

## **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

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 Ground Probing Radar  
 To: FCC Part 15: 2002, Section 15.509

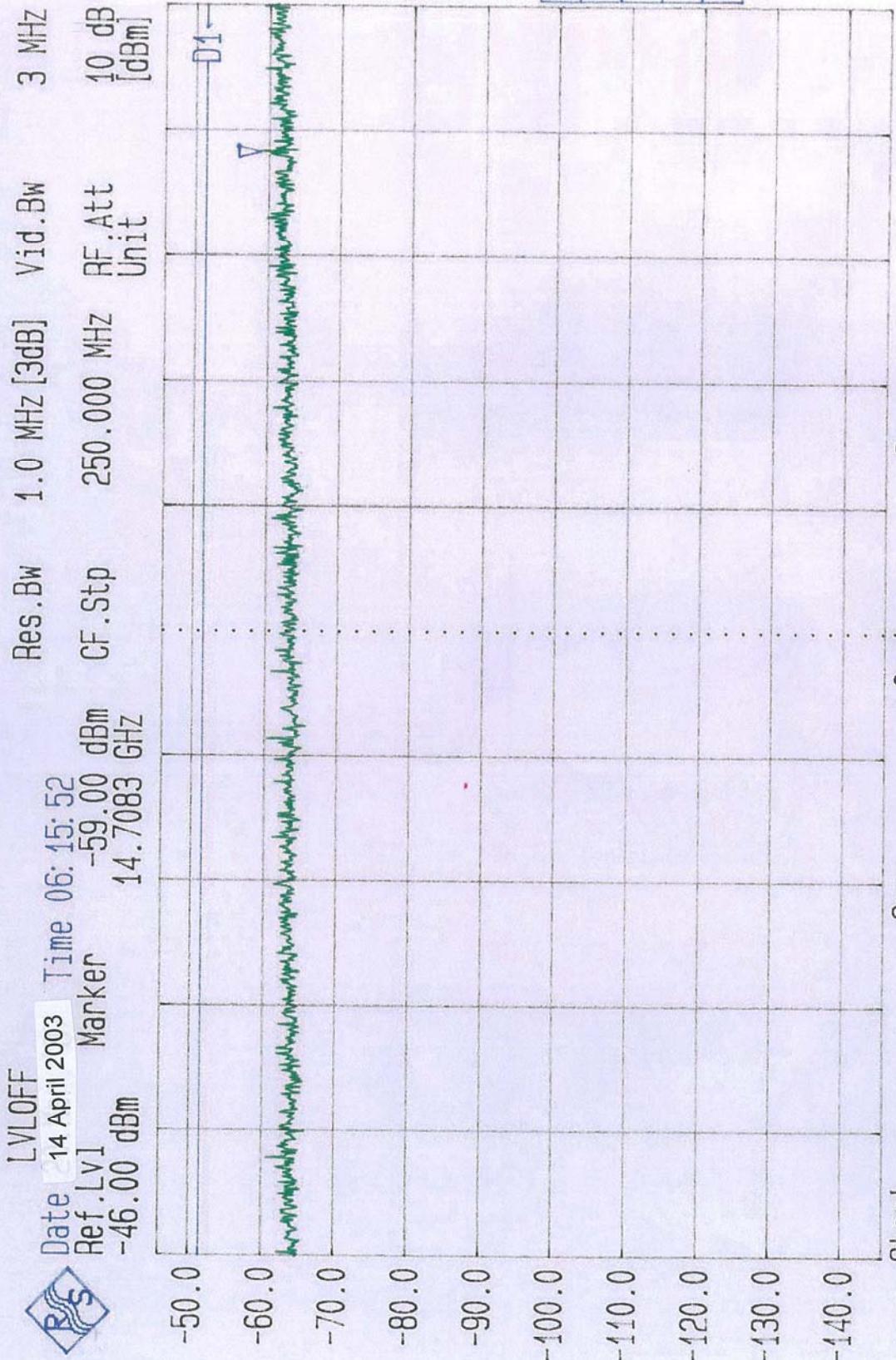
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### Graphical Test Results

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)



LVL OFF  
Date 14 April 2003 Time 06: 15: 52  
Ref. LVL Marker -59.00 dBm  
-46.00 dBm



Stop 15 GHz

TEST FOR PIPEHAWK OF GROUND PROBING RADAR. SPEC FCC PART 15.509. ENG: JPH 00PCOND:

TX XPOLAR ANTENNA 44292JD04/HC/012

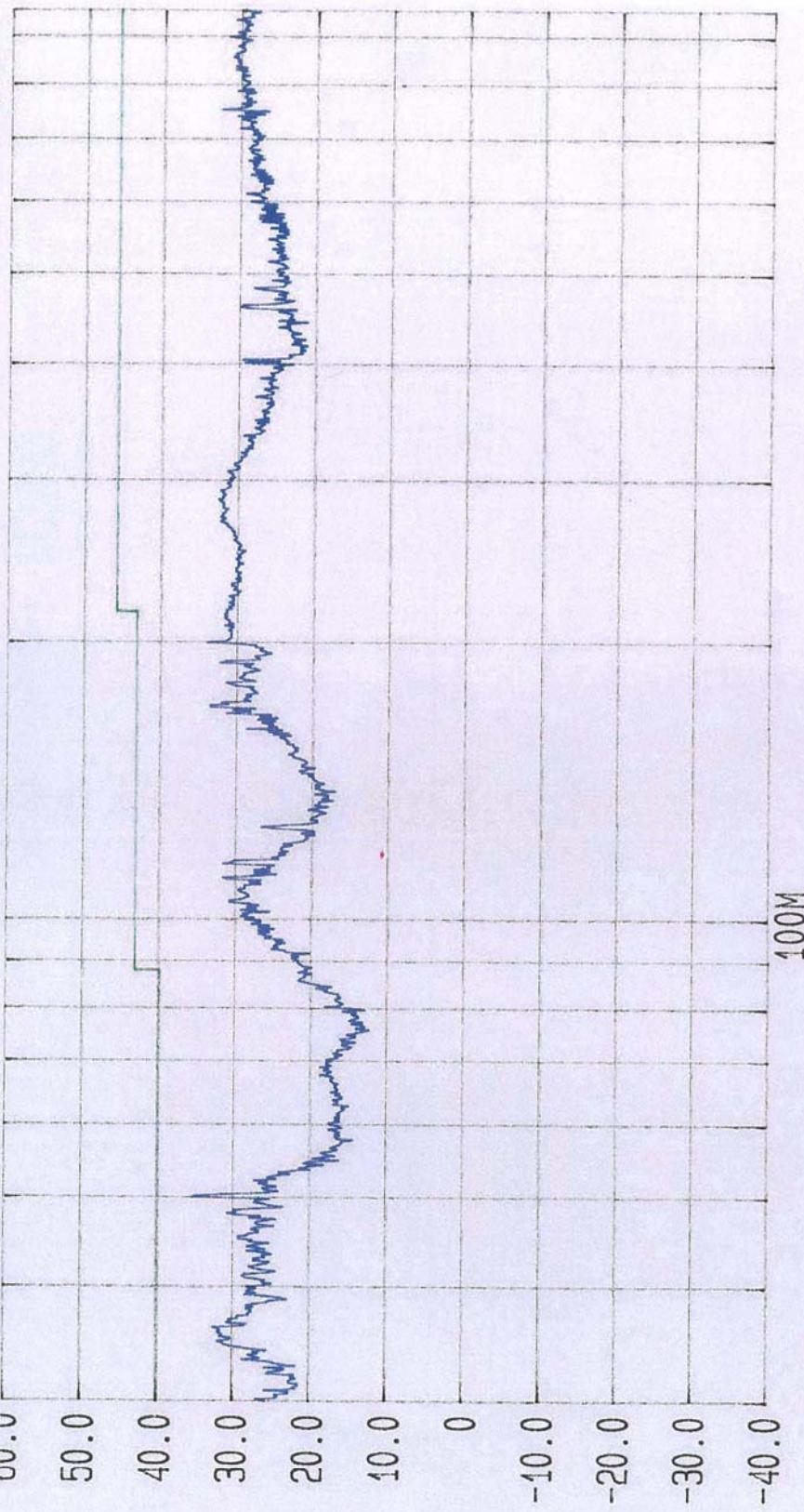


Date 14 April 2003

Time 10: 08: 47

Ref. LV1  
60.00 dB\*

Res. BW 120.0 kHz [3dB]  
TG [LV1]  
CF. Stp 93.000 MHz  
RF Att Unit 0 dB  
[dB $\mu$ V/m]



Start 30 MHz  
Test for Pipe Hawk of Ground Probing RADAR. SPEC FCC Part 15.509. ENG : AMT Operati  
ng Condition : Tx with co-Polar Antenna 44292J004/HC/011a

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

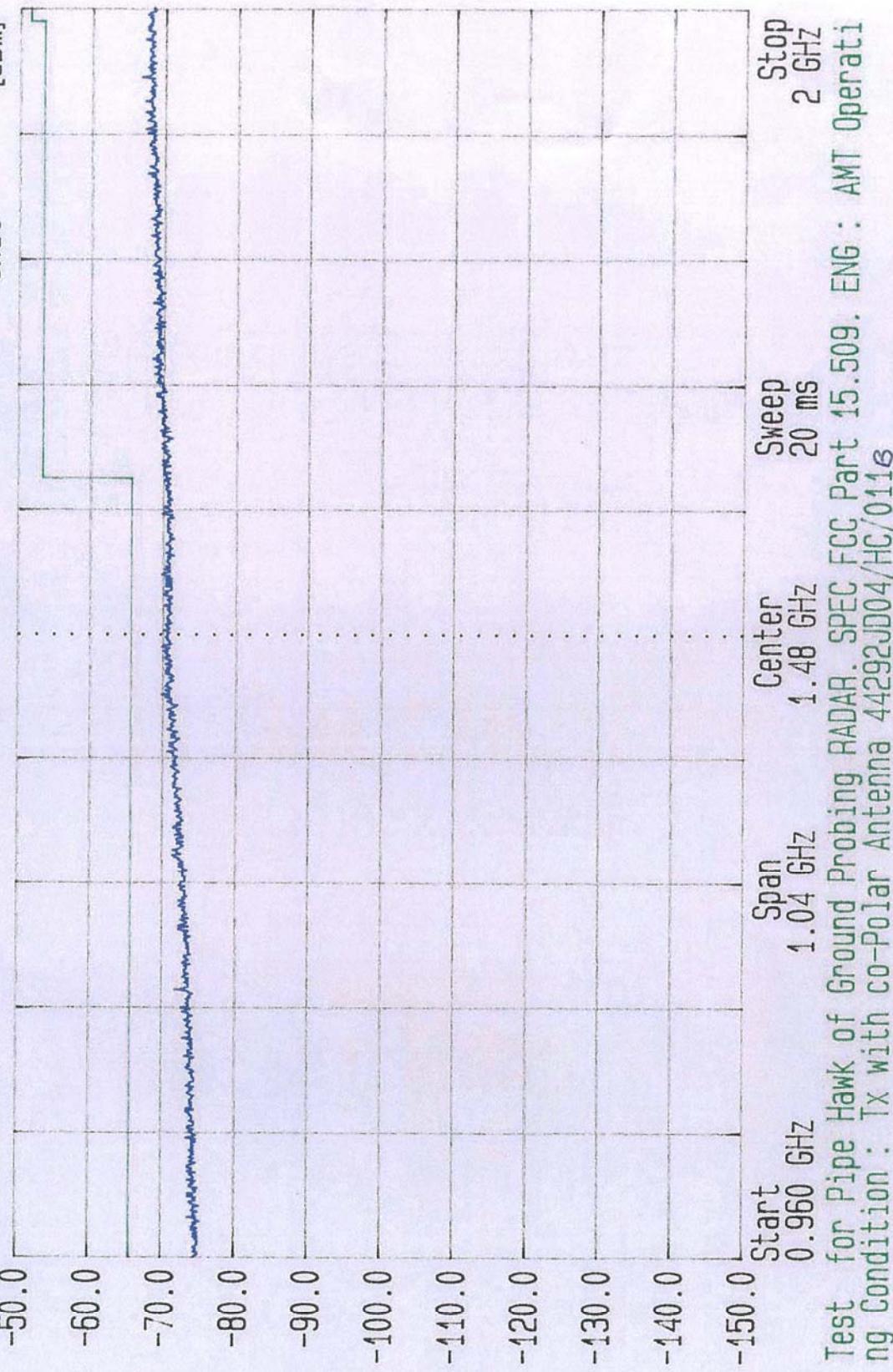


LVLOFF Date 14 April 2003 Time 09:51:26

Ref. LV1

-50.00 dBm

Res. BW 1.0 MHz [3dB] Vid. BW 3 MHz  
TG. LV1 off 104.000 MHz RF Att 0 dB  
CF. Stp Unit [dBm]

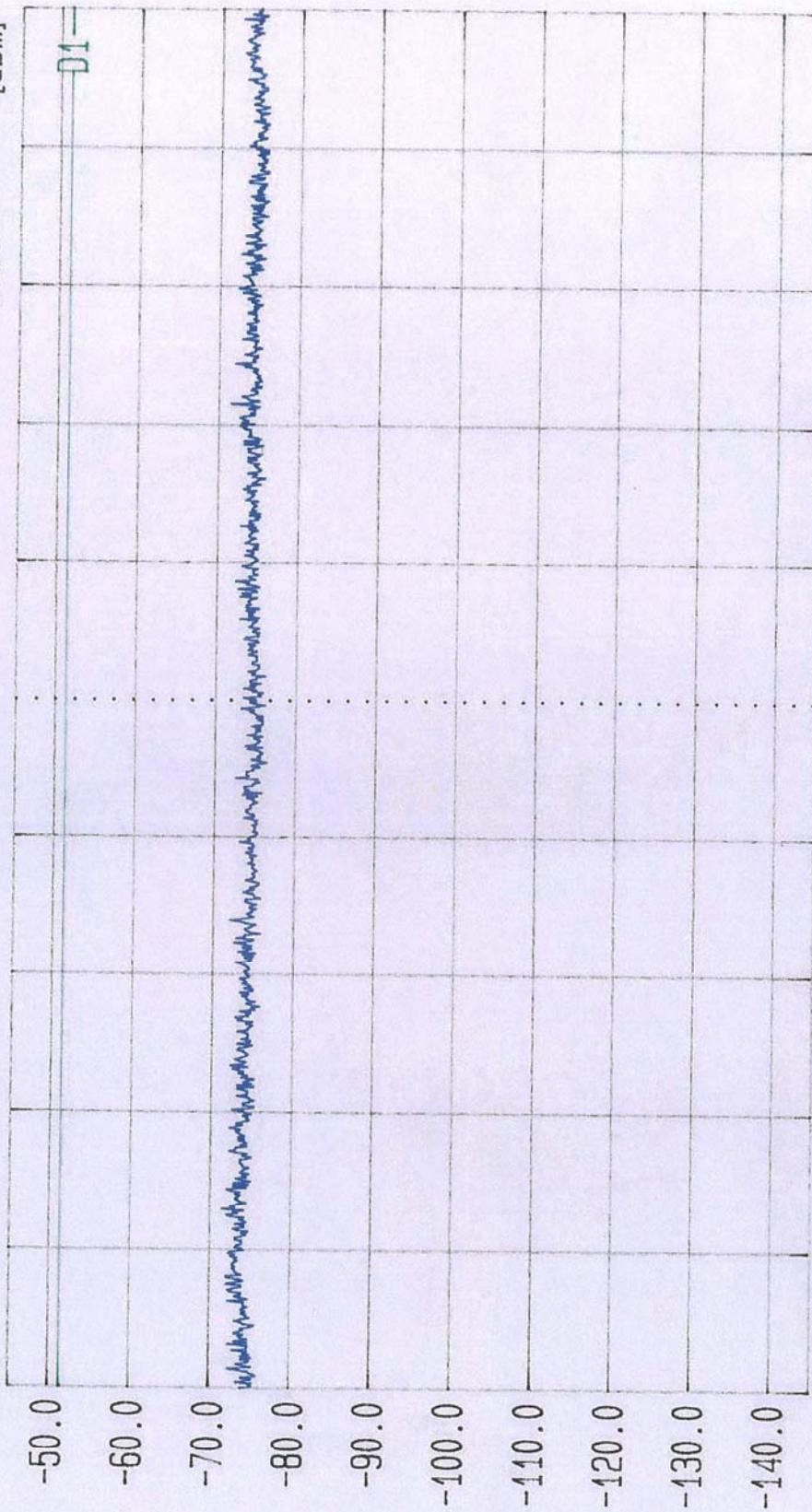




LV1 OFF  
Date 14 April 2003 Time 07: 32: 17

Ref. LV1  
-45.00 dBm

Res. Bw 1 MHz [imp] 3 MHz  
TG. LV1 off 0 dB  
CF. Stp 200.000 MHz 0 dB  
Unit [dBm]



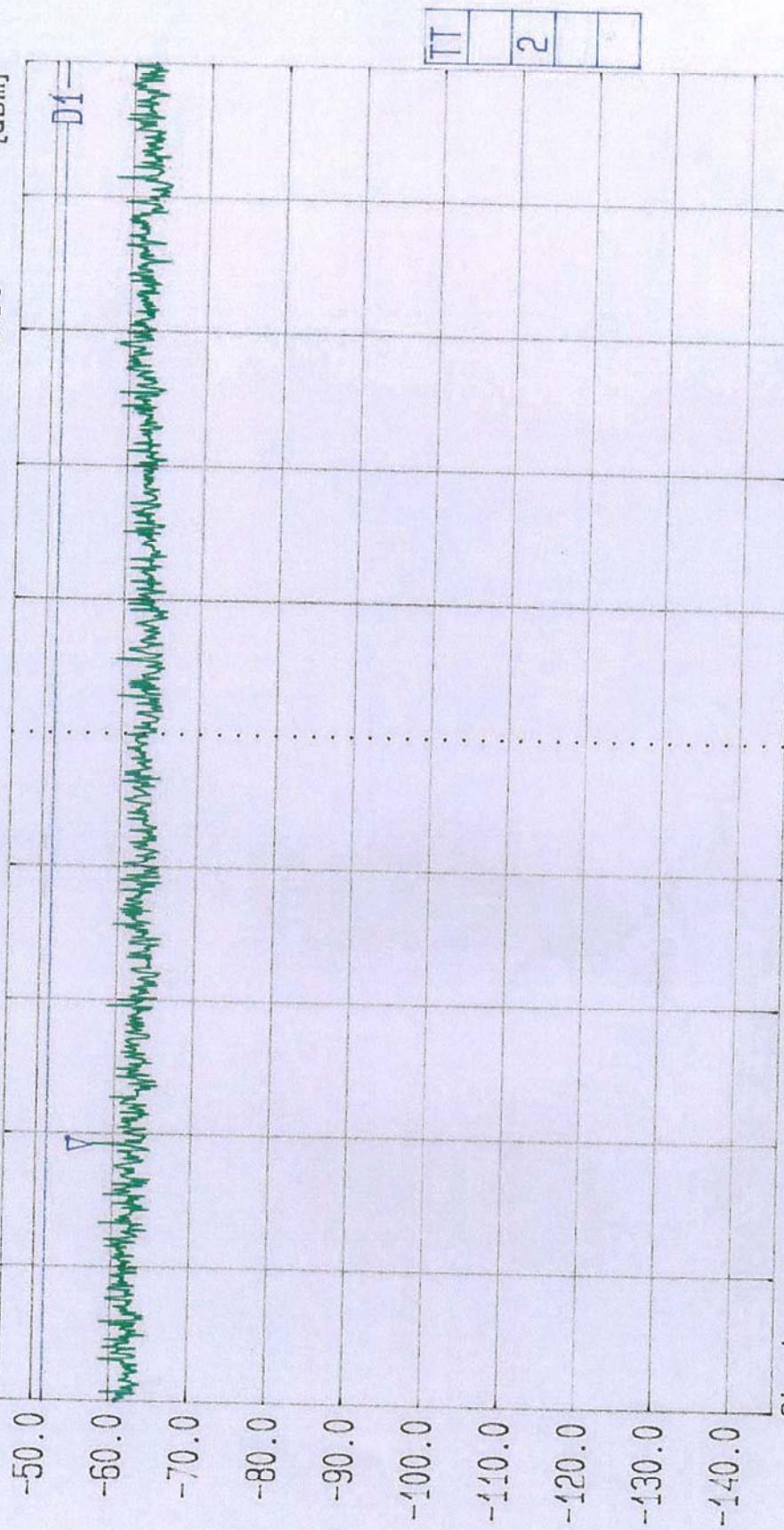
Test for Pipe Hawk of Ground Probing RADAR. SPEC : FCC Part 15.509. ENG : AMT Operat  
ing Condition : Tx with Co-Polar Antenna 44292JD04/HC/005



VI OFF

Date Ref. L  
-46.0

1 VI OFF  
 Date 14 April 2003 Time 06:35:08  
 Ref. LV1 Marker -57.27 dBm  
 -46.00 dBm  
 Res.Bw 1.0 MHz [3dB] Vid.Bw 3 MHz  
 Cf. Stp 200.000 MHz RF Att 5 dB  
 Unit [dBm]



TEST FOR PIPEHAWK OF GROUND PROBING RADAR.  
TX CO POLAR ANTENNA 44292 JD04/HC/013  
Start 4 GHz Span 2 GHz Center 5 GHz Sweep 20 ms Stop 6 GHz  
SPEC FCC PART 15.509. ENG: JPH 00PCOND:



LYLOFF

Date 14 April 2003

Res.BW 1.0 MHz [3dB]

Vid.BW 3 MHz

Marker

CF.Stp -56.10 dBm

RF.Att 200.000 MHz

5 dB

Ref.[V1] 7.2955 GHz

Unit [dBm]

[dBm]

-46.00 dBm

-50.0

-60.0

-70.0

-80.0

-90.0

-100.0

-110.0

-120.0

-130.0

-140.0

D1-

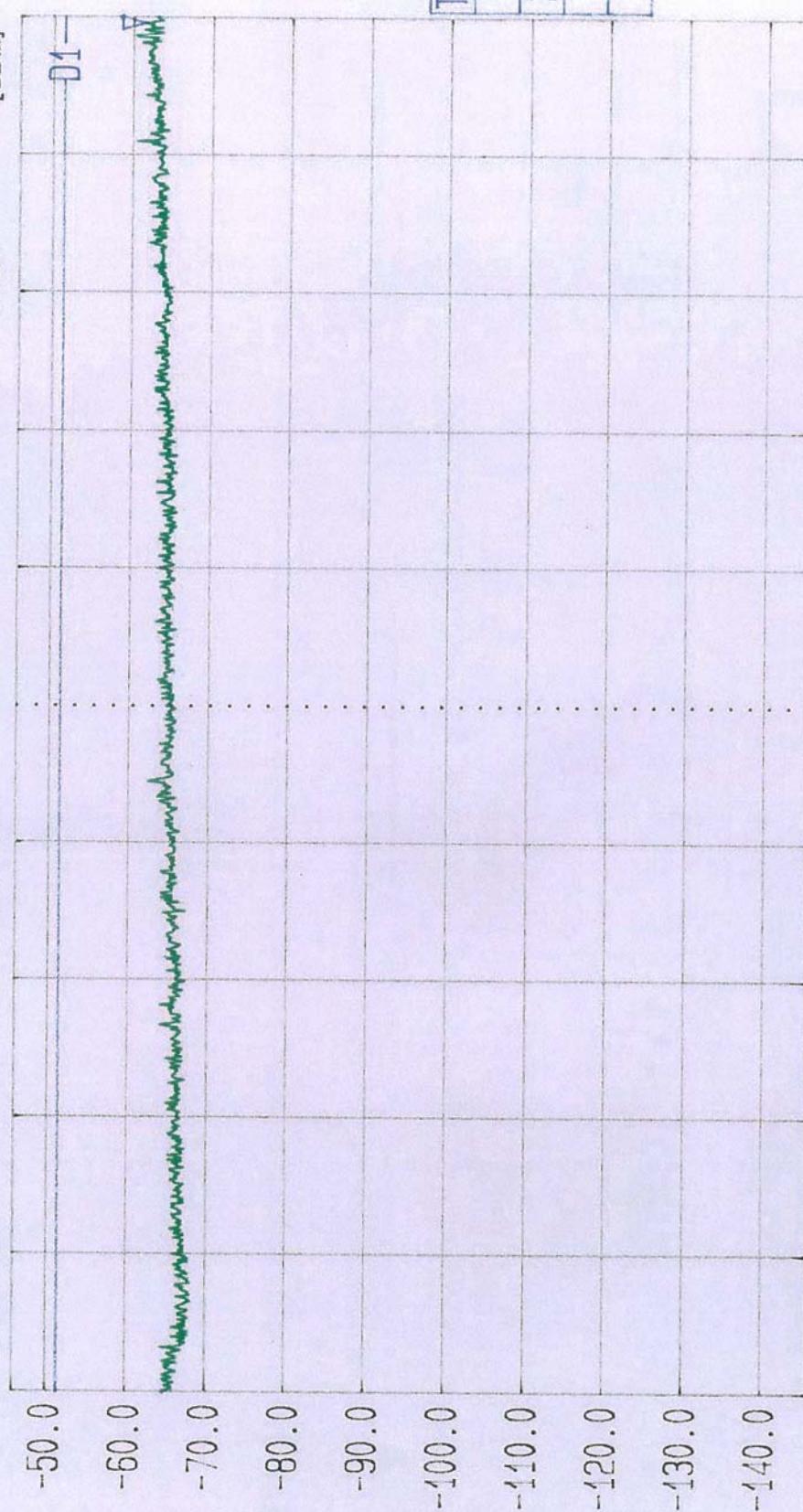
TT  
2Start 6 GHz  
Span 2 GHz  
Center 7 GHz  
Sweep 20 ms  
Stop 8 GHz  
TEST FOR PIPEHAWK OF GROUND PROBING RADAR. SPEC FCC PART 15.509. ENG: JPH 00PCOND.  
TX CO POLAR ANTENNA 44292 JD04/HC/014



LVLOFF

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

Res. Bw 1.0 MHz [3dB] Vid. Bw 3 MHz  
CF. Stp 450.000 MHz RF Att 10 dB  
Unit [dBm]

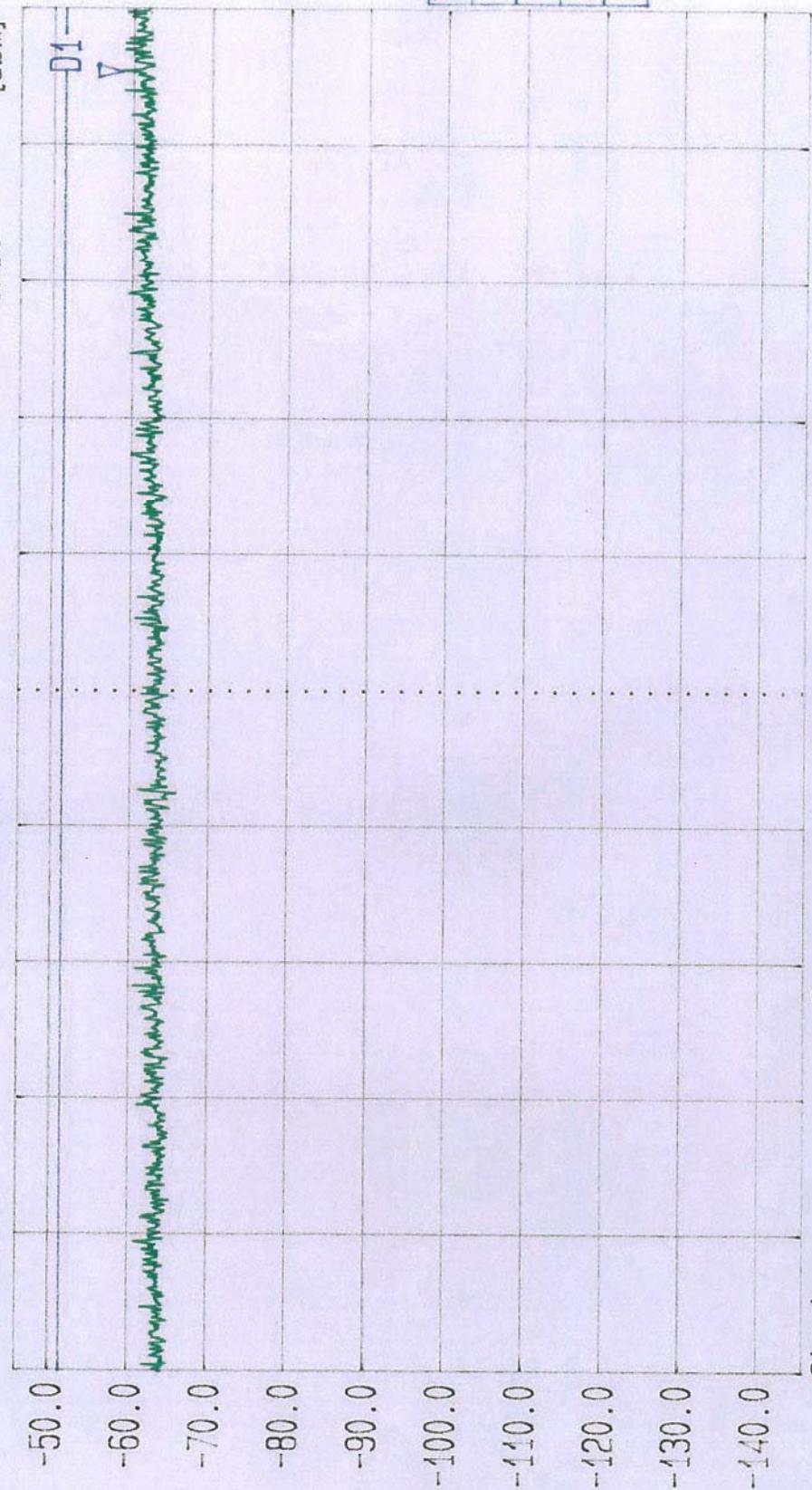


Start 8 GHz Span 4.5 GHz Center 10.25 GHz Sweep 20 ms Stop 12.5 GHz  
TEST FOR PIPEHAWK OF GROUND PROBING RADAR. SPEC FCC PART 15.509. ENG: JPH 00PCOND:  
TX CO POLAR ANTENNA 44292 JD04/HC/015



LVL0FF

Date 14 April 2003 Time 06:43:33  
Ref. LVL Marker -58.72 dBm  
-46.00 dBm 14.8861 GHz



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 CO POLAR ANTENNA 44292 JDO4/HC/016

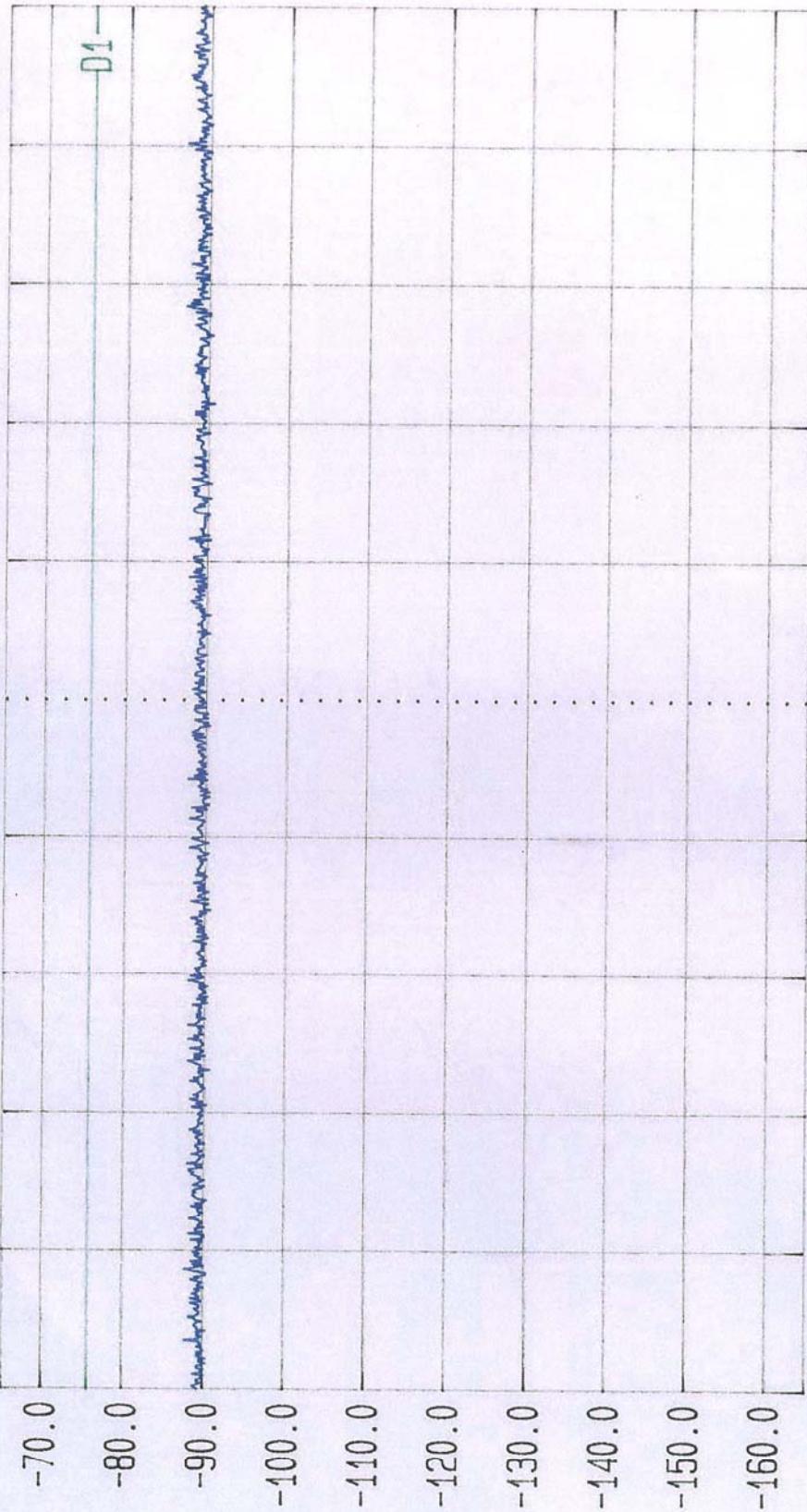


LVL OFF  
Date 14 April 2003 Time 07: 18: 56

Ref. LVL

-65.00 dBm

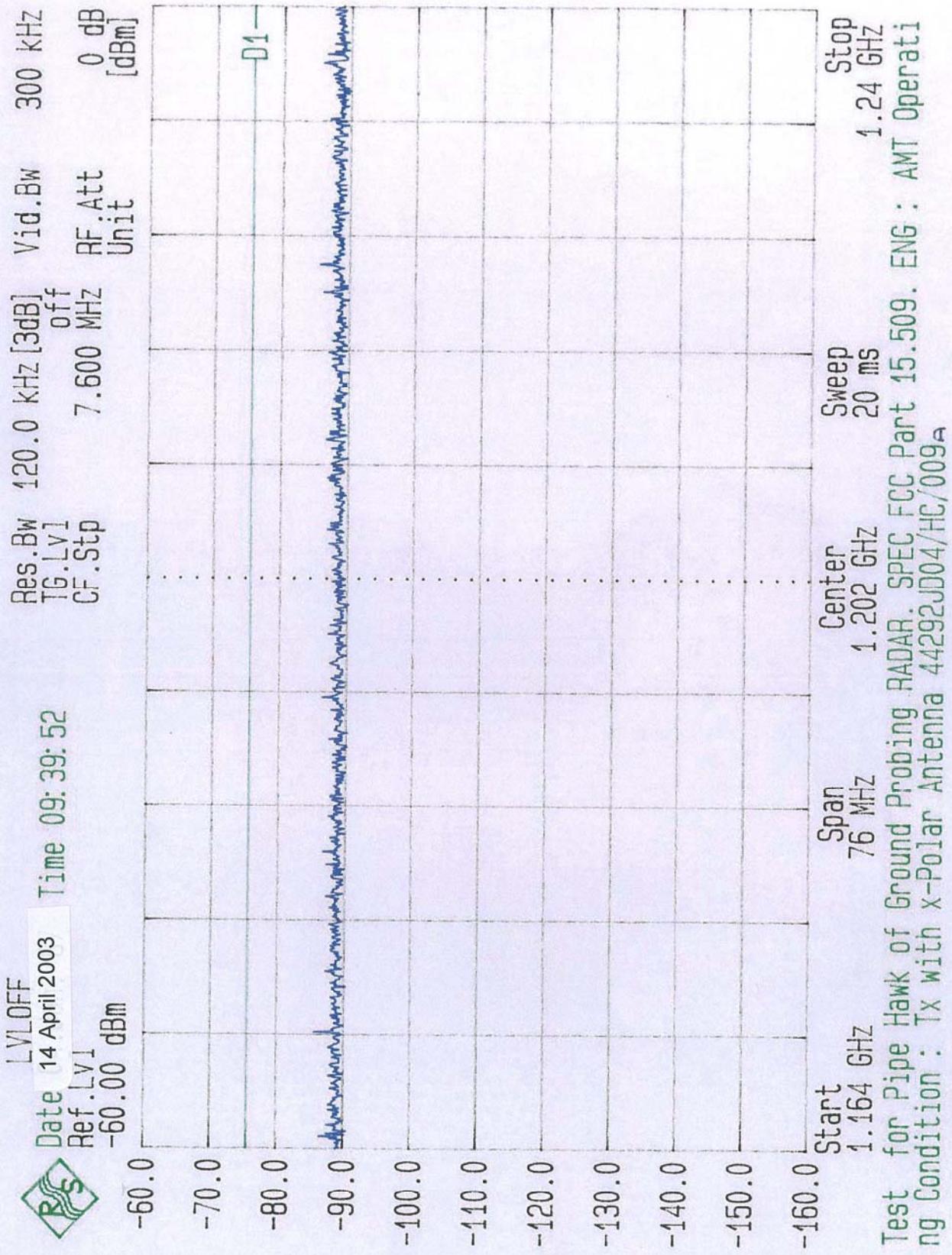
Res.BW 120 kHz [imp] Vid.BW 300 kHz  
TG.[Lv] off 0 dB  
CF.Stp 7.600 MHz RF.Att [dBm]



Start 1.164 GHz Center 1.202 GHz Sweep 40 ms Stop 1.24 GHz  
Span 76 MHz  
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



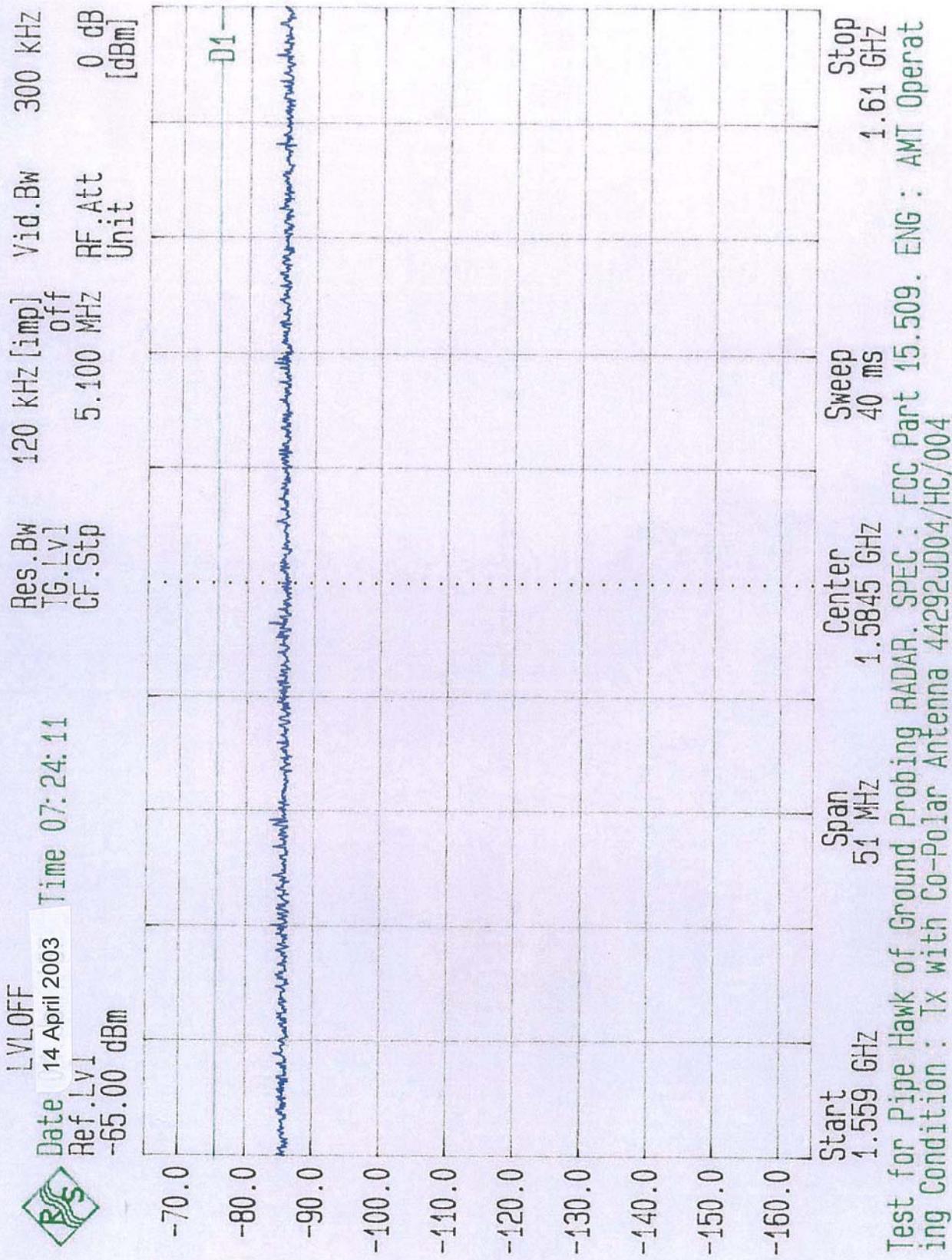
LVL OFF Date 14 April 2003 Time 09: 39: 52





LV OFF  
Date 14 April 2003 Time 07: 24: 11

Ref. LV1  
-65.00 dBm



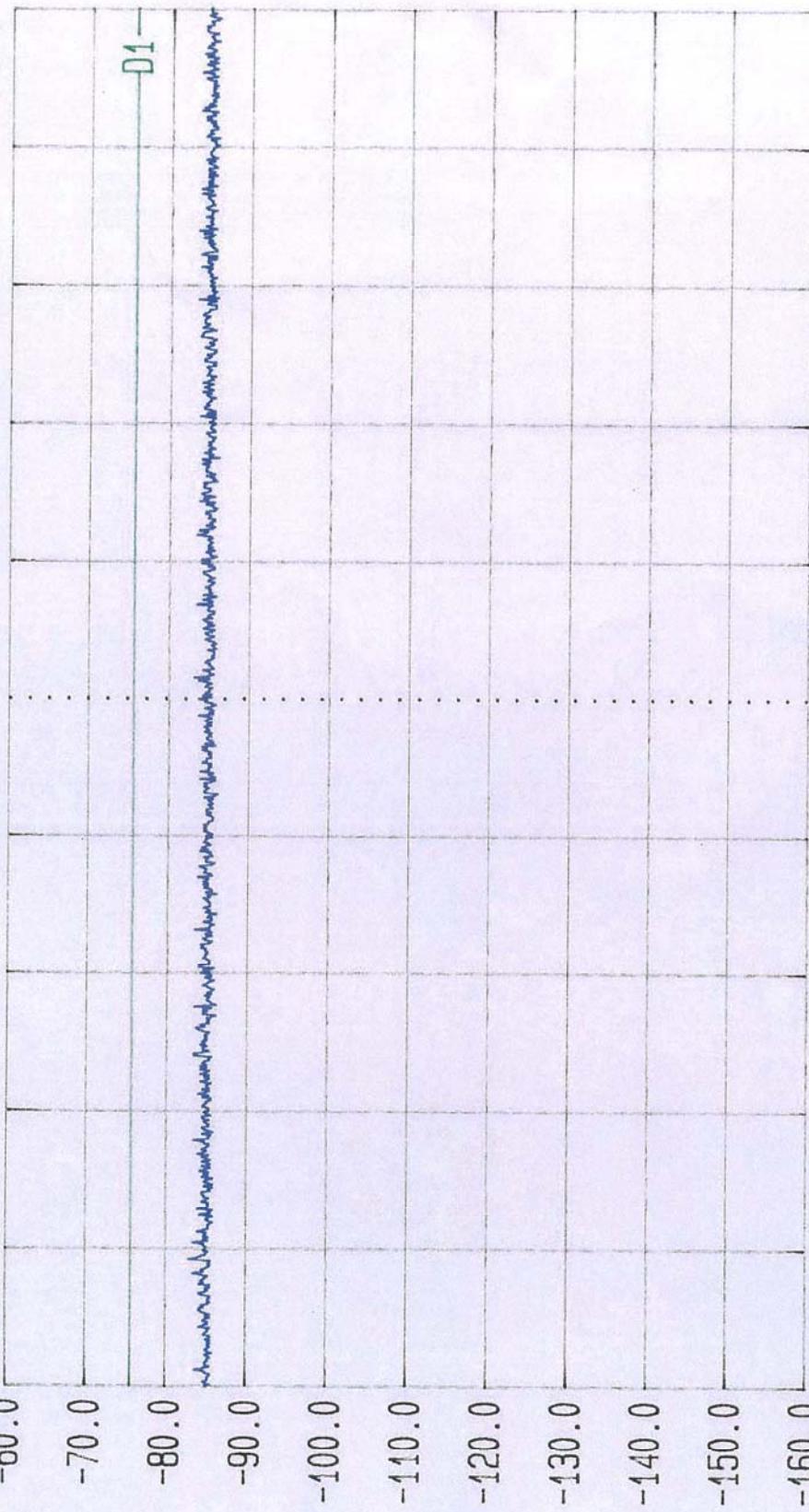


LVL OFF  
Date 14 April 2003

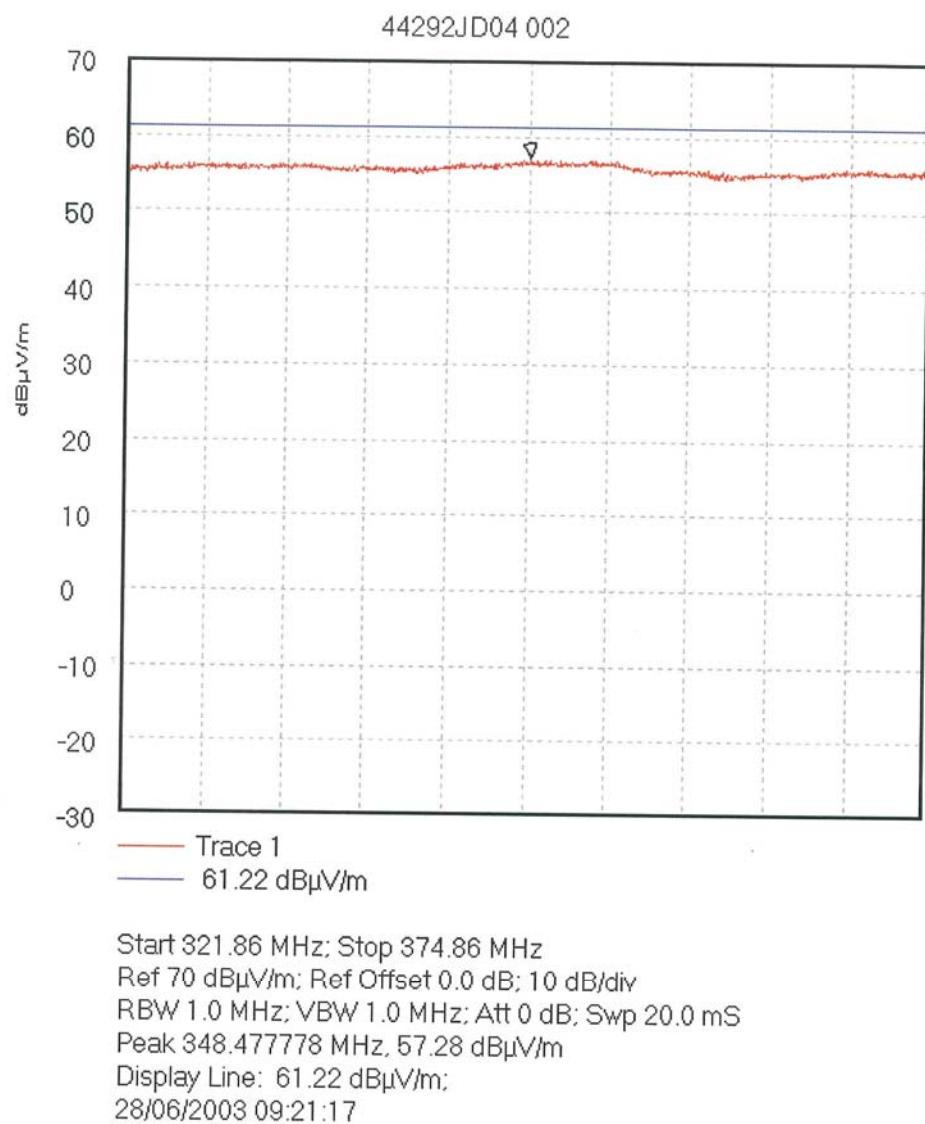
Ref. LV1

-60.00 dBm

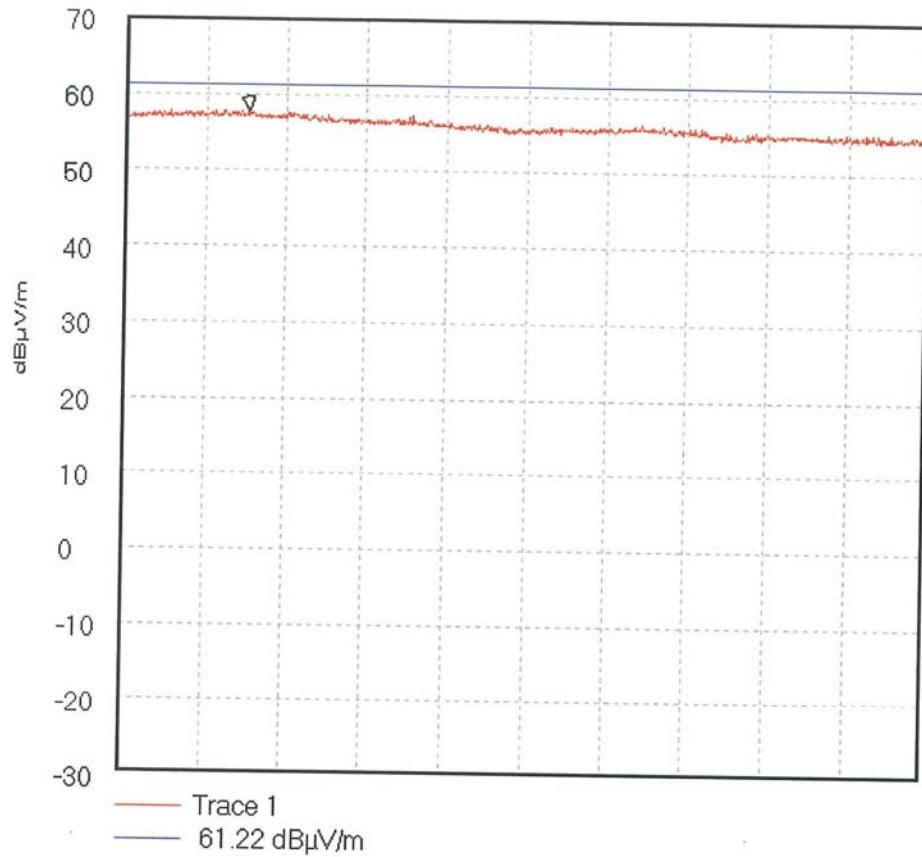
Res.BW 120.0 kHz [3dB]  
TG.[LV] 0ff  
CF.Stp 5.100 MHz  
Vid.BW 300 kHz  
0 dB  
[dBm]



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



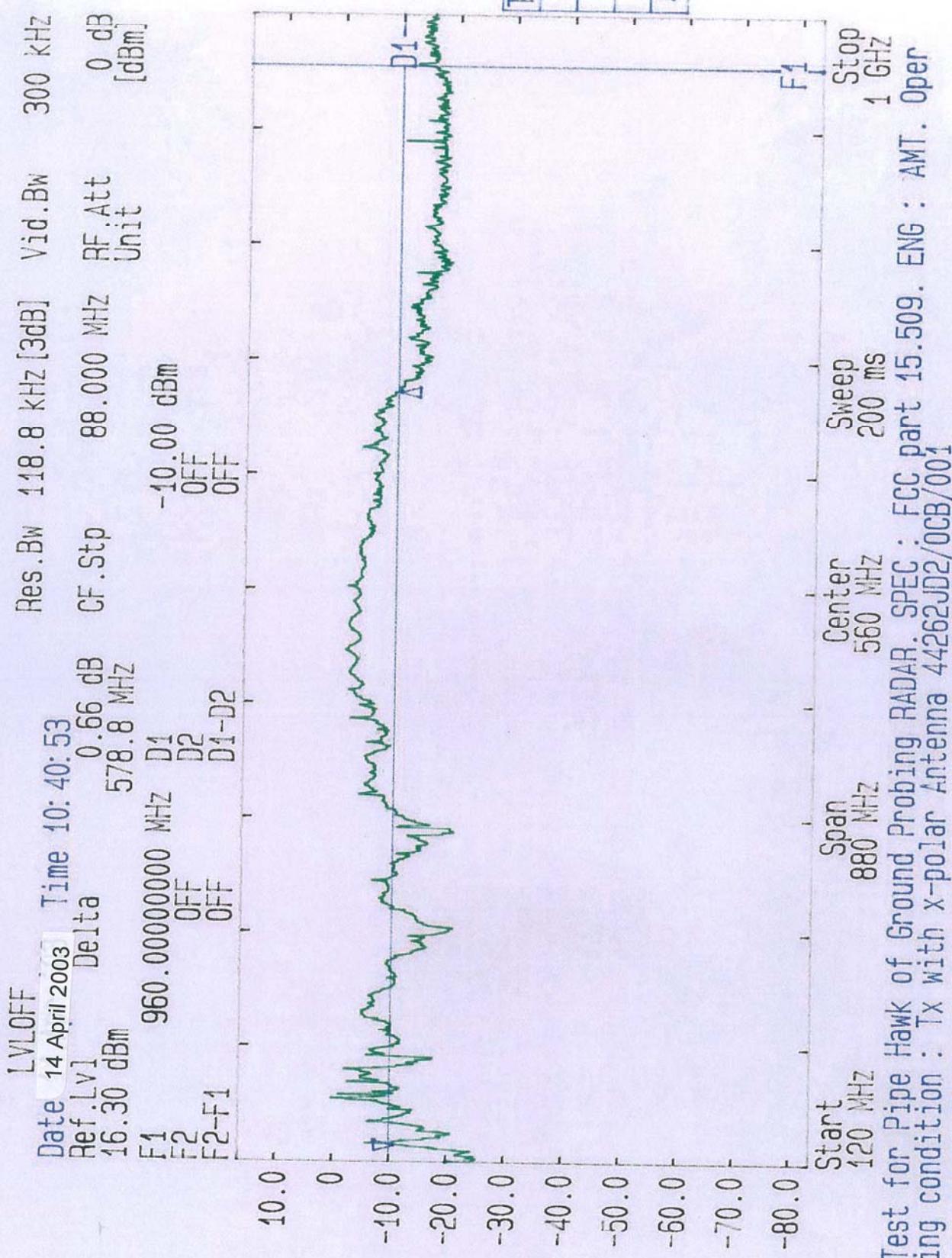
44292JD04 001



Start 500.0 MHz; Stop 555.91 MHz  
Ref 70 dB $\mu$ 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 dB $\mu$ V/m  
Display Line: 61.22 dB $\mu$ V/m;  
28/06/2003 09:16:59

Date 14 April 2003 Time 10: 40: 53  
 Ref. Lv1 Delta 0.66 dB  
 16.30 dBm 578.8 MHz  
 F1 960.0000000 MHz D1  
 F2 OFF D2  
 F2-F1 OFF D1-D2

LVL OFF



LVLOFF

Date 14 April 2003

Ref. LV1 Time 10:50:00

Delta -0.05 dB

13.00 dBm

579.8 MHz

960.0000000 MHz

Res.Bw 118.8 kHz [3dB]

CF.Stp 88.000 MHz

RF.Att 0 dB

RF.Unit [dBm]

F1 D1

F2 D2

F2-F1 D1-D2

10.0

0

-10.0

-20.0

-30.0

-40.0

-50.0

-60.0

-70.0

-80.0

CF.Stp

88.000 MHz

RF.Att

0 dB

RF.Unit

[dBm]

-13.30 dBm

OFF

CF.Stp

88.000 MHz

RF.Att

0 dB

RF.Unit

[dBm]

-13.30 dBm

OFF

CF.Stp

88.000 MHz

RF.Att

0 dB

RF.Unit

[dBm]

-13.30 dBm

OFF

CF.Stp

88.000 MHz

RF.Att

0 dB

RF.Unit

[dBm]

-13.30 dBm

OFF

CF.Stp

88.000 MHz

RF.Att

0 dB

RF.Unit

[dBm]

-13.30 dBm

OFF

CF.Stp

88.000 MHz

RF.Att

0 dB

RF.Unit

[dBm]

-13.30 dBm

OFF

CF.Stp

88.000 MHz

RF.Att

0 dB

RF.Unit

[dBm]

-13.30 dBm

OFF

CF.Stp

88.000 MHz

RF.Att

0 dB

RF.Unit

[dBm]

-13.30 dBm

OFF

CF.Stp

88.000 MHz

RF.Att

0 dB

RF.Unit

[dBm]

-13.30 dBm

OFF

CF.Stp

88.000 MHz

RF.Att

0 dB

RF.Unit

[dBm]

-13.30 dBm

OFF

CF.Stp

88.000 MHz

RF.Att

0 dB

RF.Unit

[dBm]

-13.30 dBm

OFF

CF.Stp

88.000 MHz

RF.Att

0 dB

RF.Unit

[dBm]

-13.30 dBm

OFF

CF.Stp

88.000 MHz

RF.Att

0 dB

RF.Unit

[dBm]

-13.30 dBm

OFF

CF.Stp

88.000 MHz

RF.Att

0 dB

RF.Unit

[dBm]

-13.30 dBm

OFF

CF.Stp

88.000 MHz

RF.Att

0 dB

RF.Unit

[dBm]

-13.30 dBm

OFF

OFF

OFF

OFF

OFF

OFF

OFF

OFF

OFF