

# **Class B Certification Application**

Under Part 18, Subpart B

**EUT ENERGY SAVING LAMPS**

**MODEL SE15/B**

**FCC ID KQP05**

**SRT REPORT # FID1I037**

**PREPARED FOR**

**CHUAN SHIH INDUSTRIAL CORPORATION LTD.**

NO. 59, SHING-KONG 4TH RD.,

TA-SHING INDUSTRIAL DISTRICT,

TIEN-CHUNG, CHANG-HUA,

TAIWAN, R.O.C.

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CHUAN SHIH INDUSTRIAL CO., LTD.  
No.59, Shing-Kong 4th Rd., Ta-Shing Industrial District, Tien-Chung,  
Chang-Hua, Taiwan, R.O.C.  
TEL: 04-8748130 FAX: 04-8752064.8741584

Federal Communications Commission  
Authorization and Evaluation Division  
7435 Oakland Mills Road  
Columbia, MD 21046

To whom it may concern :

This is to serve as proper written authorization that Spectrum Research and Testing Laboratory, Inc., 15200, Shady Grove Rd., Rockville, MD. 20850, will act as our representative in all matters relating to FCC applications for equipment approval. This includes the signing of all related documents, the transmitting of required fees, and receiving correspondence and notifications from the FCC. All acts performed by Spectrum Research and Testing Laboratory, Inc., especially modifications to our equipment under testing will be carried out on our behalf.

Meantime, the applicant certifies that in the case of an individual applicant (e.g., corporation), no party to the applicant is subject to a denial of federal benefits, that includes FCC denial of federal benefits, that includes FCC benefits, pursuant to Section 5301 of the Anti-Drug Abuse Act of 1998, 21 U.S.C. 862. For a definition of a " party " for these purposes see 47 C.F.R. 1.2002 (b).

If you have any questions regarding our applications for equipment approval, please contact Spectrum Research and Testing Laboratory, Inc. by calling (301) 670-2818.

Respectfully,

CHAO-CHIN YEH

(Name, Surname)

GERNERAL MANAGER

(Position/Title)

Effective Dates :

From 9/27/2001 to 9/27/2002

DATE : 9/27/2001

**EMI TESTING REPORT**EUT : ENERGY SAVING LAMPSMODEL : SE15/BFCC ID : KQP05**PREPARED FOR**CHUAN SHIH INDUSTRIAL CORPORATION LTD.NO. 59, SHING-KONG 4TH RD.,TA-SHING INDUSTRIAL DISTRICT,TIEN-CHUNG, CHANG-HUA,TAIWAN, R.O.C**PREPARED BY****SPECTRUM RESEARCH & TESTING LABORATORY INC.**

NO. 101-10 , LING 8 , SHAN-TONG LI CHUNG – LI CITY ,

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**1. TEST REPORT CERTIFICATION**

**APPLICANT** CHUAN SHIH INDUSTRIAL CORPORATION LTD.

**ADDRESS** NO. 59, SHING-KONG 4TH RD.,  
TA-SHING INDUSTRIAL DISTRICT,  
TIEN-CHUNG, CHANG-HUA,  
TAIWAN, R.O.C.

**EUT DESCRIPTION** ENERGY SAVING LAMPS

(A) POWER SUPPLY 110V/60Hz

(B) MODEL SE15/B

(C) FCC ID KQP05

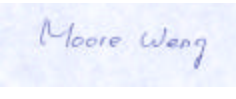
**FINAL TEST DATE** 10/09/2001

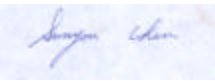
**MEASUREMENT PROCEDURE USED**

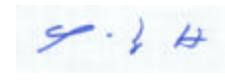
- \* PART 18 SUBPART B OF FCC RULES AND REGULATIONS ( 47 CFR PART 18)
- \* ANSI C63.4 - 1992, FCC/OET MP-5 1986
- \* TEST PROCEDURE AND DATA ARE TRACEABLE TO NATIONAL OR INTERNATIONAL STANDARDS.

***We hereby certify that***

*The measurements contained in this report were made in accordance with the procedures indicated, and the energy emitted by the equipment was found to be within the limits applicable.*

**TESTING ENGINEER**  **DATE** \_\_\_\_\_  
Moore Weng

**SUPERVISOR**  **DATE** \_\_\_\_\_  
Sunyou Chen

**APPROVED BY**  **DATE** \_\_\_\_\_  
Johnson Ho

## 2. TEST STATEMENT

### 2 . 1 TEST STATEMENT

1. This statement is to explain the test condition of this project.  
The EUT was the test condition of each test item.
2. The data was shown in this report reflects the worst – case data for the condition as the summary of test result.
3. EUT conditions.

**Working Frequency : 64KHz**

4. NVLAP logo is to be approved by management (it is according to NVLAP requirement if it need) before use.

### 2 . 2 DEPARTURE FROM DOCUMENT POLICIES, PROCEDURE OR SPECIFICATIONS , THE STATEMENT

1. Did have  
Any departure from document policies & procedures or from specifications.  
Yes \_\_\_\_\_, No \_\_\_\_\_ .  
If yes , the description as below.
2. .The certificate and report shall not be reproduced except in full ,  
without the written approval of SRT laboratory.
3. .The report must not be used by the client to claim product endorsement by NVLAP or any agency the government.
4. This product is a test sample that was shown as the photos of this test report only.
5. The effect that the results relate only to the items tested.

### 3. EUT MODIFICATIONS

No modification by SRT lab.

川石照明工業股份有限公司  
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TEL: 04-8748130 FAX: 04-8752064.8741584

Federal Communications Commission  
Authorization and Evaluation Division  
7435 Oakland Mills Road  
Columbia, MD 21046

To whom it may concern :

This is to serve as proper notice that our company agrees to make  
all modifications to FCC ID : KQP05 as listed in section  
3.0 of modification to submitted by Spectrum Research and Testing  
Laboratory, Inc.

Respectfully,

CHAO-CHIN YEH

(Name, Surname)

GERNERAL MANAGER

(Position/Title)

Effective Dates :

From 9/27/2001 to 9/27/2002

DATE : 9/27/2001

## 4. CONDUCTED POWER LINE TEST

### 4 . 1 TEST EQUIPMENT

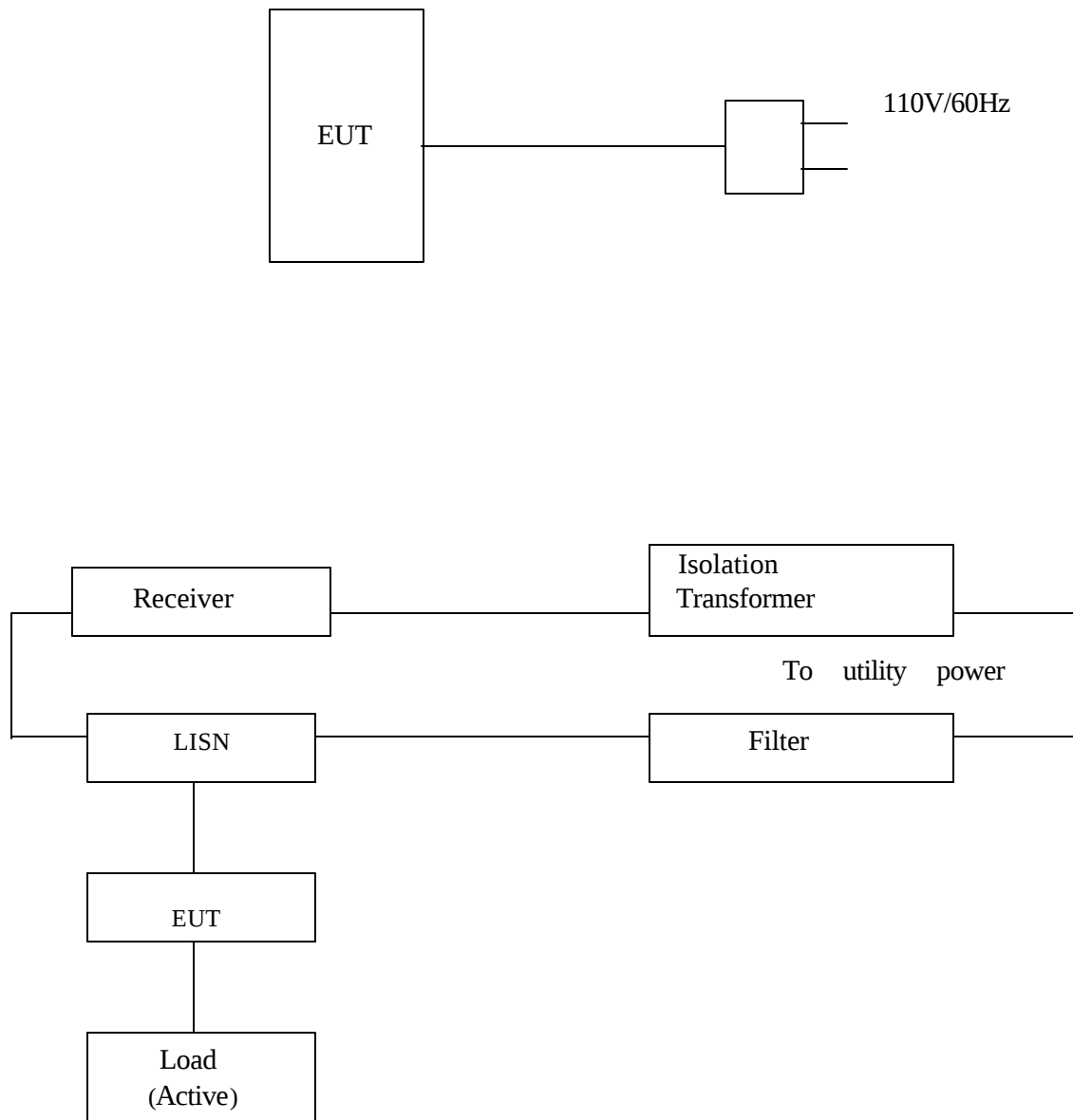
The following test equipment were used during the conducted power line test

| EQUIPMENT/<br>FACILITIES | SPECIFICATIONS                    | MANUFACTURER         | MODEL#/<br>SERIAL#              | DATE OF CAL. &<br>CAL. CENTER | DUE<br>DATE | FINAL<br>TEST |
|--------------------------|-----------------------------------|----------------------|---------------------------------|-------------------------------|-------------|---------------|
| EMI TEST<br>RECEIVER     | 9 KHz TO 30<br>MHz                | ROHDE &<br>SCHWARZ   | ESHS30/<br>826003/008           | MARCH 2001<br>R & S           | 1Y          |               |
| EMI TEST<br>RECEIVER     | 9 KHz TO 2750<br>MHz              | ROHDE &<br>SCHWARZ   | ESCS30/<br>830245/012           | JULY 2001<br>ETC              | 1Y          | √             |
| LISN                     | 50 uH, 50 ohm                     | SOLAR<br>ELECTRONICS | 9252-50-<br>R-24-BNC/<br>951315 | JULY 2001<br>ETC              | 1Y          | √             |
| LISN                     | 50uH, 50 ohm                      | SOLAR<br>ELECTRONICS | 9252-50-<br>R-24-BNC/<br>951318 | JUNE 2001<br>ETC              | 1Y          | √             |
| SIGNAL<br>GENERATOR      | 9 KHz TO 1080<br>MHz              | ROHDE &<br>SCHWARZ   | SMY01/<br>841104/019            | MARCH 2001<br>ETC             | 1Y          | √             |
| POWER<br>CONVERTER       | 50 TO 300 VAC<br>47 TO 63/50/60Hz | AFC                  | AFC-2KBB/<br>F100030030         | APRIL 2001<br>SRT             | 1Y          | √             |

### 4 . 2 TEST PROCEDURE

The EUT was tested according to ANSI C63.4 – 1992, FCC/OET MP-5 1986. The frequency spectrum from 0.45 MHz to 30 MHz was investigated. The LISN used was 5 ohm / 50 uHenry as specified by section 5.1 of ANSI C63.4 – 1992 and FCC/OET MP-5 1986 . Cables and peripherals were moved to find the maximum emission levels for each frequency.

### 4 . 3 TEST SETUP



#### 4 . 4 CONFIGURATION OF THE EUT

The EUT was configured according to ANSI C63.4 – 1992, FCC/OET MP-5 1986. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

##### 1. EUT

| DEVICE              | MANUFACTURER                           | MODEL # | FCCID / DoC |
|---------------------|----------------------------------------|---------|-------------|
| ENERGY SAVING LAMPS | CHUAN SHIH INDUSTRIAL CORPORATION LTD. | SE15/B  | KQP05       |

##### 2. INTERNAL DEVICES

| DEVICE | MANUFACTURER | MODEL # | FCCID / DoC |
|--------|--------------|---------|-------------|
| N/A    |              |         |             |
|        |              |         |             |
|        |              |         |             |
|        |              |         |             |

##### 3. PERIPHERALS

| DEVICE | MANUFAC<br>TURER | MODEL #<br>SERIAL # | FCCID /<br>DoC | CABLE |
|--------|------------------|---------------------|----------------|-------|
| N/A    |                  |                     |                |       |
|        |                  |                     |                |       |
|        |                  |                     |                |       |
|        |                  |                     |                |       |

#### 4 . 5 EUT OPERATING CONDITION

Operating condition is according to ANSI C63.4 – 1992, FCC/OET MP-5 1986.

1. EUT power on.
2. Working Frequency : 64KHz

#### 4 . 6 CONDUCTED POWER LINE EMISSION LIMITS

| FREQUENCY RANGE (MHz) | CLASS A        | CLASS B        |
|-----------------------|----------------|----------------|
| 0 . 45 - 1.705        | 60.0dB $\mu$ V | 48.0dB $\mu$ V |
| 1.705 - 30            | 69.5dB $\mu$ V | 48.0dB $\mu$ V |

**NOTE** In the above table, the tighter limit applies at the band edges.

**4 . 7 CONDUCTED POWER LINE TEST RESULTS**

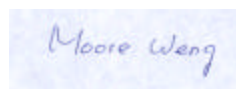
The frequency spectrum from 0.45 MHz to 30 MHz was investigated.  
All readings are quasi – peak values with a resolution bandwidth  
of 9 KHz.

Temperature 27  
Humidity 65 %RH  
Test result

| FREQUENCY (MHz) | LINE 1 (dBmV) | LINE 2 (dBmV) | LIMIT (dBmV) |
|-----------------|---------------|---------------|--------------|
| 0.52            | 40.7          | 39.8          | 48.0         |
| 1.05            | 40.3          | 38.8          | 48.0         |
| 1.42            | 38.2          | 37.4          | 48.0         |
| 2.29            | 27.8          | *             | 48.0         |
| 4.70            | 29.1          | *             | 48.0         |
| 4.84            | *             | 27.4          | 48.0         |
|                 |               |               |              |
|                 |               |               |              |
|                 |               |               |              |
|                 |               |               |              |

**REMARKS**

1. \* = Measurement does not apply for this frequency
2. Uncertainty in conducted emission measured is <+/- 2dB
3. Any departure from specification N/A



SIGNED BY TESTING ENGINEER \_\_\_\_\_

## 5. RADIATED EMISSION TEST

### 5.1 TEST EQUIPMENT

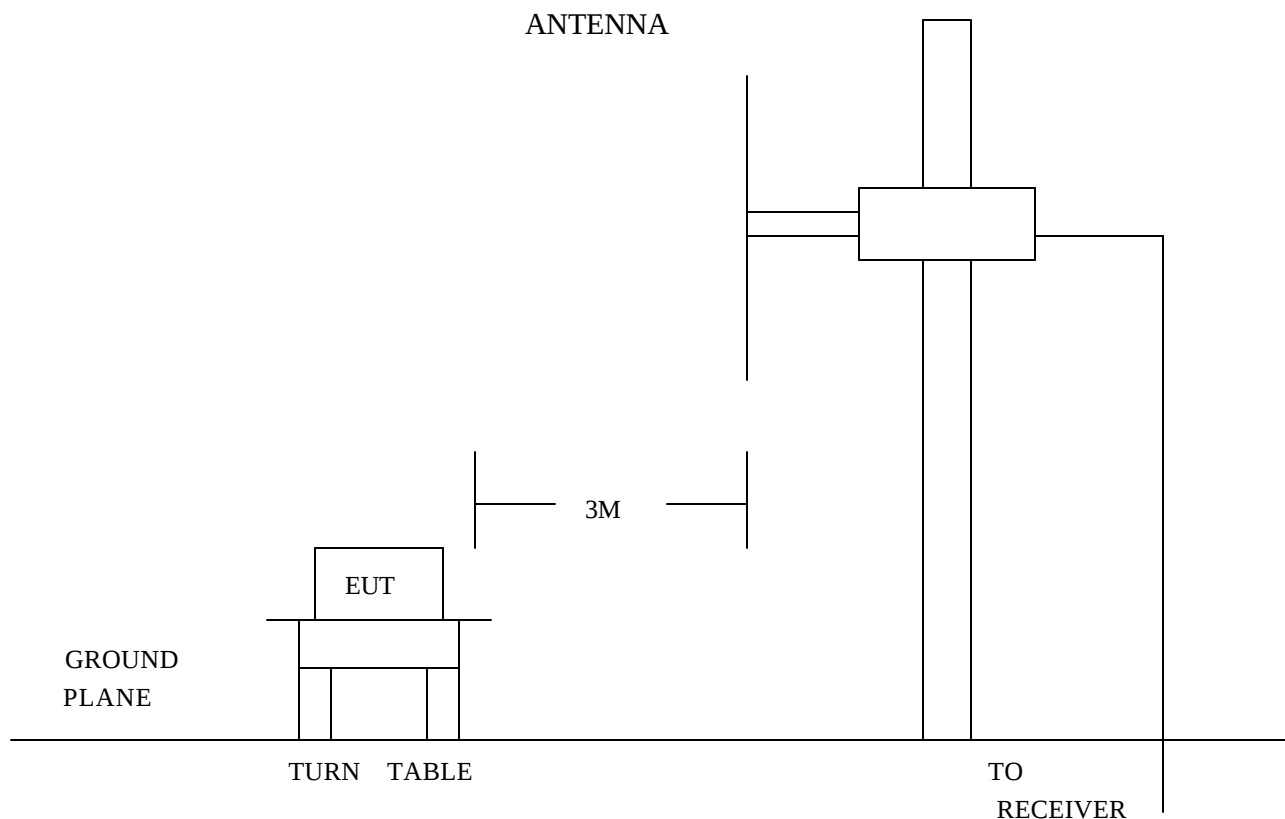
The following test equipment were used during the radiated emission test

| EQUIPMENT / FACILITIES | SPECIFICATIONS      | MANUFACTURER    | MODEL # / SERIAL # | DATE OF CAL. & CAL. CENTER | DUE DATE | FINAL TEST |
|------------------------|---------------------|-----------------|--------------------|----------------------------|----------|------------|
| TEST RECEIVER          | 9 KHz TO 2.75 MHz   | R & S           | ESCS30/830245/012  | JULY 2001<br>ETC           | 1Y       |            |
| TEST RECEIVER          | 20 MHz TO 1000 MHz  | R & S           | ESVS30/841977/003  | JUNE 2001<br>ETC           | 1Y       | √          |
| SPECTRUM ANALYZER      | 100 Hz TO 1500 MHz  | HP              | 8568B/3001A04931   | AUG. 2001<br>ETC           | 1Y       |            |
| SPECTRUM ANALYZER      | 9 KHz TO 22 GHz     | HP              | 8593E/3322A00670   | MARCH 2001<br>ETC          | 1Y       |            |
| SIGNAL GENERATOR       | 9 KHz TO 1080 MHz   | ROHDE & SCHWARZ | SMY01/841104/019   | MARCH 2001<br>ETC          | 1Y       | √          |
| DIPOLE ANTENNA         | 28 MHz TO 1000 MHz  | EMCO            | 3121C/9003-534     | FEB. 2001<br>SRT           | 1Y       |            |
| DIPOLE ANTENNA         | 28 MHz TO 1000 MHz  | EMCO            | 3121C/9611-1239    | FEB. 2001<br>SRT           | 1Y       |            |
| BI-LOG ANTENNA         | 30 MHz TO 2 GHz     | SCHAFFNER-CHASE | CBL6141A/4181      | JULY 2001<br>ETC           | 1Y       | √          |
| BI-LOG ANTENNA         | 26 MHz TO 1100 MHz  | EMCO            | 3143/9509-1152     | SEP. 2001<br>ITRI          | 1Y       |            |
| PRE-AMPLIFIER          | 0.1 MHz TO 1300 MHz | HP              | 8447D/2944A08402   | MARCH 2001<br>SRT          | 1Y       |            |
| PRE-AMPLIFIER          | 0.1 MHz TO 1300 MHz | HP              | 8447D/2944A06412   | JULY 2001<br>ETC           | 1Y       |            |
| HORN ANTENNA           | 1 GHz TO 18 GHz     | EMCO            | 3115/9012-3619     | JAN. 2001<br>ETC           | 1Y       |            |

## 5 . 2 TEST PROCEDURE

1. The EUT was tested according to ANSI C63.4 - 1992, FCC/OET MP-5 1986. The radiated test was performed at SRT lab's open site. This site is on file with the FCC laboratory division, reference 31040 / SIT.
2. The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.4-1992, FCC/OET MP-5 1986.
3. The frequency spectrum from 30 MHz to 1 GHz was investigated. All readings from 30 MHz to 1 GHz are quasi-peak values with a resolution bandwidth of 120 KHz. All readings are above 1 GHz , peak values with a resolution bandwidth of 1 MHz . Measurements were made at 3 meters.
4. The antenna high were varied from 1 m to 4 m high to find the maximum emission for each frequency.
5. The antenna polarization Vertical polarization and horizontal polarization.

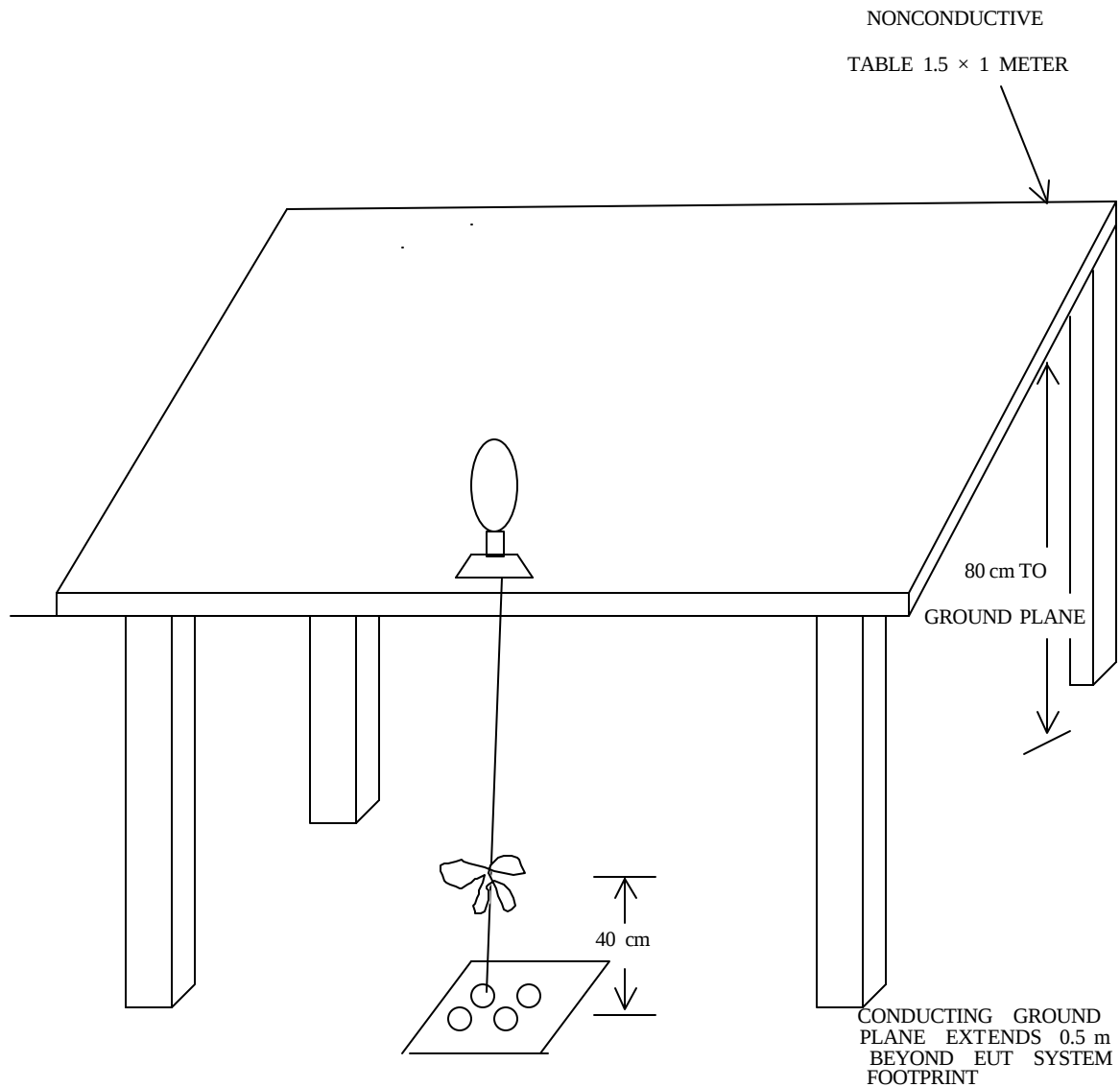
## 5 . 3 RADIATED TEST SET-UP



### 5 . 3 RADIATED TEST SET-UP

ANSI C63.4-1992, FCC/OET MP-5 1986

ELECTRICAL AND ELECTRONIC EQUIPMENT IN THE RANGE IN THE RANGE OF 9 KHz TO 40 GHz



**5 . 4 CONFIGURATION OF THE THE EUT**

Same as section 4.4 of this report

**5 . 5 EUT OPERATING CONDITION**

Same as section 4.5 of this report.

**5 . 6 RADIATED EMISSION LIMITS**

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below

**CLASS B**

| FREQUENCY (MHz) | DISTANCE (m) | FIELDS STRENGTH (dBm V/m) |
|-----------------|--------------|---------------------------|
| 30 - 88         | 3            | 40.0                      |
| 88 - 216        | 3            | 43.5                      |
| 216 - 960       | 3            | 46.0                      |
| ABOVE 960       | 3            | 54.0                      |

**FUNDAMENTAL AND HARMONICS**

| FUNDAMENTAL FREQUENCY | FIELD STRENGTH OF FUNDAMENTAL (MILLIVOLTS/METER) | FIELD STRENGTH OF HARMONICS (MILLIVOLTS/METER) |
|-----------------------|--------------------------------------------------|------------------------------------------------|
| 902MHz - 928MHz       | 50                                               | 500                                            |
| 2400MHz - 2483.5MHz   | 50                                               | 500                                            |
| 5725MHz - 5875MHz     | 50                                               | 500                                            |
| 24.0GHz - 24.25GHz    | 250                                              | 2500                                           |

- NOTE**
1. In the emission tables above , the tighter limit applies at the band edges.
  2. Distance refers to the distance between measuring instrument , antenna , and the closest point of any part of the device or system.

**5 . 7 RADIATED EMISSION TEST RESULTS**

The frequency spectrum from 30 MHz to 1 GHz was investigated.  
 All readings from 30 MHz to 1 GHz are quasi-peak values  
 with a resolution bandwidth of 120 KHz . All readings are above  
1 GHz , peak values with a resolution bandwidth of 1 MHz.  
 Measurements were made at 3 meters.

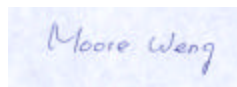
Temperature 25  
 Humidity 55 %RH  
 Test result

| FREQ.<br>(MHz) | FACTOR<br>(dB) | ANT.<br>FACTOR<br>(dB/m) | READING<br>(dBmV) |      | EMISSION<br>(dBmV/m) |      | LIMITS<br>(dBmV/m) | AZ (°) | EL (M) |
|----------------|----------------|--------------------------|-------------------|------|----------------------|------|--------------------|--------|--------|
|                |                |                          | HORIZ             | VERT | HORIZ                | VERT |                    |        |        |
| 192.2031       | 2.2            | 10.6                     | *                 | 21.2 | *                    | 34.0 | 43.5               | 185.0  | 2.3    |
| 335.3768       | 2.7            | 14.2                     | 18.7              | 18.7 | 35.6                 | 35.6 | 46.0               | 333.0  | 2.4    |
| 356.8564       | 2.7            | 15.0                     | *                 | 18.8 | *                    | 36.5 | 46.0               | 154.0  | 2.5    |
| 619.8654       | 3.8            | 19.1                     | 15.8              | *    | 38.7                 | *    | 46.0               | 58.0   | 2.3    |
| 776.4652       | 4.2            | 21.9                     | 15.0              | *    | 41.1                 | *    | 46.0               | 211.0  | 2.2    |
| 874.3214       | 4.4            | 22.3                     | 15.0              | *    | 41.7                 | *    | 46.0               | 190.0  | 1.8    |
|                |                |                          |                   |      |                      |      |                    |        |        |
|                |                |                          |                   |      |                      |      |                    |        |        |
|                |                |                          |                   |      |                      |      |                    |        |        |
|                |                |                          |                   |      |                      |      |                    |        |        |

**REMARKS**

1. \*= Measurement does not apply for this frequency.
2. Uncertainty in radiated emission measured is <+/-4dB
3. Any departure from specification N/A
4. Factor will include cable loss and correction factor.
5. Sample calculation  

$$\text{Emission(dB}\mu\text{V/m)} = \text{Factor (dB)} + \text{Ant. Factor (dB/m)} + \text{reading (dB}\mu\text{V)}$$
6. AZ(°) Turn table azimuth
7. EL(M) Antenna height (Meter)



SIGNED BY TESTING ENGINEER \_\_\_\_\_