



Marcus Vaughan Electrical

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Power Rating	560.6 Watts	Max. Demand	2.4 Amps
Circuit Length	30 Metres		

Circuit Design

Maximum Demand	2.5 Amps	$I_b \leq I_n \leq I_z$
I_b Design Current (Load - Applying Diversity)	1.7 Amps	
I_n Rated Current of Protective Device	6.0 Amps	
I_z Current Carrying Capacity of the Cable	16 Amps	

Cable Size

Install Reference Method	C		
		Correction Factors	
C_a	Correction for Ambient Temperature	1	$I_t \geq \frac{I_n}{1}$
C_g	Correction for Grouping	0.7	
C_i	Correction for Passing Through Insulation	1	$I_t \geq \frac{6.0}{0.7}$
	Minimum Required Current Carrying Capacity of Cable		$I_t \geq 8.6$
Cable Cross Sectional Area Required (from Tables)		1	mm

Permissible Voltage Drop for Lighting Circuit = 3% of 230V = 6.9 Volts
Permissible Voltage Drop for Other Circuits = 5% of 230V = 11.5 Volts

Voltage Drop =	Tabulated Value (mV/m)	x	I_b	x	Circuit Length (m)
	44		1.7		30
	2200 mV	=	2.20		Volts

Compliance With Maximum Disconnection Times (Max Zs)

Measured Z_e	0.36		Tab. Value (mΩ/m)	x	Circuit Length (m)
			36.2		30
		Calculated R1+R2 =	1086 mΩ		
			1.086 Ω		
Design Zs =	Z_e	+	R1+R2		Tabulated Max Zs at 20°C =
	0.36	+	1.086		7.28
	1.45	Ω			Correction Factor for Temp. =
					0.8
					Maximum Permissible Zs =
					5.82

