

# **F C C - TEST REPORT**

REPORT NO.: 45038

# **FCC – Test Report**

**No. 45038**

Date: 2006-05-08

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**FCC listed testlab  
acc. to Section 2.948 of the FCC - Rules  
in compliance with the requirements of  
ANSI C63.4 - 2003**

**Product** : AM/FM/WB Flashlight Radio &  
with Dynamo

**Product Class** : Communication Receiver  
(Super Hetrodyne)

**Brand Name** : -

**Model** : K-2002DW1-WB

**Importer** : KIN SUN ELECTRONICS  
LIMITED

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## LABORATORY - REPORT

**APPLICANT:** KIN SUN ELECTRONICS LIMITED  
**ADDRESS:** Unit P, Q & R, 4/F, Haribest Ind. Building  
45-47 Au Pui Wan Street  
Fo Tan, Shatin, N.T.  
Hong Kong

**DATE OF SAMPLE RECEIVED:** 2006-04-18

**DATE OF TESTING:** 2006-04-21 to 2006-04-24

### DESCRIPTION OF SAMPLE:

Product: AM/FM/WB Flashlight Radio & with Dynamo  
Product class: Communication Receiver (Super Hetrodyne)  
Model no.: K-2002DW1-WB  
Rating: DC 4.5V ('AAA' Size Battery x 3)

### INVESTIGATIONS REQUESTED:

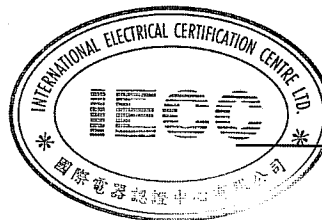
Measurements to the relevant clauses of F.C.C. Rules and Regulations  
Part 15 Subpart B – 'Unintentional Radiators'

### 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.



*Stephen Wong*

Authorized Signature

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## Test Location

International Electrical Certification Centre Ltd.  
Unit 602-605, 31 Lok Yip Road, On Lok Tsuen, Fanling, N.T., Hong Kong

## Summary of Test Results

### Radiated Emission:

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

### Conducted Emission:

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

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## TEST EQUIPMENT LIST

| Equipment                    | Manufacturer    | Model                    | Serial No. | Remark               |
|------------------------------|-----------------|--------------------------|------------|----------------------|
| Test Receiver                | Rohde & Schwarz | ESVP                     | 860688/022 | 20MHz – 1,300 MHz    |
| Antenna                      | Schaffner       | CBL6111C                 | 2791       | 30MHz – 1000MHz      |
| Antenna                      | Schwarzbeck     | BBA 9106 /<br>UHALP 9107 | --         | 30MHz – 1000MHz      |
| Antenna Mast<br>System       | Schwarzbeck     | AM9104                   | --         | Max. 4 meters height |
| Loop Antenna                 | Rohde & Schwarz | HFH2-Z2                  | 871336/48  | 9KHz-30MHz           |
| Turntable with<br>Controller | Drehtisch       | DT312                    | --         | φ120 cm              |

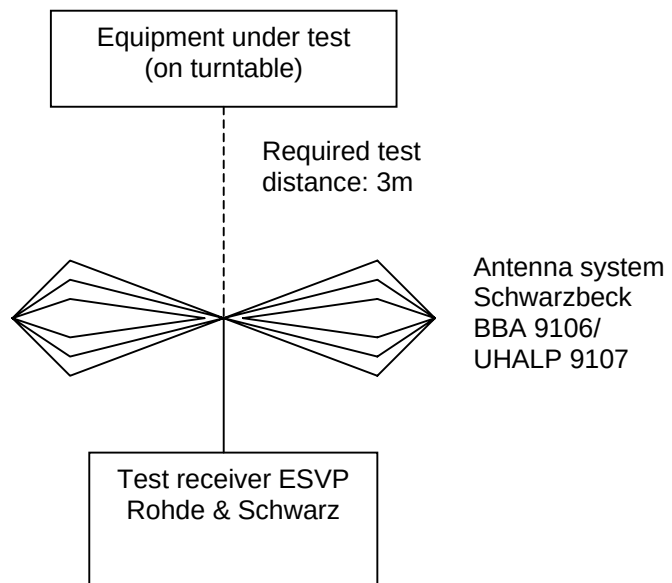
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## Radiated Emission Testprocedure (> 30MHz)



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## Test Results

### **Radiated Emission :**

|                       |                                      |
|-----------------------|--------------------------------------|
| Test Requirement:     | FCC Part 15 Subpart B Section 15.109 |
| Test Method:          | ANSI C63.4 : 2003                    |
| Frequency Range:      | 30MHz – 1000MHz                      |
| Measurement Distance: | 3 m                                  |
| Class:                | Class B                              |
| Detector:             | Quasi-Peak                           |

### **Sample Operation and Measurement :**

The sample was tested under normal operation for various modes (receiving FM / Weather Band signals) with supply from new batteries. An initial pre-scan was performed in the Open Area Test Site to find out the maximum emission level. Final measurement was then performed and the measurement data were shown on page 9 -12.

Refer to page 13 for notes for radiation measurement.



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Radiated Emission  
According: FCC Part 15 Subpart B (15.109)

IECC Ref: 45038  
Model: K-2002DW1-WB  
Applicant: KIN SUN ELECTRONICS LIMITED  
Ser.Nr.: --  
Oper. Mode: FM Mode  
InterFreq: 10.7 MHz

Test Equipment  
Receiver: ESVP Rohde & Schwarz  
Antenna: Schaffner CBL6111C

| Receiving - frequency (MHz) | Oscillator-frequency (MHz) | Har-monics | Reading dBμV | Polari-zation | Correction Factor (dB) | Test Result dB(μV/m) | Limit dB(μV/m) |
|-----------------------------|----------------------------|------------|--------------|---------------|------------------------|----------------------|----------------|
| 89.8                        | 100.5                      | 1          | < 16         | H             | 9.7                    | < 25.7               | 43.5           |
|                             | 201.0                      | 2          | < 16         | H             | 8.2                    | < 24.2               | 43.5           |
|                             | 301.5                      | 3          | 16           | H             | 13.0                   | 29.0                 | 46.0           |
|                             | 402.0                      | 4          | < 16         | H             | 15.8                   | < 31.8               | 46.0           |
|                             | 502.5                      | 5          | < 16         | H             | 18.0                   | < 34.0               | 46.0           |
|                             | 603.0                      | 6          | < 16         | H             | 19.4                   | < 35.4               | 46.0           |
|                             | 703.5                      | 7          | < 16         | H             | 20.9                   | < 36.9               | 46.0           |
|                             | 804.0                      | 8          | < 16         | H             | 22.1                   | < 38.1               | 46.0           |
|                             | 904.5                      | 9          | < 16         | H             | 23.7                   | < 39.7               | 46.0           |
| 98.3                        | 109.0                      | 1          | 16           | H             | 10.2                   | 26.2                 | 43.5           |
|                             | 218.0                      | 2          | 16           | H             | 8.3                    | 24.3                 | 46.0           |
|                             | 327.0                      | 3          | 28           | H             | 13.6                   | 41.6                 | 46.0           |
|                             | 436.0                      | 4          | < 16         | H             | 16.7                   | < 32.7               | 46.0           |
|                             | 545.0                      | 5          | < 16         | H             | 19.6                   | < 35.6               | 46.0           |
|                             | 654.0                      | 6          | < 16         | H             | 20.1                   | < 36.1               | 46.0           |
|                             | 763.0                      | 7          | < 16         | H             | 22.3                   | < 38.3               | 46.0           |
|                             | 872.0                      | 8          | < 16         | H             | 23.4                   | < 39.4               | 46.0           |
|                             | 981.0                      | 9          | < 16         | H             | 24.9                   | < 40.9               | 54.0           |
| 108.0                       | 118.7                      | 1          | 22           | H             | 10.7                   | 32.7                 | 43.5           |
|                             | 237.4                      | 2          | 32           | H             | 10.4                   | 42.4                 | 46.0           |
|                             | 356.1                      | 3          | 29           | H             | 14.5                   | 43.5                 | 46.0           |
|                             | 474.8                      | 4          | < 16         | H             | 17.5                   | < 33.5               | 46.0           |
|                             | 593.5                      | 5          | < 16         | H             | 19.3                   | < 35.3               | 46.0           |
|                             | 712.2                      | 6          | < 16         | H             | 21.2                   | < 37.2               | 46.0           |
|                             | 830.9                      | 7          | < 16         | H             | 22.9                   | < 38.9               | 46.0           |
|                             | 949.6                      | 8          | < 16         | H             | 25.6                   | < 41.6               | 46.0           |

The measurement results indicate that the test unit meets the FCC requirement

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Radiated Emission  
According: FCC Part 15 Subpart B (15.109)

IECC Ref: 45038  
Model: K-2002DW1-WB  
Applicant: KIN SUN ELECTRONICS LIMITED  
Ser.Nr.: --  
Oper. Mode: FM Mode  
InterFreq: 10.7 MHz

Test Equipment  
Receiver: ESVP Rohde & Schwarz  
Antenna: Schaffner CBL6111C

| Receiving - frequency (MHz) | Oscillator-frequency (MHz) | Har-monics | Reading dBμV | Polari-zation | Correction Factor (dB) | Test Result dB(μV/m) | Limit dB(μV/m) |
|-----------------------------|----------------------------|------------|--------------|---------------|------------------------|----------------------|----------------|
| 89.8                        | 100.5                      | 1          | 16           | V             | 9.7                    | 25.7                 | 43.5           |
|                             | 201.0                      | 2          | < 16         | V             | 8.2                    | < 24.2               | 43.5           |
|                             | 301.5                      | 3          | < 16         | V             | 13.0                   | < 29.0               | 46.0           |
|                             | 402.0                      | 4          | < 16         | V             | 15.8                   | < 31.8               | 46.0           |
|                             | 502.5                      | 5          | < 16         | V             | 18.0                   | < 34.0               | 46.0           |
|                             | 603.0                      | 6          | < 16         | V             | 19.4                   | < 35.4               | 46.0           |
|                             | 703.5                      | 7          | < 16         | V             | 20.9                   | < 36.9               | 46.0           |
|                             | 804.0                      | 8          | < 16         | V             | 22.1                   | < 38.1               | 46.0           |
|                             | 904.5                      | 9          | < 16         | V             | 23.7                   | < 39.7               | 46.0           |
| 98.3                        | 109.0                      | 1          | 18           | V             | 10.2                   | 28.2                 | 43.5           |
|                             | 218.0                      | 2          | 18           | V             | 8.3                    | 26.3                 | 46.0           |
|                             | 327.0                      | 3          | 22           | V             | 13.6                   | 35.6                 | 46.0           |
|                             | 436.0                      | 4          | < 16         | V             | 16.7                   | < 32.7               | 46.0           |
|                             | 545.0                      | 5          | < 16         | V             | 19.6                   | < 35.6               | 46.0           |
|                             | 654.0                      | 6          | < 16         | V             | 20.1                   | < 36.1               | 46.0           |
|                             | 763.0                      | 7          | < 16         | V             | 22.3                   | < 38.3               | 46.0           |
|                             | 872.0                      | 8          | < 16         | V             | 23.4                   | < 39.4               | 46.0           |
|                             | 981.0                      | 9          | < 16         | V             | 24.9                   | < 40.9               | 54.0           |
| 108.0                       | 118.7                      | 1          | 16           | V             | 10.7                   | 26.7                 | 43.5           |
|                             | 237.4                      | 2          | 16           | V             | 10.4                   | 26.4                 | 46.0           |
|                             | 356.1                      | 3          | 26           | V             | 14.5                   | 40.5                 | 46.0           |
|                             | 474.8                      | 4          | < 16         | V             | 17.5                   | < 33.5               | 46.0           |
|                             | 593.5                      | 5          | < 16         | V             | 19.3                   | < 35.3               | 46.0           |
|                             | 712.2                      | 6          | < 16         | V             | 21.2                   | < 37.2               | 46.0           |
|                             | 830.9                      | 7          | < 16         | V             | 22.9                   | < 38.9               | 46.0           |
|                             | 949.6                      | 8          | < 16         | V             | 25.6                   | < 41.6               | 46.0           |

The measurement results indicate that the test unit meets the FCC requirement

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Radiated Emission  
According: FCC Part 15 Subpart B (15.109)

IECC Ref: 45038  
Model: K-2002DW1-WB  
Applicant: KIN SUN ELECTRONICS LIMITED  
Ser.Nr.: --  
Oper. Mode: Weather Band  
InterFreq: 10.7 MHz

Test Equipment  
Receiver: ESVP Rohde & Schwarz  
Antenna: Schaffner CBL6111C

| Receiving - frequency (MHz) | Oscillator-frequency (MHz) | Har-monics | Reading dBμV | Polari-zation | Correction Factor (dB) | Test Result dB(μV/m) | Limit dB(μV/m) |
|-----------------------------|----------------------------|------------|--------------|---------------|------------------------|----------------------|----------------|
| 162.4                       | 173.10                     | 1          | < 16         | H             | 8.8                    | < 24.8               | 43.5           |
|                             | 346.20                     | 2          | 28           | H             | 14.2                   | 42.2                 | 46.0           |
|                             | 519.30                     | 3          | < 16         | H             | 18.3                   | < 34.3               | 46.0           |
|                             | 692.40                     | 4          | < 16         | H             | 20.6                   | < 36.6               | 46.0           |
|                             | 865.50                     | 5          | < 16         | H             | 23.5                   | < 39.5               | 46.0           |
| 162.475                     | 173.18                     | 1          | 29           | H             | 8.8                    | 37.8                 | 43.5           |
|                             | 346.35                     | 2          | 29           | H             | 14.2                   | 43.2                 | 46.0           |
|                             | 519.53                     | 3          | < 16         | H             | 18.3                   | < 34.3               | 46.0           |
|                             | 692.70                     | 4          | < 16         | H             | 20.6                   | < 36.6               | 46.0           |
|                             | 865.88                     | 5          | < 16         | H             | 23.5                   | < 39.5               | 46.0           |
| 162.55                      | 173.25                     | 1          | 16           | H             | 8.8                    | 24.8                 | 43.5           |
|                             | 346.50                     | 2          | 29           | H             | 14.2                   | 43.2                 | 46.0           |
|                             | 519.75                     | 3          | < 16         | H             | 18.3                   | < 34.3               | 46.0           |
|                             | 693.00                     | 4          | < 16         | H             | 20.6                   | < 36.6               | 46.0           |
|                             | 866.25                     | 5          | < 16         | H             | 23.5                   | < 39.5               | 46.0           |

The measurement results indicate that the test unit meets the FCC requirement

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Radiated Emission  
According: FCC Part 15 Subpart B (15.109)

IECC Ref: 45038  
Model: K-2002DW1-WB  
Applicant: KIN SUN ELECTRONICS LIMITED  
Ser.Nr.: --  
Oper. Mode: Weather Band  
InterFreq: 10.7 MHz

Test Equipment  
Receiver: ESVP Rohde & Schwarz  
Antenna: Schaffner CBL6111C

| Receiving - frequency (MHz) | Oscillator-frequency (MHz) | Har-monics | Reading dBμV | Polari-zation | Correction Factor (dB) | Test Result dB(μV/m) | Limit dB(μV/m) |
|-----------------------------|----------------------------|------------|--------------|---------------|------------------------|----------------------|----------------|
| 162.4                       | 173.10                     | 1          | 22           | V             | 8.8                    | 30.8                 | 43.5           |
|                             | 346.20                     | 2          | < 16         | V             | 14.2                   | < 30.2               | 46.0           |
|                             | 519.30                     | 3          | < 16         | V             | 18.3                   | < 34.3               | 46.0           |
|                             | 692.40                     | 4          | < 16         | V             | 20.6                   | < 36.6               | 46.0           |
|                             | 865.50                     | 5          | < 16         | V             | 23.5                   | < 39.5               | 46.0           |
| 162.475                     | 173.18                     | 1          | 22           | V             | 8.8                    | 30.8                 | 43.5           |
|                             | 346.35                     | 2          | 22           | V             | 14.2                   | 36.2                 | 46.0           |
|                             | 519.53                     | 3          | < 16         | V             | 18.3                   | < 34.3               | 46.0           |
|                             | 692.70                     | 4          | < 16         | V             | 20.6                   | < 36.6               | 46.0           |
|                             | 865.88                     | 5          | < 16         | V             | 23.5                   | < 39.5               | 46.0           |
| 162.55                      | 173.25                     | 1          | 18           | V             | 8.8                    | 26.8                 | 43.5           |
|                             | 346.50                     | 2          | < 16         | V             | 14.2                   | < 30.2               | 46.0           |
|                             | 519.75                     | 3          | < 16         | V             | 18.3                   | < 34.3               | 46.0           |
|                             | 693.00                     | 4          | < 16         | V             | 20.6                   | < 36.6               | 46.0           |
|                             | 866.25                     | 5          | < 16         | V             | 23.5                   | < 39.5               | 46.0           |

The measurement results indicate that the test unit meets the FCC requirement

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## Notes for Radiated Emission 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 (FCC Registration No. : 97774).

**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.

**4. Measuring antenna:**

Broad-band antenna for the frequency range 30 - 1000 MHz, connected with 10 meters coaxial cable. Cable loss of the coaxial cable included in the Antenna Factor for measurement data. The antenna is capable of measuring both horizontal and vertical polarizations. The antenna was raised from 1 to 4 meters to find out the maximum emission level from the EUT.

**5. Frequency range scanned:**

The frequency range 30 - 1000 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 placed on a turn table and operated under various modes at rated supply voltage. The table is 0.8 meter above ground and can rotate 360 degrees to determine the position of the maximum emission level.

**7. Measuring Procedure:**

In **accordance** with the relevant sections of the American National Standards Institute (ANSI) C63.4-2003 'Methods of Measurement of Radio Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9KHz to 40GHz'.

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## Photographs

Radiated Emission Test setup



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## Sample Construction Details



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### Sample Construction Details





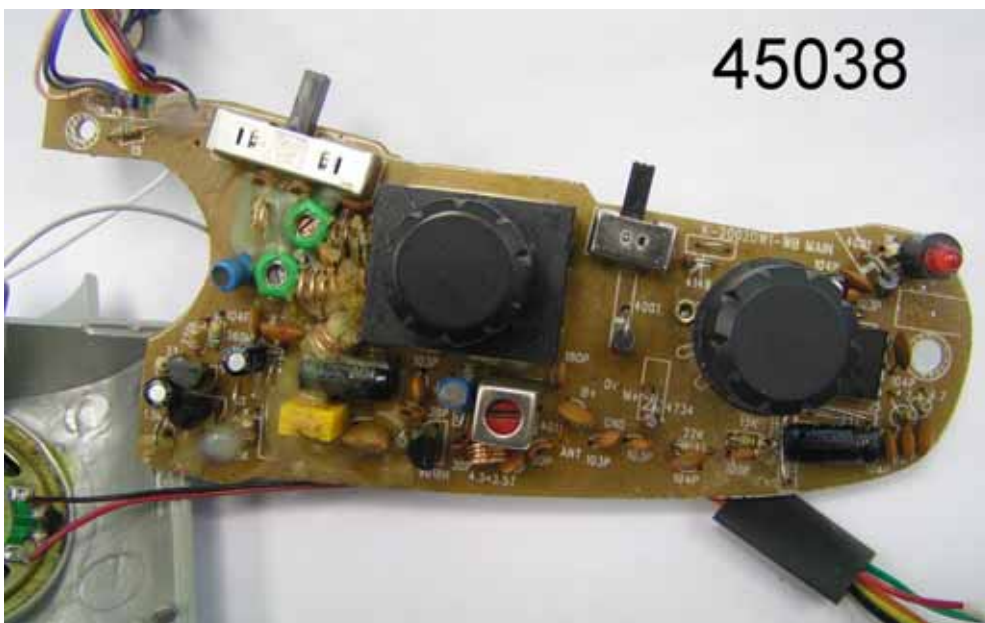
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## Sample Construction Details



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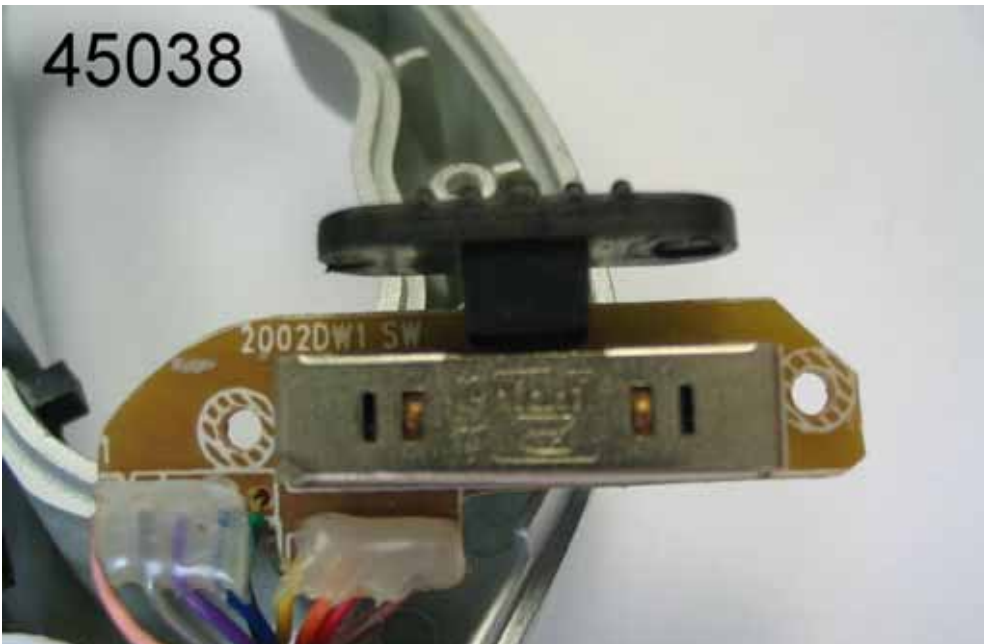
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## Sample Construction Details

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## Sample Construction Details

