



**Spectrum Research
& Testing Lab., Inc.**

No. 101-10, Ling 8,
Shan-Tong Li, Chung-Li
City, Taoyuan, Taiwan,
R.O.C.

TEST REPORT

Reference No.:A05102107
Report No.:FCBA05102107
FCC ID:KNF6RX
Page:1 of 11
Date:Nov. 14, 2005

Product Name: Relay Kit for 3 Motors w/ Wireless Remote Control
Model No.: RR-19805
Applicant: LIBERTY TECHNOLOGY CO., LTD.
4F-5., NO.880,CHUNG CHENG RD. CHUNG HO CITY,
TAIWAN, R.O.C.
Date of Receipt: Oct. 21, 2005
Finished date of Test: Nov. 10, 2005
Applicable Standards: 47 CFR Part 15, Subpart B, Class B
ANSI C63.4:2003

We, **Spectrum Research & Testing Laboratory Inc.**, hereby certify that one sample of the above was tested in our laboratory with positive results according to the above-mentioned standards. The records in the report are an accurate account of the results. Details of the results are given in the subsequent pages of this report.

Checked By : *Sunyou Chen for* , Date: 2005.11.14
(Sunyou Chen)

Approved By : *JH* , Date: 11/14/2005
(Johnson Ho, Director)

NVLAP[®]

Lab Code: 200099-0



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1. DOCUMENT POLICY AND TEST STATEMENT

1.1 DOCUMENT POLICY

- The report shall not be reproduced except in full, without the written approval of SRT Lab, Inc.
- The report must not be used by the applicant to claim that the product is endorsed by NVLAP, TÜV, NEMKO and SRT.
- The NVLAP logo applies only to the applicable standards specified in this report.

1.2 TEST STATEMENT

- The test results in the report apply only to the unit tested by SRT Lab.
- There was no deviation from the requirements of test standards during the test.
- AC power source, 120 Vac/60 Hz, was used during the test.

1.3 EUT MODIFICATION

- No modification in SRT Lab.

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2. DESCRIPTION OF EUT AND TEST MODE

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Relay Kit for 3 Motors w/ Wireless Remote Control
MODEL NO.	RR-19805
POWER SUPPLY	DC from an external power supply
CABLE	N/A
TYPE	Prototype

NOTE :

For more detailed information, please refer to the EUT's specification or user's manual provided by manufacturer.

2.2 DESCRIPTION OF EUT INTERNAL DEVICE

DEVICE	BRAND/MAKER	MODEL #	FCC ID/DOC	REMARK
N/A				

1. The highest clock is 4MHz.
2. Frequency range to be measured.
Radiated emission is 30 MHz to 1 GHz.

2.3 DESCRIPTION OF TEST MODE

N/A (It is only applicable to more than one test mode.)

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2.4 DESCRIPTION OF SUPPORT UNIT

The EUT was configured by the requirement of ANSI C63.4:2003 and CISPR 22:2003. All interface ports were connected to the appropriate support units via specific cables. The support units and cables are listed below.

NO	DEVICE	BRAND	MODEL #	FCC ID/DOC	CABLE
1	DC POWER SUPPLY	LURICH	RPS-512MB	N/A	1.5m unshielded power cable

NOTE : For the actual test configuration, please refer to the photos of testing.

3. DESCRIPTION OF APPLIED STANDARDS

The EUT is a kind of ITE and according to the specifications provided by the applicant, it must comply with the requirements of the following standards:
 47 CFR Part 15 Subpart B, Class B

All tests have been performed and recorded as per the above standards.

3.1 EUT OPERATING CONDITION

1.Power on and normal work.

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4. RADIATED EMISSION TEST

4.1 RADIATED EMISSION LIMIT

CISPR 22:2003 limits of radiated emission measurement for frequency below 1000 MHz

FREQUENCY (MHz)	Class A (at 10m)	Class B (at 10m)
	dB μ V/m	dB μ V/m
30 – 230	40	30
230 - 1000	47	37

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dB μ V/m) = 20 log Emission level (μ V/m).

5.2 TEST EQUIPMENT

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

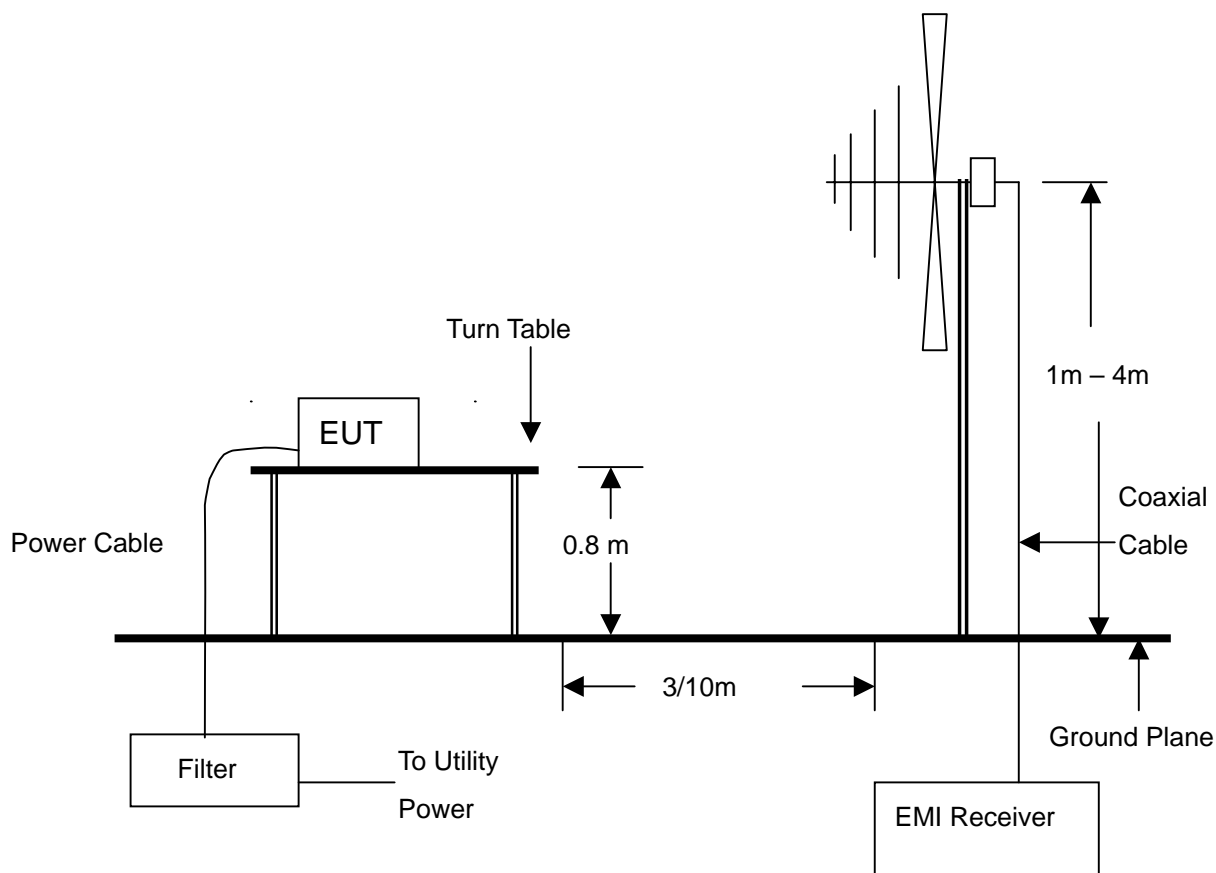
EQUIPMENT/ FACILITIES	SPECIFICATIONS	MANUFACTURER	MODEL#/ SERIAL#	DUE DATE OF CAL. & CAL. CENTER
EMI TEST RECEIVER	20 kHz TO 1 GHz	ROHDE & SCHWARZ	ESCS30/ 830245/012	OCT. 2006 ETC
BI-LOG ANTENNA	25 MHz TO 2 GHz	EMCO	3143 9509-1152	JUN. 2006 SRT
OATS	3 – 10 M MEASUREMENT	SRT	SRT-1	DEC. 2005 SRT
COAXIAL CABLE	25M	SUNCITY	J400-25M-2NP/ #153-25M	JUN. 2006 SRT
FILTER	2 LINE, 30A	FIL.COIL	FC-943/ 869	N/A
FREQUENCY CONVERTER	N/A	APC	AFC-2KBB/ F100030031	AUG. 2006 SRT

NOTE:

1. The calibration interval of the above test equipment is one year and the calibrations are traceable to NML/ROC and NIST/USA.
2. The Open Area Test Site (SRT-1) is registered by FCC with No. 90957 and VCCI with No. R-1081.
3. The Open Area Test Site (SRT-2) is registered by FCC with No. 98458 and VCCI with No. R-1168.



4.3 TEST SET-UP



NOTE :

1. The EUT system was put on a wooden table with 0.8m heights above a ground plane.
2. For the actual test configuration, please refer to the photos of testing.

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4.4 TEST PROCEDURE

The EUT was tested according to the requirement of ANSI C63.4:2003 and CISPR 22:2003. The measurements were made at an open area test site with 10 meter measurement distance under 1 GHz and with 3m distance above 1GHz. The frequency spectrum measured started from 30 MHz. Under 1 GHz, all readings were quasi-peak values with 120 kHz resolution bandwidth of the test receiver. Above 1 GHz, the measurements were made at an open area test site with 3 meter measurement distance and all readings were peak or average values with 1 MHz resolution bandwidth of the test receiver. The EUT system was operated in all typical methods by users. The cables connected to EUT and support units were moved to find the maximum emission levels for each frequency. First, find the margin or higher points at least 6 points by software, then use manual to find the maximum data. The procedure is referred on the test procedure of SRT LAB.

4.5 EUT OPERATING CONDITION

Same as section 4.5 of this report.



4.6 RADIATED EMISSION TEST RESULT

Temperature:	25°C	Humidity:	72 %RH
Frequency Range:	30 – 1000 MHz	Measured Distance:	10m
Receiver Detector:	Q.P.	Tested Mode:	N/A
Tested By:	Dennis Dai	Tested Date:	Nov. 09, 2005

Antenna Polarization:Horizontal

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	AZ(°)	EL(m)
74.8315	1.61	5.94	15.1	22.7	30.0	-7.3	196.5	4.00
577.0366	4.49	20.63	5.9	31.0	37.0	-6.0	253.4	2.68
583.1416	4.52	20.73	6.2	31.4	37.0	-5.6	131.2	2.35
716.6720	5.08	22.68	4.0	31.8	37.0	-5.2	352.1	1.84
887.8470	5.76	24.60	3.1	33.5	37.0	-3.5	85.4	1.24
927.9311	5.85	25.01	2.9	33.8	37.0	-3.2	289.5	1.00

Antenna Polarization:Vertical

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	AZ(°)	EL(m)
55.5110	0.89	4.40	17.6	22.9	30.0	-7.1	357.9	2.31
74.8630	1.61	5.94	14.8	22.4	30.0	-7.6	183.4	2.27
536.3514	4.30	19.98	6.8	31.1	37.0	-5.9	171.6	1.64
704.7890	5.04	22.70	4.1	31.8	37.0	-5.2	253.1	1.33
850.0560	5.58	23.75	3.2	32.5	37.0	-4.5	90.5	1.00
886.1437	5.75	24.58	3.0	33.3	37.0	-3.7	102.3	1.00

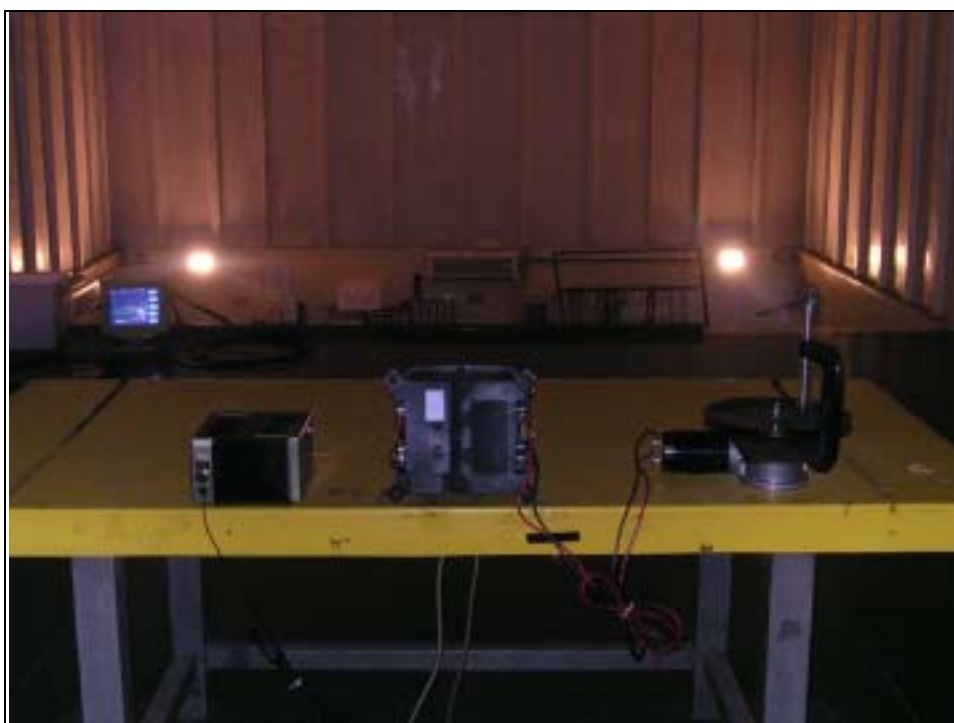
NOTE :

1. Measurement uncertainty is +/-2dB.
2. "": Measurement does not apply for this frequency.
3. Emission Level = Reading Value + Ant. Factor + Cable Loss.
4. The field strength of other emission frequencies were very low against the limit.



6. PHOTOS OF TESTING

-Radiated test



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7. TERMS OF ABRIVATION

AV.	Average detection
AZ(°)	Turn table azimuth
Correct.	Correction
EL(m)	Antenna height (meter)
EUT	Equipment Under Test
Horiz.	Horizontal direction
LISN	Line Impedance Stabilization Network
NSA	Normalized Site Attenuation
Q.P.	Quasi-peak detection
SRT Lab	Spectrum Research & Testing Laboratory, Inc.
Vert.	Vertical direction