

**MATSUSHITA-KOTOBUKI
ELECTRONICS INDUSTRIES LTD.**

VIDEO DEVELOPMENT CENTER
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REPORT OF MEASUREMENTS--(Part I)
REQUIRED IN (X)SUBPART B(TV INTERFACE DEVICE)
() () ()

Date: Aug. 31, 1998

EXHIBIT #: 1
FCC ID : ACJ927104AHP
Our Ref. : MKS98-F013
Model No. : NV-HD7080PX
Sheet 1 of 15 Sheets

Name of Manufacturer: Matsushita-Kotobuki Electronics Industries Ltd.

Address of Manufacturer: 247 Fukutake, Saijo, Ehime, Japan

Device Under Measurement

FCC ID : ACJ927104AHP
Model No. : NV-HD7080PX
Trade Name : Panasonic
Applicant : Matsushita Electric Ind. Co., Ltd.
This device is a representative model of KG-17WPX chassis group.

Data Also Applied To

FCC ID Model No.(Trade Name)

Device Description

Name of Device : (X)Video Cassette Recorder, ()Tuner Adapter

Frequency : VHF 3 or 4 Ch.

Video Line Terminals: (X)Provided, ()Not Provided

Accessories : RF Out Cable(1.0 m),
Video/Audio out Cable(1.5m)

Certification

On the basis of the measurement data contained in Part II, all devices bearing the afore mentioned FCC ID (model No., chassis No., and trade names) are stated by the undersigned to be capable of complying with the applicable sections of Part 15 of the FCC rules governing restricted radiation devices at the time of manufacture and may be expected to continue to comply under normal conditions and with usual maintenance. The undersigned also states that the device measured was an engineering prototype, pre production, or production unit. If changes are applied to future units and such changes adversely alter spurious radiation, an amended report of measurements will be supplied to the FCC.



K. Ishikawa
Sr. Engineer

MATSUSHITA-KOTOBUKI ELECTRONICS INDUSTRIES LTD.

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Part 15 Subpart B, (TV Interface Device)- Part II

Sheet 2 of 15 Sheets

1) 15.107 Power Line Conducted Voltage

Freq. (MHz)	Limits (dBuV)	Interference (dBuV)	
		1-end & Grounded	The other- end & Gro.
0.46	48	32.4	29.5
0.78	48	30.9	30.0
1.39	48	31.8	30.7
2.36	48	24.4	25.1
4.33	48	25.5	26.7
28.64	48	30.6	29.9

(Refer to Sheet 3,10,12 of 15 Sheets)

2) 15.109 Radiated Emission(Including Tuner)

Freq. (MHz)	Limits (dBuV/m)	Emission (dBuV/m)	
		Horiz.	Vert.
57.27	40.0	29.4	27.2
71.59	40.0	23.3	24.9
114.55	43.5	27.8	25.1
157.50	43.5	30.6	26.9
461.00	46.0	38.6	37.1
1270.00	54.0	41.2	44.8

(Refer to Sheet 4,5,11,13,14,15 of 15 Sheets)

Note: Without Laurel Antenna
With accessories

3) 15.111 Antenna Power Conducted Voltage

Freq. (MHz)	Limits (dBuV)	Conducted Voltage (dBuV)
938.7	51.8	37.4
946.6	51.8	38.2
953.3	51.8	38.8
961.5	51.8	39.4
977.1	51.8	40.1
983.4	51.8	38.6

(Refer to Sheet 6 of 15 Sheets)

4) 15.115(b)(1) Output Signal Level

Ch	Limits (dBuV)		Level (dBuV)	
	Visual	Aural	Visual	Aural
3	69.5	56.5	65.4	51.7
4	69.5	56.5	65.0	50.2

(Refer to Sheet 7 of 15 Sheets)

5) 15.115(b)(2) Output Terminal
Conducted Interference

Ch	Freq. (MHz)	Limits (dBuV)	Interference (dBuV)
3	52.25	39.5	21.7
	70.25	39.5	18.6
	118.00	39.5	17.8
	122.50	39.5	36.2
	127.00	39.5	22.6
	183.75	39.5	23.5
4	58.25	39.5	21.5
	76.25	39.5	17.3
	130.00	39.5	22.7
	134.50	39.5	34.8
	139.00	39.5	21.2
	201.75	39.5	19.5

(Refer to Sheet 8 of 15 Sheets)

6) 15.115. Transfer SW Isolation

Ch	Limits (dBuV)	Level (dBuV)
3	9.5	<3.9
4	9.5	<3.9

(Refer to Sheet 9 of 15 Sheets)


MEASUREMENT SITE : MKS Site

MEASUREMENT PROCEDURE : ANSI C63.4-1992

Note:(1) Detailed report: Refer to attached sheets.

I HEREBY STATE THAT: The measurements shown in Part II 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 qualifications of all persons taking them.

I FURTHER STATE THAT: On the basis of the measurements made, the device tested is capable of operation in compliance with the requirements of Part 15 of the FCC Rules under normal use and maintenance.


T. Watanabe
Engineer

1) 15.107 Power Line Conducted Voltage

Video Signal	Freq. (MHz)	Meter Read. (dBuV)		LISN Factor (dB)	Matching Pad Loss (Db)	Interference (dBuV)	
		1-end & Gro.	The other-End&Gro.			1-end & Gro.	The other-End &Gro.
Multi Burst 1 V p-p	0.46	25.7	23.1	0.1	6.2	32.0	29.4
	0.78	24.5	23.2	0.1	6.2	30.8	29.5
	1.39	24.7	23.4	0.1	6.2	31.1	29.8
	2.36	18.9	18.5	0.1	6.2	25.4	25.0
	4.33	18.2	19.1	0.2	6.2	24.9	25.8
	28.64	23.4	23.0	0.9	6.2	30.1	29.7
Multi Burst 5 V p-p	0.46	26.1	23.2	0.1	6.2	32.4	29.5
	0.78	24.6	23.7	0.1	6.2	30.9	30.0
	1.39	25.4	24.3	0.1	6.2	31.8	30.7
	2.36	17.9	18.6	0.1	6.2	24.4	25.1
	4.33	18.8	20.0	0.2	6.2	25.5	26.7
	28.64	23.9	23.2	0.9	6.2	30.6	29.9
Internal Signal	0.46	25.6	23.0	0.1	6.2	31.9	29.3
	0.78	24.5	23.3	0.1	6.2	30.8	29.6
	1.39	24.3	25.0	0.1	6.2	30.7	31.4
	2.36	18.6	18.8	0.1	6.2	25.1	25.3
	4.33	19.1	20.9	0.2	6.2	25.8	27.6
	28.64	23.2	22.5	0.9	6.2	29.9	29.2
RF/CATV Signal Input	0.46	25.5	23.1	0.1	6.2	31.8	29.4
	0.78	24.3	23.3	0.1	6.2	30.6	29.6
	1.39	25.0	25.1	0.1	6.2	31.4	31.5
	2.36	18.5	18.4	0.1	6.2	25.0	24.9
	4.33	18.7	20.8	0.2	6.2	25.4	27.5
	28.64	22.9	22.4	0.9	6.2	29.6	29.1

Note:

1. Sample calculation at

M.B., 1 V p-p, 1-end & Gro. 0.46 MHz ; $25.7 + 0.1 + 6.2 = 32.0$ (dBuV)

2. Measuring Instruments:

- a) Field strength meter - Kyoritsu Electric Work Co., Ltd.
Model : KNM-402C
(1) Detector function : CISPR Q-Peak
(2) IF band width : 9 kHz
(3) Input impedance : 75 ohms
- b) Line impedance stabilized network (LISN)
- Kyoritsu Electric Work Co., Ltd.
Model : KNW-406
50 ohms / 50 uH network
- c) Test Signal Generator - Shibasoku Co., Ltd.
(Multi Burst) Model : 205
- d) Matching pad - Kyoritsu Electric Work Co., Ltd.
Model : KPD-401

3. The spectrum was checked from 0.45 MHz to 30 MHz and the six highest emissions relative to the appropriate limit were measured and reported.

2) 15.109 Radiated Emission(Including Tuner, Without Accessories)

Video Signal	Frequency (MHz)	Meter Reading Open Volt. (dBuV)		Correction Factor (dB) Open Vol.	Emission & 3 meters(dBuV)	
		Horiz.	Vert.		Horiz.	Vert.
Multi Burst 1 V p-p	57.27	15.4	15.9	11.0	26.4	26.9
	71.59	13.4	13.9	7.8	21.2	21.7
	114.55	10.3	10.2	14.5	24.8	24.7
	157.50	8.3	7.5	17.9	26.2	25.4
	461.00	14.4	12.5	22.5	36.9	35.0
	1270.00	6.7	8.2	34.1	40.8	42.3
Multi Burst 5 V p-p	57.27	14.8	15.8	11.0	25.8	26.8
	71.59	13.5	14.0	7.8	21.3	21.8
	114.55	10.9	10.5	14.5	25.4	25.0
	157.50	9.7	7.4	17.9	27.6	25.3
	461.00	14.4	12.5	22.5	36.9	35.0
	1270.00	6.7	8.2	34.1	40.8	42.3
Internal Signal	57.27	13.6	15.4	11.0	24.6	26.4
	71.59	13.0	14.2	7.8	20.8	22.0
	114.55	10.9	9.3	14.5	25.4	23.8
	157.50	8.8	8.0	17.9	26.7	25.9
	461.00	14.4	12.5	22.5	36.9	35.0
	1270.00	6.7	8.2	34.1	40.8	42.3
RF/CATV Signal Input	57.27	14.3	15.5	11.0	25.3	26.5
	71.59	13.1	14.9	7.8	20.9	22.7
	114.55	11.1	9.1	14.5	25.6	23.6
	157.50	9.5	7.8	17.9	27.4	25.7
	461.00	14.4	12.5	22.5	36.9	35.0
	1270.00	6.7	8.2	34.1	40.8	42.3

Note: 1. Sample calculation at

M.B., 1 V p-p, Horiz. 57.27 MHz ; $15.4 + 11.0 = 26.4$ (dBuV/m)

2. Measuring Instruments:

a) Field strength meter - Rohde & Schwarz

(for 30 MHz to 1G Hz)

Model : ESPV

(1) Frequency range : 20 MHz to 1300 MHz

(2) RF Input : 50 ohm

(3) IF band width : 7.5 kHz/12 kHz/120k Hz/1MHz

(4) Detector function : Average/CISPR Q-Peak/Peak

b) Spectrum Analyzer - ADVANTEST Co., Ltd.

(for more than 1G Hz)

Model : R3261A

(1) Frequency range : 9 kHz to 2.6G Hz

(2) RF Input : 50 ohm

(3) IF band width : 30 Hz to 1 MHz
200 Hz/9 kHz/120 kHz

(4) Detector function : CISPR Q-Peak/Peak

c) Test Signal Generator - Shibasoku Co., Ltd.

(Multi Burst)

Model : TG-5, 2U2

d) Receiving antenna

- Schwarzbeck

Model : VHA9103 30 - 300 MHz

Model : UHALP9107 300 - 1000 MHz

- The Electro-Mechanics Company

Model : 3115 1 - 18G Hz

3. The spectrum was checked from 30 MHz to 1694 MHz and the six highest emissions relative to the appropriate limit were measured and reported.

2) 15.109 Radiated Emission(Including Tuner, With Accessories)

Video Signal	Frequency (MHz)	Meter Reading Open Volt. (dBuV)		Correction Factor (dB) Open Vol.	Emission & 3 meters(dBuV)	
		Horiz.	Vert.		Horiz.	Vert.
Multi Burst 1 V p-p	57.27	17.4	16.4	11.0	28.4	27.4
	71.59	16.0	16.9	7.8	23.8	24.7
	114.55	11.9	10.6	14.5	26.4	25.1
	157.50	9.9	8.4	17.9	27.8	26.3
	461.00	16.1	14.6	22.5	38.6	37.1
	1270.00	7.1	10.7	34.1	41.2	44.8
Multi Burst 5 V p-p	57.27	17.5	16.3	11.0	28.5	27.3
	71.59	14.9	17.8	7.8	22.7	25.6
	114.55	12.9	10.3	14.5	27.4	24.8
	157.50	10.2	8.8	17.9	28.1	26.7
	461.00	16.1	14.6	22.5	38.6	37.1
	1270.00	7.1	10.7	34.1	41.2	44.8
Internal Signal	57.27	17.0	15.9	11.0	28.0	26.9
	71.59	14.2	16.4	7.8	22.0	24.2
	114.55	13.1	11.1	14.5	27.6	25.6
	157.50	11.7	9.4	17.9	29.6	27.3
	461.00	16.1	14.6	22.5	38.6	37.1
	1270.00	7.1	10.7	34.1	41.2	44.8
RF/CATV Signal Input	57.27	18.4	16.2	11.0	29.4	27.2
	71.59	15.5	17.1	7.8	23.3	24.9
	114.55	13.3	10.6	14.5	27.8	25.1
	157.50	12.7	9.0	17.9	30.6	26.9
	461.00	16.1	14.6	22.5	38.6	37.1
	1270.00	7.1	10.7	34.1	41.2	44.8

Note: 1. Sample calculation at

M.B., 1 V p-p, Horiz. 57.27 MHz ; $17.4 + 11.0 = 28.4$ (dBuV/m)

2. Measuring Instruments:

- a) Field strength meter - Rohde & Schwarz
(for 30 MHz to 1G Hz) Model : ESVP
(1) Frequency range : 20 MHz to 1300 MHz
(2) RF Input : 50 ohm
(3) IF band width : 7.5 kHz/12 kHz/120 kHz/1MHz
(4) Detector function : Average/CISPR Q-Peak/Peak
- b) Spectrum Analyzer - ADVANTEST Co., Ltd.
(for more than 1G Hz) Model : R3261A
(1) Frequency range : 9 kHz to 2.6G Hz
(2) RF Input : 50 ohm
(3) IF band width : 30 Hz to 1 MHz
200 Hz/9 kHz/120 kHz
(4) Detector function : CISPR Q-Peak/Peak
- c) Test Signal Generator - Shibasoku Co., Ltd.
(Multi Burst) Model : TG-5, 2U2
- d) Receiving antenna - Schwarzbeck
Model : VHA9103 30 - 300 MHz
Model : UHALP9107 300 - 1000 MHz
- The Electro-Mechanics Company
Model : 3115 1 - 18G Hz

3. The spectrum was checked from 30 MHz to 1694 MHz and the six highest emissions relative to the appropriate limit were measured and reported.

3) 15.111 (a) Antenna Power Conducted Voltage

Frequency (MHz)	Meter Reading (dBuV)	Matc. Pad Loss (dB)	Interference (dBuV)
938.7	28.6	8.8	37.4
946.6	29.4	8.8	38.2
953.3	30.0	8.8	38.8
961.5	30.6	8.8	39.4
977.1	31.3	8.8	40.1
983.4	29.8	8.8	38.6

Antenna Input Impedance: 75 ohms (Unbalanced)

Note:

1. Sample calculation at 938.7 MHz ; 30.0 + 8.8 = 38.8 (dBuV)

2. Measuring Instrument:

a) Spectrum Analyzer

- ADVANTEST Co., Ltd.

Model : R3261A

(1) Detector function : Peak

(2) Band width : 300 kHz

b) Matching Pad

- Anritsu Electric Co., Ltd.

Model : MB-009

(1) Frequency range : DC - 2G Hz

3. The spectrum was checked from 30 MHz to 1694 MHz and the six highest emissions relative to the appropriate limit were measured and reported.

4) 15.115 (b) (1) Output Signal Level

Video Signal	Ch	Measured Frequency(MHz)		Meter Reading (dBuV)		Pad Loss (dB)	Output Signal Level (dBuV)	
		Visual	Aural	Visual	Aural		Visual	Aural
Multi Burst 1 V p-p	3	61.25	65.75	63.1	49.4	2.3	65.4	51.7
	4	67.25	71.75	62.7	47.9	2.3	65.0	50.2
Multi Burst 5 V p-p	3	61.25	65.75	63.1	49.4	2.3	65.4	51.7
	4	67.25	71.75	62.7	47.9	2.3	65.0	50.2
Internal Signal	3	61.25	65.75	63.1	49.4	2.3	65.4	51.7
	4	67.25	71.75	62.7	47.9	2.3	65.0	50.2
RF/CATV Signal	3	61.25	65.75	63.1	49.4	2.3	65.4	51.7
	4	67.25	71.75	62.7	47.9	2.3	65.0	50.2

RF Output Impedance: 75 ohms (Unbalanced)

Note:

1. Sample calculation at

M.B., 1 V p-p, Visual, 3 Ch ; 63.1 + 2.3 = 65.4 (dBuV)

2. Measuring Instrument:

- a) Spectrum Analyzer - Anritsu Electric Co., Ltd.
Model : MS62B
(1) Detector function : Peak
(2) Band width : 300 kHz
- b) Matching Pad - Anritsu Electric Co., Ltd.
Model : MP614A
(1) Frequency range : 10 - 1200 MHz
- c) Test Signal Generator - Shibasoku Co., Ltd.
(Multi Burst) Model : 205

Part 15 Subpart B, (TV Interface Device)

5) 15.115 (b) (2) Output Terminal Conducted Interference

Video Signal	Ch	Freq. (MHz)	Meter Read. (dBuV)	Matc. Pad Loss (dB)	Att. Pad Loss(dB)	Gain of Amp.(dB)	Interference (dBuV)
Multi Burst 1 V p-p	3	52.25	43.7	2.3	N/A	24.3	21.7
		70.25	40.7	2.3	N/A	24.4	18.6
		118.00	39.9	2.3	N/A	24.4	17.8
		122.50	58.2	2.3	N/A	24.3	36.2
		127.00	44.6	2.3	N/A	24.3	22.6
		183.75	45.5	2.3	N/A	24.3	23.5
	4	58.25	43.6	2.3	N/A	24.4	21.5
		76.25	39.4	2.3	N/A	24.4	17.3
		130.00	44.7	2.3	N/A	24.3	22.7
		134.50	56.8	2.3	N/A	24.3	34.8
		139.00	43.2	2.3	N/A	24.3	21.2
		201.75	41.5	2.3	N/A	24.3	19.5
Multi Burst 5 V p-p	3	52.25	43.7	2.3	N/A	24.3	21.7
		70.25	40.7	2.3	N/A	24.4	18.6
		118.00	39.9	2.3	N/A	24.4	17.8
		122.50	58.2	2.3	N/A	24.3	36.2
		127.00	44.6	2.3	N/A	24.3	22.6
		183.75	45.5	2.3	N/A	24.3	23.5
	4	58.25	43.6	2.3	N/A	24.4	21.5
		76.25	39.4	2.3	N/A	24.4	17.3
		130.00	44.7	2.3	N/A	24.3	22.7
		134.50	56.8	2.3	N/A	24.3	34.8
		139.00	43.2	2.3	N/A	24.3	21.2
		201.75	41.5	2.3	N/A	24.3	19.5
Internal Signal	3	52.25	43.7	2.3	N/A	24.3	21.7
		70.25	40.7	2.3	N/A	24.4	18.6
		118.00	39.9	2.3	N/A	24.4	17.8
		122.50	58.2	2.3	N/A	24.3	36.2
		127.00	44.6	2.3	N/A	24.3	22.6
		183.75	45.5	2.3	N/A	24.3	23.5
	4	58.25	43.6	2.3	N/A	24.4	21.5
		76.25	39.4	2.3	N/A	24.4	17.3
		130.00	44.7	2.3	N/A	24.3	22.7
		134.50	56.8	2.3	N/A	24.3	34.8
		139.00	43.2	2.3	N/A	24.3	21.2
		201.75	41.5	2.3	N/A	24.3	19.5
RF/CATV Signal Input	3	52.25	43.7	2.3	N/A	24.3	21.7
		70.25	40.7	2.3	N/A	24.4	18.6
		118.00	39.9	2.3	N/A	24.4	17.8
		122.50	58.2	2.3	N/A	24.3	36.2
		127.00	44.6	2.3	N/A	24.3	22.6
		183.75	45.5	2.3	N/A	24.3	23.5
	4	58.25	43.6	2.3	N/A	24.4	21.5
		76.25	39.4	2.3	N/A	24.4	17.3
		130.00	44.7	2.3	N/A	24.3	22.7
		134.50	56.8	2.3	N/A	24.3	34.8
		139.00	43.2	2.3	N/A	24.3	21.2
		201.75	41.5	2.3	N/A	24.3	19.5

Note:

1. Sample calculation at

M.B., 1 V p-p, 3 Ch., 52.25 MHz ; $43.7 + 2.3 - 24.3 = 21.7$ (dBuV)

2. Measuring Instrument:

- a) Spectrum Analyzer - Anritsu Electric Co., Ltd.
Model : MS62B
(1) Detector function : Peak
(2) Band width : 300 kHz
- b) Matching Pad - Anritsu Electric Co., Ltd.
Model : MP614A
(1) Frequency range : 10 - 1200 MHz
- c) Test Signal Generator (Multi Burst) - Shibasoku Co., Ltd.
Model : 205
- d) Amplifier - Hewlett Packard
Model : 8447F

3. The spectrum was checked from 30 MHz to 1000 MHz and the six highest emissions relative to the appropriate limit were measured and reported.

6) 15.115 (c) Transfer Switch Isolation

Video Signal	Ch	Meter Read.(dBuV)	Matching Pad Loss(dB)	Gain of Amp.(dB)	Pad Loss (dB)	Level (dBuV)
Multi Burst 1 V p-p	3	<26.0	2.3	24.4	N/A	<3.9
	4	<26.0	2.3	24.4	N/A	<3.9
Multi Burst 5 V p-p	3	<26.0	2.3	24.4	N/A	<3.9
	4	<26.0	2.3	24.4	N/A	<3.9
Internal Signal	3	<26.0	2.3	24.4	N/A	<3.9
	4	<26.0	2.3	24.4	N/A	<3.9
	3					
	4					

RF Output Impedance: 75 ohms (Unbalanced)

Note:

1. Sample calculation at

$$\text{M.B., 1 V p-p, Visual, 3 Ch ; } <26.0 + 2.3 - 24.4 = <3.9 \text{ (dBuV)}$$

2. Measuring Instrument:

- a) Spectrum Analyzer - Anritsu Electric Co., Ltd.
Model : MS62B
(1) Detector function : Peak
(2) Band width : 300 kHz
- b) Matching Pad - Anritsu Electric Co., Ltd.
Model : MP614A
(1) Frequency range : 10 - 1200 MHz
- c) Test Signal Generator - Shibasoku Co., Ltd.
(Multi Burst) Model : 205
- d) Amplifier - Hewlett Packard
Model : 8447F

3. The symbol of "<" means "or less".

KNW-406 LISN

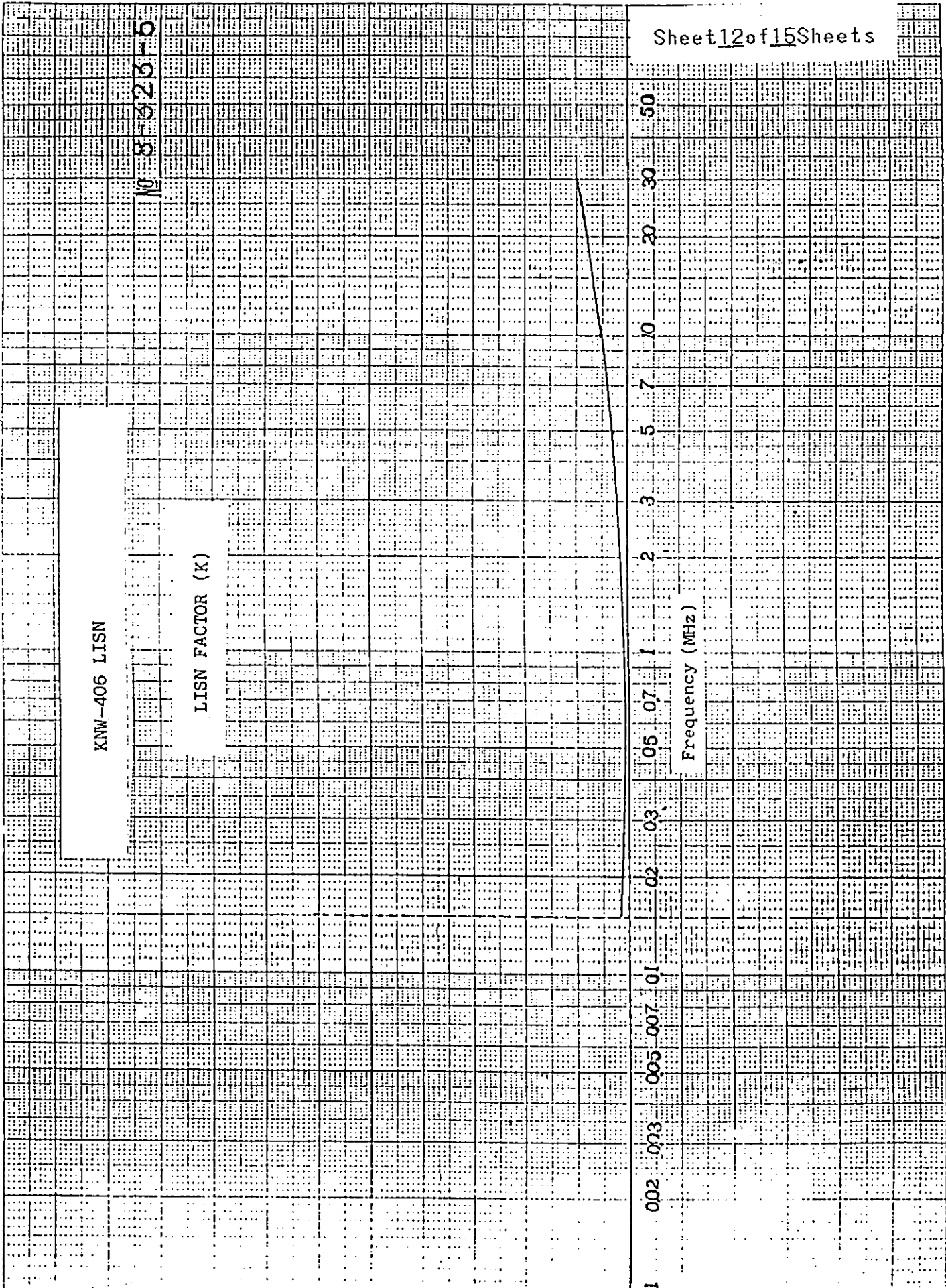
8-19-26-6

LISN FACTOR (K)

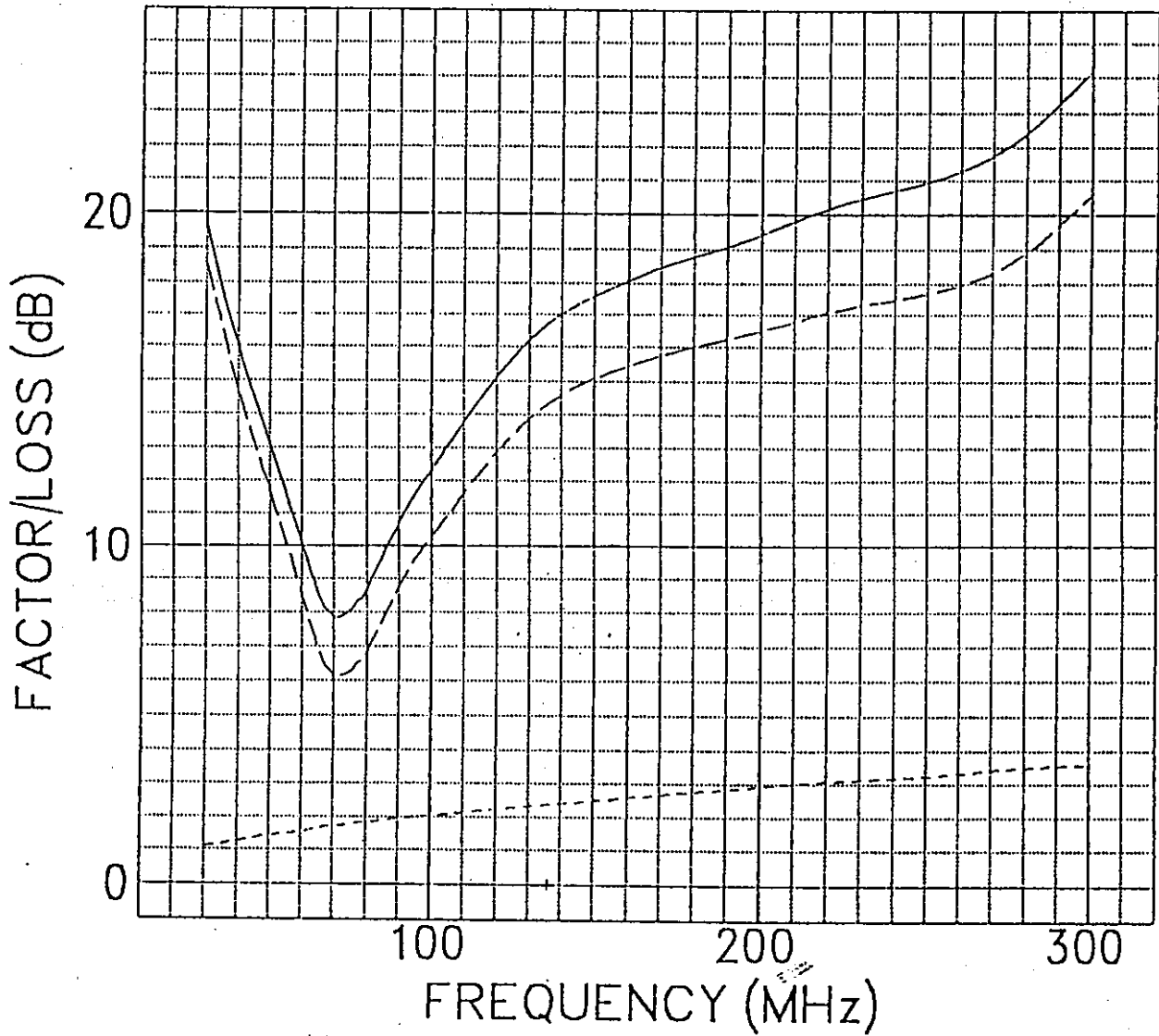
Sheet 12 of 15 Sheets

1 002 003 005 007 01 02 03 05 07 1 2 3 5 7 10 20 30 50

Frequency (MHz)



CORRECTION FACTOR OF BBA9106



$E = V + K$

E : Field Strength

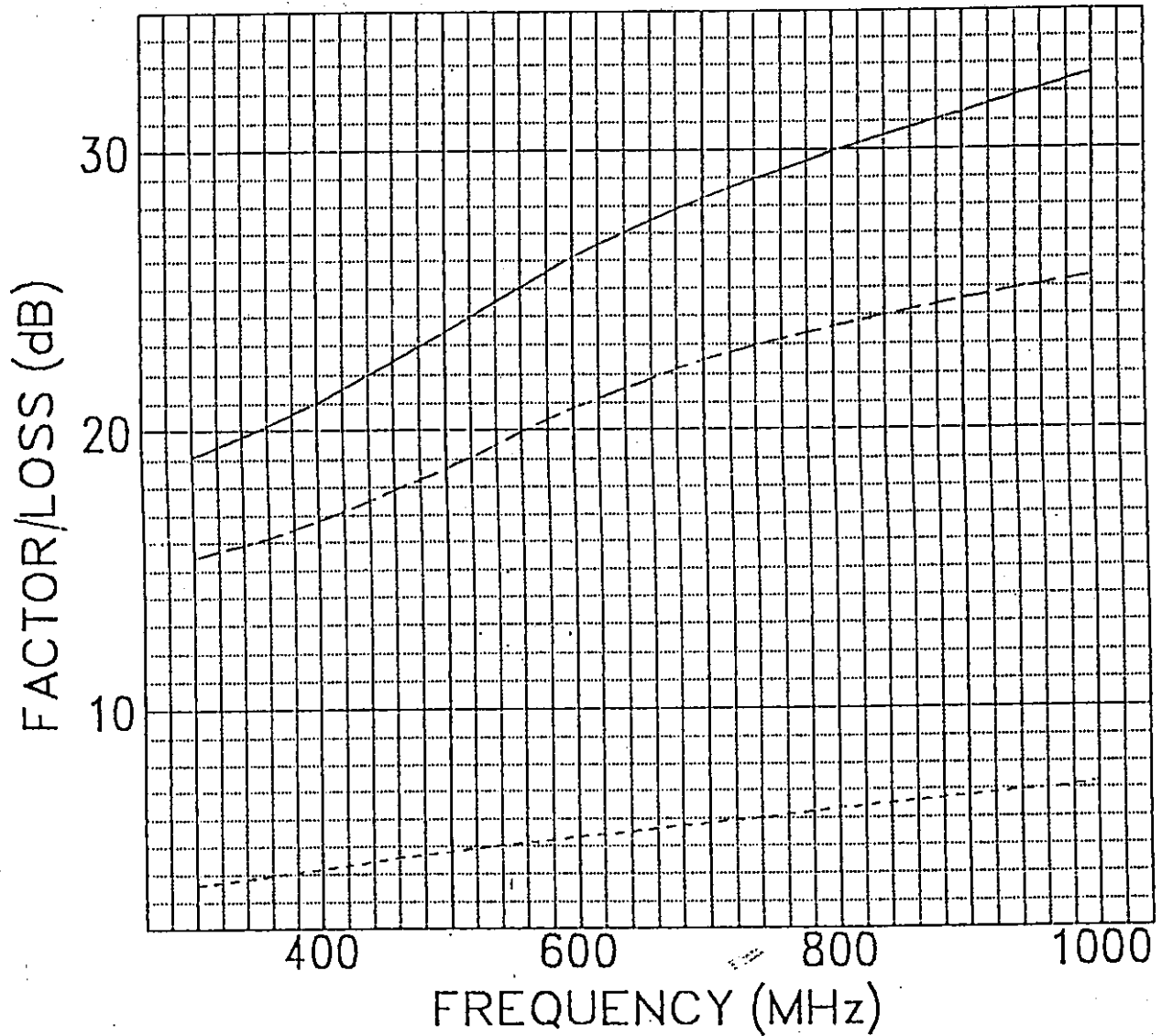
V : Correction Factor (dB)

———— : Correction Factor

----- : Antenna Factor

..... : Cable Loss

CORRECTION FACTOR OF UHALP9107



$$E = V + K$$

E : Field Strength

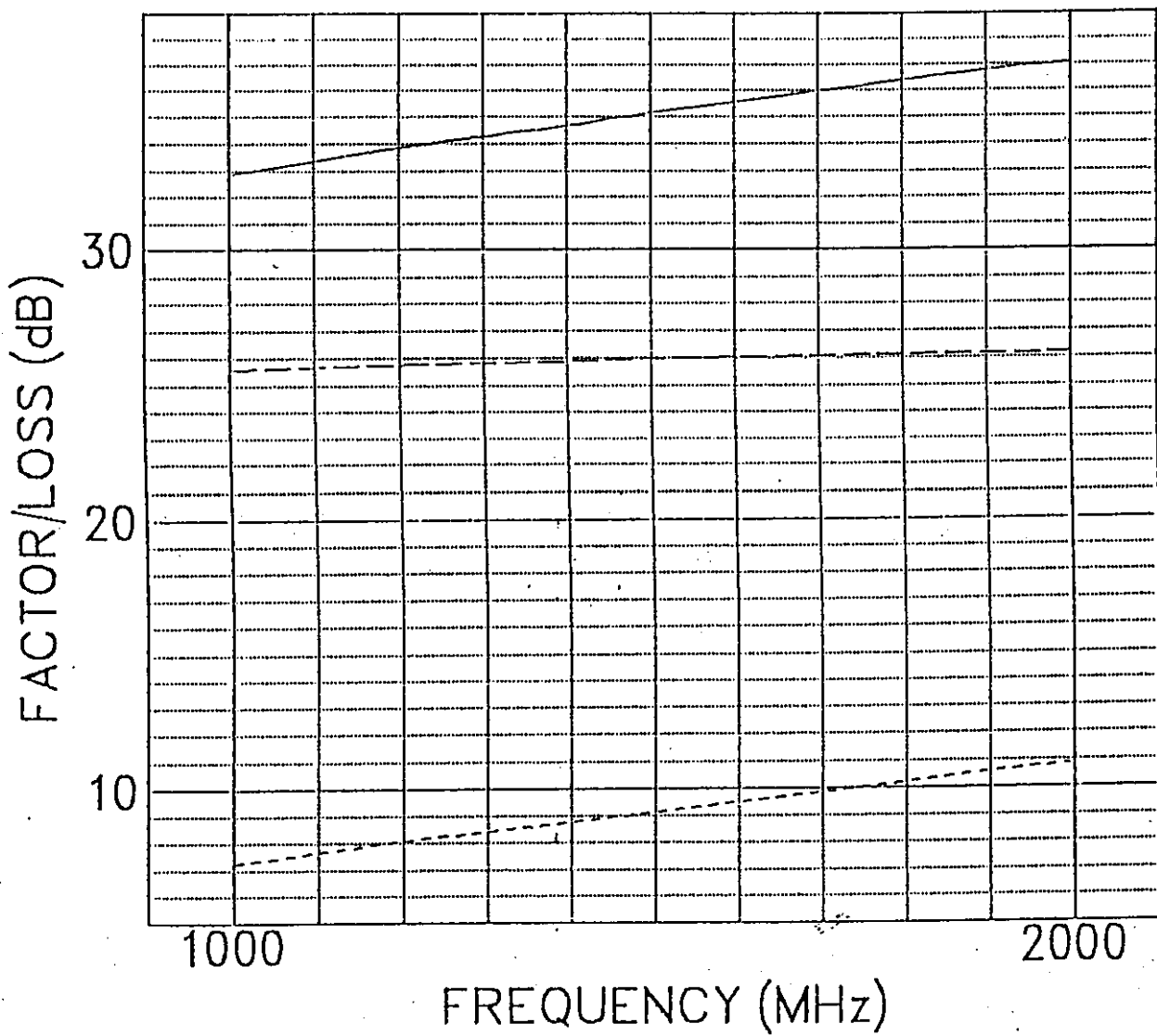
V : Correction Factor (dB)

———— : Correction Factor

----- : Antenna Factor

- · - · - : Cable Loss

CORRECTION FACTOR OF 3115



$E = V + K$

E : Field Strength

V : Correction Factor (dB)

———— : Correction Factor

----- : Antenna Factor

..... : Cable Loss