

**GRAPHICAL SECTION PART 2  
FOR RFI TEST REPORT SERIAL NO:  
RFI/MPTB3/RP45398JD01A**

Test Of: PipeHawk plc.  
Ground Probing Radar

To: FCC Part 15: 2002,  
Section 15.509

Radio Frequency Investigation Ltd, Ewhurst Park, Ramsdell,  
Basingstoke, Hampshire, RG26 5RQ, ENGLAND.  
Tel: +44 (0) 1256 851193 Fax: +44 (0) 1256 851192

Registered in England, No. 211 7901.  
Registered Office: Ewhurst Park, Ramsdell,  
Basingstoke, Hampshire RG26 5RQ



Test Of: PipeHawk plc.  
Ground Probing Radar  
To: FCC Part 15: 2002, Section 15.509

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**Graphical Test Results**

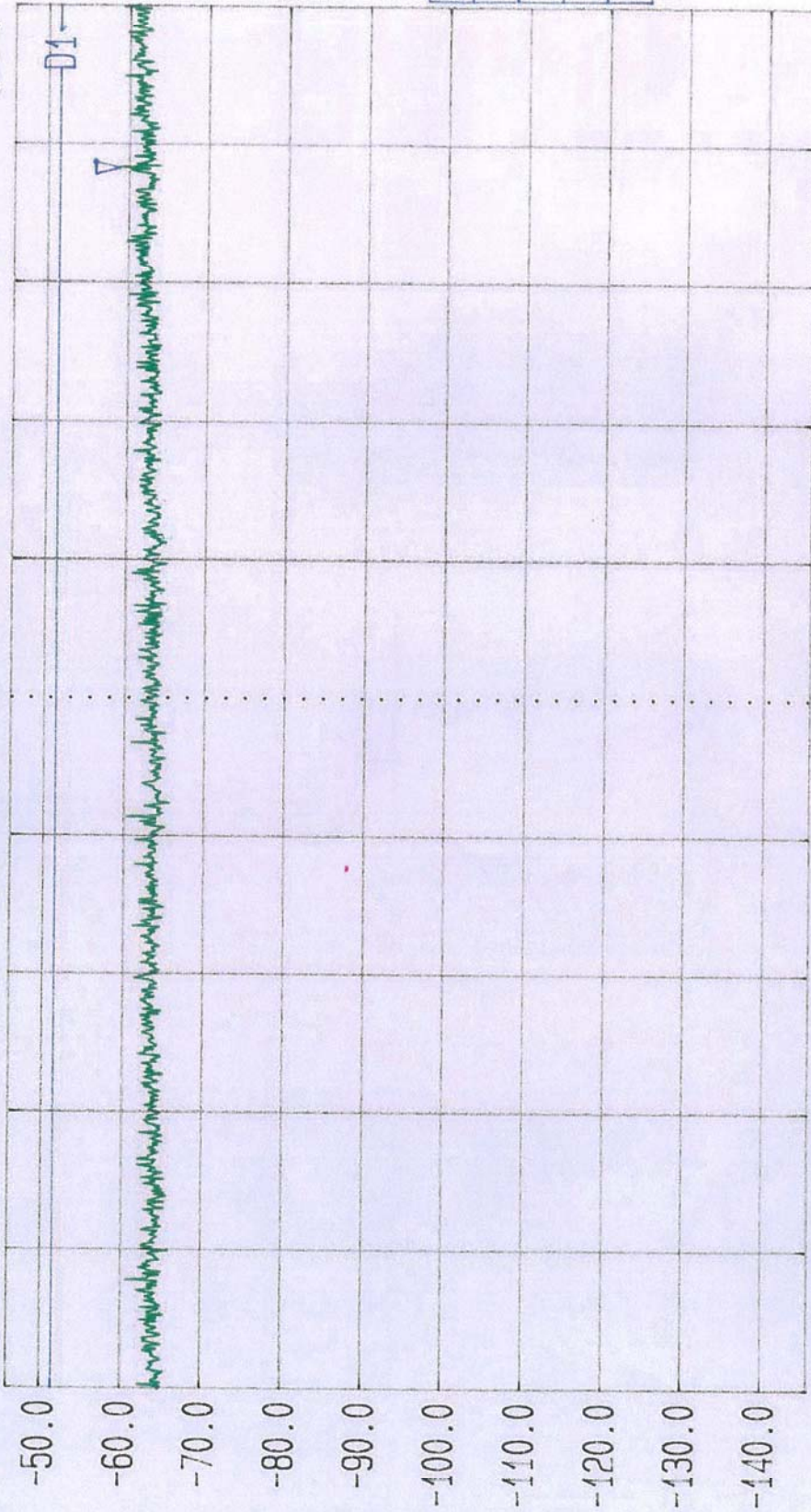
Graph Reference Number	Title
GPH/44292JD04/HC/012	Radiated Spurious Emissions Cross Polar Antenna (12.5 GHz to 15.0 GHz)
GPH/44292JD04/HC/011A	Radiated Spurious Emissions Co-Polar Antenna (30.0 MHz to 960.0 MHz)
GPH/44292JD04/HC/011B	Radiated Spurious Emissions Co-Polar Antenna (0.960 GHz to 2.0 GHz)
GPH/44292JD04/HC/005	Radiated Spurious Emissions Co-Polar Antenna (2.0 GHz to 4.0 GHz)
GPH/44292JD04/HC/013	Radiated Spurious Emissions Co-Polar Antenna (4.0 GHz to 6.0 GHz)
GPH/44292JD04/HC/014	Radiated Spurious Emissions Co-Polar Antenna (6.0 GHz to 8.0 GHz)
GPH/44292JD04/HC/015	Radiated Spurious Emissions Co-Polar Antenna (8.0 GHz to 12.5 GHz)
GPH/44292JD04/HC/016	Radiated Spurious Emissions Co-Polar Antenna (12.5 GHz to 15.0 GHz)
GPH/44292JD04/HC/003	Radiated Spurious Emissions Co-Polar Antenna (1.164 GHz to 1.24 GHz)
GPH/44292JD04/HC/009A	Radiated Spurious Emissions Cross Polar Antenna (1.164 GHz to 1.24 GHz)
GPH/44292JD04/HC/004	Radiated Spurious Emissions Co-Polar Antenna (1.559 GHz to 1.61 GHz)
GPH/44292JD04/HC/010A	Radiated Spurious Emissions Cross Polar Antenna (1.559 GHz to 1.61 GHz)
GPH/44292JD04/002	Peak Output Power Co-Polar Antenna (321.86 MHz to 374.86 MHz)
GPH/44292JD04/001	Peak Output Power Cross Polar Antenna (500.00 MHz to 555.91 MHz)
GPH/44292JD04/OCB/001	Occupied Bandwidth Cross Polar Antenna (120.0 MHz to 1.0 GHz)
GPH/44292JD04/OCB/002	Occupied Bandwidth Co-Polar Antenna (120.0 MHz to 1.0 GHz)

LVLOFF



Date 14 April 2003 Time 06:15:52  
 Ref.Lvl -46.00 dBm Marker -59.00 dBm  
 CF.Stp 14.7083 GHz

Res.Bw 1.0 MHz [3dB] Vid.Bw 3 MHz  
 CF.Stp 250.000 MHz RF.Att 10 dB  
 Unit [dBm]



Start 12.5 GHz Span 2.5 GHz Center 13.75 GHz Sweep 20 ms Stop 15 GHz

TEST FOR PIPEHAWK OF GROUND PROBING RADAR. SPEC FCC PART 15.509. ENG: JPH 00PCOND:  
 TX XPOLAR ANTENNA 44292JD04/HC/012

TT 2



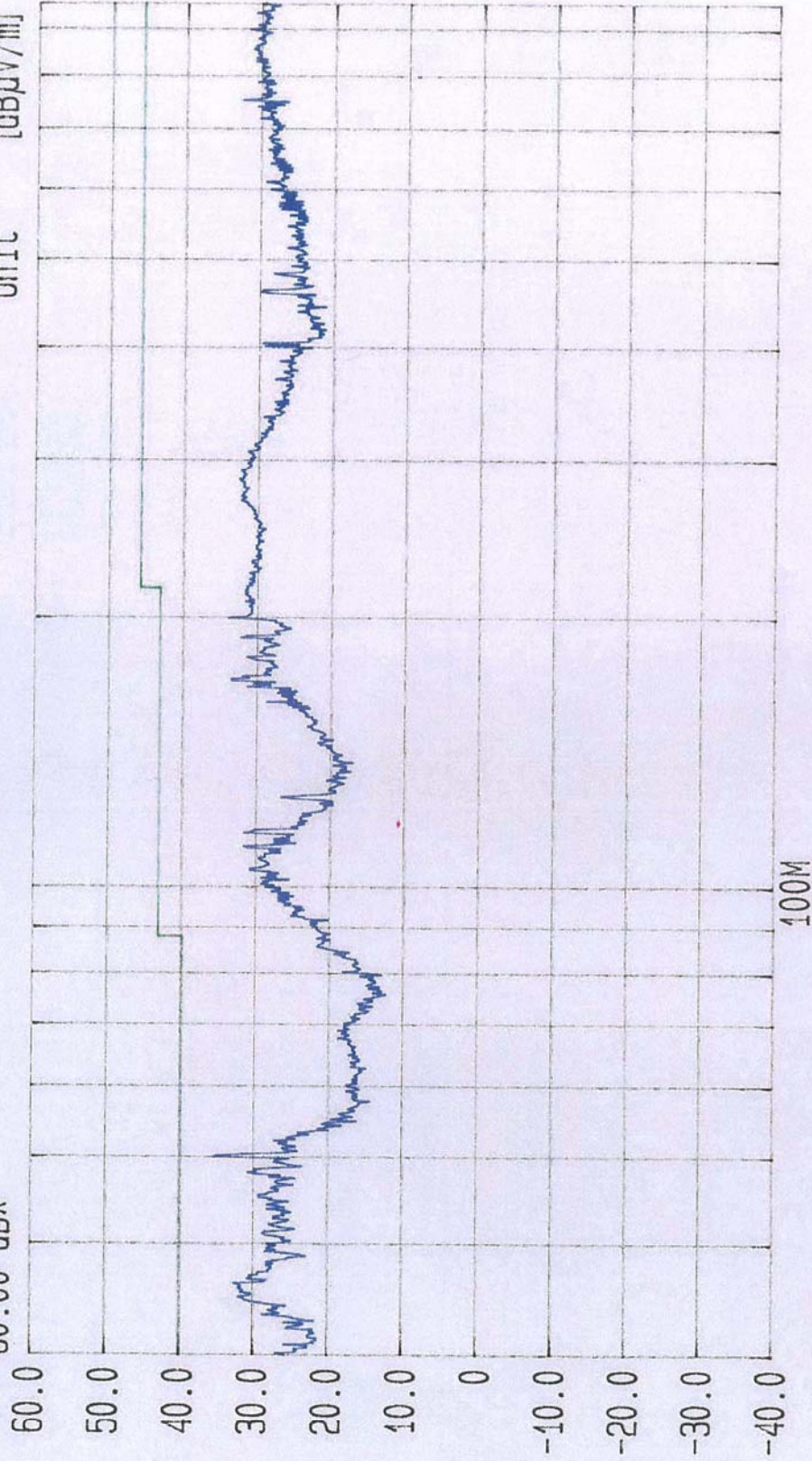


Date 14 April 2003

Time 10:08:47

Ref.Lvl  
60.00 dB\*

Res.Bw 120.0 kHz [3dB]  
TG.Lvl off  
CF.Stp 93.000 MHz  
Vid.Bw 100 kHz  
RF.Att 0 dB  
Unit [dBμV/m]

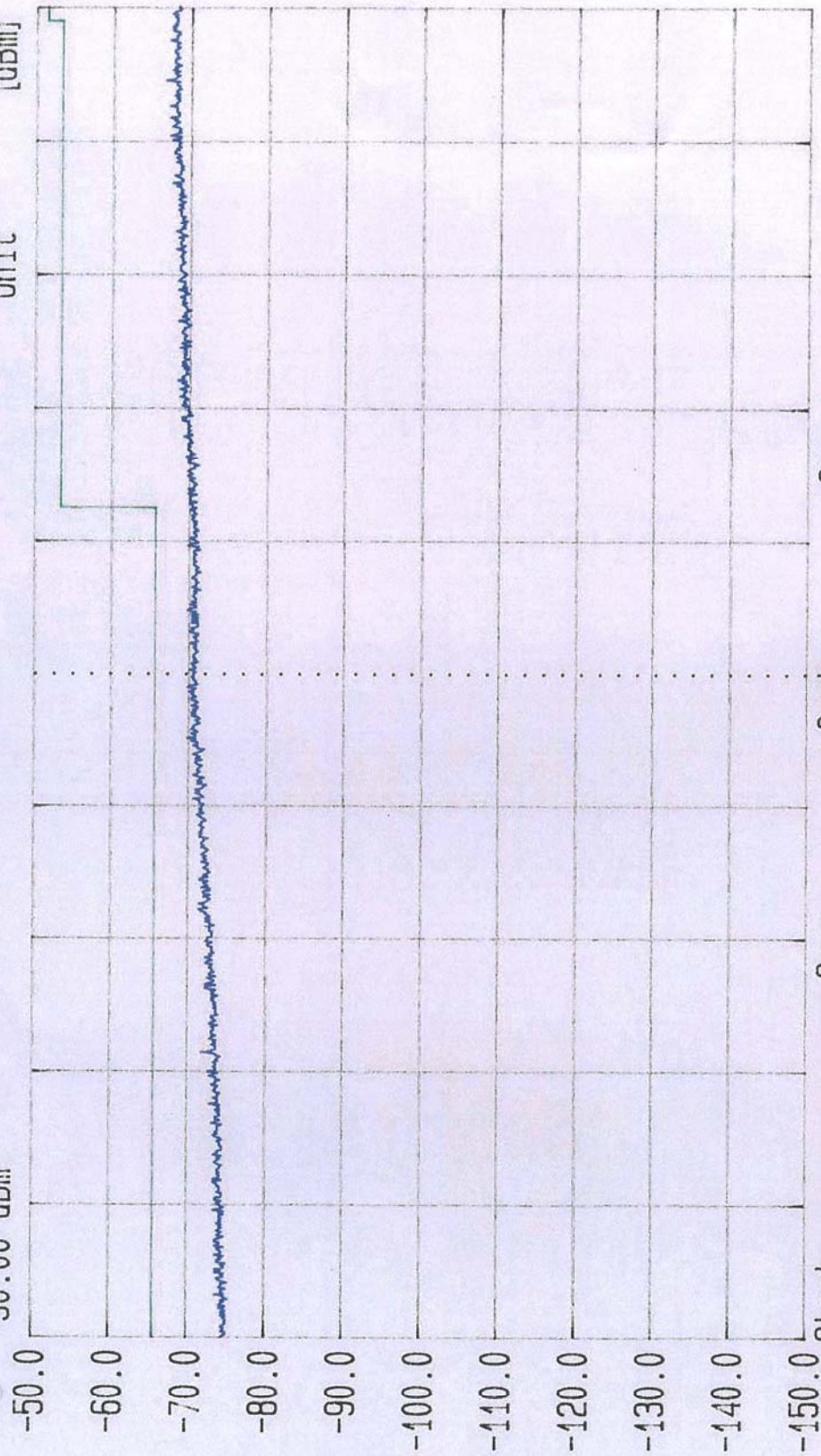


Start 30 MHz  
Span 930 MHz  
Center 169.7 MHz  
Sweep 40 ms  
Stop 960 MHz

Test for Pipe Hawk of Ground Probing RADAR. SPEC FCC Part 15.509. ENG : AMT Operati  
ng Condition : Tx with co-Polar Antenna 44292JD04/HC/011A



LVLOFF  
Date 14 April 2003 Time 09:51:26  
Ref.Lvl -50.00 dBm  
Res.Bw 1.0 MHz [3dB] off  
TG.Lvl 104.000 MHz  
CF.Stp Unit  
Vid.Bw 3 MHz  
RF.Att 0 dB  
Unit [dBm]



Start 0.960 GHz Stop 2 GHz  
Span 1.04 GHz Sweep 20 ms  
Center 1.48 GHz  
Test for Pipe Hawk of Ground Probing RADAR. SPEC FCC Part 15.509. ENG : AMT Operati  
ng Condition : Tx with co-Polar Antenna 44292JD04/HC/0116





LVLOFF

Date 14 April 2003

Time 07:32:17

Ref.Lvl

-45.00 dBm

3 MHz

Vid.Bw

1 MHz [imp]

off

200.000 MHz

RF Att

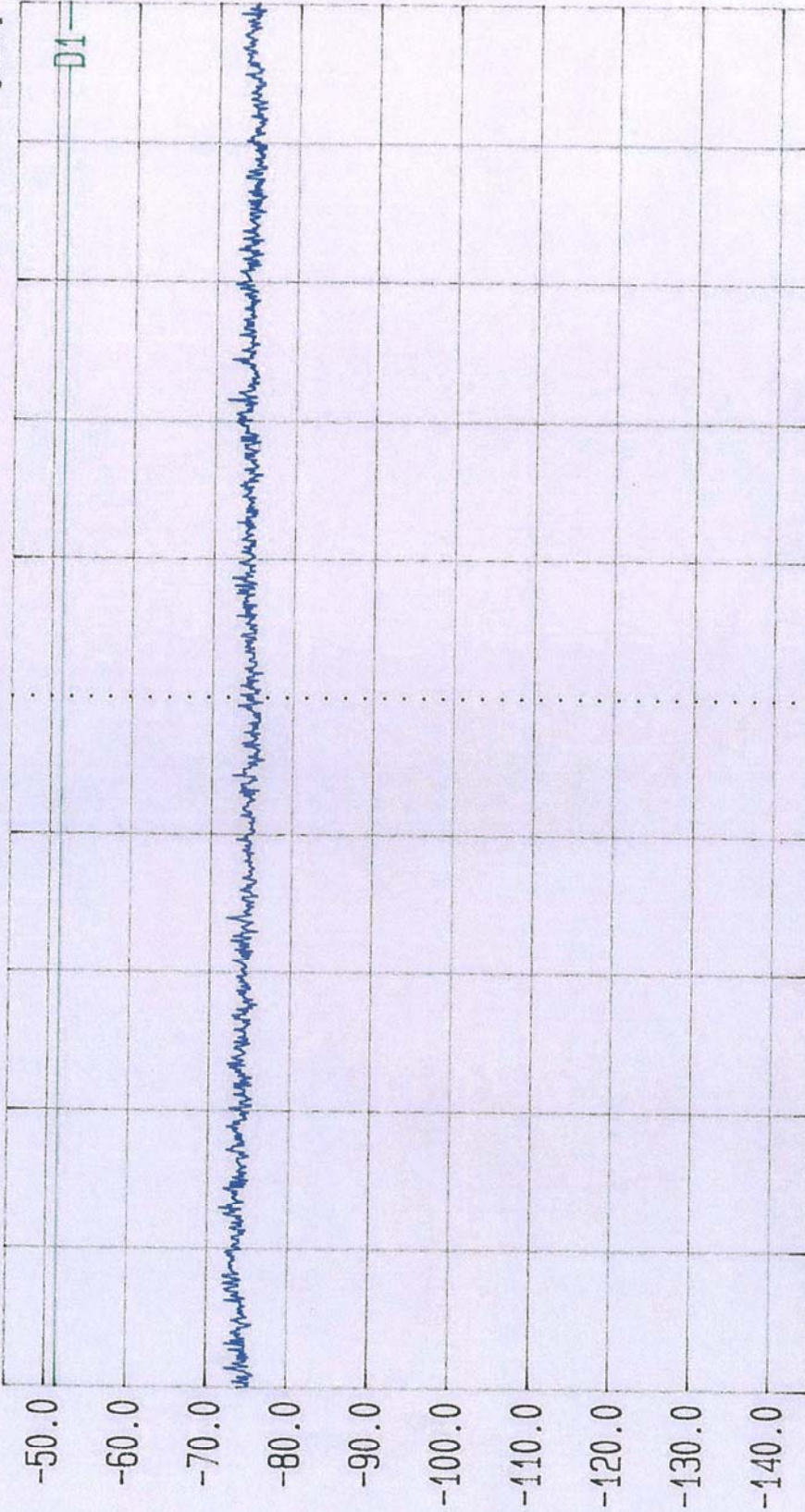
0 dB

[dBm]

Res.Bw

TG.Lvl

CF.Stp



Start  
2 GHz

Span  
2 GHz

Center  
3 GHz

Sweep  
20 ms

Stop  
4 GHz

Test for Pipe Hawk of Ground Probing RADAR. SPEC : FCC Part 15.509. ENG : AMT Operat  
ing Condition : Tx with Co-Polar Antenna 44292JD04/HC/005

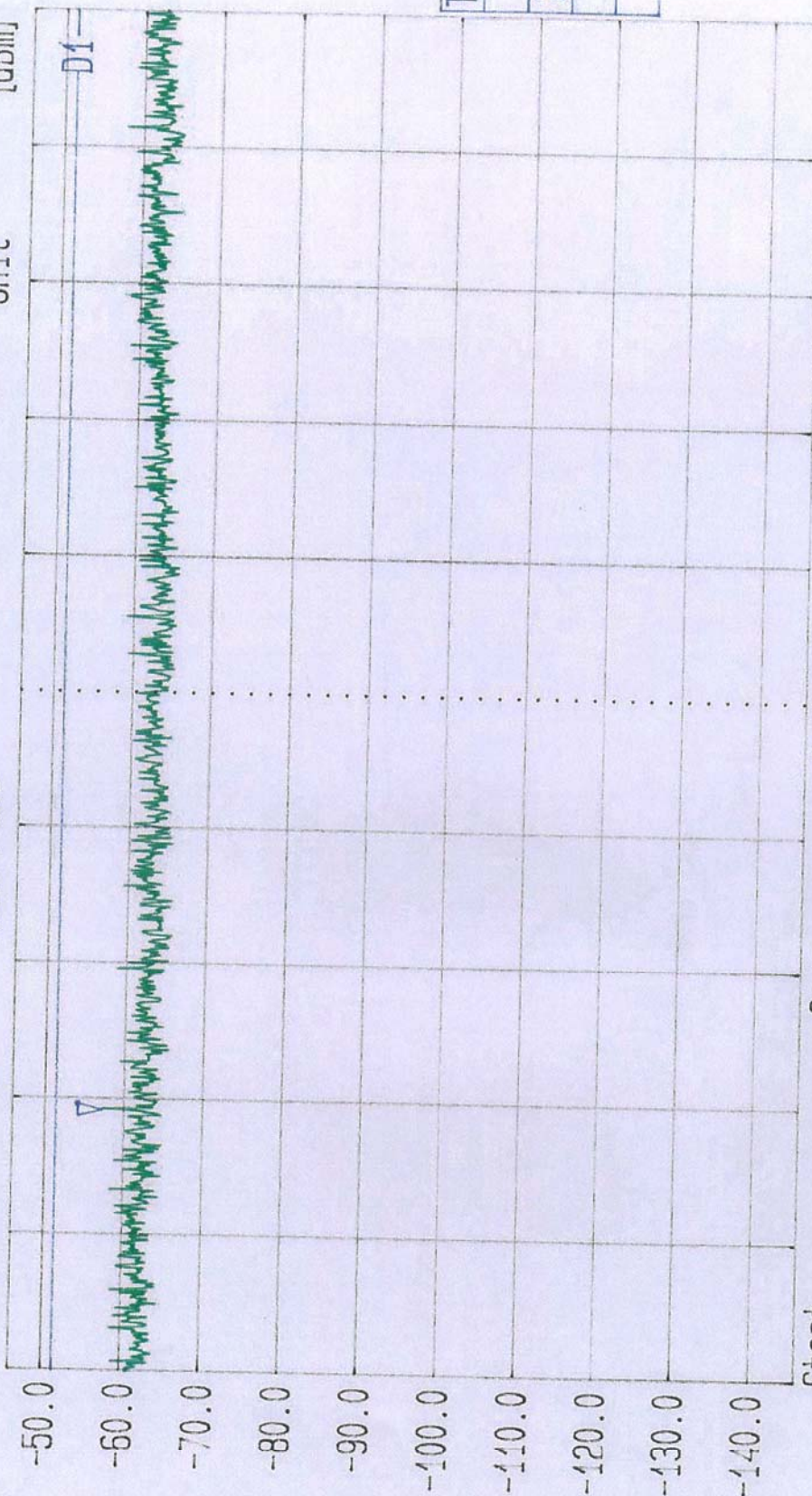




1 VI OFF

Date 14 April 2003 Time 06:35:08  
Ref.Lvl -46.00 dBm  
Marker -57.27 dBm  
4.3844 GHz

Res.Bw 1.0 MHz [3dB] Vid.Bw 3 MHz  
CF.Stp 200.000 MHz RF.Att 5 dB  
Unit [dBm]



TT  
2

TEST FOR PIPEHAWK OF GROUND PROBING RADAR. SPEC FCC PART 15.509. ENG: JPH 00PCOND:  
TX CO POLAR ANTENNA 44292 JD04/HC/013





LVLOFF

Date 14 April 2003

Time 06:37:37

Ref.Lvl -46.00 dBm

Marker -56.10 dBm

7.2955 GHz

Res.Bw

1.0 MHz [3dB]

Vid.Bw

3 MHz

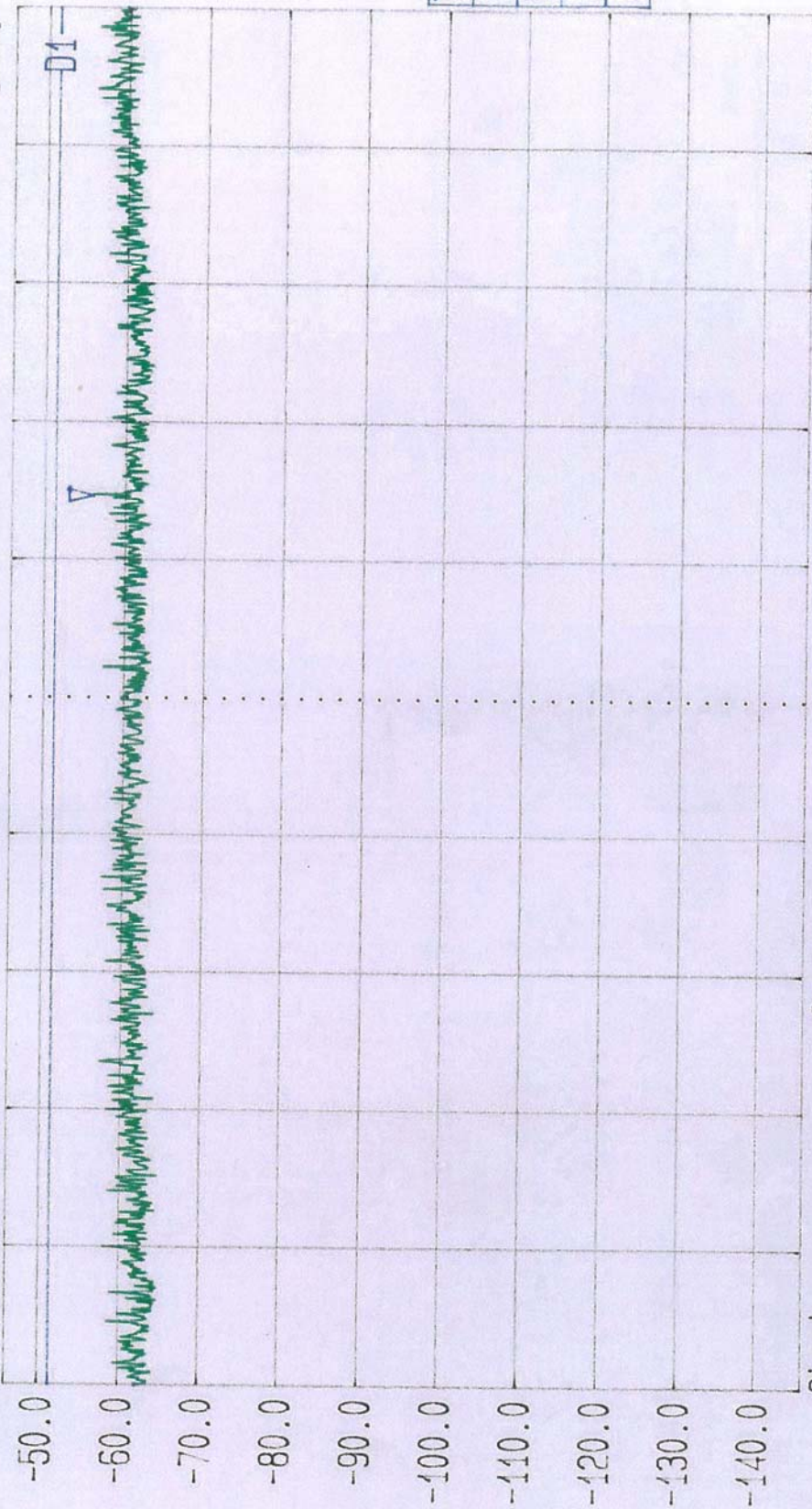
CF.Stp

200.000 MHz

RF.Att

5 dB

[dBm]



TT  
2

Start  
6 GHz

Span  
2 GHz

Center  
7 GHz

Sweep  
20 ms

Stop  
8 GHz

TEST FOR PIPEHAWK OF GROUND PROBING RADAR. SPEC FCC PART 15.509. ENG: JPH 00PCOND:  
TX CO POLAR ANTENNA 44292 JD04/HC/014

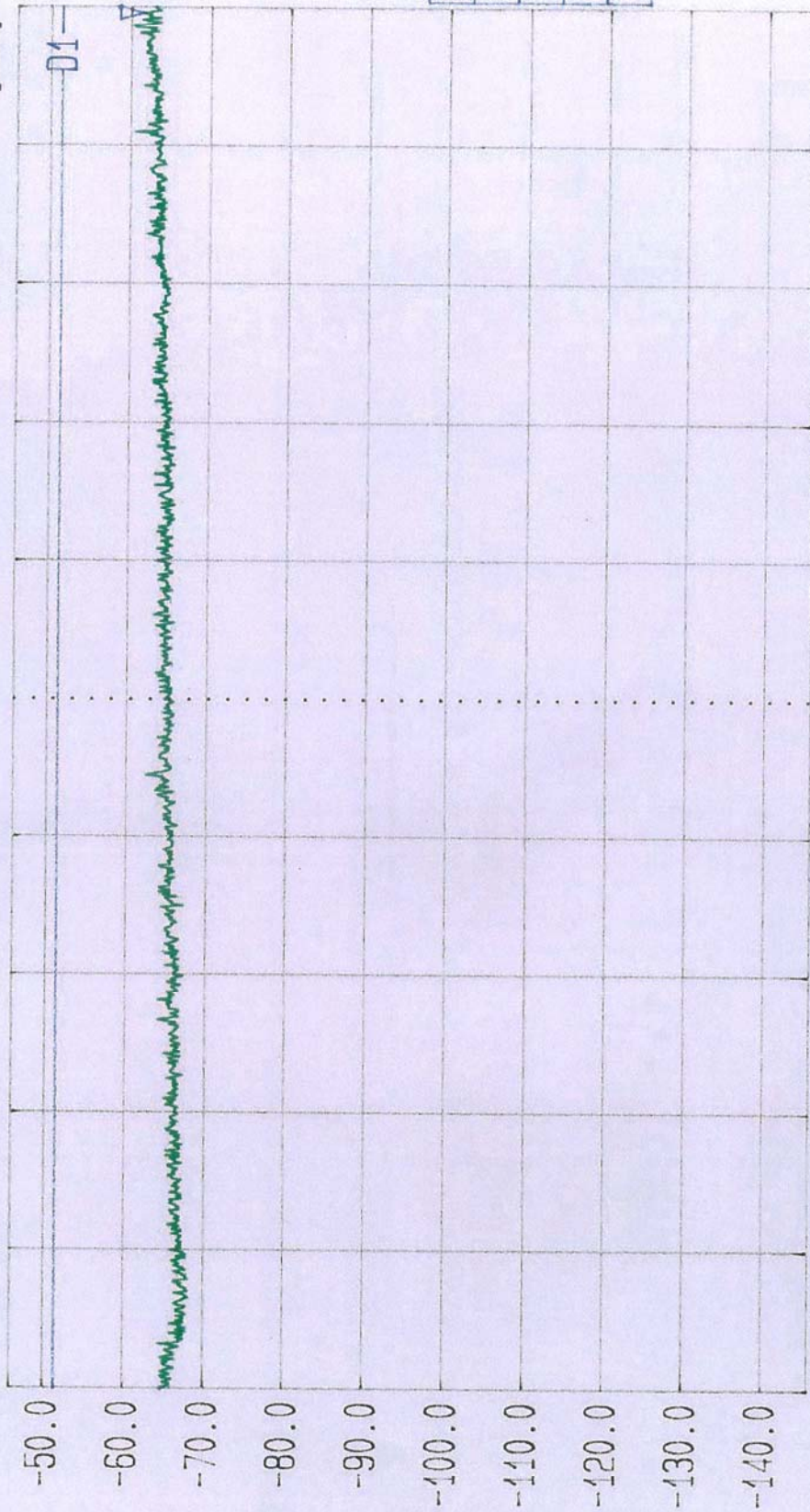


LVLOFF



Date 14 April 2003 Time 06:40:43  
Ref.Lvl -46.00 dBm Marker -61.56 dBm  
Unit 10 dBm

Res.Bw 1.0 MHz [3dB] Vid.Bw 3 MHz  
CF.Stp 450.000 MHz RF.Att



Start 8 GHz Center 10.25 GHz Stop 12.5 GHz  
Span 4.5 GHz Sweep 20 ms

TEST FOR PIPEHAWK OF GROUND PROBING RADAR. SPEC FCC PART 15.509. ENG: JPH 00PCOND:  
TX CO POLAR ANTENNA 44292 JD04/HC/015

TT 2



LVLOFF



Date 14 April 2003 Time 06:43:33

Ref.LVL Marker

-46.00 dBm

-58.72 dBm

14.8861 GHz

Res.Bw 1.0 MHz [3dB]

Vid.Bw

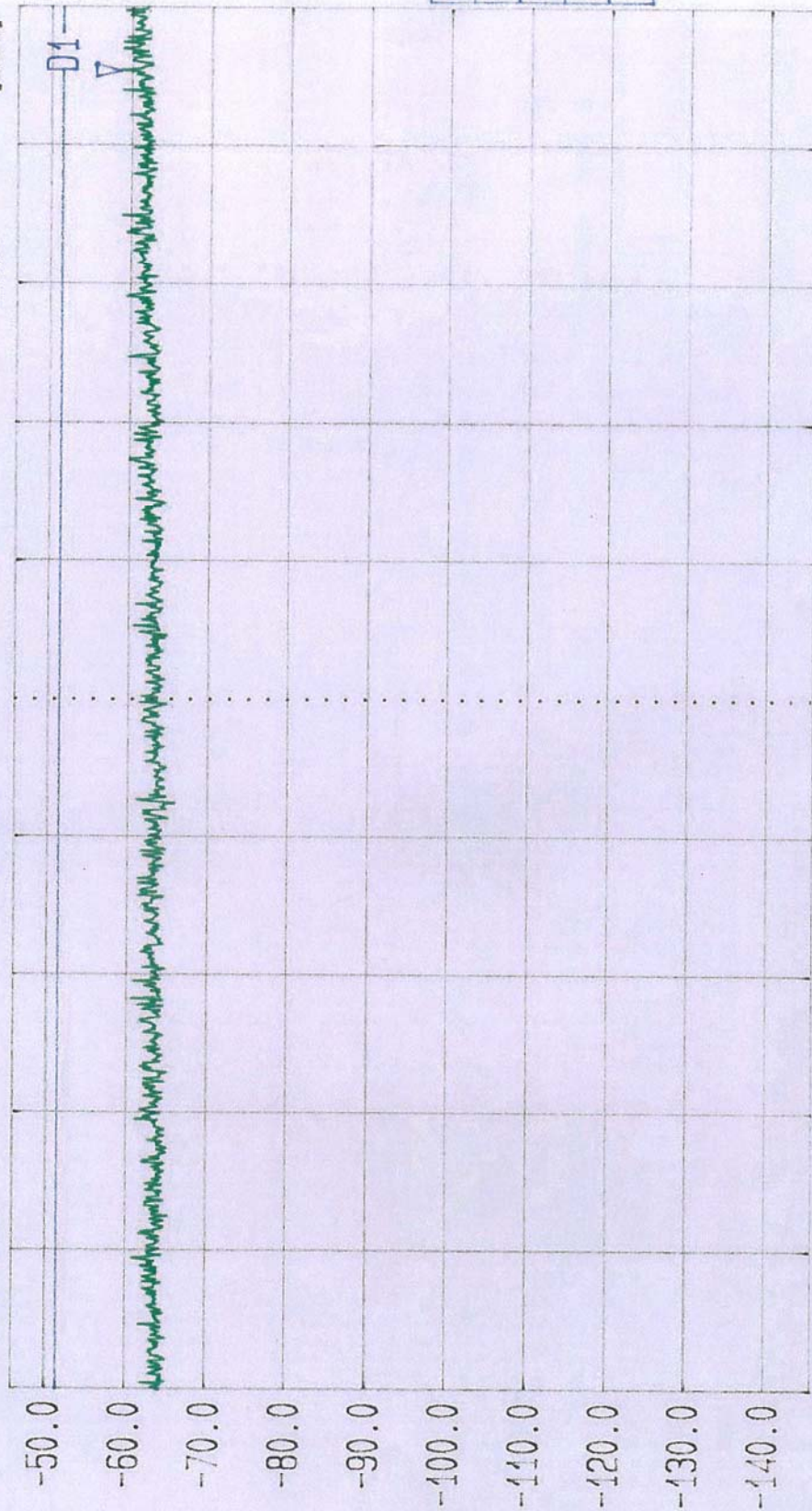
3 MHz

CF.Stp 250.000 MHz

RF.Att

10 dB

Unit [dBm]



TT 2

Start 12.5 GHz

Center 13.75 GHz

Sweep 20 ms

Stop 15 GHz

TEST FOR PIPEHAWK OF GROUND PROBING RADAR. SPEC FCC PART 15.509. ENG: JPH 00PCOND:  
TX CO POLAR ANTENNA 44292 JD04/HC/016





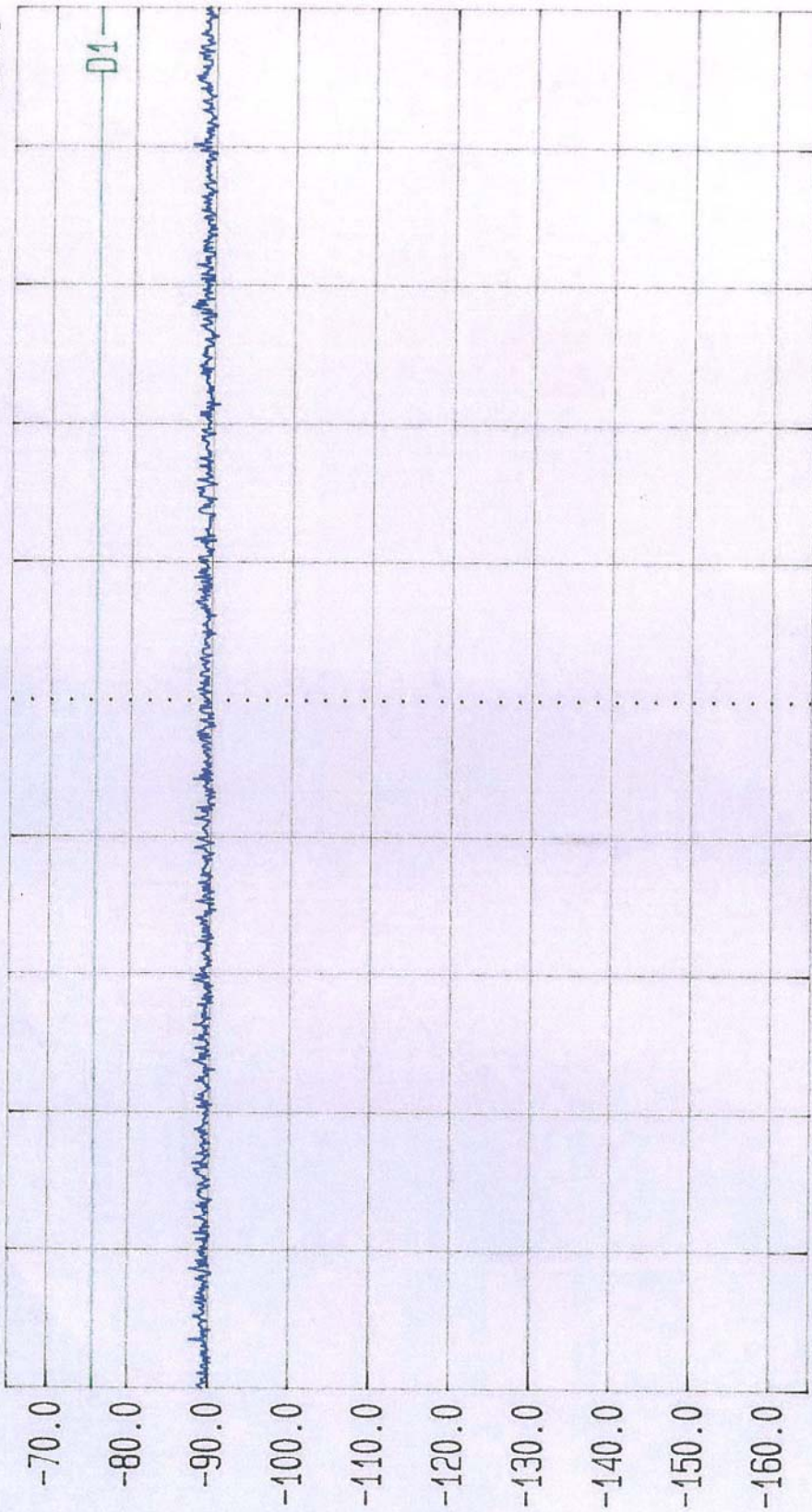
LVL OFF

Date 14 April 2003 Time 07:18:56

Ref. Lvl

-65.00 dBm

Res. Bw 120 kHz [imp]  
TG. Lvl Off  
CF. Stp 7.600 MHz  
Vid. Bw 300 kHz  
RF. Att 0 dB  
Unit [dBm]

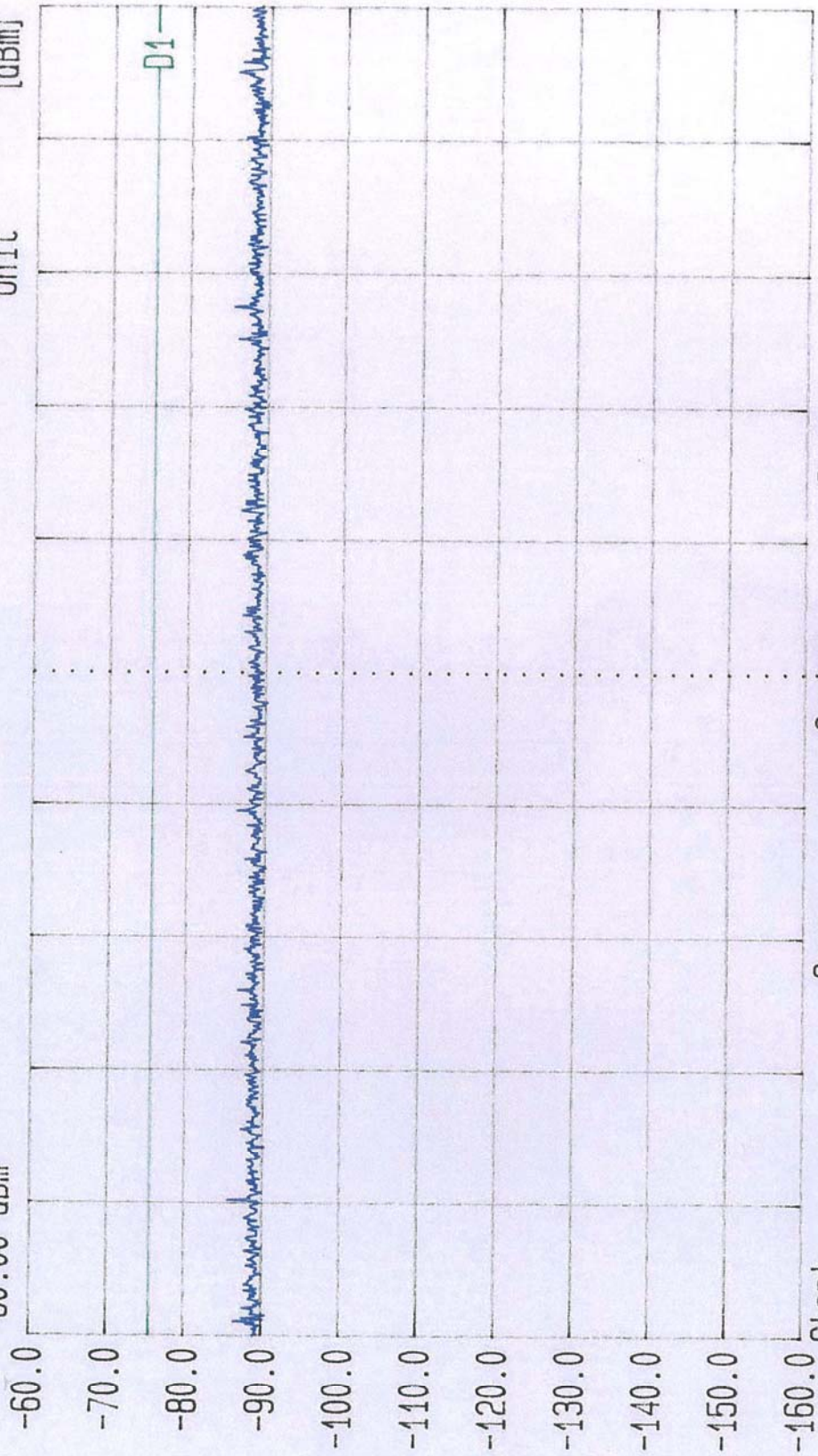


Start 1.164 GHz  
Span 76 MHz  
Center 1.202 GHz  
Sweep 40 ms  
Stop 1.24 GHz  
Test for Pipe Hawk of Ground Probing RADAR. SPEC : FCC Part 15.509. ENG : AMT Operat  
ing Condition : Tx with Co-Polar Antenna 44292JD04/HC/003





LVLOFF  
Date 14 April 2003 Time 09:39:52  
Ref.Lvl -60.00 dBm  
Res.Bw 120.0 kHz [3dB] Vid.Bw 300 kHz  
TG.Lvl Off  
CF.Stp 7.600 MHz RF.Att 0 dB  
Unit [dBm]



Start 1.164 GHz Stop 1.24 GHz  
Span 76 MHz Sweep 20 ms  
Center 1.202 GHz  
Test for Pipe Hawk of Ground Probing RADAR. SPEC FCC Part 15.509. ENG : AMT Operati  
ng Condition : Tx with x-Polar Antenna 44292JD04/HC/009a





LVLOFF

Date 14 April 2003

Time 07:24:11

Ref.Lvl

-65.00 dBm

Res.Bw

TG.Lvl

CF.Stp

120 kHz [imp]

off

5.100 MHz

Vid.Bw

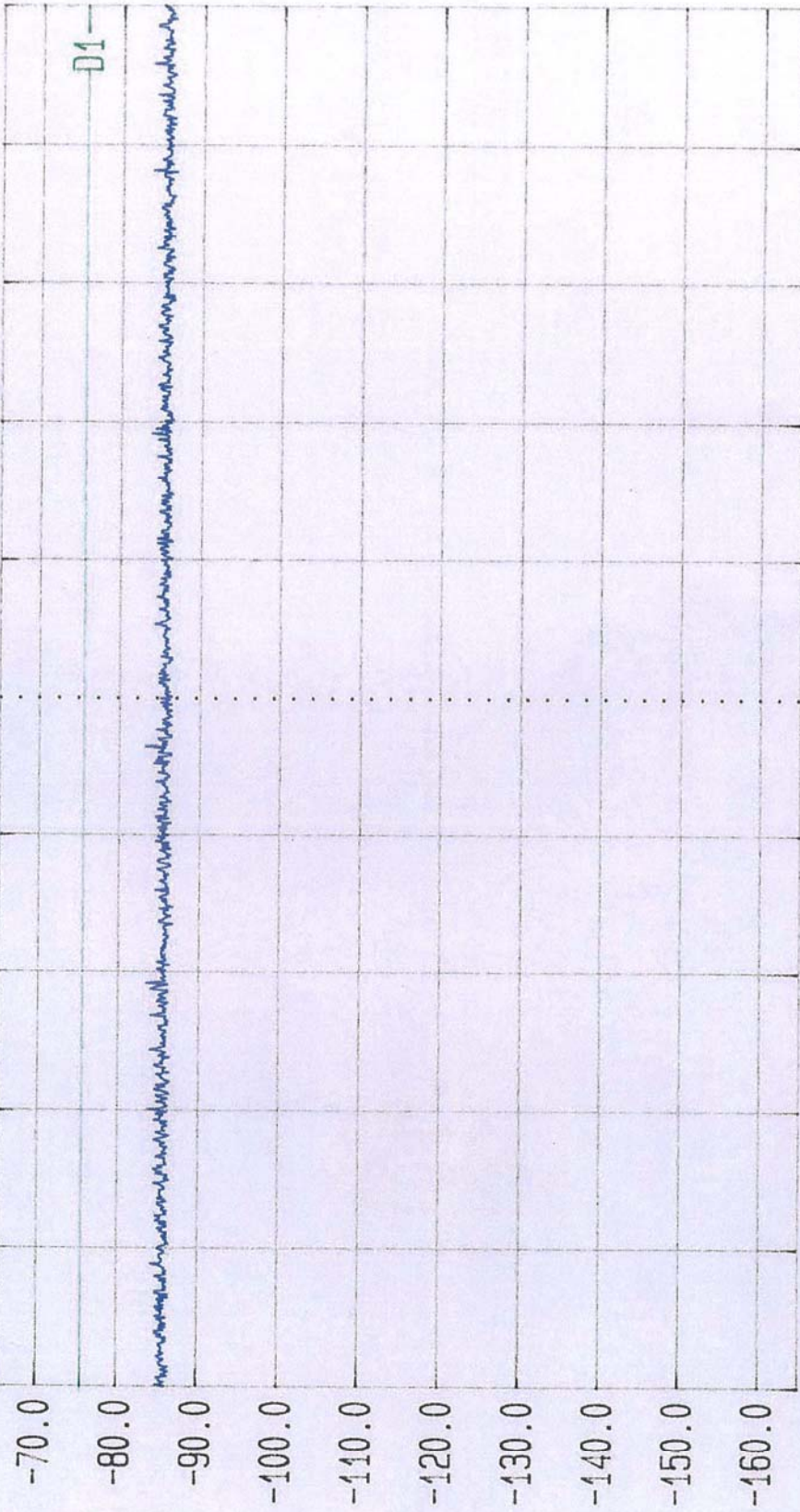
300 kHz

RF.Att

0 dB

Unit

[dBm]



Start

1.559 GHz

Span

51 MHz

Center

1.5845 GHz

Sweep

40 ms

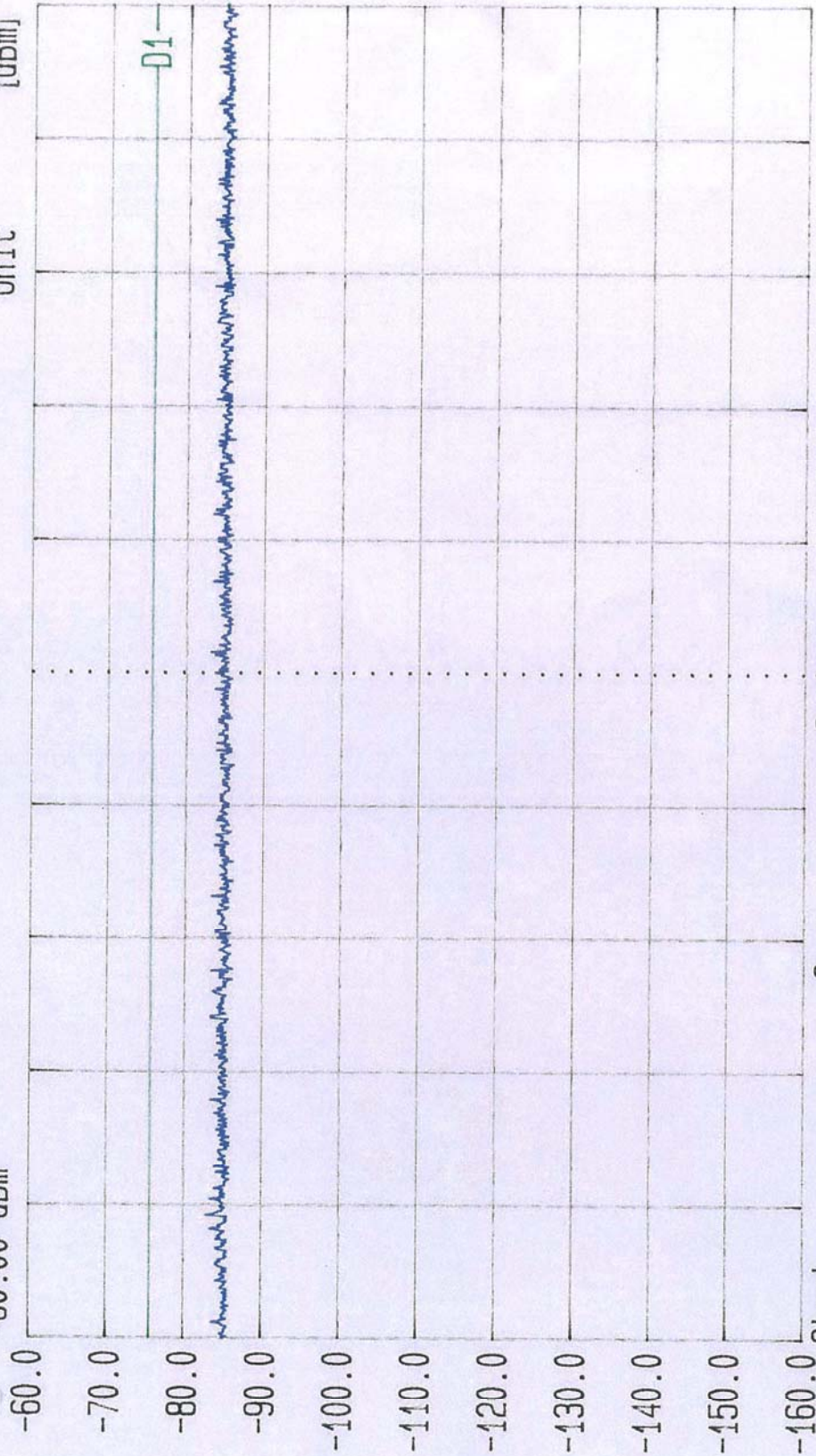
Stop

1.61 GHz

Test for Pipe Hawk of Ground Probing RADAR. SPEC : FCC Part 15.509. ENG : AMT Operating Condition : Tx with Co-Polar Antenna 44292JD04/HC/004



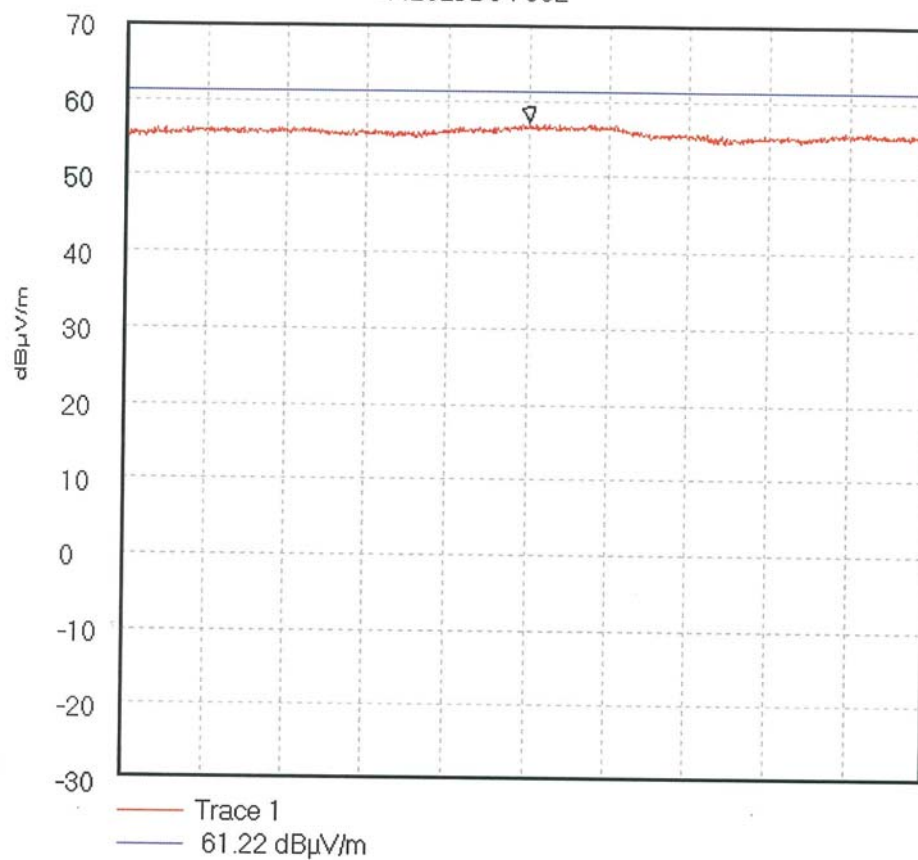
LVLOFF  
 Date 14 April 2003 Time 09:46:19  
 Ref.Lvl -60.00 dBm  
 Res.Bw 120.0 kHz [3dB] Vid.Bw 300 kHz  
 TG.Lvl Off  
 CF.Stp 5.100 MHz RF.Att 0 dB  
 Unit [dBm]



Start 1.559 GHz Stop 1.61 GHz  
 Sweep 20 ms  
 Center 1.5845 GHz  
 Span 51 MHz  
 Test for Pipe Hawk of Ground Probing RADAR. SPEC FCC Part 15.509. ENG : AMT Operati  
 ng Condition : Tx with x-Polar Antenna 44292JD04/HC/010



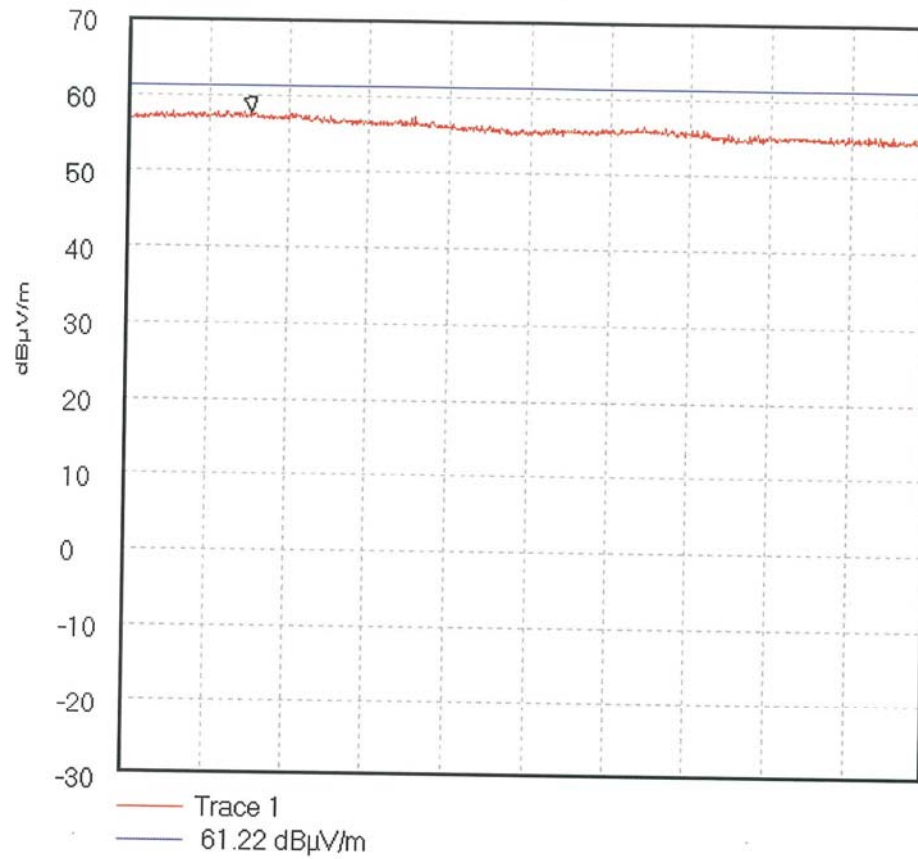
44292JD04 002



Start 321.86 MHz; Stop 374.86 MHz  
Ref 70  $\text{dB}\mu\text{V/m}$ ; Ref Offset 0.0 dB; 10 dB/div  
RBW 1.0 MHz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS  
Peak 348.477778 MHz, 57.28  $\text{dB}\mu\text{V/m}$   
Display Line: 61.22  $\text{dB}\mu\text{V/m}$   
28/06/2003 09:21:17



44292JD04 001



Start 500.0 MHz; Stop 555.91 MHz  
Ref 70  $\text{dB}\mu\text{V/m}$ ; Ref Offset 0.0 dB; 10 dB/div  
RBW 1.0 MHz; VBW 1.0 MHz; Att 0 dB; Swp 20.0 mS  
Peak 508.572867 MHz, 57.82  $\text{dB}\mu\text{V/m}$   
Display Line: 61.22  $\text{dB}\mu\text{V/m}$ ;  
28/06/2003 09:16:59



LVLOFF

Date 14 April 2003 Time 10:40:53

Ref.Lvl Delta

16.30 dBm 0.66 dB

F1 960.0000000 MHz D1

F2 OFF

F2-F1 OFF

D1-D2

Res.Bw 118.8 kHz [3dB]

CF.Stp 88.000 MHz

RF.Att 0 dB

Unit [dBm]

-10.00 dBm

OFF

OFF

10.0

0

-10.0

-20.0

-30.0

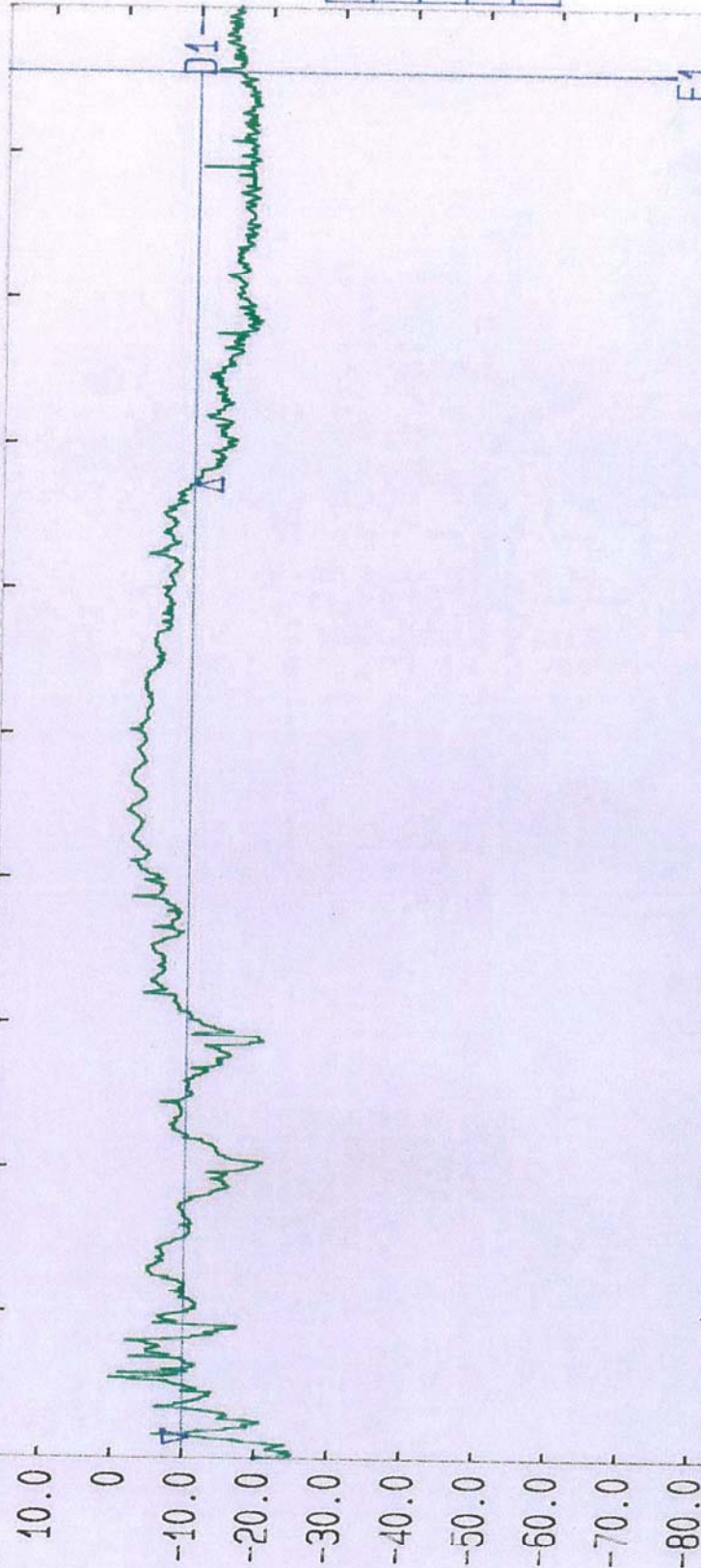
-40.0

-50.0

-60.0

-70.0

-80.0



Start 120 MHz

Span 880 MHz

Center 560 MHz

Sweep 200 ms

Stop 1 GHz

Test for Pipe Hawk of Ground Probing RADAR. SPEC: FCC part 15.509. ENG: AMT. Operating condition: Tx with x-polar Antenna 44262JD2/OCB/001



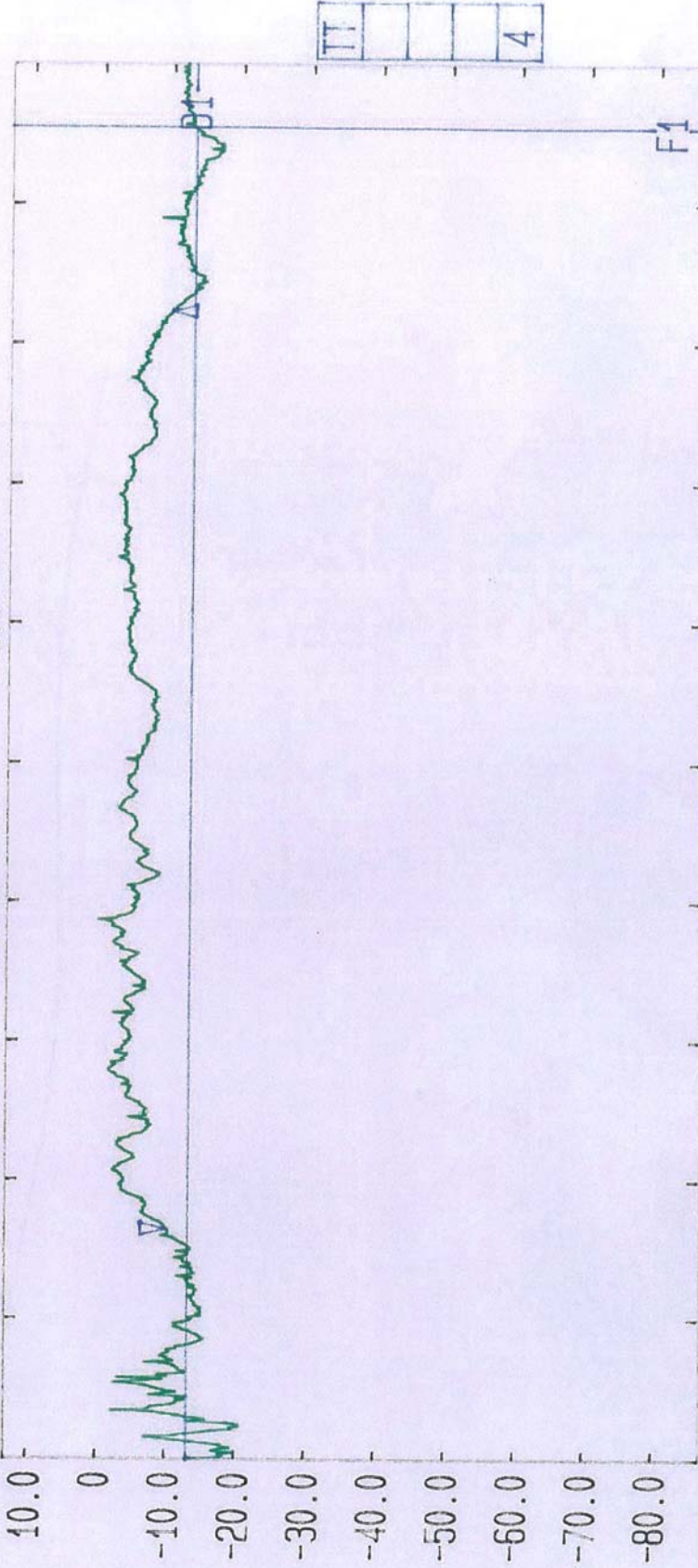
LVLOFF

Date 14 April 2003 Time 10:50:00  
Ref.Lvl Delta  
13.00 dBm -0.05 dB  
579.8 MHz

Res.Bw 118.8 kHz [3dB] Vid.Bw 300 kHz  
CF.Stp 88.000 MHz RF.Att 0 dB  
Unit [dBm]

F1 960.00000000 MHz D1  
F2 OFF  
F2-F1 OFF  
D1-D2 OFF

-13.30 dBm



Start 120 MHz Stop 1 GHz  
Span 880 MHz Sweep 200 ms  
Center 560 MHz  
Test for Pipe Hawk of Ground Probing RADAR. SPEC: FCC part 15.509. ENG: AMT. Oper  
ing condition: Tx with co-Polar Antenna 44262JD2/OCB/002