ITS Intertek Testing Services

APPLICATION FOR FCC CERTIFICATION

Aleph International Corporation

Field Disturbance Sensor Device

Model: XC-1

FCC ID: DNHXC-001-00

Report # J97074787

Number of Pages: 13 pp. + Supporting Data and Documents

Date of Report: June 17, 1998

Table of Contents

1.0 **Summary of Tests**

Aleph International Corporation - Model No.: XC-1
FCC ID: DNHXC-001-00

TEST	REFERENCE	RESULTS
Radiated Emission	15.245(b)	Pass
Out of Band Radiated Emission	15.245(3)	Pass
AC Conducted Emission	15.207	Not Applicable
Radiated Emission from Digital Part	15.109	Not Applicable
Antenna Requirement	15.203	Pass

Test Engineer: G. B Date: _____
George Belinkiy

EMC Site Manager: David Chernomordik Date: 6/19/98
David Chernomordik

2.0 General Description

2.1 Product Description

The Aleph International Model No.: SC-1 is a field disturbance sensor designed for use only within the building.

A pre-production version of the sample was received on July 4, 1997 in good condition.

Overview of the EUT

Applicant	Aleph International Corporation
Trade Name & Model No.	Aleph International, XC-1
FCC Identifier	DNHXC-001-00
Use of Product	[X] Indoor [ ] Outdoor [ ] Both [ ] Open building doors [ ] In motor vehicle or/and aircraft
Frequency Range (MHz)	21044.9 MHz
Antenna Requirement	The EUT uses a permanently connected antenna.
Manufacturer name & address	Aleph International Corporation 1026 Griswold Avenue, San Fernando, California 91340

2.2 Related Submittal(s) Grants

None.

2.3 Test Methodology

Both AC mains line-conducted and radiated emissions measurements were performed according to the procedures in ANSI C63.4 (1992). Radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the **"Data Sheet"** of this Application. All other measurements were made in accordance with the procedures in part 2 of CFR 47.

2.4 Test Facility

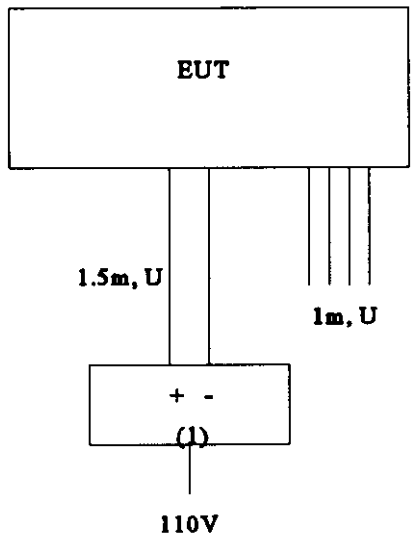
The open area test site and conducted measurement facility used to collect the radiated data is site 1. This test facility and site measurement data have been fully placed on file with the FCC.

3.0 System Test Configuration

3.1 Support Equipment

Item #	Description	Model No.	Serial No.	FCC ID
1	Goldstar Power Supply	GP-303	4081023	N/A

3.2 Block Diagram of Test Setup



* = EUT	S = Shielded;	F = With Ferrite
** = No ferrites on video cable	U = Unshielded	

3.3 Justification

For emission testing, the equipment under test (EUT) was configured for testing in a typical fashion (as a customer would normally use it). During testing, all cables were manipulated to produce worst case emissions.

For radiated emission measurements, the EUT is attached to a cardboard box (if necessary) and placed on the wooden turntable. If the EUT attaches to peripherals, they are connected and operational (as typical as possible). The EUT is wired to transmit full power.

The signal is maximized through rotation and placement in the three orthogonal axes. The antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters. Detector function is in peak mode. Radiated emissions are taken at three meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance.

All readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance.

3.4 Software Exercise Program

The EUT exercise program used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use.

For emissions testing, the units were setup to transmit continuously to simplify the measurement methodology. Care was taken to ensure proper power supply voltages during testing.

3.5 Mode of Operation During Test

Normal operation mode.

3.6 Modifications Required for Compliance

The following modifications were installed during compliance testing in order to bring the product into compliance (Please note that this list does not include changes made specifically by Aleph International Corporation prior to compliance testing):

No modifications were made to the EUT by Intertek Testing Services.

4.0 Measurement Results

For radiated emission tests, The analyzer setting was as followings unless otherwise stated:

	RES BW	VID BW	
Frequency < 1 GHz	100 kHz	100 kHz	
Frequency > 1 GHz	1 MHz	1 MHz	(Peak measurements)
	1 MHz	10 Hz	(Average measurements)

4.1 Radiated Emission test results

See attached data sheet and plots (1, 2, & 3) for duty cycle.

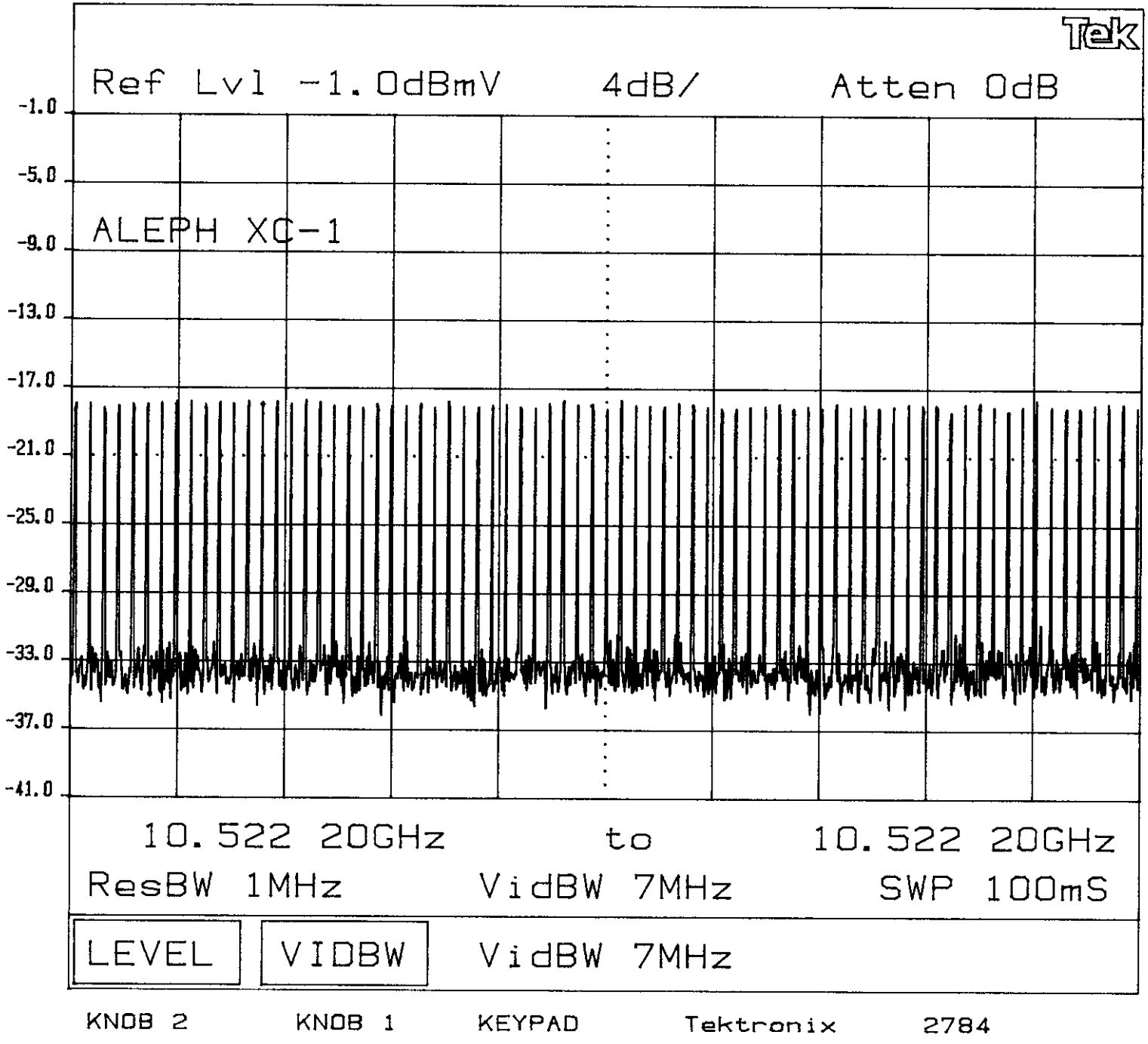
Model: XC-1
Engineer: G. Belinkiy
Test Site: 1

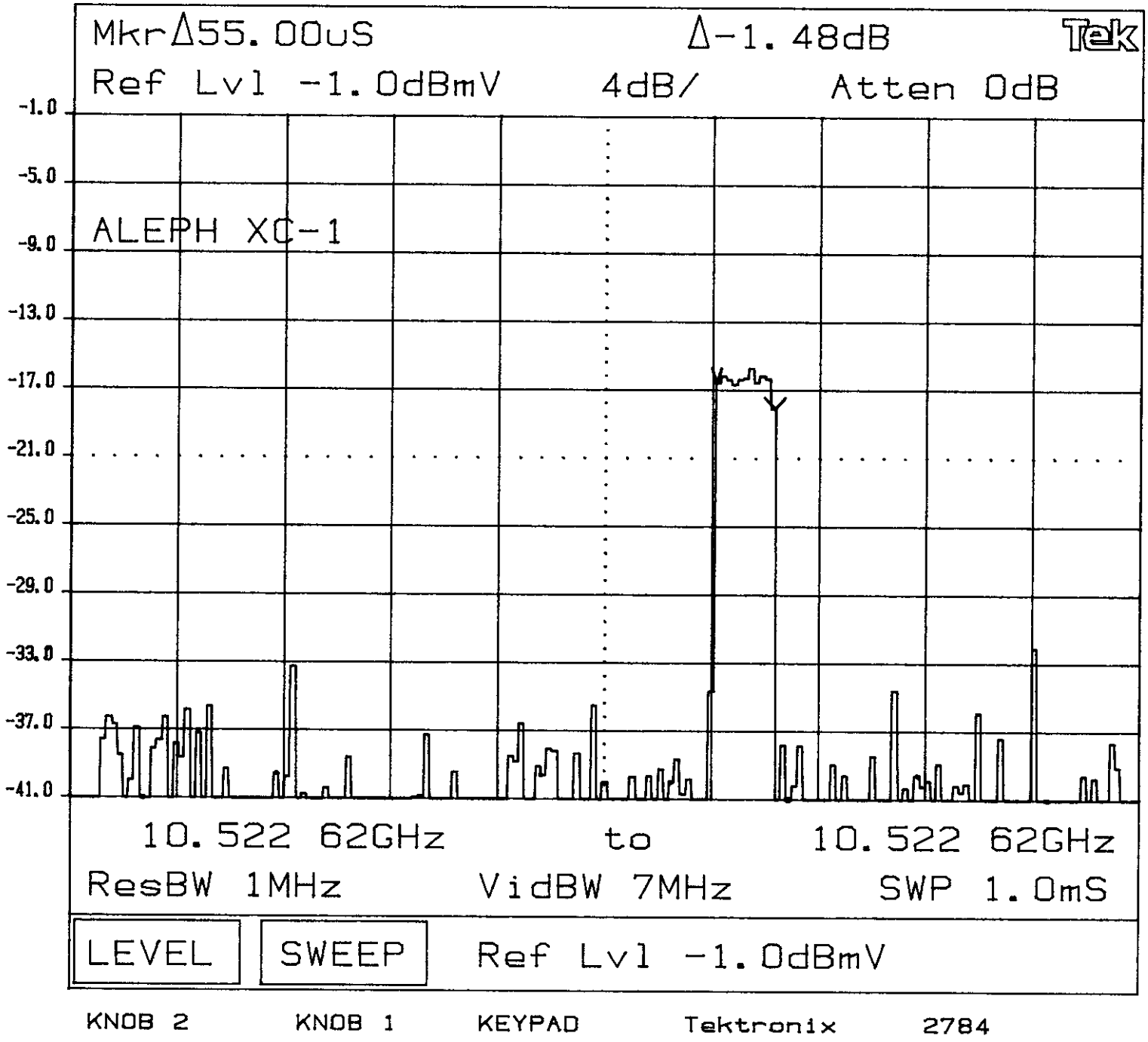
FCC Part 15.245 Radiated Emission Data

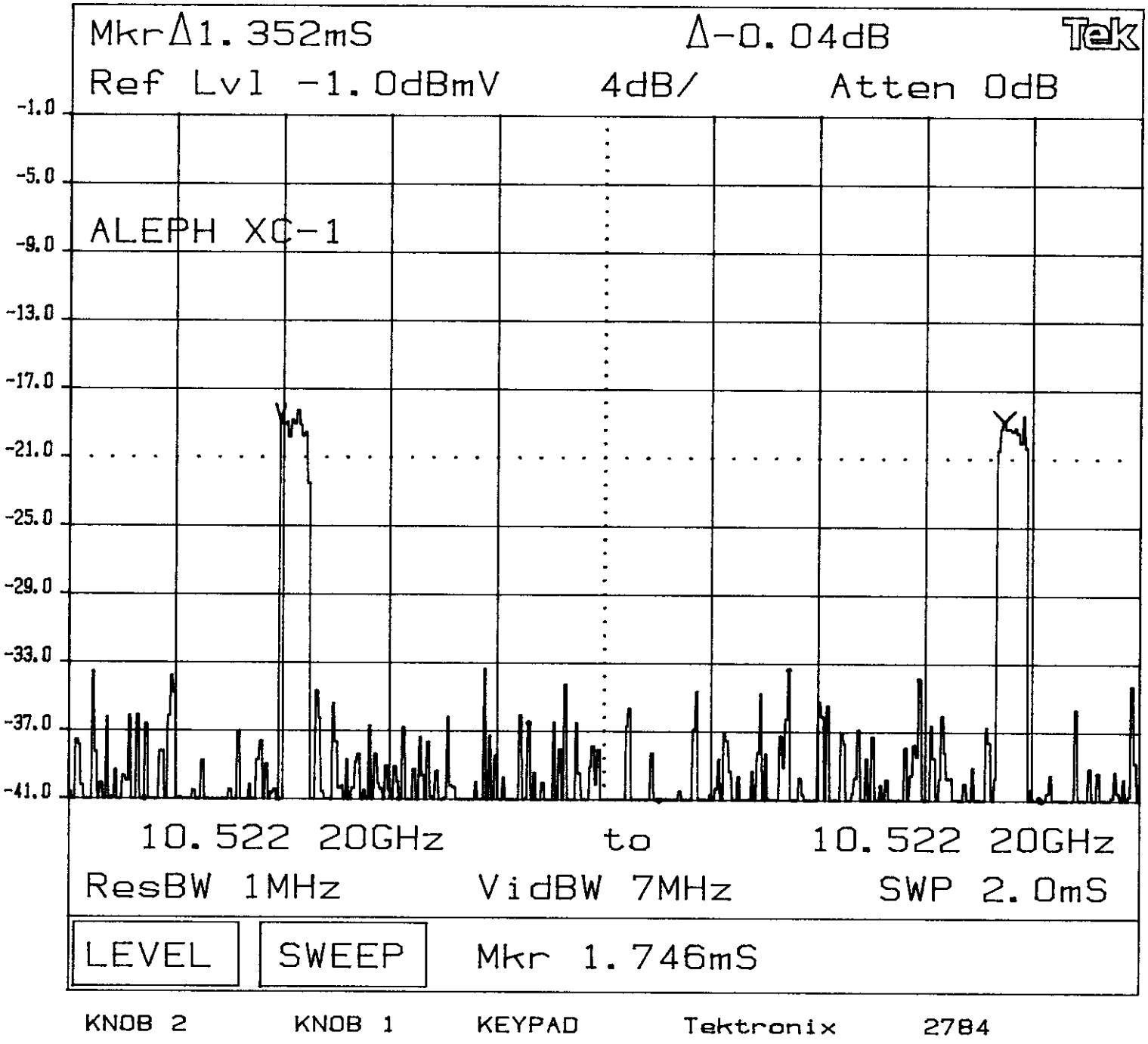
Detect Mode P/A	Frequency MHz	Ant. Polariz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Duty Cycle dB	Distance Correction dB	Field Strength dB(uV/m)	Limit dB(u/V)	Margin dB
P	10522.6	H	53.3	39.7	5.3	0	0	98.3	148.0	-49.7
A	10522.6	H	53.3	39.7	5.3	-20.0	0	78.3	128.0	-49.7
P	21044.9	H	37.3	40.3	12.0	0	-9.5	80.1	108.0	-27.9
A	21044.9	H	37.3	40.3	12.0	-20.0	-9.5	60.1	88.0	-27.9
P	31566.7	H	22.3 *	43.7	18.0	0	-9.5	74.5	108.0	-33.5
A	31566.7	H	22.3 *	43.7	18.0	-20.0	-9.5	54.5	88.0	-33.5

Note:

* Noice floor
Duty Cycle equals 1352/55=24.6 or 27.8 dB. (20 dB is used)


Tek
Ref Lvl -1.0dBmV 4dB/ Atten 0dB
-1.0
-5.0
-9.0
-13.0
-17.0
-21.0
-25.0
-29.0
-33.0
-37.0
-41.0
ALEPH XC-1
10.522 20GHz to 10.522 20GHz
ResBW 1MHz VidBW 7MHz SWP 100mS
LEVEL
VIDBW
VidBW 7MHz
KNOB 2 KNOB 1 KEYPAD Tektronix 2784

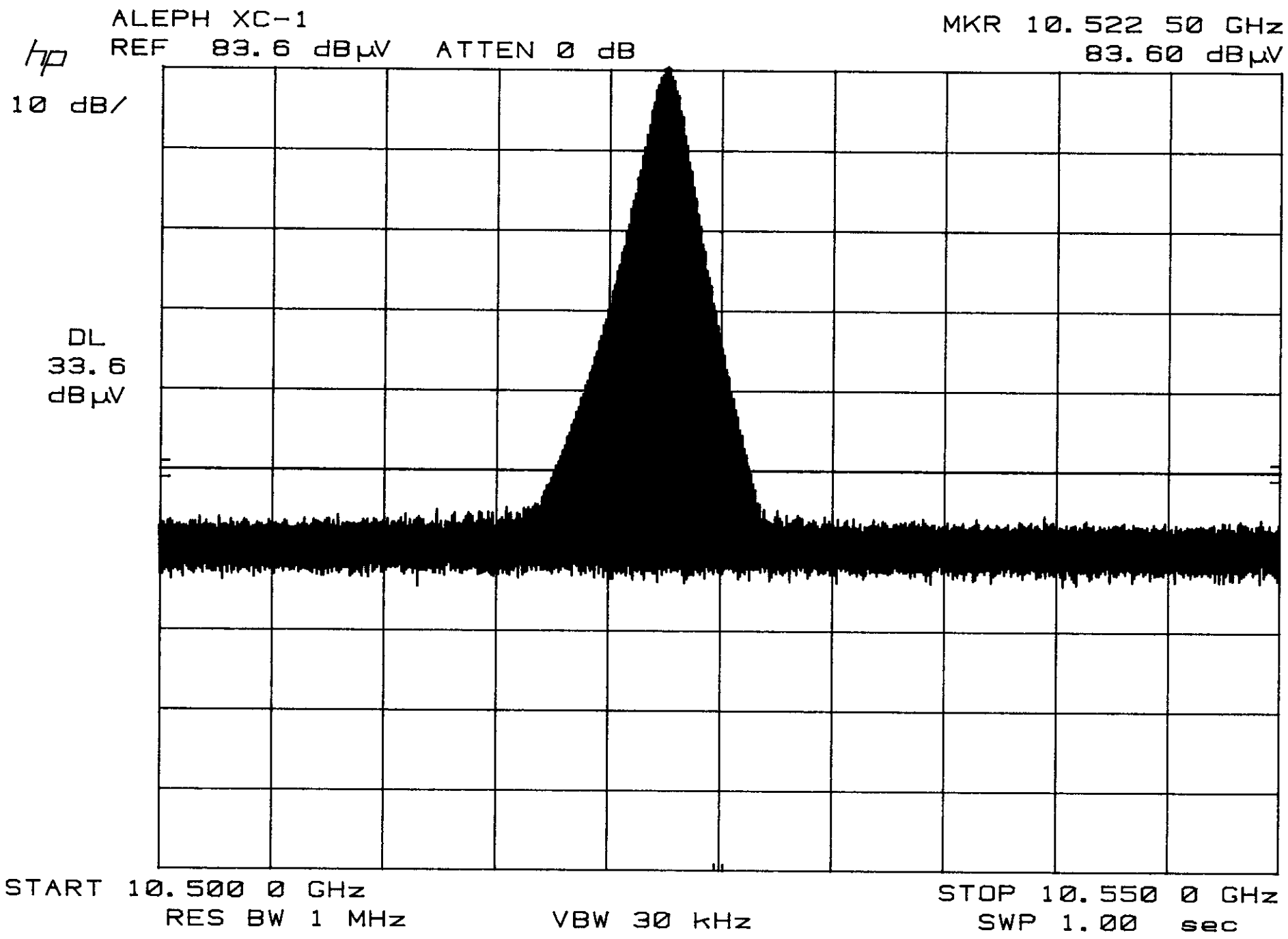

MkrΔ55.00uS
Δ-1.48dB
Tek
Ref Lvl -1.0dBmV
4dB/
Atten 0dB
-1.0
-5.0
-9.0
-13.0
-17.0
-21.0
-25.0
-29.0
-33.0
-37.0
-41.0
ALEPH XC-1
10.522 62GHz
to
10.522 62GHz
ResBW 1MHz
VidBW 7MHz
SWP 1.0mS
LEVEL
SWEEP
Ref Lvl -1.0dBmV
KNOB 2
KNOB 1
KEYPAD
Tektronix
2784

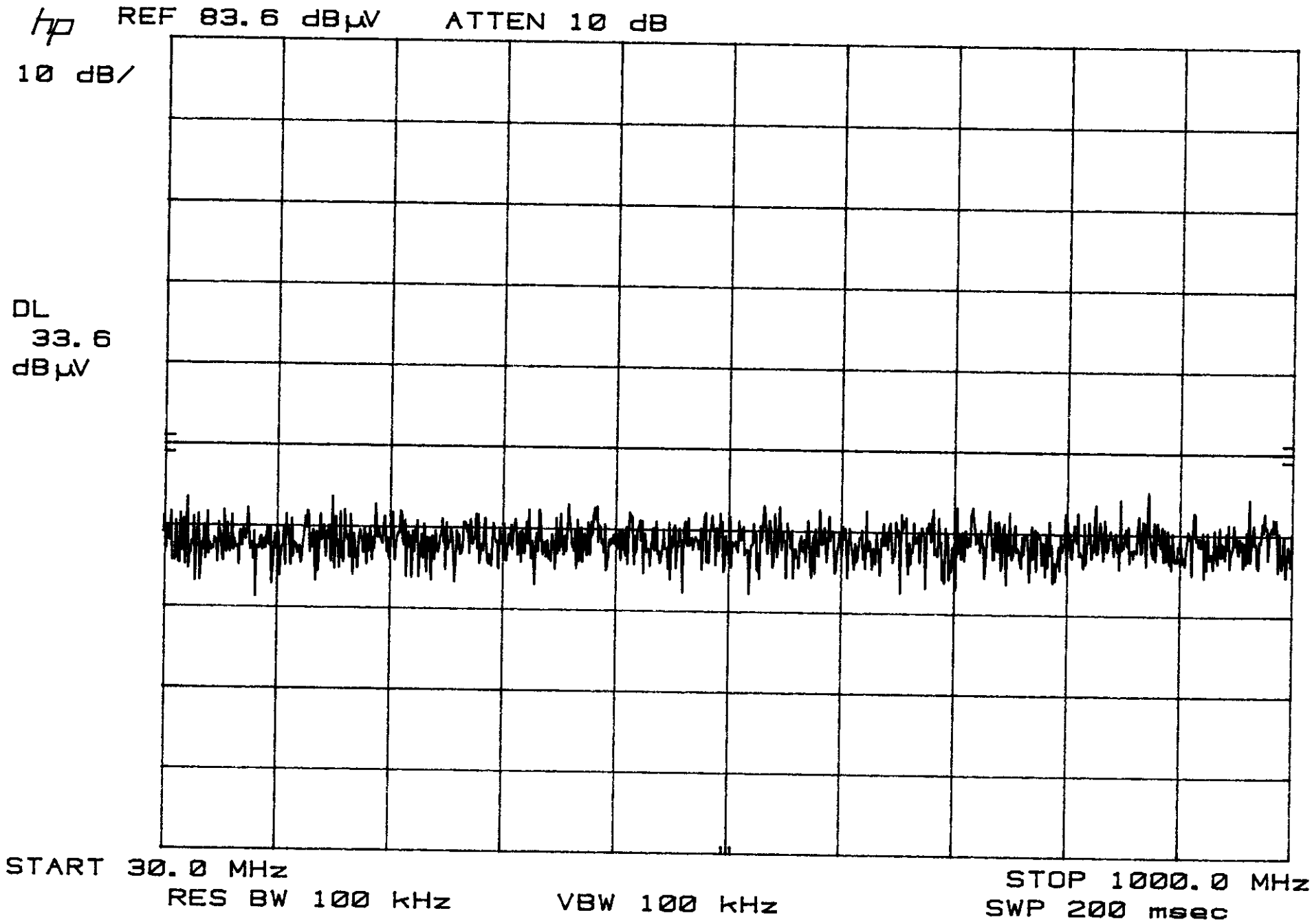

MkrΔ1.352mS
Δ-0.04dB
Tek
Ref Lvl -1.0dBmV
4dB/
Atten 0dB
-1.0
-5.0
-9.0
-13.0
-17.0
-21.0
-25.0
-29.0
-33.0
-37.0
-41.0
ALEPH XC-1
10.522 20GHz
to
10.522 20GHz
ResBW 1MHz
VidBW 7MHz
SWP 2.0mS
LEVEL
SWEEP
Mkr 1.746mS
KNOB 2
KNOB 1
KEYPAD
Tektronix
2784

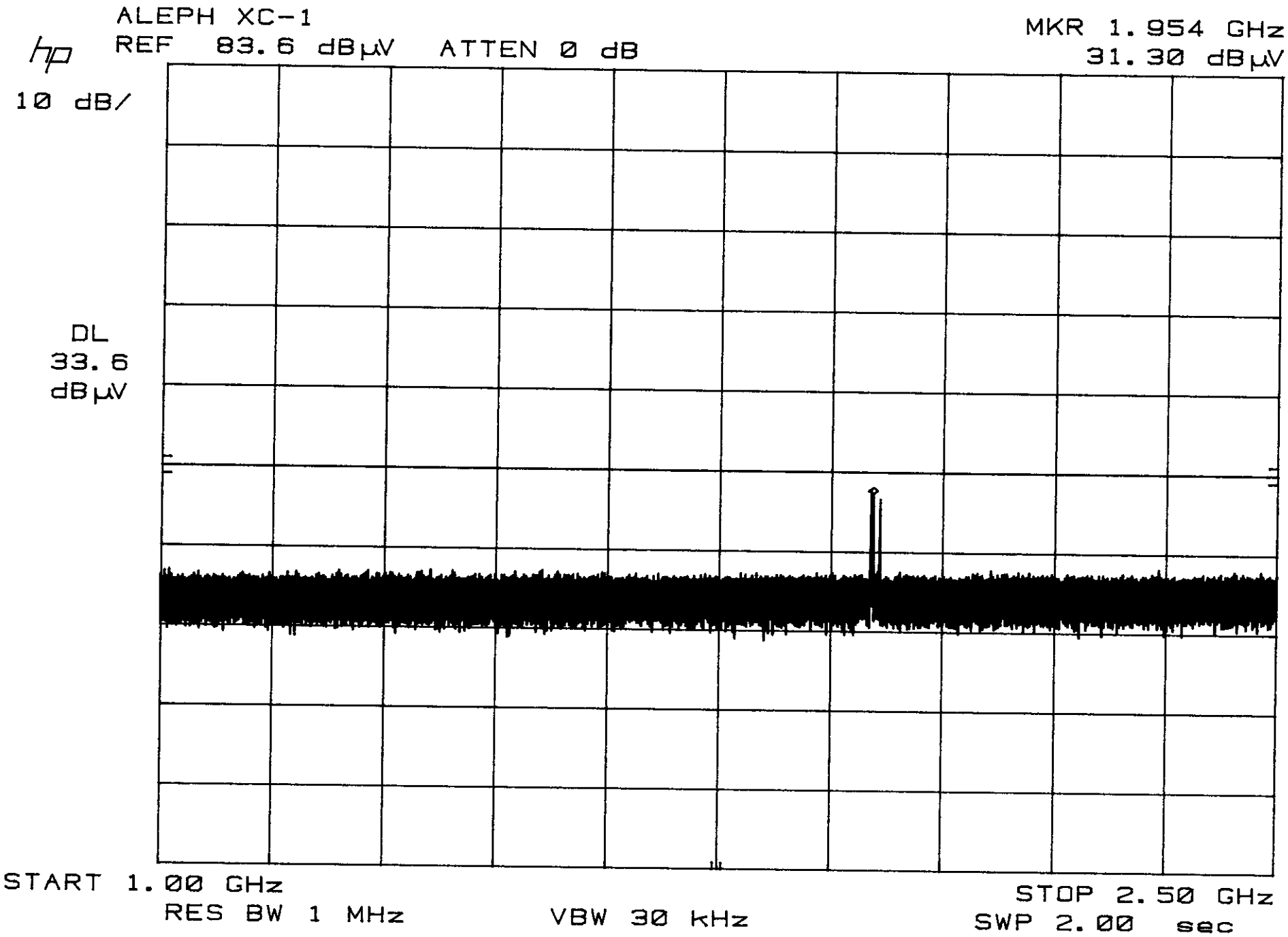
4.2 Out of Band Emissions Test Results

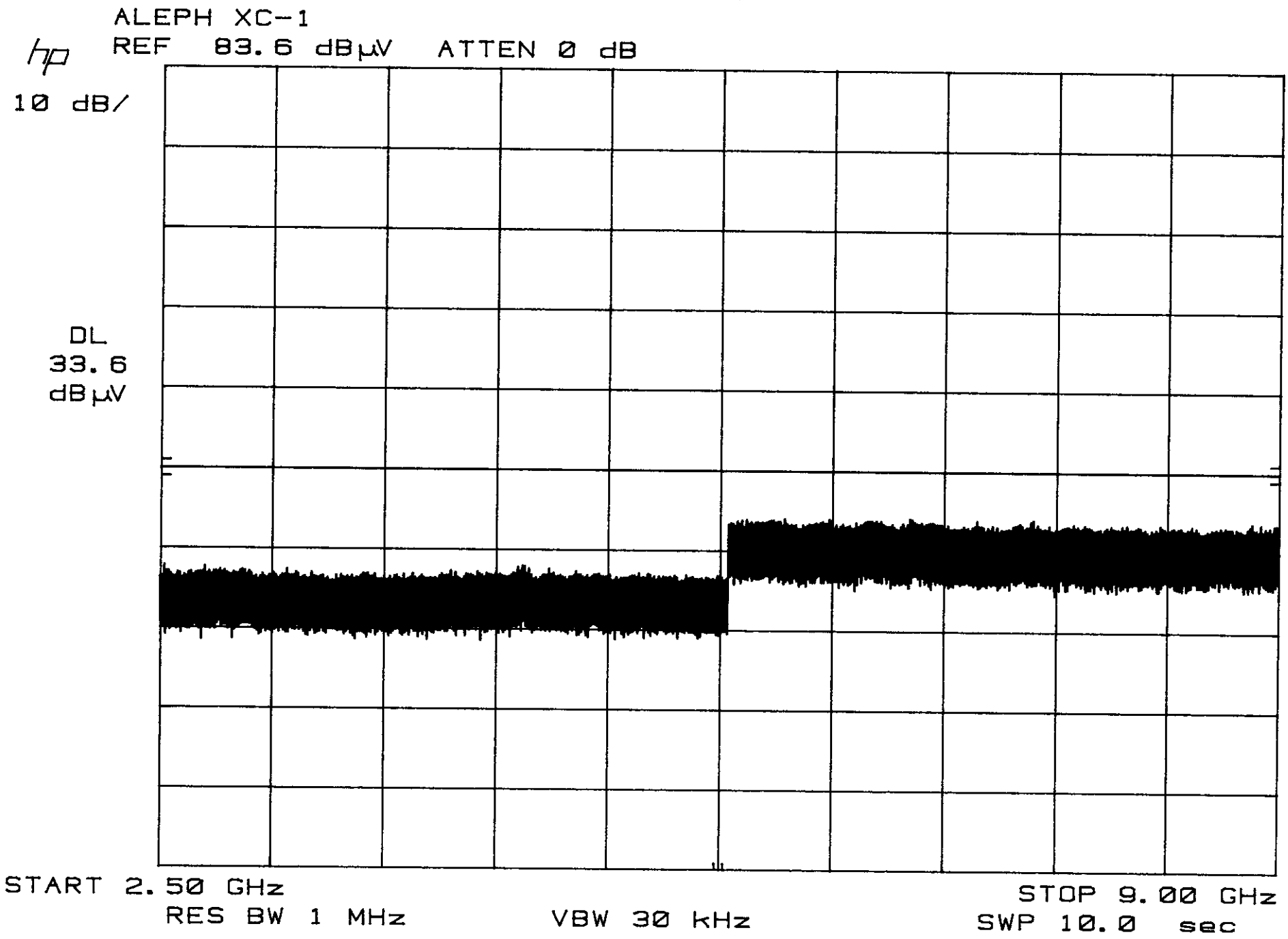
LIST OF PLOTS

PLOT #	DESCRIPTION
4	Spectrum within the frequency band
5 - 10	Spectrums of emissions outside of the specified frequency band

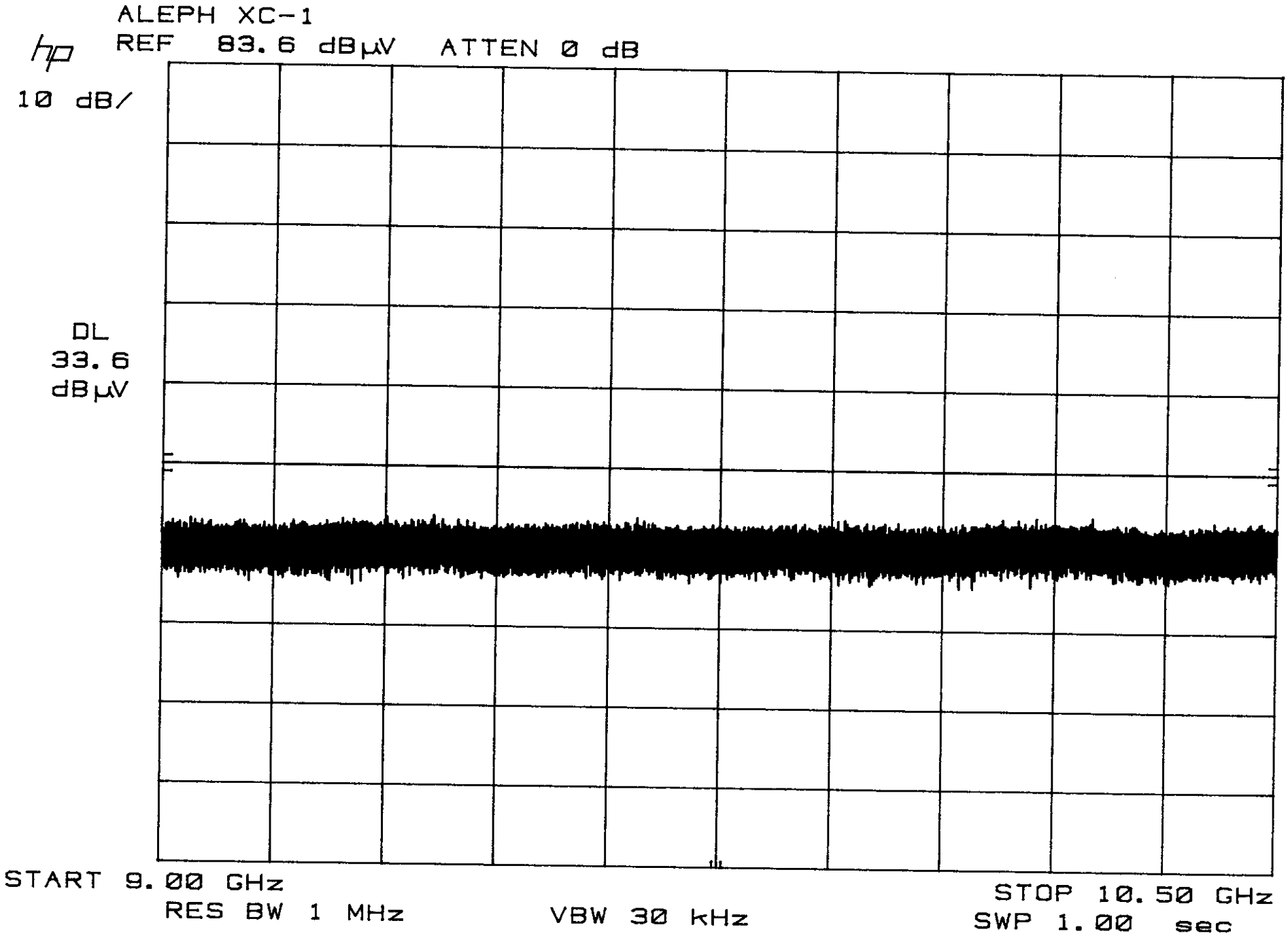

ALEPH XC-1
REF 83.6 dBµV ATTEN 0 dB
MKR 10.522 50 GHz
83.60 dBµV
10 dB/
DL
33.6
dBµV
START 10.500 0 GHz
RES BW 1 MHz
VBW 30 kHz
STOP 10.550 0 GHz
SWP 1.00 sec

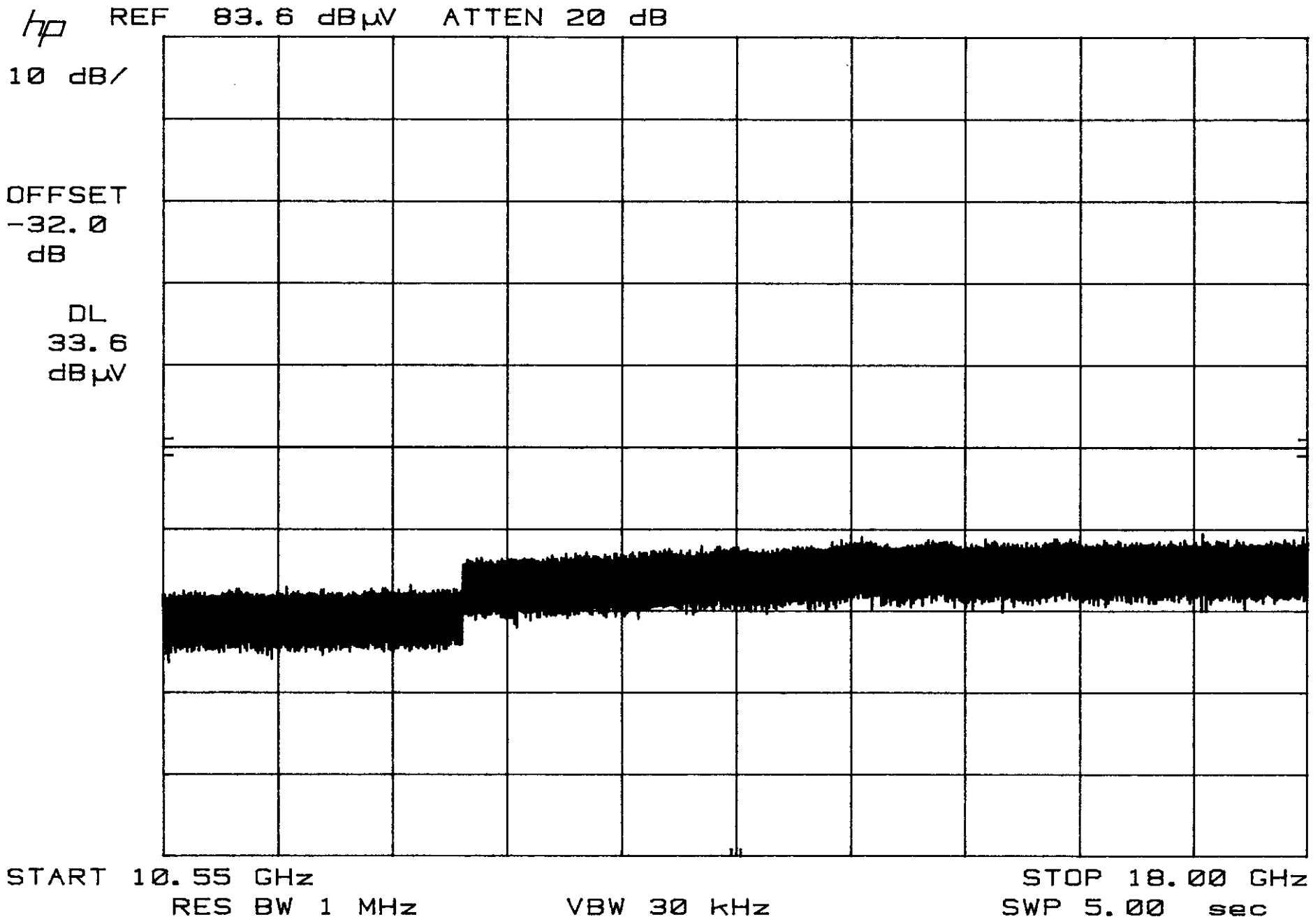

REF 83.6 dBµV
ATTEN 10 dB
10 dB/
DL
33.6
dBµV
START 30.0 MHz
RES BW 100 kHz
VBW 100 kHz
STOP 1000.0 MHz
SWP 200 msec

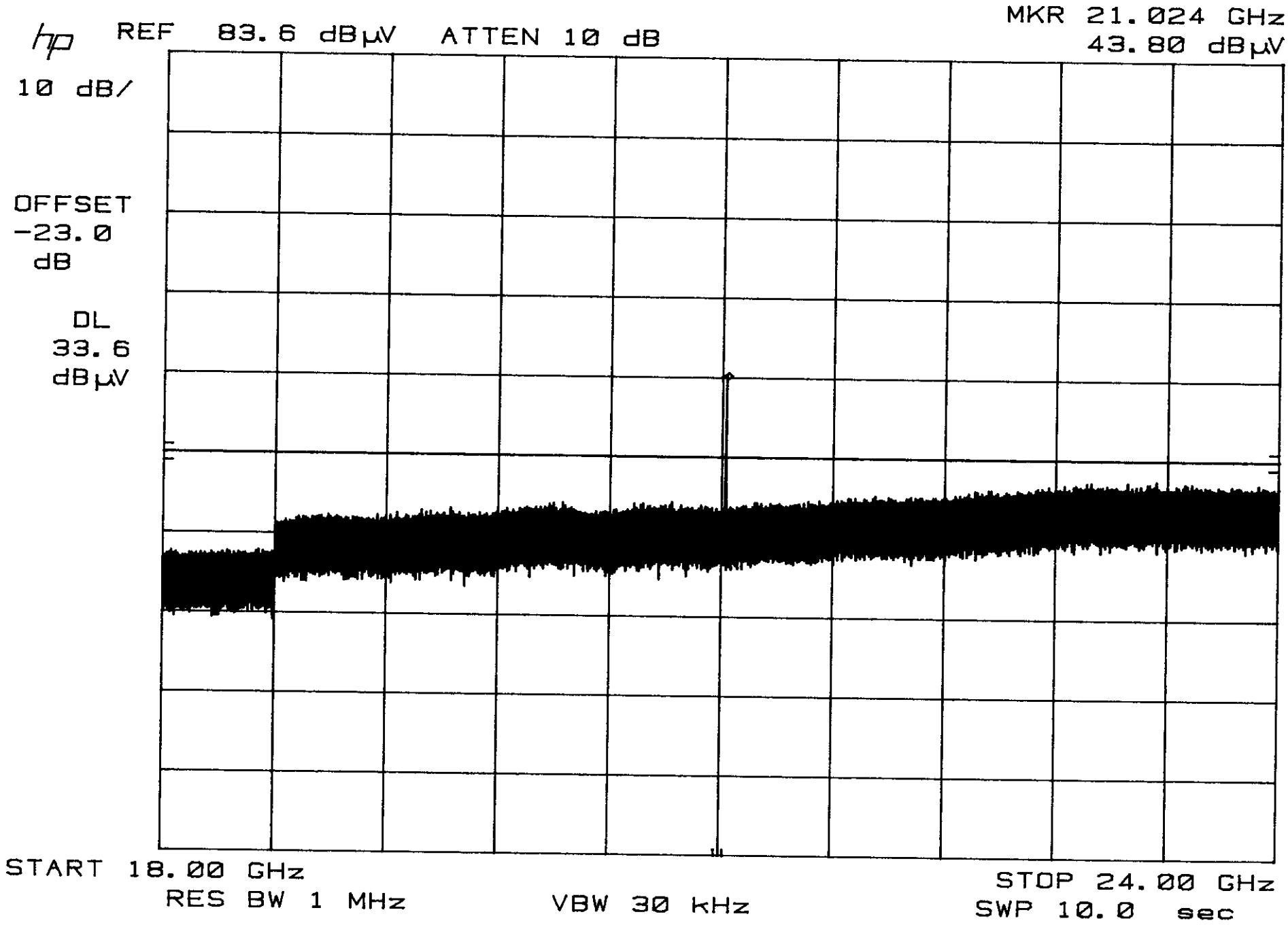

ALEPH XC-1
REF 83.6 dBµV ATTEN 0 dB
MKR 1.954 GHz
31.30 dBµV
10 dB/
DL
33.6
dBµV
START 1.00 GHz
RES BW 1 MHz
VBW 30 kHz
STOP 2.50 GHz
SWP 2.00 sec


ALEPH XC-1
REF 83.6 dBµV ATTEN 0 dB
10 dB/
DL
33.6
dBµV
START 2.50 GHz
RES BW 1 MHz
VBW 30 kHz
STOP 9.00 GHz
SWP 10.0 sec

8


ALEPH XC-1
REF 83.6 dBµV ATTEN 0 dB
10 dB/
DL
33.6
dBµV
START 9.00 GHz
RES BW 1 MHz
VBW 30 kHz
STOP 10.50 GHz
SWP 1.00 sec


REF 83.6 dBµV
ATTEN 20 dB
10 dB/
OFFSET
-32.0
dB
DL
33.6
dBµV
START 10.55 GHz
RES BW 1 MHz
VBW 30 kHz
STOP 18.00 GHz
SWP 5.00 sec


hp
REF 83.6 dBµV
ATTEN 10 dB
MKR 21.024 GHz
43.80 dBµV
10 dB/
OFFSET
-23.0
dB
DL
33.6
dBµV
START 18.00 GHz
RES BW 1 MHz
VBW 30 kHz
STOP 24.00 GHz
SWP 10.0 sec

4.4 AC Line Conducted Emission, FCC Rule 15.207:

[x] Not required; battery operation only

[ ] Test data attached

4.5 AC Line Conducted Configuration Photograph

Not applicable, the unit is battery powered.