FCC PART 15 Subpart C

EMI MEASUREMENT AND TEST REPORT

FOR

TECOM CO., LTD.

No. 23, R & D Rd. 2, Science-Based Industrial Park,
Hsin-Chu, Taiwan, R. O. C.

FCC ID: D6XMF3770

July 28, 2000

This Report Concerns:	**Equipment Type:**
☒ Original Report	2.4GHz Cordless Phone Base and 2.4GHz Cordless Phone with handset – Household Devices

Test Engineer:	Edward Yan
Test Date:	July 12, 2000
Reviewed By:	John Y. Chan – Engineering Manager
Prepared By:	Bay Area Compliance Laboratory Corporation 230 Commercial Street, Suite 2 Sunnyvale, CA 94086 Tel: (408) 732-9162 Fax: (408) 732 9164

TABLE OF CONTENTS

1 - GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

*The TECOM CO., LTD.'s MF3770*or the "EUT" as referred to in this report is a 2.4 GHz 2 Line Phone with Speaker Phone, Cordless Handset, and Caller ID. The EUT was composed of three parts: one is a Base which measured 9.58"Lx7.5"Wx4.5"H, the Handset which measured 8.0" L x 1.75" W x 1.625"H, and the other is a cordless handset which measures 7.0"L x 2.0"W x 1.5"H.

1.2 Objective

This type approval report is prepared on behalf of *TECOM CO., LTD.* in accordance with Part 2, Subpart J, Part 15, Subparts A, B and C of the Federal Communication Commissions rules.

The objective of the manufacturer is to demonstrate compliance with FCC rules for Output Power, Antenna Requirement, Hopping Channel Separation, Number of Hopping Frequency Used, Channel Bandwidth, Dwell Time on Each Channel, Band Edge, 100 kHz Bandwidth of Band Edges Measurement, Spurious Emission, and Conducted and Radiated Emission.

1.3 Related Submittal(s)/Grant(s)

No Related Submittals

1.4 Test Methodology

All measurements contained in this report were conducted with ANSI C63.4 –1992, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz. All radiated and conducted emissions measurement was performed at Bay Area Compliance Laboratory, Corp. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

1.5 Test Facility

The Open Area Test site used by Bay Area Compliance Laboratory Corporation to collect radiated and conducted emission measurement data is located in the back parking lot of the building at 230 Commercial Street, Suite 2, Sunnyvale, California, USA.

Test sites at Bay Area Compliance Laboratory Corporation has been fully described in reports submitted to the Federal Communication Commission (FCC) and Voluntary Control Council for Interference (VCCI). The details of these reports has been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on February 11 and December 10, 1997 and Article 8 of the VCCI regulations on December 25, 1997. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-1992.

The Federal Communications Commission and Voluntary Control Council for Interference has the reports on file and is listed under FCC file 31040/SIT 1300F2 and VCCI Registration No.: C-674 and R-657. The test sites has been approved by the FCC and VCCI for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, Bay Area Compliance Laboratory Corporation is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (NVLAP). The scope of the accreditation covers the FCC Method - 47 CFR Part 15 - Digital Devices, IEC/CISPR 22: 1993, and AS/NZS 3548: Electromagnetic Interference - Limits and Methods of Measurement of Information Technology Equipment test methods under NVLAP Lab Code 200167-0.

1.6 Test Equipment List

Manufacturer	Description	Model	Serial Number	Cal. Due Data
HP	Spectrum Analyzer	8566B	2610A02165	12/6/00
HP	Spectrum Analyzer	8593B	2919A00242	12/20/00
HP	Amplifier	8349B	2644A02662	12/20/00
HP	Quasi-Peak Adapter	85650A	917059	12/6/00
HP	Amplifier	8447E	1937A01046	12/6/00
A.H. System	Horn Antenna	SAS0200/571	261	12/27/00
Com-Power	Log Periodic Antenna	AL-100	16005	11/2/00
Com-Power	Biconical Antenna	AB-100	14012	11/2/00
Solar Electronics	LISN	8012-50-R-24-BNC	968447	12/28/00
Com-Power	LISN	LI-200	12208	12/20/00
Com-Power	LISN	LI-200	12005	12/20/00
BACL	Data Entry Software	DES1	0001	12/20/00
Rohde & Schwarz	Signal Generator	SMIQ03B	1125.5555.03	7/10/2002
Rohde & Schwarz	I/Q Modulation Generator	AMIQ	1110.2003.02	8/10/2002

1.7 Equipment Under Test (EUT)

Manufacturer	Description	Model	Serial Number	FCC ID
TECOM CO., LTD.	2.4GHz Cordless Phone Base and 2.4GHz Cordless Phone with handset	MF-3770	None	D6XMF3770

1.8 Support Equipment (for Base Only)

Manufacturer	Description	Model	Serial Number	FCC ID
TELTONE	Line Simulator	TLS-3B-01	80071	N/A
STARPLUS	Phone	SP7314-71	TJ904106	N/A

1.9 External I/O Cabling

For Base:

Cable Description	Length (M)	Port/From	To
Unshielded RJ11 Cable x 1	3	EUT	Simulator
Unshielded RJ11 Cable x 1	3	simulator	Phone

2 - SYSTEM TEST CONFIGURATION

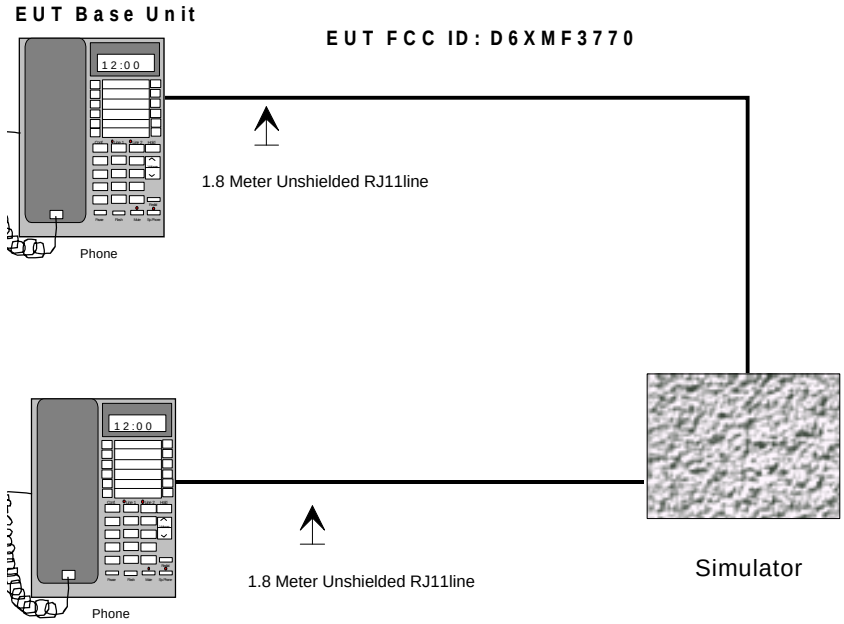
2.1 Description of Test Configuration

The EUT was configured for testing in a typical fashion (as normally used by a typical user).

Handset Being tested: The 2.4GHz Cordless Phone Base and 2.4GHz Cordless Phone with handset – Handset, Model MF3770(EUT) was placed on the wooden table and tested in three orthogonal axis. The handset was connected to the headset via its headset port. The Low, middle, and high channels were tested. The handset was transmitting to and receiving from the Base unit. The EUT was investigated for emissions while off hook. The radiated data was taken in this mode of operation. All initial and final investigations were performed with the EMI receiver in manual mode scanning the frequency range continuously. The cables were bundled and routed as shown in the 2.5.

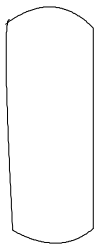
Base being tested: The 2.4GHz Cordless Phone Base and 2.4GHz Cordless Phone with handset – Base, Model MF3770(EUT) was placed on the wooden table. The Low, middle, and high channels were tested. The base was connected to the line simulator and an AC adapter via its Tel Line and power ports, respectively. The base was transmitting and receiving from the 2.4 GHz Analog Cordless Phone – Handset. The conducted as well as radiated data was taken in this mode of operation. All initial and final investigations were performed with the EMI receiver in manual mode scanning the frequency range continuously. The cables were bundled and routed as shown in the 2.4.

2.2 Configuration of Test System (Base Unit)



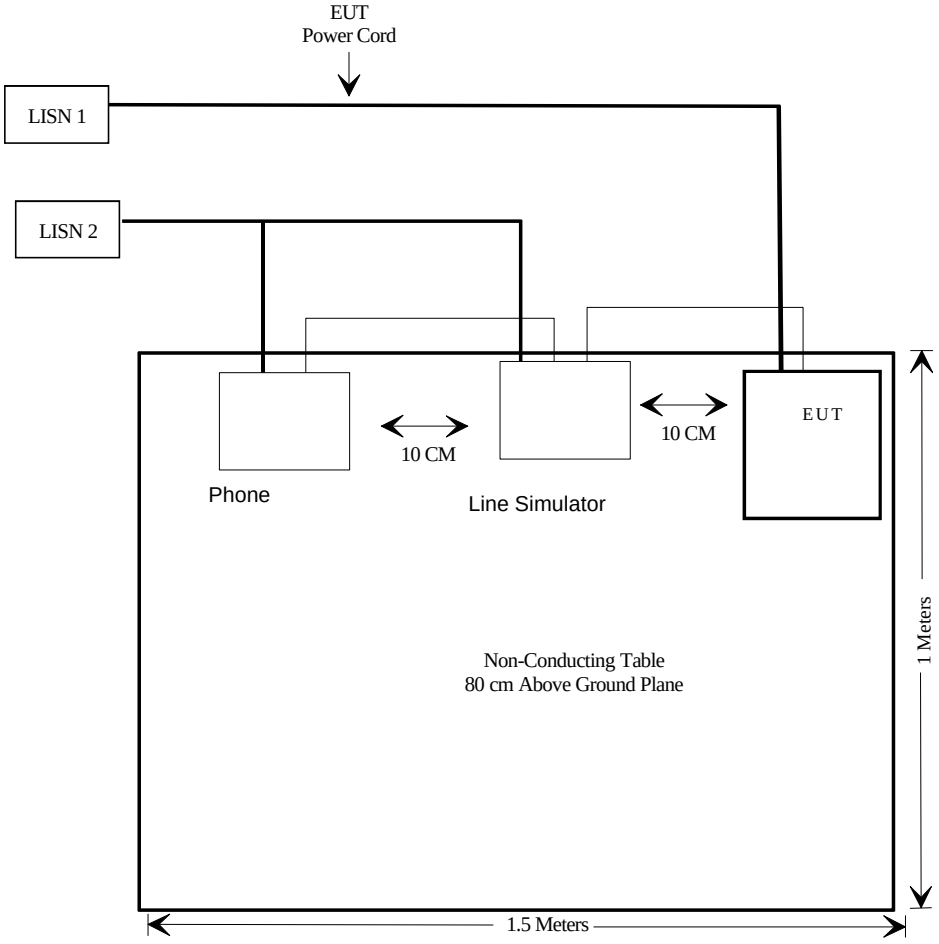
2.3 Configuration of Test System (Handset Unit)

EUT Handset

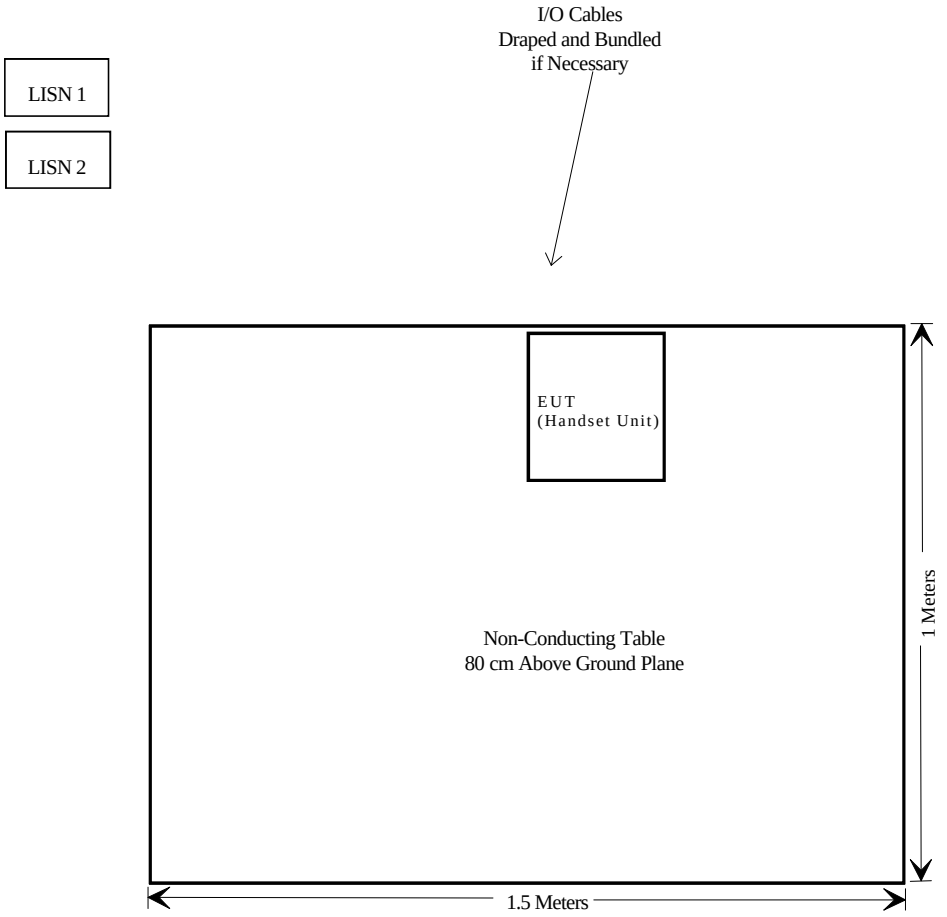


EUT: D6XMF3770

2.4 Test Setup Block Diagram (Base Unit)



2.5Test Setup Block Diagram (Handset Unit)



2.6 Equipment Modifications

There were no modification(s) to the EUT were made to comply with the applicable limits.

3 - SUMMARY OF TEST RESULTS

FCC RULE	DESCRIPTION OF TEST	RESULT
§15.107 (a)	Conducted Emission	Pass
§15.109 (a)	Radiated Emission	Pass
§15.203	Antenna Requirement	Pass
§15.247 (a) (1)	Hopping Channel Separation	Pass
§15.247 (a) (1) (ii)	Number of Hopping Frequencies Used	Pass
§15.247 (a) (1) (ii)	Hopping Channel Bandwidth	Pass
§15.247 (a) (1) (ii)	Dwell Time of Each Frequency within a 30 Second Period	Pass
§15.247 (b)	Output Power	Pass
§ 15.247 ©	100 kHz Bandwidth of Frequency Band Edges	Pass
§ 2.1091	RF Safety Requirements	Don't need

4 - OUTPUT POWER MEASUREMENT

4.1 Standard Applicable

For direct sequence system, according to §15.247(b), the maximum peak output power of the transmitter shall not exceed 1 Watt. If transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in 613 that the directional gain of the antenna exceeds 6dBi.

For direct sequence system, according to §15.247(b), the maximum peak output power of the transmitter shall not exceed 1 Watt. If transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in 613 that the directional gain of the antenna exceeds 6dBi.

4.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT as shown in figure 4 without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via 8 low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW of spectrum analyzer to 1 MHz and VBW to 1 MHz.
4. Measure the highest amplitude appearing on spectral display and record the level to calculate result data.
5. Repeat above procedures until all frequencies measured were complete.

4.3 Measurement Result

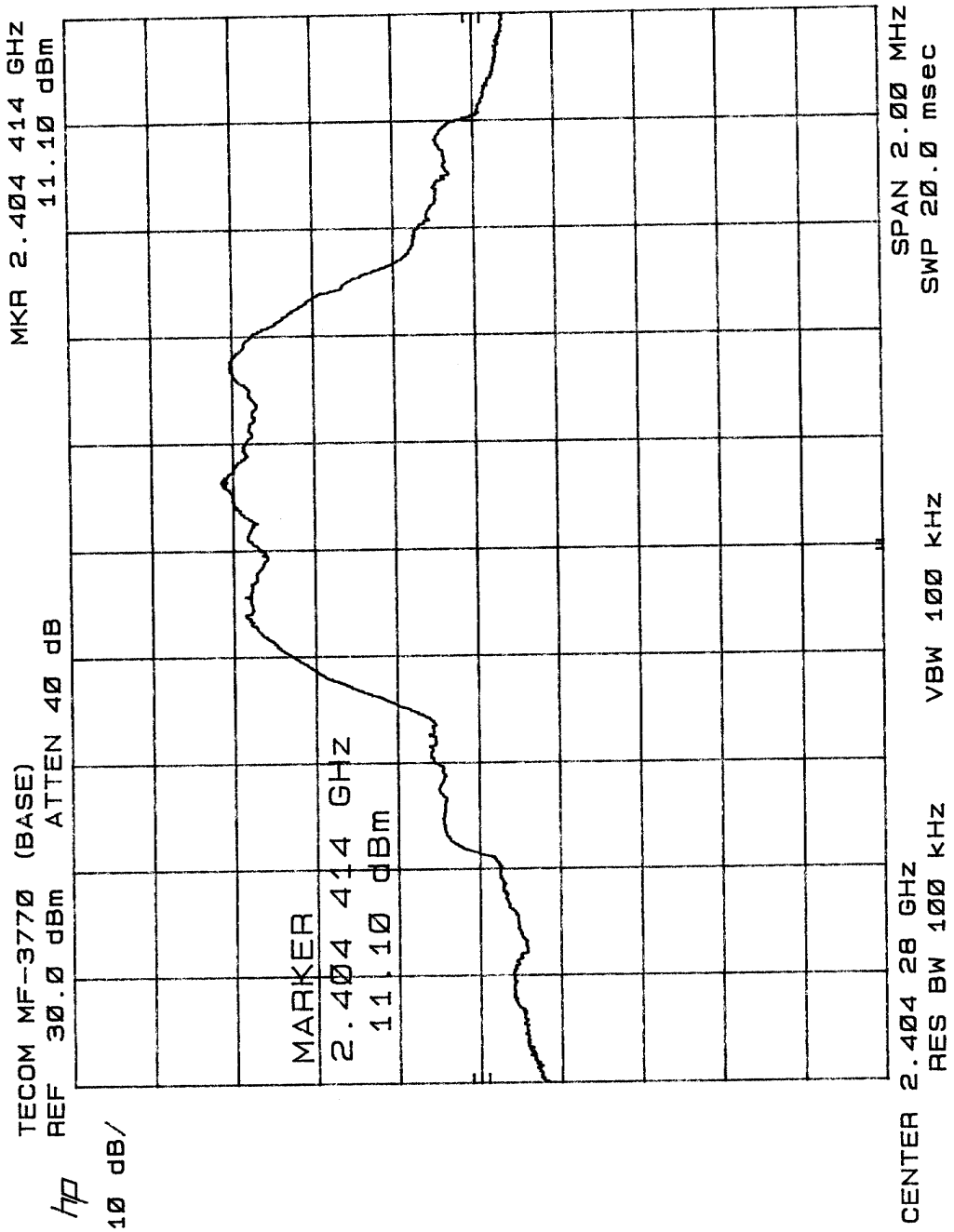
Refer to the attached to the following plots:

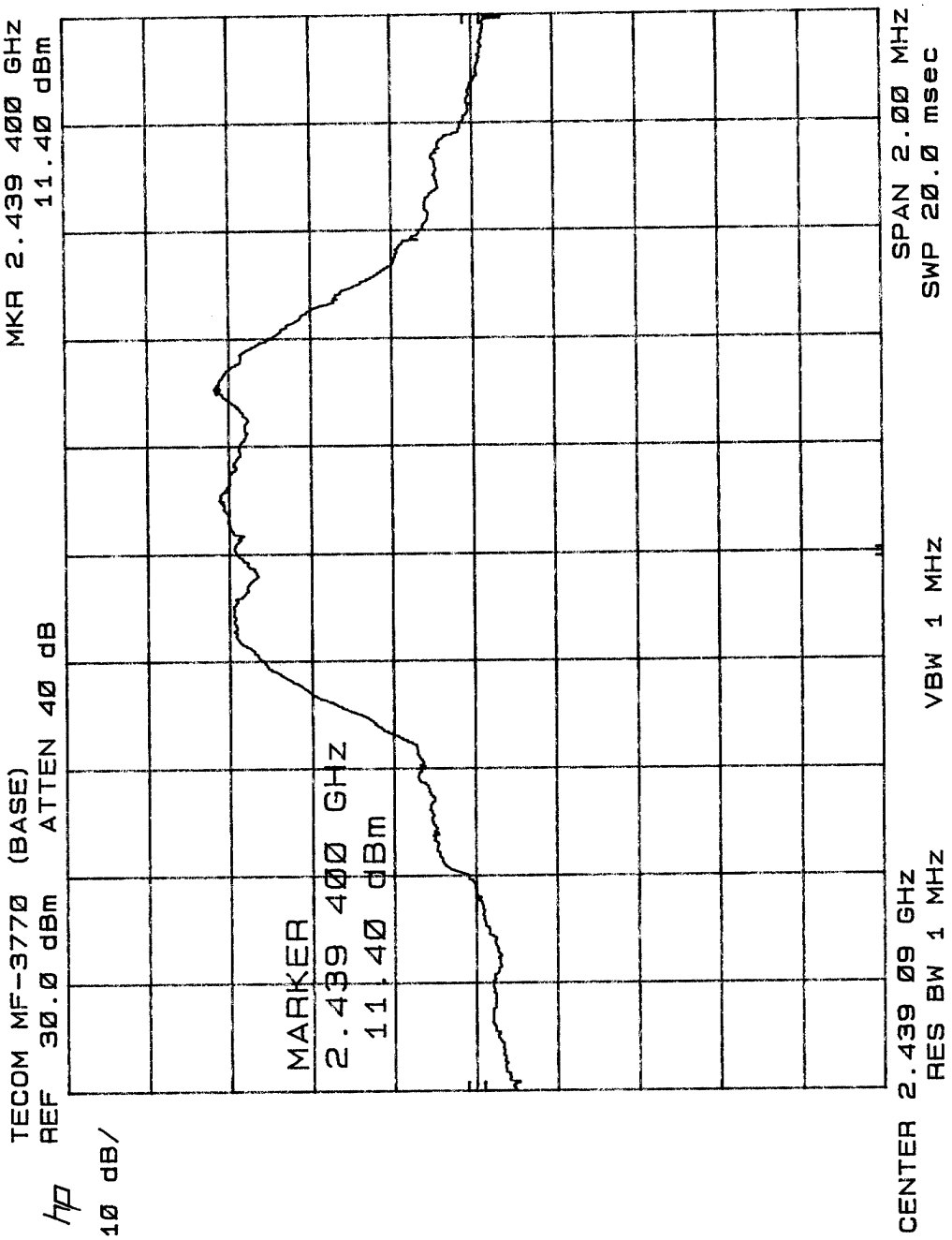
BASE

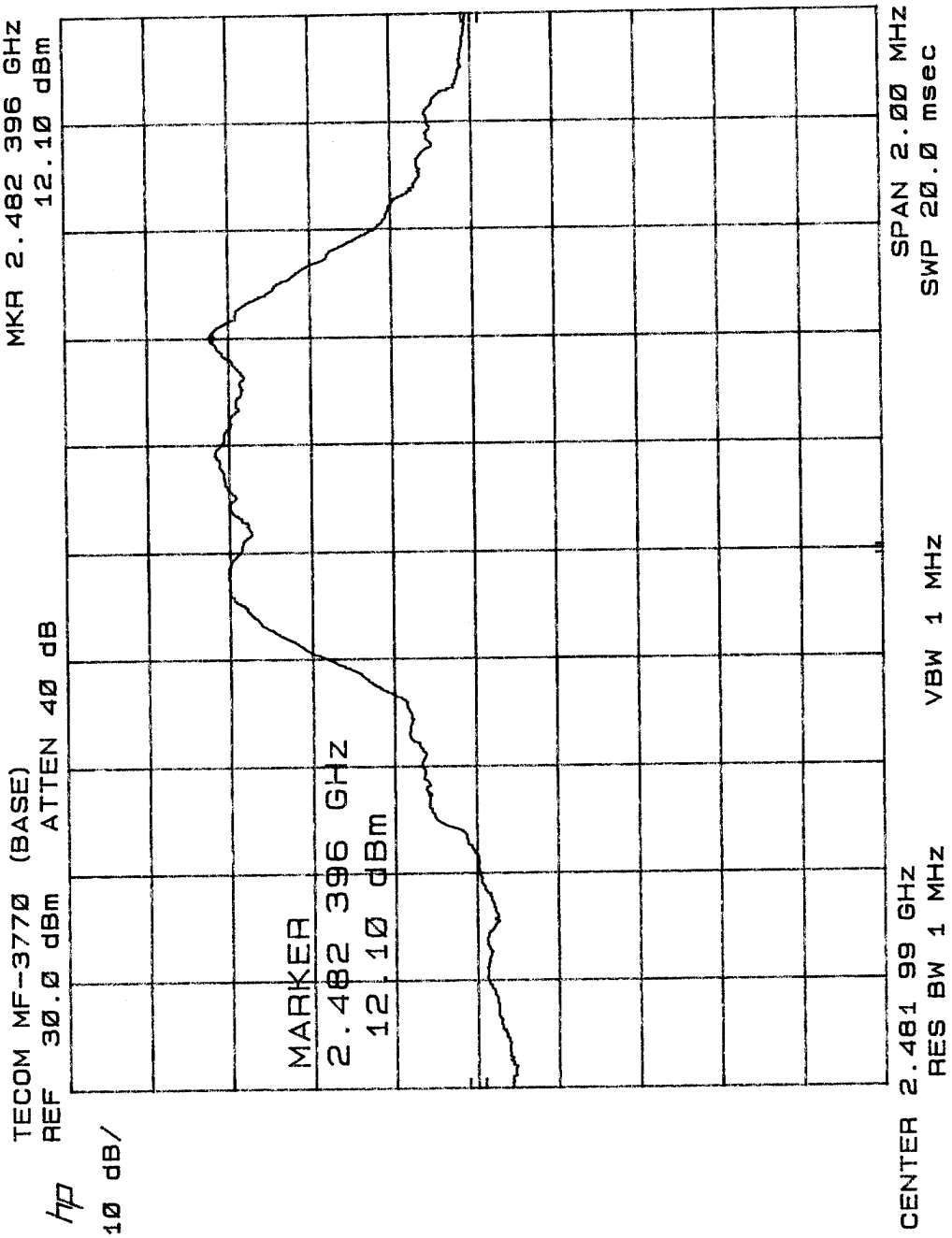
Peak Output Power	
Low Channel	Page 16
Middle Channel	Page 17
High Channel	Page 18

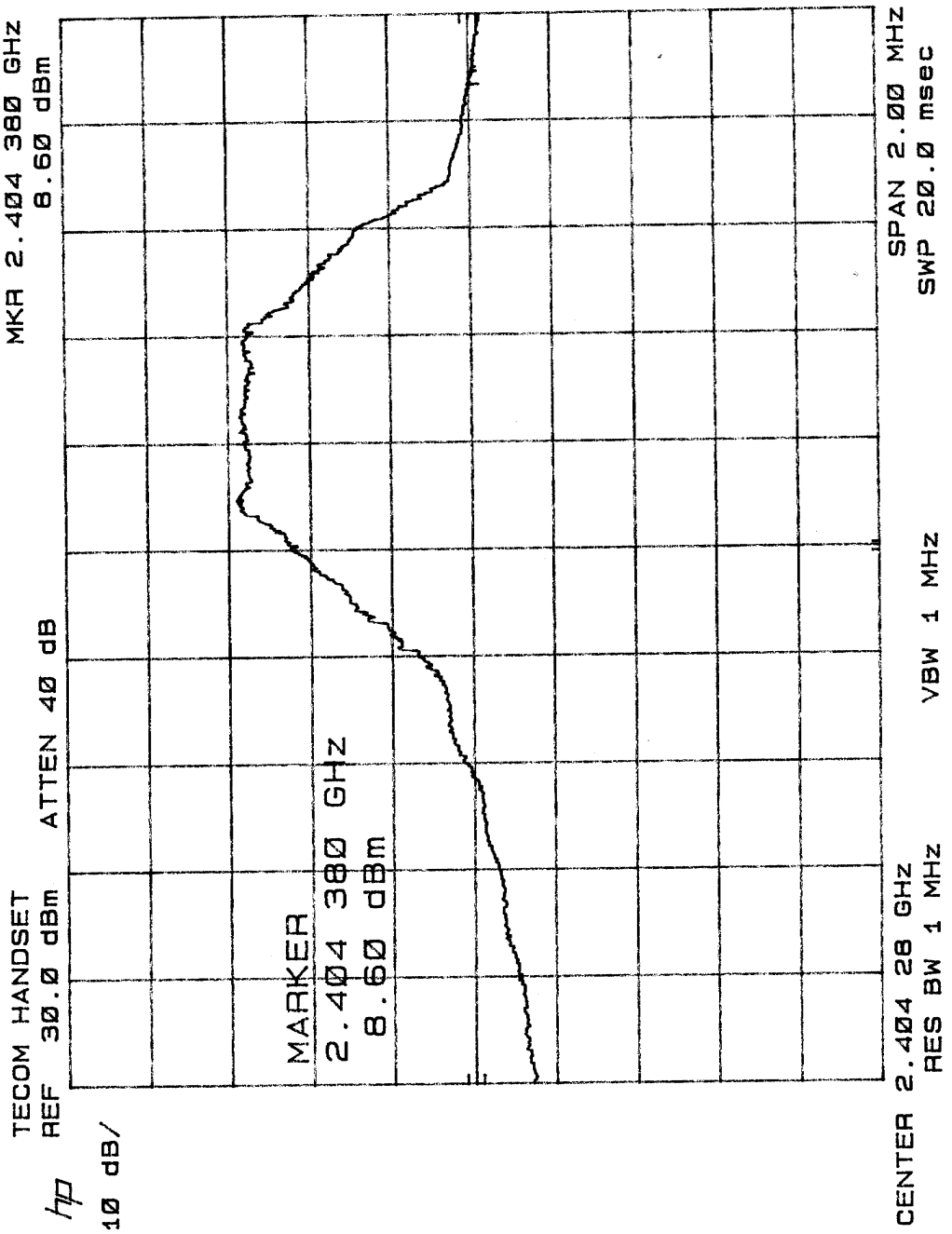
HANDSET

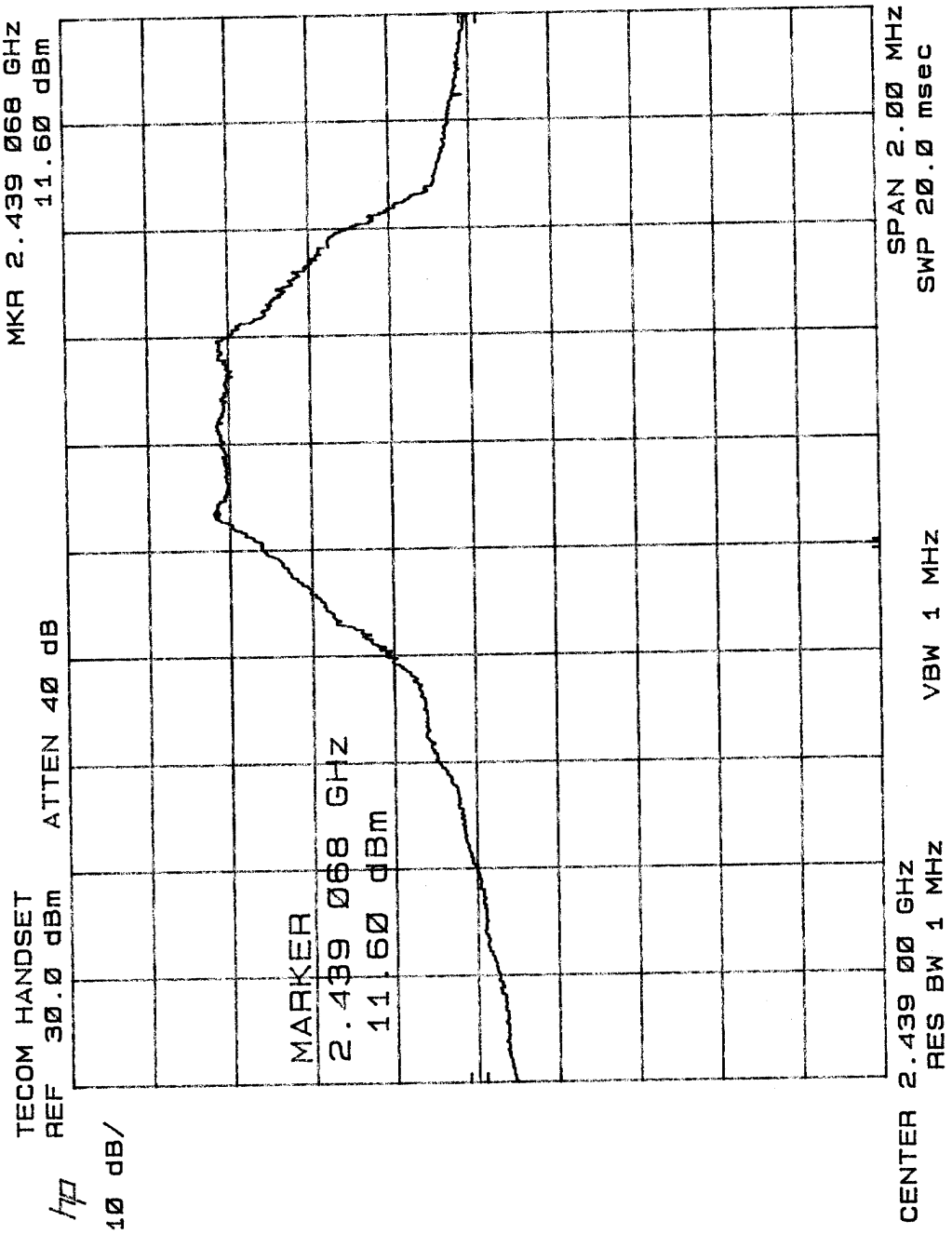
Peak Output Power	
Low Channel	Page 19
Middle Channel	Page 20
High Channel	Page 21

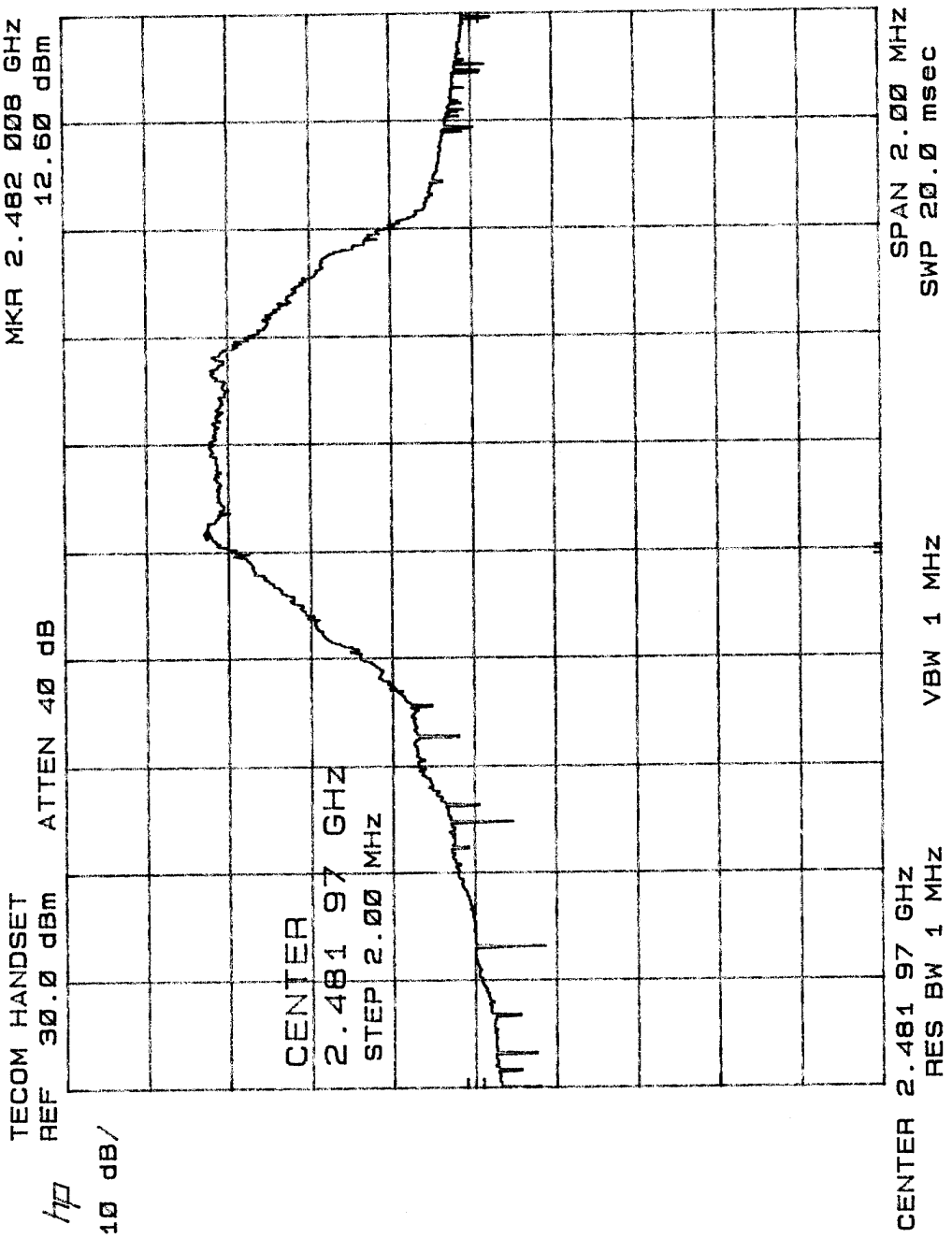

TECOM MF-3770 (BASE)
REF 30.0 dBm
ATTEN 40 dB
10 dB/
MKR 2.404 414 GHz
11.10 dBm
MARKER
2.404 414 GHz
11.10 dBm
CENTER 2.404 28 GHz
RES BW 100 kHz
VBW 100 kHz
SPAN 2.00 MHz
SWP 20.0 msec


TECOM MF-3770 (BASE)
REF 30.0 dBm ATTEN 40 dB
10 dB/
MKR 2.439 400 GHz
11.40 dBm
MARKER
2.439 400 GHz
11.40 dBm
CENTER 2.439 09 GHz
RES BW 1 MHz
VBW 1 MHz
SPAN 2.00 MHz
SWP 20.0 msec


MKR 2.482 396 GHz
12.10 dBm
TECOM MF-3770 (BASE)
REF 30.0 dBm ATTEN 40 dB
10 dB/
MARKER
2.482 396 GHz
12.10 dBm
SPAN 2.00 MHz
SWP 20.0 msec
VBW 1 MHz
CENTER 2.481 99 GHz
RES BW 1 MHz


MKR 2.404 380 GHz
8.60 dBm
TECOM HANDSET
REF 30.0 dBm
ATTEN 40 dB
10 dB/
MARKER
2.404 380 GHz
8.60 dBm
SPAN 2.00 MHz
SWP 20.0 msec
VBW 1 MHz
CENTER 2.404 28 GHz
RES BW 1 MHz


MKR 2.439 068 GHz
11.60 dBm
TECOM HANDSET
REF 30.0 dBm
ATTEN 40 dB
10 dB/
MARKER
2.439 068 GHz
11.60 dBm
CENTER 2.439 00 GHz
RES BW 1 MHz
VBW 1 MHz
SPAN 2.00 MHz
SWP 20.0 msec


MKR 2.482 008 GHz
12.60 dBm
TECOM HANDSET
REF 30.0 dBm
ATTEN 40 dB
10 dB/
CENTER
2.481 97 GHz
STEP 2.00 MHz
SPAN 2.00 MHz
SWP 20.0 msec
VBW 1 MHz
CENTER 2.481 97 GHz
RES BW 1 MHz

5 - CHANNEL BANDWIDTH

5.1 Standard Applicable

According to §15.247(a)(l)(ii), for frequency hopping system operating in the 2400-2483.5 MHz and *5725-5850* MHz bands, the maximum 20dB bandwidth of the hopping channel is 1MHz.

5.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT as shown in figure 4 without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 20 dB from the reference level. Record the frequency difference as the emission bandwidth.
4. Repeat above procedures until all frequencies measured were complete.

5.3 Measurement Data

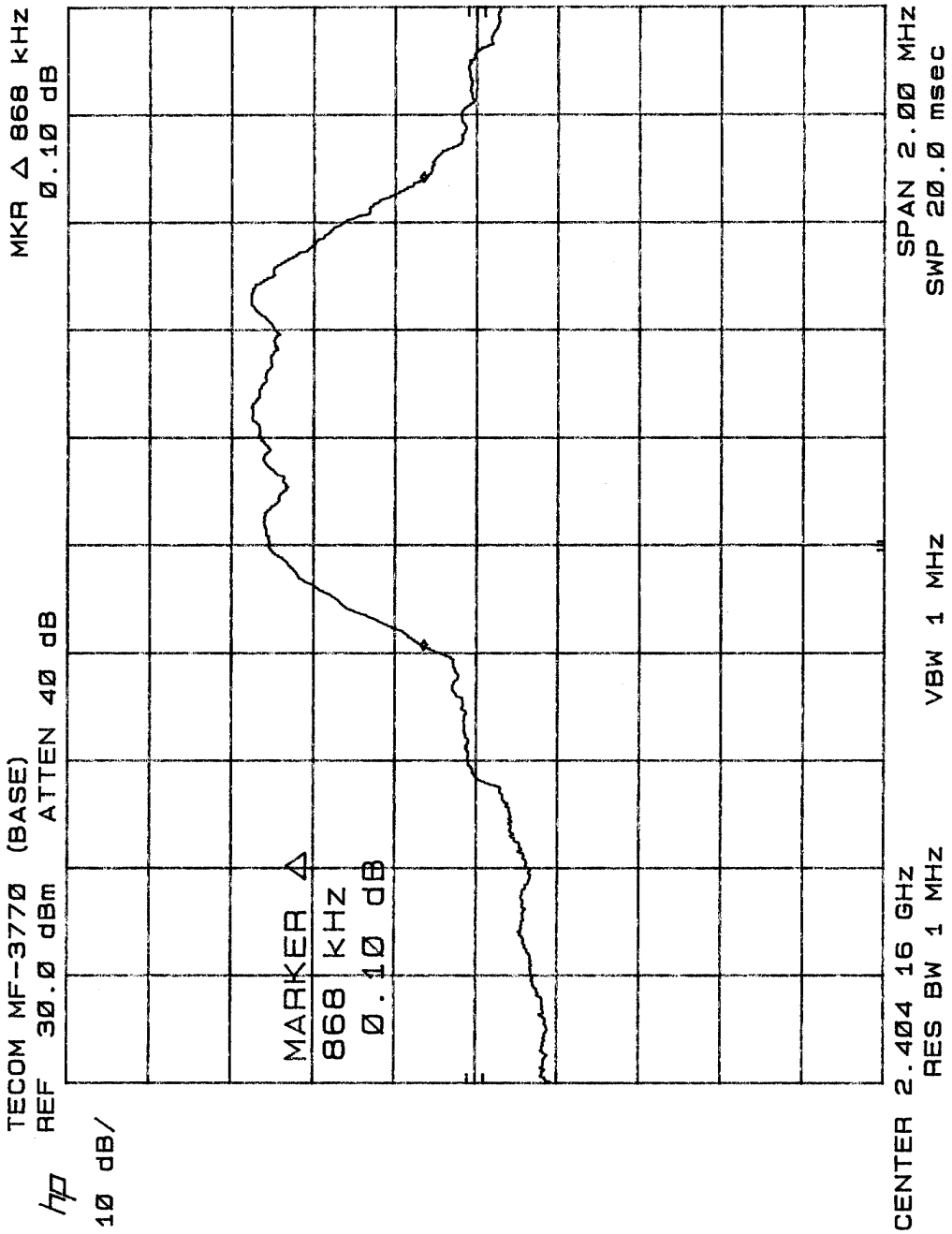
Included are plots of Hopping Channel Bandwidth for low, middle and high channel.

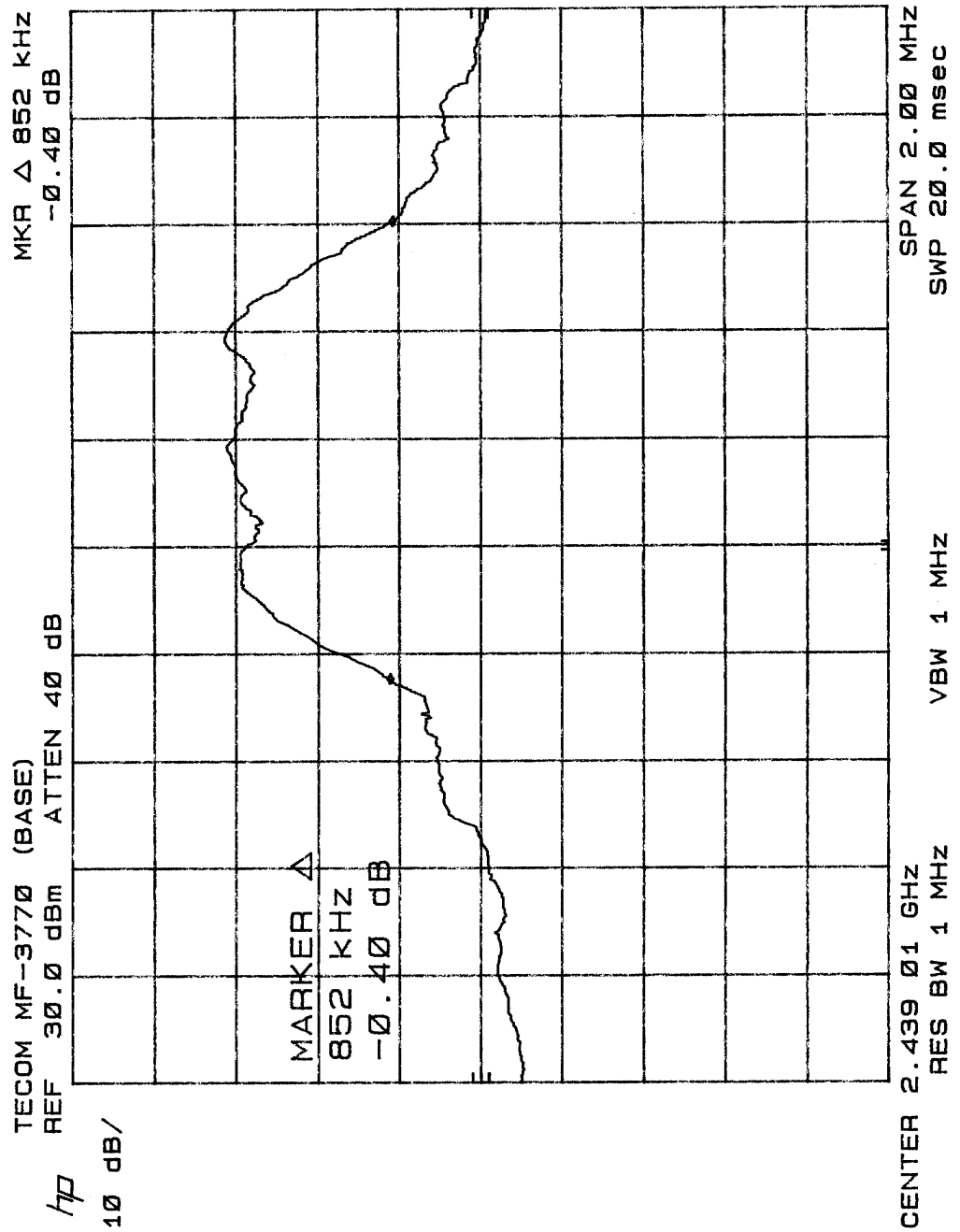
BASE

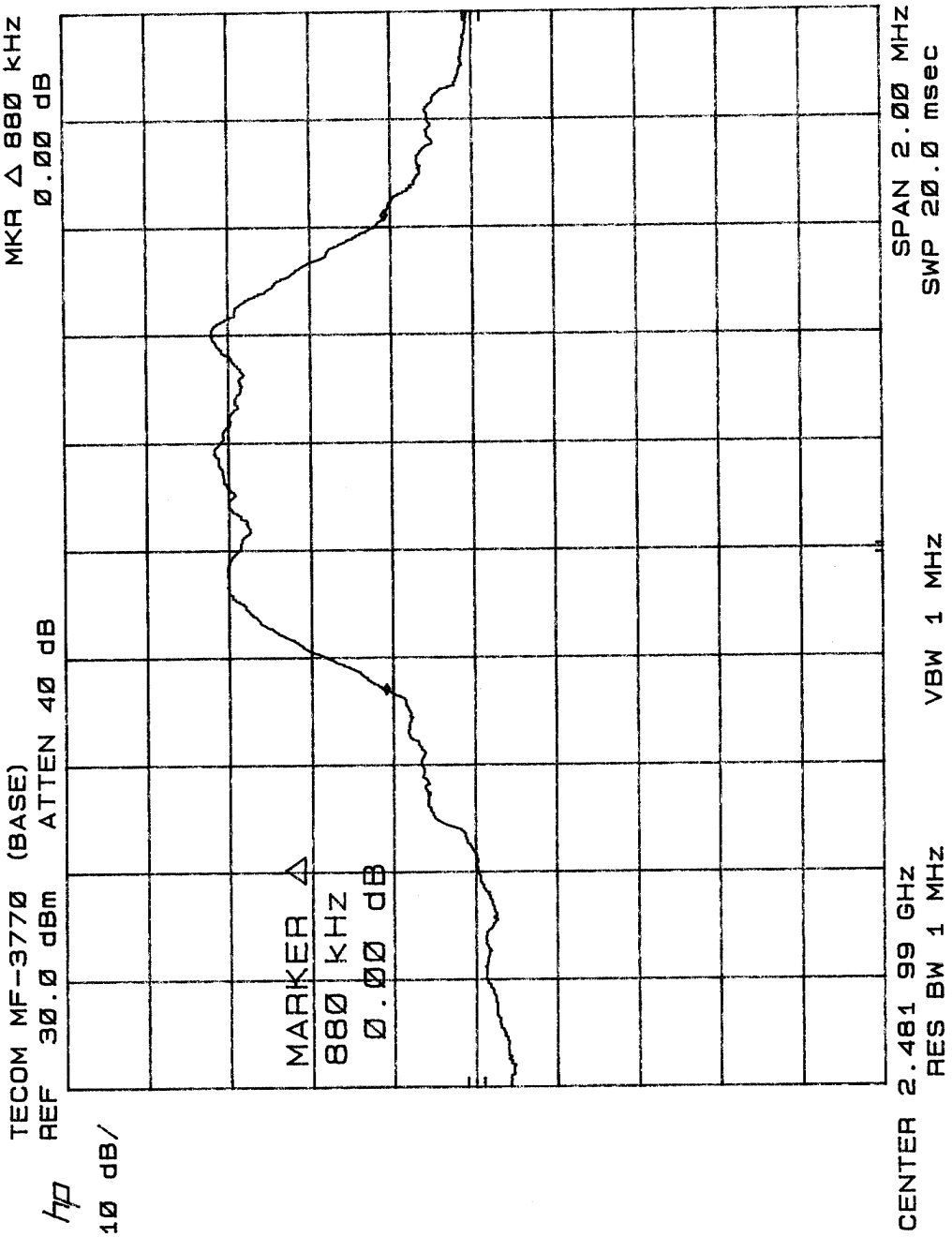
Hopping Channel Bandwidth	
Low Channel	Page 23
Middle Channel	Page 24
High Channel	Page 25

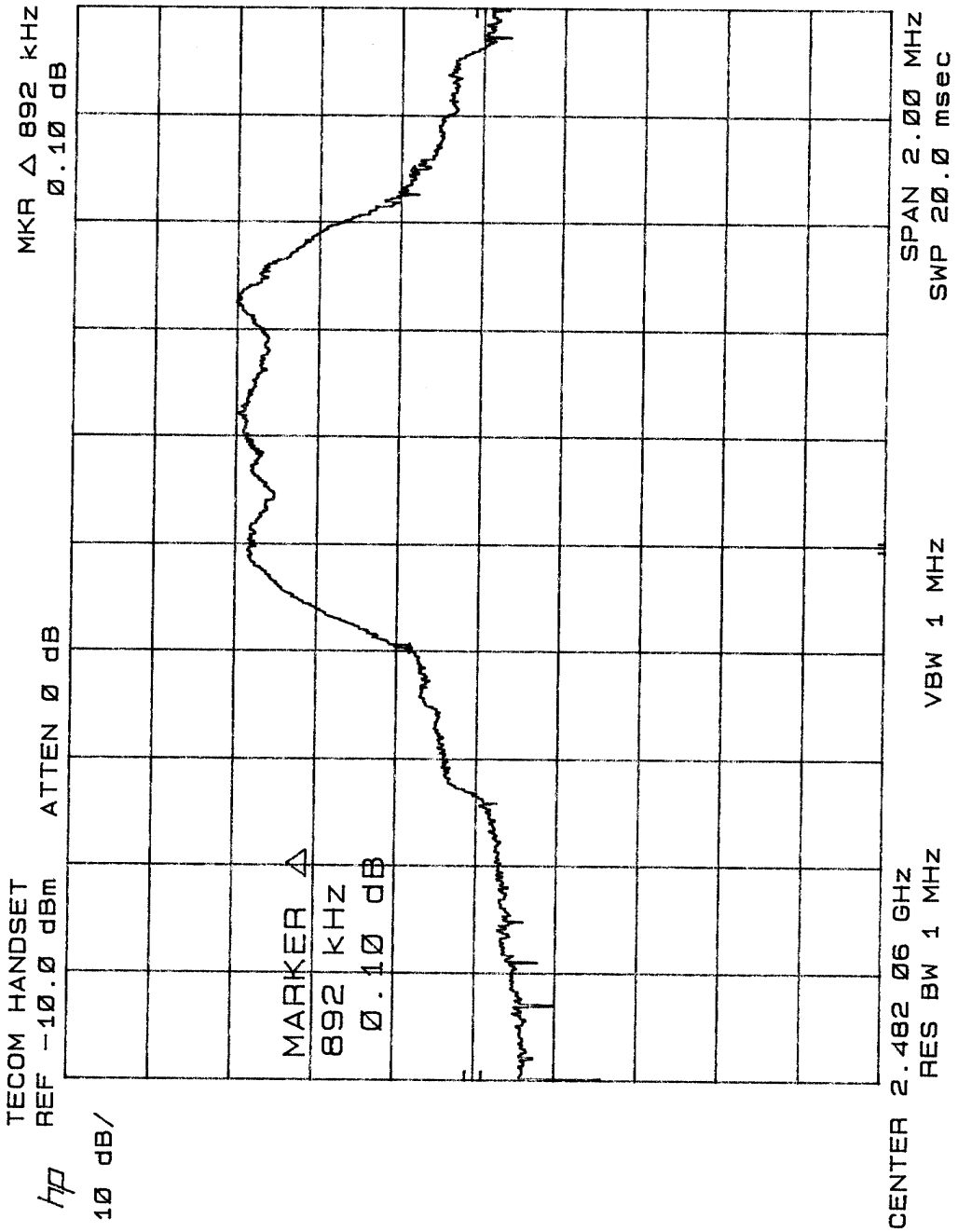
HANDSET

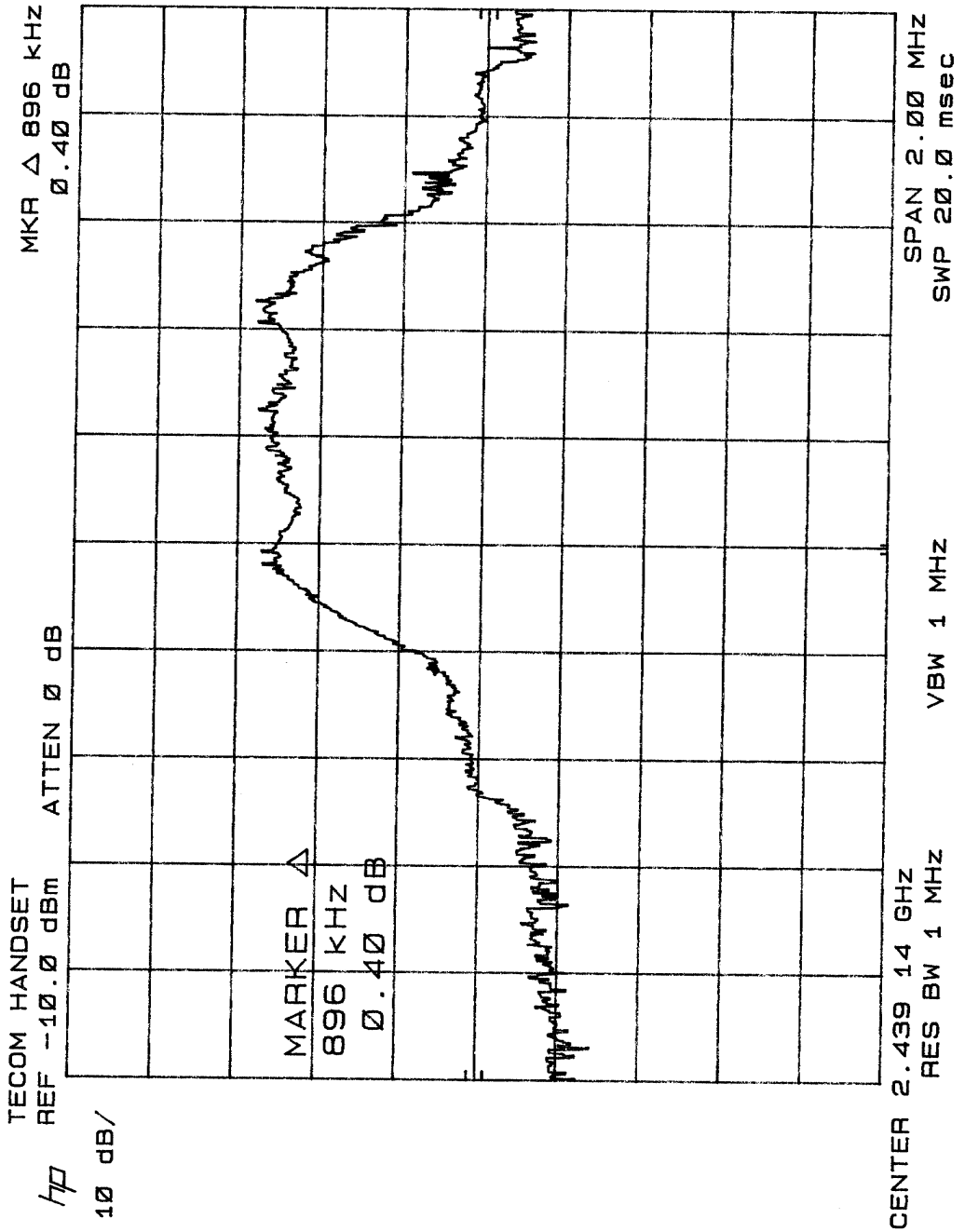
Hopping Channel Bandwidth	
Low Channel	Page 28
Middle Channel	Page 27
High Channel	Page 26

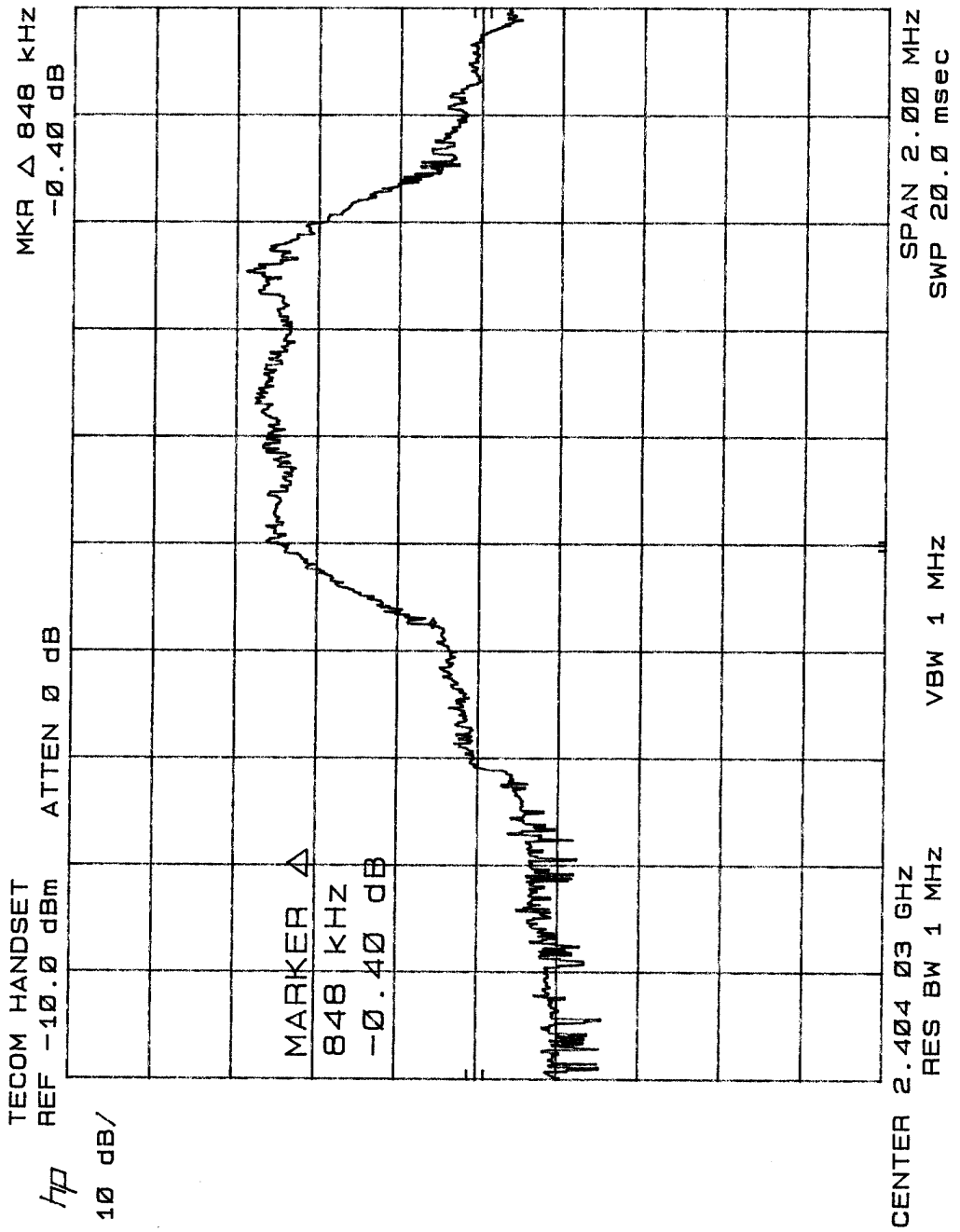

MKR Δ 868 kHz
0.10 dB
TECOM MF-3770 (BASE)
REF 30.0 dBm ATTEN 40 dB
10 dB/
MARKER Δ
868 kHz
0.10 dB
SPAN 2.00 MHz
SWP 20.0 msec
VBW 1 MHz
CENTER 2.404 16 GHz
RES BW 1 MHz


TECOM MF-3770 (BASE)
REF 30.0 dBm ATTEN 40 dB
10 dB/
MKR Δ 852 kHz
-0.40 dB
MARKER Δ
852 kHz
-0.40 dB
CENTER 2.439 01 GHz
RES BW 1 MHz
VBW 1 MHz
SPAN 2.00 MHz
SWP 20.0 msec


MKR Δ 880 kHz
0.00 dB
TECOM MF-3770 (BASE)
REF 30.0 dBm ATTEN 40 dB
10 dB/
MARKER Δ
880 kHz
0.00 dB
CENTER 2.481 99 GHz
RES BW 1 MHz
VBW 1 MHz
SPAN 2.00 MHz
SWP 20.0 msec


MKR Δ 892 kHz
Ø.1Ø dB
TECOM HANDSET
REF −1Ø.Ø dBm
ATTEN Ø dB
10 dB/
MARKER Δ
892 kHz
Ø.1Ø dB
SPAN 2.ØØ MHz
SWP 2Ø.Ø msec
VBW 1 MHz
CENTER 2.482 Ø6 GHz
RES BW 1 MHz


TECOM HANDSET
REF -10.0 dBm
ATTEN 0 dB
MKR Δ 896 kHz
0.40 dB
10 dB/
MARKER Δ
896 kHz
0.40 dB
CENTER 2.439 14 GHz
RES BW 1 MHz
VBW 1 MHz
SPAN 2.00 MHz
SWP 20.0 msec


MKR Δ 848 kHz
-Ø.4Ø dB
TECOM HANDSET
REF -1Ø.Ø dBm
ATTEN Ø dB
10 dB/
MARKER Δ
848 kHz
-Ø.4Ø dB
SPAN 2.ØØ MHz
SWP 2Ø.Ø msec
VBW 1 MHz
CENTER 2.4Ø4 ØØ GHz
RES BW 1 MHz

6 - NUMBER OF HOPPING FREQUENCY USED

6.1 Standard Applicable

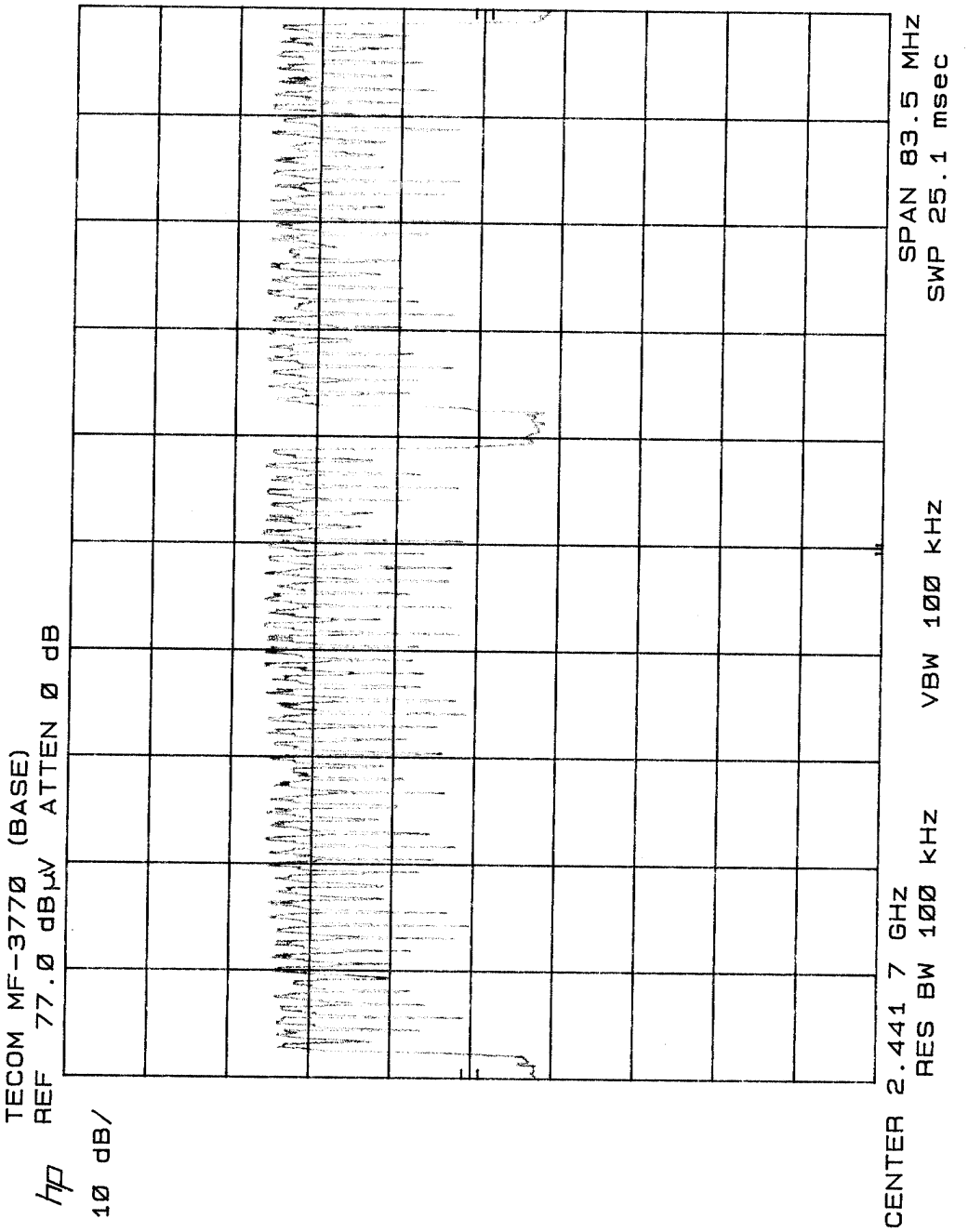
According to §15.247(a)(1)(ii), for frequency hopping system operating in the 2400-2483.5 MHz and *5725-5850* MHz bands shall use at least 75 hopping frequencies.

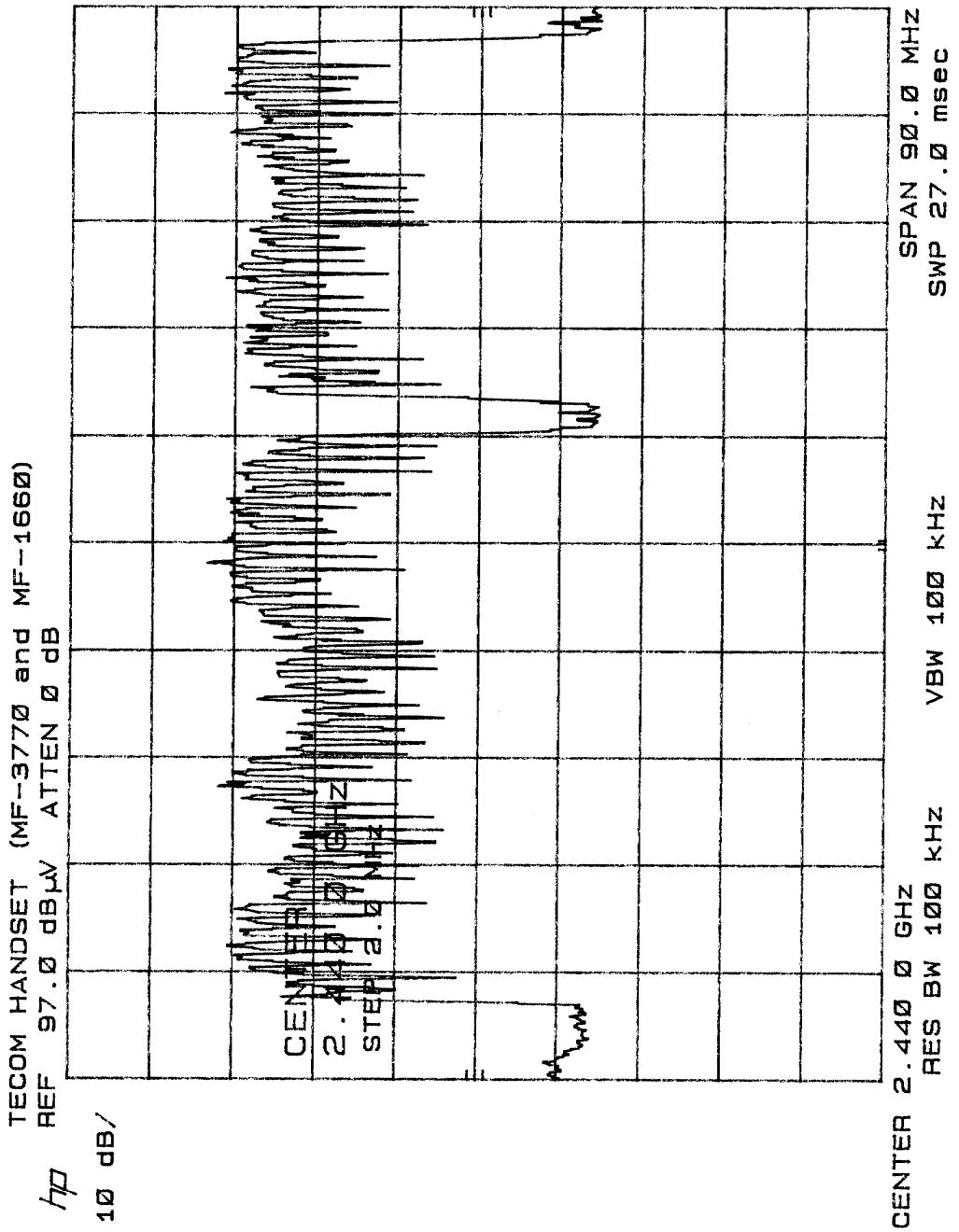
6.2 Measurement Procedure

1. Check the calibration of the measuring instrument (SA) using either an internal calibrator or a known signal from an external generator.
2. Position the EUT as shown in figure 4 without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set the SA on Max-Hold Mode, and then keep the EUT in hopping mode. Record all the signals from each channel until each one has been recorded.
4. Set the SA on View mode and then plot the result on SA screen.
5. Repeat above procedures until all frequencies measured were complete.

6.3 Measurement Procedure

There were 75 hopping frequencies in a hopping sequence.


TECOM MF-3770 (BASE)
REF 77.0 dBµV ATTEN 0 dB
10 dB/
CENTER 2.441 7 GHz
RES BW 100 kHz
VBW 100 kHz
SPAN 83.5 MHz
SWP 25.1 msec


TECOM HANDSET (MF-3770 and MF-1660)
REF 97.0 dBµV ATTEN 0 dB
10 dB/
CENTER 2.440 0 GHz
STEP 2.0 MHz
CENTER 2.440 0 GHz
RES BW 100 kHz
VBW 100 kHz
SPAN 90.0 MHz
SWP 27.0 msec

7 - HOPPING CHANNEL SEPARATION

7.1 Standard Applicable

According to §15.247(a)(1), frequency hopping system shall have, hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

7.2 Measurement Procedure

1. Check the calibration of the measuring instrument (SA) using either an internal calibrator or a known signal from an external generator.
2. Position the EUT as shown in figure 4 without connection to measurement instrument Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range.
3. By using the Max-Hold function record the separation of two adjacent channels.
4. Measure the frequency difference of these two adjacent channels by SA MARK function, and then plot the result on SA screen.
5. Repeat above procedures until all frequencies measured were complete.

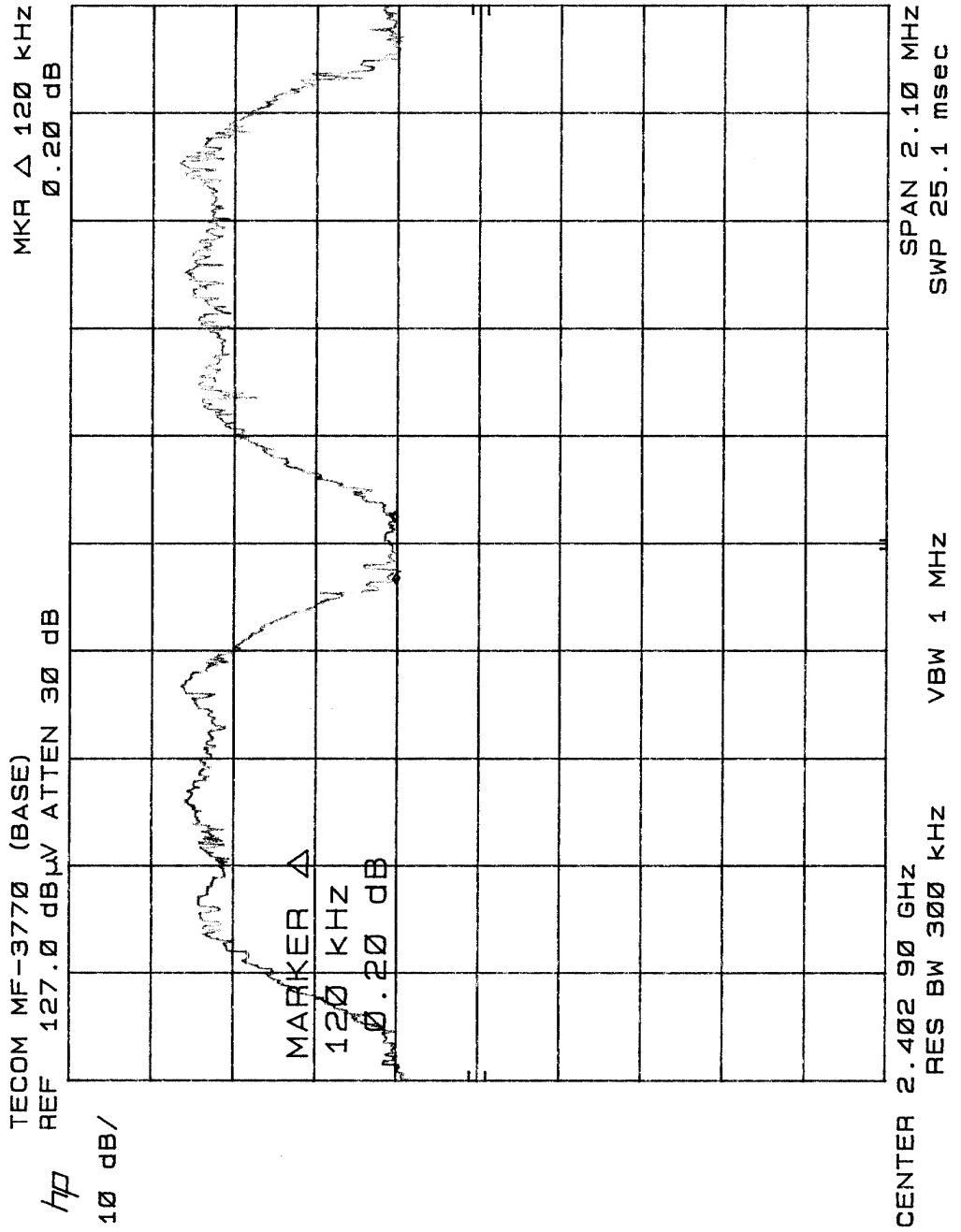
Figure 4: Emission bandwidth measurement configuration.

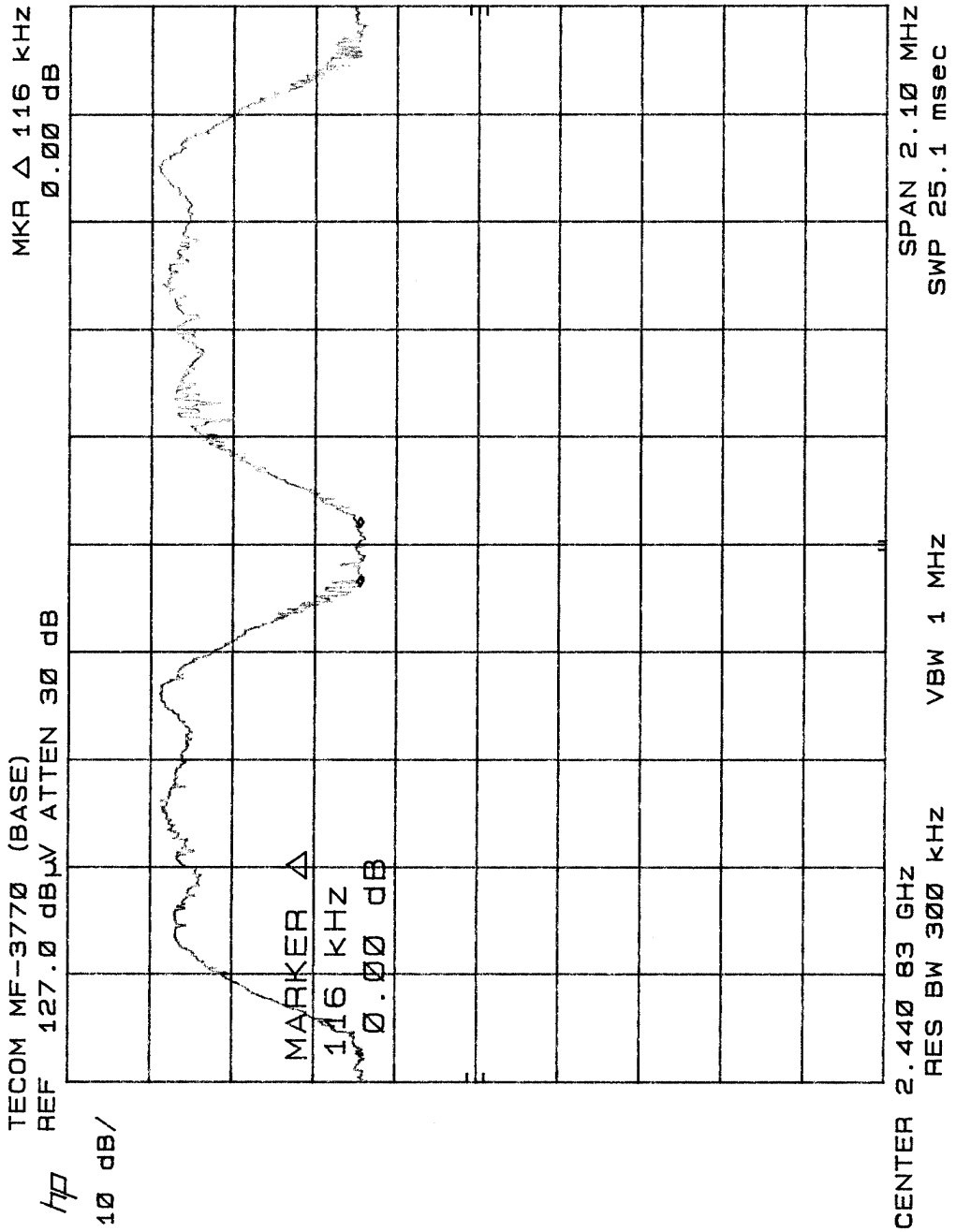
7.3 Test Results

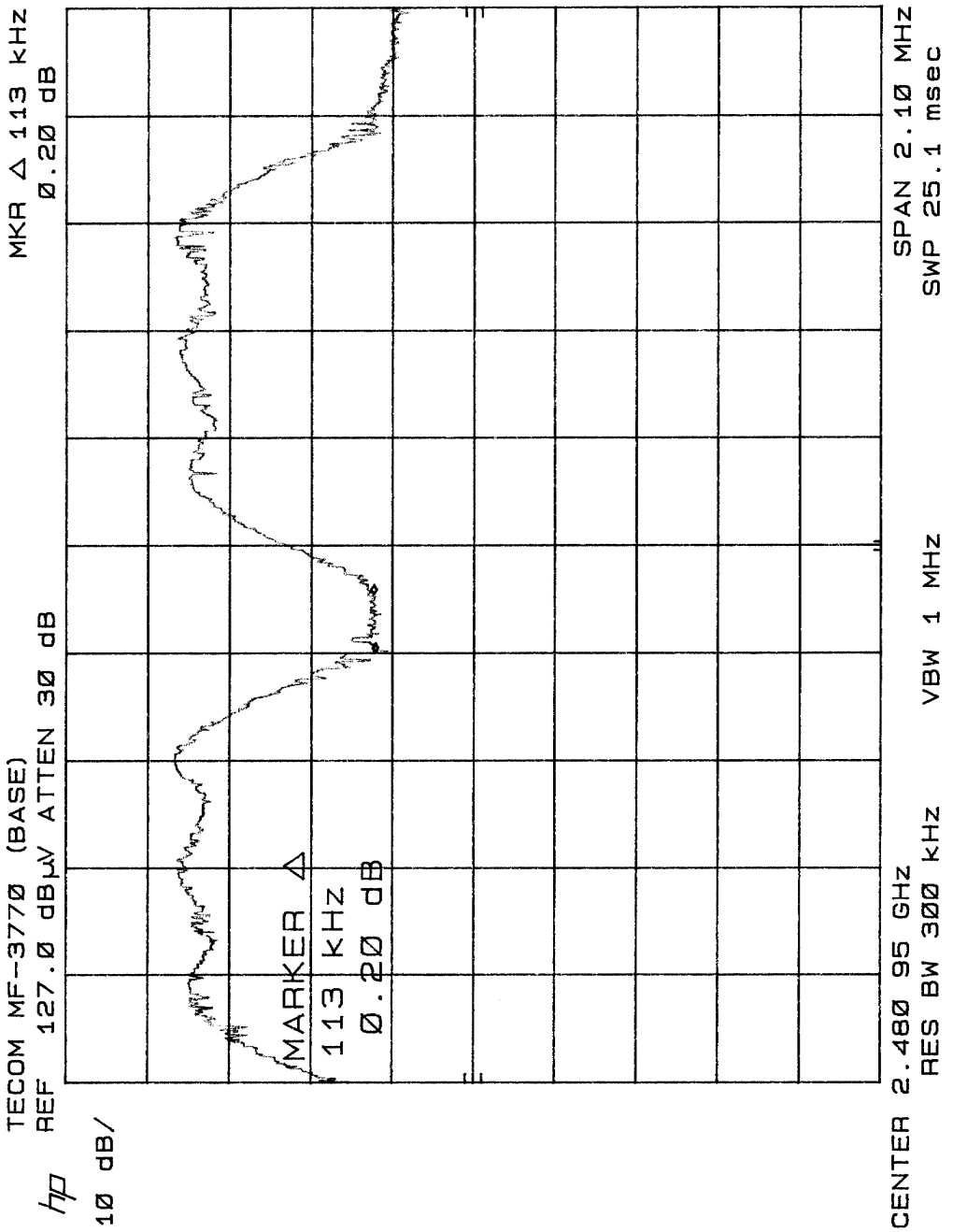
Refer to the attached Plots

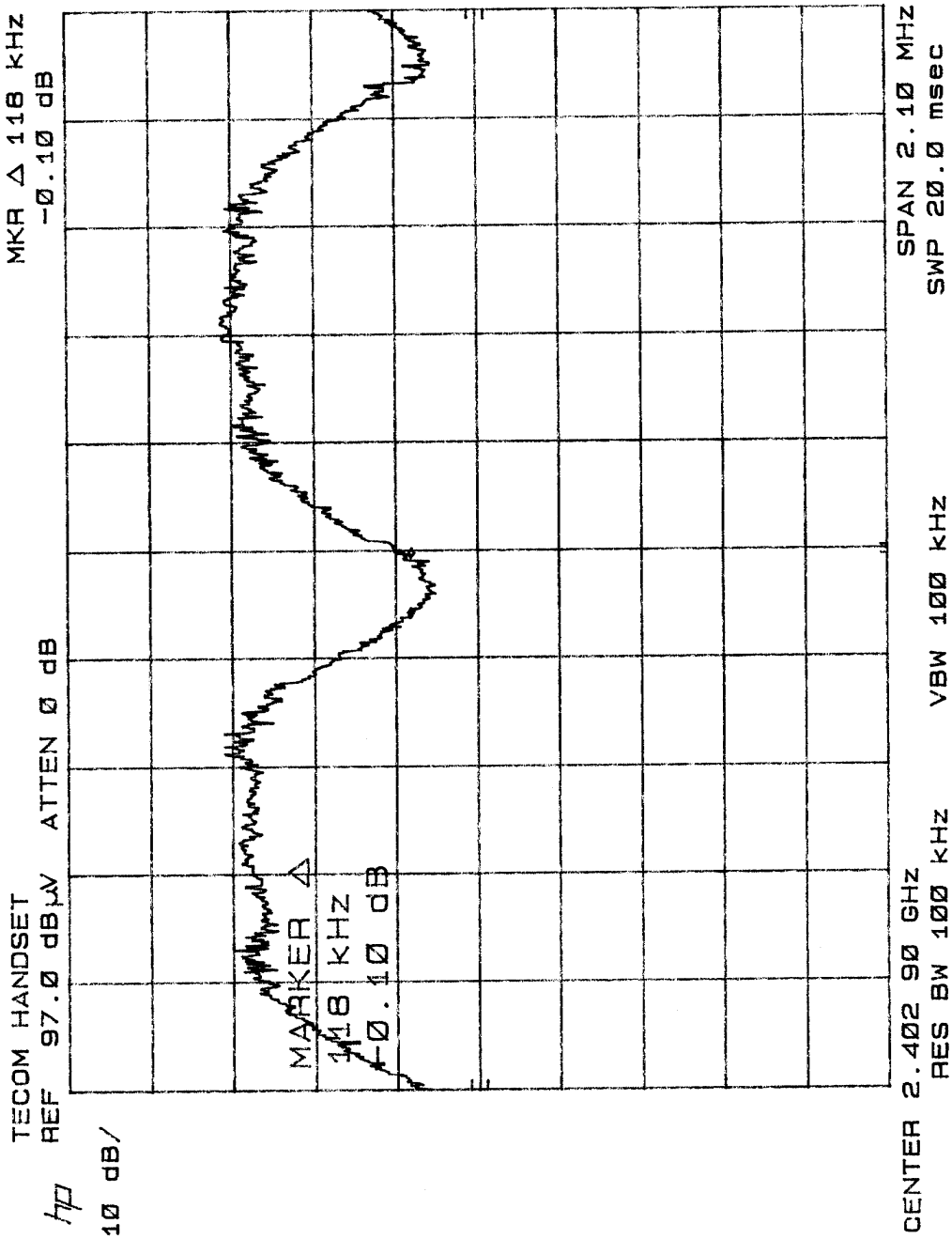
BASE

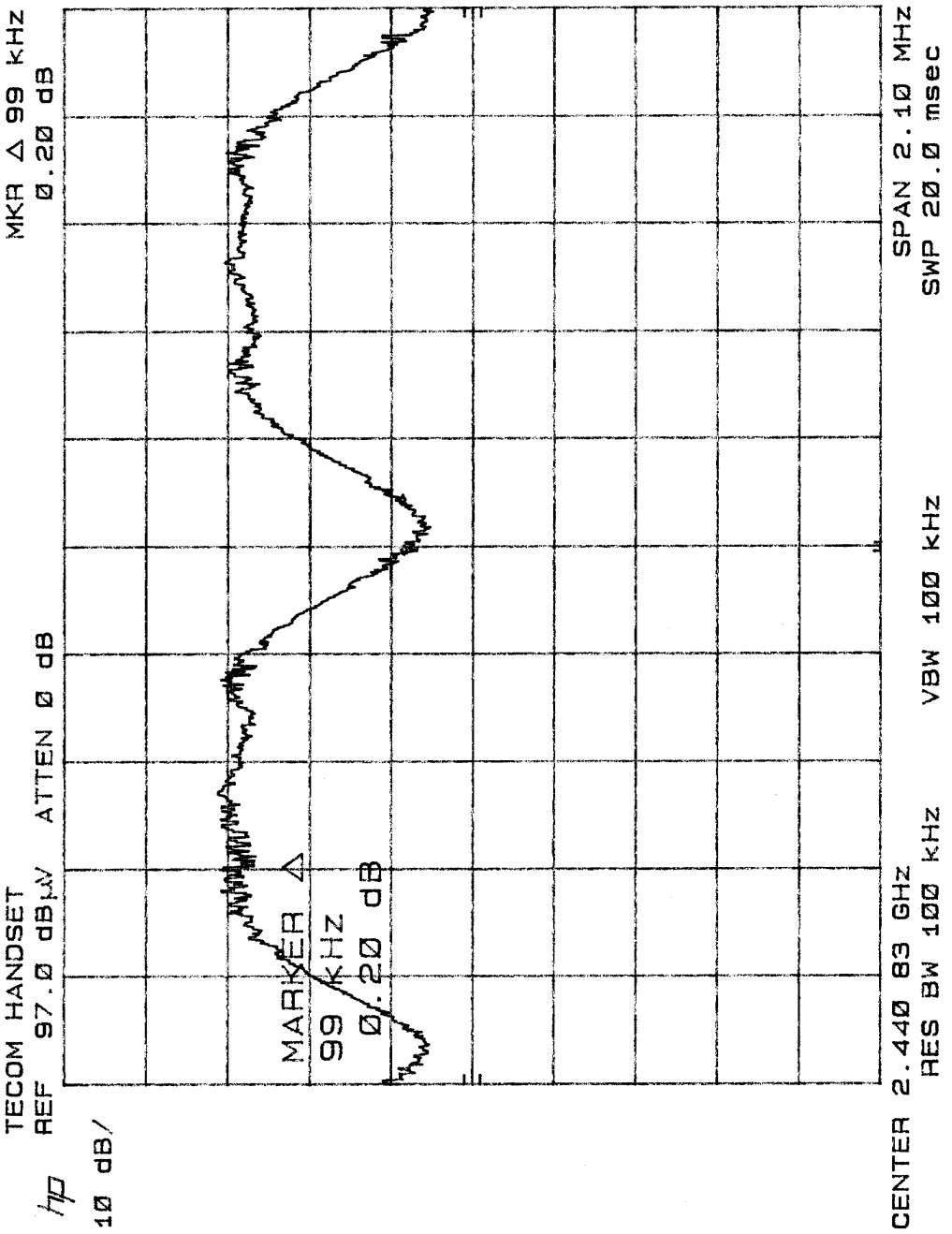
HANDSET

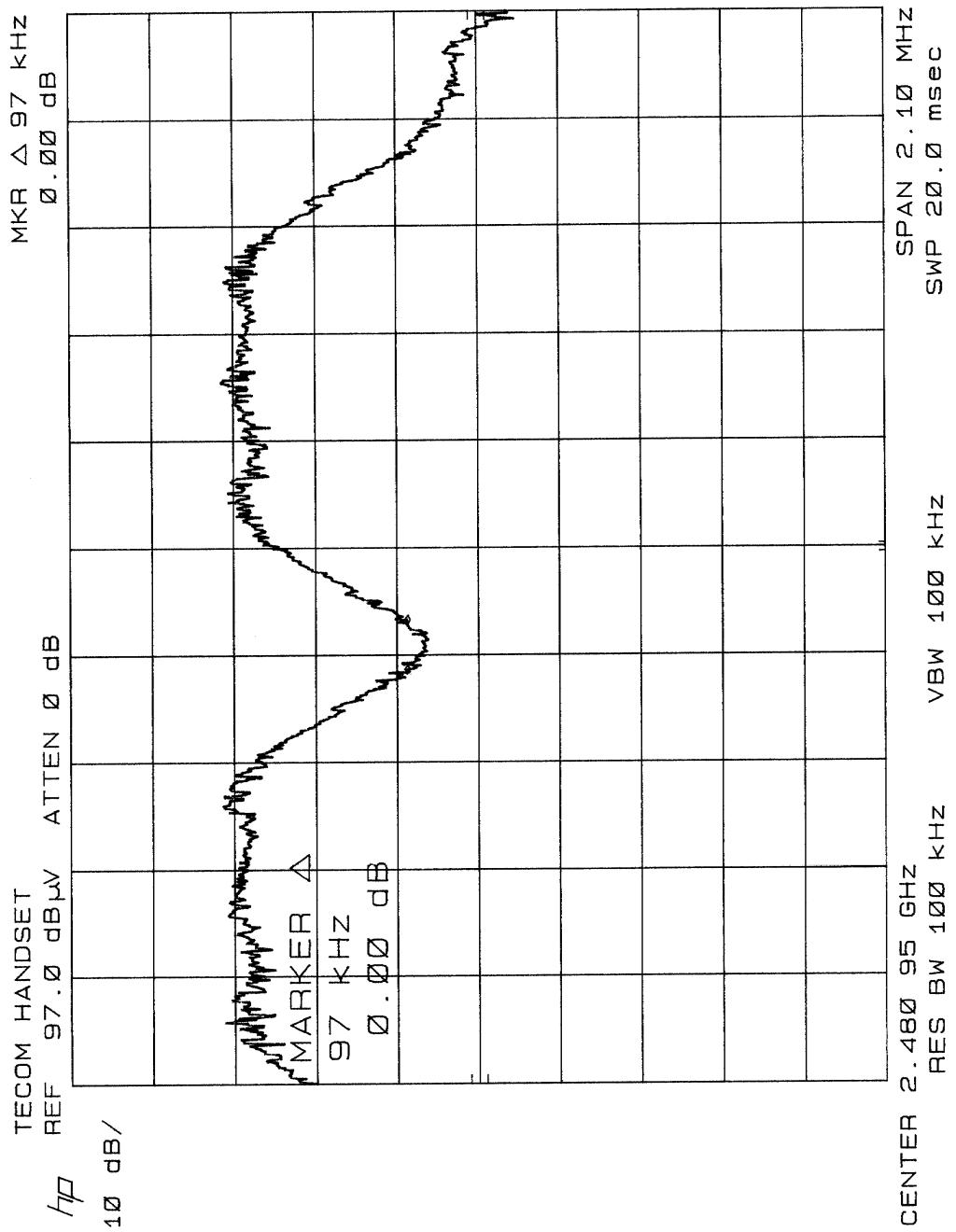

TECOM MF-3770 (BASE)
REF 127.0 dBµV ATTEN 30 dB
10 dB/
MKR Δ 120 kHz
0.20 dB
MARKER Δ
120 kHz
0.20 dB
CENTER 2.402 90 GHz
RES BW 300 kHz
VBW 1 MHz
SPAN 2.10 MHz
SWP 25.1 msec


TECOM MF-3770 (BASE)
REF 127.0 dBµV ATTEN 30 dB
10 dB/
MKR Δ 116 kHz
0.00 dB
MARKER Δ
116 kHz
0.00 dB
CENTER 2.440 83 GHz
RES BW 300 kHz
VBW 1 MHz
SPAN 2.10 MHz
SWP 25.1 msec


TECOM MF-3770 (BASE)
REF 127.0 dBµV ATTEN 30 dB
10 dB/
MARKER Δ
113 kHz
0.20 dB
MKR Δ 113 kHz
0.20 dB
CENTER 2.480 95 GHz
RES BW 300 kHz
VBW 1 MHz
SPAN 2.10 MHz
SWP 25.1 msec


MKR Δ 118 kHz
-0.10 dB
TECOM HANDSET
REF 97.0 dBµV ATTEN 0 dB
10 dB/
MARKER Δ
118 kHz
-0.10 dB
SPAN 2.10 MHz
SWP 20.0 msec
VBW 100 kHz
CENTER 2.402 90 GHz
RES BW 100 kHz


MKR Δ 99 kHz
0.20 dB
TECOM HANDSET
REF 97.0 dBµV ATTEN 0 dB
10 dB/
MARKER Δ
99 kHz
0.20 dB
CENTER 2.440 83 GHz
RES BW 100 kHz
VBW 100 kHz
SPAN 2.10 MHz
SWP 20.0 msec


TECOM HANDSET
REF 97.0 dBµV ATTEN 0 dB
10 dB/
MKR Δ 97 kHz
0.00 dB
MARKER Δ
97 kHz
0.00 dB
CENTER 2.480 95 GHz
RES BW 100 kHz
VBW 100 kHz
SPAN 2.10 MHz
SWP 20.0 msec

8 - 100 kHz BANDWIDTH OF BAND EDGES MEASUREMENT

8.1 Standard Applicable

According to §15.247(c), if *any* 100 kHz bandwidth outside these frequency bands, the radio frequency power that is produced by the modulation products of the spreading sequence, the information sequence and the carrier frequency shall be either at least 20 dB below that in any 100 kHz bandwidth within the band that contains the highest level of the desired power or shall not exceed the general levels specified in § 15.209(a), whichever results in the lesser attenuation.

8.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT as shown in figure 4 without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set both RBW and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

8.3 Test Results

a) Lower Band Edge: All emissions in this 100kHz bandwidth are attenuated more than *20* dB from the carrier.

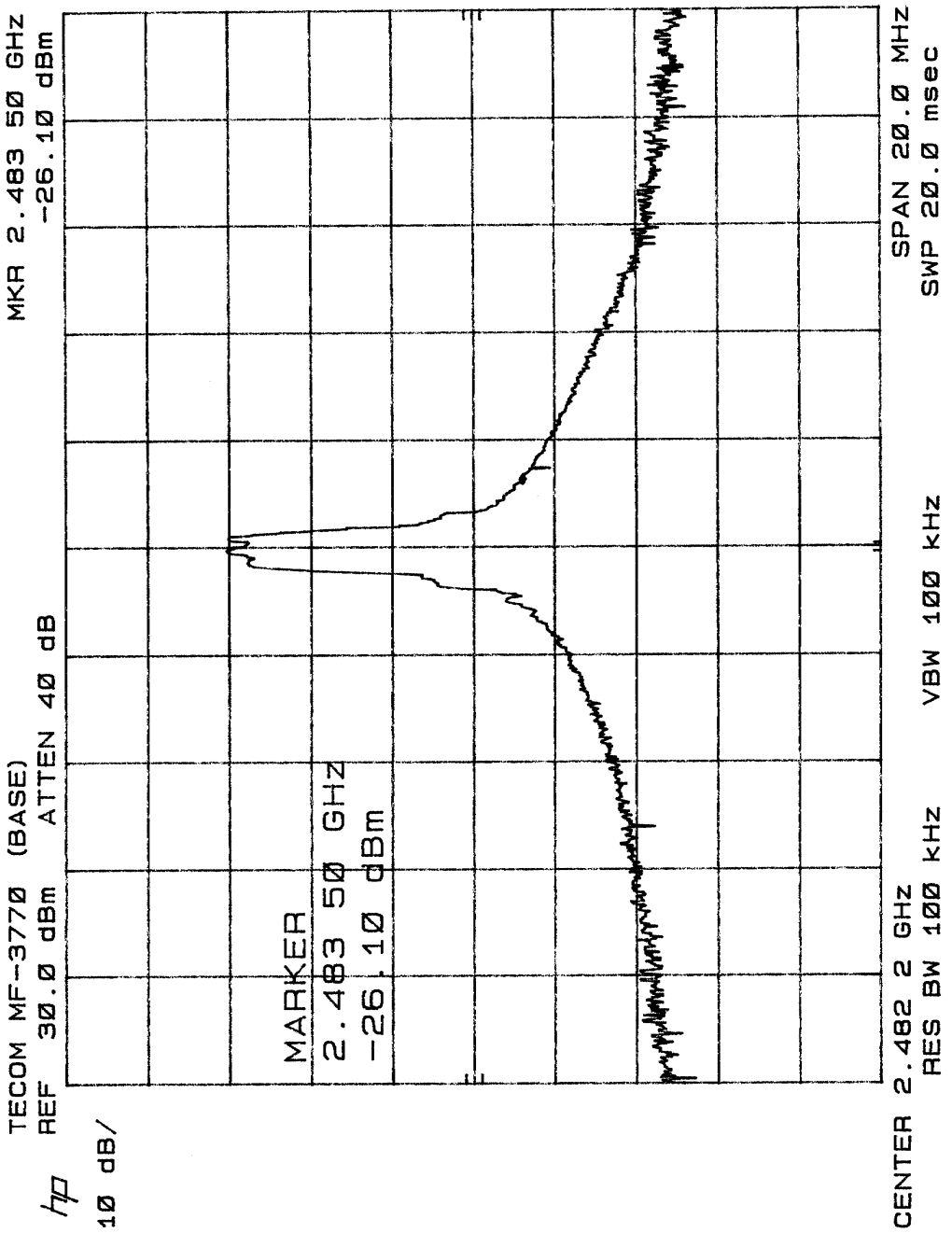
b) Upper Band Edge: All emissions in this 100kHz bandwidth are attenuated more than 20 dB from the carrier.

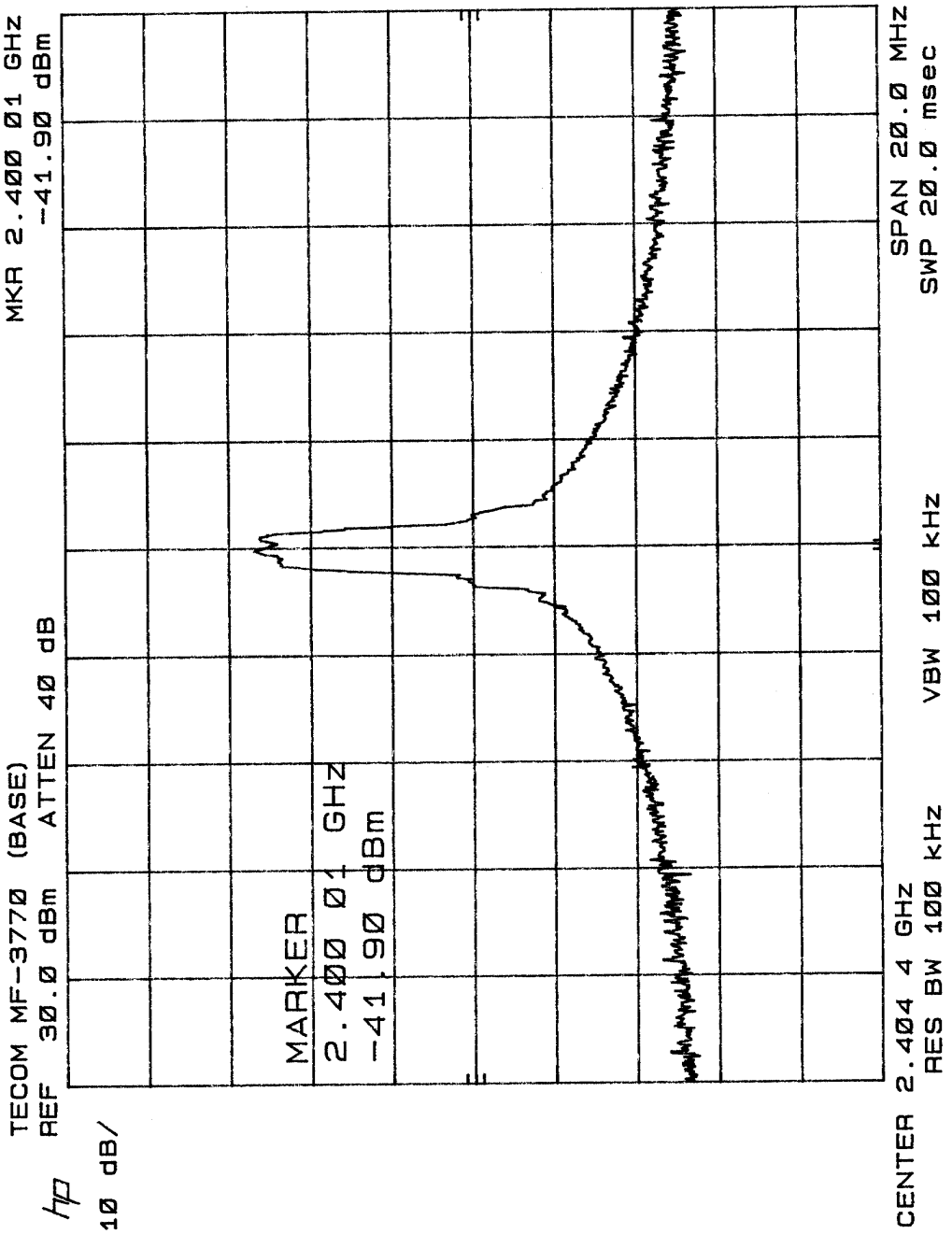
BASE

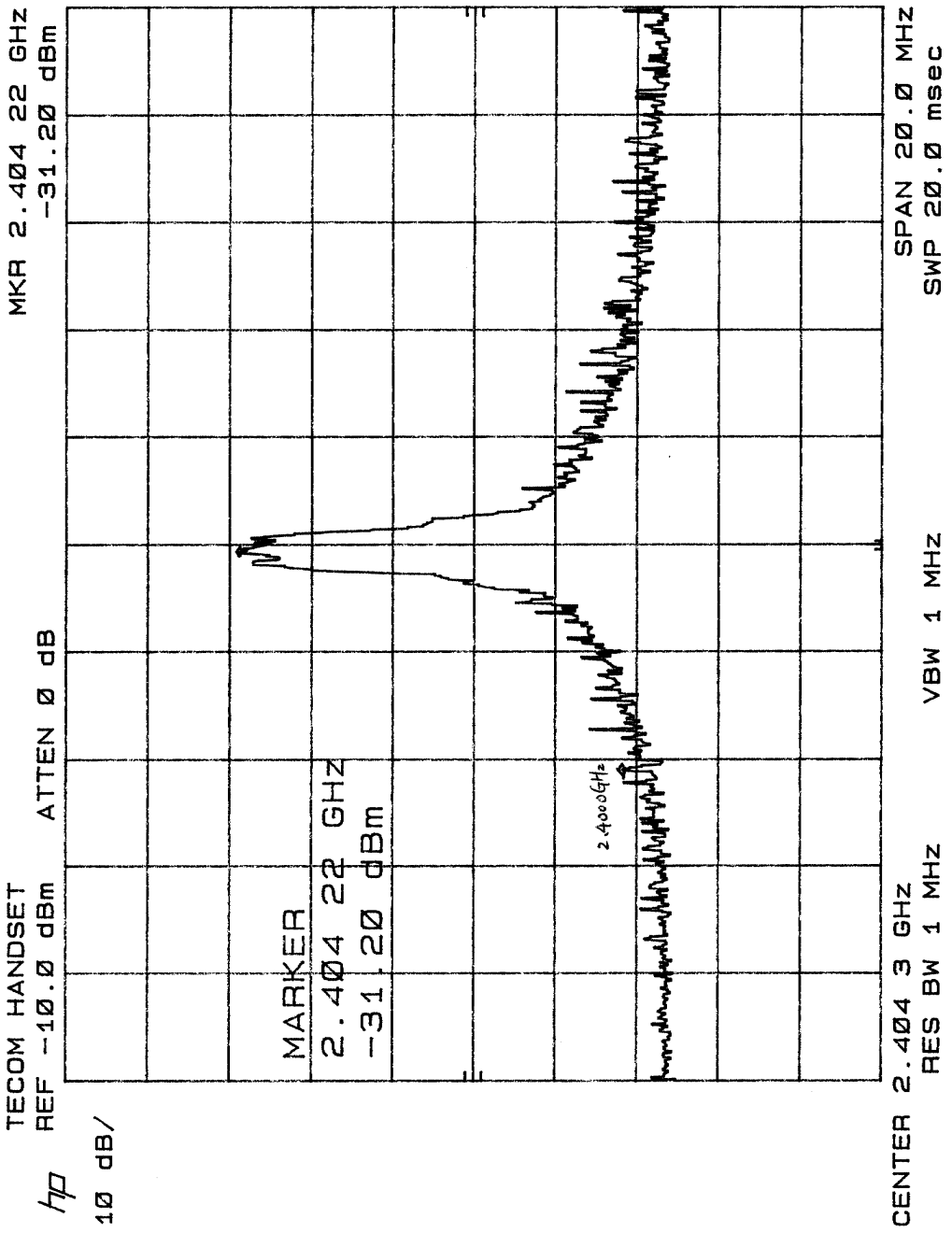
Band Edge	
Low Channel	Page 42
High Channel	Page 41

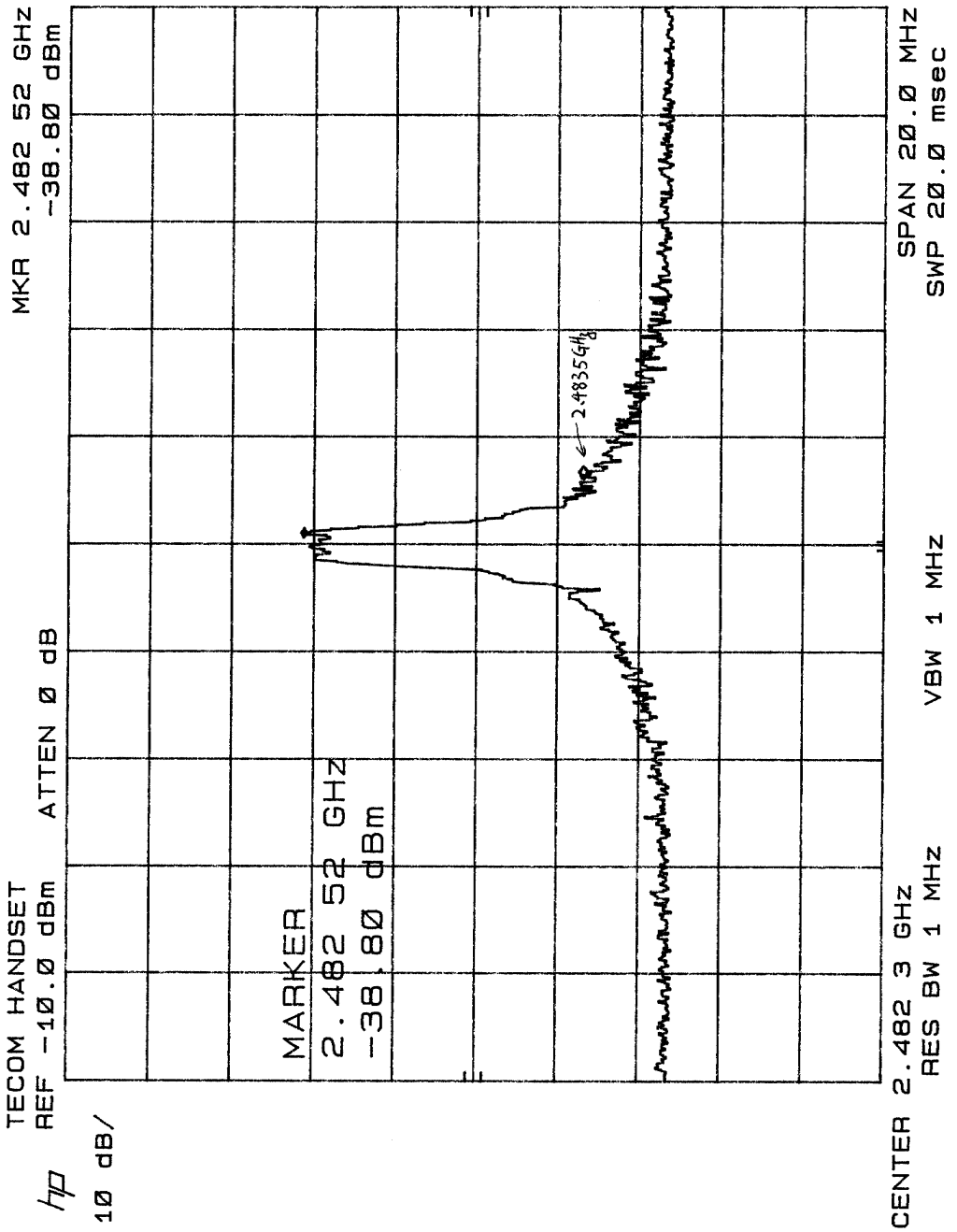
HANDSET

Band Edge	
Low Channel	Page 43
High Channel	Page 44


TECOM MF-3770 (BASE)
REF 30.0 dBm
ATTEN 40 dB
10 dB/
MKR 2.483 50 GHz
-26.10 dBm
MARKER
2.483 50 GHz
-26.10 dBm
CENTER 2.482 2 GHz
RES BW 100 kHz
VBW 100 kHz
SPAN 20.0 MHz
SWP 20.0 msec


MKR 2.400 01 GHz
-41.90 dBm
TECOM MF-3770 (BASE)
REF 30.0 dBm ATTEN 40 dB
10 dB/
MARKER
2.400 01 GHz
-41.90 dBm
SPAN 20.0 MHz
SWP 20.0 msec
VBW 100 kHz
CENTER 2.404 4 GHz
RES BW 100 kHz


TECOM HANDSET
REF -10.0 dBm
ATTEN 0 dB
10 dB/
MKR 2.404 22 GHz
-31.20 dBm
MARKER
2.404 22 GHz
-31.20 dBm
2.4000GHz
CENTER 2.404 3 GHz
RES BW 1 MHz
VBW 1 MHz
SPAN 20.0 MHz
SWP 20.0 msec


TECOM HANDSET
REF -10.0 dBm
ATTEN 0 dB
10 dB/
MKR 2.482 52 GHz
-38.80 dBm
MARKER
2.482 52 GHz
-38.80 dBm
2.483547
CENTER 2.482 3 GHz
RES BW 1 MHz
VBW 1 MHz
SPAN 20.0 MHz
SWP 20.0 msec

9 - DWELL TIME ON EACH CHANNEL

9.1 Standard Applicable

According to §15.247 (a)(1)(ii), for frequency hopping system operating in the 2400-2483.5 MHz and 5725 – 5850 MHz bands, the average time of occupancy on any frequency shall not be greater than 0.4 second within a 30-second period.

9.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT as shown in figure 4 without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Adjust the center frequency of SA on any frequency be measured and set SA to zero span mode. And then, set RBW and VBW of spectrum analyzer to proper value.
4. Measure the time duration of one transmission on the measured frequency. And then plot the result with time difference of this time duration.
5. Repeat above procedures until all frequencies measured were complete.

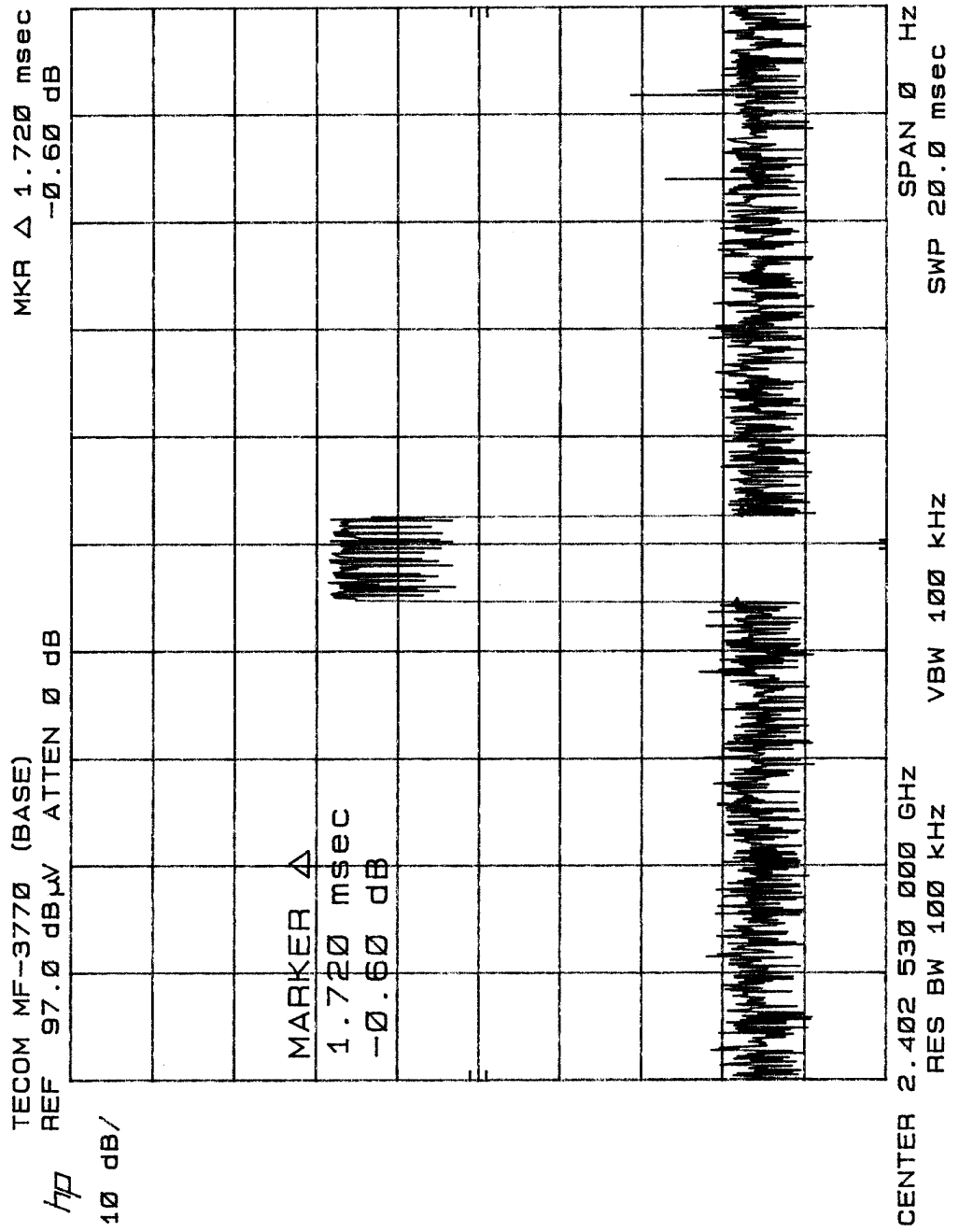
9.3 Test Results

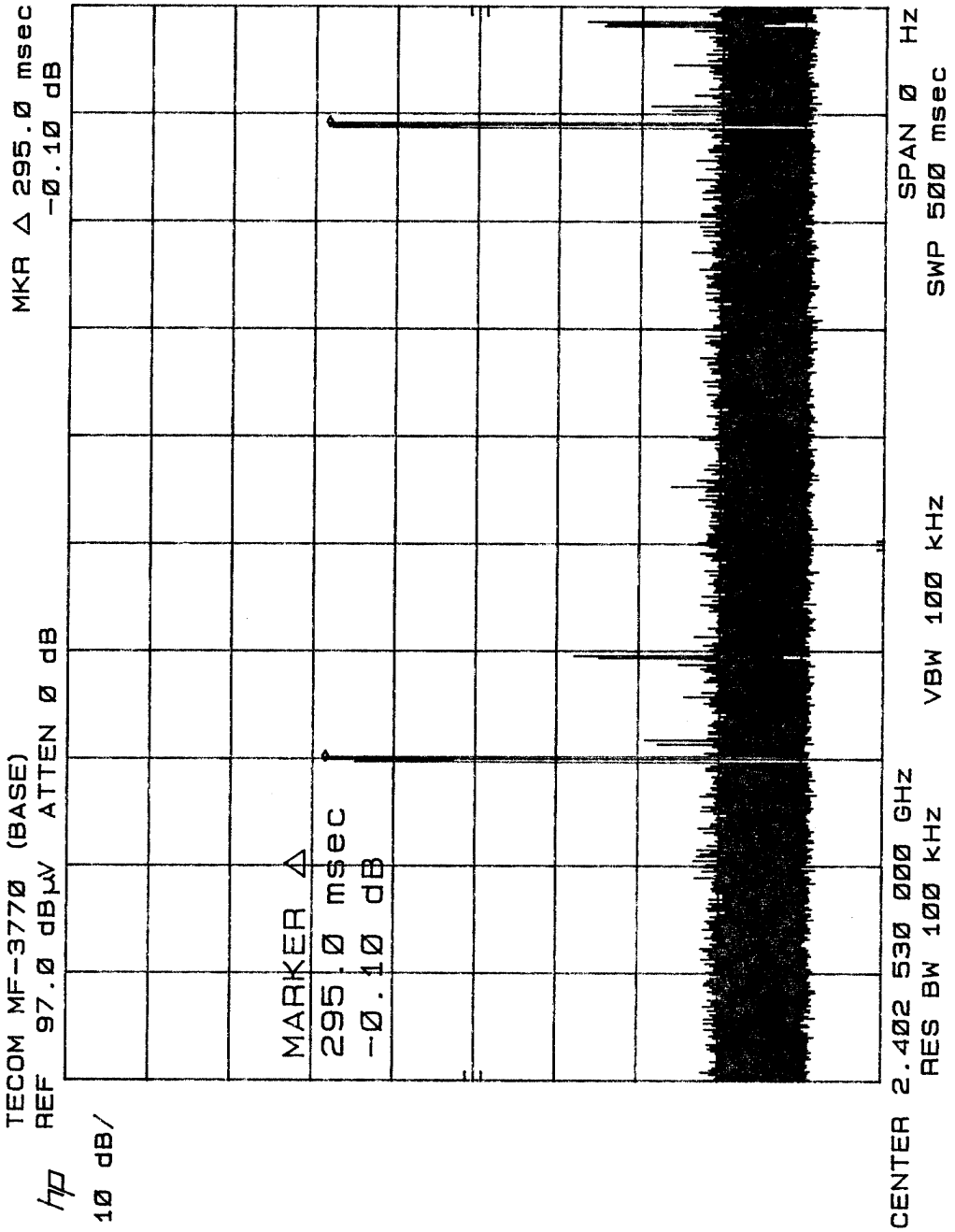
Please see the next page for summary.

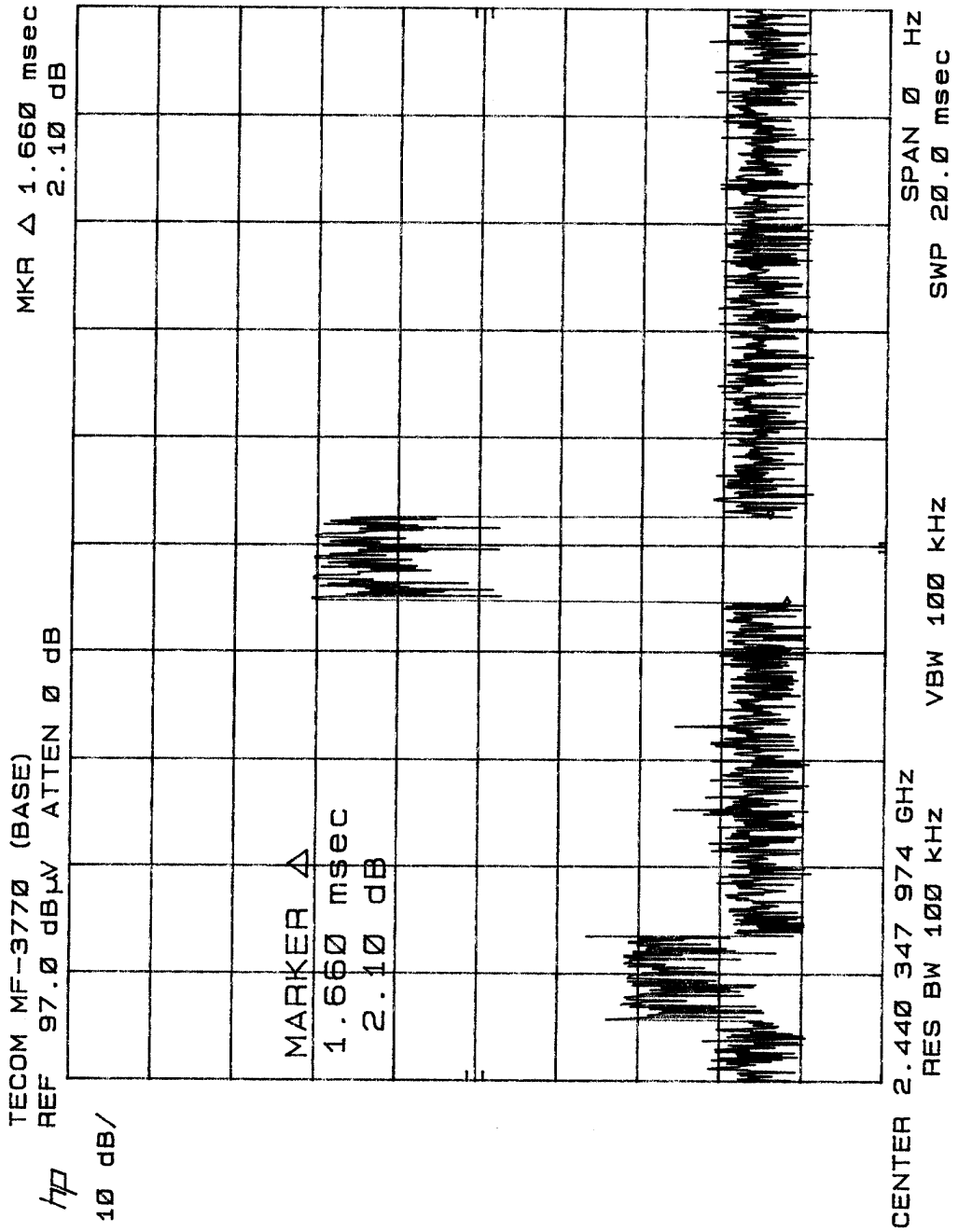
Base	**Low**	**206.4 ms**	Page 47, 48
	Middle	**199.2 ms**	Page 49, 50
	High	**204.0 ms**	Page 51, 52

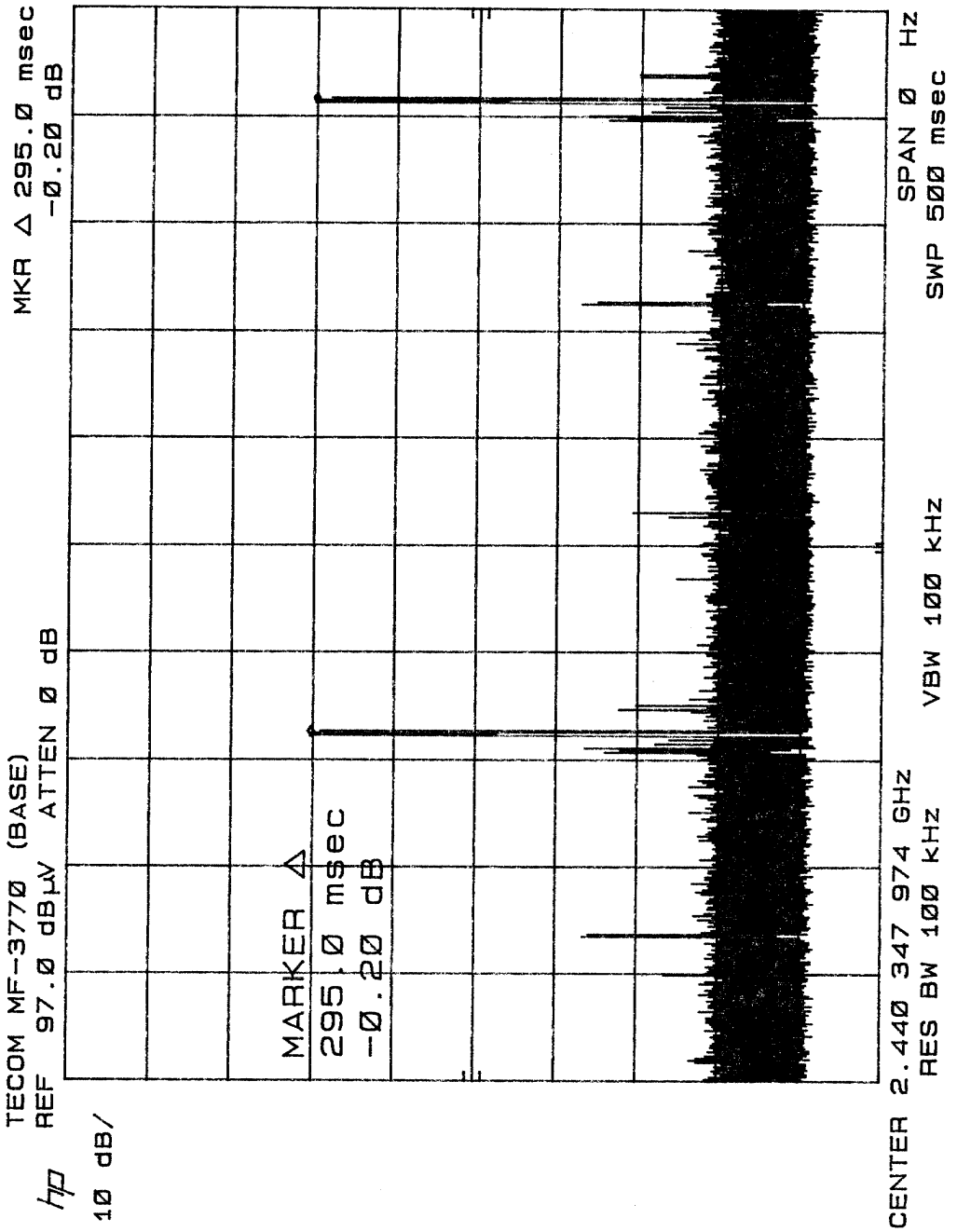
Handset	**Low**	**196.8 ms**	Page 53, 54
	Middle	**199.2 ms**	Page 55, 56
	High	**199.2 ms**	Page 57, 58

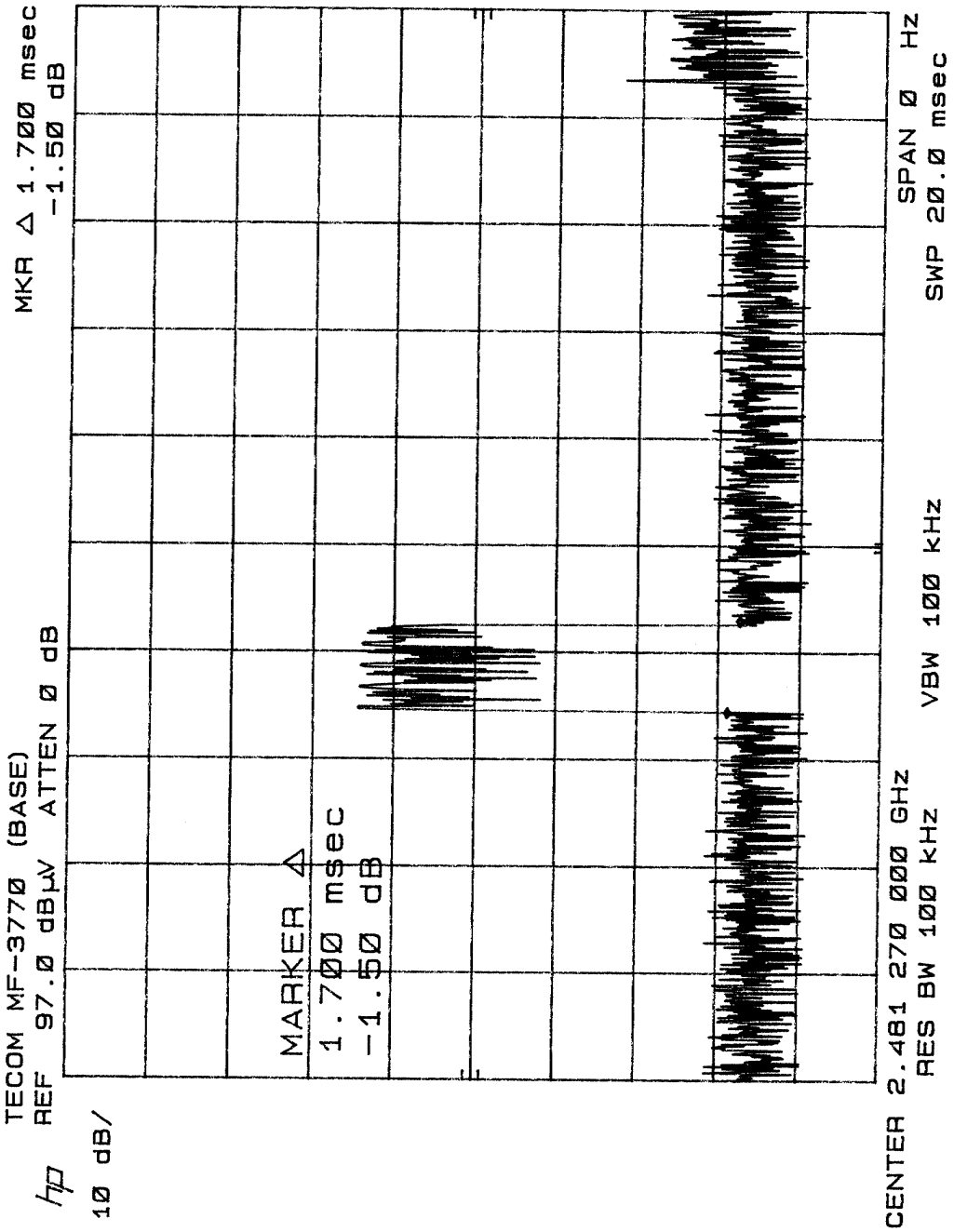
Explanation, in normal operation, there is 2 transmission per 500mS, and the duration is 1.72 ms per transmission. Therefore, the dwell time is 1.72 x 120 = 206.4 ms.

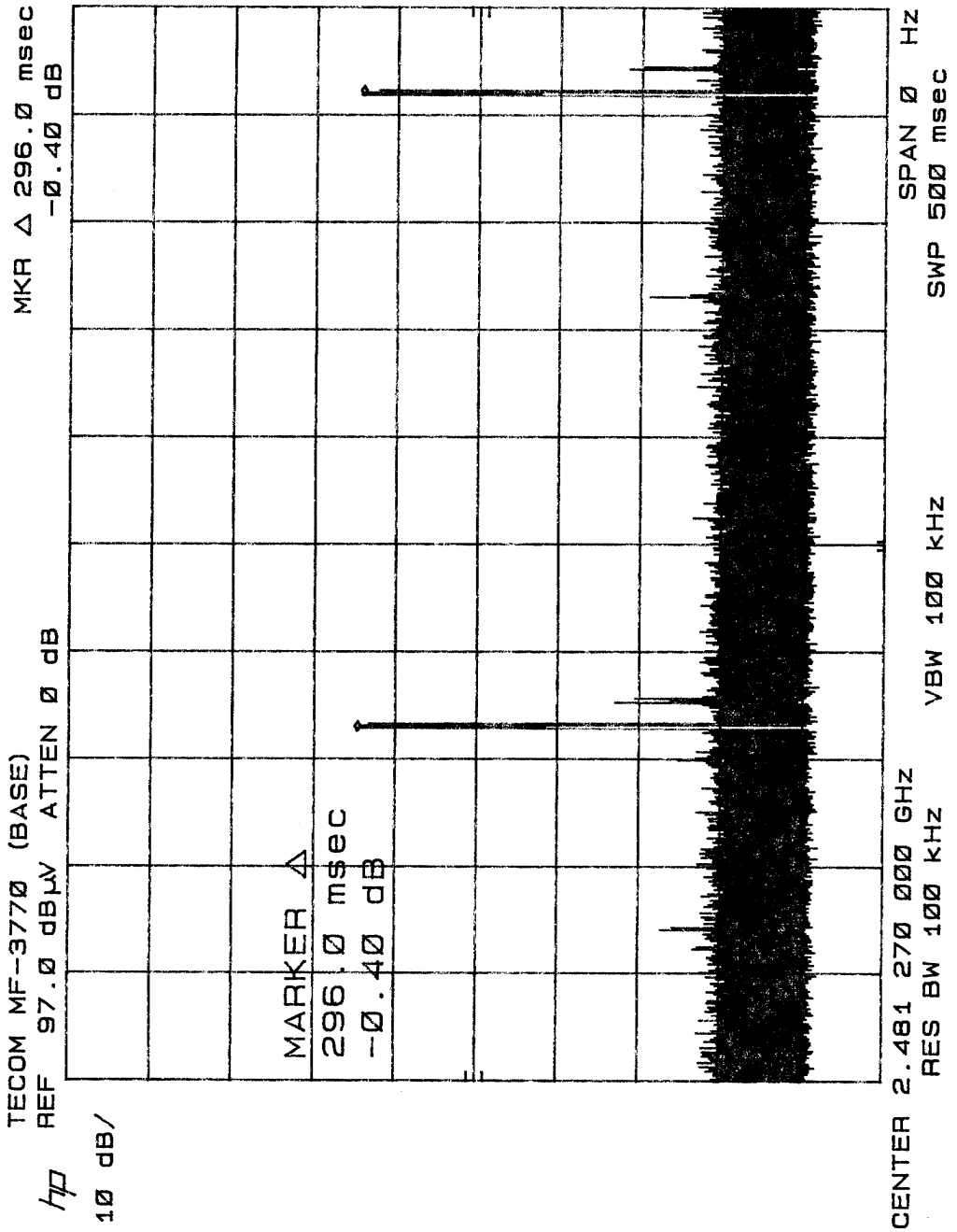

TECOM MF-3770 (BASE)
REF 97.0 dBµV ATTEN 0 dB
10 dB/
MKR Δ 1.720 msec
-0.60 dB
MARKER Δ
1.720 msec
-0.60 dB
CENTER 2.402 530 000 GHz
RES BW 100 kHz
VBW 100 kHz
SPAN 0 Hz
SWP 20.0 msec

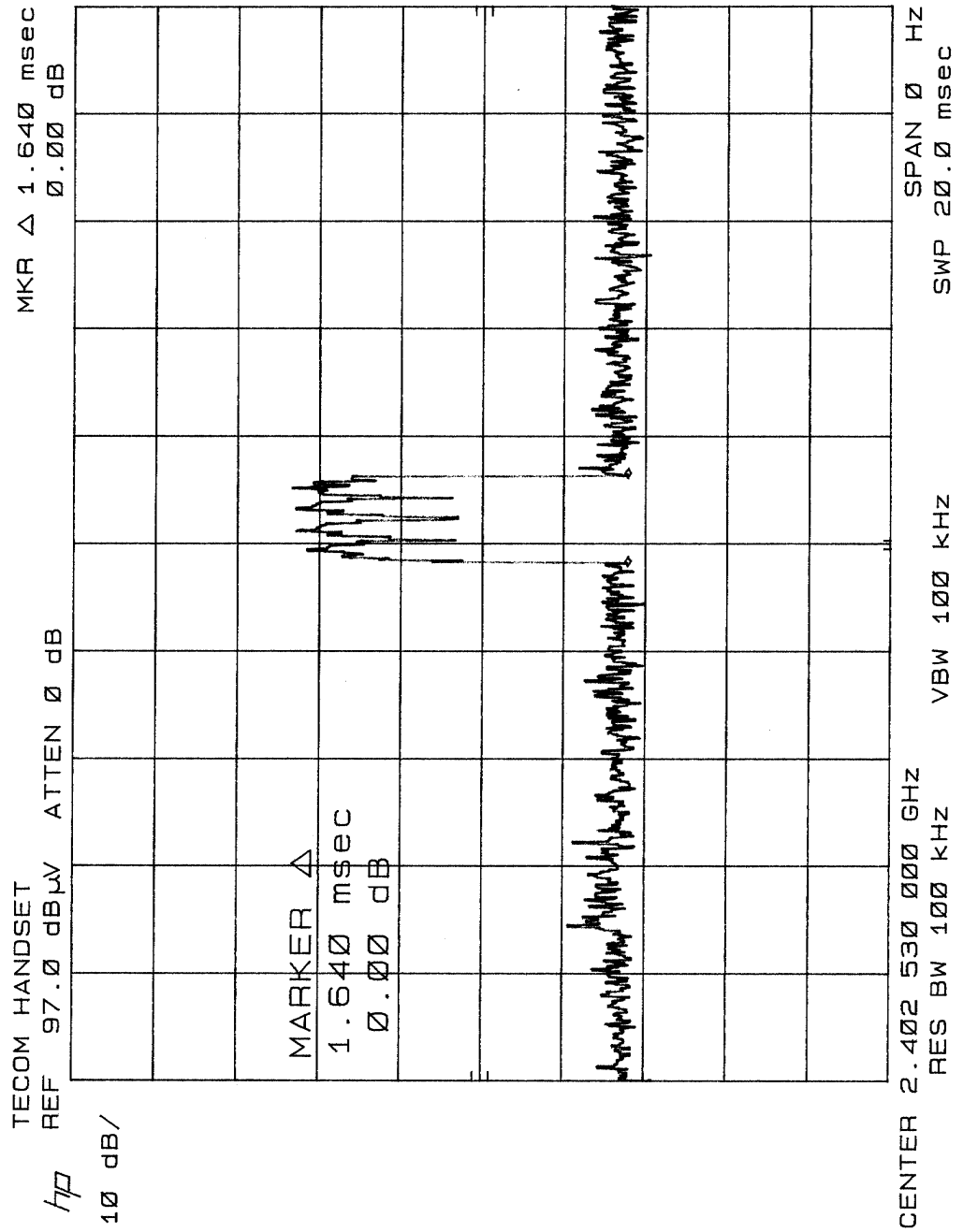

TECOM MF-3770 (BASE)
REF 97.0 dBµV ATTEN 0 dB
10 dB/
MKR Δ 295.0 msec
-0.10 dB
MARKER Δ
295.0 msec
-0.10 dB
CENTER 2.402 530 000 GHz
RES BW 100 kHz
VBW 100 kHz
SWP 500 msec
SPAN 0 Hz

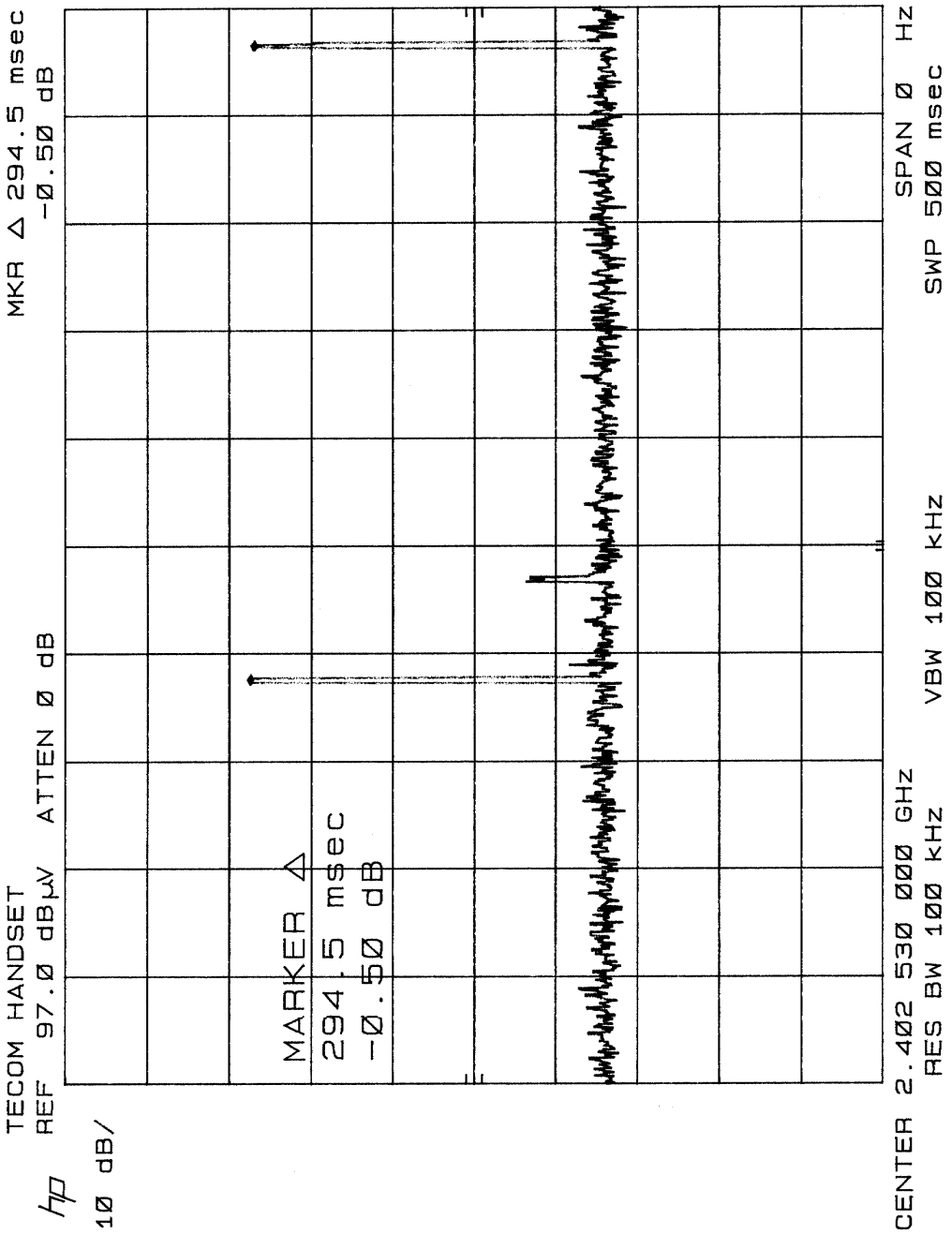

MKR Δ 1.660 msec
2.10 dB
TECOM MF-3770 (BASE)
REF 97.0 dBμV ATTEN 0 dB
10 dB/
MARKER Δ
1.660 msec
2.10 dB
CENTER 2.440 347 974 GHz
RES BW 100 kHz
VBW 100 kHz
SPAN 0 Hz
SWP 20.0 msec

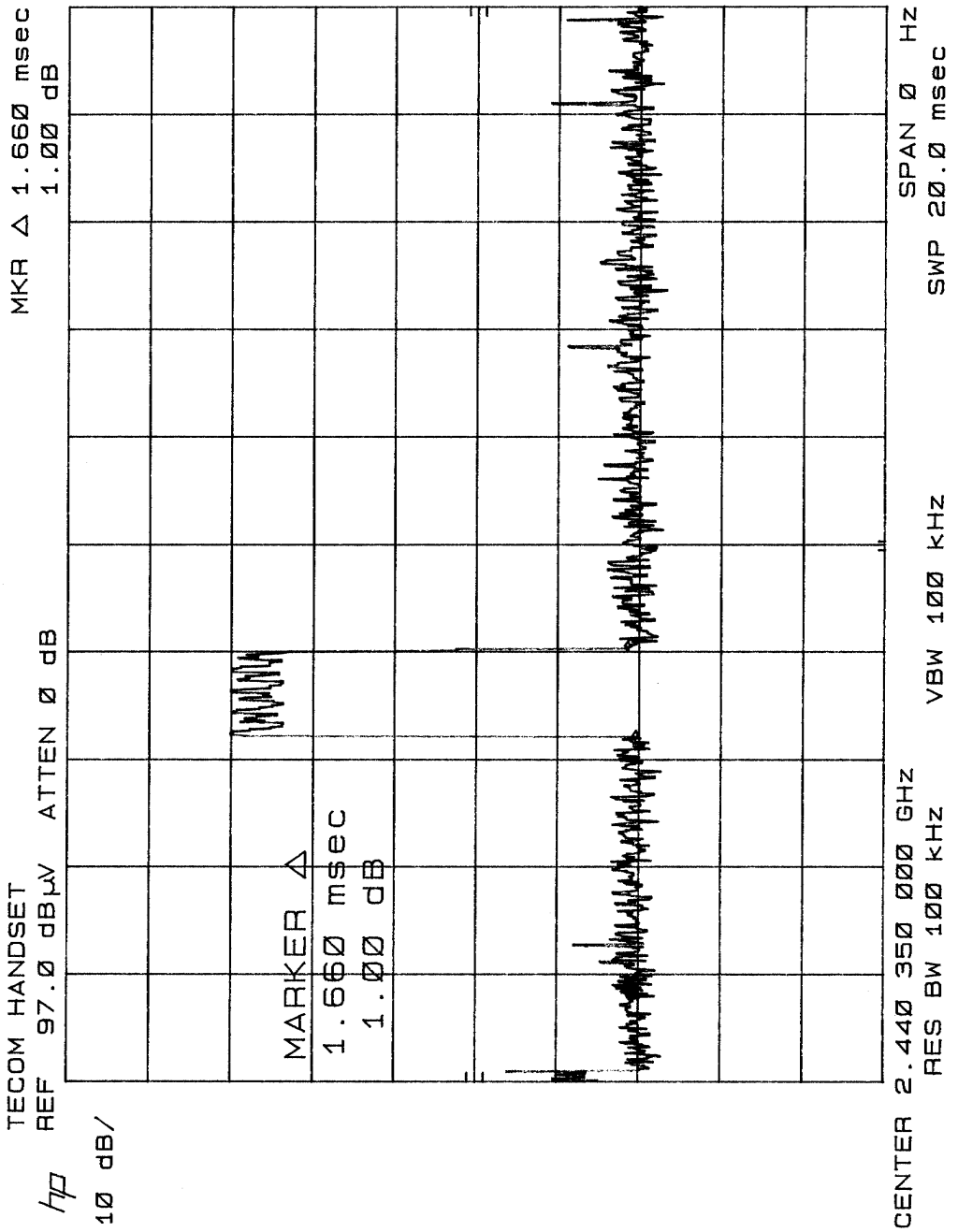

TECOM MF-3770 (BASE)
REF 97.0 dBµV ATTEN 0 dB
10 dB/
MKR Δ 295.0 msec
-0.20 dB
MARKER Δ
295.0 msec
-0.20 dB
CENTER 2.440 347 974 GHz
RES BW 100 kHz
VBW 100 kHz
SPAN 0 Hz
SWP 500 msec

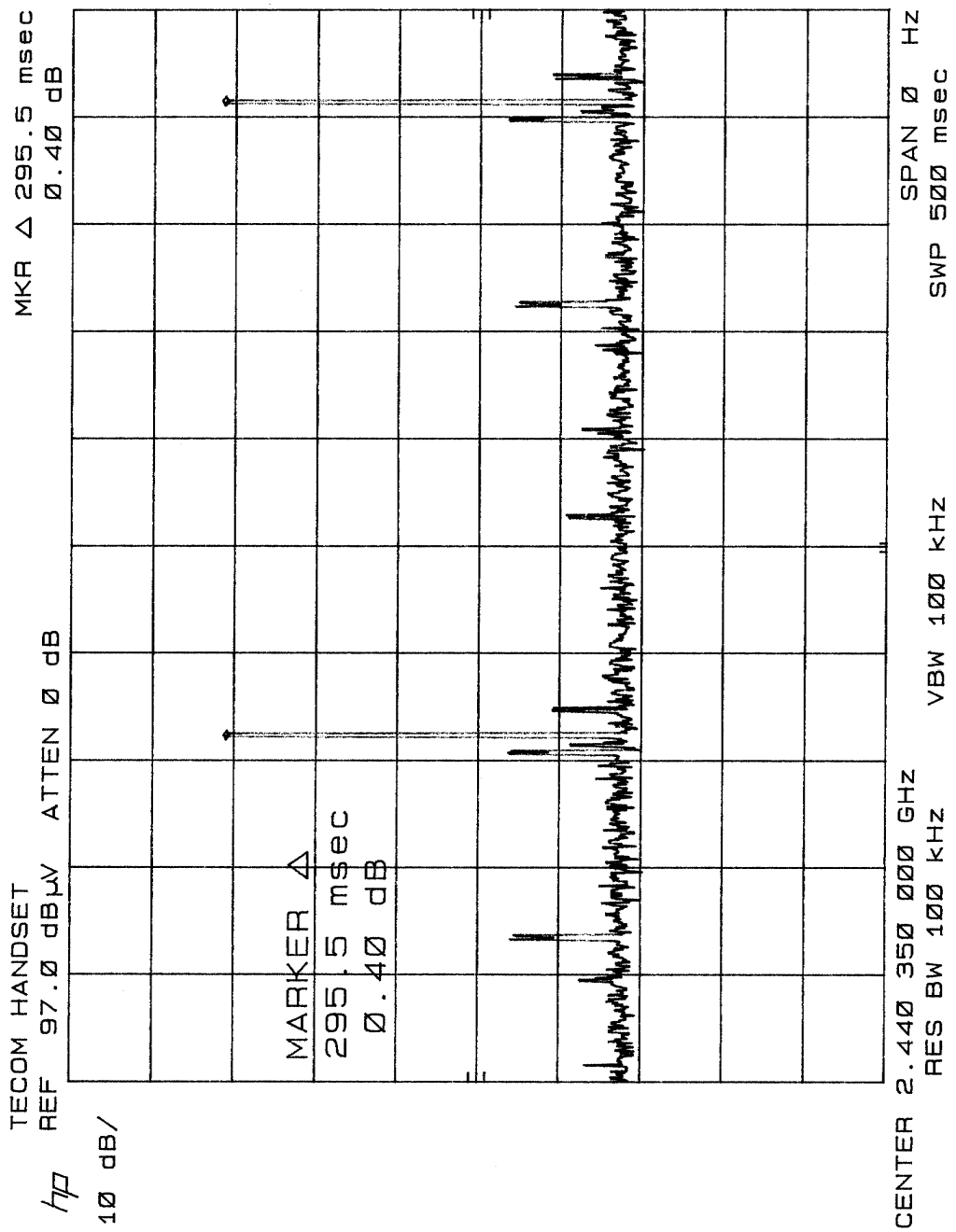

TECOM MF-3770 (BASE)
REF 97.0 dBµV ATTEN 0 dB
10 dB/
MKR Δ 1.700 msec
-1.50 dB
MARKER Δ
1.700 msec
-1.50 dB
CENTER 2.481 270 000 GHz
RES BW 100 kHz
VBW 100 kHz
SPAN 0 Hz
SWP 20.0 msec

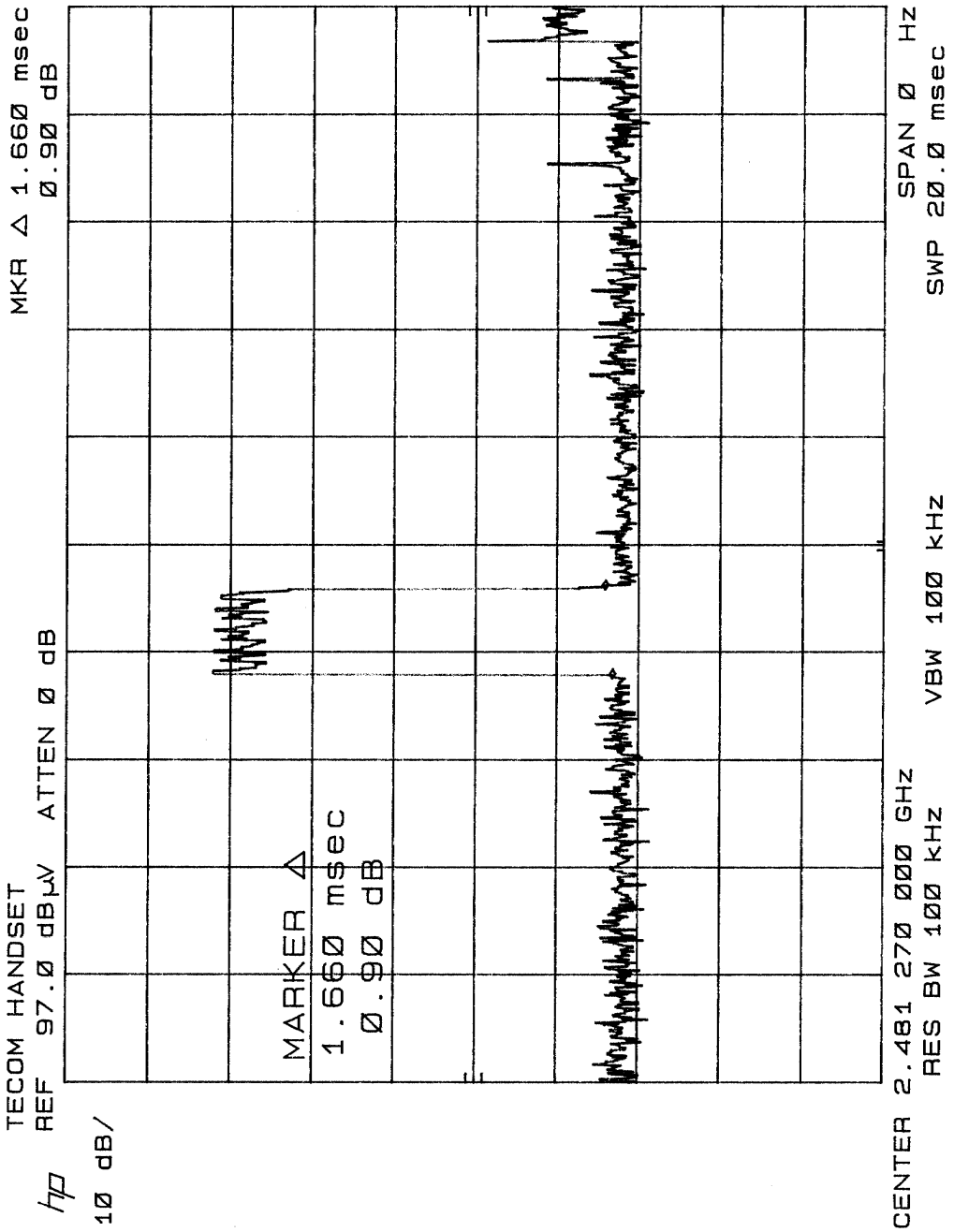

TECOM MF-3770 (BASE)
REF 97.0 dBµV ATTEN 0 dB
10 dB/
MKR Δ 296.0 msec
-0.40 dB
MARKER Δ
296.0 msec
-0.40 dB
CENTER 2.481 270 000 GHz
RES BW 100 kHz
VBW 100 kHz
SPAN 0 Hz
SWP 500 msec

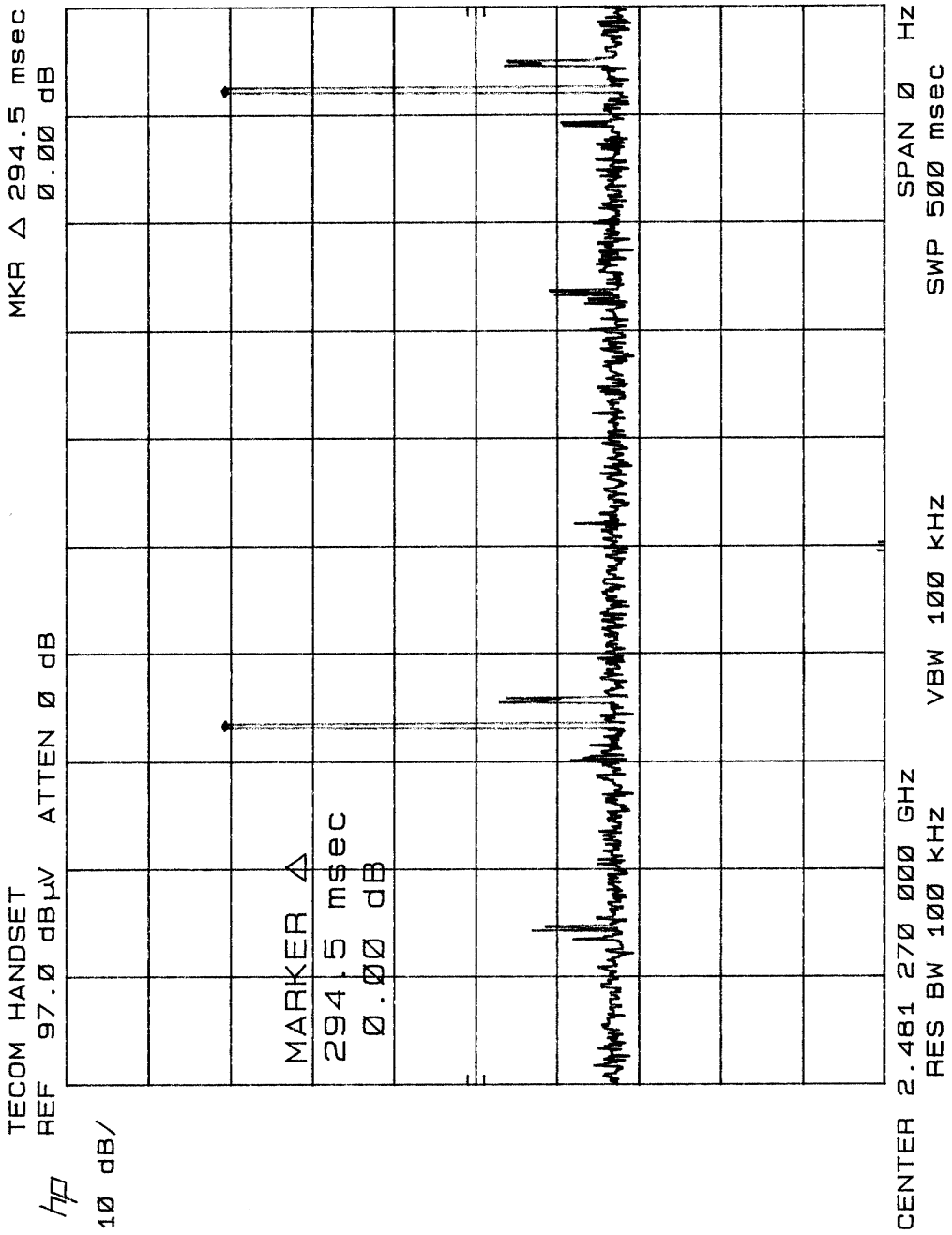

TECOM HANDSET
REF 97.0 dBµV ATTEN 0 dB
10 dB/
MKR Δ 1.640 msec
0.00 dB
MARKER Δ
1.640 msec
0.00 dB
CENTER 2.402 530 000 GHz
RES BW 100 kHz
VBW 100 kHz
SPAN 0 Hz
SWP 20.0 msec


TECOM HANDSET
REF 97.0 dBµV ATTEN 0 dB
10 dB/
MKR Δ 294.5 msec
-0.50 dB
MARKER Δ
294.5 msec
-0.50 dB
CENTER 2.402 530 000 GHz
RES BW 100 kHz
VBW 100 kHz
SPAN 0 Hz
SWP 500 msec


TECOM HANDSET
REF 97.0 dBµV ATTEN 0 dB
10 dB/
MARKER Δ
1.660 msec
1.00 dB
MKR Δ 1.660 msec
1.00 dB
CENTER 2.440 350 000 GHz
RES BW 100 kHz
VBW 100 kHz
SPAN 0 Hz
SWP 20.0 msec


TECOM HANDSET
REF 97.Ø dBµV ATTEN Ø dB
10 dB/
MKR Δ 295.5 msec
Ø.4Ø dB
MARKER Δ
295.5 msec
Ø.4Ø dB
CENTER 2.44Ø 35Ø ØØØ GHz
RES BW 1ØØ kHz VBW 1ØØ kHz
SPAN Ø Hz
SWP 5ØØ msec


TECOM HANDSET
REF 97.Ø dBµV ATTEN Ø dB
10 dB/
MKR Δ 1.66Ø msec
Ø.9Ø dB
MARKER Δ
1.66Ø msec
Ø.9Ø dB
CENTER 2.481 27Ø ØØØ GHz
RES BW 1ØØ kHz
VBW 1ØØ kHz
SPAN Ø Hz
SWP 2Ø.Ø msec


TECOM HANDSET
REF 97.0 dBµV ATTEN 0 dB
10 dB/
MKR Δ 294.5 msec
0.00 dB
MARKER Δ
294.5 msec
0.00 dB
CENTER 2.481 270 000 GHz
RES BW 100 kHz
VBW 100 kHz
SPAN 0 Hz
SWP 500 msec

10 - ANTENNA REQUIREMENT

10.1 Standard Applicable

For intentional device, according to § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to § 15.247 (1)), if transmitting antennas of directional gain greater than 6 dBi are used$_1$ the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

10.2 Antenna Connected Construction

The directional gain of antenna used for transmitting is 0 dBi, and the antenna connector is designed with permanent attachment and no consideration of replacement. Please see EUT photo for details.

11 – RF SAFETY REQUIREMENTS TO 2.1091

According to section 3 of Supplement C to OET Bulleting 65, Part 15 Transmitters are categorically excluded from Routine Environmental Evaluation by measurement or precise computations unless otherwise required by the Commissions.

The unit under evaluation has an external antenna of 0 dBi gain with a measured output power of 0.018 Watts at the antenna terminals.

Due to the low power of the EUT, environmental evaluation should be deemed unnecessary since the EUT's operational frequency range is 2.4-2.4835 GHz and the ERP is considerably less than 3 Watts.

12 – SPURIOUS RADIATED EMISSION DATA

12.1 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at BACL is $\pm$4.0 dB.

12.2 EUT Setup

The radiated emission tests were performed in the open area 3 meter test site, using the setup in accordance with the ANSI C63.4 - 1992. The specification used was the FCC 15 Subpart C limits.

The EUT was connected to a 110 VAC / 60 Hz power source and it was placed center and the back edge of the test table. The rear of the EUT and peripherals were placed flushed with the rear of the tabletop.

The spacing between the peripherals was 10 centimeters.

Input / Output cables were draped over edge of the test table and bundle when necessary.

12.3 Spectrum Analyzer Setup

According to FCC Rules, 47 CFR §15.33 (a) (1), since the clock was 2.4 GHz, the system was tested to 24000 MHz.

During the radiated emission test, the spectrum analyzer was set with the following configurations:

Start Frequency	30 MHz
Stop Frequency	24000 MHz
Sweep Speed	Auto
IF Bandwidth	1 MHz
Video Bandwidth	1 MHz
Quasi-Peak Adapter Bandwidth	120 kHz
Quasi-Peak Adapter Mode	Normal
Resolution Bandwidth	1MHz

12.4 Test Procedure

For the radiated emissions test, both the EUT and all support equipment power cords was connected to the AC floor outlet since the power supply (*U120020D*) used in the EUT did not provide an accessory power outlet.

Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (less than -4 dBμV), and are distinguished with a "**Qp**" in the data table.

12.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading + Antenna Factor + Cable Factor - Amplifier Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dBμV means the emission is 7dBμV below the maximum limit for Class B. The equation for margin calculation is as follows:

Margin = Corr. Ampl. - Class B Limit

12.6 Summary of Test Results

According to the data in section 11.7, the EUT complied with the FCC Title 47, Part 15, Subpart C, section 15.205, 15.207, and 15.247, and had the worst margin of:

For Base:

- 5.2 dBμV at **163.00 MHz** in the **Vertical** polarization at Low Channel, 30 to 24000MHz, 3 meters.

- 6.4 dBμV at **163.00 MHz** in the **Vertical** polarization at Middle Channel, 30 to 24000MHz, 3 meters.

- 5.7 dBμV at **163.00 MHz** in the **Vertical** polarization at Middle Channel, 30 to 24000MHz, 3 meters.

For Handset:

- 6.2 dBμV at **120.06 MHz** in the **Horizontal** polarization at Low Channel, 30 to 24000MHz, 3 meters.

- 5.7 dBμV at **120.06 MHz** in the **Horizontal** polarization at Middle Channel, 30 to 24000MHz, 3 meters.

- 6.4 dBμV at **120.06 MHz** in the **Horizontal** polarization at High Channel, 30 to 24000MHz, 3 meters.

12.7.3.a Final Scan, Base, High Channel.

Indicated			Table	Antenna		Correction Factor			Corrected Amplitude	FCC 15 Subpart C	
Freqency MHz	Ampl. dBµV/m	Mode	Angle Degree	Height Meter	Polar H/ V	Antenna dBµV/m	Cable dB	Amp. dB	Corr. Ampl. dBµV/m	Limit dBµV/m	Margin dB
2482.86	107.0		0	1.0	V	28.1	3.4	22.0	116.5		
2482.30	102.5		270	1.9	H	28.1	3.4	22.0	112.0		
163.00	40.5		100	1.0	V	13.2	1.6	21.0	34.3	40.0	-5.7
163.00	39.0		90	2.2	H	13.2	1.6	21.0	32.8	40.0	-7.2
4965.06	31.0	Ave	45	1.1	V	32.5	4.9	22.0	46.4	54.0	-7.6
4965.06	30.0	Ave	225	1.5	H	32.5	4.9	22.0	45.4	54.0	-8.6
7447.56	26.3	Ave	180	1.5	H	35.1	5.6	22.0	45.0	54.0	-9.0
115.21	37.0		280	2.2	H	11.9	1.8	19.8	30.9	40.0	-9.1
7447.56	26.0	Ave	315	1.8	V	35.1	5.6	22.0	44.7	54.0	-9.3
137.49	36.8		270	2.2	H	12.9	1.8	21.6	29.9	40.0	-10.1
115.21	35.6		200	1.0	V	11.9	1.8	19.8	29.5	40.0	-10.5
7447.56	41.4	peak	315	1.8	V	35.1	5.6	22.0	60.1	74.0	-13.9
4965.06	42.3	peak	225	1.5	H	32.5	4.9	22.0	57.7	74.0	-16.3
7447.56	38.5	peak	180	1.5	H	35.1	5.6	22.0	57.2	74.0	-16.8
4965.06	41.0	peak	45	1.1	V	32.5	4.9	22.0	56.4	74.0	-17.6

12.7.3.b Final Scan, Base, Middle Channel.

Indicated			Table	Antenna		Correction Factor			Corrected Amplitude	FCC 15 Subpart C	
Freqency MHz	Ampl. dBµV/m	Mode	Angle Degree	Height Meter	Polar H/ V	Antenna dBµV/m	Cable dB	Amp. dB	Corr. Ampl. dBµV/m	Limit dBµV/m	Margin dB
2439.42	103.4		270	1.3	H	28.1	3.4	22.0	112.9		
2439.66	106.5		0	1.1	V	28.1	3.4	22.0	116.0		
163.00	39.8		100	1.1	V	13.2	1.6	21.0	33.6	40.0	-6.4
4879.06	31.3	Ave	45	1.4	H	32.5	4.9	22.0	46.7	54.0	-7.3
163.00	38.6		90	2.2	H	13.2	1.6	21.0	32.4	40.0	-7.6
4879.06	30.5	Ave	270	1.2	V	32.5	4.9	22.0	45.9	54.0	-8.1
7318.62	27.0	Ave	135	1.1	H	35.1	5.6	22.0	45.7	54.0	-8.3
115.21	37.8		280	2.2	H	11.9	1.8	19.8	31.7	40.0	-8.3
7318.62	26.5	Ave	0	1.5	V	35.1	5.6	22.0	45.2	54.0	-8.8
137.49	38.0		270	2.2	H	12.9	1.8	21.6	31.1	40.0	-8.9
115.21	35.0		200	1.1	V	11.9	1.8	19.8	28.9	40.0	-11.1
7318.62	42.5	peak	0	1.5	V	35.1	5.6	22.0	61.2	74.0	-12.8
7318.62	41.2	peak	135	1.1	H	35.1	5.6	22.0	59.9	74.0	-14.1
4879.06	41.6	peak	270	1.2	V	32.5	4.9	22.0	57.0	74.0	-17.0
4879.06	40.0	peak	45	1.4	H	32.5	4.9	22.0	55.4	74.0	-18.6

12.7.3.c Final Scan, Base, Low Channel.

Indicated			Table	Antenna		Correction Factor			Corrected Amplitude	FCC 15 Subpart C	
Freqency MHz	Ampl. dBµV/m	Mode	Angle Degree	Height Meter	Polar H/ V	Antenna dBµV/m	Cable dB	Amp. dB	Corr. Ampl. dBµV/m	Limit dBµV/m	Margin dB
2404.73	103.0		90	2.7	H	28.1	3.4	22.0	112.5		
2404.73	106.0		45	1.6	V	28.1	3.4	22.0	115.5		
163.00	41.0		100	1.1	V	13.2	1.6	21.0	34.8	40.0	-5.2
4809.52	32.0	Ave	45	1.6	V	32.5	4.9	22.0	47.4	54.0	-6.6
163.00	39.5		90	2.2	H	13.2	1.6	21.0	33.3	40.0	-6.7
4809.52	31.2	Ave	0	2.0	H	32.5	4.9	22.0	46.6	54.0	-7.4
115.21	38.0		280	2.2	H	11.9	1.8	19.8	31.9	40.0	-8.1
7214.16	27.0	Ave	0	1.7	V	35.1	5.6	22.0	45.7	54.0	-8.3
7214.17	26.5	Ave	180	1.7	H	35.1	5.6	22.0	45.2	54.0	-8.8
137.49	37.0		270	2.2	H	12.9	1.8	21.6	30.1	40.0	-9.9
115.21	35.0		200	1.1	V	11.9	1.8	19.8	28.9	40.0	-11.1
7214.16	39.0	peak	0	1.7	V	35.1	5.6	22.0	57.7	74.0	-16.3
4809.52	41.0	peak	0	2.0	H	32.5	4.9	22.0	56.4	74.0	-17.6
4809.52	40.0	peak	45	1.6	V	32.5	4.9	22.0	55.4	74.0	-18.6
7214.17	36.5	peak	180	1.7	H	35.1	5.6	22.0	55.2	74.0	-18.8

12.7.3. d Final Scan, Handset, High Channel.

Indicated			Table	Antenna		Correction Factor			Corrected Amplitude	FCC 15 Subpart C	
Freqency MHz	Ampl. dBµV/m	Mode	Angle Degree	Height Meter	Polar H/ V	Antenna dBµV/m	Cable dB	Amp. dB	Corr. Ampl. dBµV/m	Limit dBµV/m	Margin dB
2482.19	106.1		0	1.5	H	28.1	3.4	22.0	115.6		
2482.19	107.1		0	1.4	V	28.1	3.4	22.0	116.6		
120.06	42.3		90	1.9	H	12.1	2.2	19.5	37.1	43.5	-6.4
4963.98	51.2	peak	0	1.6	V	32.5	4.9	22.0	66.6	74.0	-7.4
4963.98	31.2	Ave	0	1.6	V	32.5	4.9	22.0	46.6	54.0	-7.4
245.00	45.6		225	2.3	H	12.6	2.3	22.5	38.0	46.0	-8.0
7445.98	27.0	Ave	0	1.4	V	35.1	5.6	22.0	45.7	54.0	-8.3
4964.76	50.0	peak	0	1.5	H	32.5	4.9	22.0	65.4	74.0	-8.6
4964.76	30.0	Ave	0	1.5	H	32.5	4.9	22.0	45.4	54.0	-8.6
120.04	39.8		100	1.1	V	12.1	2.2	19.5	34.6	43.5	-8.9
7445.94	26.2	Ave	225	1.3	H	35.1	5.6	22.0	44.9	54.0	-9.1
245.00	43.6		180	1.2	V	12.6	2.3	22.5	36.0	46.0	-10.0
325.30	38.7		180	2.5	H	15.5	2.8	22.1	34.9	46.0	-11.1
156.80	36.4		225	1.2	V	13.0	2.0	20.4	31.0	43.5	-12.5
7445.98	41.8	peak	0	1.4	V	35.1	5.6	22.0	60.5	74.0	-13.5
7445.94	40.0	peak	225	1.3	H	35.1	5.6	22.0	58.7	74.0	-15.3
260.14	34.6		270	2.5	H	13.3	4.9	22.8	30.0	46.0	-16.0
260.14	33.6		135	1.2	V	13.3	4.9	22.8	29.0	46.0	-17.0

12.7.3.e Final Scan, Handset, Middle Channel.

Indicated			Table	Antenna		Correction Factor			Corrected Amplitude	FCC 15 Subpart C	
Freqency MHz	Ampl. dBµV/m	Mode	Angle Degree	Height Meter	Polar H/ V	Antenna dBµV/m	Cable dB	Amp. dB	Corr. Ampl. dBµV/m	Limit dBµV/m	Margin dB
2439.12	106.0		0	1.8	V	28.1	3.4	22.0	115.5		
2439.44	108.6		0	1.5	H	28.1	3.4	22.0	118.1		
120.06	43.0		90	2.0	H	12.1	2.2	19.5	37.8	43.5	-5.7
7318.04	27.0	Ave	0	1.4	H	35.1	5.6	22.0	45.7	54.0	-8.3
4877.89	50.0	peak	0	1.5	V	32.5	4.9	22.0	65.4	74.0	-8.6
4877.89	30.0	Ave	0	1.5	V	32.5	4.9	22.0	45.4	54.0	-8.6
120.04	40.0		90	1.0	V	12.1	2.2	19.5	34.8	43.5	-8.7
245.00	44.6		250	2.3	H	12.6	2.3	22.5	37.0	46.0	-9.0
7318.04	26.0	Ave	0	1.5	V	35.1	5.6	22.0	44.7	54.0	-9.3
4877.89	29.0	Ave	0	1.4	H	32.5	4.9	22.0	44.4	54.0	-9.6
4877.89	48.2	peak	0	1.4	H	32.5	4.9	22.0	63.6	74.0	-10.4
245.00	43.0		180	1.5	V	12.6	2.3	22.5	35.4	46.0	-10.6
7318.04	44.4	peak	0	1.4	H	35.1	5.6	22.0	63.1	74.0	-10.9
7318.04	43.9	peak	0	1.5	V	35.1	5.6	22.0	62.6	74.0	-11.4
325.30	36.8		180	2.5	H	15.5	2.8	22.1	33.0	46.0	-13.0
156.80	35.0		225	1.0	V	13.0	2.0	20.4	29.6	43.5	-13.9
260.14	36.0		270	2.5	H	13.3	4.9	22.8	31.4	46.0	-14.6
260.14	34.0		135	1.0	V	13.3	4.9	22.8	29.4	46.0	-16.6

12.7.3.f Final Scan, Handset, Low Channel.

Indicated			Table	Antenna		Correction Factor			Corrected Amplitude	FCC 15 Subpart C	
Freqency MHz	Ampl. dBµV/m	Mode	Angle Degree	Height Meter	Polar H/ V	Antenna dBµV/m	Cable dB	Amp. dB	Corr. Ampl. dBµV/m	Limit dBµV/m	Margin dB
2404.34	108.8		0	1.5	V	28.1	3.4	22.0	118.3		
2404.40	107.8		0	1.5	H	28.1	3.4	22.0	117.3		
120.06	42.5		90	2.0	H	12.1	2.2	19.5	37.3	43.5	-6.2
4877.89	51.3	peak	0	1.5	V	32.5	4.9	22.0	66.7	74.0	-7.3
7318.04	27.0	Ave	0	1.5	V	35.1	5.6	22.0	45.7	54.0	-8.3
120.04	40.0		90	1.0	V	12.1	2.2	19.5	34.8	43.5	-8.7
4877.89	29.5	Ave	0	1.5	V	32.5	4.9	22.0	44.9	54.0	-9.1
7318.04	26.1	Ave	0	1.4	H	35.1	5.6	22.0	44.8	54.0	-9.2
4877.89	28.0	Ave	0	1.4	H	32.5	4.9	22.0	43.4	54.0	-10.6
245.00	43.0		250	2.3	H	12.6	2.3	22.5	35.4	46.0	-10.6
245.00	42.3		180	1.5	V	12.6	2.3	22.5	34.7	46.0	-11.3
7318.04	43.5	peak	45	1.7	V	35.1	5.6	22.0	62.2	74.0	-11.8
7318.04	43.0	peak	0	1.5	H	35.1	5.6	22.0	61.7	74.0	-12.3
4877.89	46.0	peak	0	1.4	H	32.5	4.9	22.0	61.4	74.0	-12.6
156.80	35.3		225	1.0	V	13.0	2.0	20.4	29.9	43.5	-13.6
325.30	36.0		180	2.5	H	15.5	2.8	22.1	32.2	46.0	-13.8
260.14	35.6		270	2.5	H	13.3	4.9	22.8	31.0	46.0	-15.0
260.14	35.0		135	1.0	V	13.3	4.9	22.8	30.4	46.0	-15.6

13 - CONDUCTED EMISSIONS TEST DATA

13.1 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, and LISN.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement at BACL is $\pm$2.4 dB.

13.2 EUT Setup

The measurement was performed at the **O**pen **A**rea **T**est **S**ite, using the same setup per ANSI C63.4 - 1992 measurement procedure. The specification used was with FCC Class B limits.

13.3 Spectrum Analyzer Setup

The spectrum analyzer was set with the following configurations during the conduction test:

Start Frequency	450 kHz
Stop Frequency	30 MHz
Sweep Speed	Auto
IF Bandwidth	100 kHz
Video Bandwidth	100 kHz
Quasi-Peak Adapter Bandwidth	9 kHz
Quasi-Peak Adapter Mode	Normal

13.4 Test Procedure

During the conducted emission test, the power cord of the host system was connected to the auxiliary outlet of the first LISN.

Maximizing procedure was performed on the six (6) highest emissions of each modes tested to ensure EUT is compliant with all installation combination.

All data was recorded in the peak detection mode. Quasi-peak readings were only performed when an emission was found to be marginal (less than -4 dBμV). Quasi-peak readings are distinguished with a "**Qp**".

13.5 Summary of Test Results

According to the data in section 12.6, the EUT complied with the FCC Conducted margin for a Class B device and these test results is deemed satisfactory evidence of compliance with ICES-003 of the Canadian Interference-Causing Equipment Regulations, with the *worst* margin reading of:

-6.6 dBμV at **0.630 MHz** in the **Neutral** mode.

13.6 Conducted Emissions Test Data

12.6.1 Test Data, 0.45 - 30 MHz.

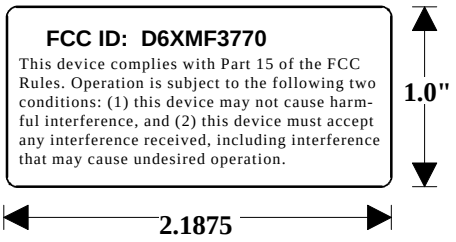
LINE CONDUCTED EMISSIONS				FCC CLASS B	
Frequency	Amplitude	Detector	Phase	Limit	Margin
MHz	dBμV	Qp/Ave/Peak	Line/Neutral	dBμV	dB
0.630	41.4	QP	Neutral	48	-6.6
9.460	39.5	QP	Neutral	48	-8.5
14.220	35.4	QP	Neutral	48	-12.6
28.550	35.2	QP	Line	48	-12.8
24.980	34.1	QP	Line	48	-13.9
14.220	32.7	QP	Line	48	-15.3

13.7 Plot of Conducted Emissions Test Data

Plot(s) of Conducted Emissions Test Data is presented in the following Appendix of this report as reference.

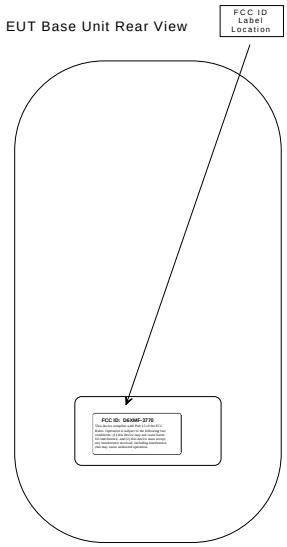
14 – FCC PRODUCT LABELING AND WARNING STATEMENT

14.1 FCC ID Label



Specifications: Text is black or white in color and is left justified. Labels are silk-screened and shall be "permanently affixed" at a conspicuous location on the EUT.

14.2 Proposed Label Location on EUT



14.3 FCC Warning Statement

The users manual or instruction manual for an intentional or unintentional radiator shall caution the use that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual.

The Federal Communications Commission Radio Frequency Interference Statement includes the following paragraph.

This equipment has been tested and found to comply with the limits for a Class B Digital Device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

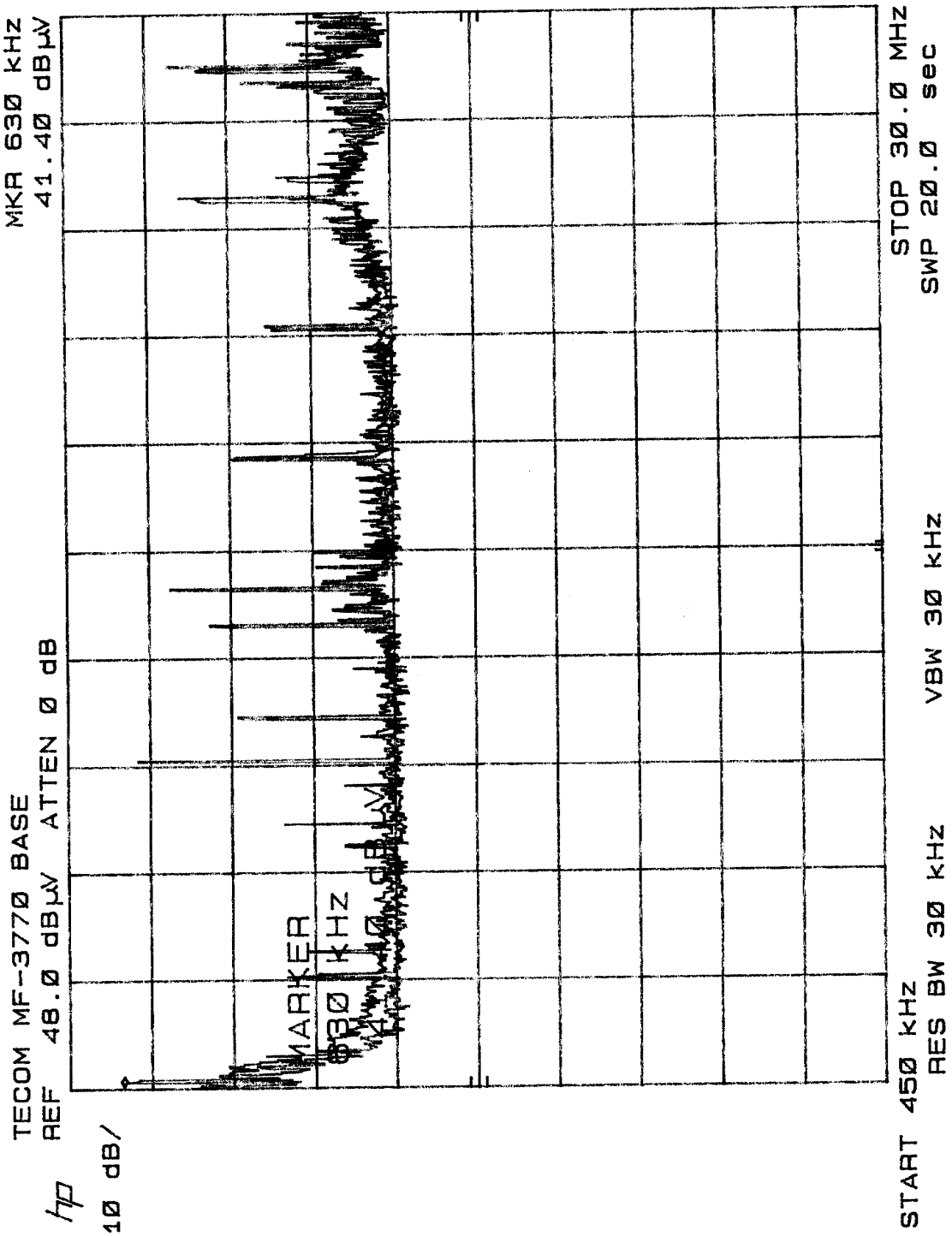
-- Reorient or relocate the receiving antenna.

-- Increase the separation between the equipment and receiver.

-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio / TV technician for help

Appendix A – PLOT OF CONDUCTED EMISSION TEST DATA


MKR 630 kHz
41.40 dBµV
TECOM MF-3770 BASE
REF 48.0 dBµV ATTEN 0 dB
10 dB/
MARKER
630 kHz
START 450 kHz
RES BW 30 kHz
VBW 30 kHz
STOP 30.0 MHz
SWP 20.0 sec

Appendix B – AGENT AUTHORIZATION LETTER

TECOM

TECOM CO.,LTD.
23, R & D ROAD 2
SCIENCE-BASED INDUSTRIAL PARK
HSIN-CHU TAIWAN, R.O.C.
TELEPHONE, 886-35-775141
FAX, 886-35-776855

18 Jul 2000

Federal Communications Commission
7435 Oakland Mills Road
Columbia, Maryland, 21046

Sir/Madam,

Reg: FCC grand for MF-3770

This letter is an authorization to accept Bay Area Compliance Lab. Corporation as an agent for (TECOM CO.,LTD. 23,R&D Road 2 Science-Based Industrial Park Hsin-Chu Taiwan), to sign applications before the Commission on our behalf, to make representations to you on our behalf, and to receive and exchange data between our company and the commission in connection with certification of the following (CASIO COMMUNICATIONS, INC.) product:

2-Line Multiple-Handset Cordless Telephone, Model No.: MF-3770

Under FCC docket number 20780 and general docket number 80-284 pursuant to part 15, FCC rules and regulations.

Sincerely,

Sheng Yih Lin
Safety Engineer

Appendix C – EUT SECURITY CODE

TECOM CO., LTD.
23, R & D ROAD 2
SCIENCE-BASED INDUSTRIAL PARK
HSIN-CHU TAIWAN R.O.C.
TELEPHONE, 886-35-775141
FAX: 886-35-776855

FCC ID: D6XMF3770

DIGITAL SECURITY CODE:

The model MF-3770 has the circuitry for digital security code to provide protection against unintentional access. For each model, one of 7529536 kinds of digital security code is randomly selected and fixed in each telephone as it is manufactured.

Sincerely

Sheng Yih Lin
Safety Engineer