



SPECIFICATION

Surface Acoustic Wave Filter

USER

USER PART No.

WISOL PART No. **SFX897WZ102**

DOC. No. **SMS-51-L-SFT D0-67**

DATE July 8, 2013

REVISION 001

WISOL					
ISSUED BY	Kim, Jong-Hwan <i>JH. KIM</i>	CHECKED BY	hong, Sung-Su <i>Shong</i>	APPROVED BY (QC)	Chun, Hun-Chul <i>Shik</i>
User					
ISSUED BY		CHECKED BY		APPROVED BY	

WISOL CO., LTD.
373-7, GAJANG-DONG, OSAN-SI,
GYUNGGI-DO, KOREA, 447-210
<http://www.wisol.co.kr>

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1. REVISION HISTORY

000	May 28, 2013	All page	Make specification
001	July 8, 2013	8~14	Modify specification table

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2. DEFINITION

2-1. PART No.

S F X 897 W Z 1 02
 (1) (2) (3) (4) (5) (6)

No.	EXPLANATION	
(1)	SAW Filter	
(2)	Design Type: Duplexer	
(3)	Center Frequency:	Tx 897.5MHz (882.4~912.6MHz) Rx 942.5MHz (927.4~957.6MHz)
(4)	Input/output 50ohm/ 100ohm, mirror type	
(5)	Package size: 2.0×1.6mm	
(6)	Design Revision (02 : MOLDING Type)	

2-2. APPLICATION: UMTS B8 DPX

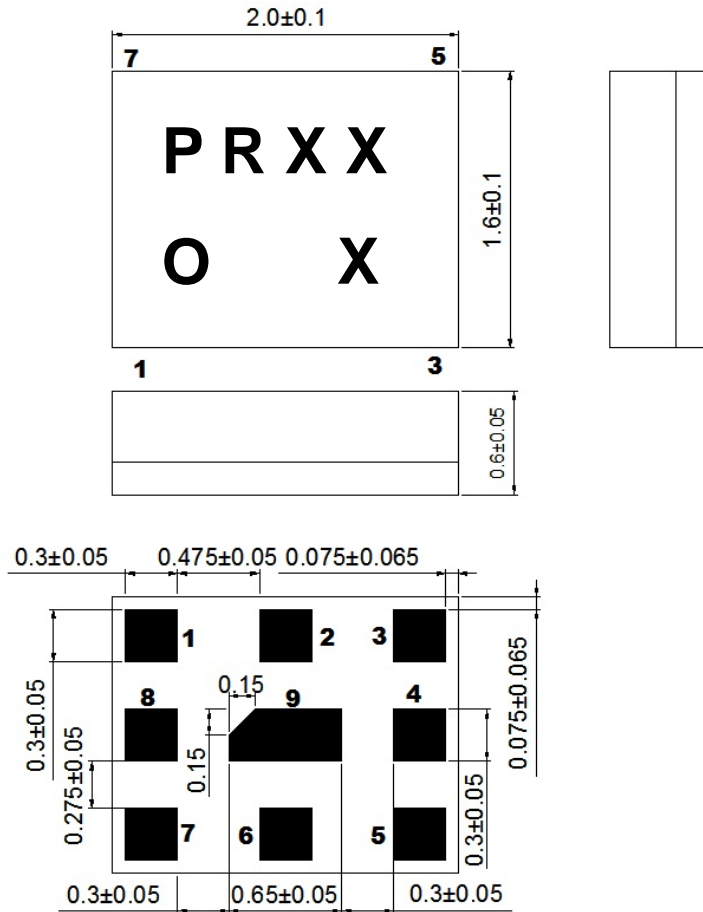
3. PRECAUTIONS

- 3-1. This device should not be used in any type of fluid such as water, oil, organic solvent, etc.
- 3-2. This is a hermetic device.
MSL(Moisture Sensitive Level) is the '2a' level.
- 3-3. Ultrasonic cleaning shall be avoided.
- 3-4. Isopropyl Alcohol and Ethyl Alcohol can be used for cleaning. Contact us before using other cleaning solvents than above
- 3-5. This is an electrostatic sensitive device.
Please avoid static voltage during operation and storage.
- 3-6. Sudden change of temperature shall be avoided, deterioration of the characteristics can occur.
- 3-7. If any malfunction due to designing or manufacturing which is out of specification occurs within one year after the products have been delivered, the maker should exchange the defective products.

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4. OUTLINE DRAWING & DIMENSIONS

[UNIT : mm]



No.	Function
1, 8	Rx Output
3	Tx Input
6	Antenna
2, 4, 5, 7, 9	GND

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5. MARKING



5-1. P R X X X

- The 1st, 2nd character 'PR' indicates the model name of SAW Filter “SFX897WZ102” .
- The 3rd character 'X' indicates the year and the month of manufacture.

Year	Month											
	1	2	3	4	5	6	7	8	9	10	11	12
2013	P	Q	R	S	T	U	V	W	X	Y	Z	a
2014	1	2	3	4	5	6	7	8	9	A	B	C
2015	D	E	F	G	H	I	J	K	L	M	N	O
2016	P	Q	R	S	T	U	V	W	X	Y	Z	a

※ This rotates by the 3 years.

- The 4th, 5th character 'X' indicates Lot No.

5-2. ○

- This symbol indicates input pin 1.
- This indicates the producing center
○: China

5-3. Marking: Laser Marking

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6. PERFORMANCE

6-1. MAXIMUM RATINGS

CHARACTERISTICS	RATINGS	UNITS
DC Permissive Voltage	5	V
Maximum Input Power	0.8	W
Operating Temperature Range	- 20 ~ + 85	℃
Storage Temperature Range	- 40 ~ + 85	℃

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6-2. ELECTRICAL CHARACTERISTICS
6-2-1. TABLE

Ta = -20 ~ +85°C

Item	CONDITION [MHz]	UNIT	RATING		
			Min.	Typ.(25°C)	Max.
TX → ANTENNA					
Insertion Loss	882.4 ~ 912.6	dB		2.0	2.9
	880.0 ~ 915.0	dB		2.5	4.3
Inband Ripple	882.4 ~ 912.6	dB		0.9	1.8
	880.0 ~ 915.0	dB		1.4	3.2
VSWR	882.4 ~ 912.6	-		2.1	2.4
	880.0 ~ 915.0	-		2.1	2.4
Absolute Attenuation	10 ~ 830	dB	24	27	
	927.4 ~ 957.6	dB	46	49	
	970~1005	dB	13	16	
	1572 ~1579	dB	40	42	
	2110~2170	dB	30	33	
	2400~2500	dB	27	30	
	2640~2745	dB	25	28	
	4400~4575	dB	5	8	
Termination Impedance : Tx / ANT			50Ω(//30[nH]) / 50Ω(// 7.5[nH])		
ANTENNA → RX					
Insertion Loss	927.4 ~ 957.6	dB		2.3	3.1
	925.0 ~ 960.0	dB		3.0	5.1
Inband Ripple	927.4 ~ 957.6	dB		0.8	1.4
	925.0 ~ 960.0	dB		1.5	3.7
VSWR	927.4 ~ 957.6	-		1.6	2.2
	925.0 ~ 960.0	-		1.6	2.2
Amplitude imbalance	927.4 ~ 957.6	dB	-1	-0.2	1
Phase imbalance	927.4 ~ 957.6	degree	-5	-2.7	5
Absolute Attenuation	10~880	dB	53		
	882.4 ~ 912.6	dB	52		
	980~1785	dB	24		

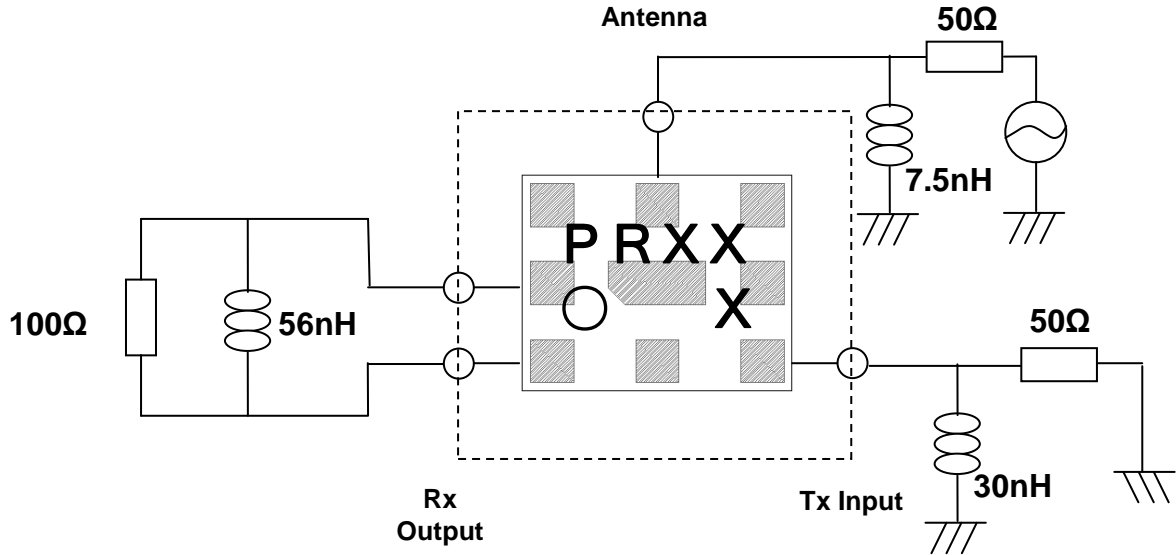
55
 84
 27
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	1805~1920	dB	53	56	
	1980~3000	dB	51	53	
	3000~6000	dB	39	42	
Termination Impedance : ANT / Rx			50Ω (// 7.5[nH]) / Differential 100Ω (//56[nH])		
TX → RX					
Isolation between Rx and Tx	882.4 ~ 912.6	dB	56	59	
	927.4 ~ 957.6	dB	48	51	

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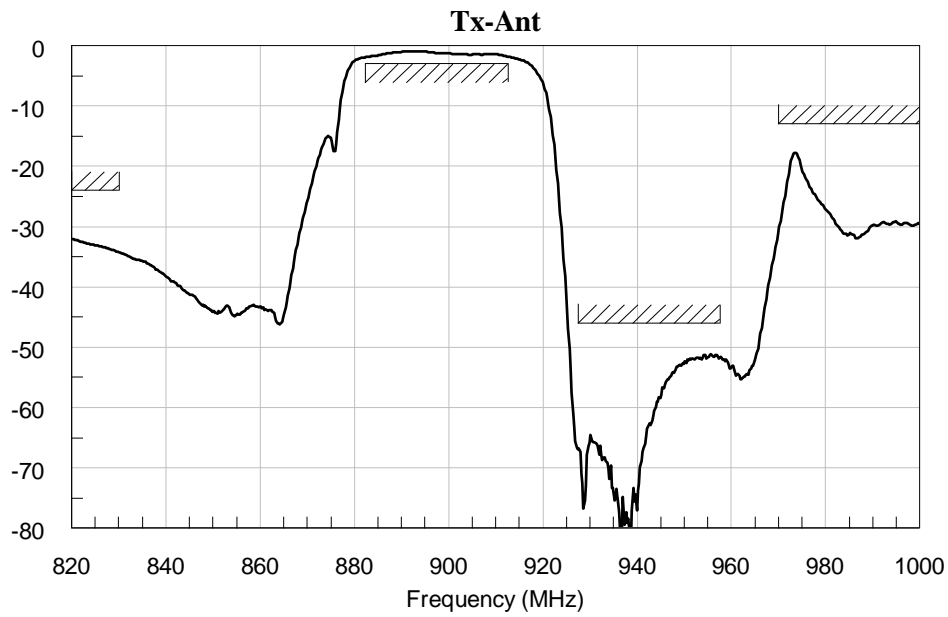
6-2-2. TEST FIXTURE

[Top View]

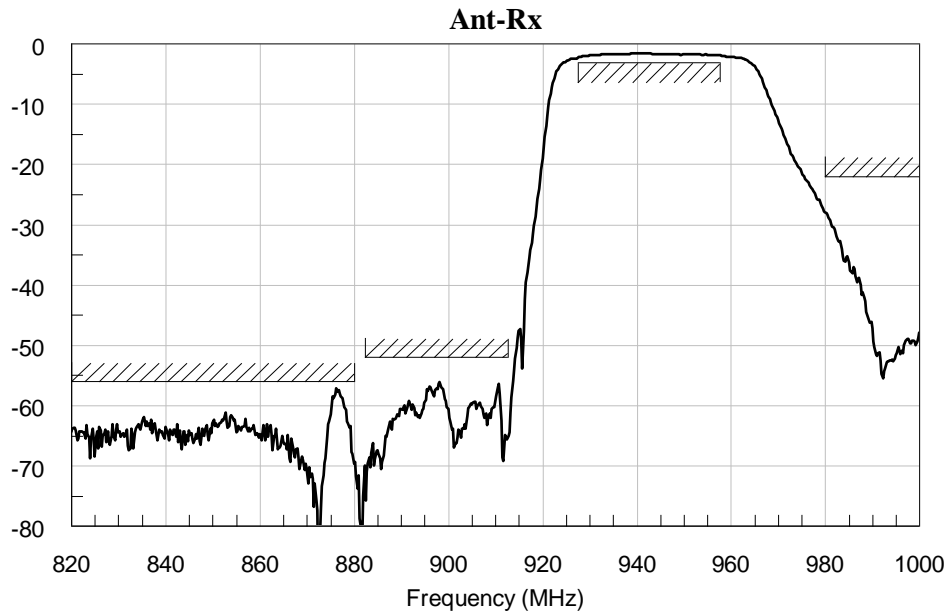


6-2-3. GRAPH

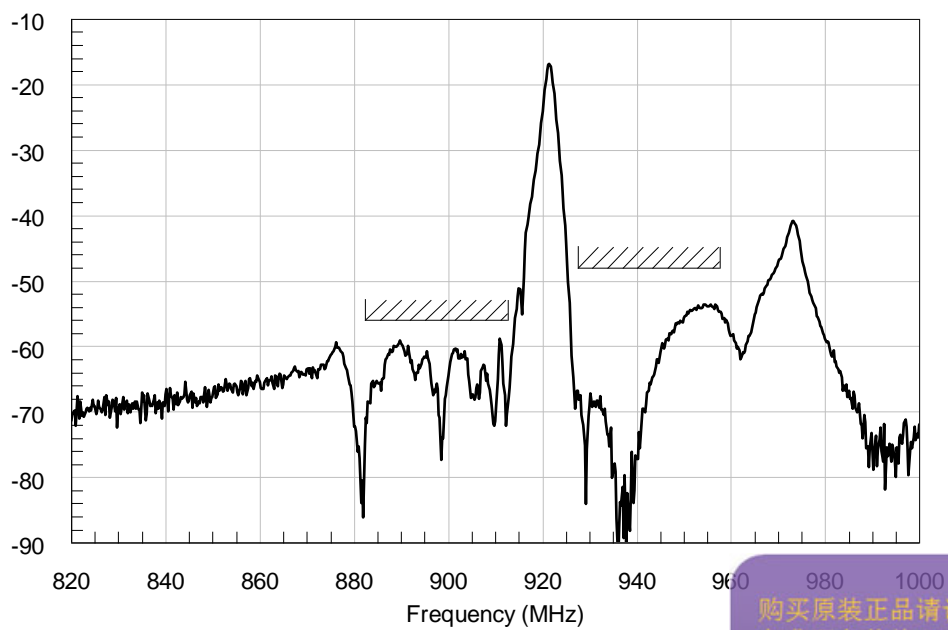
Tx→Ant, Ant→Rx Transmission Characteristics



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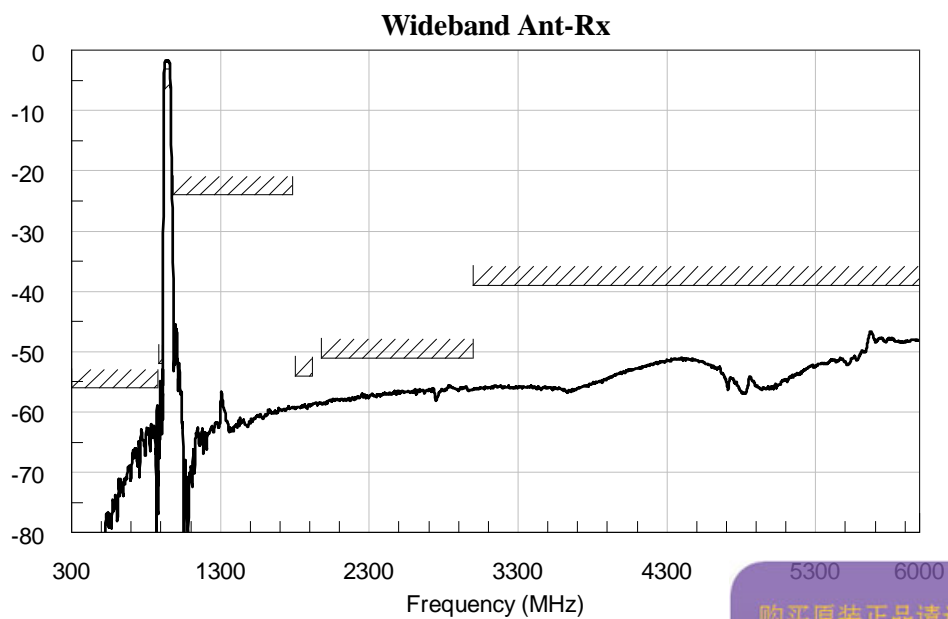
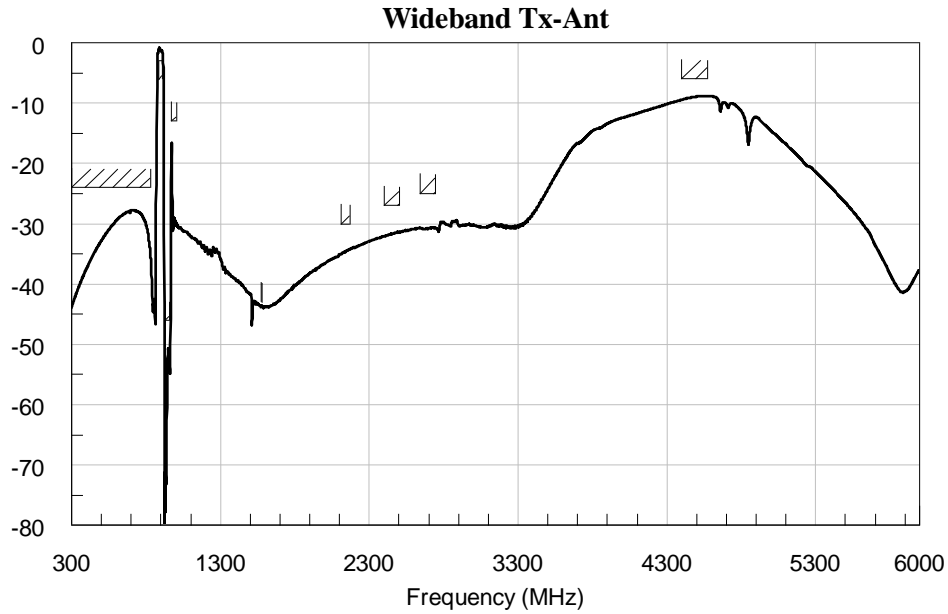


Tx→Rx Isolation Characteristics



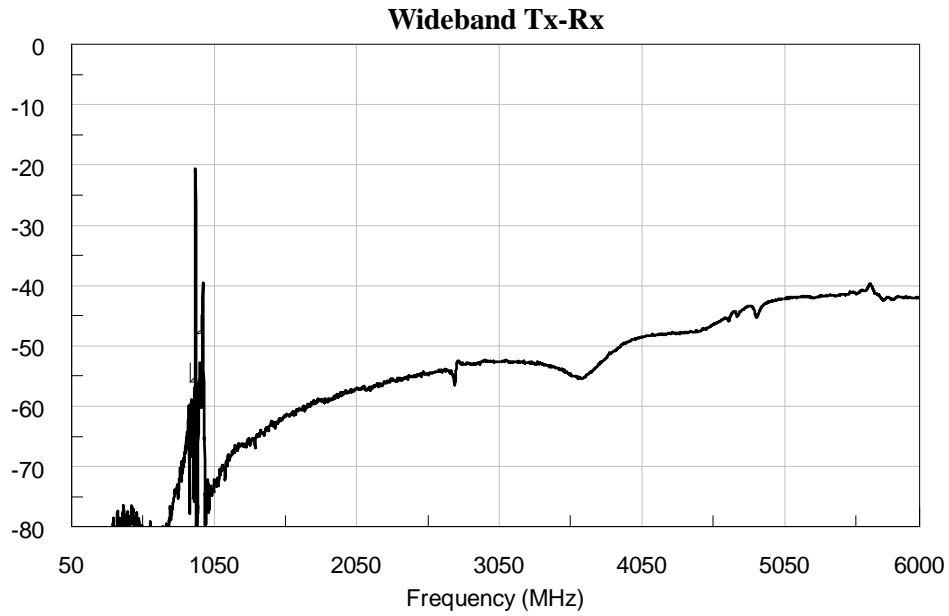
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Wide band Tx→Ant, Ant→Rx Transmission Characteristics



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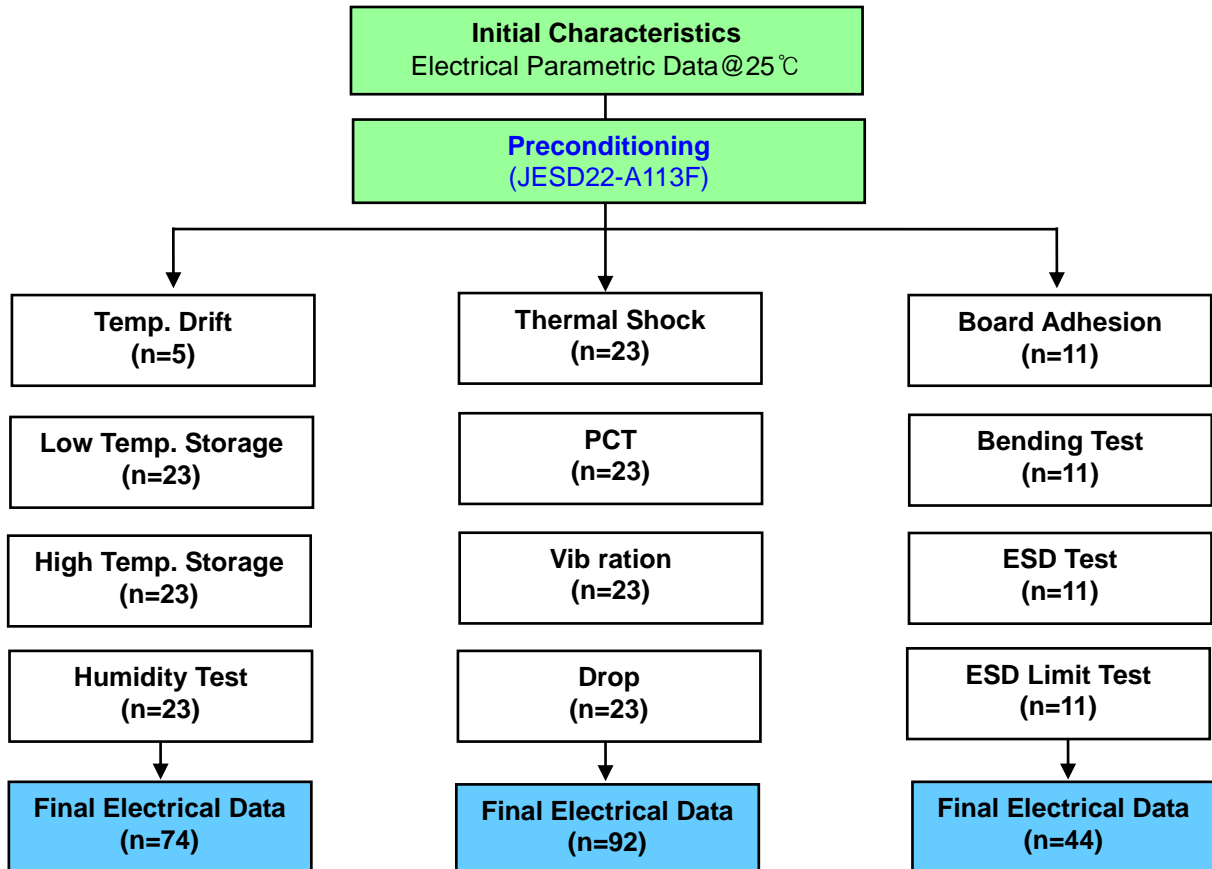
Wide band Tx→Rx Transmission Characteristics



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7. RELIABILITY

7-1. ENGINEERING SAMPLE FLOW CHART



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7-2. TEST ITEM & CONDITION

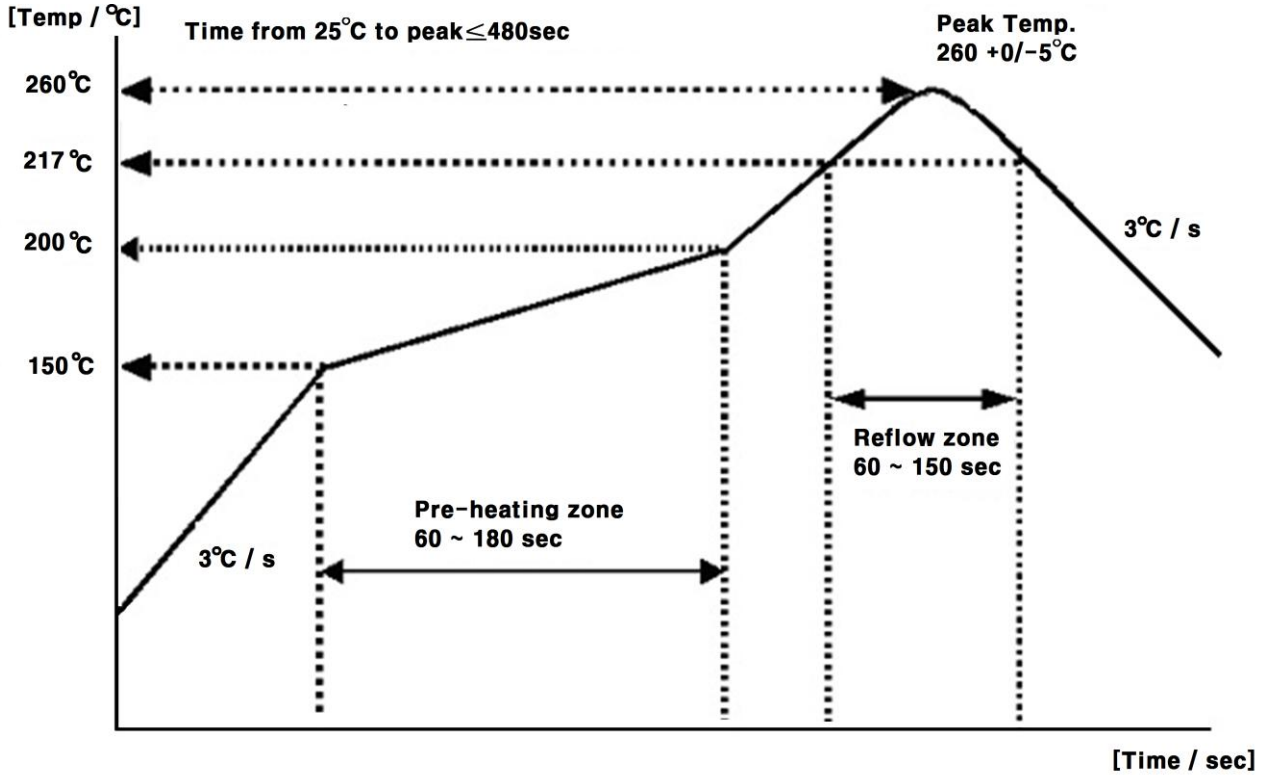
CATEGORY	TEST ITEM	TEST CONDITION	REMARK
	Preconditioning	+125℃ 24hr Baking → +60℃ 60%RH 120hr → Reflow Test(3times)	JESD22A113F



Environment Test	Temp. Drift	-30℃ → +25℃ → +85℃	description
	High Temp. Storage	+85℃ 240hr	JESD22-A103C
	Low Temp. Storage	-40℃ 240hr	JESD22-A119
	High Temp. High Humidity Storage	+85℃ 85%RH 240hr	JESD22-A106B
	Thermal Shock	-40℃/30min ⇔ +85℃/30min , 100cycle	JESD22-A106A
	High Temp. Operating	+121℃ 100%RH 96hr	JESD22-A102C
Mechanical Test	Vibration Test (Random)	20 Hz~2000 Hz,0.053G ² /Hz or 8gs RMS,15min/plane	IEC 68-2-36 Fdb
	Drop Test	152 cm 12times Steel floor JIG(110g~150g)	IEC 1178-1.4.8.9
	Board Adhesion	0.5 mm/sec 1point push	IEC 68-2-21 Ue3
	Bending Test	0.5 mm/sec 3times -PCB : FR4 , PCB SIZE : 100*40 mm	IEC 68-2-21 Ue3
Physical Test	Solder Heat Resistance	±250V,C=100pF,R=1.5 kΩ,1times	IEC 68-2-21 Ue3
	static marginal test	C=100pF,R=1.5 kΩ,1times(demand of customer)	JESD22-A114F

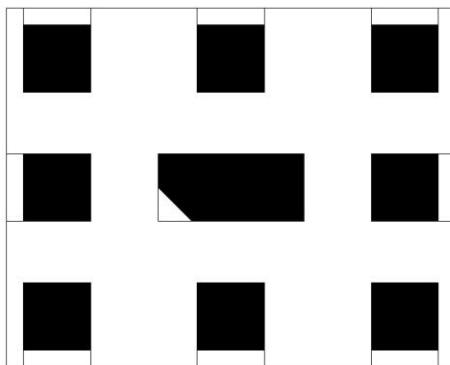
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8. REFLOW CONDITION

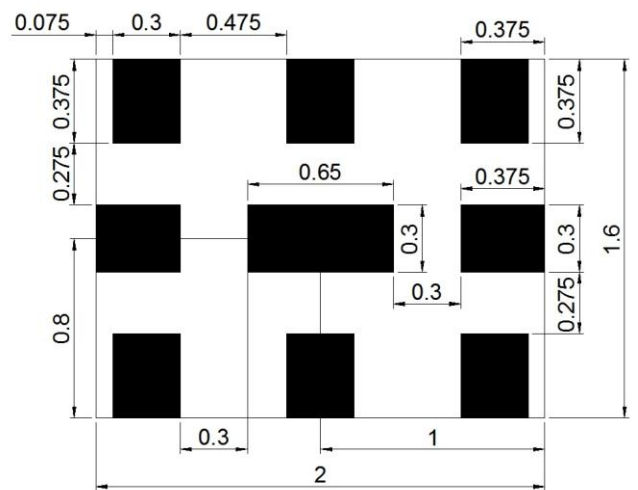


9. RECOMMENDED PCB DIMENSIONS

[UNIT : mm]



[SAW, X-ray Top View]



[PCB, X-ray Top View]

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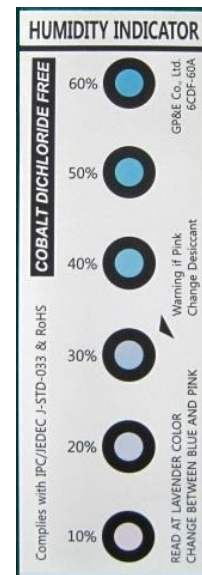
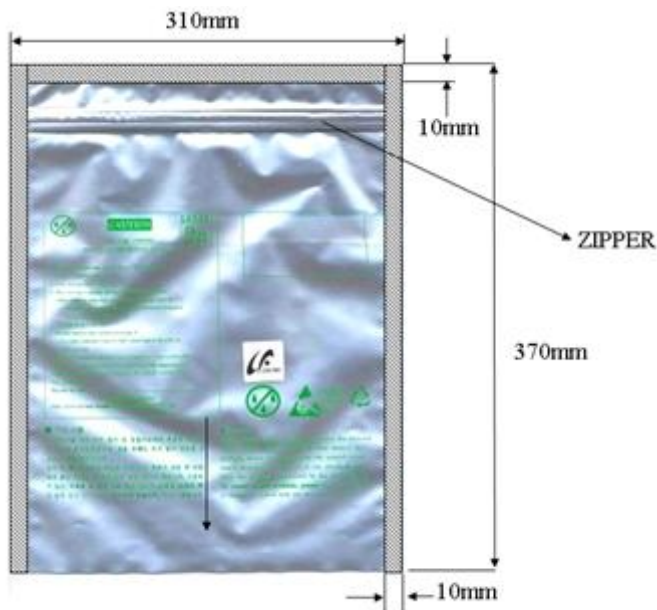
10. CAUTION

Moisture Sensitivity Device Caution (MSL LEVEL=2a)

1. Calculated shelf life in sealed bag : 12 month at <math> < 40^{\circ}\text{C}</math> and <math> < 90\%</math> relative Humidith(RH)
 2. Peak package body temperature : **260°C**
 3. After bag is opened, devices that will be subjected to reflow solder or other high temperature process must be
 - (a) Mounted within : 672 hours of factory conditions $\leq 30^{\circ}\text{C}/60\% \text{ RH}$, or
 - (b) Stored per J-STD-033
 4. Device require bake, before mounting, if :
 - (a) Humidity Indicator Card reads $> 60\%$ when read at $23 \pm 5^{\circ}\text{C}$
 - (b) 3(a) or 3(b) are not met
 5. If baking is required, refer to IPC/JEDEC J-STD-033 for bake proceddure
- Note : Level and body temperature defined by IPC/JEDEC J-STD-020

Aluminum Pack & Level (310mm X 370mm)

HIC(Humidity Indication Card)



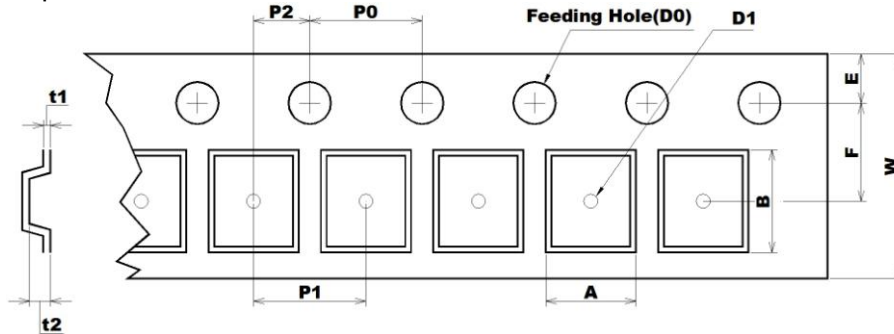
10 to 60% RH

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11. PACKING

11-1. DIMENSIONS

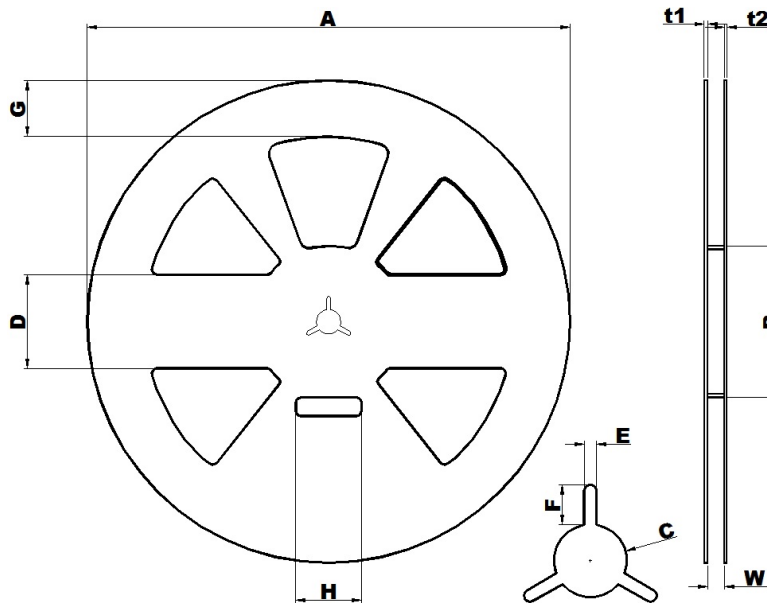
- Carrier Tape



[Unit: mm]

A	B	D0	D1	E	F	P0	P1	P2	t1	t2	W
1.95	2.3	Ø1.50	Ø1.00	1.75	3.5	4	4	2	0.254	1.04	8
0.05	0.05	0.10	0.25	0.25	0.15	0.1	0.1	0.1	0.05	0.05	+0.30
		0	0	0	-0.15						-0.10

- Reel



[Unit: mm]

A	B	C	D	E	F	G	H	t1	t2	W
Ø258.0	Ø81.0	Ø13.0	50.0	2.2	7.0	30.0	35.0	1.8	1.5	9.0
+1.0	1.0	0.5	0.8	0.3	0.5	0.8	1.0	0.5	0.5	0.5
-0.5										

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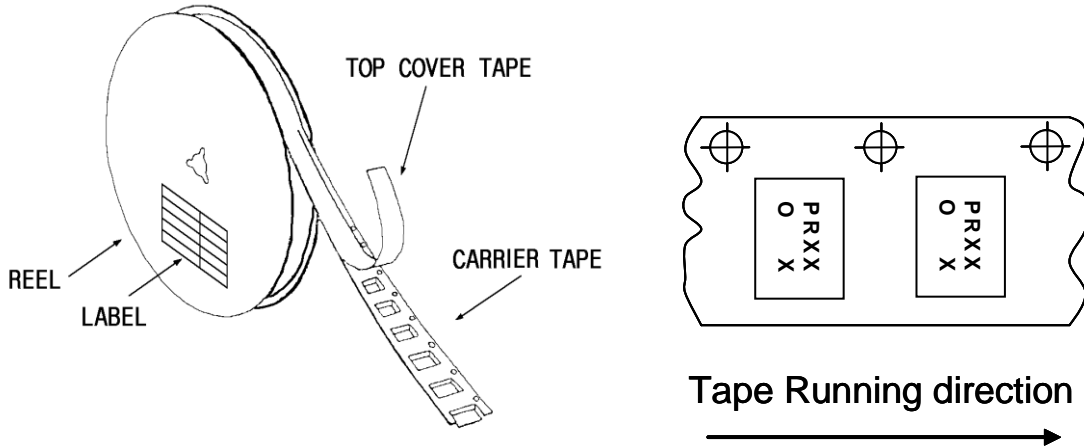
- The product shall be packed properly not to damaged during transportation and storage.

11-2. REELING QUANTITY

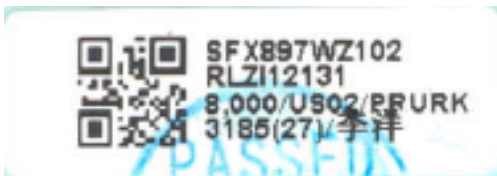
10 inch reel: 8,000 pcs/reel


11-3. TAPING STRUCTURE

11-3-1. The tape shall be wound around the reel in direction shown below.

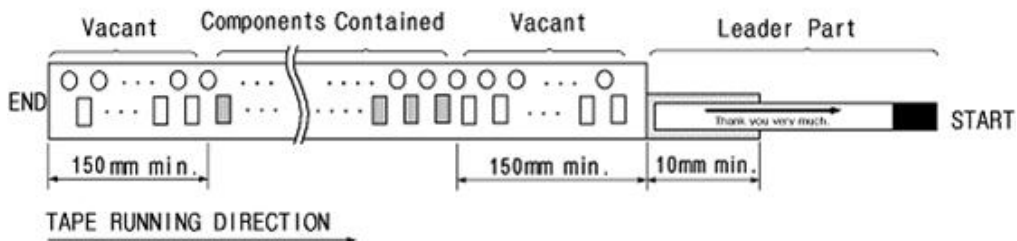


11-3-2. BAR CODE LABEL



- ①  MODEL NAME BARCODE
- ② SFX897WZ102 Model Name
- ③ RLZI12131 Reel number
- ④ 8000 / PRURK Quantity / Marking

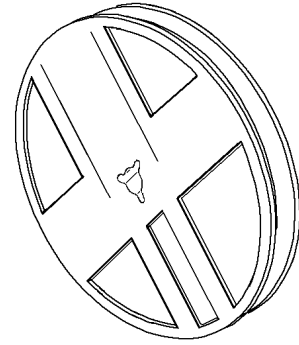
11-3-3. Leader part and vacant position specifications.



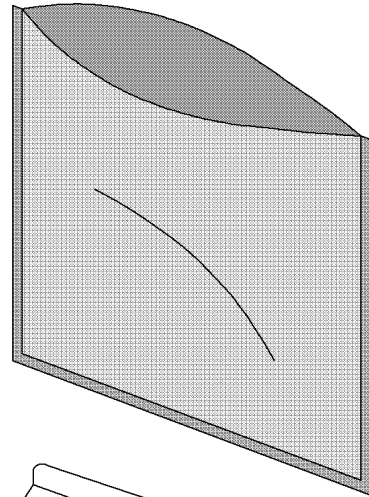
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11-4. INNER BOX(Reel Packing) STRUCTURE

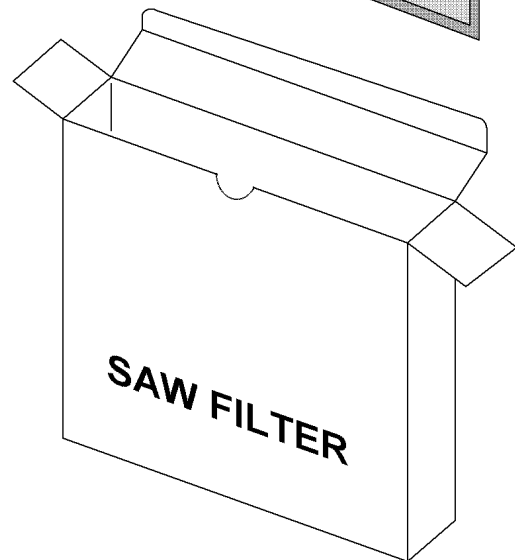
Material: Plastic Reel



Material: Antistatic Vinyl Bag
Size: 310×340mm²



Material: Paper(SW1D(E))
Size: 260×37×265mm³

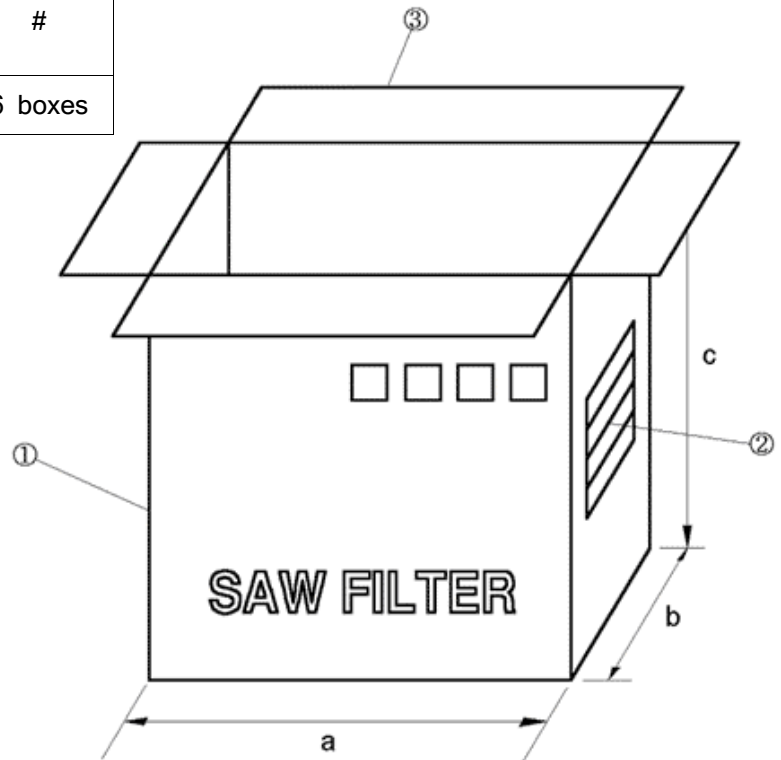


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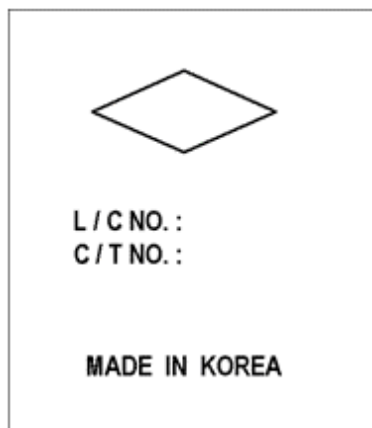
11-5. OUTER BOX STRUCTURE

Material: Paper

TYPE	SIZE(mm)			Inner Box #
	a	b	c	
A	270	240	275	6 boxes



SIDE ①



SIDE ②

MODEL	
Q'TY	EA
USER	
DATE	

- SIDE is the same as front side.

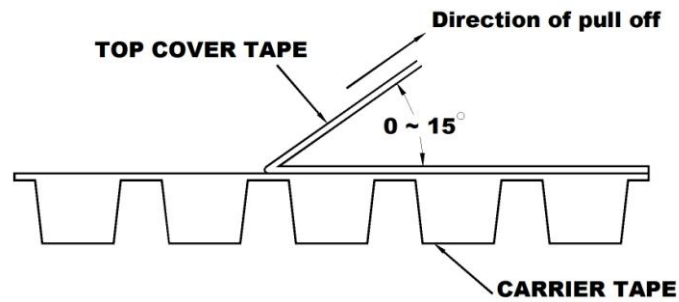
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12. TAPE SPECIFICATIONS

12-1. Tensile Strength of Carrier Tape: 4.4N/mm width

12-2. Top Cover Tape Adhesion (See the below figure)

- pull of angle: 0~15 degree
- speed: 300mm/min.
- force: 20~70g



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13. RoHS DATA

Test Report No. F690501/LF-CTSAYAA11-18864

Issued Date: 2011. 06. 14 Page 1 of 5

To: WISOL CO.,LTD
 373-7
 Gajang-dong
 Osan-si
 Gyeonggi-do
 Korea

The following merchandise was submitted and identified by the client as :

SGS File No.	: AYAA11-18864
Product Name	: 2016 DPX
Item No./Part No.	: N/A
Received Date	: 2011. 06. 09
Test Period	: 2011. 06. 10 to 2011. 06. 14
Test Results	: For further details, please refer to following page(s)
Test Performed	: SGS Korea tested the sample(s) selected by applicant with following results.
Test Comments	: By the applicant's specific request, the sampling and testing was performed only for the part indicated in the photo without disassembly.

 Timothy Jeon
 Jinhee Kim
 Cindy Park
 Jerry Jung/ Testing Person

SGS Korea Co. Ltd.



Jeff Jang / Chemical Lab Mgr

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 Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 180 days only.

F052 Version4

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Test Report No. F690501/LF-CTSAYAA11-18864

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Sample No. : AYAA11-18864.001
Sample Description : 2016 DPX
Item No./Part No. : N/A

Heavy Metals

Test Items	Unit	Test Method	MDL	Results
Cadmium (Cd)	mg/kg	With reference to IEC 62321:2008, ICP	0.5	N.D.
Lead (Pb)	mg/kg	With reference to IEC 62321:2008, ICP	5	N.D.
Mercury (Hg)	mg/kg	With reference to IEC 62321:2008, ICP	2	N.D.
Hexavalent Chromium (Cr VI)	mg/kg	With reference to IEC 62321:2008, UV-VIS	1	N.D.

Flame Retardants-PBBs/PBDEs

Test Items	Unit	Test Method	MDL	Results
Monobromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Dibromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Tribromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Tetrabromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Pentabromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Hexabromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Heptabromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Octabromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Nonabromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Decabromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Monobromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Dibromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Tribromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Tetrabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Pentabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Hexabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Heptabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Octabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Nonabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Decabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.

- NOTE:
- (1) N.D. = Not detected.(<MDL)
 - (2) mg/kg = ppm
 - (3) MDL = Method Detection Limit
 - (4) - = No regulation
 - (5) ** = Qualitative analysis (No Unit)
 - (6) * = Boiling-water-extraction:
 Negative = Absence of CrVI coating
 Positive = Presence of CrVI coating; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm² sample surface area.

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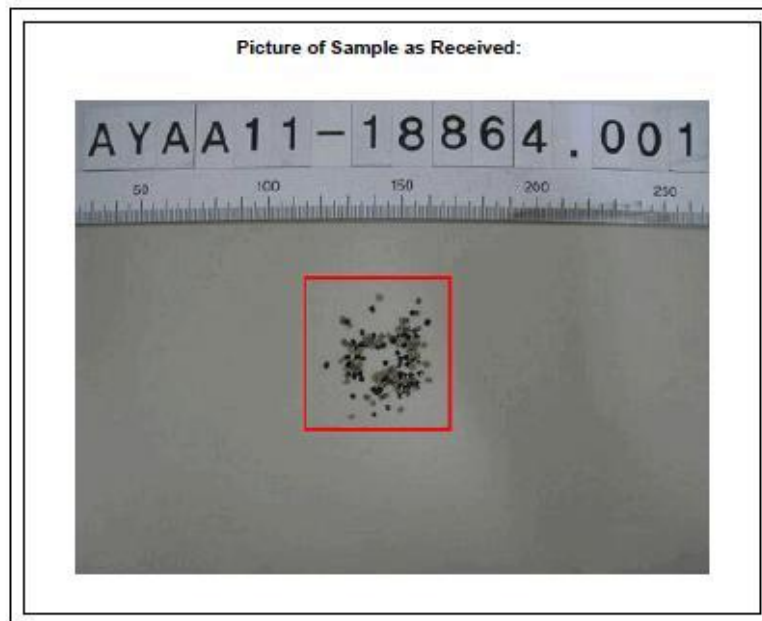
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Sample No. : AYAA11-18864.001
Sample Description : 2018 DPX
Item No./Part No. : N/A

Halogen Contents

Test Items	Unit	Test Method	MDL	Results
Chlorine(Cl)	mg/kg	BS EN 14582:2007 , IC	30	N.D.
Bromine(Br)	mg/kg	BS EN 14582:2007 , IC	30	N.D.



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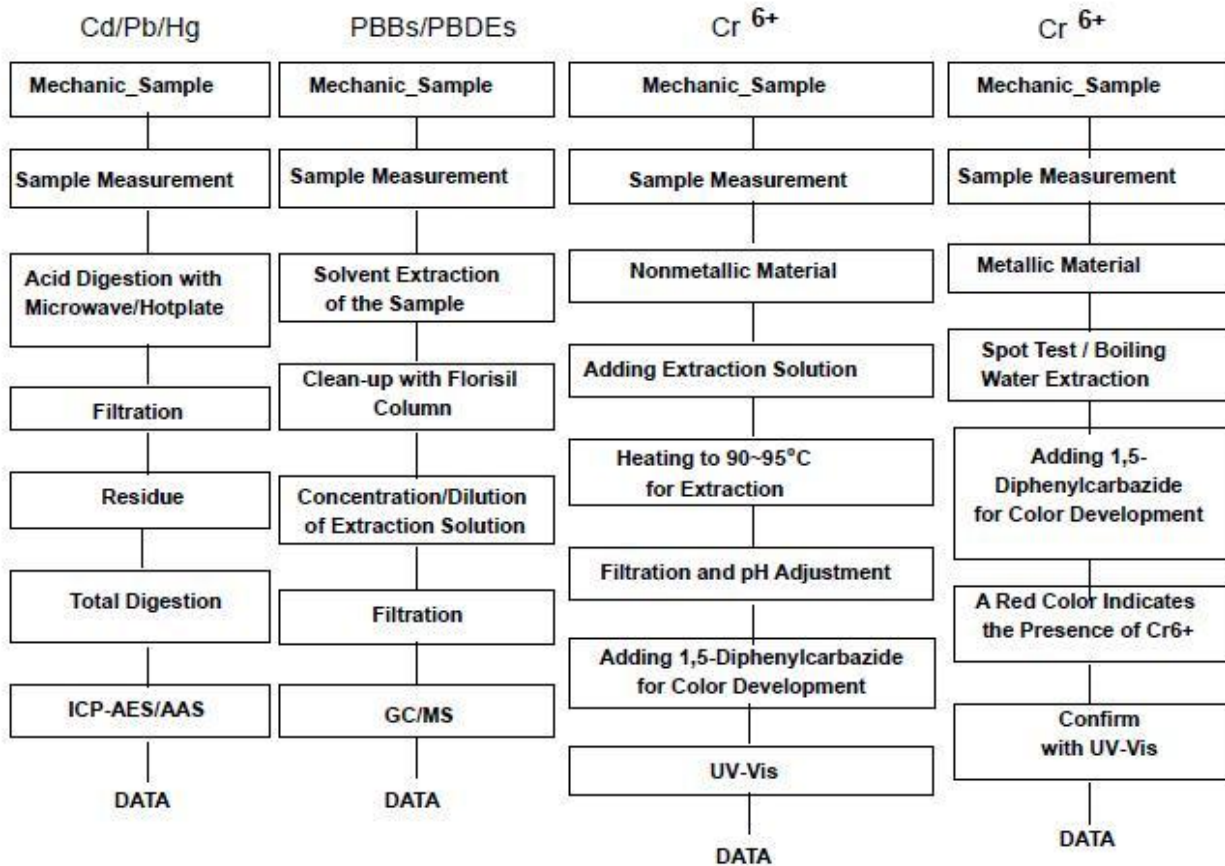
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Flow Chart for RoHS: Cd/Pb/Hg/Cr⁶⁺/PBBs&PBDEs Testing



The samples were dissolved totally by pre-conditioning method according to above flow chart for Cd,Pb,Hg.

Section Chief : Gilsae Yi

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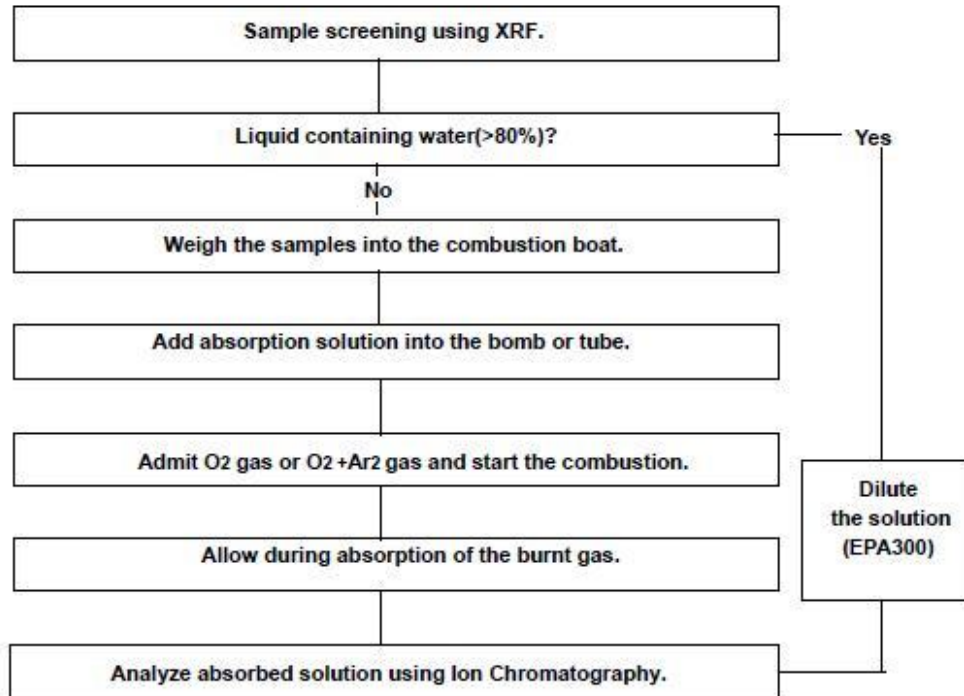
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Flow Chart for Halogen Test



*** End ***

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