

Safeglo™

Ex LED Flexible Strip Light

mb-F2010B

Specification



CLEAR
LIGHTING

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' &I ShWW YfZ aX5a`ad>{YZf	

Introduction

mb-F2010B range of LED hazardous area lighting products are an innovative range of flexible strip lights that have been designed specifically for use in potentially explosive atmospheres (Zone 1/21 & 2/22) within harsh industrial environments such as coal mines and oil & gas facilities.

The mb-F2010B white strip light can be used to provide daylight spectrum light for continuous area lighting or be used to light specific equipment areas, and the Red/Green/Amber versions are designed for use as part of a safety system.

The mb-F2010B strip lights have a long-life span (50,000 hours plus), low energy consumption, and are highly energy efficient.

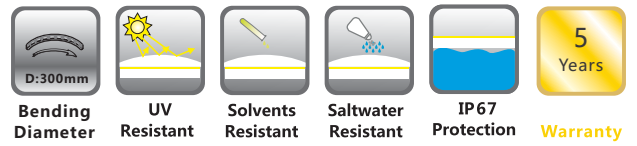
The mb-F2010B strip light is certified by the world recognized certification authority TUV via their Shenzhen office and ratified by the Italian TUV office to the applicable European Norms and many local certifications authorities for use below ground e.g. Coal Mines where there is the presence of both Methane and Coal Dust, and above ground e.g. Oil & Gas facilities where there is the presence of multiple combustible gases and vapors incl Hydrogen and Acetylene.

mb-F2010B is fully encapsulated with food grade silicone that:

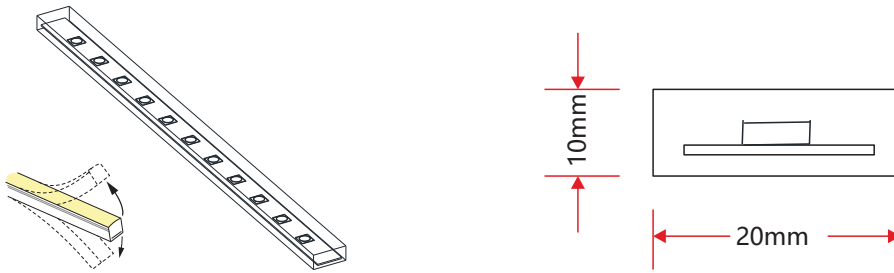
- is highly flexible,
- has high transparency,
- has excellent Anti-UV performance,
- is flame retardant,
- has negligible toxicity levels
- operates at low and high temperatures,
- and is low maintenance.

mb-F2010B flexible light strip is manufactured with injection molded silicon connectors to achieve IP67 water ingress protection.

1. Specifications & Parameters



1.1 Dimensions of Light

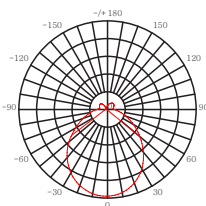


Note: Unless otherwise specified, the tolerance of the dimensions is $\pm 0.3\text{mm}$.

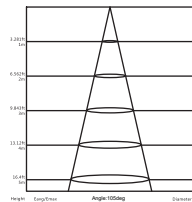
1.2 Technical&Optical Parameters

Package Length	$\leq 15\text{m}$
Weight/m	285g
Storing Temp.	-30~60°C
Ambient Working Temperature	-30~40°C
Ambient Installation Temperature	-30~40°C
IP rating	IP67

Candle power distribution



Illuminance Characteristics



Certification Model	LED QTY/m	Lumen/m	Rated power/m	Color	LED QTY/unit	Length /unit	PCB length	Max. running length @mb	Rated Current (A/m)	PF
mb-F2010B-AC48V-84-W-fffM-gggW	84	800lm	12W	6500K	14	16.7cm	50cm	20m	0.27	0.92
mb-F2010B-AC48V-84-A-fffM-gggW	84	250lm	10W	Amber	14	16.7cm	50cm	20m	0.22	0.96
mb-F2010B-AC48V-84-G-fffM-gggW	84	670lm	10W	Green	14	16.7cm	50cm	20m	0.22	0.94
mb-F2010B-AC48V-84-R-fffM-gggW	84	280lm	10W	Red	14	16.7cm	50cm	20m	0.22	0.96
mb-F2010B-AC48V-56-W-fffM-gggW	56	520lm	8W	6500K	14	25.0cm	50cm	25m	0.18	0.92
mb-F2010B-AC48V-56-A-fffM-gggW	56	170lm	6.67W	Amber	14	25.0cm	50cm	25m	0.14	0.96
mb-F2010B-AC48V-56-G-fffM-gggW	56	450lm	6.67W	Green	14	25.0cm	50cm	25m	0.14	0.94
mb-F2010B-AC48V-56-R-fffM-gggW	56	190lm	6.67W	Red	14	25.0cm	50cm	25m	0.14	0.96
mb-F2010B-AC48V-28-W-fffM-gggW	28	260lm	4W	6500K	14	50.0cm	50cm	30m	0.09	0.92
mb-F2010B-AC48V-28-A-fffM-gggW	28	90lm	3.33W	Amber	14	50.0cm	50cm	30m	0.07	0.96
mb-F2010B-AC48V-28-G-fffM-gggW	28	220lm	3.33W	Green	14	50.0cm	50cm	30m	0.07	0.94
mb-F2010B-AC48V-28-R-fffM-gggW	28	90lm	3.33W	Red	14	50.0cm	50cm	30m	0.07	0.96

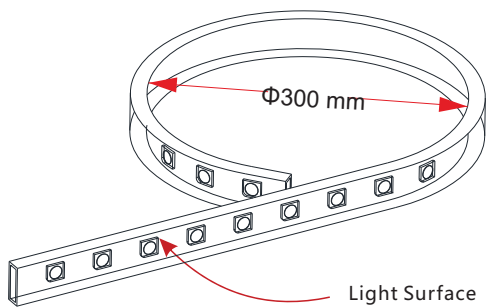
mb-F2010B-DC48V-84-W-fffM-gggW	84	1000lm	12W	6500K	14	16.7cm	50cm	20m	0.25	1
mb-F2010B-DC48V-84-A-fffM-gggW	84	320lm	10W	Amber	14	16.7cm	50cm	20m	0.21	1
mb-F2010B-DC48V-84-G-fffM-gggW	84	850lm	10W	Green	14	16.7cm	50cm	20m	0.21	1
mb-F2010B-DC48V-84-R-fffM-gggW	84	340lm	10W	Red	14	16.7cm	50cm	20m	0.21	1
mb-F2010B-DC48V-56-W-fffM-gggW	56	660lm	8W	6500K	14	25.0cm	50cm	25m	0.17	1
mb-F2010B-DC48V-56-A-fffM-gggW	56	210lm	6.67W	Amber	14	25.0cm	50cm	25m	0.14	1
mb-F2010B-DC48V-56-G-fffM-gggW	56	560lm	6.67W	Green	14	25.0cm	50cm	25m	0.14	1
mb-F2010B-DC48V-56-R-fffM-gggW	56	220lm	6.67W	Red	14	25.0cm	50cm	25m	0.14	1
mb-F2010B-DC48V-28-W-fffM-gggW	28	330lm	4W	6500K	14	50.0cm	50cm	30m	0.08	1
mb-F2010B-DC48V-28-A-fffM-gggW	28	100lm	3.33W	Amber	14	50.0cm	50cm	30m	0.07	1
mb-F2010B-DC48V-28-G-fffM-gggW	28	280lm	3.33W	Green	14	50.0cm	50cm	30m	0.07	1
mb-F2010B-DC48V-28-R-fffM-gggW	28	110lm	3.33W	Red	14	50.0cm	50cm	30m	0.07	1
mb-F2010B-AC36V-88-W-fffM-gggW	88	800lm	12W	6500K	11	12.5cm	50cm	20m	0.37	0.91
mb-F2010B-AC36V-88-A-fffM-gggW	88	260lm	10W	Amber	11	12.5cm	50cm	20m	0.29	0.96
mb-F2010B-AC36V-88-G-fffM-gggW	88	660lm	10W	Green	11	12.5cm	50cm	20m	0.30	0.93
mb-F2010B-AC36V-88-R-fffM-gggW	88	270lm	10W	Red	11	12.5cm	50cm	20m	0.29	0.96
mb-F2010B-AC36V-66-W-fffM-gggW	66	600lm	9W	6500K	11	16.7cm	50cm	25m	0.27	0.91
mb-F2010B-AC36V-66-A-fffM-gggW	66	200lm	7.5W	Amber	11	16.7cm	50cm	25m	0.22	0.96
mb-F2010B-AC36V-66-G-fffM-gggW	66	490lm	7.5W	Green	11	16.7cm	50cm	25m	0.22	0.93
mb-F2010B-AC36V-66-R-fffM-gggW	66	210lm	7.5W	Red	11	16.7cm	50cm	25m	0.22	0.96
mb-F2010B-AC36V-44-W-fffM-gggW	44	400lm	6W	6500K	11	25.0cm	50cm	30m	0.18	0.91
mb-F2010B-AC36V-44-A-fffM-gggW	44	130lm	5W	Amber	11	25.0cm	50cm	30m	0.14	0.96
mb-F2010B-AC36V-44-G-fffM-gggW	44	330lm	5W	Green	11	25.0cm	50cm	30m	0.15	0.93
mb-F2010B-AC36V-44-R-fffM-gggW	44	140lm	5W	Red	11	25.0cm	50cm	30m	0.14	0.96
mb-F2010B-AC36V-22-W-fffM-gggW	22	200lm	3W	6500K	11	50.0cm	50cm	30m	0.09	0.91
mb-F2010B-AC36V-22-A-fffM-gggW	22	70lm	2.5W	Amber	11	50.0cm	50cm	30m	0.07	0.96
mb-F2010B-AC36V-22-G-fffM-gggW	22	160lm	2.5W	Green	11	50.0cm	50cm	30m	0.07	0.93
mb-F2010B-AC36V-22-R-fffM-gggW	22	70lm	2.5W	Red	11	50.0cm	50cm	30m	0.07	0.96
mb-F2010B-DC36V-88-W-fffM-gggW	88	1000lm	12W	6500K	11	12.5cm	50cm	20m	0.33	1
mb-F2010B-DC36V-88-A-fffM-gggW	88	330lm	10W	Amber	11	12.5cm	50cm	20m	0.28	1
mb-F2010B-DC36V-88-G-fffM-gggW	88	900lm	10W	Green	11	12.5cm	50cm	20m	0.28	1
mb-F2010B-DC36V-88-R-fffM-gggW	88	330lm	10W	Red	11	12.5cm	50cm	20m	0.28	1
mb-F2010B-DC36V-66-W-fffM-gggW	66	750lm	9W	6500K	11	16.7cm	50cm	25m	0.25	1
mb-F2010B-DC36V-66-A-fffM-gggW	66	250lm	7.5W	Amber	11	16.7cm	50cm	25m	0.21	1
mb-F2010B-DC36V-66-G-fffM-gggW	66	670lm	7.5W	Green	11	16.7cm	50cm	25m	0.21	1
mb-F2010B-DC36V-66-R-fffM-gggW	66	250lm	7.5W	Red	11	16.7cm	50cm	25m	0.21	1
mb-F2010B-DC36V-44-W-fffM-gggW	44	500lm	6W	6500K	11	25.0cm	50cm	30m	0.17	1
mb-F2010B-DC36V-44-A-fffM-gggW	44	170lm	5W	Amber	11	25.0cm	50cm	30m	0.14	1
mb-F2010B-DC36V-44-G-fffM-gggW	44	450lm	5W	Green	11	25.0cm	50cm	30m	0.14	1
mb-F2010B-DC36V-44-R-fffM-gggW	44	170lm	5W	Red	11	25.0cm	50cm	30m	0.14	1
mb-F2010B-DC36V-22-W-fffM-gggW	22	250lm	3W	6500K	11	50.0cm	50cm	30m	0.08	1
mb-F2010B-DC36V-22-A-fffM-gggW	22	80lm	2.5W	Amber	11	50.0cm	50cm	30m	0.07	1
mb-F2010B-DC36V-22-G-fffM-gggW	22	220lm	2.5W	Green	11	50.0cm	50cm	30m	0.07	1
mb-F2010B-DC36V-22-R-fffM-gggW	22	80lm	2.5W	Red	11	50.0cm	50cm	30m	0.07	1
mb-F2010B-AC24V-84-W-fffM-gggW	84	800lm	12W	6500K	7	8.3cm	50cm	20m	0.55	0.91
mb-F2010B-AC24V-84-A-fffM-gggW	84	270lm	10W	Amber	7	8.3cm	50cm	20m	0.43	0.96
mb-F2010B-AC24V-84-G-fffM-gggW	84	630lm	10W	Green	7	8.3cm	50cm	20m	0.45	0.93
mb-F2010B-AC24V-84-R-fffM-gggW	84	260lm	10W	Red	7	8.3cm	50cm	20m	0.43	0.96
mb-F2010B-AC24V-70-W-fffM-gggW	70	660lm	10W	6500K	7	10.0cm	50cm	20m	0.46	0.91
mb-F2010B-AC24V-70-A-fffM-gggW	70	230lm	8.33W	Amber	7	10.0cm	50cm	20m	0.36	0.96
mb-F2010B-AC24V-70-G-fffM-gggW	70	520lm	8.33W	Green	7	10.0cm	50cm	20m	0.37	0.93
mb-F2010B-AC24V-70-R-fffM-gggW	70	210lm	8.33W	Red	7	10.0cm	50cm	20m	0.36	0.96
mb-F2010B-AC24V-56-W-fffM-gggW	56	530lm	8W	6500K	7	12.5cm	50cm	25m	0.37	0.91
mb-F2010B-AC24V-56-A-fffM-gggW	56	180lm	6.67W	Amber	7	12.5cm	50cm	25m	0.29	0.96
mb-F2010B-AC24V-56-G-fffM-gggW	56	420lm	6.67W	Green	7	12.5cm	50cm	25m	0.30	0.93
mb-F2010B-AC24V-56-R-fffM-gggW	56	170lm	6.67W	Red	7	12.5cm	50cm	25m	0.29	0.96
mb-F2010B-AC24V-42-W-fffM-gggW	42	400lm	6W	6500K	7	16.7cm	50cm	30m	0.27	0.91
mb-F2010B-AC24V-42-A-fffM-gggW	42	130lm	5W	Amber	7	16.7cm	50cm	30m	0.22	0.96
mb-F2010B-AC24V-42-G-fffM-gggW	42	310lm	5W	Green	7	16.7cm	50cm	30m	0.22	0.93
mb-F2010B-AC24V-42-R-fffM-gggW	42	130lm	5W	Red	7	16.7cm	50cm	30m	0.22	0.96
mb-F2010B-DC24V-84-W-fffM-gggW	84	1000lm	12W	6500K	7	8.3cm	50cm	20m	0.50	1
mb-F2010B-DC24V-84-A-fffM-gggW	84	350lm	10W	Amber	7	8.3cm	50cm	20m	0.42	1
mb-F2010B-DC24V-84-G-fffM-gggW	84	880lm	10W	Green	7	8.3cm	50cm	20m	0.42	1
mb-F2010B-DC24V-84-R-fffM-gggW	84	310lm	10W	Red	7	8.3cm	50cm	20m	0.42	1
mb-F2010B-DC24V-70-W-fffM-gggW	70	830lm	10W	6500K	7	10.0cm	50cm	20m	0.42	1
mb-F2010B-DC24V-70-A-fffM-gggW	70	290lm	8.33W	Amber	7	10.0cm	50cm	20m	0.35	1
mb-F2010B-DC24V-70-G-fffM-gggW	70	730lm	8.33W	Green	7	10.0cm	50cm	20m	0.35	1
mb-F2010B-DC24V-70-R-fffM-gggW	70	260lm	8.33W	Red	7	10.0cm	50cm	20m	0.35	1
mb-F2010B-DC24V-56-W-fffM-gggW	56	660lm	8W	6500K	7	12.5cm	50cm	25m	0.33	1
mb-F2010B-DC24V-56-A-fffM-gggW	56	230lm	6.67W	Amber	7	12.5cm	50cm	25m	0.28	1
mb-F2010B-DC24V-56-G-fffM-gggW	56	580lm	6.67W	Green	7	12.5cm	50cm	25m	0.28	1
mb-F2010B-DC24V-56-R-fffM-gggW	56	200lm	6.67W	Red	7	12.5cm	50cm	25m	0.28	1
mb-F2010B-DC24V-42-W-fffM-gggW	42	500lm	6W	6500K	7	16.7cm	50cm	30m	0.25	1
mb-F2010B-DC24V-42-A-fffM-gggW	42	170lm	5W	Amber	7	16.7cm	50cm	30m	0.21	1
mb-F2010B-DC24V-42-G-fffM-gggW	42	440lm	5W	Green	7	16.7cm	50cm	30m	0.21	1
mb-F2010B-DC24V-42-R-fffM-gggW	42	150lm	5W	Red	7	16.7cm	50cm	30m	0.21	1
mb-F2010S-DC24V-42-RGA-fffM-gggW	42	150lm	3W	Chasing	21	50.0cm	50cm	30m	0.13	1

2. Functions & Features

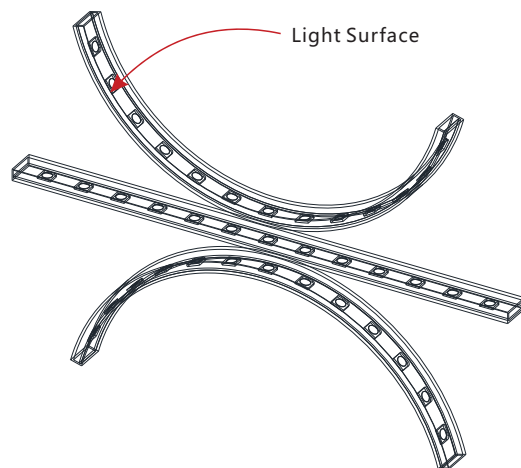
2.1 Product Features

1. High quality and high brightness SMD LED chip.
2. Variety of monochromatic lights for option including White light(6500K),red,green,amber.
3. UV resistant construction.
4. Power range 4W to 180W.
5. High color consistency& uniformity.
6. Rated input voltage 48v,36v,24v DC/AC.
7. Injection molded silicone front connector and end cap.
8. High IP rating(IP67).
9. Environmentally friendly & energy efficient.
10. Automated production, high reliability & long warranty.
11. Long-life span (50,000 hours plus).

2.2 Minimum Bend Diameter



The light can only be bent along the light surface.



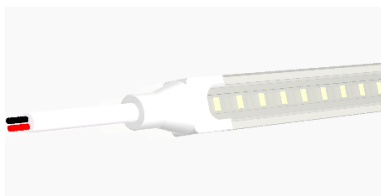
Do not bend smaller than allowed minimum bend diameter.

3. Types of Connector

3.1 Injection-moulded Connector

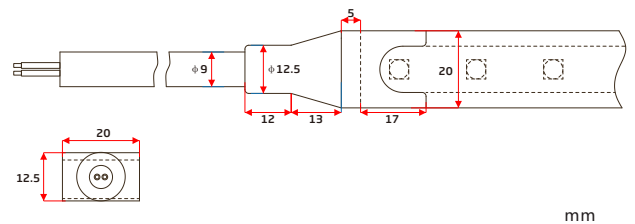
Note:

1. Unless otherwise stated, the tolerance of the connector is $\pm 0.5\text{mm}$;
2. Continuous length up to 20m by powering one end.

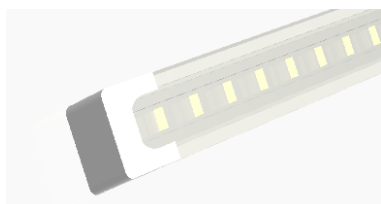


Injection-moulded Front Connector(top end)

Connects light to power supply with pre-installed front feed cable, IP67. Cable length available in 1m.

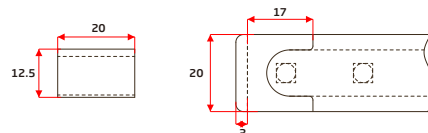


mm



Injection-moulded End Cap

Pre-installed termination protection of the light, IP67.



4. Packaging

Packaging Method



Plastic Plate



White Box



Carton



Packaging Detail

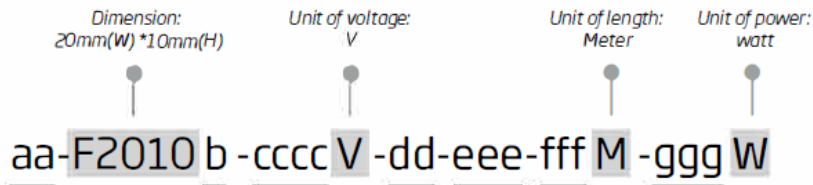
Light Length	White Box Dimension (cm)	Carton Dimension (cm)	Numbers of White Box	Carton Weight (kg)
15m	71.5*4*61	73.5*10.5*62.5	1	7

5. Appendix

5.1 Product Naming Convention

Example: — **mb-F2010B-AC36V-66-6500K-15M-180W**

Remark: a, b, c, d, e, f and g are variables



aa	b	cccc	dd	eee	fff	ggg
Level of protection	Typical light output model	Input voltage	LED numbers per meter	Light color	Length of light	Power of light
mb	B= Monochrome Light S= Pixel Light	DC48 DC36 DC24 AC48 AC36 AC24	84/56/28 88/66/44/22 84/70/56/42 84/56/28 88/66/44/22 84/70/56/42	6500K Red Green Amber	Length of light, the length is variable and minimum step is 0.5m	Power of light, ggg are numbers, stand for power of light, the power is variable and correspond to light length

5.2 Lighting Product Certifications

The mb-F2010B range of strip light is supplied with the following product certifications:

Electrical Protection

Certification Authority - TUV

- EU-TYPE EXAMINATION CERTIFICATE for Equipment or Protective System intended for use in potentially explosive atmospheres as per Directive 2014/34/EU. Certificate Number TUV IT 19 ATEX 086 X for compliance with IEC 60079-0:2018; IEC 60079-18:2015+A1:2017; EN 60079-28:2015.
- EU-TYPE EXAMINATION CERTIFICATE for Equipment or Protective Component intended for use in potentially explosive atmospheres as per Directive 2014/34/EU. Certificate Number TUV IT 19 ATEX 105 U for compliance with IEC 60079-0:2018; IEC 60079-18:2015+A1:2017; EN 60079-28:2015.
- PRODUCTION QUALITY ASSURANCE NOTIFICATION for Equipment to be used in potentially explosive atmospheres as per Directive 2014/34/EU Notification Number TUV IT 19 ATEX 087 Q.
- IECEX CERTIFICATE of CONFORMITY for Equipment intended for use in potentially explosive atmospheres.
Certificate Number: IECEX TPS 19.0047 for compliance with IEC 60079-0:2017; IEC 60079-18:2017

Low Voltage Device Compliance

Certification Authority - SGS

- CE VERIFICATION OF LVD COMPLIANCE for Ex LED Flexible Strip Light as per relevant EC Directives.
Verification Number **GZES1910024854LM** for compliance with EN 60598-2; EN 60598-1; EN 62493.
- CE TEST REPORT for LVD COMPLIANCE for Ex LED Flexible Strip Light as per relevant EC Directives.
Test Report Number **GZES191002485401** for compliance with EN 60598-2 in conjunction with EN 60598-1.

EMC Compliance

Certification Authority - SGS

- VERIFICATION OF EMC COMPLIANCE for Ex LED Flexible Strip Light as per Directive 2014/30/EU.
Verification Number **GZEM1910016253LMV** for compliance with EN 55015:2013+A1:2015; EN 61547:2009; EN61000-3-2:2014; EN61000-3-3:2013.

RoHS Compliance

Certification Authority - SGS

- VERIFICATION OF RoHS COMPLIANCE for Ex LED Flexible Strip Light as per RoHS Directive EU 2015/863 amending 2011/65/EU.
Verification Number **SZXEC1902388001**.

Silicone Material Compliance

Certification Authority - SGS

- TEST REPORT for COMPLIANCE of Ex LED Flexible Strip Light Silicone Material to German Food Standard, Articles of Daily Use and Feed Code of Sept 01, 2005 (LFGB) with amendments, Section 30 & 31, and Regulation (EC) No 1935/2004.
Test Report A Number **CANEC1708273901**.

- TEST REPORT for COMPLIANCE of Ex LED Flexible Strip Light Silicone Material to German Food Standard, Articles of Daily Use and Feed Code of Sept 01, 2005 (LFGB) with amendments, Section 30 & 31, and Regulation (EC) No 1935/2004. Test Report B Number **CANEC1708273902**.
- TEST REPORT for COMPLIANCE of Ex LED Flexible Strip Light Silicone Material to US FDA Regulations. Test Report A Number **CANEC1708273904**.
- TEST REPORT for COMPLIANCE of Ex LED Flexible Strip Light Silicone Material to US FDA Regulations. Test Report B Number **CANEC1708273903**.
- TEST REPORT for COMPLIANCE of Ex LED Flexible Strip Light Silicone Material to European Regulations EN 14372 for Phthalates. Test Report Number **CANEC1708276302**.
- TEST REPORT for COMPLIANCE of Ex LED Flexible Strip Light Silicone Material to European Regulations EN 14582 for Halogens. Test Report Number **CANEC1708276303**.
- TEST REPORT for COMPLIANCE of Ex LED Flexible Strip Light Silicone Material to US EPA Regulations to Method 3540C for Tetrabromobisphenol. Test Report Number **CANEC1708276304**.
- TEST REPORT for COMPLIANCE of Ex LED Flexible Strip Light Silicone Material to AfPS GS 2014 for Polycyclic Aromatic Hydrocarbons. Test Report Number **CANEC1708276305**.
- TEST REPORT for COMPLIANCE of Ex LED Flexible Strip Light Silicone Material to California Proposition 65 for total Lead, Cadmium and Phthalate content. Test Report Number **CANEC1708276306**.
- TEST REPORT for COMPLIANCE of Ex LED Flexible Strip Light Silicone Material to European Chemical Agency Regulation No 1907/2006 concerning Substances of Very High Concern (SVHC). Test Report Number **CANEC1708276307**.

5.3 Trip Lighting ATEX Mark Explanation

The TUV ATEX Electrical Protection (Certification No. TUV IT 19 ATEX 086 X) authorizes the following product marks:

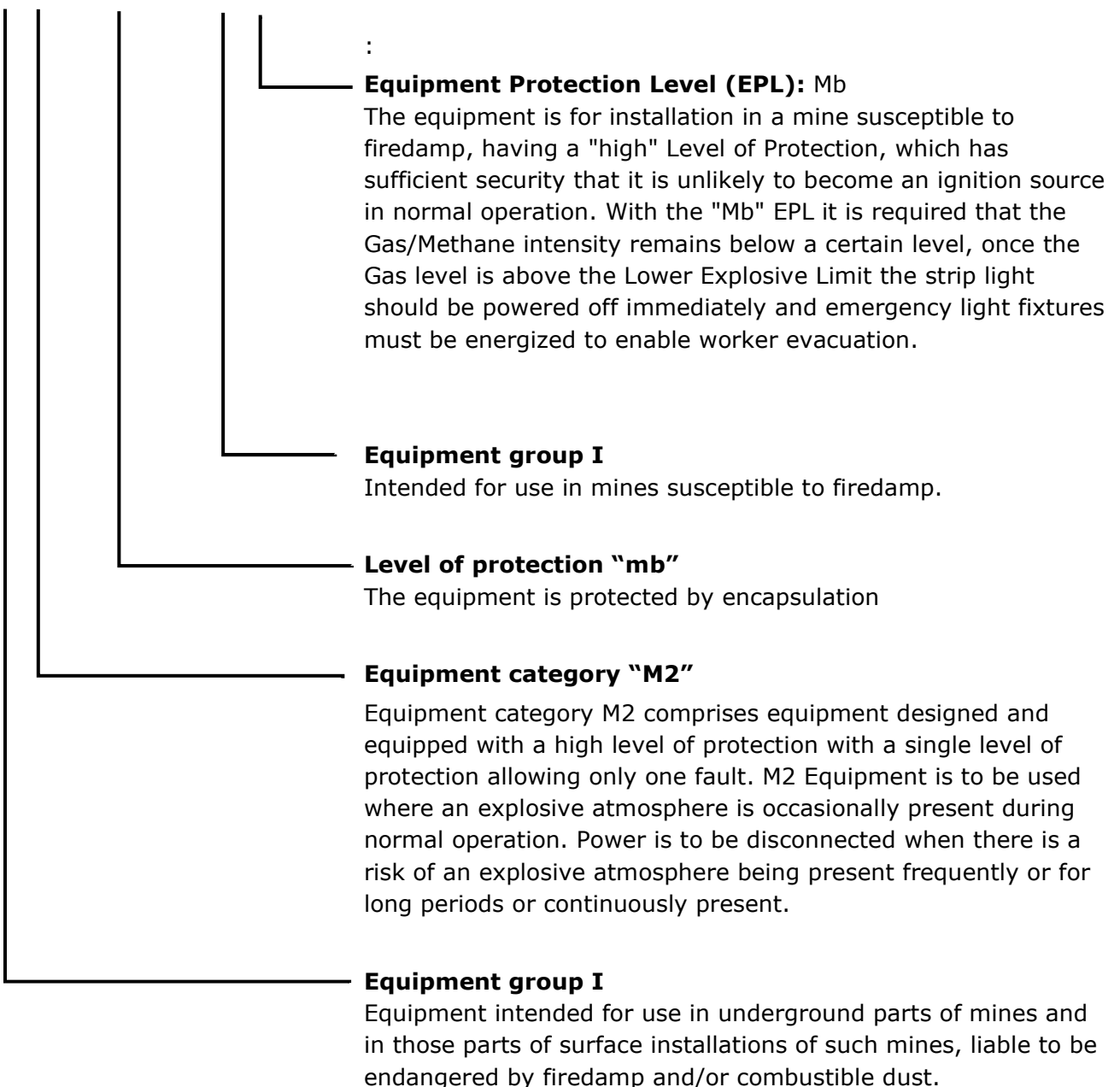
Ex I M2 Ex mb op is I Mb

Ex II 2G Ex mb op is IIC T6 Gb

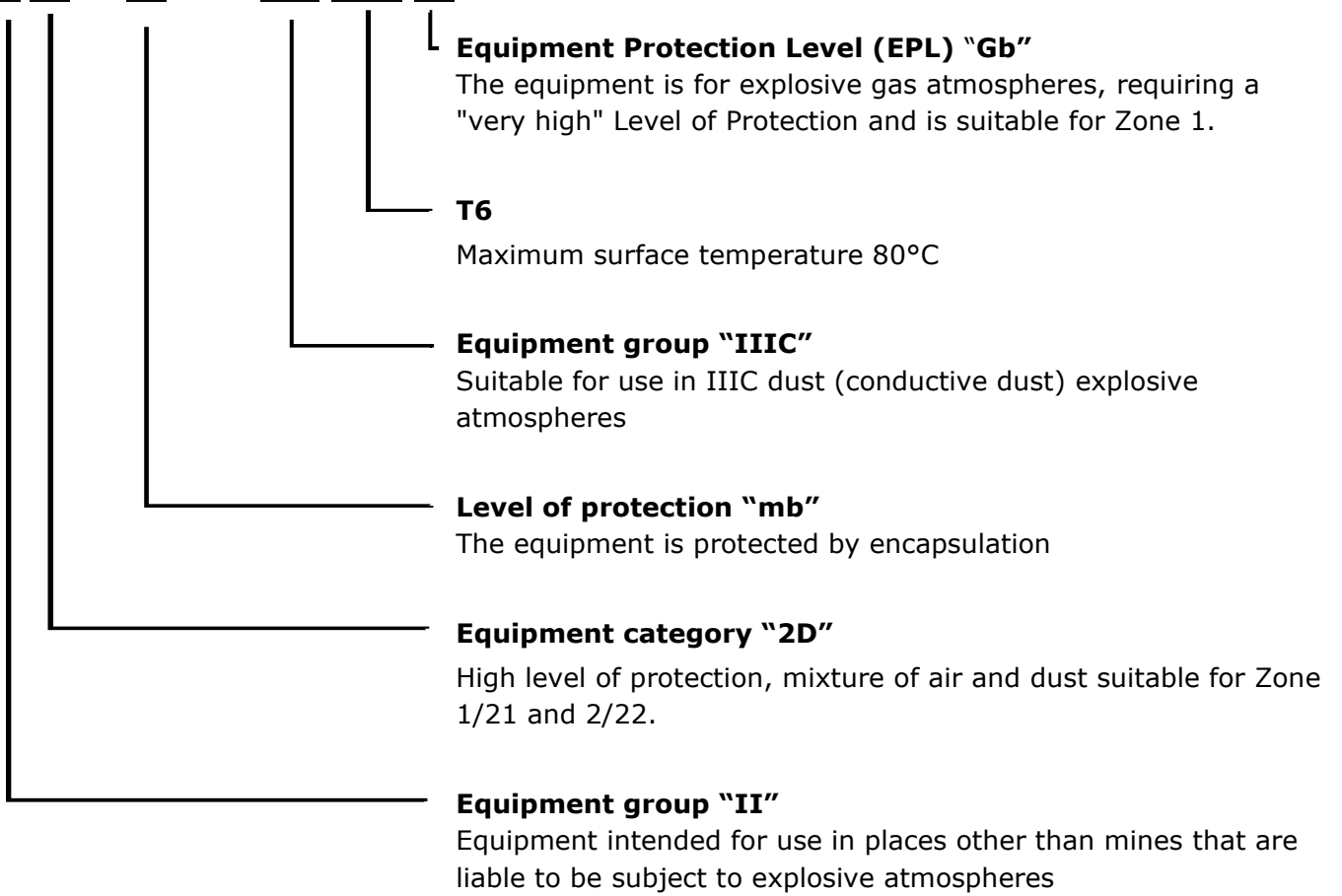
Ex II 2D Ex mb op is IIIC T80C Gb

SUB SURFACE MINES and parts of surface installation of such mines

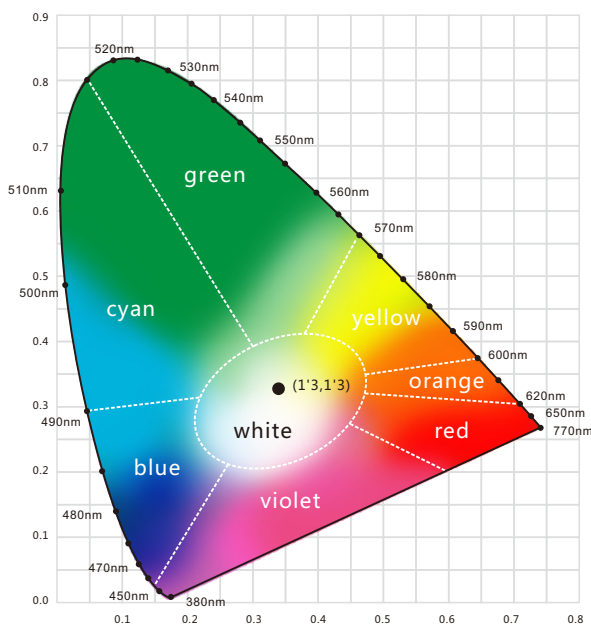
Ex I M2 Ex mb op is I Mb



Ex II 2D Ex mb op is IIIC T80C Gb



5.4 Wavelength of Color Light



Light Color

