



CONSUMER PRODUCTS SERVICES DIVISION

## TECHNO SOURCE

**Technical Report:** (5211)154-0575  
Date Received: June 07, 2011

June 09, 2011  
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Sample Description: 20Q ASSORTMENT

1. ) RED
2. ) BLUE
3. ) FUCHSIA

Vendor: N/A  
Manufacturer: On File

Sample Size: 51  
Style No(s): 1061, 1062, 1063

Buyer: N/A  
Labeled Age Grade: 6+  
Appropriate Age Grade: OVER 6 YEARS OF AGE  
Client Specified Age: NOT SPECIFIED

SKN/SKU No.: N/A  
PO No.: N/A  
Ref #: N/A  
Country of Origin: CHINA

Grade:  
Tested Age Grade: OVER 6 YEARS OF AGE  
UPC Code: 801561010619, 801561010626,  
801561010633

Assortment No.: (1060)  
Terminal voltage: 3.00V

### EXECUTIVE SUMMARY:

The sample COMPLIES with the tested requirements of the applicable EC harmonized standards EN 55014-1 and EN 55014-2 pertaining to Directive 2004/108/EC Electromagnetic Compatibility.

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BUREAU VERITAS HONG KONG LIMITED \_\_\_\_\_

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LYT/en



**STANDARDS**

<b>EMISSION STANDARD APPLIED</b>		
<b>Standard</b>		<b>Overall Result</b>
EN 55014-1: 2006 +A1:2009  Electromagnetic compatibility – Requirements for household appliances, electric tools and similar apparatus – Part 1: Emission		Meet
<b>Emission Tests Required</b>		
<b>Test</b>	<b>Basic Standard</b>	<b>Result</b>
Measurement of Radiated Disturbances (30 MHz – 1000 MHz)	CISPR 22:2005 + A1:2005 + A2:2006	Meet

<b>IMMUNITY STANDARD APPLIED</b>		
<b>Standard</b>		<b>Overall Result</b>
EN 55014-2: 1997 + A1: 2001 +A2:2008  Electromagnetic compatibility – Requirements for household appliances, electric tools and similar apparatus – Part 2: Immunity		Meet
<b>Immunity Tests Required</b>		
<b>Test</b>	<b>Basic Standard</b>	<b>Result</b>
Electrostatic Discharge (ESD)	IEC 61000-4-2: 2008	Meet



**A) Emission Measurements:**

Classification of electrical and electronic toys and the consequently applicable emission tests in accordance to the standard EN 55014-1:

Per sub-clause 7.3.6.1 of EN55014-1, the captioned EUT falls within the scope of the following category:

**Category B:**

Definition: Battery toys with built-in batteries, without possibility for external electric connection

Tests required: - radiated disturbances



**Test Results:**

**Measurement of Radiated Electromagnetic Disturbances (30 MHz – 1 GHz):**

**Standard:** EN 55014-1 (Basic Standard: CISPR 22)

**Limit:** Table 3 of Clause 4, EN 55014-1

**Port under test:** Enclosure

**Operational mode under test:** On mode (With Sound, Light, Display)

The operational mode under test is determined according to the typical use of the EUT with respect to the expected highest level of emission. During the test, various parts of the EUT system are exercised in a manner permitting detection of all system disturbances.

Test equipment:

Description	Brand Name	Model No.
EMI Test Receiver	Rohde & Schwarz	ESCS 30
EMI Test Receiver	Rohde & Schwarz	ESCI
Bilog Antenna	Schaffner	CBL 6112D
Biconical Antenna	Rohde & Schwarz	HK 116
Log-Periodic Antenna	Rohde & Schwarz	HL 223
Open Area Test Site (range = 3m)	None	None
Full Anechoic Chamber (7m x 3m x 3m)	Albatross Projects	M-CDC
Automatic Antenna Mast	Rainer Schäfer	RSM 010
Automatic Turntable	Rainer Schäfer	RST 020
Antenna Mast / Turntable Controller	Rainer Schäfer	RSC
Coaxial Cable No. 2	Uniradio	None
Coaxial Cable No. 7	Suhner	None
Coaxial Cable No. 3	Suhner	None
Coaxial Cable No. 4	Suhner	None

Remarks: -

The measurement instrumentation uncertainty would be taking into consideration on each of the test result



**Test method:**

The EMC Laboratory is located at the following address:

No. 2106-2107, 21/F., Westin Centre, 26 Hung To Road, Kwun Tong, Kowloon, Hong Kong

The test is performed in accordance with CISPR 22 as a basic standard at a measurement range of 3 meters.

Measurement shall be carried out on the Open Area Test Site (OATS) located on the roof of the EMC laboratory.

The test site has, by verification measurements, satisfied the normalized site attenuation (NSA) requirements specified in the standard CISPR 22. For each test frequency during final test, the antenna-to-EUT azimuth is varied through 360°. The antenna is also scanned between 1m to 4m in height above the ground plane to maximize the level of radiated disturbances. The final test results are measured with quasi-peak detector of the EMI test receiver.

If the measurement results are 20 dB lower than the corresponding limit levels, no records of these measurement results are required.

For the measurements at frequencies with high ambient disturbance signals existing, verification tests may be carried out in the Fully Anechoic Chamber (FAC) as an auxiliary method to confirm whether there is any emission of radiated disturbances from the EUT. If there is no maximum disturbance level from the EUT other than the corresponding intrinsic noise floor of measuring system (which is at least 20 dB below the limit level), then it can be stated confidently that the measurement result obtained at OATS is due to the signal levels of ambient signal sources, not the EUT.

**Results:**

The maximum disturbance levels measured with quasi-peak or peak detector of EMI test receiver are found at least 20dB below the limit level of the standard applied. No records of measurement results are required.



**Immunity Tests:**

Classification of electrical and electronic toys and the consequently applicable immunity tests in accordance to the standard EN 55014-2:

Per clause 4 of EN55014-2, the captioned EUT falls within the scope of the following category; listed together with the applicable tests and performance criteria in accordance to sub-clause 7.2 of EN 55014-2:

<b>Category III:</b>	Battery powered apparatus (with built-in batteries or external batteries) which in normal use is not connected to the mains, containing electronic control circuitry with no internal clock frequency or oscillator frequency higher than 15 MHz
<b>Test Applicable for Category III Equipment:</b>	<b>Performance Criteria</b>
Electrostatic Discharge (ESD) <i>If the equipment are appliances or toys using score or data entered by the user</i>	B



#### Definitions of Performance criteria

- **Criterion A:** The apparatus shall continue to operate as intended during the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. If the minimum performance level or the permissible performance loss is not specified by the manufacturer then either of these may be derived from the product description and documentation and what the user may reasonably expect from the apparatus if used as intended.
- **Criterion B:** The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. During the test, degradation of performance is however allowed. No change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer then either of these may be derived from the product description and documentation and what the user may reasonably expect from the apparatus if used as intended.
- **Criterion C:** Temporary loss of function is allowed, provided the function is self recoverable or can be restored by the operation of the controls, or by any operation specified in the instructions for use.

#### Classification of Observations

<b>Observation</b>	<b>Description</b>
A	Satisfying Performance Criterion A
B	Satisfying Performance Criterion B
C	Satisfying Performance Criterion C
D	Loss of function or degradation of performance which is not recoverable, owing to damage to hardware or software, or loss of data



**Electrostatic Discharge (ESD):**

Standard: EN 55014-2 (Basic Standard: IEC 61000-4-2)  
 Test Levels:  $\pm 4\text{kV}$  for Contact Discharge,  $\pm 8\text{kV}$  for Air Discharge  
 Port under test: Enclosure

Test equipment:

Description	Brand Name	Model
ESD Generator	Schaffner	NSG435
Electrostatic Discharge Simulator	Kikusui	KES 4021A
Ground Reference Plane (GRP) - Dimension = 2.70m x 1.93m (Length x Width)	None	None
Wooden Table, - Height = 0.8m	None	None
Horizontal Coupling Plane (HCP) - Dimension = 1.6m x 0.8m (Length x Width) - Connected to the GRP via two resistors of 470k $\Omega$ in series	None	None
Insulation Support Laminate - Thickness = 0.5 mm	None	None
Vertical Coupling Plane (VCP) - Dimension 0.5m x 0.5m (L x W) - Connected to the GRP via two resistors of 470k $\Omega$ in series	None	None
Thermometer & Hydrometer	Sato Keryoki	NSII – Q
Barometer	Sigma-II	7237-00
Conductive Discharge Brush for ungrounded EUT (Connected to the GRP via two resistors of 470k $\Omega$ in series)	None	None

Remarks: -  
 The measurement instrumentation uncertainty would be taking into consideration on each of the test result

Results:

Operation mode under test: On mode (With Sound, Light, Display), Stand by mode

Environmental Condition:

Temperature ( $^{\circ}\text{C}$ ): 24                      Relative Humidity (%): 57                      Atmospheric Pressure (mBar): 1000





Application of direct discharges

i) Contact Discharge

The ESD generator is held with its tip of the contact discharge electrode perpendicular to the surface of the point of the sample enclosure to be tested. The tip of electrode shall firmly touch the surface of the point to be tested prior to charging up the electrode and application of discharge to the point under test.

At least 10 positive discharges and 10 negative discharges are applied to each accessible and dischargeable metal parts of the enclosure with an interval of at least 1 second between successive discharges.

Points of discharge	Polarity	Applied voltage (kV)	Performance criterion	Observation	Result
Screws	-	4	B	A	Meet
	+	4	B	A	Meet

Remark: A, Normal Performance

ii) Air Discharge

The ESD generator is held with its tip of the air discharge electrode charged up prior to the application of discharge. The tip of charged electrode shall be brought to the surface of the point to be tested as fast as possible without causing any mechanical damage to the sample.

At least 10 positive discharges and 10 negative discharges are applied to each dischargeable but un-accessible metal parts or non-metal parts of the enclosure with an interval of at least 1 second between successive discharges.

Points of discharge	Polarity	Applied voltage (kV)	Performance criterion	Observation	Result
Enclosure	-	8	B	A	Meet
	+	8	B	A	Meet

Remark: A, Normal Performance

Application of indirect discharges

i) Discharge on Horizontal Coupling Plane (HCP)

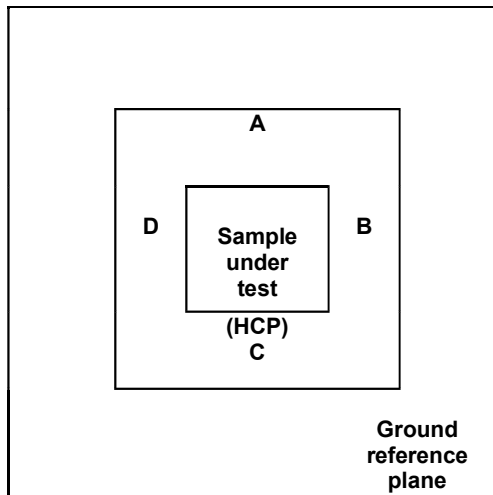
The electrostatic discharge generator is held horizontally in plane of the horizontal coupling plane (HCP), with the contact discharge electrode firmly touching the edge of the HCP. The tip of the electrode shall be at a distance of 0.1 m from the side of the sample being tested.

At least 10 positive discharges and 10 negative discharges are applied with an interval of not less than 1 second between each discharge.

Points of discharge	Polarity	Applied voltage (kV)	Performance criterion	Observation	Result
Position A, B, C, D	-	4	B	A	Meet
	+	4	B	A	Meet

Remark: A, Normal Performance

Figure 1:



ii) Discharge on Vertical Coupling Plane (VCP)

The electrostatic discharge generator is positioned horizontally to the center of the edge of the Vertical Coupling Plane (VCP) which is located vertically 0.1 m from the sample with contact discharge electrode touching the vertical coupling plane.

At least 10 positive discharges and 10 negative discharges are applied with an interval of not less than 1 second between each discharge.

Points of discharge	Polarity	Applied voltage (kV)	Performance criterion	Observation	Result
Position A, B, C, D	-	4	B	A	Meet
	+	4	B	A	Meet

Remark: A, Normal Performance

Figure 2:

