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Authorized by:
Professional Engineers
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Engineering &
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Testing For FCC
Submissions/Verifications

Approved Test Facility



TEST REPORT

REPORT DATE:	16 April 2001	REPORT NO:	21098D
CONTENTS:	See Table of Contents		
SUBMITTOR:	ATLINKS USA, Inc. 101 West 103 rd Street Indianapolis, IN 46290-1102 USA		
SUBJECT:	Model No: 27910XXX-A and 27920XXX-A FCC ID: G9H2-7910		
TEST SPECIFICATION	CFR 47 FCC Part 15 Sections: 15.35, 15.109, 15.209 and 15.249 NOTE: Tests Conducted Are "Type" Tests.		
DATE SAMPLE RECEIVED:	1 March 2001	DATE TESTED:	7 & 8 March and 3 & 6 April 2001
RESULTS:	Equipment tested complies with referenced specification.		
ALTERATIONS	Alterations required in compliance with referenced specification: 1. L9 choke coil was changed to 56 Ω , 2W resistor. 2. L10 choke coil was deleted and replaced by a jumper.		
Tested by:	Ed. Chang Edward Chang	Approved by:	Robert G. Marshall, P. Eng. Date: Apr 18/01
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TECHNICAL REPORT - FCC 2.1033(b)

Applicant

ATLINKS USA, Inc.
101 West 103rd Street
Indianapolis, IN
46290-1102 USA

FCC Identifier

G9H2-7910

Manufacturer

Huiyang CCT Telecommunications Products Co. Ltd.
San He Economic Experimental Zone
Huiyang, Guangdong Province, The PRC

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EXHIBIT D

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

"Report of Measurements"

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TEST EQUIPMENT LIST

- 1 Spectrum Analyzer: HP 8591EM, S/N 3639A00995, Cal. March 2001.
- 2 Spectrum Analyzer: ANISTRU 2601A, S/N MT64544, Cal. May 2000.
- 3 Spectrum Analyzer: IFR AN940, S/N 635001039, Cal. March 2001.
- 4 Spectrum Analyzer: Advantest R3271A, S/N J001279, Cal. due May 2001.
- 5 Preamp: HP 8449B, S/N 3008A00378, Cal. March 2001.
- 6 Bilog Antenna: Chase CBL6121A, S/N 1039, Cal. July 2000.
- 7 Dipole Antenna Kit: Compliance Design A100, S/N 00430, Cal. due Sept. 2004.
- 8 Double-Ridged Horn Antenna: EMCO 3115, S/N 9611-5010, 1-18GHz.
- 9 Horn Antenna: Q-PAR 6878/24, S/N 1721, 1.5-18GHz.
- 10 Line Impedance Stabilization Network: Marstech, Cal. July 2000.

TEST PROCEDURE

GENERAL:

Shielded interface cables were used in all cases except for cables connecting to the telephone line and the power cords. A test program was run which simulated a normal transmission.

POWER LINE CONDUCTED INTERFERENCE:

The procedure used was ANSI STANDARD C63.4 1992 using a 50 μ H 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°F with a humidity of 60%.

BANDWIDTH 20dB:

The measurements were made with the spectrum analyzer's resolution bandwidth (RBW)=100KHz and the video bandwidth (VBW)=1.0MHz and the span set as shown on plot.

POWER OUTPUT:

The radiated output power was measured with the spectrum analyzer and Bilog Antenna.

RADIATION INTERFERENCE:

The test procedure used was ANSI STANDARD C63.4-1992 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 = 1MHz. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The ambient temperature of the EUT was 24°F with a humidity of 60%.

PRODUCT DESCRIPTION

The Models 27910XXX-A and 27920XXX-A are 2.4GHz analog cordless telephones that operate in the 2402.3 to 2480.55MHz band. The Model 27910XXX-A is identical to the 27920XXX-A except for colour and deletion of keypad light. Both these models will bear the same FCC ID: G9H2-7910. The antenna used for the base and the handset is permanently attached to the EUT. Its actual frequency range is:

Base: 2402.3 to 2408.15

Handset: 2474.7 to 2480.55

A complete frequency list is shown on the next page.

4) CHANNEL:

FREQUENCY TABLE

Handset Unit Frequency Allocation

Channel No.	Tx Freq.	TXVCO Freq.	RX Freq.	RXVCO Freq.	Channel No.	Tx Freq.	TXVCO Freq.	RX Freq.	RXVCO Freq.
1	2474.700	824.9000	2402.300	797.2000	21	2477.700	825.9000	2405.300	798.2000
2	2474.850	824.9500	2402.450	797.2500	22	2477.850	825.9500	2405.450	798.2500
3	2475.000	825.0000	2402.600	797.3000	23	2478.000	826.0000	2405.600	798.3000
4	2475.150	825.0500	2402.750	797.3500	24	2478.150	826.0500	2405.750	798.3500
5	2475.300	825.1000	2402.900	797.4000	25	2478.300	825.5000	2405.900	798.4000
6	2475.450	825.1500	2403.050	797.4500	26	2478.450	825.5500	2406.050	798.4500
7	2475.600	825.2000	2403.200	797.5000	27	2478.600	825.6000	2406.200	798.5000
8	2475.750	825.2500	2403.350	797.5500	28	2478.750	825.6500	2406.350	798.5500
9	2475.900	825.3000	2403.500	797.6000	29	2478.900	825.7000	2406.500	798.6000
10	2476.050	825.3500	2403.650	797.6500	30	2479.050	825.7500	2406.650	798.6500
11	2476.200	825.4000	2403.800	797.7000	31	2479.200	825.8000	2406.800	798.7000
12	2476.350	825.4500	2403.950	797.7500	32	2479.350	825.8500	2406.950	798.7500
13	2476.500	825.5000	2404.100	797.8000	33	2479.500	825.9000	2407.100	798.8000
14	2476.650	825.5500	2404.250	797.8500	34	2479.650	825.9500	2407.250	798.8500
15	2476.800	825.6000	2404.400	797.9000	35	2479.800	826.0000	2407.400	798.9000
16	2476.950	825.6500	2404.550	797.9500	36	2479.950	826.0500	2407.550	798.9500
17	2477.100	825.7000	2404.700	798.0000	37	2480.100	826.1000	2407.700	799.0000
18	2477.250	825.7500	2404.850	798.0500	38	2480.250	826.1500	2407.850	799.0500
19	2477.400	825.8000	2405.000	798.1000	39	2480.400	826.2000	2408.000	799.1000
20	2477.550	825.8500	2405.150	798.1500	40	2480.550	826.2500	2408.150	799.1500

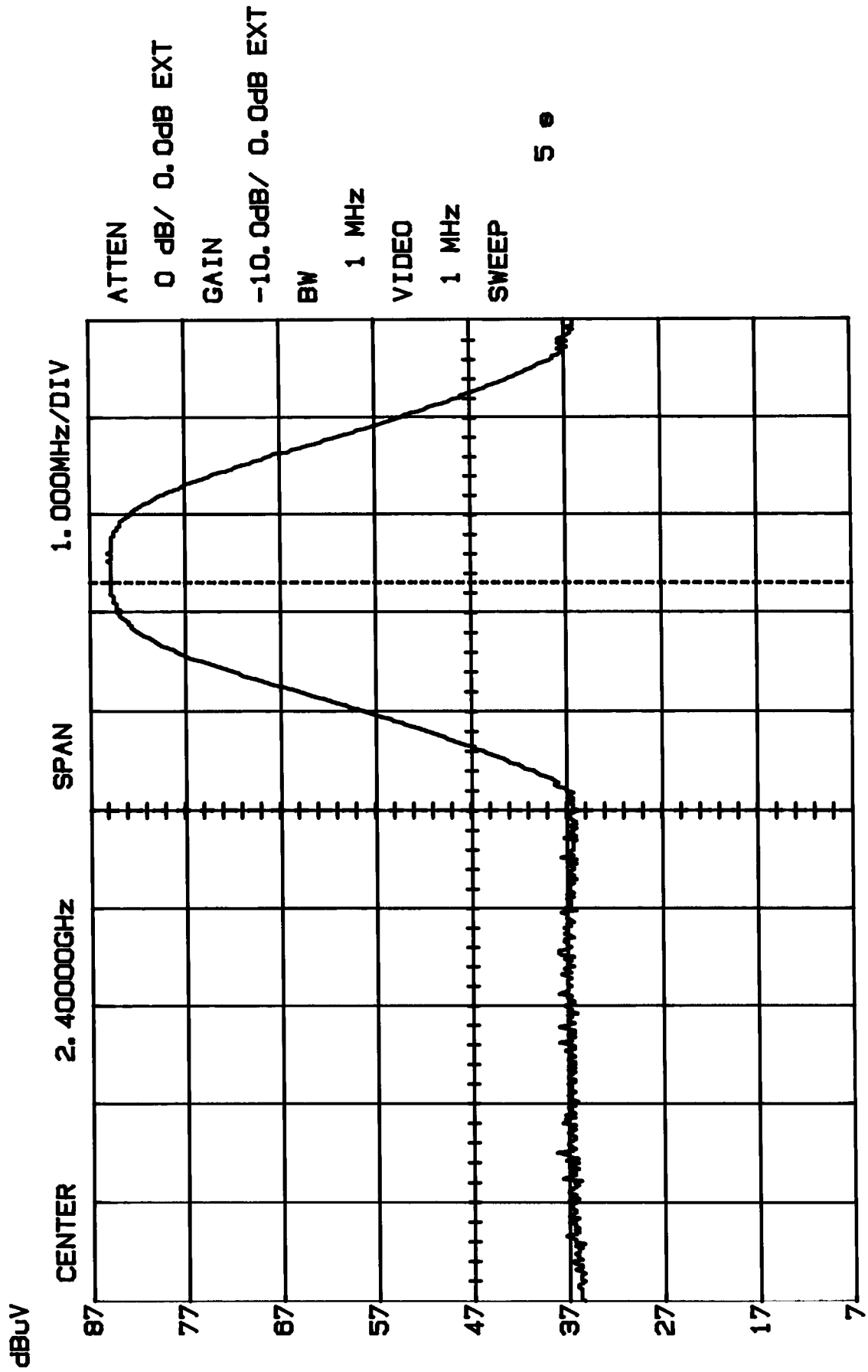
Base Station Unit Frequency Allocation

Channel No.	Tx Freq.	TXVCO Freq.	RX Freq.	RXVCO Freq.	Channel No.	Tx Freq.	TXVCO Freq.	RX Freq.	RXVCO Freq.
1	2402.300	800.7667	2474.700	828.4667	21	2405.300	801.7667	2477.700	829.4667
2	2402.450	800.8167	2474.850	828.5167	22	2405.450	801.8167	2477.850	829.5167
3	2402.600	800.8667	2475.000	828.5667	23	2405.600	801.8667	2478.000	829.5667
4	2402.750	800.9167	2475.150	828.6167	24	2405.750	801.9167	2478.150	829.6167
5	2402.900	800.9667	2475.300	828.6667	25	2405.900	801.9667	2478.300	829.6667
6	2403.050	801.0167	2475.450	828.7167	26	2406.050	802.0167	2478.450	829.7167
7	2403.200	801.0667	2475.600	828.7667	27	2406.200	802.0667	2478.600	829.7667
8	2403.350	801.1167	2475.750	828.8167	28	2406.350	802.1167	2478.750	829.8167
9	2403.500	801.1667	2475.900	828.8667	29	2406.500	802.1667	2478.900	829.8667
10	2403.650	801.2167	2476.050	828.9167	30	2406.650	802.2167	2479.050	829.9167
11	2403.800	801.2667	2476.200	828.9667	31	2406.800	802.2667	2479.200	829.9667
12	2403.950	801.3167	2476.350	829.0167	32	2406.950	802.3167	2479.350	830.0167
13	2404.100	801.3667	2476.500	829.0667	33	2407.100	802.3667	2479.500	830.0667
14	2404.250	801.4167	2476.650	829.1167	34	2407.250	802.4167	2479.650	830.1167
15	2404.400	801.4667	2476.800	829.1667	35	2407.400	802.4667	2479.800	830.1667
16	2404.550	801.5167	2476.950	829.2167	36	2407.550	802.5167	2479.950	830.2167
17	2404.700	801.5667	2477.100	829.2667	37	2407.700	802.5667	2480.100	830.2667
18	2404.850	801.6167	2477.250	829.3167	38	2407.850	802.6167	2480.250	830.3167
19	2405.000	801.6667	2477.400	829.3667	39	2408.000	802.6667	2480.400	830.3667
20	2405.150	801.7167	2477.550	829.4167	40	2408.150	802.7167	2480.550	830.4167

15.249 (c) BAND EDGES

- Requirements:** Emissions outside of the frequency band 2402.3 to 2480.55MHz must be attenuated 50dB below the fundamental.
- Measurement:** The base was attenuated by 50 dB. The headset was attenuated by 50 dB.
- Measurement Data:** The Bandedge was measured at the Low end of the band for the base, and the High end of the band for the handset. See Plots in Exhibits D(1)-7 and D(1)-8.

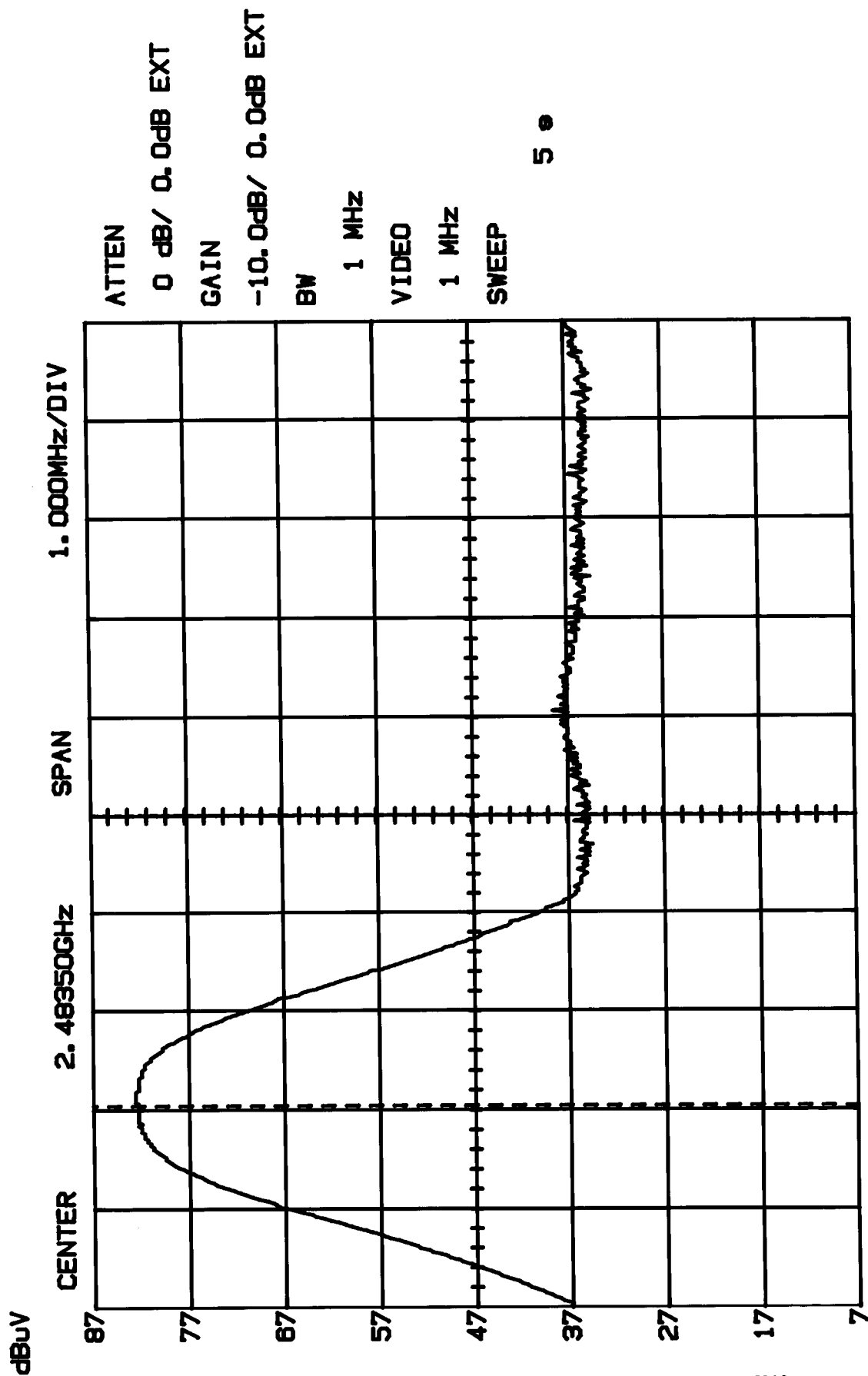
BAND EDGE ATTENUATION MODEL 27910XXX-A; (BASE)



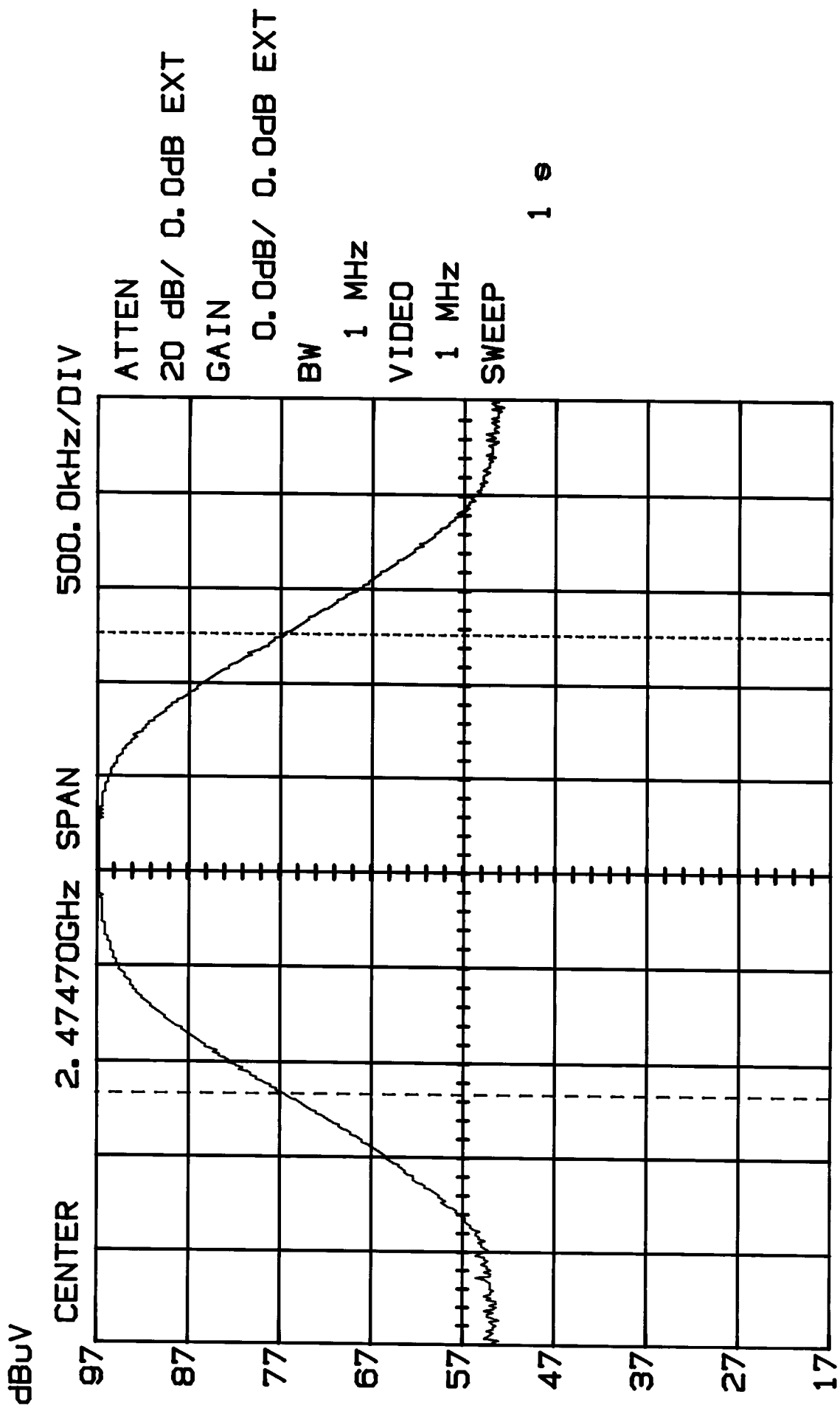
M1 35.75dB/ 2.40000GHz M2 84.81dB/ 2.40230GHz

16:10:38 04-05-2001

BAND EDGE ATTENUATION MODEL 27910XXX-A; (HANDSET)



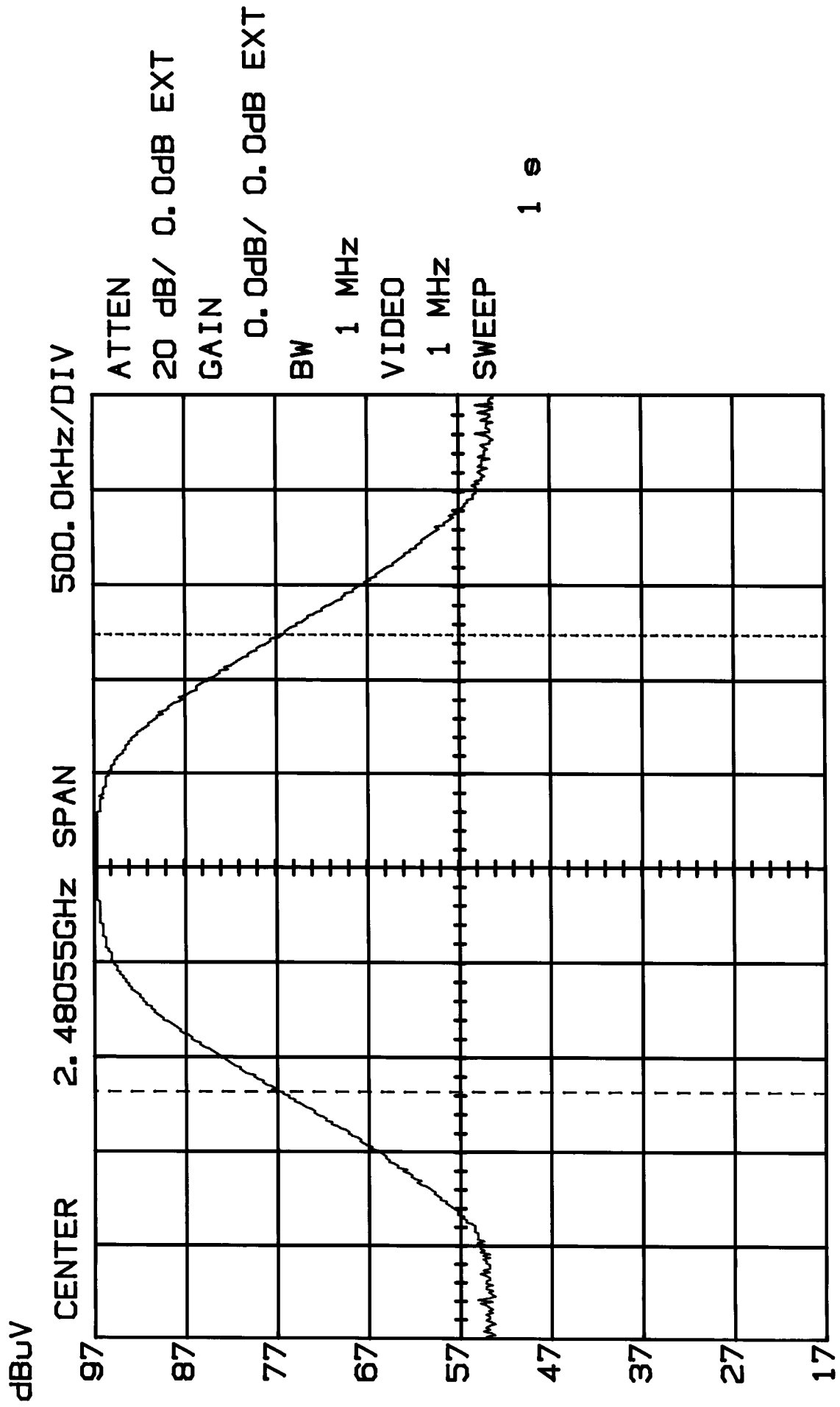
BANDWIDTH (Channel 1)
MODEL 27910XXX-A; (HANDSET)



M1 76.37dB Δ . 47353GHz Δ 0.00dB/ 2.43MHz

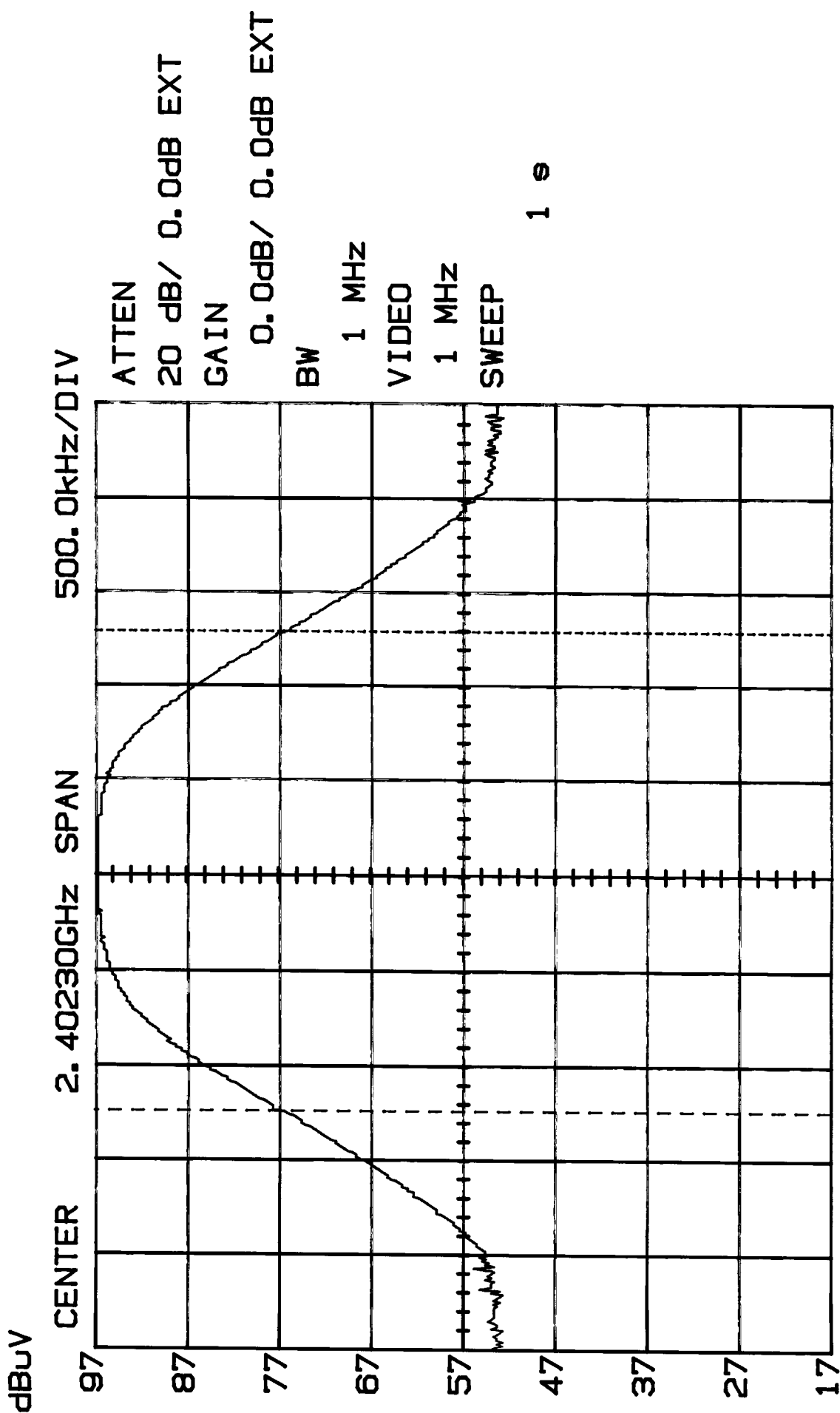
14:52:27 04-17-2001

BANDWIDTH (Channel 40)
MODEL 27910XXX-A; (HANDSET)



M2 76.37dB 2.48179GHz Δ 0.00dB/ 2.42MHz
14:43:11 04-17-2001

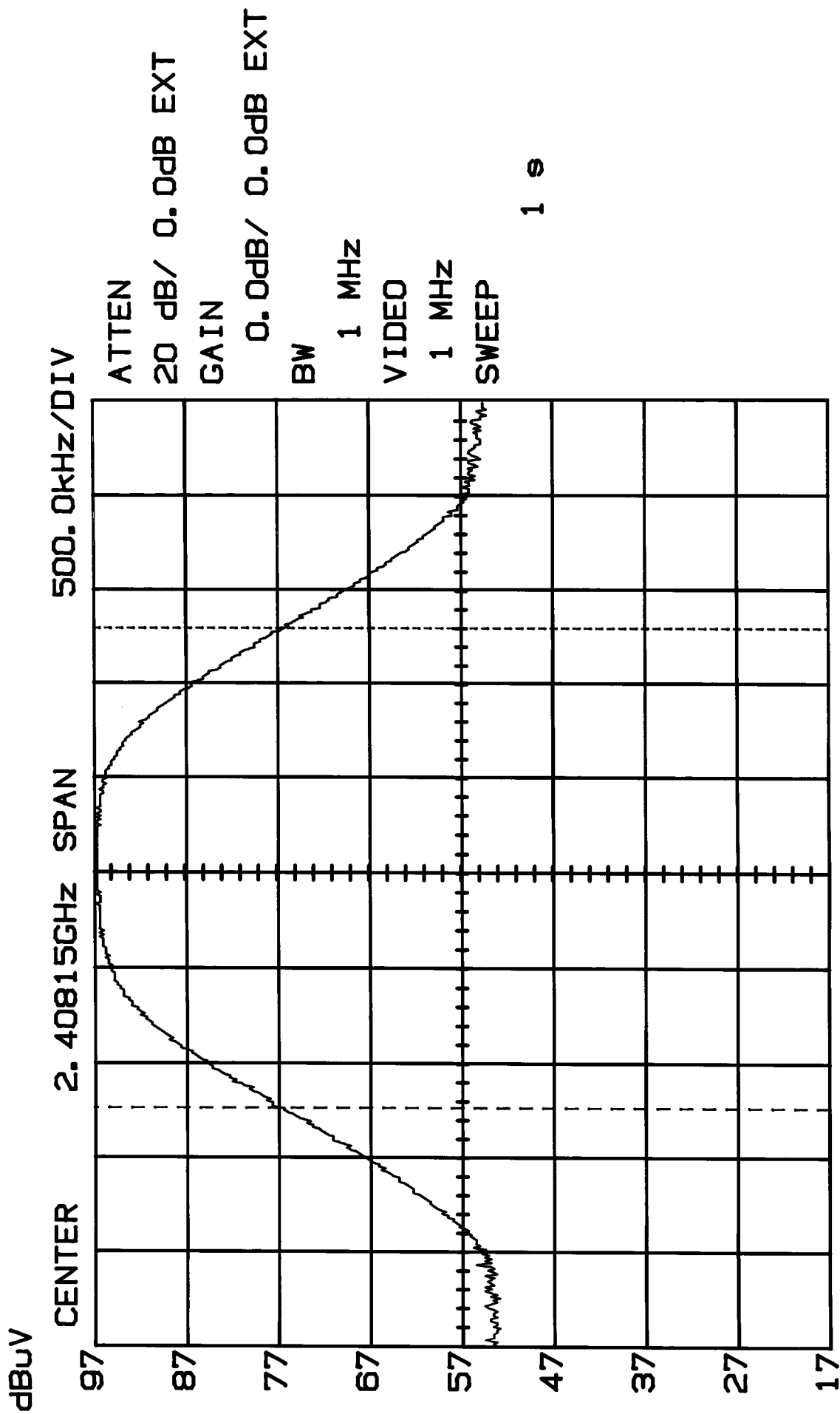
BANDWIDTH (Channel 1)
MODEL 27910XXX-A; (BASE)



M2 76.37dB2.40359GHz Δ 0.00dB/ 2.53MHz

14:31:48 04-17-2001

BANDWIDTH (Channel 40)
MODEL 27910XXX-A; (BASE)



M2 76.37dB~~2~~. 40945GHz Δ 0.00dB/ 2.53MHz

14:37:34 04-17-2001

15.107 (a) POWER LINE CONDUCTED INTERFERENCE

Requirements: 0.45 - 30MHz 250 μ V or 47.96dB μ V

Test Procedure: ANSI STANDARD C63.4-1992.
The spectrum was scanned from 0.45 to 30MHz.

Test Data:

THE HIGHEST EMISSION READ FOR LINE 1 WAS 18.33 dB μ V@7.20 MHz.

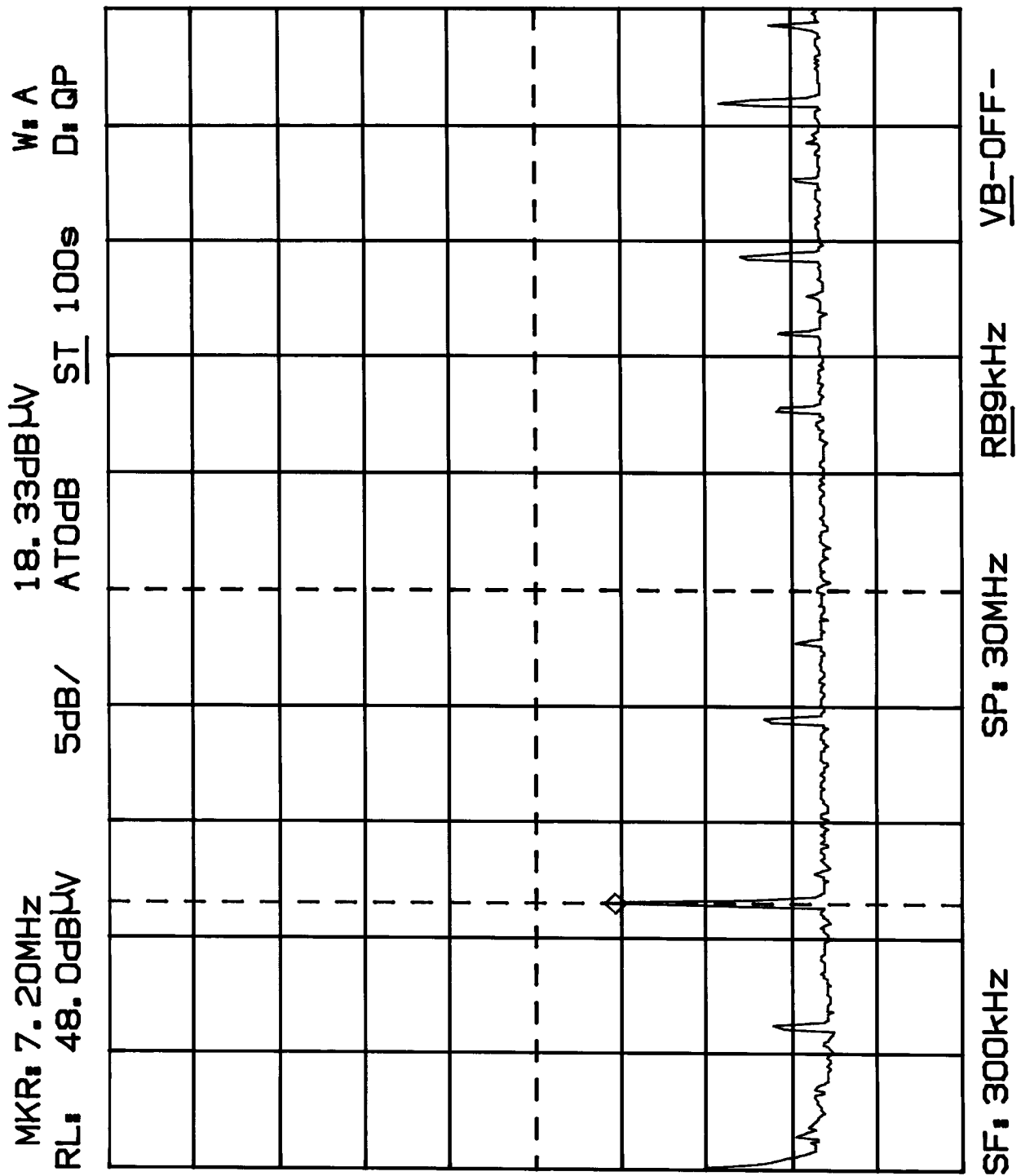
THE HIGHEST EMISSION READ FOR LINE 2 WAS 18.13 dB μ V@7.20 MHz

The graphs on Exhibits D(1)-14 and D(1)-15 represent the emissions taken for this device.

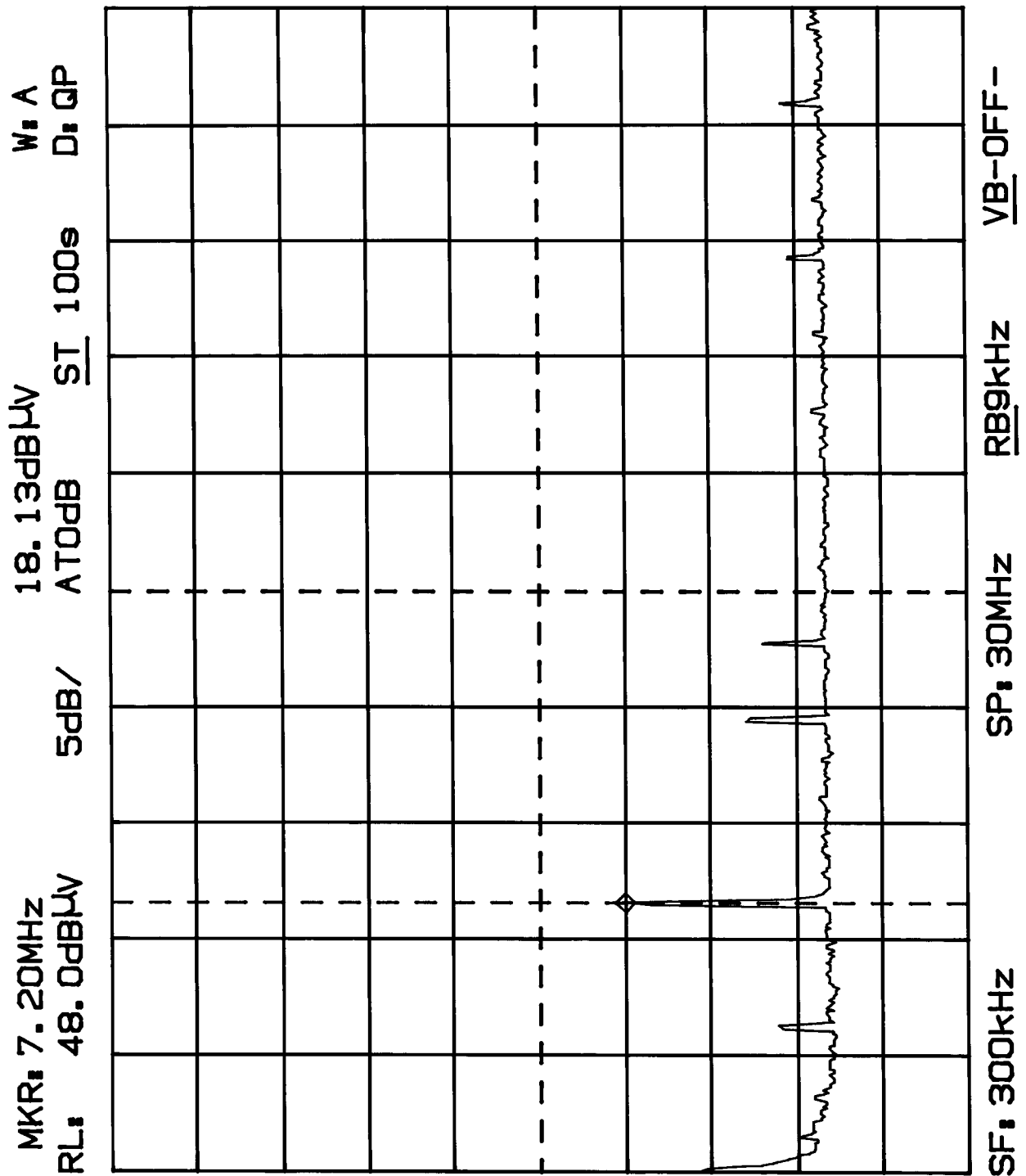
Test Results:

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 27910XXX-A; LINE 1



POWER LINE CONDUCTED EMISSIONS
MODEL 27910XXX-A; LINE 2



15.249 (a) and 15.249 (b)
FIELD STRENGTH OF EMISSIONS

Requirements:

Field Strength of Fundamental	Field Strength of Harmonics	15.209
		30-88 MHz 40 dB μ V/m@ 3m
2.4023-2.4806 GHz 94dB μ V	54 dB μ V/m@ 3m	88-216 MHz 43.5
		216-960 MHz 46
		Above 960 MHz 54

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50dB below the level of the fundamental or to the general radiated emission limits in 15.209, whichever is the lesser attenuation.

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

FIELD STRENGTH OF EMISSIONS**Test Data:**

Emission Frequency MHz	Meter Reading @3m dBμV	Antenna	Cable and ACF dB	Field Strength dBμV/M	FCC Limit dBμV/M	Margin dB	Detector & BW KHz
<u>HANDSET</u> <u>(Headset)</u> <u>Channel 1</u>							
2474.70	57.00	Horn V	33.50	90.50	94	-3.5	PK 1000
4949.40	---						
7424.10	---						
9898.80	---						
12373.50	---						
14848.20	---						
<u>Channel 40</u>							
2480.55	56.00	Horn V	33.52	89.52	94	-4.48	PK 1000
4961.10	---						
7441.65	---						
9922.20	---						
12402.75	---						
14883.30	---						

FIELD STRENGTH OF EMISSIONS**Test Data:**

Emission Frequency MHz	Meter Reading @3m dBμV	Antenna	Cable and ACF dB	Field Strength dBμV/M	FCC Limit dBμV/M	Margin dB	Detector & BW KHz
<u>BASE</u>							
<u>Channel 1</u>							
2402.30	57.00	Horn V	33.38	90.38	94	-3.62	PK 1000
4804.60	9.76	Horn V	37.90	47.66	54	-6.34	PK 1000
7206.90	---						
9609.20	---						
12011.50	---						
14413.80	---						
<u>Channel 40</u>							
2408.15	55.00	Horn V	33.38	88.38	94	-5.62	PK 1000
4816.30	11.76	Horn V	37.90	49.66	54	-4.34	PK 1000
7224.45	---						
9632.60	---						
12040.75	---						
14448.90	---						