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Report Issue Date: 2019.03.29

TEST REPORT

Test Report No. : 6049018.50QS
Project no. : 6049018

Client	:	Shanghai Wellmax Lighting Industry Co., Ltd. 10 F, No. 26 Building, No. 1000, Jinhai Road, Pudong District, Shanghai, China.
Date sample received	:	2019.02.20
Product	:	LED Lamp
Product description	:	Please refer to next page(s).
Model	:	/
Test Requested	:	Test of RoHS conformity (2011/65/EU) and its subsequent amendments directive (EU) 2015/863
Test Method	:	Please refer to next page(s).
Result	:	Please refer to next page(s).
Conclusion	:	Requirement passed
Testing Period	:	2019.02.20—2019.03.27

Signed for and on behalf of
DEKRA Testing and Certification (Shanghai) Ltd

Yu Feixiong（郁飞雄）
Project Manager

Shao Baijun（邵柏君）
Test Engineer

Picture of the product

TEST RESULTS

sample-no.	sample designation	Pb (%)	Cd (%)	Hg (%)	Cr VI (%)	PBB (%)	PBDE (%)	DEHP* (%)	BBP* (%)	DBP* (%)	DIBP* (%)
001	silvery metal(line)	< 0.1	< 0.01	< 0.1	< 0.1	N/A	N/A	N/A	N/A	N/A	N/A
002	silvery metal(clamp)	< 0.1	< 0.01	< 0.1	< 0.1	N/A	N/A	N/A	N/A	N/A	N/A
003	silvery metal(joint)	< 0.1	< 0.01	< 0.1	< 0.1	N/A	N/A	N/A	N/A	N/A	N/A
004	white plastic(pedestal)	< 0.1	< 0.01	< 0.1	< 0.1	< 0.1[1)]	< 0.1[1)]	< 0.1	< 0.1	< 0.1	< 0.1
005	white plastic(shell)	< 0.1	< 0.01	< 0.1	< 0.1	< 0.1[1)]	< 0.1[1)]	< 0.1	< 0.1	< 0.1	< 0.1
006	silvery metal(rotary,touch)	< 0.1	< 0.01	< 0.1	< 0.1	N/A	N/A	N/A	N/A	N/A	N/A
007	silvery metal(LED)	< 0.1	< 0.01	< 0.1	< 0.1	N/A	N/A	N/A	N/A	N/A	N/A
008	silvery metal(soldering tin)	< 0.1	< 0.01	< 0.1	< 0.1	N/A	N/A	N/A	N/A	N/A	N/A
009	yellow body(LED)	< 0.1	< 0.01	< 0.1	< 0.1	< 0.1	< 0.1	N/A	N/A	N/A	N/A
010	white ceramic(rotary,pedestal)	< 0.1	< 0.01	< 0.1	< 0.1	< 0.1	< 0.1	N/A	N/A	N/A	N/A
011	silvery metal(screw)	< 0.1	< 0.01	< 0.1	< 0.1[2)]	N/A	N/A	N/A	N/A	N/A	N/A
012	silvery metal(screw)	< 0.1	< 0.01	< 0.1	< 0.1	N/A	N/A	N/A	N/A	N/A	N/A
013	silvery metal(pedestal)	< 0.1	< 0.01	< 0.1	< 0.1	N/A	N/A	N/A	N/A	N/A	N/A
014	white coating(pedestal)	< 0.1	< 0.01	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
015	yellow metal(enamelled wire)	< 0.1	< 0.01	< 0.1	< 0.1	N/A	N/A	N/A	N/A	N/A	N/A
016	coppery metal	< 0.1	< 0.01	< 0.1	< 0.1	N/A	N/A	N/A	N/A	N/A	N/A
017	blue ferrite	< 0.1	< 0.01	< 0.1	< 0.1	N/A	N/A	N/A	N/A	N/A	N/A
018	black plastic(body)	< 0.1	< 0.01	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
019	black ferrite	< 0.1	< 0.01	< 0.1	< 0.1	N/A	N/A	N/A	N/A	N/A	N/A
020	black plastic	< 0.1	< 0.01	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
021	blue plastic(adhesive)	< 0.1	< 0.01	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
022	yellow plastic(adhesive)	< 0.1	< 0.01	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
023	transparent plastic(pipe)	< 0.1	< 0.01	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
024	silvery metal(body)	< 0.1	< 0.01	< 0.1	< 0.1[2)]	N/A	N/A	N/A	N/A	N/A	N/A
025	white glue(adhesive)	< 0.1	< 0.01	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
026	silvery metal(touch,pedestal)	< 0.1	< 0.01	< 0.1	< 0.1	N/A	N/A	N/A	N/A	N/A	N/A
027	black metal	< 0.1	< 0.01	< 0.1	< 0.1	N/A	N/A	N/A	N/A	N/A	N/A
028	black plastic(body)	< 0.1	< 0.01	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
029	black body	< 0.1	< 0.01	< 0.1	< 0.1	< 0.1[1)]	< 0.1[1)]	N/A	N/A	N/A	N/A
030	silvery metal(pin)	< 0.1	< 0.01	< 0.1	< 0.1	N/A	N/A	N/A	N/A	N/A	N/A
031	yellow paper(capacitance)	< 0.1	< 0.01	< 0.1	< 0.1	< 0.1	< 0.1	N/A	N/A	N/A	N/A
032	silvery metal(capacitance)	< 0.1	< 0.01	< 0.1	< 0.1	N/A	N/A	N/A	N/A	N/A	N/A
033	black rubber(capacitance)	< 0.1	< 0.01	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
034	silvery metal(capacitance)	< 0.1	< 0.01	< 0.1	< 0.1	N/A	N/A	N/A	N/A	N/A	N/A
035	black plastic(capacitance)	< 0.1	< 0.01	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

036	yellow plastic(capacitance)	< 0.1	< 0.01	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
037	silvery metal(core)	< 0.1	< 0.01	< 0.1	< 0.1	N/A	N/A	N/A	N/A	N/A	N/A
038	coppery metal(core)	< 0.1	< 0.01	< 0.1	< 0.1	N/A	N/A	N/A	N/A	N/A	N/A
039	white plastic(wire,left)	< 0.1	< 0.01	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
040	silvery metal(core)	< 0.1	< 0.01	< 0.1	< 0.1	N/A	N/A	N/A	N/A	N/A	N/A
041	white plastic(wire,middle)	< 0.1	< 0.01	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
042	red plastic(wire,right)	< 0.1	< 0.01	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
043	black plastic(wire,right)	< 0.1	< 0.01	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
044	grey plastic(wire,right)	< 0.1	< 0.01	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
045	white plastic(wire,right)	< 0.1	< 0.01	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
046	brown body(PCB)	< 0.1	< 0.01	< 0.1	< 0.1	< 0.1	< 0.1	N/A	N/A	N/A	N/A
047	blue body(PCB)	< 0.1	< 0.01	< 0.1	< 0.1	< 0.1	< 0.1	N/A	N/A	N/A	N/A
048	yellow body(LED)	< 0.1	< 0.01	< 0.1	< 0.1	< 0.1[1)]	< 0.1[1)]	N/A	N/A	N/A	N/A
049	brown body(PCB)	< 0.1	< 0.01	< 0.1	< 0.1	< 0.1	< 0.1	N/A	N/A	N/A	N/A
050	PCB board	< 0.1	< 0.01	< 0.1	< 0.1	< 0.1	< 0.1	N/A	N/A	N/A	N/A
051	black IC(PCB)	< 0.1	< 0.01	< 0.1	< 0.1	< 0.1	< 0.1	N/A	N/A	N/A	N/A
052	black IC(PCB)	< 0.1	< 0.01	< 0.1	< 0.1	< 0.1	< 0.1	N/A	N/A	N/A	N/A
053	brown body(PCB)	< 0.1	< 0.01[3)]	< 0.1	< 0.1	< 0.1	< 0.1	N/A	N/A	N/A	N/A
054	silvery metal(soldering tin)	< 0.1	< 0.01	< 0.1	< 0.1	N/A	N/A	N/A	N/A	N/A	N/A

1) The analysis by X-ray fluorescence spectrometry showed a detection for Br. The verification and quantification of PBB/PBDE was performed by GC-MS.

2) The analysis by X-ray fluorescence spectrometry showed a detection for Cr. The verification and quantification of Cr (VI) was performed by photometric analysis.

3) The analysis by X-ray fluorescence spectrometry showed a detection for Cd. The verification and quantification of Cd was performed by ICP-OES.

N/A: Not applicable

*=With reference to IEC62321-8:2017, Analysis was performed by GC-MS.

Description of the analysis procedure (brief version):

Test of RoHS conformity

The measurements are performed according to IEC 62321-3-1 : 2013, “Electrotechnical products - Determination of levels of six regulated substances”.

The product is divided in single material samples. The materials are analysed on different parameters of the RoHS-directive to assure that the complete product is RoHS-conform or not. At first a XRF (X-ray fluorescence spectrometry) screening is performed. For every sample following statements can be made.

Table: Screening limits in mg/kg for regulated elements in various matrices

Element	Polymers	Metals	Composite Material
Cd	BL ≤ (70-3σ) < X < (130+3σ) ≤ OL	BL ≤ (70-3σ) < X < (130+3σ) ≤ OL	LOD < X < (150+3σ) ≤ OL
Pb	BL ≤ (700-3σ) < X < (1300+3σ) ≤ OL	BL ≤ (700-3σ) < X < (1300+3σ) ≤ OL	BL ≤ *(500*-3σ) < *X* < *(1500*+3σ) ≤ OL
Hg	BL ≤ (700-3σ) < X < (1300+3σ) ≤ OL	BL ≤ (700-3σ) < X < (1300+3σ) ≤ OL	BL ≤ *(500*-3σ) < *X* < *(1500*+3σ) ≤ OL
Br	BL ≤ (300-3σ) < X		BL ≤ *(250*-3σ) < *X*
Cr	BL ≤ (700-3σ) < X	BL ≤ (700-3σ) < X	BL ≤ *(500*-3σ) < *X*

Below limit (**BL**): the tested material complies to the RoHS directive.

Inconclusive (**X**): If the level of the measurement is around the maximum allowed, or if the level for Chrome or Bromine is too high, other more accurate methods are needed to determine the exact level or the composition of Chrome and Bromine.

Over limit (**OL**): If the level of lead, mercury or cadmium is well above the maximum allowed levels (the XRF uncertainty is taken into account), the tested material does not comply with the RoHS directive.

In case of **inconclusive** XRF results, following analysis procedures are applied:

In order to examine the material samples for the heavy metals cadmium, lead and mercury they are digested in acid and the solutions are used to carry out the analysis for the heavy metals by ICP-OES or atomic-absorption spectroscopy.

Hexavalent chromium is checked by extracting the sample with water at 100 °C (determination of Cr VI in colorless and colored chromate coating on metals) respectively with alkaline extraction at 90-95 °C (determination of Cr VI in polymers and electronic components) followed by photometric analysis.

In the case of metallic components with a surface coating containing hexavalent Chromium (passivation) the concentration is expressed in mg of Chromium VI per component. In order to obtain further information about the concentration on the surface coating it is necessary to know the weight per unit area of the coating and the surface area of the component. Information about surface coatings is to be provided by the client.

The examination for bromine-based flame retardant products is carried out by gas chromatography-mass spectrometry after extraction by solvents; this involves the individual analysis and quantification of the substances specified in the RoHS. The current valid regulations relating to exceptions in respect of the analysed substances are to be taken into account by the client.

The following Polybrominated Biphenyls (PBBs) and PolybrominatedDiphenyl Ethers (PBDEs) are analyzed:

2-Bromobiphenyl PBB2, Dibromobiphenyl PBB15, Tribromobiphenyl PBB30, Tetrabromobiphenyl PBB52, Pentabromobiphenyl PBB103, Hexabromobiphenyl PBB153, Heptabromobiphenyl PBB250, Octabromobiphenyl PBB250, Nonabromobiphenyl PBB250, Decabromobiphenyl PBB209, Bromodiphenylether BDE2, Dibromodiphenylether BDE15, Tribromodiphenylether BDE30, Tetrabromodiphenylether BDE62, Pentabromodiphenylether BDE99, Hexabromodiphenylether BDE153, Heptabromodiphenylether BDE183, Octabromodiphenylether BDE203, Nonabromodiphenylether BDE206, Decabromodiphenylether BDE209.

Limits according to RoHS (2011/65/EU) and its subsequent amendments directive (EU) 2015/863 / Test methods (additional chemical analysis):

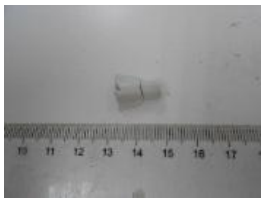
Parameter	Limits according to RoHS	Test method
Cadmium	0,01 % (100 mg/kg or 0,1 g/kg)	IEC62321-5:2013
Lead	0,1 % (1000 mg/kg or 1 g/kg)	IEC62321-5:2013
Hexavalent Chromium	0,1 % (1000 mg/kg or 1 g/kg)	Metal: IEC62321-7-1:2015 Non-metal: IEC62321-7-2:2017
Mercury	0,1 % (1000 mg/kg or 1 g/kg)	IEC62321-4:2013/AMD1:2017
PBB and PBDE	0,1 % (1000 mg/kg or 1 g/kg)	IEC62321-6:2015
DEHP	0,1 % (1000 mg/kg or 1 g/kg)	IEC62321-8:2017
BBP	0,1 % (1000 mg/kg or 1 g/kg)	IEC62321-8:2017
DBP	0,1 % (1000 mg/kg or 1 g/kg)	IEC62321-8:2017
DIBP	0,1 % (1000 mg/kg or 1 g/kg)	IEC62321-8:2017

Sample Photos


Test item001


Test item002


Test item003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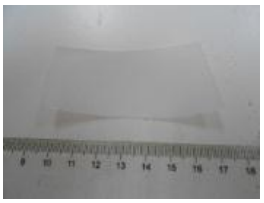
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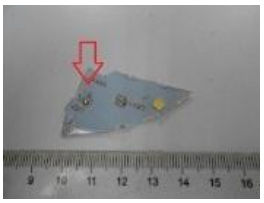
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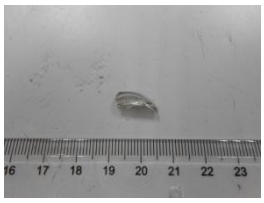
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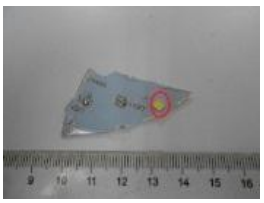
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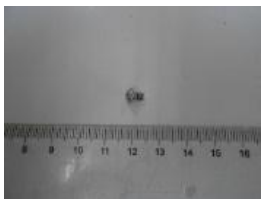
Test item010


Test item011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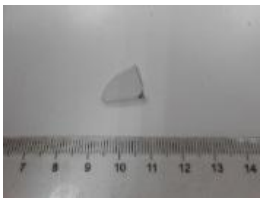
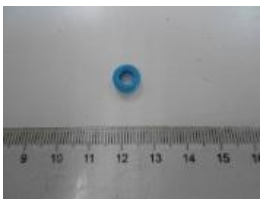

Test item013


Test item014


Test item015


Test item016


Test item017

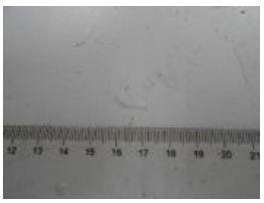

Test item018


Test item019


Test item020


Test item021


Test item022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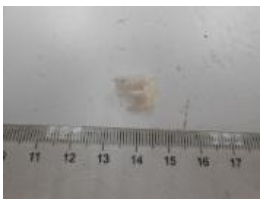
Test item024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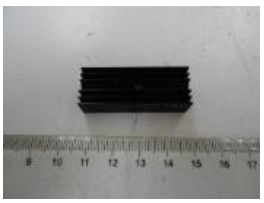
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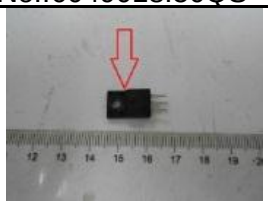
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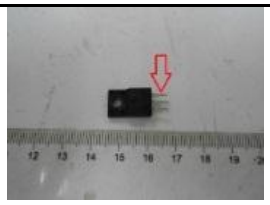
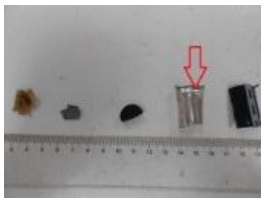

Test item030


Test item031


Test item032


Test item033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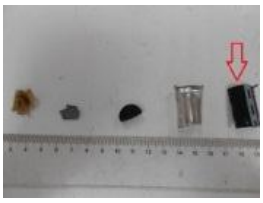
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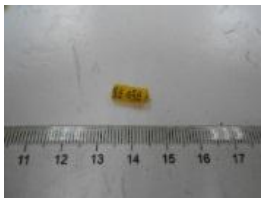
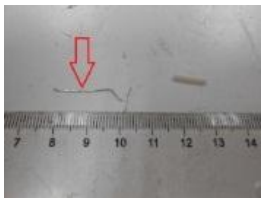

Test item036


Test item037


Test item038


Test item039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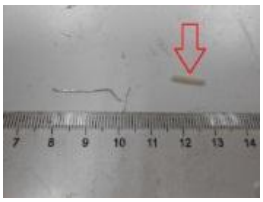
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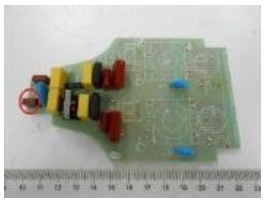
Test item042


Test item043


Test item044


Test item045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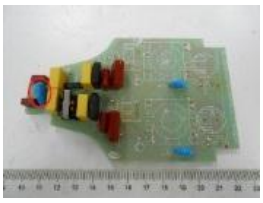
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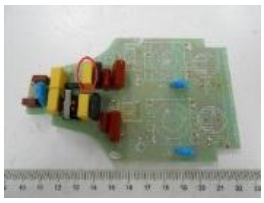
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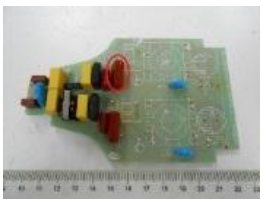
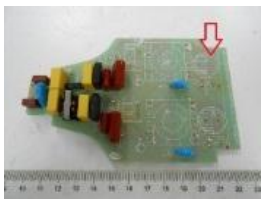
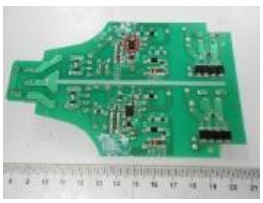
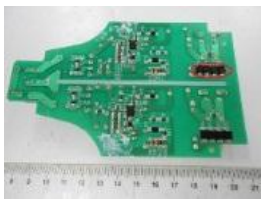
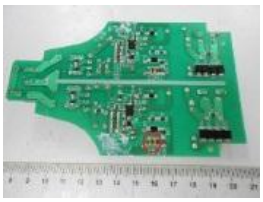
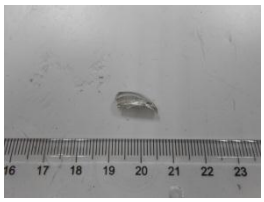

Test item049


Test item050


Test item051


Test item052


Test item053


Test item054

---End of Report---

by the customer in this report may affect the validity of the results; the test lab is not responsible for it. The measurement result is considered in conformance with the requirement if it is within the prescribed limit, It is not necessary to calculate the uncertainty associated with the measurement result, unless the specification, standard or customer have special requirements. This report is not used for social proof function in China market

Annex

Information in annex are given by client, the authenticity is guaranteed by client

Reference Model : L-BL-0600
L-BL-0601
L-BL-0602
L-BL-0603
L-BL-0604
L-BL-0605
L-BL-0606
L-BL-0607
L-BL-0608
L-BL-0609
L-BL-0610
L-BL-0612
L-BL-0614

L-BL-0615
L-BL-0616
L-BL-0617
L-BL-0618
L-BL-0619
L-BL-0620
L-BL-0621
L-BL-0622
L-BL-0623
L-BL-0624
L-BL-0625
L-BL-0626
L-BL-0700
L-BL-0701
L-BL-0702
L-BL-0707
L-BL-0709
L-BL-0800
L-BL-0801
L-BL-0802
L-BL-0807
L-BL-0809

L-BL-0720
L-BL-0740
L-BL-0749
L-BL-0740-5Y
L-BL-0740-2A
L-BL-0820
L-BL-0840

L-BL-0849
L-BL-0840-5Y
L-BL-0840-2A
L-BL-1500
L-BL-1600
L-BL-1700

L-BL-0706
L-BL-0806
L-MI-0106
L-RF-0406
L-BL-0703
L-BL-0803
L-MI-0103
L-RF-0403

L-BL-0401
L-BL-0402
L-BL-0403
L-BL-0407
L-BL-0507
L-RF-0280
L-RF-0340
L-RF-0310
L-RF-0287
L-RF-0500
L-RF-0501
L-RF-0510
L-RF-0511

L-MI-0300
L-MI-0309
L-MI-0300-5Y
L-MI-0300-2A
L-MI-0307
L-MI-0200
L-MI-0209
L-MI-0200-5Y
L-MI-0200-2A
L-MI-0207
L-MI-0100
L-MI-0109
L-MI-0100-5Y
L-MI-0100-2A
L-MI-0107
L-RF-0400
L-RF-0409
L-RF-0400-5Y

L-RF-0400-2A
L-RF-0407
L-RF-0500
L-RF-0509
L-RF-0500-5Y
L-RF-0500-2A
L-RF-0507
L-RF-0600
L-RF-0700
L-BL-0721
L-BL-0628
L-BL-0632

L-BL-1001
L-BL-1000
L-BL-0488
L-BL-0492
L-BL-0510
L-BL-0520
L-BL-0521
L-BL-0522
L-BL-0520
L-BL-0530
L-CL-0100
L-CL-0200
L-CL-0102
L-CL-0202
L-DL-0300
L-DL-0302
LED-DL-0010
LED-DL-0020
LED-DL-0011
LED-DL-0021
L-DL-0100
L-DL-0200
L-DL-0101
L-DL-0201
L-RF-0411
L-RF-0412
L-RF-0413
L-RF-0414
L-RF-0415

L-DL-0120
L-DL-0121
L-DL-0220
L-DL-0221
L-DL-0320

L-BL-0530
L-BL-0600
L-BL-1100
L-BL-0510
L-BL-1003
L-MI-0400
L-MI-0500
L-ST-0100
L-TL-0001
L-DL-0400
L-PL-0100
L-TB-8014
L-TB-8060
L-BL-1200

L-BL-0100
L-BL-0110
L-BL-0120
L-BL-0130
L-BL-0140
L-BL-0150
L-BL-0107
L-BL-0117
L-BL-0127
L-BL-0137
L-BL-0101
L-BL-0121
L-BL-0111
L-BL-0160
L-BL-0100
L-BL-0120
L-BL-0190
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L-BL-0210
L-BL-0240
L-BL-0220
L-BL-0230
L-BL-0161
L-BL-0101
L-BL-0121
L-BL-0191
L-BL-0111
L-BL-0211
L-BL-0241
L-BL-0221
L-BL-0231