

Product Brief (产品简介)

L35W-***11C1A-LSSV

High Power Ceramic 3535 5W White Color



Description (描述)

- This surface-mount LED size is standard package: 3.45x3.45x2.26mm.
- The L35W series is designed for high flux output applications with high current operation capability.

Features And Benefits (特性优点)

- Designed for high current operation
- Low thermal resistance
- Superior corrosion robustness
- Superior high efficacy at rated current enables outstanding lm/W at system level
- Viewing angle at 50%I_v: 120°
- Lumen Maintenance: Test results according to IESNA LM-80 available
- RoHS certification

Applications (应用)

- Indoor lighting
- Outdoor lighting
- Automotive
- Architectural lighting
- Industrial lighting (High/Low bay)
- Portable torch
- Home appliance

Table 1. Product overview (产品总览)

Parameter	Color Rendering		CCT(K)	Luminous Flux (lm)
	Min	Typ.	Rank	IF=700mA
L35W-***11C1A-LSSV	80	-	2100-18235	170-300
	90	-	2100-14058	140-260
	95	97	2335-8205	140-220

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Performance Characteristics (性能特性)

Table 2. Product For CRI80 Electro Optical Characteristics (光电特性) ,
IF = 700mA ,Ta = 25°C, RH60%

Parameter	CCT(K)	Color Rendering	Voltage Rank (V)	Main Luminous Flux Rank (lm)
Model No.	Rank	Min	IF=700mA	IF=700mA
L35W-A6811C1A-LSSV	14058-18235	80	2.8-3.2	240-280
L35W-A2811C1A-LSSV	10115-14058	80	2.8-3.2	240-290
L35W-90811C1A-LSSV	8205-10280	80	2.8-3.2	260-300
L35W-75811C1A-LSSV	7040-8205	80	2.8-3.2	260-300
L35W-65811C1A-LSSV	6020-7040	80	2.8-3.2	260-300
L35W-60811C1A-LSSV	5652-6490	80	2.8-3.2	260-300
L35W-57811C1A-LSSV	5300-6020	80	2.8-3.2	260-300
L35W-50811C1A-LSSV	4750-5300	80	2.8-3.2	250-300
L35W-45811C1A-LSSV	4255-4750	80	2.8-3.2	250-300
L35W-40811C1A-LSSV	3715-4255	80	2.8-3.2	250-290
L35W-35811C1A-LSSV	3250-3715	80	2.8-3.2	240-280
L35W-30811C1A-LSSV	2890-3250	80	2.8-3.2	240-280
L35W-27811C1A-LSSV	2600-2890	80	2.8-3.2	220-260
L35W-25811C1A-LSSV	2335-2600	80	2.8-3.2	190-230
L35W-22811C1A-LSSV	2100-2335	80	2.8-3.2	170-210

- Tolerance of measurements of the Luminous Flux is ±7%.
- CRI-Ra measurement tolerance is ±2.
- Voltage measurement tolerance is ±0.1V.
- Correlated Color Temperature is derived from the CIE 1931 Chromaticity diagram.
- The luminous intensity Iv was measured at the peak of the spatial pattern which may not be aligned with the mechanical axis of the LED package.
- The lumen table is only for reference.

Table 3. Product For CRI90 Electro Optical Characteristics (光电特性) ,
IF = 700mA ,Ta = 25°C, RH60%

Parameter	CCT(K)	Color Rendering	Voltage Rank (V)	Main Luminous Flux (lm)
Model No.	Rank	Min	IF=700mA	IF=700mA
L35W-A2911C1A-LSSV	10115-14058	90	2.8-3.2	230-260
L35W-90911C1A-LSSV	8205-10280	90	2.8-3.2	230-260
L35W-75911C1A-LSSV	7040-8205	90	2.8-3.2	230-260
L35W-65911C1A-LSSV	6020-7040	90	2.8-3.2	230-260
L35W-60911C1A-LSSV	5652-6490	90	2.8-3.2	230-260
L35W-57911C1A-LSSV	5300-6020	90	2.8-3.2	230-260
L35W-50911C1A-LSSV	4750-5300	90	2.8-3.2	220-250
L35W-45911C1A-LSSV	4255-4750	90	2.8-3.2	220-250
L35W-40911C1A-LSSV	3715-4255	90	2.8-3.2	220-250
L35W-35911C1A-LSSV	3250-3715	90	2.8-3.2	200-230
L35W-30911C1A-LSSV	2890-3250	90	2.8-3.2	200-230
L35W-27911C1A-LSSV	2600-2890	90	2.8-3.2	190-220
L35W-25911C1A-LSSV	2335-2600	90	2.8-3.2	180-210
L35W-22911C1A-LSSV	2100-2335	90	2.8-3.2	140-170

- Tolerance of measurements of the Luminous Flux is ±7%.
- CRI-Ra measurement tolerance is ±2.
- Voltage measurement tolerance is ±0.1V.
- Correlated Color Temperature is derived from the CIE 1931 Chromaticity diagram.
- The luminous intensity Iv was measured at the peak of the spatial pattern which may not be aligned with the mechanical axis of the LED package.
- The lumen table is only for reference.

Table 4. Product For CRI97 Electro Optical Characteristics (光电特性) ,
IF = 700mA ,Ta = 25°C, RH60%

Parameter	CCT(K)	Color Rendering	Voltage Rank (V)	Main Luminous Flux (lm)
Model No.	Rank	Typ.	IF=700mA	IF=700mA
L35W-75F11C1A-LSSV	7040-8205	97	2.8-3.2	190-220
L35W-65F11C1A-LSSV	6020-7040	97	2.8-3.2	190-220
L35W-60F11C1A-LSSV	5652-6490	97	2.8-3.2	190-220
L35W-57F11C1A-LSSV	5300-6020	97	2.8-3.2	190-220
L35W-50F11C1A-LSSV	4750-5300	97	2.8-3.2	180-210
L35W-45F11C1A-LSSV	4255-4750	97	2.8-3.2	180-210
L35W-40F11C1A-LSSV	3715-4255	97	2.8-3.2	180-210
L35W-35F11C1A-LSSV	3250-3715	97	2.8-3.2	170-200
L35W-30F11C1A-LSSV	2890-3250	97	2.8-3.2	150-180
L35W-27F11C1A-LSSV	2600-2890	97	2.8-3.2	150-180
L35W-25F11C1A-LSSV	2335-2600	97	2.8-3.2	140-170

- Tolerance of measurements of the Luminous Flux is ±7%.
- CRI-Ra measurement tolerance is ±2.
- Voltage measurement tolerance is ±0.1V.
- Correlated Color Temperature is derived from the CIE 1931 Chromaticity diagram.
- The luminous intensity Iv was measured at the peak of the spatial pattern which may not be aligned with the mechanical axis of the LED package.
- The lumen table is only for reference.

Table 5. Electro and Thermal Characteristics (电热特性) , IF = 700mA , Ta = 25°C, RH60%

Item	Symbol	Min	Typ	Max	Unit	Condition
Forward Voltage	VF	2.8	-	3.2	V	IF=700mA
Reverse Current	IR	-	-	10	μA	VR=5V
View Angle	2θ1/2	-	120	-	°	IF=700mA
Thermal Resistance	(R _{thj-sp})	-	7.5	-	°C/W	IF=700mA
Electrostatic Discharge	ESD	-	2000	-	V	-

- Tolerance : VF :±0.1V.
- 2θ1/2 is the off-axis where the luminous intensity is 1/2 of the peak intensity.
- Thermal resistance : RthJS (Junction / solder) .

Table 6. Absolute Maximum Ratings (最大额定参数) , Ta = 25°C, RH60%

Item	Symbol	Absolute Maximum Ratings	Unit
Forward Current	IF	1500	mA
Pulse Forward Current	IFP	1800	mA
Power Dissipation	PD	4.8	W
Reverse Voltage	VR	5	V
Operating Temperature	T _{opr}	-40 ~ +100	°C
Storage Temperature	T _{stg}	-40 ~ +100	°C
Junction Temperature	T _j	125	°C

- IFP condition with Pulse: Width≤100μs Duty cycle≤1/10.
- LED's properties might be different from suggested values like above and below tables if operation condition will be exceeded our parameter range. Care is to be taken that power dissipation does not exceed the absolute maximum rating of the product.
- All measurements were made under the standardized environment of LumiSee LED.

Product Bin (产品分Bin)

Table 7. Luminous Flux Ranks (光通量分档) , Ta = 25°C, RH60%, IF=700mA

Luminous Flux(lm)			Luminous Flux(lm)		
Code	Min	Max	Code	Min	Max
WA4	140	150	WB2	220	230
WA5	150	160	WB3	230	240
WA6	160	170	WB4	240	250
WA7	170	180	WB5	250	260
WA8	180	190	WB6	260	270
WA9	190	200	WB7	270	280
WB0	200	210	WB8	280	290
WB1	210	220	WB9	290	300

Table 8. Forward Voltage Ranks (电压分档) , Ta = 25°C, RH60%, IF=700mA

Forward Voltage Ranks(V)		
Code	Min	Max
BB8	2.8	3.0
BC0	3.0	3.2

Color Bin Definitions

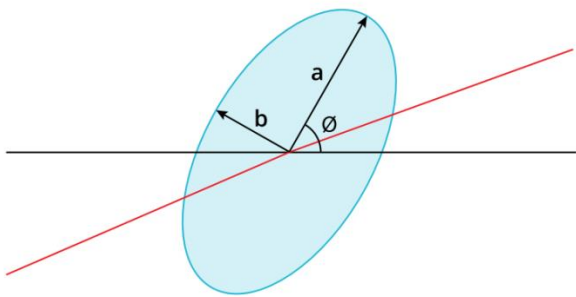


Figure 1. 3-step MacAdam ellipse illustration

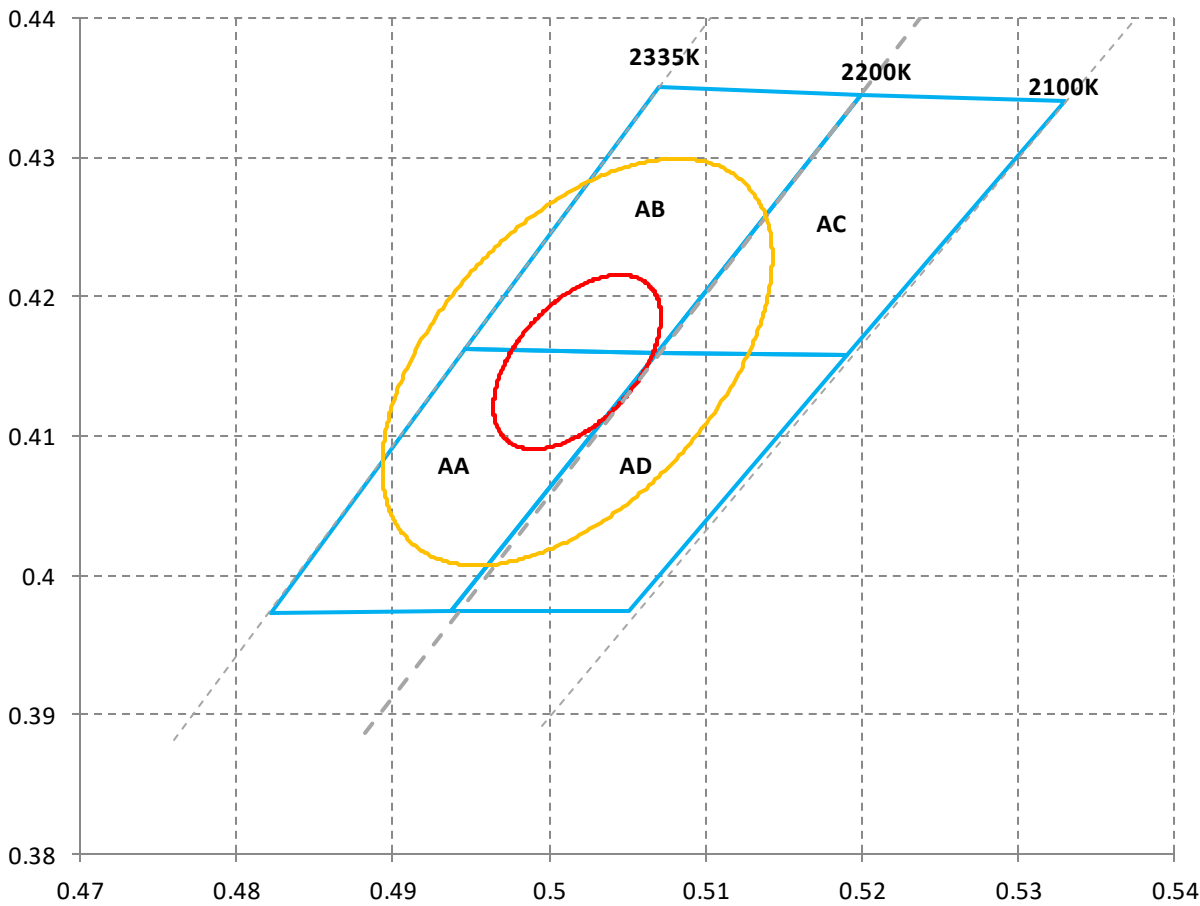


Figure 2. Color Bin For 2200K

Table 9. MacAdam ellipse color bin definitions for 2200K

CCT	Color Space	Center Point (cx, cy)	Minor Axis a	Minor Axis b	Ellipse Rotation Angle, Θ
2200K	3Step	0.5018, 0.4153	0.0072	0.0040	53.45°
2200K	7Step	0.5018, 0.4153	0.0168	0.0093	53.45°

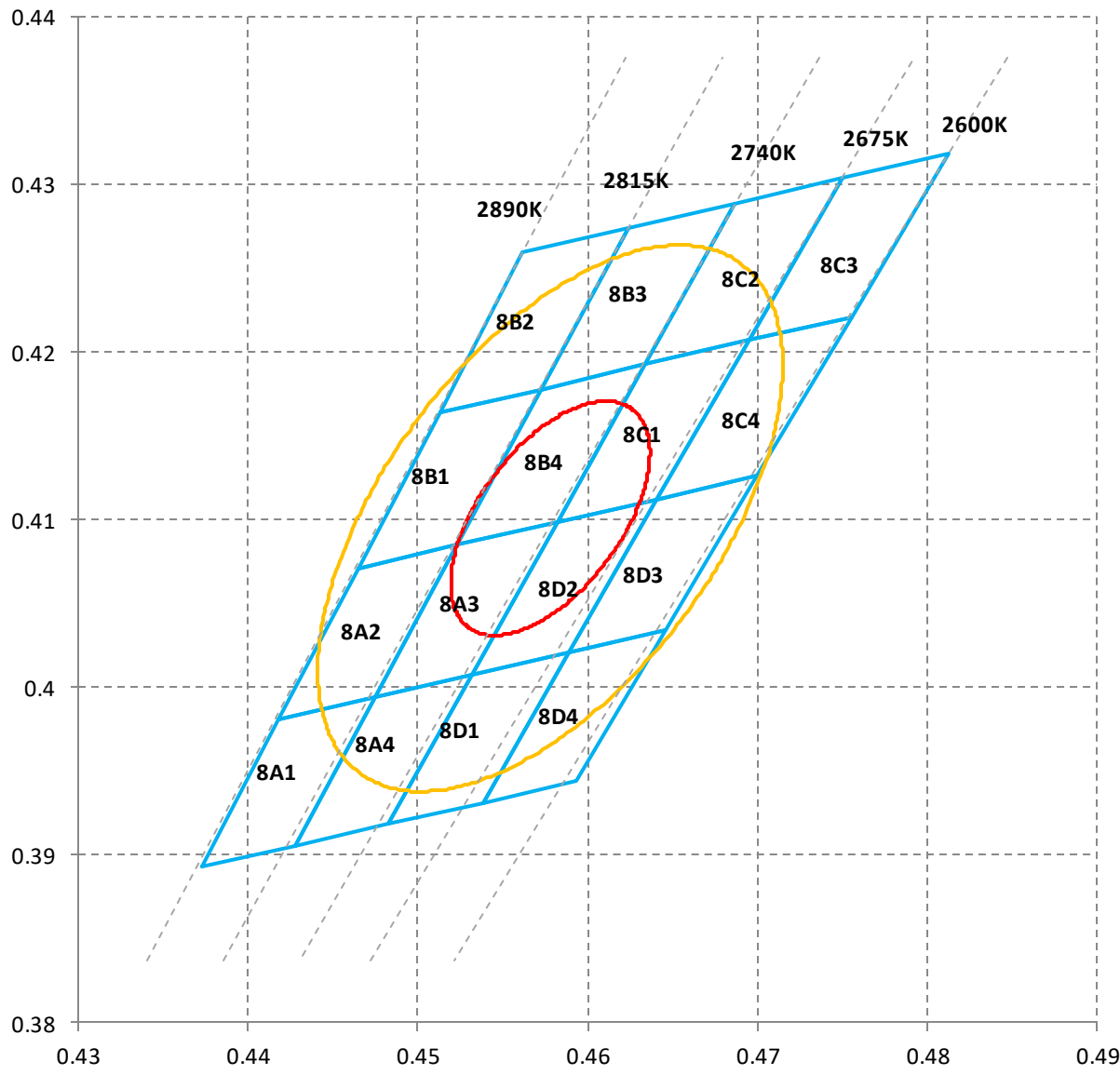


Figure 3. Color Bin For 2700K

Table 10. MacAdam ellipse color bin definitions for 2700K

CCT	Color Space	Center Point (cx, cy)	Minor Axis a	Minor Axis b	Ellipse Rotation Angle, θ
2700K	3Step	0.4578, 0.4101	0.0081	0.0042	53.7°
2700K	7Step	0.4578, 0.4101	0.0189	0.0098	53.7°

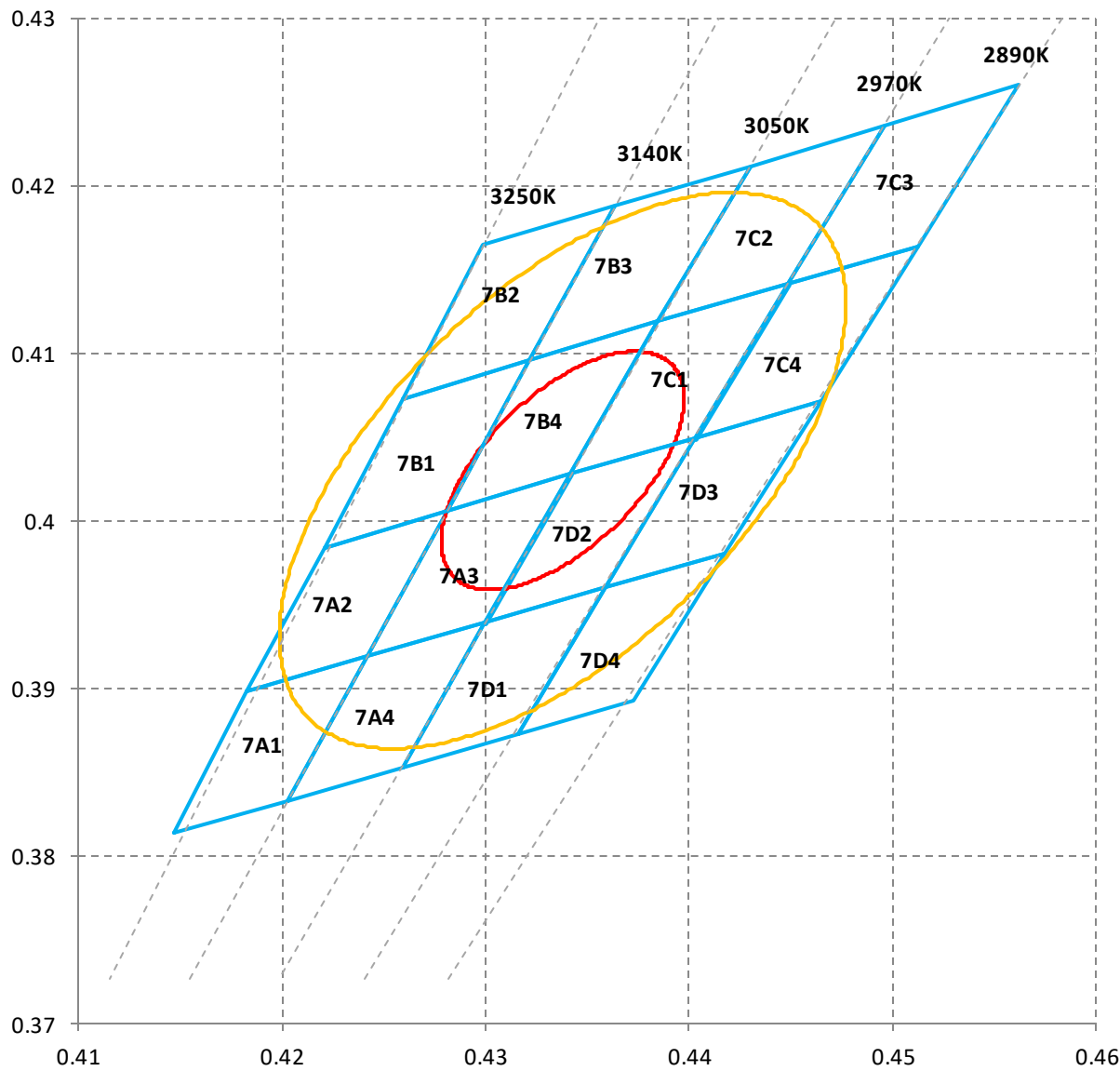


Figure 4. Color Bin For 3000K

Table 11. MacAdam ellipse color bin definitions for 3000K

CCT	Color Space	Center Point (cx, cy)	Minor Axis a	Minor Axis b	Ellipse Rotation Angle, Θ
3000K	3Step	0.4338, 0.403	0.00834	0.00408	53.22°
3000K	7Step	0.4338, 0.403	0.01946	0.00952	53.22°

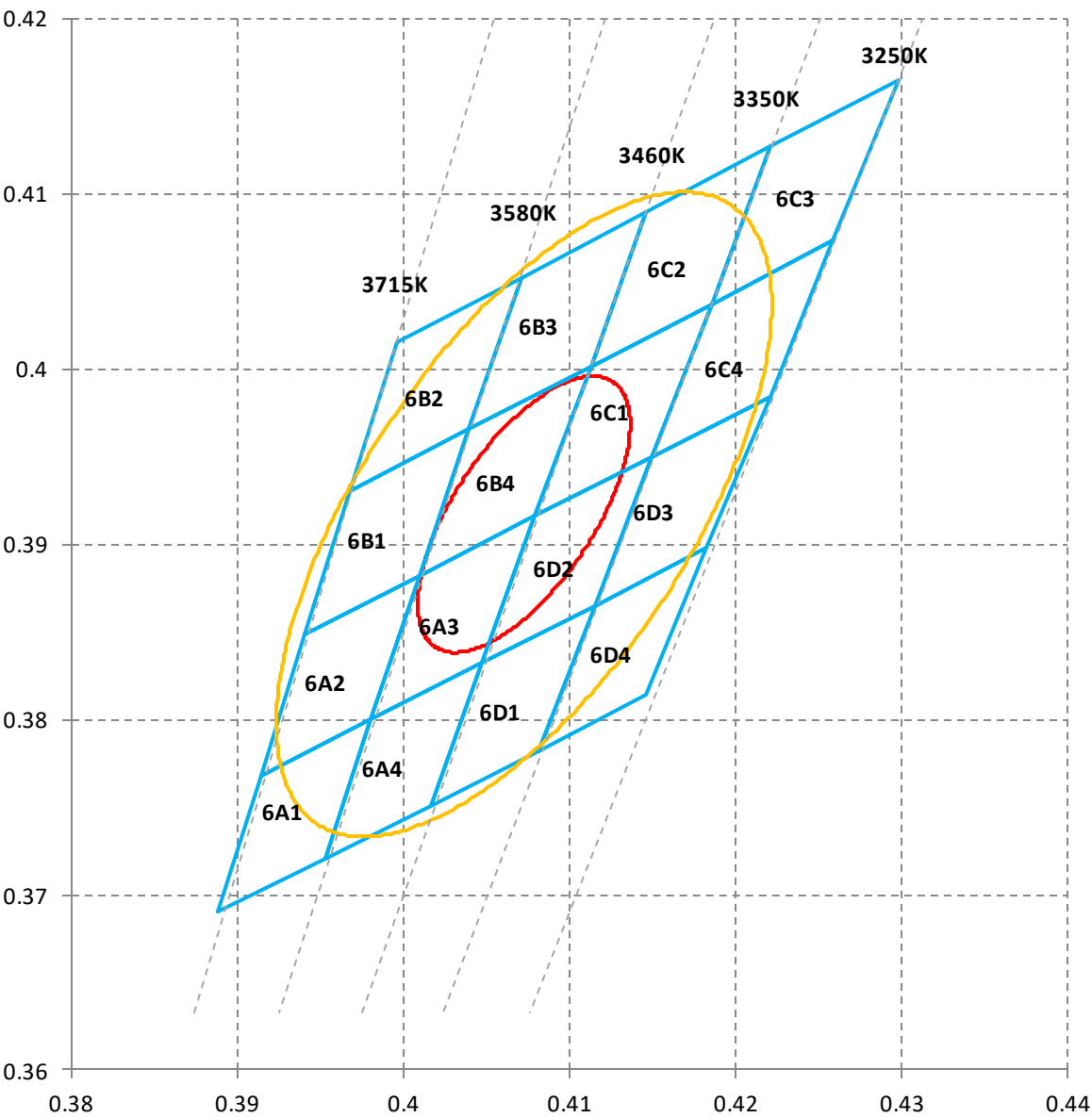


Figure 5. Color Bin For 3500K

Table 12. MacAdam ellipse color bin definitions for 3500K

CCT	Color Space	Center Point (cx, cy)	Minor Axis a	Minor Axis b	Ellipse Rotation Angle, Θ
3500K	3Step	0.4073, 0.3917	0.00927	0.00414	54.0°
3500K	7Step	0.4073, 0.3917	0.02163	0.00966	54.0°

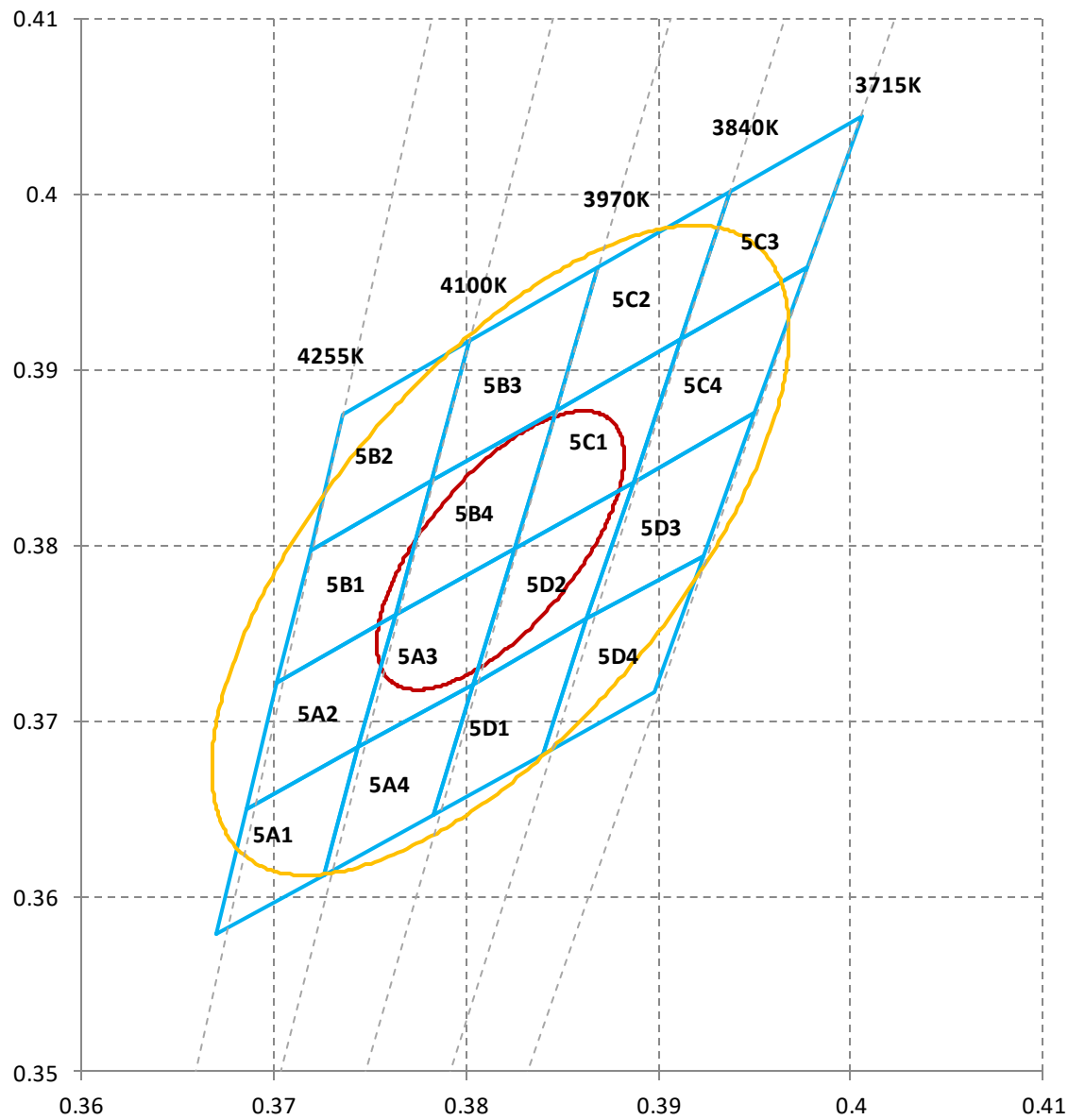


Figure 6. Color Bin For 4000K

Table 13. MacAdam ellipse color bin definitions for 4000K

CCT	Color Space	Center Point (cx, cy)	Minor Axis a	Minor Axis b	Ellipse Rotation Angle, θ
4000K	3Step	0.3818, 0.3797	0.00939	0.00402	53.72°
4000K	7Step	0.3818, 0.3797	0.02191	0.00938	53.72°

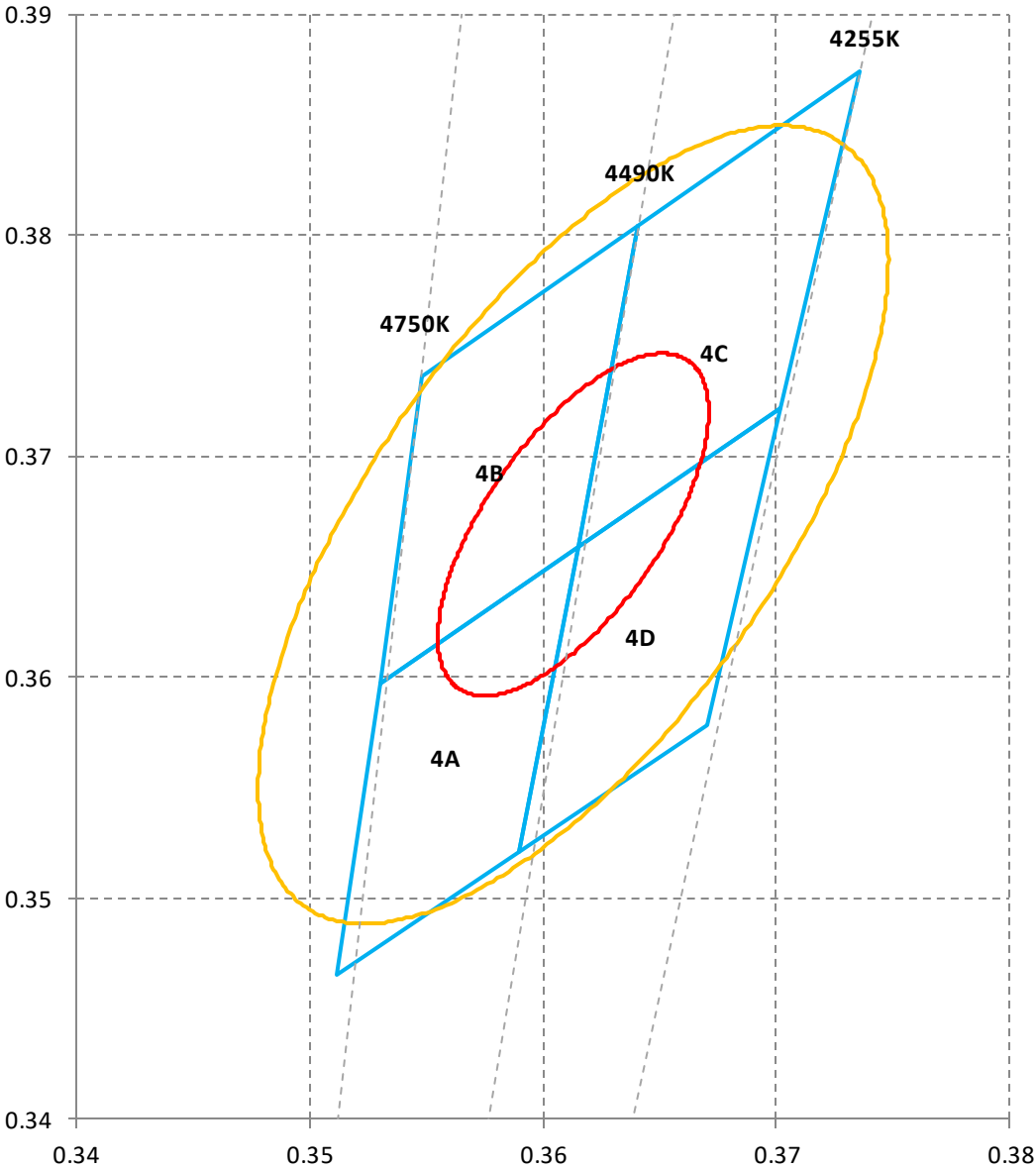


Figure 7. Color Bin For 4500K

Table 14. MacAdam ellipse color bin definitions for 4500K

CCT	Color Space	Center Point (cx, cy)	Minor Axis a	Minor Axis b	Ellipse Rotation Angle, θ
4500K	3Step	0.3613, 0.3669	0.0089	0.0038	57.0°
4500K	7Step	0.3613, 0.3669	0.02076	0.00887	57.0°

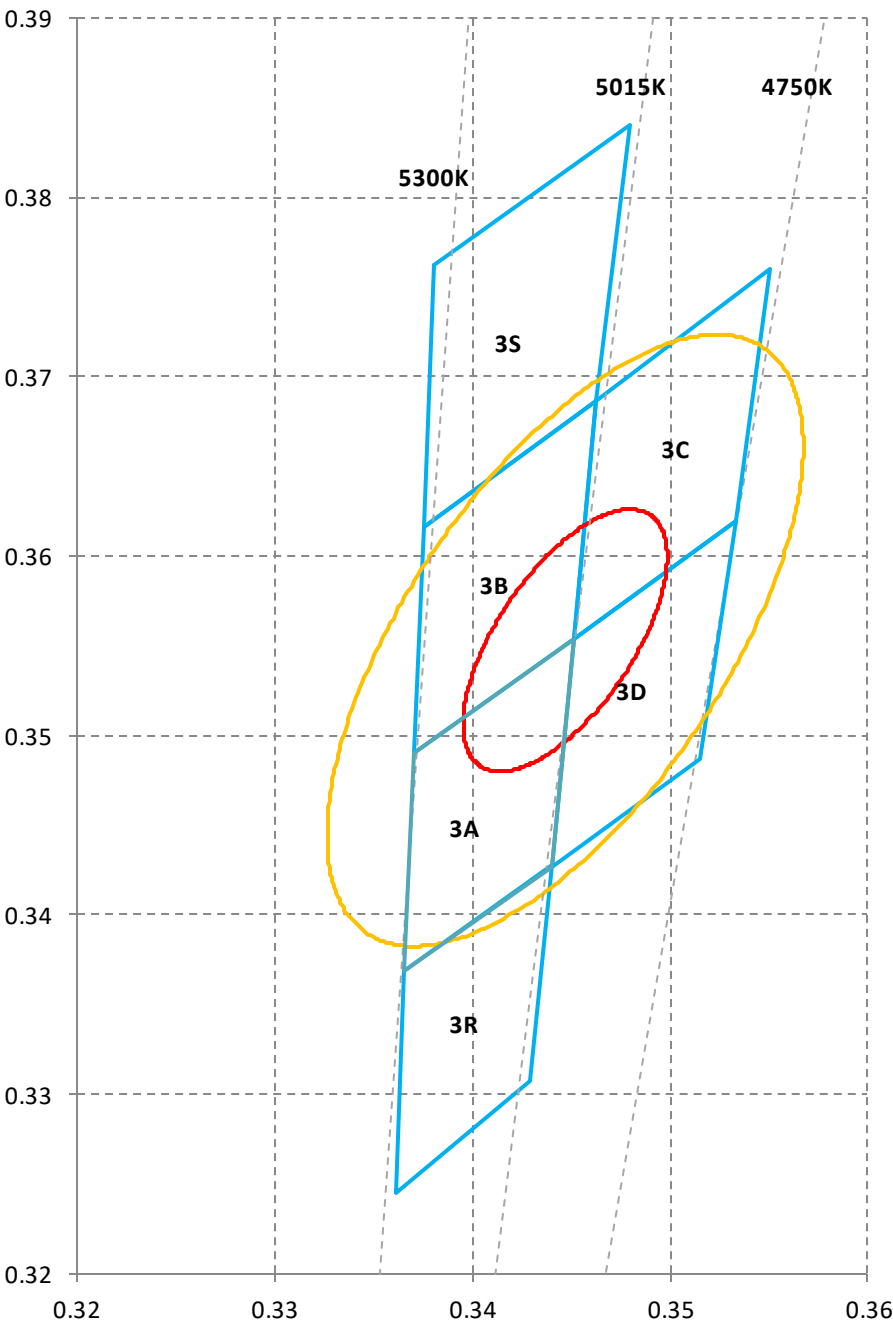


Figure 8. Color Bin For 5000K

Table 15. MacAdam ellipse color bin definitions for 5000K

CCT	Color Space	Center Point (cx, cy)	Minor Axis a	Minor Axis b	Ellipse Rotation Angle, θ
5000K	3Step	0.3447, 0.3553	0.00822	0.00354	59.62
5000K	7Step	0.3447, 0.3553	0.01918	0.00826	59.62

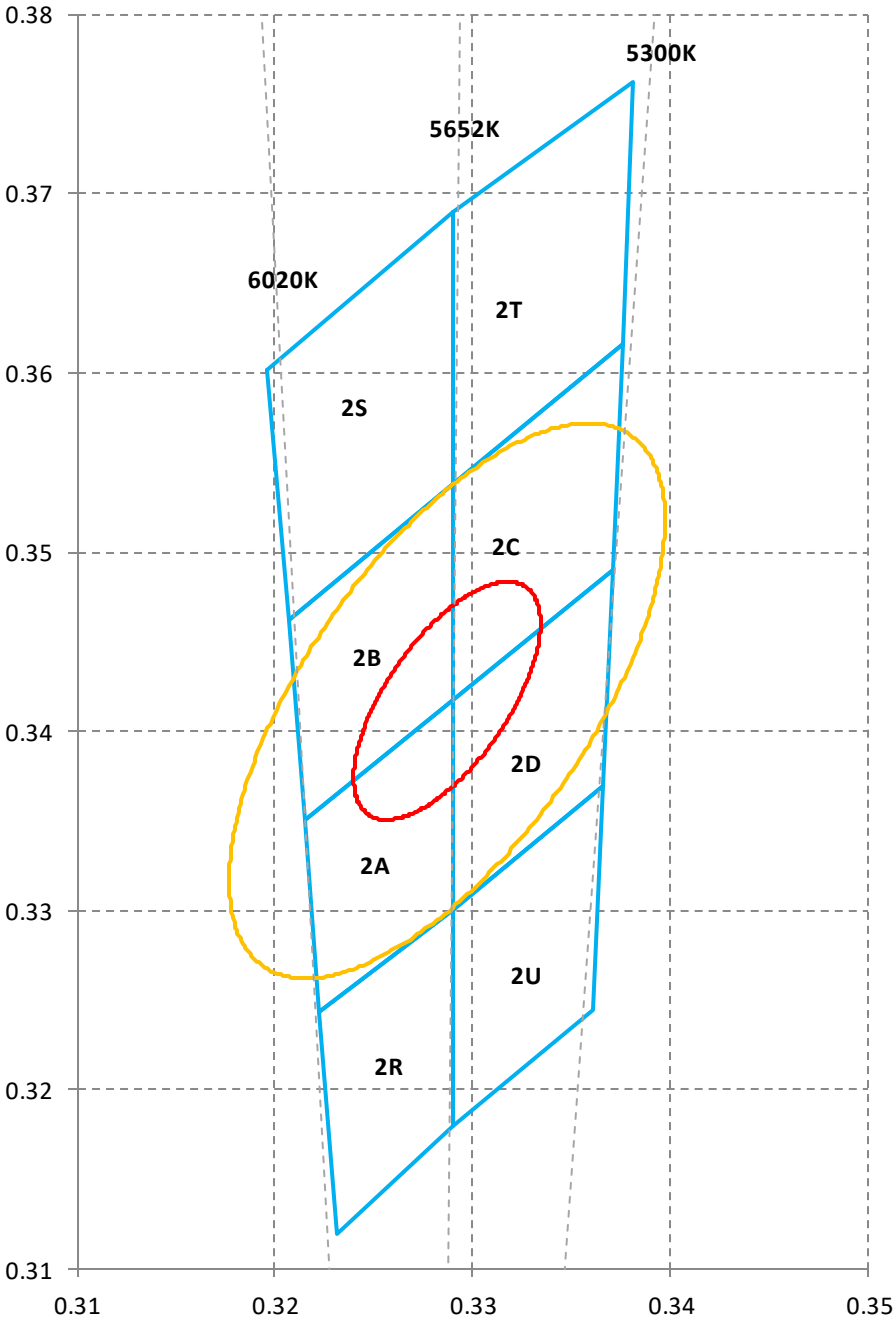


Figure 9. Color Bin For 5700K

Table 16. MacAdam ellipse color bin definitions for 5700K

CCT	Color Space	Center Point (cx, cy)	Minor Axis a	Minor Axis b	Ellipse Rotation Angle, θ
5700K	3Step	0.3287, 0.3417	0.0075	0.00318	59.09
5700K	7Step	0.3287, 0.3417	0.0175	0.00742	59.09

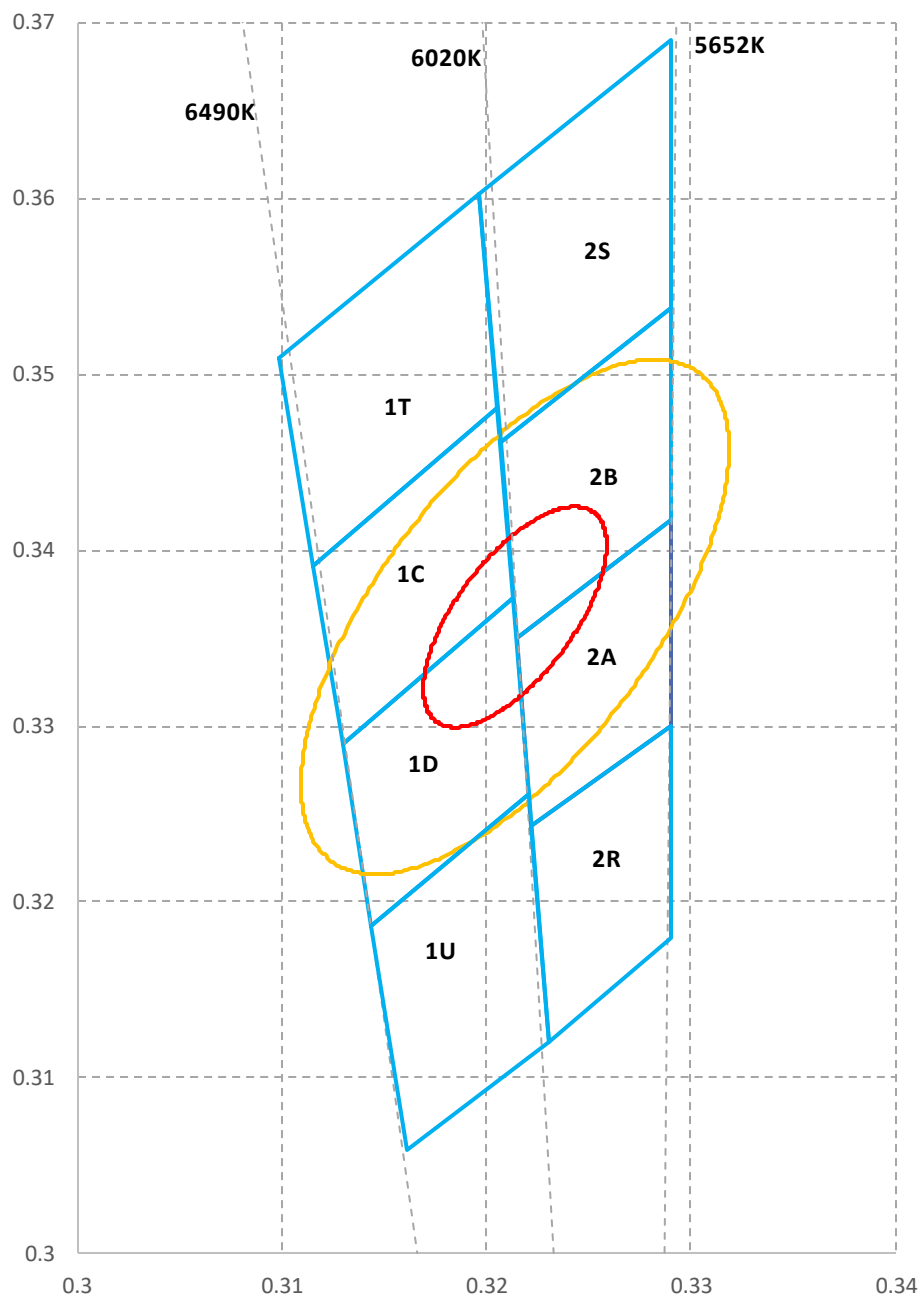


Figure 10. Color Bin For 6000K

Table 17. MacAdam ellipse color bin definitions for 6000K

CCT	Color Space	Center Point (cx, cy)	Minor Axis a	Minor Axis b	Ellipse Rotation Angle, Θ
6000K	3Step	0.3214, 0.3362	0.007098	0.003	58.84
6000K	7Step	0.3214, 0.3362	0.016562	0.007	58.84

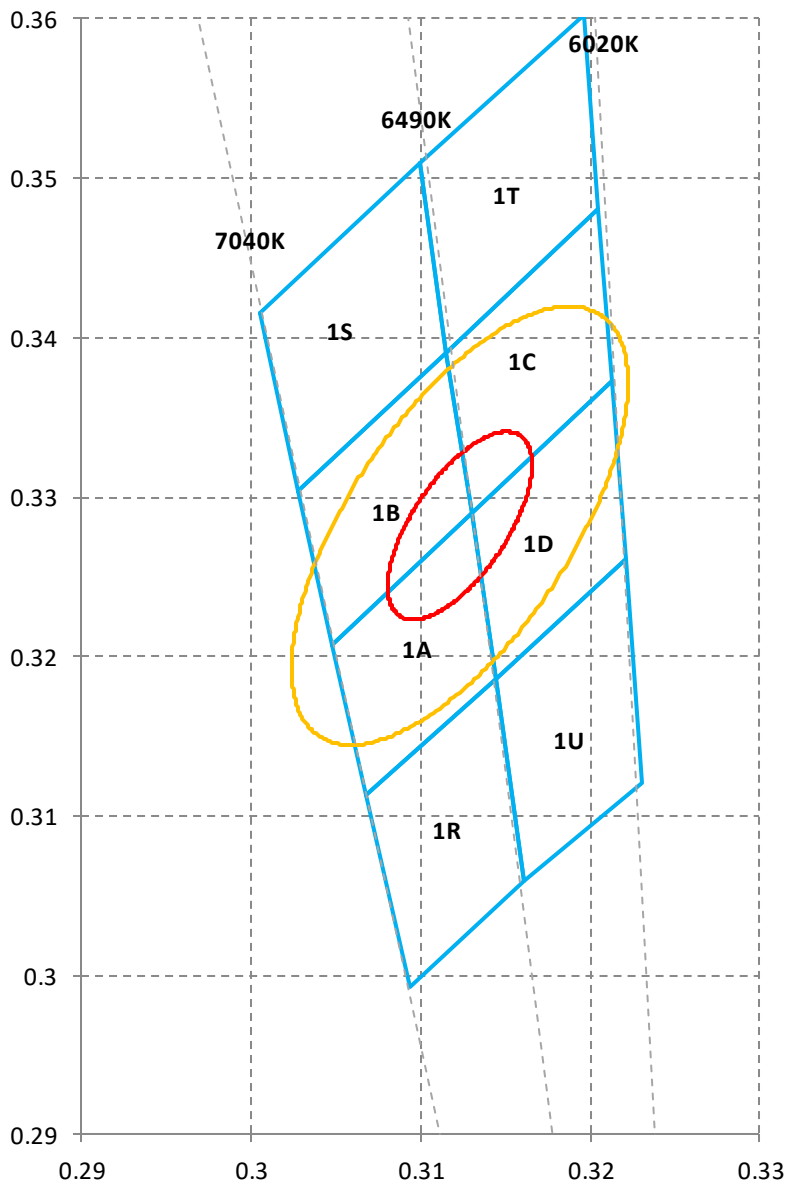


Figure 11. Color Bin For 6500K

Table 18. MacAdam ellipse color bin definitions for 6500K

CCT	Color Space	Center Point (cx, cy)	Minor Axis a	Minor Axis b	Ellipse Rotation Angle, θ
6500K	3Step	0.3123, 0.3282	0.00669	0.00285	58.57
6500K	7Step	0.3123, 0.3282	0.01561	0.00665	58.57

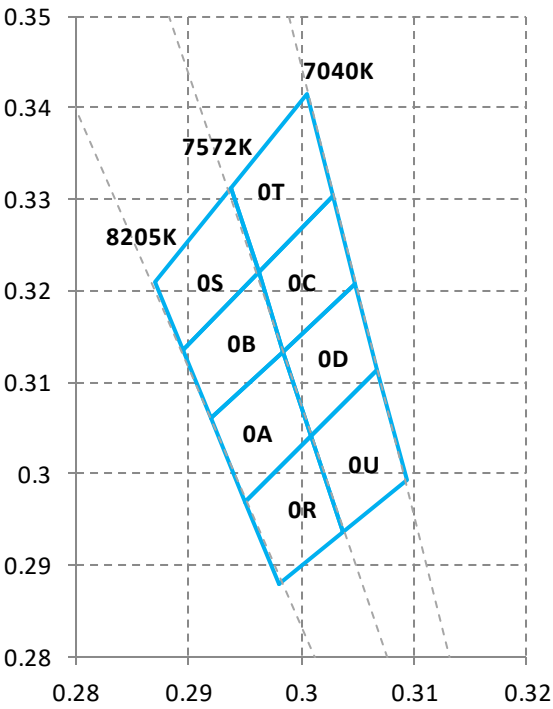


Figure 12. Color Bin For 7040-8250K

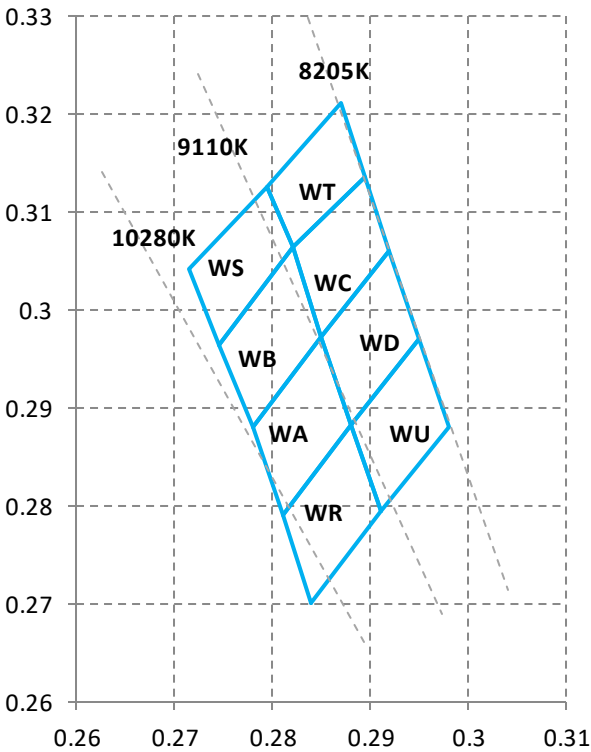


Figure 13. Color Bin For 8205-10280K

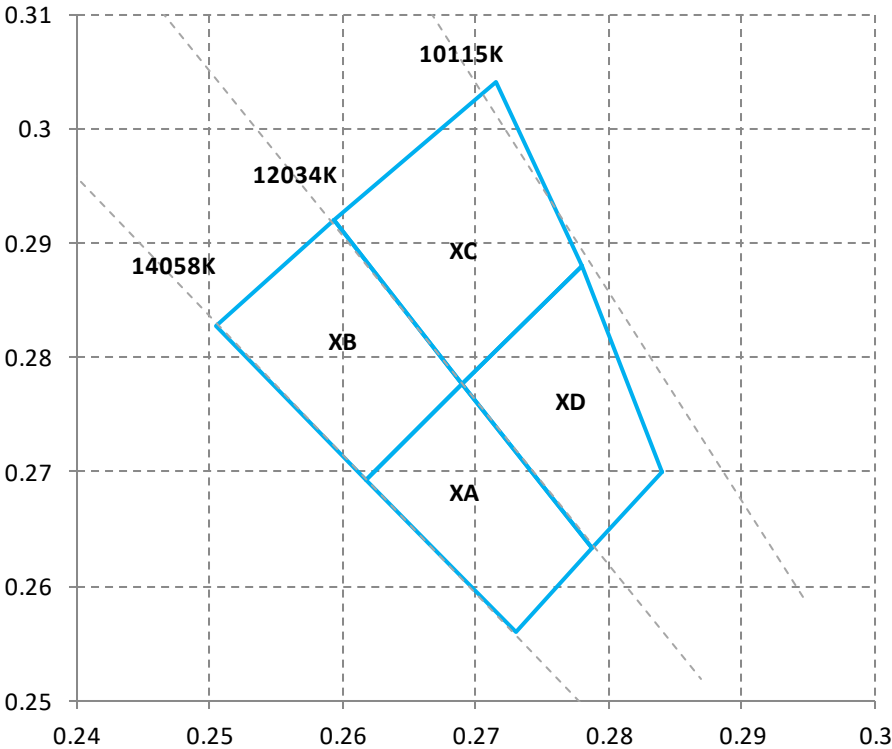


Figure 14. Color Bin For 10115-14058K

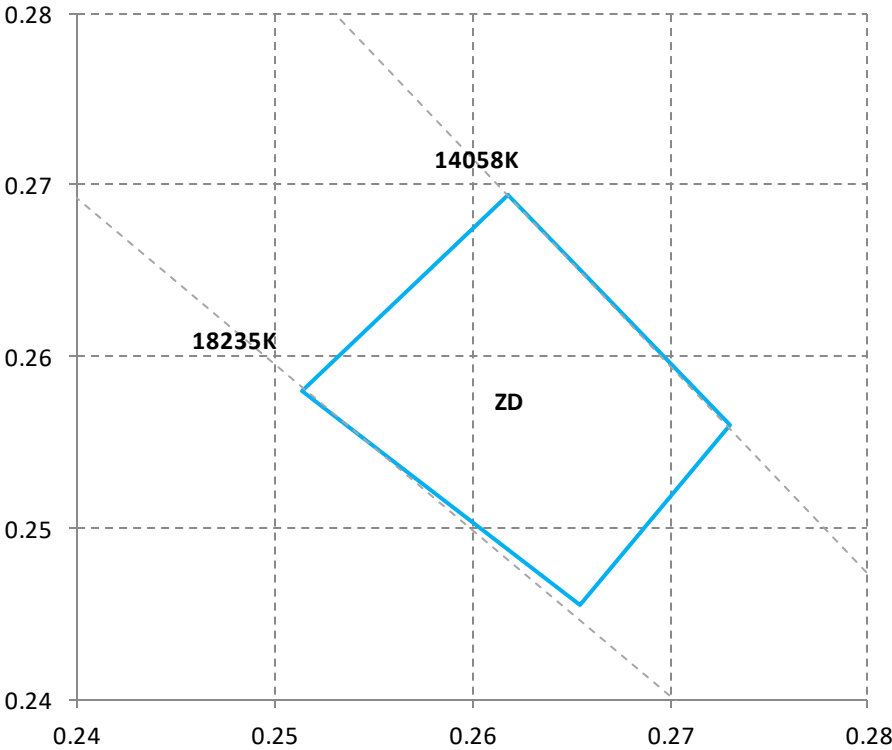


Figure 15. Color Bin For 14058-18235K

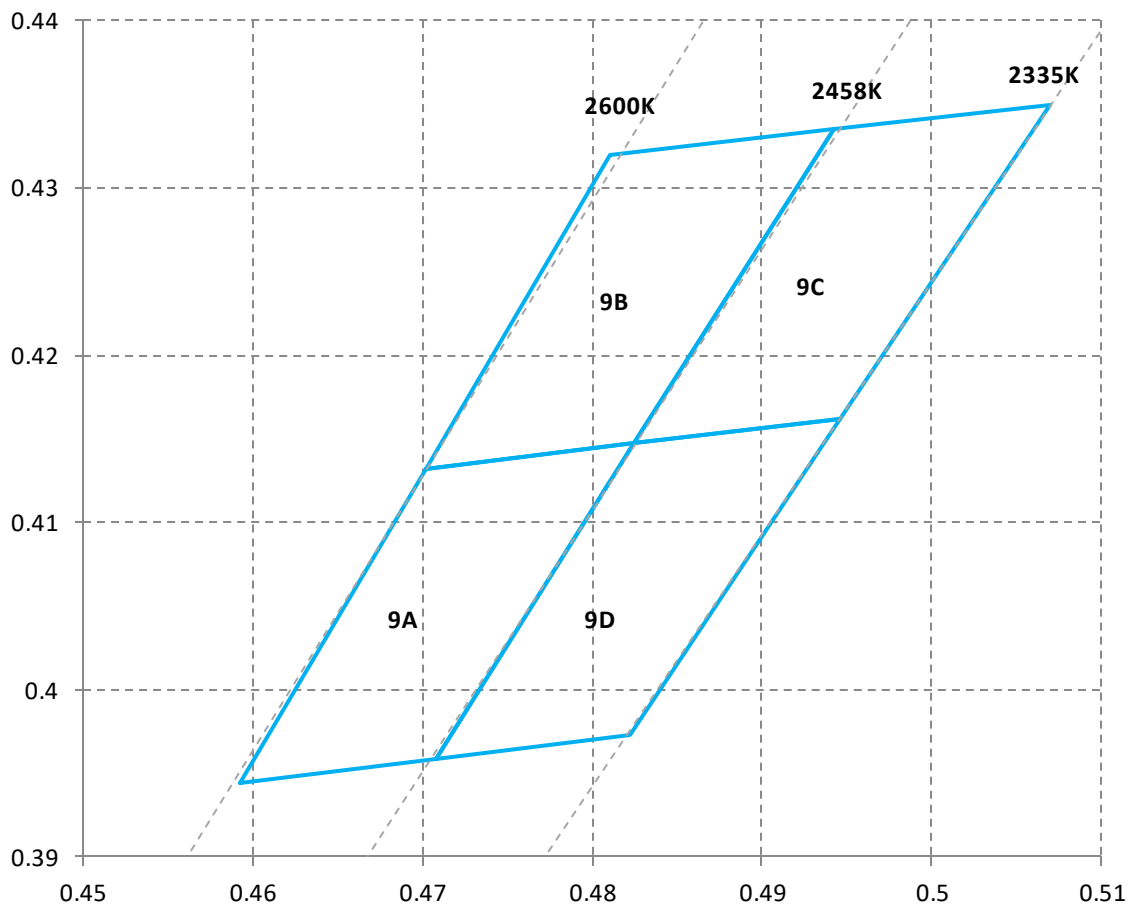


Figure 16. Color Bin For 2335-2600K

- All measurements were made under the standardized environment of LumiSee LED.
- In order to ensure availability, single color rank will not be orderable.

Typical Characteristics Curve (典型特征曲线)

Fig 17. Relative Spectral Flux Distaibution For CRI80, IF=700mA,Ta = 25°C, RH60%

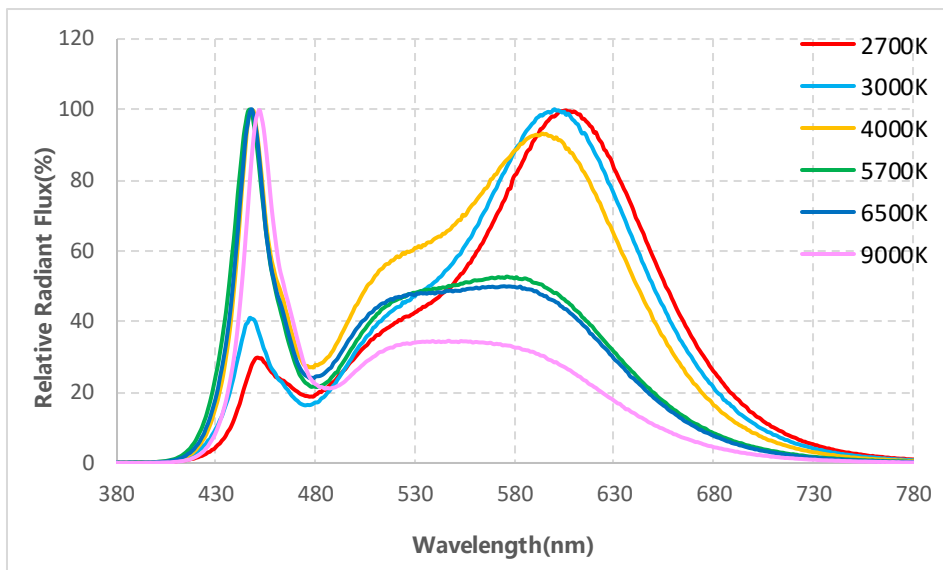


Fig 18. Relative Spectral Flux Distaibution For CRI90, IF=700mA,Ta = 25°C, RH60%

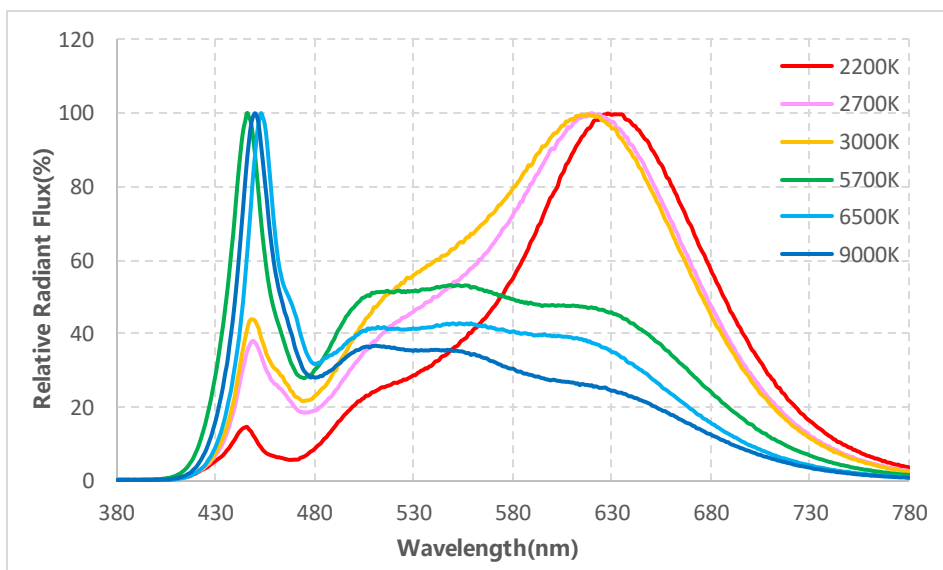


Fig 19. Relative Spectral Flux Distaiubtion For CRI97, IF=700mA,Ta = 25°C, RH60%

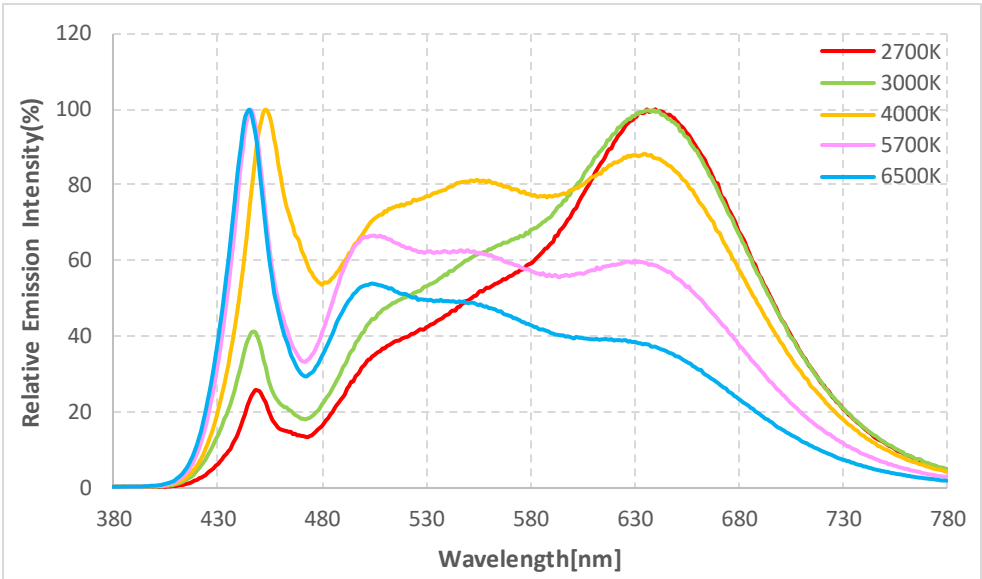


Fig 20. Viewing Angle Distribution , IF=700mA,Ta = 25°C, RH60%

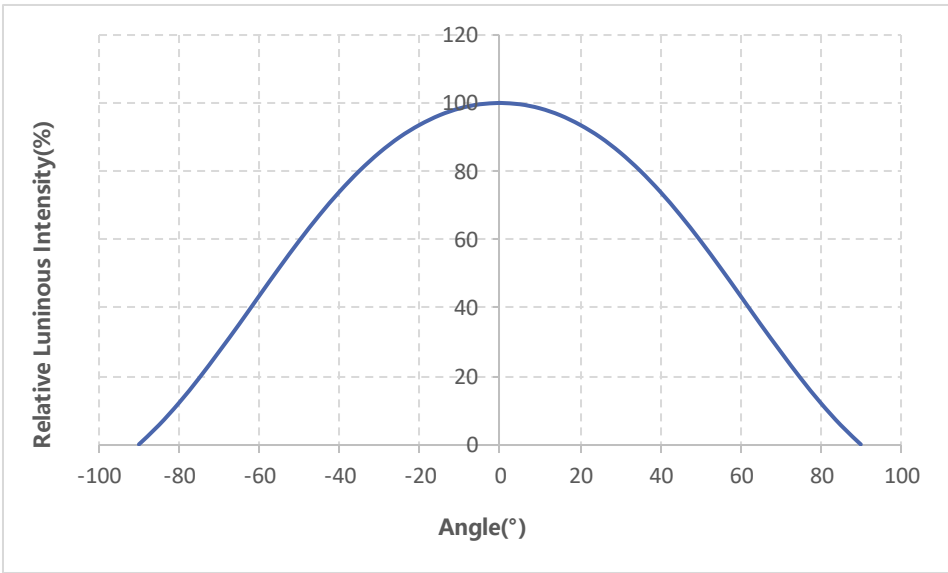


Fig 21. Relative Luminous Flux VS Forward Current,Ta = 25°C, RH60%

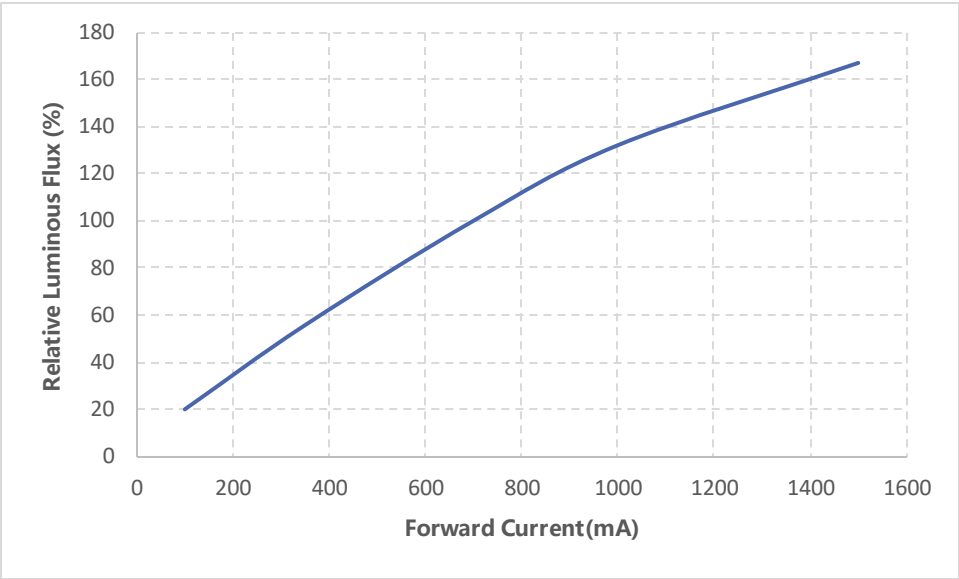


Fig 22. Forward Voltage VS Forward Current ,Ta = 25°C, RH60%

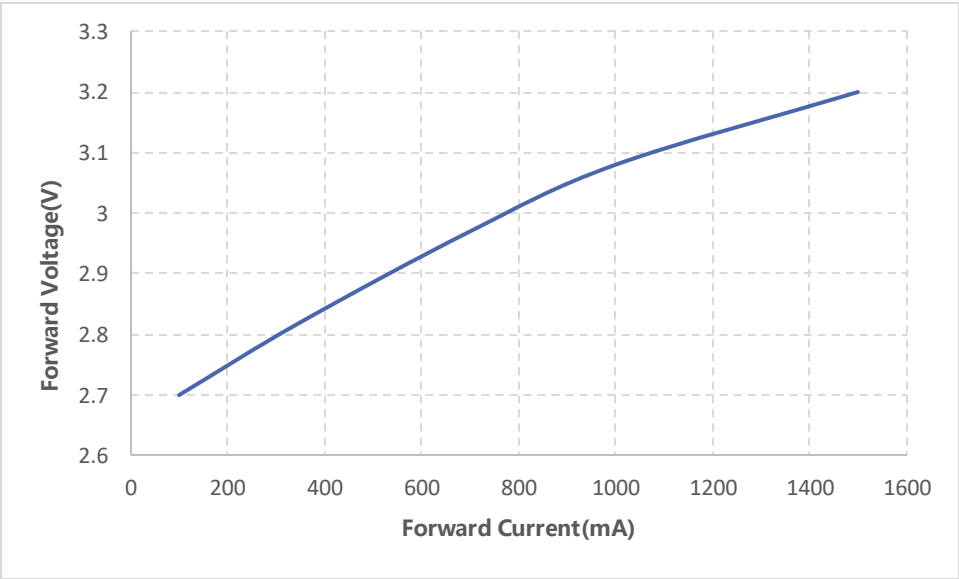


Fig 23. Relative Luminous Flux VS Solder Temperature , IF=700mA, RH60%

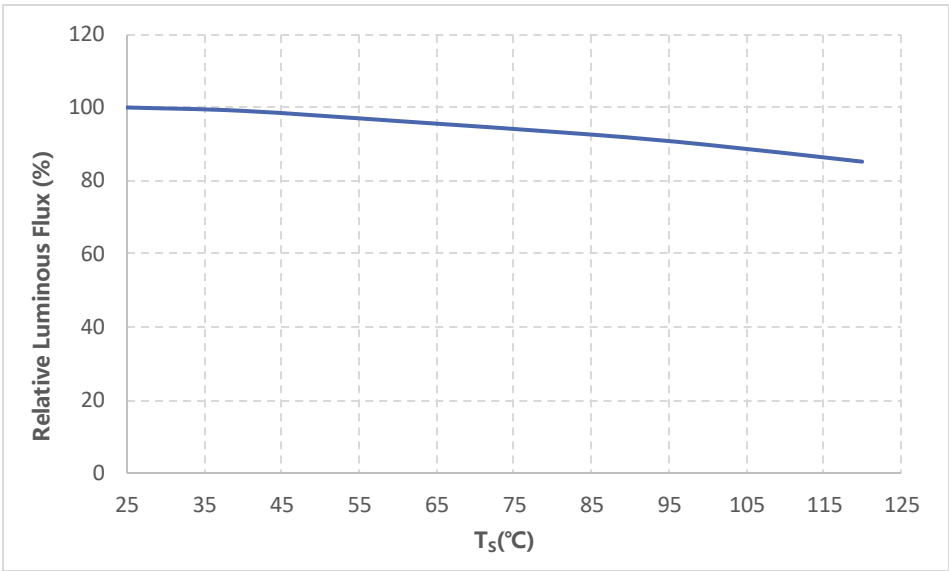
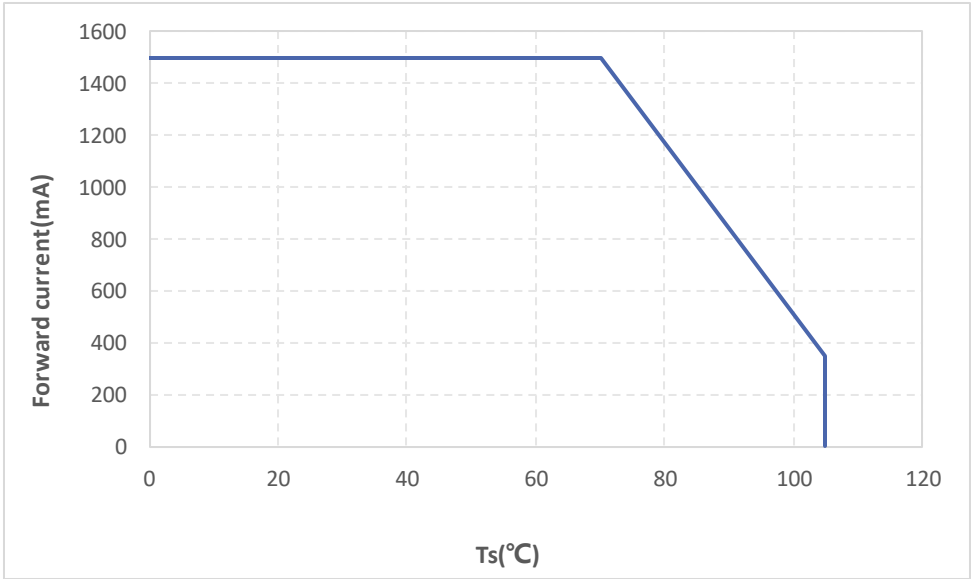


Fig 24. Forward Current VS Solder Temperature



Outline Vs. Recommended Solder Pad (外观与推荐焊盘)

Fig 25. Mechanical Dimensions (产品尺寸)

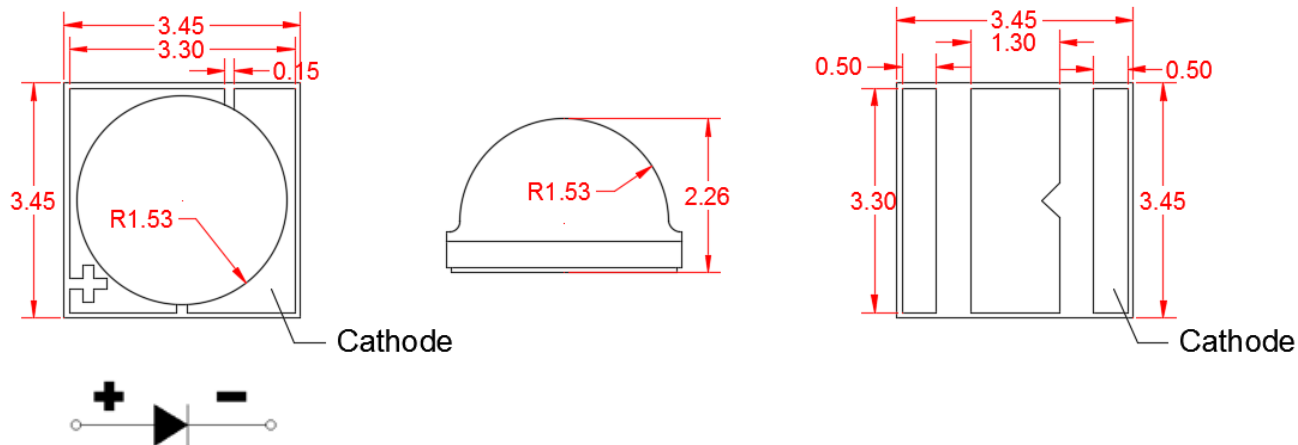


Fig 26. Recommended Solder Pad (推荐焊盘)



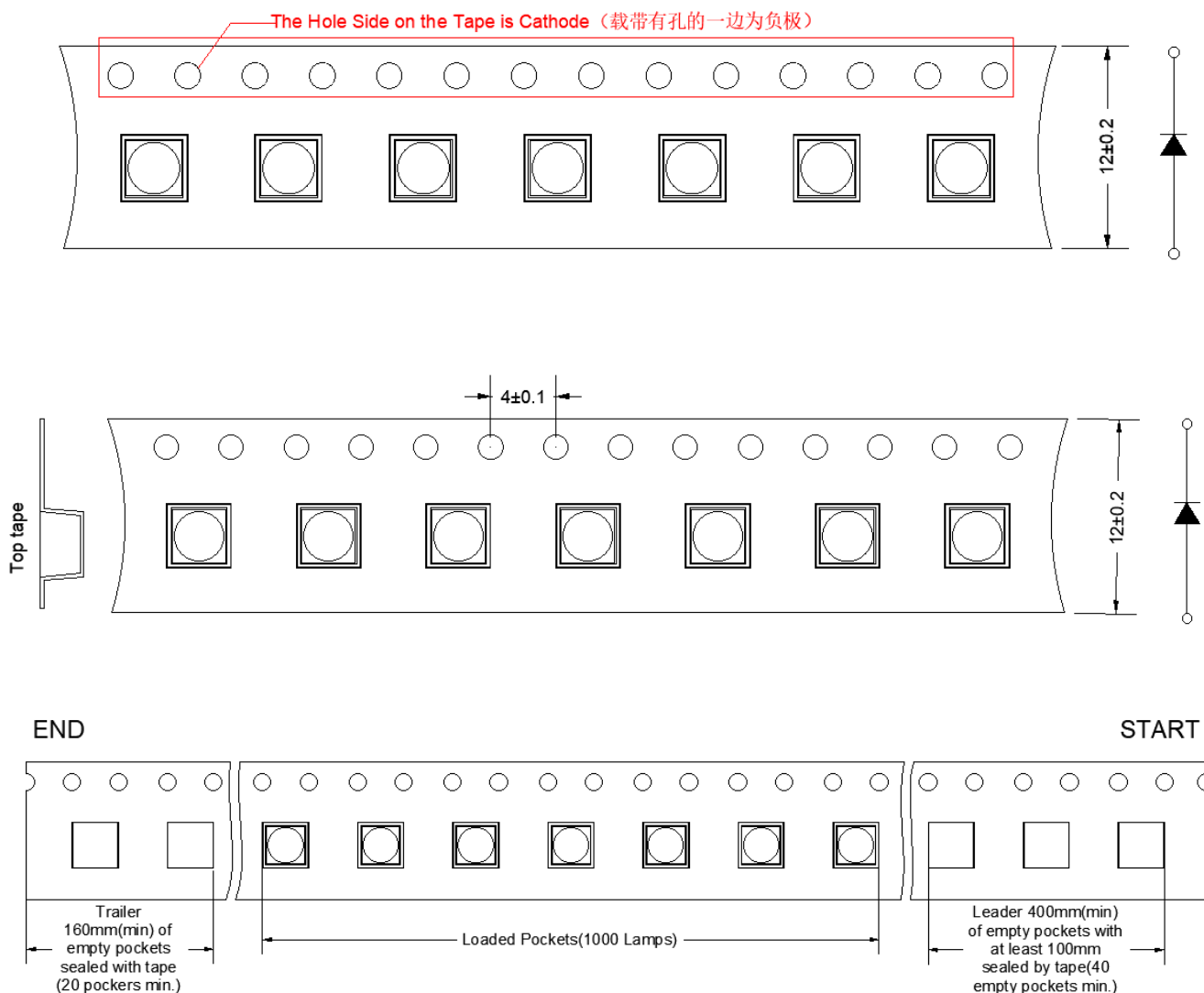
Recommended PCB Solder Pad

Recommended Stencil Pattern Stencil:0.12mm

- All dimensions are in millimeters.
- Scale: none.
- Undefined tolerance is ± 0.1 mm.

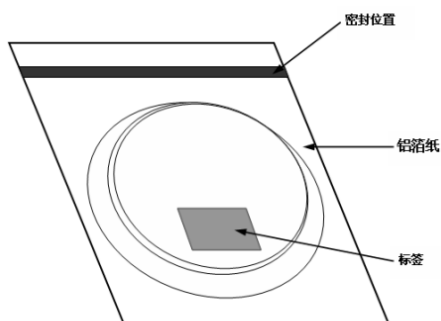
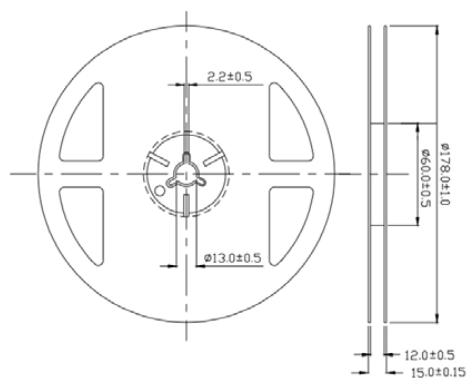
Packaging Information (包装信息)

Fig 27. Reel Packaging 1000pcs/Reel (卷带包装, 1000pcs/卷)

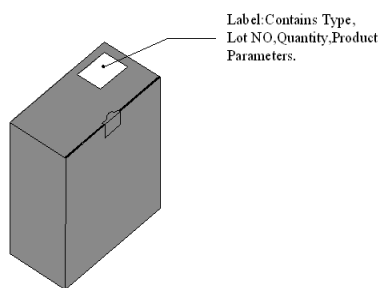
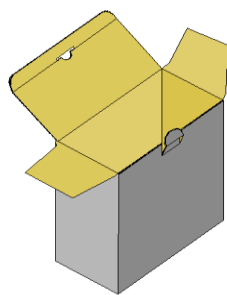


- Quantity : Max 1000pcs/Reel.
- Cumulative Tolerance : Cumulative Tolerance/10 pitches to be ± 0.25 mm.
- Adhesion Strength of Cover Tape Adhesion strength to be 0.1-0.7N when the cover tape is turned off from the carrier tape at the angle of 10° to the carrier tape.
- Package : P/N, Manufacturing data Code No. and Quantity to be indicated on a damp proof Package.

Reels (卷盘)



Inner Box (内箱)



•Capacity 5 or 10 reels per box (内箱容量: 5或10卷)

Outer Box (外箱)

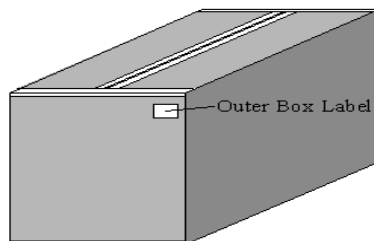
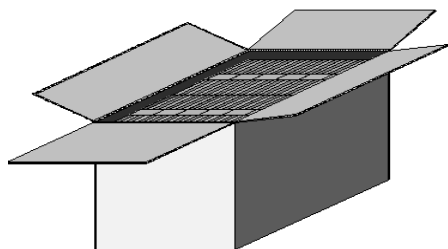


Table 19. Part Numbering System

L - -

 X1 X2 X3 X4 X5 X6 X7 X8

L 35 W - 308 1 1 C1 A - LSSV

深圳市卢米斯科技有限公司
Shenzhen LumiSee Technology Co., Ltd

型号 Type: 0000-00000000-0000



光通量Φ@ 0000 mA: 0000 – 0000 [lm]

色区 Color Bin@ 0000 mA: 00000-00

电压 Vf@ 0000 mA: 0.0 – 0.0 [V]

显指 Ra@ 0000 mA: 00

Lot No00000000000000 数量QTY: 0000pcs



Label（标签）

Item Number Code	Description	Item Number
X1	LED Type Code 产品代码	50: 5050; 30: 3030; 35: 3535;
X2	Light Color 发光颜色	W: White Color; C: Colored; I: IR; U: UV
X3	CCT and CRI 色温和显指	30:3000K;8:CRI80
X4	No. of Serial Chip 晶片串联数量	1-Z.
X5	No. of Parallel Chip 晶片并联数量	1-Z.
X6	Lead Frame Code 支架代码	E1: EMC; E2: SMC; C1: Al ₂ O ₃ Ceramic; C2: AlN Ceramic
X7	Viewing Angle 发光角度	A: 120 Deg. ; B: 30 Deg. ; C: 60 Deg. ; D: 90 Deg.
X8	Material Code 物料代码	LumiSee Material Code

Reflow Soldering (回流焊)

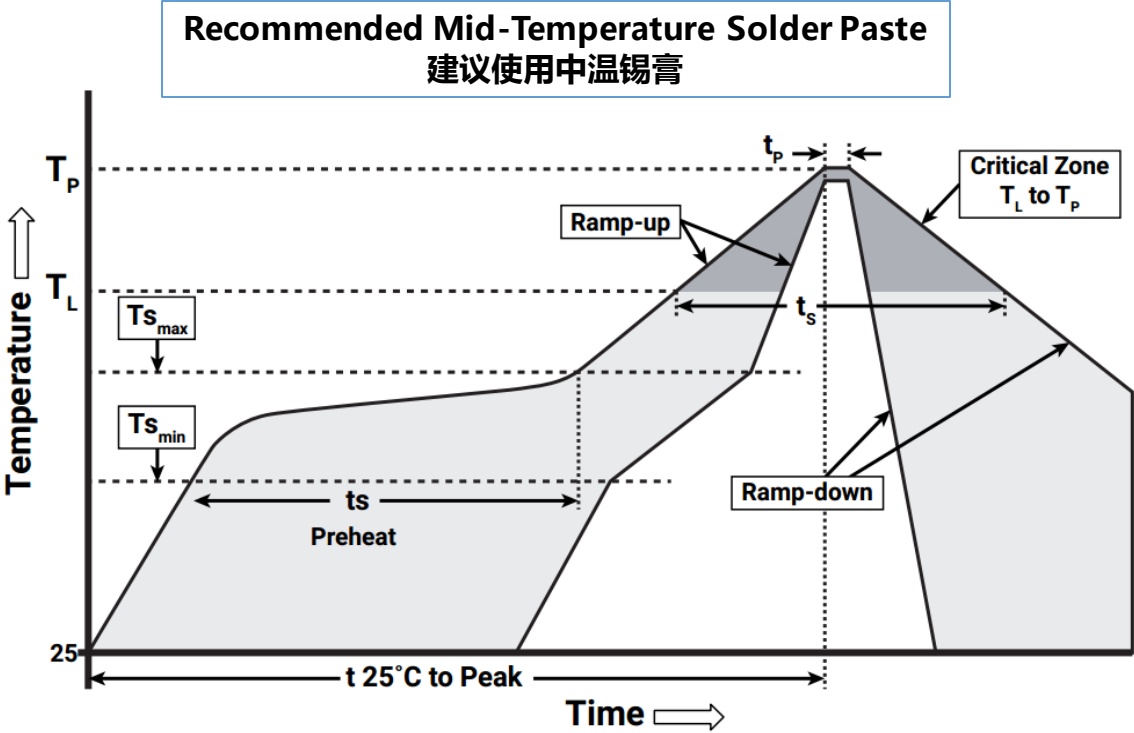


Table 20. Reflow profile characteristics

Profile Feature	Lead-Free Solder
Average Ramp-Up Rate($T_{s_{max}}$ to T_p)	1.2°C/second
Preheat:Temperature Min($T_{s_{min}}$)	120°C
Preheat:Temperature Max($T_{s_{max}}$)	170°C
Preheat:Time Max($t_{s_{min}}$ to $t_{s_{max}}$)	65-150 seconds
Time Maintained Above:Temperature(T_L)	217°C
Time Maintained Above:Time(t_L)	45-90 seconds
Peak/Classification Temperature(T_p)	235-245°C
Time Within 5°C of Actual Peak Temperature(t_p)	20-40 seconds
Ramp-Down Rate	1-6°C/ seconds
Time 25°C to Peak Temperature	4 minutes max

Pre-caution (警告)

Caution

1. Reflow soldering is recommended not to be done more than two times. In the case of more than 24 hours passed soldering after first, LED's will be damaged.
2. Repairs should not be done after the LED's have been soldered. When repair is unavoidable, suitable tools must be used.
3. Die slug is to be soldered.
4. When soldering, do not put stress on the LED's during heating.
5. After soldering, do not warp the circuit board.

Notes on LumiSee Series soldering:

1. Recommend to use reflow machine.
2. Recommend to use heating plate soldering.
3. Manual soldering is not recommended.

Notes on reflow process:

1. To confirm whether the actual temperature curve in the reflow soldering conditions comply with recommended conditions. LED's are guaranteed for one time reflow.
2. During reflow process do not apply force on LED active area.
3. After reflow process, PCB board should be cooled down before packing or storage.

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Company Profile

Set up as a high-tech company in 2011, LumiSee has been dedicated in the R&D and manufacturing of High Power Ceramic products such as 3535/5050 RGB/RGBW/R/G/B/Y LED diode, UVA and IR recognition.

Based on the technological innovation & healthy life, LumiSee sticks to safety and health, quality and innovation with the concept of creating a new vision of LED technology and providing new applications in LED industry, further more LumiSee would take good advantages of Outdoor Lighting, Plant Glowing, health and safety, energy saving and environmental protection.

With years of engineers and a professional management team in LED industry, LumiSee has established strategical cooperation with famous companies both at home and abroad, but also developed together the LED applications of curing, health, medical care, security and safety etc.

LumiSee focuses on independent innovation and R&D. Now with dozens of inventions and utility model patents having been authorized, LumiSee would continue to recruit elites for industry innovations, improvements and services. LumiSee could strive to be one of the most influential companies in the field of health and safety of global LED industry.