

Report No. SC303690-03

MEASUREMENT AND TECHNICAL REPORT

SKYPOWER WIRELESS, LTD.
5/F, Po Cheong Commercial Building
29 Prat Avenue, Tsim Sha Tsui
Kowloon, Hong Kong, SAR
CHINA

DATE: 21 August 2003

This Report Concerns:	Original Grant: ☒ X	Class II Change: ☐
Equipment Type:	EZ Talk	
Deferred grant requested per 47 CFR 0.457(d)(1)(ii)?	Yes: ☐ Defer until:	No: ☒ X
Company Name agrees to notify the Commission by:	N/A	
of the intended date of announcement of the product so that the grant can be issued on that date.		
Transition Rules Request per 15.37?	Yes: ☐	*No: ☒ X
<i>(*) FCC Part 15, Paragraphs 15.247(a); (b); (c); and 15.209(a)</i>		
Report Prepared by: TÜV AMERICA, INC. 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone: 858 546 3999 Fax: 858 546 0364		

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1 GENERAL INFORMATION

1.1 Product Description

Eztalk Bluetooth Headset, Model EZ-233

Voltage: 3.7V, 1 phase

Power Cable: Removable, unshielded, 4"

Interface Ports and Cables: SMA; no shielding; coaxial termination; removable

Operating Mode: General, EZTALK1.0 software version

Oscillator Frequency: 24 MHz, Y1

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
Time of Occupancy	15.247(a)(1)(ii)	Pass
Number of Hopping Frequencies	15.247(a)(1)(ii)	Pass
Bandwidth	15.247(a)(ii)	Pass
Carrier Frequency Separation	15.247(a)(1)	Pass
Peak Output Power	15.247(b)(1)	Pass
Bandedge;	15.247(c)	Pass
Conducted Spurious	15.247(c)	Pass
Radiated Emissions	15.209(a); 15.109(a)	Pass

Both, conducted and radiated testing, were performed according to the procedures in FCC/ANSI C63.4 and CSA 108.8 - M1983.

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 exhibit.

2.2 EUT Exercise Software

None

2.3 Special Accessories

None

2.4 Modification

None

2.5 Configuration of Tested System

See Block Diagram exhibit.

3 Time of Occupancy; Number of Hopping Frequencies; Bandwidth; Carrier Frequency Separation; Peak Output Power; Bandedge; Conducted Spurious; and Radiated Emissions 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 exhibit for test setup.

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Test Locations

Canyon #2 (3- and 10-Meter Open Area Test Site), Carroll Canyon, San Diego
 Roof, (Small Open Area Test Site) San Diego
 SR3, Shielded Room, Metal Chamber

Test Equipment Used :

Model #	Property #	Description	Serial #	Cal Due Date
3115	453	Antenna, Double Ridge Guide	9412-4363	12/03
3115	251	Antenna, Double Ridge Guide	2495	11/03
8566B	720	Spectrum Analyzer	211500842	09/03
TUV	719	Preamp, 40 dB	--	NCR
8481A	554	Power Sensor	1926A27807	09/03
436A	775	Power Meter	1918A05312	09/03
3478A	6452	Multimeter	2911A2177	04/04
CBL6111	461	Log Periodic (prescan)	1291	NCR
8566B	744	Spectrum Analyzer	2403A08402	12/03
11970K	--	Preamp	--	NCR
11975A	--	Mixer, 18-26 Gha	--	NCR
LPB25020/A	738	BiLog Antenna	1169	08/04
ESVS30	6723	EMI Receiver	8300350/006	12/03
8900D	--	Peak Power Meter	--	05/04
8411A	--	PP Sensor	--	05/04
VERSA TENN III	6226	Environmental Chamber	--	04/04

Remarks: _____

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:

$$\text{Corrected Meter Reading Limit (CMRL)} = \text{SAR} + \text{AF} + \text{CL} - \text{AG} - \text{DC}$$

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:

$$\text{CMRL} = 29.4 \text{ dBuV} + 9.2 \text{ dB} - 1.4 \text{ dB} - 20 \text{ dB/M} - 0.0 \text{ dB}$$

$$\text{CMRL} = 20.0 \text{ dBuV/M}$$

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

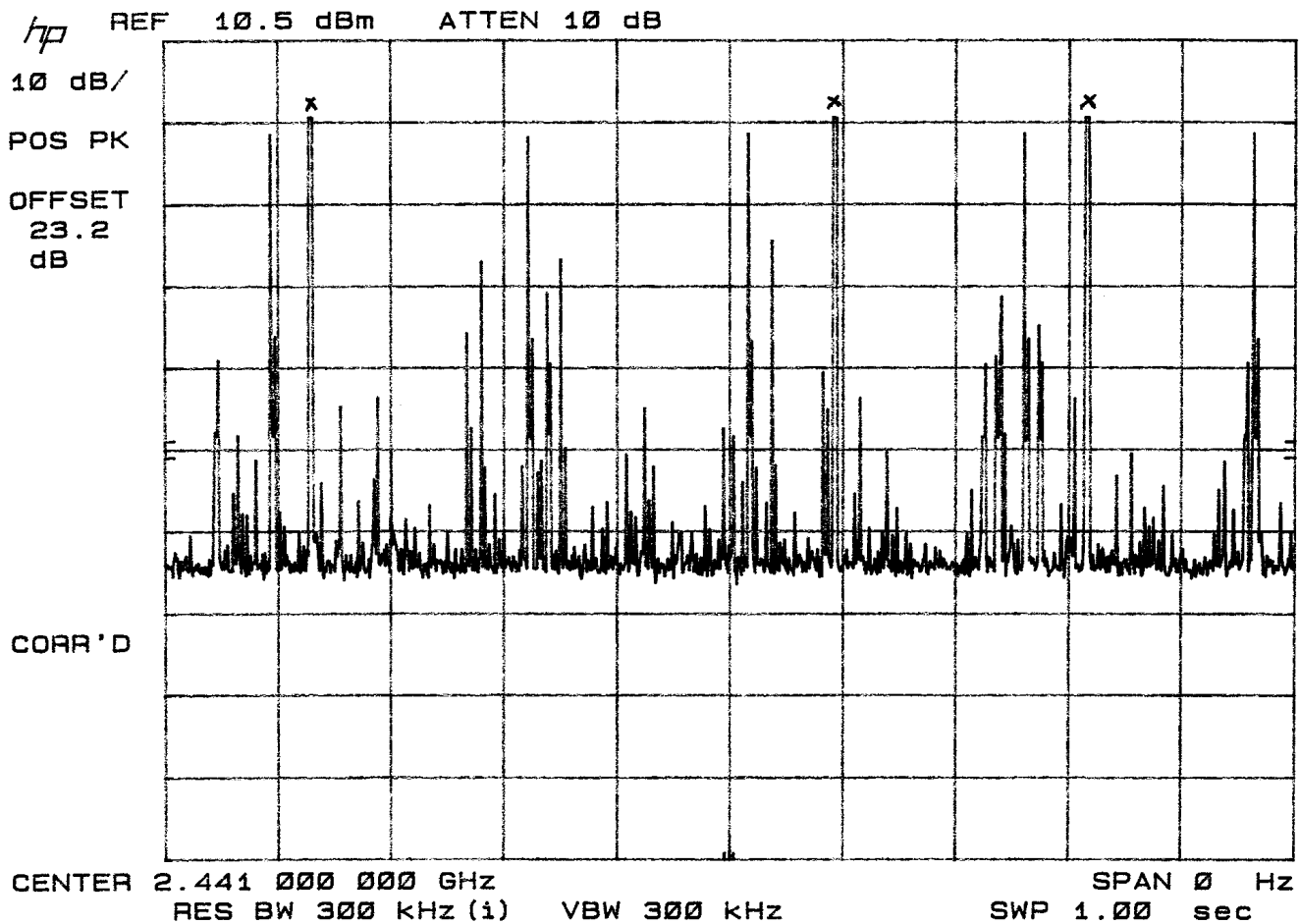
For the manual mode of measurement, a table of corrected meter reading limit was used to permit immediate comparison of the meter reading to determine if the measure emission amplitude exceeded the specification limit at that specific frequency.

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CFR 47 FCC 15.247(a)(1)(ii)

EZ TALK
Time of Occupancy

MADE: DHS $\frac{3}{\text{sec}} \times 30 \text{ sec} \times 3.34 \text{ msec} = 0.3006 \text{ Sec}$
 $< 0.4 \text{ Sec}$

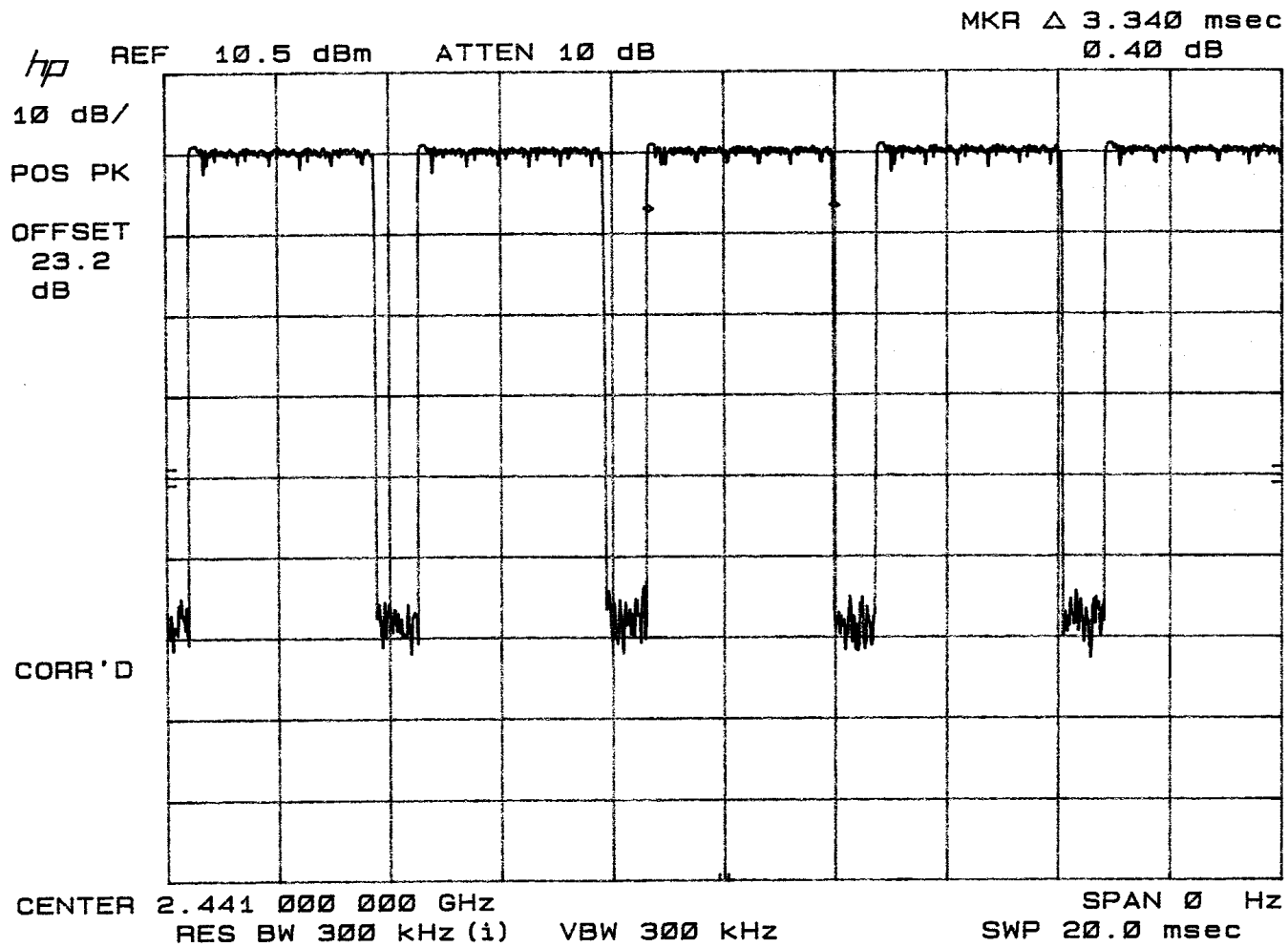
AUG. 11, 2003
TECH/ENGR: AAL
LOCATION: SR3



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EZ TALK
Time of Occupancy
MODE: DHS

AUG. 11, 2003
TECH/ENGR: AAL
LOCATION: SR3

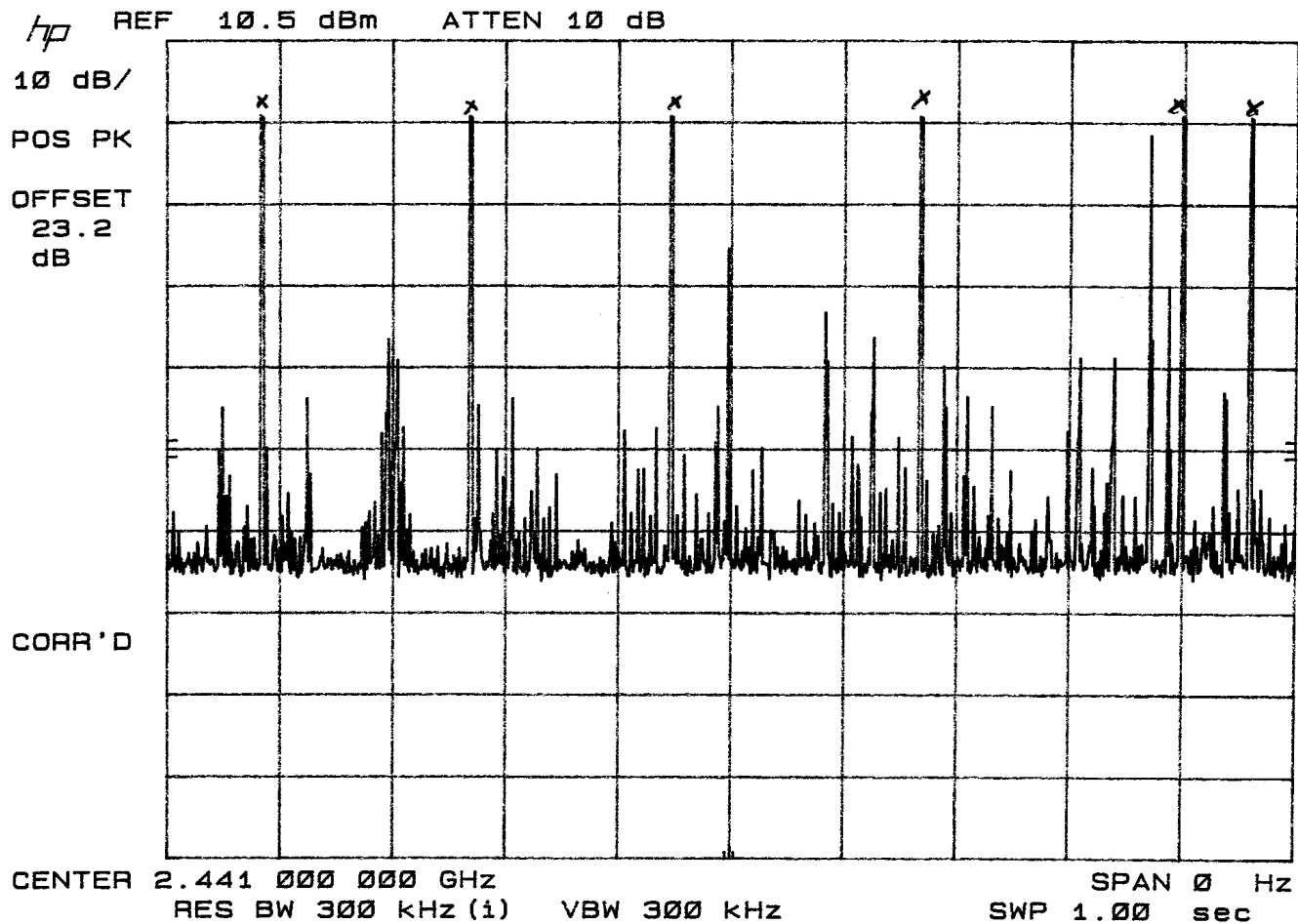


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EZ TALK
Time of Occupancy
MODE: PH3

$$\frac{6}{3 \text{ sec}} \times 1.96 \text{ nsec} \times 30 = 0.353 \text{ sec} < 0.4$$

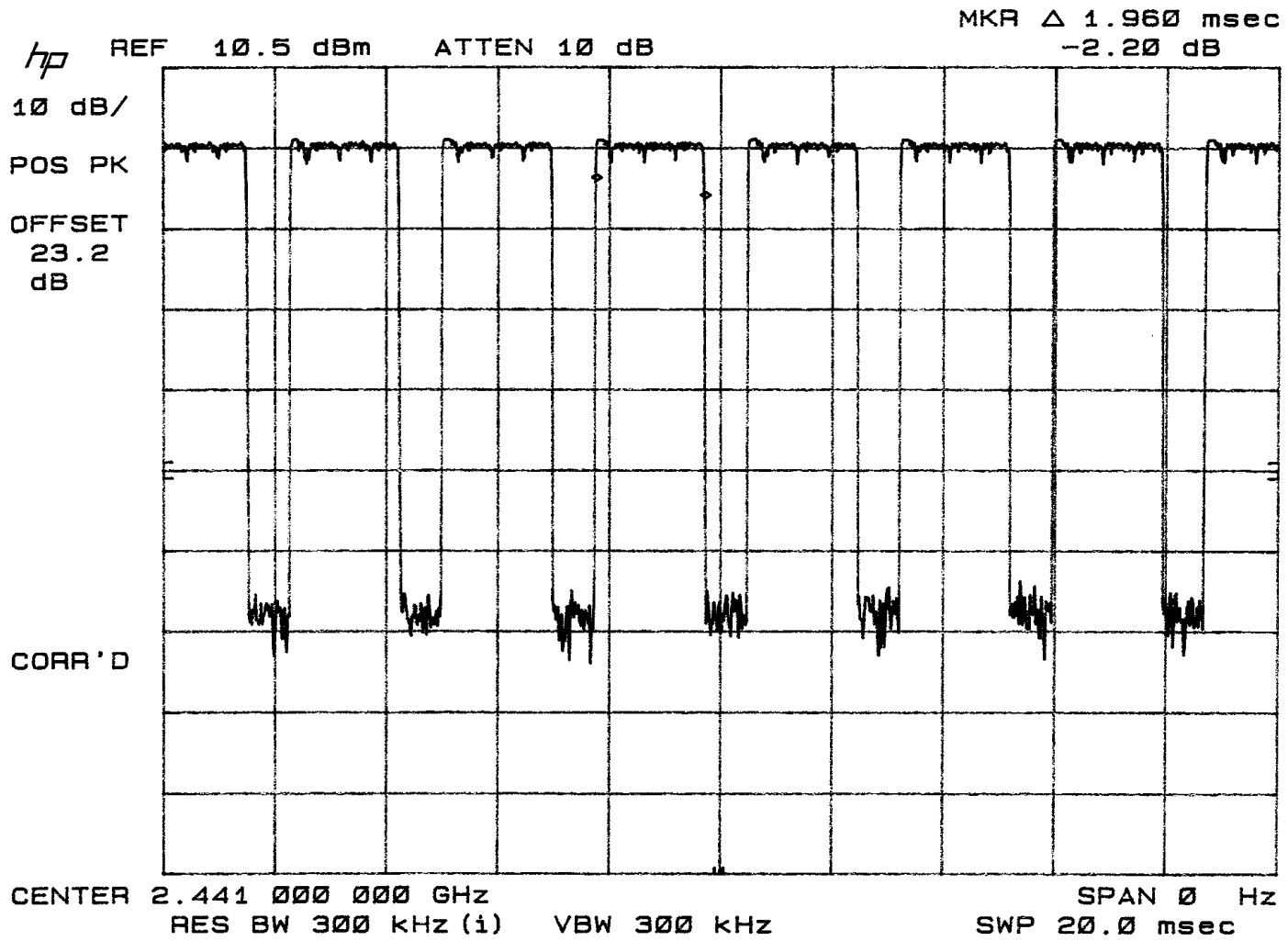
AUG. 11, 2003
TECH/ENGR: AAL
LOCATION: SR3



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EZ TALK
Time of Occupancy
MODE: DH3

AUG. 11, 2003
TECH/ENGR: AAL
LOCATION: SR3

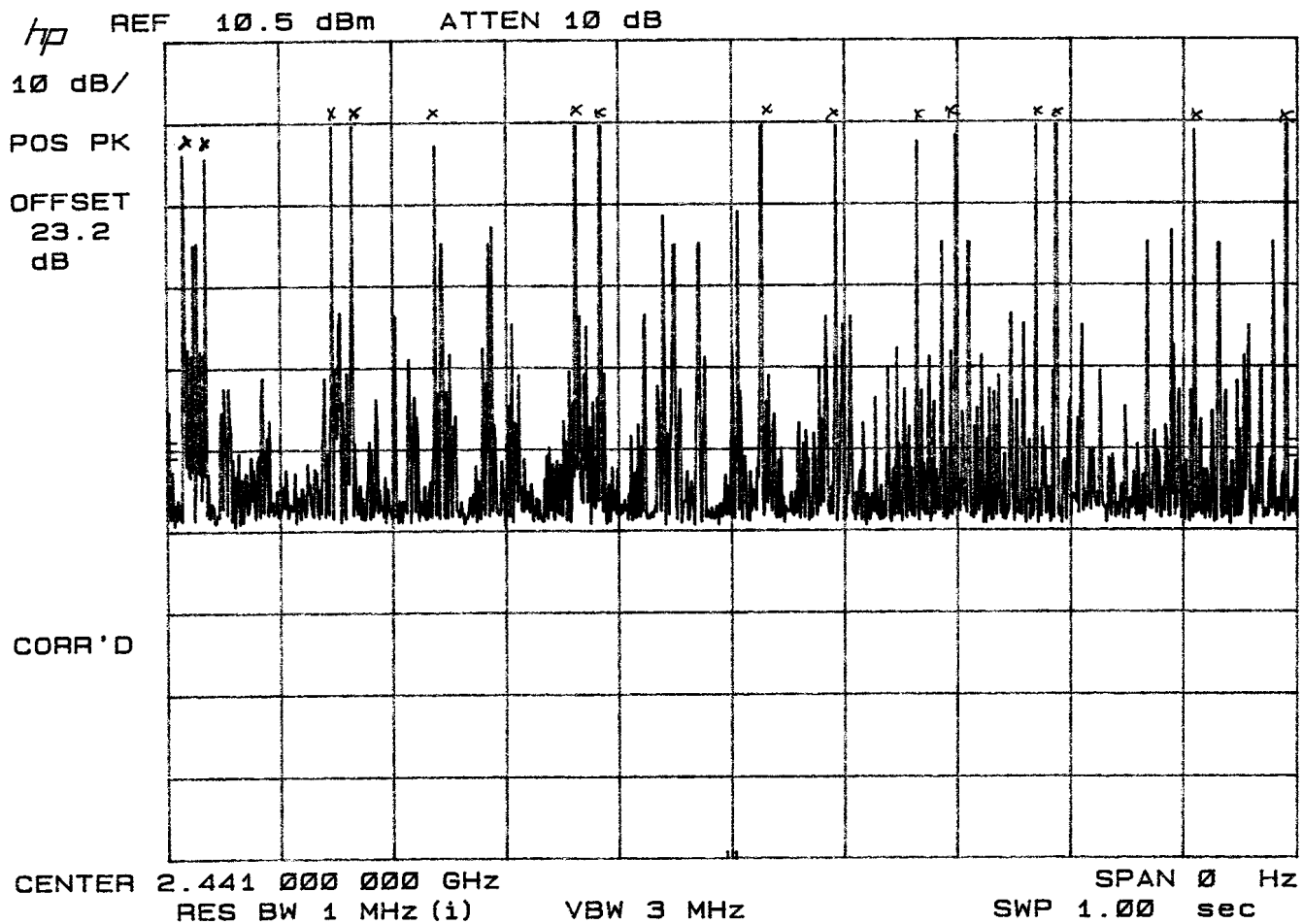


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EZ TALK
Time of Occupancy
MODE : D#1

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TECH/ENGR: AAL
LOCATION: SR3

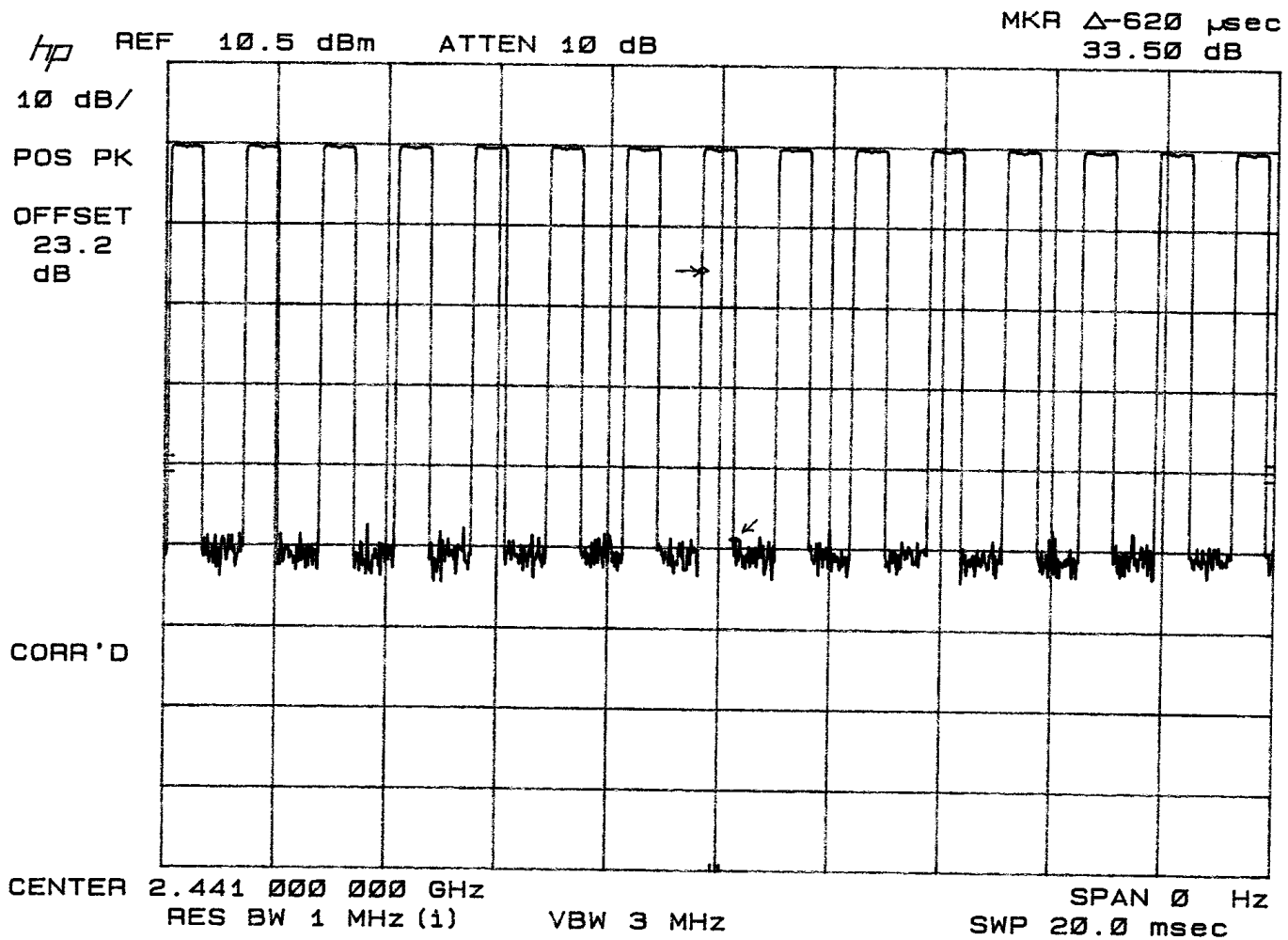
$$\frac{15}{1 \text{ sec}} \times 30 \text{ sec} \times 620 \mu\text{sec} = 0.279 \text{ sec} < 0.4 \text{ sec}$$



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EZ TALK
Time of Occupancy
MODE : DH1

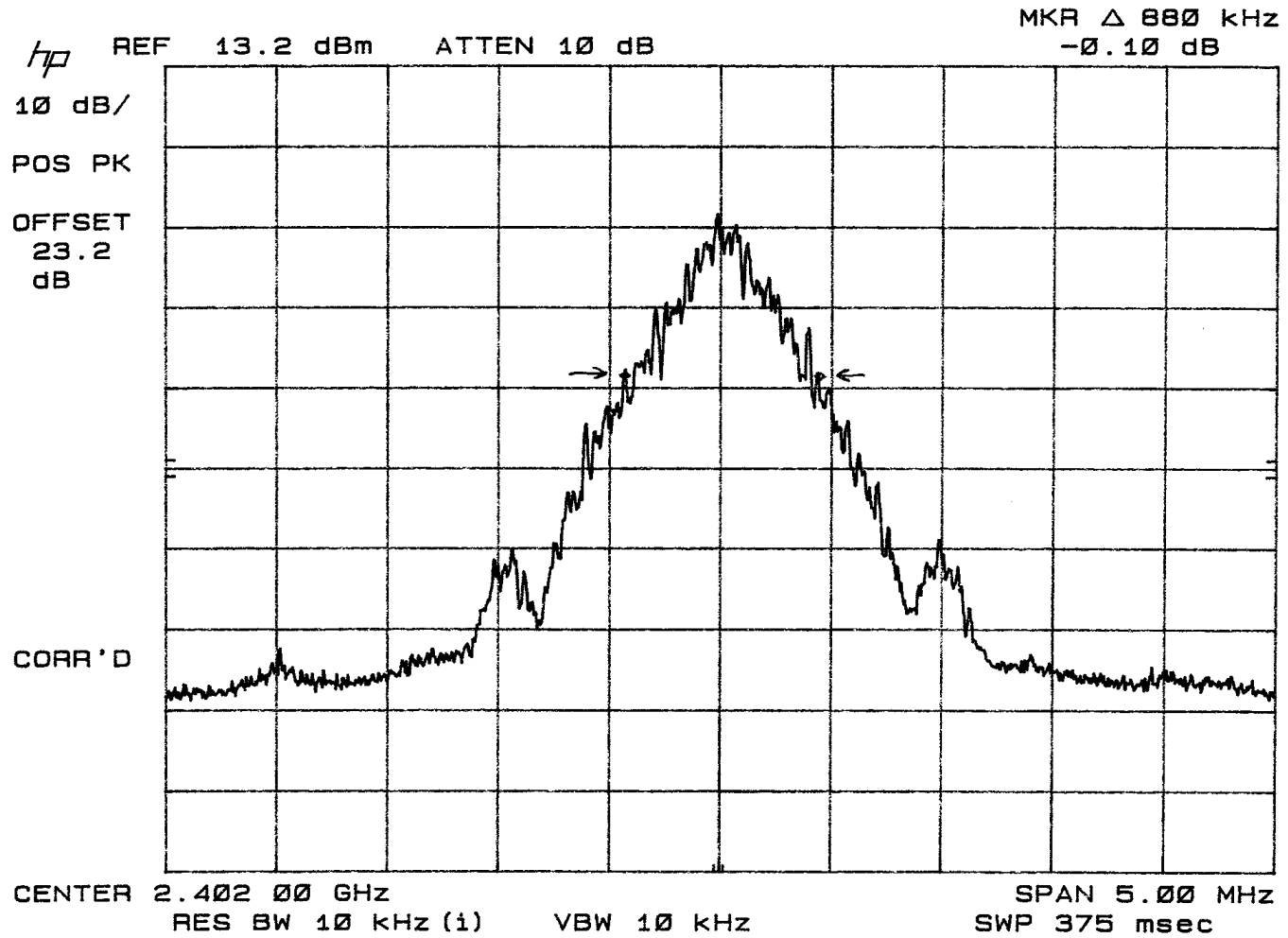
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TECH/ENGR: AAL
LOCATION: SR3



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EZ TALK
-20 dB Bandwidth

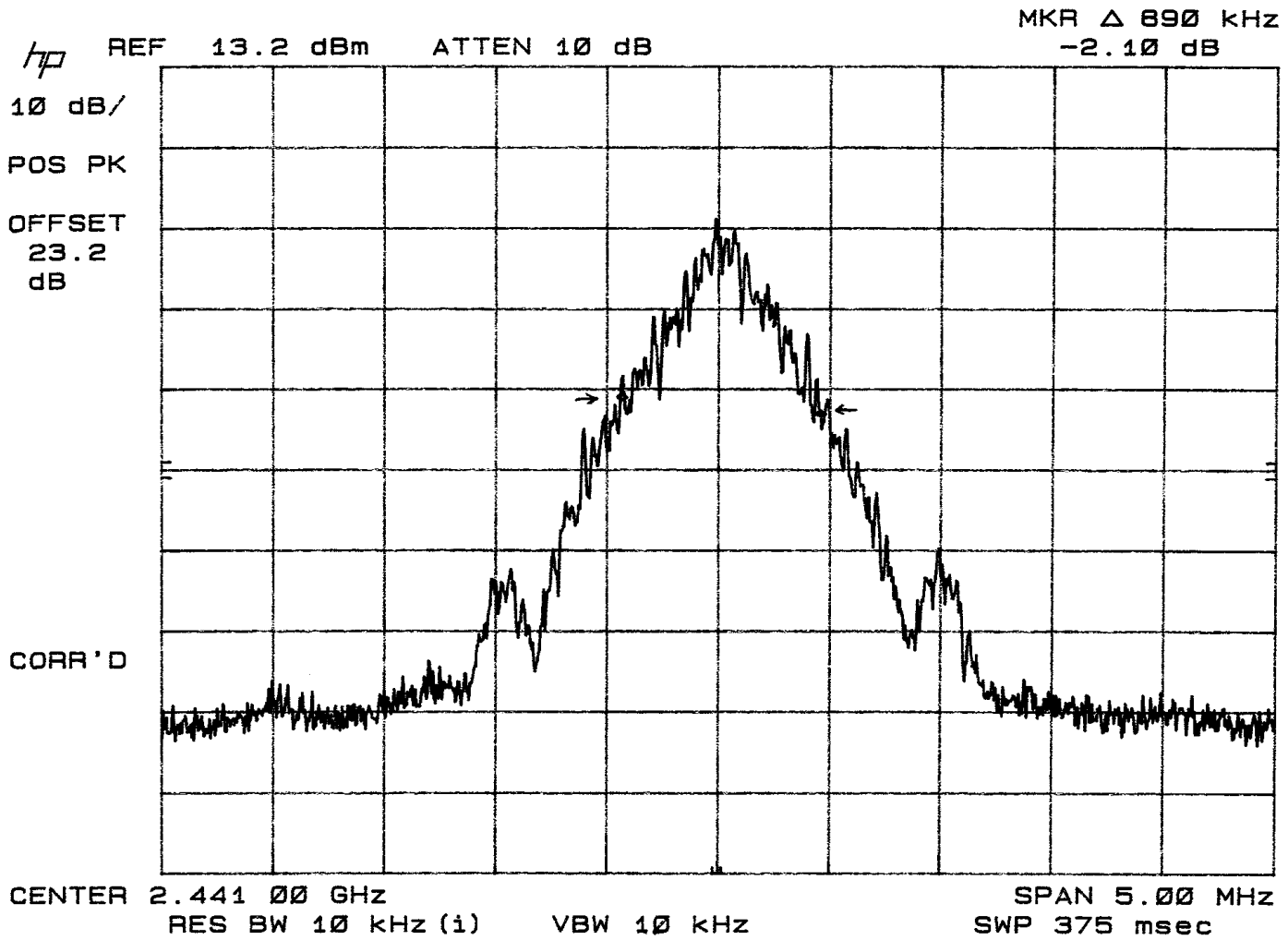
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EZ TALK
-20 dB Bandwidth

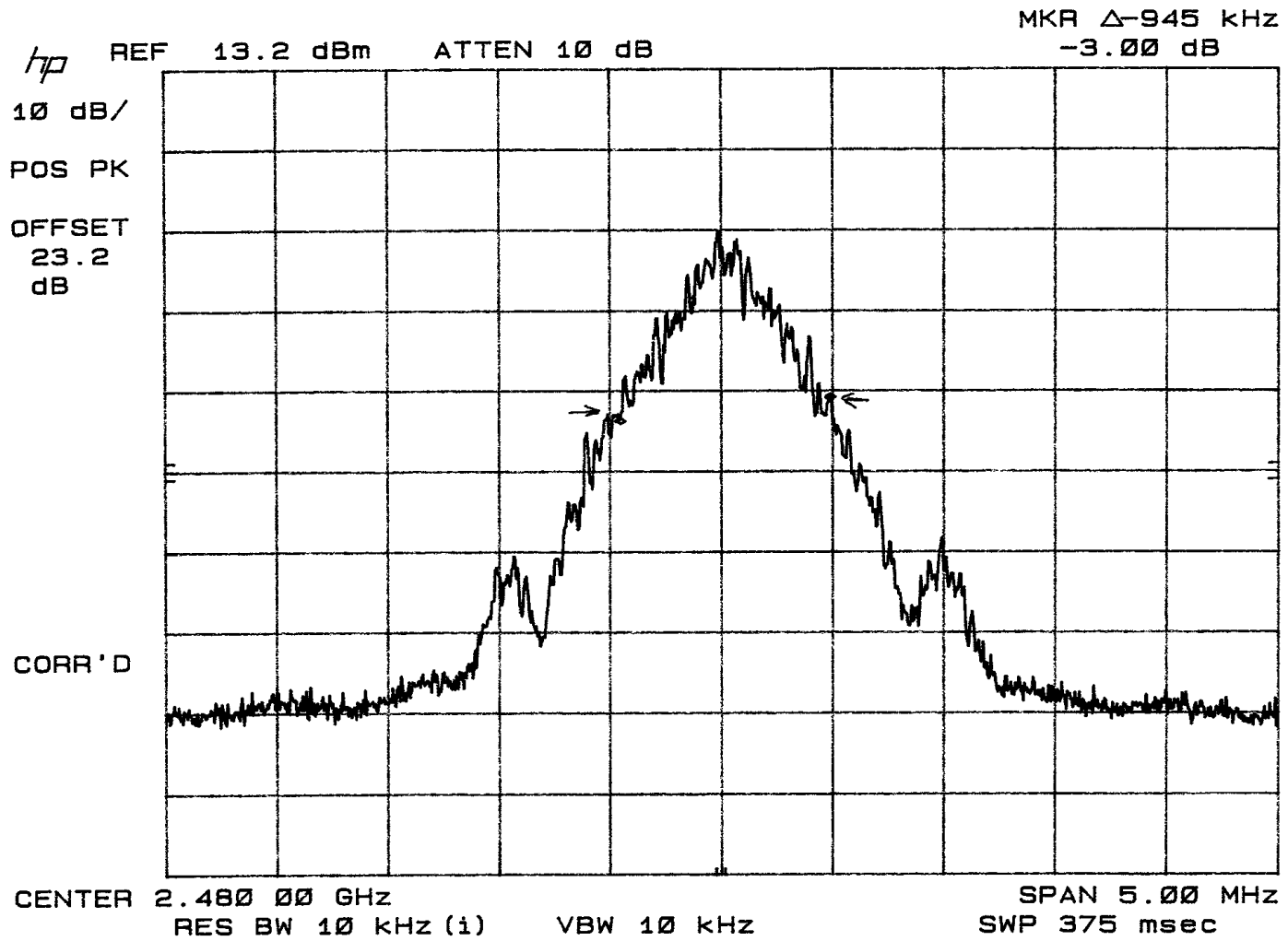
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TECH/ENGR: AAL
LOCATION: SR3



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EZ TALK
-20 dB Bandwidth

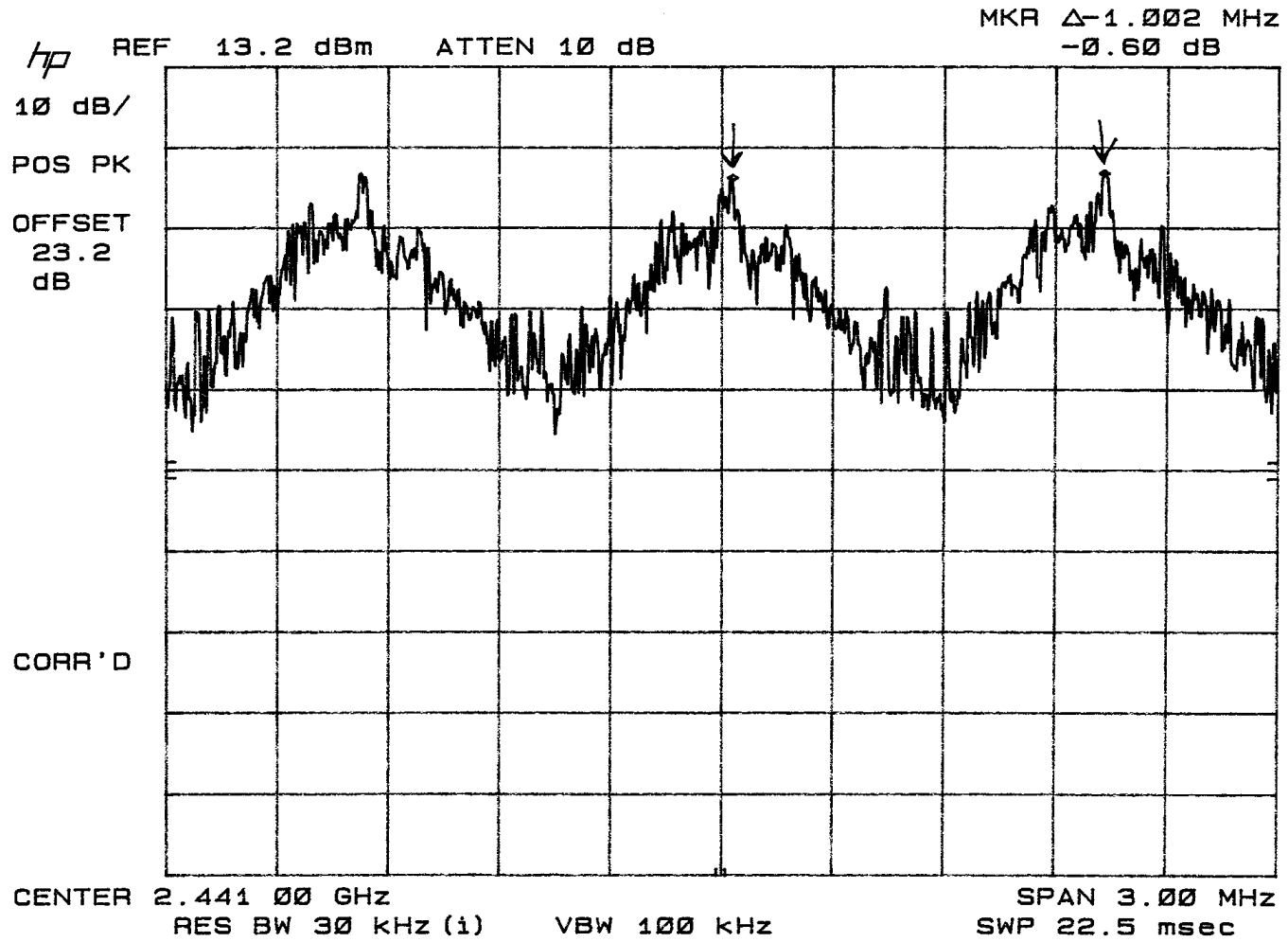
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TECH/ENGR: AAL
LOCATION: SR3



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EZ TALK
Carrier Frequency Separation

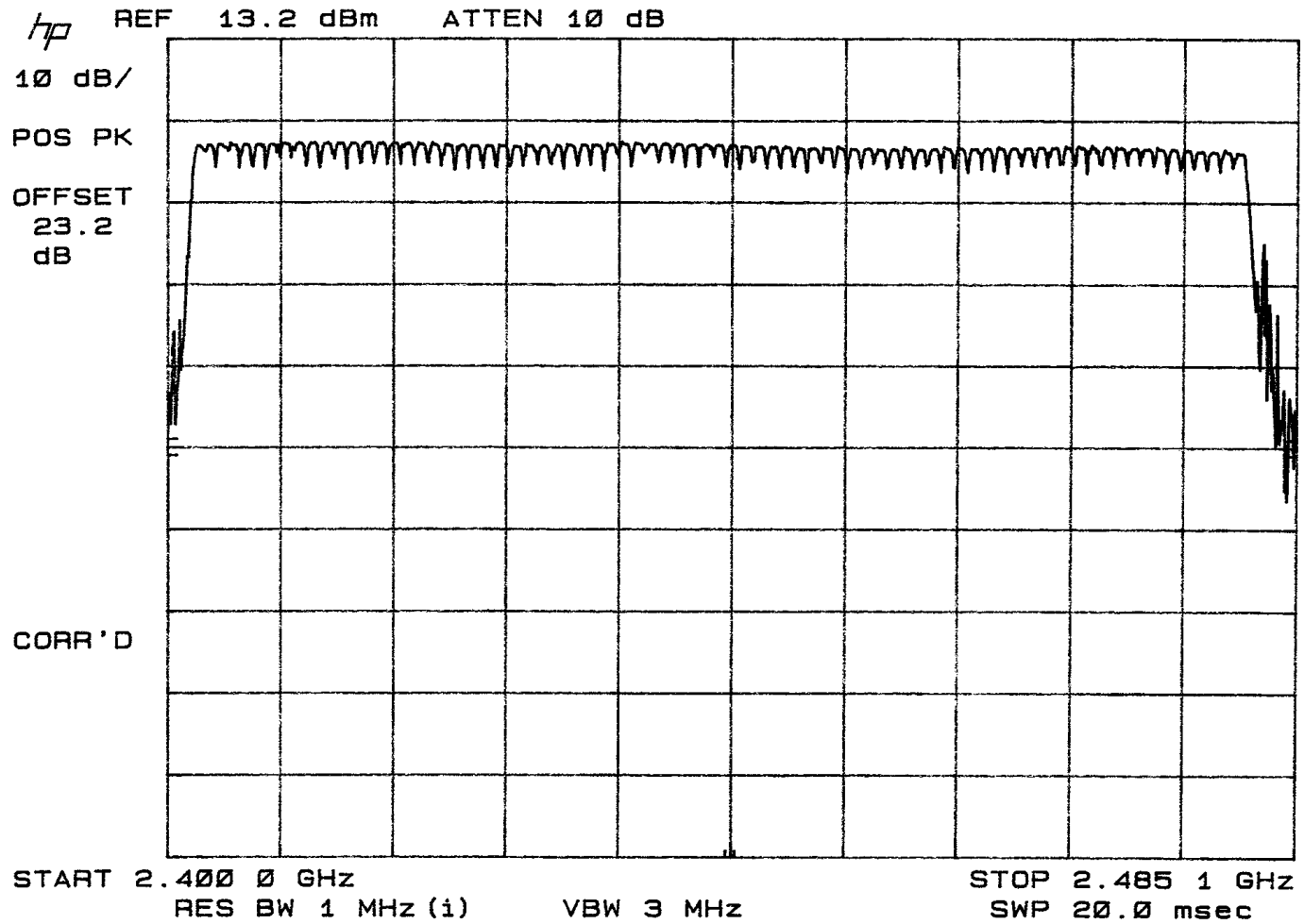
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LOCATION: SR3



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LOCATION: SR3

EZ TALK
Number of Hopping Frequencies
count = 79

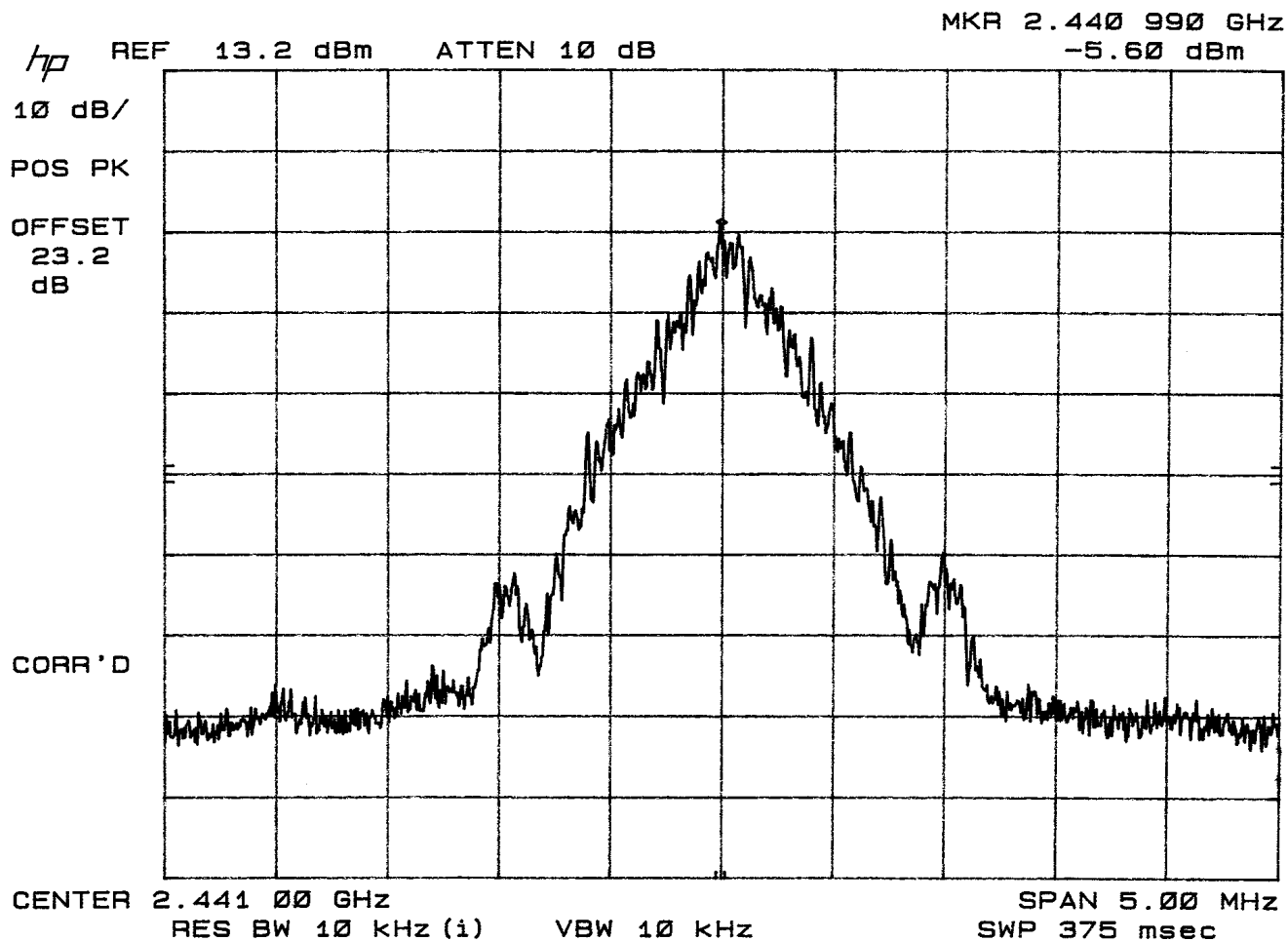
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EZ TALK
Maximum Peak Power < 1 Watt (30 dBm)

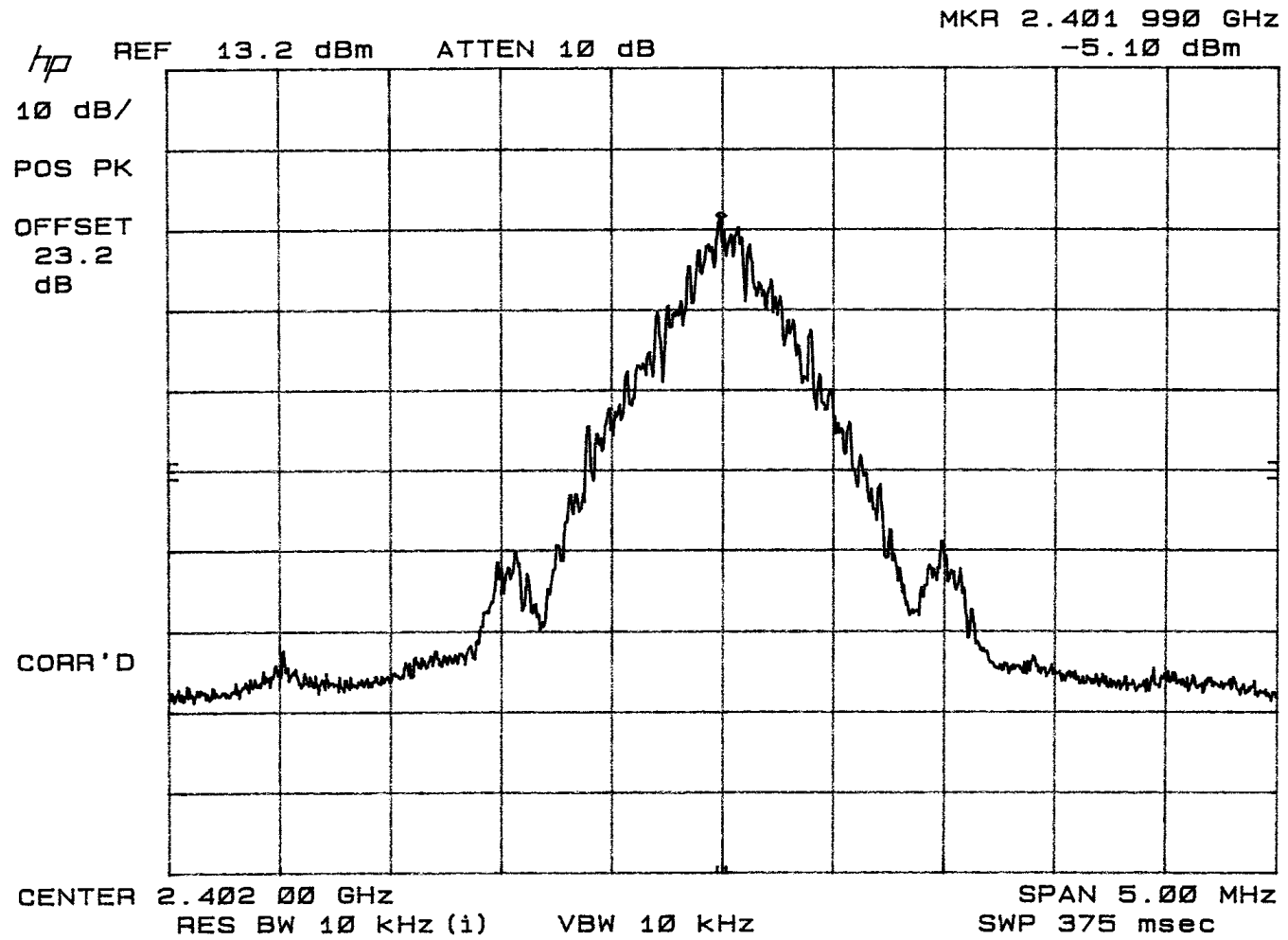
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TECH/ENGR: AAL
LOCATION: SR3



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EZ TALK
Maximum Peak Output Power < 1 Watt (30 dBm)

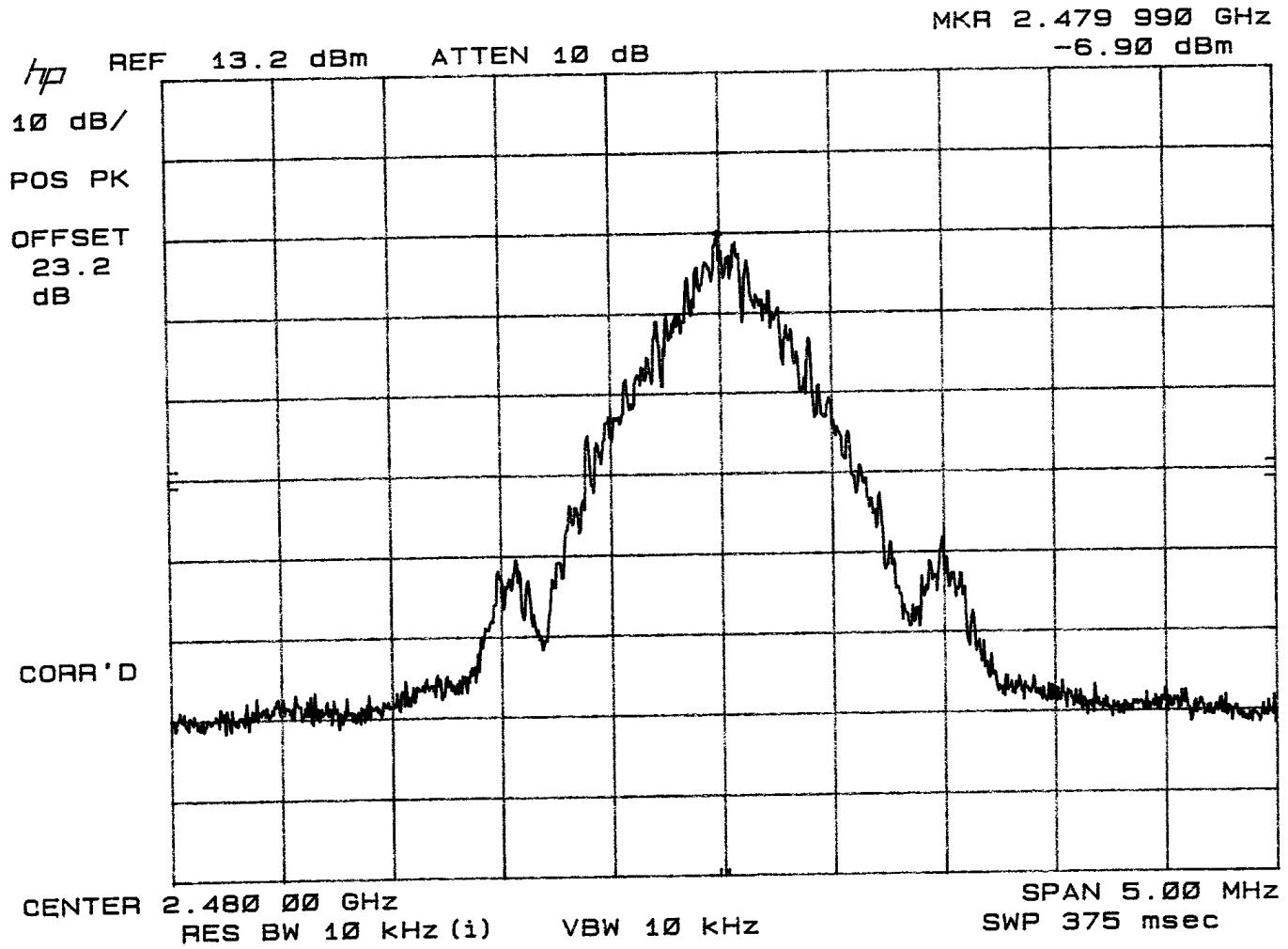
AUG. 11, 2003
TECH/ENGR: AAL
LOCATION: SR3



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EZ TALK
Maximum Peak Power < 1 Watt (30 dBm)

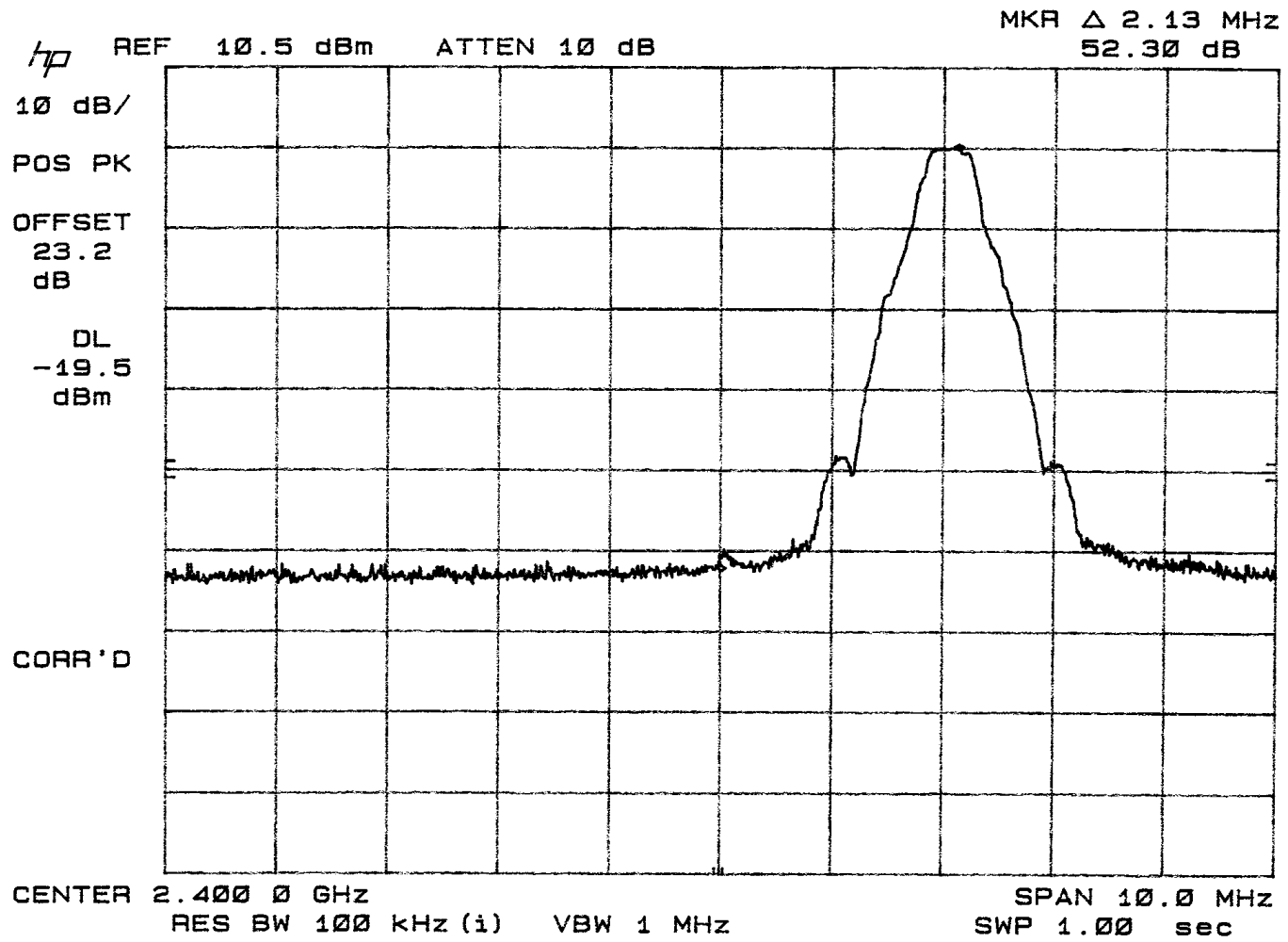
AUG. 11, 2003
TECH/ENGR: AAL
LOCATION: SR3



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EZ TALK
Lower BandEdge - Modulation On, Channel 0

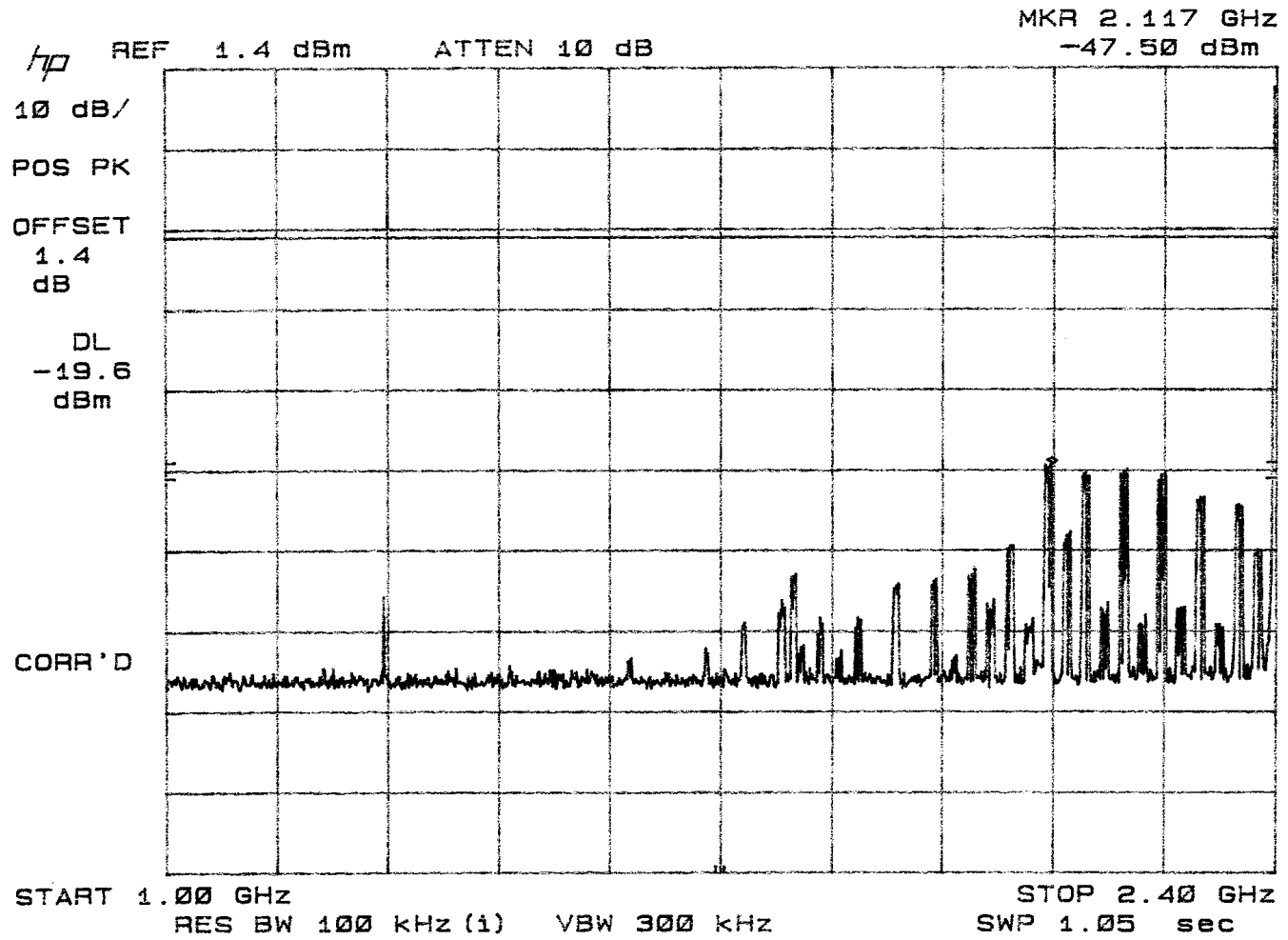
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TECH/ENGR: AAL
LOCATION: SR3



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EZ TALK
Conducted Spurious Modulation On, Channel 0

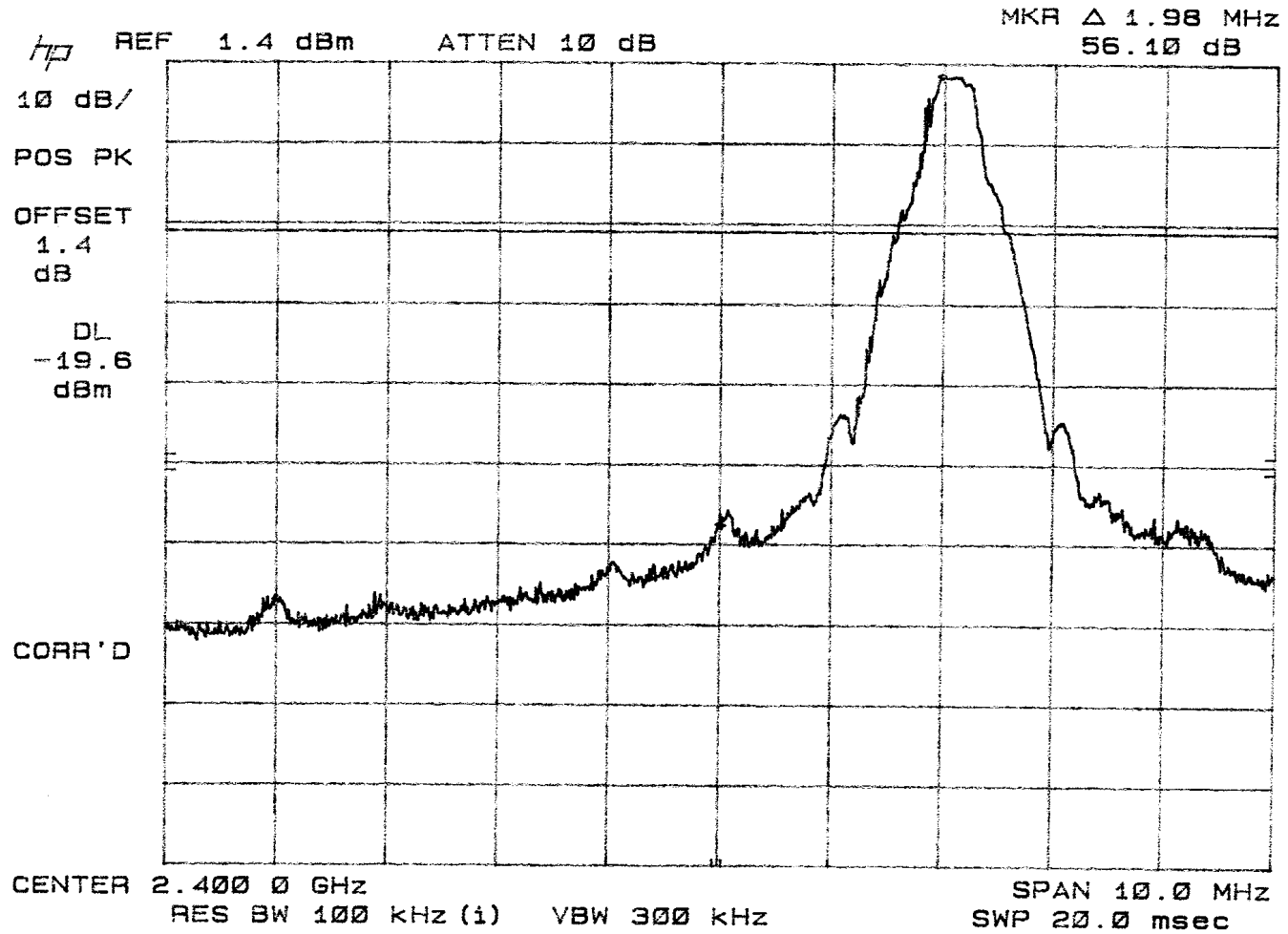
AUG. 11, 2003
TECH/ENGR: AAL
LOCATION: SR3



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EZ TALK
Conducted Spurious Modulation On, Channel 0

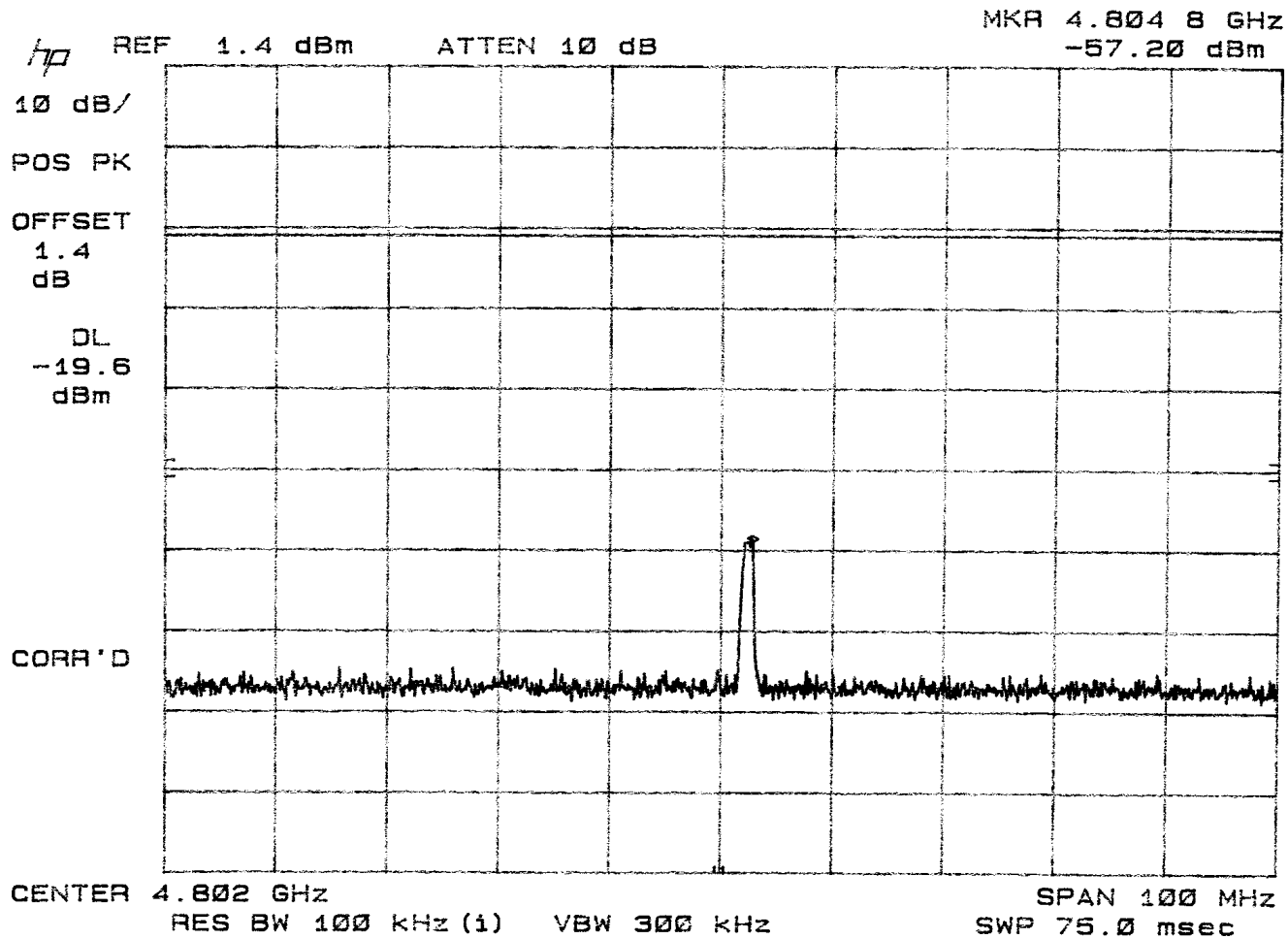
AUG. 11, 2003
TECH/ENGR: AAL
LOCATION: SR3



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EZ TALK
Conducted Spurious Modulation On, Channel 0

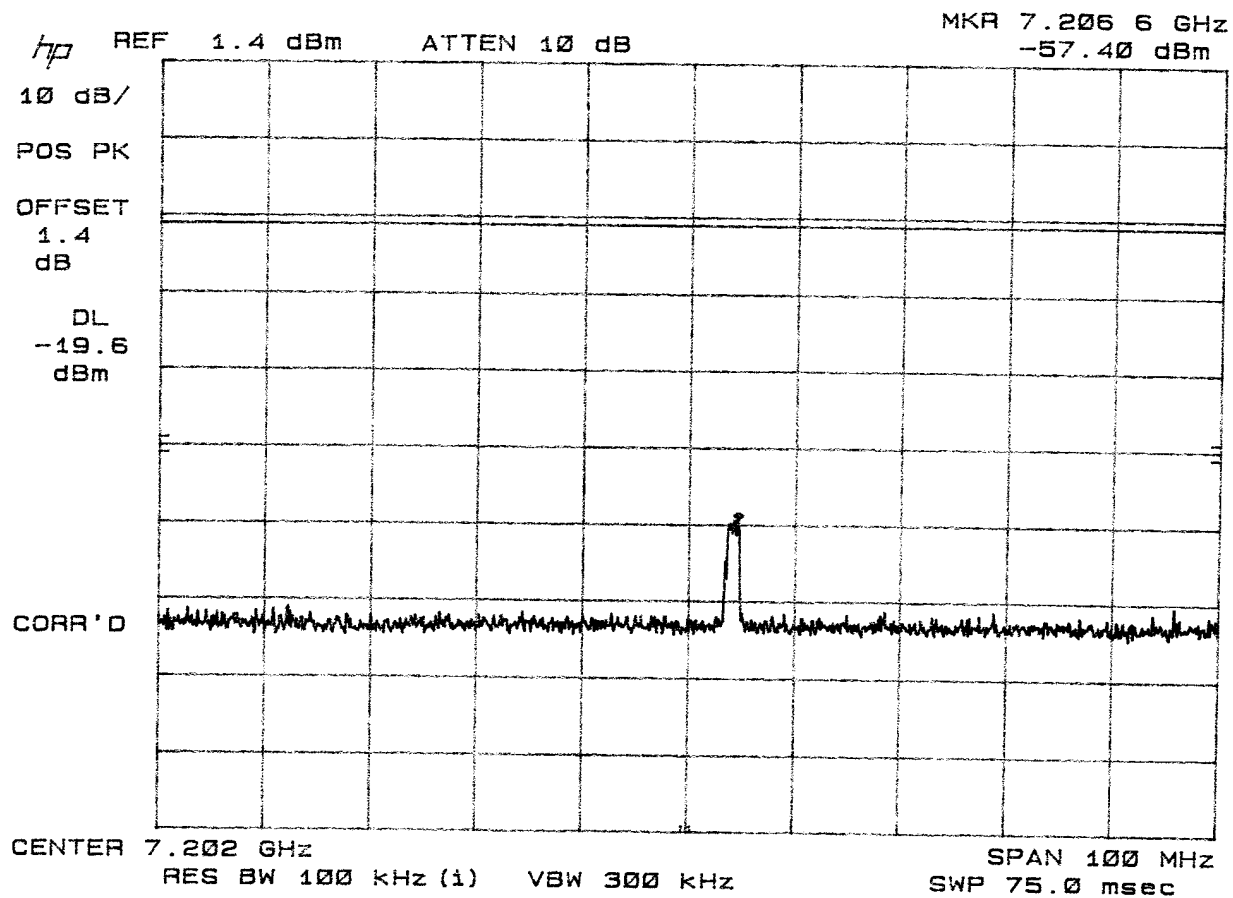
AUG. 11, 2003
TECH/ENGR: AAL
LOCATION: SR3



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EZ TALK
Conducted Spurious Modulation On, Channel 0

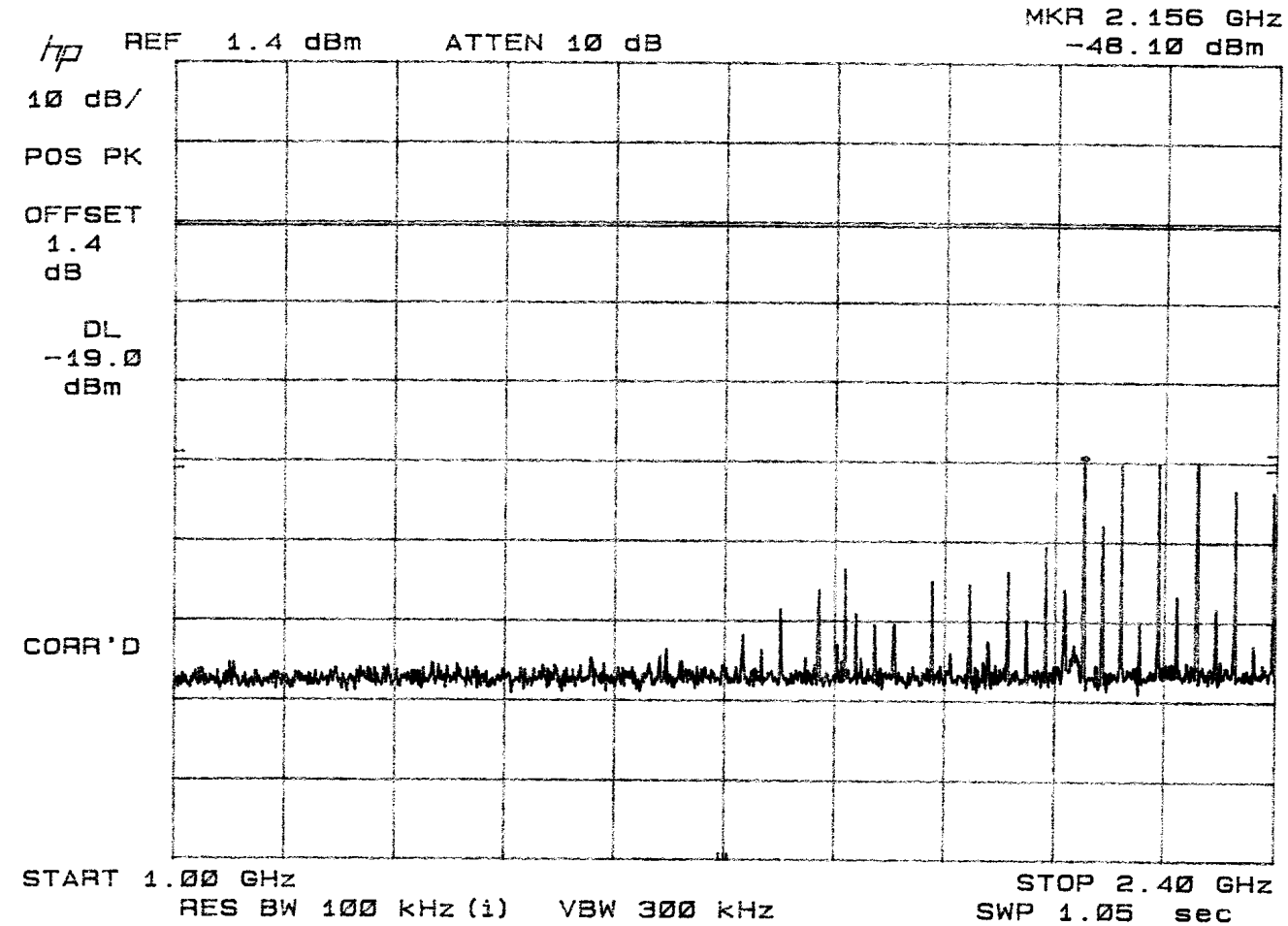
AUG. 11, 2003
TECH/ENGR: AAL
LOCATION: SR3



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EZ TALK
Conducted Spurious Modulation On, Channel 39

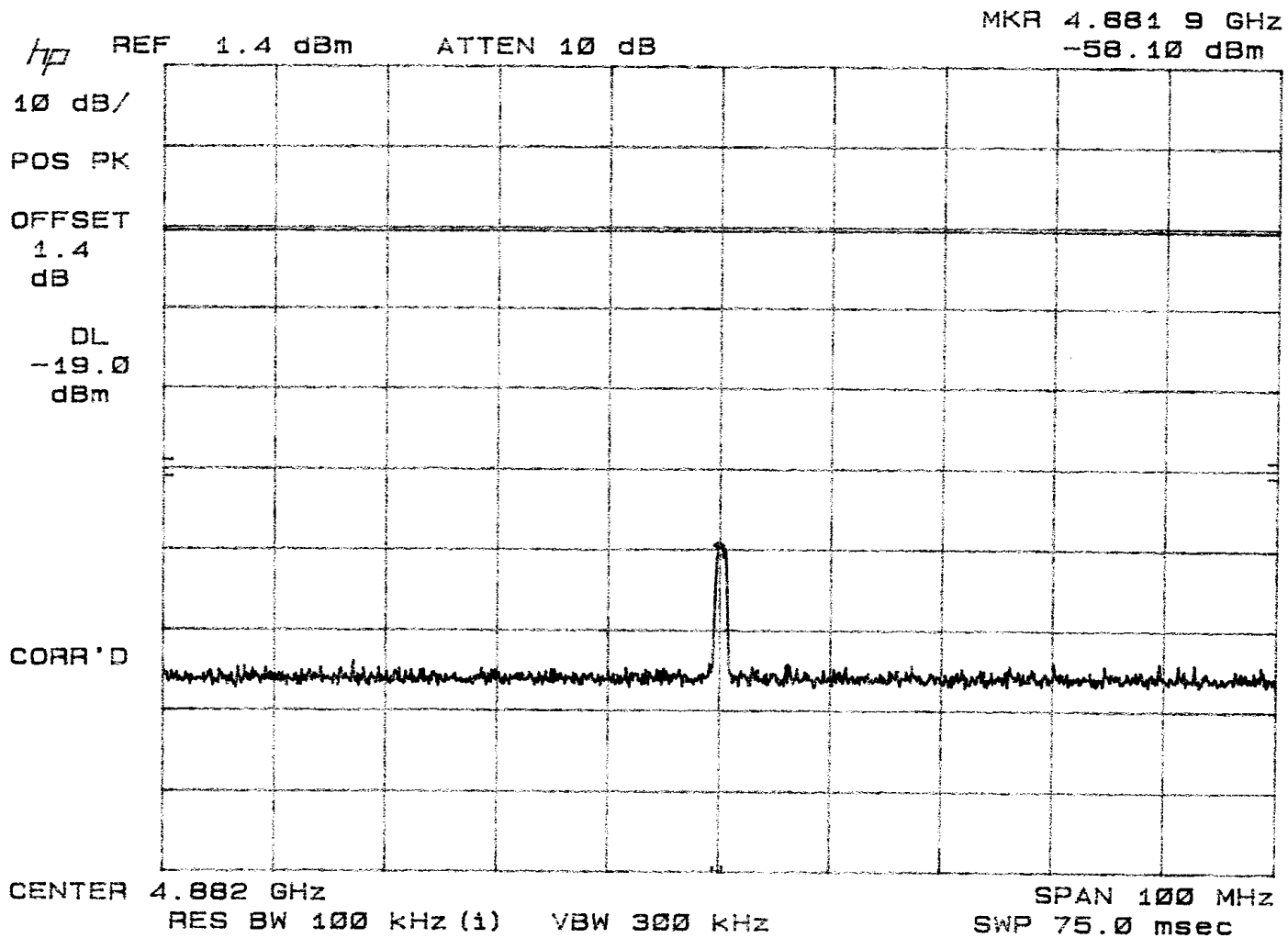
AUG. 11, 2003
TECH/ENGR: AAL
LOCATION: SR3



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EZ TALK
Conducted Spurious Modulation On, Channel 39

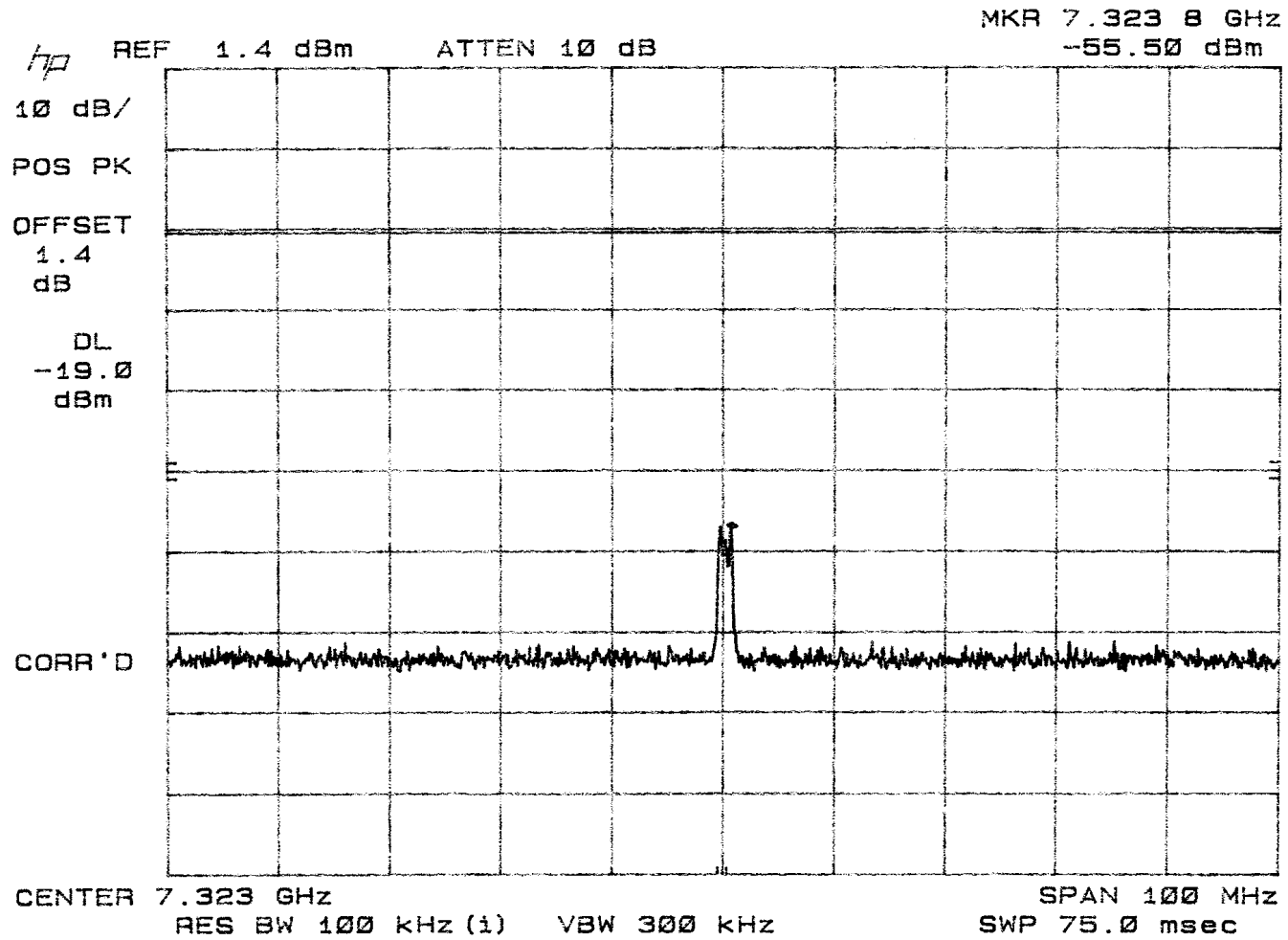
AUG. 11, 2003
TECH/ENGR: AAL
LOCATION: SR3



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EZ TALK
Conducted Spurious Modulation On, Channel 39

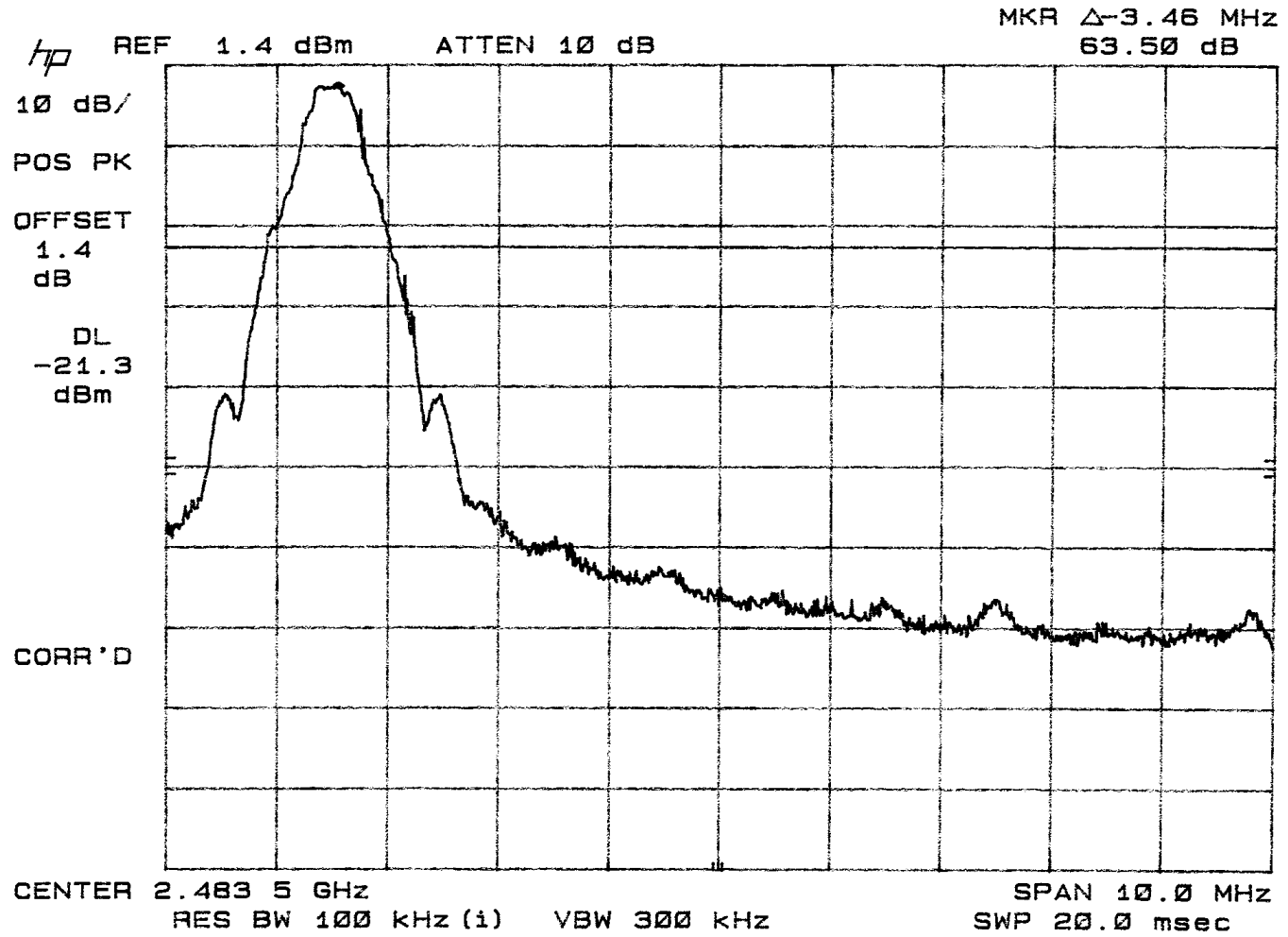
AUG. 11, 2003
TECH/ENGR: AAL
LOCATION: SR3



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EZ TALK
Conducted Spurious Modulation On, Channel 78
BAND EDGE

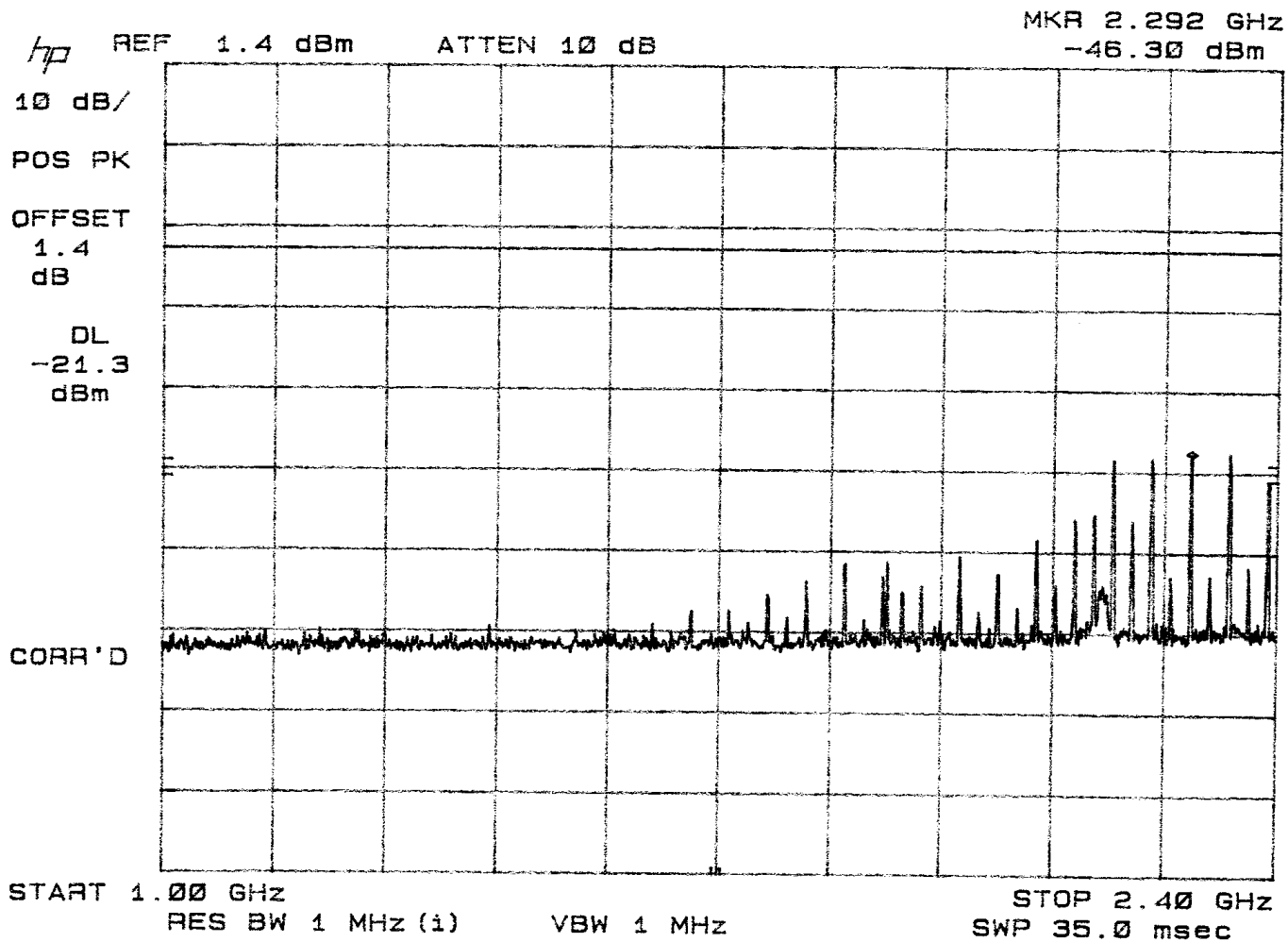
AUG. 11, 2003
TECH/ENGR: AAL
LOCATION: SR3



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EZ TALK
Conducted Spurious Modulation On, Channel 78

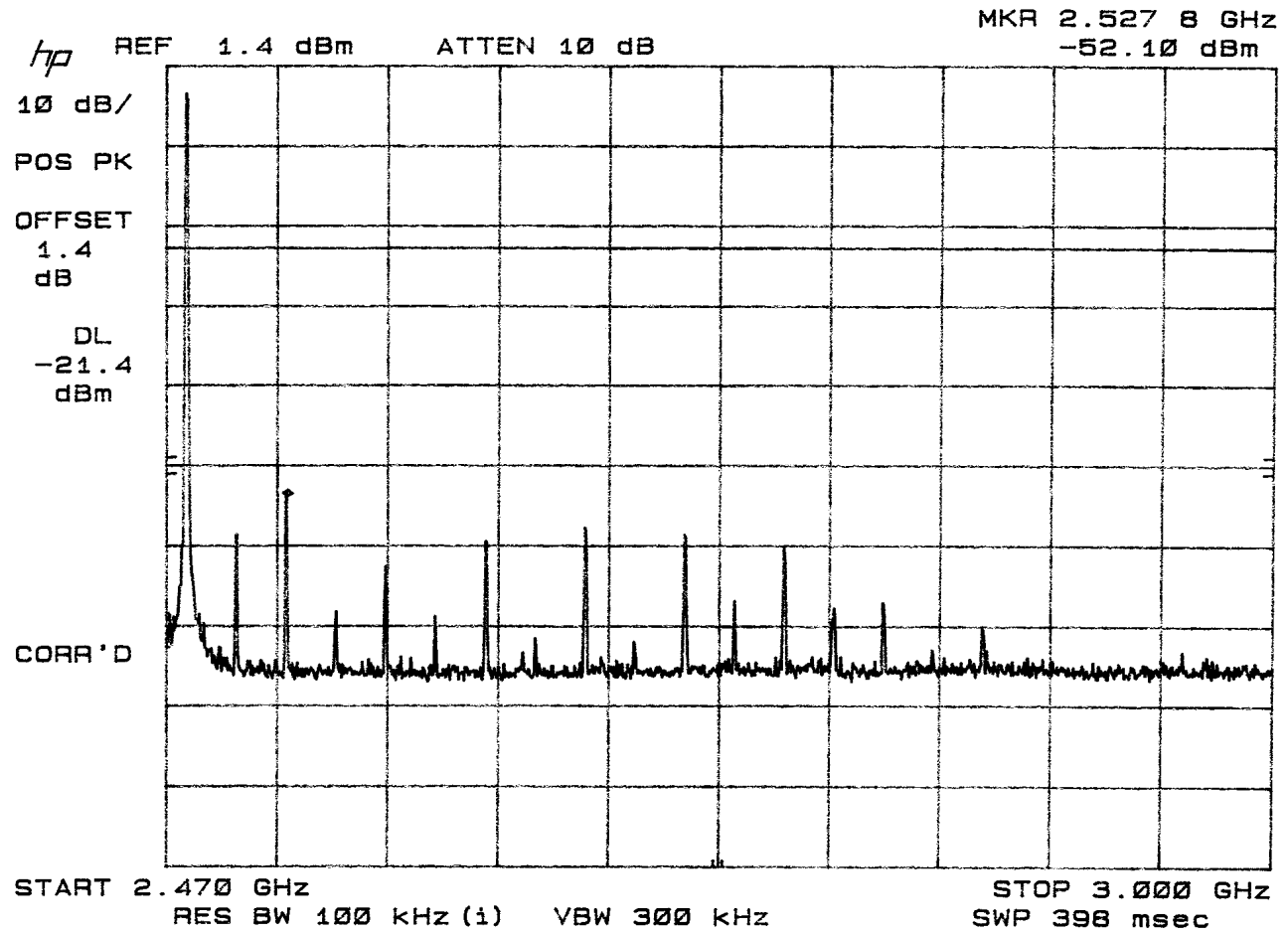
AUG. 12, 2003
TECH/ENGR: AAL
LOCATION: SR3



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EZ TALK
Conducted Spurious Modulation On, Channel 78

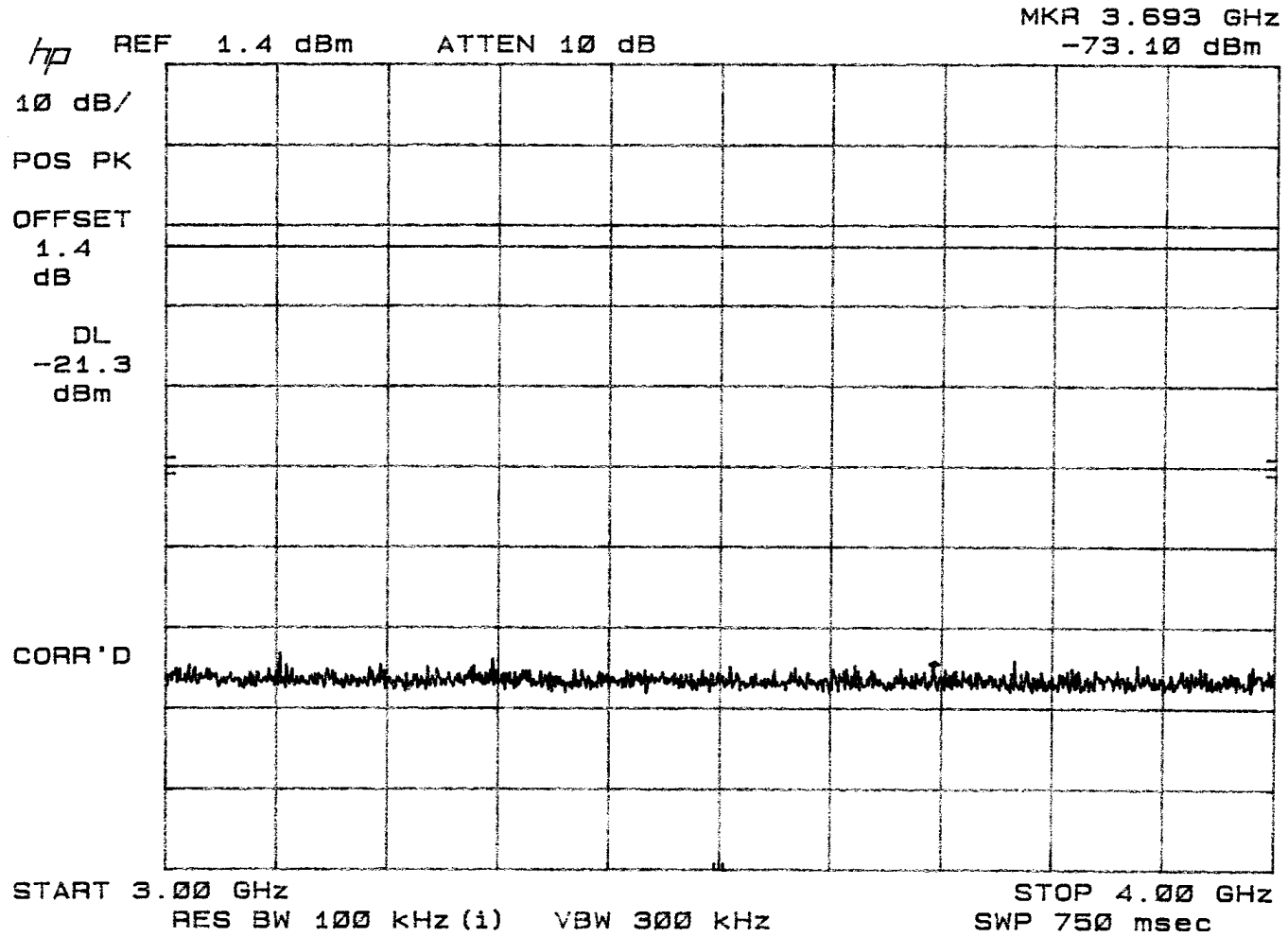
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TECH/ENGR: AAL
LOCATION: SR3



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EZ TALK
Conducted Spurious Modulation On, Channel 78

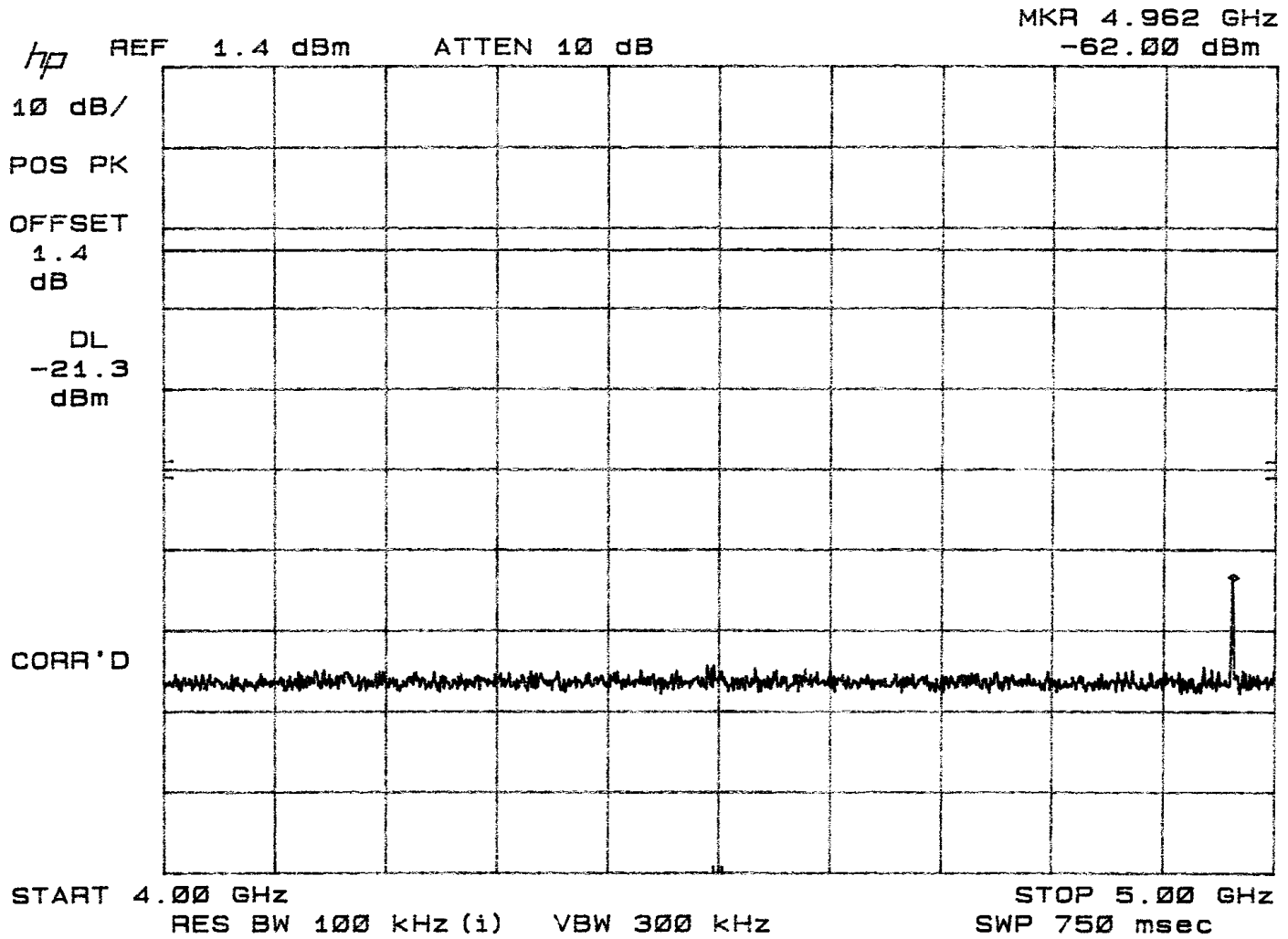
AUG. 11, 2003
TECH/ENGR: AAL
LOCATION: SR3



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EZ TALK
Conducted Spurious Modulation On, Channel 78

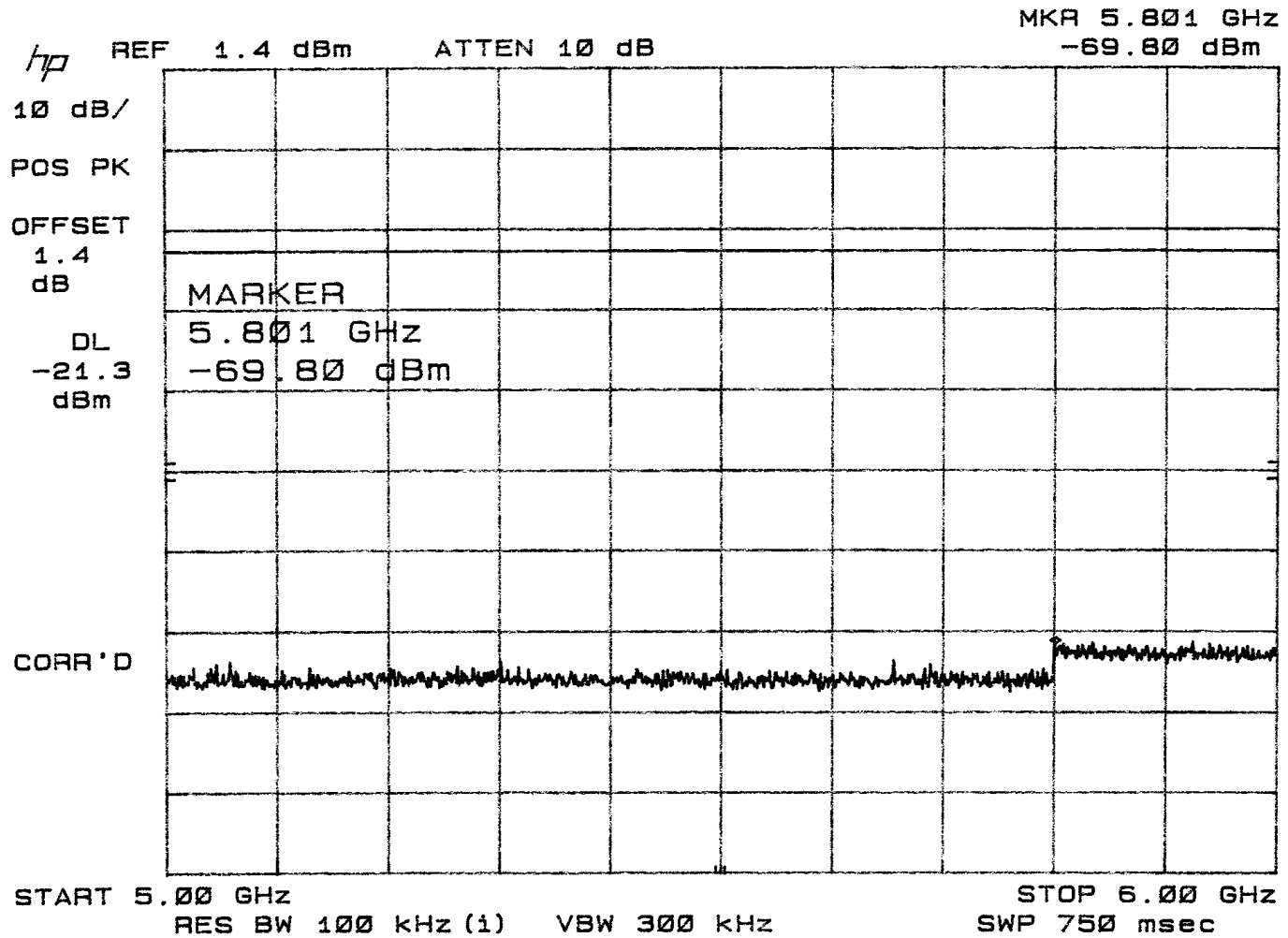
AUG. 11, 2003
TECH/ENGR: AAL
LOCATION: SR3



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EZ TALK
Conducted Spurious Modulation On, Channel 78

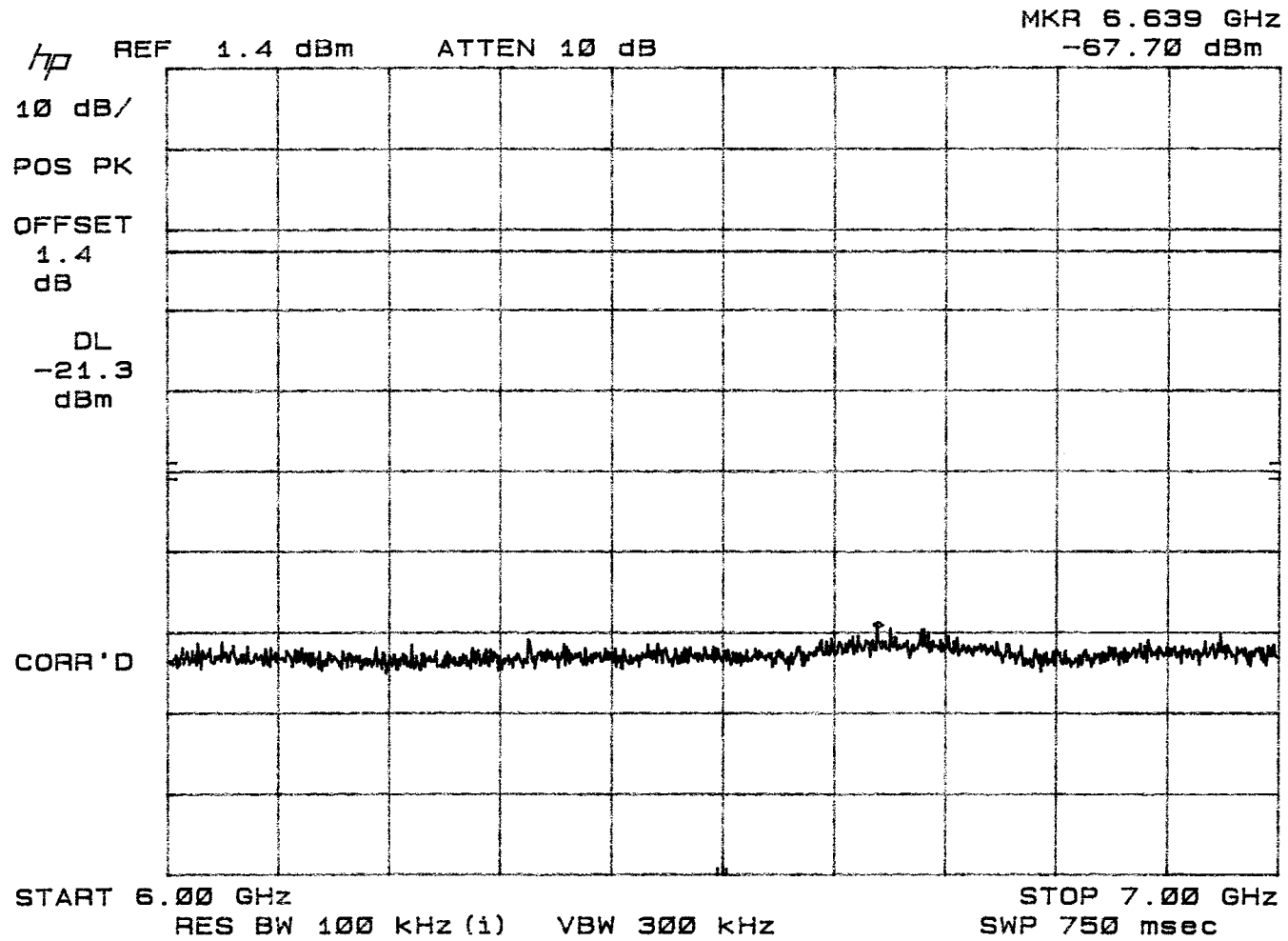
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TECH/ENGR: AAL
LOCATION: SR3



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EZ TALK
Conducted Spurious Modulation On, Channel 78

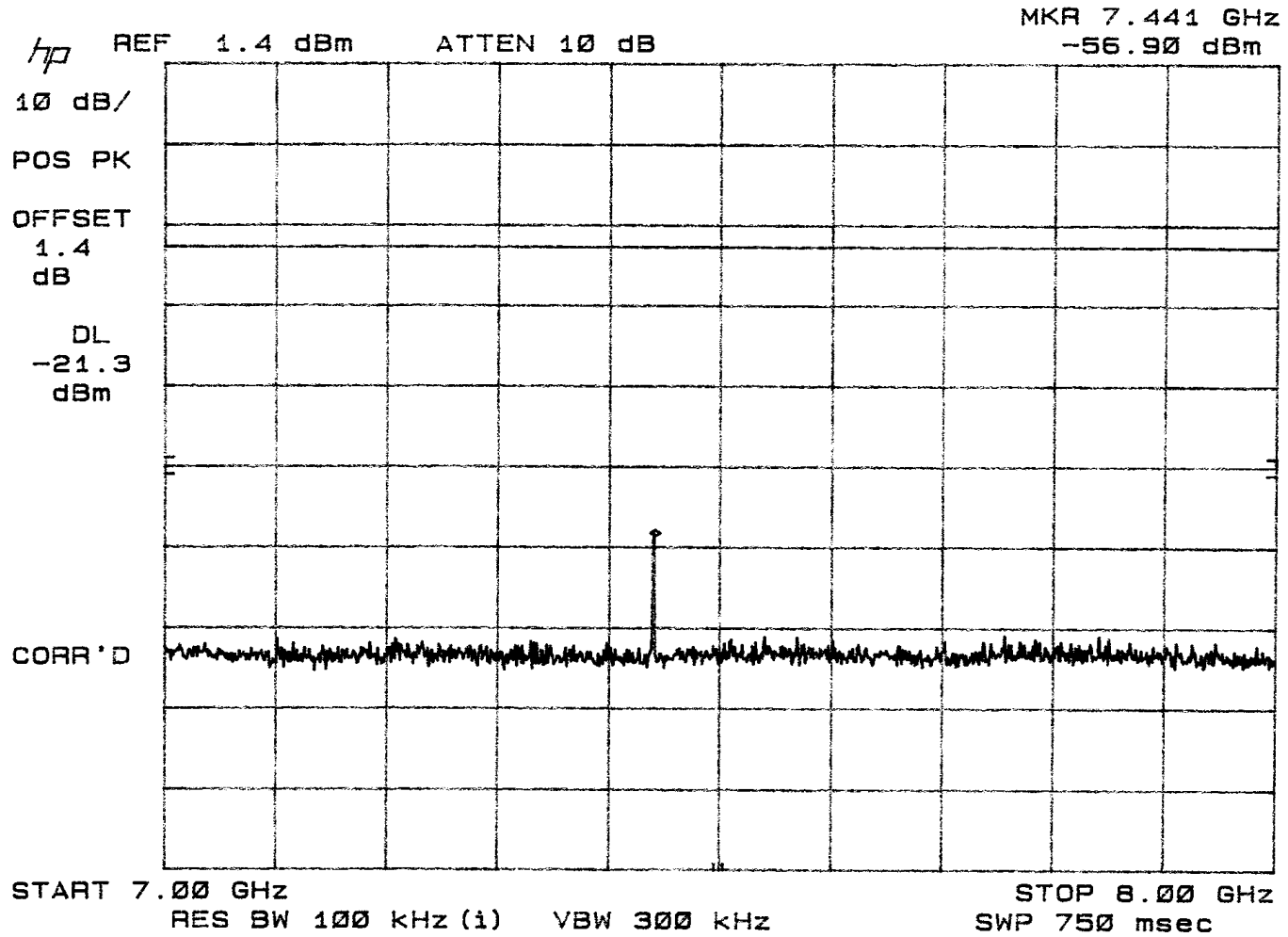
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TECH/ENGR: AAL
LOCATION: SR3



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SKYPOWER.
CFR 47 FCC 15.247(c)

EZ TALK
Conducted Spurious Modulation On, Channel 78

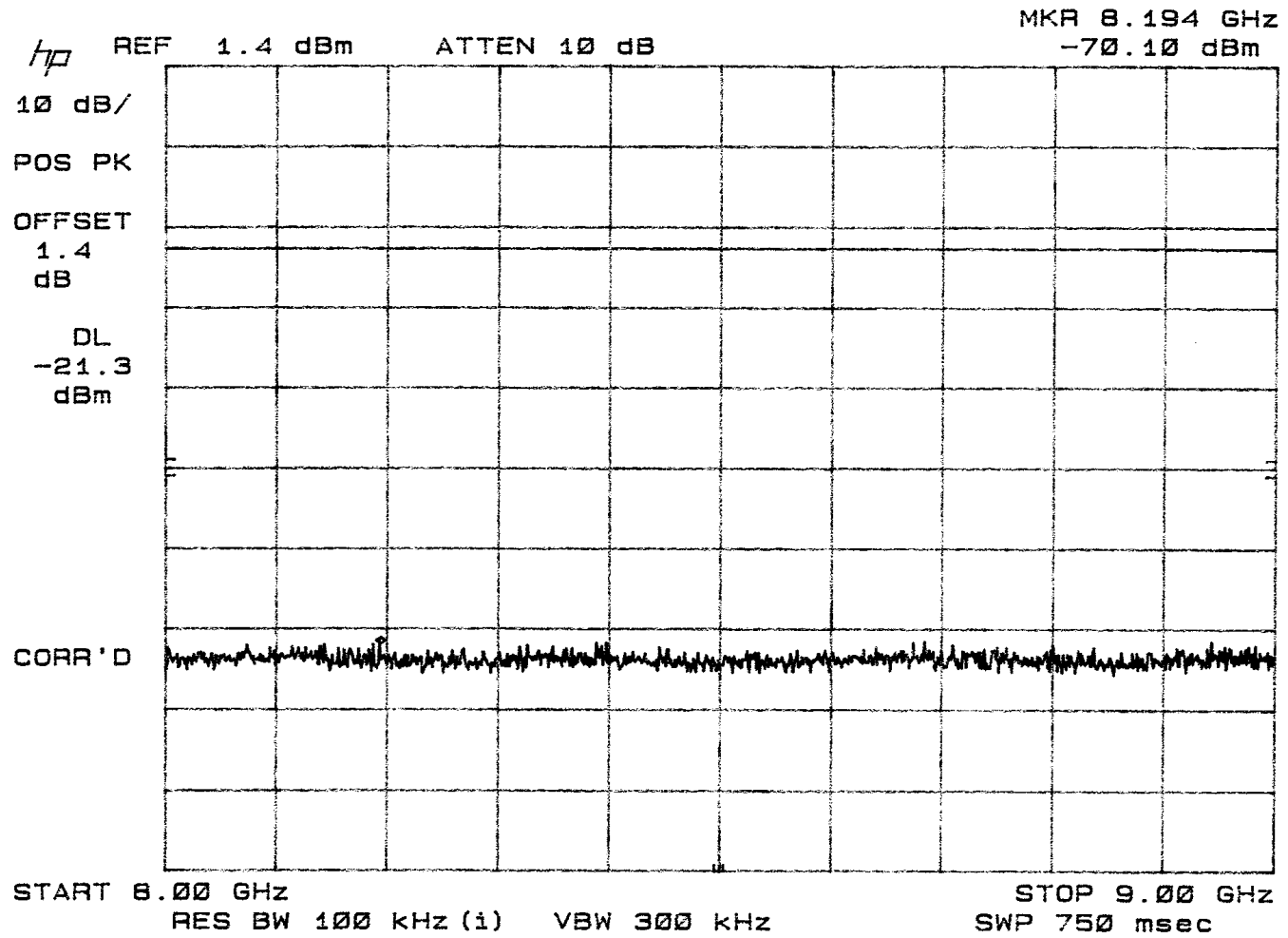
AUG. 11, 2003
TECH/ENGR: AAL
LOCATION: SR3



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SKYPOWER.
CFR 47 FCC 15.247(c)

EZ TALK
Conducted Spurious Modulation On, Channel 78

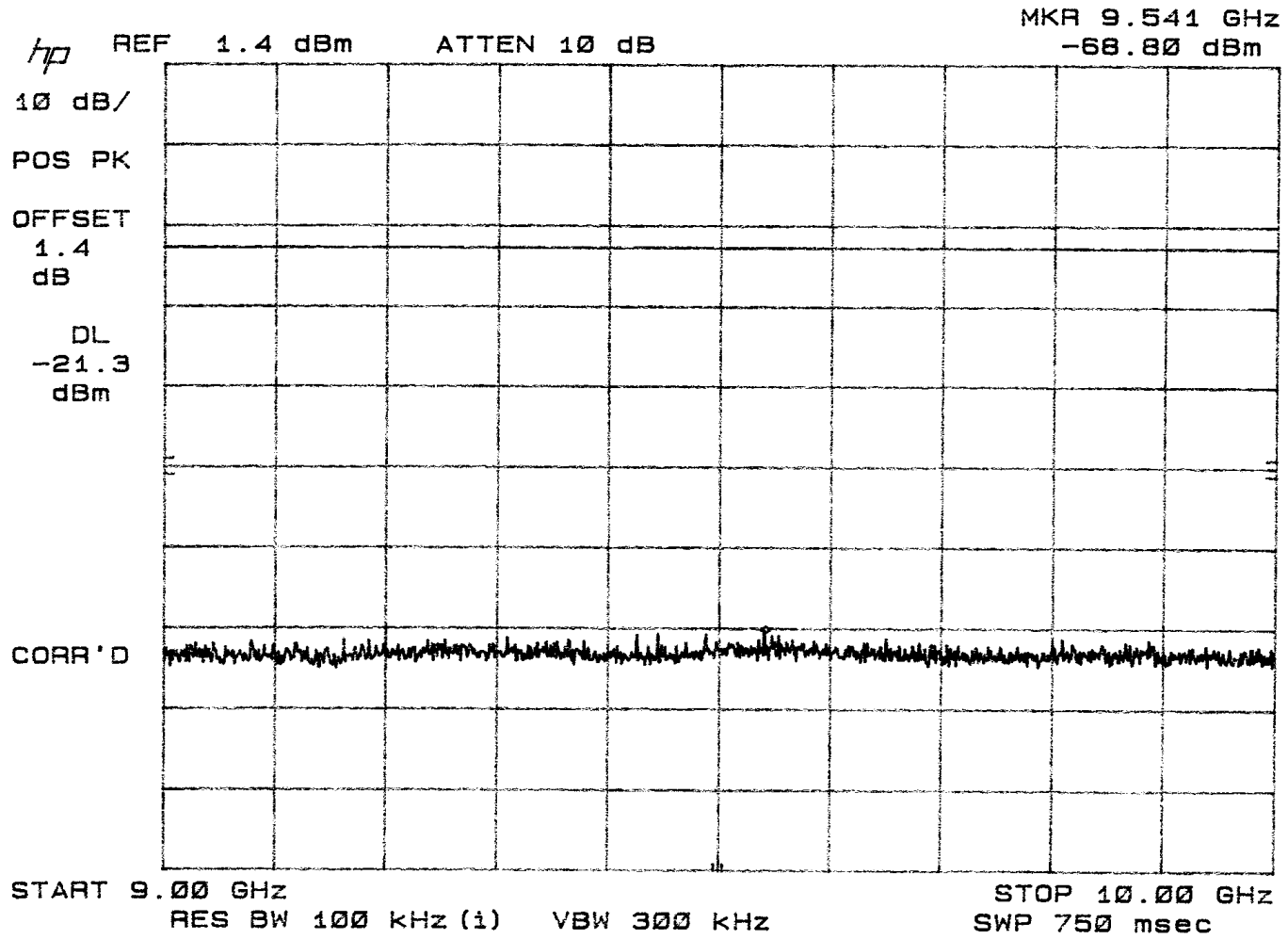
AUG. 11, 2003
TECH/ENGR: AAL
LOCATION: SR3



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SKYPOWER.
CFR 47 FCC 15.247(c)

EZ TALK
Conducted Spurious Modulation On, Channel 78

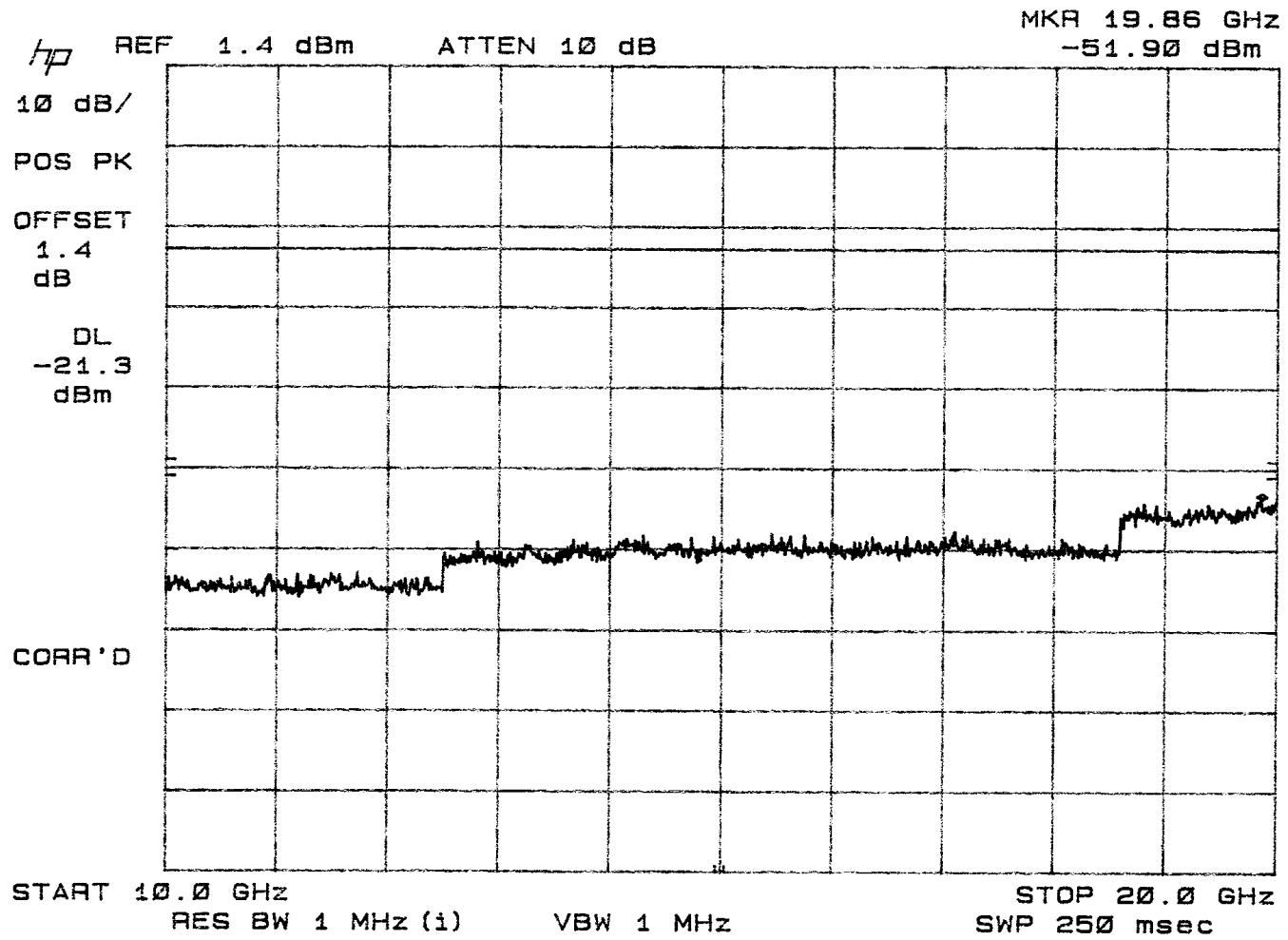
AUG. 11, 2003
TECH/ENGR: AAL
LOCATION: SR3



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CFR 47 FCC 15.247(c)

EZ TALK
Conducted Spurious Modulation On, Channel 78

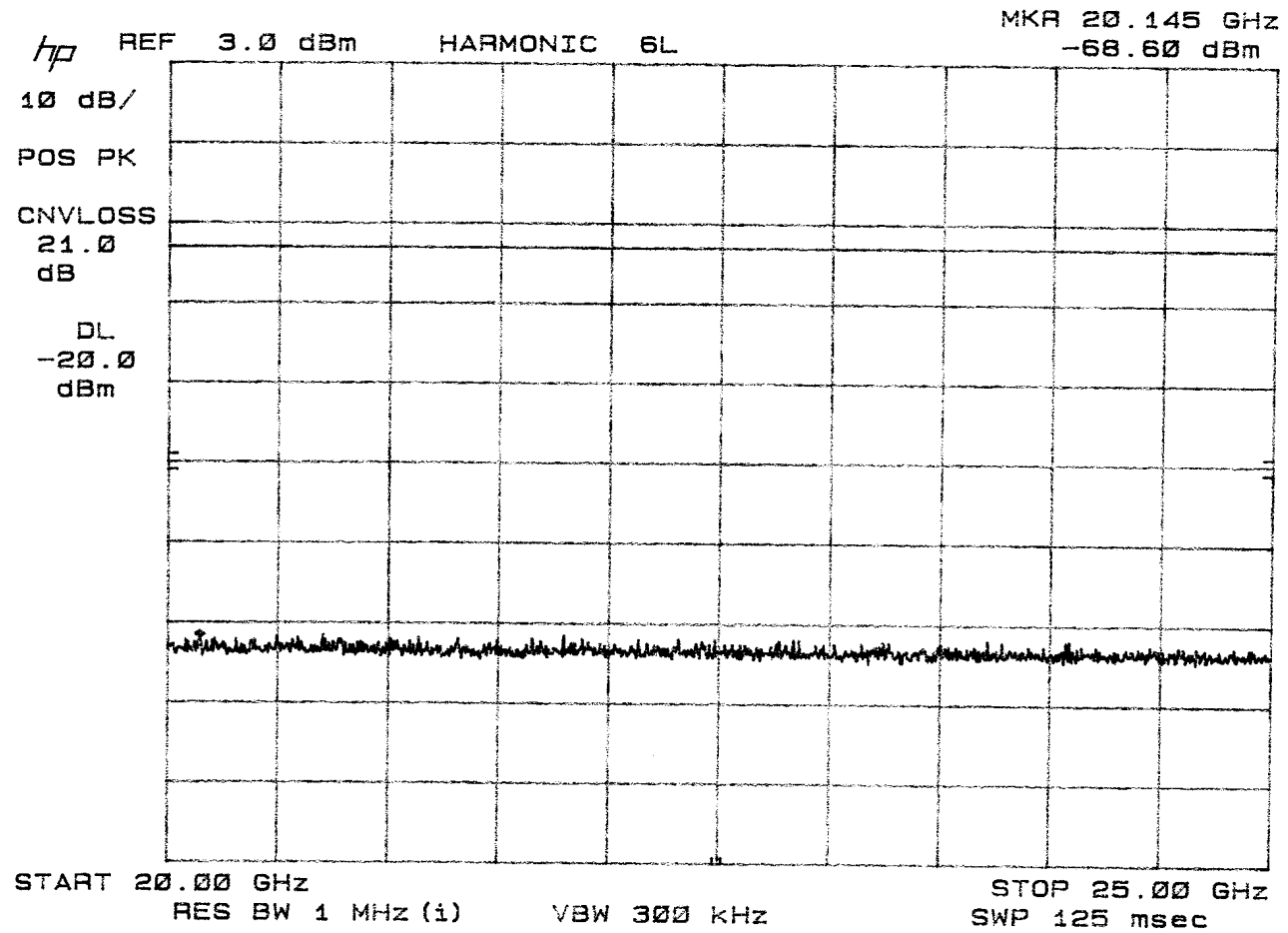
AUG. 12, 2003
TECH/ENGR: AAL
LOCATION: SR3



SC303690
SKYPOWER.
CFR 47 FCC 15.247(c)

EZ TALK
Conducted Spurious Modulation On, Channel 78

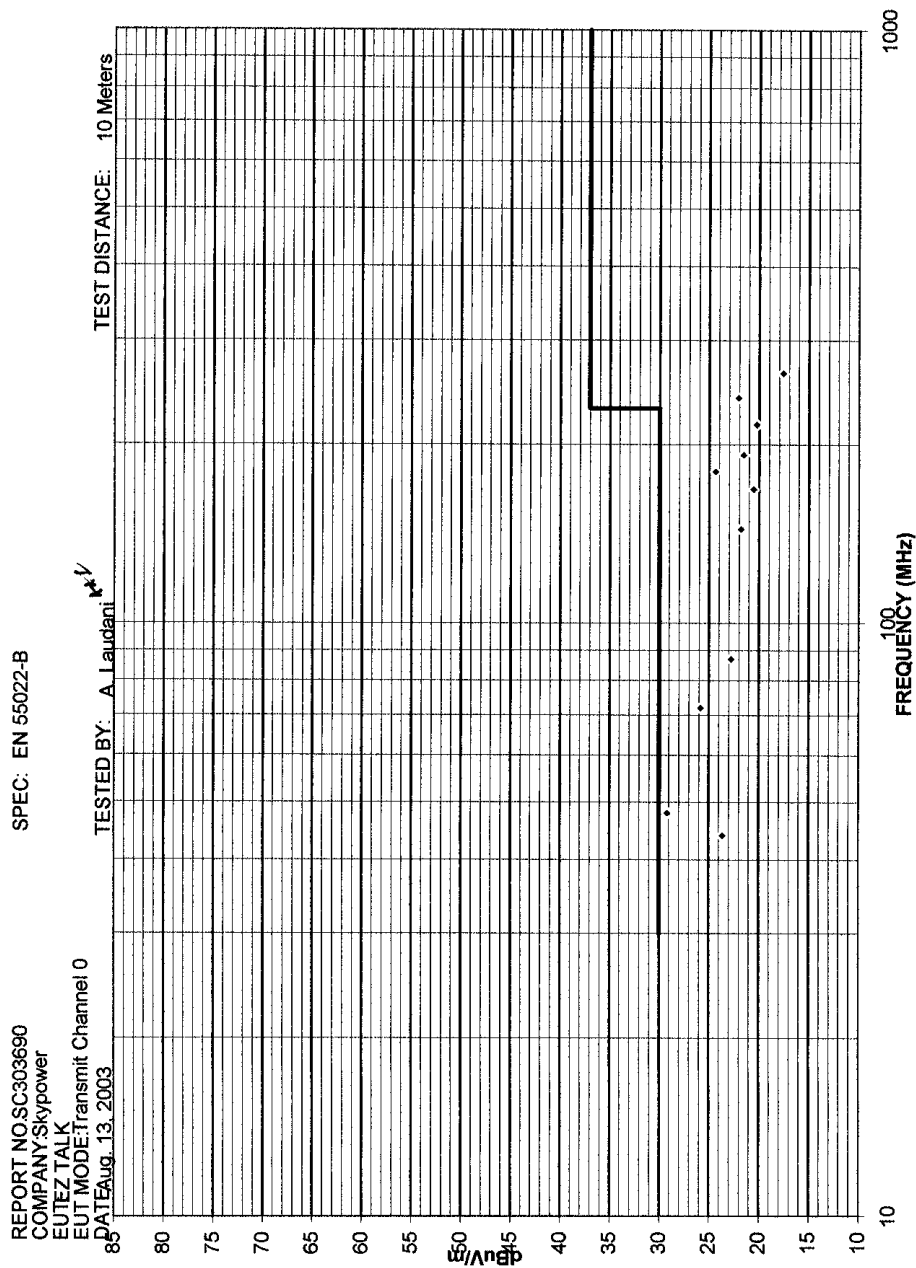
AUG. 12, 2003
TECH/ENGR: AAL
LOCATION: SR3



v.beta1a

[illegible]

Transmit & receive



REPORT No: SC303690

SPEC: EN 55022-B

CUSTOMER: Skypower

TEST DIST: 10 Meters

E U T: EZ TALK

TEST SITE: 2

EUT MODE: Transmit Channel 0

BICONICAL: 739

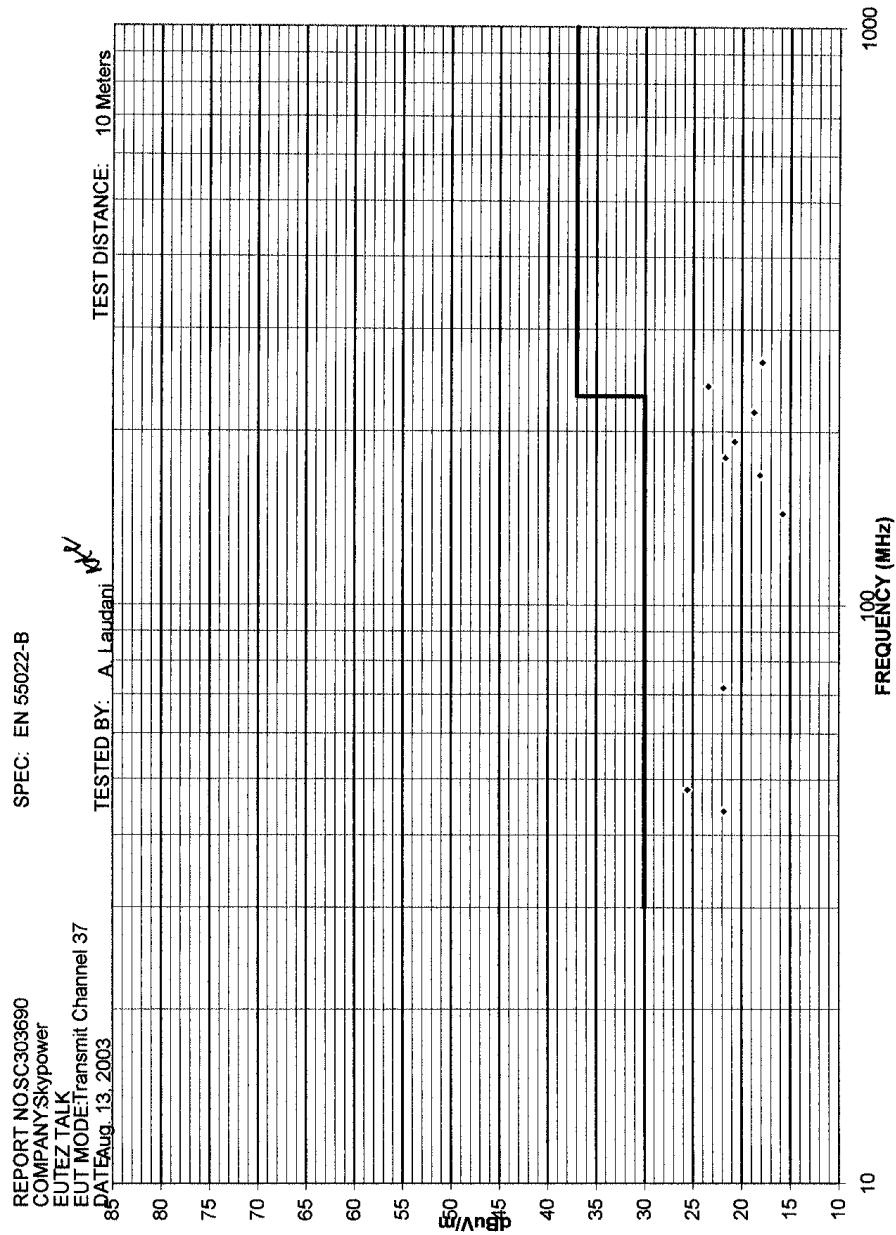
DATE: Aug. 13, 2003 TESTED BY: A. Laudani *all*

LOG PERIODIC: 739

NOTES: Quasi-Peak with 120 KHz measurement bandwidth.
3.7 Vdc

RCVR: 6732

[illegible]



REPORT No: SC303690

SPEC: EN 55022-B

CUSTOMER: Skypower

TEST DIST: 10 Meters

E U T: EZ TALK

TEST SITE: 2

EUT MODE: Transmit Channel 37

BICONICAL: 739

DATE: Aug. 13, 2003 TESTED BY: A. Laudani *AKY*

LOG PERIODIC: 739

NOTES: Quasi-Peak with 120 KHz measurement bandwidth.
3.7 Vdc

RCVR: 6732

Temperature: 28°C Relative Humidity: 45%

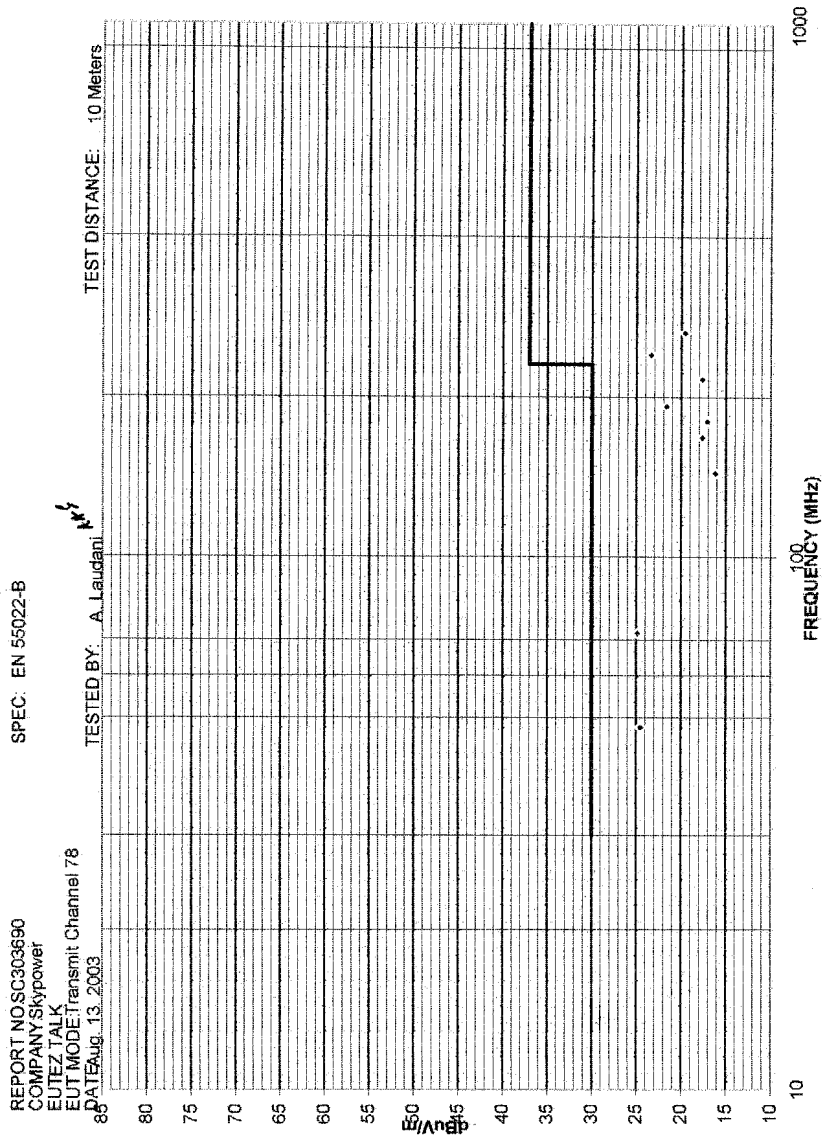
EUT MARGIN

-4.4 dB at 48 MHz

ver 1.8b

[illegible]

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REPORT No: SC303690

SPEC: EN 55022-B

CUSTOMER: Skypower

TEST DIST: 10 Meters

EUT: EZ TALK

TEST SITE: 2

EUT MODE: Transmit Channel 78

BICONICAL: 739

DATE: Aug. 13, 2003 TESTED BY: A. Laudani *ML*

LOG PERIODIC: 739

NOTES: Quasi-Peak with 120 KHz measurement bandwidth.
3.7 Vdc

RCVR: 6732

Temperature: 28°C Relative Humidity: 45%

EUT MARGIN

-5.1 dB at 72 MHz

ver. 1.86

[illegible]

Report No. SC303690-03

4. ATTESTATION STATEMENT

GENERAL REMARKS:

SUMMARY:

All tests were performed per CFR 47, *FCC Part 15, Paragraphs 15.247(a); (b); (c); and 15.209(a).*

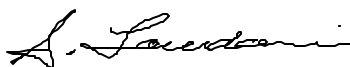
■ - Performed

The Equipment Under Test

■ - **Fulfills** the requirements of CFR 47, *FCC Part 15, Paragraphs 15.247(a); (b); (c); and 15.209(a).*

- TÜV PRODUCT SERVICE, INC. -

Responsible Engineer:



EMC Engineer