機動車及航太工程國家標準技術委員會113年第53次會議紀錄

一、時間：113年7月16日（星期二）上午9時30分

二、地點：視訊會議

三、主持人：蕭委員名宏　　紀錄：陳永翰

四、出席委員：

(一)非公務機關委員					
蕭委員名宏	○	林委員智賢	○	常委員挽瀾	○
莊委員素琴	○	陳委員偉霖	○	陳委員惠智	○
黃委員傳興	○	楊委員宗勳	○	鄒委員蘊明	○
鄭委員師中	○				
(二)公務機關委員					
趙委員晉緯	請假				

五、列席單位及廠商：

交通部公共運輸及監理司		交通部公路局	陳晟偉	經濟部產業發展署	莊文嘉(車測中心代為出席)
中華民國全國工業總會		中華民國全國商業總會		中華民國車輛進口商協會	

台北市汽車商業同業公會	鄭雅方	台灣LED照明產業發展協會		台灣區汽車修理工業同業公會	
台灣區車輛工業同業公會		台灣區照明燈具輸出業同業公會		台灣區電機電子工業同業公會	
CIE-Taiwan台灣照明委員會		台灣照明學會		台北市汽車代理商業同業公會	
光電科技工業協進會		財團法人工業技術研究材料與化工研究所		財團法人工業技術研究院電子與光電研究所	
財團法人工業技術研究院機械與機電系統研究所		財團法人台灣大電力研究試驗中心		財團法人台灣商品檢測驗證中心	
財團法人車輛安全審驗中心	蘇章輝 黃鉦家 張可育	財團法人車輛研究測試中心		鑫榮機械工業股份有限公司	
三陽工業股份有限公司		大億交通工業製造股份有限公司		中華汽車工業股份有限公司	
聯程工業股份有限公司		台灣山葉機車工業股份有限公司		台灣本田汽車股份有限公司	
台灣賓士股份有限公司		台灣德國萊因技術監護顧問股份有限公司		台灣檢驗科技股份有限公司	

光陽工業股份有限公司		宏佳騰動力科技股份有限公司		和泰汽車股份有限公司	
奇泰檢驗科技股份有限公司		南晃交通器材工業股份有限公司	黃孟弘	美商通用檢驗科技股份有限公司台灣分公司	
納智捷汽車股份有限公司		健益汽車工業股份有限公司		國產汽車股份有限公司	
國瑞汽車股份有限公司		國際富豪汽車股份有限公司		裕隆日產汽車股份有限公司	
裕隆汽車製造股份有限公司		福特六和汽車股份有限公司		環球車輛檢測股份有限公司	
經濟部標準檢驗局檢驗行政組	林耀斌	經濟部標準檢驗局檢驗技術組	黃舜國		

※非經當事人及本局同意，禁止使用簽到表之個人資料，以維護個資安全※

六、審議事項：

CNS 草-制 1130079「動力驅動車輛及其拖車用特殊警示燈」等 1 種(上次會議審查至第 8 節，本次會議從第 9 節開始審查)

七、決議事項：

CNS 草-制 1130079「動力驅動車輛及其拖車用特殊警示燈」

1. 9.1：「光度特性測量應在距離 25 m 地方進行，自特殊警示燈所見之光感知器角度直徑最大應為 10′(弧分)。但感知器與特殊警示燈距離應調整至較長距離，以使感知器接收光之孔徑能夠完全看到特殊警示燈，光學系統之反應時間應足夠以因應量測信號之上升時間。」修正為「光度特性量測應在至少為距離 25 m 處實施，自特殊警示燈所見之光感測器角直徑(angular diameter)，最大應為 10′(弧分)。但感測器與特殊警示燈距離宜調整至較長距離，以使感測器接收光之孔徑能夠完全看到特殊警示燈，光學系統之反應時間應足夠因應量測信號之上升時間。」(修正後與原意較為相符)。
2. 9.2：「對具有一種強度等級(一級)特殊警示燈，應適用「夜間」等級，兩種強度等級(二級)特殊警示燈，應對兩個等級之每一個等級進行測量。各方向有效發光強度應符合下表規定，並應在特殊警示燈之光輸出達到規定 9.5 光度值處於穩定狀態後進行測量。」修正為「對具有單一強度等級(一級)特殊警示燈，應適用〝夜間〞等級，具有兩個強度等級(二級)特殊警示燈，應對兩個等級之每一個等級進行量測。各方向有效發光強度應如以下各表之規定，並應在特殊警示燈之光輸出達到 9.5 規定的光度穩定性後進行量測。」(修正後與原意較為相符)。
3. 9.4.3：「對於燈泡，依實際情況，標準燈泡允許在接近 12 V 並於其參考光通量條件下進行測量，並透過一係數重新計算測量值，該係數是在 13.5 V 標準燈泡下測定。」修正為「如係鎢絲燈泡，依實際情況，允許使用標準鎢絲燈泡在接近 12 V 之參考光通量條件下進行量測，並用透過一因數重新計算測量值，該因數係在 13.5 V 下以此

標準鎢絲燈泡加以決定(若適用)。」(修正後與原意較為相符)。

4. 9.5：「任何燈具於一分鐘後及特殊警示燈之光度值處於穩定狀態後(操作最後15分鐘內偏差小於±5 %)測量之發光強度應符合最小及最大要求。操作一分鐘後之發光強度分佈，可透過在一分鐘及光度值處於穩定狀態之間在高電壓(HV)下實現的比率來計算。」修正為「無論任何燈於 1 min 後，以及特殊警示燈達到光度穩定後(在最近 15 min 內的操作偏差小於±5 %)所測量而得之發光強度應符合最小及最大要求。操作 1 min 後之發光強度分布，得以在 1 min 與光度穩定之間在高電壓(HV)下達到的比率加以計算。」(修正後與原意較為相符)。

5. 9.7.2.1：「由一個以上之單獨單元組成之特殊警示燈裝置，若每個單獨之單元部分光分佈在水平 360 度角度範圍內與相鄰部分光分佈重疊，在垂直角度範圍內，符合相應類別中所指定，在距離車輛 20 m 處幾何位置，該位置位於車輛側面上，與車輛縱軸垂直之垂直平面上，並位於各燈具單元之間中點。在這種情況下，所安裝幾何布置視為符合。」修正為「如係大於一個之個別單元組成之特殊警示燈裝置情況下，若每個單一個別單元之部分光分布在水平 360°範圍內，且在幾何位置相對類別中所規定之垂直角度範圍內與相鄰部分光分布重疊，其對應從車輛距離之 20 m 處，使之垂直車輛縱軸之垂直平面上，並位於車輛側面各燈單元間之中點，則所裝設之幾何布置視為可接受。」(修正後與原意較為相符)。

6. 其餘為文辭修飾，詳如草案修正稿。

7. 經技術委員會決議，草案尚未審查之部分由承辦人彙整各技術委員意見調整，並經主席確認後再執行後續審定相關程序。

8. 本草案經技術委員會決議通過審查。

八、臨時動議：無。

九、本次會議討論內容，因涉及國內業者與各相關單位，為求慎重，經委員會決議，會議紀錄經主席確認後函送國內業者及各相關單位。

十、散會時間：113 年 7 月 16 日上午 11 時 55 分

主席確認：蕭名宏 已確認 113/7/16

ICS 43.040.20

中華民國國家標準

C N S

動力驅動車輛及其拖車用特殊警示燈

Special warning lamps for power-driven vehicles and their trailers~~Special warning lights~~

CNS 草-制 1130079:2024

中華民國　年　月　日制定公布
Date of Promulgation:　-　-

中華民國　年　月　日修訂公布
Date of Amendment:　-　-

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目錄

前言

~~本標準係依據 2021 年發行之第 2.4 版 UN/ECE R65，不變更技術內容，制定成為中華民國國家標準者。~~

本標準係依標準法之規定，經國家標準審查委員會審定，由主管機關公布之中華民國國家標準。

依標準法第四條之規定，國家標準採自願性方式實施。但經各該目的事業主管機關引用全部或部分內容為法規者，從其規定。

本標準並未建議所有安全事項，使用本標準前應適當建立相關維護安全與健康作業，並且遵守相關法規之規定。

本標準之部分內容，可能涉及專利權、商標權與著作權，主管機關及標準專責機關不負責任何或所有此類專利權、商標權與著作權之鑑別。

~~簡介~~

~~特殊警示燈指車輛上的照明裝置，其設計用於向其他道路使用者發送特殊的訊息或警告。這些燈具有不同的形狀、顏色和閃爍模式，用以區別於常規的車輛照明系統。~~

1. 適用範圍

本標準適用於汽車(含聯結器之拖車)、及商用車(卡客車)及重型機具用特殊警示燈。

備考：特殊警示燈指車輛上的燈，其設計用於向其他道路使用者發送特殊的訊息或警告。此等燈有不同的形狀、顏色及閃爍模式，以區別常規車輛照明用燈。

Scope

This Regulation applies to special warning lamps for vehicles of Categories L, M, N, O,and T[1] and for mobile machinery.

2. 引用標準

下列標準因本標準所引用，成為本標準之一部分。下列引用標準適用最新版(包括補充增修)。

車輛型式安全審驗管理辦法附件第29 燈泡

3. 用語及定義

下列用語及定義適用於本標準。

1. Definitions

In general the definitions given in Regulation No. 48 and its series of amendments in force at the time of application for type approval shall apply to this Regulation and in addition for the purpose of this Regulation:

3.1 特殊警示燈(special warning lamp)

使用在指用於車輛上以發出間歇性藍色或琥珀色琥珀(橙)色光之燈具。

1.1."Special warning lamp" means a lamp emitting blue or amber light intermittently for use on vehicles[2].

3.1.1 旋轉或固定閃爍燈(*T* 類或 *HT* 類)(rRotating or stationary flashing lamp)

環繞其垂直軸間歇發光之特殊警示燈。

1.1.1."Rotating or stationary flashing lamp" means a special warning lamp emitting light intermittently all around its vertical axis (Category T or HT).

3.1.2 定向閃爍燈(*X* 類)(dDirectional flashing lamp)

在有限角度區域內間歇發光之特殊警示燈。

1.1.2."Directional flashing lamp" means a special warning lamp emitting light intermittently in a limited angular area (Category X).

3.1.3 完整燈條(cComplete bar)

指具有兩個或多個光學系統之特殊警示燈，其光學系統圍環繞其垂直軸間歇性地發光之特殊警示燈。

1.1.3.Complete bar" means a special warning lamp with two or more optical systems emitting light intermittently all around its vertical axis.

3.1.4 半燈條(hHalf bar)

一個或多個光學系統之特殊警示燈，相對於其水平參考軸範圍內，從左方 135°°度至右方 135 度°°作間歇性發光。此種燈條設計目的供用於安裝架設在車輛前部或後部。

1.1.4."Half bar" means a special warning lamp with one or more optical systems emitting light intermittently from 135 deg. left to 135 deg. right relative to its horizontal reference axis,which is intended to be mounted on the vehicle either to the front or to the rear of the vehicle.

3.2 頻率(f~~F~~requency)

1 s ~~一秒~~內閃爍或閃爍群組之次數。

1.3.The frequency f is the number of flashes or groups of flashes (see Annex 5, para. 6)within one second

3.3 〝開啟〞時間 t_H(〝on 〞time)

閃爍燈發光強度在閃爍過程中超過最大值(峰值)J_m 十分之一之時間段。如係~~對於~~多次閃爍所組成之閃爍群組，〝開啟〞時間應從該群組第一次閃爍~~組~~開始計~~算~~測，到同一群組最後一次~~該~~閃爍~~組~~結束為止。

1.4.The "on" time t_H means the period of time within which the luminous intensity of the flashing light is superior to 1/10 of the maximum value (peak value) J_m. In case of groups of several flashes the "on" time shall be measured from the beginning of the first flash of the group to the end of the last flash of the same group.

3.4 〝關閉〞時間 t_D(〝off〞 time)

閃爍燈發光強度在閃爍過程中小於最大值(峰值)~~–~~J_m之百分之一，但不超過 10 ~~十燭光(~~cd~~)~~之時間段。如係~~對於~~多次閃爍所組成之閃爍群組，〝關閉〞時間應從最後一次閃爍群組結束開始計測~~算~~，直到下一群組第一次閃爍開始為止。

1.5.The "off" time t_D means the period of time within which the luminous intensity of the flashing light is less than 1/100 of the maximum value (peak value) J_m, but not more than 10 cd. In the case of groups of several flashes the "off" time shall be measured from the end of the last flash of the group to the beginning of the first flash of the next group.

3.5 特殊警示燈參考中心點(r~~R~~eference centre of the special warning lamp)

1.7"Reference centre of the special warning lamp" means:

對於旋轉或固定閃爍燈(*T* 類)及定向閃爍燈(*X* 類)，~~由特殊警示燈製造廠指定~~係參考軸與外部發光面之交點，由特殊警示燈製造商指定，若無規範，則~~下列之一~~應參考下列之一~~為~~作為參考中心點：

(a) For a rotating or stationary flashing lamp (Category T), and for a directional flashing lamp (Category X), the intersection of the axis of reference with the exterior light-emitting surface: it is specified by the manufacturer of the special warning lamp. In the absence of such specification, it means:

－ 光源之光軸~~學~~中心(optical centre)。

The optical centre of the light source; or

－ 外部發光表面之幾何中心。

The geometric centre of the external optical surface; or

－ 對於光學系統中之光源陣列，該陣列之幾何中心。

In case of an array of light sources in the optical system, the geometric centre of the array; shall be considered as the reference centre.

3.6 特殊警示燈參考軸(~~R~~reference axis of the special warning lamp)

1.8. Reference axis of the special warning lamp means:

對於旋轉或固定閃爍燈(*T* 類)係為穿過燈~~具~~參考中心點之垂直軸，對於定向閃爍燈(*X* 類)或半燈條(*HT* 類)係為~~平行~~平行於車輛縱向中間~~中心~~面之水平軸。特殊警示燈製造~~廠~~應標示特殊警示燈相對於參考軸之位置。

For a rotating or stationary flashing lamp (Category T), a vertical axis passing through the reference centre of the lamp; For a directional flashing lamp (Category X) or a half bar (Category HT), a horizontal axis parallel to the median longitudinal plane of the vehicle. The manufacturer of the special warning lamp shall indicate the position of the special warning lamp in relation to the reference axis.

3.7 有效發光強度 J_e (e~~E~~ffective intensity)

旋轉及固定閃爍燈於固定方向上之有效發光強度 J_e ~~由~~依下式~~給出~~規定：

1.6. The "effective intensity" J_e in a fixed direction for both rotating and stationary flashing type is given by:

$$J_e = \frac{J_m}{1+\frac{C}{FT}}$$

~~$$J_e = \frac{J_m}{1+\frac{C}{FT}}$$~~

式中， J_m ：發光強度峰值 (~~單位：燭光~~cd)

C ：時間常數，為~~零點二秒~~0.2 s

F ：外形因數 ~~form factor~~ $F = \frac{\int_0^T J\,dt}{J_m T}$ ~~$F = \frac{\int_0^T Jdt}{J_m T}$~~

T ：時間週期

J ：瞬時發光強度(~~單位：燭光~~cd)

Where:

Jm: peak intensity (cd)

C: time constant, C = 0.2 sec

F: form factor $F = \frac{\int_0^T Jdt}{J_m T}$

T: time of period

J: instantaneous intensity (cd)

3.8 ~~測量~~量測方向(m~~M~~easuring directions)

1.9. Measuring directions

3.8.1 旋轉或固定閃爍燈(*T* 類)

其有效發光強度應於環繞特殊警示燈之參考軸 360 ~~度~~°~~。~~範圍內測定。

1.9.1.The effective intensities of rotating or stationary (Category T) lamps shall be determined in the directions within an angle of 360 deg around the reference axis of the special warning lamp:

(a) 在水平面上垂直於參考軸且通過特殊警示燈之參考中心點。~~：~~

1.9.1.1.In a horizontal plane perpendicular to the reference axis and passing through the reference centre of the special warning lamp;

(b) 在圓錐體上，其中母線由上述水平面角度產生，起始於有效發光強度最小點，發光強度及角度之值依第~~照規定~~9 節~~，~~之表格。

1.9.1.2.In cones, the generating lines of which produce with the above-mentioned horizontal plane angles, starting at a point where the effective intensity is minimum, the values which are indicated in the table of Annex 5 to this Regulation.

(c) 在圓錐體上，其中母線由上述水平面角度產生，角度之值依~~照規定~~第 9~~，~~節之表格。

1.9.1.3. In cones, the generating lines of which produce with the above-mentioned horizontal plane angles, the values of which are indicated in the table in Annex 5 to this Regulation.

3.8.2 定向閃爍燈(*X* 類)

有效發光強度應依~~在本規定 9.中第~~ 9.7.3.1 ~~段~~所~~指~~示方向上進行計測~~量~~。

1.9.2. The effective intensities of directional flashing lamps (Category X) shall be measured in the directions indicated in paragraph 7.3.1. of Annex 5 to this Regulation.

4. 一般要求

5. General specifications

4.1 特殊警示燈應妥為~~之~~設計及構建~~造~~使~~應確保~~之在正常使用下，以及儘管在使用過程中可能受到振動，仍可~~維持~~確保其所需之操作，並保持本項規定之特性。特殊警示燈應妥為~~之~~設計及構~~造~~建~~應~~以滿足有關內部電壓高於 60 V DC 之相關要求。

5.1.The special warning lamps shall be so designed and constructed that in normal conditions of use, and notwithstanding the vibrations to which they may be subjected in such use, their satisfactory operation remains assured and they retain the characteristics prescribed by this Regulation. The special warning lamps shall be so designed and constructed that the relevant requirements with regard to internal voltage higher than 60 V DC are fulfilled; e.g. by marking the device, as defined in paragraph 5.1.1.5. in Regulation No. 100.

4.2 特殊警示燈應妥為設計使之~~成在~~正確~~安裝到~~架設到車輛上後，無調整不良之可能。

5.2. The special warning lamp shall be so designed that after it has been mounted

correctly on the vehicle, no maladjustment is possible.

4.2.1 特殊警示燈應以~~透過~~直接連接或常用連接器(如點煙器插頭)之方式，直接由車輛之電源供應網路供電~~供電~~。

5.2.1. The special warning lamp shall be powered directly from the voltage supply network of the vehicle by direct connection or usual connectors (e.g. cigarette lighter plug).

4.3 當使用不可更換光源時，應將其永久固定在特殊警示燈上。

5.3. When a non-replaceable light source is used it shall be permanently fixed to the special warning lamp.

4.4 光源模組

5.4. Light source module

4.4.1 光源模組類應妥為設計~~之設計應確保~~使之即使在黑暗中，亦只能套接~~安裝~~在正確位置處。

5.4.1. The design of the light source module(s) shall be such that even in darkness the light source module(s) can be fitted in no other position, but the correct one.

4.4.2 光源模組類應可防篡改。

5.4.2. The light source module(s) shall be tamperproof.

4.5 對於使用特殊電源、專用電源或光源控制裝置~~單元~~者，其應為特殊警示燈之一部分。

5.5. In the case of a system that uses a special power supply, or a dedicated power supply, or light source control gear shall be part of special warning lamp.

4.6 特殊警示燈之頻率 *f*、〝開啟〞時間 t_H 及〝關閉〞時間 t_D 應~~該~~與本標準~~規定~~第 9~~.~~節中之值相符。其應於~~環境~~周圍溫度為(＋~~+~~23±5) ℃~~度 C~~，且裝置端額定電壓 90 %至 115 %之間時~~測量~~量測。此外，特殊警示燈應確保在－~~-~~20 ℃至＋~~+~~50 ℃~~度 C~~之溫度範圍內，或依本~~規定~~標準第 8~~.~~節所述之程序中~~之程序~~，使特殊警示燈暴露在大雨~~中~~下，其起~~啟~~動及~~校~~修正之功能仍能正常運作。在~~這些~~此等條件下，於施加電壓達額定電壓之 90 %後 1 min ~~分鐘~~內，頻率應該保持在 2.0 Hz 至 4.0 Hz 之間。

5.6. The frequency f, the "on" time t_H and the "off" time t_D shall correspond to the values indicated in the table in Annex 5 to this Regulation. They shall be measured at an ambient temperature of +23 deg. C +/- 5 deg. C and with voltages at the terminals of the device which are between 90 per cent and 115 per cent of the rated voltage. Moreover,starting and correct functioning of the special warning lamp shall remain assured at temperatures between -20 deg. C and +50 deg. C or if the special warning lamp is exposed to heavy rain, in accordance with the procedure described in Annex 4 to this Regulation. Under those conditions, one minute after a voltage equal to 90 per cent of the rated voltage has been applied; the frequency shall remain between 2.0 and 4.0 Hz.

4.7 *T* 類或 *HT* 類旋轉或閃爍特殊警示燈裝置可由多個光學系統組成。其必須~~應~~符合~~規~~

~~定~~9.8 之要求。特殊警示燈~~製造廠~~製造商應提供安裝資訊，以確保各種~~裝置~~單元正確~~安裝~~架設在車輛上。

5.7. A rotating or flashing special warning lamp device of Category T or of Category HT may consist of more than one optical system. In this case the requirements of Annex 5,paragraph 8. must be met. The lamp manufacturer must supply mounting information to ensure that the various units are correctly mounted on a vehicle.

4.8 *T* 類旋轉或閃爍之特殊警示燈裝置可~~以~~發出多種~~燈~~光色，每種~~燈~~光色皆應於規~~指~~定之全角度範圍內分別符合所有要求，但應禁止同時~~啟~~致動超過一種~~以上~~之~~燈~~光色。

5.8. A rotating or flashing special warning lamp device of Category T may emit light of several colours. In this case, all the requirements shall be met for each colour separately over the full angular range specified. The activation of more than one colour at the same time shall be prohibited.

備考：特殊警示燈製造~~廠~~商應應提供正確之~~裝車~~架設資訊，以確保特殊警示燈於同時間內僅~~啟~~致動一種~~燈~~光色。

The lamp manufacturer shall supply mounting information, for correct mounting on a vehicle, to ensure that only one colour of the special warning lamp is activated at the same time.

4.9 符合本~~規定~~標準之特殊警示燈，使用者~~不得~~應無法~~啟~~致動不符合 9.6 要求之多個閃爍組(閃爍~~模式~~類型)。

5.9. In the case of special warning lamps approved under this Regulation, it shall be not possible for the user to activate groups of several flashes (flash patterns), which do not conform to the requirements in paragraph 6. of Annex 5.

5. 光度規範

6. Photometric specifications

特殊警示燈應符合第 9 節~~.~~所述之~~規定~~各種條件。

The special warning lamps shall comply with the conditions prescribed in Annex 5 to this Regulation.

6. 特殊警示燈之~~燈~~光色查驗

7. Checking the colour of the special warning lamp

~~燈~~光色應符合~~規定~~第 7 節~~.~~所述之色度邊界內，燈~~具~~所發出光~~線~~之色度特性，以 CIE 色度座標表示，應使用設計之光源進行評估，並在~~規定~~9.4.2 規定之電壓下運作。~~對於~~如係使用氙氣閃爍燈管之特殊警示燈，作為一種替代方法，則色度座標可由經外蓋傳輸之光譜分布，及任何其他可能影響特殊警示燈~~燈~~光色之有效光學元件之傳輸或反射進行推斷。~~計算應~~再以具有依~~規定~~第 10 節~~.~~中所列~~光源~~之相對光譜分~~佈~~布之光源進行計算。

The colour shall comply with the colorimetric boundaries prescribed in Annex 3 to this Regulation.

The colorimetric characteristics of the light emitted, expressed in CIE chromaticity coordinates,shall be evaluated using the light source as designed, working at the voltage as specified in paragraph 4.2. in Annex 5 of this Regulation.

In case of a special warning lamp employing a Xenon flash tube, as an alternative the chromaticity co-ordinates may be deduced from the spectral distribution of the transmission of the cover and the transmission or reflection of any other optical effective elements which could impair the colour of the special warning lamp. The calculation then shall be based on a luminous source with a relative spectral distribution as listed in Annex 6.

7. 用於經由~~特殊警示燈琥珀色~~琥珀(橙)色或藍色濾鏡外蓋之特殊警示燈所發出光~~之~~的~~三~~色度座標**(trichromatic co-ordinates)**

Annex 3

Trichromatic co-ordinates for the light emitted through the amber or blue filters constituting the covers of special warning lamps

依第~~規定~~6.節，用於經由~~特殊警示燈之濾~~各類透鏡之特殊警示燈所發出光的色度~~三色~~座標應位於以下範圍內：

Under the conditions of paragraph 7. of this Regulation, the trichromatic co-ordinates of light emitted through the lens(es) used for special warning lamps shall lie within the following boundaries:

~~琥珀色~~琥珀(橙)色(amber)

朝向綠色區之邊界 y ≤ x－~~－~~0.120

朝向紅色區之邊界 y ≥ 0.390

朝向白色區之邊界 y ≥0.790－~~－~~0.670~~-~~x

Amber

Limit towards green: y ≤ x - 0.120

Limit towards red: y ≥ 0.390

Limit towards white: y ≥ 0.790 - 0.670 x

藍色

朝向綠色區之邊界 y = 0.065＋~~+~~0.805~~-~~x

朝向白色區之邊界 y = 0.400－~~－~~x

朝向紫色區之邊界 y = 1.667x－~~－~~0.222

Blue

Limit towards green: y = 0.065 + 0.805 x

Limit towards white: y = 0.400 - x

Limit towards purple: y = 1.667x - 0.222

紅色

朝向紫色區之邊界 y ≥~~>~~ 0.980－~~－~~x

朝向黃色區之邊界 y ≤~~<~~ 0.335

色度數據應在穩態條件下進行~~測量~~量測。

Red

Limit towards purple: y≥ 0.980 - x

Limit towards yellow: y ≤ 0.335

Colorimetric data shall be measured in the steady state condition.

8. 降雨試驗程序

Annex 4

Procedure for the rain test

特殊警示燈樣品~~受驗件~~應~~安裝在~~套設在其正常操作位置並打開所有排水孔(若有裝設)，應受~~每分鐘~~2.5 mm/min 之降水量，該水經導引成 45°~~度角~~，並經由噴嘴(單一或各方向)以產生一種完整錐形 ~~45 度角~~之噴流~~灑~~。

A sample of the special warning lamp, fitted in its normal operating position, with all the drainage apertures open if they exist, shall be subjected to a precipitation of 2.5 mm of water per minute, the water being directed at an angle of 45 deg. and from a single nozzle producing a full conical jet.

測試~~期間~~過程中，裝置應在其垂直軸上以~~每分鐘~~4 rpm 轉~~速度~~動。~~繞其垂直軸轉動~~若使用多個噴嘴將水由各個方向同時對測試中之~~設備~~裝置噴灑，則在測試~~期間~~過程中無需轉動該裝置~~設備~~。在~~這種~~後者之情形~~況~~下，上述規定之水流量應作相對應調整，以達成~~實現~~均勻分布~~佈和~~及正確降水量。

During the test, the device shall turn on its vertical axis at a rate of 4 turns per minute. However, if the water is simultaneously directed to the device under test from all directions in the horizontal plane using a multitude of nozzles, there is no need to rotate the device during the test. In this latter case the water flow specified above shall be adjusted accordingly to achieve even distribution and the correct precipitation.

試驗應持續 12 h ~~小時~~，然後停止噴灑。經~~待~~1 ~~小時後~~ h 後，檢查該樣品~~受驗件~~，若累積之水量不超過 2 cm^3 ~~立方公分~~，則視為試驗合格。

The test shall last for 12 hours continuously after which the water jet shall be stopped. One hour later, the sample shall be examined and shall be regarded as having passed the test if the accumulated volume of water does not exceed 2 cm^3.

9. 光度規範

Annex 5

Photometric specifications

9.1 光度特性~~測~~量測應在至少為距離 25 m 處~~地方實施進行~~，自特殊警示燈所見之光~~感知器~~感測器角~~度~~直徑(angular diameter)，最大應為 10′(弧分)。但~~感知器~~感測器與特殊警示燈距離宜~~應~~調整至較長距離，以使~~感知器~~感測器接收光之孔徑能夠完全看到特殊警示燈，光學系統之反應時間應足夠~~以~~因應量測信號之上升時間。

Measurements of the photometric characteristics shall be taken at a distance of at least 25 m.The angular diameter of the photoelectric receiver as seen from the special warning lamp shall be 10 minutes of arc maximum. However, the distance of the sensor

from the special warning lamp should be adjusted to a longer distance, such that the aperture through which the sensor is receiving the light allows full view of the special warning lamp for the sensor. The response time of the photometric system shall be adequate to the rising time of the signal to be measured.

9.2 對具有單一~~種~~強度等級(一級)特殊警示燈，應適用~~「~~夜間~~」~~等級，具有兩個~~種~~強度等級(二級)特殊警示燈，應對兩個等級之每一個等級進行~~測量~~量測。各方向有效發光強度應如~~符合~~以下各表之規定，並應在特殊警示燈之光輸出達到 9.5 ~~規定 9.5~~規定的光度~~值處於~~穩定性~~狀態~~後進行~~測量~~量測。

For special warning lamps having one level of intensity (Class 1), the "by night" level shall apply. For special warning lamps having two levels of intensity (Class 2) measurements shall be carried out for each of the two levels. The effective luminous intensities in various directions shall be as specified in the tables below, and shall be measured after the light output from the special warning lamp has reached photometric stability as specified in paragraph 5. below.

9.3 使用鎢絲燈泡者應符合 UN ~~/~~ECE Regulation No.37[1]或車輛型式安全審驗管理辦法附件~~第~~29 所規定之標準鎢絲燈泡，並應符合特殊警示燈所規範之燈泡類別。

If a filament lamp is used that shall be a standard filament lamp as provided for in Regulation No. 37 corresponding to a lamp of the category specified for the special warning lamp.

9.4 ~~測~~試驗用光源條件

Light source conditions for test:

9.4.1 對可更換之光源，應使用標準燈泡。

In the case of replaceable light sources a standard lamp shall be used.

9.4.2 對於配備可更換或不可更換光源(鎢絲燈泡、氣體放電式光源及其他~~它~~光源)之燈~~具~~應分別以 6.75 V、13.5 V 或 28.0 V 進行量測，如係~~對於~~使用特殊電源、專用電源或光源控制~~單元~~裝置之系統~~者~~，則應將~~製造廠~~製造商宣告之電壓施加至該電源輸入端子上。 除非另有規定，否則應使用 6.75 V、13.5 V 或 28.0 V 作為~~之~~適用電壓。

All measurements on lamps equipped with replaceable or non-replaceable light sources (filament lamps, gas discharge light sources and other) shall be made at 6.75 V, 13.5 V or 28.0 V, respectively. In the case of a system that uses a special power supply, or a dedicated power supply, or light source control gear, the voltage declared by the manufacturer shall be applied to the input terminals of that power supply. Unless otherwise specified 6.75 V, 13.5 V or 28 V, as applicable shall be used.

9.4.3 如係~~對於~~鎢絲燈泡，依實際情況，允許使用標準鎢絲燈泡~~允許~~在接近 12 V 之~~並於其~~參考光通量條件下進行~~測量~~量測，並用透過一因~~係~~數重新計算測量值，該因~~係~~數係~~是~~在 13.5 V 下~~標準燈泡下~~以此標準鎢絲燈泡加以決定(若適用)~~測定~~。

In the case of filament lamps it is allowed to make the measurements with a standard

filament lamp at reference flux conditions nearly at 12 V and recalculate the measured values by a factor, which is determined with this standard filament lamp at 13.5 Volt, if applicable.

9.5 無論任何燈具於 1 min 一分鐘後，以及特殊警示燈達到之光度值處於穩定狀態後(操作在最近後15 min 分鐘內的操作偏差小於±5 %)測量所測量而得之發光強度應符合最小及最大要求。操作 1 min 一分鐘後之發光強度分布佈，得以可透過在 1 min 一分鐘及與光度值處於穩定狀態之間在高電壓(HV)下達到實現的比率加以來計算。

For any lamp, the luminous intensities measured after one minute and after the light output from the special warning lamp has reached photometric stability (deviation of less than +/-5 per cent in the last 15 minutes of operation) shall comply with the minimum and maximum requirements. The luminous intensity distribution after one minute of operation can be calculated by applying the ratio achieved at HV between one minute and at photometric stability.

9.6 若特殊警示燈發出之光包含數個閃爍群組，,則介於前後兩閃爍間之時間差 Δt 必須需非常短暫。若峰至峰 Δt 峰值≤0.04 s 秒，則其間之脈波動視為一個閃爍。若此 Δt 較長，,則僅以具最高有效光強度之閃爍視為有效。此外，另時間差之限制如下係以組组間閃爍峰值光強度比求出(I_H=最高峰之有效發光強度之最高峰值；I_L=最低峰之有效發光強度之最低峰值)，如下所列：

If the emitted light of a special warning lamp consists of groups of several flashes, the time distance delta t between the immediately following flashes must be very short. If the peak to peak distance delta t is less or equal to 0.04 s, then the pulses in between are evaluated as one flash. If this distance delta t is longer only the flash with the highest effective intensity is valid. Moreover, the period is limited depending on the ratio between the effective intensities of the flashes within a group (IH= max. effective intensity of the highest peak, IL = max. effective intensity of the lowest peak) as follows:

若 $\frac{I_H}{I_L} > 10$，則 $\Delta t < \frac{1}{3f}$ ~~$\Delta_T(S) \leq \frac{1}{3f}$~~

若 $1 < \frac{I_H}{I_L} < 10$，~~$1 < \frac{I_H}{I_L} < 10$~~ 則 $\Delta t < \frac{1}{f(5.50 - 0.25\frac{I_H}{I_L})}$ ~~$\Delta t(s) < \frac{1}{f(5.50-0.25\frac{I_H}{I_L})}$~~

In case

$$\frac{I_H}{I_L} \rangle\ 10 \qquad \text{then} \qquad \Delta t\,(s) \langle\ \frac{1}{3f}$$

In case

$$1 < \frac{I_H}{I_L} < 10 \qquad \text{then} \qquad \Delta t\,(s) < \frac{1}{f(5.50 - 0.25\frac{I_H}{I_L})}$$

9.7 發射光之頻率、時間及~~發光~~強度

Frequency, time and intensity of the emitted light

9.7.1 頻率、〝ON〞時間及~~和~~〝OFF〞時間應~~之規定如~~依~~下~~表 1 之規定

The frequency, the "ON" time and the "OFF" time shall be as specified in the table below

表 1　頻率、〝ON〞時間及~~和~~〝OFF〞時間之規定

		藍色、~~琥珀色~~琥珀(橙)色或~~及~~紅色
		旋轉系統或閃爍光源 (*T* 類及 *X* 類)
頻率 *f* (Hz)	最大 ~~Max~~	4.0
	最小 ~~Min~~	2.0
〝ON〞時間 t_H(s)	最大 ~~Max~~	0.4/*f*
〝OFF〞時間 t_D(s)	最小 ~~Min~~	0.1

		Colour blue, amber or red
		Rotating system or flashing light sources (Categories T and X)
Frequency f (Hz)	max.	4.0
	min.	2.0
"ON" time t_H (s)	max.	0.4/f
"OFF" time t_D (s)	min.	0.1

9.7.2 特殊警示燈(*T* 類)或(*HT* 類)在相關垂直角度內有效發光強度(J_e)應~~之規定~~依~~如下~~表 2 之規定：

The effective luminous intensities (Je) within the relevant vertical angles for a special warning lamp (Category T) or (Category HT) shall be as specified in the table below:

表 2　特殊警示燈(*T* 類)或(*HT* 類)相關垂直角度內有效發光強度(J_e)規定

T 類及 *HT* 類			
	顏色		
	藍	琥珀(橙)~~琥珀~~	紅

沿參考軸於在規定之垂直角及一環繞參考軸水平角360°度的水平角範圍內之最小有效發光強度 J_e (燭光) (a)如係 *T* 類，為沿環繞參考軸水平角度為360°度之水平角 (b)如係 *HT* 類，為相對於其水平參考軸之水平角度最小為±+/−135°度	0°度	日	120	230	120
		夜	50	100	50
	±+/−4°度	日	60	-	60
		夜	25	-	25
	±+/−8°度	日	-	170	-
		夜	-	70	-
最大有效發光強度 J_e (燭光)	於±+/−2°度內	日	1,700		
		夜	700		
	於±+/−8°度內	日	1,500		
		夜	600		
	上述角度區域外	日	1,000		
		夜	300		

Category T or Category HT					
			Colour		
			blue	amber	red
Minimum value of the effective luminous intensity J_e, within the specified vertical angles and a horizontal angle of 360 deg. around the reference axis (a) In the case of Category T, a horizontal angle of 360 deg. around the reference axis (b) In the case of Category HT a horizontal angle of minimum +/-135 deg. relative to its horizontal reference axis	0 deg.	by day	120	230	120
		by night	50	100	50
	+/-4 deg.	by day	60	-	60
		by night	25	-	25
	+/-8 deg.	by day	-	170	-
		by night	-	70	-
Maximum value of the effective luminous intensity J_e	Inside +/-2 deg.	by day	1700		
		by night	700		
	Inside +/-8 deg.	by day	1500		
		by night	600		
	Outside the above areas	by day	1000		
		by night	300		

9.7.2.1 如係大於一個之個別單元組成之特殊警示燈裝置情況下，若每個單一個別單元之部分光分布在水平 360°範圍內，且在幾何位置相對類別中所規定之垂直角度範圍內與相鄰部分光分布重疊，其對應從車輛距離之 20 m 處，使之垂直車輛縱軸之垂直平面上，並位於車輛側面各燈單元間之中點，則所裝設之幾何布置視為可接受。如係由超過一個以上之單獨單元組成之特殊警示燈裝置，若在裝設於車輛後每個單獨之單元部分光分布佈在水平 360 度角度範圍內並與相鄰部分光分佈布重疊，且在幾何位置處符合相對應類別中所指定之垂直角度範圍內，符合相應類別中所指定，該幾何位置在距離車輛 20 m 處幾

~~何位置，該位置位於車輛側面上，於一與與車輛縱軸垂直之垂直平面上，並位於車輛側面各燈具單元之間中點。則在這種情況下，所安裝之幾何布置視為符合。~~

In the case of a special warning lamp device which is comprised of more than one separate unit, the geometrical arrangement(s) as installed at the vehicle seems to be acceptable, if the partial light distribution of each single separate unit is overlapping with each adjacent partial light distribution inside a horizontal angular range of 360 degrees and in a vertical angular range as specified for the relevant category in a geometrical position corresponding to a distance of 20 m, from the vehicle on a vertical plane that is perpendicular to the longitudinal axis of the vehicle and located midway between the lamp units on a side of the vehicle.

9.7.3 定向閃爍燈(*X* 類)於參考軸上之有效發光強度之規定如下表：

The effective luminous intensities in the reference axis for a directional flashing lamp (Category X) shall be as specified in the table below:

表 3　定向閃爍燈(*X* 類)參考軸上之有效發光強度

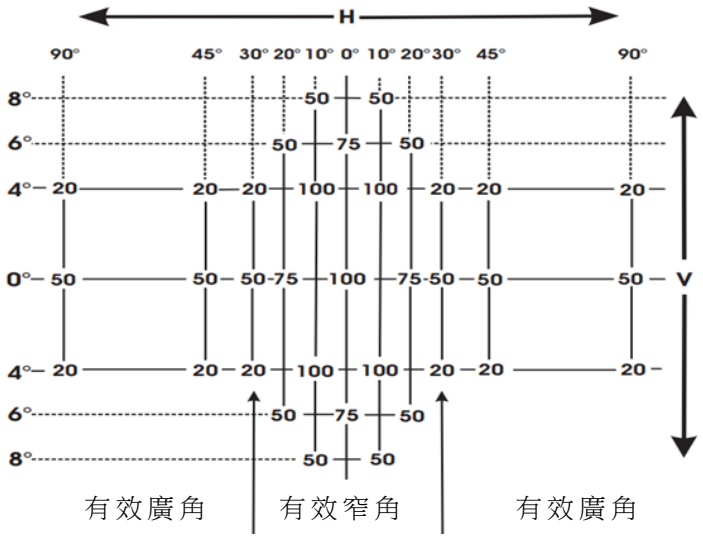
X 類					
			顏色		
			藍	琥珀	紅
參考軸上之最小有效光度(cd ~~燭光~~)	水平=0°~~度~~ 垂直=0°~~度~~	日	200	400	200
		夜	100	200	100
最大有效光度(cd ~~燭光~~)	於下述角度內 水平=±~~+/−~~10°~~度~~ 垂直=±~~+/−~~4°~~度~~	日	3000	3000	3000
		夜	1500	1500	1500
	於下述角度內 水平=±~~+/−~~20°~~度~~ 垂直=±~~+/−~~8°~~度~~	日	1500	1500	1500
		夜	600	600	600
	上述角度區域外	日	1000	1000	1000
		夜	300	300	300

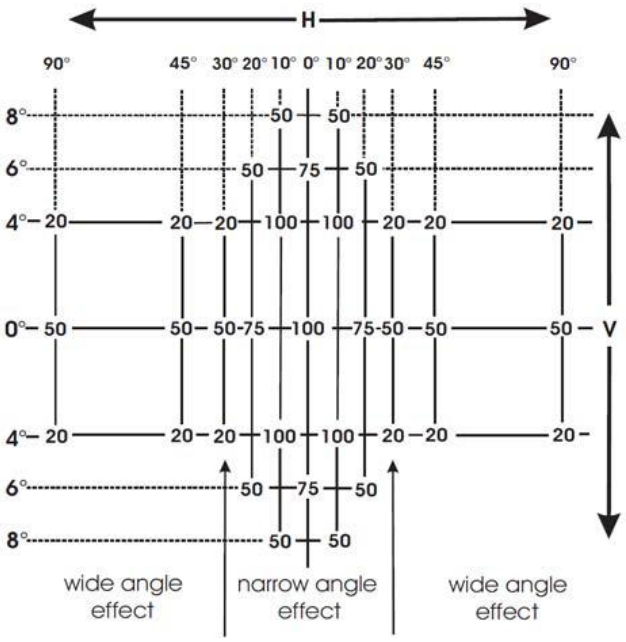
Category X					
			Colour		
			blue	amber	red
Minimum value of the effective luminous intensity J_e on the reference axis	H = 0 deg. V = 0 deg.	by day	200	400	200
		by night	100	200	100

Category X					
			Colour		
			blue	amber	red
Maximum value of the effective luminous intensity I_e	inside H = +/-10 deg. V = +/-4 deg.	by day	3,000	3,000	3,000
		by night	1,500	1,500	1,500
	inside H = +/-20 deg. V = +/-8 deg.	by day	1,500	1,500	1,500
		by night	600	600	600
	outside the above areas	by day	1,000	1,000	1,000
		by night	300	300	300

9.7.3.1 特殊警示燈(*X* 類)標準光度分布~~佈~~規定

Table of standard light distribution for special warning flash lamp (Category X)





備考：〝窄角效果〞類別最小水平角度範圍為左 30°~~度~~至右 30°~~度~~，〝廣角效果〞類別最小水平角度範圍為車輛向外 90°~~度~~及向內 30°~~度~~。

Minimum horizontal angular range of category "narrow angle effect" is 30 degrees left to 30 degrees right and for category "wide angle effect" 90 degrees directed outwards the vehicle and 30 degrees to the inside.

9.7.3.1.1 H=0 度與 V=0 度與~~應~~對準參考軸一致 (在車輛上其為水平、平行於車輛縱向中間~~心~~面且朝向所需之目視方向)，~~且~~其通過參考中心。各個值列於表中係為~~所列為~~由各個方向量測燈~~具~~時，各對應點應達到之最小百分比(相對於 H=0 度與 V=0 度之最小值)。

The direction H = 0 degrees and V = 0 degrees corresponds to the reference axis. (On the vehicle it is horizontal, parallel to the median longitudinal plane of the vehicle and oriented in the required direction of visibility). It passes through the centre of reference.The values shown in the table give, for the various directions of measurements, the minimum intensities as a percentage of the minimum required in the axis for each lamp (in the direction H = 0 degrees and V = 0 degrees).

9.7.3.1.2 規定 9.7.3.1 之光線分布~~佈~~區以格線示意，且光型應均勻以使在各對應點之光度符合最小之百分比。

Within the field of light distribution of paragraph 7.3.1. schematically shown as a grid,the light pattern should be substantially uniform, i.e. the light intensity in each direction of lowest minimum value being shown on the grid lines surrounding the questioned direction as a percentage.

9.7.3.2 由一個以上單獨單元組成之 *X* 類特殊警示燈，當每個獨立單元部分光度分~~佈~~布在水平及垂直角度範圍內，與相鄰部分光分布~~佈~~重疊時，其在車輛上之幾何布置是可以接受。

In the case of a special warning lamp device of Category X which comprises of more than one separate unit, the geometrical arrangement(s) as installed on the vehicle, is (are) acceptable when the partial light distribution of each single separate unit is overlapping with each adjacent partial light distribution inside the horizontal and vertical angular range specified for the Category X.

9.8 如兩個或多個光學系統整合在一個特殊警示燈中，則該裝置必須符合以下要求：

If two or more optical systems are integrated in one special warning lamp, this unit has to comply with the following requirements:

9.8.1 每一光學系統未受另一光學系統覆蓋之水平角範圍應符合規定 9 之要求，另於每個要求之方向，至少應有一個光學系統能有效符合規定 9 之要求。

Each optical system shall be in accordance with the requirements of this Annex within the horizontal angle which is not covered by one of the other optical systems.Furthermore, in each required direction at least one optical system shall be effective corresponding to the requirements of this Annex.

9.8.2 如特殊警示燈包含兩個或更多光學系統，在每半個完整燈條內，所有光學系統都應同步運作，該完整〝燈條〞設計為擴展到車輛寬度。在這種情況下，為~~測量~~量測有效發光強度，只有一半之完整燈條會通電，以便未~~測量~~量測側之發光不

會加入至~~測量~~量測側。操作半個完整燈條之~~測量~~量測時間，應依照規定 9.6。

If a special warning lamp contains two or more optical systems, all the optical systems shall work in phase within each half of a complete "bar" which is designed to extend on the width of the vehicle. In such a case, for the purpose of measurement of effective intensity, only one half of the "bar" shall be energized so that the light emission from the side not being measured is not added into the side being measured. The timing measurements as described in paragraph 6.1. of this annex*/ apply to the operating half of the "bar".

9.8.3 為確保特殊警示燈於車輛周遭之效率，車輛上應有特殊警示燈系統部分零件失效之偵測功能，若其由特殊警示燈~~製造廠~~製造商設計，應於認證程序中確認此偵測功能。

As long as the efficiency of the special warning lamp is to be secured all around the car a detection of the failure of a part of a special warning system shall exist on the car. If it is designed by the special warning lamp manufacturer this detection shall be checked during the approval procedure.

10. 氙氣燈相對光譜分布~~佈~~

Annex 6

Xenon relative spectral distribution

表 4　氙氣燈相對光譜分布~~佈~~

lambda	$S_e$lambda rel.	lambda	S_e lambda rel.	lambda	S_e lambda rel.	lambda	S_e lambda rel.
380	74.5	480	94.6	580	77.7	680	73.1
385	73.8	485	87.7	585	77.3	685	80.4
390	79.5	490	86.9	590	76.2	690	77.7
395	96.1	495	83.8	595	75.4	695	70.0
400	84.2	500	77.3	600	73.1	700	67.3
405	83.1	505	76.2	605	72.3	705	68.8
410	83.8	510	76.2	610	72.7	710	76.9
415	82.7	515	76.5	615	75.4	715	74.2
420	87.3	520	76.9	620	76.2	720	67.7
425	81.5	525	77.3	625	73.5	725	70.8
430	80.0	530	77.3	630	73.5	730	78.5
435	81.9	535	77.3	635	71.2	735	77.3
440	83.8	540	76.9	640	69.2	740	76.2

表 4　氙氣燈相對光譜分布佈(續)

lambda	$S_e$lambda rel.	lambda	S_e lambda rel.	lambda	S_e lambda rel.	lambda	S_e lambda rel.
445	80.8	545	76.9	645	71.2	745	72.3
450	98.5	550	76.5	650	71.2	750	72.3
455	80.0	555	76.5	655	68.8	755	79.2
460	91.5	560	76.2	660	68.8	760	90.1
465	97.7	565	76.5	665	70.4	765	-
470	100.0	570	76.9	670	70.4	770	-
474	97.7	575	77.3	675	71.2	775	-

lambda	S_e lambda rel.	lambda	S_e lambda rel.	lambda	S_e lambda rel.	lambda	S_e lambda rel
380	74.5	480	94.6	580	77.7	680	73.1
385	73.8	485	87.7	585	77.3	685	80.4
390	79.5	490	86.9	590	76.2	690	77.7
395	96.1	495	83.8	595	75.4	695	70.0
400	84.2	500	77.3	600	73.1	700	67.3
405	83.1	505	76.2	605	72.3	705	68.8
410	83.8	510	76.2	610	72.7	710	76.9
415	82.7	515	76.5	615	75.4	715	74.2
420	87.3	520	76.9	620	76.2	720	67.7
425	81.5	525	77.3	625	73.5	725	70.8
430	80.0	530	77.3	630	73.5	730	78.5
435	81.9	535	77.3	635	71.2	735	77.3
440	83.8	540	76.9	640	69.2	740	76.2
445	80.8	545	76.9	645	71.2	745	72.3
450	98.5	550	76.5	650	71.2	750	72.3
455	80.0	555	76.5	655	68.8	755	79.2
460	91.5	560	76.2	660	68.8	760	90.1
465	97.7	565	76.5	665	70.4	765	-
470	100.0	570	76.9	670	70.4	770	-
474	97.7	575	77.3	675	71.2	775	-

參考資料

[1] UN/ECE R37 Revision 7:3 July 2012, Amendment 1:15 August 2012, Amendment 2:6 December 2012, Amendment 3:6 August 2013, Amendment 4：27 November 2013, Amendment 5:23 June 2014, Amendment 6：22 June 2015, Amendment 7：9 November 2015,Amendment 8:24 July 2017,Amendment 9:2 November 2018, Uniform provisions concerning the approval of filament lamps for use in approved lamp units of power-driven vehicles and of their trailers

[2] UN/ECE R65 Revision 2:7 December 2011, Corrigendum 1:3 March 2012, Corrigendum 2:17 January 2023, Amendment 1:6 December 2012, Amendment 2:17 October 2014, Amendment 3:6 December 2017, Amendment 4:3 December 2021, Amendment 5:22 November 2023,Uniform provisions concerning the approval of special warning lamps for power − driven vehicles and their trailers