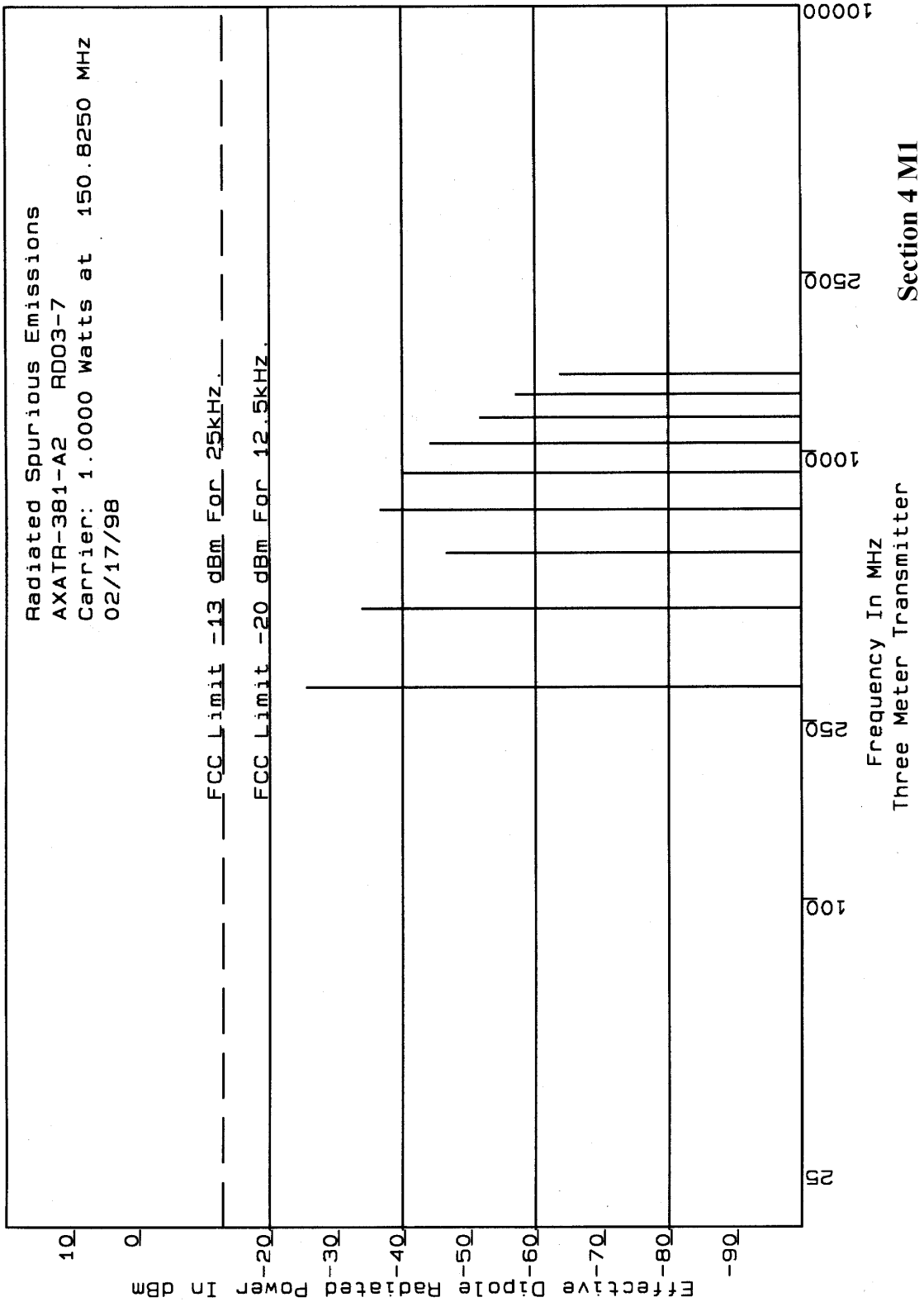
Equipment used was:

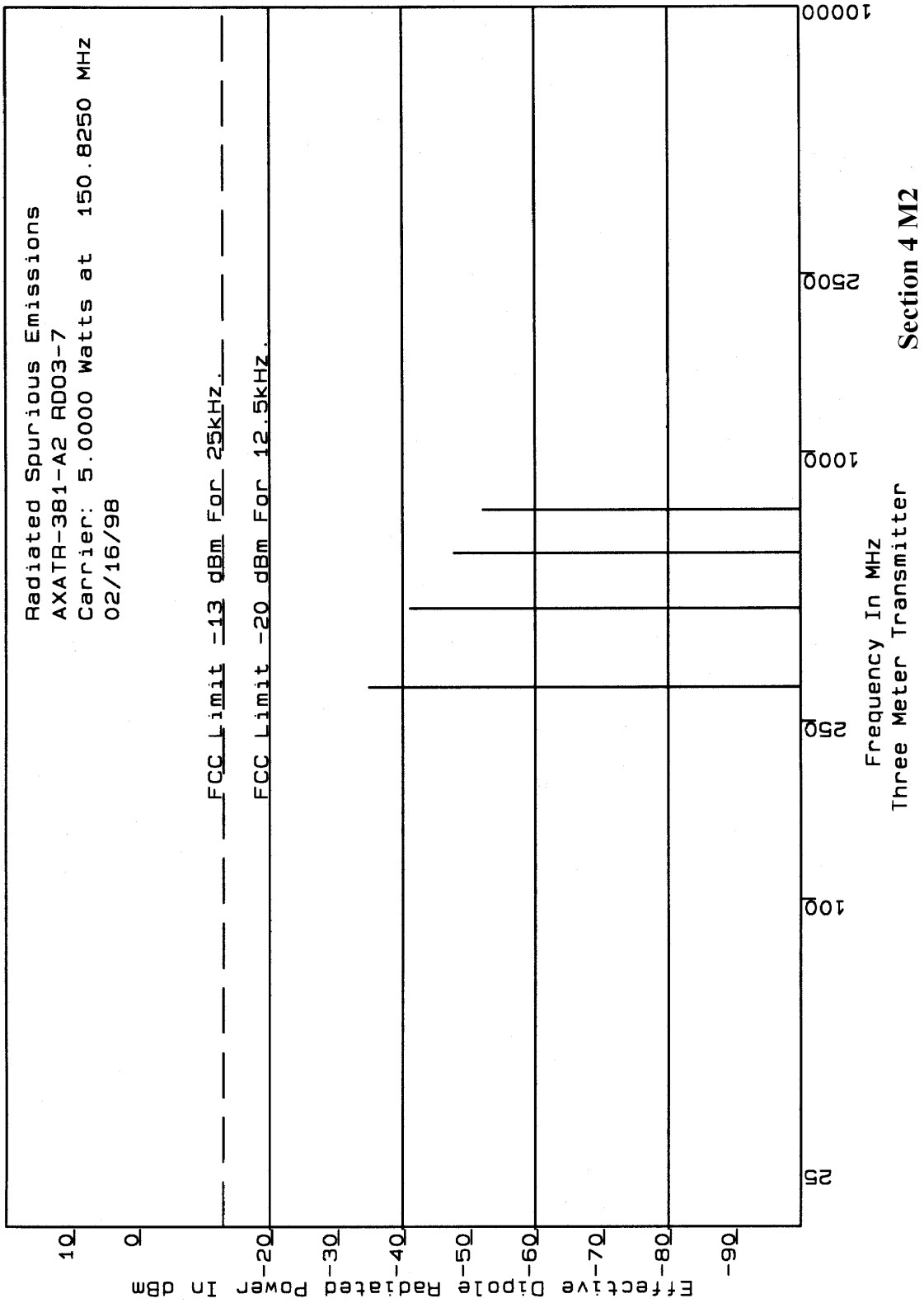
Hewlett Placard Spectrum Analyzer 140T Display, 8554-B-RF, 8552B-IF.

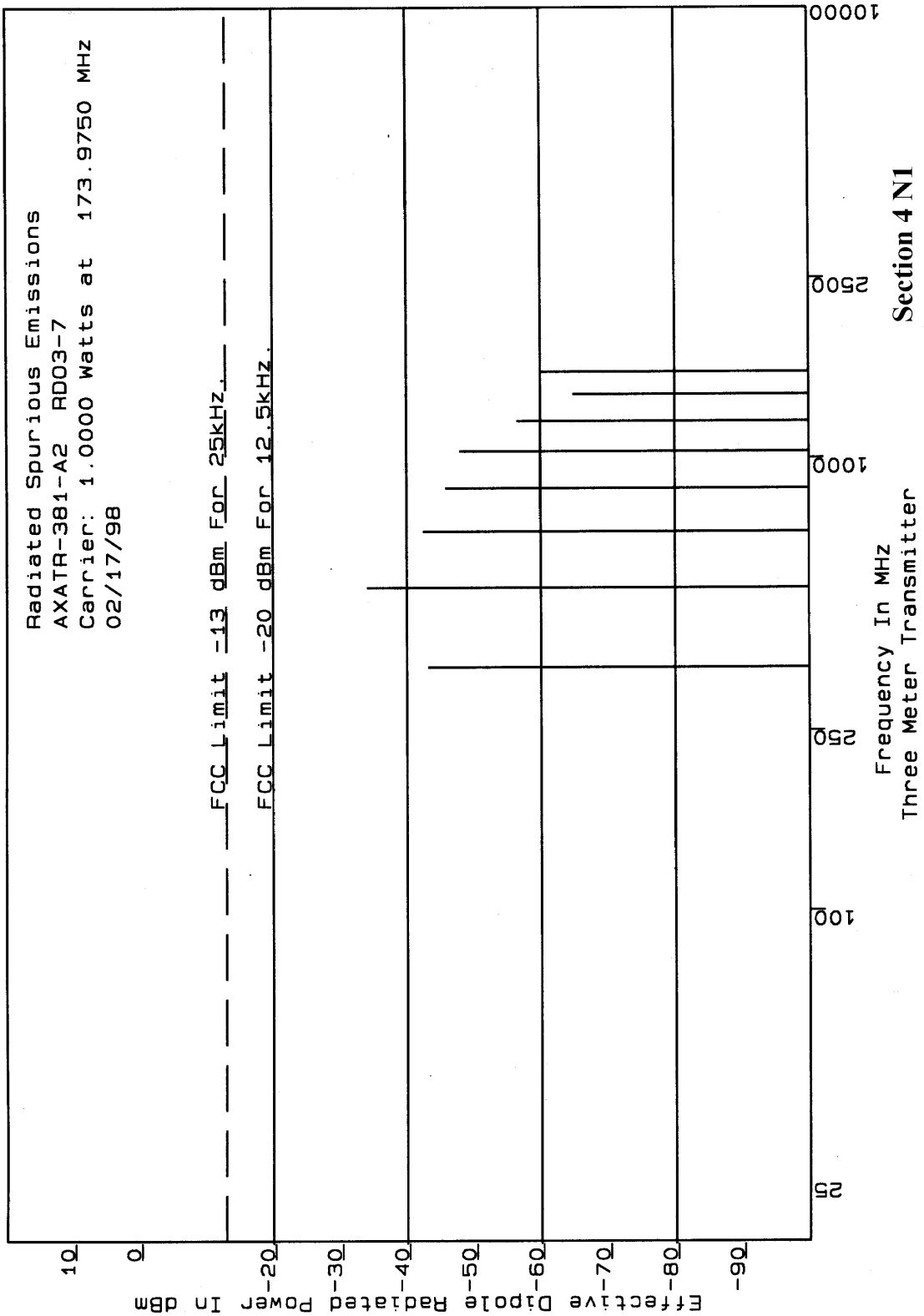
Reference 2.993 field strength of spurious radiation was measured on our three meter range. The site and equipment are described in the site description and attenuation measurements for the Ericsson Inc. three meter radiation site #2 filed with the FCC in Columbia, Maryland, in November of 1990. The measurement procedure is per TIA/EIA 603, but done on a three meter test site. Results are shown on the following exhibits

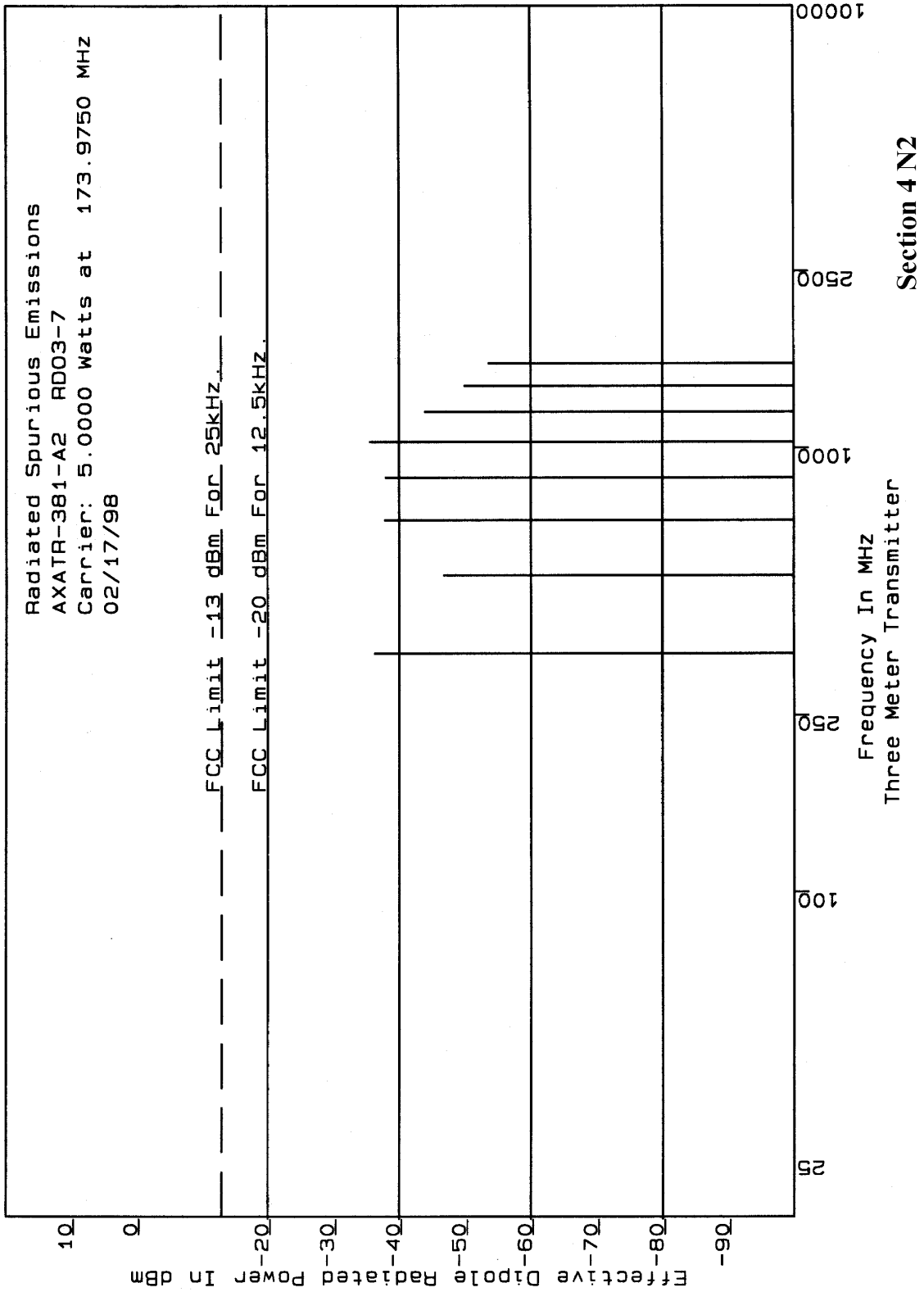
Tx Conducted Emissions		
Sections	Frequency Mhz	Power in Watts
B1	150.825	1
B2	150.825	5
C1	173.975	1
C2	173.975	5

*SAME AS FOR 25 OR 12.5 kHz modes.

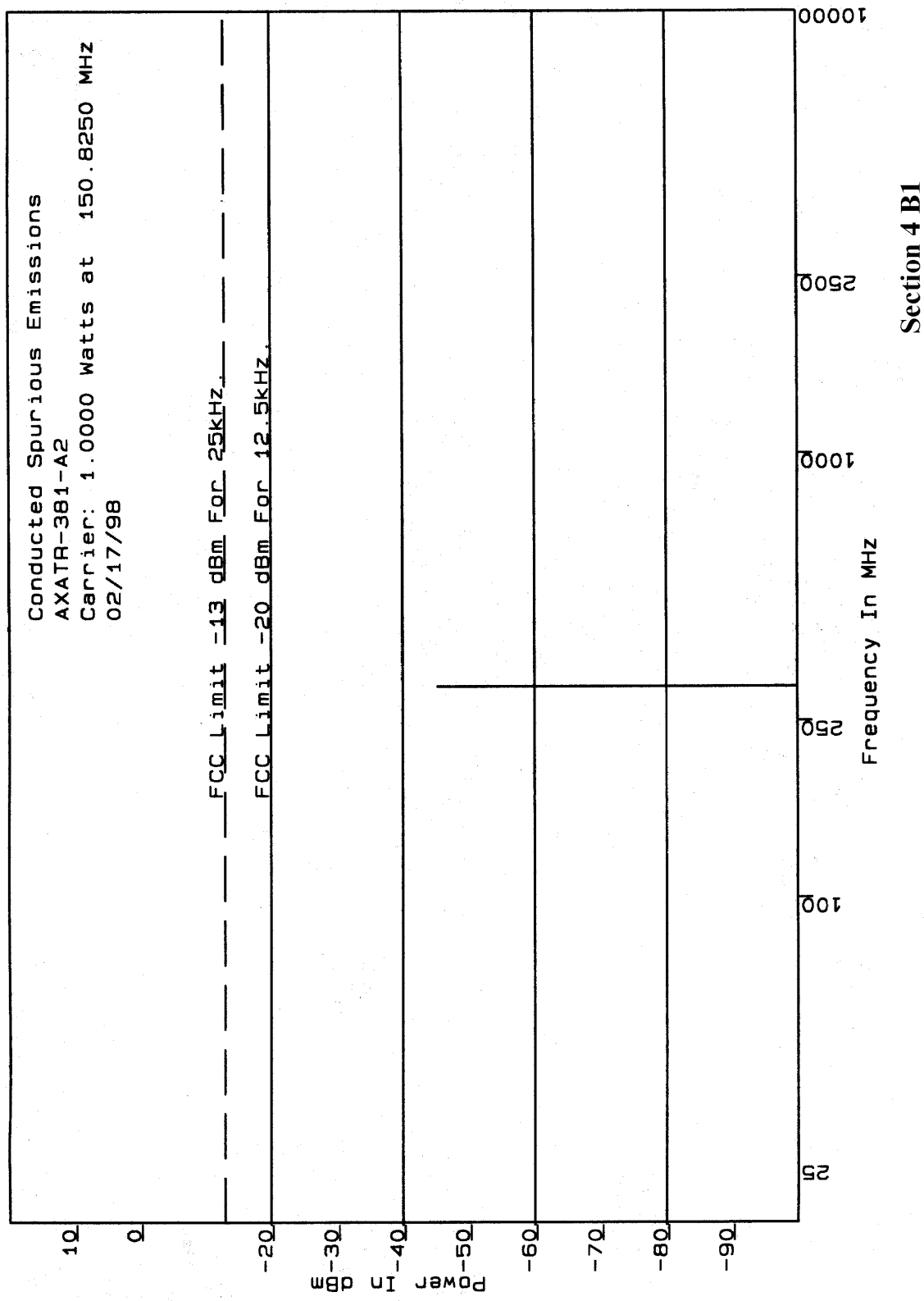

Radiated Spurious Emissions
AXATR-381-A2 RD03-7
Carrier: 1.0000 Watts at 150.8250 MHz
02/17/98
FCC Limit -13 dBm For 25kHz.
FCC Limit -20 dBm For 12.5kHz.
Effective Dipole Radiated Power In dBm
10
0
-20
-30
-40
-50
-60
-70
-80
-90
25
100
250
1000
2500
10000
Frequency In MHz
Three Meter Transmitter
Section 4 M1


Radiated Spurious Emissions
AXATR-381-A2 RD03-7
Carrier: 5.0000 Watts at 150.8250 MHz
02/16/98
FCC Limit -13 dBm For 25kHz.
FCC Limit -20 dBm For 12.5kHz.
Effective Dipole Radiated Power In dBm
10
0
-20
-30
-40
-50
-60
-70
-80
-90
25
100
250
1000
2500
10000
Frequency In MHz
Three Meter Transmitter
Section 4 M2

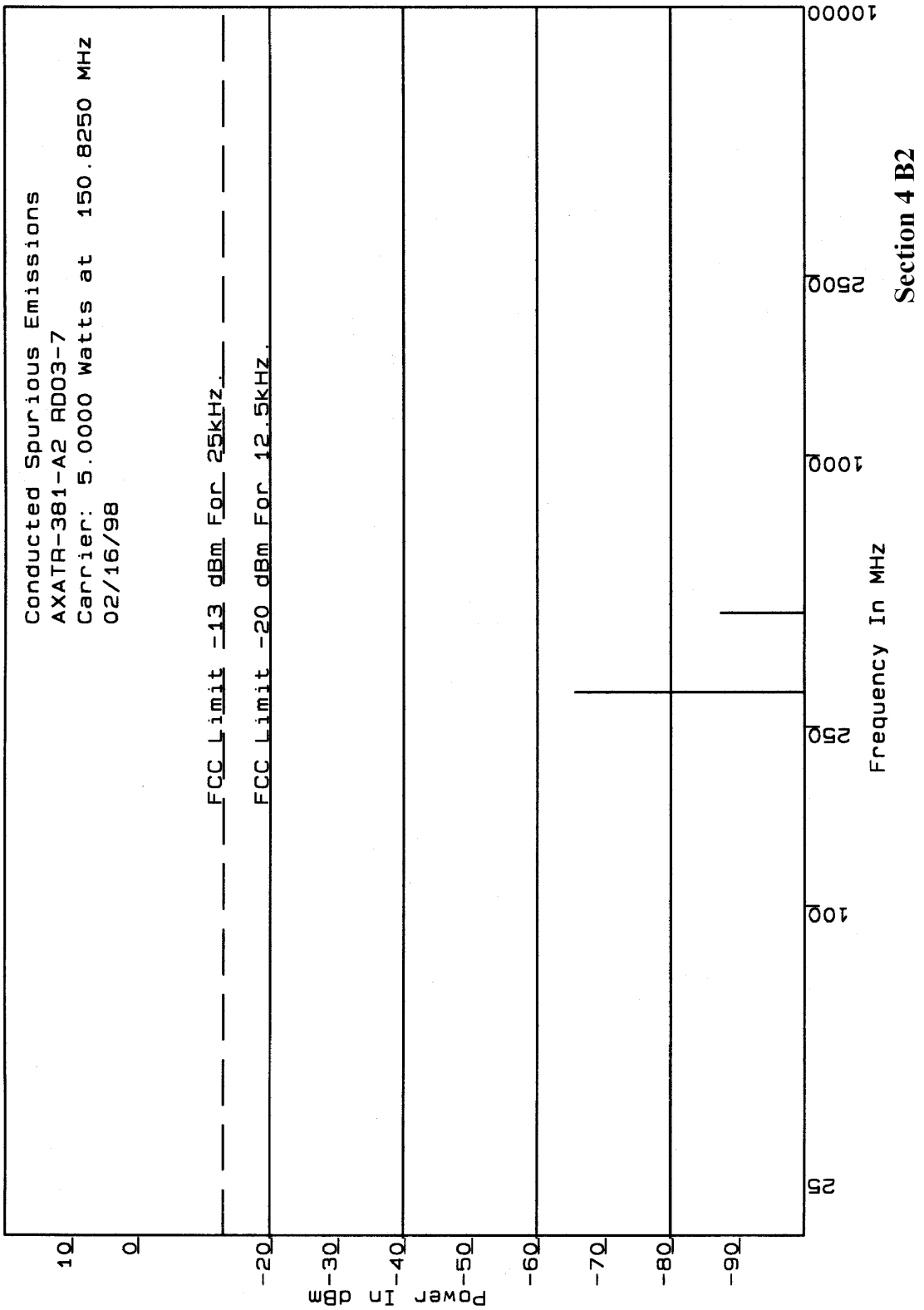

Radiated Spurious Emissions
AXATR-381-A2 RD03-7
Carrier: 1.0000 Watts at 173.9750 MHz
02/17/98
FCC Limit -13 dBm For 25kHz.
FCC Limit -20 dBm For 12.5kHz.
Effective Dipole Radiated Power In dBm
10
0
-20
-30
-40
-50
-60
-70
-80
-90
25
100
250
1000
2500
10000
Frequency In MHz
Three Meter Transmitter
Section 4 N1


Radiated Spurious Emissions
AXATR-381-A2 RD03-7
Carrier: 5.0000 Watts at 173.9750 MHz
02/17/98
FCC Limit -13 dBm For 25kHz.
FCC Limit -20 dBm For 12.5kHz.
Effective Dipole Radiated Power In dBm
10
0
-20
-30
-40
-50
-60
-70
-80
-90
25
100
250
1000
2500
10000
Frequency In MHz
Three Meter Transmitter

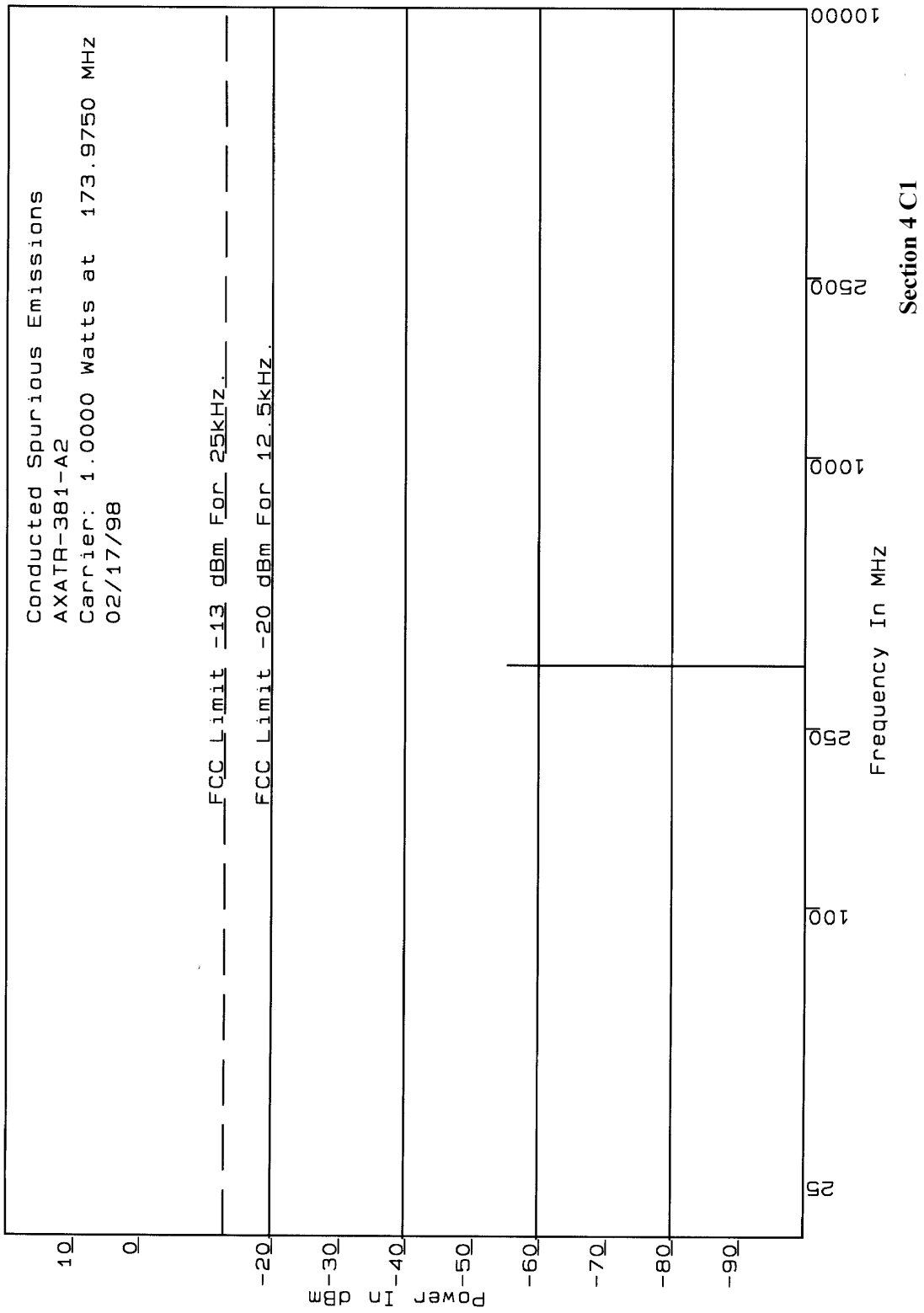
Section 4 N2


Conducted Spurious Emissions
AXATR-381-A2
Carrier: 1.0000 Watts at 150.8250 MHz
02/17/98
FCC Limit -13 dBm For 25kHz.
FCC Limit -20 dBm For 12.5kHz.
10
0
-20
-30
-40
-50
-60
-70
-80
-90
Power In dBm
25
100
250
1000
2500
10000
Frequency In MHz

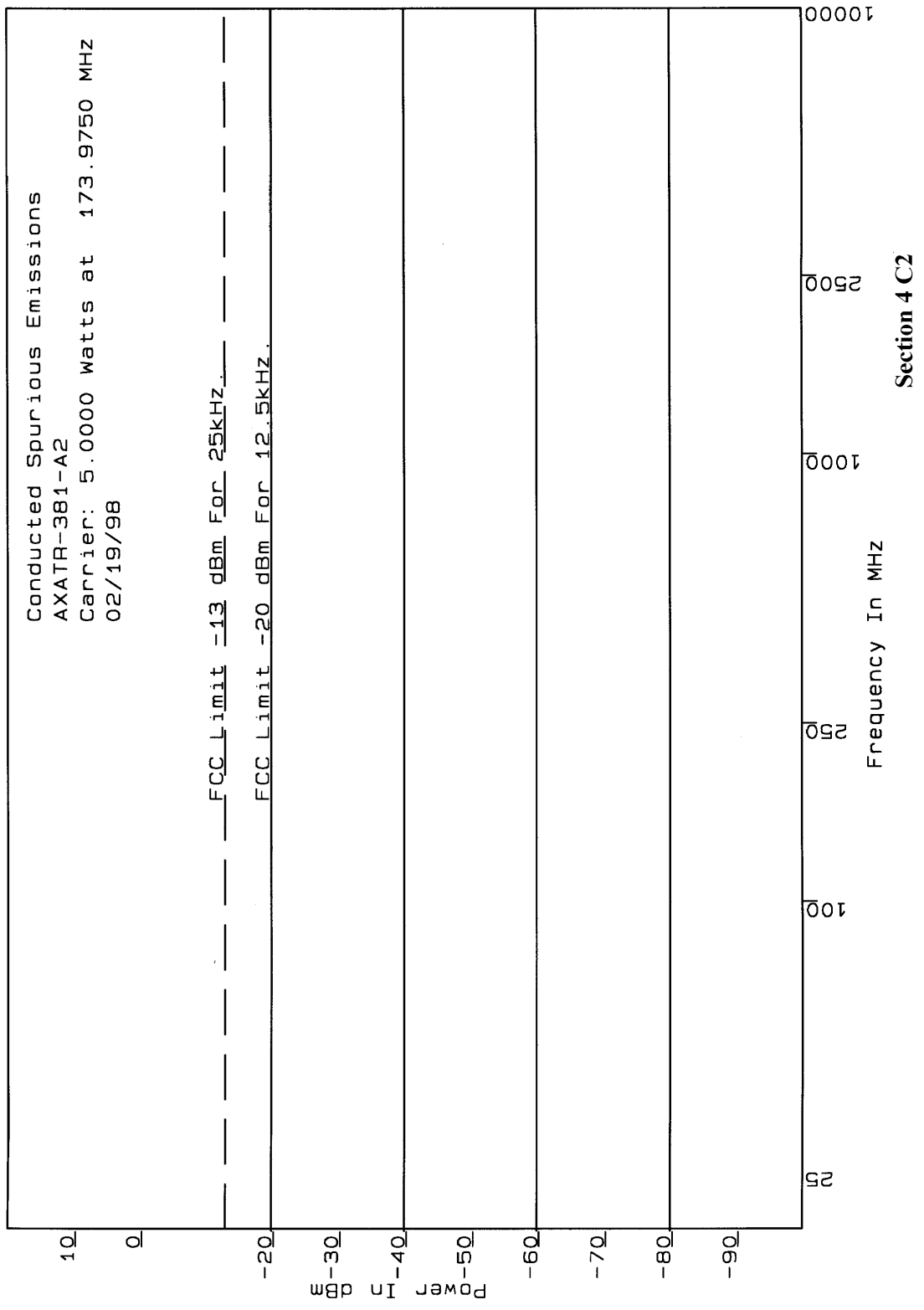
Section 4 B1


Conducted Spurious Emissions
AXATR-381-A2 RD03-7
Carrier: 5.0000 Watts at 150.8250 MHz
02/16/98
FCC Limit -13 dBm For 25kHz.
FCC Limit -20 dBm For 12.5kHz.
10
0
-20
-30
-40
-50
-60
-70
-80
-90
Power In dBm
25
100
250
1000
2500
10000
Frequency In MHz

Section 4 B2


Conducted Spurious Emissions
AXATR-381-A2
Carrier: 1.0000 Watts at 173.9750 MHz
02/17/98
FCC Limit -13 dBm For 25kHz.
FCC Limit -20 dBm For 12.5kHz.
10
0
-20
-30
-40
-50
-60
-70
-80
-90
Power In dBm
25
100
250
1000
2500
10000
Frequency In MHz

Section 4 C1


Conducted Spurious Emissions
AXATR-381-A2
Carrier: 5.0000 Watts at 173.9750 MHz
02/19/98
FCC Limit -13 dBm For 25kHz.
FCC Limit -20 dBm For 12.5kHz.
10
0
-20
-30
-40
-50
-60
-70
-80
-90
Power In dBm
25
100
250
1000
2500
10000
Frequency In MHz

Section 4 C2

SECTION 5

FREQUENCY STABILITY

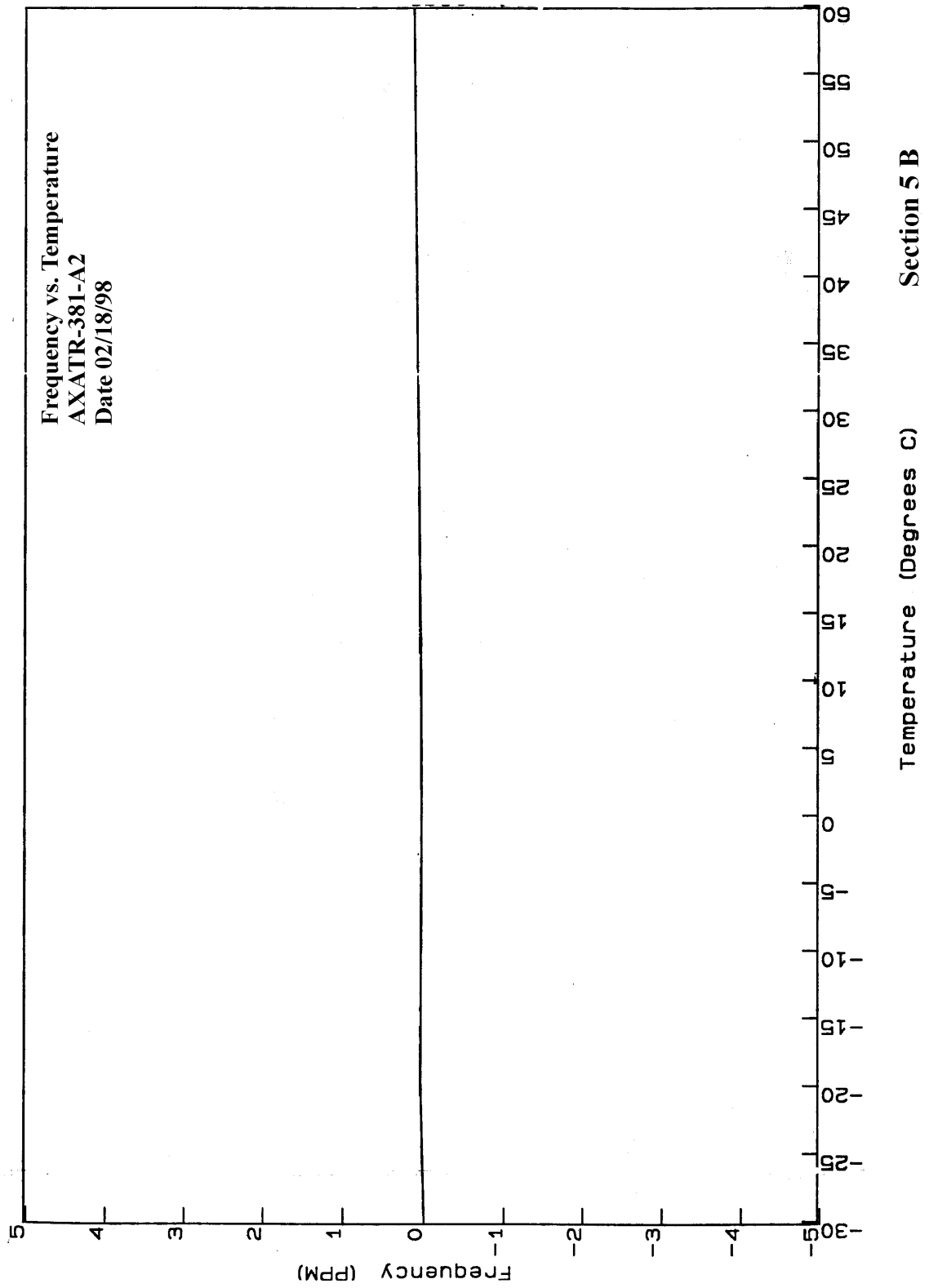
Par. 2.995 (a,1) (b) (d, 1) variation of output frequency as a result of either temperature or voltage variation is reported in the graphs on the following sheets: (The battery is rated from 6 to 9 volts.)

Exhibit 12B Carrier Frequency Vs Temperature

Exhibit 12C Carrier Frequency Vs. Voltage

The Equipment used is:

Hewlett Packard QUARTZ Thermometer Model 2804A
Takeda Counter TR5823AK
Takeda Digital Multimeter TR6878
Tabai Temperature chamber PL-2G


Frequency vs. Temperature
AXATR-381-A2
Date 02/18/98
Section 5 B
Temperature (Degrees C)
Frequency (PPM)
60
55
50
45
40
35
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
-30
5
4
3
2
1
0
-1
-2
-3
-4
-5

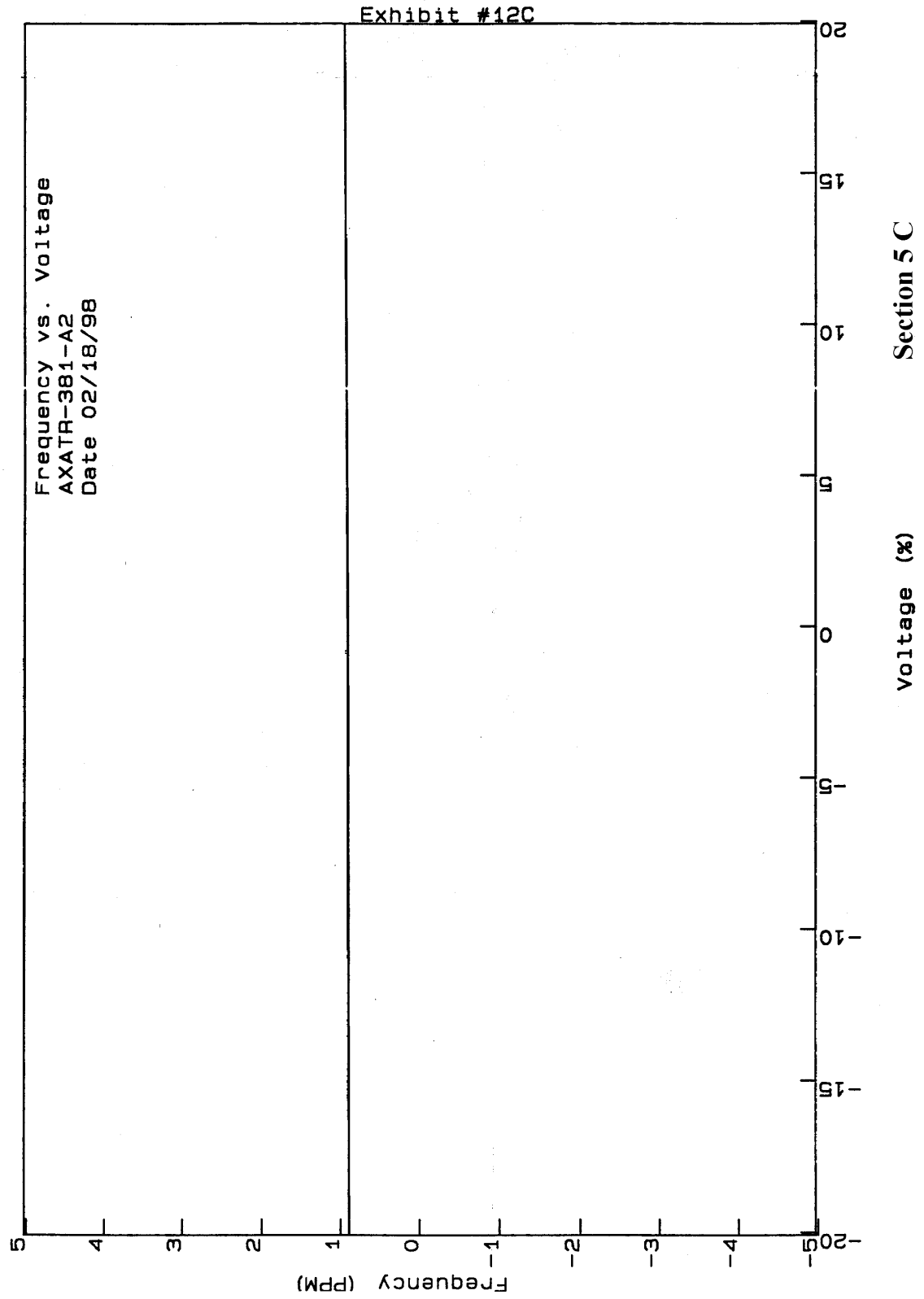


Exhibit #12C
Frequency vs. Voltage
AXATR-381-A2
Date 02/18/98
Frequency (PPM)
5
4
3
2
1
0
-1
-2
-3
-4
-5
20
15
10
5
0
-5
-10
-15
-20
Voltage (%)
Section 5 C

INDENTIFICATION NAMEPLATE

SECTION 7

TRANSIENT FREQUENCY BEHAVIOR

PER PT 90.214 USING EIA/TIA 603, THE FOLLOWING MEASUREMENTS WERE MADE:

SECTION	FREQUENCY	BANDWIDTH
7B	162.025	25 kHz
7C	162.025	12.5 kHz

The Measurements taken are representative of the entire frequency band.

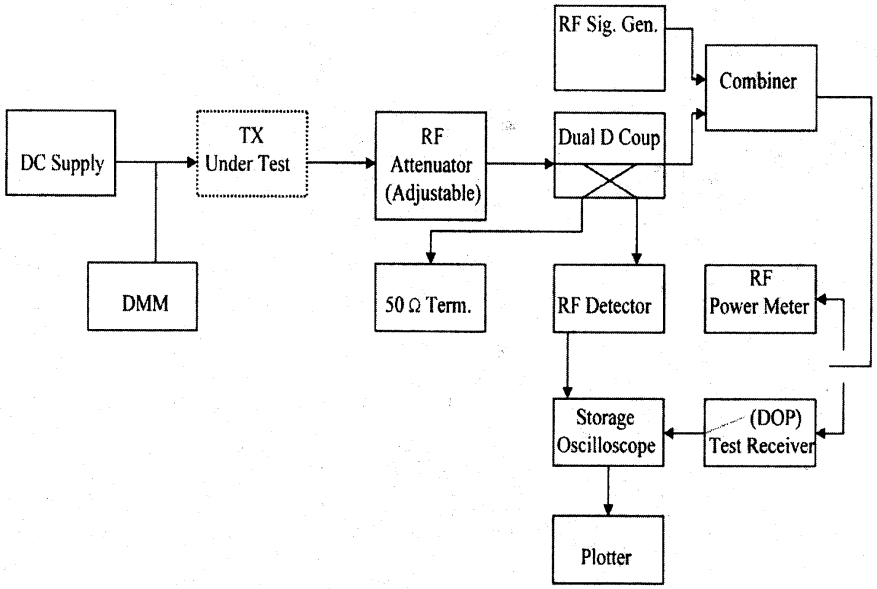
Table 1: List of Equipment

HP 778D DUAL DIRECTIONAL COUPLER	HP432A RF DETECTOR
TEKTRONIX 2232 OSCILLOSCOPE	HP8657A SIGNAL GENERATOR
HP 8901A MODULATION ANALYZER	HP436A POWER METER
HP 8482A POWER SENSOR	6261 DC POWER SUPPLY
KEITHLY 179 TRMS DIGITAL MULTIMETER	TEKTRONIX HC100 PLOTTER
NARDA ATTENUATORS	MINICIRCUITS 15542 ZFRSC-2050

SECTION 7

TRANSIENT FREQUENCY BEHAVIOR

Transient Frequency Behavior Measurement Per TIA/EIA 603.



1. Equipment is connected as illustrated above.
2. Connect the test receiver's Demodulator Output Port (DOP) to the vertical input chan nel of the storage Oscilloscope. Connect the output of the RF detector the external trigger of the oscilloscope. Connect the output of the RF combiner the RF power meter.
3. Set the test receiver to measure FM deviation with the audio bandwidth set at =50 Hz to =15,000 Hz and tune the RF frequency to the transmitter assigned frequency.
4. Turn on the TUT (Transmitter Under Test). Adjust the RF attenuator to provide an input level of 20 dBm which is 10 dB below the maximum allowed input power to the test receiver. (TIA/EIA 603 first sets the level to 40 dB below the maximum allowed input level of the test receiver, then increases the level by 30 dB to 10 dB below the maximum allowed input level. The maximum input level of our test receiver is 30 dBm.) Turn off the TUT.
5. Set the signal generator to the assigned TX frequency and modulate it with a 1 kHz tone at +/- d, deviation equal to the Channel Spacing (i.e. 25,12.5, or 6.25 kHz) and set its power to -30 dBm (50 dB below the level of the TUT).
6. Disconnect the RF power meter and connect the output of the RF combiner network to the input of the test receiver.

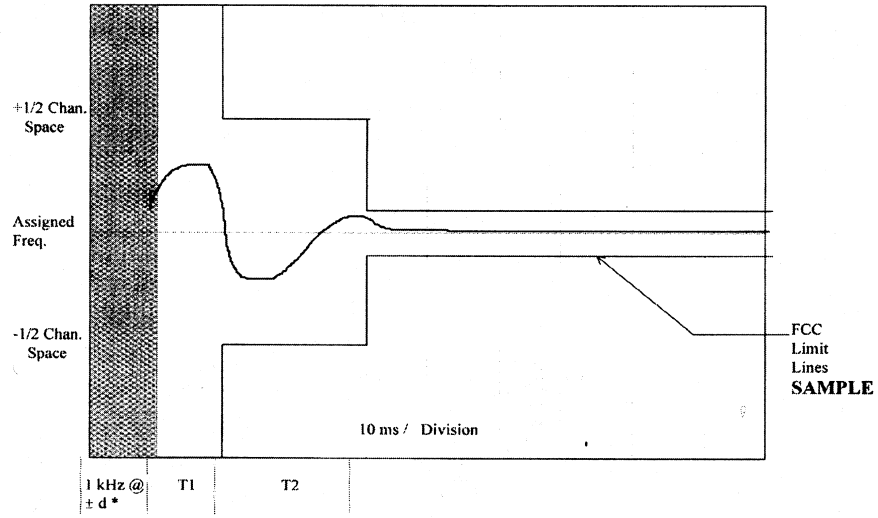
SECTION 7

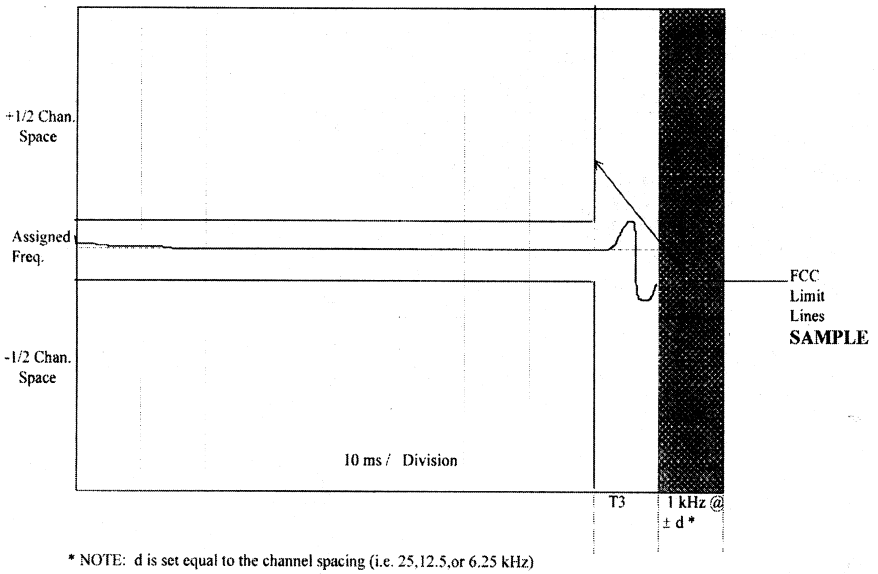
TRANSIENT FREQUENCY BEHAVIOR

7. Set the horizontal sweep rate on the storage oscilloscope to 10 milliseconds per division and adjust the display to continuously view the 1000 Hz tone from the DOP. Adjust the vertical amplitude control of the oscilloscope to display the 1000 Hz at +/-4 divisions vertically centered on the display.
8. Adjust the oscilloscope so it will trigger on an increasing magnitude from the RF peak detector at 1 division from the left side of the display, when the transmitter is turned on. Set the controls to store the display.
9. Turn on the TUT and observe the stored display. The output at the DOP, due to the change in ratio of power between the signal generator input power and the transmitter output power will, because of the capture effect of the test receiver, produce a change in display: For the first part of the sweep it will show the 1 kHz test signal. Then once the receiver's demodulator has been captured by the transmitter power, the display will show the frequency difference from the assigned frequency to the actual transmitter frequency versus time. The instant when the 1 kHz test signal is completely suppressed (including any capture time due to phasing) is considered to be "t on".
10. To test the transient frequency during the period of "t 3", the transmitter shall be switched on.
11. Adjust the oscilloscope so it will trigger on a decreasing magnitude from the RF peak detector at 1 division from the right side of the display, when the transmitter is turned off. Set the controls to store the display.
12. The transmitter shall be switched off.
13. Observe the display. The trace should remain with in the allowed divisions during the period "t 3", according to the specifications in 90.213,90.214.

SECTION 7

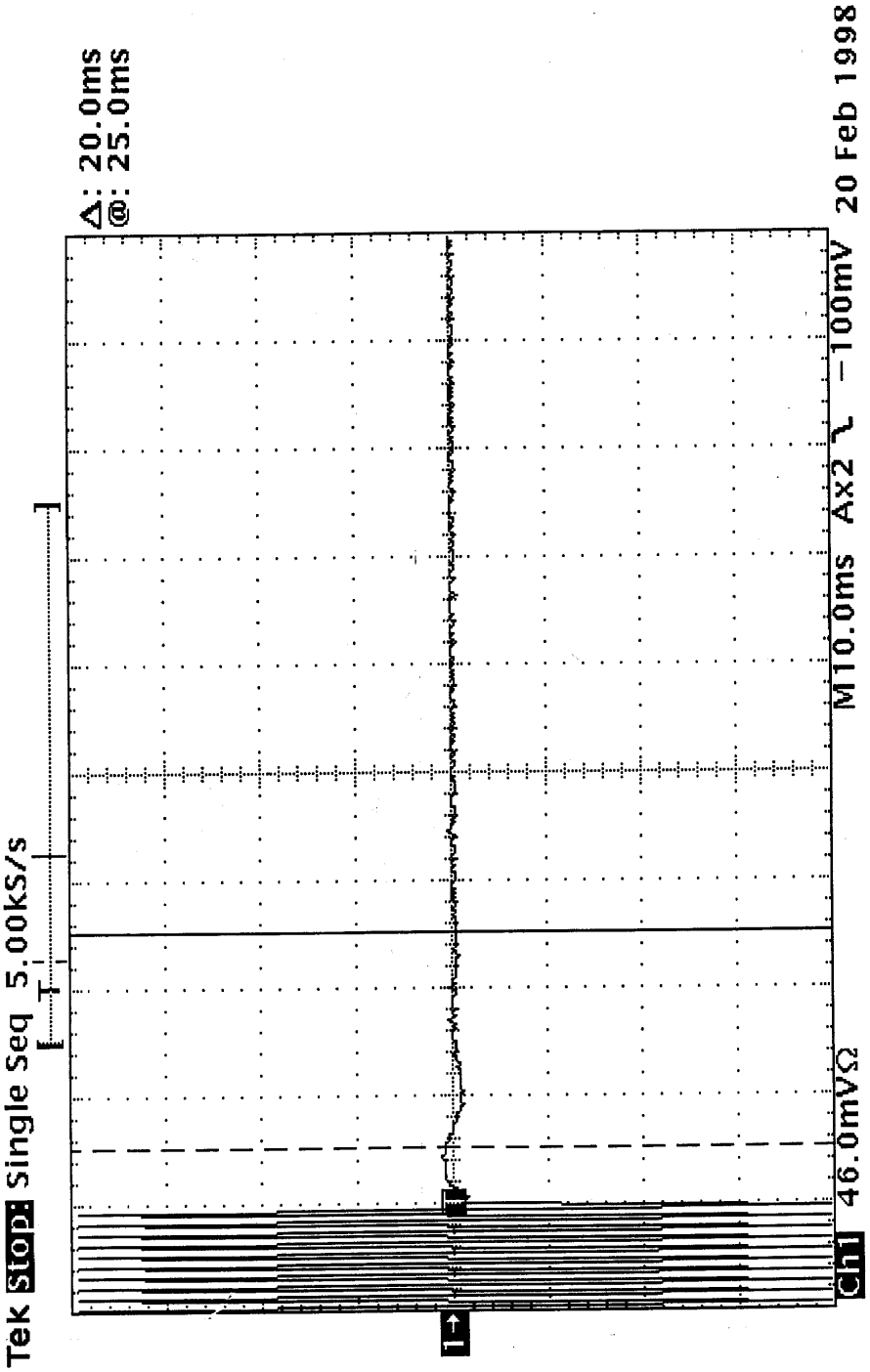
TRANSIENT FREQUENCY BEHAVIOR





* NOTE: d is set equal to the channel spacing (i.e. 25,12.5,or 6.25 kHz)

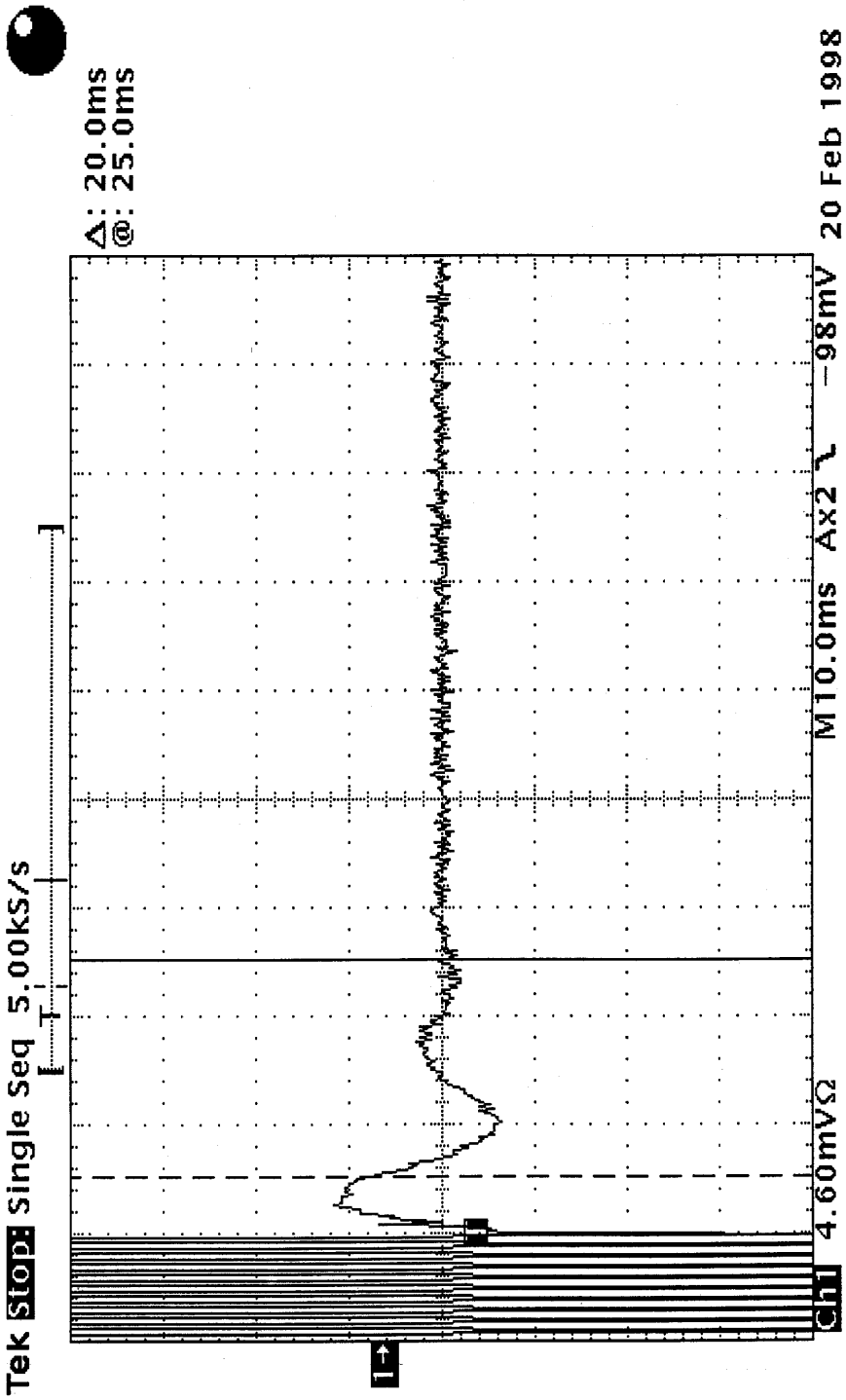
FCC ID: AXATR-381-A2 Transient Frequency Behavior Date:2-24-98



Section 7 B1

162.02500 MHz / 25 kHz Channel Space

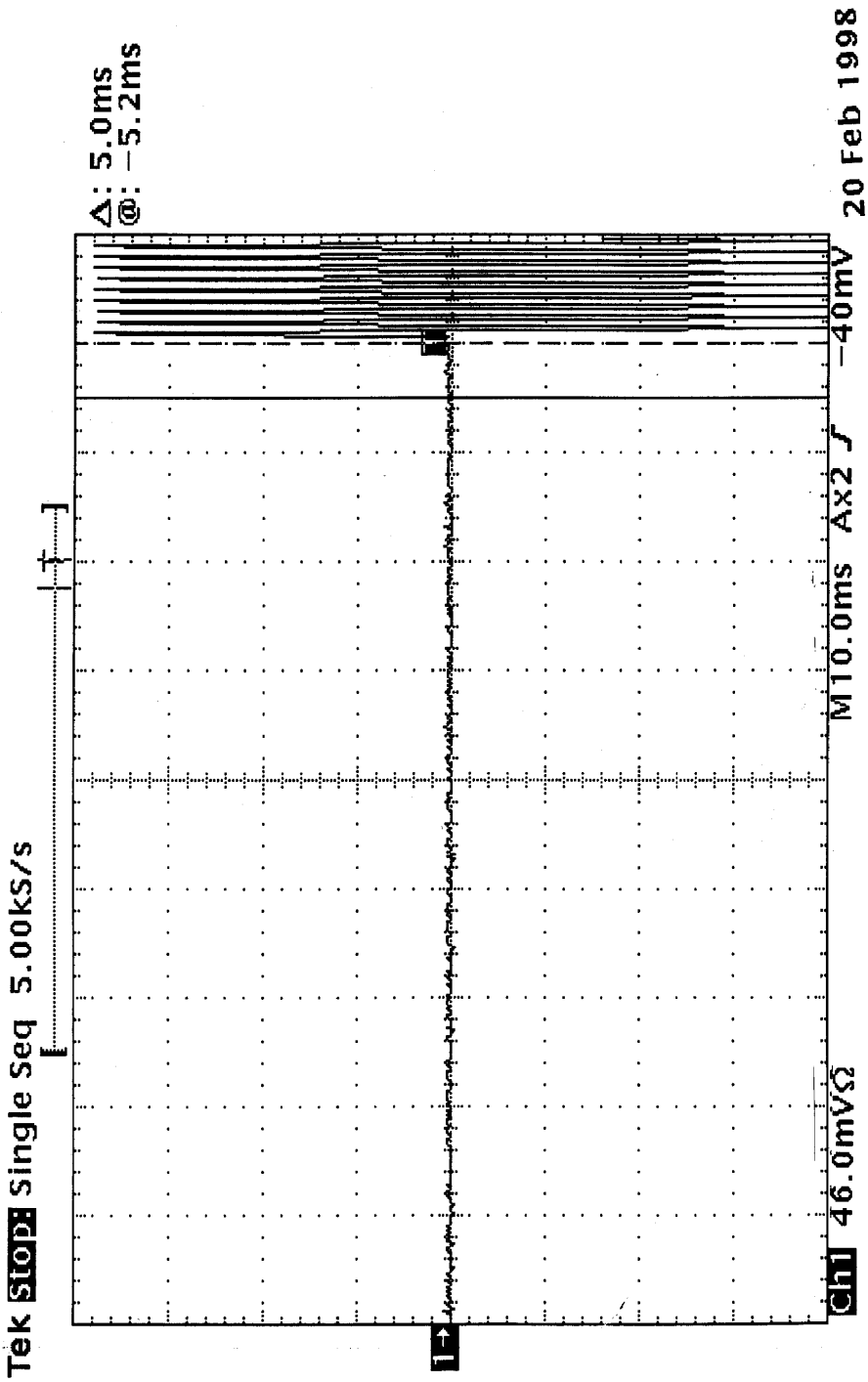
FCC ID: AXATR-381-A2 Transient Frequency Behavior Date:2-24-98



162.02500 MHz / 25 kHz Channel Space / Vertical Expanded X10

Section 7 B2

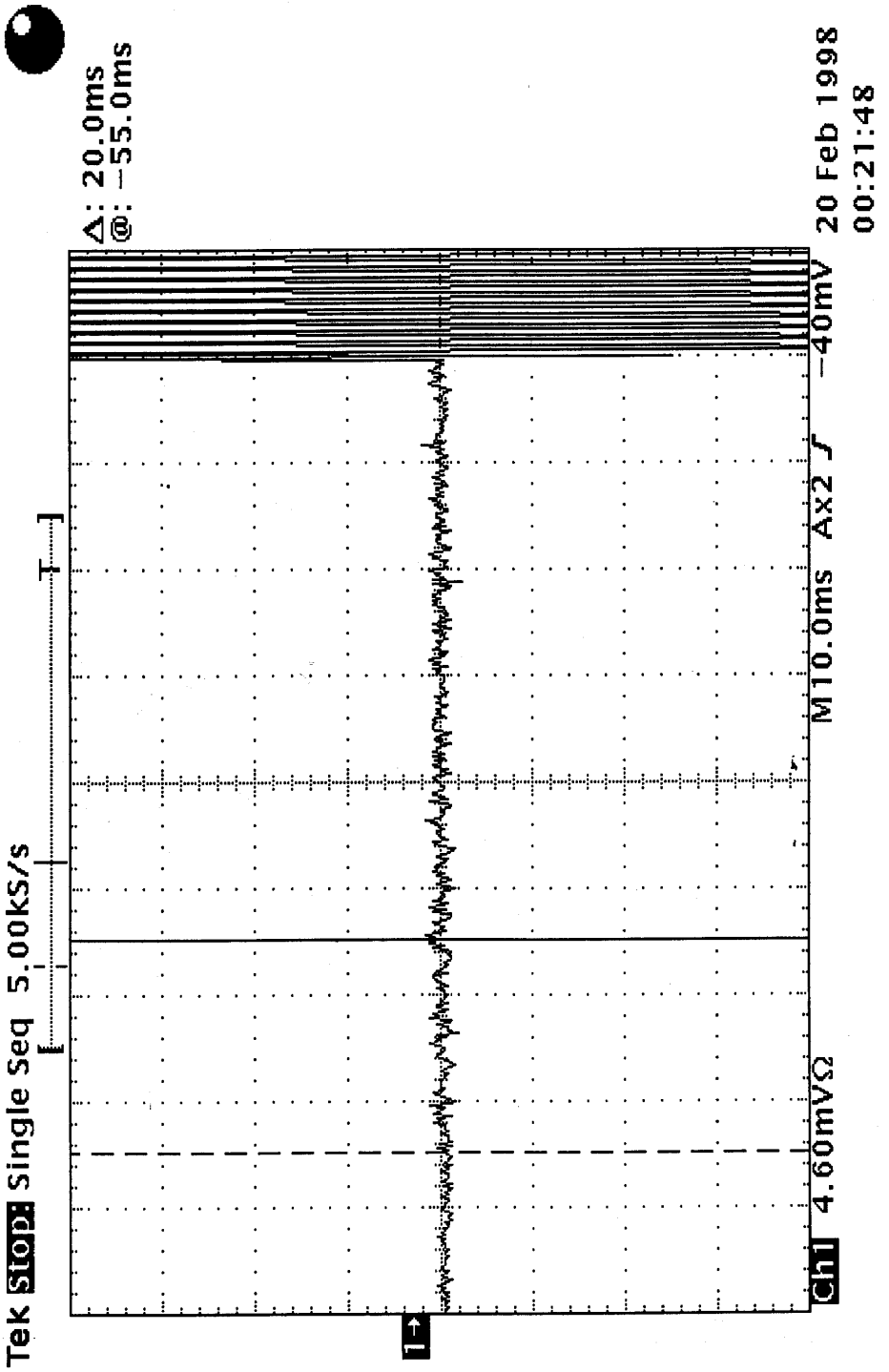
FCC ID: AXATR-381-A2 Transient Frequency Behavior Date:2-24-98



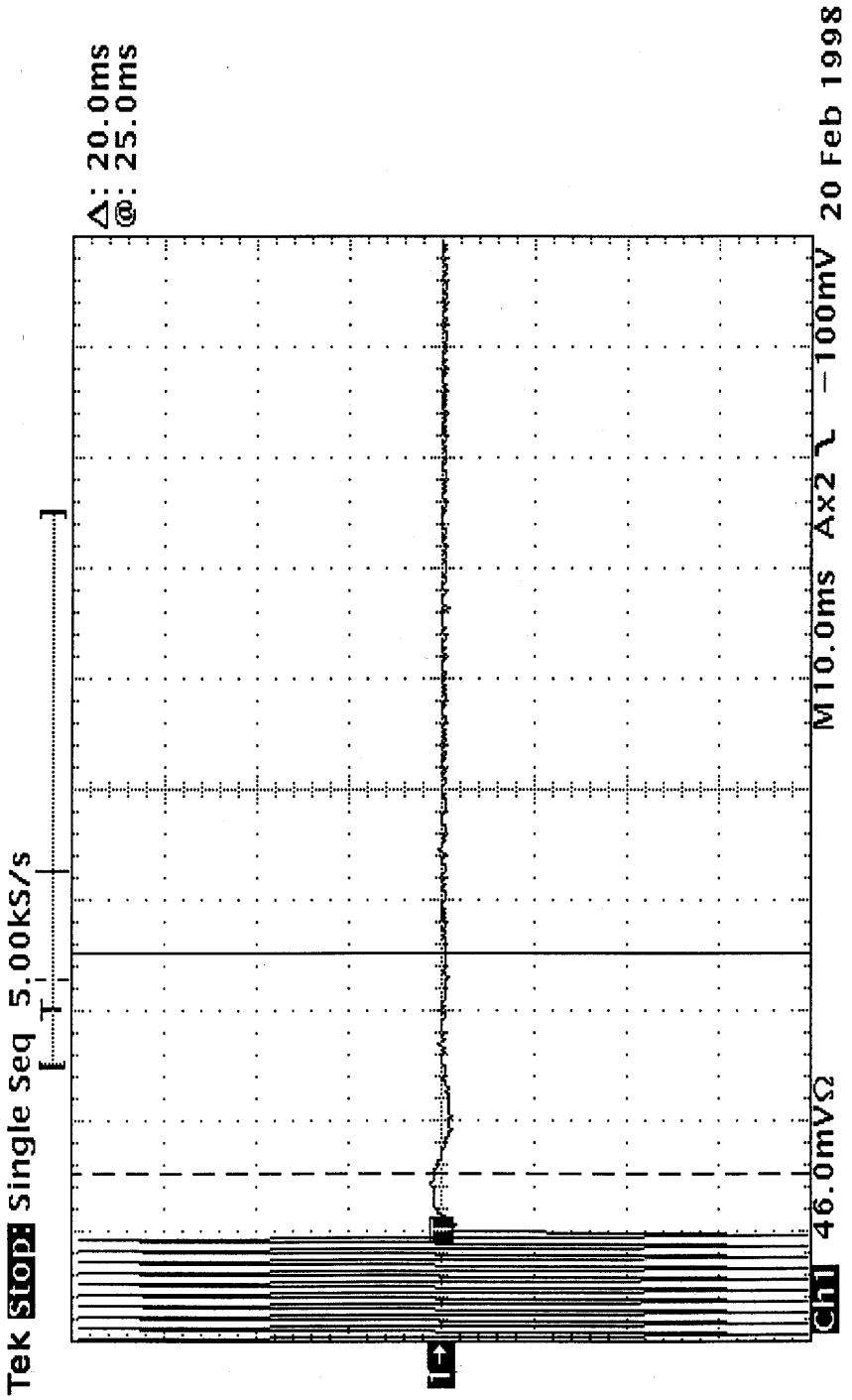
Section 7 B3

162.02500 MHz / 25 kHz Channel Space

FCC ID: AXATR-381-A2 Transient Frequency Behavior Date:2-24-98



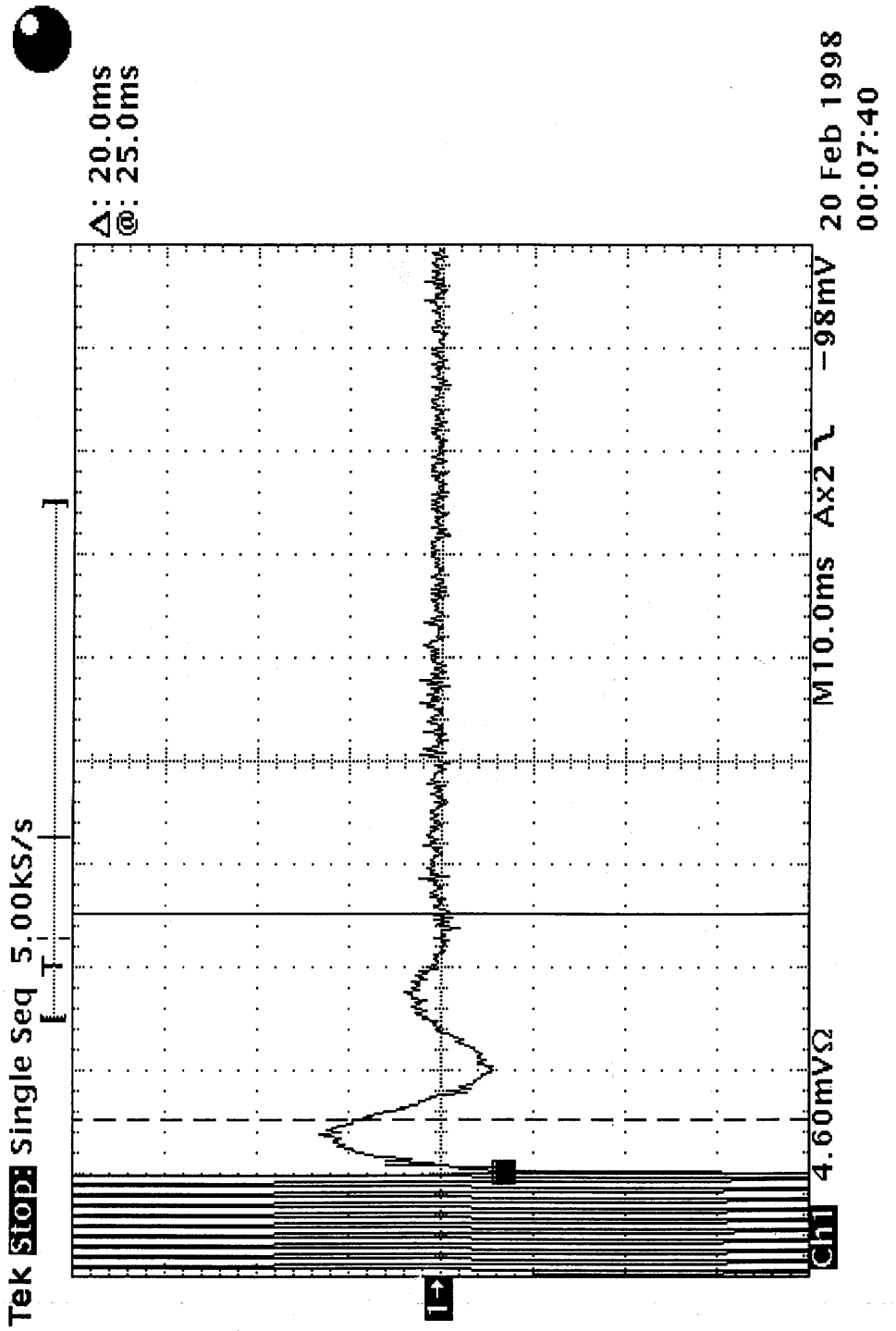
FCC ID: AXATR-381-A2 Transient Frequency Behavior Date:2-24-98



Section 7 C1

162.02500 MHz / 12.5 kHz Channel Space

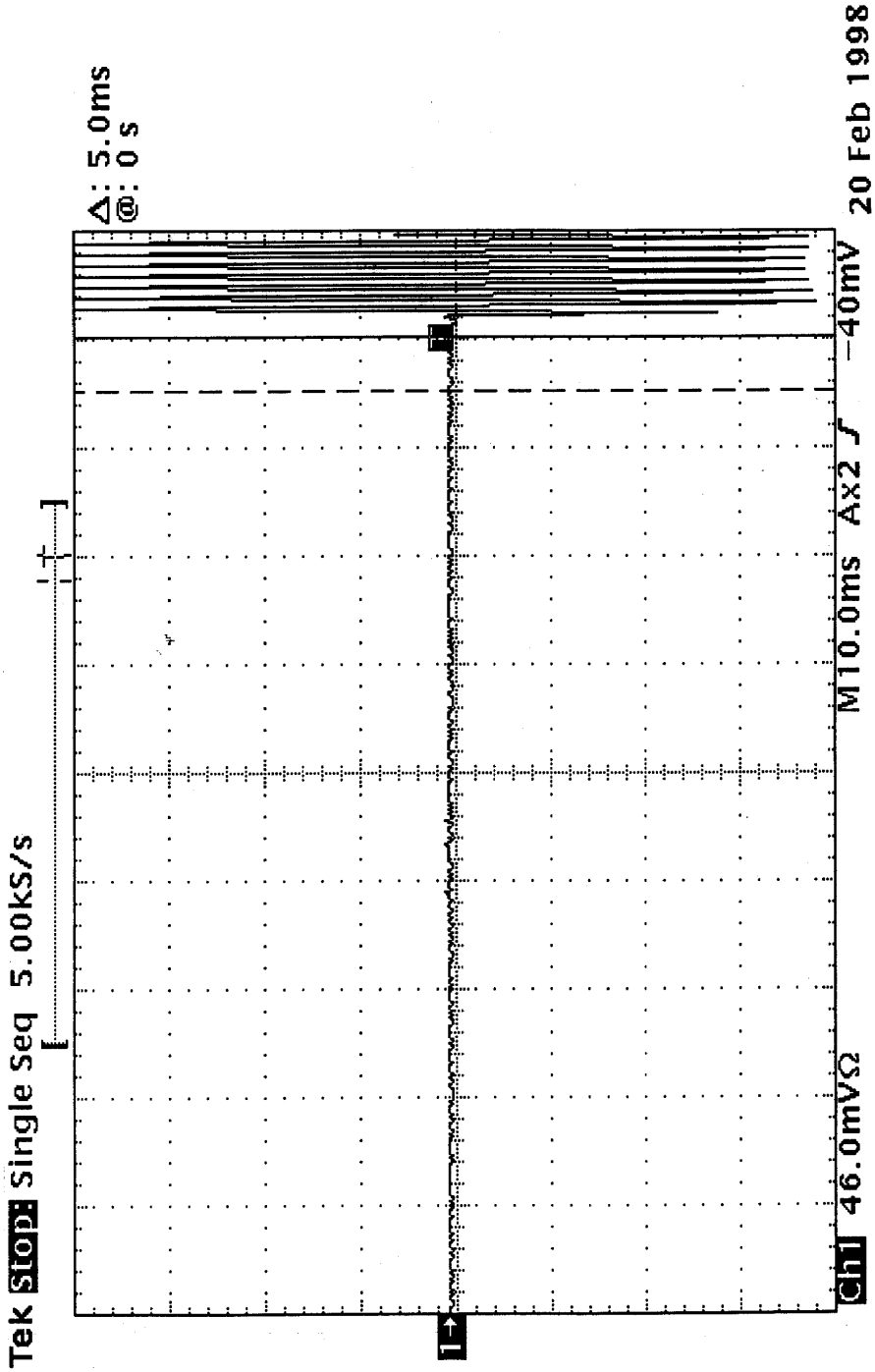
FCC ID: AXATR-381-A2 Transient Frequency Behavior Date:2-24-98



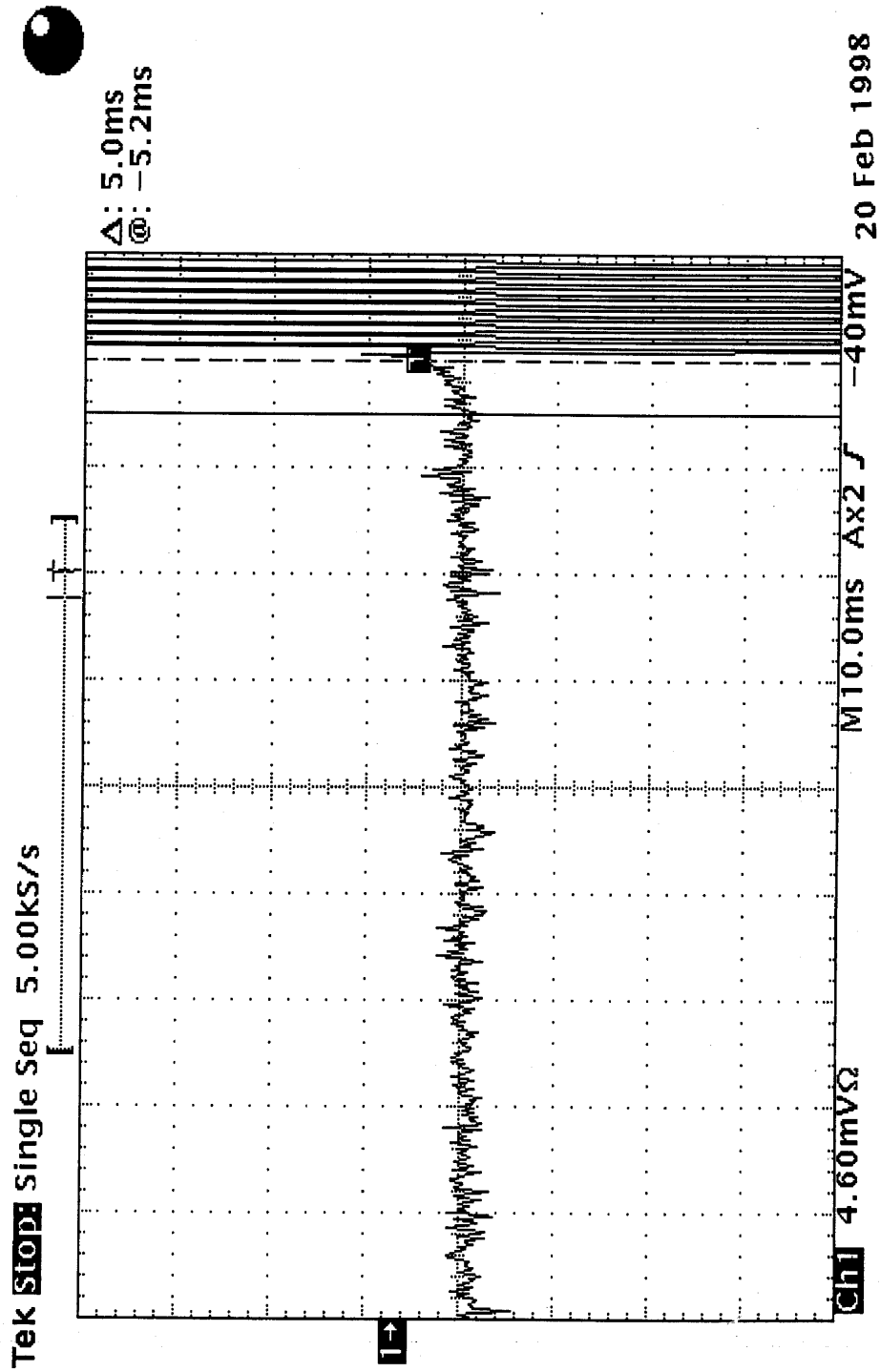
Section 7 C2

162.02500 MHz / 12.5 kHz Channel Space / Vertical Expanded X10

FCC ID: AXATR-381-A2 Transient Frequency Behavior Date:2-24-98



FCC ID: AXATR-381-A2 Transient Frequency Behavior Date:2-24-98



Section 7 C4

162.02500 MHz / 12.5 kHz Channel Space / Vertical Expanded X10