

## EMC VERIFICATION SUMMARY

Report No.: SZHH01177508-003

Toy

ITE

Others

Model: 656AR  Product Description: Mini Cabrio F57 Battery Operated Car  Sample Receipt Date: 10 August 2017	Applicant: DONGGUAN CHI LOK BO TOYS CO LTD DAJI INDUSTRIAL PARK SHIPAI TOWN DONGGUAN CITY GUANGDONG PROVINCE, CHINA  Test Conducted Date: 10 August 2017 to 20 September 2017		
<input checked="" type="checkbox"/> 1 <sup>st</sup> TEST <input type="checkbox"/> 2 <sup>nd</sup> TEST	ALL TESTS WERE CONDUCTED IN ACCORDANCE WITH:  *EN 55014-1: 2006 + A1: 2009 + A2: 2011 *EN 55014-2: 1997 + A1: 2001 + A2: 2008 *EN 61000-3-2: 2014 *EN 61000-3-3: 2013		
Test Site and Location:	Intertek Testing Services Shenzhen Ltd. Longhua Branch 1F/2F, Building B, QiaoAn Scientific Technology Park, ShangKeng Community, GuanHu Subdistrict, LongHua District, ShenZhen. P.R. China, 518110		
Test Result	OK	Not OK	Remark(See page 2)
*EN 55014-1: 2006 + A1: 2009 + A2: 2011	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*EN 55014-2: 1997 + A1: 2001 + A2: 2008	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*EN 61000-3-2: 2014	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
*EN 61000-3-3: 2013	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Remark: When determining the test conclusion, the Measurement Uncertainty of test has been considered.			

**Prepared and checked by:**

**Approved By:**

**Sign On File**  
**Abel Zhou**  
**Senior Engineer**  
**Intertek**

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**Jimmy Wen**  
**Assistant Supervisor**  
**Intertek**  
**Date: 20 September 2017**

- This summary is part of the full report and should be read in conjunction with it.
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- The test report only allows to be revised only within the report defined retention period unless further standard or the requirement was noticed

TRF No.: EN55014-1/-2\_b

1 of 33



## EMC Results Conclusion (with Justification)

RE: EMC Testing Pursuant to EMC Directive 2014/30/EU, Performed On the  
Mini Cabrio F57 Battery Operated Car,  
Model: 656AR

We tested the Mini Cabrio F57 Battery Operated Car, Model: 656AR, to determine if it was in compliance with the relevant EN standards as marked on the EMC Verification Summary. We found that the unit met the requirement of EN 55014-1, EN55014-2, EN 61000-3-2, EN 61000-3-3 standards when tested after received.

The production units are required to conform to the initial sample as received when the units are placed on the market.

Remark: Standards against which no testing has been conducted of the captioned model and the engineering judgement is stated as follows:

EN61000-3-2: This product has power consumption 75W or less under normal operating conditions. It is therefore not likely to produce harmonics above the limits of the standard. The product is deemed to comply with the standard without any measurements.



**LABORATORY MEASUREMENTS****Configuration Information**

<b>Equipment Under Test (EUT):</b>	Mini Cabrio F57 Battery Operated Car
<b>Model:</b>	656AR
<b>Serial No.:</b>	N/A
<b>Support Equipment:</b>	iPod (Model Number: A1421) (Provided by Intertek)
<b>Cables:</b>	AUX in Cable Length With 30cm, Unshielded (Provided by Client)
<b>Adaptor:</b>	Model: YF002-080600BS Input: 100-240VAC 50/60Hz 180mA; Output: DC 8V 600mA; (Provided by Client)
<b>Rated Voltage:</b>	DC6.0V (1 x 6.0V Rechargeable Battery) AC 100-240V 50/60Hz

TRF No.: EN55014-1/2\_b



## Performance Criteria for Immunity

**The performance criteria are referred to the test standard: EN 55014-2**

### Performance criteria A

During and after the test the EUT shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a minimum performance level specified by the manufacturer when the EUT is used as intended. The performance level may be replaced by a permissible loss of performance. 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 by what the user may reasonably expect from the EUT if used as intended.

### Performance criteria B

After the test, the EUT shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacturer, when the EUT is used as intended. The performance level may be replaced by a permissible loss of performance.

During the test, degradation of performance is allowed. However, no change of operating state or stored data is allowed to persist after the test.

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 by what the user may reasonably expect from the EUT if used as intended.

### Performance criteria C

During and after testing, a temporary loss of function is allowed, provided the function is selfrecoverable, or can be restored by the operation of the controls or cycling of the power to the EUT by the user in accordance with the manufacturer's instructions.

TRF No.: EN55014-1/2\_b



Applicant: DONGGUAN CHI LOK BO TOYS CO LTD

Model: 656AR

Worst Case Operating Mode: motor

## EN 55014-1 Radiated Scan

### Used Test Equipment

Equipment No.	Equipment	Manufacturer	Model No.	Cal. Date	Due Date
SZ185-01	EMI Receiver	R & S	ESCI	9-Feb-17	9-Feb-18
SZ061-03	Biconilog Antenna	ETS	3142C	12-Oct-16	12-Oct-17
SZ188-01	Anechoic Chamber	ETS	RFD-F/A-100	16-Jan-17	16-Jan-19

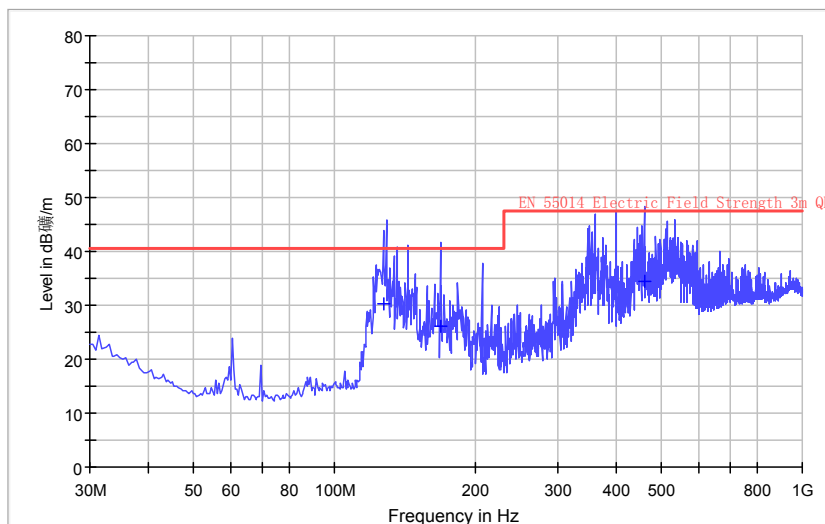
- Notes:
1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
  2. Negative sign (-) in the margin column signify levels below the limit.
  3. Frequency range scanned: 30MHz to 1000MHz.
  4. Only emissions significantly above equipment noise floor are reported.
  5. Uncertainty:  $\pm 4.8$ dB at a level of confidence of 95%.

TRF No.: EN55014-1/2\_b



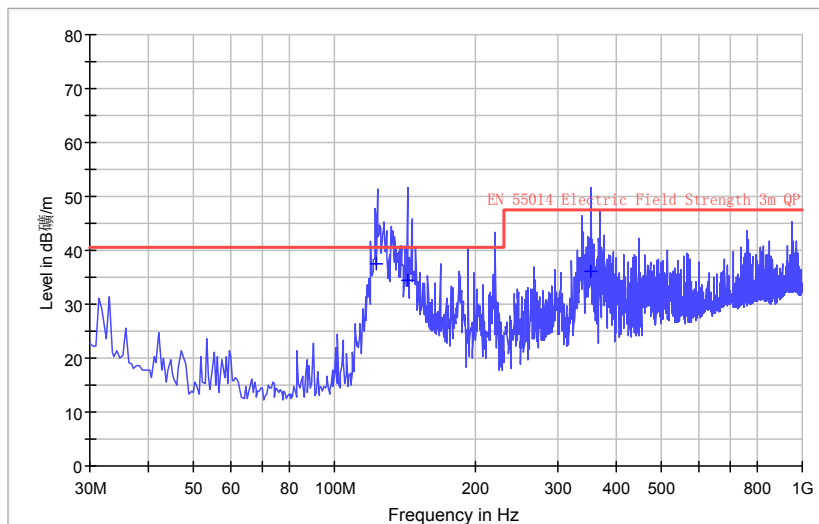
## Graphic Radiated Emissions Pursuant to EN55014-1: Emissions Requirement Horizontal

EN55014



## Vertical

EN55014



TRF No.: EN55014-1/2\_b

### Data Table

#### Radiated Emissions Pursuant to EN55014-1: Emissions Requirement

Polarization	Frequency (MHz)	Net at 3m (dBµV/m)	Calculated Net at 10m (dBµV/m)	Limit at 10m (dBµV/m)	Margin (dB)
H	127.485	30.2	19.7	30.0	-10.3
H	168.225	26.1	15.6	30.0	-14.4
H	462.135	34.6	24.1	37.0	-12.9
V	123.120	37.6	27.1	30.0	-2.9
V	143.005	34.3	23.8	30.0	-6.2
V	353.980	36.0	25.5	37.0	-11.5

No emissions significantly above equipment noise floor.



Applicant: DONGGUAN CHI LOK BO TOYS CO LTD

Model: 656AR

Worst Case Operating Mode: Charging

## EN55014-1 RFI Voltage Test

### Used Test Equipment

Equipment No.	Equipment	Manufacturer	Model No.	Cal. Date	Due Date
SZ187-01	LISN	R & S	ENV216	1-Nov-16	1-Nov-17
SZ187-02	LISN	R & S	ENV216	1-Nov-16	1-Nov-17
SZ185-02	EMI Test Receiver	R&S	ESCI	1-Nov-16	1-Nov-17
SZ188-03	Shielding Room	ETS	RFD-100	16-Jan-17	16-Jan-19

- Notes:
1. Peak and average detector quick scan are showed on the graph and final quasi-peak and average detector data are measured, the worst-case is recorded in the following graph and table.
  2. Frequency range scanned: 150kHz to 30MHz.
  3. Only emissions significantly above equipment noise floor are reported.
  4. Uncertainty:  $\pm 3.6$ dB at a level of confidence of 95%.

TRF No.: EN55014-1/2\_b





Applicant: DONGGUAN CHI LOK BO TOYS CO LTD

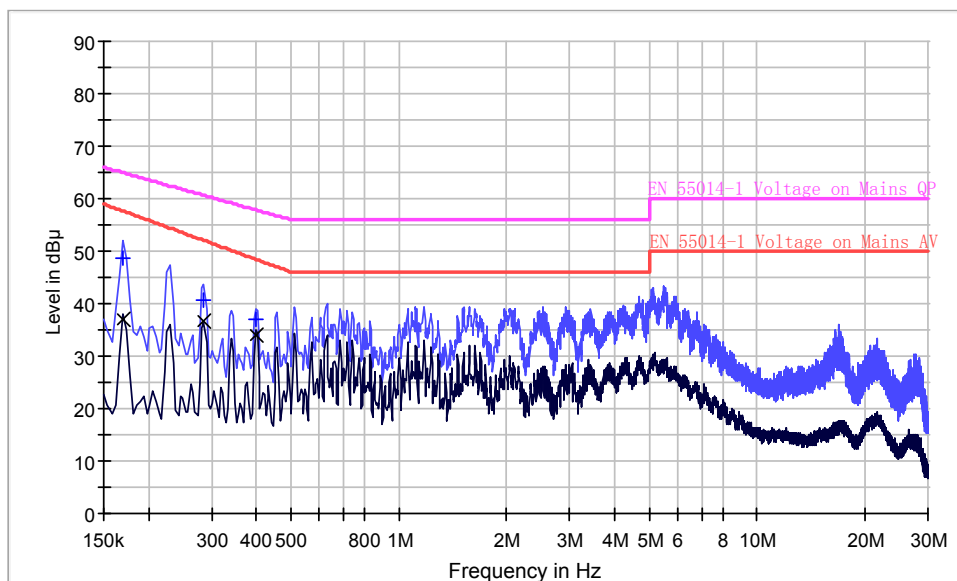
Model: 656AR

Worst Case Operating Mode: Charging

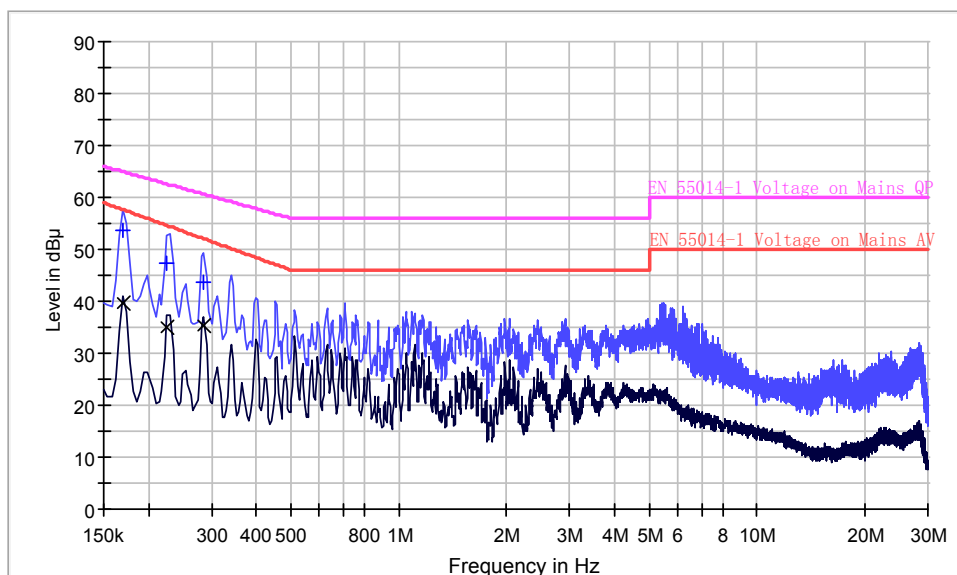
Phase: Live / Neutral

## Graphic RFI Voltage Test Pursuant to EN 55014-1: Emissions Requirement

Live Line



Neutral Line



TRF No.: EN55014-1/2\_b



### Data Table

#### RFI Voltage Test Pursuant to EN 55014-1: Emissions Requirement

##### Live Line

Frequency (MHz)	Quasi-Peak		Average	
	Disturbance level dB(μV)	Permitted limit dB(μV)	Disturbance level dB(μV)	Permitted limit dB(μV)
0.170000	48.5	65.0	36.8	57.6
0.286000	40.7	60.6	36.8	52.0
0.398000	36.9	57.9	33.9	48.5

No emissions significantly above equipment noise floor.

##### Neutral Line

Frequency (MHz)	Quasi-Peak		Average	
	Disturbance level dB(μV)	Permitted limit dB(μV)	Disturbance level dB(μV)	Permitted limit dB(μV)
0.170000	53.5	65.0	39.8	57.6
0.226000	47.2	62.6	34.9	54.6
0.286000	43.7	60.6	35.3	52.0

No emissions significantly above equipment noise floor.



Applicant: DONGGUAN CHI LOK BO TOYS CO LTD  
Model: 656AR  
Worst Case Operating Mode: Charging

### EN61000-3-3 Voltage Fluctuations

#### Used Test Equipment

Equip No.	Equipment	Manufacturer	Model No.	Cal. Date	Due Date
SZ064-01	Compliance Test System	California Instruments	5001iX-CTS-400	9-Feb-17	9-Feb-18
SZ064-0101	Power Analyzer and Conditioning System	California Instruments	PACS-1	9-Feb-17	9-Feb-18

- Notes: 1. The test result consisting of worst-case was attached in the following pages.  
2. Uncertainty: 0.25% at a level of confidence of 95%.

TRF No.: EN55014-1/2\_b



Applicant: DONGGUAN CHI LOK BO TOYS CO LTD

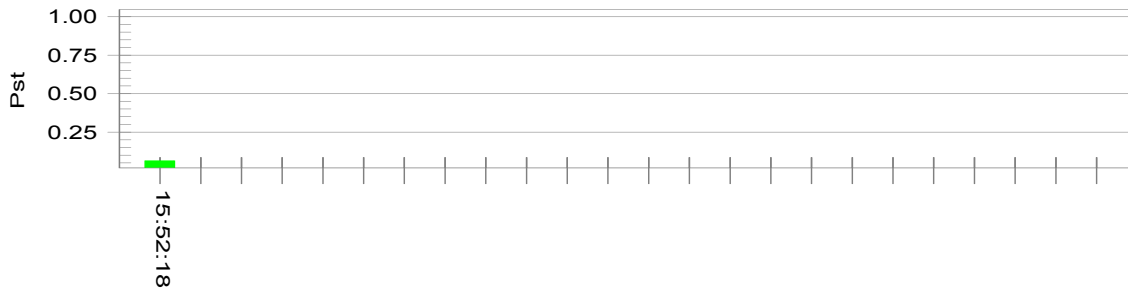
Model: 656AR

Worst Case Operating Mode: Charging

## Flicker Test Summary per EN/IEC61000-3-3 (Run time)

Pst<sub>i</sub> and limit line

European Limits



Plt and limit line



### Parameter values recorded during the test:

Wrms at the end of test (Volt):	229.71		
Highest dt (%):	0.25	Test limit (%):	3.30 Pass
Time(mS) > dt:	0.0	Test limit (mS):	500.0 Pass
Highest dc (%):	0.00	Test limit (%):	3.30 Pass
Highest dmax (%):	-0.20	Test limit (%):	4.00 Pass
Highest Pst (10 min. period):	0.064	Test limit:	1.000 Pass

TRF No.: EN55014-1/2\_b

12 of 33



Applicant: DONGGUAN CHI LOK BO TOYS CO LTD  
 Model: 656AR

**EN61000-4-2  
 Electrostatic Discharge**

**Test Summary (Pursuant to EN55014-2)**

Basic Standard:	IEC 61000-4-2: 1995 + A1: 1998 + A2: 2000
Port:	Enclosure
Required Performance Criterion:	B
Limit:	±8.0kV (Air Discharge)
	±4.0kV (Contact Discharge)
	±4.0kV (Indirect Contact Discharge)
Time Between Each Discharge:	1 second
Temperature:	26.8°C
Relative Humidity:	49.6%
Test Mode:	Charging, Motor, Aux in, voice
Test Setup:	Floor Stand
Test of Post-Installation:	N/A

**Used Test Equipment**

Equipment No.	Equipment	Manufacturer	Model No.	Cal. Date	Due Date
SZ189-03	ESD Simulator	Teseq	NSG 435	17-Nov-16	17-Nov-17

TRF No.: EN55014-1/2\_b

13 of 33



Applicant: DONGGUAN CHI LOK BO TOYS CO LTD  
Model: 656AR

## Test Results

### EN61000-4-2 Electrostatic Discharge

Discharge Type	No. of Discharge	Applied Voltage	Result (Pursuant to EN55014-2, Criterion B)
Contact Discharge	20	±4kV	OK
Air Discharge	20	±8kV	OK
Indirect HCP Discharge	20	±4kV	OK
Indirect VCP Discharge	20	±4kV	OK

- Additional Information
- No observable change

TRF No.: EN55014-1/2\_b



Applicant: DONGGUAN CHI LOK BO TOYS CO LTD  
 Model: 656AR

**EN61000-4-3  
 Radiated Immunity**

**Test Summary (Pursuant to EN55014-2)**

Basic Standard:	IEC 61000-4-3: 2006 + A1: 2007
Port:	Enclosure
Required Performance Criterion:	A
Limit:	3.0 V/m (rms)
Test Modulation:	1kHz, 80%AM
Frequency:	80MHz to 1000MHz
Dwell Time:	1s
Frequency Step:	1%
Test Mode:	Motor, Aux in, voice
Temperature:	25.8°C
Relative Humidity:	51.6%
Test Facility:	Full Anechoic Chamber
Type of Antenna:	BiConiLog Antenna
Antenna Polarization:	Horizontal and Vertical
Test Distance:	3 meters
Test Setup:	Floor Stand

**Used Test Equipment**

Equip No.	Description	Manufacturer	Model No.	Cal. Date	Due Date
SZ188-02	Anechoic Chamber	ETS	RFD-F/A-100	16-Jan-17	16-Jan-19
SZ061-03	Biconilog Antenna	ETS	3142C	12-Oct-16	12-Oct-17
SZ180-01	Signal Generator	R&S	SML03	12-Oct-16	12-Oct-17
SZ181-01	Amplifier	PRANA	AP32 MT215	09-Feb-17	09-Feb-18

TRF No.: EN55014-1/2\_b

15 of 33



Applicant: DONGGUAN CHI LOK BO TOYS CO LTD  
Model: 656AR

### Test Results

#### EN61000-4-3 Radiated Immunity

Frequency (MHz)	Exposed Side	Field Strength (V/m)	Result (Pursuant to EN 55014-2, Criterion A)
80 to 1000	Front	3V/m (rms)	OK
80 to 1000	Left	3V/m (rms)	OK
80 to 1000	Rear	3V/m (rms)	OK
80 to 1000	Right	3V/m (rms)	OK

Additional Information

No observable change

TRF No.: EN55014-1/2\_b





Applicant: DONGGUAN CHI LOK BO TOYS CO LTD  
 Model: 656AR

**EN61000-4-4  
 Electrical Fast Transient / Burst**

**Test Summary (Pursuant to EN55014-2)**

Basic Standard:	IEC 61000-4-4: 2004
Port:	AC Power Lines
Required Performance Criterion:	B
Limit:	±1.0kV
Temperature:	27°C
Relative Humidity:	65.7%
Test Duration:	1 minute
Test Mode:	Charging
Test Setup:	Floor Stand
Generator Drive:	Internal
Sequence of Application:	Multiple

**Used Test Equipment**

Equipment No.	Equipment	Manufacturer	Model No.	Cal. Date	Due Date
SZ063-01	Compact Immunity Tester	Haefely	ECOMPACT 4	9-Feb-17	9-Feb-18

TRF No.: EN55014-1/2\_b



Applicant: DONGGUAN CHI LOK BO TOYS CO LTD  
Model: 656AR

### Test Results

#### EN61000-4-4

#### Electrical Fast Transient / Burst

Port	Level	Polarity	Result (Pursuant to EN55014-2, Criterion B)
AC Power Lines	1kV	+	OK
	1kV	-	OK
DC Power Lines	0.5kV	+	N/A
	0.5kV	-	N/A
Signal Lines	0.5kV	+	N/A
	0.5kV	-	N/A
Control Lines	0.5kV	+	N/A
	0.5kV	-	N/A

Additional Information

No observable change

TRF No.: EN55014-1/2\_b

18 of 33



Applicant: DONGGUAN CHI LOK BO TOYS CO LTD  
 Model: 656AR

## EN61000-4-5 Surge Immunity

### Test Summary (Pursuant to EN55014-2)

Basic Standard:	IEC 61000-4-5: 2005		
Port:	AC Power Lines		
	Phase and Neutral	Phase and Earth	Neutral and Earth
Limit:	5 Positive and 5 Negative Surges		
	±1kV	±2kV	±2kV
Generator Impedance:	2ohm	12ohm	12ohm
Required Performance Criterion:	B		
Repetition Rate:	1 minute		
Temperature:	27°C		
Relative Humidity:	65%		
Test Mode:	Charging		
Test Setup:	Floor Stand		
Surge Generator Trigger:	Internal		
Installation Condition:	Class 3: Electrical environment where cables run in parallel.		
Phase Angle:	90°, 270°		

### Used Test Equipment

Equip No.	Equipment	Manufacturer	Model No.	Cal. Date	Due Date
SZ063-01	Compact Immunity Tester	Haefely	ECOMPACT 4	9-Feb-17	9-Feb-18

TRF No.: EN55014-1/2\_b

19 of 33



Applicant: DONGGUAN CHI LOK BO TOYS CO LTD  
Model: 656AR

### Test Results

#### EN61000-4-5 Surge Immunity

Level		Result (Pursuant to EN55014-2, Criterion B)
Between Phase and Neutral:	±1kV	OK
Between Phase and Earth:	±2kV	N/A
Between Neutral and Earth:	±2kV	N/A

Additional Information

No observable change

TRF No.: EN55014-1/2\_b

20 of 33



Applicant: DONGGUAN CHI LOK BO TOYS CO LTD  
 Model: 656AR

**EN61000-4-6  
 Injected Current (0.15MHz to 230MHz)**

**Test Summary (Pursuant to EN55014-2)**

Basic Standard:	IEC 61000-4-6: 2003 + A1: 2004 + A2: 2006
Port:	AC Power Lines
Required Performance Criterion:	A
Limit:	3.0V (rms)
Test Modulation:	1kHz, 80% AM
Frequency:	0.15MHz to 230MHz
Dwell Time:	1s
Frequency Step:	1%
Temperature:	27°C
Relative Humidity:	65%
Coupling Factor of CDN:	-1.0dB ~ -1.7dB
Test Mode:	Charging
Test Setup:	Floor Stand
Equipment Under Test (EUT):	Single Unit

**Used Test Equipment**

Equipment No.	Equipment	Manufacturer	Model No.	Cal. Date	Due Date
SZ180-02	Signal Generator	Aeroflex	2023A	9-Feb-17	9-Feb-18
SZ181-03	Amplifier	AR-WORLDWIDE	75A250	9-Feb-17	9-Feb-18
SZ181-03-01	Attenuator	AR-WORLDWIDE	6dB/50FH-006-100	9-Feb-17	9-Feb-18
SZ184-01	Coupling-Decoupling Network	LUTHI	CDN L-801 M2/M3	9-Feb-17	9-Feb-18

TRF No.: EN55014-1/2\_b

21 of 33



Applicant: DONGGUAN CHI LOK BO TOYS CO LTD  
Model: 656AR

### Test Results

#### EN61000-4-6 Injected Current (0.15MHz to 230MHz)

Port	Frequency (MHz)	Level	Result (Pursuant to EN55014-2, Criterion A)
AC Power Lines	0.15 to 230	3V (rms)	OK
DC Power Lines	0.15 to 230	1V (rms)	N/A
Signal Lines	0.15 to 230	1V (rms)	N/A
Control Lines	0.15 to 230	1V (rms)	N/A

Additional Information

No observable change

TRF No.: EN55014-1/2\_b

22 of 33



Applicant: DONGGUAN CHI LOK BO TOYS CO LTD  
 Model: 656AR

**EN61000-4-11  
 Voltage Dips and Interruptions**

**Test Summary (Pursuant to EN55014-2)**

Basic Standard	EN 61000-4-11: 2004			
Port:	A.C. Power Lines			
Limit:	Test level in %UT	Duration (Periods)		Required Performance Criterion
		50Hz	60Hz	
	0	0.5	0.5	C
	40	10	12	C
	70	25	30	C
No. of dips/interruptions:	3			
Test Mode:	Charging			
Test Setup:	Test generator causes the interference of the EUT AC mains			

$U_T$  is the rated voltage for the equipment.

**Used Test Equipment**

Equip No.	Equipment	Manufacturer	Model No.	Cal. Date	Due Date
SZ063-01	Compact Immunity Tester	Haefely	ECOMPACT 4	9-Feb-17	9-Feb-18



Applicant: DONGGUAN CHI LOK BO TOYS CO LTD  
Model: 656AR

### Test Results

#### EN61000-4-11 Voltage Dips and Interruptions

Test condition			Result  (Pursuant to EN55014-2, Criterion C)
Test Level in %UT	Duration (Periods)		
	50Hz	60Hz	
0	0.5	0.5	OK
40	10	12	OK
70	25	30	OK

- Additional Information
- No observable change

TRF No.: EN55014-1/2\_b

24 of 33





Applicant: DONGGUAN CHI LOK BO TOYS CO LTD  
Model: 656AR

## External Photo



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Applicant: DONGGUAN CHI LOK BO TOYS CO LTD  
 Model: 656AR

## Internal Photo

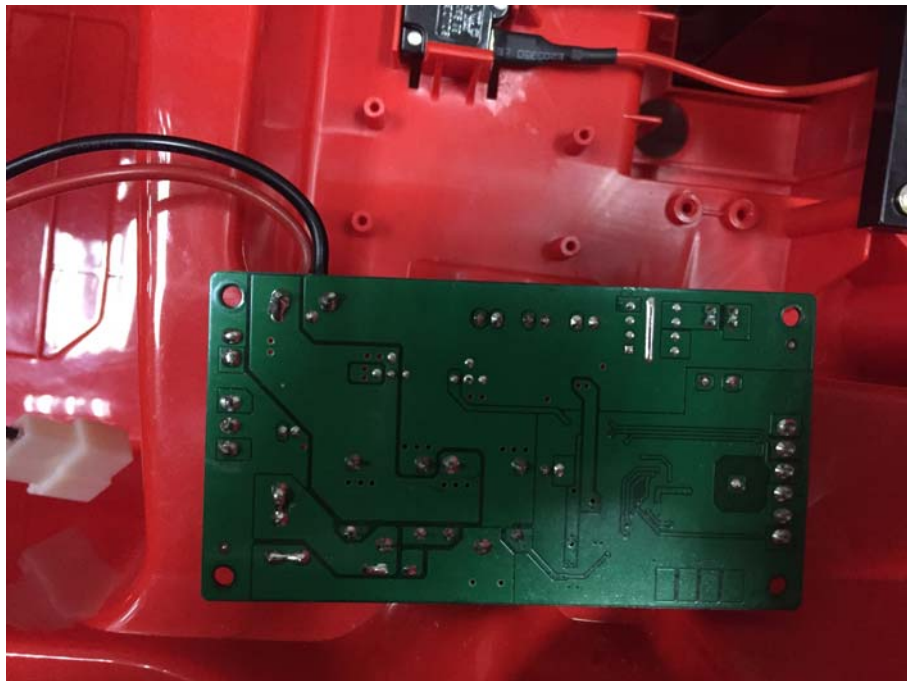
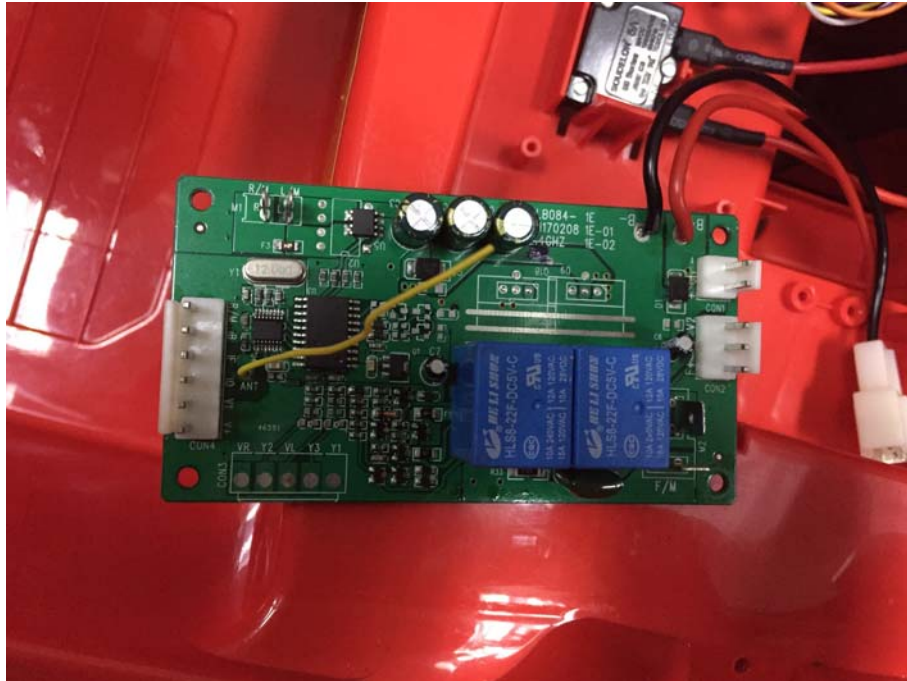


TRF No.: EN55014-1/2\_b

26 of 33

Applicant: DONGGUAN CHI LOK BO TOYS CO LTD  
Model: 656AR

## Internal Photo



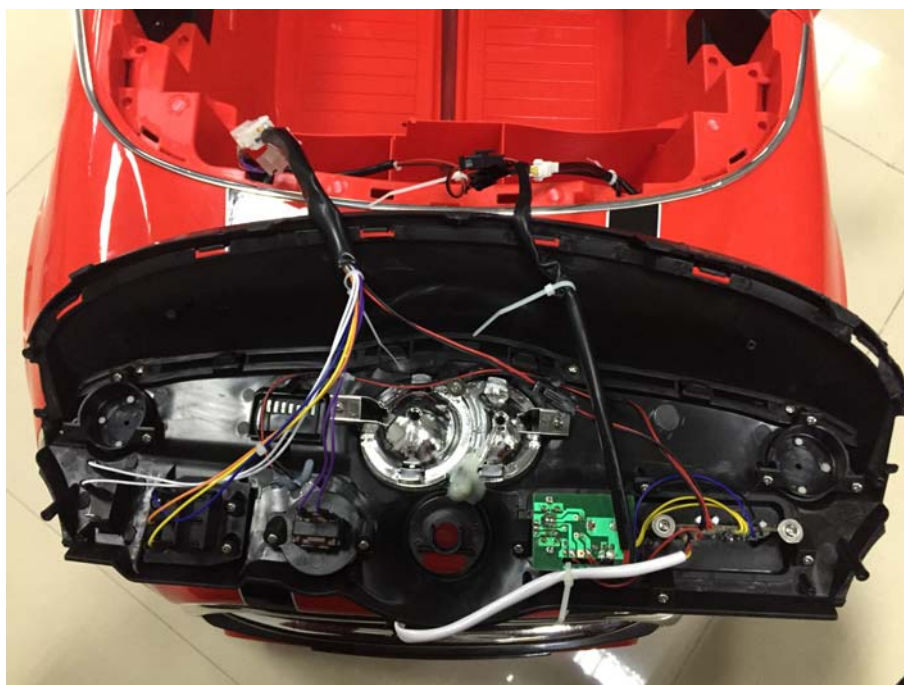
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## Internal Photo



TRF No.: EN55014-1/2\_b

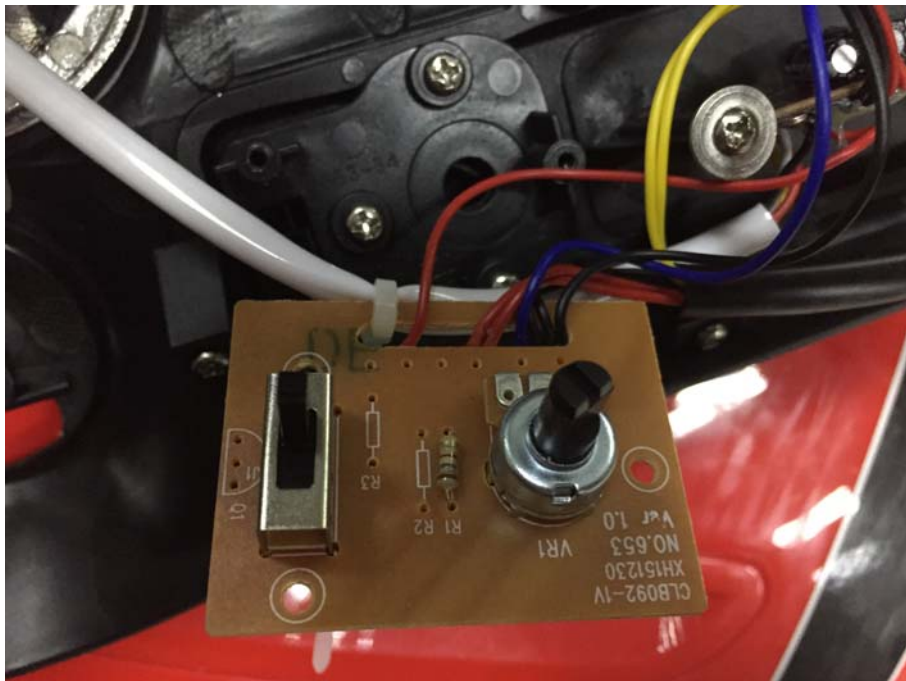
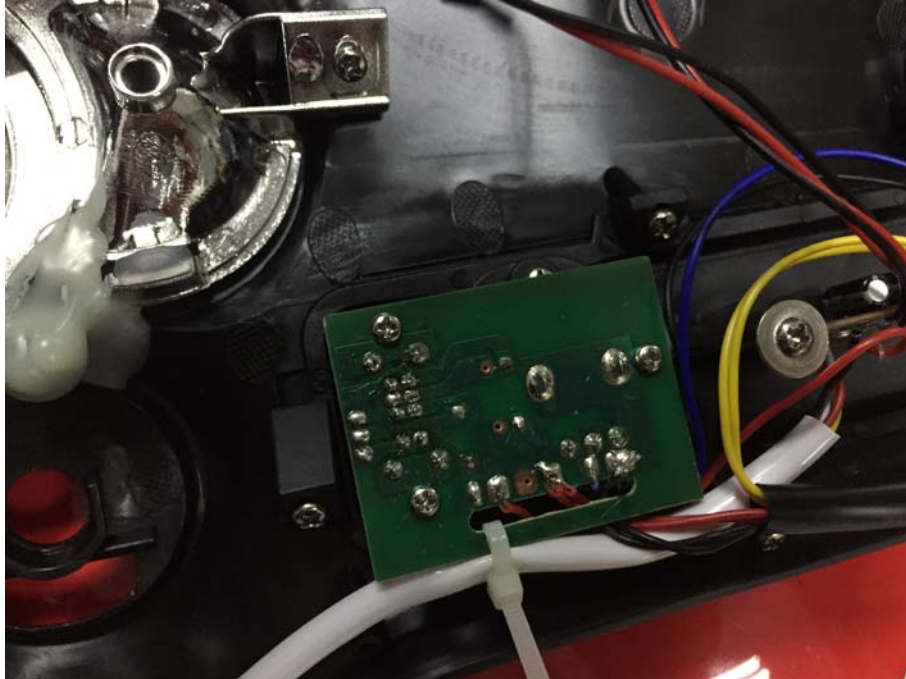
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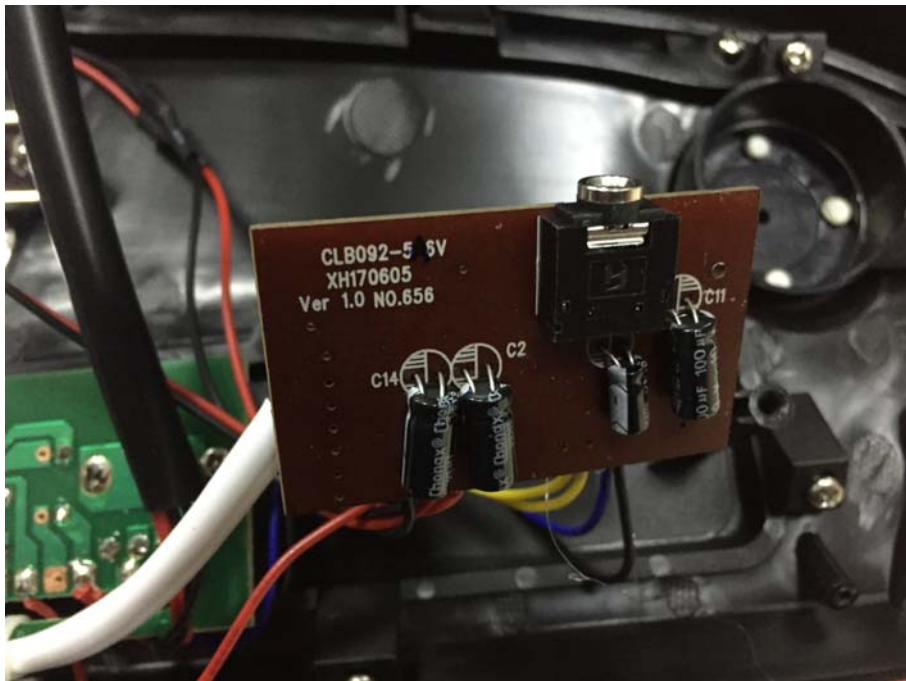
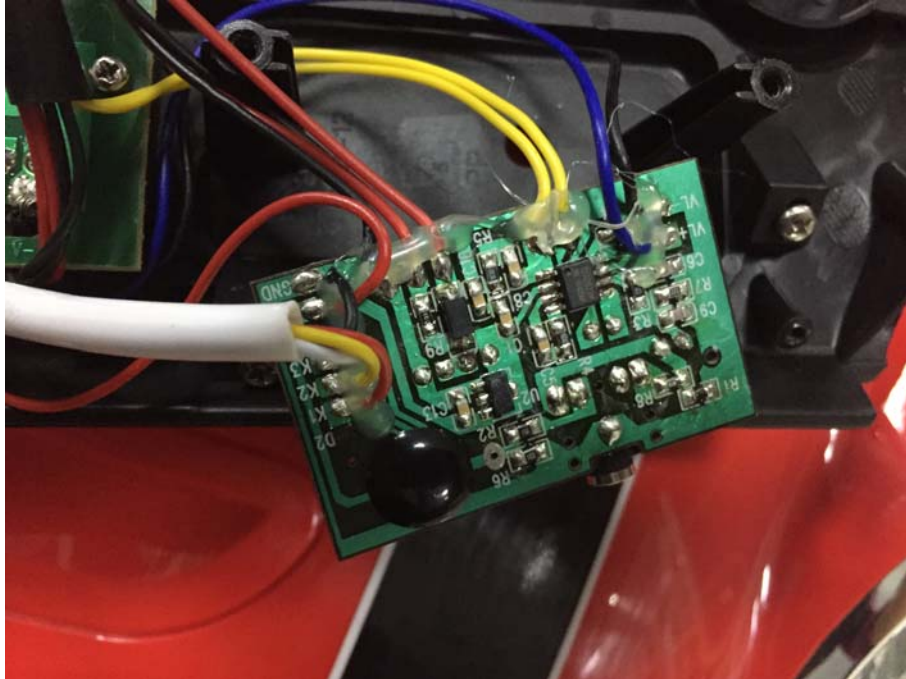
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Model: 656AR

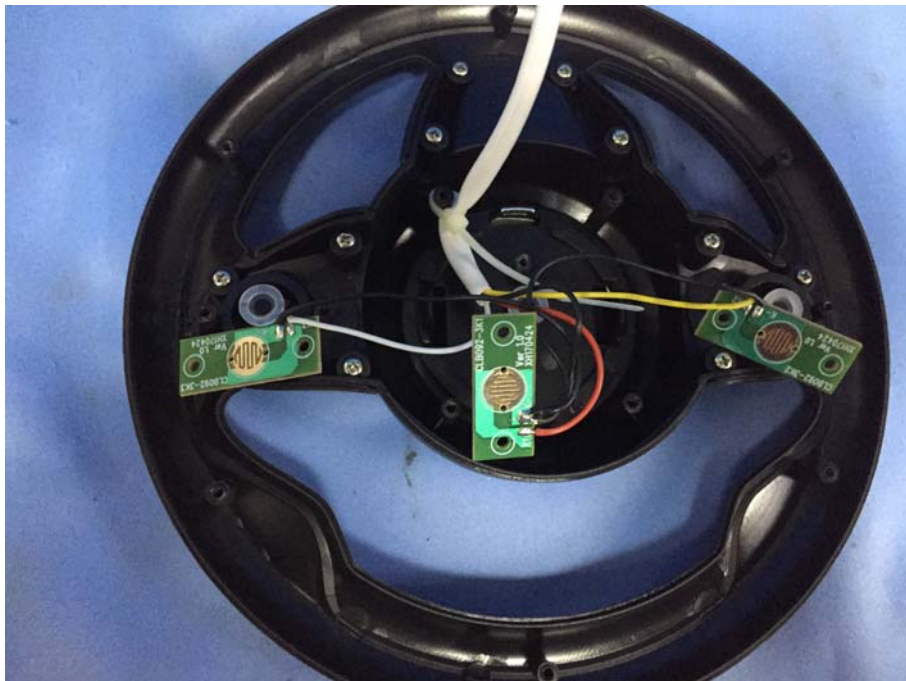
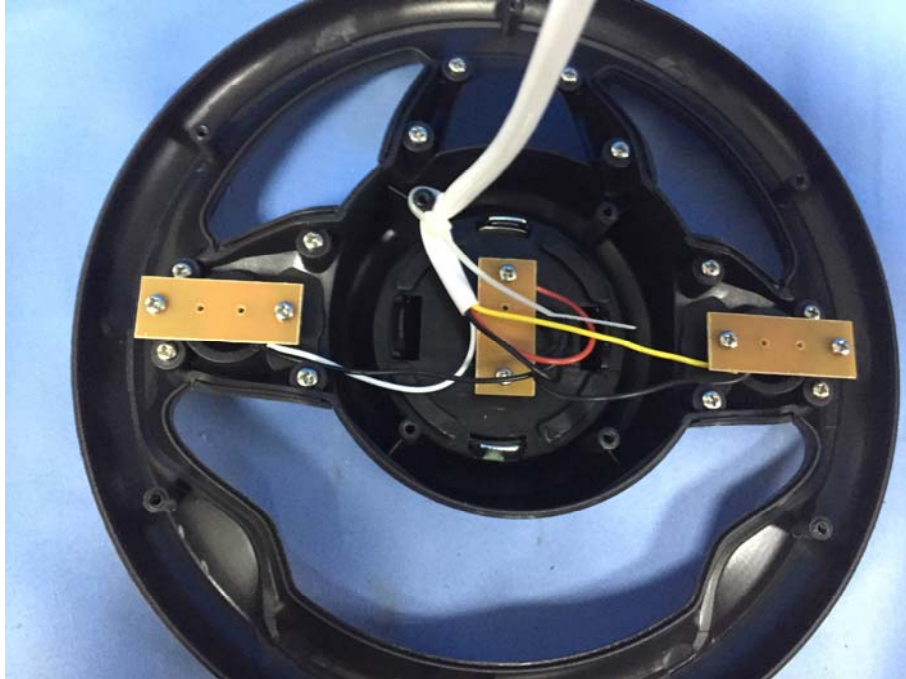
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Applicant: DONGGUAN CHI LOK BO TOYS CO LTD  
Model: 656AR

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Applicant: DONGGUAN CHI LOK BO TOYS CO LTD  
Model: 656AR

## Internal Photo



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TRF No.: EN55014-1/2\_b