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No.: HM155624

Applicant: NEW BRIGHT INDUSTRIAL CO., LTD.

9/F., NEW BRIGHT BUILDING,

11 SHEUNG YUET ROAD, KOWLOON BAY,

KOWLOON, H.K.

Description of Samples: Model name: Radio Control Toy Vehicles

Transmitters and Receiver

Model no.: 110HS

Brand name: NEW BRIGHT FCC ID: G6D110HS

Date Samples Received: 2005-11-30

Date Tested: 2005-12-05

Investigation Requested: FCC Part 15 Subpart C

Conclusions: The submitted product <u>COMPLIED</u> with the

requirements of Federal Communications Commission [FCC] Rules and Regulations Part 15. The tests were performed in accordance with the standards described above and on

Section 2.2 in this Test Report.

Remarks: ----

LEE Kam Chuen, EMD For and on behalf of

The Hong Kong Standards and Testing Centre Ltd.

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香 進 定 中 **Standards** and **Testing** Hong Kong Centre

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香港新界大埔工業村大宏街 10 號



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1.0 General Details

1.1 Test Laboratory

The Hong Kong Standards and Testing Centre Ltd. EMC Laboratory 10 Dai Wang Street, Taipo Industrial Estate New Territories, Hong Kong

Telephone: 852 2666 1888 Fax: 852 2664 4353

1.2 Applicant Details Applicant

NEW BRIGHT INDUSTRIAL CO., LTD. 9/F., NEW BRIGHT BUILDING, 11 SHEUNG YUET ROAD, KOWLOON BAY, KOWLOON, H.K.

Manufacturer

NEW BRIGHT INDUSTRIAL CO., LTD. 9/F., NEW BRIGHT BUILDING, 11 SHEUNG YUET ROAD, KOWLOON BAY, KOWLOON, H.K.

香港新界大埔工業村大宏街 10 號



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1.3 Equipment Under Test [EUT] Description of Sample

Model Name: Radio Control Toy Vehicles Transmitters and Receiver

Manufacturer: NEW BRIGHT INDUSTRIAL CO., LTD.

Brand Name: NEW BRIGHT

Model Number: 110HS

Rating: 3Vd.c ("AA" size battery x 2)

1.3.1 Description of EUT Operation

The Equipment Under Test (EUT) is a NEW BRIGHT INDUSTRIAL CO., LTD., Radio Control Toy Vehicles Transmitters and Receiver. The transmitter is a 1 trigger transmitter. The EUT continues to transmit while trigger is being pressed, It is pulse transmitter, Modulation by IC, and type is pulse modulation.

1.4 Date of Order

2005-11-30

1.5 Submitted Sample(s):

1 Sample per model

1.6 Test Duration

2005-12-05

1.7 Country of Origin

CHINA



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2.0 Technical Details

2.1 Investigations Requested

Perform ElectroMagnetic Interference measurement in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15 and ANSI C63.4:2003 for FCC Certification.

2.2 Test Standards and Results Summary Tables

| EMISSION Results Summary | | | | | | | | | |
|--|------------------|-----------------|----------|-------------|--------|-------------|--|--|--|
| Test Condition Test Requirement Test Method Class / Test Result | | | | | | | | | |
| | · | | Severity | Pass | Failed | N/A | | | |
| Field Strength of Fundamental Emissions & Spurious Emissions | FCC 47CFR 15.227 | ANSI C63.4:2003 | N/A | \boxtimes | | | | | |
| Radiated Emissions | FCC 47CFR 15.209 | ANSI C63.4:2003 | N/A | \boxtimes | |) L | | | |
| Conducted Emissions on AC, 0.15MHz to 30MHz | FCC 47CFR 15.207 | ANSI C63.4:2003 | N/A | | | \boxtimes | | | |

Note: N/A - Not Applicable



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3.0 Test Results

3.1 Emission

3.1.1 Radiated Emissions (30 - 1000MHz)

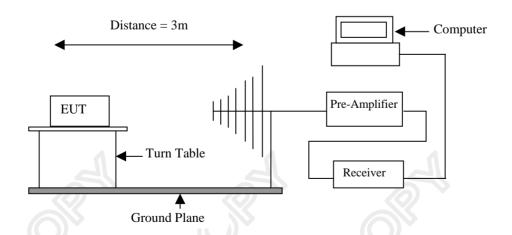
Test Requirement: FCC 47CFR 15.227
Test Method: ANSI C63.4:2003
Test Date: 2005-12-05
Mode of Operation: Tx mode

Test Method:

The sample was placed 0.8m above the ground plane on the OATS *. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.

*: OATS [Open Area Test Site] located at HKSTC with a metal ground plane filed with the FCC pursuant to section 2.948 of the FCC rules, with Registration Number: 607756.

Test Setup:





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Limits for Field Strength of Fundamental Emissions [FCC 47CFR 15.227]:

| Frequency Range of Fundamental | Field Strength of Fundamental Emission | Field Strength of Fundamental Emission |
|-----------------------------------|--|---|
| [MHz] | [Peak] [μV/m] | [Average] [μV/m] |
| 26.96-27.28 | 100,000 | 10,000 |

Results:

| Field Strength of Fundamental Emissions | | | | | | | | | |
|---|---|------------|--------|---------|-----------|----------|--|--|--|
| | Peak Value | | | | | | | | |
| Frequency | Measured | Correction | Field | Field | Limit @3m | E-Field | | | |
| | Level @3m Factor Strength Strength Polarity | | | | | | | | |
| MHz | dΒμV | dB/m | dBµV/m | μV/m | μV/m | - | | | |
| 27.15 | 50.20 | 19.2 | 69.4 | 2,951.2 | 100,000 | Vertical | | | |

| Field Strength of Fundamental Emissions Average | | | | | | | | |
|---|--|-------------|------------|--------|---------|-----------|----------|--|
| Frequency | Measured | Adjusted by | Correction | Field | Field | Limit @3m | E-Field | |
| | Level @3m Duty Cycle Factor Strength Strength Polarity | | | | | | | |
| MHz | dΒμV | dB | dB/m | dBµV/m | μV/m | μV/m | | |
| 27.15 | 45.9 | -4.3 | 19.2 | 65.1 | 1,798.9 | 10,000 | Vertical | |

According to FCC 47CFR15.35, the limit on the radio frequency emissions as measured using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit for the frequency being investigated unless a different peak emission limit is otherwise specified in the rules.

Remarks:

Correction Factor includes Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty : 30MHz to 1GHz ±4.1dB



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Limits for Radiated Emissions [FCC 47 CFR 15.209]:

| Frequency Range [MHz] | Quasi-Peak Limits [μV/m] | | |
|--------------------------|-----------------------------|--|--|
| 30-88 | 100 | | |
| 88-216 | 150 | | |
| 216-960 | 200 | | |
| Above960 | 500 | | |

The emission limits shown in the above table are based on measurement employing a CISPR quasi - peak detector and above 1000MHz are based on measurements employing an average detector.

Results:

| | Radiated Emissions Quasi-Peak | | | | | | | | |
|-----------|----------------------------------|--------------------|----------------------|---|------------------|---|------------------|-----------|---------------------|
| Frequency | | easured rel @3m | Correction Factor | S | Field trength | s | Field trength | Limit @3m | E-Field Polarity |
| MHz | | lΒμV | dB/m | | BµV/m | | μV/m | μV/m | · · · · |
| 54.29 | | 21.4 | 8.9 | | 30.3 | | 32.7 | 100 | Vertical |
| 81.44 |) < | 1.0 | 9.5 | < | 10.5 | < | 3.3 | 100 | Vertical |
| 108.58 | < | 1.0 | 10.7 | < | 11.7 | < | 3.8 | 150 | Vertical |
| 135.73 | < | 1.0 | 10.2 | < | 11.2 | < | 3.6 | 200 | Vertical |
| 162.87 | < | 1.0 | 11.9 | < | 12.9 | < | 4.4 | 200 | Vertical |
| 190.02 | < | 1.0 | 12.4 | < | 13.4 | < | 4.7 | 200 | Vertical |
| 217.16 | < | 1.0 | 13.2 | < | 14.2 | < | 5.1 | 200 | Vertical |
| 244.31 | < | 1.0 | 15.0 | < | 16.0 | < | 6.3 | 200 | Vertical |
| 271.45 | < | 1.0 | 16.1 | < | 17.1 | < | 7.2 | 200 | Vertical |

Remarks:

Correction Factor includes Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty : 30MHz to 1GHz ±4.1dB



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3.1.1 Conducted Emissions (0.15MHz to 30MHz)

Test Requirement: FCC 47CFR 15.207
Test Method: ANSI C63.4:2003

Test Date: N/A Mode of Operation: N/A

Results: N/A

The EUT is operated by a single source of internal battery power [located in the battery compartment], therefore power line conducted emission was deemed unnecessary.

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3.2 20dB Bandwidth of Fundamental Emission

Test Requirement: FCC 47 CFR 15.227

Test Method: ANSI C63.4:2003 (Section 13.1.7)

Test Date: 2005-12-05 Mode of Operation: On mode

Test Method:

The bandwidth is measured at an amplitude level reduced from the reference level by a specified ratio. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst-case (i.e. the widest) bandwidth.

Test Setup:

As Test Setup of clause 3.1.1 in this test report.

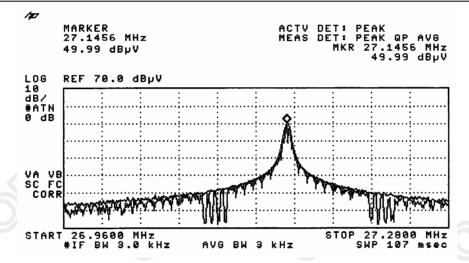


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Limits for 20dB Bandwidth of Fundamental Emission:

| Frequency Range | 20dB Bandwidth | FCC Limits |
|-----------------|----------------|--------------------|
| [MHz] | [KHz] | [MHz] |
| 27.145 | 24.8 | within 26.96-27.28 |

20dB Bandwidth of Fundamental Emission





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Appendix A

List of Measurement Equipment

Radiated Emission

| EQP NO. | DESCRIPTION | MANUFACTURER | MODEL NO. | SERIAL NO. | LAST CAL |
|---------|---|-----------------|--------------------------------|--|----------|
| EM007 | SPECTRUM ANALYZER | HEWLETT PACKARD | HP85660B | 3144A21192 | 27/06/05 |
| EM008 | SPECTRUM ANALYZER DISPLAY | HEWLETT PACKARD | HP85662A | 3144A20514 | 27/06/05 |
| EM009 | QUASI PEAK ADAPTOR | HEWLETT PACKARD | HP85650A | 3303A01702 | 27/06/05 |
| EM010 | RF PRESELECTOR | HEWLETT PACKARD | HP85685A | 3221A01410 | 27/06/05 |
| EM011 | ATTENUATOR/SWITCH | HEWLETT PACKARD | HP11713A | 2508A10595 | 27/06/05 |
| EM012 | PRE-AMPLIFIER | HEWLETT PACKARD | HP8449B | 3008A00262 | 27/06/05 |
| EM013 | CONTROLLER (COMPUTER), COLOR MONITOR, KEYBOARD , MOUSE & FLOPPY DRIVE | HEWLETT PACKARD | HP9000 HP A1097C HP9133L | 6226A60314 3151J39517 2623A02468 | N/A |
| EM020 | HORN ANTENNA | ETS-Linggren | 3115 | 4032 | 30/07/03 |
| EM022 | LOOP ANTENNA | ETS-Linggren | 6502 | 1189-2424 | 19/09/03 |
| EM072 | SIGNAL GENERATOR | HEWLETT PACKARD | 8640B | 1948A11892 | N/A |
| EM083 | OPEN AREA TEST SITE | HKSTC | N/A | N/A | 08/02/03 |
| EM131 | EMC ANALYZER | HEWLETT PACKARD | 8595EM | 3710A00155 | 13/01/04 |
| EM145 | EMI TEST RECEIVER | ROHDE & SCHWARZ | ESCS 30 | 830245/021 | 04/10/04 |
| EM195 | ANTENNA POSITIONING MAST | ETS-Linggren | 2075 | 2368 | N/A |
| EM196 | MULTI-DEVICE CONTROLLER | ETS-Linggren | 2090 | 1662 | N/A |
| EM215 | MULTIDEVICE CONTROLER | ETS-Linggren | 2090 | 00024676 | N/A |
| EM216 | MINI MAST SYSTEM | ETS-Linggren | 2075 | 00026842 | N/A |
| EM217 | ELECTRIC POWERED TURNTABLE | ETS-Linggren | 2088 | 00029144 | N/A |
| EM218 | ANECHOIC CHAMBER | ETS-Linggren | FACT-3 | | 19/03/04 |
| EM219 | BICONILOG ANTENNA | ETS-Linggren | 3142C | 00029071 | 28/10/03 |

Line Conducted

| EQP NO. | DESCRIPTION | MANUFACTURER | MODEL NO. | SERIAL NO. | LAST CAL |
|---------|--------------------------------------|----------------------------------|------------|---------------------|----------|
| EM078 | VARIAC | SHANGHAI VOLTAGE | TDGC-3/0.5 | N/A | CM |
| EM081 | SMALL SCREENED ROOM | MIKO INST HK | N/A | N/A | 27/01/05 |
| EM119 | LISN | ROHDE & SCHWARZ | ESH3-Z5 | 0831.5518.52 | 14/10/04 |
| EM127 | ISOLATION TRANSFORMER 220 TO 300V | WING SUN | N/A | N/A | СМ |
| EM142 | PULSE LIMITER | ROHDE & SCHWARZ | ESH3Z2 | 357.8810.52 | 04/08/04 |
| EM181 | EMI TEST RECEIVER | ROHDE & SCHWARZ | ESIB7 | 100072 | 06/01/04 |
| EM154 | SHIELDING ROOM | SIEMENA MATSUSHITA COMPONENTS | N/A | 803-740-057- 99A | 27/01/05 |
| EM197 | LISN | ETS-Linggren | 4825/2 | 1193 | 27/06/05 |
| EM213 | DIGITAL POWER METER | VICNOBL | VIP120 | 00277 | 14/09/04 |

Remarks:-

CM Corrective Maintenance N/A Not Applicable or Not Available

TBD To Be Determined



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Appendix B

Duty Cycle Correction During 100msec

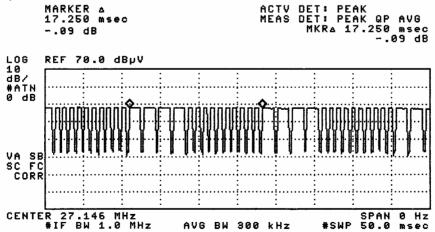
Each function key sends a different series of characters, but each pulses period (17.25msec) never exceeds a series of 4 long (1.375msec) and 10 short (500µsec) pulses. Assuming any combination of short and long pulses may be obtained due to encoding the worst case transmit duty cycle would be considered 4x1.375msec+10x500µsec per 17.25msec=60.8% duty cycle. Figure A through C show the characteristics of the pulse train for one of these functions.

Remarks:

Duty Cycle Correction = 20Log(0.608) =-4.3dB

The following figures [Figure A to Figure C] show the characteristics of the pulse train for one of these functions.

Figure A [Pulse Train]





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Figure B [Long Pulse]

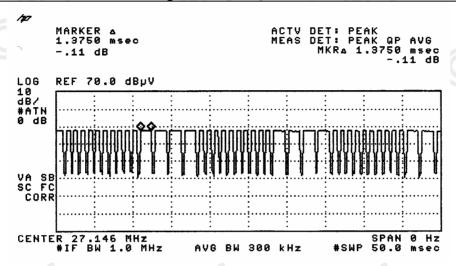
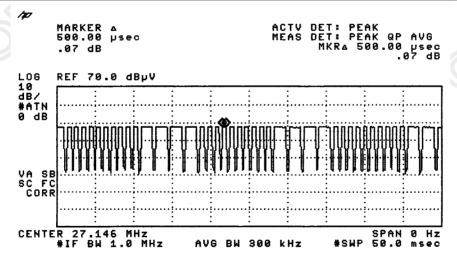


Figure C [Short Pulse]





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Appendix C

Photographs of EUT

Front View of the product



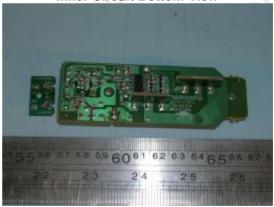
Rear View of the product



Inner Circuit Top View



Inner Circuit Bottom View





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Photographs of EUT

Measurement of Radiated Emission Test Set Up

Measurement of Radiated Emission Test Set Up

***** End of Test Report *****