TEST REPORT

Report No.: DG8211014-52632E Date: December 03, 2021

Guangdong A-OK Technology Grand Development Co.,Ltd.
Hexing Road South side, Sanhe Economic Development Zone, Huiyang,Huizhou,China

Report on the submitted samples said to be:

Sample Name:	tubular motor
Style/Item No.:	AM36
Country of Origin:	China
Sample Receiving Date:	October 14,2021
Testing Period:	October 14,2021 - December 03,2021
Result:	Please refer to next page(s).

Signed for and on behalf of

BACL

Checked by: Jane Xu

Approved by: Bensen Huang

TEST REPORT

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Summary of Test Result:

TEST REQUEST	CONCLUSION
A RoHS Directive 2011/65/EU and its amendment directives (EU) 2015/863	Pass
A.1 XRF screening test	Please refer to next page(s).
A.2 Wet Chemical Testing	
A.2.1 Total Lead content	Pass
A.2.2 Chromium VI (CrVI) content	Pass
A.2.3 PBBs & PBDEs content	Pass
A.3 Phthalates(DBP, BBP, DEHP, DIBP)content	Pass

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A RoHS Directive 2011/65/EU and its amendment directives (EU) 2015/863

A.1 XRF screening test

Test method: IEC 62321-3-1:2013

Seq No.	Tested Part(s)	Result				
		Pb	Cd	Hg	Cr	Br
(1)	Black soft plastic with white printing(cable jacket, tubular motor,semi-product)	BL	BL	BL	BL	BL
(2)	Red soft plastic(wire jacket, tubular motor, semi-product)	BL	BL	BL	BL	BL
(3)	Black soft plastic(wire jacket, tubular motor, semi-product)	BL	BL	BL	BL	BL
(4)	Coppery metal(wire, tubular motor)	BL	BL	BL	BL	---
(5)	Silvery solder(wire, tubular motor)	BL	BL	BL	BL	---
(6)*	Silvery metal(foil, tubular motor)	BL	BL	BL	IN	---
(7)	Dull silvery metal(foil, capacitor, green PCB)	BL	BL	BL	BL	---
(8)	Transparent plastic(sleeve, inductor, tubular motor)	BL	BL	BL	BL	BL
(9)	Red plated silvery metal(coil, inductor, tubular motor)	BL	BL	BL	BL	---
(10)	Coppery plated silvery metal(coil, inductor, tubular motor)	BL	BL	BL	BL	---
(11)	White body(core, inductor, tubular motor)	BL	BL	BL	BL	BL
(12)*	Red PCB(PCB, tubular motor)	BL	BL	BL	BL	IN
(13)	Silvery solder(red PCB, tubular motor)	BL	BL	BL	BL	---
(14)	Blue body(capacitor,PCB, tubular motor)	BL	BL	BL	BL	BL
(15)*	Green PCB(PCB, tubular motor)	BL	BL	BL	BL	IN
(16)*	Silvery solder(green PCB, tubular motor)	OL	BL	BL	BL	---
(17)	Brown body(capacitor, green PCB, tubular motor)	BL	BL	BL	BL	BL
(18)	Black body(fuse, green PCB, tubular motor)	BL	BL	BL	BL	BL
(19)	Lt.blue/multicolor body(resistor, green PCB, tubular motor)	BL	BL	BL	BL	BL
(20)	Black body(triode, green PCB, tubular motor)	BL	BL	BL	BL	BL
(21)	Black body(IC, green PCB, tubular motor)	BL	BL	BL	BL	BL
(22)	Black body(resistor, green PCB, tubular motor)	BL	BL	BL	BL	BL
(23)	Black soft plastic with brown printing(sleeve, capacitor, green PCB)	BL	BL	BL	BL	BL
(24)	Black soft Rubber(base, capacitor, green PCB)	BL	BL	BL	BL	BL
(25)	Silvery metal(shell, capacitor, green PCB)	BL	BL	BL	BL	---
(26)	Silvery metal(foil, capacitor, green PCB)	BL	BL	BL	BL	---
(27)	Brown paper with liquid(film, capacitor, green PCB)	BL	BL	BL	BL	BL
(28)	Silvery metal(connector, capacitor, green PCB)	BL	BL	BL	BL	---

Seq No.	Tested Part(s)	Result				
		Pb	Cd	Hg	Cr	Br
(29)	Silvery metal(pin, capacitor, green PCB)	BL	BL	BL	BL	---
(30)*	Black plastic(case, relay, green PCB)	BL	BL	BL	BL	IN
(31)	Silvery metal(pin, relay, green PCB)	BL	BL	BL	BL	---
(32)	Golden metal(plate, relay, green PCB)	BL	BL	BL	BL	---
(33)	Silvery metal(rivet, relay, green PCB)	BL	BL	BL	BL	---
(34)	Golden metal(contact plate, relay, green PCB)	BL	BL	BL	BL	---
(35)	Silvery metal(contact plate, relay, green PCB)	BL	BL	BL	BL	---
(36)	Coppery metal(coil, relay, green PCB)	BL	BL	BL	BL	---
(37)	Silvery metal(shaft, relay, green PCB)	BL	BL	BL	BL	---
(38)	Silvery metal(small screw, gear case, tubular motor)	BL	BL	BL	BL	---
(39)	Black plastic(shell, gear case, tubular motor)	BL	BL	BL	BL	BL
(40)	Silvery metal(big screw, gear case, tubular motor)	BL	BL	BL	BL	---
(41)	Black soft plastic(gasket, gear case, tubular motor)	BL	BL	BL	BL	BL
(42)*/*1	Golden metal(nut, gear case, tubular motor)	OL	BL	BL	BL	---
(43)*	Black metal(limited ring, gear case, tubular motor)	BL	BL	BL	IN	---
(44)*	Silvery metal(small washer, gear case, tubular motor)	BL	BL	BL	IN	---
(45)*	Silvery metal(big washer, gear case, tubular motor)	BL	BL	BL	IN	---
(46)	Silvery metal(ring, gear case, tubular motor)	BL	BL	BL	BL	---
(47)*	Silvery metal(main shaft, gear case, tubular motor)	BL	BL	BL	IN	---
(48)*	Silvery metal(short shaft, gear case, tubular motor)	BL	BL	BL	IN	---
(49)	Silvery metal(gear base, gear case, tubular motor)	BL	BL	BL	BL	---
(50)	Translucent plastic(gear, gear case, tubular motor)	BL	BL	BL	BL	BL
(51)	Silvery metal(gear, gear case, tubular motor)	BL	BL	BL	BL	---
(52)	White plastic(case, gear case, tubular motor)	BL	BL	BL	BL	BL
(53)	Silvery metal(screw, motor, tubular motor)	BL	BL	BL	BL	---
(54)	Black plastic(screw holder, motor, tubular motor)	BL	BL	BL	BL	BL
(55)	Silvery metal(case, motor, tubular motor)	BL	BL	BL	BL	---
(56)	Silvery solder(case, motor, tubular motor)	BL	BL	BL	BL	---
(57)	Silvery metal(endbell, motor, tubular motor)	BL	BL	BL	BL	---
(58)	Dull silvery metal(ring, endbell, motor)	BL	BL	BL	BL	---
(59)*	Silvery metal(ring fixer, endbell, motor)	BL	BL	BL	IN	---

Seq No.	Tested Part(s)	Result				
		Pb	Cd	Hg	Cr	Br
(60)	Black metal(motor spring, motor, tubular motor)	BL	BL	BL	BL	---
(61)*	Black magnet(core, motor, tubular motor)	BL	BL	BL	IN	BL
(62)*/*1	Golden metal(pillar, motor, tubular motor)	OL	BL	BL	BL	---
(63)	Silvery metal(shaft, motor, tubular motor)	BL	BL	BL	BL	---
(64)	Silvery metal(ring, motor, tubular motor)	BL	BL	BL	BL	---
(65)	Black soft plastic(washer, motor, tubular motor)	BL	BL	BL	BL	BL
(66)	Golden metal(ring, motor, tubular motor)	BL	BL	BL	BL	---
(67)	Coppery metal(coil, motor, tubular motor)	BL	BL	BL	BL	---
(68)*	Silvery metal with green coating(plate, motor, tubular motor)	BL	BL	BL	IN	---
(69)	Black plastic(tube, motor, tubular motor)	BL	BL	BL	BL	BL
(70)	Coppery metal(connector, motor, tubular motor)	BL	BL	BL	BL	---
(71)	White plastic(commutator, motor, tubular motor)	BL	BL	BL	BL	BL
(72)	White plastic(inner end bell, motor, tubular motor)	BL	BL	BL	BL	BL
(73)	Coppery metal(brush, motor, tubular motor)	BL	BL	BL	BL	---
(74)	Black metal(block, motor, tubular motor)	BL	BL	BL	BL	---
(75)	Black soft plastic(spacer, motor, tubular motor)	BL	BL	BL	BL	BL
(76)	Golden metal(brush fixer, motor, tubular motor)	BL	BL	BL	BL	---
(77)	Black metal(stud, motor, tubular motor)	BL	BL	BL	BL	---
(78)	Dull silvery metal(short tube, tubular motor)	BL	BL	BL	BL	---
(79)	Silvery metal(middle tube, tubular motor)	BL	BL	BL	BL	---
(80)*/*1	Silvery metal(nut, middle tube, tubular motor)	OL	BL	BL	BL	---
(81)*/*1	Silvery metal(connector, middle tube, tubular motor)	OL	BL	BL	BL	---
(82)*	Silvery metal(cover, middle tube, tubular motor)	BL	BL	BL	IN	---
(83)	Golden metal(pin, red PCB, tubular motor)	BL	BL	BL	BL	---
(84)	Silvery metal(long tube, tubular motor)	BL	BL	BL	BL	---
(85)*	Silvery metal(screw, long tube, tubular motor)	BL	BL	BL	IN	---
(86)	Silvery metal(cover, long tube, tubular motor)	BL	BL	BL	BL	---
(87)*	Silvery metal(inner ring, cover, long tube)	BL	BL	BL	IN	---
(88)	Blue plastic(inner ring, cover, long tube)	BL	BL	BL	BL	BL
(89)*	Silvery metal(inner tube, long tube, tubular motor)	BL	BL	BL	IN	---
(90)	Silvery metal(shaft, long tube, tubular motor)	BL	BL	BL	BL	---

Seq No.	Tested Part(s)	Result				
		Pb	Cd	Hg	Cr	Br
(91)	Silvery metal(spiral shaft, long tube, tubular motor)	BL	BL	BL	BL	---
(92)	White plastic(connector, long tube, tubular motor)	BL	BL	BL	BL	BL
(93)*/*1	Golden metal(connector, long tube, tubular motor)	OL	BL	BL	BL	---
(94)	Black soft plastic(ring, long tube, tubular motor)	BL	BL	BL	BL	BL
(95)*	Silvery metal(ring, long tube, tubular motor)	BL	BL	BL	IN	---
(96)*/*1	Golden metal(connector, bearing, long tube)	OL	BL	BL	BL	---
(97)	Silvery metal(bearing cover, long tube, tubular motor)	BL	BL	BL	BL	---
(98)*	Silvery metal(outer ring, bearing, long tube)	BL	BL	BL	IN	---
(99)*	Silvery metal(inner ring, bearing, long tube)	BL	BL	BL	IN	---
(100)	Transparent liquid(lube, bearing, long tube)	BL	BL	BL	BL	BL
(101)	Silvery metal(ball, bearing, long tube)	BL	BL	BL	BL	---
(102)*	Silvery metal(ball fixer, bearing, long tube)	BL	BL	BL	IN	---
(103)	Dull silvery metal(pillar, long tube, tubular motor)	BL	BL	BL	BL	---
(104)	Silvery metal(nut, long tube, tubular motor)	BL	BL	BL	BL	---
(105)	Silvery metal(washer, long tube, tubular motor)	BL	BL	BL	BL	---

Note:
--- = Not Applicable
* = Screening by XRF and detected by chemical method. The test results of chemical method please refer to next pages.
*1 = As claimed by the material declaration submitted by the client, the materials of the sample No.42,62,80,81,93, 96 are copper alloy. And according to RoHS directive2011/65/EU and its amendments, Leads are exempted as an alloying element in Copper containing up to 4% (40000ppm) by weight.
- The test result of sample (1)-(3) is shown retest result, and the retest sample was provided by client on November 30, 2021.

Remark:

i Result were obtained by XRF for primary screening, and further chemical testing by ICP (for Cd, Pb, Hg), UV-Vis (for Cr(VI)) and GC-MS (for PBBs, PBDEs) are recommended to be performed, if the concentration exceeds the below warning value according to IEC62321-3-1:2013.

Element	Unit	Polymers	Metal	Composite Material
Cd	mg/kg	BL≤70-3σ<X <130+3σ≤OL	BL≤70-3σ<X <130+3σ≤OL	BL≤50-3σ<X <150+3σ≤OL
Pb	mg/kg	BL≤700-3σ<X <1300+3σ≤OL	BL≤700-3σ<X <1300+3σ≤OL	BL≤500-3σ<X <1500+3σ≤OL
Hg	mg/kg	BL≤700-3σ<X <1300+3σ≤OL	BL≤700-3σ<X <1300+3σ≤OL	BL≤500-3σ<X <1500+3σ≤OL
Cr	mg/kg	BL≤700-3σ<X	BL≤700-3σ<X	BL≤500-3σ<X
Br	mg/kg	BL≤300-3σ<X	--	BL≤250-3σ<X

Note:
BL = Below Limit
OL = Over Limit
IN / X = Inconclusive (questionable, need further chemical analysis)

ii The XRF screening test for RoHS elements – The reading may be different to the actual content in the sample be of non-uniformity composition.

iii The maximum permissible limit is quoted from the RoHS directive 2011/65/EU:

RoHS Restricted Substances	Maximum Concentration Value (mg/kg) (by weight in homogenous materials)
Cadmium (Cd)	100
Lead (Pb)	1000
Mercury (Hg)	1000
Hexavalent Chromium (Cr(VI))	1000
Polybrominated biphenyls (PBBs)	1000
Polybrominated diphenylethers (PBDEs)	1000

Disclaimers:

This XRF Screening report is for reference purposes only. The applicant shall make its/his/her own judgment as to whether the information provided in this XRF screening report is sufficient for its/his/her purposes.

The result shown in this XRF screening report will differ based on various factors, including but not limited to, the sample size, thickness, area, surface flatness, equipment parameters and matrix effect (e.g. plastic, rubber, metal, glass, ceramic etc.). Further wet chemical pre-treatment with relevant chemical equipment analysis are required to obtain quantitative data.

A.2 Wet Chemical Testing

A.2.1 Total Lead content

Test method: IEC 62321-5:2013

Item	Unit	RL	Result			
			(16)	(42)	(62)	(80)
Lead(Pb)	mg/kg	10	206	20576	17745	24813

Item	Unit	RL	Result		
			(81)	(93)	(96)
Lead(Pb)	mg/kg	10	22766	34851	34489

Note:
- N.D. = Not Detected or less than RL
- RL = Report Limit
- mg/kg = ppm

A.2.2 Chromium VI (CrVI) content

Test method: IEC 62321-7-2:2017

Item	Unit	RL	Result	Limit
			(61)	
hexavalent chromium(Cr VI)	mg/kg	10	N.D.	1000
Conclusion	/	/	**Pass**	/

Test method: IEC 62321-7-1:2015

Item	Unit	RL	Result						Limit
			(6)	(43)	(44)	(45)	(47)	(48)	
hexavalent chromium(Cr VI)	µg/cm²	0.10	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	See Remark
Conclusion	/	/	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	/

Item	Unit	RL	Result					Limit
			(59)	(68)	(82)	(85)	(87)	
hexavalent chromium(Cr VI)	µg/cm²	0.10	N.D.	N.D.	N.D.	N.D.	N.D.	See Remark
Conclusion	/	/	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	/

Item	Unit	RL	Result					Limit
			(89)	(95)	(98)	(99)	(102)	
hexavalent chromium(Cr VI)	µg/cm²	0.10	N.D.	N.D.	N.D.	N.D.	N.D.	See Remark
Conclusion	/	/	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	/

Limit Remark:

a. The sample is positive for CrVI if the CrVI concentration is greater than 0.13μg/cm2. The sample coating is considered to contain CrVI
b. The sample is negative for CrVI if CrVI is ND (concentration less than 0.10μg/cm2). The coating is onsidered a non-CrVI based coating
c. The result between 0.10μg/cm2 and 0.13μg/cm2 is considered to be inconclusive -unavoidable coating variations may influence the determination
For corrosion protection coatings on metals: Information on storage conditions and production date of the tested sample is unavailable and thus results of Cr(VI) represent status of the sample at the time of testing.

Note:
- N.D. = Not Detected or less than RL
- RL = Report Limit
- mg/kg = ppm

A.2.3 PBBs & PBDEs content

Test method: IEC 62321-6:2015

Item	Unit	RL	Result			Limit
			(12)	(15)	(30)	
Monobromobiphenyl (MonoBB)	mg/kg	5	N.D.	N.D.	N.D.	-
Dibromobiphenyl(DiBB)	mg/kg	5	N.D.	N.D.	N.D.	-
Tribromobiphenyl(TriBB)	mg/kg	5	N.D.	N.D.	N.D.	-
Tetrabromobiphenyl(TetraBB)	mg/kg	5	N.D.	N.D.	N.D.	-
Pentabromobiphenyl(PentaBB)	mg/kg	5	N.D.	N.D.	N.D.	-
Hexabromobiphenyl(HexaBB)	mg/kg	5	N.D.	N.D.	N.D.	-
Heptabromobiphenyl (HeptaBB)	mg/kg	5	N.D.	N.D.	N.D.	-
Octabromobiphenyl(OctaBB)	mg/kg	5	N.D.	N.D.	N.D.	-
Nonabromobiphenyl(NonaBB)	mg/kg	5	N.D.	N.D.	N.D.	-
Decabromobiphenyl(DecaBB)	mg/kg	5	N.D.	N.D.	N.D.	-
Monobromodiphenyl ether (MonoBDE)	mg/kg	5	N.D.	N.D.	N.D.	-
Dibromodiphenyl ether (DiBDE)	mg/kg	5	N.D.	N.D.	N.D.	-
Tribromodiphenyl ether (TriBDE)	mg/kg	5	N.D.	N.D.	N.D.	-
Tetrabromodiphenyl ether (TetraBDE)	mg/kg	5	N.D.	N.D.	N.D.	-
Pentabromodiphenyl ether (PentaBDE)	mg/kg	5	N.D.	N.D.	N.D.	-
Hexabromodiphenyl ether (HexaBDE)	mg/kg	5	N.D.	N.D.	N.D.	-

Item	Unit	RL	Result			Limit
			(12)	(15)	(30)	
Heptabromodiphenyl ether (HeptaBDE)	mg/kg	5	N.D.	N.D.	N.D.	-
Octabromodiphenyl ether (OctaBDE)	mg/kg	5	N.D.	N.D.	N.D.	-
Nonabromodiphenyl ether (NonaBDE)	mg/kg	5	N.D.	N.D.	N.D.	-
Decabromodiphenyl ether (DecaBDE)	mg/kg	5	N.D.	N.D.	N.D.	-
sum of MonoBDE,DiBDE,TriBDE,TetraBDE,PentaBDE,HexaBDE,HeptaBDE,OctaBDE,NonaBDE,DecaBDE	mg/kg	-	N.D.	N.D.	N.D.	1000
sum of MonoBB,DiBB,TriBB,TetraBB,PentaBB,HexaBB,HeptaBB,OctaBB,NonaBB,DecaBB	mg/kg	-	N.D.	N.D.	N.D.	1000
Conclusion	/	/	**Pass**	**Pass**	**Pass**	/

Note:
- N.D.= Not Detected or less than RL
- RL = Report Detection Limit
- mg/kg = ppm
- The Result less than RL are not taken into account while calculating the sum contents.

A.3 Phthalates(DBP, BBP, DEHP, DIBP)content

Test method: IEC 62321-8:2017

Item	Unit	RL	Result						Limit
			(1)	(2)	(3)	(8)+(23)	(11)+(61)	(12)+(15)	
Dibutyl Phthalate(DBP)	mg/kg	30	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	1000
Benzyl Butyl Phthalate(BBP)	mg/kg	30	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	1000
Bis-(2-ethylhexyl) Phthalate (DEHP)	mg/kg	30	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	1000
Diisobutyl phthalate(DIBP)	mg/kg	30	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	1000
Conclusion	/	/	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	/

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Item	Unit	RL	Result						Limit
			(14)+(17)	(18)+(19)+(20)	(21)+(22)+(27)	(24)	(30)+(39)+(41)	(50)+(52)+(54)	
Dibutyl Phthalate(DBP)	mg/kg	30	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	1000
Benzyl Butyl Phthalate(BBP)	mg/kg	30	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	1000
Bis-(2-ethylhexyl) Phthalate (DEHP)	mg/kg	30	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	1000
Diisobutyl phthalate(DIBP)	mg/kg	30	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	1000
Conclusion	/	/	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	/

Item	Unit	RL	Result						Limit
			(65)+(69)+(71)	(72)	(75)	(88)	(92)+(94)	(100)	
Dibutyl Phthalate(DBP)	mg/kg	30	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	1000
Benzyl Butyl Phthalate(BBP)	mg/kg	30	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	1000
Bis-(2-ethylhexyl) Phthalate (DEHP)	mg/kg	30	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	1000
Diisobutyl phthalate(DIBP)	mg/kg	30	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	1000
Conclusion	/	/	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	/

Note:
- N.D. = Not Detected or less than RL
- RL = Report Limit
- 0.1% = 1000 mg/kg, mg/kg = ppm
- "+" = Mixed, The admixture of specimen is tested as a whole(part)which according to the applicant's request, the result of report as average value because of the whole specimen is regarded as constituting from the homogeneous material. If the testing of specimen may have the obvious difference, and the result may exceed the number in this report. The applicant will undertake all differences and risk.
- The test result of sample (1)-(3) is shown retest result, and the retest sample was provided by client on November 30, 2021.

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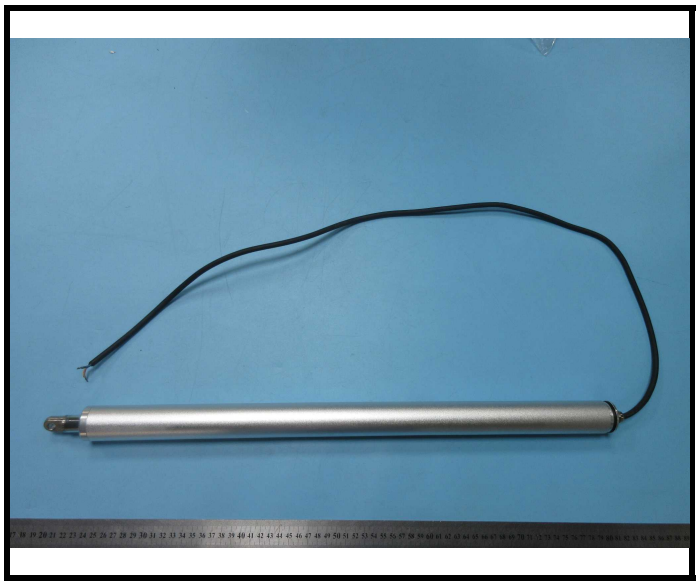
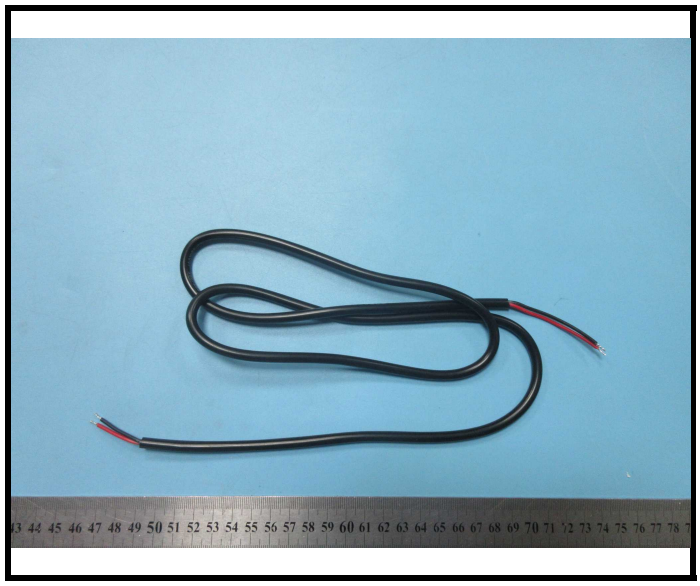
Photograph of Sample





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6.The test samples were in good condition before testing.
7.The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.

*** End of Report ***