EXHIBIT D

[FCC Ref. 2.1033(b)(6)]

"Report of Measurements"

TABLE OF CONTENTS

TEST REPORT CONTAINING:

PRODUCT DESCRIPTION

The Model 21008XXX-A is a 2.4GHz single line, spread spectrum, frequency hopping, cordless telephone with caller ID, that operates from 2401.808 to 2479.401 MHz. The antenna used for the base and the handset are permanently attached to the EUT.

Refer to Exhibit B(1)-6 and B(1)-19 for frequency channels information and frequency list.

NOTE: 1. The base and handset use 87 Channels.

TEST FACILITY AND EQUIPMENT LIST

FACILITIES

Radiated — ANSI C63.4 (FCC OET/55) open field 3 metre test range. This test range is protected from the cold and moisture by a non-conductive enclosure.

Conducted — 2.5m Anechoic Chamber

EQUIPMENT

Anritsu 2601A Spectrum Analyzer
Advantest R3261A Spectrum Analyzer
Hewlett-Packard RF generator # 8640 B with an 002 doubler
A.H. Systems biconical antenna; ..... 20 MHz to 330 MHz
A.H. Systems log periodic antenna; ..... 300 MHz to 1.8 GHz
Compliance Design P950 Preamp (16 dB) ... 25 MHz to 1.0 GHz

NOTE:

The Anritsu 2601A Spectrum Analyzer and the Advantest R3261A Spectrum Analyzer are calibrated annually, and that calibration is directly traceable to the National Research Council of Canada. (NRC) This equipment is only used by qualified technicians and only for the purpose of EMI measurements. The three metre test range has been carefully evaluated to the ANSI document C63.4 and will be remeasured for reflections and losses every three years.

ADDITIONAL TEST EQUIPMENT LIST

1. Spectrum Analyzer: HP 8591EM, S/N 3639A00995, Calibrated April 2003
2. Spectrum Analyzer: ANRITSU 2601A, S/N MT64544, Calibrated May 2003
3. Spectrum Analyzer: IFR AN940, S/N 635001039, Calibrated March 2003
4. Preamp: HP 8449B, S/N 3008A00378, Calibrated August 2002
5. Horn Antenna: Q-PAR 6878/24, S/N 1721, 1.5-18GHz
6. Line Impedance Stabilization Network.: Marstech, Cal. July 2002

FEDERAL COMMUNICATIONS COMMISSION
Laboratory Division
7435 Oakland Mills Road
Columbia, MD. 21046

September 20, 2000

Registration Number: 90578

Electrohome Electronics Ltd.
809 Wellington St. N.
Kitchener, Ontario N2G 4J6
Canada
Attention: Gerry Gallagher

Re: Measurement facility located at Roseville
3 meter-site
Date of Listing: September 20, 2000

Gentlemen:

Your submission of the description of the subject measurement facility has been reviewed and found to be in compliance with the requirements of Section 2.948 of the FCC Rules. The description has, therefore, been placed on file and the name of your organization added to the Commission's list of facilities whose measurement data will be accepted in conjunction with applications for Certification under Parts 15 or 18 of the Commission's Rules. Please note that this filing must be updated for any changes made to the facility, and at least every three years from the date of listing the data on file must be certified as current.

If requested, the above mentioned facility has been added to our list of those who perform these measurement services for the public on a fee basis. An up-to-date list of such public test facilities is available on the Internet on the FCC Website at WWW.FCC.GOV, E-Filing, OET Equipment Authorization Electronic Filing.

Sincerely,

Thomas W. Phillips

Thomas W Phillips
Electronics Engineer

15.107 (a) POWER LINE CONDUCTED INTERFERENCE

Requirements:

Frequency of Emission (MHZ)	Conducted Limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

Test Procedure:

ANSI STANDARD C63.4-1992. using a 50uH LISN. Both lines were observed with the EUT transmitting. The bandwidth of the spectrum analyzer was 9KHz QP with an appropriate sweep speed. The ambient temperature of the EUT was 24˚C with a humidity of 60%.

The spectrum was scanned from 0.15 to 30MHz.

Test Data:

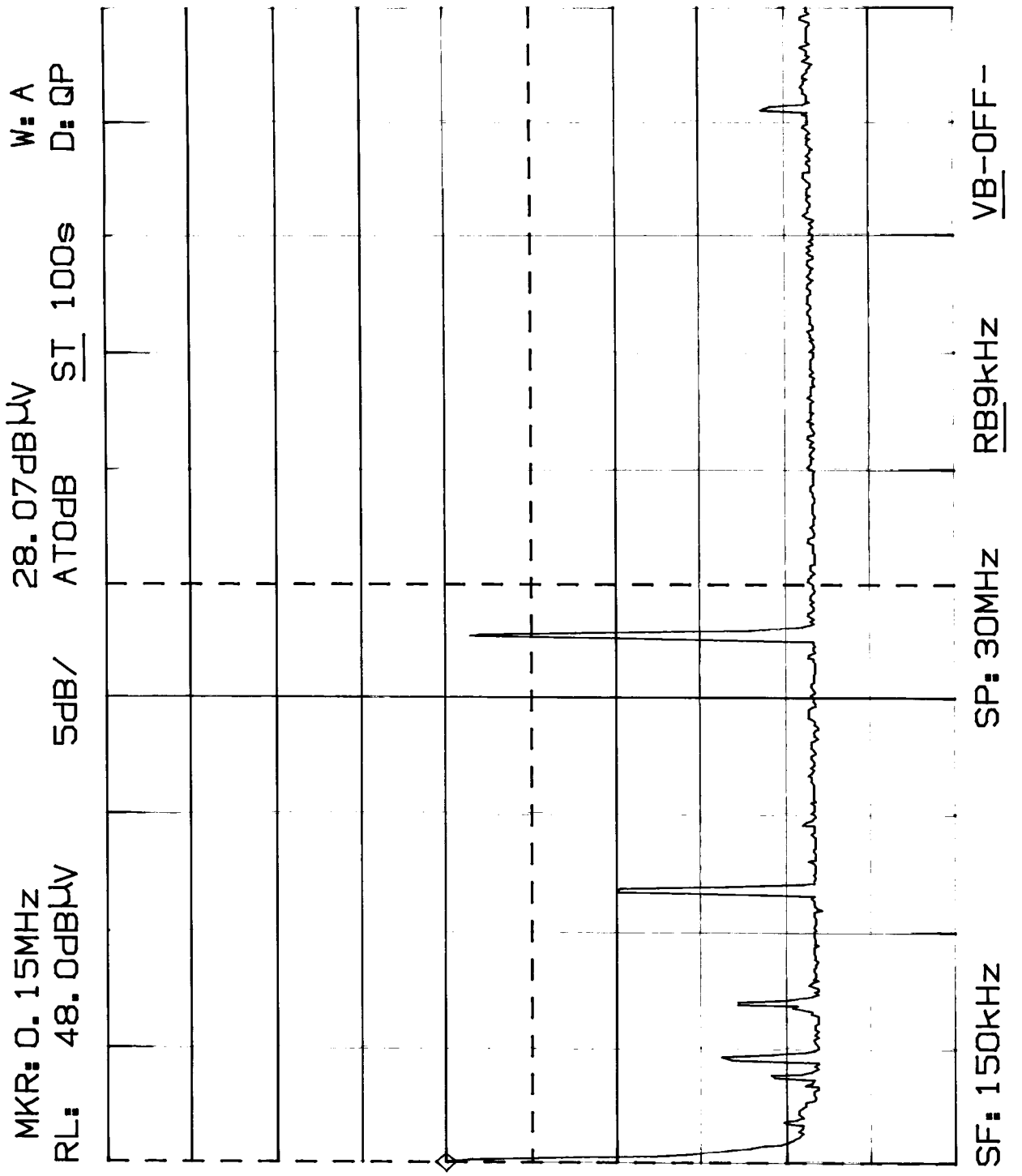
The highest emission read for LINE was 28.07 dBμV@ 0.15 MHz.
The highest emission read for NEUTRAL was 33.07 dBμV@ 0.15 MHz.

The graphs on Exhibit D(1)-7 and -8 represent the emissions taken for this device.

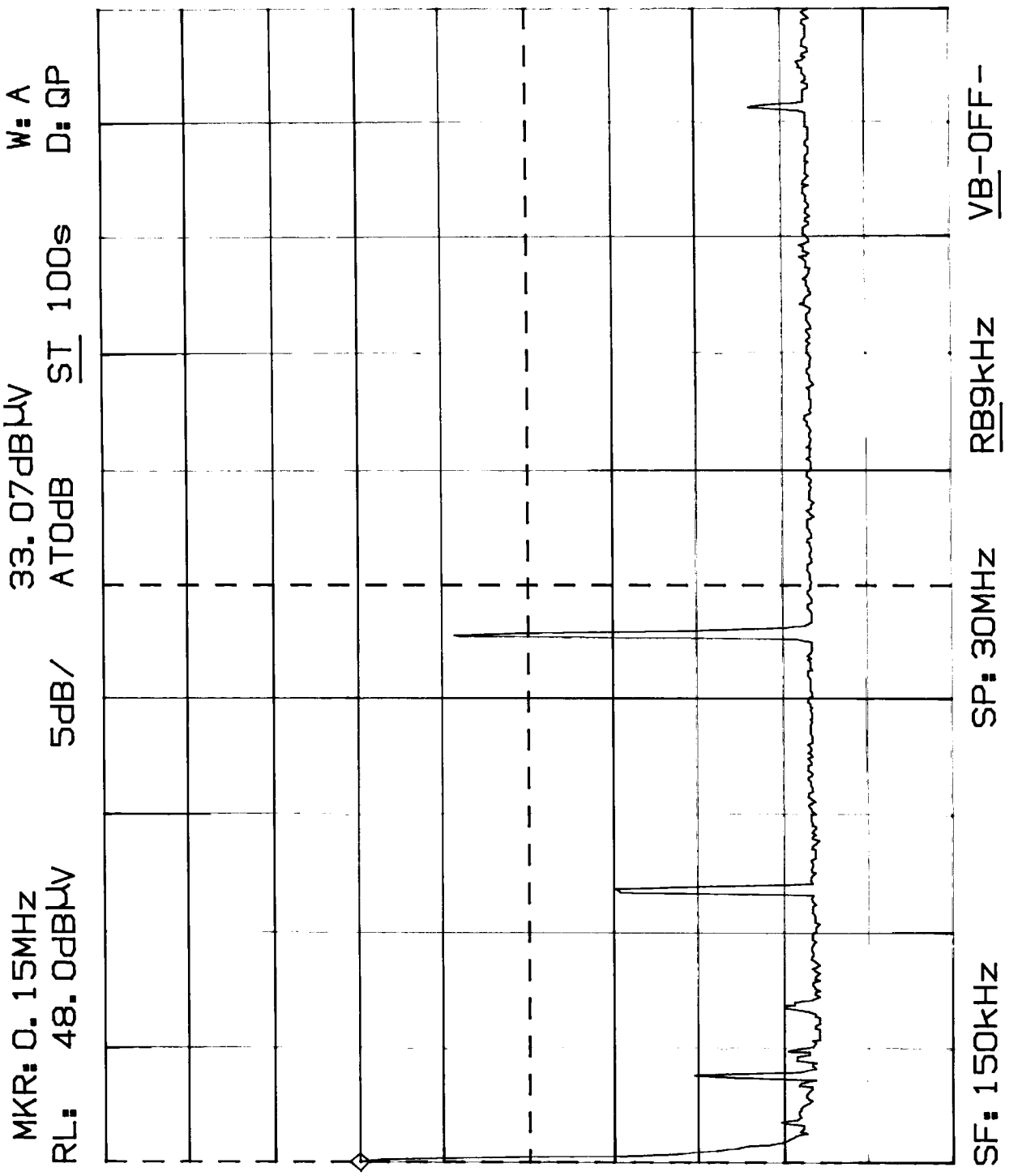
Test Results:

Both lines were observed. The measurements indicate that the unit DOES appear to meet the FCC requirements for this class of equipment.

POWER LINE CONDUCTED EMISSIONS
MODEL 21008XXX-A; LINE



POWER LINE CONDUCTED EMISSIONS
MODEL 21008XXX-A; NEUTRAL



15.205(c)/15.209 **SPURIOUS RADIATED EMISSIONS IN RESTRICTED BANDS**

Procedure

The test procedure used was ANSI STANDARD C63.4-1992 and DA-00-705 using an appropriate spectrum analyzer, as listed in the Test Equipment List. The bandwidth (RBW) of the spectrum analyzer was 100KHz/120KHz up to 1GHz with an appropriate sweep speed. The RBW above 1.0GHz was = 1.0MHz. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The ambient temperature of the EUT was 24˚C with a humidity of 60%.

Requirements:

Emissions that fall in the restricted bands (15.205) must be less than 54dBμV/m

Test Data:

Refer to Exhibit D(1)-10 to D(1)-12

15.205(c)/15.209 **FIELD STRENGTH OF RADIATED EMISSIONS INCLUDING RESTRICTED BANDS**

BASE UNIT - ANT0

Frequency Band MHz	Meter Reading (Peak) @3m dBμV/M	Meter Reading (Average) @3m dBμV/M	Antenna and Polarization	Cable & Antenna Factor	Peak F. S. dBμV/M	Average F. S dBuV/M	Average FCC Limit	Margin dB
Channel 1								
2401.808	**81.00**	**---**	**Horn V**	**33.08**	**114.08**	**---**	**---**	**---**
4803.616	28.00	3.00	Horn H	38.28	66.28	41.28	54	-12.72
7205.424	19.00	1.00	Horn V	43.94	62.94	44.94	54	-9.06
9607.232	---							
12009.04	---							
14410.848	---							
16812.656	---							
Channel 37								
2440.158	**83.00**	**---**	**Horn V**	**33.20**	116.20	**---**	**---**	**---**
4880.316	27.00	4.00	Horn H	38.47	65.47	42.47	54	-11.53
7320.474	17.00	1.00	Horn V	44.06	61.06	45.06	54	-8.94
9760.632	---							
Channel 75								
2479.401	83.00	---	Horn V	33.23	116.23	---	---	---
2483.5	27.00	6.00	Horn V	33.89	60.89	39.89	54	-14.11
4958.802	27.00	6.00	Horn H	40.30	67.30	46.30	54	-7.70
7438.703	15.00	1.00	Horn V	44.38	59.38	45.38	54	-8.62
9917.604	---							

1. If the peak meets the average limit, nothing further is required.
2. If the peak exceeds the average limit, then an average measurement is required (may be calculated) and must be below the average limit and also;
3. The peak measurement cannot exceed the average limit +20dB.

15.205(c)/15.209 **FIELD STRENGTH OF RADIATED EMISSIONS INCLUDING RESTRICTED BANDS**

BASE UNIT - ANT1

Frequency Band MHz	Meter Reading (Peak) @3m dBμV/M	Meter Reading (Average) @3m dBμV/M	Antenna and Polarization	Cable & Antenna Factor	Peak F. S. dBμV/M	Average F. S dBuV/M	Average FCC Limit	Margin dB
Channel 1								
2401.808	**80.00**	---	**Horn V**	**33.08**	**113.08**	---	---	---
4803.616	28.00	5.00	Horn H	38.28	66.28	43.28	54	-10.72
7205.424	17.00	0.00	Horn H	43.94	60.94	43.94	54	-10.06
9607.232	---							
12009.04	---							
14410.848	---							
Channel 37								
2440.158	79.00	---	Horn V	33.20	112.20	---	---	---
4880.316	27.00	4.00	Horn H	38.47	65.47	42.47	54	-11.53
7320.474	17.00	1.00	Horn H	44.06	61.06	45.06	54	-8.94
9760.632	---							
Channel 75								
2479.401	82.00	---	Horn V	33.23	115.23	---	---	---
2483.5	32.00	11.00	Horn V	33.89	65.89	44.89	54	-9.11
4958.802	31.00	6.00	Horn H	40.30	71.30	46.30	54	-7.70
7438.703	23.00	5.00	Horn H	44.38	67.38	49.38	54	-4.62
9917.604	---							
12397.005	23.00	2.00	Horn H	48.76	71.76	50.76	54	-3.24
14876.406	---							

1. If the peak meets the average limit, nothing further is required.
2. If the peak exceeds the average limit, then an average measurement is required (may be calculated) and must be below the average limit and also;
3. The peak measurement cannot exceed the average limit +20dB.

15.205(c)/15.209 **FIELD STRENGTH OF RADIATED EMISSIONS INCLUDING RESTRICTED BANDS**

HANDSET UNIT

Frequency Band MHz	Meter Reading (Peak) @3m dBμV/M	Meter Reading (Average) @3m dBμV/M	Antenna and Polarization	Cable & Antenna Factor	Peak F. S. dBμV/M	Average F. S dBuV/M	Average FCC Limit	Margin dB
Channel 1								
2401.808	**82.00**	**---**	**Horn V**	**33.08**	**115.08**	**---**	**---**	**---**
4803.616	32.00	5.00	Horn V	38.28	70.28	43.28	54	-10.72
7205.424	20.00	3.00	Horn H	43.94	63.94	46.94	54	-7.06
Channel 37								
2440.158	83.00	---	Horn V	33.20	116.20	---	---	---
4880.316	30.00	5.00	Horn H	38.47	68.47	43.47	54	-10.53
7320.474	21.00	3.00	Horn H	44.06	65.06	47.06	54	-6.94
9760.632	---							
12700.790	17.00	2.00	Horn H	48.38	65.38	50.38	54	-3.62
14640.948	---							
Channel 75								
2479.401	82.00	---	Horn V	33.23	115.23	---	---	---
2483.5	32.00	11.00	Horn V	33.89	65.89	44.89	54	-9.11
4958.802	31.00	6.00	Horn H	40.30	71.30	46.30	54	-7.70
7438.703	23.00	5.00	Horn H	44.38	67.38	49.38	54	-4.62
9917.604	---							
12397.005	23.00	2.00	Horn H	48.76	71.76	50.76	54	-3.24

1. If the peak meets the average limit, nothing further is required.
2. If the peak exceeds the average limit, then an average measurement is required (may be calculated) and must be below the average limit and also:
3. The peak measurement cannot exceed the average limit +20dB.

15.247(a)(1) HOPPING CHANNEL SEPARATION

Requirements:

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20dB bandwidth of the hopping channel, whichever is greater.

Measurement Procedure

1. Position the EUT without connection to the Spectrum Analyzer (SA). Turn on the EUT and connect it to the SA. Then set it to any one convenient frequency within its operating range.

2. By using the MaxHold function record the separation of two adjacent channels.

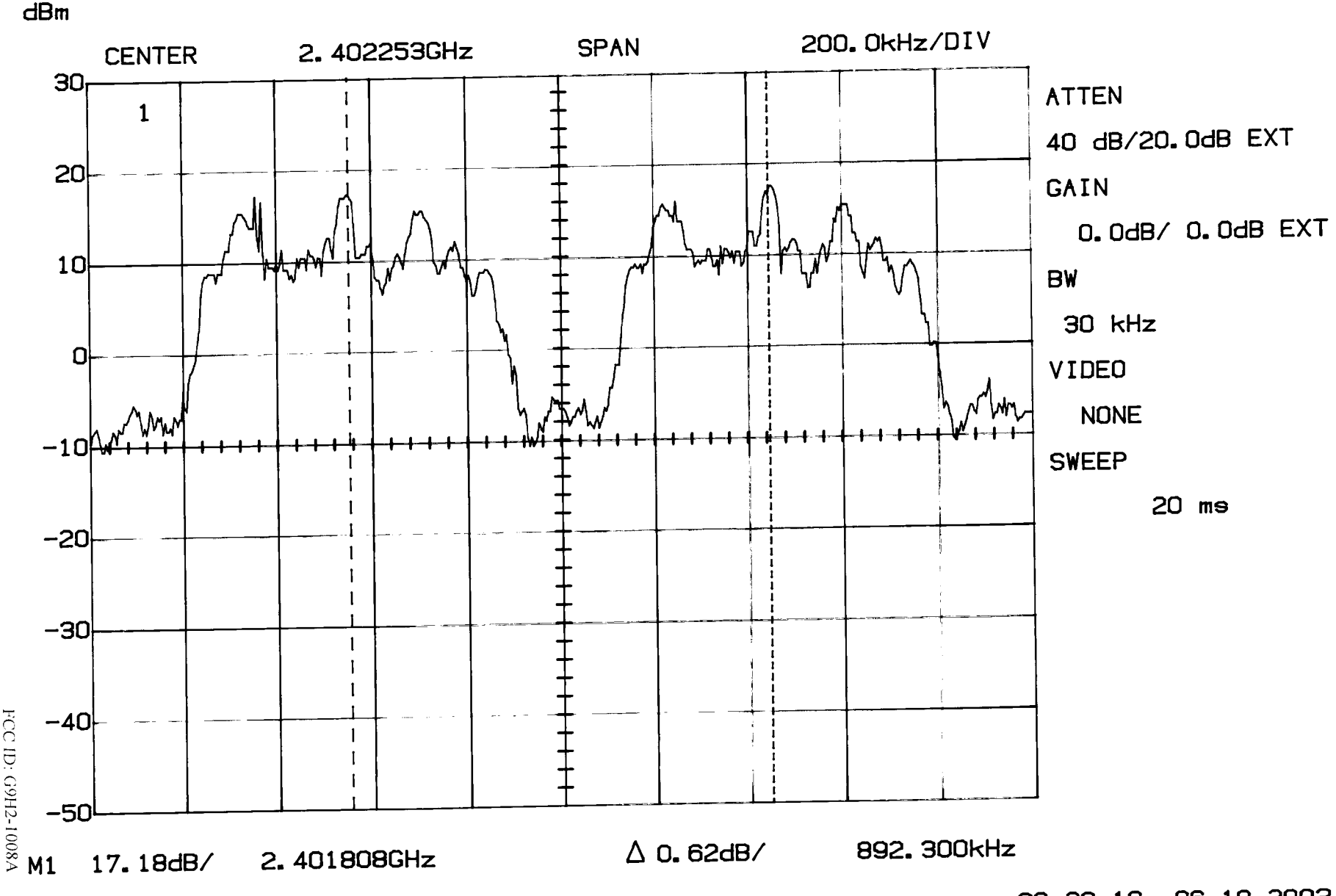
3. Measure the frequency difference of these two adjacent channels by SA MARK function and then plot the result on the SA screen.

4. Repeat above procedures until all frequencies measured were complete.

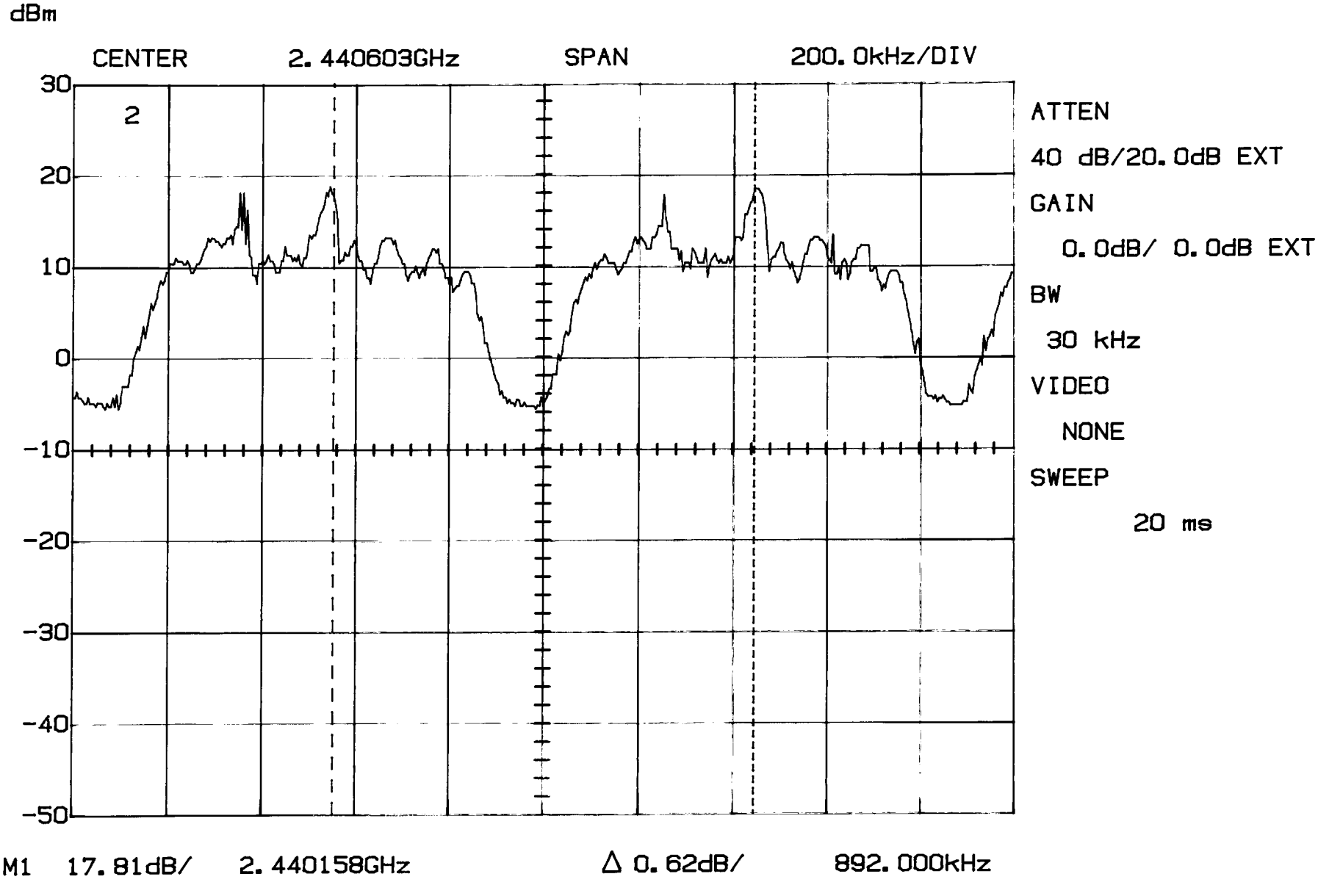
Measurement Data - Refer Exhibit D(1)-14 to 22 for plotted data

Base Unit (ATN0)	
Channel 1:	Adjacent Hopping Channel Separation is 892.3 kHz.
Channel 44:	Adjacent Hopping Channel Separation is 892 kHz.
Channel 88:	Adjacent Hopping Channel Separation is 905 kHz.
Base Unit (ATN1)	
Channel 1:	Adjacent Hopping Channel Separation is 892 kHz.
Channel 44:	Adjacent Hopping Channel Separation is 900 kHz.
Channel 88:	Adjacent Hopping Channel Separation is 894 kHz.
Handset Unit	
Channel 1:	Adjacent Hopping Channel Separation is 892 kHz.
Channel 44:	Adjacent Hopping Channel Separation is 900 kHz.
Channel 88:	Adjacent Hopping Channel Separation is 904 kHz.

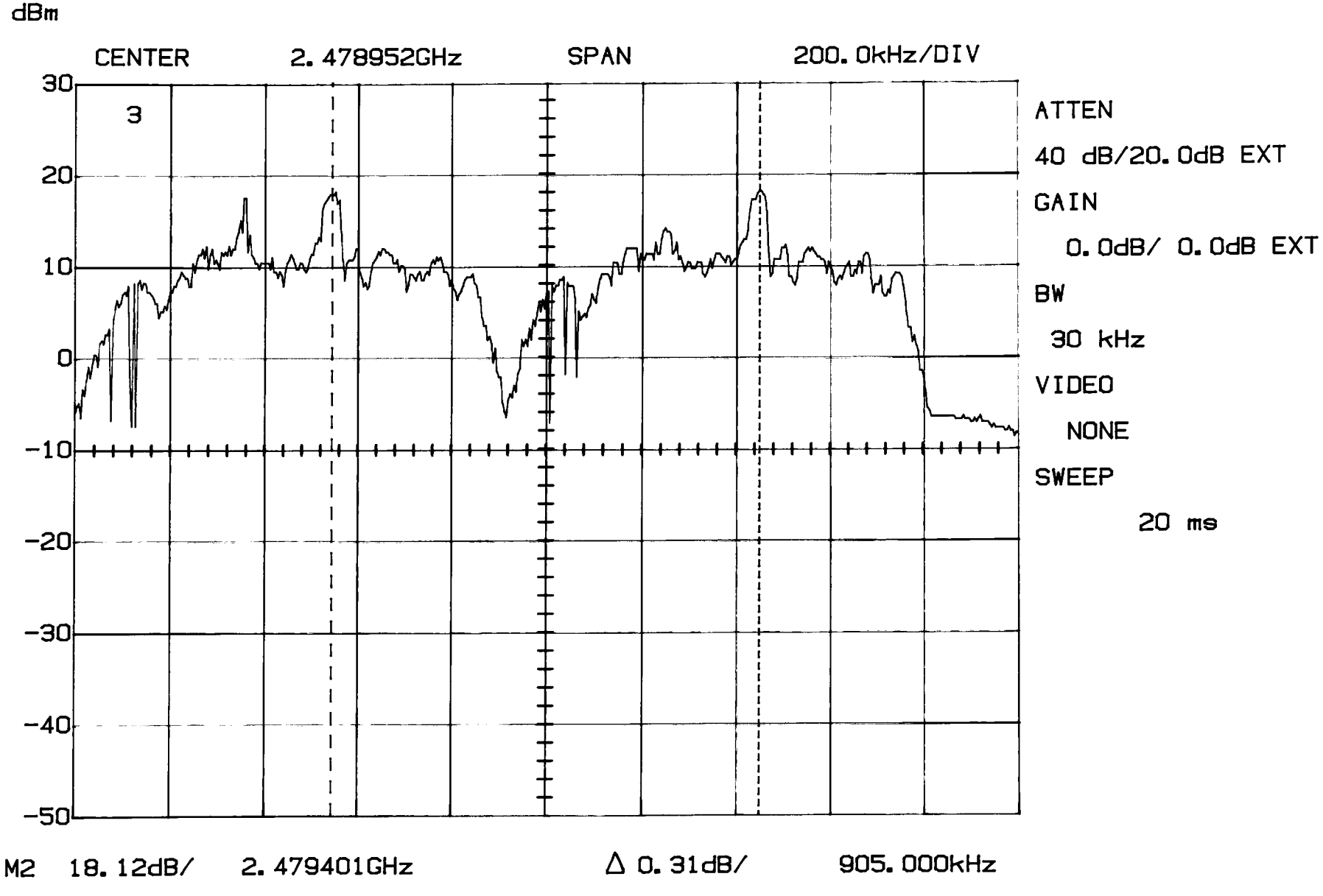
HOPPING CHANNEL SEPARATION
Channel 1 - Base -ANT0
MODEL 21008XXX-A



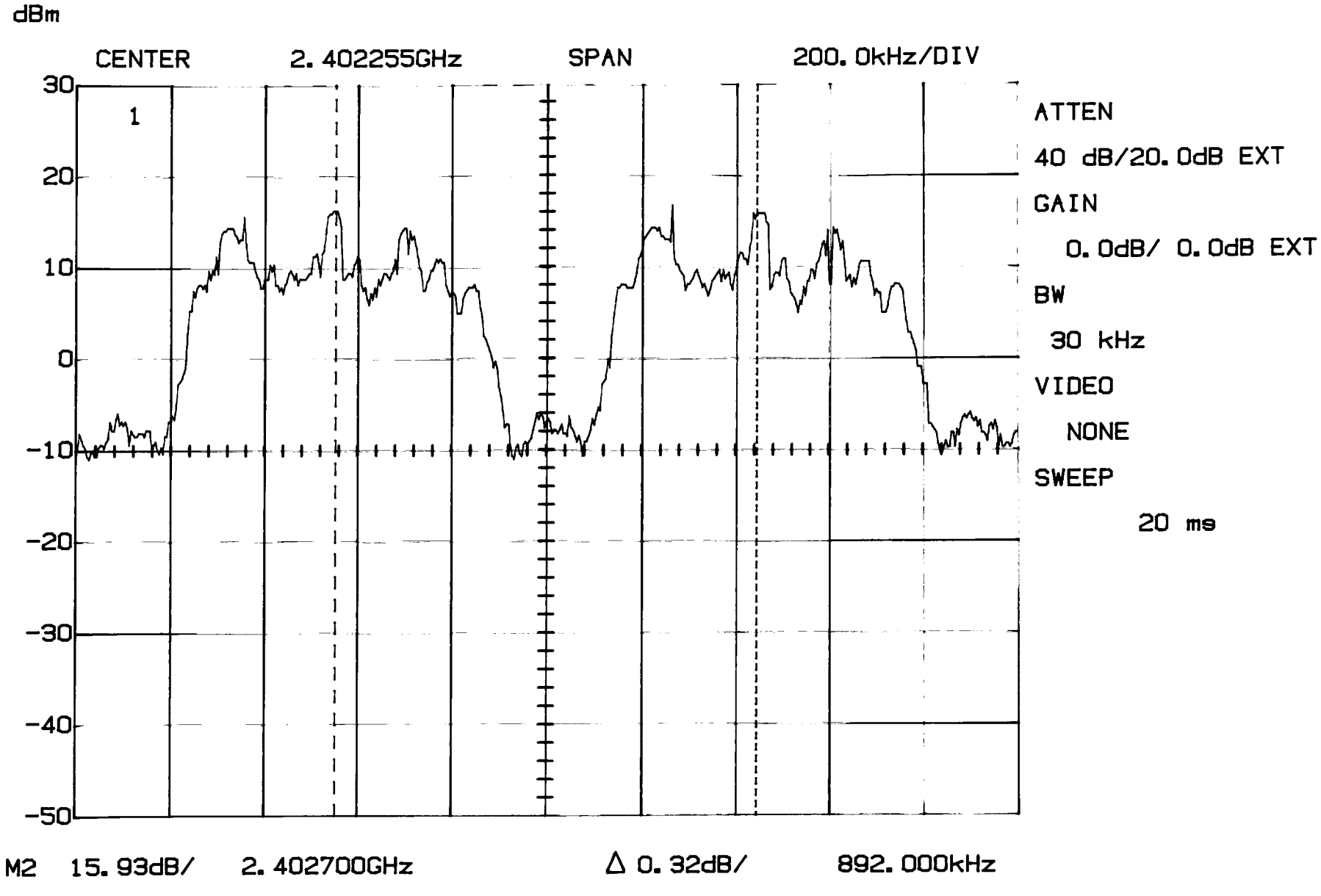
HOPPING CHANNEL SEPARATION
Channel 44 - Base - ANT0
MODEL 21008XXX-A



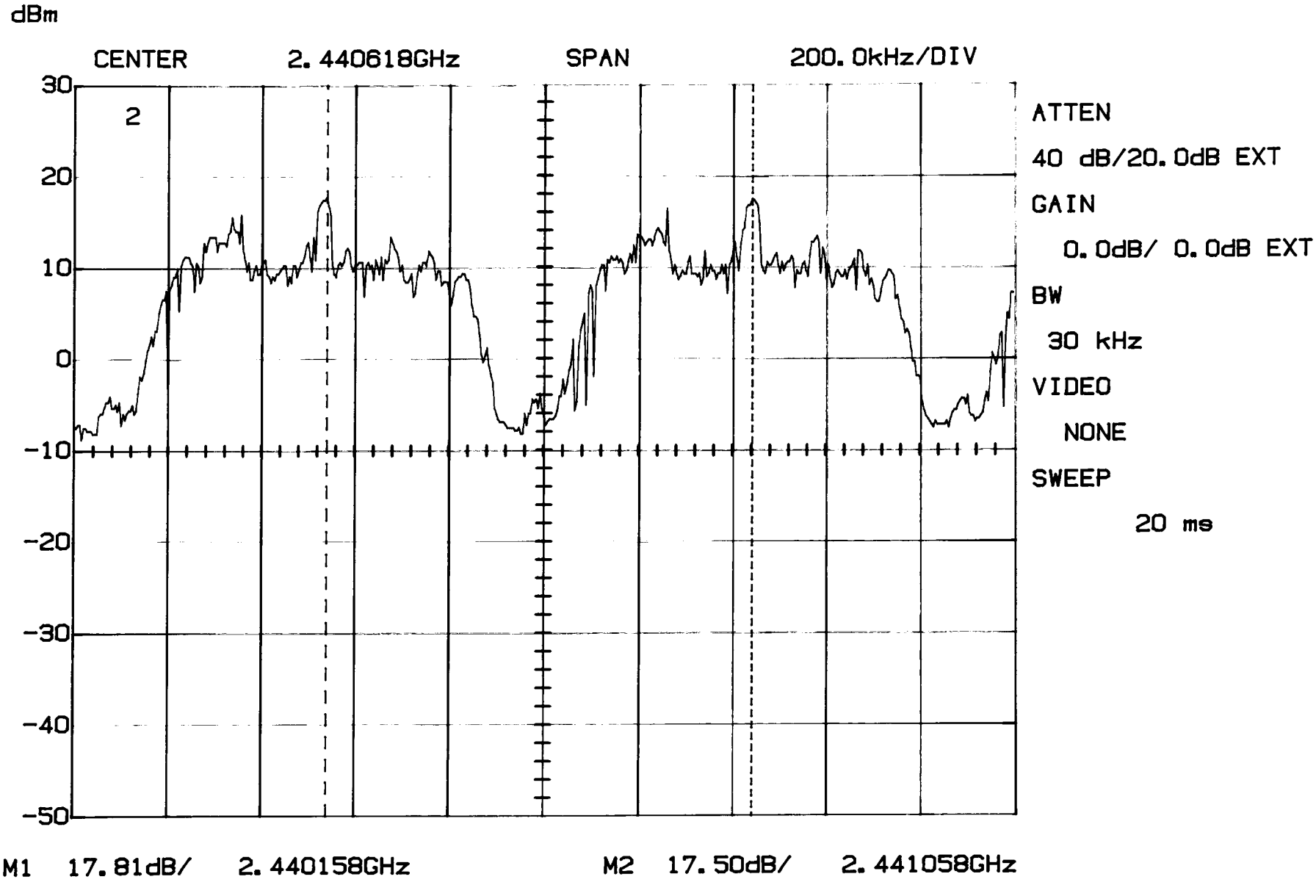
HOPPING CHANNEL SEPARATION
Channel 88 - Base - ANT0
MODEL 21008XXX-A



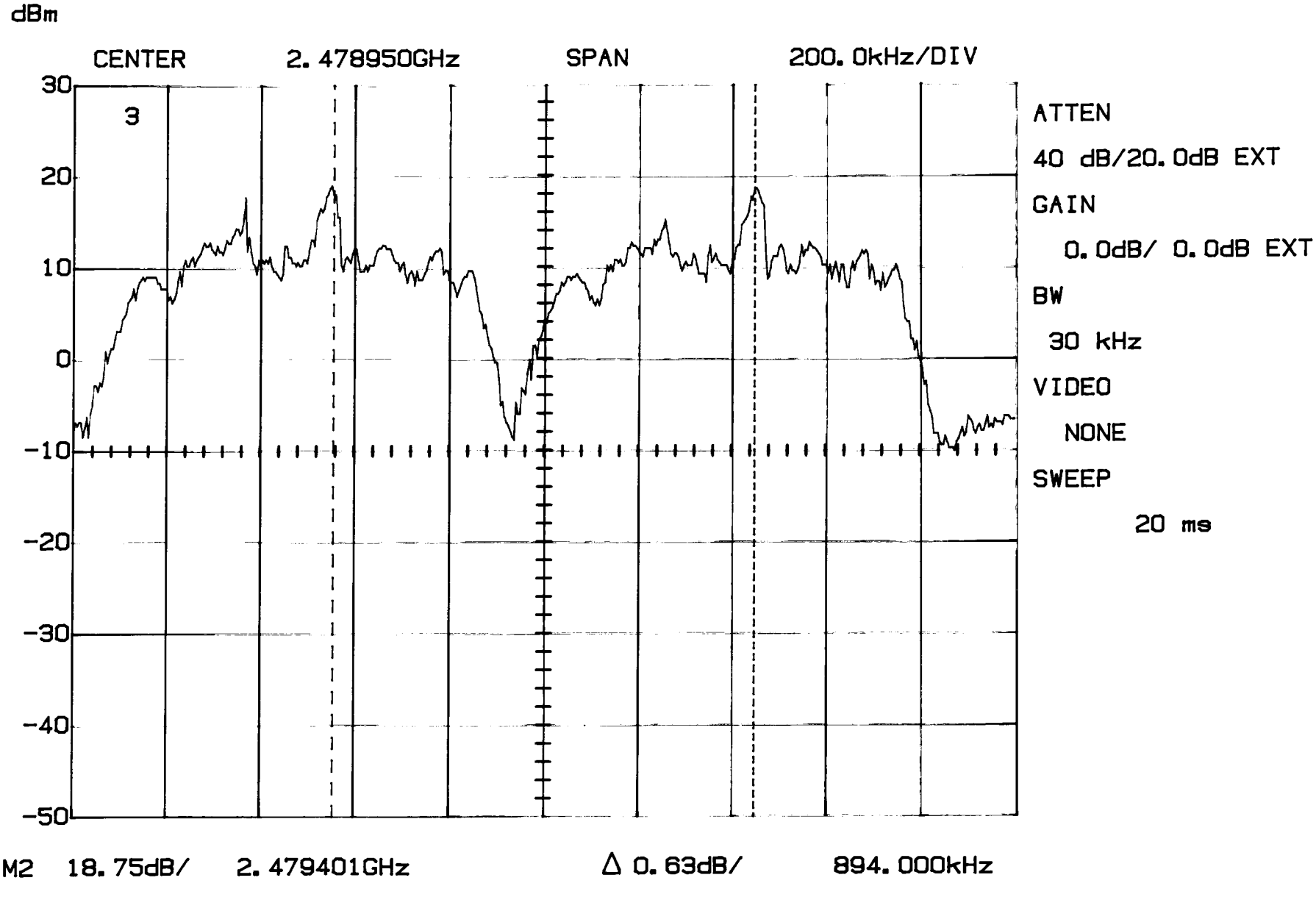
HOPPING CHANNEL SEPARATION
Channel 1 - Base - ANT1
MODEL 21008XXX-A



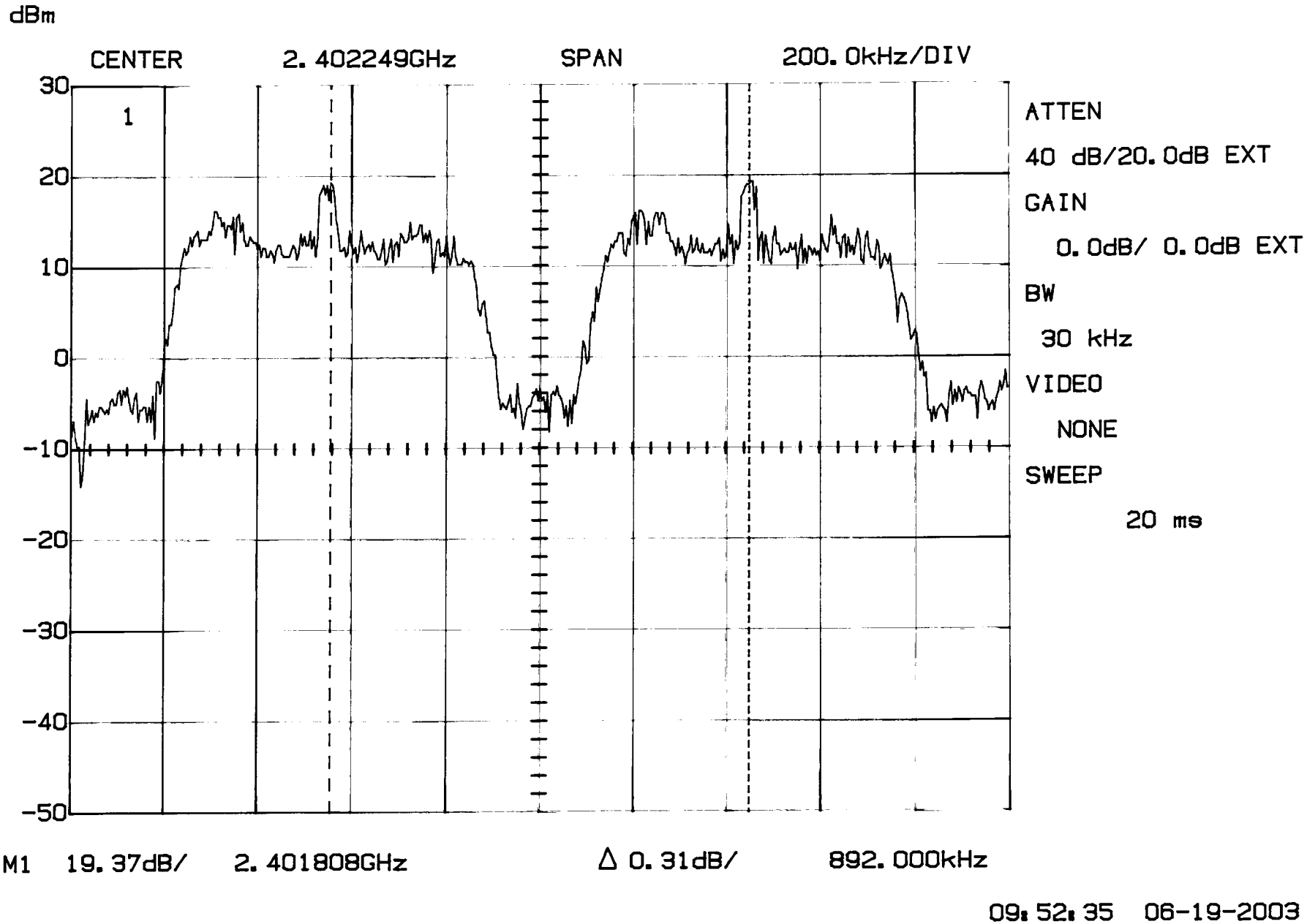
HOPPING CHANNEL SEPARATION
Channel 44 - Base -ANT1
MODEL 21008XXX-A



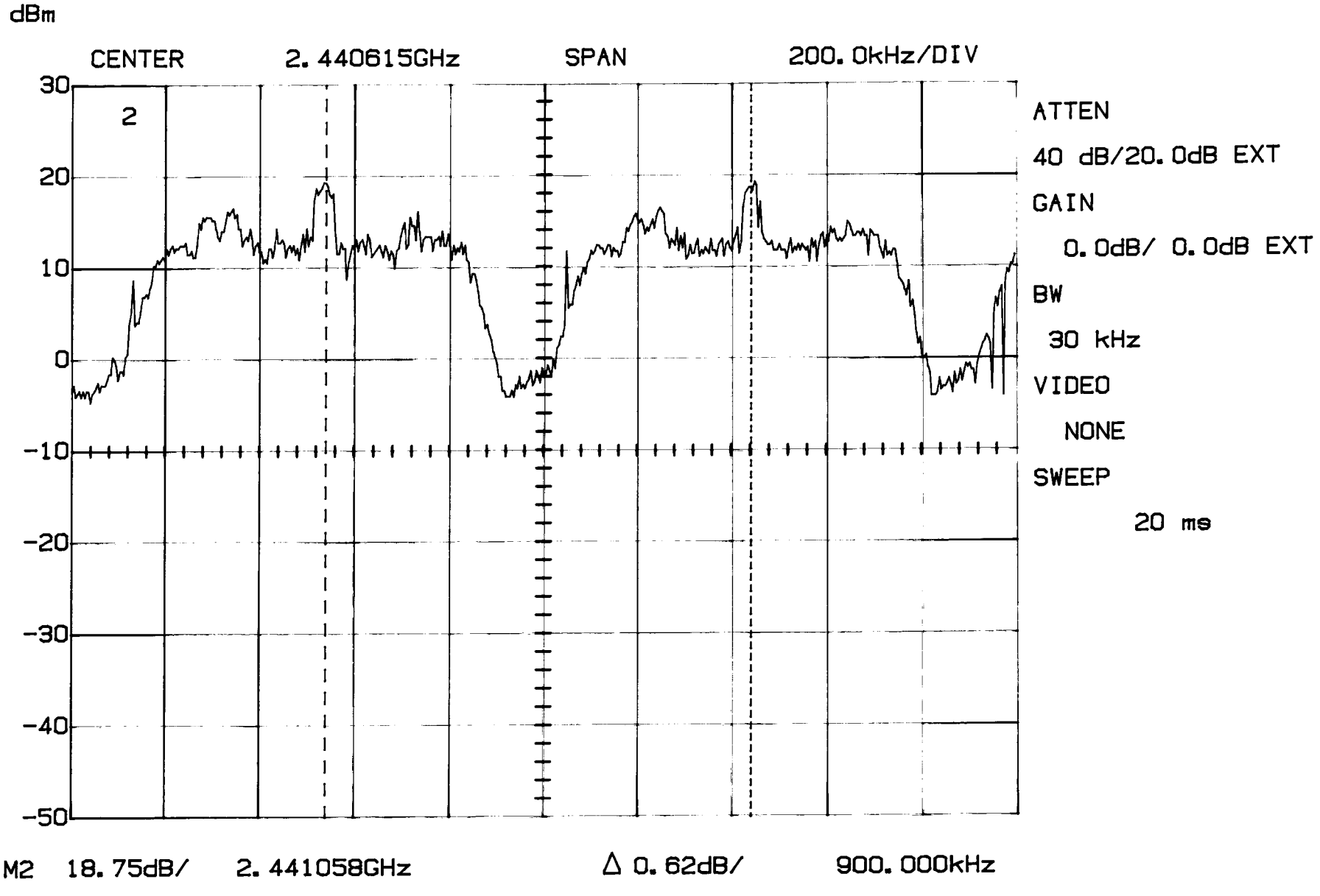
HOPPING CHANNEL SEPARATION
Channel 88 - Base - ANT1
MODEL 21008XXX-A



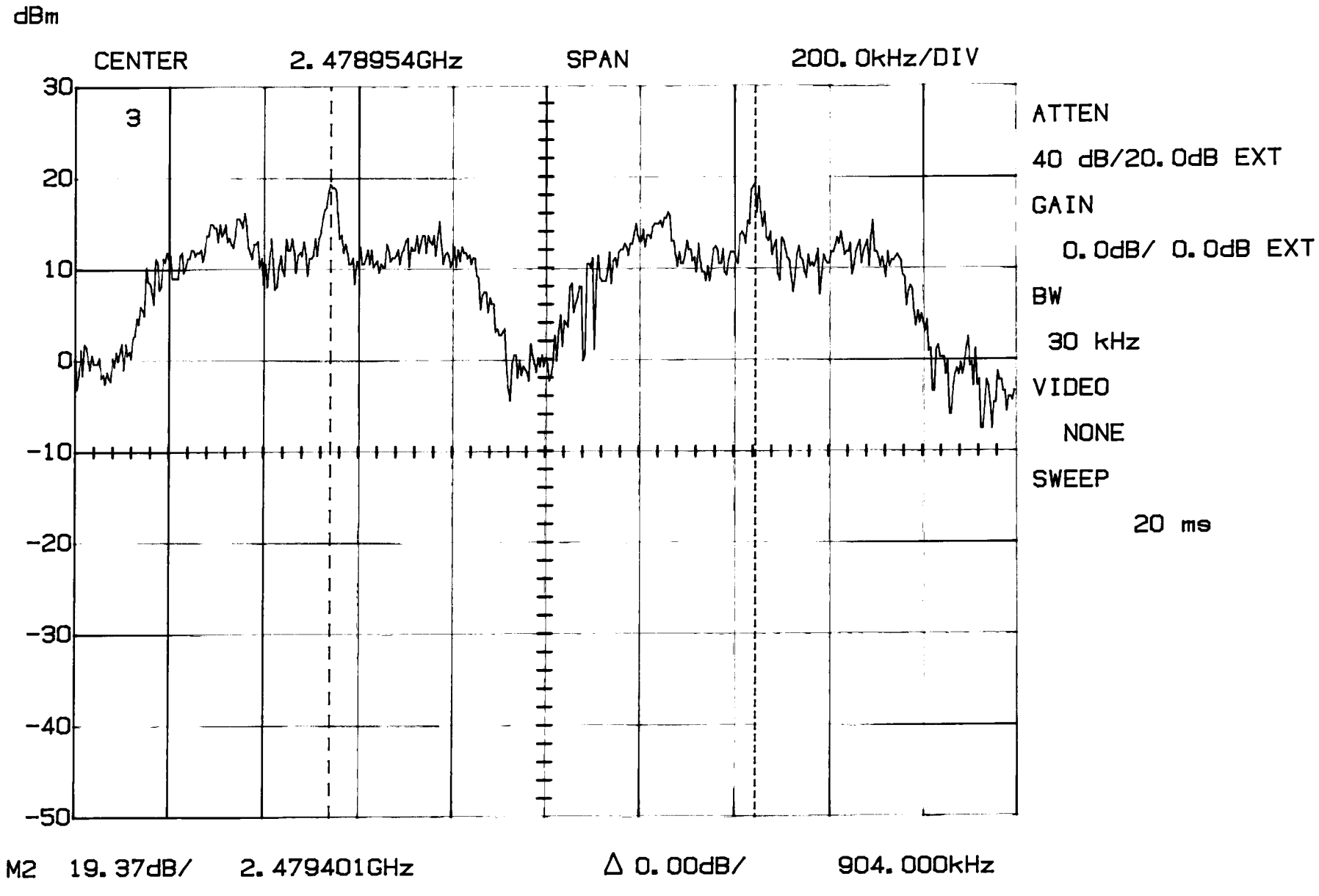
HOPPING CHANNEL SEPARATION
Channel 1 - Handset
MODEL 21008XXX-A



HOPPING CHANNEL SEPARATION
Channel 44 - Handset
MODEL 21008XXX-A



HOPPING CHANNEL SEPARATION
Channel 88 - Handset
MODEL 21008XXX-A



15.247(a)(1)(ii) FREQUENCY HOPPING SYSTEMS

NUMBER OF HOPPING FREQUENCIES USED

Requirements:

Frequency hopping systems operating in the 2400-2483.5 MHz band shall use at least 15 non-overlapping channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems which use fewer than 75 hopping frequencies may employ intelligent hopping techniques to avoid interference to other transmissions. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 non-overlapping channels are used.

Measurement Procedure

1. Position the EUT without connection to Spectrum Analyzer (SA). Turn on the EUT and connect its antenna terminal to SA via a low loss cable and set it to any one measured frequency within its operating range and ensure that the SA is operated in its linear range.
2. Set the SA on MaxHold Mode, and then keep the EUT in hopping mode. Record all of the signals from each channel until each one has been recorded.
3. Set the SA on View mode and plot the results on SA screen.
4. Repeat the above procedures until all frequencies measured are complete.

Measurement Data

The base has 75 hopping frequencies and the handset has 75 hopping frequencies. **Refer Exhibit D(1)-24 and -27 for plotted data.**

CHANNEL BANDWIDTH [15.247(a)]

Requirements:

The 20dB bandwidth of the hopping channel is less than 1 MHz.

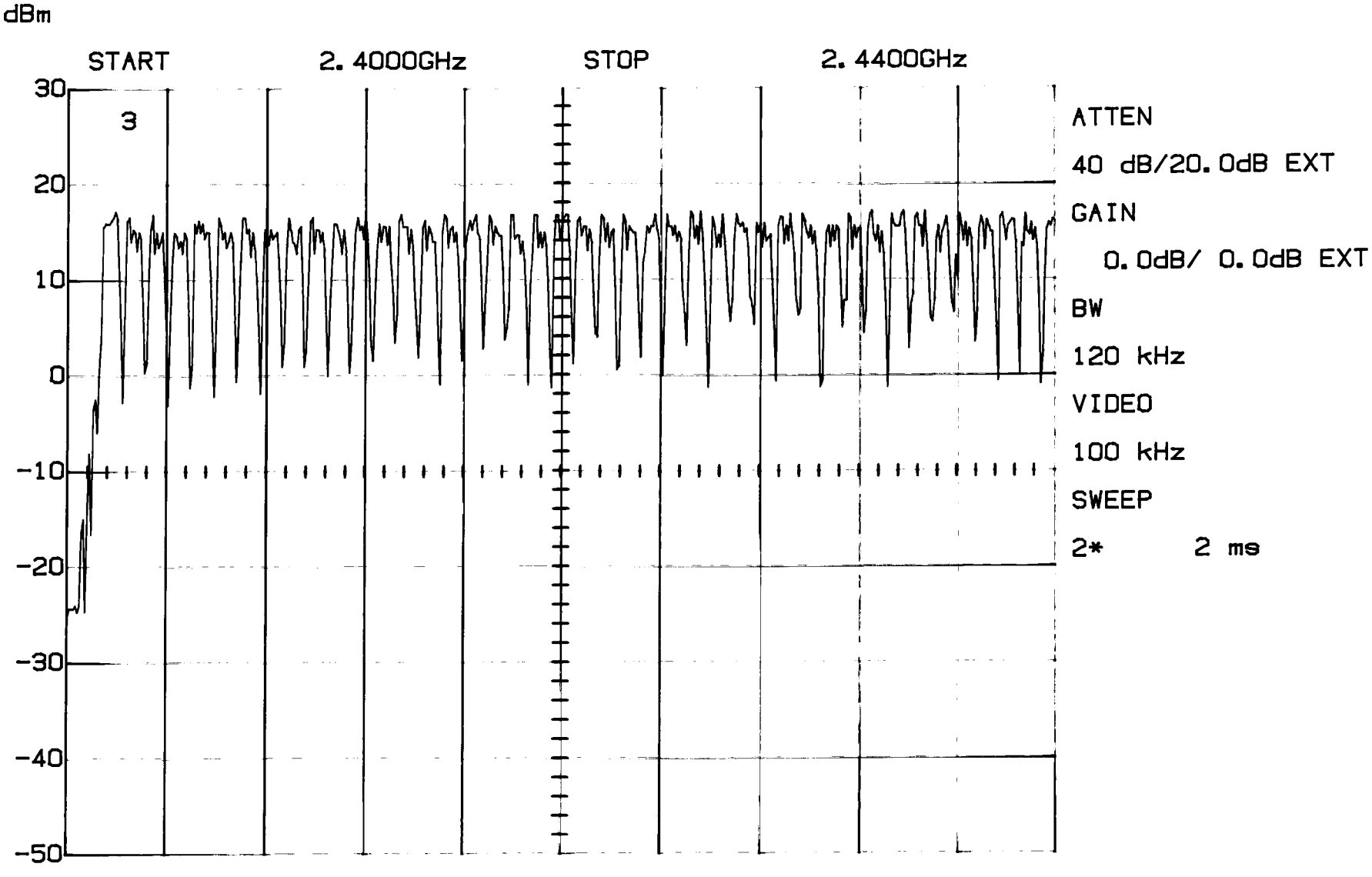
Measurement Procedure

1. Position the EUT without connection to the Spectrum Analyzer (SA). Turn on the EUT and connect it to the SA. Then set it to any one convenient frequency within its operating range. Set a reference level on the SA equal to the highest peak value.
2. Measure the frequency difference of two frequencies that were attenuated 20dB from the reference level. Record the frequency difference as the emission bandwidth.
3. Repeat above procedures until all frequencies measured were complete.

Measurement Data - **Refer Exhibit D(1)-28 to -36 for plotted data**

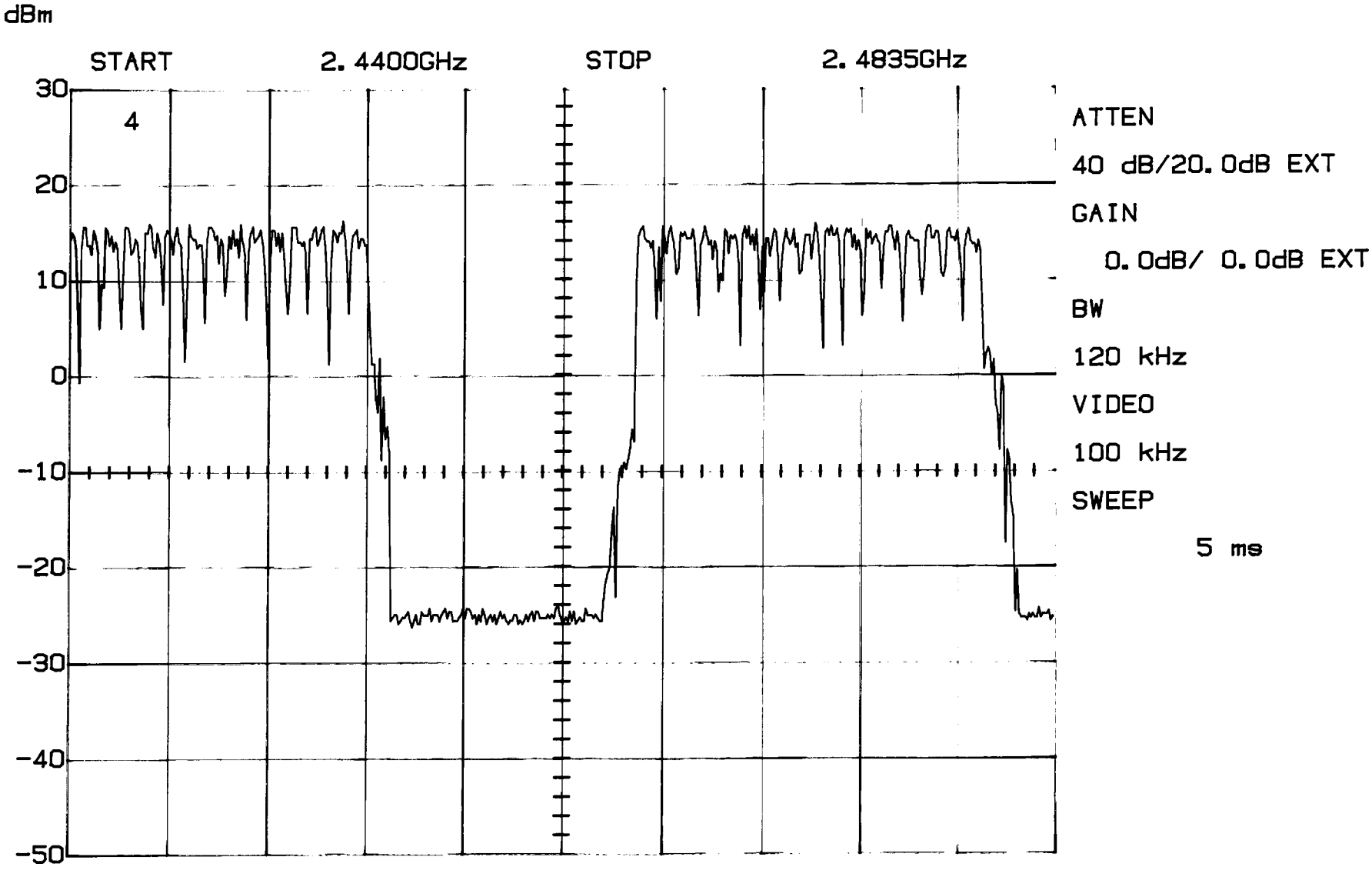
Base (ANT0)	Channel 1:	Channel Bandwidth is 715 kHz.
	Channel 44:	Channel Bandwidth is 811 kHz.
	Channel 88:	Channel Bandwidth is 905 kHz.
Base (ANT1)	Channel 1:	Channel Bandwidth is 854 kHz.
	Channel 44:	Channel Bandwidth is 789 kHz.
	Channel 88:	Channel Bandwidth is 715 kHz.
Handset Unit	Channel 1:	Channel Bandwidth is 722 kHz.
	Channel 44:	Channel Bandwidth is 805 kHz
	Channel 88:	Channel Bandwidth is 800 kHz

FREQUENCY HOPPING
Base
MODEL 21008XXX-A

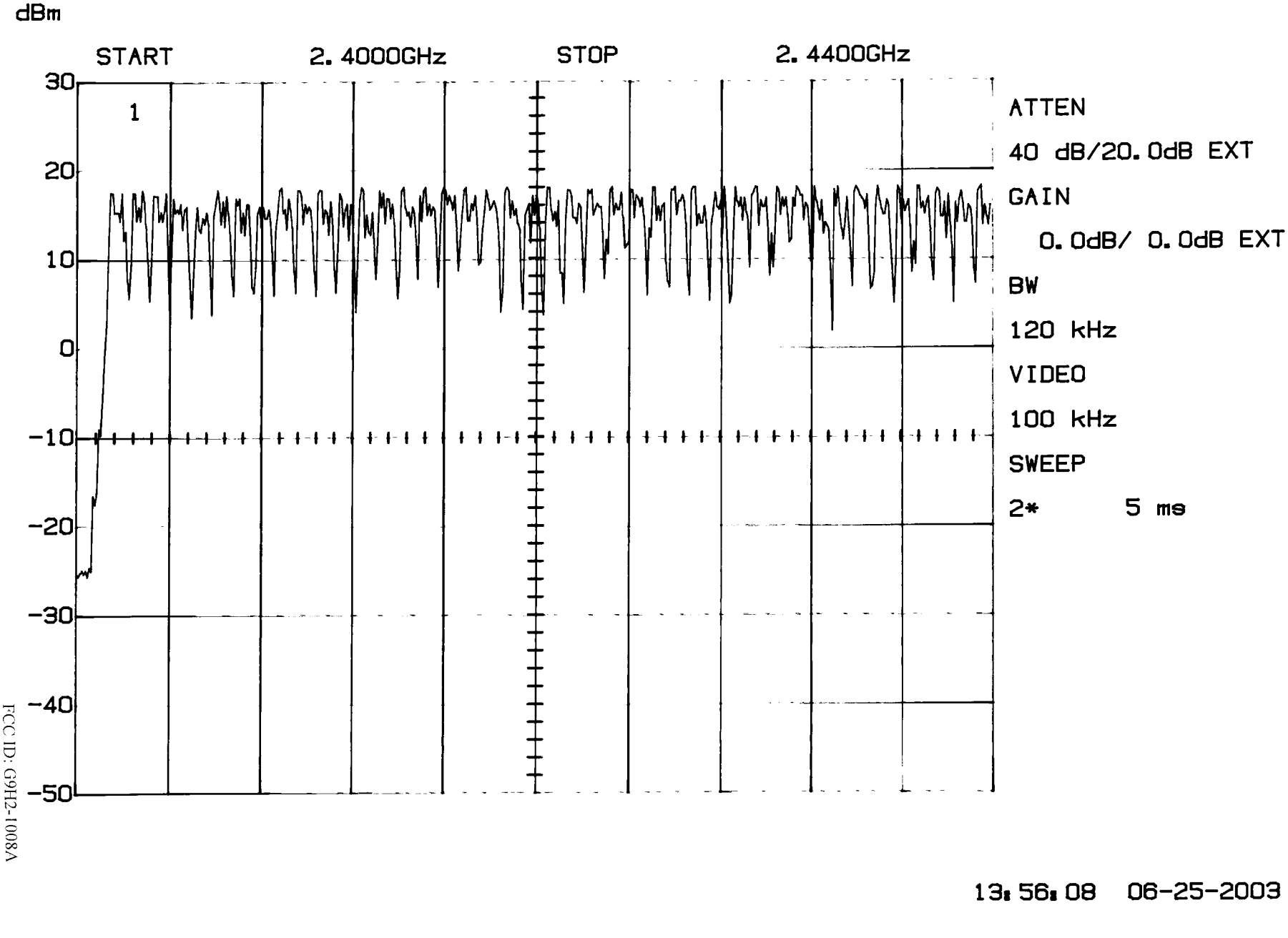


15:38:46 06-25-2003

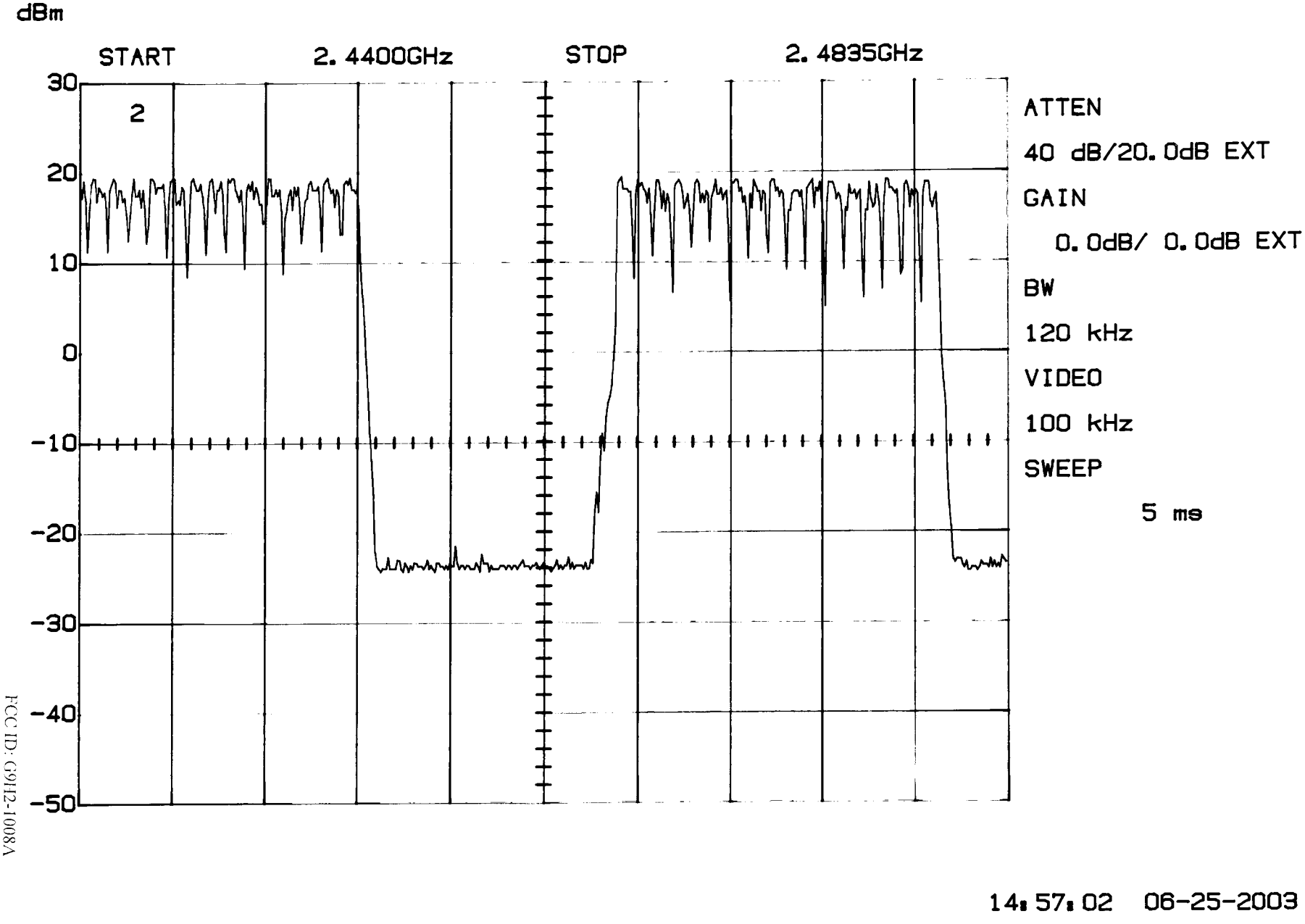
FREQUENCY HOPPING
Base
MODEL 21008XXX-A



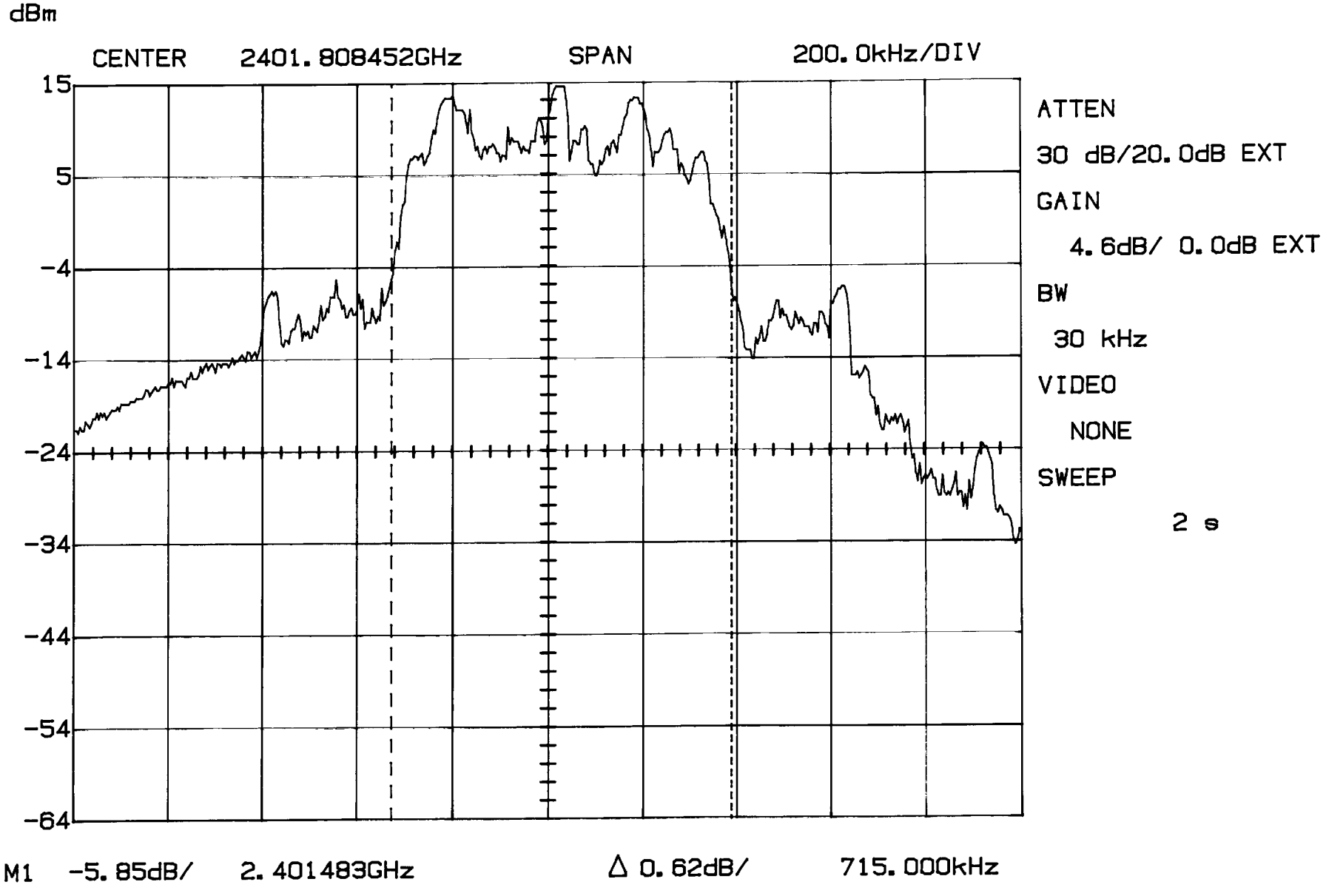
FREQUENCY HOPPING
Handset
MODEL 21008XXX-A



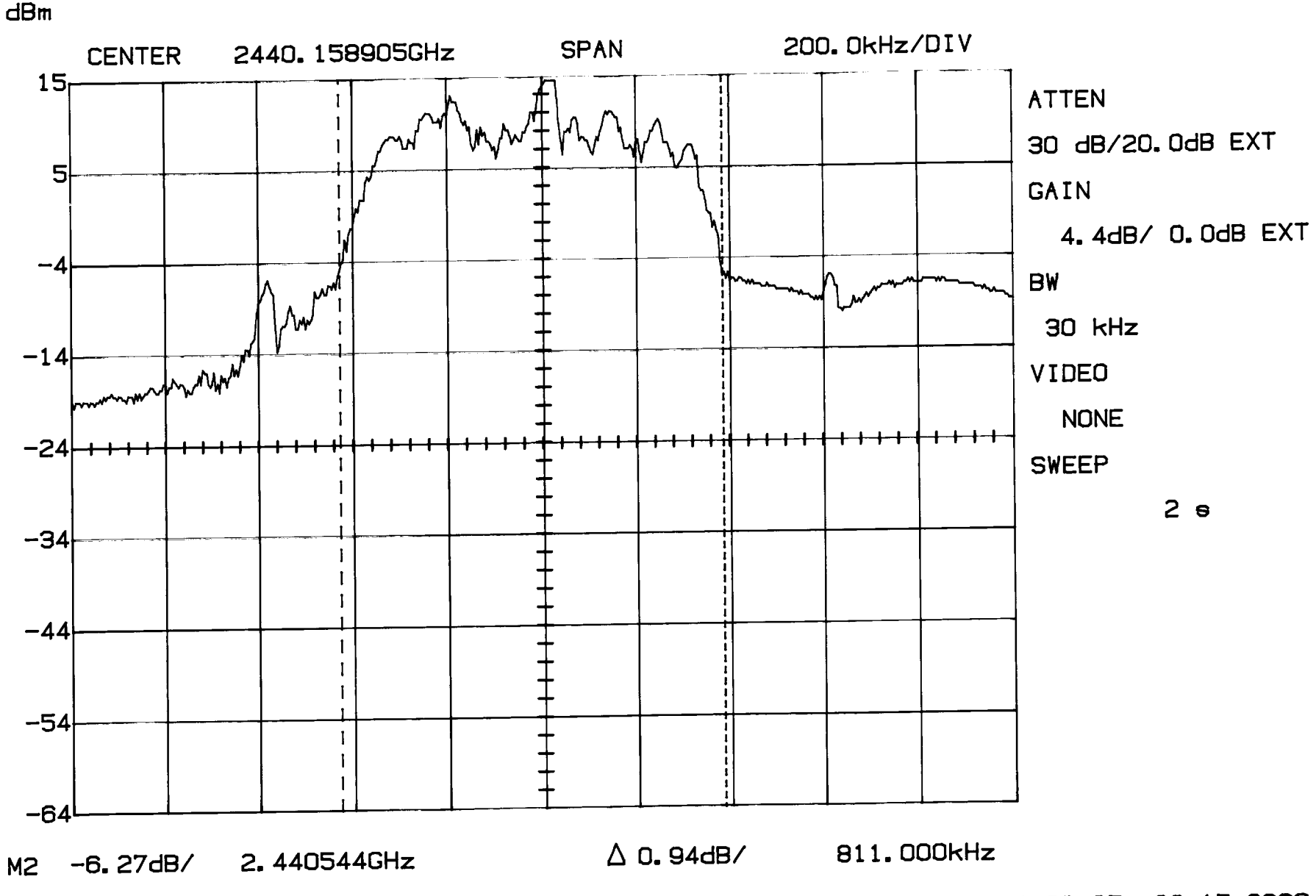
FREQUENCY HOPPING
Handset
MODEL 21008XXX-A



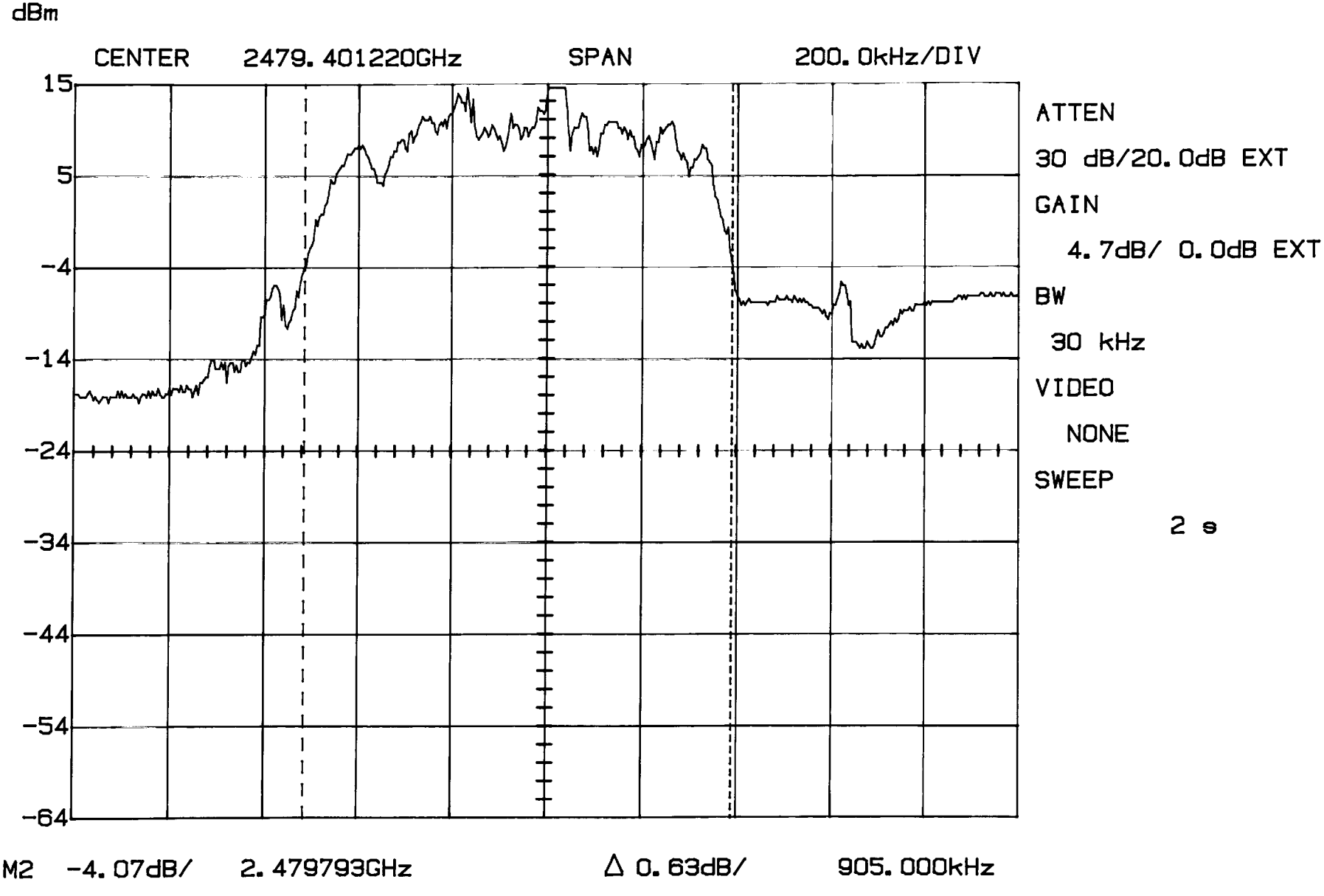
20dB BANDWIDTH
Channel 1 - Base - ANT0
MODEL 21008XXX-A



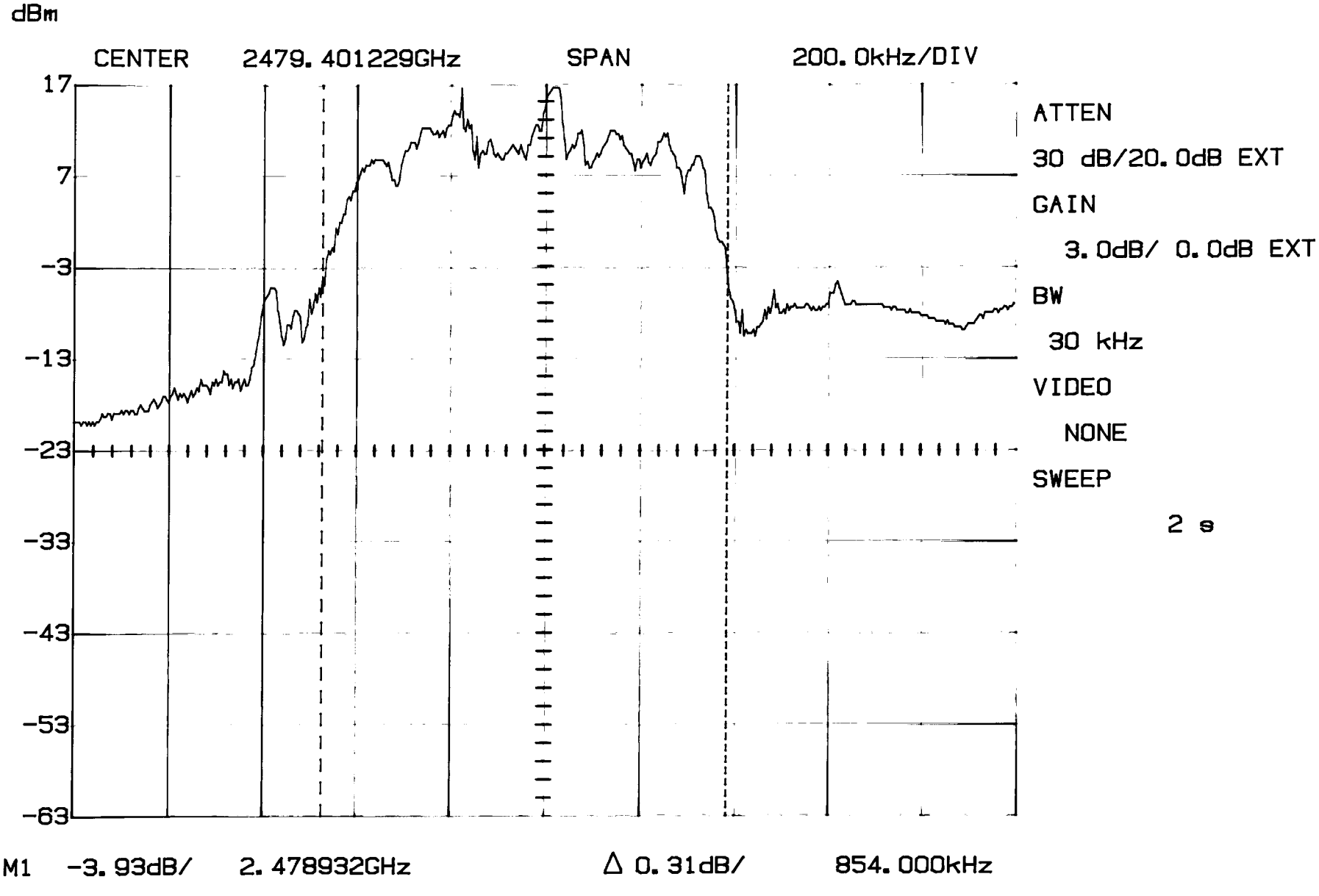
20dB BANDWIDTH
Channel 44 - Base - ANT0
MODEL 21008XXX-A



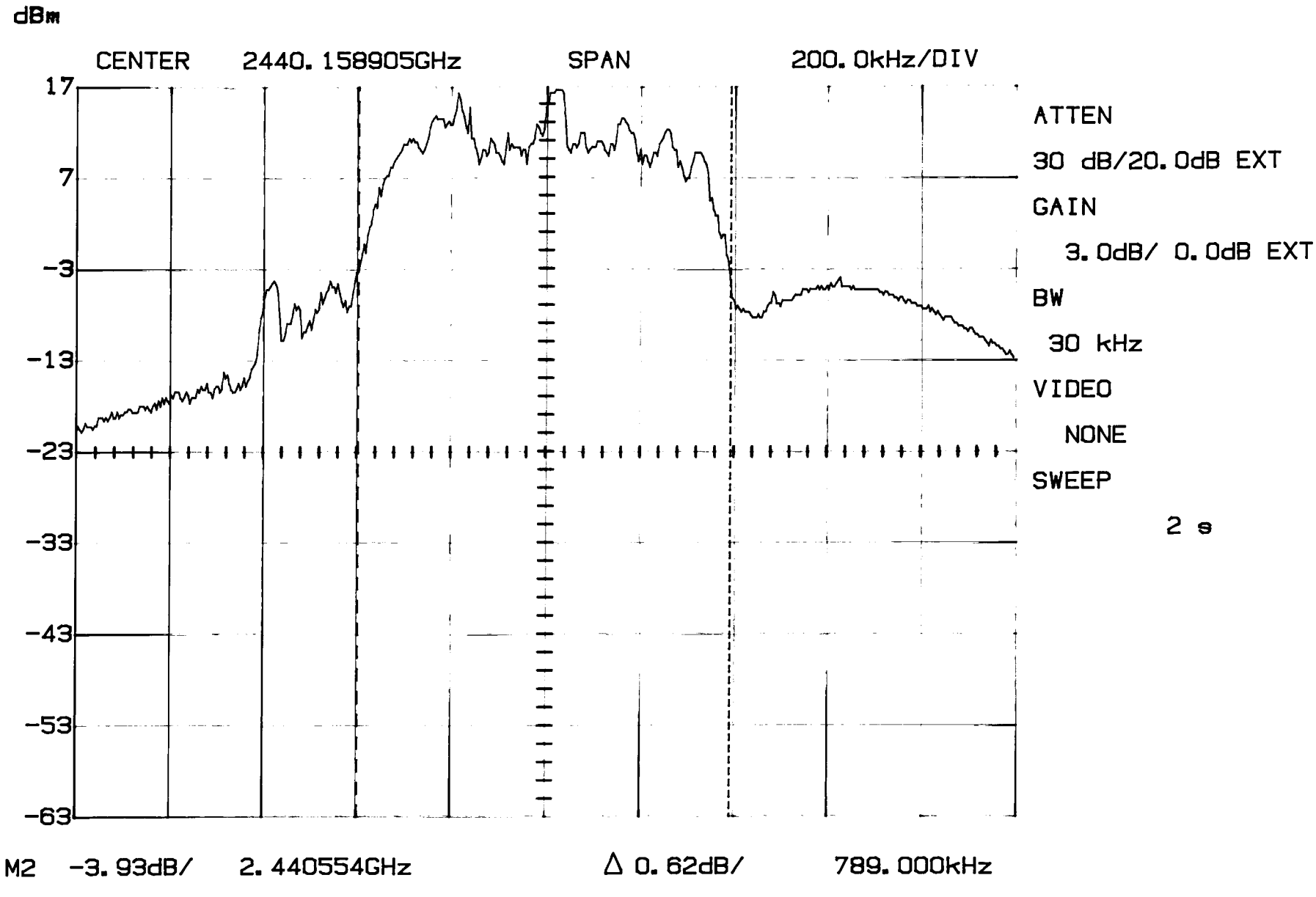
20dB BANDWIDTH
Channel 88 - Base - ANT0
MODEL 21008XXX-A



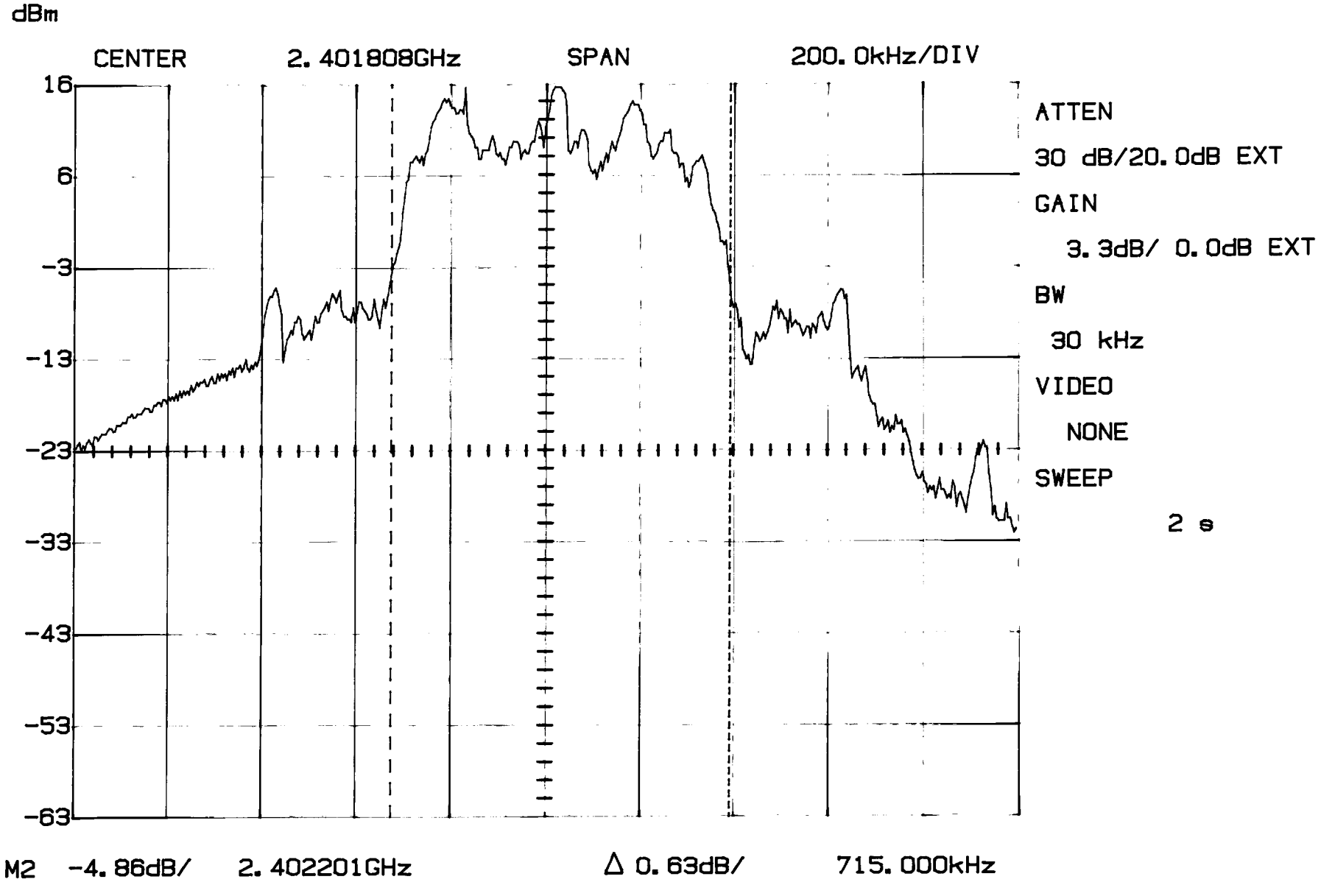
20dB BANDWIDTH
Channel 1 - Base - ANT1
MODEL 21008XXX-A



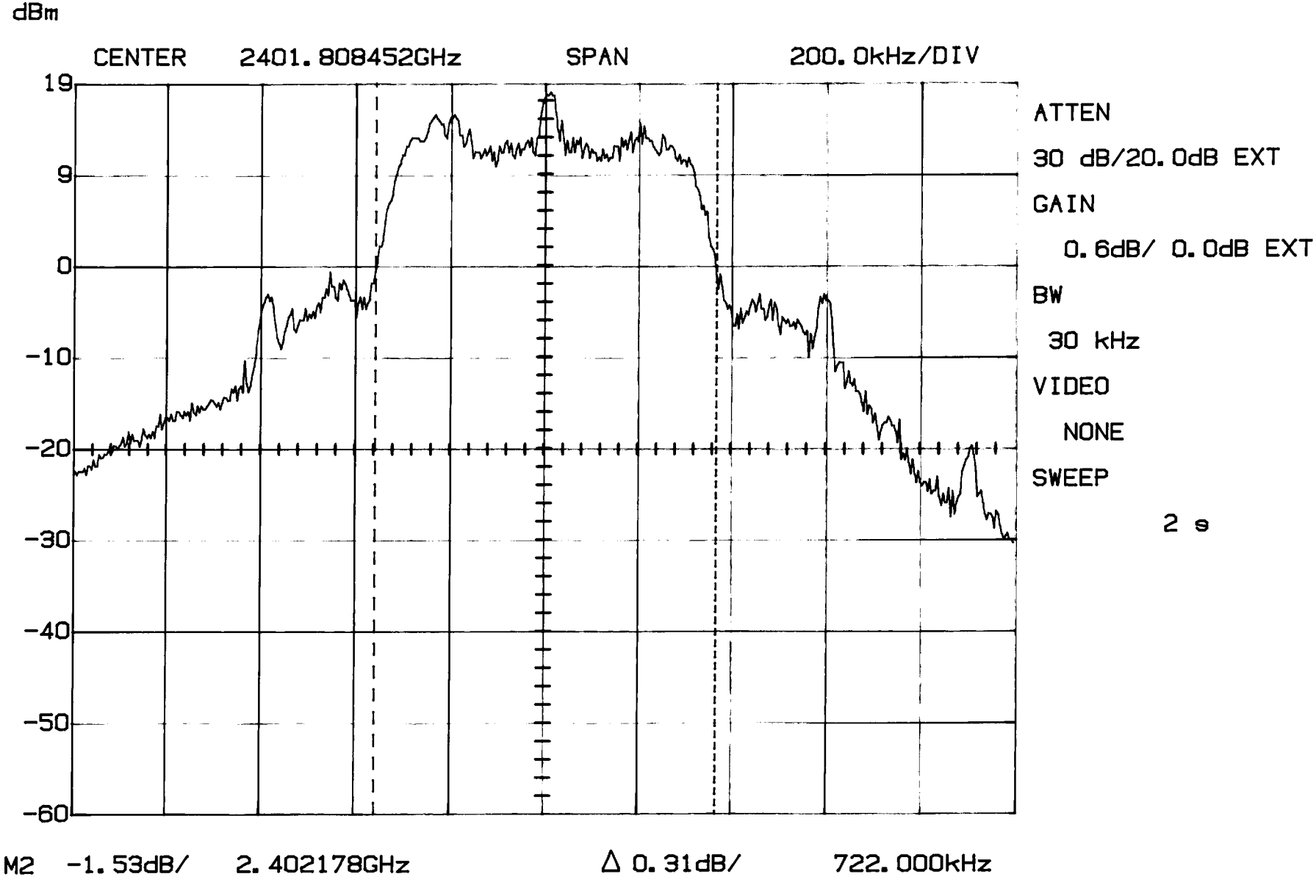
20dB BANDWIDTH
Channel 44 - Base - ANT1
MODEL 21008XXX-A



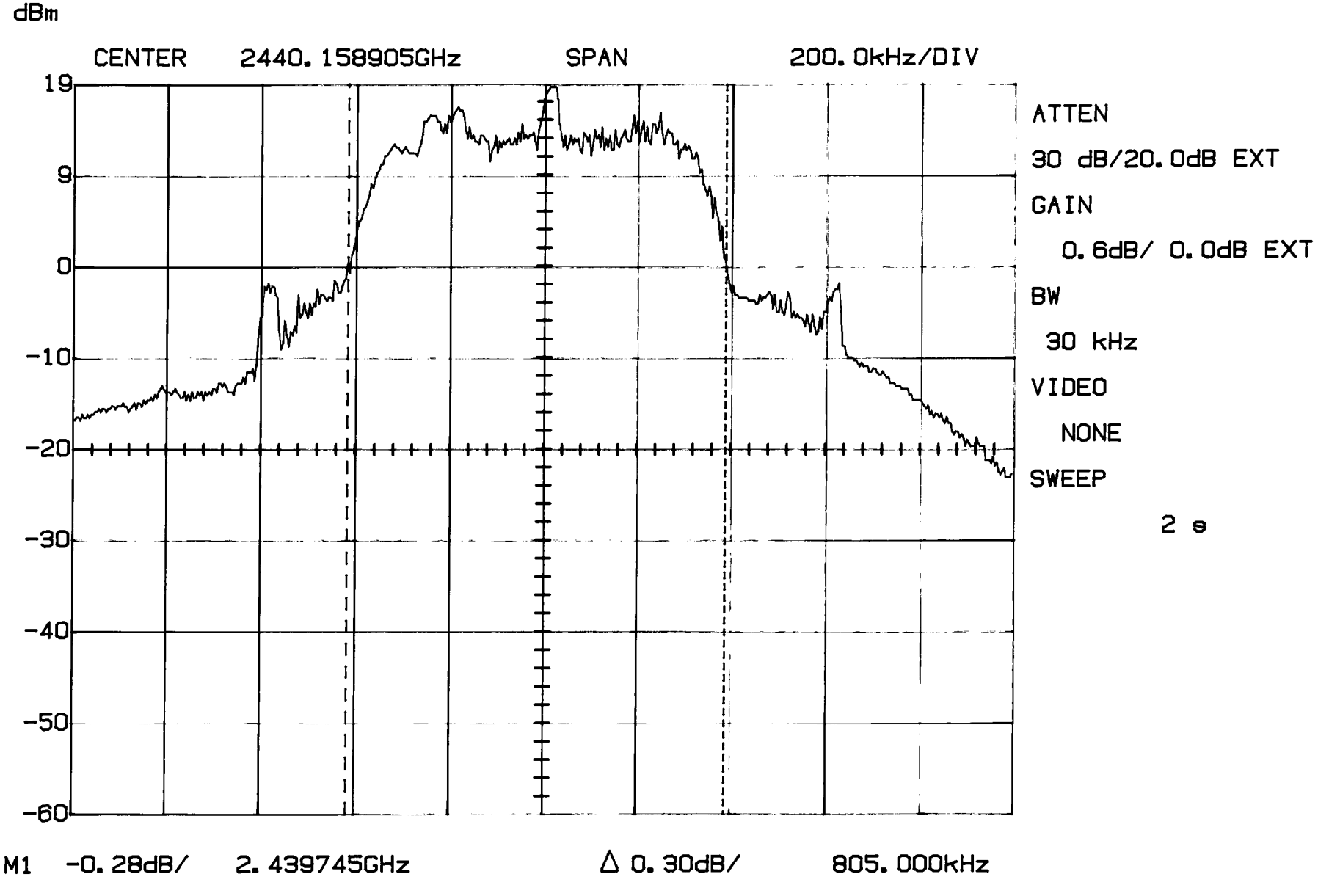
20dB BANDWIDTH
Channel 88 - Base - ANT1
MODEL 21008XXX-A



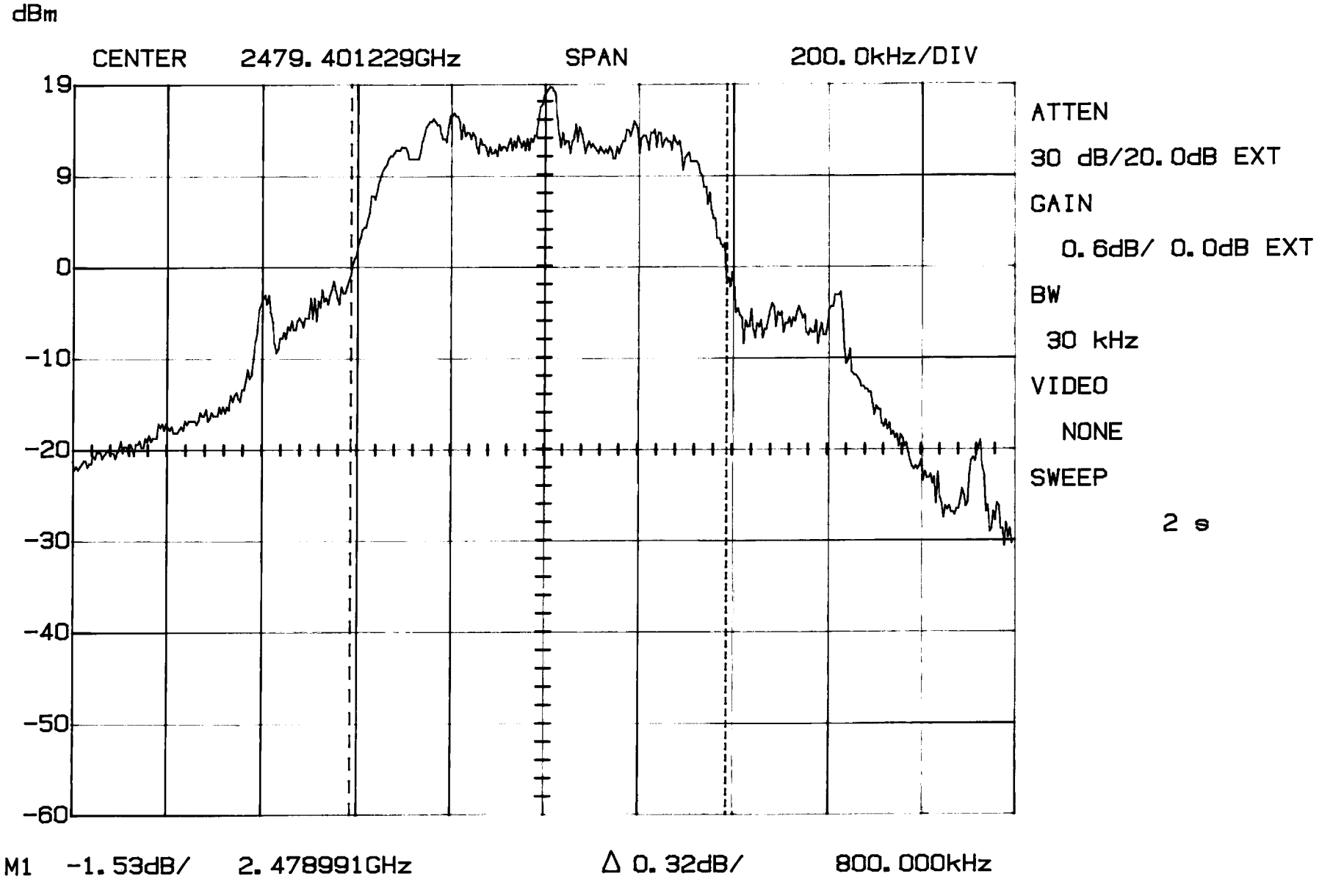
20dB BANDWIDTH
Channel 1 - Handset
MODEL 21008XXX-A



20dB BANDWIDTH
Channel 44 - Handset
MODEL 21008XXX-A



20dB BANDWIDTH
Channel 88 - Handset
MODEL 21008XXX-A



15.247(a)(1)(ii) FREQUENCY HOPPING SYSTEMS (continued)

DWELL TIME ON EACH CHANNEL

Requirements:

The average time of occupancy on any frequency shall not be greater than 0.4 seconds within a (0.4 x **75)** 30 second period.

Measurement Procedure

1. Position the EUT without connection to Spectrum Analyzer (SA). Turn on the EUT and connect its antenna terminal to SA via a low loss cable and set it to any one measured frequency within its operating range and ensure that the SA is operated in its linear range.

2. Adjust the centre frequency of SA on any frequency to be measured and set SA to zero span mode. Set RBW and VBW of SA to proper value.

3. Measure the time duration of one transmission on the measured frequency and then plot the result with the time difference of this time duration.

4. Repeat the above procedures until all frequencies measured were complete.

Measurement Data - Refer Exhibit D(1)-38 to -44 for plotted data.

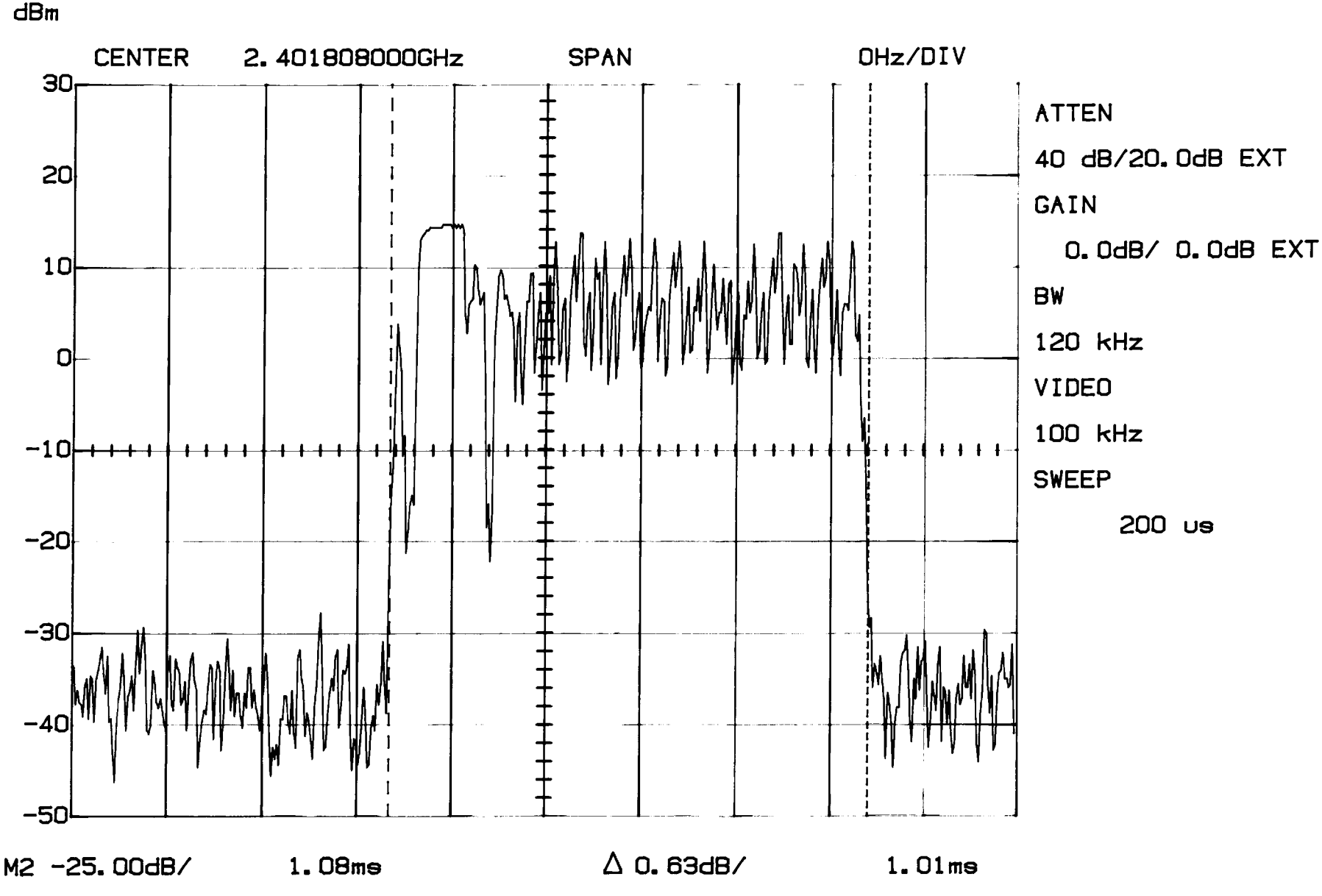
Base Unit
The dwell time is (1.01 x 2) + .25 = 2.27 mS

The maximum time of occupancy for a particular channel is 90.8 mS in any 30 second period.

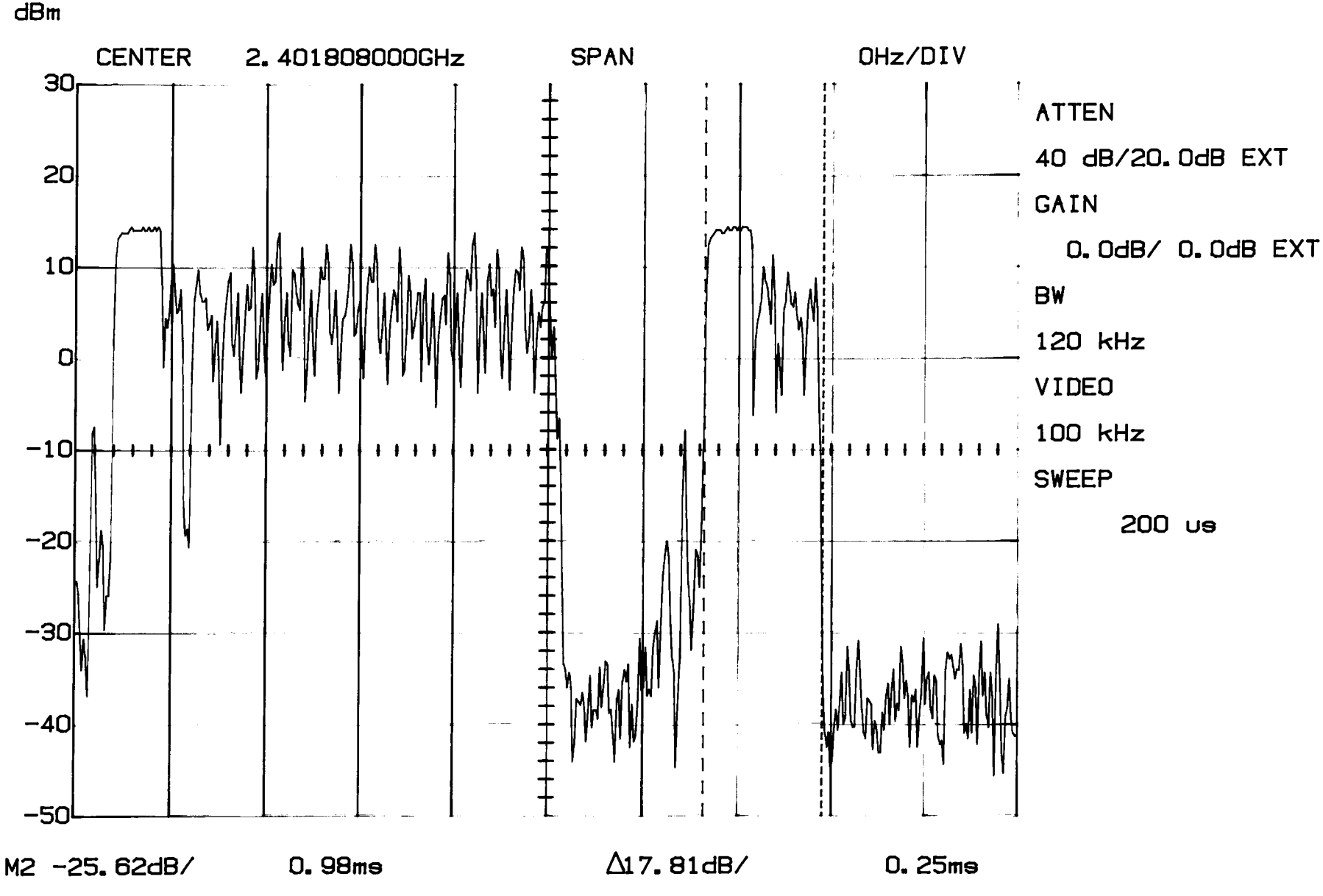
Handset Unit
The dwell time is 1 x 2 = 2 mS

The maximum time of occupancy for a particular channel is 80 mS in any 30 second period.

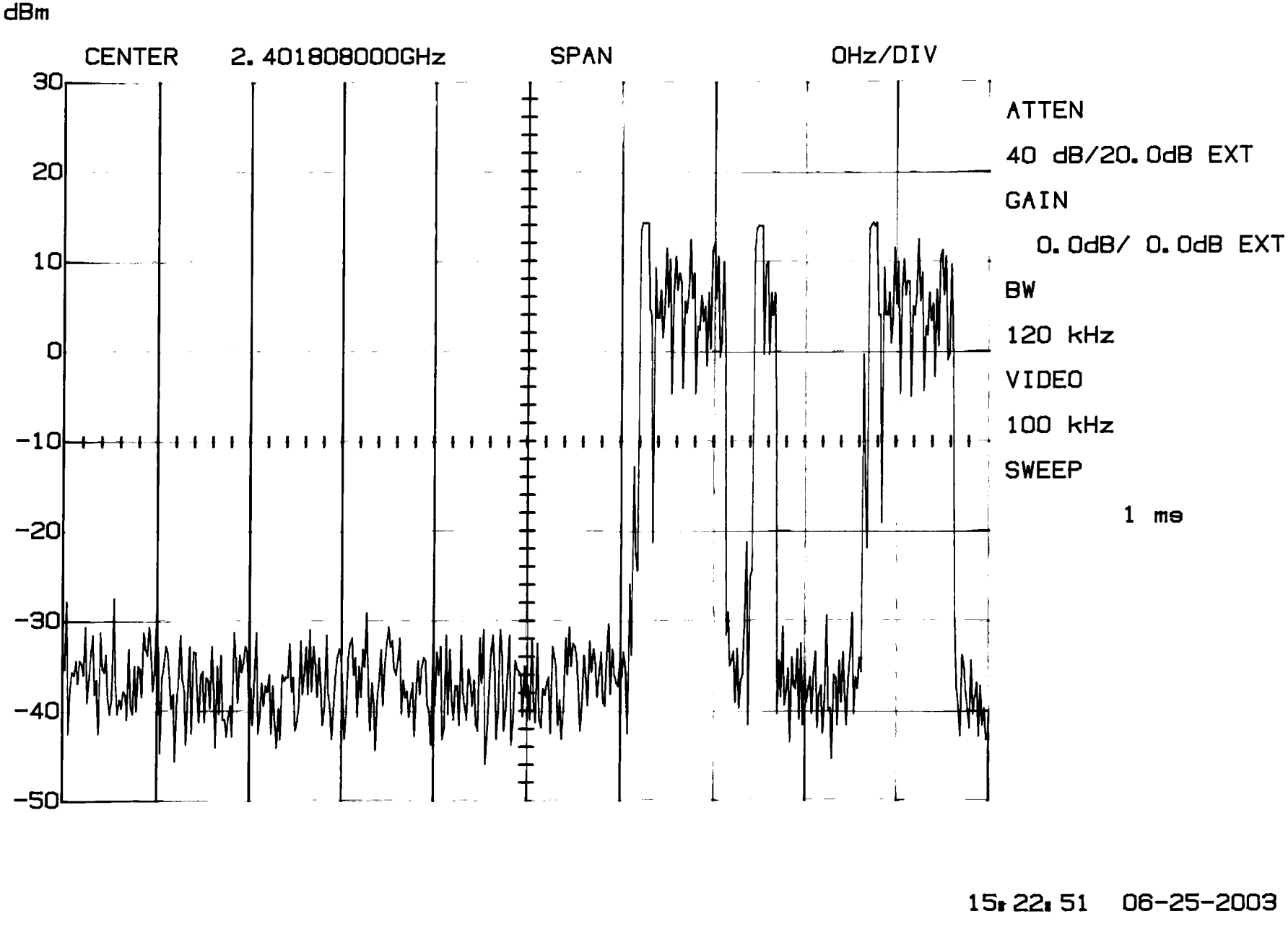
DWELL TIME (Time Slot)
Base
MODEL 21008XXX-A



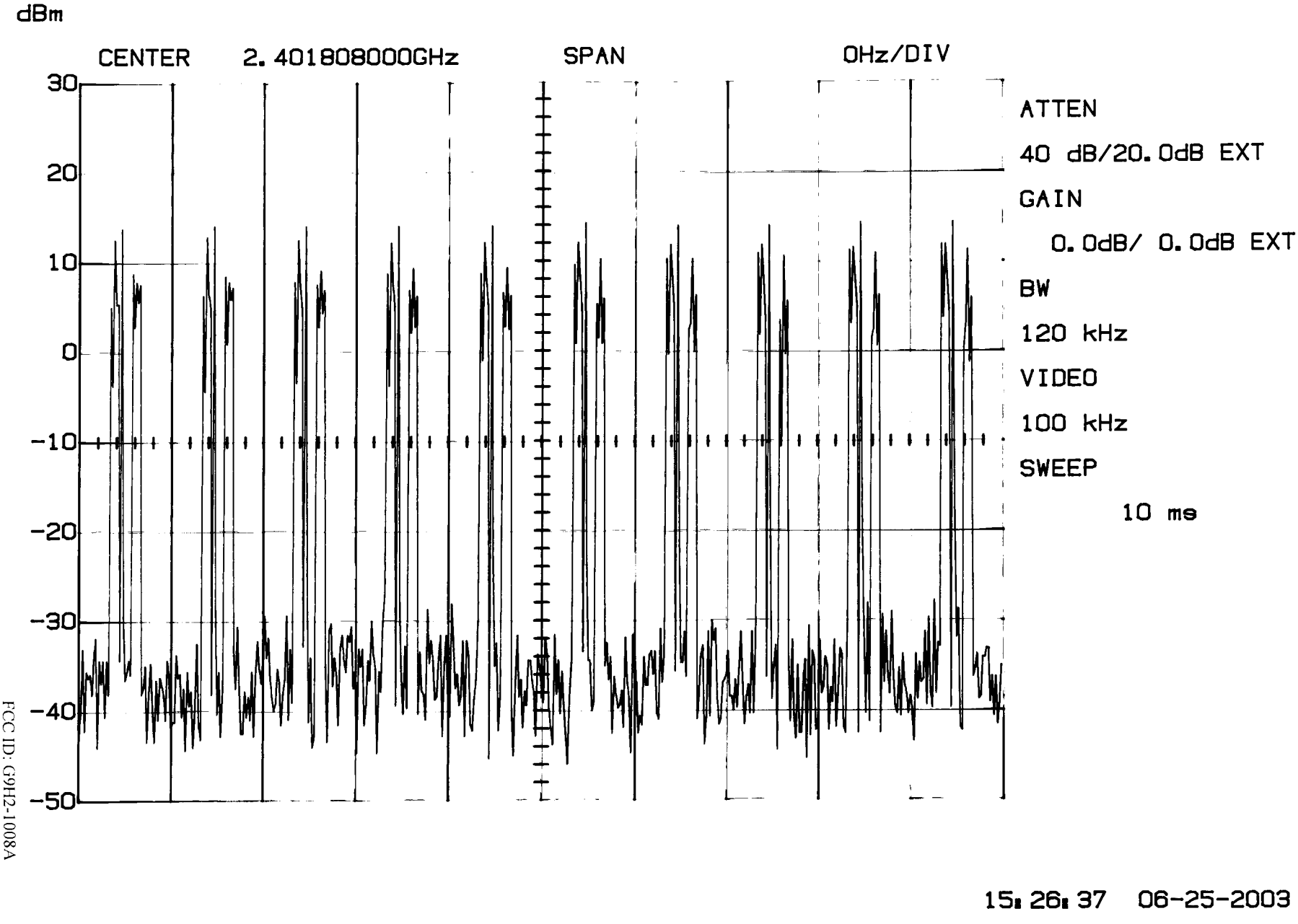
DWELL TIME (Time Slot)
Base
MODEL 21008XXX-A



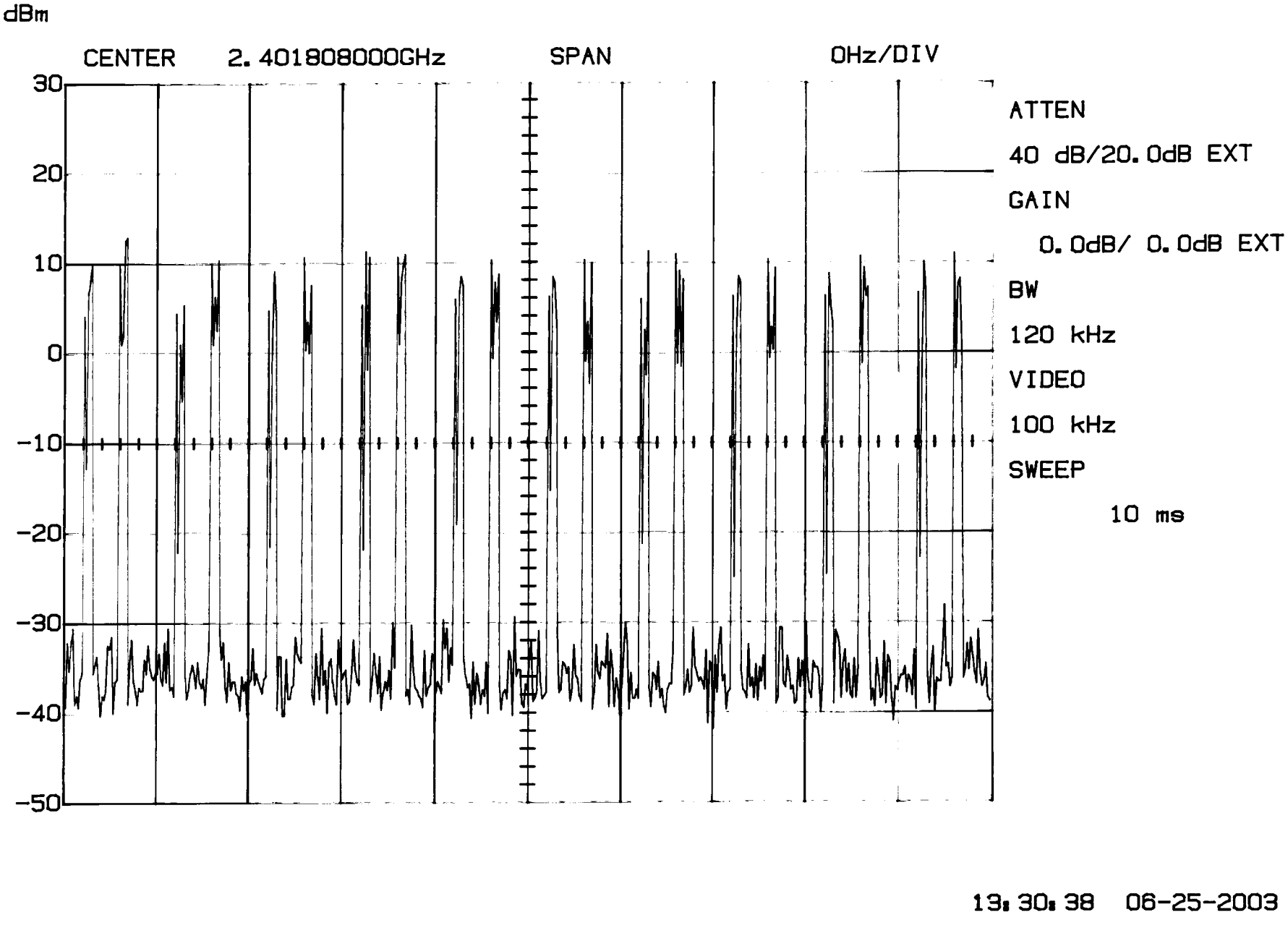
DWELL TIME
Base
MODEL 21008XXX-A



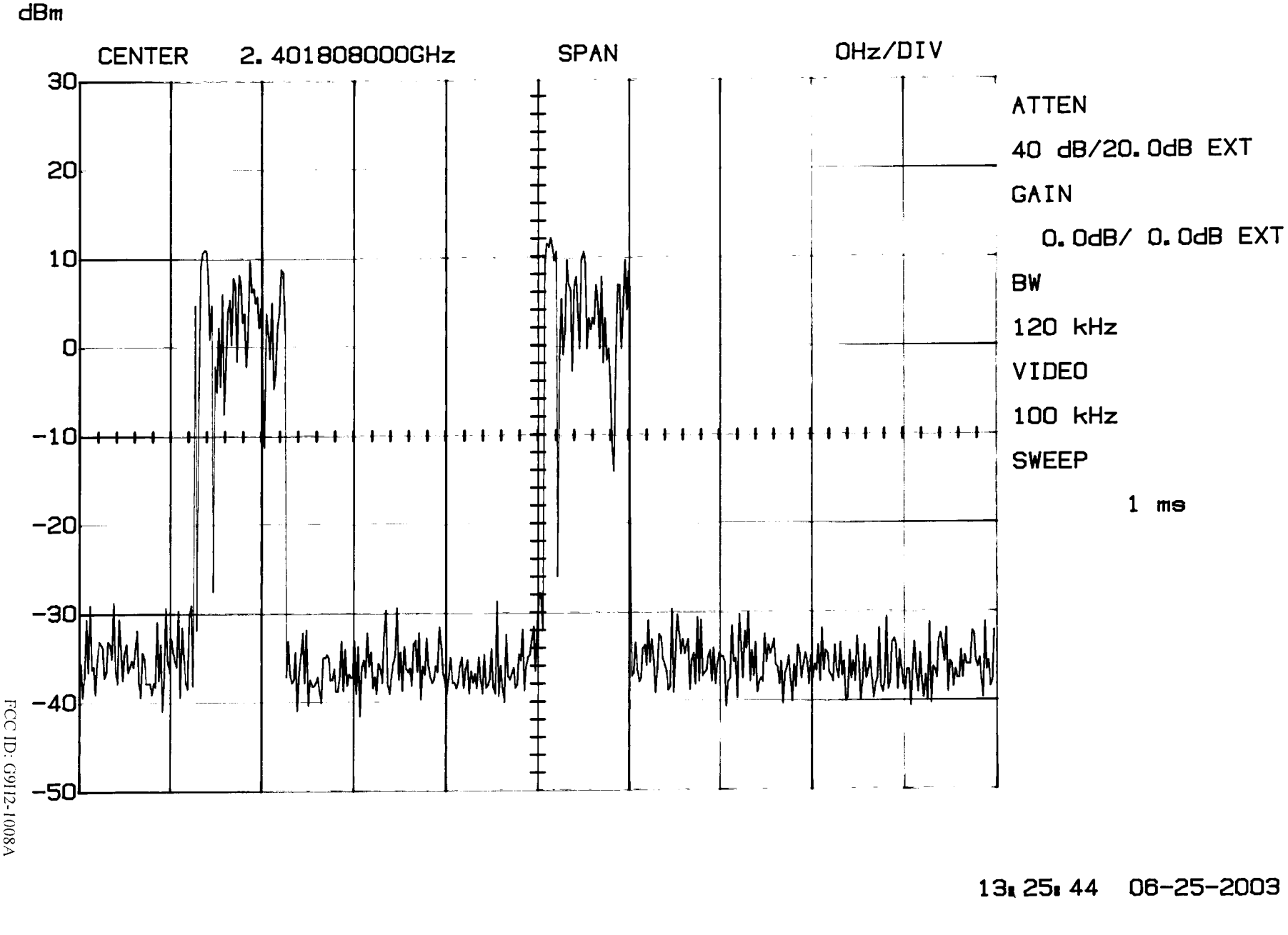
DWELL TIME
Base
MODEL 21008XXX-A



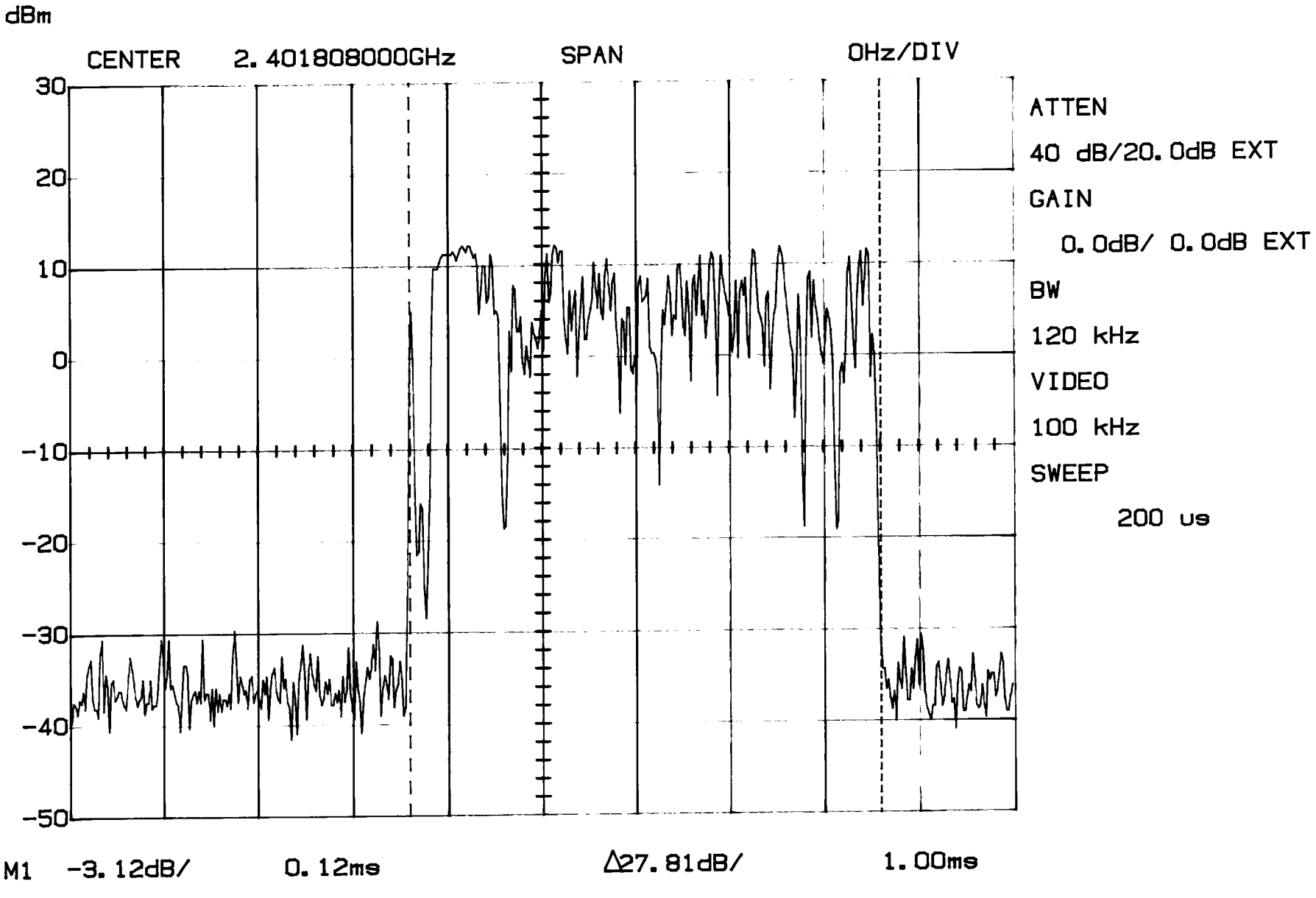
DWELL TIME
Handset
MODEL 21008XXX-A



DWELL TIME (Max Slots/Frame)
Handset
MODEL 21008XXX-A



DWELL TIME (Slot Time)
Handset
MODEL 21008XXX-A



15.247(b) (1) MAXIMUM PEAK OUTPUT POWER

Requirements:

For frequency hopping systems in the 2400-2483.5 MHz band employing at least 75 hopping channels, and all frequency hopping systems in the 5725-5850 MHZ band: 1 Watt. For all other frequency hopping systems in the 2400-2483.5 band: 0.125 Watt. If transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Measurement Procedure

1. Position the EUT without connection to Spectrum Analyzer (SA). Turn on the EUT and connect its antenna terminal to SA via a low loss cable and set it to any one measured frequency within its operating range and ensure that the SA is operated in its linear range.

2. Set RBW of SA to 5MHz and VBW to NONE.

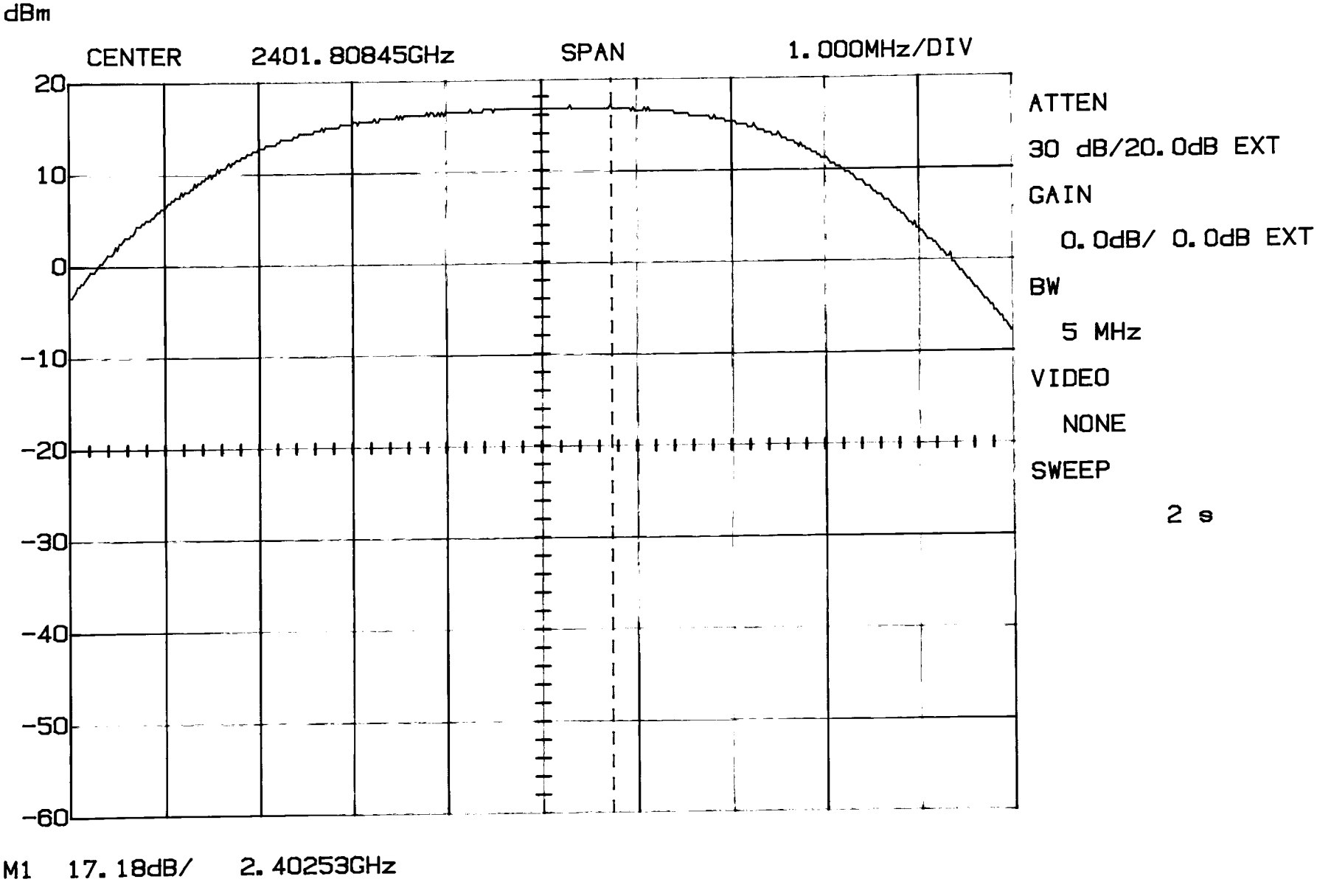
3. Measure the highest amplitude appearing on spectral display and record the level to calculate result data.

4. Repeat the above procedures until all frequencies measured were complete.

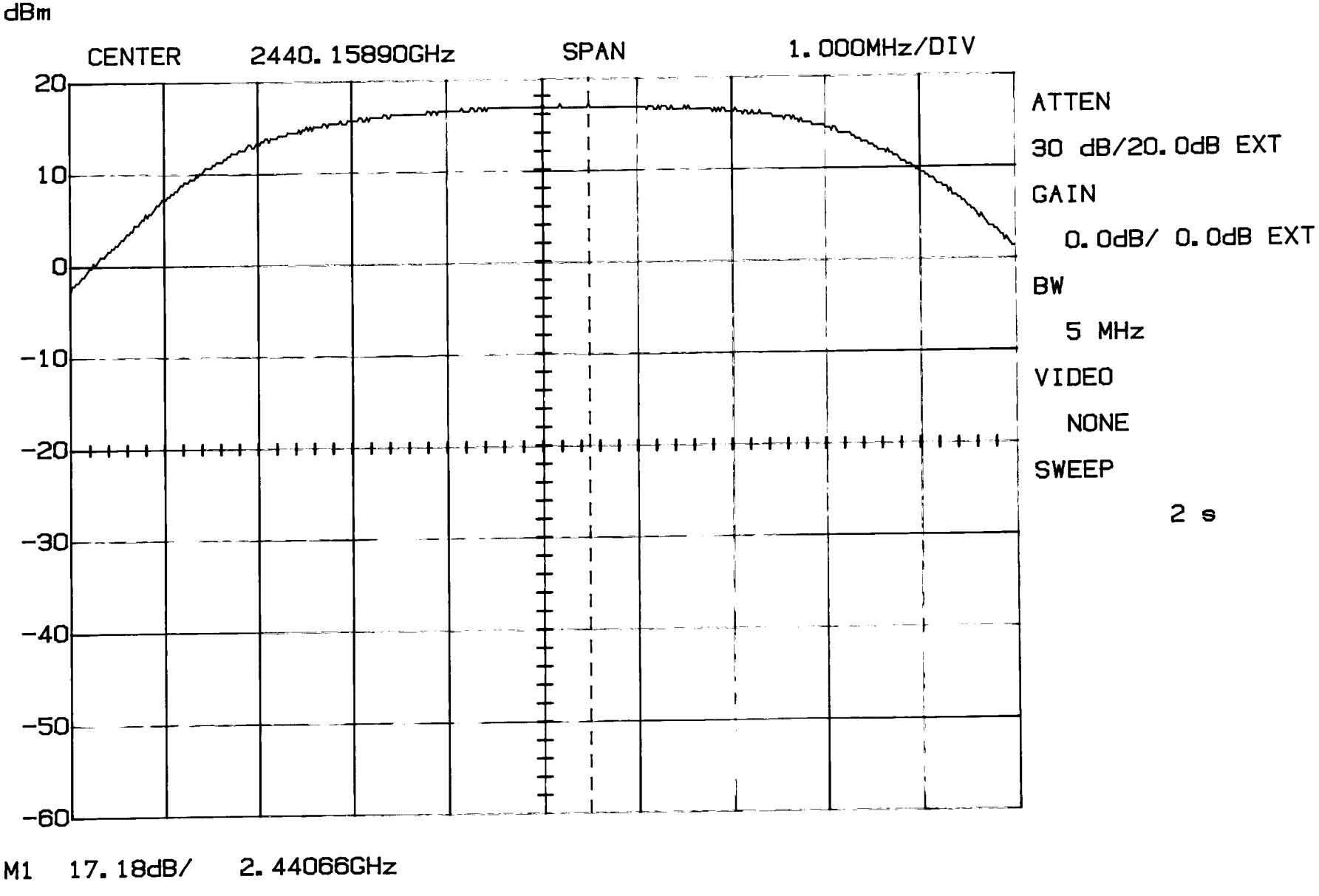
Measurement Data - Refer Exhibit D(1)-46 to -54 for plotted data

Base (ATN0)	Channel 1:	Output Peak Power is 17.18 dBm = 52.2 mW.
	Channel 44:	Output Peak Power is 17.18 dBm = 52.2 mW.
	Channel 88:	Output Peak Power is 16.25 dBm = 42.2 mW.
Base (ATN1)	Channel 1:	Output Peak Power is 17.08 dBm = 51 mW.
	Channel 44:	Output Peak Power is 17.40 dBm = 55 mW.
	Channel 88:	Output Peak Power is 17.08 dBm = 51 mW.
Handset Unit	Channel 1:	Output Peak Power is 18.75 dBm = 75 mW.
	Channel 44:	Output Peak Power is 19.37 dBm = 86.5 mW.
	Channel 88:	Output Peak Power is 18.43 dBm = 69.7 mW.

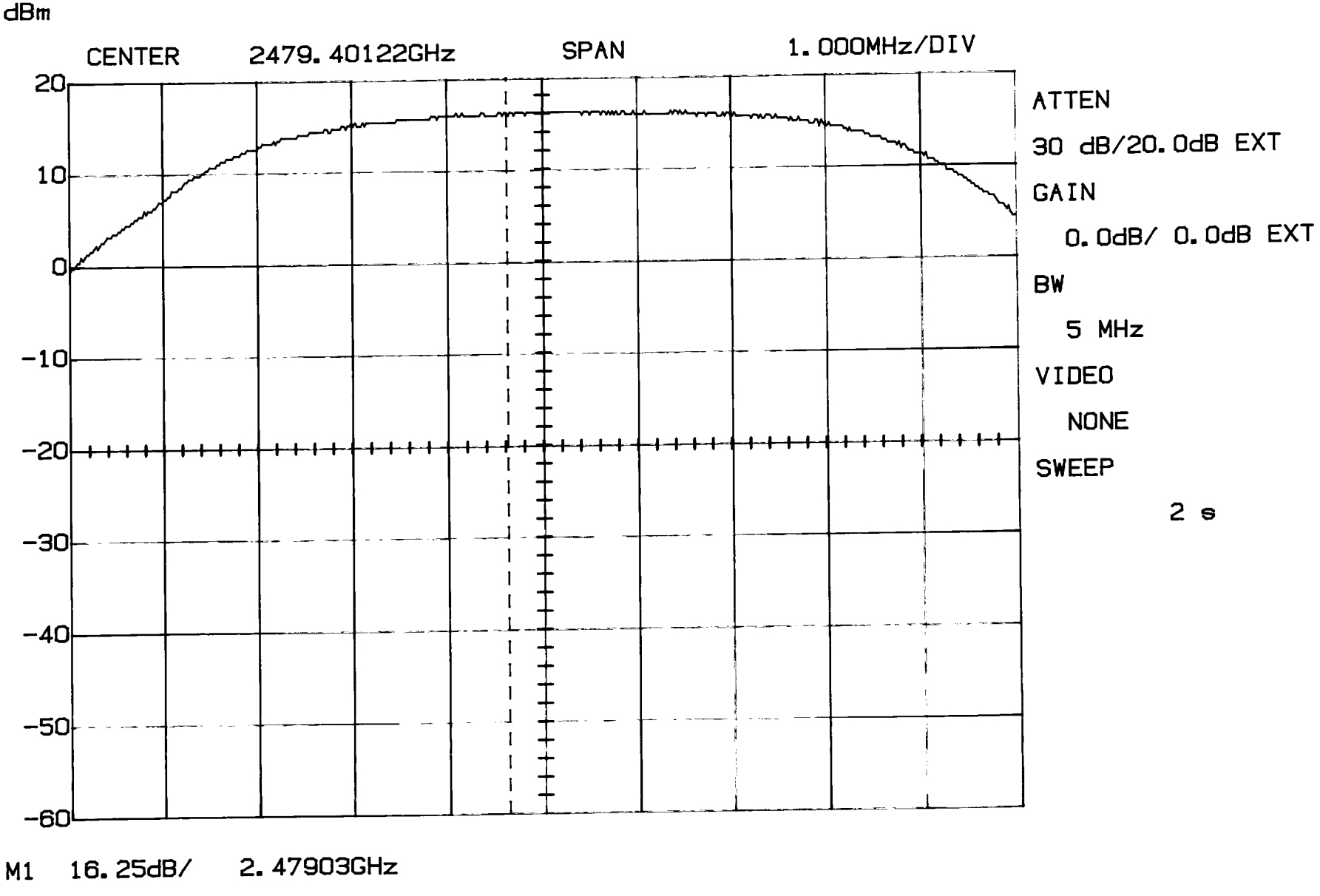
MAXIMUM PEAK POWER
Channel 1 - Base - ANT0
MODEL 21008XXX-A



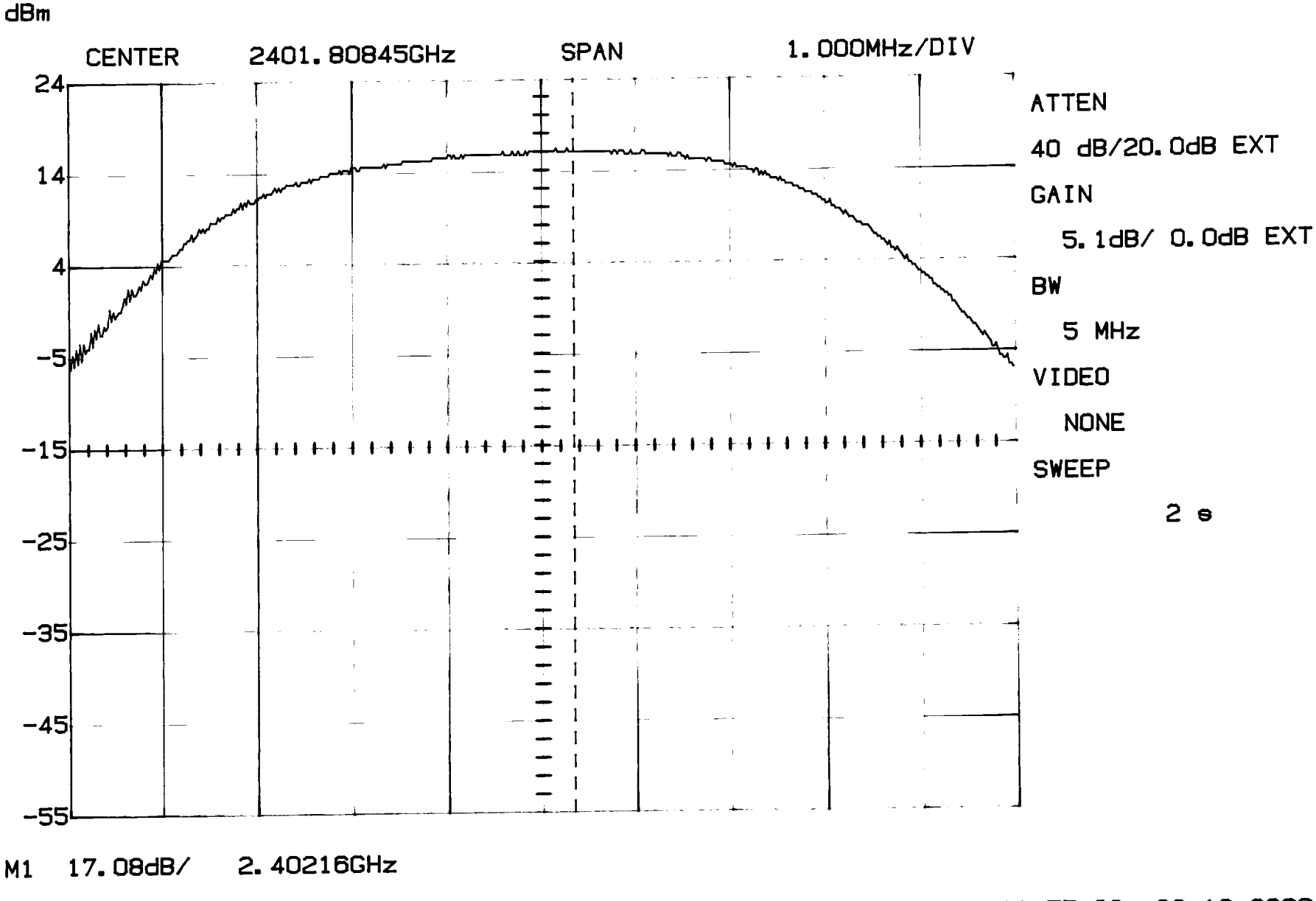
MAXIMUM PEAK POWER
Channel 44 - Base - ANT0
MODEL 21008XXX-A



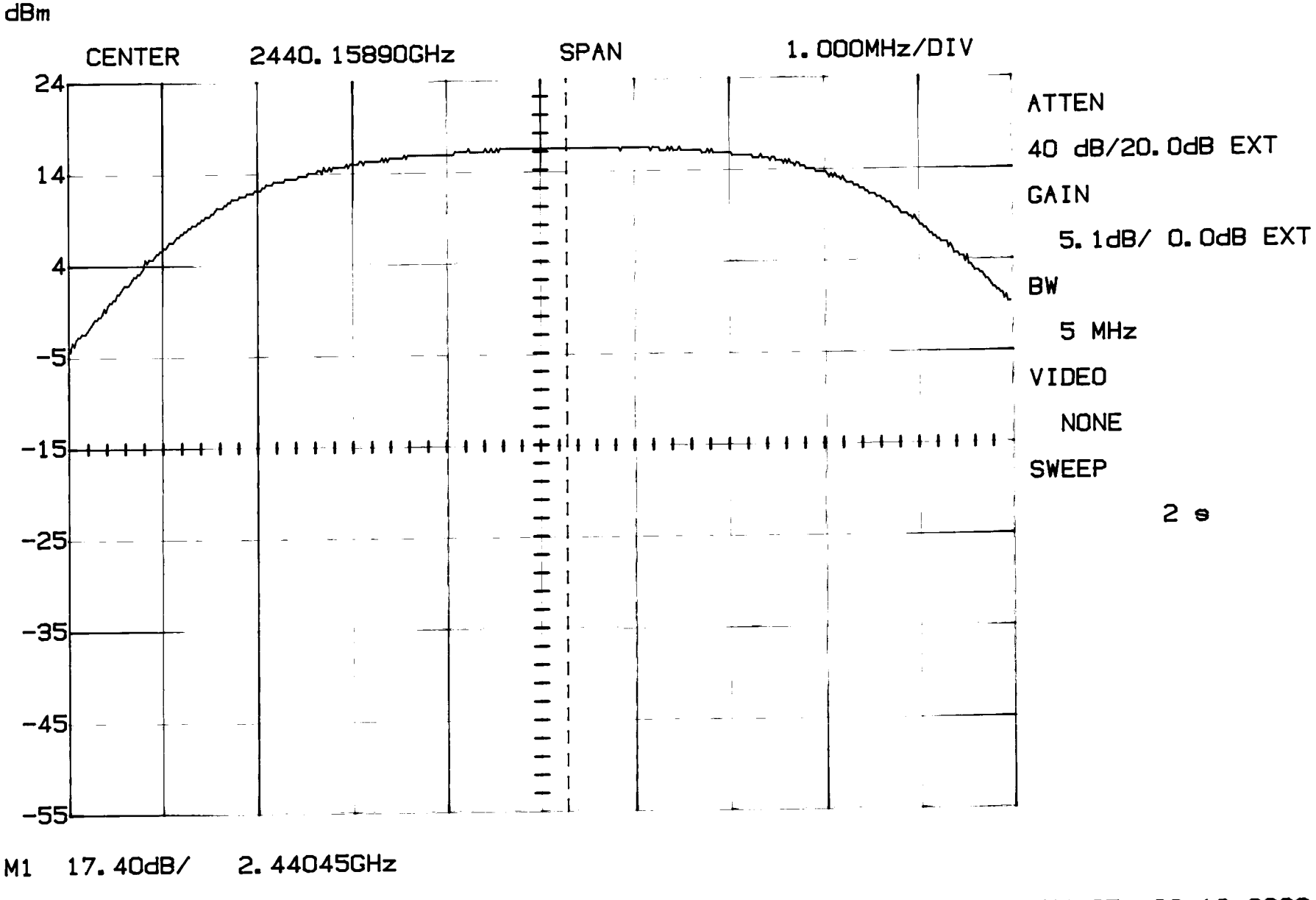
MAXIMUM PEAK POWER
Channel 88 - Base - ANT0
MODEL 21008XXX-A



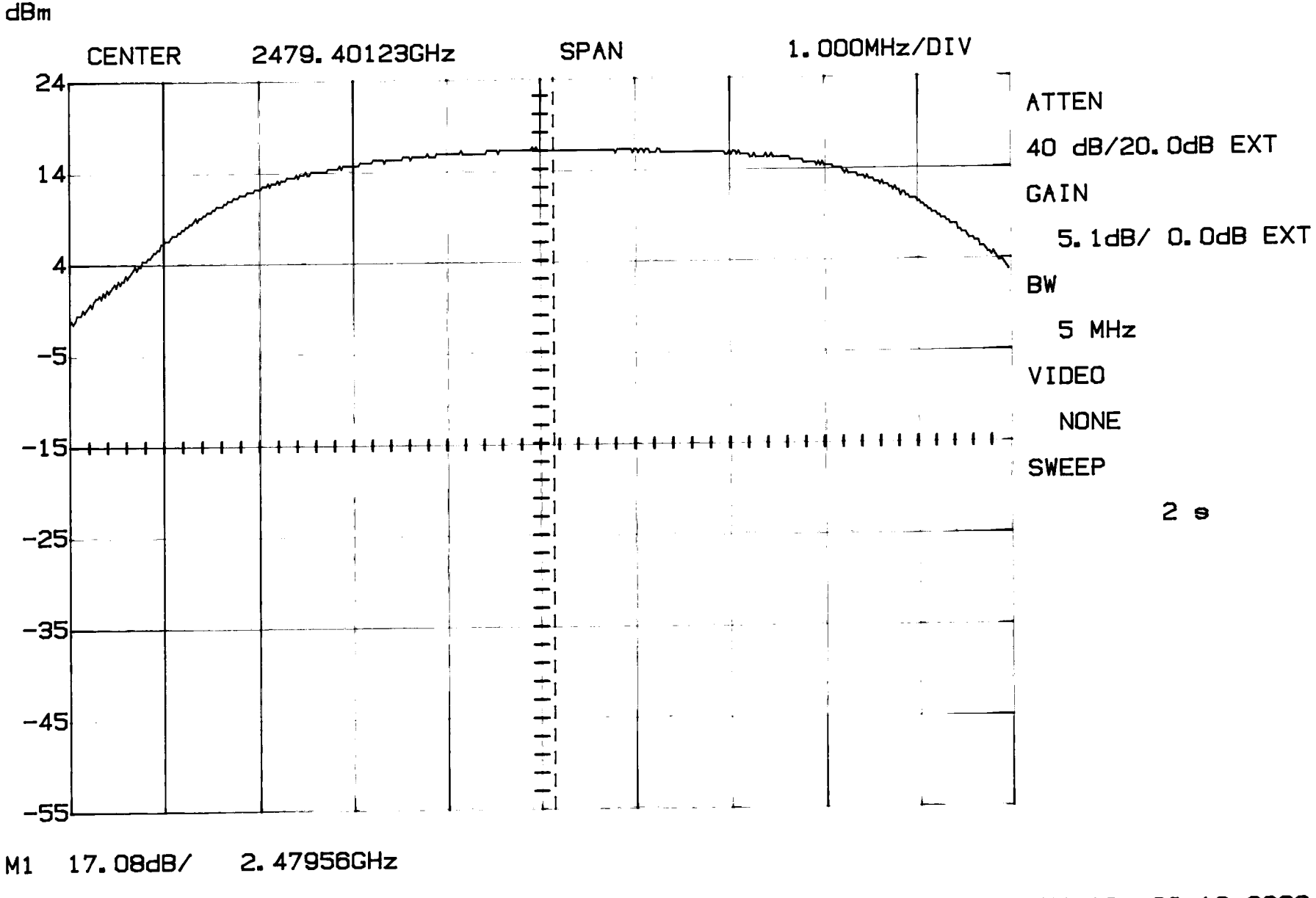
MAXIMUM PEAK POWER
Channel 1 - Base - ANT1
MODEL 21008XXX-A



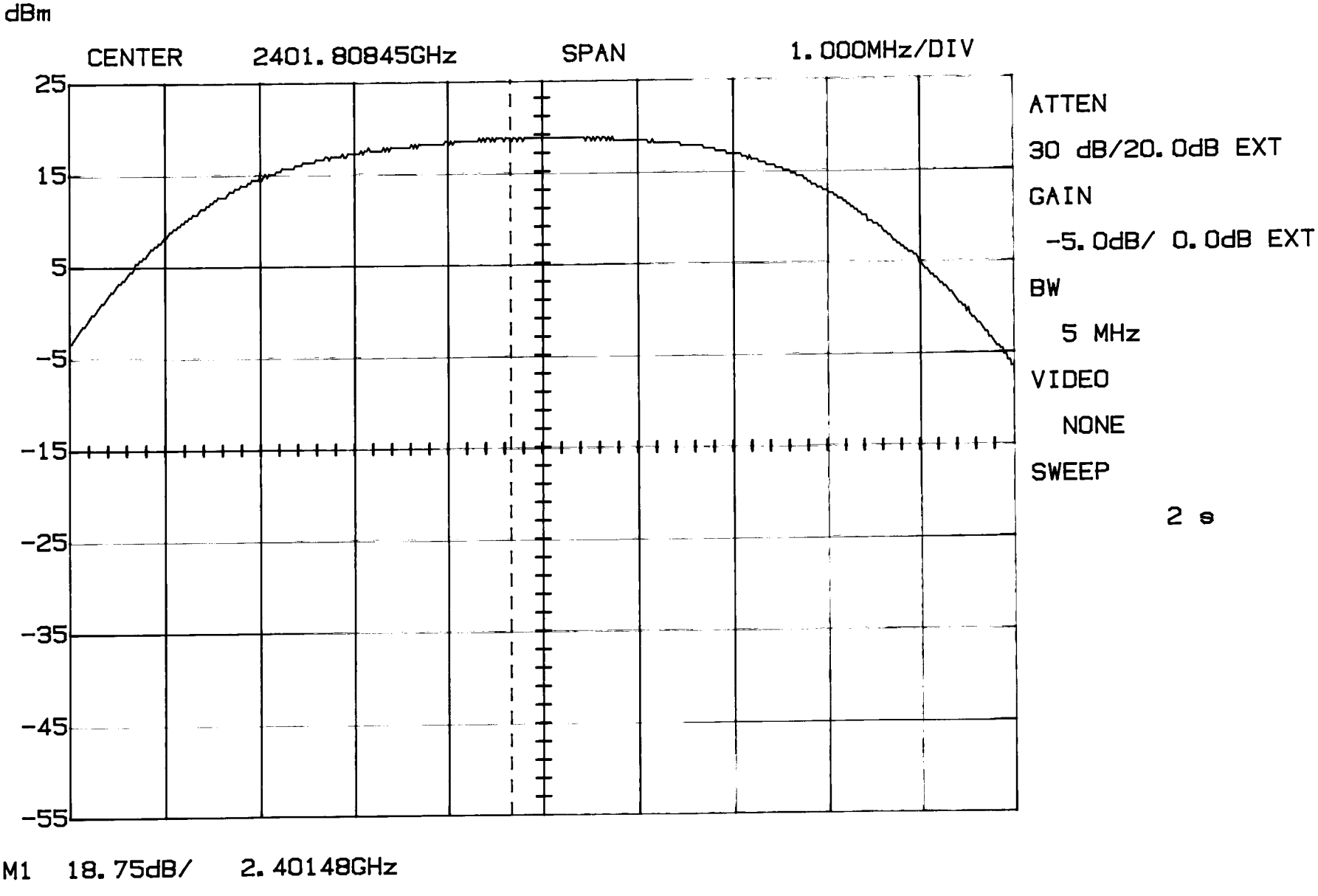
MAXIMUM PEAK POWER
Channel 44 - Base - ANT1
MODEL 21008XXX-A



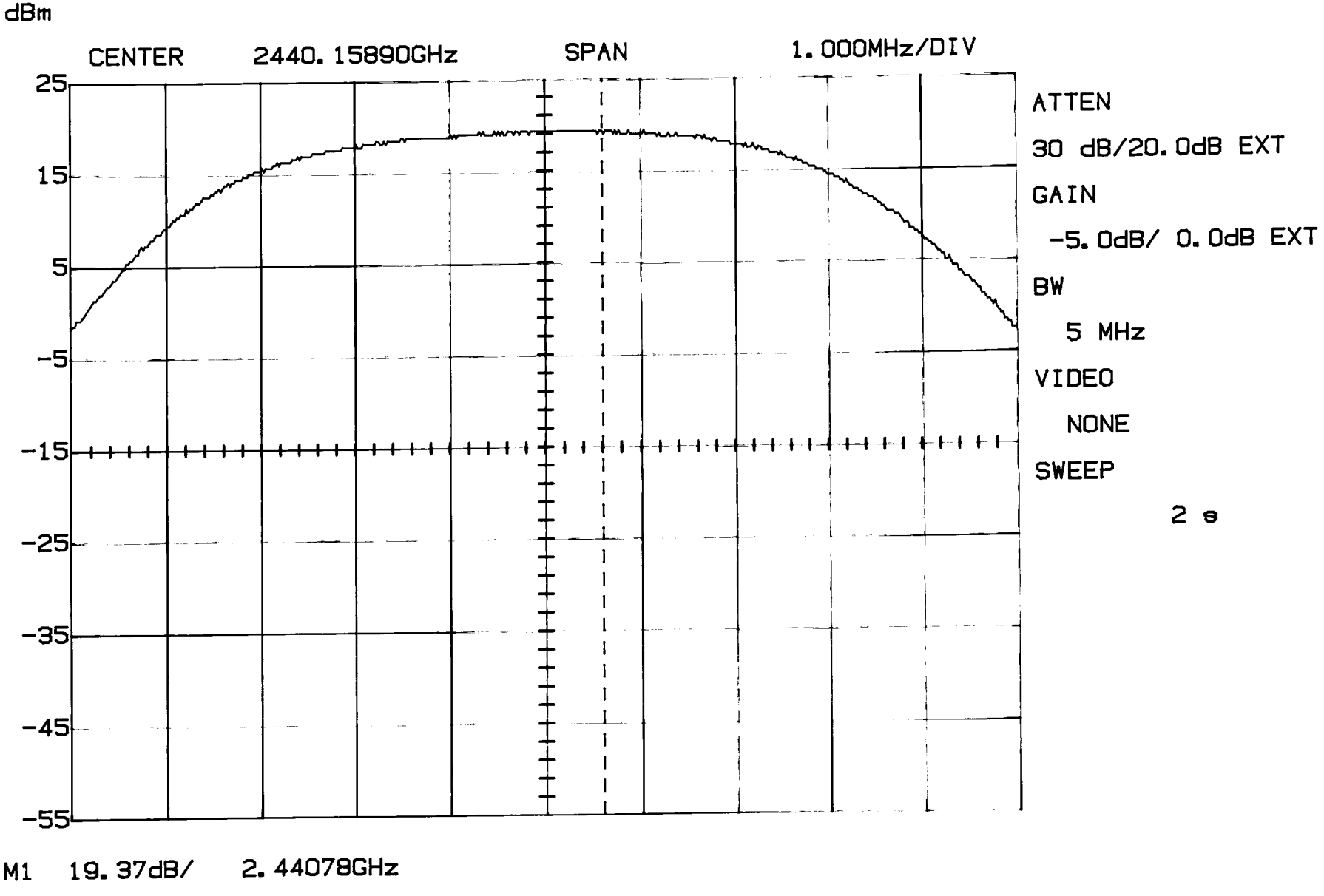
MAXIMUM PEAK POWER
Channel 88 - Base - ANT1
MODEL 21008XXX-A



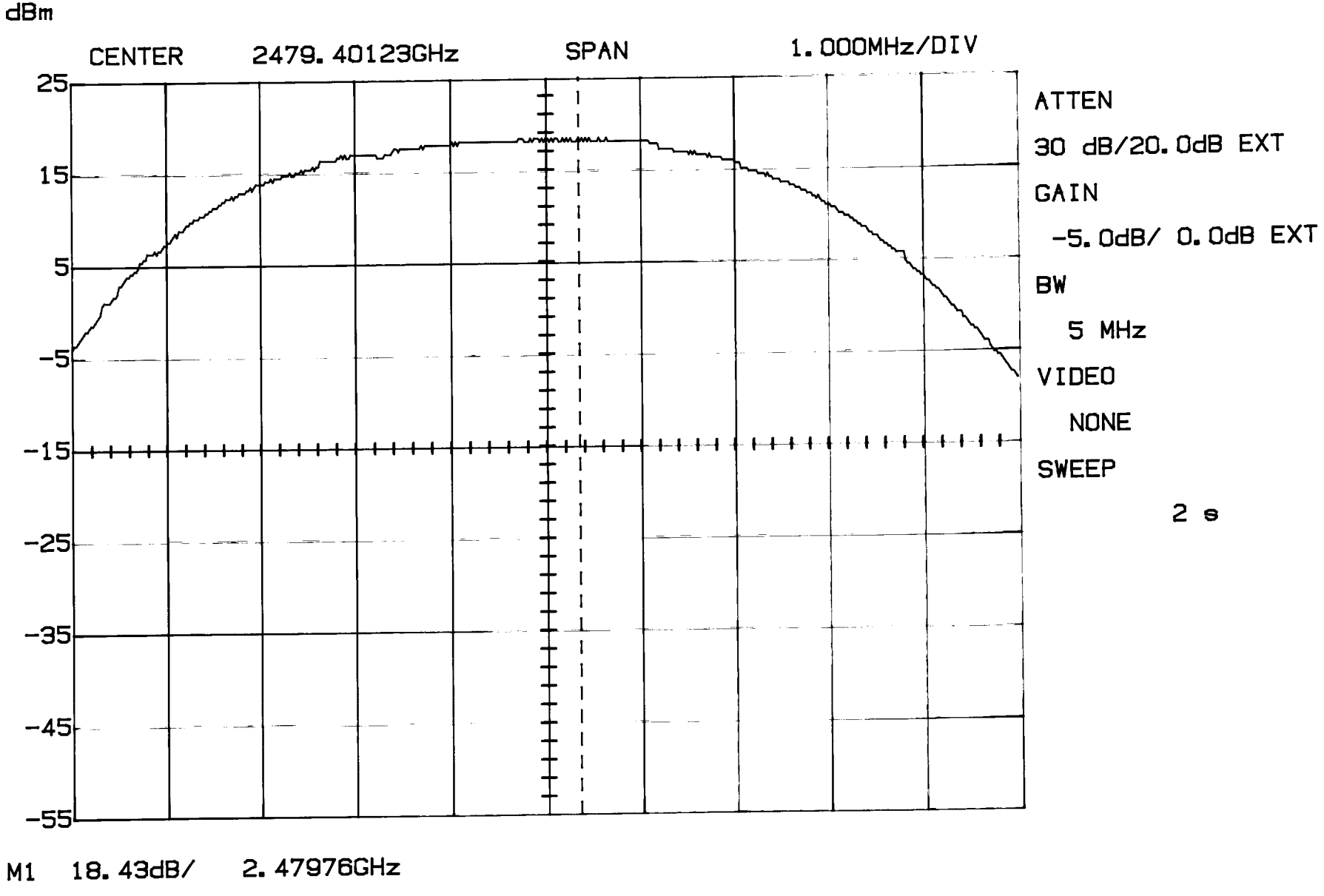
MAXIMUM PEAK POWER
Channel 1 - Handset
MODEL 21008XXX-A



MAXIMUM PEAK POWER
Channel 44 - Handset
MODEL 21008XXX-A



MAXIMUM PEAK POWER
Channel 88 - Handset
MODEL 21008XXX-A



15.247(c) BANDWIDTH OF BAND EDGE MEASUREMENT

Requirements:

In any 100 kHz bandwidth outside these frequency bands, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

Measurement Procedure

1. Position the EUT without connection to Spectrum Analyzer (SA). Turn on the EUT and connect its antenna terminal to SA via a low loss cable and set it to any one measured frequency within its operating range and ensure that the SA is operated in its linear range.

2. Set RBW to 120 kHz and suitable frequency span 500 KHz or 1000 kHz; VBW = none.

3. 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.

4. Repeat the above procedures until all frequencies measured were complete.

5. Note: Measurements made with hopping and modulation.

Measurement Data - Refer Exhibit D(1)-56 to -61 for plotted data

Base Unit (ANT0)
Lower Band Edge: All emissions in this 100 kHz bandwidth are attenuated more than 50.30 dB.

Upper Band Edge: All emissions in this 100 kHz bandwidth are attenuated more than 50.30 dB.

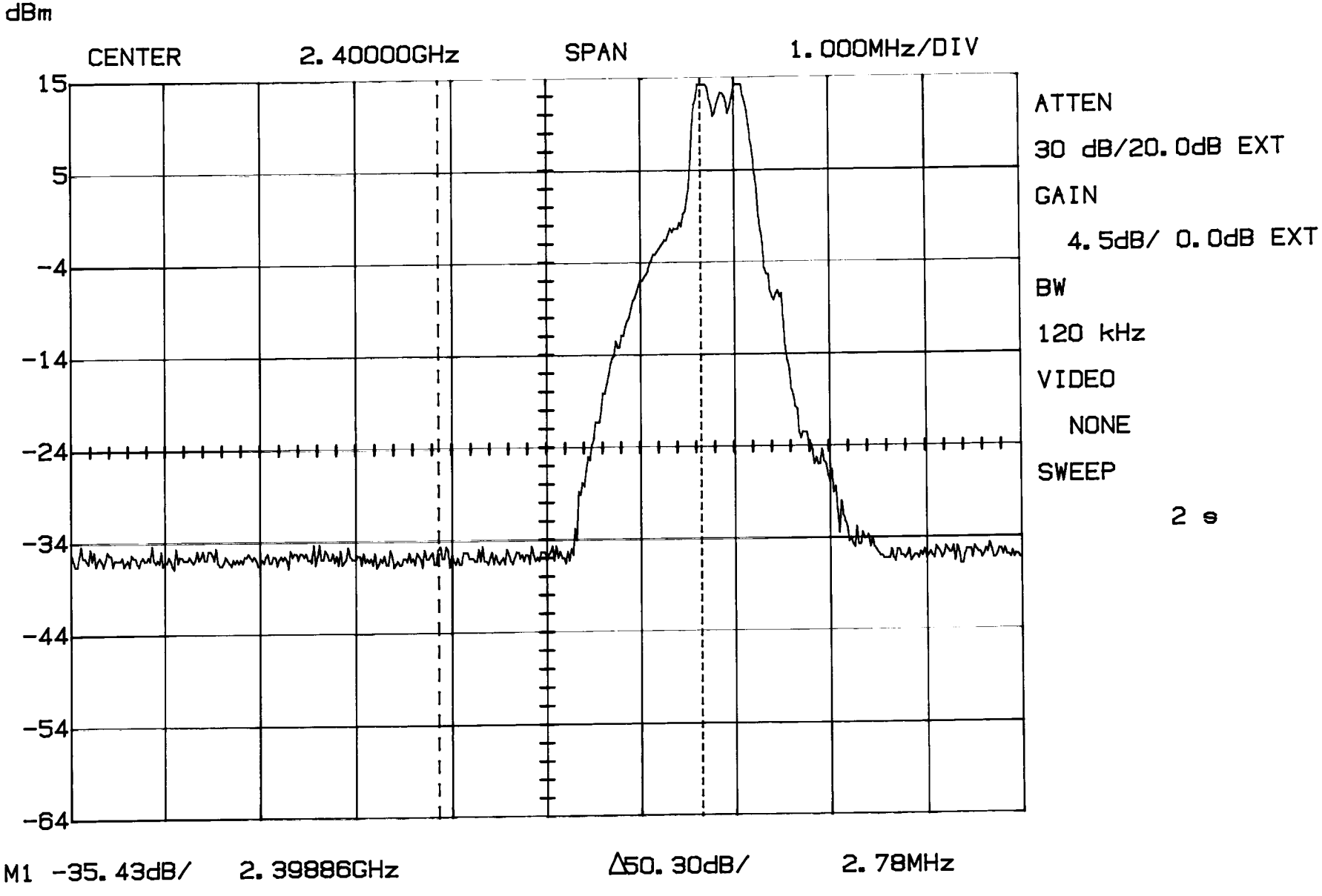
Base Unit (ANT1)
Lower Band Edge: All emissions in this 100 kHz bandwidth are attenuated more than 50.62 dB.

Upper Band Edge: All emissions in this 100 kHz bandwidth are attenuated more than 50.30 dB.

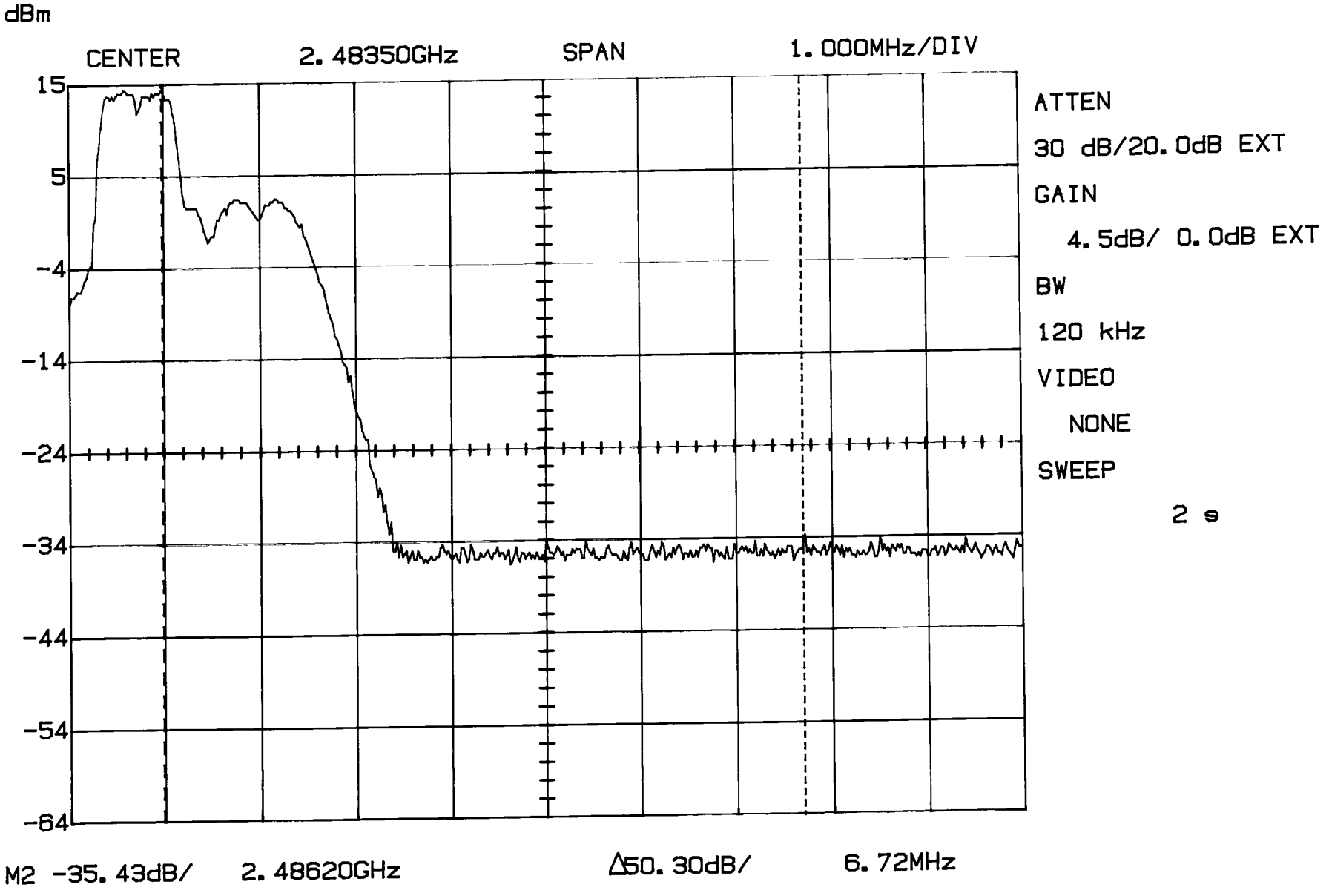
Handset Unit
Lower Band Edge: All emissions in this 100 kHz bandwidth are attenuated more than 51.25 dB.

Upper Band Edge: All emissions in this 100 kHz bandwidth are attenuated more than 50.62 dB.

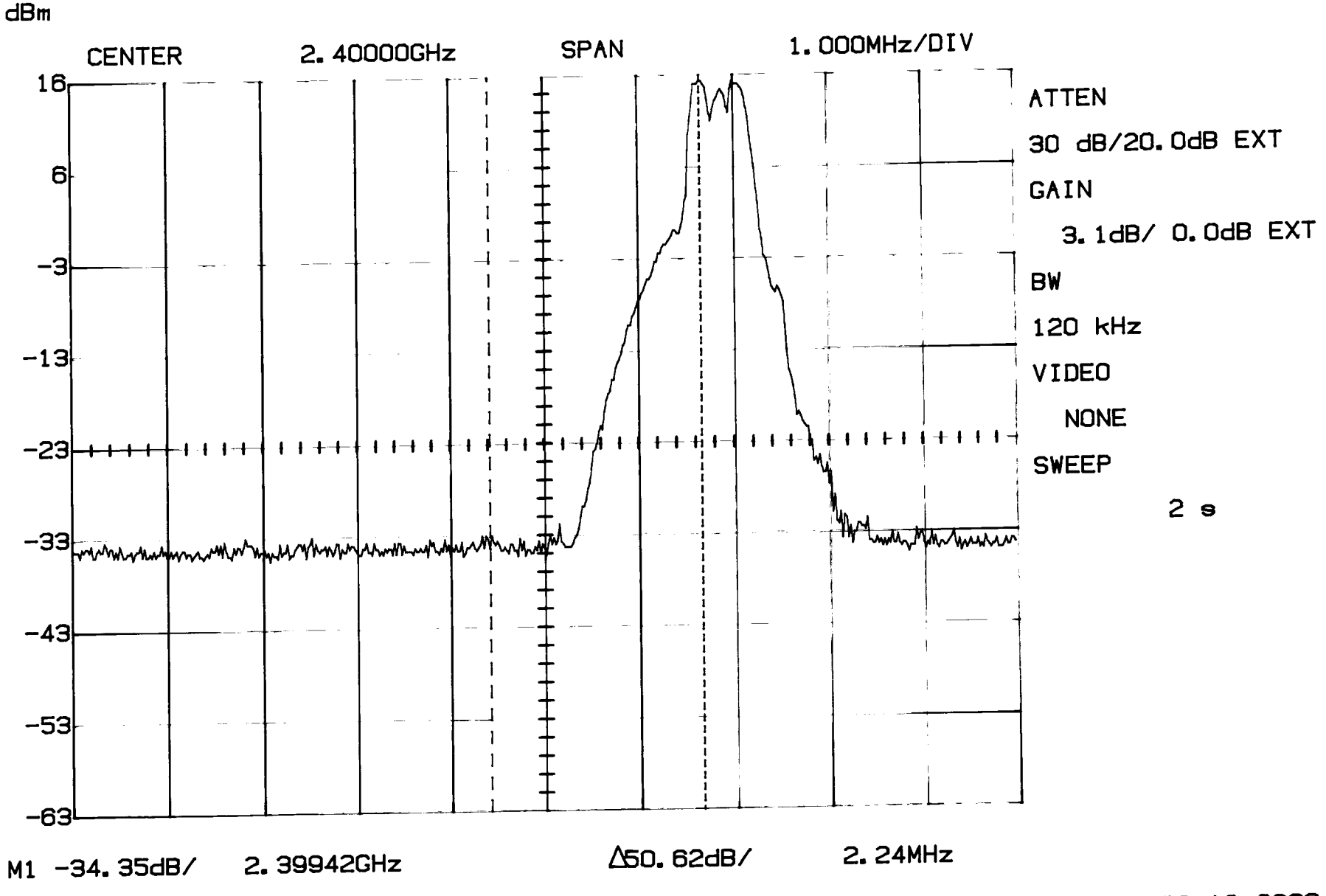
BAND EDGE - Base (CH1) - ANT0
MODEL 21008XXX-A



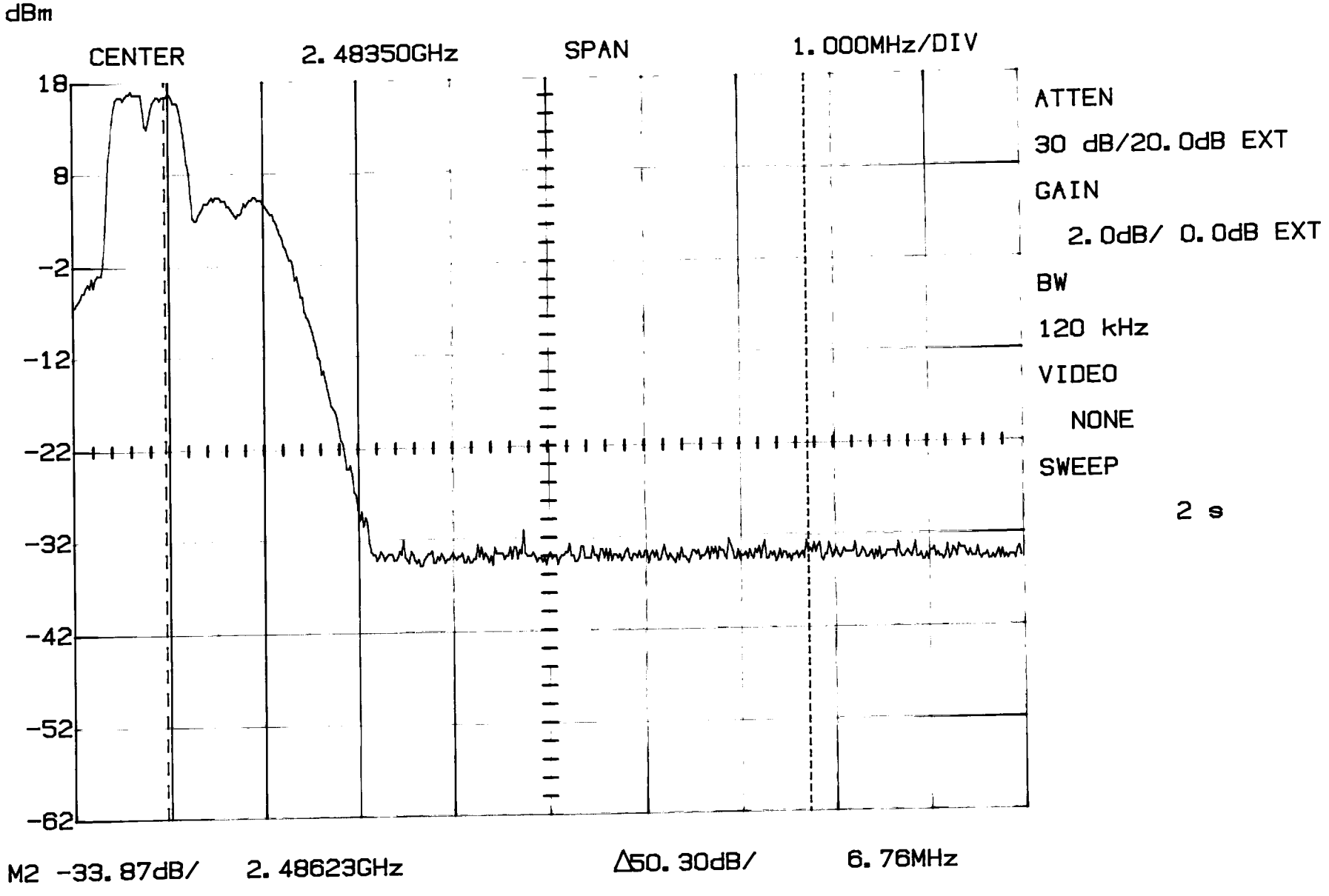
BAND EDGE - Base (CH88) - ANT0
MODEL 21008XXX-A



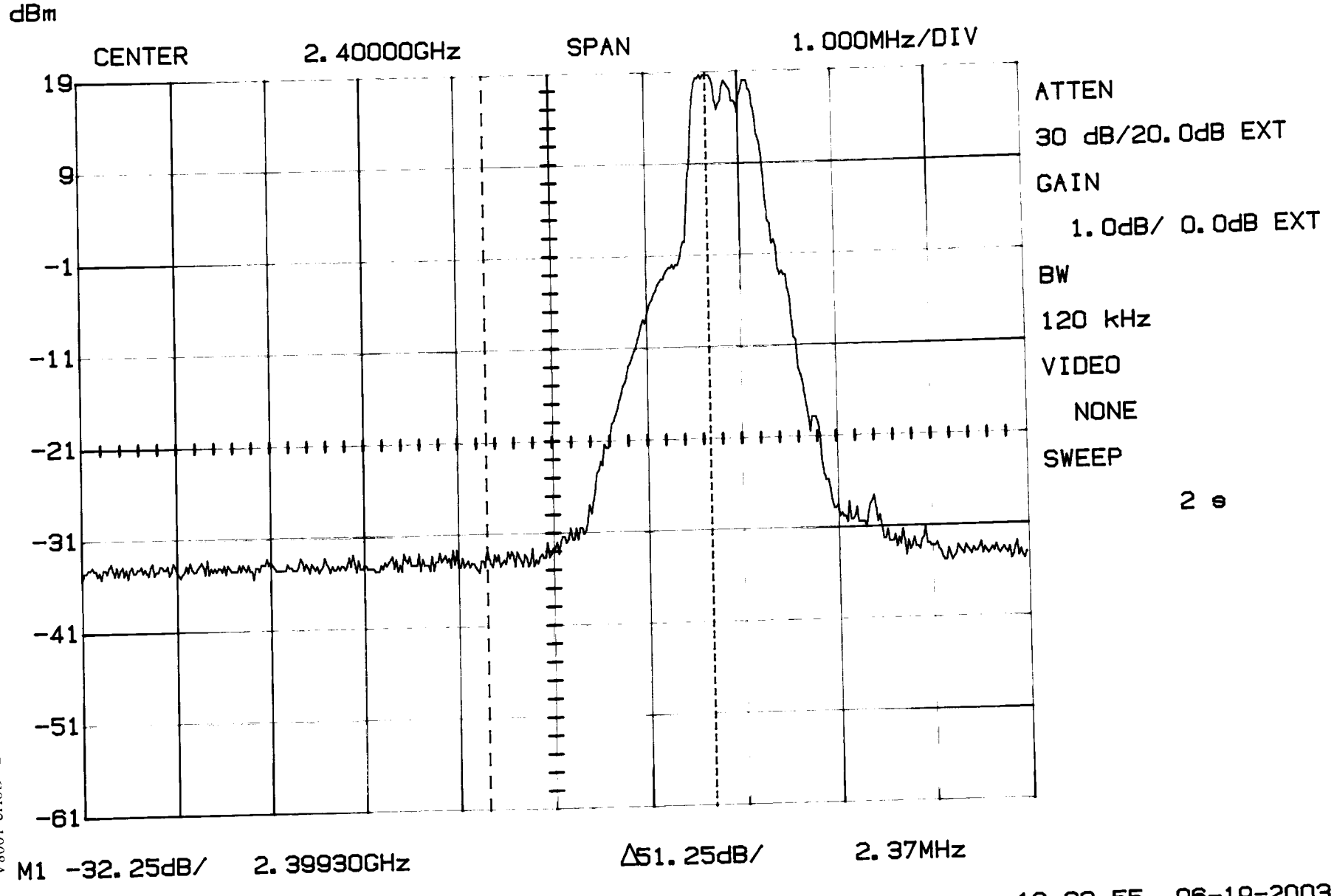
BAND EDGE - Base (CH1) - ANT1
MODEL 21008XXX-A



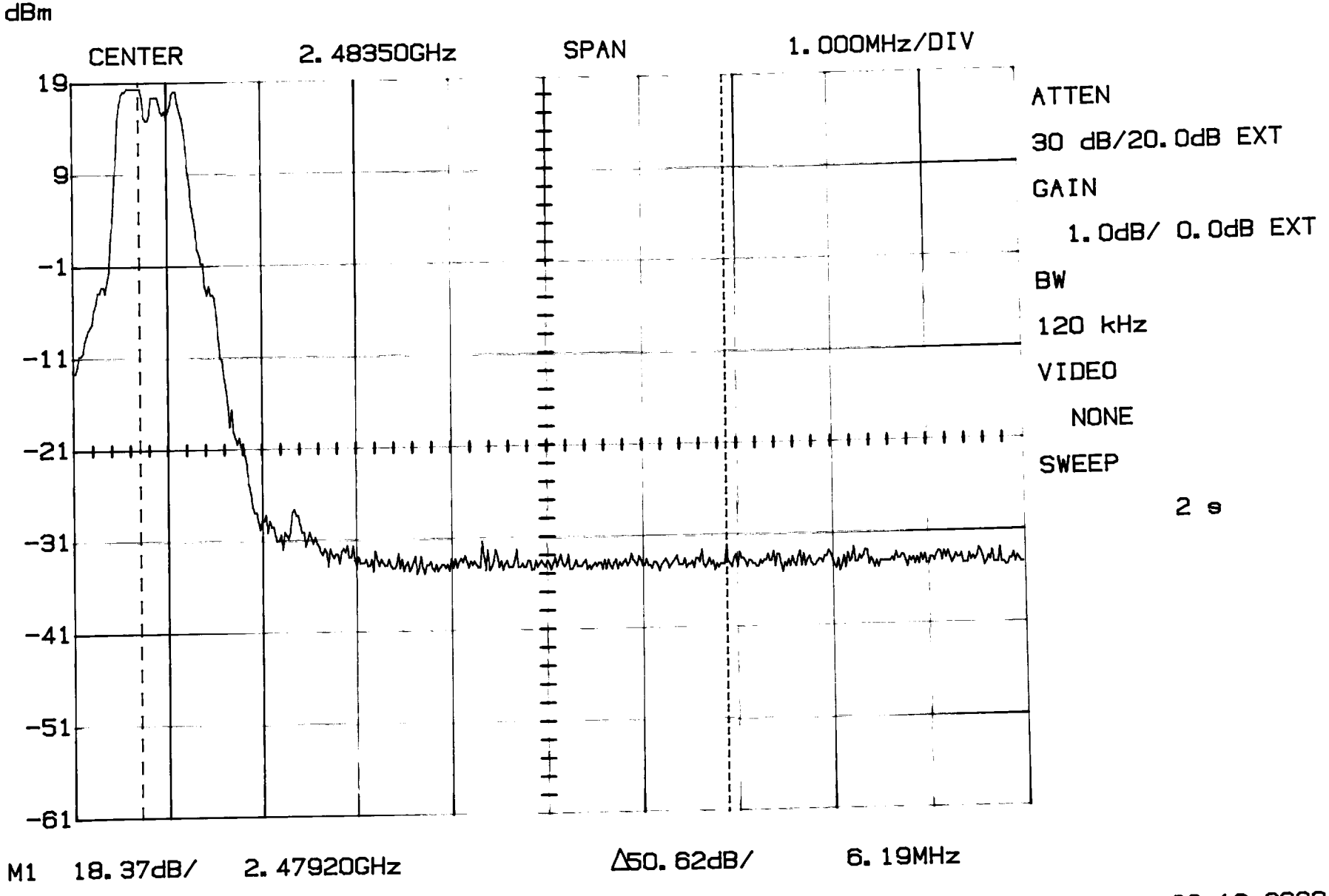
BAND EDGE - Base (CH88) - ANT1
MODEL 21008XXX-A



BAND EDGE - Handset (CH1)
MODEL 21008XXX-A



BAND EDGE - Handset (CH88)
MODEL 21008XXX-A



Part 15.247(g): Exhibit B(1)-17 to B(1)-18 provides information on how the system is designed while the transmitter is presented with a continuous voice stream and a description of the system transmitting short bursts.

Part 15.247(h): Exhibit B(1)-18 provides information concerning the avoidance of simultaneous occupancy of hopping frequencies by multiple transmitters, system synchronization procedure, frequency hopping algorithm, hopping tables, and dual slot diversity.