



Department of Alternative
Energy Development and Efficiency

MINISTRY OF ENERGY



**Forum to Facilitate Asian Participation and Influence
in IEC Standards Development for Lighting**

Thailand Lighting Standards Development Process and Status

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What is the current use of IEC standards within Thailand?

TIS Standards		Amount	Remarks
Lamp		20	<p>Most TIS standards use IEC standards as references.</p> <p>Thai Industrial Standard (TIS)</p>
Luminaire		16	
Control Gear		6	
Test & Measurement		5	
Lamp holder		3	
Installation		3	
Other		5	

The product certification schemes of TISI consist of 2 types with different certification marks.



voluntary certification mark



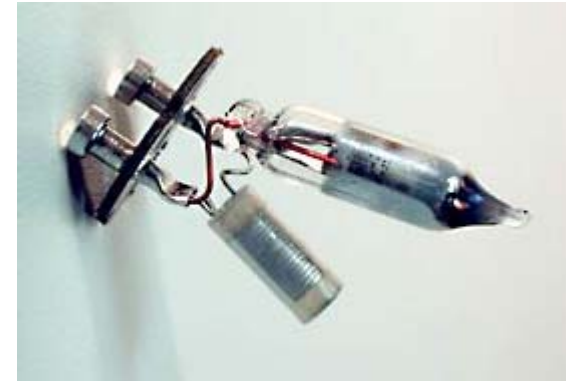
mandatory certification mark

Thai Industrial Standards Institute (TISI)

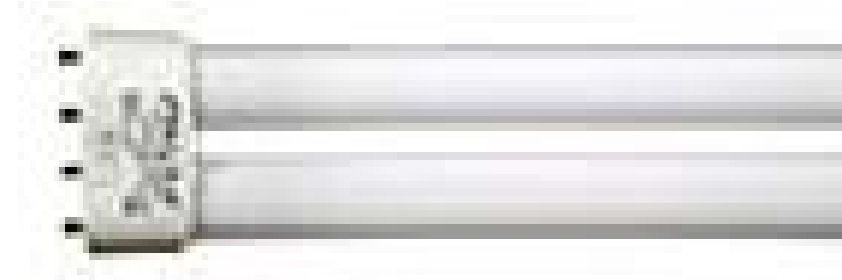
58 TIS Lighting Standards

1. **TIS 1102-2538 (1995)** Self-contained emergency lighting luminaires
2. **TIS 121 Part 1-2518 (1975)** Method of test for textiles Part 1 Colour fastness to light (daylight)
3. **TIS 121 Part 2-2518 (1975)** Method of test for textiles Part 2 Colour fastness to artificial light (Xenon arc lamp)
4. **TIS 1470-2549 (2006)** Installation of lighting and light-signaling devices for motor vehicles
5. **TIS 1506-2541 (1998)** AC Supplied electronic ballasts for tubular fluorescent lamps

- 6. TIS 1713-2548 (2005) Single – capped fluorescent lamps**
- 7. TIS 1789-2542 (1999) Road vehicles - Working voltages for lights fitted to motor vehicles and to their trailers**
- 8. TIS 1790-2542 (1999) Road vehicles - Motor vehicles - Flasher units**
- 9. TIS 1791-2542 (1999) Road vehicles - Lighting and light signaling devices – vocabulary**
- 10. TIS 183-2547 (2004) Glow starters for fluorescent lamps**



- 11.TIS 191-2531 (1988) Capacitors for use in tubular fluorescent and other discharge lamp circuits**
- 12.TIS 1955-2551 (2008) Lighting and similar equipment : radio disturbance limits**
- 13.TIS 2233-2548 (2005) Self-ballasted lamps for general lighting services**
- 14.TIS 2234-2548 (2005) Self-ballasted lamps for general lighting services : safety requirements**
- 15.TIS 2235-2548 (2005) Single – capped fluorescent lamps : safety specifications**



- 16.TIS 2281-2549 (2006)** Devices for the illumination of rear registration plates of motor vehicles and their trailers
- 17.TIS 2282-2549 (2006)** Direction indicators for motor vehicles and their trailers
- 18.TIS 2283-2549 (2006)** Front and rear position (side) lamps, stop-lamps and end-on-line marker lamps for motor vehicles and their trailers
- 19.TIS 2284-2549 (2006)** Motor vehicle headlamps equipped with halogen filament lamps (H1 H2 H3 HB3 HB 4 H7 H8 H9 HIR1 HIR2 and/or H11)
- 20.TIS 2285-2549 (2006)** Motor vehicle front fog lamps



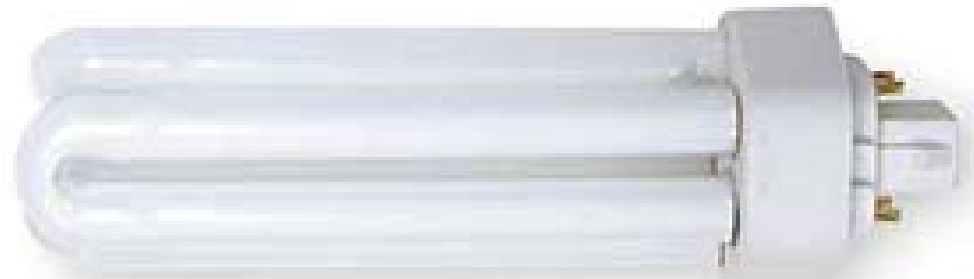
- 21. TIS 2286-2549 (2006) Motor vehicle headlamps equipped with halogen filament lamps (H4)**
- 22. TIS 2287-2549 (2006) Reversing lights for power-driven vehicles and their trailers**
- 23. TIS 2288-2549 (2006) Motor vehicle headlamps equipped with halogen sealer-beam unit (HSB)**
- 24. TIS 2289-2549 (2006) Filament lamps for use in approved lamp units on power-driven vehicles and of their trailers**
- 25. TIS 2290-2549 (2006) Rear fog lamps for power-driven vehicles and their trailers**



- 26. TIS 2291-2549 (2006) Parking lamps for power-driven vehicles**
- 27. TIS 2292-2549 (2006) Motor vehicle headlamps equipped with gas-discharge light sources**
- 28. TIS 2293-2549 (2006) Gas-discharge light sources for use in approved gas -discharge lamp units of power-driven vehicles**
- 29. TIS 2294-2549 (2006) Motor vehicle headlamps emitting an asymmetrical beam equipped with filament lamps**
- 30. TIS 2295-2549 (2006) Motor vehicle headlamps emitting a symmetrical beam equipped with filament lamps**



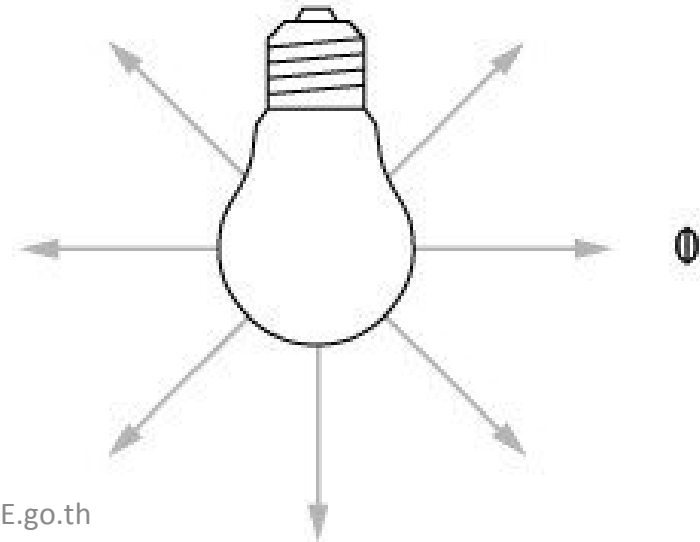
- 31. TIS 2309-2549 (2006) Double-capped fluorescent lamps : energy efficiency requirements**
- 32. TIS 2310-2549 (2006) Self-ballasted lamps for general lighting services : energy efficiency requirements**
- 33. TIS 2316-2549 (2006) Lighting galvanized steel columns**
- 34. TIS 23-2521 (1978) Ballast for fluorescent lamps**
- 35. TIS 2334-2550 (2007) Single – capped fluorescent lamps : energy efficiency requirements**



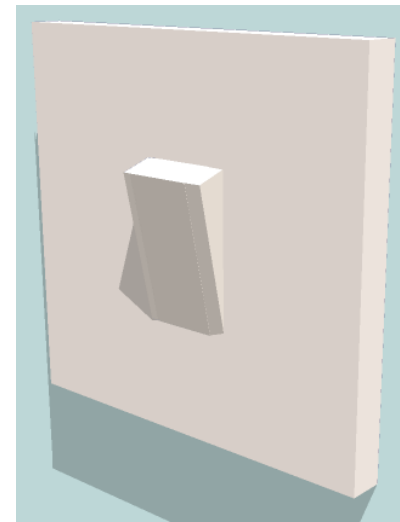
- 36.TIS 2338-2550 (2007) Lamps for mopeds, motor cycles and vehicles treated as such**
- 37.TIS 2343-2550 (2007) Installation of lighting and light-signaling devices for motorcycles**
- 38.TIS 235 Part 6-2524 (1981) Physical quantities and their units Part 6 Quantities and units of light and related electromagnetic radiations**
- 39.TIS 2371-2551 (2008) Side-marker lamps for motor vehicles and their trailers**
- 40.TIS 245-2520 (1977) Flashlights**



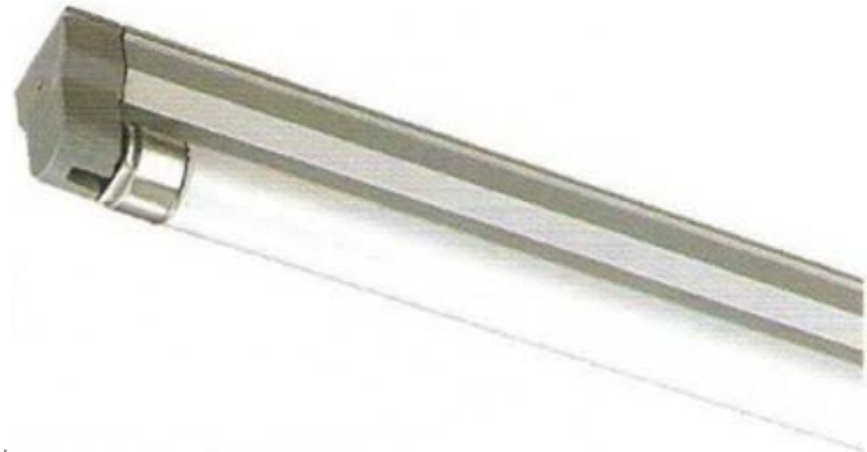
- 41.TIS 25-2516 (1973) Lamp holders : bayonet types**
- 42.TIS 344-2549 (2006) Lamp holders for tubular fluorescent lamps and starter holders**
- 43.TIS 4 Part 1-2529 (1986) Incandescent lamps**
- 44.TIS 4 Part 2-2522 (1979) Method of measurement of lamp cap temperature rise**
- 45.TIS 623-2529 (1986) Measurement of luminous flux of fluorescent lamps and incandescent lamps**



- 46.TIS 624-2529 (1986) Measurement of light source colour**
- 47.TIS 673-2530 (1987) Ballasts for high pressure mercury vapour lamps**
- 48.TIS 817-2531 (1988) Bicycle lighting sets**
- 49.TIS 819-2531 (1988) Lamp holders : Edison screw type**
- 50.TIS 824-2551 (2008) Switches for household and similar fixed electrical installations : general requirements**



- 51.TIS 885-2532 (1989) AC supplied electronic ballasts for tubular fluorescent lamps: safety requirements**
- 52.TIS 902-2532 (1989) Fixed general purpose luminaires**
- 53.TIS 903-2532 (1989) Recessed luminaires**
- 54.TIS 904-2532 (1989) Luminaires for road and street lighting**
- 55.TIS 905-2532 (1989) Portable general purpose luminaires**



56.TIS 906-2532 (1989) Flood lights

57.TIS 907-2532 (1989) Handlamps

**58.TIS 956-2548 (2005) Double – capped fluorescent
: safety specifications**



Who, and how does Thailand, currently interact with the IEC in general and for lighting specifically ?

Thai Industrial Standards Institute (TISI)

- www.TISI.go.th
- is the national standards body of Thailand
- primary functions
 - to prepare and publish national standards
 - to grant licenses to use the *TISI* Standards Marks
- Is the full national member of IEC since 1991



- **The national policy concerning the activities of the IEC shall be determined by The Thai Industrial Standard Committee.**
- **In the development of IEC standards, Thailand has been participating in 34 technical committees and subcommittees as P-member and in 52 committees as O-member.**

IEC/TCs/SCs	IEC Member	
	P-member	O-member
TC 23 Electrical Accessories		O
TC 23 SC 23B Plugs, Socket-outlets and Switches		O
TC 34 Lamps and Related Equipment	P	
TC 34 SC 34A Lamps	P	
TC 34 SC 34B Lamp Caps and Holders	P	
TC 34 SC 34C Auxiliaries for lamps	P	
TC 34 SC 34D Luminaires		O
TC 76 Optical Radiation Safety and Laser Equipment		O
TC 82 Solar Photovoltaic Energy Systems	P	
CISPR F Interference Relating to Household Appliances, Tools, Lighting Equipment and Similar Apparatus	P	

- **The Illuminating Engineering Association of Thailand (TIEA)**
- **www.TIEAThai.org**



Who initiates the development of test methods for energy efficiency and performance?

Energy Efficiency:

- Department of Alternative Energy Development and Efficiency (DEDE),
Ministry of Energy

Performance:

- Thai Industrial Standards Institute (TISI),
Ministry of Industry

Who are involved in the development process.

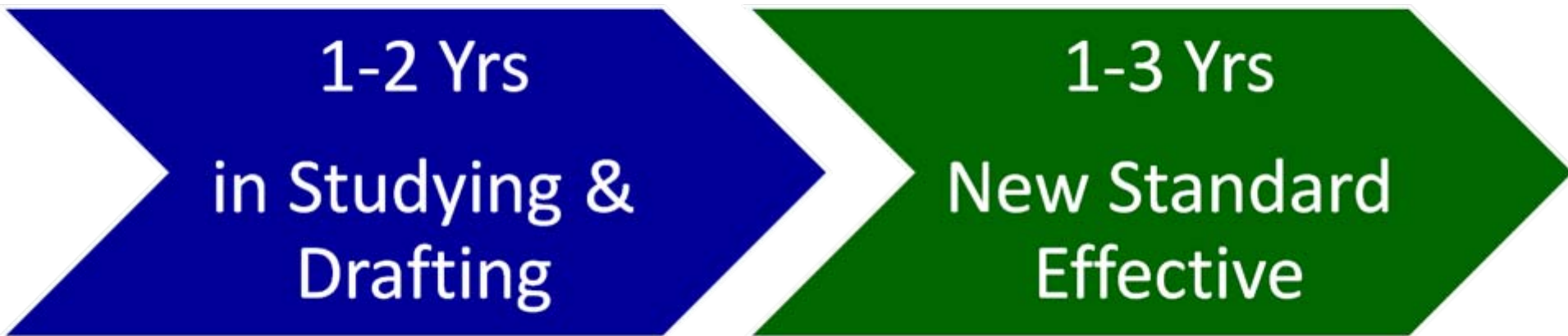
TISI:

- Performance Standard
- Safety Standard : *Mandatory Standard*
- MEPS (Minimum Energy Performance Standard) : *Mandatory Standard*

DEDE:

- HEPS (High Energy Performance Standard) : *Voluntary Standard*
- MEPS (Minimum Energy Performance Standard) : *Draft Standard*

What is the typical development time?



What is the current status of lighting standards and likely revisions?

List of draft new TIS standards

Stage 0 Priority List

- Exit Luminaire
- **TC360** Luminaires for road and street lighting (Revision of TIS 904-2532 (1989))
- **TC1** Standard method of measurement of lamp cap temperature rise (Revision of TIS 4 Part 2-2529 (1986))

Stage 1 Draft Proposal

- **TC43** Bayonet lampholder (Revision of TIS 25-2516 (1973))
- **TC212** LED module for general lighting : Safety requirement
- **TC360** Luminaires - Part 1 : General requirements and tests
- **TC360** Luminaires - Part 2 : Particular requirements. Sections One : Fix general purpose luminaries (Revision of TIS 902-2532 (1989))

Stage 2 Committee Draft

- **TC12** AC Supplied electronic ballasts for tubular fluorescent lamps (Revision of TIS 1506-2541 (1998))
- **TC846** AC supplied electronic ballasts for tubular fluorescent lamps: Safety requirements (Revision of TIS 885-2531 (1988))
- **TC12** Lamp control gear Part 1 General and safety requirements
- **TC195** Electrical switches (Revision of TIS 824-2531(1988))
- Lighting columns for highway
- **TC908** Lighting galvanized steel columns

- **TC12** Performance of electrical lighting equipment - Part 1 Method of measurement energy consumption and performance of ballast lamp circuits
- **TC12** Performance of electrical lighting equipment - Part 2 Energy labeling and minimum energy performance standards requirements
- **TC212** Self - ballasted lamps for general lighting services : Energy efficiency requirements
- **TC212** Self - ballasted lamps for general lighting services : Performance and energy efficiency
- **TC212** Self - ballasted lamps for general lighting services : Safety requirements

High Energy Efficiency Standard (Lighting)

Draft of Energy Ministerial Regulation:

- **Double–capped fluorescent lamps**
- **Self–ballasted lamps for general lighting services**
- **Single – capped fluorescent lamps**
- **Magnetic ballast for fluorescent lamps**
- **Electronic ballast for fluorescent lamps**
- **Lighting luminaires**

Thank You

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