



TEST REPORT  
FOR TV INTERFACE DEVICES UNDER FCC PART 15

Date : October 6, 1998  
Issued at : TOKYO, JAPAN

JQA APPLICATION NO. : 80-80507  
APPLICANT : SHARP CORPORATION  
174, Hayakawa-cho, Yaita-shi, Tochigi, 329-2193 JAPAN  
MANUFACTURER : SHARP CORPORATION  
174, Hayakawa-cho, Yaita-shi, Tochigi, 329-2193 JAPAN  
TYPE OF EQUIPMENT : Video Cassette Recorder  
REGULATION APPLIED : FCC Rules and Regulations Part 15 Subpart B (1989)  
MEASUREMENT PROCEDURES USED : ANSI C63.4-1992  
PLACE OF MEASUREMENT : JQA EMC Engineering Department ( Anechoic Chamber No.3 )

Test Facility : This test site and conducted measurement facility have been fully described in report dated May 14, 1996 submitted to FCC office, and accepted in a letter dated June 7, 1996 (31040/SIT).

The test results are only applicable to the test item as described below.  
This report should not be reproduced, except in full, without the approval of the JQA EMC Engineering Department.

Takaharu Hada, Manager  
Testing Division  
EMC Engineering Department

Model No. : VC-S100U  
Serial No. : 809000001

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Model No. : VC-S100U  
Serial No. : 809000001

## 1. Description of EUT

- 1.1) Type of Device : TV Interface Device
- 1.2) Equipment Authorization : Certification
- 1.3) FCC ID : APYTCG038
- 1.4) Brand Name : SHARP
- 1.5) Model No. : VC-S100U
- 1.6) Serial No. : 809000001
- 1.7) Date of Manufacture : September, 1998
- 1.8) Highest Frequency Used : 67.25 MHz
- 1.9) Rating Power Supply : AC 120 V, 60 Hz
- 1.10) RF Output Channels : Channel No.3 and Channel No.4
- 1.11) RF Output Terminal : F-type Connector / 75 ohms (Unbalanced)

## 2. Test Condition of EUT

- 2.1) Operating Condition : Playing Mode / Recording Mode
- 2.2) Grounding : None
- 2.3) Warm-up Time : 5 minutes
- 2.4) Power Supply : AC 120 V, 60 Hz

Model No. : VC-S100U  
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### 3. All Terminals of EUT

#### 3.1) Input Terminals

	<u>Description of Terminal</u>	<u>Type of Connector</u>	<u>Number of Terminals</u>
Rear Side :	RF Terminal	F-type Connector	1
	Audio Terminal	Phono Jack	4
	Video Terminal	Phono Jack	2
	S-VIDEO Terminal	4-pin Mini DIN Connector	1
Front Side :	Audio Terminal	Phono Jack	2
	Video Terminal	Phono Jack	1
	S-VIDEO Terminal	4-pin Mini DIN Connector	1

Note: Each input terminals of EUT were terminated with the terminator of specified impedances.

#### 3.2) Output Terminals

	<u>Description of Terminal</u>	<u>Type of Connector</u>	<u>Number of Terminals</u>
Rear Side :	RF Terminal	F-type Connector	1
	Audio Terminal	Phono Jack	2
	Video Terminal	Phono Jack	1
	S-VIDEO Terminal	4-pin Mini DIN Connector	1

Front Side : None

Note: Each output terminals of EUT were connected to the cable terminated with the specified impedances.

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#### 4. Type of Connected Cables

<u>Description of Cable</u>	<u>Shielded</u>	<u>Length</u>	<u>Number of Cables</u>	<u>Supplied</u>
RF Cable	Yes	1.0 m	1	Yes
Audio/video Cable	Yes	1.0 m	1	No
S-VIDEO Cable	Yes	1.0 m	1	No

Notes: 1) Each input terminals of EUT were terminated with the terminator of specified impedances.  
2) Each output terminals of EUT were connected to the cable terminated with the specified impedances.

#### 5. Testing Signal Sources

- 5.1) Internal Modulation Sources : NTSC TV Signal Recording Tape
- 5.2) Video Modulation Sources : VITS (1 Vp-p and 5 Vp-p)
- 5.3) RF Modulation Sources : NTSC Colorbar (70 dB/uV at 193.25 MHz)

#### 6. Configuration of EUT

- 6.1) §15.107(a) AC Powerline Conducted Emissions Measurement : Refer to Page 7.
- 6.2) §15.109(a) Radiated Emissions Measurement : Refer to Page 17.
- 6.3) §15.115(b)(1)(ii) Output Signal Level Measurement : Refer to Page 27.
- 6.4) §15.115(b)(2)(ii) Spurious Conducted Level Measurement : Refer to Page 31.
- 6.5) §15.115(c)(1)(ii) Antenna Transfer Switch Measurement : Refer to Page 45.

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## 7. Summary of Measurement Result

The EUT complied with the requirement of FCC Rules and Regulations Part 15 Subpart B (1989) as detailed from page 7 to page 48.

S15.107(a) AC Powerline Conducted Emissions Measurement Margins with respect to the Limit	: PASSED : 7.6 dB at 3.58 MHz
S15.109(a) Radiated Emissions Measurement Margins with respect to the Limit	: PASSED : 4.2 dB at 42.9 MHz
S15.115(b)(1)(ii) Output Signal Level Measurement Margins with respect to the Limit	: PASSED : 2.4 dB at 61.30 MHz
S15.115(b)(2)(ii) Spurious Conducted Level Measurement Margins with respect to the Limit	: PASSED : 4.5 dB at 54.1 MHz
S15.115(c)(1)(ii) Antenna Transfer Switch Measurement Margins with respect to the Limit	: PASSED : 10.6 dB at 67.25 MHz

### I HEREBY STATE THAT:

The measurements shown in the reports of this form were made in accordance with the procedures indicated and the energy emitted by this equipment was found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements and vouch for the qualification of all persons taking them.

Testing Supervisor : Toshiyuki Itoi

Toshiyuki Itoi, Deputy Manager  
Testing Division  
EMC Engineering Department

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Model No. : VC-S100U  
Serial No. : 809000001

Date : October 2, 1998  
Temp. : 24 °C; Humi. : 42 %

## 8. S15.107(a) AC Powerline Conducted Emissions Measurement

Tested by : Toshiyuki Itoi

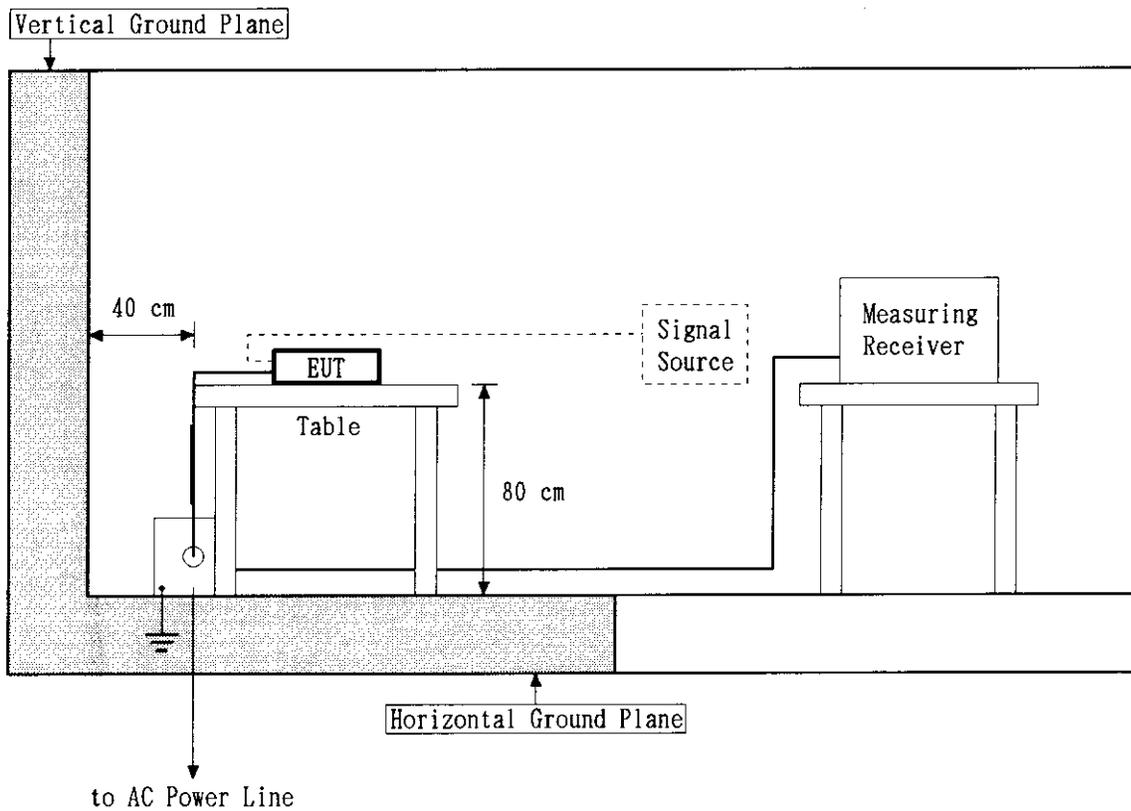
Toshiyuki Itoi, Deputy Manager  
Testing Division  
EMC Engineering Department

Model No. : VC-S100U  
Serial No. : 809000001

## §15.107(a) AC Powerline Conducted Emissions Measurement

### Configuration of EUT

#### Side View



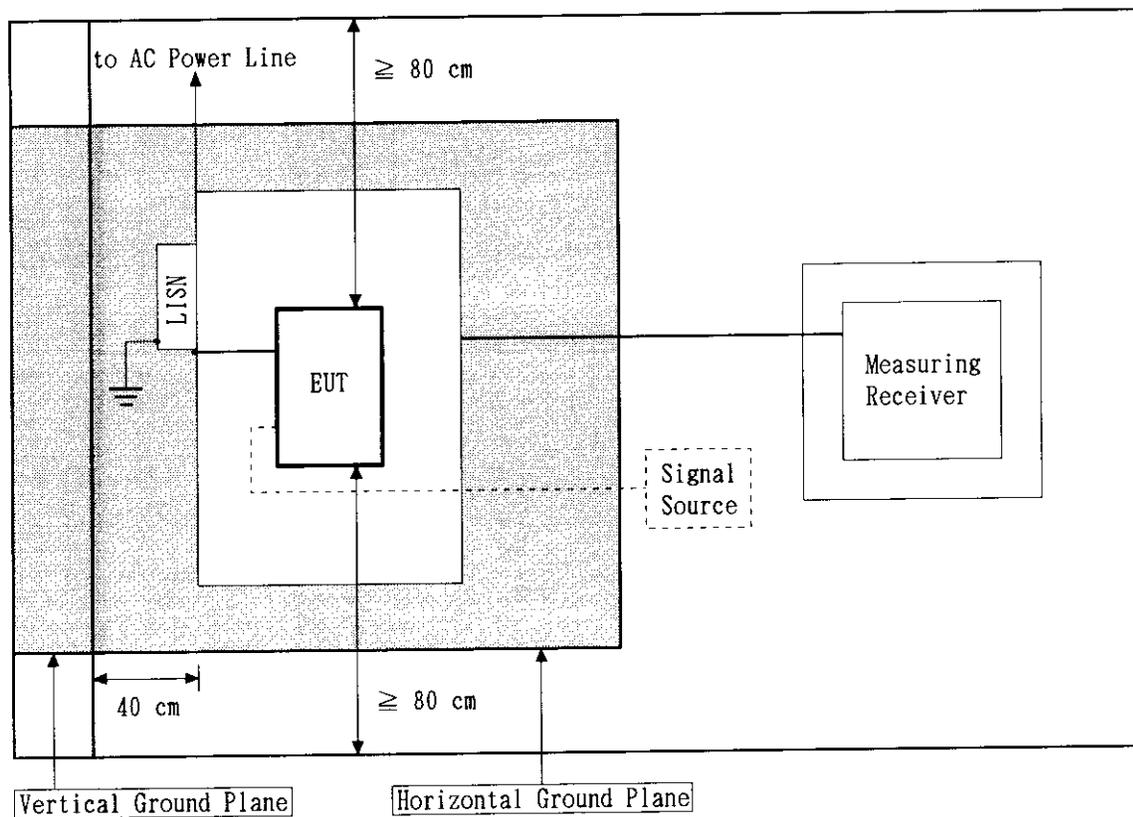
Note: The same configuration of cables and terminators which were connected to VCR was applied to all applicable measurements, shown as photograph in page 19 and 20.

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## §15.107(a) AC Powerline Conducted Emissions Measurement

### Configuration of EUT

#### Top View



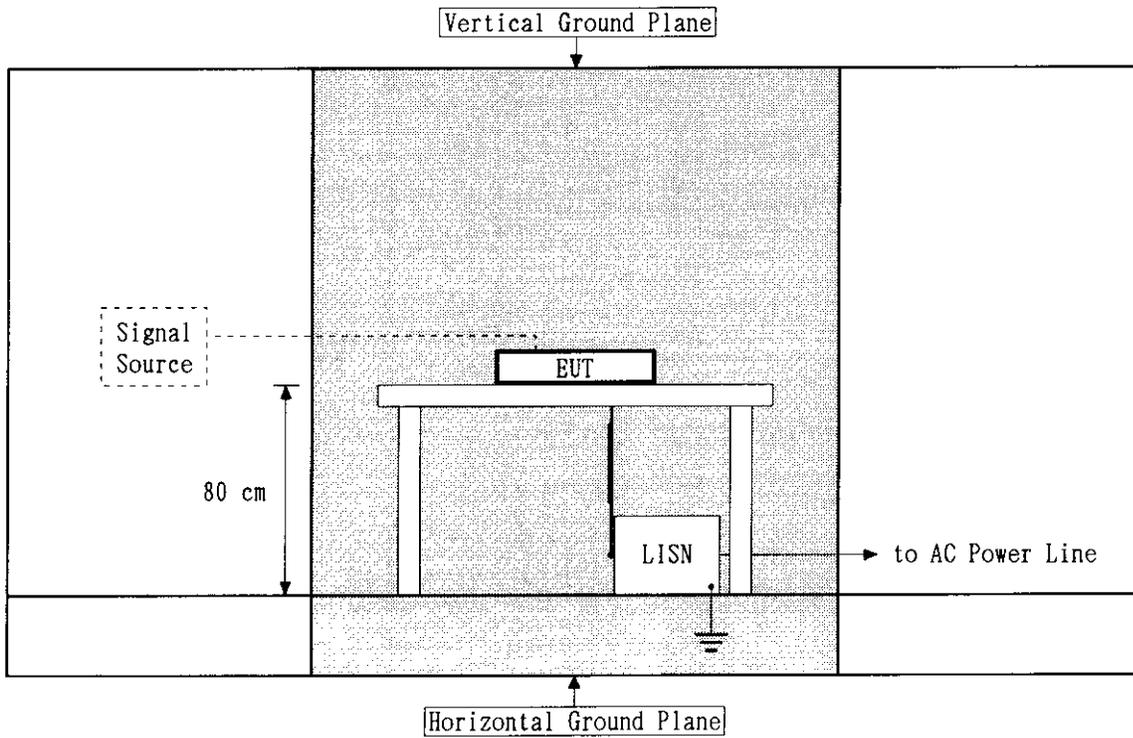
Note: The same configuration of cables and terminators which were connected to VCR was applied to all applicable measurements, shown as photograph in page 19 and 20.

Model No. : VC-S100U  
Serial No. : 809000001

### §15.107(a) AC Powerline Conducted Emissions Measurement

#### Configuration of EUT

#### Front View



Note: The same configuration of cables and terminators which were connected to VCR was applied to all applicable measurements, shown as photograph in page 19 and 20.

Model No. : VC-S100U  
 Serial No. : 809000001

§15.107(a) AC Powerline Conducted Emissions Measurement

Testing Signal Sources : Internal Modulation Sources (NTSC TV Signal Recording Tape)  
 Operating Condition : Playing Mode

Frequency (MHz)	Correction Factor (dB)	Meter Reading (dB/uV)		Result (dB/uV)		Limit (dB/uV)
		V-A	V-B	V-A	V-B	
0.45	0.2	< 10.0	< 10.0	< 10.2	< 10.2	48.0
0.50	0.2	26.9	29.8	27.1	30.0	48.0
0.64	0.2	21.4	25.1	21.6	25.3	48.0
0.71	0.2	21.8	25.1	22.0	25.3	48.0
0.84	0.2	22.5	22.7	22.7	22.9	48.0
1.04	0.2	20.9	18.9	21.1	19.1	48.0
1.52	0.2	17.8	13.8	18.0	14.0	48.0
2.18	0.2	16.3	< 10.0	16.5	< 10.2	48.0
3.00	0.2	< 10.0	< 10.0	< 10.2	< 10.2	48.0
4.00	0.2	< 10.0	< 10.0	< 10.2	< 10.2	48.0
6.00	0.2	< 10.0	< 10.0	< 10.2	< 10.2	48.0
8.00	0.2	< 10.0	< 10.0	< 10.2	< 10.2	48.0
10.00	0.2	< 10.0	< 10.0	< 10.2	< 10.2	48.0
12.00	0.2	< 10.0	< 10.0	< 10.2	< 10.2	48.0
14.32	0.3	22.9	20.9	23.2	21.2	48.0
16.00	0.3	< 10.0	< 10.0	< 10.3	< 10.3	48.0
18.00	0.4	< 10.0	< 10.0	< 10.4	< 10.4	48.0
20.00	0.4	13.5	12.4	13.9	12.8	48.0
21.48	0.4	23.4	22.4	23.8	22.8	48.0
23.42	0.5	23.3	22.1	23.8	22.6	48.0
27.01	0.5	18.3	17.0	18.8	17.5	48.0
28.64	0.6	24.9	23.4	25.5	24.0	48.0
30.00	0.6	< 10.0	< 10.0	< 10.6	< 10.6	48.0

- Notes:
- 1) The spectrum was checked from 0.45 MHz to 30 MHz.
  - 2) V-A : One end & Grounded ; V-B : The other end & Grounded
  - 3) The symbol of '<' means 'or less'.
  - 4) Correction Factor includes a LISN factor and a cable (2.0 m) loss.
  - 5) A sample calculation was made at 0.50 MHz.  
 Correction Factor + Meter Reading = 0.2 + 29.8 = 30.0 dB/uV

Model No. : VC-S100U  
 Serial No. : 809000001

§15.107(a) AC Powerline Conducted Emissions Measurement

Testing Signal Sources : Video Modulation Sources (VITS : 1 Vp-p and 5 Vp-p)  
 Operating Condition : Recording Mode

Frequency (MHz)	Correction Factor (dB)	Meter Reading (dB/uV)		Result (dB/uV)		Limit (dB/uV)
		V-A	V-B	V-A	V-B	
0.45	0.2	32.5	33.7	32.7	33.9	48.0
0.47	0.2	36.5	37.8	36.7	38.0	48.0
0.54	0.2	30.5	32.6	30.7	32.8	48.0
0.60	0.2	32.3	33.8	32.5	34.0	48.0
0.67	0.2	33.6	35.0	33.8	35.2	48.0
0.80	0.2	32.0	33.0	32.2	33.2	48.0
1.00	0.2	30.9	31.7	31.1	31.9	48.0
1.45	0.2	25.5	23.5	25.7	23.7	48.0
2.09	0.2	22.2	17.7	22.4	17.9	48.0
3.58	0.2	40.1	40.2	40.3	40.4	48.0
5.32	0.2	26.3	24.8	26.5	25.0	48.0
7.34	0.2	19.9	18.3	20.1	18.5	48.0
10.73	0.2	25.8	25.2	26.0	25.4	48.0
12.32	0.2	21.9	21.6	22.1	21.8	48.0
14.32	0.3	34.6	34.0	34.9	34.3	48.0
16.00	0.3	< 10.0	< 10.0	< 10.3	< 10.3	48.0
17.90	0.4	< 10.0	< 10.0	< 10.4	< 10.4	48.0
20.00	0.4	< 10.0	< 10.0	< 10.4	< 10.4	48.0
21.48	0.4	19.8	20.0	20.2	20.4	48.0
24.01	0.5	12.7	11.8	13.2	12.3	48.0
27.01	0.5	23.6	22.4	24.1	22.9	48.0
28.64	0.6	27.6	26.8	28.2	27.4	48.0
30.00	0.6	< 10.0	< 10.0	< 10.6	< 10.6	48.0

- Notes:
- 1) The spectrum was checked from 0.45 MHz to 30 MHz.
  - 2) V-A : One end & Grounded ; V-B : The other end & Grounded
  - 3) The symbol of '<' means 'or less'.
  - 4) Correction Factor includes a LISN factor and a cable (2.0 m) loss.
  - 5) A sample calculation was made at 3.58 MHz.  
 $Correction\ Factor + Meter\ Reading = 0.2 + 40.2 = 40.4\ dB/uV$

Model No. : VC-S100U  
 Serial No. : 809000001

§15.107(a) AC Powerline Conducted Emissions Measurement

Testing Signal Sources : RF Modulation Sources (NTSC Colorbar : 70 dB/uV at 193.25 MHz)  
 Operating Condition : Recording Mode

Frequency (MHz)	Correction Factor (dB)	Meter Reading (dB/uV)		Result (dB/uV)		Limit (dB/uV)
		V-A	V-B	V-A	V-B	
0.45	0.2	31.5	34.6	31.7	34.8	48.0
0.47	0.2	36.7	38.1	36.9	38.3	48.0
0.54	0.2	30.6	32.8	30.8	33.0	48.0
0.60	0.2	33.4	35.5	33.6	35.7	48.0
0.67	0.2	33.5	35.1	33.7	35.3	48.0
0.80	0.2	32.5	33.6	32.7	33.8	48.0
1.00	0.2	30.6	31.6	30.8	31.8	48.0
1.45	0.2	25.1	24.0	25.3	24.2	48.0
2.29	0.2	25.0	21.2	25.2	21.4	48.0
3.55	0.2	21.2	20.7	21.4	20.9	48.0
5.32	0.2	25.0	24.8	25.2	25.0	48.0
7.34	0.2	18.5	17.1	18.7	17.3	48.0
10.77	0.2	26.7	25.9	26.9	26.1	48.0
12.00	0.2	< 10.0	< 10.0	< 10.2	< 10.2	48.0
14.32	0.3	36.0	34.5	36.3	34.8	48.0
16.00	0.3	< 10.0	< 10.0	< 10.3	< 10.3	48.0
17.90	0.4	11.3	10.9	11.7	11.3	48.0
20.00	0.4	< 10.0	< 10.0	< 10.4	< 10.4	48.0
21.48	0.4	19.5	18.8	19.9	19.2	48.0
24.01	0.5	12.6	< 10.0	13.1	< 10.5	48.0
27.01	0.5	17.9	18.1	18.4	18.6	48.0
28.63	0.6	31.4	30.5	32.0	31.1	48.0
30.00	0.6	< 10.0	< 10.0	< 10.6	< 10.6	48.0

- Notes:
- 1) The spectrum was checked from 0.45 MHz to 30 MHz.
  - 2) V-A : One end & Grounded ; V-B : The other end & Grounded
  - 3) The symbol of '<' means 'or less'.
  - 4) Correction Factor includes a LISN factor and a cable (2.0 m) loss.
  - 5) A sample calculation was made at 0.47 MHz.  
 Correction Factor + Meter Reading = 0.2 + 38.1 = 38.3 dB/uV

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Model No. : VC-S100U  
Serial No. : 809000001

Date : September 29, 1998  
Temp. : 24 °C; Humi. : 42 %

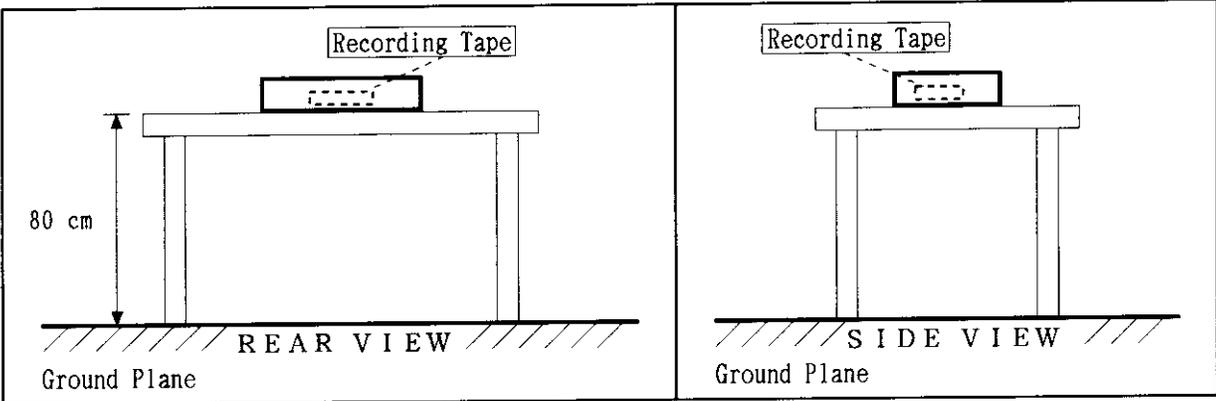
## 9. §15.109(a) Radiated Emissions Measurement

Tested by : Toshiyuki Itoi  
Toshiyuki Itoi, Deputy Manager  
Testing Division  
EMC Engineering Department

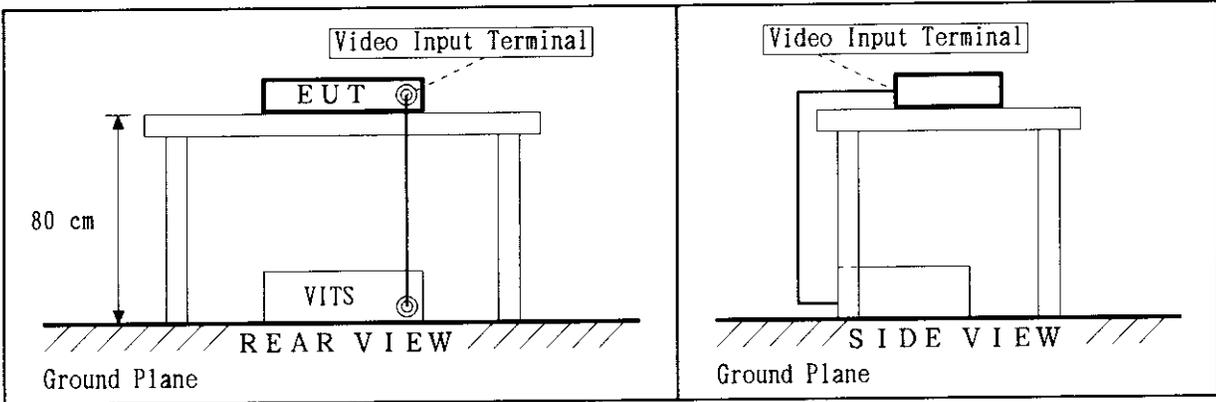
Model No. : VC-S100U  
Serial No. : 809000001

Configuration of Testing Signal Sources

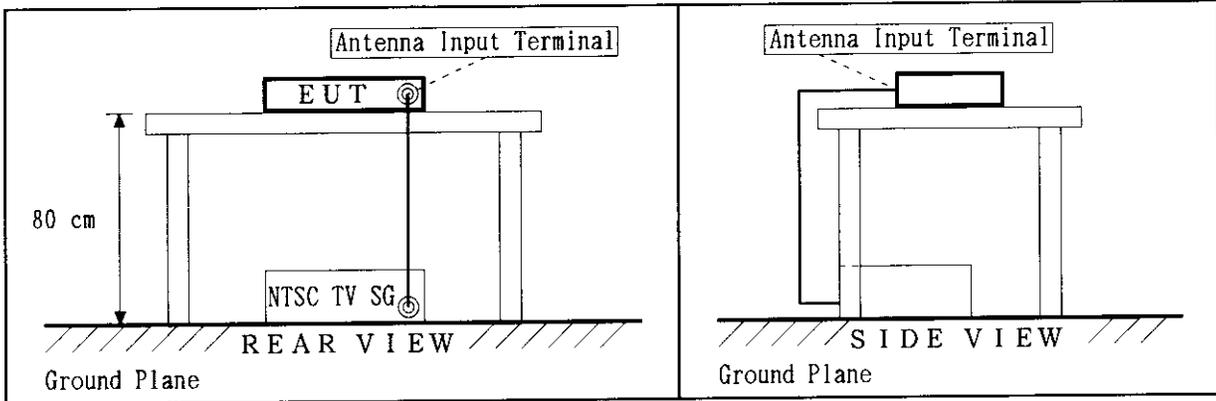
Testing Signal Sources : Internal Modulation Sources (NTSC TV Signal Recording Tape)



Testing Signal Sources : Video Modulation Sources (VITS : 1 Vp-p and 5 Vp-p)



Testing Signal Sources : RF Modulation Sources (NTSC Colorbar : 70 dB/uV at 193.25 MHz)



Model No. : VC-S100U

Serial No. : 809000001

**S15.109(a) Radiated Emissions Measurement**

Testing Signal Sources : Internal Modulation Sources (NTSC TV Signal Recording Tape)

Operating Condition : Playing Mode

Frequency (MHz)	Correction Factor (dB)	Meter Reading (dB/uV)		Result (dB/uV/m)		Limit (dB/uV/m)
		Horizontal	Vertical	Horizontal	Vertical	
35.8	1.1	4.1	15.7	5.2	16.8	40.0
43.0	2.8	20.2	28.6	23.0	31.4	40.0
50.1	4.2	10.9	15.6	15.1	19.8	40.0
64.4	6.6	15.5	16.3	22.1	22.9	40.0
71.6	7.6	20.5	22.4	28.1	30.0	40.0
79.0	8.6	12.9	13.0	21.5	21.6	40.0
85.9	9.4	17.0	18.3	26.4	27.7	40.0
100.2	10.9	6.0	6.4	16.9	17.3	43.5
114.5	12.3	6.7	2.5	19.0	14.8	43.5
128.9	13.5	5.0	1.9	18.5	15.4	43.5
150.4	15.1	< 0.0	< 0.0	< 15.1	< 15.1	43.5
171.9	16.5	5.3	2.8	21.8	19.3	43.5
193.3	17.7	7.3	5.3	25.0	23.0	43.5
207.6	18.4	9.4	5.1	27.8	23.5	43.5
229.1	19.5	5.9	1.5	25.4	21.0	46.0
286.4	21.9	2.2	< 0.0	24.1	< 21.9	46.0
343.6	23.9	8.6	4.1	32.5	28.0	46.0
372.3	24.8	8.5	3.7	33.3	28.5	46.0
429.6	26.4	8.6	6.2	35.0	32.6	46.0
486.8	27.8	< 0.0	< 0.0	< 27.8	< 27.8	46.0
687.3	32.3	< 0.0	< 0.0	< 32.3	< 32.3	46.0
730.2	33.2	< 0.0	< 0.0	< 33.2	< 33.2	46.0
800.0	34.4	< 0.0	< 0.0	< 34.4	< 34.4	46.0
1000.0	37.4	< 0.0	< 0.0	< 37.4	< 37.4	54.0

- Notes:
- 1) Measured Distance : 3.0 m
  - 2) The spectrum was checked from 30 MHz to 1000 MHz.
  - 3) The symbol of '<' means 'or less'.
  - 4) Correction Factor includes an antenna factor and a cable (14.0 m) loss.
  - 5) A sample calculation was made at 43.0 MHz.  
 Correction Factor + Meter Reading = 2.8 + 28.6 = 31.4 dB/uV/m

Model No. : VC-S100U  
 Serial No. : 809000001

S15.109(a) Radiated Emissions Measurement

Testing Signal Sources : Video Modulation Sources (VITS : 1 Vp-p and 5 Vp-p)  
 Operating Condition : Recording Mode

Frequency (MHz)	Correction Factor (dB)	Meter Reading (dB/uV)		Result (dB/uV/m)		Limit (dB/uV/m)
		Horizontal	Vertical	Horizontal	Vertical	
35.8	1.1	14.0	29.2	15.1	30.3	40.0
42.9	2.8	20.8	33.0	23.6	35.8	40.0
50.1	4.2	6.6	15.5	10.8	19.7	40.0
64.4	6.6	15.4	15.8	22.0	22.4	40.0
71.6	7.6	18.9	21.8	26.5	29.4	40.0
78.7	8.5	10.1	11.2	18.6	19.7	40.0
85.9	9.4	9.8	14.1	19.2	23.5	40.0
100.2	10.9	11.8	12.2	22.7	23.1	43.5
114.5	12.3	2.8	2.5	15.1	14.8	43.5
128.9	13.5	8.4	1.8	21.9	15.3	43.5
150.4	15.1	< 0.0	< 0.0	< 15.1	< 15.1	43.5
171.8	16.4	6.3	3.0	22.7	19.4	43.5
193.3	17.7	8.0	3.7	25.7	21.4	43.5
207.6	18.4	7.9	3.6	26.3	22.0	43.5
229.1	19.5	6.8	5.1	26.3	24.6	46.0
286.4	21.9	2.0	< 0.0	23.9	< 21.9	46.0
343.7	23.9	7.9	2.0	31.8	25.9	46.0
372.3	24.8	9.2	1.5	34.0	26.3	46.0
429.6	26.4	8.4	6.5	34.8	32.9	46.0
486.8	27.8	< 0.0	< 0.0	< 27.8	< 27.8	46.0
687.3	32.3	< 0.0	< 0.0	< 32.3	< 32.3	46.0
730.2	33.2	< 0.0	< 0.0	< 33.2	< 33.2	46.0
800.0	34.4	< 0.0	< 0.0	< 34.4	< 34.4	46.0
1000.0	37.4	< 0.0	< 0.0	< 37.4	< 37.4	54.0

- Notes: 1) Measured Distance : 3.0 m  
 2) The spectrum was checked from 30 MHz to 1000 MHz.  
 3) The symbol of '<' means 'or less'.  
 4) Correction Factor includes an antenna factor and a cable (14.0 m) loss.  
 5) A sample calculation was made at 42.9 MHz.  
 Correction Factor + Meter Reading = 2.8 + 33.0 = 35.8 dB/uV/m

Model No. : VC-S100U  
 Serial No. : 809000001

§15.109(a) Radiated Emissions Measurement

Testing Signal Sources : RF Modulation Sources (NTSC Colorbar : 70 dB/uV at 193.25 MHz)  
 Operating Condition : Recording Mode

Frequency (MHz)	Correction Factor (dB)	Meter Reading (dB/uV)		Result (dB/uV/m)		Limit (dB/uV/m)
		Horizontal	Vertical	Horizontal	Vertical	
35.8	1.1	13.5	30.0	14.6	31.1	40.0
42.9	2.8	20.4	31.2	23.2	34.0	40.0
50.1	4.2	6.9	14.9	11.1	19.1	40.0
64.4	6.6	14.8	17.7	21.4	24.3	40.0
71.6	7.6	17.6	17.6	25.2	25.2	40.0
78.8	8.5	10.7	11.3	19.2	19.8	40.0
85.9	9.4	11.2	18.4	20.6	27.8	40.0
100.2	10.9	8.4	11.3	19.3	22.2	43.5
114.6	12.3	4.1	1.6	16.4	13.9	43.5
128.9	13.5	8.0	3.0	21.5	16.5	43.5
150.3	15.1	< 0.0	< 0.0	< 15.1	< 15.1	43.5
171.8	16.4	6.5	7.0	22.9	23.4	43.5
193.3	17.7	6.2	1.2	23.9	18.9	43.5
207.6	18.4	8.5	4.4	26.9	22.8	43.5
229.1	19.5	6.7	5.8	26.2	25.3	46.0
286.4	21.9	3.3	< 0.0	25.2	< 21.9	46.0
343.7	23.9	8.9	3.0	32.8	26.9	46.0
372.2	24.8	9.3	4.8	34.1	29.6	46.0
429.5	26.4	9.3	6.3	35.7	32.7	46.0
486.8	27.8	< 0.0	< 0.0	< 27.8	< 27.8	46.0
687.3	32.3	< 0.0	< 0.0	< 32.3	< 32.3	46.0
730.2	33.2	< 0.0	< 0.0	< 33.2	< 33.2	46.0
800.0	34.4	< 0.0	< 0.0	< 34.4	< 34.4	46.0
1000.0	37.4	< 0.0	< 0.0	< 37.4	< 37.4	54.0

- Notes:
- 1) Measured Distance : 3.0 m
  - 2) The spectrum was checked from 30 MHz to 1000 MHz.
  - 3) The symbol of '<' means 'or less'.
  - 4) Correction Factor includes an antenna factor and a cable (14.0 m) loss.
  - 5) A sample calculation was made at 42.9 MHz.  
 Correction Factor + Meter Reading = 2.8 + 31.2 = 34.0 dB/uV/m

---

Model No. : VC-S100U  
Serial No. : 809000001

Date : October 2, 1998  
Temp. : 24 °C; Humi. : 42 %

## 10. §15.115(b)(1)(ii) Output Signal Level Measurement

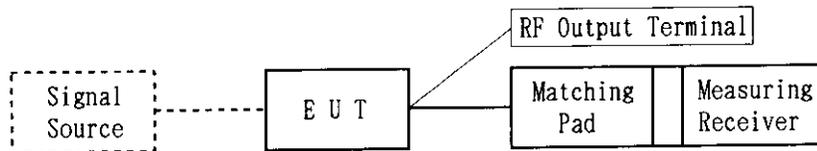
Tested by : Toshiyuki Itoi

Toshiyuki Itoi, Deputy Manager  
Testing Division  
EMC Engineering Department

Model No. : VC-S100U  
 Serial No. : 809000001

§15.115(b)(1)(ii) Output Signal Level Measurement

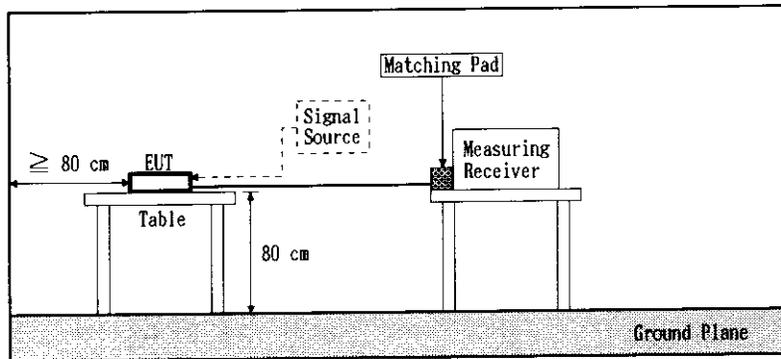
Block Diagram



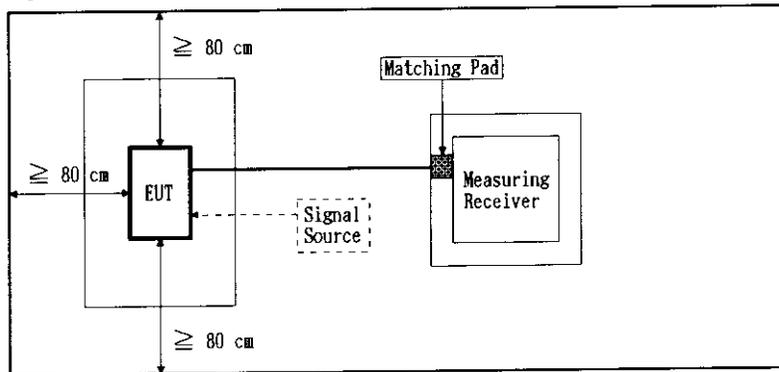
Note: Antenna input terminal of EUT was terminated with the terminator of specified impedances.

Configuration of EUT

Side View



Top View



Note: The same configuration of cables and terminators which were connected to VCR was applied to all applicable measurements, shown as photograph in page 19 and 20.

Model No. : VC-S100U  
Serial No. : 809000001

§15.115(b)(1)(ii) Output Signal Level Measurement (Visual)

Testing Signal Sources : Internal Modulation Sources (NTSC TV Signal Recording Tape)  
Operating Condition : Playing Mode

RF Output Channel	Frequency (MHz)	Matching Pad Loss (dB)	Meter Reading (dB/uV)	Result (dB/uV)	Limit (dB/uV)
3	61.28	7.8	59.2	67.0	69.5
4	67.28	7.8	59.0	66.8	69.5

Testing Signal Sources : Video Modulation Sources (VITS : 1 Vp-p and 5 Vp-p)  
Operating Condition : Recording Mode

RF Output Channel	Frequency (MHz)	Matching Pad Loss (dB)	Meter Reading (dB/uV)	Result (dB/uV)	Limit (dB/uV)
3	61.30	7.8	59.3	67.1	69.5
4	67.28	7.8	59.2	67.0	69.5

Testing Signal Sources : RF Modulation Sources (NTSC Colorbar : 70 dB/uV at 193.25 MHz)  
Operating Condition : Recording Mode

RF Output Channel	Frequency (MHz)	Matching Pad Loss (dB)	Meter Reading (dB/uV)	Result (dB/uV)	Limit (dB/uV)
3	61.28	7.8	58.3	66.1	69.5
4	67.28	7.8	58.1	65.9	69.5

- Notes: 1) Spectrum Analyzer ; SPAN : 10 MHz, RES BW : 100 kHz, VBW : 300 kHz, SWP : 20 msec  
2) Impedance at the RF output terminal : 75 ohms (Unbalanced)  
3) A sample calculation was made at 61.30 MHz.  
Matching Pad Loss + Meter Reading = 7.8 + 59.3 = 67.1 dB/uV

Model No. : VC-S100U  
Serial No. : 809000001

§15.115(b)(1)(ii) Output Signal Level Measurement (Aural)

Testing Signal Sources : Internal Modulation Sources (NTSC TV Signal Recording Tape)  
Operating Condition : Playing Mode

RF Output Channel	Frequency (MHz)	Matching Pad Loss (dB)	Meter Reading (dB/uV)	Result (dB/uV)	Limit (dB/uV)
3	65.75	7.8	44.8	52.6	56.5
4	71.76	7.8	44.3	52.1	56.5

Testing Signal Sources : Video Modulation Sources (VITS : 1 Vp-p and 5 Vp-p)  
Operating Condition : Recording Mode

RF Output Channel	Frequency (MHz)	Matching Pad Loss (dB)	Meter Reading (dB/uV)	Result (dB/uV)	Limit (dB/uV)
3	65.80	7.8	44.8	52.6	56.5
4	71.80	7.8	44.0	51.8	56.5

Testing Signal Sources : RF Modulation Sources (NTSC Colorbar : 70 dB/uV at 193.25 MHz)  
Operating Condition : Recording Mode

RF Output Channel	Frequency (MHz)	Matching Pad Loss (dB)	Meter Reading (dB/uV)	Result (dB/uV)	Limit (dB/uV)
3	65.80	7.8	44.7	52.5	56.5
4	71.78	7.8	44.3	52.1	56.5

- Notes: 1) Spectrum Analyzer ; SPAN : 10 MHz, RES BW : 100 kHz, VBW : 300 kHz, SWP : 20 msec  
2) Impedance at the RF output terminal : 75 ohms (Unbalanced)  
3) A sample calculation was made at 65.75 MHz.  
Matching Pad Loss + Meter Reading = 7.8 + 44.8 = 52.6 dB/uV

---

Model No. : VC-S100U  
Serial No. : 809000001

Date : October 2, 1998  
Temp. : 24 °C; Humi. : 42 %

## 11. S15.115(b)(2)(ii) Spurious Conducted Level Measurement

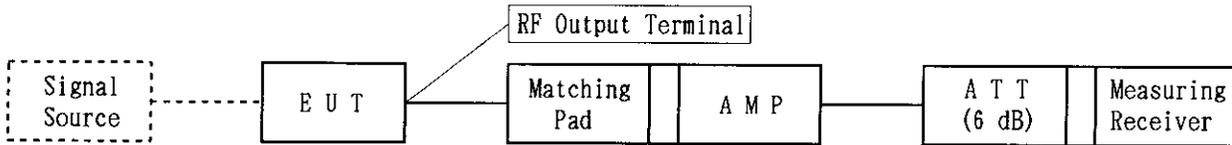
Tested by : Toshiyuki Itoi

Toshiyuki Itoi, Deputy Manager  
Testing Division  
EMC Engineering Department

Model No. : VC-S100U  
 Serial No. : 809000001

§15.115(b)(2)(ii) Spurious Conducted Level Measurement

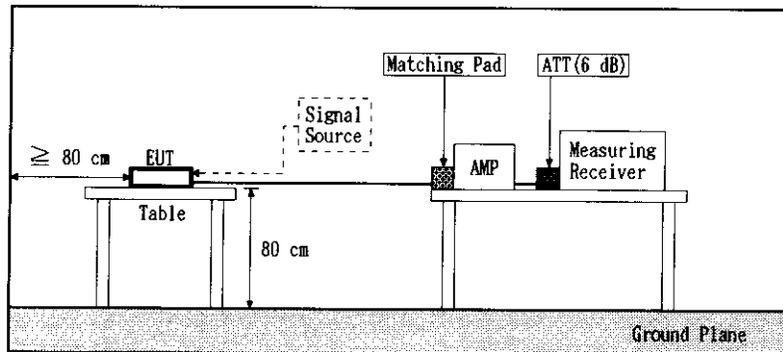
Block Diagram



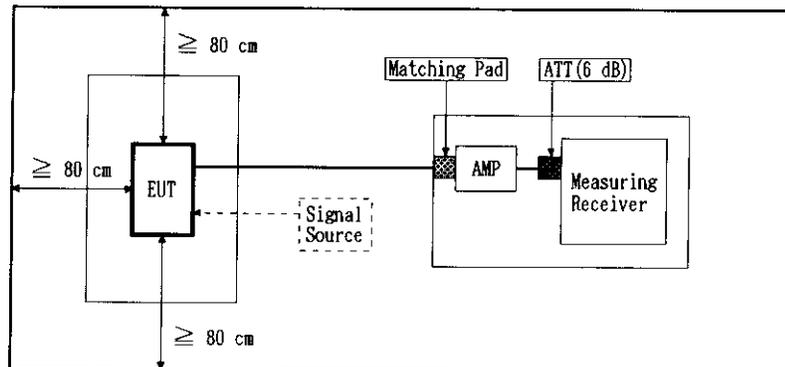
Note: Antenna input terminal of EUT was terminated with the terminator of specified impedances.

Configuration of EUT

Side View



Top View



Note: The same configuration of cables and terminators which were connected to VCR was applied to all applicable measurements, shown as photograph in page 19 and 20.

Model No. : VC-S100U  
Serial No. : 809000001

### §15.115(b)(2)(ii) Spurious Conducted Level Measurement

Testing Signal Sources : Internal Modulation Sources (NTSC TV Signal Recording Tape)  
Operating Condition : Playing Mode

RF Output Channel : No. 3

Frequency (MHz)	Correction Factor (dB)	Meter Reading (dB/uV)	Result (dB/uV)	Limit (dB/uV)
30.0	-13.2	< 30.0	< 16.8	39.6
40.0	-13.2	< 30.0	< 16.8	39.6
47.0	-13.2	33.7	20.5	39.6
50.6	-13.2	< 30.0	< 16.8	39.6
72.0	-13.2	30.4	17.2	39.6
75.6	-13.2	35.2	22.0	39.6
80.0	-13.2	< 30.0	< 16.8	39.6
100.0	-13.2	< 30.0	< 16.8	39.6
122.5	-13.1	30.6	17.5	39.6
183.8	-13.0	32.6	19.6	39.6
245.0	-12.9	< 30.0	< 17.1	39.6
306.3	-12.9	< 30.0	< 17.1	39.6
367.5	-12.8	< 30.0	< 17.2	39.6
428.8	-12.8	< 30.0	< 17.2	39.6
490.0	-12.8	< 30.0	< 17.2	39.6
551.3	-12.7	< 30.0	< 17.3	39.6
612.5	-12.6	< 30.0	< 17.4	39.6
673.8	-12.4	< 30.0	< 17.6	39.6
735.0	-12.2	< 30.0	< 17.8	39.6
796.3	-12.0	< 30.0	< 18.0	39.6
857.5	-12.1	< 30.0	< 17.9	39.6
918.8	-12.4	< 30.0	< 17.6	39.6
980.0	-12.6	< 30.0	< 17.4	39.6

- Notes:
- 1) The spectrum was checked from 30 MHz to 1000 MHz.
  - 2) Spectrum Analyzer ; SPAN : 10 MHz, RES BW : 100 kHz, VBW : 300 kHz, SWP : 20 msec
  - 3) Impedance at the RF output terminal : 75 ohms (Unbalanced)
  - 4) The symbol of '<' means 'or less'.
  - 5) Correction Factor includes a gain of preamplifier, a matching pad loss and an attenuation pad loss.
  - 6) A sample calculation was made at 75.6 MHz.  
Correction Factor + Meter Reading = -13.2 + 35.2 = 22.0 dB/uV

Model No. : VC-S100U

Serial No. : 809000001

S15.115(b)(2)(ii) Spurious Conducted Level Measurement

Testing Signal Sources : Internal Modulation Sources (NTSC TV Signal Recording Tape)

Operating Condition : Playing Mode

RF Output Channel : No. 4

Frequency (MHz)	Correction Factor (dB)	Meter Reading (dB/uV)	Result (dB/uV)	Limit (dB/uV)
30.0	-13.2	< 30.0	< 16.8	39.6
40.0	-13.2	< 30.0	< 16.8	39.6
50.0	-13.2	< 30.0	< 16.8	39.6
52.9	-13.2	34.7	21.5	39.6
56.6	-13.2	< 30.0	< 16.8	39.6
78.0	-13.2	< 30.0	< 16.8	39.6
81.6	-13.2	33.8	20.6	39.6
100.0	-13.2	< 30.0	< 16.8	39.6
120.0	-13.1	< 30.0	< 16.9	39.6
134.5	-13.1	< 30.0	< 16.9	39.6
201.8	-13.0	32.9	19.9	39.6
269.0	-12.9	< 30.0	< 17.1	39.6
336.3	-12.9	< 30.0	< 17.1	39.6
403.5	-12.8	< 30.0	< 17.2	39.6
470.8	-12.8	< 30.0	< 17.2	39.6
538.0	-12.7	< 30.0	< 17.3	39.6
605.3	-12.7	< 30.0	< 17.3	39.6
672.5	-12.4	< 30.0	< 17.6	39.6
739.8	-12.2	< 30.0	< 17.8	39.6
807.0	-11.9	< 30.0	< 18.1	39.6
874.3	-12.2	< 30.0	< 17.8	39.6
941.5	-12.5	< 30.0	< 17.5	39.6

- Notes:
- 1) The spectrum was checked from 30 MHz to 1000 MHz.
  - 2) Spectrum Analyzer ; SPAN : 10 MHz, RES BW : 100 kHz, VBW : 300 kHz, SWP : 20 msec
  - 3) Impedance at the RF output terminal : 75 ohms (Unbalanced)
  - 4) The symbol of '<' means 'or less'.
  - 5) Correction Factor includes a gain of preamplifier, a matching pad loss and an attenuation pad loss.
  - 6) A sample calculation was made at 52.9 MHz.  
Correction Factor + Meter Reading = -13.2 + 34.7 = 21.5 dB/uV

Model No. : VC-S100U  
Serial No. : 809000001

§15.115(b)(2)(ii) Spurious Conducted Level Measurement

Testing Signal Sources : Video Modulation Sources (VITS : 1 Vp-p and 5 Vp-p)  
Operating Condition : Recording Mode

RF Output Channel : No. 3

Frequency (MHz)	Correction Factor (dB)	Meter Reading (dB/uV)	Result (dB/uV)	Limit (dB/uV)
30.0	-13.2	< 30.0	< 16.8	39.6
40.0	-13.2	< 30.0	< 16.8	39.6
46.9	-13.2	35.5	22.3	39.6
54.1	-13.2	48.3	35.1	39.6
69.7	-13.2	42.3	29.1	39.6
72.0	-13.2	40.1	26.9	39.6
75.6	-13.2	36.2	23.0	39.6
100.0	-13.2	< 30.0	< 16.8	39.6
122.5	-13.1	< 30.0	< 16.9	39.6
183.8	-13.0	42.4	29.4	39.6
245.0	-12.9	< 30.0	< 17.1	39.6
306.3	-12.9	< 30.0	< 17.1	39.6
367.5	-12.8	< 30.0	< 17.2	39.6
428.8	-12.8	< 30.0	< 17.2	39.6
490.0	-12.8	< 30.0	< 17.2	39.6
551.3	-12.7	< 30.0	< 17.3	39.6
612.5	-12.6	< 30.0	< 17.4	39.6
673.8	-12.4	< 30.0	< 17.6	39.6
735.0	-12.2	< 30.0	< 17.8	39.6
796.3	-12.0	< 30.0	< 18.0	39.6
857.5	-12.1	< 30.0	< 17.9	39.6
918.8	-12.4	< 30.0	< 17.6	39.6
980.0	-12.6	< 30.0	< 17.4	39.6

- Notes:
- 1) The spectrum was checked from 30 MHz to 1000 MHz.
  - 2) Spectrum Analyzer ; SPAN : 10 MHz, RES BW : 100 kHz, VBW : 300 kHz, SWP : 20 msec
  - 3) Impedance at the RF output terminal : 75 ohms (Unbalanced)
  - 4) The symbol of '<' means 'or less'.
  - 5) Correction Factor includes a gain of preamplifier, a matching pad loss and an attenuation pad loss.
  - 6) A sample calculation was made at 54.1 MHz.  
Correction Factor + Meter Reading = -13.2 + 48.3 = 35.1 dB/uV

Model No. : VC-S100U  
Serial No. : 809000001

### S15.115(b)(2)(ii) Spurious Conducted Level Measurement

Testing Signal Sources : Video Modulation Sources (VITS : 1 Vp-p and 5 Vp-p)  
Operating Condition : Recording Mode

RF Output Channel : No. 4

Frequency (MHz)	Correction Factor (dB)	Meter Reading (dB/uV)	Result (dB/uV)	Limit (dB/uV)
30.0	-13.2	< 30.0	< 16.8	39.6
40.0	-13.2	< 30.0	< 16.8	39.6
50.0	-13.2	< 30.0	< 16.8	39.6
52.9	-13.2	35.4	22.2	39.6
60.1	-13.2	48.0	34.8	39.6
75.5	-13.2	41.5	28.3	39.6
81.6	-13.2	34.5	21.3	39.6
100.0	-13.2	< 30.0	< 16.8	39.6
120.0	-13.1	< 30.0	< 16.9	39.6
134.5	-13.1	< 30.0	< 16.9	39.6
201.8	-13.0	32.3	19.3	39.6
269.0	-12.9	< 30.0	< 17.1	39.6
336.3	-12.9	< 30.0	< 17.1	39.6
403.5	-12.8	< 30.0	< 17.2	39.6
470.8	-12.8	< 30.0	< 17.2	39.6
538.0	-12.7	< 30.0	< 17.3	39.6
605.3	-12.7	< 30.0	< 17.3	39.6
672.5	-12.4	< 30.0	< 17.6	39.6
739.8	-12.2	< 30.0	< 17.8	39.6
807.0	-11.9	< 30.0	< 18.1	39.6
874.3	-12.2	< 30.0	< 17.8	39.6
941.5	-12.5	< 30.0	< 17.5	39.6

- Notes:
- 1) The spectrum was checked from 30 MHz to 1000 MHz.
  - 2) Spectrum Analyzer ; SPAN : 10 MHz, RES BW : 100 kHz, VBW : 300 kHz, SWP : 20 msec
  - 3) Impedance at the RF output terminal : 75 ohms (Unbalanced)
  - 4) The symbol of '<' means 'or less'.
  - 5) Correction Factor includes a gain of preamplifier, a matching pad loss and an attenuation pad loss.
  - 6) A sample calculation was made at 60.1 MHz.  
Correction Factor + Meter Reading = -13.2 + 48.0 = 34.8 dB/uV

Model No. : VC-S100U  
Serial No. : 809000001

§15.115(b)(2)(ii) Spurious Conducted Level Measurement

Testing Signal Sources : RF Modulation Sources (NTSC Colorbar : 70 dB/uV at 193.25 MHz)  
Operating Condition : Recording Mode

RF Output Channel : No. 3

Frequency (MHz)	Correction Factor (dB)	Meter Reading (dB/uV)	Result (dB/uV)	Limit (dB/uV)
30.0	-13.2	< 30.0	< 16.8	39.6
40.0	-13.2	< 30.0	< 16.8	39.6
47.0	-13.2	34.0	20.8	39.6
50.6	-13.2	41.5	28.3	39.6
72.1	-13.2	38.1	24.9	39.6
75.6	-13.2	35.2	22.0	39.6
100.0	-13.2	< 30.0	< 16.8	39.6
122.5	-13.1	30.1	17.0	39.6
183.8	-13.0	32.9	19.9	39.6
245.0	-12.9	< 30.0	< 17.1	39.6
306.3	-12.9	< 30.0	< 17.1	39.6
367.5	-12.8	< 30.0	< 17.2	39.6
428.8	-12.8	< 30.0	< 17.2	39.6
490.0	-12.8	< 30.0	< 17.2	39.6
551.3	-12.7	< 30.0	< 17.3	39.6
612.5	-12.6	< 30.0	< 17.4	39.6
673.8	-12.4	< 30.0	< 17.6	39.6
735.0	-12.2	< 30.0	< 17.8	39.6
796.3	-12.0	< 30.0	< 18.0	39.6
857.5	-12.1	< 30.0	< 17.9	39.6
918.8	-12.4	< 30.0	< 17.6	39.6
980.0	-12.6	< 30.0	< 17.4	39.6

- Notes:
- 1) The spectrum was checked from 30 MHz to 1000 MHz.
  - 2) Spectrum Analyzer ; SPAN : 10 MHz, RES BW : 100 kHz, VBW : 300 kHz, SWP : 20 msec
  - 3) Impedance at the RF output terminal : 75 ohms (Unbalanced)
  - 4) The symbol of '<' means 'or less'.
  - 5) Correction Factor includes a gain of preamplifier, a matching pad loss and an attenuation pad loss.
  - 6) A sample calculation was made at 50.6 MHz.  
Correction Factor + Meter Reading = -13.2 + 41.5 = 28.3 dB/uV

Model No. : VC-S100U  
Serial No. : 809000001

### S15.115(b)(2)(ii) Spurious Conducted Level Measurement

Testing Signal Sources : RF Modulation Sources (NTSC Colorbar : 70 dB/uV at 193.25 MHz)  
Operating Condition : Recording Mode

RF Output Channel : No. 4

Frequency (MHz)	Correction Factor (dB)	Meter Reading (dB/uV)	Result (dB/uV)	Limit (dB/uV)
30.0	-13.2	< 30.0	< 16.8	39.6
40.0	-13.2	< 30.0	< 16.8	39.6
50.0	-13.2	< 30.0	< 16.8	39.6
52.9	-13.2	35.3	22.1	39.6
56.6	-13.2	41.8	28.6	39.6
77.9	-13.2	40.4	27.2	39.6
81.6	-13.2	35.2	22.0	39.6
100.0	-13.2	< 30.0	< 16.8	39.6
120.0	-13.1	< 30.0	< 16.9	39.6
134.5	-13.1	< 30.0	< 16.9	39.6
201.8	-13.0	33.5	20.5	39.6
269.0	-12.9	< 30.0	< 17.1	39.6
336.3	-12.9	30.6	17.7	39.6
403.5	-12.8	< 30.0	< 17.2	39.6
470.8	-12.8	< 30.0	< 17.2	39.6
538.0	-12.7	< 30.0	< 17.3	39.6
605.3	-12.7	< 30.0	< 17.3	39.6
672.5	-12.4	< 30.0	< 17.6	39.6
739.8	-12.2	< 30.0	< 17.8	39.6
807.0	-11.9	< 30.0	< 18.1	39.6
874.3	-12.2	< 30.0	< 17.8	39.6
941.5	-12.5	< 30.0	< 17.5	39.6

- Notes:
- 1) The spectrum was checked from 30 MHz to 1000 MHz.
  - 2) Spectrum Analyzer ; SPAN : 10 MHz, RES BW : 100 kHz, VBW : 300 kHz, SWP : 20 msec
  - 3) Impedance at the RF output terminal : 75 ohms (Unbalanced)
  - 4) The symbol of '<' means 'or less'.
  - 5) Correction Factor includes a gain of preamplifier, a matching pad loss and an attenuation pad loss.
  - 6) A sample calculation was made at 56.6 MHz.  
Correction Factor + Meter Reading = -13.2 + 41.8 = 28.6 dB/uV

Model No. : VC-S100U  
Serial No. : 809000001

Date : October 2, 1998  
Temp. : 24 °C; Humi. : 42 %

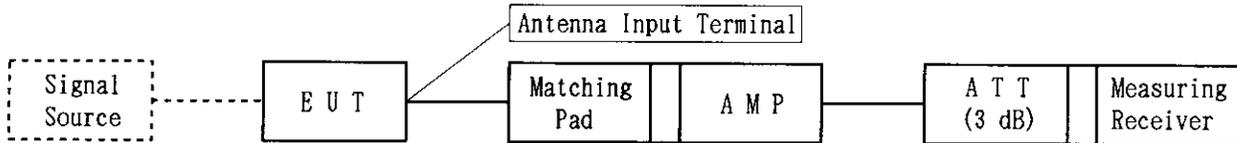
## 12. S15.115(c)(1)(ii) Antenna Transfer Switch Measurement

Tested by : Toshiyuki Itoi  
Toshiyuki Itoi, Deputy Manager  
Testing Division  
EMC Engineering Department

Model No. : VC-S100U  
 Serial No. : 809000001

§15.115(c)(1)(ii) Antenna Transfer Switch Measurement

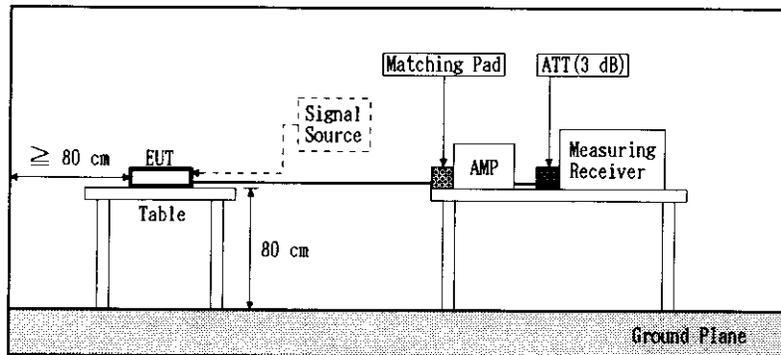
Block Diagram



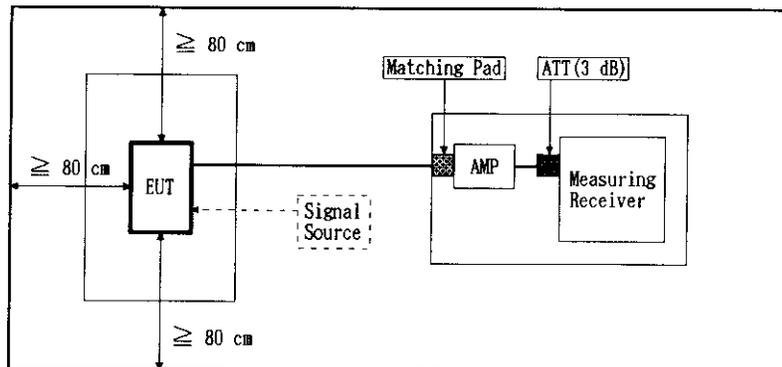
Note: RF output terminal of EUT was connected to the cable terminated with the specified impedances.

Configuration of EUT

Side View



Top View



Note: The same configuration of cables and terminators which were connected to VCR was applied to all applicable measurements, shown as photograph in page 19 and 20.

Model No. : VC-S100U  
Serial No. : 809000001**S15.115(c)(1)(ii) Antenna Transfer Switch Measurement**Testing Signal Sources : Internal Modulation Sources (NTSC TV Signal Recording Tape)  
Operating Condition : Playing Mode

RF Output Channel	Frequency (MHz)	Correction Factor (dB)	Meter Reading (dB/uV)	Result (dB/uV)	Limit (dB/uV)
3	61.25	-16.2	< 15.0	< -1.2	9.5
4	67.25	-16.2	15.1	-1.1	9.5

Testing Signal Sources : Video Modulation Sources (VITS : 1 Vp-p and 5 Vp-p)  
Operating Condition : Recording Mode

RF Output Channel	Frequency (MHz)	Correction Factor (dB)	Meter Reading (dB/uV)	Result (dB/uV)	Limit (dB/uV)
3	61.25	-16.2	< 15.0	< -1.2	9.5
4	67.25	-16.2	< 15.0	< -1.2	9.5

Testing Signal Sources : RF Modulation Sources (NTSC Colorbar : 70 dB/uV at 193.25 MHz)  
Operating Condition : Recording Mode

RF Output Channel	Frequency (MHz)	Correction Factor (dB)	Meter Reading (dB/uV)	Result (dB/uV)	Limit (dB/uV)
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## Not Applicable

- Notes:
- 1) Spectrum Analyzer ; SPAN : 1 MHz, RES BW : 10kHz, VBW : 10kHz, SWP : 30 msec
  - 2) Impedance at the Antenna input terminal : 75 ohms (Unbalanced)
  - 3) The symbol of '<' means 'or less'.
  - 4) Correction Factor includes a gain of preamplifier, a matching pad loss and an attenuation pad loss.
  - 5) A sample calculation was made at 67.25 MHz.  
Correction Factor + Meter Reading = -16.2 + 15.1 = -1.1 dB/uV

Model No. : VC-S100U  
Serial No. : 809000001

## 13. Test Equipment Used

Equipment	Manufacturer	Model No. [ Serial No. ]	Last Cal. [ Cal. Interval ]
Measuring Receiver	Rohde & Schwarz	ESH 3 [ 872994/035 ]	May, 1998 [ 1 year ]
Measuring Receiver	Rohde & Schwarz	ESVP [ 881487/004 ]	May, 1998 [ 1 year ]
Spectrum Analyzer	Hewlett Packard	8566B [ 2140A01091 ]	April, 1998 [ 1 year ]
Line Impedance Stabilized Network	Kyoritsu Electrical Works	KNW-407 [ 8-1130-6 ]	April, 1998 [ 1 year ]
Dipole Antenna	Kyoritsu Electrical Works	KBA-511 [ 0-170-1 ]	November, 1997 [ 1 year ]
Dipole Antenna	Kyoritsu Electrical Works	KBA-611 [ 0-147-14 ]	November, 1997 [ 1 year ]
Preamplifier	Hewlett Packard	8447D [ 1937A02168 ]	July, 1998 [ 1 year ]
Vertical Internal Test Signal Generator (VITS)	Anritsu	MG318A [ M08128 ]	June, 1998 [ 1 year ]
Color TV Pattern Generator	Philips Consumer Electronics	PM 5418 TNSI [ LO 609096 ]	June, 1998 [ 1 year ]
Matching Pad	Wiltron	12N50/75B [ 90400 ]	June, 1998 [ 1 year ]
6 dB Attenuation Pad	Weinschel	1 [ AD8054 ]	June, 1998 [ 1 year ]
3 dB Attenuation Pad	Weinschel	1 [ AD9615 ]	June, 1998 [ 1 year ]

3. Explanation of Model No. VC-S100U with Supplemental Photo

- (1) The full name and complete address of the manufacturer of the device.

(a) Name

SHARP CORPORATION

(B) Address

174 Hayakawa-cho, Yaita-shi, Tochigi, 329-2193, Japan.

- (2) Trade name, if any, under which the device will be marketed.

SHARP

- (3) Model number

VC-S100U

- (4) List any additional model number and/or trade names under which the device will be marketed.

N/A

- (5) For a device other than an FM or TV broadcast receiver, attach a copy of the installation and operating instructions furnished to the user.

Attached

- (6) For a device used in decoding the Emergency Broadcast System Attention Signals defined in "73.906" the value of the necessary voltage (RMS) or range of voltages of the attention signal to be applied to the input terminals of the decoder which will cause the desired response of the device shall be submitted to the commission with the certification data.

Attached



- (8) RF Converter (Type No.: VTUATMDH2-01A, Mfr's name : ALPS  
ELECTRIC Co., Ltd..)  
(This tuner and the RF converter are built in one body.)

(a) Type of emission

Video Modulation Type : A5  
Polarity of Video modulation: Negative  
Audio Modulation Type : F3, 25 kHz, 75  $\mu$ sec preemphasis  
Color Standard : NTSC Standard

(b) Frequency range

US CH. No. 3 : 60 MHz - 66 MHz  
US CH. No. 4 : 66 MHz - 72 MHz

(c) Range of operating power and description of means provided  
for variation of operating power

: Not Application

(d) Maximum power rating as defined in applicable rules :

US CH. No. 3 : 69.5 dB  
US CH. No. 4 : 69.5 dB  $\mu$   
 $\mu$

(e) The Voltage and Current to Converter : 5 V DC 35 mA

(f) Function of each electrontube, semiconductor or other active  
circuit device :

TR1 - TR3 : Switching ..... 2SC4713K(Rohm)  
..... 2SC4680(Hitacti)

IC1 : Video Clamper ..... LA7160M(Sanyo)

Video carrier OSC.  
Video carrier Limiter  
Video Modulation  
Audio CH. Converter  
Audio Amplifier  
4.5 MHz OSC. (Frequency Modulation)  
CH. Switching

## Description of circuit function

Refer to Attachment and RF converter circuit diagram. Video signal comes from the "VIDEO IN" terminal, which then passes through the resistance divider (R12) and goes into pin No.5 of IC1.

The Video signal hence passes through the clamper and white clip, and is supplied to the Video-modulator.

The Video carrier is made by the oscillator, using the x'-tal(X2).

The Video Carrier is supplied, through the carrier limiter inside IC1, to the Video modulator, where the modulator also is incorporated to IC1.

The modulated signal comes out from the pin No.15 with C12 and C11 in series, and is supplied to "VHF OUT" through the attenuator (R7), the band pass filter (C10, L7, C11 and C15) and the switching transistor (TR1).

Audio signal comes from the "AUDIO IN" terminal, followed by C26, C25, R16, which has 75  $\mu$  sec pre-emphasis time constant, and is supplied to the pin No.2 of IC1.

The pin No.2 of IC1 is an audio input terminal; the audio signal having 75  $\mu$  sec pre-emphasis time constant is supplied to 4.5 MHz oscillator, and the audio modulated signal is mixed in the RF Mixer.

The audio signal and the video signal mixed, come out from the pin No. 15 of IC1.

The power supply is regulated by the IC1. Channel selection is done by the slide switch (S1501) in Main PWB, that selects the Video carrier by either impressing a voltage on the pin No. 8 or shorting the same, since there is a switching circuit inside the IC1.

(g) Complete Schematic diagram : Attached

(h) Operation manual : Attached

(i) Tune up procedure over the power range or at specific operating power level : Not Adjustable

(j) A description of all circuit and devices provided for determining and stabilizing frequency :

In order to perform a good regulation of the video carrier, the oscillator employs a x'-tal(X2). An inter-carrier is formed by a LC oscillator, since the capacitor in T1 has the temperature constant RH (N220  $\pm 60$  PPM / deg C), drift due to temperature change is small. To protect effects from the outside power source, the internal circuits are supplied their power through a regulator.

(k) A description of any circuit or devices employed for suppression of spurious radiation, for limiting modulation, and limiting the operation power :

#### Suppression of spurious radiation

The oscillator circuit are designed to get oscillator power as small as possible. And on the "VHF OUT", there is a band pass filter (C10, L7, C11 and C15), to suppress spurious. Also on the input circuit of "VIDEO", and on the input circuit of "AUDIO", there are buffer amplifier, which is incorporated to IC1. These buffer amplifier are used for suppressing spurious radiation.

#### Limiting modulation

The modulation is set with resistors (R12, R14 and R15).

#### Limiting the operation power

The output power is set with resistors R7.

(9) Identification photo or label : Attached

Enclosure rear

4. Explanation on Mechanism and Tuning Method of VHF and UHF Tuner for Model VC-S100U with Supplemental photos.

(1). Mechanism of channel selection :

This model is employed Phase Locked Loop (PLL) type frequency synthesizer circuit systems.

The local oscillation frequency of selected channel is detected by this circuit and compared with the correct local oscillation frequency which is generated by the standard crystal oscillation circuit.

The different frequency from correct one is detected by the phase detector circuit and feed back to the local oscillation circuit of tuner for correcting frequency.

The tuning accuracy by this PLL circuit system is within  $\pm 10$  kHz to the correct local oscillation frequency allocated by FCC.

Therefore, this accurate frequency control system eliminates the need of fine tuning.

This model is equipped with both random access selection system and up/down system for channel selection, and possible to receive midband, superband and hyperband channels (CATV).

- Photo 4.   a. channel ▲/▼ button  
          b. channel number display

Photo 5.   Remote control unit

- a. MENU button  
          b. ▲/▼ button (To select "CHANNEL PRESET" mode)  
          c. SET button  
          d. ◀/▶ button  
          e. random access channel selector buttons (0-9·100)

Photo 6.   Control part

- a. MENU button  
          b. SET button  
          c. FF/REW switch

Photo 7.   Remote control unit

- a. Channel ▲/▼ button

(2) Setting the channels

When setting using the "NENU" button on the Remote control unit.

- ① Press the "POWER" button
- ② Press the "MENU" button

After above setting, operate according to the procedure displayed on the TV screen.

Concerning the details of setting, please refer "SETTING THE CHANNELS" in the Operation manual.

When setting using the "NEMU" button on the main unit.

- ① Press the "POWER" button
- ② Press the "MENU" button

After above setting, operate according to the procedure displayed on the TV screen.

Concerning the details of setting, please refer "SETTING THE CHANNELS" in the Operation manual.

(3) Channel read out :

This model is employed Digital Sign System which selected channel number is indicated on display (Photo 4-b) and TV screen.

<u>TV Node</u>	<u>Covered channel</u>
"TV" display	: VHF ; 2 - 13 CH UHF ; 14 - 69 CH
"CATV-STD" display	: CATV ; 2 - 125 CH (STANDARD)
"CATV-HRC" display	: CATV ; 1 - 125 CH (HRC/IRC) (Refer to Operation manual)

Channel selection up/down system can be performed by pushing channel up/down buttons (Please 4-a and 7-a).

This directional channel selection is capable selecting from low CH to high CH (up "▲" button) and from high CH to low CH (down "▼" button).

"▲" and "▼" buttons employ both function (Channel up/down function and Auto Tracking function).

Channel up/down function operate only EE (stop) Mode and "REC + PAUSE" Mode.

Auto Tracking function operate only play-back Mode.

\* \* \* \* \*

With the above explanation, we believe that this model complies with requirement of FCC comparable tuning rules.

5. TV RECEIVER APPLICATION CHECK LIST for Model VC-S100U

- (X) (1). A statement identifying the production run plan you will be using to show compliance in meeting a 14 dB UHF noise figure - reference "TV Receiver, UHF noise figure - Certification and Compliance Criteria" second issue, January 1981).

We will use the same "plan C" of the "TV Receiver UHF noise figure - Certification and Compliance Criteria" for production.

- (X) (2). A statement that NF measurements were made pursuant to OST Measurement Procedure MP-2, Second Issue, January 1980. Departure from the procedures of OST Measurement Procedure MP-2 must be approved by the Chief Scientist or his designate. Details of any departures from OST Measurement Procedure MP-2 must accompany the certificate application.

Our measurement were made pursuant to OST Measurement Procedure MP-2 Second Issue, July 1982 for measuring the UHF noise figure.

- (X) (3). The names of all manufacturing sources for the VHF and UHF tuners as well as the tuner Manufacture's Nos.

Parts Name : TMDH2-001A (VHF & UHF combined in one unit)  
Manufacturer's Name : ALPS ELECTRIC Co., Ltd.

- (X) (4). UHF and VHF tuner part numbers assigned by the receiver manufacturer.

Parts Name : VTUATMDH2-01A (VHF & UHF combined in one unit)

- (X) (5). Frequency bands tuned by the receiver (i.e., UHF, VHF, midband, superband, AM/FM, etc.).

VHF (L)	54 - 88 MHz	UHF including CATV (ULTRA)	470 - 806 MHz
(H)	174 - 216 MHz	CATV (LOW/MID)	72 - 174 MHz
		CATV (SUPER)	216 - 300 MHz
		CATV (HYPER)	300 - 474 MHz

- (X) (6). Pursuant to Section 15.117 of the Rules, a statement specifying the receiver design noise figure, in dB.

Refer to Attachment 1.

- (X) 7. The length of the UHF lead, from antenna input terminals to the tuner.  
None
- (X) 8. Schematic diagram for the receiver.  
Attached
- (X) 9. The exact chassis number.  
None
- (X) 10. Picture tube size in inches.  
None
- (X) 11. Type of receiver - color or black and white.  
None
- (X) 12. A description of the cabinet material.  
Plastic
- (X) 13. Copy of all the information submitted with the original certification for basic receiver (for application for FCC ID numbers other than those for initial application submittals with a report of measurements).  
None
- (X) 14. The IF noise figure contribution that was added to the measured value for each UHF channels noise figure in the report of measurements, or a statement that the contribution is not exceeded 0.25 dB for the channel.  
  
We measured the UHF noise figure on the ten (10) production units of the test samples for this application and the IF noise figure contribution. As the result of this measurement, at least 97.5% of all production units have a noise figure not exceeding 14 dB and the IF noise figure contribution is not exceed 0.25 dB.  
Please refer to the attached UHF noise figure measurement report.

With the above explanation, we believe that this model complies with the requirement of the FCC rules and regulations, section 15.117.

# UHF NOISE FIGURE MEASUREMENT DATA

Attached 1

Manufacturer : SHARP CORPORATION  
 Trade Name (Brand Name) : SHARP  
 Noise Figure Measurement : \_\_\_\_\_

Model No. : VC-S100U  
 FCC ID where assigned : N/A  
 Tuner/RF Converter No. : VTUATMDH2-01A

List UHF Noise Figure (dB)	UHF Channel Number										Plan C				
	14	20	26	32	38	44	50	56	62	69	MAX	CH	x	Sn	x+K*Sn
1	10.2	9.6	9.8	9.3	8.8	8.6	8.0	7.7	8.4	9.2	10.2	14	8.96	0.80	11.38
2	9.8	9.2	9.5	9.0	8.6	8.6	8.2	8.2	8.9	9.8	9.8	14/69	8.98	0.59	10.77
3	10.1	9.5	9.9	9.6	9.1	9.0	8.5	8.0	8.4	8.6	10.1	14	9.07	0.70	11.17
4	10.5	10.0	10.4	10.1	9.6	9.5	9.0	8.5	8.9	9.1	10.5	14	9.56	0.68	11.61
5	9.7	9.1	9.3	8.8	8.3	8.1	7.5	7.2	7.9	8.7	9.7	14	8.46	0.80	10.88
6	9.5	8.9	9.2	8.7	8.3	8.3	7.9	8.0	8.6	9.6	9.6	69	8.70	0.60	10.50
7	10.6	10.0	10.4	10.1	10.6	9.5	9.0	8.5	8.9	9.1	10.6	14/38	9.67	0.77	11.99
8	11.2	10.6	10.8	10.3	9.8	9.6	9.0	8.7	9.4	10.2	11.2	14	9.96	0.80	12.38
9	8.8	8.2	8.5	8.0	7.6	7.8	7.2	7.2	7.9	8.8	8.8	14/69	8.00	0.58	9.76
10	10.0	9.4	9.7	9.2	8.8	8.8	8.4	8.4	9.1	10.8	10.2	69	9.26	0.75	11.52

\* I subtracted 4 dB from the measured NF, because a power splitter is equipped in set.

Sample Size 10 (K=3.0113)

x : Mean of ten distributed noise figures including the max. value.

Sn : Standard deviation for ten distributed noise figure including max. value.

Note : The above "MAX." value is indicated the worst noise figure in the total range of the 69 UHF channel.

Noise Figure Contribution of the N.F. Amplifier  
 (Measured Values)

Second Stage Noise Figure : \_\_\_\_\_ dB

Tuner Gain : N.A. dB

Noise Figure Contributin : less than 0.30 dB

Measurement procedure : OST Measurement Procedure MP-2.  
July 1982.

(Technical Conference on Noise Figure Measurements)

List of Measuring Equipment :

1. Automatic Noise Figure Indicator :  
Model No. ENF-2005 ELENA
2. Solid - State Noise Generator :  
Model No. MC1100 MICROWAVE SEMICONDUCTOR
3. UHF Balun :  
Model No. U2A MEASUREMENTS

8. Explanation on UHF-VHF antenna comparability of Model No. VC-S100U

UHF Loop and VHF Dipole antenna are not mounted on VCR set.  
They are not provided in carton.

\* \* \* \* \*

With the above explanation, we are confident that this Video  
Cassette Recorder comply with the rule, section 15.117.

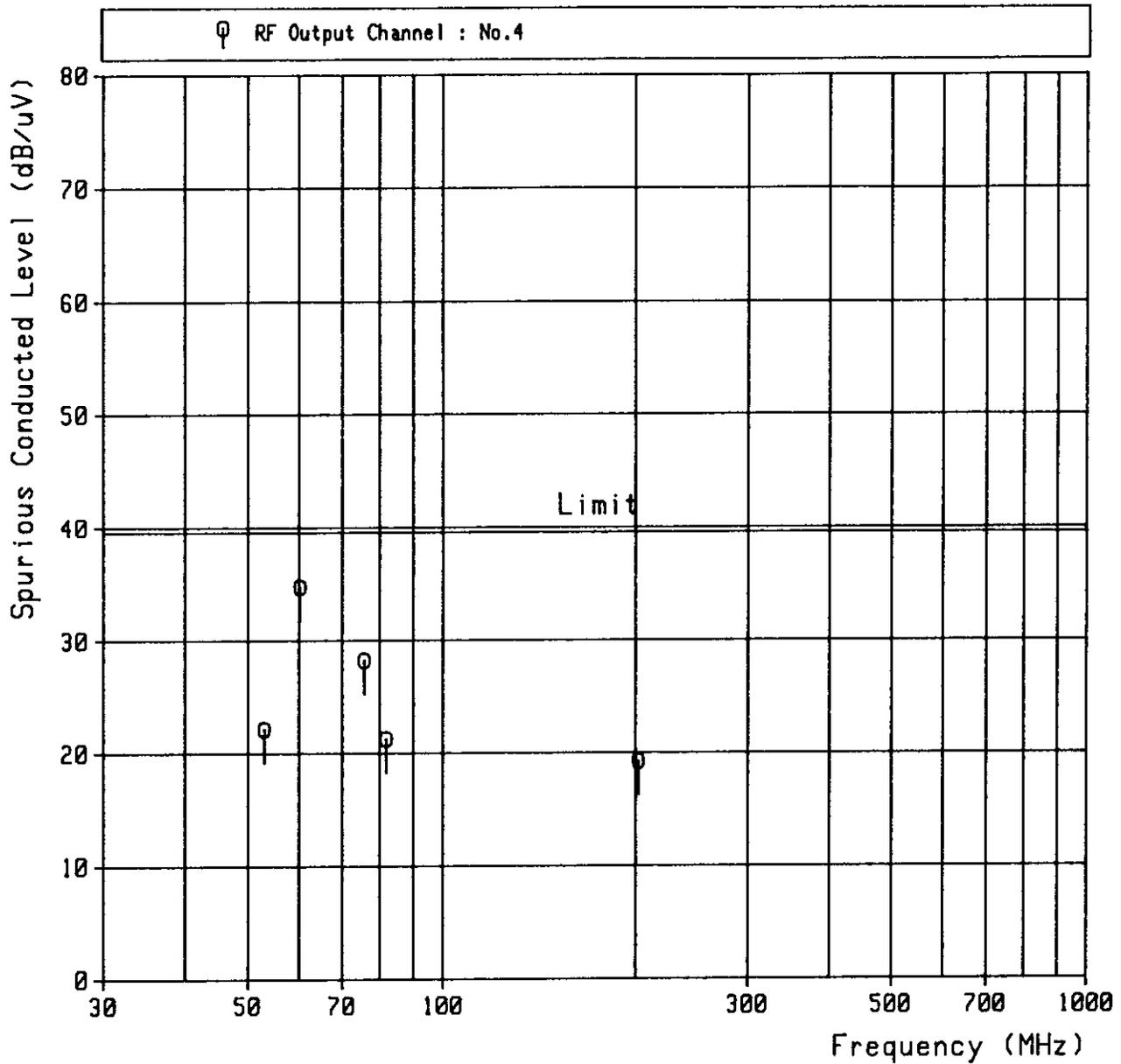
Model No. : VC-S100U

Serial No. : 809000001

## §15.115(b)(2)(ii) Spurious Conducted Level Measurement

Testing Signal Sources : Video Modulation Sources (VITS : 1 Vp-p and 5 Vp-p)

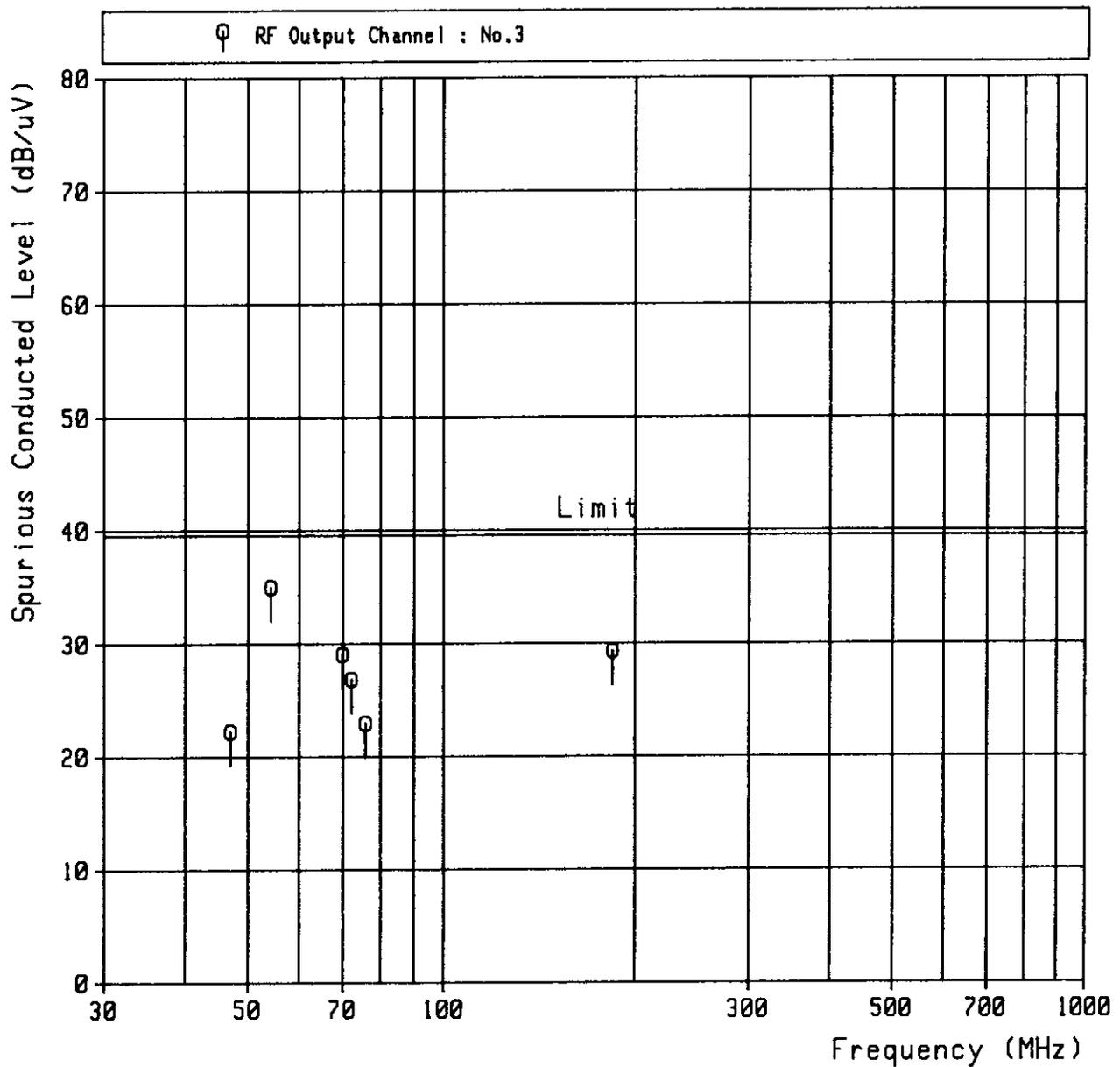
Operating Condition : Recording Mode



Model No. : VC-S100U  
Serial No. : 809000001

### §15.115(b)(2)(ii) Spurious Conducted Level Measurement

Testing Signal Sources : Video Modulation Sources (VITS : 1 Vp-p and 5 Vp-p)  
Operating Condition : Recording Mode



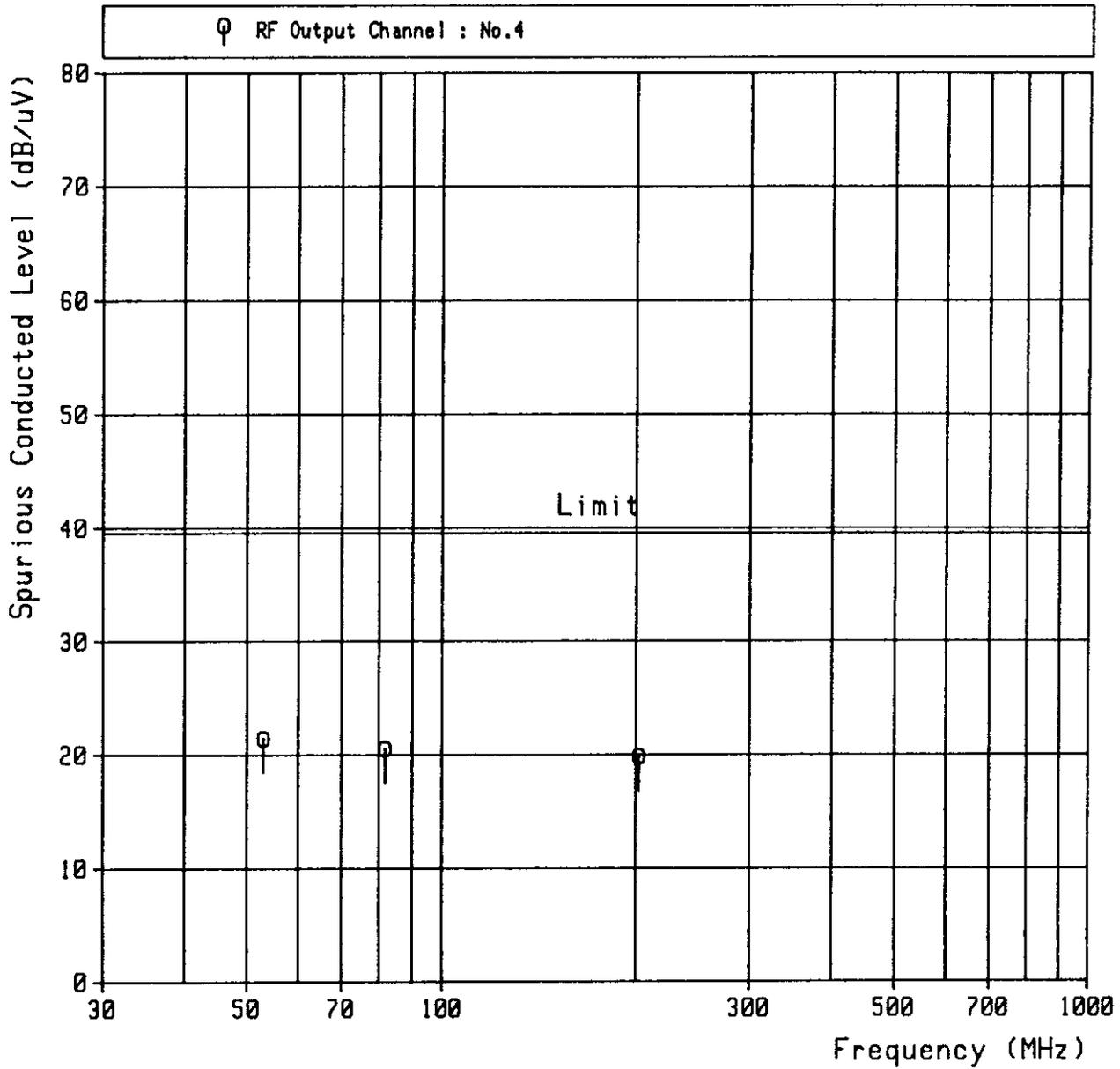
Model No. : VC-S100U

Serial No. : 809000001

## §15.115(b)(2)(ii) Spurious Conducted Level Measurement

Testing Signal Sources : Internal Modulation Sources (NTSC TV Signal Recording Tape)

Operating Condition : Playing Mode



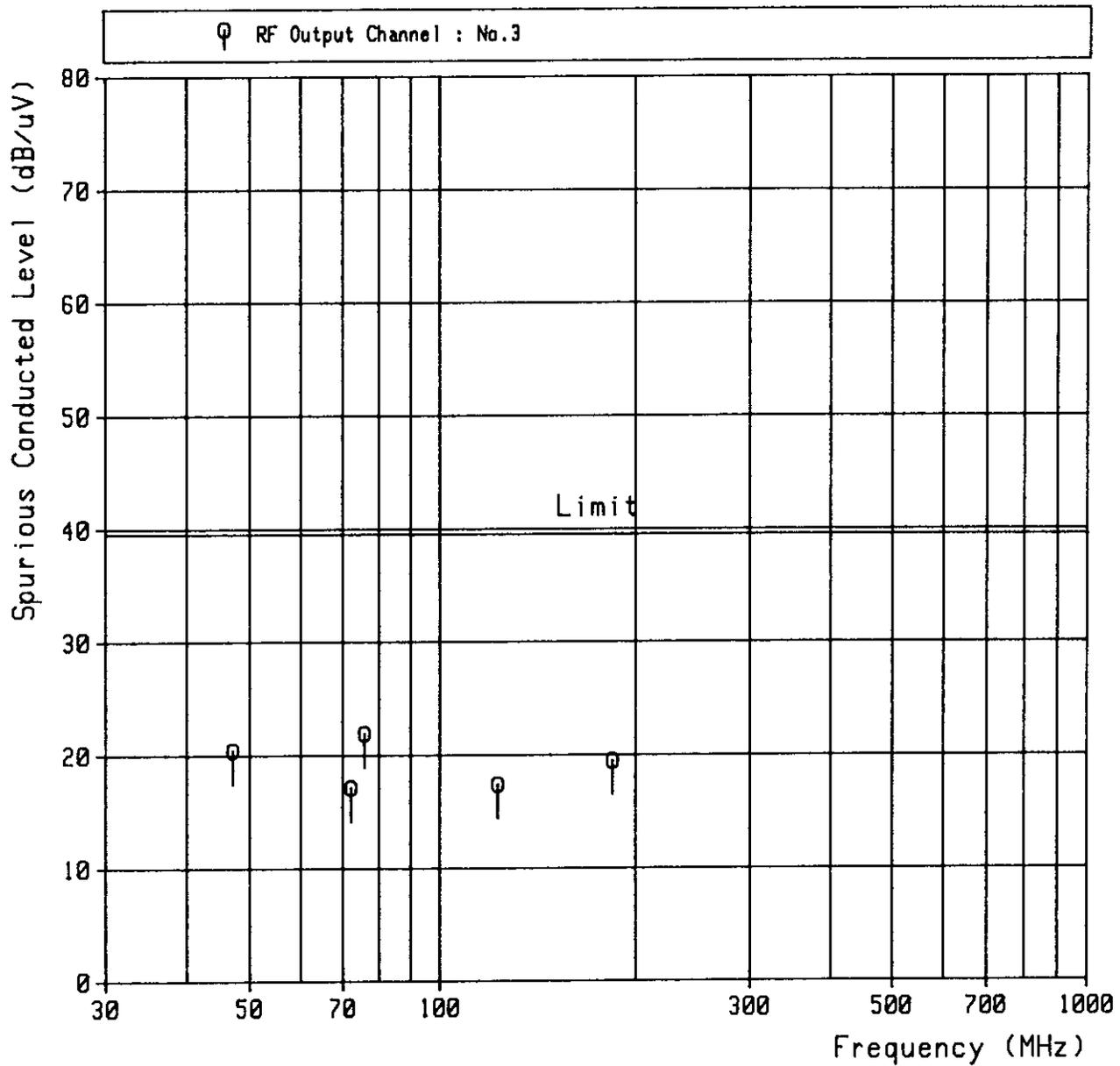
Model No. : VC-S100U

Serial No. : 809000001

## §15.115(b)(2)(ii) Spurious Conducted Level Measurement

Testing Signal Sources : Internal Modulation Sources (NTSC TV Signal Recording Tape)

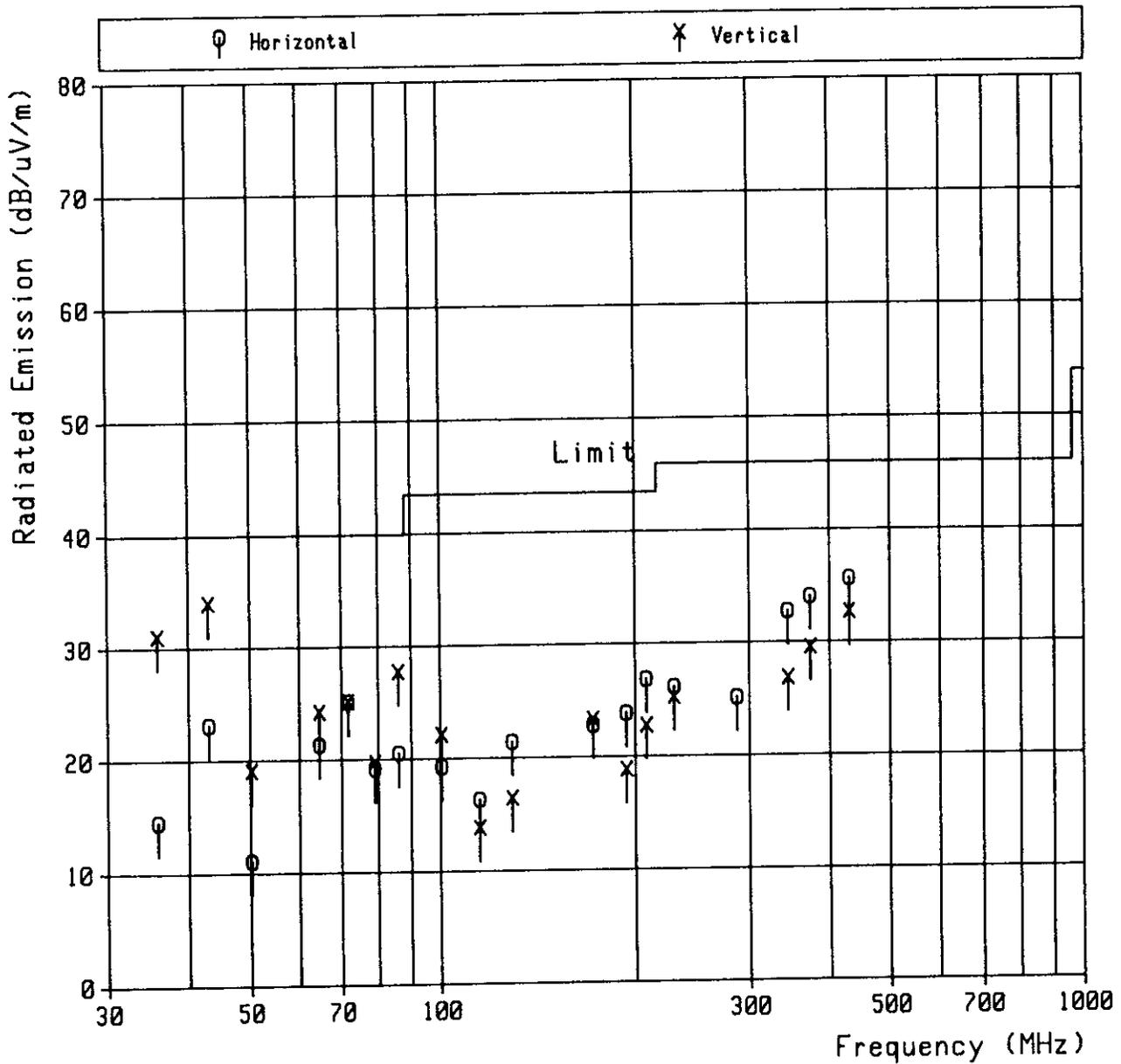
Operating Condition : Playing Mode



Model No. : VC-S100U  
Serial No. : 809000001

### §15.109(a) Radiated Emissions Measurement

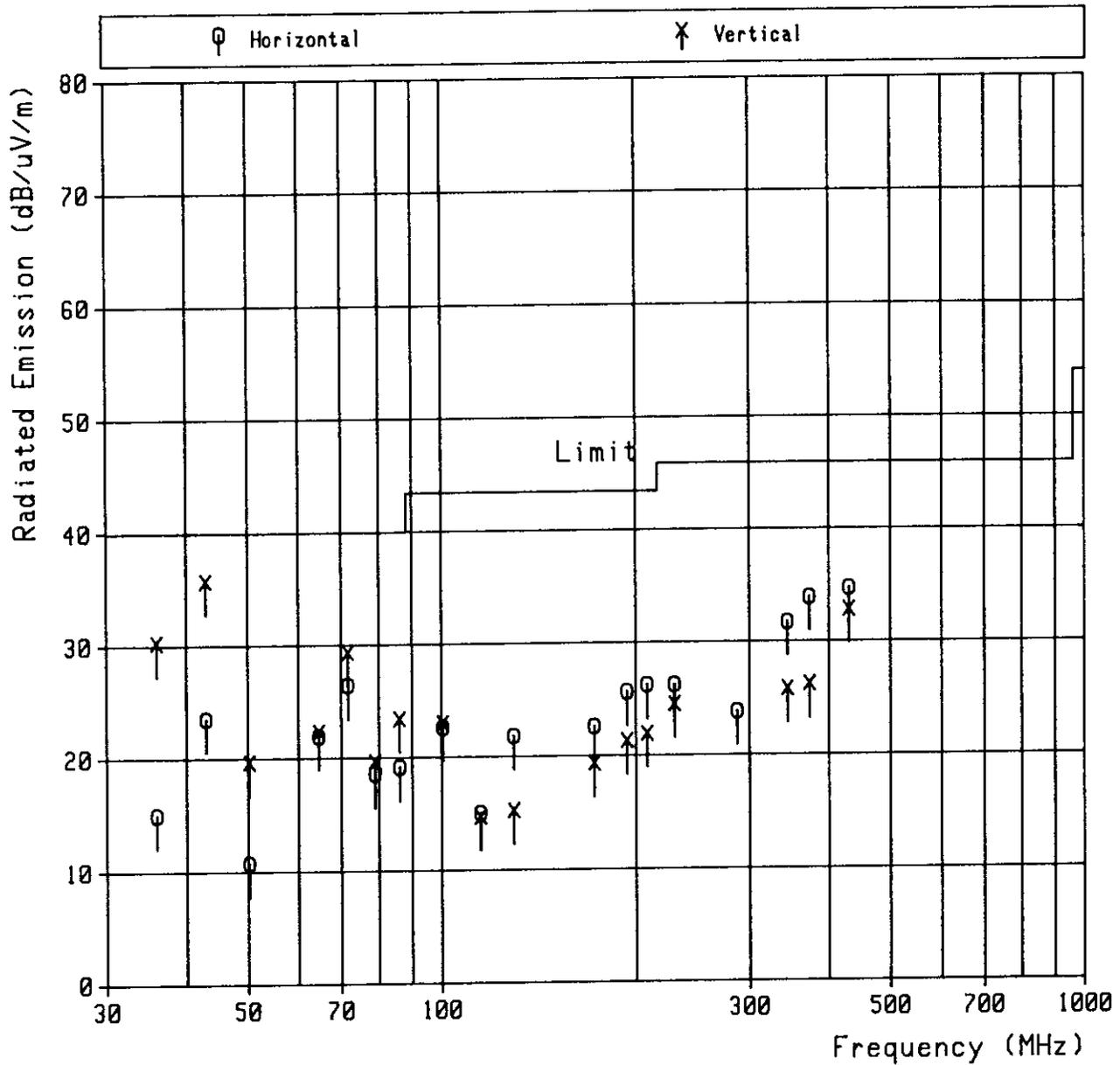
Testing Signal Sources : RF Modulation Sources (NTSC Colorbar : 70 dB/μV at 193.25 MHz)  
Operating Condition : Recording Mode



Model No. : VC-S100U  
Serial No. : 80900001

### §15.109(a) Radiated Emissions Measurement

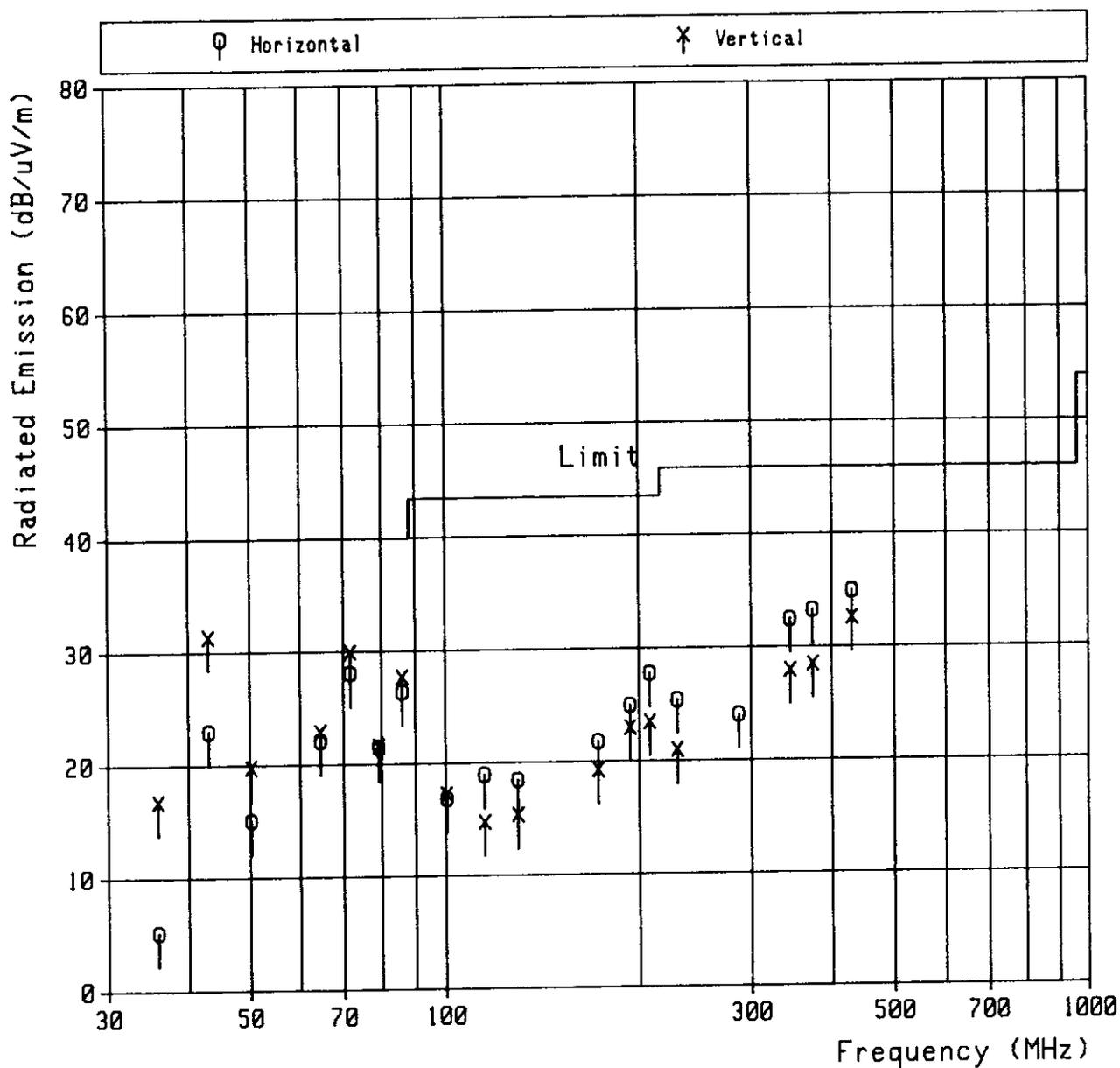
Testing Signal Sources : Video Modulation Sources (VITS : 1 Vp-p and 5 Vp-p)  
Operating Condition : Recording Mode



Model No. : VC-S100U  
Serial No. : 809000001

### §15.109(a) Radiated Emissions Measurement

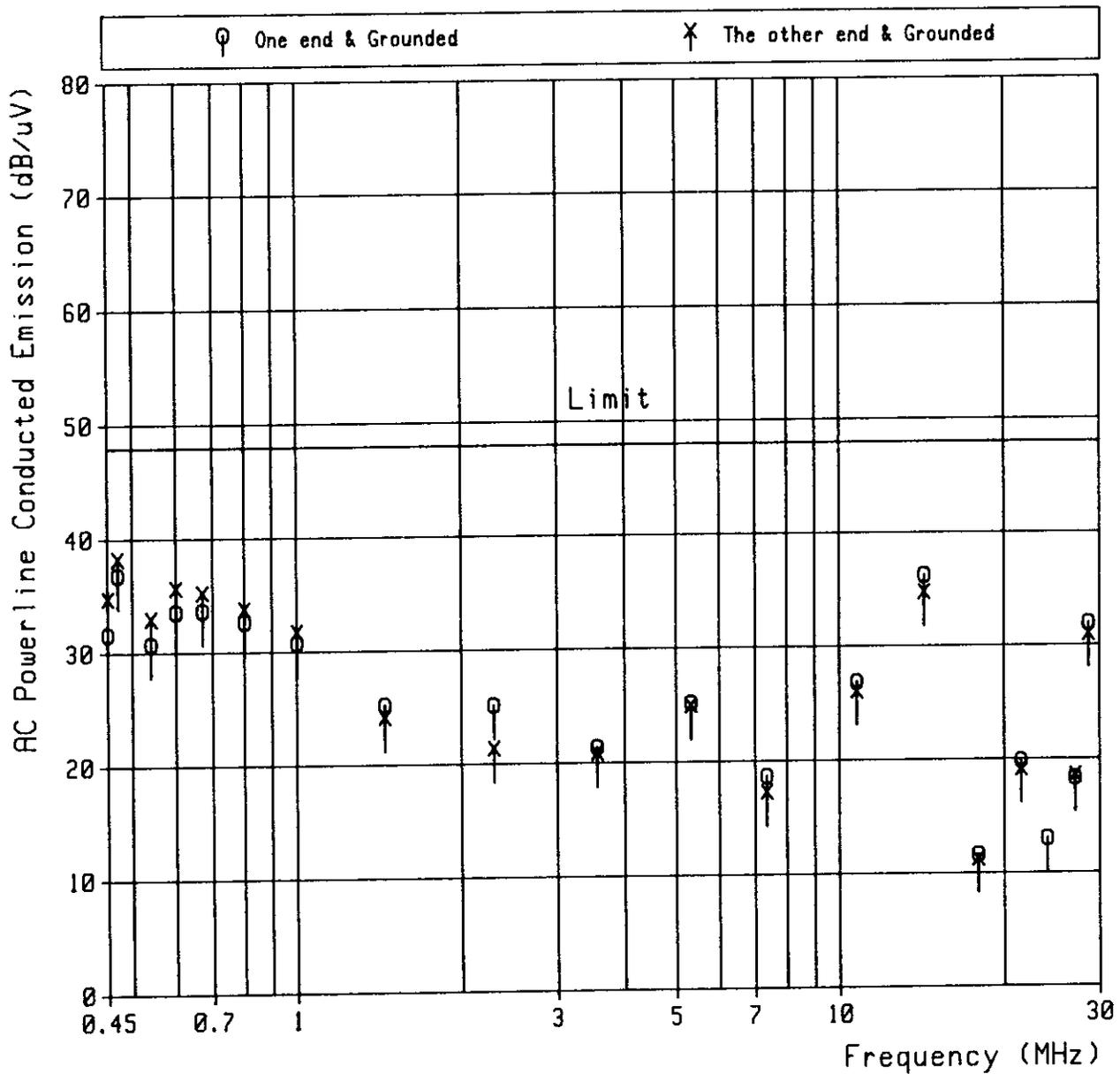
Testing Signal Sources : Internal Modulation Sources (NTSC TV Signal Recording Tape)  
Operating Condition : Playing Mode



Model No. : VC-S100U  
 Serial No. : 809000001

§15.107(a) AC Powerline Conducted Emissions Measurement

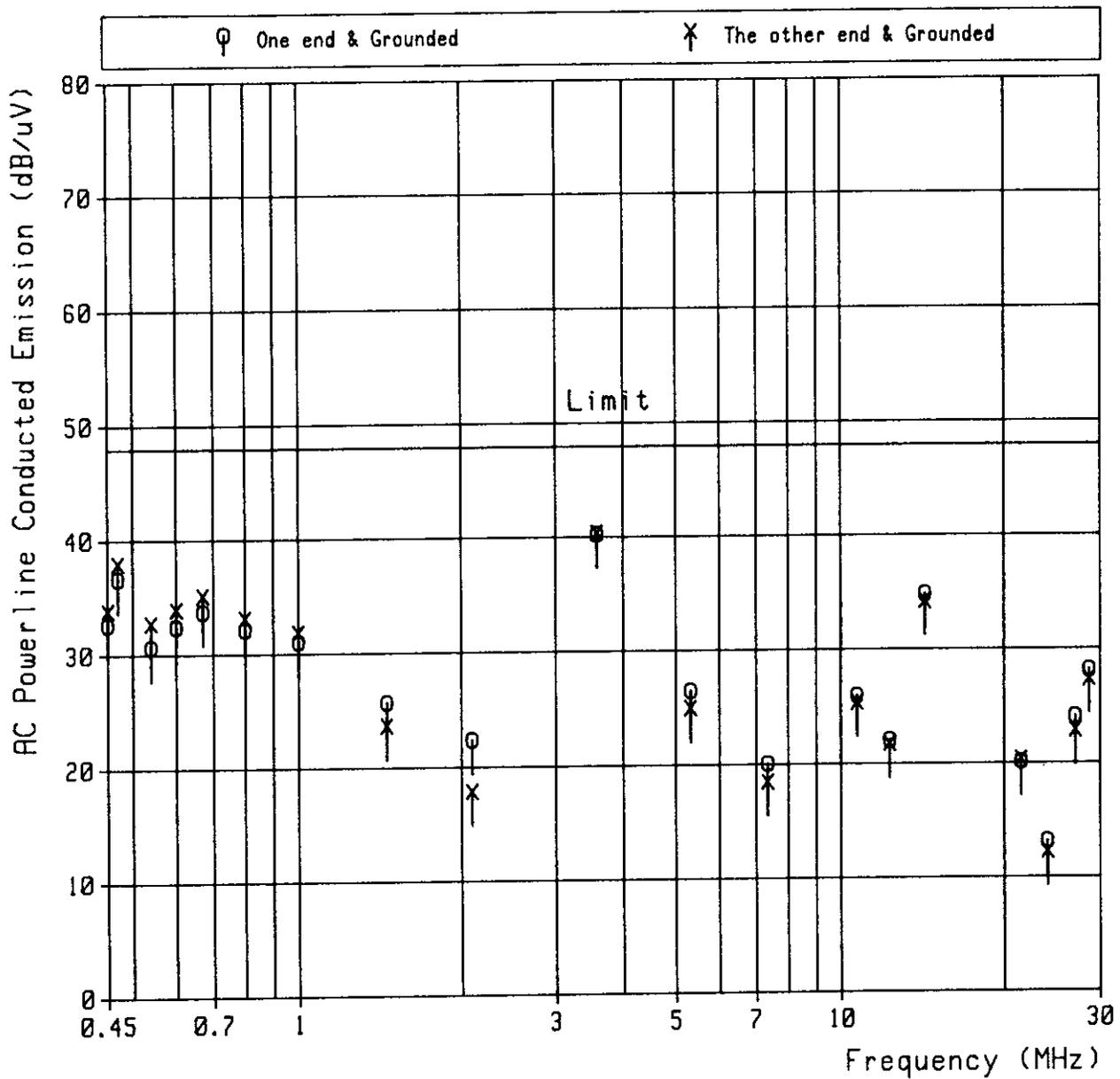
Testing Signal Sources : RF Modulation Sources (NTSC Colorbar : 70 dB/μV at 193.25 MHz)  
 Operating Condition : Recording Mode



Model No. : VC-S100U  
Serial No. : 809000001

### §15.107(a) AC Powerline Conducted Emissions Measurement

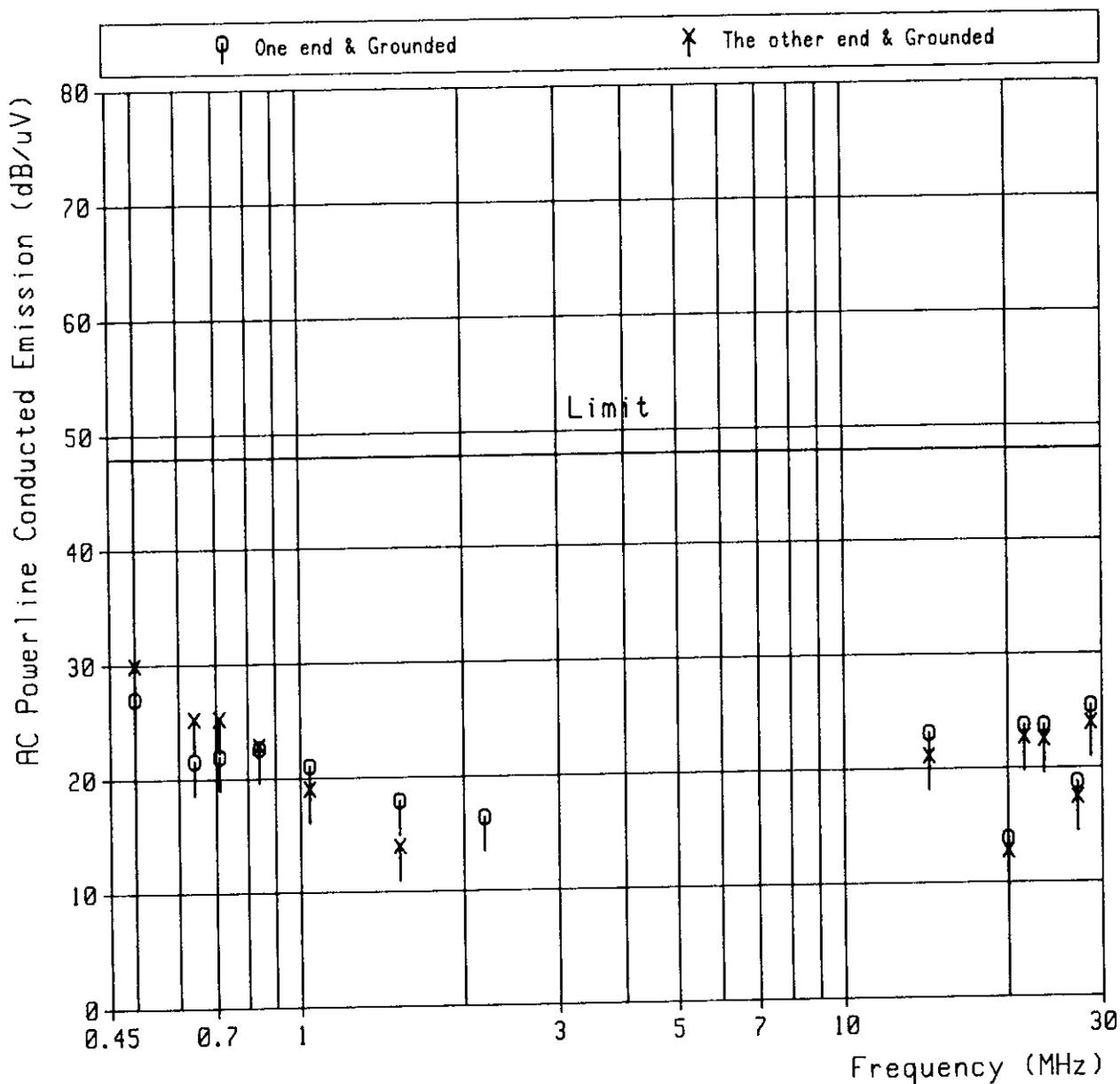
Testing Signal Sources : Video Modulation Sources (VITS : 1 Vp-p and 5 Vp-p)  
Operating Condition : Recording Mode



Model No. : VC-S100U  
Serial No. : 809000001

§15.107(a) AC Powerline Conducted Emissions Measurement

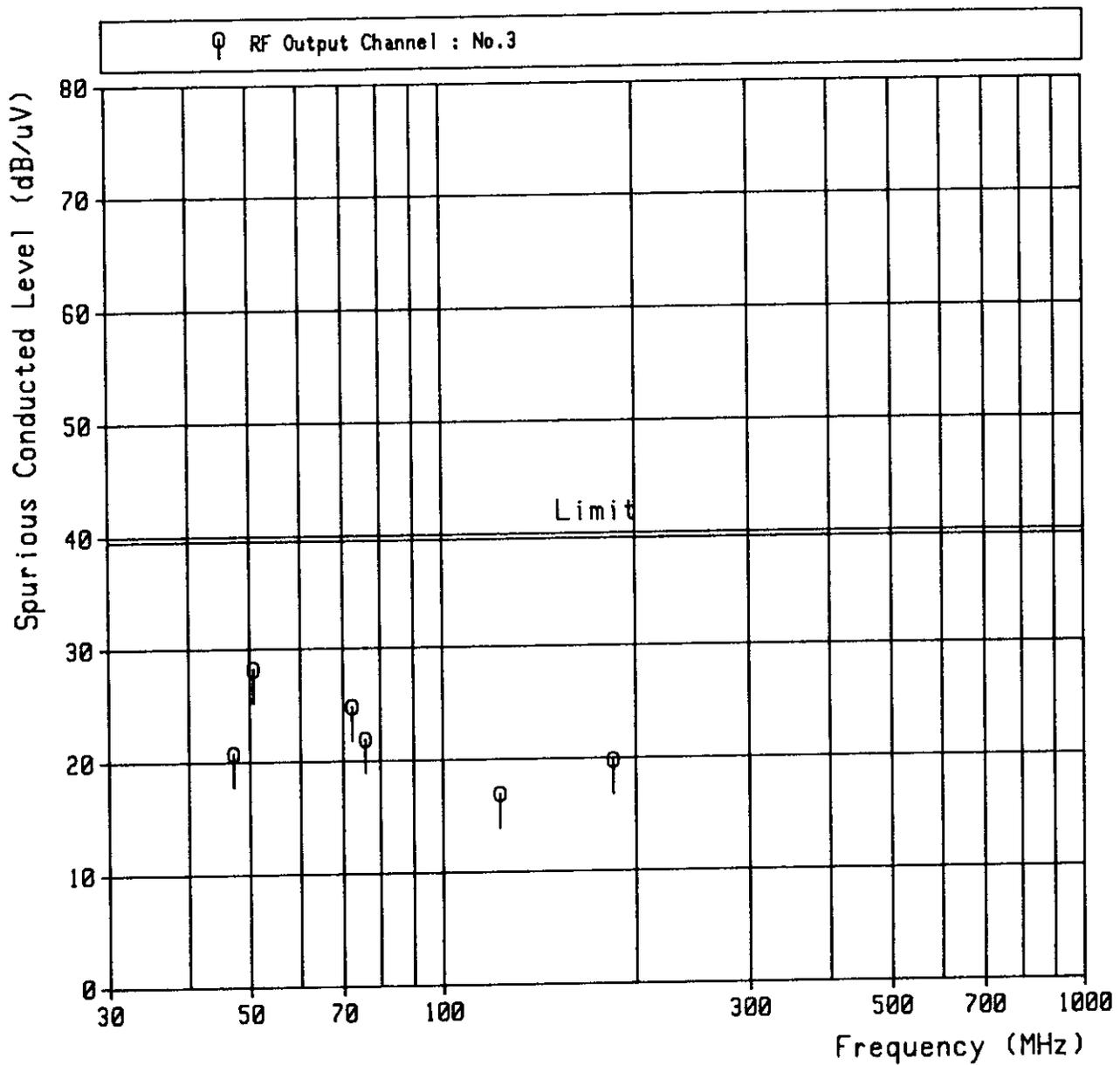
Testing Signal Sources : Internal Modulation Sources (NTSC TV Signal Recording Tape)  
Operating Condition : Playing Mode



Model No. : VC-S100U  
Serial No. : 809000001

### §15.115(b)(2)(ii) Spurious Conducted Level Measurement

Testing Signal Sources : RF Modulation Sources (NTSC Colorbar : 70 dB/uV at 193.25 MHz)  
Operating Condition : Recording Mode



Model No. : VC-S100U  
Serial No. : 80900001

### §15.115(b)(2)(ii) Spurious Conducted Level Measurement

Testing Signal Sources : RF Modulation Sources (NTSC Colorbar : 70 dB/uV at 193.25 MHz)  
Operating Condition : Recording Mode

