

# **F C C - TEST REPORT**

REPORT NO.: 25278A/1/400F

# **FCC – Test Report**

Date: 2001-03-27

No. 25278A/1/400F

Page 2 of 11

FCC listed testlab  
acc. to Section 2.948 of the FCC - Rules  
in compliance with the requirements of  
ANSI C63.4 - 1992

**Product** : Surfer King -- 49 MHz Transmitter  
**Model** : 91211T49  
**Applicant** : ECHO TOYS LTD  
**Manufacturer** : ECHO TOYS LTD

# **FCC – Test Report**

**No. 25278A/1/400F**

Date: 2001-03-27

Page 3 of 11

## **TABLE OF CONTENTS**

1. Cover sheet
2. Introduction
3. Table of Contents
4. Laboratory Report
5. Summary of Testresults
6. Test Equipment List
7. Radiated Emission Testprocedure
8. Interference Radiation (Datasheet)
9. Notes for Radiation Measurement (acc. to ANSI C63.4 - 1992)
10. Measurement of Emissions within Band Edges (Datasheet)
11. Notes for Measurement of Emissions within Band Edges

# FCC – Test Report

No. 25278A/1/400F

Date: 2001-03-27

Page 4 of 11

## LABORATORY - REPORT

**APPLICANT:** ECHO TOYS LTD  
**ADDRESS:** 8 A&B, Block 1, Tai Ping Industrial Centre  
57 Ting Kok Road  
Taipo, NT  
HONG KONG

**DATE OF SAMPLE RECEIVED:** 2001-01-19

**DATE OF TESTING:** 2001-03-27

### DESCRIPTION OF SAMPLE:

Product: Surfer King -- 49 MHz Transmitter  
Manufacturer: ECHO TOYS LTD  
Model number: 91211T49  
Rating: DC 9V ('6F22' Size Battery x1)  
Country of Origin: P.R. CHINA

**INVESTIGATIONS REQUESTED:** Measurements to the relevant clauses of F.C.C. Rules and Regulations  
Part 15 Subpart C - Intentional Radiators

**RESULTS:** See the attached test sheets

**CONCLUSIONS** From the measurement data obtained, the tested sample was considered to have COMPLIED with the requirements for the relevant clauses of Federal Communications Commission Rules as specified above.

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Authorized Signature

**Remark:** Purpose of those tests in this report is to provide the applicant with the necessary test data of their device for the submission to FCC with application for Equipment Authorization under the FCC Equipment Authorization Program. The tests themselves are not Approval Tests

# FCC – Test Report

No. 25278A/1/400F

Date: 2001-03-27

Page 5 of 11

## Summary of Test Results

### Interference Radiation:

Test result: O.K.  
Test data: See attached data sheet

### Interference Voltage:

Test result: N.A.  
Test data: N.A.

### Measurement of Emissions within Band Edges

Test result: O.K.  
Test data: See attached data sheet

### PHOTOGRAPH OF THE SAMPLE



# FCC – Test Report

Date: 2001-03-27

No. 25278A/1/400F

Page 6 of 11

## TEST EQUIPMENT LIST

| Equipment                       | Manufacturer    | Model                    | Serial No.          | Remark                            |
|---------------------------------|-----------------|--------------------------|---------------------|-----------------------------------|
| Test Receiver                   | Rohde & Schwarz | ESH 3                    | 863497/015          | 10KHz – 30MHz                     |
| Test Receiver                   | Rohde & Schwarz | ESVP                     | 860688/022          | 25MHz – 1,300 MHz                 |
| Artificial Mains Network (LISN) | Schwarzbeck     | NSLK 8127                | --                  | 2 x 10A, 50Ω, 50μH<br>10KHz-30MHz |
| Antenna System                  | Schwarzbeck     | BBA 9106 /<br>UHALP 9107 | --                  | 30MHz – 1000MHz                   |
| Antenna Mast System             | Schwarzbeck     | AM9104                   | --                  | Max. 4 meters height              |
| Spectrum Analyzer with Q. Peak  | Tektronix       | 2712                     | B023006             | 9KHz – 1.8GHz                     |
| Interface for Spectrum 2712     | Tektronix       | TD3F14A                  | --                  |                                   |
| Test Receiver                   | Rohde & Schwarz | ESH 3                    | 892580/006          | 10KHz – 30MHz                     |
| Test Receiver                   | Rohde & Schwarz | ESVP                     | 863512/012          | 25MHz – 1,300 MHz                 |
| Impulse Limiter                 | Rohde & Schwarz | ESH-3-Z2                 | --                  |                                   |
| Artificial Mains Network (LISN) | Schwarzbeck     | NSLK 8127                | --                  | 2 x 10A, 50Ω, 50μH<br>10KHz-30MHz |
| Antenna System                  | Schwarzbeck     | BBA 9106 /<br>UHALP 9107 | --                  | 30MHz – 1000MHz                   |
| Signal Generator                | Rohde & Schwarz | SWS 2                    | 879113/42           | 100KHz – 1040 MHz                 |
| Digital Multimeter              | Tektronix       | DM2510G                  | DM-<br>2510GTW10555 | 10KHz – 30MHz                     |
| Turntable with Controller       | Drehtisch       | DT312                    | --                  | φ120 cm                           |

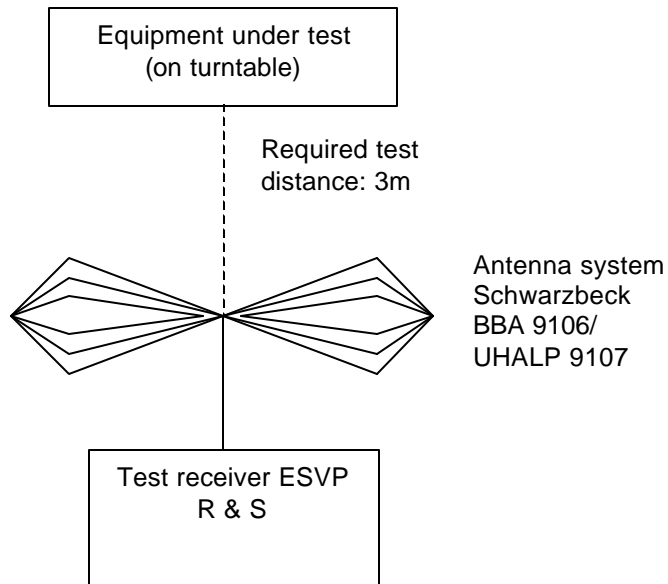
# FCC – Test Report

No. 25278A/1/400F

Date: 2001-03-27

Page 7 of 11

## Radiated Emission Test Procedure



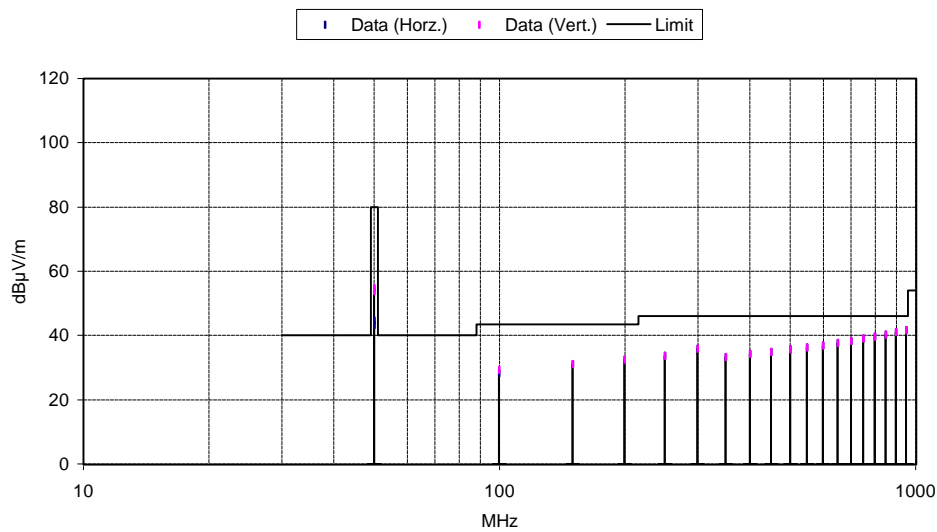
# Interference Radiation

Measurement of Radiated Emissions (30MHz-1000MHz)  
Acc: FCC Part 15 Subpart C

IECC Ref: 25278A/1/400F  
Model: 91211T49  
Applicant: ECHO TOYS LTD  
Ser.Nr.: 1  
Set under test: Surfer King  
Connected sets: -  
Operating mode: Power "On"

Test Equipment  
Receiver: ESVP Rohde & Schwarz  
Antenna: Schwarzbeck BBA 9106  
and UHALP 9107

|          | Frequency (MHz) | Horz. Reading<br>dB(μV) | Vert. Reading<br>dB(μV) | Antenna<br>Factor<br>(dB) | Horiz. Test<br>Result<br>(μV/m) | Vert. Test<br>Result (μV/m) | Limit (μV/m) |
|----------|-----------------|-------------------------|-------------------------|---------------------------|---------------------------------|-----------------------------|--------------|
| Peak     | 49.86           | 33                      | 43                      | 11.7                      | 173                             | 546                         | 100,000      |
| Av.      | 49.86           | 31.5                    | 42                      | 11.7                      | 145                             | 486                         | 10000        |
| Harm. 2  | 99.72           | 18                      | 19                      | 10.3                      | 26                              | 29                          | 150          |
| Harm. 3  | 149.58          | 16                      | 16                      | 15.0                      | 36                              | 36                          | 150          |
| Harm. 4  | 199.44          | < 16                    | < 16                    | 16.5                      | < 42                            | < 42                        | 150          |
| Harm. 5  | 249.3           | < 16                    | < 16                    | 17.7                      | < 49                            | < 49                        | 200          |
| Harm. 6  | 299.16          | < 16                    | < 16                    | 20.0                      | < 63                            | < 63                        | 200          |
| Harm. 7  | 349.02          | < 16                    | < 16                    | 17.4                      | < 47                            | < 47                        | 200          |
| Harm. 8  | 398.88          | < 16                    | < 16                    | 18.3                      | < 52                            | < 52                        | 200          |
| Harm. 9  | 448.74          | < 16                    | < 16                    | 19.0                      | < 56                            | < 56                        | 200          |
| Harm. 10 | 498.6           | < 16                    | < 16                    | 19.7                      | < 61                            | < 61                        | 200          |
| Harm. 11 | 548.46          | < 16                    | < 16                    | 20.2                      | < 64                            | < 64                        | 200          |
| Harm. 12 | 598.32          | < 16                    | < 16                    | 20.9                      | < 70                            | < 70                        | 200          |
| Harm. 13 | 648.18          | < 16                    | < 16                    | 21.6                      | < 76                            | < 76                        | 200          |
| Harm. 14 | 698.04          | < 16                    | < 16                    | 22.4                      | < 83                            | < 83                        | 200          |
| Harm. 15 | 747.9           | < 16                    | < 16                    | 23.0                      | < 90                            | < 90                        | 200          |
| Harm. 16 | 797.76          | < 16                    | < 16                    | 23.7                      | < 96                            | < 96                        | 200          |
| Harm. 17 | 847.62          | < 16                    | < 16                    | 24.3                      | < 104                           | < 104                       | 200          |
| Harm. 18 | 897.48          | < 16                    | < 16                    | 25.0                      | < 112                           | < 112                       | 200          |
| Harm. 19 | 947.34          | < 16                    | < 16                    | 25.7                      | < 122                           | < 122                       | 200          |



Test result: ☒ O.K. Date: \_\_\_\_\_ Operator: \_\_\_\_\_



## Notes for Radiation Measurement

**1. Measurement facility:**

Measurement facility located at Fanling (Hong Kong), placed on file with the FCC Pursuant to Section 2.948 of the FCC Rules.

**2. Distance between the EUT and measuring antenna:**

3 meters.

**3. Measuring instrumentations:**

Rohde & Schwarz ESVP Test Receiver ( 20 - 1300 MHz ) with a CISPR weighting QP detector, 6 dB bandwidth set at 120 KHz.

In the frequency range above 1000 MHz Spectrum Analyzer FMSM26 and Analyzer Display Unit FSA-D are used, bandwidth set at 100 kHz.

**4. Measuring antenna:**

Broad-band antenna for the frequency range 30 - 300 MHz and frequency range 300 - 1000 MHz, connected with 10 meters coaxial cable. Cable loss of the coaxial cable included in the Antenna Factor for measurement data. The antennas are capable of measuring both horizontal and vertical polarizations.

In the frequency range above 1 GHz horn-antenna RGA 50/60 is used.

**5. Frequency range scanned:**

The frequency range 30 - 5000 MHz has been scanned. Readings of the highest emissions relating to the limit were reported as above.

**6. Arrangement of EUT:**

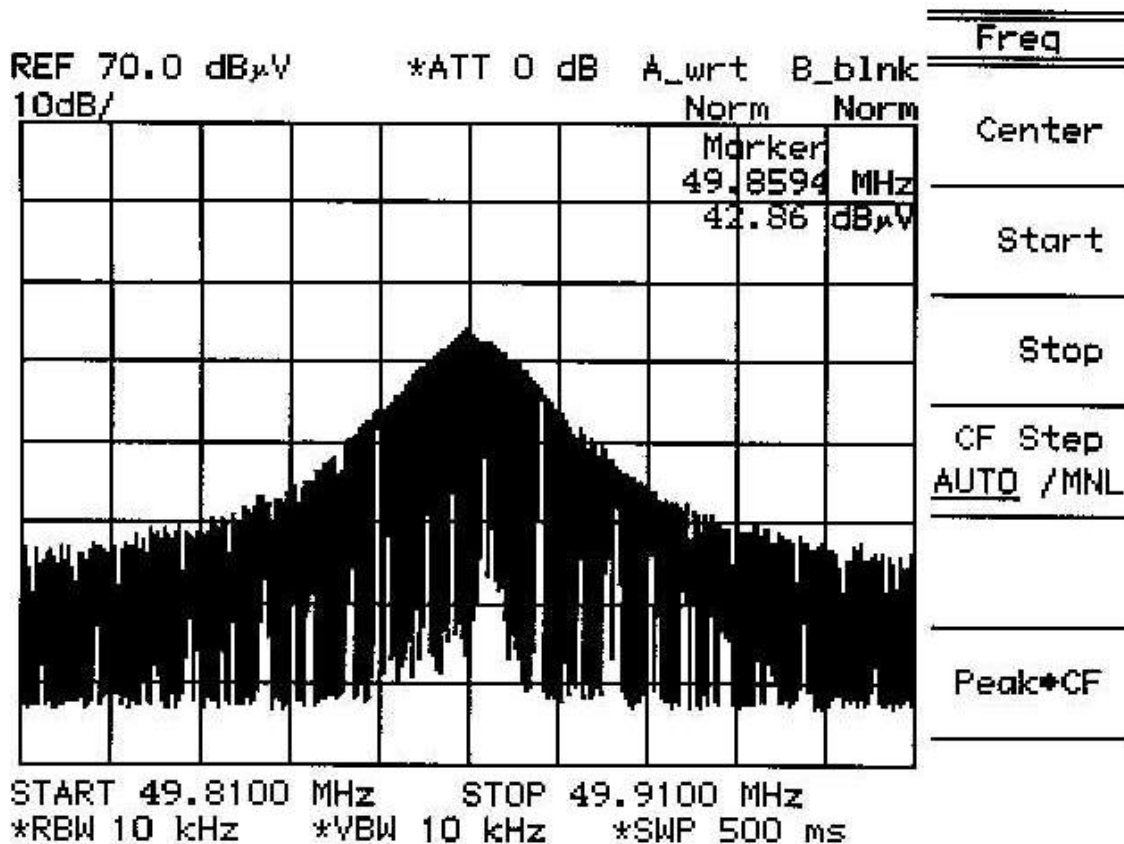
During the test, the sample was operated at rated supply voltage and arranged for maximum emissions.

**7. Measuring Procedure:**

In accordance with the relevant sections of the American National Standards Institute (ANSI) C63.4-1992 'Methods of Measurement of Radio Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9KHz to 40GHz'.

Date: 2001-03-27

Page 10 of 11



## Notes for Measurement of Emissions within Band Edges

1. **Measurement facility:**  
Measurement facility located at Fanling (Hong Kong) placed on file with the FCC Pursuant to Section 2.948 of the FCC Rules.
2. **Measuring instrumentations:**  
Spectrum Analyzer: Tektronix 2712
3. **Frequency range scanned:**  
The frequency range acc. to FCC rules and regulations part 15 subpart C - Intentional Radiators.
4. **Arrangement of EUT:**  
During the test, the sample was operated.
5. **Measuring Procedure:**  
In accordance with the relevant sections of American National Standards Institute (ANSI) C63.4 - 1992 'Methods of Measurement of Radio Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz'.