Certelecom Laboratories Inc.
Safety - EMI - Telecom - ISO Guide 25

CLASS II PERMISSIVE CHANGE

ENGINEERING TEST REPORT

ON:
VT1901 / VT1920C CORDLESS TELEPHONE
≈ Sony SPP-ID910 except cosmetic

IN ACCORDANCE WITH:
FCC PART 15, SUBPART B
RADIO RECEIVERS

PROJECT NO.: 7VT025-14C

TESTED FOR:

VTECH ENGINEERING CANADA LTD.
200-7671 ALDERBRIDGE WAY
RICHMOND, BC V6X 1Z9

TESTED BY:

CERTELECOM LABORATORIES INC.
3325 RIVER ROAD, R.R. 5
OTTAWA, ONTARIO K1V 1H2

JANUARY 1998

This document contains 41 pages including this one.

This report applies only to the items tested.

DESCRIPTION OF EQUIPMENT: 900 MHz Digital Cordless Telephone

MODEL NO.: VT1901 / VT1920C

SERIAL NO.:	Base	Handset
	261097002000002	2621097002000002

GENERAL:

The models VT1901 and VT1920c are identical other than VT1920c has LCD display and caller identification decoder.

These test were conducted on a sample of the equipment for the purpose of demonstrating compliance with FCC Part 15, Subpart B requirements for Radio Receivers.

The equipment was tested for conducted emissions from 0.45 MHz to 30 MHz using a 50 microhenry line impedance stabilization network (L.I.S.N.) as described in ANSI C63.4-1992. Peripheral equipment was also operated through a 50 microhenry L.I.S.N.

The equipment was tested for radiated emissions in accordance with the requirements of FCC Part 15, Subpart B. Frequencies were initially identified in a large shielded room. Amplitude measurements were made on an outdoor Open Area Test Site. Details of the outdoor site are on file with the FCC.

ABSTRACT:

NAME OF TEST	PARA. NO.	RESULTS
Powerline Conducted Emissions	15.107(a)	Complies
Radiated Emissions	15.109(a)	Complies

THIS TEST REPORT RELATES ONLY TO THE ITEM(S) TESTED.

THE FOLLOWING DEVIATIONS FROM, ADDITIONS TO, OR EXCLUSIONS FROM THE TEST SPECIFICATIONS HAVE BEEN MADE. None

TESTED BY: Wayne Clarke DATE: FEB 17, 98
Wayne Clarke, Technologist

APPROVED BY: W Waterhouse DATE: 17th Feb 1998
W. Waterhouse, RF Engineering Lab Manager

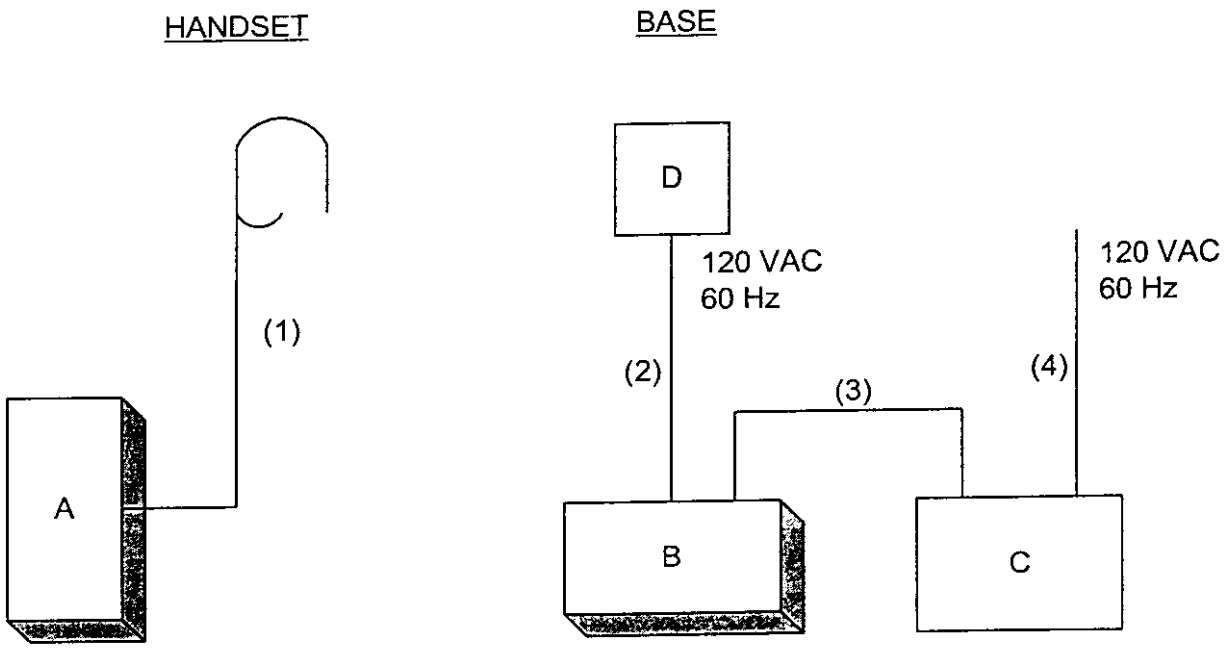
Equipment Configuration List:

Item	Description	FCC ID:	Model No.	Serial.	Rev.
(A)	Handset	None	VT1920C	2621097002000002	
(B)	Base	None	VT1920C	261097002000002	
(C)	TELCO Line Simulator	None	CL103	009	
(D)	Wall Mount AC Transformer	None	0137-00-00	None	

Inter-connection Cables

Item	Description	Length (m)
(1)	Headset Cord	2.0
(2)	DC Cord	2.0
(3)	RJ11 Cable	3.0
(4)	AC Cord	1.8

Configuration of the Equipment Under Test (E.U.T)



EQUIPMENT DETAILS

BASE

Type of Equipment:	900 MHz (Base)
Manufacturer:	VTECH Communications
Model No.:	VT1920C
Serial No.:	261097002000002
Frequency Range:	925 - 927.25
No. of Channels:	10
Operating Frequency(ies) of Sample:	925.37, 927.17 MHz
Crystal Frequency(ies):	3.58, 18.25 MHz
Primary Power Requirement:	120 VAC
Bandwidth and Emission Designator:	102k5F1D
Intermediate Frequency(ies):	10.7 MHz

EQUIPMENT DETAILS

HANDSET

Type of Equipment:	900 MHz (Handset)
Manufacturer:	VTECH Communications
Model No.:	VT1920C
Serial No.:	2621097002000002
Frequency Range:	902.3 - 905 MHz
No. of Channels:	10
Operating Frequency(ies) of Sample:	902.35 and 904.45 MHz
Crystal Frequency(ies):	18.25 MHz
Primary Power Requirement:	NICAD Battery Pack
Bandwidth and Emission Designator:	102k5F1D
Intermediate Frequency(ies):	10.7 MHz

THEORY OF OPERATION

The E.U.T. is a 900 MHz Digital Cordless Telephone, with 10 channels.

JUSTIFICATION

The E.U.T. was configured for testing as per typical installation. Position and bundling of cables were investigated to establish maximum amplitude of emissions.

The following combinations were investigated to establish worst case configuration:

(1) The base was tested in horizontal and vertical mounting positions.

(2) The handset was tested in 3 planes with and without the headset attached.

EXERCISE PROGRAM

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

Exercise mode:

(1) The E.U.T. was in off hook mode.

EQUIPMENT MODIFICATIONS

To achieve compliance the following changes were made by the manufacturer:

Introduction

The following is a summary, of the changes between the original PDL and the PDL MKII cordless telephone platforms. The purpose of the MKII is to perform a cost reduction as well as performance improvements over the MKI platform. This document will discuss the changes to handset and to the base unit separately in the following sections.

Handset Changes

Changes to the handset do not involve any exterior cosmetic or chassis changes. The PCB dimensions remain unchanged as well as most of the major component locations and general topology. There is no change to the antenna or antenna structure.

Handset Unit RF Circuit Changes

The RF changes do not significantly change the RF circuit layout - most changes are limited to component values only. The structure of the RF circuit, the RF shielding configuration (including the location of internal partition walls), and the IF and LO frequencies are not changed in any way. Frequency control of the on-board oscillators is via an unchanged reference frequency circuit, and an unchanged PLL.

Change	Reason For Change
– SAW Filter F3 is changed from a leaded to a surface mount package.	Cost reduction, no performance change.
– Change Q2 from NE68139 to NE85630	Change package style for receiver LNA transistor for cost reduction. Transistor die remains the same.
– Change Q4 from NE85633 to NE85630	Change package style for 2nd receiver amp for cost reduction. Transistor die remains the same.
– Change Q1 from BFR92A to 2SC4083	Change transistor in transmit amp for cost reduction. Transistor die does not remain the same; however, its performance for this application is similar to that provided by the original transistor.
– Delete Q10, Q11 (BFR92A) – Delete R56, R544 – Change R55, R43, C80, C73 to Or – Delete C25, C90 – Change R32, R41 from 470r to 300r	More detailed testing along with an improvement in the minimum input level spec for synthesizer U2 has revealed that the transmit and receive PLL buffers Q10 and Q11 are not required. Identical performance can be obtained eliminating Q10 & Q11 and slightly increasing the input level by reducing R32 and R41.
– Change Q8 from BFR92A to 2SC4083 – Change R31 from 150r 1% to 100r 1% – Change R29 from 47 r to 24r	Change transistor in transmit VCO for cost reduction. Transistor die does not remain the same; however, its performance for this application is similar to that provided by the original transistor. 2 bias resistor changes were made to maintain system performance.
– Change Q9 from BFR92A to 2SC4083 – Change R39 from 15k0 1% to 10k0 1% – Change R38 from 10k0 1% to 11k0 1%	Change transistor in receive VCO for cost reduction. Transistor die does not remain the same; however, its performance for this application is similar to that provided by the original transistor. 2 bias resistor changes were made to maintain system performance

Handset Unit RF Circuit Changes, continued

Change	Reason For Change
– Remove C49 tuning cap – Remove C53 – Change C54 from 1p5 to N/U – Change C52 from 7p5 to 4p7 – Change R58 from 3k9 to 1k8 – Change C83 from 470n to 1u – Change C84 from 100n to 220n	Remove tuning capacitor from transmit VCO for cost reduction and to improve manufacturability and long-term reliability. Our manufacturing process control has demonstrated that we can remove the tuning capacitor from the VCO while maintaining the required level of performance. Removing the tuning cap eliminates any potential problems caused by drift and mechanical vibration. Surrounding capacitor and resistor changes are to compensate for the removal of the tuning cap.
– Remove C88 tuning cap – Remove C68 – Change C69 from 4p7 to 10p – Change C67 from 2p7 to 1p8 – Change R47 from 51k to 18k – Change C76 from 15n to 39n – Change C89 from 4n7 to 12n	Remove tuning capacitor from transmit VCO for cost reduction and to improve manufacturability and long-term reliability. Our manufacturing process control has demonstrated that we can remove the tuning capacitor from the VCO while maintaining the required level of performance. Removing the tuning cap eliminates any potential problems caused by drift and mechanical vibration. Surrounding capacitor and resistor changes are to compensate for the removal of the tuning cap

Handset Unit Audio Circuit Changes

The handset audio changes consist of changes to different packages and component substitutions to facilitate cost reductions.

Change	Reason For Change
– C103 & C87 have been changed from an SMD to a leaded package (now C91 & C123)	Cost reduction; no performance change.
– U11 will be directly die-bonded to a small daughter PCB and soldered directly to the main PCB.	Cost reduction; the exact same semiconductor die will be used, only the package is changed.
– Voltage regulator U5 (NS LP2981) will be substituted with a Torex XC62AP30 (U6)	Cost reduction; drop in replacement part.
– C98, C94 changed from SMD to leaded capacitor (now C93, C99) – C119 deleted	Cost reduction.

Base Unit Changes

Changes to the base do not involve any exterior cosmetic or chassis changes. There is no change to the antenna or antenna structure.

Changes to the base components are made to the RF circuit (the same changes as those made to the handset RF circuit), to the audio circuits and to the PCB construction. The original base unit consists of a single PCB that contains the RF, audio, and telephone line interface circuits. The revised base unit will contain 2 PCBs, splitting the telephone line interface from the RF and audio circuits.

Base Unit RF Circuit Changes

The RF changes made to the base unit do not significantly change the RF circuit layout - most changes are limited to component values only. The structure of the RF circuit, the RF shielding configuration (including the location of internal partition walls), and the IF and LO frequencies are not changed in any way. Frequency control of the onboard oscillators is via an unchanged reference frequency circuit, and an unchanged PLL.

Change	Reason For Change
– SAW Filter F3 is changed from a leaded to a surface mount package.	Cost reduction, no performance change.
– Change Q2 from NE68139 to NE68130 (now Q24)	Change package style for receiver LNA transistor for cost reduction. Transistor die remains the same.
– Change Q4 from NE85633 to NE85630	Change package style for 2nd receiver amp for cost reduction. Transistor die remains the same.
– Change Q1 from BFR92A to 2SC4083	Change transistor in transmit amp for cost reduction. Transistor die does not remain the same; however, its performance for this application is similar to that provided by the original transistor.
– Delete Q10, Q11 (BRF92A) – Delete R56, R44, R55, R43,C80, C73, C25 and C90	More detailed testing along with an improvement in the minimum input level spec for synthesizer U2 has revealed that the transmit and receive PLL buffers Q10 and Q11 are not required.
– Change Q8 from BFR92A to 2SC4083	Change transistor in transmit VCO for cost reduction. Transistor die does not remain the same; however, its performance for this application is similar to that provided by the original transistor.

Base Unit RF Circuit Changes, continued

Change	Reason For Change
– Change Q9 from BFR92A to 2SC4083	Change transistor in transmit VCO for cost reduction. Transistor die does not remain the same; however, its performance for this application is similar to that provided by the original transistor.
– Remove C49 tuning cap – Remove C53 – Change C52 from 4p7 to 9p1 – Change R58 from 3k9 to 1k8 – Change C83 from 470n to 1u – Change C84 from 100n to 220n	Remove tuning capacitor from transmit VCO for cost reduction and to improve manufacturability and long-term reliability. Our manufacturing process control has demonstrated that we can remove the tuning capacitor from the VCO while maintaining the required level of performance. Removing the tuning cap eliminates any potential problems caused by drift and mechanical vibration. Surrounding capacitor and resistor changes are to compensate for the removal of the tuning cap.
– Remove C88 tuning cap – Remove C68 – Change C69 from 4p7 to 10p – Change C67 from 2p7 to 1p8 – Change R48 from 51k to 18k – Change C76 from 15n to 39n – Change C89 from 4n7 to 12n	Remove tuning capacitor from transmit VCO for cost reduction and to improve manufacturability and long-term reliability. Our manufacturing process control has demonstrated that we can remove the tuning capacitor from the VCO while maintaining the required level of performance. Removing the tuning cap eliminates any potential problems caused by drift and mechanical vibration. Surrounding capacitor and resistor changes are to compensate for the removal of the tuning cap.

Base Unit Baseband Changes

Change	Reason For Change
– All components on the Line Interface PC8 are not leaded components (as opposed to SDM). All values are the same except as described below.	Cost reduction.
– U8 will be directly die-bonded to a small daughter PCB and soldered directly to the main PCB.	Cost reduction; the exact same semiconductor die will be used, only the packaging is changed.
– Voltage regulator U6 (NS LP2981) will be substituted with a Torex XC6AP30 U9	Cost reduction; drop in replacement part.
– C120, C87 changed from SMD to leaded capacitor (now C91, C99)	Cost reduction

Base Unit Baseband Changes, continued

Change	Reason For Change
– Optocoupler U4 deleted – Delete R46, R84, R85, R88, R86 and Q12 – Change U10C to U10A	Circuit simplification which will allow the ring detection to take place using the high input impedance OP-Amp circuit already in place for extracting type II CID information from tip and ring.
– Change U10D to U1C on line interface PCB – Delete Q14, R116 and R120 – Delete U10 to U1 on the line interface PCB	Designator and change to leaded on line interface PCB.
– Delete LM324 U9 and replace with an LM393 comparator U10	Replace LM324 where used as a comparator with an actual comparator for cost reduction.

NAME OF TEST: Powerline Conducted Emissions	PARA. NO.: 15.107(a)
TESTED BY: Wayne Clarke	DATE: January 27, 1998

TEST CONDITIONS: Standard Temperature and Humidity:
Standard Test Voltage:

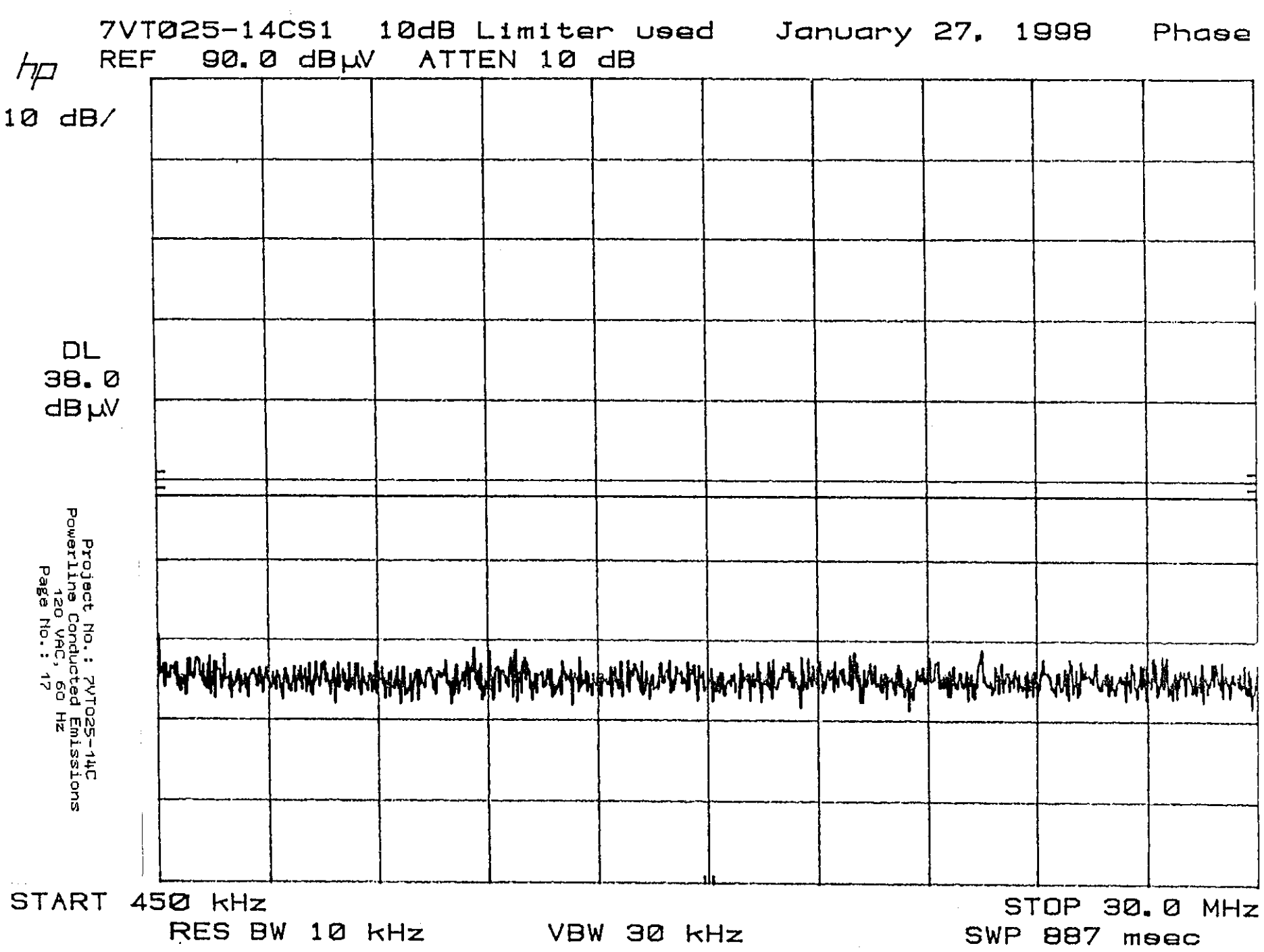
MINIMUM STANDARD: The RF energy fed back into the power lines shall not exceed 48 dBμV on any frequency between 0.45 MHz and 30 MHz inclusive.

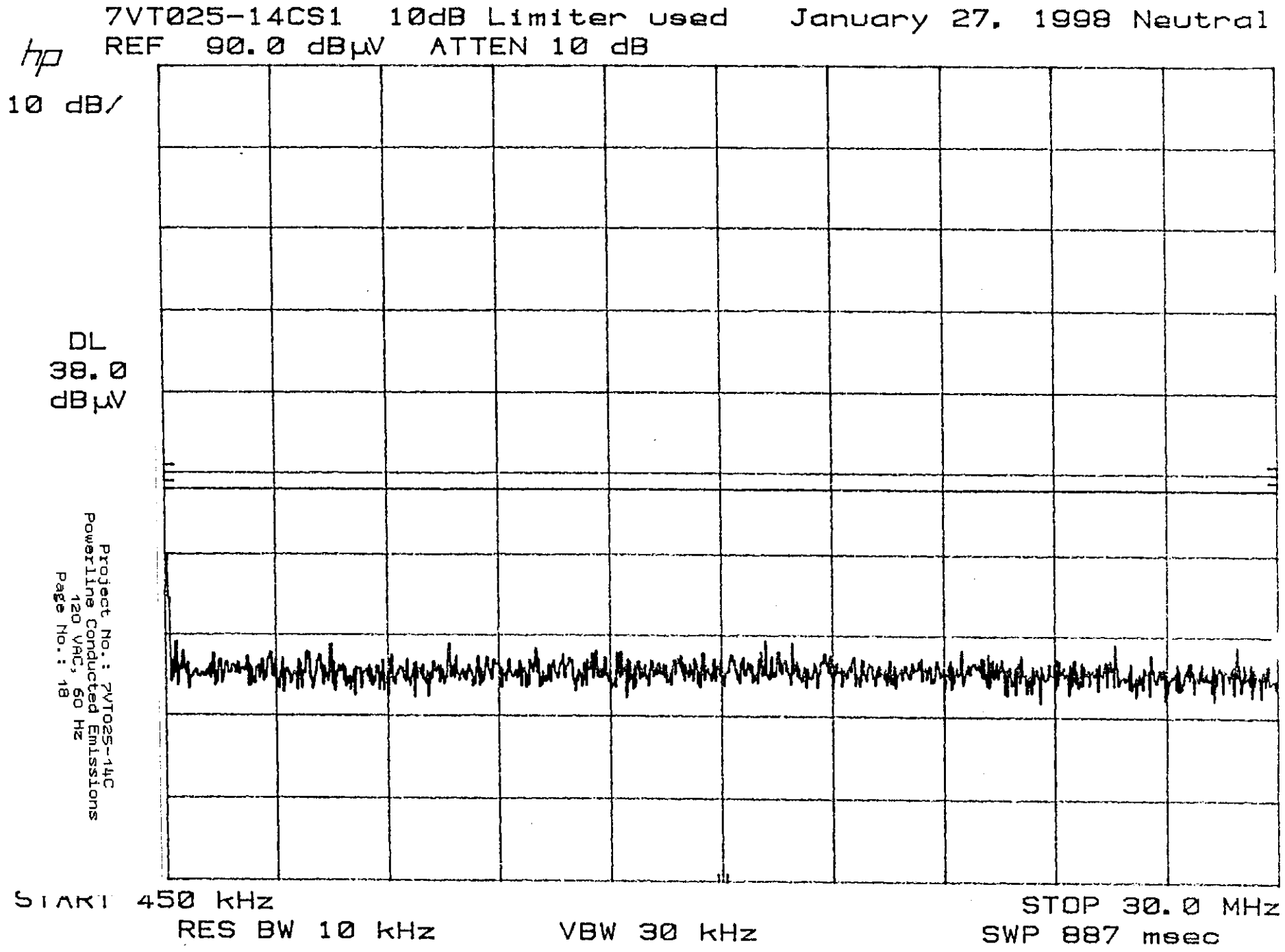
TEST RESULTS: Complies. See attached graphs.

MEASUREMENT DATA: See attached graphs.

Measurements were made using a spectrum analyzer with 10 kHz RBW, Peak detector. Any emissions that are close to the limit are measured using a test receiver with 10 kHz bandwidth, CISPR Quasi-Peak detector.

Broadband emissions are identified by switching the receiver detector function from Quasi-Peak to Average. If the amplitude of the emission drops by 6 dB or more then the emission is classified as broadband and the Quasi-Peak level is reduced by a factor of 13 dB.


7VT025-14CS1 10dB Limiter used January 27, 1998 Phase
REF 90.0 dBµV ATTEN 10 dB
10 dB/
DL
38.0
dBµV
Project No.: 7VT025-14C
Powerline Conducted Emissions
120 VAC, 60 Hz
Page No.: 17
START 450 kHz
STOP 30.0 MHz
RES BW 10 kHz
VBW 30 kHz
SWP 887 msec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10 dB/
DL
38.0
dBµV
Project No.: 7VT025-14C
Powerline Conducted Emissions
120 VAC, 60 Hz
Page No.: 18
START 450 kHz
STOP 30.0 MHz
RES BW 10 kHz
VBW 30 kHz
SWP 887 msec

Handset

NAME OF TEST: Radiated Emissions	PARA. NO.: 15.109(a)
TESTED BY: Wayne Clarke	DATE: January 28, 1998

TEST CONDITIONS: Outdoor Range
Standard Test Voltage

MINIMUM STANDARD:

Frequency(MHz)	Field Strength(dBμV/m @3m)
30 - 88	40.0
88 - 216	43.5
216 - 960	46.0
Above 960	54.0

TEST RESULTS: Complies. The worst-case emission level is 28.3 dBμV/m @ 3m at 54.75 MHz. This is 11.7 dB below the specification limit.

MEASUREMENT DATA: See attached table.

The equipment was prescanned in a shielded room using a spectrum analyzer and broadband antenna. A list of frequencies was compiled for investigation in the open field. The equipment was then moved to an open area test site where amplitude measurements were made at a distance of 3 meters. The bandwidth was set to 120 kHz and the detector function was CISPR Quasi-Peak. Any emission within 6 dB of the specification limit is re-measured using a reference tuned dipole antenna per ANSI C63.4.

Base

NAME OF TEST: Radiated Emissions	PARA. NO.: 15.109(a)
TESTED BY: Wayne Clarke	DATE: January 28, 1998

TEST CONDITIONS: Outdoor Range
Standard Test Voltage

MINIMUM STANDARD:

Frequency(MHz)	Field Strength(dBμV/m @3m)
30 - 88	40.0
88 - 216	43.5
216 - 960	46.0
Above 960	54.0

TEST RESULTS: Complies. There were no emissions detected during prescan at 1 meter.

MEASUREMENT DATA: See attached table.

The equipment was prescanned in a shielded room using a spectrum analyzer and broadband antenna. A list of frequencies was compiled for investigation in the open field. The equipment was then moved to an open area test site where amplitude measurements were made at a distance of 3 meters. The bandwidth was set to 120 kHz and the detector function was CISPR Quasi-Peak. Any emission within 6 dB of the specification limit is re-measured using a reference tuned dipole antenna per ANSI C63.4.

TESTED BY: Wayne Clarke	DATE: January 29, 1998	RECEIVER: ESVP 014
E.U.T. M/N.: VT1920C	TEST DISTANCE(metres): 3	RBW: 120 kHz
E.U.T. S/N.: Handset (2621097002000002)	RANGE: A	DETECTOR: CISPR

FREQ. (MHz)	ANT. *	POL. (V/H)	ANT. HGT (m)	TABLE (Deg.)	RCVD SIGNAL (dBuV)	ANT. FACTOR (dB)**	AMP GAIN (dB) ***	DUTY CYCLE (dB)	FIELD STRENGTH (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)
54.75	BC2	V			17.3	11.0			28.3	40.0	11.7
54.75	BC2	H			8.1	11.0			19.1	40.0	20.9
		V									
		H									
		V									
		H									
		V									
		H									
		V									
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NOTES:

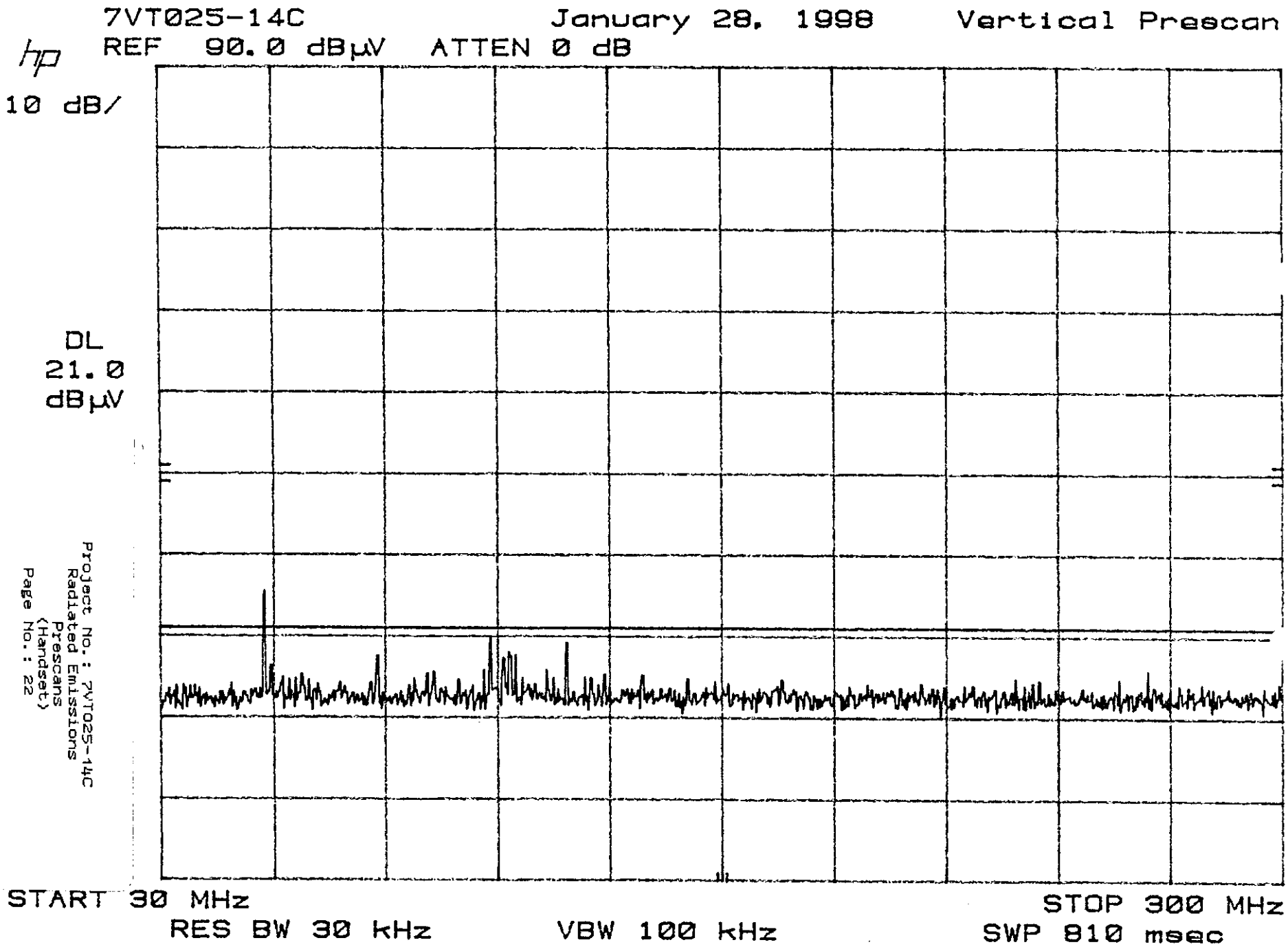
B/C = Biconical, B/L = Biconilog, L/P = Log-Periodic, H = Horn, D/P = Dipole

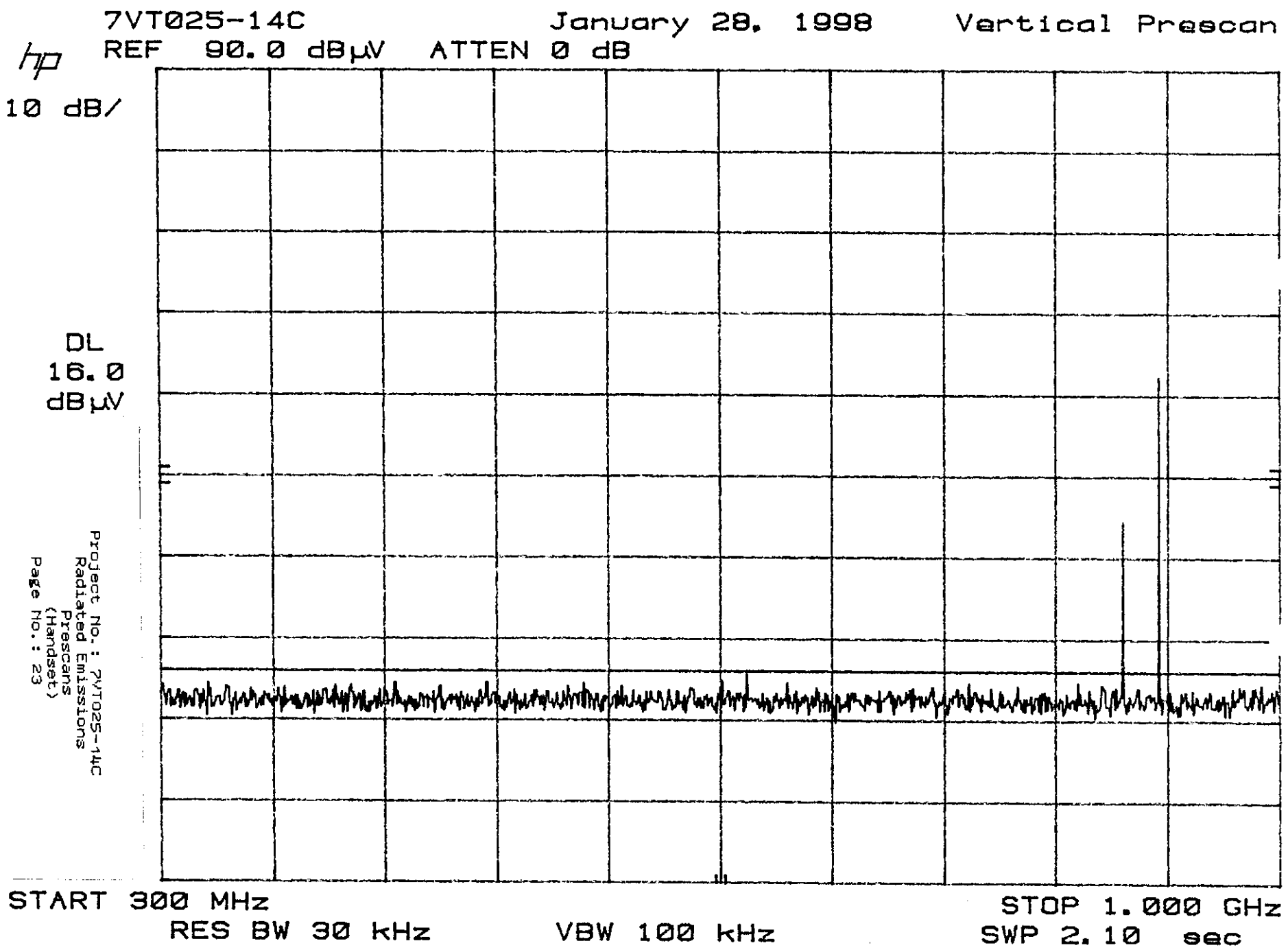
* Re-measured using dipole antenna.

** Includes cable loss when amplifier is not used.

*** Includes cable loss.

( ) Denotes failing emission level.


7VT025-14C
January 28, 1998
Vertical Prescan
REF 90.0 dBµV
ATTEN 0 dB
10 dB/
DL
21.0
dBµV
Project No.: 7VT025-14C
Radiated Emissions
Prescans
(Handset)
Page No.: 22
START 30 MHz
STOP 300 MHz
RES BW 30 kHz
VBW 100 kHz
SWP 810 msec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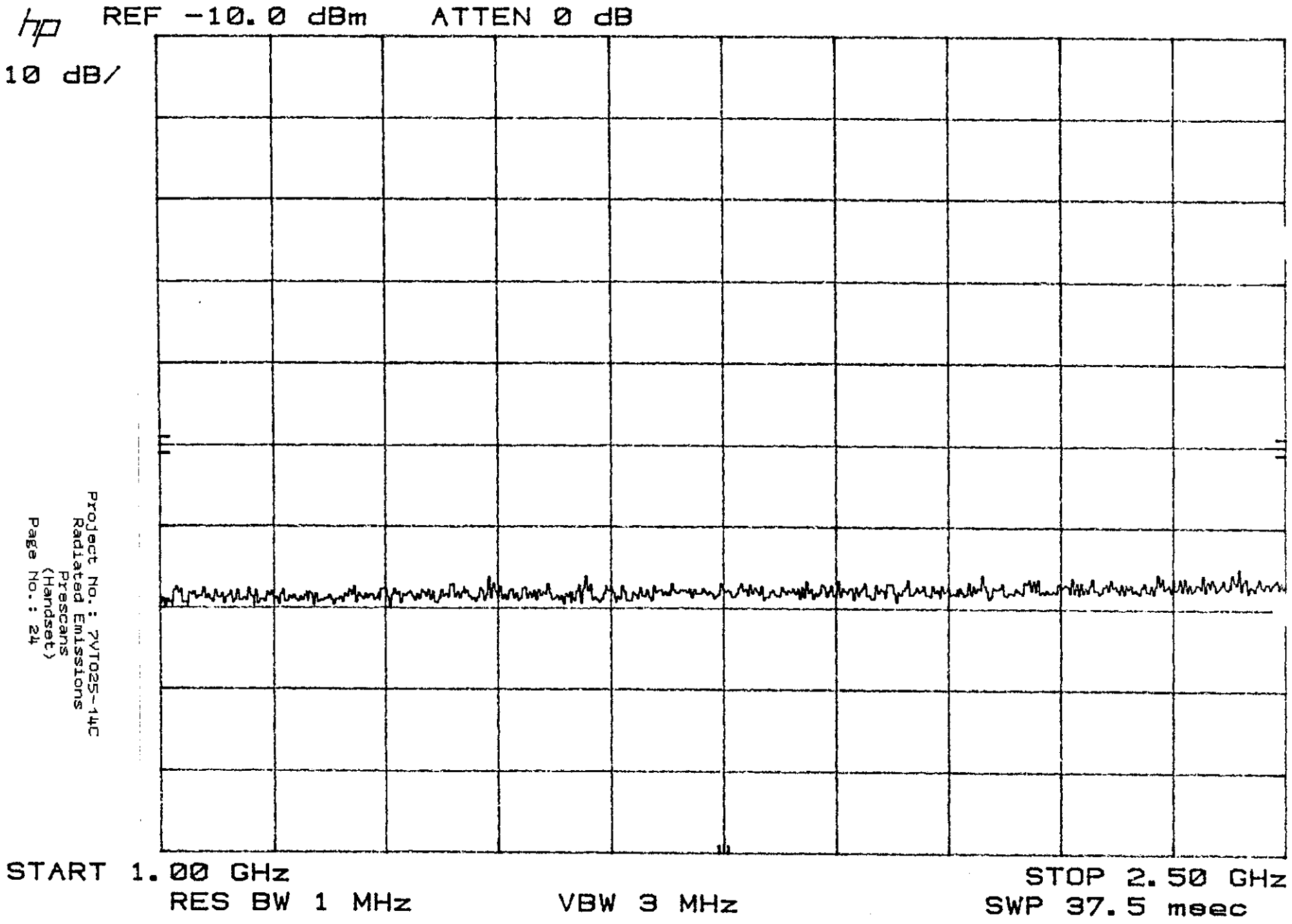
January 28, 1998
Vertical Prescan
REF 90.0 dBµV
ATTEN 0 dB
10 dB/
DL
16.0
dBµV
Project No.: 7VT025-14C
Radiated Emissions
Prescans
(Handset)
Page No.: 23
START 300 MHz
RES BW 30 kHz
VBW 100 kHz
STOP 1.000 GHz
SWP 2.10 sec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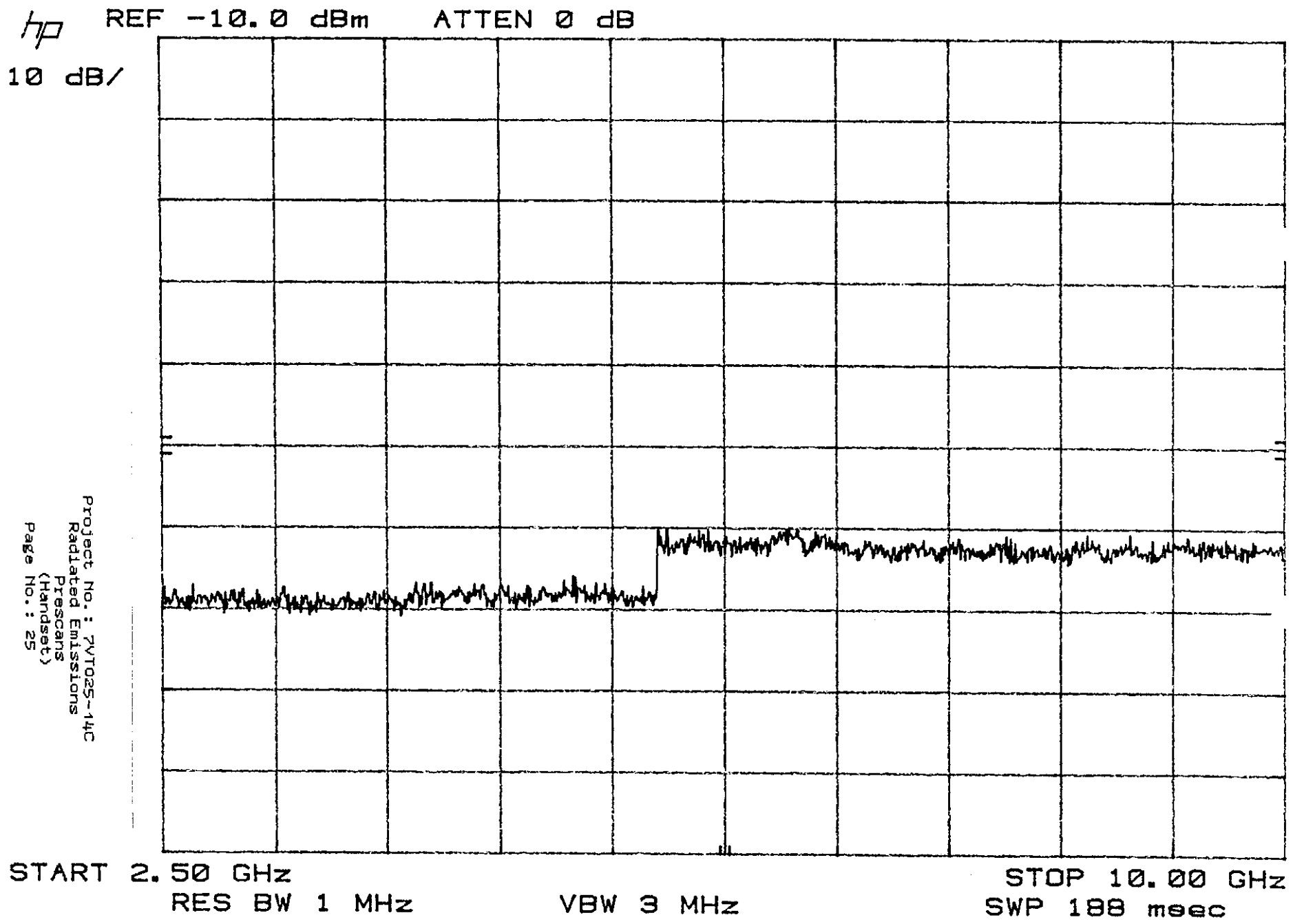
ATTEN 0 dB
10 dB/
Project No.: 7VT025-14C
Radiated Emissions
Prescans
(Handset)
Page No.: 24
START 1.00 GHz
RES BW 1 MHz
VBW 3 MHz
STOP 2.50 GHz
SWP 37.5 msec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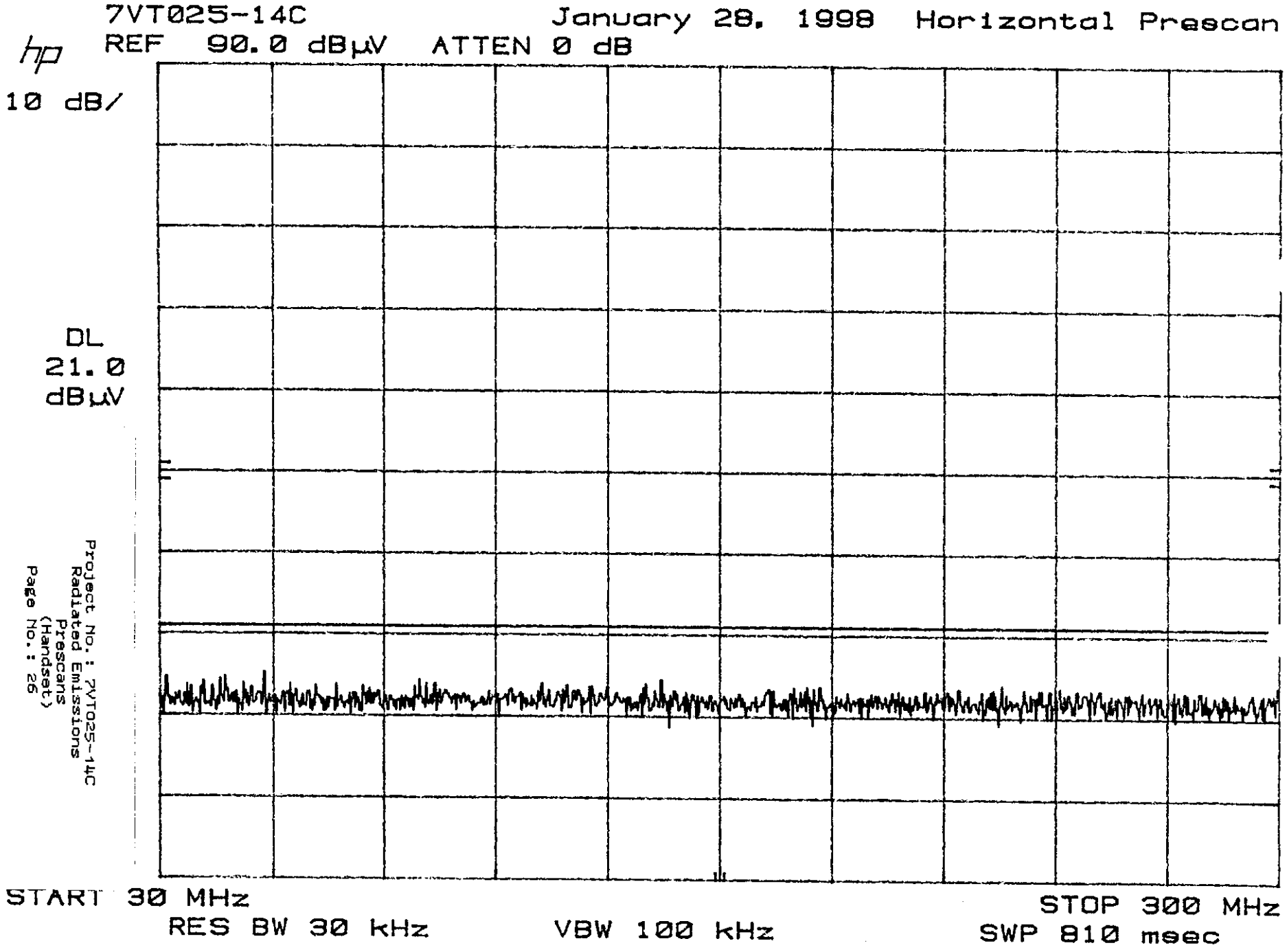
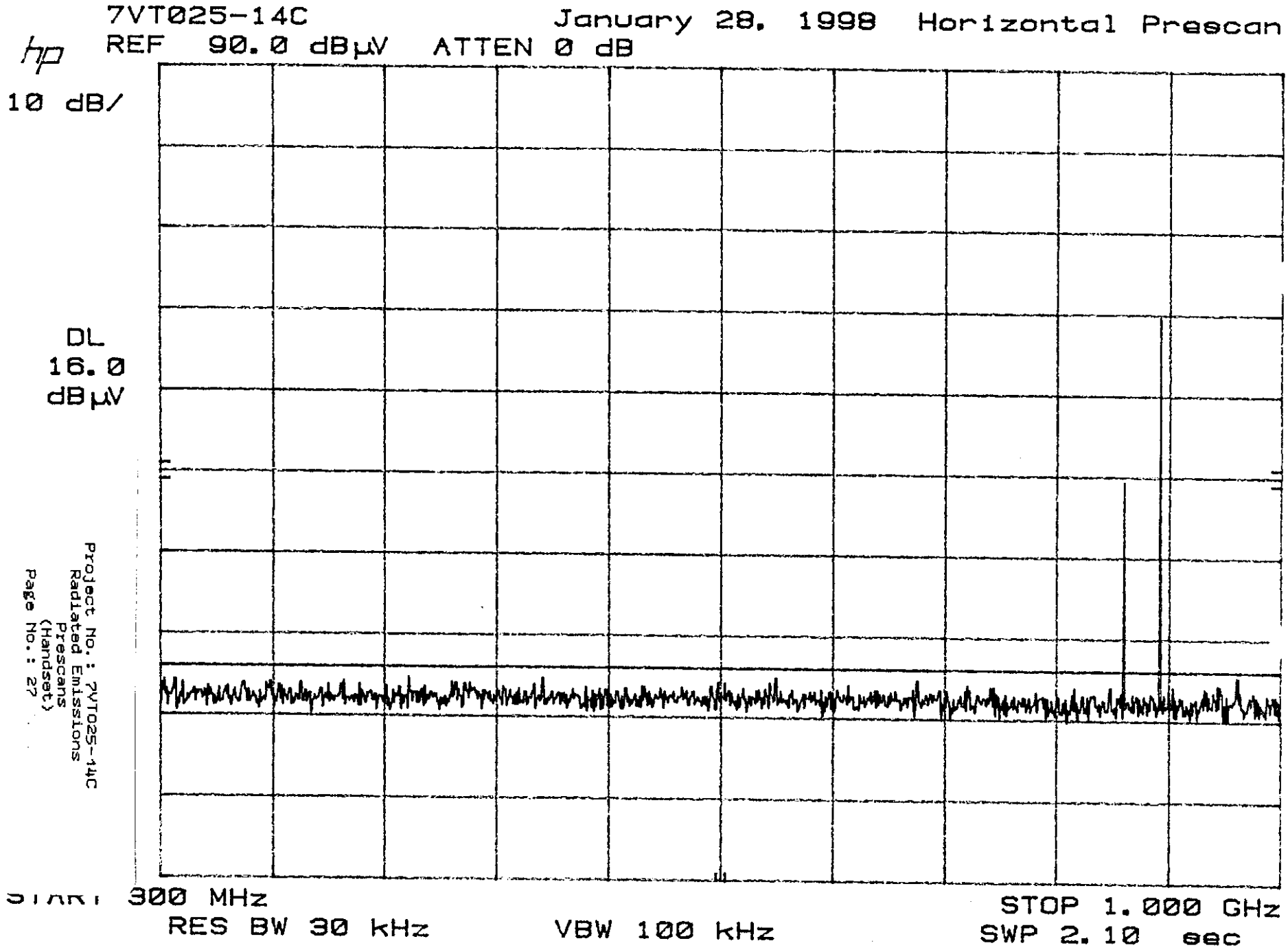
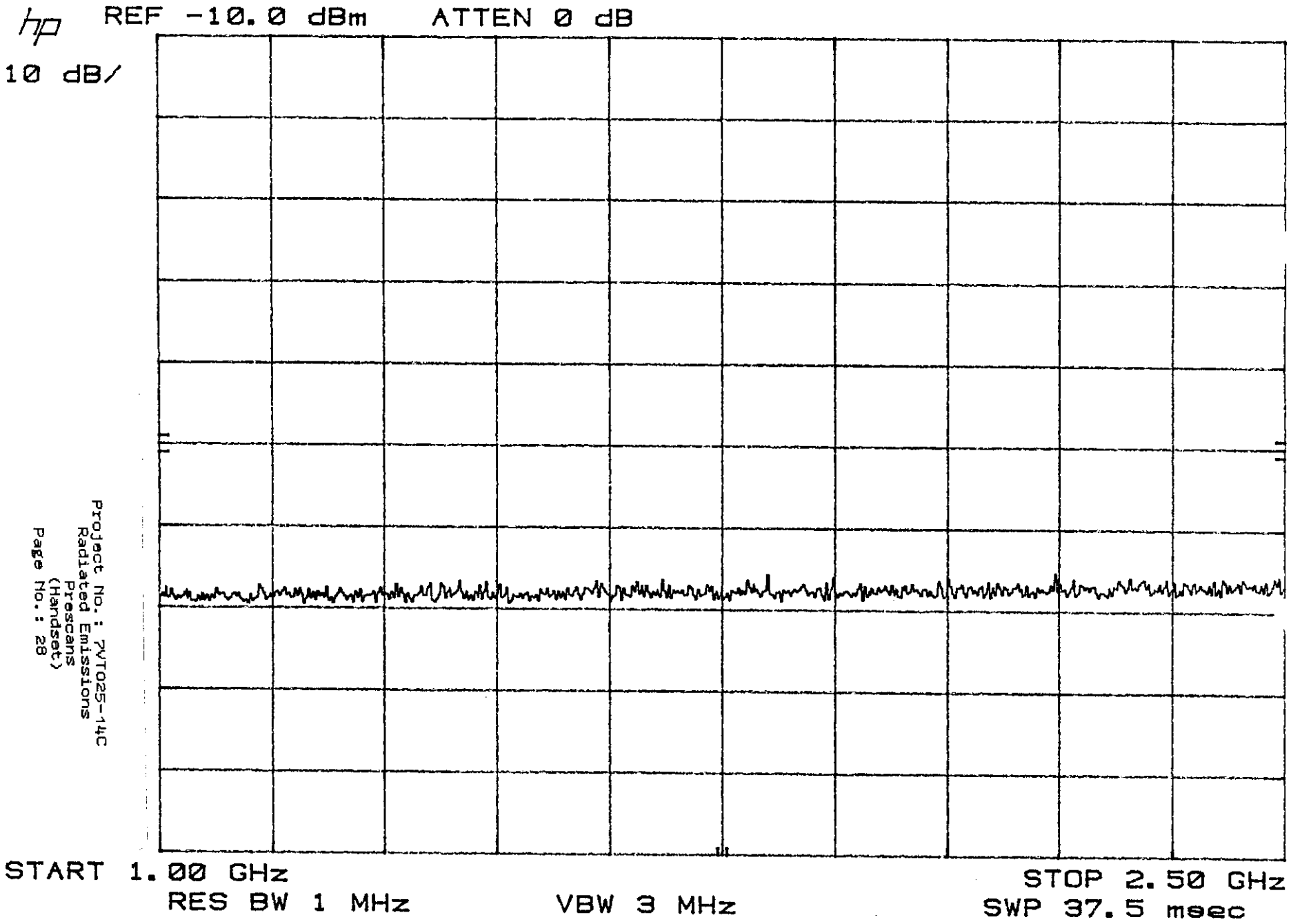
ATTEN 0 dB
10 dB/
Project No.: 7VT025-14C
Radiated Emissions
Prescans
(Handset)
Page No.: 25
START 2.50 GHz
RES BW 1 MHz
VBW 3 MHz
STOP 10.00 GHz
SWP 188 msec


7VT025-14C
January 28, 1998 Horizontal Prescan
hp
REF 90.0 dBµV ATTEN 0 dB
10 dB/
DL
21.0
dBµV
Project No.: 7VT025-14C
Radiated Emissions
Prescans
(Handset)
Page No.: 26
START 30 MHz
STOP 300 MHz
RES BW 30 kHz
VBW 100 kHz
SWP 810 msec


7VT025-14C
January 28, 1998 Horizontal Prescan
hp
REF 90.0 dBµV ATTEN 0 dB
10 dB/
DL
16.0
dBµV
Project No.: 7VT025-14C
Radiated Emissions
Prescans
(Handset)
Page No.: 27
START 300 MHz
RES BW 30 kHz
VBW 100 kHz
STOP 1.000 GHz
SWP 2.10 sec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ATTEN 0 dB
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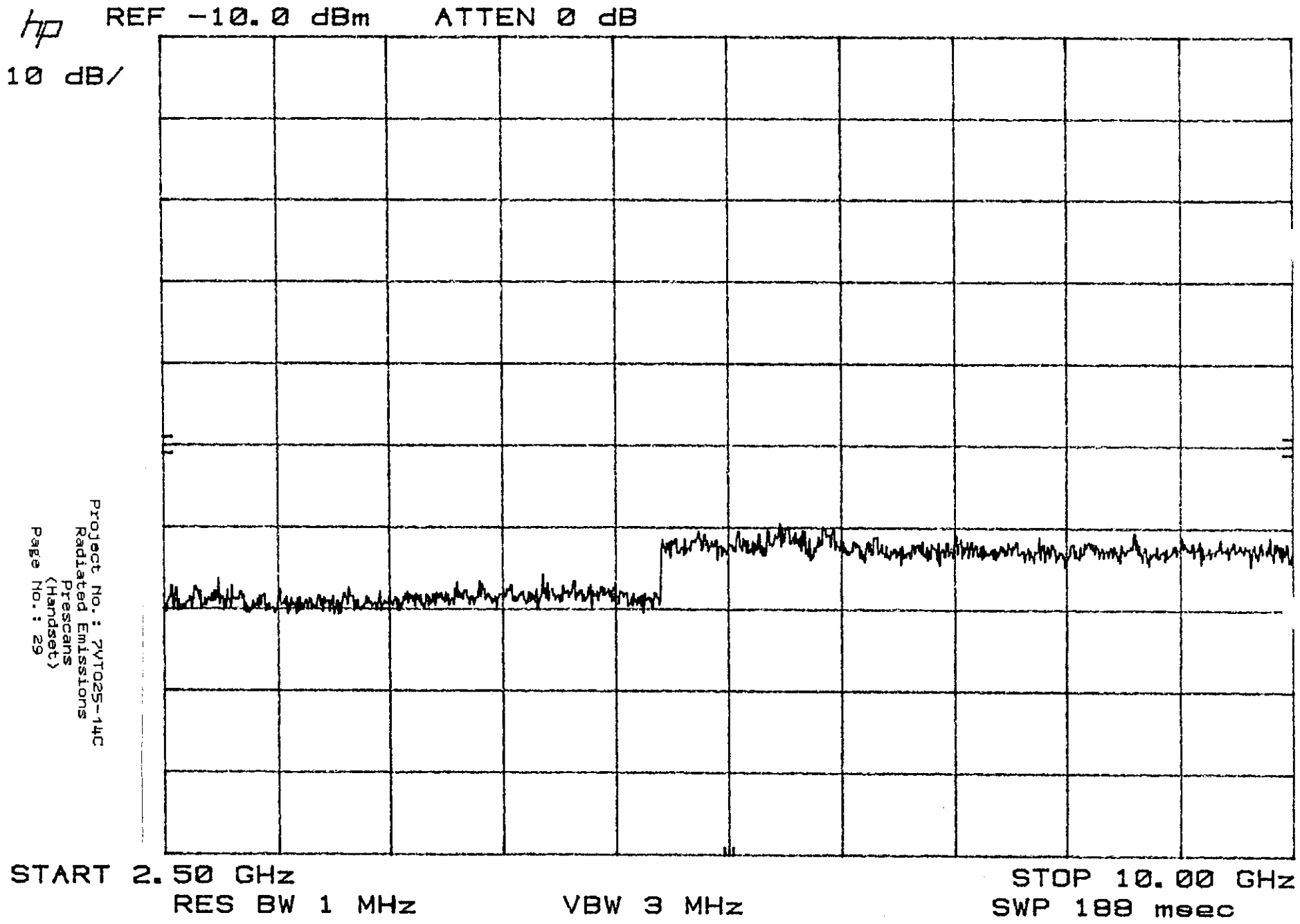
START 1.00 GHz
RES BW 1 MHz
VBW 3 MHz
STOP 2.50 GHz
SWP 37.5 msec
Project No.: 7VT025-14C
Radiated Emissions
Prescans
(Handset)
Page No.: 28


REF -10.0 dBm
ATTEN 0 dB
10 dB/
Project No.: 7VT025-14C
Radiated Emissions
Prescans
(Handset)
Page No.: 29
START 2.50 GHz
RES BW 1 MHz
VBW 3 MHz
STOP 10.00 GHz
SWP 188 msec

Handset

Prescan Data

Project Number : 7VT025-14C
Project Filename : 7VT14_H.LST
Date : January 28, 1998
Start Frequency : 30 MHz
Stop Frequency : 1000 MHz
Display Line Value: 21 dBuV

Vertical Prescan

Top Emissions below 300 MHz from the vertical prescan list:
54.77 MHz, 24.4 dBuV.

Full Emission List below 300 MHz:
54.77 MHz, 24.4 dBuV. Peak.

Top Emissions above 300 MHz from the vertical prescan list:
927.48 MHz, 52.8 dBuV.
904.7 MHz, 34 dBuV.

Full Emission List above 300 MHz:
904.7 MHz, 34 dBuV. Peak.
927.48 MHz, 52.8 dBuV. Peak.

Horizontal Prescan

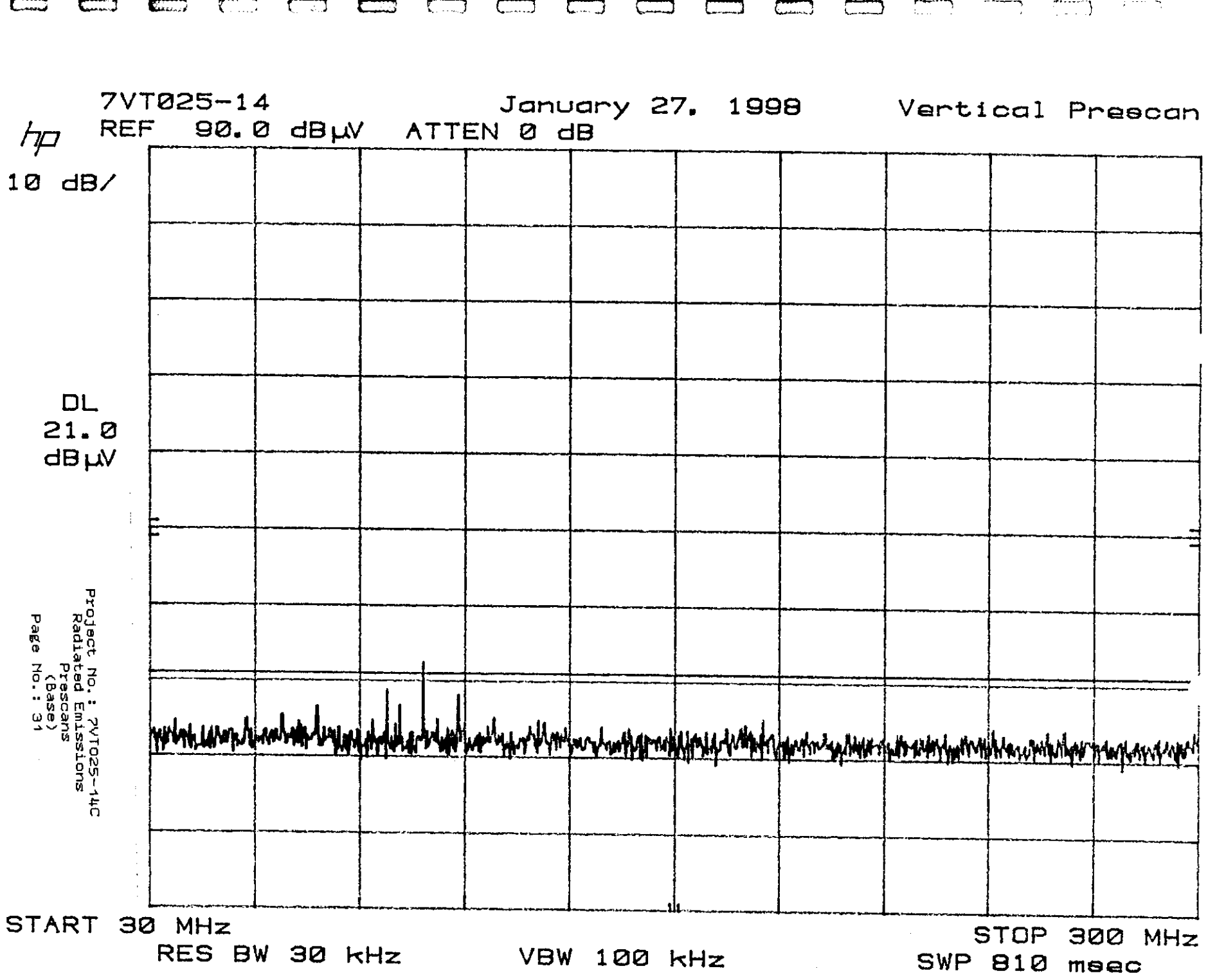
Top Emissions below 300 MHz from the horizontal prescan list:

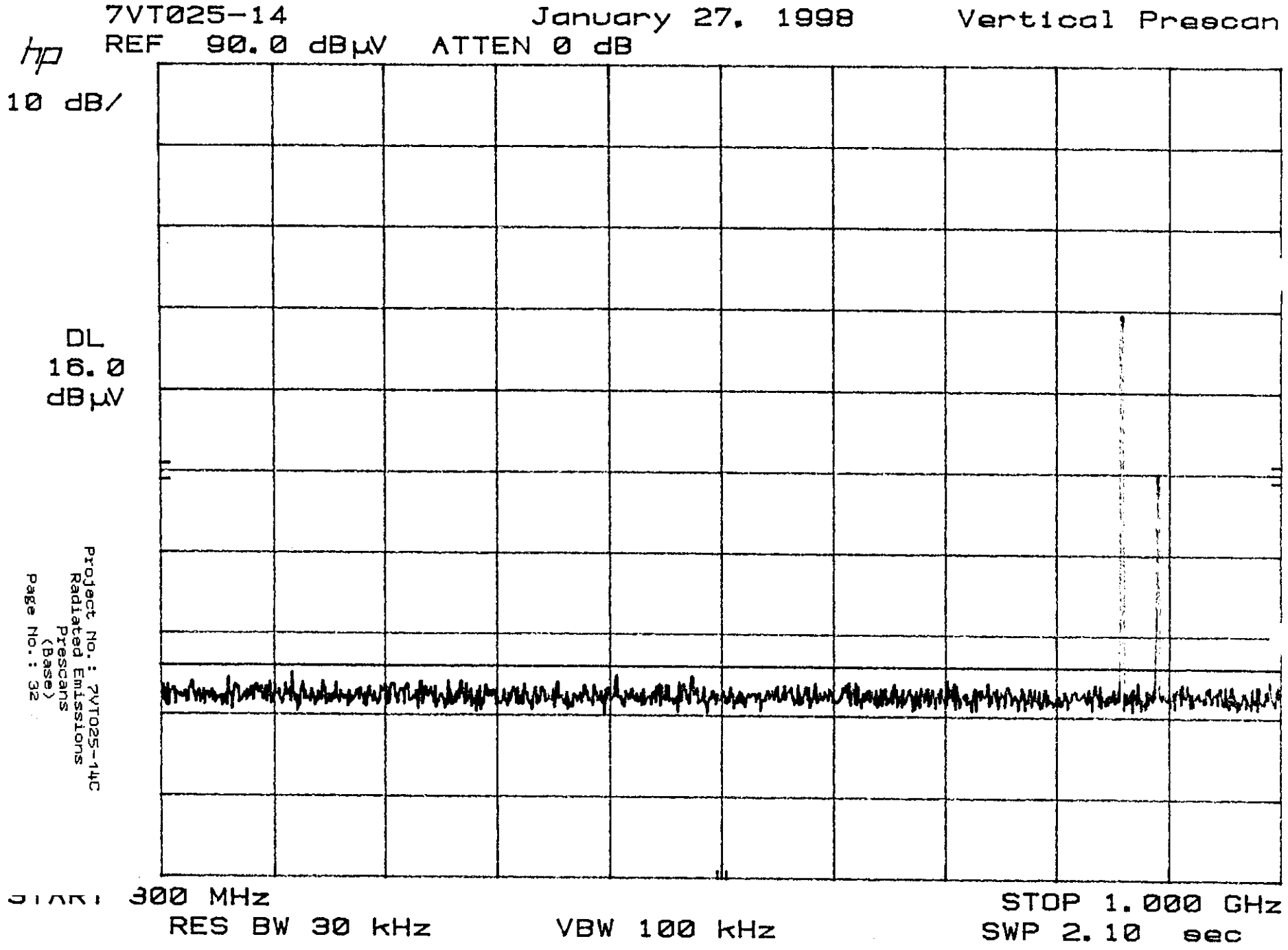
Full Emission List below 300 MHz:

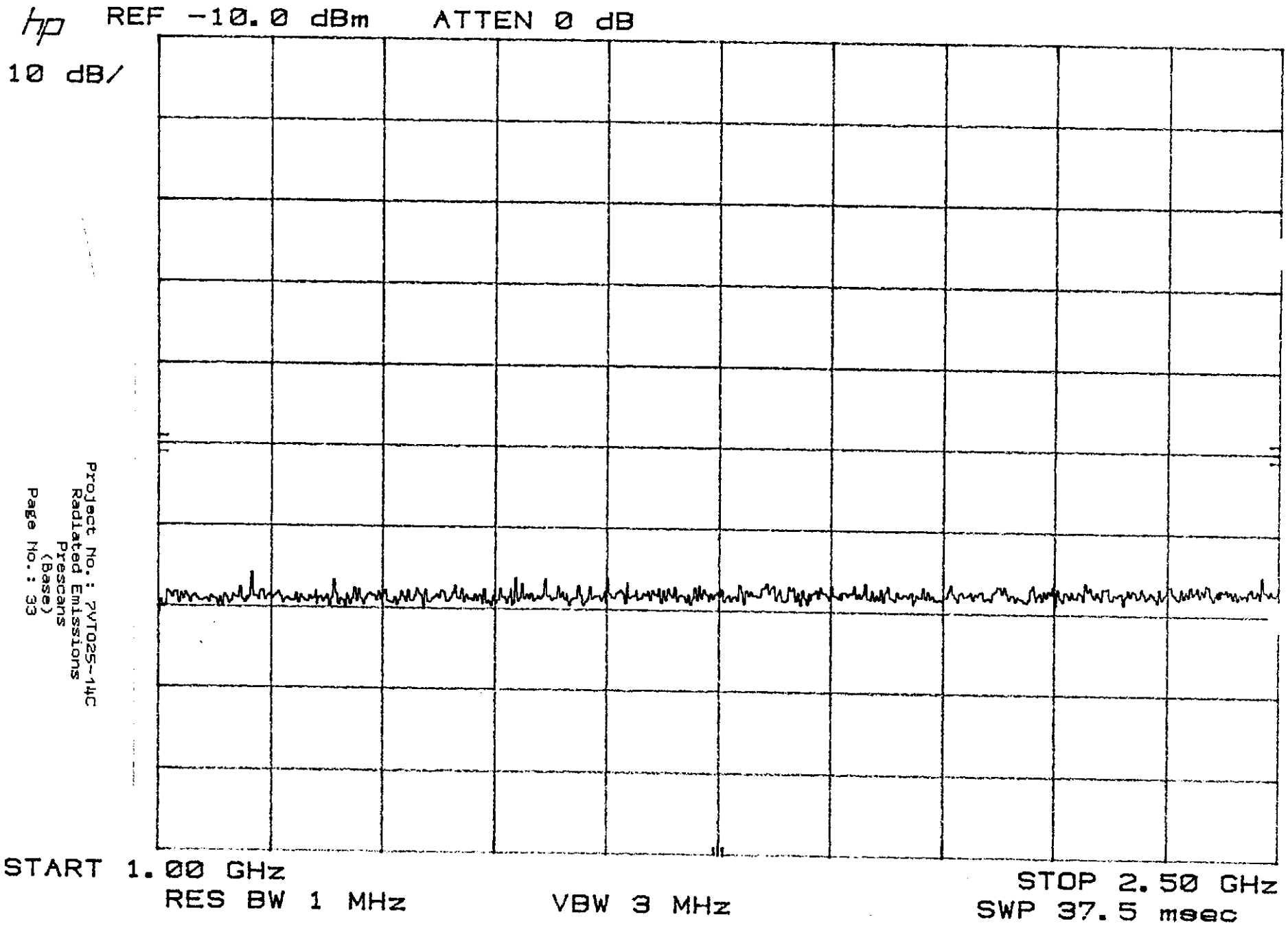
Top Emissions above 300 MHz from the horizontal prescan list:
927.44 MHz, 58.7 dBuV.
904.7 MHz, 37.2 dBuV.

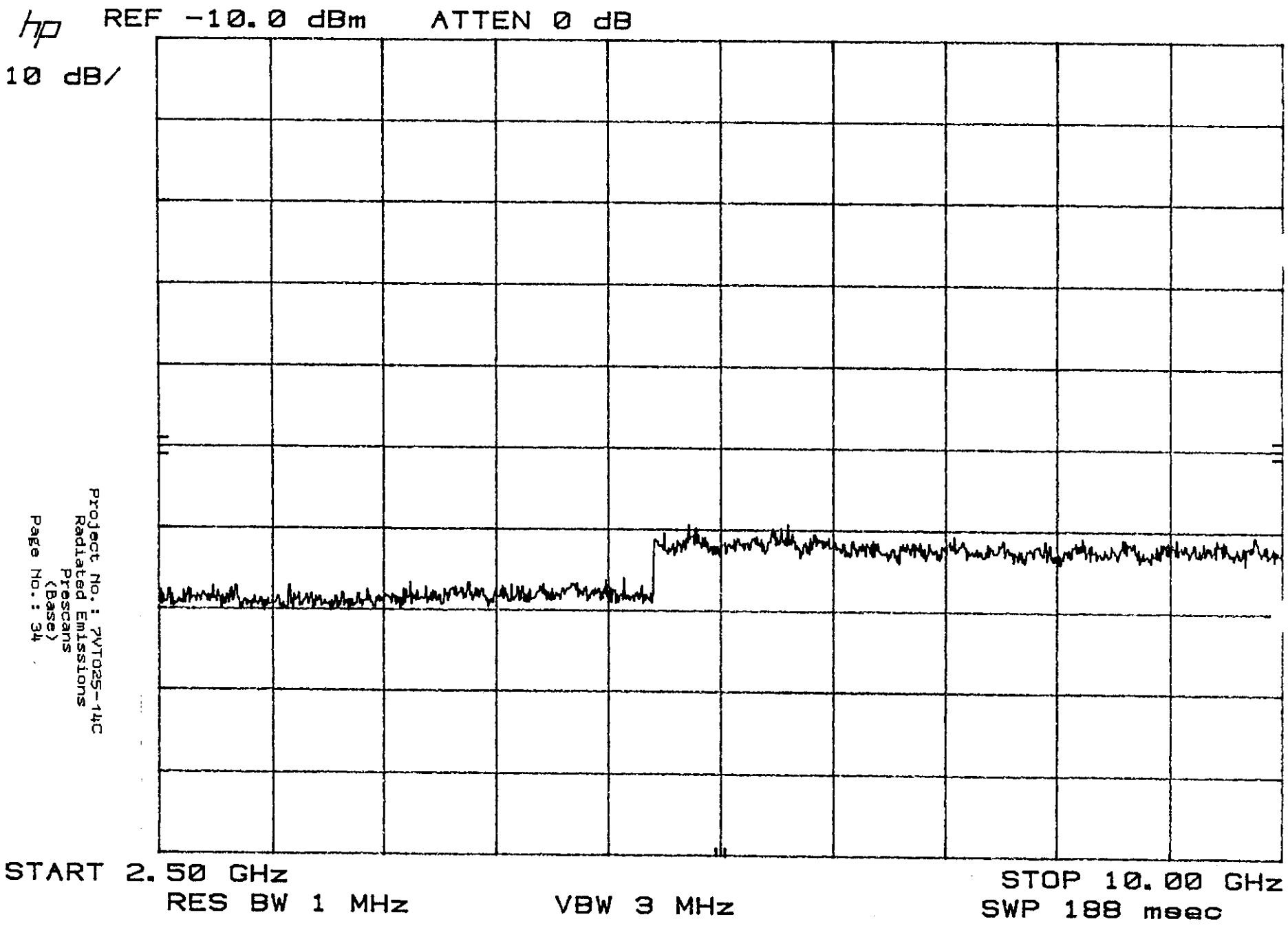
Full Emission List above 300 MHz:

904.7 MHz, 37.2 dBuV. Peak.
927.44 MHz, 58.7 dBuV. Peak.


7VT025-14
January 27, 1998
Vertical Prescan
hp
REF 90.0 dBµV
ATTEN 0 dB
10 dB/
DL
21.0
dBµV
Project No.: 7VT025-14C
Radiated Emissions
Prescans
(Base)
Page No.: 31
START 30 MHz
STOP 300 MHz
RES BW 30 kHz
VBW 100 kHz
SWP 810 msec


7VT025-14
January 27, 1998
Vertical Prescan
REF 90.0 dBµV
ATTEN 0 dB
10 dB/
DL
16.0
dBµV
Project No.: 7VT025-14C
Radiated Emissions
Prescans
(Base)
Page No.: 32
START 300 MHz
STOP 1.000 GHz
RES BW 30 kHz
VBW 100 kHz
SWP 2.10 sec


hp
REF -10.0 dBm
ATTEN 0 dB
10 dB/
Project No.: 7VT025-14C
Radiated Emissions
Prescans
(Base)
Page No.: 33
START 1.00 GHz
RES BW 1 MHz
VBW 3 MHz
STOP 2.50 GHz
SWP 37.5 msec

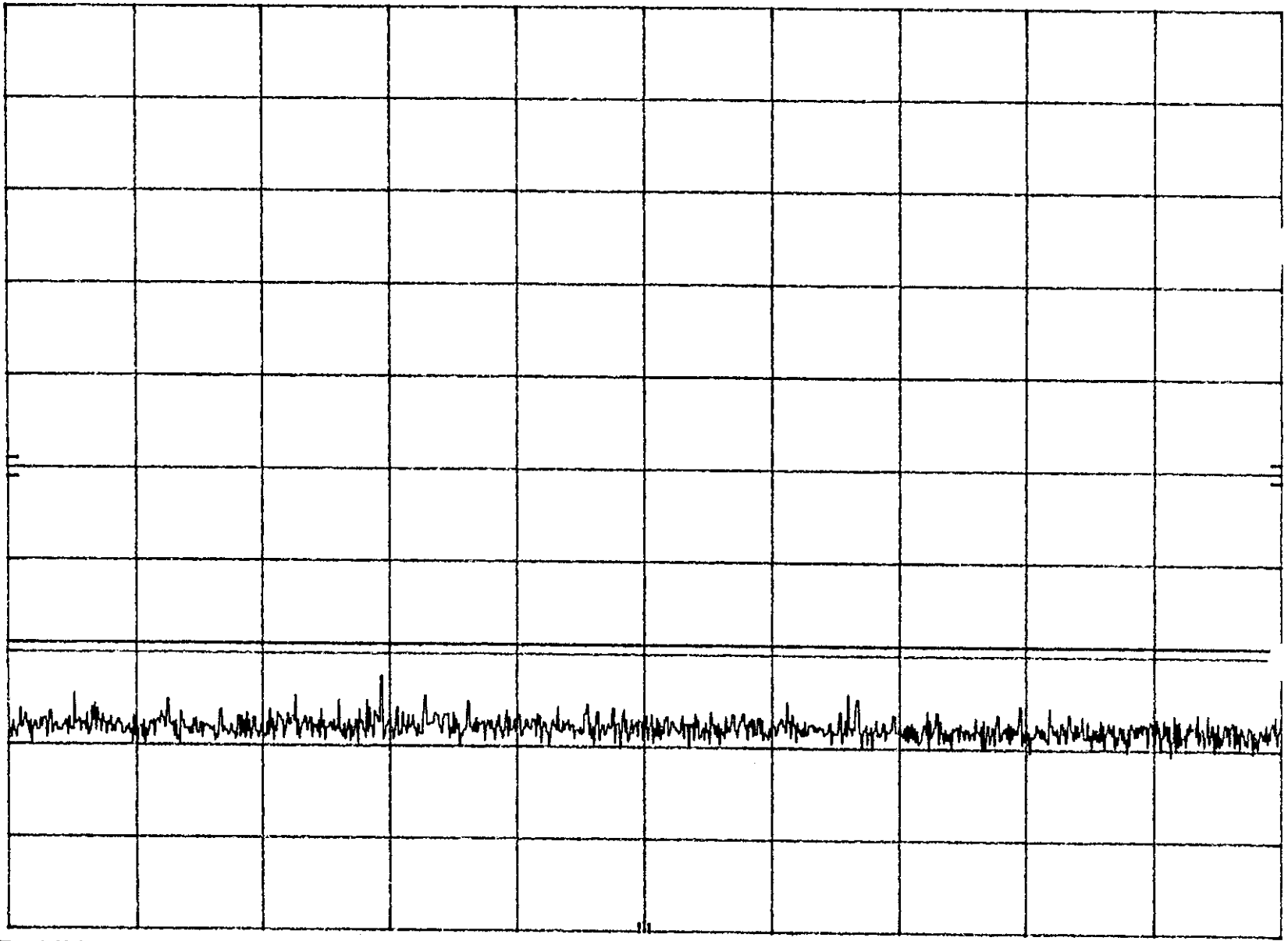

REF -10.0 dBm
ATTEN 0 dB
10 dB/
Project No.: 7VT025-14C
Radiated Emissions
Prescans
(Base)
Page No.: 34
START 2.50 GHz
RES BW 1 MHz
VBW 3 MHz
STOP 10.00 GHz
SWP 188 msec

7VT025-14 January 27, 1998 Horizontal Prescan

REF 90.0 dBµV ATTEN 0 dB

10 dB/

DL
21.0
dBµV

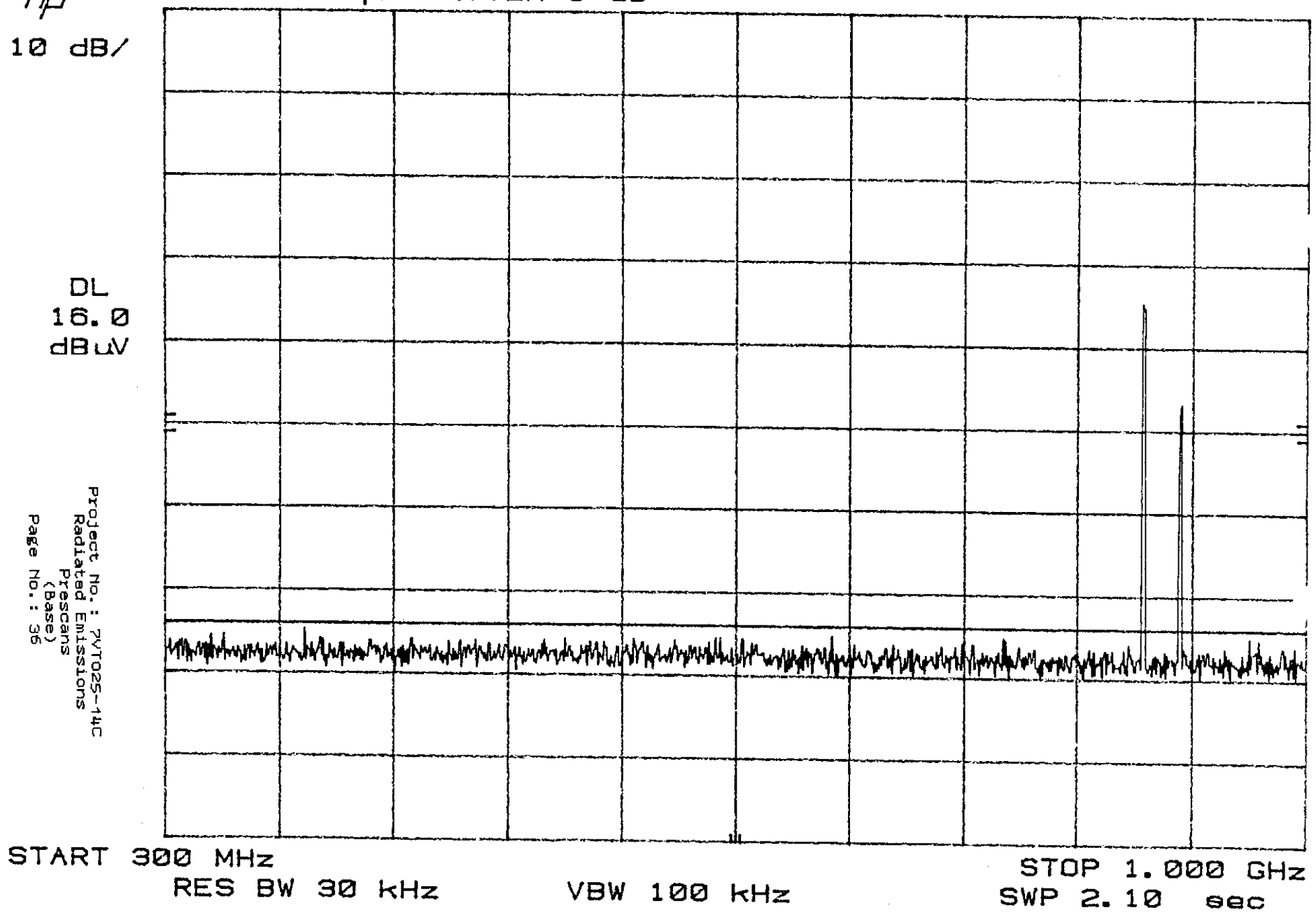


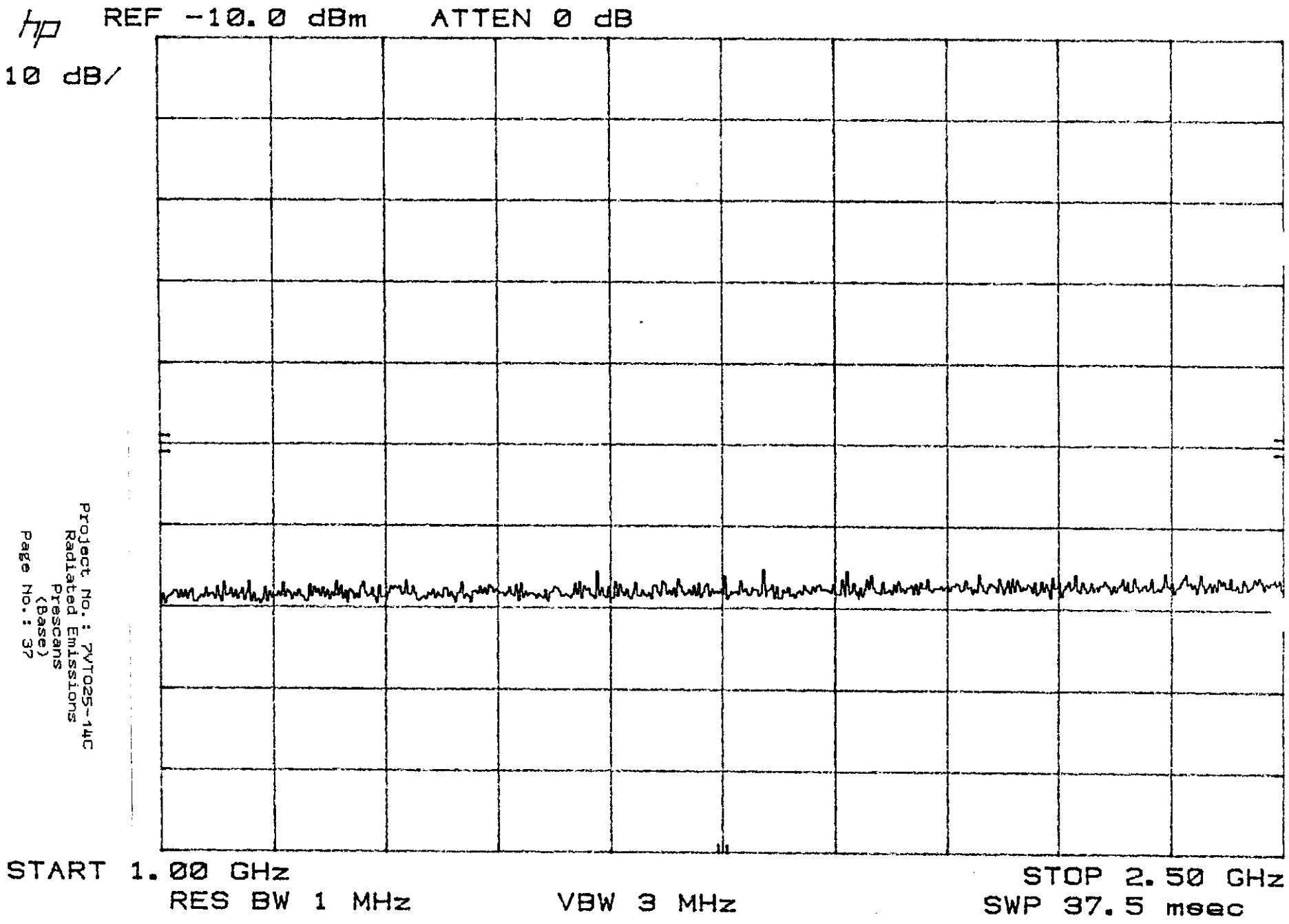
Project No.: 7VT025-14C
Radiated Emissions
Prescans
(Base)
Page No.: 35

START 30 MHz STOP 300 MHz

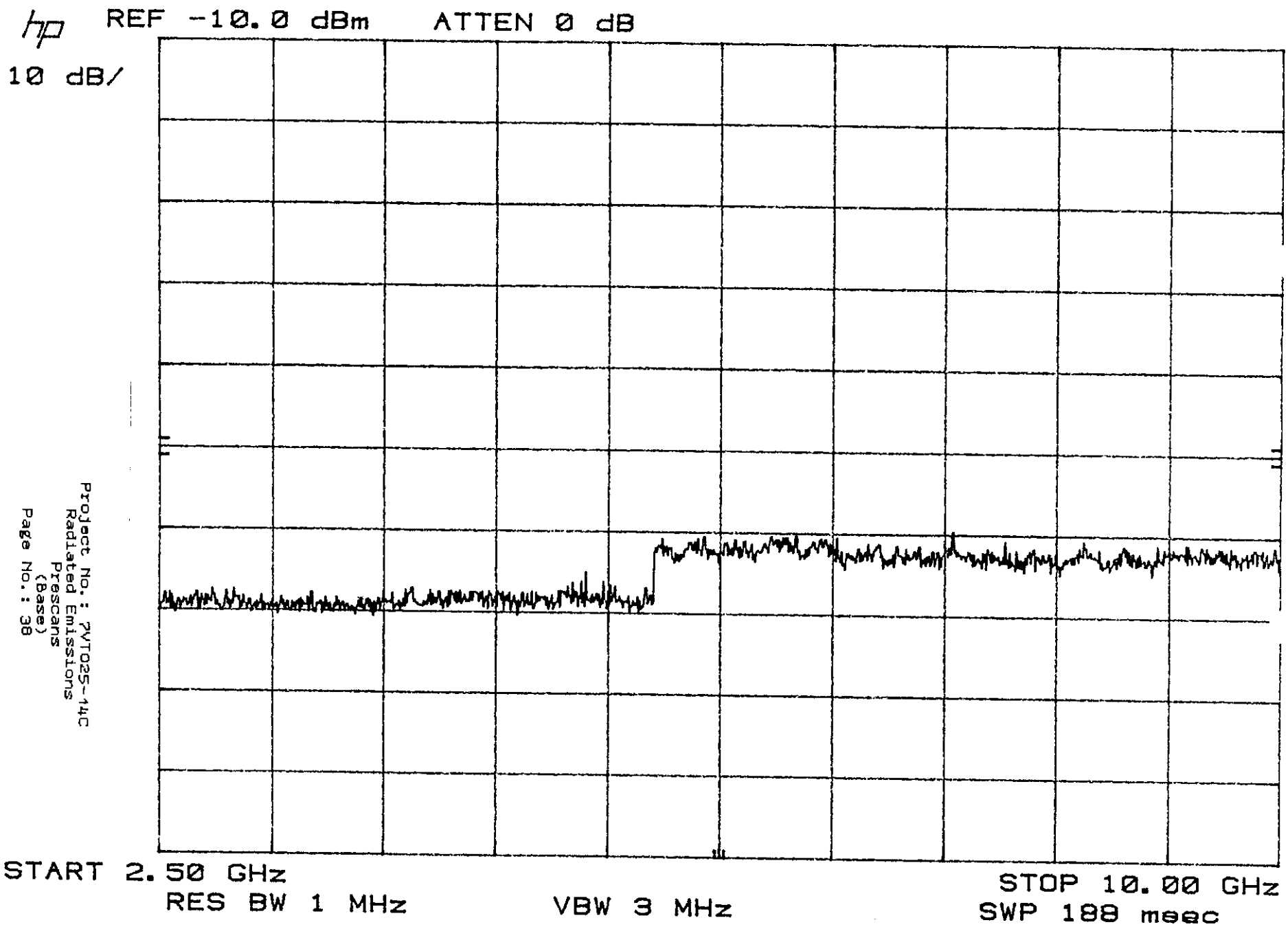
RES BW 30 kHz VBW 100 kHz SWP 810 msec

7VT025-14 January 27. 1998 Horizontal Prescan





Project No.: 7VT025-14C
Radiated Emissions
Prescans
(Base)
Page No.: 37


REF -10.0 dBm
ATTEN 0 dB
10 dB/
Project No.: 7VT025-14C
Radiated Emissions
Prescans
(Base)
Page No.: 38
START 2.50 GHz
RES BW 1 MHz
VBW 3 MHz
STOP 10.00 GHz
SWP 188 msec

Prescan Data - Base

Prescan Data

Project Number : 7VT025-14
Project Filename : 7VT14_B.LST
Date : January 27, 1998
Start Frequency : 30 MHz
Stop Frequency : 1000 MHz
Display Line Value: 21 dBuV

Vertical Prescan

Top Emissions below 300 MHz from the vertical prescan list:
100.37 MHz, 22 dBuV.

Full Emission List below 300 MHz:
100.37 MHz, 22 dBuV. Peak.

Top Emissions above 300 MHz from the vertical prescan list:
902.31 MHz, 59.2 dBuV.
925.03 MHz, 37.5 dBuV.

Full Emission List above 300 MHz:
902.31 MHz, 59.2 dBuV. Peak.
925.03 MHz, 37.5 dBuV. Peak.

Horizontal Prescan

Top Emissions below 300 MHz from the horizontal prescan list:

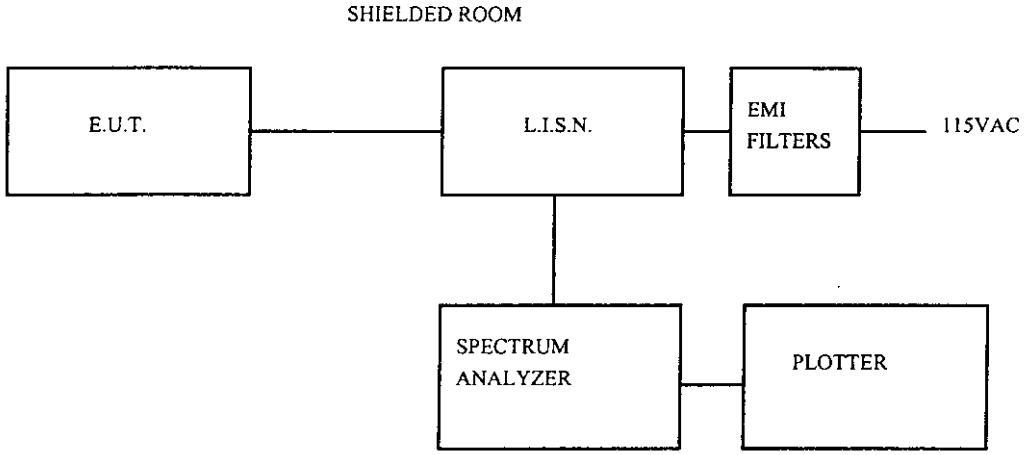
Full Emission List below 300 MHz:

Top Emissions above 300 MHz from the horizontal prescan list:
902.31 MHz, 55.4 dBuV.
925.06 MHz, 42.2 dBuV.

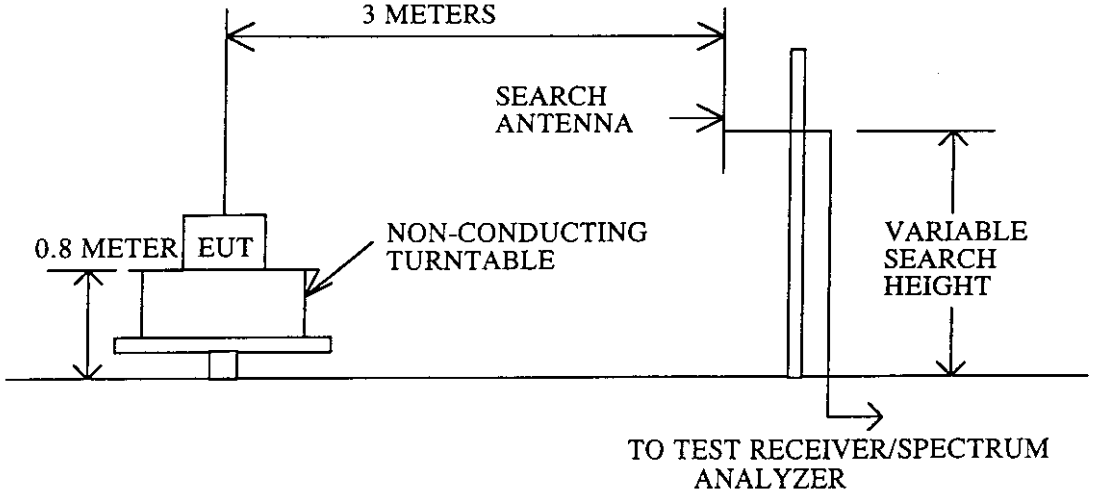
Full Emission List above 300 MHz:
902.31 MHz, 55.4 dBuV. Peak.
925.06 MHz, 42.2 dBuV. Peak.

BLOCK DIAGRAMS

POWERLINE CONDUCTED EMISSIONS



TEST SITE FOR RADIATED EMISSIONS



For Super Regenerative Receivers the receiver was activated using a tuned dipole antenna fed with a CW signal. The frequency of the activating signal is adjusted to obtain worst-case field strength of the EUT oscillator emission.

The spectrum was searched to the 10th harmonic of the fundamental frequency.

TEST EQUIPMENT LIST

Equipment List - Conducted Emissions - Shielded Room #1

CAL Cycle	Equipment	Manufacturer	Model #	Serial/Asset #	Last Cal.	Next Cal.
1Year	LISN	Rohde & Schwarz	ESH2-Z5	890485/017	July 25/97	July 25/98
1Year	LISN(peripheral)	Tegam	95300-50	T-109014/15	July 25/97	July 25/98
1Year	Spectrum analyzer	Hewlett-Packard	8566B	2311A02238	Sept. 30/97	Sept. 30/98
1Year	Spectrum analyzer display	Hewlett-Packard	8566B	2314A04759	Sept. 30/97	Sept. 30/98
1Year	Quasi-peak adapter	Hewlett-Packard	85650A	2043A00302	Sept. 30/97	Sept. 30/98
	Plotter	Hewlett-Packard	7470A	2210A08836	N/A	N/A
1 Year	Transient Limiter	Hewlett-Packard	1194 7A	3107A01766	July 23/97	July 23/98

Equipment List - Radiated Emissions

CAL Cycle	Equipment	Manufacturer	Model #	Serial/Asset #	Last Cal.	Next Cal.
	Biconilog Antenna	EMCO	3143	9404-1039	NCR	NCR
1Year	Receiver	Rohde & Schwarz	ESVP	892661/014	Mar. 25/97	Mar. 25/98
1Year	Spectrum Analyzer	Hewlett-Packard	8565E	FA000981	May 9/97	May 9/98
1Year	Spectrum Analyzer	Hewlett-Packard	8566B	2311A02238	Sept. 30/97	Sept. 30/98
1Year	Spectrum Analyzer Display	Hewlett-Packard	8566B	2314A04759	Sept. 30/97	Sept. 30/98
1Year	Quasi-Peak Adapter	Hewlett Packard	85650A	2043A00302	Sept. 30/97	Sept.30/98
	Plotter	Hewlett Packard	7470A	2210A08836	N/A	N/A
1 Year	Biconical (2) Antenna	EMCO	3109	9503-2894	April 24/97	April 24/98
2 Year	Horn Antenna	EMCO	3115	3132	Feb. 6/96	Feb. 6/98

Note: N/A = Not Applicable
NCR = No Cal Required