Certification

LIST OF EXHIBITS

Information on Sony UHF Synthesized Transmitter, models WRT-822A(64),WRT-822A(66) and WRT-822A(68) for the application of Certification pursuant to sec. 2.1033 of FCC Rules and Regulations, Part 2.

(a) Name of applicant:

Sony Corporation
7-35 Kitashinagawa 6-chome,
Shinagawa-ku, Tokyo, 141-0001 JAPAN

(Manufacturer of the subject model)

(b) Identification of equipment:

SONY WRT-822A(64) FCC ID: AK8WRT822A
SONY WRT-822A(66) FCC ID: AK8WRT822A
SONY WRT-822A(68) FCC ID: AK8WRT822A

(c) Production quantity:

10000 units

(d) Technical description:

(1) Type of emission:

110KF3E

(2) Frequency range:

770.125MHz – 805.875MHz
(Refer to Page 3-1 - 3-3)

(3) Operating power:

10 mW

(4) Maximum power rating:

250 mW

(5) The DC voltage and DC current rating of the final radio frequency amplifying device:

Collector voltage: 5.0 V DC
Collector current: 12mA DC

(6) Function of each semiconductor:

Refer to the attached block diagram. (Page 4)

(7) Complete circuit diagram:

Refer to the attached circuit diagrams. (Page 5 – 6)

(8) Instruction book:

Refer to the attached instruction manual. (Page 7 – 25)

(9) Tune-up procedure at specific operating power levels:

Refer to the attached Tune-up procedure. (Page 26)

(10)A description of circuitry for determining and stabilizing frequency:

Refer to the attached description. (Page 27)

(11)A description of circuits for suppression of spurious radiation:

Refer to the attached description. (Page 28)

(e) The measurement data required by sec. 2.1046 through 2.1057
Refer to the attached report of measurement. (Page 29 - 53)

(f) Drawing of the equipment identification plate:
Refer to the attached drawings. (Page 54)

(g) Photographs of the equipment construction:
Refer to the attached photos.

(d)-(2) Frequency range

TRANSMITTING CHANNEL AND FREQUENCY [WRT-822A(64)]

Channel	Frequency (MHz) TV-64 Band	Channel	Frequency (MHz) TV-65 Band
64-01	770.125	65-01	776.125
64-02	770.250	65-02	776.250
64-03	770.375	65-03	776.375
64-04	770.500	65-04	776.500
64-05	770.625	65-05	776.625
64-06	770.750	65-06	776.750
64-07	770.875	65-07	776.875
64-08	771.000	65-08	777.000
64-09	771.125	65-09	777.125
64-10	771.250	65-10	777.250
64-11	771.375	65-11	777.375
64-12	771.500	65-12	777.500
64-13	771.625	65-13	777.625
64-14	771.750	65-14	777.750
64-15	771.875	65-15	777.875
64-16	772.000	65-16	778.000
64-17	772.125	65-17	778.125
64-18	772.250	65-18	778.250
64-19	772.375	65-19	778.375
64-20	772.500	65-20	778.500
64-21	772.625	65-21	778.625
64-22	772.750	65-22	778.750
64-23	772.875	65-23	778.875
64-24	773.000	65-24	779.000
64-25	773.125	65-25	779.125
64-26	773.250	65-26	779.250
64-27	773.375	65-27	779.375
64-28	773.500	65-28	779.500
64-29	773.625	65-29	779.625
64-30	773.750	65-30	779.750
64-31	773.875	65-31	779.875
64-32	774.000	65-32	780.000
64-33	774.125	65-33	780.125
64-34	774.250	65-34	780.250
64-35	774.375	65-35	780.375
64-36	774.500	65-36	780.500
64-37	774.625	65-37	780.625
64-38	774.750	65-38	780.750
64-39	774.875	65-39	780.875
64-40	775.000	65-40	781.000
64-41	775.125	65-41	781.125
64-42	775.250	65-42	781.250
64-43	775.375	65-43	781.375
64-44	775.500	65-44	781.500
64-45	775.625	65-45	781.625
64-46	775.750	65-46	781.750
64-47	775.875	65-47	781.875

(d)-(2) Frequency range

TRANSMITTING CHANNEL AND FREQUENCY [WRT-822A(66)]

Channel	Frequency (MHz) TV-66 Band	Channel	Frequency (MHz) TV-67 Band
66-01	782.125	67-01	788.125
66-02	782.250	67-02	788.250
66-03	782.375	67-03	788.375
66-04	782.500	67-04	788.500
66-05	782.625	67-05	788.625
66-06	782.750	67-06	788.750
66-07	782.875	67-07	788.875
66-08	783.000	67-08	789.000
66-09	783.125	67-09	789.125
66-10	783.250	67-10	789.250
66-11	783.375	67-11	789.375
66-12	783.500	67-12	789.500
66-13	783.625	67-13	789.625
66-14	783.750	67-14	789.750
66-15	783.875	67-15	789.875
66-16	784.000	67-16	790.000
66-17	784.125	67-17	790.125
66-18	784.250	67-18	790.250
66-19	784.375	67-19	790.375
66-20	784.500	67-20	790.500
66-21	784.625	67-21	790.625
66-22	784.750	67-22	790.750
66-23	784.875	67-23	790.875
66-24	785.000	67-24	791.000
66-25	785.125	67-25	791.125
66-26	785.250	67-26	791.250
66-27	785.375	67-27	791.375
66-28	785.500	67-28	791.500
66-29	785.625	67-29	791.625
66-30	785.750	67-30	791.750
66-31	785.875	67-31	791.875
66-32	786.000	67-32	792.000
66-33	786.125	67-33	792.125
66-34	786.250	67-34	792.250
66-35	786.375	67-35	792.375
66-36	786.500	67-36	792.500
66-37	786.625	67-37	792.625
66-38	786.750	67-38	792.750
66-39	786.875	67-39	792.875
66-40	787.000	67-40	793.000
66-41	787.125	67-41	793.125
66-42	787.250	67-42	793.250
66-43	787.375	67-43	793.375
66-44	787.500	67-44	793.500
66-45	787.625	67-45	793.625
66-46	787.750	67-46	793.750
66-47	787.875	67-47	793.875

(d)-(2) Frequency range

TRANSMITTING CHANNEL AND FREQUENCY [WRT-822A(68)]

Channel	Frequency (MHz) TV-68 Band	Channel	Frequency (MHz) TV-69 Band
68-01	794.125	69-01	800.125
68-02	794.250	69-02	800.250
68-03	794.375	69-03	800.375
68-04	794.500	69-04	800.500
68-05	794.625	69-05	800.625
68-06	794.750	69-06	800.750
68-07	794.875	69-07	800.875
68-08	795.000	69-08	801.000
68-09	795.125	69-09	801.125
68-10	795.250	69-10	801.250
68-11	795.375	69-11	801.375
68-12	795.500	69-12	801.500
68-13	795.625	69-13	801.625
68-14	795.750	69-14	801.750
68-15	795.875	69-15	801.875
68-16	796.000	69-16	802.000
68-17	796.125	69-17	802.125
68-18	796.250	69-18	802.250
68-19	796.375	69-19	802.375
68-20	796.500	69-20	802.500
68-21	796.625	69-21	802.625
68-22	796.750	69-22	802.750
68-23	796.875	69-23	802.875
68-24	797.000	69-24	803.000
68-25	797.125	69-25	803.125
68-26	797.250	69-26	803.250
68-27	797.375	69-27	803.375
68-28	797.500	69-28	803.500
68-29	797.625	69-29	803.625
68-30	797.750	69-30	803.750
68-31	797.875	69-31	803.875
68-32	798.000	69-32	804.000
68-33	798.125	69-33	804.125
68-34	798.250	69-34	804.250
68-35	798.375	69-35	804.375
68-36	798.500	69-36	804.500
68-37	798.625	69-37	804.625
68-38	798.750	69-38	804.750
68-39	798.875	69-39	804.875
68-40	799.000	69-40	805.000
68-41	799.125	69-41	805.125
68-42	799.250	69-42	805.250
68-43	799.375	69-43	805.375
68-44	799.500	69-44	805.500
68-45	799.625	69-45	805.625
68-46	799.750	69-46	805.750
68-47	799.875	69-47	805.875

(d)-(9) Tune-up procedure at specific operating power levels:

(1) Vcc voltage of RF AMP block

DC-DC converter output is +5V constant. It supplies Vcc of the RF AMP block.
Voltage regulator output is +3.3V constant. It supplies Vcc of the VCO(CP300).

(2) Measurement of RF power output.

RF power output is measured at output terminal (CN301).

VCO(CP300) output is applied to RF AMP block and the output is applied to L.P.F.and isolator. So RF power output is decided by VCO and RF AMP block output power, L.P.F. insertion loss and isolator insertion loss.

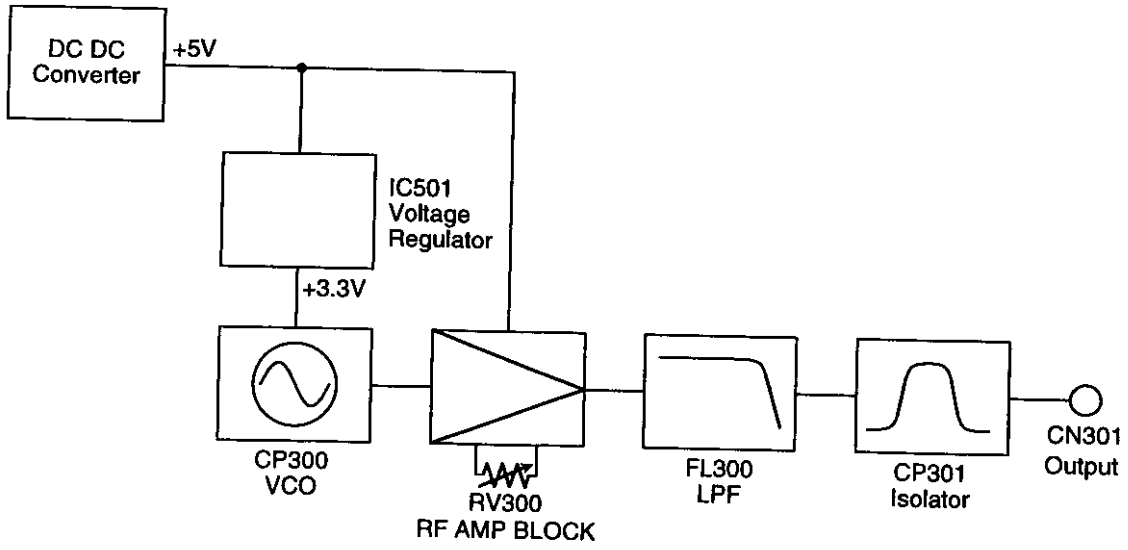
1) VCO RF output power is -1.5 ~ +2.0dBm(at 50Ω load) at 3.3V power supply voltage.

2) Adjust RV300 so that RF AMP block output power is 9~12dBm (at 50Ω load) when RF AMP block input power is -1.5 ~ +2.0dBm and 5V power supply voltage.

3) L.P.F. insertion loss is less than 0.6dB.

4) Isolator insertion loss is 0.5 ~ 0.9dB.

Therefore RF output power is 10mW(±2mW) by adjusting RV300.



(d)-(10)A description of circuitry for determining and stabilizing frequency:

Determination and stability of frequency on PLL synthesizer

1. Divide the oscillation frequency[f] from the VCO(CP300) by a prescaler[1/M](IC300). A counter[1/A](IC300) and N counter[1/N](IC300) and apply it [fr'] to a phase detector.

$$fr' = \frac{1}{MN+A} f \quad \text{---- (1)}$$

2. The integrated output signal of the phase detector, which is taken by the phase difference from[fr'] to a reference oscillator[fr], and use the signal as the control voltage for the VCO.

3. With the above 1 and 2(loop 1 through 2), the circuit maintains its balance.

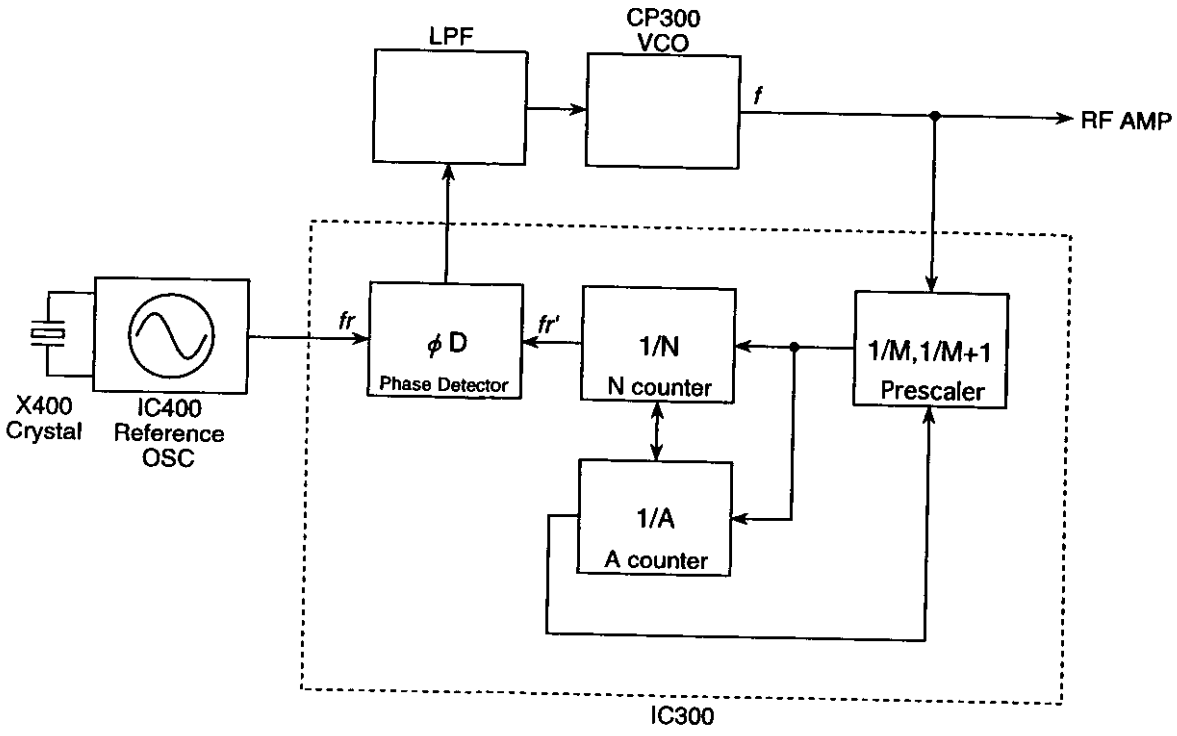
$$fr = fr' \quad \text{---- (2)}$$

by expression of (1), (2)

$$f = (MN+A)fr \quad \text{---- (3)}$$

4. Therefore transmitting frequency[f] is determined by [M], [N], [A], [fr] and stability is decided by stability of reference frequency[fr].

5. Stability of the reference frequency[fr] is ±35ppm(by stability of X'tal(X400) spec). So stability of transmitting frequency[f] is ±50ppm(0.005%).

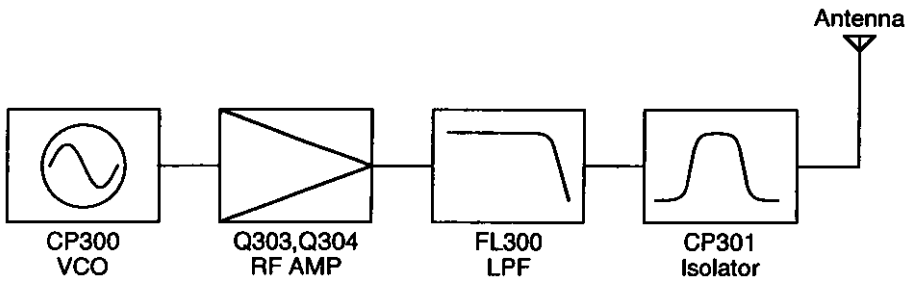


(d)-(11)A description of circuits for suppression of spurious radiation:

1. Radiation of higher harmonics are suppressed by installation of low pass filter (FL300) and isolator (CP301) in the next to a RF AMP.

2. By introducing direct oscillation system of transmitting frequency by the VCO (CP300), RF AMP are straightly amplified. So there is no spurious caused by frequency multiplier.

3. Shield of the VCO (CP300) and the RF AMP block suppress spurious emission radiated from the transmitter chassis.



(e) Report of Measurement

-- Under FCC Rules and Regulations Parts 2 and 74 --

Report Date : March 29, 1999

Manufacturer:	Sony Corporation
Manufacturer's Address:	7-35 Kitashinagawa 6-chome Shinagawa-ku, Tokyo, 141-0001 JAPAN
Trade Name:	SONY
Model Number:	WRT-822A(64) (FCC ID: AK8WRT822A) WRT-822A(66) (FCC ID: AK8WRT822A) WRT-822A(68) (FCC ID: AK8WRT822A)
Commodity:	UHF SYNTHESIZED TRANSMITTER
Test Method:	All Measurements were performed in accordance with the applicable sections in FCC Rules and Regulations Part 2 and 74.

I hereby state that the measurements shown in this report were made in accordance with the procedures indicated. I assume full responsibility for the accuracy of these measurements and vouch for the qualifications of all persons taking them.

Signed by:	Name (Print):	Title:
K. Nakayama	K. Nakayama	Manager, Product Safety Quality Assurance Department Broadcasting & Professional Systems Company
Company Name: Sony Corporation	Address: 7-35 Kitashinagawa 6-chome Shinagawa-ku, Tokyo 141-0001, Japan	

2.1046 RF power output (The effective radiated power output)

A. Measurement procedure

1. The measurement shall be made on an open field test site which is free from reflecting objects that may affect the measurement results.

2. For radiated power output of the equipment, the measuring antenna was raised and lowered to obtain a maximum reading on the spectrum analyzer with the antenna vertically and horizontally polarized. The turntable was rotated a minimum of 360° to further increase the reading on the spectrum analyzer. Then field strength was recorded in dBμV/m.

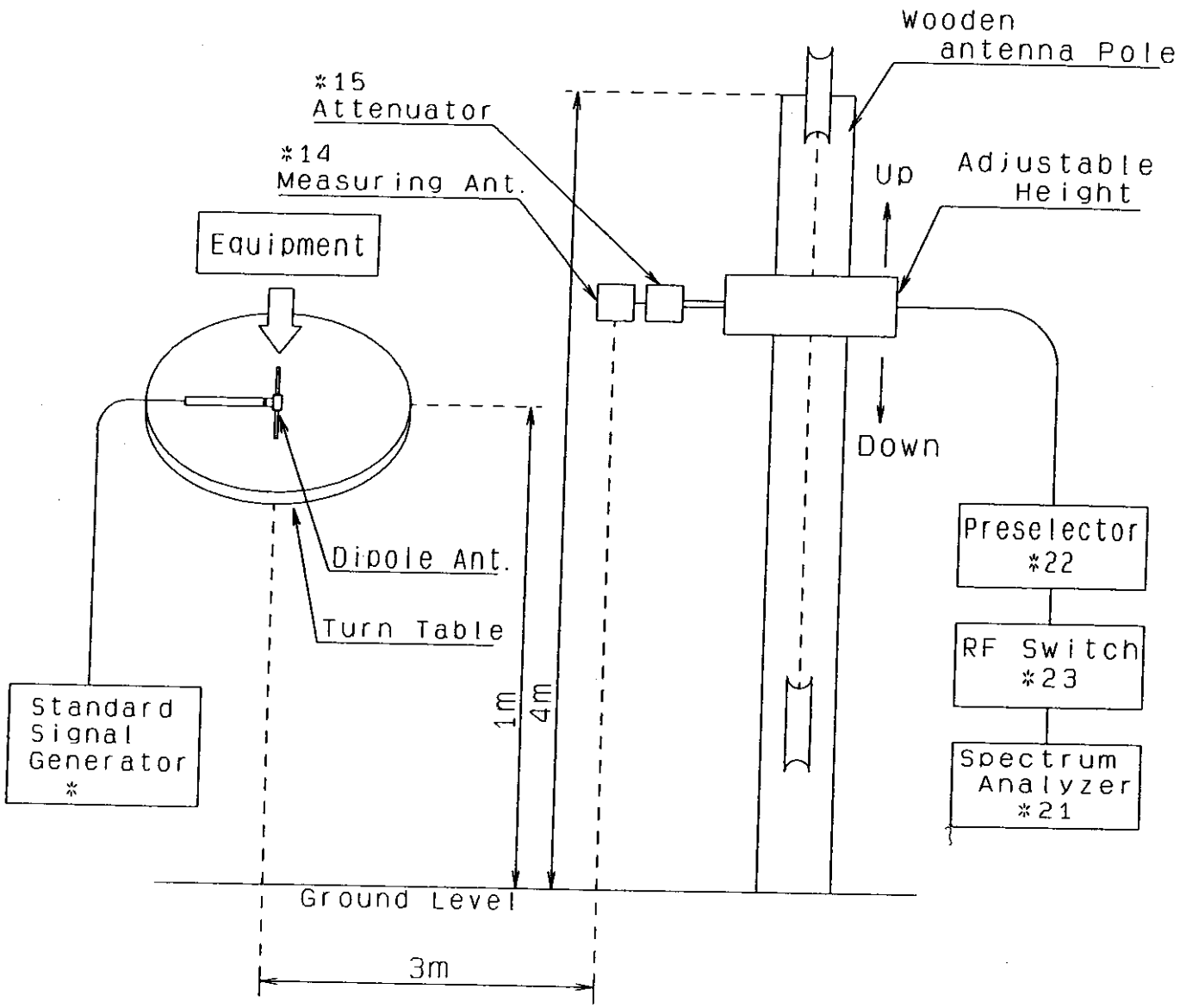
3. The unit was removed and replaced with a dipole antenna. (The antenna was adjusted to a half-wave of transmitting frequency.) The center of the dipole antenna was placed approximately at the same location as the center of the unit.

4. The dipole antenna at the unit end was connected to a signal generator with a coaxial cable. With the antennas at both ends vertically and horizontally polarized and signal generator tuned to the transmitting frequency, the level of the signal generator output was adjusted to the previously recorded maximum reading for this set of conditions was obtained.

5. The input power into the dipole antenna was calculated from the coaxial cable loss and the signal generator output voltage obtained in these readings.

For the measured data, refer to Page 40

For the setup, refer to the diagram below.



Measuring site
Distance between Antenna ---- 3 meters
Location ---- Atsugi Technology Center, Kanagawa, Japan

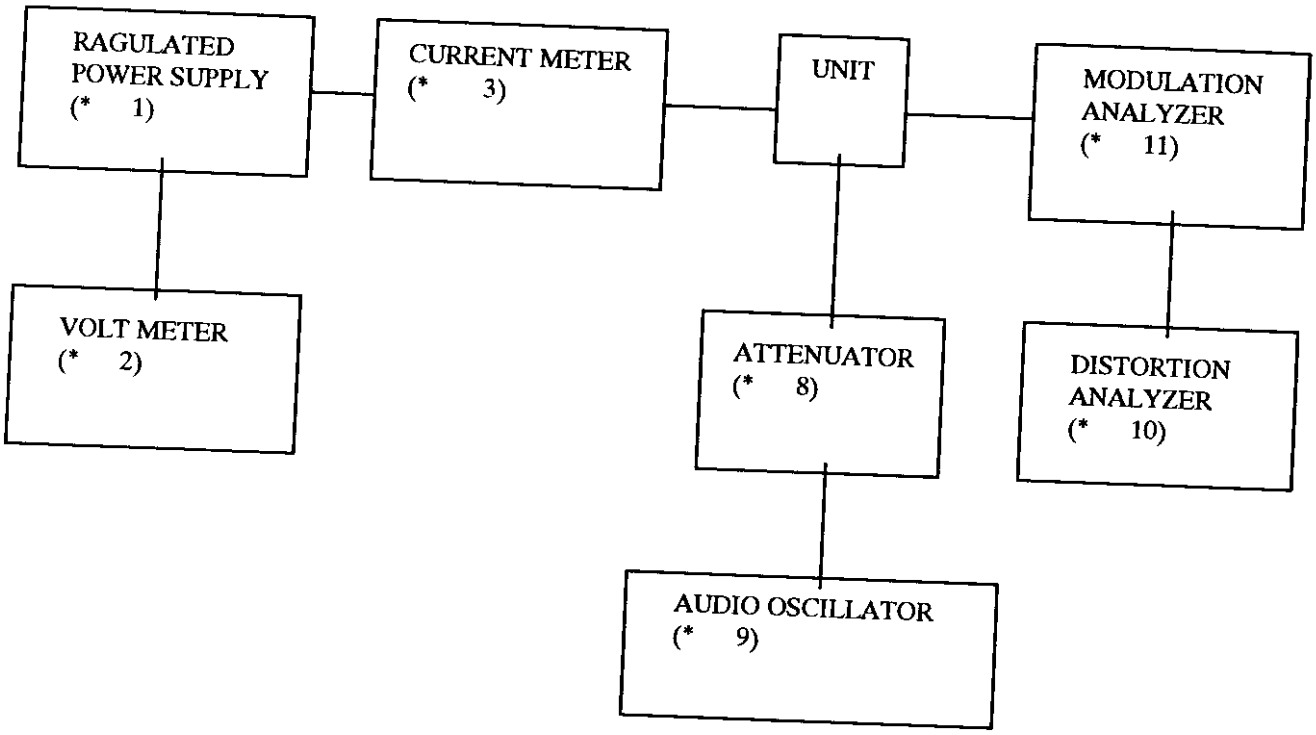
B. For the measured data, refer to Page 40

2.1047 Modulation characteristics

A Measurement procedure

The test signal was applied to the audio input terminal of the transmitter.
A Modulation analyzer was connected to the output terminals of the transmitter.
The test signal frequency was swept from 50 Hz to 15 kHz.

For the test set-up, refer to the diagram below.



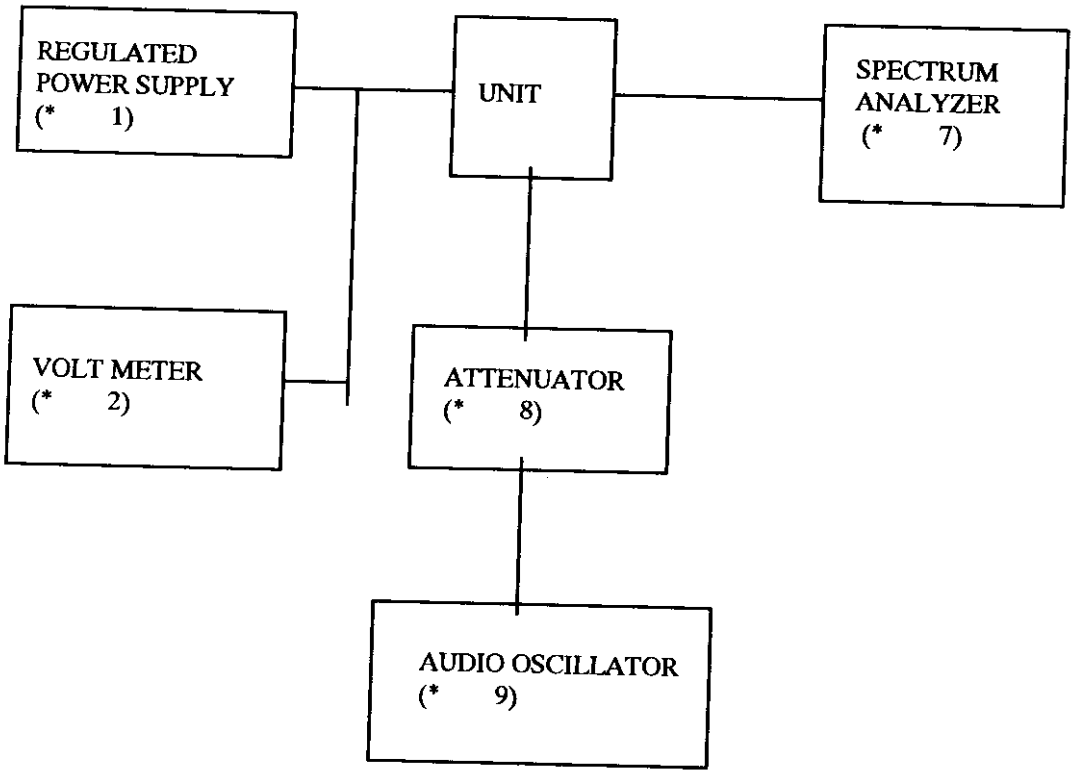
For the measured data, refer to Page 41 - 46

2.1049 Occupied bandwidth

A. Measurement procedure

Manufacturer's necessary bandwidth is 110KHz.
A spectrum analyzer was connected to the output terminals.
The unit was modulated by a 2500Hz tone at an input level 16db greater than that necessary to produce 50 percent modulation.
The occupied bandwidth was measured with the spectrum analyzer set at 20KHz/div. scan and 10dB/div.

For the test set-up, refer to the diagram below.



For the measured data, refer to Page 47 - 48

2.1051 Spurious emissions at antenna terminals

A. Measurement procedure

The conducted spurious test is not applicable because this device has a fixed antenna (not removable).

2.1053 Field strength of spurious radiation

A-1. Measurement procedure (from lowest frequency to 1000MHz)

1. The measurement shall be made on an open field test site which is free from reflecting objects that may affect the measurement results.

2. This procedure was intended to determine the level of spurious emission radiated from the antenna and the unit chassis. The radio frequency spectrum was scanned from lowest frequency generated in the equipment to 1000MHz.

3. For each spurious or harmonic measurement, the measuring antenna was adjusted to the correct length for the frequency involved. This length was made from the lowest frequency generated in the equipment to 1000MHz.

4. For each frequency generated in the equipment, the measuring antenna was raised and lowered to obtain a maximum reading on the spectrum analyzer with the antenna vertically polarized. The turntable was rotated a minimum of 360° to further increase the reading on the spectrum analyzer. Then field strength was recorded in dBμV/m.

5. The unit was removed and replaced with a dipole antenna. (The antenna was adjusted to a half-wave of transmitting frequency.) The center of the dipole antenna was placed approximately at the same location as the center of the unit.

6. The dipole antenna at the unit end was fed with a signal generator. With the antennas at both ends vertically polarized and signal generator tuned to the transmitting frequency, the level of the signal generator output was adjusted to the previously recorded maximum reading for this set of conditions was obtained.

7. The entire procedure for each spurious and harmonics frequency with the FSM antenna horizontally polarized was repeated.

8. The input power into the dipole antenna was calculated from the impedance and the signal generator voltage obtained in these readings.

For the measured data, refer to the page 49

2.1053 Field strength of spurious radiation

A-2 Measurement procedure (from 1GHz to 10 GHz)

1. The measurement shall be made on an open field which is free from reflecting objects that may affect the measurement results.

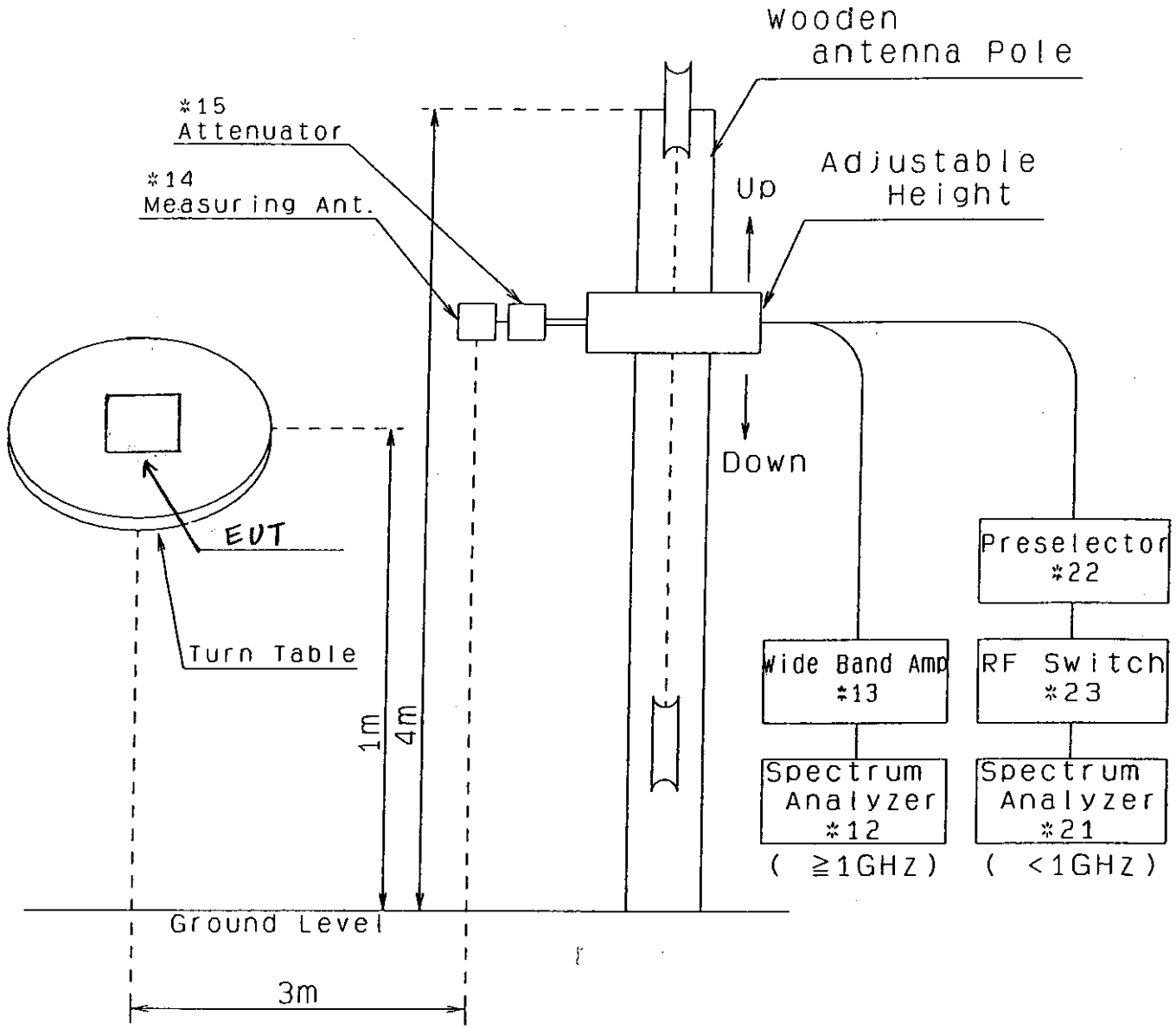
2. This procedure was intended to determine the level of spurious emission radiated from the antenna and the unit chassis. The radio frequency spectrum was scanned from 1GHz frequency generated in the equipment to 10GHz.

3. For each spurious or harmonic measurement, the measuring antenna was changed according to frequency range.

4. For each frequency generated in the equipment, the measuring antenna was raised and lowered to obtain a maximum reading on the spectrum analyzer with the antenna vertically polarized. The turntable was rotated a minimum of 360° to further increase the reading on the spectrum analyzer. Then field strength was recorded in dBμV/m.

For the measured data, refer to the page 49

For the setup, refer to the diagram below.



Measuring site
Distance between Antenna ---- 3 meters
Location ---- Atsugi Technology Center, Kanagawa, Japan

For the measured data, refer to Page 49

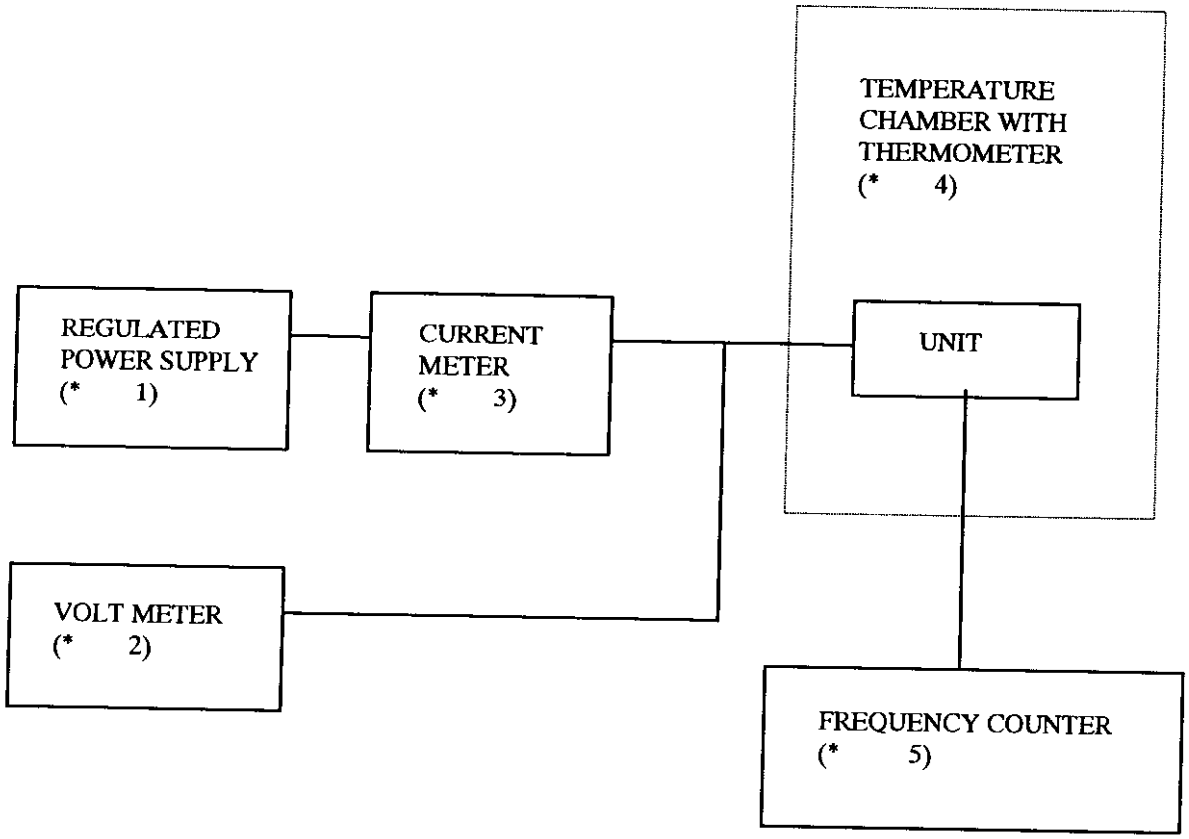
2.1055 Frequency stability

(1) Frequency vs. Ambient temperature

A. Measurement procedure

The unit was placed in the temperature cycle chamber and was kept at a temperature of -30° ±1° for 1 hour. The rated test voltage was applied for two minutes. The transmitting frequency was measured during this period and recorded. A similar measurement was performed with the temperatures changed 10°C each time up to maximum of 50°C.

For the test setup, refer to the diagram below.



For the measured data, refer to the Page 51 - 52

2.1055 Frequency stability

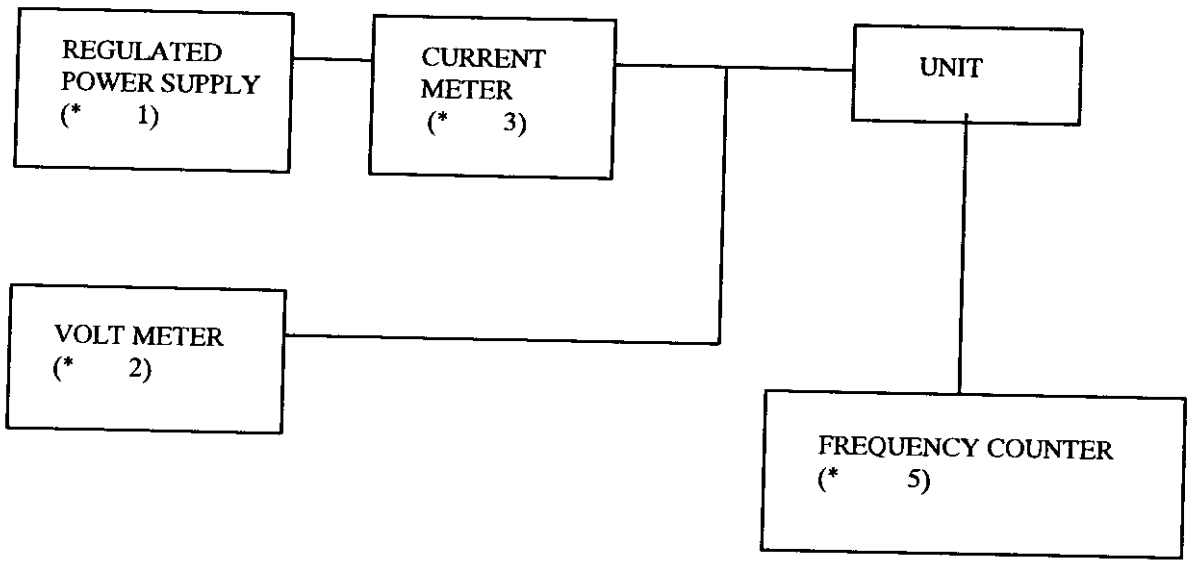
(2) Frequency vs. Supply voltage

A. Measurement procedure

The power supply voltage to the unit under test is varied from 2.0V to 1.725V.

Nominal Value	3.00 V
85% of the nominal value	2.55 V
115% of the nominal value	3.45 V
Battery operating end point which shall be specified by the manufacturer	1.90 V

For the test setup, refer to the diagram below.



For the measured data, refer to the Page 51 - 52

2.1046 RF power output (The effective radiated power output)

Model: WRT-822A(64) FCC ID: AK8WRT822A
POWER SUPPLY: 3.00V DC

Frequency (MHz)	CH No.	ERP (mW)
770.125	64-01	11.6

Model: WRT-822A(66) FCC ID: AK8WRT822A
POWER SUPPLY: 3.00V DC

Frequency (MHz)	CH No.	ERP (mW)
788.125	67-01	7.4

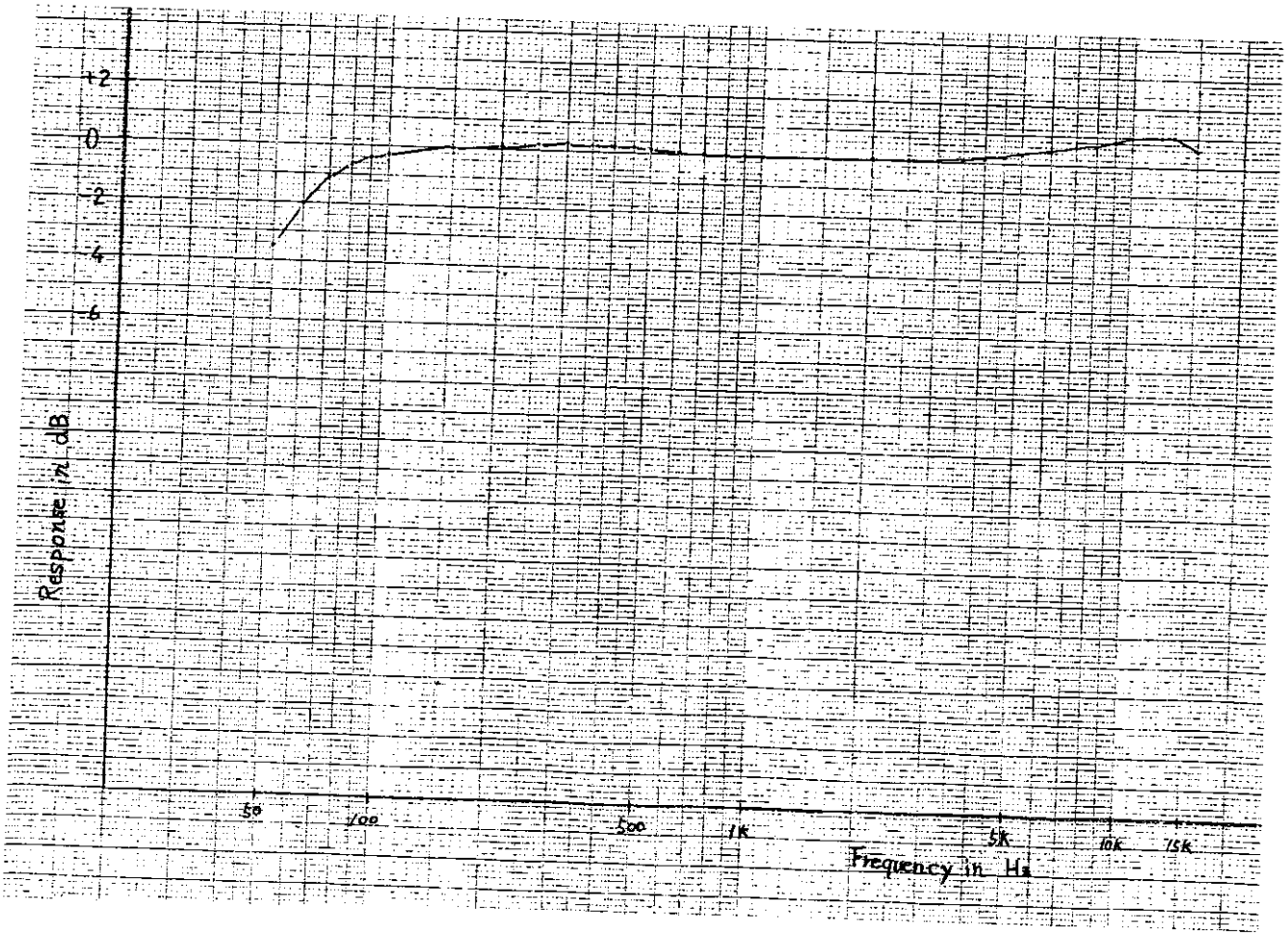
Model: WRT-822A(68) FCC ID: AK8WRT822A
POWER SUPPLY: 3.00V DC

Frequency (MHz)	CH No.	ERP (mW)
805.875	69-47	5.8

2.1047 Modulation characteristics

(a) Modulation Frequency Response (Electrical Frequency Response)

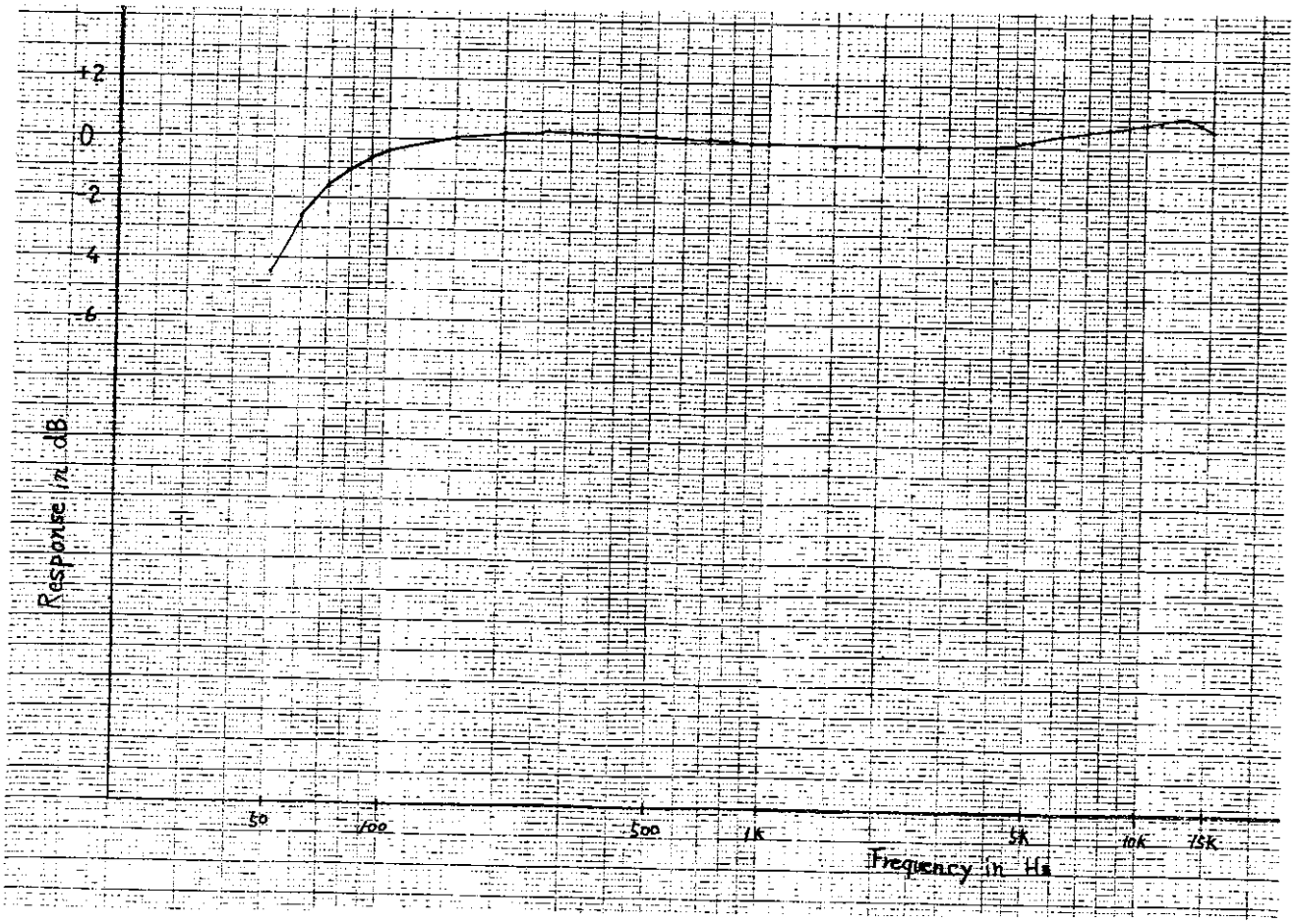
Model: WRT-822A(64) FCC ID: AK8WRT822A
WRT-822A(66) FCC ID: AK8WRT822A
WRT-822A(68) FCC ID: AK8WRT822A
Transmitting Freq.: 770.125MHz (CH No. 64-01)



2.1047 Modulation characteristics

(a) Modulation Frequency Response (Electrical Frequency Response)

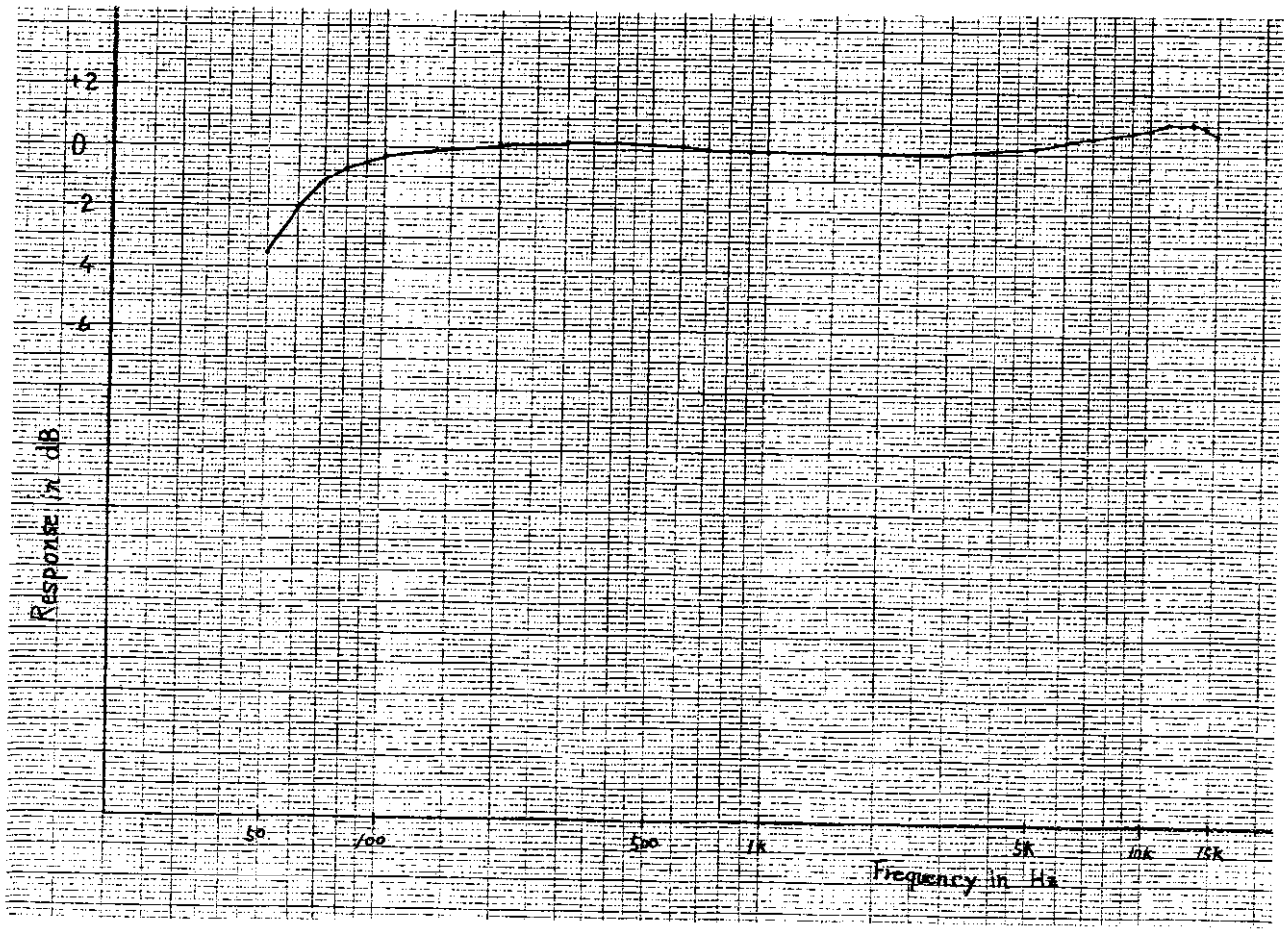
Model: WRT-822A(64) FCC ID: AK8WRT822A
WRT-822A(66) FCC ID: AK8WRT822A
WRT-822A(68) FCC ID: AK8WRT822A
Transmitting Freq.: 788.125MHz (CH No. 67-01)



2.1047 Modulation characteristics

(a) Modulation Frequency Response (Electrical Frequency Response)

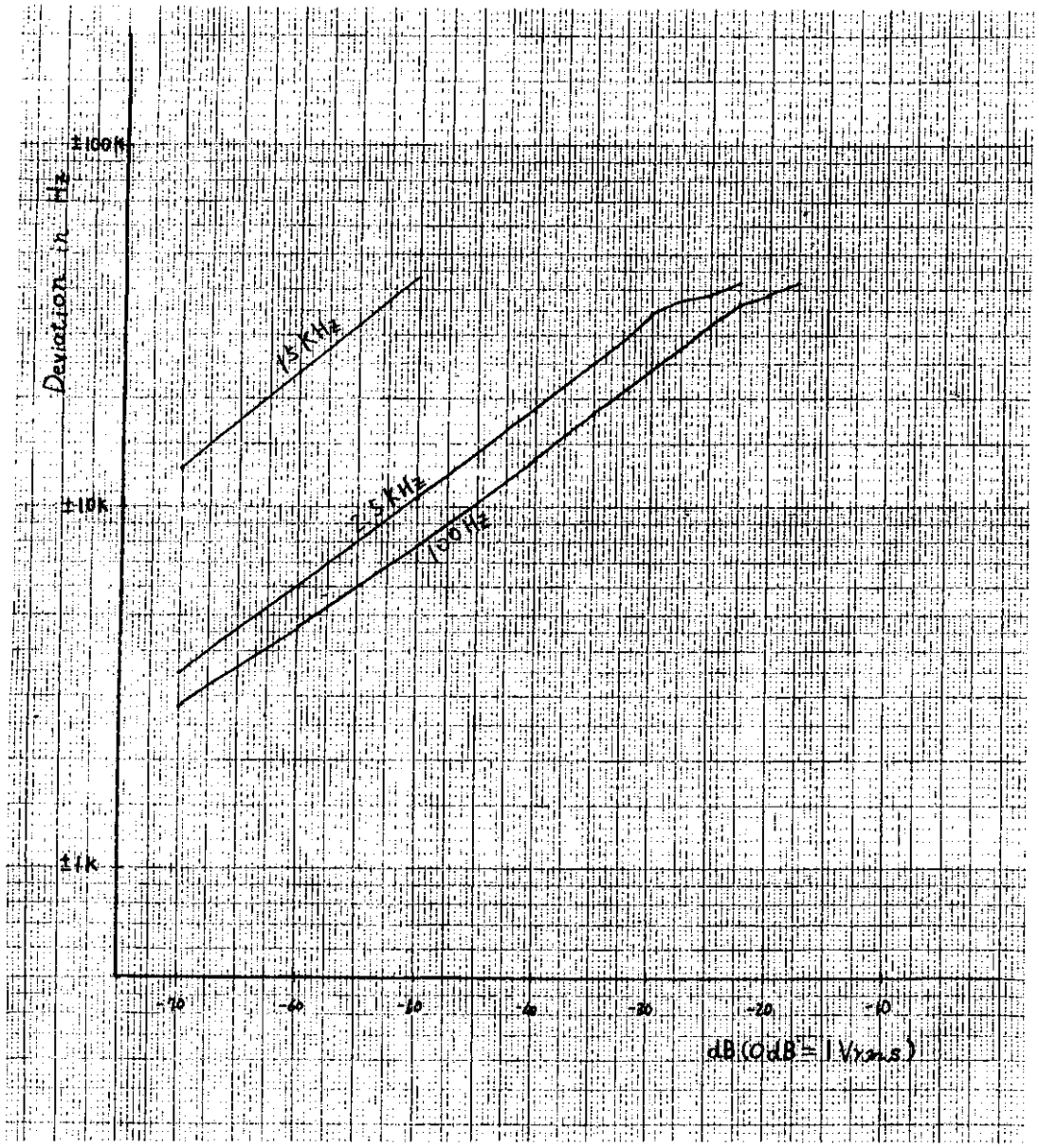
Model: WRT-822A(64) FCC ID: AK8WRT822A
WRT-822A(66) FCC ID: AK8WRT822A
WRT-822A(68) FCC ID: AK8WRT822A
Transmitting Freq.: 805.875MHz (CH No. 69-47)



2.1047 Modulation characteristics

(b)Deviation VS Input Level

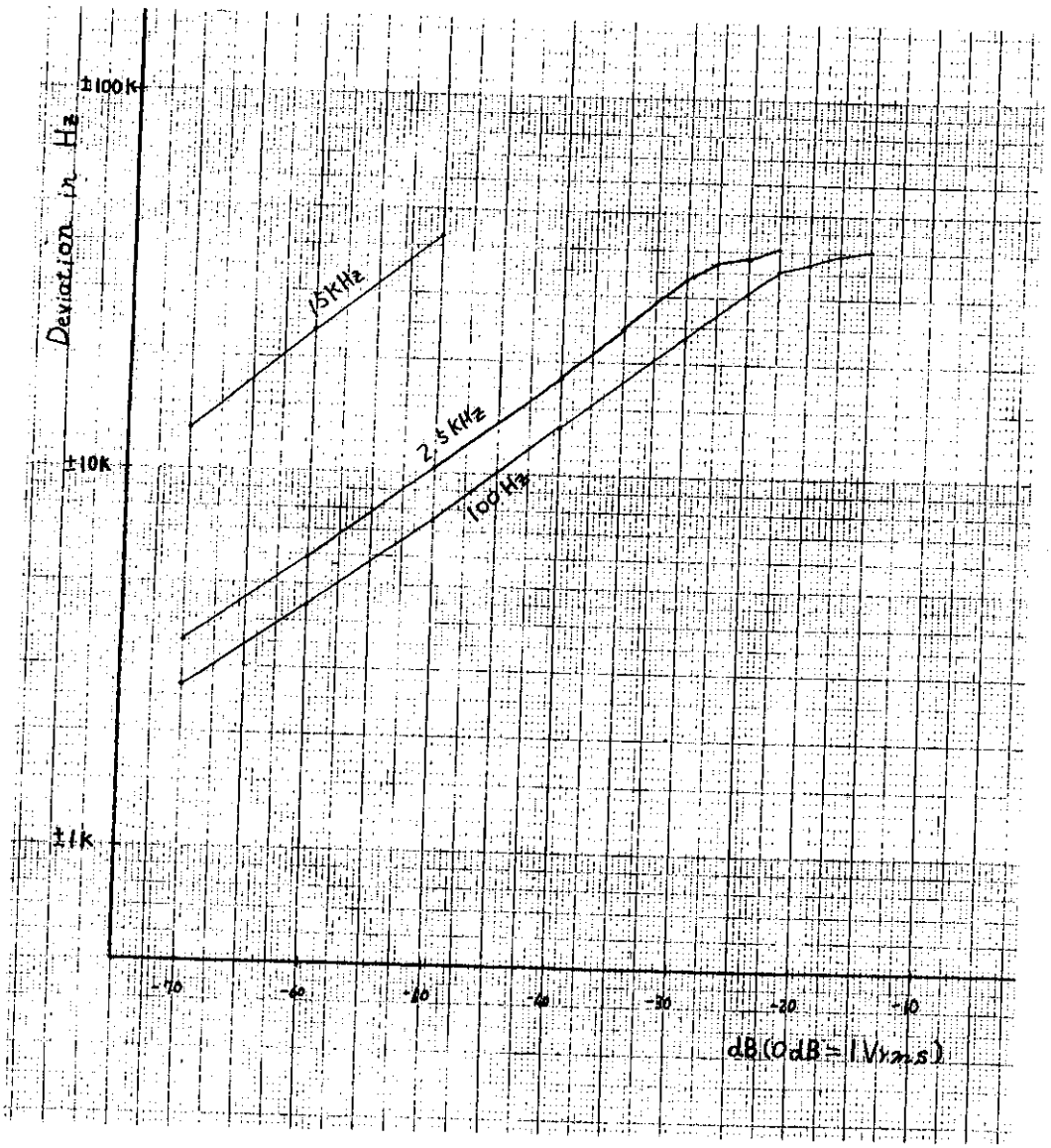
Model:	WRT-822A(64)	FCC ID: AK8WRT822A
	WRT-822A(66)	FCC ID: AK8WRT822A
	WRT-822A(68)	FCC ID: AK8WRT822A
Transmitting Freq.:		770.125MHz (CH No. 64-01)



2.1047 Modulation characteristics

(b) Deviation VS Input Level

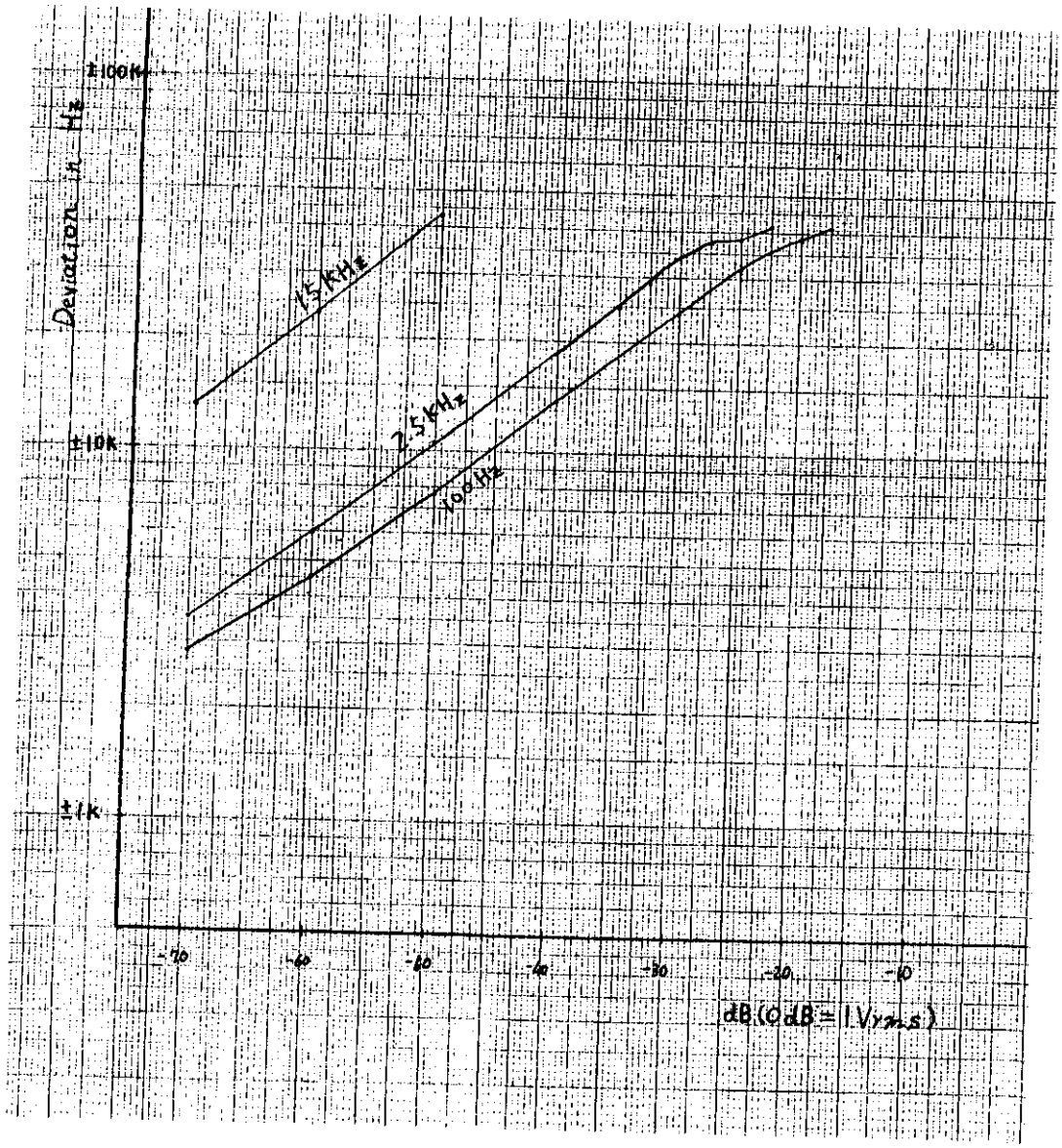
Model: WRT-822A(64) FCC ID: AK8WRT822A
WRT-822A(66) FCC ID: AK8WRT822A
WRT-822A(68) FCC ID: AK8WRT822A
Transmitting Freq.: 788.125MHz (CH No. 67-01)



2.1047 Modulation characteristics

(b) Deviation VS Input Level

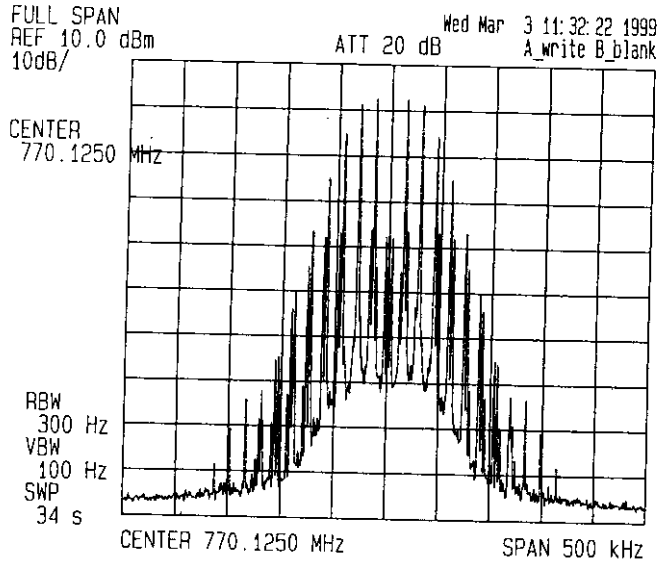
Model: WRT-822A(64) FCC ID: AK8WRT822A
WRT-822A(66) FCC ID: AK8WRT822A
WRT-822A(68) FCC ID: AK8WRT822A
Transmitting Freq.: 805.875MHz (CH No. 69-47)



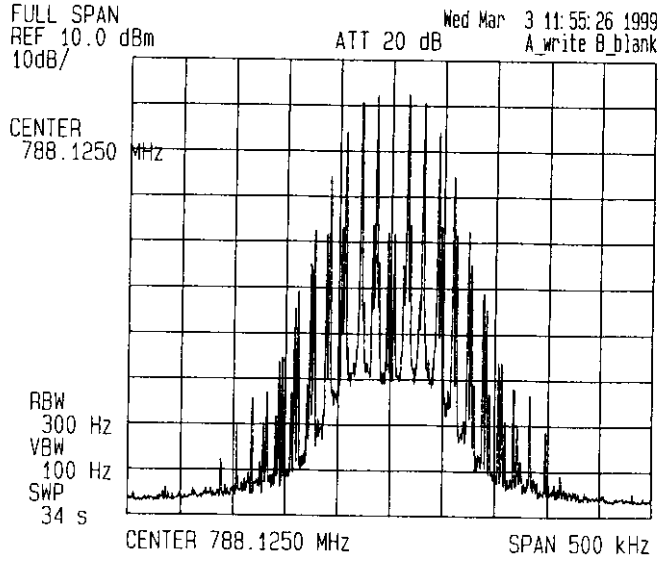
2.1049 Occupied bandwidth

Model: WRT-822A(64) FCC ID: AK8WRT822A
WRT-822A(66) FCC ID: AK8WRT822A
WRT-822A(68) FCC ID: AK8WRT822A

Center Frequency
770.125 MHz (CH No. 64-01)
Modulating frequency: 15kHz
Input Level: -53dB(0dB=1Vrms)



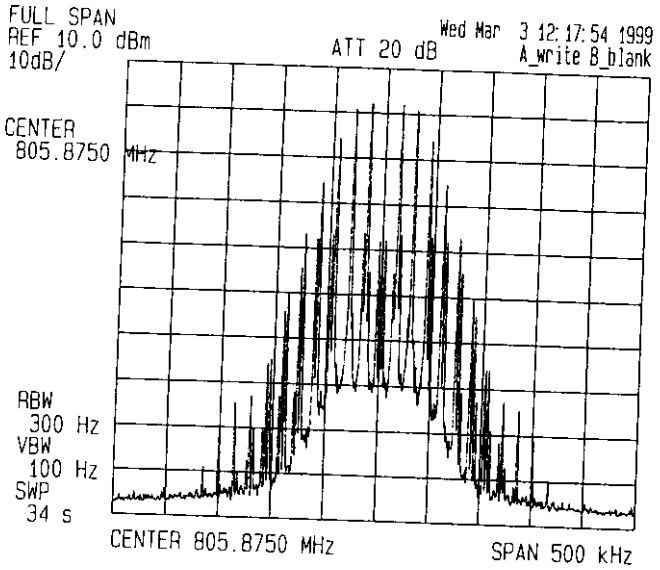
Center Frequency
788.125MHz (CH No. 67-01)



2.1049 Occupied bandwidth

Model: WRT-822A(64) FCC ID: AK8WRT822A
WRT-822A(66) FCC ID: AK8WRT822A
WRT-822A(68) FCC ID: AK8WRT822A

Center Frequency
805.875MHz (CH No. 69-47)



2.1053 Field strength of spurious radiation

Model: WRT-822A(64) FCC ID: AK8WRT822A
WRT-822A(66) FCC ID: AK8WRT822A
WRT-822A(68) FCC ID: AK8WRT822A

Frequency: 770.125MHz (CH No. 64-01)
Power supply: AA size battery x 2 3.0V

Frequency (MHz)	Field strength (dBμV/m)
** 770.125	110.20 (*0.0)

Frequency: 788.125MHz (CH No. 67-01)
Power supply: AA size battery x 2 3.0V

Frequency (MHz)	Field strength (dBμV/m)
** 788.125	108.30 (*0.0)

Frequency: 805.875MHz (CH No. 69-47)
Power supply: AA size battery x 2 3.0V

Frequency (MHz)	Field strength (dBμV/m)
** 805.875	107.40 (*0.0)

Note1: * In parenthesis figure shows spurious and harmonic emission level.
Unit: dB (0dB = carrier level)
** Carrier frequency

Note2: The spurious radiation which is attenuated more than 20db below the permissible value was measured, but the data for it is not shown.

Method of Calculating Field Strength

1. "Substitution Method" is employed in case that reading of spectrum analyzer is extremely higher than the noise level.

   Field Strength [dBμV/m] = S.S.G. Output Level [dBμV/m] (at 50Ω)
   + Balun Loss of Reception Antenna [dB]
   + Antenna Factor [dB]

2. Following calculation is employed in case that S.S.G. is not employed.

   Field Strength [dBμV/m] = Meter Reading [dBμV]
   + Antenna Factor (including Balun Loss) [dB]
   + Cable Loss + 20log(3m/10m) [dB]

2.1055 Frequency stability

Nominal frequency :770.125MHz (CH No. 64-01)

Power supply	Frequency stability (%)			
Ambient temperature(℃)	1.900V DC	2.550 V DC	3.000V DC	3.450V DC
-30	-0.0007	-0.0007	-0.0007	-0.0007
-20	-0.0004	-0.0004	-0.0004	-0.0004
-10	0.0000	0.0000	0.0000	0.0000
0	0.0002	0.0002	0.0002	0.0002
10	0.0002	0.0002	0.0002	0.0002
20	0.0001	0.0001	0.0001	0.0001
30	-0.0001	-0.0001	-0.0001	-0.0001
40	-0.0003	-0.0003	-0.0003	-0.0003
50	-0.0004	-0.0004	-0.0004	-0.0004

Nominal frequency : 788.125MHz (CH No. 67-01)

Power supply	Frequency stability (%)			
Ambient temperature(℃)	1.900V DC	2.550 V DC	3.000V DC	3.450V DC
-30	0.0000	0.0000	0.0000	0.0000
-20	0.0002	0.0002	0.0002	0.0002
-10	0.0004	0.0004	0.0004	0.0004
0	0.0005	0.0005	0.0005	0.0005
10	0.0004	0.0004	0.0004	0.0004
20	0.0002	0.0002	0.0002	0.0002
30	-0.0001	-0.0001	-0.0001	-0.0001
40	-0.0005	-0.0005	-0.0005	-0.0005
50	-0.0007	-0.0007	-0.0007	-0.0007

2.1055 Frequency stability

Nominal frequency :805.875MHz (CH No. 69-47)

Power supply	Frequency stability (%)			
Ambient temperature(°C)	1.900V DC	2.550 V DC	3.000V DC	3.450V DC
-30	-0.0010	-0.0010	-0.0010	-0.0010
-20	-0.0007	-0.0007	-0.0007	-0.0007
-10	-0.0002	-0.0002	-0.0002	-0.0002
0	0.0001	0.0001	0.0001	0.0001
10	0.0001	0.0001	0.0001	0.0001
20	0.0001	0.0001	0.0001	0.0001
30	-0.0001	-0.0001	-0.0001	-0.0001
40	-0.0002	-0.0002	-0.0002	-0.0002
50	-0.0003	-0.0003	-0.0003	-0.0003

List of Test Equipment

Equipment	Manufacturer	Type	Serial No.
*1 Regulated Power supply	KENWOOD	PWR18-2	1120019
*2 Volt Meter	ADVANTEST	TR6846	16870408
*3 Current Meter	Yokogawa	2011	70AA02392
*4 Temperature Chamber	KATO	SE23CRA	OFB-553
*5 Frequency Counter	EIP	585C	5103-00196
*6 Power Meter Power Sensor	Hewlett Packard Hewlett Packard	435B 8482A	2445A11826 2349A10440
*7 Spectrum Analyzer	ADVANTEST	R3371A	5863D14
*8 Attenuator	KIKUSUI	984A	2590346
*9 Audio Oscillator	Hewlett Packard	8904A	3633A08480
*10 Distortion Analyzer	Shiba Soku	725B	M-169450006
*11 Modulation Analyzer	Anritsu	MS616A	MO7731
*12 Spectrum Analyzer	ADVANTEST	R3265	15060251
*13 Wide Band Amplifier	Anritsu	A4H1002S	-
*14 Horn Antenna Log-Periodic Antenna	SCHWARZBECK SCHWARZBECK	BBHA 9120-B UHALP9107	102/93 -
*15 3dB Attenuator	Hewlett Packard	8491B	2708A
*21 Spectrum Analyzer	ADVANTEST	TR4172	60690030
*22 Preselector	ADVANTEST	TR14307	68360004
*23 RF Switch	ADVANTEST	TR14308	8604004
*24 Standard Signal Generator	Anritsu	MG645B1	M54866