

SPECIFICATION

CUSTOMER:

SUPPLIER: ShenzhenYangchengTongElectronicsCo.,LTD

DESCRIPTION: Blackexternal158MMfoldingantenna (2.4G/5.8G)

MATERIALCODE:

SUPPLIERPRODUCTNAME: Blackexternal158MMfoldingantenna (2.4G/5.8G)

SUPPLIERMATERIALCODE:

DATE: 2024.6.4

SUPPLIER		
PREPARED BY	CHECKED BY	APPROVED BY

CUSTOMER		
ACCEPTED BY	CHECKED BY	APPROVED BY

REMARK:Plasesendusoneorcopyof thisapprovalwithstampafteraccepting,othercopiesfiledby thecustomer.

REVISION HISTORY

2024-08-26

REVISIO

DESCRIPTION

DATE

N

V1

Initial Issue

2022.1.12

HS1236

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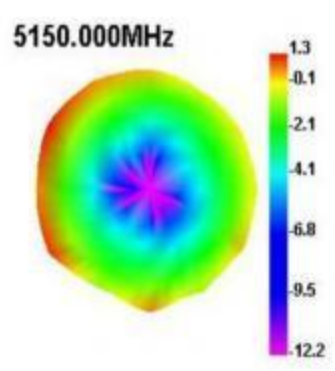
四. ProductParameter

2.4G/5.8Gdual-bandrubberantenna

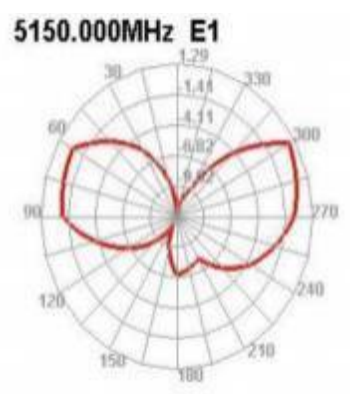
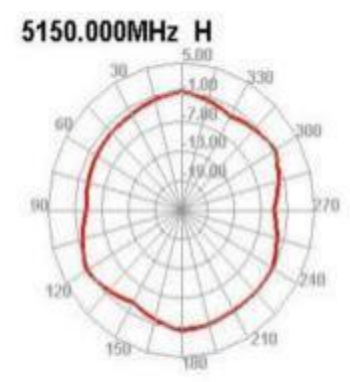
PKList			
NO	project	peculiarity	The lab allows for additional errors
4.1.1	receiving frequency range	2.4G-2.5G/5.1G-5.8G	—
4.1.2	voltage standing wave ratio	Contrast waveform	—
4.1.3	directivity	Omni-directional	—
4.1.4	Radiating element	1/4 Wave Helical	—
4.1.5	linear simplification equation	Linear Vertical	—
4.1.6	power	1W	—
4.1.7	characteristic impedance	50OHM	—
4.1.8	Connector /N-K	SMA	—
4.1.9	weight	7.57g	±0.3g

五: Darkroomtestreport

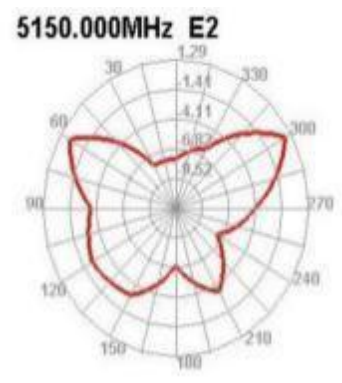
PassiveTestFor5150-									
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	UHS (%)	DHIS (%)	5850MaxMin (dB)		Attenut Hor	Attenut Ver
5150	57.5	-2.4	1.29	35.8	21.768	1.29	-12.22	59.04	58.22
5220	61.2	-	1.67	37.7	23.494	1.67	-11.29	58.69	58.07
5290	2.1363	-	1.75	37.7	25.293	1.75	-11.12	58.96	58.16
5360	2.01	-	1.51	30.7	22.058	1.51	-17.05	59.02	58.59
5430	52.7	-2.78	2.95	42	33.867	2.95	-23.77	60.59	59.65
5500	75.9	-1.2	2.26	34.7	29.484	2.26	-19.56	60.82	59.59
5570	64.2	-1.93	1.17	25.7	22.509	1.17	-17.07	62.12	60.71
5640	48.2	-3.17	2.8	41.1	35.811	2.8	-12.97	62.52	61.91
5710	76.9	-1.14	1.55	33.3	30.287	1.55	-14.87	62.36	61.76
5780	63.6	-1.96	1.12	31.4	28.336	1.12	-12.43	62.8	62.24
5850	59.8	-2.24	0.73	28.2	24.658	0.73	-11.96	63.41	62.86



2024-08-26

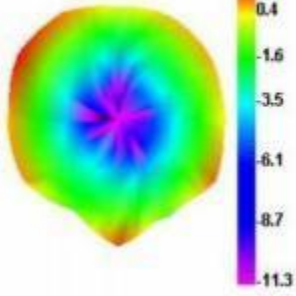


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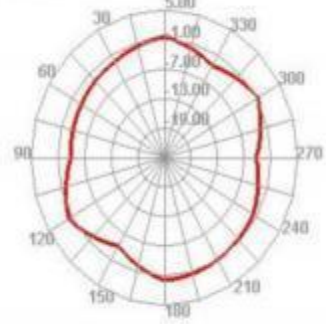


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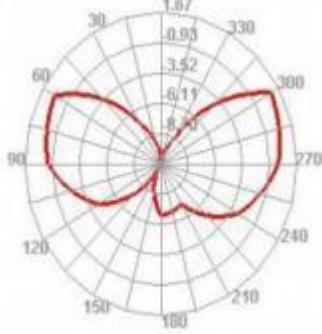
5220.000MHz



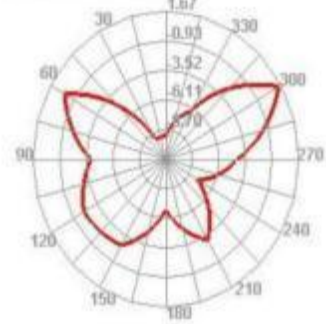
5220.000MHz H



5220.000MHz E1

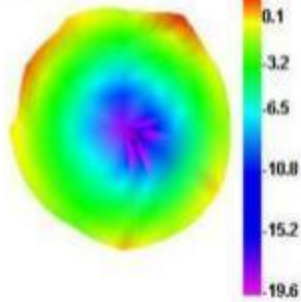


5220.000MHz E2

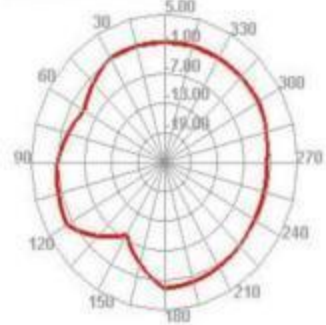


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5500.000MHz



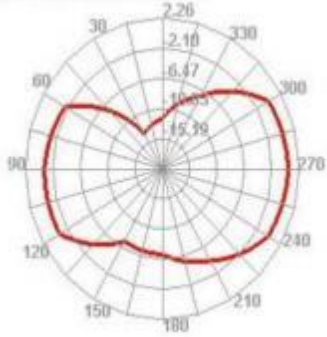
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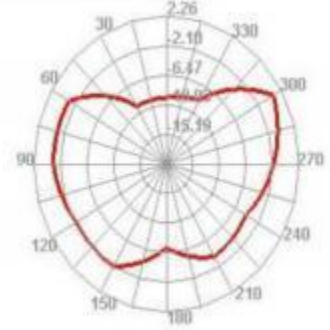
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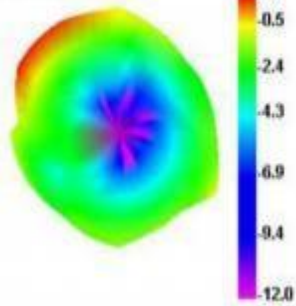


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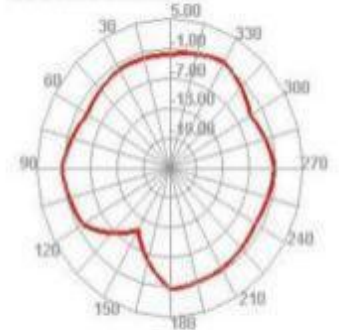


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5850.000MHz

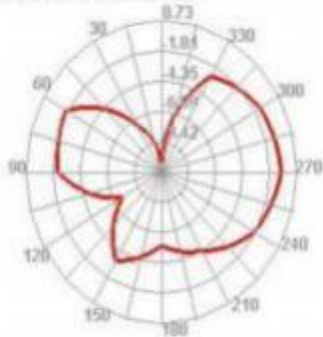


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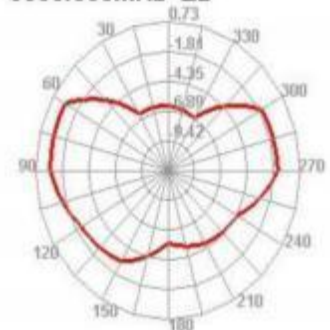


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5850.000MHz E1



5850.000MHz E2

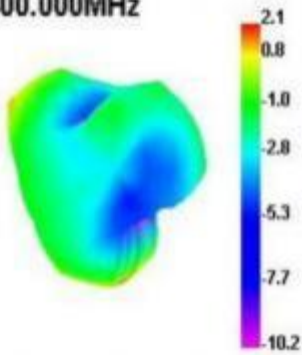


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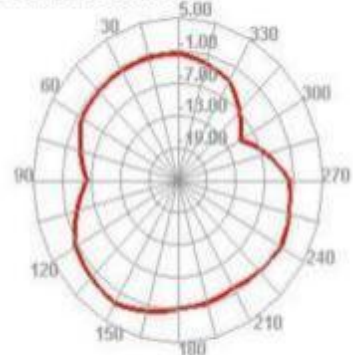
PassiveTestFor2400-									
Freq (MHz)	EffiEffi (%) (dB)	Gain (dBi)	UHS (%)	DHS (%)	2500MaxMin (dB)	Attenut Hor	Attenut Ver		
2400	62.4-2.05	2.06	26.7	35.695	2.06	-10.16	48.55	48.51	
2410	62-2.08	1.81	26.8	35.218	1.81	-9.81	48.59	48.53	
2420	56.2-2.5	1.17	24.5	31.7	1.17	-10.26	48.73	48.42	
2430	53.4-2.73	0.73	23.7	29.639	0.73	-10.6	48.44	48.12	
2440	60.9-2.16	1.05	27.6	33.234	1.05	-9.96	48.55	48.21	
2450	64.7-1.89	1.02	30	34.742	1.02	-9.68	48.76	48.47	
2460	60.5-2.19	0.47	28.6	31.893	0.47	-10.02	49.04	48.68	
2470	57.3-2.42	0.19	27.4	29.903	0.19	-10.08	48.91	48.68	
2480	63.6-1.97	0.57	30.8	32.767	0.57	-9.97	48.86	48.43	
2490	73.2-1.35	1.21	36	37.26	1.21	-9.61	49.07	48.72	
2500	69.7-1.57	1.06	34.7	35.013	1.06	-10.33	49.21	48.76	

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2400.000MHz

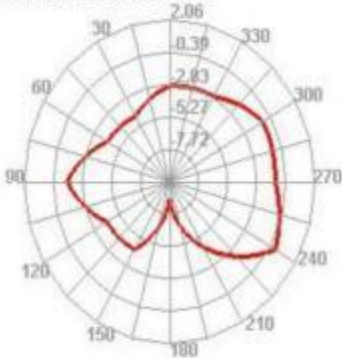


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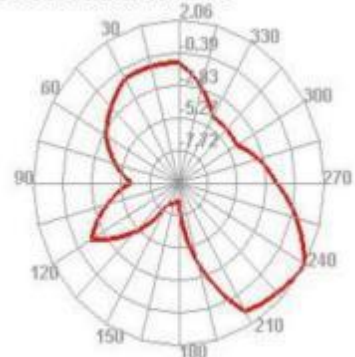


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2400.000MHz E1



2400.000MHz E2

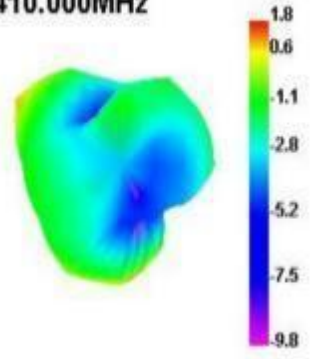


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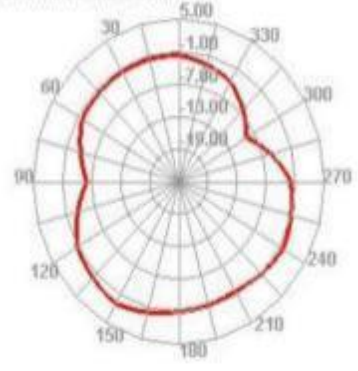
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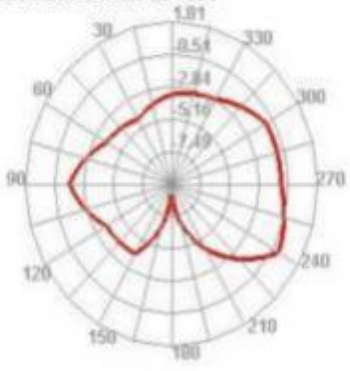
2410.000MHz



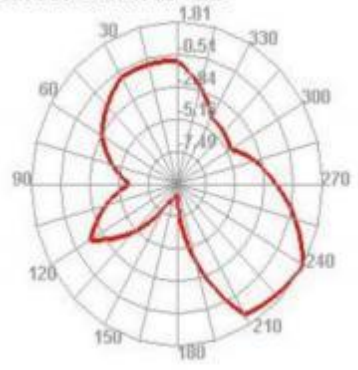
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2410.000MHz E1

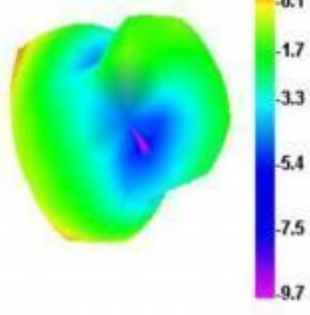


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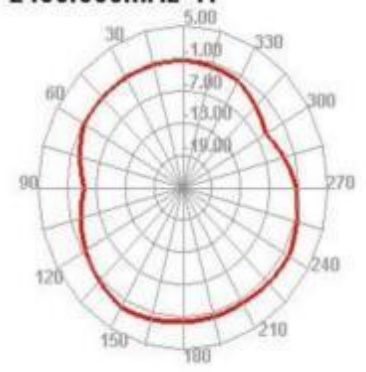


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2450.000MHz



2450.000MHz H

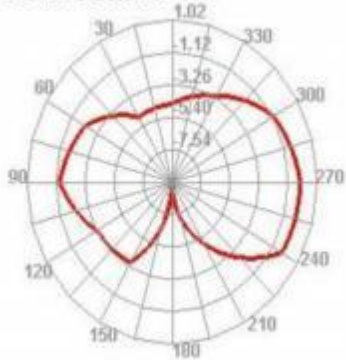


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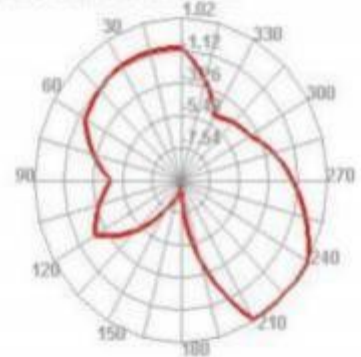
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HS1236 Confidential 2024-08-26

2450.000MHz E1



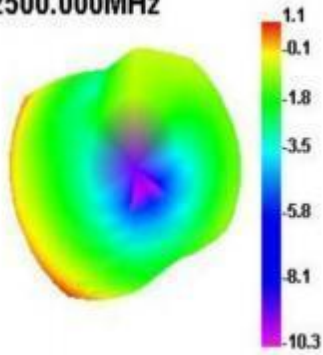
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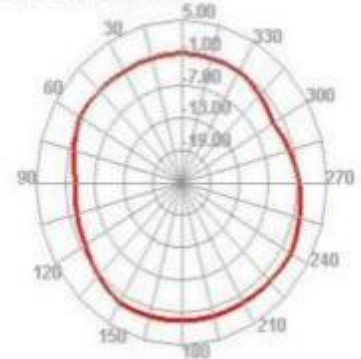
Confident

HS1236 Confidential 2024-08-26

2500.000MHz



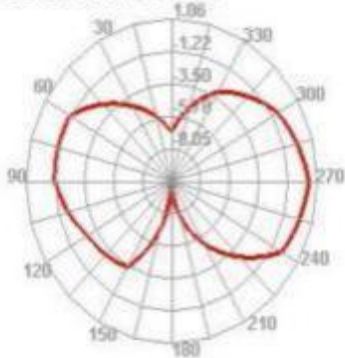
2500.000MHz H



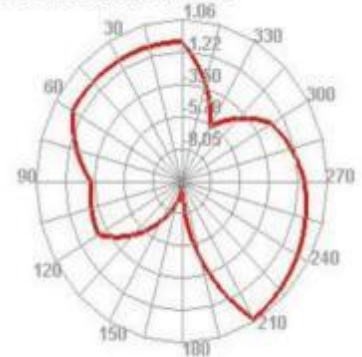
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2500.000MHz E1



2500.000MHz E2



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六. Test Detection.

Items	Test Condition	SpecifiCation
Storage Environment	Test temperature, humidity, and air pressure without specifying the following: 1 The temperature is -30°C - $+80^{\circ}\text{C}$ 2 The relative humidity is 45% - 85% 气压为 86kpa - 106kpa The air pressure is 86kpa - 106kpa	Electrical and mechanical properties are normal
voltage standing waveratio	The appearance quality is checked after 5 cycles between 70°C and 40°C , and then 1-2 hours under normal conditions	The dimensions shall meet the requirements and shall meet the mechanical and electrical properties
Resistance to constant damp heat test	The relative humidity is $95 \pm 3\%$, the test temperature is 40°C , the effect lasts for 2 hours, the electrical performance is measured within 5 minutes after the sample is removed, and the appearance quality of the sample is checked under normal conditions for 1-2 hours.	The dimensions shall meet the requirements and shall meet the mechanical and electrical properties
vibration test	Vibration pattern 10 - 55 HZ, displacement amplitude : 0.35MM acceleration amplitude : 50.0M/S , frequency sweep cycle: 30 times	Electrical and mechanical properties are normal
Drawing force test	1M altitude in accordance with the direction of the perpendicular axis of the white fall 3 times	Electrical and mechanical properties are normal
compression resistance	1. Insulation spark voltage 1.5KV 2. Sheath spark voltage 1.5KV 3. Insulation resistance to sheath voltage 0.5KV	Electrical and mechanical properties are normal
Torsion Test	Fixed screws sleeve, torsion meter test to 360 degrees when the test value of $\geq 2\text{N}$	Nobad torque

七: Environmental Monitoring

Environmental test requirements				
Serial Number	test item	Test methods and conditions	Test Equipment	Test Result
1	Humid Measurement	The purpose of this test procedure is to detail a standard test method used in the product, they are made up of the effects of high humidity and heat, to evaluate the performance of the material.	K.SONINS THS-A4L-150	PASSED
		Require: Temperature: 70°C Humidity: 90~95%(R.H) Time: 72 hours		
2	Low Temperature test	The measured samples should be placed in a constant temperature environment, the temperature is set at -20°C	K.SONINS THS-A4L-150	PASSED
		Require: Time: 72 hours		
3	High Temperature test	The measured samples should be placed in a constant temperature environment, the temperature is set at 70°C.	K.SONINS THS-A4L-150	PASSED
		Require: Time: 24 hours		
4	Thermal Shock	The sample should be placed in a fixed environment with a temperature set at -20~80°C.	K.SONINS THS-A4L-150	PASSED
		Require: More than 8 hours. (30 minutes/time, 12 cycles)		

八. Saltsratestreort pyp

SALTSPRAYTESTREPORT			
TradeName	Yongyifa	ReportNumber	20181220-01
Product commodityname	SMA	TrialDate	2018.12.209:00-2018.12.229:00
Product partnumber	A031-SMA-C-001	Testing equipment	Salt spray tester
Productmaterial	Brass	Plating specification	GoldPlating
InspectionDepartment	OQC	Sample Quantity	5PCS
ExperimentalCondition			
Brine test concentration	5%	Compressedair pressure	1.00±0.01kgf/cm
Laboratory temperature	35℃±1℃	Sampleplacement Angle	15°-30°
Brine drum temperature	47℃±1℃	Spray collection	1.0-2.0ml/80cm*/hr
Laboratory relative temperature	85%	PH value(pondushydrogenii value)	6.5-7.2
NACL	Molecular weight58.6	Testing Time	48H
TestResults			
Number of samples	Sample inspection description		Decide
1	No surface oxidation,no greenphenomenon		OK
2	No surface oxidation,no greenphenomenon		OK
3	No surface oxidation,no greenphenomenon		OK
4	No surface oxidation,no greenphenomenon		OK
5	No surface oxidation,no greenphenomenon		OK
Decide	(√)Qualified()Disqualification		
Detection specification	<input type="checkbox"/> Testaccordingtocustomerrequirements <input type="checkbox"/> Newproductvalidation <input type="checkbox"/> Sampleevaluationtest <input type="checkbox"/> Inspectionof <input type="checkbox"/> Processinspection <input checked="" type="checkbox"/> Outgoingqualitycontrol <input type="checkbox"/> Other		
Remark	1. Testconditions:theilluminationdegreeisabove710LUXandtheeye is 30 cmawayfromtheobjecttobeseen,andthetesttimeis5seconds: 2. The salt spray test determinesitscuttingsurfacevisually,andthebending andhanging contactpoints are calculated within5mm		

	<p>3. According to the standard circle (GB1266-86) to determine the corrosion grade, more than 4 grades, judged qualified 4. Referenced data: GB/T2423.17-93 EIATP-26AIS03768;</p>
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核准：郑婷婷实验员：张困妹

Approved by: Zheng Tingting Experimentalist: Zhang Xiumei

保存期限：三年文件编号 File number: R20-04A/0

Shelf life: three years File number: R20-04A/0

九. Packings specification report

The packaging label must contain the following information: supplier name, customer part number, material name, RoHS label, package quantity, production date

Package by PE bags, Antenna 100PCS/bag, Feeder line 200PCS/bag;

The carton label shall contain the following information: supplier name, customer material number,

1. Product samples provided by the supplier and the amount of material must meet the technical requirements
2. Each page and all the attachments were confirmed need official seal of the supplier
3. Each page not enough to fill out, the supplier can increase on its own
4. Technical specification must be provided prior to trial production, and need to be admitted as the basic condition material



Test Report

No. SHAEC1811665907

Date: 05 Jun 2018

Page 1 of 4

SUZHOU SHENG FU TECH METAL MATERIALS CO.,LTD
DEV.ZONE,SHAXI TOWN,TAICANG CITY,SUZHOU JIANGSU CHINA

The following sample(s) was/were submitted and identified on behalf of the clients as : BRASS METAL

SGS Job No. : SP18-018263 - SUZ
 Model No. : C3604
 Date of Sample Received : 01 Jun 2018
 Testing Period : 01 Jun 2018 - 05 Jun 2018
 Test Requested : Selected test(s) as requested by client.
 Test Method : Please refer to next page(s).
 Test Results : Please refer to next page(s).
 Conclusion : Based on the performed tests on submitted sample(s), the results of Lead, Mercury, Cadmium, Hexavalent chromium comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Signed for and on behalf of
SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

Dora Hu

Dora Hu
Approved Signatory



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Attention: To check the authenticity of testing inspection report & certificate, please contact us at telephone: (86-21) 5887 1442, or email: china@sgs.com
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Member of the SGS Group (SGS SA)

Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	SHA18-116659.004	Yellow metal

Remarks :

- (1) 1 mg/kg = 0.0001%
- (2) MDL = Method Detection Limit
- (3) ND = Not Detected (< MDL)
- (4) "*" = Not Regulated

RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU

Test Method : With reference to IEC 62321-4:2013+AMD1:2017, IEC62321-5:2013 and IEC62321-7-1:2015, analyzed by ICP-OES, AAS and UV-Vis .

Test Item(s)	Limit	Unit	MDL	004
Cadmium (Cd)	100	mg/kg	2	5
Lead (Pb)	1000	mg/kg	2	19872*
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))*	-	µg/cm²	0.10	ND

Notes :

- (1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863. IEC 62321 series is equivalent to EN 62321 series
http://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101:::FSP_ORG_ID,FSP_LANG_ID:1258637,25
- (2) * = a. The sample is positive for CrVI if the CrVI concentration is greater than 0.13 µg/cm². The sample coating is considered to contain CrVI
 b. The sample is negative for CrVI if CrVI is ND (concentration less than 0.10 µg/cm²). The coating is considered a non-CrVI based coating
 c. The result between 0.10 µg/cm² and 0.13 µg/cm² is considered to be inconclusive - unavoidable coating variations may influence the determination
 Information on storage conditions and production date of the tested sample is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.
- (3) *According to the declaration from the client, Lead (Pb) in No.004 is exempted by EU RoHS directive 2011/65/EU based on [ANNEX III 6(c)]: Copper alloy containing up to 4 % lead by weight.



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Test Report

No. SHAEC1811665907

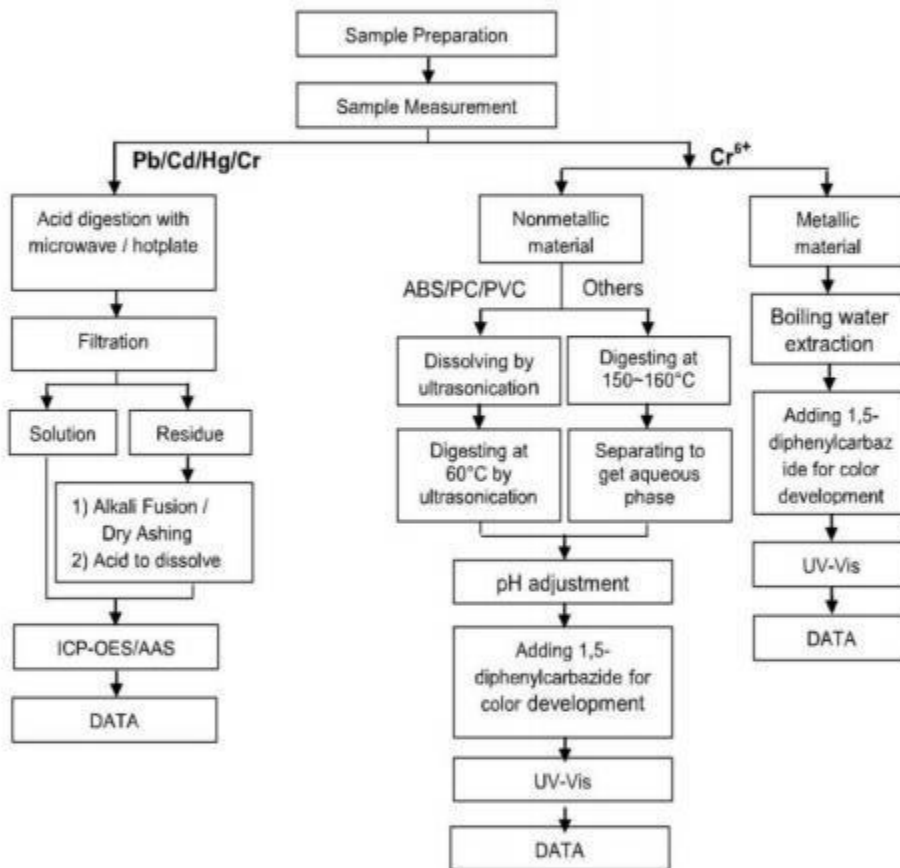
Date: 05 Jun 2018

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ATTACHMENTS

Pb/Cd/Hg/Cr⁶⁺ Testing Flow Chart

- 1) Name of the person who made testing: Meria Jin/Xiaolong Yang/Sielina Song
- 2) Name of the person in charge of testing: Jan Shi/Luna Xu/Shara Wang
- 3) These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr⁶⁺ test method excluded)



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Test Report

No. SHAEC1811665907

Date: 05 Jun 2018

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Confident

HS1236



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Test Report

No. SZXEC1801073602

Date: 13 Jul 2018

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SHENZHEN DINGCHENG PLASTIC TECHNOLOGY CO.,LTD.

NO.33 SONGLUO ROAD,SONGGANG STREET,BAO'AN DISTRICT,SHENZHEN CITY

The following sample(s) was/were submitted and identified on behalf of the clients as : TPEE

SGS Job No. : RP18-010548 - SZ

Date of Sample Received : 10 Jul 2018

Testing Period : 10 Jul 2018 - 13 Jul 2018

Test Requested : Selected test(s) as requested by client.

Test Method : Please refer to next page(s).

Test Results : Please refer to next page(s).

Conclusion : Based on the performed tests on submitted sample(s), the results of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) and Phthalates such as Bis(2-ethylhexyl) phthalate (DEHP) , Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) , and Diisobutyl phthalate (DIBP) comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Signed for and on behalf of
SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch

Tina

Tina Fan
Approved Signatory



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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	SZX18-010736.002	Black plastic grains

Remarks :

- (1) 1 mg/kg = 1 ppm = 0.0001%
- (2) MDL = Method Detection Limit
- (3) ND = Not Detected (< MDL)
- (4) "-" = Not Regulated

RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU

Test Method : With reference to IEC 62321-4:2013+A1:2017, IEC62321-5:2013, IEC62321-7-2:2017, IEC 62321-6:2015 and IEC62321-8:2017, analyzed by ICP-OES, UV-Vis and GC-MS.

Test Item(s)	Limit	Unit	MDL	002
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	ND
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	1,000	mg/kg	8	ND
Sum of PBBs	1,000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1,000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND
Pentabromodiphenyl ether	-	mg/kg	5	ND



SGS (China) Inspection & Testing Services Co., Ltd.
Beijing Branch (Beijing Head Office)

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<u>Test Item(s)</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>002</u>
Hexabromodiphenyl ether	-	mg/kg	5	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND
Octabromodiphenyl ether	-	mg/kg	5	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND
Decabromodiphenyl ether	-	mg/kg	5	ND
Dibutyl Phthalate (DBP)	1000	mg/kg	50	ND
Butyl benzyl Phthalate (BBP)	1000	mg/kg	50	ND
Bis(2-ethylhexyl) Phthalate (DEHP)	1000	mg/kg	50	ND
Diisobutyl Phthalate (DIBP)	1000	mg/kg	50	ND

Notes :

- (1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863. IEC 62321 series is equivalent to EN 62321 series
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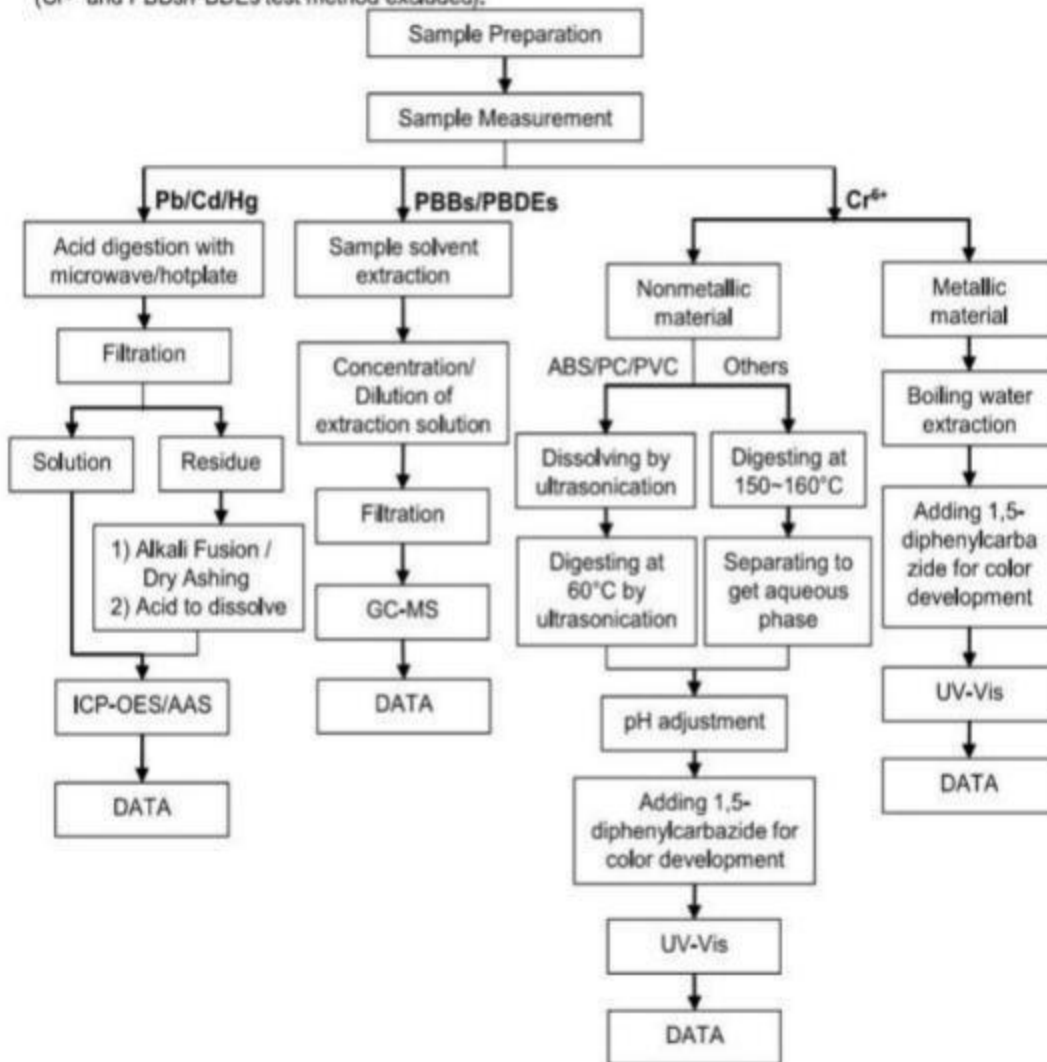
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ATTACHMENTS

Pb/Cd/Hg/Cr⁶⁺/PBBs/PBDEs Testing Flow Chart

- 1) Name of the person who made testing: Winsen Deng / David Mai / Truly Ren
- 2) Name of the person in charge of testing: Zoe Luo / Roje Zhou / Muky Tong
- 3) These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr⁶⁺ and PBBs/PBDEs test method excluded).



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Sample photo:



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