



**Legend:**

- Proposed Turbines
- 10km Radii
- 45km Study Area
- Viewpoint

Vertical angle	Turbine Lighting Intensity	
	2000cd scenario	200cd scenario
Above 4°	<236 cd	<24 cd
3° to 4°	464 to 236 cd	46 to 24 cd
2° to 3°	1113 to 464 cd	111 to 46 cd
1° to 2°	2054 to 1113 cd	205 to 111 cd
0° to 1°	2028 to 2054 cd	203 to 205 cd
-1° to -2°	1055 to 409 cd	106 to 41 cd
-2° to -3°	409 to 206 cd	41 to 21 cd
-3° to -4°	206 to 133 cd	21 to 13 cd
Below -4°	<133 cd	<13 cd

**Notes**

- The lighting intensity for each of the vertical angles shown is based on the CEL-WT-MIC aviation warning light. The candela values are provided by Contarmex, the manufacturer of the CEL-WT-MIC aviation warning light, and represent the average values calculated for each angle of light shown.
- Reduced intensity turbine lighting (200cd) based on 'Air Navigation Order 2016 (CAP393) Article 223 (B)' which allows the 2000cd turbine light to be 'reduced to not less than 10% of the minimum peak intensity specified' i.e., 200cd if visibility in all directions from every wind turbine generator in a group is more than 5km.
- Perception of theoretical candela intensity does not take account of distance.
- ZTV calculations do not take into account surface features such as forestry or buildings.
- ZTV calculations for turbine lighting intensity are based on visible aviation lighting mounted on the turbine nacelle.
- The ZTV calculates the degree of vertical angle from the study area shown to each of the Proposed Development turbines.
- ZTV calculations represent a worst-case situation where predicted lighting intensity may be as a result of only one turbine in the layout.

Hub:	134m	Observer height:	2m
DTM:	OS T5/T50 DTM	Surface features:	Excluded
DTM resolution:	10m	Earth curvature:	Included

Coordinate System: British National Grid  
 Projection: Transverse Mercator  
 Datum: OSGB 1936  
 Units: Meter



- Viewpoints**
- Doughnot Hill
  - Minor road (John Muir Way/NCR 7) north of site
  - A82 near Bellsmyre Roundabout (A813 junction)
  - Balloch Country Park access road
  - A811 Near Balloch
  - The Whangie
  - Duncryne Hill
  - Dumbarton Rock
  - Cameron House seaplane jetty
  - Langbank
  - Inchcailloch
  - Endrick Viewpoint
  - Finlaystone Estate
  - WHW Near Drymen
  - Ben Bowie
  - Dumgoyne Hill
  - Balmaha Harbour
  - Port Glasgow
  - Conic Hill
  - Waterbus
  - Bat a Charchel
  - Balfon Cemetery
  - Luss Campsite
  - Sallochy
  - Lyle Hill, Greenock
  - Beinn Dubh
  - Inverbeg
  - Misty Law
  - Ben Lomond
  - Dunoon
  - Ben Venue
  - Tarbet
  - Ben Ledi

Rev	Date	Description	Drn	Chk	App
01	17/01/2025	First Draft	SH	AW	JW

**Vale of Leven Wind Farm**

**TITLE:**  
 AI Figure 5.9c  
 Lighting Intensity ZTV  
 (45km Radius)

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SCALE: 1:350,000 @ A3

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