

SUPPLEMENTARY TEST REPORT

FROM

RADIO FREQUENCY INVESTIGATION LTD.

Test Of: Adaptive Broadband Ltd.
AB Access EXTENDER

To: FCC Part 15: Subpart E: 2000
(Unlicensed National Information
Infrastructure Devices)

Supplementary Test Report Serial No.:
RFI/MICB1/SUP42151A

This Test Report Is Issued Under The Authority Of Richard Jacklin, Operations Director: 	Checked By: 
Tested By: 	Release Version No: PDF01
Issue Date: 25 May 2001	Test Dates: 23 May 2001 and 24 May 2001

This supplementary report has been issued to identify the EUT as a Point to Point device and show compliance to 15.209 Radiated emission limits, general requirements, and 15.205 Restricted bands of operation.

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RADIO FREQUENCY INVESTIGATION LTD.

Conformance Testing Department

Test Of: Adaptive Broadband Ltd.

AB Access EXTENDER

To: FCC Part 15: Subpart E: 2000

SUPPLEMENTARY TEST REPORT

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**Test Of: Adaptive Broadband Ltd.
AB Access EXTENDER
To: FCC Part 15: Subpart E: 2000**

1. Client Information

Company Name:	Adaptive Broadband Ltd.
Address:	The Westbrook Centre Block 5 Milton Road Cambridge SB41 1YG.
Contact Name:	Mr A Crisp.

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2. Equipment Under Test (EUT)

The following information (with the exception of the Date of Receipt) has been supplied by the client:

2.1. Identification Of Equipment Under Test (EUT)

Brand Name:	AB-Access TM EXTENDER
Model Name or Number:	Subscriber Unit
Unique Type Identification:	None stated by client
Serial Number:	None
Country of Manufacture:	USA
FCC ID Number:	Awaiting certification from FCC
Date of Receipt:	10 April 2001

Brand Name:	AB-Access TM EXTENDER
Model Name or Number:	Power Supply
Unique Type Identification:	SSL40-3360
Serial Number:	None stated by client
Country of Manufacture:	China
FCC ID Number:	Awaiting certification from FCC
Date of Receipt:	10 April 2001

Brand Name:	AB-Access TM EXTENDER
Model Name or Number:	AB-Access Extender Wall Box
Unique Type Identification:	10000008
Serial Number:	None stated by client
Country of Manufacture:	EU
FCC ID Number:	Awaiting certification from FCC
Date of Receipt:	10 April 2001

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2.2. Description Of EUT

AB-AccessTM EXTENDER is targeted at providing high-speed wireless internet/video/data/voice access in the FCC UNII bands between 5.725 GHz and 5.825 GHz.

AB-AccessTM EXTENDER adopts a point to point configuration, consisting of two AB-Access extender units. It is a fixed access, point to point infrastructure. The product is targeted for the US market only.

The Subscriber Unit (SU) is routed via a wall box to the network service provider's truncated infrastructure. The SU has an integral antenna with a 10 degree by 10 degree, 3dB beam width to receive/transmit the desired area of coverage. SU units can be installed around the periphery of a tall building or on a tower for optimum line of sight range. Power and data (bi-directional) are routed via braid and foil screened, quad twisted pair, CAT 5 data cable from the internally mounted wall box (similar in construction to a standard BT telephone outlet) up to the SU transceiver/antenna unit. Power and data status is also routed via this cable. Power is provided to the wall box via a standard FCC approved 48V DC power supply. The wall box provides either Ethernet or ATM connectivity via the industry standard RJ45 socket, to the service providers network and end customer systems.

2.3. Modifications Incorporated In EUT

The EUT incorporates the following modifications:

The AB-AccessTM EXTENDER unit has been modified so that it can be driven from a PC test script, enabling the worst case conditions for FCC requirements, to be evaluated and tested for compliance. There are no hardware modifications, as the modification is purely in the software driver. AB Access employs a rapid Time Division Duplex (TDD) air interface, based on Asynchronous Transfer Mode (ATM) networking protocols. Data is transmitted asynchronously on demand, so there is no discernible duty cycle from which averaged measurements can be taken.

The following test modes have been implemented:

- Continuous Transmit Mode (CTM) – this configures the unit for its worst case mode, for EIRP measurements. The unit is set for maximum transmit power, to give the worst case for switching transients, which can cause spurious emissions whilst performing radiated and conducted emissions.
- Continuous Bursted Receive Mode (CBRM) – this exercises the unit if there may be some fundamental frequency components that exceed the receive switch test mode. In this configuration the unit is set to maximum receive gain.

In either of these modes it is possible to change the operating channel and antenna polarisation as required, by means of the PC controller.

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2.4. Additional Information Related To Equipment Under Test

Power Supply Requirement:	Nominal 115 V, 60 Hz AC Mains Supply 13 Amp (max) 48 V DC from PSU to EUT
Current Rating:	0.6 Amps
Highest Frequency used or generated within the EUT	5.805 GHz
Type of Device:	Point to Point wireless data system
Antenna Details:	Permanently attached. (Horizontal or Vertical)
Transmitter Duty:	Continuous
Occupied Bandwidth:	17 MHz
Transmit Frequency:	5.745 GHz to 5.805 GHz
Type of Modulation:	QPSK at 25 Mbits/sec, raised cosine filter ($\alpha = 0.35$)
Number of Channels:	5 Channels of 15 MHz
Receiver Category:	Superhetrodyne Highest local oscillator frequency 4.9025 GHz
Antenna	Permanently attached. (Horizontal or Vertical)
Tuning Frequency:	5.745 GHz to 5.805 GHz
Method of frequency Generation:	Synthesizer
Intended Operating Environment:	AB-Access™ EXTENDER unit transceivers/antennas are mounted outside with an operating range of -20°C to +50°C. The wall box and power supply are intended to be mounted internally in users building/office/or home.
Weight:	Master Unit = 6.25 Kg PSU = 0.2 Kg Wall Box = 0.05 Kg
Dimensions:	Master Unit = 0.37 x 0.40 x 0.10 metres PSU = 0.11 x 0.045 x 0.03 metres Wall Box = 0.085 x 0.085 x 0.040 metres
Interface Ports:	Wall Box RJ45 Socket - Ethernet or ATM
Cycle Time:	Not applicable

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2.5. Support Equipment

The following support equipment was used to exercise the EUT during testing.

Description:	Personal Computer
Model Name:	Dell
Model Number:	PPX
Serial Number:	4898T
Cable Length And Type:	10.0 metres Ethernet cable
Connected to Port:	Local Area Line (LAN) to port 4 on fast Ethernet switch

Description	Fast Ethernet Switch
Brand Name	Netgear
Model Name or Number	FS308
Serial Number	FS38G05015393
F.C.C. ID Number	None stated
Cable Length And Type	9 m Ethernet Crossover Cable
Connected to Port	Port 5 to RJ45 Port on the Wall Box of the EUT

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3. Test Results

3.1. Radiated Emissions: Bottom Channel

EUT Antenna: Vertical Polarisation

3.1.1. Electric Field Strength Measurements

3.1.1.1. The client has stated that the highest clock frequency for the EUT was 5.805 GHz. Therefore tests were performed up to 40.0 GHz.

3.1.1.2. Plots of the initial scans can be found in Appendix 1.

3.1.1.3. The following tables list frequencies at which emissions were measured using Peak and Average detector functions:

Highest Average Level:

Frequency (GHz)	Antenna Polarity (H/V)	Average Detector level (dBm V)	Antenna factor (dB)	Cable loss (dB)	Actual Average Level (dBm V/m)	Average Limit (dBm V/m)	Average Margin (dB)	Result
1.4255	Vert.	21.9	21.7	1.2	44.8	54.0	9.2	Complied
1.5000	Vert.	23.6	21.7	1.2	46.5	54.0	7.5	Complied
1.0511	Vert.	18.1	21.7	1.2	39.8	54.0	14.2	Complied
1.4500	Vert.	15.8	21.7	1.2	38.7	54.0	15.3	Complied

Highest Peak Level:

Frequency (GHz)	Antenna Polarity (H/V)	Peak Detector level (dBm V)	Antenna factor (dB)	Cable loss (dB)	Actual Peak Level (dBm V/m)	Peak Limit (dBm V/m)	Peak Margin (dB)	Result
1.4255	Vert.	29.6	21.7	1.2	52.5	74.0	21.5	Complied
1.5000	Vert.	31.0	21.7	1.2	53.9	74.0	20.1	Complied
1.0511	Vert.	26.8	21.7	1.2	49.7	74.0	24.3	Complied
1.4500	Vert.	27.1	21.7	1.2	50.0	74.0	24.0	Complied

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3.2. Radiated Emissions: Bottom Channel **EUT Antenna Vertical Polarisation**

3.2.1. Electric Field Strength Measurements

3.2.1.1. The client has stated that the highest clock frequency for the EUT was 5.805 GHz. Therefore tests were performed up to 40.0 GHz.

3.2.1.2. Plots of the initial scans can be found in Appendix 1.

3.2.1.3. The following tables list frequencies at which emissions were measured using Peak and Average detector functions:

Highest Average Level:

Frequency (GHz)	Antenna Polarity (H/V)	Average Detector level (dB _m V)	Antenna factor (dB)	Cable loss (dB)	Actual Average Level (dB _m V/m)	Average Limit (dB _m V/m)	Average Margin (dB)	Result
7.264	Vert.	12.81	31.0	2.0	45.81	54.0	8.19	Complied
7.264	Horiz.	19.46	31.0	2.0	52.46	54.0	1.54	Complied

Highest Peak Level:

Frequency (GHz)	Antenna Polarity (H/V)	Peak Detector level (dB _m V)	Antenna factor (dB)	Cable loss (dB)	Actual Peak Level (dB _m V/m)	Peak Limit (dB _m V/m)	Peak Margin (dB)	Result
7.264	Vert.	23.07	31.0	2.0	56.07	74.0	17.93	Complied
7.264	Horiz.	25.78	31.0	2.0	58.78	74.0	15.22	Complied

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3.3. Radiated Emissions: Middle Channel **EUT Antenna Vertical Polarisation**

3.3.1. Electric Field Strength Measurements

3.3.1.1. The client has stated that the highest clock frequency for the EUT was 5.805 GHz. Therefore tests were performed up to 40.0 GHz.

3.3.1.2. Plots of the initial scans can be found in Appendix 1.

3.3.1.3. The following tables list frequencies at which emissions were measured using Peak and Average detector functions:

Highest Average Level:

Frequency (GHz)	Antenna Polarity (H/V)	Average Detector level (dB _m V)	Antenna factor (dB)	Cable loss (dB)	Actual Average Level (dB _m V/m)	Average Limit (dB _m V/m)	Average Margin (dB)	Result
7.309	Vert.	17.53	31.0	2.0	50.53	54.0	3.47	Complied
7.309	Horiz.	18.27	31.0	2.0	51.27	54.0	2.73	Complied

Highest Peak Level:

Frequency (GHz)	Antenna Polarity (H/V)	Peak Detector level (dB _m V)	Antenna factor (dB)	Cable loss (dB)	Actual Peak Level (dB _m V/m)	Peak Limit (dB _m V/m)	Peak Margin (dB)	Result
7.309	Vert.	24.77	31.0	2.0	57.77	74.0	16.23	Complied
7.309	Horiz.	25.16	31.0	2.0	58.16	74.0	15.84	Complied

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3.4. Radiated Emissions: Top Channel **EUT Antenna Vertical Polarisation**

3.4.1. Electric Field Strength Measurements

3.4.1.1. The client has stated that the highest clock frequency for the EUT was 5.805 GHz. Therefore tests were performed up to 40.0 GHz.

3.4.1.2. Plots of the initial scans can be found in Appendix 1.

3.4.1.3. The following tables list frequencies at which emissions were measured using Peak and Average detector functions:

Highest Average Level:

Frequency (GHz)	Antenna Polarity (H/V)	Average Detector level (dBm V)	Antenna factor (dB)	Cable loss (dB)	Actual Average Level (dBm V/m)	Average Limit (dBm V/m)	Average Margin (dB)	Result
7.354	Vert.	16.11	31.0	2.0	49.11	54.0	4.89	Complied
7.354	Horiz.	13.82	31.0	2.0	46.82	54.0	7.18	Complied

Highest Peak Level:

Frequency (GHz)	Antenna Polarity (H/V)	Peak Detector level (dBm V)	Antenna factor (dB)	Cable loss (dB)	Actual Peak Level (dBm V/m)	Peak Limit (dBm V/m)	Peak Margin (dB)	Result
7.354	Vert.	24.49	31.0	2.0	57.49	74.0	16.51	Complied
7.354	Horiz.	23.51	31.0	2.0	56.51	74.0	17.49	Complied

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3.5. Radiated Emissions: Top Channel **EUT Antenna Horizontal Polarisation**

3.5.1. Electric Field Strength Measurements

3.5.1.1. The client has stated that the highest clock frequency for the EUT was 5.805 GHz. Therefore tests were performed up to 40.0 GHz.

3.5.1.2. Plots of the initial scans can be found in Appendix 1.

3.5.1.3. The following tables list frequencies at which emissions were measured using Peak and Average detector functions:

Highest Average Level:

Frequency (GHz)	Antenna Polarity (H/V)	Average Detector level (dB _m V)	Antenna factor (dB)	Cable loss (dB)	Actual Average Level (dB _m V/m)	Average Limit (dB _m V/m)	Average Margin (dB)	Result
7.354	Vert.	12.40	31.0	2.0	45.40	54.0	8.60	Complied
7.354	Horiz.	12.76	31.0	2.0	45.76	54.0	8.24	Complied

Highest Peak Level:

Frequency (GHz)	Antenna Polarity (H/V)	Peak Detector level (dB _m V)	Antenna factor (dB)	Cable loss (dB)	Actual Peak Level (dB _m V/m)	Peak Limit (dB _m V/m)	Peak Margin (dB)	Result
7.354	Vert.	23.07	31.0	2.0	56.07	74.0	17.93	Complied
7.354	Horiz.	22.72	31.0	2.0	55.72	74.0	18.28	Complied

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3.6. Radiated Emissions: Middle Channel **EUT Antenna Horizontal Polarisation**

3.6.1. Electric Field Strength Measurements

3.6.1.1. The client has stated that the highest clock frequency for the EUT was 5.805 GHz. Therefore tests were performed up to 40.0 GHz.

3.6.1.2. Plots of the initial scans can be found in Appendix1.

3.6.1.3. The following tables list frequencies at which emissions were measured using Peak and Average detector functions:

Highest Average Level:

Frequency (GHz)	Antenna Polarity (H/V)	Average Detector level (dB _m V)	Antenna factor (dB)	Cable loss (dB)	Actual Average Level (dB _m V/m)	Average Limit (dB _m V/m)	Average Margin (dB)	Result
7.309	Vert.	19.13	31.0	2.0	52.03	54.0	1.97	Complied
7.309	Horiz.	19.49	31.0	2.0	52.41	54.0	1.59	Complied

Highest Peak Level:

Frequency (GHz)	Antenna Polarity (H/V)	Peak Detector level (dB _m V)	Antenna factor (dB)	Cable loss (dB)	Actual Peak Level (dB _m V/m)	Peak Limit (dB _m V/m)	Peak Margin (dB)	Result
7.309	Vert.	25.71	31.0	2.0	58.71	74.0	15.29	Complied
7.309	Horiz.	26.02	31.0	2.0	59.02	74.0	14.98	Complied

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3.7. Radiated Emissions: Bottom Channel **EUT Antenna Horizontal Polarisation**

3.7.1. Electric Field Strength Measurements

3.7.1.1. The client has stated that the highest clock frequency for the EUT was 5.805 GHz. Therefore tests were performed up to 40.0 GHz.

3.7.1.2. Plots of the initial scans can be found in Appendix 1.

3.7.1.3. The following tables list frequencies at which emissions were measured using Peak and Average detector functions:

Highest Average Level:

Frequency (GHz)	Antenna Polarity (H/V)	Average Detector level (dBm V)	Antenna factor (dB)	Cable loss (dB)	Actual Average Level (dBm V/m)	Average Limit (dBm V/m)	Average Margin (dB)	Result
7.264	Vert.	14.62	31.0	2.0	47.62	54.0	6.38	Complied
7.264	Horiz.	19.41	31.0	2.0	52.41	54.0	1.59	Complied

Highest Peak Level:

Frequency (GHz)	Antenna Polarity (H/V)	Peak Detector level (dBm V)	Antenna factor (dB)	Cable loss (dB)	Actual Peak Level (dBm V/m)	Peak Limit (dBm V/m)	Peak Margin (dB)	Result
7.264	Vert.	24.44	31.0	2.0	57.44	74.0	16.56	Complied
7.264	Horiz.	24.86	31.0	2.0	57.86	74.0	16.14	Complied

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Appendix 1. Graphical Test Results

This appendix contains the following graphs:

Graph Reference Number	Title
GPH/42151JD01/4001	Radiated Emissions, Transmit Mode, Bottom Channel, EUT Antenna Horizontal Polarisation (4 GHz to 6 GHz), Part 15.209
GPH/42151JD01/4002	Radiated Emissions, Transmit Mode, Middle Channel, EUT Antenna Horizontal Polarisation (4 GHz to 6 GHz), Part 15.209
GPH/42151JD01/4003	Radiated Emissions, Transmit Mode, Top Channel, EUT Antenna Horizontal Polarisation (4 GHz to 6 GHz), Part 15.209
GPH/42151JD01/4004	Radiated Emissions, Transmit Mode, Top Channel, EUT Antenna Vertical Polarisation (4 GHz to 6 GHz), Part 15.209
GPH/42151JD01/4005	Radiated Emissions, Transmit Mode, Middle Channel, EUT Antenna Vertical Polarisation (4 GHz to 6 GHz), Part 15.209
GPH/42151JD01/4006	Radiated Emissions, Transmit Mode, Bottom Channel, EUT Antenna Vertical Polarisation (4 GHz to 6 GHz), Part 15.209
GPH/42151JD01/4007	Radiated Emissions, Transmit Mode, Bottom Channel, EUT Antenna Vertical Polarisation (6 GHz to 8 GHz), Part 15.209
GPH/42151JD01/4008	Radiated Emissions, Transmit Mode, Middle Channel, EUT Antenna Vertical Polarisation (6 GHz to 8 GHz), Part 15.209
GPH/42151JD01/4009	Radiated Emissions, Transmit Mode, Top Channel, EUT Antenna Vertical Polarisation (6 GHz to 8 GHz), Part 15.209
GPH/42151JD01/4010	Radiated Emissions, Transmit Mode, Top Channel, EUT Antenna Horizontal Polarisation (6 GHz to 8 GHz), Part 15.209
GPH/42151JD01/4011	Radiated Emissions, Transmit Mode, Middle Channel, EUT Antenna Horizontal Polarisation (6 GHz to 8 GHz), Part 15.209
GPH/42151JD01/4012	Radiated Emissions, Transmit Mode, Bottom Channel, EUT Antenna Horizontal Polarisation (6 GHz to 8 GHz), Part 15.209

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Graphical Test Results (continued)

Graph Reference Number	Title
GPH/42151JD01/4013	Radiated Emissions, Transmit Mode, Bottom Channel, EUT Antenna Horizontal Polarisation (8 GHz to 12 GHz), Part 15.209
GPH/42151JD01/4014	Radiated Emissions, Transmit Mode, Middle Channel, EUT Antenna Horizontal Polarisation (8 GHz to 12 GHz), Part 15.209
GPH/42151JD01/4015	Radiated Emissions, Transmit Mode, Top Channel, EUT Antenna Horizontal Polarisation (8 GHz to 12 GHz), Part 15.209
GPH/42151JD01/4016	Radiated Emissions, Transmit Mode, Top Channel, EUT Antenna Vertical Polarisation (8 GHz to 12 GHz), Part 15.209
GPH/42151JD01/4017	Radiated Emissions, Transmit Mode, Middle Channel, EUT Antenna Vertical Polarisation (8 GHz to 12 GHz), Part 15.209
GPH/42151JD01/4018	Radiated Emissions, Transmit Mode, Bottom Channel, EUT Antenna Vertical Polarisation (8 GHz to 12 GHz), Part 15.209
GPH/42151JD01/4019	Radiated Emissions, Transmit Mode, Bottom Channel, EUT Antenna Vertical Polarisation (12 GHz to 18 GHz), Part 15.209
GPH/42151JD01/4020	Radiated Emissions, Transmit Mode, Middle Channel, EUT Antenna Vertical Polarisation (12 GHz to 18 GHz), Part 15.209
GPH/42151JD01/4021	Radiated Emissions, Transmit Mode, Top Channel, EUT Antenna Vertical Polarisation (12 GHz to 18 GHz), Part 15.209
GPH/42151JD01/4022	Radiated Emissions, Transmit Mode, Top Channel, EUT Antenna Horizontal Polarisation (12 GHz to 18 GHz), Part 15.209
GPH/42151JD01/4023	Radiated Emissions, Transmit Mode, Middle Channel, EUT Antenna Horizontal Polarisation (12 GHz to 18 GHz), Part 15.209
GPH/42151JD01/4024	Radiated Emissions, Transmit Mode, Bottom Channel, EUT Antenna Horizontal Polarisation (12 GHz to 18 GHz), Part 15.209

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Graphical Test Results (continued)

Graph Reference Number	Title
GPH/42151JD01/4025	Radiated Emissions, Transmit Mode, Bottom Channel, EUT Antenna Horizontal Polarisation (18 GHz to 26.5 GHz), Part 15.209
GPH/42151JD01/4026	Radiated Emissions, Transmit Mode, Middle Channel, EUT Antenna Horizontal Polarisation (18 GHz to 26.5 GHz), Part 15.209
GPH/42151JD01/4027	Radiated Emissions, Transmit Mode, Top Channel, EUT Antenna Horizontal Polarisation (18 GHz to 26.5 GHz), Part 15.209
GPH/42151JD01/4028	Radiated Emissions, Transmit Mode, Top Channel, EUT Antenna Vertical Polarisation (18 GHz to 26.5 GHz), Part 15.209
GPH/42151JD01/4029	Radiated Emissions, Transmit Mode, Middle Channel, EUT Antenna Vertical Polarisation (18 GHz to 26.5 GHz), Part 15.209
GPH/42151JD01/4030	Radiated Emissions, Transmit Mode, Bottom Channel, EUT Antenna Vertical Polarisation (18 GHz to 26.5 GHz), Part 15.209
GPH/42151JD01/4031	Radiated Emissions, Top, Middle and Bottom Channels, EUT Antenna Vertical and Horizontal Polarisation (26.5 GHz to 40 GHz), Part 15.209
GPH/42151JD01/4032	Radiated Emissions, Bottom Channel, EUT Antenna Vertical and Horizontal Polarisation (1 GHz to 2 GHz), Part 15.209
GPH/42151JD01/4033	Radiated Emissions, Middle Channel, EUT Antenna Vertical and Horizontal Polarisation (1 GHz to 2 GHz), Part 15.209
GPH/42151JD01/4034	Radiated Emissions, Top Channel, EUT Antenna Vertical and Horizontal Polarisation (1 GHz to 2 GHz), Part 15.209
GPH/42151JD01/4035	Radiated Emissions, Top, Middle and Bottom Channels, EUT Antenna Vertical and Horizontal Polarisation (2 GHz to 4 GHz), Part 15.209

These pages are not included in the total number of pages for this supplementary report.



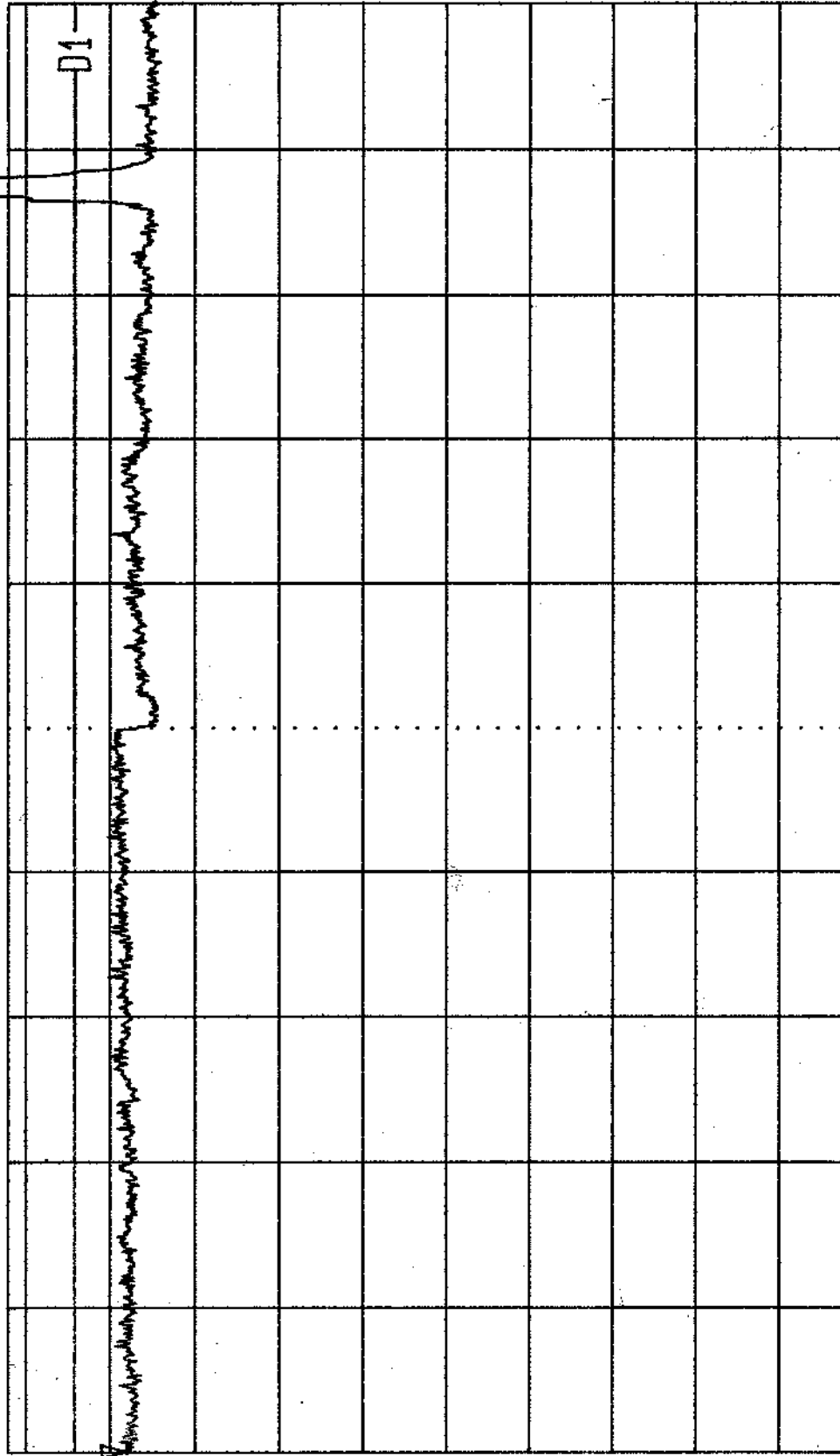
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Ref.Lvl 62.00 dB*
Marker 48.09 dB*
4.0000 GHz

Res.Bw
TG.Lvl
CF.Stp

1 MHz [imp]
Off
200.000 MHz

Vid.Bw 1 MHz
RF.Att 0 dB
Unit [dB μ V/m]

60.0
50.0
40.0
30.0
20.0
10.0
0
-10.0
-20.0
-30.0



TI
4
PA
10
FI

Start
4 GHz

Span
2 GHz

Center
5 GHz

Sweep
20 ms

Stop
6 GHz

Radiated. Tested by RFI for Adaptive Broadband. EUT: SU
Part 15.209. TX Bottom Channel Horiz. Antenna

Part 15 Subpart E
GPH/42151JD01/4001



Date 23.May.'01 Time 15:34:28

Ref.Lvl

62.00 dBx

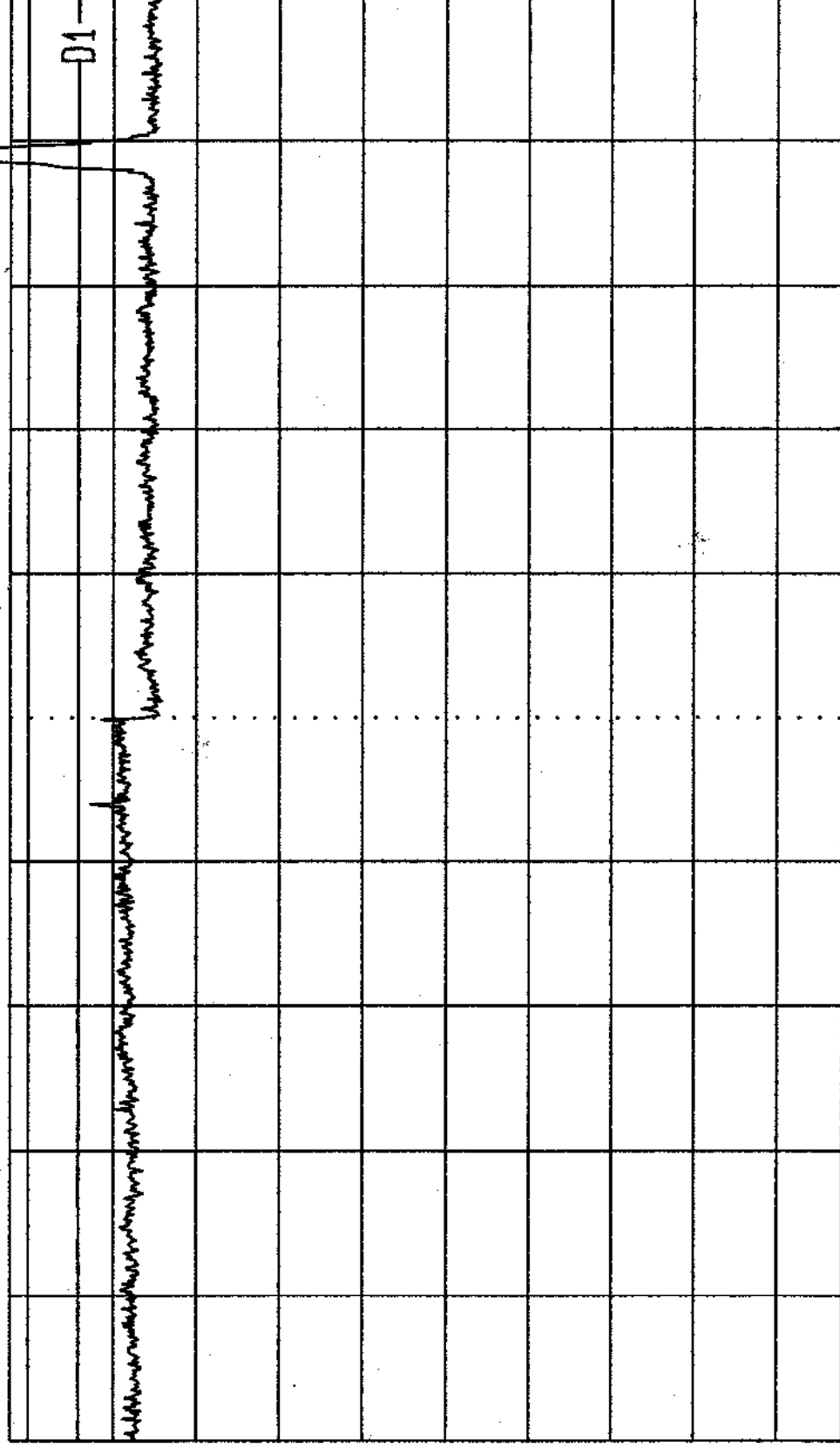
Res.Bw
TG.Lvl
CF.Stp

1 MHz [imp]
off
200.000 MHz

Vid.Bw
RF.Att
Unit

1 MHz
0 dB
[dBuV/m]

60.0
50.0
40.0
30.0
20.0
10.0
0
-10.0
-20.0
-30.0



TT
4
PA
10
FI

Start
4 GHz

Span
2 GHz

Center
5 GHz

Sweep
20 ms

Stop
6 GHz

Radiated. Tested by RFI for Adaptive Broadband. EUT: SU
Part 15.209. TX Middle Channel Horiz. Antenna

Part 15 Subpart E
GPH/42151JD01/4002



May: '01

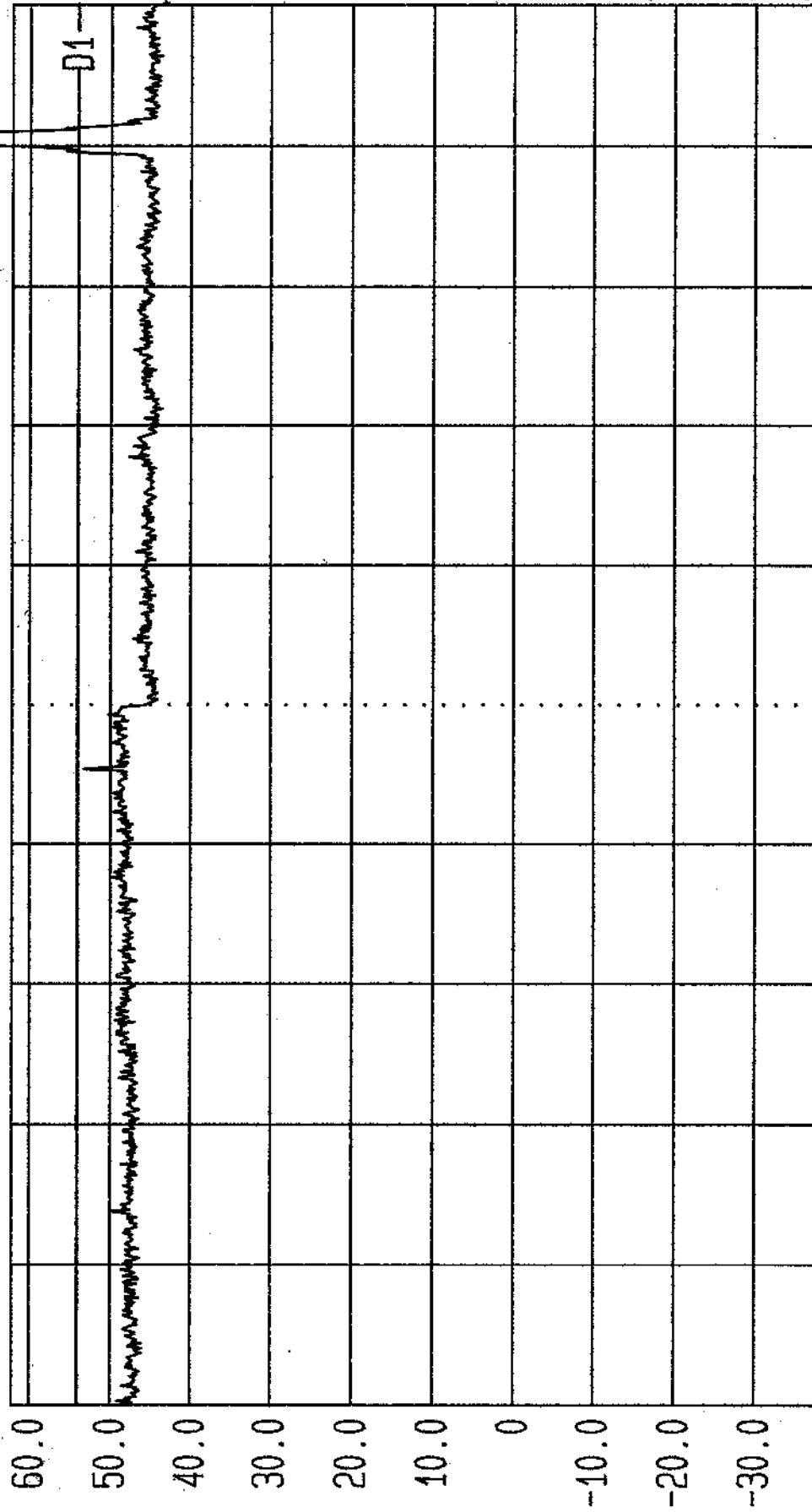
Time 15:37:34

Res. Bw
TG. Lvl
CF. Stp

1 MHz [imp]
off
200.000 MHz

Vid.Bw
RF.Att.
Unit

1 MHz
0 dB
[dBμV/m]



Start	4 GHz
-------	-------

Span 2 GHz

Center
5 GHz

Sweep 20 ms

Stop
6 GHz

Radiated. Tested by RFI for Adaptive Broadband.
Part 15.209. TX Top Channel Horiz.

EUT: SU
enna

Part 15 Subpart E
GPH/42151JD01/4003



Date 23.May.'01 Time 15:59:29

Ref.Lvl

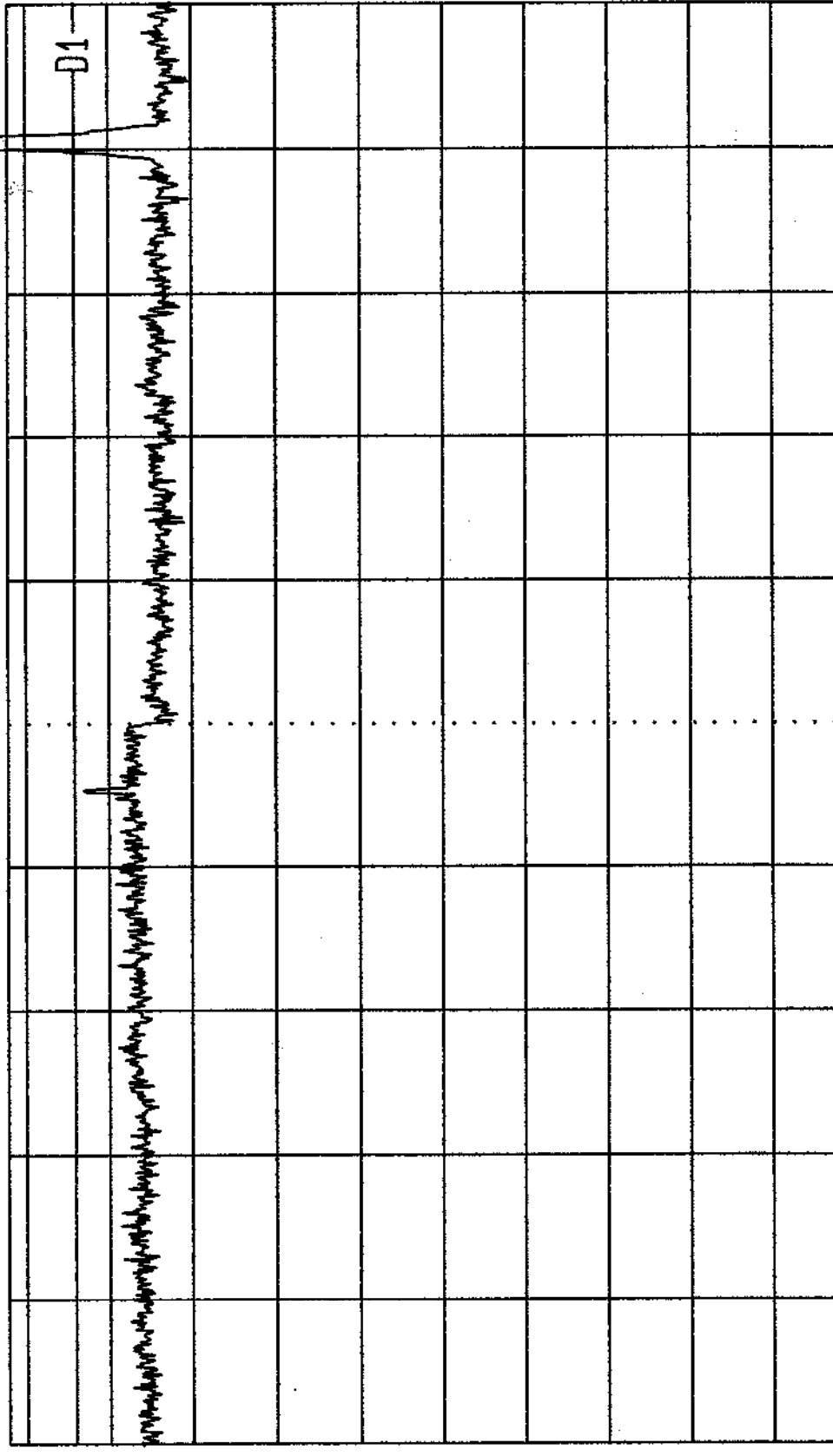
62.00 dBx

Res.Bw
1G.Lvl
CF.Stp

1 MHz [imp]
Off
200.000 MHz

Vid.Bw
1 MHz
RF.Att
0 dB
Unit
dBμV/m

60.0
50.0
40.0
30.0
20.0
10.0
0
-10.0
-20.0
-30.0



TI
4
PA
10
FI

Start
4 GHz

Span
2 GHz

Center
5 GHz

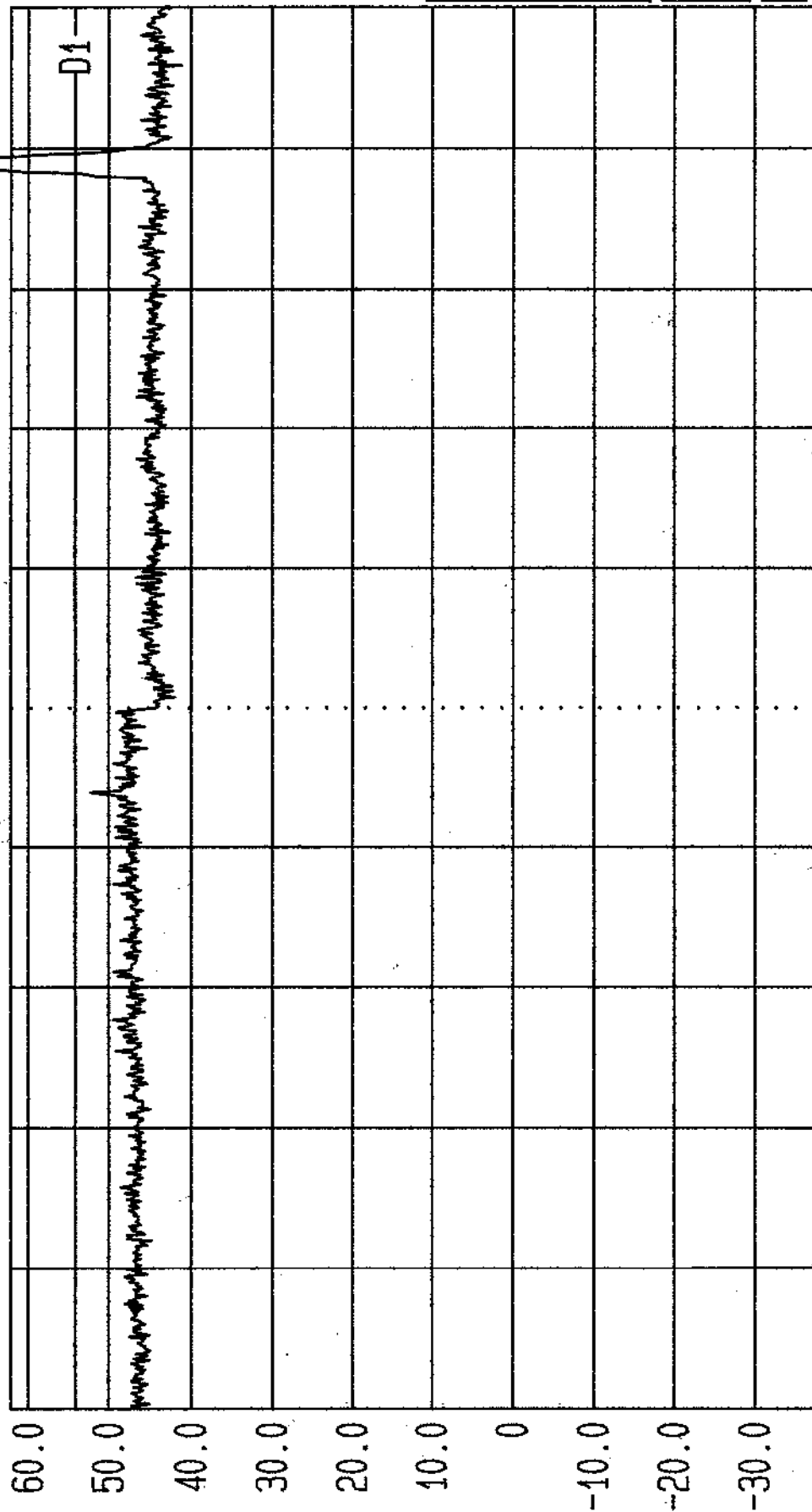
Sweep
20 ms

Stop
6 GHz

Radiated. Tested by RFI for Adaptive Broadband. EUT: SU
Part 15.209. TX Top Channel Vert. Antenna
Part 15 Subpart E
GPH/42151JD01/4004

Res.Bw 1 MHz [imp] Vid.Bw 1 MHz
 TG.Lvl off RF.Att 0 dB
 CF.Stp 200.000 MHz Unit [dBμV/m]

Ref.Lvl
 62.00 dBx



TT
 4
 PA
 10
 FI

Start 4 GHz Span 2 GHz Center 5 GHz Sweep 20 ms Stop 6 GHz
 Radiated. Tested by RFI for Adaptive Broadband. EUT: SU
 Part 15.209. TX Middle Channel Vert. Antenna
 Part 15 Subpart E
 GPH/42151JD01/4005



Date 23.May.'01 Time 16:06:25

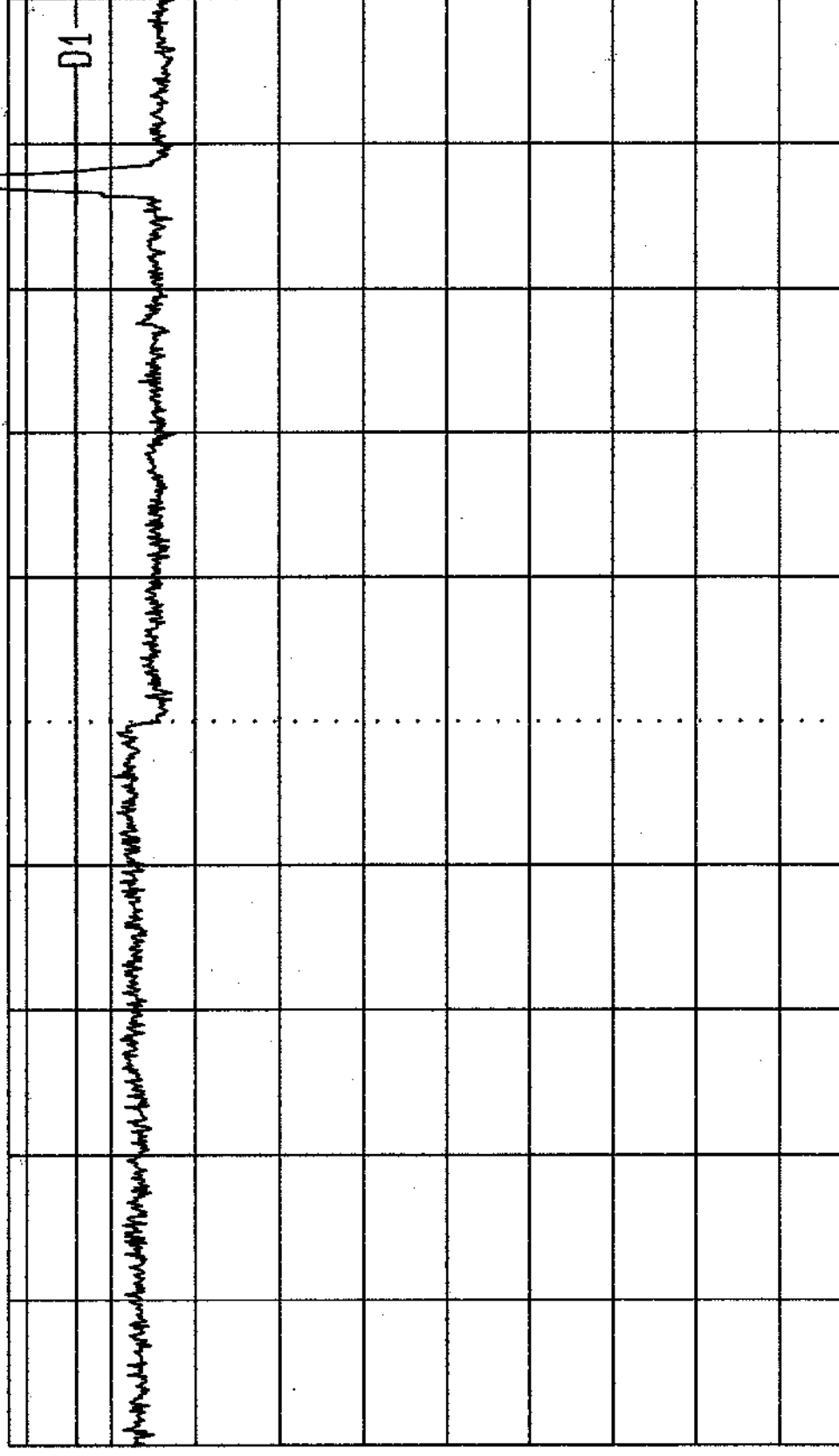
Ref.Lvl
62.00 dBx

Res.Bw
TG.Lvl
CF.Stp

1 MHz [imp]
Off
200.000 MHz

Vid.Bw
RF.Att
Unit
1 MHz
0 dB
[dBμV/m]

60.0
50.0
40.0
30.0
20.0
10.0
0
-10.0
-20.0
-30.0



TT
4
PA
10
FI

Start
4 GHz

Span
2 GHz

Center
5 GHz

Sweep
20 ms

Stop
6 GHz

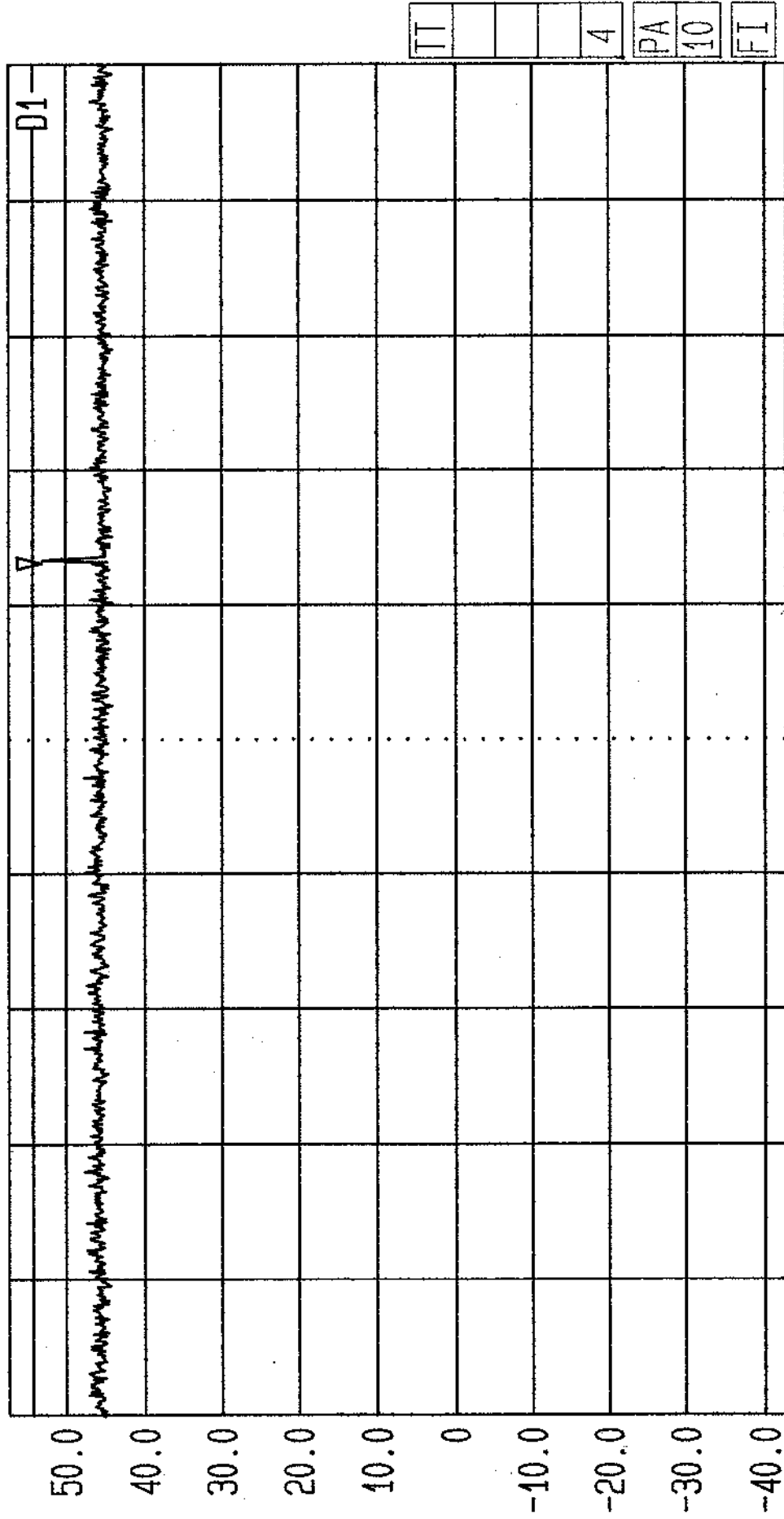
Radiated. Tested by RFI for Adaptive Broadband. EUT: SU
Part 15.209. TX Bottom Channel Vert. Antenna

Part 15 Subpart E
GPH/42151JD01/4006



Date 23.May.'01 Time 17:09:59
Ref.Lvl 57.00 dBx
Marker 53.07 dBx
7.2666 GHz

Res.Bw 1 MHz [imp]
TG.Lvl off
CF.Stp 200.000 MHz
Vid.Bw 3 MHz
RF.Att 0 dB
Unit [dBμV/m]

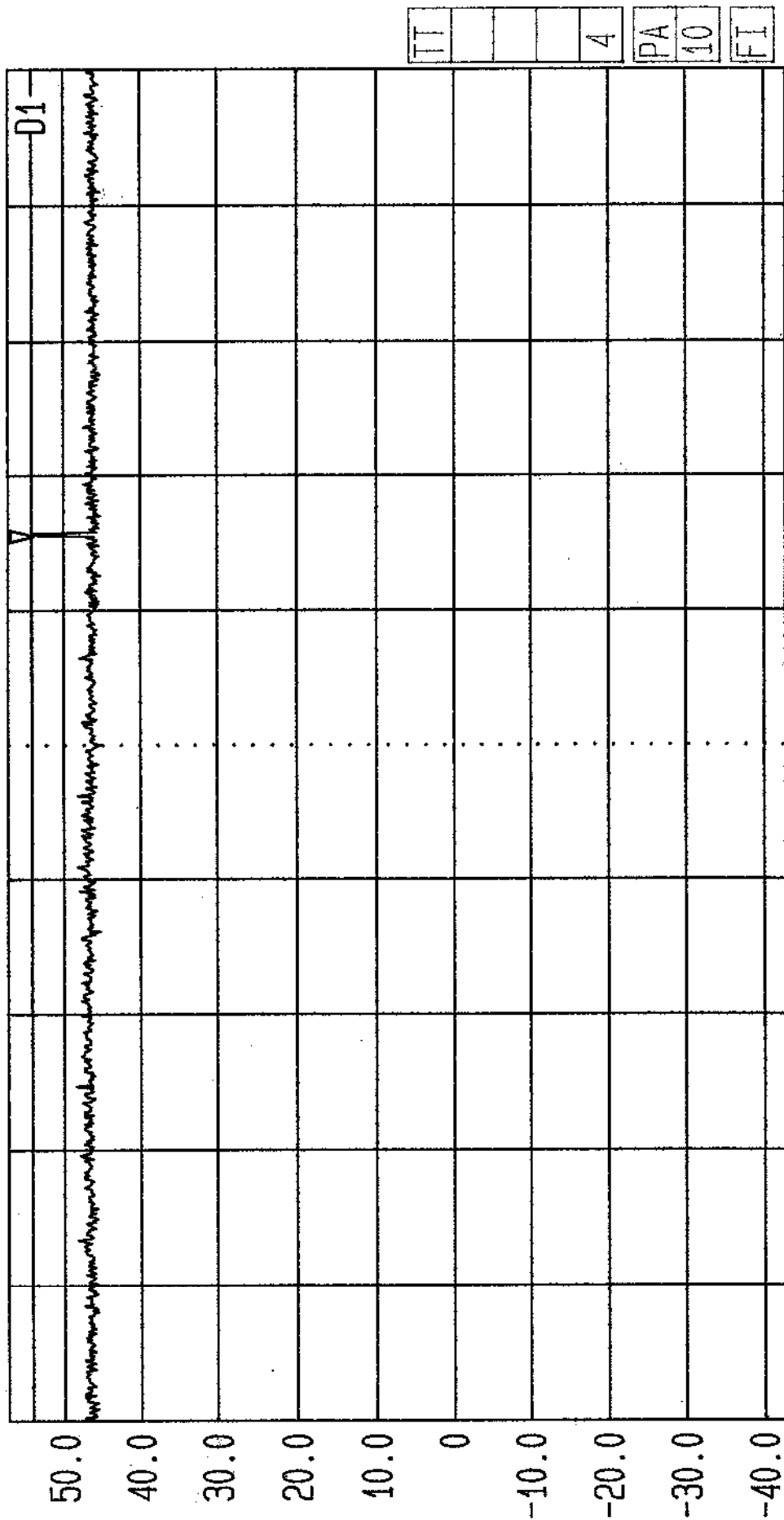


Radiated. Tested by RFI for Adaptive Broadband. EUT: SU
Part 15.209. TX Bottom Channel Vert. Antenna
Part 15 Subpart E
GPH/42151JD01/4007

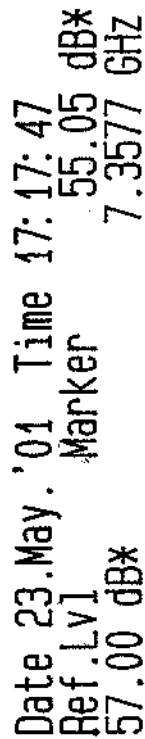


Date 23.May.'01 Time 17:13:50
Ref.Lvl 57.00 dBx
Marker 53.93 dBx
7.3133 GHz

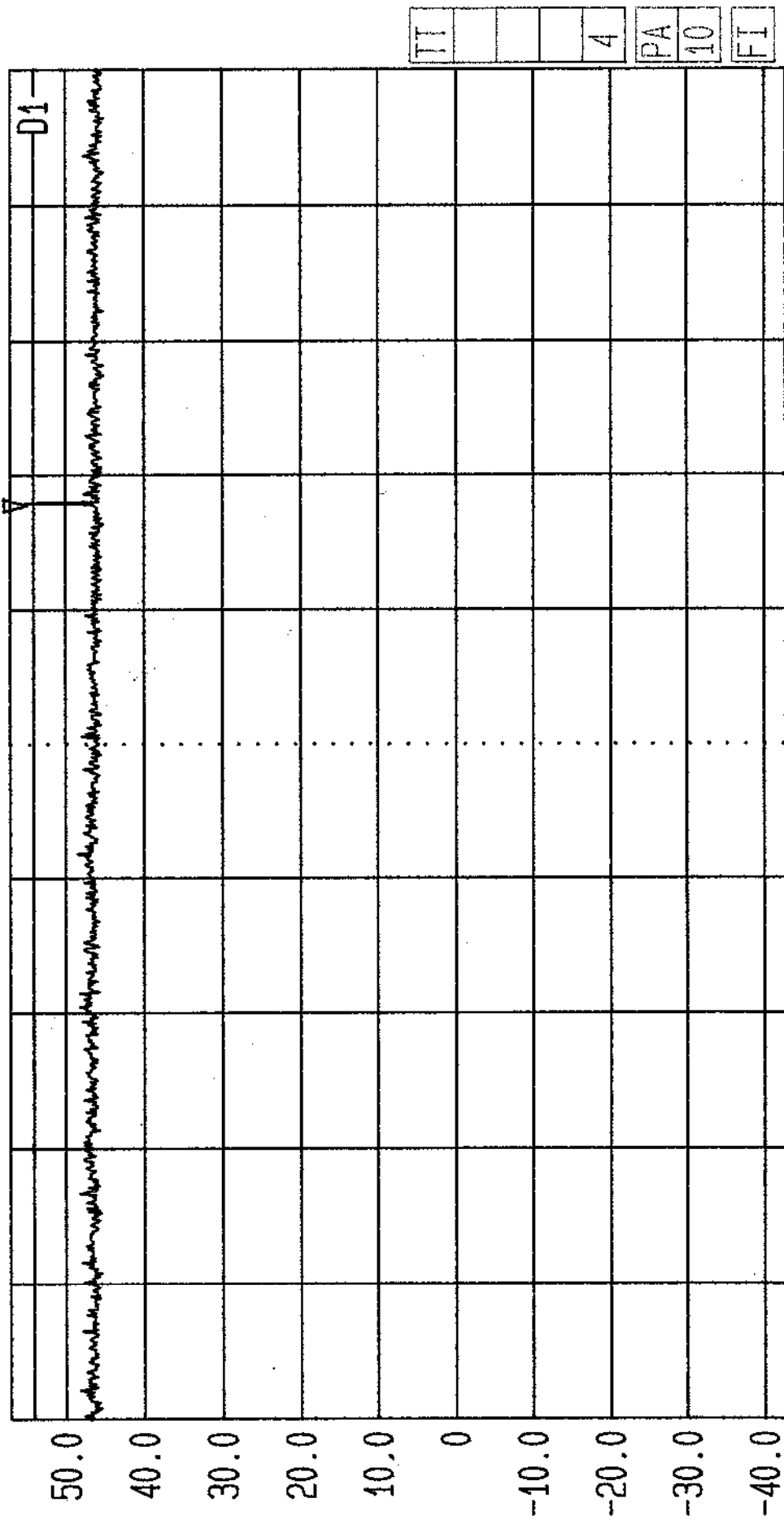
Res.Bw 1 MHz [imp]
TG.Lvl Off
CF.Stp 200.000 MHz
Vid.Bw 3 MHz
RF.Att 0 dB
Unit [dBuV/m]



Radiated. Tested by RFI for Adaptive Broadband. EUT: SU
Part 15.209. TX Middle Channel Vert. Antenna
Part 15 Subpart E
GPH/42151JD01/4008

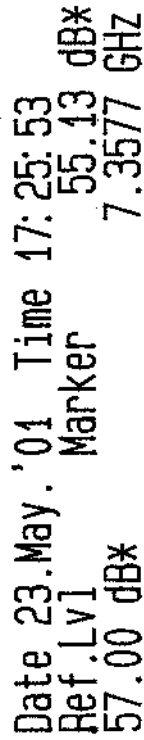


Res.Bw	1 MHz [imp]	Vid.Bw	3 MHz
TG.Lvl	off	RF.Att	0 dB
CF.Stp	200.000 MHz	Unit	[dBuV/m]

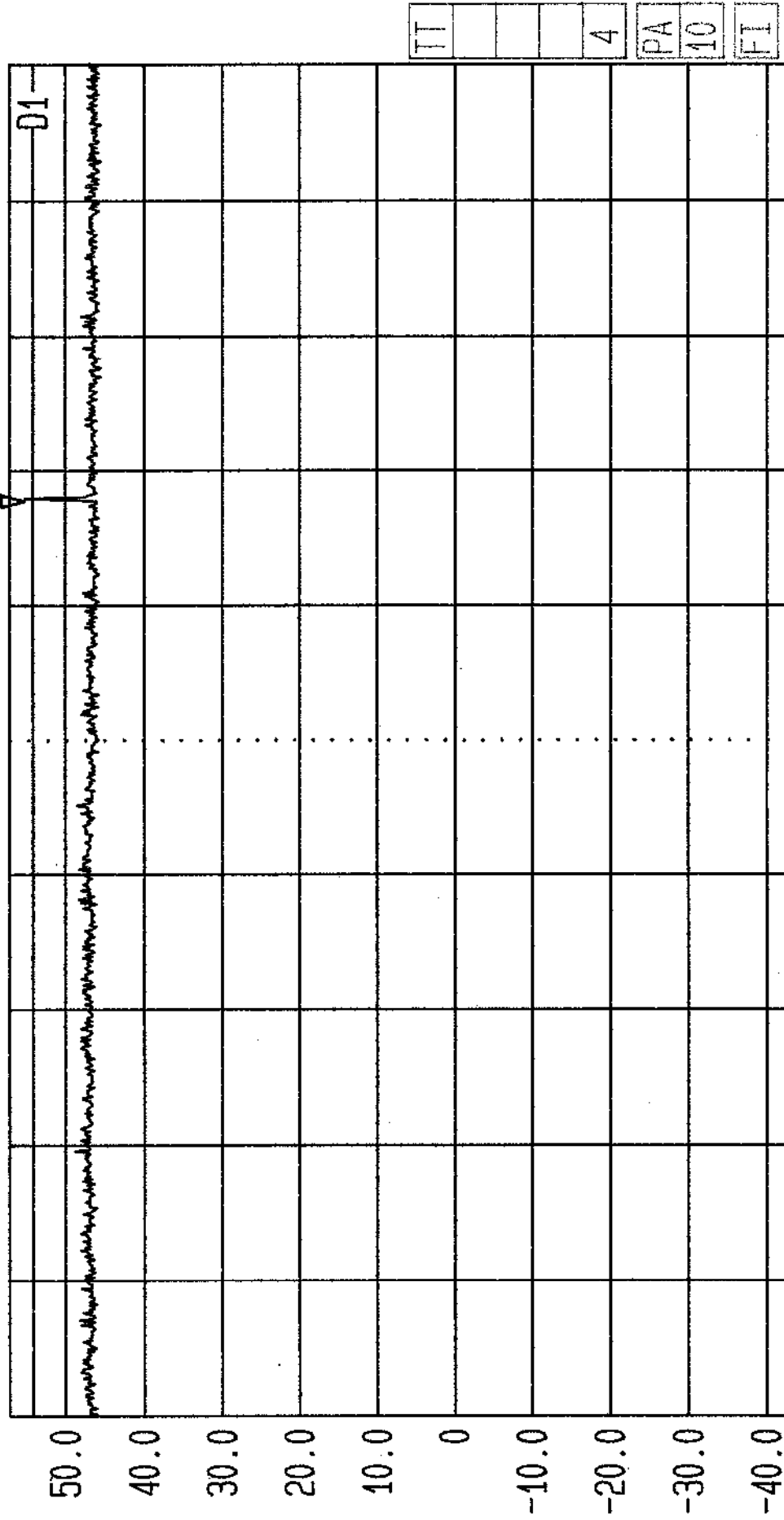


Start	Span	Center	Sweep	Stop
6 GHz	2 GHz	7 GHz	20 ms	8 GHz

Radiated. Tested by RFI for Adaptive Broadband. EUT: SU
Part 15.209. TX Top Channel Vert. Antenna
Part 15 Subpart E
GPH/42151JD01/4009



Res.Bw	1 MHz [imp]	Vid.Bw	3 MHz
TG.Lvl	off	RF.Att	0 dB
CF.Stp	200.000 MHz	Unit	[dBμV/m]



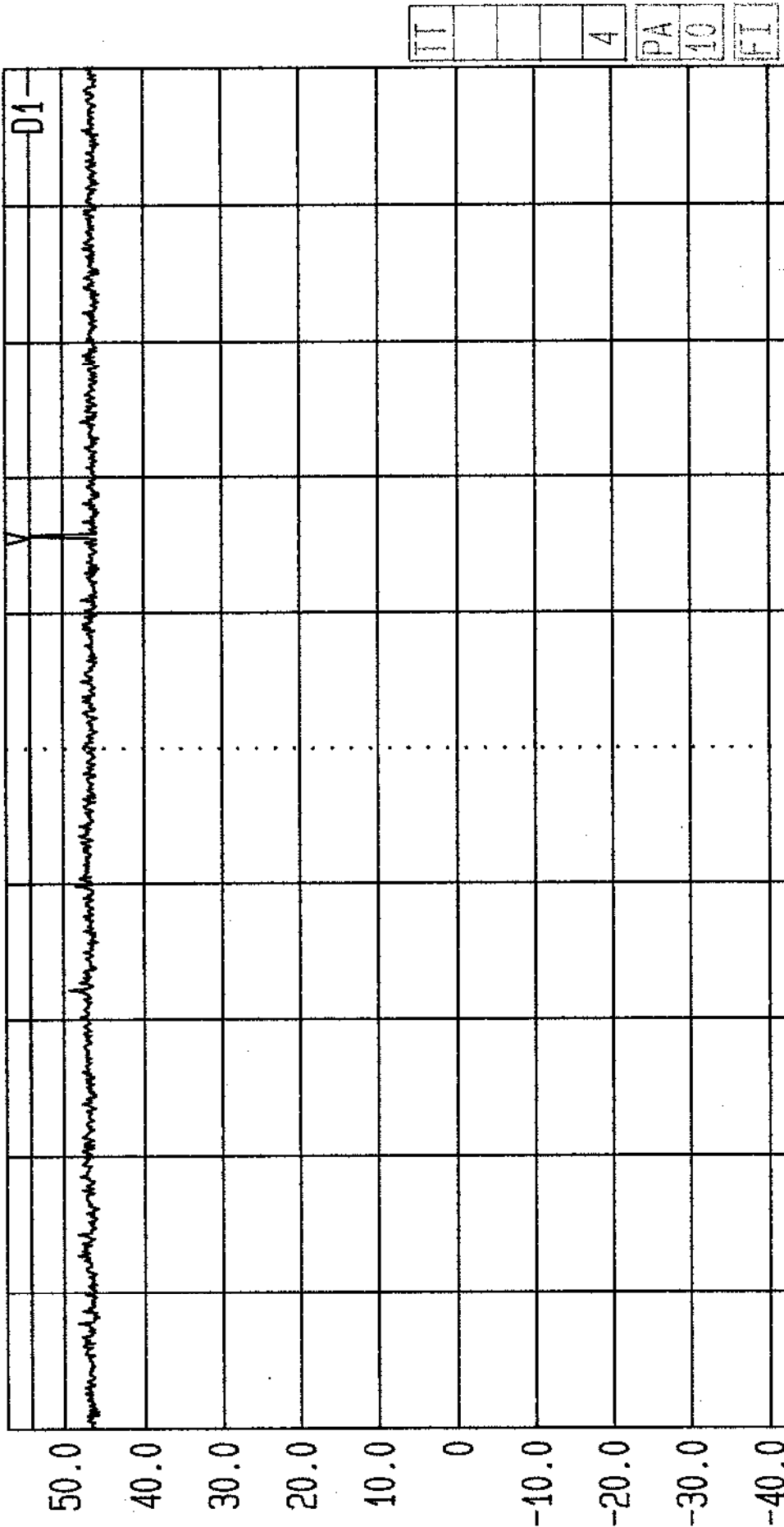
Start 6 GHz	Span 2 GHz	Center 7 GHz	Sweep 20 ms	Stop 8 GHz
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Radiated. Tested by RFI for Adaptive Broadband. EUT: SU
Part 15.209. TX Top Channel Horiz. Antenna
Part 15 Subpart E
GPH/42151JD01/4010



Date 23.May.'01 Time 17:31:31
Ref.Lvl 54.19 dB*
Marker 7.3133 GHz

Res.Bw 1 MHz [imp]
TG.Lvl off
CF.Stp 200.000 MHz
Vid.Bw 3 MHz
RF.Att 0 dB
Unit [dBμV/m]

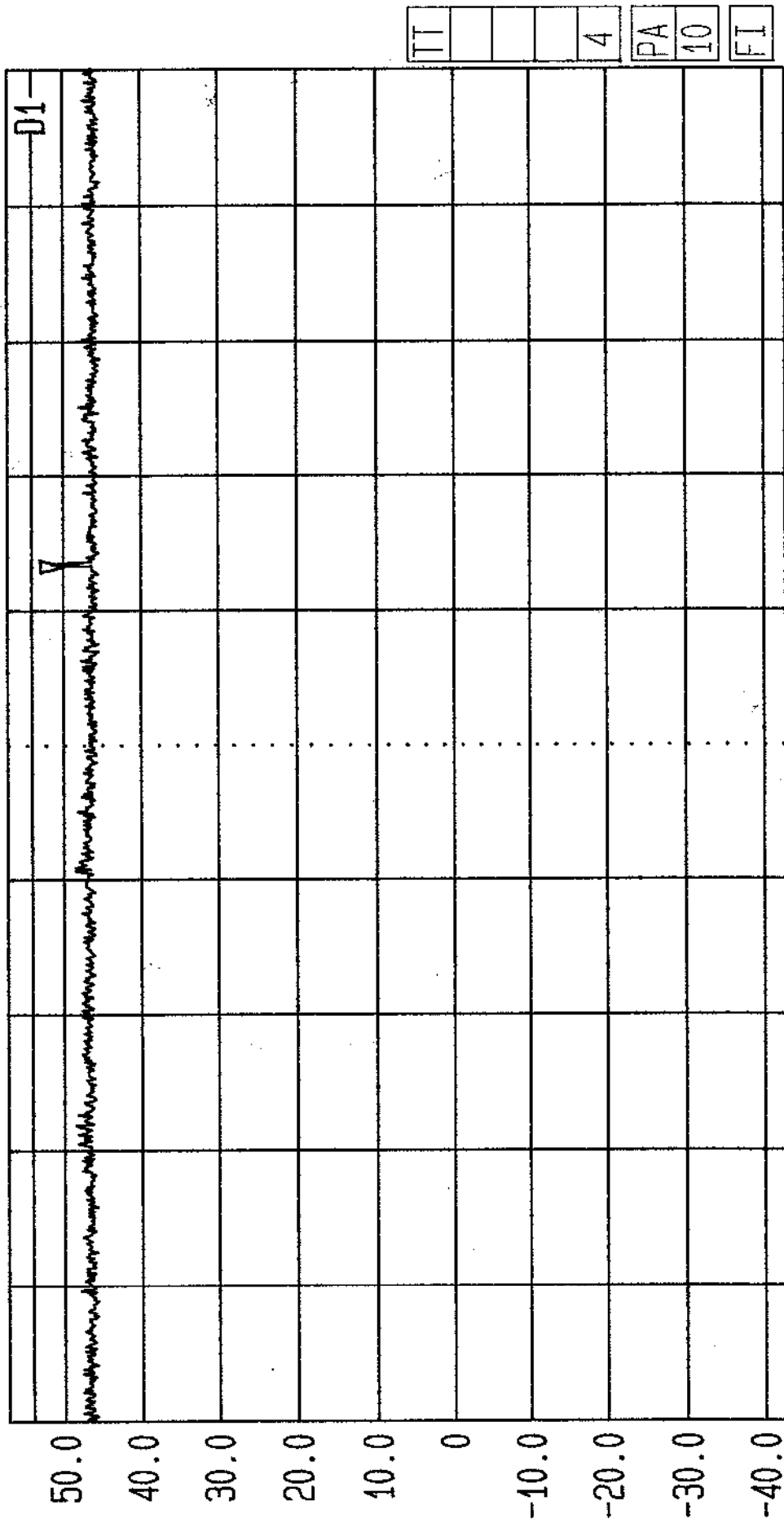


Radiated. Tested by RFI for Adaptive Broadband. EUT: SU
Part 15.209. TX Middle Channel Horiz. Antenna
Part 15 Subpart E
GPH/42151JD01/4011



Date 23.May.'01 Time 19:42:43
Ref.Lvl 57.00 dB μ V
Marker 49.97 dB μ V
7.2688 GHz

Res.Bw 1 MHz [imp]
TG.Lvl Off
CF.Stp 200.000 MHz
Vid.Bw 3 MHz
RF.Att 0 dB
Unit [dB μ V]



Start 6 GHz
Span 2 GHz
Center 7 GHz
Sweep 20 ms
Stop 8 GHz
Radiated. Tested by RFI for Adaptive Broadband. EUT: SU
Part 15.209. TX Bottom Channel Horiz. Antenna
Part 15 Subpart E
GPH/42151JD01/4012



Date 23.May.'01 Time 19:53:50

Ref.Lvl

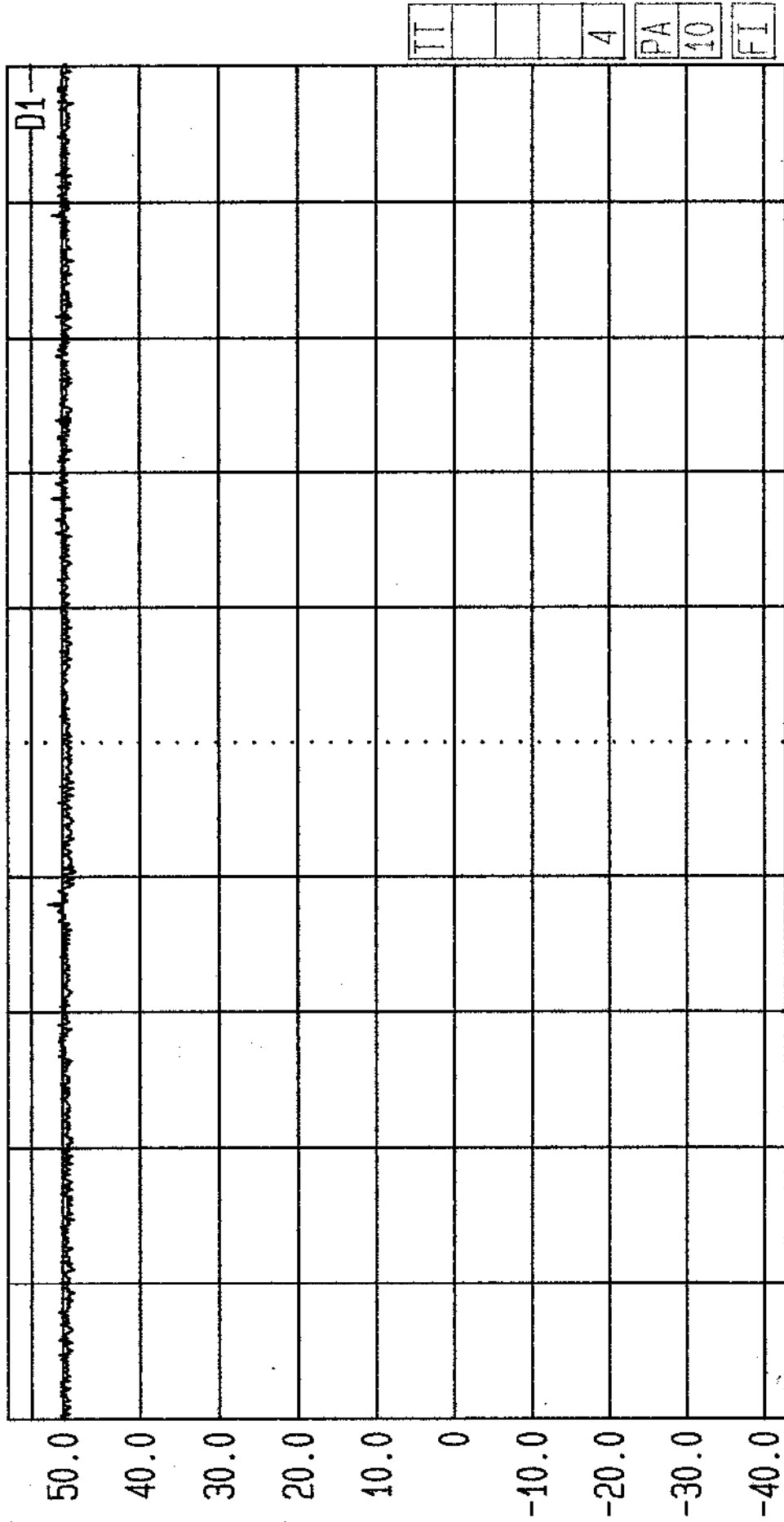
57.00 dBuV

Res.Bw
TG.Lvl
CF.Stp

1 MHz [imp]
off
400.000 MHz

Vid.Bw
RF.Att
Unit

3 MHz
0 dB
[dBuV]



Start
8 GHz

Span
4 GHz

Center
10 GHz

Sweep
40 ms

Stop
12 GHz

Radiated. Tested by RFI for Adaptive Broadband.
Part 15.209.

TX Bottom Channel Horiz. Antenna

EUT: SU

Part 15 Subpart E
GPH/42151JD01/4013



Date 23.May.'01 Time 19:58:31

Ref.Lvl

57.00 dBuV

Res.Bw
TG.Lvl

CF.Stp

1 MHz [imp]
off

400.000 MHz

Vid.Bw

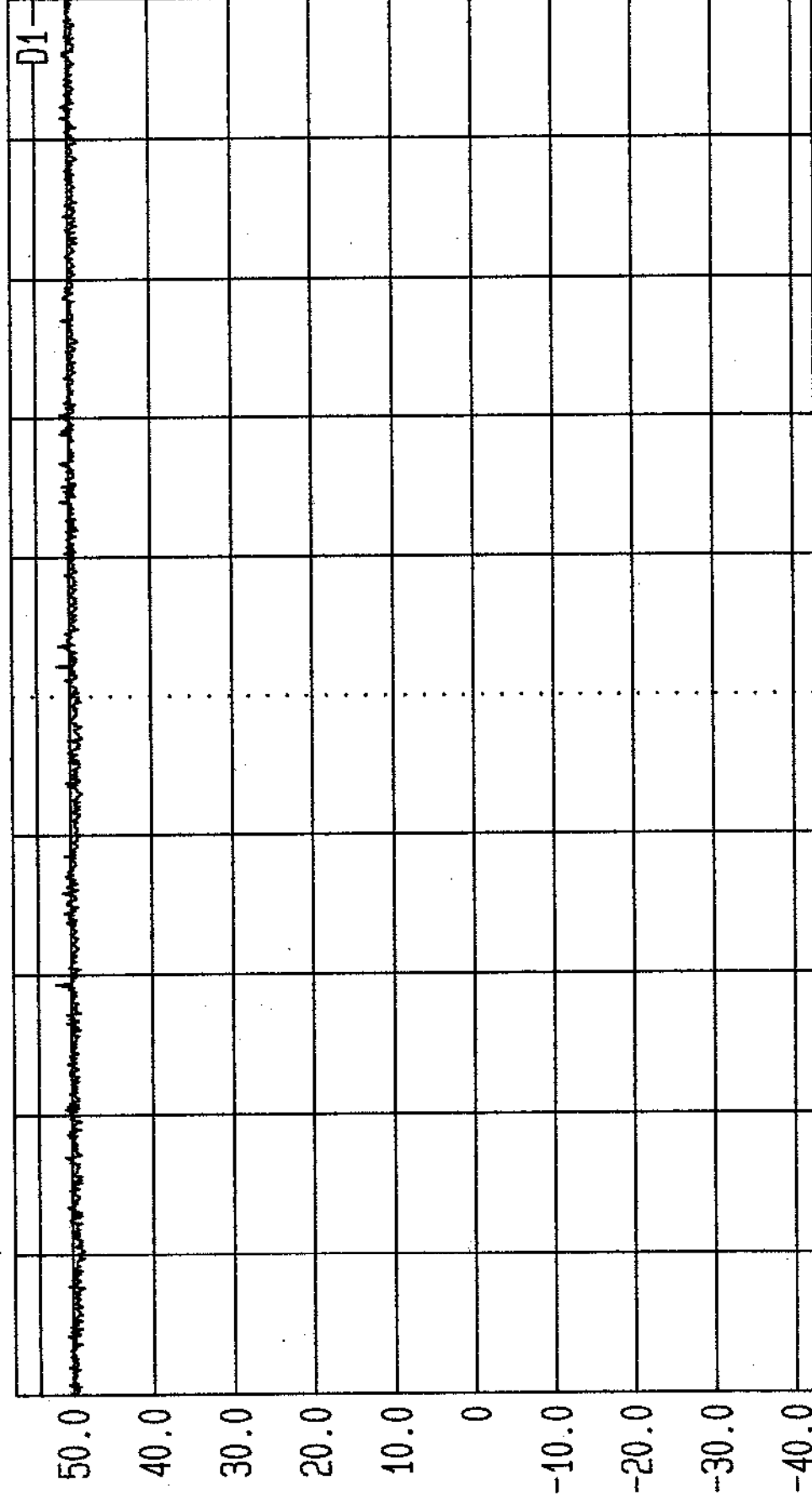
RF.Att

Unit

3 MHz

0 dB

[dBuV]



Start
8 GHz

Span
4 GHz

Center
10 GHz

Sweep
40 ms

Stop
12 GHz

Radiated. Tested by RFI for Adaptive Broadband. EUT: SU
Part 15.209. TX Middle Channel Horiz. Antenna

Part 15 Subpart E
GPH/42151JD01/4014



Date 23.May.'01 Time 20:10:07

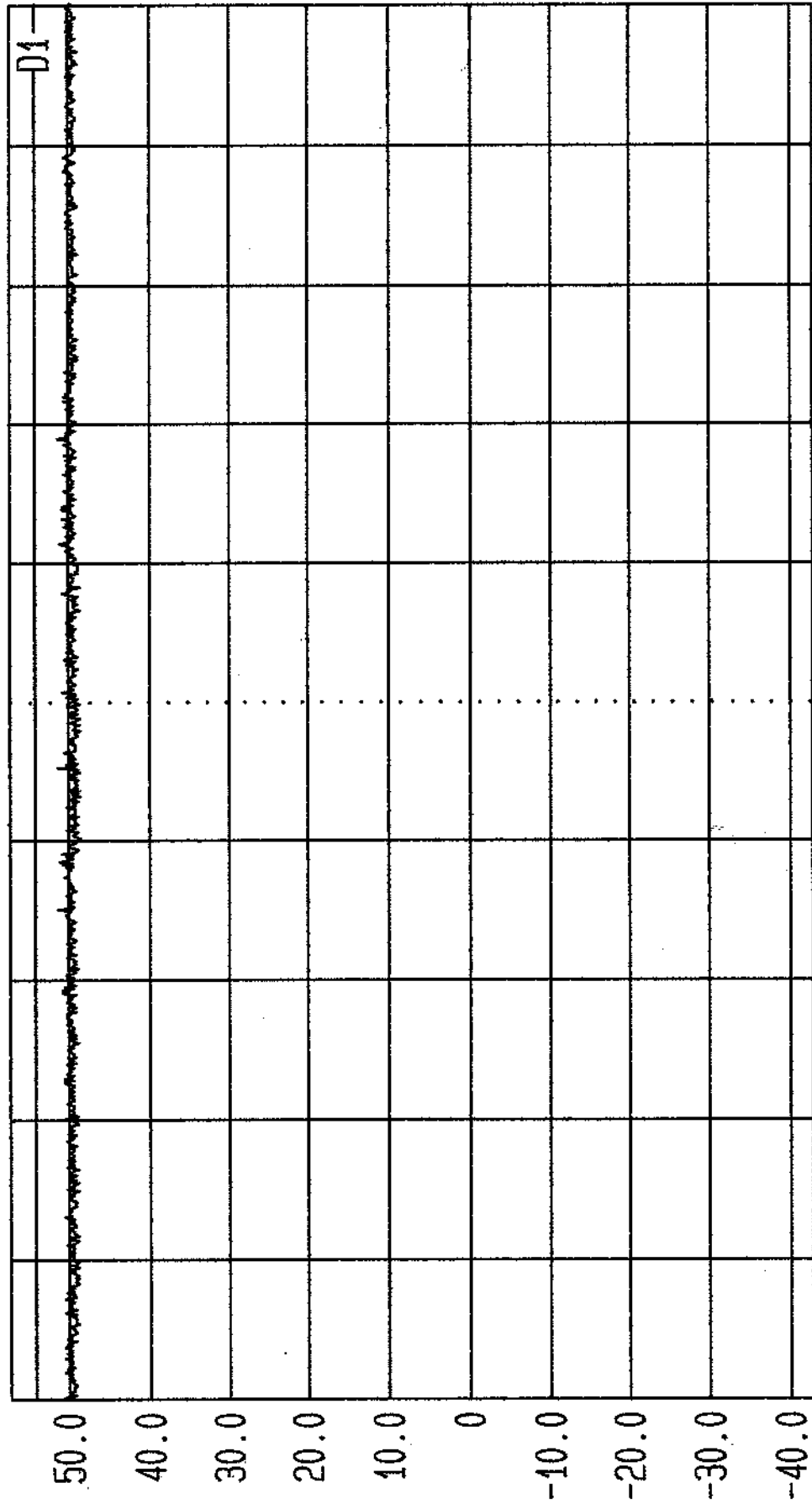
Ref.Lvl

57.00 dBμV

Res.Bw
TG.Lvl
CF.Stp

1 MHz [imp]
Off
400.000 MHz

Vid.Bw 3 MHz
RF.Att 0 dB
Unit [dBμV]



TT
4
PA
10
FI

Start
8 GHz

Span
4 GHz

Center
10 GHz

Sweep
40 ms

Stop
12 GHz

Radiated. Tested by RFI for Adaptive Broadband. EUT: SU
Part 15.209. TX Top Channel Horiz. Antenna

Part 15 Subpart E
GPH/42151JD01/4015



Date 23.May.'01 Time 20:14:22

Ref.Lvl

57.00 dBuV

Res.Bw
TG.Lvl

CF.Stp

1 MHz [imp]
off

400.000 MHz

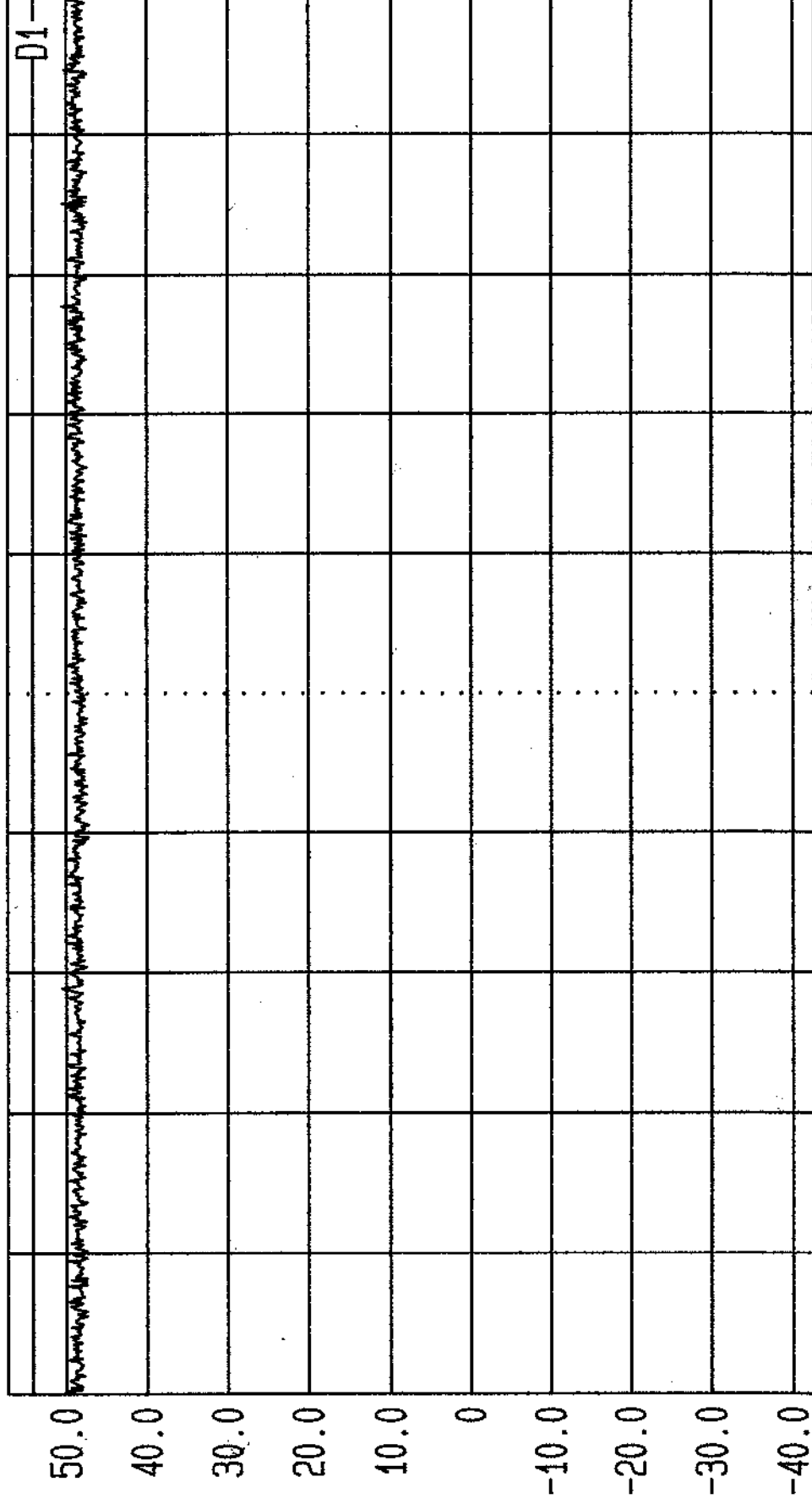
Vid.Bw

RF.Att

3 MHz

0 dB

[dBuV]



TT
4
PA
10
FI

Radiated.

Part 15.209. Tested by RFI for Adaptive Broadband. EUT: SU
TX Top Channel Vert. Antenna

Part 15 Subpart E
GPH/42151JD01/4016



Date 23.May.'01 Time 20:35:47

Ref.Lvl

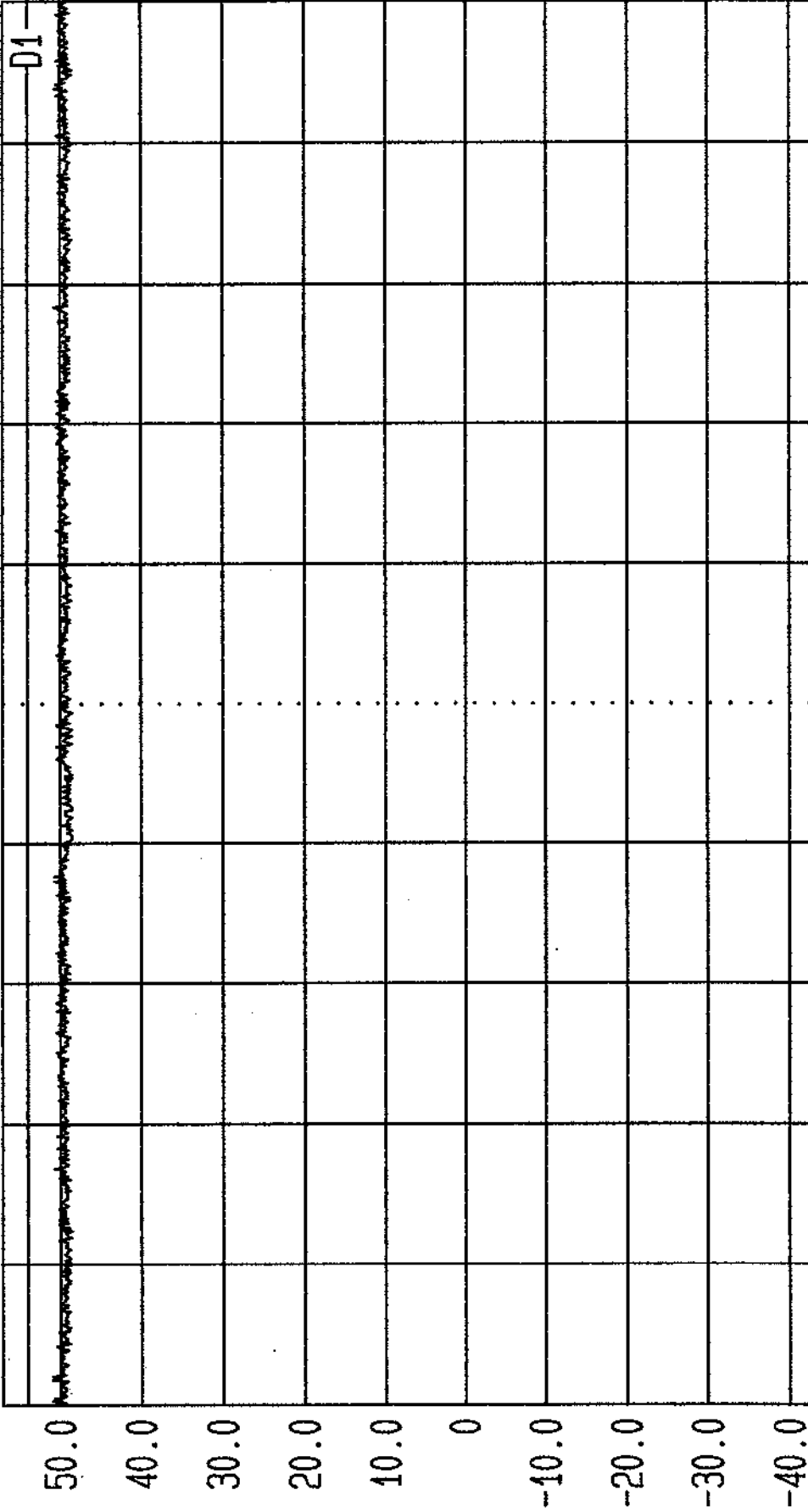
57.00 dBuV

Res.Bw
TG.Lvl
CF.Stp

1 MHz [imp]
off
400.000 MHz

Vid.Bw
RF.Att
Unit

3 MHz
0 dB
[dBuV]



TI
4
PA
10
FI

Radiated. Tested by RFI for Adaptive Broadband. EUT: SU
Part 15.209. TX Middle Channel Vert. Antenna
Part 15 Subpart E
GPH/42151JD01/4017



Date 23.May.'01 Time 20:42:51

Ref.Lvl

57.00 dBµV

Res.Bw
TG.Lvl
CF.Stp

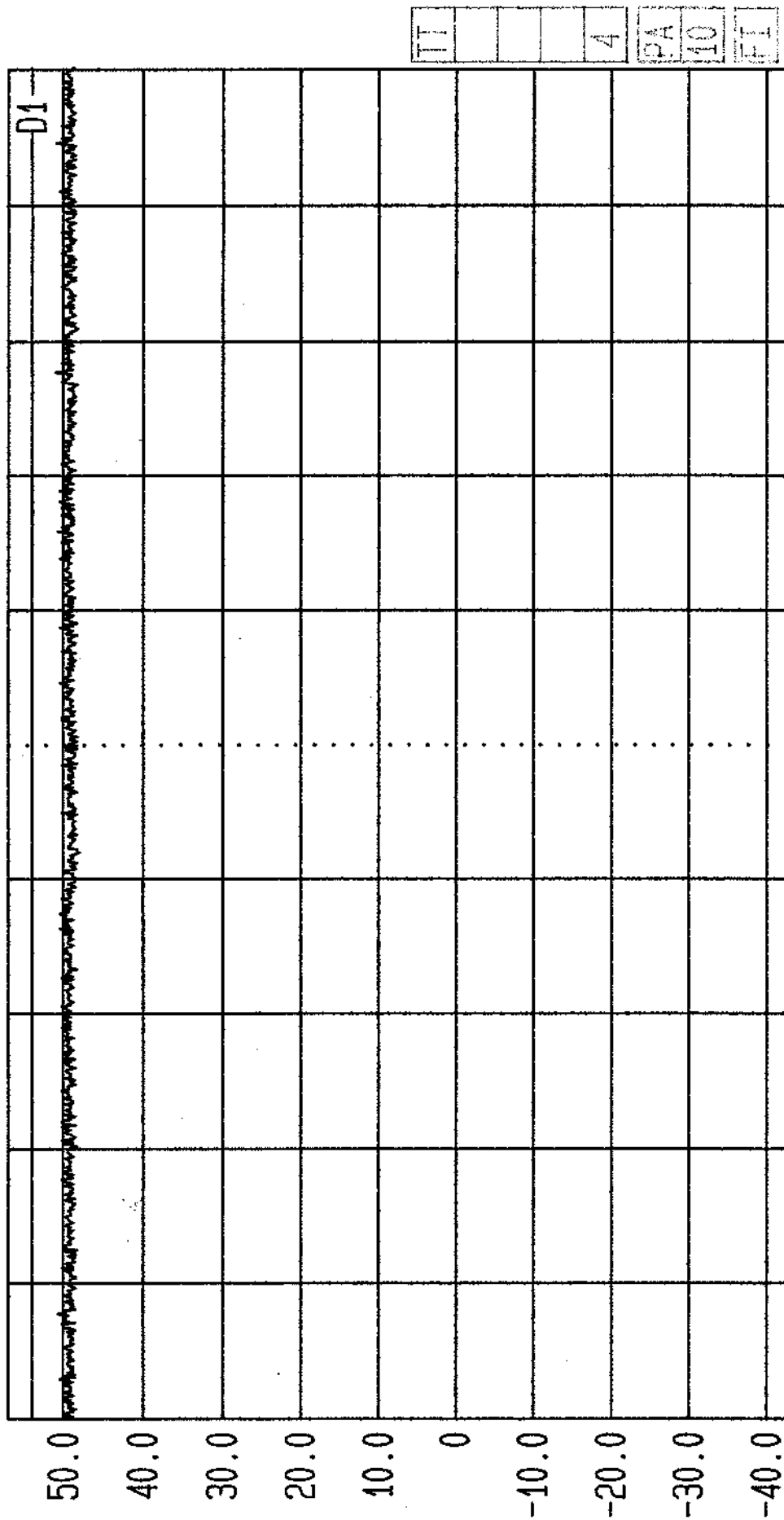
1 MHz [imp]
Off
400.000 MHz

Vid.Bw

3 MHz

RF.Att
Unit

0 dB
[dBµV]

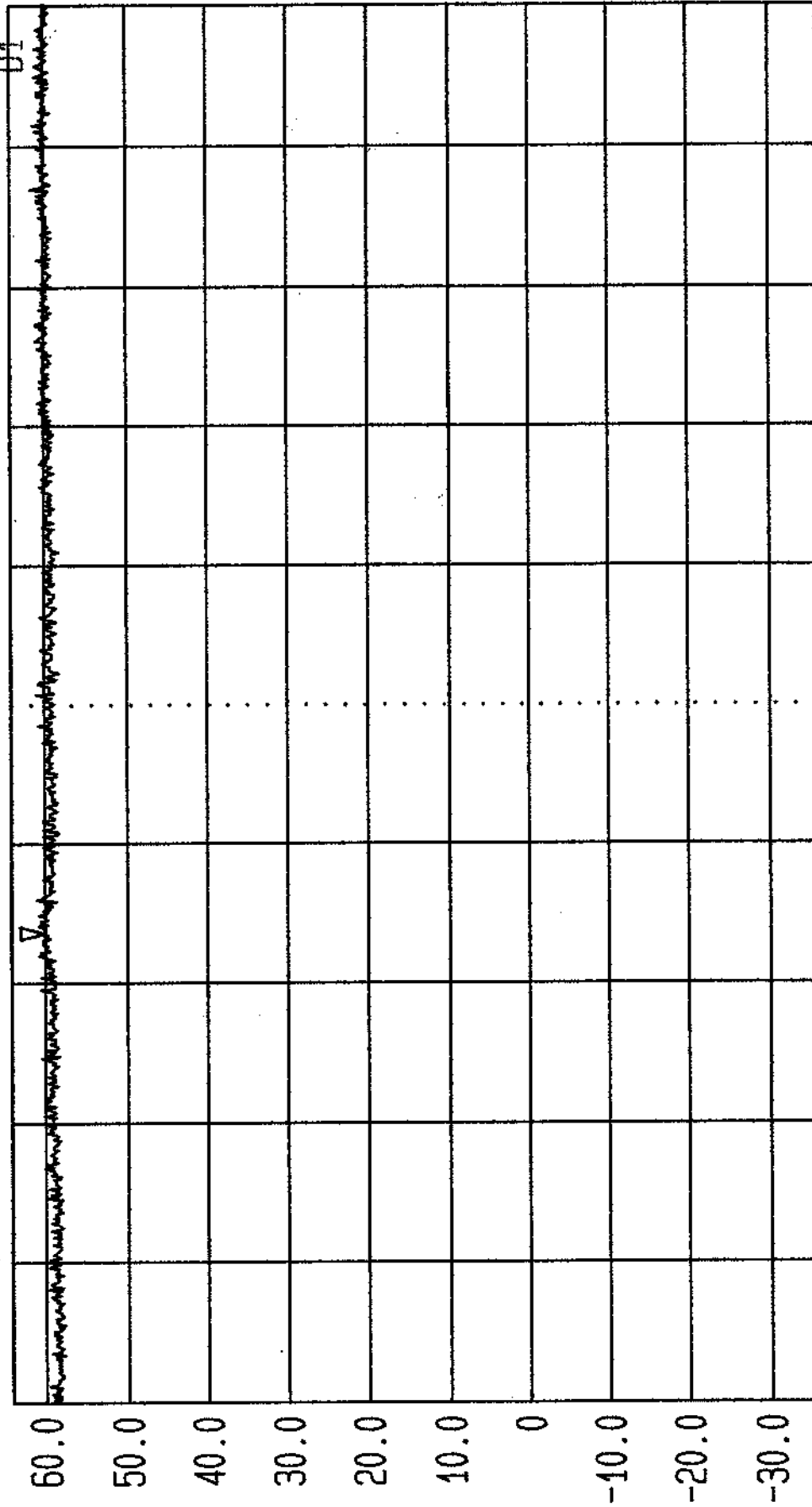


Radiated. Tested by RFI for Adaptive Broadband. EUT: SU
Part 15.209. TX Bottom Channel Vert. Antenna
Part 15 Subpart E
GPH/42151JD01/4018



Date 23.May.'01 Time 20:52:26
Ref.Lvl 64.00 dBuV
Marker 59.97 dBuV
14.0133 GHz

Res.Bw 1 MHz [imp]
TG.Lvl off
CF.Stp 600.000 MHz
Vid.Bw 3 MHz
RF.Att 0 dB
Unit [dBuV]



TT
4
PA
10
FI

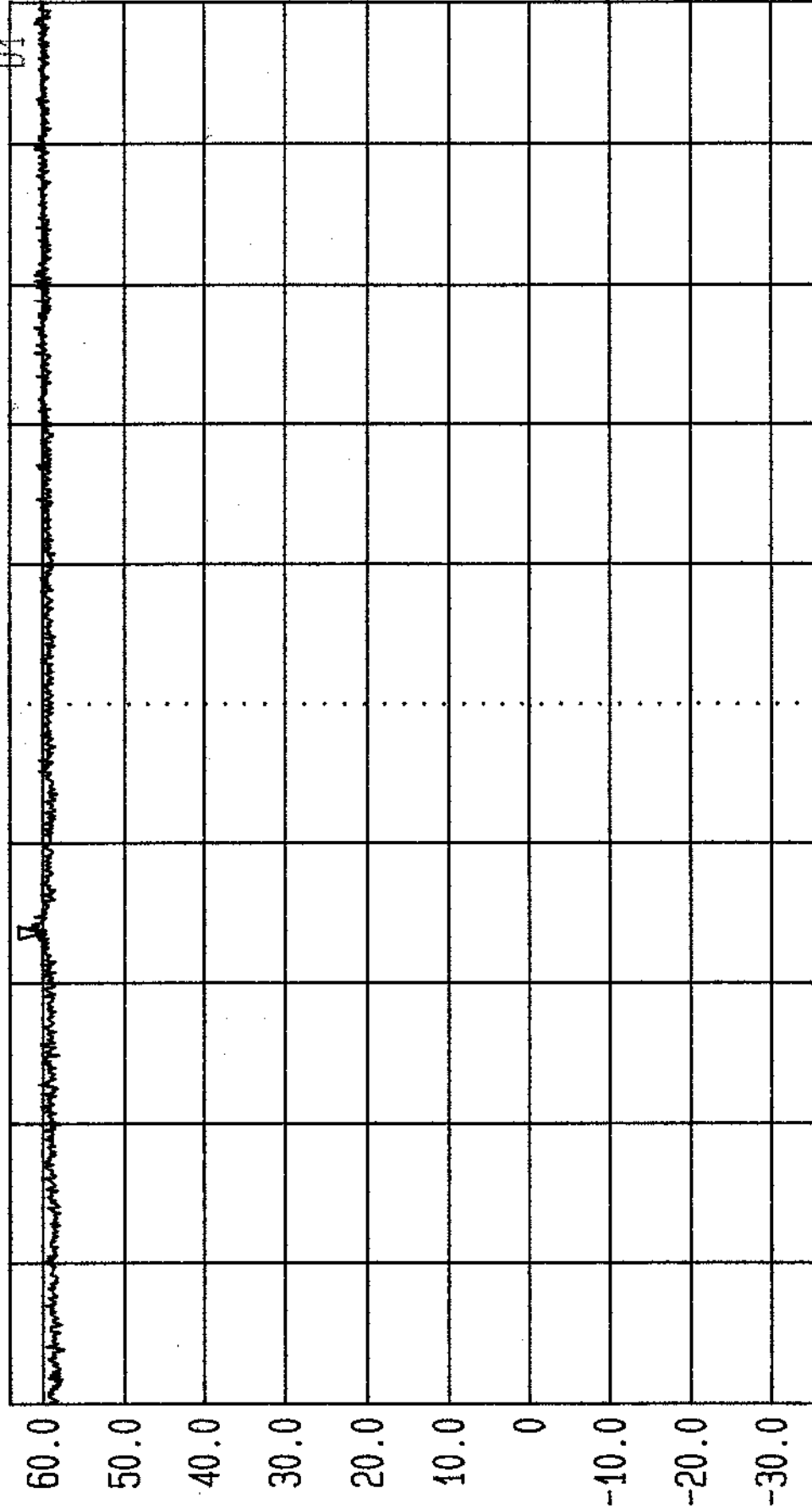
Start 12 GHz Stop 18 GHz
Span 6 GHz Sweep 40 ms
Center 15 GHz
Radiated. Tested by RFI for Adaptive Broadband. EUT: SU
Part 15.209. TX Bottom Channel Vert. Antenna
Part 15 Subpart E
GPH/42151JD01/4019



Date 23.May.'01 Time 20:55:55
Ref.Lvl 60.07 dBuV
Marker 14.0133 GHz

Res.Bw 1 MHz [imp] off
T6.Lvl 600.000 MHz
CF.Stp 0 dB
Unit [dBuV]

Vid.Bw 3 MHz



TI
4
PA
10
FI

Start 12 GHz
Span 6 GHz
Center 15 GHz
Sweep 40 ms
Stop 18 GHz

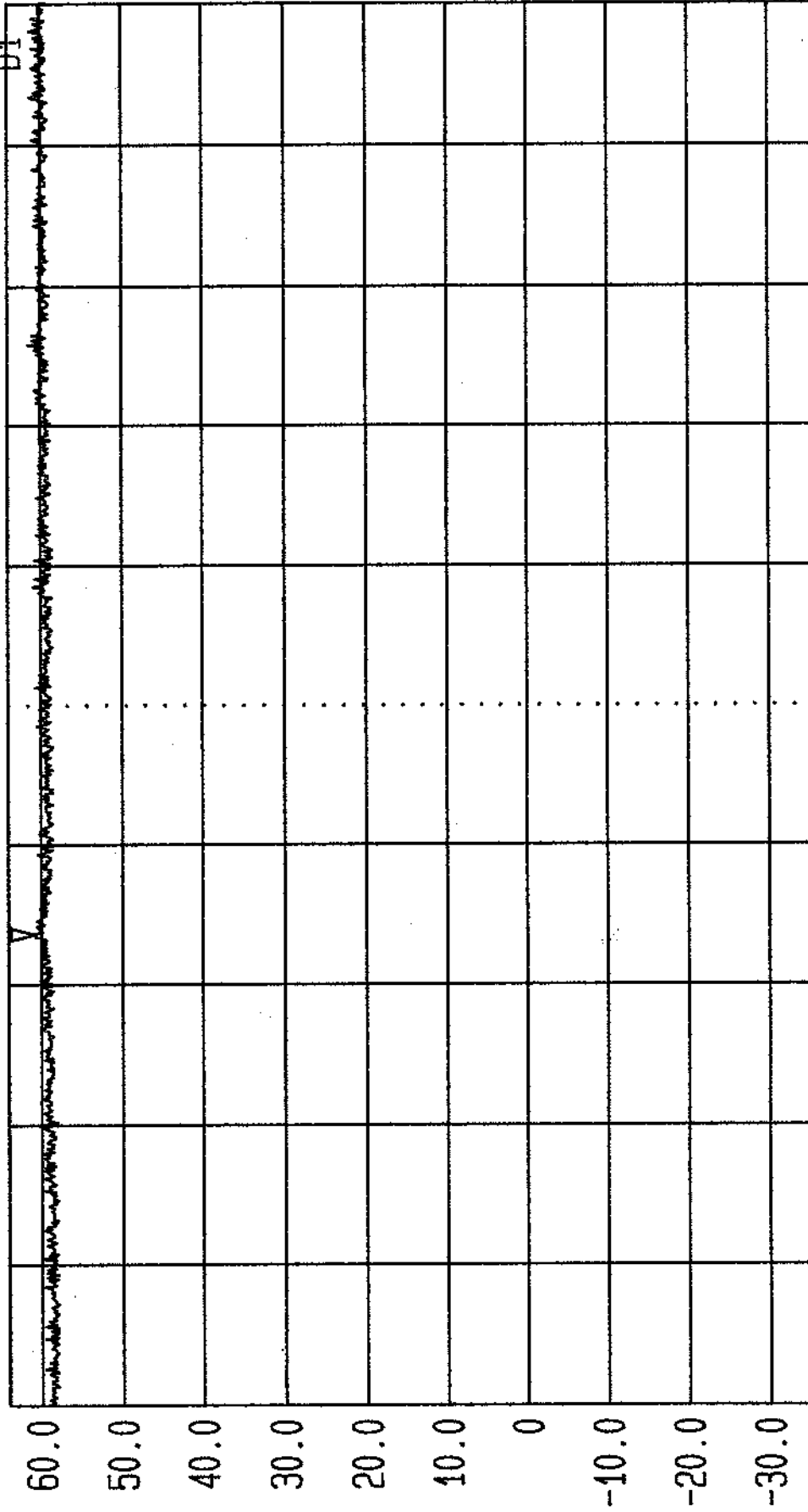
Radiated. Tested by RFI for Adaptive Broadband. EUT: SU
Part 15.209. TX Middle Channel Vert. Antenna
Part 15 Subpart E
GPH/42151JD01/4020



Date 23.May.'01 Time 20:59:20

Ref.Lvl 64.00 dBµV
Marker 60.70 dBµV
14.0133 GHz

Res.Bw 1 MHz [imp]
TG.Lvl Off
CF.Stp 600.000 MHz
Vid.Bw 3 MHz
RF.Att 0 dB
Unit [dBµV]



TI
4
PA
10
FI

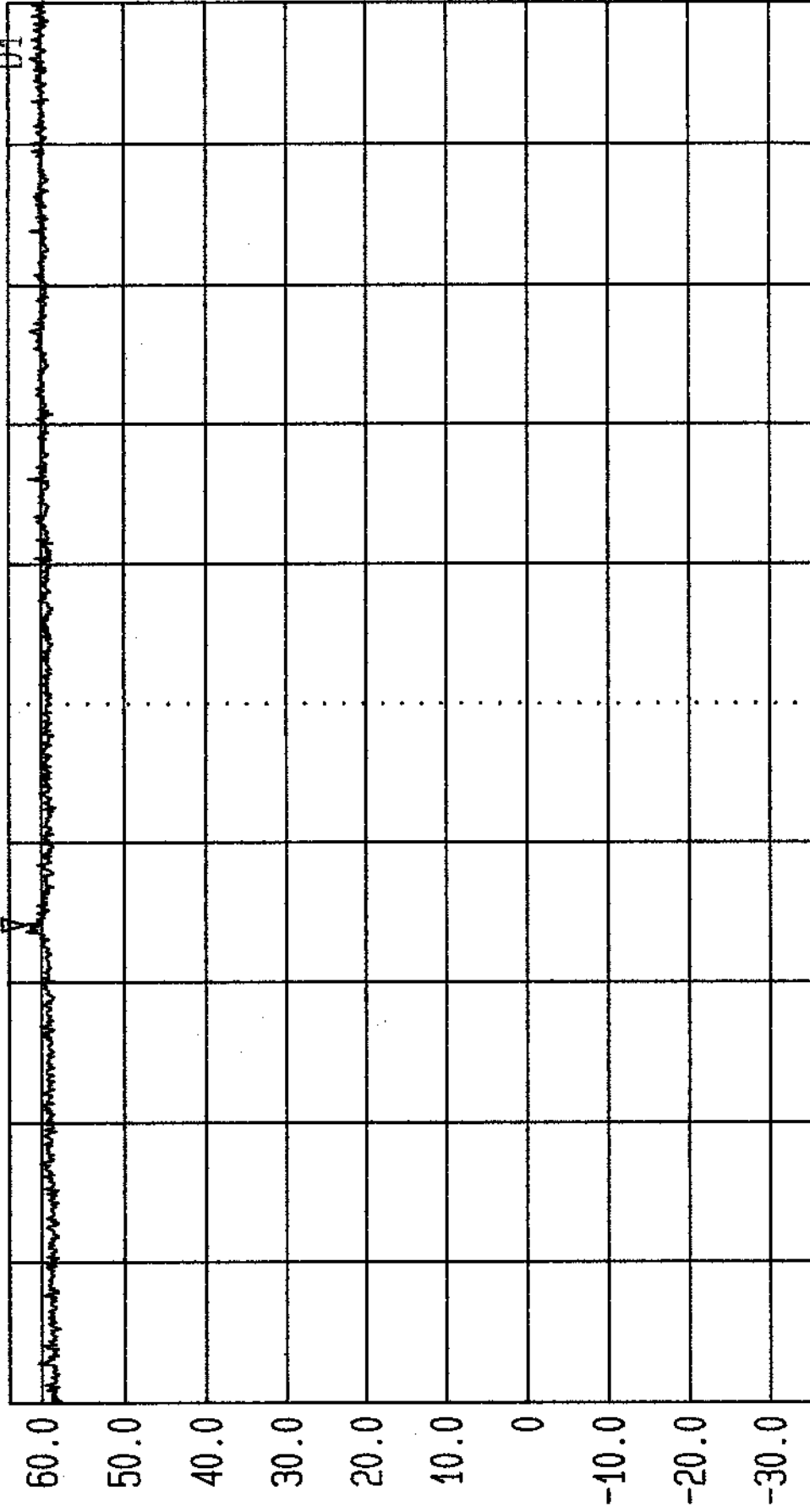
Start 12 GHz
Span 6 GHz
Center 15 GHz
Sweep 40 ms
Stop 18 GHz

Radiated. Tested by RFI for Adaptive Broadband. EUT: SU
Part 15.209. TX Top Channel Vert. Antenna
Part 15 Subpart E
GPH/42151JD001/4021



Date 23.May.'01 Time 21:02:41
Ref.Lvl 64.00 dBμV
Marker 61.90 dBμV
14.0466 GHz

Res.Bw 1 MHz [imp]
TG.Lvl Off
CF.Stp 600.000 MHz
Vid.Bw 3 MHz
RF.Att 0 dB
Unit [dBμV]



TT
4
PA
10
FI

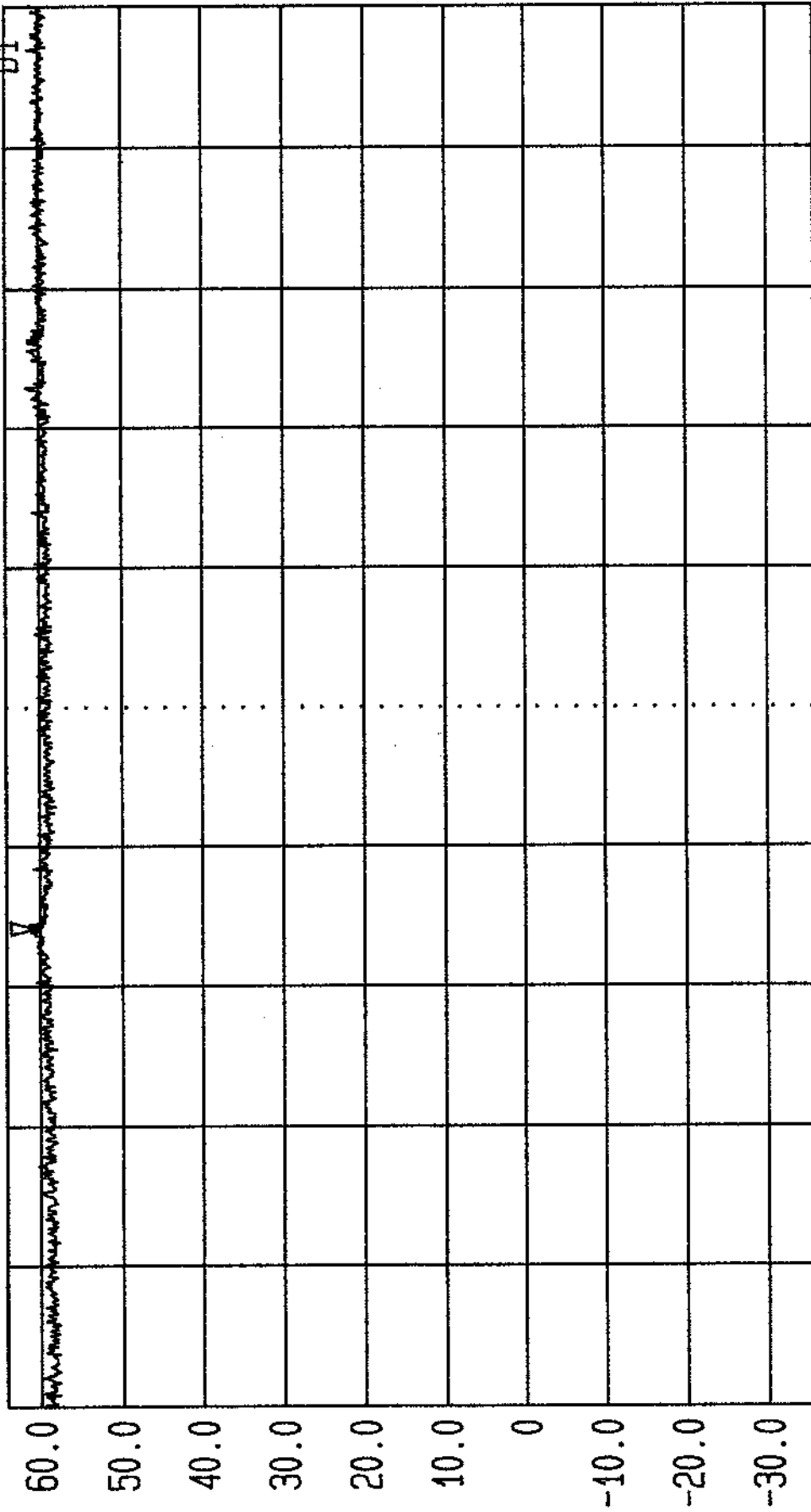
Start 12 GHz
Span 6 GHz
Center 15 GHz
Sweep 40 ms
Stop 18 GHz

Radiated. Tested by RFI for Adaptive Broadband. EUT: SU
Part 15.209. TX Top Channel Horiz. Antenna
Part 15 Subpart E
GPH/42151JD01/40242



Date 23.May.'01 Time 21:07:01
Ref.Lvl 60.45 dBuV
Marker 14.0466 GHz

Res.Bw 1 MHz [imp]
TG.Lvl off
CF.Stp 600.000 MHz
Vid.Bw 3 MHz
RF.Att 0 dB
Unit [dBuV]



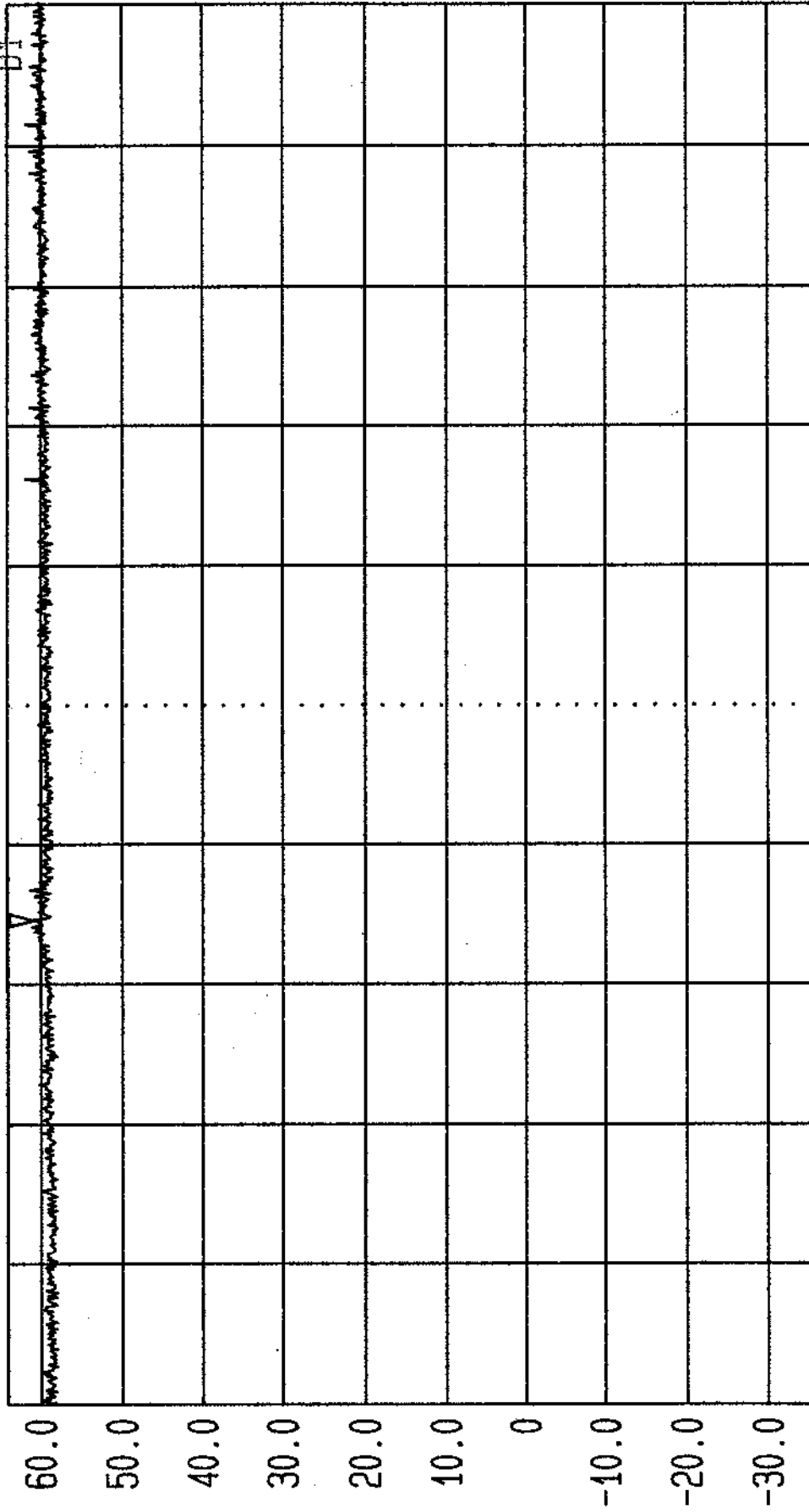
TT
4
PA
10
FI

Radiated. Tested by RFI for Adaptive Broadband. EUT: SU
Part 15.209. TX Middle Channel Horiz. Antenna
Part 15 Support E
GPH/42151J001/4023



Date 23.Nov.'01 Time 21:10:18
Ref.Lvl 64.00 dBµV
Marker 60.83 dBµV
14.0733 GHz

Res.Bw 1 MHz [imp]
TG.Lvl off
CF.Stp 600.000 MHz
Vid.Bw 3 MHz
RF.Att 0 dB
Unit [dBµV]



TT
4
PA
40
FI

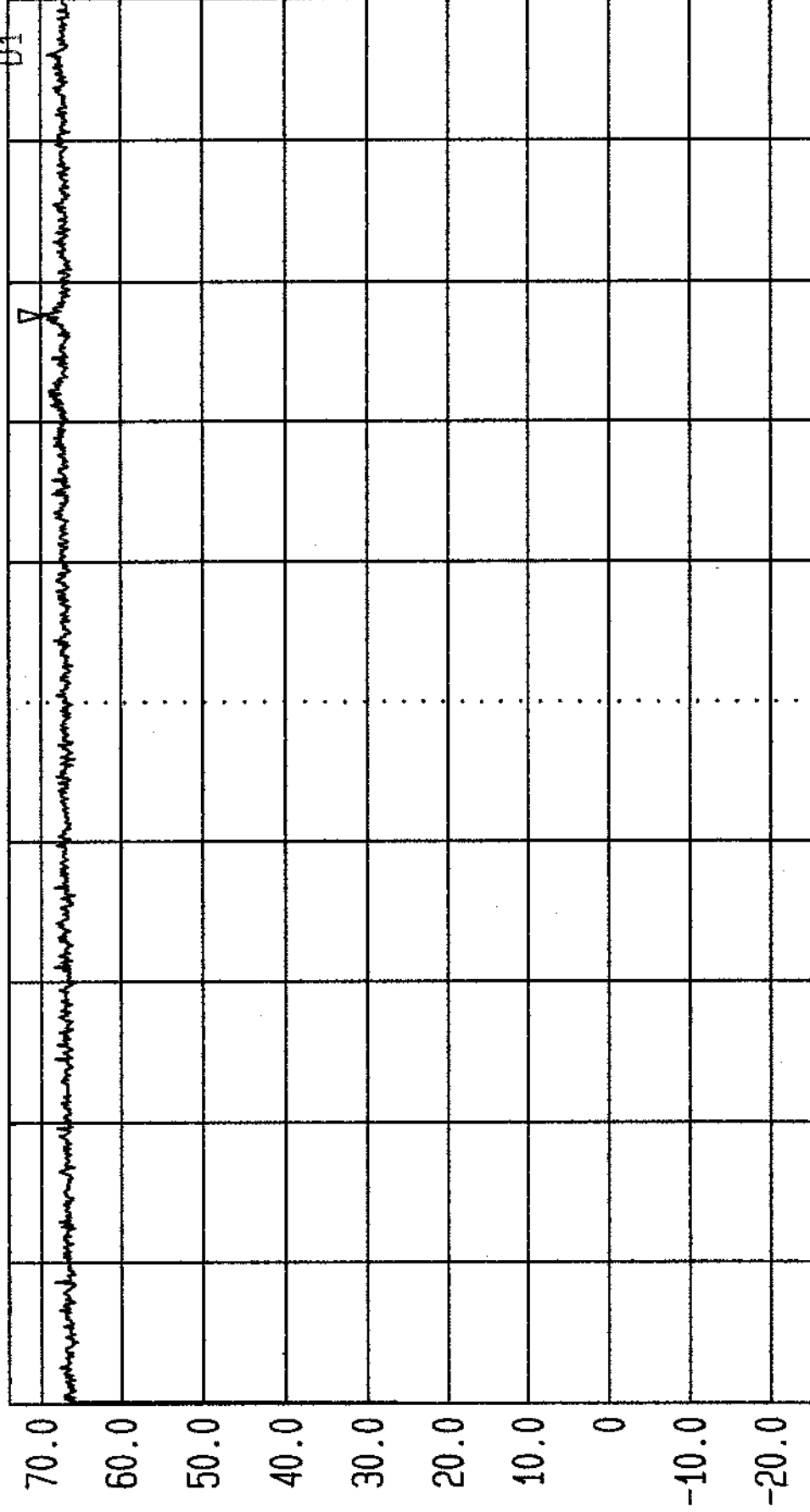
Radiated. Tested by RFI for Adaptive Broadband. EUT: SU
Part 15.209. TX Bottom Channel Horiz. Antenna
Part 15 Subpart E
GPH/42151001/4024



Date 23.May.'01 Time 22:34:00
Ref.Lvl 74.00 dBμV
Marker 69.56 dBμV
24.5922 GHz

Res.Bw 120 kHz [imp] off
TG.Lvl 850.000 MHz
CF.Stp RF.Att 0 dB
Unit [dBμV]

Vid.Bw 3 MHz



TT
4
PA
10
FI

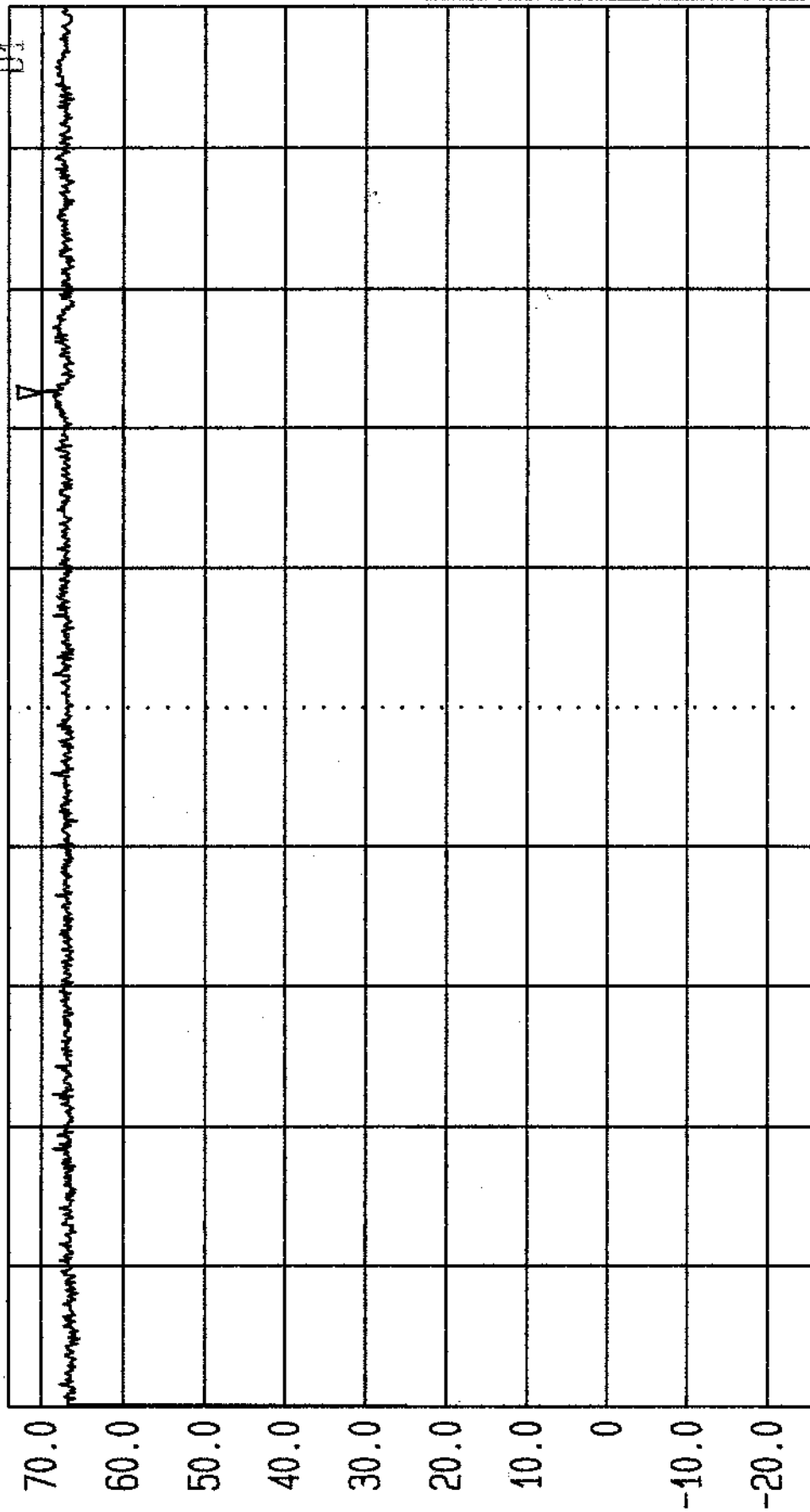
Start 18 GHz
Span 8.5 GHz
Center 22.25 GHz
Sweep 3.8 s
Stop 26.5 GHz

Radiated. Tested by RFI for Adaptive Broadband. EUT: SU
Part 15.209. TX Bottom Channel Horiz. Antenna
Part 15 Subpart E
GPH/42151JD01/4025



Date 23.May.'04 Time 22:37:50
Ref.Lvl 74.00 dBµV
Marker 70.09 dBµV
24.1672 GHz

Res.Bw 120 kHz [imp]
TG.Lvl off
CF.Stp 850.000 MHz
Vid.Bw 3 MHz
RF.Att 0 dB
Unit [dBµV]



TT
4
PA 10
FI

Radiated. Tested by RFI for Adaptive Broadband. EUT: SU
Part 15.209. TX Middle Channel Horiz. Antenna
Part 15 Subpart E
GPH/42151J001/4026



Date 23.May.'01 Time 22:41:44

Ref.Lvl 74.00 dBµV

Marker 69.38 dBµV

24.5261 GHz

Res.Bw

TG.Lvl

CF.Stp

120 kHz [imp]

Off

850.000 MHz

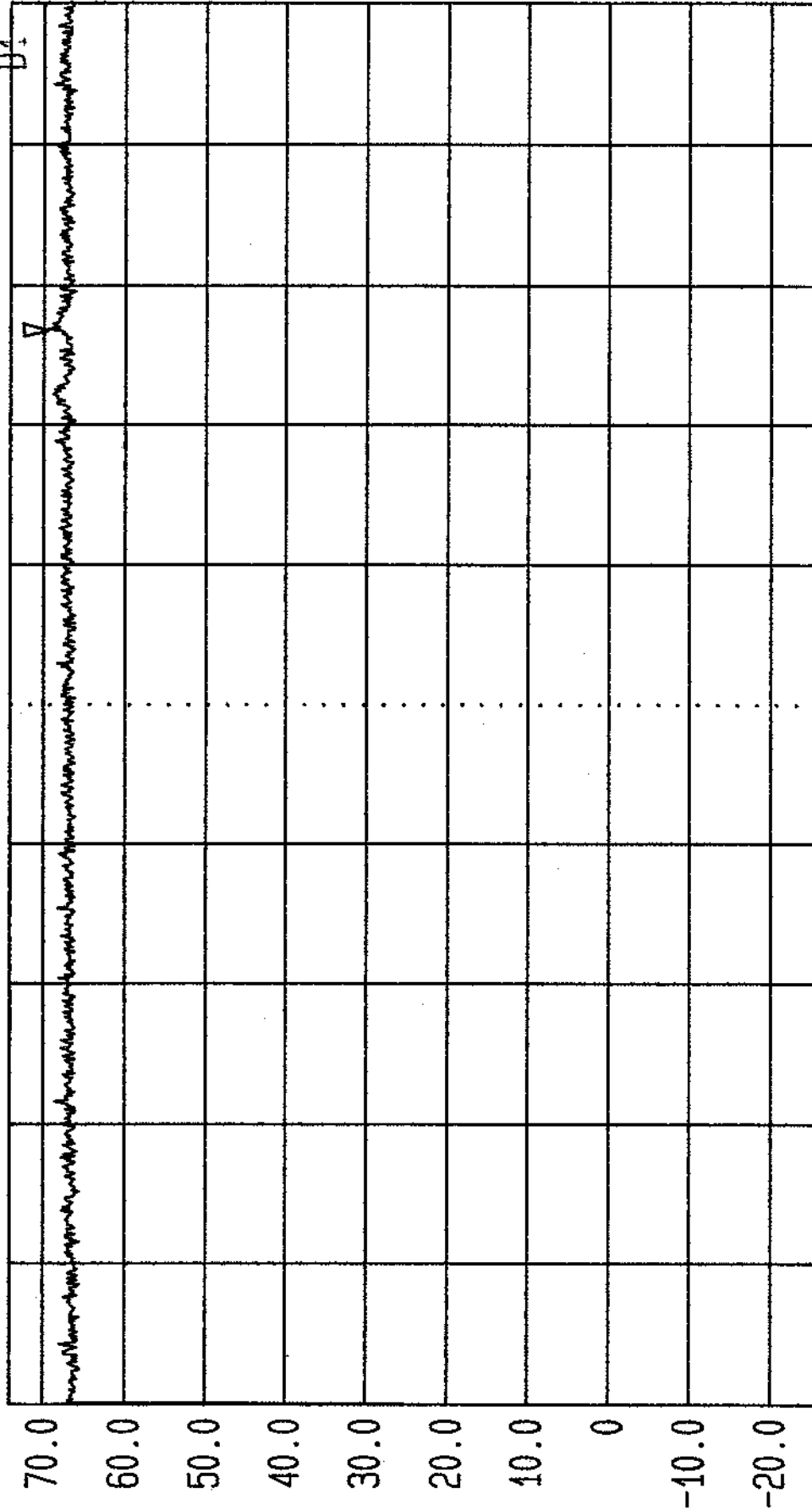
Vid.Bw

3 MHz

RF.Att

0 dB

[dBµV]



TT
4
PA
40
FI

Start

18 GHz

Span

8.5 GHz

Center

22.25 GHz

Sweep

3.8 s

Stop

26.5 GHz

Radiated. Tested by RFI for Adaptive Broadband. EUT: SU

TX Top Channel Horiz. Antenna

Part 15 Subpart E

6PH/42151JD01/4827



Date 23.May.'01 Time 22:40:37

Ref.Lvl 74.00 dBuV

Marker 69.23 dBuV

24.5450 GHz

Res.Bw

TG.Lvl

CF.Stp

120 kHz [imp]

off

850.000 MHz

Vid.Bw

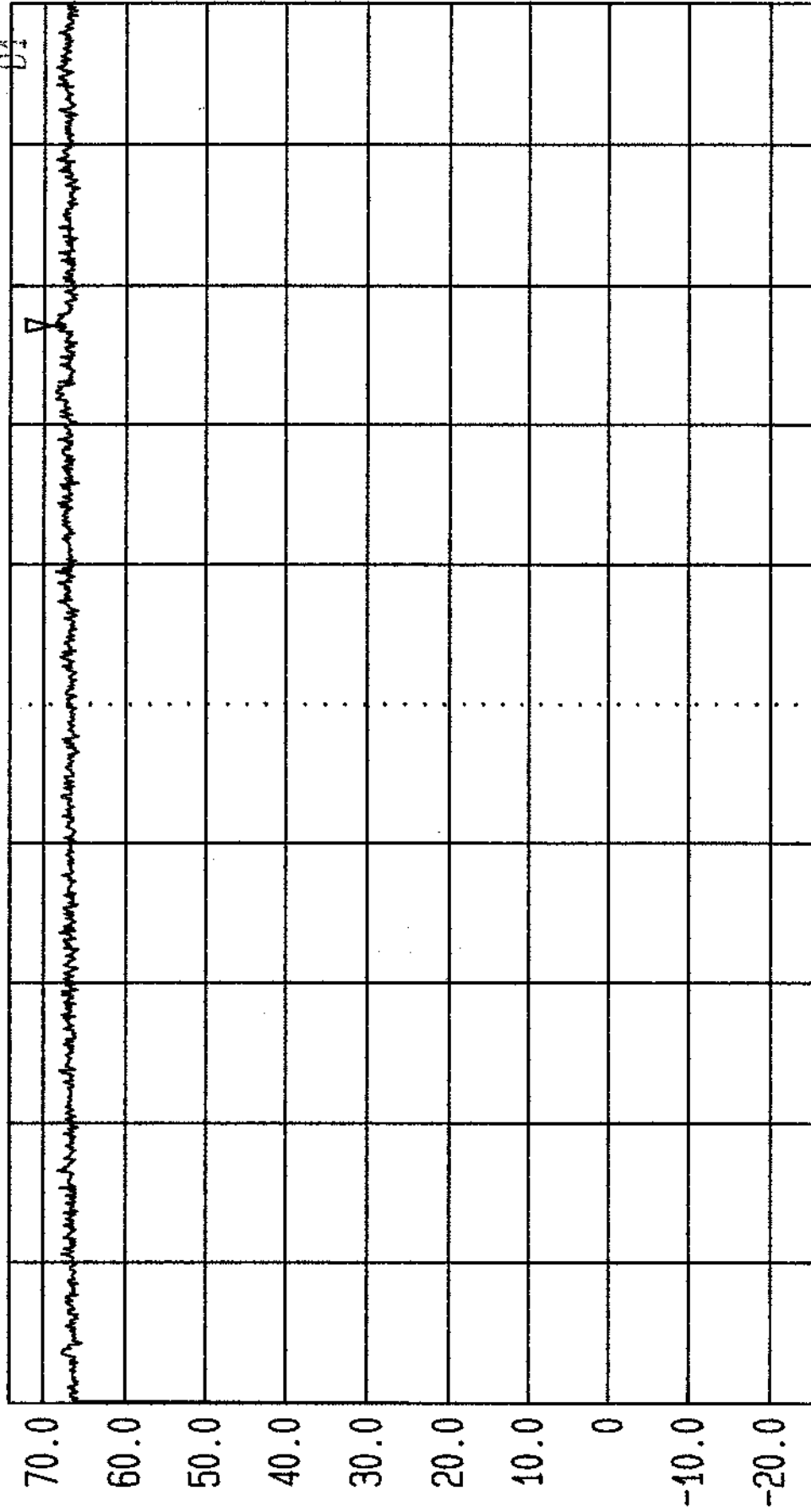
HF.Att

Unit

3 MHz

0 dB

[dBuV]



TI
4
PA
10
FI

Start
18 GHz

Span
8.5 GHz

Center
22.25 GHz

Sweep
3.8 s

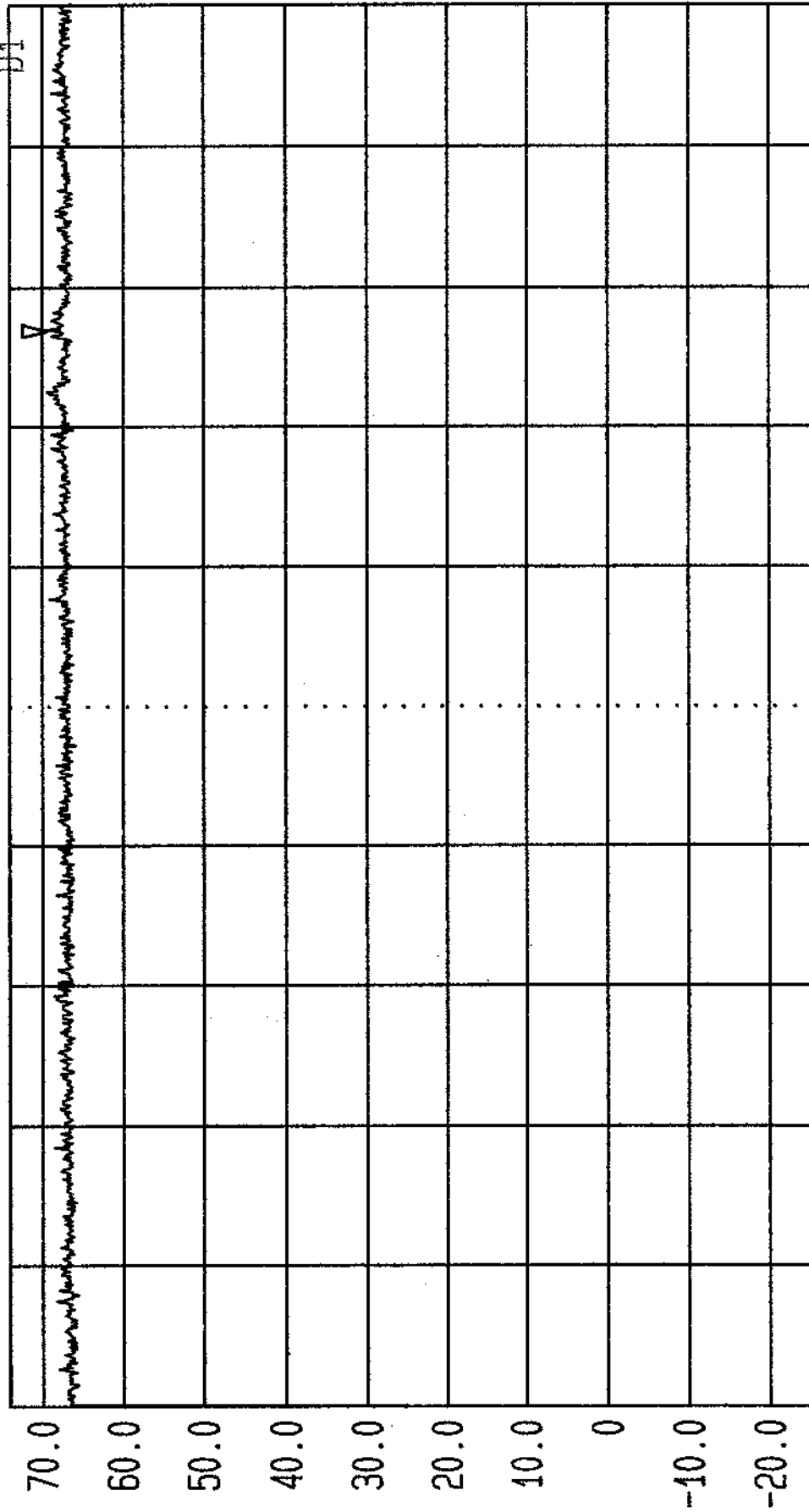
Stop
26.5 GHz

Radiated. Tested by RFI for Adaptive Broadband. EUT: SU
Part 15.209. TX Top Channel Vert.. Antenna
Part 15 Subpart E
GPH/42151JD01/4028



Date 23.May.'04 Time 22:50:14
Ref.Lvl 74.00 dBuV
Marker 69.46 dBuV
24.5355 GHz

Res.Bw 120 kHz [imp]
TG.Lvl off
CF.Stp 850.000 MHz
Vid.Bw 3 MHz
RF.Att 0 dB
Unit [dBuV]



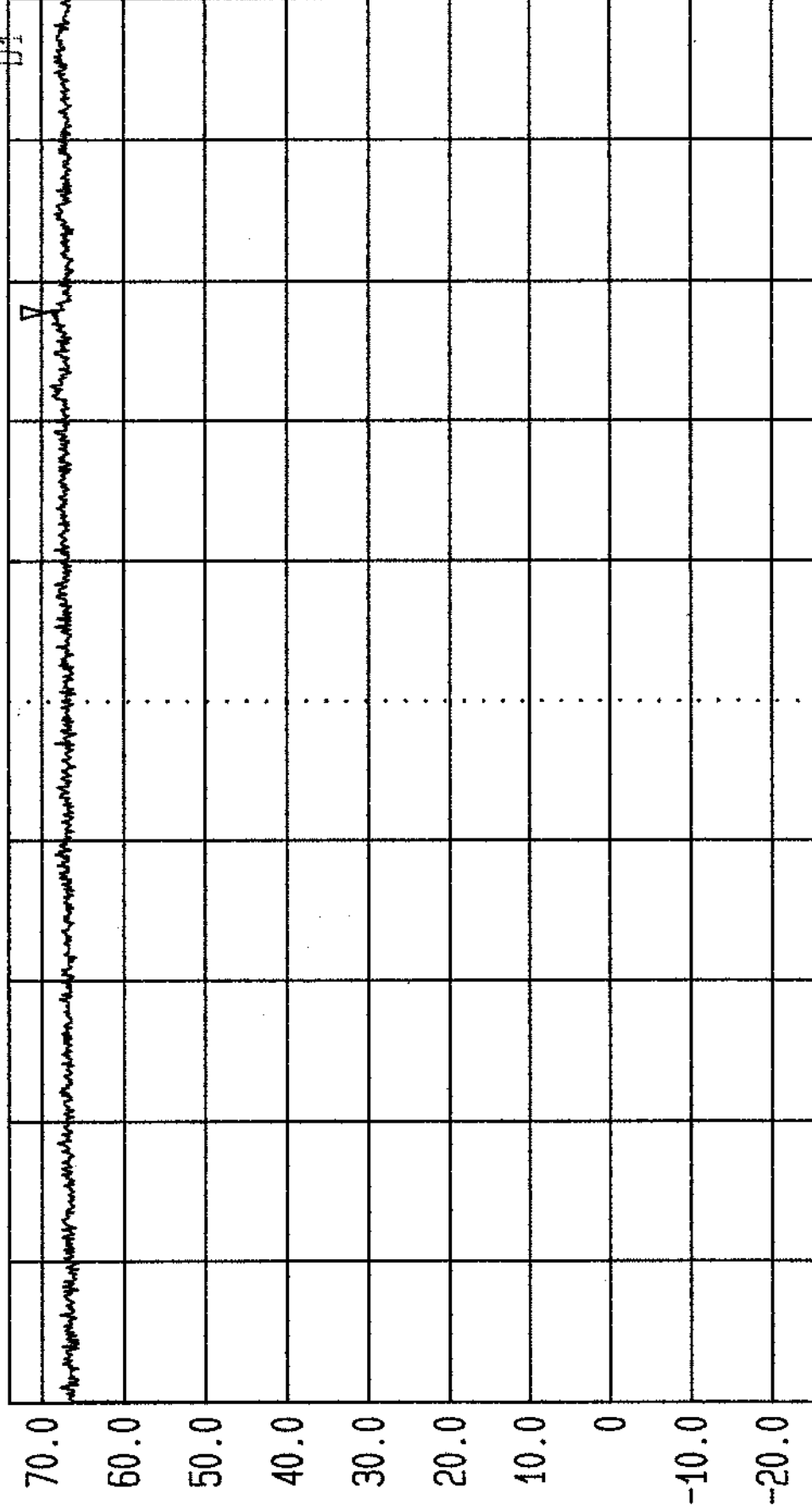
Start 18 GHz
Span 8.5 GHz
Center 22.25 GHz
Sweep 3.8 s
Stop 26.5 GHz
Radiated. Tested by RFI for Adaptive Broadband. EUT: SU
Part 15.209. TX Middle Channel Vert. Antenna
Part 15 Support E
GPH/42151.001/4029

TI
4
PA
10
FI



Date 23.May.'01 Time 23:02:20
Ref.Lvl 74.00 dBµV
Marker 69.46 dBµV
24.6111 GHz

Res.Bw 120 kHz [imp] off
TG.Lvl
CF.Stp
Vid.Bw 3 MHz
RF.Att 0 dB
Unit [dBµV]

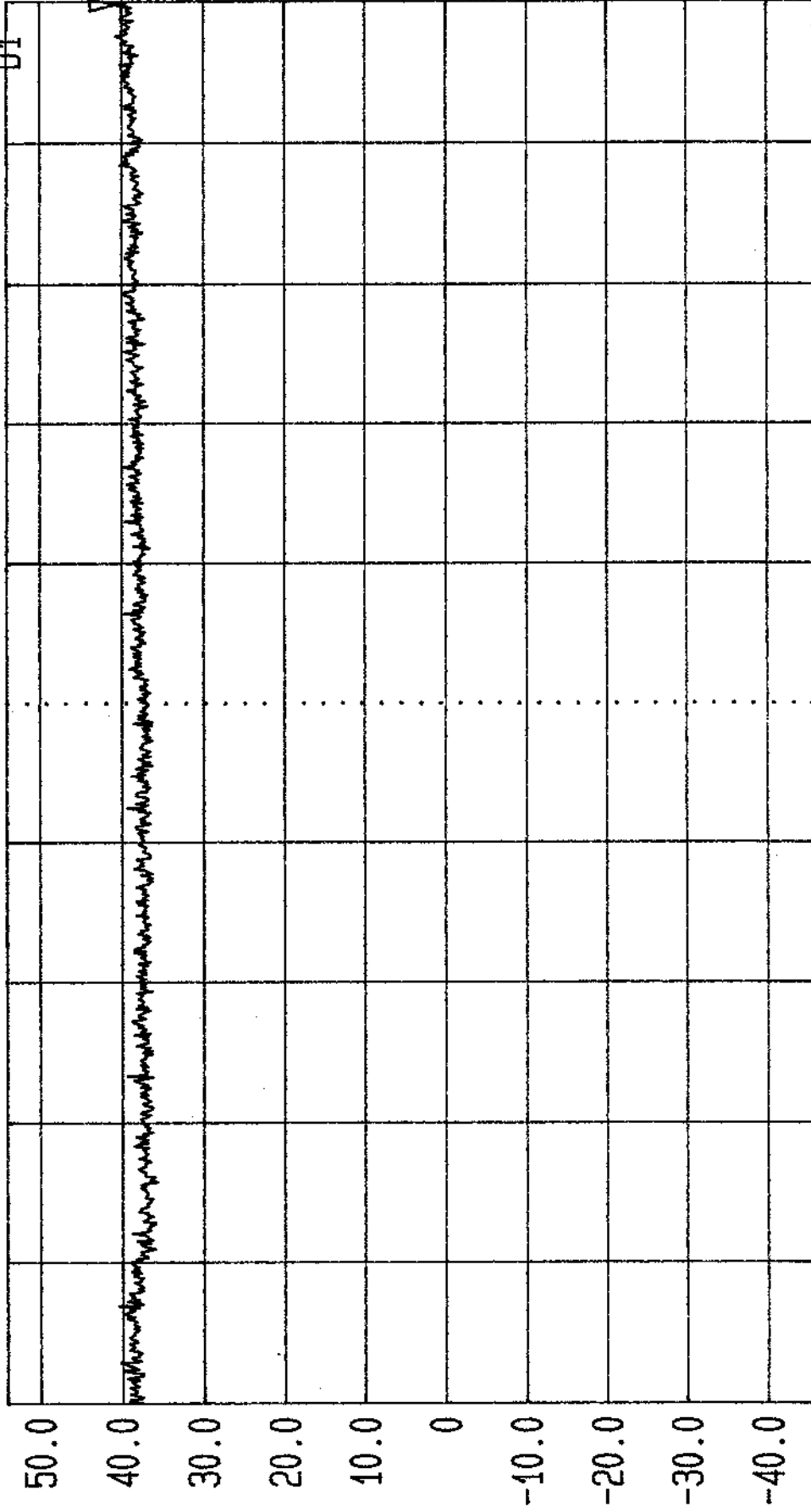


TT
4
PA
40
FI

Start 18 GHz
Span 8.5 GHz
Center 22.25 GHz
Sweep 3.8 s
Stop 26.5 GHz

Radiated. Tested by RFI for Adaptive Broadband. EUT: SU
Part 15.209. TX Bottom Channel Vert. Antenna
Part 15 Subpart E
GPH/42151JD01/4030

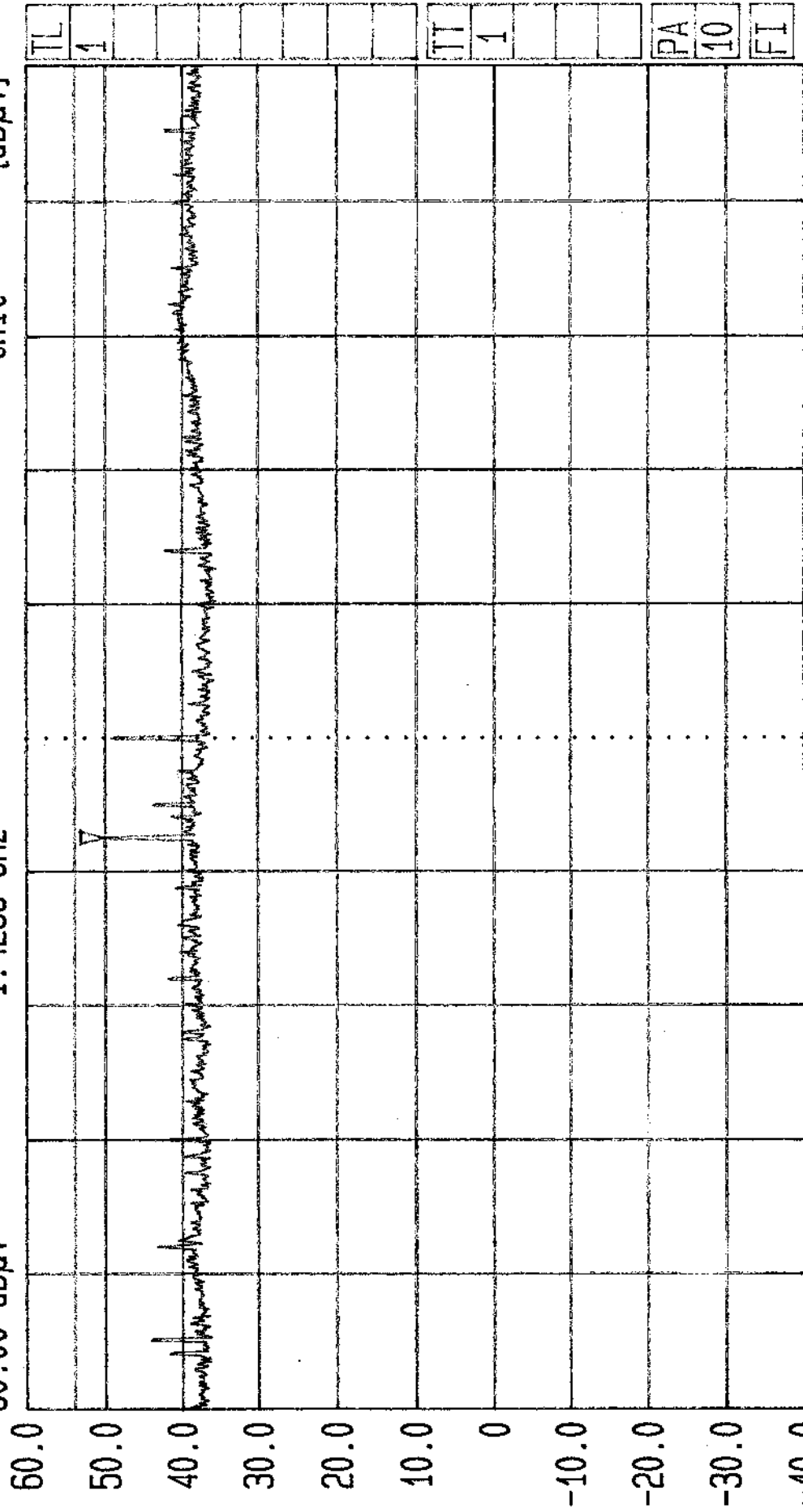
LVLOFF
 Date 24.May.'02 Time 13:29:29
 Ref.Lvl 54.00 dBx Marker 40.88 dBx
 Res.Bw 1.0 MHz [3dB] Vid.Bw 1 MHz
 CF.Stp 1.350 GHz RF.Att 0 dB
 39.9700 GHz Unit [dBμV/m]



Start 26.5 GHz Span 13.5 GHz Center 33.25 GHz Sweep 60 ms Stop 40 GHz
 Radiated. Tested by RFI for Adaptive Broadband. EUT: SU Part 15 Support E
 Part 15.209. Top, Middle and Bottom Channels; Vert & Hor Antenna. GPH/421510002/4034

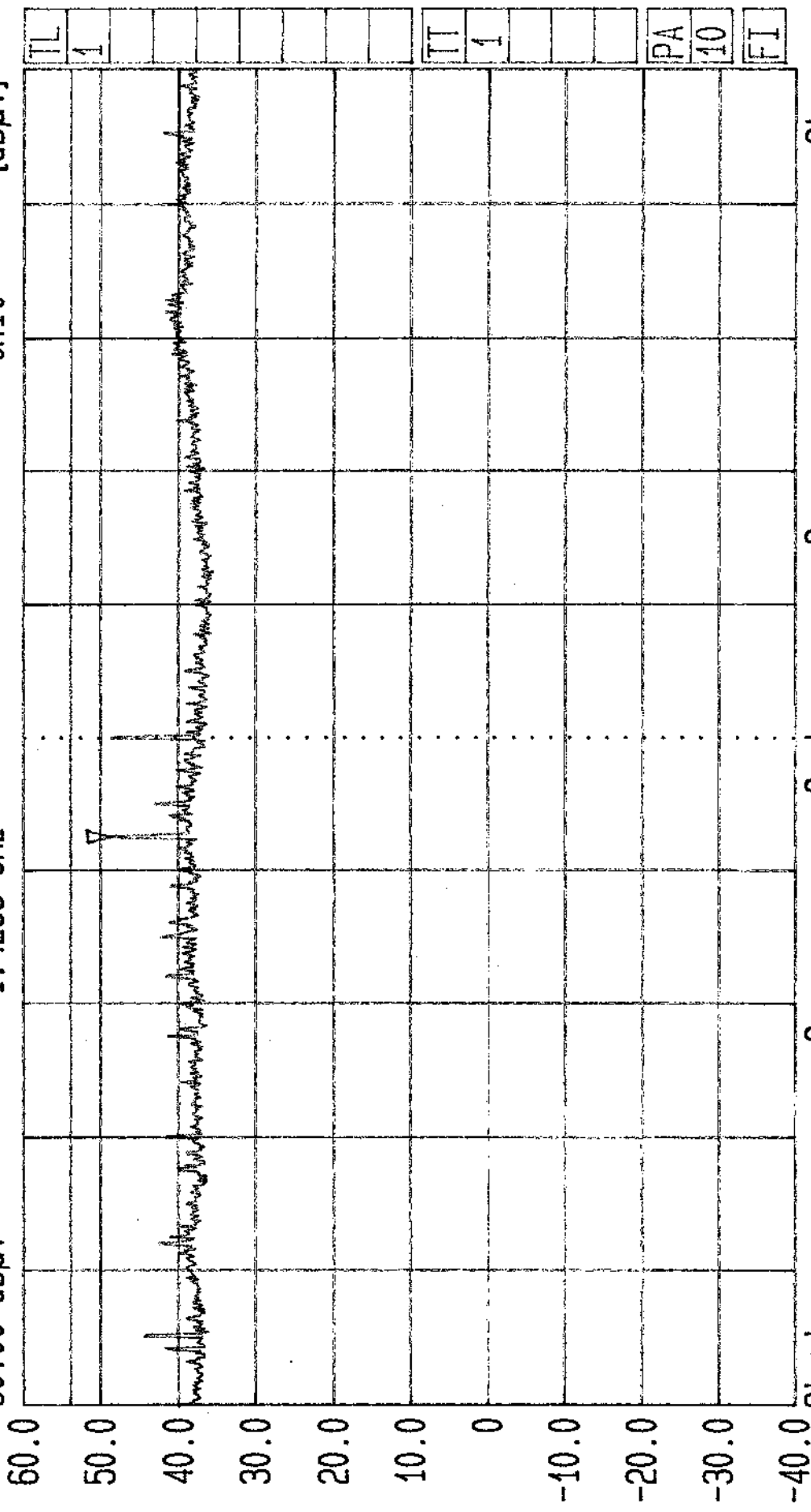
Res.Bw 1 MHz [imp] 1 MHz
 TG.Lvl Off
 CF.Stp 100.000 MHz
 RF.Att 0 dB
 Unit [dBμV]

Date 24.May.'01 Time 14:52:14
 Ref.Lvl 50.25 dBμV
 Marker 1.4255 GHz



Start 1 GHz Stop 2 GHz
 Span 1 GHz Sweep 20 ms
 Center 1.5 GHz
 Radiated. Tested by RFI for Adaptive Broadband. EUT: SU.
 Part 15.209. Bottom channel. Hor & Vertical polarity.
 Part 15 Subpart E
 GPH/42151JD01/4032

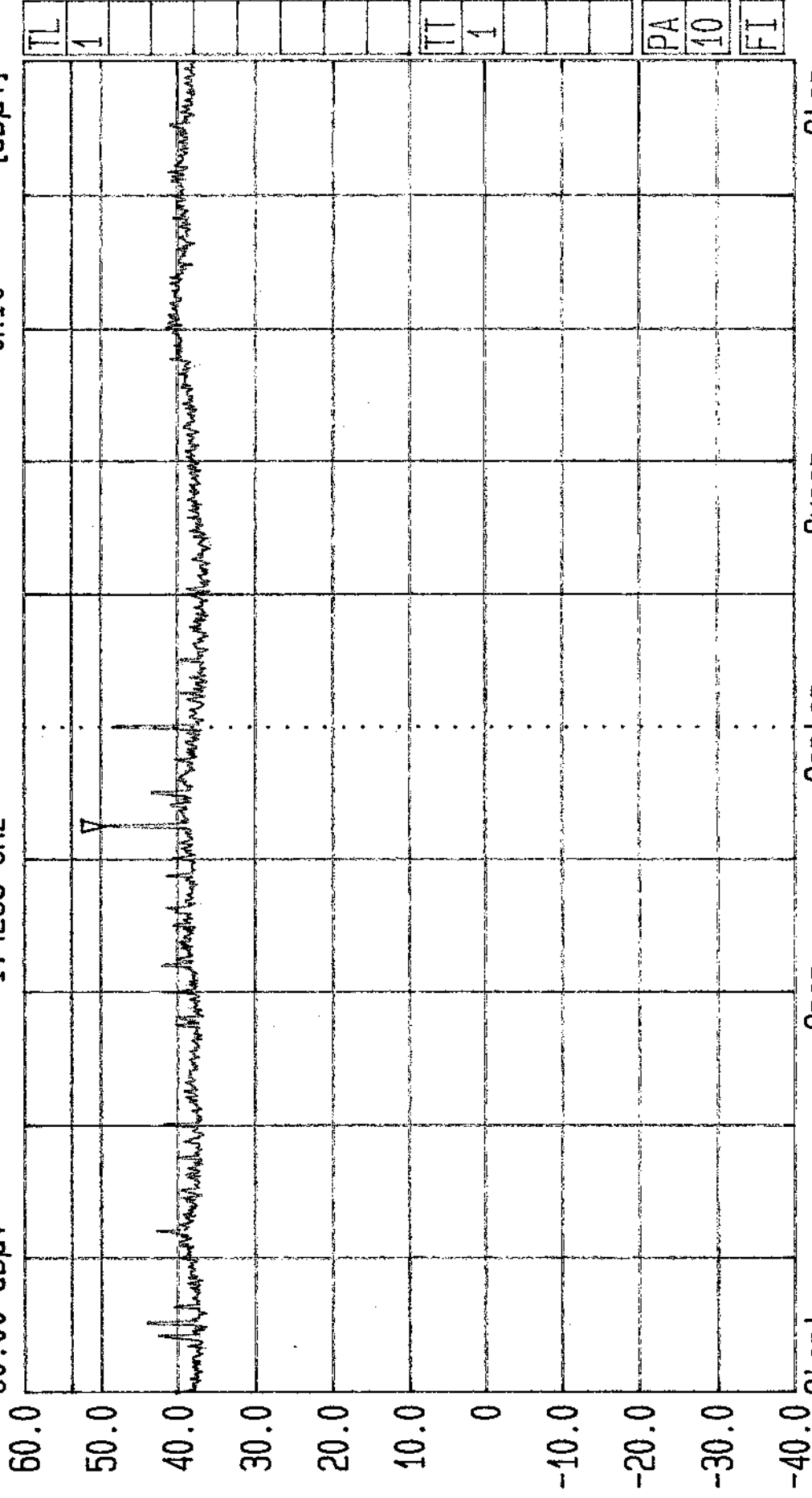
Date 24.May.'01 Time 15:01:31
 Ref.Lvl 60.00 dBuV
 Marker 48.81 dBuV
 1.4255 GHz
 Res.Bw 1 MHz [imp]
 TG.Lvl off
 CF.Stp 100.000 MHz
 Vid.Bw 1 MHz
 RF.Att 0 dB
 Unit [dBuV]



Start 1 GHz
 Span 1 GHz
 Center 1.5 GHz
 Sweep 20 ms
 Stop 2 GHz
 Radiated. Tested by RFI for Adaptive Broadband. EUT: SU.
 Part 15.209. Middle channel. Hor & Vertical polarity.
 Part 15 Subpart E
 GPH/42151JD01/4033

Date 24.May.'01 Time 15:06:16
Ref.Lvl 60.00 dBuV
Marker 49.59 dBuV
1.4255 GHz

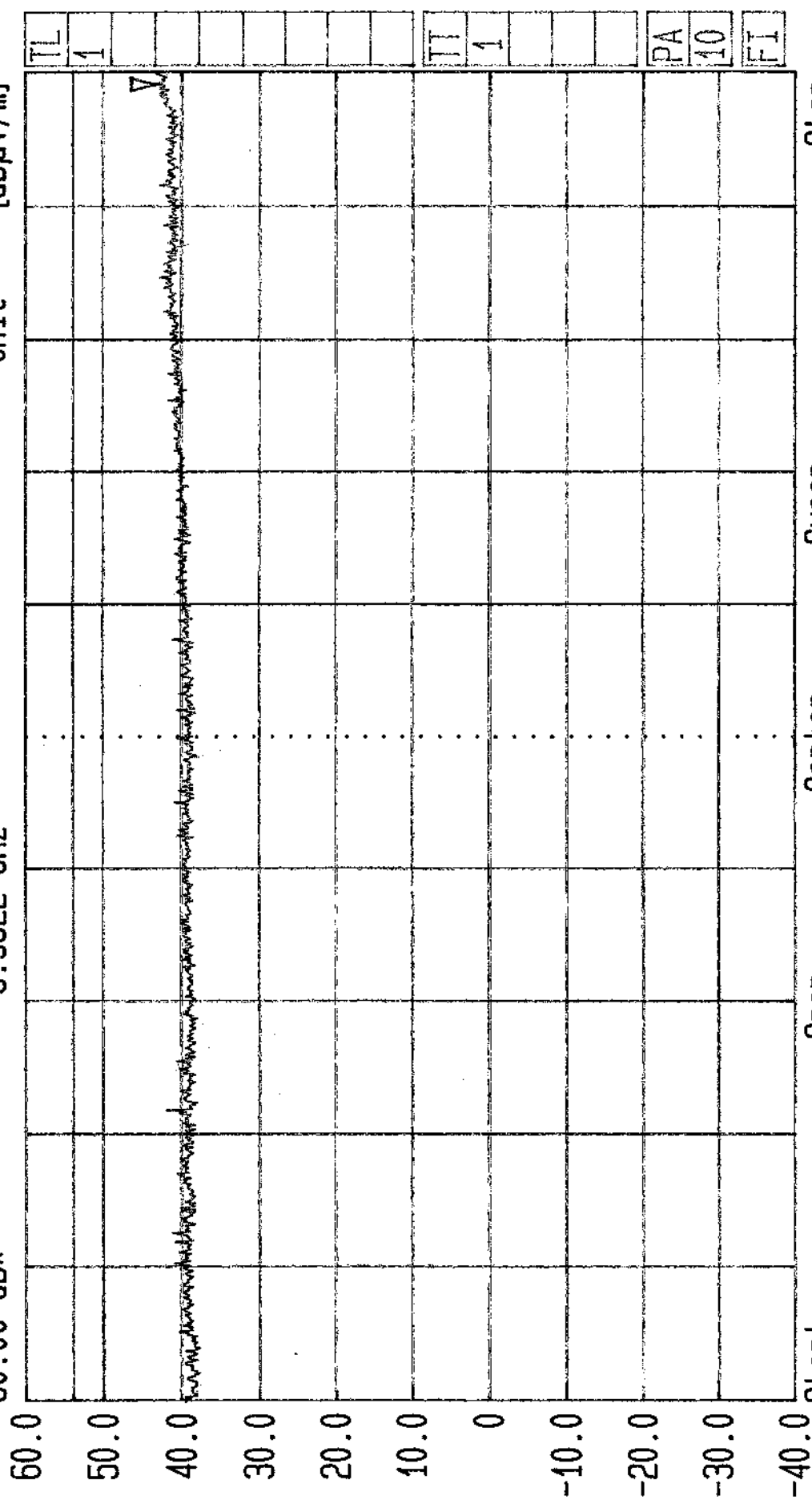
Res.Bw 1 MHz [imp]
TG.Lvl Off
CF.Stp 100.000 MHz
Vid.Bw 1 MHz
RF.Att 0 dB
Unit [dBuV]



Start 1 GHz
Center 1.5 GHz
Span 1 GHz
Sweep 20 ms
Stop 2 GHz
Radiated. Tested by RFI for Adaptive Broadband. EUT: SU.
Part 15.209. Top channel. Hor & Vertical polarity.
Part 15 Subpart E
GPH/42151JD01/4034

Res.BW 1 MHz [imp] Vid.Bw 1 MHz
 TG.Lvl Off RF.Att 0 dB
 CF.Stp 200.000 MHz Unit [dBμV/m]

Date 24.May.'01 Time 15:35:40
 Ref.Lvl 60.00 dB* Marker 43.50 dB*
 3.9822 GHz



Start 2 GHz Center 3 GHz Sweep 20 ms Stop 4 GHz

Radiated. Tested by RFI for Adaptive Broadband. EUT: SU. Part 15 Subpart E
 Part 15.209. Top, Middle & Bottom channels; vert & hor polarity. GPH/42151JD01/403A5
 08/25/2001