JAPAN QUALITY ASSURANCE ORGANIZATION
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REPORT OF MEASUREMENTS

JQA APPLICATION NO.: 80-81032

Applicant	: NIKKO CO., LTD. 1-7-14, Mizumoto, Katsushika-ku, Tokyo 125-0032, Japan
Manufacturer	: NIKKO ELECTRONICS BHD. PLOT 497, PRAI FREE TRADE ZONE, PRAI INDUSTRIAL ESTATE, 13600 PRAI, PENANG, MALAYSIA
Description of Equipment	: Radio Controlled Toy
FCC ID	: CVTTN7700YH
Trade Name	: NIKKO
Model No.	: TN7700YH
Serial No.	: None
Operating Frequency	: 49.830 MHz – 49.890 MHz
Power Supply	: 9.0 VDC
Applicable Rule	: FCC Rules & Regulations Part 15 Subpart C (June 23, 1989)
Place of Measurement	: JQA EMC Engineering Dept.
Date of Measurement	: March 30, 1999
Total Pages of This Report	: 12 (including this page)

I certify that I am authorized to sign for the report and that all the statement in this report and in the exhibits hereto are true and correct to the best my knowledge and belief.

Shigeru Osawa

Shigeru Osawa, Engineer
Testing Div.
EMC Engineering Dept.

1. Radiated Spurious Emissions: [§15.235(a),(b)]

Measurement Method Employed:
Measurements were made under the conditions specified ANSI C63.4.
The field strength measurements of the equipment under test were made at the distance of 3 meters away from the device which was placed on the wooden turntable 0.8 meter in height.
The receiving antenna polarized horizontally was varied from 1 to 4 meters and the wooden turntable was rotated through 360 degrees to obtain the highest reading on the field strength meter. The device was tested three orthogonal planes.
These measurements were repeated with the receiving antenna polarized vertically.
The internal pre-amplifier was used from 30 MHz up to 1000 MHz.

Measurement Results:

Operating Frequency : 49.860 MHz
Distance of Measurement : 3.0 meters

Frequency (MHz)	Antenna Factor (dB)	Meter Reading Horiz. (dB/μV)	Meter Reading Vert. (dB/μV)	Field Strength at 3 m Horiz. (μV/m)	Field Strength at 3 m Vert. (μV/m)
Fundamental					
49.860	3.6	63.8	63.7	2344.2	2317.4 (Average)
49.860	3.6	70.4	70.5	5011.9	5069.9 (Peak)
Harmonics & other Frequency components					
99.720	9.9	23.9	24.2	49.0	50.7
149.580	13.7	6.4	1.6	10.1	5.8
199.440	16.4	2.0	0.0	8.3	6.6
249.300	18.5	0.1	< -5.0	8.5	< 4.7
299.160	20.3	< -5.0	< -5.0	5.8 or less	
349.020	21.8	< -5.0	< -5.0	6.9 or less	
398.880	23.1	< -5.0	< -5.0	8.0 or Less	
448.740	24.3	< -5.0	< -5.0	9.2 or Less	
498.600	25.4	< -5.0	< -5.0	10.5 or less	
548.460	26.3	< -5.0	< -5.0	11.6 or less	
598.320	27.2	< -5.0	< -5.0	12.9 or less	
648.180	28.1	< -5.0	< -5.0	14.3 or less	
698.040	29.0	< -5.0	< -5.0	15.8 or less	
747.900	29.8	< -5.0	< -5.0	17.4 or less	
797.760	30.6	< -5.0	< -5.0	19.1 or less	
847.620	31.4	< -5.0	< -5.0	20.9 or less	
897.480	32.2	< -5.0	< -5.0	22.9 or less	
947.340	32.9	< -5.0	< -5.0	24.8 or less	
997.200	33.6	< -5.0	< -5.0	26.9 or less	

Note: 1. The spectrum was checked from 30 MHz to 1000 MHz.
All emissions not listed were found to be more than 20 dB below the limits.

2. The symbol of “<” means “or less”.

3. The cable loss was included in the antenna factor.

4. Sample calculation :

at 49.860 MHz

$$10^{(AF+Mr)/20} = 10^{(3.6+63.8)/20} = 2344.2\ \mu V/m$$

Where,

Af = Antenna Factor including the cable loss.
Mr = Meter Reading

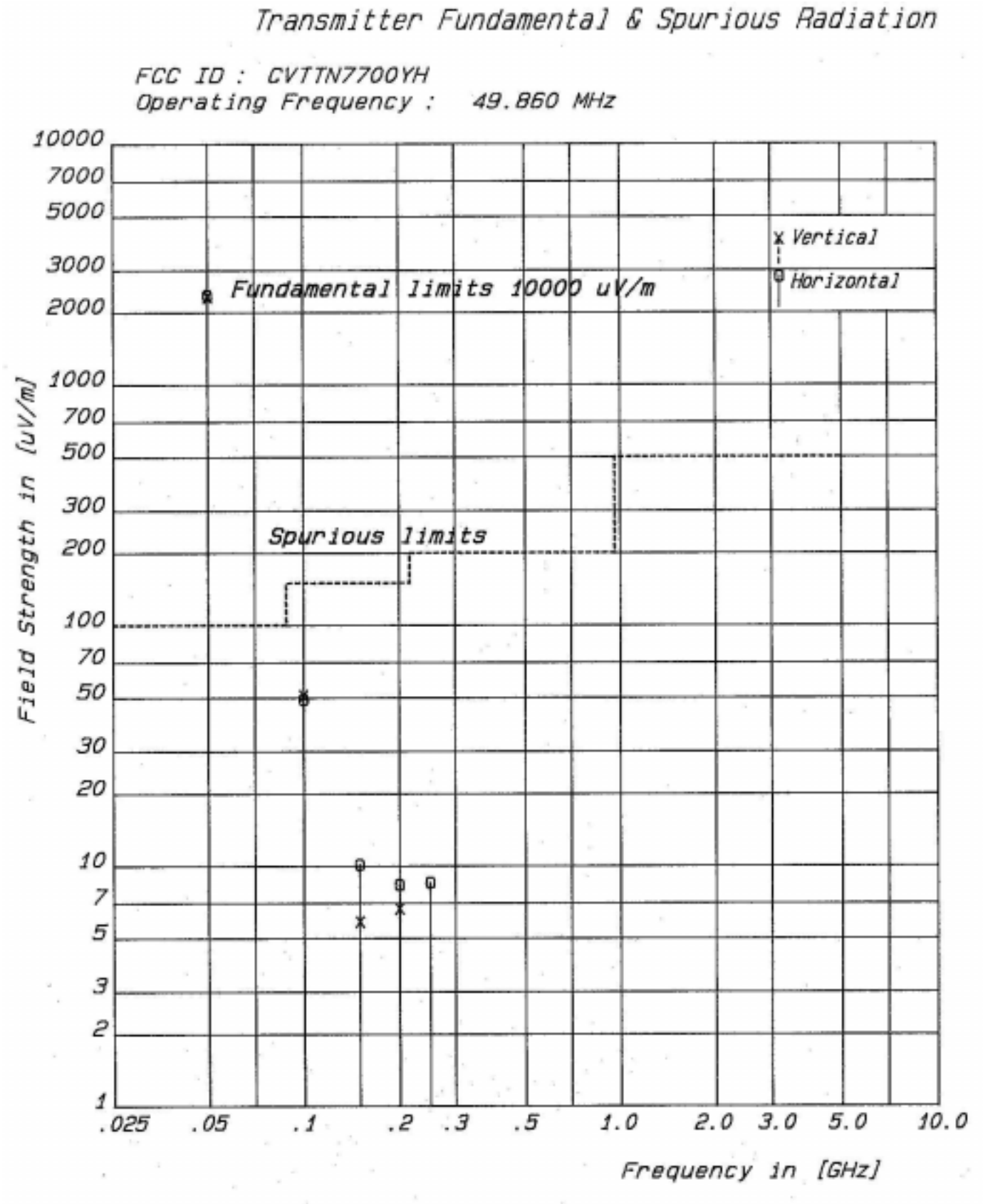
5. Measuring Instrument Setting:

Fundamental

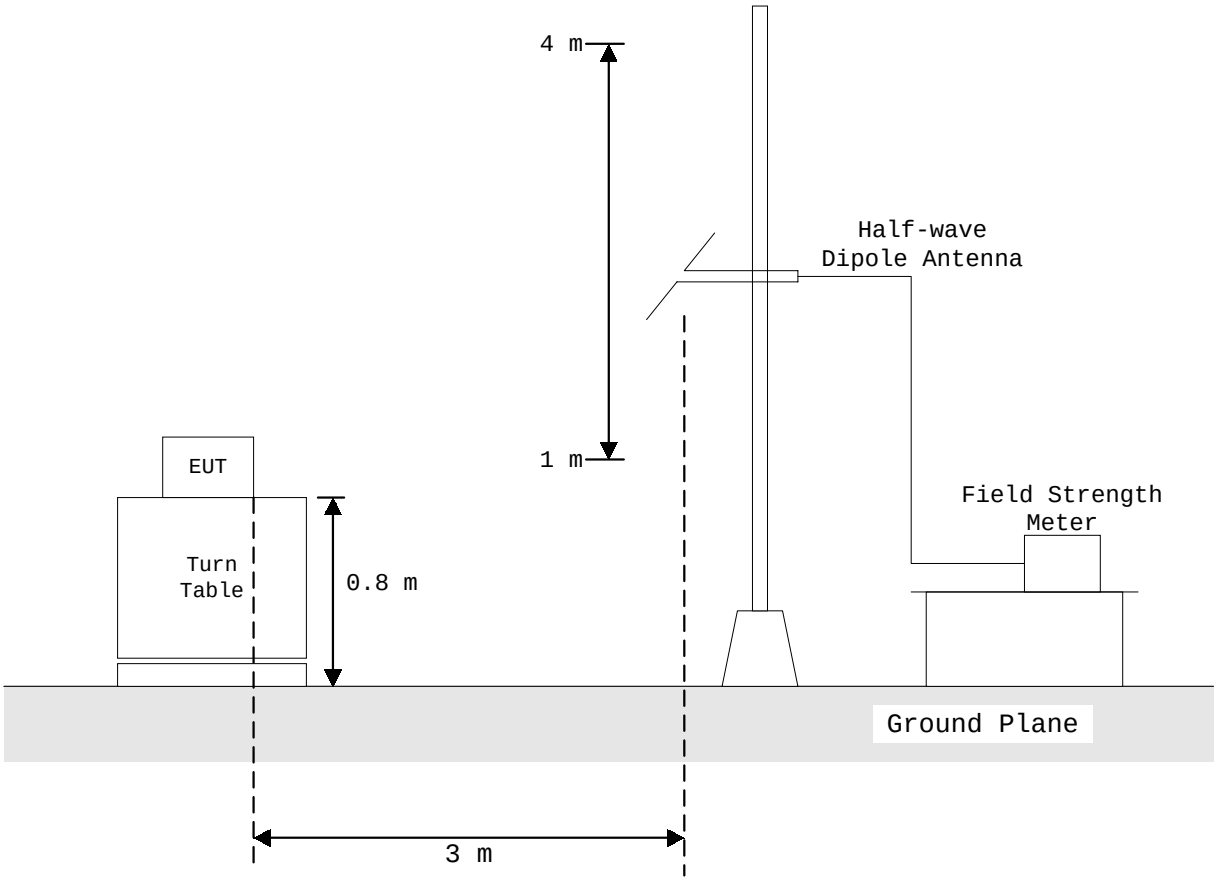
Detector function : Average / Peak
IF Bandwidth : 120 KHz

Harmonics & other frequency components

Detector function : CISPR quasi-peak
IF Bandwidth : 120 KHz


Transmitter Fundamental & Spurious Radiation
FCC ID : CVTTN7700YH
Operating Frequency : 49.860 MHz
Fundamental limits 10000 uV/m
Spurious limits
Vertical
Horizontal
Field Strength in [uV/m]
10000
7000
5000
3000
2000
1000
700
500
300
200
100
70
50
30
20
10
7
5
3
2
1
.025
.05
.1
.2
.3
.5
1.0
2.0
3.0
5.0
10.0
Frequency in [GHz]

MEASUREMENT SET-UP FOR RADIATED EMISSIONS



Configuration of EUT

for horizontal plane

for vertical plane

2. Emission appearing ±25 kHz frequency band centered on the carrier frequency: [§15.235(b)]

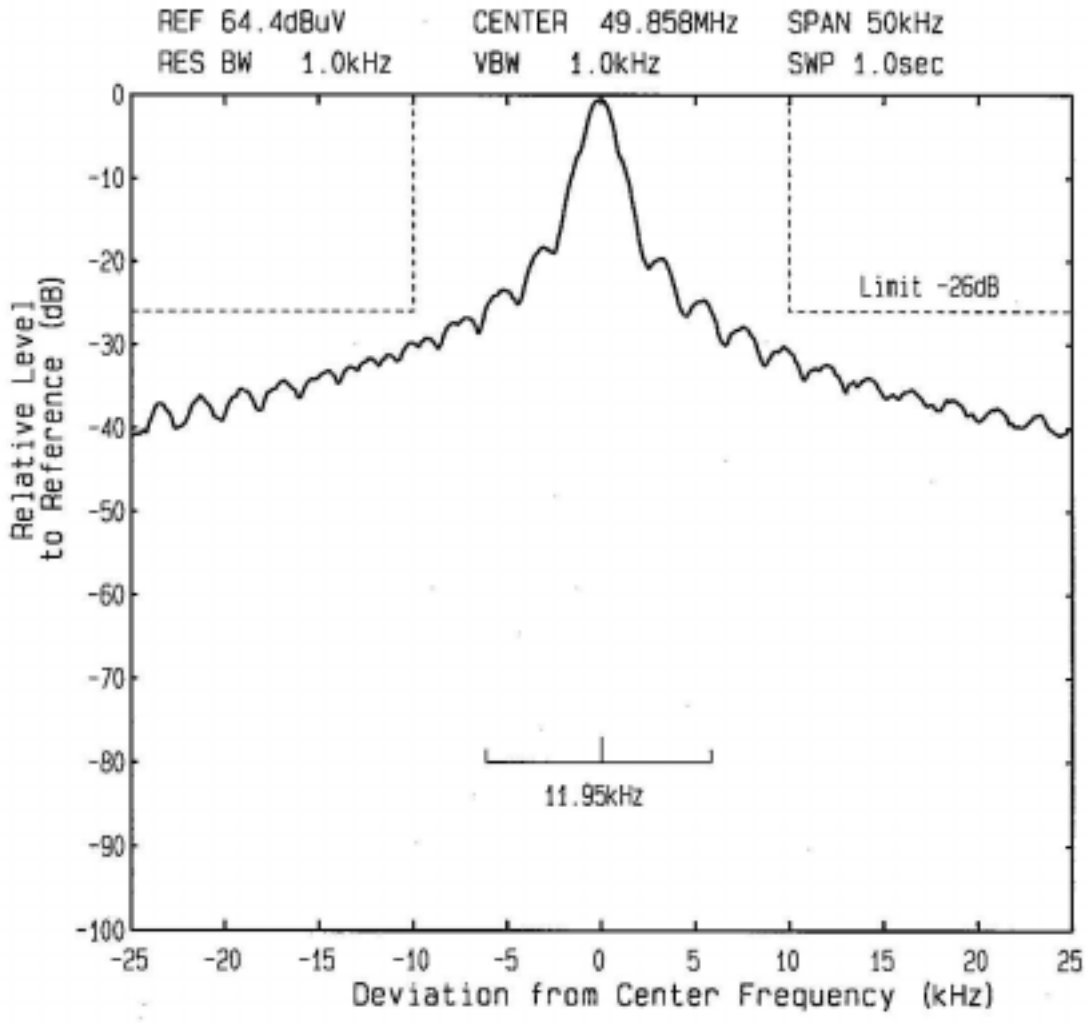
Measurement Method Employed: By using a spectrum analyzer with a vertical antenna for picking up the signal, the measurements of the emission within ±25 kHz band centered carrier frequency were made under the following transmitting modes of the EUT.

Measurements Results : Refer to the attached graphs.

Emission Limitation

FCC ID : CVTTN7700YH
Model : TN7700YH

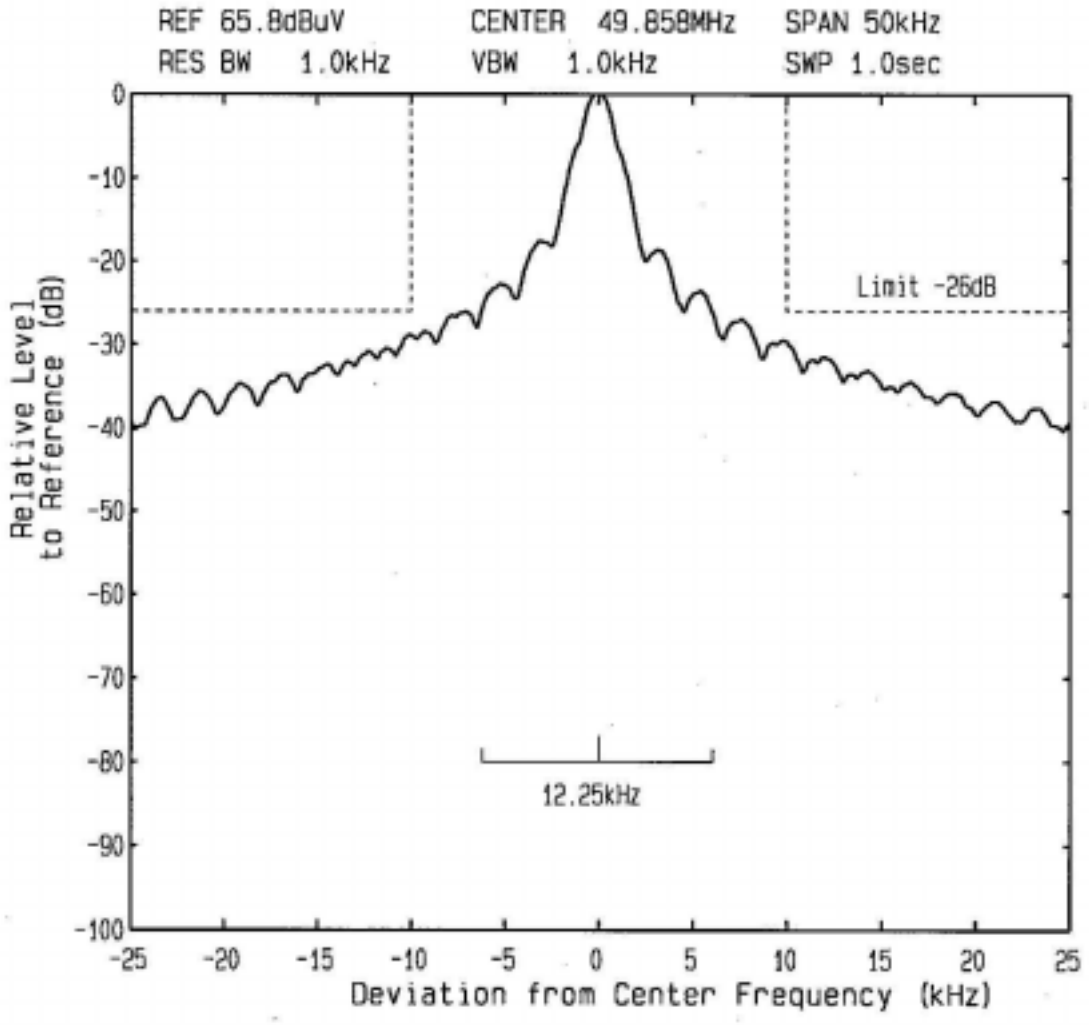
Mode of EUT : Left



Emission Limitation

FCC ID : CVTTN7700YH
Model : TN7700YH

Mode of EUT : Right



Emission Limitation

FCC ID : CVTTN7700YH
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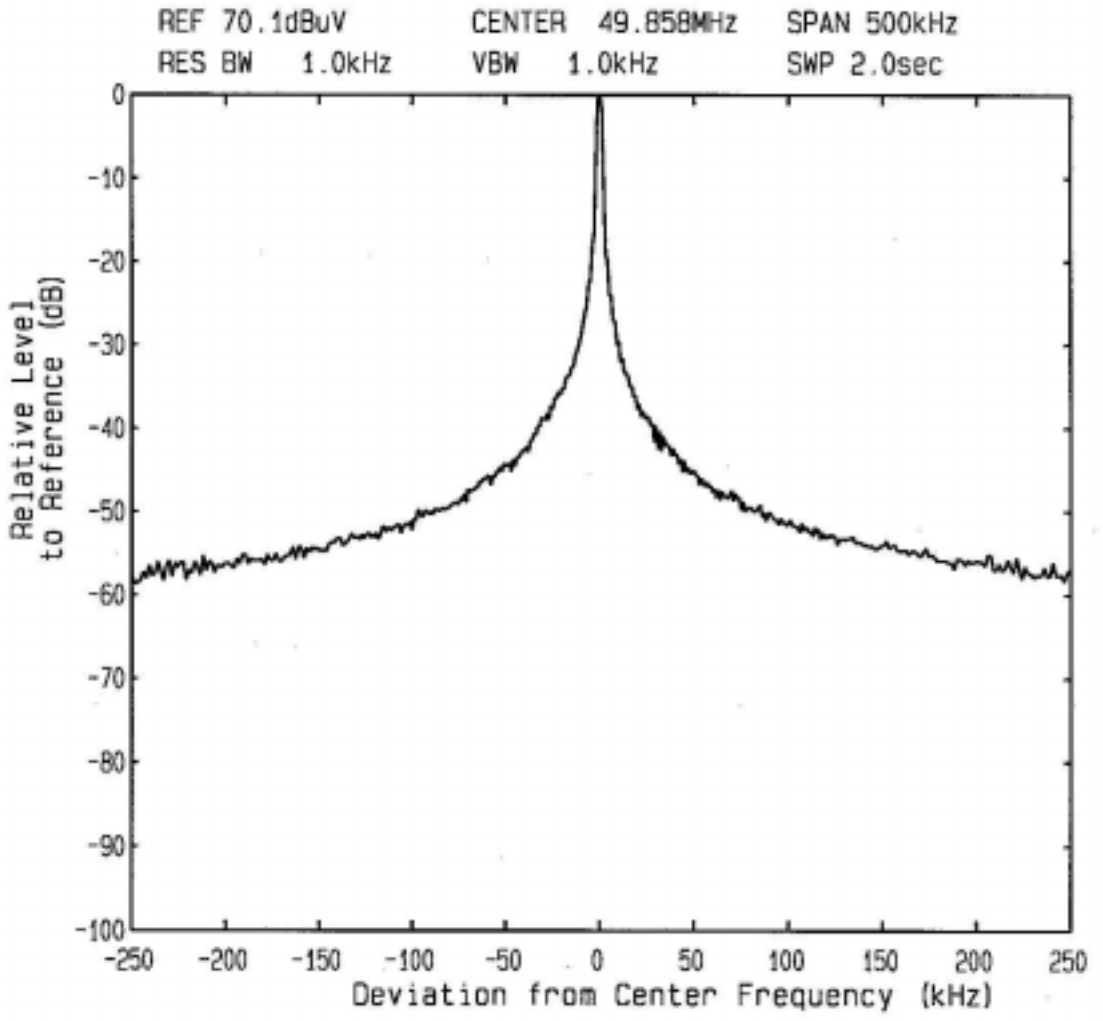
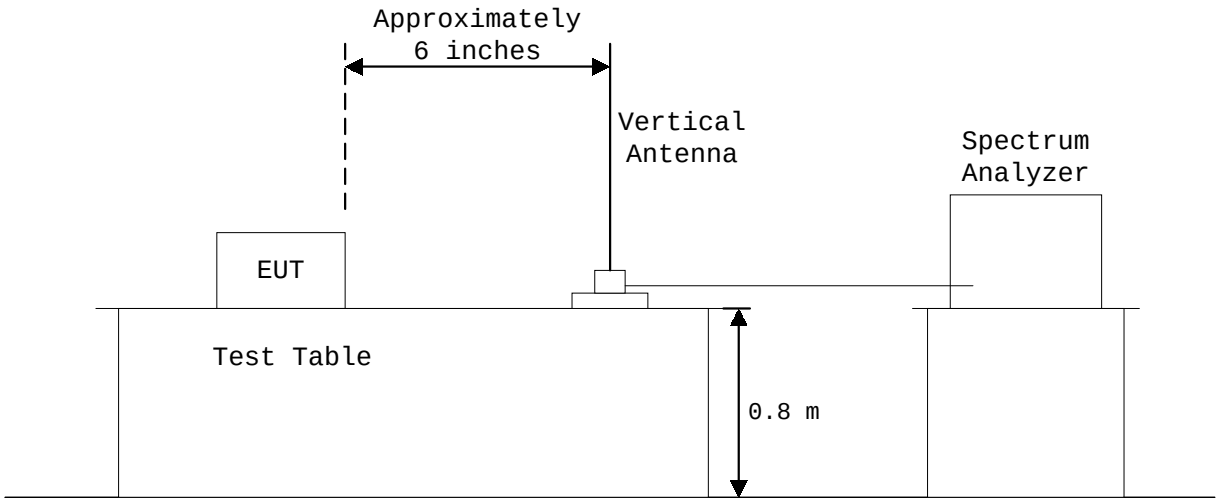


MESUREMENT SET-UP FOR BAND WIDTH



LIST OF MEASUREMENT EQUIPMENT

Equipment (Model No.)	Manufacturer	Date of Cal.
1. Field Strength Meter		
ESVP	Rohde & Schwarz	May 1998
2. Spectrum Analyzer		
8566B	Hewlett Packard Inc.	April 1998
3. Tuned Dipole Antenna		
KBA-511	Kyoritsu Electrical Works	November 1998
KBA-611	Kyoritsu Electrical Works	November 1998
4. Vertical Antenna		
91972-2	Stoddard Aircraft Radio Co., Ltd.	-