

# **Intertek Testing Services**

## **APPLICATION FOR FCC CERTIFICATION**

**GVC Corporation**

**900 MHz Cordless Telephone**

**Model: CT-910**

**FCC ID: DK4CT910**

**Report # J98036682**

**Number of Pages: 13 + data pages**

**Date of Report: July 1, 1999**

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The results contained in this report were derived from measurements performed on the identified test samples. Any implied performance of other samples on this report is dependent on the representative of the samples tested.



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# Intertek Testing Services

1365 Adams Court, Menlo Park, CA 94025

GVC Corp., 900 MHz Cordless Telephone  
FCC ID: DK4CT910

Date of Test: Feb. 10, 1999 & March 1, 2, & 3, 1999

## 0.0 Summary of Test Results

**GVC Corporation - Model No.: CT-900**  
**FCC ID: DK4CT-900**

Test	Reference	Results
Radiated Emission	15.249	Complies
Conducted Emission	15.207	Complies
Antenna Requirements	15.203	Complies

Test Engr:

  
Cleveland Kwan

Date: July 1, 1999

Telco Mgr:

  
C.K. Li

Date: July 1, 1999

## 1.0 General Description

### 1.1 Product Description

The GVC Corporation Model No.: CT-910 is a 900 MHz analog cordless telephone.

Please refer to the attached technical description for details.

## 1.2 Related Submittal(s) Grants

This is an Application for Certification of a low power transmitter. One transmitter is included in this Application. This specific report details the emission characteristics of transmitter.

The FCC ID for the receiver associated with this transmitter is . The receivers are subject to the notification authorization process. A Notification report has been prepared for the receiver.

## 1.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.4 (1992). All measurements were performed in Open Area Test Sites. Preliminary scans were performed in the Open Area Test Sites only to determine worst case modes. For each scan, the procedure for maximizing emissions in Appendices D and E were followed. All Radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "Justification Section" of this Application.

## 1.4 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 and NVLAP accredited.

## **2.0 System Test Configuration**

### **2.1 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 the 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 without modulation.

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.

### **2.2 EUT Exercising Software**

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.

## 2.3 System Test Configuration

### 2.3.1 Support Equipment

None, the EUT was tested as a standalone device.

### 2.3.2 Block Diagram of Test Setup

Not applicable, the EUT was tested as a standalone device.

## **2.4 Equipment Modification**

Any modifications installed previous to testing by GVC Corporation will be incorporated in each production model sold/leased in the United States.

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

## **2.5 Additions, deviations and exclusions from standards**

No additions, deviations or exclusion have been made from standard.



## **3.0 Emission Results**

AC line conducted emission measurements were performed from 0.45 MHz to 30 MHz. Analyzer resolution is 10 kHz or greater.

Radiated emission measurements were performed from 30 MHz to 5000 MHz. Analyzer resolution is 100 kHz or greater for 30 MHz to 1000 MHz, 1 MHz for > 1000 MHz.

Data is included of the worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included. All measurements were performed with peak detection unless otherwise specified.

## 3.1 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CF - AG$$

where FS = Field Strength in dB( $\mu$ V/m)

RA = Receiver Amplitude (including preamplifier) in dB( $\mu$ V)

CF = Cable Attenuation Factor in dB

AF = Antenna Factor in dB/m

AG = Amplifier Gain in dB

In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows:-

$$FS = RR + LF$$

where FS = Field Strength in dB( $\mu$ V/m)

RR = RA - AG in dB( $\mu$ V)

LF = CF + AF in dB

Assume a receiver reading of 52.0 dB( $\mu$ V) is obtained. The antenna factor of 7.4 dB/m and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted, giving a field strength of 32 dB( $\mu$ V/m). This value in dB $\mu$ V/m was converted to its corresponding level in  $\mu$ V/m.

$$RA = 52.0 \text{ dB}(\mu\text{V})$$

$$AF = 7.4 \text{ dB/m}$$

$$RR = 23.0 \text{ dB}(\mu\text{V})$$

$$CF = 1.6 \text{ dB}$$

$$LF = 9.0 \text{ dB}$$

$$AG = 29.0 \text{ dB}$$

$$FS = RR + LF$$

$$FS = 23 + 9 = 32 \text{ dB}(\mu\text{V/m})$$

$$\text{Level in } \mu\text{V/m} = \text{Common Antilogarithm } \{[32 \text{ dB}(\mu\text{V/m})]/20\} = 39.8 \mu\text{V/m}$$

## 3.3 Radiated Emission Data

The data on the following pages list the significant emission frequencies, the limit and the margin of compliance.

<b>Results:</b>	Passed by 13.4 dB at 35.9 MHz
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Note: a) All emissions not reported are at least 20 dB below the limits

**Radiated Emissions Test Data**

Company: GVC  
EUT: Analog 900MHz cordless phone  
Project #: J98036684  
Test Mode: Standby, base

Model #: CT-900/CT-910  
S/N or FCC: not labeled  
Engineer: C.Kwan  
Date of Test: 2-10-99

Initial 

	Antenna	Pre-Amp	Cable A	Cable B	OCF
Number:	1	2	13	0	0
Model:	EMCO 314	HP8447D	S2 3m	None	None

Standard_	FCC Part 15B
Limits_	2
Test Distance_	3 meters

Frequency	Reading	Det.	Ant. Pol.	Ant. Factor	Pre-Amp	Insert. Loss	D. F.	Net	Limit @3m	Margin
MHz	dB(uV)	P/A/Q	H/V	dB(1/m)	dB	dB	dB	dB(uV/m)	dB(uV/m)	dB
35.9	38.7	p	v	8.9	22.3	1.3	0.0	26.6	40.0	-13.4
41.9	30.6	p	v	6.9	22.4	1.3	0.0	16.4	40.0	-23.6
47.8	30.9	p	v	7.7	22.3	1.3	0.0	17.7	40.0	-22.3
53.7	27.8	p	v	6.0	22.3	1.4	0.0	12.9	40.0	-27.1
65.8	30.8	p	v	5.4	22.2	1.5	0.0	15.5	40.0	-24.5
71.6	31.2	p	v	5.5	22.3	1.5	0.0	15.9	40.0	-24.1
915.1	21.7	p	v	21.1	22.1	8.3	0.0	29.0	46.0	-17.0

- Notes:**
- a) P: Peak; A: Average; Q: Quasi Peak; H: Horizontal; V: Vertical; OCF: Other Correction Factor; DF: Distance Factor
  - b) Insert. Loss = Cable A + Cable B + OCF.
  - c) Negative signs (-) in Margin column signify levels below the limits.
  - d) All other emissions not reported are below the equipment noise floor which is at least 20 dB below the limits.

**Radiated Emissions Test Data**

Company: GVC  
EUT: Analog 900MHz cordless phone  
Project #: J98036684  
Test Mode: Standby, hand unit

Model #: CT-900/CT-910  
S/N or FCC not labeled  
Engineer: C.Kwan  
Date of Test: 2-10-99

Initial: *CK*

	Antenna	Pre-Amp	Cable A	Cable B	OCF
Number:	1	2	13	0	0
Model:	EMCO 314	HP8447D	S2_3m	None	None

Standard_	FCC Part 15B
Limits_	2
Test Distance_	3 meters

Frequency MHz	Reading dB(uV)	Det. P/A/Q	Ant. Pol. H/V	Ant. Factor dB(1/m)	Pre-Amp dB	Insert. Loss dB	D. F. dB	Net dB(uV/m)	Limit @3m dB(uV/m)	Margin dB
35.9	30.6	p	v	8.9	22.3	1.3	0.0	18.5	40.0	-21.5
41.9	28.5	p	v	6.9	22.4	1.3	0.0	14.3	40.0	-25.7
47.9	27.8	p	v	7.7	22.3	1.3	0.0	14.6	40.0	-25.4
53.8	27.9	p	v	6.0	22.3	1.4	0.0	13.0	40.0	-27.0
77.7	32.9	p	v	5.8	22.3	1.5	0.0	17.9	40.0	-22.1
916.9	23.1	p	v	21.1	22.1	8.3	0.0	30.4	46.0	-15.6

- Notes:**
- a) P: Peak; A: Average; Q: Quasi Peak; H: Horizontal; V: Vertical; OCF: Other Correction Factor; DF: Distance Factor
  - b) Insert. Loss = Cable A + Cable B + OCF.
  - c) Negative signs (-) in Margin column signify levels below the limits.
  - d) All other emissions not reported are below the equipment noise floor which is at least 20 dB below the limits.

**Radiated Emissions Test Data**

Company: GVC  
EUT: 900Mhz cordless phone; base unit  
Project #: J98036684  
Test Mode: TX @ low channel

Model #: CT-900/CT-910  
S/N or FCC: not labeled  
Engineer: C.Kwan  
Date of Test: 03/01/99

Initial: 

	Antenna	Pre-Amp	Cable A	Cable B	OCF
Number:	1	0	12	0	0
Model:	EMCO 314	None	Green M+L	None	None

Standard_	FCC Part 15.249
Limits_	12
Test Distance_	3 meters

Frequency	Reading	Det.	Ant. Pol.	Ant. Factor	Pre-Amp	Insert. Loss	D. F.	Net	Limit @3m	Margin
MHz	dB(uV)	P/A/Q	H/V	dB(1/m)	dB	dB	dB	dB(uV/m)	dB(uV/m)	dB
902.0	60.5	p	h	23.1	0.0	0.0	0.0	83.6	94.0	-10.4

- Notes:**
- a) P: Peak; A: Average; Q: Quasi Peak; H: Horizontal; V: Vertical; OCF: Other Correction Factor; DF: Distance Factor
  - b) Insert. Loss = Cable A + Cable B + OCF.
  - c) Negative signs (-) in Margin column signify levels below the limits.
  - d) All other emissions not reported are below the equipment noise floor which is at least 20 dB below the limits.

**Radiated Emissions Test Data**

Company: GVC  
EUT: 900Mhz cordless phone: base unit  
Project #: J98036684  
Test Mode: TX@low channel

Model #: CT-900/CT-910  
S/N or FCC: not labeled  
Engineer: C.Kwan  
Date of Test: 03/02/99

Initial: 

	Antenna	Pre-Amp	Cable A	Cable B	OCF
Number:	B	B	12	0	0
Model:	EMCO 311	CDI P1000	Green M+L	None	None

Standard_	FCC Part 15.249
Limits_	12
Test Distance_	3 meters

Frequency MHz	Reading dB(uV)	Det. P/A/Q	Ant. Pol. H/V	Ant. Factor dB(1/m)	Pre-Amp dB	Insert. Loss dB	D.F. dB	Net dB(uV/m)	Limit @3m dB(uV/m)	Margin dB
1804.5	34.0	p	v	24.9	29.3	1.9	0.0	31.5	54.0	-22.5
1804.5	32.4	a	v	24.9	29.3	1.9	0.0	29.9	54.0	-24.1
2706.1	40.5	p	v	27.9	28.4	2.3	0.0	42.3	74.0	-31.7
2706.1	40.2	a	v	27.9	28.4	2.3	0.0	42.0	54.0	-12.0
3608.1	42.7	p	v	31.3	27.8	2.7	0.0	48.9	74.0	-25.2
3608.1	42.1	a	v	31.3	27.8	2.7	0.0	48.3	54.0	-5.8
4510.1	28.5	p	v	32.1	27.9	3.2	0.0	35.9	74.0	-38.1
4510.1	27.2	a	v	32.1	27.9	3.2	0.0	34.6	54.0	-19.4
5412.3	28.9	p	v	33.1	28.3	3.5	0.0	38.2	74.0	-35.8
5412.3	28.0	a	v	33.1	28.3	3.5	0.0	36.3	54.0	-17.7
6314.4	29.2	p	v	34.4	28.0	3.9	0.0	39.5	74.0	-34.5
6314.4	27.2	a	v	34.4	28.0	3.9	0.0	37.5	54.0	-16.5
7216.4	26.7	p	v	36.3	28.0	4.3	0.0	39.3	74.0	-34.7
7216.4	25.0	a	v	36.3	28.0	4.3	0.0	37.6	54.0	-16.4
8118.8	28.0	p	v	36.9	27.2	4.8	0.0	42.5	74.0	-31.5
8118.8	26.2	a	v	36.9	27.2	4.8	0.0	40.7	54.0	-13.3
9020.8	26.3	p	v	38.2	26.8	4.7	0.0	42.4	74.0	-31.6
9020.8	24.2	a	v	38.2	26.8	4.7	0.0	40.3	54.0	-13.7

- Notes:**
- a) P: Peak; A: Average; Q: Quasi Peak; H: Horizontal; V: Vertical; OCF: Other Correction Factor; DF: Distance Factor
  - b) Insert. Loss = Cable A + Cable B + OCF.
  - c) Negative signs (-) in Margin column signify levels below the limits.
  - d) All other emissions not reported are below the equipment noise floor which is at least 20 dB below the limits.

**Radiated Emissions Test Data**

Company: GVC  
 EUT: 900MHz cordless phone, base unit  
 Project #: J98036684  
 Test Mode: TX@high channel

Model #: CT-900/CT-910  
 S/N or FCC: not labeled  
 Engineer: C.Kwan  
 Date of Test: 03/02/99

Initial: *[Signature]*

	Antenna	Pre-Amp	Cable A	Cable B	OCF
Number:	1	0	12	0	0
Model:	EMCO 314	None	Green M+L	None	None

Standard_	FCC Part 15.249
Limits_	12
Test Distance_	3 meters

Frequency	Reading	Det.	Ant. Pol.	Ant. Factor	Pre-Amp	Insert. Loss	D. F.	Net	Limit @3m	Margin
MHz	dB(uV)	P/A/Q	H/V	dB(1/m)	dB	dB	dB	dB(uV/m)	dB(uV/m)	dB
903.8	61.0	p	h	23.1	0.0	0.0	0.0	84.1	94.0	-9.9

- Notes:**
- a) P: Peak; A: Average; Q: Quasi Peak; H: Horizontal; V: Vertical; OCF: Other Correction Factor; DF: Distance Factor
  - b) Insert. Loss = Cable A + Cable B + OCF.
  - c) Negative signs (-) in Margin column signify levels below the limits.
  - d) All other emissions not reported are below the equipment noise floor which is at least 20 dB below the limits.



**Radiated Emissions Test Data**

Company: GVC  
EUT: 900MHz cordless phone: base unit  
Project #: J98036684  
Test Mode: TX@high channel

Model #: CT-900/CT-910  
S/N or FCC: not labeled  
Engineer: C.Kwan  
Date of Test: 03/02/99

Initial: *CK*

	Antenna	Pre-Amp	Cable A	Cable B	OCF
Number:	8	8	12	0	0
Model:	EMCO 311	CDI P1000	Green M+L	None	None

Standard_	FCC Part 15.249
Limits_	12
Test Distance_	3 meters

Frequency MHz	Reading dB(uV)	Det. P/A/Q	Ant. Pol. H/V	Ant. Factor dB(1/m)	Pre-Amp dB	Insert. Loss dB	D. F. dB	Net dB(uV/m)	Limit @3m dB(uV/m)	Margin dB
1807.9	34.1	p	v	24.9	29.3	1.9	0.0	31.6	54.0	-22.4
1807.9	33.4	a	v	24.9	29.3	1.9	0.0	30.9	54.0	-23.1
2711.9	45.6	p	v	27.9	28.4	2.3	0.0	47.4	74.0	-26.6
2711.9	45.5	a	v	27.9	28.4	2.3	0.0	47.3	54.0	-6.7
3615.8	43.9	p	v	31.3	27.8	2.7	0.0	50.1	74.0	-24.0
3615.8	43.6	a	v	31.3	27.8	2.7	0.0	49.8	54.0	-4.3
4519.7	31.3	p	v	32.1	27.9	3.2	0.0	38.7	74.0	-35.3
4519.7	30.1	a	v	32.1	27.9	3.2	0.0	37.5	54.0	-16.5
5423.4	30.7	p	h	32.9	28.3	3.5	0.0	38.8	74.0	-35.2
5423.4	23.6	a	h	32.9	28.3	3.5	0.0	31.7	54.0	-22.3
6327.7	31.8	p	v	34.4	28.0	3.9	0.0	42.1	74.0	-31.9
6327.7	30.2	a	v	34.4	28.0	3.9	0.0	40.5	54.0	-13.5
7231.5	28.5	p	v	36.3	28.0	4.3	0.0	41.1	74.0	-32.9
7231.5	26.5	a	v	36.3	28.0	4.3	0.0	39.1	54.0	-14.9
8135.5	29.5	p	v	36.9	27.2	4.8	0.0	44.0	74.0	-30.0
8135.5	28.7	a	v	36.9	27.2	4.8	0.0	43.2	54.0	-10.8
9039.4	25.6	p	v	38.2	26.8	4.7	0.0	41.7	74.0	-32.3
9039.4	24.5	a	v	38.2	26.8	4.7	0.0	40.6	54.0	-13.4

- Notes:**
- a) P: Peak; A: Average; Q: Quasi Peak; H: Horizontal; V: Vertical; OCF: Other Correction Factor; DF: Distance Factor
  - b) Insert. Loss = Cable A + Cable B + OCF.
  - c) Negative signs (-) in Margin column signify levels below the limits.
  - d) All other emissions not reported are below the equipment noise floor which is at least 20 dB below the limits.

**Radiated Emissions Test Data**

Company: GVC  
EUT: 900MHz cordless phone, hand unit  
Project #: J98036684  
Test Mode: TX @ low channel

Model #: CT-900/CT-910  
S/N or FCC: not labeled  
Engineer: C.Kwan  
Date of Test: 03/02/99

Initial: 

	Antenna	Pre-Amp	Cable A	Cable B	OCF
Number:	1	0	12	0	0
Model:	EMCO 314	None	Green M+L	None	None

Standard_	FCC Part 15.249
Limits_	12
Test Distance_	3 meters

Frequency	Reading	Det.	Ant. Pol.	Ant. Factor	Pre-Amp	Insert. Loss	D. F.	Net	Limit @3m	Margin
MHz	dB(uV)	P/A/Q	H/V	dB(1/m)	dB	dB	dB	dB(uV/m)	dB(uV/m)	dB
926.1	61.6	p	v	20.9	0.0	0.0	0.0	82.5	94.0	-11.5

- Notes:**
- a) P: Peak; A: Average; Q: Quasi Peak; H: Horizontal; V: Vertical; OCF: Other Correction Factor; DF: Distance Factor
  - b) Insert. Loss = Cable A + Cable B + OCF.
  - c) Negative signs (-) in Margin column signify levels below the limits.
  - d) All other emissions not reported are below the equipment noise floor which is at least 20 dB below the limits.

**Radiated Emissions Test Data**

Company: GVC  
EUT: 900Mhz cordless phone: hand unit  
Project #: J98036684  
Test Mode: TX @ low channel

Model #: CT-900/CT-910  
S/N or FCC: not labeled  
Engineer: C.Kwan  
Date of Test: 03/02/99

Initial: 

	Antenna	Pre-Amp	Cable A	Cable B	OCF
Number:	B	B	12	0	0
Model:	EMCO 311	CDI P1000	Green M+L	None	None

Standard_	FCC Part 15.249
Limits_	12
Test Distance_	3 meters

Frequency MHz	Reading dB(uV)	Det. P/A/Q	Ant. Pol. H/V	Ant. Factor dB(1/m)	Pre-Amp dB	Insert. Loss dB	D. F. dB	Net dB(uV/m)	Limit @3m dB(uV/m)	Margin dB
1843.8	32.1	p	h	24.7	29.3	1.9	0.0	29.4	54.0	-24.6
1843.8	30.6	a	h	24.7	29.3	1.9	0.0	27.9	54.0	-26.1
2778.3	39.6	p	h	28.1	28.4	2.3	0.0	41.6	74.0	-32.4
2778.3	37.0	a	h	28.1	28.4	2.3	0.0	39.0	54.0	-15.0
3704.2	35.7	p	h	31.5	27.8	2.7	0.0	42.1	74.0	-32.0
3704.2	35.0	a	h	31.5	27.8	2.7	0.0	41.4	54.0	-12.6
4630.2	28.0	p	h	32.2	28.0	3.2	0.0	35.4	74.0	-38.6
4630.2	26.2	a	h	32.2	28.0	3.2	0.0	33.6	54.0	-20.4
5556.2	28.7	p	h	34.4	28.3	3.7	0.0	36.5	74.0	-37.5
5556.2	25.2	a	h	34.4	28.3	3.7	0.0	35.0	54.0	-19.0
6482.3	29.1	p	h	34.7	28.0	3.9	0.0	39.7	74.0	-34.3
6482.3	27.1	a	h	34.7	28.0	3.9	0.0	37.7	54.0	-16.3
7408.3	25.9	p	h	35.8	28.0	4.3	0.0	38.0	74.0	-36.0
7408.3	25.1	a	h	35.8	28.0	4.3	0.0	37.2	54.0	-16.8
8334.3	26.1	p	h	37.0	27.2	4.8	0.0	40.7	74.0	-33.3
8334.3	24.3	a	h	37.0	27.2	4.8	0.0	38.9	54.0	-15.1
9260.3	26.4	p	h	37.8	27.0	4.7	0.0	41.9	74.0	-32.1
9260.3	24.3	a	h	37.8	27.0	4.7	0.0	39.8	54.0	-14.2

- Notes:**
- a) P: Peak; A: Average; Q: Quasi Peak; H: Horizontal; V: Vertical; OCF: Other Correction Factor; DF: Distance Factor
  - b) Insert. Loss = Cable A + Cable B + OCF.
  - c) Negative signs (-) in Margin column signify levels below the limits.
  - d) All other emissions not reported are below the equipment noise floor which is at least 20 dB below the limits.

**Radiated Emissions Test Data**

Company: GVC  
EUT: 900Mhz cordless phone; hand unit  
Project #: J98036684  
Test Mode: TX@high channel

Model #: CT-900/CT-910  
S/N or FCC not labeled  
Engineer: C.Kwan  
Date of Test: 03/02/99

Initial 

	Antenna	Pre-Amp	Cable A	Cable B	OCF
Number:	1	0	12	0	0
Model:	EMCO 314	None	Green M+L	None	None

Standard_	FCC Part 15.249
Limits_	12
Test Distance_	3 meters

Frequency	Reading	Det.	Ant. Pol.	Ant. Factor	Pre-Amp	Insert. Loss	D. F.	Net	Limit @3m	Margin
MHz	dB(uV)	P/A/Q	H/V	dB(1/m)	dB	dB	dB	dB(uV/m)	dB(uV/m)	dB
927.9	61.4	p	v	20.9	0.0	0.0	0.0	82.3	94.0	-11.7

- Notes:**
- a) P: Peak; A: Average; Q: Quasi Peak; H: Horizontal; V: Vertical; OCF: Other Correction Factor; DF: Distance Factor
  - b) Insert. Loss = Cable A + Cable B + OCF.
  - c) Negative signs (-) in Margin column signify levels below the limits.
  - d) All other emissions not reported are below the equipment noise floor which is at least 20 dB below the limits.

**Radiated Emissions Test Data**

Company: GVC  
EUT: 900Mhz cordless phone; hand unit  
Project #: J98036684  
Test Mode: TX@high channel

Model #: CT-900 / CT-910  
S/N or FCC: not labeled  
Engineer: C.Kwan  
Date of Test: 03/02/99

Initial: 

	Antenna	Pre-Amp	Cable A	Cable B	OCF
Number:	B	B	12	0	0
Model:	EMCO 311	CDI P1000	Green M+L	None	None

Standard_	FCC Part 15.249
Limits_	12
Test Distance_	3 meters

Frequency MHz	Reading dB(uV)	Det. P/A/Q	Ant. Pol. H/V	Ant. Factor dB(1/m)	Pre-Amp dB	Insert. Loss dB	D. F. dB	Net dB(uV/m)	Limit @3m dB(uV/m)	Margin dB
1855.9	34.2	p	v	24.9	29.3	1.9	0.0	31.7	54.0	-22.3
1855.9	32.0	a	v	24.9	29.3	1.9	0.0	29.5	54.0	-24.5
2783.8	39.2	p	v	27.9	28.4	2.3	0.0	41.0	74.0	-33.0
2783.8	38.5	a	h	28.1	28.4	2.3	0.0	40.5	54.0	-13.5
3711.8	35.4	p	h	31.5	27.8	2.7	0.0	41.8	74.0	-32.3
3711.8	35.0	a	h	31.5	27.8	2.7	0.0	41.4	54.0	-12.6
4639.8	26.5	p	h	32.2	28.0	3.2	0.0	33.9	74.0	-40.1
4639.8	23.8	a	h	32.2	28.0	3.2	0.0	31.2	54.0	-22.8
5567.8	26.9	p	h	34.4	28.3	3.7	0.0	36.7	74.0	-37.3
5567.8	24.4	a	h	34.4	28.3	3.7	0.0	34.2	54.0	-19.8
6495.7	27.7	p	h	34.7	28.0	3.9	0.0	38.3	74.0	-35.7
6495.7	25.1	a	h	34.7	28.0	3.9	0.0	35.7	54.0	-18.3
7423.7	26.5	p	h	35.8	28.0	4.3	0.0	38.6	74.0	-35.4
7423.7	24.0	a	h	35.8	28.0	4.3	0.0	36.1	54.0	-17.9
8351.7	26.7	p	h	37.0	27.2	4.8	0.0	41.3	74.0	-32.7
8351.7	24.0	a	h	37.0	27.2	4.8	0.0	38.6	54.0	-15.4
9279.7	27.0	p	h	37.8	27.0	4.7	0.0	42.5	74.0	-31.5
9279.7	24.1	a	h	37.8	27.0	4.7	0.0	39.6	54.0	-14.4

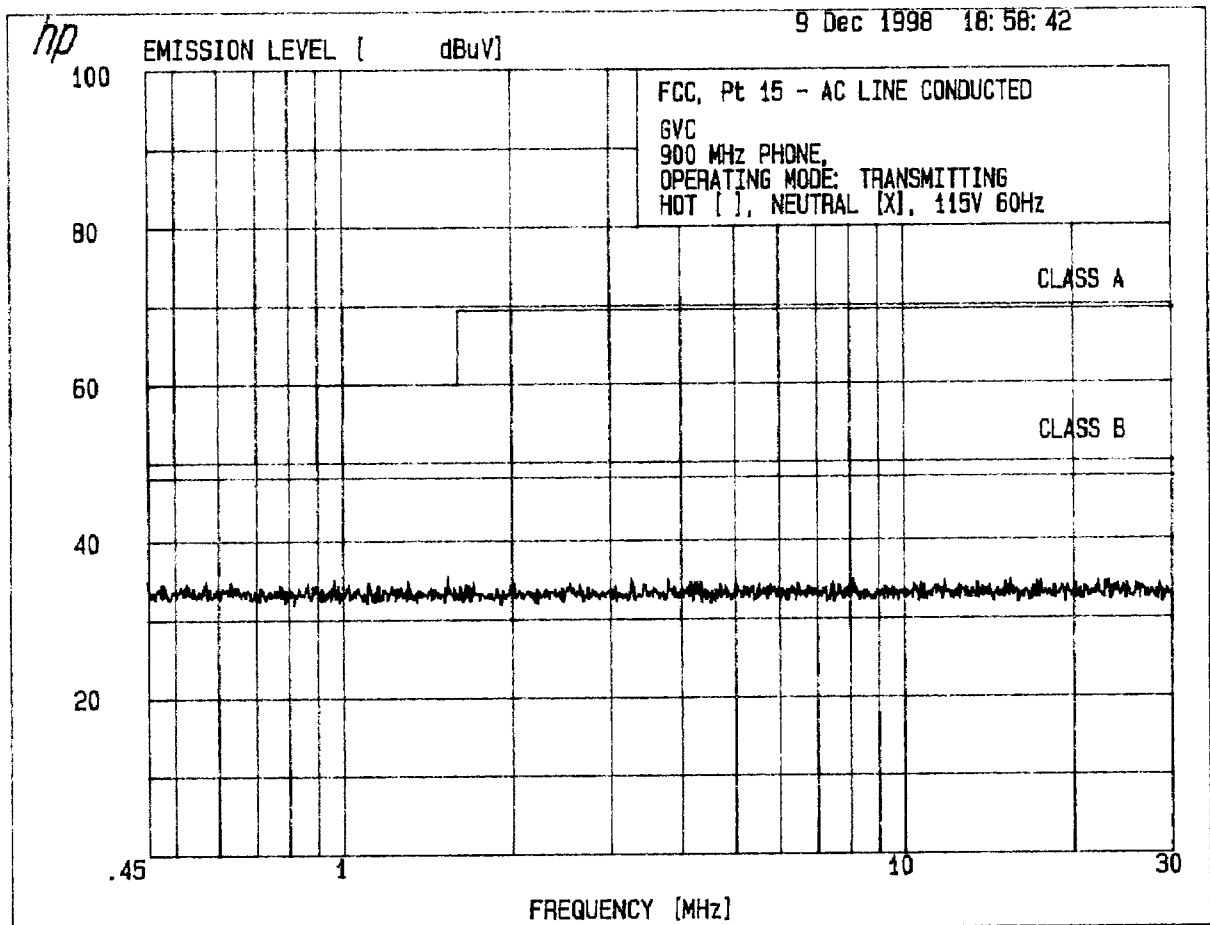
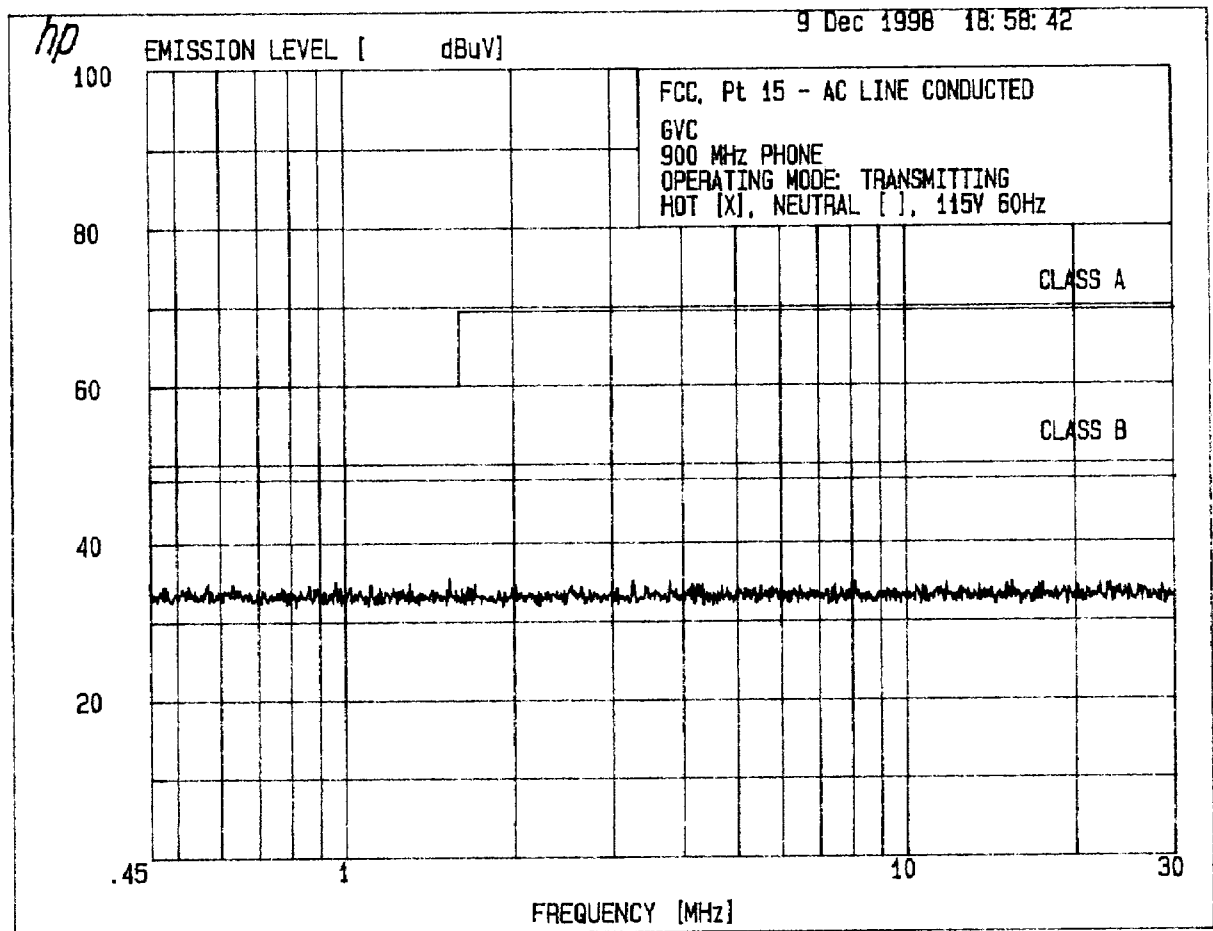
- Notes:**
- a) P: Peak; A: Average; Q: Quasi Peak; H: Horizontal; V: Vertical; OCF: Other Correction Factor; DF: Distance Factor
  - b) Insert. Loss = Cable A + Cable B + OCF.
  - c) Negative signs (-) in Margin column signify levels below the limits.
  - d) All other emissions not reported are below the equipment noise floor which is at least 20 dB below the limits.

## 3.5 Conducted Emission Data

The data on the following pages list the significant emission frequencies, the limit and the margin of compliance.

<b>Results:</b> Passed by 12.8 dB at 3.274MHz
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Note: a) A complete scan from 0.45 - 30 MHz was made.



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9 Dec 1998 18:58:42

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3. FCC CFR 47, Pt 15

3.1 FCC, Pt 15 - AC LINE CONDUCTED

=====

GVC

900 MHz PHONE

OPERATING MODE: TRANSMITTING

HOT [X], NEUTRAL [ ], 115V 60Hz

PEAKS FOUND ABOVE 32 dBuV

PEAK#	FREQ (MHz)	AMPL (dBuV)
-------	------------	-------------

1	1.545	35.6
---	-------	------

2	3.274	35.2
---	-------	------

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9 Dec 1998 18:59:42

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3. FCC CFR 47, Pt 15

3.1 FCC, Pt 15 - AC LINE CONDUCTED

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GVC

900 MHz PHONE

OPERATING MODE: TRANSMITTING

HOT [ ], NEUTRAL [X], 115V 60Hz

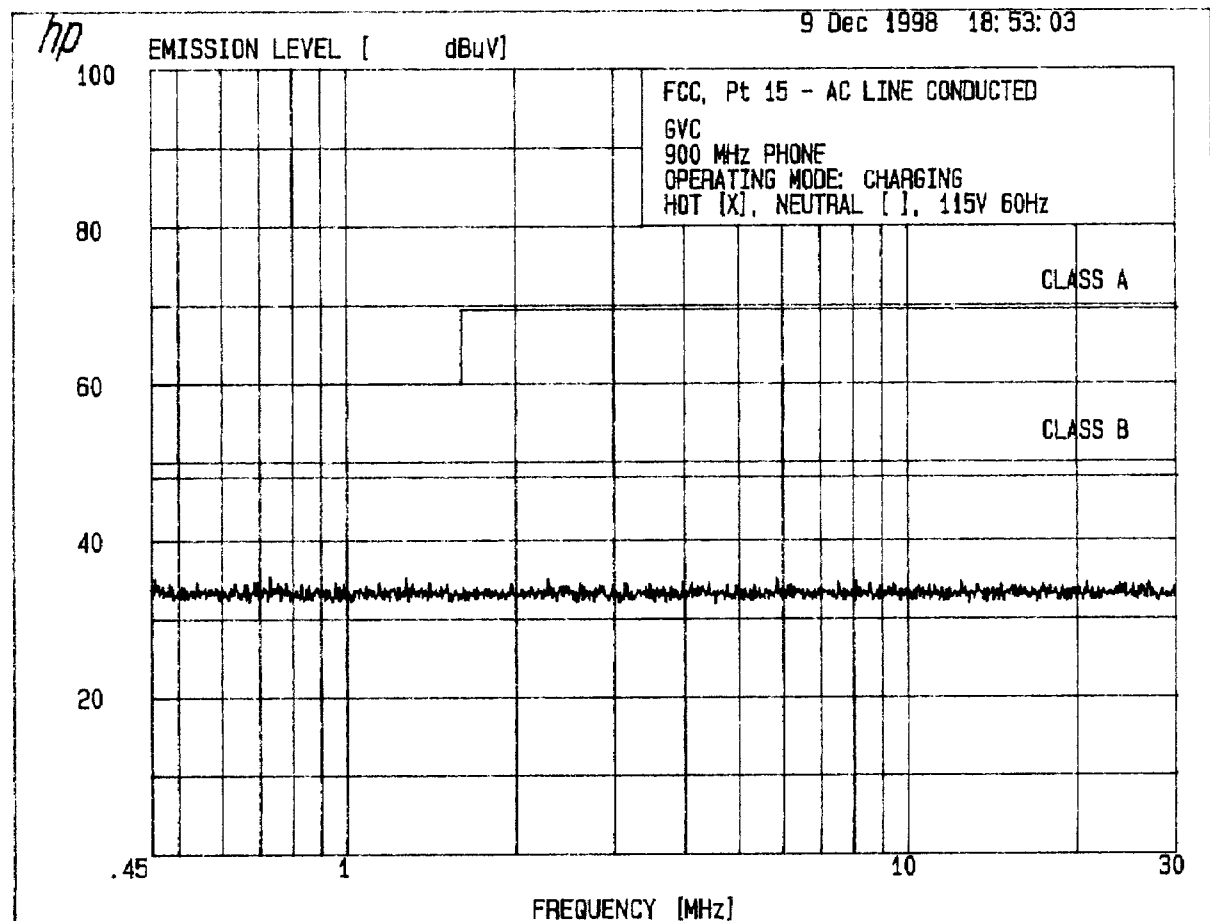
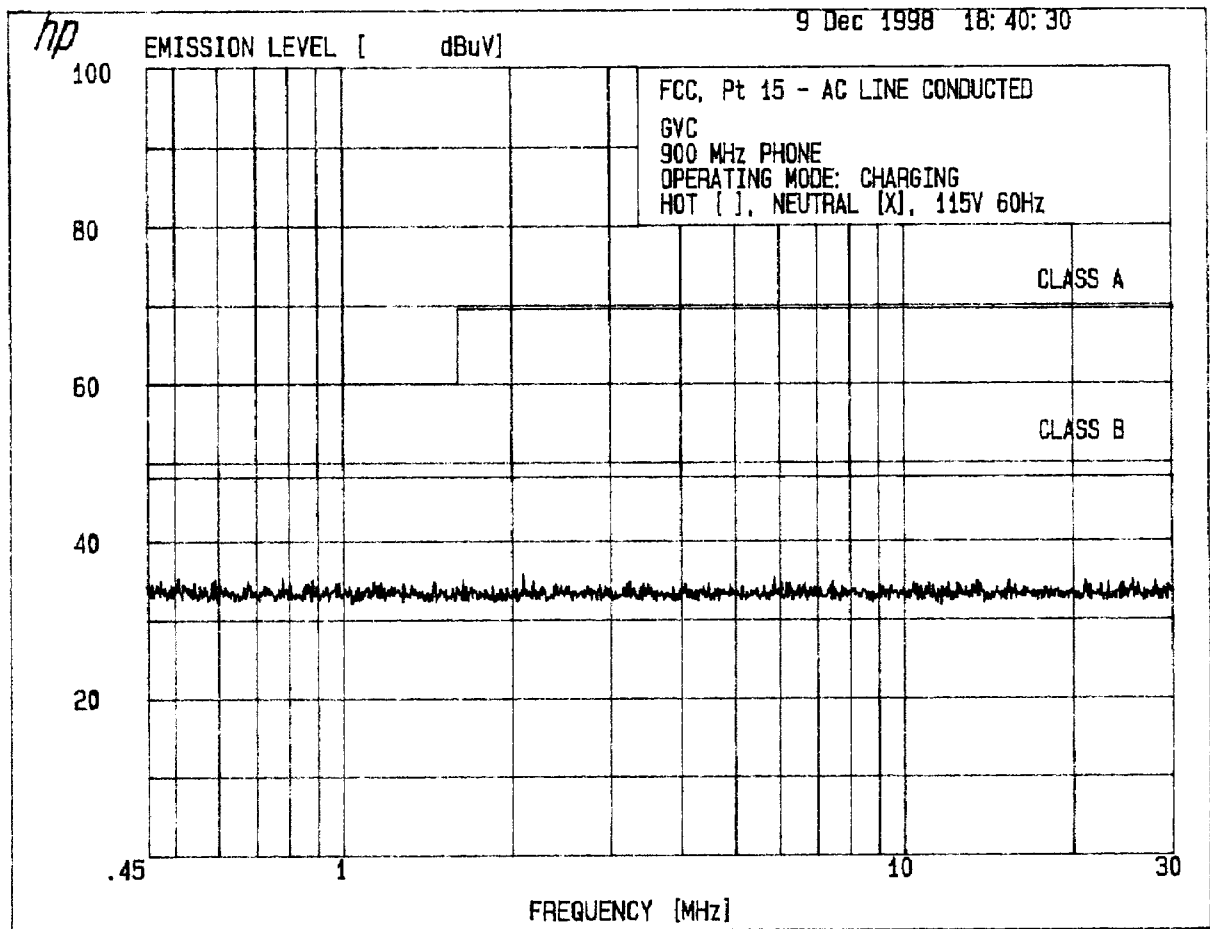
PEAKS FOUND ABOVE 32 dBuV

PEAK#	FREQ (MHz)	AMPL (dBuV)
-------	------------	-------------

1	1.545	35.6
---	-------	------

2	3.274	35.2
---	-------	------





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3 Dec 1998 18:40:30

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3. FCC CFR 47, Pt 15

3.1 FCC, Pt 15 - AC LINE CONDUCTED

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GVC

900 MHz PHONE

OPERATING MODE: CHARGING

HOT [ ], NEUTRAL [X], 115V 60Hz

PEAKS FOUND ABOVE 32 dBuV

PEAK#	FREQ (MHz)	AMPL (dBuV)
1	.7862	35.3
2	2.107	35.8
3	5.890	35.3

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9 Dec 1998 18:53:03

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3. FCC CFR 47, Pt 15

3.1 FCC, Pt 15 - AC LINE CONDUCTED

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GVC

900 MHz PHONE

OPERATING MODE: CHARGING

HOT [X], NEUTRAL [ ], 115V 60Hz

PEAKS FOUND ABOVE 32 dBuV

PEAK#	FREQ (MHz)	AMPL (dBuV)
1	.7352	35.5
2	1.285	35.3
3	5.865	35.2

## **4.0 Out of Band Emission Plot**

The following plots show the relative spurious emission level of the transmitter.

<b>Plot #</b>	<b>Description</b>
1	Base unit, low channel, 902 MHz to 902.5 MHz
2	Base unit, high channel, 902 MHz to 928 MHz
3	Hand unit, low channel, 902 MHz to 928 MHz
4	Hand unit, high channel, 927.5 MHz to 928 MHz

PLOT #1

CT-910, BASE UNIT

MKR 902.0205 MHz

REF 78.7 dB $\mu$ V

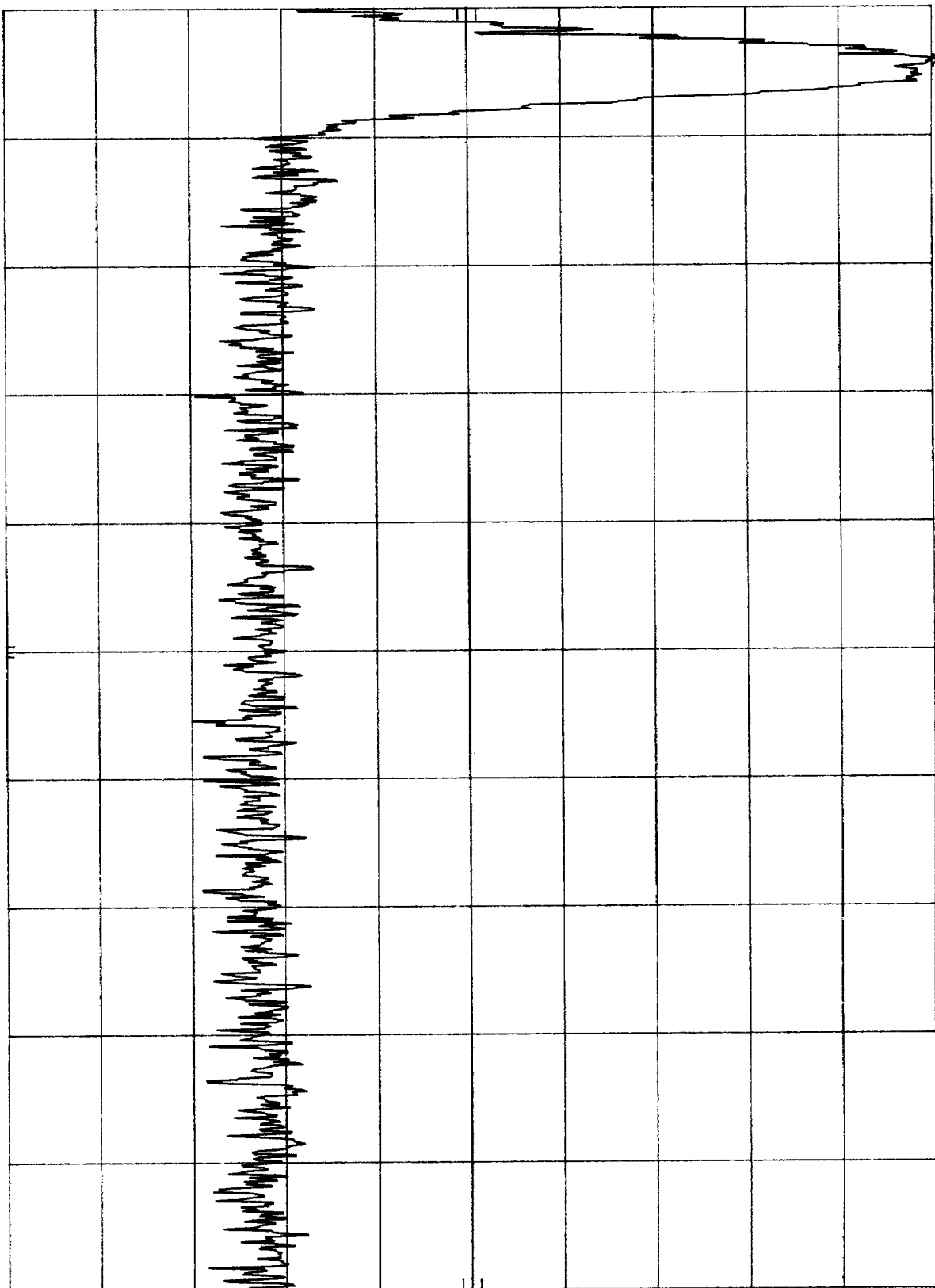
ATTEN 10 dB

78.90 dB $\mu$ V

h<sub>p</sub>

10 dB/

DL  
28.7  
dB $\mu$ V



START 902.0000 MHz

RES BW 3 KHz

VBW 10 KHz

STOP 902.5000 MHz

SWP 100 msec

PLOT #2

CT-910, BASE UNIT

MKR 902.08 MHz

REF 78.7 dBμV

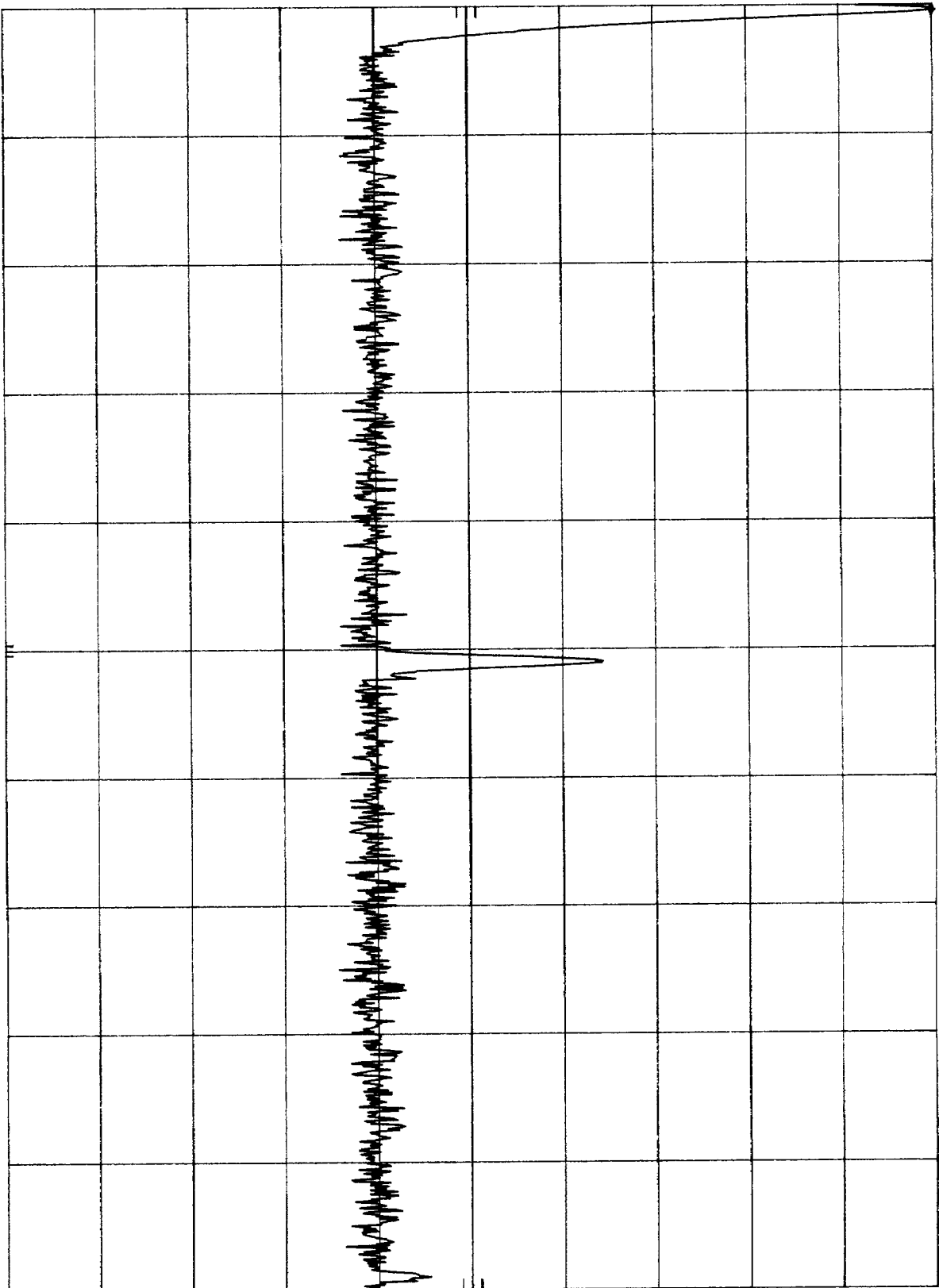
ATTEN 10 dB

78.70 dBμV

h<sub>p</sub>

10 dB/

DL  
28.7  
dBμV



START 902.00 MHz

RES BW 100 KHz

VBW 10 KHz

STOP 928.00 MHz  
SWP 75 msec

PLOT #3  
CT-910, HAND UNIT

MKR 927.92 MHz  
76.50 dB $\mu$ V

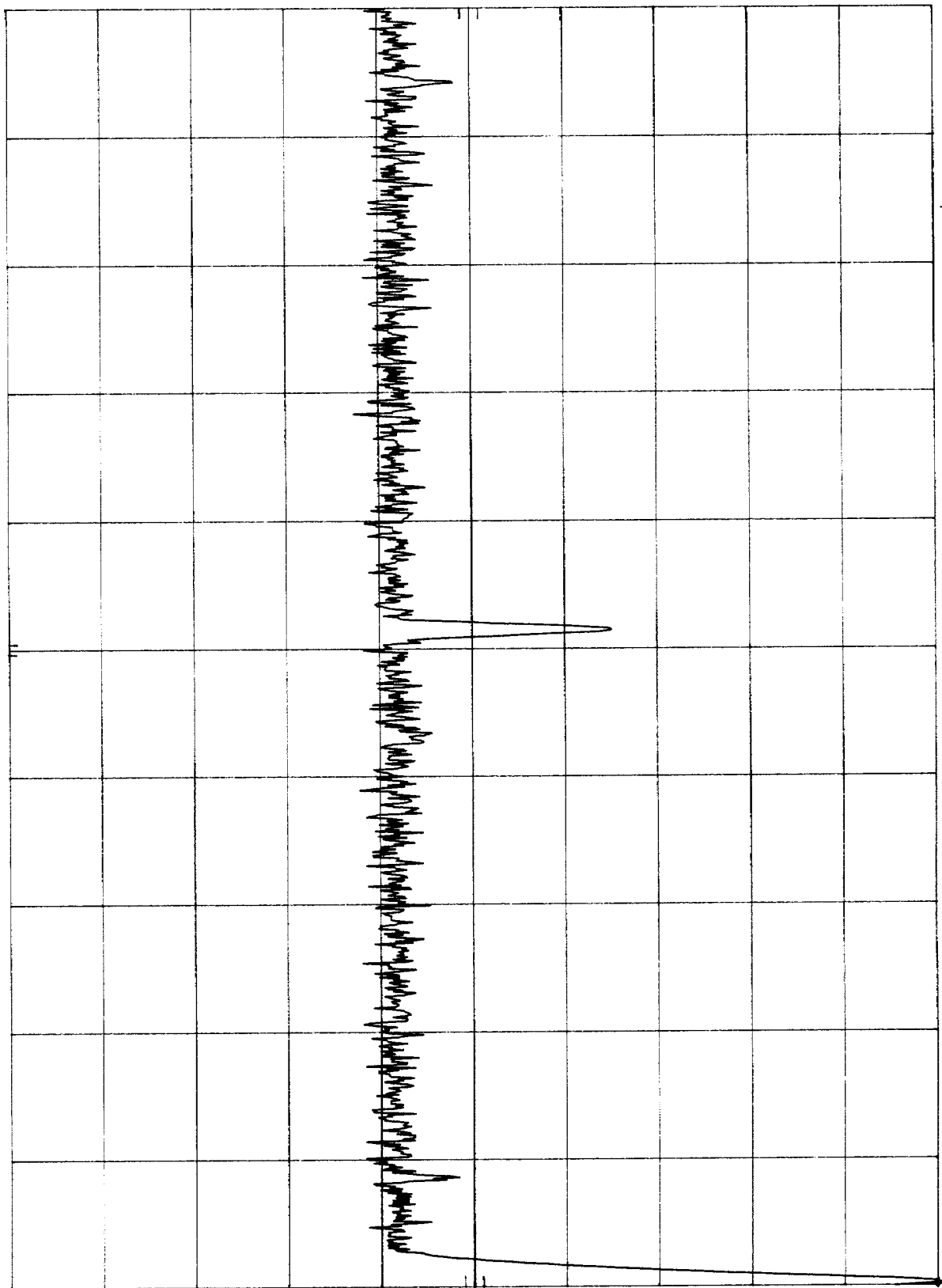
HP

REF 76.5 dB $\mu$ V

ATTEN 10 dB

10 dB/

DL  
26.5  
dB $\mu$ V



START 902.00 MHz  
RES BW 100 KHZ  
VBW 10 KHZ  
STOP 928.00 MHz  
SWP 75 msec

PLOT #4

CT-910, HAND UNIT

MKR 927.9755 MHz

h<sub>p</sub>

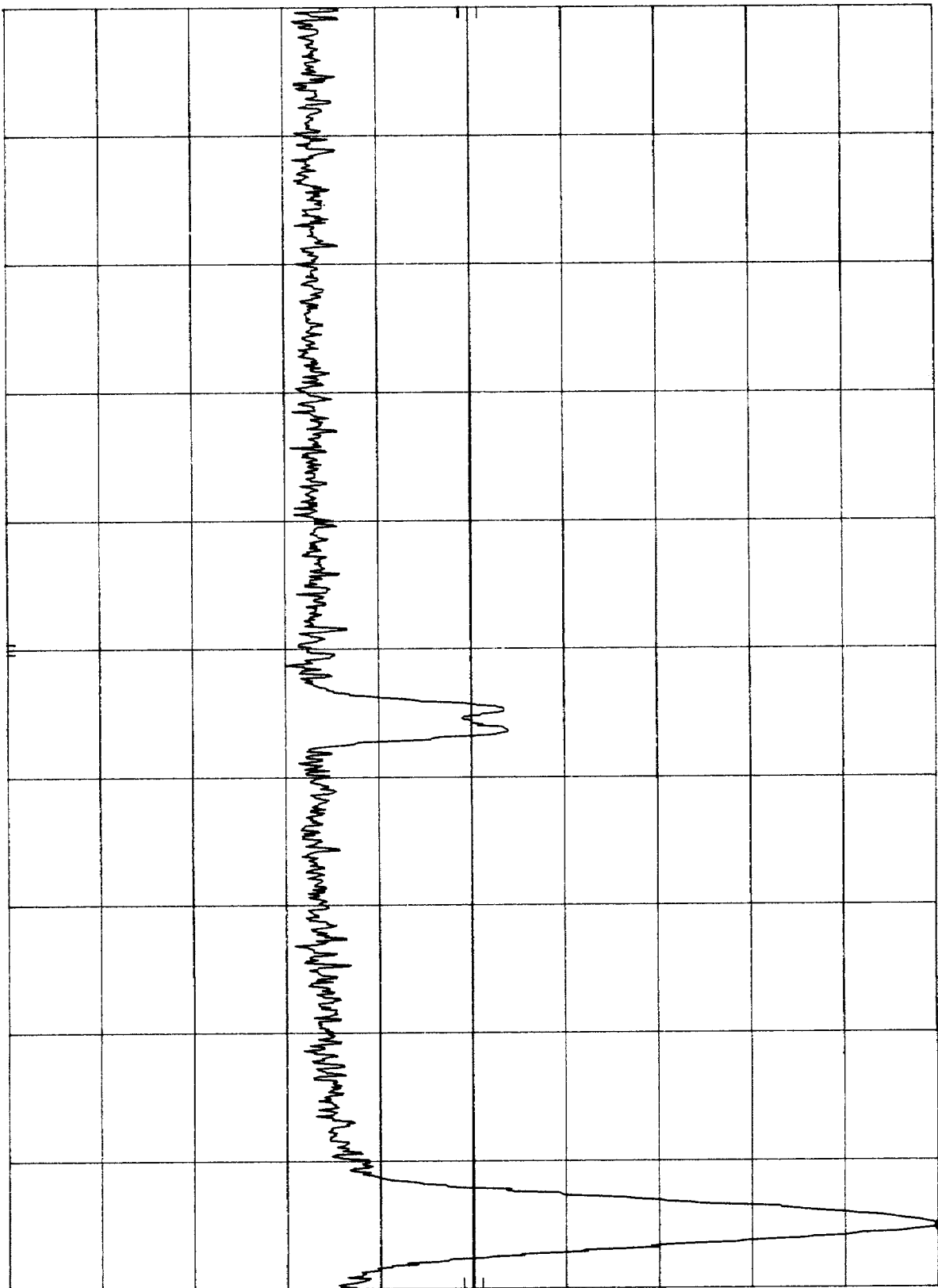
REF 76.5 dBμV

ATTEN 10 dB

76.50 dBμV

10 dB/

DL  
26.5  
dBμV



START 927.5000 MHz

RES BW 3 KHZ

VBW 10 KHZ

STOP 928.0000 MHz

SWP 100 msec

## 5.0 Antenna Requirement

✓	The transmitter uses a permanently connected antenna.
	The antenna is affixed to the EUT using a unique connector which allows for replacement of a broken antenna, but does NOT use a standard antenna jack or electrical connector.
	The EUT requires professional installation. Please refer to the attached documentation for details).