

### SMD ■ REFLECTOR EAPL4040WA0-AM

PRELIMINARY



#### Features

- P-LCC-4 package.
- Colorless clear resin.
- Wide viewing angle 120 °.
- Inner reflector and white package.
- Brightness: 900 to 1420mcd at 20mA
- Precondition: Bases on JEDEC J-STD 020D Level 2
- Qualification according to AEC-Q101 rev C.
- Automotive reflow profile (IR reflow or wave soldering)

#### Applications

- Automotive backlighting or indicator: Dashboard, switch, audio and video equipments...etc.
- Backlight: LCD, switches, symbol, mobile phone and illuminated advertising.
- Display for indoor and outdoor application.
- Ideal for coupling into light guides.
- Substitution of traditional light.
- Optical indicator.

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## Device Selection Guide

Chip Materials	Emitted Color	Resin Color
InGaN	White	Water Clear

## Absolute Maximum Ratings (Ta=25 °C)

Parameter	Symbol	Rating	Unit
Reverse Voltage	$V_R$	5	V
Forward Current	$I_F$	30	mA
Peak Forward Current (Duty 1/10 @1KHz)	$I_{FP}$	100	mA
Power Dissipation	$P_d$	110	mW
Electrostatic Discharge(HBM)	ESD	1000	V
Operating Temperature	$T_{opr}$	-40 ~ +100	
Storage Temperature	$T_{stg}$	-40 ~ +110	
Soldering Temperature	$T_{sol}$	Reflow Soldering : 260 °C for 30 sec. Hand Soldering : 350 °C for 3 sec.	

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### Electro-Optical Characteristics (Ta=25 )

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	I <sub>v</sub>	900	--	1420	mcd	I <sub>F</sub> =20mA
Viewing Angle	2 1/2	--	120	--	deg	I <sub>F</sub> =20mA
Forward Voltage	V <sub>F</sub>	2.75	--	3.95	V	I <sub>F</sub> =20mA

Note:

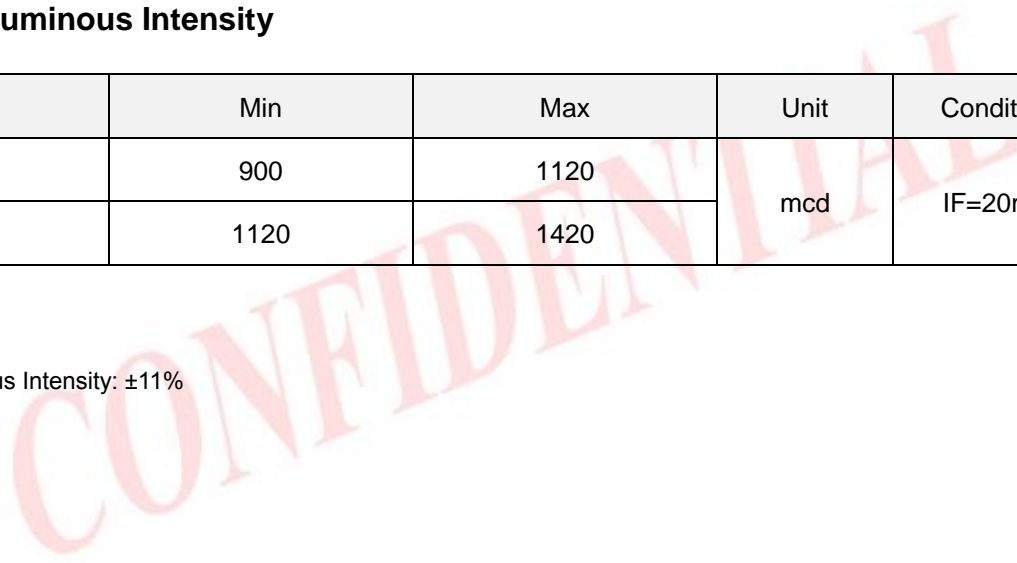
1. Tolerance of Luminous Intensity: ±11%
2. Tolerance of Dominant Wavelength: ±1nm
3. Tolerance of Forward Voltage: ±0.1V

### Bin Range of Luminous Intensity

Bin	Min	Max	Unit	Condition
V2	900	1120	mcd	I <sub>F</sub> =20mA
W1	1120	1420		

Note:

Tolerance of Luminous Intensity: ±11%



### Bin Range of Forward Voltage

Group	Bin	Min	Max	Unit	Condition
M	5	2.75	3.05	V	IF=20mA
	6	3.05	3.35		
	7	3.35	3.65		
	8	3.65	3.95		

Note:

Tolerance of Forward Voltage  $\pm 0.1V$

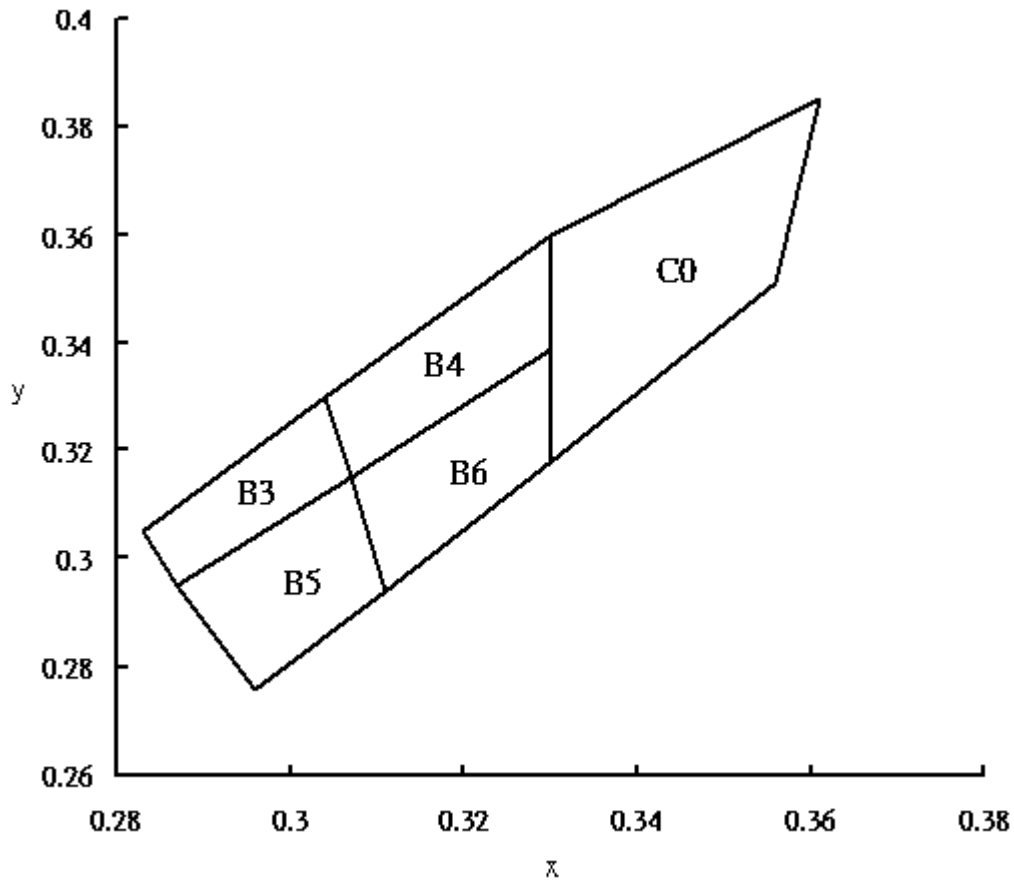
### Bin Range of Chromaticity Coordinates

Group	Bin Code	CIE_x	CIE_y	Bin Code	CIE_x	CIE_y	
U	B3	0.287	0.295	B6	0.311	0.294	
		0.283	0.305		0.307	0.315	
		0.304	0.330		0.330	0.339	
		0.307	0.315		0.330	0.318	
	B4	0.307	0.315	C0	0.330	0.318	
		0.304	0.330		0.330	0.360	
		0.330	0.360		0.361	0.385	
		0.330	0.339		0.356	0.351	
	B5	0.296	0.276				
		0.287	0.295				
		0.307	0.315				
		0.311	0.294				

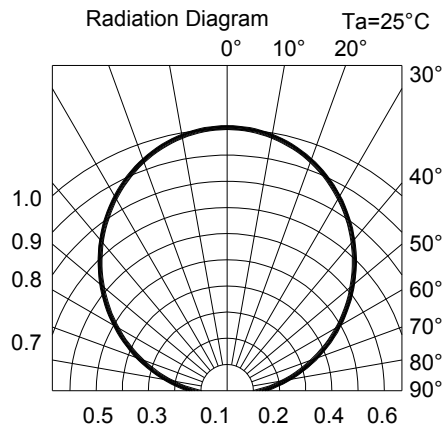
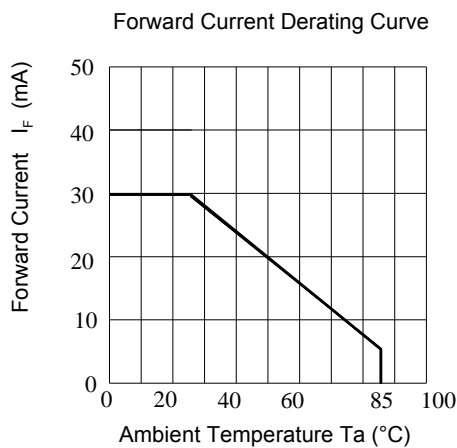
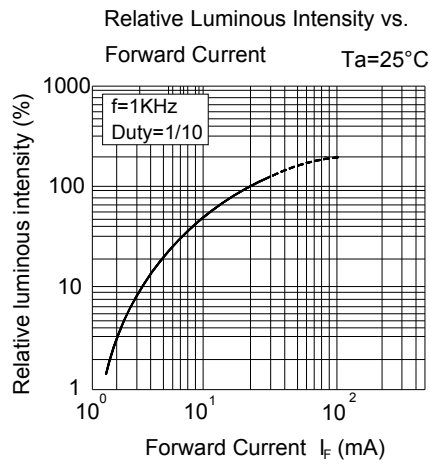
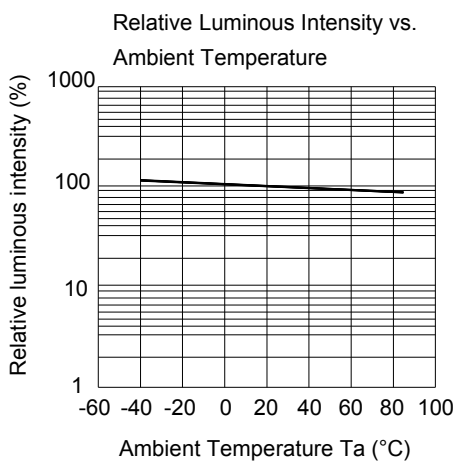
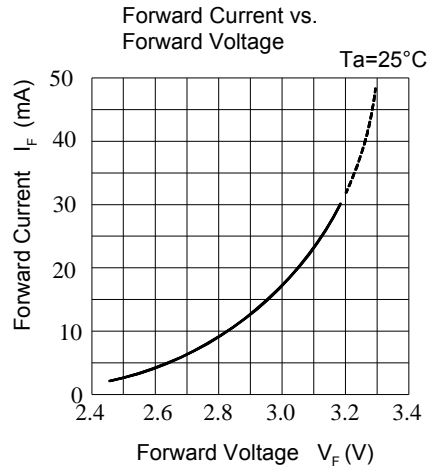
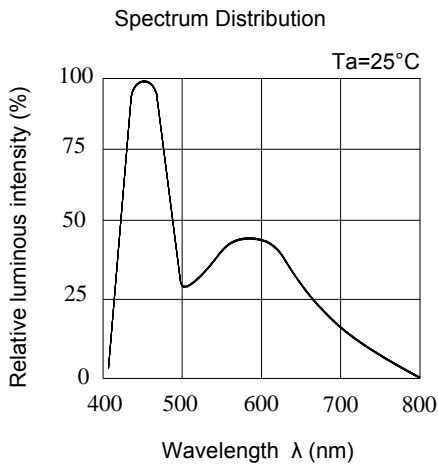
Note:

Tolerance of Chromaticity Coordinates:  $\pm 0.01$

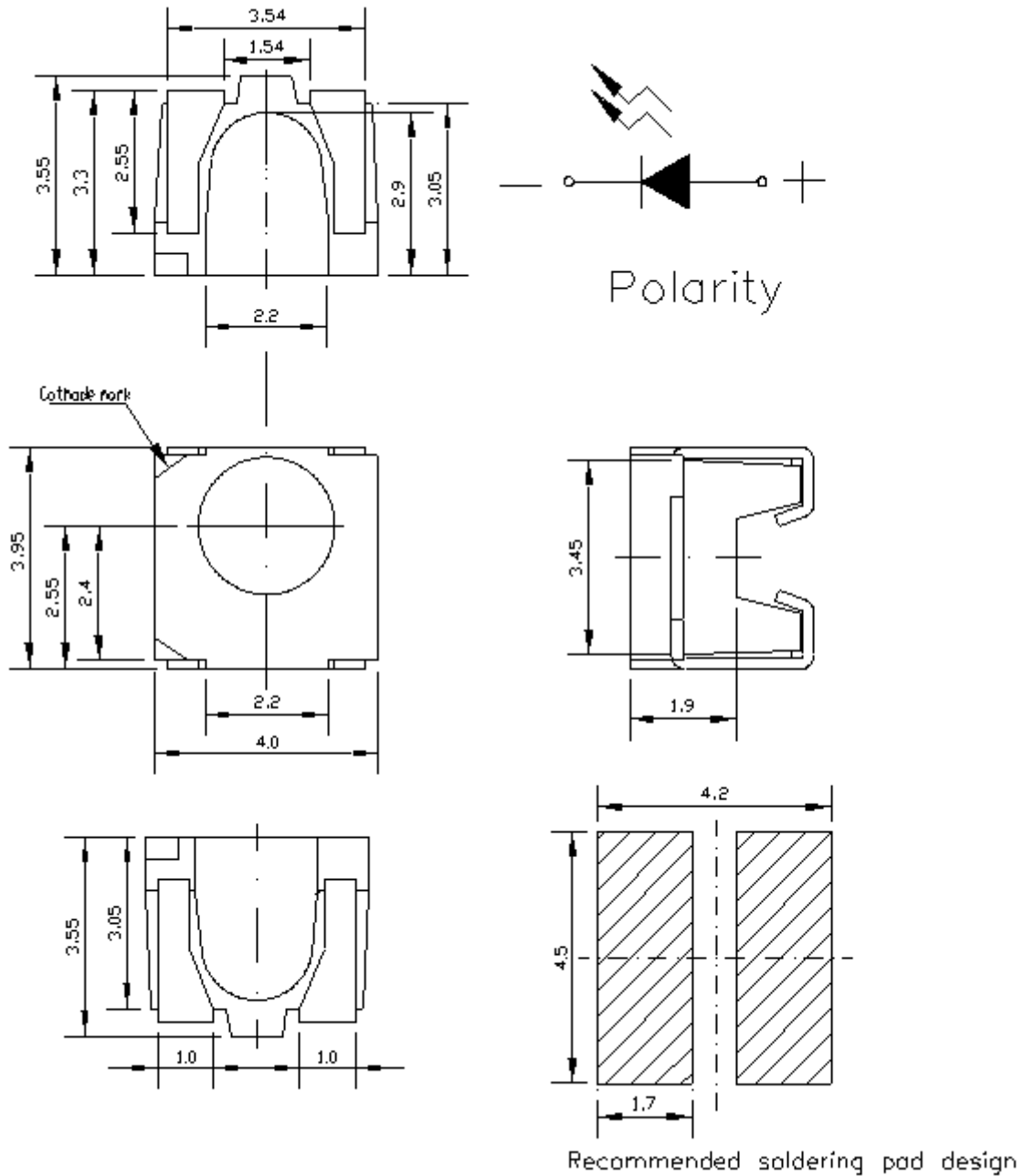
The C.I.E. 1931 chromaticity diagram.



### Typical Electro-Optical Characteristics Curves



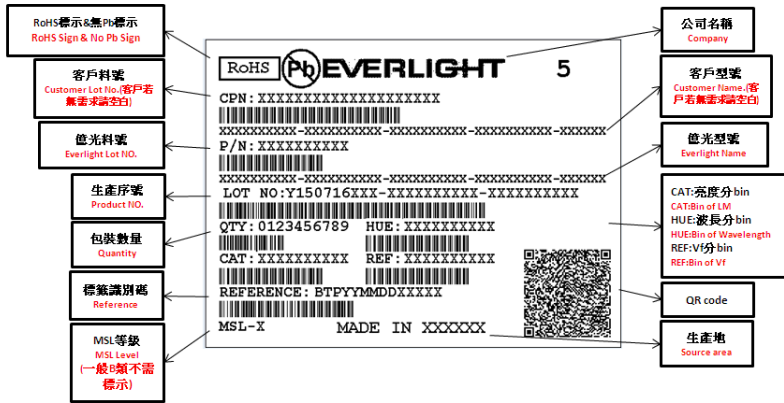
### Package Dimension



Note: Tolerances unless mentioned  $\pm 0.1$ mm. Unit = mm

## Moisture Resistant Packing Materials

### Label Explanation

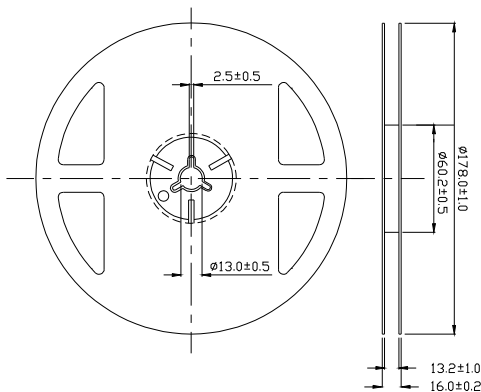


CAT: Luminous Intensity Rank

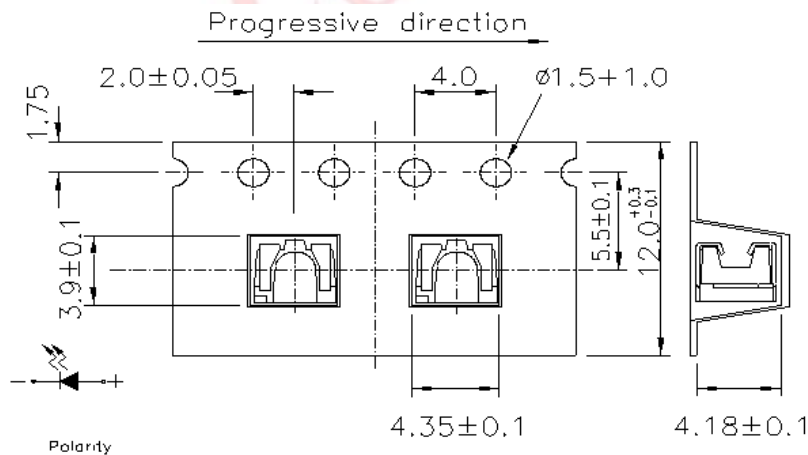
HUE: Dom. Wavelength Rank

REF: Forward Voltage Rank

### Reel Dimensions



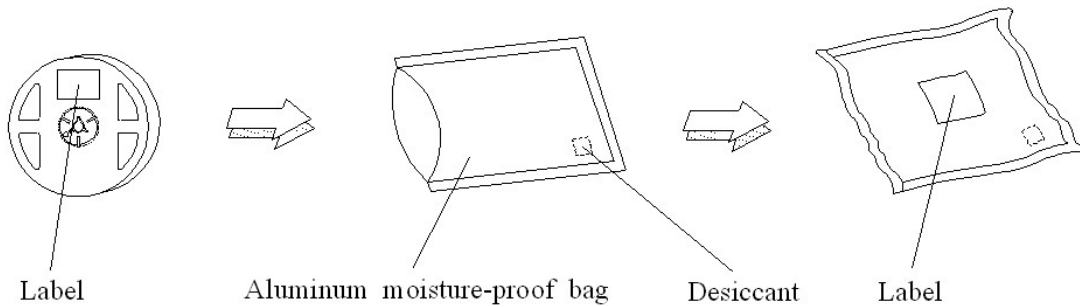
### Carrier Tape Dimensions: Loaded Quantity 500 pcs Per Reel



Note: Tolerances unless mentioned  $\pm 0.1$ mm. Unit = mm



**Moisture Resistant Packing Process**

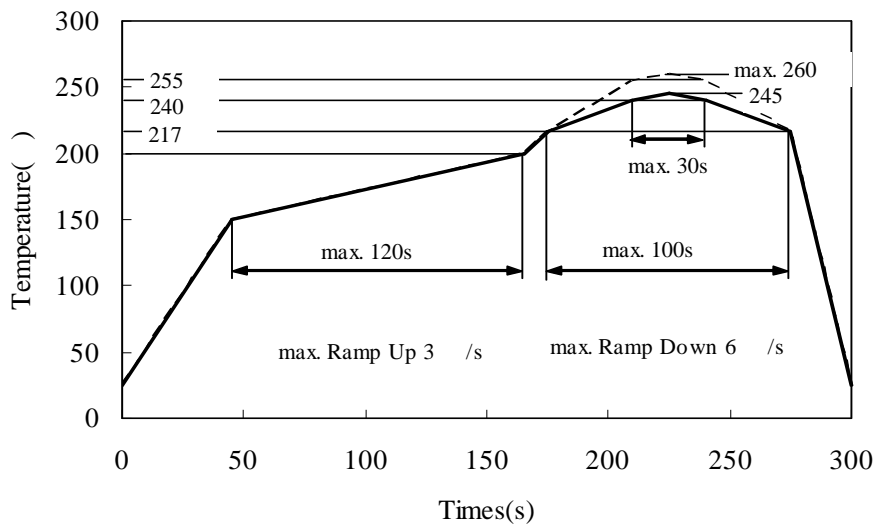


Note: Tolerances unless mentioned  $\pm 0.1\text{mm}$ . Unit = mm

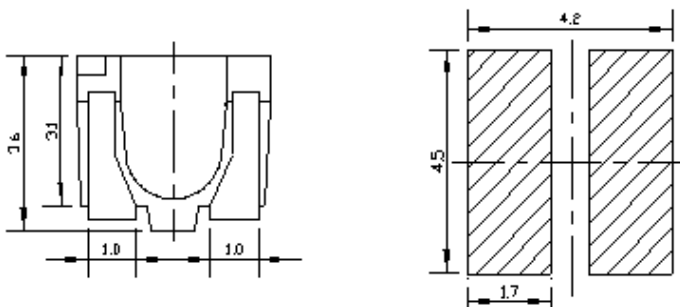
**Precautions for Use**

1. Soldering Condition (Reference: IPC/JEDEC J-STD-020D)

1.1 (A) Maximum Body Case Temperature Profile for evaluation of Reflow Profile



(B) Recommend soldering pad



Note: Tolerances unless mentioned  $\pm 0.1\text{mm}$ . Unit = mm

2. Current limiting

A resistor should be used to limit current spikes that can be caused by voltage fluctuations. Otherwise damage could occur.

3. Storage

3.1 Moisture proof bag should only be opened immediately prior to usage.

3.2 Environment should be less than 30 °C and 60% RH when moisture proof bag is opened.

3.3 After opening the package MSL Conditions stated on page 1 of this spec should not be exceeded.

3.4 If the moisture sensitivity card indicates higher than acceptable moisture, the component should be baked at min. 60deg +/-5deg for 24 hours.

4. Iron Soldering

Hand soldering is not recommended for regular production. These guidelines are for rework only. Soldering iron tip should contact each terminal no more than 3 sec at 350 °C, using soldering iron with nominal power less than 25W. Allow min. 2 sec. between soldering intervals.

5. Usage

Do not exceed the values given in this specification.

**Revision History**

Rev.	Modified date	File modified contents
1	2015/10/06	New Spec