

DEVICE DESCRIPTION

The device is a low power transmitter operating in the 49.82 - 49.90 MHz range for remote control of toy cars.

A crystal controlled oscillator drives an RF amplifier modulated by an integrated circuit encoder (see block diagram exhibit).

COMPLIANCE_WITH_SECTION_15.235_OF_PART_15

The procedures of ANSI C63.4 (1992) were used.

15.235(a) The field strength of the radiation emission was measured and found to be less than 10,000 uV/M @ 3m within the 49.82 - 49.90 MHz band. A peak-reading, RMS calibrated, spectrum analyzer was used as the measuring device. (See data of Table 1.) A 100 kHz resolution bandwidth was used.

15.235(b) The field strength of all emissions removed by more than 10 kHz from the band edges did not exceed 500 uV/m @ 3 meters, (26 dBc) or the general limits of 15.209, whichever was the higher emission limit.

All signals exceeding 20 uV/m @ 3 meters are reported in Table 1. The spectrum was scanned from 30 to 1000 MHz.

Emissions were confined within a 20 kHz band centered on the carrier frequency. No provisions for an external input signal exist. (See Figure 1.)

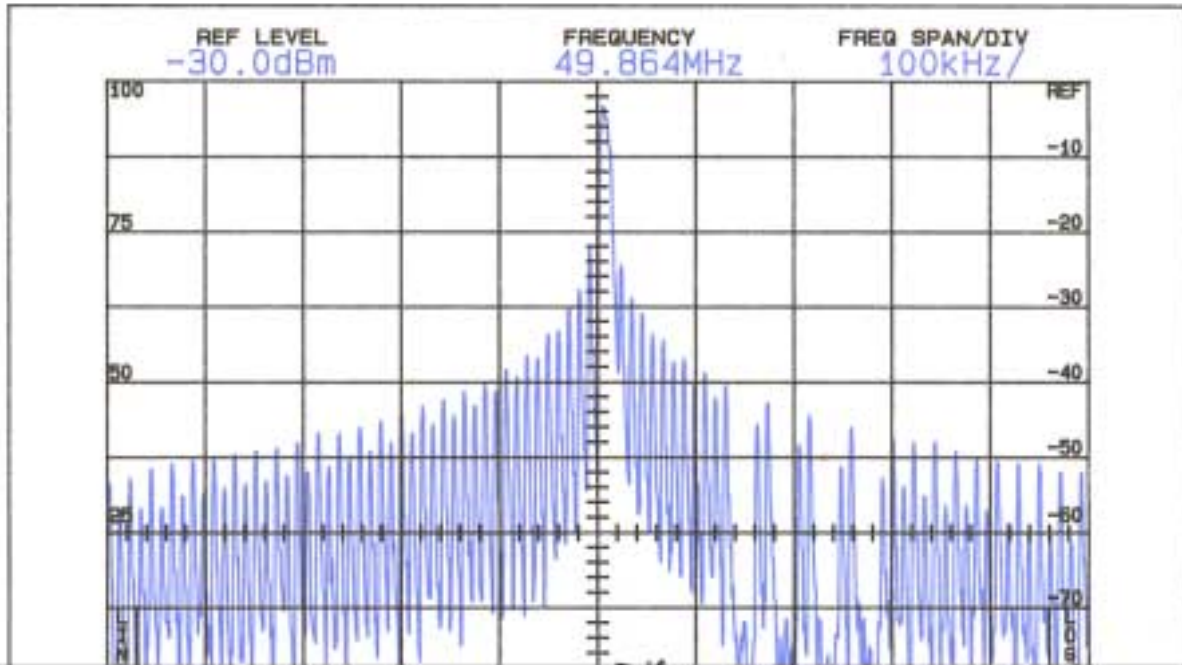
The antenna is permanently attached in the device. (See photographs.)

DATA

Radiated emissions were measured with new batteries. Data in Table 1 is for worst-case emissions.

Tables and Figures referenced above follow immediately after this page. Description of measurement procedures and test equipment used in the measurements follow the data pages.

FIGURE 1



OCCUPIED BANDWIDTH
FCC ID: IYF2CH400-49

FIGURE 1

TABLE 1

RADIATED SPURIOUS EMISSIONS
FCC Part 15.235

| Frequency To Which Tuned (MHz) | Emission Frequency (MHz) | Meter Reading (dBm)(P) | Antenna Factor _(dB)_ | Field Intensity uV/m @ 3m | FCC Limit uV/m @ 3m | dB to Limit |
|---|--------------------------------|------------------------------|-----------------------------|---------------------------------|------------------------|----------------|
| 49.860 | 49.860 | -48.4V | 11.1 | 3054.9 | 10000 | -10.3 |
| 49.860 | 99.720 | -75.2H | 8.4 | 102.3 | 150 | - 3.3 |
| 49.860 | 149.580 | -85.2V | 16.9 | 86.1 | 150 | - 4.8 |
| 49.860 | 199.440 | -79.8V | 12.7 | 98.9 | 150 | - 3.6 |
| 49.860 | 249.300 | -90.8V | 12.1 | 26.0 | 200 | -17.7 |
| 49.860 | 299.159 | -93.6V | 14.4 | 24.5 | 200 | -18.2 |
| 49.860 | 349.020 | -95.2H | 16.4 | 25.7 | 200 | -17.8 |
| 49.860 | 398.880 | -95.6H | 15.2 | 21.4 | 200 | -19.4 |
| 49.860 | 448.740 | -93.6H | 17.1 | 33.5 | 200 | -15.5 |
| 49.860 | 498.600 | -95.2H | 18.9 | 34.3 | 200 | -15.3 |

Occupied_Bandwidth

| | | | | | |
|--------|----------------|---------------------|------|-----|-------|
| 49.860 | $f_c - 10$ kHz | (1) -35 dB to f_c | 54.3 | 153 | - 9.0 |
| 49.860 | $f_c + 10$ kHz | (1) -36 dB to f_c | 48.4 | 153 | -10.0 |

Frequency range of 30 to 499.0 MHz was scanned. No signals exceeded FCC limits and all signals greater than 20 uV/m @ 3m are shown above.

(1) From Figure 1

*Reference data, 20 dB or more below FCC limit.

(P) = Worst-case test antenna polarization.

RADIATED FIELD INTENSITY
FCC ID: IYF2CH400-49

TABLE 1

Measurement of emission bandwidth was made with all controls adjusted for worst-case modulation.

A Tektronix 494P spectrum analyzer was used.

PROCEDURES, _RADIATED_SPURIOUS_EMISSIONS

Procedures of ANSI 63.4 - 1992 were followed.

The field strength of the radiated emissions from the device was measured at a distance of 3 meters. The spectrum was scanned from 30 MHz to the tenth harmonic using a Tektronix 494P spectrum analyzer and HP 8447D low-noise preamplifier.

Measurement procedure included recording the worst-case field strength for receiving test antenna polarization, test antenna height variation from 1 meter to 3 meters and test sample rotation, and test sample antenna in both vertical and horizontal plane.

The test sample was placed on a rotatable 80 cm high wooden stand. The receiving antenna, placed 3 meters from the test sample, was a Eaton biconical or log periodic antenna. Power supply was the 9 volt plug-in transformer supplied with the test sample.

The test sample was measured in the bottom down, face down, and side down positions.

The spectrum was checked from 30 to 499 MHz. All emissions not reported were less than 20 uV/m @ 3m. Tabulation of the measurements are shown in Table 1.