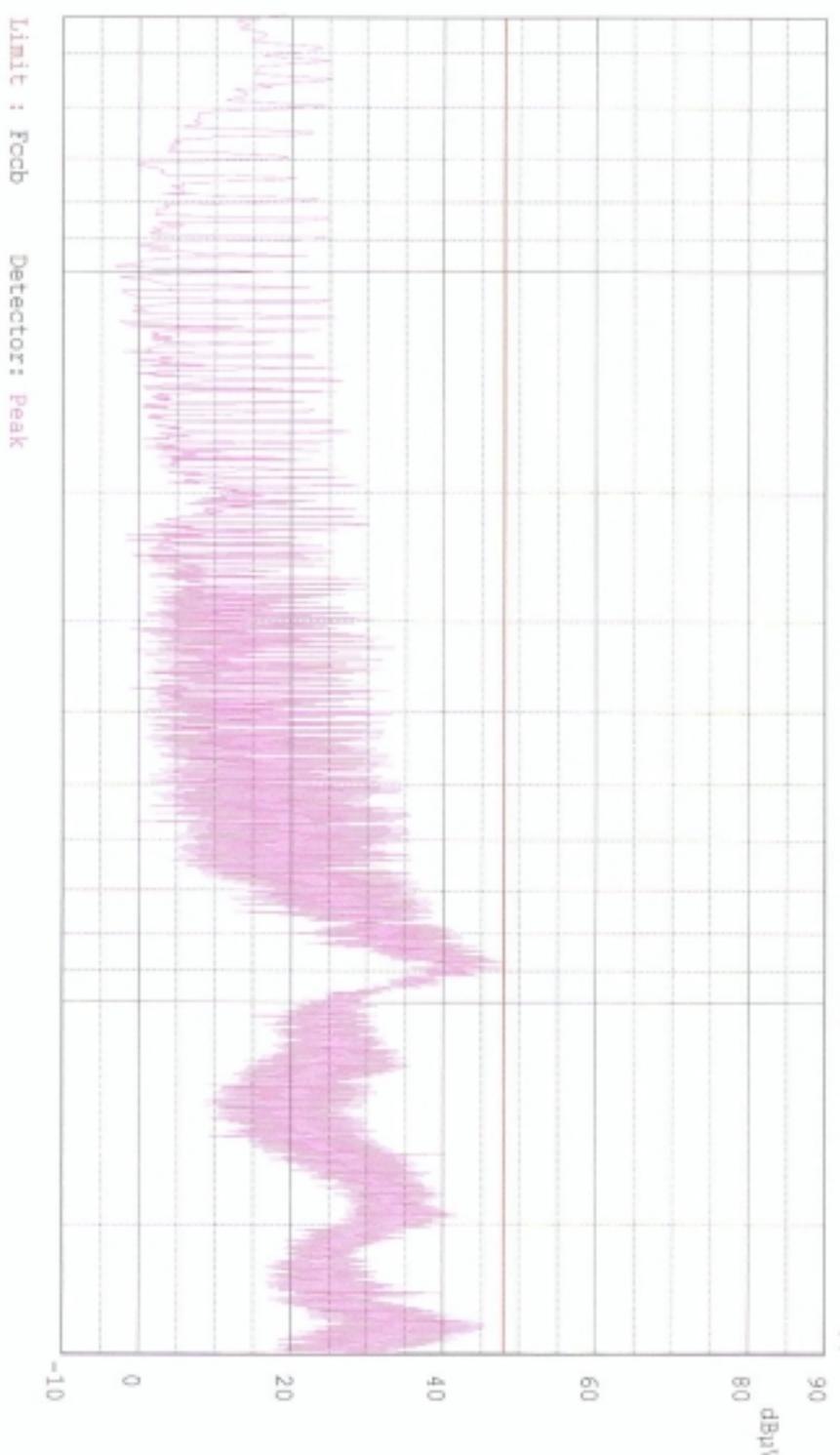


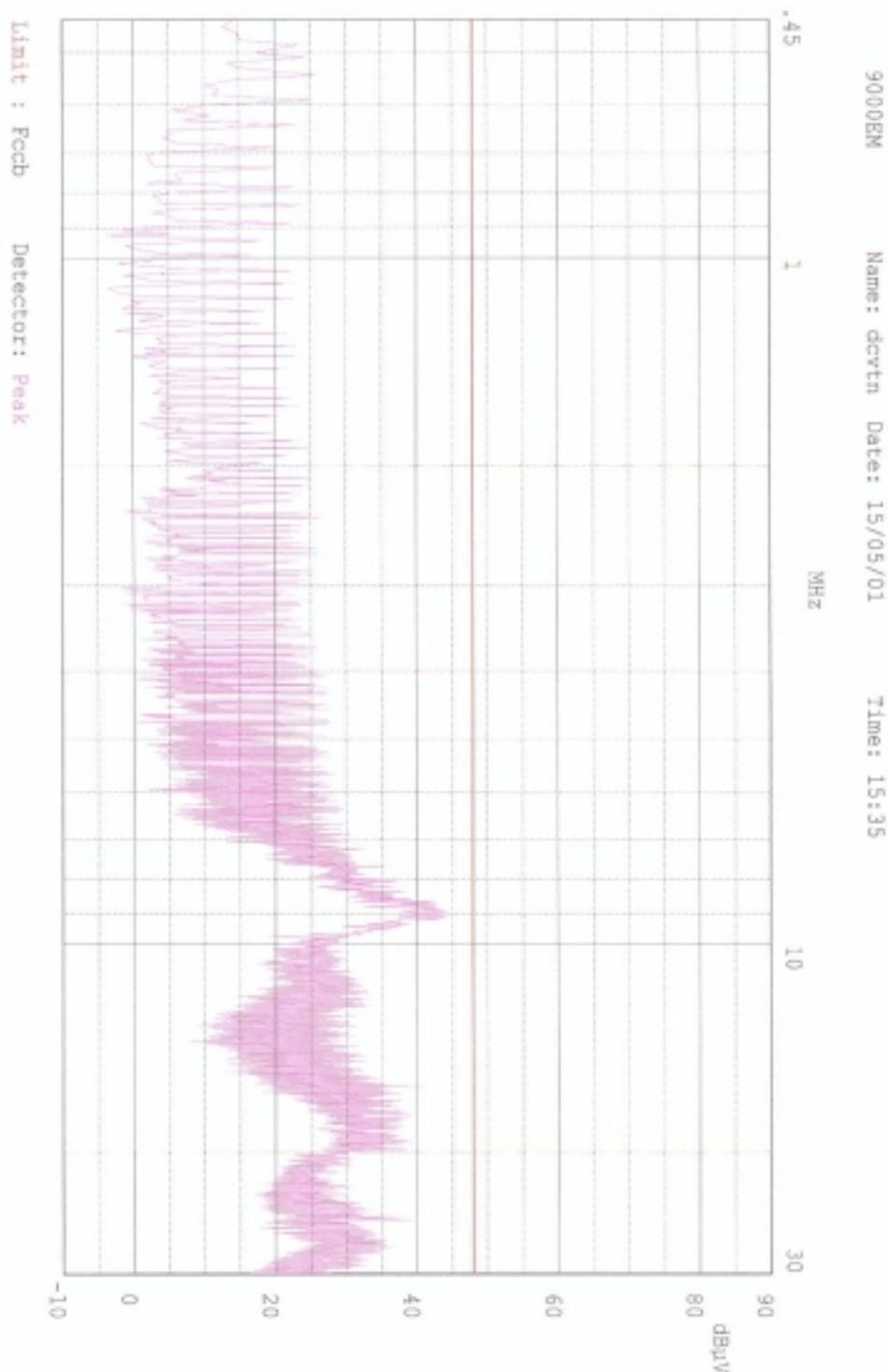
## PLOTS OF EMISSIONS

- **Conducted Emission at the Mains port(Line)**



## PLOTS OF EMISSIONS

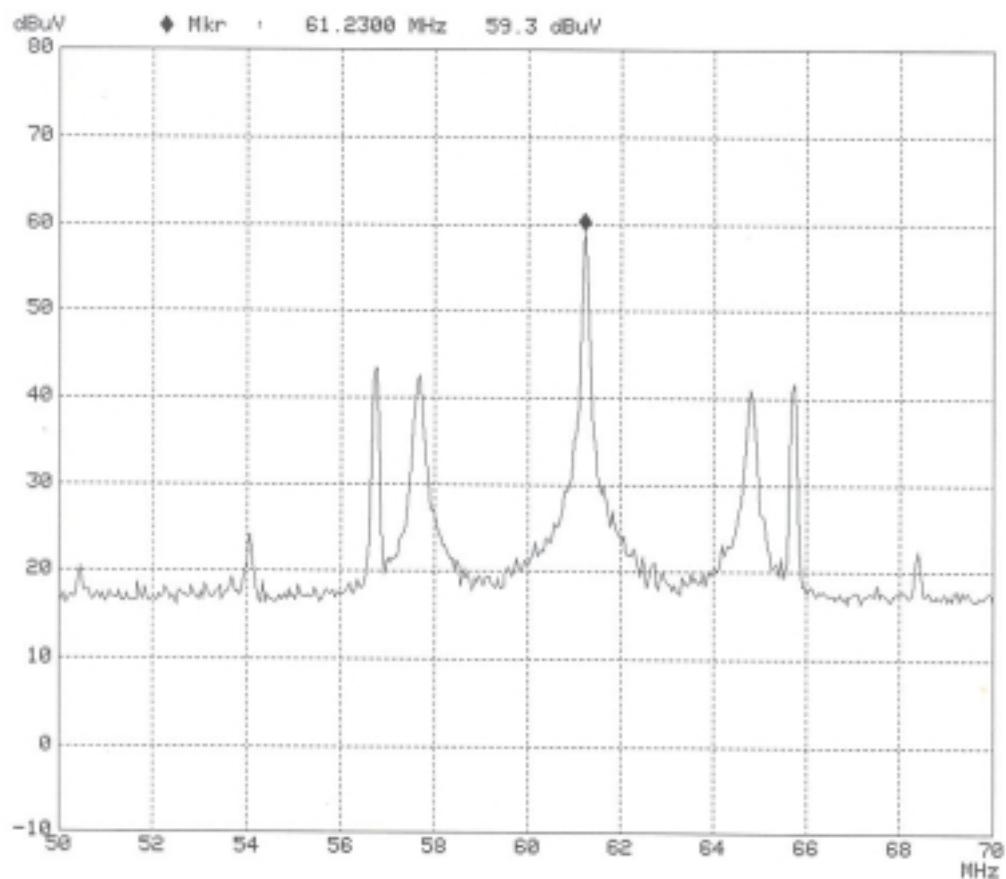
- **Conducted Emission at the Mains port(Neutral)**



## PLOTS OF EMISSIONS

- Output-Conducted Level Measurements(Channel 3)

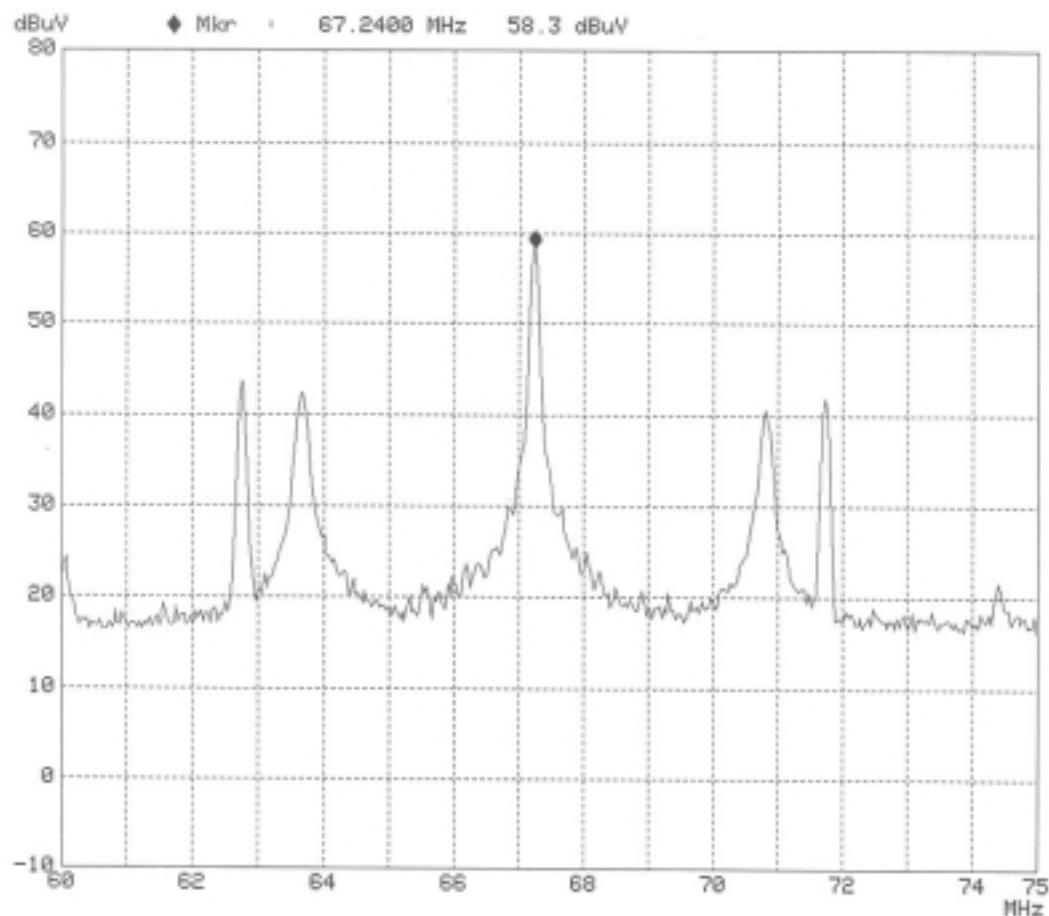
Scan Settings (1 Range)  
----- Frequencies ----- | ----- Receiver Settings -----|  
Start Stop Step IP BW Detector M-Time Atten Preampl  
50M 70M 5k 120k PK 1ms 10dBLN OFF  
  
Final Measurement: x Hor-Max / + Vert-Max  
Meas Time: 1 s  
Subranges: 8  
Acc Margin: 40dB



## PLOTS OF EMISSIONS

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

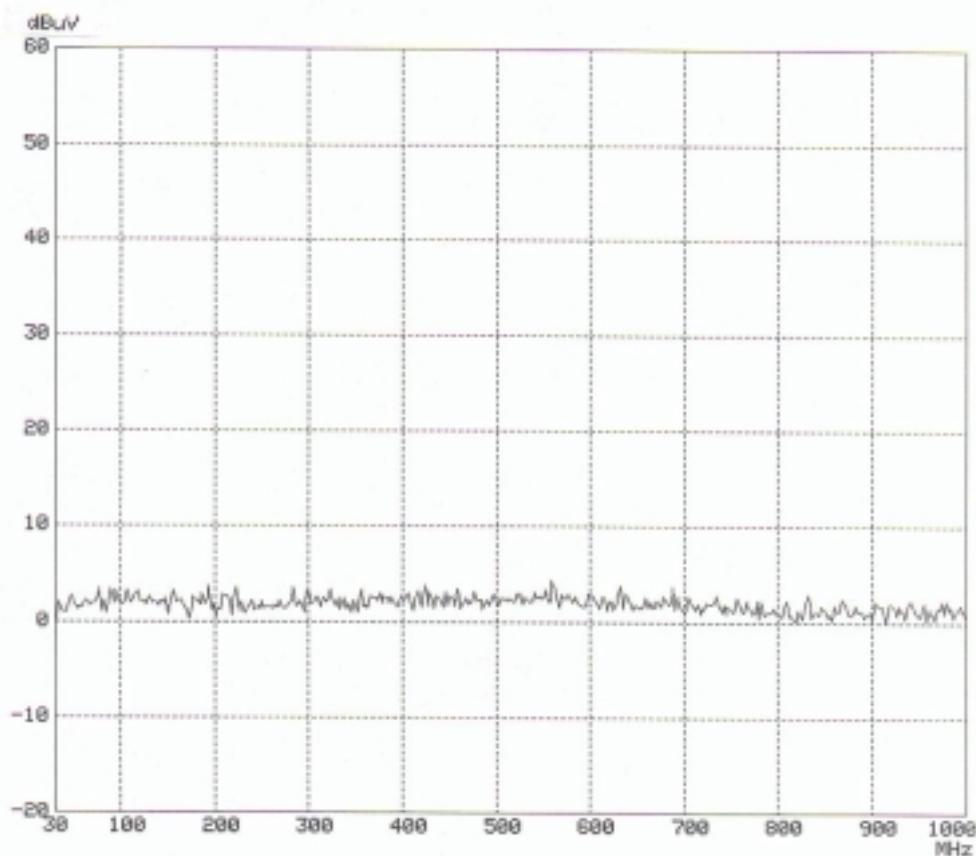
Scan Settings (1 Range)  
----- Frequencies -----|----- Receiver Settings -----|  
Start Stop Step IF BW Detector M-Time Atten Preamp  
60M 75M 5k 120k PK 1ms 10dBLN OFF  
  
Final Measurement: x Hor-Max / + Vert-Max  
Meas Time: 1 s  
Subranges: 8  
Acc Margin: 40dB



## PLOTS OF EMISSIONS

- Antenna Transfer Switch Measurement(Channel 3)

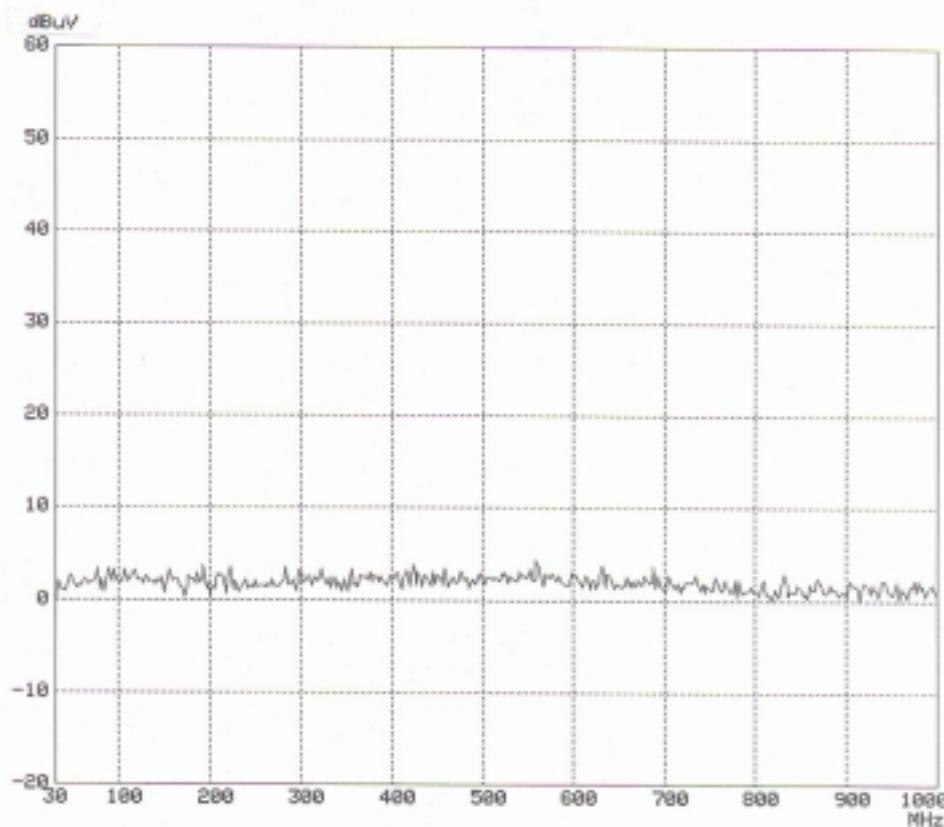
Scan Settings (1 Range)  
|----- Frequencies -----||----- Receiver Settings -----|  
Start Stop Step IF BW Detector H-Time Atten Preamp  
30M 1000M 200k 120k PK 20ms 10dBLN OFF  
  
Transducer No. Start Stop Name  
7 30M 1000M 10  
  
Final Measurement: x Hor-Max / + Vert-Max  
Meas Time: 1 s



## PLOTS OF EMISSIONS

- Antenna Transfer Switch Measurement(Channel 4)

Scan Settings (1 Range)  
|----- Frequencies -----||----- Receiver Settings -----|  
Start Stop Step IF BW Detector M-Time Atten Preamp  
30M 1000M 200k 120k PK 20ms 10dBILN OFF  
  
Transducer No. Start Stop Name  
7 30M 1000M 10  
  
Final Measurement: x Hor-Max / + Vert-Max  
Meas Time: 1 s



**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  $\mu\text{V}$  = 48.0 dB  $\mu\text{V}$ Reading = 40.8 dB  $\mu\text{V}$  (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  $\mu\text{V}$  (calibrated level)

Antenna factor + Cable Loss = 10.12 dB

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

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

**10.78 dB below the limit****EX. 3.**

@98.20 MHz

Class B limit = 2 nW = 50.0 dB  $\mu\text{V}$ Reading = 19.1 dB  $\mu\text{V}$  (calibrated level)

Impedance matching Network Loss = 7.5 dB

$$\text{Total} = 26.6 \text{ dB } \mu\text{V}$$

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

**23.4 dB below the limit**

## ***ACCURACY OF MEASUREMENT***

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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***

<b><i>Contribution</i></b>	<b><i>Probability Distribution</i></b>	<b><i>Uncertainty(+/-dB)</i></b>
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 ri=0.3 Antenna VRC rR=0.1(Bi)0.4(Lp) Uncertainty Limits 20Log(1+/-ri rR)	U-Shaped	+ 0.25 / - 0.26
System Repeatability	Std.deviation	± 0.05
Repeatability of EUT	-	-
Combined Standard Uncertainty	Normal	± 1.77
Expended Uncertainty U	Normal (k=2)	± 3.5

### ***2. Conducted Uncertainty Calculation***

<b><i>Contribution</i></b>	<b><i>Probability Distribution</i></b>	<b><i>Uncertainty(+/-dB)</i></b>
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 ri=0.3 LISN vrc rg=0.1 Uncertainty Limits 20Log(1+/-ri rR)	U-Shaped	± 0.26
System Repeatability		
Repeatability of EUT		
Combined Standard Uncertainty		
Expended Uncertainty U		

***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	Asorbing Clamp	R & S	MDS21	2001.01
13	High Voltage Probe	R & S	ESH2-Z3	2001.02
14	Signal Generater	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***

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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.

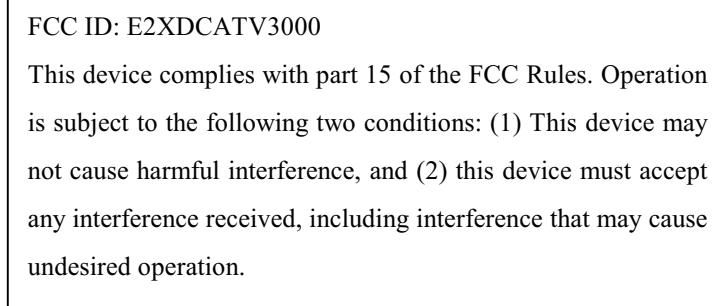
The highest emission observed was at **8.82 MHz** for conducted emissions with a margin of **3.0 dB**, at **513.00 MHz** for radiated emissions with a margin of **2.8 dB**, and at **61.00 MHz** for antenna-conducted power measurements with a margin of **20.5dB**, and at **61.23 MHz** for output-conducted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

## APPENDIX A – SAMPLE LABEL

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### 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 Location of EUT



## ***APPENDIX B – CIRCUIT DIAGRAM***

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## ***APPENDIX E – USER’S MANUAL***

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## ***APPENDIX F – Schematic Diagrams***

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