



## **TEST REPORT**

Report No. : AG024219-001 Date : 2006 October 23

Application No. : LG219628(6)

Client : Mattel Asia Pacific Sourcing Limited  
13/F., South Tower, World Finance Centre,  
Harbour City, Tsim Sha Tsui,  
Kowloon, Hong Kong

Sample Description : One(1) submitted sample(s) stated to be Nano N.S.E.C.T  
of Model No. L3987  
Radio Frequency : 49.860 MHz Receiver  
Rating : 3 x 1.5V AAA size batteries  
No. of submitted sample : One (1) set(s) \*\*\*

Date Received : 2006 September 02

Test Period : 2006 September 02 – 2006 September 15

Test Requested : FCC Part 15 Certification.

Test Method : 47 CFR Part 15 (10-1-05 Edition)  
ANSI C63.4 – 2003

Test Result : See attached sheet(s) from page 2 to 11.

Conclusion : The submitted sample was found to comply with requirement of FCC Part 15  
Subpart B.

*For and on behalf of*  
CMA Industrial Development Foundation Limited

Authorized Signature : \_\_\_\_\_

Danny Chui  
Deputy Manager - EL. Division

FCC ID: PIYL3987-07A4R

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### **1 General Information**

#### **1.1 General Description**

The equipment under test (EUT) is a super regenerative receiver for Nano N.S.E.C.T. It operates at 49.860MHz which is controlled by LRC circuit. The EUT is powered by 3 x 1.5V AAA size batteries. When received right- forward, right-backward, left-forward and left-backward signal, it will run corresponding direction.

The brief circuit description is listed as follows:

- Q1 ~ Q6 and associated circuit act as M1 motor control.
- Q7 ~ Q12 and associated circuit act as M2 motor control.
- IC1 and associated circuit act as decoder.
- Q13, Q19 and associated circuit act as RF receiver control.



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### **1.2 Location of the test site**

Radiated emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.4 – 2003. A Semi-Anechoic Chamber Testing Site is set up for investigation and located at:

Ground Floor, Yan Hing Centre,  
9 – 13 Wong Chuk Yeung Street,  
Fo Tan, Shatin,  
New Territories,  
Hong Kong.

Conducted emissions measurements are investigated and also taken pursuant to the procedures of ANSI C63.4 – 2003. A shielded room is located at :

Ground Floor, Yan Hing Centre,  
9 – 13 Wong Chuk Yeung Street,  
Fo Tan, Shatin,  
New Territories,  
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### **1.3 List of measuring equipment**

Equipment	Manufacturer	Model No.	Serial No.
EMI Test Receiver	R&S	ESCS30	100001
Broadband Antenna	Schaffner	CBL6112B	2692
Signal Generator	IFR	2023B	202302/938
Spectrum Analyzer	R&S	FSP30	100628



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### **2 Description of the radiated emission test**

#### **2.1 Test Procedure**

Radiated emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.4 – 2003.

The equipment under test (EUT) was placed on a non-conductive turntable with dimensions of 1.5m x 1m and 0.8m high above the ground. 3m from the EUT, a broadband antenna mounting on the mast received the signal strength. The turntable was rotated to maximize the emission level. The antenna was then moving along the mast from 1m up to 4m until no more higher value was found. Both horizontal and vertical polarization of the antenna were placed and investigated.

For below 30MHz, a loop antenna with its vertical plane is placed 3m from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. And the centre of the loop shall be 1 m above the ground.

A signal generator was used to radiate an unmodulated continuous wave (CW) signal to the EUT (superregenerative receiver) at its operating frequency in order to “cohere” the characteristic broadband emissions from the receiver.

#### **2.2 Test Result**

All other measurements are well below the limit. Thus, those highest emissions were presented in next page.

The emissions meeting the requirement of section 15.109 are based on measurements employing the CISPR quasi-peak detector below 1000MHz and average detector for frequencies above 1000MHz.

It was found that the EUT meet the FCC requirement.



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### **2.3 Radiated Emission Measurement Data**

#### **Radiated emission**

**pursuant to**

**the requirement of FCC Part 15 subpart B**

Frequency (MHz)	Polarity (H/V)	Reading at 3m (dB $\mu$ V/m)	Antenna and Cable factor (dB)	Field Strength (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
48.609	V	13.9	10.3	24.2	40.0	-15.8
49.505	V	17.9	10.3	28.2	40.0	-11.8
50.261	V	19.3	8.1	27.4	40.0	-12.6
50.426	V	16.0	8.1	24.1	40.0	-15.9
50.665	V	18.0	8.1	26.1	40.0	-13.9
98.488	H	15.3	9.2	24.5	43.5	-19.0
99.300	H	15.2	9.2	24.4	43.5	-19.1
100.108	H	13.3	11.0	24.3	43.5	-19.2
100.520	H	13.5	11.0	24.5	43.5	-19.0
100.968	H	13.5	11.0	24.5	43.5	-19.0



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### **3 Description of the Line-conducted Test**

#### **3.1 Test Procedure**

Conducted emissions measurements are investigated and also taken pursuant to the procedures of ANSI C63.4 – 2003. The EUT was setup as described in the procedures, and both lines were measured.

#### **3.2 Test Result**

No measurement is required as the EUT is a battery-operated product.

#### **3.3 Graph and Table of Conducted Emission Measurement Data**

Not Applicable





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#### **4 Photograph**

##### **4.1 Photographs of the Test Setup for Radiated Emission and Conduction Emission**

For electronic filing, the photos are saved with filename TSup1.jpg to TSup2.jpg

##### **4.2 Photographs of the External and Internal Configurations of the EUT**

For electronic filing, the photos are saved with filename ExPho1.jpg to ExPho2.jpg and InPho1.jpg to InPho4.jpg.



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### **5 Supplementary document**

The following document were submitted by applicant, and for electronic filing, the document are saved with the following filenames:

<b>Document</b>	<b>Filename</b>
ID Label/Location	LabelSmp.jpg
Block Diagram	BlkDia.pdf
Schematic Diagram	Schem.pdf
Users Manual	UserMan.pdf
Operational Description	OpDes.pdf

#### **5.1 Bandwidth**

N/A

#### **5.2 Duty cycle**

N/A

#### **5.3 Transmission time**

N/A



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### **6 Appendices**

A1.	Photos of the set-up of Radiated Emissions	1	page
A2.	Photos of External Configurations	1	page
A3.	Photos of Internal Configurations	2	pages
A4.	ID Label/Location	1	page
A5.	Block Diagram	1	page
A6.	Schematics Diagram	1	page
A7.	User Manual	4	pages
A8.	Operation Description	1	page

\*\*\*\*\* End of Report \*\*\*\*\*