



**JAPAN QUALITY ASSURANCE ORGANIZATION**

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JQA APPLICATION NO.: 80-81035

Issue Date : April 13, 1999

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**REPORT OF MEASUREMENTS**

JQA APPLICATION NO.: 80-81035

Applicant : NIKKO CO., LTD.  
1-7-14, Mizumoto, Katsushika-ku,  
Tokyo 125-0032, Japan

Manufacturer : NIKKO TEC INTERNATIONAL LTD.  
Room 812, Houston Center, 63 Mody Road,  
Tsimshatsui, Kowloon, Hong Kong

Description of Equipment : Radio Controlled Toy

FCC ID : CVTTN6760H  
Trade Name : NIKKO  
Model No. : TN6760H  
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 : April 1, 1999(Completed)

Total Pages of This Report : 15 (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, 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<br>(MHz)                     | Antenna<br>Factor<br>(dB) | Meter Reading     |                  | Field Strength at 3 m |                  |
|----------------------------------------|---------------------------|-------------------|------------------|-----------------------|------------------|
|                                        |                           | Horiz.<br>(dB/μV) | Vert.<br>(dB/μV) | Horiz.<br>(μV/m)      | Vert.<br>(μV/m)  |
| Fundamental                            |                           |                   |                  |                       |                  |
| 49.860                                 | 3.6                       | 59.8              | 57.0             | 1479.1                | 1071.5 (Average) |
| 49.860                                 | 3.6                       | 66.3              | 64.0             | 3126.1                | 2398.8 (Peak)    |
| Harmonics & other Frequency components |                           |                   |                  |                       |                  |
| 99.720                                 | 9.9                       | 15.8              | 17.0             | 19.3                  | 22.1             |
| 149.580                                | 13.7                      | 4.6               | 1.6              | 8.2                   | 5.8              |
| 199.440                                | 16.4                      | 2.6               | < -5.0           | 8.9                   | < 3.7            |
| 249.300                                | 18.5                      | 3.8               | 6.0              | 13.0                  | 16.8             |
| 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

$$10(Af+Mr)/20 = 10(3.6+59.8)/20 = 1479.1 \mu V/m$$

Where,

Af = Antenna Factor including the cable loss.

Mr = Meter Reading

5. Measuring Instrument Setting:

Fundamental

Detector function : Average / Peak  
IF Bandwidth : 120 kHz

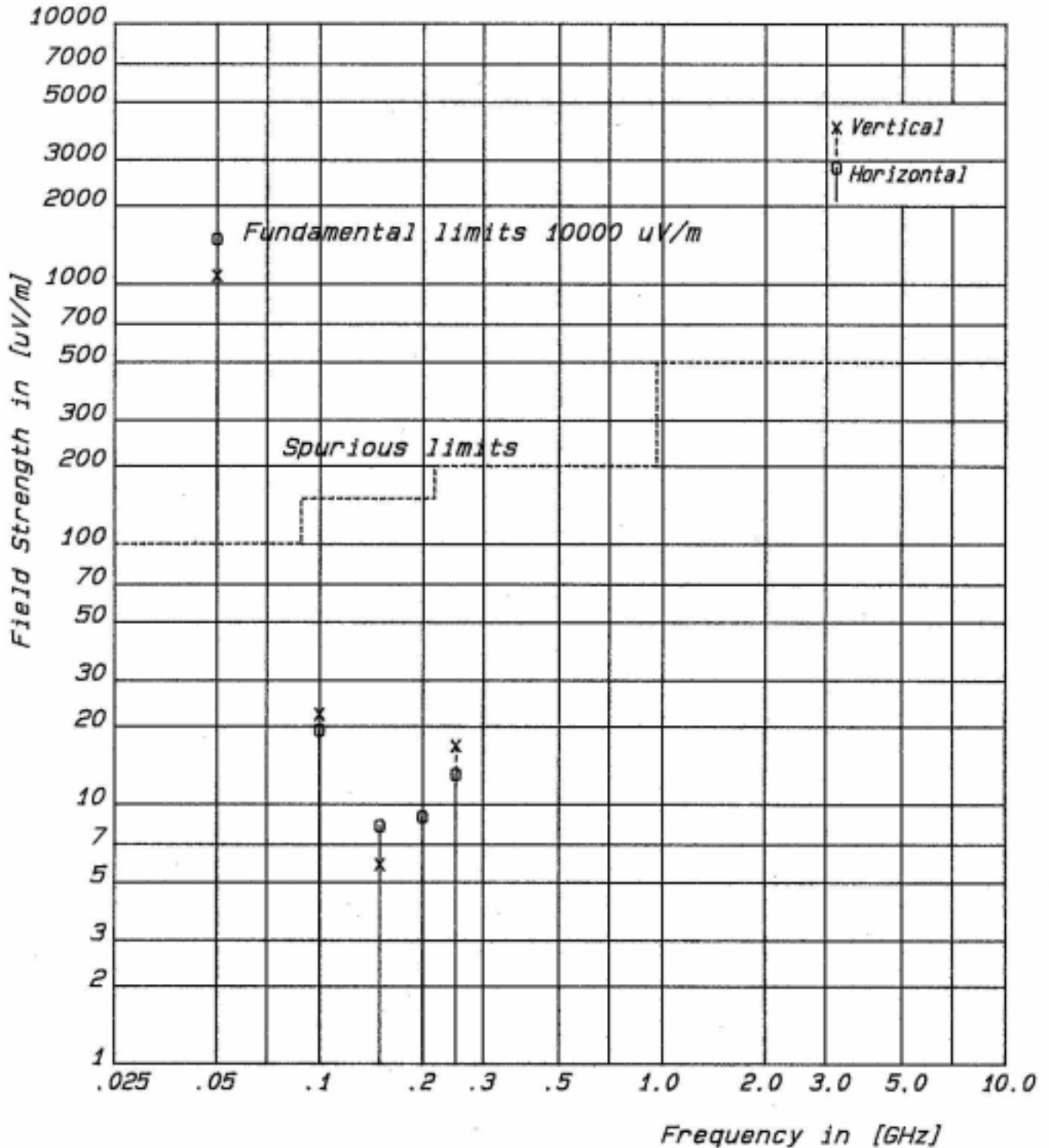
Harmonics & other frequency components

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

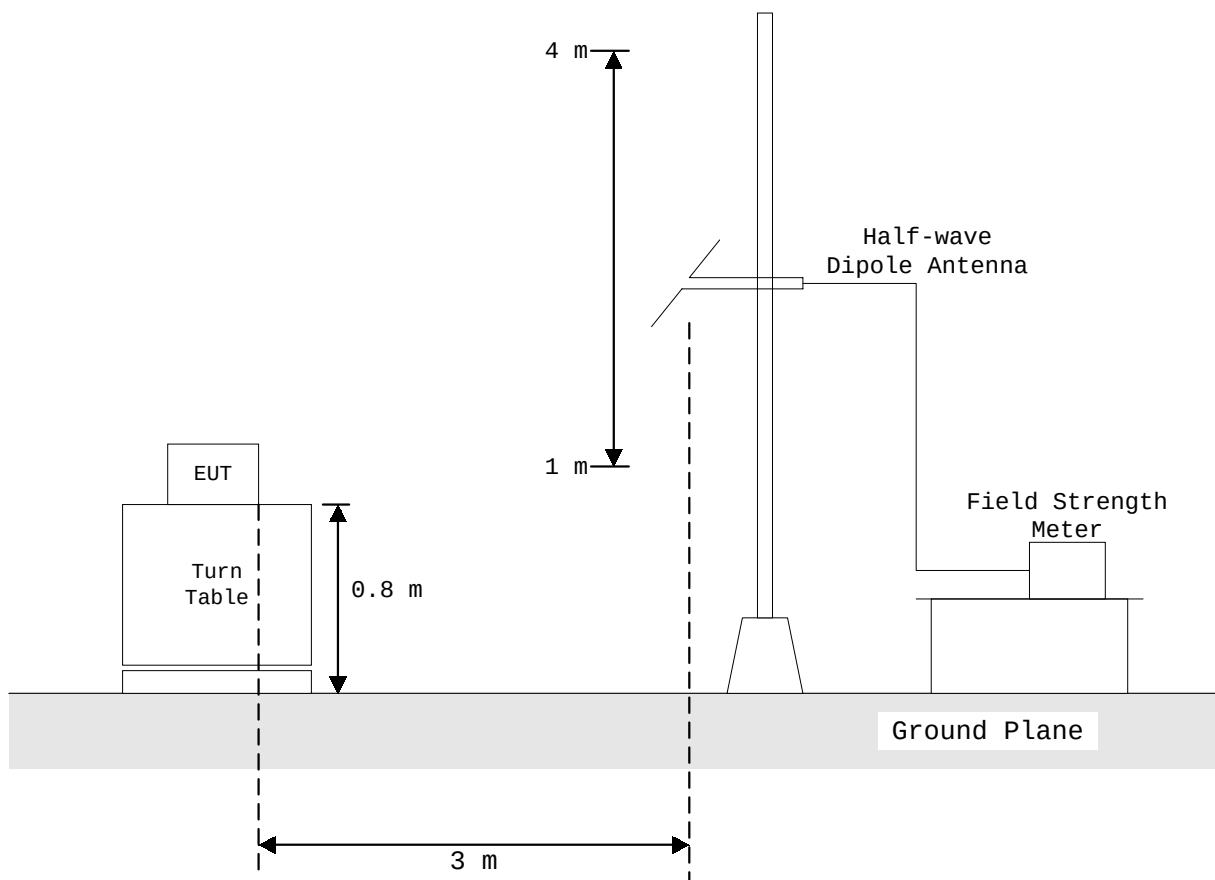
## Transmitter Fundamental & Spurious Radiation

FCC ID : CVTTN6760H

Operating Frequency : 49.860 MHz



## MEASUREMENT SET-UP FOR RADIATED EMISSIONS



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### Configuration of EUT



for horizontal plane



for vertical plane



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2. Emission appearing  $\pm 25$  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  $\pm 25$  kHz band centered carrier frequency were made under the following transmitting modes of the EUT.

Measurements Results : Refer to the attached graphs.

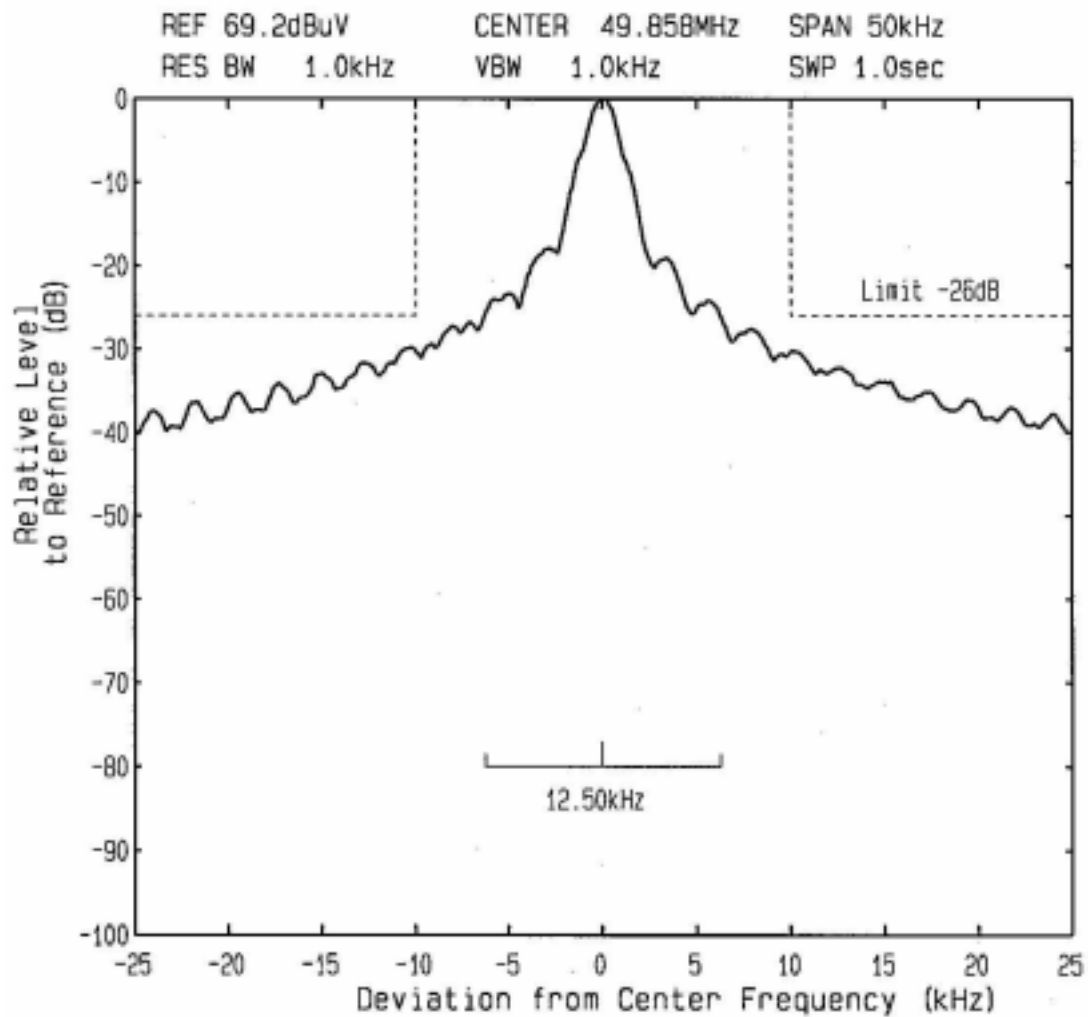


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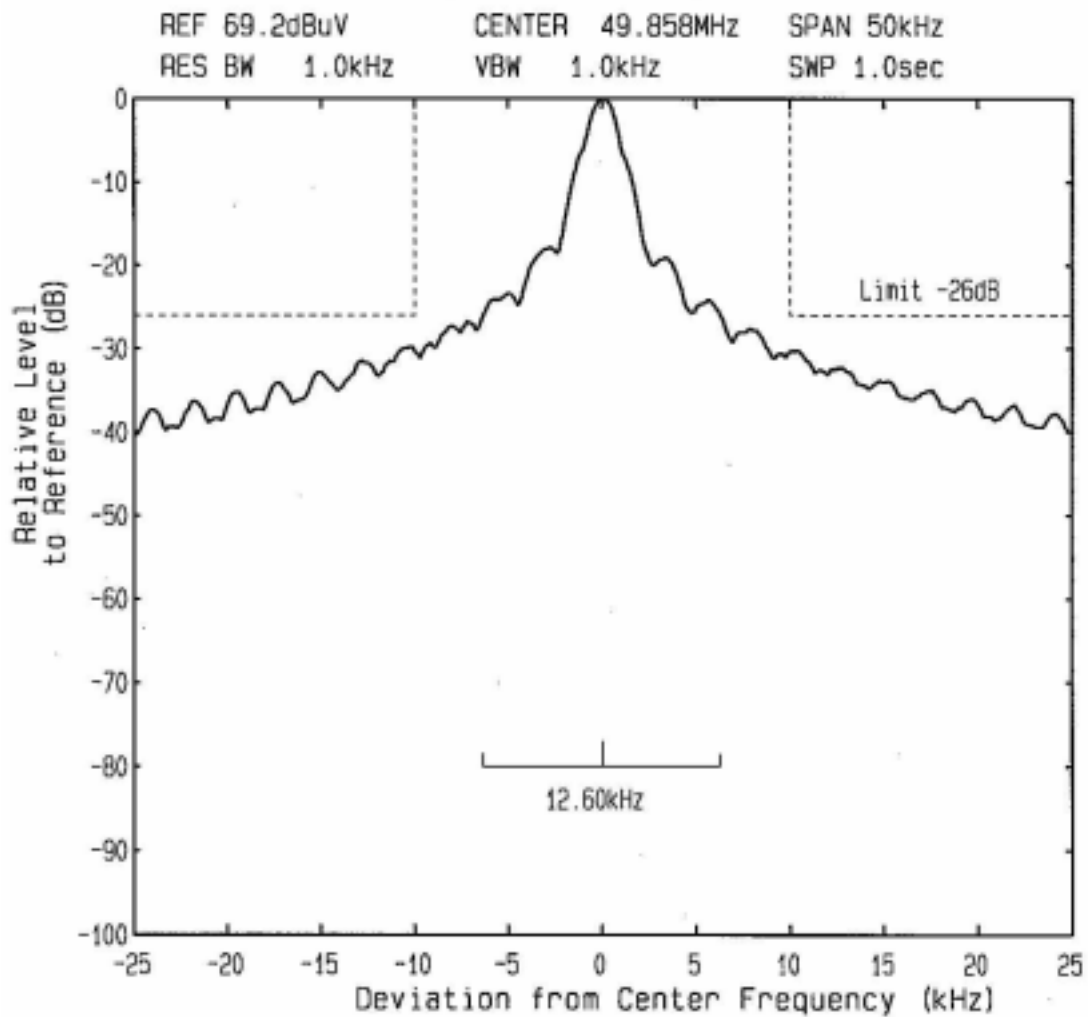
## Emission Limitation

FCC ID : CVTTN6760H  
Model : TN6760H  
RADIO CONTROLLED TOY  
Mode of EUT : Left



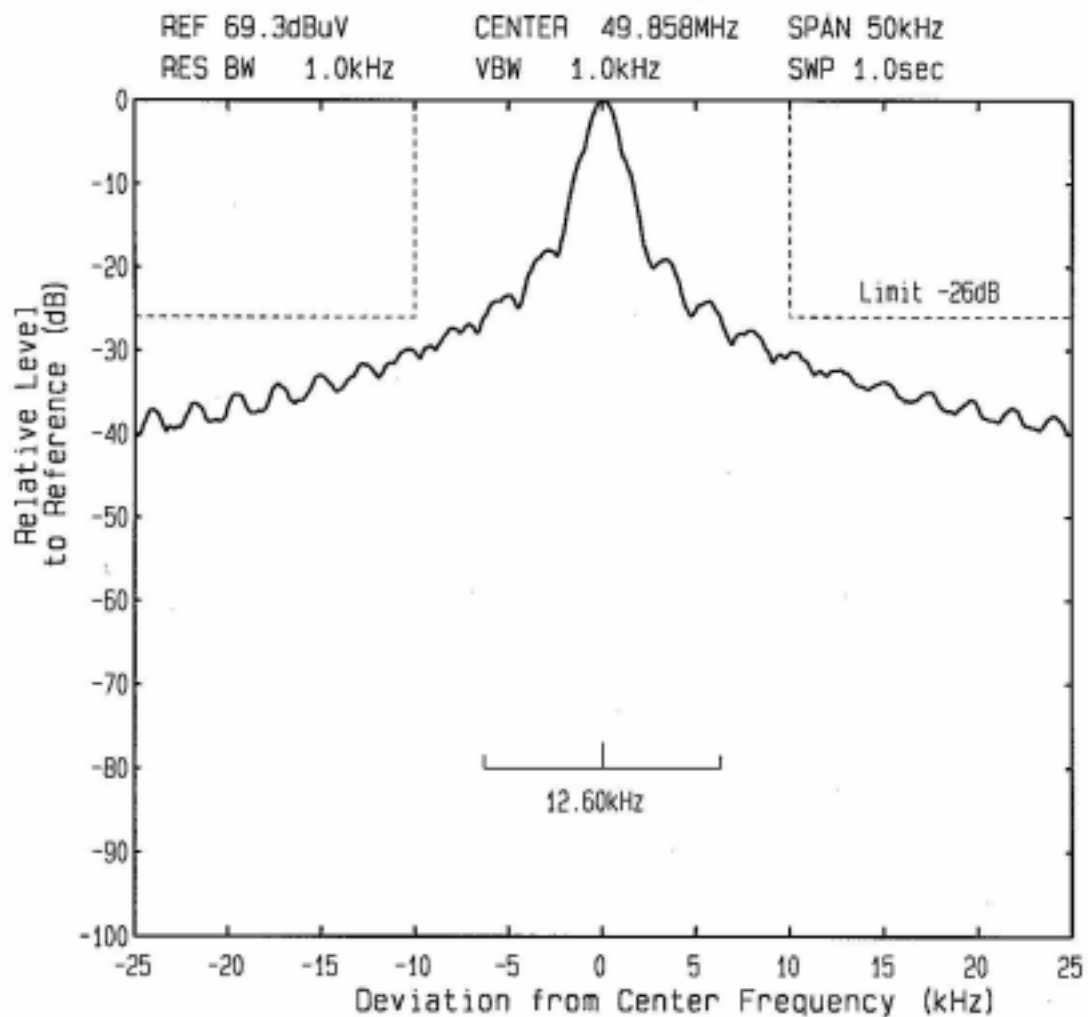
## Emission Limitation

FCC ID : CVTTN6760H  
 Model : TN6760H  
 RADIO CONTROLLED TOY  
 Mode of EUT : Right



## Emission Limitation

FCC ID : CVTTN6760H  
 Model : TN6760H  
 RADIO CONTROLLED TOY  
 Mode of EUT : Forward



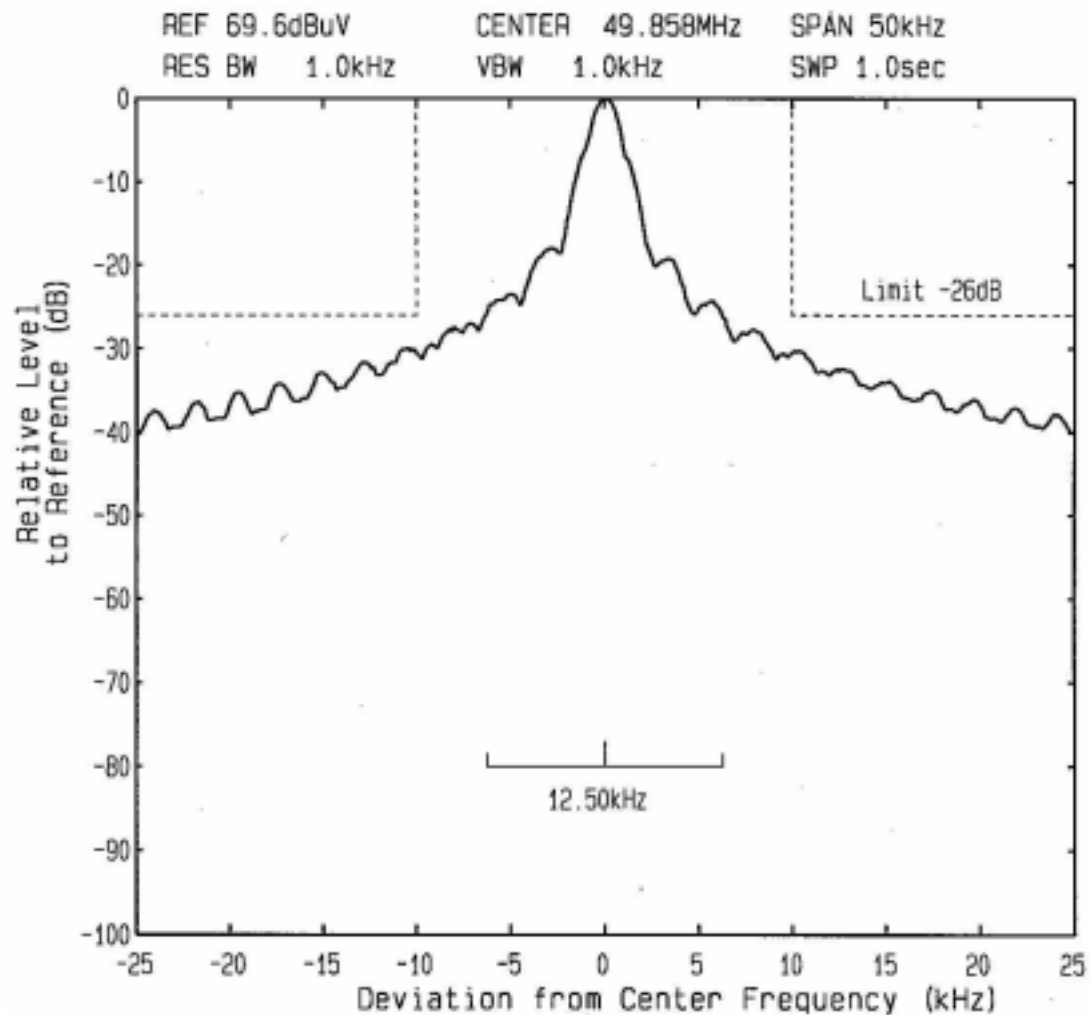


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## Emission Limitation

FCC ID : CVTTN6760H  
Model : TN6760H  
RADIO CONTROLLED TOY  
Mode of EUT : Reverse



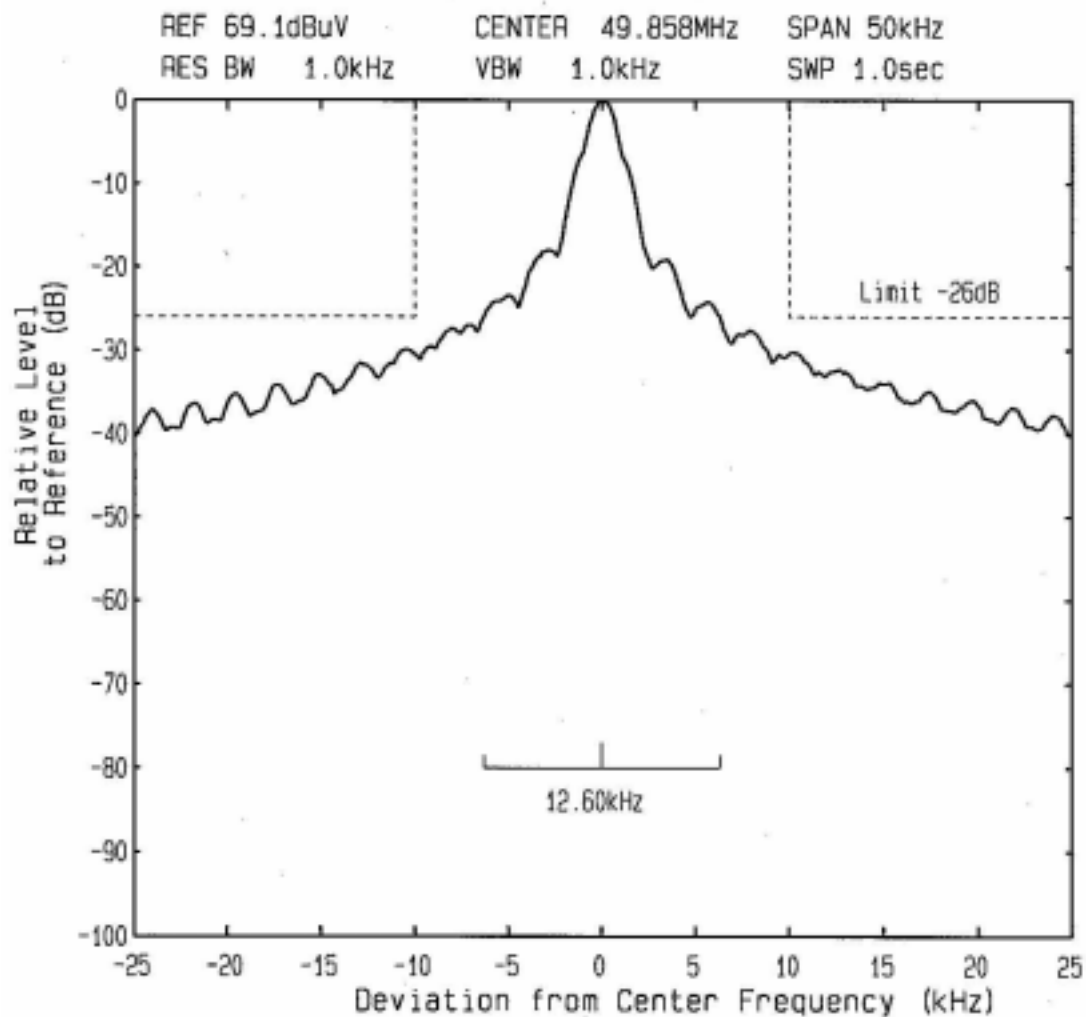


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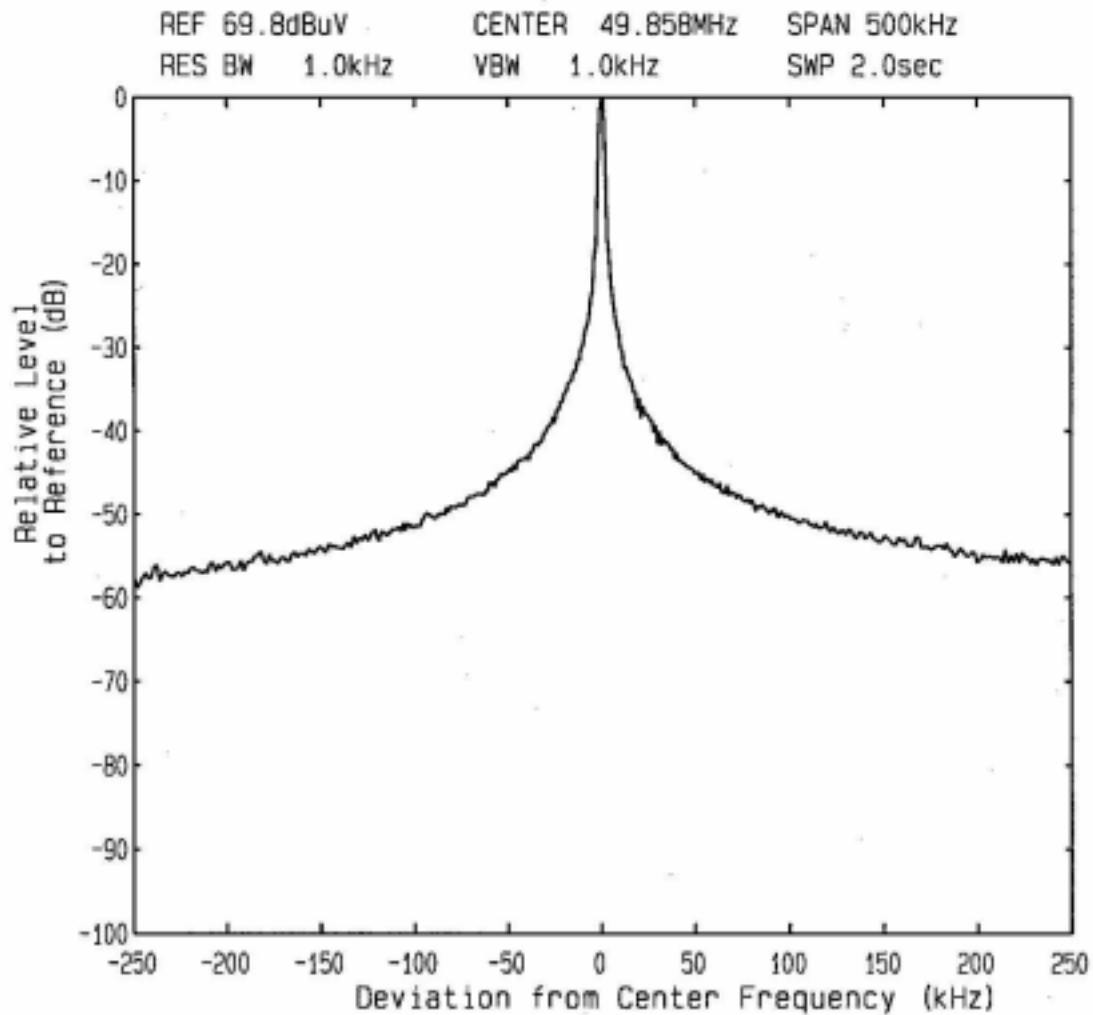
## Emission Limitation

FCC ID : CVTTN6760H  
Model : TN6760H  
RADIO CONTROLLED TOY  
Mode of EUT : SPIN SWITCH

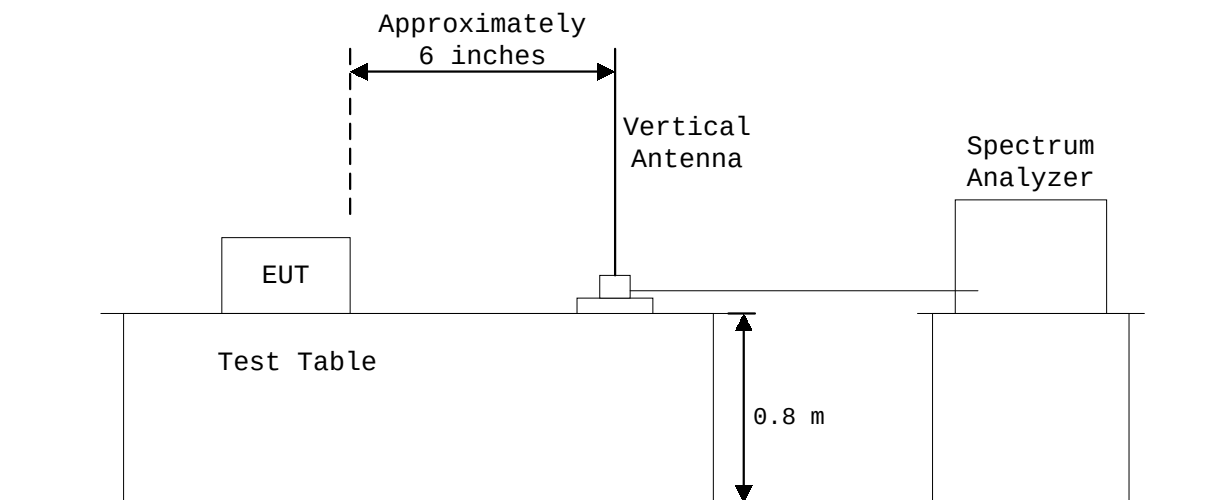


## Emission Limitation

FCC ID : CVTTN6760H  
 Model : TN6760H  
 RADIO CONTROLLED TOY  
 Mode of EUT : SPIN SWITCH



## MESUREMENT SET-UP FOR BAND WIDTH





LIST OF MEASUREMENT EQUIPMENT

| <u>Equipment (Model No.)</u> | <u>Manufacturer</u>               | <u>Date of Cal.</u> |
|------------------------------|-----------------------------------|---------------------|
| 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. | -                   |