



EMC TEST REPORT

Product Name : ALKALINE BATTERY
Trade Name : **VAPEX**^{TECH}
Model Name : LR6, LR03, 6LR61, LR14, LR20,
 LR1, 4LR25, 3LR12
Serial Number : N/A
Technical Data : DC 1.5-9.0V
Report Number : SZEE100916430906
Date : Sep. 25, 2010
Regulations : See below

Standards	Results
<input checked="" type="checkbox"/> EN 61000-6-3: 2007	PASS
<input checked="" type="checkbox"/> EN 61000-3-2: 2006	N/A
<input checked="" type="checkbox"/> EN 61000-3-3: 2008	N/A
<input checked="" type="checkbox"/> EN 61000-6-1: 2007	PASS
<input checked="" type="checkbox"/> IEC 61000-4-2: 2008	N/A
<input checked="" type="checkbox"/> IEC 61000-4-3: 2006+A1:2007	N/A
<input checked="" type="checkbox"/> IEC 61000-4-4: 2004	N/A
<input checked="" type="checkbox"/> IEC 61000-4-5: 2005	N/A
<input checked="" type="checkbox"/> IEC 61000-4-6: 2008	N/A
<input checked="" type="checkbox"/> IEC 61000-4-8: 2001	N/A
<input checked="" type="checkbox"/> IEC 61000-4-11: 2004	N/A

Prepared for:

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(Note: N/A means not applicable)

1. GENERAL INFORMATION

Applicant: VAPEX TECHNOLOGY LIMITED
Room 1103, 11/F, Hang Seng Mongkok Building,
677 Nathan Road, Mongkok, Kowloon Hong Kong

Manufacturer: N/A

EMC Directive: 2004/108/EC

Product Name: ALKALINE BATTERY

Trade Name: **VAPEX**^{TECH}

Model Name: LR6, LR03, 6LR61, LR14, LR20, LR1, 4LR25, 3LR12

Serial Number: N/A

Report Number: SZEE100916430906

Date of Test: Sep. 16, 2010 to Sep. 20, 2010

The results of this test report are only valid for the mentioned equipment under test. The test report with all its sub-reports, e.g. tables, photographs and drawings, is copyrighted. Unauthorized utilization, especially without permission of the test laboratory, is not allowed and punishable. For copying parts of the test report, a written permission by the test laboratory is needed.

The test results of this report relate only to the tested sample identified in this report.

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Approved by : Lily Yan
Lily Yan
Supervisor

Date : Sep. 25, 2010



2. TEST SUMMARY

The EUT has been tested according to the following specifications:

EMISSION		
Standard	Test Item	Test
EN 61000-6-3	Conducted disturbance (CE)	N/A ¹
EN 61000-6-3	Radiated disturbance (RE)	Yes
EN 61000-3-2	Harmonic current emission	N/A ¹
EN 61000-3-3	Voltage fluctuations & flicker	N/A ¹

IMMUNITY (EN 61000-6-1:2007)		
Standard	Test Item	Test
IEC 61000-4-2	Electrostatic discharge immunity	N/A ²
IEC 61000-4-3	Radiated, radio frequency, electromagnetic field immunity	N/A ²
IEC 61000-4-4	Electrical fast transient / burst immunity	N/A ²
IEC 61000-4-5	Surge immunity	N/A ²
IEC 61000-4-6	Immunity to conducted disturbances, induced by radio-frequency fields	N/A ²
IEC 61000-4-8	Power frequency magnetic field immunity	N/A ²
IEC 61000-4-11	Voltage dips, short interruptions and voltage variations immunity	N/A ²

Remark: 1.The EUT is an alkaline battery.

2.The EUT containing no electronic control circuitry,the immunity tests are inappropriate and therefore unnecessary,it is deemed to fulfil the relevant immunity requirements without testing.

3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Test item	Value
Radiated emission	4.4dB

4. PRODUCT INFORMATION AND TEST SETUP

4.1 PRODUCT INFORMATION

Technical Data: DC 1.5-9.0V

The model numbers of EUT are LR6, LR03, 6LR61, LR14, LR20, LR1, 4LR25, 3LR12. The model different between LR6, LR03, 6LR61, LR14, LR20, LR1, 4LR25, 3LR12 is the battery voltage and volume. other is the same. The model of test sample is 6LR61 (highest voltage), and the test results are applicable to the other.

4.2 TEST SETUP CONFIGURATION

See test photographs attached in APPENDIX 1 PHOTOGRAPHS OF TEST SETUP for the actual connections between EUT and support equipment.

4.3 SUPPORT EQUIPMENT

No.	Device Type	Brand	Model	Series No.	Data Cable	Power Cord
1.	---	---	---	---	---	---

Notes:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

5. FACILITIES AND ACCREDITATIONS

5.1 TEST FACILITY

All measurement facilities used to collect the measurement data are located at Building C, Hongwei Industrial Zone, Baoan 70 District, Shenzhen, Guangdong, China. The site and apparatus are constructed in conformance with the requirements of ANSI C63.4 and CISPR 16-1-1 other equivalent standards.

5.2 TEST EQUIPMENT LIST

Instrumentation: The following list contains equipments used at CTI for testing.

The calibrations of the measuring instruments, including any accessories that may effect such calibration, are checked frequently to assure their accuracy. Adjustments are made and correction factors applied in accordance with instructions contained in the manual for the measuring instrument.

Equipment used during the tests:

3M Semi-anechoic Chamber - RE Test				
Equipment	Manufacturer	Model	Serial No.	Due Date
3M Chamber & Accessory Equipment	ETS-LINDGREN	FACT-3	3510	07/09/2012
Spectrum Analyzer	Agilent	E4440A	MY46185649	04/09/2011
Biconilog Antenna	ETS-LINGREN	3142C	00044562	07/31/2011
Multi device Controller	ETS-LINGREN	2090	00057230	N/A

5.3 LABORATORY ACCREDITATIONS AND LISTINGS

The measuring equipment utilized to perform the tests documented in this report has been calibrated once a year or in accordance with the manufacturer's recommendations, and is traceable under the ISO/IEC/EN 17025 to international or national standards. Equipment has been calibrated by accredited calibration laboratories.

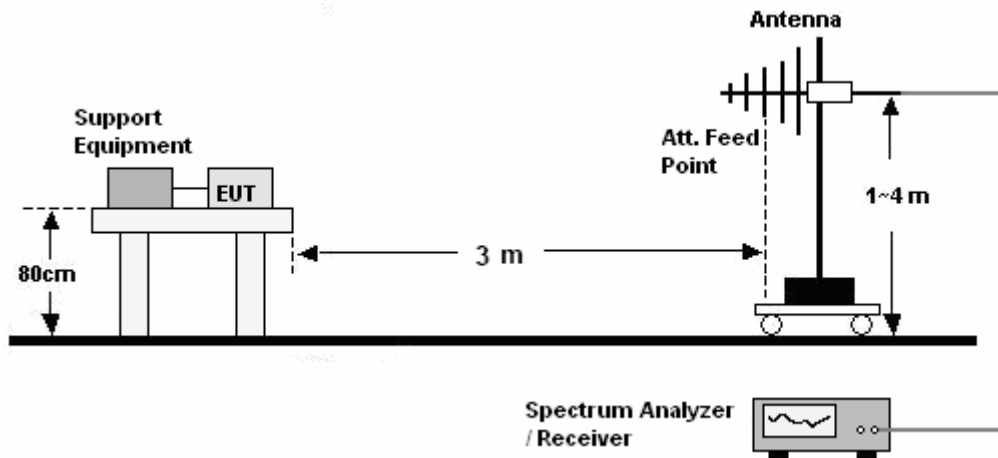
6. RADIATED DISTURBANCE TEST (RE)

6.1 LIMITS

Frequency (MHz)	Quasi-peak limit at 3m (dB μ V/m)
30-230	40
230-1000	47

NOTE: The lower limit shall apply at the transition frequencies.

6.2 BLOCK DIAGRAM OF TEST SETUP

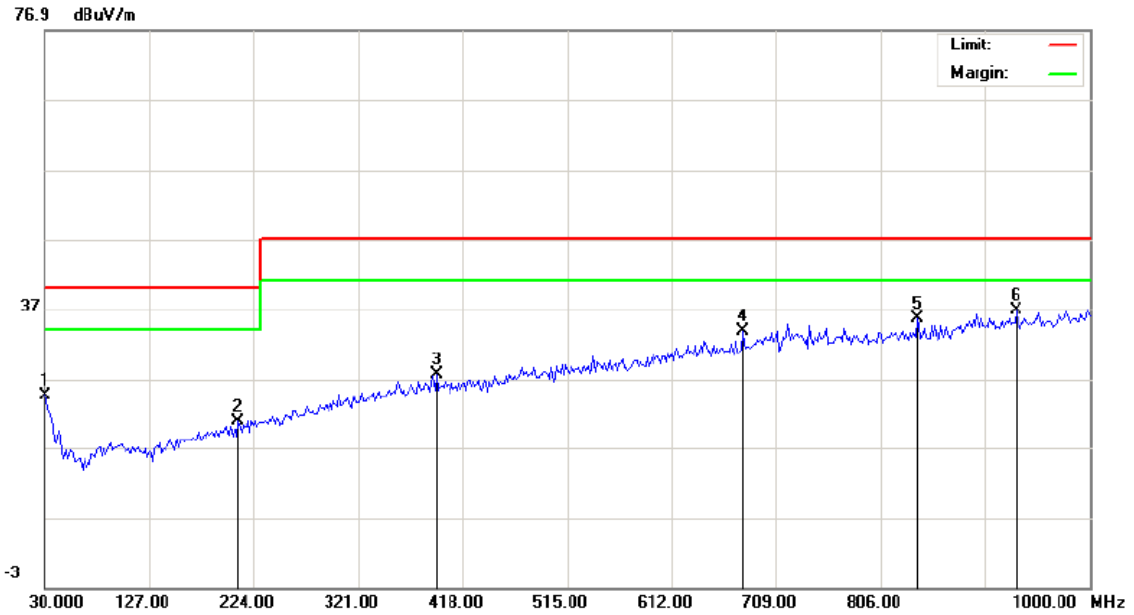


6.3 TEST PROCEDURE

- The EUT was placed on the non-conductive turntable above the ground at a chamber.
- Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 120 kHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied between 1~4 m in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.
- For each frequency whose maximum record was higher or close to limit, measure its QP value: vary the antenna's height and rotate the turntable from 0 to 360 degrees to find the height and degree where EUT radiated the maximum emission, then set the test frequency analyzer/receiver to QP Detector and specified bandwidth with Maximum Hold Mode, and record the maximum value.

6.4 GRAPHS AND DATA

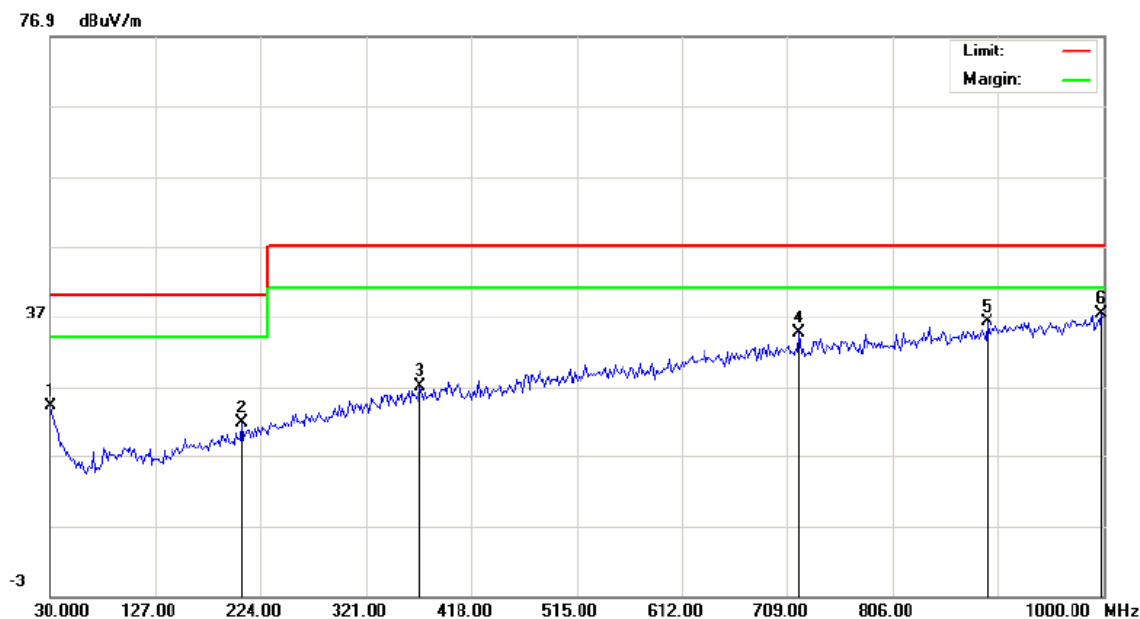
H:



Site site #1 Polarization: **Horizontal** Temperature: 23
 Limit: EN 61000-6-3 Radiation Emission Power: DC 9V Humidity: 60 %
 EUT:ALKALINE BATTERY
 M/N:6LR61
 Mode:Discharging
 Note:

No.	Freq. MHz	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV/m)			Limit (dBuV/m)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		peak	QP	AVG	QP	AVG	QP	AVG		
1	30.0000	7.07			17.63	24.70			40.00		-15.30		P	
2	209.4499	8.38			12.37	20.75			40.00		-19.25		P	
3	393.7500	9.25			18.31	27.56			47.00		-19.44		P	
4	678.2833	9.74			24.08	33.82			47.00		-13.18		P	
5	839.9500	10.02			25.60	35.62			47.00		-11.38		P	
6	932.1000	9.96			26.87	36.83			47.00		-10.17		P	

V:

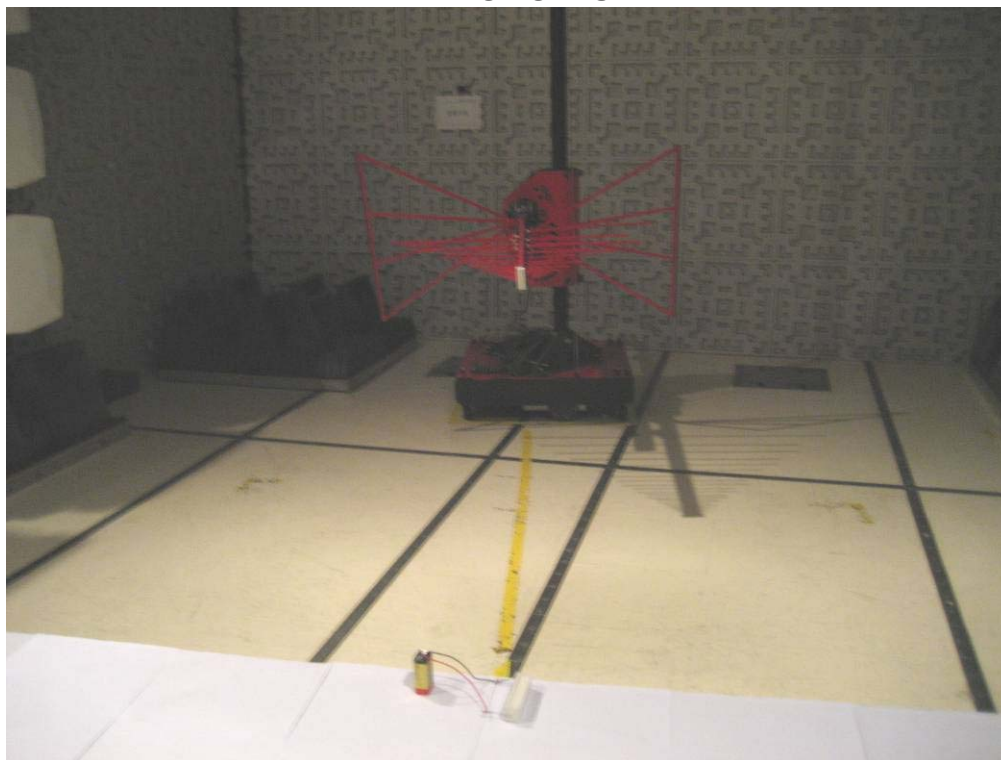


Site site #1 Polarization: **Vertical** Temperature: 23
 Limit: EN 61000-6-3 Radiation Emission Power: DC 9V Humidity: 60 %
 EUT:ALKALINE BATTERY
 M/N:6LR61
 Mode:Discharging
 Note:

No.	Freq. MHz	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV/m)			Limit (dBuV/m)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		peak	QP	AVG	QP	AVG	QP	AVG		
1	30.0000	6.53			17.63	24.16			40.00			-15.84		P
2	206.2167	9.55			12.19	21.74			40.00			-18.26		P
3	371.1166	9.01			17.99	27.00			47.00			-20.00		P
4	720.3165	9.99			24.63	34.62			47.00			-12.38		P
5	893.2998	9.61			26.50	36.11			47.00			-10.89		P
6	998.3831	9.63			27.77	37.40			47.00			-9.60		P

APPENDIX 1 PHOTOGRAPHS OF TEST SETUP

RE TEST SETUP



APPENDIX 2 PHOTOGRAPHS OF EUT



View of EUT-1(6LR61)



View of EUT-2(6LR61)



View of EUT-3(6LR61)



View of EUT-4(LR03)



View of EUT-5(LR6)



View of EUT-6(LR14)



View of EUT-7(LR20)

----End of the report----