Class B Certification Application

Under Part 18, Subpart B

EUT： ENERGY SAVING LAMPS

MODEL： SE20/B, SE23/B

FCC ID： KQP06

SRT REPORT # FID1I036

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.

川石照明工業股份有限公司
520彰化縣田中鎮大新工業區新工四路59號
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 benial 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)

DATE： **9/27/2001**

Effective Dates：

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

EMI TESTING REPORT

EUT : ENERGY SAVING LAMPS

MODEL : SE20/B, SE23/B

FCC ID : KQP06

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,
TAOYUAN, TAIWAN, R. O. C.
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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 : SE20/B, SE23/B

(C) FCC ID : KQP06

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 : Moore Weng DATE _____
Moore Weng

SUPERVISOR : Sunyou Chen DATE _____
Sunyou Chen

APPROVED BY : Johnson Ho DATE _____
Johnson Ho

2. TEST STATEMENT

2.1 TEST STATEMENT

1. This statement is to explain the EUT (Energy Saving Lamps) application. All circuit are same, except bulb size and wattage.

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.

Mode	Model No.	Wattage	Working Frequency	Length
Mode 1	SE20/B	20W	48KHz	137mm
Mode 2	SE23/B	23W	48KHz	147mm

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 STATEMNT

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： **KQP06** 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

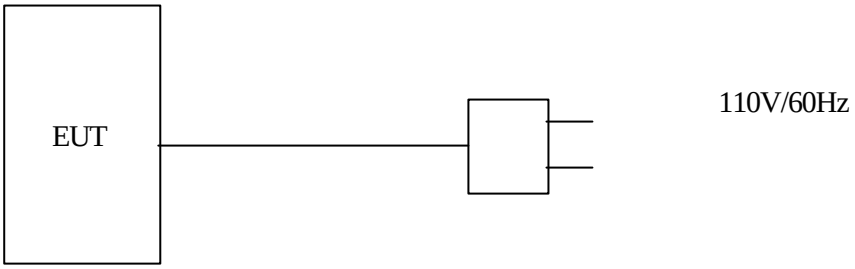
The following test equipment were used during the conducted power line test：

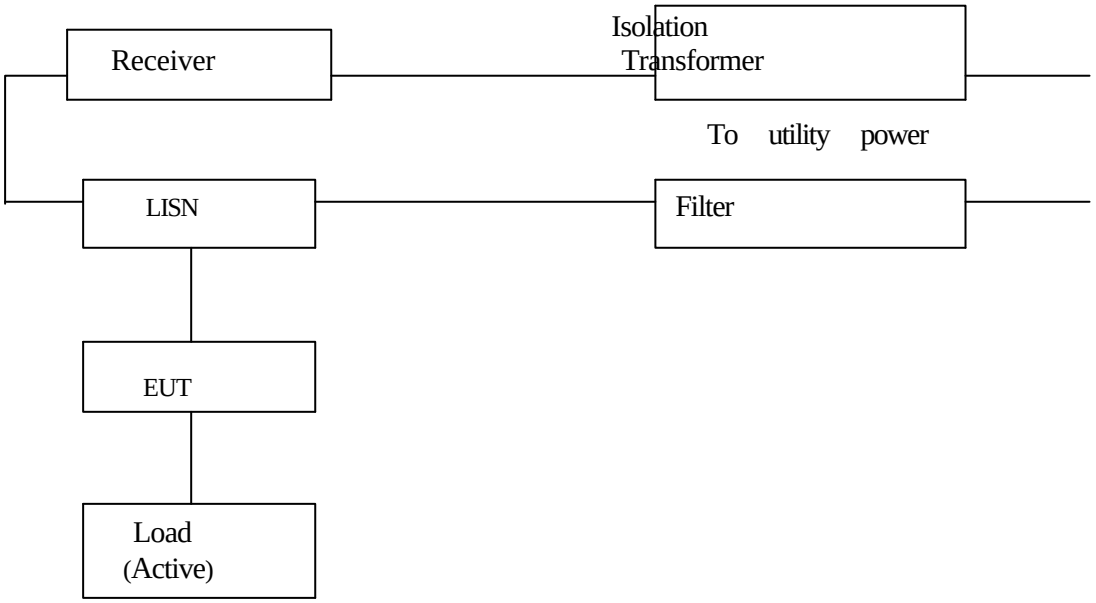
EQUIPMENT/ FACILITIES	SPECIFICATIONS	MANUFACTURER	MODEL#/ SERIAL#	DATE OF CAL. & CAL. CENTER	DUE DATE	FINAL TEST
EMI TEST RECEIVER	9 KHz TO 30 MHz	ROHDE & SCHWARZ	ESHS30/ 826003/008	MARCH 2001 R & S	1Y	
EMI TEST RECEIVER	9 KHz TO 2750 MHz	ROHDE & SCHWARZ	ESCS30/ 830245/012	JULY 2001 ETC	1Y	√
LISN	50 uH, 50 ohm	SOLAR ELECTRONICS	9252-50-R-24-BNC/ 951315	JULY 2001 ETC	1Y	√
LISN	50uH, 50 ohm	SOLAR ELECTRONICS	9252-50-R-24-BNC/ 951318	JUNE 2001 ETC	1Y	√
SIGNAL GENERATOR	9 KHz TO 1080 MHz	ROHDE & SCHWARZ	SMY01/ 841104/019	MARCH 2001 ETC	1Y	√
POWER CONVERTER	50 TO 300 VAC 47 TO 63/50/60Hz	AFC	AFC-2KBB/ F100030030	APRIL 2001 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.	SE20/B, SE23/B	KQP06

2. INTERNAL DEVICES

DEVICE	MANUFACTURER	MODEL #	FCCID/DoC
N/A			

3. PERIPHERALS

DEVICE	MANUFACTURER	MODEL # SERIAL #	FCCID / 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 : 48KHz

4.6 CONDUCTED POWER LINE EMISSION LIMITS

FREQUENCY RANGE (MHz)	CLASS A	CLASS B
0.45 - 1.705	60.0dBμV	48.0dBμV
1.705 - 30	69.5dBμV	48.0dBμV

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 readinges 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)
0.48	*	43.8	48.0
0.54	44.3	*	48.0
0.88	35.1	39.4	48.0
1.34	*	30.0	48.0
2.24	*	24.7	48.0
2.70	20.7	*	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
4. Mode 1

SIGNED BY TESTING ENGINEER ： Moore Wang

4.7 CONDUCTED POWER LINE TEST RESULTS

The frequency spectrum from 0.45 MHz to 30 MHz was investigated. All readinges 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)
0.47	39.5	43.5	48.0
0.78	*	42.7	48.0
0.96	41.4	*	48.0
1.13	*	42.7	48.0
3.09	*	43.4	48.0
4.41	*	40.8	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
4. Mode 2

SIGNED BY TESTING ENGINEER ： Moore Wang

5. RADIATED EMISSION TEST

5.1 TEST EQUIPMENT

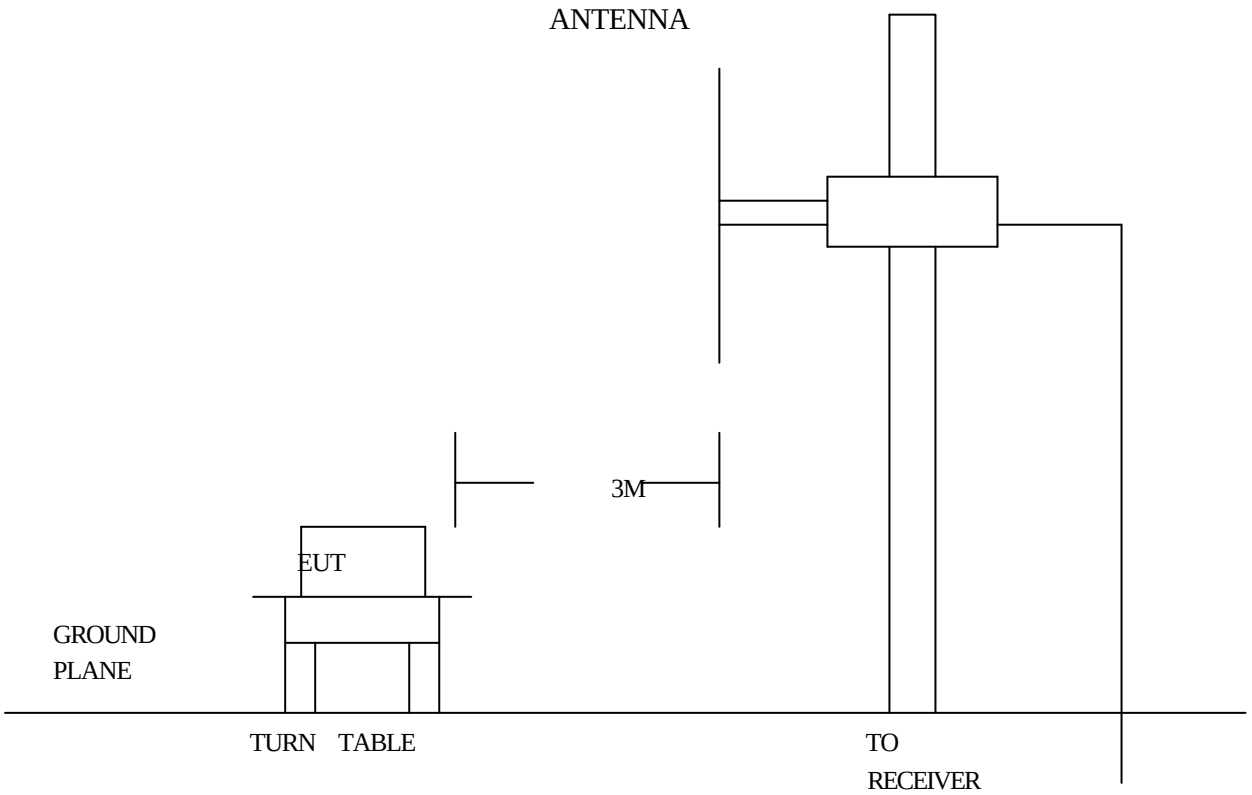
The following test equipment were used during the radiated emission test ：

EQIPMENT / FACILITIES	SPECIFICA-TIONS	MANUFACTUR-ER	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 ETC	1Y	
TEST RECEIVER	20 MHz TO 1000 MHz	R & S	ESVS30/ 841977/003	JUNE 2001 ETC	1Y	√
SPECTRUM ANALYZER	100 Hz TO 1500 MHz	HP	8568B/ 3001A04931	AUG. 2001 ETC	1Y	
SPECTRUM ANALYZER	9 KHz TO 22 GHz	HP	8593E/ 3322A00670	MARCH 2001 ETC	1Y	
SIGNAL GENERATOR	9 KHz TO 1080 MHz	ROHDE & SCHWARZ	SMY01/ 841104/019	MARCH 2001 ETC	1Y	√
DIPOLE ANTENNA	28 MHz TO 1000 MHz	EMCO	3121C/ 9003-534	FEB. 2001 SRT	1Y	
DIPOLE ANTENNA	28 MHz TO 1000 MHz	EMCO	3121C/ 9611-1239	FEB. 2001 SRT	1Y	
BI-LOG ANTENNA	30 MHz TO 2 GHz	SCHAFFNER-CHASE	CBL6141A/ 4181	JULY 2001 ETC	1Y	√
BI-LOG ANTENNA	26 MHz TO 1100 MHz	EMCO	3143/ 9509-1152	SEP. 2001 ITRI	1Y	
PRE-AMPLIFIER	0.1 MHz TO 1300 MHz	HP	8447D/ 2944A08402	MARCH 2001 SRT	1Y	
PRE-AMPLIFIER	0.1 MHz TO 1300 MHz	HP	8447D/ 2944A06412	JULY 2001 ETC	1Y	
HORN ANTENNA	1 GHz TO 18 GHz	EMCO	3115/ 9012-3619	JAN. 2001 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.

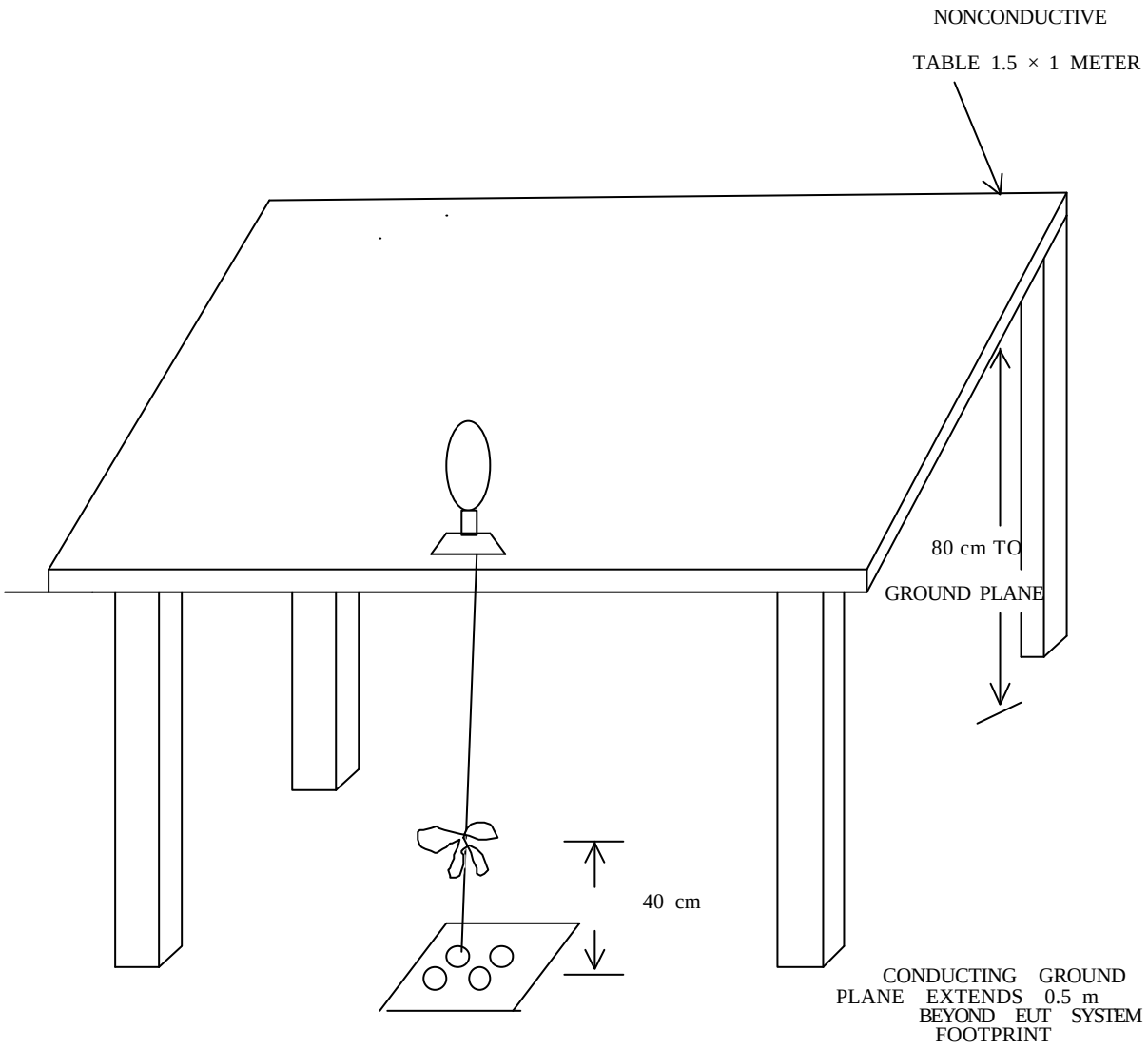
5 . 3 RADIATED TEST SET-UP



5 . 3 RADIATED TEST SET-UP

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

ELECTRICAL AND ELECTRONIC EQUIIPMENT 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)	FIELS STRENGTH (dBmV/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 , antemma , 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. (MHz)	FACTOR (dB)	ANT. FACTOR (dB/m)	READING (dBmV)		EMISSION (dBmV/m)		LIMITS (dBmV/m)	AZ (°)	EL (M)
			HORIZ	VERT	HORIZ	VERT			
47.5648	1.1	16.3	15.8	*	33.2	*	40.0	20.0	1.7
53.9685	1.2	13.4	16.8	*	31.4	*	40.0	152.0	1.8
335.3768	2.7	14.2	19.2	19.4	36.1	36.3	46.0	333.0	2.4
480.3164	3.1	17.4	*	16.2	*	36.7	46.0	254.0	2.1
652.0624	3.8	20.1	15.7	*	39.6	*	46.0	356.0	2.5
690.4368	3.8	20.3	*	15.8	*	39.9	46.0	15.0	1.5

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
   Emissiom(dBμv/m) = Factor (dB) + Ant. Factor (dB/m) + reading (dBμV)
6. AZ(°)： Turn table azinuth
7. EL(M)： Antenna height (Meter)
8. Mode 1

Moore Wang

SIGNED BY TESTING ENGINEER ：

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. (MHz)	FACTOR (dB)	ANT. FACTOR (dB/m)	READING (dBmV)		EMISSION (dBmV/m)		LIMITS (dBmV/m)	AZ(°)	EL(M)
			HORIZ	VERT	HORIZ	VERT			
53.9685	1.2	13.4	*	16.5	*	31.1	40.0	152.0	1.8
139.8567	1.7	13.1	*	19.8	*	34.6	43.5	165.0	2.1
140.8496	1.8	13.1	18.5	*	33.4	*	43.5	58.0	2.6
176.2635	2.1	11.0	19.8	*	32.9	*	43.5	155.0	2.8
208.5947	2.2	11.4	20.0	*	33.6	*	43.5	257.0	1.9
335.3768	2.7	14.2	19.5	18.8	36.4	35.7	46.0	333.0	2.4

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
   Emissiom(dBμv/m) = Factor (dB) + Ant. Factor (dB/m) + reading (dBμV)
6. AZ(°)： Turn table azinuth
7. EL(M)： Antenna height (Meter)
8. Mode 2

Moore Wang

SIGNED BY TESTING ENGINEER ：