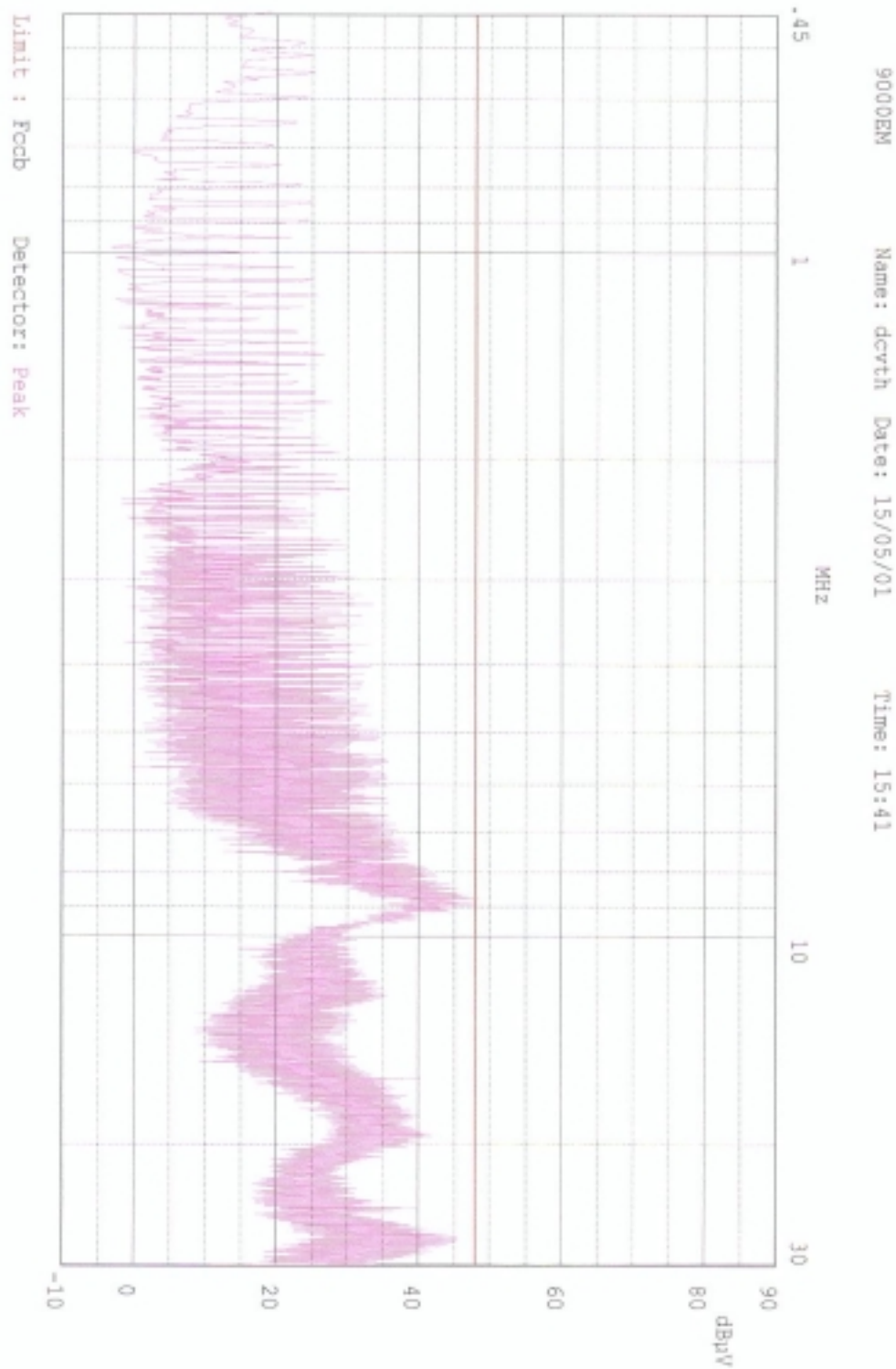


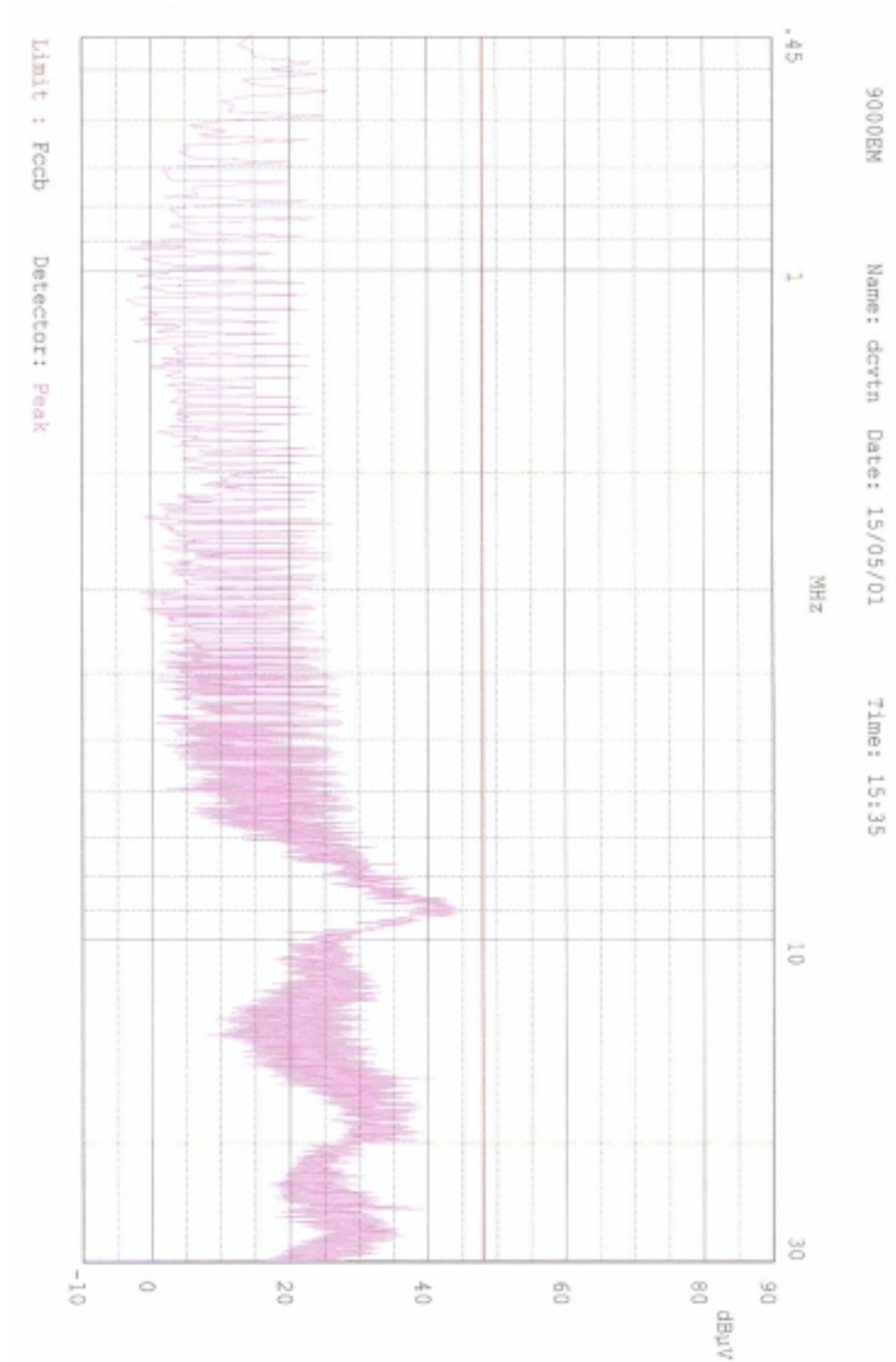
PLOTS OF EMISSIONS

- Conducted Emission at the Mains port(Line)



PLOTS OF EMISSIONS

- Conducted Emission at the Mains port(Neutral)

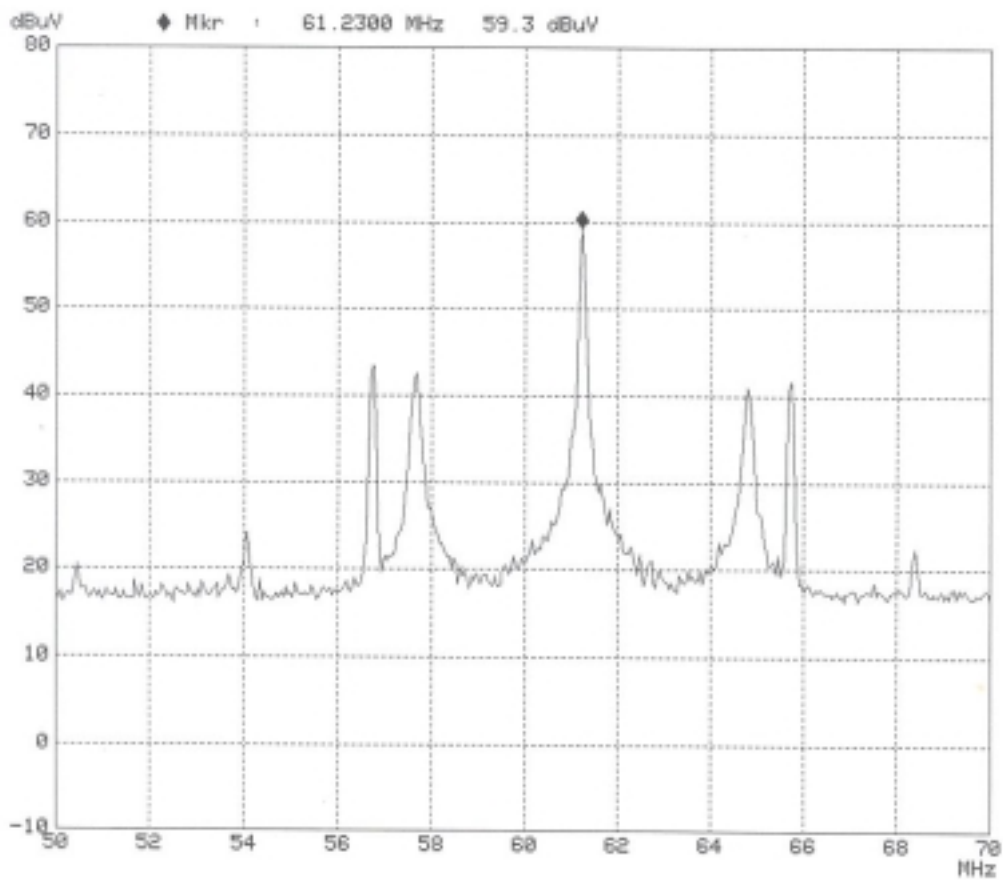


PLOTS OF EMISSIONS

- **Output-Conducted Level Measurements(Channel 3)**

```
Scan Settings (1 Range)
|----- Frequencies -----|----- Receiver Settings -----|
  Start      Stop      Step      IF BW  Detector  M-Time  Atten  Preamp
   50M       70M       5k       120k    PK       1ms    10dBLN  OFF

Final Measurement: x Hor-Max / + Vert-Max
                   Meas Time: 1 s
                   Subranges: 8
                   Acc Margin: 40dB
```



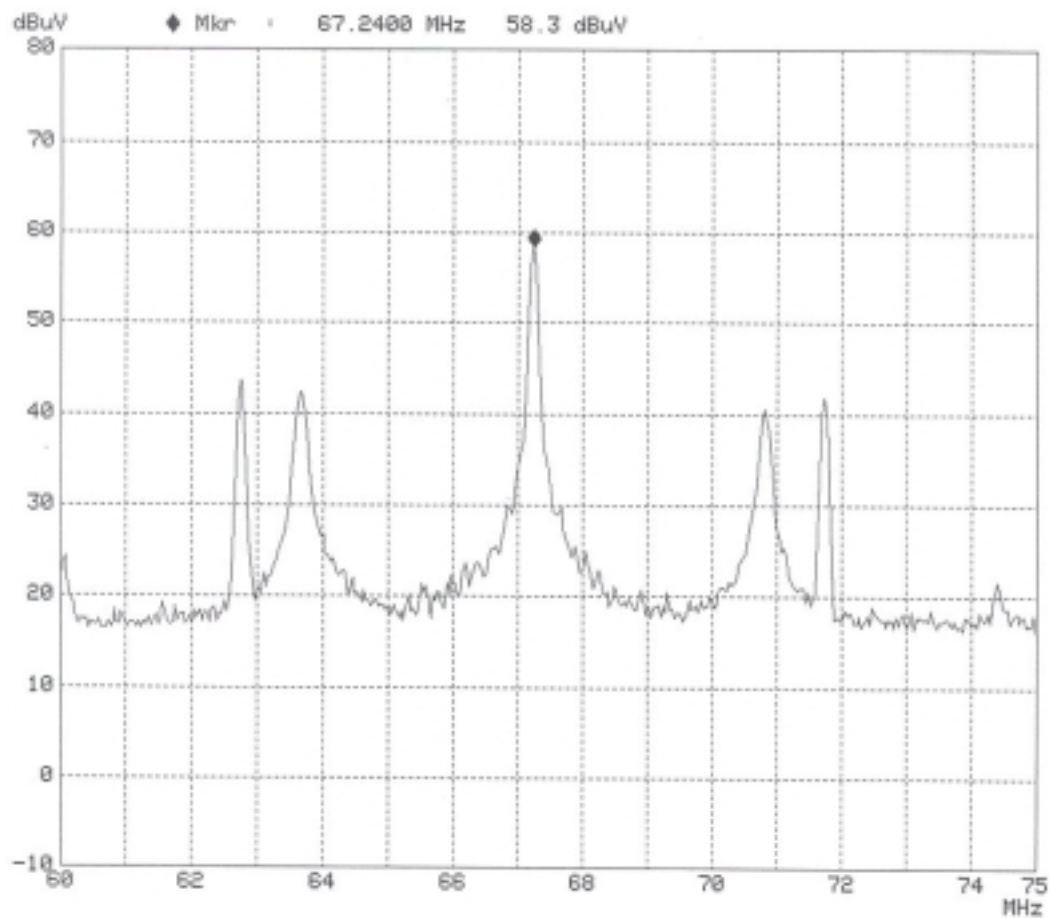
PLOTS OF EMISSIONS

- **Output-Conducted Level Measurements(Channel 4)**

Scan Settings (1 Range)

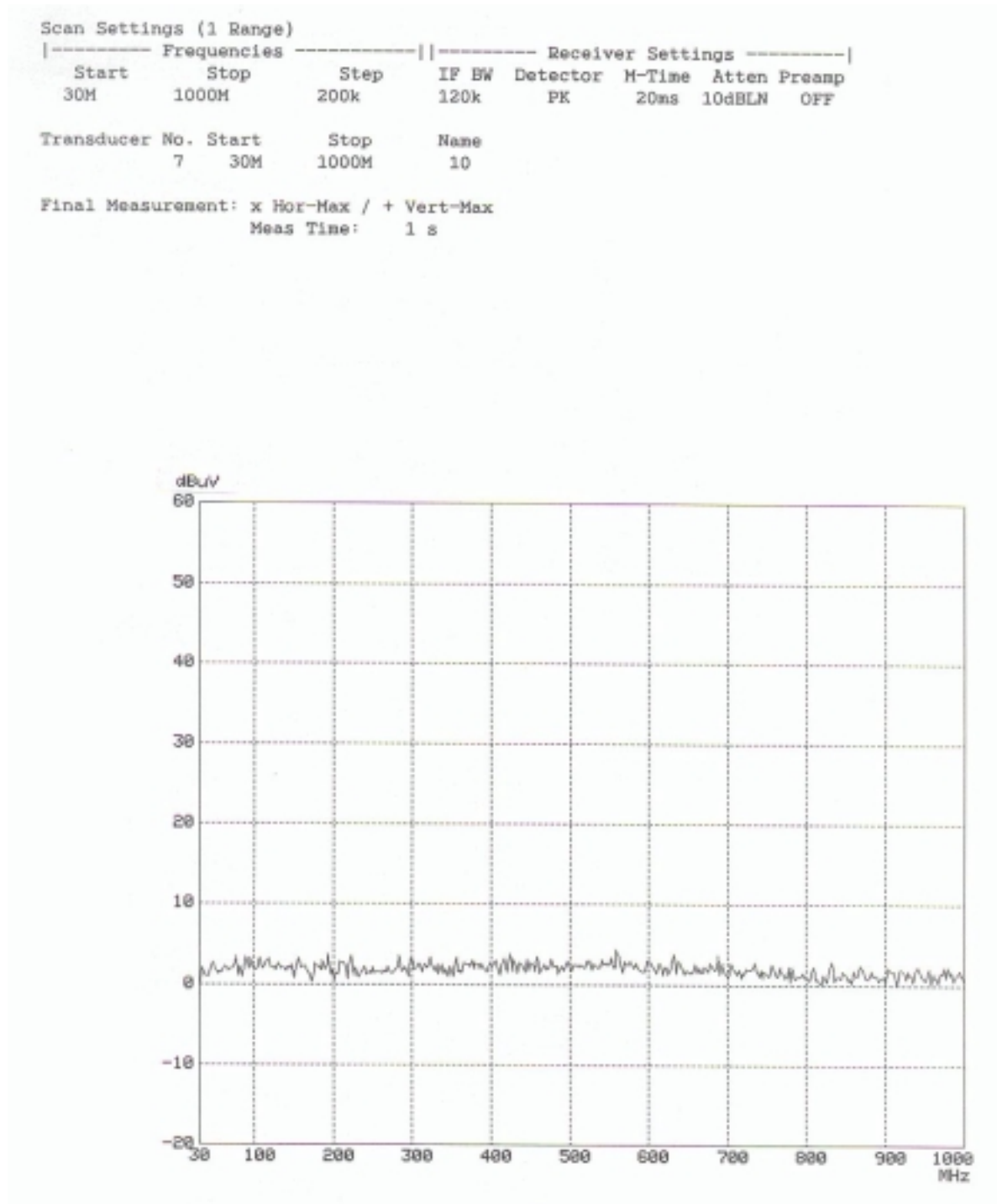
----- Frequencies -----			----- Receiver Settings -----				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
60M	75M	5k	120k	PK	1ms	10dBLN	OFF

Final Measurement: x Hor-Max / + Vert-Max
Meas Time: 1 s
Subranges: 8
Acc Margin: 40dB



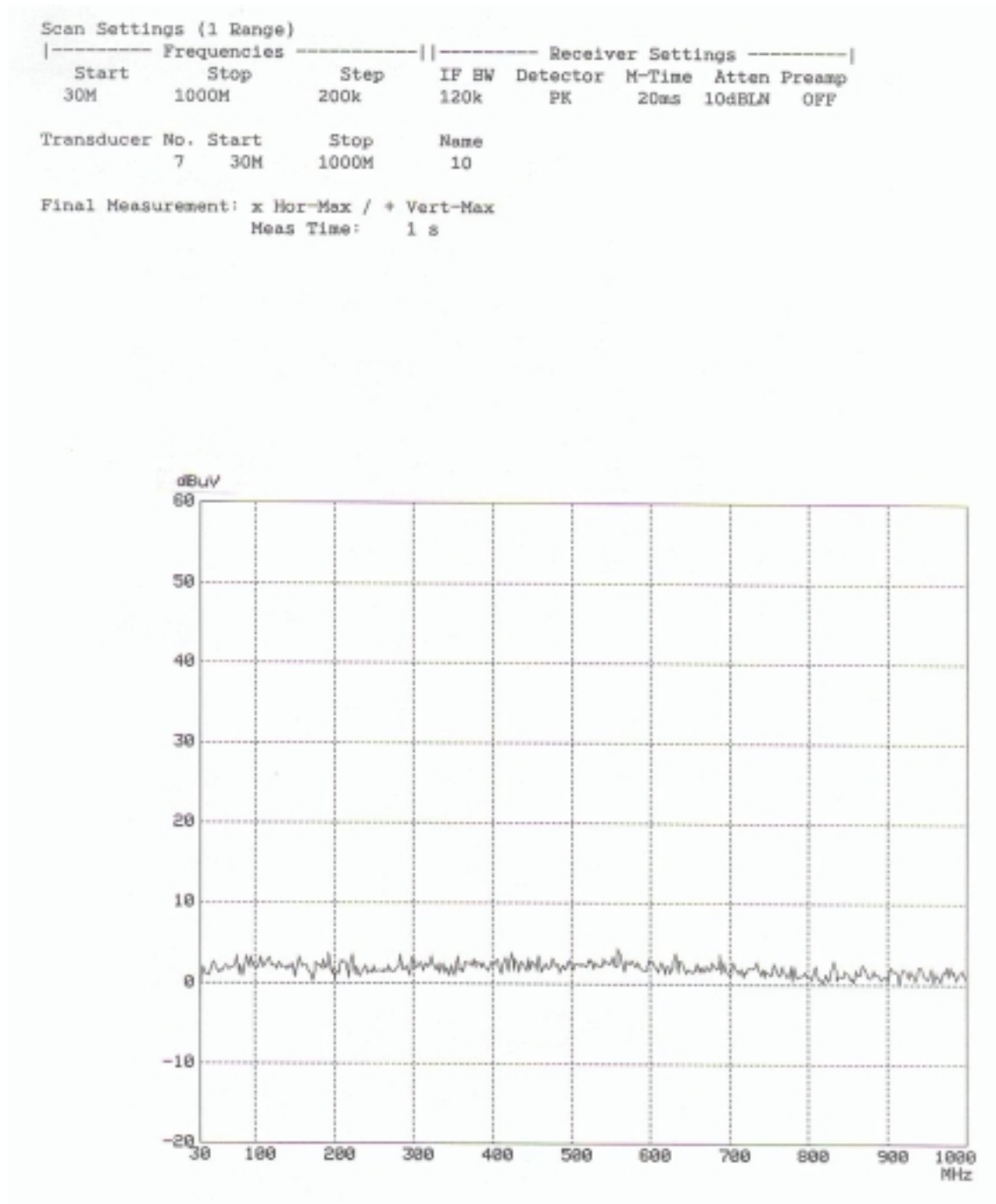
PLOTS OF EMISSIONS

- Antenna Transfer Switch Measurement(Channel 3)



PLOTS OF EMISSIONS

- Antenna Transfer Switch Measurement(Channel 4)



SAMPLE CALCULATIONS

$$\text{dB } \mu\text{V} = 20 \log_{10} (\mu\text{V}/\text{m})$$

$$\mu\text{V} = 10^{(\text{dB } \mu\text{V}/20)}$$

EX. 1.

@20.3 MHz

Class B limit = 250 μV = 48.0 dB μV

Reading = 40.8 dB μV (calibrated level)

$$10^{(40.8/20)} = 109.64 \mu\text{V}$$

$$\text{Margin} = 48.0 - 40.8 = 7.2$$

7.2 dB below limit

EX. 2.

@57.7 MHz

Class B limit = 100 $\mu\text{V}/\text{m}$ = 40.0 dB $\mu\text{V}/\text{m}$

Reading = 19.1 dB μV (calibrated level)

Antenna factor + Cable Loss = 10.12 dB

Total = 29.22 dB $\mu\text{V}/\text{m}$

$$\text{Margin} = 40.0 - 29.22 = 10.78$$

10.78 dB below the limit

EX. 3.

@98.20 MHz

Class B limit = 2 nW = 50.0 dB μV

Reading = 19.1 dB μV (calibrated level)

Impedance matching Network Loss = 7.5 dB

Total = 26.6 dB μV

$$\text{Margin} = 50.0 - 26.6 = 23.4$$

23.4 dB below the limit

ACCURACY OF MEASUREMENT

The Measurement Uncertainties stated were calculated in accordance with the requirements of NIST Technical Note 1297 with the confidence level of 95%

1. Radiation Uncertainty Calculation

<i>Contribution</i>	<i>Probability Distribution</i>	<i>Uncertainty(+/-dB)</i>
Antenna Factor	Normal (k=2)	± 0.5
Cable Loss	Normal (k=2)	± 0.04
Receiver Specification	Rectangular	± 2.0
Antenna directivity	Rectangular	± 1.0
Antenna Factor variation with Height		
Antenna Phase Center Variation		
Antenna Factor Frequency Interpolation		
Measurement Distance Variation		
Site Imperfections	Rectangular	± 2.0
Mismatch:Receiver VRC $r_i=0.3$ Antenna VRC $r_R=0.1(B_i)0.4(L_p)$ Uncertainty Limits $20\log(1+/-r_i r_R)$	U-Shaped	$+ 0.25 / - 0.26$
System Repeatability	Std.deviation	± 0.05
Repeatability of EUT	-	-
Combined Standard Uncertainty	Normal	± 1.77
Expanded Uncertainty U	Normal (k=2)	± 3.5

2. Conducted Uncertainty Calculation

<i>Contribution</i>	<i>Probability Distribution</i>	<i>Uncertainty(+/-dB)</i>
Receiver Specification	Normal (k=2)	± 2.0
LISN coupling spec.	Normal (k=2)	± 0.4
Cable and input attenuator cal.	Rectangular	± 0.4
Mismatch:Receiver VRC $r_i=0.3$ LISN vrc $r_g=0.1$ Uncertainty Limits $20\log(1+/-r_i r_R)$	U-Shaped	± 0.26
System Repeatability	Std.deviation	± 0.68
Repeatability of EUT	-	-
Combined Standard Uncertainty	Normal	± 1.18
Expanded Uncertainty U	Normal (k=2)	± 2.4

TEST EQUIPMENT

No.	Instrument	Manufacturer	Model	Calibration Date
1	*Test Receiver	R & S	ESCS 30	2001.02
2	*Test Receiver	PMM	PMM9000	2001.04
3	*Amplifier	HP	8447F	2000.08
4	*Amplifier	HP	8447F	2000.08
5	Spectrum Analyzer	Advantest	R4136	2000.12
6	*Logbicon Super Antenna	Schwarzbeck	VULB9166	2001.02
7	Log-Periodic Antenna	R & S	HL025	2001.02
8	Dipole Antenna	R & S	VHA9103	2001.01
9	Dipole Antenna	R & S	UHA9105	2001.01
10	Biconical Antenna	Schwarzbeck	VHA9103	2001.01
11	Biconical Log Antenna	ARA	LPB-2520/A	2001.01
12	Absorbing Clamp	R & S	MDS21	2001.01
13	High Voltage Probe	R & S	ESH2-Z3	2001.02
14	Signal Generator	R & S	SMP02	2001.01
15	*Matching Pad	R & S	RAM358.5414.02	2001.05
16	*LISN	R & S	ESH3-Z5	2001.04
17	LISN	PMM	L3-9103	2001.04
18	*Position Controller	EM Eng.	N/A	N/A
19	*Turn Table	EM Eng.	N/A	N/A
20	*Antenna Mast	EM Eng.	N/A	N/A
21	*Anechoic Chamber	EM Eng.	N/A	N/A
22	*Shielded Room	EM Eng.	N/A	N/A

*) Test equipment used during the test

RECOMMENDATION/CONCLUSION

The data collected shows that the **Samsung Electro-Mechanics Co., Ltd.**

FCC ID : **E2XDCATV3000, Digital CATV Converter.** complies with § 15.107

15.109, 15.111 and 15.115 of the FCC Rules.

The highest emission observed was at **8.82 MHz** for conducted emissions with a margin of **3.0 dB**, at **513.00 MHz** for radiated emissions with a margin of **2.8 dB**, and at **61.00 MHz** for antenna-conducted power measurements with a margin of **20.5dB**, and at **61.23 MHz** for output-conducted level measurements with a margin of **5.6dB**.

APPENDIX A – SAMPLE LABEL

Labelling Requirements

The sample label shown shall be *permanently affixed* at a conspicuous location on the device and be readily visible to the user at the time of purchase.

FCC ID: E2XDCATV3000

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

● **FCC ID Location of EUT**



APPENDIX B – CIRCUIT DIAGRAM

APPENDIX E – USER’S MANUAL

APPENDIX F – Schematic Diagrams
