

TEST REPORT FOR CERTIFICATION  
On Behalf of  
Chungear Industrial Co., Ltd.

Fan-Light Remote Controller (Transmitter)

Model : CS8K-BL

FCC ID : KUJ9303

Prepared for : Chungear Industrial Co., Ltd.  
106 Kanho Rd., Taichung, Taiwan, R.O.C.

Prepared by : Audix Corporation  
Technical Division EMC Department  
No. 53-11, Tin-Fu Tsun, Lin-Kou Hsiang,  
Taipei County 24443, Taiwan, R.O.C.

Tel : (02) 2609-9301, 2609-2133  
Fax : (02) 2609-9303

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Date of Report : Sep. 17, 2004

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# TEST REPORT CERTIFICATION

Applicant : Chungear Industrial Co., Ltd.  
Manufacturer : Satellite Electronic (Zhongshan) Ltd.  
EUT Description : Fan-Light Remote Controller (Transmitter)  
FCC ID : KUJ9303  
(A) MODEL NO. : CS8K-BL  
(B) SERIAL NO. : N/A  
(C) POWER SUPPLY : DC 9V

Measurement Procedure Used:

FCC RULES AND REGULATIONS PART 15 SUBPART C, APR. 2004  
AND ANSI C63.4-2001  
(FCC CFR 47 Part 15C, §15.207, §15.209 and §15.231)

The device described above was tested by Audix Corporation to determine the maximum emission levels emanating from the device. The maximum emission levels were compared to the FCC Part 15 subpart C limits both radiated and conducted emissions.

The measurement results are contained in this test report and Audix Corporation is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliant with the FCC official limits.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Audix Corporation.

Date of Test : Jul. 07 ~ Sep. 15, 2004

Prepared by : Monica Chang Sep. 17, 2004  
(Monica Chang/Administrator)

Test Engineer : Ben Cheng Sep. 17, 2004  
(Ben Cheng/Section Manager)

Approved & Authorized Signer : Leon Liu Sep. 20 2004  
(Leon Liu/Senior Manager)

# 1. GENERAL INFORMATION

## 1.1. Description of Device (EUT)

|                           |   |   |
|---------------------------|---|---|
| Description               | : | Fan-Light Remote Controller (Transmitter)   |
| Model Number              | : | CS8K-BL   |
| FCC ID                    | : | KUJ9303   |
| Applicant                 | : | Chungear Industrial Co., Ltd.<br>160 Kanho Rd., Taichung, Taiwan, R.O.C.  |
| Manufacturer              | : | Satellite Electronic (Zhongshan) Ltd.<br>No. 15 Zhongshan Troch Hi-Tech Industrial<br>Development Zone, Zhongshan City,<br>Guangdong Province 528437 China. |
| Fundamental Frequency     | : | 304MHz  |
| Power Supply              | : | DC 9V   |
| Date of Receipt of Sample | : | Jun. 29, 2004   |
| Date of Test              | : | Jul. 07 ~ Sep. 15, 2004   |

- \* Fan/Light Remote Controller -Receiver
- (1)Model No.: JP199, FCC by DoC
- (2)Model No.: JY326B, FCC by DoC

### **Remark:**

Antenna requirement: This EUT's transmitter antenna is designed to be soldered on a printed circuit board, comply with §15.203 and inform to user that any change and modify is prohibited.

### 1.2. Description of Test Facility

Name of Firm : Audix Corporation  
 Technical Division EMC Department  
 No. 53-11, Tin-Fu Tsun, Lin-Kou Hsiang,  
 Taipei County 24443, Taiwan, R.O.C.

Test Location & Facility (AC) : **Semi-Anechoic Chamber**  
 No. 53-11, Tin-Fu Tsun, Lin-Kou Hsiang,  
 Taipei County 24443, Taiwan, R.O.C.

May. 16, 2003 Re-File on  
 Federal Communication Commission  
 Registration Number: 90993

NVLAP Lab. Code : 200077-0  
 (NVLAP is a NATA accredited body under Mutual Recognition Agreement)

### 1.3. Measurement Uncertainty

| Test Item                        | Frequency Range | Uncertainty (dB) |
|----------------------------------|-----------------|------------------|
| Conduction Test                  | 150kHz~30MHz    | ± 1.73dB         |
| Radiation Test<br>(Distance: 3m) | 30MHz~300MHz    | ± 2.91dB         |
|                                  | 300MHz~1000MHz  | ± 2.94dB         |

Remark : Uncertainty =  $ku_c(y)$

## **2. POWERLINE CONDUCTED MEASUREMENT**

**【 The EUT only employs battery power for operation, no conductive emissions limits are required according to FCC Part 15 Section §15.207 】**

### 3. RADIATED EMISSION MEASUREMENT

#### 3.1. Test Equipment

The following test equipment was used during the radiated emission tests :

##### 3.1.1.For Frequency 30MHz~1000MHz (at Semi-Anechoic Chamber)

| Item | Type              | Manufacturer | Model No.       | Serial No. | Last Cal.    | Next Cal.    |
|------|-------------------|--------------|-----------------|------------|--------------|--------------|
| 1.   | Spectrum Analyzer | HP           | 8593EM          | 3826A00248 | Sep. 24, 03' | Sep. 23, 04' |
| 2.   | Test Receiver     | R&S          | ESCS30          | 100265     | Sep. 22, 03' | Sep. 21, 04' |
| 3.   | Pre-Amplifier     | HP           | 8447D           | 2944A06305 | Mar. 18, 04' | Mar. 17, 05' |
| 4.   | Broadband Antenna | Schwarzbeck  | BBA 9106        | A3L        | Feb. 21, 04' | Feb. 20, 05' |
| 5.   | Broadband Antenna | Schwarzbeck  | UHALP<br>9108-A | 0138       | Feb. 21, 04' | Feb. 20, 05' |

##### 3.1.2.For Frequency above 1GHz (at Semi-Anechoic Chamber)

| Item | Type              | Manufacturer | Model No. | Serial No. | Last Cal.    | Next Cal.    |
|------|-------------------|--------------|-----------|------------|--------------|--------------|
| 1.   | Spectrum Analyzer | HP           | 8593EM    | 3826A00248 | Sep. 24, 03' | Sep. 23, 04' |
| 2.   | Amplifier         | HP           | 8449B     | 3008A00529 | Jan. 29, 04' | Jan. 28, 05' |
| 3.   | Horn Antenna      | EMCO         | 3115      | 9112-3775  | May 05, 04'  | May 04, 05'  |

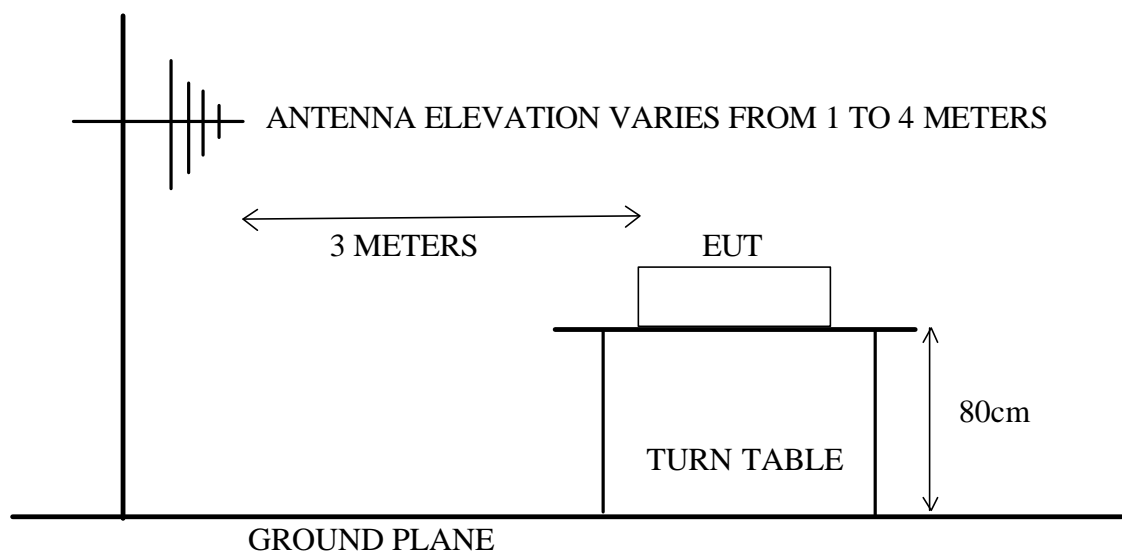
#### 3.2. Test Setup

##### 3.2.1.Block Diagram of connection between EUT and simulators

**FAN-LIGHT REMOTE CONTROLLER (TRANSMITTER)  
(EUT)**

##### 3.2.2.Semi-Anechoic Chamber (3m) Setup Diagram

ANTENNA TOWER



### 3.3. Radiation Emission Limits (§15.209 & 15.231)

#### 3.3.1. Spurious Emission Limit (§15.209)

| FREQUENCY<br>MHz | DISTANCE<br>Meters | FIELD STRENGTHS LIMITS |        |
|------------------|--------------------|------------------------|--------|
|                  |                    | µV/m                   | dBµV/m |
| 30 - 88          | 3                  | 100                    | 40.00  |
| 88 - 216         | 3                  | 150                    | 43.50  |
| 216 - 960        | 3                  | 200                    | 46.00  |
| Above 960        | 3                  | 500                    | 54.00  |

- Remarks :
- (1) Emission level (dBµV/m) = 20 log Emission level (µV/m)
  - (2) The tighter limit applies at the edge between two frequency bands.
  - (3) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

#### 3.3.2. Fundamental Frequency Emission Limit (§15.231)

| FREQUENCY<br>MHz      | DISTANCE<br>Meters | FIELD STRENGTHS LIMITS |                 |
|-----------------------|--------------------|------------------------|-----------------|
|                       |                    | µV/m                   | dBµV/m          |
| Fundamental Frequency | 3                  | 5584.0                 | 74.94 (Average) |

- Remarks :
- (1) Emission level (dBµV/m) = 20 log Emission level (µV/m)
  - (2) The tighter limit applies at the edge between two frequency bands.
  - (3) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
  - (4) Where limit of Fundamental Freq. is calculated by:  $41.6667 \times 304 - 7083.3333 = 5583.3435 \mu\text{V/m} = 74.94 \text{dB}\mu\text{V/m}$ .
  - (5) The limits in this table are based on CFR 47 Part 15.231(b).

### 3.4. EUT's Configuration during Compliance Measurement

The following equipment was installed on radiated measurement to meet the commission requirement and operating in a manner which tended to maximize its emission characteristics in a normal application.

#### 3.4.1. Fan-Light Remote Controller (Transmitter) (EUT)

Model Number : CS8K-BL  
 Serial Number : N/A  
 Manufacturer : Satellite Electronic (Zhongshan) Ltd.  
 Fundamental Frequency : 304MHz



### 3.5. Operating Condition of EUT

- 3.5.1. Set up the EUT and simulator as shown on 3.2.
- 3.5.2. Turned on the power of all equipment.
- 3.5.3. The EUT (Fan-Light Remote Controller (Transmitter)) emitted the fundamental frequency with data code.
- 3.5.4. The EUT worked on maximum transmitting status (high & Light on) during all testing.
- 3.5.5. The above procedures from 3.5.3 to 3.5.4 were repeated.

### 3.6. Test Procedure

The EUT and its simulators were placed on a turn table which was 0.8 meter above the ground. The turn table rotated 360 degrees to determine the position of the maximum emission level. EUT was set to 3 meters away from the receiving antenna which was mounted on an antenna tower. The antenna moved up and down between 1 to 4 meters to find out the maximum emission level. Broadband antenna such as calibrated biconical and log-periodical antenna or horn antenna were used as a receiving antenna. Both horizontal and vertical polarization of the antenna were set on measurement. In order to find the maximum emission, all of the interface cables were manipulated according to FCC ANSI C63.4-2001 regulation.

The bandwidth of test receiver was set at 120kHz for frequencies below 1GHz and resolution bandwidth of spectrum analyzer was set at 1MHz for frequencies above 1GHz.

EUT with three kinds of positions (Stand, Side, Lying) was tested during radiated measurement and all the test results are listed in section 3.7.

### 3.7. Radiated Emission Noise Measurement Results

**PASSED.** All emissions not reported below are too low against the prescribed limits.

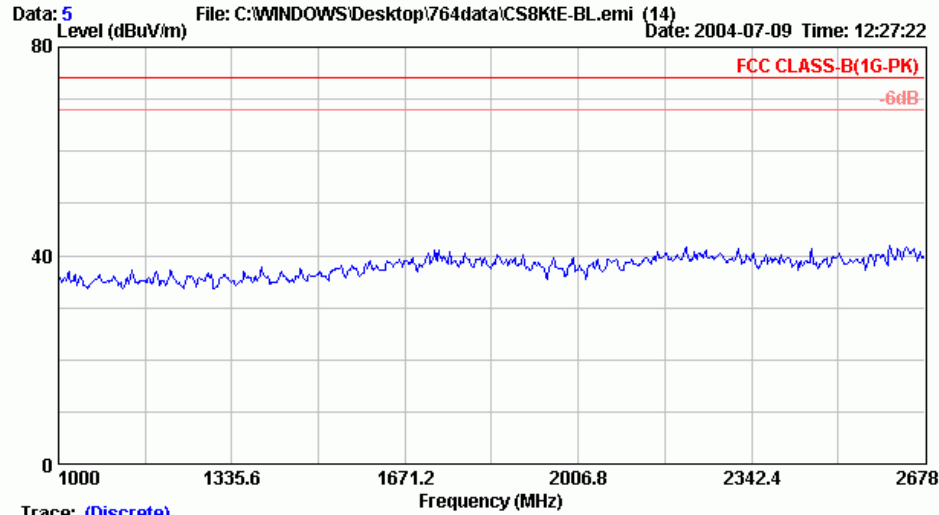
|                 |  |               |            |
|-----------------|--|---------------|------------|
| Date of Test :  | <u>Sep. 15, 2004</u>                                 | Temperature : | <u>24</u>  |
| EUT :           | <u>Fan-Light Remote Controller<br/>(Transmitter)</u> | Humidity :    | <u>65%</u> |
| Test Position : | <u>EUT on Stand</u>                                  |               |            |

| Emission Frequency MHz                       | Antenna Factor dB/m | Cable Loss dB | Meter Reading Horizontal dBμV | Emission Level Horizontal dBμV/m | Limits dBμV/m | Margin dB |
|--|---------------------|---------------|-------------------------------|----------------------------------|---------------|-----------|
| -----  |                     |               |                               |                                  |               |           |
| Fundamental Freq. (Quasi-Peak Value)         |                     |               |                               |                                  |               |           |
| 304.300                                      | 14.87               | 3.90          | 50.86                         | 69.63                            | 74.94         | 5.31      |
| Spurious / Harmonic Freq. (Quasi-Peak Value) |                     |               |                               |                                  |               |           |
| 56.190                                       | 14.11               | 1.60          | 3.72                          | 19.43                            | 40.00         | 20.57     |
| 91.830                                       | 16.08               | 2.00          | 6.48                          | 24.56                            | 43.50         | 18.94     |
| 150.690                                      | 20.63               | 2.60          | 3.54                          | 26.77                            | 43.50         | 16.73     |
| 608.610                                      | 21.41               | 6.30          | 15.68                         | 43.39                            | 46.00         | 2.61      |
| 912.900                                      | 24.98               | 7.40          | 7.83                          | 40.21                            | 46.00         | 5.79      |
| -----  |                     |               |                               |                                  |               |           |
| Emission Frequency MHz                       | Antenna Factor dB/m | Cable Loss dB | Meter Reading Vertical dBμV   | Emission Level Vertical dBμV/m   | Limits dBμV/m | Margin dB |
| -----  |                     |               |                               |                                  |               |           |
| Fundamental Freq. (Quasi-Peak Value)         |                     |               |                               |                                  |               |           |
| 304.300                                      | 15.17               | 3.90          | 50.59                         | 69.66                            | 74.94         | 5.28      |
| Spurious / Harmonic Freq. (Quasi-Peak Value) |                     |               |                               |                                  |               |           |
| 56.190                                       | 14.21               | 1.60          | 6.82                          | 22.63                            | 40.00         | 17.37     |
| 121.530                                      | 17.68               | 2.30          | 5.13                          | 25.11                            | 43.50         | 18.39     |
| 129.090                                      | 18.43               | 2.40          | 7.77                          | 28.60                            | 43.50         | 14.90     |
| 131.790                                      | 18.94               | 2.40          | 6.14                          | 27.48                            | 43.50         | 16.02     |
| 608.610                                      | 21.50               | 6.30          | 15.76                         | 43.56                            | 46.00         | 2.44      |
| 912.900                                      | 25.69               | 7.40          | 6.63                          | 39.72                            | 46.00         | 6.28      |
| -----  |                     |               |                               |                                  |               |           |

- Remarks : 1. Emission Level = Antenna Factor + Cable Loss + Meter Reading.  
 2. Measurement was up to 10th harmonics (~5.5GHz), but the emission levels were too low against the official limit and not report.

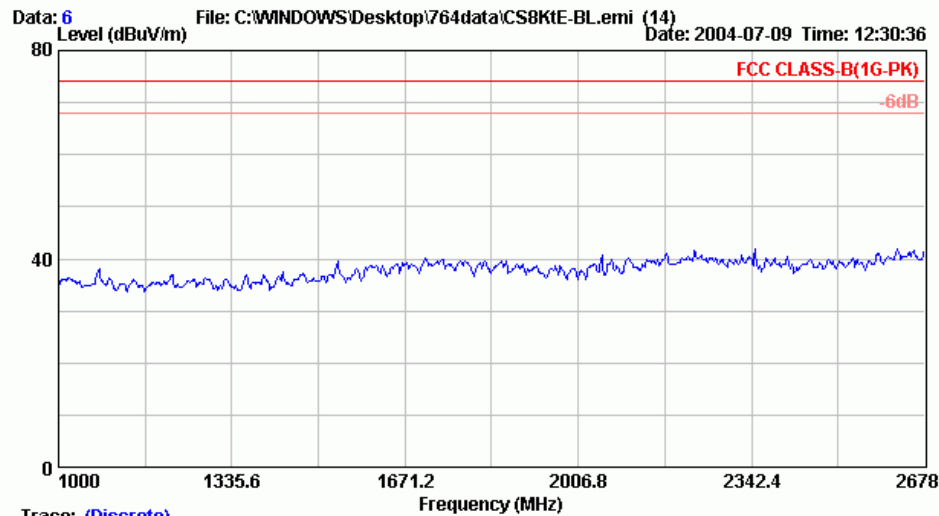


AUDIX Corp. EMC Laboratory  
 No.53-11, Tin-fu Tsun, Lin-kou Hsiang, Taipei  
 County, Taiwan R.O.C. Post Code:24443  
 Tel:02-26092133 Fax:02-26099303  
 Email:ttemc@ttemc.com.tw



Trace: (Discrete)

Site no. : A/C Chamber Data no. : 5  
 Ant. / Dis. : 3115 3m Ant. pol. : HORIZONTAL  
 Limit : FCC CLASS-B(1G-PK)  
 Env. / Ins. : 8593EM \*C/% Engineer : henning  
 EUT : Fan-Light Remote Controller M/N:CS8K-BL  
 Power Rating : DC 9V  
 Test Mode : TX---stand

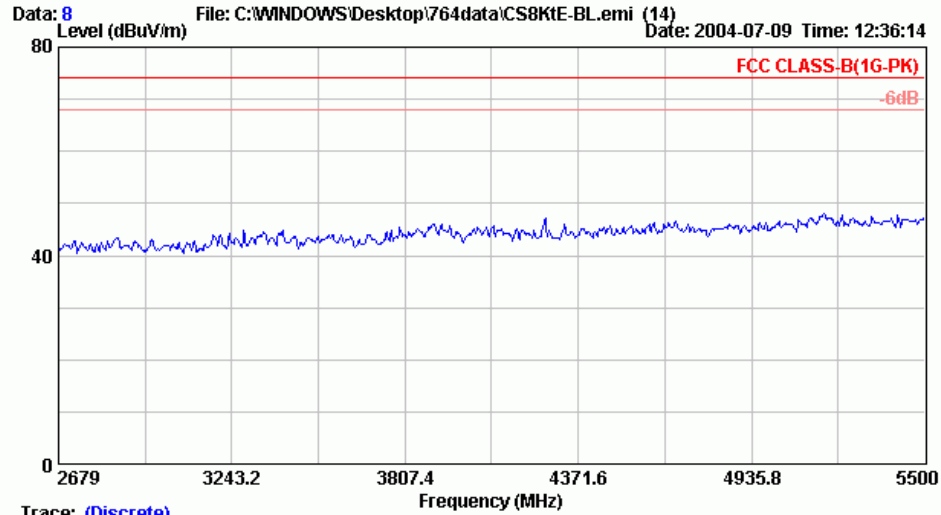


Trace: (Discrete)

Site no. : A/C Chamber Data no. : 6  
 Ant. / Dis. : 3115 3m Ant. pol. : VERTICAL  
 Limit : FCC CLASS-B(1G-PK)  
 Env. / Ins. : 8593EM \*C/% Engineer : henning  
 EUT : Fan-Light Remote Controller M/N:CS8K-BL  
 Power Rating : DC 9V  
 Test Mode : TX---stand

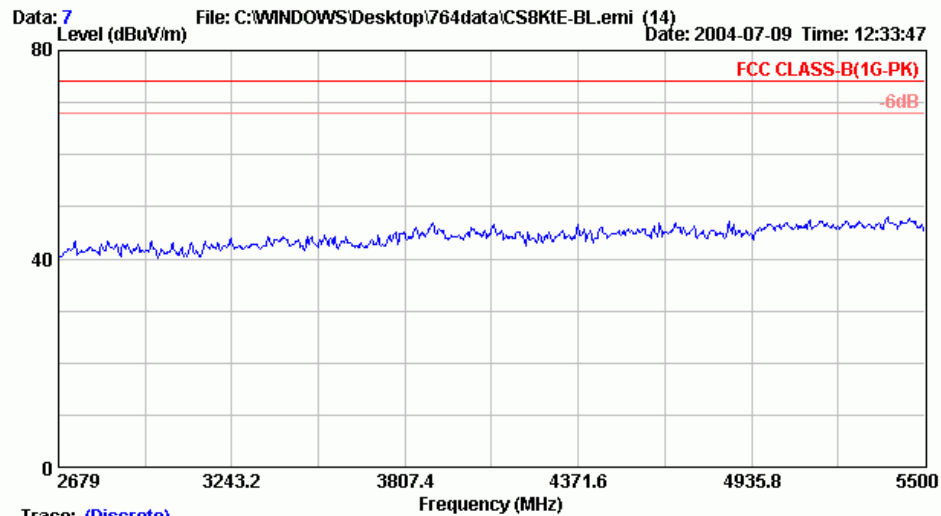


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 County, Taiwan R.O.C. Post Code:24443  
 Tel:02-26092133 Fax:02-26099303  
 Email:ttemc@ttemc.com.tw



Trace: (Discrete)

Site no. : A/C Chamber Data no. : 8  
 Ant. / Dis. : 3115 3m Ant. pol. : HORIZONTAL  
 Limit : FCC CLASS-B(1G-PK)  
 Env. / Ins. : 8593EM \*C/% Engineer : henning  
 EUT : Fan-Light Remote Controller M/N:CS8K-BL  
 Power Rating : DC 9V  
 Test Mode : TX---stand



Trace: (Discrete)

Site no. : A/C Chamber Data no. : 7  
 Ant. / Dis. : 3115 3m Ant. pol. : VERTICAL  
 Limit : FCC CLASS-B(1G-PK)  
 Env. / Ins. : 8593EM \*C/% Engineer : henning  
 EUT : Fan-Light Remote Controller M/N:CS8K-BL  
 Power Rating : DC 9V  
 Test Mode : TX---stand

Date of Test : Sep. 15, 2004      Temperature : 24

EUT : Fan-Light Remote Controller      Humidity : 65%  
(Transmitter)

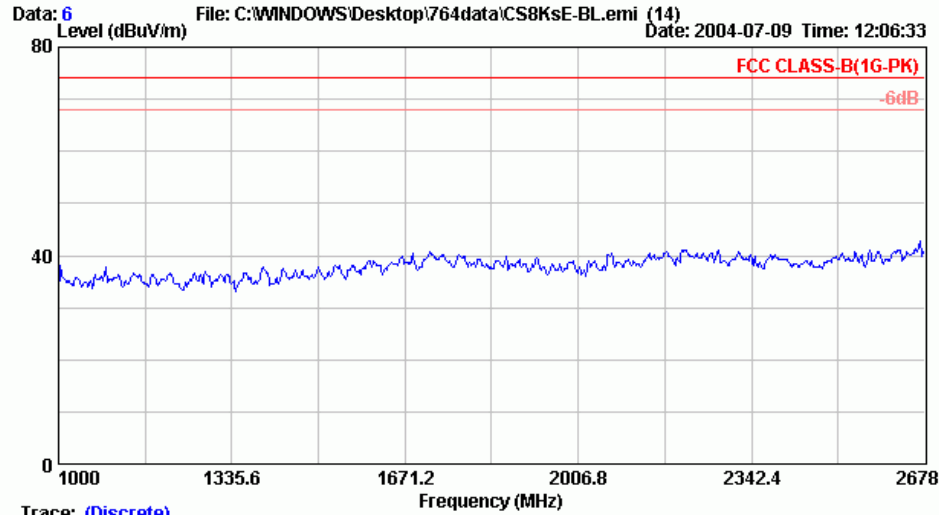
Test Position : EUT on Side

| Emission Frequency<br>MHz                    | Antenna Factor<br>dB/m | Cable Loss<br>dB | Meter Reading<br>Horizontal<br>dB $\mu$ V | Emission Level<br>Horizontal<br>dB $\mu$ V/m | Limits<br>dB $\mu$ V/m | Margin<br>dB |
|--|------------------------|------------------|---|--|------------------------|--------------|
| -----  |                        |                  |   |  |                        |              |
| Fundamental Freq. (Quasi-Peak Value)         |                        |                  |   |  |                        |              |
| 304.300                                      | 14.87                  | 3.90             | 48.68                                     | 67.45  | 74.94                  | 7.49         |
| Spurious / Harmonic Freq. (Quasi-Peak Value) |                        |                  |   |  |                        |              |
| 56.190                                       | 14.11                  | 1.60             | 3.19                                      | 18.90  | 40.00                  | 21.10        |
| 91.560                                       | 15.90                  | 2.00             | 6.66                                      | 24.56  | 43.50                  | 18.94        |
| 101.010                                      | 17.17                  | 2.10             | 4.39                                      | 23.66  | 43.50                  | 19.84        |
| 179.040                                      | 21.30                  | 2.90             | 3.10                                      | 27.30  | 43.50                  | 16.20        |
| 608.610                                      | 21.47                  | 6.20             | 15.06                                     | 42.73  | 46.00                  | 3.27         |
| 912.900                                      | 24.98                  | 7.40             | 7.12                                      | 39.50  | 46.00                  | 6.50         |
| -----  |                        |                  |   |  |                        |              |
| Emission Frequency<br>MHz                    | Antenna Factor<br>dB/m | Cable Loss<br>dB | Meter Reading<br>Vertical<br>dB $\mu$ V   | Emission Level<br>Vertical<br>dB $\mu$ V/m   | Limits<br>dB $\mu$ V/m | Margin<br>dB |
| -----  |                        |                  |   |  |                        |              |
| Fundamental Freq. (Quasi-Peak Value)         |                        |                  |   |  |                        |              |
| 304.300                                      | 15.17                  | 3.90             | 52.71                                     | 71.78  | 74.94                  | 3.16         |
| Spurious / Harmonic Freq. (Quasi-Peak Value) |                        |                  |   |  |                        |              |
| 36.480                                       | 21.74                  | 1.20             | -1.40                                     | 21.54  | 40.00                  | 18.46        |
| 52.680                                       | 15.42                  | 1.50             | 4.75                                      | 21.67  | 40.00                  | 18.33        |
| 131.790                                      | 18.94                  | 2.40             | 5.56                                      | 26.90  | 43.50                  | 16.60        |
| 234.930                                      | 24.80                  | 3.40             | 3.67                                      | 31.87  | 46.00                  | 14.13        |
| 608.610                                      | 21.68                  | 6.20             | 14.47                                     | 42.35  | 46.00                  | 3.65         |
| 912.900                                      | 25.69                  | 7.40             | 6.62                                      | 39.71  | 46.00                  | 6.29         |
| -----  |                        |                  |   |  |                        |              |

- Remarks : 1. Emission Level = Antenna Factor + Cable Loss + Meter Reading.  
2. Measurement was up to 10th harmonics (~5.5GHz), but the emission levels were too low against the official limit and not report.

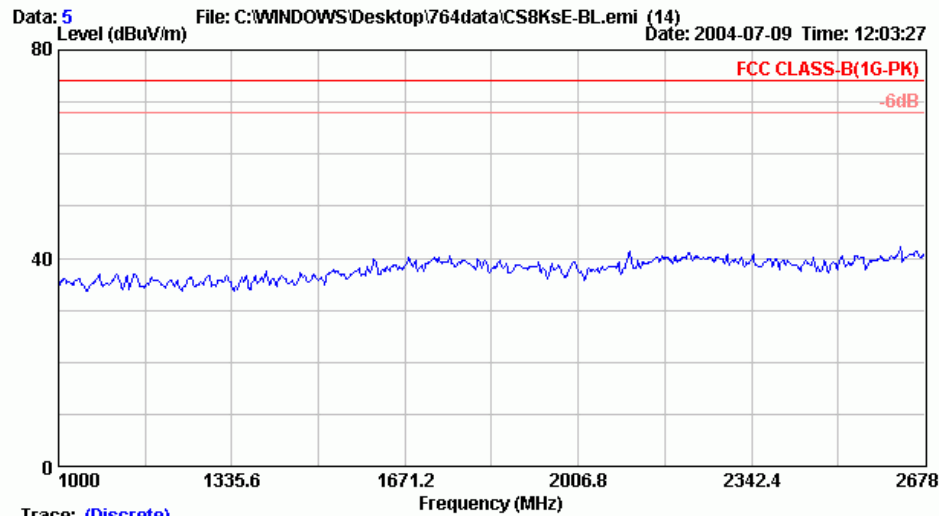


AUDIX Corp. EMC Laboratory  
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 Email:ttemc@ttemc.com.tw



## Trace: (Discrete)

Site no. : A/C Chamber Data no. : 6  
 Ant. / Dis. : 3115 3m Ant. pol. : HORIZONTAL  
 Limit : FCC CLASS-B(1G-PK)  
 Env. / Ins. : 8593EM 25°C/68% Engineer : henning  
 EUT : Fan-Light Remote Controller M/N:CS8K-BL  
 Power Rating : DC 9V  
 Test Mode : TX---side

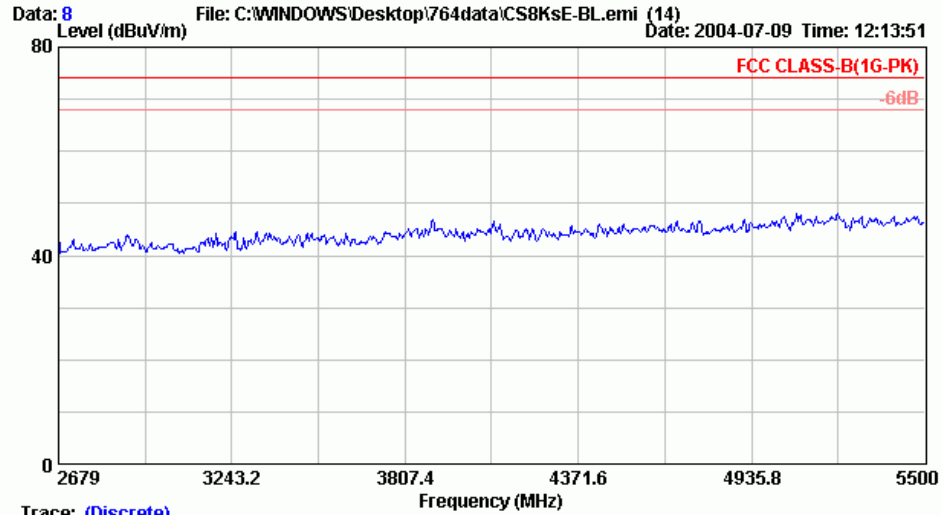


## Trace: (Discrete)

Site no. : A/C Chamber Data no. : 5  
 Ant. / Dis. : 3115 3m Ant. pol. : VERTICAL  
 Limit : FCC CLASS-B(1G-PK)  
 Env. / Ins. : 8593EM 25°C/68% Engineer : henning  
 EUT : Fan-Light Remote Controller M/N:CS8K-BL  
 Power Rating : DC 9V  
 Test Mode : TX---side

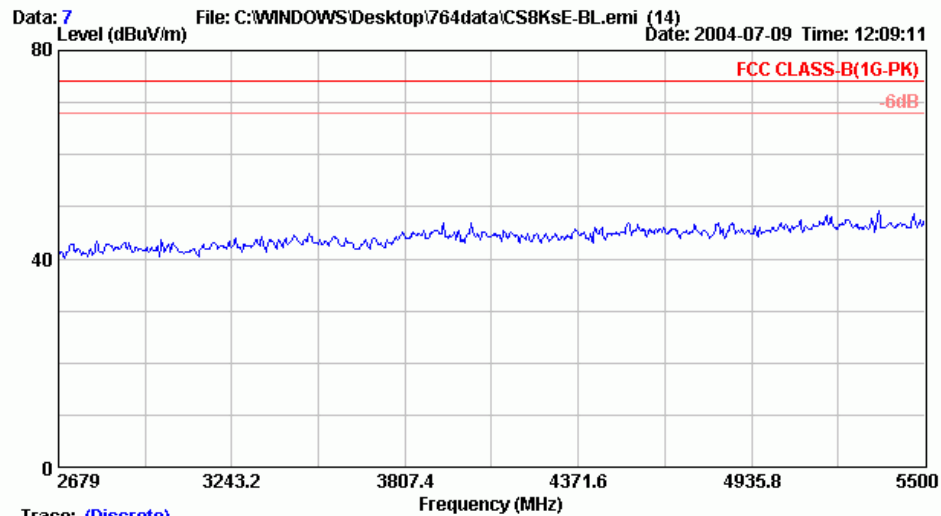


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 Tel:02-26092133 Fax:02-26099303  
 Email:ttemc@ttemc.com.tw



Trace: (Discrete)

Site no. : A/C Chamber Data no. : 8  
 Ant. / Dis. : 3115 3m Ant. pol. : HORIZONTAL  
 Limit : FCC CLASS-B(1G-PK)  
 Env. / Ins. : 8593EM 25°C/68% Engineer : henning  
 EUT : Fan-Light Remote Controller M/N:CS8K-BL  
 Power Rating : DC 9V  
 Test Mode : TX---side



Trace: (Discrete)

Site no. : A/C Chamber Data no. : 7  
 Ant. / Dis. : 3115 3m Ant. pol. : VERTICAL  
 Limit : FCC CLASS-B(1G-PK)  
 Env. / Ins. : 8593EM 25°C/68% Engineer : henning  
 EUT : Fan-Light Remote Controller M/N:CS8K-BL  
 Power Rating : DC 9V  
 Test Mode : TX---side

Date of Test : Sep. 15, 2004      Temperature : 24

EUT : Fan-Light Remote Controller      Humidity : 65%  
(Transmitter)

Test Position : EUT on Lying

| Emission Frequency<br>MHz                    | Antenna Factor<br>dB/m | Cable Loss<br>dB | Meter Reading<br>Horizontal<br>dB $\mu$ V | Emission Level<br>Horizontal<br>dB $\mu$ V/m | Limits<br>dB $\mu$ V/m | Margin<br>dB |
|--|------------------------|------------------|---|--|------------------------|--------------|
| -----  |                        |                  |   |  |                        |              |
| Fundamental Freq. (Quasi-Peak Value)         |                        |                  |   |  |                        |              |
| 304.300                                      | 14.87                  | 3.90             | 52.61                                     | 71.38  | 74.94                  | 3.56         |
| Spurious / Harmonic Freq. (Quasi-Peak Value) |                        |                  |   |  |                        |              |
| 62.130                                       | 12.28                  | 1.60             | 8.80                                      | 22.68  | 40.00                  | 17.32        |
| 66.180                                       | 11.78                  | 1.70             | 12.09                                     | 25.57  | 40.00                  | 14.43        |
| 91.830                                       | 16.08                  | 2.00             | 7.69                                      | 25.77  | 43.50                  | 17.73        |
| 100.740                                      | 17.17                  | 2.10             | 7.45                                      | 26.72  | 43.50                  | 16.78        |
| 262.740                                      | 24.58                  | 3.60             | 5.16                                      | 33.34  | 46.00                  | 12.66        |
| 608.610                                      | 21.41                  | 6.30             | 15.41                                     | 43.12  | 46.00                  | 2.88         |
| 912.900                                      | 24.98                  | 7.40             | 5.85                                      | 38.23  | 46.00                  | 7.77         |

| Emission Frequency<br>MHz                    | Antenna Factor<br>dB/m | Cable Loss<br>dB | Meter Reading<br>Vertical<br>dB $\mu$ V | Emission Level<br>Vertical<br>dB $\mu$ V/m | Limits<br>dB $\mu$ V/m | Margin<br>dB |
|--|------------------------|------------------|---|--|------------------------|--------------|
| -----  |                        |                  |   |  |                        |              |
| Fundamental Freq. (Quasi-Peak Value)         |                        |                  |   |  |                        |              |
| 304.300                                      | 15.17                  | 3.90             | 42.15                                   | 61.22                                      | 74.94                  | 13.72        |
| Spurious / Harmonic Freq. (Quasi-Peak Value) |                        |                  |   |  |                        |              |
| 52.680                                       | 15.42                  | 1.50             | 5.96                                    | 22.88                                      | 40.00                  | 17.12        |
| 64.290                                       | 13.06                  | 1.67             | 6.80                                    | 21.53                                      | 40.00                  | 18.47        |
| 93.990                                       | 17.01                  | 2.00             | 4.21                                    | 23.22                                      | 43.50                  | 20.28        |
| 131.790                                      | 18.94                  | 2.40             | 6.55                                    | 27.89                                      | 43.50                  | 15.61        |
| 145.290                                      | 21.26                  | 2.59             | 4.85                                    | 28.70                                      | 43.50                  | 14.80        |
| 181.740                                      | 21.40                  | 2.90             | 6.45                                    | 30.75                                      | 43.50                  | 12.75        |
| 249.780                                      | 25.02                  | 3.50             | 6.07                                    | 34.59                                      | 46.00                  | 11.41        |
| 284.340                                      | 25.97                  | 3.80             | 6.44                                    | 36.21                                      | 46.00                  | 9.79         |
| 608.610                                      | 21.53                  | 6.30             | 14.54                                   | 42.37                                      | 46.00                  | 3.63         |
| 912.900                                      | 25.69                  | 7.40             | 2.82                                    | 35.91                                      | 46.00                  | 10.09        |

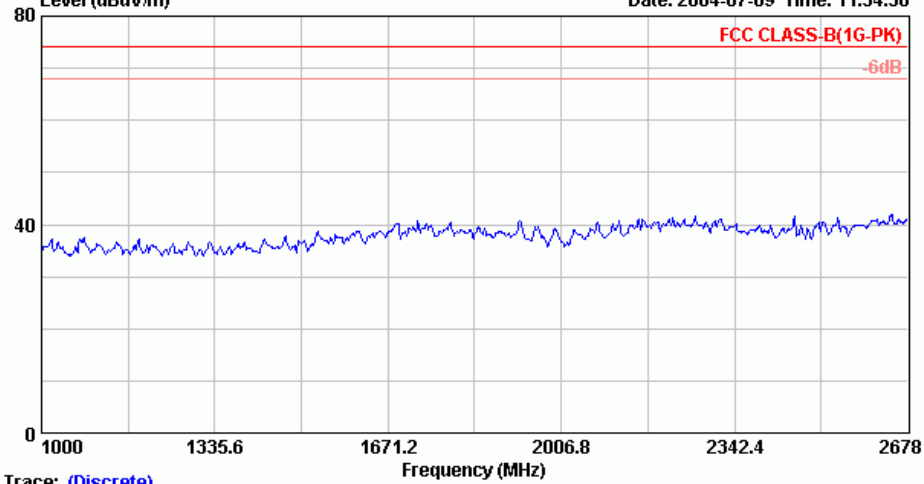
- Remarks : 1. Emission Level = Antenna Factor + Cable Loss + Meter Reading.  
2. Measurement was up to 10th harmonics (~5.5GHz), but the emission levels were too low against the official limit and not report.





AUDIX Corp. EMC Laboratory  
 No.53-11, Tin-fu Tsun, Lin-kou Hsiang, Taipei  
 County, Taiwan R.O.C. Post Code:24443  
 Tel:02-26092133 Fax:02-26099303  
 Email:ttemc@ttemc.com.tw

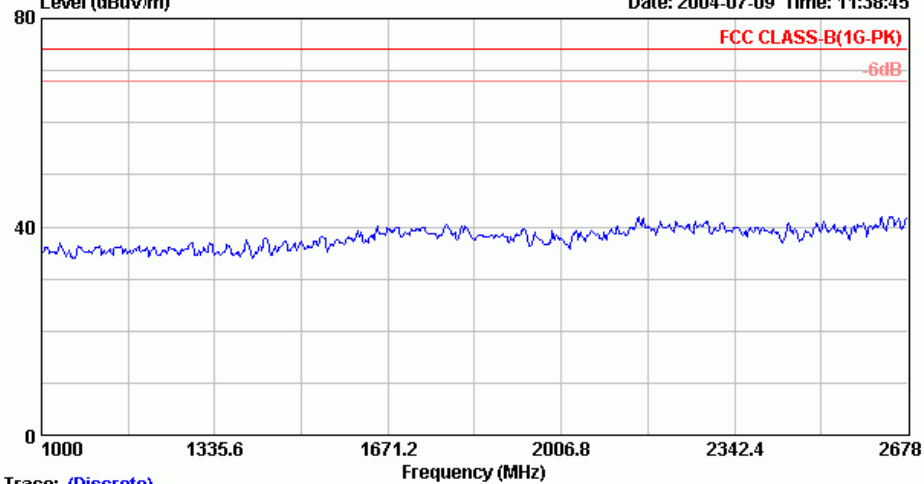
Data: 5 File: C:\WINDOWS\Desktop\764data\CS8KE-BL.emi (14) Date: 2004-07-09 Time: 11:34:36



Trace: (Discrete)

Site no. : A/C Chamber Data no. : 5  
 Ant. / Dis. : 3115 3m Ant. pol. : HORIZONTAL  
 Limit : FCC CLASS-B(1G-PK)  
 Env. / Ins. : 8593EM 25°C/68% Engineer : henning  
 EUT : Fan-Light Remote Controller M/N:CS8K-BL  
 Power Rating : DC 9V  
 Test Mode : TX--- Lying

Data: 6 File: C:\WINDOWS\Desktop\764data\CS8KE-BL.emi (14) Date: 2004-07-09 Time: 11:38:45

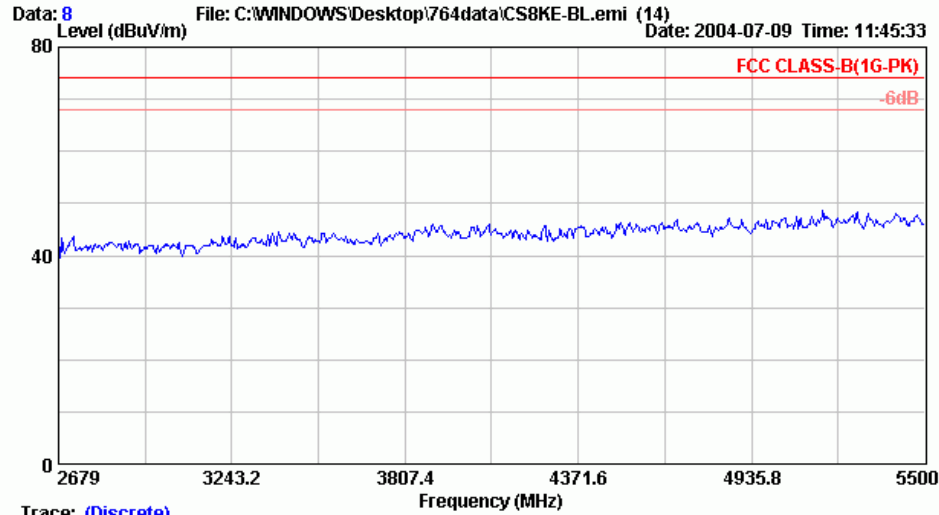


Trace: (Discrete)

Site no. : A/C Chamber Data no. : 6  
 Ant. / Dis. : 3115 3m Ant. pol. : VERTICAL  
 Limit : FCC CLASS-B(1G-PK)  
 Env. / Ins. : 8593EM 25°C/68% Engineer : henning  
 EUT : Fan-Light Remote Controller M/N:CS8K-BL  
 Power Rating : DC 9V  
 Test Mode : TX--- Lying

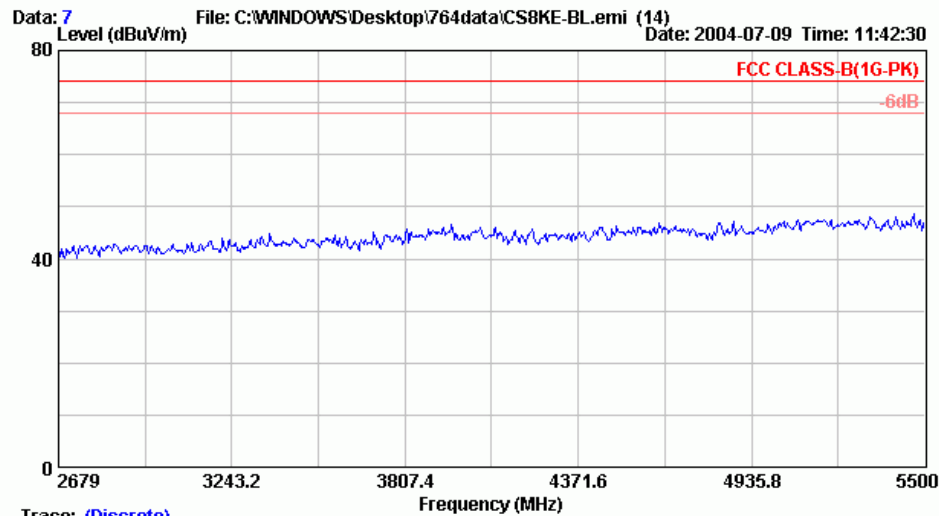


AUDIX Corp. EMC Laboratory  
 No.53-11, Tin-fu Tsun, Lin-kou Hsiang, Taipei  
 County, Taiwan R.O.C. Post Code:24443  
 Tel:02-26092133 Fax:02-26099303  
 Email:ttemc@ttemc.com.tw



Trace: (Discrete)

Site no. : A/C Chamber Data no. : 8  
 Ant. / Dis. : 3115 3m Ant. pol. : HORIZONTAL  
 Limit : FCC CLASS-B(1G-PK)  
 Env. / Ins. : 8593EM 25°C/68% Engineer : henning  
 EUT : Fan-Light Remote Controller M/N:CS8K-BL  
 Power Rating : DC 9V  
 Test Mode : TX--- Lying



Trace: (Discrete)

Site no. : A/C Chamber Data no. : 7  
 Ant. / Dis. : 3115 3m Ant. pol. : VERTICAL  
 Limit : FCC CLASS-B(1G-PK)  
 Env. / Ins. : 8593EM 25°C/68% Engineer : henning  
 EUT : Fan-Light Remote Controller M/N:CS8K-BL  
 Power Rating : DC 9V  
 Test Mode : TX--- Lying

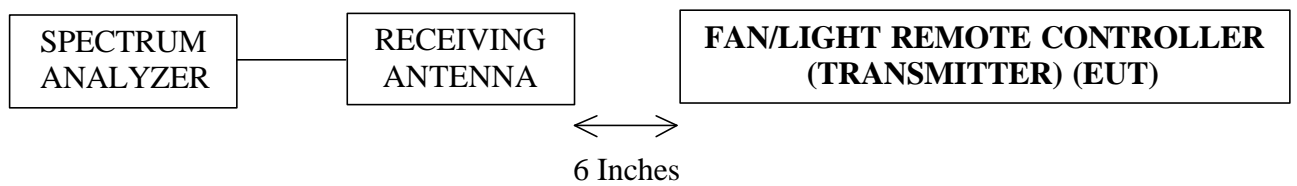
## 4. EMISSION BANDWIDTH MEASUREMENT

### 4.1. Test Equipment

The following test equipment was used during the Emission Bandwidth Test :

| Item | Type              | Manufacturer | Model No. | Serial No. | Last Cal.    | Next Cal.    |
|------|-------------------|--------------|-----------|------------|--------------|--------------|
| 1.   | Spectrum Analyzer | HP           | 8465EC    | 3946A00249 | Aug. 28, 03' | Aug. 27, 04' |
| 2.   | Antenna           | DIAMOND      | RH799     | 2944A06305 | N/A'         | N/A          |

### 4.2. Block Diagram of Test Setup



### 4.3. Specification Limits (§15.231-(c))

The bandwidth of emission shall be no wider than 0.25% of the center frequency for device operating above 70MHz and below 900MHz. Bandwidth is determined at the points 20dB down from the modulated carrier.

### 4.4. EUT's Configuration during Compliance Measurement

The configuration of EUT was same as section 3.4.

### 4.5. Emission Bandwidth Measurement Results

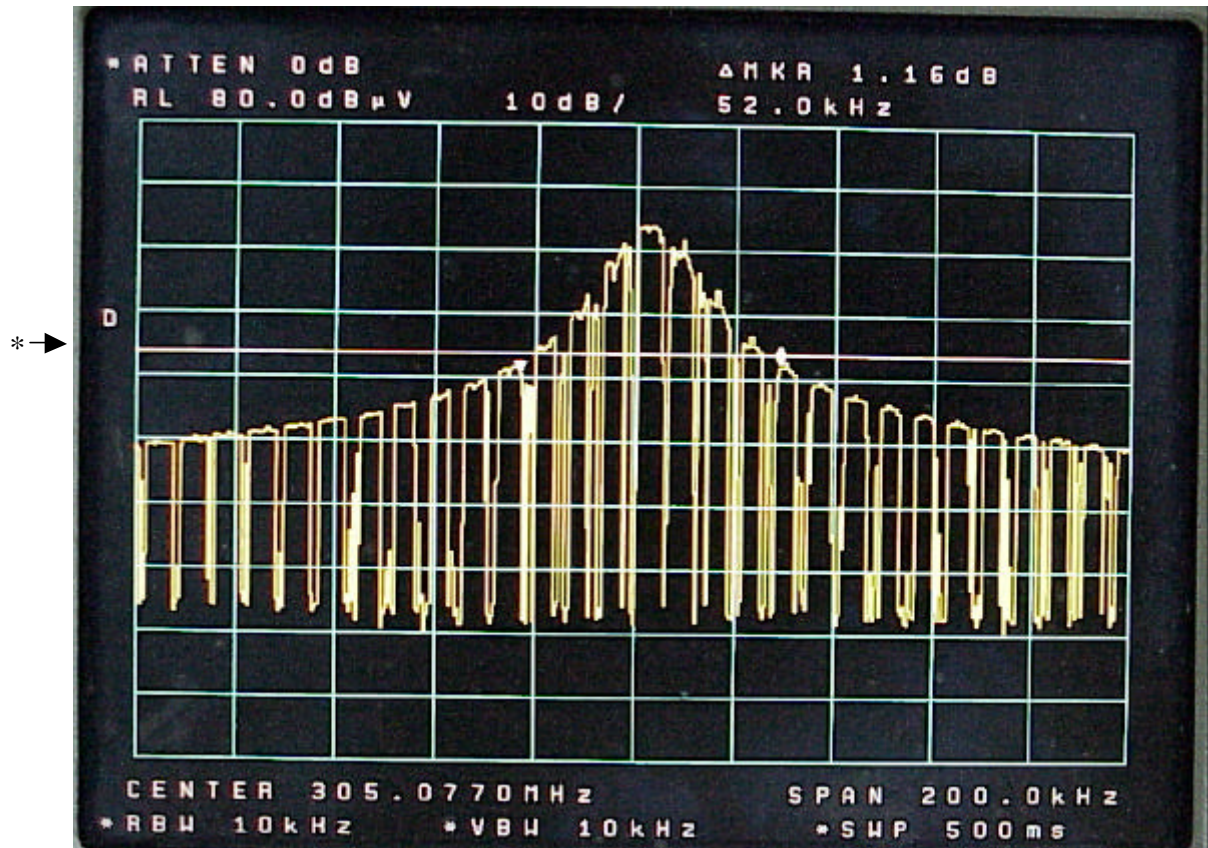
**PASS.**

Test Date: Jul. 07, 2004      Temperature: 26      Humidity: 69%

| No. | Center Frequency | Bandwidth        | Tolerance (%)  |
|-----|------------------|------------------|----------------|
| 1.  | 304MHz           | <b>0.0520MHz</b> | <b>0.0171%</b> |

The bandwidth of emission was measured at the points 20dB down from the center frequency of modulated carrier.

## Graph of Bandwidth Measurement



Note: "\*" The line is 20dB from the modulated carrier.

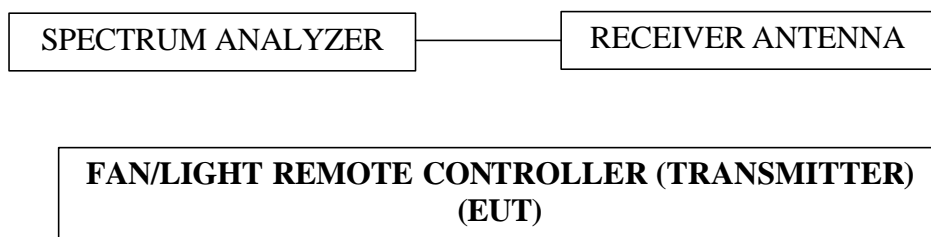
## 5. PERIODIC OPERATED MEASUREMENT

### 5.1. Test Equipment

The following test equipment was used during the periodic operated test :

| Item | Type              | Manufacturer | Model No. | Serial No. | Last Cal.    | Next Cal.    |
|------|-------------------|--------------|-----------|------------|--------------|--------------|
| 1.   | Spectrum Analyzer | HP           | 8465EC    | 3946A00249 | Aug. 28, 03' | Aug. 27, 04' |
| 2.   | Antenna           | DIAMOND      | RH799     | 2944A06305 | N/A'         | N/A          |

### 5.2. Block Diagram of Test Setup



### 5.3. Specification Limits [§15.231-(a)-(1)]

The operation of this device is manually operated transmitter that is automatically deactivated the transmitter within not more than 5 seconds of being released, Compliance with §15.231 (a)- (1).

### 5.4. EUT's Configuration during Compliance Measurement

The configuration of EUT was same as section 3.4.

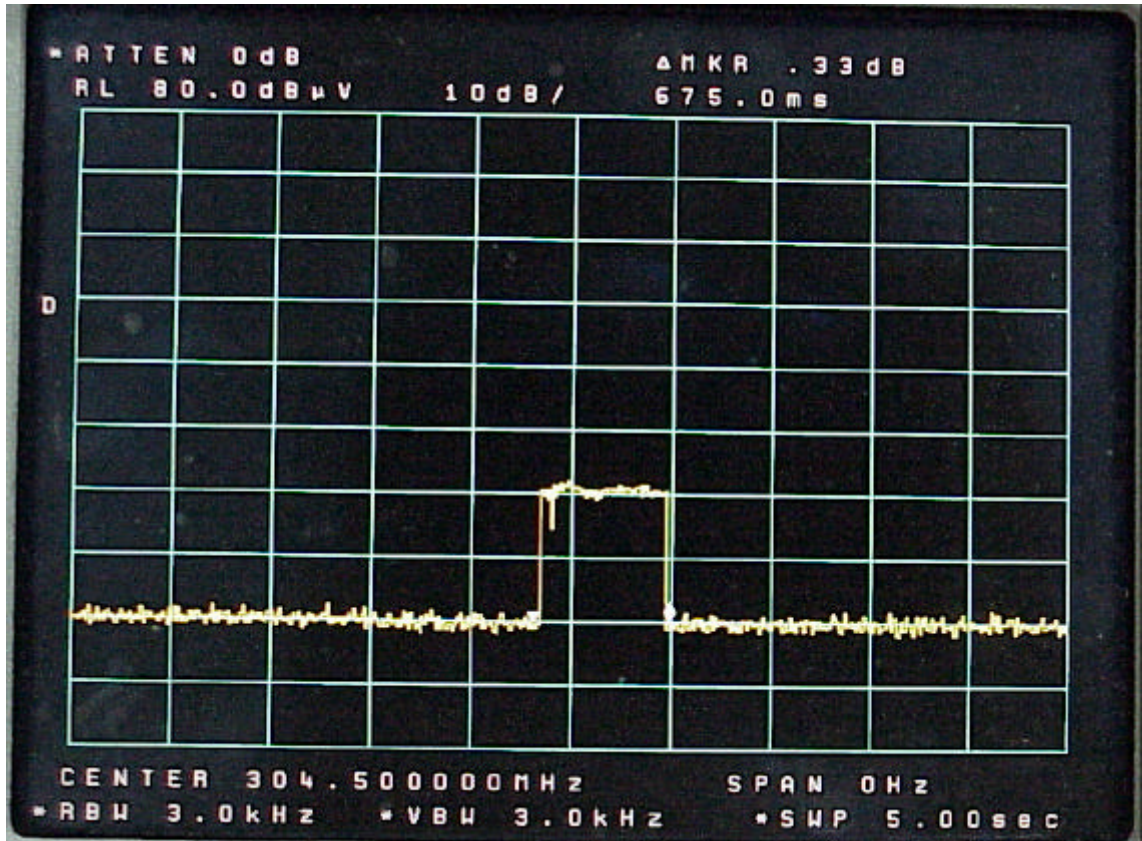
### 5.5. Periodic Operated Measurement Results

**PASS.** T=0.675 sec. (< 5sec.)

Test Date: Jul. 07, 2004      Temperature: 26      Humidity: 69%

The graph of testing is attached in next page.

### Graph of Periodic Operated Measurement



## **6. DEVIATION TO TEST SPECIFICATIONS**

**【NONE】**

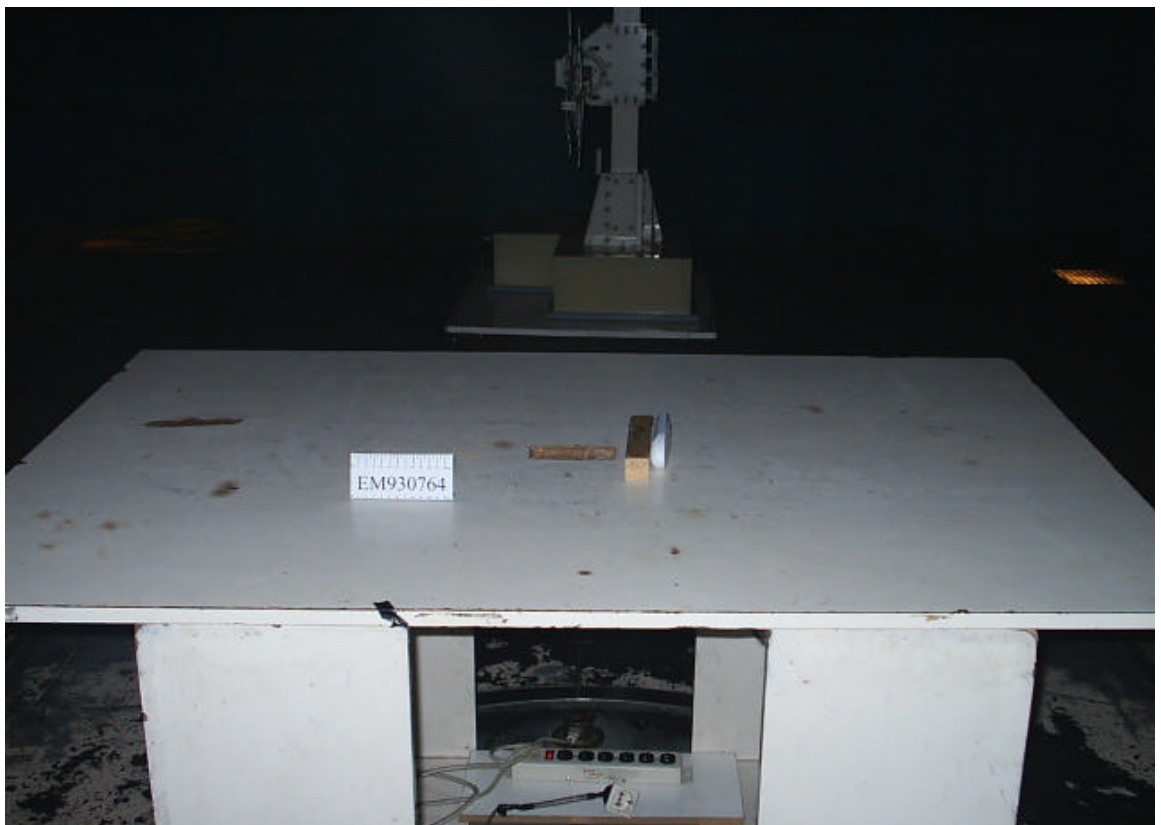


## 7. PHOTOGRAPHS

### 7.1. Photos of Radiated Measurement at Semi-Anechoic Chamber (30~1000MHz) EUT on Stand



EUT on Side



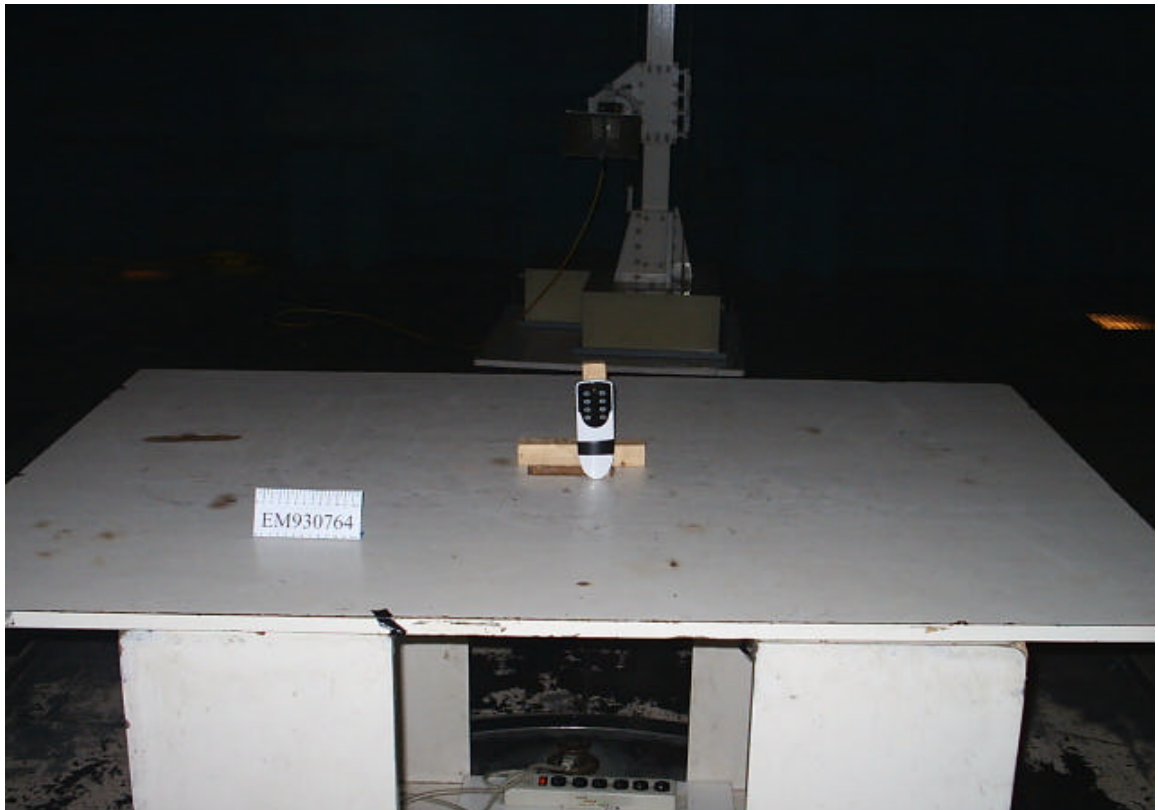


EUT on Lying

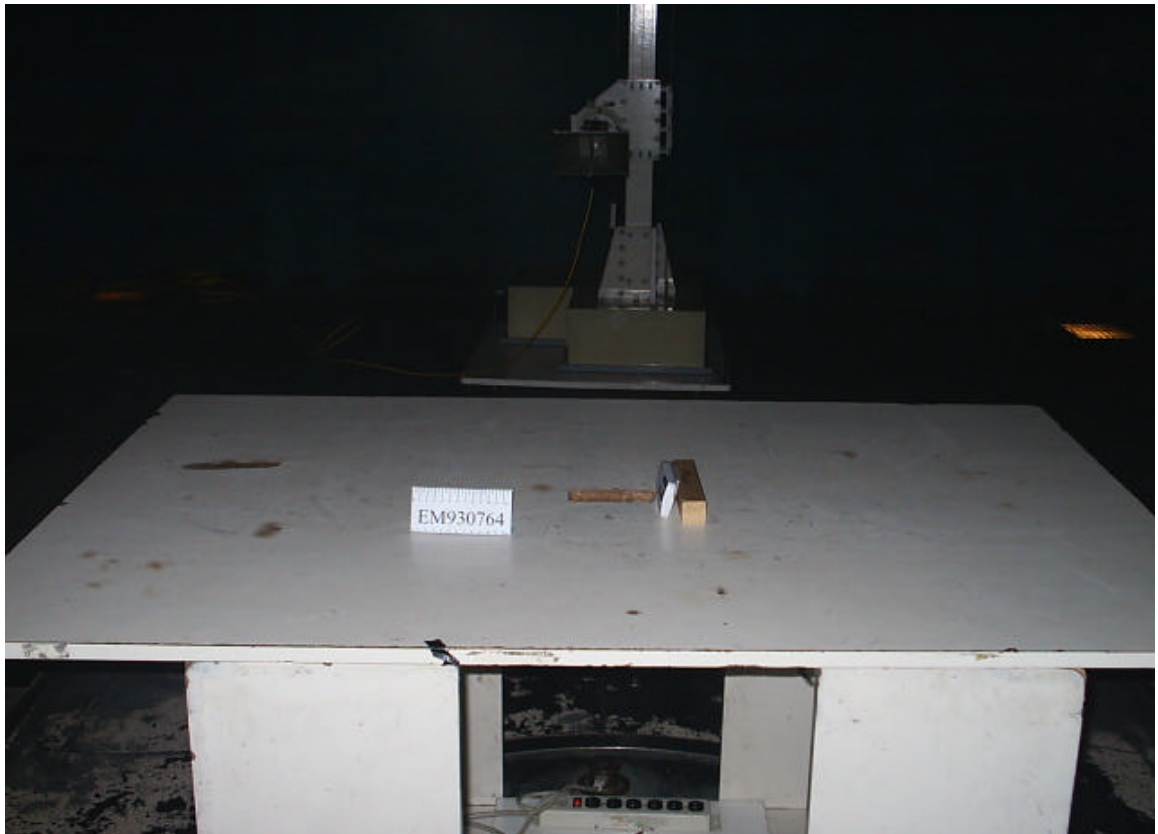


7.2. Photos of Radiated Measurement at Semi-Anechoic Chamber (Above 1GHz)

EUT on Stand



EUT on Side

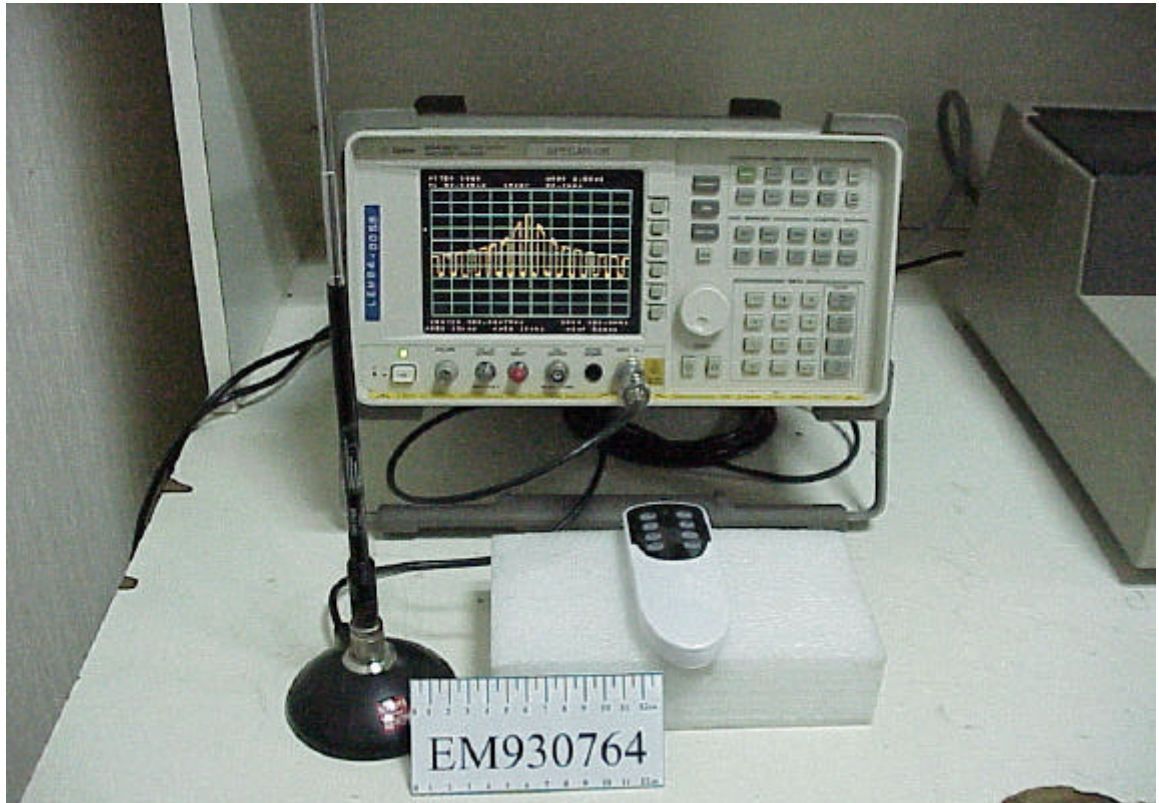


EUT on Lying





7.3. Photo of Emission Bandwidth Measurement



7.4. Photo of Periodic Operated Measurement

