Intertek

Valued Quality. Delivered.

EMC VERIFICATION SUMMARY

Report No.: 17030110HKG-001

☒ Toy ☐ Others _____

Model: A2280XX
Additional Model: A2281XX, A2282XX, A2283XX

Applicant: Neat-Oh! International, LLC
790 W Frontage Road,
Suite 303, Northfield,
IL 60093 USA.

Manufacturer: Shen Zhen Wai Lee Fung Plastic Product Company Limited

Product Description: Zipes™ Speed Pipes -
Performance Pack (A2280XX),
Duel Barrel Racing Pack (A2281XX),
Vehicle & Remote Accessory Set (A2282XX),
Totally Tubular Expansion Pack (A2283XX)

Sample Receipt Date: 02 Mar 2017

Test Conducted Date: 02 Mar 2017 to 10 Mar 2017

☒ 1st TEST
☐ 2nd TEST (after modification)

ALL TESTS WERE CONDUCTED IN ACCORDANCE WITH:

Emission

* EN 55014-1:2006+A1+A2
* EN 55032:2012

Immunity

* EN 55014-2 (EN 61000-4-2:1995+A1+A2):1997+A1+A2
* EN 55024 (EN 61000-4-2:2009):2010
* EN 55024 (EN 61000-4-3:2006+A1+A2):2010

Test Result	OK	Not OK	See Remark	Test Result	OK	Not OK	See Remark
EN 55014-1:2006+A1+A2	☒	☐	☐	EN 61000-4-3:2006+A1	☐	☐	☐
EN 55032:2012	☒	☐	☐	EN 61000-4-3:2006+A1+A2	☒	☐	☐
EN 61000-3-2:2014	☐	☐	☐	EN 61000-4-4:2004	☐	☐	☐
EN 61000-3-3:2013	☐	☐	☐	EN 61000-4-5:2006	☐	☐	☐
EN 61000-4-2:1995+A1+A2	☒	☐	☐	EN 61000-4-6:2007	☐	☐	☐
EN 61000-4-2: 2009	☒	☐	☐	EN 61000-4-6:2009	☐	☐	☐
				EN 61000-4-11:2004	☐	☐	☐

When determining of the test conclusion, the Measurement Uncertainty of test has been considered.

Prepared and checked by:

Signed On File
Kan Chung Ting, Clement
Senior Lead Engineer

Approved By:

Digitally signed by Lawrence Chow
Location: Intertek Testing Services Hong Kong Limited

Chow Hin Chung, Lawrence
Assistant Manager

Date : *10 Mar 2017*

- Intertek's standard Terms and Conditions can be obtained at our website http://www.intertek.com/terms/.
- The test report only allows to be revised within the retention period unless further standard or the requirement was noticed
- This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.
- © 2016 Intertek

Intertek Testing Services Hong Kong Ltd.
2/F., Garment Centre, 576 Castle Peak Road, Kowloon, Hong Kong.
Tel: (852) 2173 8888 Fax: (852) 2785 5487 Website: www.hk.intertek-etlsemko.com

EMC Results Conclusion
(with Justification)

RE: EMC Testing Pursuant to EMC Directive 2014/30/EU Performed On the Zipes™ Speed Pipes - Performance Pack (A2280XX), Duel Barrel Racing Pack (A2281XX), Vehicle & Remote Accessory Set (A2282XX), Totally Tubular Expansion Pack (A2283XX),
Model: A2280XX
Additional Model: A2281XX, A2282XX, A2283XX

We tested the Zipes™ Speed Pipes - Performance Pack, Model: A2280XX, 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, EN 55032, EN 55014-2 (EN 61000-4-2), EN 55024 (EN 61000-4-2) and EN 55024 (EN 61000-4-3) standards when tested received.

The Models : A2281XX, A2282XX and A2283XX are the same as the Model : A2280XX in hardware aspect. The models are different in colors only.

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

Intertek Testing Services Hong Kong Ltd.
2/F., Garment Centre, 576 Castle Peak Road, Kowloon, Hong Kong.
Tel: (852) 2173 8888 Fax: (852) 2785 5487 Website: www.hk.intertek-etlsemko.com

LABORATORY MEASUREMENTS

Configuration Information

Equipment Under Test (EUT):	Zipes™ Speed Pipes - Performance Pack
Model:	A2280XX
Serial No.:	Not Labelled
Support Equipment:	HP PC (Provided by Intertek)
Cables:	USB Cable with 64cm long (Provided by Client)
Adaptor:	N/A
Software:	N/A
Rated Voltage:	IR TX: DC 3.0V (2 x 1.5V "AA" batteries), IR RX: Powered by USB port, LED Ball: Non-replaceable batteries

EN 55014-1 & EN 55032 Emission Test

Used Test Equipment

Equipment No.	Equipment	Manufacturer	Model No.	Serial No.
EW-0446	Log Periodic Antenna	EMCO	3146	9905-5219
EW-0954	Biconical Antenna	EMCO	3104C	9911-4872
EW-2500	EMI Test Receiver (9kHz to 3GHz)	ROHDESCHWARZ	ESCI	100847
EW-2372	Spectrum Analyzer	Advantest Corporation	U3772	170600043
EW-2074	14m Double Shield RF Cable (20MHz to 6GHz)	RADIALL	N(m)-RG142-BNC(m) L= 14M	Nil
EW-2528	14m Double Shield RF Cable (20MHz - 6GHz)	RADIALL	nm/br5d/sma 14m	Nil

Applicant: Neat-Oh! International, LLC
Model: A2280XX (IR TX)
Worst Case Operating Mode: IR TX

Report No.: 17030110HKG-001

Data Table

Radiated Scan
Pursuant to EN 55014-1 & EN 55032 : Class B Emissions Requirement

Polarization	Frequency (MHz)	Net at 3m (dBµV/m)	Limit at 10m (dBµV/m)	Margin (dB)
V	35.365	33.8	40	-16.7
V	42.782	34.1	40	-16.4
V	64.123	34.0	40	-16.5
H	127.463	34.6	40	-15.9
H	198.524	34.4	40	-16.1
H	232.015	33.8	47	-23.7

Notes:
1. Quasi-Peak Detector Data.
2. Negative sign (-) in the margin column signify levels below the limit.
3. Frequency range scanned: 30 MHz to 1000 MHz.
4. Only emissions significantly above equipment noise floor are reported.
5. Uncertainty : ± 5.3 dB at a level of confidence of 95%.

Applicant: Neat-Oh! International, LLC
Model: A2280XX (IR RX)
Worst Case Operating Mode: IR RX with Motoring

Report No.: 17030110HKG-001

Data Table

Radiated Scan
Pursuant to EN 55014-1 & EN 55032: Class B Emissions Requirement

Polarization	Frequency (MHz)	Net at 3m (dBµV/m)	Limit at 10m (dBµV/m)	Margin (dB)
H	188.526	34.6	40	-15.9
H	252.198	37.5	47	-20.0
H	308.665	37.1	47	-20.4
H	389.458	36.5	47	-21.0
H	488.137	36.2	47	-21.3
H	589.245	35.8	47	-21.7

Notes:
1. Quasi-Peak Detector Data.
2. Negative sign (-) in the margin column signify levels below the limit.
3. Frequency range scanned: 30 MHz to 1000 MHz.
4. Only emissions significantly above equipment noise floor are reported.
5. Uncertainty : ± 5.3 dB at a level of confidence of 95%.

Applicant: Neat-Oh! International, LLC
Report No.: 17030110HKG-001
Model: A2280XX
Worst Case Operating Mode: PC Charging

Data Table

Radiated Scan
Pursuant to EN 55014-1 & EN 55032: Class B Emissions Requirement

Polarization	Frequency (MHz)	Net at 3m (dBµV/m)	Limit at 10m (dBµV/m)	Margin (dB)
V	45.214	34.0	40	-16.5
V	54.847	33.9	40	-16.6
H	123.432	34.6	40	-15.9
H	189.326	34.1	40	-16.4
H	232.158	34.4	47	-23.1
H	272.465	33.9	47	-23.6

Notes:
1. Quasi-Peak Detector Data.
2. Negative sign (-) in the margin column signify levels below the limit.
3. Frequency range scanned: 30 MHz to 1000 MHz.
4. Only emissions significantly above equipment noise floor are reported.
5. Uncertainty : ± 5.3 dB at a level of confidence of 95%.

Applicant: Neat-Oh! International, LLC
Model: A2280XX (LED Ball)
Worst Case Operating Mode: Flashing LED On

Report No.: 17030110HKG-001

Data Table

Radiated Scan
Pursuant to EN 55014-1 & EN 55032: Class B Emissions Requirement

Polarization	Frequency (MHz)	Net at 3m (dBµV/m)	Limit at 10m (dBµV/m)	Margin (dB)
V	45.203	35.2	40	-15.3
V	54.625	34.9	40	-15.6
V	117.564	34.2	40	-16.3
H	165.985	34.5	40	-16.0
H	226.348	34	40	-16.5
H	288.456	33.9	47	-23.6

Notes:
1. Quasi-Peak Detector Data.
2. Negative sign (-) in the margin column signify levels below the limit.
3. Frequency range scanned: 30 MHz to 1000 MHz.
4. Only emissions significantly above equipment noise floor are reported.
5. Uncertainty : ± 5.3 dB at a level of confidence of 95%.

EN 55032
RFI Voltage Test

Used Test Equipment

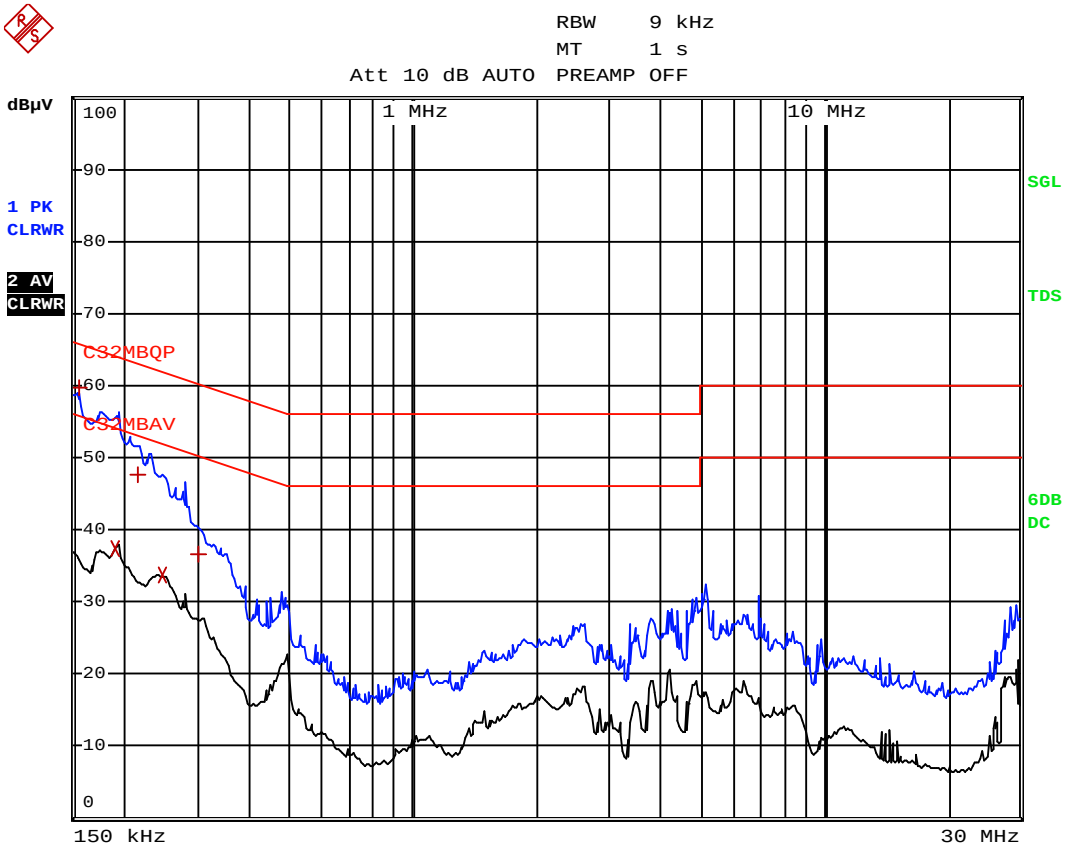
Equipment No.	Equipment	Manufacturer	Model No.	Serial No.
EW-2666	EMI Test Receiver (9kHz to 7GHz)	ROHDESCHWARZ	ESCI7	100793
EW-0192	Artificial Mains	ROHDESCHWARZ	ESH3-Z5	828874/016
EW-2451	RF Cable 80cm (RG142)	RADIALL	bnc m st / 142 / bnc m st 80cm	Nil
EW-3248	Pulse Limiter	ROHDESCHWARZ	ESH3-Z2	102339

Notes:
1. The following graph and table were recorded for the tests on the mains terminal.
2. A graph of Ctrl. No.: 3.2.1 consisting of one page and a data table of Ctrl. No.: 3.2.2 consisting of one page are attached.
3. Uncertainty: ±4.2 dB at a level of confidence of 95%

Applicant: Neat-Oh! International, LLC
Model: A2280XX

Report No.: 17030110HKG-001

Worst Case: PC Charging



17030110HKG-001 COMMENT

Date: 8.MAR.2017 12:30:31

Applicant: Neat-Oh! International, LLC
Model: A2280XX

Report No.: 17030110HKG-001

Worst Case: PC Charging

EDIT PEAK LIST (Final Measurement Results)

Trace1: C32MBQP
Trace2: C32MBAV
Trace3: ---

	TRACE	FREQUENCY	LEVEL dBµV		DELTA LIMIT dB
1	Quasi Peak	154.5 kHz	59.60	N gnd	-6.14
2	CISPR Average	190.5 kHz	37.50	N gnd	-16.50
1	Quasi Peak	217.5 kHz	47.70	L1 gnd	-15.20
2	CISPR Average	249 kHz	33.63	L1 gnd	-18.15
1	Quasi Peak	298.5 kHz	36.74	N gnd	-23.54

17030110HKG-001 COMMENT

Date: 8.MAR.2017 12:30:15

EN 61000-4-2
Electrostatic Discharge

Test Summary (Pursuant to EN 55014-2)

Basic Standard:		EN 61000-4-2
Port:		Enclosure
Required Performance Criterion:		C
Level:		±8.0 kV (Air Discharge) ±4.0 kV (Contact Discharge) ±4.0 kV (Indirect Contact Discharge)
Time Between Each Discharge:		1 second
Test Mode:		IR TX: Stand-by and Operating (IR TX and Light), IR RX: Stand-by and Operating (Motoring, Light and IR RX), LED Ball: Stand-by and Operating (Flashing Light)
Test Setup:		Table-Top
Test of Post-installation		N/A
Test Point:	Air Discharge :	All insulated enclosure and seams
		All the points where contact discharge cannot be applied
	Contact :	All conductive surfaces of the EUT
	HCP :	All sides of the EUT
	VCP :	Four faces of the EUT

Used Test Equipment

Equipment No.	Equipment	Manufacturer	Model No.	Serial No.
EW-2282	ESD Gun	Schaffner	NSG435	5888

Test Results

EN 61000-4-2
Electrostatic Discharge

Discharge Type	No. of Discharge	Applied Voltage	Result (Pursuant to EN 55014-2 criterion C)
Contact Discharge	20	+4kV	OK
		-4kV	OK
Air Discharge	20	+8kV	OK
		-8kV	OK
Indirect HCP Discharge	20	+4kV	OK
		-4kV	OK
Indirect VCP Discharge	20	+4kV	OK
		-4kV	OK

☒ There was no observable degradation in performance.

EN 61000-4-2
Electrostatic Discharge

Test Summary (Pursuant to EN 55024)

Basic Standard:		EN 61000-4-2
Port:		Enclosure
Required Performance Criterion:		B
Limit:		±8.0 kV (Air Discharge) ±4.0 kV (Contact Discharge) ±4.0 kV (Indirect Contact Discharge)
Time Between Each Discharge		1 second
Test Mode:		PC Charging
Test Setup:		Table-Top
Test of Post-installation		N/A
Test Point:	Air Discharge :	All insulated enclosure and seams
		All the points where contact discharge cannot be applied
	Contact :	All conductive surfaces of the EUT
	HCP :	All sides of the EUT
	VCP :	Four faces of the EUT

Used Test Equipment

Equipment No.	Equipment	Manufacturer	Model No.	Serial No.
EW-2282	ESD Gun	Schaffner	NSG435	5888

Test Results

EN 61000-4-2
Electrostatic Discharge

Discharge Type	No. of Discharge	Applied Voltage	Result (Pursuant to EN 55024 criterion B)
Contact Discharge	50	+4kV	OK
		-4kV	OK
Air Discharge	20	+8kV	OK
		-8kV	OK
Indirect HCP Discharge	50	+4kV	OK
		-4kV	OK
Indirect VCP Discharge	50	+4kV	OK
		-4kV	OK

☒ There was no observable degradation in performance.

EN 61000-4-3
Radiated Immunity

Test Summary (Pursuant to EN 55024)

Basic Standard:	EN 61000-4-3
Port:	Enclosure
Required Performance Criterion:	A
Limit:	3.0 V/m (rms)
Test Modulation:	1kHz, 80% AM
Frequency:	80 MHz to 1000 MHz
Dwell Time:	1s
Frequency Step:	1%
Temperature:	21.0°C
Relative Humidity:	48.0%
Test Facility:	Full Anechoic Chamber
Antenna Polarization:	Horizontal and Vertical
Type of Antenna:	Trilog
Test Distance:	3m
Test Mode:	USB Charging
Test Setup:	Table-Top
Size of the EUT	L: 7.0 (cm) × W: 2.0 (cm) × H: 2.0 (cm)

Used Test Equipment

Equipment No.	Equipment	Manufacturer	Model No.	Serial No.
EW-3251	Signal Generator (100kHz to 6GHz)	ROHDESCHWARZ	SMB100A	113690
EW-1568	Anechonic Chamber	Universal Shielding Corp.	IEC/EN 61000-4-3	Nil
EW-2110	RF Power Amplifier	OPHIR RF Inc. (USA)	5172FE	1011
EW-1902	Trilog Super Broadband Test Antenna 30MHz - 3000MHz	SCHWARZBECK (Germany)	VULB 9163	9163-199

Test Results

EN 61000-4-3
Radiated Immunity

Frequency (MHz)	Exposed Side	Field Strength (V/m)	Result (Pursuant to EN 55024 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

☐ EUT stopped operation and could / could not be reset by operator.

☐ EUT was in abnormal operation:
- operation mode was changed from _____ to _____ at V/m.

☐ _____

External Photo of EUT

Photo – Model: A2280XX (IR TX) (Blue)

Photo – Model: A2280XX (IR RX) (Blue)

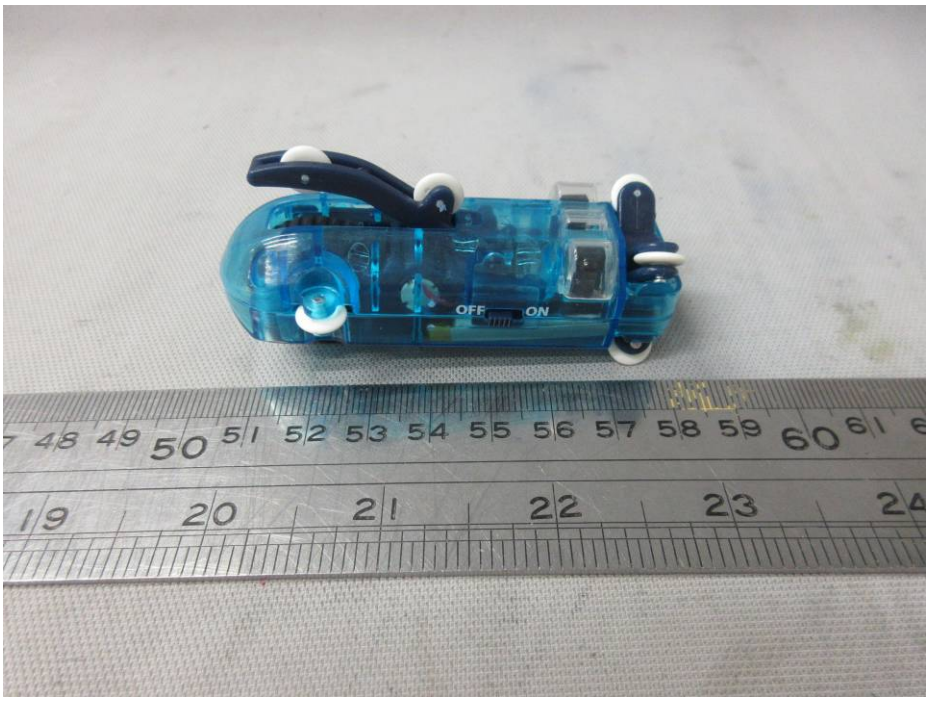


Photo – Model: A2280XX (IR TX) (Yellow)

Photo – Model: A2280XX (IR RX) (Yellow)

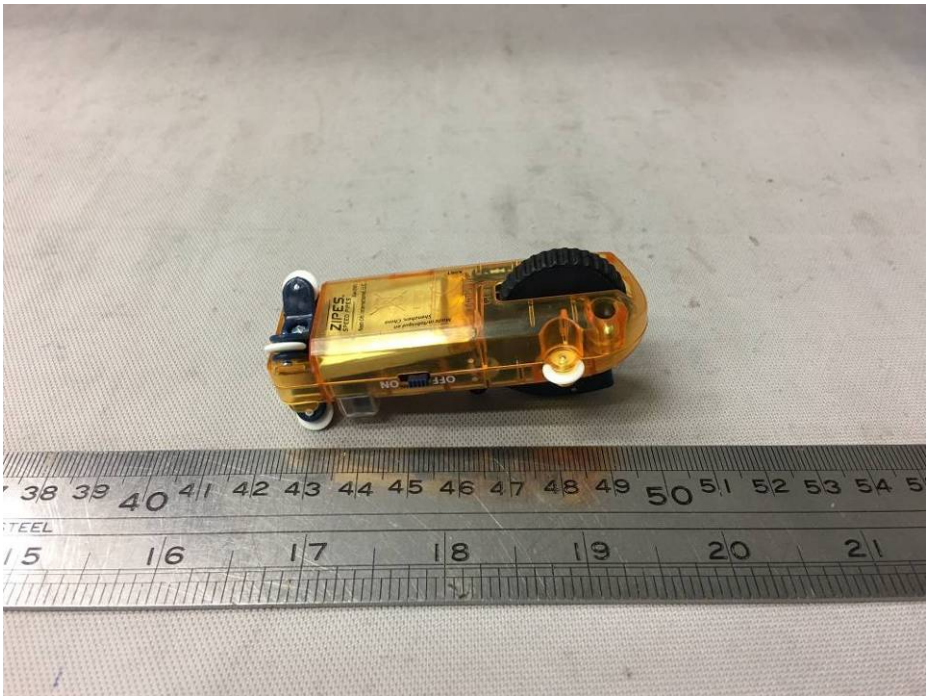


Photo – Model: A2280XX (IR TX) (Green)

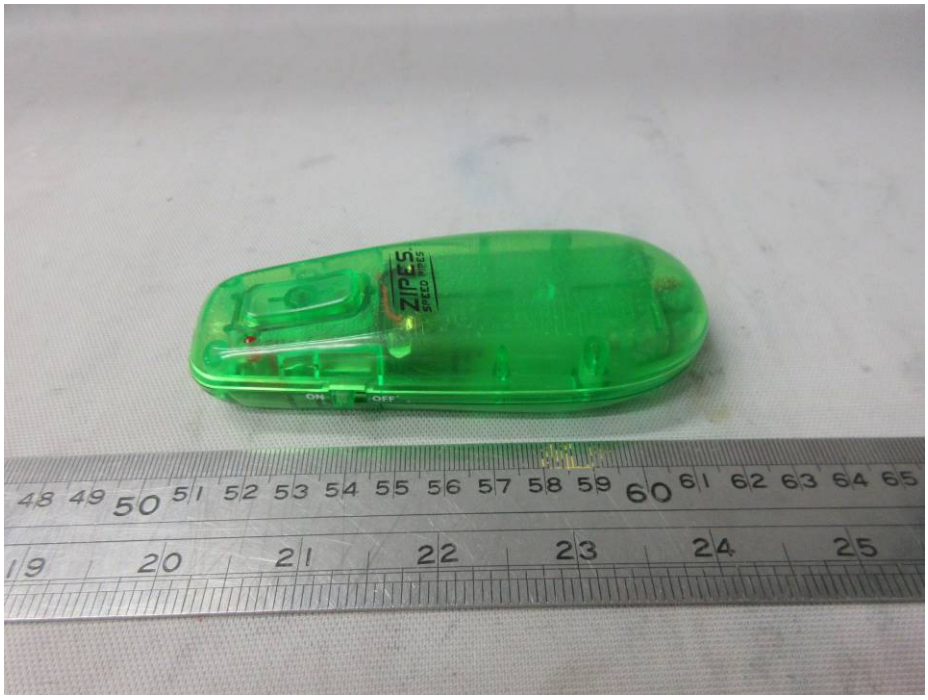


Photo – Model: A2280XX (IR RX) (Green)

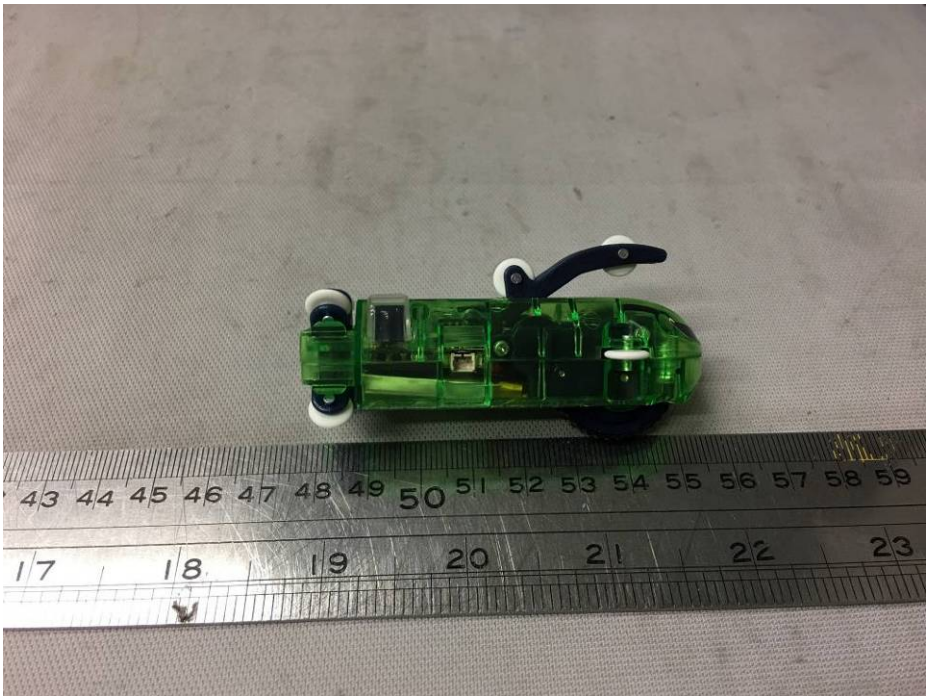


Photo – Model: A2280XX (IR TX) (Red)

Photo – Model: A2280XX (IR RX) (Red)

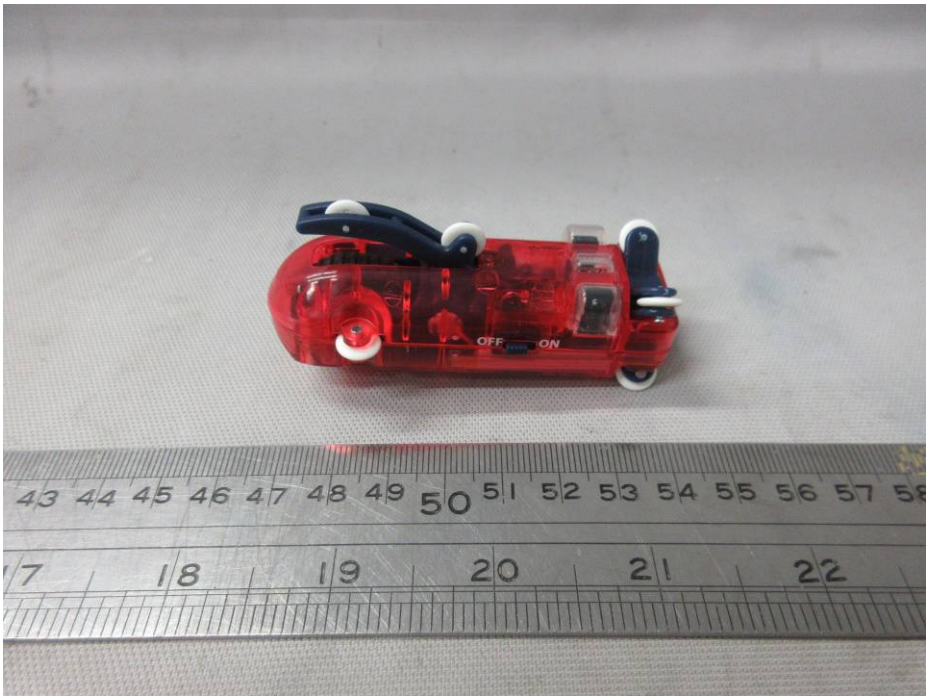
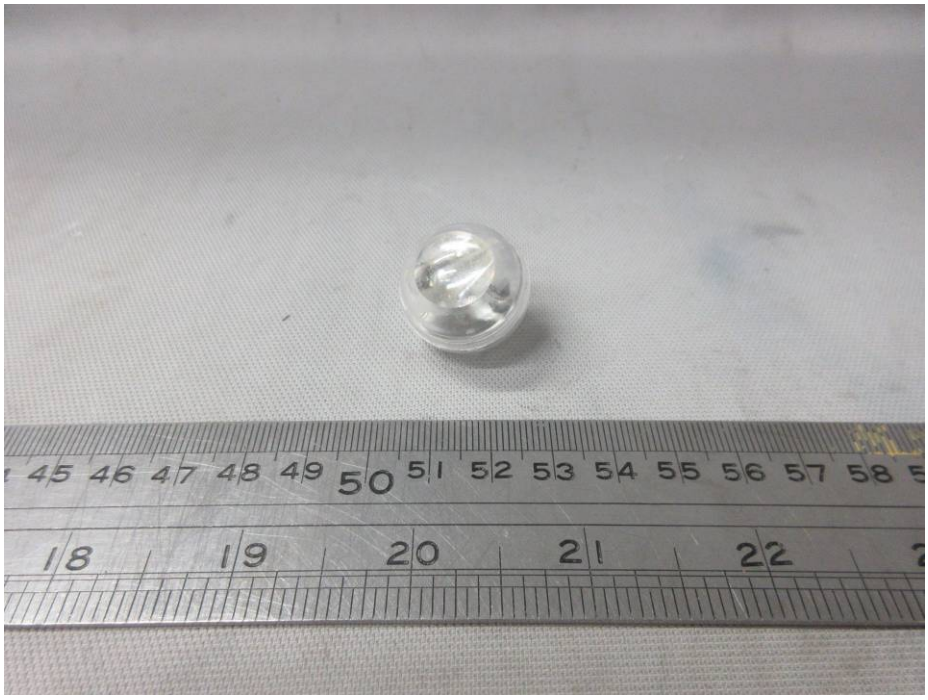


Photo – Model: A2280XX (LED Ball)



---- E N D ----

Intertek

Valued Quality. Delivered.

Guidelines On Issuing EC Declaration Of Conformity Pursuant To EMC Directive

To attest the compliance of apparatus with the relevant EMC Directive, an EC Declaration of Conformity shall be issued by the manufacturer or his authorised representative in the European Community, and the attached EC Declaration of Conformity template contains all mandatory requirements pursuant to EMC Directive 2014/30/EU. Please follow the steps listed below when preparing an EC Declaration of Conformity:

1. Provide the name and address of the manufacturer;
2. Provide the name and address of the authorised representative in the European Community, where applicable;
3. For Apparatus' Description, specify the brand name and any other information allowing for the description of the apparatus to which the EC Declaration of Conformity refers;
4. For Apparatus' Identification, specify the type, batch, serial number or any other information allowing for the identification of the apparatus to which the EC Declaration of Conformity refers;
5. Specify the relevant EMC Directive with which the apparatus are in compliance;
6. List all dated specifications under which conformity is declared to ensure the conformity of the apparatus with the relevant EMC Directive, you may refer the standards shown in the Test Verification of Conformity issued by Intertek;
7. Sign the EC Declaration of Conformity by the person empowered to bind the manufacturer or his authorised representative in the European Community. The Name, Position and Company of this person shall be specified for identification;
8. State the date of issuing the EC Declaration of Conformity.

NOTES:

a. The EC Declaration of Conformity shall be held by the manufacturer or his authorised representative in the European Community at the disposal of the competent authorities for a period of at least ten years after the date on which such apparatus was last manufactured. If neither the manufacturer nor his authorised representative is established within the European Community, the obligation to hold the EC Declaration of Conformity at the disposal of the competent authorities shall lie with the person who places the apparatus on the European Community market.

b. If EMC Directive 2014/30/EU is applied, the manufacturer shall draw up technical documentation according to Annex IV of this EMC Directive; and in addition to CE Marking, the apparatus shall also meet other marks and information as stated in Article 9 of the same EMC Directive.

c. The EC Declaration of Conformity guidelines and template are for your reference only, you shall ensure that the EMC Directive 2014/30/EU is applied correctly.

EC Declaration of Conformity

I, the undersigned,

Manufacturer's Name: _____

Manufacturer's Address: _____

_____

Authorised Representative's Name: _____

Authorised Representative's Address: _____

_____

certify and declare under our sole responsibility that the following apparatus:

Apparatus' Description: _____

Apparatus' Identification: _____

conforms with the essential requirements of

Directive: _____

based on the following specifications applied:

Dated Specifications: _____

_____

_____

and therefore complies with the essential requirements and provisions of the EMC Directive.

Signature: _____

Full Name: _____

Position: _____

Company: _____

Date: _____