Class B Certification Application

Under part 18, subpart B

EUT：ENERGY SAVING LAMPS

MODEL： QAFL15, QAFL20, QAFL23

QBFL15, QBFL20, QBFL23

SBFL15, SBFL20, SBFL23

SEFL15, SEFL20, SEFL23

FCC ID： KQP04

SRT REPORT # T0A12

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： 1/11/2000

Effective Dates：

From 1/11/2000 to 1/11/2001

EMI TESTING REPORT

EUT : ENERGY SAVING LAMPS

MODEL : QAFL15,QAFL20,QAFL23,QBFL15,QBFL20,QBFL23, SBFL15,SBFL20,SBFL23,SEFL15,SEFL20,SEFL23

FCC ID : KQP04

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.
TEL： (03) 4987684 FAX： (03) 4986528

NVLAP Accredited FCC Approved

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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

(B) MODEL : QAFL15,QAFL20,QAFL23,QBFL15,QBFL20,QBFL23, SBFL15,SBFL20,SBFL23,SEFL15,SEFL20,SEFL23

(C) FCC ID : KQP04

FINAL TEST DATE : 01/11/2000

MEASUREMENT PROCEDURE USED :

* PART 18 SUBPART B OF FCC RULES AND REGULATIONS (47 CFR PART 15)
* ANSI C63.4 - 1992
* TEST PROCEDURE AND DATA ARE TRACEABLE TO NIST / USA.

We hereby certify that :

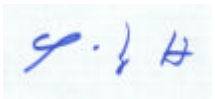
The measurements contained in this report were made in accordance with the procedures indicated, and the energy emitted by the equipment was found to be within the limits applicable.

TESTING ENGINEER : _____ DATE 01/11/2000

Hill Chou

SUPERVISOR : _____ DATE 01/11/2000

Jesse Ho



APPROVED BY : _____ DATE 01/11/2000

Johnson Ho

NVLAP Accredited

FCC Approved

2. TEST STATEMENT

2.1 TEST STATEMENT

1. The data was shown in this report reflects the worst – case data for the condition as listed above.
Please disregard any other oricessir (s) speed shown in this user manual.

2. EUT conditions:
To maintain the consumption rate of the EUT at a specific value (i.e. 15W, 20W etc) components had to be charged according to the table shown below.

(a) Its frequency may change according to the combination stated as below table.

	R3,R4	R5,R6	L12	C5	C6	Frequency
QAFL23 QBFL23	22Ω	1.0Ω	0.8mH	0.0022uF	0.0032uF	88KHz
QAFL20 QBFL20	22Ω	1.5Ω	1.1mH	0.0047uF	0.0032uF	60KHz
QAFL15 QBFL15	22Ω	2.7Ω	1.1mH	0.0047uF	0.0032uF	42KHz

(b) Test modes as below :
Mode 1: QAFL 15 ; Mode 2: QAFL 20 ; Mode 3: QAFL 23 ;
Mode 4: QBFL 15 ; Mode 5: QBFL 20 ; Mode 6: QBFL 23 ;
Mode 7: SBFL 15 ; Mode 8 : SBFL 20 ; Mode 9 : SBFL 23 ;
Mode 10: SEFL 15 ; Mode 11: SEFL 20 ; Mode 12: SEFL 23 ;

(c) The EUT differences are shown here:

Model	Top Plastic	Bottom Plastic	Wire Bulb	Ballast(PCB shape)
QAFL15	A3U	A3U	A3U15W	TB-A
QAFL20	↑	↑	A3U20W	↑
QAFL23	↑	↑	A3U23W	↑
QBFL15	B3U	B3U	B3U15W	↑
QBFL20	↑	↑	B3U20W	↑
QBFL23	↑	↑	B3U23W	↑
SBFL15	↑	SB	SE15W	TB-1
SBFL20	↑	SB	SE20W	↑
SBFL23	↑	↑	SE23W	↑
SEFL15	3U	SE	SE15W	↑
SEFL20	↑	↑	SE20W	↑
SEFL23	↑	↑	SE23W	↑

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

3. DEPARTURE FROM DOCUMENT POLICIES, PROCEDURE OR SPECIFICATIONS , THE STATEMNT

A . Did have
Any departure from document policies & procedures or from specifications.
Yes _____, No ____√____ .
If yes , the description as below.

B . The certificate and report shall not be reproduced except in full , without the written approval of SRT laboratory.

C . The report must not be used by the client to claim product endorsement by NVLAP or any agency the government.

D . This product is a prototype product.

E . The effect that the results relate only to the items tested.

4. EUT MODIFICATIONS

The following accessories were added to the EUT during testing：

No modifications by SRT lab.

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
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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 notice that our company agrees to make all modifications to FCC ID：KQP04 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)

DATE：1/1/2000

Effective Dates：

From 1/11/2000 to 1/11/2001

5. CONDUCTED POWER LINE TEST

5.1 TEST EQUIPMENT

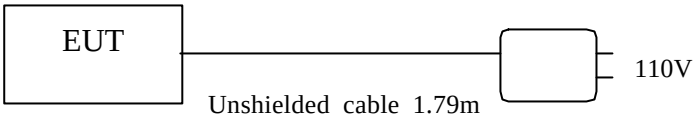
The following test equipment were used during the conducted power line test ：

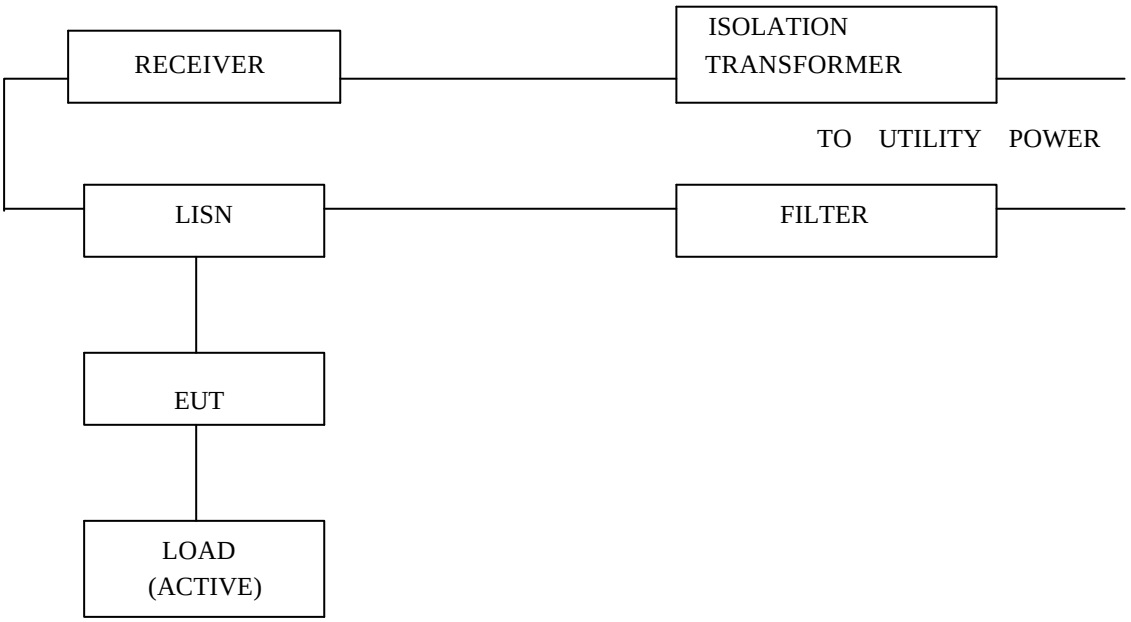
EQUIPMENT/ FACILITIES	SPECIFICATIONS	MANUFACTURER	MODEL#/ SERIAL#	DATE OF CAL. & CAL. CENTER	DUE DATE	FINAL TEST
SPECTRUM ANALYZER	9 KHz TO 1 GHz	HP	8590L/ 3624A01317	AUGUST 1999 ETC	1Y	
EMI TEST RECEIVER	9 KHz TO 30 MHz	ROHDE & SCHWARZ	ESHS30/ 826003/008	AUGUST 1999 ETC	1Y	
EMI TEST RECEIVER	9 KHz TO 2750 MHz	ROHDE & SCHWARZ	ESHS30/ 830245/012	AUGUST 1999 R&S	1Y	
LISN	50 uH, 50 ohm	SOLAR ELECTRONICS	9252-50-R24-BNC/ 951315	AUGUST 1999 ETC	1Y	
LISN	50uH, 50 ohm	SOLAR ELECTRONICS	9252-50-R24-BNC/ 951318	AUGUST 1999 ETC	1Y	
SIGNAL GENERATOR	9 KHz TO 1080 MHz	ROHDE & SCHWARZ	SMY01/ 841104/019	APRIL 1999 ETC	1Y	
POWER CONVERTER	0 TO 300 VAC VAC 47-500 Hz	AFC	AFC-1KW/ 850510	MARCH 1999 ETC	1Y	

5.2 TEST PROCEDURE

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

5.3 TEST SETUP





5 . 4 CONFIGURATION OF THE EUT

The EUT was configured according to ANSI C63.4 - 1992. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

A. EUT

DEVICE	MANUFACTURER	MODEL #	FCCID
ENERGY SAVING LAMPS	CHUAN SHIH INDUSTRIAL CORPORATION LTD.	QAFL15,QAFL20,QAFL23 QBFL15,QBFL20,QBFL23 SBFL15,SBFL20,SBFL23 SEFL15,SEFL20,SEFL23	KQP04

B. INTERNAL DEVICES

DEVICE	MANUFACTURER	MODEL #	FCCID / DoC
— NONE —			

C. PERIPHERALS

DEVICE	MANUFAC-TURER	MODEL # SERIAL #	FCCID / DoC	CABLE
-NONE-				

- **REMARK** :

(1). Cable - S1 ： Single point shielding
S2 ： 360° shielding
S3 ： Double shielding

(2). Cables - All 1m or greater in length – bundled according to ANSI C63.4 – 1992.

5.5 EUT OPERATING CONDITION

Operating condition is according to ANSI C63.4 - 1992.

1. EUT power on.

5.6 CONDUCTED POWER LINE EMISSION LIMITS

FREQUENCY RANGE (MHz)	CLASS B
0.45 - 1.705	48.0 dBuV
1.705 - 30	48.0 dBuV

NOTE：In the above table, the toghter limit applies at the band edges.

5.7 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 ： 19 °C Humidity ： 68 %RH

FREQUENCY (MHz)	LINE1 (dBuV)	LINE2 (dBuV)	LIMIT (dBuV)
0.49	36.6	*	48.0
0.88	*	32.3	48.0
3.51	27.6	*	48.0
9.81	*	5.1	48.0
25.98	6.1	*	48.0
28.97	*	4.6	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 ： _____

5.7 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 ： 19 °C Humidity ： 68 %RH

FREQUENCY (MHz)	LINE1 (dBuV)	LINE2 (dBuV)	LIMIT (dBuV)
0.50	35.7	*	48.0
0.82	33.8	*	48.0
3.20	*	16.9	48.0
6.61	7.9	*	48.0
14.30	*	6.8	48.0
28.93	*	0.9	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 ： _____

5.7 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 ： 19 °C Humidity ： 68 %RH

FREQUENCY (MHz)	LINE1 (dBuV)	LINE2 (dBuV)	LIMIT (dBuV)
0.52	40.1	*	48.0
0.92	29.9	*	48.0
2.25	*	25.7	48.0
3.36	25.2	*	48.0
4.18	*	20.5	48.0
6.64	4.5	*	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 3.

SIGNED BY TESTING ENGINEER ： _____

5.7 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 ： 19 °C Humidity ： 68 %RH

FREQUENCY (MHz)	LINE1 (dBuV)	LINE2 (dBuV)	LIMIT (dBuV)
0.49	35.2	*	48.0
0.55	*	36.0	48.0
0.84	28.5	*	48.0
1.30	*	25.6	48.0
2.56	19.5	*	48.0
4.00	12.5	*	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 4.

SIGNED BY TESTING ENGINEER ： _____

5.7 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 ： 19 °C Humidity ： 68 %RH

FREQUENCY (MHz)	LINE1 (dBuV)	LINE2 (dBuV)	LIMIT (dBuV)
0.45	*	42.3	48.0
0.57	38.1	*	48.0
0.87	35.7	*	48.0
1.43	*	33.0	48.0
2.50	25.3	*	48.0
6.57	15.3	*	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 5.

SIGNED BY TESTING ENGINEER ： _____

5.7 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 ： 19 °C Humidity ： 68 %RH

FREQUENCY (MHz)	LINE1 (dBuV)	LINE2 (dBuV)	LIMIT (dBuV)
0.48	43.9		48.0
0.80	32.6	*	48.0
1.00	*	35.3	48.0
2.98	27.7	*	48.0
6.25	11.9	*	48.0
11.67	5.7	*	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 6.

SIGNED BY TESTING ENGINEER ： _____

5.7 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 ： 19 °C Humidity ： 68 %RH

FREQUENCY (MHz)	LINE1 (dBuV)	LINE2 (dBuV)	LIMIT (dBuV)
0.49	34.3	*	48.0
0.58	*	35.8	48.0
1.17	32.5	*	48.0
3.35	14.3	*	48.0
3.71	12.8	*	48.0
3.74	*	5.3	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 7.

SIGNED BY TESTING ENGINEER ： _____

5.7 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 ： 19 °C Humidity ： 68 %RH

FREQUENCY (MHz)	LINE1 (dBuV)	LINE2 (dBuV)	LIMIT (dBuV)
0.57	36.8	*	48.0
0.60	*	37.5	48.0
1.00	32.6	*	48.0
2.36	26.5	*	48.0
3.96	18.7	*-	48.0
6.23	8.5	*	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 8.

SIGNED BY TESTING ENGINEER ： _____

5.7 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 ： 19 °C Humidity ： 68 %RH

FREQUENCY (MHz)	LINE1 (dBuV)	LINE2 (dBuV)	LIMIT (dBuV)
0.46	37.8	*	48.0
0.90	30.6	*	48.0
1.03	*	27.9	48.0
3.11	26.1	*	48.0
3.95	*	22.8	48.0
6.48	7.4	*	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
(4). Mode 9.

SIGNED BY TESTING ENGINEER ： _____

5.7 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 ： 19 °C Humidity ： 68 %RH

FREQUENCY (MHz)	LINE1 (dBuV)	LINE2 (dBuV)	LIMIT (dBuV)
0.47	36.8	*	48.0
0.77	33.1	*	48.0
0.86	*	31.7	48.0
1.02	29.4	*	48.0
4.00	9.3	*	48.0
6.36	6.4	*	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
(4). Mode 10.

SIGNED BY TESTING ENGINEER ： _____

5.7 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 ： 19 °C Humidity ： 68 %RH

FREQUENCY (MHz)	LINE1 (dBuV)	LINE2 (dBuV)	LIMIT (dBuV)
0.64	*	37.5	48.0
0.77	38.5	*	48.0
1.16	31.4	*	48.0
2.87	*	26.8	48.0
3.72	20.6	*	48.0
6.86	14.8	*	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 11.

SIGNED BY TESTING ENGINEER ： _____

5.7 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 ： 19 °C Humidity ： 68 %RH

FREQUENCY (MHz)	LINE1 (dBuV)	LINE2 (dBuV)	LIMIT (dBuV)
0.52	37.9	*	48.0
0.81	35.5	*	48.0
1.00	*	33.7	48.0
3.21	26.8	*	48.0
8.53	6.0	*	48.0
10.78	6.0	*	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 12.

SIGNED BY TESTING ENGINEER ： _____

6. RADIATED EMISSION TEST

6 . 1 TEST EQUIPMENT

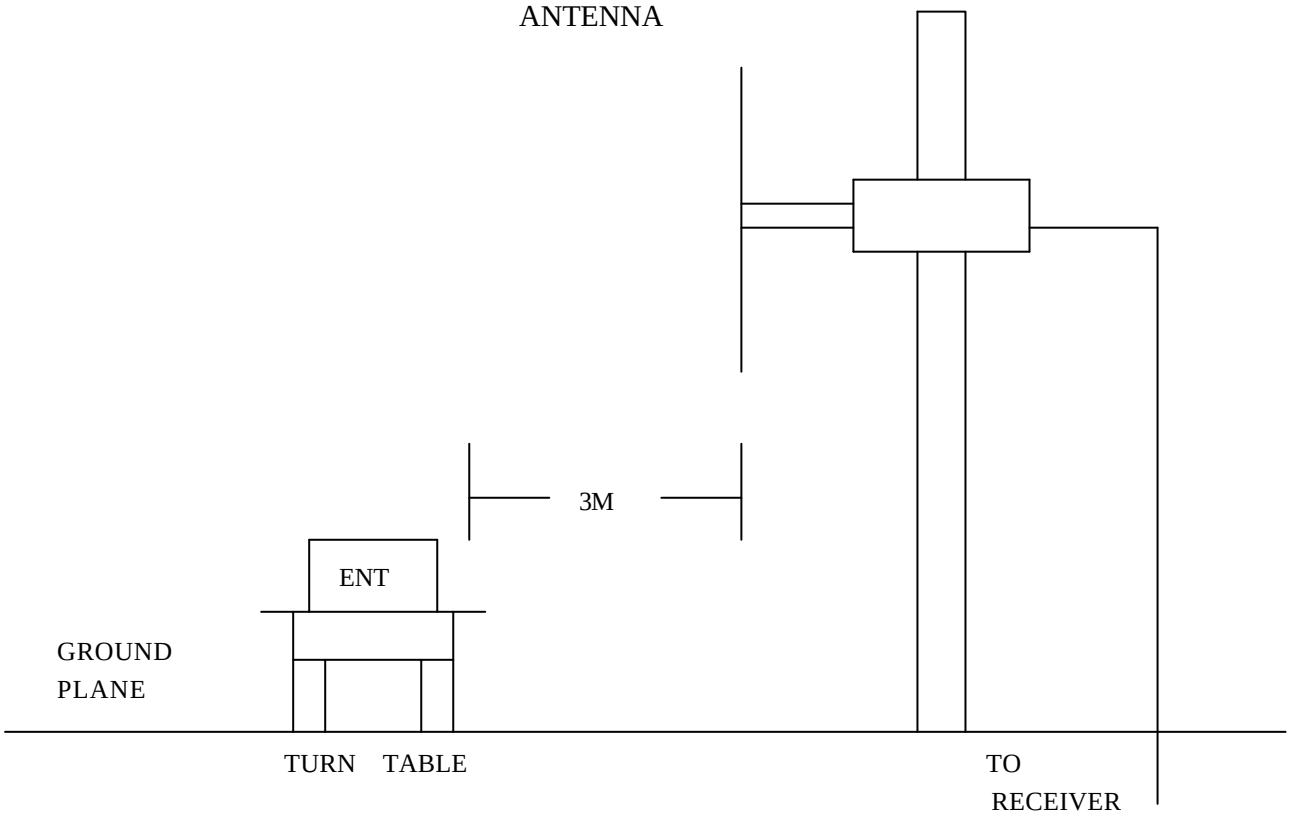
The following test equipment were used during the radiated emission test :

EQIPMENT / FACILITIES	SPECIFICA-TIONS	MANUFACTUR - ER	MODEL # / SERIAL #	DATE OF CAL. & CAL. CENTER	DUE DATE	FINAL TEST
RECEIVER	9 KHz TO 2.75 GHz	R & S	ESVS30/ 830245/012	APRIL 1999 ETC	1Y	
RECEIVER	20 MHz TO 1000 MHz	R & S	ESVS30/ 841977/003	APRIL 1999 ETC	1Y	
SPECTRUM ANALYZER	100 Hz TO 1500 MHz	HP	8568B/ 3019A05294	OCT. 1999 ETC	1Y	
SPECTRUM ANALYZER	9 KHz TO 22 GHz	HP	8593E/ 3322A00670	MAY 1999 ETC	1Y	
SPECTRUM ANALYZER	100 Hz TO 1000 MHz	IFR	A-7550/ 2684/1248	JULY 1999 ETC	1Y	
SIGNAL GENERATOR	9 KHz TO 1080 MHz	ROHDE & SCHWARZ	SMY01/ 841104/019	APRIL 1999 ETC	1Y	
DIPOLE ANTENNA	28 MHz TO 1000 MHz	EMCO	3121C/ 9003-534	MAR. 1999 SRT	1Y	
DIPOLE ANTENNA	28 MHz TO 1000 MHz	EMCO	3121C/ 9611-1239	SEP. 1999 SRT	1Y	
BI-LOG ANTENNA	26 MHz TO 2000 MHz	EMCO	3142/ 9701-1124	JAN. 2000 SRT	1Y	
BI-LOG ANTENNA	26 MHz TO 2000 MHz	EMCO	3142/ 9608-1073	SEP. 1999 SRT	1Y	
BI-LOG ANTENNA	26 MHz TO 1100 MHz	EMCO	3143/ 9509-1152	SEP. 1999 SRT	1Y	
PRE-AMPLIFIER	0.1 MHz TO 1300 MHz	HP	8447D/ 2944A08402	APRIL 1999 ETC	1Y	
PRE-AMPLIFIER	0.1 MHz TO 1300 MHz	HP	8447D/ 2944A06412	AUGUST 1999 ETC	1Y	
HORN ANTENNA	1 GHz TO 18 GHz	EMCO	3115/ 9602-4681	DEC. 1999 ETC	1Y	

6 . 2 TEST PROCEDURE

(1).The EUT was tested according to ANSI C63.4 - 1992. 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.
(3).The frequency spectrum from 30 MHz to 10 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.

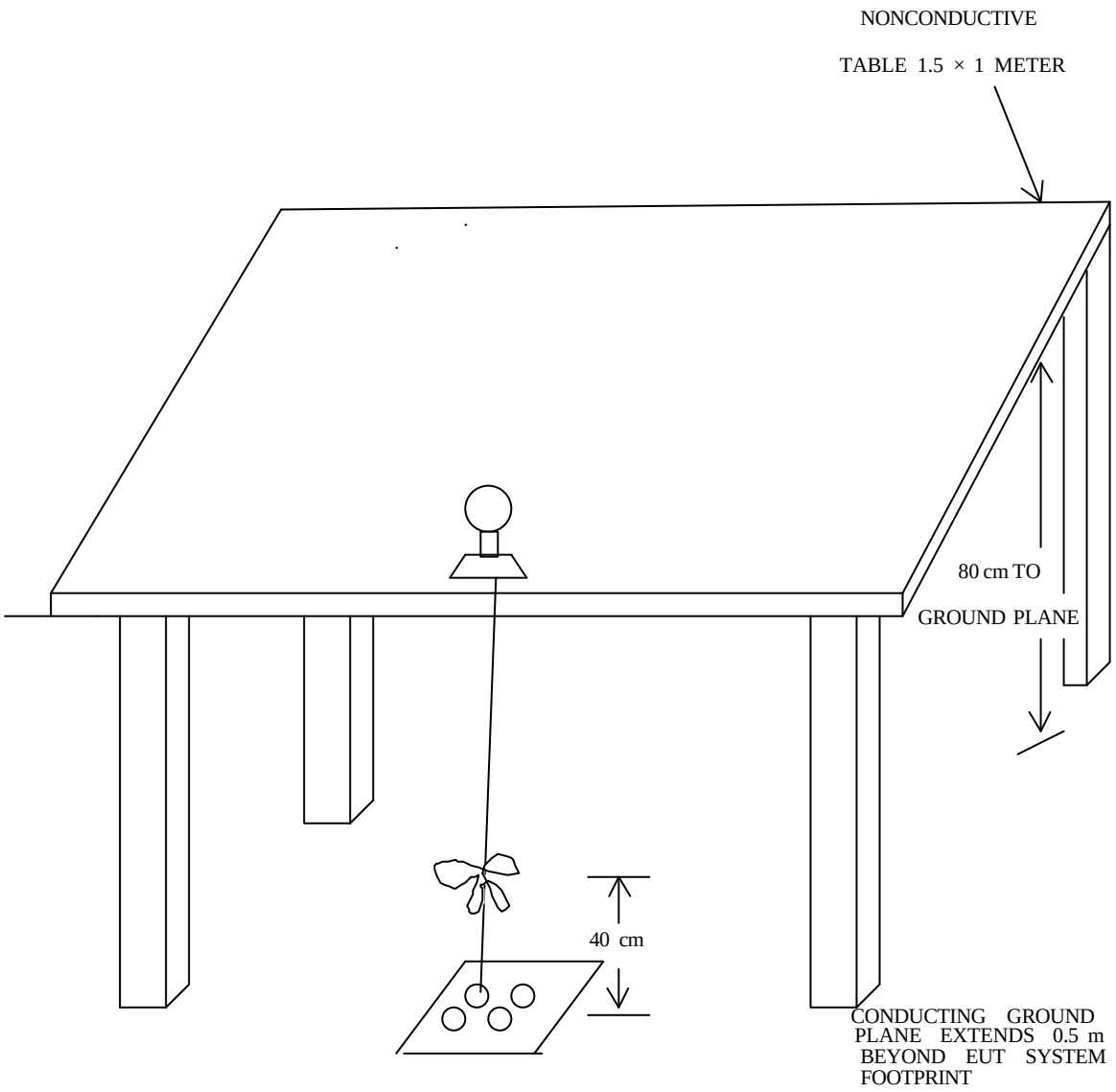
6 . 3 RADIATED TEST SET-UP



6 . 3 RADIATED TEST SET-UP

ANSI C63.4-1992

ELECTRICAL AND ELECTRONIC EQUIIPMENT IN THE RANGE IN THE RANGE OF 30 MHz TO 1 GHz



6 . 4 CONFIGURATION OF THE THE EUT

Same as section 5 . 4 of this report

6 . 5 EUT OPERATING CONDITION

Same as section 5 . 5 of this report.

6 . 6 REDIATED 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 (dBuV/m)
30 - 88	3	40.0
88 - 216	3	43.5
216 - 960	3	46.0
ABOVE 960	3	54.0

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.

6 . 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 . Measurements were made at 3 meters.

Temperature : 19 °C Humidity : 68 %RH

FREQ. (MHz)	FACTOR (dB)	ANT. FACTOR (dB/m)	READING (dBuV)		EMISSION (dBuV/m)		LIMITS (dBuV/m)
			HORIZ	VERT	HORIZ	VERT	
30.00	0.6	19.0	1.7	*	21.3	*	40.0
82.38	1.1	8.6	10.0	*	19.7	*	40.0
112.45	1.3	8.6	*	8.8	*	18.7	43.5
138.64	1.4	8.6	*	10.1	*	20.1	43.5
283.17	2.2	14.1	10.4	*	26.7	*	46.0
548.95	3.0	20.4	8.4	*	31.8	*	46.0

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
20 log (emission) uV/m = Factor(dB)+Ant. factor(dB/m)+reading(dBuV)
(6). Mode 1.

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6 . 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 . Measurements were made at 3 meters.

Temperature : 19 °C Humidity : 68 %RH

FREQ. (MHz)	FACTOR (dB)	ANT. FACTOR (dB/m)	READING (dBuV)		EMISSION (dBuV/m)		LIMITS (dBuV/m)
			HORIZ	VERT	HORIZ	VERT	
30.00	0.6	19.0	1.7	*	21.3	*	40.0
55.62	0.9	9.6	*	10.1	*	20.6	40.0
82.38	1.1	8.6	10.0	*	19.7	*	40.0
179.38	1.7	10.3	12.1	*	24.1	*	43.5
330.70	2.4	15.2	*	10.5	*	28.1	46.0
574.17	3.2	20.9	7.3	*	31.4	*	46.0

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
20 log (emission) uV/m = Factor(dB)+Ant. factor(dB/m)+reading(dBuV)
(6). Mode 2.

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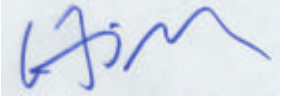
6 . 7 RADIATED EMISSION TEST RESULTS

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 . Measurements were made at 3 meters.

Temperature : 19 °C Humidity : 68 %RH

FREQ. (MHz)	FACTOR (dB)	ANT. FACTOR (dB/m)	READING (dBuV)		EMISSION (dBuV/m)		LIMITS (dBuV/m)
			HORIZ	VERT	HORIZ	VERT	
30.97	0.6	18.5	1.1	1.3	20.2	20.4	40.0
74.62	1.0	8.6	11.0	*	20.6	*	40.0
112.45	1.3	8.6	*	11.8	*	21.7	43.5
139.61	1.4	8.6	*	9.7	*	19.7	43.5
189.08	1.8	10.5	*	11.4	*	23.7	43.5
277.35	2.2	13.9	10.8	*	26.9	*	46.0

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
20 log (emission) uV/m = Factor(dB)+Ant. factor(dB/m)+reading(dBuV)
(6). Mode 3.



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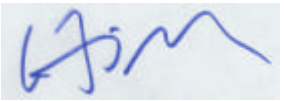
6 . 7 RADIATED EMISSION TEST RESULTS

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 . Measurements were made at 3 meters.

Temperature : 19 °C Humidity : 68 %RH

FREQ. (MHz)	FACTOR (dB)	ANT. FACTOR (dB/m)	READING (dBuV)		EMISSION (dBuV/m)		LIMITS (dBuV/m)
			HORIZ	VERT	HORIZ	VERT	
30.97	0.6	18.5	1.1	*	20.2	*	40.0
55.22	0.9	9.7	*	7.4	*	18.0	40.0
112.45	1.3	8.6	*	10.9	*	20.8	43.5
140.58	1.4	8.6	9.7	*	19.7	*	43.5
189.08	1.8	10.5	*	12.1	*	24.4	43.5
274.44	2.1	13.8	9.3	*	25.2	*	46.0

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
20 log (emission) uV/m = Factor(dB)+Ant. factor(dB/m)+reading(dBuV)
(6). Mode 4.



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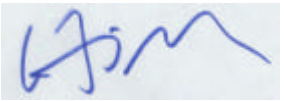
6 . 7 RADIATED EMISSION TEST RESULTS

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 . Measurements were made at 3 meters.

Temperature : 19 °C Humidity : 68 %RH

FREQ. (MHz)	FACTOR (dB)	ANT. FACTOR (dB/m)	READING (dBuV)		EMISSION (dBuV/m)		LIMITS (dBuV/m)
			HORIZ	VERT	HORIZ	VERT	
30.00	0.6	19.0	2.1	*	21.7	*	40.0
55.22	0.9	9.7	*	8.3	*	18.9	40.0
79.47	1.1	8.6	10.5	*	20.2	*	40.0
112.45	1.3	8.6	*	10.9	*	20.8	43.5
191.99	1.8	10.5	*	13.0	*	25.3	43.5
462.62	2.8	18.3	8.4	*	29.5	*	46.0

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
20 log (emission) uV/m = Factor(dB)+Ant. factor(dB/m)+reading(dBuV)
(6). Mode 5.



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6 . 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 . Measurements were made at 3 meters.

Temperature : 19 °C Humidity : 68 %RH

FREQ. (MHz)	FACTOR (dB)	ANT. FACTOR (dB/m)	READING (dBuV)		EMISSION (dBuV/m)		LIMITS (dBuV/m)
			HORIZ	VERT	HORIZ	VERT	
30.97	0.6	18.5	3.1	*	22.2	*	40.0
55.22	0.9	9.7	*	6.5	*	17.1	40.0
79.47	1.1	8.6	10.5	*	20.2	*	40.0
112.45	1.3	8.6	*	10.1	*	20.0	43.5
190.05	1.8	10.5	*	11.9	*	24.2	43.5
466.50	2.8	18.4	7.9	*	29.1	*	46.0

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
20 log (emission) uV/m = Factor(dB)+Ant. factor(dB/m)+reading(dBuV)
(6). Mode 6.

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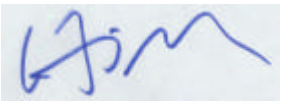
6 . 7 RADIATED EMISSION TEST RESULTS

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 . Measurements were made at 3 meters.

Temperature : 19 °C Humidity : 68 %RH

FREQ. (MHz)	FACTOR (dB)	ANT. FACTOR (dB/m)	READING (dBuV)		EMISSION (dBuV/m)		LIMITS (dBuV/m)
			HORIZ	VERT	HORIZ	VERT	
30.97	0.6	18.5	1.1	5.7	20.2	24.8	40.0
73.65	1.0	8.6	*	9.7	*	19.3	40.0
112.45	1.3	8.6	*	9.8	*	19.7	43.5
139.61	1.4	8.6	11.1	9.4	21.1	19.4	43.5
181.32	1.7	10.3	10.8	*	22.8	*	43.5
190.05	1.8	10.5	*	11.9	*	24.2	43.5

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
20 log (emission) uV/m = Factor(dB)+Ant. factor(dB/m)+reading(dBuV)
(6). Mode 7.



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6 . 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 . Measurements were made at 3 meters.

Temperature : 19 °C Humidity : 68 %RH

FREQ. (MHz)	FACTOR (dB)	ANT. FACTOR (dB/m)	READING (dBuV)		EMISSION (dBuV/m)		LIMITS (dBuV/m)
			HORIZ	VERT	HORIZ	VERT	
30.97	0.6	18.5	0.7	5.7	19.8	24.8	40.0
55.22	0.9	9.7	*	9.7	*	20.3	40.0
78.50	1.1	8.6	10.5	*	20.2	*	40.0
138.64	1.4	8.6	9.4	*	19.4	*	43.5
192.96	1.8	10.6	*	10.2	*	22.6	43.5
280.26	2.2	14.0	8.7	*	24.9	*	46.0

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
20 log (emission) uV/m = Factor(dB)+Ant. factor(dB/m)+reading(dBuV)
(6). Mode 8.

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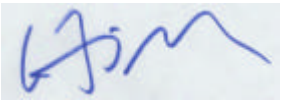
6 . 7 RADIATED EMISSION TEST RESULTS

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 . Measurements were made at 3 meters.

Temperature : 19 °C Humidity : 68 %RH

FREQ. (MHz)	FACTOR (dB)	ANT. FACTOR (dB/m)	READING (dBuV)		EMISSION (dBuV/m)		LIMITS (dBuV/m)
			HORIZ	VERT	HORIZ	VERT	
30.97	0.6	18.5	0.2	3.5	19.3	22.6	40.0
78.50	1.1	8.6	8.7	*	18.4	*	40.0
112.45	1.3	8.6	*	9.1	*	19.0	43.5
140.58	1.4	8.6	*	11.2	*	21.2	43.5
191.02	1.8	10.5	*	11.3	*	23.6	43.5
423.85	2.7	17.1	8.1	*	27.9	*	46.0

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
20 log (emission) uV/m = Factor(dB)+Ant. factor(dB/m)+reading(dBuV)
(6). Mode 9.



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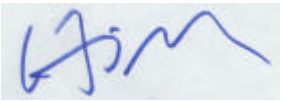
6 . 7 RADIATED EMISSION TEST RESULTS

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 . Measurements were made at 3 meters.

Temperature : 19 °C Humidity : 68 %RH

FREQ. (MHz)	FACTOR (dB)	ANT. FACTOR (dB/m)	READING (dBuV)		EMISSION (dBuV/m)		LIMITS (dBuV/m)
			HORIZ	VERT	HORIZ	VERT	
30.97	0.6	18.5	*	6.7	*	25.8	40.0
64.92	0.9	8.7	12.1	*	21.7	*	40.0
73.65	1.0	8.6	*	11.2	*	20.8	40.0
104.69	1.2	8.6	11.2	*	21.0	*	43.5
140.58	1.4	8.6	10.3	*	20.3	*	43.5
175.50	1.7	10.1	10.9	*	22.7	*	43.5

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
20 log (emission) uV/m = Factor(dB)+Ant. factor(dB/m)+reading(dBuV)
(6). Mode 10.



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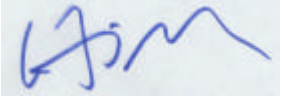
6 . 7 RADIATED EMISSION TEST RESULTS

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 . Measurements were made at 3 meters.

Temperature : 19 °C Humidity : 68 %RH

FREQ. (MHz)	FACTOR (dB)	ANT. FACTOR (dB/m)	READING (dBuV)		EMISSION (dBuV/m)		LIMITS (dBuV/m)
			HORIZ	VERT	HORIZ	VERT	
30.00	0.6	19.0	2.1	*	21.7	*	40.0
55.22	0.9	9.7	*	8.1	*	18.7	40.0
82.38	1.1	8.6	*	11.5	*	21.2	40.0
112.45	1.3	8.6	*	11.2	*	21.1	43.5
190.05	1.8	10.5	*	11.9	*	24.2	43.5
277.35	2.2	13.9	9.7	*	25.8	*	46.0

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
20 log (emission) uV/m = Factor(dB)+Ant. factor(dB/m)+reading(dBuV)
(6). Mode 11.



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6 . 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 . Measurements were made at 3 meters.

Temperature : 19 °C Humidity : 68 %RH

FREQ. (MHz)	FACTOR (dB)	ANT. FACTOR (dB/m)	READING (dBuV)		EMISSION (dBuV/m)		LIMITS (dBuV/m)
			HORIZ	VERT	HORIZ	VERT	
30.00	0.6	19.0	1.1	*	20.7	*	40.0
55.22	0.9	18.5	*	5.7	*	24.8	40.0
83.35	1.1	8.6	*	10.4	*	20.1	40.0
112.45	1.3	8.6	*	11.2	*	21.1	43.5
139.61	1.4	8.6	*	9.6	*	19.6	43.5
477.17	2.8	18.7	7.1	*	28.6	*	46.0

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
20 log (emission) uV/m = Factor(dB)+Ant. factor(dB/m)+reading(dBuV)
(6). Mode 12.

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