Effects of under- and over-voltage on incandescent lamps

Enter known values in YELLOW boxes. Results appear in CYAN boxes.

GREEN boxes indicated copied values.

Known variables are CAPITALIZED. Unknown variables are lower-case.

Osram - 54622 HPL575	7/115V	HPL575/115
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Enter all known			

WATTAGE	RATED VOLTAGE	LIFE (hours)	COLOR TEMP (K)	LUMENS
575	115	300	3265	16,520

Calculated Results:

Formulas:

	WATTAGE	Actual Voltage	LIFE (hours)	COLOR TEMP (K)	LUMENS
j	575	115	300	3265	16,520

Ca	Iculated Results:				
	WATTAGE	Actual Voltage	LIFE (hours)	COLOR TEMP (K)	LUMENS
	750	115	1500	3050	16,400

RATED VOLTAGE LIFE (hours) COLOR TEMP (K)

Enter all known values for any given lamp (from lamp catalogs/documentation):

Osram - 54611 HPL750/115VX HPL750/115X

LUMENS 16,400

life/	LIFE = (VOLT	LIFE			
	<u>life</u>	RATED LIFE	volts	RATED VOLTS	hours
		300	115	115	300
		300	113	115	300

lumens/LUMENS = (VOLTS/volts)^3.4				OUTPUT
<u>lumens</u>	RATED LUMENS	volts	RATED VOLTS	lumens
	16,520	115	115	16,520

coltemp/COLTEMP = (volts/VOLTS)^0.42			COL	OR TEMPERATURE
coltemp	RATED COLTEMP	volts	RATED VOLTS	K
	3265	115	115	3265

lumensperwatt LUMENSperWATT volts RATED VOLTS 28.7 115 115 28.7	lumensperwatt/LU	lumensperwatt/LUMENSperWATT = (volts/VOLTS)^0.9				
28.7 115 115 28.7	lumensperwatt	LUMENSperWATT	<u>volts</u>	RATED VOLTS		
		28.7	115	115	28.7	

watts/WATTS = (v	rolts/VOLTS)^1.6			WATTS
<u>watts</u>	RATED WATTS	<u>volts</u>	RATED VOLTS	
	575	115	115	575

ohms/OHMS = (volts/VOLTS)^0.4					
RATED OHMS	<u>volts</u>	RATED VOLTS			
23.00	115	115	23.00		
	, ,	, ,	, ,		

amps/AMPS = (vo	AMPS			
<u>amps</u>	RATED AMPS	<u>volts</u>	RATED VOLTS	
	5.0	115	115	5.0

Fo	rm	ıııl	as	•

WATTAGE

Iife	mulas:				
1500	life/LIFE = (VOLT	TS/volts)^13			LIFE
Iumens/LUMENS	<u>life</u>	RATED LIFE	volts	RATED VOLTS	hours
Lumens		1500	115	115	1500
Lumens					
16,400	lumens/LUMENS	$= (VOLTS/volts)^3.4$	1		OUTPUT
coltemp/COLTEMP = (volts/VOLTS)^0.42 COLOR TEMPERATUR coltemp RATED COLTEMP volts RATED VOLTS 3050 115 115 3050 lumensperwatt/LUMENSperWATT = (volts/VOLTS)^0.9 LUMENS per WAT lumensperwatt LUMENSperWATT volts RATED VOLTS 21.9 115 115 21.9 watts/WATTS = (volts/VOLTS)^1.6 WATT watts RATED WATTS volts RATED VOLTS 750 115 115 750 ohms/OHMS = (volts/VOLTS)^0.4 OHM OHM ohms RATED OHMS volts RATED VOLTS 17.63 115 115 17.63 amps/AMPS = (volts/VOLTS)^0.6 AMP amps RATED AMPS volts RATED VOLTS	<u>lumens</u>	RATED LUMENS	<u>volts</u>	RATED VOLTS	lumens
Coltemp		16,400	115	115	16,400
Coltemp					
3050	1,	, ,			OR TEMPERATURE
LUMENS per WATT (volts/VOLTS)^0.9	<u>coltemp</u>	RATED COLTEMP	<u>volts</u>	RATED VOLTS	k
LUMENSperWATT Volts RATED VOLTS		3050	115	115	3050
LUMENSperWATT Volts RATED VOLTS					
21.9 115 115 21.9	lumensperwatt/Ll	UMENSperWATT = ((volts/VOLTS)^0.	.9	LUMENS per WATT
watts/WATTS = (volts/VOLTS)^1.6 volts RATED VOLTS watts RATED WATTS volts RATED VOLTS 750 115 115 750 ohms/OHMS = (volts/VOLTS)^0.4 volts RATED VOLTS 17.63 115 115 17.63 amps/AMPS = (volts/VOLTS)^0.6 AMP amps RATED AMPS volts RATED VOLTS	lumensperwatt	LUMENSperWATT	<u>volts</u>	RATED VOLTS	
watts RATED WATTS volts RATED VOLTS 750 115 115 750 ohms/OHMS = (volts/VOLTS)^0.4 OHM ohms RATED OHMS volts RATED VOLTS 17.63 115 115 17.63 amps/AMPS = (volts/VOLTS)^0.6 AMP amps RATED AMPS volts RATED VOLTS		21.9	115	115	21.9
watts RATED WATTS volts RATED VOLTS 750 115 115 750 ohms/OHMS = (volts/VOLTS)^0.4 OHM ohms RATED OHMS volts RATED VOLTS 17.63 115 115 17.63 amps/AMPS = (volts/VOLTS)^0.6 AMP amps RATED AMPS volts RATED VOLTS					
750 115 115 750 ohms/OHMS = (volts/VOLTS)^0.4 OHM ohms RATED OHMS volts RATED VOLTS 17.63 115 115 17.63 amps/AMPS = (volts/VOLTS)^0.6 AMP amps RATED AMPS volts RATED VOLTS	watts/WATTS = (. ,			WATTS
ohms/OHMS = (volts/VOLTS)^0.4 OHM ohms RATED OHMS volts RATED VOLTS 17.63 115 115 17.63 amps/AMPS = (volts/VOLTS)^0.6 AMP AMP amps RATED AMPS volts RATED VOLTS	<u>watts</u>	RATED WATTS	<u>volts</u>	RATED VOLTS	
ohms RATED OHMS volts RATED VOLTS 17.63 115 115 17.63 amps/AMPS = (volts/VOLTS)^0.6 AMP AMP amps RATED AMPS volts RATED VOLTS		750	115	115	750
ohms RATED OHMS volts RATED VOLTS 17.63 115 115 17.63 amps/AMPS = (volts/VOLTS)^0.6 AMP AMP amps RATED AMPS volts RATED VOLTS	1 (011116)	1. ATOT TO A 0.4			
17.63 115 115 17.63 amps/AMPS = (volts/VOLTS)^0.6 AMP amps	,	• •			онмя
amps/AMPS = (volts/VOLTS)^0.6 amps	<u>ohms</u>				
amps RATED AMPS volts RATED VOLTS		17.63	115	115	17.63
amps RATED AMPS volts RATED VOLTS	/4.3.5DC /	1. 7.07.70\ 10.6			
	amps/AMPS = (vo	• ,			AMPS
6.5 115 115 6.5					
	amps				