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Engineering & Administrative

CERTIFICATED UL AGENCY

Testing For FCC Submissions/Verifications

Approved Test Facility

Qualified SP Facility

TEST REPORT			
REPORT DATE:	14 March 2003		REPORT NO: 23010D
CONTENTS:	See Table of Contents		
SUBMITTOR:	ATLINKS USA, Inc. 101 West 103rd Street Indianapolis, IN 46290-1102 USA		
SUBJECT:	Model No:	**26981XXX-A**	
	FCC ID:	G9HA9R17	
TEST SPECIFICATION	FCC 47 CFR Part 15 NOTE: Tests Conducted Are "Type" Tests.		
DATE SAMPLE RECEIVED:	2 February 2003	DATE TESTED:	25 February and 11 March 2003
RESULTS:	Equipment tested complies with referenced specification. Also, the Model 26981XXX-A meets the new rules (150kHz to 30MHz) FCC Power Line Conducted Limits.		
ALTERATIONS	None		
Tested by:	Ed. Chang	Approved by:	Robert G. Marshall, P. Eng.
	Edward Chang	Date:	Mar 20/03

TECHNICAL REPORT - FCC 2.1033(b)

Applicant

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

FCC Identifier

G9HA9R17

Manufacturer

Dongguan Humen Taida Electric Co. Ltd.
National Highway 107, Cuntou Cun, Humen Town
Dongguan, Guangdong, China

TABLE OF CONTENTS

EXHIBIT D

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

"Report of Measurements"

Exhibit D(1)-1 to D(1)-17 - Test Data/Measurements
Exhibit D(2)-1 to D(2)-3 - Test Equipment List and Measurement Facility (3 Meter Site)
Exhibit D(3)-1 to D(3)-2 - Test Set-Up Photo
Exhibit D(4) - Test Setup Diagram for AC Conducted Line Testing

TABLE OF CONTENTS

TEST REPORT CONTAINING:

PRODUCT DESCRIPTION

The Model 26981XXX-A is a single-line cordless telephone with clock radio and caller ID that operates from 902 MHz to 928 MHz. The antenna used for the base and the handset is permanently attached to the EUT. Its actual frequency range is:

Base:	902.80 MHz to 904.75 MHz
Handset:	925.30 MHz to 927.25 MHz

A complete frequency list is shown on the following pages.

3.4 Table of Phone Channel Frequency

Channel	B/U Tx (MHz)	B/U LO (MHz)	H/S Tx (MHz)	H/S LO (MHz)	Channel	B/U Tx (MHz)	B/U LO (MHz)	H/S Tx (MHz)	H/S LO (MHz)
1	902.80	936.00	925.30	892.10	21	903.80	937.00	926.30	893.10
2	**902.85**	**936.05**	**925.35**	**892.15**	22	**903.85**	**937.05**	**926.35**	**893.15**
3	902.90	936.10	925.40	892.20	23	903.90	937.10	926.40	893.20
4	902.95	936.15	925.45	892.25	24	903.95	937.15	926.45	893.25
5	903.00	936.20	925.50	892.30	25	904.00	937.20	926.50	893.30
6	**903.05**	**936.25**	**925.55**	**892.35**	26	**904.05**	**937.25**	**926.55**	**893.35**
7	903.10	936.30	925.60	892.40	27	904.10	937.30	926.60	893.40
8	903.15	936.35	925.65	892.45	28	904.15	937.35	926.65	893.45
9	903.20	936.40	925.70	892.50	29	904.20	937.40	926.70	893.50
10	**903.25**	**936.45**	**925.75**	**892.55**	30	**904.25**	**937.45**	**926.75**	**893.55**
11	903.30	936.50	925.80	892.60	31	904.30	937.50	926.80	893.60
12	903.35	936.55	925.85	892.65	32	904.35	937.55	926.85	893.65
13	903.40	936.60	925.90	892.70	33	904.40	937.60	926.90	893.70
14	**903.45**	**936.65**	**925.95**	**892.75**	34	**904.45**	**937.65**	**926.95**	**893.75**
15	903.50	936.70	926.00	892.80	35	904.50	937.70	927.00	893.80
16	903.55	936.75	926.05	892.85	36	904.55	937.75	927.05	893.85
17	903.60	936.80	926.10	892.90	37	904.60	937.80	927.10	893.90
18	**903.65**	**936.85**	**926.15**	**892.95**	38	**904.65**	**937.85**	**927.15**	**893.95**
19	903.70	936.90	926.20	893.00	39	904.70	937.90	927.20	894.00
20	903.75	936.95	926.25	893.05	40	904.75	937.95	927.25	894.05

In the unit, only four types of crystal are used to provide the reference frequency to their corresponding parts. They are:

1. AM/FM radio board, crystal connect to IC4 pin22 &23, it is 75kHz.
2. Base main board, crystal X1 connect to U1 pin 9 & 10, it is 32.768kHz
3. HS main board, crystal X1 connect to U1 pin 22 & 23, it is 3.58MHz
4. RF board, crystal X1 connect to U3 pin 32 & 33, it is 8MHz

FCC ID: G9HA9R17
Marstech Report No. 23010D
EXHIBIT D(1)-3

15.107 (a) POWER LINE CONDUCTED INTERFERENCE

Requirements:

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 KHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50μH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the band edges.

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 50μH 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:

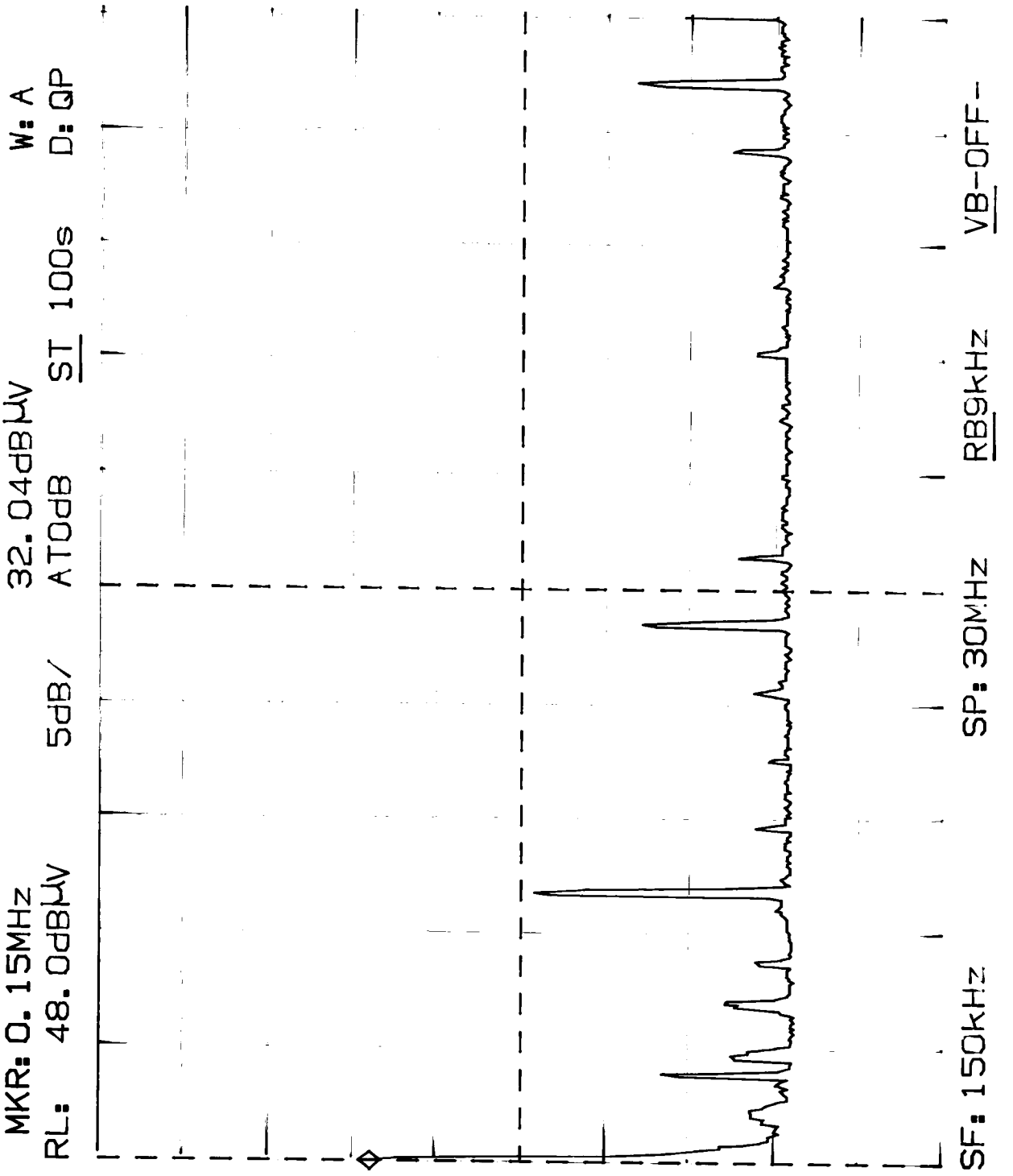
The highest emission read for LINE was 32.04 dBμV@ 0.15 MHz.
The highest emission read for NEUTRAL was 31.61 dBμV@ 0.15 MHz.

The graphs on Exhibit D(1)-5 to -6 represent the emissions taken for this device.

Test Results:

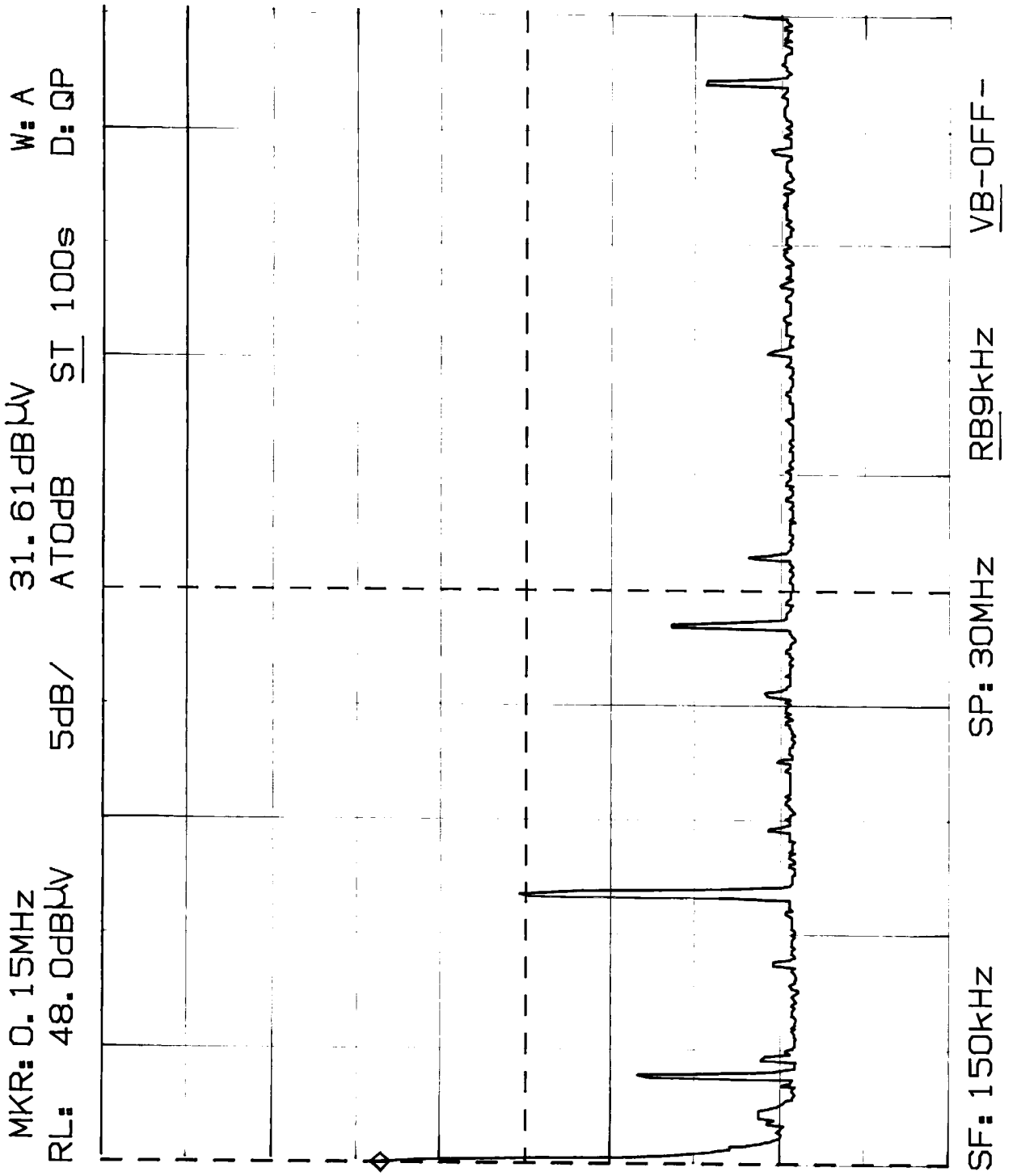
Both lines were observed. The measurements indicate that the unit DOES appear to meet the FCC requirements for this class of equipment.

POWER LINE CONDUCTED EMISSIONS
MODEL 26981XXX-A; LINE



FCC ID: G9HA9R17
Marstech Report No. 23010D
EXHIBIT D(1)-5

POWER LINE CONDUCTED EMISSIONS
MODEL 26981XXX-A; NEUTRAL



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

Requirements:

Fundamental Frequency		Field Strength of Harmonics	15.209	
902-928 MHz	94dBμV	54 dBμV/m@ 3m	30-88 MHz	40 dBμV/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 54dBμV/m

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%.

Test Data:

Refer to Exhibit D(1)-8 to -9

FIELD STRENGTH OF EMISSIONS

Test Data:

BASE 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								
902.800	**57.50**	**---**	**RT4 V**	**33.30**	**90.80**	**---**	**94**	**-3.20**
1805.600	9.00	---	Horn V	33.18	42.18	---	54	-11.82
2708.400	10.00	---	Horn V	33.92	43.92	---	54	-10.08
3611.200	----	---						
Channel 40								
904.75	**58.30**	**---**	**RT4 V**	**33.30**	**91.60**	**---**	**94**	**-2.40**
1809.50	8.00	---	Horn V	33.18	41.18	---	54	-12.82
2714.25	8.00	---	Horn V	33.92	41.92	---	54	-12.08

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.
4. From 30 - 1000 MHz, the detector was Peak and Bandwidth 100 KHz.
5. Above 1000 MHz, the detector was Peak and Bandwidth 1000 KHz.

FIELD STRENGTH OF EMISSIONS

Test Data:

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								
925.31	57.00	---	RT4 V	33.40	90.40	---	94	-3.60
Channel 40								
927.26	57.40	---	RT4 V	33.40	90.80	---	94	-3.20

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.
4. From 30 - 1000 MHz, the detector was Peak and Bandwidth 100 KHz.
5. Above 1000 MHz, the detector was Peak and Bandwidth 1000 KHz.

15.249 (d) BAND EDGES

Requirements:

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

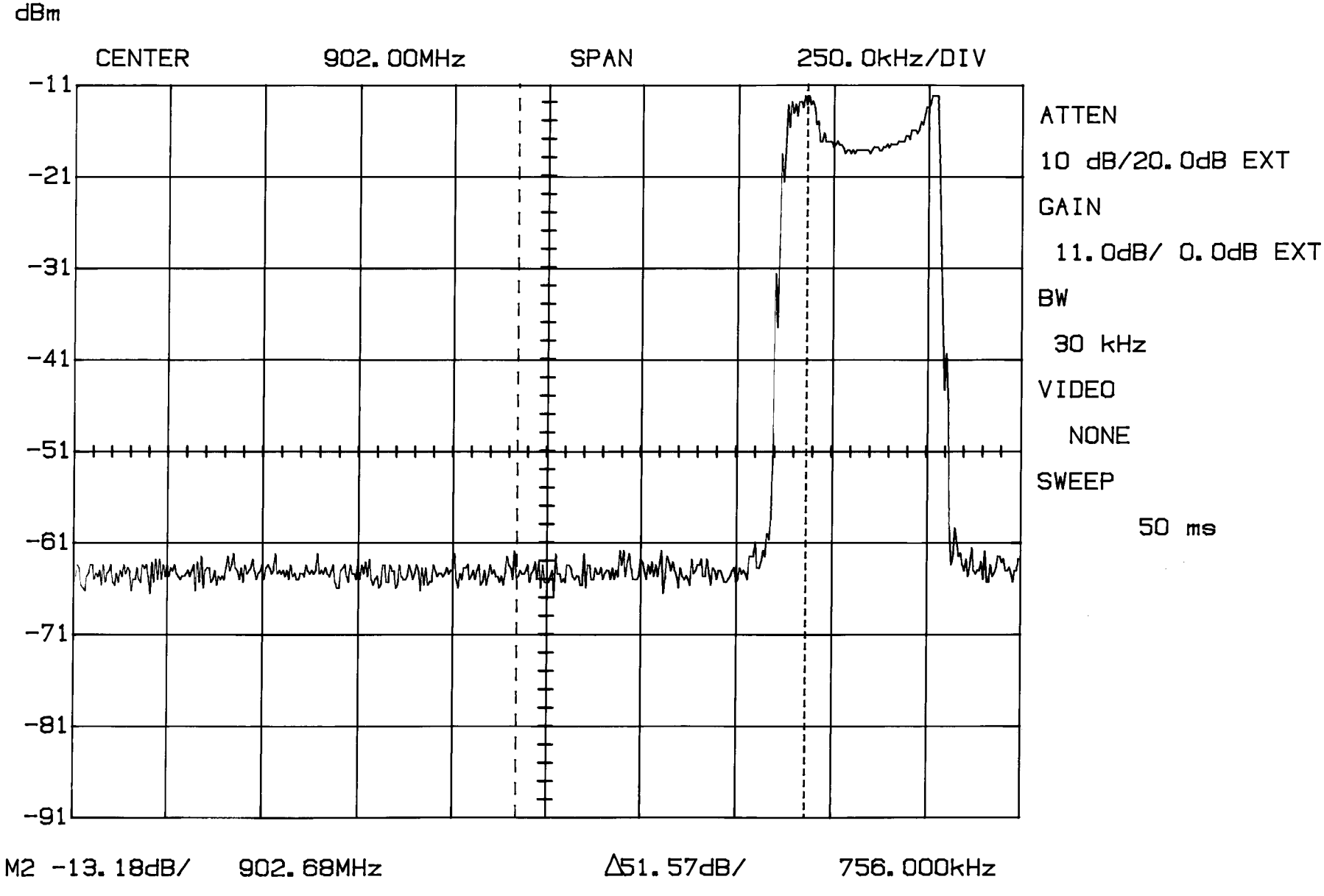
Measurement:

The base was attenuated by 50 dB. The handset was attenuated by 50 dB.

Test 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 [Exhibits D(1)-11 to -12].

BAND EDGE - Base (CH1)
MODEL 26981XXX-A



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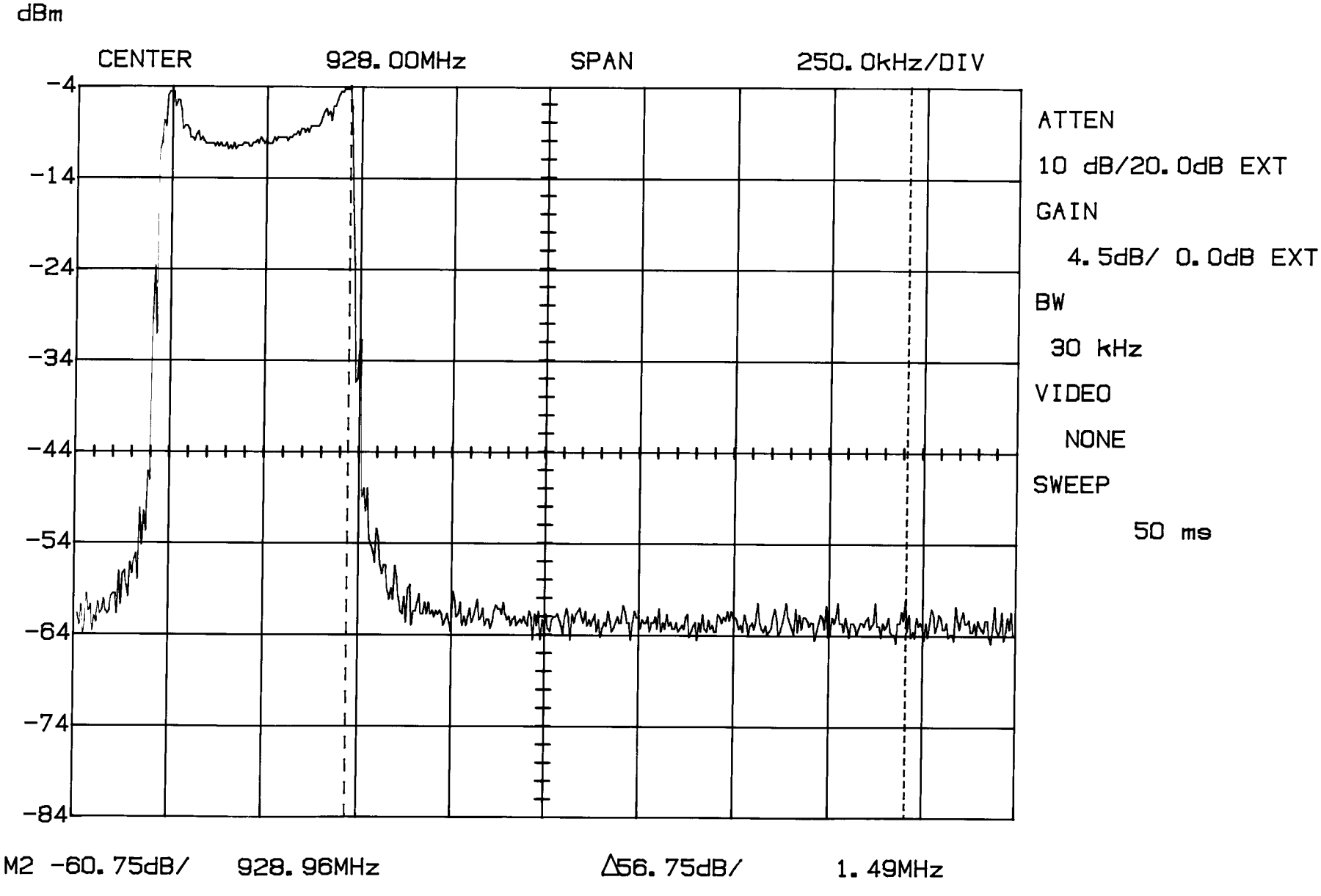
BAND EDGE - Handset (CH40)
MODEL 26981XXX-A



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2.202 BANDWIDTH

Measurement:

The measurements were made with the spectrum analyzer's resolution bandwidth (RBW) = 30KHz (Base and Handset) and the video bandwidth (VBW) = NONE and the span set as shown on plot.

Test Data:

Base:

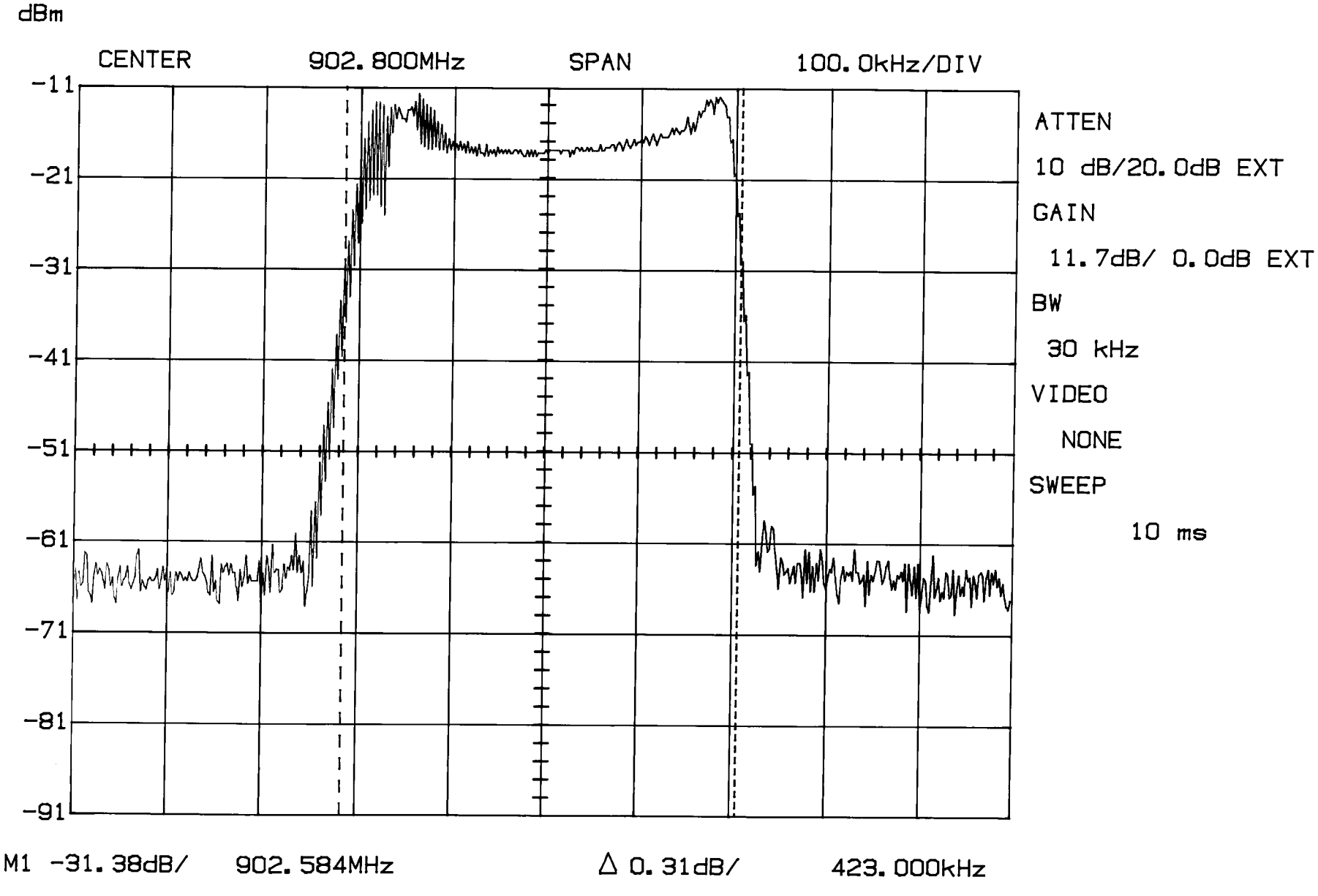
Channel 1: **0.423 MHz** [Refer to Exhibit D(1)-14]
Channel 40: **0.416 MHz** [Refer to Exhibit D(1)-15]

Handset:

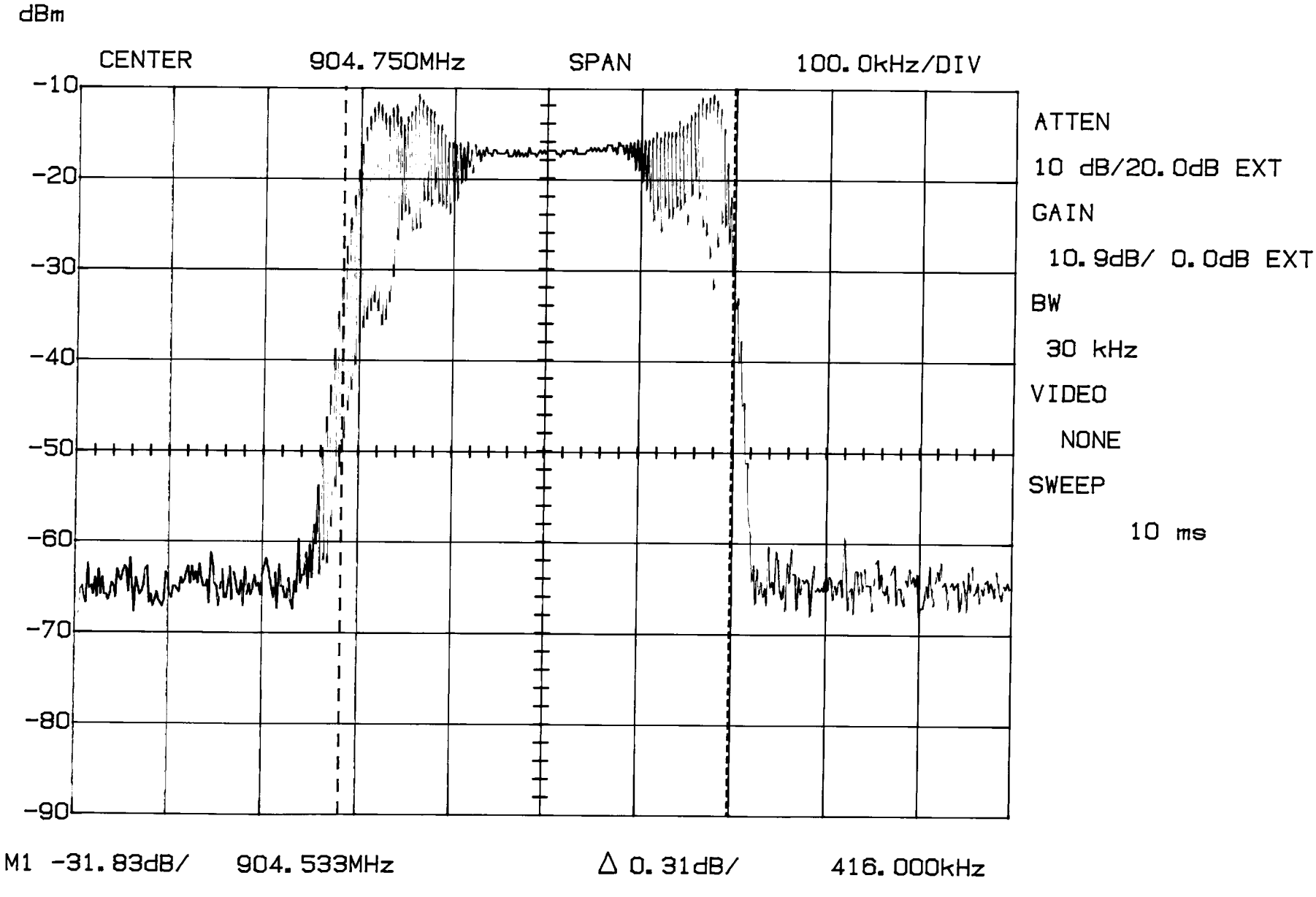
Channel 1: **0.538 MHz** [Refer to Exhibit D(1)-16]
Channel 40: **0.535 MHz** [Refer to Exhibit D(1)-17]

BANDWIDTH = **0.423 MHz** (Base)
0.538 MHz (Handset)

20dB BANDWIDTH
Channel 1 - Base
MODEL 26981XXX-A



20dB BANDWIDTH
Channel 40 - Base
MODEL 26981XXX-A



FCC ID: G9HA9R17
Marstech Report No. 23010D
EXHIBIT D(1)-15

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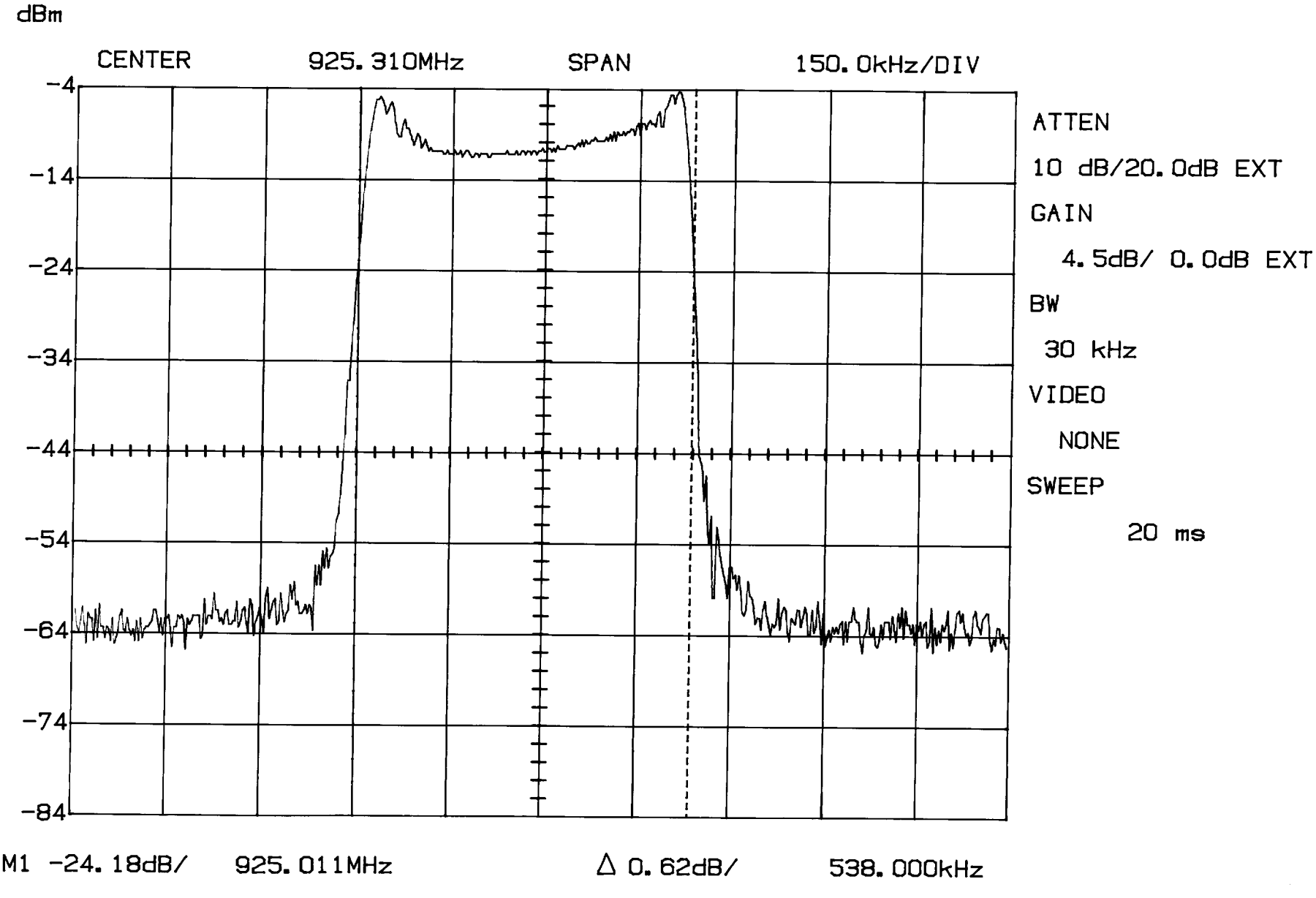
20dB BANDWIDTH
Channel 1 - Handset
MODEL 26981XXX-A



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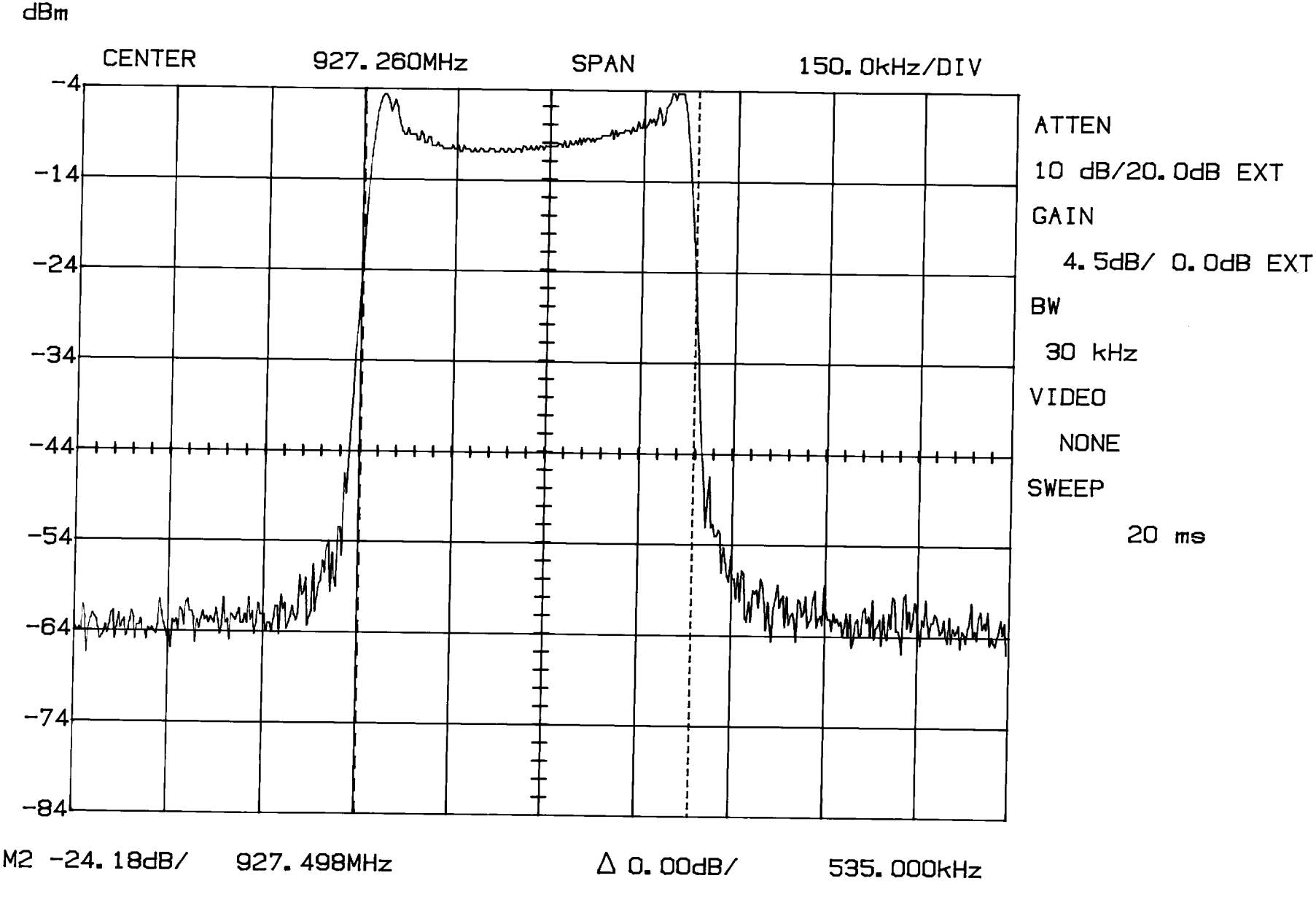
20dB BANDWIDTH
Channel 40 - Handset
MODEL 26981XXX-A



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Marstech Report No. 23010D
EXHIBIT D(1)-17

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