MEASUREMENT AND TECHNICAL REPORT

SONIK TECHNOLOGIES CORPORATION
VYTEK WIRELESS
2310 Cousteau Court
Vista, CA 92024

DATE: 02 May 2002

This Report Concerns:	Original Grant: X	Class II Change:
Equipment Type:	NPCS Transmitter, Model G2BT	
Deferred grant requested per 47 CFR 0.457(d)(1)(ii)?	Yes: **Defer until:**	No: X
Company Name **agrees to notify the Commission by:** **of the intended date of announcement of the product so that the grant can be issued on that date.**	N/A	
Transition Rules Request per 15.37?	Yes:	*No: X

(*) FCC Part 2, Paragraphs 2.1046; 2.1049; 2.1051; 2.1053; 2.1055 and Part 24, Paragraphs 24.131; 24.132(c); 24.133(a)(ii); 24.133(1)(ii); 24.135(a)

Report Prepared by:

TÜV PRODUCT SERVICE
10040 Mesa Rim Road
San Diego, CA 92121-2912
Phone: 858 546 3999
Fax: 858 546 0364

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TÜV PRODUCT SERVICE 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone 858 546 3999 FAX 858 546 0364

1 GENERAL INFORMATION

1.1 Product Description

NPCS Transmitter, Model G2BT

Power Requirements

Voltage: 208-240 Vac
# of Phases: 1
Current (Amps/phase(max)): 17.4a Current (Amps/phase(nominal)): 17.4a

Typical Installation and/or Operating Environment

Controlled access/radio room/vault

EUT Power Cable

X Permanent OR

EUT Software.

Revision Level: C6

EUT Operating Modes to be Tested -

1. 4 carriers transmission, 100 w/carrier
2. 3 carriers transmission, 1300 w/carrier
3. 2 carriers transmission, 200 w/carrier
4. 1 carriers transmission, 400 w/carrier

EUT System Components -

Description			
Control Chassis			
Power amplifier Array			
Power Supply			
Power Distribution			
Combiner and filter			

Support Equipment

Description			
Computer			
GPS Antenna			

Oscillator Frequencies

Frequency MHz			
10			
18.432			
20			
16.8			

Power Supply

Manufacturer			
Magnetek			

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1 GENERAL INFORMATION (continued)

1.2 Related Submittal/Grant

None

1.3 Tested System Details

The FCC IDs for all equipment, plus descriptions of all cables used in the tested system are:

None

1.4 Test Methodology

Purpose of Test: To demonstrate compliance with the ANSI C63.4 setup.

TEST	FCC CFR 47 #	PASS/FAIL
RF Power Output	Part 2, Para. 2.1046; Part 24; Para. 24.132(c)	Pass
Modulation	Part 2, Para. 2.1047; Part 24; Para. 24.133(1)(i)	Pass
Occupied Bandwidth	Part 2, Para. 2.1049; Part 24; Para. 24.131	Pass
Spurious Emissions at Antenna Terminals	Part 2, Para. 2.1051; Part 24; Para. 24.133	Pass
Radiated Spurious	Part 2, Para. 2.1053; Part 24; Para. 24.133(a)(ii)	Pass
Frequency Stability	Part 2, Para. 2.1055; Part 24; Para. 24.135(a)	Pass

Both Conducted and radiated testing were performed according to the procedures in FCC/ANSI C63.4 and CSA 108.8 - M1983. Radiated testing was performed at an antenna-to-EUT distance of 3 meters (1 - 25 GHz).

1.5 Test Facility

The open area test site and conducted measurement data were tested by:

TÜV PRODUCT SERVICE
10040 Mesa Rim Road
San Diego, CA 92121-2912
Phone: 858 546 3999
Fax: 858 546 0364

The Test Site Data and performance comply with ANSI 63.4 and are registered with the FCC, 7435 Oakland Mills Rd, Columbia Maryland 21046. All Measurement Data is acquired according to the content of FCC Measurement Procedure and ANSI C63.4, unless supplemented with additional requirements as noted in the test report.

2. SYSTEM TEST CONFIGURATION

2.1 Justification

The EUT was initially tested for FCC emission in the following configuration:

See Block Diagram.

2.2 EUT Exercise Software

None

2.3 Special Accessories

None

2.4 Modification

None

2.5 Configuration of Tested System

See Block Diagram.

3 RF POWER OUTPUT (CHANNELS 1-4)

TÜV PRODUCT SERVICE 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone 858 546 3999 FAX 858 546 0364

Test Specifications: FCC Part 24 NPCS

Report No. SC202170 Photos taken? ■ Yes

Test Method:
FCC Part 2.1046 RF Power Output
FCC Part 24.132 (c) RF Power Limits

Date: Apr. 17, 2002
Temperature: 22 degrees C
Air Pressure: 100.9 kPa
Relative Humidity: 41 %

Test Area:
SR 2, Shielded Room, 12' x 24' x 10', Metal Chamber

EUT Description: G2BT Radio Transmitter NPCS

EUT POWER: 208 Vac 60 Hz

Limited to 3500 Watts e.r.p.

Frequency Band	Frequency under Test -- Modulation	Measured Watts	Complies
930 --- 931 MHz			
	930.5 MHz		
	1 Channel Carrier	410	Yes
	2 Channel Carrier	402	Yes
	3 Channel Carrier	410	Yes
	4 Channel Carrier	410	Yes
940 --- 941 MHz			
	940.5 MHz		
	1 Channel Carrier	397	Yes
	2 Channel Carrier	399	Yes
	3 Channel Carrier	406	Yes
	4 Channel Carrier	401	Yes

NOTES:
The directional coupler provided 47.7 dB attenuation and was entered into the power meter as an offset.

Tested By: A. Laudani Signature

Reviewed by: Jim Owen Signature

Test Equipment Used:

Prop. #	Model Number	Description	Manufacturer	Serial No.	Cal. Dates
Customer's Test Equipment Used:					
	437B	Power Meter	Howlett Packard	31250U13310	6/1/01 Verified 4-4-02
	8481H	Power Sensor	Hewlett Packard	3318A16294	6/1/01 Verified 4-4-02
	5882568W03	Directional Coupler	CellWave	195029-296	Verified 4-4-02

4 MODULATION CHARACTERISTICS (CHANNELS 1, 2, 3 and 4, 930.500MHz and (CHANNELS 1, 2, 3 and 4, 940.500 MHz)

TÜV PRODUCT SERVICE 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone 858 546 3999 FAX 858 546 0364

Report No. SC202170

Test Specifications: FCC Part 24 NPCS

FCC Part 2.1047 Modulation Characteristics
FCC Part 2.1051 Spurious Emissions at Antenna Terminals
FCC Part 24.131 (1)(i) Emission Limits
FCC Part 24.131 (1)(ii) Emission Limits

Notes:

To prevent overloading the Spectrum Analyzer, a notch filter was inserted between the antenna port and the SA with an insertion loss of 6.8 to 7 dB for measured ranges between 30 to 3000 MHz

The emission mask was presented as the second of five pages within the Spurious Emission plots to show the near frequency emissions as the plots for Spurious Emissions have a large span which makes it difficult to discriminate near the intended radio emission.

Environmental room conditions: 22--24 degrees C, 100.9 Kpa pressure, 40-44 % rel. hum.

Photos of the Setup were taken, Data presented as Plots

Test Equipment Used:

Prop. #	Model Number	Description	Manufacturer	Serial No.	Cal. Dates
6495	hp8566B	Spectrum Analyzer	Hewlett Packard	2311A02209	11/13/02

Customer's Test Equipment Used:

588256B1J03	Directional Coupler	CellWave	192079-007	Verified 4-4-04
930.5 MHz	Notch Filter	WACOM Products, Inc.	37043-66	Verified 4-17-2002
940.5 MHz	Notch Filter	WACOM Products, Inc.	37043-67	Verified 4-17-2002

Notch Cavities of the WP-4941-7941-2 dual cavity dual channel filter set retuned for use on 930.5 & 940.5MHz
Performance 48.0dB at 930.5MHz; 7.0dB Insertion Loss -- 30 to 3000 MHz
41.0dB at 940.5MHz;. 6.8dB Insertion Loss -- 30 to 3000 MHz

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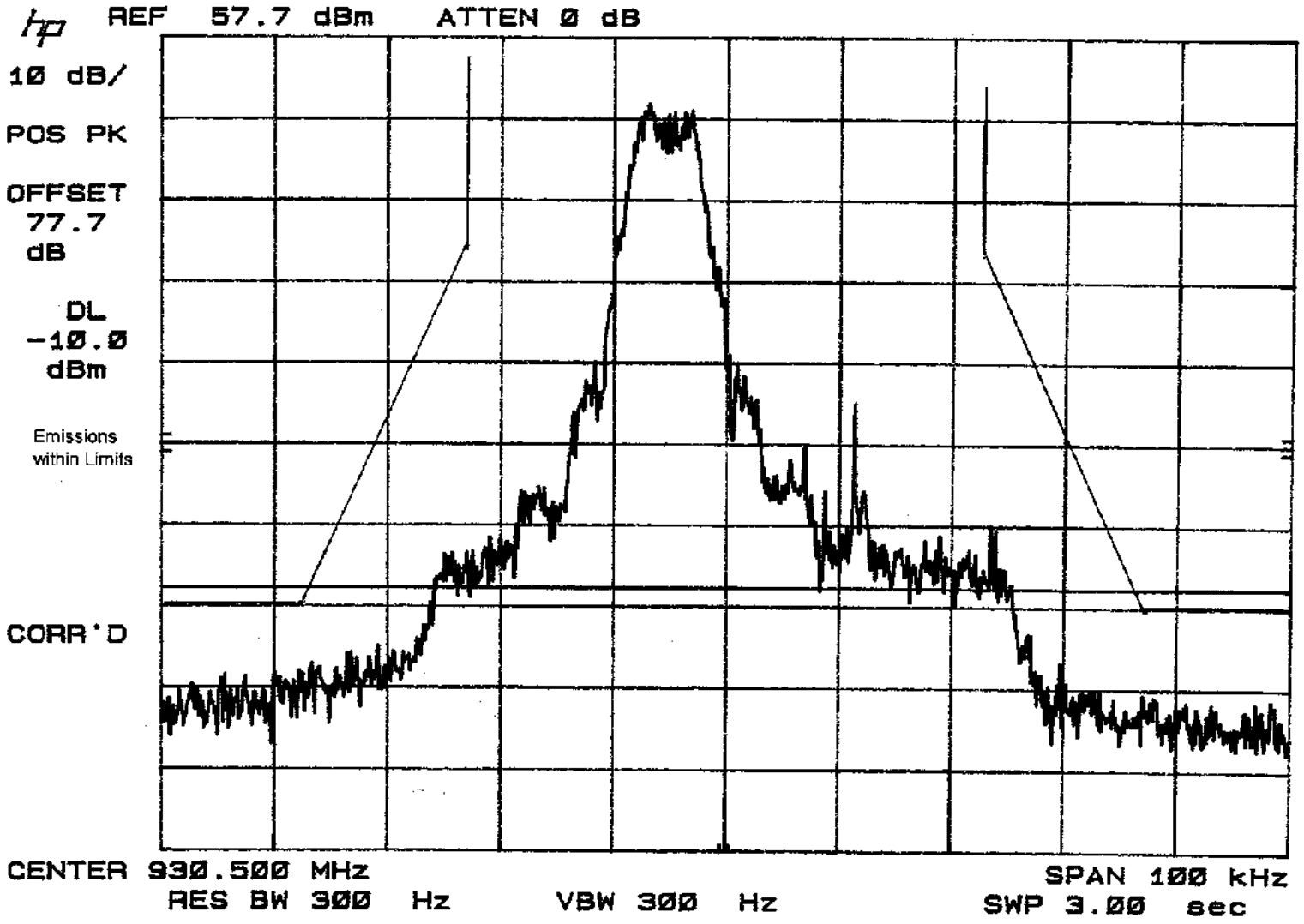
SC202170 G2BT RADIO TRANSMITTER APR. 17, 2002
SONIK TECHNOLOGIES. TECH/ENGR: AAL
FCC CFR 47 PART 2.1047 MODULATION CHARACTORISTICS
FCC CFR 47 PART 24.133 (1)(i) 930.5 MHz 1 CHANNEL CARRIER FSK DATA



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SONIK TECHNOLOGIES. TECH/ENGR: AAL
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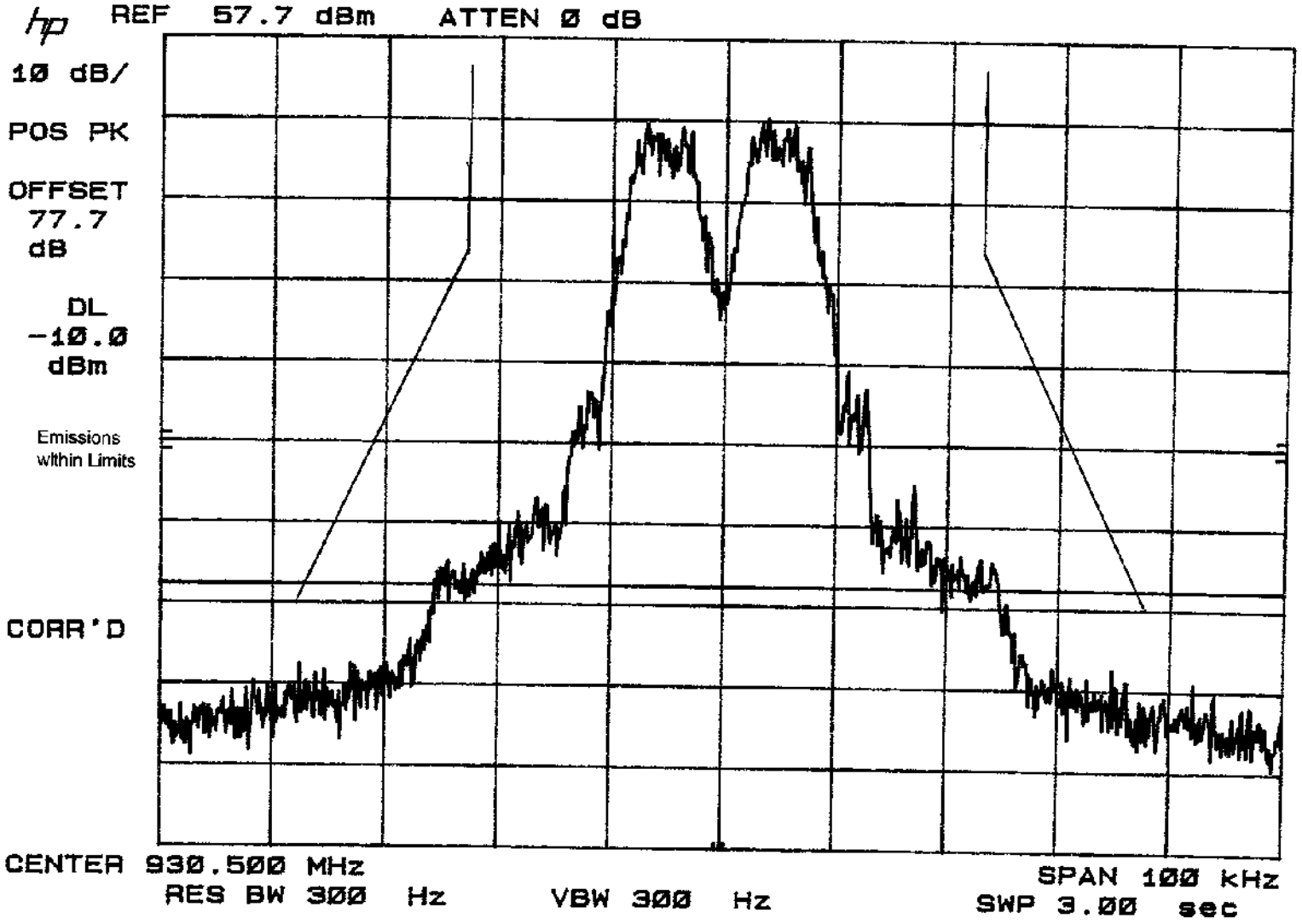
FCC CFR 47 PART 24.133 (1)(i) 930.5 MHz 2 CHANNEL CARRIER FSK DATA



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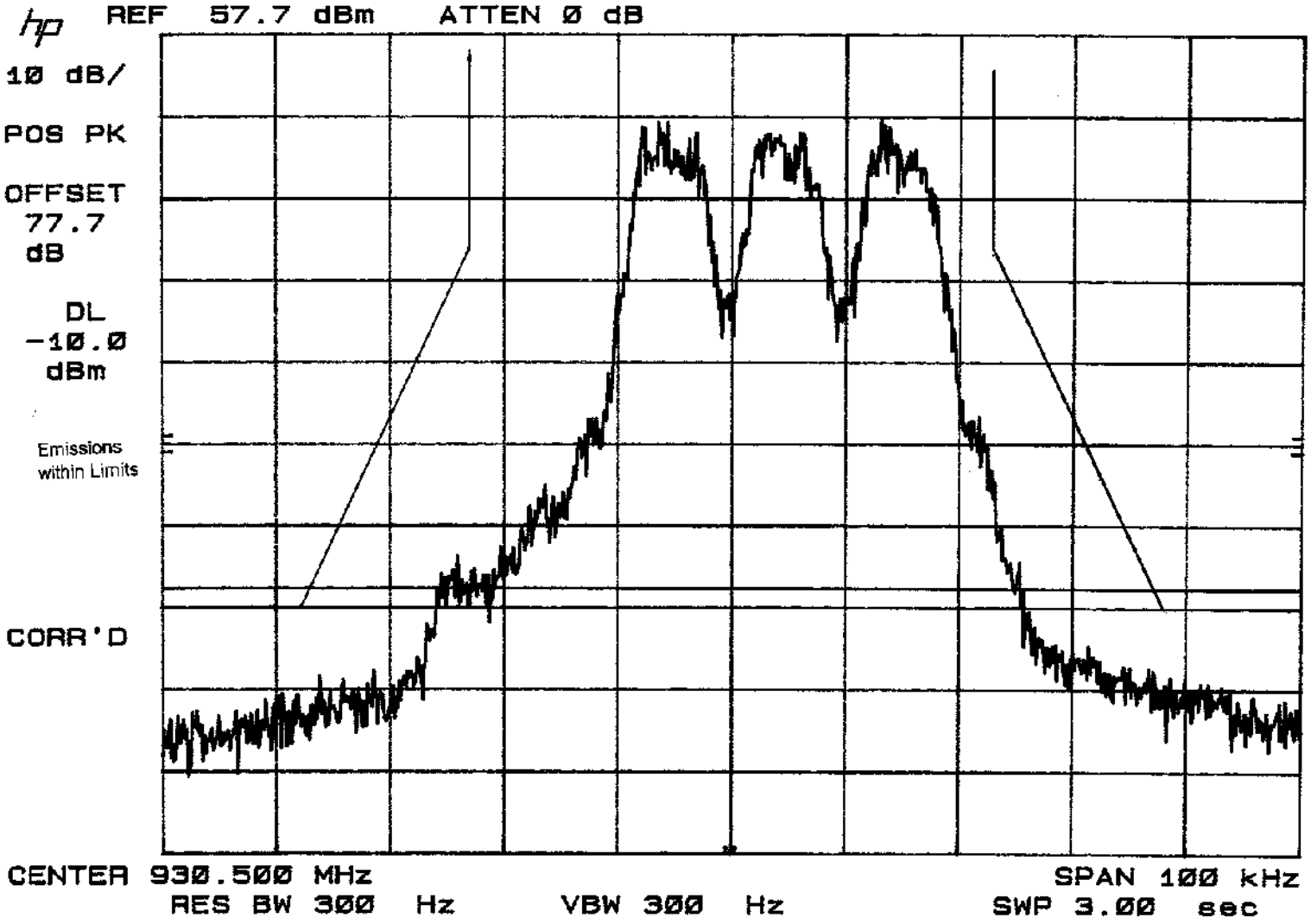
SONIK TECHNOLOGIES. TECH/ENGR: AAL
FCC CFR 47 PART 2.1047 MODULATION CHARACTORISTICS
FCC CFR 47 PART 24.133 (1)(i) 930.5 MHz 3 CHANNEL CARRIER FSK DATA



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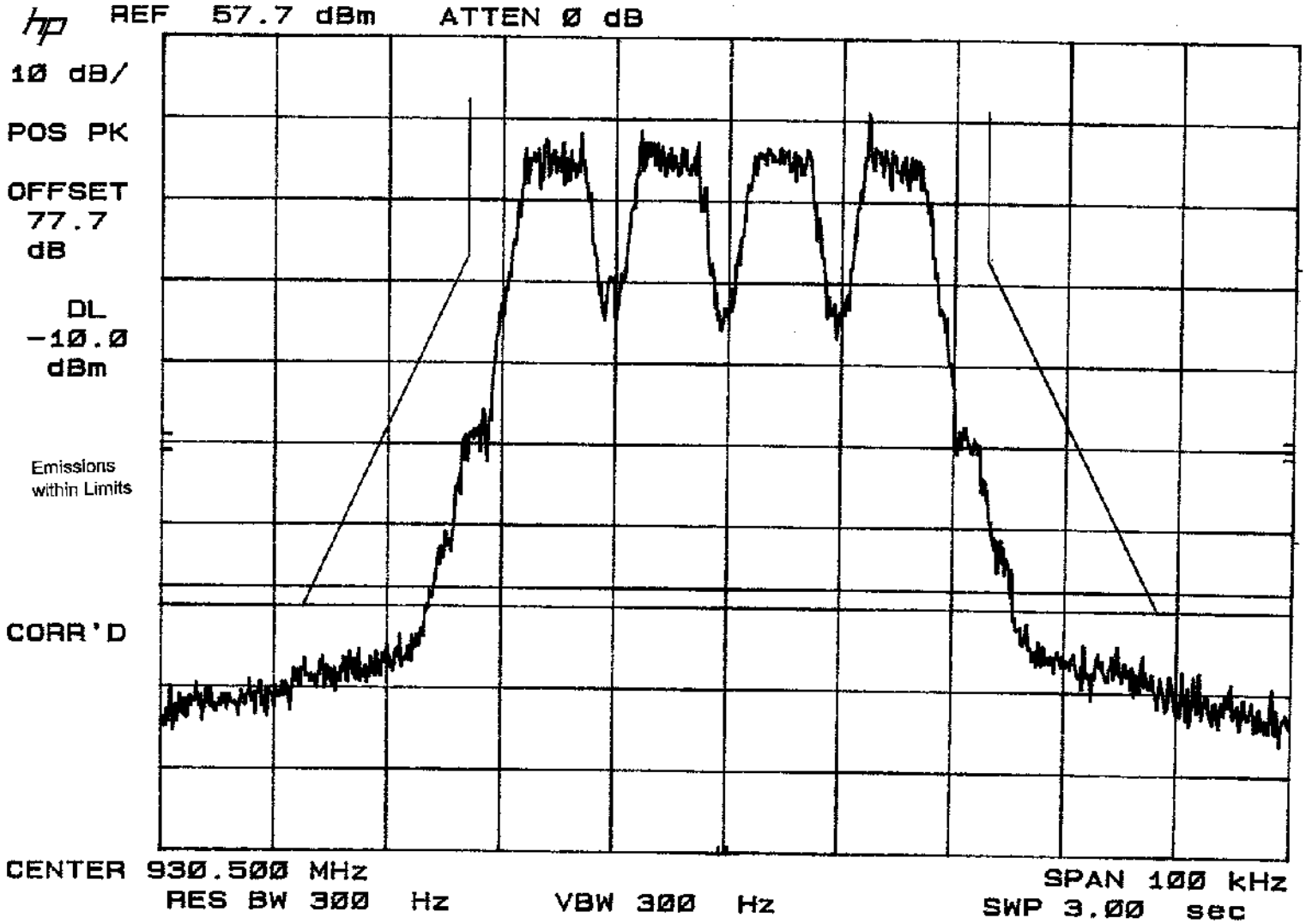
SONIK TECHNOLOGIES. TECH/ENGR: AAL
FCC CFR 47 PART 2.1047 MODULATION CHARACTORISTICS
FCC CFR 47 PART 24.133 (1)(i) 930.5 MHz 4 CHANNEL CARRIER FSK DATA



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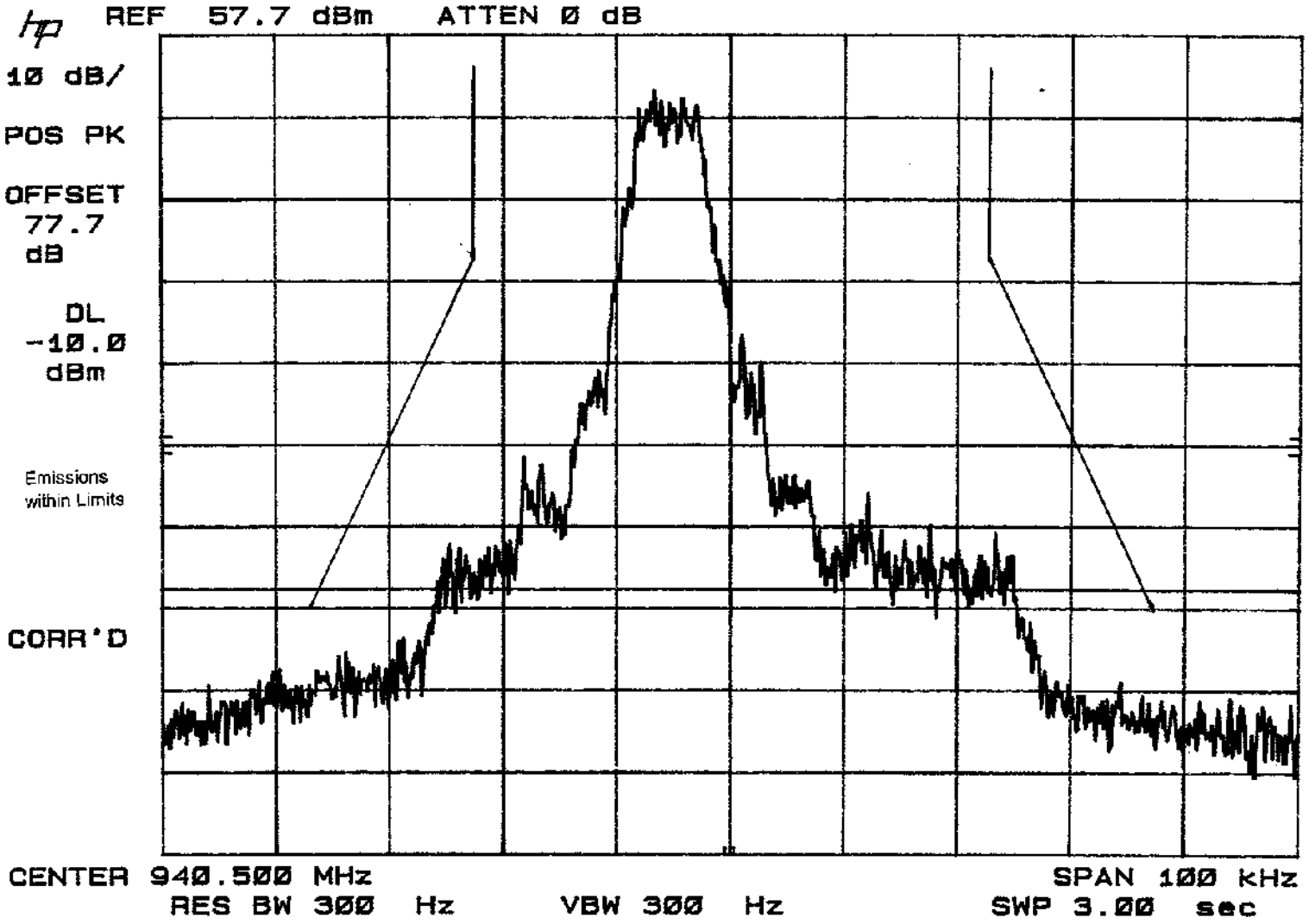
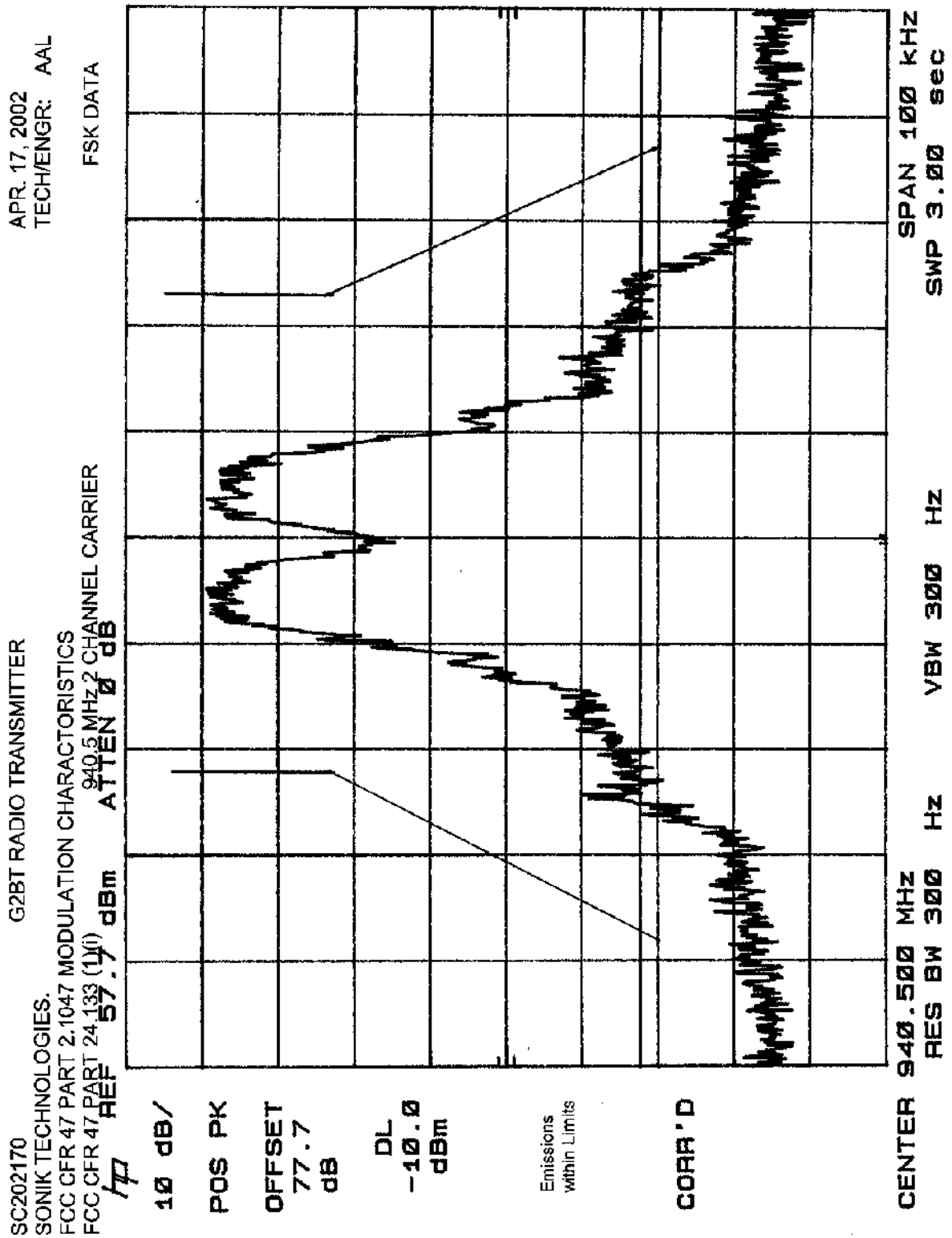
SONIK TECHNOLOGIES. TECH/ENGR: AAL
FCC CFR 47 PART 2.1047 MODULATION CHARACTORISTICS
FCC CFR 47 PART 24.133 (1)(i) 940.5 MHz 1 CHANNEL CARRIER FSK DATA

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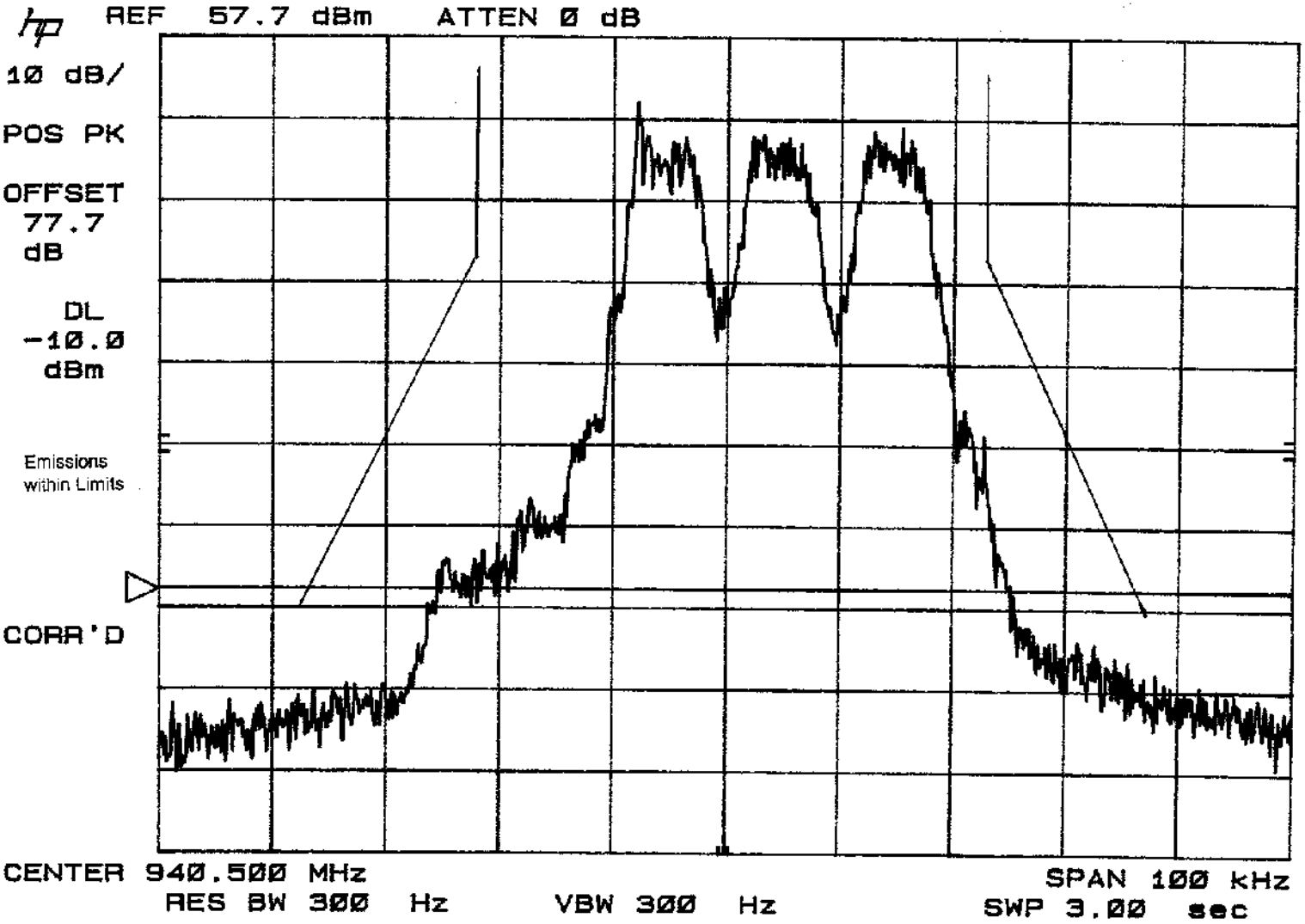
SONIK TECHNOLOGIES.
FCC CFR 47 PART 2.1047 MODULATION CHARACTORISTICS
FCC CFR 47 PART 24.133 (1)(i)
G2BT RADIO TRANSMITTER
APR. 17, 2002
TECH/ENGR: AAL
FSK DATA
940.5 MHz 2 CHANNEL CARRIER
REF 57.7 dBm
ATTEN 0 dB
10 dB/
POS PK
OFFSET 77.7 dB
DL -10.0 dBm
Emissions within Limits
CORR'D
CENTER 940.500 MHz
RES BW 300 Hz
VBW 300 Hz
SPAN 100 kHz
SWP 3.00 sec

SC202170 G2BT RADIO TRANSMITTER APR. 17, 2002
SONIK TECHNOLOGIES. TECH/ENGR: AAL
FCC CFR 47 PART 2.1047 MODULATION CHARACTORISTICS
FCC CFR 47 PART 24.133 (1)(i) 940.5 MHz 3 CHANNEL CARRIER FSK DATA



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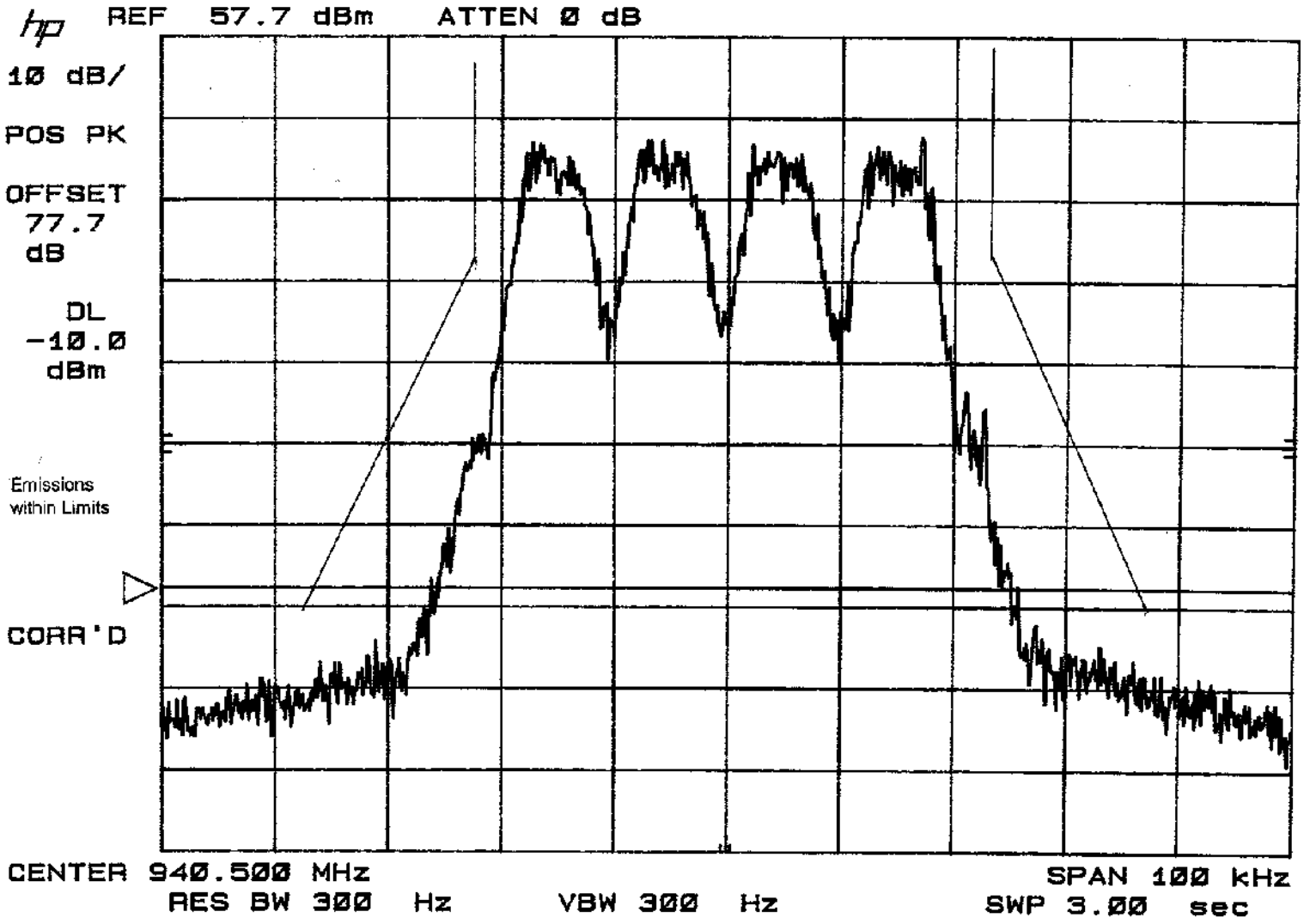
SONIK TECHNOLOGIES. TECH/ENGR: AAL
FCC CFR 47 PART 2.1047 MODULATION CHARACTORISTICS
FCC CFR 47 PART 24.133 (1)(i) 940.5 MHz 4 CHANNEL CARRIER FSK DATA



5 OCCUPIED BANDWIDTH (CHANNELS 1-4; 930.500 and 940.500 MHz)

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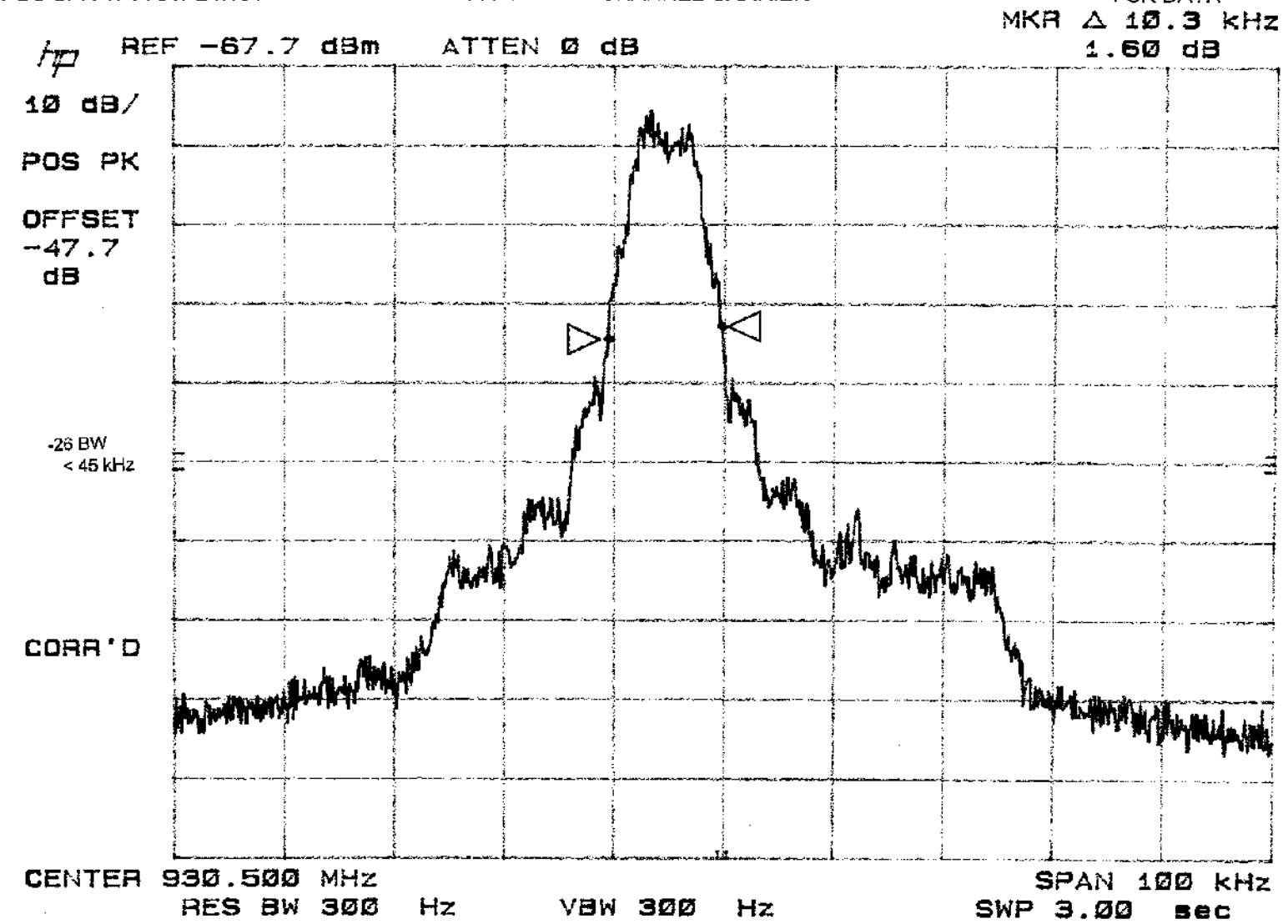
SONIK TECHNOLOGIES. TECH/ENGR: AAL
FCC CFR 47 PART 2.1049 OCCUPIED BANDWIDTH
FCC CFR 47 PART 24.131 930.5 MHz 1 CHANNEL CARRIER FSK DATA



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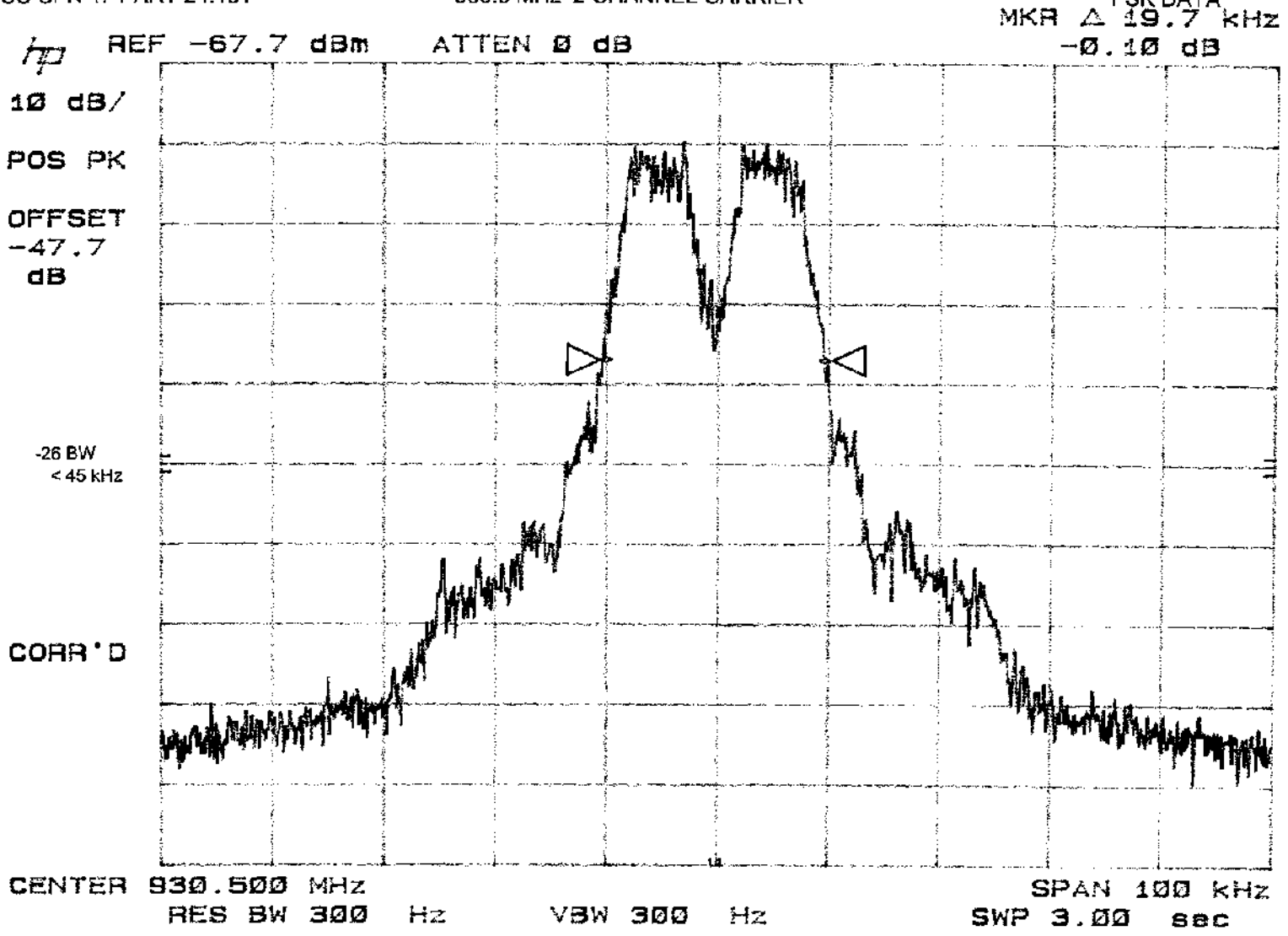
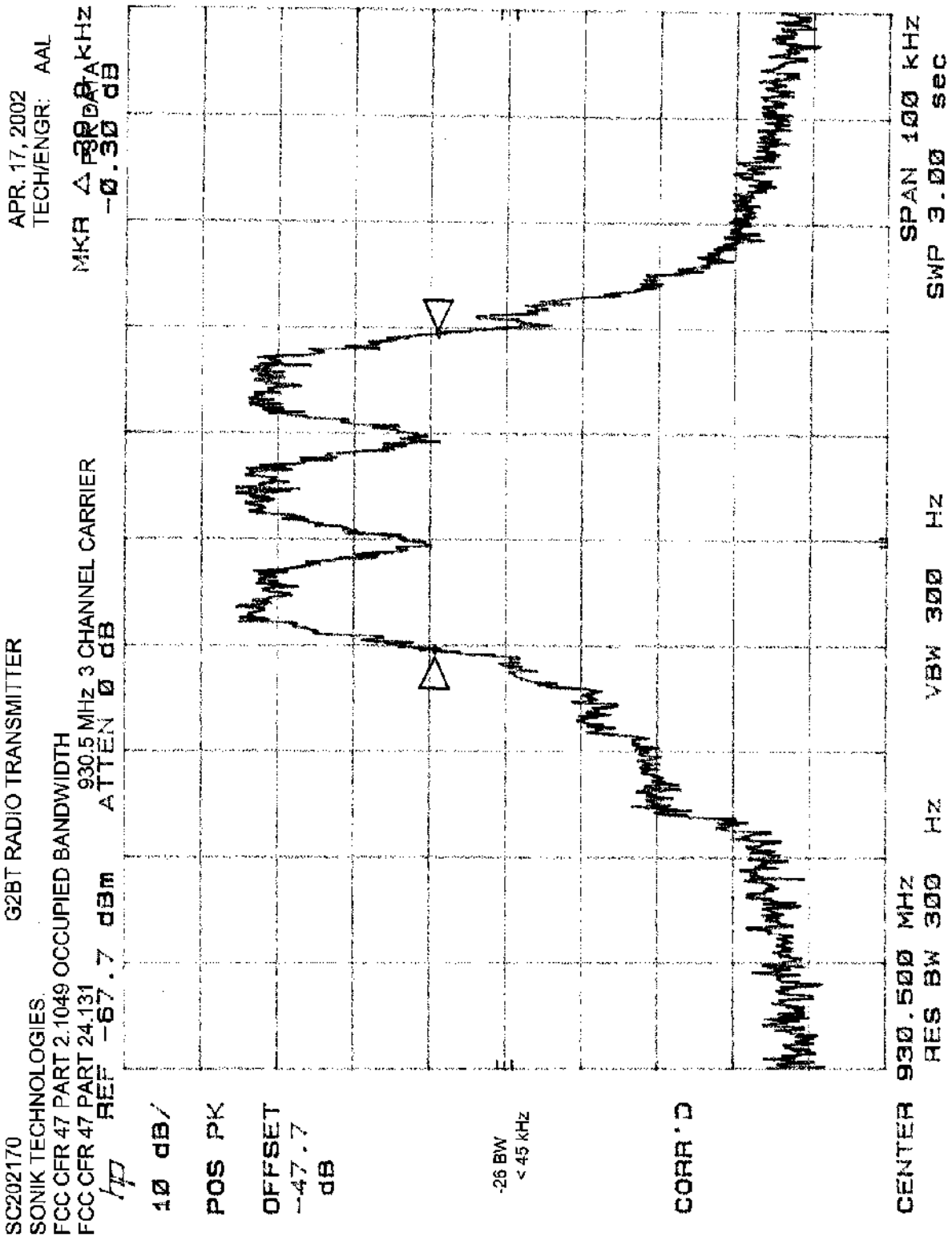
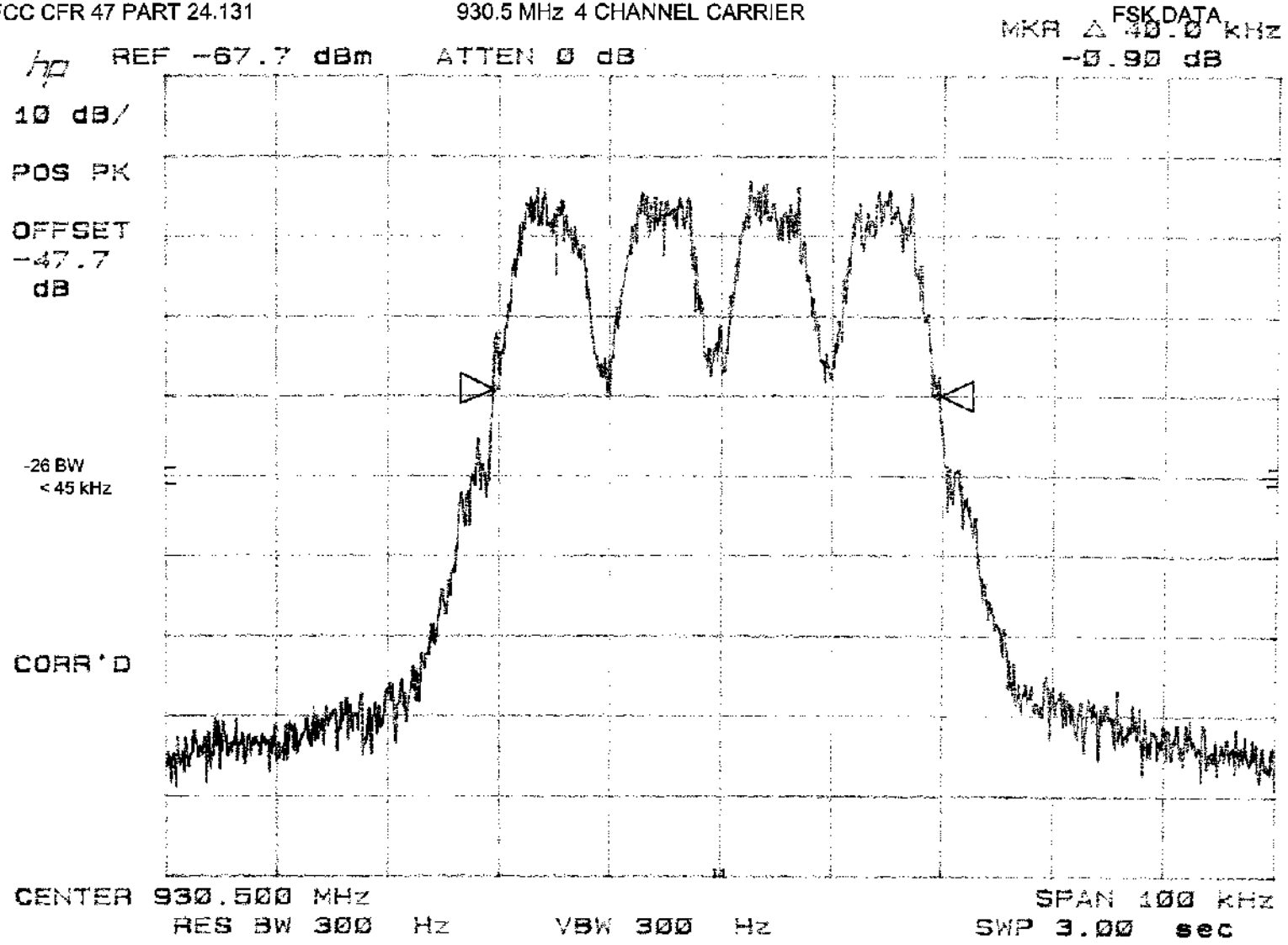
SONIK TECHNOLOGIES. TECH/ENGR: AAL
FCC CFR 47 PART 2.1049 OCCUPIED BANDWIDTH
FCC CFR 47 PART 24.131 930.5 MHz 2 CHANNEL CARRIER FSK DATA




SC202170
SONIK TECHNOLOGIES.
FCC CFR 47 PART 2.1049 OCCUPIED BANDWIDTH
FCC CFR 47 PART 24.131
G2BT RADIO TRANSMITTER
APR. 17, 2002
TECH/ENGR: AAL
MKR Δ 30.0 kHz
-0.30 dB
930.5 MHz 3 CHANNEL CARRIER
REF -67.7 dBm
ATTEN 0 dB
10 dB/
POS PK
OFFSET
-47.7
dB
-26 BW
< 45 kHz
CORR'D
CENTER 930.500 MHz
RES BW 300 Hz
VBW 300 Hz
SPAN 100 kHz
SWP 3.00 sec

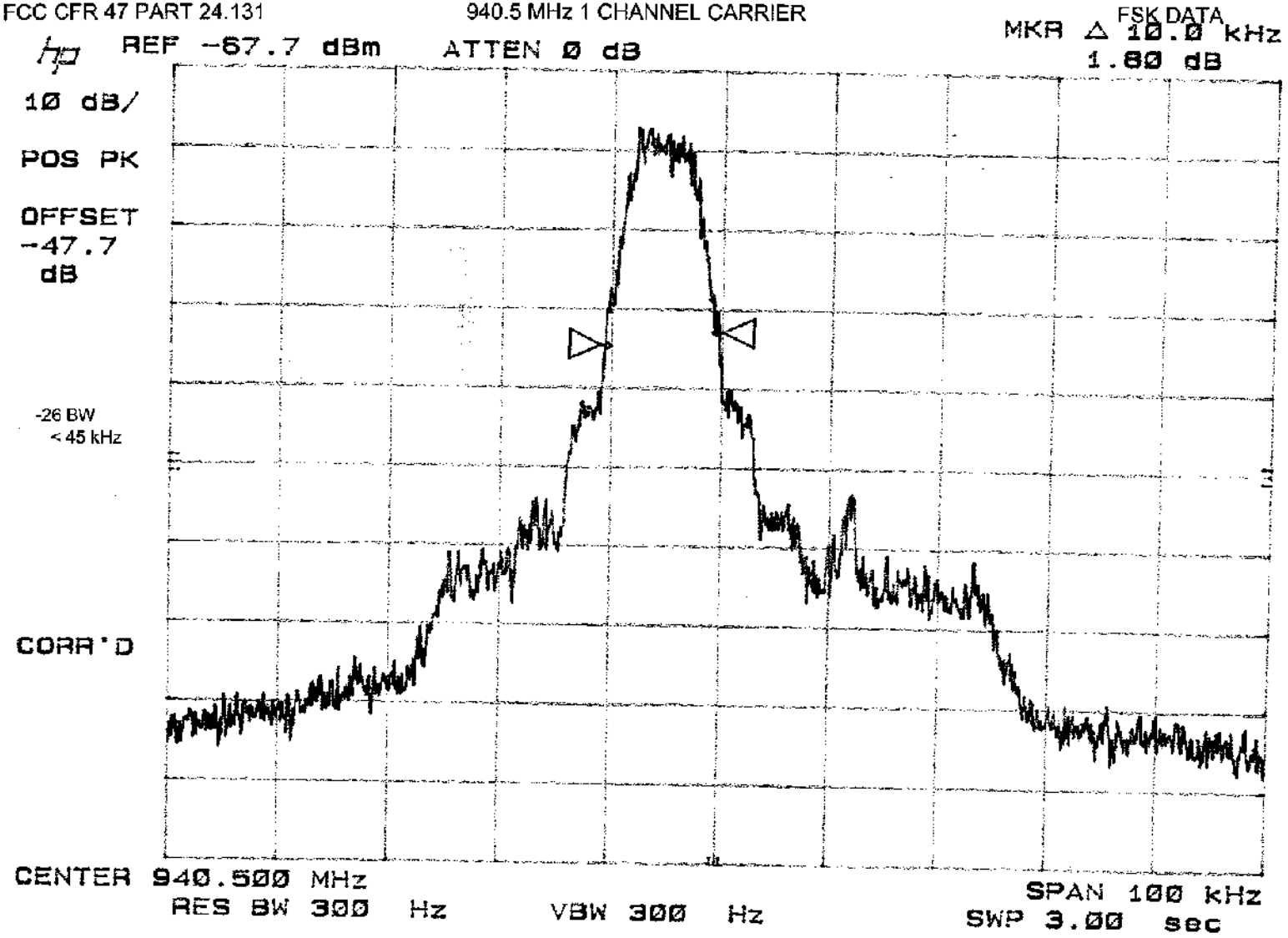
SC202170 G2BT RADIO TRANSMITTER APR. 17, 2002
SONIK TECHNOLOGIES. TECH/ENGR: AAL
FCC CFR 47 PART 2.1049 OCCUPIED BANDWIDTH
FCC CFR 47 PART 24.131 930.5 MHz 4 CHANNEL CARRIER FSK DATA

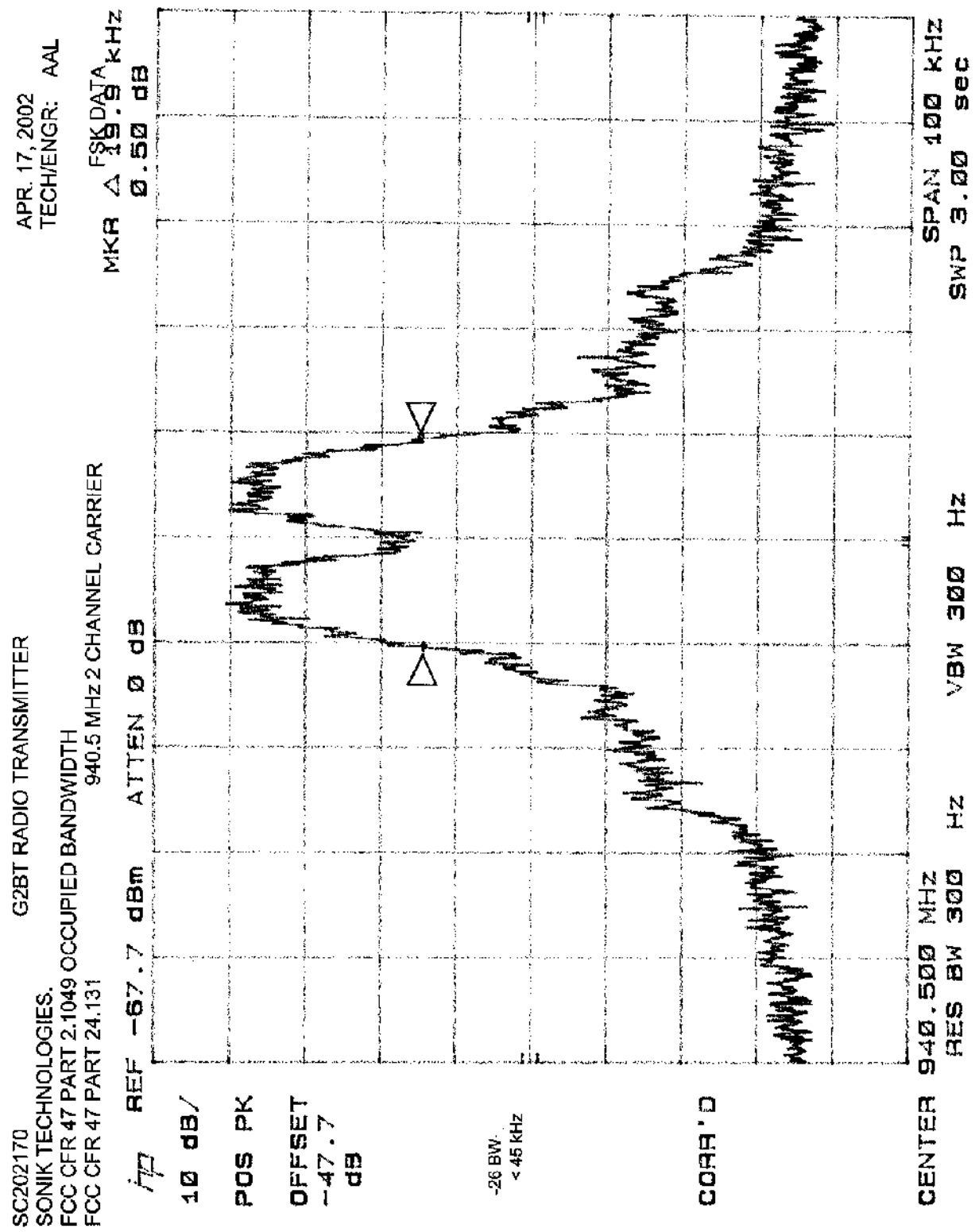


SC202170 G2BT RADIO TRANSMITTER
SONIK TECHNOLOGIES.
FCC CFR 47 PART 2.1049 OCCUPIED BANDWIDTH
FCC CFR 47 PART 24.131 940.5 MHz 1 CHANNEL CARRIER

APR. 17, 2002
TECH/ENGR: AAL

FSK DATA

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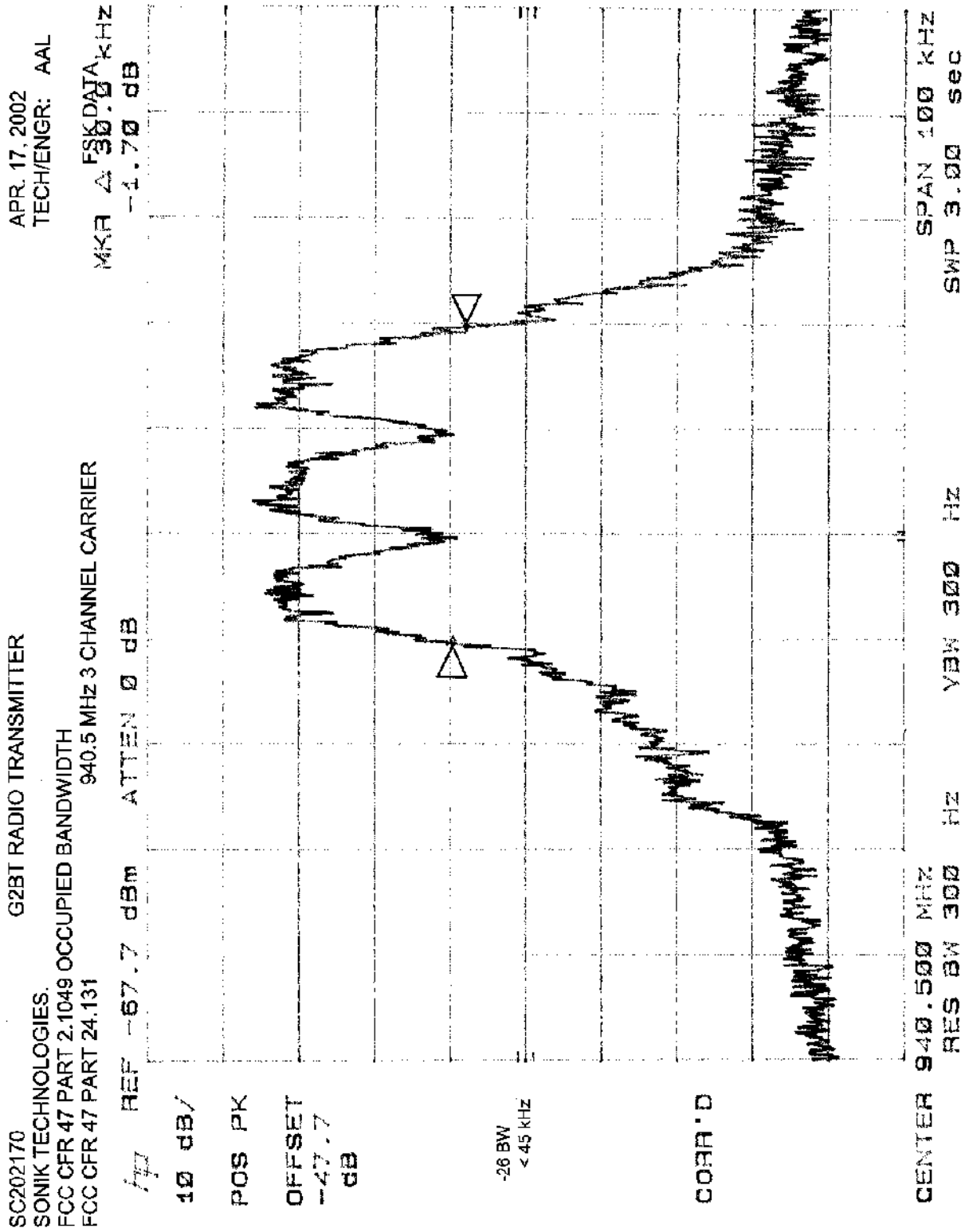
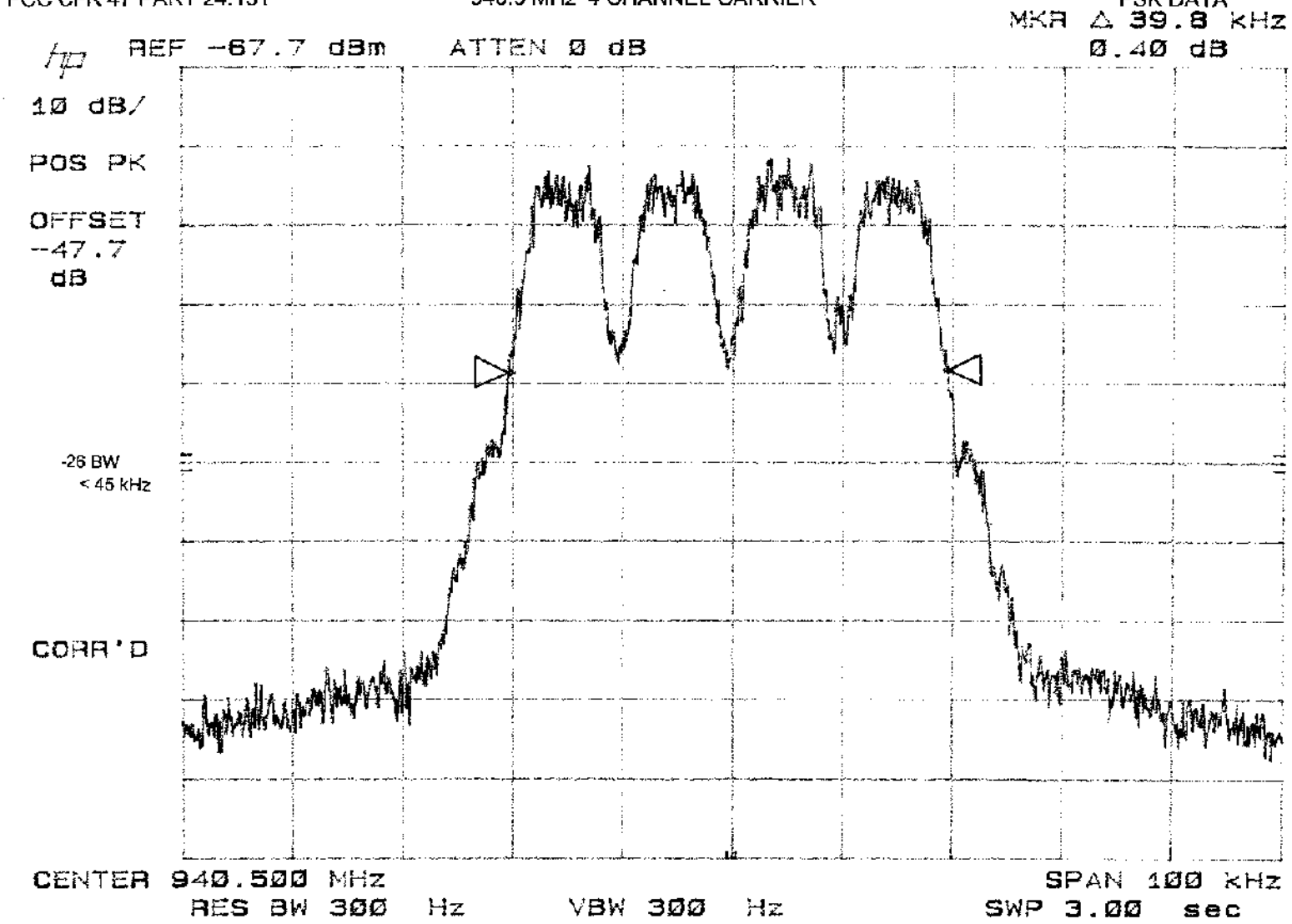
SONIK TECHNOLOGIES.
FCC CFR 47 PART 2.1049 OCCUPIED BANDWIDTH
FCC CFR 47 PART 24.131
G2BT RADIO TRANSMITTER
940.5 MHz 2 CHANNEL CARRIER
APR. 17, 2002
TECH/ENGR: AAL
MKR Δ 19.9 kHz
0.50 dB
FSK DATA
REF -67.7 dBm
ATTEN 0 dB
10 dB/
POS PK
OFFSET
-47.7
dB
-26 BW
< 45 kHz
CORR'D
CENTER 940.500 MHz
RES BW 300 Hz
VBW 300 Hz
SPAN 100 kHz
SWP 3.00 sec


SC202170
SONIK TECHNOLOGIES.
FCC CFR 47 PART 2.1049 OCCUPIED BANDWIDTH
FCC CFR 47 PART 24.131
G2BT RADIO TRANSMITTER
940.5 MHz 3 CHANNEL CARRIER
APR. 17, 2002
TECH/ENGR: AAL
MKR Δ 30.0 kHz
-1.70 dB
FSK DATA
REF -67.7 dBm
ATTEN 0 dB
10 dB/
POS PK
OFFSET
-47.7
dB
-26 BW
< 45 kHz
CORR'D
CENTER 940.500 MHz
RES BW 300 Hz
VBW 300 Hz
SPAN 100 kHz
SWP 3.00 sec

SC202170 G2BT RADIO TRANSMITTER APR. 17, 2002
SONIK TECHNOLOGIES. TECH/ENGR: AAL
FCC CFR 47 PART 2.1049 OCCUPIED BANDWIDTH
FCC CFR 47 PART 24.131 940.5 MHz 4 CHANNEL CARRIER FSK DATA



6 SPURIOUS EMISSION AT ANTENNA TERMINALS EQUIPMENT/DATA

TÜV PRODUCT SERVICE 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone 858 546 3999 FAX 858 546 0364

Report No. SC202170

Test Specifications: FCC Part 24 NPCS

FCC Part 2.1047 Modulation Characteristics
FCC Part 2.1051 Spurious Emissions at Antenna Terminals
FCC Part 24.131 (1)(i) Emission Limits
FCC Part 24.131 (1)(ii) Emission Limits

Notes:

To prevent overloading the Spectrum Analyzer, a notch filter was inserted between the antenna port and the SA with an insertion loss of 6.8 to 7 dB for measured ranges between 30 to 3000 MHz

The emission mask was presented as the second of five pages within the Spurious Emission plots to show the near frequency emissions as the plots for Spurious Emissions have a large span which makes it difficult to discriminate near the intended radio emission.

Environmental room conditions: 22--24 degrees C, 100.9 Kpa pressure, 40-44 % rel. hum.

Photos of the Setup were taken, Data presented as Plots

Test Equipment Used:

Prop. #	Model Number	Description	Manufacturer	Serial No.	Cal. Dates
6495	hp8566B	Spectrum Analyzer	Hewlett Packard	2311A02209	11/13/02

Customer's Test Equipment Used:

588256B1J03	Directional Coupler	CellWave	192079-007	Verified 4-4-04
930.5 MHz	Notch Filter	WACOM Products, Inc.	37043-66	Verified 4-17-2002
940.5 MHz	Notch Filter	WACOM Products, Inc.	37043-67	Verified 4-17-2002

Notch Cavities of the WP-4941-7941-2 dual cavity dual channel filter set retuned for use on 930.5 & 940.5MHz
Performance 48.0dB at 930.5MHz; 7.0dB Insertion Loss -- 30 to 3000 MHz
41.0dB at 940.5MHz;. 6.8dB Insertion Loss -- 30 to 3000 MHz

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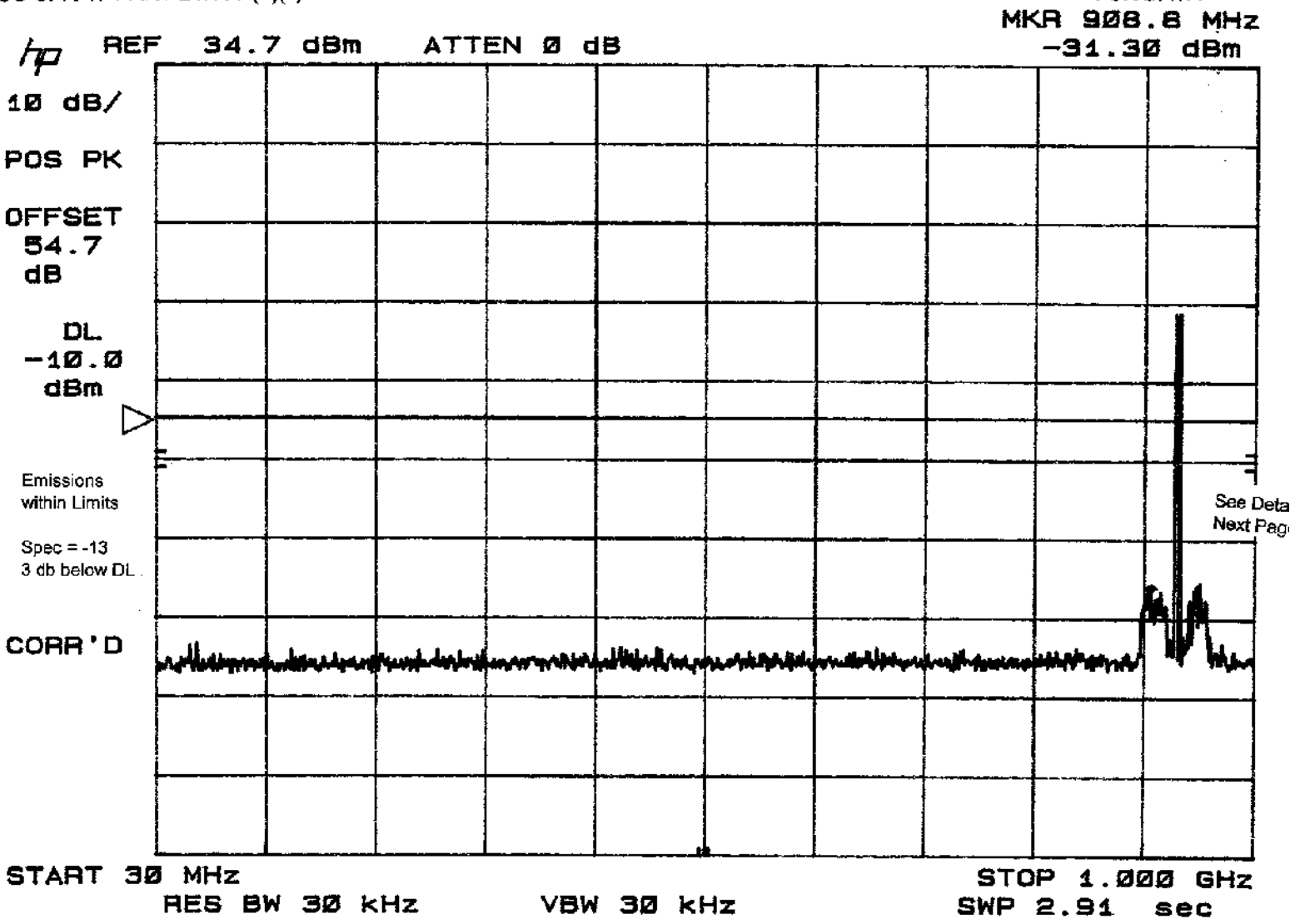
SC202170 G2BT RADIO TRANSMITTER APR. 17, 2002
SONIK TECHNOLOGIES. TECH/ENGR: AAL
FCC CFR 47 PART 2.1051 SPURIOUS EMISSIONS AT ANTENNA TERMINALS
FCC CFR 47 PART 24.133 (1)(ii) 930.5 MHz 1 CHANNEL CARRIER FSK DATA



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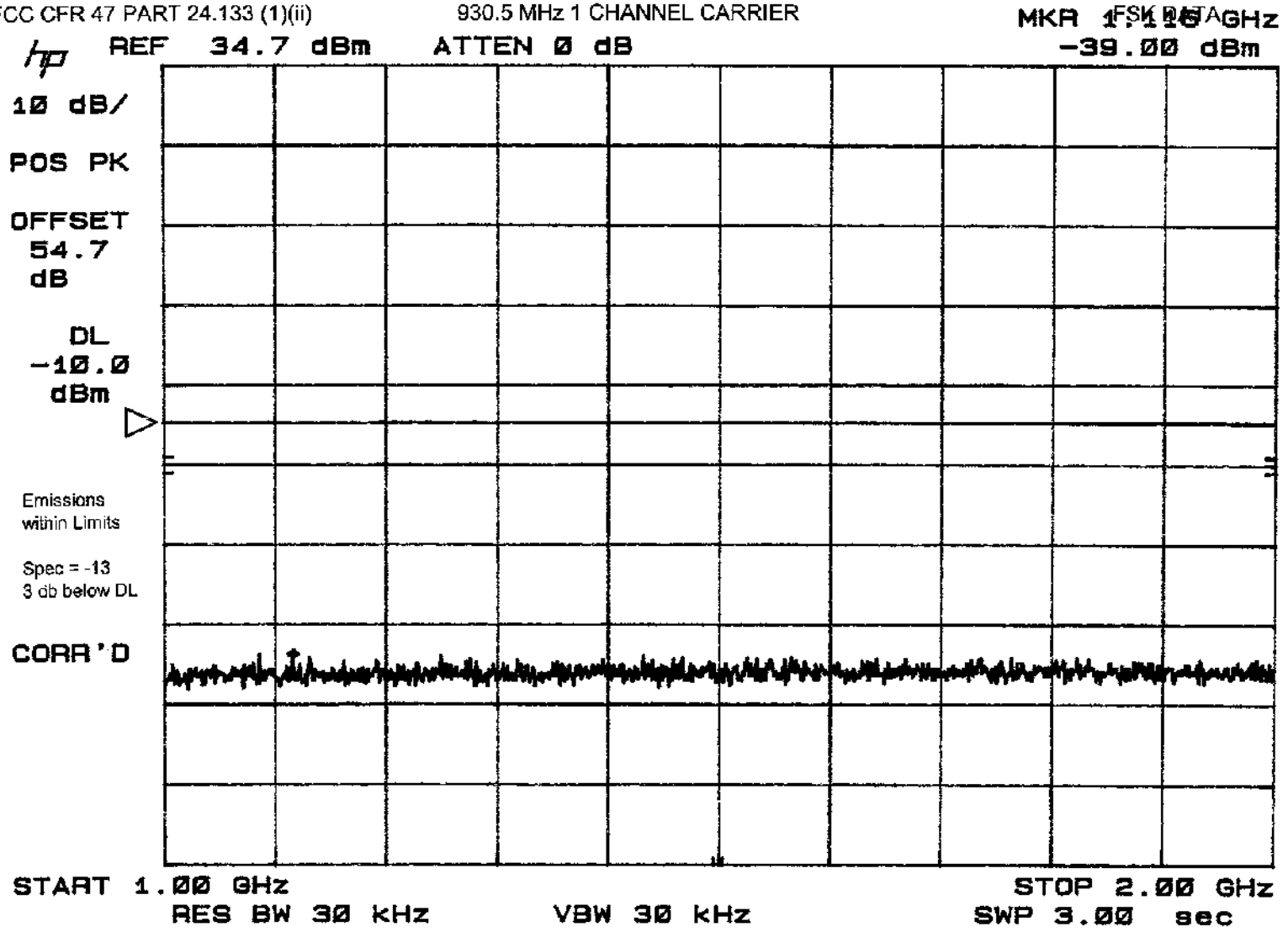
SONIK TECHNOLOGIES. TECH/ENGR: AAL
FCC CFR 47 PART 2.1051 SPURIOUS EMISSIONS AT ANTENNA TERMINALS
FCC CFR 47 PART 24.133 (1)(ii) 930.5 MHz 1 CHANNEL CARRIER



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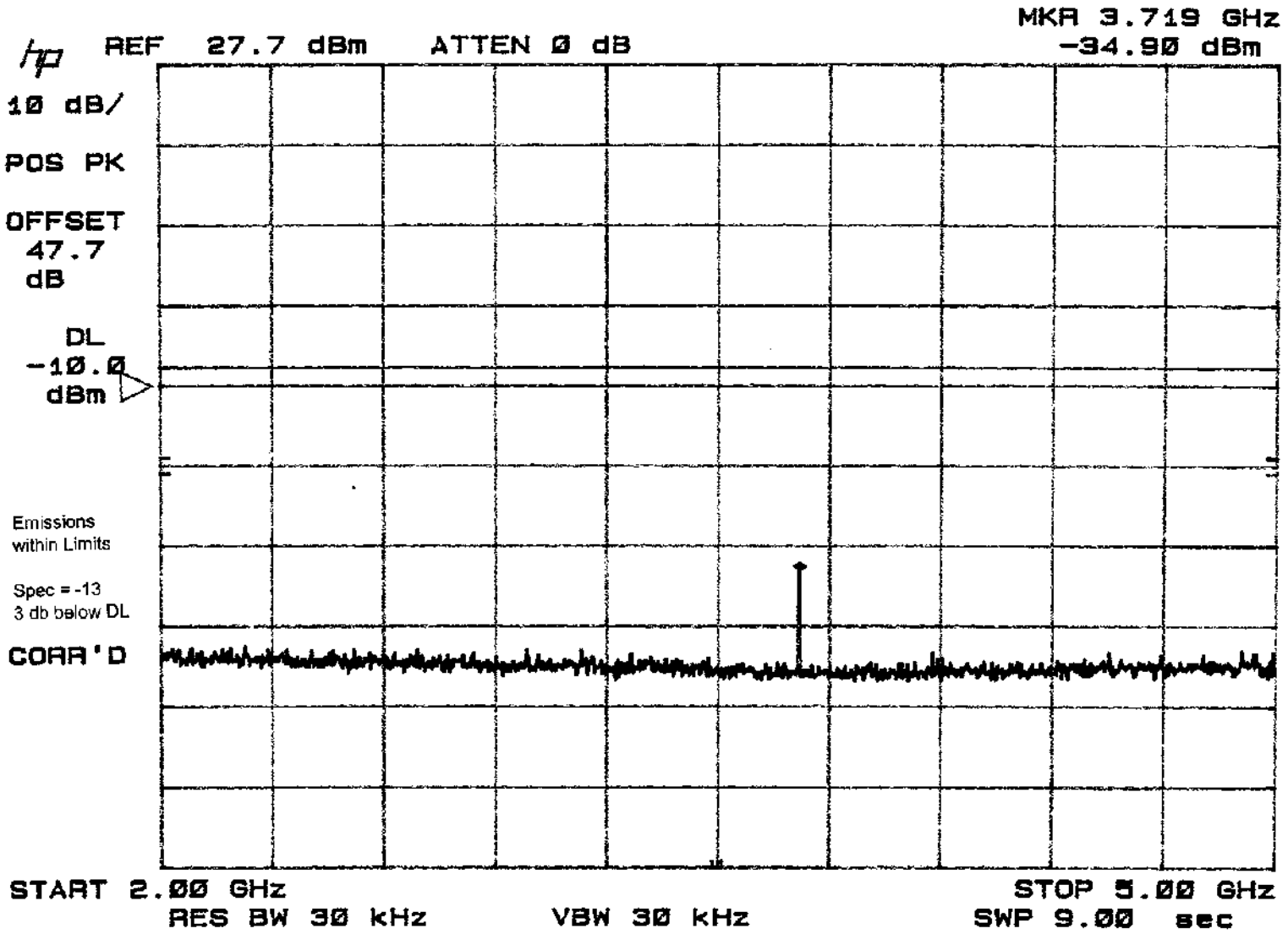
FCC CFR 47 PART 2.1051 SPURIOUS EMISSIONS AT ANTENNA TERMINALS
FCC CFR 47 PART 24.133 (1)(ii) 930.5 MHz 1 CHANNEL CARRIER FSK DATA



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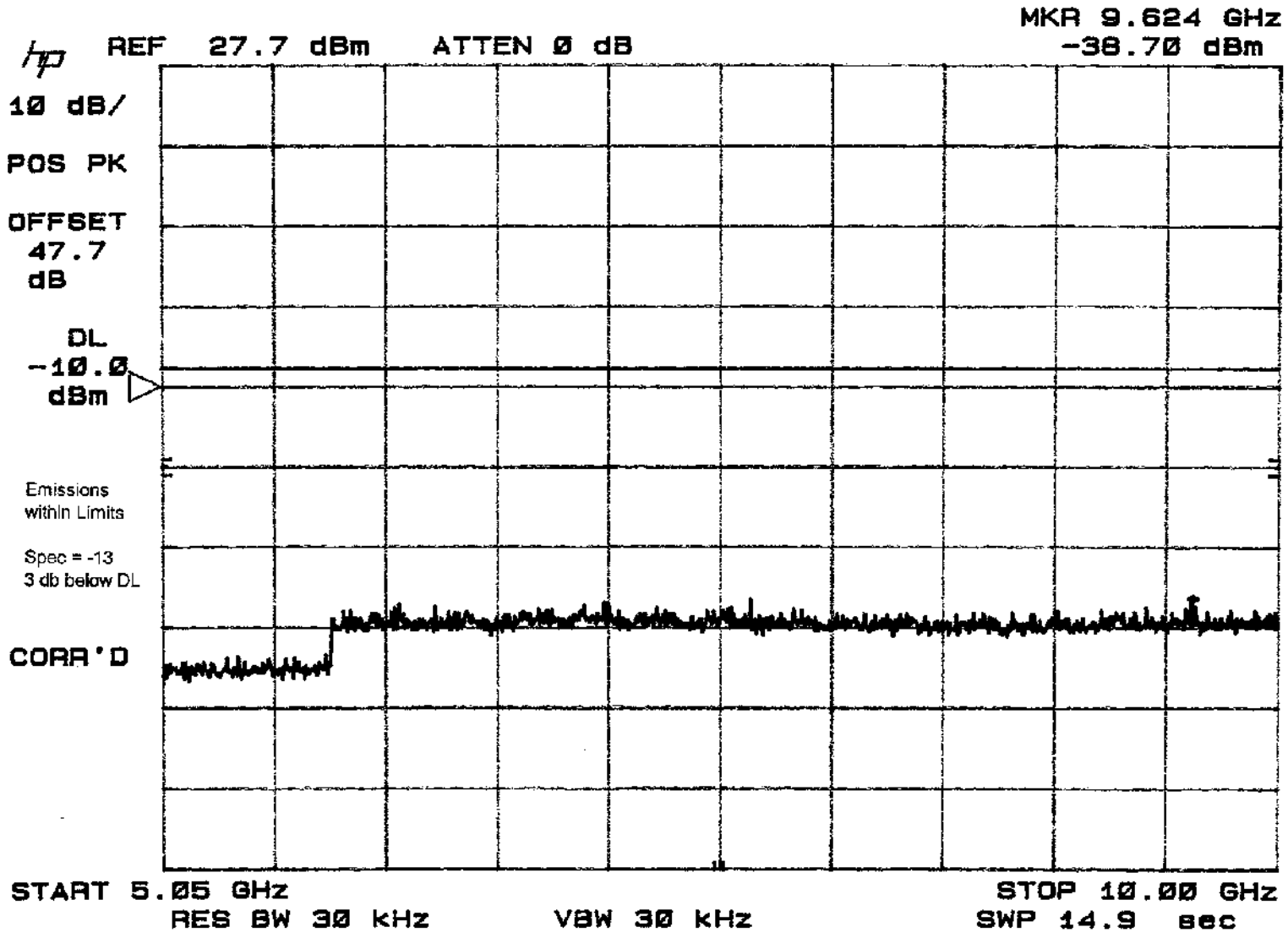
SONIK TECHNOLOGIES. TECH/ENGR: AAL
FCC CFR 47 PART 2.1051 SPURIOUS EMISSIONS AT ANTENNA TERMINALS
FCC CFR 47 PART 24.133 (1)(ii) 930.5 MHz 1 CHANNEL CARRIER FSK DATA



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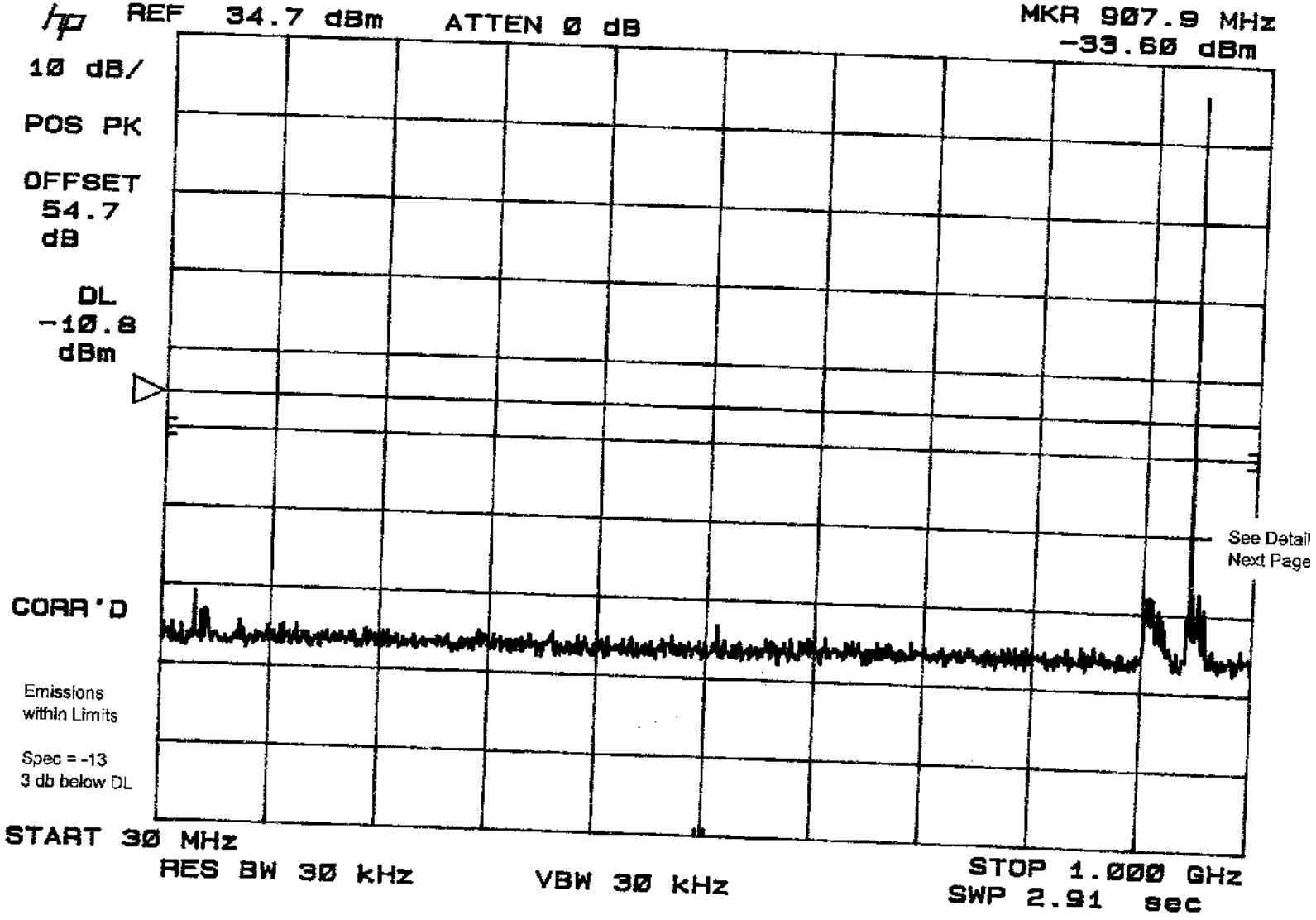
SONIK TECHNOLOGIES. TECH/ENGR: AAL
FCC CFR 47 PART 2.1051 SPURIOUS EMISSIONS AT ANTENNA TERMINALS
FCC CFR 47 PART 24.133 (1)(ii) 940.5 MHz 1 CHANNEL CARRIER FSK DATA



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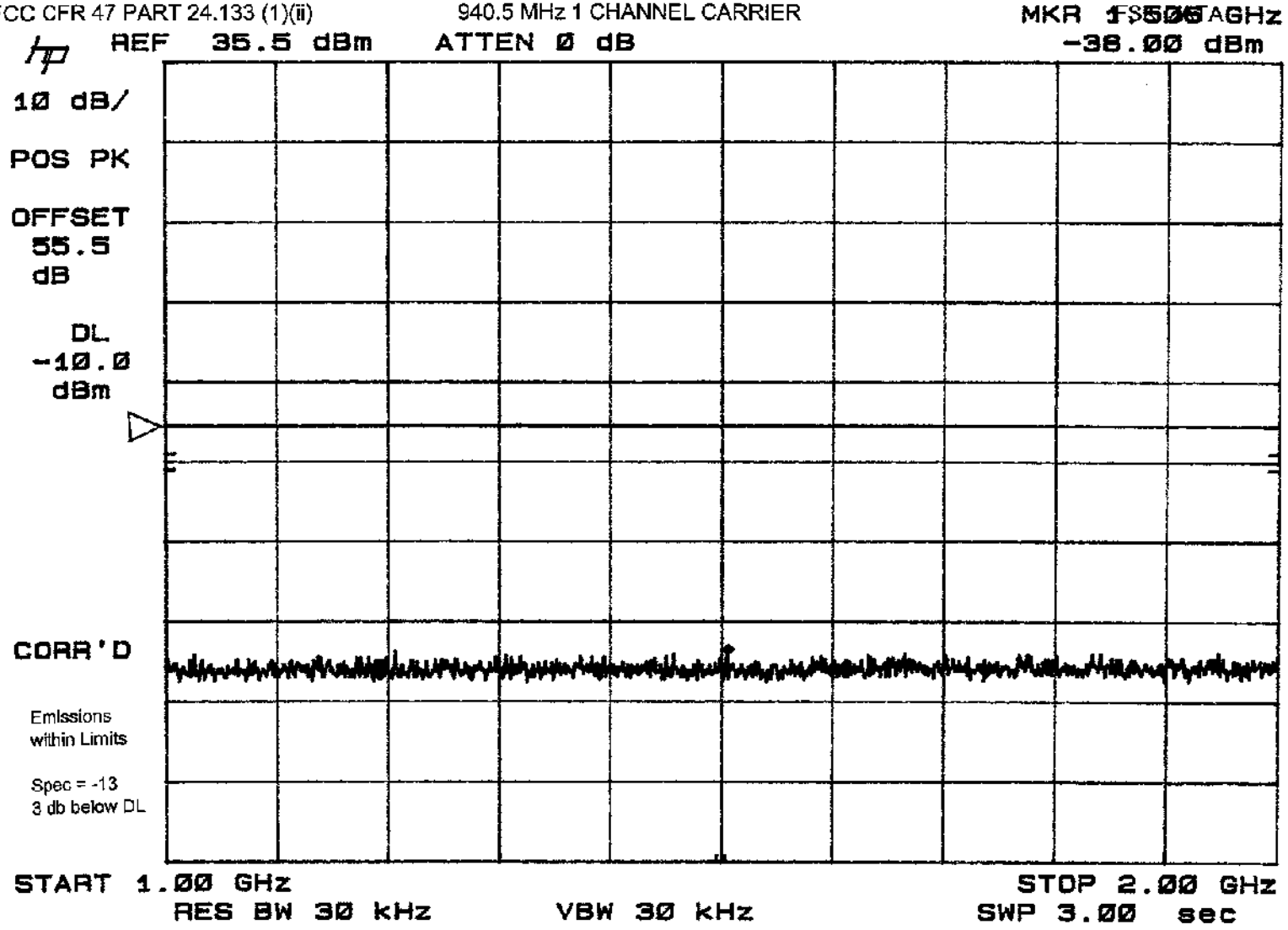
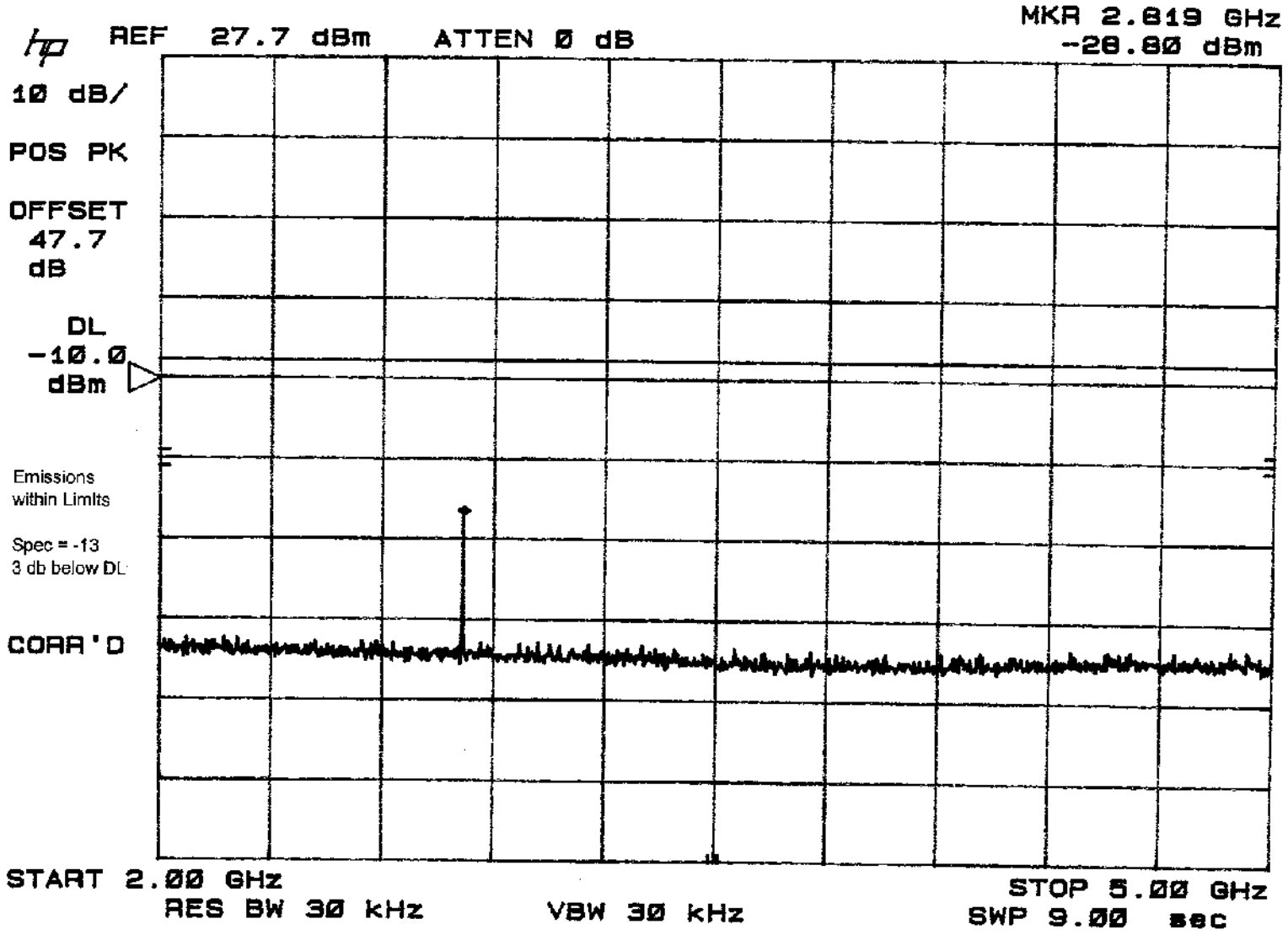
SONIK TECHNOLOGIES. TECH/ENGR: AAL
FCC CFR 47 PART 2.1051 SPURIOUS EMISSIONS AT ANTENNA TERMINALS
FCC CFR 47 PART 24.133 (1)(ii) 940.5 MHz 1 CHANNEL CARRIER



SC202170 G2BT RADIO TRANSMITTER APR. 17, 2002
SONIK TECHNOLOGIES. TECH/ENGR: AAL
FCC CFR 47 PART 2.1051 SPURIOUS EMISSIONS AT ANTENNA TERMINALS
FCC CFR 47 PART 24.133 (1)(ii) 940.5 MHz 1 CHANNEL CARRIER FSK DATA



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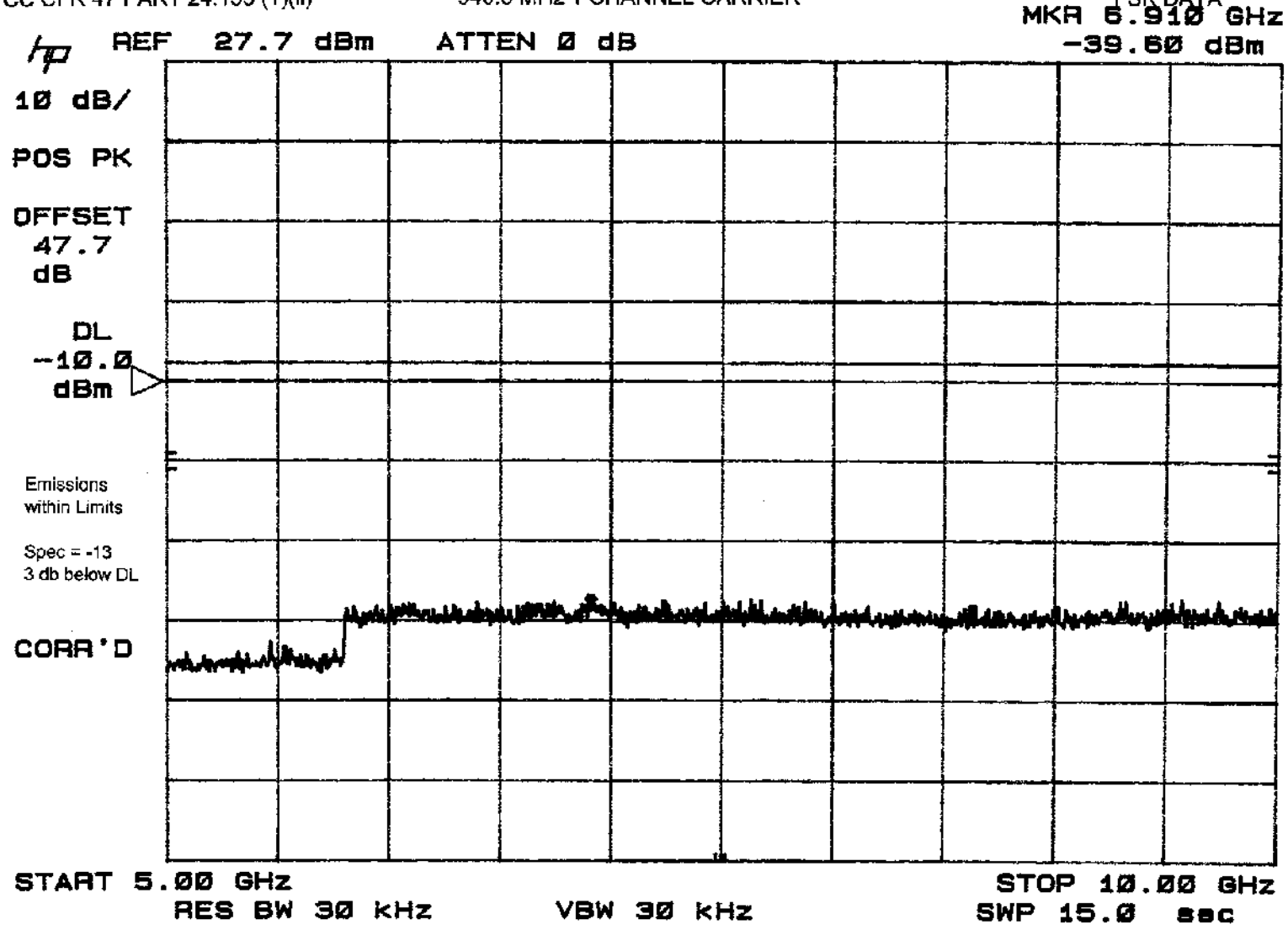

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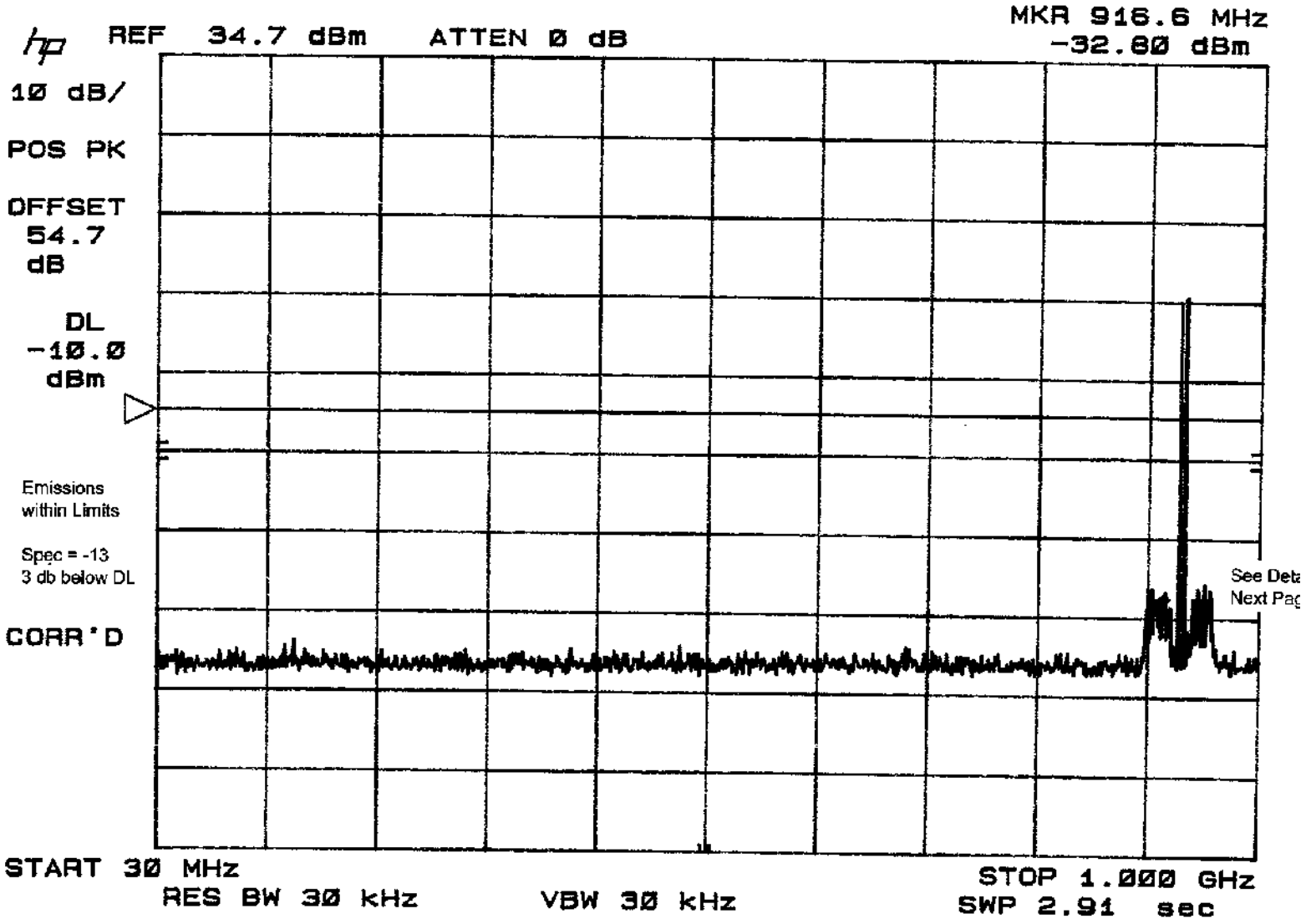
FCC CFR 47 PART 2.1051 SPURIOUS EMISSIONS AT ANTENNA TERMINALS
FCC CFR 47 PART 24.133 (1)(ii) 930.5 MHz 2 CHANNEL CARRIER FSK DATA



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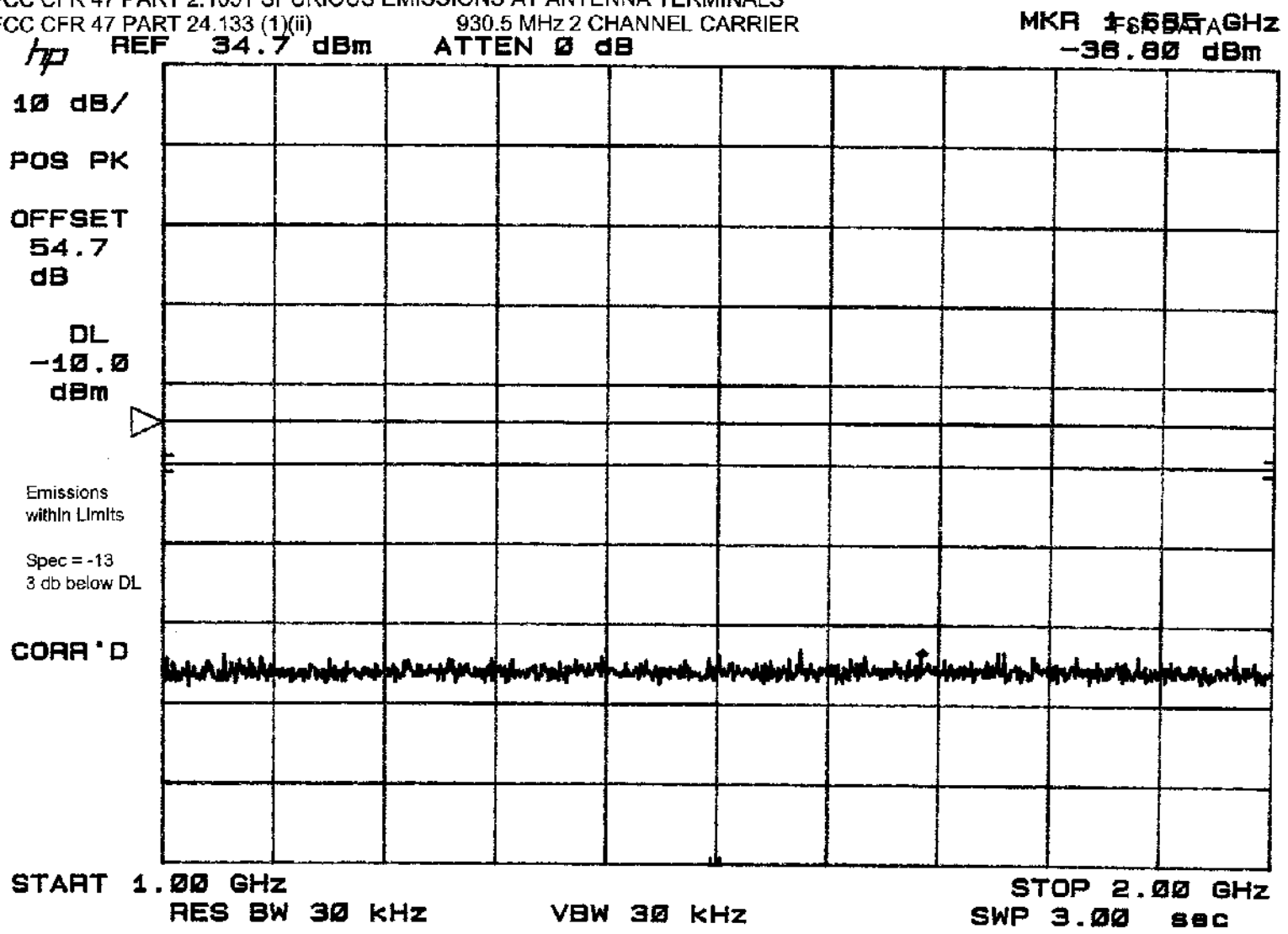

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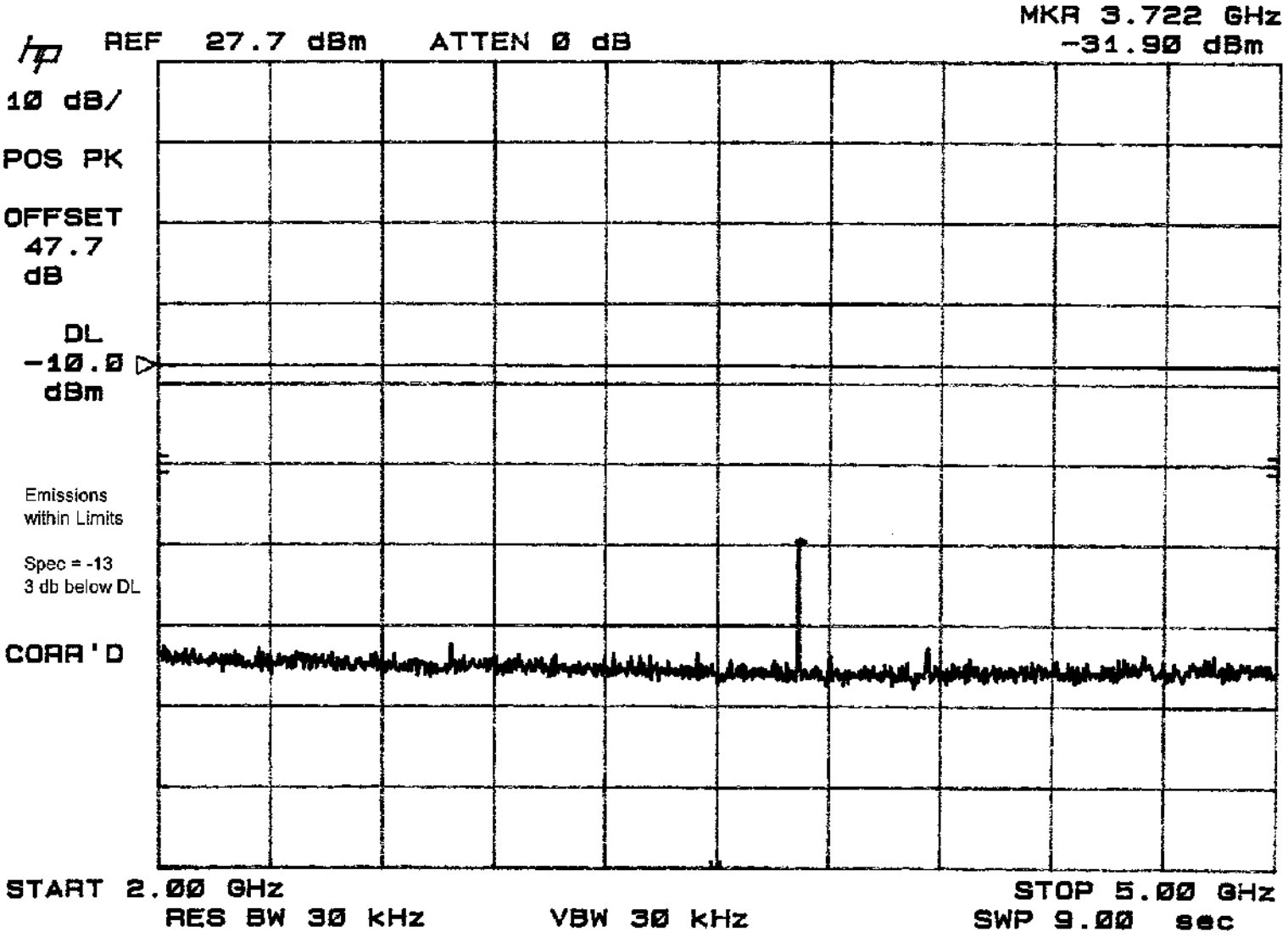

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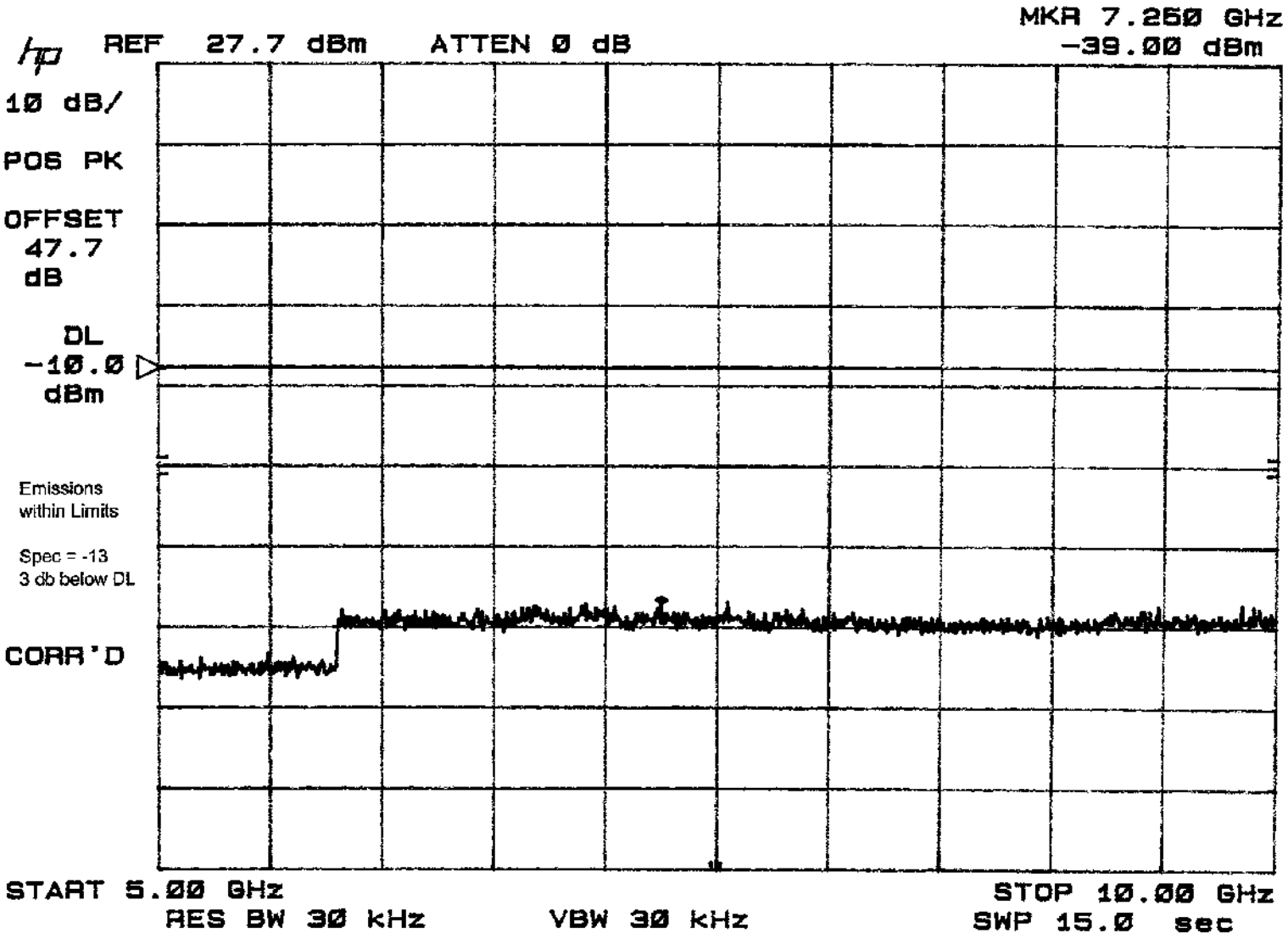

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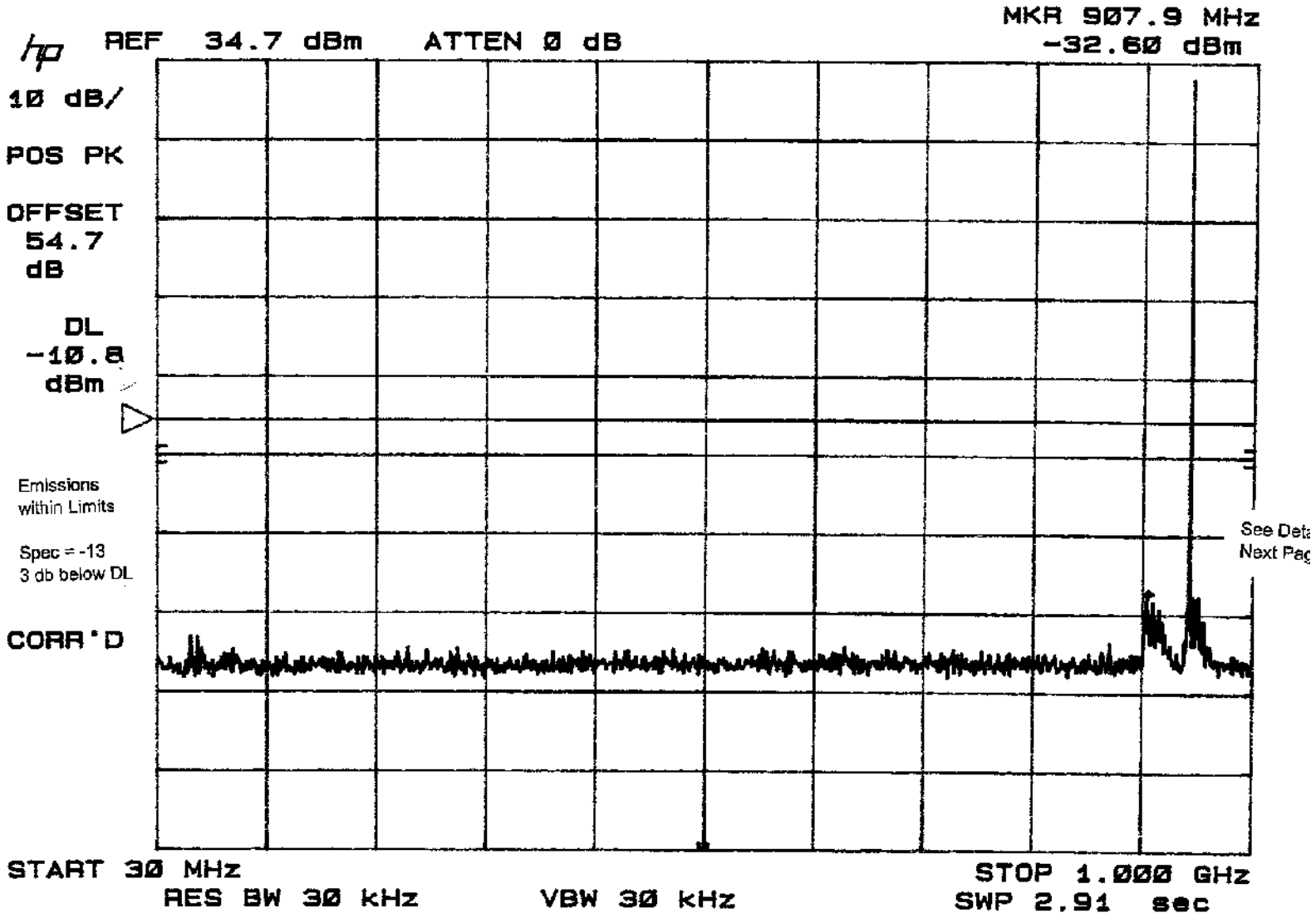

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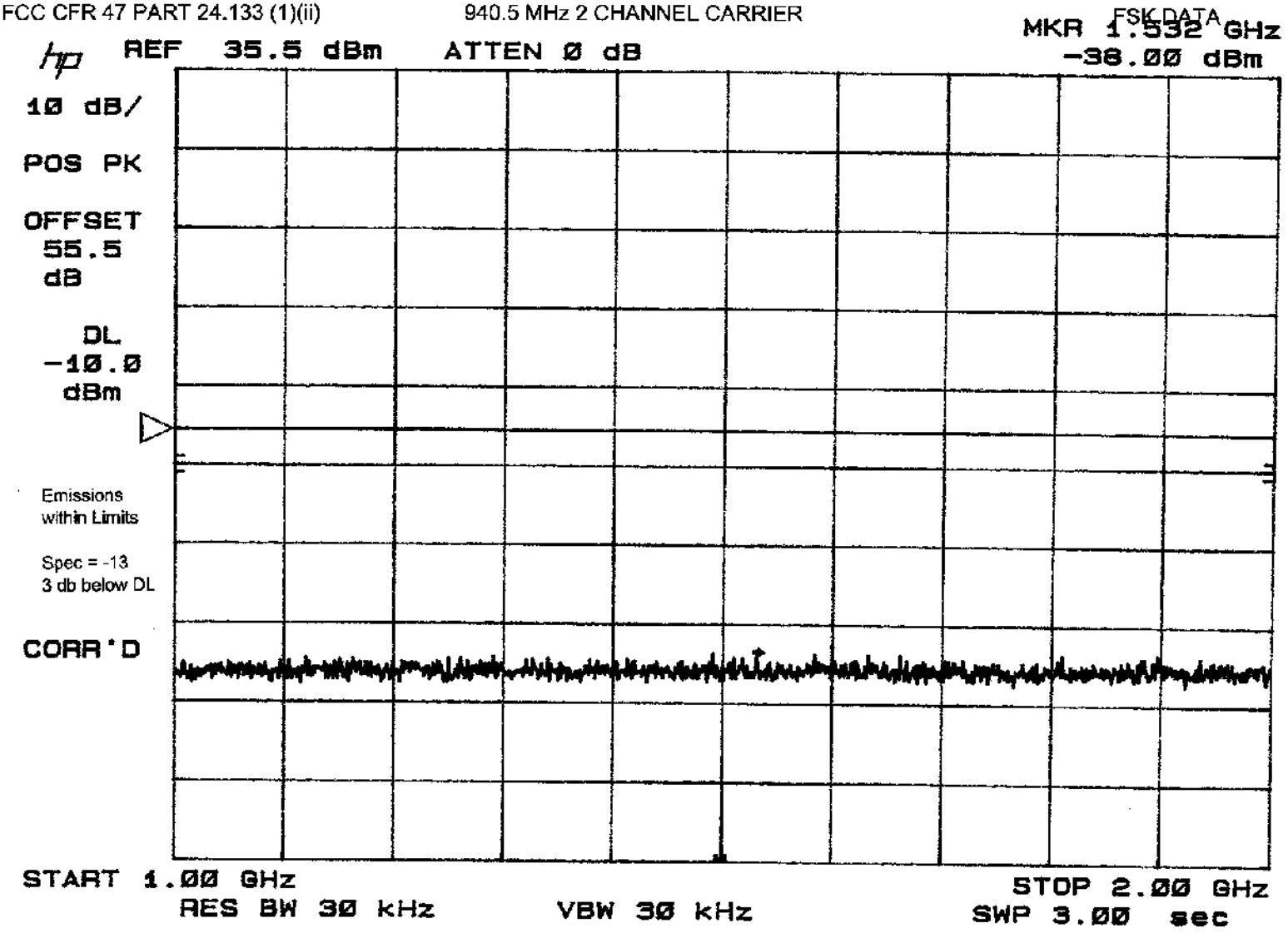

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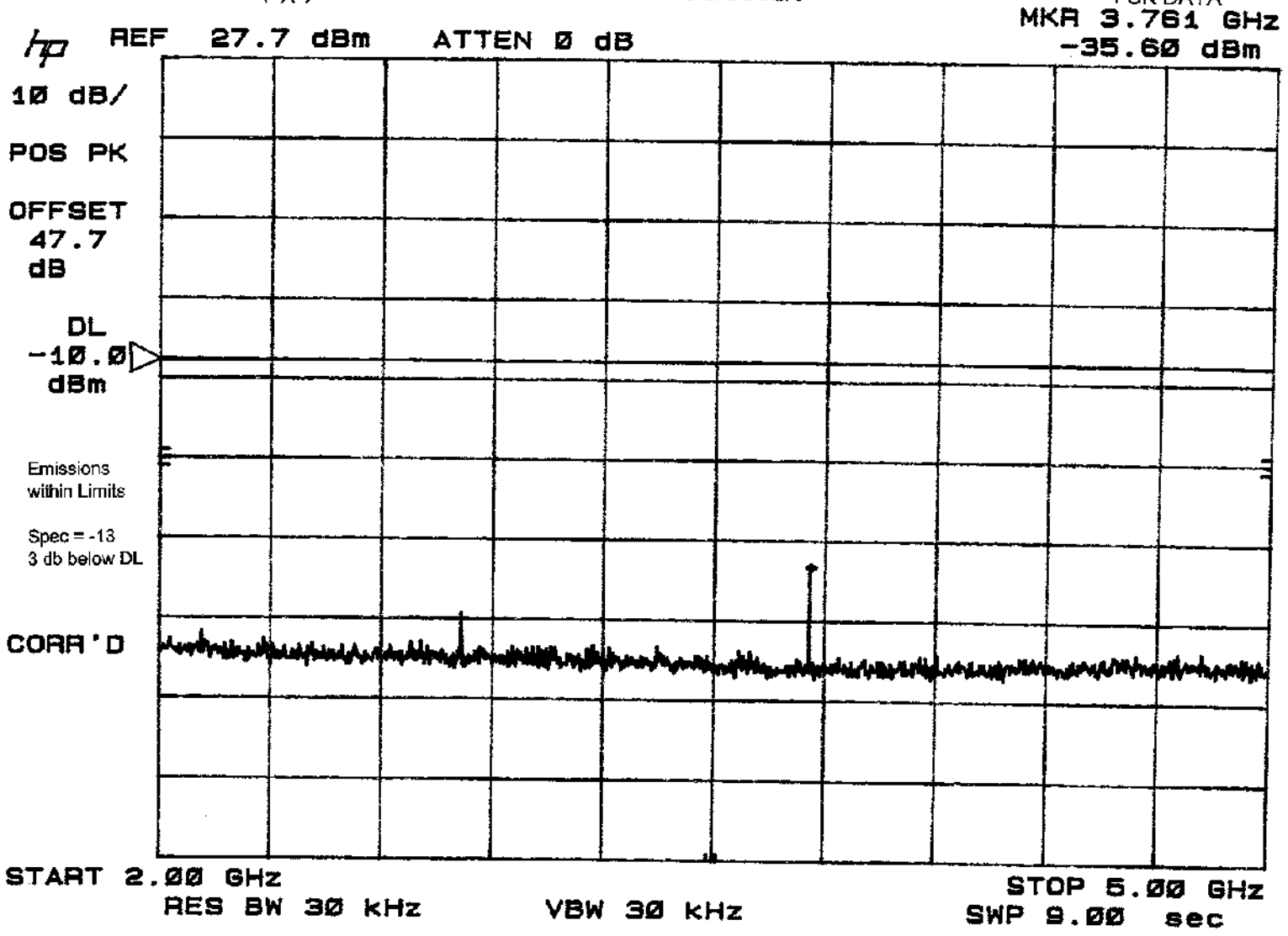

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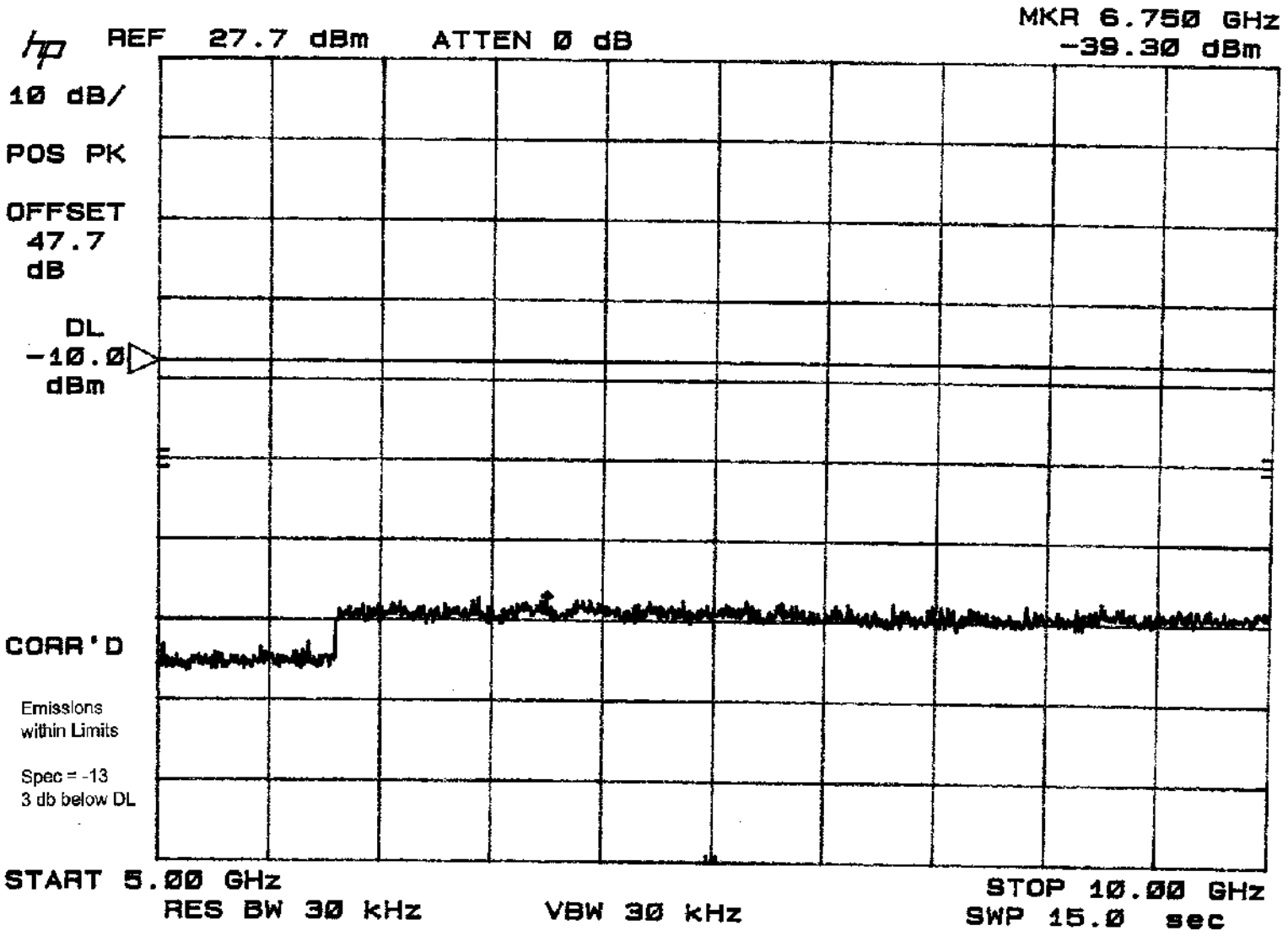

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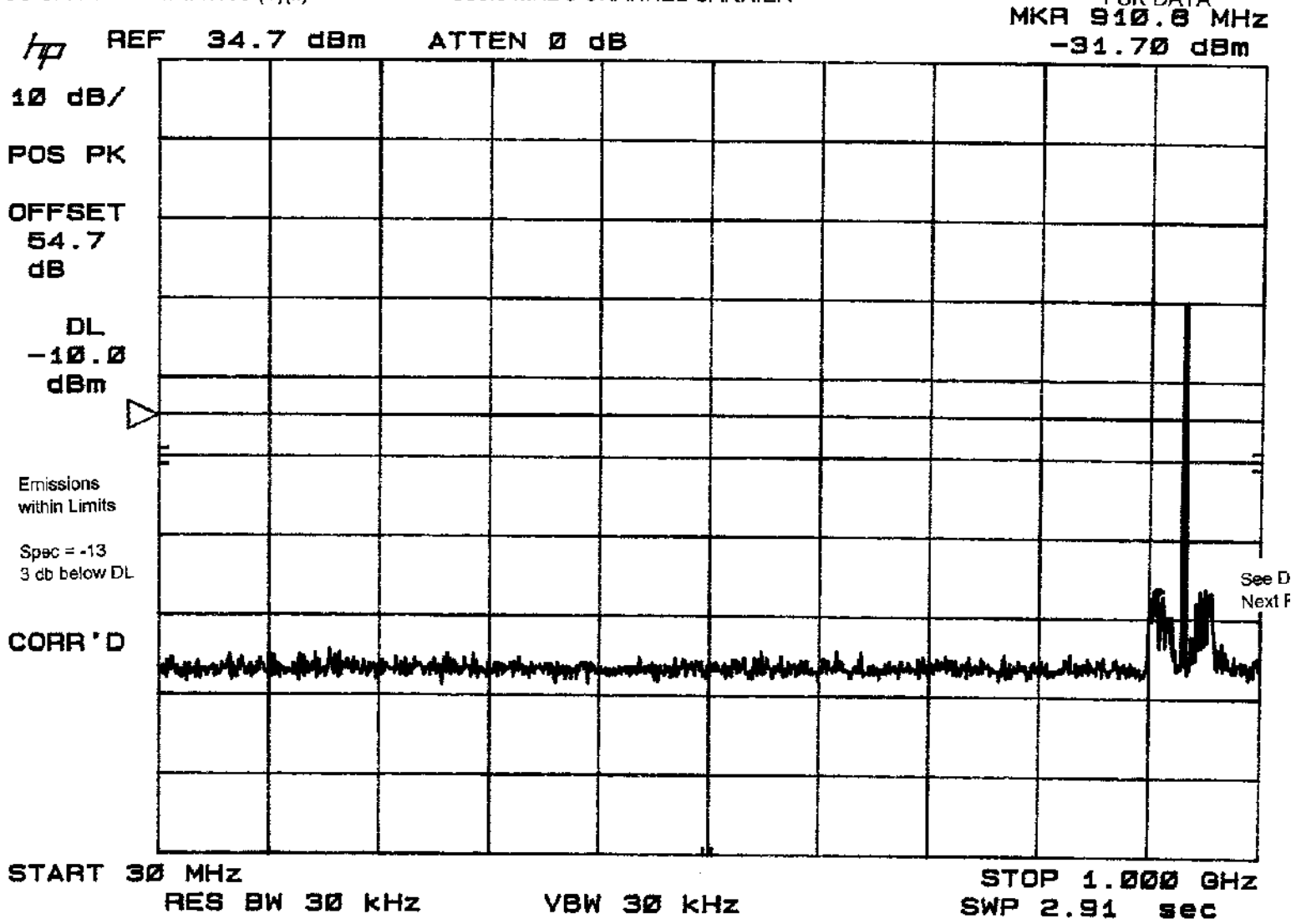

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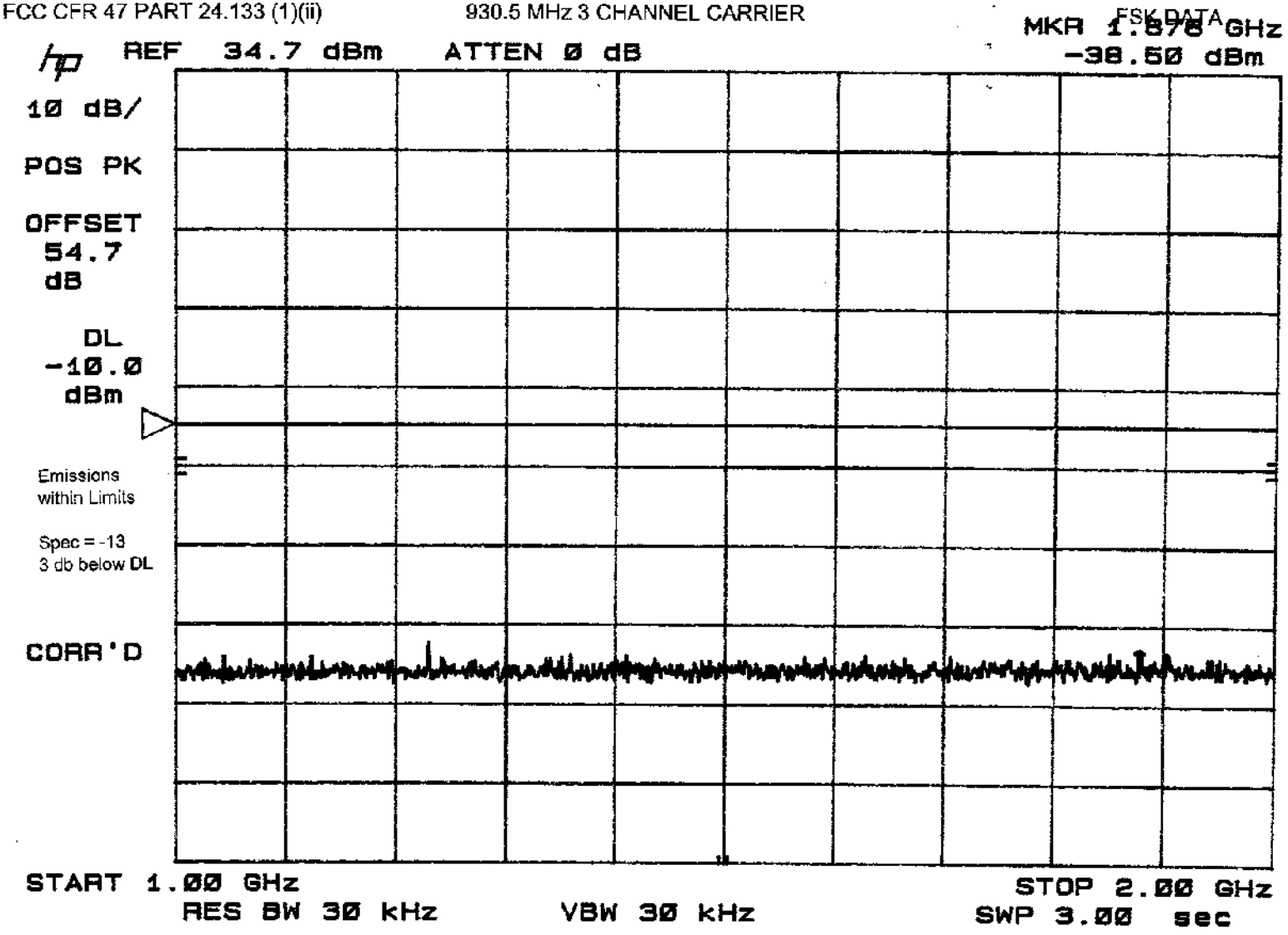

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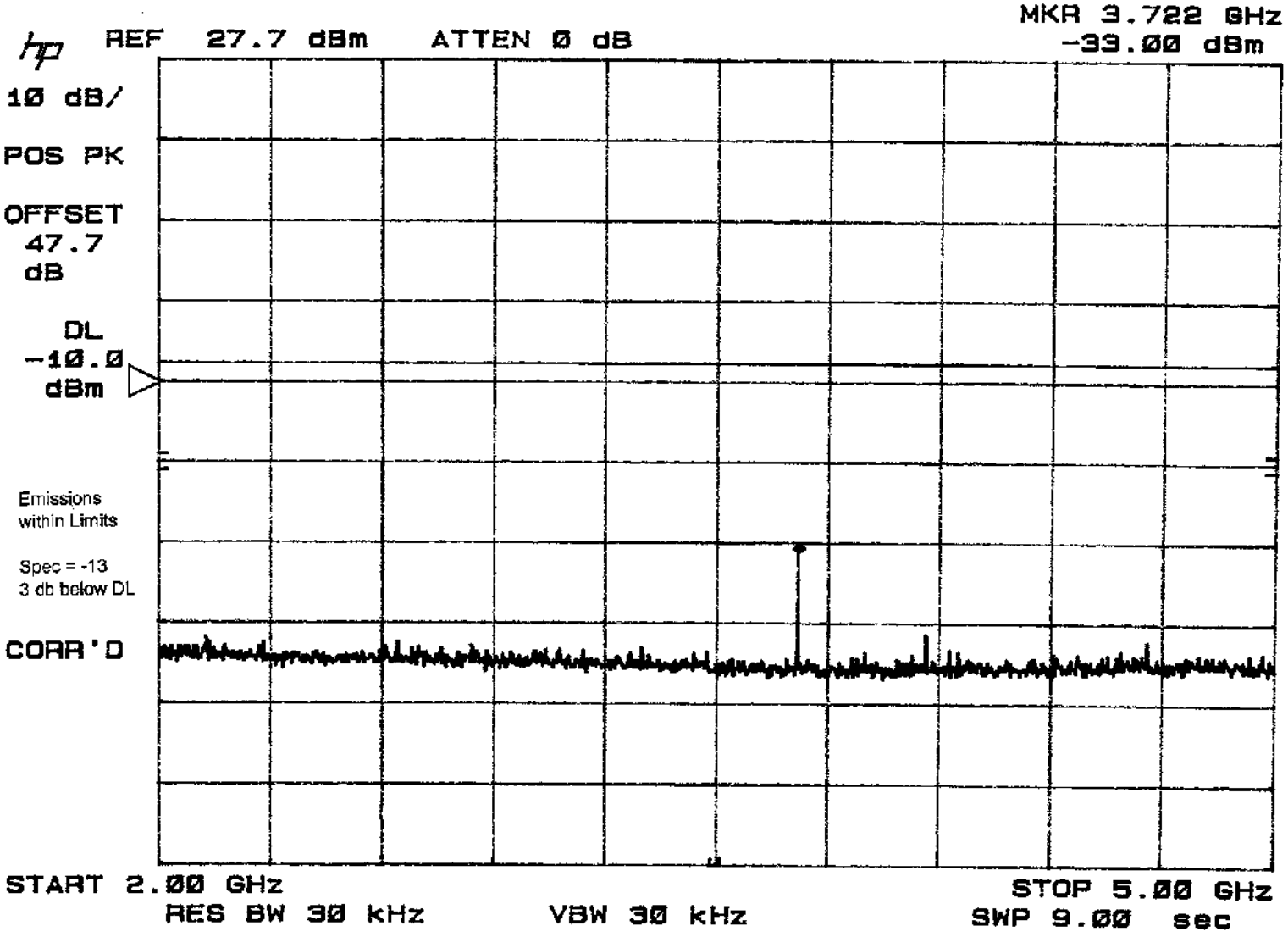

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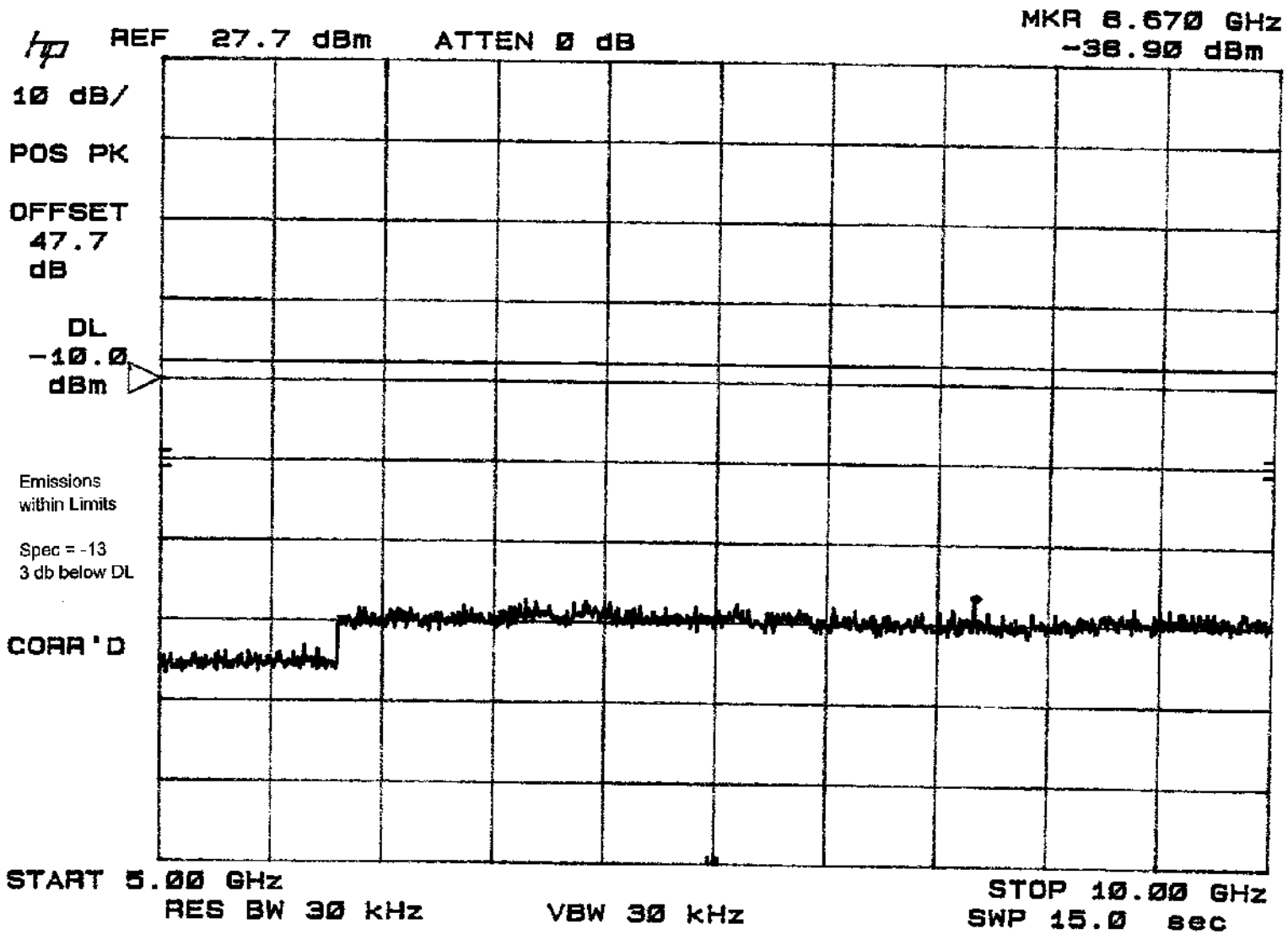

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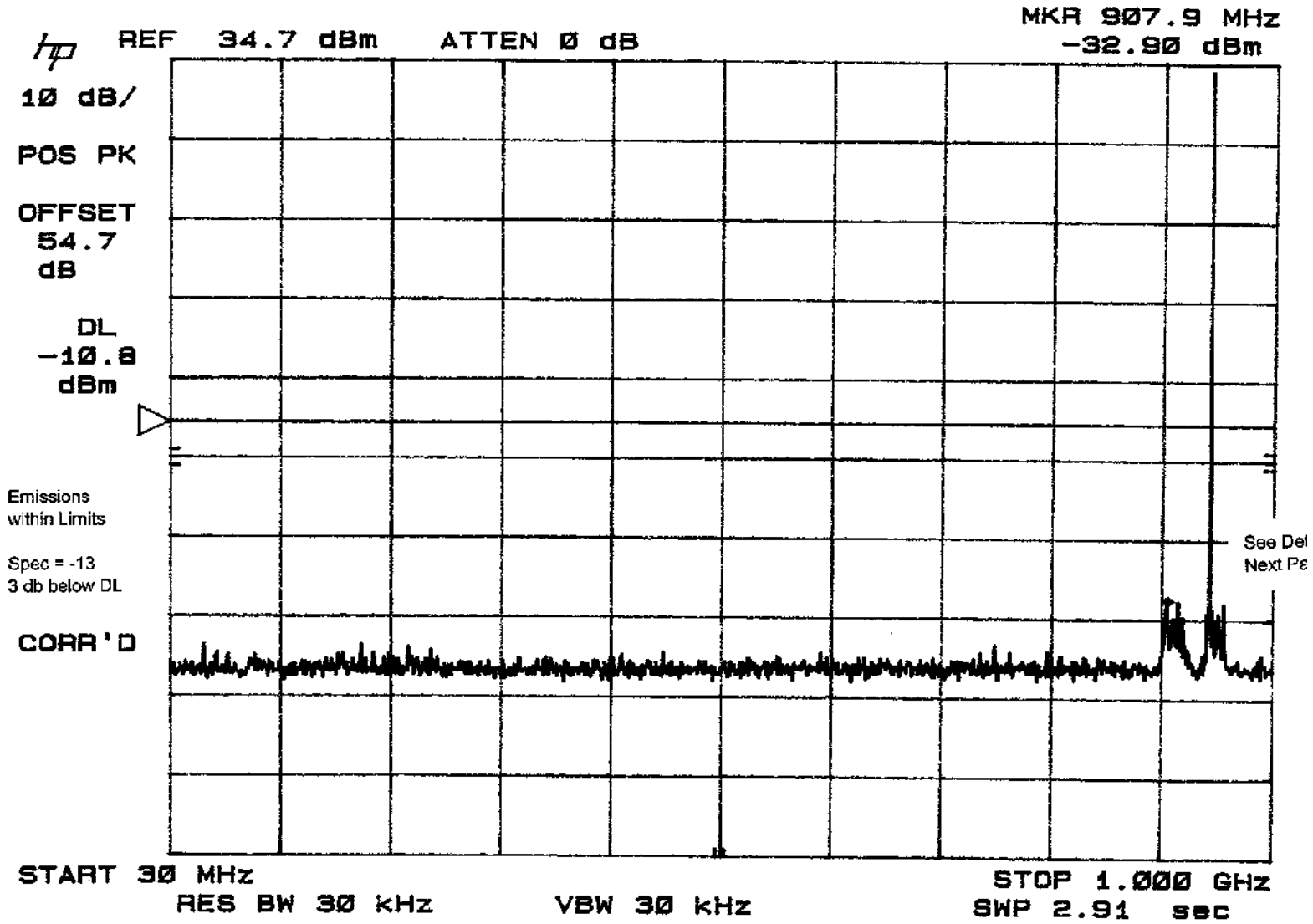

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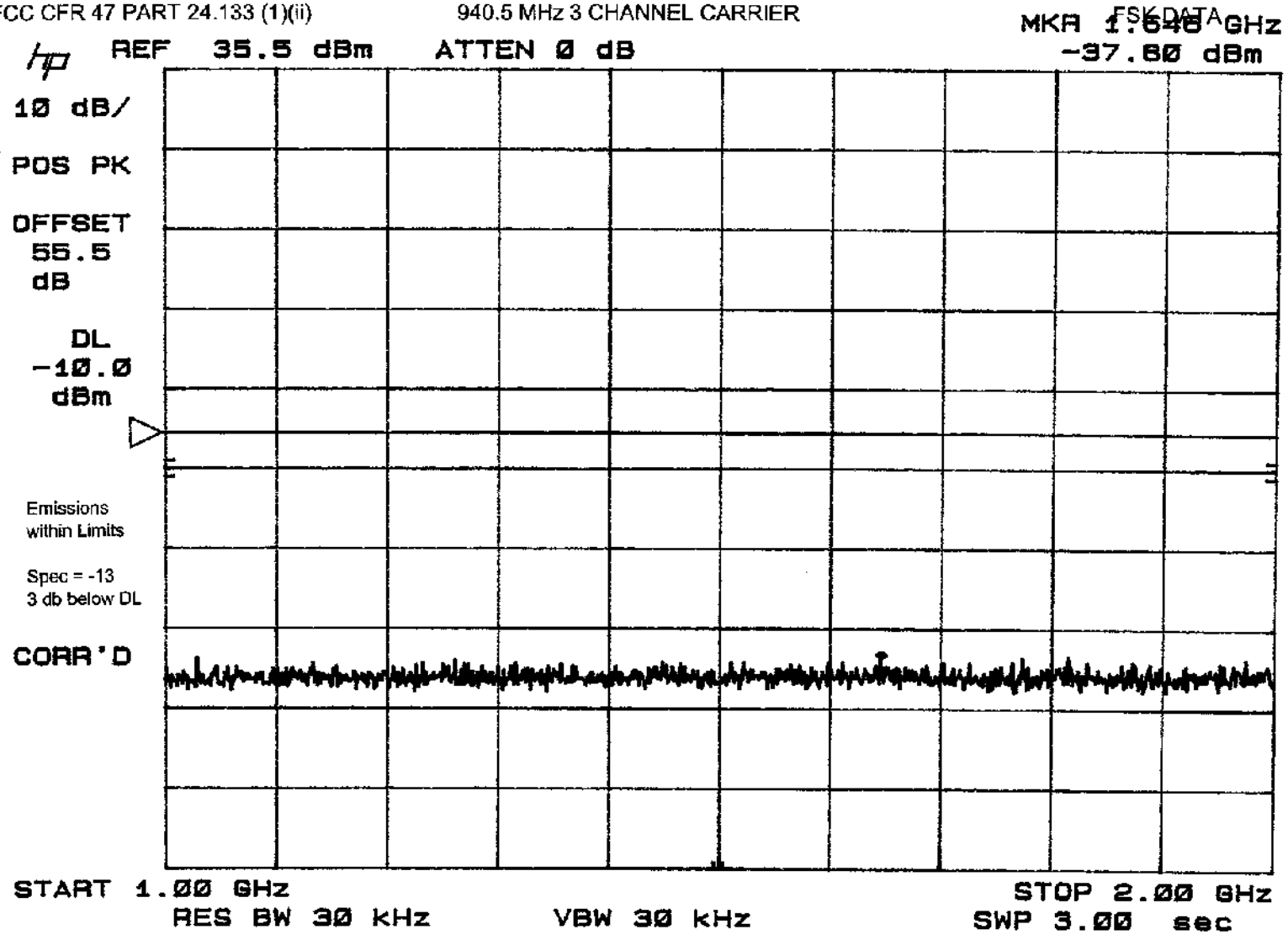

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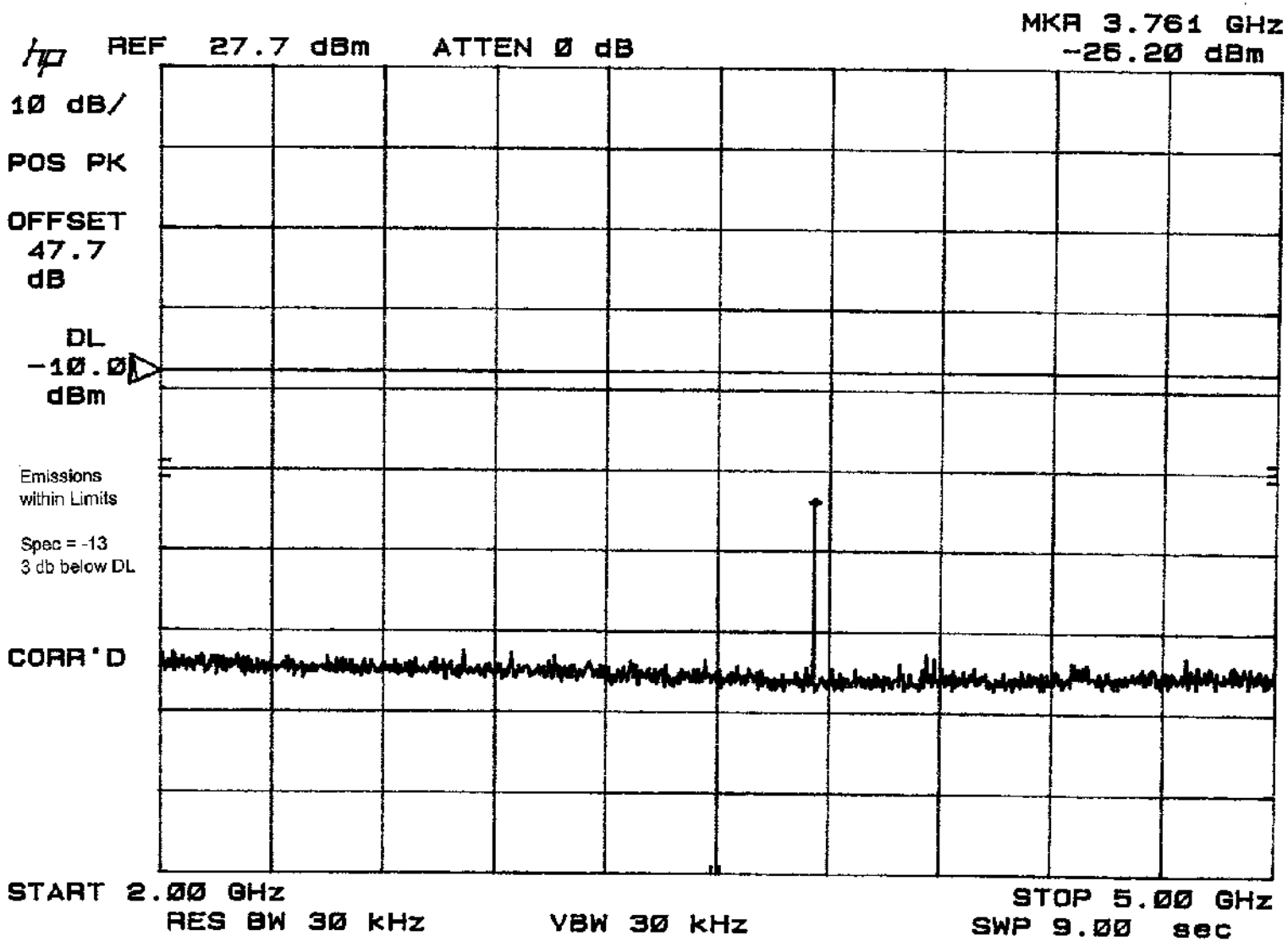

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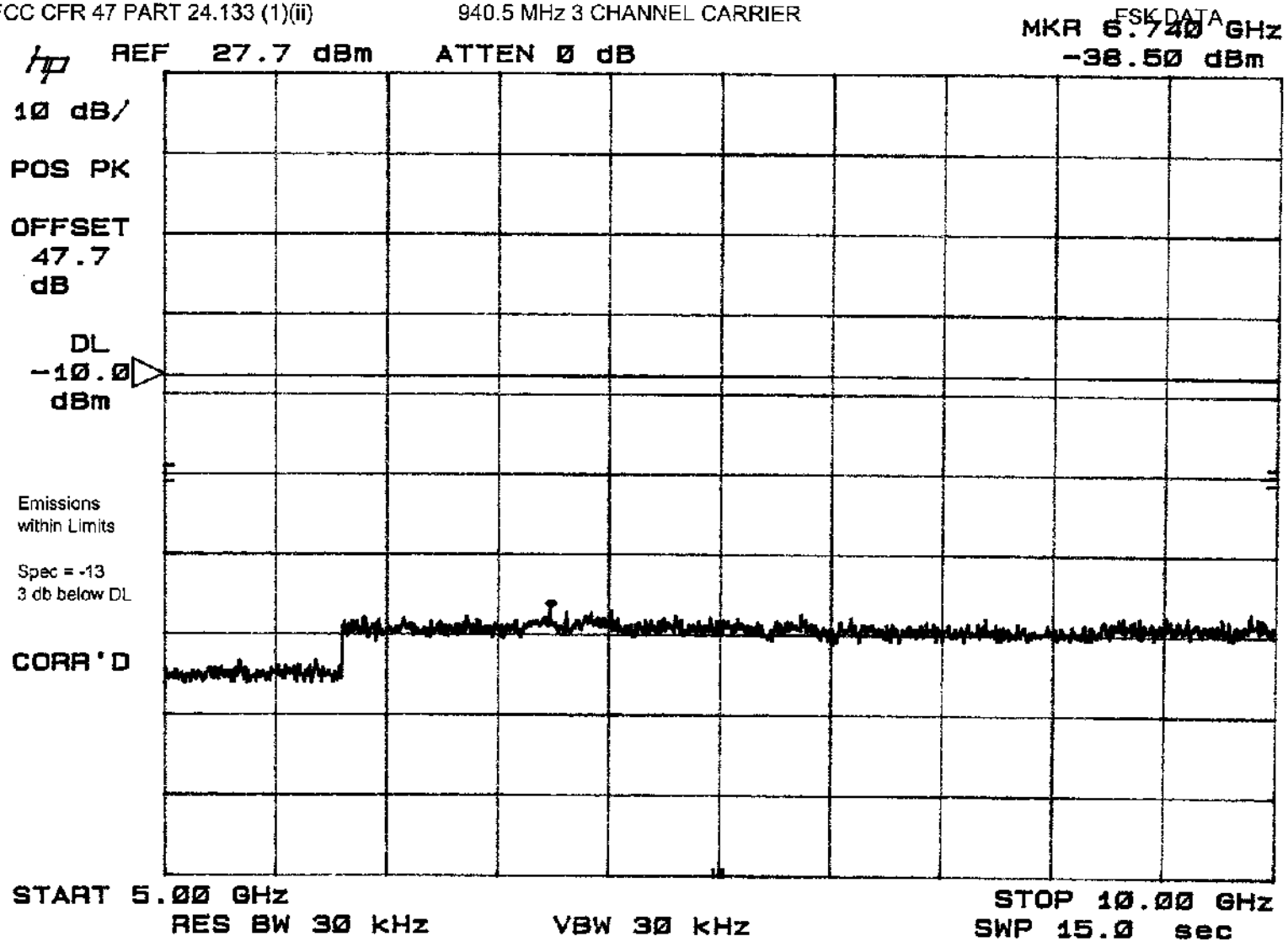

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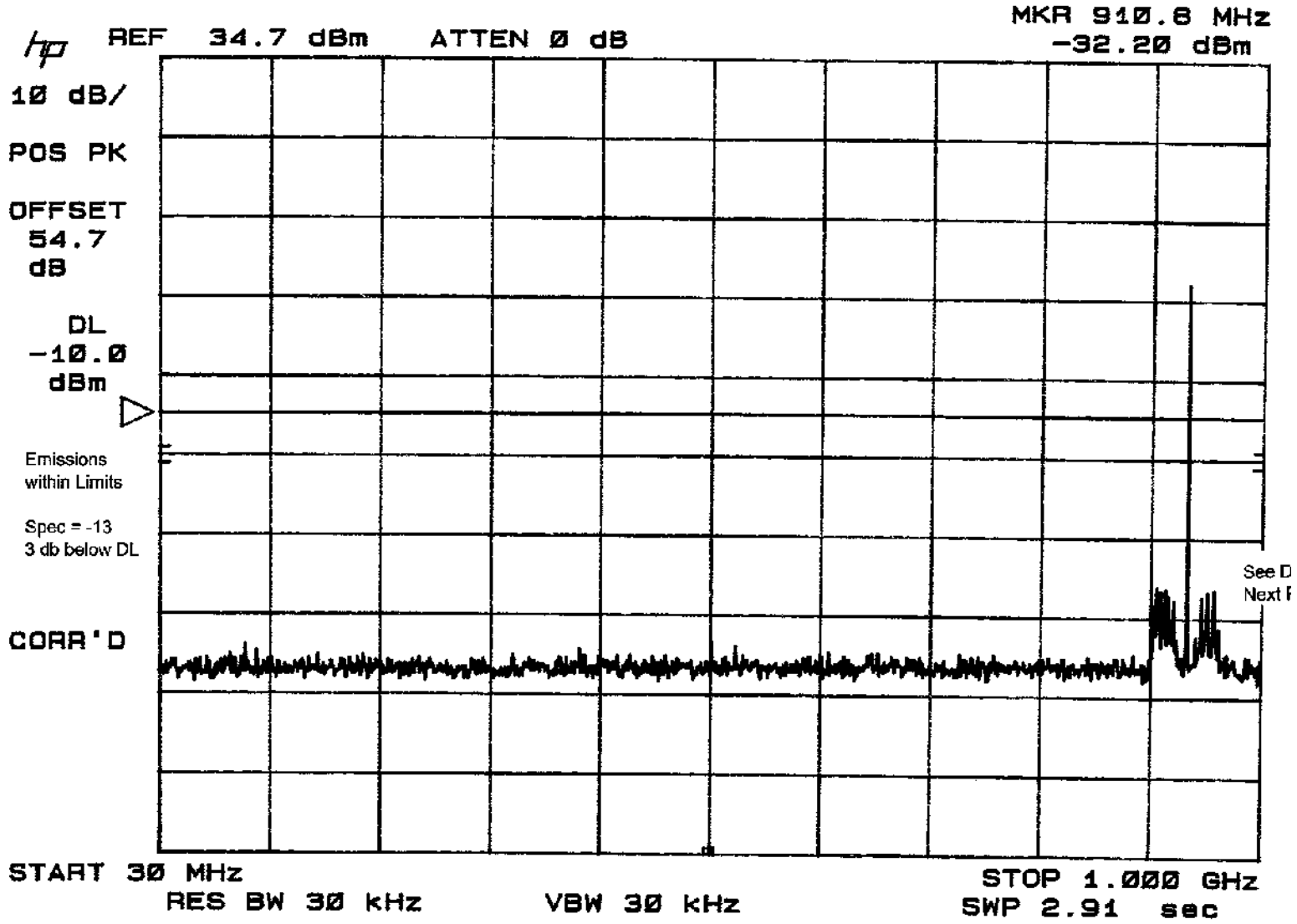

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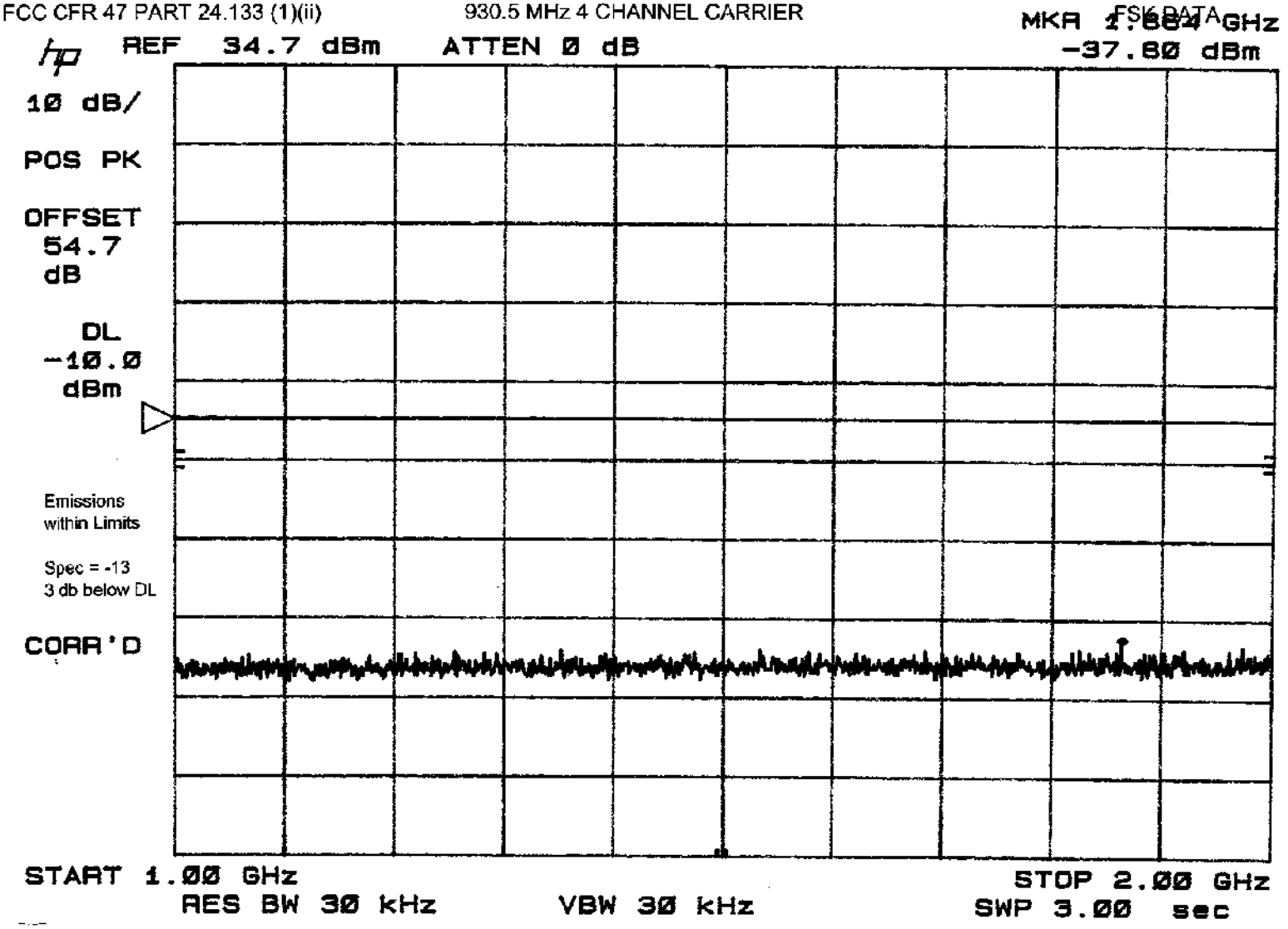

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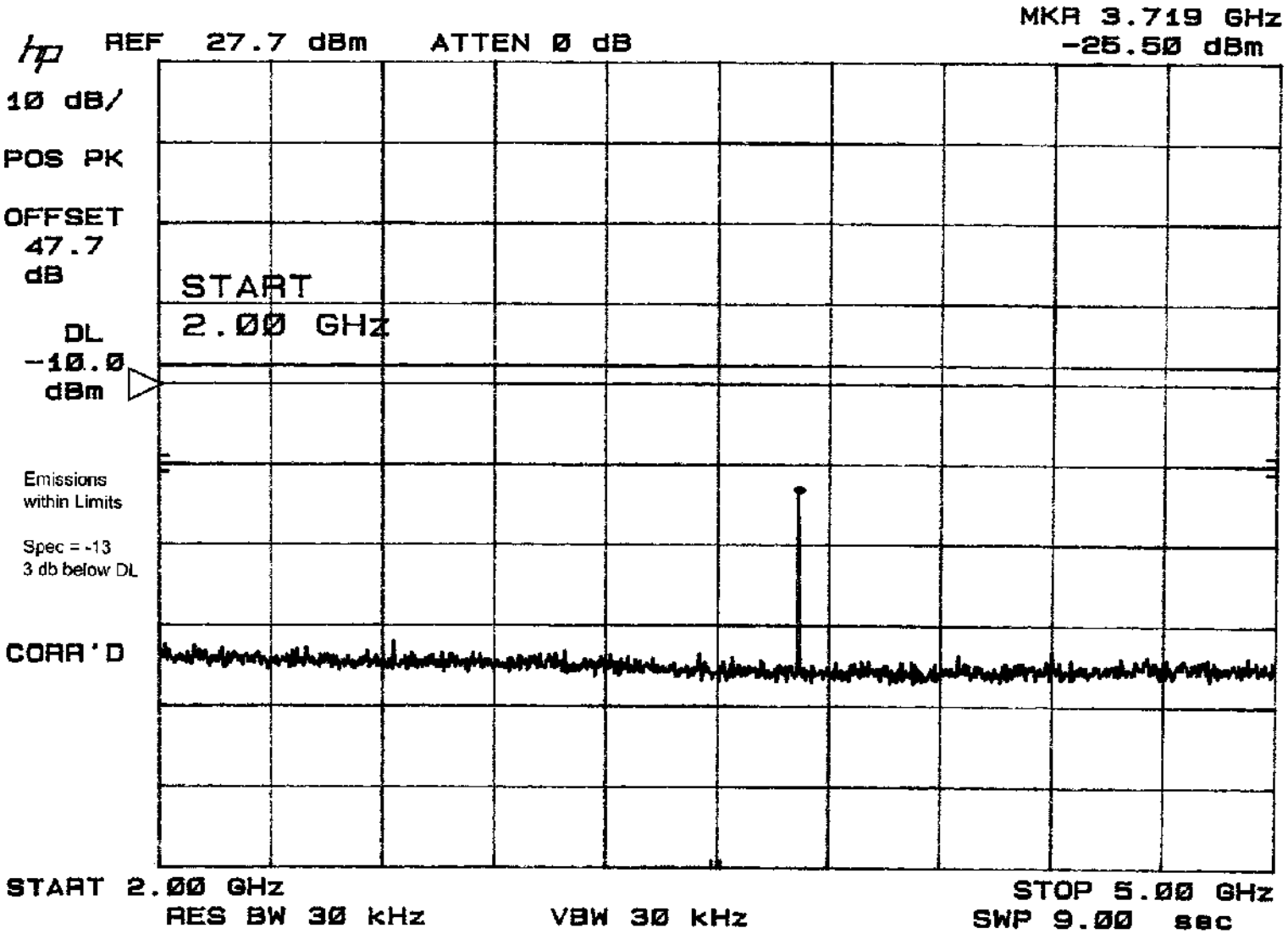

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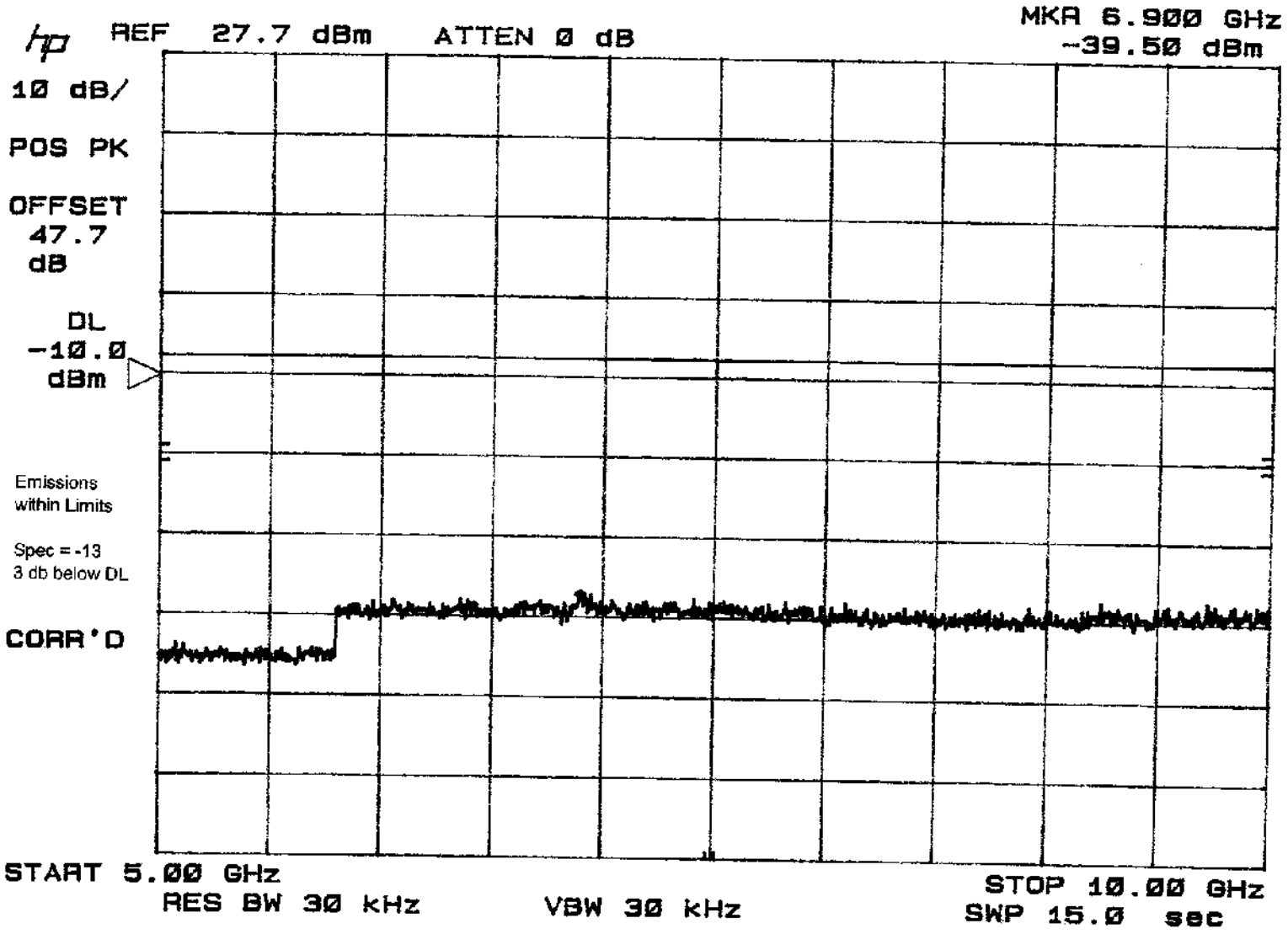

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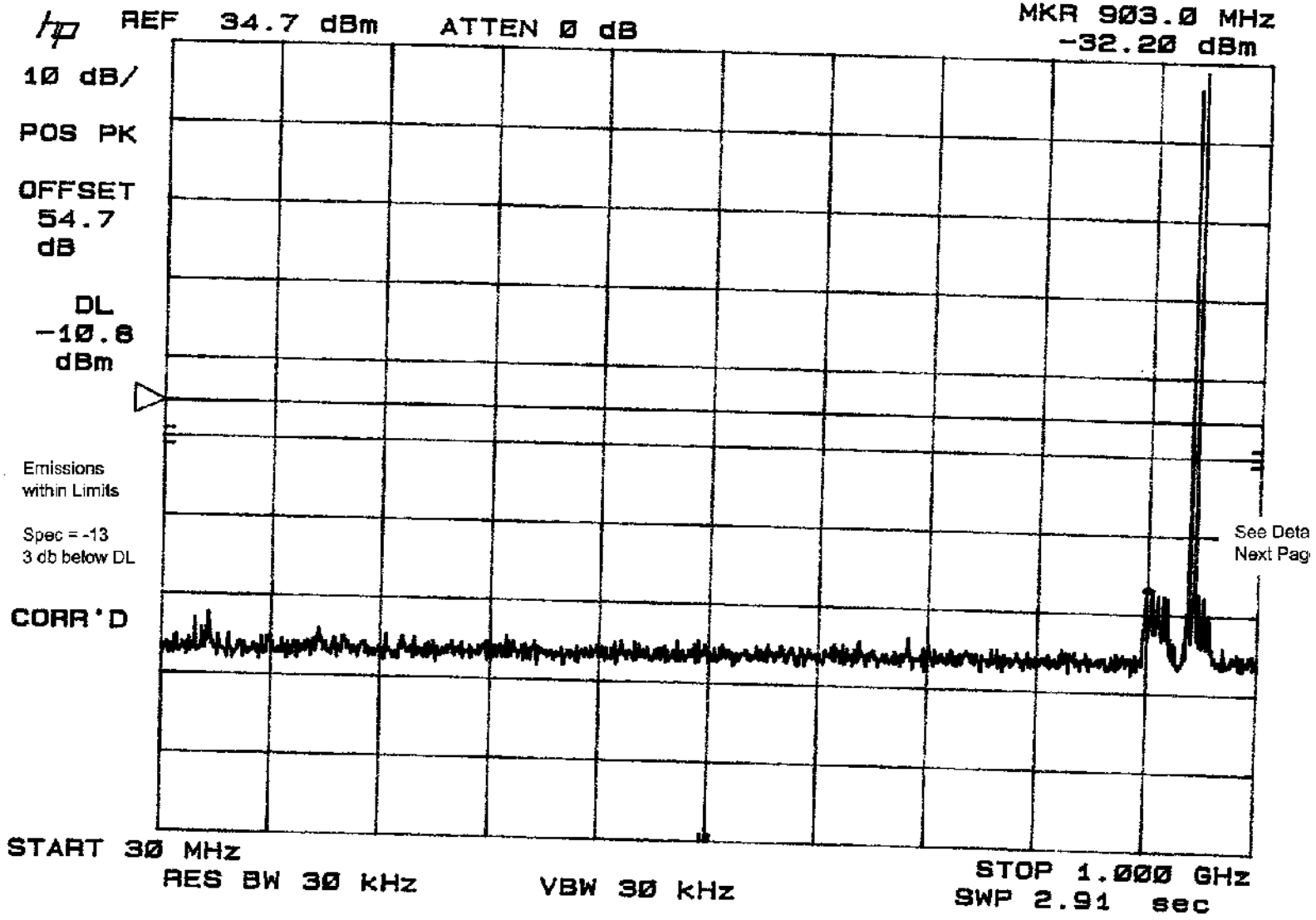

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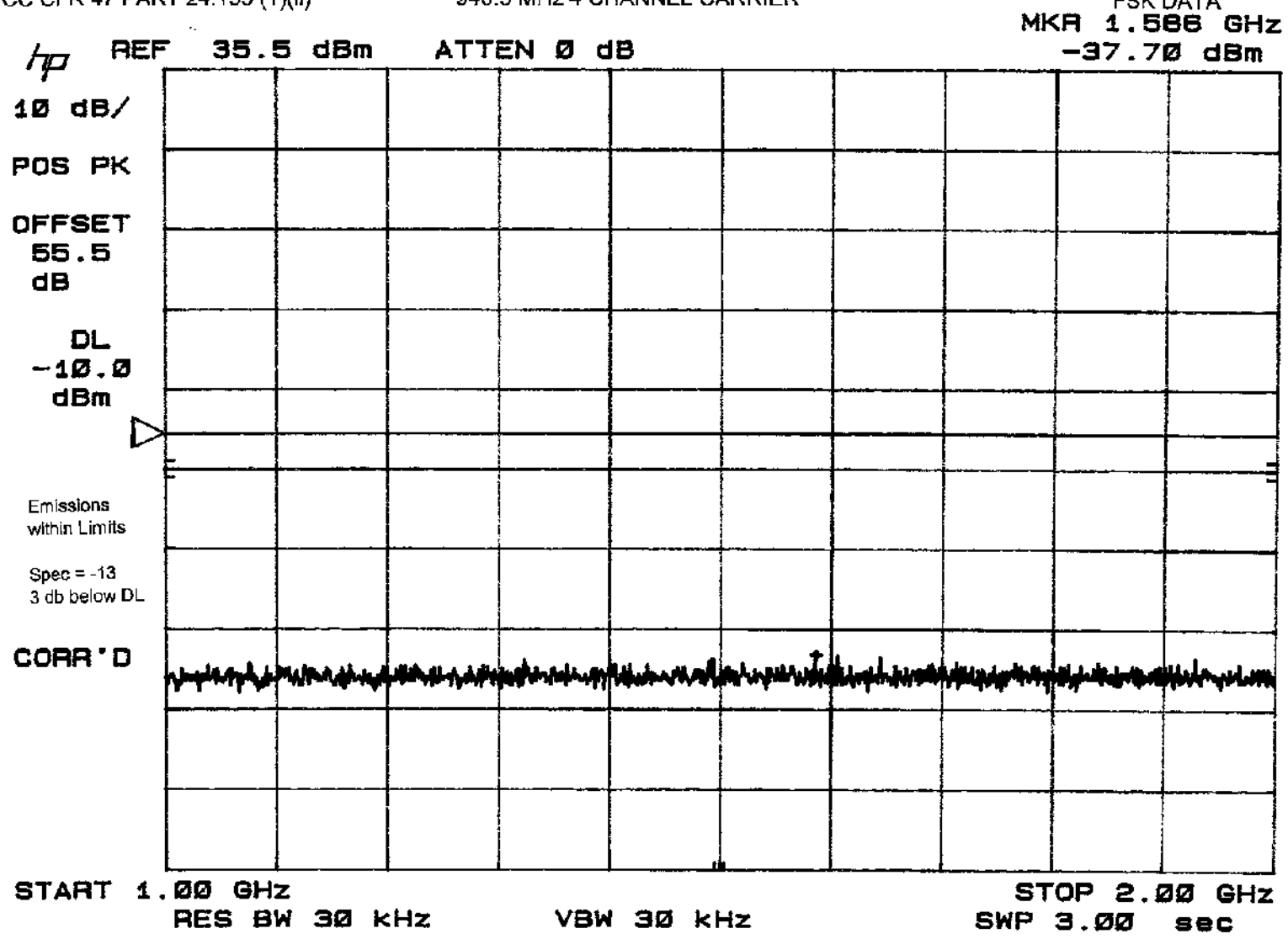

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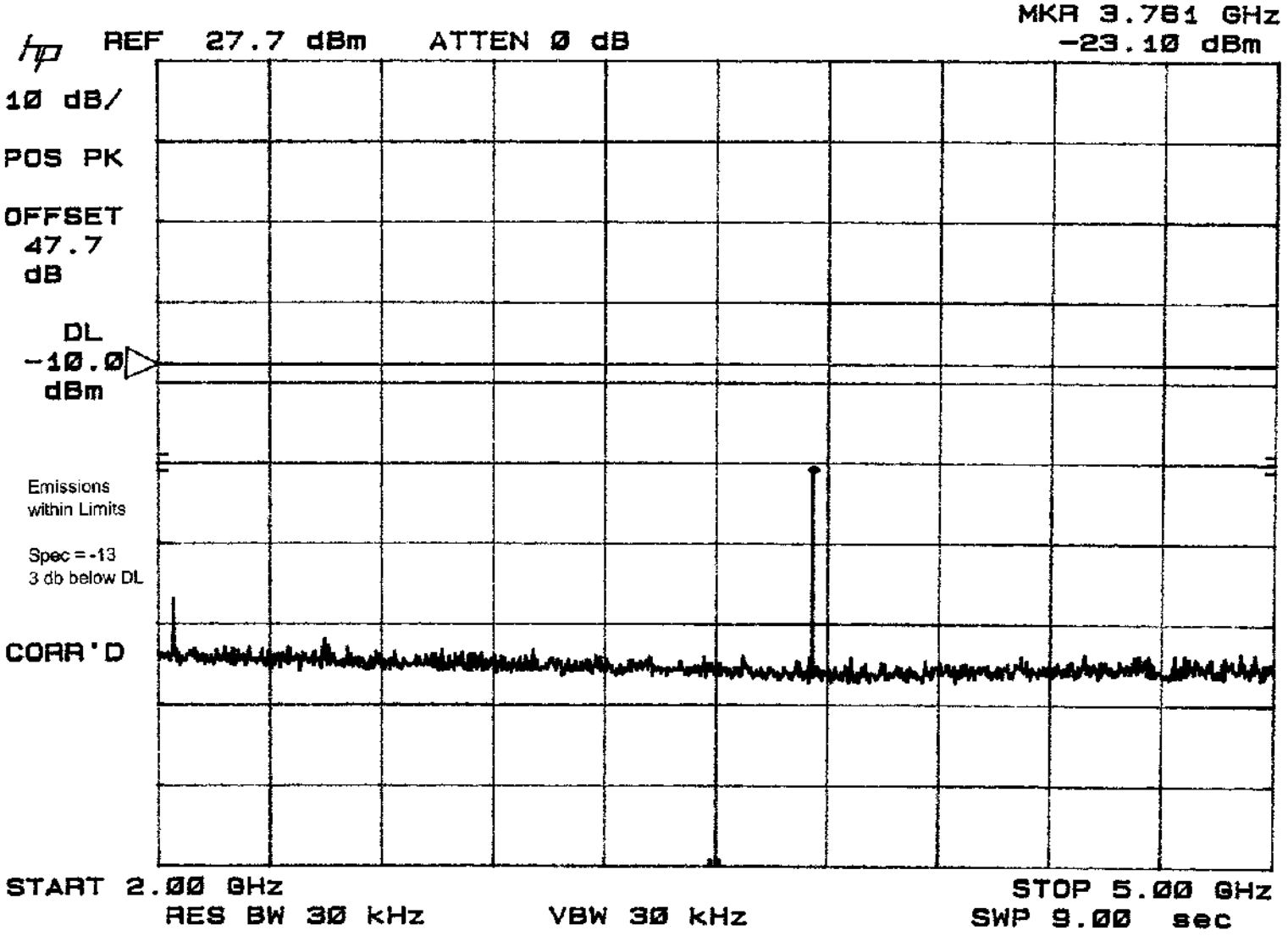

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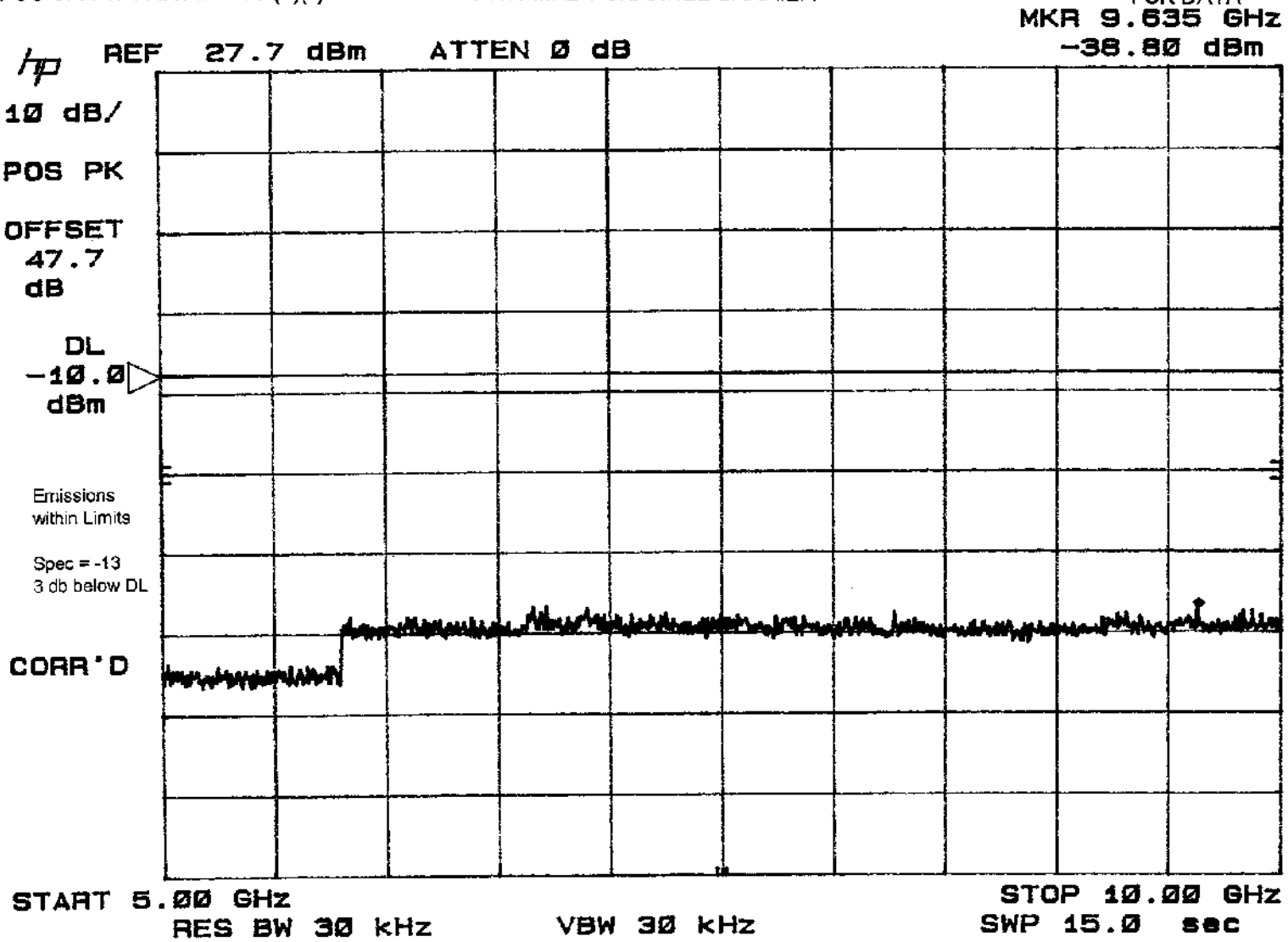


7 RADIATED EMISSION EQUIPMENT/DATA

The following data lists the significant emission frequencies, measured levels, correction factor (which includes cable and antenna corrections), the corrected reading, and the limit.

See following page(s).

See test setup photos for radiated emissions test setup.

REPORT No: SC202170 TESTER: Alan Laudani SPEC: FCC 24.133(a)(ii) FCC 2.1053

CUSTOMER: Sonik Technologies TEST DIST: 3 Meters

E U T: G2BT Radio Transmitter NPCS TEST SITE: Canyon 2

EUT MODE: Transmit 4 Chnl Carrier BICONICAL: N/A

DATE: April 19, 2002 ERP/EIRP Factor 7 LOG: N/A

NOTES: HORN: 251

above 1GHz: RBW & VBW 1 MHz for Pk; RBW 1MHz and VBW 10Hz for AVG

below 1GHz: RBW & VBW 100 kHz for Pk; RBW 100kHz and VBW 10Hz for AVG

CF = Antenna Factor + Cable Loss - Preamplifier Gain – Preselector Loss

v.bctp1a

FREQ (MHz)	VERTICAL (dBuv) pk	VERTICAL (dBuv) av	HORIZONTAL (dBuv) pk	HORIZONTAL (dBuv) av	CF (dB/m)	MAX LEVEL (dBm(d)) pk	MAX LEVEL (dBm(d)) av	SPEC LIMIT (dBm) pk	SPEC LIMIT (dBm) av	MARGIN (dB) pk	MARGIN (dB) av	EUT Rotation	Antenna Height	Notes	dBuV/m	dBuV/m
930.5	72.3	68	65.3	58.2	9.3	-15.8	-20.1					60	1	Fundamental (Mid Band)	81.6	77.3
1861	43.4	30.2	40.8	29.6	29.8	-24.1	-37.3	-13.0	-13.0	-11.1	-24.3	60	1		73.2	60.0
2791.5	35.7	20.4	40.6	25.2	33.0	-23.7	-39.1	-13.0	-13.0	-10.7	-26.1	60	1.5		73.6	58.2
3722	39.8	24.8	40.3	24.7	35.7	-21.4	-36.9	-13.0	-13.0	-8.4	-23.9	60	2.6		76.0	60.5
4652.5	28.7	18.4	28.3	18.4	36.3	-32.4	-42.7	-13.0	-13.0	-19.4	-29.7	60	3		65.0	64.7
5583	28.0	18.4	28.3	19.0	38.7	-30.4	-39.7	-13.0	-13.0	-17.4	-26.7			noise floor	67.0	57.7
6513.5	33.0	23.6	33.6	18.4	38.4	-25.3	-35.1	-13.0	-13.0	-12.3	-22.1			noise floor	72.0	62.2
7444	32.9	23.6	34.1	23.6	40.5	-22.8	-33.3	-13.0	-13.0	-9.8	-20.3			noise floor	74.6	64.1
8374.5	32.1	23.9	23.6	23.8	41.8	-23.5	-31.7	-13.0	-13.0	-10.5	-18.7			noise floor	73.9	65.7
9305	34.4	24.9	35.0	24.5	42.2	-20.1	-30.2	-13.0	-13.0	-7.1	-17.2			noise floor	77.2	67.1
940.5	68.6	61.3	69.1	61.6	9.3	-19.0	-26.6					60	1.25	Fundamental (Mid Band)	78.4	70.9
1881	50.1	38.5	48.7	37.9	30.0	-17.3	-28.9	-13.0	-13.0	-4.3	-15.9	60	1.25		80.1	68.5
2821.5	40.9	27.7	49.6	38.9	33.1	-14.7	-30.4	-13.0	-13.0	-1.68	-17.4	60	3		82.7	67.0
3762	43.3	27.2	45.9	30.9	35.9	-15.6	-30.6	-13.0	-13.0	-2.61	-17.6	60	2.5		81.8	68.8
4702.5	28.6	18.6	28.5	18.6	36.4	-32.4	-42.2	-13.0	-13.0	-19.4	-29.2			noise floor	65.0	55.2
5643	27.4	18.5	27.2	18.6	38.7	-31.2	-40.0	-13.0	-13.0	-18.2	-27			noise floor	66.1	57.3
6583.5	32.4	23.7	32.5	23.7	38.6	-26.3	-35.1	-13.0	-13.0	-13.3	-22.1			noise floor	71.1	62.3
7524	32.6	24.1	33.2	24.1	40.6	-23.5	-32.6	-13.0	-13.0	-10.5	-19.6			noise floor	73.8	64.7
8464.5	33.6	24.1	34	24.4	41.9	-21.4	-31.0	-13.0	-13.0	-8.42	-18			noise floor	75.9	66.3
9405	33.7	24.3	33.9	24.3	41.9	-21.6	-31.2	-13.0	-13.0	-8.6	-18.2			noise floor	75.8	66.2

Field Strength Calculation

If a preamplifier was used during the Radiated Emission Testing, it is required that the amplifier gain must be subtracted from the Spectrum Analyzer (Meter) Reading. In addition, a correction factor for the antenna , cable used and a distance factor, if any, must be applied to the Meter Reading before a true field strength reading can be obtained. In the automatic measurement, these considerations are automatically presented as a part of the print out. In the case of manual measurements and for greater efficiency and convenience, instead of using these correlation factors for each meter reading, the specification limit was modified to reflect these correlation factors at each frequency value so that the meter readings can be compared directly to the modified specification limit. This modified specification limit is referred to as the "Corrected Meter Reading Limit" or simply the CMRL, which is the actual field strength present at the antenna. The quantity can be derived in the following manner:

Corrected Meter Reading Limit (CMRL) = SAR + AF + CL - AG - DC

Where, SAR = Spectrum Analyzer Reading
AF = Antenna Factor
CL = Cable Loss
AG = Amplifier Gain (if any)
DC = Distance Correction (if any)

Assume the following situation: A meter reading of 29.4 dBuV was obtained from a Class A computing device measured at 83 MHz. Assume an antenna factor of 9.2 dB, a cable loss of 1.4 dB and amplifier gain of 20.0 dB at 83 MHz. The final field strength would be determined as follows:

CMRL = 29.4 dBuV + 9.2dB = 1.4 dB - 20 dB/M - 0.0 dB

CMRL = 20.0 dBuV/M

This result is well below the FCC and CSA Class A limit of 29.5 dbuV/m at 83 MHz.

For the manual mode of measurement, a table of corrected meter reading limit was used to permit immediate comparison of the meter reading to determine if the measure emission amplitude exceeded the specification limit at that specific frequency.

TÜV PRODUCT SERVICE 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone 858 546 3999 FAX 858 546 0364

8 FREQUENCY STABILITY EQUIPMENT/DATA

See following page(s).

TÜV PRODUCT SERVICE 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone 858 546 3999 FAX 858 546 0364

Test Specifications: FCC Part 24 NPCS

Report No. SC202170

Photos taken? ■ Yes

Test Method:
FCC Part 2.1055 Frequency Stability over Voltage Variation at Room Temperature
FCC Part 24.135 (a) Frequency Stability

Date: Apr. 17, 2002
Temperature: 22 degrees C
Air Pressure: 100.9 kPa
Relative Humidity: 41 %

Test Area:
SR 2, Shielded Room, 12' x 24' x 10', Metal Chamber

EUT Description: G2BT Radio Transmitter NPCS

EUT POWER: 208 Vac 60 Hz

Limits = 0.0001%

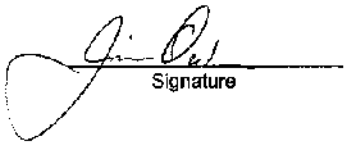
Frequency Band	Frequency under Test -- Modulation	85 % Power 102 Vac	115 % Power 138 Vac	delta	Complies
930 --- 931 MHz	930.5 MHz				
	1 Channel Carrier	930499528	930499526	0.0000002%	Yes
	2 Channel Carrier	930499528	930499518	0.0000011%	Yes
	3 Channel Carrier	930499524	930499526	-0.0000002%	Yes
	4 Channel Carrier	930499526	930499520	0.0000006%	Yes
940 --- 941 MHz	940.5 MHz	102 Vac	138 Vac		
	1 Channel Carrier	930499521	930499519	0.0000002%	Yes
	2 Channel Carrier	930499516	930499523	-0.0000008%	Yes
	3 Channel Carrier	930499526	930499525	0.0000001%	Yes
	4 Channel Carrier	930499522	930499520	0.0000002%	Yes

NOTES:
The directional coupler provided 47.7 dB attenuation and was entered into the Spectrum Analyzer as an offset. To provide variance of the power supply, the battery backup function was disconnected. The supply for control of the radio was isolated and provided with a separate 120 Vac line which was varied by plus and minus 15 % of 120 Vac.

Tested By: A. Laudani

Signature

Reviewed by: Jim Owen



Signature

Test Equipment Used:

Prop. #	Model Number	Description	Manufacturer	Serial No.	Cal. Dates
6495	hp8566B	Spectrum Analyzer	Hewlett Packard	2311A02209	11/13/02

Customer's Test Equipment Used:

588256B1J03	Directional Coupler	CellWave	192079-007	Verified 4-4-04

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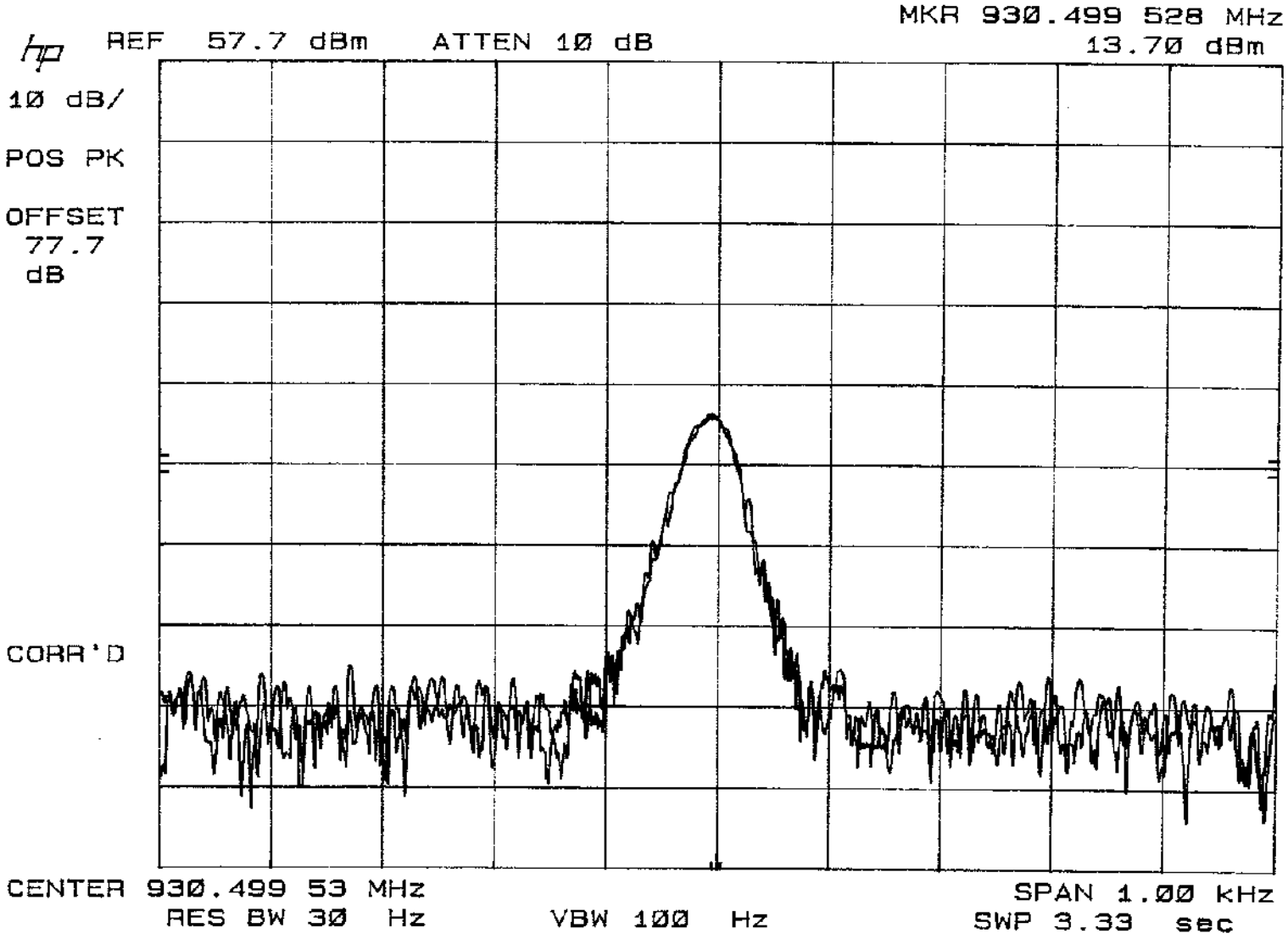
FCC CFR 47 PART 24.135 (A) 85% NOMINAL SUPPLY VOLTAGE 930.5 MHz 1 CHANNEL CARRIER



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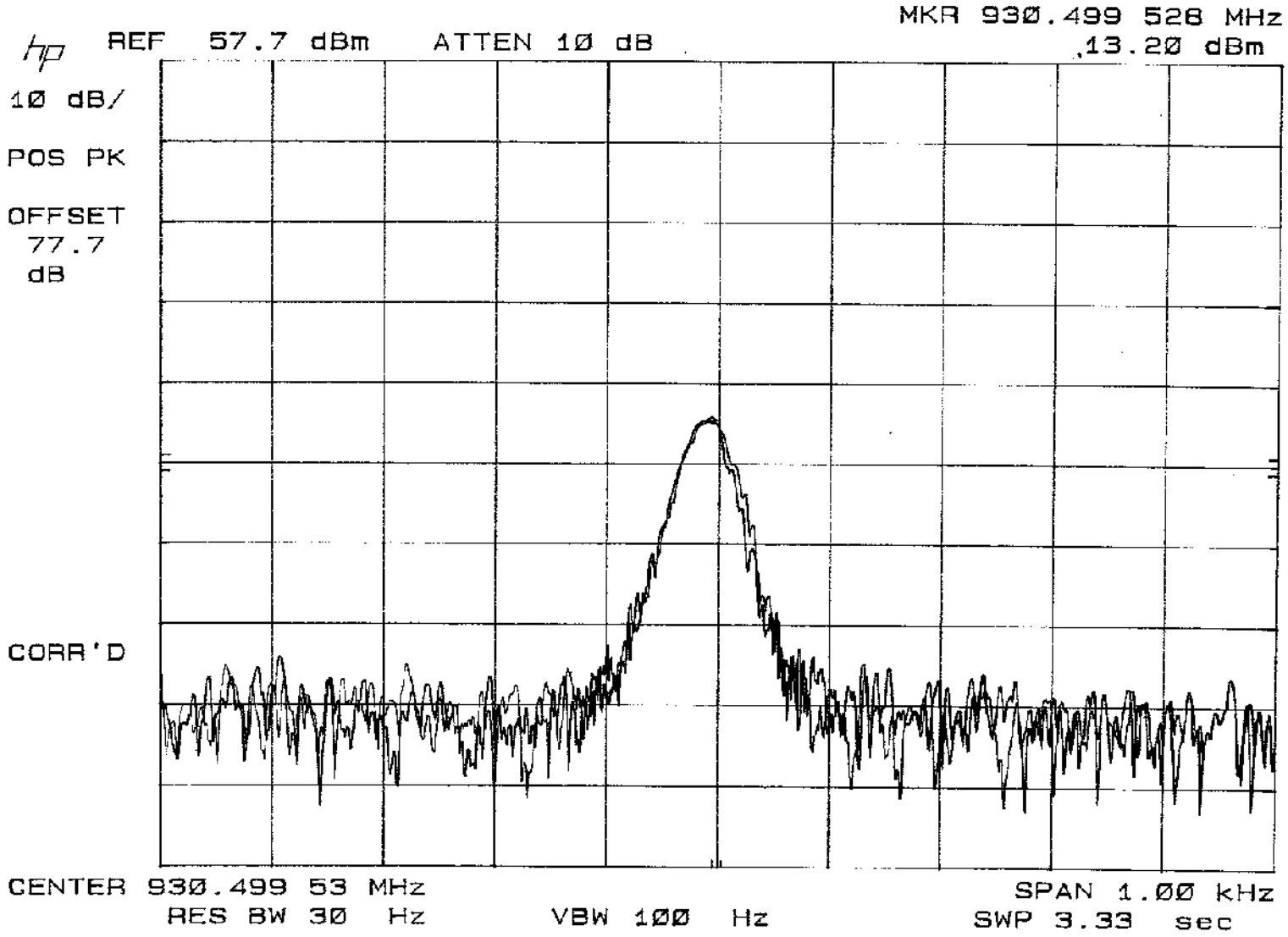

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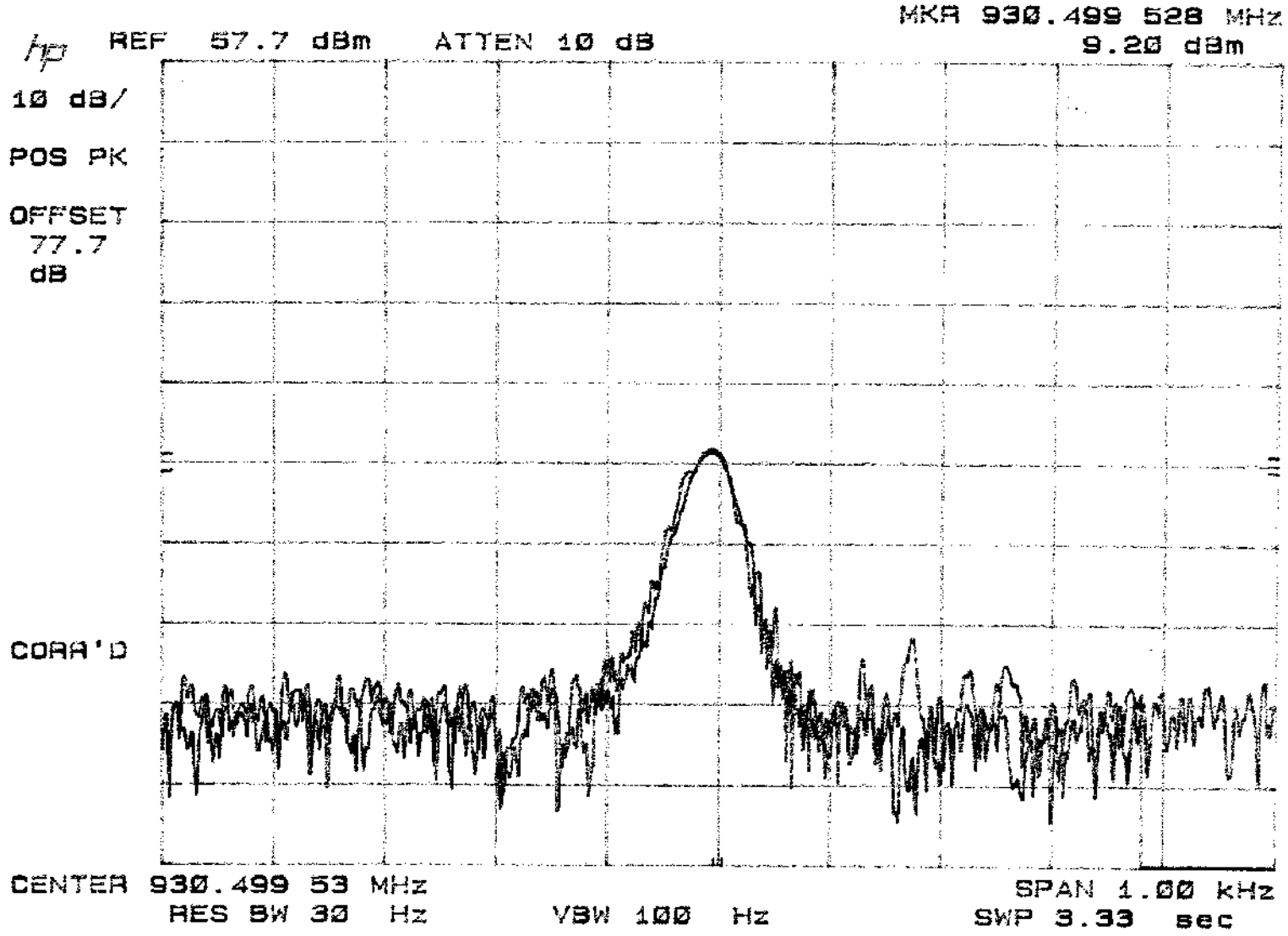

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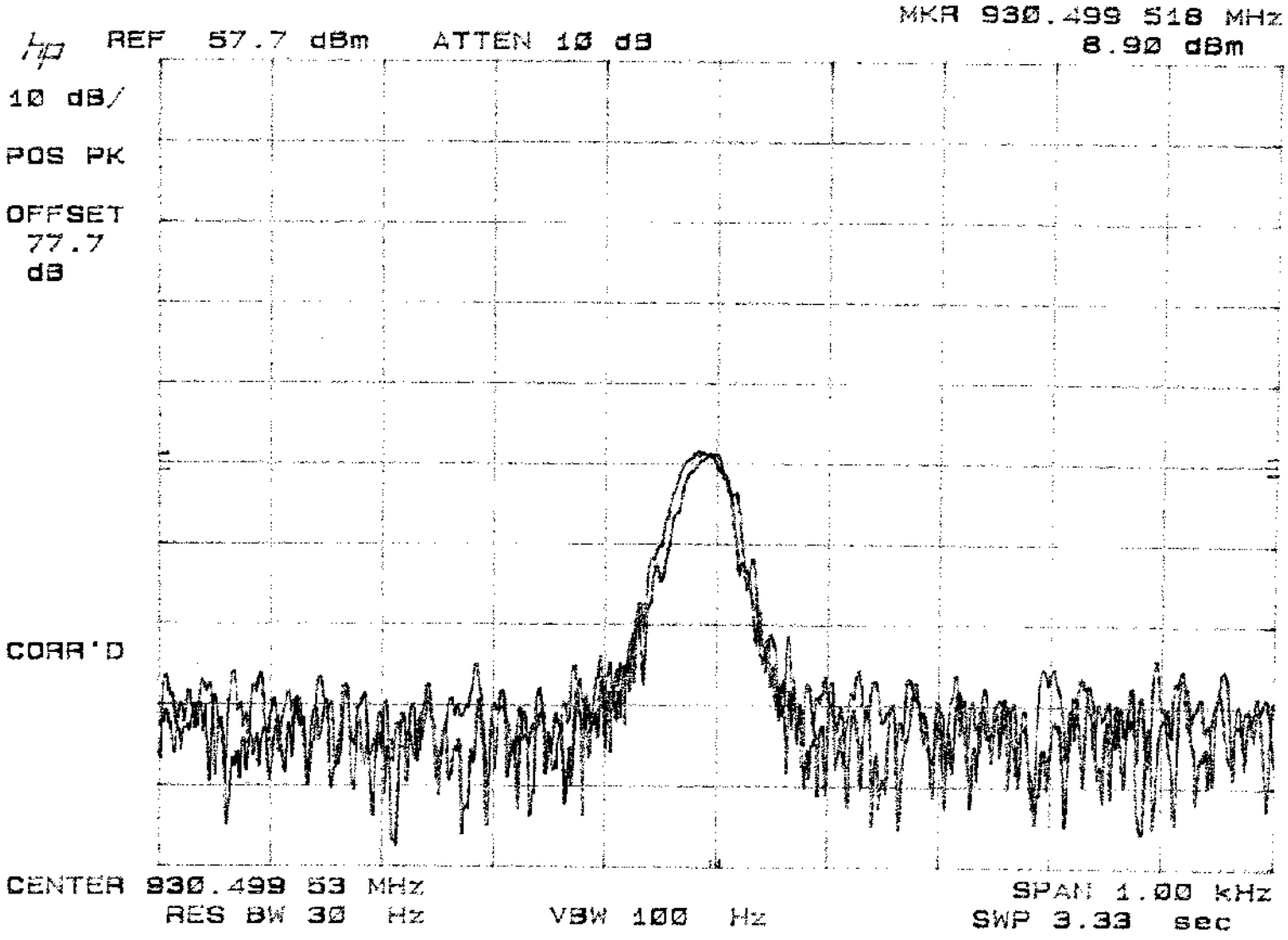

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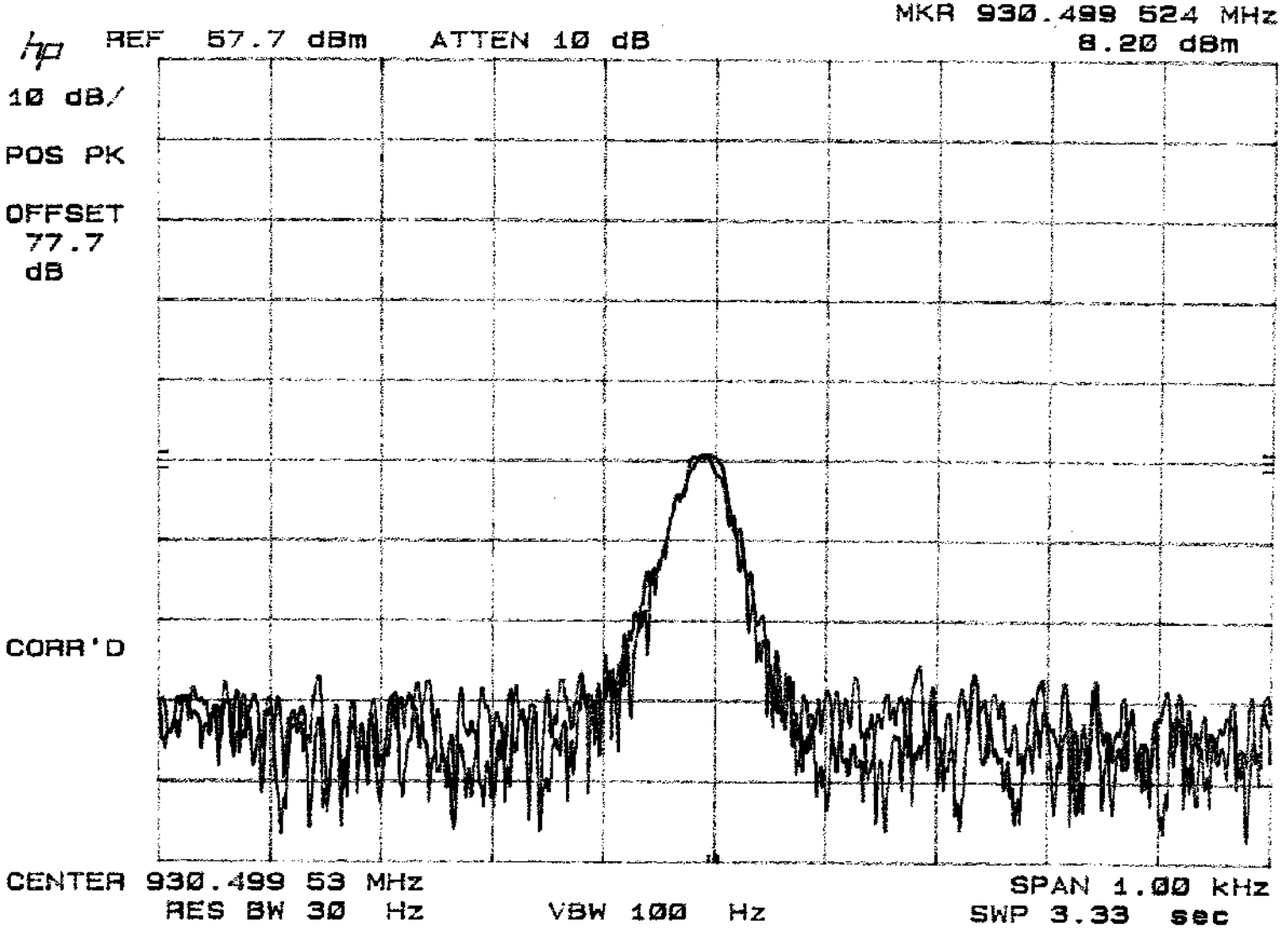

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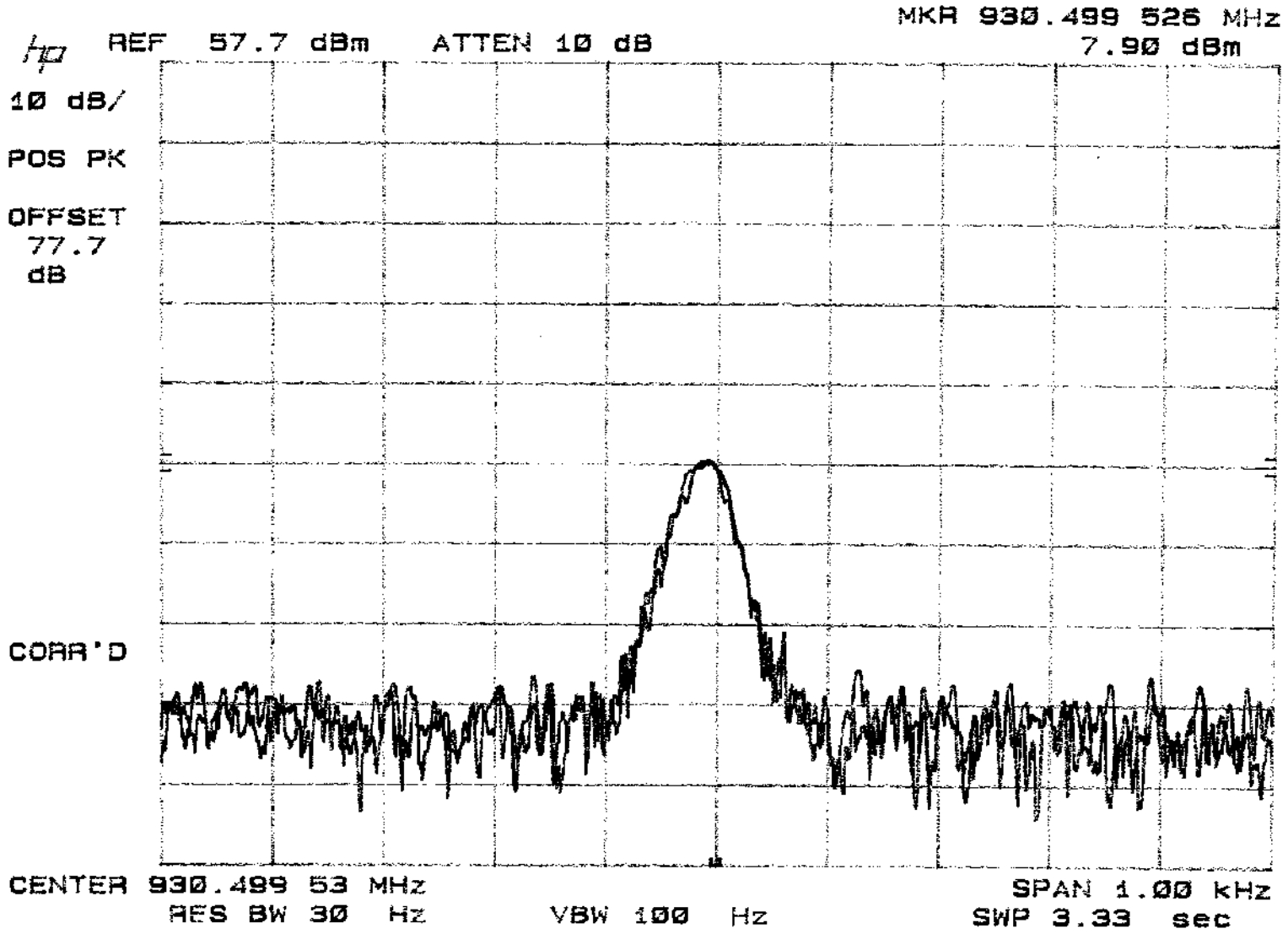

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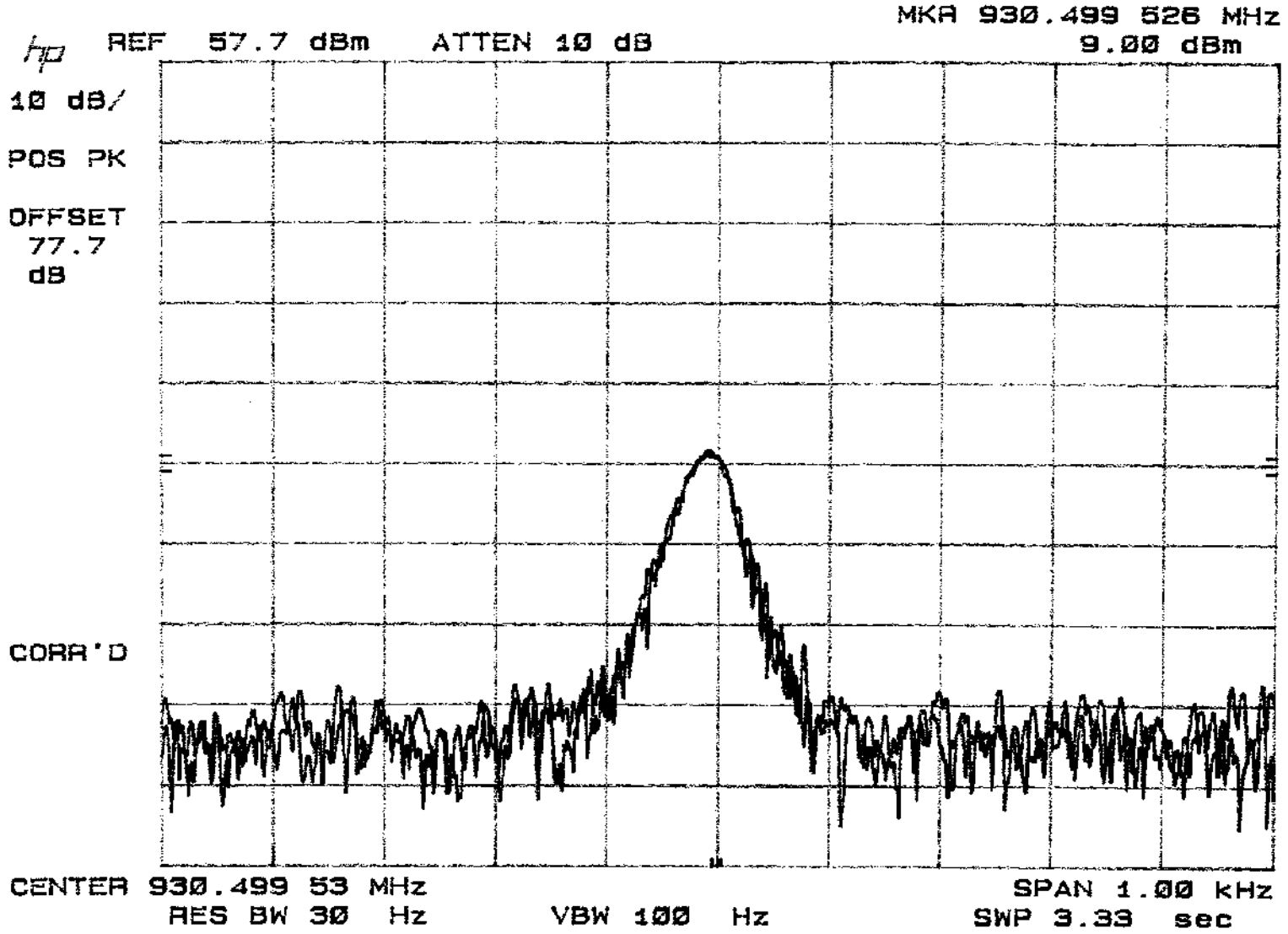

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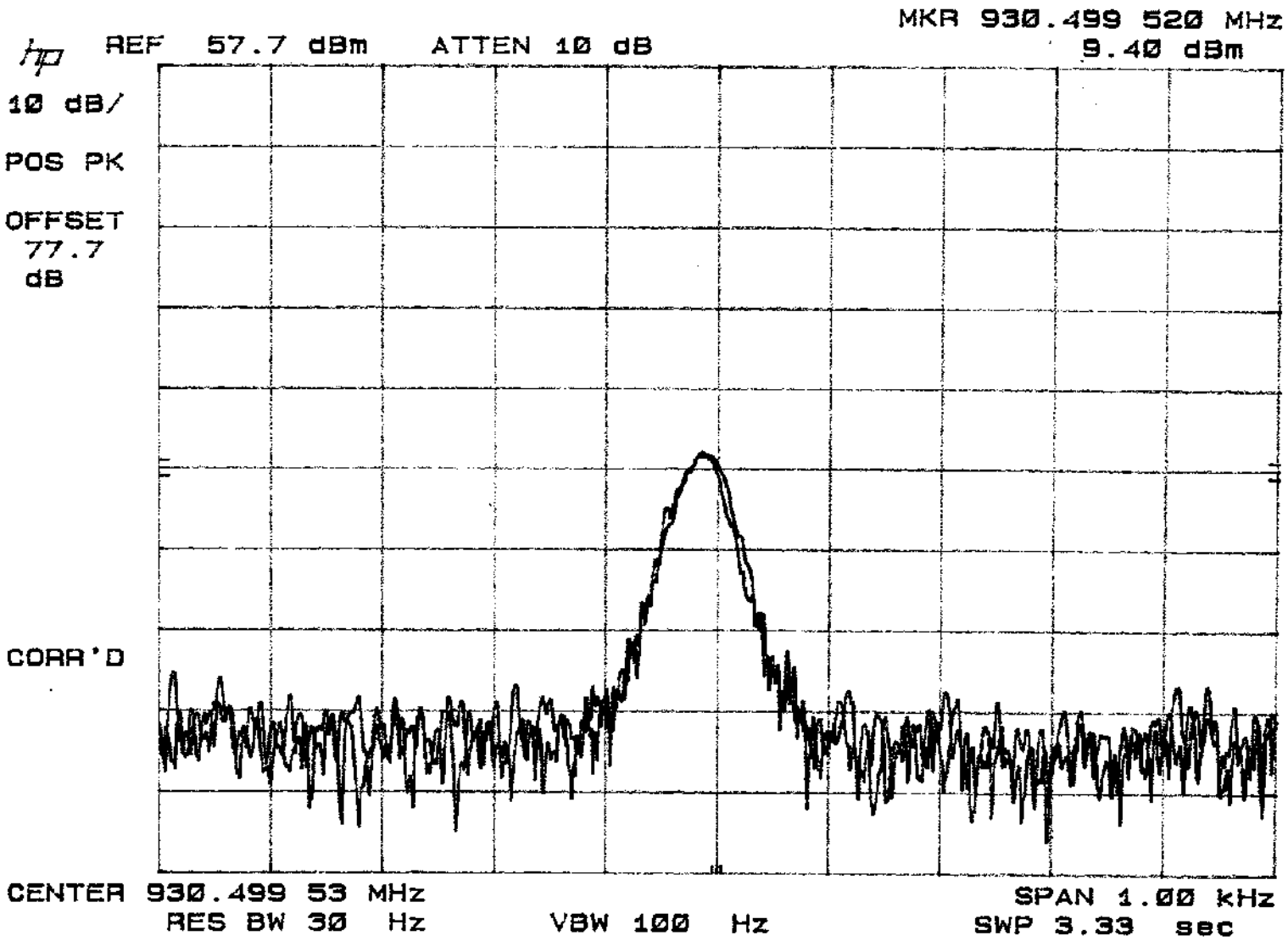

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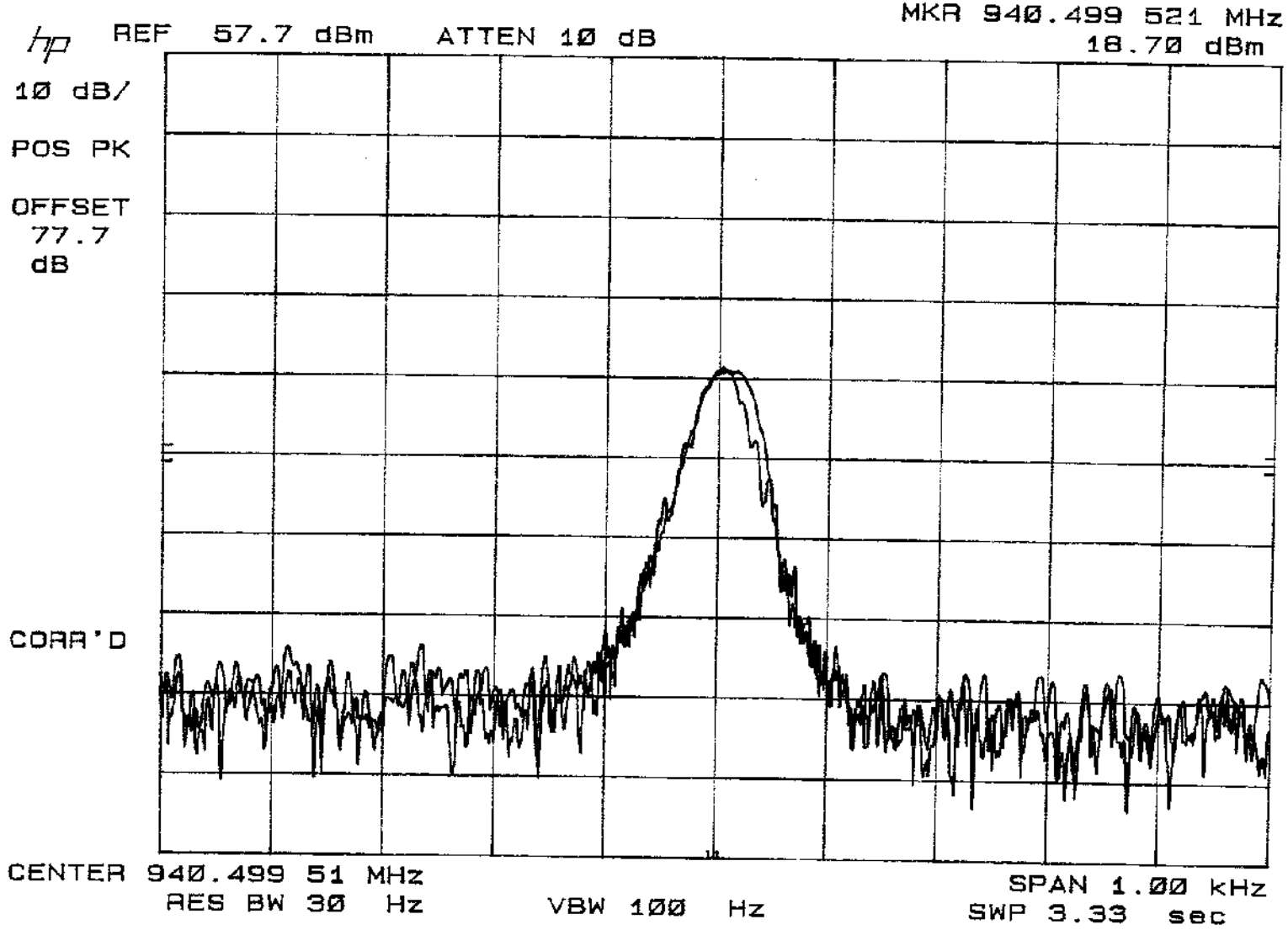

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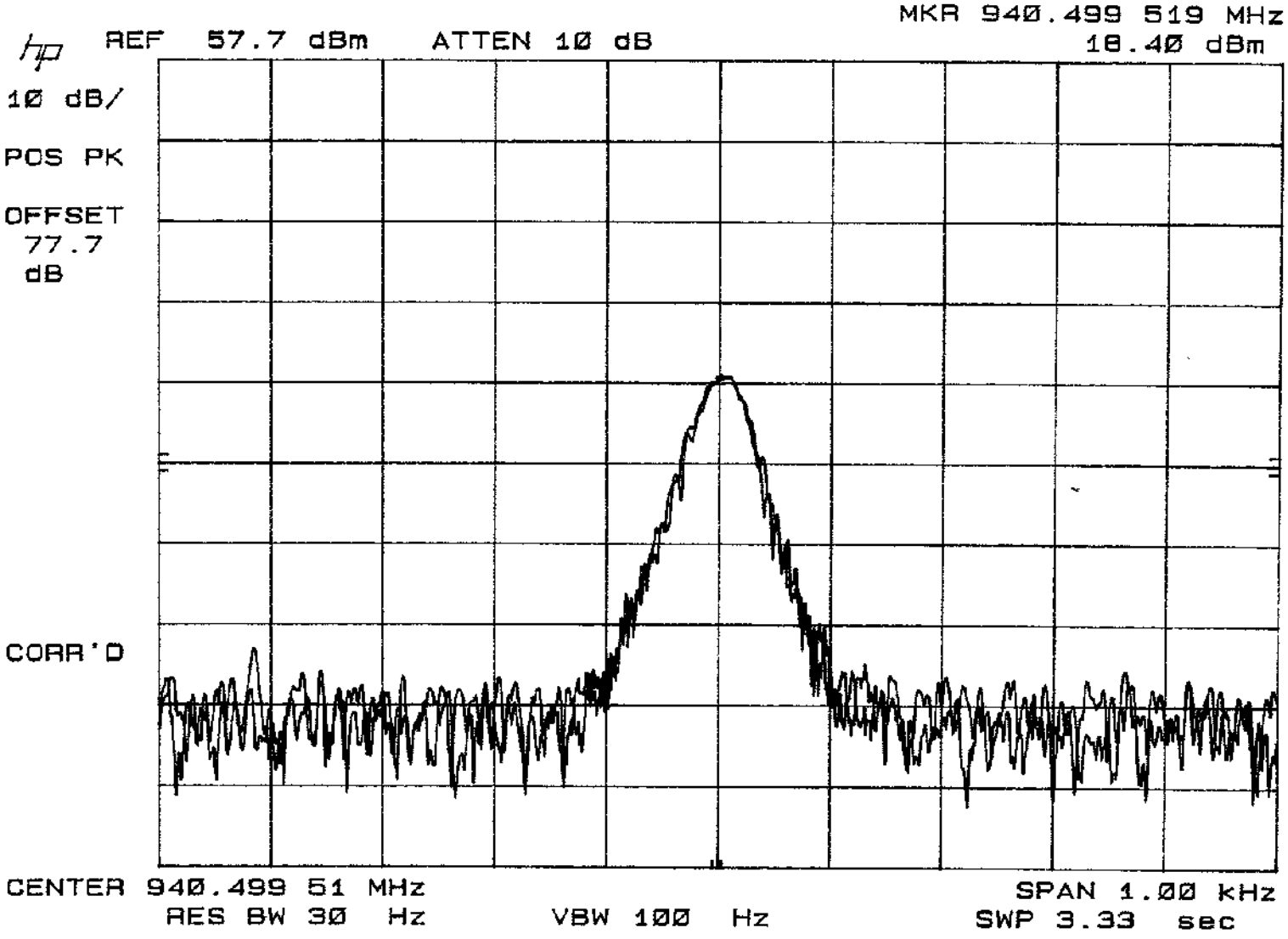

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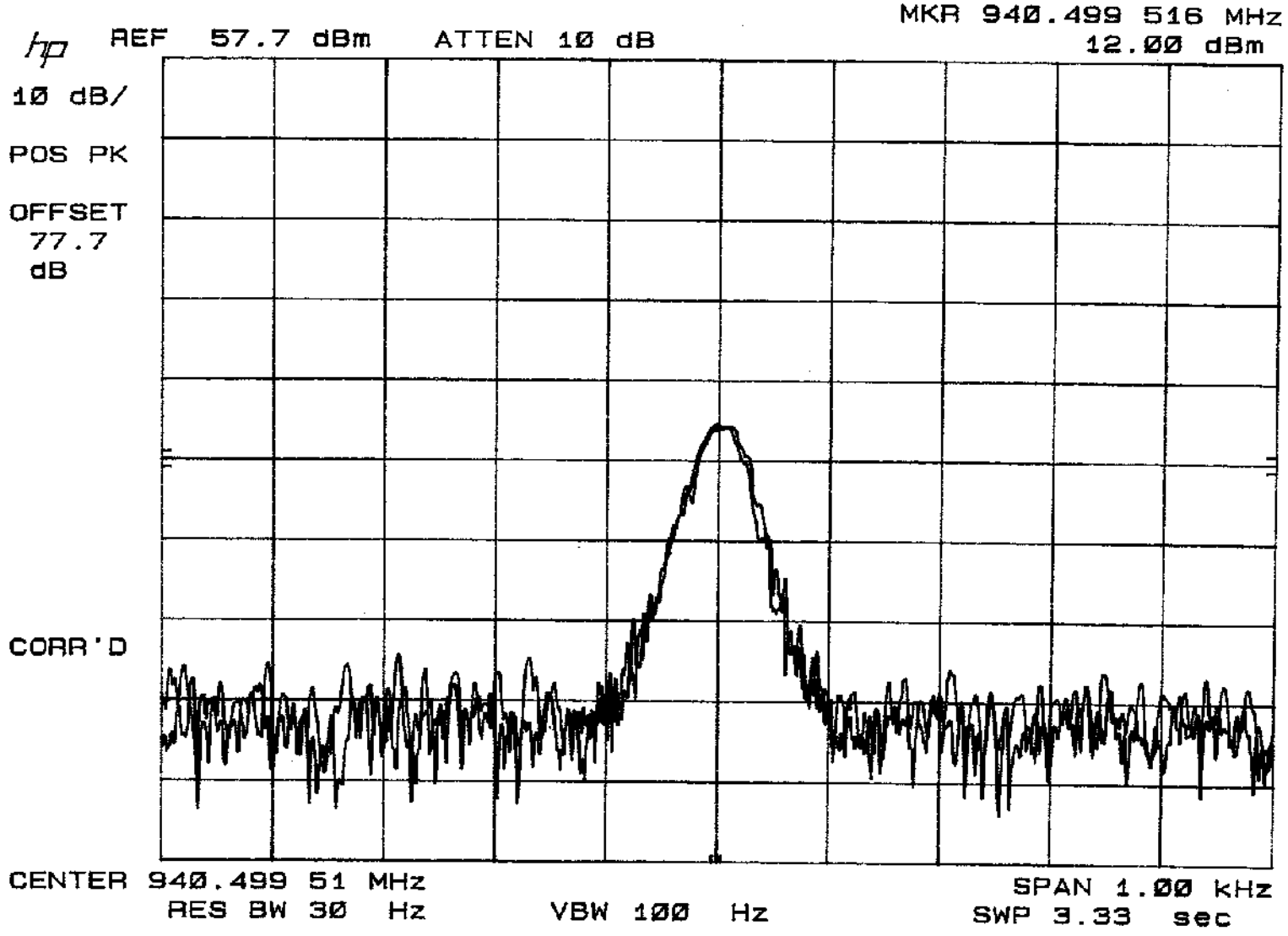

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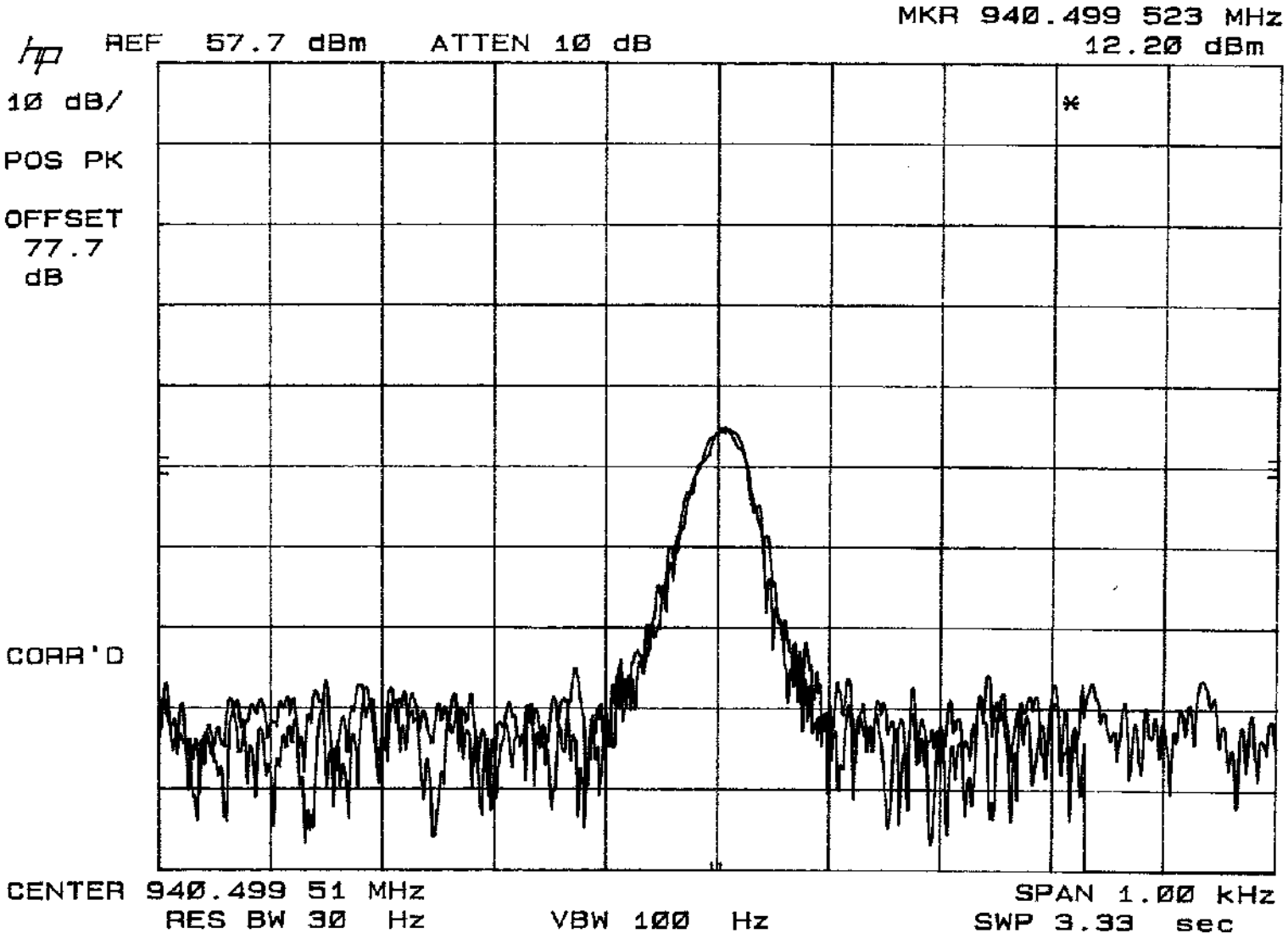

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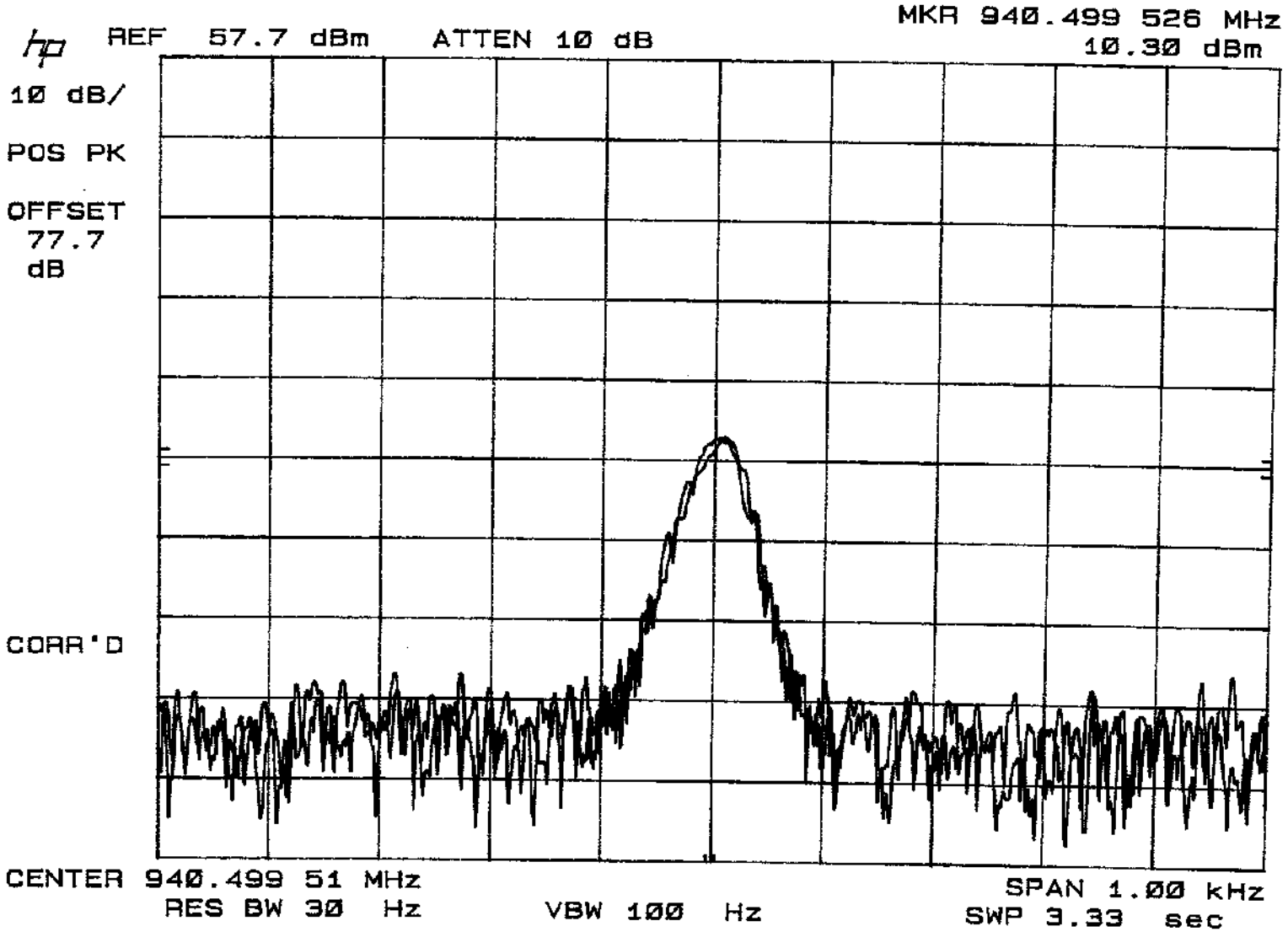

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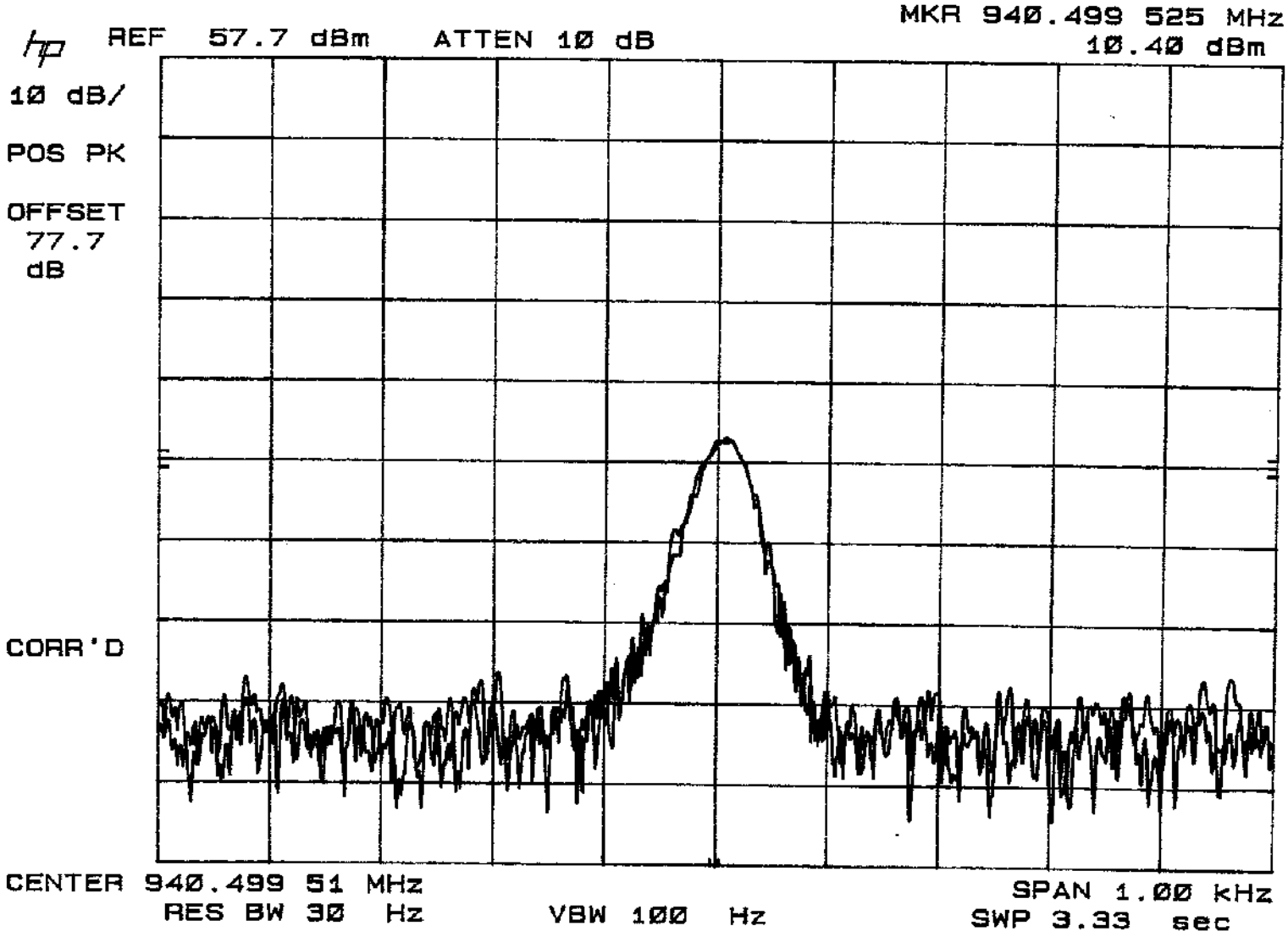

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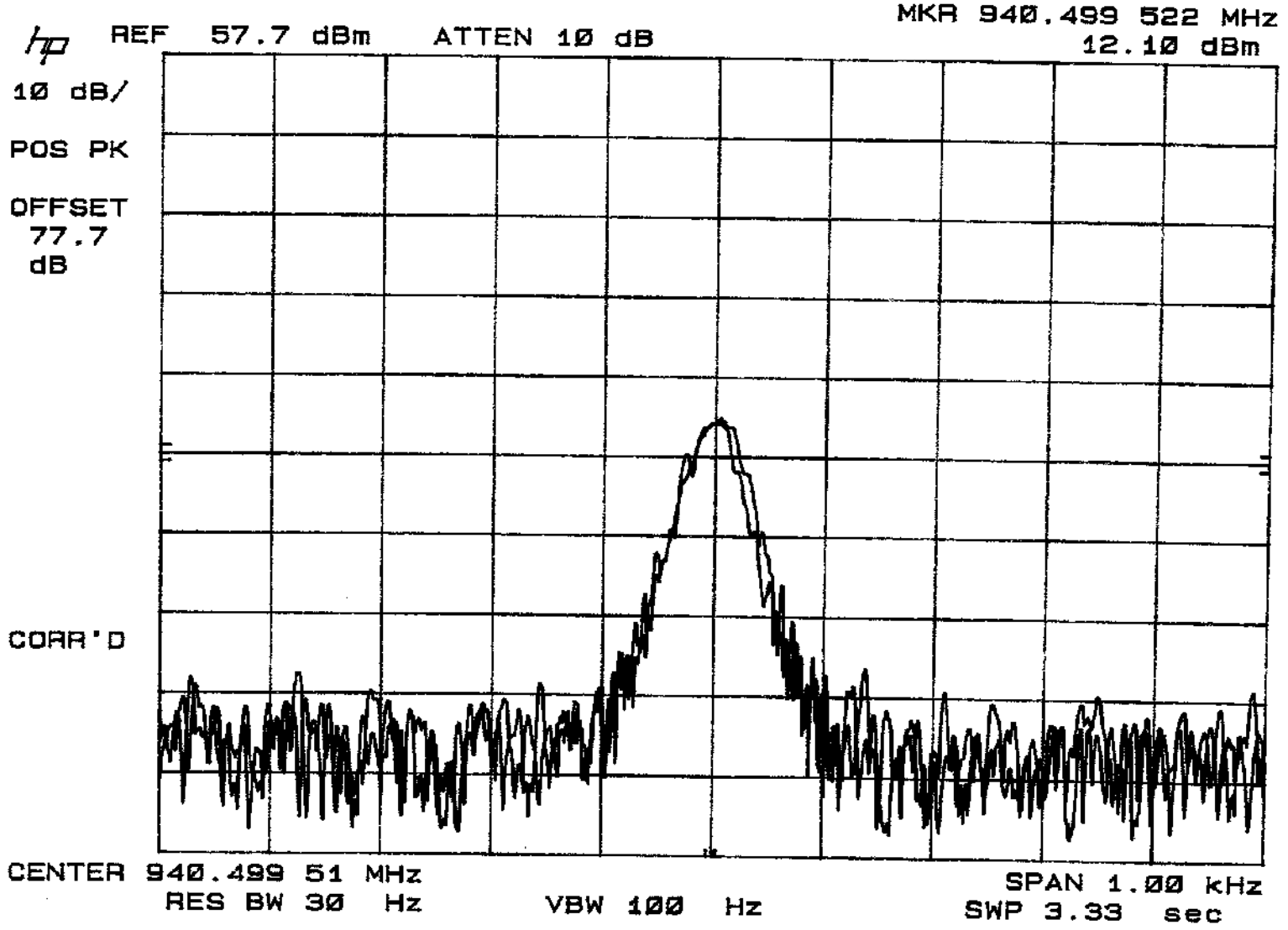

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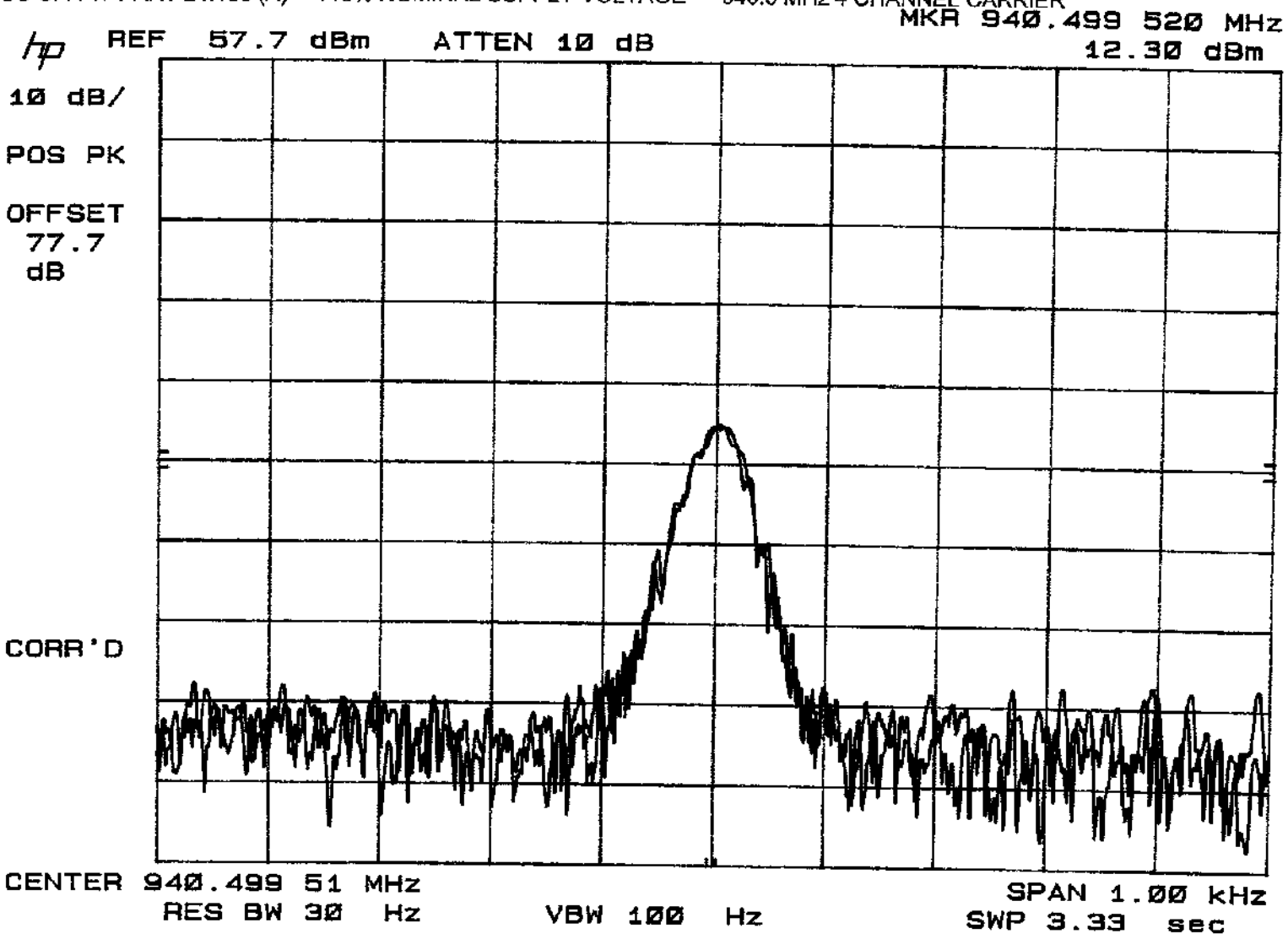

ATTESTATION STATEMENT

GENERAL REMARKS:

SUMMARY:

All tests were performed per *FCC Part 2, Paragraphs 2.1046; 2.1049; 2.1051; 2.1053; 2.1055 and Part 24, Paragraphs 24.131; 24.132(c); 24.133(a)(ii); 24.133(1)(ii); 24.135(a).*

■ - Performed

The Equipment Under Test

■ - **Fulfills** the requirements of *FCC Part 2, Paragraphs 2.1046; 2.1049; 2.1051; 2.1053; 2.1055 and Part 24, Paragraphs 24.131; 24.132(c); 24.133(a)(ii); 24.133(1)(ii); 24.135(a).*

- TÜV PRODUCT SERVICE, INC. -

Responsible Engineer:

Alan Laudani
(EMC Engineer)

TÜV PRODUCT SERVICE 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone 858 546 3999 FAX 858 546 0364